

Bradfield Development Authority

# Building Two Advanced Manufacturing Research Facility

Section 4.55 Modification Report  
Appendix B – Architectural Design Report

26 November 2025

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bangawarra

# FULL SCALE AMRF BUILDING 2

# \$4.55 MOD 1 REPORT

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This report is considered a draft unless signed by a Director

Approved by:



# 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 cryogenics, 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 cryogenics 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.



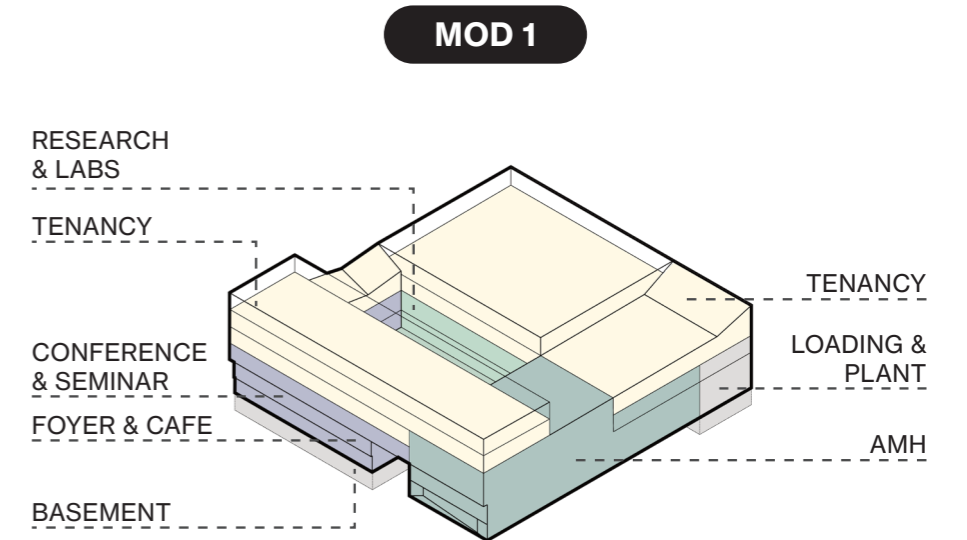
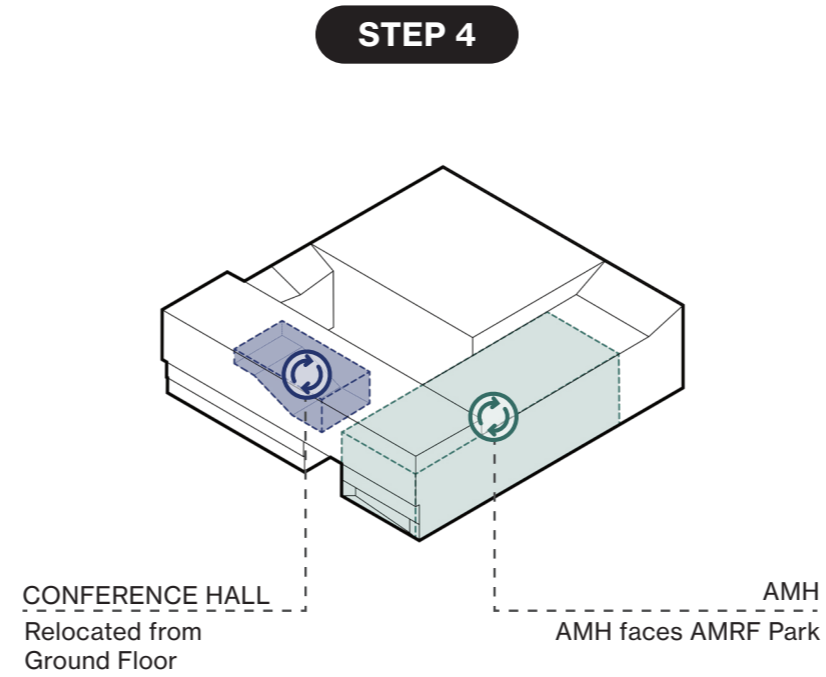
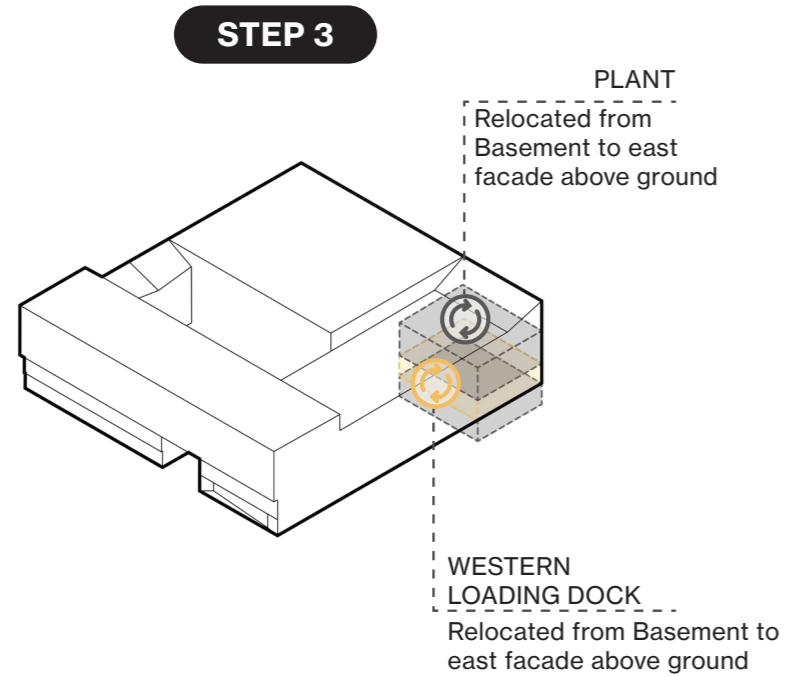
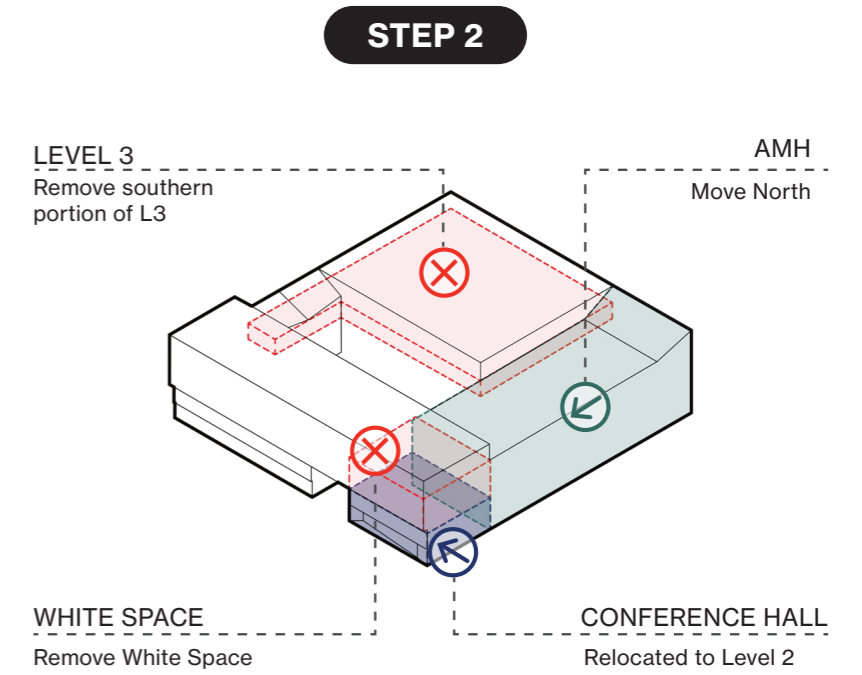
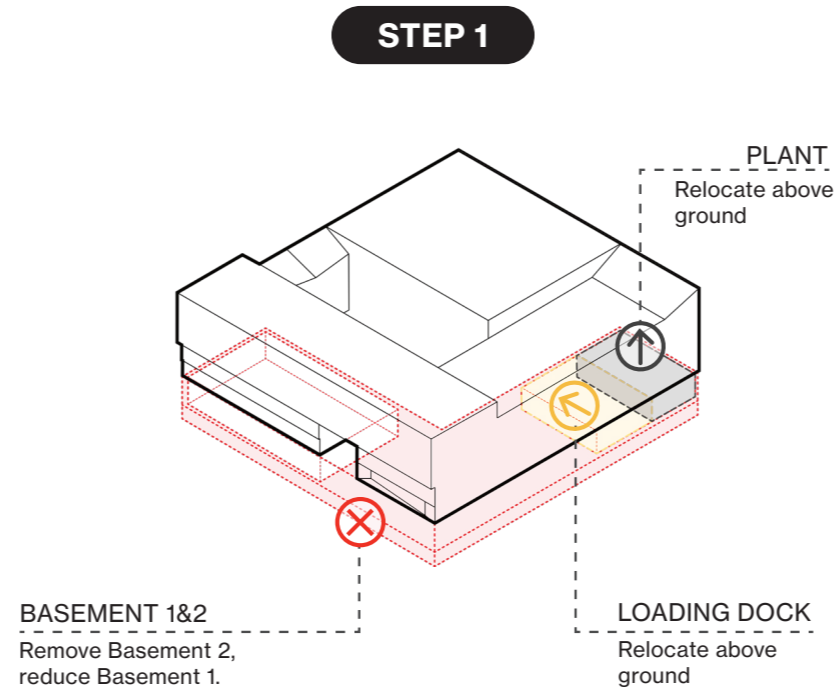
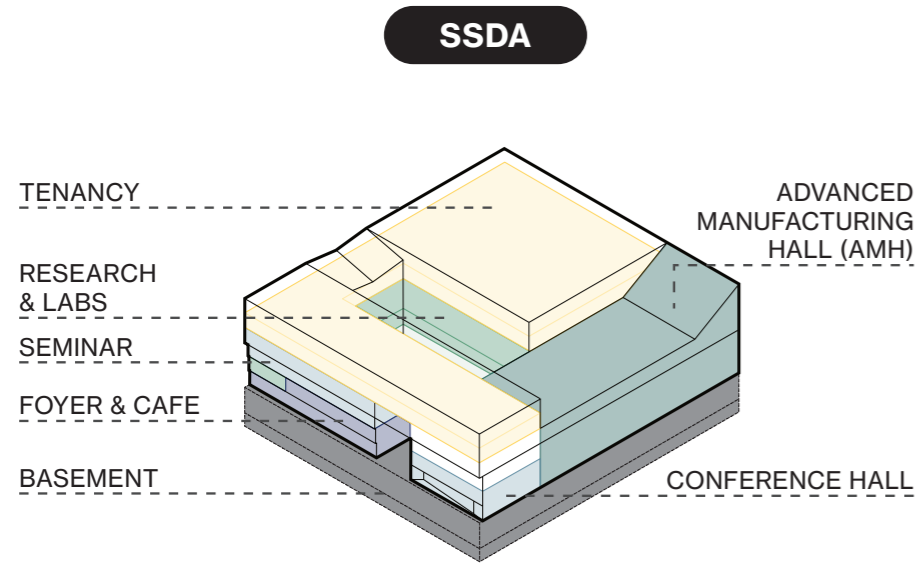
View of Full Scale AMRF Building 2 from west  
Image by Architectus

# SPATIAL CHANGES

1

COMPARISON  
OVERVIEW

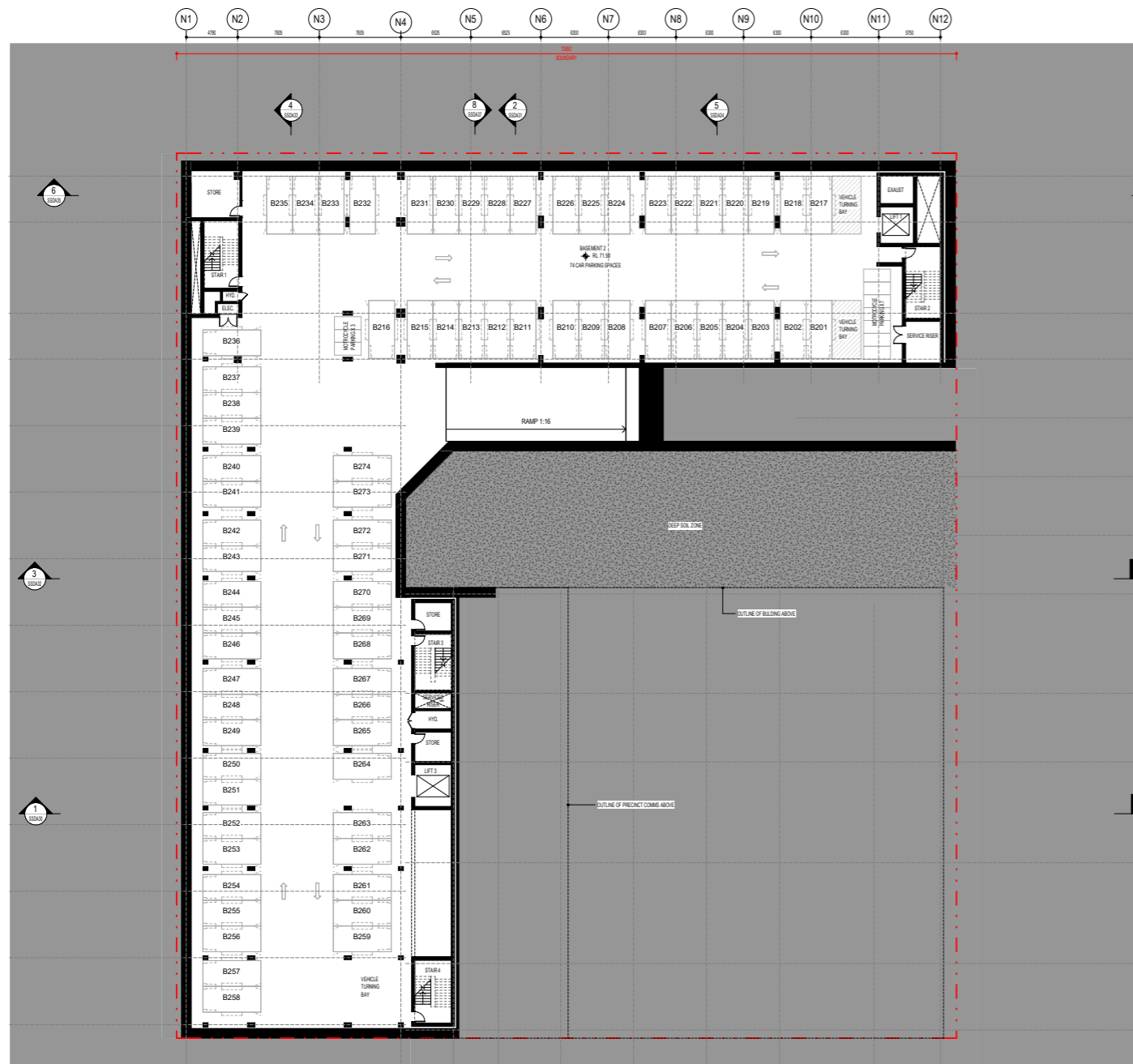
# Design Update Spatial Diagram



# Planning Changes

## Basement 2 Comparison

### SSDA



Carparking & BOH

### MOD 1 PROPOSAL

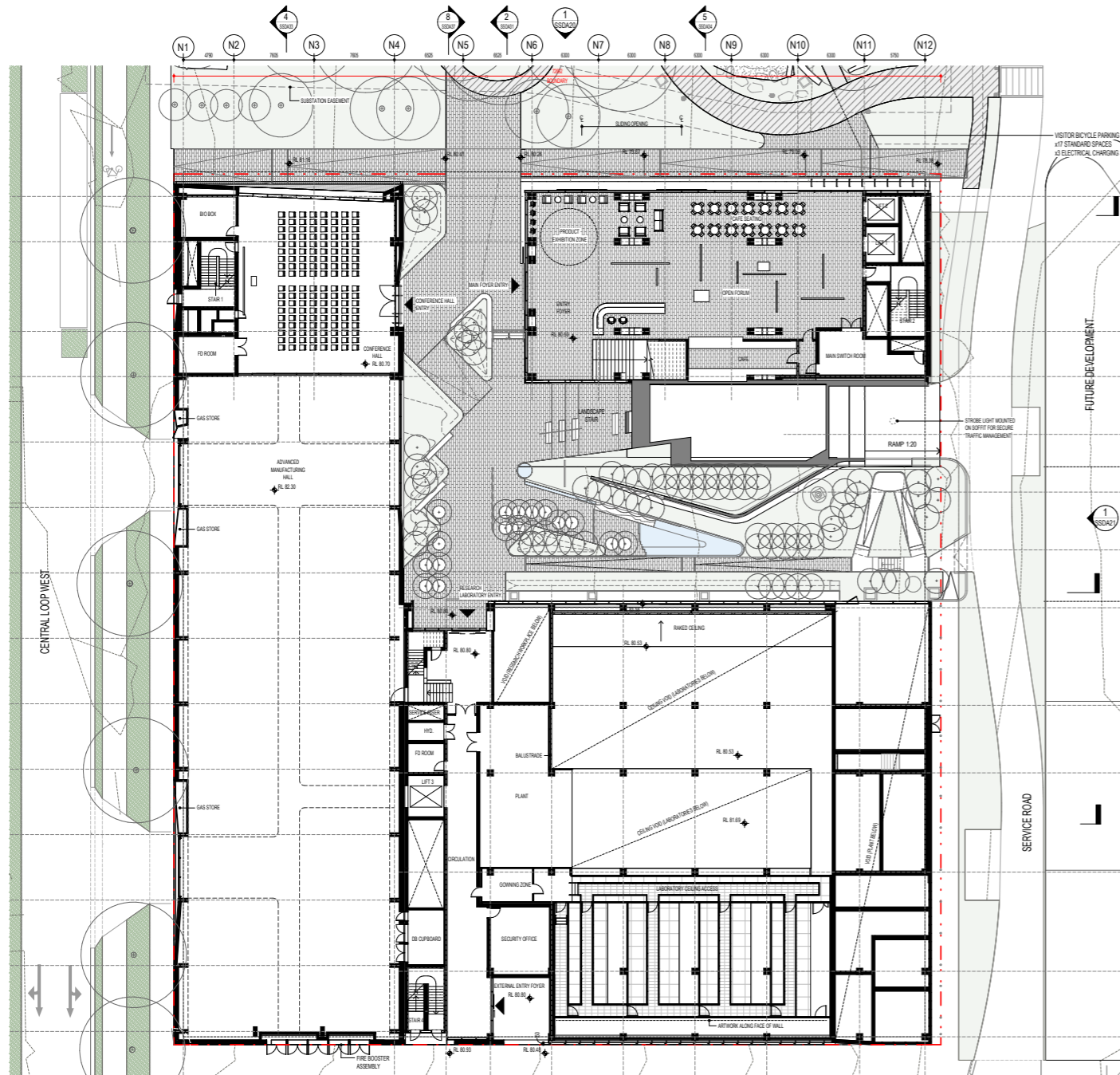


Basement 2 removed



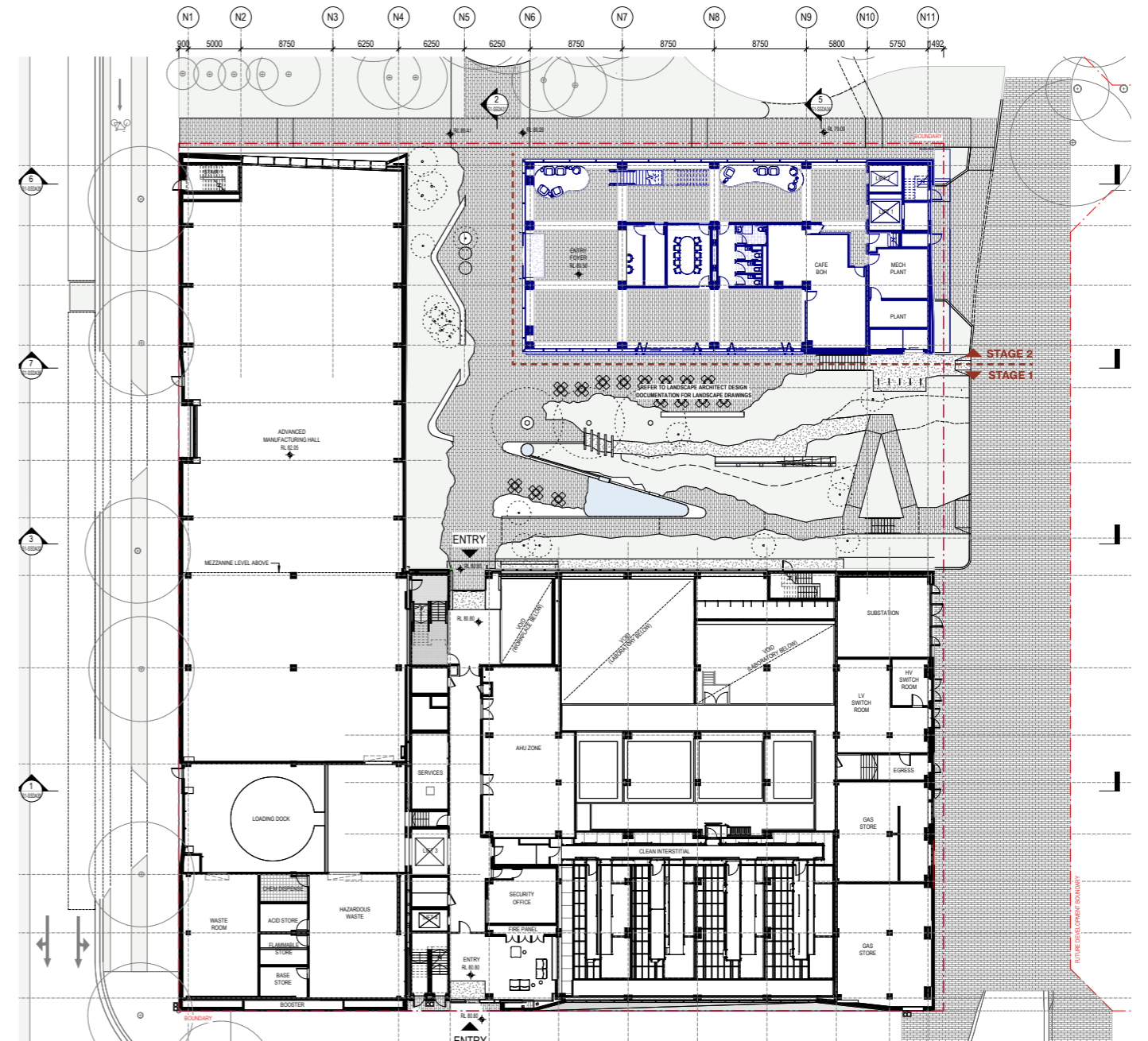
# Planning Changes Ground Floor Comparison

## SSDA



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

## MOD 1 PROPOSAL



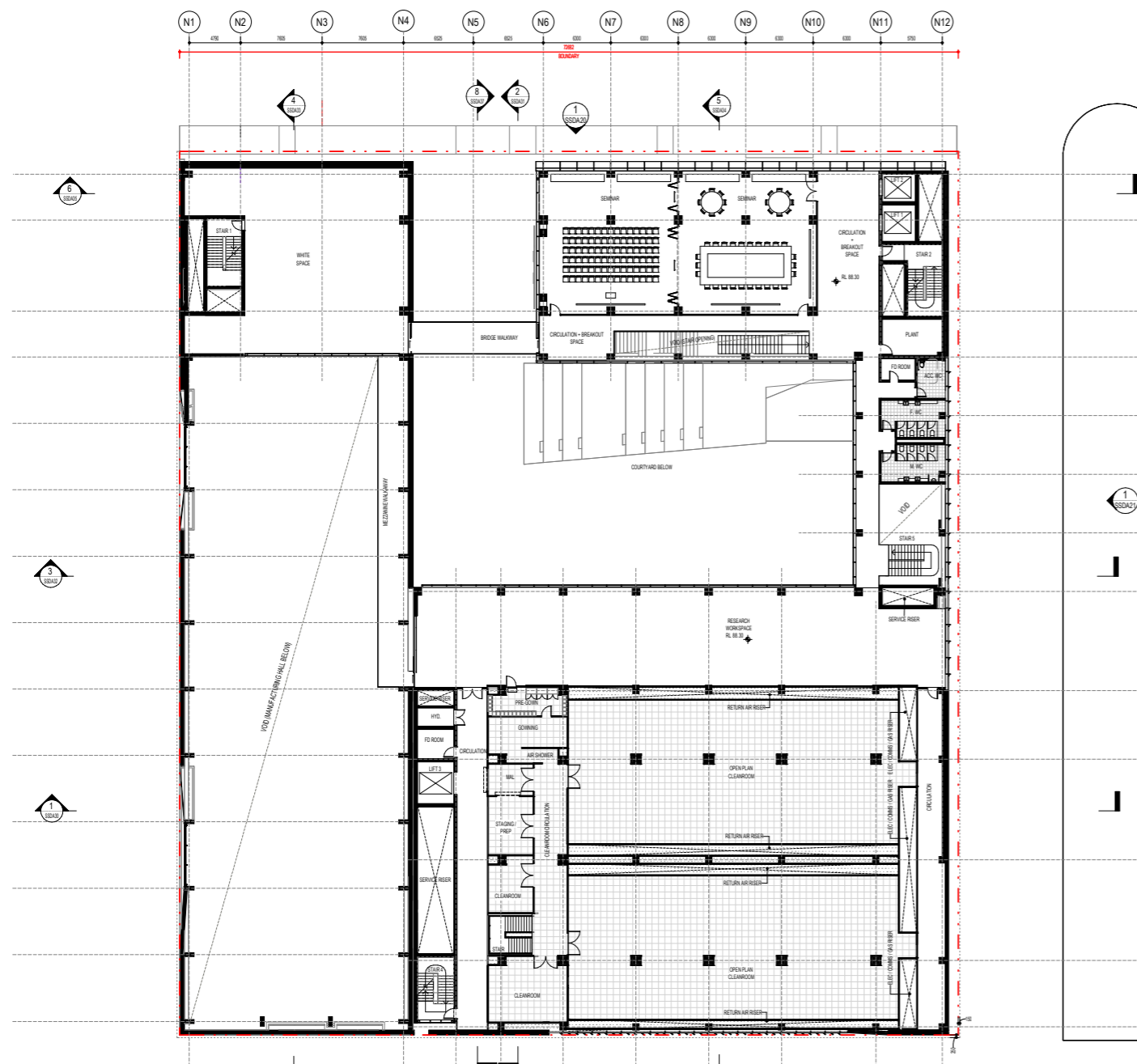
- Stage 1**
- Advanced Manufacturing Hall
  - Loading Bay
  - Courtyard
  - Research Laboratories
  - Substation & Gas Storage

- Stage 2**
- Conferecing Facilities relocated to Level 2
  - Main Entry Foyer
  - Cafe



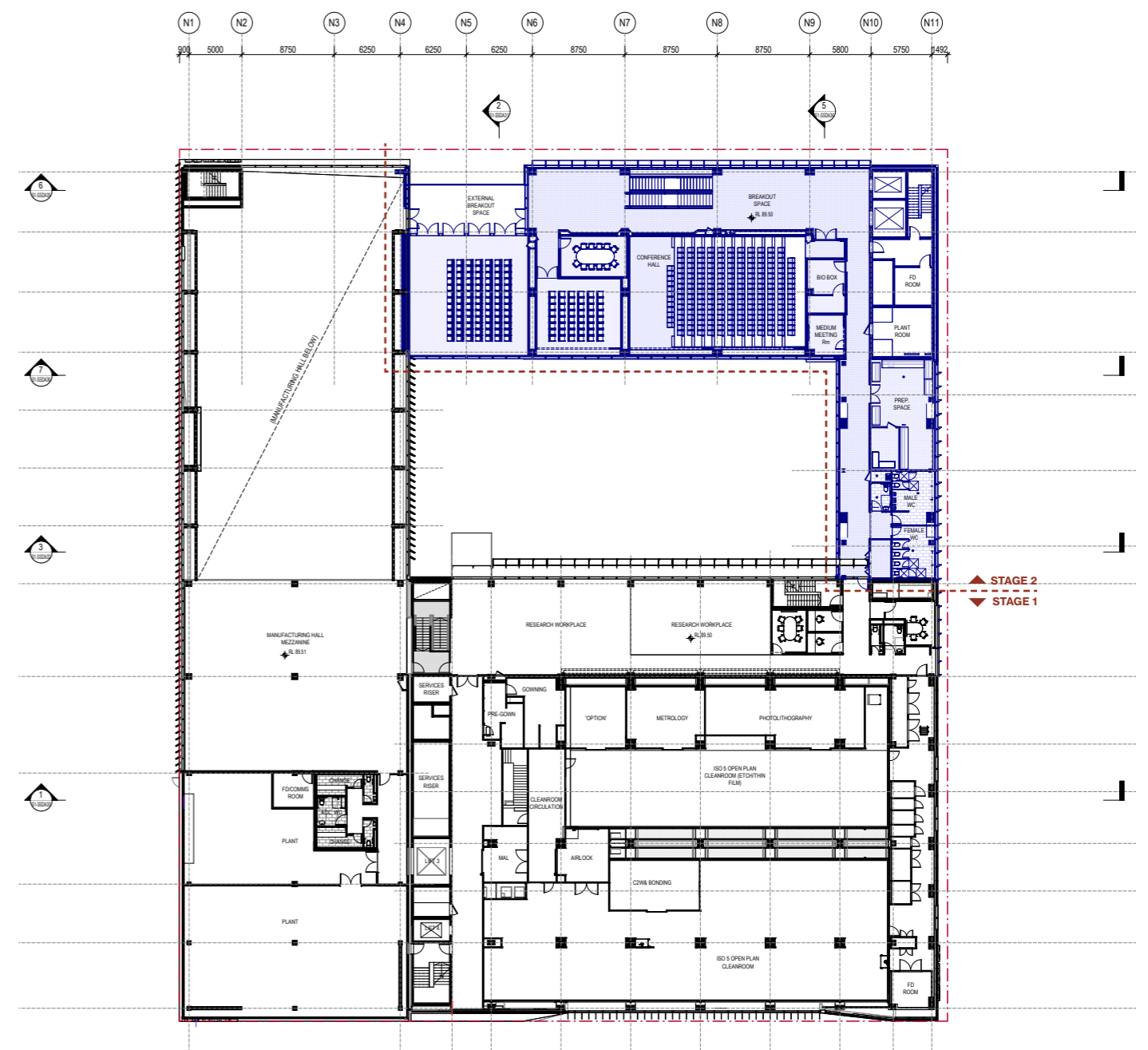
# Planning Changes Level 2 Comparison

## SSDA



White Space  
Seminar Facilities  
Research Workplace  
Research Laboratories

## MOD 1 PROPOSAL

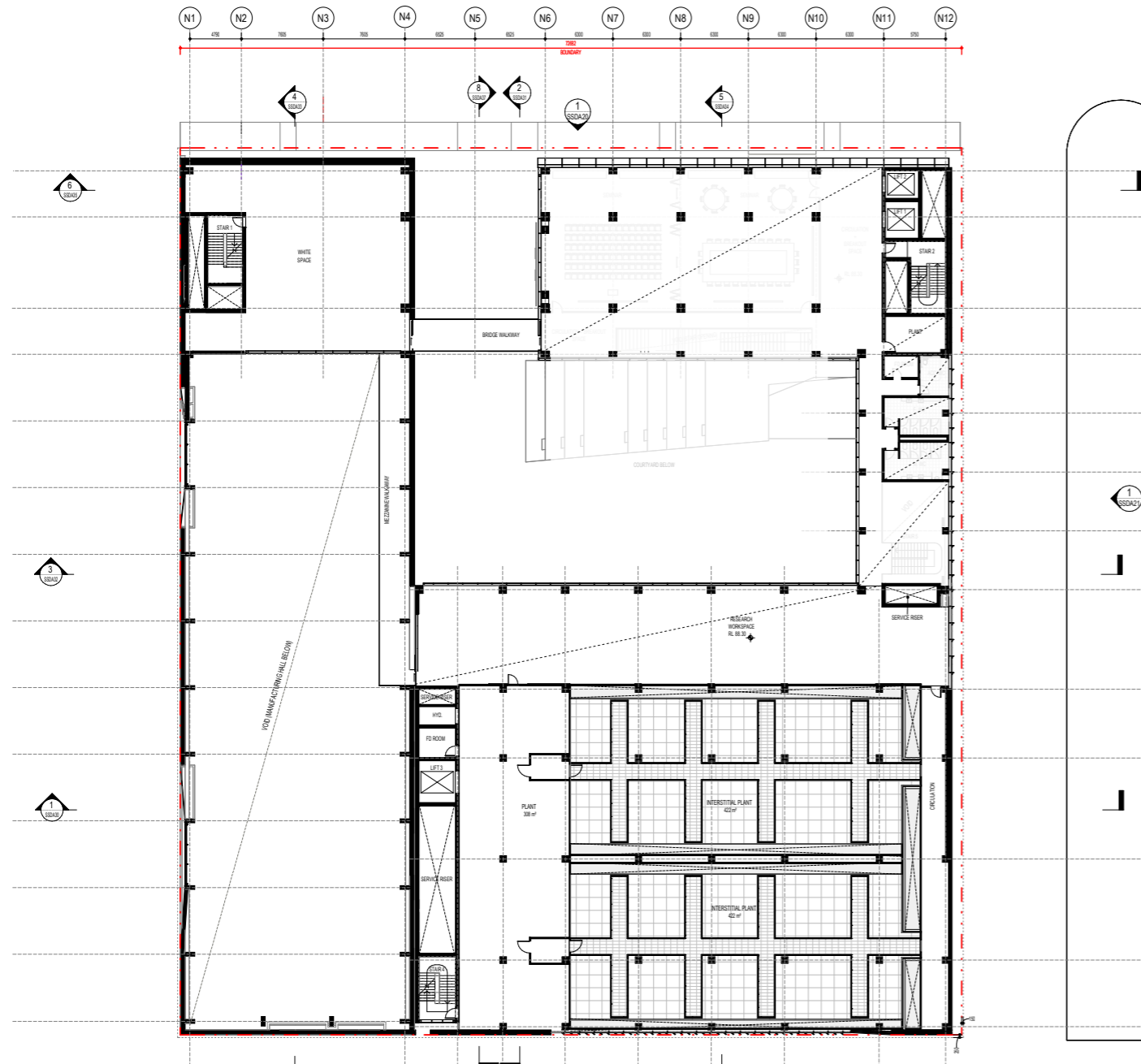


**Stage 1**  
Research Workplace  
Research Laboratories  
Plant relocated from Basement

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

# Planning Changes Level 3 Comparison

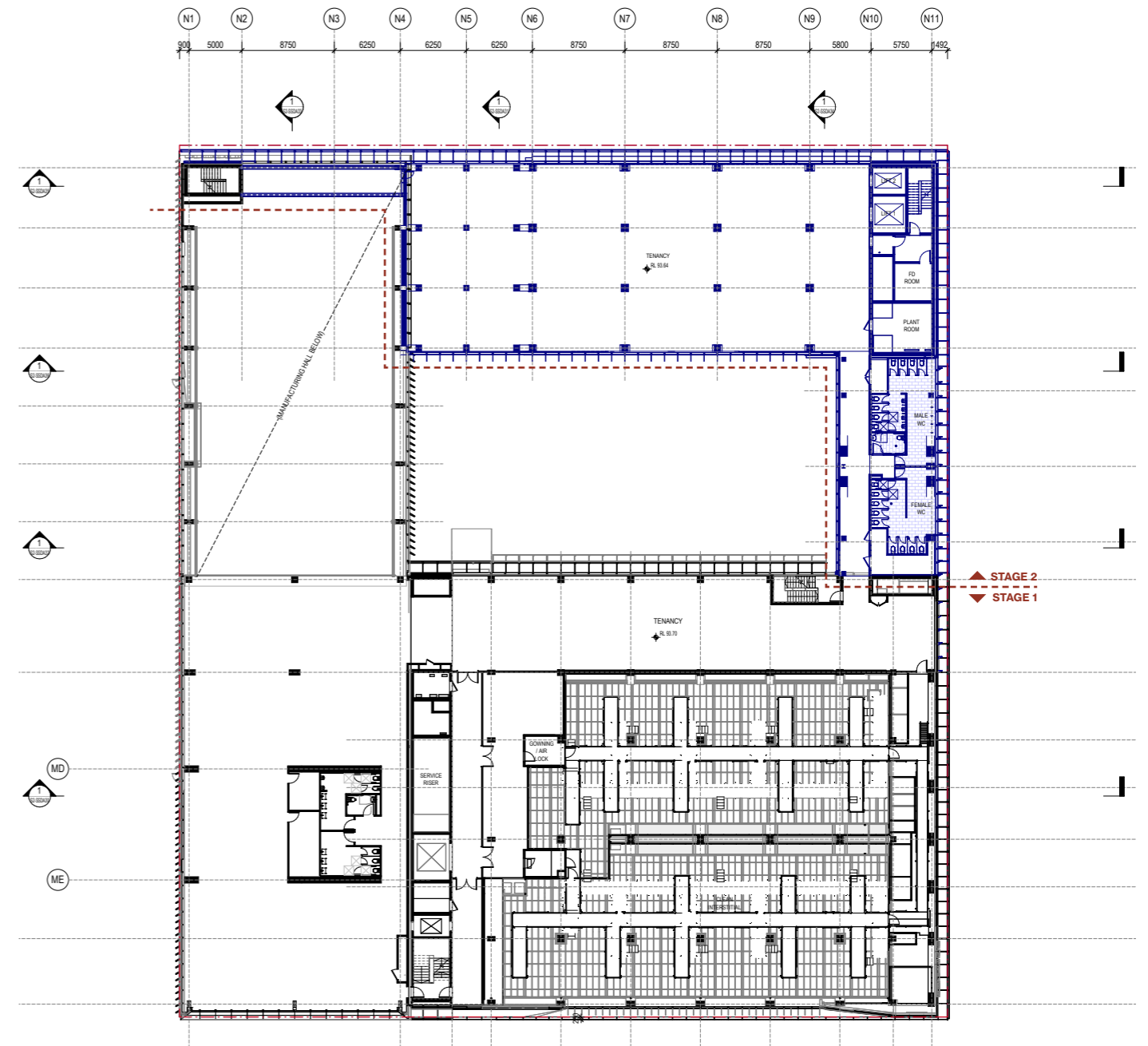
## SSDA



\* Plan omitted in original SSDA submission.

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

## MOD 1 PROPOSAL

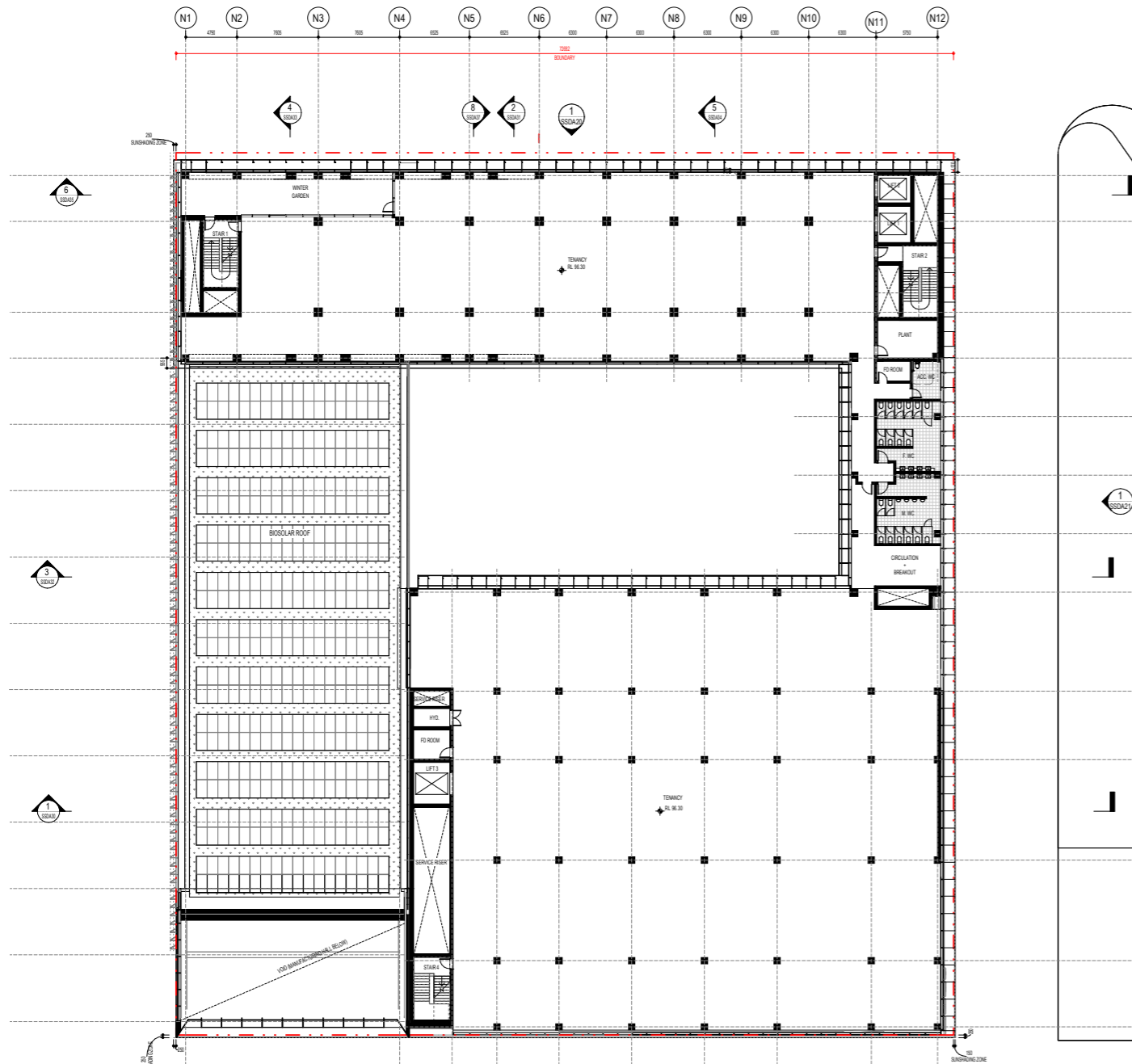


**Stage 1**  
Void above Advanced Manufacturing Hall  
Tenancy  
Research Laboratory Plant

**Stage 2**  
Tenancy

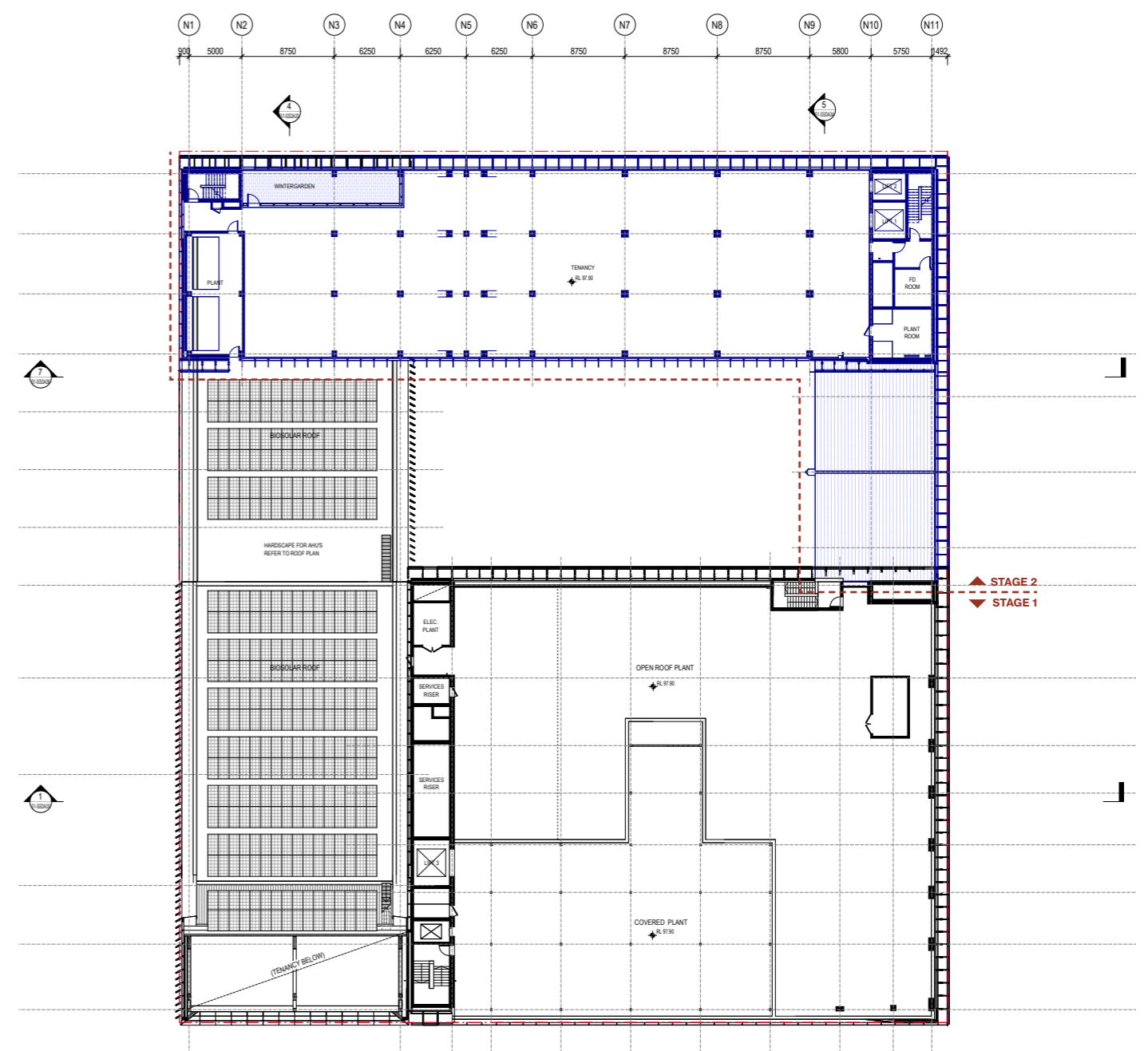
# Planning Changes Level 4 Comparison

## SSDA



Tenancy  
Biosolar Roof

## MOD 1 PROPOSAL

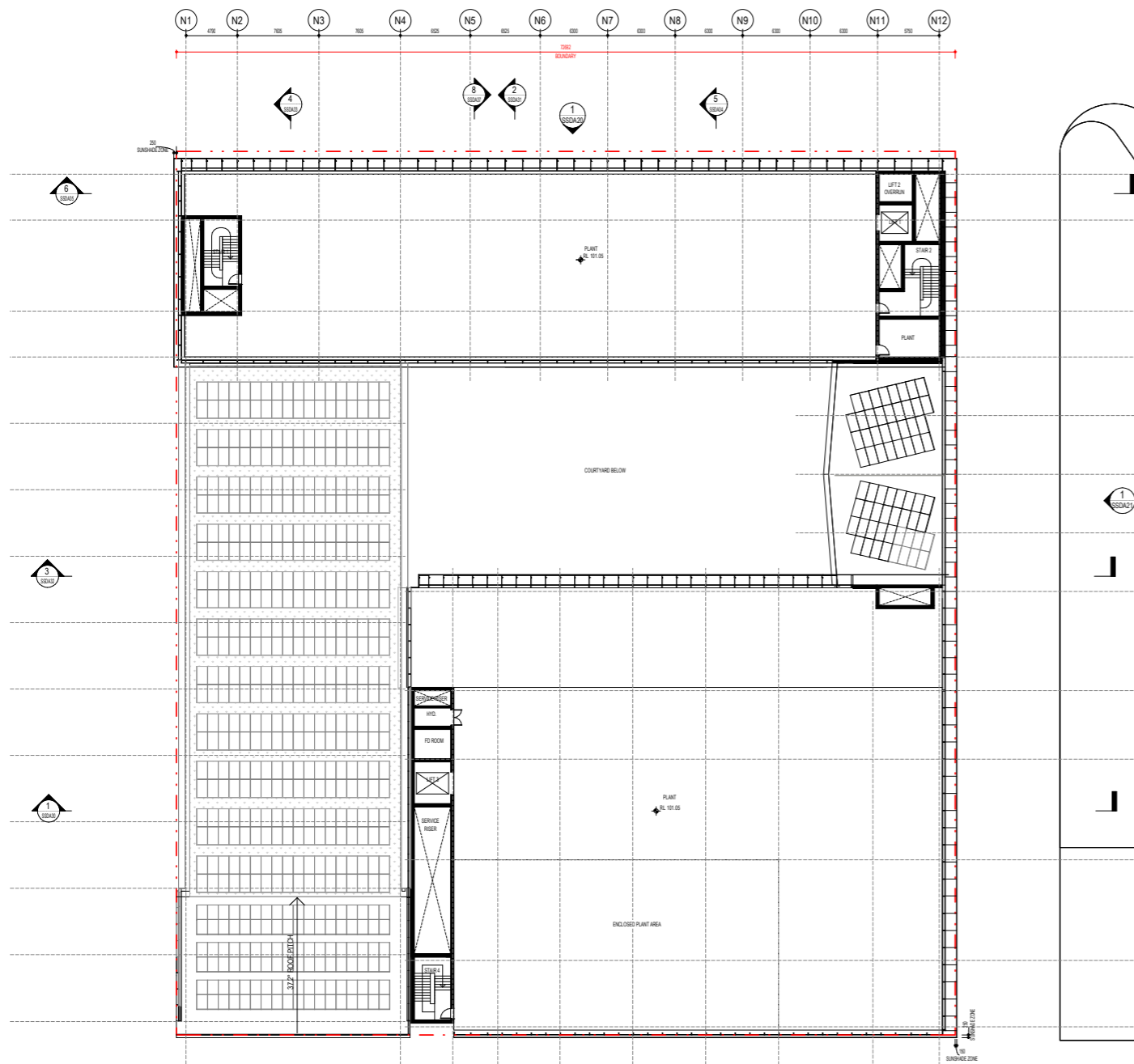


Stage 1  
Biosolar Roof  
Plant

Stage 2  
Tenancy reduced

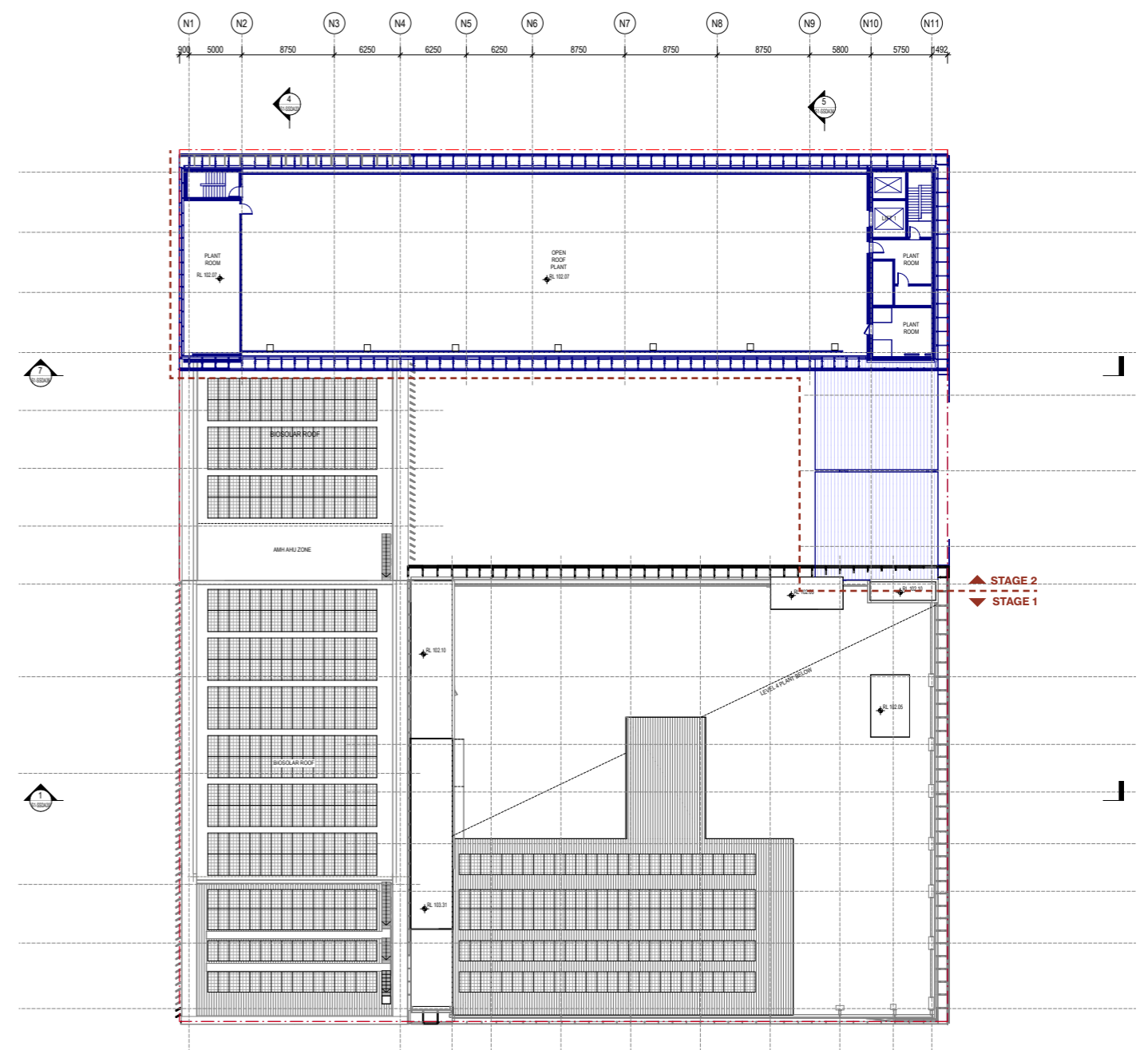
# Planning Changes Roof Comparison

## SSDA



Plant

## MOD 1 PROPOSAL



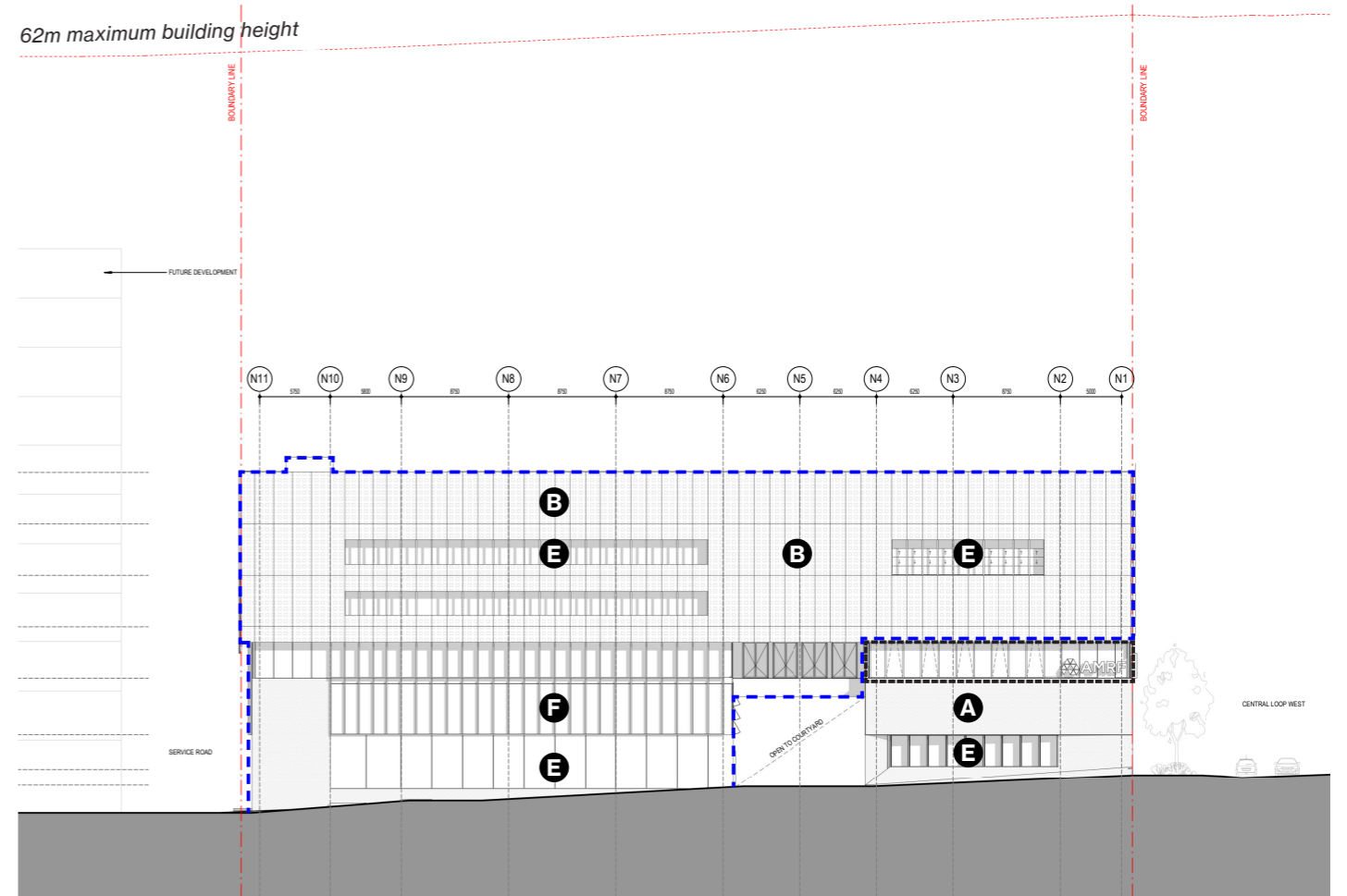
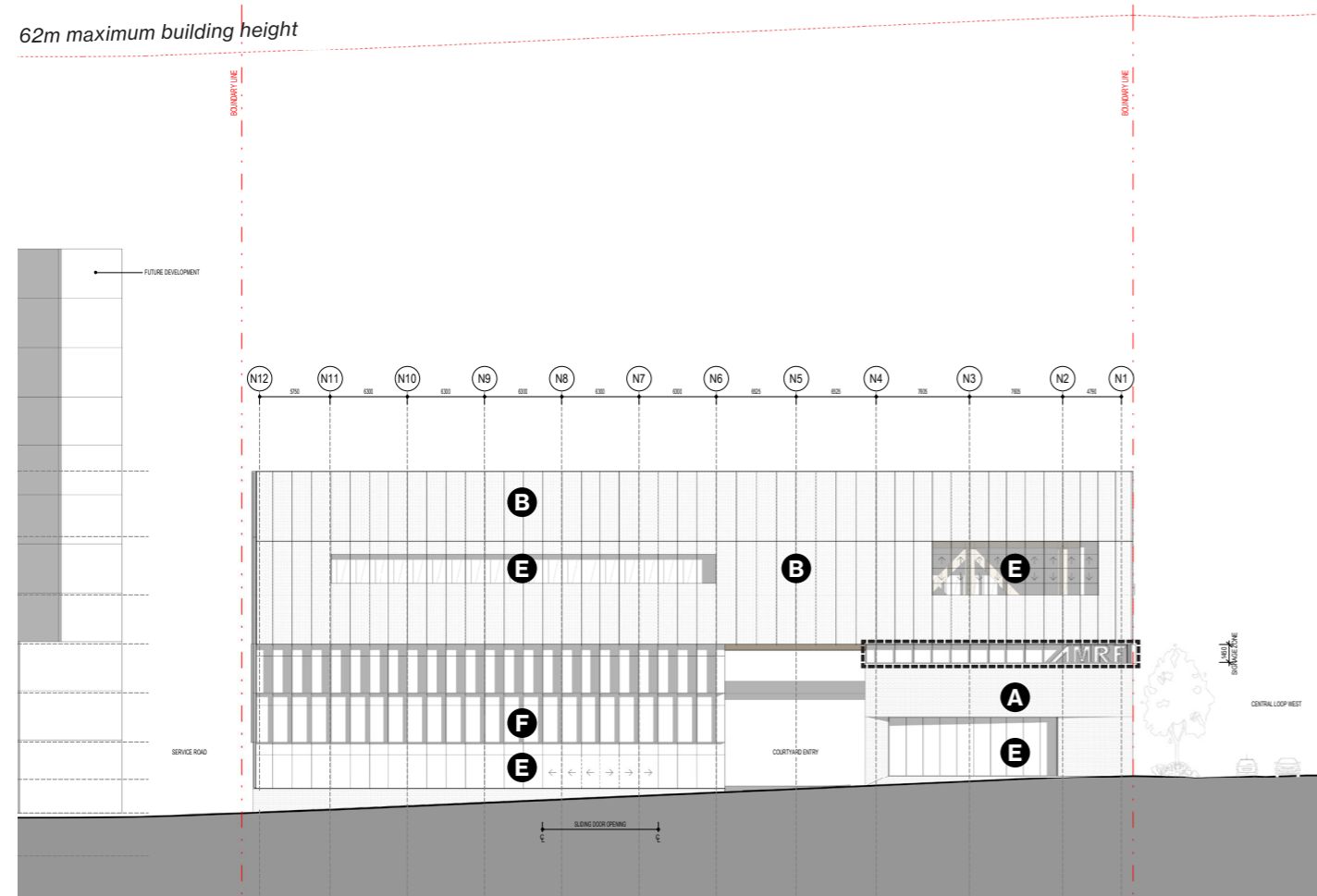
Stage 1  
Plant

Stage 2  
Plant

# Facade Changes North Elevation Comparison

## SSDA

## MOD 1 PROPOSAL



   Stage 2  
   Signage Zone

A. Masonry



B. Metal Mesh



C. Metal Cladding



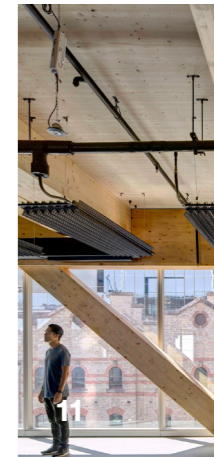
D. Vertical Shading



E. Glass



F. Timber

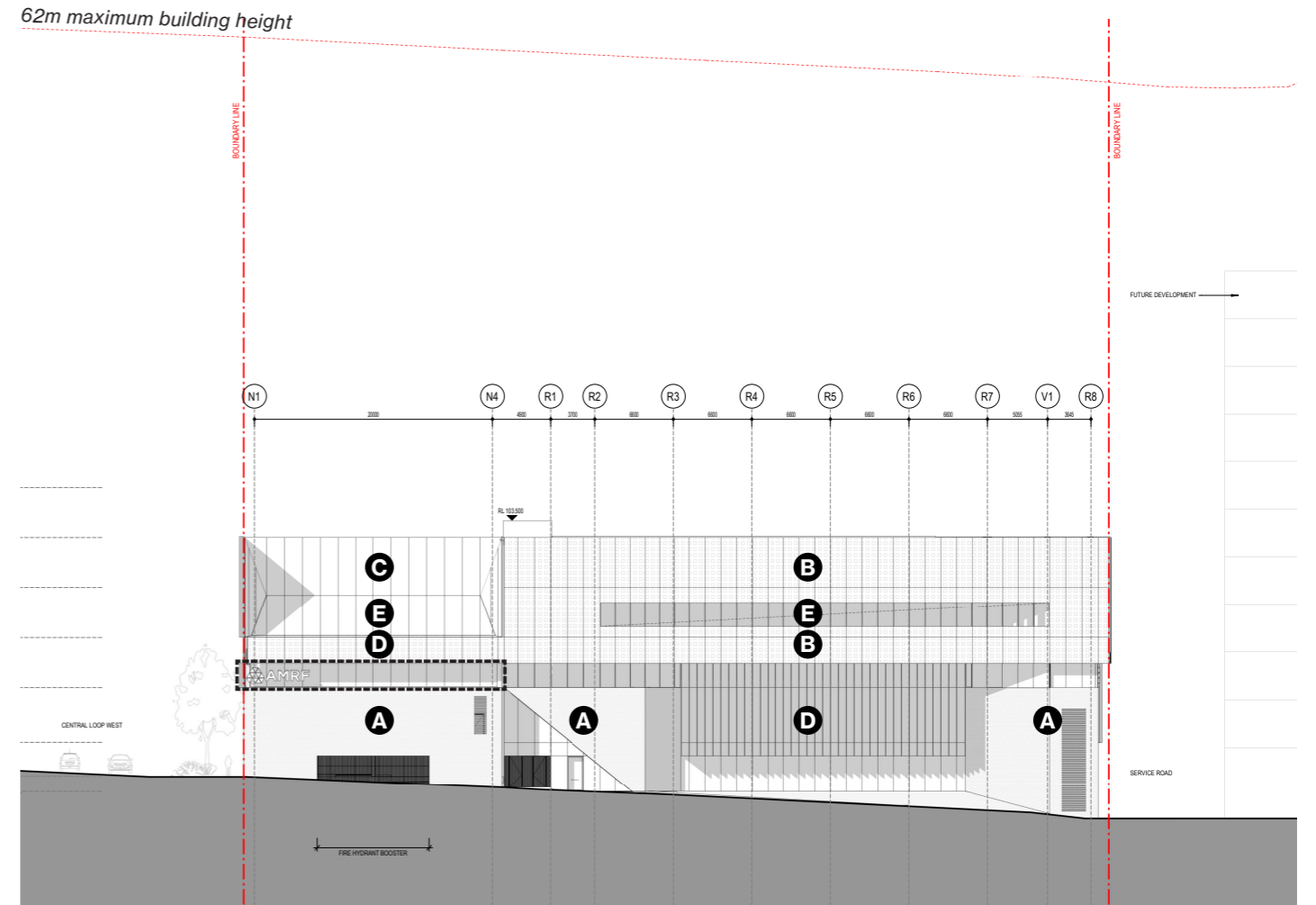
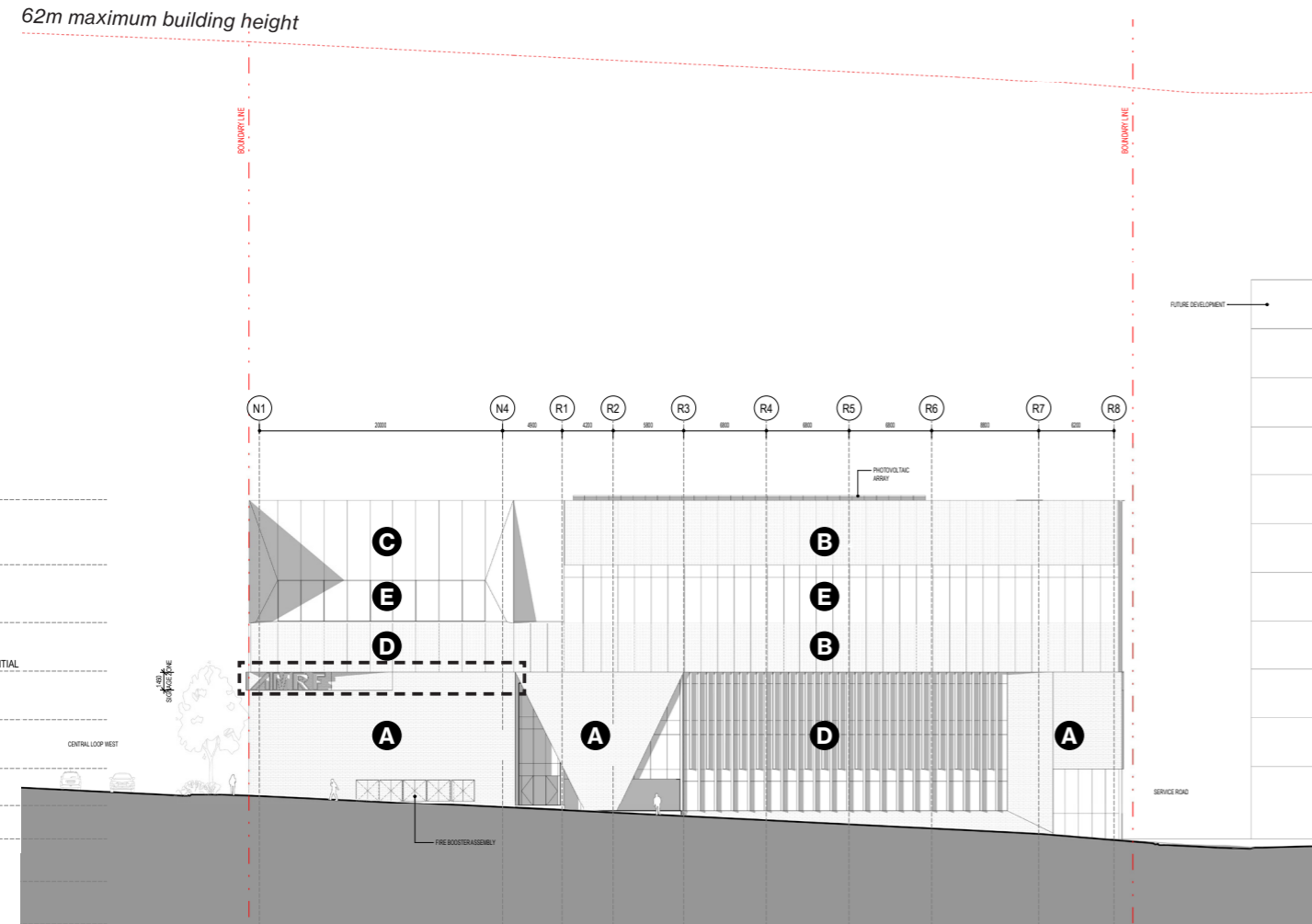


Scale  
 0 2 4 6 10m

# Facade Changes South Elevation Comparison

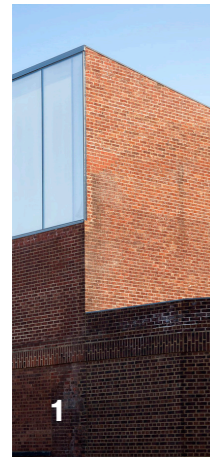
## SSDA

## MOD 1 PROPOSAL



   Stage 2  
   Signage Zone

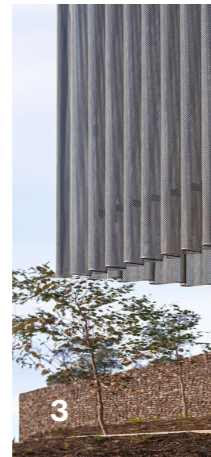
**A. Masonry**



**B. Metal Mesh**



**C. Metal Cladding**



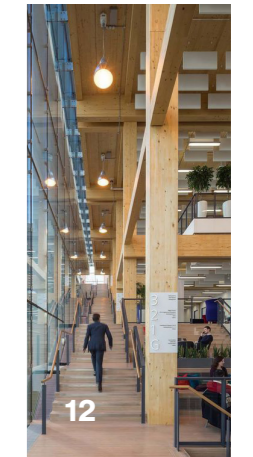
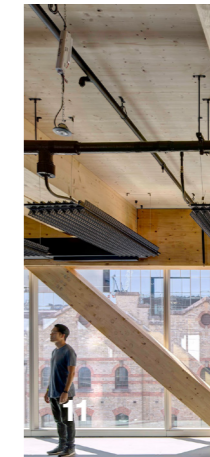
**D. Vertical Shading**



**E. Glass**



**F. Timber**



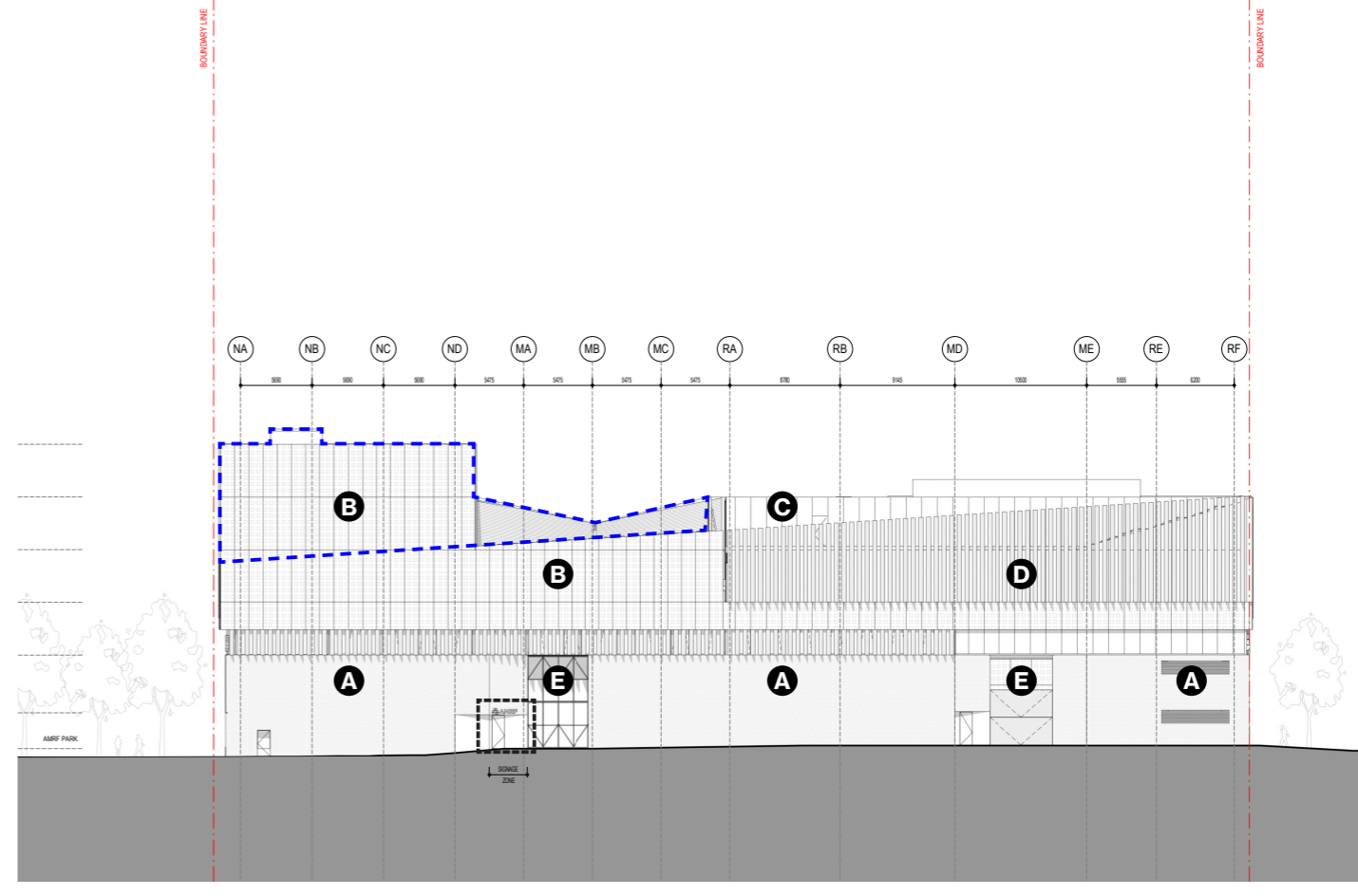
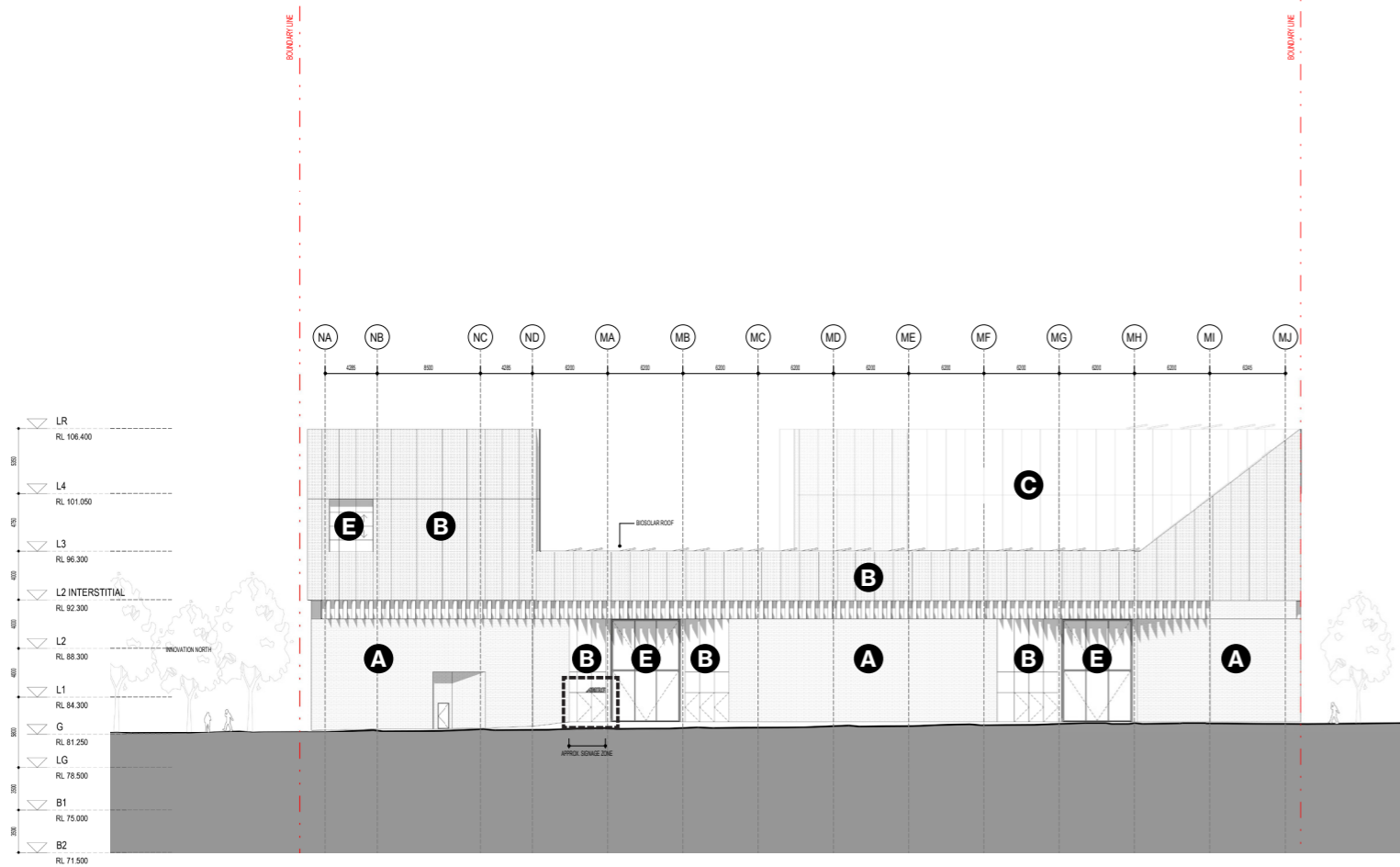
# Facade Changes West Elevation Comparison

## SSDA

## MOD 1 PROPOSAL

62m maximum building height

62m maximum building height



Stage 2  
Signage Zone

A. Masonry



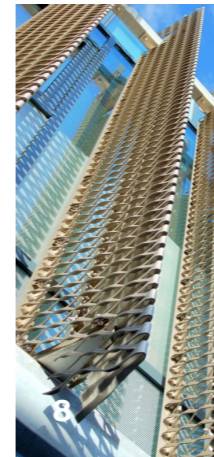
B. Metal Mesh



C. Metal Cladding



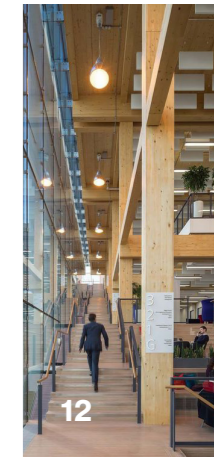
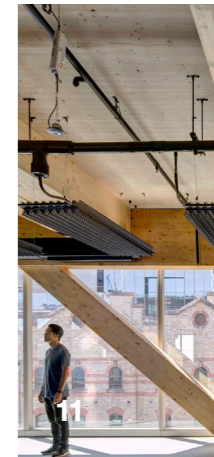
D. Vertical Shading



E. Glass



F. Timber

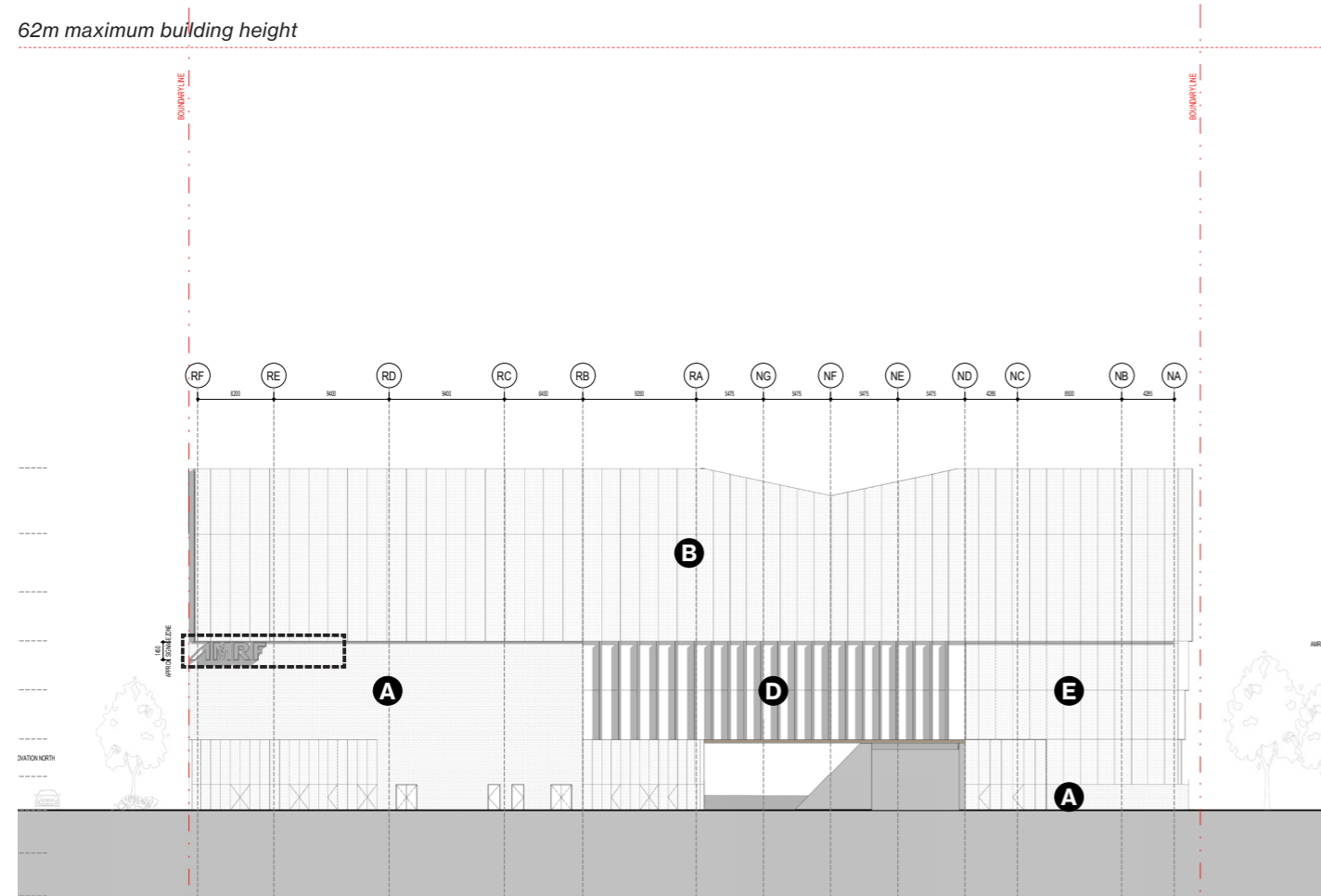


# Facade Changes East Elevation Comparison

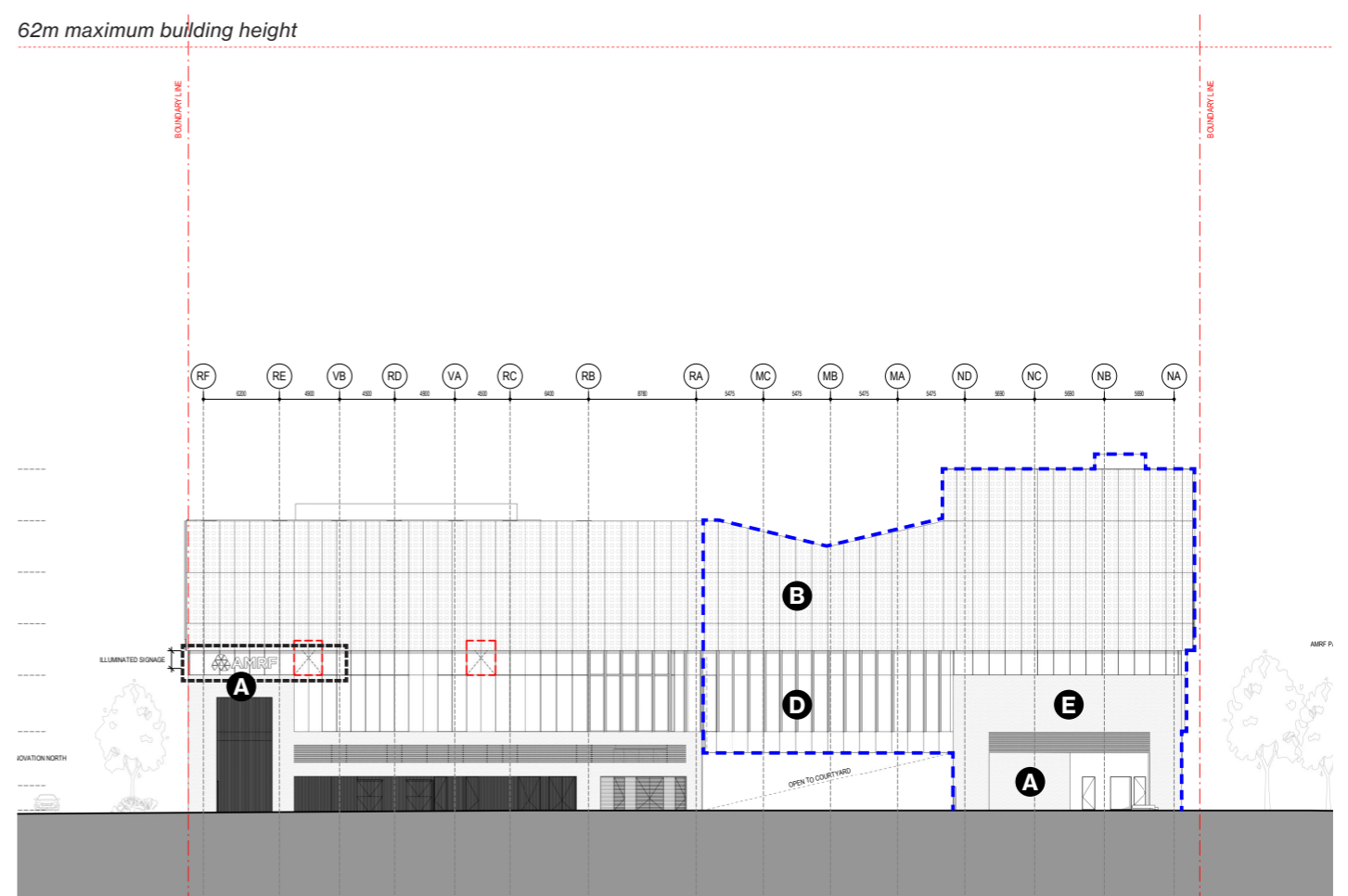
## SSDA

## MOD 1 PROPOSAL

62m maximum building height



62m maximum building height

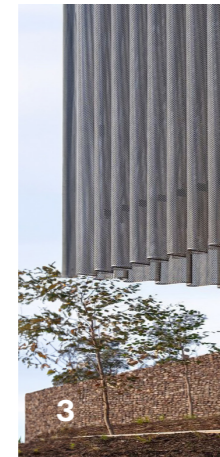


Stage 2  
Signage Zone

A. Masonry



B. Metal Mesh



C. Metal Cladding



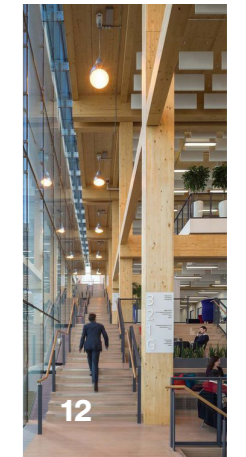
D. Vertical Shading



E. Glass



F. Timber

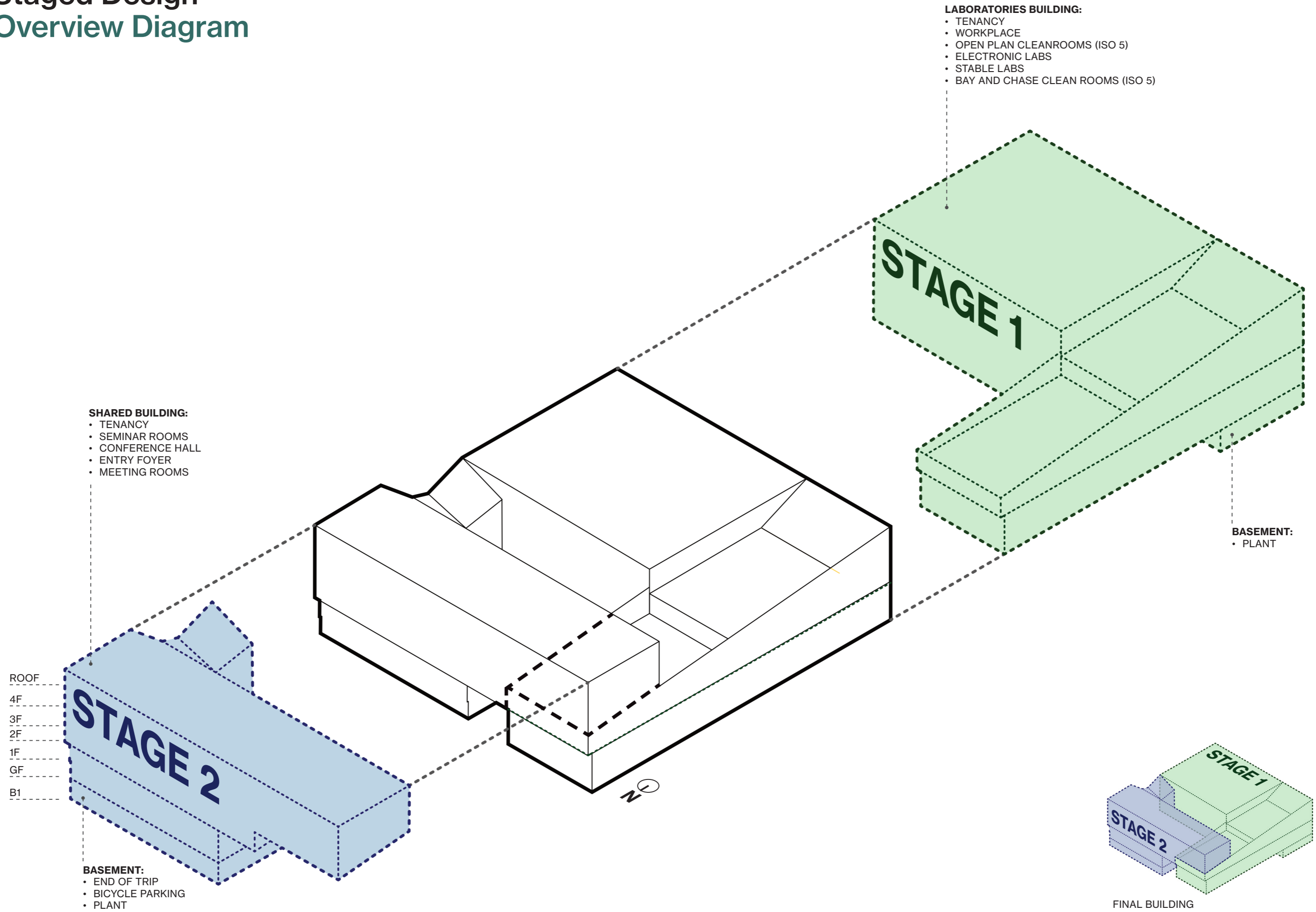


Scale  
0 2 4 6 10m

# STAGED DESIGN

2

# Staged Design Overview Diagram



# Visualisation Comparison

## Northern View from AMRF Park



Stage 1



Stage 2

# Visualisation Comparison

## View from West



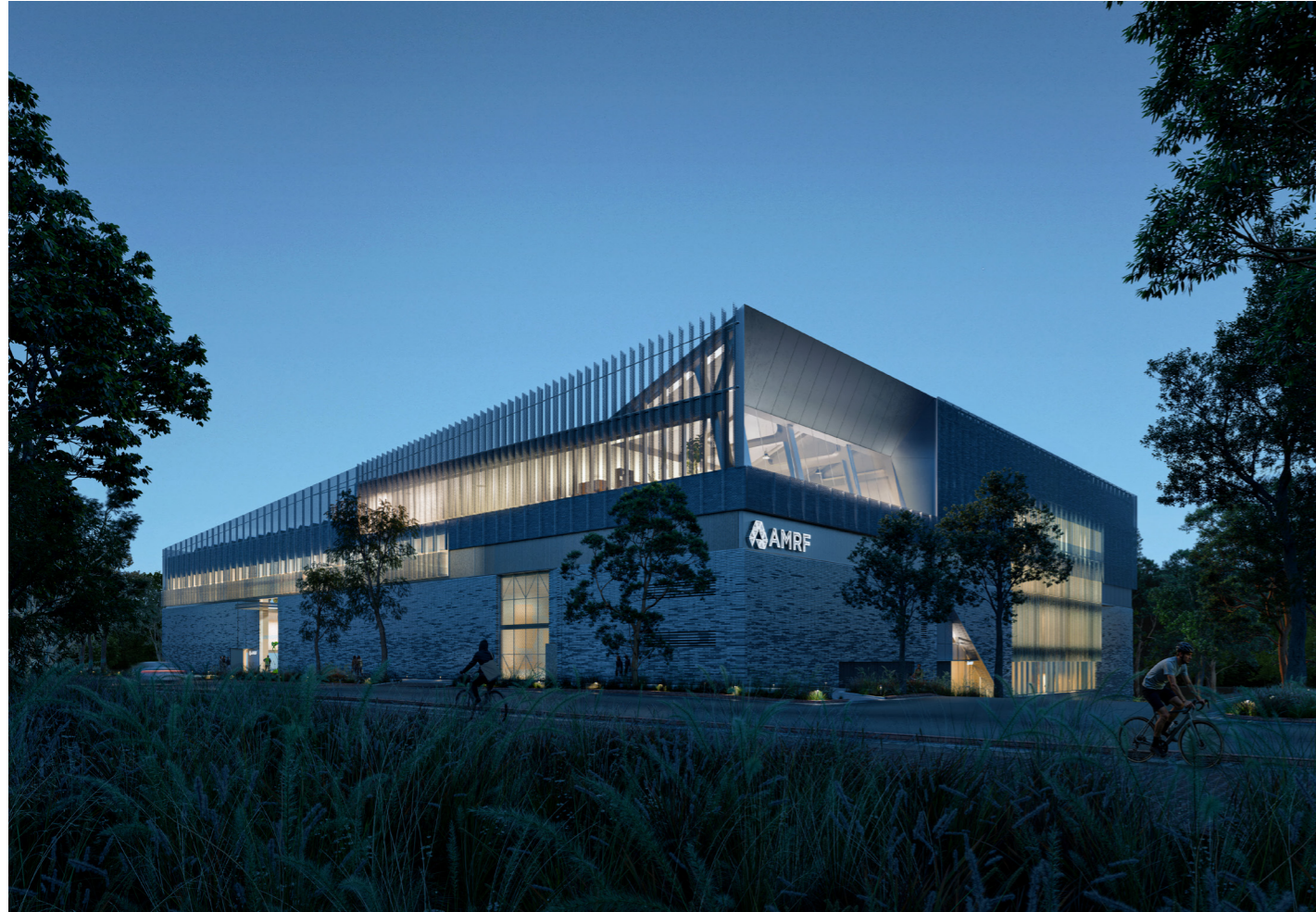
Stage 1



Stage 2

# Visualisation Comparison

## View from South-West



Stage 1



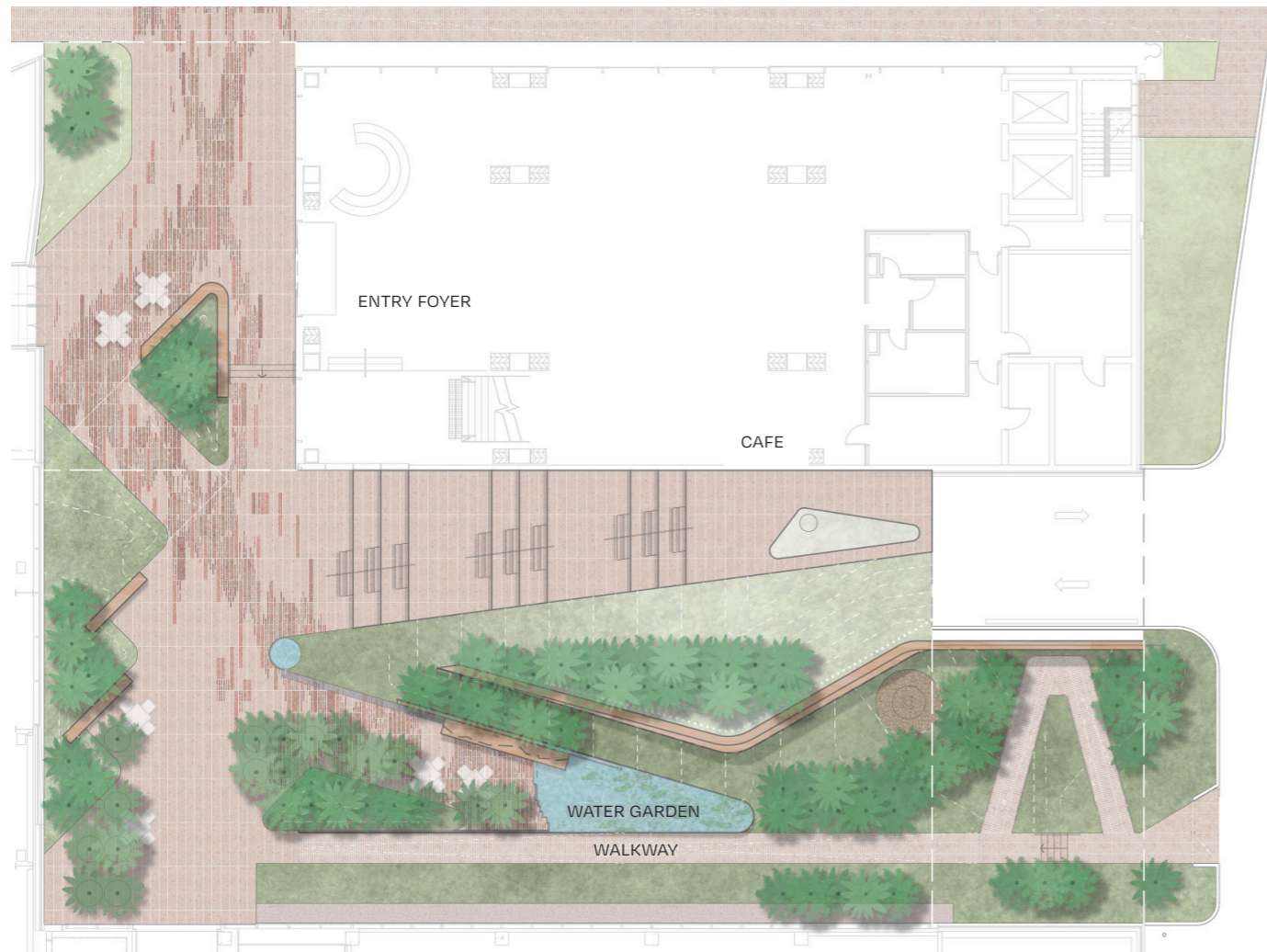
Stage 2

# LANDSCAPE

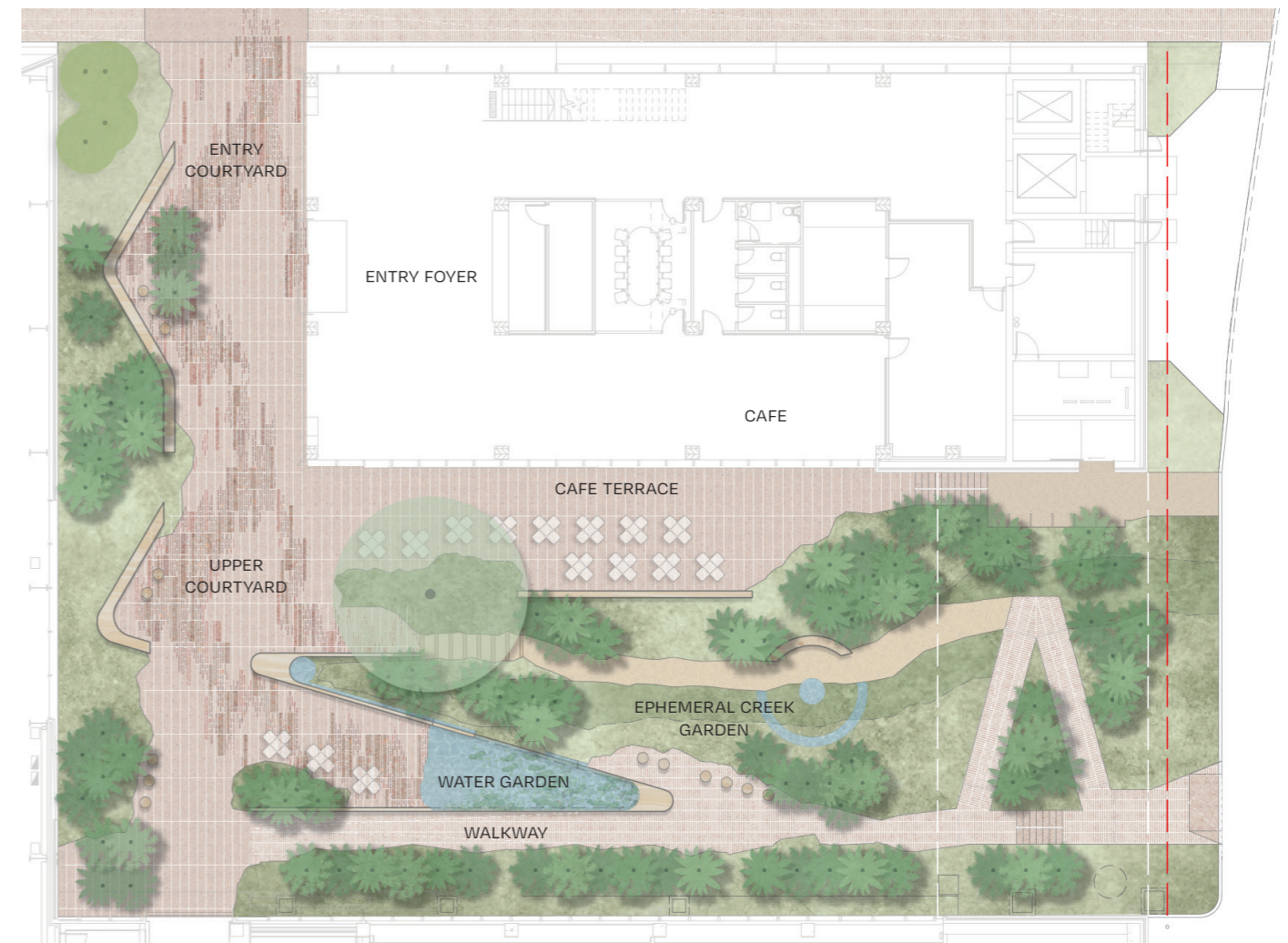
3

# 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.

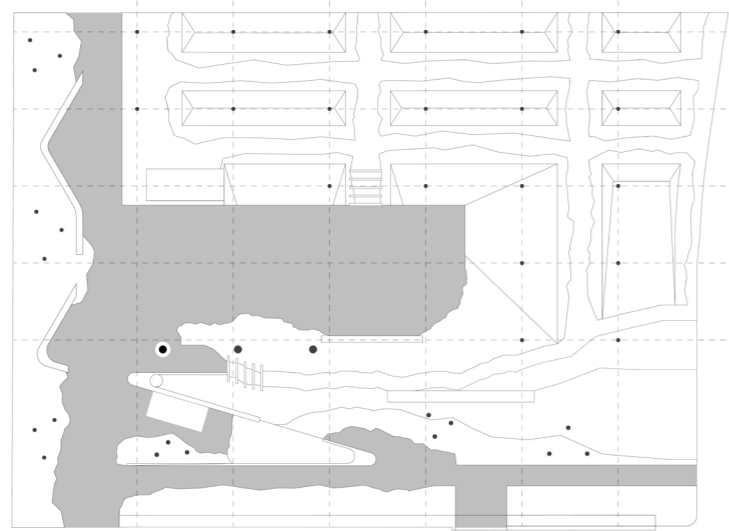
# Landscape Changes Mod 1 Proposal



# Landscape Changes Stage 1 Proposal



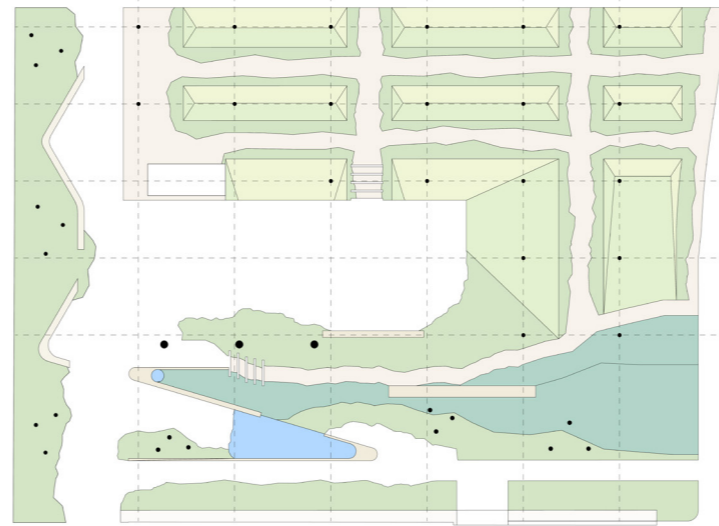
Maintain central courtyard elements



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

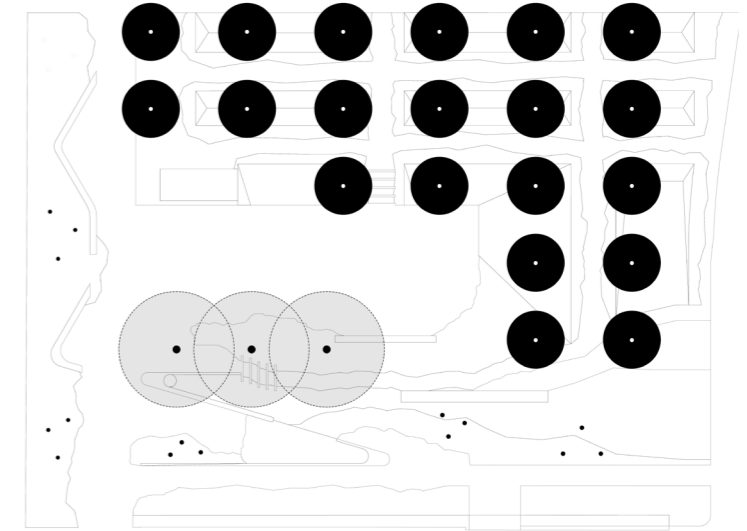


Frame with a field of gentle landform mounds to evoke the undulating Western Sydney landscape beyond.

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

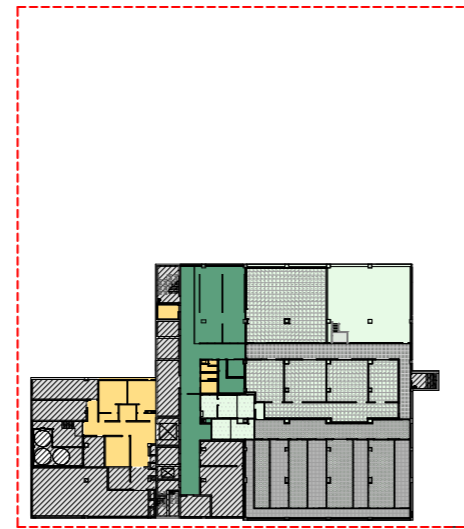
# Area Calculations

## Gross Floor Area - Stage 1

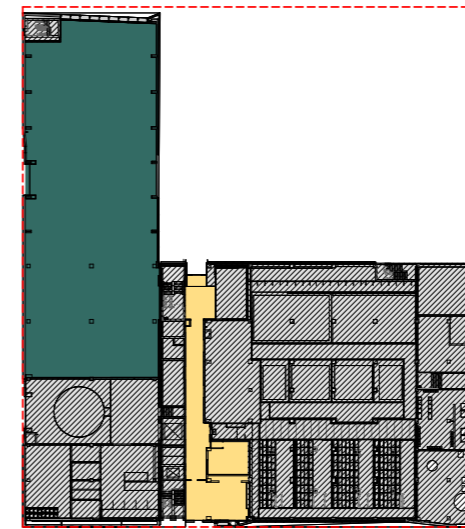
Measured as GFA as defined by NSW  
Legislation: Standard Instrument - Principal Local  
Environmental Plan (2006 epi 155a)

### Key

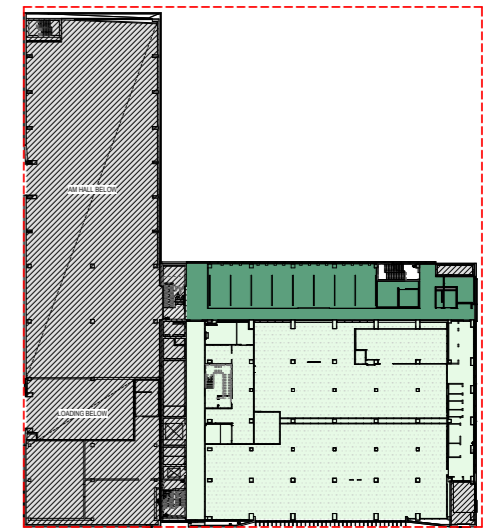
- Research
- Research Workplace
- Advanced Manufacturing
- Building Support
- Tenancy



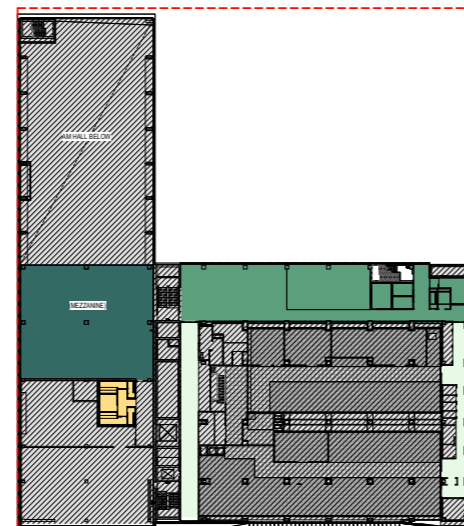
**Basement 1**



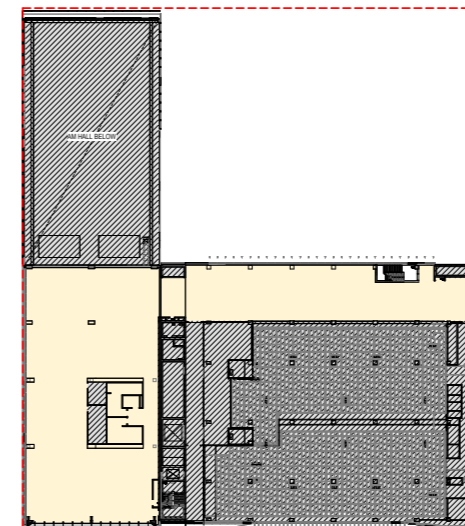
**Ground Floor**



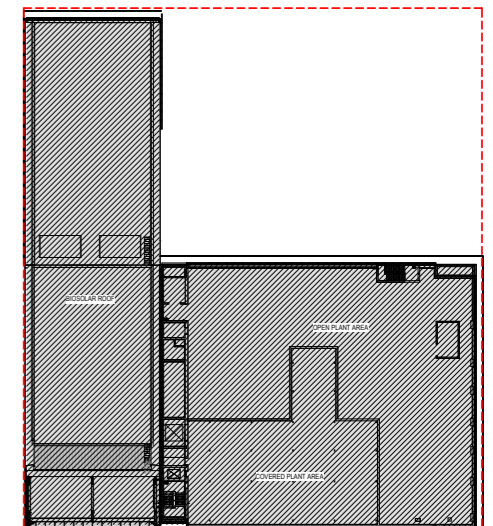
**Level 1**



**Level 2**



**Level 3**



**Level 4**

### Table of Areas

Research (conference hall, seminar spaces)	2,714 sqm
Research Workplace (AMRF)	1,023 sqm
Advanced Manufacturing (workshop hall)	1,577 sqm
Building Support (security, amenities)	282 sqm
Tenancy	1,259 sqm
<b>Overall</b>	<b>6,855 sqm</b>

# Area Calculations

## Gross Floor Area - Stage 2

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

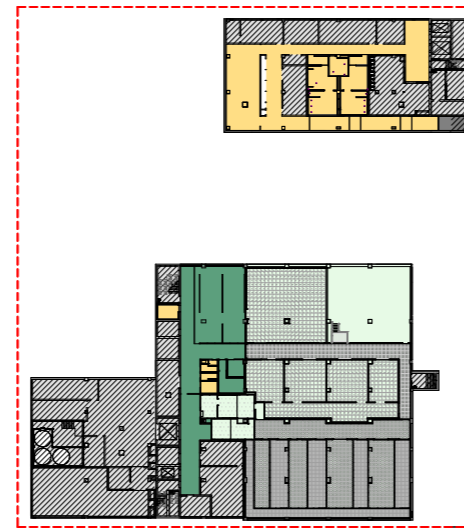
### Key

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

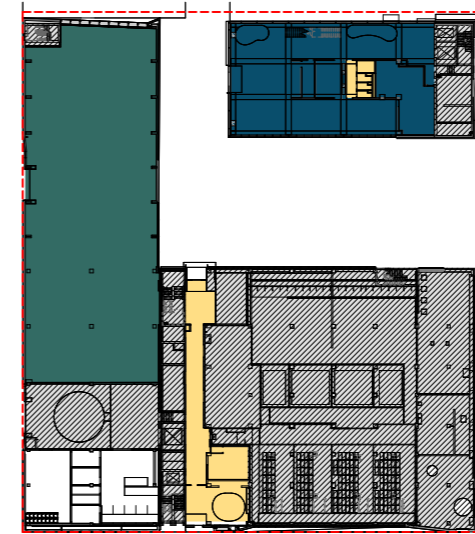
### Table of Areas

Shared Spaces <small>(foyer/reception, exhibition)</small>	558 sqm
Collaboration <small>(clean rooms, microscopy, dry laboratory)</small>	917 sqm
Research <small>(conference hall, seminar spaces)</small>	2,507 sqm
Research Workplace <small>(AMRF)</small>	1,220 sqm
Advanced Manufacturing <small>(workshop hall)</small>	1,577 sqm
Building Support <small>(security, amenities)</small>	976 sqm
Tenancy	3,145 sqm

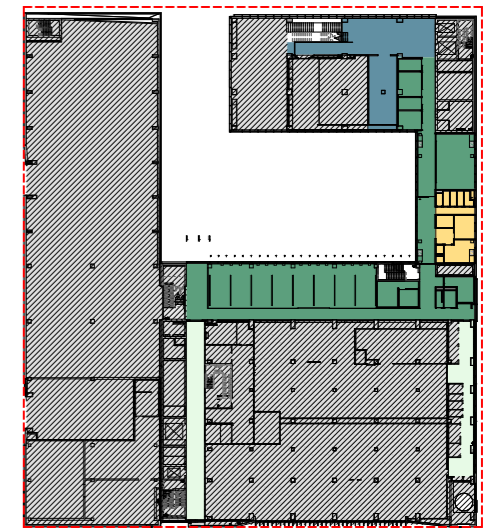
**Overall** **10,900 sqm**



**Basement 1**



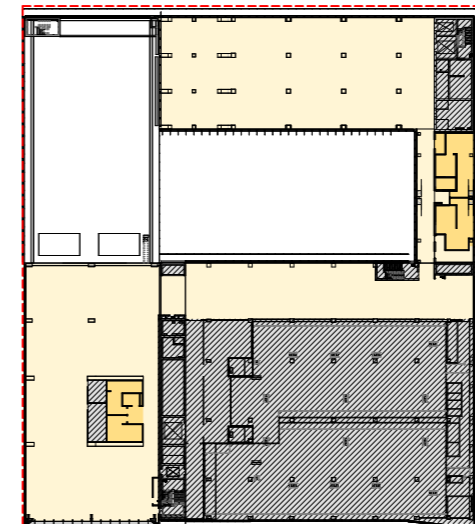
**Ground Floor**



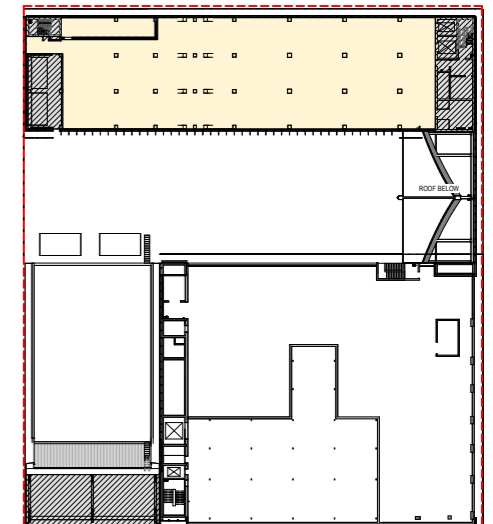
**Level 1**



**Level 2**



**Level 3**



**Level 4**



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**Aileen Sage**

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