

Drawing title

North elevation sign

Sign in situ

Issue	Issue date
2	19.10.2022

Drawing no	Sheet no	Scale
1	1 OF 16	@A3

PM	Drawn	Checked
RF	EV	RF

Revision

For tender

Client

MACQUARIE GROUP

Project

50 MARTIN PL. SYDNEY 2000
NORTH ELEVATION SKY SIGN

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NORTH ELEVATION SIGN

BRANDMARK
150x50x3 ALUMINIUM RHS (6060 T5)
76x6.35 ALUMINIUM SHS (6060 T5)
DIRECT ALUMINIUM FLEX FACE EXTRUSIONS DIR-838
DIRECT ALUMINIUM EXTRUSION COVER PLATE DIR-839
3mm ALUMINIUM SHEET SIGN CLADDING
FINISH: 2 PAC PAINT. SATIN
COLOUR: WHITE

LIGHTING ASSEMBLY PANELS
1.6mm ALUMINIUM
FIXING: S/S TEK SCREWS TO FRAME
FINISH: WHITE. SATIN

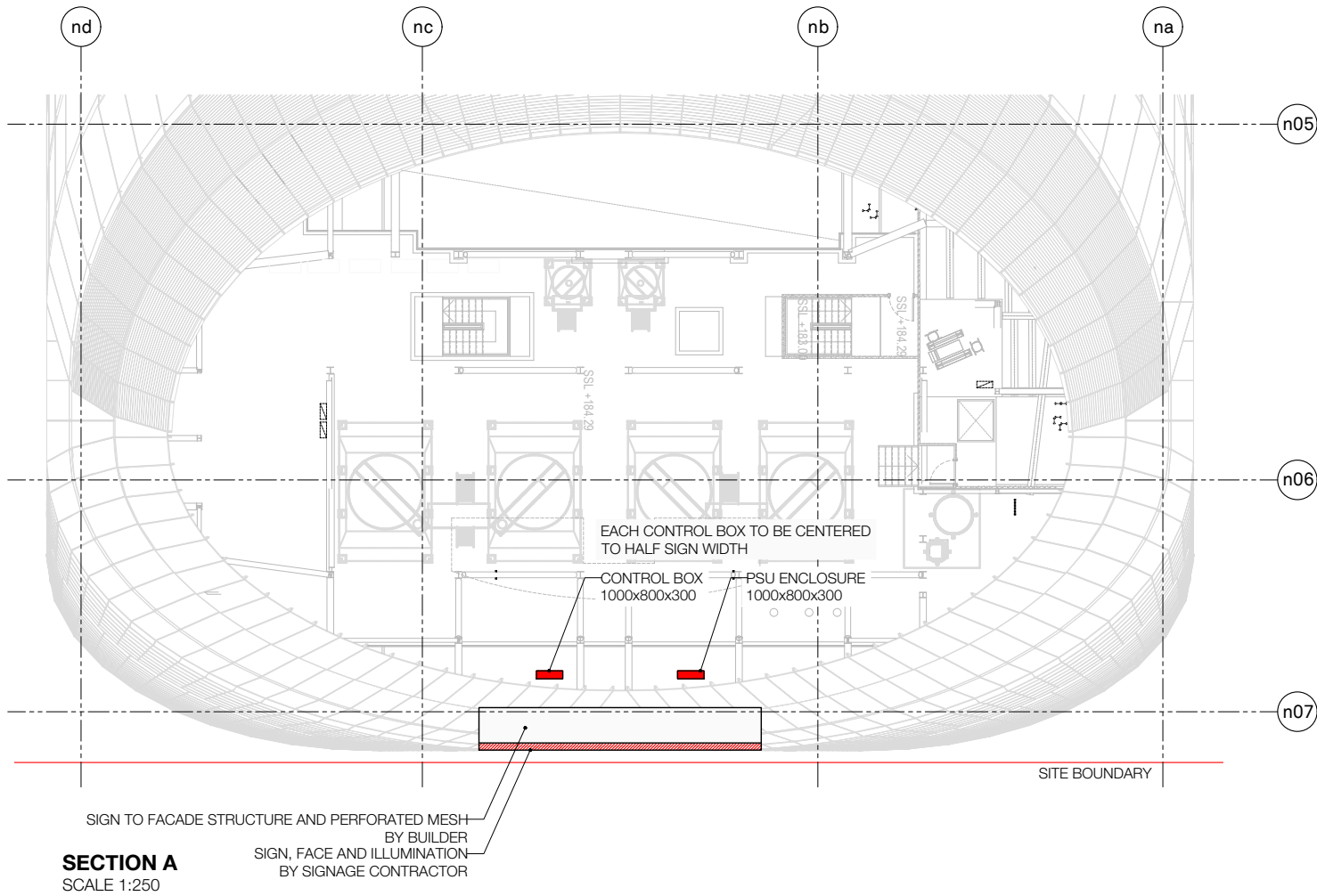
SIGN FACE
FLEX FACE SPEC.: SEEMEE IV
COLOUR: WHITE
BLOCK OUT BLACK GRAPHIC TO FACE
UV OVERLAMINATE OVER FACE AFTER APPLICATION OF GRAPHIC

ILLUMINATION
REFER TO CLEAR CONTROL PROPOSAL

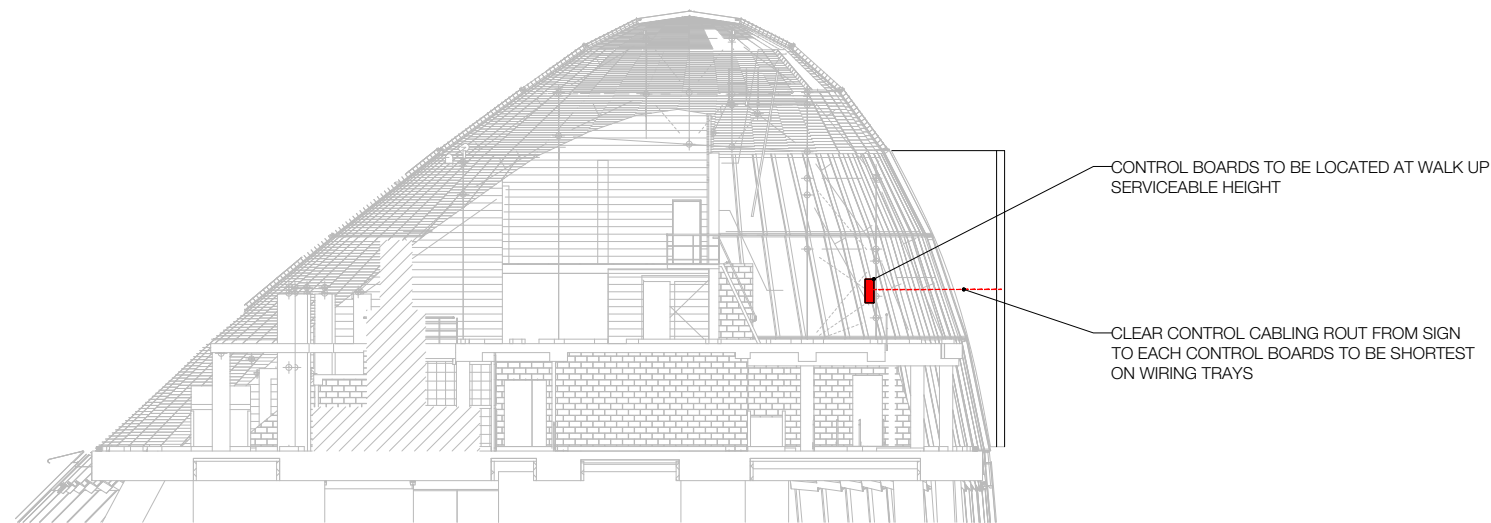
BRAND SIGNAGE
CONTRACTOR TO USE MACQUARIE GROUP BRAND FILE

SIGNAGE CONTRACTOR TO PROVIDE FULL SIZE PROTOTYPE
SECTION m1-1 FOR STAKEHOLDER REVIEW AND APPROVAL

SIGNAGE CONTRACTOR DURING FINAL WSD AND SITE SURVEY TO
ALLOW FOR BMU MAXIMUM WEIGHT CAPACITIES AND MAXIMUM
COMPONENT SIZES FOR AVAILABLE ACCESS ROUTES TO SIGN
LOCATION.



SECTION A
SCALE 1:250



SECTION B
SCALE 1:250

Drawing title

North elevation sign

Sections A & B

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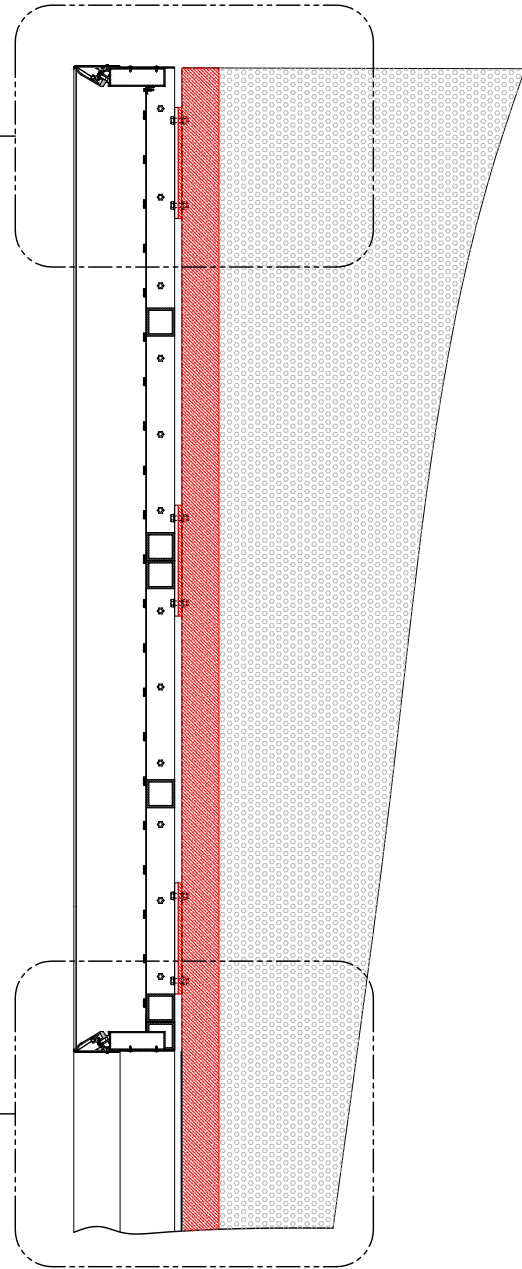
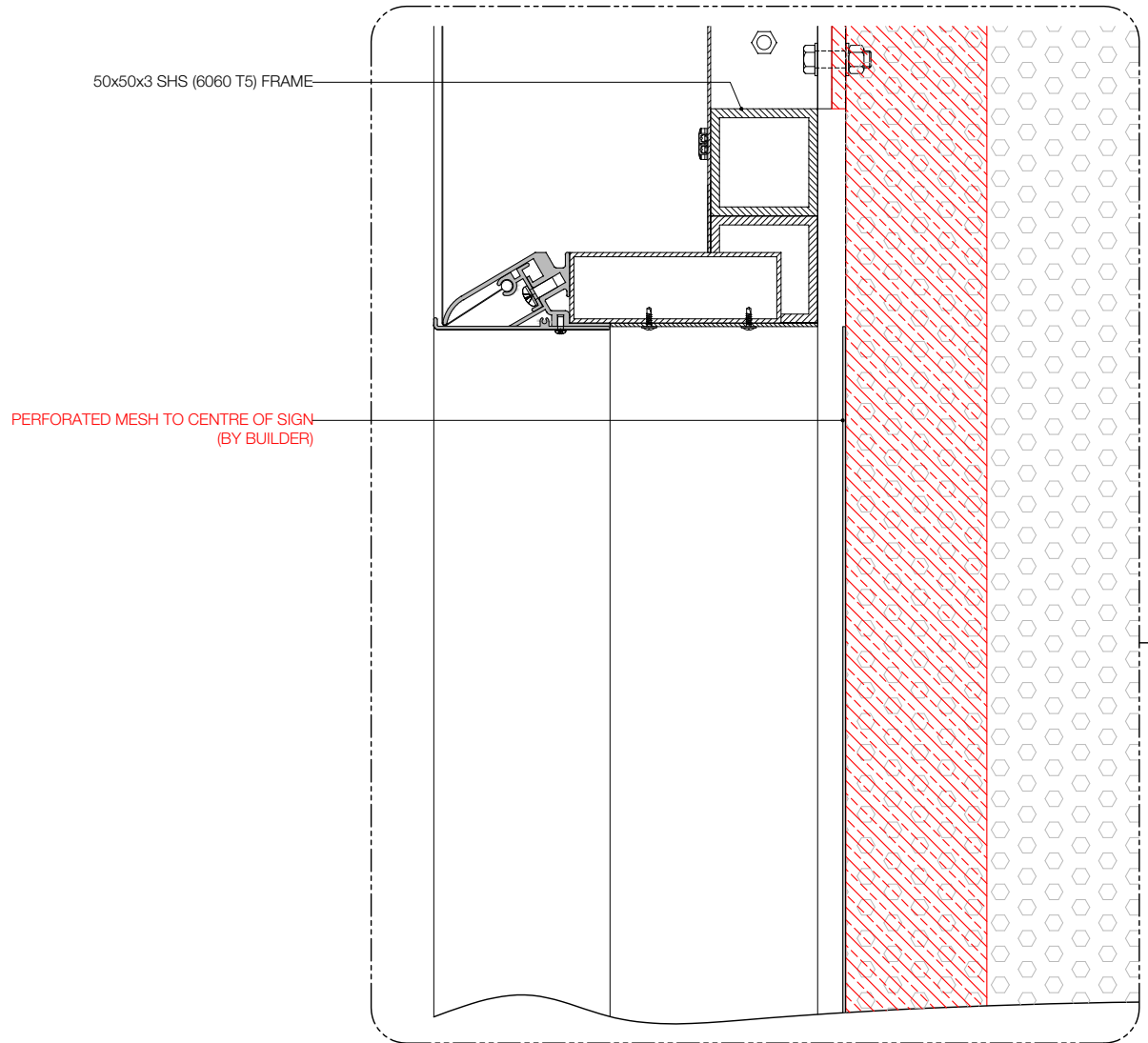
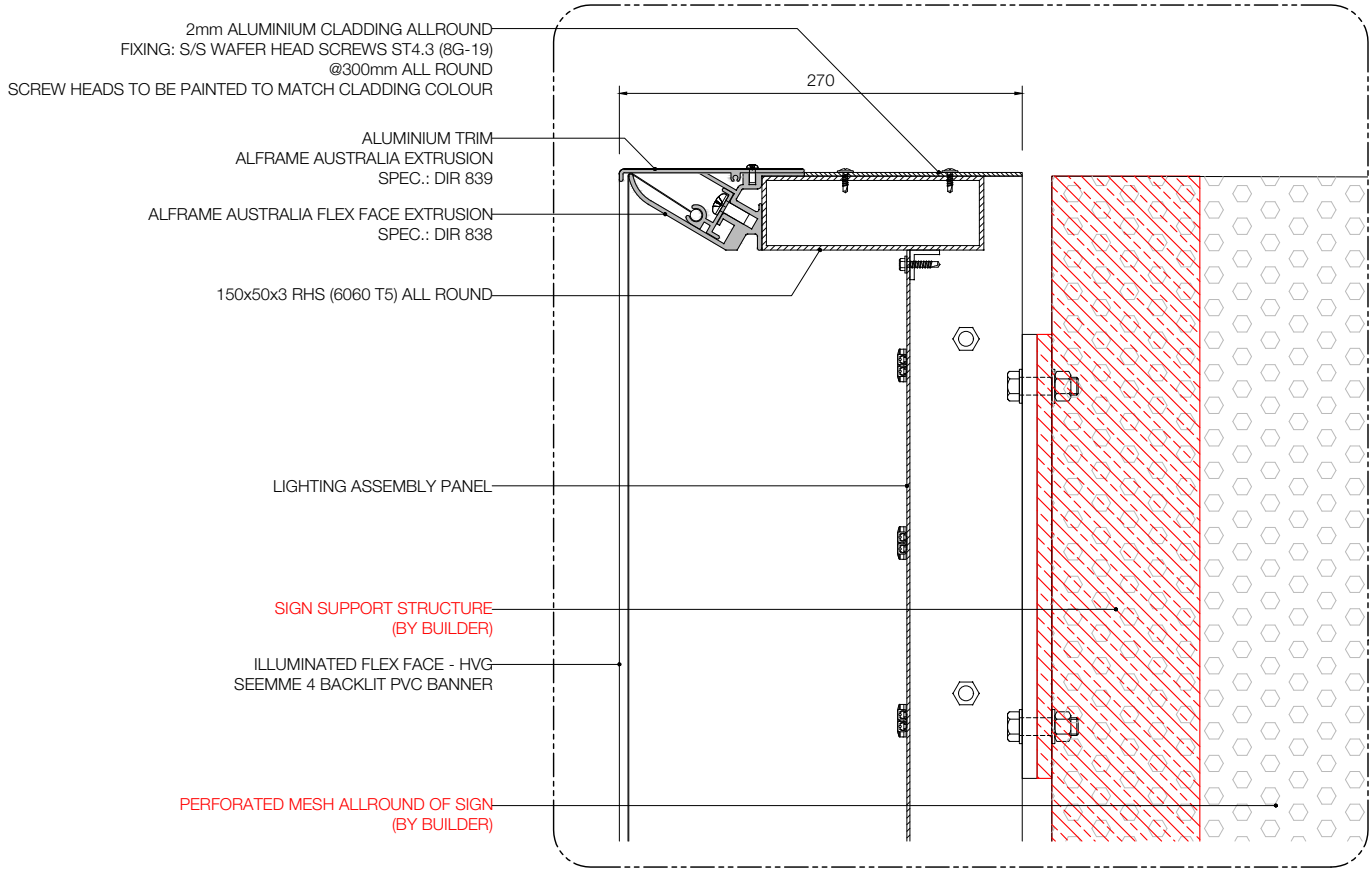
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Scale: 1:20, 1:5

Drawing title

North elevation sign

Typical section through
sign detail

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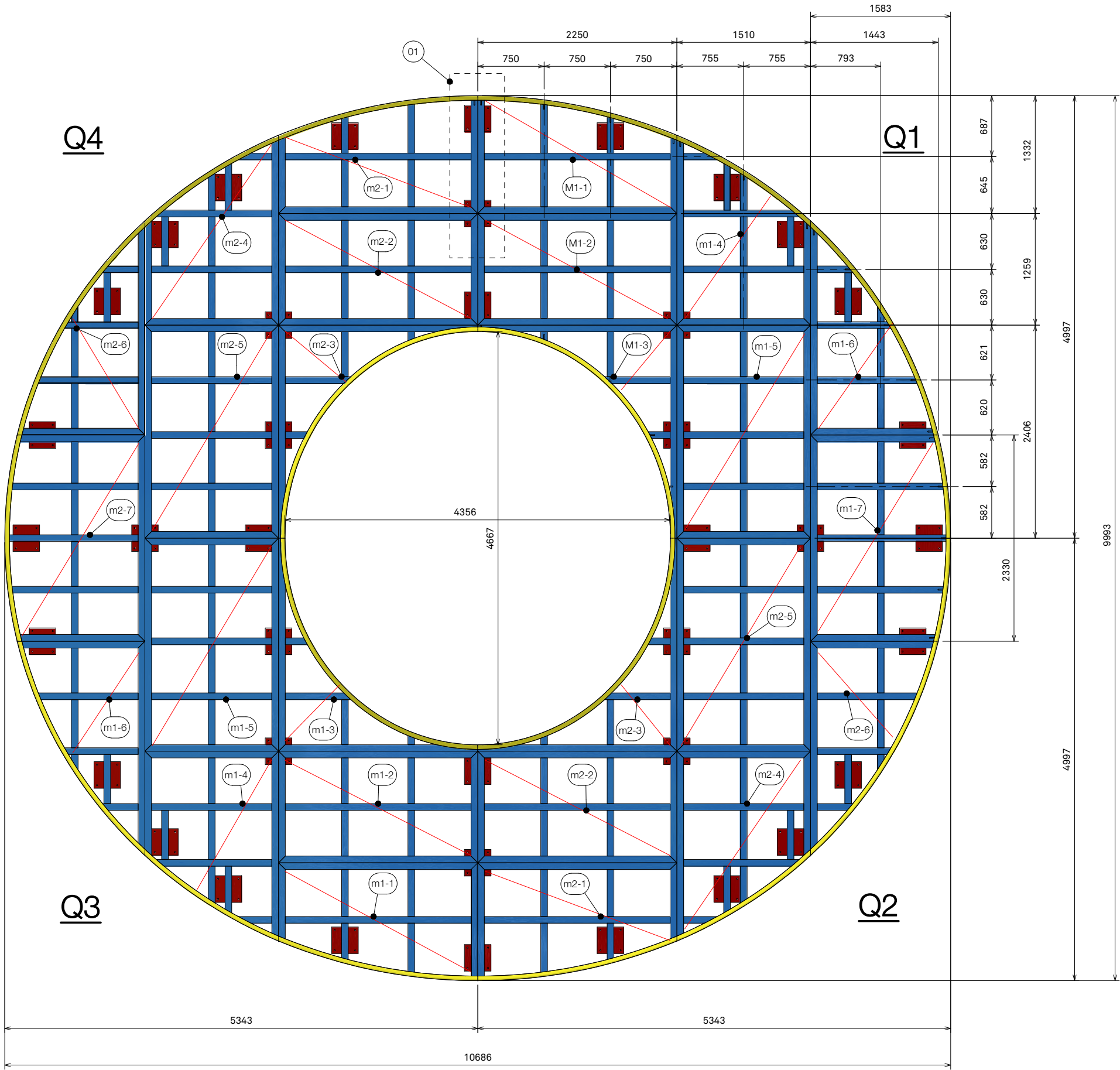
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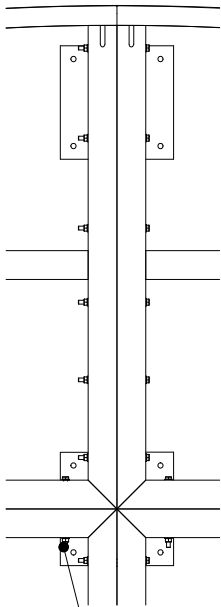
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FRONT VIEW
SCALE 1 : 50

FRAME MODULES SCHEDULE

QUARTER 1&3			QUARTER 2&4		
CODE	WEIGHT kg	QTY	CODE	WEIGHT kg	QTY
m1-1	70	2	m2-1	70	2
m1-2	65	2	m2-2	65	2
m1-3	60	2	m2-3	60	2
m1-4	76	2	m2-4	76	2
m1-5	83	2	m2-5	83	2
m1-6	70	2	m2-6	70	2
m1-7	90	1	m2-7	90	1



TYPICAL FRAME MODULES ASSEMBLY
FIXING: M10 S/S BOLTS, WASHERS AND NUTS

DETAIL 01
SCALE 1 : 20

SIGN FRAME ASSEMBLY

M12 S/S BOLTS TO FIX TO BUILDING STRUCTURAL MEMBERS

TO BE BUILT IN 26 MODULES
M10 S/S BOLTS TO ASSEMBLY

ALUMINIUM FRAME MODULE
150x50x3 (6060 T5) RHS
76x6.35 (6060 T5) SHS
10PL (6060 T5) MOUNTING PLATES
ALFRAME FLEX FACE EXTRUSION ALL ROUND
SPEC. DIR 838

Drawing title

North elevation sign

Frame assembly

Issue 2
Issue date 19.10.2022

Drawing no 4
Sheet no 4 OF 16
Scale @A3

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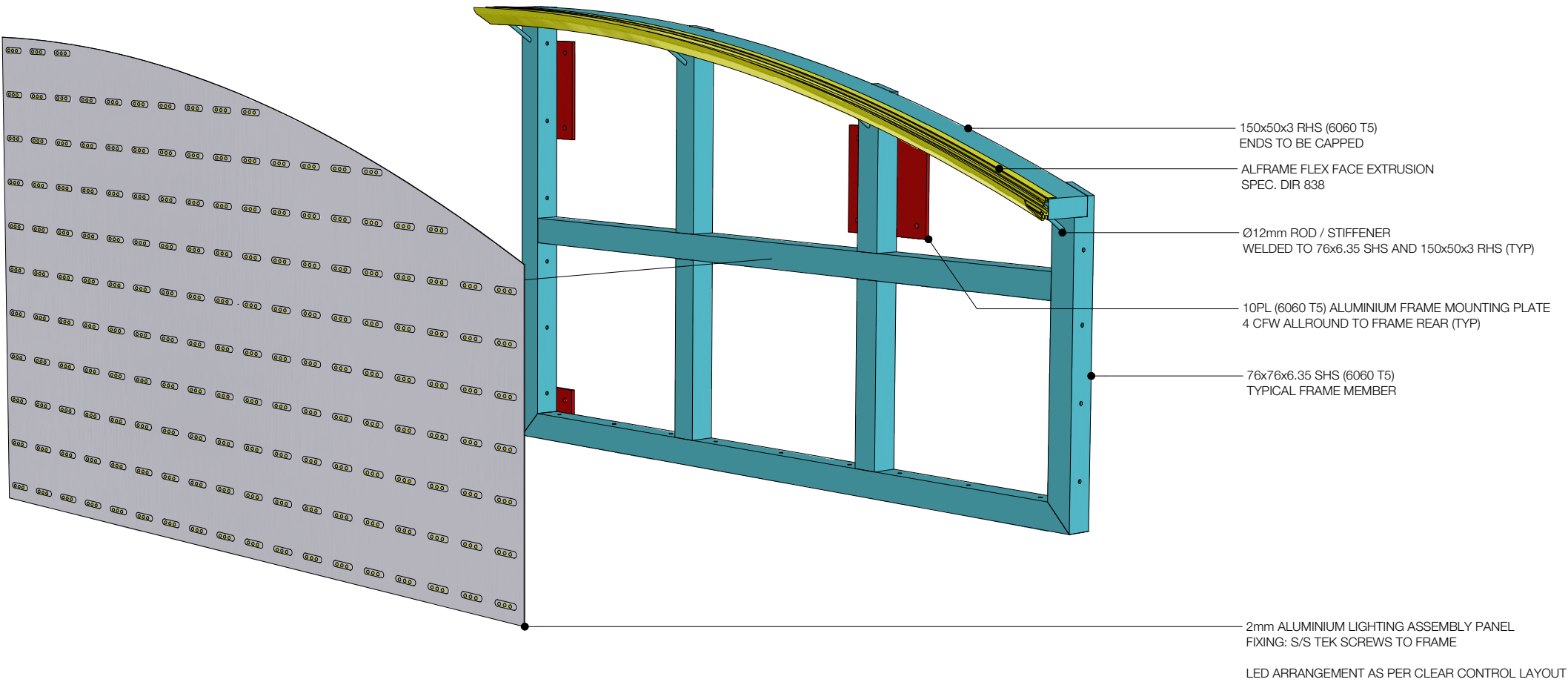
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EXPLODED VIEW
SCALE 1 : 15

Drawing title

North elevation sign

Typical module assembly

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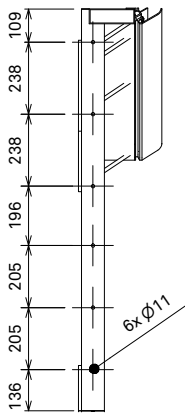
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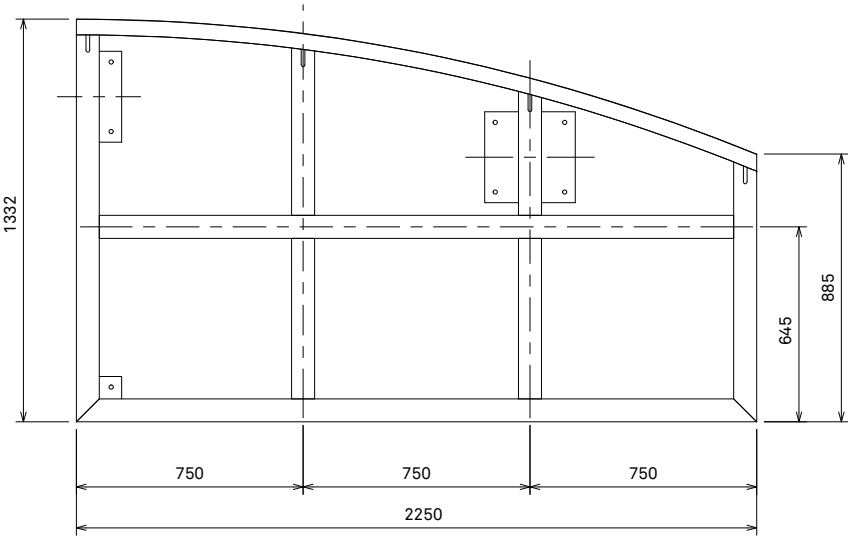
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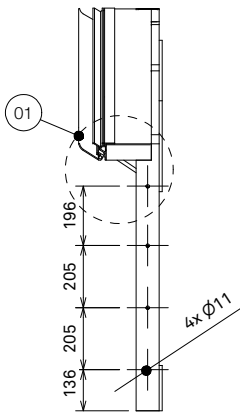
FRAME MODULE m2-1 IS SYMMETRICAL TO MODULE m1-1



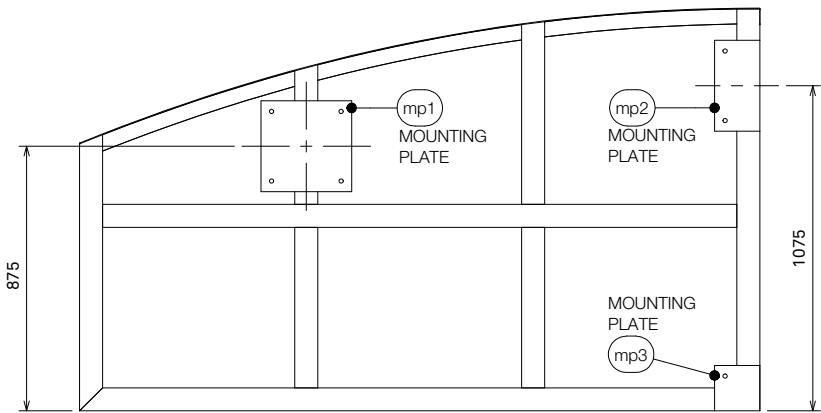
m1-1. LHS VIEW
SCALE 1 : 25



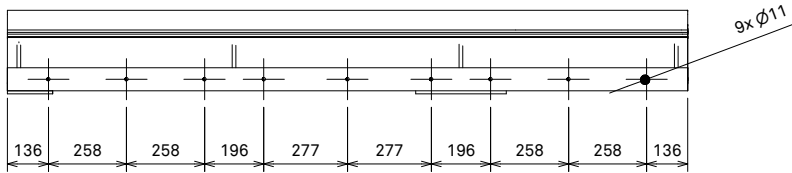
m1-1. FRONT VIEW
SCALE 1 : 25



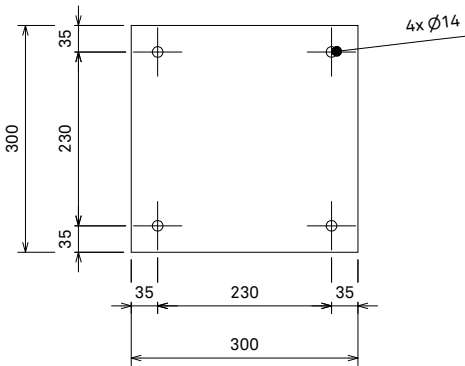
m1-1. RHS VIEW
SCALE 1 : 25



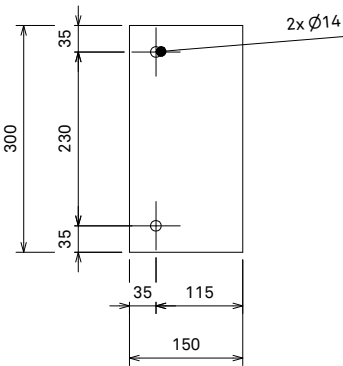
m1-1. REAR VIEW
SCALE 1 : 25



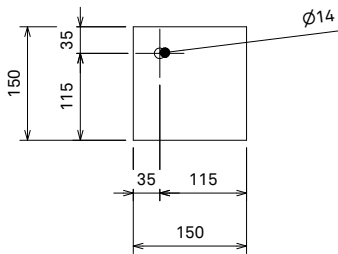
m1-1. BOTTOM VIEW
SCALE 1 : 25



mp1. FRONT VIEW
SCALE 1 : 10



mp2. FRONT VIEW
SCALE 1 : 10



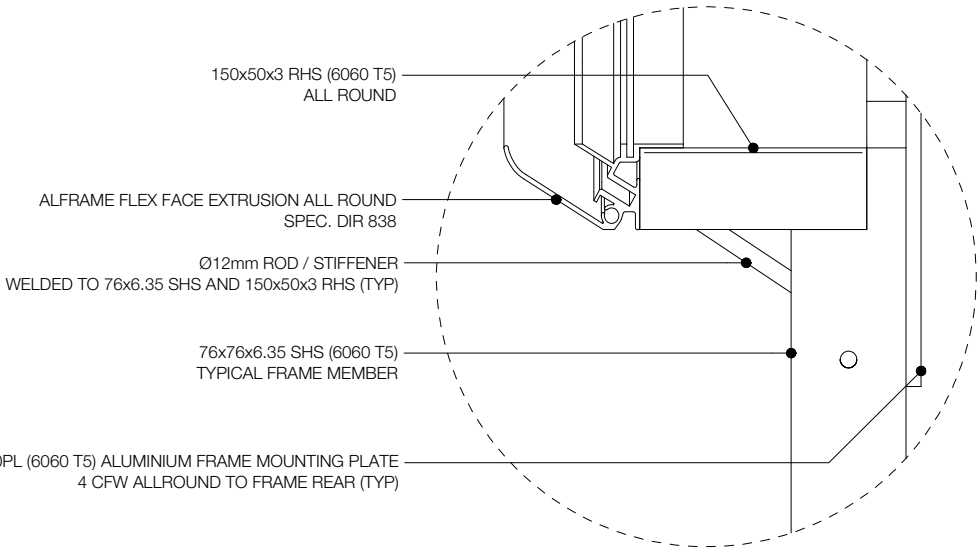
mp3. FRONT VIEW
SCALE 1 : 10

ALUMINIUM FRAME MODULE

150x50x3 (6060 T5) RHS
76x6.35 (6060 T5) SHS
Ø11mm HOLES (TYP) TO ACCOMMODATE FRAME ASSEMBLY

10PL (6060 T5) MOUNTING PLATES
Ø14mm HOLES (TYP) TO ACCOMMODATE FRAME FIXING TO
BUILDING STRUCTURAL MEMBERS

ALFRAME FLEX FACE EXTRUSION ALL ROUND
SPEC. DIR 838



DETAIL 01
SCALE 1:5

SIGNAGE CONTRACTOR TO PROVIDE FINAL WORK SHOP DRAWINGS
THAT CORRESPOND TO BUILDERS REAR SIGNAGE FRAME AND PERFORATED
MESH DRAWINGS TO ENSURE ALIGNMENT OF FIXING BOLT LOCATIONS.

Drawing title

North elevation sign

Frame module m1-1

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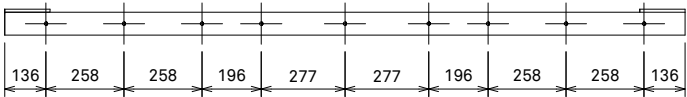
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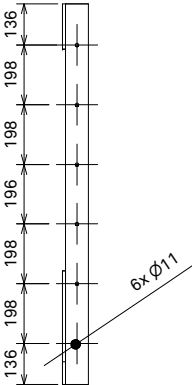
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FRAME MODULE m2-2 IS SYMMETRICAL TO MODULE m1-2



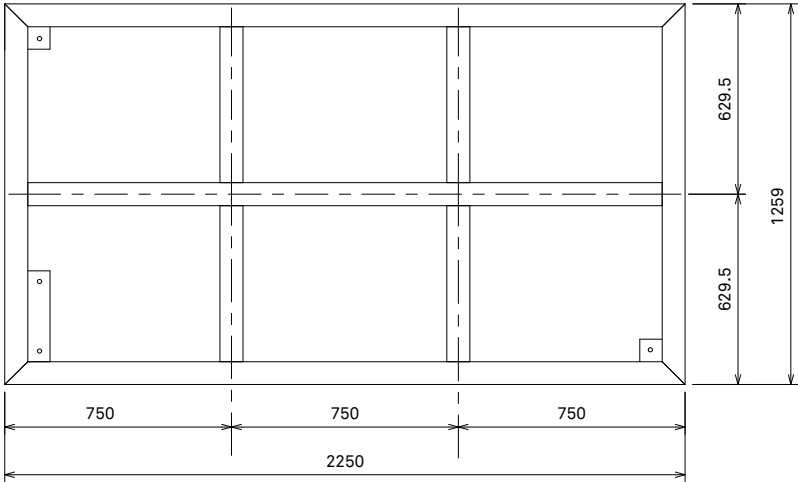
m1-2. TOP VIEW

SCALE 1 : 25



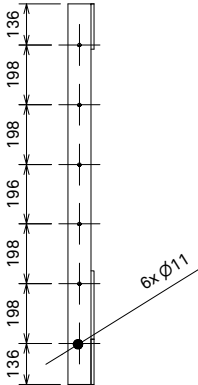
m1-2. LHS VIEW

SCALE 1 : 25



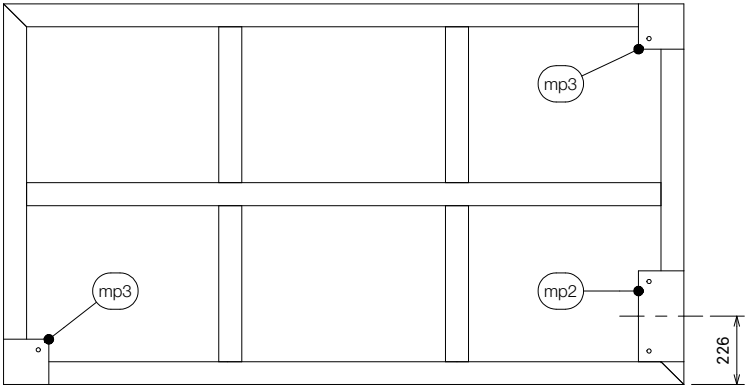
m1-2. FRONT VIEW

SCALE 1 : 25



m1-2. RHS VIEW

SCALE 1 : 25



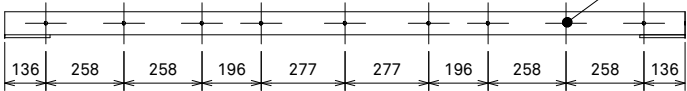
m1-2. REAR VIEW

SCALE 1 : 25

ALUMINIUM FRAME MODULE

150x50x3 (6060 T5) RHS
76x6.35 (6060 T5) SHS
Ø11mm HOLES (TYP) TO ACCOMMODATE FRAME ASSEMBLY

10PL (6060 T5) MOUNTING PLATES
Ø14mm HOLES (TYP) TO ACCOMMODATE FRAME FIXING TO
BUILDING STRUCTURAL MEMBERS



m1-2. BOTTOM VIEW

SCALE 1 : 25

Drawing title

North elevation sign

Frame module m1-2

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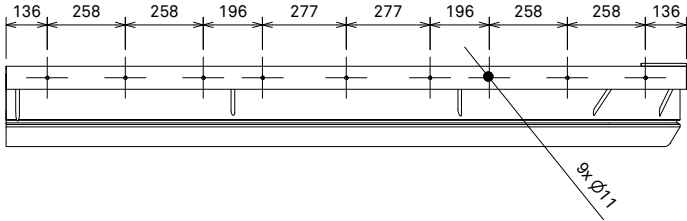
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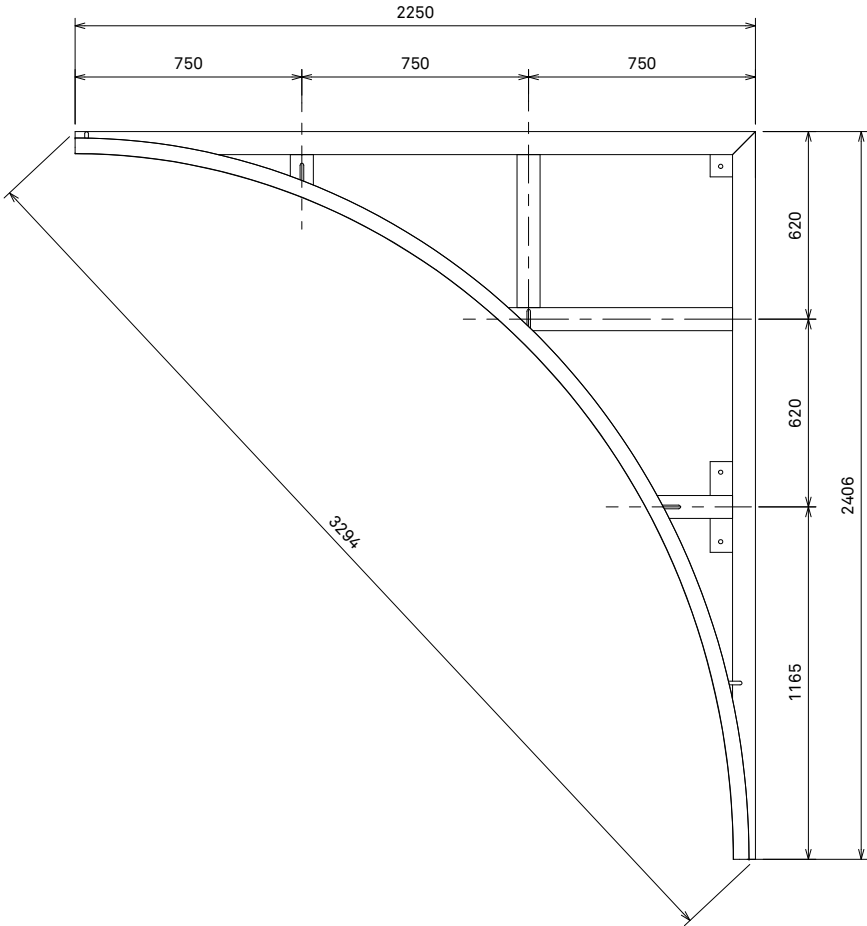
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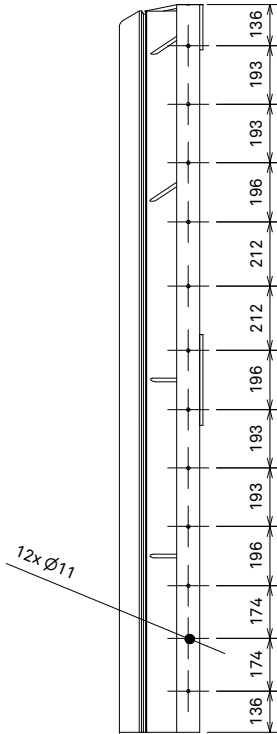
SIGNAGE CONTRACTOR TO PROVIDE FINAL WORK SHOP DRAWINGS THAT CORRESPOND TO BUILDERS REAR SIGNAGE FRAME AND PERFORATED MESH DRAWINGS TO ENSURE ALIGNMENT OF FIXING BOLT LOCATIONS.



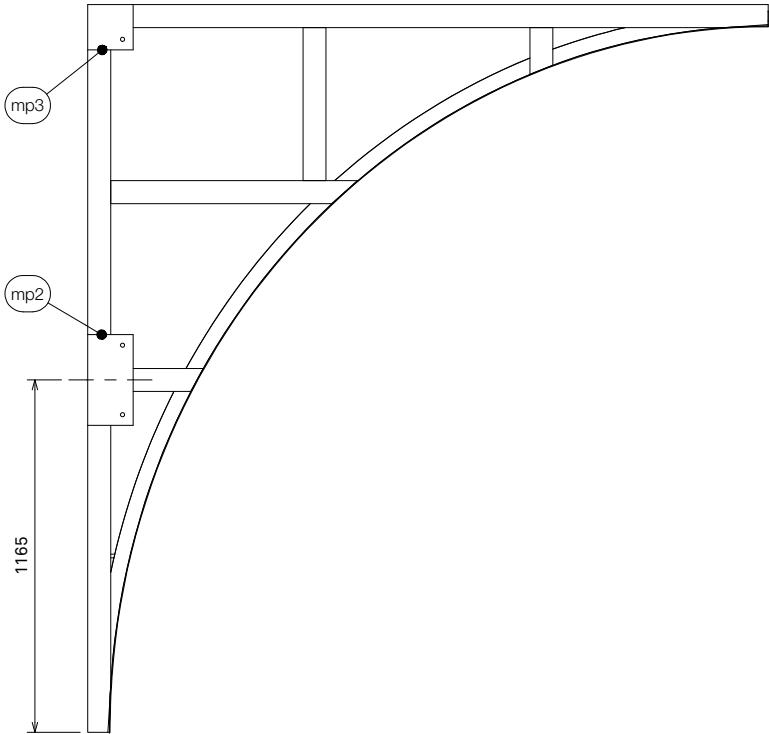
m1-3. TOP VIEW
SCALE 1 : 25



m1-3. FRONT VIEW
SCALE 1 : 25



m1-3. RHS VIEW
SCALE 1 : 25



M1-3. REAR VIEW
SCALE 1 : 25

FRAME MODULE m2-3 IS SYMMETRICAL TO MODULE m1-3

Drawing title

North elevation sign

Frame module m1-3

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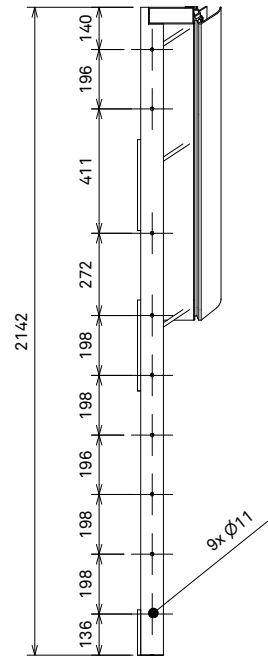
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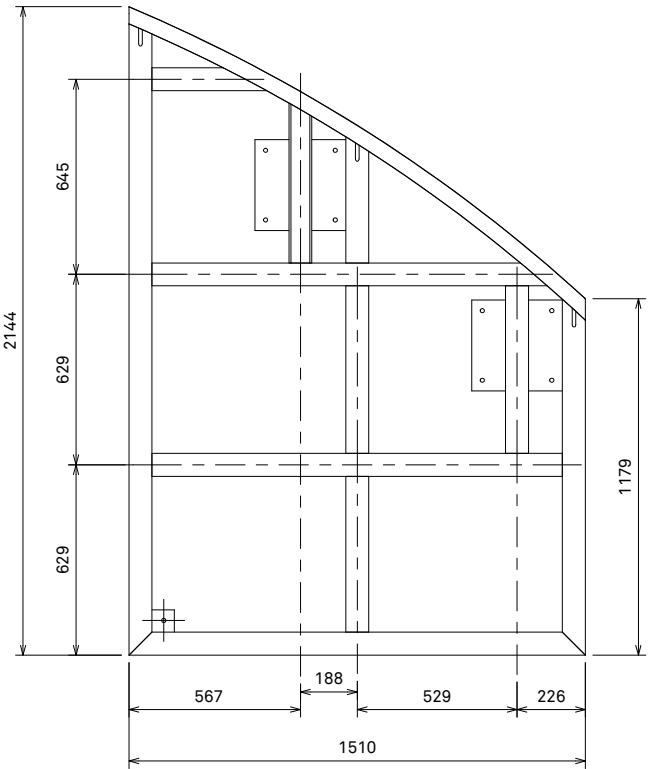
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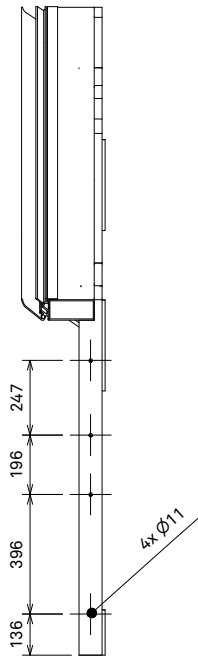
FRAME MODULE m2-4 IS SYMMETRICAL TO MODULE m1-4



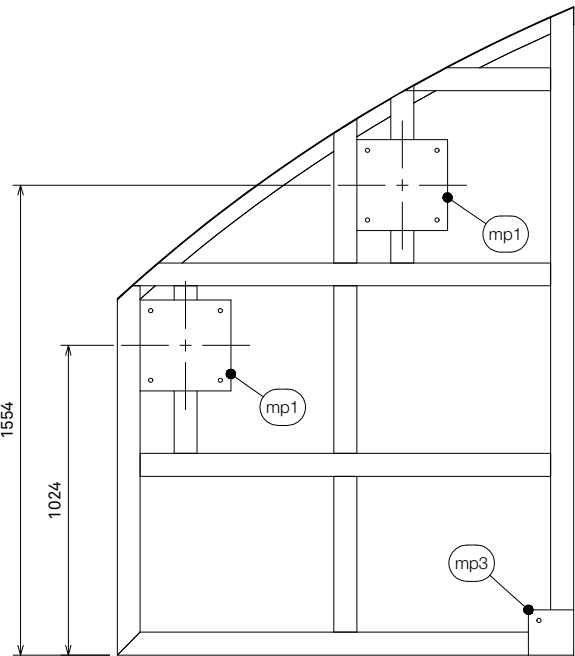
m1-4. LHS VIEW
SCALE 1 : 25



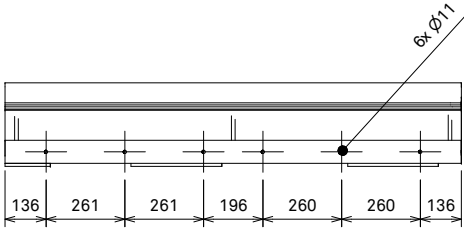
m1-4. FRONT VIEW
SCALE 1 : 25



m1-4. RHS VIEW
SCALE 1 : 25



m1-4. REAR VIEW
SCALE 1 : 25



m1-4. BOTTOM VIEW
SCALE 1 : 25

ALUMINIUM FRAME MODULE

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76x6.35 (6060 T5) SHS
Ø11mm HOLES (TYP) TO ACCOMMODATE FRAME ASSEMBLY

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Frame module m1-4

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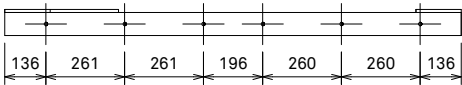
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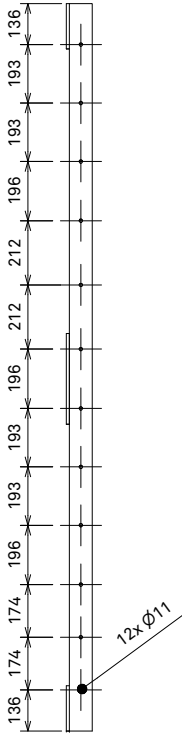
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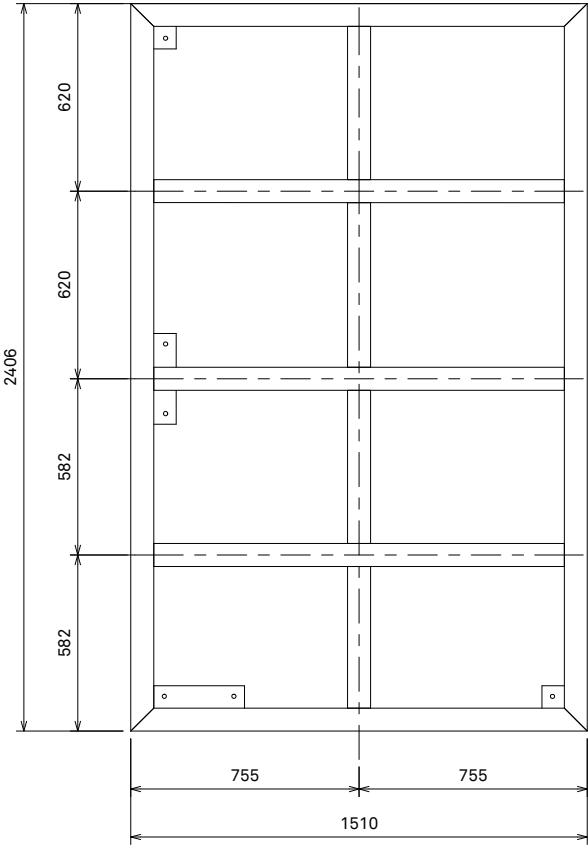
m1-5. TOP VIEW

SCALE 1 : 25



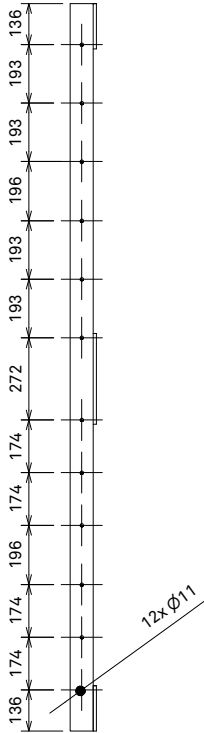
m1-5. LHS VIEW

SCALE 1 : 25



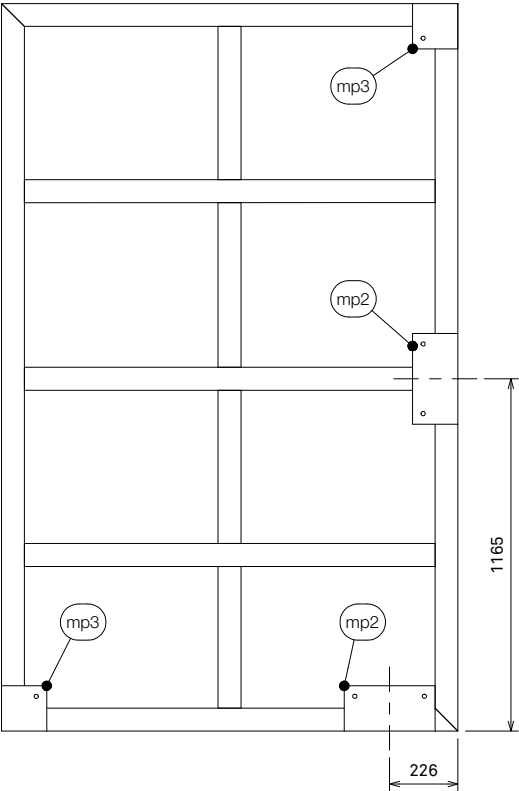
m1-5. FRONT VIEW

SCALE 1 : 25



m1-5. RHS VIEW

SCALE 1 : 25



m1-5. REAR VIEW

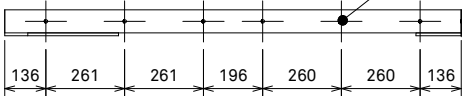
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ALUMINIUM FRAME MODULE

150x50x3 (6060 T5) RHS
76x6.35 (6060 T5) SHS
Ø11mm HOLES (TYP) TO ACCOMMODATE FRAME ASSEMBLY

10PL (6060 T5) MOUNTING PLATES
Ø14mm HOLES (TYP) TO ACCOMMODATE FRAME FIXING TO
BUILDING STRUCTURAL MEMBERS

FRAME MODULE m2-5 IS SYMMETRICAL TO MODULE m1-5



m1-5. BOTTOM VIEW

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Frame module m1-5

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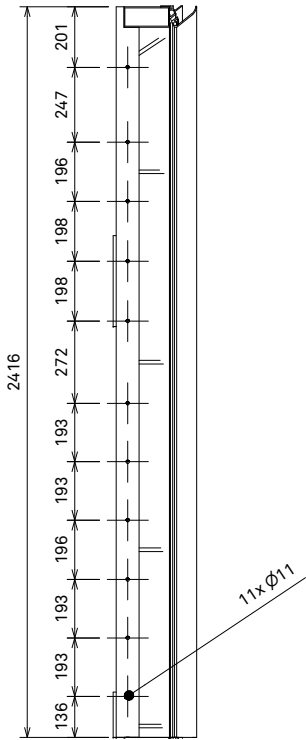
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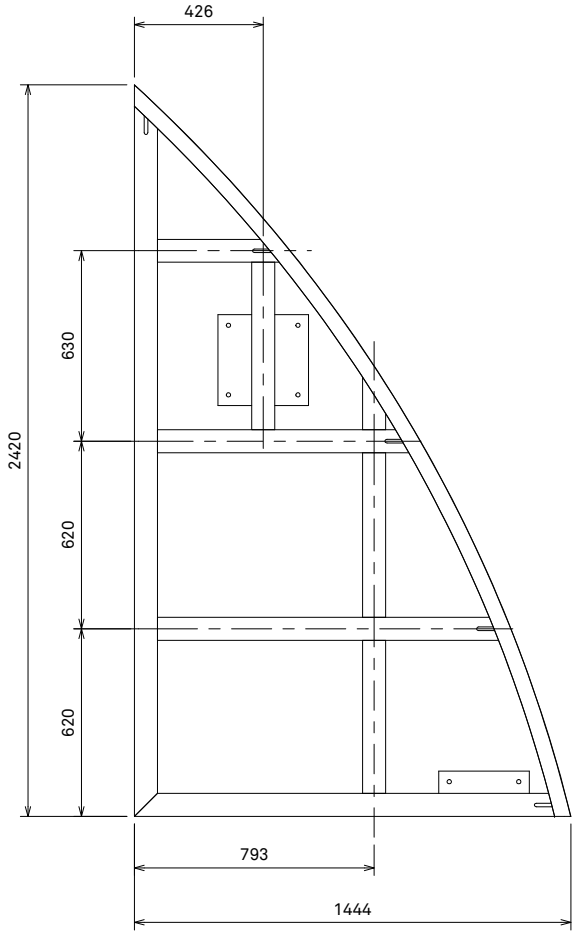
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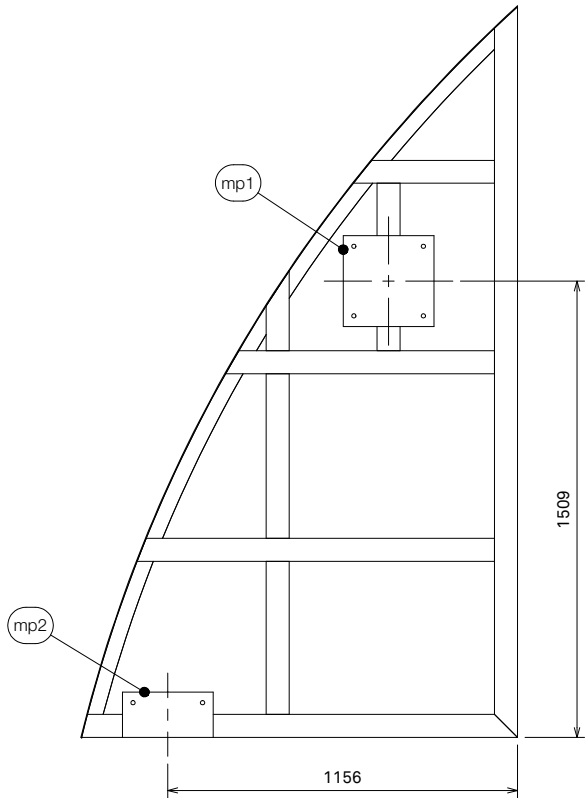
FRAME MODULE m2-6 IS SYMMETRICAL TO MODULE m1-6



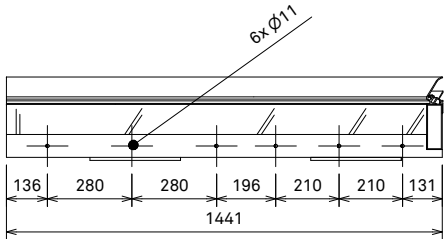
m1-6. LHS VIEW
SCALE 1 : 25



m1-6. FRONT VIEW
SCALE 1 : 25



m1-6. REAR VIEW
SCALE 1 : 25



m1-6. BOTTOM VIEW
SCALE 1 : 25

ALUMINIUM FRAME MODULE

150x50x3 (6060 T5) RHS
76x6.35 (6060 T5) SHS
Ø11mm HOLES (TYP) TO ACCOMMODATE FRAME ASSEMBLY

10PL (6060 T5) MOUNTING PLATES
Ø14mm HOLES (TYP) TO ACCOMMODATE FRAME FIXING TO
BUILDING STRUCTURAL MEMBERS

ALFRAME FLEX FACE EXTRUSION ALL ROUND
SPEC. DIR 838

SIGNAGE CONTRACTOR TO PROVIDE FINAL WORK SHOP DRAWINGS
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MESH DRAWINGS TO ENSURE ALIGNMENT OF FIXING BOLT LOCATIONS.

Drawing title

North elevation sign

Frame module m1-6

Issue	Issue date
2	19.10.2022

Drawing no	Sheet no	Scale
11	11 OF 16	@A3

PM	Drawn	Checked
RF	EV	RF

Revision

For tender

Client

MACQUARIE GROUP

Project

50 MARTIN PL. SYDNEY 2000
NORTH ELEVATION SKY SIGN

Document file name

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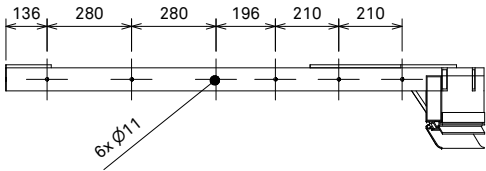
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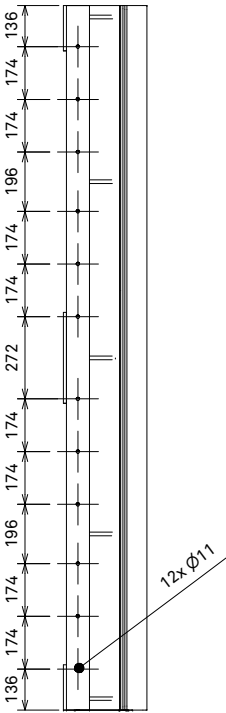
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FRAME MODULE m4-7 IS SYMMETRICAL TO MODULE m1-7



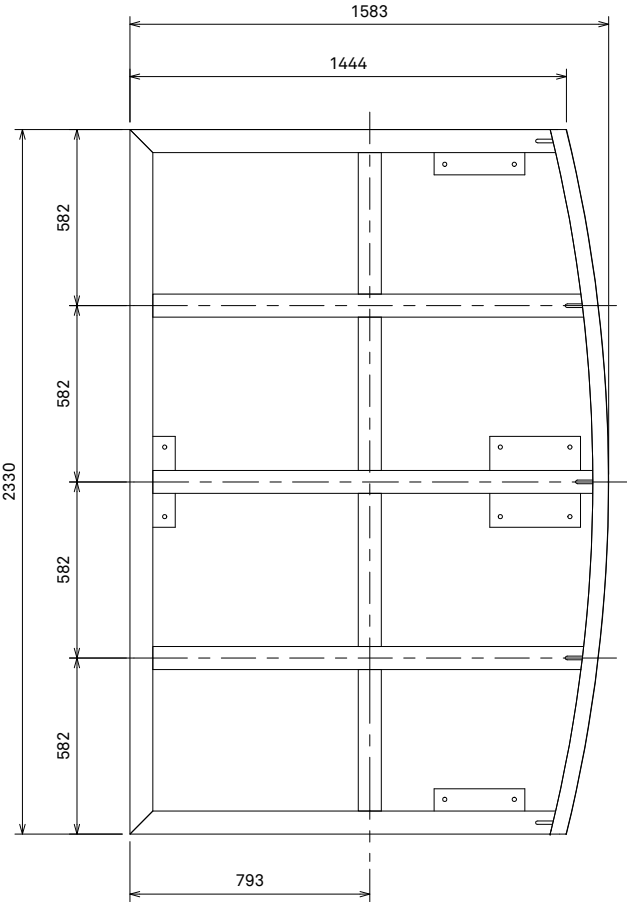
m1-7. TOP VIEW

SCALE 1 : 25



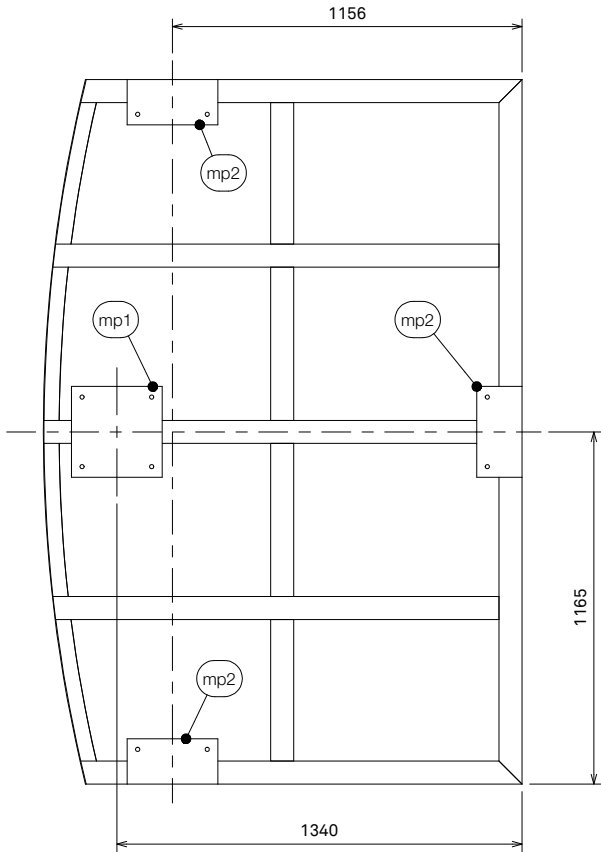
m1-7. LHS VIEW

SCALE 1 : 25



m1-7. FRONT VIEW

SCALE 1 : 25



m1-7. REAR VIEW

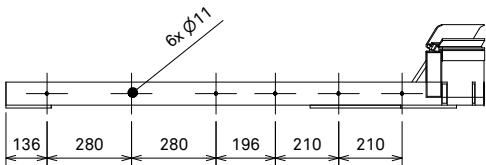
SCALE 1 : 25

ALUMINIUM FRAME MODULE

150x50x3 (6060 T5) RHS
76x6.35 (6060 T5) SHS
Ø11mm HOLES (TYP) TO ACCOMMODATE FRAME ASSEMBLY

10PL (6060 T5) MOUNTING PLATES
Ø14mm HOLES (TYP) TO ACCOMMODATE FRAME FIXING TO
BUILDING STRUCTURAL MEMBERS

ALFRAME FLEX FACE EXTRUSION ALL ROUND
SPEC. DIR 838



m1-7. BOTTOM VIEW

SCALE 1 : 25

Drawing title

North elevation sign

Frame module m1-7

Issue	Issue date
2	19.10.2022

Drawing no	Sheet no	Scale
12	12 OF 16	@A3

PM	Drawn	Checked
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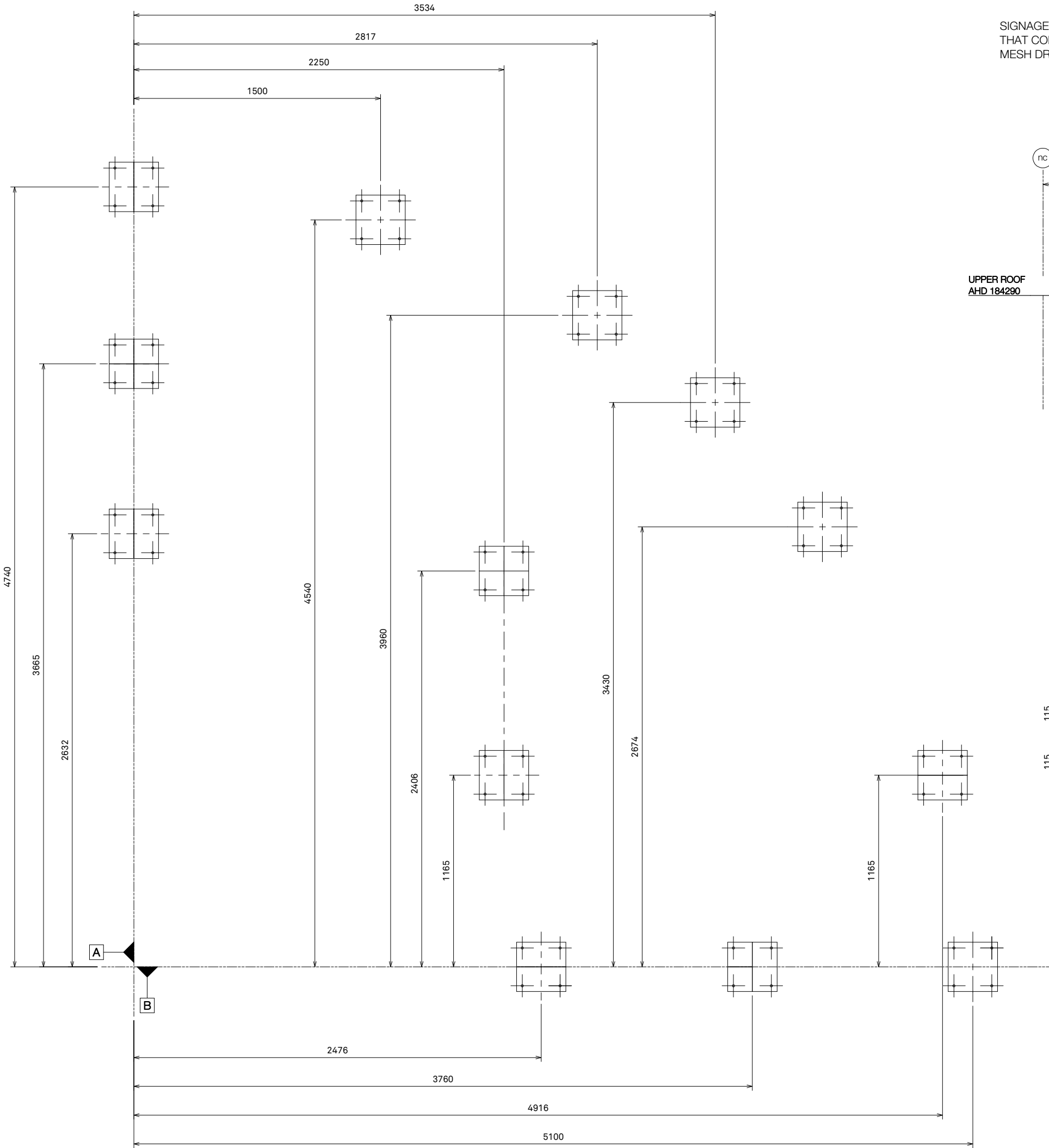
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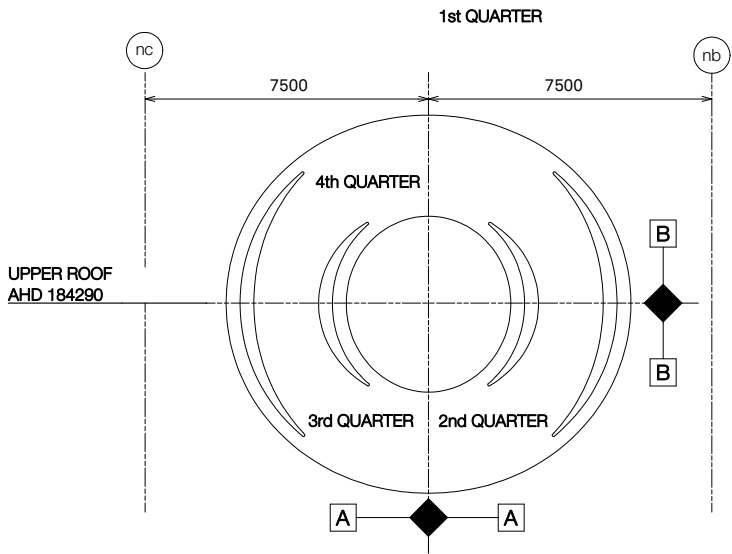
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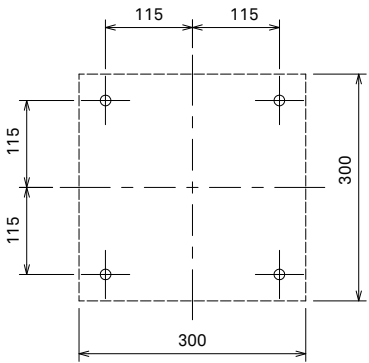
SIGNAGE CONTRACTOR TO PROVIDE FINAL WORK SHOP DRAWINGS
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MESH DRAWINGS TO ENSURE ALIGNMENT OF FIXING BOLT LOCATIONS.



SIGNAGE CONTRACTOR TO PROVIDE FINAL WORK SHOP DRAWINGS THAT CORRESPOND TO BUILDERS REAR SIGNAGE FRAME AND PERFORMED MESH DRAWINGS TO ENSURE ALIGNMENT OF FIXING BOLT LOCATIONS.



KEY VIEW
SCALE 1 : 200



TYPICAL FIXING POINT. BOLTS SET OUT
SCALE 1 : 10

1st QUARTER. FRONT VIEW
SCALE 1 : 25

Drawing title

North elevation sign

Sign fixing points set out
1st quarter

Issue	Issue date
2	19.10.2022

Drawing no	Sheet no	Scale
13	13 OF 16	@A3

PM	Drawn	Checked
RF	EV	RF

Revision

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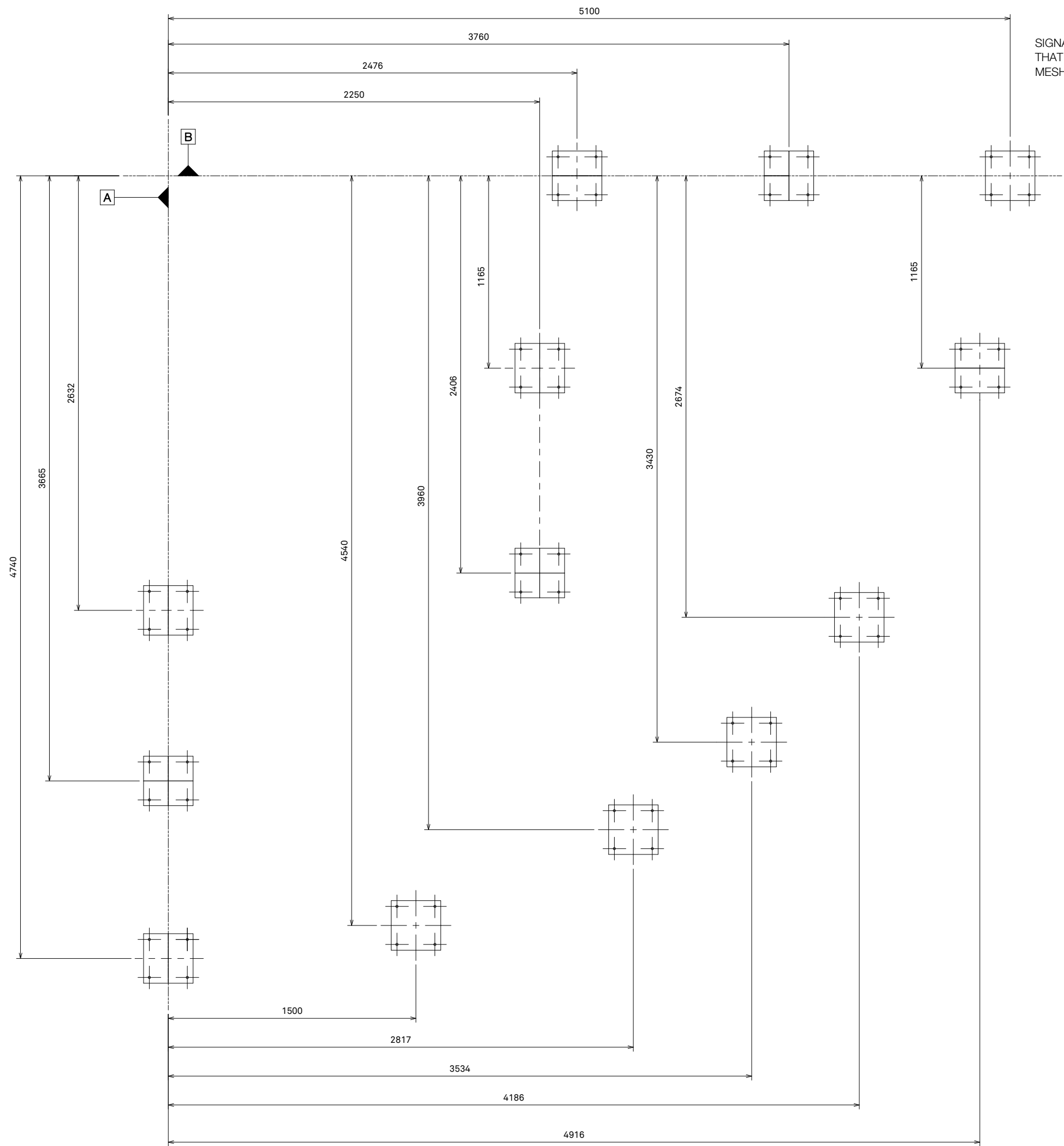
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Drawing title

North elevation sign

Sign fixing points set out
2nd. quarter

Issue	Issue date
2	19.10.2022

Drawing no	Sheet no	Scale
14	14 OF 16	@A3

PM	Drawn	Checked
RF	EV	RF

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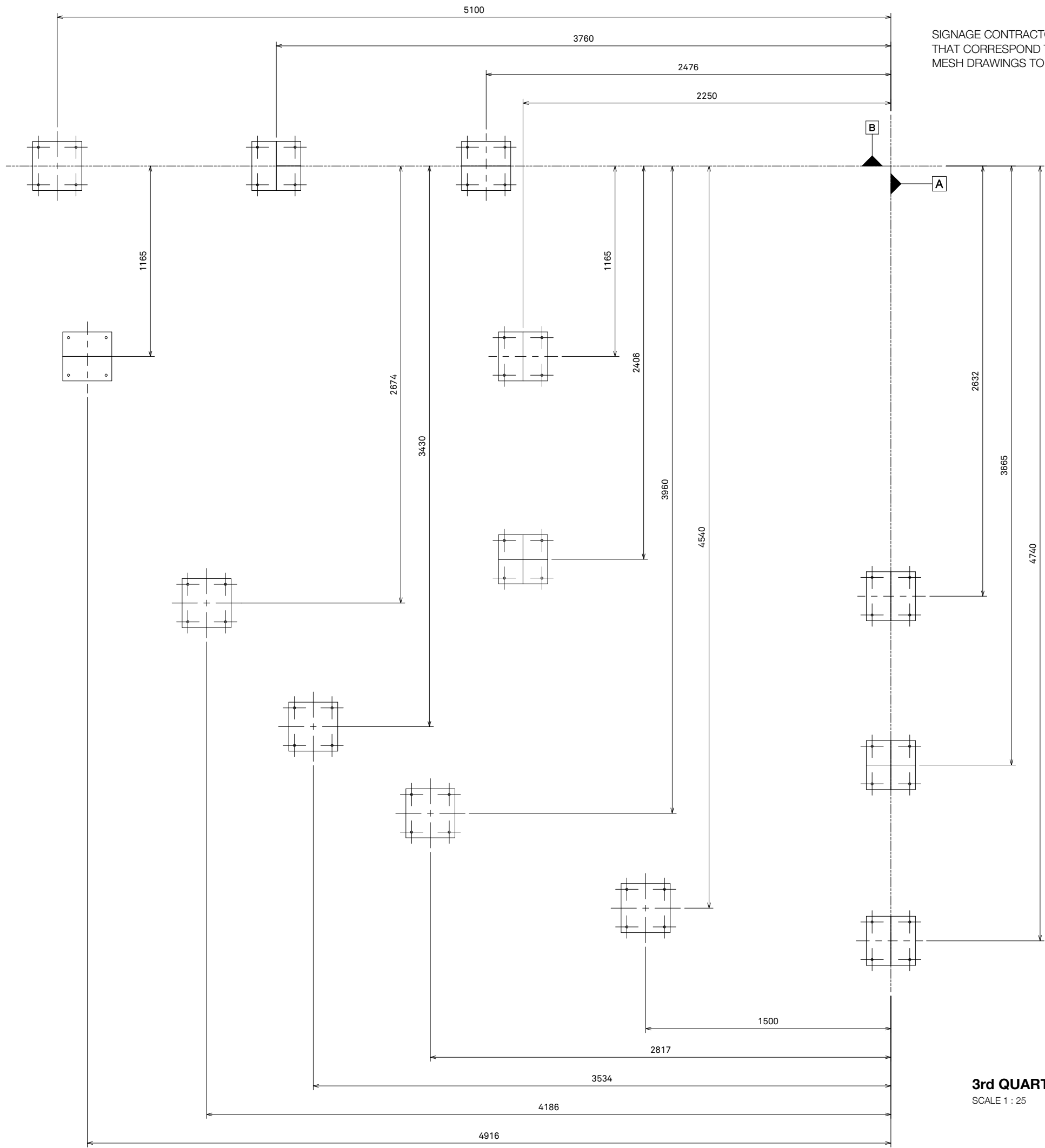
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2nd QUARTER. FRONT VIEW

SCALE 1 : 25



SIGNAGE CONTRACTOR TO PROVIDE FINAL WORK SHOP DRAWINGS THAT CORRESPOND TO BUILDERS REAR SIGNAGE FRAME AND PERFORATED MESH DRAWINGS TO ENSURE ALIGNMENT OF FIXING BOLT LOCATIONS.

Drawing title

North elevation sign

Sign fixing points set out
3rd quarter

Issue	Issue date
2	19.10.2022

Drawing no	Sheet no	Scale
15	15 OF 16	@A3

PM	Drawn	Checked
RF	EV	RF

Revision

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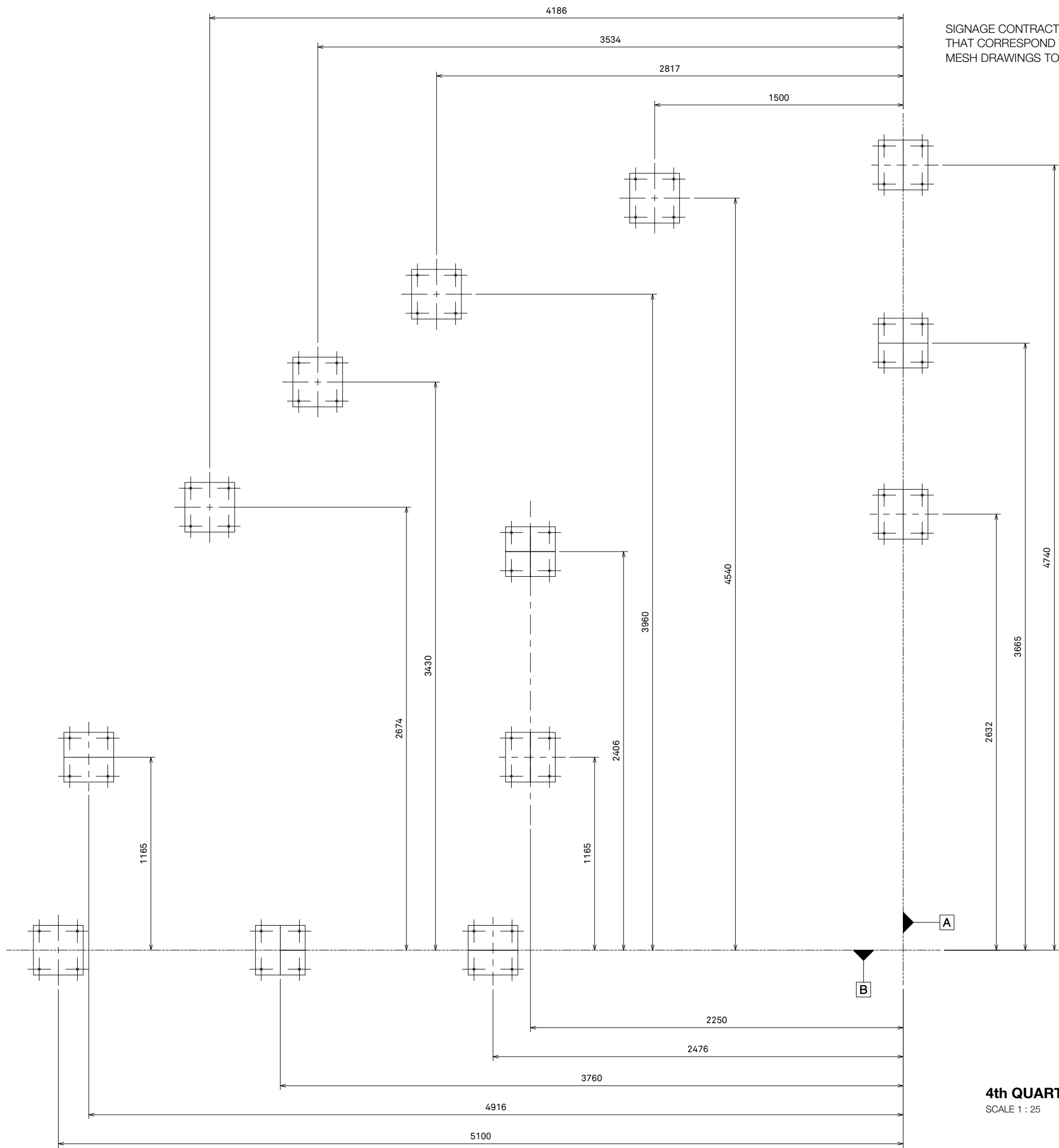
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3rd QUARTER. FRONT VIEW

SCALE 1 : 25



SIGNAGE CONTRACTOR TO PROVIDE FINAL WORK SHOP DRAWINGS THAT CORRESPOND TO BUILDERS REAR SIGNAGE FRAME AND PERFORATED MESH DRAWINGS TO ENSURE ALIGNMENT OF FIXING BOLT LOCATIONS.

Drawing title

North elevation sign

Sign fixing points set out
4th quarter

Issue	Issue date
2	19.10.2022

Drawing no	Sheet no	Scale
16	16 OF 16	@A3

PM	Drawn	Checked
RF	EV	RF

Revision

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4th QUARTER. FRONT VIEW

SCALE 1 : 25



CLEAR CONTROL PROPOSAL FOR MACQUARIE BANK SKY SIGN



Prepared by: Clear Control

Contact us at: +61 478 757 755

www.clearcontrol.com.au



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1.1 Background

Clear Control welcomes the opportunity to provide a solution for the LED product and control of the proposed Macquarie Bank Sky Sign on the North façade in Martin Place, Sydney.

Clear Control propose using Prime8 Pixel Puck6 RGBW 6000K LEDs with LED CTRL to provide the animated sign control.

LED CTRL provides a range of advanced lighting control solutions with both hardware and software required to control the complete job.

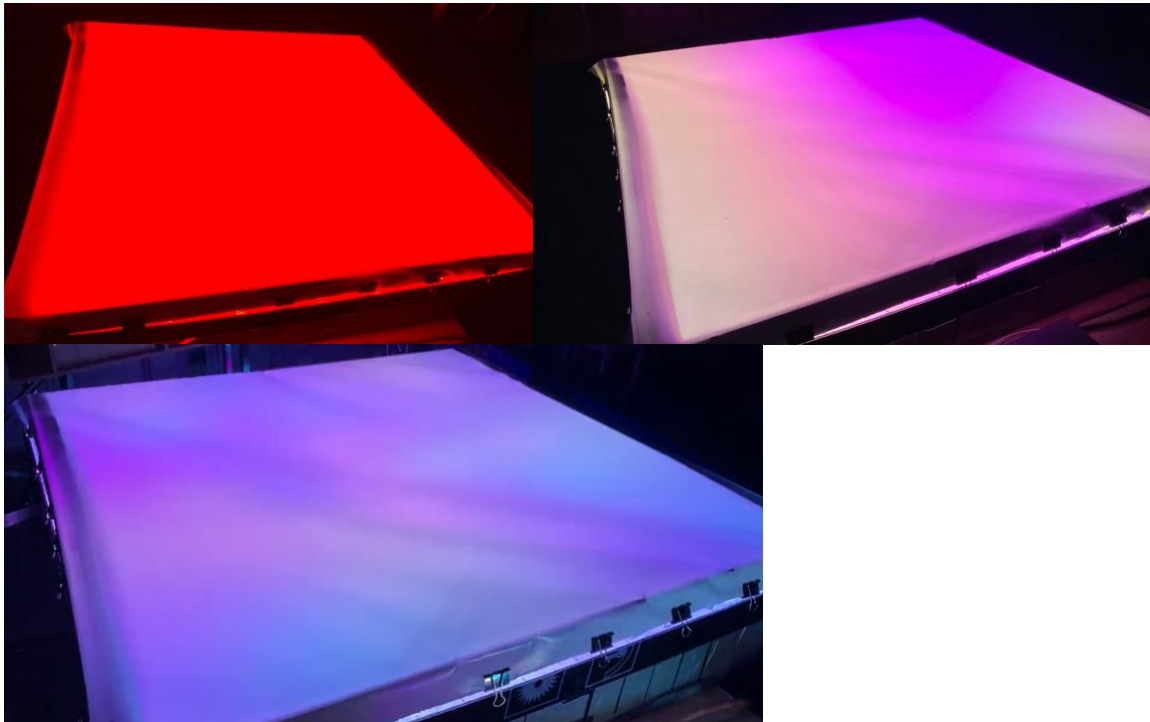
Our extensive experience with over 40+ combined years of experience in lighting control and project delivery means that you can rest assured that the solution will be fit for purpose and provide the reliable and high quality solution that the client expects.

1.2 Solution Overview

Clear Control understands the requirement to light the proposed flex face sign with full animated pixel LEDs with a density and depth to ensure no shadowing or spotting is visible.

In order to confirm the best layout and depth option, tests on a 1sqm sample of the flex face have been performed and have shown that using the Prime8 Pixel Puck6 RGBW 6000K with a pitch of 150mm and depth of 190mm from the flex face, provides the best even illumination required as illustrated in the below photographs:

Proposed spacing/depth: **150mm spacing, 190mm depth:**



1.2.1 Prime8 Pixel Puck6

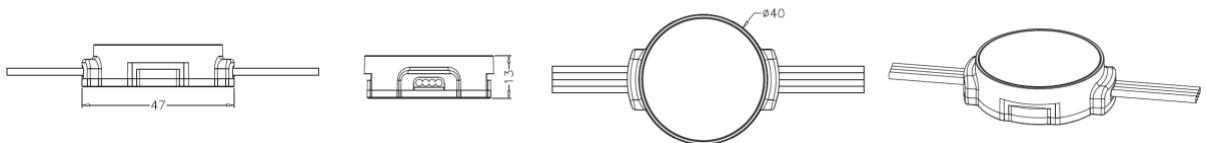
The proposed fixtures are constructed with die cast aluminium and glass housing providing a high quality and durable product with a full 5 year warranty.

Specifications for the Prime8 Pixel Puck6 are included here:

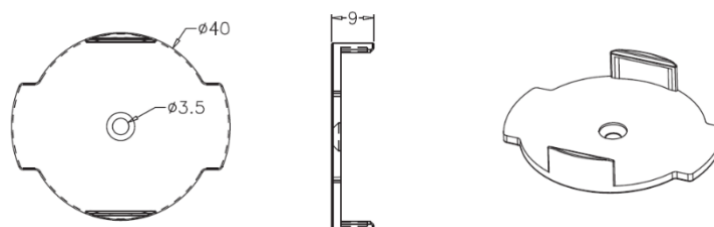


MODEL	PIXEL PUCK6
COLOUR RANGE	RGBA/RGBW/RGB/DW/White (White=2400K, 2700K, 3000K, 3500K, 4000K, 5000K, 6000K)
OPERATING VOLTAGE	24VDC
LED TYPE	SMD LEDs
SOURCE LIFE	50,000 hours at 70% lumen maintenance at 25°C
LIGHT SOURCE	6pcs
POWER CONSUMPTION	1.5W/unit (RGB or White); 1.8W/unit (RGBW)
CONTROL	SPI
FLEX LUMINOUS	75lm/unit (6000K); 71lm/unit (4000K)
CONNECTION	3-Pin DC/Data cable; interconnect flexible cable customisable from centre-to-centre pitch 70->350mm
HOUSING	Die-cast aluminium plus PC clear or frosted cover; flat or dome
INGRESS PROTECTION RATING	IP 66 / 67 / 68
OPERATING TEMPERATURE	-20°C -> +50°C
STORAGE TEMPERATURE	-20°C -> +70°C
DIMENSIONS	40mm(Dia) x 13mm(H)
WEIGHT	0.05Kgs/unit
ACCESSORIES	Clip mount; surface mount; U-Channel mount; panel mount

FLAT COVER



CLIP MOUNT



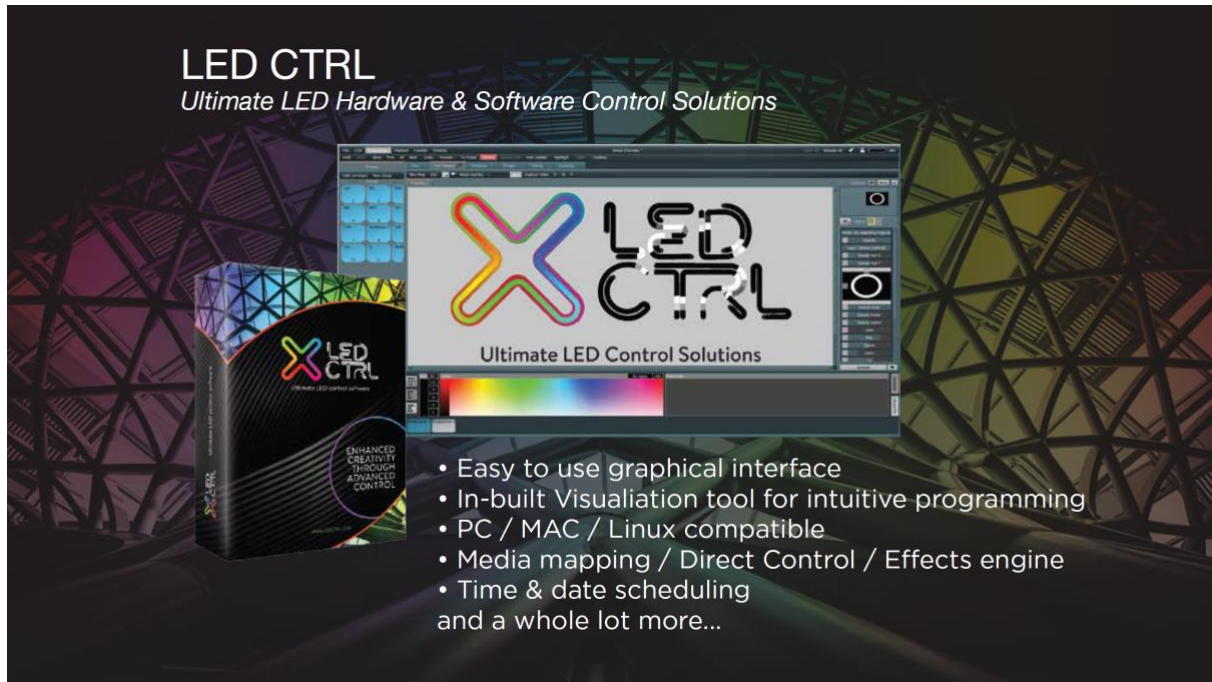
Based on this configuration the total number of Puck6's for the sign is 2700.

1.2.2 LED CTRL Control Solution components

In order to control these LEDs, a LED CTRL Master control system with SPI network components is proposed to provide full architectural control from a centralised location



within the building. All aspects of the lighting can be controlled in synchronisation or individually as required.



Benefits of the proposed LED CTRL control solution include:

- Reduced wiring through use of SPI protocol to drive the LEDs (rather than traditional DMX). This allows more than 1 universe per string of LEDs, reducing the number of data cables that need to be fed through to the sign from 85 to 10.
- Full timed control available to schedule standard or special light effects each day, based on absolute times or times relative to sunrise/sunset.

Scheduler

Location: Sydney, Australia [Change...](#)

Name	Start	End	Repeat	Days	Date range	Exclusive
------	-------	-----	--------	------	------------	-----------

Event Details

Name: ☒ Enabled

Script:

At:

End script:

At: ☐ Next day

Days: ☒ M ☒ T ☒ W ☒ T ☒ F ☒ S ☒ S

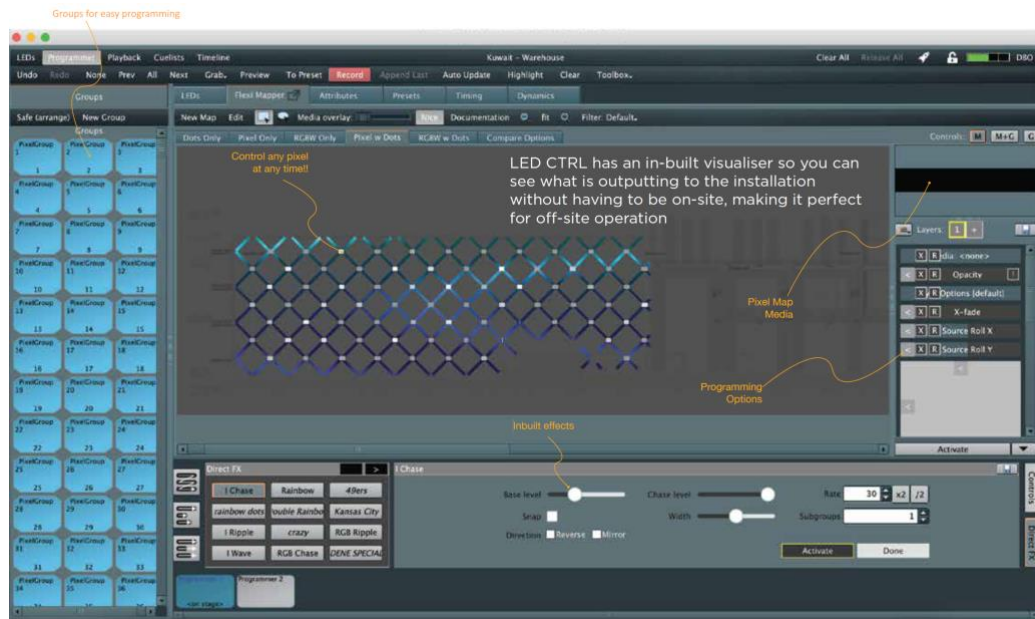
☐ Start date: ☐ Every year

☐ End date:

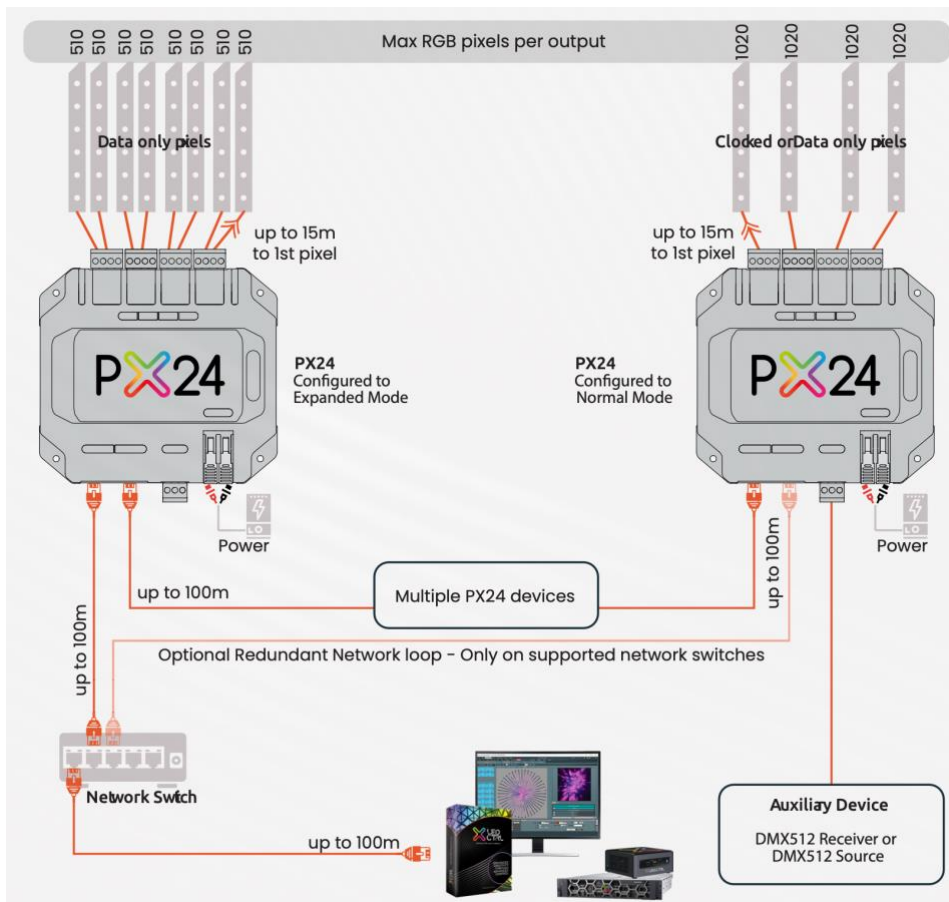
☐ Repeat after: Max:



- Remote control from anywhere in the world to support remote management, support and programming as required. The inbuilt visualiser means any new effects can easily be reviewed remotely without visual review on the sign.



The following illustrates the key components within the proposed LED CTRL system with a short description of each.





PX24:



LED CTRL PX24 PIXEL CONTROLLER

The PX24 is a small, but powerful pixel LED controller built upon LED CTRL's latest generation processor. The feature set of this processor are too significant to fit here, explore in the PX24 firmware datasheet.

The PX24 pixel controller drives up to 6 universes of data on each of its 4 outputs for a total of 24 universes of LED pixel control via its easily accessible and removable screw terminal blocks. Each pixel output handles a sizable current load and is fully equipped with Smart Electronic Fusing, so you'll never have to replace a fuse again.

KEY FEATURES

- 24 Universes of Art-Net or sACN
- 4 Powered Pixel Outputs
- Over 50+ Pixel Protocols Supported
- microSD Card Slot for Record & Playback*
- Dual Gigabit Ethernet Ports
- Auxiliary Port for DMX512 In/Out
- Configure Using Any Web Browser or LED CTRL software
- Smart Electronic Fuses on Pixel Outputs
- Electrical Fault Protection on All Ports
- Current Measuring on all Pixel Outputs
- Made in Australia - 3 Year Warranty

A CLOSER LOOK AT THE CONTROLLER

DUAL GIGABIT ETHERNET PORTS

Simplify your network infrastructure by daisy chaining PX24 controllers together. Maintain high network reliability by optionally connecting a redundant Ethernet line to any loop with a suitable switch.

Ethernet ports are fully equipped with a Universe Data Hardware Firewall to ensure your PX24 can constantly perform at its peak.

RECORD AND PLAYBACK*

Add your own microSD card to record pixel shows for stand-alone playback.

*Support for these features to be released in an upcoming firmware update

POWER MANAGEMENT

All pixel outputs are capable of up to 7A of pass through current and are equipped with Smart Electronic Fuses that automatically reset when a fault is cleared.

The solid aluminium base of the enclosure doubles as a heatsink, dissipating heat generated from high current installations and maintaining device integrity in high ambient temperatures.

AUXILIARY PORT

Versatile RS485 Auxiliary port can be used as either an input or an output - selectable via the Web Configuration tool.

As an output, connect DMX512 devices to the port and control them via sACN or Art-Net.

As an input, connect a DMX512 source directly to the PixLite and use DMX512 as the data source for your pixels or to trigger other operational behaviour*.

FAULT PROTECTION

Features electrical fault protection on all ports resulting in higher reliability and fewer equipment failures. See details on next page.

CERTIFICATIONS



CX Compute:

OVERVIEW

The CX Standalone controller is an all in one compute platform complete with integrated touchscreen monitor configured for the specific demands of LED control projects to ensure seamless running of your installations.

The small form factor packs a punch more than capable of driving up to 24 universes of DMX or ArtNet control utilising LED CTRL.

Pre-configured with Debian as the operating system ensures stability and reliability for continuous running. Additionally, LED CTRL comes installed and configured, ready for action.



SPECIFICATIONS

PLATFORM:

- 64-bit quad-core Cortex-A72 processor
- 4GB LPDDR4 RAM
- 16GB MicroSD
- 7" Touchscreen display
- HDMI 2.0a
- 2 USB 3.0 ports
- 2 USB 2.0 ports
- Gigabit Ethernet port
- 802.11b/g/n/ac wireless
- Bluetooth 5.0
- 5V/3A USB-C power supply
- Table or wall mount

CONFIGURATIONS:

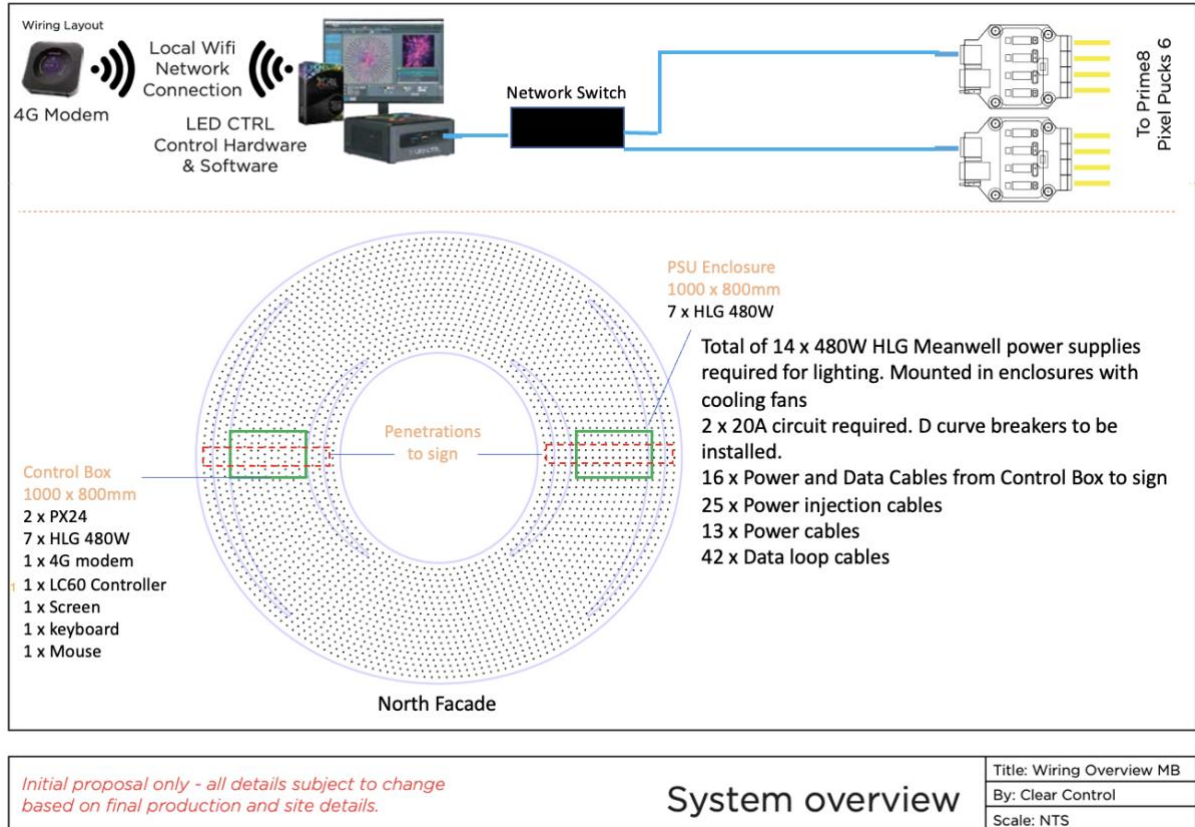
- Debian installed
- LED CTRL installed
- LED CTRL license installed
- Reboot on Power applied
- Routine OS updates disabled
- Auto-load last project
- Auto-load of unsaved backups
- ArtNet output by default

DIMENSIONS:

- 255mm (h) x 230mm(w) x 70mm(d)

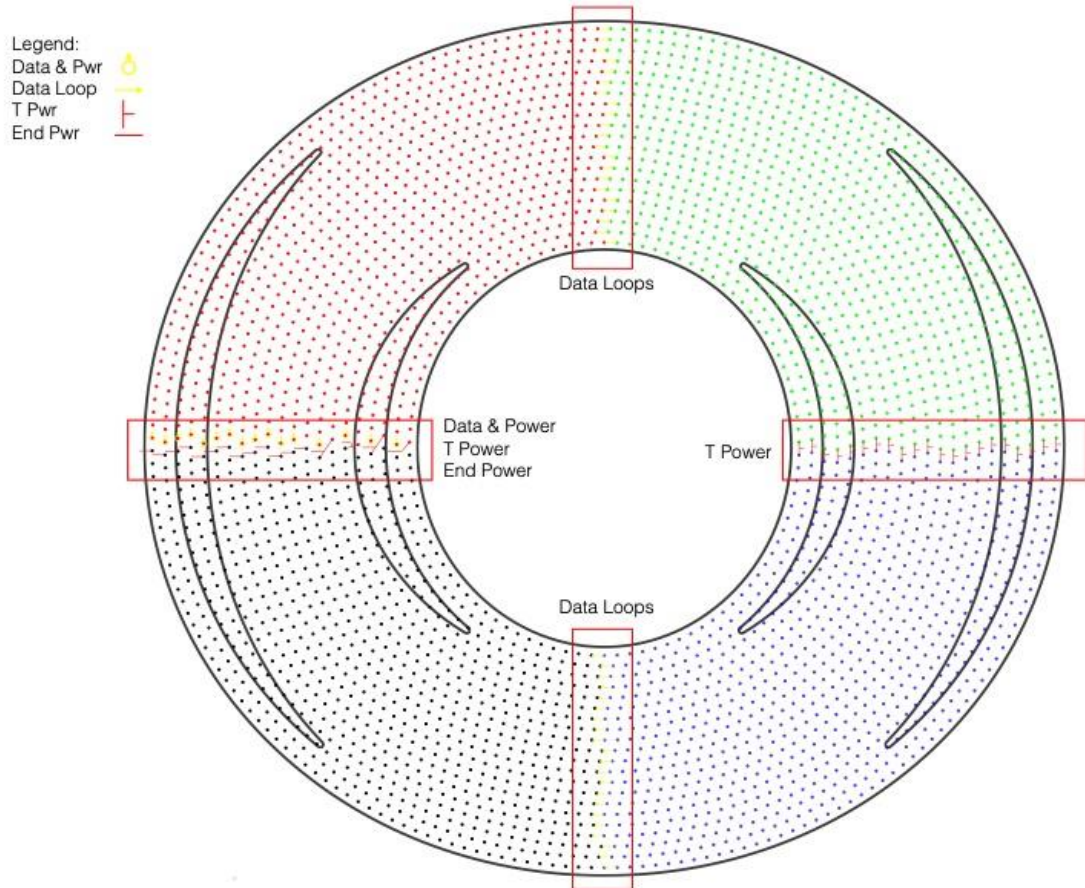
1.2.3 LED CTRL draft control layout for this project

The following diagram shows a system overview, power requirements and indicative placement of the control gear enclosures relative to the sign.



1.2.4 LED CTRL draft physical LED layouts for this project

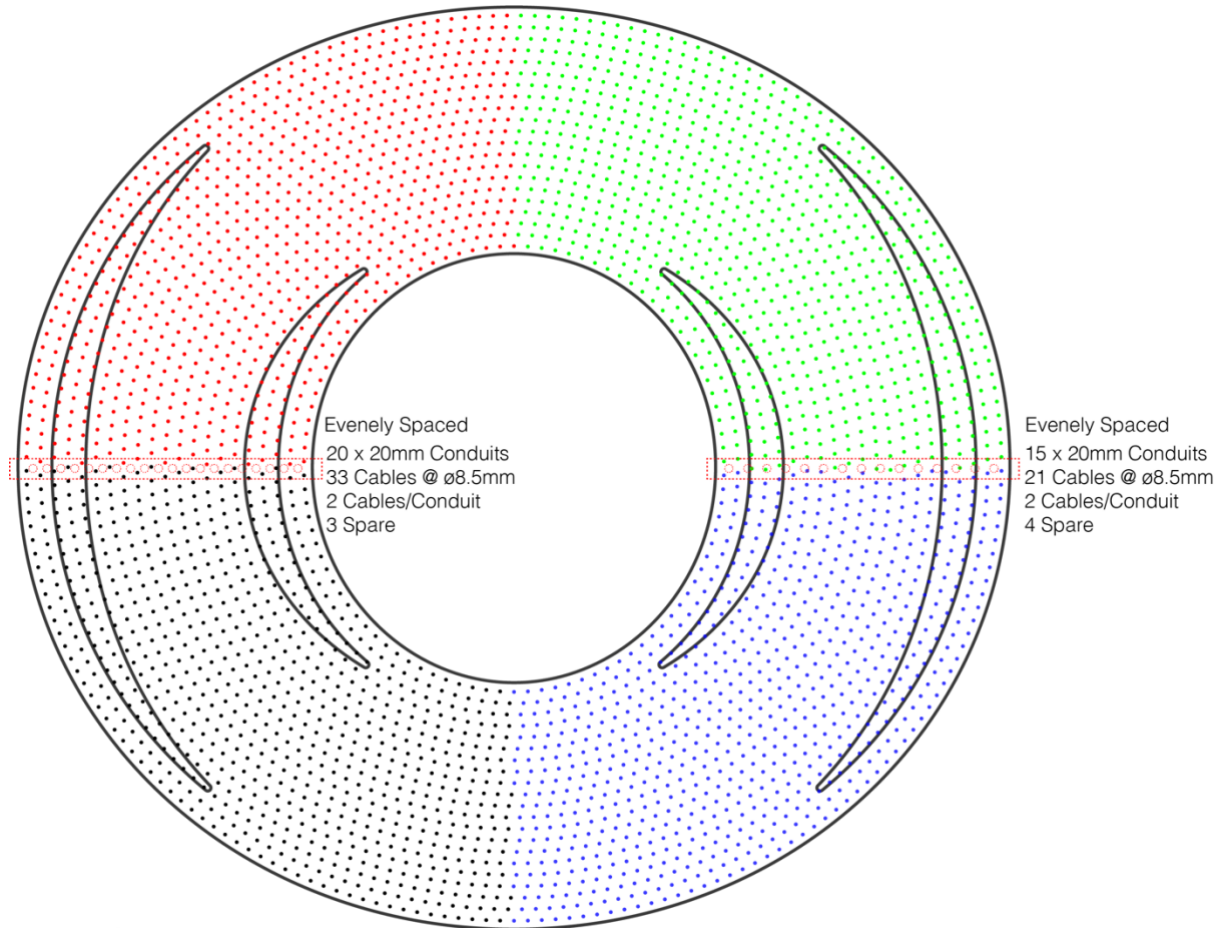
The following diagram shows a draft layout of the pixels on the façade, where blue indicates direction flow, green is the beginning of a run and red is the end of a run:



The image above also highlights that a standard strip of 10 pixels per run will be employed, with plug and play connectors for each strip to enable easy assembly and replacement in the event of failure. Custom runs will be produced for any remainder quantity required (eg custom run of remaining 6 pixels etc).

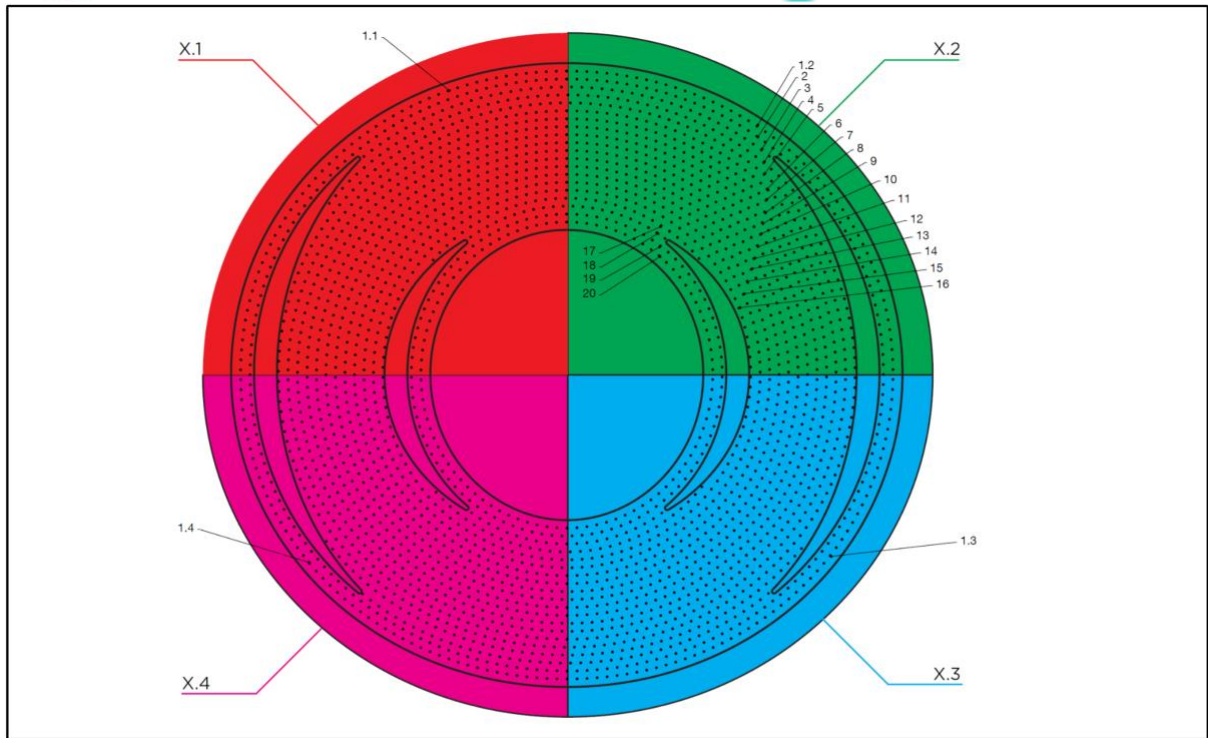
1.2.5 Indicative physical building penetration points

The following diagram illustrates the proposed physical penetration points in relation to the façade. Note that each penetration will carry multiple cables.



1.2.6 Draft Wiring layout

The following image illustrates the control design intent to segment the sign into quadrants for the purpose of control layout and labelling. The strips of LEDs are labelled from 1 to 20 moving from outside to inside, and each quadrant is numbered 1 to 4, such that the second line in on the top left quadrant is 2.1 meaning: <2nd line>.<quadrant 1>.



*Initial proposal only - all details subject to change
based on final production and site details.*

Quadrant ID

Title: Wiring Overview MB
By: Clear Control
Scale: NTS

In reference to the line and segment reference illustrated above, the following is a draft control wiring detail showing which controller/port drives which strips:

Circle Ref	LED QTY	PX24	Port	Wiring Order
1.1	53	1	1	1
1.2	53			2
1.3	54			3
1.4	53			4
2.1	52	1	2	1
2.2	52			2
2.3	52			3
2.4	52			4
3.1	50	1	3	1
3.2	51			2
3.3	50			3
3.4	51			4
4.1	49	1	4	1
4.2	49			2
4.3	49			3
4.4	49			4



Circle Ref	LED QTY	PX24	Port	Wiring Order
5.1	48	1	5	1
5.2	47			2
5.3	48			3
5.4	47			4
6.1	46	1	6	1
6.2	46			2
6.3	47			3
6.4	46			4
7.1	44	1	7	1
7.2	45			2
7.3	45			3
7.4	45			4
8.1	44	1	8	1
8.2	43			2
8.3	43			3
8.4	43			4
9.1	42	2	1	1
9.2	42			2
9.3	41			3
9.4	42			4
10.1	40	2	2	1
10.2	41			2
10.3	40			3
10.4	41			4
11.1	39	2	3	1
11.2	39			2
11.3	39			3
11.4	39			4
12.1	37			1
12.2	38			2
12.3	37			3
12.4	38			4
13.1	36	2	4	5
13.2	36			6
13.3	36			7
13.4	36			8
14.1	35	2	5	1
14.2	34			2
14.3	35			3

Circle Ref	LED QTY	PX24	Port	Wiring Order
14.4	34			4
15.1	33			5
15.2	33			6
15.3	34			7
15.4	33			8
16.1	31			1
16.2	32			2
16.3	32			3
16.4	32			4
17.1	31			5
17.2	30			6
17.3	30			7
17.4	30	2	6	8
18.1	29			1
18.2	29			2
18.3	28			3
18.4	29			4
19.1	27			5
19.2	28			6
19.3	27			7
19.4	28	2	7	8
20.1	26			1
20.2	26			2
20.3	26			3
20.4	26			4
21.1	25			5
21.2	24			6
21.3	25			7
21.4	24	2	8	8

1.2.7 Remote / network access for operations and maintenance

Day 1 it is envisaged that the LED CTRL system will operate in standalone mode with all control and maintenance actions undertaken via the LED CTRL PC housed in the on-site control box.

In the future it is envisaged that future connectivity to the buildings integrated communications network (ICN) will be established via a wired ethernet connection. To support this future configuration:

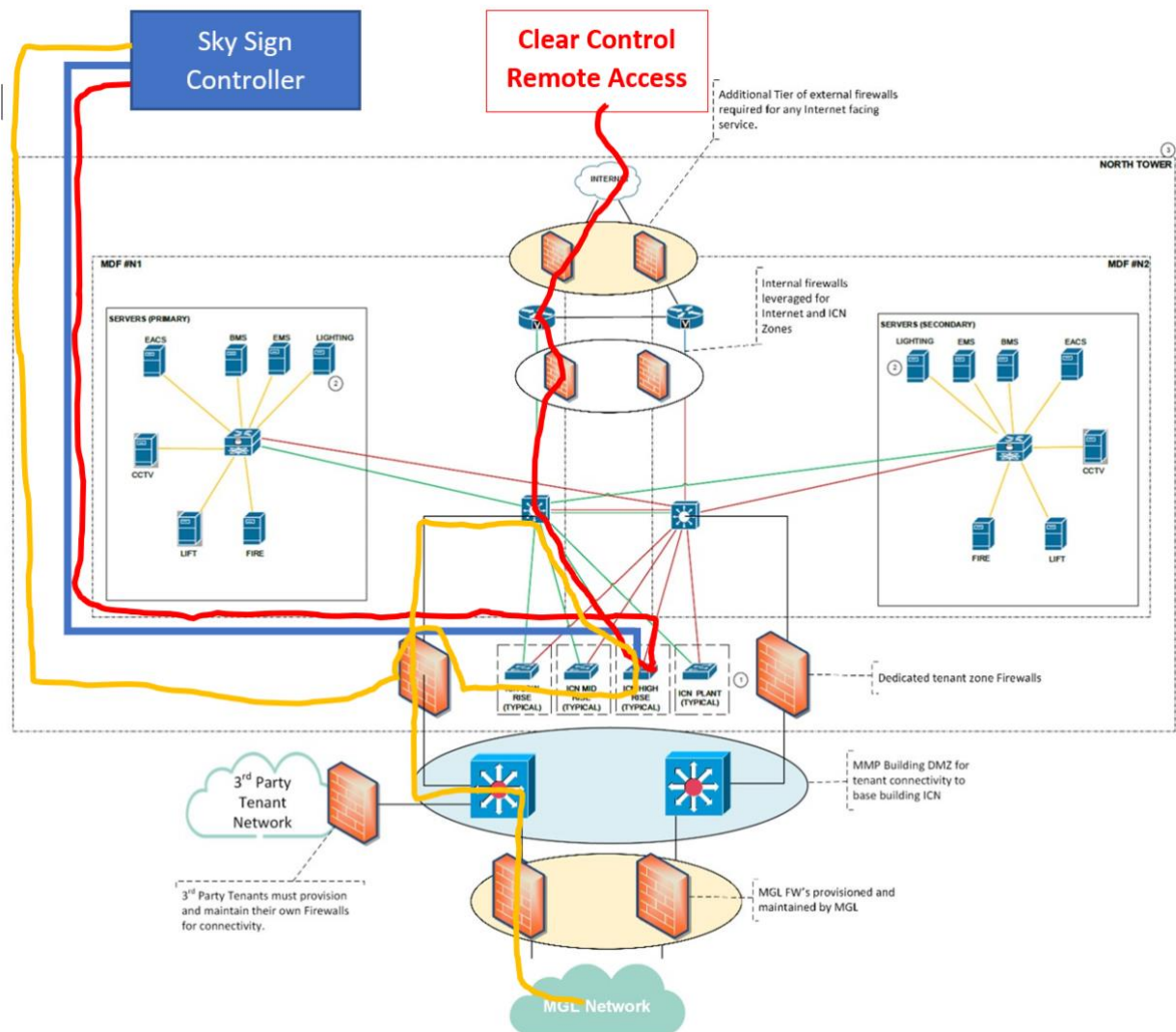
- an additional dedicated ethernet port will be provided to the LED CTRL PC to allow for the ICN connection.



- An additional glanded access point will be provided into the enclosure for the Master controller such that the ethernet cable (to be supplied by Macquarie) can be fed into the enclosure without detriment to the enclosure or components within.
- Once suitable user account/network access is provided (by Macquarie) the LED CTRL system will be able to provide on premise and remote access for operations (by Macquarie) and management/maintenance (by Clear Control).

For information the below diagram shows a rough mark-up of the connectivity path in the proposed ICN architecture:

- The blue line shows the physical connection
- The red line the logical connection/pathway for remote access (for Clear Control or Macquarie)
- For information, the yellow path shows the logical connection/pathway that Macquarie can utilise to access the sky sign and ICN, provisioned via the secured base building tenant demilitarised zone (DMZ).
- External and 3rd party remote access to the sky signage controller via the internet will need to be configured such that an appropriate solution is set up in coordination with and approved by Macquarie
- Note, Macquarie will coordinate with the base building ICN operator/trade partner to assist with configuration of appropriate system settings and credentials for access to the sky sign controller via the ICN. This is to enable centralised credential authentication and management, logging and secured access via the ICN firewalls to the sky signage controller interface.



1.2.8 IP enclosures

All control elements (excluding the LED Drivers) to be installed in IP enclosures (behind the sign). Both of the 2 enclosures proposed are 1000x800x300 (W/H/D). The specification of the enclosure is included below.





IP55 STEEL WALL-MOUNTING ENCLOSURE 800HX1000WX300MM



FEATURES

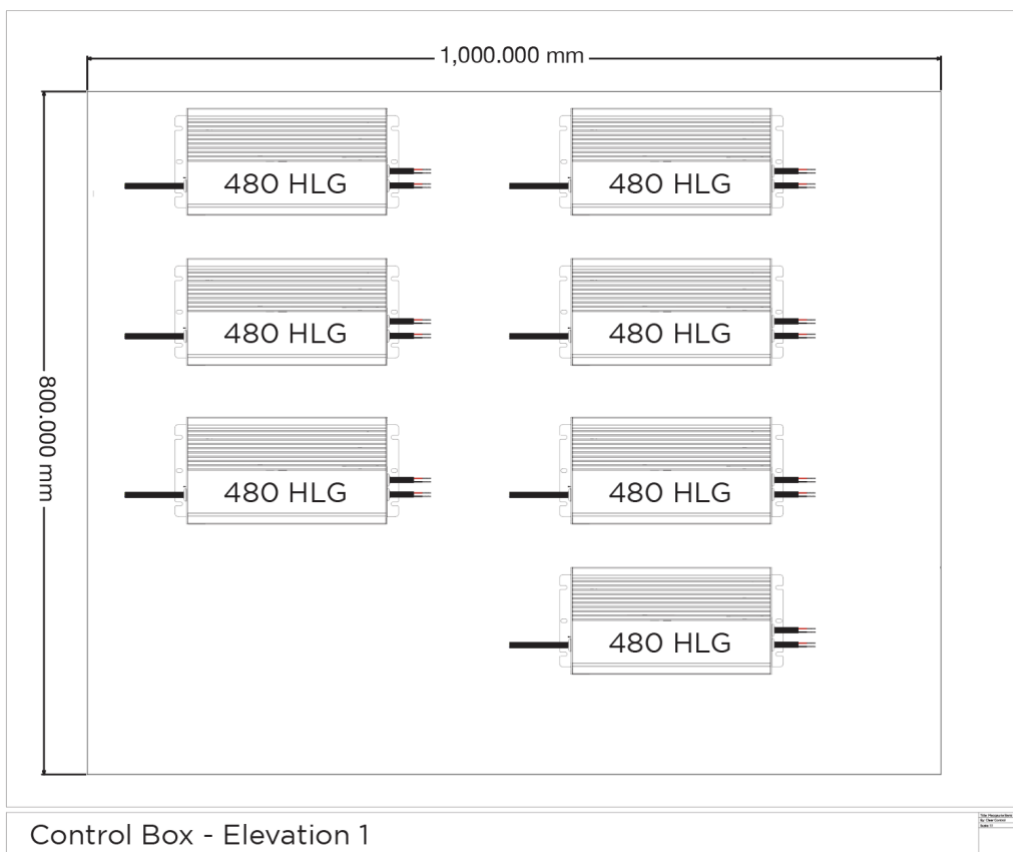
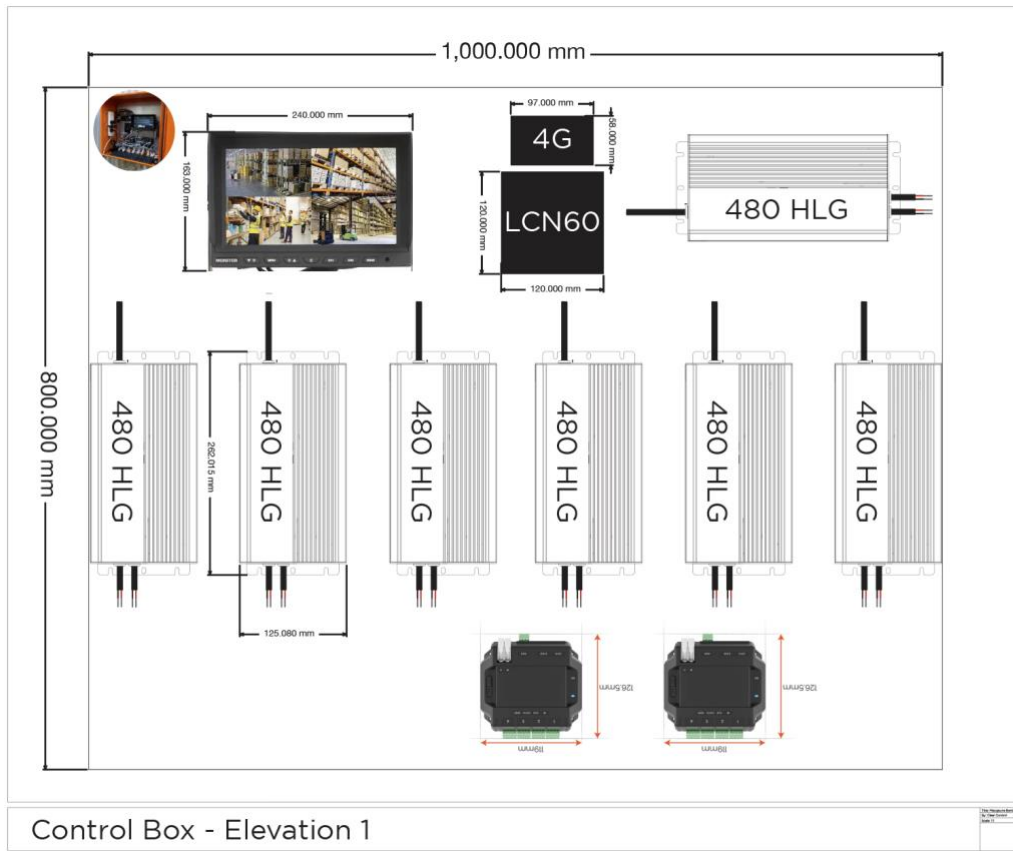
- Compact surface wall-mounting enclosure
- Double door
- 5-mm double-bit lock
- Coated with hardened polyester powder coat, textured 80-120 µ. with UV protection
- IP55 Rating

SPECIFICATIONS

Degree of protection	IP55/NEMA 1,12
Resistance to impact	IK10
Ambient temperature range	-25 °C / +40 °C
Maximum operating voltage	1000 V AC
Corrosion resistance	C4-M
Maximum temperature for sealing gasket	80°C
Maximum temperature for polyester paint	125°C
Mounting type	Wall mounting
Mounting plate	2mm galvanised sheet
Colour	RAL7035 grey
Materials	Cold-rolled steel EN10130+A1, Injected polyurethane sealing gasket
Installation	Surface
Type of door	Double plain door
Locking	5-mm double-bit lock -3-points locking
No. of locks	3point
No. of hinges	3
Door reinforcement profiles	4
Cable entry	Gland plate at bottom
Sheet thickness Body	1.5mm
Sheet thickness Door	1.5mm
Inside usable space	(Height x Width x Depth) 750x950x279 mm
Wall fixing	(Height x Width) 760x960 mm
Standards	UNE-EN 62208 / UNE-EN 61439-1-3 (as applicable)
Certificates	UL508A / Bureau Veritas



The draft internal physical layouts for each enclosure is shown in the following diagrams:



Technical drawings of the 1000x1000x150 mm cabinet, showing front, side, and top views with dimensions.

Front View: Shows a square cabinet with a width of 1000 mm and a height of 1000 mm. The door is 950 mm wide and 950 mm high, with a handle at 475 mm from the bottom. The cabinet has a depth of 150 mm.

Side View: Shows the cabinet's profile with a width of 1000 mm and a height of 1000 mm. The door is 950 mm wide and 950 mm high, with a handle at 475 mm from the bottom. The cabinet has a depth of 150 mm.

Top View: Shows the cabinet's top with a width of 1000 mm and a height of 1000 mm. The door is 950 mm wide and 950 mm high, with a handle at 475 mm from the bottom. The cabinet has a depth of 150 mm.

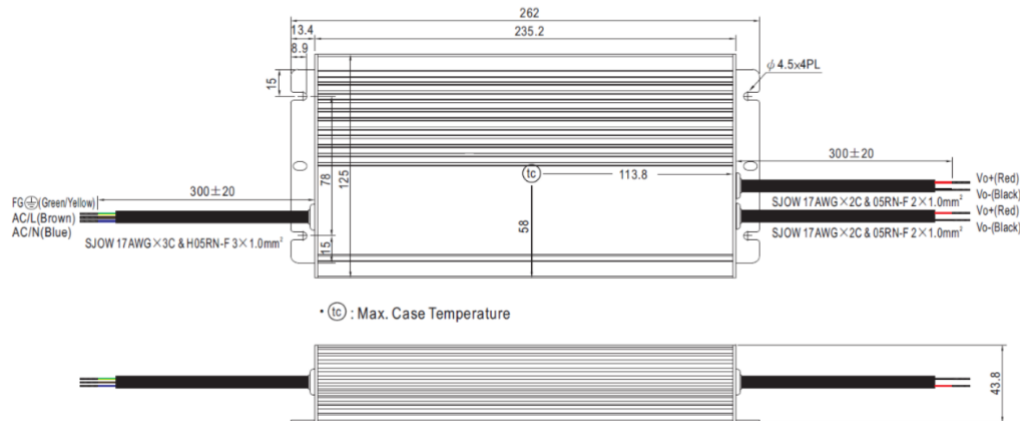


1.2.9 LED Drivers

For one façade approximately 14 x 480W drivers are required. We recommend MeanWell HLG series with the characteristics specified below:

※Blank-Type

For 24V,30V,36V,42V



1.2.10 Additional Installation considerations

2 * 20 amp power with D breakers required by builder for the sign.

Note that the following maximum distances should be observed:

- PC (CX Compute) to each PX device: 100m max
- PX device to each first LED in the chain: 10-12m max.

1.3 Professional Services

Clear Control will provide:

- Project planning and design
- System design, specification and as-built documentation
- Factory QA check before dispatch
- LED CTRL system patch
- Installation guidance, configuration and documentation of all network nodes and addressing
- Prototype inspections at signage contractor
- We will provide 5 programmed looks to suit standard operation or special occasions

Exclusions:

- On site wiring of power or data
- Installation of LEDs
- Cabling supply

1.4 Support and Maintenance

The following inclusion are proposed for monthly Support and Maintenance services:



- 1 site visit to review status of sign, fault find any sign product or control failures and produce status report
- Supply and provision any hardware controller failures
- Monitoring of software and LED CTRL server
- Special event programming for 4 new effects each year:

1.5 Warranty

Item	Warranty (years)
Meanwell HLG Series Transformers	7
Prime8 Pixel Puck 6s - RGBW	5
LED CTRL Control system & components (PX24 /CX Computing with screen)	5

Warranty Statement

1. Clear Control Pty Ltd will provide lifelong technical assistance for our projects and related products and accessories. An extended 5 year manufacturer's warranty is given from the date of original purchase for this project. Any faults or failures beyond the standard 5 year warranty period we reserve the right to charge for labour and parts that are incurred in supply or rectification work.
2. Warranty exclusions:
 - Any man-made damages caused from improper operation, assembly, wiring, connection, installation, transport and storage.
 - Incorrect input voltage, current, operating and working environments, including any electronic equipment that may interfere with the correct operating and performance of supplied goods.
 - Appearance of excessive physical damage.
 - Damage caused by natural disasters or vandalism.
 - Removal or damage of product labels or data codes.
 - Removal of anti-wicking device for outdoor installations.
 - Incorrect adherence to relevant electrical wiring codes.
 - Incorrect adherence to supplied installation specifications, handling instructions or installation guidelines.
 - Installation or labour costs for any warranty replacement items.
3. Repair or replacement as provided under this warranty is the exclusive remedy to the customer. This warranty cannot be traded or transferred to a third party. We shall not be liable for any incidental or consequential damages for breach of any stipulation in this warranty.
4. Any amendment or adjustment to this warranty must be approved in writing from us.
5. We reserve the right to modify any user manual, instructions, or product specification without notice.
6. Warranty includes delivery of items to nominated site.

Specifications

The following standard conditions apply to all tenders and to any subsequent contract between the Contractor and the Superintendent and / or the Principal.

These standard conditions are to be read in conjunction with the conditions of the specific proposed contract between the Contractor and the Superintendent and / or the Principal.

Unless otherwise noted, these standard conditions shall take precedence over any other conditions of the contract where such reference is required.

For the purposes of this package, the term "the tender drawings" shall mean "Drawings", the term "sign fabricator" or "sign contractor" shall mean "the Contractor" and the term "sign" shall refer to any fabrication, object, or article of furniture described in the tender drawings.

1 _____ Proprietary information / non-disclosure agreement

All ideas, designs, arrangements and plans indicated or presented by the tender drawings are owned by and are the property of the Superintendent and / or the Principal, and were created, evolved and developed for use on and in connection with the specific project. None of such ideas, designs, arrangements or plans shall be used by or disclosed to any person, firm, or corporation for any purpose whatsoever without the written permission of the Superintendent. Any inquiries in this regard by outside parties should be referred to the Superintendent.

It is a condition of the award of the Contract that the Contractor shall not reveal or disseminate any information to any person(s), private or public, other than the Contractor's personnel necessary to execute the contract without first obtaining written permission from the Superintendent.

2 _____ Drawings

A _____ The tender drawings are for the purposes of showing design intent and tendering only and not intended for construction purposes.

B _____ Resulting working drawings, shop drawings, engineers computations and other documents, including permit documents, prepared by the Contractor are the sole responsibility of the Contractor in every respect.

Shop drawings shall be comprehensive and detailed. Where appropriate, the Contractor shall present detailed plans including views of complex junctions, sections and details of penetrations.

C _____ The Superintendent shall review the working and / or shop drawings only for conformance with the general design intent, and will in no way be responsible or liable for any errors included in or arising from the working and / or shop drawings, material selections or any other documents prepared by the Contractor.

(Note: The Principal may be involved in the working and / or shop drawing review process in which case this condition applies also to the Principal's review.)

D _____ Any further changes requested by the Principal after final review and return of the working and / or shop drawings, and which are not indicated in or required by the tender documents, shall be considered as requests for variations to the Contract. The value of any such variation must be approved in writing by the Superintendent prior to the variation proceeding.

E _____ The Contractor shall be responsible for providing subcontractors with complete and up-to-date drawings, performance and material requirements, graphic schedule and other information issued by the Superintendent.

3 _____ Quality assurance

A _____ Quality of materials and workmanship
The Contractor shall be responsible for the quality and delivery of all materials and workmanship required for the execution of the contract including the materials and workmanship of any firms or individuals who act as their subcontractors

B _____ Dimensions
Written dimensions on the drawings shall take precedence over scaled dimensions. The Contractor shall verify and be responsible for all dimensions and conditions shown by these drawings prior to commencement of working drawings and shop drawings.

C _____ Signage Message Schedule
Copy, quantities and references shown on the Signage Message Schedule shall take precedence over drawings.

D _____ Execution
The Contractor shall notify the Superintendent of any discrepancies in the drawings or Graphics Schedule, in field dimensions or conditions, and /or changes required in construction details. Problems such as messages being too long to fit into the required formats, difficulty reproducing accurately logo or logotype components etc., must be brought to the Superintendent's attention prior to execution. It is required that the Contractor not resolves any discrepancies without consulting the Superintendent.

E _____ Contractor recommendations
The Contractor shall carefully study the detailed drawings for the various signs and may make specific recommendations and changes if those changes will improve the quality of any sign. Such recommendations and changes must be approved in writing by the Superintendent or their authorised technical representative prior to preparation of shop drawings or fabrication of any samples of signs. Such approval shall not constitute a cost variation unless specifically stated by the Superintendent in the approval. The value of any such cost variation shall be agreed prior to the change proceeding.

F _____ Lamp emission
All lighting fixtures / sources shall emit a colour balance, consistent and uniform light with no browning, flickering or other uneven effect.

G _____ Electrical hardware
All transformers and electrical hardware shall be concealed, non-audible and non-visible to pedestrian traffic. Provide disconnect switch if required by Australian Standards and / or applicable State or local regulations.

H _____ Wiring / electrical
The Principal will be responsible for the primary wiring. The Contractor shall be solely responsible for the secondary wiring.

All wires and cables shall comply with all relevant Australian Standards. After all works are complete the Contractor must provide compliance certificate for all electrical works.

I _____ Labelling
There shall be no visible labels, manufacturer's or otherwise, code permitting, on the completed signs. If labels are required, a sample label and intended location along with an explanation of the requirement must be submitted for the Principal and the Superintendent to review, prior to application and / or installation.

J _____ Stock
All materials, hardware, electrical components, finishes, etc. used to fabricate any and all components shall be "NEW" (not previously used or operated in any other application) and from the most recent original manufacturer's production run / supply and appropriately matched to the service conditions required of the site.

4 _____ Submittals

A _____ Shop drawings
The Contractor shall submit three sets of detailed shop drawings (2 sets of print, 1 reproducible set of plans, elevation and scale drawings) to the Superintendent and one set to the Principal for review prior to production. These drawings are to show / indicate all materials, finishes, construction details, lighting requirements and installation details of artwork and structure, including location of all material seams (finished and unfinished).

Shop drawings and data shall be reviewed by the Superintendent in sufficient time so as to not cause delay in the work. The Contractor shall make all corrections required by the Superintendent and resubmit for final review. Final reviewed shop drawings noted "Reviewed. Make corrections as noted" must be received from the Superintendent before production starts.

Shop drawings will be reviewed for compliance with design intent only. The Contractor is responsible for engineering each sign to meet all load and wind requirements with drawings and calculations by certified engineers. The Contractor is responsible for all other aspects of fabrication and erection including engineering, procedure, installation techniques and performance as well as coordination with site conditions and related trades.

Computations shall demonstrate that members and fixings have sufficient strength for all conditions and applicable loads, including maintenance load, human load, service and cleaning in accordance with the relevant codes.

B _____ Product data
The Contractor shall submit manufacturer's technical data and installation instructions for each type of sign and/or fixture required as will be provided in the completed, installed sign unit. Identification of all materials used, by manufacturer's descriptive literature, control number, name, code number, batch and formula when available shall be provided by the Contractor.

C _____ Specific samples
The Contractor shall submit samples and / or prototypes as requested by the Superintendent, of each colour and finish on the specified materials, and accessories required for signs. Samples must be submitted to the Superintendent in a timeframe allowing for review, multiple adjustments and approval without delay to the project. The Superintendent review of samples will be for colour, size, fixings, quality, texture and aesthetic compatibility with adjacent materials. Compliance with all other requirements is the exclusive responsibility of the Contractor. When specified, furnish full-size samples of materials. Resubmit samples if requested until required sheen, colour and texture meets the Superintendent's specified requirements.

D _____ Structural design and documentation
Design of the complete installation, including internal structure, mounting assemblies and foundations, are by the Contractor. The Contractor shall submit three sets of prints and one reproducible set of comprehensive engineering drawings and computations to the Superintendent incorporating an adequate foundation and /or mounting structure for all components to meet all load and wind requirements and given site conditions. The Contractor shall, at his expense, procure all necessary structural design and computations, and independent certification of it in accordance with BCA requirements or relevant codes, for the purposes of obtaining all necessary building permits.

E _____ Custom fabricated items
The Contractor is to submit shop drawings of all custom fabricated items and specifications on all standard pre-manufacture items, prior to procurement of these items, for review and comment by the Superintendent.

F _____ Electrical requirements
The Contractor shall provide the specific electrical

requirements to the Superintendent prior to completion of installation. The Contractor shall make allowance in the design of the installation for the available power supply, including any limitations.

G _____ Lamp service
The Contractor shall provide the Principal (via the Superintendent) with complete lamp replacement information, brand, type, wattage, colour, etc., for all lighted components. This information shall be in a typewritten format and shall indicate at least one local supplier.

H _____ Graphics
Upon request the Contractor shall provide the Superintendent with full size copy layouts required for all graphic applications. Layouts must be submitted to the Superintendent in a time frame allowing for review, multiple adjustments and approval without delay to the project.

5 _____ Finishes

A _____ Colours and surface textures
All colours shall match exactly the colour and finish requirements provided by the Superintendent, materials with applied colours or other characteristics related to appearance. The Contractor shall provide colour matches indicated, or it not indicated, as selected and reviewed by the Superintendent.

B _____ Surface preparation
All surfaces shall be thoroughly cleaned and free from dust, dirt, rust, scale, mill scale, oil, greasy materials or residue from cleaning. All coatings shall be applied in strict accordance with the manufacturer's recommendations. All paint products shall conform to all applicable codes. All finishes shall present a uniform opaque colour appearance unless specifically indicated otherwise by the Superintendent.

C _____ Application
All applications of colour/coatings are to be equal and of consistent cover with no "streaking", "spotting", "gradation" or other variations within and from each similar application.

6 _____ Materials

A _____ Acrylic / polycarbonate sheet
Where sheet material is indicated as "clear" provide colourless sheet in gloss finish.

Where sheet is indicated as "opal", provide colour translucent sheet of density required to produce uniform brightness. Material provided shall be appropriately matched to the intended permanent field conditions.

B _____ Aluminium sheet
Provide aluminium sheet of alloy and temper recommended by the aluminium producer or finisher for the type of use and finish indicated.

C _____ Aluminium extrusions
Provide aluminium extrusions of alloy and temper recommended by the aluminium producer or finisher for the type of use and finish indicated.

D _____ Structural steel
Provide structural steel as required to meet the requirements of the permanent installation. Surface treatment of structural steel shall be as specified on the drawings.

E _____ Fasteners
Unless otherwise indicated, provide concealed fasteners fabricated from metals that are non-corrosive to either the materials or the mountings surface. Ensure non-similar materials are totally isolated in order to avoid electrolysis and galvanic corrosion.

F _____ Electrical / lamps
Provide new electrical components and respective lamps, so as to be easily repaired or replaced from local available stock (24hr. max. turn-around).

H _____ Paint
Paint shall be 2 Pac or similar as approved and specified in the contract documentation. Paint shall have a written warranty against premature fading and be approved by the Superintendent prior to construction. Prior to completion, the Contractor shall submit to the Principal 3 copies of the complete paint schedule indicating colours used on each sign type.

I _____ Digital print
Any specified digital print should be a minimum 6 color 600dpi using UV solvent based inks. Aluminium is to be prepared in order to complete direct digital print. Aluminium is to have 2pac clearcoat applied prior to printing, another anti-graffitti 2pac clearcoat is to be applied after the printing process. Digital print shall have a written warranty of a minimum of 5 years from the supplier against colour deterioration.

Specifications

7 _____ Fabrication

A _____ Graphic application
Provide graphics to comply with the requirements indicated as per provided artwork templates. Registration of digital printing is critical to align with laser cutting treatment.

B _____ Illumination
Illuminate units in the manner indicated using the manufacturer's standard lighting components including LEDs, fixtures, transformers, insulators and other components. Make provision for servicing and for concealed connection to the building systems. Coordinate the electrical components with those of the power supply provided.

C _____ Structure
Details shown on the drawing shall be followed for exterior appearance. The Contractor may change interior construction shown on these details to conform with his shop practices. However, these changes must be submitted as part of the shop drawings and be reviewed by the Superintendent prior to fabrication.

D _____ Fastenings
1 _____ Fasteners on face surface shall not be exposed, except where noted.
2 _____ Face surfaces shall not be penetrated during fabrication or installation of signs, except where noted.
3 _____ Face surface shall not be deformed, distorted, or discoloured by attachment of concealed fasteners.
4 _____ All fasteners shall be resistant to oxidation or other corrosive action completely through their cross sections.
5 _____ Work shall be secured with fasteners of the same metal, colour and finish as the components they secure where they are exposed to view.
6 _____ Fasteners shall be utilised in strict accordance with their manufacturer's specifications, directions, recommendations and as indicated on design intent drawings.
7 _____ All fasteners shall finish flush with the components they secure.

E _____ Lamps
The Contractor shall coordinate with the Superintendent to select exact colour of the lamps. The Contractor is responsible for referencing and following code constraints. All electrical requirements to conform to Australian Standards including SAA Wiring Standards, and all applicable State and / or local regulations.

F _____ Sequencing
The Contractor shall be solely responsible for all sequencing equipment, wiring, controllers and any other associated elements.

G _____ Aluminium sheet
Fabricate by welding process with all visible seams continuously welded, filled and ground smooth, unless the seam occurs along a colour break, in which case a clean butt joint with concealed backing channel and plug weld is acceptable upon receipt of the Superintendent approved sample to match surrounding material finish. All curves and folds to be geometrically correct and produced by a consistent mechanical method unless approved otherwise by the Superintendent.

Laser cut edges/graphics, drilled holes, joints and surfaces must be clean, neat and free from burrs and indentations. All sharp edges shall be removed.

H _____ UV / fading protection
The Contractor shall utilise materials, coatings and processes to minimise as much as possible any noticeable fading of pigmented coatings.

I _____ Jointing and brake forming
All sheet metal shall have brake formed edges with radii not greater than sheet thickness unless otherwise specified. Adjacent stock shall have edges with similar radii.

J _____ Welding
All exposed welds are to be ground smooth to match surface of adjacent material.

All welding should be carried out in accordance with AS1554.

K _____ Protection
All signs shall be wrapped and protected against any possible damage caused during transportation. Protection must be done only after a final quality check of the sign is performed.

8 _____ Installation

A _____ The Contractor shall be responsible for provision of all lifting gear, necessary protection works, temporary access, scaffolding, OH & S and the like, including the erection and dismantling of all barricades, protective coverings, temporary road closures, road traffic management etc necessary to safeguard the public and property during the performance and duration of their work.

Unless instructed otherwise in writing by the Superintendent the Contractor shall forward detailed work method statements for review by the Superintendent no less than 20 days before commencement of installation. The Work Method Statements shall include the sequence of work, plant and equipment to be utilised and all safety provisions.

B _____ The Contractor shall attach signs to substrates in accordance with the structural engineer's instructions unless otherwise shown. Install level, plumb and at proper height. Repair or replace damaged units as directed by the Superintendent. Visible abrasions to finished surfaces must be repaired so that damage is invisible.

C _____ Installation of all signage items shall be by the Contractor. Installation includes provision of any required footings, all anchor bolts, fastenings, attachment metals, and other miscellaneous metal items embedded in concrete or building wall materials as required, and security of sign units in place with no visible fasteners or as indicated in the design documentation.

D _____ The Contractor shall provide required electrical equipment and connection to building power supply. The point(s) of power supply shall be provided by the Principal. All electrical connections shall be made by a licensed electrician employed by the Contractor for this purpose. All wiring equipment and connections shall be made in accordance with the requirements of the Australian Standards in addition to the applicable State and local codes. The Principal's electrical contractor shall provide and install all wiring, conduit, junction boxes and electrical devices necessary to provide electrical power to the point(s) of supply unless otherwise noted. The Contractor shall provide concealed LED transformers and all electrical wiring and connections beyond the point(s) of supply provided by the Principal's electrical contractor, including termination of the Contractor's wiring to the point(s) of supply.

E _____ The Contractor shall be responsible for matching to the available power supply on site the electrical requirements, including transformers.

F _____ The Contractor is responsible for compliance with all applicable environmental regulations.

G _____ The Contractor is responsible for compliance with all OH & S regulations. Unless instructed otherwise in writing by the Superintendent the Contractor shall provide a detailed OH&S Plan for the installation works for review by the Superintendent no less than 21 days before commencement of installation.

H _____ The Contractor must coordinate installation with the Principal's other Contractors so that overall project schedule is not impacted.

In particular the AV contractors to ensure seamless intergration and commissioning.

9 _____ Cleaning / protection, warranties and as-installed documentation

A _____ All items installed by the Contractor shall be left in a clean condition. Upon completion of the installation, clean all soiled surfaces and "touch up" as directed by the Principal or the Superintendent in accordance with the manufacturer's instructions. All debris and packing material shall be removed and disposed of in a legal manner. The protective masking of the plastic surfaces shall be removed by the Contractor upon completion of installation. All excavation and site work shall be returned to its original grade configuration and condition after contract items are installed.

B _____ Finish surfaces
All finishes are to be warranted for 3 years from the Date of Practical Completion. There shall be:
1 _____ No delamination of any part from the face surface.
2 _____ No cupping, warping or dishing as noted.
3 _____ No bubbling, crazing, chalking, rusting or other disintegration, messages or edge finish of the panels.
4 _____ No corrosion developing beneath the paint surface of the support systems, and any such corrosion shall be rectified by the Contractor at his cost, except where the corrosion is the result of obvious vandalism after the Date of Practical Completion.
5 _____ No corrosion of the fasteners.
6 _____ No movement from the foundations. The structure must remain true and plumb on their foundations and any movement is to be rectified by the Contractor at his cost, except when the sign has sustained obvious post-installation external damage by others after the Date of Practical Completion.
7 _____ No fading of the colours when matched against a sample of the original colour and material.
8 _____ No variation of any other performance requirement stated on the drawings, these conditions, and any separate specification(s).

C _____ Structure / components
The Contractor shall provide the Principal (via the Superintendent) with 3 copies of the written warranty prior to installation guaranteeing to rectify, to the Superintendent's satisfaction and at the Contractor's sole expense, all defects in fabrication and installation work for a period of one year after acceptance of the completed installation of signage work.

D _____ External lamps
All lamps shall be warranted against failure for 90 days, all LEDs three years and all ballasts one year. Lamps are to be replaced within 48 hours of notice by the Principal. In the event of failure within these specific times these items are to be replaced by the Contractor at the Contractor's sole expense.

E _____ The Contractor shall have total and complete responsibility for the security of all equipment, materials, and sign components until reviewed and accepted by the Principal.

F _____ Lamp service
Upon completion the Contractor shall provide the Principal (via the Superintendent) with 3 copies of complete lamp replacement information, brand, type, wattage, colour etc., for all lighted components. This information shall be in a typewritten format and shall indicate at least one local (site) supplier. Lamps must comply with all local, state and federal regulations and standards.

G _____ Maintenance
The Contractor shall provide to the Principal (via the Superintendent) 3 copies each of complete finish / component care instructions as specified by the manufacturer for on-going cosmetic sign cleaning and maintenance. The Contractor is to ensure signage, neon, lamps, electrical components etc. are easily accessible for maintenance.

H _____ As-installed documentation
The Contractor shall provide 3 copies each of as-installed drawings and specifications of the completed installation to the Superintendent prior to requesting final inspection by the Superintendent for the purposes of certification of Practical Completion.

I _____ Protection
All adjacent substrates finishes shall be protected against any possible damages caused during installation. After installation, selected sections as indicated by the Superintendent, will be protected against possible damages caused during subsequent building works. In such cases temporary protection shall be firm and capable of being removed without damaging the sign. Rectification will be required if any damage is caused by the temporary protection as a result of its removal.

10 _____ Permits

Securing and paying for all permits required by all governing agencies with jurisdiction over the structure is the responsibility of the Contractor. Arrangement of any inspections and tests necessary for the construction and placement of all work required by the applicable governing agencies and payment of all applicable fees shall be by the Contractor.

The Superintendent and / or the Principal shall obtain any necessary Town Planning permits. The Contractor shall be responsible for obtaining any necessary Building Permits for the structure and associated works included in the contract.

11 _____ Insurances

The Contractor shall secure and pay for all insurances required by law and otherwise including Public Liability, Worker's Compensation, Contract Works (on and off site and in transit) and Professional Indemnity.

12 _____ Program / practical completion

A _____ Program
The Contractor shall base his program on the performance of all services, including all items of labour, materials and equipment required for the complete fabrication and installation of the specified work within the timeframe set out in the tender documents unless an alternative timeframe has been agreed to in writing by the Superintendent.

B _____ Practical completion
Unless otherwise agreed in writing, the Principal shall not accept the structure until the structure has been certified by the Superintendent to have reached Practical Completion.

Unless otherwise defined in the specific contract for the project or otherwise agreed in writing, "Practical Completion" is that stage when:
1 _____ The structure is complete except for minor omissions and defects
1a _____ which do not prevent the structure from being reasonably capable of being used for its intended purpose, and
1b _____ which the Superintendent determines the Contractor has reasonable grounds for not promptly rectifying, and
1c _____ rectification will not prejudice the convenient use of the structure, and

2 _____ Those tests which are required by these conditions and / or the specification to be carried out and passed before completion have been carried out and passed, and

3 _____ As-installed drawings and specifications, and documents and other information required under these conditions and / or the specific contract which in the opinion of the Superintendent are essential for the use, operation and maintenance of the structure have been supplied.

