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29-53 Victoria Road, Bellevue Hill
Scots College Stevenson Library (SSD 8922)
Preparation of Waste & Recycling Management Plan

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Table of Contents

1	INTRODUCTION	5
1.1	Site Identification	5
1.2	Objectives	6
2	BETTER PRACTICE FOR WASTE MANAGEMENT AND RECYCLING	7
2.1	Waste Management Hierarchy	7
2.2	Benefits of Adopting Better Practice	7
2.3	Waste Avoidance, Re-use and Recycling	8
2.3.1	Waste Avoidance	8
2.3.2	Re-use	8
2.3.3	Recycling	8
3	WASTE LEGISLATION AND GUIDANCE	9
4	PROJECT DESCRIPTION	11
5	DEMOLITION AND CONSTRUCTION WASTE AND RECYCLING MANAGEMENT	12
5.1	Targets for Recycling	12
5.2	Key Activities	12
5.3	Waste Streams and Classifications	12
5.4	Site Preparation Waste Types and Quantities	14
5.5	Demolition Waste Types and Quantities	15
5.6	Construction Waste Types and Quantities	16
5.7	Waste Avoidance	17
5.8	Re-use, Recycling and Disposal	18
5.9	Waste Segregation, Storage and Servicing	18
5.9.1	Waste Segregation and Storage	18
5.9.2	Waste Storage Areas	19
5.9.3	Waste Servicing and Transport Off-site	19
5.10	Contaminated / Hazardous Waste	20
5.11	Liquid Waste Management	20
5.12	Spills Management	21
5.13	Construction Environmental Management Plan	21
5.14	Signage	21
5.15	Site Inductions	22
5.16	Monitoring and Reporting	22
5.17	Roles and Responsibilities	22
6	OPERATIONAL WASTE AND RECYCLING MANAGEMENT	24
6.1	Targets for Resource Recovery	24

Table of Contents

6.2	Waste Streams and Classifications	24
6.3	Waste Management Overview	25
6.4	Estimated Quantities of Operational Waste	26
6.5	Waste Storage Areas	27
	6.5.1 Waste Storage Area Size	27
6.5.1.1	Ground Floor	28
6.5.1.2	First to Fifth Floors	28
6.5.1.3	Ginahgulla Carpark MGB Storage Area	29
	6.5.2 Waste Storage Location	29
	6.5.3 Waste Storage Design Considerations	30
6.6	Signage	30
6.7	Communication Strategies	31
6.8	Monitoring and Reporting	32
6.9	Roles and Responsibilities	32

TABLES

Table 1	Waste legislation and guidance	9
Table 2	Potential waste types, classifications and management methods	13
Table 3	Estimated quantities of site preparation waste	15
Table 4	Anticipated types and estimated quantities of demolition waste	16
Table 5	Anticipated types and estimated quantities of construction waste	17
Table 6	Suggested roles and responsibilities for site preparation and construction waste management	23
Table 7	Potential waste types, classifications and management methods – operational waste	24
Table 8	Estimated quantity of daily and weekly operational waste and recycling	27
Table 9	Dimensions and GFA of a 55 L, 240 L, 1,100 L and 4,500 L MGBs	27
Table 10	Minimum number 240 L MGBs required for the <u>Ground Floor</u> daily operational waste and recycling storage and associated GFA for MGBs	28
Table 11	Minimum number MGBs required for the weekly operational waste and recycling storage for the refurbished SLB and associated GFA	29
Table 12	Suggested roles and responsibilities	33
Table 13	SSD 8922 SEARs key issues (18) pertaining to waste	34

FIGURES

Figure 1	Location of Stevenson Library Building within the College	5
Figure 2	Waste management hierarchy	7
Figure 3	Proposed access for waste collection vehicle (green hatched area)	20
Figure 4	Examples of NSW EPA labels for waste skips / bins	21
Figure 5	Location of 4,500 L MGBs in the Ginahgulla Carpark	26
Figure 6	Example of labels for MGBs for operational waste	31

APPENDICES

Appendix A	SSD 8922 SEARs key issues (waste)
Appendix B	Architectural Drawings

1 INTRODUCTION

SLR Consulting Australia Pty Ltd (SLR) was engaged by Impact Group (Client) on behalf of the Presbyterian Church (New South Wales) Property Trust, to prepare a Site Waste and Recycling Minimisation and Management Plan (SWMMP) in support of a State Significant Development application (SSD 8922) to the NSW Department of Planning. The SSD 8922 pertains to building alteration and addition works on the “Stevenson Library Building” of The Scots College, 29-53 Victoria Road, Bellevue Hill NSW 2023.

Redevelopment of the Stevenson Library Building (the Project) is understood to comprise partial demolition of the five existing library levels, then alteration and addition works to construct a total of six floors within the building. Further details of the Project are provided in **Section 4**.

This SWMMP applies to waste anticipated to be generated from demolition and construction works on the existing building and from operation of the redeveloped Stevenson Library Building.

This SWMMP has been prepared using architectural drawings provided by the Client. A demolition quantity survey has not been provided for preparation of this SWMMP. SLR has therefore made a number of assumptions regarding the quantities and waste types provided herein associated with demolition works.

Waste management for the demolition and construction stages is described in **Section 5**. Waste management for the operational stage is described in **Section 6**.

1.1 Site Identification

The Stevenson Library Building (SLB) is located within Victoria Road East Precinct of The Scots College (the College) (**Figure 1**). The College is within the local government area of Woollahra Municipal Council (Council).



Aerial image and property boundaries as per Appendix 6 Preliminary P-1 *Proposed Renovation of the Stevenson Library* (JCA Architects, Nov 2017)

Figure 1 Location of Stevenson Library Building within the College

1.2 Objectives

The Client requires a SWMMP for the Project that satisfies the SEARs and is suitable for inclusion into the Environmental Impact Statement (EIS). As such, the objectives of this SWMMP are:

- To address the SEARs Key Issues pertaining to waste for the Project (refer to **Appendix A**), which are to:
 - *Identify, quantify and classify the likely waste streams to be generated during construction and operation and describe the measures to be implemented to manage, reuse, recycle and safely dispose of this waste; and*
 - *Identify appropriate servicing arrangements (including but not limited to, waste management, loading zones, mechanical plant) for the Project.*
- To provide advice on how classified wastes should be handled, processed and disposed of (or re-used / recycled) in accordance with the above SEARs, Council requirements and better practice waste minimisation principles;
- To assist the site manager (during demolition and construction works) and the facility manager (during operation of the redeveloped Stevenson Library) in achieving Federal and State Government waste minimisation targets; and
- To facilitate safe and practical waste servicing options for Council waste collection staff and / or private contractors.

2 BETTER PRACTICE FOR WASTE MANAGEMENT AND RECYCLING

The Better Practice principles and recommendations presented in this section apply to all stages of the proposed redevelopment of the SLB. Designers, site managers and facility managers are therefore encouraged to communicate these Better Practice principles to staff and to prioritise the implementation of Better Practice approaches in designing waste management provisions for the SLB and in managing waste from demolition, construction and operational works.

2.1 Waste Management Hierarchy

This SWMMP has been prepared in line with the waste management hierarchy (**Figure 2**), which summarises the objectives of the *Waste Avoidance and Resource Recovery Act 2001*.

The waste management hierarchy comprises the following principles, from most to least preferable (with respect to waste minimisation):

1. Waste **avoidance**, through prevention or reduction of waste generation. Waste avoidance is best achieved through better design and purchasing choices;
2. Waste **reuse**, without substantially changing the form of the waste;
3. Waste **recycling**, through treatment of waste to produce new products;
4. Energy **recovery**, through processing of residual waste materials;
5. Waste **treatment**; and
6. Waste **disposal**, in a manner that causes the least harm to the natural environment.

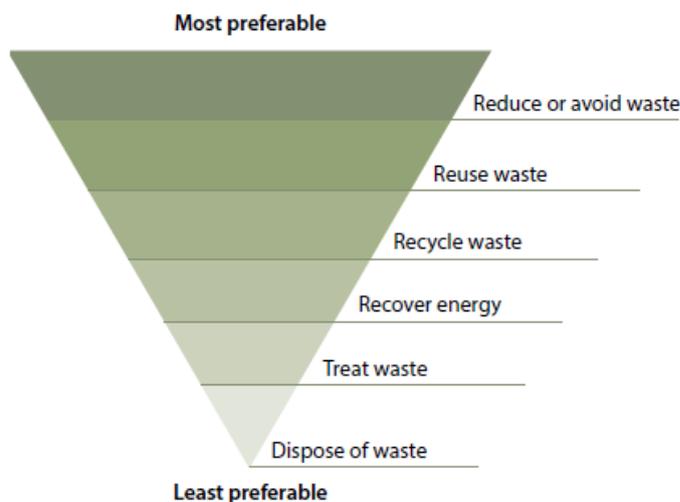


Image from NSW EPA (2014) *NSW Waste Avoidance and Resource Recovery Strategy 2014-21*.

Figure 2 Waste management hierarchy

2.2 Benefits of Adopting Better Practice

Adopting better practice principles in waste minimisation offers significant benefits for organisations, stakeholders and the wider community. Benefits from better practice waste minimisation include:

- Enhances social and environmental reputation of an organisation;
- Reduces consumption of non-renewable resources;
- Reduces pollution generated from materials manufacturing and waste treatment;
- Reduces financial burden associated with waste disposal; and
- Provides opportunities for additional revenue streams through beneficial reuse.

2.3 Waste Avoidance, Re-use and Recycling

2.3.1 Waste Avoidance

Waste avoidance measures may include:

- Provision of take-back services to clients to reduce waste further along the supply chain;
- Re-work / re-packaging of products prior to local distribution to reduce waste arising;
- Review of packaging design to reduce waste but maintain 'fit for purpose';
- Providing ceramic cups, mugs, crockery and cutlery rather than disposable items;
- Presenting all waste reduction initiatives to staff as part of their induction program; and
- Investigating leased office equipment and machinery rather than purchase and disposal.

2.3.2 Re-use

Establish systems with in-house and supply chain stakeholders to transport products in re-useable packaging where possible.

2.3.3 Recycling

Recycling opportunities include:

- Plastic film (usually in the form of shrink pallet wrap) is light weight and compactable. If kept clean and separated from other plastics it is potentially recyclable and can be used to make items such as outdoor furniture;
- Flatten or bale cardboard to minimise storage space requirements;
- Paper recycling trays provided in office areas for scrap paper collection and recycling;
- Printer toners / ink cartridges are collected in allocated bins for appropriate contractor disposal;
- Development of 'buy recycled' high quality purchasing policy; and
- Providing recycling collections within each of the offices (e.g plastics, cans and glass).

3 WASTE LEGISLATION AND GUIDANCE

Legislation and guidance documents outlined in **Table 1** should be referred to during all stages of the Project.

Table 1 Waste legislation and guidance

Legislation / Guidance	Objectives
SSD 8922, Secretary's Environmental Assessment Requirements	Section 78A(8) of the Environmental Planning and Assessment Act, Schedule 2 of the Environmental Planning and Assessment Regulation 2000, SEARs pertaining to the Proposed Major alterations and additions to the Stevenson Library Building at The Scots College, SSD 8922 (issued 12 December 2017). This SWMMP specifically addresses the Key Issues pertaining to Waste.
Woollahra Municipal Council's Development Control Plan 2015	<p>The Woollahra Municipal Council's Development Control Plan (WDCP) 2015 commenced on 23 May 2015 and supports the provisions of the WLEP planning controls by providing detailed planning and design guidelines.</p> <p>Council's WDCP has been prepared in accordance with Part 3, Division 6 of the <i>Environmental Planning and Assessment Act 1979</i> (EP&A Act) and the <i>Environmental Planning and Assessment Regulation 2000</i> (Regulation).</p> <p>This SWMMP specifically addresses the General Introduction and Part E5 of the DCP and sets out the waste management for the Scots College Stevenson Library Building proposed to be developed within Council's Local Government Area.</p> <p>The waste management requirements focus on six key objectives are to:</p> <ul style="list-style-type: none"> • Give effect to the aims of Woollahra LEP 2014; • Facilitate development that is permissible under Woollahra LEP 2014 with reference to the unique characteristics of the area where the Project is proposed; • Achieve the objectives contained in Woollahra LEP 2014; • Establish controls that provide a balance between flexibility and certainty in the Project assessment process; • Establish the advertising / notification requirements for development requiring consent; and • Establish a consistent set of definitions for terms used in the DCP.
Woollahra Local Environmental Plan 2014	The Woollahra Local Environmental Plan (WLEP) 2014 commenced on 23 May 2015, detailing Council's core legal document for development control and planning. The WLEP ensures growth and development are planned and coordinated in consistency with Council and community expectations and requirements.
Woollahra DA Guide – Attachment 1 Site Waste Minimisation and Management	The Woollahra DA Guide – Attachment 1 Site Waste Minimisation and Management further establishes the guidelines for the preparation of site waste minimization and management and should be considered in the preparation of a SWMMP.
National Waste Policy: Less Waste, More Resources 2009	<p>The National Waste Policy is the current document that provides a guidance framework to all jurisdictions for managing waste through to 2020 and has the following aims;</p> <ul style="list-style-type: none"> • Avoid waste generation, reduce wastes for disposal (including hazardous waste); • Manage waste as a resource; • Ensure that waste treatment, disposal, recovery and re-use is undertaken in a safe, scientific and environmentally sound manner; and • Contribute to the reduction in greenhouse gas emissions, energy conservation and production, water efficiency and the productivity of the land. <p>The National Waste Policy establishes six key areas and identifies 16 strategies across these areas for all government jurisdictions to work towards waste minimisation and resource recovery.</p>
Waste Avoidance and Resource Recovery Act 2001	<p>To promote extended producer responsibility in place of industry waste reduction plans. Specific objectives include:</p> <ul style="list-style-type: none"> • To encourage efficient use of resources; • To minimise the consumption of natural resources and the final disposal of waste by encouraging the avoidance of waste and the reuse and recycling of waste; • Ensuring industry and the community share responsibility in reducing / dealing with waste; and • Efficient funding of waste / resource management planning, programs and service delivery. <p>As of 2016, the addition of Part 5 defines the legislative framework for the Return and Earn "Container Deposit Scheme" where by select containers can now be returned in NSW for a 10¢ refund. This scheme can be used as a fundraising tool within schools and organisations alike.</p>

Legislation / Guidance	Objectives
Protection of the Environment Operations Act (POEO) 1997 & Amendment Act 2011	Administered by the Environmental Protection Authority (EPA) to enable the Government to establish instruments for setting environmental standards, goals, protocols and guidelines. The owner of a premise, the employer or any person carrying on the activity which causes a pollution incident is to <i>immediately</i> notify the relevant authorities when material harm to the environment is caused or threatened. A list of each relevant authority is provided in the POEO Amendment Act and will be noted in the Site's incident register.
POEO (Waste) Regulation 2014 (previously POEO (Waste) Regulation 2005)	Contains provisions relating to the waste levy, waste tracking and management requirements for certain waste types, payment schemes for local councils, consumer packaging recycling and other miscellaneous provisions.
NSWEPA's Waste Classification Guidelines (Part 1) 2014	To assist waste generators to effectively manage, treat and dispose of waste to ensure the environmental and human health risks associated with waste are managed appropriately and in accordance with the POEO Act and its associated regulations.
Council of Australian Governments National Construction Code 2016	The National Construction Code 2016 sets the minimum requirements for the design, construction and performance of buildings throughout Australia.
EPA's Better Practice Guidelines for Waste Management and Recycling in Commercial and Industrial Facilities 2012	The EPA's Better Practice Guidelines (2012) encourage efficient waste minimisation and resource recovery for commercial and industrial facilities and is used as a benchmark document when assessing waste production rates within Australia and details a range of waste management provisions.
NSWEPA (2014) NSW Waste Avoidance and Resource Recovery Strategy 2014-21	A key component of the State Government's vision for the environmental and economic future of the state that will be supported financially by the <i>Waste Less, Recycle More</i> funding initiative providing long-term targets for six key result areas including reduced illegal dumping.
NSWEPA Resource Recovery Orders and Resource Recovery Exemptions	The NSW EPA has issued a number of resource recovery orders and resource recovery exemptions which are currently in force in NSW for commonly recovered and reused wastes. <ul style="list-style-type: none"> • Resource recovery orders present conditions which generators and processors of waste must meet to supply the waste material for beneficial re-use; and • Resource recovery exemptions contain the conditions which consumers must meet to use waste for beneficial re-use.
Australian Packaging Covenant 2017	The Australian Packaging Covenant highlights two goals in an effort to support a reduction in the environmental impacts associated with Consumer Packaging: <ul style="list-style-type: none"> • Design: Optimise packaging using less resources and enabling efficient end-of-use recycling. • Recycling / reuse: Supporting innovative packaging collection before it enters the environment. Product Stewardship: Demonstrate commitment of all signatories.
Product Stewardship Act 2011	The Product Stewardship Act aims to reduce waste and prevent the landfilling of harmful materials by increasing recycling and the recovery of valuable materials from products. The Act highlights that government, industry and the community alike all hold a shared responsibility to the impact of manufactured, consumed and disposed products.

4 PROJECT DESCRIPTION

The existing SLB is predominantly of brick and concrete construct, comprising five levels and a metal deck roof. The proposed remodelling of the SLB will involve:

- Partial demolition of the ground, first, second, third, fourth and roof levels;
- Extensions to existing floor slabs;
- Construction of a sixth level and new roof;
- Complete interior refitting;
- Complete recladding of the exterior in a Scottish Baronial architectural style;
- Construction of a new main entrance from the College Quadrangle; and
- Construction of new, secondary entrances from the College oval.

The refurbished SLB will provide:

- Ground Floor: Canteen / Café;
- First Floor: Reception desk, student meeting area, student services and teaching / learning areas;
- Second Floor: Student counselling, teaching and learning areas;
- Third Floor: Seminar rooms and learning spaces;
- Fourth Floor: Library, teaching / learning areas, student services and counselling staff;
- Fifth Floor: Teaching / learning areas, multi-use space and outdoor terrace.

A copy of the architectural drawings for the Project is provided in **Appendix B**.

5 DEMOLITION AND CONSTRUCTION WASTE AND RECYCLING MANAGEMENT

5.1 Targets for Recycling

The performance of each development in NSW should contribute to the 80% construction and demolition waste diversion target in accordance with Council's DCP and the NSW EPA (2014) *NSW Waste Avoidance and Resource Recovery Strategy 2014-21*. SLR understands, however, that the Project is being aimed at achieving a Green Building Council of Australia 'Green Star' with respect to demolition and construction waste and the following target has been established for the Project:

- 90% of total construction and demolition waste diverted for reuse and recycled (with receipts sufficient in demonstrating the achieved target).

It is anticipated that the waste minimisation measures in the following sections will assist the Project to meet this target. Waste reporting and audits are required to determine the actual percentage of wastes that are being / have been recycled during the demolition and construction stages of the Project.

5.2 Key Activities

Key demolition and construction activities are understood to comprise:

- Partial demolition of the ground, first, second, third, fourth and roof levels;
- Extensions to existing floor slabs;
- Construction of a sixth level and new roof;
- Construction of a new main entrance from the College Quadrangle; and
- Construction of new entrance ways directly off the College oval.

5.3 Waste Streams and Classifications

The demolition and construction activities are anticipated to generate the following broad waste streams:

- Demolition wastes, including hazardous waste (presented in more detail in **Section 5.5**);
- Construction waste (presented in more detail in **Section 5.6**);
- Plant maintenance waste;
- Packaging waste;
- Work compound (on-site employees) waste; and
- Wastewater (from dewatering of excavations, plant maintenance and construction activities).

A summary of likely waste types arising from demolition and construction activities, along with their waste classifications and proposed management methods, is provided in **Table 2**.

For further information on how to determine a waste's classification refer to the NSW EPA (2014) *Waste Classification Guidelines*¹. Further information on managing demolition and construction wastes is also available from the NSW EPA website².

¹ Available online from <http://www.epa.nsw.gov.au/wasteregulation/classify-guidelines.htm>

² <http://www.epa.nsw.gov.au/your-environment/waste/industrial-waste/construction-demolition>

Table 2 Potential waste types, classifications and management methods

Waste Types	NSW EPA Waste Classification	Proposed Reuse / Recycling / Disposal Method
Demolition and Construction		
Green waste	General solid waste (non-putrescible) (garden waste)	Off-site recycling
Clean fill/soil	General solid waste (non-putrescible)	On-site re-use
Contaminated fill	To be classified	Off-site treatment or disposal to landfill
ENM or VENM	General solid waste (non-putrescible)	On-site re-use or off-site beneficial re-use
Sediment fencing, geotextile materials (if applicable)	General solid waste (non-putrescible)	Reuse at other sites where possible or disposal to landfill
Concrete	General solid waste (non-putrescible)	Off-site recycling (for filling, levelling or road base)
Bricks and pavers	General solid waste (non-putrescible)	Off-site recycling (cleaned for reuse, rendered over or crushed for landscaping / driveway use)
Gyprock / plasterboard	General solid waste (non-putrescible)	Off-site recycling or returned to supplier
Sand / soil	General solid waste (non-putrescible)	Off-site recycling
Metals (fittings, appliances etc) and bulk electrical cabling	General solid waste (non-putrescible)	Off-site recycling
Timber	General solid waste (non-putrescible)	Off-site recycling (<i>Treated</i> : reused for formwork, bridging, blocking, propping or second hand supplier. <i>Untreated</i> : reused for floorboards, fencing, furniture, mulched second hand supplier)
Doors, Windows, Fittings	General solid waste (non-putrescible)	Off-site recycling (second hand supplier)
Insulation material	General solid waste (non-putrescible)	Off-site disposal
Glass	General solid waste (non-putrescible)	Off-site recycling (glazing or aggregate for concrete production)
Asbestos	Hazardous waste	Off-site disposal
Fluorescent light fittings / bulbs	Hazardous waste	Off-site recycling or disposal (contact <i>FluoroCycle</i> for more information ³)
Lead paint	Hazardous waste	Off-site disposal
Synthetic Rubber (carpet underlay)	General solid waste (non-putrescible)	Off-site recycling (reprocessed and used in safety devices and speed humps)
Carpet	General solid waste (non-putrescible)	Off-site recycling or disposal (reused for landscaping or equestrian uses)
Plant Maintenance		
Empty oil and other drums / tins (e.g fuel, chemicals, paints, spill clean ups)	Hazardous waste: Containers were previously used to store Dangerous Goods (Class 1, 3, 4, 5 or 8) and residues have not been removed by washing or vacuuming. General solid waste (non-putrescible): Containers have been cleaned by washing or vacuuming.	Transport to comply with the transport of Dangerous Goods Code applies in preparation for off-site recycling or disposal at licensed facility (Note: Discharge to sewer subject to Trade Waste Agreement with local Council.)
Air filters and rags	General solid waste (non-putrescible)	Disposal at landfill
Oil filters	Hazardous waste	Off-site recycling
Batteries	Hazardous waste	Off-site recycling Contact the <i>Australian Battery Recycling Initiative</i> for more information ⁴
Packaging		

³ <http://www.fluorocycle.org.au/> or <http://www.environment.gov.au/settlements/waste/lamp-mercury.html>

⁴ <http://www.batterycycling.org.au/home>

Waste Types	NSW EPA Waste Classification	Proposed Reuse / Recycling / Disposal Method
Packaging materials, including wood, plastic (including stretch wrap or LLPE), cardboard and metals	General solid waste (non-putrescible)	Off-site recycling
Wooden or plastic crates / pallets	General solid waste (non-putrescible)	Reused for similar projects, returned to suppliers, or off-site recycling. Contact <i>Business Recycling</i> for more information ⁵
Work Compound and Associated Offices		
Food Waste	General solid (putrescible) waste	Donate (if suitable) ⁶ or compost on site. Alternatively dispose to landfill with general garbage
Recyclable beverage containers (glass and plastic bottles, aluminium cans), tin cans	General solid waste (non-putrescible)	Co-mingled recycling at off-site licensed facility or at a local NSW container deposit scheme "Return and Earn" off-site licensed facility ⁷
Clean paper and cardboard	General solid waste (non-putrescible)	Paper and cardboard recycling at off-site licensed facility
General domestic waste generated by workers (soiled paper and cardboard, food stuffs, polystyrene)	General solid waste (non-putrescible) mixed with putrescible waste	Disposal at landfill
Wastewater, pump-out waste and septage (sewage)	Liquid (trade) waste	Off-site disposal at licensed facility or disposal direct to sewer where arranged with Council

5.4 Site Preparation Waste Types and Quantities

Site preparation waste for the "floor plate" area extension would be primarily green waste, excavated fill, soil and / or rock. In the absence of Council published sources, the estimated quantities of site preparation waste (**Table 3**) are based on an average depth of excavation of 500 mm across the extension area of 214 m² and:

- Area estimation obtained from Section 4.3 of the Request for Secretary's Environmental Assessment Requirements (date November 2017);
- An assumed, average depth of topsoil (including grass and roots) of 50 mm across the extension area; and
- Fill material, Excavated Natural Material (ENM) or Virgin Excavated Natural Material (VENM) below the topsoil and comprising the remainder of the excavation spoil.

Care should be taken to minimise site disturbance and limit unnecessary excavation.

⁵ <http://businessrecycling.com.au/search/>

⁶ <http://www.ozharvest.org/>, <https://www.foodbank.org.au/>, <https://www.secondbite.org/> or <https://www.exodusfoundation.org.au/>

⁷ <http://returnandearn.org.au/>

Table 3 Estimated quantities of site preparation waste

Spoil Type	Area (m ²)	Depth (m)	Density (tonnes / m ³)	Quantity (tonnes)
Green Waste	214	0.05	0.23 ^a	5
Fill, ENM or VENM	214	0.45	1.9 ^b	185
Total	214	0.5	n/a	190

Estimated quantities rounded to the nearest 5 tonnes.

Medium density of 0.23 tonnes / m³ for “Vegetation – Garden” (converted from EPA Victoria *Waste Materials – Density Data*: <http://www.epa.vic.gov.au/business-and-industry/low-er-your-impact/~media/Files/bus/EREP/docs/wastematerial-densities-data.pdf>).

Low range bulk density of 1.9 tonnes / m³ for “medium-dense sands and gravels” (Table 6-1-1 from Tomlinson (1986)⁸).

5.5 Demolition Waste Types and Quantities

The absence of detailed floor plans for the existing SLB precludes the provision of information on the types and quantities of demolition waste beyond the general information presented below.

Based on aerial imagery of the existing SLB, preliminary information on elevations⁹ and floor plans¹⁰ and “Office” demolition waste generation rates as per Appendix A of *The Hills Development Control Plan 2012* (Hills DCP), SLR anticipates that demolition works on the SLB will generate the following waste types:

- Brick (generation rate of 1,485 tonnes per 1000 m²);
- Timber / Gyprock (generation rate of 124 tonnes per 1000 m²);
- Steel (generation rate of 29 tonnes per 1000 m²); and
- Other (generation rate of 155 tonnes per 1000 m²).

Although Appendix A of *The Hills Development Control Plan 2012* (Hills DCP) lists the anticipated generation rate of 7,410 tonnes of concrete per 100 m² for the demolition of an office, SLR understands the Project is vested in minimising the deconstruction / demolition of the existing concrete structures and is aiming to achieve a waste concrete generation rate of 741 tonnes per 1000 m².

Based on the types and generation rates above, the anticipated quantities of demolition waste from partial demolition of the existing SLB are shown in **Table 4**. SLR has also adopted a precautionary approach to estimating quantities of demolition waste by basing the quantities in **Table 4** on the demolition areas indicated on each floor’s architectural drawing detailing the demolition plan of the existing SLB.

⁸ Tomlinson M.J. (1986) *Foundation design and construction*. John Wiley & Sons.

⁹ SSD1.02/17-005; SSD1.02/17-006; and SSD1.02/17-007 (All dated November 2017)

¹⁰ SSD1.02_17-150 RevP2 GF + FF; SSD1.02_17-151 RevP1 2F + 3F; and SSD1.02_17-152 RevP1 Fourth Floor + Roof (All dated November 2017)

Table 4 Anticipated types and estimated quantities of demolition waste

Building Level	Floor Area (m ²)	Estimated Waste Material (tonnes)				
		Concrete	Bricks	Timber / Gyprock	Steel	Other
Ground Floor	475	360	710	60	20	80
1st Floor	580	430	870	80	20	90
2nd Floor	430	320	640	60	20	70
3rd Floor	565	420	840	80	20	90
4th Floor	365	280	550	50	20	60
Roof	510	380	760	70	20	80
	Total	2,190	4,370	400	120	470

Waste estimates have been rounded up to the nearest 10 tonnes.

Tonnes per 1,000 m² from Appendix A of the Hills DCP, using the "Office" demolition rates.

Concrete rate adapted from the Hills DCP (refer to prior text for deductive explanation).

Floor areas for demolition were estimated by SLR from architectural drawings SSD1.02/17-150, SSD1.02/17-151 and SSD1.02/17-152 dated November 2017.

Although the existing SLB appears to be of brick, concrete and steel construction, there is a potential for asbestos¹¹ and / or asbestos containing materials to be present among the waste generated from partial demolition of the building. As such, it is recommended that a pre-demolition hazardous materials survey be conducted by a qualified professional on the existing SLB to identify potential hazardous wastes likely to arise from the proposed demolition works.

To provide further information on types and quantities of demolition waste, SLR recommends that a professional demolition quantities survey be conducted on the existing SLB with respect to the proposed demolition works.

5.6 Construction Waste Types and Quantities

In the absence of readily available construction waste generation rates from Council, SLR have adopted the "Office" waste generation rates from Appendix A of The Hills DCP for estimating the type and quantities of waste generated from construction works on the SLB (**Table 5**). SLR has also adopted a conservative approach to estimating quantities of construction waste by basing the quantities in **Table 5** on the full floor areas shown on the architectural drawings for the refurbished SLB.

The "Office" waste generation rates comprise predominantly of:

- Timber (generation rate of 5.1 tonnes per 1000 m²);
- Concrete (generation rate of 18.8 tonnes per 1000 m²);
- Brick (generation rate of 8.5 tonnes per 1000 m²);
- Gyprock (generation rate of 8.6 tonnes per 1000 m²);
- Sand / Soil (generation rate of 8.8 tonnes per 1000 m²);
- Metal (generation rate of 2.75 tonnes per 1000 m²); and
- Other (generation rate of 5 tonnes per 1000 m²).

¹¹ Please also refer to the EPA NSW asbestos information below <http://www.epa.nsw.gov.au/your-environment/household-building-and-renovation/dealing-with-household-asbestos>, <http://www.epa.nsw.gov.au/your-environment/waste/tracking-transporting-hazardous-waste/transporting-asbestos-waste-tyres/tracking-asbestos-waste-locate> and <http://www.epa.nsw.gov.au/your-environment/waste/industrial-waste/asbestos-waste>

Table 5 Anticipated types and estimated quantities of construction waste

Building Level	Floor Area (m ²)	Waste Material (tonnes)						
		Timber	Concrete	Bricks	Gyprock	Sand / Soil	Metal	Other
Ground Floor	990	10	20	10	10	10	5	5
1st Floor	745	5	15	10	10	10	5	5
2nd Floor	745	5	15	10	10	10	5	5
3rd Floor	735	5	15	10	10	10	5	5
4th Floor	670	5	15	10	10	10	5	5
5 th Floor	690	5	15	10	10	10	5	5
Roof	730	5	15	10	10	10	5	5
	Total	40	110	70	70	70	35	35

Floor areas from architectural drawings SSD1.02/17-201, SSD1.02/17-202, SSD1.02/17-203, SSD1.02/17-204, SSD1.02/17-205, SSD1.02/17-206 and SSD1.02/17-207 dated November 2017.

Waste estimates have been rounded up to the nearest 5 tonnes

5.7 Waste Avoidance

The Building Designer should:

- Use prefabricated components and recycled materials (e.g recycled steel);
- Reduce the use of PVC;
- Preferentially use paints, floor coverings and adhesives with low VOC (volatile organic compound) content;
- Exercise a preference for long lifespan and / or high potential for re-use in selecting construction materials;
- Use low formaldehyde wood products, post-consumer reused timber, Forest Stewardship Council (FSC) certified timber, wood plastic composite or recycled plastic timber substitute;
- Use fittings and furnishings that have been recycled, are made from or incorporate recycled materials and have been certified as sustainable or environmentally friendly by a recognised third party certification scheme; and
- Preferentially use building materials, fittings and furnishings (including structural framing, roofing and façade cladding) that have longer life and better re-use and / or recycling potential.

The Building Contractor should:

- Estimate required volumes of materials to reduce over-purchasing (and excess materials);
- Arrange delivery of materials on an “as needed” basis to mitigate material degradation by weathering or moisture damage;
- Reduce packaging waste by:
 - Returning packaging to suppliers where possible and practicable;
 - Purchasing in bulk;
 - Requesting cardboard or metal drums rather than plastics;
 - Requesting metal straps rather than shrink wrap;
 - Using returnable packaging such as pallets and reels; and
- Ensure subcontractors are informed of and implement site waste management procedures.

5.8 Re-use, Recycling and Disposal

The Building Contractor should:

- Sort and segregate demolition and construction wastes to ensure efficient recycling of wastes (see also **Section 5.9.1**);
- Temporarily store wastes on site (to be removed daily) appropriately to prevent cross-contamination and / or mixing of different waste types (see also **Sections 5.9.1** and **5.9.2**);
- Recycle / dispose of waste oil in an appropriate manner;
- Retain roofing material cut-offs for re-use;
- Retain used crates for storage purposes unless damaged;
- Recycle cardboard, glass and metal wastes;
- Return packaging to suppliers where possible / practicable;
- Recycle / dispose of solid waste timber, brick, concrete, tiles, asphalt and rock (where such waste cannot be re-used on site) to an appropriately licenced construction and demolition (C&D) waste recycling facility or an appropriately licenced landfill;
- Dispose of all asbestos, hazardous and / or intractable wastes in accordance with WorkCover NSW and NSW EPA requirements; and
- Deliver batteries to drop off-site recycling facility / centre.

5.9 Waste Segregation, Storage and Servicing

5.9.1 Waste Segregation and Storage

Waste materials produced from demolition and construction activities are to be segregated and temporarily stored separately on site. Due to the confined availability of storage areas and as a safety precaution, demolition and construction waste will be removed from the site daily and not stored overnight. It is anticipated that the site will provide allowances for separate storage (e.g separate skip bins and / or appropriately managed stockpiles) of the following waste types:

- Bricks, roof tiles, concrete and scrap metal;
- Metal / steel (if any, in a condition suitable for recycling at metal recycling facilities);
- Timber;
- Glass;
- Hardstand rubble;
- Excavation spoil (uncontaminated, if present);
- Contaminated excavation spoil (if present);
- Hazardous waste (if present);
- Paper / cardboard;
- Recyclable general waste; and
- Non-recyclable general waste.

If there is insufficient space onsite for full segregation of waste types, the Building Contractor should consult with waste / recycling collection facilities to confirm which waste types may be co-mingled prior to removal from the site.

5.9.2 Waste Storage Areas

Areas designated for waste storage should:

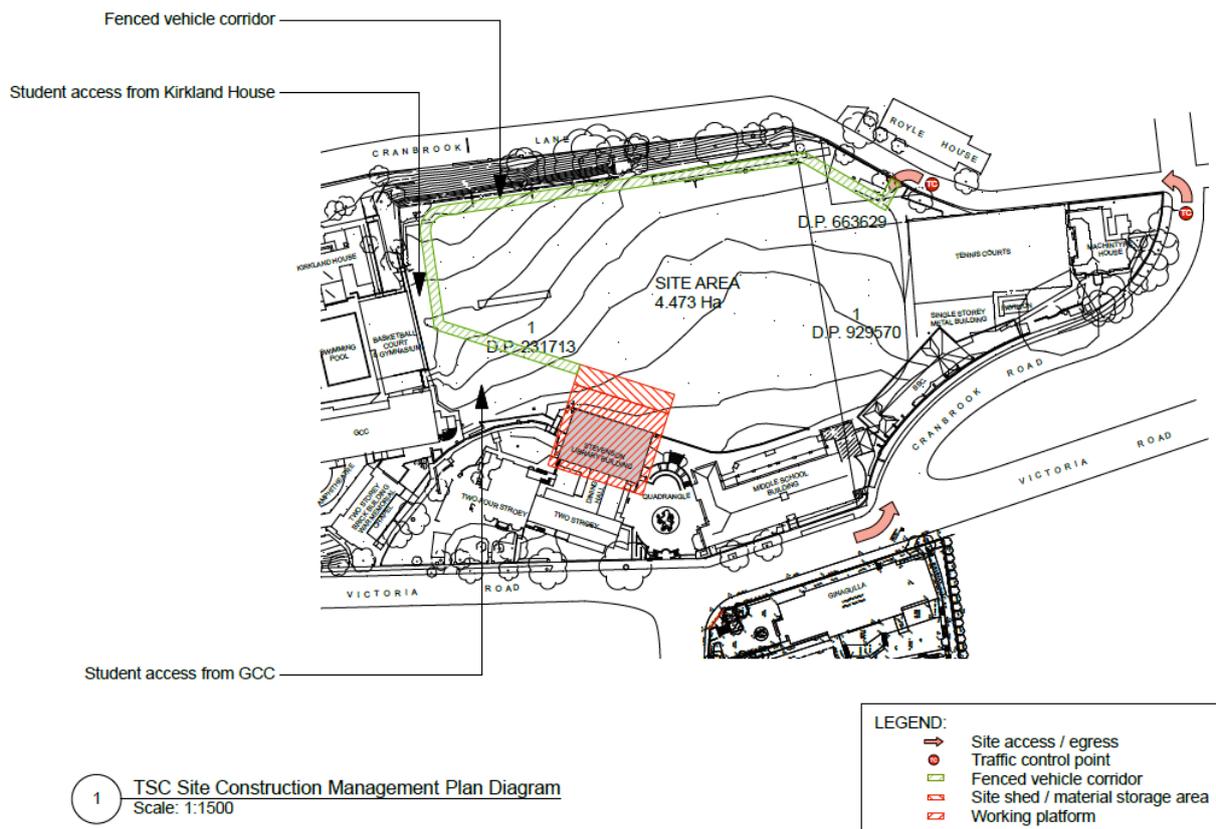
- Allow unimpeded access by site personnel and waste disposal contractors;
- Employ adequate environmental management controls (e.g consideration of slope, drainage and proximity relative to waterways / stormwater outlets / vegetation) to prevent off-site migration of waste materials and / or contamination from the waste; and
- Not present hazards to human health or the environment.

5.9.3 Waste Servicing and Transport Off-site

The Building Contractor is to:

- Arrange for suitable waste collection contractors to remove the demolition and construction waste from site (**Figure 3**);
- Ensure waste bins are not filled beyond recommended filling levels;
- Ensure that all bins and loads of waste materials leaving site are covered;
- Maintain waste disposal documentation detailing, at a minimum:
 - Descriptions and estimated amounts of all waste materials removed from site;
 - Details of the waste / recycling collection contractor(s) and facilities receiving the waste / recyclables;
 - Records of waste / recycling collection vehicle movements (e.g date and time of loads removed, licence plate of collection vehicles, tip dockets from receiving facility); and
 - Waste classification documentation for materials disposed to off-site recycling or landfill facilities.
- Ensure lawful waste disposal records are readily accessible for inspection by regulatory authorities such as Council, WorkCover NSW or NSW EPA;
- Remove waste during hours approved by Council.

JCA Architects completed a preliminary construction management plan detailing the anticipated site access / egress, traffic control points, fenced vehicle corridor, material storage area and working platform for the Project (**Figure 3**).



Source: Preliminary Construction Management Plan, Architectural drawing SSD1.02/17-014 (dated November 2017)

Figure 3 Proposed access for waste collection vehicle (green hatched area)

5.10 Contaminated / Hazardous Waste

Contaminated and / or hazardous materials, where identified, are to be removed by appropriately licenced contractors and transported to facilities licenced to accept such materials for treatment and / or disposal in accordance with NSW EPA regulations.

Where unexpected materials are encountered which are, or are suspected of being, contaminated or hazardous, the following shall be undertaken as a minimum:

- Work in the vicinity of the suspect material is to stop immediately and access to the area restricted;
- The Building Contractor's unexpected finds protocol, if available, shall be implemented; and
- The Site Manager is to contact a qualified hazardous materials assessor and / or environmental consultant (as necessary) to arrange an assessment of the suspect material and advise on subsequent management procedures.

It is anticipated that management of contaminated / hazardous waste will also be subject to relevant requirements as set out in the *Construction Environmental Management Plan* (to be prepared by the Building Contractor).

5.11 Liquid Waste Management

Wastewater or liquid waste generated from demolition or construction activities is not permitted to enter the stormwater system or migrate off-site.

Areas, if any, designated on site for wash-down of equipment plant or machinery are to be appropriately bunded and isolated from the local stormwater system and groundwater.

Liquid waste / wastewater are to be removed by a suitably qualified liquid waste contractor and transported to an appropriately licenced facility for treatment and / or disposal in accordance with NSW EPA regulations.

Refer also to the Building Contractor's Soil and Erosion Management Plan and the *Construction Environmental Management Plan* for further site-specific details on wastewater and liquid waste management, treatment and / or disposal.

5.12 Spills Management

Spillages are to be contained immediately (if safe to do so) and the Site Manager notified as soon as possible.

Spill containment kits and spill control equipment are to be provided and maintained in sufficient numbers and at appropriate locations to allow ready and rapid access by site personnel. Safety Data Sheets (SDSs) should also be available to provide advice on spill clean-up and disposal.

Refer also to the Building Contractor's *Construction Environmental Management Plan* for further site-specific details on spills management.

5.13 Construction Environmental Management Plan

In addition to this SWMMP, it is expected that the Building Contractor shall prepare a *Construction Environmental Management Plan* (CEMP) detailing control measures and procedures to be followed during site preparation and construction work to mitigate the environmental impact of these works. The CEMP and this SWMMP are anticipated to be implemented in tandem during site preparation and construction works.

5.14 Signage

Standard signage is to be posted in all waste storage / collection areas.

All waste containers are required to be labelled correctly and clearly to identify stored materials.

Signs approved by the NSW EPA for labelling of waste materials are available online (<http://www.epa.nsw.gov.au/wastetools/signs-posters-symbols.htm>) and should be used where applicable. A selection of signs prepared by NSW EPA is provided in **Figure 4**.



Figure 4 Examples of NSW EPA labels for waste skips / bins

5.15 Site Inductions

Waste management measures and procedures are to be included in the site induction for all personnel working at the site. With respect to waste management, the site induction is to include, at a minimum:

- An outline of this SWMMP;
- Legal obligations;
- Emergency response procedures on site;
- Waste storage locations and separation of waste;
- Litter management in transit and on site;
- Implications of poor waste management practices;
- Correct use of spill kits; and
- Responsibility and reporting (including identification of personnel responsible for onsite waste management and individual responsibilities).

5.16 Monitoring and Reporting

Records of volumes or tonnages of waste re-used, recycled or disposed to landfill are to be maintained by the Building Contractor. Additionally, dockets / receipts verifying recycling and / or disposal in accordance with the SWMMP must be retained and presented to the regulatory authorities such as Council, WorkCover NSW or NSW EPA if requested.

Daily visual inspections of waste storage areas will be undertaken by site personnel to identify and rectify any issues concerning waste management at the site, as well as identifying opportunities to improve waste management at the site. A written record of these inspections, which will include observations made and the results of any remedial actions taken, is to be undertaken and retained by the Building Contractor as part of the construction environmental management documentation.

Refer also to the Building Contractor's *Construction Environmental Management Plan* for further site-specific details on waste monitoring and reporting requirements.

5.17 Roles and Responsibilities

Suggested roles and responsibilities for waste management at the site are provided in **Table 6**.

Table 6 Suggested roles and responsibilities for site preparation and construction waste management

Role	Responsibilities
Site Manager for Building Contractor / Principal Contractor	<ul style="list-style-type: none"> • Ensuring plant and equipment are well maintained; • Ordering only the required amount of materials; • Developing or identifying, and using, local commercial opportunities for re-use of materials where re-use on-site is impractical; • Keeping materials segregated to maximise reuse and recycling; • Ensuring that waste sorting and storage areas are sign posted correctly, maintained in a tidy and functional state and do not present hazards to human health or the environment; • Facilitate waste collection / manage waste collection and waste disposal contractors; • Ensure hazardous / contaminated materials are appropriately managed and disposed; • Ensure site records and documentation is kept and is complete; • Ensuring staff and contractors are aware of site requirements for waste management; • Maintain site environmental controls; • Ensure the CEMP and this SWMMP are implemented; • Liaise with the Principal as required; • Approval of off-site waste disposal locations and checking licensing requirements; • Arranging for the assessment of potentially hazardous and / or contaminated materials and liquid wastes; • Monitor site environmental controls; and • Other required monitoring, inspection and reporting requirements.

6 OPERATIONAL WASTE AND RECYCLING MANAGEMENT

6.1 Targets for Resource Recovery

The waste management performance of each development should contribute to the overall NSW State target for recycling, which is expected to increase from 52% (2010 to 2011) for municipal solid waste and 57% for commercial / industrial waste to 70% (by 2021 to 2022) of the total waste generation per capita (NSW EPA (2014) *NSW Waste Avoidance and Resource Recovery Strategy 2014-21*).

It is anticipated that the waste segregation and minimisation measures in the following sections will assist the Project to meet this target.

6.2 Waste Streams and Classifications

Operation of the refurbished SLB is anticipated to generate the following broad waste streams:

- General waste and commingled recycling;
- Bulk packaging wastes, including polystyrene and cardboard boxes;
- Bulky waste items, such as furniture and e-waste; and
- Stores, plant and general maintenance wastes.

Potential waste types, their associated waste classifications, and management methods are provided in **Table 7**.

For further information on how to determine a waste's classification, refer to the NSW EPA (2014) *Waste Classification Guidelines*.¹²

Council provides further waste and recycling information and options for Schools¹³, responsible waste management¹⁴, recycling and re-use¹⁵ for the Woollahra municipality.

Table 7 Potential waste types, classifications and management methods – operational waste

Waste Types	NSW EPA Classification	Proposed Reuse / Recycling / Disposal Method
General		
Paper	General solid (non-putrescible) waste	Paper recycling at off-site licensed facility
Cardboard and bulky cardboard boxes	General solid (non-putrescible) waste	Cardboard recycling at off-site licensed facility
Stationery	General solid (non-putrescible) waste	Off-site recycling or disposal to landfill
General garbage (including non-recyclable plastics)	General solid (putrescible and non-putrescible) waste	Disposal at landfill
Recyclable beverage containers (glass and plastic bottles, aluminium cans), tin cans	General solid (non-putrescible) waste	NSW container deposit scheme "Return and Earn"; commingled recycling at off-site licensed facility
Food waste	General solid (putrescible) waste	Donate (if suitable) ¹⁶ or compost on site. Alternatively dispose to landfill with general garbage
Bulky polystyrene	General solid (non-putrescible) waste	Disposal at landfill

¹² Available online from <http://www.epa.nsw.gov.au/wasteregulation/classify-guidelines.htm>

¹³ https://www.woollahra.nsw.gov.au/services/rubbish_and_recycling/schools

¹⁴ https://www.woollahra.nsw.gov.au/data/assets/pdf_file/0007/52279/REUSE_RECYCLE_A5_final_draft.pdf

¹⁵ https://www.woollahra.nsw.gov.au/services/rubbish_and_recycling/more_recycling_and_disposal_options

¹⁶ <http://www.ozharvest.org/>, <https://www.foodbank.org.au/>, <https://www.secondbite.org/> or <https://www.exodusfoundation.org.au/>

Waste Types	NSW EPA Classification	Proposed Reuse / Recycling / Disposal Method
Furniture	General solid (non-putrescible) waste	Off-site reuse or disposal to landfill
E-waste, printer toners and ink cartridges	Hazardous waste	Off-site recycling (free disposal box / bags and pickup service exists for printer toners and ink cartridges)
Batteries	Hazardous waste	Off-site recycling (Contact the <i>Australian Battery Recycling Initiative</i> for more information ¹⁷)
Mobile Phones	Hazardous waste	Off-site recycling (Contact <i>MobileMuster</i> for more information) ¹⁸
Maintenance		
Spent smoke detectors ¹⁹	General solid (non-putrescible) waste OR Hazardous waste (some commercial varieties)	Disposal to landfill, or off-site disposal at licensed facility
Glass (other than containers)	General solid (non-putrescible) waste	Off-site recycling
Light bulbs / fluorescent tubes	Hazardous waste	Off-site recycling or disposal (contact <i>FluoroCycle</i> for more information ²⁰)
Cleaning chemicals, solvents, area wash downs, empty oil / paint drums / chemical containers	Hazardous waste if containers used to store Dangerous Goods (Class 1, 3, 4, 5 or 8) and residues have not been removed by washing or vacuuming. General solid (non-putrescible) waste if containers cleaned by washing or vacuuming.	Transport to comply with the transport of Dangerous Goods Code applies in preparation for off-site recycling or disposal at licensed facility. Discharge to sewer likely to be subject to Trade Waste Agreement with Sydney Water.

Source: <http://www.epa.nsw.gov.au/wasteregulation/classify-waste.htm>

6.3 Waste Management Overview

Operational waste management is proposed to align with current operational waste management practises at the SLB:

- General waste located on the ground floor of the refurbished SLB is collected within lined 240 L capacity mobile garbage bins (MGBs). Cleaning staff remove full bin liners, then transport (by golf cart) and dispose of bin liners and waste in 4,500 L waste MGBs located in the Ginahgulla Carpark (**Figure 5**) for collection by a private waste contractor;
- Recycling located on the ground floor of the refurbished SLB to be collected within lined 240 L capacity mobile garbage bins (MGBs). Cleaning staff remove full bin liners, then transport (by golf cart) and dispose of the bin liner content in 1,100 L recycling MGBs located in the Ginahgulla Carpark (**Figure 5**) for collection by a private waste contractor. Empty, used bin liners are placed in the 4,500 L waste MGBs;
- General waste and recycling generated on the first, second, third, fourth and fifth floors of the refurbished SLB:
 - To be collected within 55 L capacity MGBs within on-level waste storage areas;
 - On a daily basis, cleaning staff transfer general waste from the 55 L MGBs into 4,500 L waste MGBs located in the Ginahgulla Carpark (**Figure 5**) for collection by a private waste contractor; and

¹⁷ <http://www.batteryrecycling.org.au/home>

¹⁸ <https://www.mobilemuster.com.au/>

¹⁹ The Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) require that when more than 10 smoke alarms (particularly americium-241 sources) are collected for bulk disposal they must be treated as radioactive waste and the requirements of the National Health and Medical Research Council's *Code of practice for the near-surface disposal of radioactive waste in Australia (1992)* must be met. Contact ARPANSA for more information.

http://www.arpansa.gov.au/radiationprotection/factsheets/is_smokedetector.cfm

²⁰ <http://www.fluorocycle.org.au/> or <http://www.environment.gov.au/settlements/waste/lamp-mercury.html>

- On a daily basis, cleaning staff will transfer recycling from the 55 L MGBs into 1,100 L recycling MGBs located in the Ginahgulla Carpark (**Figure 5**) for collection by a private waste contractor.



Figure 5 Location of 4,500 L MGBs in the Ginahgulla Carpark

6.4 Estimated Quantities of Operational Waste

For the purposes of this assessment, SLR has adopted the general waste and recycling rates for “Restaurant / café” and “Offices”, as presented in Part E, Chapter E5 of Council’s *Waste Management General Controls for all Developments (2015)*:

- Restaurant / Café Operational Waste Rate: 10 L / 1.5 m² of floor area / day;
- Restaurant / Café Operational Recycling Rate: 2 L / 1.5 m² of floor area / day;
- Office Operational Waste Rate: 10 L / 100 m² of floor area / day; and
- Office Operational Recycling Rate: 10 L / 100 m² of floor area / day.

Although Council’s operational rates omit separation of recycling materials (i.e there is only a single recycling rate), it is anticipated that the recycling component of the refurbished SLB will be further separated into at least two recycling streams:

- Paper / cardboard; and
- Mixed container recycling.

The estimated quantities of operational waste and recycling generated by the refurbished SLB (**Table 8**) are based on:

- The floor areas as presented on the architectural drawings;
- Council’s “Restaurant / café” and “Offices” waste and recyclable generation rates (listed above);

- Collective recycling estimates; and
- A week comprising 5 days of operation.

Table 8 Estimated quantity of daily and weekly operational waste and recycling

Floor	Area (m ²)	Waste (L / day)	Recycling (L / day)	Waste (L / week)	Recycling (L / week)
Ground Floor (Café)	613	4,090	820	20,440	4,090
Ground Floor (Non-Café)	22	10	10	20	20
1st Floor	668	70	70	340	340
2nd Floor	575	60	60	290	290
3rd Floor	654	70	70	330	330
4th Floor	655	70	70	330	330
5th Floor	312	40	40	160	160
Total	3,499	4,410	1,140	21,910	5,560

Waste estimates have been rounded up to the nearest 10 tonnes.

6.5 Waste Storage Areas

6.5.1 Waste Storage Area Size

In accordance with Council's DCP Chapter E5 *Waste Management* and Council's *DA Guide - Attachment 1 Site Waste Minimisation and Management*, the waste and recycling storage area must encompass the capacity to store the volume of operational waste and recycling between collections.

The estimated number of MGBs required for weekly storage of operational waste and recycling generated by the refurbished SLB (**Table 10**) are based on:

- The estimated quantities of operational waste and recycling to be generated from each floor of the refurbished SLB (**Table 8**);
- Waste and recycling being ultimately stored in 4,500 L MGBs and 1,100 L MGBs (respectively) for servicing by waste collection contractor(s);
- 55 L and 240 L MGB dimensions as per Council's *DA Guide – Attachment 1 – Site Waste Minimisation and Management*²¹;
- 4,500L and 1,100 L MGB dimensions as per *Better Practice Guidelines for Waste Management and Recycling in commercial and Industrial Facilities (2012)*²²; and
- Once-a-week frequency of garbage and recycling collection.

The dimensions and GFA of the MGBs are presented in **Table 9**.

Table 9 Dimensions and GFA of a 55 L, 240 L, 1,100 L and 4,500 L MGBs

Dimension	55 L MGB	240 L MGB	1,100 L MGB	4,500 L MGB
Height	330	1,080	1,470	3,750
Depth	510	735	1,245	1,605
Width	420	580	1,370	1,805
GFA (rounded)	0.3	0.5	2	3

²¹ https://www.woollahra.nsw.gov.au/_data/assets/pdf_file/0019/152407/DA_Guide_-_Attachment_1_-_Site_Waste_Minimisation_and_Management_Plan.pdf

²² <https://www.epa.nsw.gov.au/-/media/A5EB094C4C744A62A0499EC335A088D9.ashx>

To allow for ready movement of bins into and out of the bin room(s), a bin / garbage room should provide a floor area of at least 150 % of the total minimum bin GFA. This also allows for provisional contingency in the event of a surplus of waste occurrence.

6.5.1.1 Ground Floor

The ground floor of the refurbished SLB is proposed to be largely occupied by a café and, as a consequence, the ground floor is expected to produce the greatest quantities of waste and recycling among the floors in the refurbished SLB (**Table 8**). It is anticipated that 19 waste 240 L MGBs and five recycling 240 L MGBs will be required for daily storage of waste and recycling generated from the ground floor of the refurbished SLB (**Table 10**).

As the refurbished SLB is intended to resume the existing waste management practises, each 240 L MGB will be conveniently located within and surrounding the SLB ground floor. As such an area of **approximately 0.75 m² is recommended per 240 L MGB**. If however, all 24 x 240 L MGBs were stored together, a **dedicated bin storage area of approximately 19 m² would be required for the ground floor** of the refurbished SLB.

Table 10 Minimum number 240 L MGBs required for the Ground Floor daily operational waste and recycling storage and associated GFA for MGBs

Waste Type	Total Number of 240 L MGBs	Min. MGBs GFA (m ²)	Recommended Waste Storage GFA (m ²)
Waste	19	9.5	15
Recycling	5	2.5	4
Total	24	12	19

The number of waste and recycling 240 L MGBs required to service the ground floor of the refurbished SLB could potentially be reduced by implementing one or more of the following:

- Emptying all waste and recycling 240 L MGBs multiple times a day;
- Reducing the quantity of waste by separation of food wastes for onsite composting;
- Reducing the quantity of waste by ensuring café packaging is recyclable / compostable;
- Reducing the quantity of waste by promoting student recycling / composting;
- Reducing the quantity of recycling by separate drink container²³ collection (and return for a refund as a school fundraiser program); and / or
- Bale or store paper / cardboard separately to other recycling.

6.5.1.2 First to Fifth Floors

For daily waste and recycling storage, it is recommended that a minimum of two waste and four recycling 55 L MGBs (two for paper / cardboard collection and the two for mixed recyclables) are placed on the first, second, third and fourth floor of the refurbished SLB. For ease of use and to encourage at-source separation of recycling from waste, waste bins and recycling bins should be located side-by-side; therefore, a minimum of **three adjacent storage areas of approximately 1.5 m² each are recommended per floor (a total of 3m² per floor)**.

Three 55 L MGBs (one bin for waste, one bin for paper / cardboard and one bin for mixed recyclables) are recommended for storage of daily waste and recycling on the fifth floor. A **minimum storage area of 1.5 m² is recommended for the fifth floor**.

²³ For a list of NSW eligible containers and return locations refer to the *Return and Earn, Container Deposit Scheme* <http://returnandearn.org.au/>

6.5.1.3 Ginahgulla Carpark MGB Storage Area

Based on the estimated waste and recycling quantities for the refurbished SLB (**Table 8**), the present use of 4,500 L and 1,100 L MGBs for pre-collection storage of waste and recycling, and a collection frequency of once per week, five 4,500 L MGBs will be required for the weekly storage of waste and six 1,100 L MGBs will be required for the weekly storage of recycling, with a combined recommended storage area of at least 41 m² (**Table 11**). The 4,500 L and 1,100 L MGBs are currently located within the Ginahgulla carpark of The Scots College.

It is understood that approximately 100 m² of the Ginahgulla carpark will be allocated for storage of the 4,500 L and 1,100 L MGBs. The size of this portion of the carpark is consistent with the storage area requirements in **Table 11**.

It is strongly recommended that a waste audit be conducted to ensure the operational waste management for the refurbished SLB satisfies the amenity of The Scots College.

Table 11 Minimum number MGBs required for the weekly operational waste and recycling storage for the refurbished SLB and associated GFA

Waste Type	Total Number of 1,100 L MGBs	Total Number of 4,500 L MGBs	Min. MGBs GFA (m ²)	Recommended Waste Storage GFA (m ²)
Waste	0	5	15	23
Recycling	6	0	12	18
Total	6	5	27	41

6.5.2 Waste Storage Location

Waste storage areas are to be integrated into the design of the refurbished SLB so that:

- The waste storage area(s) centralise the collection / storage of wastes and recyclable materials;
- Visual amenity is maintained;
- Potential noise impacts associated with collection and servicing is minimised;
- The area is located away from operable windows of habitable rooms and positioned to minimise amenity impacts adjacent sensitive land uses, with respect to streetscape aesthetics, litter odour, noise and dust pollution;
- The area is (preferably) behind the front building line and integrated within the building design;
- The area is located in close proximity to laneways for servicing accessibility;
- The area is (preferably) perpendicular to the laneway frontage;
- There are no steps, kerbs nor gradients exceeding 1V:8H between the 240 L daily storage MGBs and the Ginahgulla carpark bin collection point;
- Litter and contamination of the stormwater drainage system is avoided;
- The area has convenient access by users (within five meters of the collection point), well ventilated and well lit;
- The area must be inaccessible to the public and vermin proof;
- Use of the waste storage area does not interfere with the use of access driveways, loading / parking bays; and
- Waste collection vehicles are permitted to enter / leave the premises in a forward direction, preferably with a roadway ingress / egress (or adequate turning circle / hammerhead provisions).

6.5.3 Waste Storage Design Considerations

In accordance with Council's *DA Guide – Attachment 1 – Site Waste Minimisation and Management Plan* and Best Practices, driveway and access routes must be at least 3.6 m wide and vehicle standing areas must be at least 10 m long and 3.6 m wide. Waste and recycling storage areas must be constructed in accordance with the National Construction Code requirements (formally the Building Code of Australia, BCA) and should have the following features:

- Allow sufficient on-site space to store and manoeuvre MGBs;
- Graded in accordance with WorkCover NSW Work Health and Safety requirements allowing ease of MGB movement for emptying / servicing;
- Smooth / durable even surfaced finished floors constructed of concrete at least 75 mm thick or other approved material graded and drained to a Sydney Water Corporation approved drainage fitting. The drainage fitting is to be located within the storage area and have a fine grade drain cover sufficient to prevent coarse pollutants from entering the sewer;
- Hot and cold tap-based water supply with centralised missing valves and at least one hose cock for MGB cleaning;
- Finished / impervious ceilings with rigid smooth faced, non-absorbent, easy to clean material (if applicable);
- Finished walls, impervious floors and ceilings with light colour (if applicable);
- Be designed to minimise negative impacts on amenity of other buildings in the College and neighbouring properties, with respect to noise and odours;
- Constructed to prevent vermin;
- Well ventilated by permanent, unobstructed natural direct ventilation (not less than 5% of the floor area) or a mechanical exhaust at a rate of at least 5 L / s per every square metre floor area (if applicable);
- Furnished with lighting and switches inside and outside of the room (if applicable);
- Close-fitting, self-closing door (openable from within the room);
- Smoke detectors be installed in accordance with Australian Standards and connected to the fire prevention system of the building; and
- The bin storage area is to have adequate signage as appropriate.

6.6 Signage

Operational waste from the refurbished SLB should be separated into at least three streams:

- Paper and cardboard;
- Other recyclables; and
- General waste.

Separate, dedicated MGBs should be provided for collection of each of the above three waste streams. MGBs should be appropriately colour-coded and labelled to enable users to easily identify which waste is to be placed into which bins.

The Standards Australia *AS 4123.7-2006 (R2017) Mobile waste containers Part 7: Colours, markings, and designation requirements* provides recommendations for designated colours for waste bins depending on the type of waste the bins are to receive. The colours anticipated to apply to operational waste generated by the refurbished SLB are:

- Blue: Paper and cardboard;
- Yellow: Recyclables (other than paper and cardboard); and

- Red: General Waste.

Each MGB should also be labelled according to the waste they are to receive. Labels approved by the NSW EPA for labelling of waste materials are available online²⁴ and should be used where applicable. A selection of labels prepared by NSW EPA and anticipated to be applicable to operational waste generated by the Project is provided in **Figure 6**.



Figure 6 Example of labels for MGBs for operational waste

6.7 Communication Strategies

Waste management initiatives and management measures should be clearly communicated to facility managers, staff, caretakers / cleaners and students. Benefits of providing this communication include:

- Improved satisfaction with services;
- Increased ability and willingness to participate in recycling;
- Improved amenity and safety;
- Improved knowledge and awareness through standardisation of services;
- Increased awareness or achievement of environmental goals and targets;
- Reduced contamination of recyclables stream;
- Increased recovery of recyclables and organics (where implemented) material; and
- Greater contribution to state-wide targets for waste reduction and resource recovery.

²⁴ <http://www.epa.nsw.gov.au/wastetools/signs-posters-symbols.htm>

The following communication strategies are suggested for consideration:

- Use consistent signage and colour coding throughout the College;
- Ensure all users are informed of correct waste separation and management procedures;
- Provide directional signage to show locations / routes to waste storage areas;
- Clearly label general / comingled waste bins to ensure no cross contamination and to identify the types of waste that may be disposed of in each bin; and
- Educate all students / employees / contractors conducting work on the property ensuring they adhere to this SWMMP.

Signs approved by the NSW EPA for labelling of bins and waste storage areas are available online (<http://www.epa.nsw.gov.au/wastetools/signs-posters-symbols.htm>).

6.8 Monitoring and Reporting

Auditing and visual monitoring of bins and bin areas should be undertaken by the facility manager at the following frequencies:

- Weekly, within the first two months of operation to ensure the waste management system is sufficient for the operation; and
- Every six months, to ensure waste is being managed appropriately.

Any deficiencies identified in the waste management system, including (but not limited to) unexpected waste volumes, should be rectified by the facility manager as soon as practicable.

6.9 Roles and Responsibilities

It is the responsibility of the facility manager to implement this SWMMP and a responsibility of all students and staff to follow the waste management procedures set out by the SWMMP. A summary of recommended roles and responsibilities is provided in **Table 12**.

Table 12 Suggested roles and responsibilities

Responsible Person	General Tasks
Facility Managers	Ensure the SWMMP is implemented throughout the life of the operation.
	Update the SWMMP as needed to ensure the plan remains applicable.
	Undertake liaison with and management of waste and recycling collections by Council and / or contractors.
	Conduct inspections of bins and waste storage / service areas on a regular basis for condition and cleanliness.
	Organise cleaning and maintenance requirements for all bins and waste storage / service areas as required.
	Manage any complaints and non-compliances reported through waste audits etc.
	Ensure effective signage, communication and education is provided to alert new tenants, facility management staff and visitors about the provisions of this SWMMP.
	Monitor and maintain signage to ensure it remains clean, clear and applicable.
	Ultimately responsible for the management of all waste management equipment, cleaning requirements, waste transfer and collection arrangements.
	Manage unexpected waste volumes to mitigate waste overflow in storage areas.
Cleaners	Ensure all waste compactors (if applicable) are maintained and operational.
	Monitor bins to ensure no overfilling occurs.
	Ensure bins and waste storage / service areas are kept tidy.
	Transfer waste from the Library to waste storage / service area as required.
	Transfer recycling from the Library into waste storage / service area as directed / required.
Students	Cleaning of bins and waste storage / service area per Facility Manager direction.
	Maintain / operate compactors (if applicable), ensuring no overfilling occurs.
Staff	Transfer recycling from the Library into waste storage / service area as directed / required.
	Adhere to all waste management directions as given by the Facility Manager.
Staff	Adhere to all waste management directions as given by the Facility Manager.

Appendix A

SSD 8922 SEARS KEY ISSUES (WASTE)

KEY ISSUE 18 - WASTE

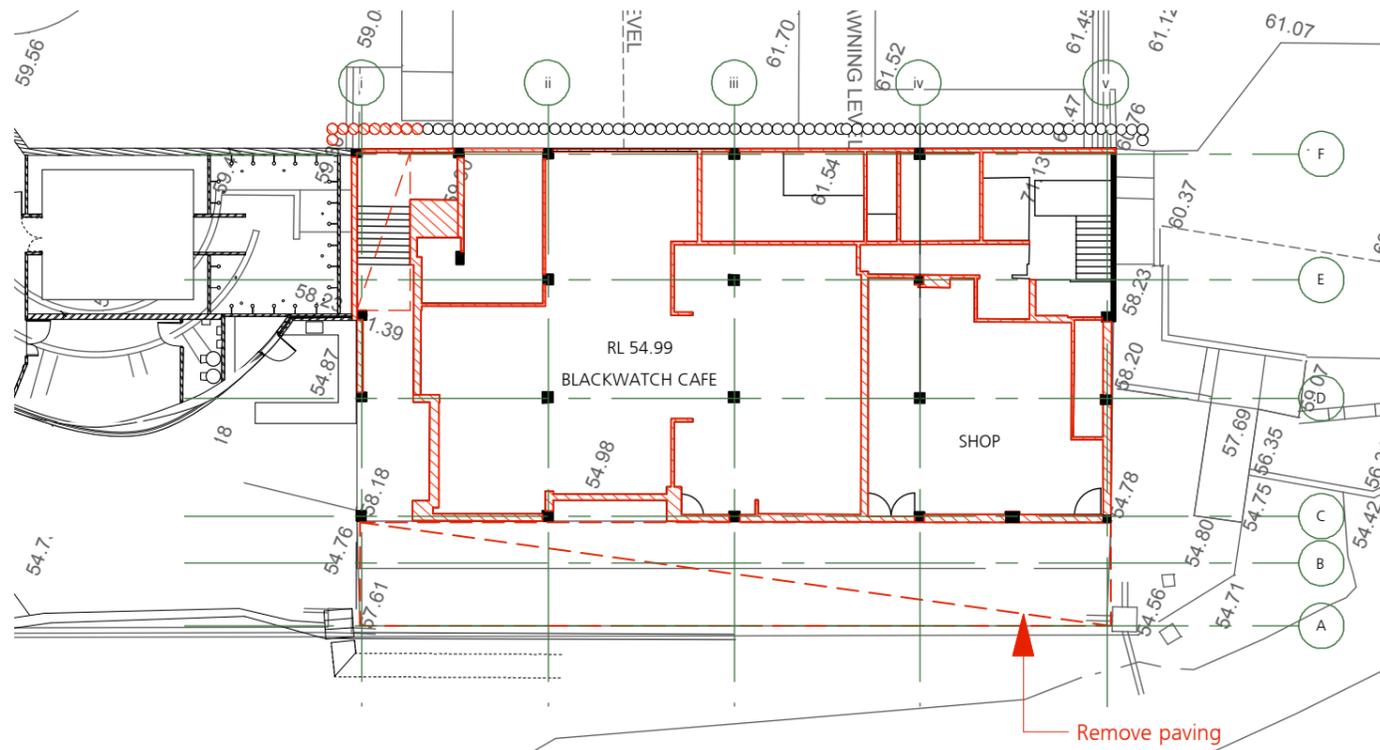
Table 13 lists the relevant sections within the SWMMP that specifically address each of the Waste Key Issues as specified by the NSW Planning & Environment's Secretary's Environmental Assessment Requirements (SEARs) for the SSD 8922.

Table 13 SSD 8922 SEARs key issues (18) pertaining to waste

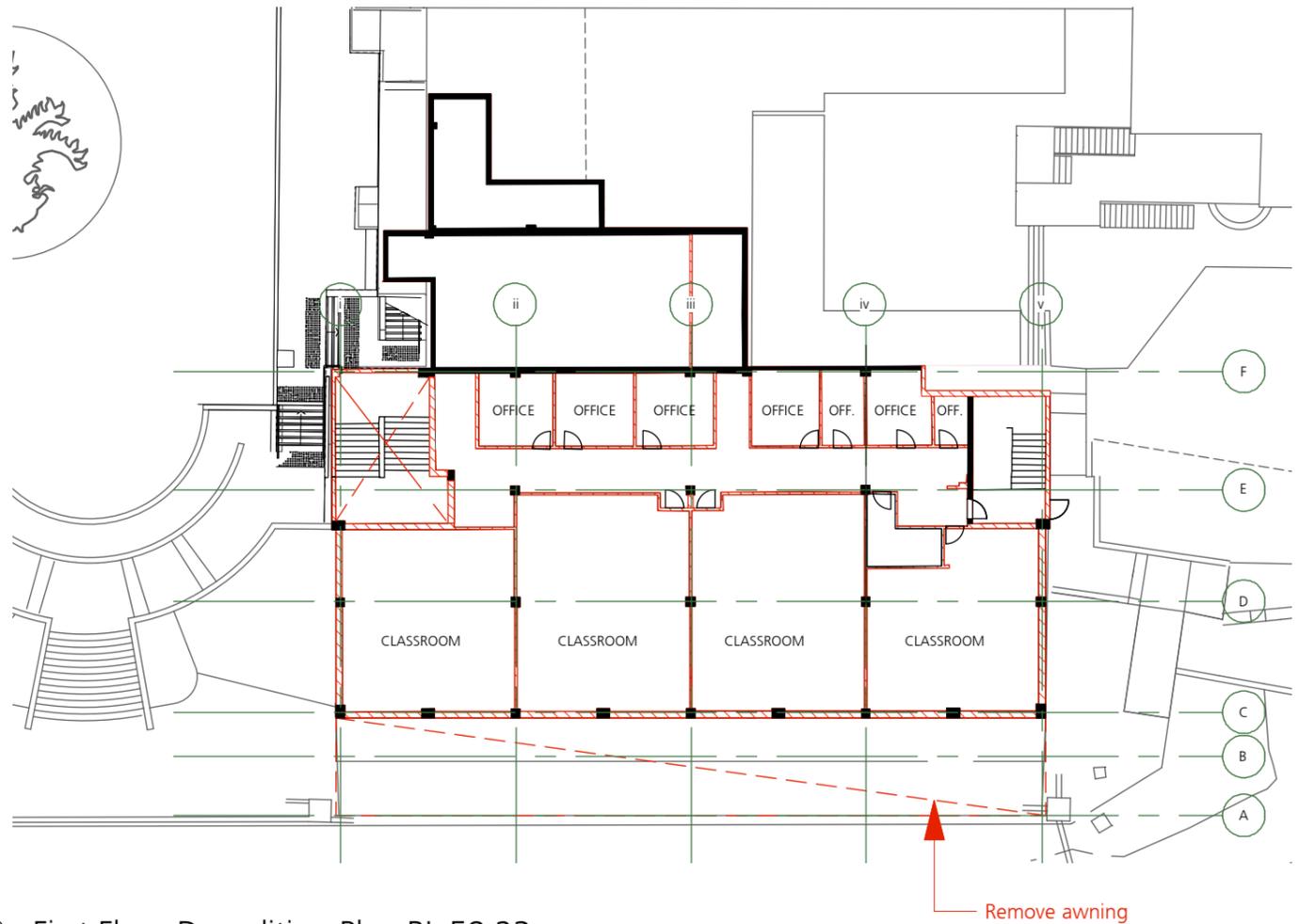
Key Issue	Section Addressing Key Issue
Identify, quantify and classify the likely waste streams to be generated during construction and operation and describe the measures to be implemented to manage, reuse, recycle and safely dispose of this waste.	Section 5
Identify, quantify and classify the likely waste streams to be generated during construction and operation and describe the measures to be implemented to manage, reuse, recycle and safely dispose of this waste.	Section 6
Identify appropriate servicing arrangements (including but not limited to, waste management, loading zones, mechanical plant) for the site.	Section 5 (Figure 3), Section 6.3 Section 6.5.

Appendix B

ARCHITECTURAL DRAWINGS



1 Ground Floor Demolition Plan RL 54.99
Scale: 1:300



1 First Floor Demolition Plan RL 58.23
Scale: 1:300

LEGEND: DEMOLISH

GENERAL NOTES

- Consult with ALL relevant authorities prior to commencing works
- DO NOT scale. All dimensions are nominal + should be confirmed on site prior to commencement
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- Bring discrepancies to the immediate attention of the Architect
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DRAWING TITLE
GF + FF DEMOLITION PLAN

DRAWN BY
JC, CF, JW

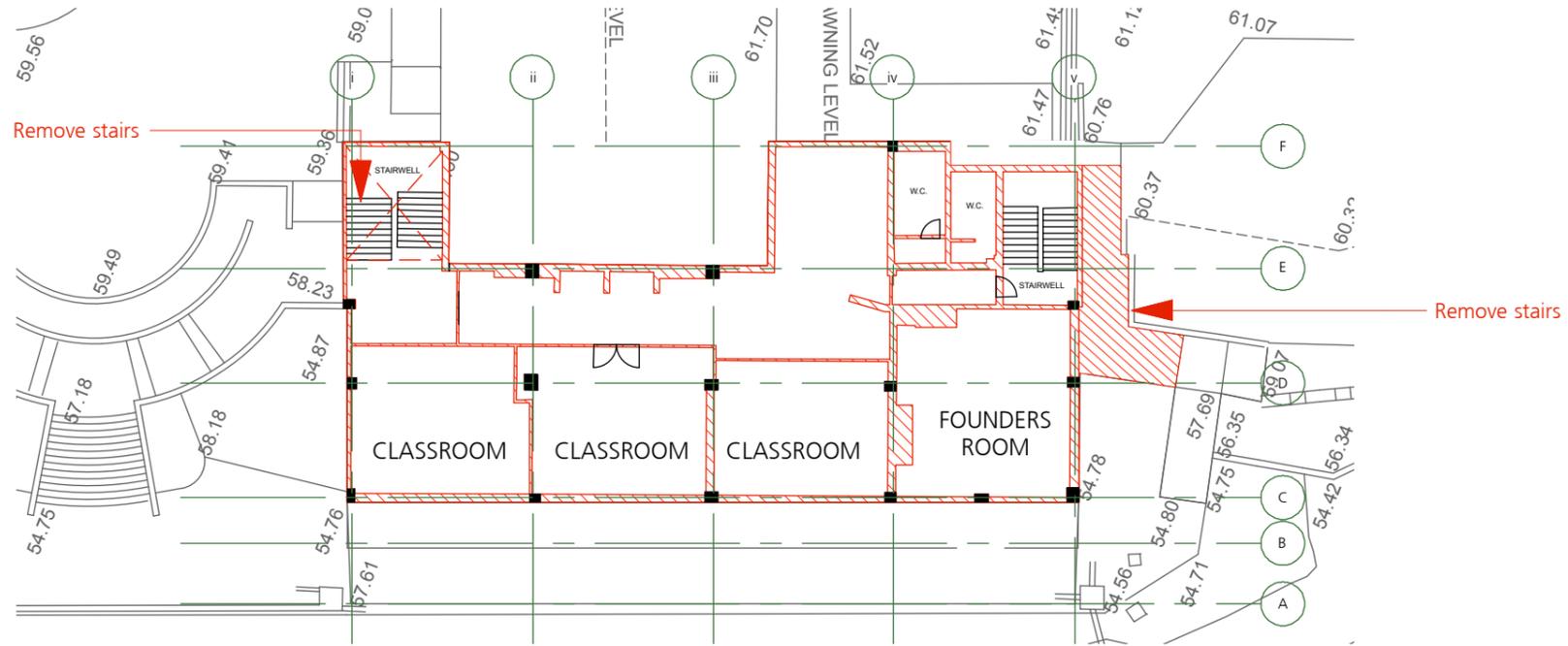
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ISSUE
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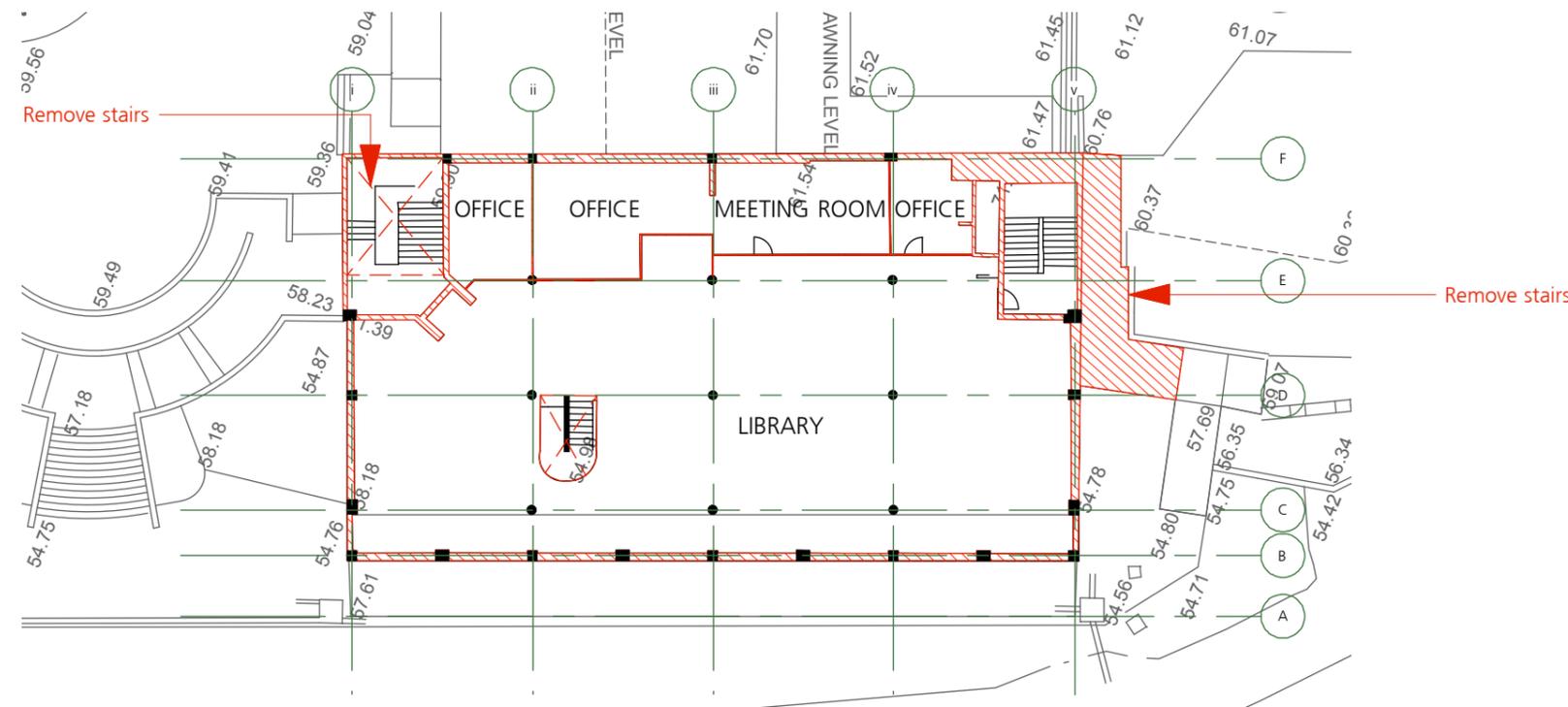
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P2

DATE
NOVEMBER 2017

DRAWING NUMBER



1 Second Floor Demolition Plan EXG RL 61.57
Scale: 1:300



2 Third Floor Demolition Plan EXG RL 65.275
Scale: 1:300

LEGEND:  DEMOLISH

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DRAWING TITLE
SECOND + THIRD FLOOR
DEMOLITION PLAN

DRAWN BY
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P1

DATE
NOVEMBER 2017

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SSD1.02/17-151

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DRAWING TITLE
PROPOSED GROUND
FLOOR PLAN

DRAWN BY
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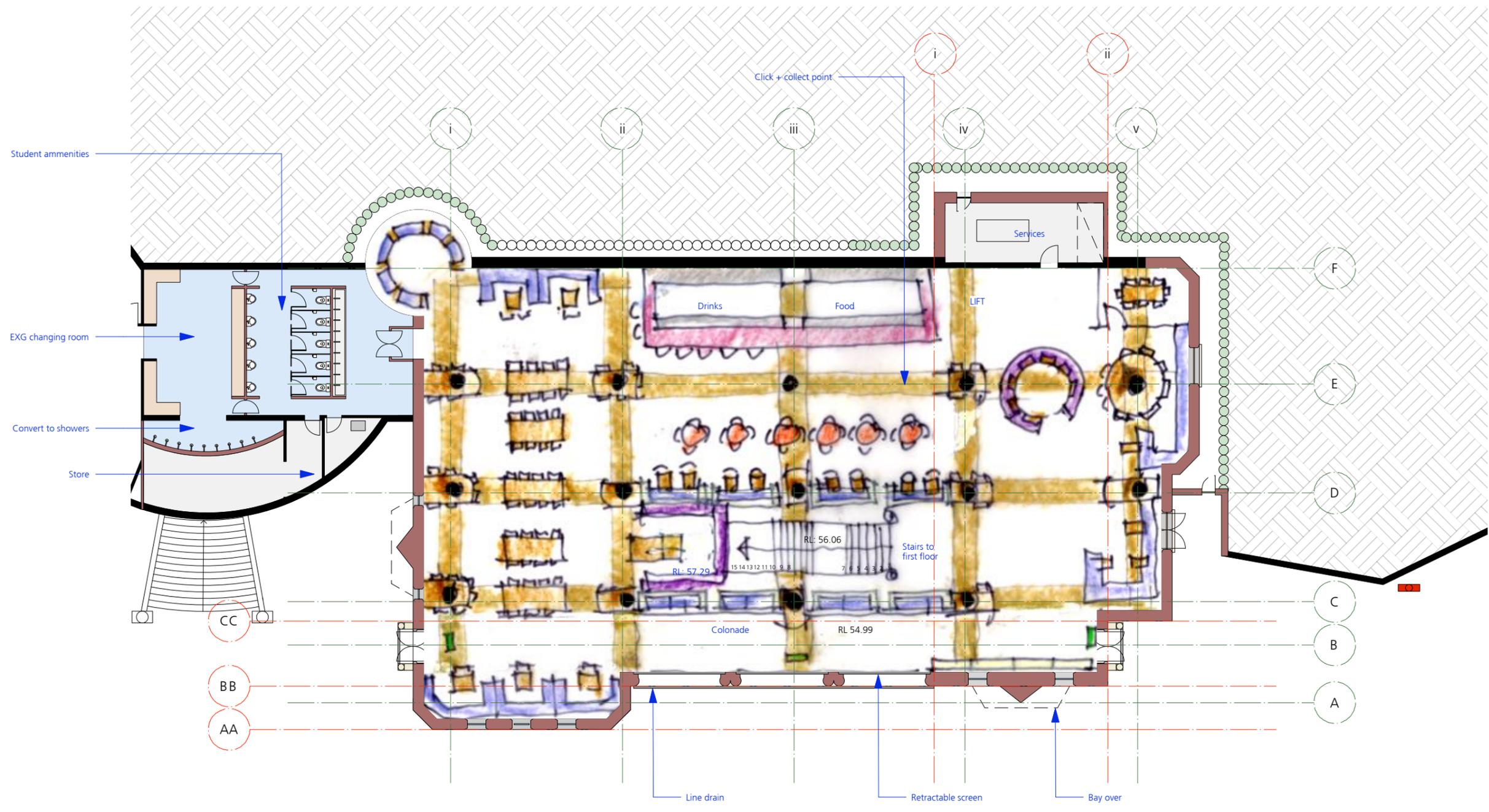
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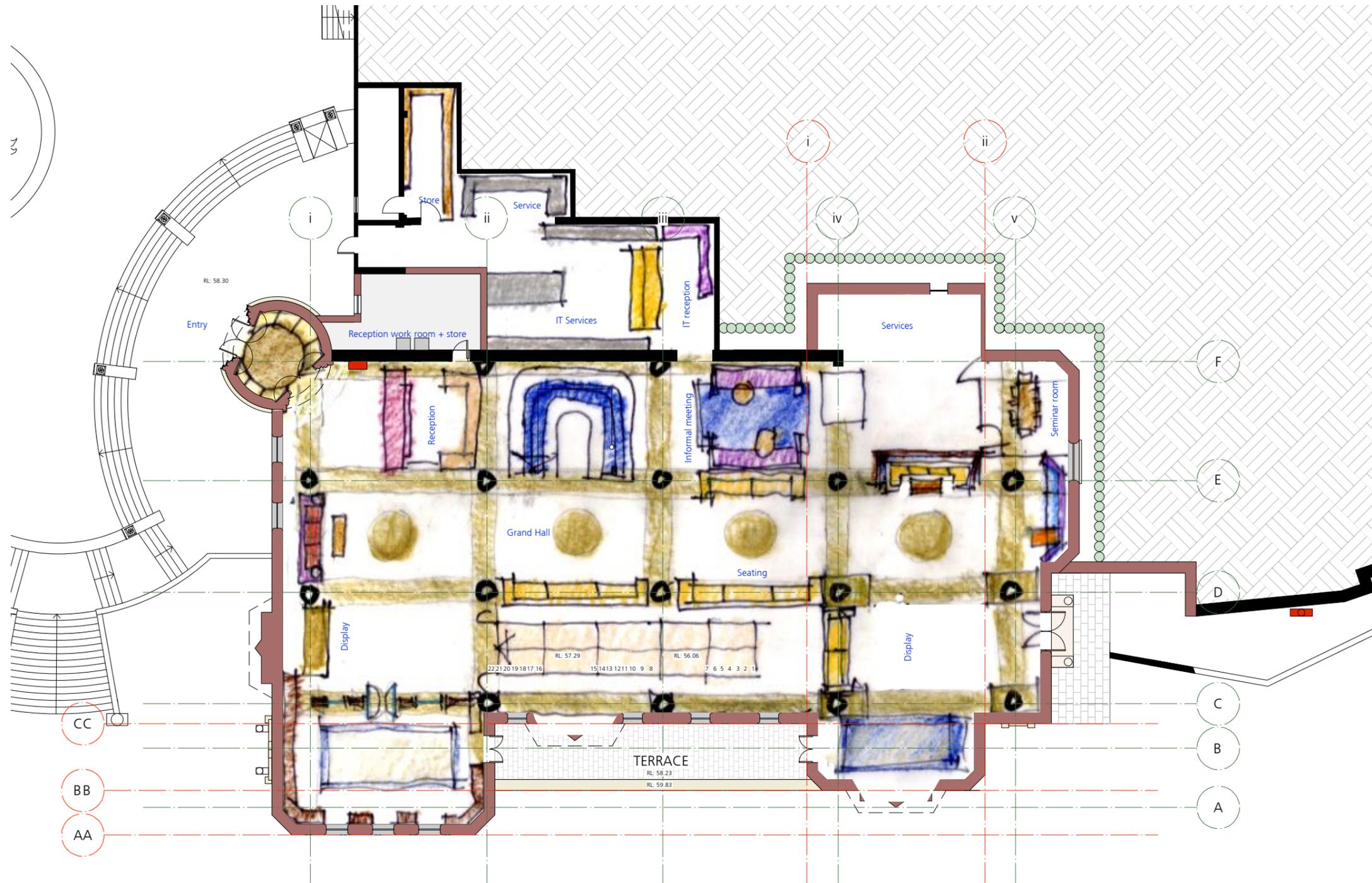
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DRAWING NUMBER



1 Proposed Ground Floor Plan
 Scale: 1:200. Black Watch

Floor Area: 635m²



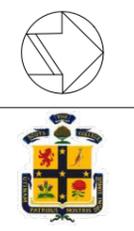
1 Proposed First Floor Plan
Scale: 1:200. Reception

NOTES:
1. All platform lifts to comply with BCA Part E3.6

Floor Area: 668m²

GENERAL NOTES
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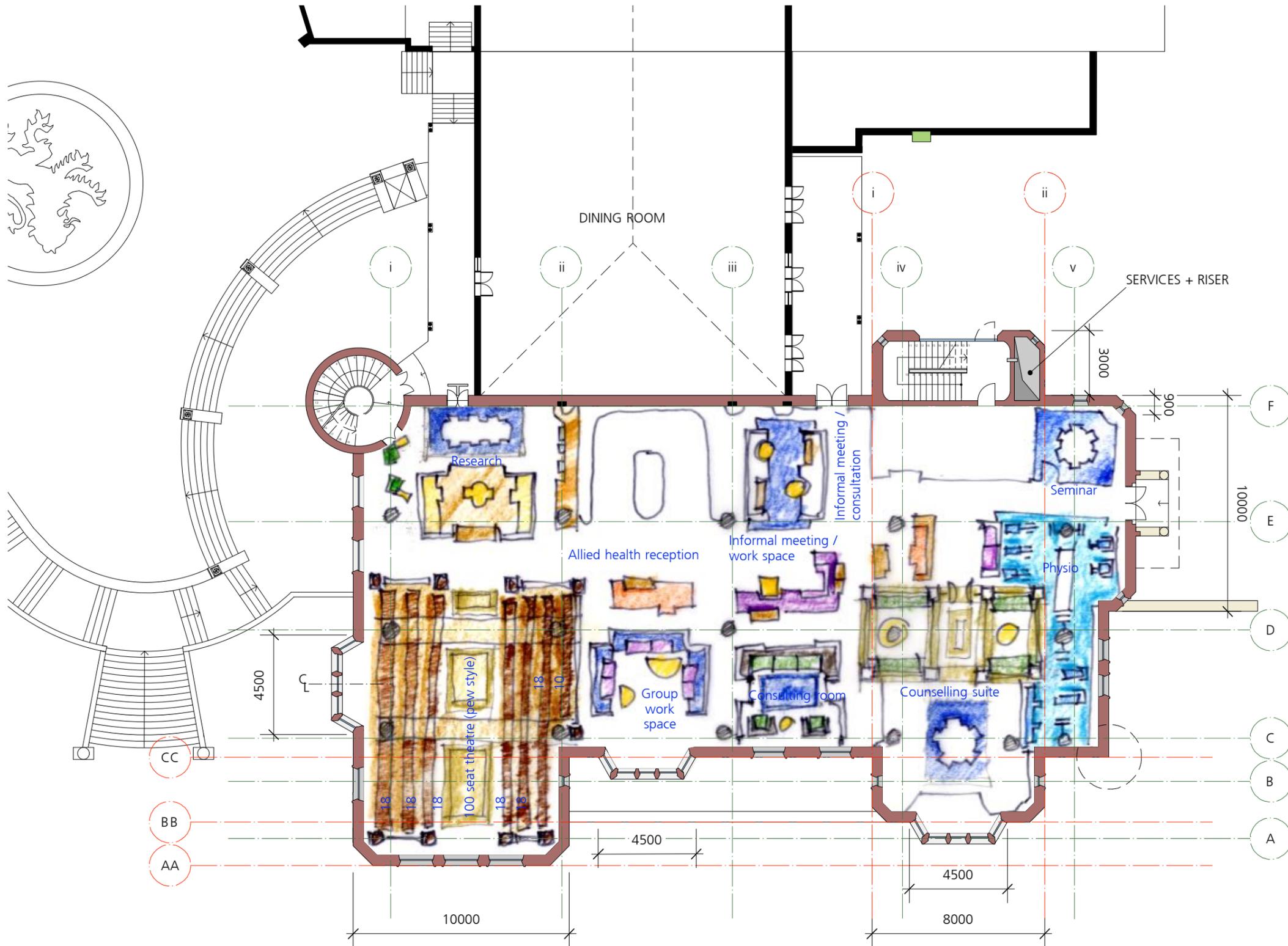
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DATE
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DRAWING NUMBER



1 Proposed Second Floor Plan
Scale: 1:200. Allied Health

Floor Area: 575m²

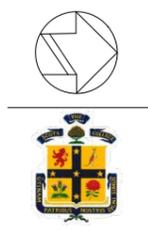
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DRAWING TITLE
PROPOSED SECOND FLOOR
PLAN

DRAWN BY
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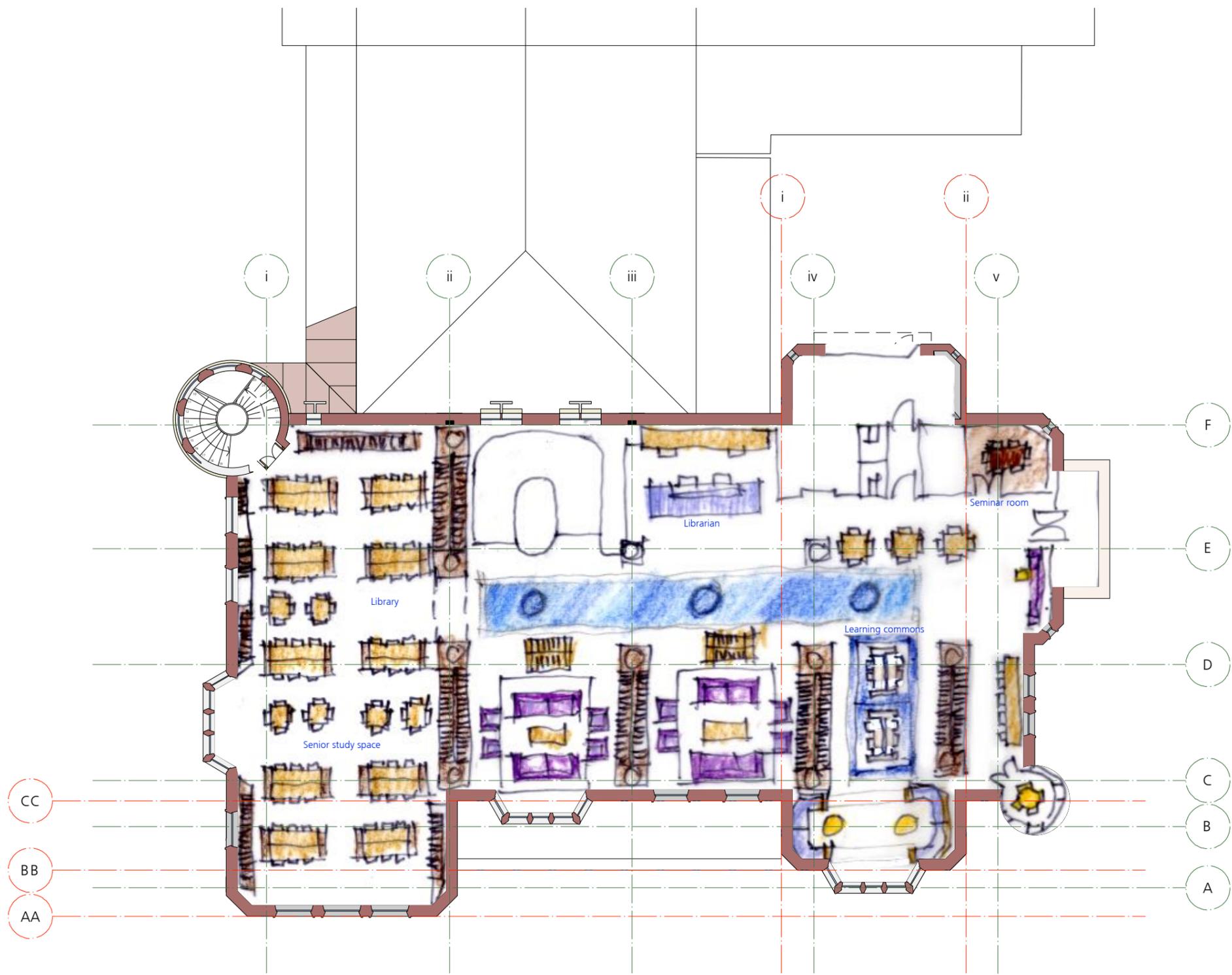
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DATE
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DRAWING NUMBER



1 Proposed Third Floor Plan
 Scale: 1:200. Library + Senior Study

Floor Area: 654m²

GENERAL NOTES

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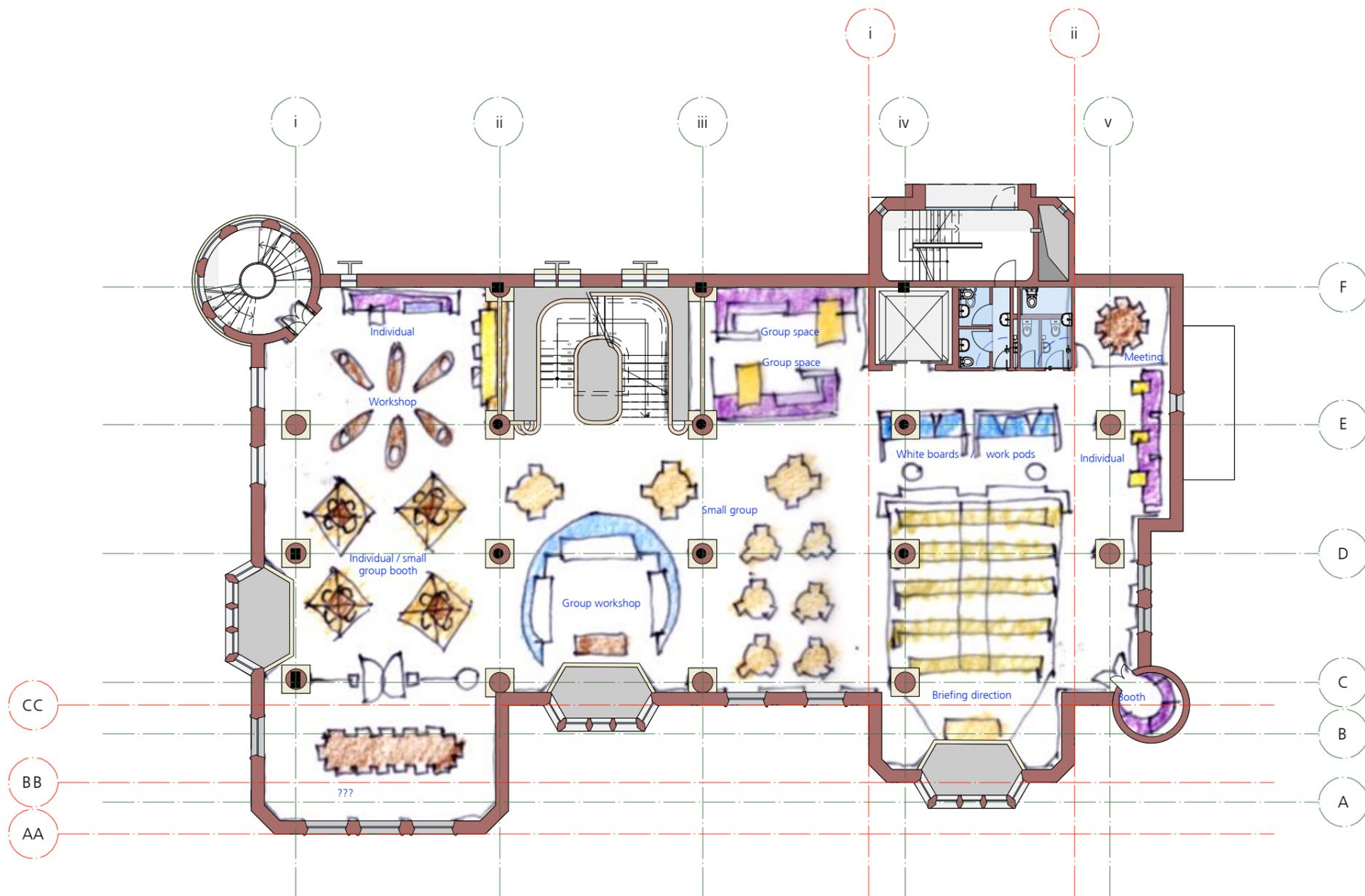
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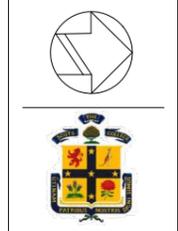


1 Proposed Fourth Floor Plan
 Scale: 1:200. Teacher Education, Experiential Class + Research

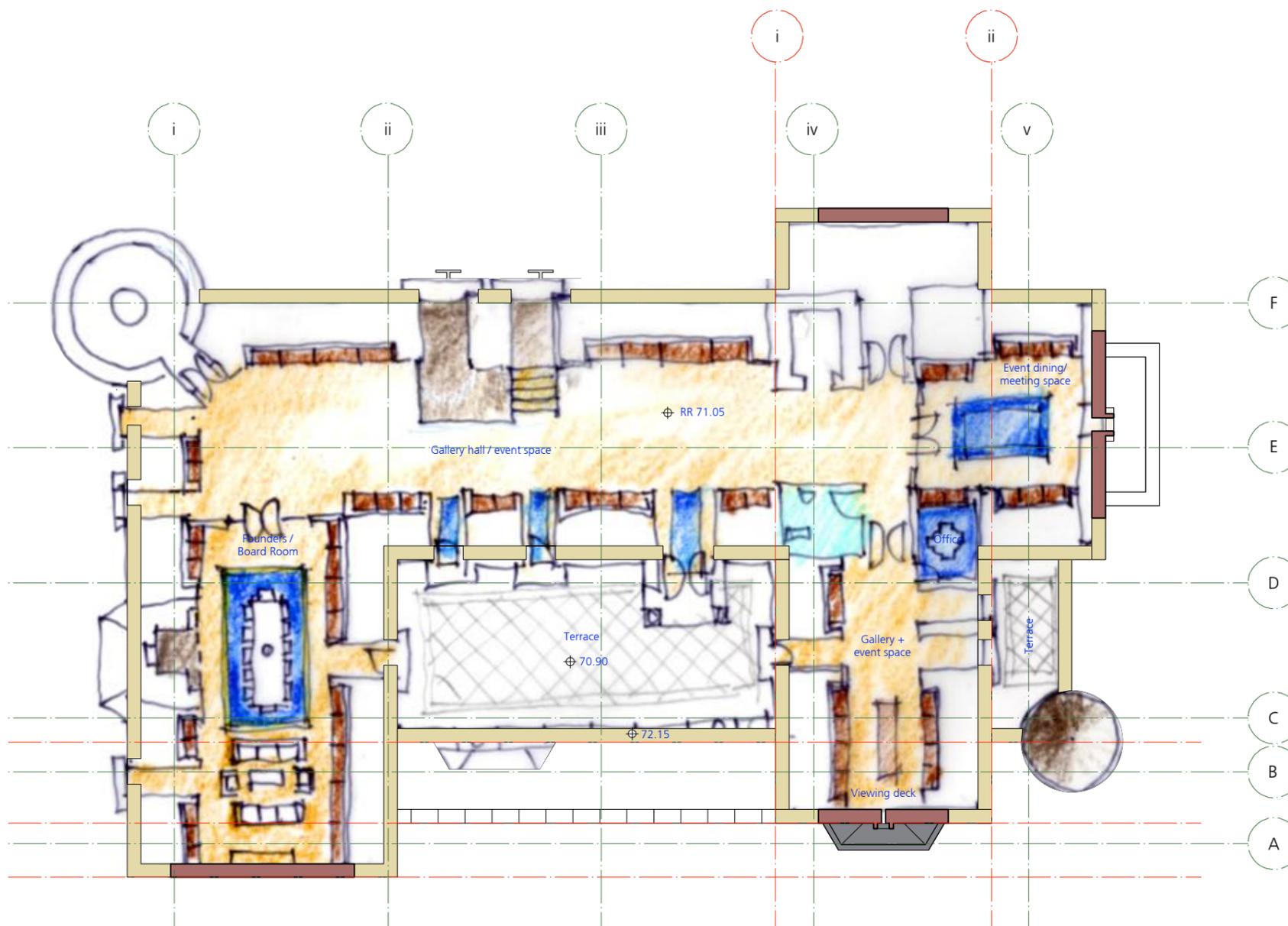
Floor Area: 655m²

GENERAL NOTES
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DRAWING NUMBER



1 Proposed Fifth Floor Plan
 Scale: 1:200. Founders Room + Event Space

Floor Area: 312m²

GENERAL NOTES

- Consult with ALL relevant authorities prior to commencing works
- DO NOT scale. All dimensions are nominal + should be confirmed on site prior to commencement
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