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FULL SCALE AMRF BUILDING 2

S4.55 MOD 1 REPORT

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This report is considered a draft unless signed by a Director	Approved by: 
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Acknowledgment of Country

This Country is nattai gurad/nura (freshwater Country). For millennia, streams of freshwater have run from the mountains and sprung from underground aquifers, coursing across the earth and sculpting Country into many of the landforms we can still see today, including barrabirra (ephemeral ponds) and nadunga (a hill, rise or ridgeline).

As the waters run, they nourish vast fields of bamuru (grass) and bundago (native daisy yam/murnong); feeding local people as well as those on the journey to Yandel'ora (a place of peace between peoples now known as Mt Annan). The flowing freshwater nurtures and heals, providing a safe place for birth, medicines and ceremony.

For thousands of generations, this Country has been carefully managed and protected in a reciprocal relationship with local custodians including the D'harawal, Dharug and Gundungurra peoples, and others with access and cultural responsibilities such as Guri-Ngai and Darkijung, Yuin and Gai-mariagal. We pay our respects to their Ancestors and Elders, past, present and emerging and honour their unique Ancestral connections to Country, story and knowledge.

Today, we also acknowledge all of the Aboriginal and Torres Strait Islander peoples who have come from across Australia to make this Country their home. We honour their cultures, stories and the contributions they have made to the area now known as the Greater Sydney region. We now undertake work with Country respecting the stories and knowledges unique to this place, and with the deep understanding that this always was, and always will be, Aboriginal land.

Didjariguru naba guwaniy'o miya.

Thank you for remembering our Ancestors.

Shannon Foster
D'harawal Eora Knowledge Keeper
ORALRA registered Traditional Owner in the
Sydney Basin

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View of Full Scale AMRF Building 2 from AMRF Park
Image by Architectus

Executive Summary

The Advanced Manufacturing and Readiness Facility has undertaken a comprehensive review of its functional requirements to ensure that it is prioritising delivery of industry critical infrastructure.

The design of the AMRF has been refined to focus on the main functional aspects of the building, prioritising the delivery of clean labs, the manufacturing hall, and the conferencing facilities.

Reduction of Scope

Focusing on the functional requirements of the building, BDA provided a direction to evaluate and remove any aspect of the building which was not related to the critical function of the AMRF. This has resulted in a significant reduction of the basement spaces and the deletion of on-site parking within the building. Loading and materials handling has been relocated to the Southwest corner of the ground level and the Manufacturing Hall has been shifted to the North. The majority of the plant which was below grade has now been relocated above the loading dock area. These changes have resulted in a significant reduction in piling and excavation for the project, reducing project costs and programme for the in-ground works.

Clean Rooms

Through consultation with industry partners it was determined that the clean rooms would be upgraded from ISO 6/7 to ISO 5 for all clean environments. This upgrade will facilitate a broader spectrum of work to be undertaken within the clean rooms. Significant upgrades to the building services associated with the laboratories will be required, including changes to the mechanical units, the hydraulic supply and trade waste systems, gas supply and storage, and materials handling.

The structure of the Level 2 clean rooms has been changed to a precast system to allow for higher equipment loading and improved VC vibration performance.

Manufacturing Hall

The Manufacturing Hall remains an open environment with flexibility for future installation of equipment and reconfiguration of the internal spaces. The entirety of the manufacturing hall slab is on-grade to create a stable environment for vibration sensitive equipment. Within the hall a mezzanine level has been included to create additional user space away from the equipment zone. This area has a significantly lower vibration performance requirement.

Dangerous Goods

Based on the equipment and processes projected to be undertaken, a comprehensive list of cryogens, gases, and chemicals has been produced which will be housed within the facility. Care has been taken to research the dangerous goods handling and storage requirements, and the plans have been updated to suit.

Materials handling is separated into two areas of the facility. At the Western Loading Dock, chemicals will be delivered to the building and stored within dedicated dangerous goods areas. These include chemicals which will be used within the labs, and chemicals which will be used for the neutralisation of waste within the facility.



View of Full Scale AMRF Building 2 from south-west. Image by Architectus

At the Eastern Laneway, ventilated enclosures are provided for the handling and storage of both bulk cryogens and gas bottle storage. The bulk cryogen storage houses an Argon tank and a Nitrogen tank along with vaporisers for gas production. The gas bottle storage houses a selection of gases which will be used at the facility within a ventilated enclosure. Where appropriate the gases are housed in cabinets which are diluted and vented to the roof.

Conferencing Facilities

The Conferencing Facilities have been updated to be accessed from Level 2 with a main conference hall which spans across two levels. These facilities have been removed from this Tender scope in accordance with the Construction Staging strategy outlined below.

Staging of Construction

A staged approach to construction will be undertaken to deliver the facility. The updated design allows for the building to be delivered in two stages with Stage 1 including the Laboratories and Manufacturing Hall, and Stage 2 includes the Conferencing Facilities. The Tender submissions will only take into account the areas being delivered in Stage 1 and the options described for pricing. The strategy for staging is further defined in this document.



View of Full Scale AMRF Building 2 from west
Image by Architectus

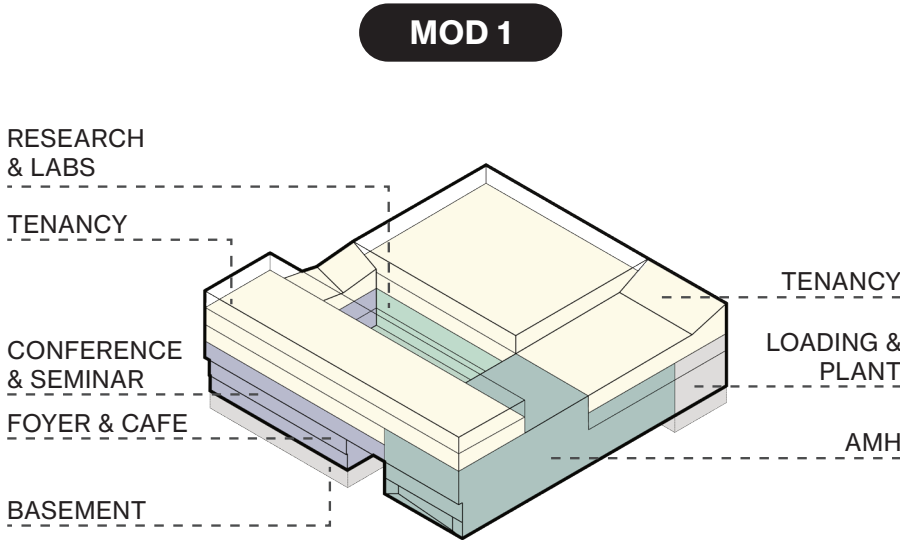
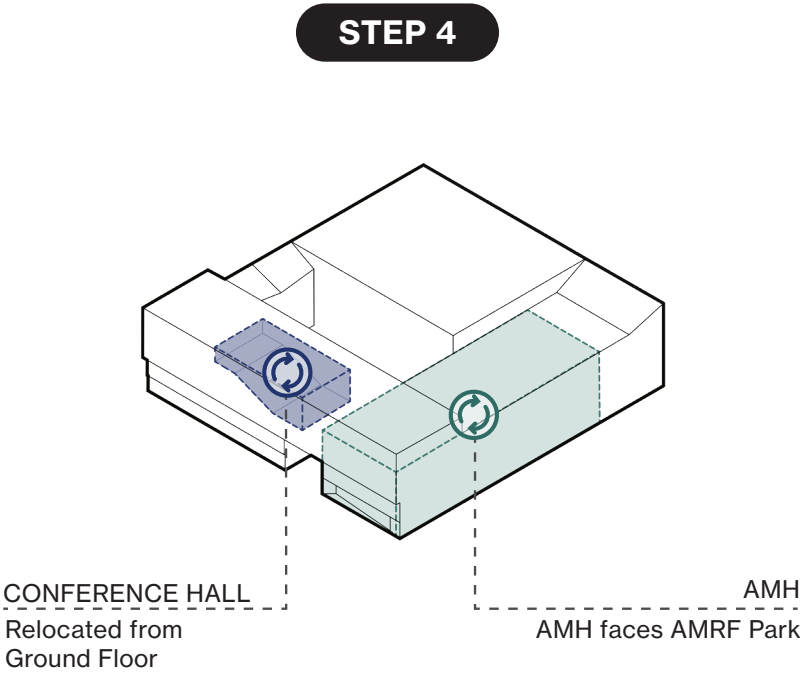
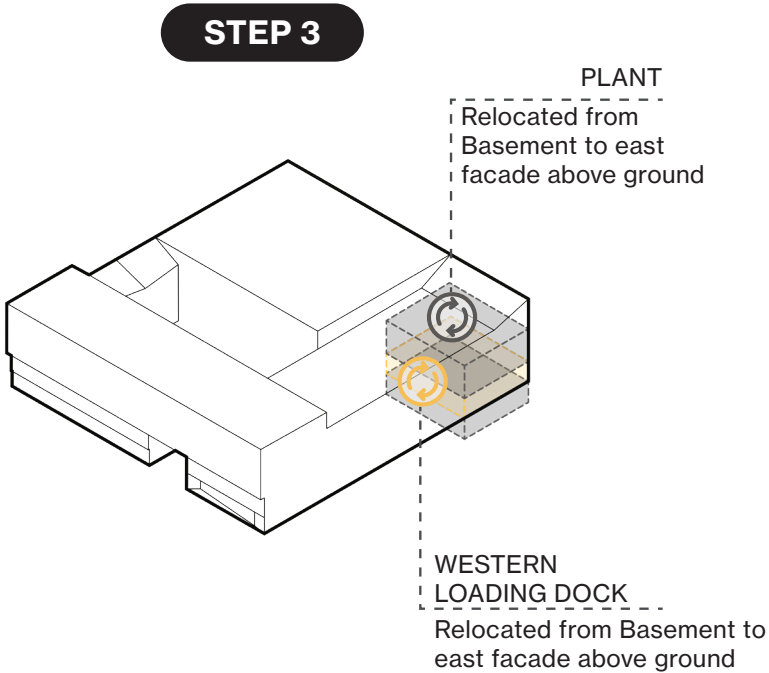
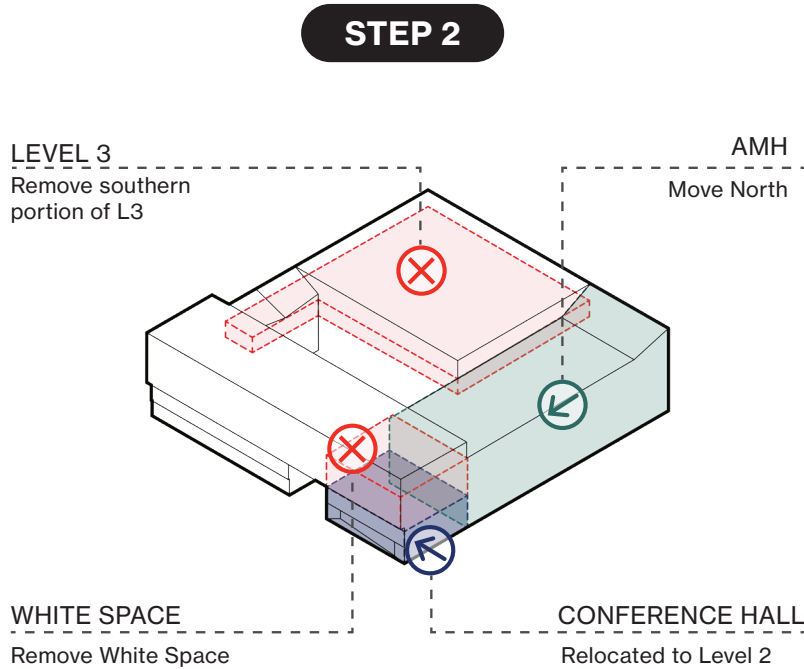
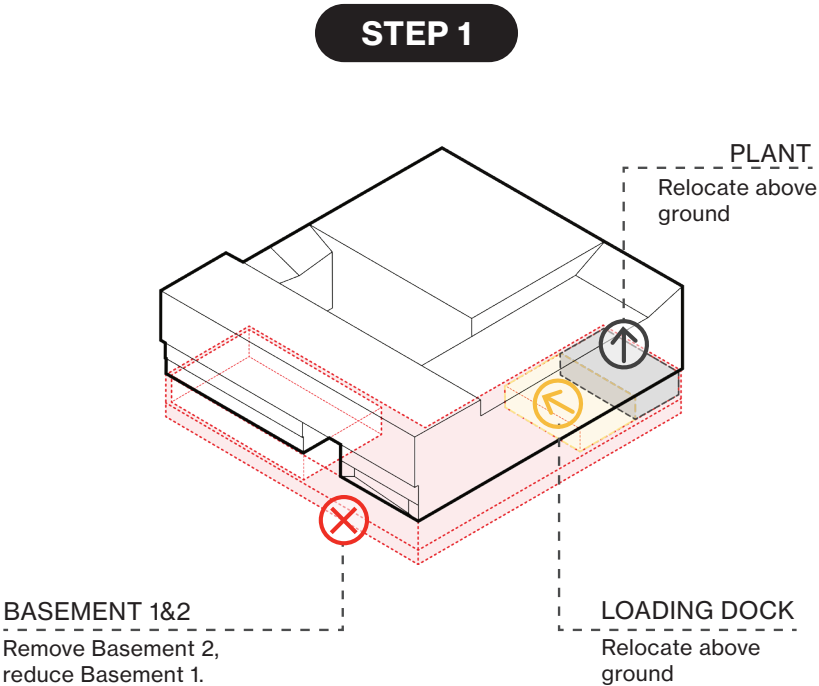
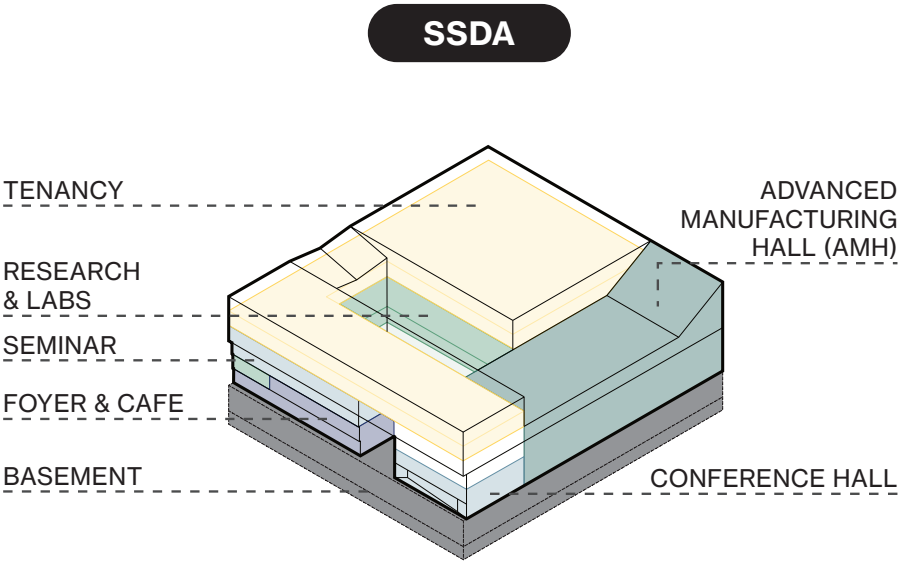
SPATIAL CHANGES

1

COMPARISON
OVERVIEW

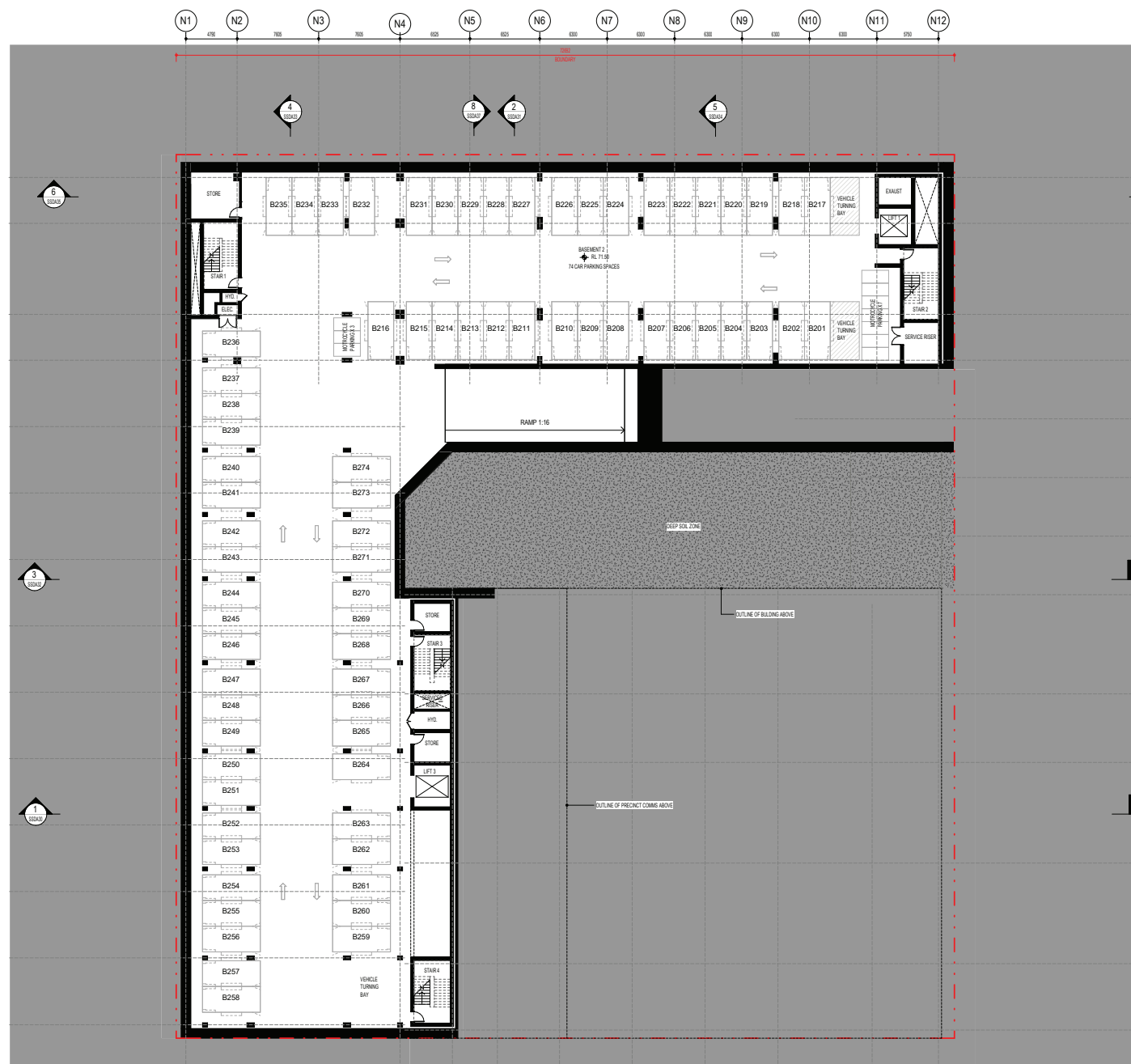
Design Update

Spatial Diagram



Planning Changes Basement 2 Comparison

SSDA



Carparking & BOH

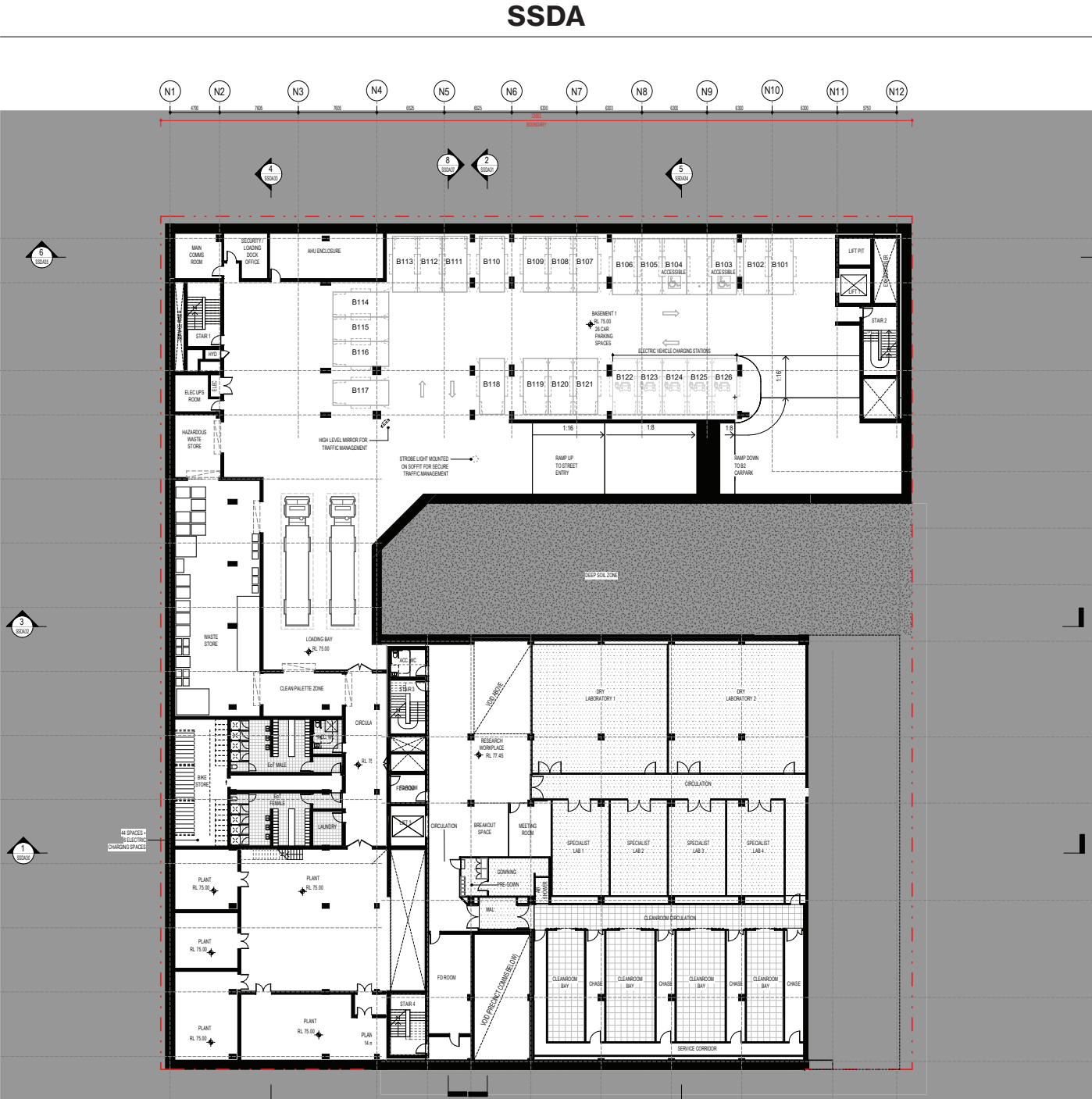
MOD 1 PROPOSAL



Basement 2 removed

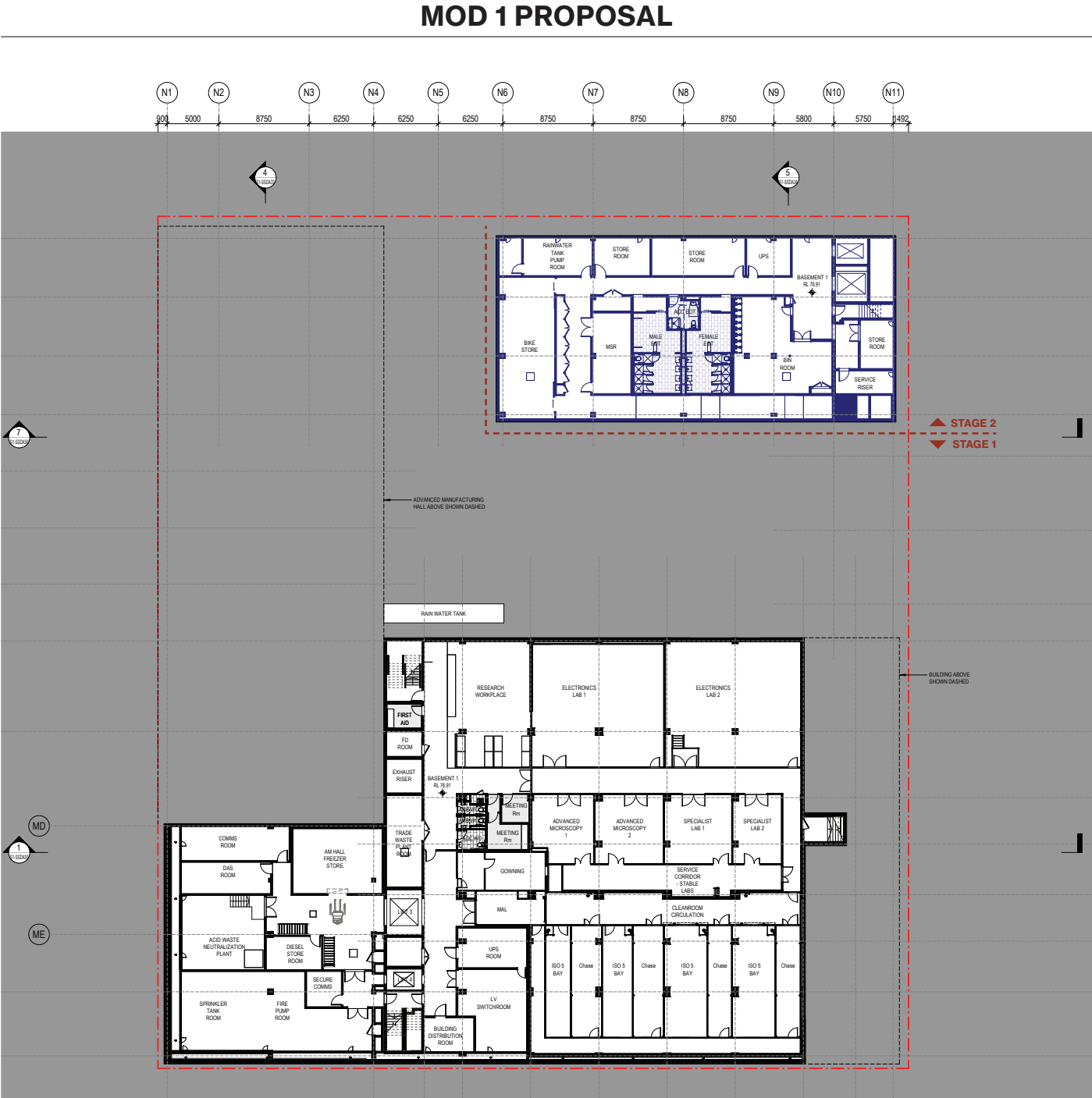
Planning Changes

Basement 1 Comparison



* Basement 1 and Lower Ground drawings overlayed together

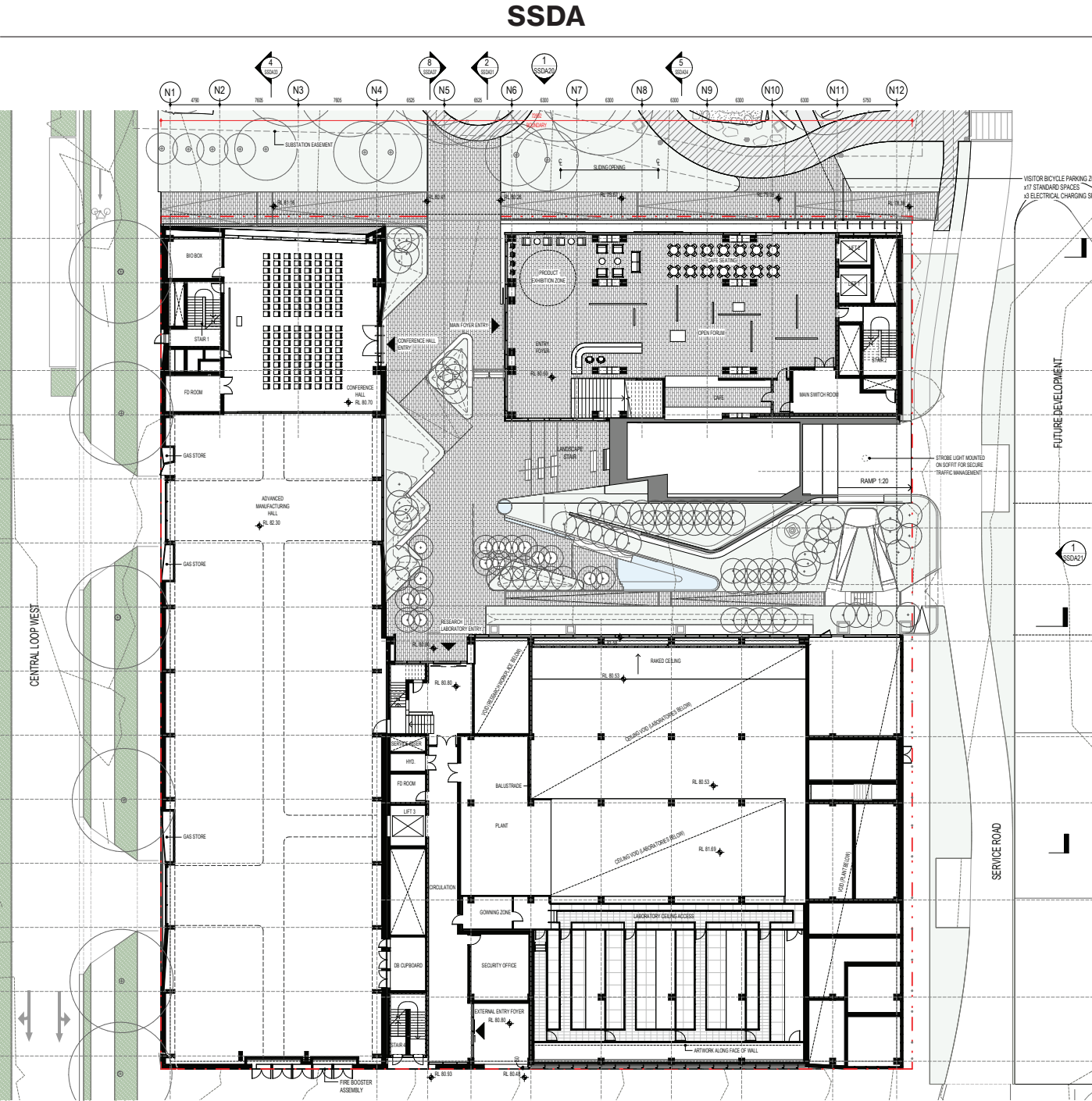
- Carparking
- Loading Bay
- Plant & BOH
- End of trip facilities
- Research Laboratories



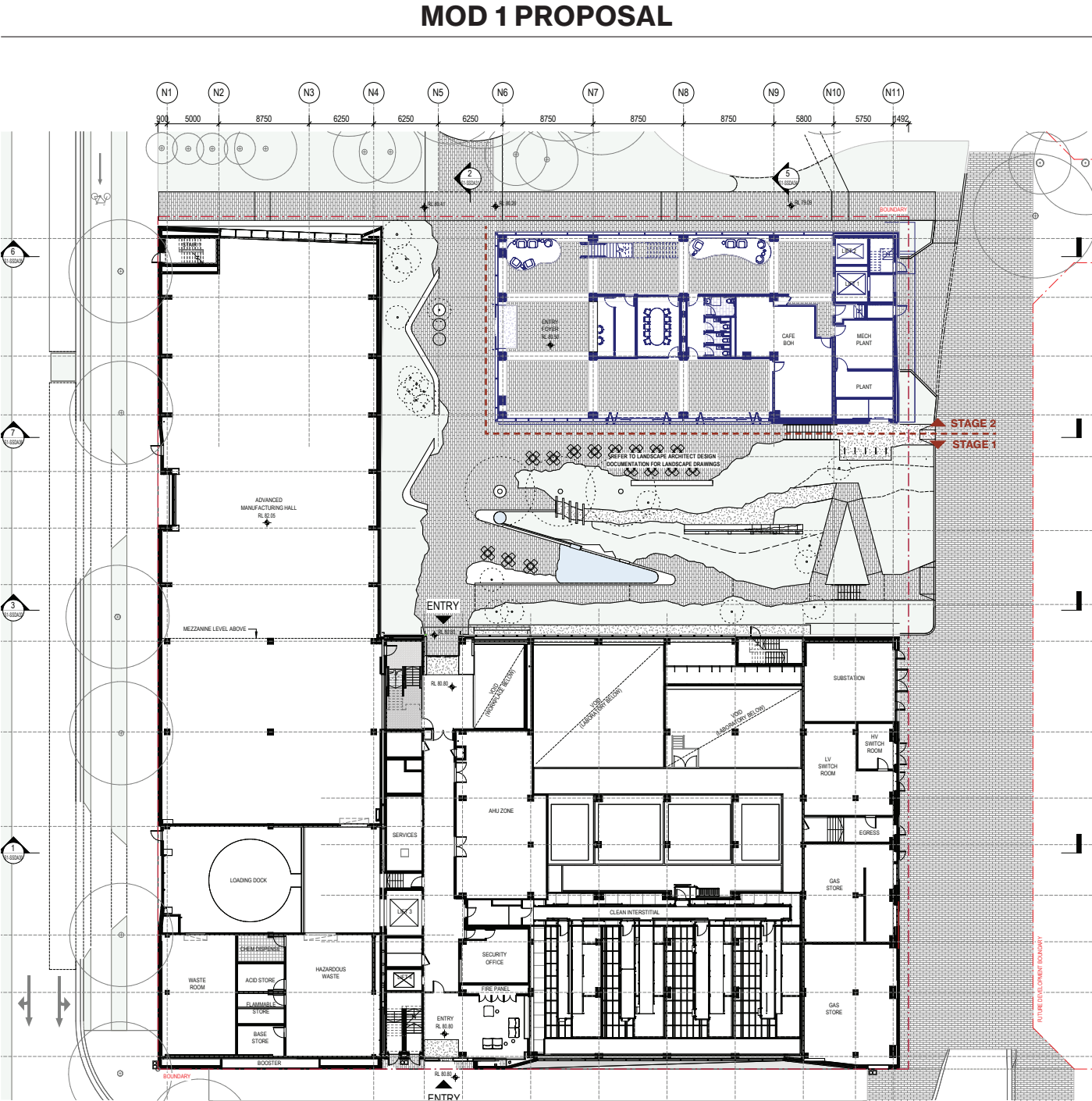
- Stage 1
 - Plant & BOH
 - End of Trip facilities (to be relocated in Stage 2)
 - Research Laboratories
 - Loading Bay relocated to Ground Floor
- Stage 2
 - Plant & BOH
 - End of Trip facilities (relocated from Stage 1)

Planning Changes

Ground Floor Comparison



- Advanced Manufacturing Hall
- Conferencing Facilities
- Main Entry Foyer
- Cafe
- Courtyard
- Research Laboratories
- Substation & Gas Storage



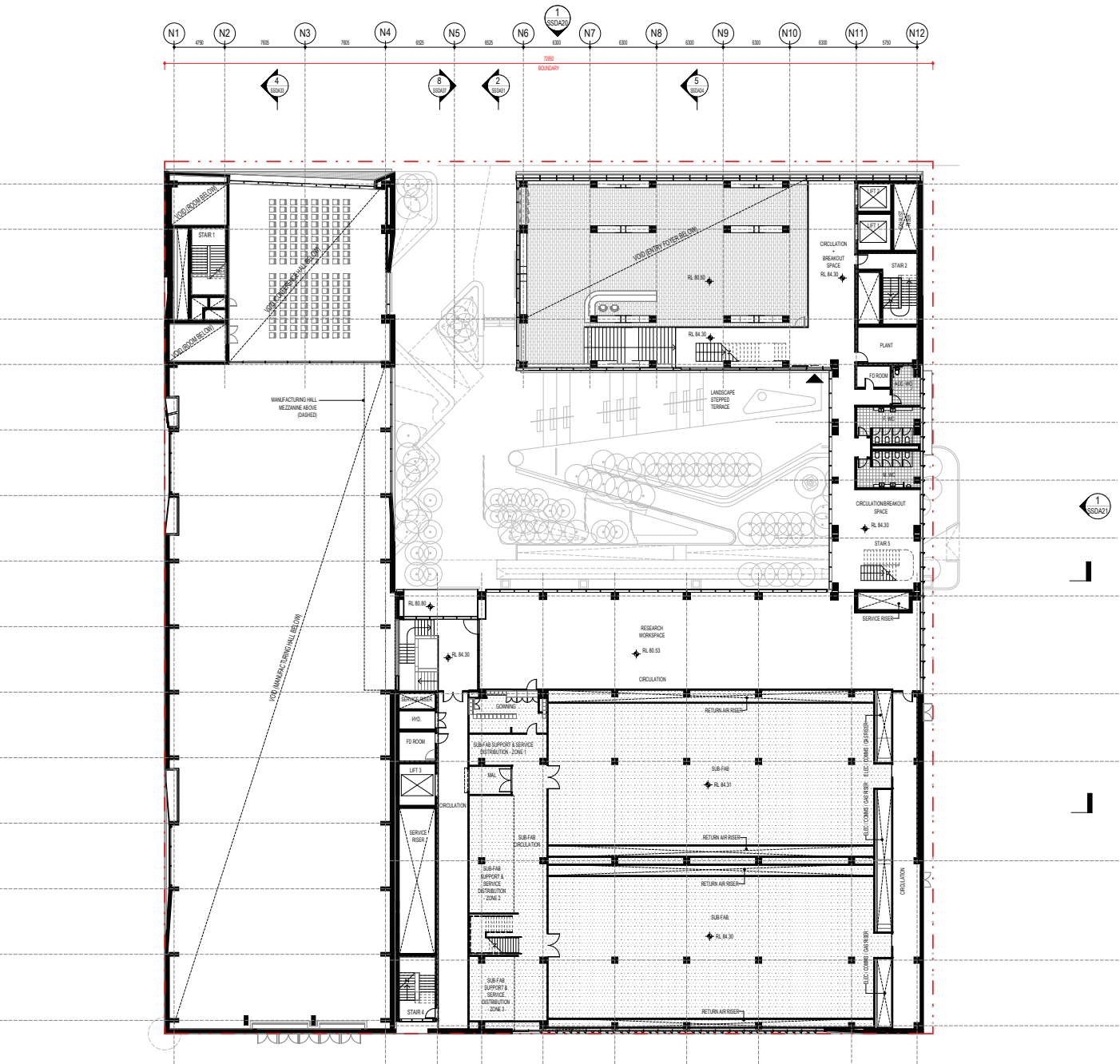
- Stage 1
- Advanced Manufacturing Hall
- Loading Bay
- Courtyard
- Research Laboratories
- Substation & Gas Storage

- Stage 2
- Conferencing Facilities relocated to Level 2
- Main Entry Foyer
- Cafe

Planning Changes

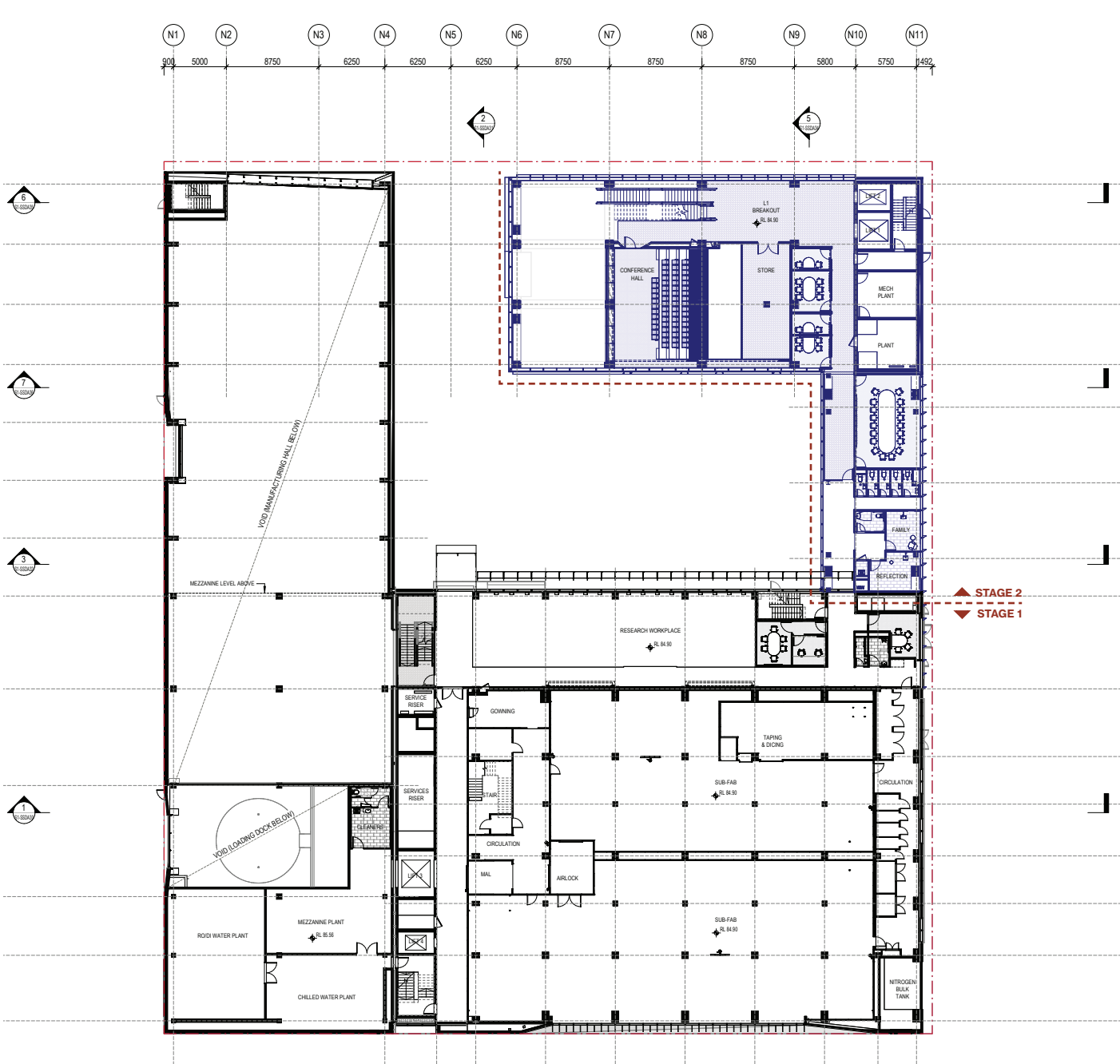
Level 1 Comparison

SSDA



Research Workplace
Research Laboratories

MOD 1 PROPOSAL



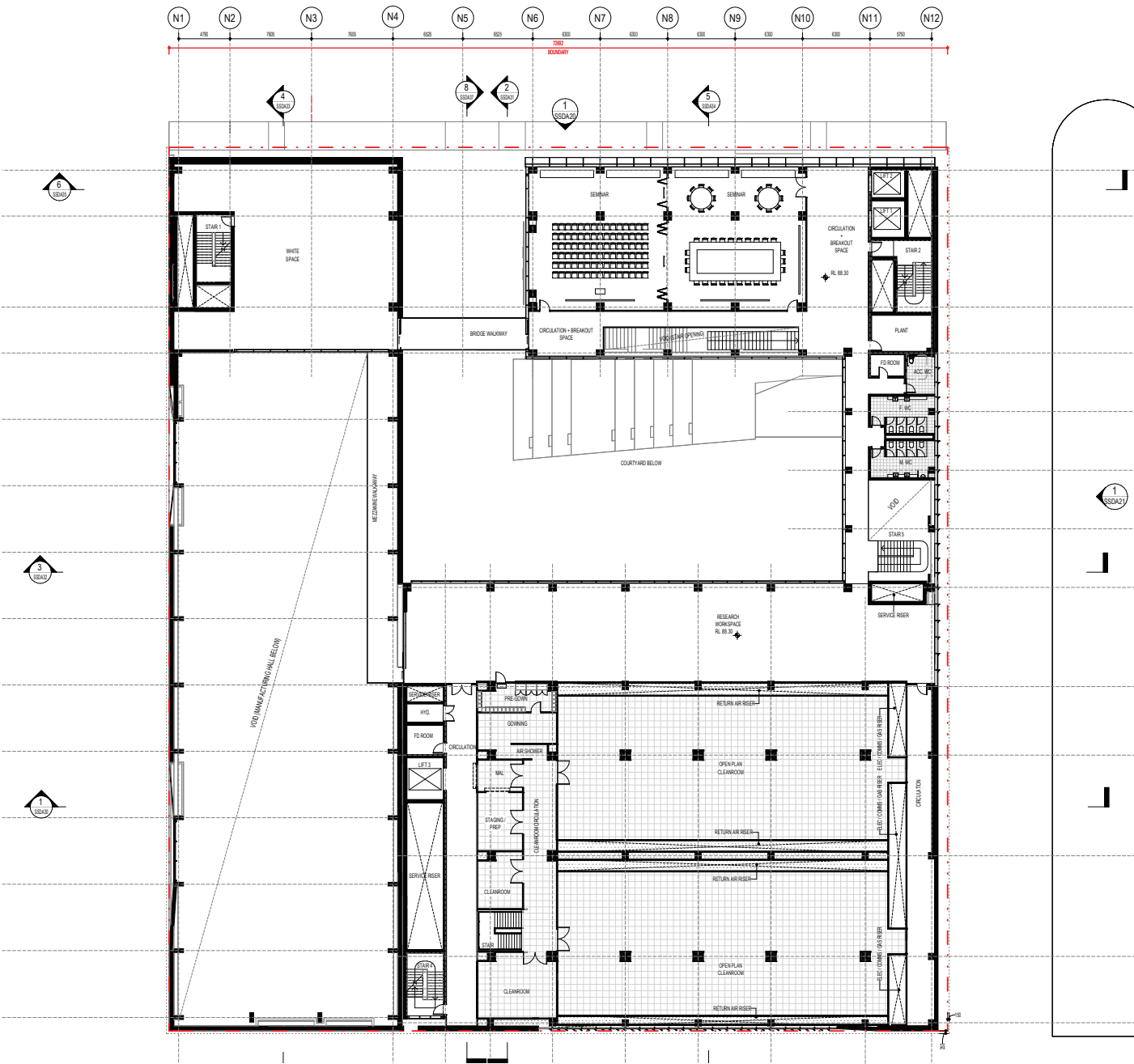
Stage 1
Research Workplace
Research Laboratories
Plant relocated from Basement

Stage 2
Conferencing Facilities relocated from
Ground Floor

Planning Changes

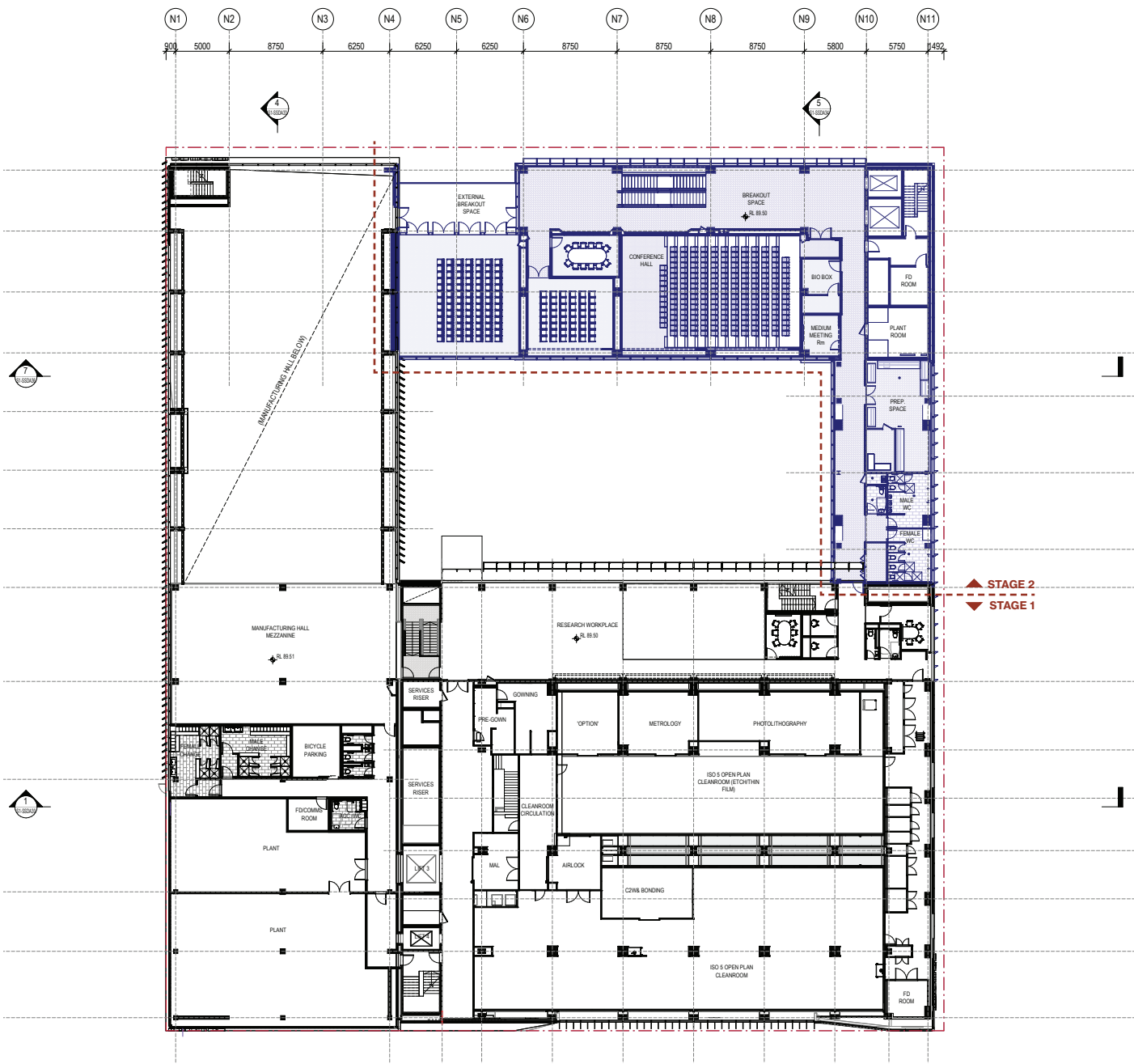
Level 2 Comparison

SSDA



- White Space
- Seminar Facilities
- Research Workplace
- Research Laboratories

MOD 1 PROPOSAL

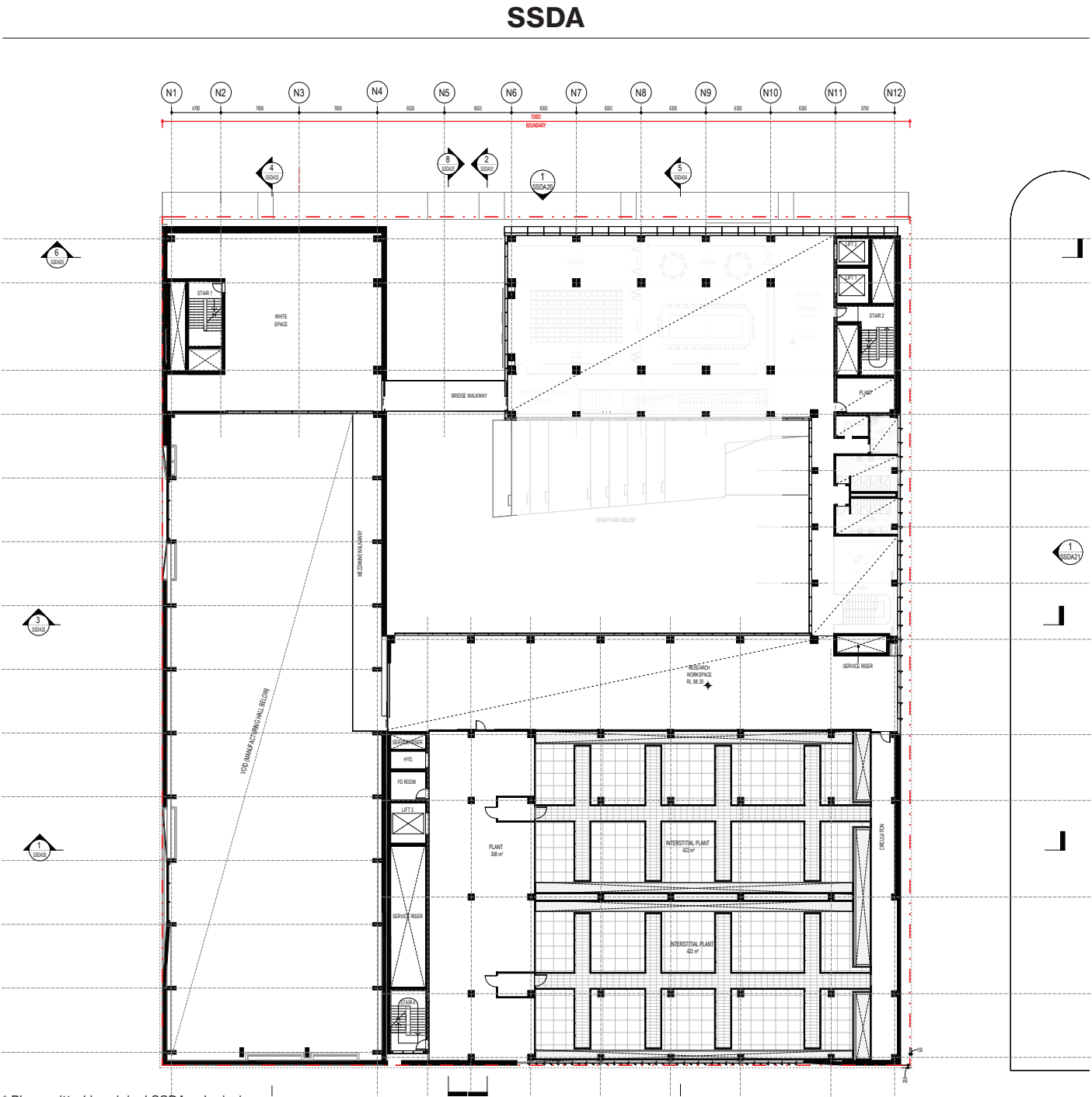


- Stage 1
- Research Workplace
- Research Laboratories
- Plant relocated from Basement

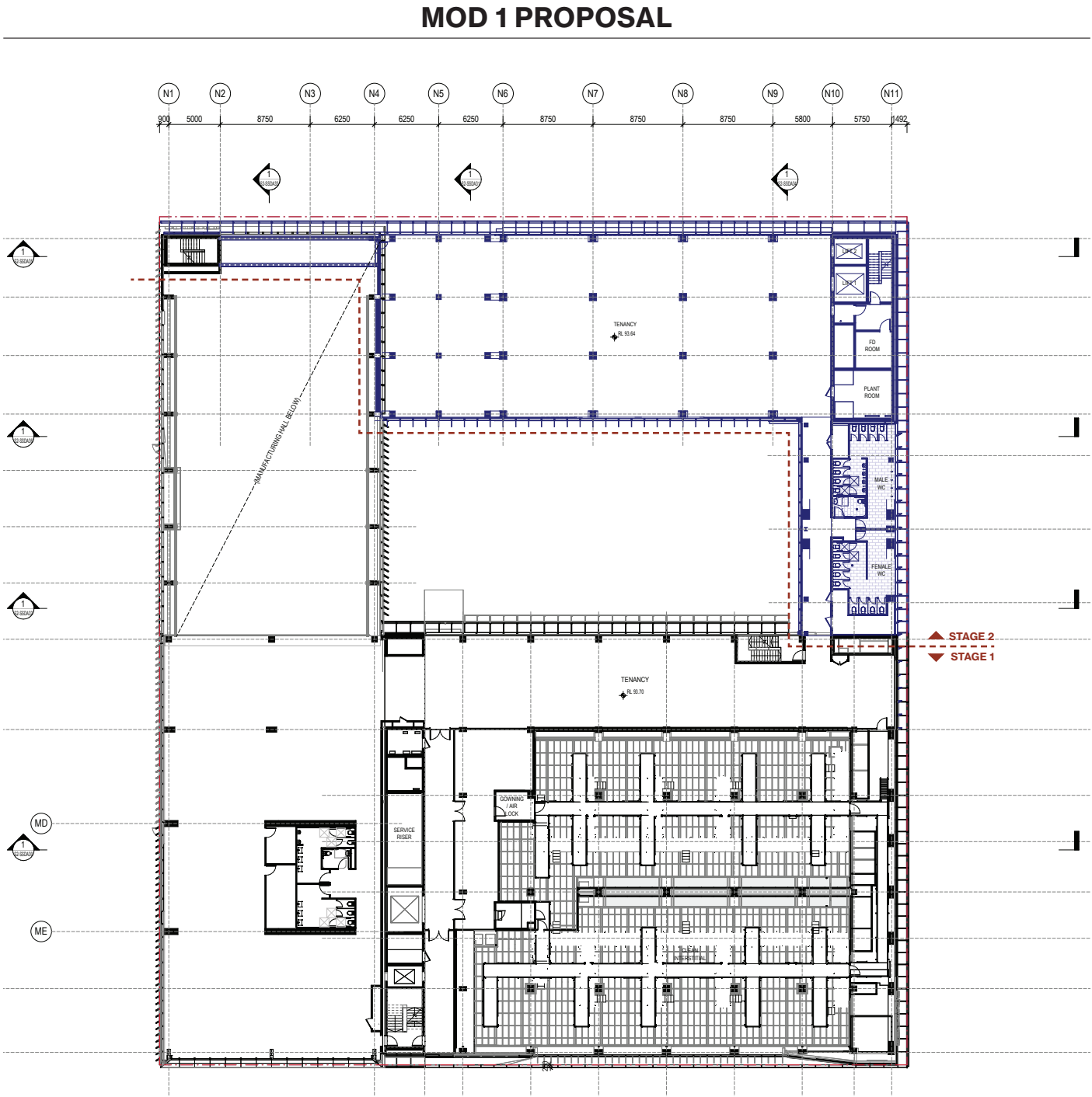
- Stage 2
- Conferencing Facilities relocated from Ground Floor
- Seminar Facilities

Planning Changes

Level 3 Comparison



Void above Advanced Manufacturing Hall,
Seminar Space & Research Workplace
Research Laboratory Plant

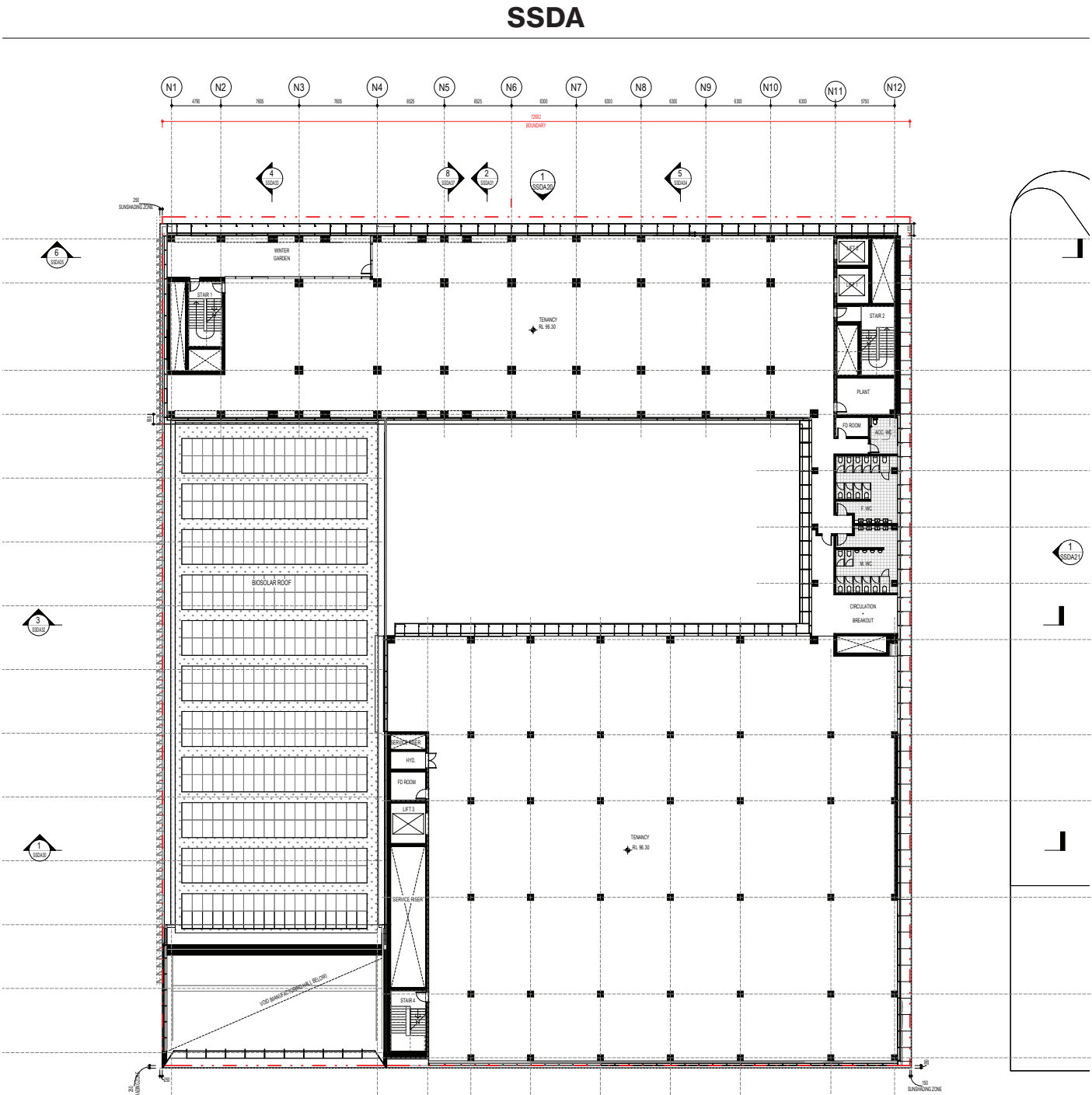


Stage 1
Void above Advanced Manufacturing Hall
Tenancy
Research Laboratory Plant

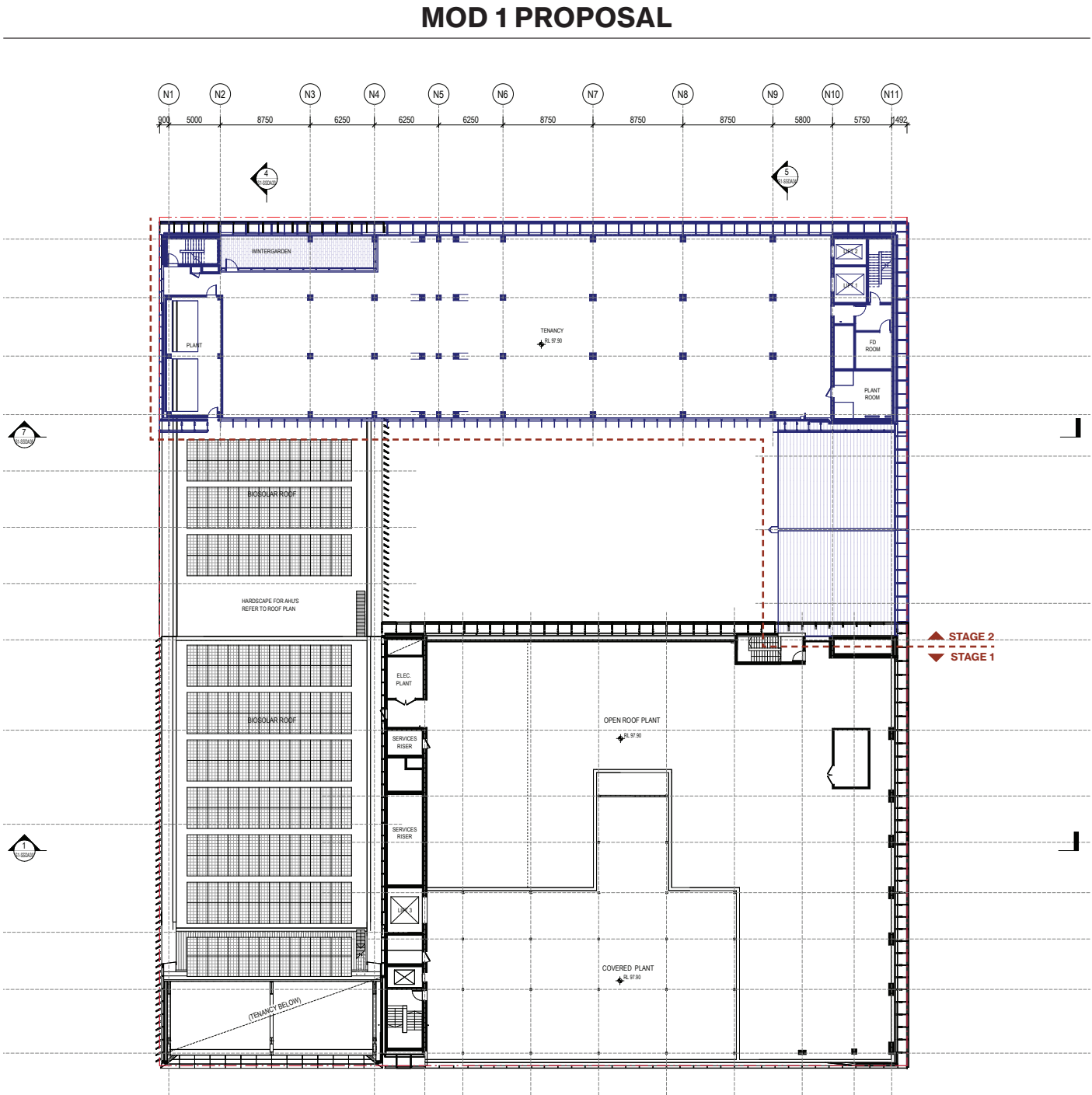
Stage 2
Tenancy

Planning Changes

Level 4 Comparison



Tenancy
Biosolar Roof



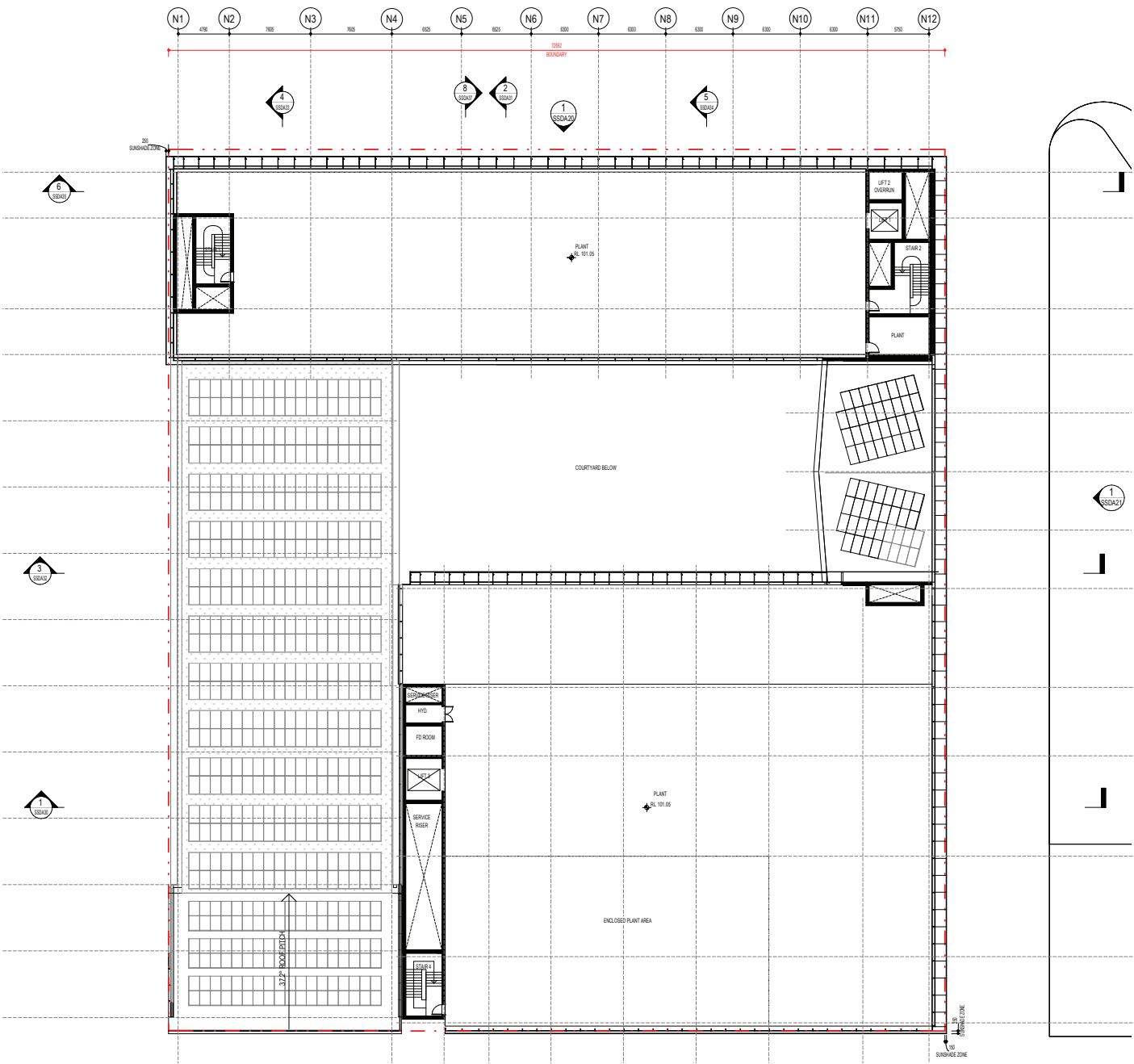
Stage 1
Biosolar Roof
Plant

Stage 2
Tenancy reduced

Planning Changes

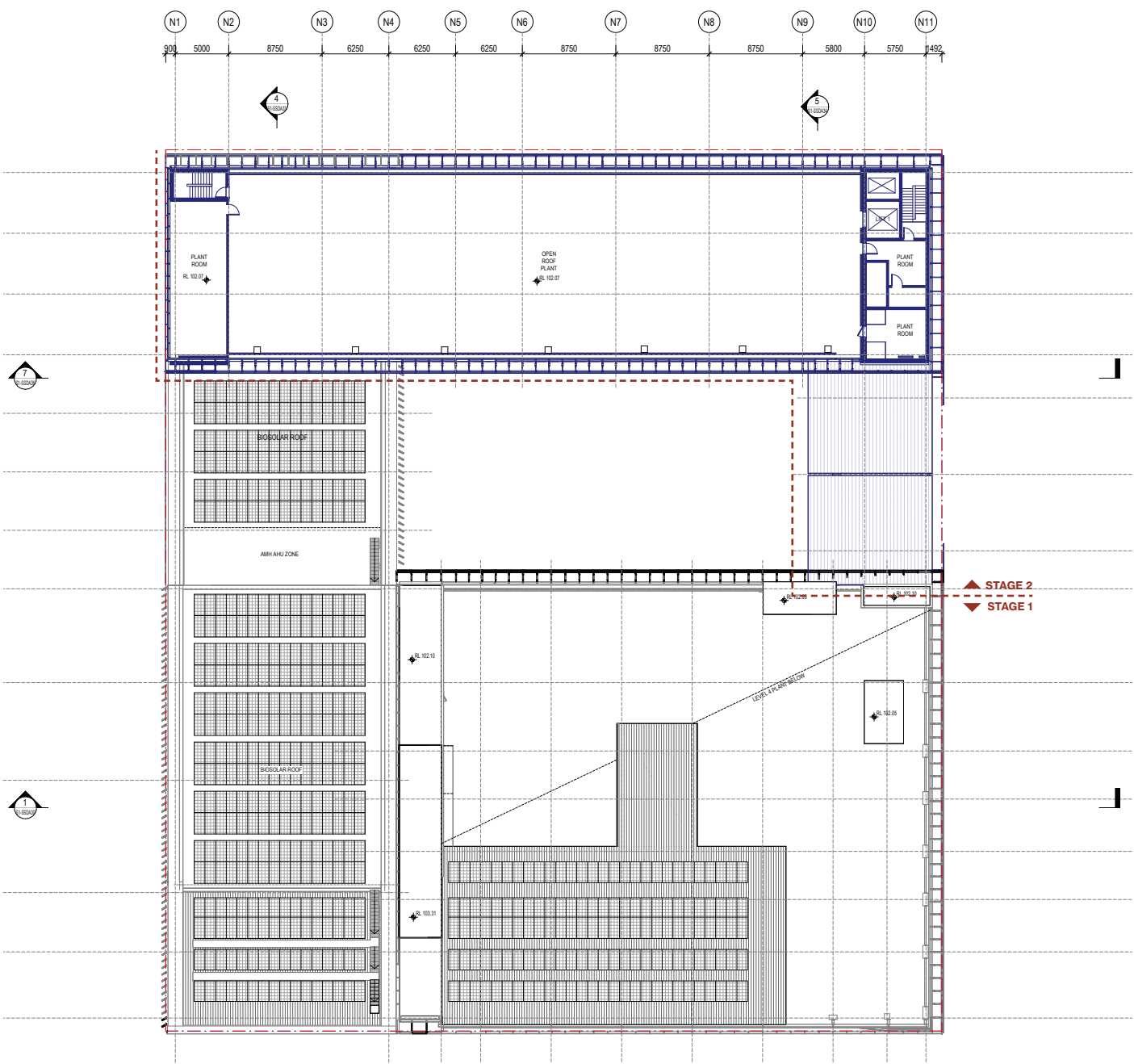
Roof Comparison

SSDA



Plant

MOD 1 PROPOSAL



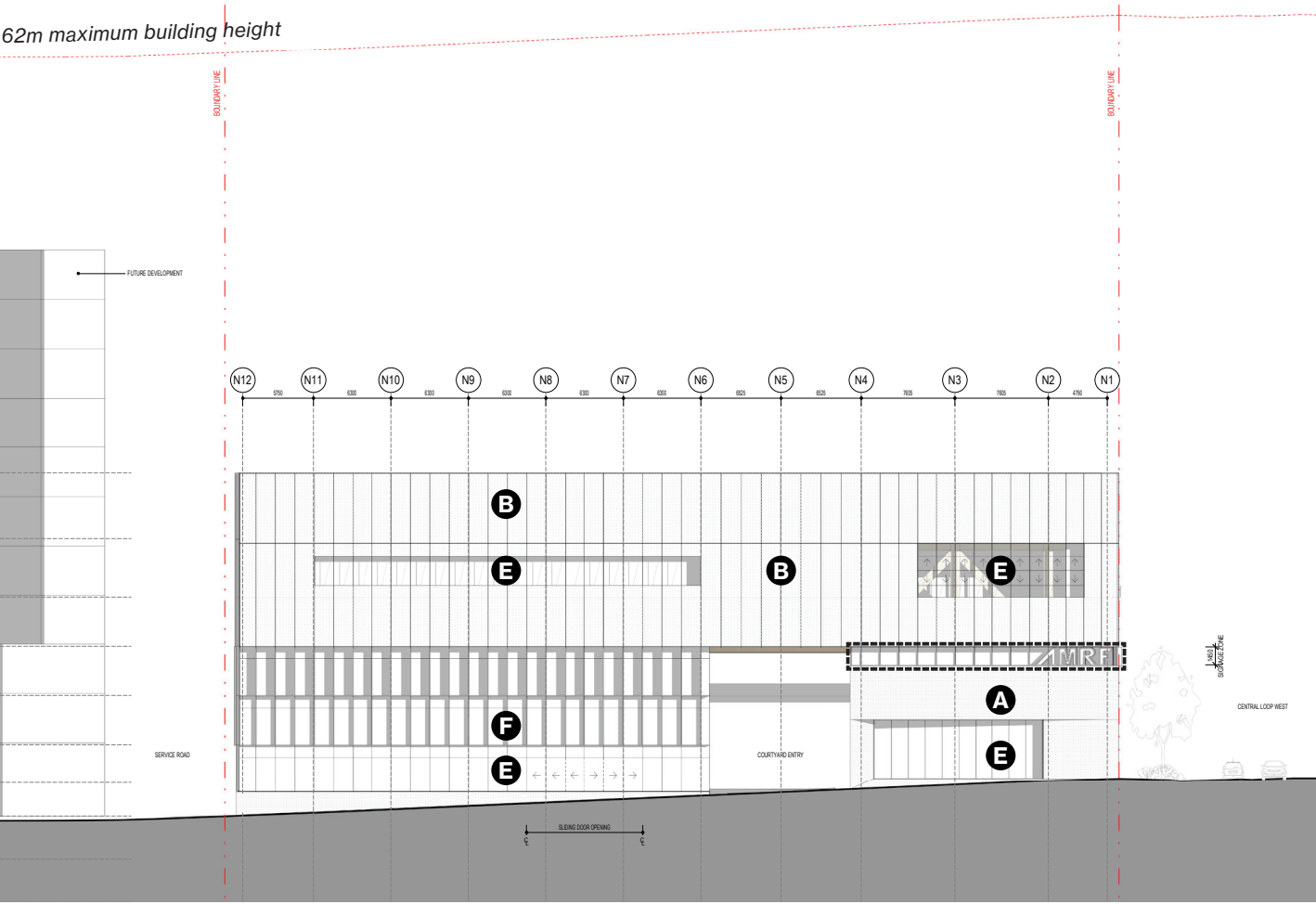
Stage 1
Plant

Stage 2
Plant

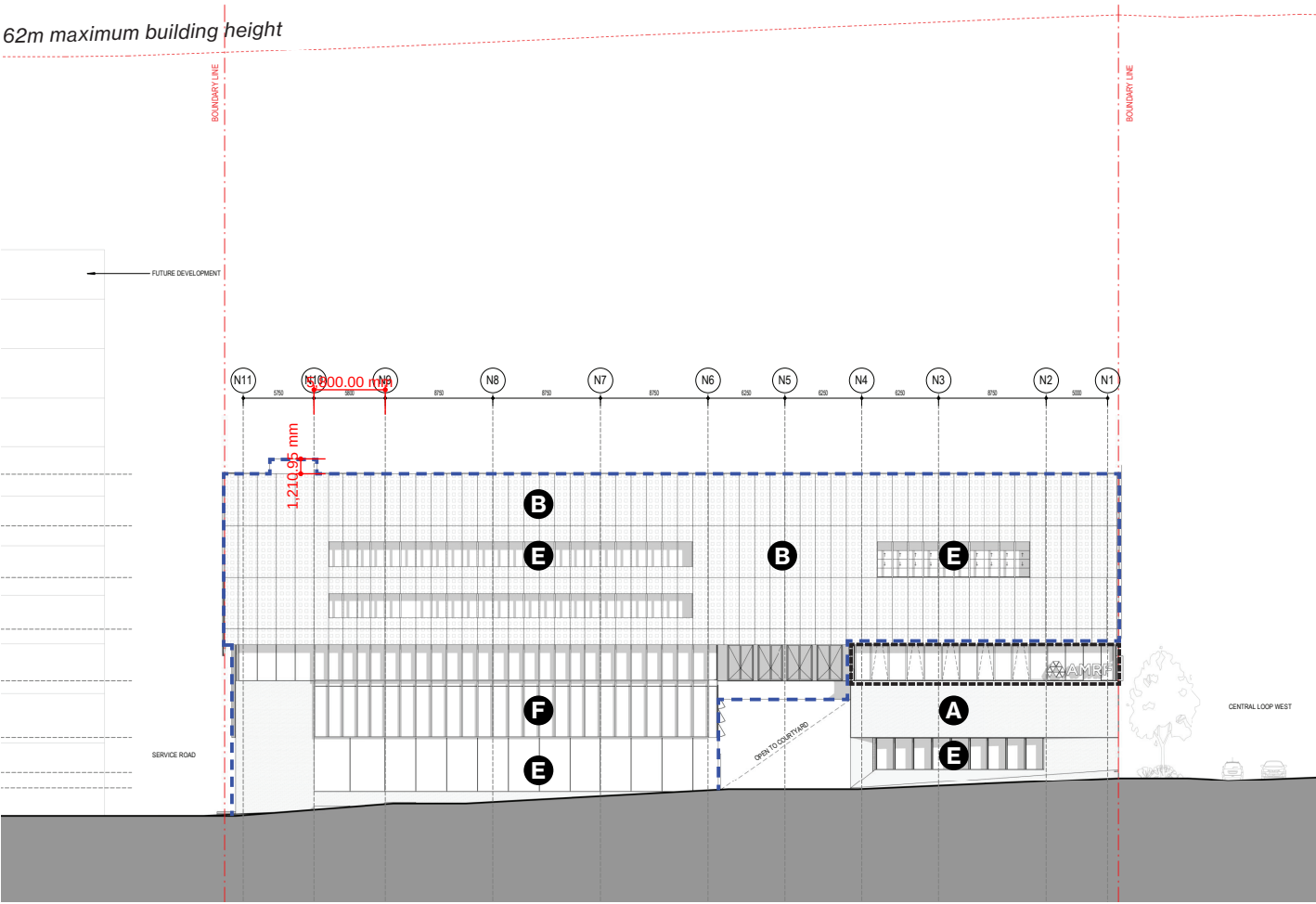
Facade Changes

North Elevation Comparison

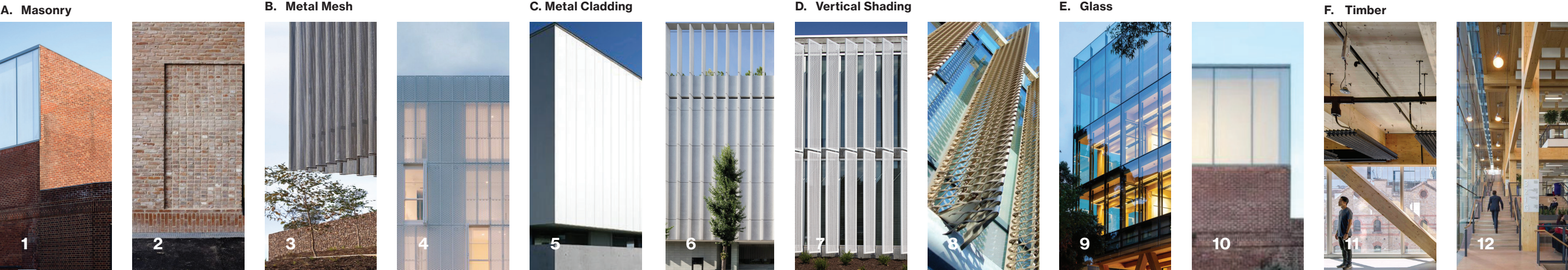
SSDA



MOD 1 PROPOSAL



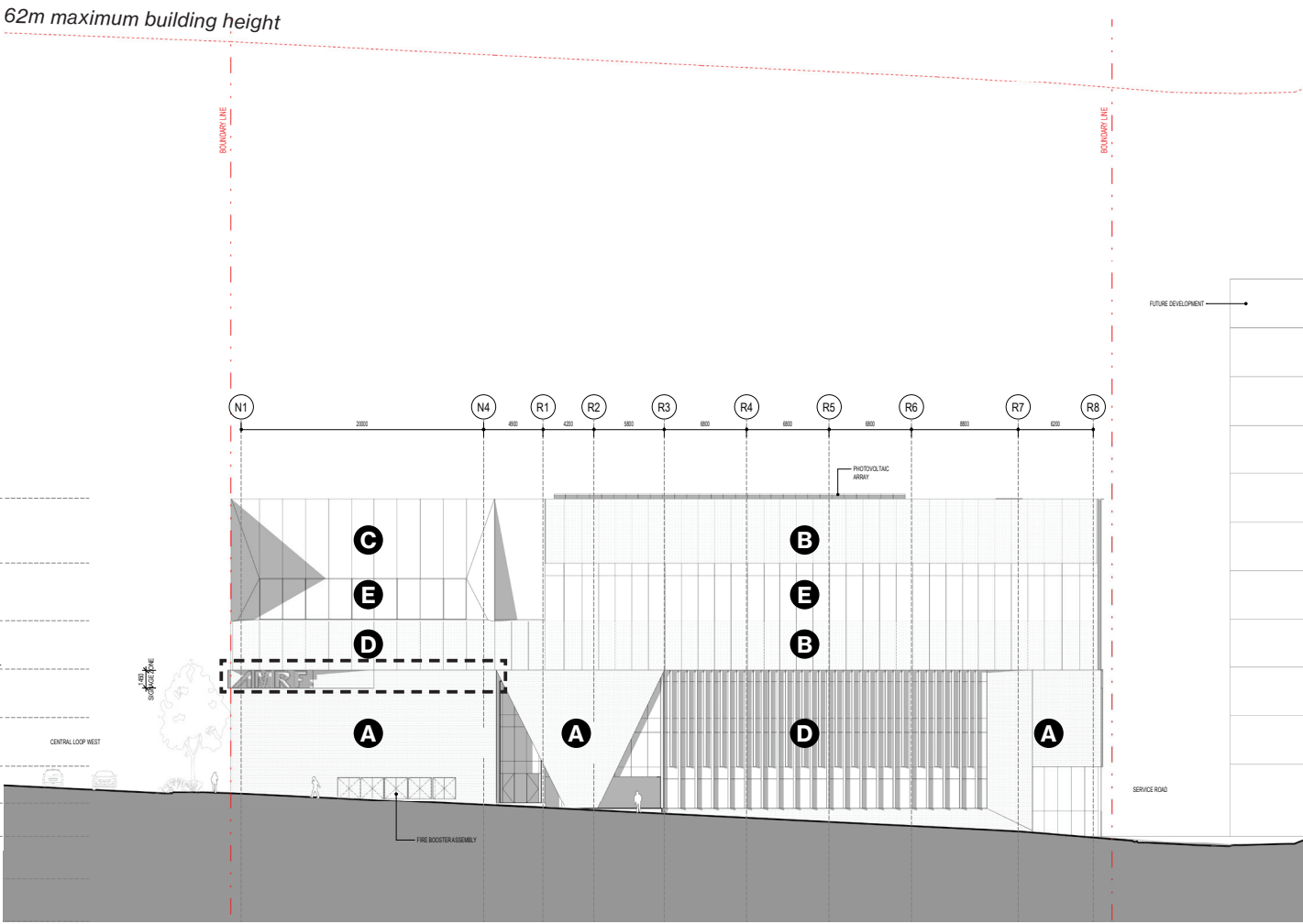
Stage 2
Signage Zone



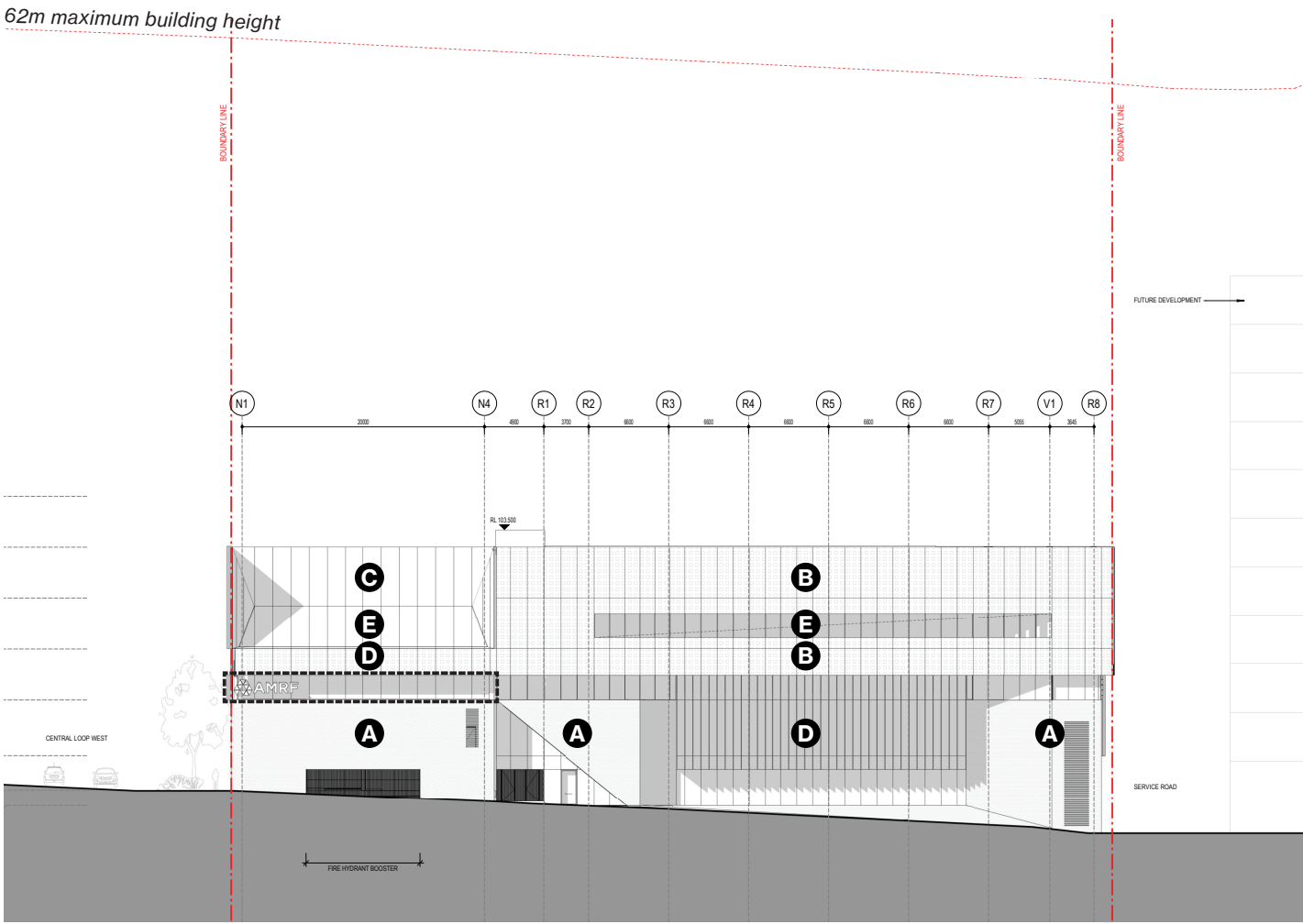
Facade Changes

South Elevation Comparison

SSDA



MOD 1 PROPOSAL

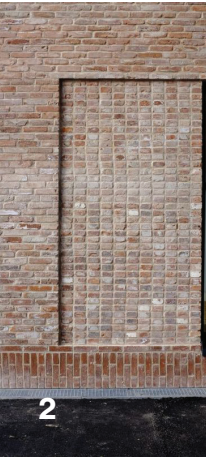


Stage 2
Signage Zone

A. Masonry



B. Metal Mesh



C. Metal Cladding



D. Vertical Shading



E. Glass



F. Timber



1



2



3



4



5



6



Facade Changes

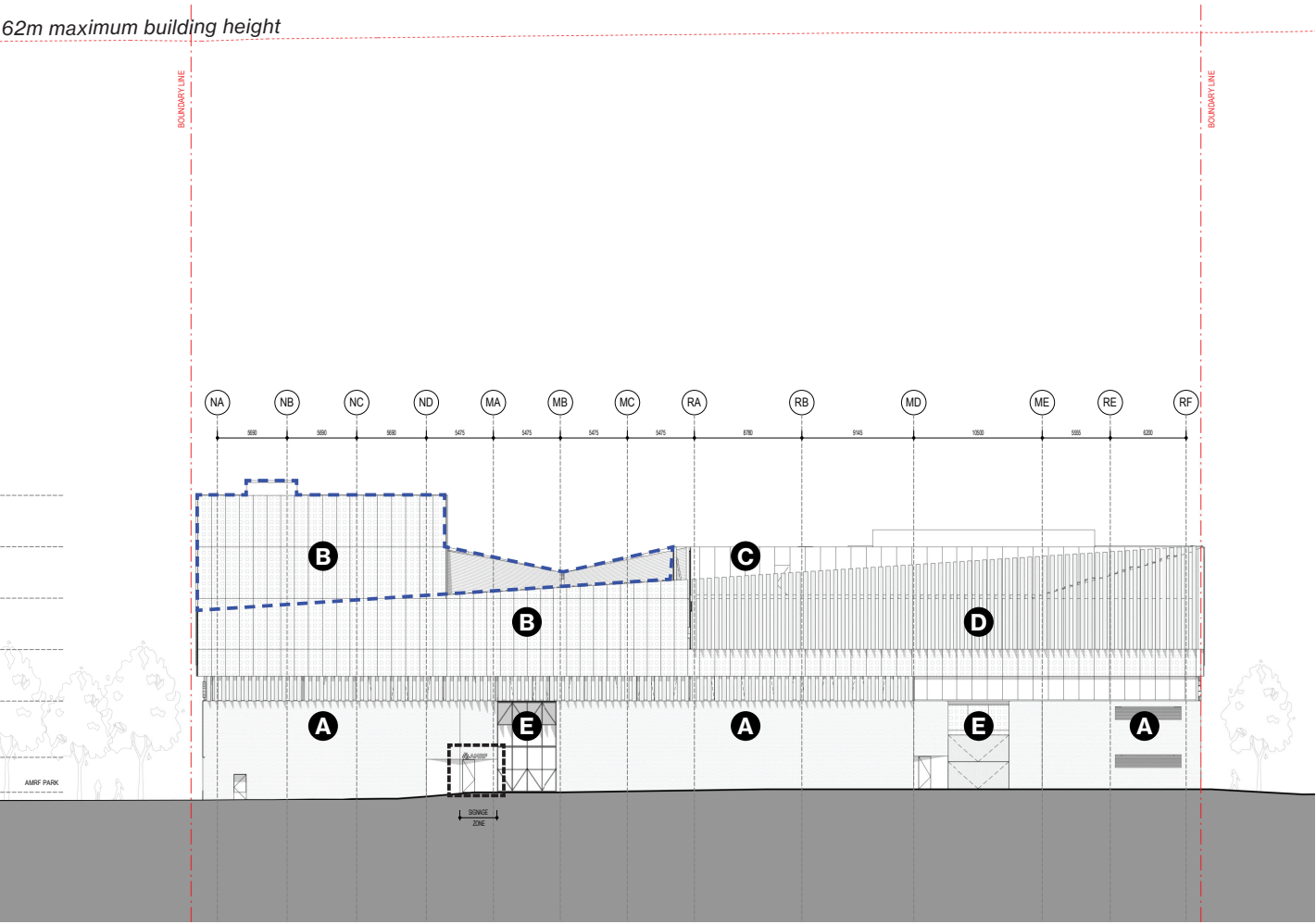
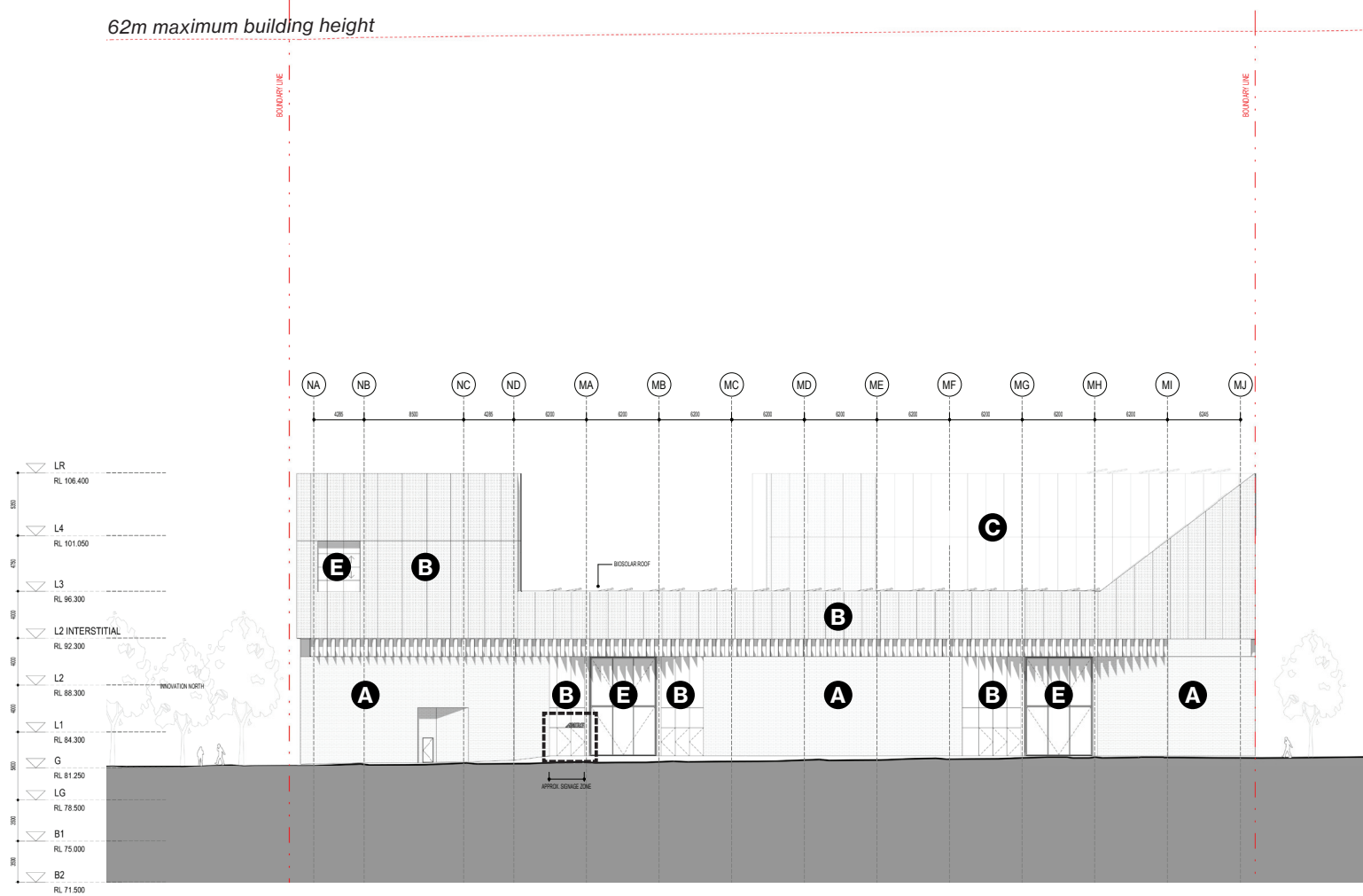
West Elevation Comparison

SSDA

MOD 1 PROPOSAL

62m maximum building height

62m maximum building height

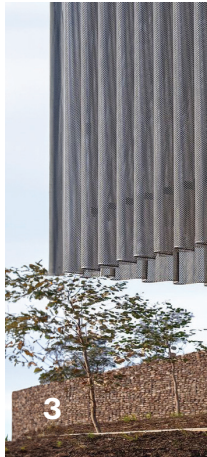


Stage 2
Signage Zone

A. Masonry



B. Metal Mesh



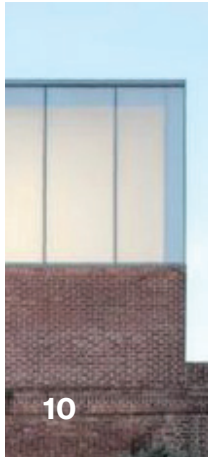
C. Metal Cladding



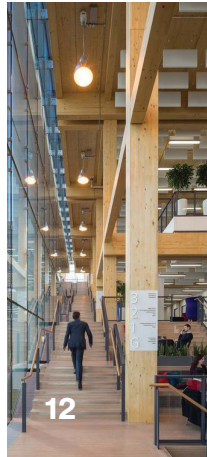
D. Vertical Shading



E. Glass



F. Timber

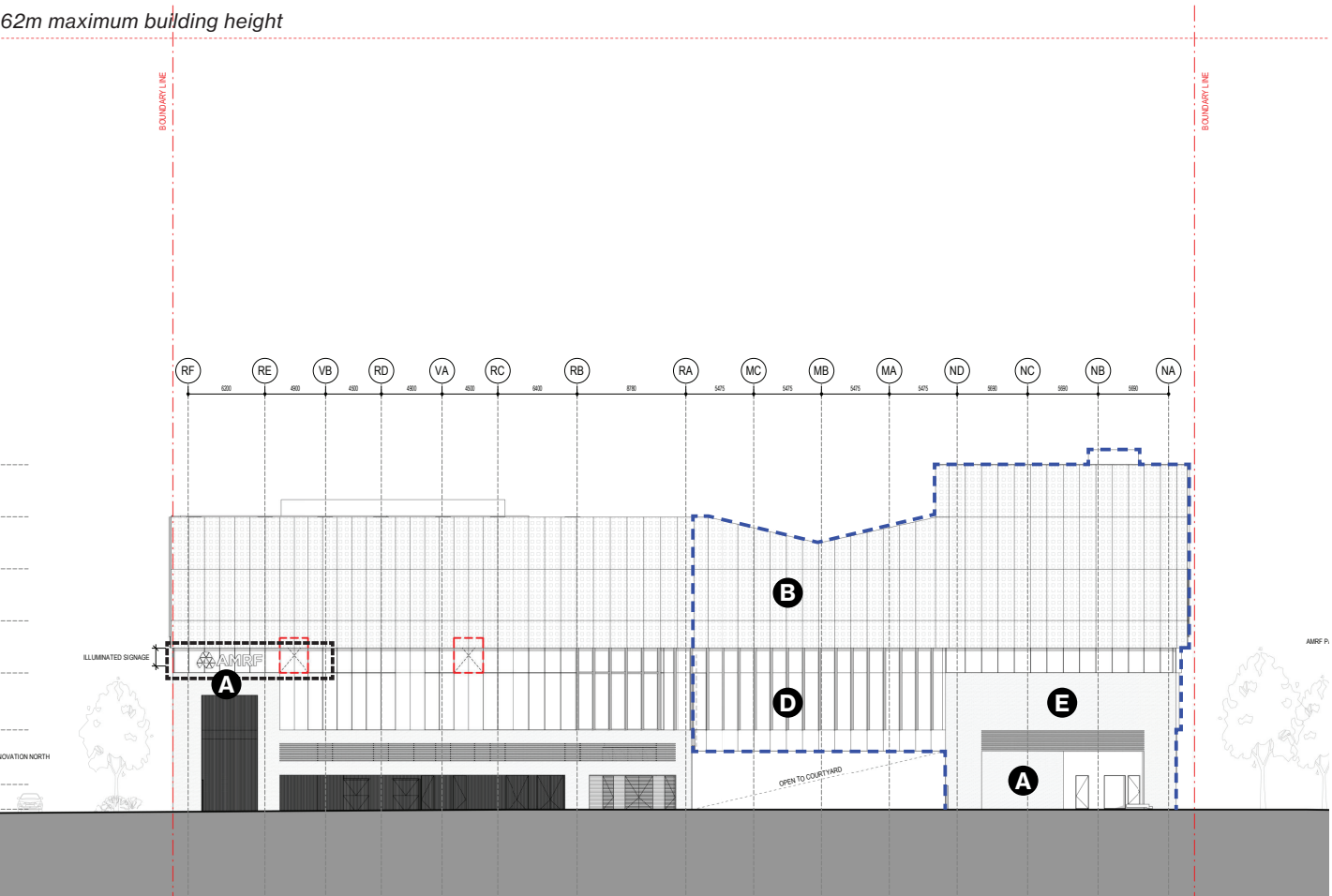
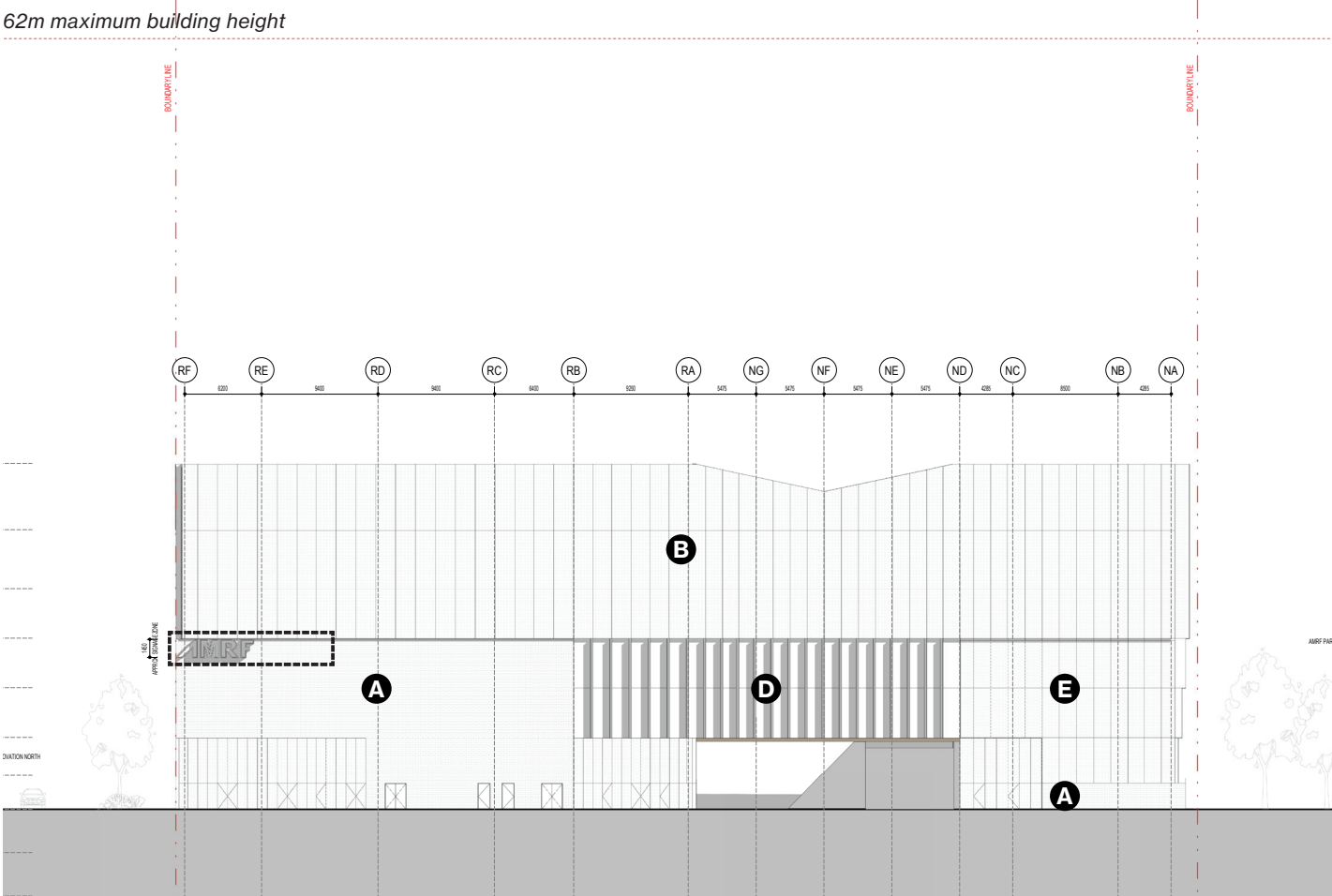


Facade Changes

East Elevation Comparison

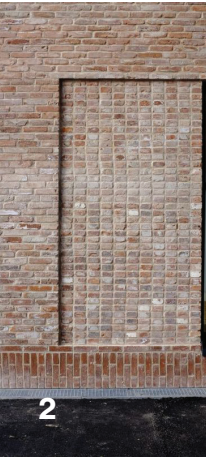
SSDA

MOD 1 PROPOSAL

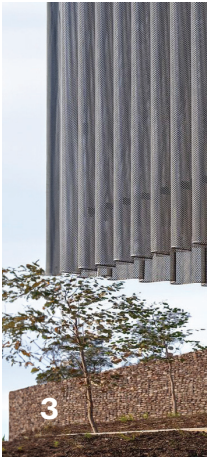


Stage 2
Signage Zone

A. Masonry



B. Metal Mesh



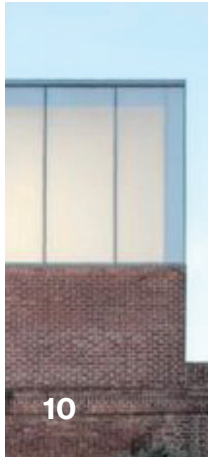
C. Metal Cladding



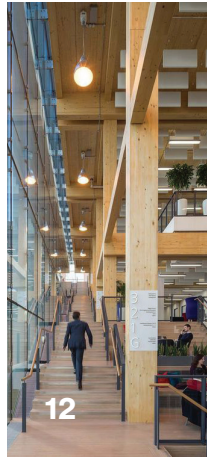
D. Vertical Shading



E. Glass



F. Timber

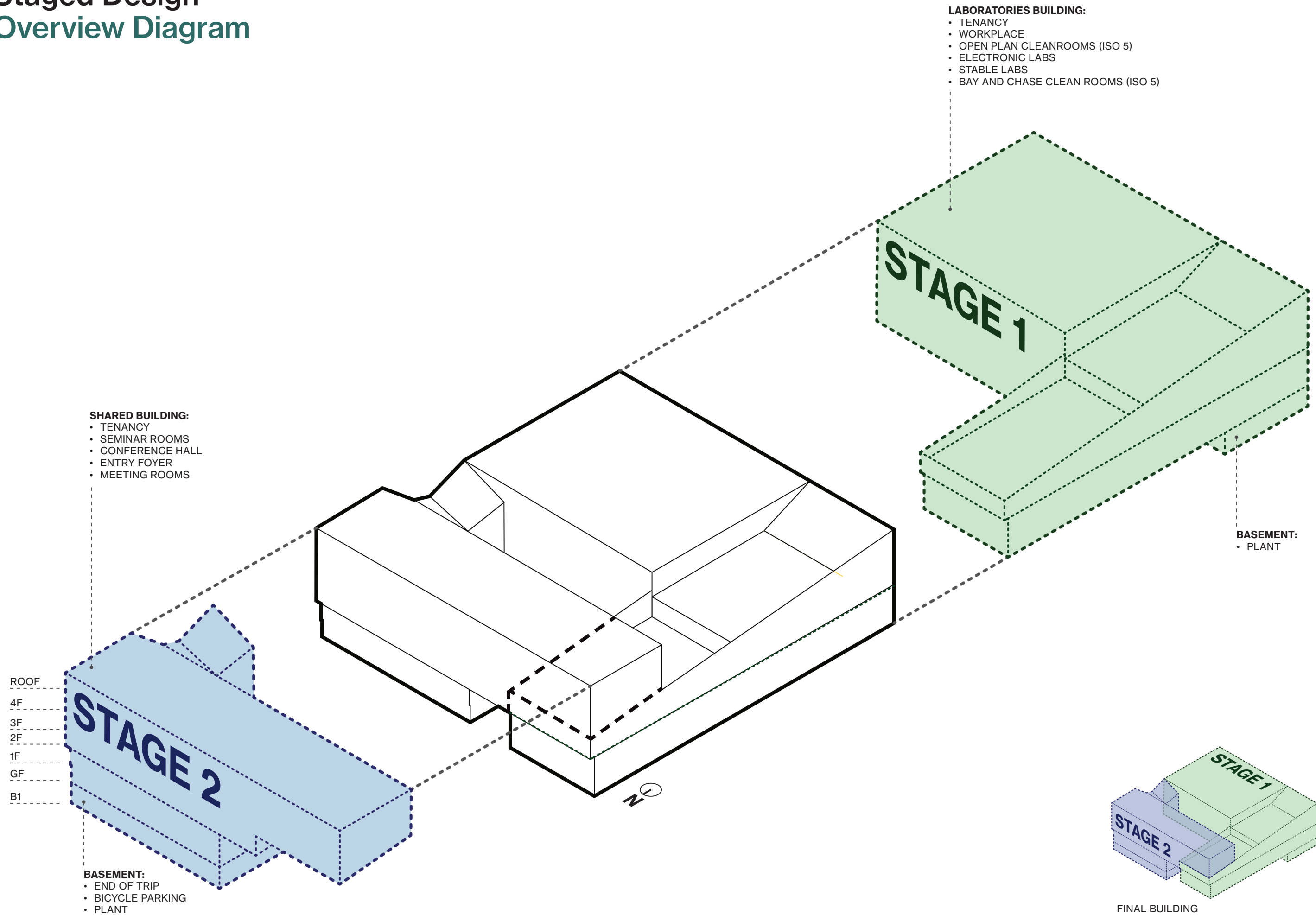


Scale
0 2 4 6 10m

STAGED DESIGN

2

Staged Design Overview Diagram



Visualisation Comparison

Northern View from AMRF Park



Stage 1



Stage 2

Visualisation Comparison

View from West



Stage 1



Stage 2

Visualisation Comparison

View from South-West



Stage 1



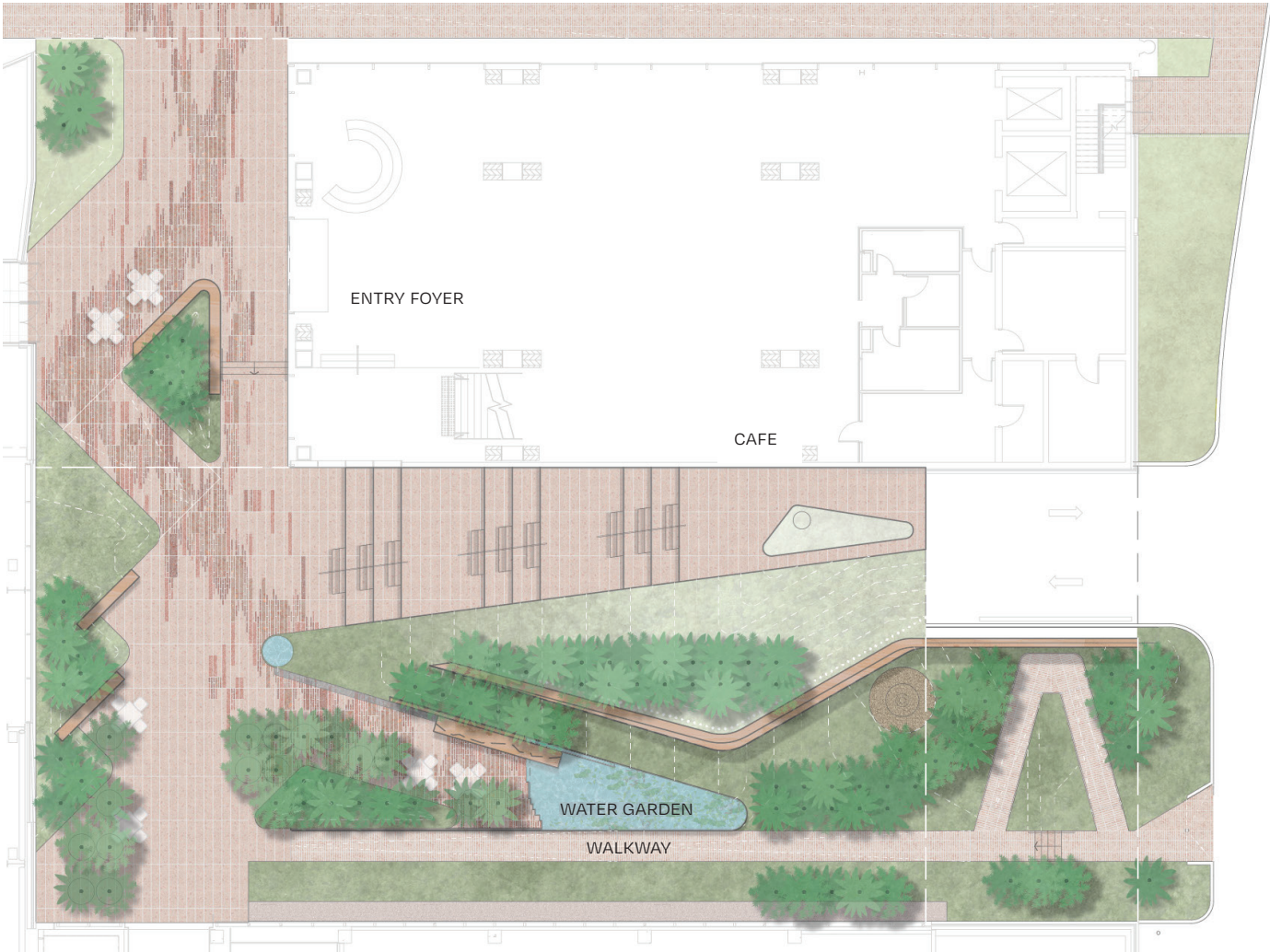
Stage 2

LANDSCAPE

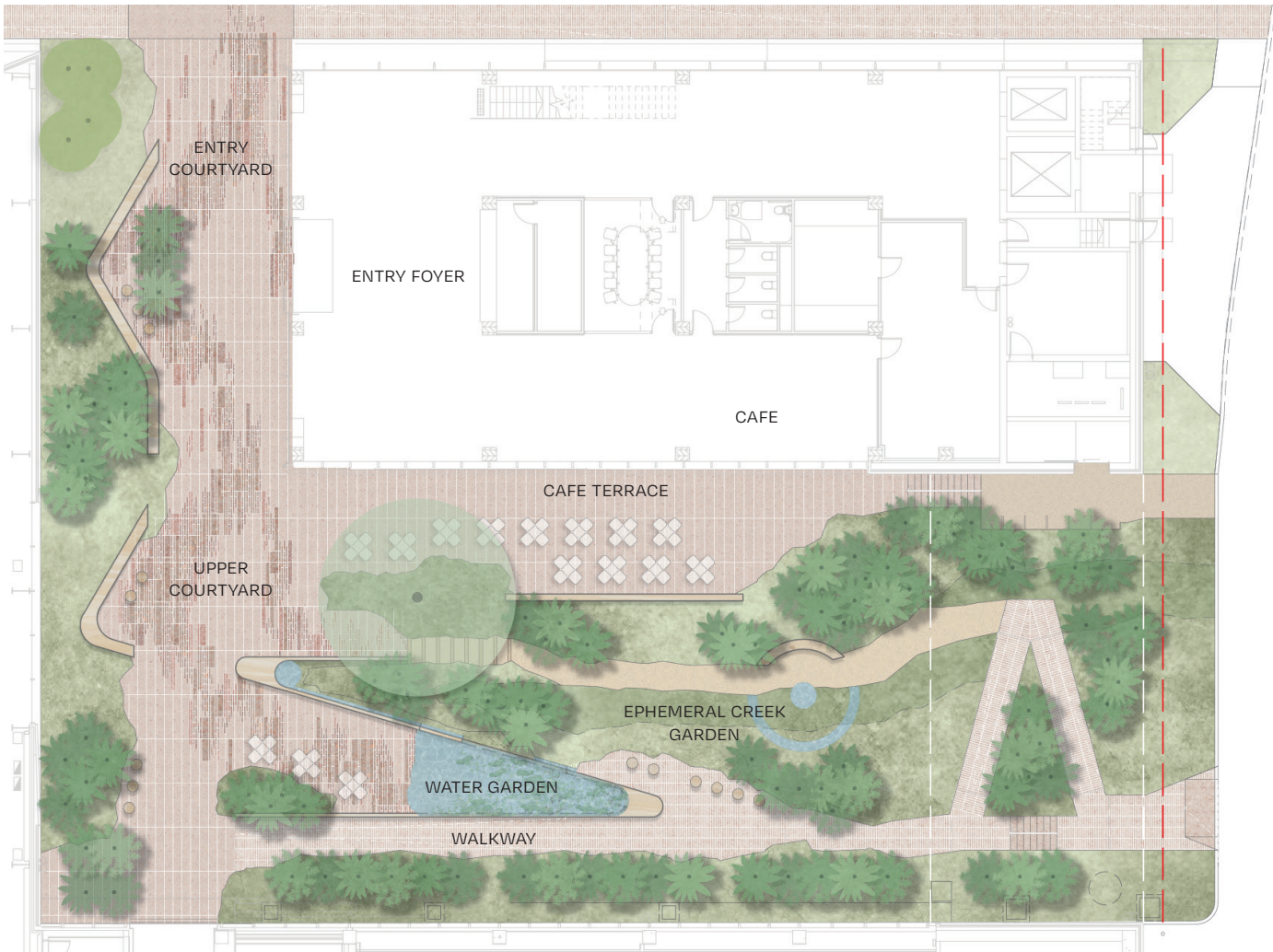
3

Landscape Changes Courtyard Comparison

SSDA



MOD 1 PROPOSAL

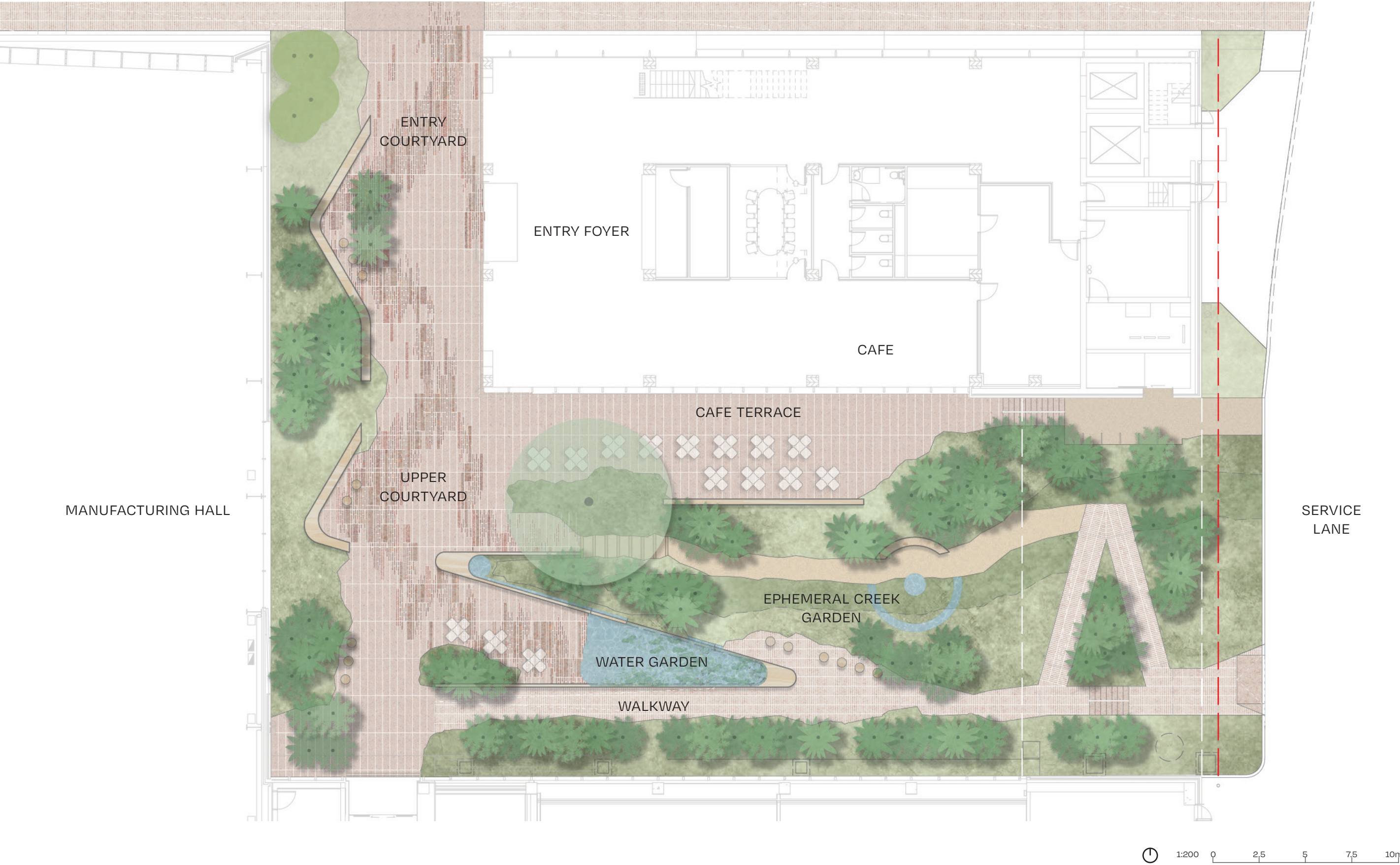


Stepped terraces deleted with removal of basement ramp, grading flattened across the courtyard.

Stepped terraces replaced with flat cafe terrace and cafe seating.

Rammed earth retaining wall removed, introduction of additional path through Ephemeral Creek Garden.

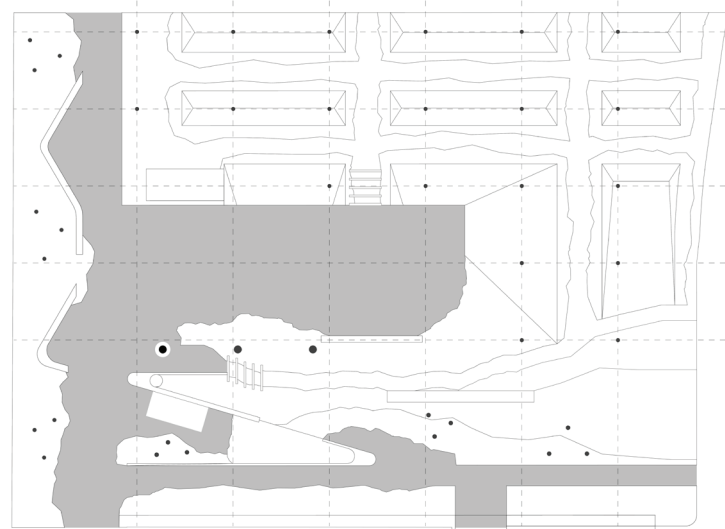
Landscape Changes
Mod 1 Proposal



Landscape Changes
Stage 1 Proposal



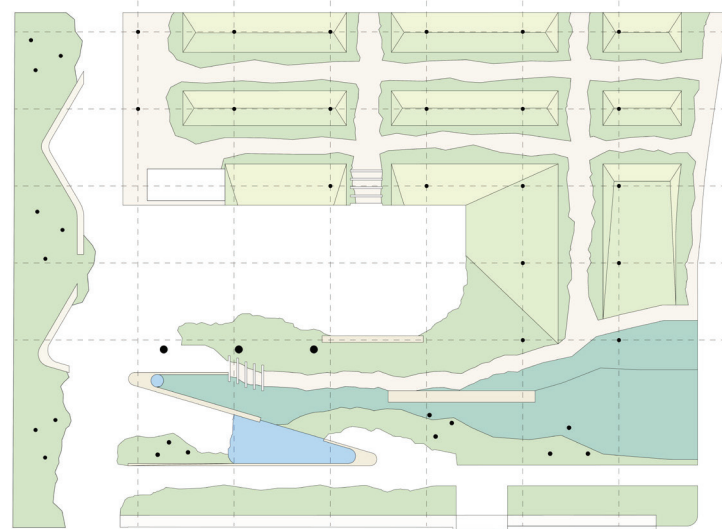
Maintain central courtyard elements



Maintain components of courtyard design.

Linking Research Labs to the AMRF Park and maintaining parts of the ridge and valley concept.

Set in a field of the Western Sydney Cumberland Plain landscape

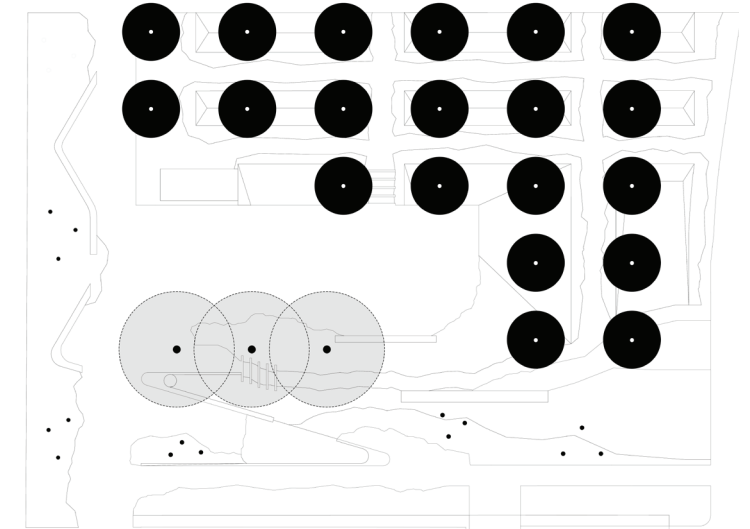


Frame with a field of gentle landform mounds to evoke the undulating Western Sydney landscape beyond.

Creating subtle shaded spaces within the planted areas that people can use.

Microclimates requires a shift to a temporary landscape planting palette that is based on the Cumberland Plain Woodland.

Courtyard protected by a frame of temporary trees



Frame with a band of trees, framing the courtyard in the clearing.

Trees will offer:

- some shade and cooling
- a defensible space for the building
- a clearly defined edge between park and building site
- smaller usable spaces within the grid

AREA

4

CALCULATIONS

Area Calculations

Gross Floor Area - Stage 1

Measured as GFA as defined by NSW
Legislation: Standard Instrument - Principal Local
Environmental Plan (2006 epi 155a)

Key

Research

Research Workplace

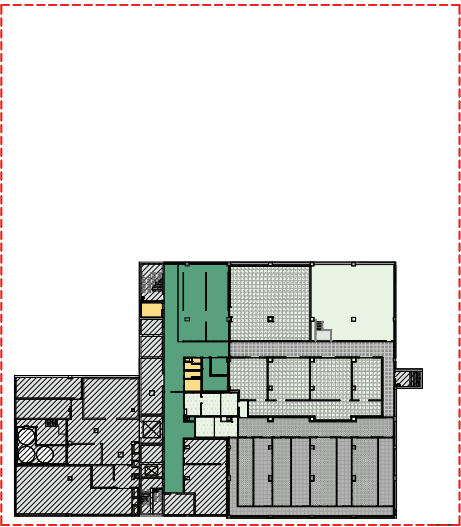
Advanced Manufacturing

Building Support

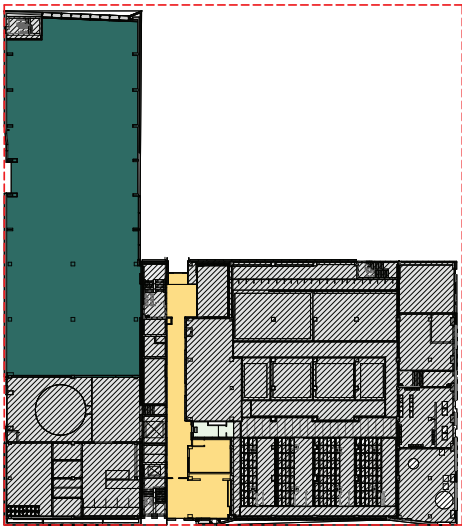
Tenancy

Table of Areas

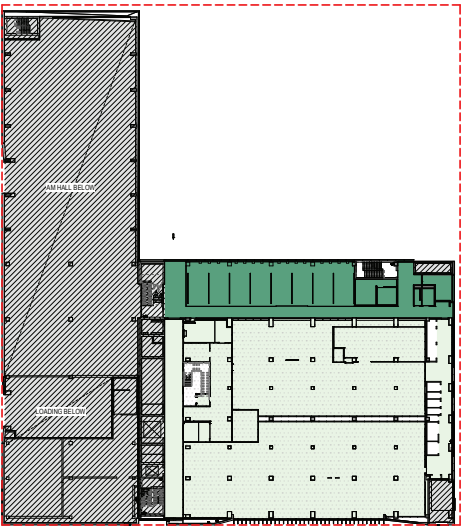
Research (conference hall, seminar spaces)	3,840 sqm
Research Workplace (AMRF)	1,030 sqm
Advanced Manufacturing (workshop hall)	1,455 sqm
Building Support (security, amenities)	430 sqm
Tenancy	1,285 sqm
Overall	8,040 sqm



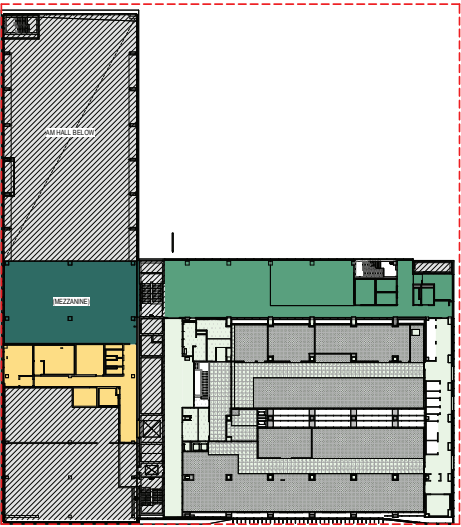
Basement 1



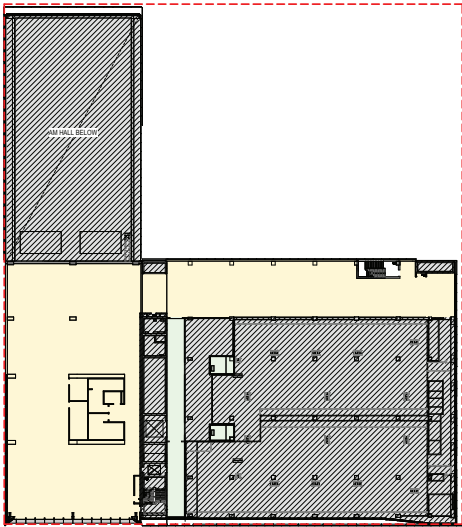
Ground Floor



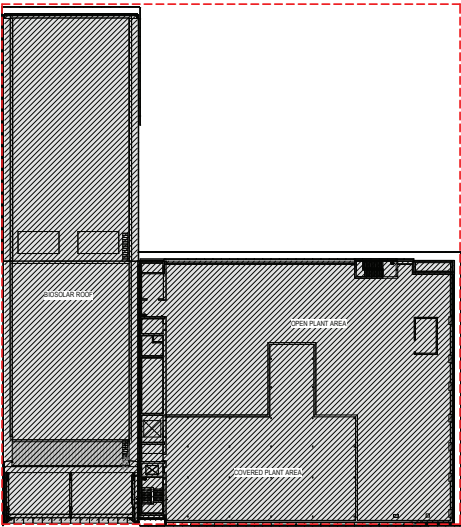
Level 1



Level 2



Level 3



Level 4

Area Calculations

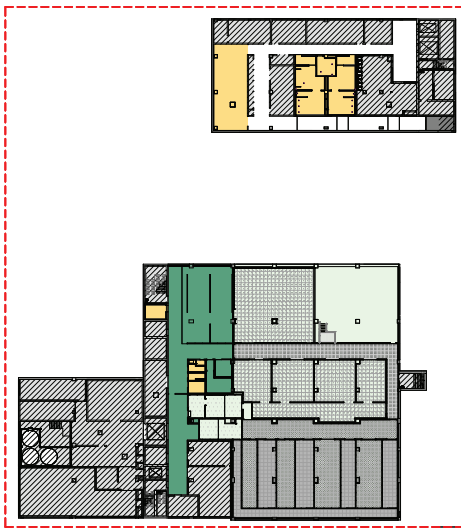
Gross Floor Area - Stage 2

Measured as GFA as defined by NSW
Legislation: Standard Instrument - Principal Local
Environmental Plan (2006 epi 155a)

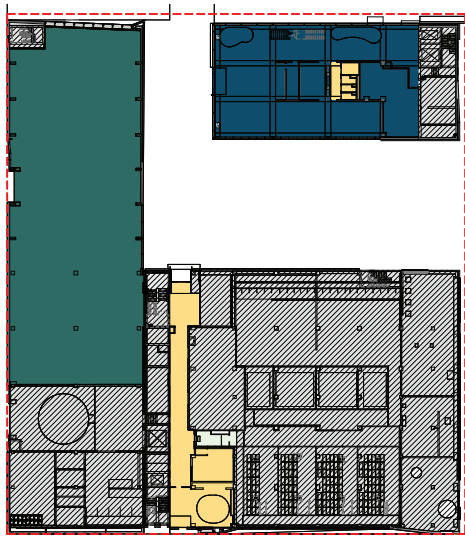
- Key**
- Shared Spaces
 - Collaboration
 - Research
 - Research Workplace
 - Advanced Manufacturing
 - Building Support
 - Tenancy

Table of Areas

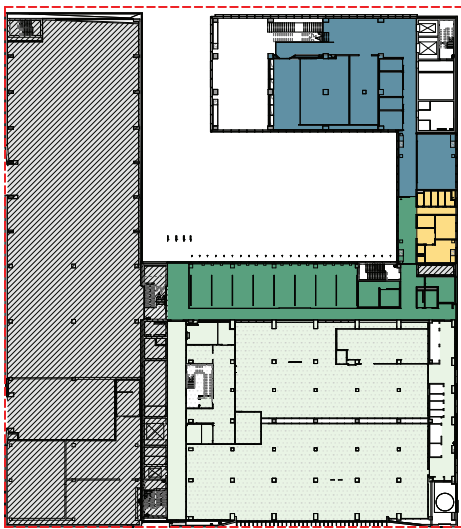
Shared Spaces (foyer/reception, exhibition)	568 sqm
Collaboration (clean rooms, microscopy, dry laboratory)	1238 sqm
Research (conference hall, seminar spaces)	3,840 sqm
Research Workplace (AMRF)	1,058 sqm
Advanced Manufacturing (workshop hall)	1,455 sqm
Building Support (security, amenities)	946 sqm
Tenancy	3,269 sqm
Overall	12,374 sqm



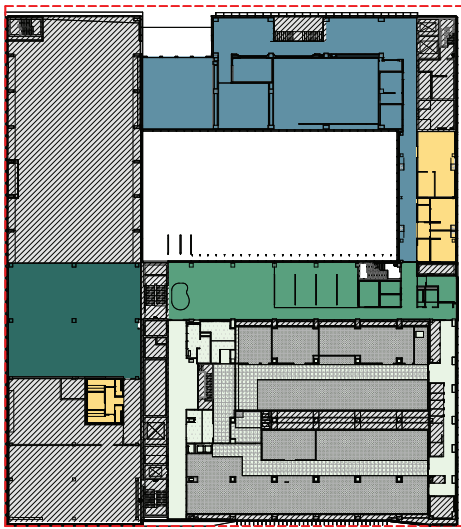
Basement 1



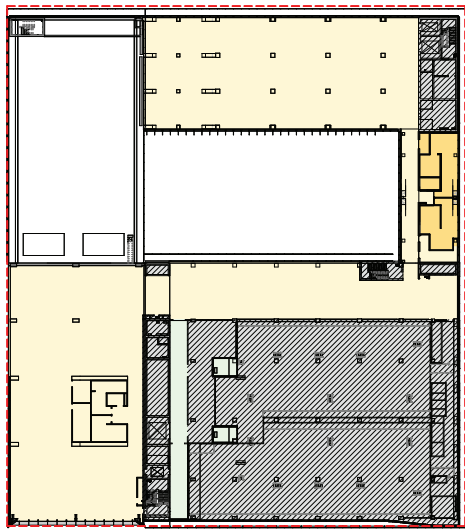
Ground Floor



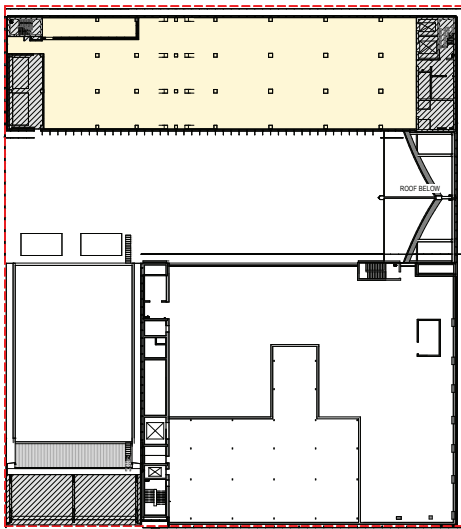
Level 1



Level 2



Level 3



Level 4



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Aileen Sage

TYRRELLSTUDIO

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