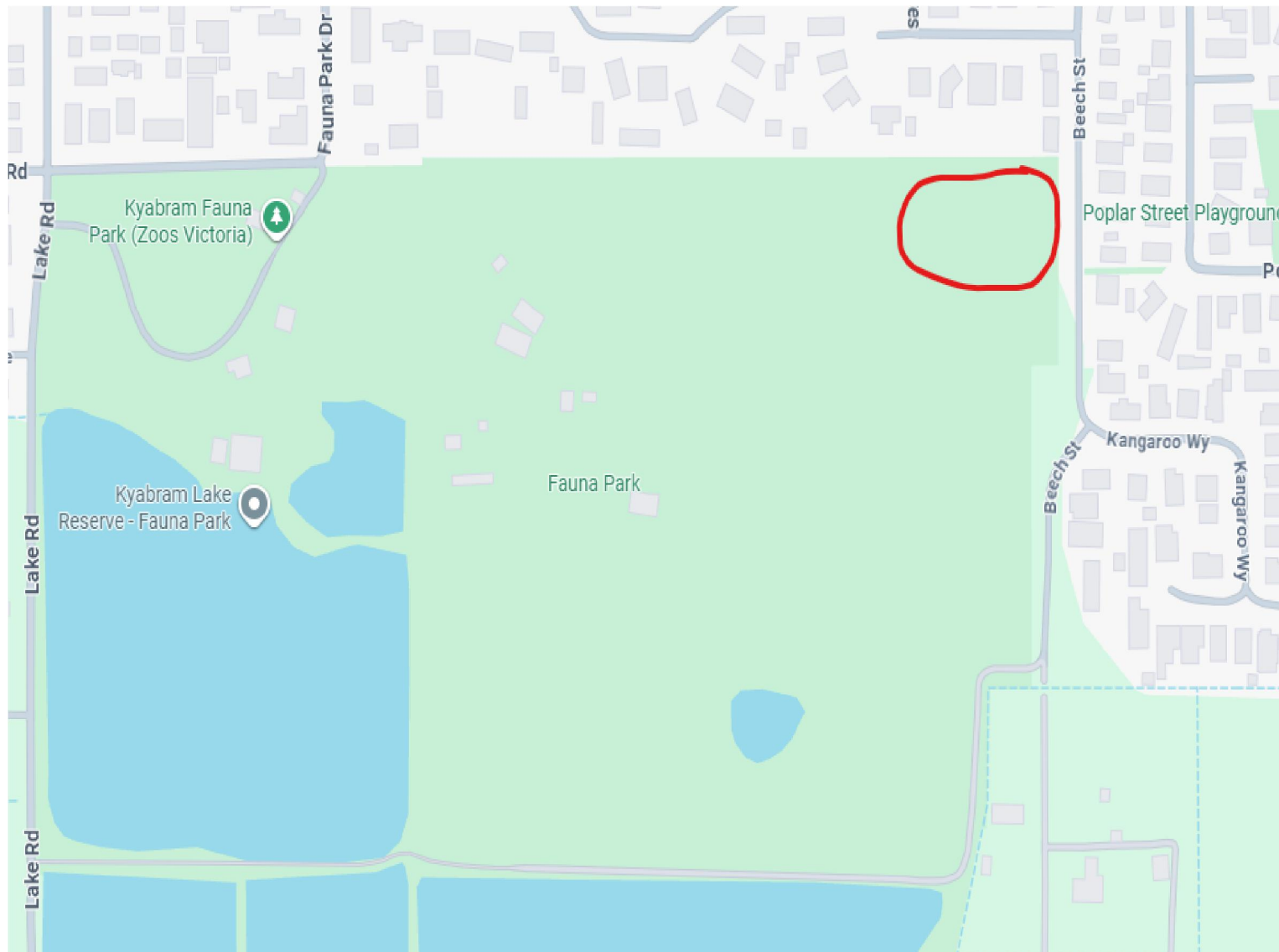


# WILDLIFE HOSPITAL KYABRAM / 75 LAKE ROAD, KYABRAM, 3620

JOB NUMBER: 8993



LOCALITY PLAN  
NOT TO SCALE

| SCHEDULE OF DRAWINGS |                                                 |
|----------------------|-------------------------------------------------|
| DRAWING No.          | DRAWING TITLE                                   |
| M000                 | COVER PAGE                                      |
| M001                 | LEGEND OF SYMBOLS, SCHEDULES & NOTES            |
| M002                 | DETAILS                                         |
| M100                 | GROUND FLOOR PLAN - DUCTWORK & EQUIPMENT LAYOUT |
| M101                 | ROOF PLAN - DUCTWORK & EQUIPMENT LAYOUT         |

## MECHANICAL SERVICES

NOT FOR CONSTRUCTION

| Rev No. | Amendment            | Date     | Drawn | Designed | Approved | Rev No. | Amendment | Date | Drawn | Designed | Approved | <div>Direction of North:</div> <div></div> | Project Manager: | Architect:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Structural Engineer:                                                                      | Civil Engineer: | Project Title:                 | Drawn:            | Service:      | Work Stage: | Revision: |  |  |  |  |  |
|---------|----------------------|----------|-------|----------|----------|---------|-----------|------|-------|----------|----------|---------------------------------------------------------------------------------------------------------------------------------|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|-----------------|--------------------------------|-------------------|---------------|-------------|-----------|--|--|--|--|--|
| P1      | PRELIMINARY ISSUE    | 13.09.24 | MD/CO | RM       | -        |         |           |      |       |          |          |                                                                                                                                 | -                | <div></div> <div>NJM DESIGN (VIC) PTY LTD<br/>ABN: 53 633 847 775</div> <div>L18, 350 Queen Street<br/>Melbourne VIC 3000<br/>mail@njmdesign.com.au</div> <div>Ph: +61 3 9600 4400<br/>www.njmdesign.com.au</div> <td rowspan="6"><div>WILDLIFE HOSPITAL KYABRAM</div><div>75 LAKE ROAD</div><div>KYABRAM, VIC 3620</div></td> <td rowspan="6"><div>MD</div></td> <td rowspan="6"><div>MECHANICAL SERVICES</div></td> <td rowspan="6"><div>TENDER</div></td> <td rowspan="6"><div>T2</div></td> | <div>WILDLIFE HOSPITAL KYABRAM</div> <div>75 LAKE ROAD</div> <div>KYABRAM, VIC 3620</div> | <div>MD</div>   | <div>MECHANICAL SERVICES</div> | <div>TENDER</div> | <div>T2</div> |             |           |  |  |  |  |  |
| P2      | PRELIMINARY ISSUE    | 30.09.24 | MD    | RM       | -        |         |           |      |       |          |          |                                                                                                                                 |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                           |                 |                                |                   |               |             |           |  |  |  |  |  |
| P3      | PRE-TENDER ISSUE     | 14.10.24 | MD    | RM       | -        |         |           |      |       |          |          |                                                                                                                                 |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                           |                 |                                |                   |               |             |           |  |  |  |  |  |
| 0       | TENDER ISSUE         | 20.11.24 | MD    | RM       | RP       |         |           |      |       |          |          |                                                                                                                                 |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                           |                 |                                |                   |               |             |           |  |  |  |  |  |
| T1      | REVISED TENDER ISSUE | 31.07.26 | MD    | RM       | RP       |         |           |      |       |          |          |                                                                                                                                 |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                           |                 |                                |                   |               |             |           |  |  |  |  |  |
| T2      | REVISED TENDER ISSUE | 13.06.26 | MD    | RM       | RP       |         |           |      |       |          |          |                                                                                                                                 |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                           |                 |                                |                   |               |             |           |  |  |  |  |  |
|         |                      |          |       |          |          |         |           |      |       |          |          |                                                                                                                                 |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                           |                 |                                |                   |               |             |           |  |  |  |  |  |

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### DUCTS

|                                                                                   |                                                      |
|-----------------------------------------------------------------------------------|------------------------------------------------------|
|  | PLAIN DUCT                                           |
|  | DUCT - INTERNALLY INSULATED, AS PER<br>NCC SECTION-J |
|  | ACOUSTIC FLEXIBLE DUCTWORK                           |
|  | DUCT - ROUND INSULATED DUCT (SPIRO)                  |

 DUCTED AC UNIT C/W SUPPLY DUCT  
TRANSITION, RETURN AIR PLENUM AND F  
RATED FILTERS

 CEILING MOUNTED CASSETTE UNIT WALL MOUNTED AC INDOOR UNIT HORIZONTAL DISCHARGE CONDENSING UNIT

VERTICAL DISCHARGE DUAL FAN  
CONDENSING UNIT



BRANCH SELECTOR BOX FOR  
VRF(VRV) SYSTEM

—— D ——— CONDENSATE DRAIN LINE

— R — INSULATED REFRIGERANT PIPING

 P- CONDENSATE PUMP

|                                                                                   |                                                            |
|-----------------------------------------------------------------------------------|------------------------------------------------------------|
|  | 4-WAY SUPPLY AIR DIFFUSER                                  |
|  | PERFORATED STAINLESS STEEL AIR<br>DIFFUSER C/W HEPA FILTER |
|  | LOUVERED OR CHEVRON RETURN AIR GRILLE                      |
|  | LOUVERED OR CHEVRON EXHAUST AIR GRILLE                     |

|                                                                                   |                     |
|-----------------------------------------------------------------------------------|---------------------|
|  | IN-LINE FAN         |
|  | ROOF COWL           |
|  | CEILING MOUNTED FAN |

|                                                                                     |     |                   |
|-------------------------------------------------------------------------------------|-----|-------------------|
|  | NRD | NON-RETURN DAMPER |
|  |     | BUTTERFLY DAMPER  |
|  |     | SPIGOT            |

|                                                                                     |                                        |
|-------------------------------------------------------------------------------------|----------------------------------------|
|  | TEMPERATURE SENSOR                     |
|  | CENTRAL CONTROLLER                     |
|  | IN-DUCT PRESSURE SENSOR                |
|  | LOCAL SWITCH                           |
|  | INDOOR A/C CONTROLLER                  |
|  | MECHANICAL SERVICES SWITCHBOARD        |
|  | BUILDING MANAGEMENT SYSTEM PANEL (BMS) |

|                                                                                     |                                 |
|-------------------------------------------------------------------------------------|---------------------------------|
|  | UNDERCUT BY BUILDER             |
|  | CEILING ACCESS PANEL BY BUILDER |
|  | TUNDISH BY HYDRAULIC CONTRACTOR |

|     |                       |
|-----|-----------------------|
| AC  | AIR CONDITIONING UNIT |
| CU  | CONDENSING UNIT       |
| DL  | DRAIN LINE            |
| EF  | EXHAUST AIR FAN       |
| OAF | OUTSIDE AIR FAN       |
| F/A | FROM ABOVE            |
| F/B | FROM BELOW            |
| NRD | NON-RETURN DAMPER     |
| O/A | OUTSIDE AIR           |
| RA  | RETURN AIR            |
| RL  | REFRIGERANT LINES     |
| S/A | SUPPLY AIR            |
| SAF | SUPPLY AIR FAN        |
| T/A | TO ABOVE              |
| T/B | TO BELOW              |
| TEF | TOILET EXHAUST FAN    |
| TU  | TUNDISH               |
| WL  | WALL LOUVRE           |

[illegible]

NOTES:

- FAN WORKING RESISTANCES (EXTERNAL STATIC) TO BE CONFIRMED BY INSTALLING CONTRACTOR PRIOR TO FANS BEEN ORDERED BASED UPON CONTRACTOR SHOP DRAWINGS.
- FAN MOTORS TO BE SIZED TO ALLOW 110% DESIGN AIR FLOW AGAINST THE CORRESPONDING INCREASE IN SYSTEM RESISTANCE (120%)
- ALL VENTILATION SYSTEMS SHALL COMPLY WITH THE RELEVANT BUILDING CODE AND SECTION J REQUIREMENTS.
- ALL MECHANICAL EQUIPMENT ARE TO BE ON PROGRAMMABLE TIME CLOCK. CLIENT TO CONFIRM OPERATING HOURS.
- ALL FANS & DUCT SYSTEM TO COMPLY WITH NCC SECTION J604.
- CONTRACTOR TO ENSURE ALL AIR HANDLING SYSTEMS, DUCTWORK & OUTLETS ARE BALANCED TO AIR QUANTITIES SHOWN ON DRAWINGS WITHIN TOLERANCE +10% & -0%. IT IS THE CONTRACTOR RESPONSIBILITY TO ACHIEVE THE REQUIRED AIR QUANTITIES AS SHOWN.
- NOISE LEVELS IN TABLE ABOVE ARE ESTIMATED LEVELS FROM MANUFACTURER TECHNICAL DATA SHEET. NOISE FROM MECHANICAL SERVICES SHALL COMPLY WITH AS2107 AND ACOUSTIC ENGINEER ASSESSMENT REPORT (REFER TO ACOUSTIC REPORT - IF APPLICABLE).
- EQUIPMENT SELECTION SHALL INCLUDE CORROSION RESISTANCE TO COMPLY WITH AS1321 & AS4312.
- WHERE AIR FILTERS ARE REQUIRED, INSTALLATION SHALL COMPLY WITH NCC J605e, AS1668, AS1324, AS4260, AIRAH DA15 & ALL RELEVANT STANDARDS AND CODES. AIR VELOCITY THROUGH FILTER SHALL NOT EXCEED 2.5M/S WHEN CLEAN. PROVIDE ADEQUATE ACCESS TO FILTER HOUSE. PROVIDE DIFFERENTIAL PRESSURE SENSOR & ALARM SYSTEM.
- LAUNDRY VENTILATION TO COMPLY WITH MANUFACTURE REQUIREMENT & RECOMMENDATION C/W LINT FILTER, BACK DRAFT SHUTTER & DRYER FLUE & VENTING KIT TO OUTDOOR. GAS FLUE FOR GAS DRYERS SHALL BE IN ACCORDANCE WITH AS5601.

| OUTDOOR UNIT |               |        |              |                 |         |         |         |                         |              | INDOOR UNIT      |             |            |                         |                    |                        |                  |                              |        |                   |                         |             |                  |
|--------------|---------------|--------|--------------|-----------------|---------|---------|---------|-------------------------|--------------|------------------|-------------|------------|-------------------------|--------------------|------------------------|------------------|------------------------------|--------|-------------------|-------------------------|-------------|------------------|
| UNIT NUMBER  | CAPACITY (KW) | TYPE   | POWERED FROM | POWER (PHASE/V) | MCA (A) | MFA (A) | RLA (A) | DIMENSIONS HxWxD / (mm) | WEIGHT (kg)  | NOISE @ 3M (dBA) | UNIT NUMBER | TYPE       | AREA SERVED             | TOTAL COOLING (kW) | NOMINATED HEATING (kW) | SUPPLY AIR (L/s) | ESTIMATED STATIC PRESS. (Pa) | FILTER | OUTDOOR AIR (L/s) | DIMENSIONS HxWxD / (MM) | WEIGHT (kg) | NOISE @ 3M (dBA) |
| CU-A         | 56.0          | HR     | MSSB         | 30/415          | 39.1    | 50      | 29.6    | 1695x1295x765           | 304          | 66               | AC-A.2      | CASSETTE   | OFFICE                  | 5.6                | 6.3                    | 250              | -                            | -      | -                 | 204x840x840             | 15          | 33               |
|              |               |        |              |                 |         |         |         |                         |              |                  | AC-A.3      | CASSETTE   | STAFF                   | 7.1                | 8                      | 283              | -                            | -      | -                 | 204x840x840             | 15          | 35               |
|              |               |        |              |                 |         |         |         |                         |              |                  | AC-A.4      | CASSETTE   | PHARMACY                | 3.6                | 4                      | 175              | -                            | -      | -                 | 250x575x575             | 12          | 34               |
|              |               |        |              |                 |         |         |         |                         |              |                  | AC-A.5      | DUCTED     | NECROPUSY               | 5.6                | 6.3                    | 267              | 150                          | F5     | 80                | 250x50x700              | 27.5        | 32               |
|              |               |        |              |                 |         |         |         |                         |              |                  | AC-A.6      | WALL MOUNT | CLINICAL 01             | 3.6                | 4                      | 172              | -                            | -      | -                 | 299x820x215             | 9.5         | 40               |
|              |               |        |              |                 |         |         |         |                         |              |                  | AC-A.7      | DUCTED     | PREP / STERI/ LAB.      | 5.6                | 6.3                    | 267              | 150                          | F5     | 80                | 250x50x700              | 27.5        | 32               |
|              |               |        |              |                 |         |         |         |                         |              |                  | AC-A.8      | WALL MOUNT | CLINICAL 02             | 3.6                | 4                      | 172              | -                            | -      | -                 | 299x820x215             | 9.5         | 40               |
|              |               |        |              |                 |         |         |         |                         |              |                  | AC-A.9      | CASSETTE   | WAITING AREA/ RECEPTION | 9                  | 10                     | 325              | -                            | -      | -                 | 204x840x840             | 15          | 39               |
|              |               |        |              |                 |         |         |         |                         |              |                  | AC-A.10     | WALL MOUNT | FOOD PREP/ STORE        | 4.5                | 5.0                    | 208              | -                            | -      | -                 | 299x1015x215            | 9.5         | 40               |
|              |               |        |              |                 |         |         |         |                         |              |                  | CU-B        | 22.4       | HP                      | MSSB               | 30/415                 | 18               | 25                           | 9.6    | 1420x940x330      | 135                     | 58          | AC-B.1           |
| AC-B.2       | WALL MOUNT    | WARD 2 | 6.8          | 7               | 280     | -       | -       | -                       | 299x1015x215 | 12               |             |            |                         |                    |                        |                  |                              |        |                   |                         |             | 43               |
| AC-B.3       | WALL MOUNT    | WARD 3 | 6.8          | 7               | 280     | -       | -       | -                       | 290x1050x269 | 12               |             |            |                         |                    |                        |                  |                              |        |                   |                         |             | 43               |

| OUTDOOR UNIT   |                 |                    |            |            |            |                            |                |                        | INDOOR UNIT    |          |              |                          |                              |                            |                |                        |
|----------------|-----------------|--------------------|------------|------------|------------|----------------------------|----------------|------------------------|----------------|----------|--------------|--------------------------|------------------------------|----------------------------|----------------|------------------------|
| UNIT<br>NUMBER | POWERED<br>FROM | POWER<br>(PHASE/V) | MCA<br>(A) | MFA<br>(A) | RLA<br>(A) | DIMENSIONS<br>HxWxD / (mm) | WEIGHT<br>(kg) | NOISE @<br>3M<br>(dBA) | UNIT<br>NUMBER | TYPE     | AREA SERVED  | TOTAL<br>COOLING<br>(kW) | NOMINATED<br>HEATING<br>(kW) | DIMENSIONS<br>HxWxD / (MM) | WEIGHT<br>(kg) | NOISE @<br>3M<br>(dBA) |
| CU-C           | MSSB            | 10/240             | 18         | 20         | 9.9        | 798x880x310                | 51             | 66                     | AC-C           | CASSETTE | AD/DISCHARGE | 7.1                      | 8.0                          | 288x840x840                | 18             | 35                     |

NOTES:

- ALL AIR CONDITIONING AND VENTILATION SYSTEMS SHALL COMPLY WITH THE RELEVANT BUILDING CODE AND SECTION J REQUIREMENTS.  
SYSTEM SHALL BE ON BUILDING TIME CLOCK (PROGRAMMABLE) AND SHUT DOWN WHEN BUILDING NOT IN USE.  
SYSTEM SHALL HAVE A TIME SWITCH, EXCLUDING IN CLASS 2, 3, 4, 9C BUILDINGS OR WHERE AIR CONDITIONING IS NEEDED 24HRS.  
PROVIDE CONTROL SEQUENCES WHERE TWO OR MORE AC SYSTEMS SERVE THE SAME SPACE TO PREVENT THE SYSTEMS FROM OPERATING IN OPPOSING AND COOLING MODES.  
UNITARY AIR CONDITIONING UNITS INCLUDING PACKAGED, SPLIT AND VARIABLE REFRIGERANT FLOW SYSTEMS MUST COMPLY WITH MEPS.  
IN CLASS 3 BUILDING PROVIDE AN ELECTRIC POWER MICRO-SWITCH / REED SWITCH ON DOOR OF SOLE-OCCUPANCY UNIT IN CLASS 3 BUILDING TO SHUT DOWN AC WHEN EXTERNAL DOOR IS OPEN MORE THAN 1 MINUTE. PROVIDE INTERFACE CARD WHERE REQUIRED.  
PIPE INSULATION TO COMPLY WITH AS4859.1, NCC2022 J6D9 AND EXPOSED PIPEWORK SHALL BE PROTECTED AGAINST THE WEATHER AND SUNLIGHT.

- PROVIDE HARD WIRED CONTROL UNITS CLOSED TO LIGHT SWITCHES. FINAL LOCATION TBC. PROVIDE 1 OFF CONTROLLER FOR EACH ROOM.
- 2) PROVIDE CONDENSATE DRAIN PUMPS IF REQUIRED.
- 3) DESIGN CONDITIONS: SUMMER - OUTDOOR 35°C DB & INDOOR 24°C DB  $\pm 1.5^\circ\text{C}$  & 17°C WB, WINTER - OUTDOOR 3.5°C DB & INDOOR 21°C  $\pm 1.5^\circ\text{C}$  & RH 40-60%.
- 4) PROVIDE ALL EXTRA PIPING, CONTROLS, SWITCHES, REFNET JOINTS, Y-JOINTS, NEW BRANCH BOXES ETC AS PER MANUFACTURERS RECOMMENDATION & SPECIFICATIONS FOR CORRECT INSTALLATION.
- 5) CONTRACTOR TO UNDERTAKE REFRIGERATION CONCENTRATION CALCULATIONS & ENSURE SELECTED SYSTEM IS NOT OVER THE SPECIFIED LIMITS FOR ANY ROOM BEING SERVED BY THE ASSOCIATED AIR CONDITIONING SYSTEM. IT IS MECHANICAL CONTRACTOR RESPONSIBILITY TO ENSURE REFRIGERANT PIPE LENGTH DO NOT EXCEED THE MAXIMUM ALLOWABLE RECOMMENDED BY MANUFACTURER.
- 6) CONTRACTOR TO ENSURE ALL AIR HANDLING SYSTEMS, DUCTWORK & OUTLETS ARE BALANCED TO AIR QUANTITIES SHOWN ON DRAWINGS WITHIN TOLERANCE  $\pm 10\%$  &  $-0\%$ . IT IS THE CONTRACTOR RESPONSIBILITY TO ACHIEVE THE REQUIRED AIR QUANTITIES AS SHOWN.
- 7) PROVIDE DECORATION PANELS FOR CEILING CASSETTE UNIT.
- 8) INFORMATION PRESENTED IN THE SCHEDULES ABOVE ARE APPROXIMATE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO LIAISE WITH THE UNIT MANUFACTURER FOR ACCURATE INFORMATION & TO ENSURE UNIT SELECTIONS ACHIEVE THE REQUIRED PARAMETERS AS PRESCRIBED IN THE SCHEDULES.
- 9) ELECTRICAL POWER PROVISION FOR SINGLE SYSTEM INDOOR UNITS (EXCEPT DUCTED UNIT) SHALL BE FROM POWER ISOLATOR OF ASSOCIATED OUTDOOR UNIT. CONTRACTOR TO PROVIDE ALL NECESSARY WIRING AND ISOLATORS/GPOS TO ENSURE INDOOR UNITS ARE POWERED FROM RESPECTIVE CONDENSER UNIT.
- 10) ELECTRICAL POWER PROVISION FOR SINGLE DUCTED AC SYSTEM & MULTI AC SYSTEM (VRV/VRF) SHALL BE FROM A DEDICATED CIRCUIT BREAKER FROM A LOCAL/NEAREST DISTRIBUTION BOARD. CONTRACTOR TO PROVIDE ALL NECESSARY WIRING AND ISOLATORS/GPOS.
- 11) ALL AC UNIT TO SHUT DOWN UPON RECEIVING FA SIGNAL.
- 12) NOISE LEVELS IN TABLE ABOVE ARE ESTIMATED LEVELS FROM MANUFACTURER TECHNICAL DATA SHEET. NOISE FROM MECHANICAL SERVICES SHALL COMPLY WITH AS2107 AND ACOUSTIC ENGINEER ASSESSMENT REPORT (REFER TO ACOUSTIC REPORT - IF APPLICABLE).
- 13) EQUIPMENT SELECTION SHALL INCLUDE CORROSION RESISTANCE TO COMPLY WITH AS4312.
- 14) WHERE AIR FILTERS ARE REQUIRED, INSTALLATION SHALL COMPLY WITH NCC J605e, AS1668, AS1324, AS4260, AIRAH DA15 & ALL RELEVANT STANDARDS AND CODES. AIR VELOCITY THROUGH FILTER SHALL NOT EXCEED 2.5M/S WHEN CLEAN. PROVIDE ADEQUATE ACCESS TO FILTER HOUSE. PROVIDE DIFFERENTIAL PRESSURE SENSOR & ALARM SYSTEM.

| RECOMMENDED NOISE RATING INSIDE BUILDINGS |                                                               |
|-------------------------------------------|---------------------------------------------------------------|
| AREA                                      | CRITERIA FOR CONTINUOUS NOISE INTRUSION<br>SOUND LEVEL: dB(A) |
| PRIVATE OFFICE                            | 35-40                                                         |
| FOYER - PUBLIC AREA                       | 40-50                                                         |
| HOSPITAL WARDS                            | 35-40                                                         |
| OPERATING THEATRE                         | 40-50                                                         |
| LABORATORIES                              | 40-50                                                         |
| RECEPTION & WAITING AREA                  | 40-50                                                         |
| CORRIDOR & AMENITY AREA                   | 45-50                                                         |

NOTE:

- 1) NOISE & VIBRATION LEVELS TO COMPLY WITH AS2107:2000, AS1055-1:2018, AS28625.1 & AS28625.4
- 2) ENVIRONMENTAL NOISE TO COMPLY WITH AS1055:2018, EPA, COUNCIL & RELEVANT NOISE CONTROL REQUIREMENT
- 3) NOISE LEVELS FROM MECHANICAL SERVICES SHALL COMPLY WITH AS2107 AND ACOUSTIC ENGINEER ASSESSMENT REPORT. REFER TO ACOUSTIC REPORT
- 4) SOUND POWER LEVEL TEST TO AS1217.5 & AS1217.7
- 5) REFER TO MECHANICAL SERVICES SPECIFICATION FOR FURTHER INFORMATION

| EXHAUST GRILLE SIZES |         |
|----------------------|---------|
| 0-25 L/s             | 100x100 |
| 25-60L/s             | 150x150 |
| 60-100 L/s           | 200x200 |
| 105-160 L/s          | 250x250 |
| 165-225 L/s          | 300x300 |
| 230-310 L/s          | 350x350 |
| 315-400 L/s          | 450x450 |

| SUPPLY GRILLE SIZES |         |
|---------------------|---------|
| 0-60L/s             | 300x300 |
| 65-120 L/s          | 350x350 |
| 125-160 L/s         | 400x400 |
| 165-200 L/s         | 450x450 |

| FLEX DUCT SIZES |      |
|-----------------|------|
| 0-60 L/s        | 1500 |
| 65-110 L/s      | 2000 |
| 115-180 L/s     | 2500 |
| 185-250 L/s     | 3000 |
| 255-350 L/s     | 3500 |
| 355-450 L/s     | 4000 |
| 455-600 L/s     | 4500 |

2) CONTRACTOR TO USE ACOUSTICALLY INSULATED FLEX.  
3) FLEXIBLE DUCT SHALL NOT BE GREATER THAN 6M IN LENGTH IN ANY DUCT RUN.

| DUCT INSULATION                 |                          |
|---------------------------------|--------------------------|
| LOCATION OF DUCTWORK & FITTINGS | MINIMUM MATERIAL R-VALUE |
| WITHIN CONDITIONED SPACE        | 1.2                      |
| EXPOSED TO DIRECT SUNLIGHT      | 3.0                      |
| ALL OTHER LOCATIONS             | 2.0                      |

NOTE:

- 1) DUCTWORK TO COMPLY WITH AS4254.2
- 2) INSULATION TO COMPLY WITH AS4859.1 & NCC2022 SECTION J606.
- 3) FLEXIBLE DUCT NOT GREATER THAN 6M WITH R1.0
- 4) WHEN CONVEYING COOLED AIR TO HAVE A VAPOUR BARRIER ON THE OUTSIDE OF INSULATION
- 5) FIGURES LISTED ABOVE APPLY TO CLIMATE ZONE 6.
- 6) INSULATION TO BE PROTECTED AGAINST WEATHER AND SUNLIGHT

| DOOR GRILLE SCHEDULE |                |                   |
|----------------------|----------------|-------------------|
| REF NO.              | SIZE           | MAX. AIR QUANTITY |
| U                    | 40 mm UNDERCUT | 40 L/s            |
| 1                    | 600x150        | 100 L/s           |
| 2                    | 600x300        | 180 L/s           |
| 3                    | 600x450        | 270 L/s           |
| 4                    | 600x600        | 360 L/s           |
| 5                    | 600x750        | 450 L/s           |

NOTE:

- 1) DOOR GRILLES SUPPLIED BY MECHANICAL CONTRACTOR AND INSTALLED BY BUILDER.
- 2) ALL UNDERCUTS BY BUILDER. NOMINAL SIZES ONLY (MINIMUM) REFER ARCHITECTURAL DRAWINGS FOR DETAILS.

GENERAL NOTES:

- |     |                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                         |
|-----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.  | ALL WORKS TO COMPLY WITH THE REQUIREMENTS OF ALL CURRENT CODES, REGULATIONS, NCC, FRV AND ANY OTHER AUTHORITY HAVING JURISDICTION. WORK NOT COVERED BY THE STATUTORY AUTHORITIES SHALL COMPLY WITH THE RELEVANT AUSTRALIAN STANDARDS.                                              | CEILING CAVITIES. PROVIDE CONDENSATE DRAIN LIFT PUMPS (IF REQUIRED) TO ENSURE ADEQUATE FLOW TO TUNDISH. TUNDISH BY HYDRAULICS CONTRACTOR                                                                                                                                                                |
| 2.  | ENSURE MECHANICAL SERVICES WORKS ARE IN ACCORDANCE WITH AS1686.                                                                                                                                                                                                                    | ALL REFRIGERANT PIPES FROM METAL DECK ROOF VIA DEKTIITE RUBBER FLASHING TO CEILING BELOW.                                                                                                                                                                                                               |
| 3.  | REFER TO MECHANICAL SPECIFICATION.                                                                                                                                                                                                                                                 | 18. BUILDER SHALL PROVIDE ALL PENETRATIONS, FLASHINGS, CONCRETE AND / OR STRUCTURAL SUPPORTS FOR MECHANICAL EQUIPMENTS. MECHANICAL CONTRACTOR TO INDICATE SIZE AND LOCATIONS.                                                                                                                           |
| 4.  | ALL AIR QUANTITIES ARE IN LITERS/SECOND. ALL DUCT DIMENSIONS SHOWN ARE INSIDE CLEAR DIMENSIONS.                                                                                                                                                                                    | 19. ALL PENETRATION THROUGH WALL/ROOF SHALL BE MADE WEATHERPROOF & AIR TIGHT AT ROOF CROSSING BY MECHANICAL CONTRACTOR.                                                                                                                                                                                 |
| 5.  | ALL DIFFUSERS AND GRILLES SHALL BE PROVIDED WITH 25mm INTERNALLY INSULATED CUSHION HEADS OR PLENUM BOXES. ALL NECK SIZES OF DIFFUSERS SHALL BE APPROPRIATELY SELECTED BY THE MECHANICAL SUB-CONTRACTOR TO OBTAIN ADEQUATE AIR DISTRIBUTION, THROW AND PATTERN TO SUIT ROOM LAYOUT. | 20. CONTRACTOR SHALL CONCEAL ALL INSULATED PIPEWORK AND WIRING IN WALL/CEILING CAVITIES.                                                                                                                                                                                                                |
| 6.  | ALL NEW FLEXIBLE DUCTWORK SHALL BE LIMITED TO A MAXIMUM LENGTH OF 5 METERS. FOR LENGTHS EXCEEDING 5 METERS, PROVIDE INSULATED CIRCULAR SHEET METAL DUCTWORK OF EQUIVALENT SIZE TO REDUCE FLEXIBLE DUCT LENGTH.                                                                     | 21. REFRIGERANT PIPEWORK SHALL CONNECT TO RESPECTIVE INDOOR UNITS. PROVIDE ALUMINUM CLADDING TO EXPOSED REFRIGERANT PIPEWORK.                                                                                                                                                                           |
| 7.  | EXHAUST AIR FLEXIBLE DUCT SHALL BE R1 ACOUSTIC DUCT MANUFACTURED BY WESTAFLEX.                                                                                                                                                                                                     | 22. CONTRACTOR TO UNDERTAKE REFRIGERATION CONCENTRATION CALCULATIONS & ENSURE SELECTED SYSTEM IS NOT OVER THE SPECIFIED LIMITS FOR ANY ROOM NOT SERVED BY THE ASSOCIATED AIR CONDITIONING SYSTEM.                                                                                                       |
| 8.  | ALL NEW & EXISTING DUCTWORKS SHALL BE CLEAN AND IN ACCORDANCE WITH AS4254 AND ANY OTHER RELEVANT STANDARDS AND CODES. ENSURE ALL DUCTWORK (INCL. NEW, EXISTING, PLENUMS, FILTERS, FAN CHAMBERS) REMAINS FREE OF MOISTURE AND DEBRIS UNTIL OCCUPATION.                              | 23. REFRIGERANT PIPE RUN NOT SHOWN OR SHOWN INDICATIVE ONLY. IT IS MECHANICAL CONTRACTOR RESPONSIBILITY TO ENSURE REFRIGERANT PIPE LENGTH DO NOT EXCEED THE MAXIMUM ALLOWABLE RECOMMENDED BY MANUFACTURER.                                                                                              |
| 9.  | ALLOW TO THOROUGHLY CO-ORDINATE ALL WORK WITH OTHER TRADES PRIOR TO INSTALLATION.                                                                                                                                                                                                  | 24. ENSURE ALL MECHANICAL SERVICES HAVE APPROPRIATE ACCESS IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS, RELEVANT STANDARDS AND CODES.                                                                                                                                                              |
| 10. | ALL TEMPERATURE SENSORS & ROOM CONTROLLERS SHALL BE LOCATED AT 1500mm FROM FINAL FLOOR LEVEL.                                                                                                                                                                                      | 25. ALL MECHANICAL SERVICES EQUIPMENT SHALL BE FED FROM MSSB.                                                                                                                                                                                                                                           |
| 11. | ALL SUEY & EXHAUST AIR OUTLETS SHALL BE PROVIDED WITH BALANCING DAMPERS FITTED BEHIND THE OUTLET OR AT THE PLENUM INLET FOR BALANCING.                                                                                                                                             | 26. ACCESS PANELS SHOWN INDICATIVE ONLY. CONTRACTOR TO PROVIDE ACCESS PANELS TO SUIT MECHANICAL EQUIPMENT, IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS.                                                                                                                                              |
| 12. | ALL CONDENSING UNITS SHALL BE ISOLATED ON RUBBER MOUNTS (TYPE NR). WAFFLE PADS WITH HOLDING DOWN BOLTS SHALL NOT BE USED.                                                                                                                                                          | 27. MECHANICAL SERVICES TO BE CO-ORDINATED WITH OTHER SERVICES AND STRUCTURAL ELEMENTS.                                                                                                                                                                                                                 |
| 13. | ALLOW FOR PAINTING OF EXPOSED DUCTS, PIPING, TRAYS ETC. COLOURS TO BE ADVISED.                                                                                                                                                                                                     | 28. ALL MECHANICAL EQUIPMENT & DUCT SHALL BE PAINTED WITH TWO COATS OF WEATHER PROOF PAINT WITH SUITABLE COLOUR TO BE APPROVED BY PROJECT MANAGER.                                                                                                                                                      |
| 14. | ENSURE DUCTWORK INSULATION IS IN ACCORDANCE WITH SECTION J OF THE NCC. ENSURE DUCTWORK ARE IN ACCORDANCE WITH AS4254.1 & AS4254.4. ADVISE OTHER RELEVANT STANDARDS AND CODES.                                                                                                      | 29. BRANCH BOX LOCATION NOT SHOWN AND WHERE SHOWN LOCATION IS INDICATIVE ONLY. BRANCH BOXES SHALL BE INSTALLED IN ACCORDANCE TO MANUFACTURER RECOMMENDATION AND REQUIREMENTS C/DW TRAY, DRAIN PIPE TO NEARBY TUNDISH/DOWNPIPE, CO-ORDINATE ON SITE AND WITH OTHER SERVICES (ELEVATOR, POWER AND DRAIN). |
| 15. | ENSURE MINIMUM 5m SEPARATION BETWEEN SEWER VENT AND AIR INTAKE POINT IN ACCORDANCE WITH AS3500.                                                                                                                                                                                    | 30. ALL PENETRATIONS THROUGH RATED FLOOR ELEMENTS SHALL BE FITTED WITH AN APPROVED FIRE COLLAR OR FIRE SEALANT, IN ACCORDANCE WITH NCC0202.2 CLAUSE C4D13 - C4D15, AS4072.1 & AS1503.4                                                                                                                  |
| 16. | WHERE REQUIRED, ALL INTERNAL & EXTERNAL METAL DUCTWORK, GRILLES & REGISTER, LOUVERS & DAMPERS SHALL STAINLESS STEEL TO ACHIEVE THE REQUIRED CORROSION RESISTANCE IN ACCORDANCE TO AS2312.                                                                                          |                                                                                                                                                                                                                                                                                                         |

NOT FOR CONSTRUCTION

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|                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                        |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>Project Manager:</b></p> <p>-</p> <p><b>Architect:</b></p> <p>INNOVA GROUP</p> <p><b>Structural Engineer:</b></p> <p>-</p> <p><b>Civil Engineer:</b></p> <p>-</p> |  <p><b>NJM DESIGN (VIC) PTY LTD</b></p> <p>ABN: 53 633 847 775</p> <p><b>L18, 350 Queen Street</b><br/> <b>Melbourne VIC 3000</b><br/> <a href="mailto:mail@njmdesign.com.au">mail@njmdesign.com.au</a></p> <p><b>Ph: +61 3 9600 4400</b><br/> <a href="http://www.njmdesign.com.au">www.njmdesign.com.au</a></p> |
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**Project Title:**  
**WILDLIFE HOSPITAL KYABRAM**  
**75 LAKE ROAD**  
**KYABRAM, VIC 3620**

**Client:**  
**ZOOS VICTORIA**

|                           |                                                                                             |
|---------------------------|---------------------------------------------------------------------------------------------|
| Drawn:<br><b>MD</b>       | Service:<br><b>MECHANICAL SERVICES</b><br><br>Drawing Title:<br><b>LEGEND OF SYMBOLS, S</b> |
| Designed:<br><b>RM</b>    |                                                                                             |
| Approved:<br><b>RP</b>    |                                                                                             |
| Doc Control:<br><b>MD</b> |                                                                                             |

|                              |                                |
|------------------------------|--------------------------------|
| Work Stage:<br><b>TENDER</b> | Revision:<br><b>T2</b>         |
| Scale:<br><b>NTS</b>         | Drawing Number:<br><b>M001</b> |
| Sheet:<br><b>A1</b>          | Job Number:<br><b>8993</b>     |

| Rev No. | Amendment            | Date     | Drawn | Designed | Approved | Rev No. | Amendment | Date | Drawn | Designed | Approved | Direction of North: | Project Manager: |  | Project Title:           | Drawn:                    | Service:  | Work Stage:         | Revision: |    |                |  |
|---------|----------------------|----------|-------|----------|----------|---------|-----------|------|-------|----------|----------|---------------------|------------------|---------------------------------------------------------------------------------------|--------------------------|---------------------------|-----------|---------------------|-----------|----|----------------|--|
| P1      | PRELIMINARY ISSUE    | 13.09.24 | MD/CO | RM       | -        |         |           |      |       |          |          |                     | -                |                                                                                       | NJM DESIGN (VIC) PTY LTD | WILDLIFE HOSPITAL KYABRAM | MD        | MECHANICAL SERVICES | TENDER    | T2 |                |  |
| P2      | PRELIMINARY ISSUE    | 30.09.24 | MD    | RM       | -        |         |           |      |       |          |          |                     | -                |                                                                                       | ABN: 53 633 847 775      | 75 LAKE ROAD              | Designed: |                     |           |    |                |  |
| P3      | PRE-TENDER ISSUE     | 14.10.24 | MD    | RM       | -        |         |           |      |       |          |          |                     | -                |                                                                                       | L18, 350 Queen Street    | KYABRAM, VIC 3620         | RM        |                     |           |    | Drawing Title: |  |
| 0       | TENDER ISSUE         | 20.11.24 | MD    | RM       | RP       |         |           |      |       |          |          |                     | -                |                                                                                       | Melbourne VIC 3000       |                           | Approved: |                     |           |    | DETAILS        |  |
| T1      | REVISED TENDER ISSUE | 31.07.26 | MD    | RM       | RP       |         |           |      |       |          |          |                     | -                | mail@njmdesign.com.au                                                                 | Client:                  | RP                        |           |                     |           |    |                |  |
| T2      | REVISED TENDER ISSUE | 13.08.26 | MD    | RM       | RP       |         |           |      |       |          |          |                     | -                | Ph: +61 3 9600 4400                                                                   | ZOOS VICTORIA            | Doc Control:              |           |                     |           |    |                |  |
|         |                      |          |       |          |          |         |           |      |       |          |          |                     | -                | www.njmdesign.com.au                                                                  |                          | MD                        |           |                     |           |    |                |  |

7.0 PROVIDE ALUMINUM CLADDING TO REFRIGERANT PIPEWORK EXPOSED ON GROUND FLOOR.

OUTSIDE AIR DUCT FROM ABOVE CONNECTED TO WEATHERPROOF ROOF MOUNTED COWL. SIZES LABELLED. TYPICAL.

MECHANICAL SERVICES SWITCHBOARD APPROX. 1800H x 800W x 500 D. IP65 WEATHERPROOF-FLOOR STANDING. PROVIDE RUN/FAULT LIGHTS AND 3 WAY SWITCH ON BOARD DOOR FOR ALL EQUIPMENT.

NOT FOR CONSTRUCTION

| Rev No. | Amendment            | Date     | Drawn | Designed | Approved | Rev No. | Amendment | Date | Drawn | Designed | Approved |
|---------|----------------------|----------|-------|----------|----------|---------|-----------|------|-------|----------|----------|
| P1      | PRELIMINARY ISSUE    | 13.09.24 | MD/CO | RM       | -        |         |           |      |       |          |          |
| P2      | PRELIMINARY ISSUE    | 30.09.24 | MD    | RM       | -        |         |           |      |       |          |          |
| P3      | PRE-TENDER ISSUE     | 14.10.24 | MD    | RM       | -        |         |           |      |       |          |          |
| Ø       | TENDER ISSUE         | 20.11.24 | MD    | RM       | RP       |         |           |      |       |          |          |
| T1      | REVISED TENDER ISSUE | 31.07.26 | MD    | RM       | RP       |         |           |      |       |          |          |
| T2      | REVISED TENDER ISSUE | 13.08.26 | MD    | RM       | RP       |         |           |      |       |          |          |

Direction of North:

**Project Manager:**  
-  
**Architect:**  
INNOVA GROUP  
**Structural Engineer:**  
-  
**Civil Engineer:**  
-

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|                           |                                         |                                            |                                |
|---------------------------|-----------------------------------------|--------------------------------------------|--------------------------------|
| <b>Drawn:</b><br>MD       | <b>SERVICE:<br/>MECHANICAL SERVICES</b> | <b>Work Stage:</b><br>TENDER               | <b>Revision:</b><br>T2         |
| <b>Designed:</b><br>RM    |                                         |                                            |                                |
| <b>Approved:</b><br>RP    |                                         | <b>Drawing Title:</b><br>GROUND FLOOR PLAN | <b>Drawing Number:</b><br>M100 |
| <b>Doc Control:</b><br>MD |                                         | <b>DUCTWORK &amp; EQUIPMENT LAYOUT</b>     | <b>Job Number:</b><br>8993     |

|                        |  |  |  |
|------------------------|--|--|--|
| <b>Scale:</b><br>1:100 |  |  |  |
| <b>Sheet:</b><br>A1    |  |  |  |

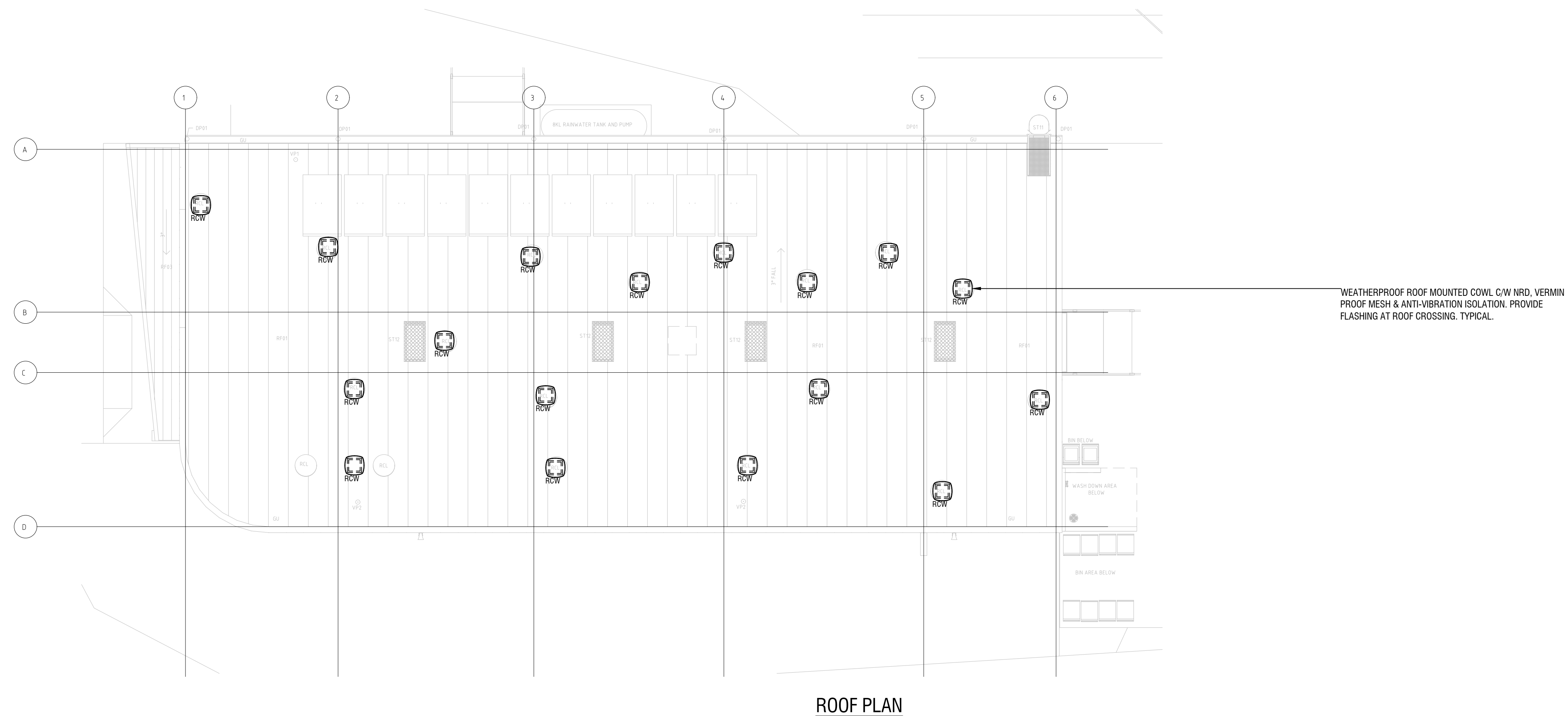
PERMANENT ROOF ACCESS SHALL BE PROVIDED IN ACCORDANCE WITH RELATIVE STANDARDS, OH&S AND AUSTRALIAN STANDARDS BY BUILDER.

TYPICAL NOTES:

**1.0 ALL MECHANICAL EQUIPMENT & DUCT SHALL BE PAINTED WITH TWO COATS OF WEATHER PROOF PAINT WITH SUITABLE COLOUR TO BE APPROVED BY PROJECT MANAGER.**

2.0 ALL DUCTS PENETRATION THROUGH ROOF SHALL BE MADE WEATHERPROOF & AIR TIGHT AT ROOF CROSSING BY MECHANICAL CONTRACTOR.

3.0 ALL RISER COVERS SHALL BE MADE OF "16" GAUGE GSS THICK PLATE COMPLETE WITH STEEL FRAME BY MECHANICAL CONTRACTOR. THE CONSTRUCTION SHALL BE AIR & WATER TIGHT. METAL RISER TOP SHALL BE COMPLETE WITH RUST PROOF PAINT.



### ROOF PLAN

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