NORTHROP

New Primary School in Edmondson Park

Buchan Ave, Edmonson Park NSW 2174

SSDA DESIGN REPORT

PREPARED FOR
Richard Crookes Constructions
Level 3 / 4 Broadcast Way
Artarmon NSW 2064

Tel: +61(0)2 9902 4700

Ref: S210040-01-SR02
Rev: 1
Date: 17/05/21

Structural SSDA Design Report

Revision Schedule

Date	Revision	Issue	Prepared By	Approved By
17.05.21	1	SSDA	M Burke	R Dale

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Title: **Structural Engineer**

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Executive Summary

This report has been prepared to accompany a State Significant Development Application for the development of a New Primary School in Edmondson Park, located at Buchan Avenue, Edmondson Park (the site). The legal description of the site is Lot 1 and Lot 2 in DP 1257105. The site comprises a rectangular lot with an area of approximately two hectares.

The SSDA seeks approval for a new core 35 primary school accommodating 1,012 students and a **coldshell** 40 place pre-school at the site. The works comprise:

- Site preparation and excavation;
- Land use for the purpose of a new primary school and pre-school;
- Construction of new buildings including:
    - A three storey building on the western portion of the site primarily addressing Faulkner Way comprising 36 homebases, 4 special support unit teaching spaces, staff room, administration office at the ground floor and library at the first floor addressing the corner of Buchan Avenue and Faulkner Way, and student amenities;
    - A single storey **coldshell** preschool building for educational programs for children the year before they commence kindergarten, accommodating 40 places. The pre-school building will be connected at the southern end of the three storey building; and
    - A single storey building on the eastern portion of the site comprising a communal hall, out of school hours care facility, 8 homebases and covered outdoor learning area.
- Landscaping and public domains works including tree planting, a sports court and creation of various assembly, play and learning zones;
- A drop-off and pick-up zone, and bus zone on Buchan Avenue;
- An at-grade staff carpark in the southern part of the site with ingress and egress provided off Faulkner Way at the south-west corner of the site;
- Primary pedestrian entrance from Buchan Avenue and an additional entrance on Faulkner Way for the ground floor support unit; and
- Other ancillary infrastructure and utilities works and digital signage.

The purpose of this report is to identify and describe the structural engineering design elements required for the proposed development.

Specifically, the SSDA seeks development consent for the construction and operation of the New Primary School in Edmondson Park, a multi-level, educational facility designed to accommodate Pre-School and Primary School Educational Facilities for Education NSW (the project).

On 9th November 2020, the NSW Government re-announced the delivery and associated funding for the New Primary School in Edmondson Park.

The Minister for Planning, or their delegate, is the consent authority for the Schematic Deign with an application to be lodged with the NSW Department of Planning, Industry and Environment (NSW DPIE) for assessment.

Table of Contents

1. Introduction

Northrop Engineers are engaged by Richard Crookes to provide structural engineering services for New Primary School in Edmondson Park.

The design outlined within this report is in-line with the concept of the Design for Manufacture and Assembly (DfMA) whereby a consistent product approach enables a manufactured and on-site assembly response to the construction of new school buildings.

1.1 Description of proposed development

New Primary School in Edmondson Park is a new new core 35 primary school accommodating 1,012 students at Buchan Avenue, Edmondson Park. The building will contain:

- A three storey building on the western portion of the site primarily addressing Faulkner Way comprising 36 homebases, 4 special support unit teaching spaces, staff room, administration office at the ground floor and library at the first floor addressing the corner of Buchan Avenue and Faulkner Way, and student amenities;
- A single storey **coldshell** preschool building for educational programs for children the year before they commence kindergarten, accommodating 40 places. The pre-school building will be connected at the southern end of the three storey building; and
- A single storey building on the eastern portion of the site comprising a communal hall, out of school hours care facility, 8 homebases and covered outdoor learning area.

1.2 The Site

The site is in the township of Edmondson Park, NSW. The site is bound by Faulkner Way and Buchan Avenue. The legal description of the site is Lot 1 and Lot 2 in DP 1257105. The site comprises a rectangular lot with an area of approximately two hectares.

The site is within a residential area.

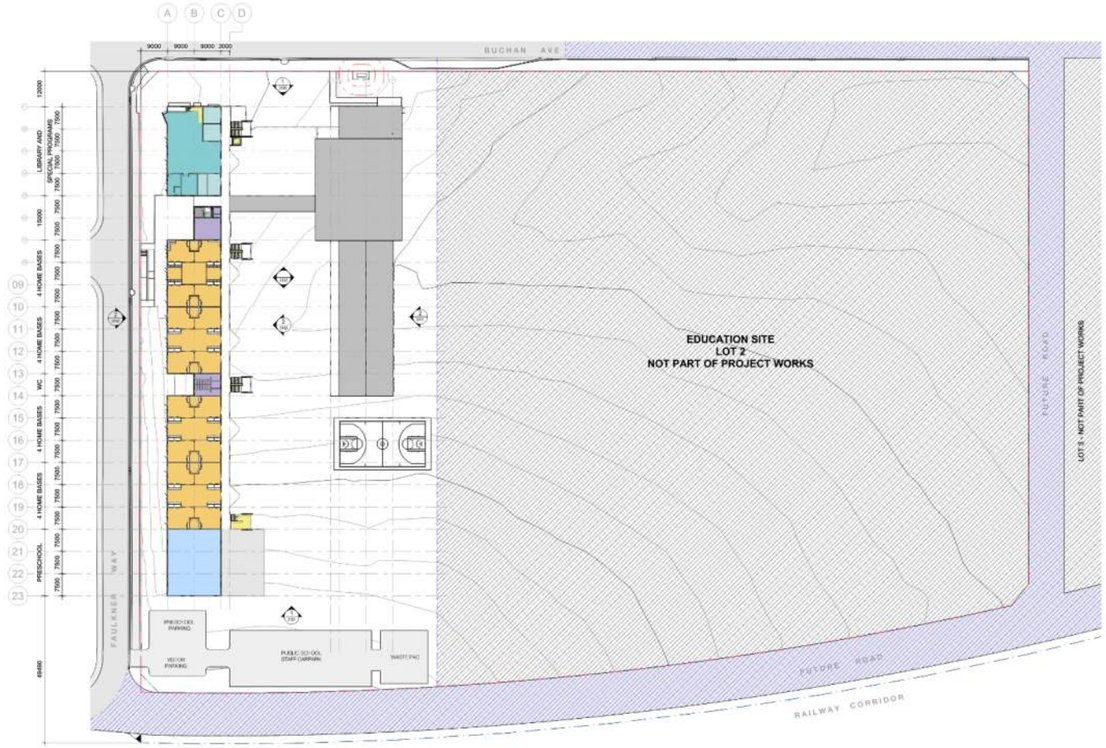

Figure 1 – Preliminary site plan prepared by TKD Architects

2. Design Criteria

In this section we will outline the required design life, design parameters and loading criteria.

2.1 Design Life

The design life is nominated as follows:

- Structural elements including sub-structures 50 years
- Floor structures 50 years
- Roof structures 50 years
- Internal structural walls 50 years

2.2 Design Loads

The building will be designed with the loads determined from AS/NZS1170 parts 0 to 4 Structural Design Actions and the National Construction Code (NCC:2019) and the Department of Education *Educational Facilities Standards and Guidelines* (EFSG). The design loads are as follows:

2.2.1 Permanent Actions – Dead Load (DL)

Self-weight of the structure is considered Dead Load.

2.2.2 Permanent Actions – Superimposed Dead Loads (SDL)

Superimposed Dead Loads shall be considered for services, insulation, toppings, finishes, partitions and ceilings. As a minimum, the following SDL shall be considered in the design:

Area	Minimum SDL (kPa)
General Learning Spaces / Office	1.5kPa
Balconies / Terraces	2.0kPa
Hall	0.5kPa
Lightweight roof areas	0.5kPa

2.2.3 Imposed Loads – Live Loads (LL)

Imposed loads on floor plates are to be compliant with AS/NZS1170.1. The building design is in development; however, we envisage the following uses and load requirements:

Area	Uniformly Distributed Load (UDL)	Concentrated Point Loads
General Learning Spaces	3.0kPa	2.7kN
Office Areas	3.0kPa	2.7kN
Hall	5.0kPa	4.5kN
Auditorium/Library	4.0kPa	4.5kN
Corridors / Stairs	4.0kPa	4.5kN
Plantrooms	5.0kPa	4.5kN
Light weight roofs (non-trafficable)	0.25kPa	1.4kN
Concrete Roof	2.5kPa	2.7kN
Balconies / Terraces	4.0kPa	1.8 kN

2.2.4 Pattern Loading

Pattern loading shall be considered in accordance with AS/NZS1170.1.

2.2.5 Wind Loads

Wind loads shall be determined in accordance with AS/NZS1170.2 using the following site criteria:

Region:	A2
Importance Level (BCA Table B1.2a):	3
Annual Probability of Exceedance (BCA Table B1.2b):	1:1000 (ultimate)
	1:25 (serviceability)
Regional Wind Speed:	V_{1000} = 46m/s
	V_{25} = 37m/s
Terrain Category:	2.5

2.2.6 Snow Loads

Snow loads are not applicable for this site.

2.2.7 Earthquake Loads

Earthquake loads shall be in accordance with AS1170.4 using the following site criteria:

Hazard Factor (Z)	0.08 (Sydney)
Site Sub-Soil Class:	Ce (TBC following geotechnical investigation)
Importance Level (BCA Table B1.2a):	3
Annual Probability of Exceedance (BCA Table B1.2b):	1:1000 (ultimate)
Probability Factor (k_p):	1.0
Earthquake Design Category:	II

2.3 Design Standards

The structural design will be in accordance with the latest revision of all relevant Australia Design Standards, Codes and other statutory requirements. The design shall be based on, but not limited to:

Reference	Edition	Title
AS/NZS1170.0	2002	Structural Design Actions Part 0: General Principles
AS/NZS1170.1	2002	Structural Design Actions Part 1: Permanent, imposed and other actions
AS/NZS1170.2	2011	Structural Design Actions Part 2: Wind Actions
AS1170.4	2007	Structural Design Actions Part 4: Earthquake Actions
AS1720	2010	Timber Structures
AS3600	2018	Concrete Structures
AS3700	2018	Masonry Structures
AS4100	2020	Steel Structures
AS2159	2009	Piling – Design and Installation
EFSG	2021	Educational Facilities Standards and Guidelines

3. Serviceability

3.1 Deflection Limits

For the design life of the structure, the maximum deflections of structural members and their effect on finishes will comply with the serviceability requirements of the structure. In addition to the requirements of the relevant Australian Standards, the light-weight floors to the off-site fabricated homebase and special education buildings have been designed to ‘feel’ like in-situ concrete floors. This will be achieved through more stringent deflection controls and minimisation of vibration due to footfall.

3.1.1.1 Deflection limits

Maximum deflections shall be in accordance with Table 2.3.2 of AS 3600 – 2009, and as per the below table.

Structural Element	Deflection Limit
Floors (not supporting brittle elements)	Total Long Term: Span/300 (max 25mm)
	Live Load: Span/500
	Dead Load: Span/360
Stud Walls under lateral loading	Span/500
Roof Members	Dead Load: Span/360
	Live Load: Span/250
	Wind: Span/150

3.2 Crack Control

Crack propagation in concrete elements due to shrinkage and temperature effects will be controlled by providing reinforcement quantities for a ‘strong degree of crack control’ where slabs or soffits are exposed, in accordance with Clause 12.7 of AS3600:2018-Concrete Structures. Other areas of the slab are to be designed for a ‘moderate degree of crack control’.

3.3 Fire Resistance Levels for Structural Elements

Fire resistance levels for structural elements will be in accordance with the structural requirements of the BCA and will be developed with the project BCA consultant. Design of individual structural elements to achieve the required FRL will be in accordance with the appropriate materials design code.

4. Site Conditions

4.1 Geotechnical Conditions

A geotechnical investigation has been carried out by JK geotechnics. Refer to Report reference 3396BHrpt.

In summary, the ground conditions at the subject site are typically:

Unit	Depth to top of Unit	Description
Fill	0.0-0.3m	**SANDY CLAY**: low to medium plasticity, brown to dark brown, fine grained sand, trace gravel up to 5mm, sub-angular, with some rootlets
Clay	0.3m – 2.8m	**CLAY**: medium plasticity, brown and mottled orange-pale grey, minor rock fabrics and shale fragments observed.
Siltstone	1.0m – 3.2m	**SILSTONE** grey to dark grey, thinly laminated, ironstone bands, extremely weathered

Figure 2 - Borehole map showing extent of investigation

4.2 Site topography

A detailed survey of the subject site has been completed by Total surveying solutions. There is a level changes across the sight which will require some retaining structures.

4.3 Retaining Walls

It is expected that some low-level retaining walls will be required around the footprint of the volumetric buildings to account for the falls across the site. Further detail on these walls will be developed as the civil earthworks design is developed.

4.4 Foundations

We anticipate that the buildings will be found on high level (pad and strip) footings on homogenous clay layers and engineered filled.

5. Structural System

The proposed structural system is described below. Refer to the drawings in Appendix A for further detail:

Element	Description
Admin/Library/Homebases	Combination of site build (Admin/Library) and volumetric offsite construction (Homebases) to be reviewed as architectural design is developed. The volumetric solution will be an adaption of the module utilised at Catherine Field Public School. **Foundations**: pad and strip footing or screw piles
Hall/COLA/OSHC	Site build using offsite prefabricated steel frames. **Foundations**: pad and strip footings. **Ground floor slab**: reinforced concrete raft. **Wall & Roof:** Structural steel framed
Walkways	Investigate the volumetric or conventional construction methodolgy. To be reviewed as architectural design is developed. **Foundations**: Pad footings.
Lift	RC concrete shaft **Foundations**: Concrete base on screw piles or pad footings.
Stairs	Investigate the volumetric of conventional construction methodolgy. To be reviewed as architectural design is developed. **Foundations**: pad footings.

6. Structural Grid

The structural grid will be driven by the spatial planning and room layout of the buildings. Some governing principles should be adopted by the architect when developing the concept design which are to have a regular repetitive spacing and eliminating structural transfer.

6.1 Regular Spacing

A regular spacing of grid has several benefits including:

- Simplicity of construction
- Flexibility to adapt the space (future proofing)
- Repeatability in construction elements (façade, wall panels, etc.)
- Opportunity to modularise building elements

6.2 Eliminate Transfer

Where possible, transfer (misalignment of load-bearing structure) should be avoided. Transfer structure is expensive and leads to larger structural depths. It also limits the future adaptability of the space, as transfer beams are highly sensitive to loading.

7. Appendix A: Preliminary Structural Drawings

NEW PRIMARY SCHOOL IN EDMONDSON PARK

STRUCTURAL DRAWINGS -BUCHAN AVENUE, EDMONDSON PARK, 2174 SCHEMATIC DESIGN ISSUE

DRAWN: M BURKE DESIGNED: M BURKE JOB MANAGER: R DALE VERIFIER:

DRAWING SCHEDULE

STR-W-DW-00_SK00.00-A	- STRUCTURAL DRAWING COVER SHEET AND DRAWING LIST
STR-W-DW-00_SK00.01-A	- STRUCTURAL DRAWING SPECIFICATION NOTES
STR-W-DW-00_SK00.02-A	- STRUCTURAL DRAWING SPECIFICATION NOTES
STR-W-DW-00_SK00.03-A	- STRUCTURAL DRAWING SPECIFICATION NOTES
STR-W-DW-00_SK01.00-A	- KEY PLAN
STR-W-DW-00_SK02.00-B	- FOUNDATION PLAN - COLA, HALL AND WALKWAY
STR-W-DW-00_SK03.00-B	- FRAMING PLAN - COLA. HALL AND WALKWAY
STR-W-DW-00_SK04.00-A	- ELEVATIONS - COLA, STAIRS AND HALL
STR-W-DW-00_SK05.00-B	- FOUNDATION PLANS - MODULES
STR-W-DW-00_SK06.00-A	FOUNDATION PLAN AND SECTIONS - MODULAR

NOT FOR CONSTRUCTION

REV	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
A	SCHEMATIC DESIGN	MB		RD	14.05.21

CLIENT
RICHARD CROOKES CONSTRUCTIONS
DRAWING NOT TO BE USED FOR CONSTRUCTION UNLESS VERIFICATION SIGNATURE HAS BEEN ADDED

ARCHITECT
TKDArchitects Tanner Kibble Denton

ALL SETOUT TO ARCHITECT'S DRAWINGS. DIMENSIONS TO BE VERIFIED WITH ARCHITECT AND BUILDER BEFORE COMMENCING SHOP DRAWINGS OR SITE WORK. NORTHROP ACCEPTS NO RESPONSIBILITY FOR THE USABILITY, COMPLETENESS OR SCALE OF DRAWINGS TRANSFERRED ELECTRONICALLY.

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PROJECT
NEW PRIMARY SCHOOL IN EDMONDSON PARK

DRAWING TITLE
STRUCTURAL DRAWING COVER SHEET AND DRAWING LIST

JOB NUMBER **210040**
DRAWING NUMBER **STR-W-DW-00_SK00.00**
REVISION **A**
DRAWING SHEET SIZE = A1

GENERAL

G1. THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH SPECIFICATIONS AND OTHER CONSULTANT'S DRAWINGS.

G2. THE WEATHER PROOFING OF THE BUILDING IS THE ARCHITECT'S RESPONSIBILITY. THIS INCLUDES (BUT IS NOT LIMITED TO) THE SPECIFICATION AND FIXING DETAILS OF CLADDINGS, SHEETING, FLASHING, MEMBRANES, STEPS, SETDOWNS & RECESSES.

G3. ALL DISCREPANCIES SHALL BE REFERRED TO THE PROJECT MANAGER AND RESOLVED BEFORE PROCEEDING WITH THE WORK.

G4. ALL DIMENSIONS SHOWN SHALL BE VERIFIED BY THE BUILDER ON SITE. THESE STRUCTURAL DRAWINGS SHALL NOT BE SCALED FOR DIMENSIONS. THE RL's SHOWN ON THESE DRAWINGS ARE APPROXIMATE AND ARE FOR THE SOLE PURPOSE OF ASSISTING THE STRUCTURAL DOCUMENTATION. THEY ARE NOT TO BE USED FOR CONSTRUCTION PURPOSES. REFER TO ARCHITECTURAL DRAWINGS FOR CONFIRMATION OF ALL RL's, ALL LEVELS ARE IN METRES (m) AND DIMENSIONS ARE IN MILLIMETRES (mm)

G5. ALL WORKMANSHIP, TESTING, MATERIALS AND SUPERVISION ARE TO BE IN ACCORDANCE WITH THESE SPECIFICATIONS, THE WORK HEALTH AND SAFETY ACT 2011. ENFORCED BY THE WORKCOVER AUTHORITY AND CURRENT RELEVANT AUSTRALIAN STANDARDS.

G6. PROPRIETARY ITEMS SPECIFIED SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN RECOMMENDATIONS. DO NOT VARY SPECIFIED PROPRIETARY PRODUCTS WITHOUT WRITTEN APPROVAL FROM THE ENGINEER.

G7. THESE DRAWINGS AND ISSUED WRITTEN INSTRUCTIONS DURING THE COURSE OF THE CONTRACT DEPICT THE COMPLETE STRUCTURE. THEY DO NOT DESCRIBE A WORK METHOD. THE ARRANGEMENT, DESIGN AND INSTALLATION OF TEMPORARY WORKS REMAINS THE RESPONSIBILITY OF THE CONTRACTOR.

G8. THE DETERMINATION OF A SAFE WORK METHOD REMAINS THE RESPONSIBILITY OF THE CONTRACTOR. ANY ELEMENT WHICH POSES AN UNACCEPTABLE LEVEL OF SAFETY RISK TO CONSTRUCT SHALL BE REFERRED TO THE STRUCTURAL ENGINEER. TEMPORARY BRACING AND SUPPORT OF STRUCTURE IS THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE MAINTAINED DURING ALL STAGES OF CONSTRUCTION.

G9. NOTES ON ANY DRAWING APPLY TO ALL DRAWINGS IN THE SET UNLESS NOTED OTHERWISE

G10. ALL ARCHITECTURAL FITMENTS SUCH AS GLAZING, PARTITIONS, CEILINGS ETC. SHOULD ALLOW FOR THE SHORT AND LONG TERM MOVEMENT OF STRUCTURAL ELEMENTS. FOR BEAMS AND SLABS SPANNING LESS THAN 8m AN ALLOWANCE OF AT LEAST 20mm SHOULD BE MADE (CONSULT ENGINEER WHERE SPANS EXCEED 8m).

G11. THE BUILDER SHALL PROVIDE CERTIFICATION ON ANY DESIGN AND CONSTRUCT COMPONENT BY A CHARTERED PROFESSIONAL ENGINEER (NER).

G12. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LOCATION OF ALL SERVICES IN THE VICINITY OF THE WORKS. ANY SERVICES SHOWN ARE PROVIDED FOR INFORMATION ONLY. THE CONTRACTOR SHALL CONFIRM THE LOCATION OF ALL SERVICES PRIOR TO COMMENCING AND SHALL BE RESPONSIBLE FOR THE REPAIR OF ANY DAMAGE CAUSED TO SERVICES, AS WELL AS ANY LOSS INCURRED AS A RESULT OF THE DAMAGE TO ANY SERVICE.

G13. THE STRUCTURAL COMPONENTS DETAILED ON THESE STRUCTURAL DRAWINGS ARE JOB SPECIFIC AND HAVE BEEN DESIGNED IN ACCORDANCE WITH THE RELEVANT AUSTRALIAN STANDARDS AND BUILDING CODE OF AUSTRALIA FOR THE FOLLOWING FIRE RATINGS, WIND LOADS, FLOOR USAGE AND EARTHQUAKE LOADS.

FIRE RATING LEVELS:

– FLOOR SLAB AND BEAMS	= 120/120/120
– INTERNAL COLUMNS	= 120/120/120
– EXTERNAL COLUMNS	= 120/120/120
– ROOF STRUCTURE	= 120/120/120

WIND LOADS:

– IMPORTANCE LEVEL	= 3
– REGION	= A2
– ANNUAL PROBABILITY OF EXCEDENCE	= 1/1000
– REGIONAL WIND SPEED V	= 46 m/s
– TERRAIN CATEGORY	= TC 2.5
– TERRAIN MULTIPLIER Mz,cat	= 0.83
– WIND DIRECTION MULTIPLIER Md	= 1.00
– SHIELDING MULTIPLIER Ms	= 1.00
– TOPOGRAPHIC MULTIPLIER Mt	= 1.00
– SITE WIND SPEED	= 39 m/s

FLOOR LIVE LOADS:

GENERAL (BALCONY SLABS)	= 4 kPa
STAIRS	= 4 kPa
HALL	= 5 kPa

ROOF LIVE LOADS:

ROOF	= 0.25 kPa

EARTHQUAKE LOADS:

IMPORTANCE LEVEL	= 3
ANNUAL PROBABILITY OF EXCEDENCE (P)	= 1:1000
PROBABILITY FACTOR (kp)	= 1.3
HAZARD FACTOR (Z)	= 0.08
DOMESTIC STRUCTURE?	= N
SITE SUB-SOIL CLASS	= Ce
EARTHQUAKE DESIGN CATEGORY (EDC)	= I
DESIGN REQUIRED	= SIMPLE STATIC

BUSHFIRES : = DESIGN STRUCTURE TO COMPLY WITH THE REQUIREMENTS OF AS3959-2009.

G14. THE METHOD OF CONSTRUCTION AND THE MAINTENANCE OF SAFETY DURING CONSTRUCTION IS THE RESPONSIBILITY OF THE BUILDER. IF ANY STRUCTURAL ELEMENT PRESENTS DIFFICULTY IN RESPECT TO SAFETY THE MATTER SHALL BE REFERRED TO NORTHROP CONSULTING ENGINEERS FOR RESOLUTION BEFORE PROCEEDING WITH THE WORK.

G15. NO CHANGES IN ANY STRUCTURAL ELEMENT SHALL BE MADE WITHOUT WRITTEN APPROVAL FROM NORTHROP CONSULTING ENGINEERS. IF THERE IS A DISCREPANCY THEN FOR TENDER PURPOSES ALLOW FOR THE MOST EXPENSIVE OPTION. NORTHROP CONSULTING ENGINEERS SHALL BE CONTACTED TO CONFIRM PRIOR TO CONSTRUCTION.

G16. CONSTRUCTION USING THESE DRAWINGS SHALL NOT COMMENCE UNTIL A CONSTRUCTION CERTIFICATE HAS BEEN ISSUED AND ONLY IF THE DRAWINGS ARE DESIGNATED "ISSUED FOR CONSTRUCTION".

G17. NORTHROP CONSULTING ENGINEERS ACCEPTS NO RESPONSIBILITY FOR ANY WORK NOT INSPECTED OR NOT APPROVED BY NORTHROP CONSULTING ENGINEERS DURING CONSTRUCTION.

CONSTRUCTION PHASE SERVICES (WITNESS POINTS)

WP1. OBTAIN NORTHROP CONSULTING ENGINEERS WRITTEN INSTRUCTION AT THE FOLLOWING HOLD POINTS:
- PREPARATION OF FOUNDING MATERIAL, INCLUDING PIER BORE HOLES.
- REINFORCEMENT PRIOR TO PLACEMENT OF CONCRETE or COREFILLING OF BLOCKWORK.
- STEEL AND TIMBER FRAME INSPECTION PRIOR TO SHEETING.

WP2. PROVIDE MINIMUM 48 HOURS NOTICE FOR ANY REQUIRED INSPECTIONS.

EARTHWORKS UNDER GROUND SLAB

E1. REMOVE ALL TOPSOIL, ORGANIC MATERIAL AND FILL BENEATH BUILDING PLATFORM. ALSO EXCAVATE TO THIS DEPTH FOR A DISTANCE OF D + 0.5m AROUND THE PERIMETER OF THE BUILDING, WHERE D IS THE DEPTH OF EXCAVATION.

E2. SOIL AND BUILDING MATERIAL REMOVED OFF SITE MUST BE DONE SO IN ACCORDANCE WITH THE NSW EPA GUIDELINES.

E3. IMPORTED FILL PROPERTIES :
- PASSING 50mm SIEVE – 100%
- PASSING 75micron SIEVE – LESS THAN 25%
- PLASTICITY INDEX – LESS THAN 15% BUT MORE THAN 2%

E4. ONLY IMPORTED MATERIAL CLASSIFIED AS "INERT" UNDER NSW EPA GUIDELINES TO BE USED.

E5. FILL WITHIN BUILDING PLATFORMS SHOULD BE PLACED AND COMPACTED AS FOLLOWS:
- IN LAYERS OF 200 MAXIMUM LOOSE THICKNESS.
- TO A DRY DENSITY RATIO OF: 95% STANDARD DRY DENSITY FOR RESIDENTIAL BUILDINGS; 98% STANDARD DRY DENSITY FOR COMMERCIAL BUILDINGS
- WITH A MOISTURE CONTENT BETWEEN 1% DRY & 2% WET OF OMC. (THE CURRENT MOISTURE CONDITION, BASED ON THE CBR SAMPLES IS 200 DRY/WET OF OMC).
- THE FINAL SURFACE COVERED WITH EITHER A TEMPORARY LOOSE SOIL LAYER OR A GRANULAR SUB-BASE LAYER TO PREVENT DRYING OUT PRIOR TO SLABCONSTRUCTION.
- EARTHWORKS TO BE CARRIED OUT WITH GEOTECHNICAL INSPECTION AT LEVEL 1 RESPONSIBILITY (AS DEFINED IN SECTION 8 OF AS3798-2007) DUE TO THE TIGHT LIMITS RECOMMENDED ABOVE.

E6. IF SUBGRADE OR FILL IS TOO WET TO ACHIEVE COMPACTION, SCARIFY AND WORK MATERIAL UNTIL IT HAS DRIED.

E7. ALLOW FOR AT LEAST 1 SUCCESSFUL COMPACTION TESTS PER LAYER. ALLOW FOR ONE ADDITIONAL TEST PER 200m³ OF FILL WHERE PLACED VOLUME EXCEEDS 200m³ TESTING TO BE UNDERTAKEN BY A NATA REGISTERED LABORATORY.

E8. NORTHROP CONSULTING ENGINEERS SUPPORT THE USE OF CONTAMINANT FREE, RECYCLED CONCRETE OR BRICK IN LIEU OF CRUSHED ROCK IN APPROPRIATE CIRCUMSTANCES.

TRENCH BACKFILL AND UNDERGROUND SERVICES

TB1. ALLOW FOR EXCAVATION IN ALL MATERIALS AS FOUND ON SITE AND AS DETAILED IN GEOTECHNICAL REPORT U.N.O.

TB2. PRIOR TO COMMENCING EXCAVATION VERIFY LEVELS OF ALL EXISTING SERVICES. IF ANY DISCREPANCIES CHECK WITH THE RELEVANT ENGINEER.

TB3. BACKFILL ALL TRENCHES UNDER SLABS, PATHS AND ROADS BELOW SUB-BASE LEVEL WITH ORIGINAL GROUND OR COMPACTED IMPORTED FILL.

TB4. IMPORTED FILL PROPERTIES :
- PASSING 50mm SIEVE – 100%
- PASSING 75micron SIEVE – LESS THAN 25%
- PLASTICITY INDEX – LESS THAN 15% BUT MORE THAN 2%

TB5. COMPACT FILL TO 95% MAXIMUM MODIFIED DRY DENSITY EXCEPT LANDSCAPED AREAS WHICH SHALL BE 85% MAXIMUM MODIFIED DRY DENSITY. COMPACT IN LAYERS OF 200mm MAXIMUM LOOSE THICKNESS.

TB6. ALLOW FOR 1 SUCCESSFUL COMPACTION TEST PER 20 METRES LENGTH OF TRENCH IN THE MIDDLE LAYER.

TEMPORARY WORKS

TW1. THESE DRAWINGS DEPICT THE "PERMANENT" STRUCTURE, TEMPORARY WORKS REMAIN THE RESPONSIBILITY OF THE CONTRACTOR.

TW2. BUILDER MUST ENGAGE (NER) QUALIFIED STRUCTURAL ENGINEER FOR THE DESIGN OF ALL TEMPORARY WORKS NECESSARY TO SAFELY ERECT THIS STRUCTURE. AS A MINIMUM THE FOLLOWING WORKS REQUIRE ATTENTION;
- FORMWORK / TEMPORARY PROPPING / NEEDLE BEAMS / SCAFFOLDING / UNDERPINNING

TW3. BUILDER SHALL CONTACT NORTHROP CONSULTING ENGINEERS IF THEY CONSIDER ANY PART OF THIS STRUCTURE IS UNSAFE TO ERECT.

FOUNDATIONS

F1. ASSUMED ALLOWABLE BEARING CAPACITY SUBJECT TO LEVEL 1 GEOTECHNICAL WORKS & IN ACCORDANCE WITH THE GEOTECHNICAL REPORT:
- PAD FOOTINGS = 100 kPa
- STRIP FOOTINGS = 100 kPa
- SLABS ON GROUND = 100 kPa
- BORED PIERS = 500 kPa END BEARING; 50 kPa SKIN FRICTION

F2. A GEOTECHNICAL REPORT HAS BEEN CARRIED OUT, REFER TO REPORT No. 33963BHrpt 6 MAY 2012 PREPARED BY JK GEOTECHNICS. THIS REPORT IS FOR INFORMATION ONLY, IT IS NOT A COMPLETE DESCRIPTION OF CONDITIONS AT OR BELOW GROUND LEVEL.

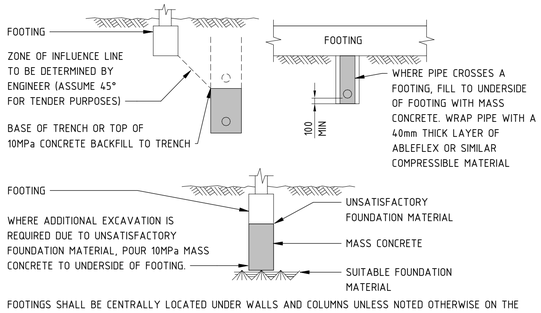
F3. THE SLAB AND FOOTINGS HAVE BEEN DESIGNED IN ACCORDANCE WITH AS2870-2011 FOR CLASS H1 SITE. A SUITABLY QUALIFIED GEOTECHNICAL ENGINEER TO BE CONTACTED DURING EXCAVATION TO CONFIRM THE SITE CLASSIFICATION.

F4. THE CONTRACTOR SHALL ALLOW TO ENGAGE A QUALIFIED (NER) GEOTECHNICAL ENGINEER TO APPROVE THE FOUNDATION MATERIAL. OBTAIN GEOTECHNICAL ENGINEERS APPROVAL AND SUBMIT CERTIFICATE IN WRITING TO NORTHROP CONSULTING ENGINEERS PRIOR TO CONCRETING FOUNDATIONS.

F5. ENSURE STABILITY OF ADJACENT BUILDINGS AND PATHS IS MAINTAINED DURING ALL STAGES OF CONSTRUCTION.

F6. DO NOT ALLOW EXCAVATED MATERIAL TO BE STOCKPILED WITHIN 1500mm OF FOOTING TRENCHES OR PITS. NO EARTH OR DETRITUS IS TO FALL INTO THE FOOTING TRENCHES BEFORE OR DURING CONCRETE PLACEMENT.

F7. THE UNDERSIDE OF FOUNDATIONS SHALL CONFORM TO THE FOLLOWING REGARDLESS OF NOMINATED LEVELS:



F8. FOOTINGS SHALL BE CENTRALLY LOCATED UNDER WALLS AND COLUMNS UNLESS NOTED OTHERWISE ON THE STRUCTURAL DRAWINGS.

F9. FOOTINGS SHALL BE EXCAVATED TO THE DETAILED DEPTH AND WIDTH. FOOTINGS SHALL BE INSPECTED AND FILLED WITH CONCRETE AS SOON AS POSSIBLE TO AVOID EITHER SOFTENING OF THE FOUNDATION MATERIAL OR DRYING OUT BY EXPOSURE.

F10. THE BASE OF ALL PIER HOLES SHALL BE FREE OF WATER AND CLEANED OF LOOSE MATERIAL OR DEBRIS PRIOR TO PLACEMENT OF CONCRETE. ALLOW TO PROVIDE TEMPORARY LINERS AS DEEMED NECESSARY.

SLAB ON GROUND

SG1. UNLESS NOTED OTHERWISE SLABS TO BE 150mm THICK WITH SL102 MESH THROUGHOUT TOP. CAST SLABS ON 0.2mm POLYTHENE MEMBRANE LAID OVER A NOMINAL SAND LEVELING LAYER ON FIRM CUT ORIGINAL GROUND OR COMPACTED FILL AS SPECIFIED.

SG2. MESH LAPS:
THE TWO OUTERMOST TRANSVERSE WIRES OF ONE SHEET OF MESH MUST OVERLAP THE TWO OUTERMOST TRANSVERSE WIRES OF SHEET BEING LAPPED, AS SHOWN BELOW.

SG3. PROVIDE 3-N12 TRIMMER BARS 2000mm LONG TIED TO UNDERSIDE OF FABRIC AT ALL RE-ENTRANT CORNERS.

SG4. ALL CONCRETE IS TO BE PLACED USING A VIBRATOR. CURING METHODOLOGY TO BE APPROVED IN WRITING BY THE STRUCTURAL ENGINEER PRIOR TO CONCRETE BEING PLACED.

FORMWORK

FW1. THE DESIGN, CERTIFICATION, CONSTRUCTION, INSPECTION AND PERFORMANCE OF THE FORMWORK AND FALSE WORK SHALL BE THE RESPONSIBILITY OF THE FORMWORK SUB-CONTRACTOR, EXCEPT TO THE EXTENT THAT FORMWORK DESIGN IS SHOWN ON THE STRUCTURAL DRAWINGS.

FW2. FORMWORK SHALL BE CERTIFIED BY A STRUCTURAL ENGINEER EXPERIENCED IN FORMWORK DESIGN IN ACCORDANCE WITH WORKCOVER REGULATIONS AND THE WORKCOVER CODE OF PRACTICE.

FW3. FORMWORK SHALL BE DESIGNED IN ACCORDANCE WITH AS3610-1995. THE DESIGN SHALL ACCOMMODATE MOVEMENTS AND LOAD RE-DISTRIBUTION DUE TO ANY POST TENSIONING.

FW4 PROVIDE RESTRAINT OR SUPPORT TO ENSURE STABILITY OF FORMWORK THAT IS INDEPENDENT OF THE PERMANENT STRUCTURE. APPROVAL FROM NORTHROP CONSULTING ENGINEERS IS REQUIRED IF FORMWORK SUPPORT IS REQUIRED FROM THE PERMANENT STRUCTURE.

FW5. FOUNDATIONS SUPPORTING THE FORMWORK SHALL BE DETERMINED BY THE FORMWORK SUB-CONTRACTOR FROM THE CONDITIONS EXISTING ON SITE AT THE TIME OF CONSTRUCTION. REFER TO THE GEOTECHNICAL REPORT FOR THE SITE.

FW6. FORMWORK CONSTRUCTION DIMENSIONAL TOLERANCES AND STRIPPING TIMES SHALL COMPLY WITH AS3610-1995 AND AS3600-2009 UNLESS OTHERWISE APPROVED BY NORTHROP CONSULTING ENGINEERS.

FW7. DURING CONSTRUCTION, SUPPORT PROPPING WILL BE REQUIRED WHERE LOADS FROM STACKED MATERIALS, FORMWORK AND OTHER SUPPORTED SLABS INDUCE LOADS IN A SLAB OR BEAM WHICH EXCEED THE DESIGN CAPACITY FOR STRENGTH OR SERVICEABILITY LIMIT STATES AT THAT AGE. ONCE THE NOMINATED 28 DAY STRENGTH HAS BEEN ATTAINED, THESE LOADS SHALL NOT EXCEED THE DESIGN SUPERIMPOSED LOADS SET OUT IN THESE GENERAL NOTES AT ITEM G13.

FW8. IT IS TO BE ANTICIPATED IN MULTI-STOREY CONSTRUCTION THAT BACK-PROPPING MAY BE REQUIRED TO EXTEND A NUMBER OF LEVELS BELOW THE FLOOR BEING CAST. PROP REMOVAL IS TO BE PROGRAMMED TO AVOID DISTRESS TO PREVIOUSLY CAST FLOORS. RE-SHORING OR BACKPROPPING PROPOSALS SHALL BE SUBJECT TO THE APPROVAL OF NORTHROP CONSULTING ENGINEER'S.

FW9. FORMED CONCRETE SURFACES SHALL HAVE FORMWORK CLASS AND SURFACE FINISHES IN ACCORDANCE WITH AS3610-1995, AS SPECIFIED BY THE PROJECT ARCHITECT, AND THE CONCRETE SECTION OF NORTHROP CONSULTING ENGINEERS STRUCTURAL NOTES.

FW10. DO NOT PLACE PERMANENT LOADS ON THE CONCRETE STRUCTURE UNTIL AFTER FORMWORK AND PROPPING IS REMOVED.

FW11. REFER TO PROJECT ARCHITECT'S DRAWINGS FOR TEST PANEL REQUIREMENTS. REINFORCEMENT FOR TEST PANELS SHALL BE SIMILAR TO THAT IN THE PERMANENT STRUCTURE REPRESENTED BY THE TEST PANEL.

FW12. BEFORE PLACING REINFORCEMENT IN THE FORMWORK, APPLY A RELEASE AGENT TO THE FACE OF THE FORMWORK IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

FW13. DO NOT APPLY A RELEASE AGENT TO THE FACE OF CONCRETE WHERE CONCRETE SURFACE FINISH OR APPLIED COVERINGS ARE INCOMPATIBLE WITH RELEASE AGENT.

FW14. CHAMFER RE-ENTRANT ANGLES AND FILLET ALL CORNERS BY 25mm U.N.O. PROVIDE DRIP GROOVES TO UNDERSIDE OF ALL EXPOSED EDGES.

FW15. BEFORE PLACING CONCRETE, REMOVE ALL WATER, DUST AND DEBRIS FROM THE FORMWORK.

FW16. FILL ALL HOLES LEFT BY FORMWORK TIE BOLTS WITH MORTAR MATCHING THE COLOUR OF THE FINISHED SURFACE.

WORKPLACE HEALTH AND SAFETY

WHS1. THE CONTRACTOR AND ALL SUBCONTRACTORS ARE RESPONSIBLE FOR CONSTRUCTING THE WORK IN ACCORDANCE WITH THE WORK HEALTH AND SAFETY (WHS) ACT 2011; WHS REGULATIONS 2017 RELEVANT CODES OF PRACTICE, AUSTRALIAN STANDARDS AND OTHER REGULATORY REQUIREMENTS. THE PRINCIPLE CONTRACTOR MUST INFORM ALL STAKEHOLDERS, INCLUDING NORTHROP, OF NEW HAZARDS IDENTIFIED IN THE COURSE OF PLANNING AND UNDERTAKING THE WORKS.

WHS2. DURING THE DESIGN OF THE STRUCTURE NORTHROP HAS IDENTIFIED RESIDUAL HAZARDS RELATING TO THE DESIGN OF THE STRUCTURAL WORKS THAT WE CONSIDER TO BE UNUSUAL OR NON-TYPICAL. HAZARDS WHICH ARE NORMAL WORKPLACE HAZARDS, ARE TO BE MANAGED BY PERSONS IN CONTROL OF THE WORKPLACE THROUGH A WHS SYSTEM TO MANAGE THE NORMAL HAZARDS ASSOCIATED WITH CONSTRUCTION, USE AND MAINTENANCE OF THE STRUCTURE. THE RESIDUAL HAZARDS IDENTIFIED ON THE NORTHROP DRAWINGS ARE NOT AN ENTIRE ASSESSMENT OF HAZARDS, AND DO NOT RELIEVE OTHER PARTIES OR STAKEHOLDERS OF THE THEIR RESPONSIBILITY UNDER THE WHS ACT 2011, WHS REGULATIONS 2017, AND THE CODE OF PRACTICE FOR SAFE DESIGN OF STRUCTURES.

WHS3. TEMPORARY BRACING AND SUPPORT OF STRUCTURE IS THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE MAINTAINED DURING ALL STAGES OF CONSTRUCTION.

WHS4. RESIDUAL HAZARDS ARE SHOWN ON THE NORTHROP DRAWINGS IDENTIFIED BY: S1

NOT FOR CONSTRUCTION

VERIFIER:
JOB MANAGER: R DALE
DESIGNED: M BURKE
DRAWN: M BURKE

REV	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
A	SCHEMATIC DESIGN	MB		RD	26.04.21

CLIENT: RICHARD CROOKES CONSTRUCTIONS
DRAWING NOT TO BE USED FOR CONSTRUCTION UNLESS VERIFICATION SIGNATURE HAS BEEN ADDED

ARCHITECT: TKDArchitects Tanner Kibble Denton

ALL SETOUT TO ARCHITECT'S DRAWINGS. DIMENSIONS TO BE VERIFIED WITH ARCHITECT AND BUILDER BEFORE COMMENCING SHOP DRAWINGS OR SITE WORK. NORTHROP ACCEPTS NO RESPONSIBILITY FOR THE USABILITY, COMPLETENESS OR SCALE OF DRAWINGS TRANSFERRED ELECTRONICALLY.

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Email sydney@northrop.com.au ABN 81 094 433 100

PROJECT: NEW PRIMARY SCHOOL IN EDMONDSON PARK

DRAWING TITLE: STRUCTURAL DRAWING SPECIFICATION NOTES

JOB NUMBER: 210040
DRAWING NUMBER: STR-W-DW-00_ SK00.01
REVISION: A
DRAWING SHEET SIZE = A1

CONCRETE

C1. CARRY OUT ALL CONCRETE WORK IN ACCORDANCE WITH AS3600-2009 AND NATSPEC CONCRETE STANDARDS.

C2. CONCRETE PROPERTIES AND COVER TO REINFORCING :

COVER TO REINFORCEMENT					
ELEMENT		CONCRETE STRENGTH f'c (MPa)	MAXIMUM 56 DAY DRY SHRINKAGE	COVER (mm)	
SLABS ON GROUND	EXTERNAL (NO MEMBRANE)	32	650 um	TOP 20	BTM 25
	INTERNAL (WITH MEMBRANE)	32		TOP 20	BTM 25
STRIP FOOTINGS		25	700 um	20	
PAD FOOTINGS		32	700 um	20	
SUSPENDED SLABS	EXTERNAL	40	700 um	TOP 25	BTM 20
BEAMS		40	700 um	20	
COLUMNS	EXTERNAL	40	700 um	30	
STAIRS	EXTERNAL	40	700 um	30	

MAXIMUM AGGREGATE SIZE = 20mm U.N.O.
SLUMP DURING PLACING = 80mm ±10mm
EXPOSURE CLASSIFICATION = [A1] (INTERNAL CONCRETE ELEMENTS)
= [B1] (EXTERNAL CONCRETE ELEMENTS)

NO ADMIXTURES SHALL BE USED IN THE CONCRETE MIX UNLESS APPROVED BY NORTHROP CONSULTING ENGINEERS IN WRITING.

C3. CONCRETE PROPERTIES FOR SLABS AND BEAMS SHALL BE VARIED FROM NORMAL CLASS AS FOLLOWS:
- MINIMUM CEMENT CONTENT 250kg/m^3
- MAXIMUM 56 DAY SHRINKAGE STRAIN = AS NOMINATED ABOVE
- PRIOR TO COMMENCEMENT CONCRETE SUPPLIER TO PROVIDE DRYING SHRINKAGE TEST RESULTS FROM PRODUCTION ASSESSMENT AS EVIDENCE THAT SPECIFIED DRYING SHRINKAGE LIMITS CAN BE ACHIEVED USING NORMAL MIX DESIGN.
- PERCENTAGE OF ENTRAPPED AIR TO BE AS FOLLOWS:
FOR AGGREGATE 10mm-20mm NORMAL SIZE 8-4% IN ACCORDANCE WITH AS3600 AND AS1012.4 (SUBMIT TEST RESULTS) FOR ALPINE OR SUB-ALPINE AREAS.

C4. SUBMIT FOR APPROVAL THE FOLLOWING TO THE ENGINEER :
- CURING PROCEDURE (PVA MEMBRANES NOT PERMITTED)
- STRIPPING AND BACK PROPPING PROCEDURE
- DETAILS AND LOCATION OF CONDUITS AND PENETRATIONS
- CONSTRUCTION JOINT LOCATIONS

C5. FOR TENDER PURPOSES ASSUME MINIMUM STRIPPING TIMES AND EXTENT OF BACK PROPPING AS PER AS3610-1995 SECTION 5.0 AND AS PER GENERAL NOTES FOR FORMWORK AND PROPPING.

C6. FORMWORK FINISH CLASSIFICATION TO AS3610.1-2010 :

ELEMENT	CLASS
- INGROUND FOOTINGS	5
- RETAINING WALLS	5 EARTH FACE
- RETAINING WALLS	2 EXPOSED FACE
- COLUMNS	2
- LIFT WALLS	2
- BEAMS & SLABS	2
- STAIRS	2
- GRANO TREATED SURFACES	2

C7. SURFACE FINISHES :

- COLUMNS & WALLS	OFF FORM
- FLOOR SLABS (U.N.O.)	MACHINE FLOAT
- SLABS TO BE TILED	WOOD FLOAT
- STAIRS	STEEL TROWEL

C8. COMPACT ALL CONCRETE, INCLUDING FOOTINGS AND SLABS USING MECHANICAL VIBRATORS.

C9. PLACE CONCRETE CONTINUOUSLY BETWEEN CONSTRUCTION JOINTS SHOWN ON PLAN. DO NOT BREAK OR INTERRUPT SUCCESSIVE POURS SUCH THAT COLD JOINTS OCCUR. ANY REVISIONS OR ADDITIONS TO CONSTRUCTION JOINTS SHOWN ON PLAN REQUIRE APPROVAL FROM THE NORTHROP CONSULTING ENGINEERS.

C10. CONCRETE PROFILES :
- BEAM DEPTHS ARE WRITTEN FIRST AND INCLUDE THE SLAB THICKNESS.
- SIZES OF CONCRETE ELEMENTS DO NOT INCLUDE THICKNESS OF APPLIED FINISHES.
- NO HOLES, CHASES OR EMBEDMENT OF PIPES OTHER THAN SHOWN IN THE STRUCTURAL DRAWINGS SHALL BE MADE IN CONCRETE MEMBERS WITHOUT THE PRIOR WRITTEN APPROVAL OF NORTHROP CONSULTING ENGINEERS.
- PROVIDE DRIP GROOVES AT ALL EXPOSED EDGES. CHAMFERS, DRIP GROOVES, REGLETS ETC TO ARCHITECT'S DETAILS.

C11. ALL PENETRATIONS TO HAVE 2-N16 TRIMMER BARS TOP AND BOTTOM TO EACH FACE. U.N.O. EXTEND TRIMMERS 600 BEYOND PENETRATION.

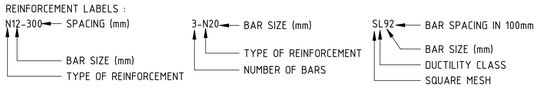
C12. SETDOWNS OR FALLS IN FLOOR SURFACES ARE NOT PERMITTED UNLESS SHOWN ON DRAWINGS. MAINTAIN MINIMUM SLAB THICKNESS SHOWN ON PLAN WHERE FALLS OCCUR.

C13. REINFORCEMENT QUALITY AND NOTATION :

REINFORCEMENT NOTATION				
SYMBOL	BAR TYPE	STRENGTH GRADE (MPa)	DUCTILITY CLASS	TO COMPLY WITH AUSTRALIAN STANDARD
S	STRUCTURAL GRADE DEFORMED RIB BAR	250	NORMAL	AS/NZS 4671-2001
N	HOT ROLLED DEFORMED RIB BAR	500	NORMAL	AS/NZS 4671-2001
R	PLAIN ROUND BAR	250	NORMAL	AS/NZS 4671-2001
RL	RECTANGULAR MESH OF DEFORMED RIB BAR	500	LOW	AS/NZS 4671-2001
SL	SQUARE MESH OF DEFORMED RIB BAR	500	LOW	AS/NZS 4671-2001
L-TM	TRENCH MESH	500	LOW	AS/NZS 4671-2001

ALL REINFORCING BARS SHALL BE GRADE D500N TO AS/NZS 4671-2001 AND ALL MESH SHALL BE GRADE 500L TO AS/NZS 4671-2001. UNLESS NOTED OTHERWISE CLASS L REINFORCEMENT SHALL NOT BE USED.

REINFORCEMENT LABELS :



CONCRETE CONTINUED...

C20. AT EXTERNALLY EXPOSED SURFACES NO METALLIC ITEMS INCLUDING FORM BOLTS, FORM SPACERS, METALLIC BAR CHAIRS AND TIE-WIRE ARE TO BE PLACED IN THE COVER ZONE.

C21. ALL REINFORCEMENT, ANCHOR BOLTS AND OTHER CONCRETE INSERTS SHALL BE WELL SECURED IN POSITION AND INSPECTED BY NORTHROP CONSULTING ENGINEERS PRIOR TO PLACING CONCRETE.

C22. HOLD DOWN BOLTS SHALL BE HOT DIPPED GALVANISED.

C23. U.N.O., ALL MASONRY ANCHORS INTO CONCRETE SHALL BE RAMSET TRUBOLTS (LONGEST VERSION) OR APPROVED EQUIVALENT. BOLTS SHALL BE GALVANISED WHERE THEY ARE ADJOINING NON FERROUS OR PREPAINTED MEMBERS. PROVIDE STAINLESS STEEL BOLTS FOR ALL EXTERNAL CONDITIONS, OR WHERE EXPOSED TO THE WEATHER.

C24. ALL CONCRETE MIXES SHALL BE DESIGNED BY A RECOGNISED TESTING LAB AND SUBMITTED FOR REVIEW BY NORTHROP CONSULTING ENGINEERS.

C25. ALL COMPRESSIVE STRENGTH TEST REPORTS SHALL BE SUBMITTED TO NORTHROP CONSULTING ENGINEERS FOR REVIEW.

C26. PROJECT CONTROL TESTING SHALL BE CARRIED OUT ON ALL CONCRETE IN ACCORDANCE WITH AS1379-2007. TEST CYLINDERS ARE TO BE KEPT ON SITE.

C27. CURING OF ALL CONCRETE IS TO BE ACHIEVED BY KEEPING SURFACES CONTINUOUSLY WET FOR A PERIOD OF 7 DAYS, UNLESS SPECIFIED OTHERWISE. APPROVED SPRAY ON CURING COMPOUNDS THAT COMPLY WITH AS3799-1998 MAY BE USED WHERE FLOOR FINISHES WILL NOT BE AFFECTED. POLYTHENE SHEETING OR WET HESSIAN MAY BE USED TO RETAIN CONCRETE MOISTURE WHERE PROTECTED FROM WIND AND TRAFFIC. CURING IS TO COMMENCE IMMEDIATELY AFTER CONCRETE PLACEMENT.

C28. FOR ELAPSED TIME BETWEEN THE WETTING OF THE MIX AND THE DISCHARGE OF THE MIX, REFER TO CONCRETE - ELAPSED DELIVERY TIMES NOTE.

CONCRETE MATERIALS

CM1. CARRY OUT ALL CONCRETE WORK IN ACCORDANCE WITH AS3600-2009 AND NATSPEC CONCRETE STANDARDS.

CM2. PORTLAND CEMENT :
- STANDARD - TO AS3972-1997

CM3. BLENDED CEMENTS :
- STANDARD - TO AS3972-1997
- REQUIREMENT - USE ONLY WHEN SPECIFIED.

CM4. FLY ASH :
- STANDARD - TO AS3582.1-1998 "FINE GRADE" ONLY.
- REQUIREMENT - ONLY WHEN SPECIFIED. ALTERNATIVE MIX DESIGN WITH FLY ASH WILL BE CONSIDERED, PROVIDED THE CEMENTITIOUS MATERIAL MEETS THE PERFORMANCE REQUIREMENT OF THE CEMENT TYPE SPECIFIED.

CM5. SILICA FUME :
- STANDARD - TO AS3972-1997
- REQUIREMENT - ONLY WHEN SPECIFIED. ALTERNATIVE MIX DESIGN WITH SILICA FUME WILL BE CONSIDERED, PROVIDED THE CEMENTITIOUS MATERIAL MEETS THE PERFORMANCE REQUIREMENT OF THE CEMENT TYPE SPECIFIED.

CM6. AGGREGATE :
- STANDARD - TO AS2758.1-1998
- FINE AGGREGATE - DENSE, NATURALLY OCCURRING SAND OR ROCK, CRUSHED OR UNCRUSHED, AND EITHER SINGLE SOURCED OR BLENDED, CONFORMING TO GRADING REQUIREMENTS OF 'TABLE 3', UNCRUSHED FINE AGGREGATE OF AS2758.1-1998.
- COARSE AGGREGATE - CLEAN, HARD, DURABLE PARTICLES OF DENSE, NATURALLY OCCURRING GRAVEL OR ROCK, CRUSHED OR UNCRUSHED, AND EITHER SINGLE SOURCED OR BLENDED, CONFORMING TO GRADING REQUIREMENTS OF 'TABLE 1', 20mm GRADED AGGREGATE OF AS2758.1-1998.
- PARTICLE DENSITY - TO AS2758.1-1998 CLAUSE 8.1, MINIMUM 2100 kg/m^3
- BULK DENSITY - TO AS2758.1-1998 CLAUSE 8.3, MINIMUM 2100 kg/m^3
- WATER ABSORPTION - TO AS2758.1-1998 CLAUSE 8.3, MAXIMUM 2.5%
- DURABILITY - TO AS2758.1-1998 CLAUSE 10 CONCRETE EXPOSURE CLASSIFICATION-"SEVERE".
- ALKALI REACTIVITY - TEST FOR ALKALI REACTIVE MATERIALS TO AS2758.1 CLAUSE 14.3. SEPARATE TESTING REQUIRED ON EACH SINGLE SOURCED AGGREGATE.
- PARTICLE SHAPE - TO AS2758.1 CLAUSE 9.3 AND THE PROPORTION OF MISSHAPEN PARTICLES USING A 2:1. RATIO IS NOT TO EXCEED 35% WHEN DETERMINED IN ACCORDANCE WITH AS 1141.14-2007.
- 40% OF COURSE AGGREGATE, OR 25% OF FINE AGGREGATE TO BE RECYCLED CONCRETE AGGREGATE OR EQUIVALENT IN ACCORDANCE WITH GREENSTAR REPORT. RECYCLED AGGREGATE TO BE CLASS 1 RCA (IN ACCORDANCE WITH HB155-2002). CONCRETE SUPPLIER SHALL ENSURE THAT MIX ACHIEVES ALL STRENGTH AND SHRINKAGE TARGETS SPECIFIED IN CONCRETE NOTES.

CM7. WATER :
- SPECIAL CLASS CONCRETE - FROM A TOWN POTABLE WATER SUPPLY.
- NORMAL CLASS CONCRETE - RECYCLED WATER ACCEPTED.

CM8. CHEMICAL ADMIXTURES :
- TO AS 1478. USE IN ACCORDANCE WITH AS 1478 AND MANUFACTURER'S DIRECTIONS. ADMIXTURES CONTAINING CHLORIDES OR NITRATES PROHIBITED.

CONCRETE TESTING

CT1. REQUIREMENT :
- PRODUCTION ASSESSMENT - TESTING CARRIED OUT BY THE BATCHING PLANT.
- PROJECT ASSESSMENT - TESTING OF SAMPLES TAKEN ON SITE AT DISCHARGE POINT.

CT2. PROVIDE EVIDENCE OF PRODUCTION ASSESSMENT TO AS1379-2007 PRIOR TO POURING.

CT3. CONCRETE SHRINKAGE AND CONCRETE FOR SLABS (UP TO 110mm THICK) ON GROUND, TO BE VERIFIED BY PRODUCTION ASSESSMENT.

CT4. CARRY OUT PROJECT ASSESSMENT FOR REMAINDER OF CONCRETE AS FOLLOWS :
- SUPPLY OF CONCRETE SHALL BE FROM A CONCRETE BATCHING PLANT THAT CARRIES OUT PRODUCTION ASSESSMENT FOR THE GRADES OF CONCRETE SPECIFIED FOR THIS PROJECT.
- CONCRETE SHALL BE SUPPLIED AND TESTED IN ACCORDANCE WITH AS1379-2007 AND AS1012.
- THE ORGANISATION(S) RESPONSIBLE FOR SAMPLING AND TESTING OF CONCRETE TO HAVE RELEVANT 'NATA' LABORATORY REGISTRATION, BE INDEPENDENT, AND USE TRAINED, COMPETENT PERSONNEL FOR THE TAKING OF SAMPLES AND SPECIMENS AND THE PREPARATION OF MATERIALS AND WORK FOR TESTING.
- SLUMP AT TIME OF POURING TO BE WITHIN THE PERMISSIBLE TOLERANCE IN AS1379-2007 FOR NOMINAL SLUMP SPECIFIED.
- AT LEAST 1 SAMPLE FOR EVERY 50m^3 SHALL BE TAKEN AT THE SITE, BUT NOT LESS THAN 3 SAMPLES SHALL BE TAKEN PER POUR. FIRST AND LAST BATCH PER DAY TO BE SAMPLED, THE OTHER TAKEN PROGRESSIVELY DURING THE POUR, RECORDING LOCATION IN POUR WHERE SAMPLE WAS TAKEN.
- IT IS PERMISSIBLE TO REDUCE THE NUMBER OF SAMPLES TO 2 FOR POURS OF LESS THAN 30m^3, AND 1 FOR POURS OF LESS THAN 10m^3, SAMPLE CONSISTS OF AT LEAST 3 CYLINDERS. ONE CYLINDER SHALL BE TESTED AT 7 DAYS. TWO CYLINDERS SHALL BE TESTED AT 28 DAYS. 7 & 28 DAY TEST RESULTS TO BE SENT IMMEDIATELY TO NORTHROP CONSULTING ENGINEERS.
- AS1379-2007 SHALL NOT APPLY UNLESS THE SAMPLE CONSISTS OF 6 CYLINDERS MIN. AT EACH TEST AGE.
- IF MORE THAN ONE STRENGTH GRADE IS BEING USED IN A POUR, EACH STRENGTH GRADE SHALL BE CONSIDERED A SEPARATE POUR FOR THE PURPOSES OF TESTING.

CONCRETE (ELAPSED DELIVERY TIMES)

CE1. ELAPSED TIME BETWEEN THE WETTING OF THE MIX AND THE DISCHARGE OF THE MIX AT THE SITE MUST NOT EXCEED THE CRITERIA IN THE ELAPSED DELIVERY TIMETABLE BELOW:

ELAPSED DELIVERY TIME TABLE	
CONCRETE TEMPERATURE AT TIME OF DISCHARGE (°C)	MAXIMUM ELAPSED TIME (HOURS)
< 24	2.00
24 to 27	1.50
27 to 30	1.00
30 to 32	0.75
32 to 35	0.50

IF THE ELAPSED TIME IS LONGER THAN THE CORRESPONDING TIME IN THE TABLE ABOVE, OR THE TEMPERATURE IS GREATER THAN 35°C, EITHER NORTHROP CONSULTING ENGINEERS OR THE CONCRETE MIX DESIGN ENGINEER ARE TO BE CONTACTED TO CONFIRM WHETHER PLACEMENT IS TO PROCEED OR IF THE POUR IS TO BE STOPPED. IF THE POUR IS STOPPED, PRIOR TO ANY FURTHER CONCRETE PLACEMENT NORTHROP CONSULTING ENGINEERS ARE TO BE CONTACTED TO INSPECT THE WORKS AND DETERMINE WHAT, IF ANY, RECTIFICATION WORKS ARE REQUIRED. IF THE CONCRETE TEMPERATURE AT THE TIME OF DISCHARGE IS NOT ≥ 5°C, CONCRETE SHALL BE REJECTED. IF AIR TEMPERATURE IS ≤ 10°C, (FOR ≥ A 12 HOUR PERIOD) SUBMIT "COLD WEATHER CONCRETING PROCEDURES" FOR APPROVAL.

CHEMICAL ANCHORS

CA01. UNLESS NOTED OTHERWISE, CHEMICAL ANCHORS SPECIFIED IN THESE DRAWINGS REFER TO HILTI HIT-HY 200 + HIT-V CHEMICAL INJECTION ANCHORS.

CA02. ALTERNATIVE CHEMICAL ANCHORS MAY BE SUBSTITUTED WITH PRIOR PERMISSION FROM THE SUPERINTENDENT.

CA03. MINIMUM EDGE DISTANCE AND SPACING SETOUT OF THE ANCHORS ARE SPECIFIED ON THESE DRAWINGS. IF THE INSTALLED DISTANCES ARE LESS THAN THAT SPECIFIED NOTIFY THE SUPERINTENDENT FOR INSTRUCTION.

CA04. CHEMICAL ANCHORS ARE TO BE STIRCTLY INSTALLED TO MANUFACTURERS INSTALLATION PROCEDURE.

CA05. DIAMETER OF HOLES TO MANUFACTURES SPECIFICATION FOR NOMINATED BOLT/BAR DIAMETER. DRILL HOLES USING A ROTARY PERCUSSION DRILL. DO NOT CORE DRILL HOLES.

CA06. CLEAN AND DEGREASE BOLT/BARS PRIOR INSTALLATION.

CA07. ENSURE CHEMICAL IS ALLOWED TO FULLY CURE IN ACCORDANCE WITH MANUFACTURE'S DETAILS PRIOR TO LOADING BOLTS/BARS.

CONCRETE MASONRY

CM1. MASONRY CONSTRUCTION IS TO CONFORM TO AS3700-2001.
- MORTAR CLASSIFICATION = M3
- DURABILITY CLASSIFICATION OF BUILT IN COMPONENTS = R1
- DURABILITY GRADE OF EXTERNAL MASONRY UNITS = PROTECTED

CM2. THE CHARACTERISTIC UNCONFINED COMPRESSIVE STRENGTH OF THE MASONRY UNITS SHALL BE 15MPa OR GREATER.

CM3. BED UNITS IN FRESHLY PREPARED MORTAR, UNIFORMLY MIXED CEMENT, LIME AND SAND IN THE RATIO OF 1:1:6 or 1:0:5 CONFORMING TO AS3700-2001.

CM4. GROUT FILL FOR BLOCKWORK:
- COMPRESSIVE STRENGTH = N20MPa
- MAXIMUM AGGREGATE SIZE = 10mm
- SLUMP = 225mm
- MINIMUM PORTLAND CEMENT CONTENT = 300kg/am^3
- COMPACT THE GROUT USING A MECHANICAL VIBRATOR AT CONTROL OR CONSTRUCTION JOINTS IN SLABS

CM5. CONTROL JOINTS IN UNREINFORCED WALLS SHALL BE PROVIDED AS FOLLOWS;
CLASS A & S - 5m MAX CRTS
CLASS AM - 5m MAX CRTS (UP TO 4m HIGH WALL), 3.9m MAX CTS (4.0m to 8.5m HIGH WALL)
CLASS H - 4.5m MAX CTS (UP TO 4m HIGH WALL), 3.2m MAX CTS (4.0m to 8.5m HIGH WALL)
- JOINTS TO BE 0.47m MINIMUM FROM CORNERS
- JOINT TO BE 4.5m MAXIMUM FROM CORNERS
- WHERE THE HEIGHT OF THE WALL CHANGES BY MORE THAN 20%, AT THE POSITION OF THE CHANGE
- WHERE THE WALL CHANGES IN THICKNESS
- AT CONTROL OR CONSTRUCTION JOINTS IN SLABS
- AT JUNCTIONS OF WALLS CONSTRUCTED OF DIFFERENT MASONRY MATERIAL

CM6. PROVIDE SLIDING HORIZONTAL TIES ACROSS JOINTS IN UNREINFORCED WALLS EQUIVALENT TO M.E.T 3-3 AT 400 CTS VERTICALLY IN EACH FACE OF THE BLOCKS.

CM7. CONTROL JOINTS IN REINFORCED WALLS SHALL BE PROVIDED AT 12.0m CENTRES, PROVIDE R16-400 (600 LONG) DOWELS, PAINT ONE END WITH BITUMEN & PROVIDED EXPANSION CAP.

CM8. THE BOTTOM COURSE OF ALL REINFORCED BLOCKWORK SHALL CONSIST OF E-SHAPED BLOCKS TO ENABLE CLEANOUT AND TYING OF STEEL.
- FULLY BED FACE SHELLS ONLY.
- CLEAN OUT ALL CORES AFTER EACH DAY'S LAYING.
- ENSURE STARTER BARS ARE CORRECTLY LOCATED IN FOOTINGS.

CM9. MASONRY TIES SHALL BE HOT DIP GALVANISED WITH MINIMUM COATING MASS OF 300g/m^2 AND MEDIUM DUTY CLASSIFICATION FOR CAVITIES UP TO 60mm WIDE & HEAVY DUTY FOR CAVITIES OVER 60mm WIDE. ANY FACE FIXED TIES SHALL BE FIXED USING A SCREW FIXING AND SHALL NOT BE NAILED.

CM10. THE TOP COURSE OF ALL FREESTANDING HOLLOW BLOCK MASONRY SHALL CONSIST OF SOLID CAPPING BLOCKS.

CM11. SPACING OF MASONRY TIES:
- ADJACENT TO WINDOWS AND RETURN WALLS = 400mm VERTICAL AND HORIZONTAL.
- SOLID MASONRY = 400mm VERTICAL AND HORIZONTAL
- OTHERWISE = 800mm VERTICAL AND HORIZONTAL

CM12. NON-LOADBEARING HOLLOW BLOCK WALLS SHALL FINISH 20mm SHORT OF SLAB SOFFIT AND SHALL BE FASTENED TO THE SOFFIT USING M.E.T - 4 SLIDING TIES OR APPROVED EQUIVALENT AT 400mm CENTRES U.N.O.

CM13. LOADBEARING HOLLOW BLOCK WALLS SHALL BE CAPPED WITH M.E.T. GRAPHITE GREASED SLIP JOINT OVER TOP COURSE OF BLOCKWORK

CM14. WHERE MASONRY ADJOINS STRUCTURAL STEEL OR PASSES A RETURN WALL ON THE INNER SKIN, INSTALL MEDIUM DUTY TIES @ 400 MAXIMUM CT. SHOT FIX TIES TO STEELWORK.

CM15. MINIMUM COVER TO REINFORCEMENT FROM THE INSIDE FACE OF THE FACE SHELL IS TO BE 25mm.

CM16. NO AIR ENTRAINING AGENTS (BYCOL, ETC.) ARE TO BE USED WITHOUT PRIOR WRITTEN PERMISSION FROM NORTHROP CONSULTING ENGINEERS.

CM17. MATERIALS INCLUDING MORTAR, CONCRETE, GROUT SHALL COMPLY WITH SECTION 10 OF AS3700-2001. MASONRY UNITS SHALL COMPLY WITH AS/NZS 4455.1-2008. WALL TIES SHALL COMPLY WITH AS/NZS 2699.1-2000.

CM18. MASONRY SHALL BE CONSTRUCTED IN ACCORDANCE WITH SECTION 11 OF AS3700-2001.

CM19. DO NOT CONSTRUCT UNREINFORCED OR NON-LOAD BEARING REINFORCED MASONRY WALLS ON SUSPENDED CONCRETE SLABS UNTIL SLAB HAS BEEN STRIPPED AND DE-PROPPED.

CM20. ALL LINTELS SUPPORTING BLOCKWORK ARE TO BE HOT DIP GALVANISED WITH MINIMUM COATING MASS OF 300g/m^2.
PROVIDE 1 LINTEL TO EACH WALL LEAF. DO NOT CUT ON SITE. KEEP LINTELS 6mm CLEAR OF DOOR HEADS AND WINDOW FRAMES. PACK MORTAR BETWEEN THE ANGLE UPSTAND AND SUPPORT MASONRY UNITS.
MINIMUM BEARING EACH END OF LINTELS:
SPANS 0mm to 1800mm = 200mm BEARING EACH END.
- SPANS 1801mm to 3000mm = 400mm BEARING EACH END.

PROPPING OF LINTELS:
TO PREVENT DEFLECTION OR EXCESSIVE ROTATION, TEMPORARILY PROP PROPRIETARY COLD-FORMED LINTELS UNTIL THE MASONRY REACHES ITS REQUIRED STRENGTH. MINIMUM PROPPING PERIOD IS TO BE 7 DAYS.

NOT FOR CONSTRUCTION

VERIFIER:
JOB MANAGER: R DALE
DESIGNED: M BURKE
DRAWN: M BURKE

REV	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
A	SCHEMATIC DESIGN	MB		RD	26.04.21

CLIENT
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ARCHITECT
TKDArchitects Tanner Kibble Denton

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PROJECT
NEW PRIMARY SCHOOL IN EDMONDSON PARK

DRAWING TITLE
STRUCTURAL DRAWING SPECIFICATION NOTES

JOB NUMBER 210040
DRAWING NUMBER STR-W-DW-00_SK00.02
REVISION A
DRAWING SHEET SIZE = A1

STEELWORK

S1. FABRICATE AND ERECT STRUCTURAL STEELWORK IN ACCORDANCE WITH AS4100.
S2. FABRICATOR TO INFORM NORTHROP ENGINEERS IF IMPORTED STEEL IS PROPOSED TO BE USED.
S3. PROVIDE HOLES, CLEATS AND FIXING FOR TIMBER FRAMING, FINISHES, ETC. SHOWN ON ARCHITECTURAL DRAWINGS.
S4. FABRICATOR SHALL PREPARE SHOP DRAWINGS AND SUBMIT THEM TO THE BUILDER FOR THEIR APPROVAL. BUILDER SHALL LODGE TWO HARD COPIES OF APPROVED DRAWINGS TO NORTHROP ENGINEERS PTY LTD FOR APPROVAL PRIOR TO FABRICATION.
S5. UNLESS NOTED OTHERWISE, USE:
- 10mm GUSSET, FIN AND END PLATES.
- M20 8.8/S BOLTS.
- 6mm CONTINUOUS FILLET WELDS MADE WITH E4818 MILD STEEL ELECTRODES.
- ALL WELDS SP CATEGORY TO AS1554.
- 8.8/TB BOLTS AT BEAM SPLICE LOCATIONS.

S6. ALL BOLTS, SCREWS, HOLD DOWN BOLTS, MASONRY ANCHORS SHALL BE HOT DIP GALVANISED TO AS1214 AND AS1650. UNLESS NOTED OTHERWISE ALL BOLTS SHALL BE M20 8.8/S. NO CONNECTION SHALL HAVE LESS THAN 2 BOLTS. ALL HOLES SHALL BE 2mm LARGER THAN THE BOLT DIAMETER UNLESS NOTED OTHERWISE.
S7. ALL STRUCTURAL STEEL TO COMPLY WITH AS1163, AS1594, AS3678, AS3679 PART 1 AND PART 2 AS PER SECTION TYPE, WITH MINIMUM YIELD STRESS:
- HOT ROLLED SECTIONS = 300MPa.
- SQUARE HOLLOW SECTIONS = 350MPa.
- RECTANGULAR HOLLOW SECTIONS = 350MPa.
- CIRCULAR HOLLOW SECTION = 250MPa.
- HOT ROLLED PLATE = 250MPa.

S8. COLD FORMED SECTIONS TO CONFORM WITH AS/NZS4600, AS1397 AND AS1595.
- MINIMUM YIELD STRESS = 450MPa.

S9. SURFACE TREATMENT UNLESS NOTED OTHERWISE, FOR 25 YEARS TO FIRST MAINTENANCE:
- PROTECTED FROM WEATHER - AS/NZ2312-ALK2.
- EXPOSED TO WEATHER - HDG600 IN ACCORDANCE WITH EFSG ON EXTERNAL, EXPOSED TO WEATHER PAINTEI COATING TO ALL CORNERS AND SHARP EDGES.
- BUILT INTO AN EXTERNAL MASONRY WALL - AS/NZ2312-IZS1.
- IF GALVANISING IS THE FINISHED COATING HOT DIPPED GALVANISING SHALL BE IN ACCORDANCE WITH - AS4680.

S10. UNLESS OTHERWISE DETAILED, FABRICATOR SHALL PROVIDE C100 15 TRIMMER PURLINS ALONG WITH GENERAL PURPOSE BRACKETS TO SUPPORT EDGE OF ROOF SHEETING AT ALL HIPS, VALLEYS AND PENETRATIONS.
S11. FIX CROSS BRACING TO PURLINS AT 3000 MAXIMUM CTS WITH M10 BOLTS OR M6 HOOKS.
S12. ALL BURIED STEELWORK TO BE ENCASED IN CONCRETE WITH A MINIMUM 50mm COVER.
S13. STEELWORK ENCASED IN CONCRETE SHALL BE FREE FROM ALL LOOSE RUST, LOOSE MILL SCALE, DIRT, OIL, GREASE, ETC. AND REINFORCED WITH F41 FABRIC OR EQUIVALENT 3mm DIA BLACK IRON WIRE.
S14. BOLT SYMBOLS:
- 4.6/S = COMMERCIAL BOLTS, GRADE 4.6 TO AS/NZS1111, SNUG FIT.
- 8.8/S = HIGH STRENGTH BOLTS, GRADE 8.8 TO AS/NZS1254, SNUG FIT.
- 8.8/TF = HIGH STRENGTH BOLTS, GRADE 8.8 TO AS/NZS1254, FULLY TENSIONED NOT FRICTION TYPE (USE LOAD INDICATOR WASHERS).
- 8.8/TB = HIGH STRENGTH BOLTS, GRADE 8.8 TO AS/NZS1254, FULLY TENSIONED BEARING TYPE (USE LOAD INDICATOR WASHERS).

S15. THE CONTRACTOR SHALL SUPPLY WRITTEN CERTIFICATION TO THE STRUCTURAL ENGINEER PRIOR TO THE ERECTION OF ANY STRUCTURAL STEEL STATING THAT THE BOLTS PROPOSED TO BE USED COMPLY WITH AS1252. HIGH STRENGTH BOLTS (8.8) ARE NOT TO BE WELDED.
S16. NO PAINT ON MATING SURFACES WITH TF BOLTING UNLESS APPROVED BY ENGINEER. PREPARE SURFACES FOR TF CONNECTIONS IN ACCORDANCE WITH SECTION 14.3.6 AF AS4100.
S17. BOLTS TO BE INSTALLED WITH ONE HARDENED WASHER UNDER THE TURNED PART.
S18. USE LOAD INDICATING WASHERS FOR ALL TB AND TF CONNECTIONS.
S19. ENSURE ALL BOLTS HAVE SUFFICIENT LENGTH SO THAT AT LEAST ONE FULL THREAD IS EXPOSED BEYOND THE NUT AFTER TIGHTENING.
S20. THE FABRICATION AND ERECTION OF THE STRUCTURAL STEEL WORK SHALL BE SUPERVISED BY A QUALIFIED PERSON EXPERIENCED IN SUCH SUPERVISION, IN ORDER TO ENSURE THAT ALL REQUIREMENTS OF THE DESIGN ARE MET.
S21. ALL MEMBERS SHALL BE SUPPLIED IN SINGLE LENGTHS. SPLICES SHALL ONLY BE PERMITTED IN LOCATIONS SHOWN ON THE STRUCTURAL DRAWINGS.
S22. ALL BUTT WELDS SHALL BE COMPLETE PENETRATION BUTT WELDS CATEGORY SP TO AS1554.1 U.N.O. ALL BUTT WELDS SHALL BE SUBJECT TO NON-DESTRUCTIVE EXAMINATION IN ACCORDANCE WITH AS1554.1, AS2177.1 AND AS220. THE EXTENT OF TESTING SHALL BE AS FOLLOWS:

WELD CATEGORY	VISUAL SCANNING	VISUAL EXAMINATION IN ACCORDANCE WITH TABLE 6.2.2 AS1554.1	RADIOGRAPHY OR ULTRASONICS TO TABLE 6.2.1 AS1554.1
GP	100	25	NIL
SP	100	50	10

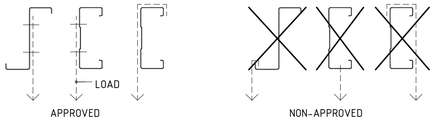
THE CONTRACTOR SHALL SUBMIT THE APPROPRIATE TEST CERTIFICATES TO THE STRUCTURAL ENGINEER PRIOR TO STRUCTURAL CERTIFICATION.
S23. GROUT ALL STEEL BASES BY DRY PACKING USING GROUT WHICH IS NON-SHRINK AND HAS A MINIMUM COMPRESSIVE STRENGTH AT 7 DAYS OF 40MPa.
S24. PROVIDE SEAL PLATES TO THE ENDS OF ALL HOLLOW SECTIONS, WITH 'BREATHER' HOLES IF MEMBERS ARE TO BE HOT DIP GALVANISED.
S25. THESE DRAWINGS MAY NOT IDENTIFY ALL SECONDARY STEELWORK ELEMENTS THAT ARE REQUIRED FOR SUPPORT, FIXING AND FINISHING OF GLAZING, CLADDING AND LINING. THE TENDERER IS RESPONSIBLE FOR THE INCLUSION OF SUCH STEELWORK ELEMENTS TO THE EXTENT REQUIRED ON THE ARCHITECT'S DRAWINGS.
S26. FABRICATOR SHALL PROVIDE ALL FIXINGS FOR ARCHITECTURAL ELEMENTS WITHOUT WEAKENING STRUCTURAL MEMBERS.
S27. THE CONTRACTOR SHALL PROVIDE TEMPORARY BRACING AS NECESSARY TO STABILISE THE STRUCTURE UNTIL PERMANENT BRACING ELEMENTS ARE CONSTRUCTED.
S28. ERECTION TOLERANCES SHALL COMPLY WITH AS4100.

FIRE PROTECTION OF STEELWORK

FP1. PROVIDE AS PER ARCHITECTS / BCA REQUIREMENTS FIRE PROTECTION TO ALL PERMANENT STRUCTURAL STEEL MEMBERS AND CONNECTIONS.
FP2. REINSTATE ANY FIRE PROTECTION REMOVED FROM EXISTING STRUCTURAL STEELWORK.
FP3. INSTALL FIRE PROTECTION MATERIALS IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN SPECIFICATIONS.
FP4. PROVIDE CERTIFICATION OF FIRE PROTECTION ON COMPLETION.

PURLINS AND GIRTS

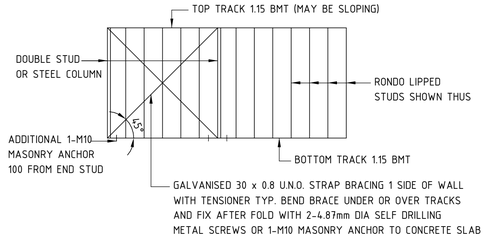
PG1. THE SUSPENSION OF CEILINGS,SERVICES ETC FROM PURLINS AND GIRTS SHALL BE IN ACCORDANCE WITH THE APPROVED METHODS DETAILED BELOW;



PG2. MINIMUM YIELD STRESSES OF PURLINS AND GIRTS TO BE 450MPa.
SURFACE TREATMENT OF ALL PURLINS AND GIRTS TO BE 350g/m² IN ACCORDANCE WITH AS1397-2001
U.N.O. LAPS, BRIDGING, BRACKETS AND PURLIN BOLTS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
PG3. UNLESS OTHERWISE DETAILED FABRICATOR SHALL PROVIDE C10015 TRIMMER PURLINS ALONG WITH GENERAL PURPOSE BRACKETS TO SUPPORT EDGE OF ROOF SHEETING AT ALL HIPS, VALLEYS AND PENETRATIONS.
PG4. UNLESS OTHERWISE DETAILED, FABRICATOR SHALL ALLOW TO PROVIDE ONE ROW OF BRIDGING FOR PURLINS SPANNING UP TO 4.0m, TWO ROWS FOR PURLINS SPANNING BETWEEN 4.0m AND 8.0m AND THREE ROWS FOR SPANS GREATER THAN 8.0m INSTALLED IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS.
PG5. PURLIN CLEATS SHALL GENERALLY BE MINIMUM 75 WIDE x 8 PLATE U.N.O. WHERE THE DISTANCE BETWEEN THE UNDERSIDE OF PURLIN AND THE TOP OF THE BEAM EXCEEDS 150mm THE CLEATS SHALL BE MINIMUM 75 x 6 EA. UP TO A MAXIMUM HEIGHT OF 800mm.
PG6. PURLINS SHALL BE LAPPED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SHOWN ON THE DRAWINGS.

METAL STUD WALLS

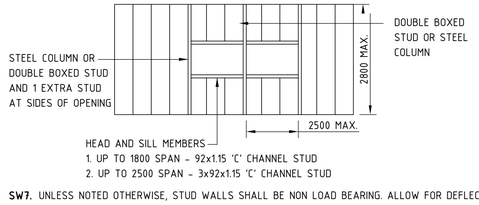
SW1. ALL DESIGN, WORKMANSHIP AND MATERIAL TO AS/NZS4600.
SW2. PROVIDE BRACING IN WALLS AS PER THE PLANS, USING PRYDA 30 X 0.8 GALVANISED STRAP BRACING OR EQUIVALENT FIXED TO THE STUD WALLS, OR NOGGING SECTIONS. FIX STRAP TO EACH STUD BY ONE (1) WAFER HEADED SELF DRILLING METAL SCREW (4.8mm DIAMETER).



BRACING DETAIL (NOGGINGS NOT SHOWN).
SW3. PROVIDE LIPPED AND GALVANISED WALL STUDS AS FOLLOWS U.N.O. ON DRAWINGS.

WALL TYPE	SPACING (mm)	MAX. HEIGHT
INTERNAL 92.1 x 0.55 BMT	600	4200
EXTERNAL AND LINED INTERNALLY 150 x 1.15 BMT	450	4200
EXTERNAL AND NOT LINED INTERNALLY 92.1 x 0.75 BMT 150 x 1.15 BMT	600 600	2500 3200

SW4. PROVIDE NOGGINGS AT 1.6 METRES CTS MAX U.N.O. NOGGING SECTION SHALL BE 0.75 BMT. NOGGINGS SHALL BE MECHANICALLY FIXED TO STUDS AS PER MANUFACTURERS SPECIFICATIONS.
SW5. PROVIDE DOUBLE 1.15mm 'C' CHANNEL STUDS (BOXED) AND 1 EXTRA STUD AT SIDES OF OPENING.
SW6. PROVIDE DOUBLE 1.15mm 'C' CHANNEL STUDS (BOXED AT INTERMEDIATE GLAZING SECTIONS:



SW7. UNLESS NOTED OTHERWISE, STUD WALLS SHALL BE NON LOAD BEARING. ALLOW FOR DEFLECTION OF STUDS WITHIN TOP TRACK AT 20mm.
SW8. FIX BOTTOM TRACK OF BRACED PANELS TO CONCRETE FLOOR AS PER SW2. FOR ALL OTHER FIXINGS REFER TO MANUFACTURERS SPECIFICATION
SW9. TOP PLATES SHALL BE FIXED TO THE UNDERSIDE OF THE SLAB UNLESS NOTED OTHERWISE. SHOT FIX RONDO DEFLECTION HEAD TRACKS TO THE UNDERSIDE OF SLABS/BEAMS.

NOT FOR CONSTRUCTION

DRAWN: M BURKE
DESIGNED: M BURKE
JOB MANAGER: R DALE
VERIFIER: COPE-SUMMERFIELD

REV	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
A	SCHEMATIC DESIGN	MB		RD	26.04.21

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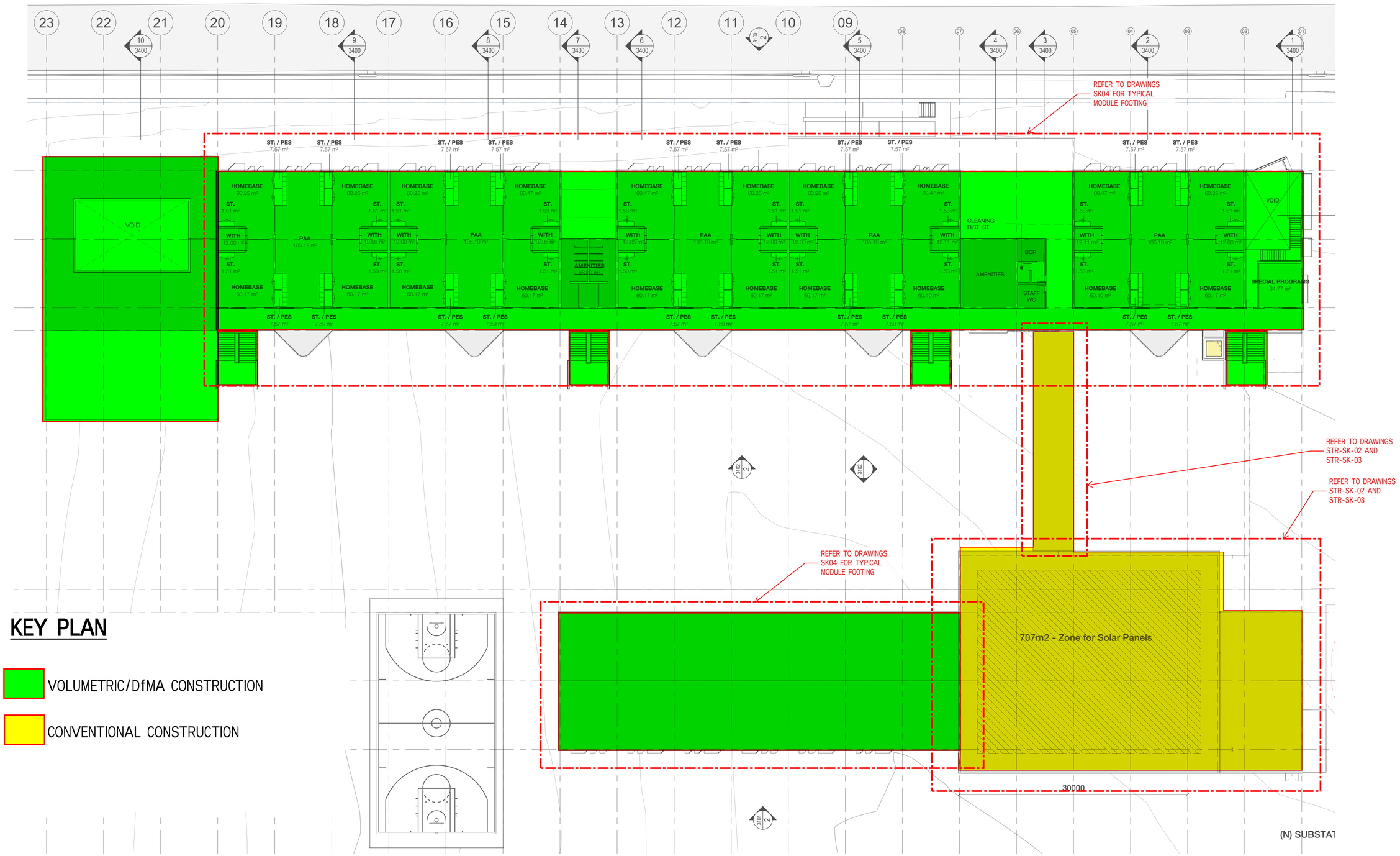
PROJECT: NEW PRIMARY SCHOOL IN EDMONDSON PARK
DRAWING TITLE: STRUCTURAL DRAWING SPECIFICATION NOTES
JOB NUMBER: 210040
DRAWING NUMBER: STR-W-DW-00_SK00.03
REVISION: A
DRAWING SHEET SIZE = A1



KEY PLAN

VOLUMETRIC/DfMA CONSTRUCTION

CONVENTIONAL CONSTRUCTION

SITE PLAN

NOT FOR CONSTRUCTION

VERIFIER:
JOB MANAGER: R DALE
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DRAWN: M BURKE

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B	SCHEMATIC DESIGN	MB		RD	14.05.21

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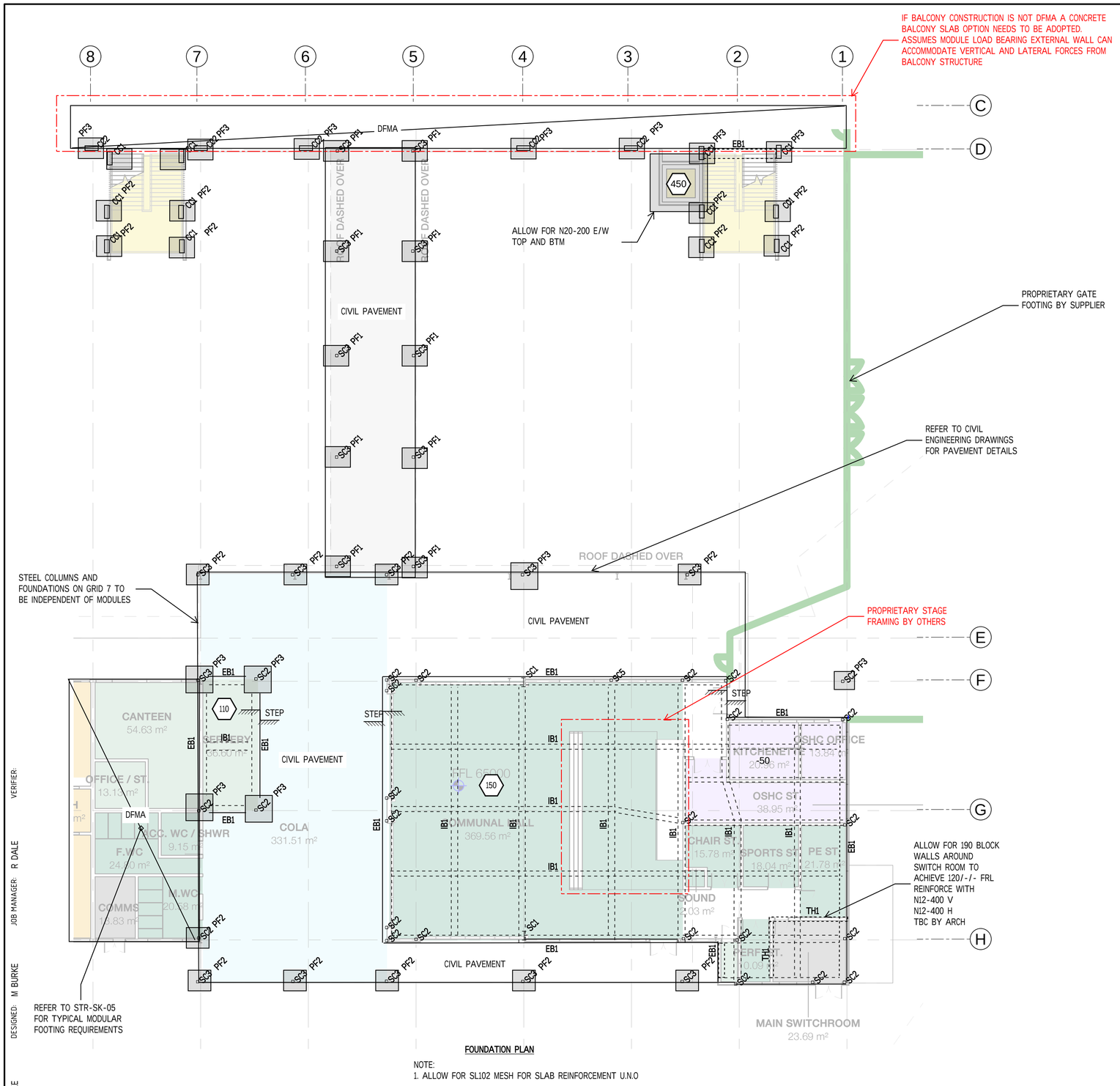
PROJECT
NEW PRIMARY SCHOOL IN EDMONDSON PARK

DRAWING TITLE
KEY PLAN

JOB NUMBER 210040
DRAWING NUMBER STR-W-DW-00_SK01.00
REVISION A
DRAWING SHEET SIZE = A1



FOUNDATION PLAN

NOTE:
1. ALLOW FOR SL102 MESH FOR SLAB REINFORCEMENT U.N.O

GENERAL NOTES:

PAD FOOTINGS TO BE FOUNDED IN MINIMUM 100 kPa ALLOWABLE BEARING CAPACITY MATERIAL. ALLOWABLE BEARING PRESSURE TO BE CONFIRMED ON SITE BY GEOTECHNICAL ENGINEER.

ALL FOOTINGS TO BE POURED IN 32 MPa CONCRETE

PAD FOOTINGS CENTRAL UNDER COLUMNS UNLESS NOTED OTHERWISE

ALLOW FOR 50mm SET DOWNS

FOUNDATION DESIGN BASED ON 'M1' SOIL CLASSIFICATION BASED ON GEOTECHNICAL REPORT 33963BHrpt BY JK GEOTECHNICS

LEGEND:

200 — DENOTES CONCRETE THICKNESS

CC1/0 — DENOTES REINFORCED CONCRETE COLUMN OVER

SC1/0 — DENOTES STEEL COLUMN OVER

FOUNDATION SCHEDULE

EB1 - 400 DEEP x 400 WIDE WITH 3-L11TM BTM
IB1 - 400 DEEP x 300 WIDE WITH 3-L11TM BTM
TH1 - 300 WIDE X 300 DEEP SLAB THICKENING 3-L11TM BTM

PF1 - 400 DEEP x 1200 x 1200 - N12-200 BTM E/W, SL82 MESH TOP
PF2 - 400 DEEP x 1600 x 1600 - N16-200 BTM E/W, SL82 MESH TOP
PF3 - 400 DEEP x 2000 x 2000 - N16-200 BTM E/W, SL82 MESH TOP

SC1 - 360UB44.7 PORTAL COLUMN
SC2 - 125x5.0 SHS STEEL COLUMN
SC3 - 200x5.0 SHS STEEL COLUMN
SC4 - 89x3.5 SHS STEEL COLUMN
SC5 - 250x150x9.0 RHS STEEL COLUMN

CC1 - 250 x 800 CONCRETE COLUMN, 8N20 VERT WITH R10-300 TIES
CC2 - 250 x 1000 CONCRETE COLUMN, 10N20 VERT WITH R10-300 TIES

TRUSS/STUD WALL SUPPLIER TO ADHERE TO THE FOLLOWING EFSG DEFLECTION REQUIREMENTS:

ELEMENT:	ACCEPTANCE CRITERIA:	LIMIT:
OVERALL BUILDING	LATERAL DEFLECTION (SERVICE WIND)	HEIGHT/500
ROOF TRUSSES	DEAD LOAD DEFLECTION	SPAN/360
	LIVE LOAD DEFLECTION	SPAN/250
	SERVICE WIND LOAD DEFLECTION	SPAN/150
ROOF TRUSSES SUPPORTING SLIDING DOORS/OPERABLE WALLS	DEAD LOAD DEFLECTION	REFER TO MANUFACTURER REQUIREMENTS
ELEMENTS SUPPORTING FACE MASONRY WALLS	LATERAL DEFLECTION (SERVICE WIND)	SPAN/1000
ELEMENTS SUPPORTING RENDERED MASONRY WALLS	LATERAL DEFLECTION (SERVICE WIND)	SPAN/1800
STUD WALLS TYPICAL	LATERAL DEFLECTION (SERVICE WIND)	SPAN/500

NOT FOR CONSTRUCTION

VERIFIER:
JOB MANAGER: R DALE
DESIGNED: M BURKE
DRAWN: M BURKE

REV	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
A	SCHEMATIC DESIGN	MB		RD	26.04.21
B	SCHEMATIC DESIGN	MB		RD	14.05.21

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ARCHITECT: TKDArchitects Tanner Kibble Denton

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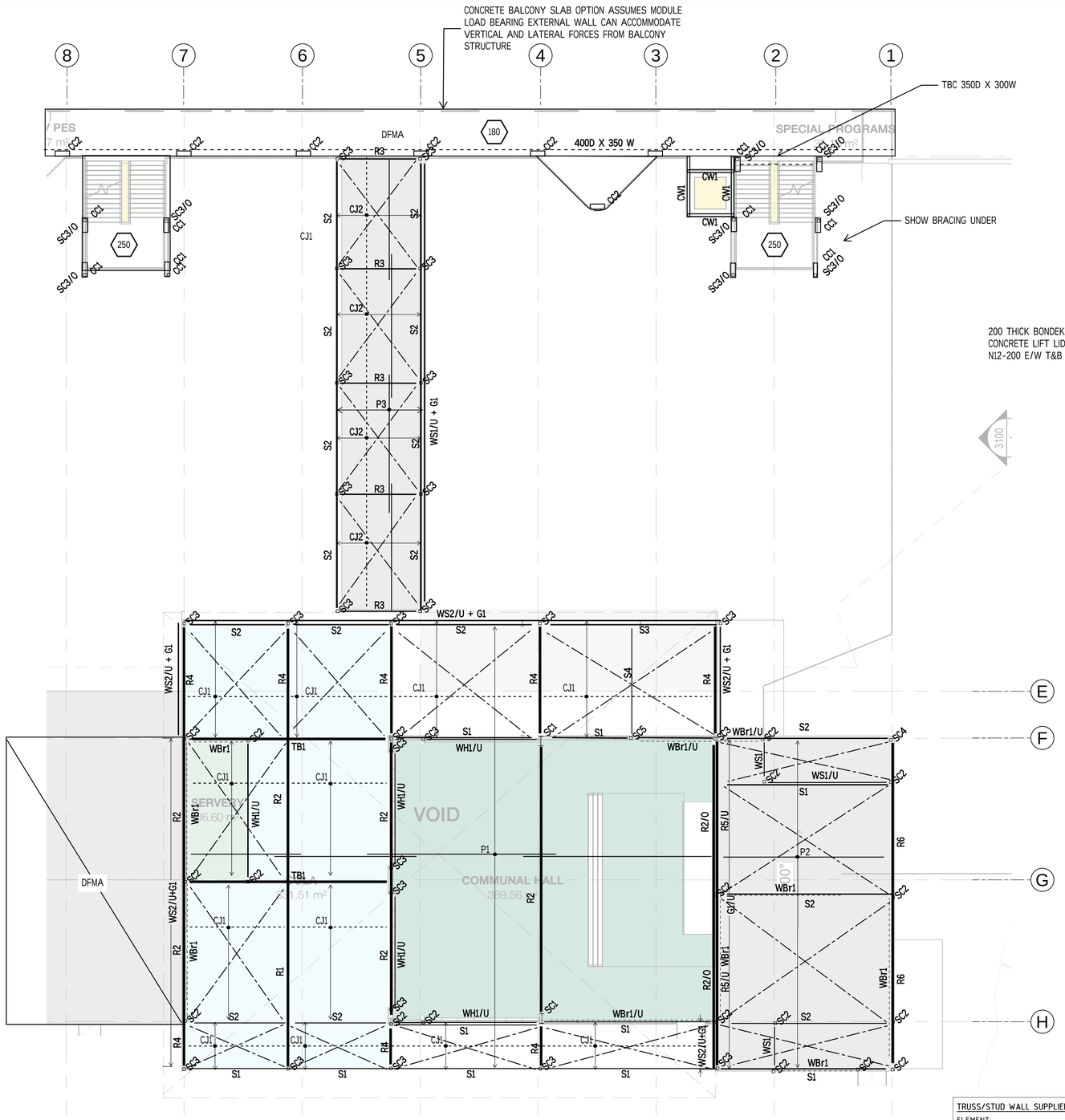
PROJECT: NEW PRIMARY SCHOOL IN EDMONDSON PARK

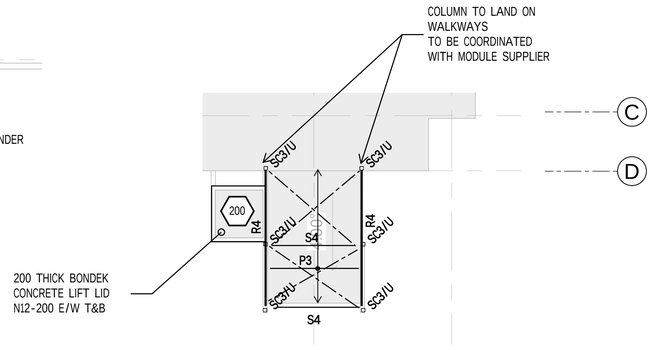
DRAWING TITLE: FOUNDATION PLAN - COLA AND WALKWAY

JOB NUMBER: 210040
DRAWING NUMBER: STR-W-DW-00_SK02.00
REVISION: A
DRAWING SHEET SIZE = A1



STEEL FRAMING PLAN

NOTE:
1. HIGH LEVEL ROOF DESIGNED TO ACCOMMODATE PV PANELS (15kg/m²)



PART PLAN - STAIR ROOF FRAMING

GENERAL NOTES:

PAD FOOTINGS TO BE FOUNDED IN MINIMUM 100 kPa ALLOWABLE BEARING CAPACITY MATERIAL. ALLOWABLE BEARING PRESSURE TO BE CONFIRMED ON SITE BY GEOTECHNICAL ENGINEER.

ALL FOOTINGS TO BE POURED IN 32 MPa CONCRETE

PAD FOOTINGS CENTRAL UNDER COLUMNS UNLESS NOTED OTHERWISE

ALL EXTERNAL STEEL TO BE HOT DIP GALVANISED

RONDO STUD USED TO SUPPORT FACADE. FIXINGS TO MANUFACTURERS DETAILS

LAP PURLINS 15% OF SPAN OVER RAFTERS AND COLUMNS

LEGEND:

200	DENOTES CONCRETE THICKNESS
CC1/0	DENOTES REINFORCED CONCRETE COLUMN OVER
SC1/0	DENOTES STEEL COLUMN OVER
- - -	DENOTES 75x5.0 EA ROOF BRACING

MEMBER SCHEDULE

R1 - 460UB67.1 STEEL RAFTER
R2 - 410UB53.7 STEEL RAFTER
R3 - 200UB22.3 STEEL RAFTER
R4 - 250UB25.7 STEEL RAFTER
R5 - 250PFC STEEL RAFTER
R6 - 360UB44.7 STEEL RAFTER

SC1 - 360UB44.7 PORTAL COLUMN
SC2 - 125x5.0 SHS STEEL COLUMN
SC3 - 200x5.0 SHS STEEL COLUMN
SC4 - 89x3.5 SHS STEEL COLUMN
SC5 - 250x150x9.0 RHS STEEL COLUMN

CC1 - 250 x 800 CONCRETE COLUMN
CC2 - 250 x 1000 CONCRETE COLUMN

CW1 - 200 THICK CONCRETE WALL

WH1 - 150x5.0 SHS WINDOW HEADER
WS1 - 125x5.0 WALL STIFFENER
WS2 - 200x5.0 WALL STIFFENER

TB1 - 410UB59.7 DENOTES TRANSFER BEAM

S1 - 250x6.0 SHS STEEL STRUT
S2 - 150x5.0 SHS STEEL STRUT
S3 - 200x5.0 SHS STEEL STRUT
S4 - 100x5.0 SHS STEEL STRUT

WBr1 - 200x100x5.0 RHS WALL BRACE

P1 - Z250-15 PURLINS AT 1200 CTS, 2 ROWS OF BRIDGING
P2 - C250-19 PURLINS AT 900 CTS, 3 ROWS OF BRIDGING
P3 - Z200-12 PURLINS AT 900 CTS, 2 ROWS OF BRIDGING

CJ1 - C200-15 AT 600 CTS CEILING JOIST
CJ2 - C150-15 AT 600 CTS CEILING JOIST

G1 - Z200-12 PURLINS AT 1200 CTS, 2 ROWS OF BRIDGING

ROOF ASSUMED LOADS

METAL ROOF SHEET AND PURLINS 10kg/m²
CEILING SHEETING 10kg/m²
CEILING LIGHTING 5kg/m²
SOLAR PANELS 15kg/m²

ASSUMED ROOF IS ONLY ACCESSIBLE FOR MAINTENANCE. MAX LIVE LOAD 0.25kPA

TRUSS/STUD WALL SUPPLIER TO ADHERE TO THE FOLLOWING EFSG DEFLECTION REQUIREMENTS:

ELEMENT:	ACCEPTANCE CRITERIA:	LIMIT:
OVERALL BUILDING	LATERAL DEFLECTION (SERVICE WIND)	HEIGHT/500
ROOF TRUSSES	DEAD LOAD DEFLECTION	SPAN/360
	LIVE LOAD DEFLECTION	SPAN/250
	SERVICE WIND LOAD DEFLECTION	SPAN/150
ROOF TRUSSES SUPPORTING SLIDING DOORS/OPERABLE WALLS	DEAD LOAD DEFLECTION	REFER TO MANUFACTURER REQUIREMENTS
ELEMENTS SUPPORTING FACE MASONRY WALLS	LATERAL DEFLECTION (SERVICE WIND)	SPAN/1000
ELEMENTS SUPPORTING RENDERED MASONRY WALLS	LATERAL DEFLECTION (SERVICE WIND)	SPAN/1800
STUD WALLS TYPICAL	LATERAL DEFLECTION (SERVICE WIND)	SPAN/500

NOT FOR CONSTRUCTION

DRAWN: M BURKE
DESIGNED: M BURKE
JOB MANAGER: R DALE
VERIFIER:

REV	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
A	SCHEMATIC DESIGN	MB		RD	26.04.21
B	SCHEMATIC DESIGN	MB		RD	14.05.21

CLIENT: RICHARD CROOKES CONSTRUCTIONS
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ARCHITECT: TKDArchitects Tanner Kibble Denton

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SCALE: 0 7.5m

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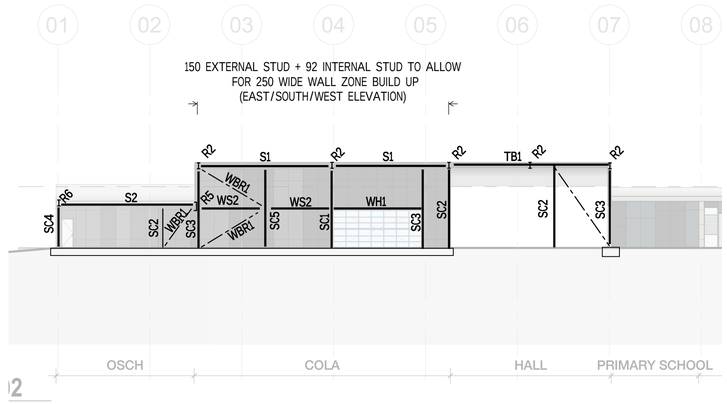
PROJECT: NEW PRIMARY SCHOOL IN EDMONDSON PARK

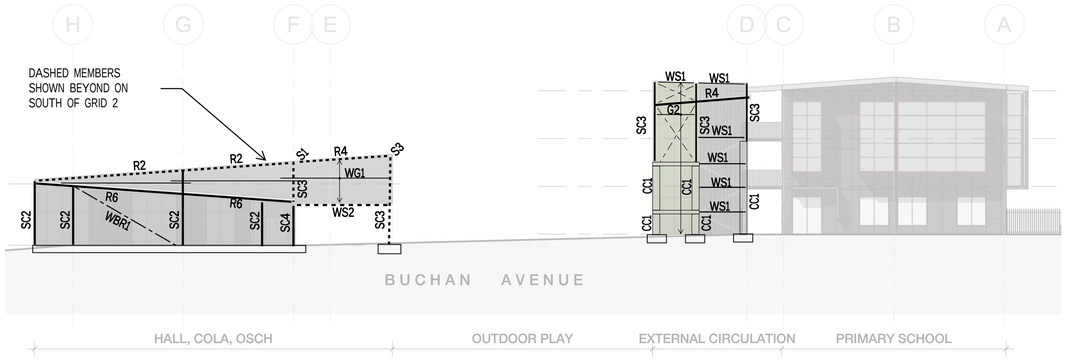
DRAWING TITLE: FRAMING PLAN - COLA, HALL AND WALKWAYS

JOB NUMBER: 210040
DRAWING NUMBER: STR-W-DW-00_SK03.00
REVISION: A
DRAWING SHEET SIZE = A1



ELEVATION 1 - COLA AND HALL (GRID F)

SCALE: 1:250



ELEVATION 2 - COLA AND HALL (GRID 1)

SCALE: 1:250

NOTE:
1 HIGH LEVEL ROOF DESIGNED TO ACCOMMODATE PV PANELS (15kg/m²)

GENERAL NOTES:

PAD FOOTINGS TO BE FOUNDED IN MINIMUM 100 kPa ALLOWABLE BEARING CAPACITY MATERIAL. ALLOWABLE BEARING PRESSURE TO BE CONFIRMED ON SITE BY GEOTECHNICAL ENGINEER.

ALL FOOTINGS TO BE POURED IN 32 MPa CONCRETE

PAD FOOTINGS CENTRAL UNDER COLUMNS UNLESS NOTED OTHERWISE

ALL EXTERNAL STEEL TO BE HOT DIP GALVANISED

RONDO STUD USED TO SUPPORT FACADE. FIXINGS TO MANUFACTURERS DETAILS

LAP PURLINS 15% OF SPAN OVER RAFTERS AND COLUMNS

LEGEND:

200	DENOTES CONCRETE THICKNESS
CC1/0	DENOTES REINFORCED CONCRETE COLUMN OVER
SC1/0	DENOTES STEEL COLUMN OVER
- — - — -	DENOTES 75x5.0 EA ROOF BRACING U.N.O

MEMBER SCHEDULE

R1 - 460UB67.1 STEEL RAFTER
R2 - 410UB53.7 STEEL RAFTER
R3 - 200UB22.3 STEEL RAFTER
R4 - 250UB25.7 STEEL RAFTER
R5 - 250PFC STEEL RAFTER
R6 - 360UB44.7 STEEL RAFTER

SC1 - 360UB44.7 PORTAL COLUMN
SC2 - 125x5.0 SHS STEEL COLUMN
SC3 - 200x5.0 SHS STEEL COLUMN
SC4 - 89x3.5 SHS STEEL COLUMN
SC5 - 250x150x9.0 RHS STEEL COLUMN

CC1 - 250 x 800 CONCRETE COLUMN
CC2 - 250 x 1000 CONCRETE COLUMN

CW1 - 200 THICK CONCRETE WALL

WH1 - 150x5.0 SHS WINDOW HEADER
WS1 - 125x5.0 SHS WALL STIFFENER
WS2 - 200x5.0 SHS WALL STIFFENER

TB1 - 410UB59.7 DENOTES TRANSFER BEAM

S1 - 250x6.0 SHS STEEL STRUT
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WBr1 - 200x100x5.0 RHS WALL BRACE

P1 - Z250-15 PURLINS AT 1200 CTS, 2 ROWS OF BRIDGING
P2 - C250-19 PURLINS AT 900 CTS, 3 ROWS OF BRIDGING
P3 - Z200-12 PURLINS AT 900 CTS, 2 ROWS OF BRIDGING
P4 - C1500-12 PURLINS AT 900 CTS, 1 ROWS OF BRIDGING
G1 - Z200-12 PURLINS AT 1500 CTS, 2 ROWS OF BRIDGING
G2 - C150-12 PURLINS AT 600 CTS, 1 ROWS OF BRIDGING

TRUSS/STUD WALL SUPPLIER TO ADHERE TO THE FOLLOWING EFSG DEFLECTION REQUIREMENTS:

ELEMENT:	ACCEPTANCE CRITERIA:	LIMIT:
OVERALL BUILDING	LATERAL DEFLECTION (SERVICE WIND)	HEIGHT/500
ROOF TRUSSES	DEAD LOAD DEFLECTION	SPAN/360
	LIVE LOAD DEFLECTION	SPAN/250
	SERVICE WIND LOAD DEFLECTION	SPAN/150
ROOF TRUSSES SUPPORTING SLIDING DOORS/OPERABLE WALLS	DEAD LOAD DEFLECTION	REFER TO MANUFACTURER REQUIREMENTS
ELEMENTS SUPPORTING FACE MASONRY WALLS	LATERAL DEFLECTION (SERVICE WIND)	SPAN/1000
ELEMENTS SUPPORTING RENDERED MASONRY WALLS	LATERAL DEFLECTION (SERVICE WIND)	SPAN/1800
STUD WALLS TYPICAL	LATERAL DEFLECTION (SERVICE WIND)	SPAN/500

NOT FOR CONSTRUCTION

DRAWN: M BURKE DESIGNED: M BURKE JOB MANAGER: R DALE VERIFIER:

REV	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
A	SCHEMATIC DESIGN	MB		RD	14.05.21

CLIENT
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ARCHITECT
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PROJECT
NEW PRIMARY SCHOOL IN EDMONDSON PARK

DRAWING TITLE
ELEVATIONS-COLA, STAIR & HALL

JOB NUMBER **210040**
DRAWING NUMBER **STR-W-DW-00_ SK04.00**
REVISION **A**
DRAWING SHEET SIZE = A1

GENERAL NOTES:

PAD FOOTINGS TO BE FOUNDED IN MINIMUM 100 kPa ALLOWABLE BEARING CAPACITY MATERIAL. ALLOWABLE BEARING PRESSURE TO BE CONFIRMED ON SITE BY GEOTECHNICAL ENGINEER.

ALL FOOTINGS TO BE POURED IN 32 MPa CONCRETE

PAD FOOTINGS CENTRAL UNDER COLUMNS UNLESS NOTED OTHERWISE

ALLOW FOR 50mm SET DOWNS

FOUNDATION DESIGN BASED ON 'M1' SOIL CLASSIFICATION BASED ON GEOTECHNICAL REPORT 33963BHrpt BY JK GEOTECHNICS

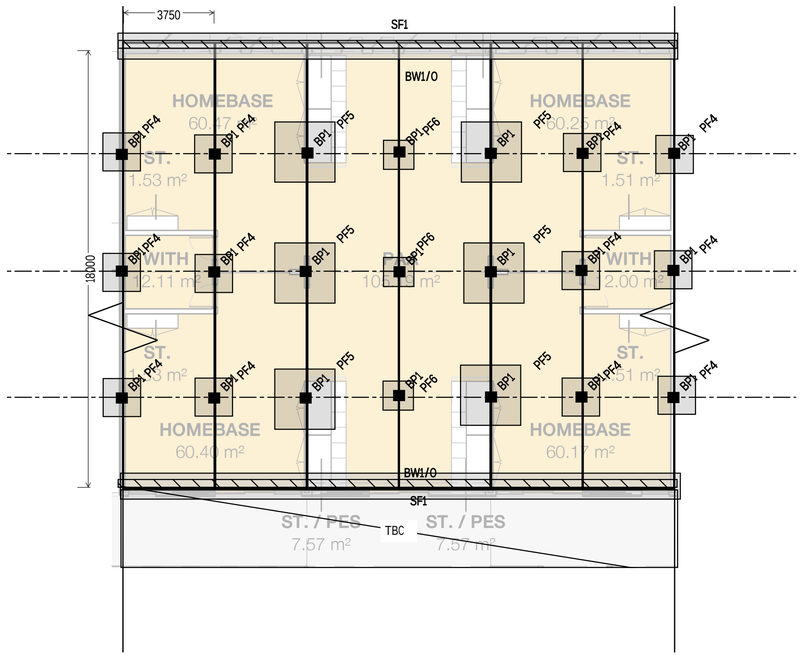
FOUNDATION SCHEDULE

PF4 - 400 DEEP x 2000 x 2000 - N16-200 BTM E/W, SL82 MESH TOP
PF5 - 500 DEEP x 3000 x 3000 - N16-200 BTM E/W, SL82 MESH TOP
PF6 - 350 DEEP x 1200 x 1200 - N16-200 BTM E/W, SL82 MESH TOP

SF1 - 300 DEEP x 1500 WIDE - N16-200 BTM E/W, SL82 MESH TOP

BP1 - 390 CORE FILLED BLOCK PIER

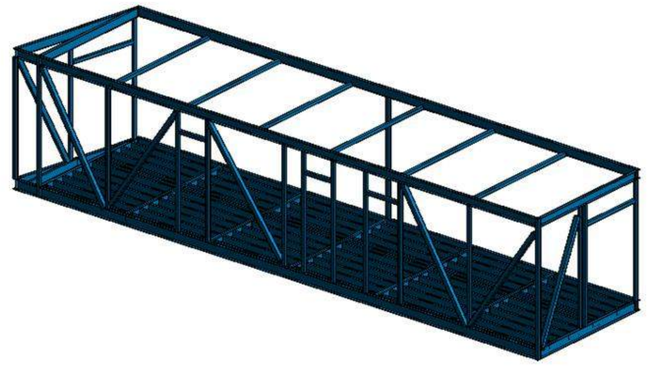
BW1 - DENOTES 190 CORE FILLED BLOCK WALL, MAX 600 HIGH N12-400 VERTICAL, N16-400 HORIZONTAL



PART PLAN - TYPICAL MODULE FOUNDATIONS

SCALE: 1:125

NOTE: PAD FOOTING SIZES HAVE BEEN SHOWN INDICATIVELY BASED ON CATHERINE FIELD PS. COLUMN LOCATIONS AND LOADS TO BE CONFIRMED BY MODULE SUPPLIER. PAD FOOTING SIZES WILL VARY BASED ON THIS INFORMATION.



TYPICAL CATHERINE FIELD PS MODULE - 3D RENDER

TRUSS/STUD WALL SUPPLIER TO ADHERE TO THE FOLLOWING EFSG DEFLECTION REQUIREMENTS:

ELEMENT:	ACCEPTANCE CRITERIA:	LIMIT:
OVERALL BUILDING	LATERAL DEFLECTION (SERVICE WIND)	HEIGHT/500
ROOF TRUSSES	DEAD LOAD DEFLECTION	SPAN/360
	LIVE LOAD DEFLECTION	SPAN/250
	SERVICE WIND LOAD DEFLECTION	SPAN/150
ROOF TRUSSES SUPPORTING SLIDING DOORS/OPERABLE WALLS	DEAD LOAD DEFLECTION	REFER TO MANUFACTURER REQUIREMENTS
ELEMENTS SUPPORTING FACE MASONRY WALLS	LATERAL DEFLECTION (SERVICE WIND)	SPAN/1000
ELEMENTS SUPPORTING RENDERED MASONRY WALLS	LATERAL DEFLECTION (SERVICE WIND)	SPAN/1800
STUD WALLS TYPICAL	LATERAL DEFLECTION (SERVICE WIND)	SPAN/500

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DRAWN: M BURKE
DESIGNED: M BURKE
JOB MANAGER: R DALE
VERIFIER:

REV	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
A	SCHEMATIC DESIGN	MB		RD	26.04.21
B	SCHEMATIC DESIGN	MB		RD	14.05.21

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SCALE: 1:125

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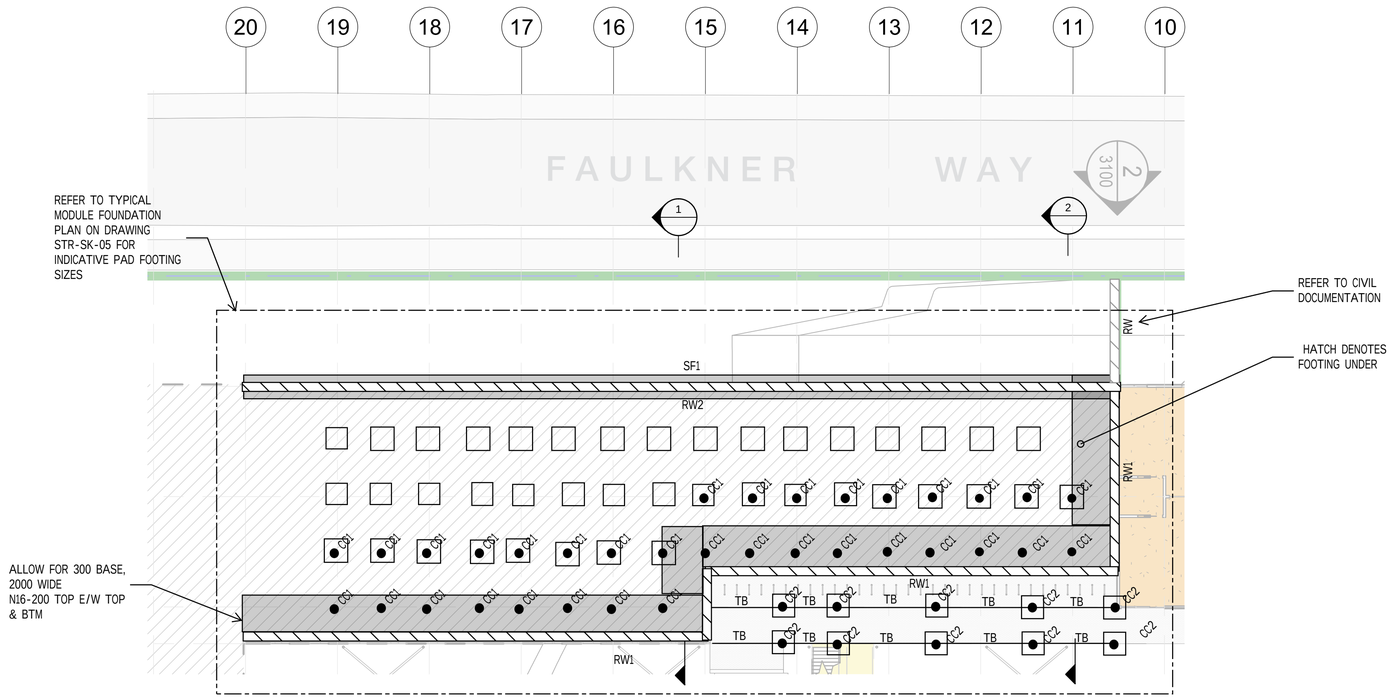
PROJECT
NEW PRIMARY SCHOOL IN EDMONDSON PARK

DRAWING TITLE
FOUNDATION PLAN - MODULES

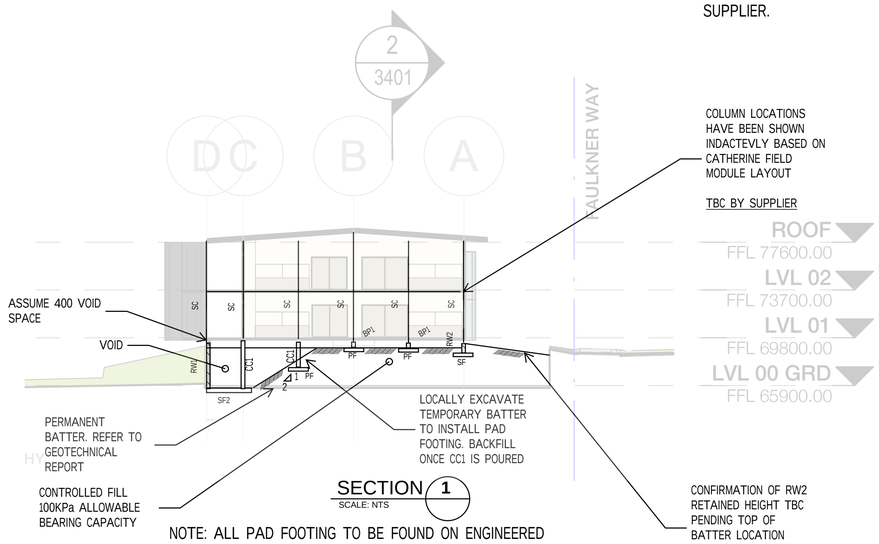
JOB NUMBER 210040
DRAWING NUMBER STR-W-DW-00_SK05.00
REVISION A
DRAWING SHEET SIZE = A1



PART PLAN - TYPICAL MODULE FOUNDATIONS

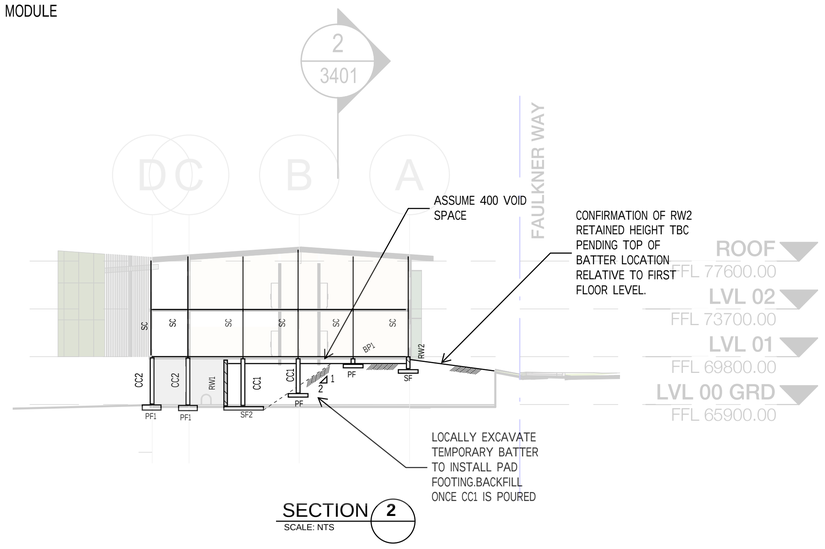
SCALE: 1:250

NOTE: PAD FOOTING SIZES HAVE BEEN SHOWN INDICATIVELY BASED ON CATHERINE FIELD PS. COLUMN LOCATIONS TO BE CONFIRMED BY MODULE SUPPLIER.



SECTION 1
SCALE: NTS

NOTE: ALL PAD FOOTING TO BE FOUND ON ENGINEERED FILL. MINIMUM 100KPA ALLOWABLE BEARING CAPACITY



SECTION 2
SCALE: NTS

NOTE: ALL PAD FOOTING TO BE FOUND ON ENGINEERED FILL. MINIMUM 100KPA ALLOWABLE BEARING CAPACITY

GENERAL NOTES:

PAD FOOTINGS TO BE FOUNDED IN MINIMUM 100 kPa ALLOWABLE BEARING CAPACITY MATERIAL. ALLOWABLE BEARING PRESSURE TO BE CONFIRMED ON SITE BY GEOTECHNICAL ENGINEER.

ALL FOOTINGS TO BE POURED IN 32 MPa CONCRETE

PAD FOOTINGS CENTRAL UNDER COLUMNS UNLESS NOTED OTHERWISE

ALLOW FOR 50mm SET DOWNS

FOUNDATION DESIGN BASED ON 'M1' SOIL CLASSIFICATION BASED ON GEOTECHNICAL REPORT 33963BHrpt BY JK GEOTECHNICS

MEMBER SCHEDULE

CC1 - DENOTES 450 DIA FORMATUBE COLUMN (IN GROUND), 6N20 VERT R10-300 TIES
CC2 - DENOTES 450 CONCRETE COLUMN (EXTERNAL), 6N20 VERT R10-300 TIES

RW1 - DENOTES 290 BLOCK RETAINING WALL, ALLOW FOR N20-400 E/F V AND N16-400 H, MAX 3.6m HIGH
RW2 -DENOTES 190 BLOCK RETAINING WALL, ALLOW FOR N16-400 E/F V AND N16-400 H, MAX 1.2m HIGH

SC - DENOTES TYP STEEL MODULE COLUMN

BP1 - DENOTES BLOCK PIER

TB - DENOTES TRANSFER BEAM, TO ACHIEVE PROJECT FIRE RATING REQUIREMENTS

SF - DENOTES STRIP FOOTING, REFER TO SK05 FOR DETAILS
PF - DENOTES PAD FOOTING, REFER TO SK05 FOR DETAILS

DRAWN: M BURKE
DESIGNED: M BURKE
JOB MANAGER: R DALE
VERIFIER:

NOT FOR CONSTRUCTION

REV	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
A	SCHEMATIC DESIGN	MB		RD	14.05.21

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ARCHITECT: TKDArchitects Tanner Kibble Denton

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PROJECT: NEW PRIMARY SCHOOL IN EDMONDSON PARK

DRAWING TITLE: PLAN AND SECTIONS - MODULAR FOUNDATIONS

JOB NUMBER: 210040
DRAWING NUMBER: STR-W-DW-00_SK06.00
REVISION: A
DRAWING SHEET SIZE = A1

8. Appendix B: EFSG Departures

NEW PRIMARY SCHOOL IN EDMONDSON PARK

Item	EFSG REF	Element	EFSG Requirements	Departure	Comment	EFSG Approval
1	DG21.1.3	Deflections	Table A, Item (iii) states Deflections of Floor Structures with non brittle finishes should be limited to Span/500	The following deflection criteria is adopted: Total Long Term: Span/300 (max 25mm); Live Load: Span/500; Dead Load: Span/360	This would apply to all floors with non brittle finishes, and is consistent with the deflection criteria adopted on Catherine Field	
2	DG21.03.7	Corrosion Protection to Structural Steel	For 15 years to first maintenance nominate corrosion protection for all structural steelwork whether external or internal, in accordance with the requirements of AS 2312 Guide to the protection of structural steel against atmospheric corrosion by the use of protective coatings. Protect internal steelwork as for external. Determine atmospheric environment/classification for the site from AS 2312. If the Atmospheric Corrosivity Category is either C: Medium, D: High, or E: Very High, according to AS 2312 Clause 2.3, use a galvanised system for all exposed external steelwork and those elements which are not easily accessible for future maintenance (e.g. columns in a wall). Based on this system, use further coating mass in terms of galvanising or painting to comply with the 15 years guarantee requirement, as necessary	This departure applies only to internal steel work (specifically the DfMA modules, as it is not feasible to hot dip galvanize the module steel. The intent is to substitute the galvanized finish for internal steelwork for alternative paint system that achieves 15 years warranty to first maintenance in accordance with AS2312. External steel classification - specifically, for Edmondson Park, has been assessed as C3 corrosivity environment in accordance with AS2312, this is equivalent to a class C (medium) in terms of the EFSG. Therefore, in accordance with the EFSG the external steelwork requires galvanizing. For the internal steel however, the corrosivity classification is different. All internal steel is either in category C1 or C2, while the external steel is in category C3 (as discussed previously). In terms of the EFSG, a C1 and C2 category relates to an A (very low) and B (low) category. Therefore, we suggest a coating system that complies with the Australian standards (AS2312.1 & AS4100) – and hence the BCA - for both categories C1 and C2, achieving 15 years until first maintenance as opposed to galvanizing. Corrosion Protection to structural steel to comply with AS 2312 Table 6.3 by way of paint treatment and appropriate surface treatment as specified and test by product supplier. It should be noted that internal steelwork that is cold formed will not be galvanized but will comply with the coating requirements of the EFSG i.e. nominated g/m2 This departure would apply to all structural steel on the relevant internal and modular unit steelwork for the project but the **final detail of this departure is subjcet to consultation and selection of the DfMA contractor.**	This would apply to all structural steel on the project	
3	DG21.06.05	Impact Design Loads on Lightweight Steel Partition Framing	Walls to be designed to withstand a possible impact load of 2kN applied mid-height of wall	All stud walls to be designed for the greater of the following: 1) Wind Loads (where external) 2) Internal pressure of 0.25kPa (service) and 0.5kPa (ultimate) 3) 0.5kN accidental impact load (ultimate case only)	This would apply to all lightweight partitions	