STEPHEN MITCHELL

ENGINEERS LIMITED

CONSULTING STRUCTURAL ENGINEERS

STRUCTURAL REPORT

Initial Seismic Assessment

Job Title:	Bethlehem Blocks A to J & the BP.
Building Type:	Existing Building
Client:	PMG Generation Fund.
Location:	Bethlehem Shopping Centre, Tauranga.
Job No.:	2470
Date:	April 2021
Rev:	B

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INTRODUCTION

PMG Generation Fund (PMG) engaged Stephen Mitchell Engineers Ltd (SME), to undertake an initial review of the expected seismic performance of the existing retail buildings, at the Bethlehem Shopping Centre, Tauranga, based on an investigation of the Property File documentation, which was supplied by the client. This assessment and report covers the following Blocks:

- Block A
- Block B
- Block C
- Block D
- Block E
- Block G
- Block H
- Block J
- BP Service Station

Please note that the Countdown Block is the subject of a separate assessment and report and also there are no Blocks designated Block F or Block I in the Bethlehem Shopping Centre.

This report has been prepared under advice from PMG that it is to be used for Due Diligence purposes and therefore may be assigned under the same contractual terms and conditions that SME were engaged to undertake this assessment and prepare this report.

The following Initial Seismic Assessment (ISA), which is essentially the re-named version of the Initial Evaluation Procedure (IEP), and seismic rating, are based on our results derived from the application of the procedure detailed in the New Zealand Society for Earthquake Engineering technical publication 'Assessment and Improvement of the Structural Performance of Buildings in Earthquakes'. Specifically, the Initial Seismic Assessment that we have conducted has been undertaken using the current NZ Society of Earthquake Engineers (NZSEE) guidelines "The Seismic Assessment of Existing Buildings – Technical Guidelines for Engineering Assessments – July 2017 – Initial Seismic Assessment – Part B".

The ISA method was developed to provide an initial coarse screening tool for the assessment of the potential seismic performance of a building structure, bench marked against the New Building Standard (NBS). The grading system represents the capacity of the building's seismic load resisting structural elements to sustain the New Building Standard seismic lateral load actions, expressed as the percentage of that demand. The assessment is derived from both quantative parameters and the qualitative review of specific features of the buildings' form, design, construction, and location. For this ISA we have carried out a more comprehensive investigation of the original structural engineering design drawings, detail and available calculations than would normally be expected for this level of assessment, but because of this, we submit that it makes this particular ISA more complete, robust and reliable than a more typical ISA conducted under the ISA format.

The property file contained a comprehensive set of the original architectural and structural drawings for each of the individual buildings. The quality of this property file documentation is sufficiently high to allow us to carry out a robust seismic assessment of each of the building structures and to determine a reliable seismic performance and seismic grade for this level of assessment.

Discovered in the documentation for the K-Mart development (which is now known as Block E), which is on the north side of the shopping centre, there is a full 2013 geotechnical report by BCD Group, which includes bore-log data. We have also discovered a geotechnical site

investigation report by CMW Geosciences, dated 27 July 2020, for a pad foundation under an additional column within the existing Countdown building, on the south side of the shopping centre. This report includes useful hand auger bore-log data and geotechnical ultimate bearing pressures so for the scope of this assessment, we consider this to represent sufficient geotechnical coverage. There was also a site investigation report by Geocon Geotechnical Ltd, with an interpretative report by Mark T Mitchell Ltd for the BP Service Centre, we have taken note of this report but not specifically referenced it other than in our assessment of the BP Service Centre retail building and canopy.

WHAT THE SEISMIC RATING MEANS:

Our investigation has determined that the various buildings within the Bethlehem Shopping Centre will achieve a seismic rating of at least 100% NBS with most of the buildings 100+% NBS, as an Importance Level 2 structures, with no identified Severe Structural Weaknesses or Critical Structural Weaknesses.

This means that the rating is based on seismic loads derived for an Importance Level 2 (IL2), which reflects the seismic loads appropriate for a building of this type, size, and occupancy. This Importance Level has been determined in accordance with the joint Australian/ New Zealand Standard – Structural Design Actions Part 0, AS/NZS 1170.0:2002.

Because these buildings are considered as Seismic Grade A and A+ structures (having an expected seismic performance equal to, or greater than, 100% NBS), the NZSEE grading scheme presented in Table 1 below, indicates a risk exposure for them with their current occupancy, to be less than, or comparable to that of a new building structure.

A building with an earthquake rating less than 34% NBS, is one of the requirements for the Territorial Authority to consider it to be an Earthquake-Prone Building (EPB) in terms of the Building Act 2004. A building rating less than 67% NBS is considered as an Earthquake Risk Building (ERB) by the New Zealand Society for Earthquake Engineering. The Bethlehem Shopping Centre buildings, including the BP Service Station, are therefore categorised as neither Earthquake-Prone Buildings nor Earthquake Risk Buildings.

In addition to a building having sufficient strength to sustain the design seismic actions defined by the % NBS earthquake rating, the NZSEE guidelines also require that the rating must reflect the ability of the building to continue to perform in earthquake shaking beyond that % NBS ULS shaking demand level. This ability is defined in the guidelines as the available structural resilience. Structural resilience is necessary to allow a building to meet the overall performance objectives set out in the Building Code. These objectives would not be met if a building had a high probability of failure once the rated % NBS ULS shaking demand levels were exceeded.

Our qualitative and quantitative assessment of these buildings indicates that there are no Severe Structural Weaknesses (SSW's), Critical Structural Weaknesses (CWS's) or geotechnical considerations that would negatively impact on any of the Block's structural resilience. Our review of the detailing in these buildings is such that we are satisfied that they will meet the requirements of the Building Code with respect to available resilience for earthquake intensities of a minimum of 100% ULS seismic demand. This level of seismic performance is the by-product of the design philosophy, procedures, parameters, and detailing employed by the original design engineers, which are described later in this report in more detail for each of the buildings.

TABLE 1
(Copy of Table A3.1 from NZSEE 'The Seismic Assessment of Existing Buildings' – Part A).

Percentage of New Building Standard (%NBS)	Alpha rating	Approx. risk relative to a new building	Life-safety risk description
>100	A+	Less than or comparable to	Low risk
80-100	A	1-2 times greater	Low risk
67-79	B	2-5 times greater	Low to Medium risk
34-66	C	5-10 times greater	Medium risk
20 to <34	D	10-25 times greater	High risk
<20	E	25 times greater	Very high risk

GENERAL PROPERTY DESCRIPTION:

The Bethlehem Shopping Centre consists of 11 discrete buildings constructed over a period of some 18 years commencing with the Countdown bulk retail store in 2003 and with the most recent stage being the BP Service Centre (shop and canopy) built in 2020. The Countdown store is the subject of an independent assessment and report and will receive no further consideration within this document.

Each of the buildings is a standalone structure, and it appears that the development was initiated by AMP Capital Investors Ltd, who engaged Ignite Architects Ltd to undertake both the master planning and the individual building design (except for the Countdown store and the BP Service Centre which are bespoke developments designed by different consultants). The structural engineers for all of the buildings, other than the Countdown, K-Mart, and BP Service Centre, were Connell Wagner, a large, well respected and competent consulting engineering practice.

All of the buildings are single storey, low to moderate stud height, retail/warehouse type construction but there are some two storey zones that are primarily mezzanine type or local office sections within the body of the main building. Some of the Blocks have undergone fit-out alterations and where these are recorded in the property file documents that are in our possession, they will be individually commented on.

SEISMIC ASSESSMENT – REPORT FORMAT:

Because of the number of individual buildings on the property, all with slightly different construction eras, materials and nuances in structural form, each individual building will be reviewed as stand-alone entity through an Initial Evaluation Procedure applied to each. The seismic performance assessment will consist of an individual review of the physical features of each building and the likely dominant and secondary seismic load resisting systems resulting in the quantification of the likely seismic performance. Each building will be covered by a discrete sub-section of this report although a summary of the assessed rating and seismic grade for each is provided at the end of this report cover section.

Throughout the individual assessments we have described the building and the background to the construction. We have provided a summary of the assessment parameters for each building, and the reasons for our choice of both the assessment parameters and modification factors.

The particular sequence that the building assessments are presented in has no special relevance other than it represents the alphabetic sequence that is used by the original designers to designate each Block on the overall site plans. The building assessments are generally arrayed by the use of the discrete building identifier. A copy of the building identifier plan is shown in Appendix A.

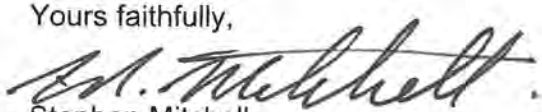
SUMMARY OF RESULTS

This is tabulated in Appendix B.

LIMITATION:

This report and its conclusions are based on the Initial Evaluation Procedure as detailed in the New Zealand Society for Earthquake Engineering Guideline 'Assessment and Improvement of the Structural Performance of Buildings in Earthquakes', an external and internal visual inspection of the property and a review of only the documents available in the Council Property File. No testing, measurement or intrusive examinations of the structural elements were made. The findings and conclusions rely on the building having been constructed in full accordance with the documentation reviewed and that the structural elements have remained unaltered and in sound condition and repair. No opinion regarding any aspect of the condition, or maintenance, of the building is expressed or implied and likewise the consideration of any discipline, other than the structural engineering assessment of the likely seismic performance, determined by high level document review and visual inspection, is expressed or implied.

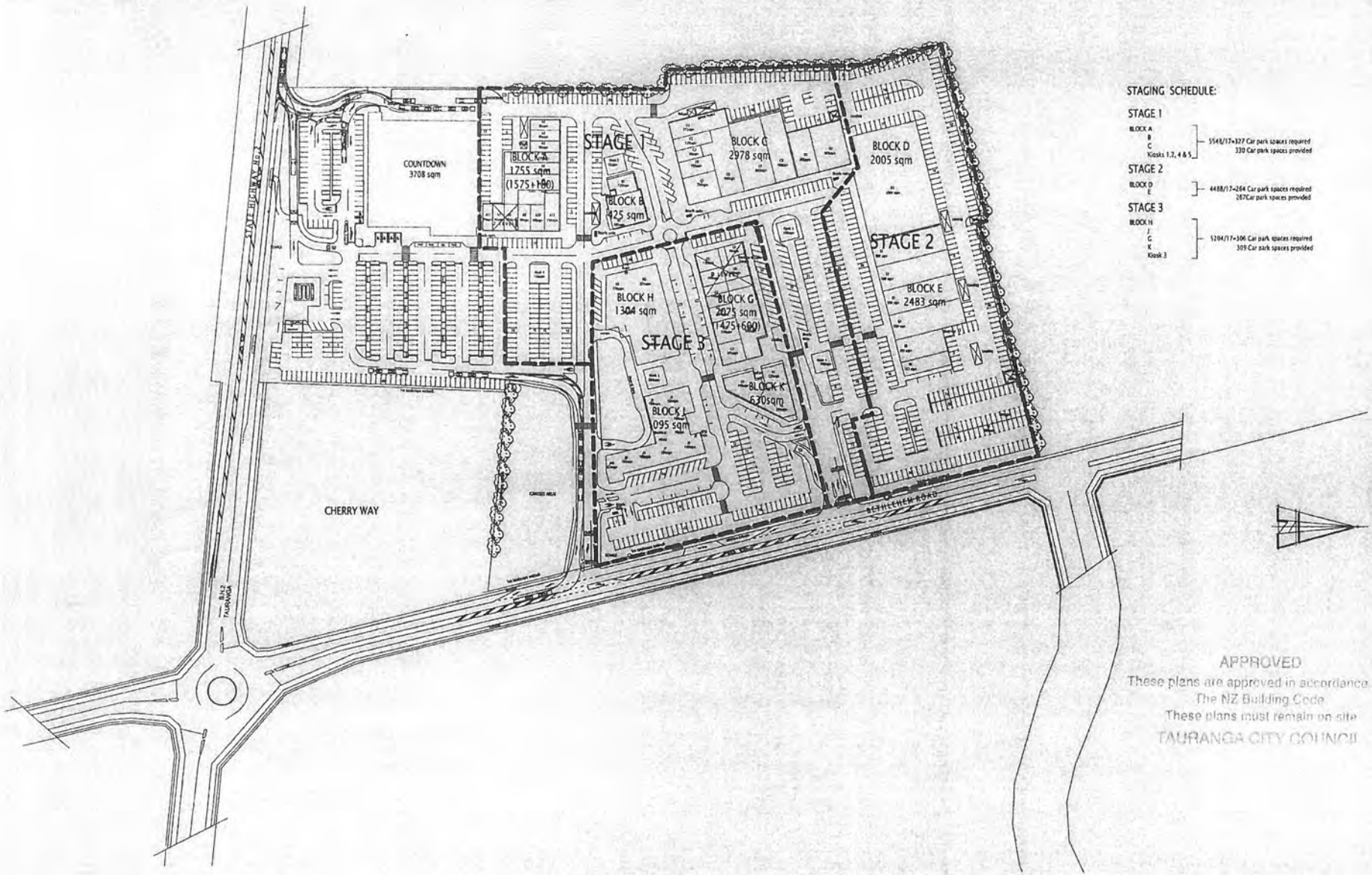
Yours faithfully,



Stephen Mitchell
(CPEng # 70562)

Appendix A

Address Map and Building Identifier Plan for Each Building



STAGING SCHEDULE:

STAGE 1

BLOCK A, B, C, Kiosks 1,2, 4 & 5 — 554@/17=327 Car park spaces required; 330 Car park spaces provided

STAGE 2

BLOCK D, E — 448@/17=264 Car park spaces required; 267Car park spaces provided

STAGE 3

BLOCK H, J, G, K, Kiosk 3 — 520#/17=306 Car park spaces required; 309 Car park spaces provided

GENERAL NOTES

1. DO NOT SCALE OFF DRAWING.
2. CONTRACTOR SHALL VERIFY AND BE RESPONSIBLE FOR ALL DIMENSIONS ON SITE.
3. ARCHITECTS TO BE NOTIFIED OF ANY VARIATION BETWEEN SITE DIMENSIONS AND THOSE ON PLANS.
4. THESE DRAWINGS REMAIN THE PROPERTY OF IGNITE ARCHITECTS LTD AND SHOULD NOT BE COPIED IN ANY FORM OR PASSED ON TO A THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT.

ISSUE	REVISION	BY	DATE
A	Building Consent	MO	01.09.06

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CLIENT

AMP capital INVESTORS

PROJECT

BLOCK J
BETHLEHEM
SHOPPING CENTRE

DRAWING TITLE

STAGING PLAN

DATE	SCALE
01 SEPTEMBER 2006	
DRAWN: MG	CHECK: CMcM
PROJECT NO.: 457-05-19	

DRAWING NUMBER: BC1001 (A)

Appendix B

Summary Results (% NBS and Seismic Grade)

for Each Building

BUILDING	YEAR	SEISMIC RATING %NBS	SEISMIC GRADE
A	2006	>100%	A+
B Building B Kiosk Extension	2006 2007	>100%	A+
C Building C Alteration	2006 2016	>100%	A+
D	2006	>100%	A+
E	2015	100%	A
G Building G End Extension	2006 2016	>100%	A+
H Building H Canopy	2006 2007	>100%	A+
J	2006	>100%	A+
BP Shop & Canopy	2020	100%	A

Appendix C

Commentary and Initial Evaluation Procedure (IEP) and Existing Structural and Architectural Drawings for Each Building

Description:

Building A was designed in 2006 and is a rectangular single storey block that has its long axis orientated east-west. It has two footprint cut outs, effectively being steps in the footprint, on the southern side. It has a small two storey, almost square shaped office section in the south east corner. It is a stand-alone building that has a car park frontage on the north, south, and east sides, and a service road on the western boundary side. It is seismically isolated from all other buildings.

This building is a relatively small foot-print single storey, pitched roof warehouse type structure, with 7 bays in the east-west longitudinal direction and between one and three bays in the north-south transverse direction. There are extensive canopies on the north and east sides. The roof over the south-east corner office section is raised above the roof of the single storey section.

Construction of the warehouse type envelope consists of long-run metal mono-pitch roof sheeting over cold rolled steel purlins, supported on structural steel portal frame rafters, which are located on each primary transverse frame grid. Each of the primary frame portal rafters is supported by structural steel portal columns at the span ends, and there are internal columns where the footprint expands toward the south-east corner. The structural steel columns land above the concrete foundations, below the on-grade slab level. The foundations are conventional strip footings and pad foundations that have been recorded as being reinforced concrete, although there are no specific details of the reinforcement in the structural drawings. We have however, located sheets of 'Typical Foundation and Wall Details' for what was called 'Stage 1' of the shopping centre development, and we are confident that these details are appropriate to Block A.

The canopies have reasonable sized structural steel T cantilever rafter beams supporting structural steel rectangular hollow section (RHS) purlins. The cantilever beams are bolted directly into the main portal frame columns with robust connections and this combination provides adequate lateral stability.

There are 150mm thick precast reinforced concrete wall panels along the south and west elevations, and these panels are virtually continuous along each elevation. There is shop front glazing on the north and east elevations.

There are 3 full bays of full width diagonal structural steel rod and double purlin roof bracing in the transverse direction and there are two bays of full width diagonal structural steel rod and double purlin roof bracing in the longitudinal direction. There are substantial parallel flange channel (PFC) eaves ties on the north elevation, and these appear to act as collector beams to distribute lateral loads from the roof plane bracing to the precast concrete panels loaded as in-plane shear walls.

The on-grade floor slab consists of a conventional mesh reinforced 125mm thick on-grade slab.

There is a mezzanine area in the south-east corner of the main building. The roof construction replicates that in the single storey area of the building and is supported on structural steel portal frames with in-plane diagonal steel rod roof bracing. The suspended floor is constructed from a 125mm thick conventional mesh reinforced insitu concrete topping over proprietary Hi-Bond metal tray flooring. The floor system is supported on a combination of the exterior precast concrete wall panels, and structural steel beams and posts, where there are no panels. The beams are called up as having welded-on shear studs at appropriate centres. The stair is light weight construction and is drawn as having two steel PFC stringers and precast concrete treads.

Seismic Load Resisting Structure:

The lateral load resisting system for the building envelope consists primarily of the diagonal structural steel roof bracing in conjunction with the precast reinforced concrete wall panels acting as in-plane loaded shear walls in both the transverse and longitudinal directions. The transverse lateral loads (in the north-south direction) are also sustained by the structural steel moment resisting portal frames, and this may well be considered as a redundancy in the transverse lateral load resisting system. There are no details in the drawings specifically for this Block, of the reinforcement in the precast concrete wall panels and likewise there are no specific details of the foundations (other than the sizes in the key notes) or their connections to the wall panels, however, as described above, we have discovered sheets of 'Typical Details' which describe the structural elements missing off the Block specific drawings. Anyway, it is typical for the precast concrete wall panels to have been designed to sustain the post-fire lateral face loads by cantilever action above the on-grade floor slab, and we see no reason why this would not be the case for this building.

The lateral load resisting system for the suspended mezzanine floor consists of direct support by in-plane loaded reinforced concrete wall panels coupled with structural steel moment resisting portal frames in both directions. By inspection, there is a high density of bracing under the mezzanine floor, and we conclude that this section of the building will achieve a seismic rating of greater than 100% NBS without any severe structural weaknesses, and as such will not govern the seismic rating for the building as a whole.

No severe structural weaknesses or critical structural weaknesses have been detected in this building structure.

There is paucity in the detail obtained from information contained in the property file, specifically for this Block, however, when read with the 'Typical Details' for 'Stage 1' it is sufficiently comprehensive that it allows us to make a robust assessment of the likely seismic performance of the building at a level of certainty well above that generally associated with an ISA.

There are no alterations or modifications to the building recorded in the documentation that we hold.

Seismic Assessment:

We have used the following parameters in the ISA assessment.

- Building era 2004 – 2011.
- Seismic Zone B, Tauranga.
- Class D soft soil.
- Natural period 0.4 seconds, (this is based on the structural steel diagonal roof bracing distributing the lateral loads to the full height precast reinforced concrete wall panels acting as in-plane loaded shear walls. There are structural steel moment resisting portal frames in the transverse direction which suggests that the natural period could be somewhat longer for these secondary elements, and this is addressed in the Performance Achievement Ratio (PAR) section).
- Building Importance Level 2.
- Structural Ductility factor 1.25 (this is based on the in-plane loaded diagonal roof bracing and the in-plane loaded reinforced concrete wall panels).
- Plan irregularity 1.0 (this value has been selected despite the asymmetric arrangement of the lateral load resisting walls in both directions. The reason is that because of the type of construction, the design philosophy for the building was no

doubt that it would act as a series of discrete tributary load resisting structural elements. This is addressed in the PAR section).

- Vertical irregularity 1.0.
- Pounding Potential 1.0 (because the building has no neighbours).
- Site Characteristics 1.0 (because there is no recorded risk of liquefaction or site instability).
- Performance Achievement Ratio 1.1. (This is based on the regularity, pounding and site factors as detailed above but includes an enhancement 'other' factor of 1.1 which is less than the maximum of 2.5 available for buildings less than or equal to 3 storeys. This 'other factor' was selected because the natural period is arguably too short, and the ductility factor too low, for this building if the moment resisting structural steel portal frames were considered as anything other than a redundant secondary lateral load resisting element. Also, the precast concrete wall panels have no doubt been designed and detailed to sustain the post fire lateral load whilst acting as face loaded cantilevers above the foundation and on-grade slab, and this represents another redundancy in the system. All of these factors have been nominally recognised by an 'other factor' of 1.1).

Seismic Rating and Grade:

The Baseline rating of 100% NBS is modified by the Performance Achievement Ratio of 1.1 resulting in a Seismic Rating of >100% NBS which makes this Block A building neither an Earthquake Risk nor Earthquake Prone.

Rating >100% NBS.
Grade A+.

Initial Evaluation Procedure (IEP) Assessment - Completed for {Client/TA}

WARNING!! *This initial evaluation has been carried out solely as an initial seismic assessment of the building following the procedure set out in the "The Seismic Assessment of Existing Buildings" Technical Guidelines for Engineering Assessments, July 2017. This spreadsheet must be read in conjunction with the limitations set out in the accompanying report, and should not be relied on by any party for any other purpose. Detailed inspections and engineering calculations, or engineering judgements based on them, have not been undertaken, and these may lead to a different result or seismic grade.*

Street Number & Name:	Bethlehem Shopping Centre	Job No.:	2470
AKA:		By:	SME
Name of building:	Block A	Date:	26/03/2021
City:	Tauranga	Revision No.:	A

Table IEP-1 Initial Evaluation Procedure Step 1

Step 1 - General Information

1.1 Photos (attach sufficient to describe building)

NOTE: THERE ARE MORE PHOTOS ON PAGE 1a ATTACHED

1.2 Sketches (plans etc, show items of interest)

NOTE: THERE ARE MORE SKETCHES ON PAGE 1a ATTACHED

1.3 List relevant features (Note: only 10 lines of text will print in this box. If further text required use Page 1a)

Refer to report details.

1.4 Note information sources Tick as appropriate

Visual Inspection of Exterior	☑	Specifications	☐
Visual Inspection of Interior	☐	Geotechnical Reports	☑
Drawings (note type)	☑	Other (list)	☐

Property File.

Initial Evaluation Procedure (IEP) Assessment - Completed for {Client/TA}

Street Number & Name:	Bethlehem Shopping Centre	Job No.:	2470
AKA:		By:	SME
Name of building:	Block A	Date:	26/03/2021
City:	Tauranga	Revision No.:	A

Table IEP-2 Initial Evaluation Procedure Step 2

Step 2 - Determination of *(%NBS)*$_b$

(Baseline *(%NBS)* for particular building - refer Section B5)

2.1 Determine nominal *(%NBS)* = *(%NBS)*$_{nom}$

	Longitudinal	Transverse
a) Building Strengthening Data		
Tick if building is known to have been strengthened in this direction	☐	☐
If strengthened, enter percentage of code the building has been strengthened to	N/A	N/A
b) Year of Design/Strengthening, Building Type and Seismic Zone		
Pre 1935	○	○
1935-1965	○	○
1965-1976	○	○
1976-1984	○	○
1984-1992	○	○
1992-2004	○	○
2004-2011	◉	◉
Post Aug 2011	○	○
Building Type:	Not applicable	Not applicable
Seismic Zone:	Not applicable	Not applicable
c) Soil Type		
From NZS1170.5:2004, Cl 3.1.3 :	D Soft Soil	D Soft Soil
From NZS4203:1992, Cl 4.6.2.2 : (for 1992 to 2004 and only if known)	Not applicable	Not applicable
d) Estimate Period, *T*		
Comment:		
h_n =	5	5 m
A_c =	1.00	1.00 m^2
Moment Resisting Concrete Frames: $T = \max\{0.09h_n^{0.75}, 0.4\}$	○	○
Moment Resisting Steel Frames: $T = \max\{0.14h_n^{0.75}, 0.4\}$	○	○
Eccentrically Braced Steel Frames: $T = \max\{0.08h_n^{0.75}, 0.4\}$	○	○
All Other Frame Structures: $T = \max\{0.06h_n^{0.75}, 0.4\}$	○	○
Concrete Shear Walls $T = \max\{0.09h_n^{0.75}/A_c^{0.5}, 0.4\}$	○	○
Masonry Shear Walls: $T \leq 0.4$sec	○	○
User Defined (input Period):	◉	◉
Where h_n = height in metres from the base of the structure to the uppermost seismic weight or mass.	T: 0.40	0.40
e) Factor A: Strengthening factor determined using result from (a) above (set to 1.0 if not strengthened)	Factor A: 1.00	1.00
f) Factor B: Determined from NZSEE Guidelines Figure 3A.1 using results (a) to (e) above	Factor B: 1.00	1.00
g) Factor C: For reinforced concrete buildings designed between 1976-84 Factor C = 1.2, otherwise take as 1.0.	Factor C: 1.00	1.00
h) Factor D: For buildings designed prior to 1935 Factor D = 0.8 except for Wellington and Napier (1931-1935) where Factor D may be taken as 1.0, otherwise take as 1.0.	Factor D: 1.00	1.00
***(%NBS)*$_{nom}$ = AxBxCxD**	*(%NBS)*$_{nom}$ 100%	100%

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Initial Evaluation Procedure (IEP) Assessment - Completed for {Client/TA}

Street Number & Name:	Bethlehem Shopping Centre	Job No.:	2470
AKA:		By:	SME
Name of building:	Block A	Date:	26/03/2021
City:	Tauranga	Revision No.:	A

Table IEP-2 Initial Evaluation Procedure Step 2 continued

2.2 Near Fault Scaling Factor, Factor E

If $T \leq 1.5$sec, Factor E = 1

		Longitudinal	Transverse
a) Near Fault Factor, *N(T,D)* (from NZS1170.5:2004, Cl 3.1.6)	N(T,D):	1	1
b) Factor E = 1/N(T,D)	Factor E:	1.00	1.00

2.3 Hazard Scaling Factor, Factor F

a) Hazard Factor, *Z*, for site

Location: Tauranga — Refer right for user-defined locations

Z =	0.2	(from NZS1170.5:2004, Table 3.3)
Z_{1992} =	0.85	(NZS4203:1992 Zone Factor from accompanying Figure 3.5(b))
Z_{2004} =	0.2	(from NZS1170.5:2004, Table 3.3)

b) Factor F

For pre 1992	=	1/Z
For 1992-2011	=	Z_{1992}/Z
For post 2011	=	Z_{2004}/Z

	Longitudinal	Transverse
Factor F:	1.00	1.00

2.4 Return Period Scaling Factor, Factor G

a) Design Importance Level, I

(Set to 1 if not known. For buildings designed prior to 1965 and known to be designed as a public building set to 1.25. For buildings designed 1965-1976 and known to be designed as a public building set to 1.33 for Zone A or 1.2 for Zone B. For 1976-1984 set I value.)

	Longitudinal	Transverse
I =	1	1

b) Design Risk Factor, R_o (set to 1.0 if other than 1976-2004, or not known)

	Longitudinal	Transverse
R_o =	1	1

c) Return Period Factor, R (from NZS1170.0:2004 Building Importance Level)

	Longitudinal	Transverse
Choose Importance Level	○1 ◉2 ○3 ○4	○1 ◉2 ○3 ○4
R =	1.0	1.0

d) Factor G = IR_o/R

	Longitudinal	Transverse
Factor G:	1.00	1.00

2.5 Ductility Scaling Factor, Factor H

a) Available Displacement Ductility Within Existing Structure

Comment: Refer to report

	Longitudinal	Transverse
μ =	1.25	1.25

b) Factor H

		k_μ Longitudinal	k_μ Transverse
For pre 1976 (maximum of 2)	=	1.14	1.14
For 1976 onwards	=	1	1
Factor H:		1.00	1.00

(where k_μ is NZS1170.5:2004 Inelastic Spectrum Scaling Factor, from accompanying Table 3.3)

2.6 Structural Performance Scaling Factor, Factor I

a) Structural Performance Factor, S_p (from accompanying Figure 3.4)

Tick if light timber-framed construction in this direction

	Longitudinal	Transverse
	☐	☐
S_p =	0.93	0.93

b) Structural Performance Scaling Factor = $1/S_p$

	Longitudinal	Transverse
Factor I:	1.00	1.00

Note Factor B values for 1992 to 2004 have been multiplied by 0.67 to account for Sp in this period

2.7 Baseline *%NBS* for Building, $(\%NBS)_b$

(equals $(\%NBS)_{nom}$ x E x F x G x H x I)

	Longitudinal	Transverse
	100%	100%

WARNING!! *This initial evaluation has been carried out solely as an initial seismic assessment of the building following the procedure set out in "The Seismic Assessment of Existing Buildings" Technical Guidelines for Engineering Assessments, July 2017. This spreadsheet must be read in conjunction with the limitations set out in the accompanying report, and should not be relied on by any party for any other purpose. Detailed inspections and engineering calculations, or engineering judgements based on them, have not been undertaken, and these may lead to a different result or seismic grade.*

Initial Evaluation Procedure (IEP) Assessment - Completed for {Client/TA}

Street Number & Name:	Bethlehem Shopping Centre	Job No.:	2470
AKA:		By:	SME
Name of building:	Block A	Date:	26/03/2021
City:	Tauranga	Revision No.:	A

Table IEP-3 Initial Evaluation Procedure Step 3

Step 3 - Assessment of Performance Achievement Ratio (PAR)
(Refer Appendix B - Section B3.2)

a) Longitudinal Direction

potential CSWs	Effect on Structural Performance (Choose a value - Do not interpolate)			Factors
3.1 Plan Irregularity				
Effect on Structural Performance	○ *Severe*	○ *Significant*	◉ *Insignificant*	Factor A 1.0
Comment				
3.2 Vertical Irregularity				
Effect on Structural Performance	○ *Severe*	○ *Significant*	◉ *Insignificant*	Factor B 1.0
Comment				
3.3 Short Columns				
Effect on Structural Performance	○ *Severe*	○ *Significant*	◉ *Insignificant*	Factor C 1.0
Comment				

3.4 Pounding Potential
(Estimate D1 and D2 and set D = the lower of the two, or 1.0 if no potential for pounding, or consequences are considered to be minimal)

a) **Factor D1: - Pounding Effect**

Note:
Values given assume the building has a frame structure. For stiff buildings (eg shear walls), the effect of pounding may be reduced by taking the coefficient to the right of the value applicable to frame buildings.

Factor D1 For Longitudinal Direction: 1.0

Table for Selection of Factor D1	Severe	Significant	Insignificant
Separation	0<Sep<.005H	.005<Sep<.01H	Sep>.01H
Alignment of Floors within 20% of Storey Height	○ 1	○ 1	◉ 1
Alignment of Floors not within 20% of Storey Height	○ 0.4	○ 0.7	○ 0.8

Comment

b) **Factor D2: - Height Difference Effect**

Factor D2 For Longitudinal Direction: 1.0

Table for Selection of Factor D2	Severe	Significant	Insignificant
	0<Sep<.005H	.005<Sep<.01H	Sep>.01H
Height Difference > 4 Storeys	○ 0.4	○ 0.7	○ 1
Height Difference 2 to 4 Storeys	○ 0.7	○ 0.9	○ 1
Height Difference < 2 Storeys	○ 1	○ 1	◉ 1

Comment

Factor D 1.0

3.5 Site Characteristics - *Stability, landslide threat, liquefaction etc as it affects the structural performance from a life-safety perspective*

Effect on Structural Performance ○ *Severe* ○ *Significant* ◉ *Insignificant* **Factor E 1.0**

Comment

3.6 Other Factors - *for allowance of all other relevant characterstics of the building*

Record rationale for choice of Factor F:

For ≤ 3 storeys - Maximum value 2.5
otherwise - Maximum value 1.5.
No minimum.

Factor F 1.1

Refer to report

3.7 Performance Achievement Ratio (PAR)
(equals **A x B x C x D x E x F**)

PAR
Longitudinal 1.10

WARNING!! *This initial evaluation has been carried out solely as an initial seismic assessment of the building following the procedure set out in "The Seismic Assessment of Existing Buildings" Technical Guidelines for Engineering Assessments, July 2017. This spreadsheet must be read in conjunction with the limitations set out in the accompanying report, and should not be relied on by any party for any other purpose. Detailed inspections and engineering calculations, or engineering judgements based on them, have not been undertaken, and these may lead to a different result or seismic grade.*

Initial Evaluation Procedure (IEP) Assessment - Completed for {Client/TA}

Street Number & Name:	Bethlehem Shopping Centre	Job No.:	2470
AKA:		By:	SME
Name of building:	Block A	Date:	26/03/2021
City:	Tauranga	Revision No.:	A

Table IEP-3 Initial Evaluation Procedure Step 3

Step 3 - Assessment of Performance Achievement Ratio (PAR)
(Refer Appendix B - Section B3.2)

b) Transverse Direction

potential CSWs — **Effect on Structural Performance** (Choose a value - Do not interpolate) — **Factors**

3.1 Plan Irregularity
Effect on Structural Performance ○ Severe ○ Significant ◉ Insignificant — **Factor A** 1.0
Comment

3.2 Vertical Irregularity
Effect on Structural Performance ○ Severe ○ Significant ◉ Insignificant — **Factor B** 1.0
Comment

3.3 Short Columns
Effect on Structural Performance ○ Severe ○ Significant ◉ Insignificant — **Factor C** 1.0
Comment

3.4 Pounding Potential
(Estimate D1 and D2 and set D = the lower of the two, or 1.0 if no potential for pounding, or consequences are considered to be minimal)

a) Factor D1: - Pounding Effect

Note:
Values given assume the building has a frame structure. For stiff buildings (eg shear walls), the effect of pounding may be reduced by taking the coefficient to the right of the value applicable to frame buildings.

Factor D1 For Transverse Direction: 1.0

Table for Selection of Factor D1	Severe	Significant	Insignificant
Separation	0<Sep<.005H	.005<Sep<.01H	Sep>.01H
Alignment of Floors within 20% of Storey Height	○ 1	○ 1	◉ 1
Alignment of Floors not within 20% of Storey Height	○ 0.4	○ 0.7	○ 0.8

Comment

b) Factor D2: - Height Difference Effect

Factor D2 For Transverse Direction: 1.0

Table for Selection of Factor D2	Severe	Significant	Insignificant
	0<Sep<.005H	.005<Sep<.01H	Sep>.01H
Height Difference > 4 Storeys	○ 0.4	○ 0.7	○ 1
Height Difference 2 to 4 Storeys	○ 0.7	○ 0.9	○ 1
Height Difference < 2 Storeys	○ 1	○ 1	◉ 1

Comment

Factor D 1.0

3.5 Site Characteristics - *Stability, landslide threat, liquefaction etc as it affects the structural performance from a life-safety perspective*

Effect on Structural Performance ○ Severe ○ Significant ◉ Insignificant — **Factor E** 1.0
Comment

3.6 Other Factors - *for allowance of all other relevant characterstics of the building* — **Factor F** 1.10

Record rationale for choice of Factor F:

For ≤ 3 storeys - Maximum value 2.5
otherwise - Maximum value 1.5.
No minimum.

Refer to report

3.7 Performance Achievement Ratio (PAR)
(equals **A x B x C x D x E x F**)

PAR
Transverse 1.10

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Initial Evaluation Procedure (IEP) Assessment - Completed for {Client/TA}

Street Number & Name:	Bethlehem Shopping Centre	Job No.:	2470
AKA:		By:	SME
Name of building:	Block A	Date:	26/03/2021
City:	Tauranga	Revision No.:	A

Table IEP-4 Initial Evaluation Procedure Steps 4, 5, 6 and 7

Step 4 - Percentage of New Building Standard *(%NBS)*

		Longitudinal	Transverse
4.1	Assessed Baseline *%NBS* $(\%NBS)_b$ (from Table IEP - 1)	100%	100%
4.2	Performance Achievement Ratio (PAR) (from Table IEP - 2)	1.10	1.10
4.3	PAR x Baseline $(\%NBS)_b$	>100%	>100%
4.4	Percentage New Building Standard *(%NBS)* - Seismic Rating (Use lower of two values from Step 4.3)		>100%

Step 5 - Is *%NBS* < 34? NO

Step 6 - Potentially Earthquake Risk (is *%NBS* < 67)? NO

Step 7 - Provisional Grading for Seismic Risk based on IEP

Seismic Grade: A+

Additional Comments (items of note affecting IEP based seismic rating)

Relationship between Grade and *%NBS*:

Grade:	A+	A	B	C	D	E
%NBS:	> 100	100 to 80	79 to 67	66 to 34	< 34 to 20	< 20

Initial Evaluation Procedure (IEP) Assessment - Completed for {Client/TA}

Street Number & Name:	Bethlehem Shopping Centre	Job No.:	2470
AKA:		By:	SME
Name of building:	Block A	Date:	26/03/2021
City:	Tauranga	Revision No.:	A

Table IEP-5 Initial Evaluation Procedure Step 8

Step 8 - Identification of potential Severe Structural Weaknesses (SSWs) that could result in significant risk to a significant number of occupants

8.1	Number of storeys above ground level	2
8.2	Presence of heavy concrete floors and/or concrete roof? (Y/N)	Y

Potential Severe Structural Weaknesses (SSWs):

Note: Options that are greyed out are not applicable and need not be considered.

Occupancy not considered to be significant - no further consideration required

Risk not considered to be significant - no further consideration required

The following potential Severe Structural Weaknesses (SSWs) have been identified in the building that could result in significant risk to a significant number of occupants:

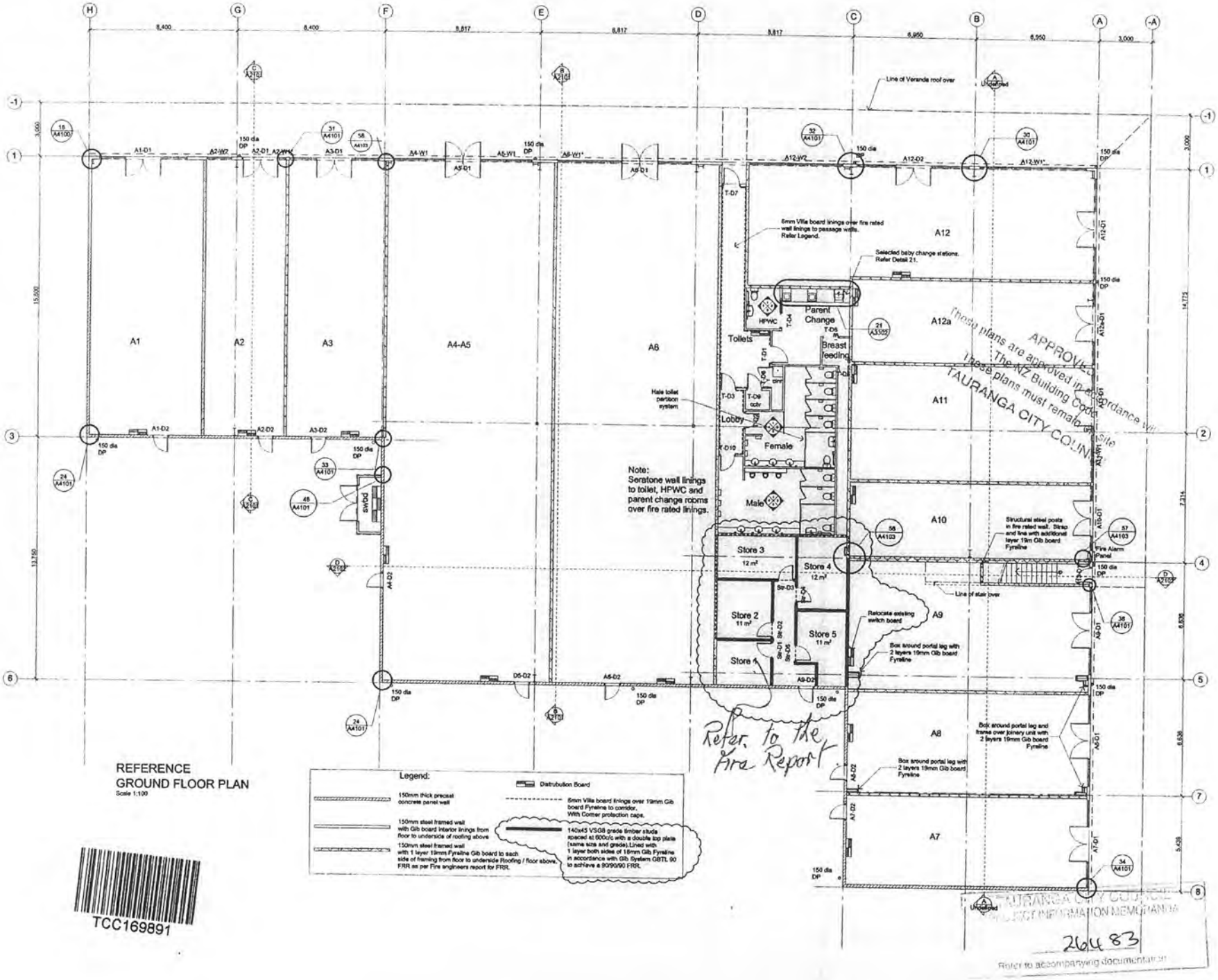
1. None identified
2. Weak or soft storey (except top storey)
3. Brittle columns and/or beam-column joints the deformations of which are not constrained by other structural elements
4. Flat slab buildings with lateral capacity reliant on low ductility slab/column connections
5. No identifiable connection between primary structure and diaphragms
6. Ledge and pan stairs

IEP Assessment Confirmed by Signature

S R Mitchell **Name**

70562 **CPEng. No**

WARNING!! *This initial evaluation has been carried out solely as an initial seismic assessment of the building following the procedure set out in "The Seismic Assessment of Existing Buildings" Technical Guidelines for Engineering Assessments, July 2017. This spreadsheet must be read in conjunction with the limitations set out in the accompanying report, and should not be relied on by any party for any other purpose. Detailed inspections and engineering calculations, or engineering judgements based on them, have not been undertaken, and these may lead to a different result or seismic grade.*



REFERENCE
GROUND FLOOR PLAN
Scale 1:100

Legend:

- 150mm thick precast concrete panel wall
- 150mm steel framed wall with Gib board interior linings from floor to underside of roofing above
- 150mm steel framed wall with 1 layer 19mm Fyreline Gib board to each side of framing from floor to underside Roofing / floor above. FRR as per Fire engineers report for FRR.
- Distrubution Board
- 6mm Villa board linings over 19mm Gib board Fyreline to corridor. With Corner protection caps.
- 140x45 VSG8 grade timber studs spaced at 600c/c with a double top plate (same size and grade).Lined with 1 layer both sides of 16mm Gib Fyreline in accordance with Gib System GBTL 90 to achieve a 90/90/90 FRR.

TCC169891

GENERAL NOTES

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ISSUE	REVISION	BY	DATE
K	BUILDING CONSENT	MG	23.08.07
J	REVISED CONSENT.	SF	31.07.07
H	REVISED CONST.	SF	28.02.07
G	REVISED CONST.	MG	22.02.07
F	REVISED CONST.	MG	19.02.07
E	REVISED CONST.	MG	29.11.06
D	CONSTRUCTION	MG	01.11.06
C	TENDER RE-ISSUE	MG	18.08.06
B	TENDER	MG	10.08.06
A	TENDER	MG	19.07.06

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PROJECT
BLOCK A
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DRAWING TITLE
LEVEL ONE REFERENCE

DATE	SCALE
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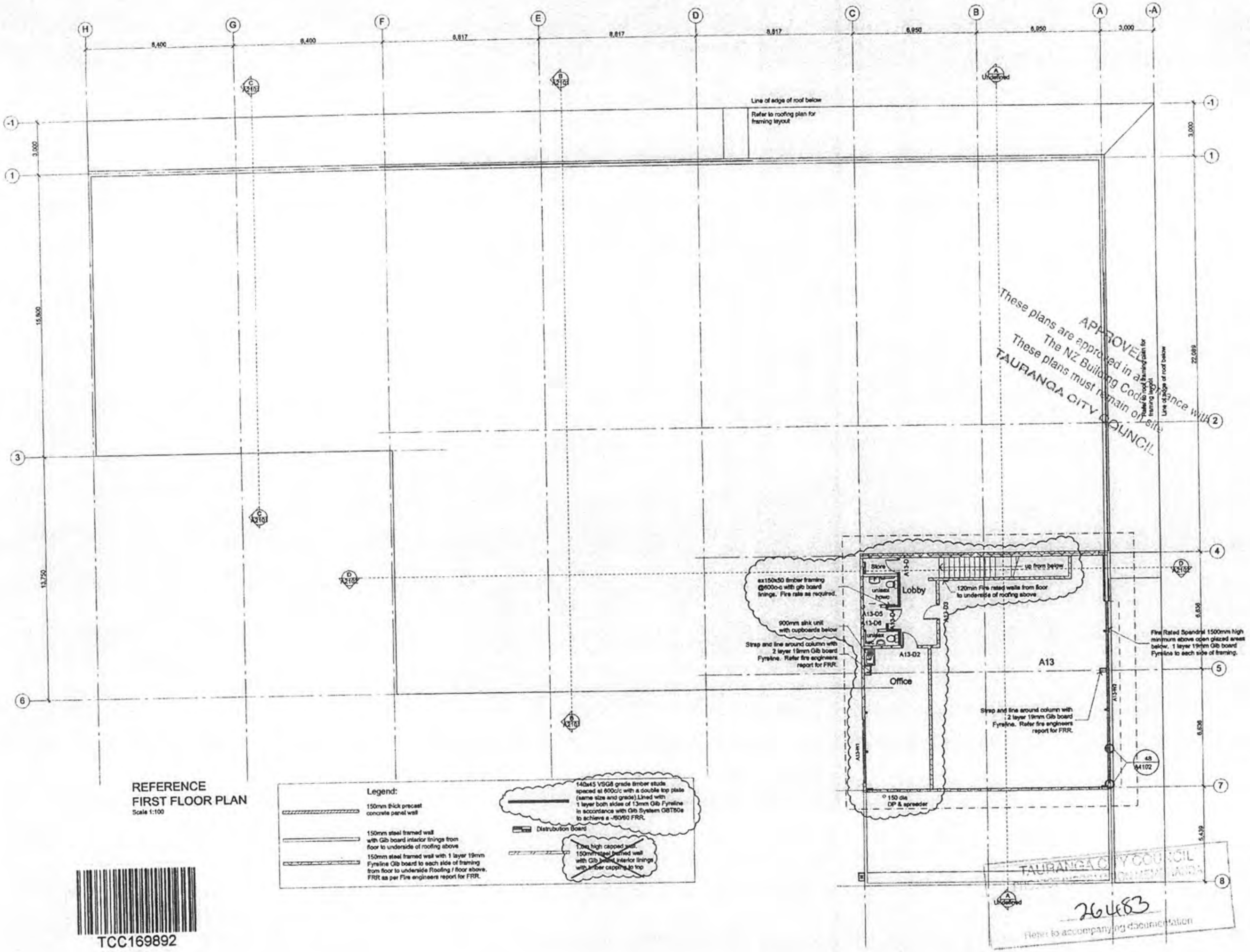
DRAWN: MG	CHECK: LK
PROJECT NO. 457-05-19	
DRAWING NUMBER A1300	(K)



REFERENCE
FIRST FLOOR PLAN
Scale 1:100

TCC169892

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D	CONSTRUCTION	MG	01.11.06
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DRAWING TITLE
LEVEL TWO REFERENCE

DATE	SCALE
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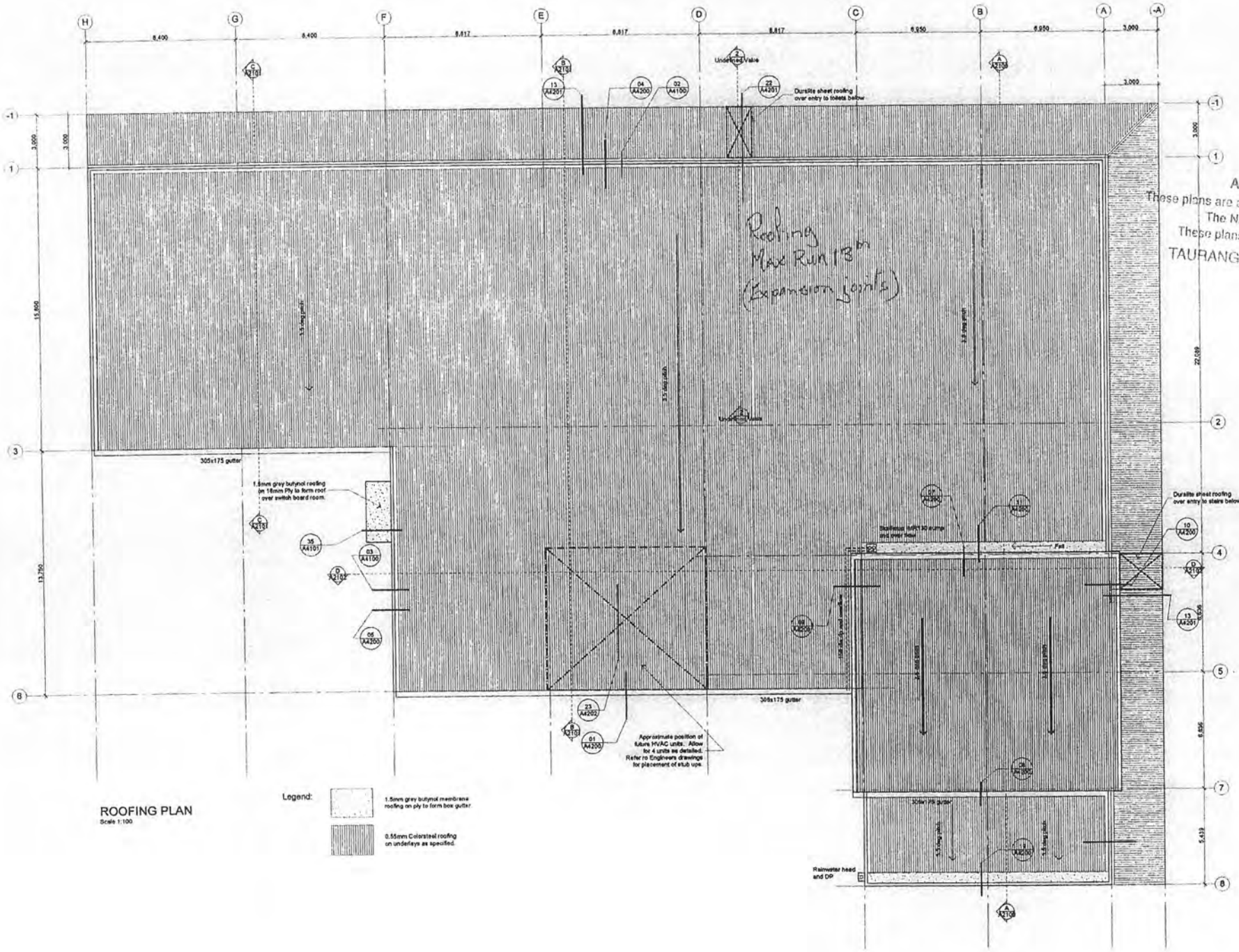
DRAWN	CHECK	PROJECT NO.
MG	LK	457-05-19

DRAWING NUMBER
A1301 (G)



ROOFING PLAN
Scale 1:100

Legend:

1.5mm grey butynol membrane roofing on ply to form box gutter

0.55mm Colorsteel roofing on underlays as specified.

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APPROVED
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ISSUE	REVISION	BY	DATE
A	BUILDING CONSENT	MG	11.07.06

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DRAWING TITLE
ROOF PLAN
TC\17226

DATE 11 JULY 2006
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PROJECT NO. 457-05-19
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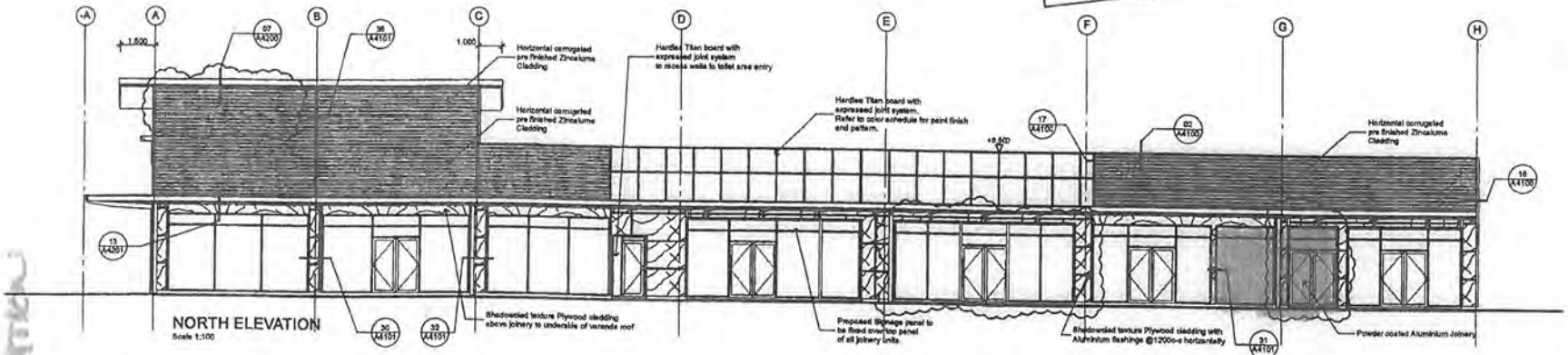
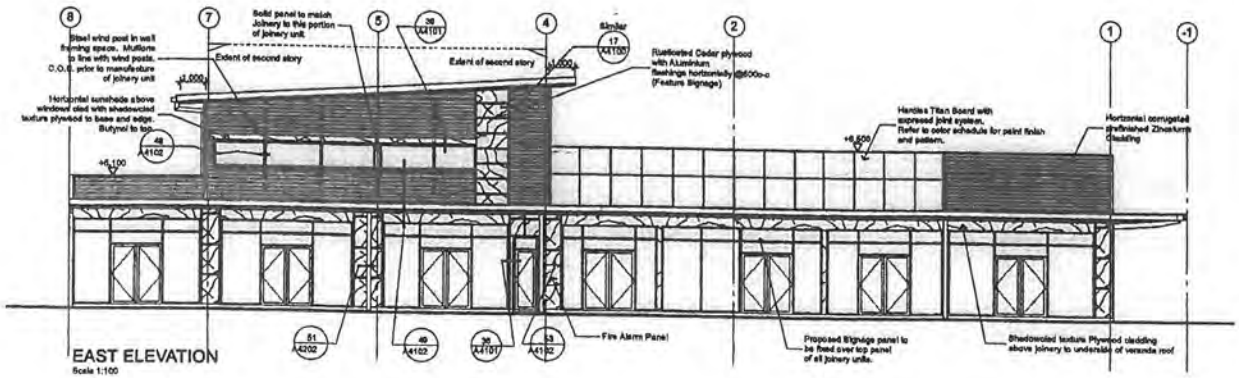
22760
Refer to accompanying documentation

AMENDED PLAN



NORTH ELEVATION
Scale 1:100



EAST ELEVATION
Scale 1:100

see Fire Report.

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CITY PLANNER

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FOR INFORMATION

ISSUE	REVISION	BY	DATE
F	REV. CONST.	SF	28.02.07
E	REV. CONST.	MG	19.02.07
D	CONSTRUCTION	MG	01.11.06
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ELEVATIONS

TCC165163

Amendment Received
31 JUL 2007
TCC

DATE	SCALE
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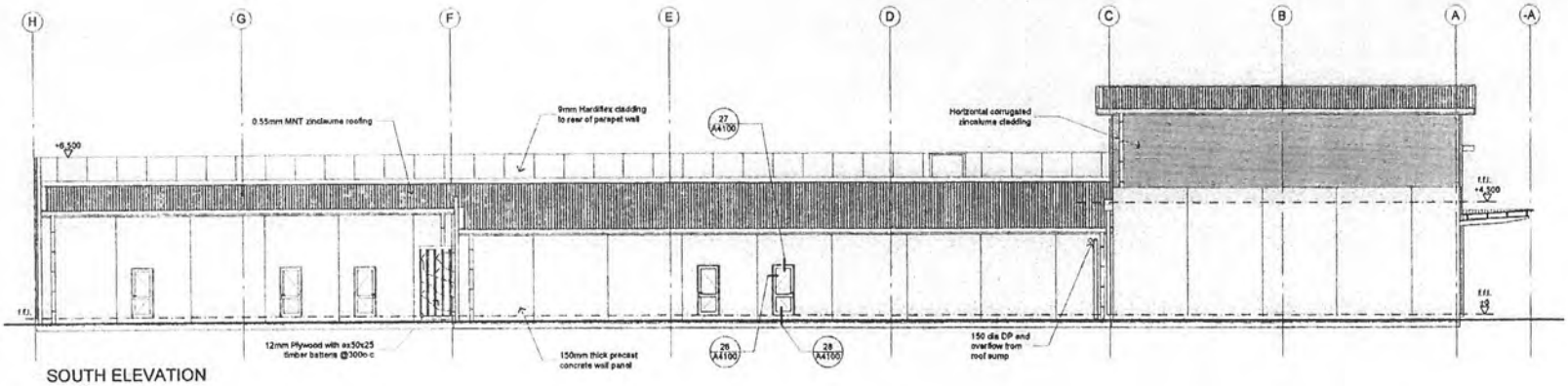
DRAWN: MG	CHECK: CMcM
PROJECT NO.: 457-05-19	
DRAWING NUMBER: A2000	F



SOUTH ELEVATION
Scale 1:100

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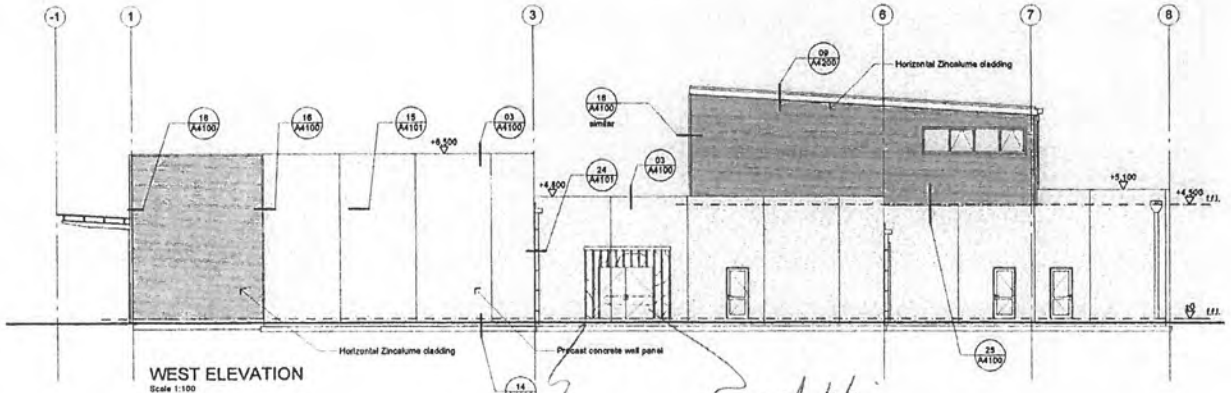
TAURANGA CITY COUNCIL
PROJECT INFORMATION MEMORANDA
27760
Refer to accompanying documentation



WEST ELEVATION
Scale 1:100

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PROJECT NO.: 457-05-19	

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A2001 (A)

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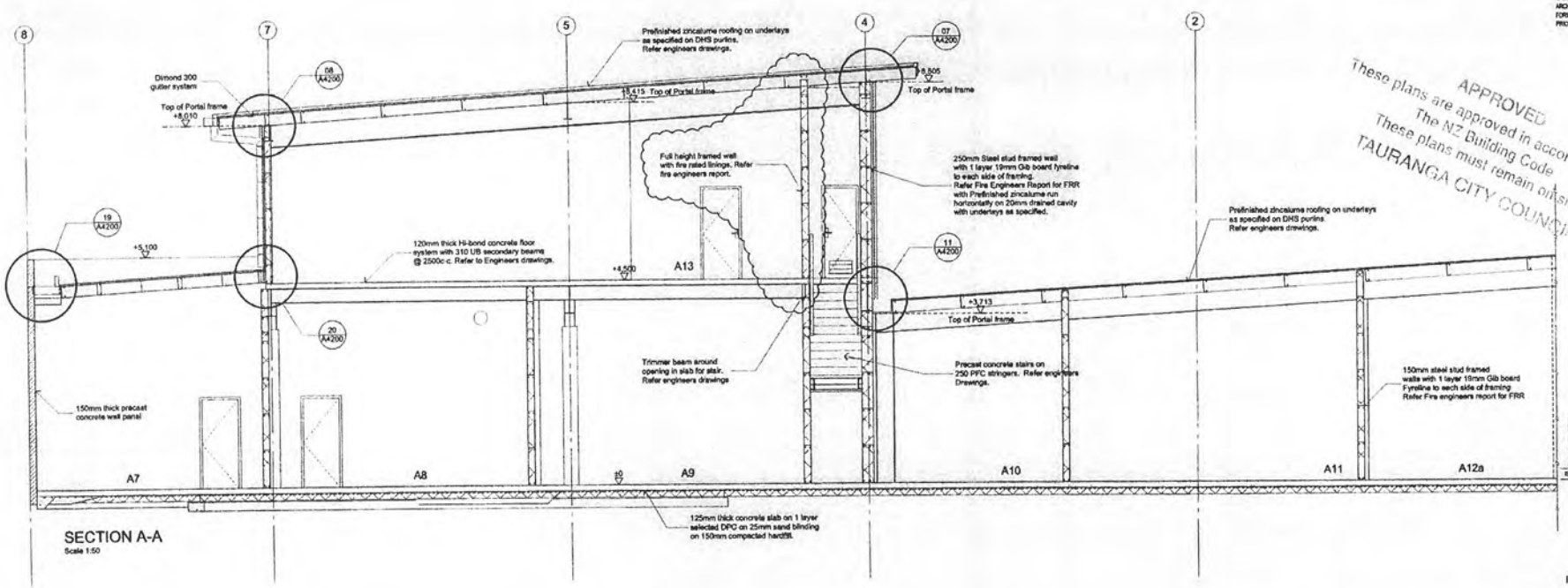

SECTION A-A
Scale 1:50

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ISSUE	REVISION	BY	DATE
E	BUILDING CONSENT	MG	23.08.07
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B	TENDER	MG	10.08.06
A	TENDER	MG	19.07.06

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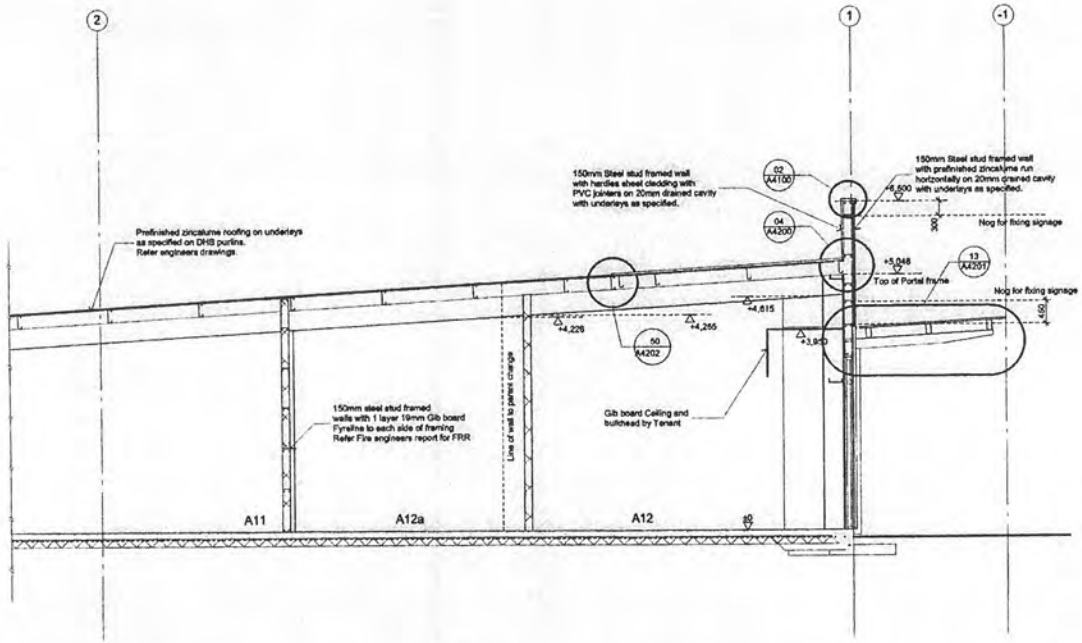
DRAWING TITLE
SECTIONS



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DRAWN: MG	CHECK: LK
PROJECT NO.: 457-05-19	
DRAWING NUMBER: A2100	(E)

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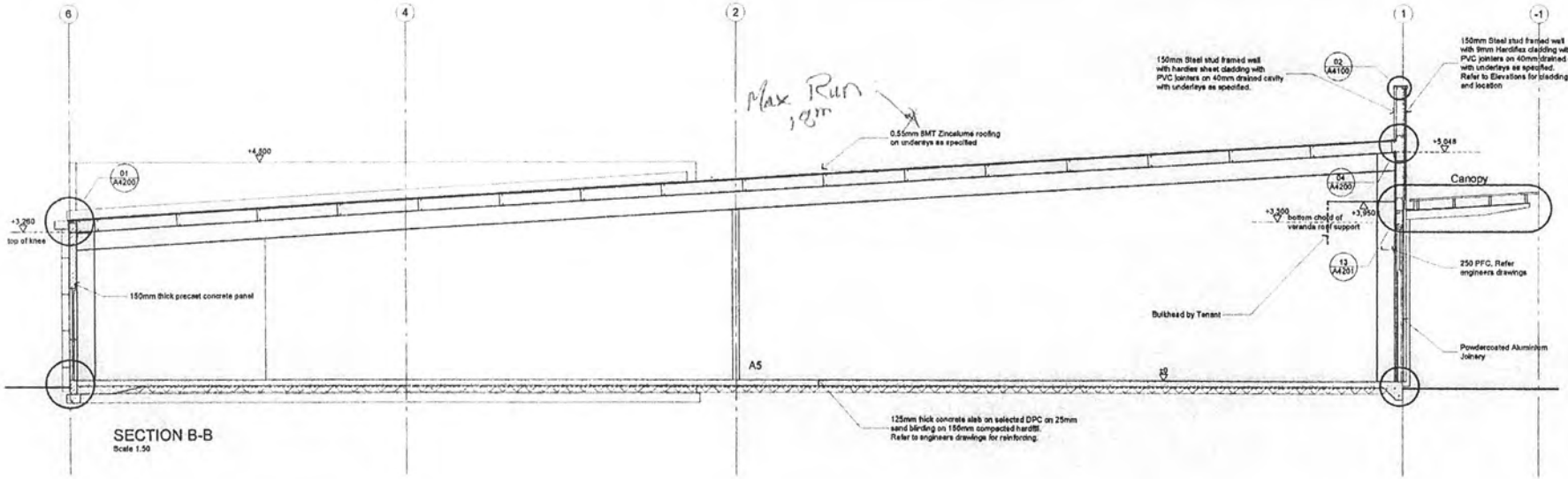

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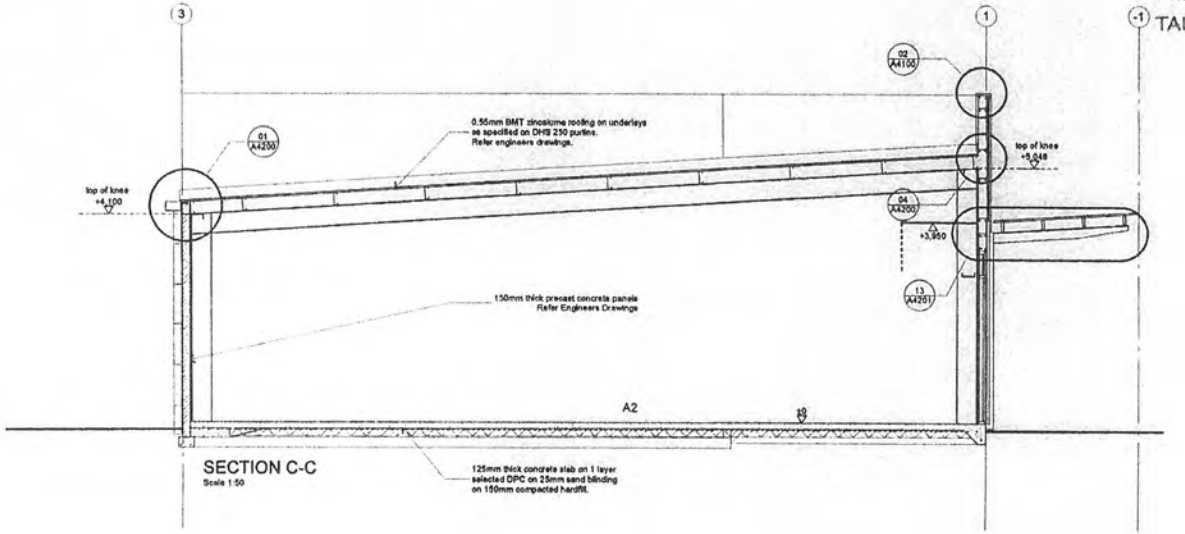

SECTION C-C
Scale 1:50

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DRAWING TITLE
SECTIONS

TCC172933

DATE	SCALE
11 JULY 2006	
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PROJECT NO. 457-05-19	

DRAWING NUMBER
A2101 (A)

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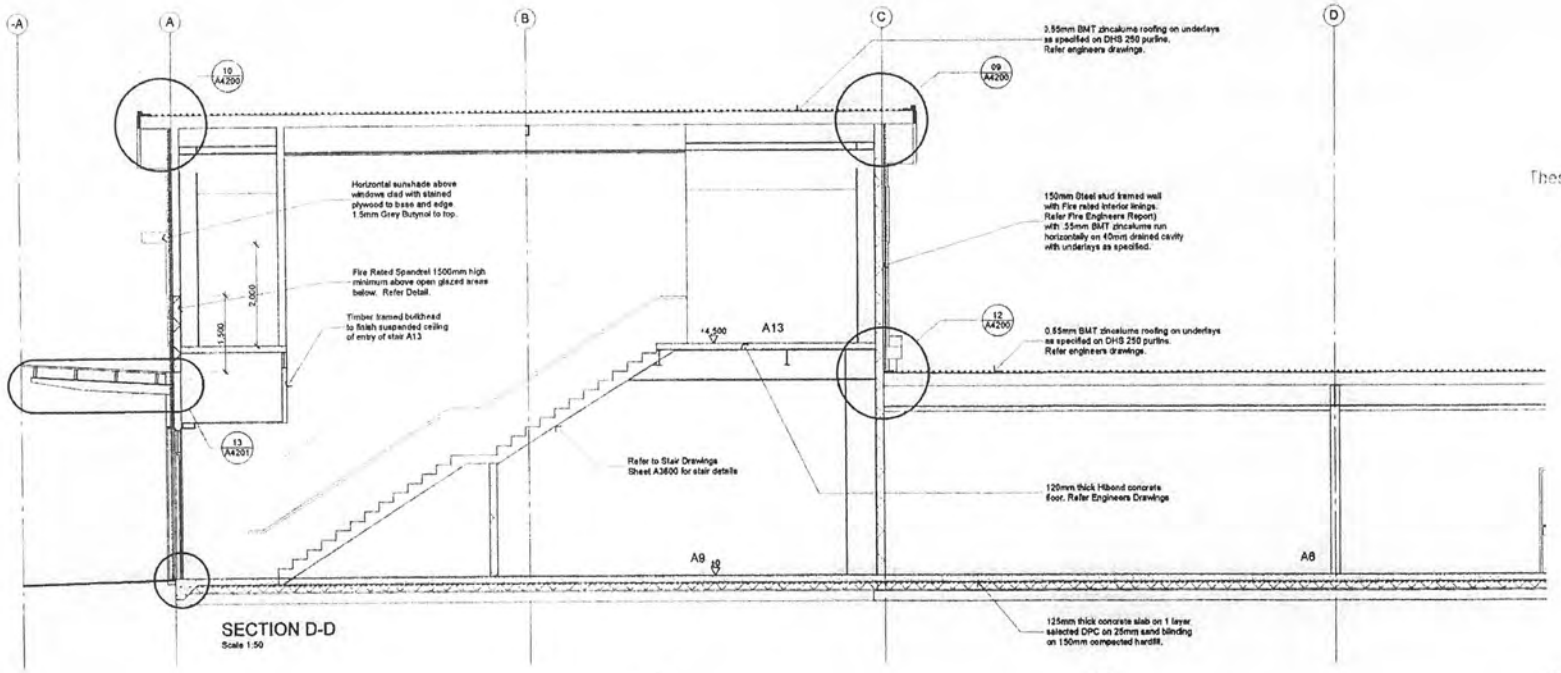

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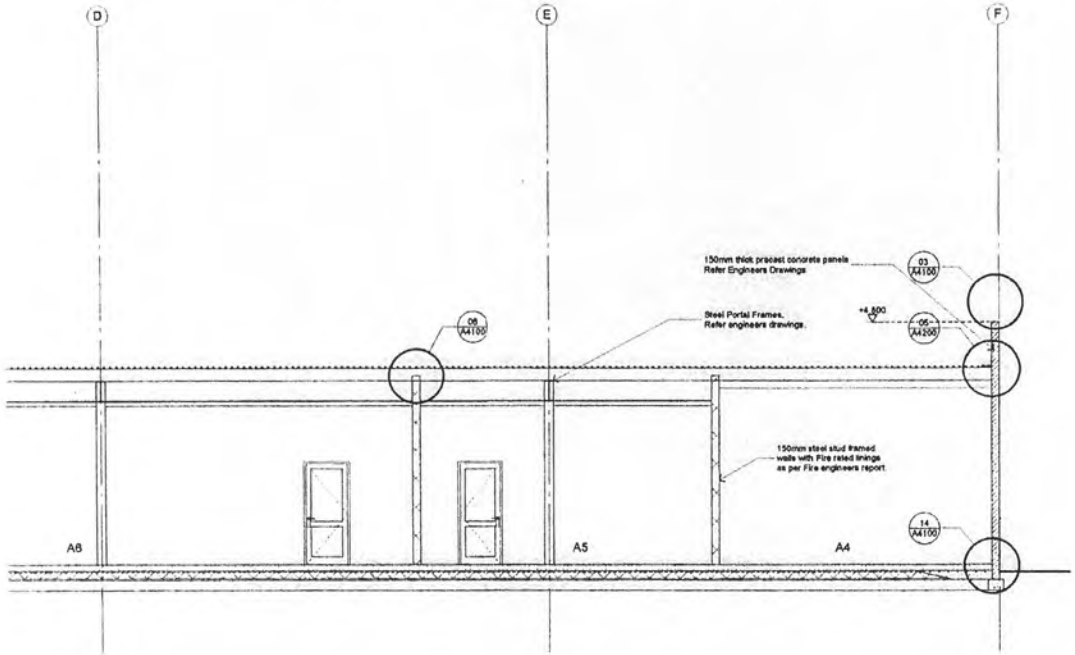

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SECTIONS

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11 JULY 2006	
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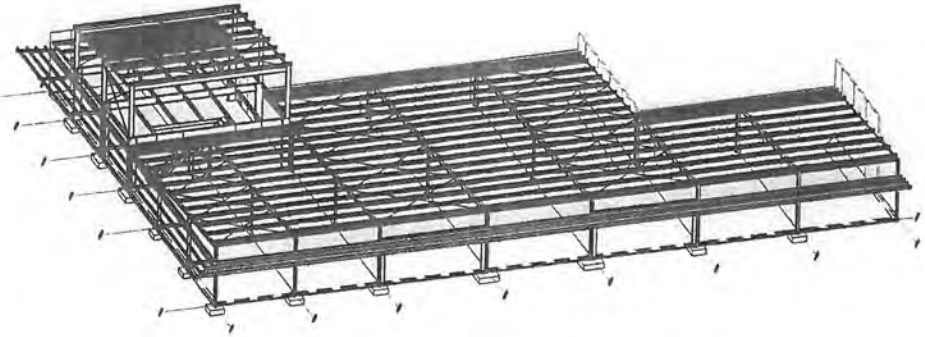
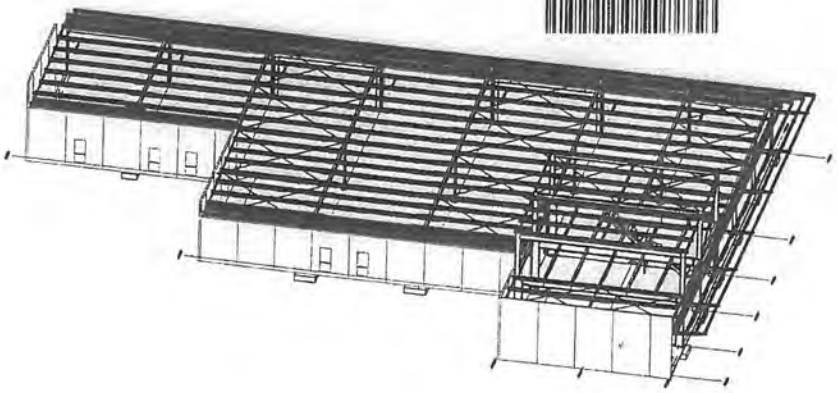
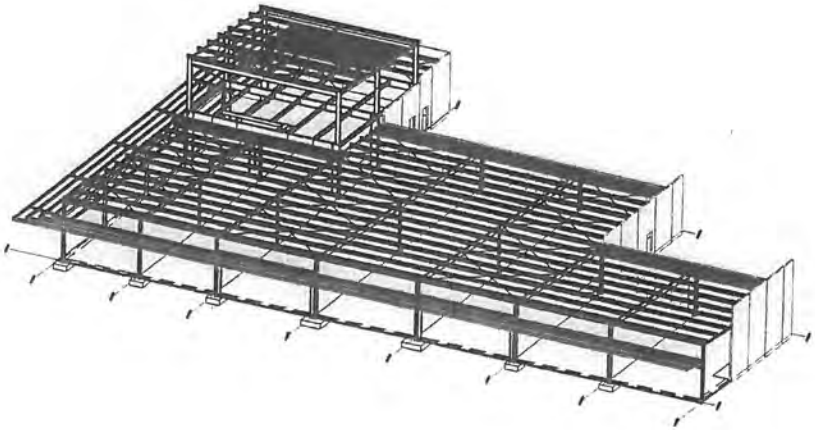
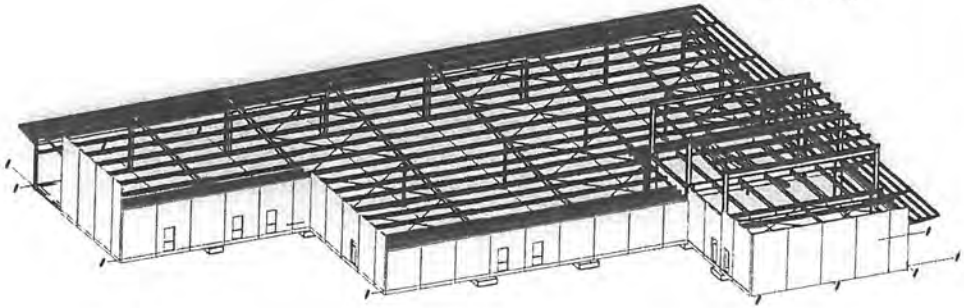
PROJECT NO.: 457-05-19	

DRAWING NUMBER
A2102 (A)









Rev	Date	Revision Details	Drn	Ver.	App.
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
03	10.07.06	CONSENT	-	-	-
02	30.06.06	COORDINATION	-	-	-
01	08.06.06	PRELIMINARY	-	-	-

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Client: AMP capital INVESTORS

Project: BETHLEHEM SHOPPING CENTRE

Drawn AID	Signed AID	Date 10.07.06
Designed DPL	Signed DPL	Date 10.07.06
Verified ECS	Signed ECS	Date 10.07.06
Approved SMB	Signed SMB	Date 10.07.06

Drawing Title: STRUCTURAL BLOCK A

CONSENT
NOT FOR CONSTRUCTION

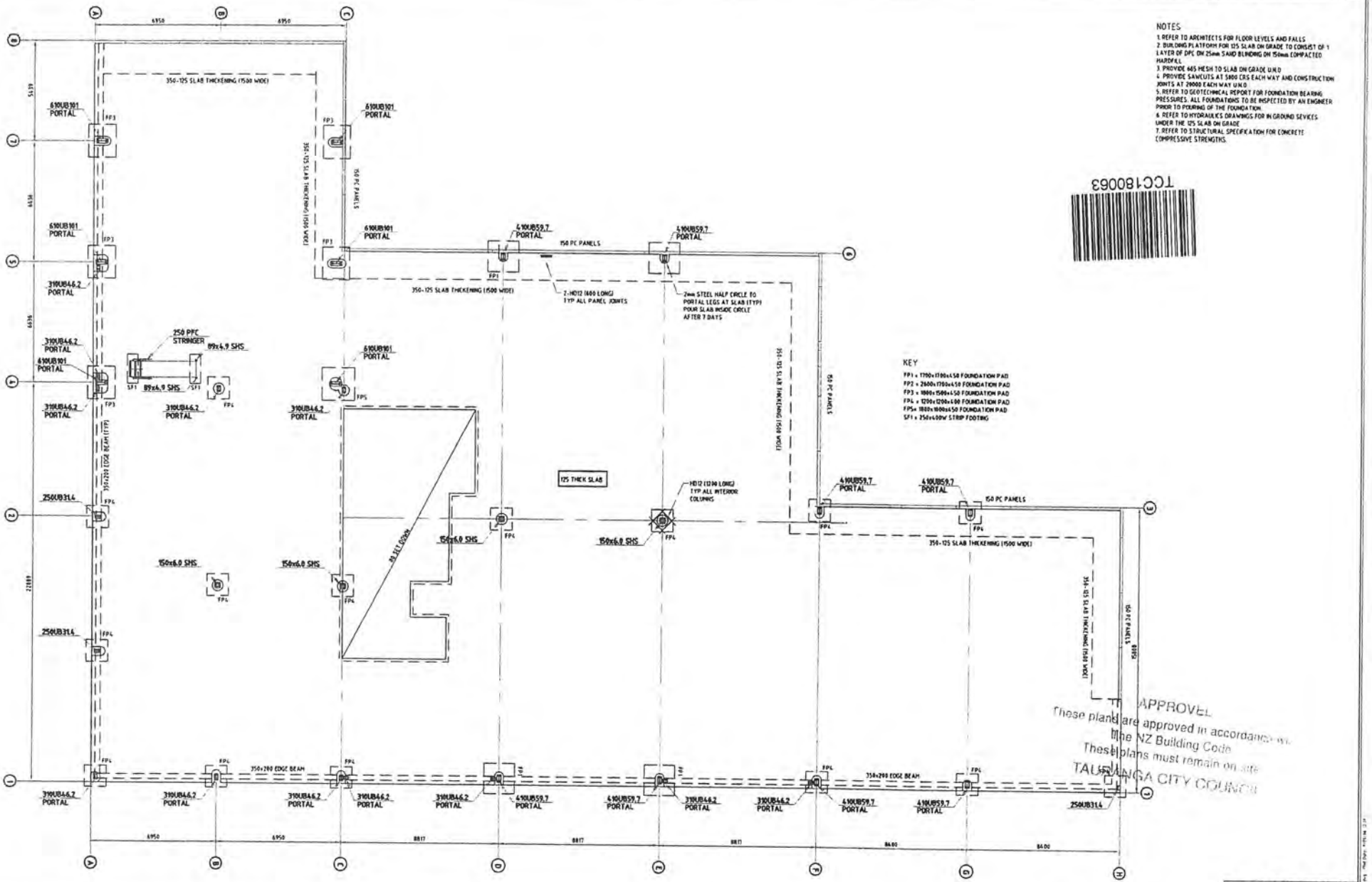
Project No: B236

Scale: 1:200 A1, 1:400 A3

Sheet Size: A1

Drawing No: B236-S0.100

Rev: 03



Rev	Date	Revision Details	Drn	Ver.	App
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-	-	-	-	-	-
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-	-	-	-	-	-
03	10.07.06	CONSENT	-	-	-
02	30.06.06	COORDINATION	AD	-	-
01	08.06.06	PRELIMINARY	-	-	-

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Client: AMP capital INVESTORS

Project: BETHLEHEM SHOPPING CENTRE

Drawn AID	Signed AID	Date 10.07.06	
Designed DPL	Signed DPL	Date 10.07.06	
Verified ECS	Signed ECS	Date 10.07.06	
Approved SMB	Signed SMB	Date 10.07.06	

Drawing Title: STRUCTURAL BLOCK A FOUNDATIONS AND GROUND FLOOR

CONSENT
NOT FOR CONSTRUCTION

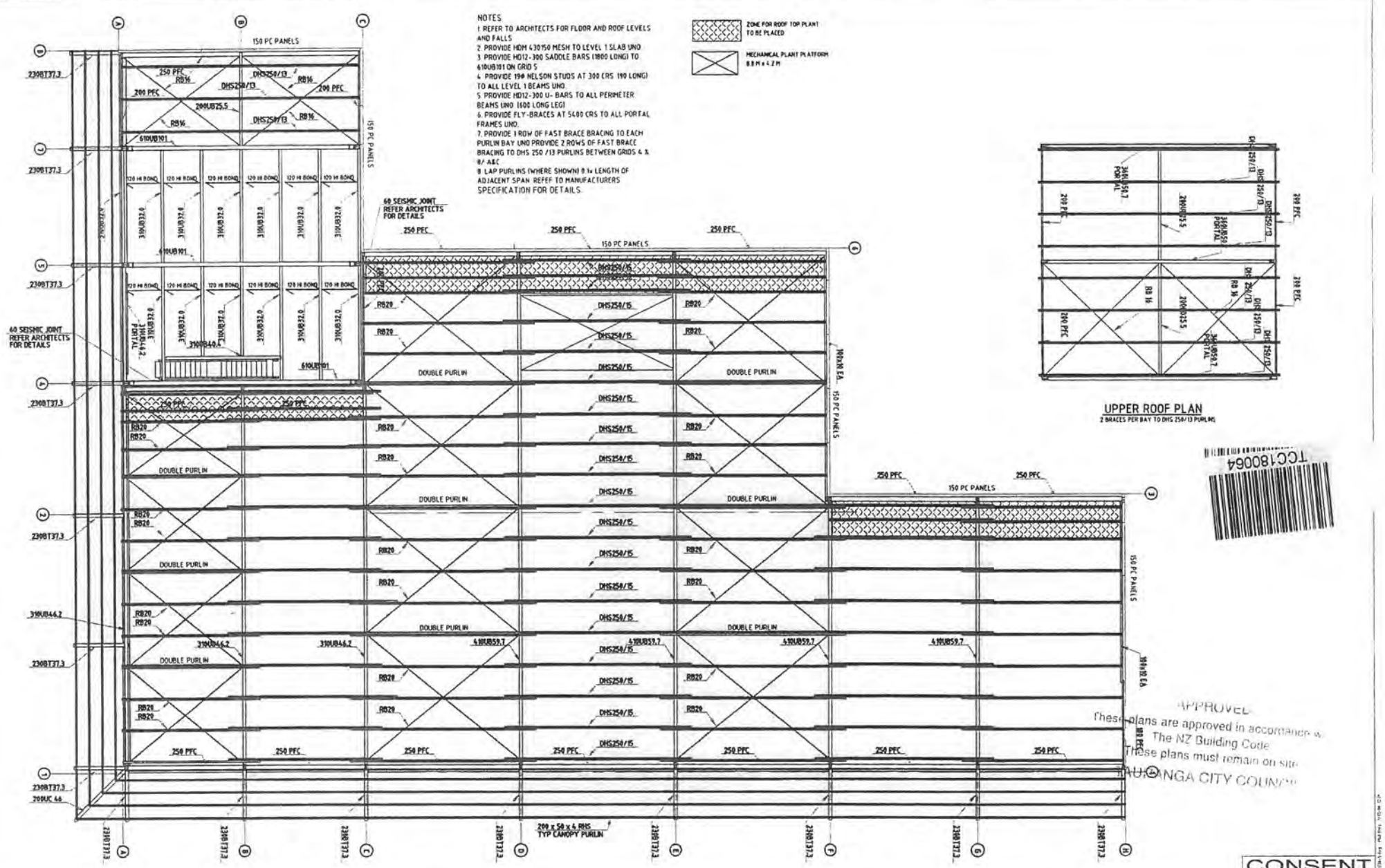
Project No. B236

Scale 1:100 A1, 1:200 A3

Sheet Size A1

Drawing No. B236-S1.100

Rev. 03



TCC18006Ø4

APPROVED
These plans are approved in accordance with The NZ Building Code
These plans must remain on site
TAURANGA CITY COUNCIL

CONSENT
NOT FOR CONSTRUCTION

Rev	Date	Revision Details	Drn	Ver	App
03	10.07.06	CONSENT	-	-	-
02	30.06.06	COORDINATION	AD	-	-
01	08.06.06	PRELIMINARY	-	-	-

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Project: BETHLEHEM SHOPPING CENTRE

Drawn AID	Signed AID	Date 10.07.06
Designed DPL	Signed DPL	Date 10.07.06
Verified ECS	Signed ECS	Date 10.07.06
Approved SMB	Signed SMB	Date 10.07.06

Drawing Title: STRUCTURAL
BLOCK A
FIRST FLOOR AND ROOF PLAN

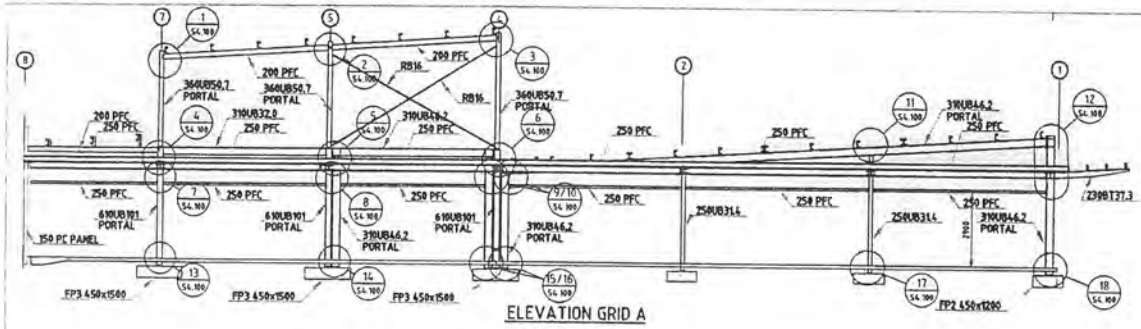
Project No: B236

Scale: 1:100 A1, 1:200 A3

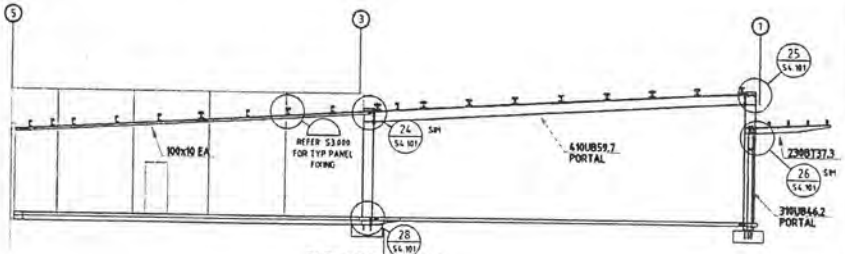
Sheet Size: A1

Drawing No: B236-S1.101

Rev: 03



ELEVATION GRID A



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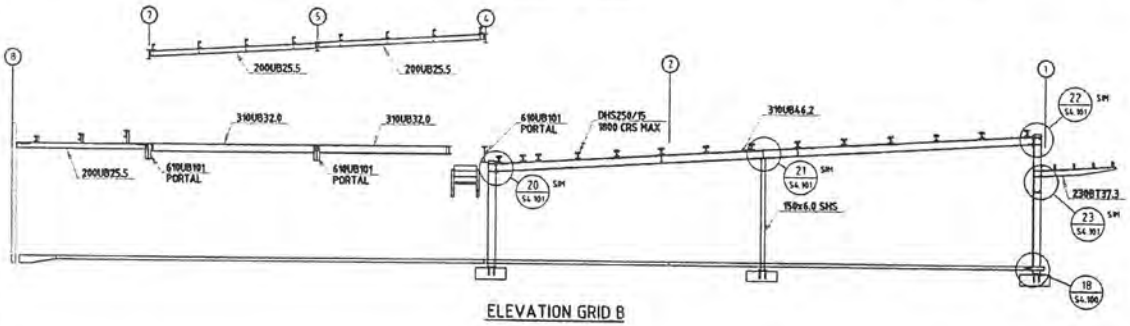

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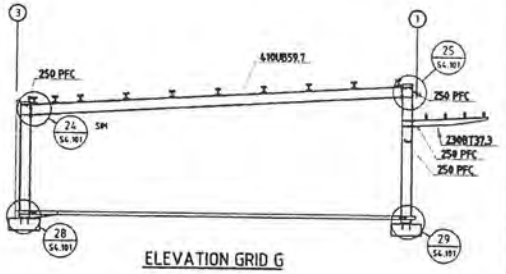

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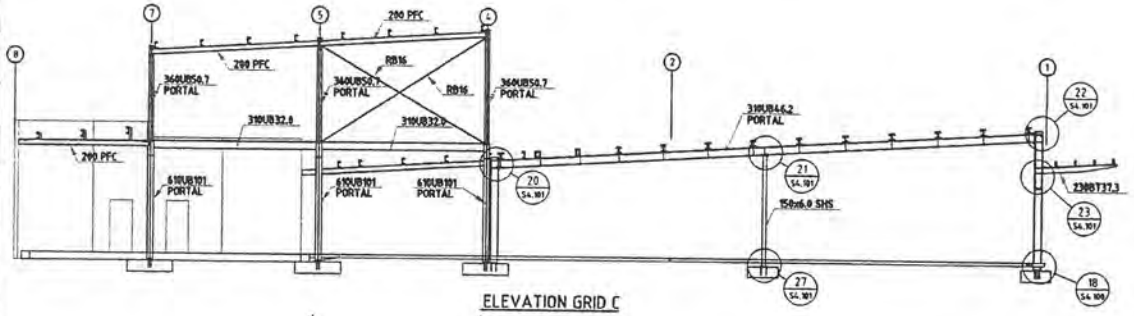

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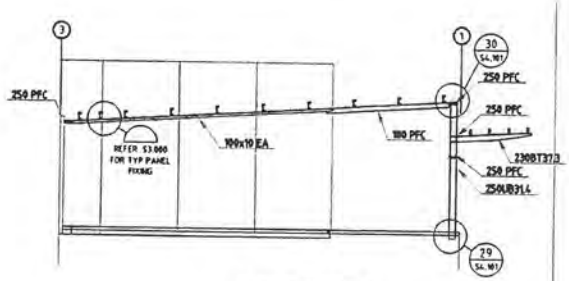

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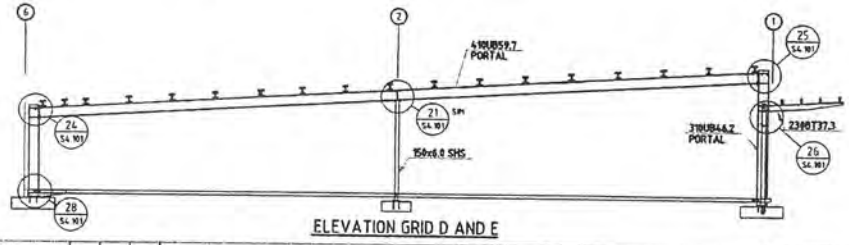

ELEVATION GRID D AND E

APPROVED
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These plans must remain on site
TAURANGA CITY COUNCIL

Rev.	Date	Revision Details	Drn	Ver.	App.
03	10.07.06	CONSENT	-	-	-
02	30.06.06	COORDINATION	-	-	-
01	08.06.06	PRELIMINARY	-	-	-

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Client: AMP capital INVESTORS

Project: BETHLEHEM SHOPPING CENTRE

Drawn AID	Signed AID	Date 10.07.06	
Designed DPL	Signed DPL	Date 10.07.06	
Verified ECS	Signed ECS	Date 10.07.06	
Approved SMB	Signed SMB	Date 10.07.06	

Drawing Title: STRUCTURAL BLOCK A ELEVATIONS

CONSENT
NOT FOR CONSTRUCTION

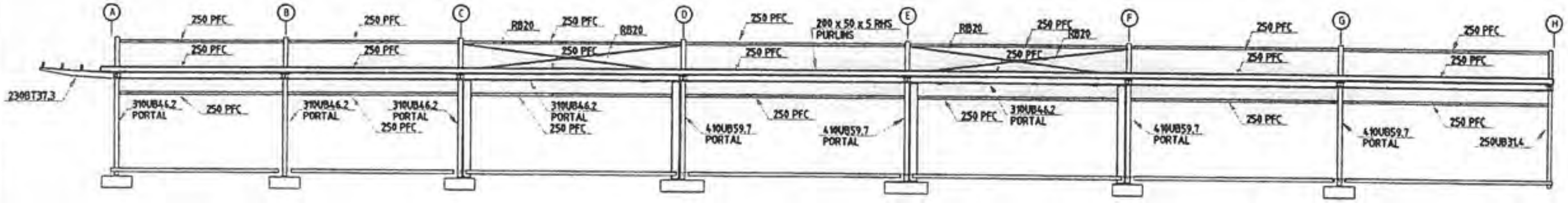
Project No. B236

Scale 1:100 A1, 1:200 A3

Sheet Size A1

Drawing No. B236-S2.100

Rev. 03



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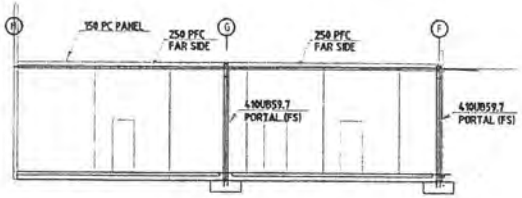

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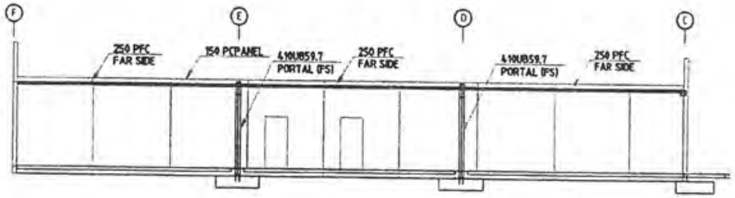

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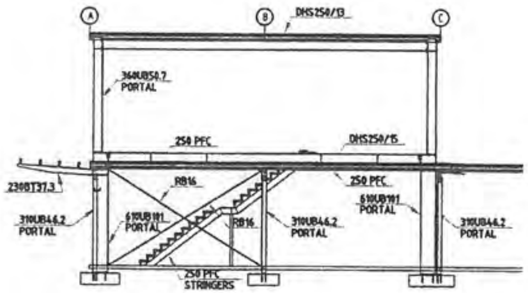

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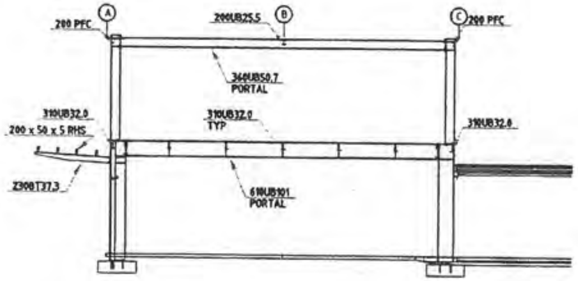

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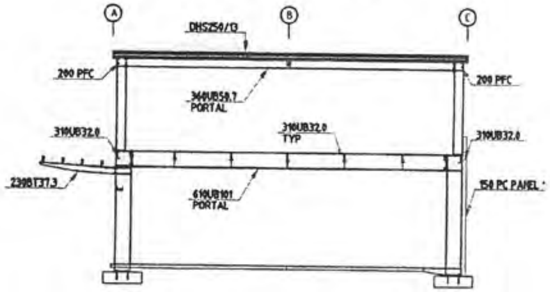
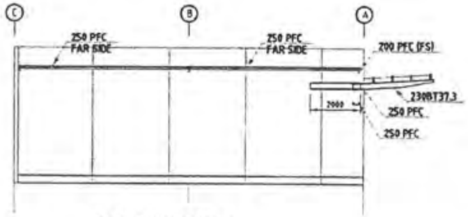


ELEVATION GRID 7

TCC180070



ELEVATION GRID 8

Rev.	Date	Revision Details	Drn	Ver.	App.
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03	10.07.06	CONSENT	-	-	-
02	30.06.06	COORDINATION	AD	-	-
01	08.06.06	PRELIMINARY	-	-	-

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Client: AMP capital INVESTORS

Project: BETHLEHEM SHOPPING CENTRE

Drawn AID	Signed AID	Date 10.07.06
Designed DPL	Signed DPL	Date 10.07.06
Verified ECS	Signed ECS	Date 10.07.06
Approved SMB	Signed SMB	Date 10.07.06

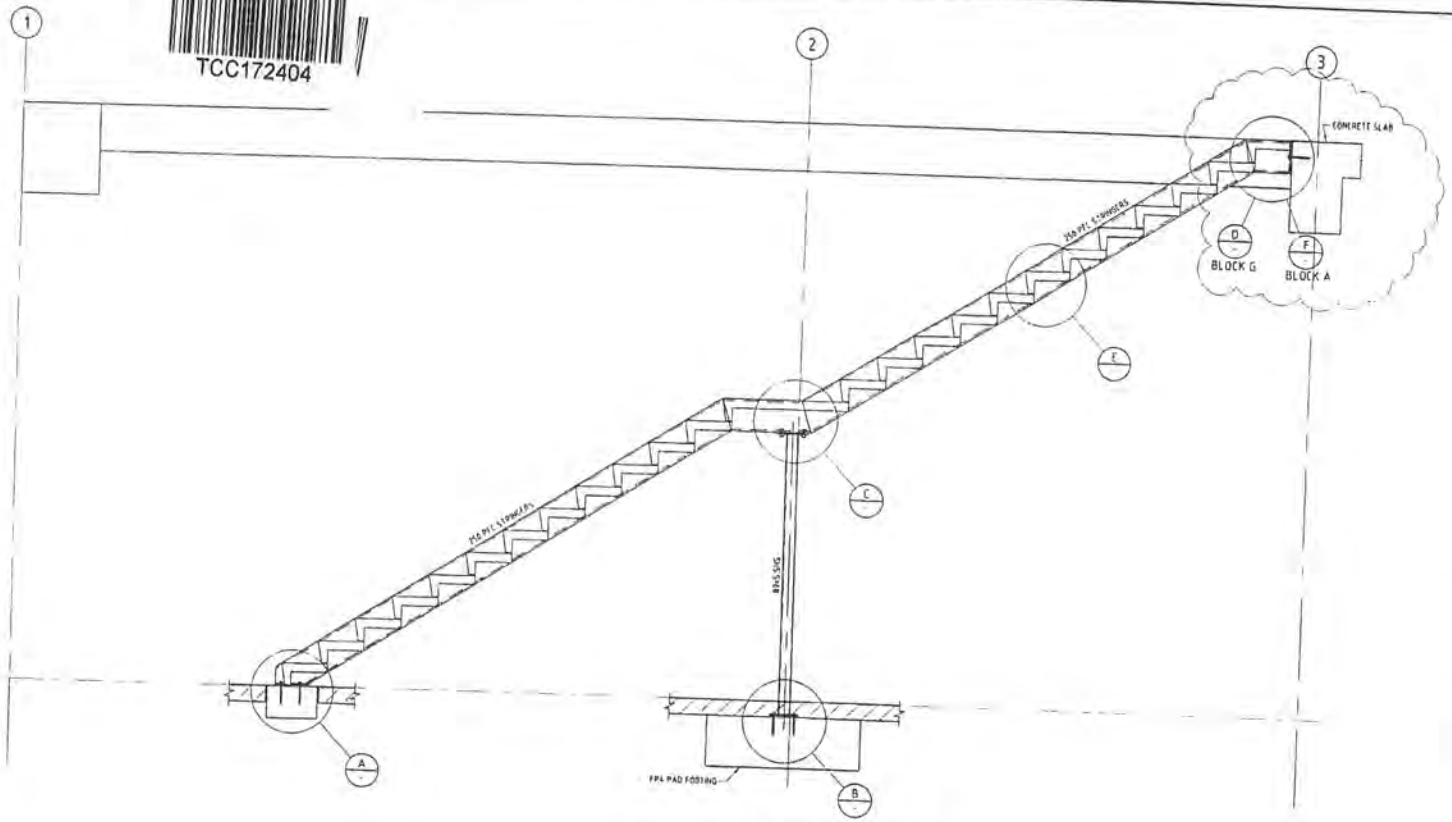
Drawing Title: STRUCTURAL BLOCK A ELEVATIONS

CONSENT
NOT FOR CONSTRUCTION

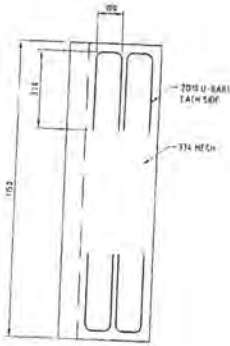
Project No B236

Scale 1:100 A1, 1:200 A3 | Sheet Size A1

Drawing No B236-S2.101 | Rev 03



SECTION SECTION - (STAIR PLAN 2)
SCALE = 1:20
REFER ARCHITECTS DRAWINGS FOR SET OUT



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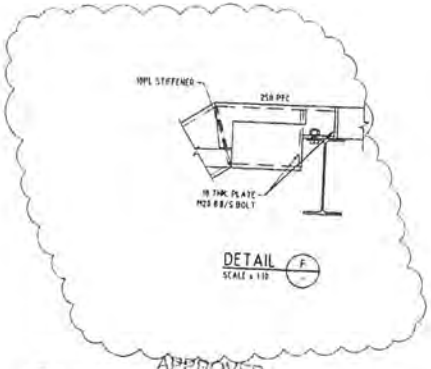

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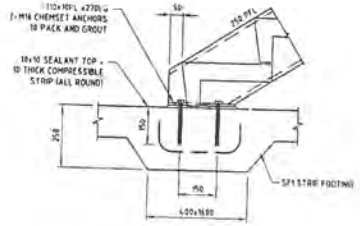

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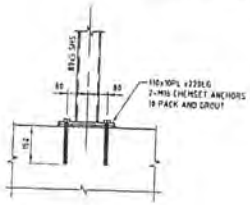

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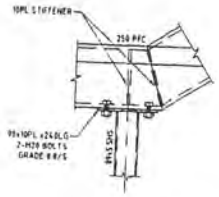

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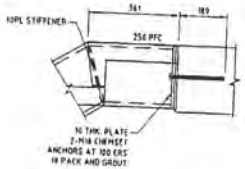

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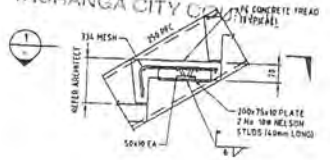

DETAIL E
SCALE = 1:10

APPROVED
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TAURANGA CITY COUNCIL

Rev	Date	Revision Details	Drn	Ver.	App.
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
02	01.09.06	CONSENT	-	-	-
01	09.08.06	TENDER	-	-	-

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Client: AMP capital INVESTORS

Project: BETHLEHEM SHOPPING CENTRE
STAGES 1, 2 AND 3

Drawn GJD	Signed GJH	Date 09.08.06	
Designed DPL	Signed DPL	Date 09.08.06	
Verified PB	Signed -	Date -	
Approved SMB	Signed SMB	Date 09.08.06	

Drawing Title:
STRUCTURAL
STEEL DETAILS
STAIRS (BLOCK G AND A)
SHEET 2

CONSENT
~~NOT FOR CONSTRUCTION~~

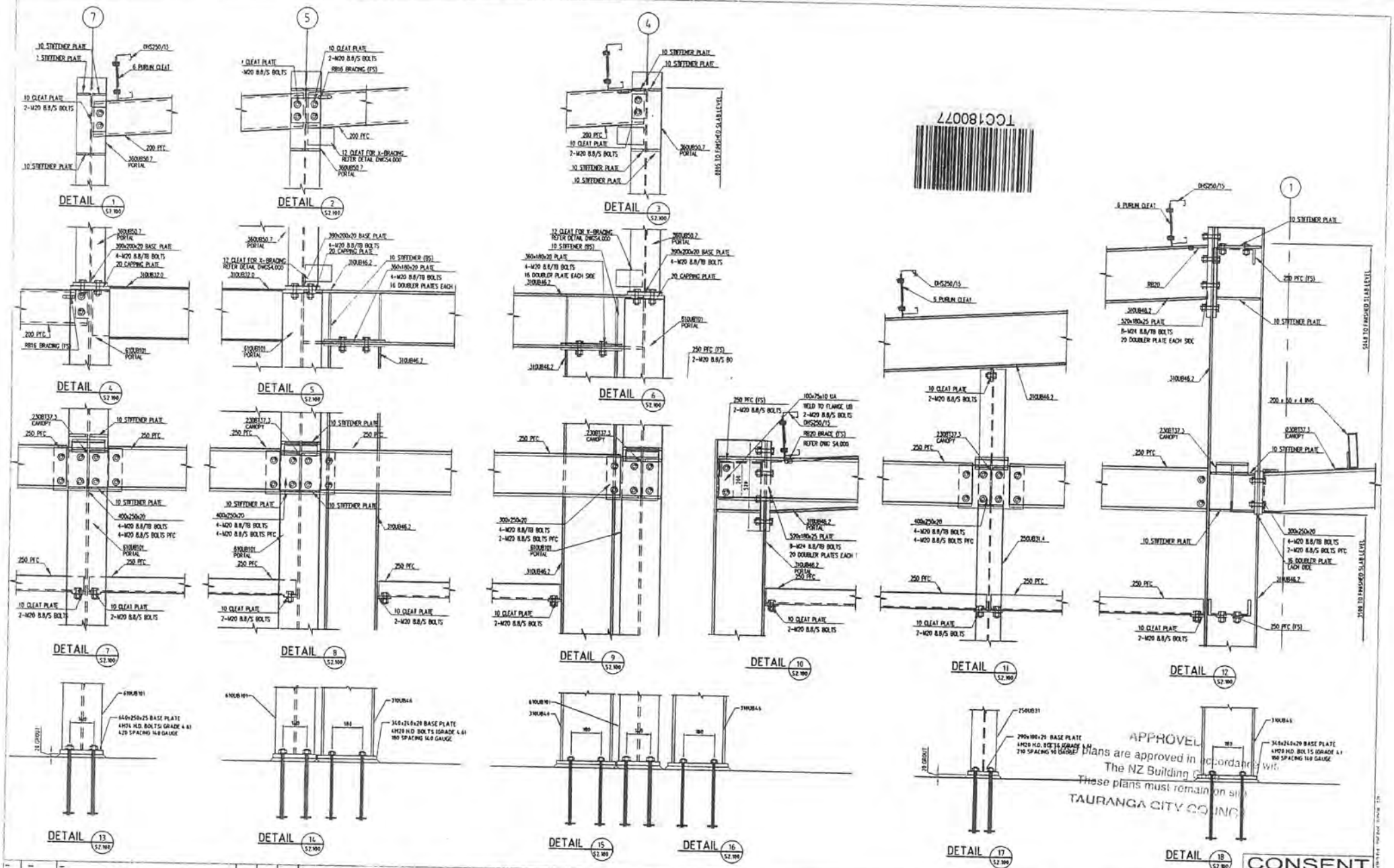
Project No. B236

Scale 1:20 A1, 1:40 A3

Sheet Size A1

Drawing No. B236-S4.004

Rev. 02



TGC18007?

Rev	Date	Revision Details	Drn	Ver	App.
02	10.07.06	CONSENT	-	-	-
01	30.06.06	COORDINATION	-	-	-

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Client: AMP capital INVESTORS

Project: BETHLEHEM SHOPPING CENTRE

Drawn AID	Signed AID	Date 10.07.06
Designed DPL	Signed DPL	Date 10.07.06
Verified ECS	Signed ECS	Date 10.07.06
Approved SMB	Signed SMB	Date 10.07.06

Drawing Title: STRUCTURAL BLOCK A STEEL DETAILS SHEET 1

CONSENT
NOT FOR CONSTRUCTION

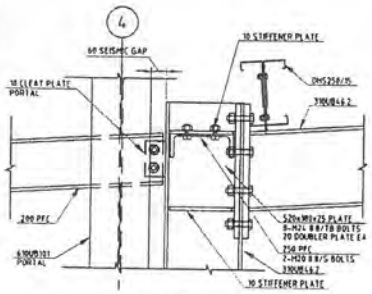
Project No: B236

Scale: 1:10 A1, 1:20 A3

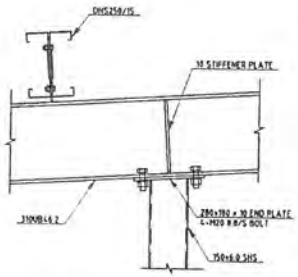
Sheet Size: A1

Drawing No: B236-S4.100

Rev: 02



DETAIL 20 S2.100



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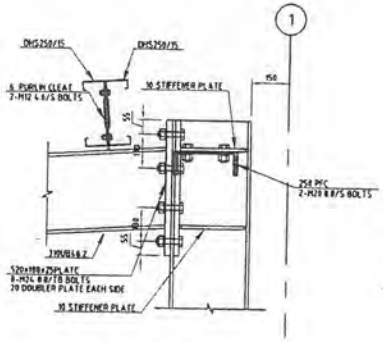

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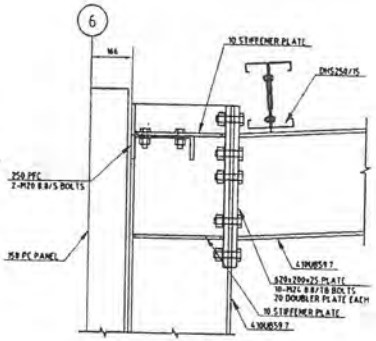
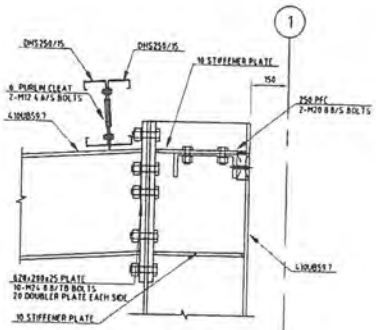


DETAIL 24 S2.100



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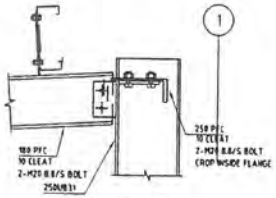

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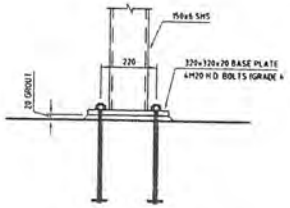

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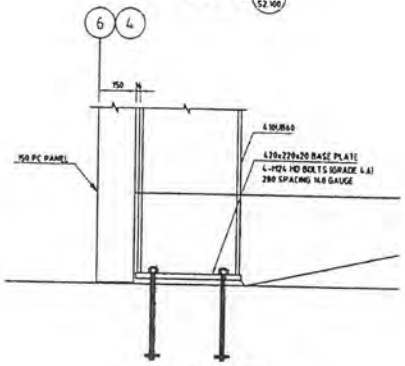

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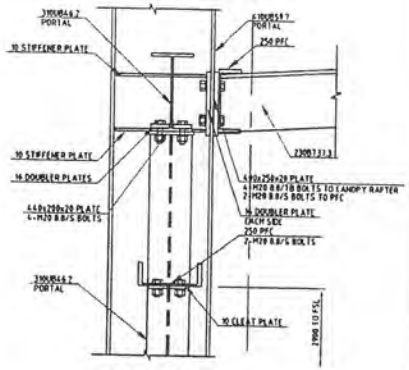

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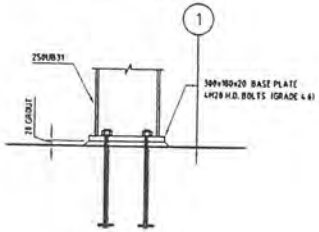

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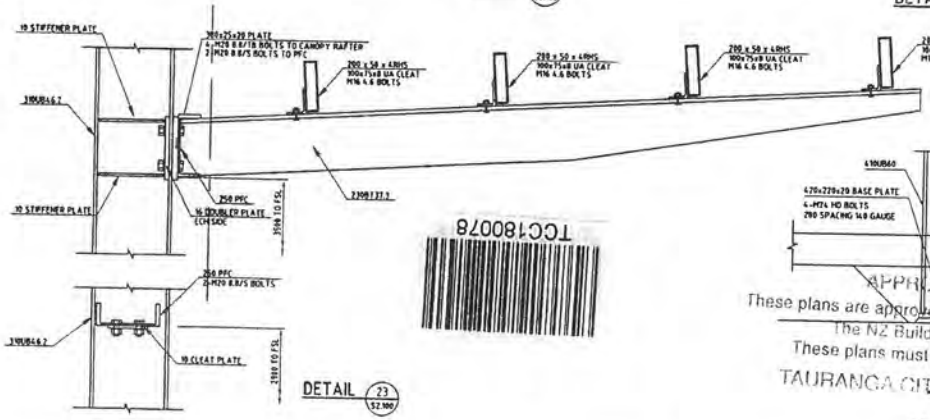
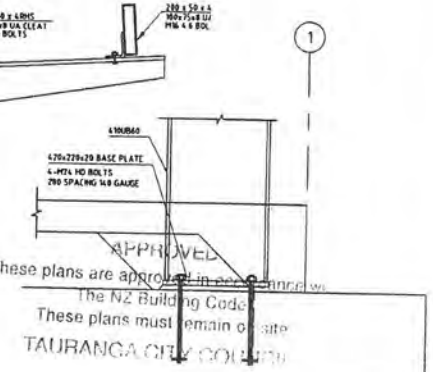


DETAIL 23 S2.100



DETAIL 29 S2.100

Rev	Date	Revision Details	Drn	Ver.	App.

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Client: AMP capital INVESTORS

Project: BETHLEHEM SHOPPING CENTRE

Drawn AID	Signed AID	Date 10.07.06	
Designed DPL	Signed DPL	Date 10.07.06	
Verified ECS	Signed ECS	Date 10.07.06	
Approved SMB	Signed SMB	Date 10.07.06	

Drawing Title: STRUCTURAL BLOCK A STEEL DETAILS SHEET 2

CONSENT NOT FOR CONSTRUCTION

Project No. B236

Scale 1:10 A1, 1:20 A3

Sheet Size A1

Drawing No. B236-S4.101

Rev. 02

Description:

Building B was designed in 2006 and is a small, almost square single storey, pitched roof block, with a low stud mono- pitched annex on the west side that was extended further to the west in 2007 with an addition known at that time as 'the Kiosk'. In 2014 it appears that a small re-entrant area of floor was infilled, but this did not affect the lateral load resistance of the building. The building has its long axis orientated nominally east-west. It is a stand-alone building that essentially has car park or courtyard frontages on all four sides. It is seismically isolated from all other buildings.

This building is a small foot-print single storey, pitched roof minor boutique retail type building, with a total of 5 bays in the east-west longitudinal direction and between one and two bays in the north-south transverse direction. There is a canopy on the east side. The roof over the annex and 'Kiosk' are both mono-pitch.

Construction of the building envelope consists of long-run metal roof sheeting over cold rolled steel purlins, supported on structural steel portal frame rafters, which are located on each primary transverse frame grid. Each of the primary frame portal rafters is supported by structural steel portal columns at the span ends, and there are internal columns where the footprint expands toward the east. The portals in the eastern section are steeply pitched to a central ridge, but the remainder of the roof has minimal pitch. The structural steel columns land above the concrete foundations below the on-grade slab and these foundations are conventional strip footing and pad type foundations in reinforced concrete that have been detailed in size only in the property file documentation.

The canopy is small and has a reasonable sized structural steel T section cantilever beams supporting structural steel rectangular hollow section (RHS) purlins. The cantilever beams appear to be bolted directly into the main wind columns and this combination provides adequate lateral stability.

There is shop front glazing on the north and east elevations, but the solid wall panels are recorded as substantial timber framing, and steel stud framing, with timber battens, all with a plywood over-lay which is used for longitudinal bracing.

The on-grade floor slab consists of a conventional mesh reinforced 125mm thick on-grade slab and this is recorded as being laid over DPC and 150mm of compacted metal hardfill. Interestingly the details for this are on the architectural sections and not the structural engineering drawings.

Seismic Load Resisting Structure:

The lateral load resisting system for the building envelope consists primarily of the structural steel diagonal rod roof-plane bracing distributing the longitudinal lateral loads to the plywood sarked wall bracing panels, with the moment resisting portal frames in the transverse direction. The alterations and modifications to the building have been recorded in the documentation that we hold and have been commented on above.

No severe structural weaknesses or critical structural weaknesses have been detected in this building structure.

There is paucity in the detail obtained from information contained in the property file for this specific Block, however, we have found sheets of 'Typical Foundation Details' designated 'Stage 1' and this information is sufficiently comprehensive that it allows us to make a robust assessment of the likely seismic performance of the building at a level of certainty well above that generally associated with an ISA.

Seismic Assessment:

We have used the following parameters in the ISA assessment.

- Building era 2004 – 2011.
- Seismic Zone B, Tauranga.
- Class D soft soil.
- Natural period 0.4 seconds, (this is based on the structural steel diagonal roof bracing distributing the lateral loads to the full height plywood lined wall bracing panels acting as in-plane loaded shear walls. There are structural steel moment resisting portal frames in the transverse direction but the low height to the portal knee suggests that the natural period will not be longer than the default minimum of 0.4 seconds).
- Building Importance Level 2.
- Structural Ductility factor 1.5 (this is conservatively based on the in-plane loaded plywood wall panels which have not been well specified in the drawings but in reality, will be capable of a much higher ductility factor. This is commented on in the PAR section. It is also based on the likely performance of the structural steel moment resisting portal frames).
- Plan irregularity 1.0 (this value has been selected due to the near symmetrical arrangement of the lateral load resisting walls in both directions, but because of the type of construction, the design philosophy for the building was no doubt that it would act as a series of discrete tributary loaded resisting structural elements. This is addressed in the PAR section).
- Vertical irregularity 1.0.
- Pounding Potential 1.0 (because the building has no neighbours).
- Site Characteristics 1.0 (because there is no recorded risk of liquefaction or site instability).
- Performance Achievement Ratio 1.1. (This is based on the regularity, pounding and site factors as detailed above but includes an enhancement 'other' factor of 1.1 which is less than the maximum of 2.5 available for buildings less than or equal to 3 storeys. This 'other factor' was selected because the ductility factor is too low for the well-conditioned moment resisting structural steel portal frames this building and the nail fastened plywood bracing panels. These factors have been nominally recognised by an 'other factor' of 1.1).

Seismic Rating and Grade:

The Baseline rating of 100% NBS is modified by the Performance Achievement Ratio of 1.1 resulting in a Seismic Rating of >100% NBS which makes this Block B building neither an Earthquake Risk nor Earthquake Prone.

Rating >100% NBS.
Grade A+.

Initial Evaluation Procedure (IEP) Assessment - Completed for {Client/TA}

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Street Number & Name:	Bethlehem Shopping Centre	Job No.:	2470
AKA:		By:	SME
Name of building:	Block B	Date:	29/03/2021
City:	Tauranga	Revision No.:	A

Table IEP-1 Initial Evaluation Procedure Step 1

Step 1 - General Information

1.1 Photos (attach sufficient to describe building)

NOTE: THERE ARE MORE PHOTOS ON PAGE 1a ATTACHED

1.2 Sketches (plans etc, show items of interest)

NOTE: THERE ARE MORE SKETCHES ON PAGE 1a ATTACHED

1.3 List relevant features (Note: only 10 lines of text will print in this box. If further text required use Page 1a)

Refer to report details.

1.4 Note information sources Tick as appropriate

Visual Inspection of Exterior	☑	Specifications	☐
Visual Inspection of Interior	☐	Geotechnical Reports	☑
Drawings (note type)	☑	Other (list)	☐

Property File.

Initial Evaluation Procedure (IEP) Assessment - Completed for {Client/TA}

Street Number & Name:	Bethlehem Shopping Centre	Job No.:	2470
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Name of building:	Block B	Date:	29/03/2021
City:	Tauranga	Revision No.:	A

Table IEP-2 Initial Evaluation Procedure Step 2

Step 2 - Determination of *(%NBS)*$_b$

(Baseline *(%NBS)* for particular building - refer Section B5)

2.1 Determine nominal *(%NBS)* = *(%NBS)*$_{nom}$

	Longitudinal	Transverse
a) Building Strengthening Data		
Tick if building is known to have been strengthened in this direction	☐	☐
If strengthened, enter percentage of code the building has been strengthened to	N/A	N/A
b) Year of Design/Strengthening, Building Type and Seismic Zone		
Pre 1935	○	○
1935-1965	○	○
1965-1976	○	○
1976-1984	○	○
1984-1992	○	○
1992-2004	○	○
2004-2011	◉	◉
Post Aug 2011	○	○
Building Type:	Not applicable	Not applicable
Seismic Zone:	Not applicable	Not applicable
c) Soil Type		
From NZS1170.5:2004, Cl 3.1.3 :	D Soft Soil	D Soft Soil
From NZS4203:1992, Cl 4.6.2.2 : (for 1992 to 2004 and only if known)	Not applicable	Not applicable
d) Estimate Period, *T*		
Comment:		
h_n =	4	4 m
A_c =	1.00	1.00 m^2
Moment Resisting Concrete Frames: $T = \max(0.09h_n^{0.75}, 0.4)$	○	○
Moment Resisting Steel Frames: $T = \max(0.14h_n^{0.75}, 0.4)$	○	○
Eccentrically Braced Steel Frames: $T = \max(0.08h_n^{0.75}, 0.4)$	○	○
All Other Frame Structures: $T = \max(0.06h_n^{0.75}, 0.4)$	○	○
Concrete Shear Walls $T = \max(0.09h_n^{0.75}/A_c^{0.5}, 0.4)$	○	○
Masonry Shear Walls: $T \leq 0.4$sec	○	○
User Defined (input Period):	◉	◉
Where h_n = height in metres from the base of the structure to the uppermost seismic weight or mass.	T: 0.40	0.40
e) Factor A: Strengthening factor determined using result from (a) above (set to 1.0 if not strengthened)	Factor A: 1.00	1.00
f) Factor B: Determined from NZSEE Guidelines Figure 3A.1 using results (a) to (e) above	Factor B: 1.00	1.00
g) Factor C: For reinforced concrete buildings designed between 1976-84 Factor C = 1.2, otherwise take as 1.0.	Factor C: 1.00	1.00
h) Factor D: For buildings designed prior to 1935 Factor D = 0.8 except for Wellington and Napier (1931-1935) where Factor D may be taken as 1.0, otherwise take as 1.0.	Factor D: 1.00	1.00
***(%NBS)*$_{nom}$ = AxBxCxD**	***(%NBS)*$_{nom}$** 100%	100%

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Initial Evaluation Procedure (IEP) Assessment - Completed for {Client/TA}

Street Number & Name:	Bethlehem Shopping Centre	Job No.:	2470
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Name of building:	Block B	Date:	29/03/2021
City:	Tauranga	Revision No.:	A

Table IEP-2 Initial Evaluation Procedure Step 2 continued

2.2 Near Fault Scaling Factor, Factor E

If $T \leq 1.5$sec, Factor E = 1

		Longitudinal	Transverse
a) Near Fault Factor, *N(T,D)* (from NZS1170.5:2004, Cl 3.1.6)	N(T,D):	1	1
b) Factor E = 1/N(T,D)	Factor E:	1.00	1.00

2.3 Hazard Scaling Factor, Factor F

a) Hazard Factor, *Z*, for site

Location: Tauranga ▼ Refer right for user-defined locations

Z =	0.2	(from NZS1170.5:2004, Table 3.3)
Z_{1992} =	0.85	(NZS4203:1992 Zone Factor from accompanying Figure 3.5(b))
Z_{2004} =	0.2	(from NZS1170.5:2004, Table 3.3)

b) Factor F

			Longitudinal	Transverse
For pre 1992	=	1/Z		
For 1992-2011	=	Z_{1992}/Z		
For post 2011	=	Z_{2004}/Z		
		Factor F:	1.00	1.00

2.4 Return Period Scaling Factor, Factor G

a) Design Importance Level, I

(Set to 1 if not known. For buildings designed prior to 1965 and known to be designed as a public building set to 1.25. For buildings designed 1965-1976 and known to be designed as a public building set to 1.33 for Zone A or 1.2 for Zone B. For 1976-1984 set I value.)

	Longitudinal	Transverse
I =	1	1

b) Design Risk Factor, R_o (set to 1.0 if other than 1976-2004, or not known)

	Longitudinal	Transverse
R_o =	1	1

c) Return Period Factor, R (from NZS1170.0:2004 Building Importance Level)

Choose Importance Level ○1 ◉2 ○3 ○4 ○1 ◉2 ○3 ○4

	Longitudinal	Transverse
R =	1.0	1.0

d) Factor G = IR_o/R

	Longitudinal	Transverse
Factor G:	1.00	1.00

2.5 Ductility Scaling Factor, Factor H

a) Available Displacement Ductility Within Existing Structure

Comment:

	Longitudinal	Transverse
μ =	1.50	1.50

b) Factor H

		k_μ Longitudinal	k_μ Transverse
For pre 1976 (maximum of 2)	=	1.29	1.29
For 1976 onwards	=	1	1
	Factor H:	1.00	1.00

(where k_μ is NZS1170.5:2004 Inelastic Spectrum Scaling Factor, from accompanying Table 3.3)

2.6 Structural Performance Scaling Factor, Factor I

a) Structural Performance Factor, S_p (from accompanying Figure 3.4)

Tick if light timber-framed construction in this direction

	Longitudinal	Transverse
	☐	☐
S_p =	0.85	0.85

b) Structural Performance Scaling Factor = $1/S_p$

	Longitudinal	Transverse
Factor I:	1.00	1.00

Note Factor B values for 1992 to 2004 have been multiplied by 0.67 to account for Sp in this period

2.7 Baseline *%NBS* for Building, $(\%NBS)_b$

(equals $(\%NBS)_{nom}$ x E x F x G x H x I)

Longitudinal	Transverse
100%	100%

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Initial Evaluation Procedure (IEP) Assessment - Completed for {Client/TA}

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Name of building:	Block B	Date:	29/03/2021
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Table IEP-3 Initial Evaluation Procedure Step 3

Step 3 - Assessment of Performance Achievement Ratio (PAR)
(Refer Appendix B - Section B3.2)

a) Longitudinal Direction

potential CSWs	Effect on Structural Performance (Choose a value - Do not interpolate)			Factors
3.1 Plan Irregularity				
Effect on Structural Performance	○ *Severe*	○ *Significant*	◉ *Insignificant*	Factor A 1.0
Comment				
3.2 Vertical Irregularity				
Effect on Structural Performance	○ *Severe*	○ *Significant*	◉ *Insignificant*	Factor B 1.0
Comment				
3.3 Short Columns				
Effect on Structural Performance	○ *Severe*	○ *Significant*	◉ *Insignificant*	Factor C 1.0
Comment				

3.4 Pounding Potential
(Estimate D1 and D2 and set D = the lower of the two, or 1.0 if no potential for pounding, or consequences are considered to be minimal)

a) Factor D1: - Pounding Effect

Note:
Values given assume the building has a frame structure. For stiff buildings (eg shear walls), the effect of pounding may be reduced by taking the coefficient to the right of the value applicable to frame buildings.

Factor D1 For Longitudinal Direction: 1.0

Table for Selection of Factor D1	Severe	Significant	Insignificant
Separation	0<Sep<.005H	.005<Sep<.01H	Sep>.01H
Alignment of Floors within 20% of Storey Height	○ 1	○ 1	◉ 1
Alignment of Floors not within 20% of Storey Height	○ 0.4	○ 0.7	○ 0.8

Comment

b) Factor D2: - Height Difference Effect

Factor D2 For Longitudinal Direction: 1.0

Table for Selection of Factor D2	Severe	Significant	Insignificant
	0<Sep<.005H	.005<Sep<.01H	Sep>.01H
Height Difference > 4 Storeys	○ 0.4	○ 0.7	○ 1
Height Difference 2 to 4 Storeys	○ 0.7	○ 0.9	○ 1
Height Difference < 2 Storeys	○ 1	○ 1	◉ 1

Comment

Factor D 1.0

3.5 Site Characteristics - *Stability, landslide threat, liquefaction etc as it affects the structural performance from a life-safety perspective*

Effect on Structural Performance	○ *Severe*	○ *Significant*	◉ *Insignificant*	Factor E 1.0
Comment				

3.6 Other Factors - *for allowance of all other relevant characterstics of the building*

For ≤ 3 storeys - Maximum value 2.5
otherwise - Maximum value 1.5.
No minimum.

Factor F 1.1

Record rationale for choice of Factor F:
Refer to report

3.7 Performance Achievement Ratio (PAR)
(equals A x B x C x D x E x F)

PAR
Longitudinal 1.10

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Initial Evaluation Procedure (IEP) Assessment - Completed for {Client/TA}

Street Number & Name:	Bethlehem Shopping Centre	Job No.:	2470
AKA:		By:	SME
Name of building:	Block B	Date:	29/03/2021
City:	Tauranga	Revision No.:	A

Table IEP-3 Initial Evaluation Procedure Step 3

Step 3 - Assessment of Performance Achievement Ratio (PAR)
(Refer Appendix B - Section B3.2)

b) Transverse Direction

potential CSWs	Effect on Structural Performance (Choose a value - Do not interpolate)			Factors
3.1 Plan Irregularity				
Effect on Structural Performance	○ *Severe*	○ *Significant*	◉ *Insignificant*	**Factor A** 1.0
Comment				
3.2 Vertical Irregularity				
Effect on Structural Performance	○ *Severe*	○ *Significant*	◉ *Insignificant*	**Factor B** 1.0
Comment				
3.3 Short Columns				
Effect on Structural Performance	○ *Severe*	○ *Significant*	◉ *Insignificant*	**Factor C** 1.0
Comment				

3.4 Pounding Potential
(Estimate D1 and D2 and set D = the lower of the two, or 1.0 if no potential for pounding, or consequences are considered to be minimal)

a) Factor D1: - Pounding Effect

Note:
Values given assume the building has a frame structure. For stiff buildings (eg shear walls), the effect of pounding may be reduced by taking the coefficient to the right of the value applicable to frame buildings.

Factor D1 For Transverse Direction: 1.0

Table for Selection of Factor D1	Severe	Significant	Insignificant
Separation	0<Sep<.005H	.005<Sep<.01H	Sep>.01H
Alignment of Floors within 20% of Storey Height	○ 1	○ 1	◉ 1
Alignment of Floors not within 20% of Storey Height	○ 0.4	○ 0.7	○ 0.8

Comment

b) Factor D2: - Height Difference Effect

Factor D2 For Transverse Direction: 1.0

Table for Selection of Factor D2	Severe	Significant	Insignificant
	0<Sep<.005H	.005<Sep<.01H	Sep>.01H
Height Difference > 4 Storeys	○ 0.4	○ 0.7	○ 1
Height Difference 2 to 4 Storeys	○ 0.7	○ 0.9	○ 1
Height Difference < 2 Storeys	○ 1	○ 1	◉ 1

Comment

Factor D 1.0

3.5 Site Characteristics - *Stability, landslide threat, liquefaction etc as it affects the structural performance from a life-safety perspective*

Effect on Structural Performance	○ *Severe*	○ *Significant*	◉ *Insignificant*	**Factor E** 1.0
Comment				

3.6 Other Factors - *for allowance of all other relevant characterstics of the building*

Record rationale for choice of Factor F:

For ≤ 3 storeys - Maximum value 2.5
otherwise - Maximum value 1.5.
No minimum.

Factor F 1.10

Refer to report

3.7 Performance Achievement Ratio (PAR)
(equals **A x B x C x D x E x F**)

PAR
Transverse 1.10

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Initial Evaluation Procedure (IEP) Assessment - Completed for {Client/TA}

Street Number & Name:	Bethlehem Shopping Centre	Job No.:	2470
AKA:		By:	SME
Name of building:	Block B	Date:	29/03/2021
City:	Tauranga	Revision No.:	A

Table IEP-4 Initial Evaluation Procedure Steps 4, 5, 6 and 7

Step 4 - Percentage of New Building Standard *(%NBS)*

		Longitudinal	Transverse
4.1	Assessed Baseline *%NBS* $(\%NBS)_b$ (from Table IEP - 1)	100%	100%
4.2	Performance Achievement Ratio (PAR) (from Table IEP - 2)	1.10	1.10
4.3	PAR x Baseline $(\%NBS)_b$	>100%	>100%
4.4	Percentage New Building Standard *(%NBS)* - Seismic Rating (Use lower of two values from Step 4.3)		>100%

Step 5 - Is *%NBS* < 34? NO

Step 6 - Potentially Earthquake Risk (is *%NBS* < 67)? NO

Step 7 - Provisional Grading for Seismic Risk based on IEP

Seismic Grade A+

Additional Comments (items of note affecting IEP based seismic rating)

Relationship between Grade and *%NBS*:

Grade:	A+	A	B	C	D	E
%NBS:	> 100	100 to 80	79 to 67	66 to 34	< 34 to 20	< 20

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Initial Evaluation Procedure (IEP) Assessment - Completed for {Client/TA}

Street Number & Name:	Bethlehem Shopping Centre	Job No.:	2470
AKA:		By:	SME
Name of building:	Block B	Date:	29/03/2021
City:	Tauranga	Revision No.:	A

Table IEP-5 Initial Evaluation Procedure Step 8

Step 8 - Identification of potential Severe Structural Weaknesses (SSWs) that could result in significant risk to a significant number of occupants

8.1	Number of storeys above ground level	1
8.2	Presence of heavy concrete floors and/or concrete roof? (Y/N)	N

Potential Severe Structural Weaknesses (SSWs):

Note: Options that are greyed out are not applicable and need not be considered.

Occupancy not considered to be significant - no further consideration required

Risk not considered to be significant - no further consideration required

The following potential Severe Structural Weaknesses (SSWs) have been identified in the building that could result in significant risk to a significant number of occupants:

1. None identified
2. Weak or soft storey (except top storey)
3. Brittle columns and/or beam-column joints the deformations of which are not constrained by other structural elements
4. Flat slab buildings with lateral capacity reliant on low ductility slab-to-column connections
5. No identifiable connection between primary structure and diaphragms
6. Ledge - not applicable

IEP Assessment Confirmed by Signature

S R Mitchell **Name**

70562 **CPEng. No**

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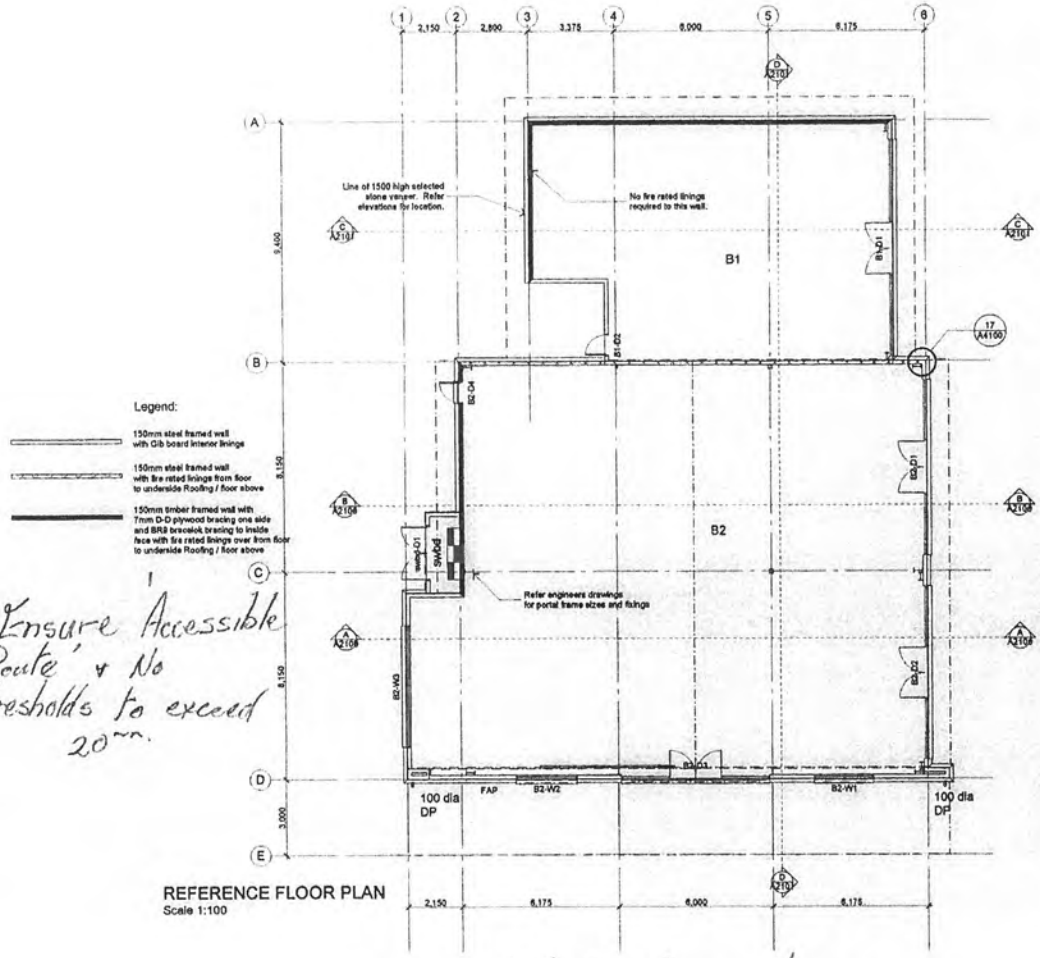
GENERAL NOTES

1. DO NOT SCALE OFF DRAWING.
2. CONTRACTOR SHALL VERIFY AND BE RESPONSIBLE FOR ALL DIMENSIONS ON SITE.
3. ARCHITECTS TO BE NOTIFIED OF ANY VARIATION BETWEEN SITE DIMENSIONS AND THOSE ON PLANS.
4. THESE DRAWINGS REMAIN THE PROPERTY OF IGNITE ARCHITECTS LTD AND SHOULD NOT BE COPIED IN ANY FORM OR PASSED ON TO A THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT.



REFERENCE FLOOR PLAN
Scale 1:100

Legend:

150mm steel framed wall with Gib board interior linings

150mm steel framed wall with fire rated linings from floor to underside Roofing / floor above

150mm timber framed wall with 7mm D-D plywood bracing one side and BRB bracelok bracing to inside face with fire rated linings over from floor to underside Roofing / floor above

Ensure Accessible Route & No thresholds to exceed 20mm.

All work to be done with reference to the Fire Report.

APPROVED
These plans are approved in accordance wi
The NZ Building Code
These plans must remain on site
TAURANGA CITY COUNCIL

Producer Statement Required For:

1, Alarm installation + Testing + certification on completion by E.P.I.S.
2 Any Auto-doors (Failsafe)
3. H.A.U.A.C. system, commissioning results
4 All waterproof membranes.
5. Steel fabrication & welding

ISSUE	REVISION	BY	DATE
A	BUILDING CONSENT	MG	11.07.06

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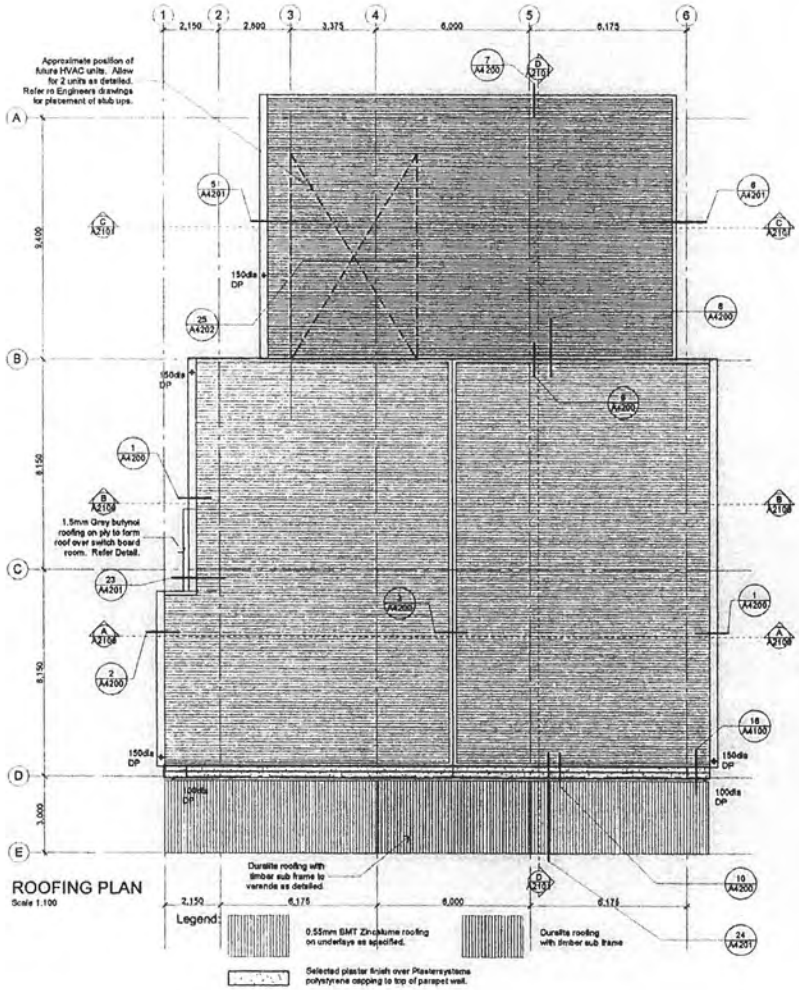
CLIENT
AMP capital INVESTORS

PROJECT
BLOCK B
BETHLEHEM
SHOPPING CENTRE

DRAWING TITLE
REFERENCE FLOOR PLAN

TCC172948

DATE	SCALE
11 JULY 2006	
DRAWN: MG	CHECK:
PROJECT NO.: 457-05-19	
DRAWING NUMBER: A1300	(A)



ROOFING PLAN
Scale 1:100

GENERAL NOTES

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APPROVED
These plans are approved in accordance with
The NZ Building Code.
These plans must remain on site
TAURANGA CITY COUNCIL

TCC172950

ISSUE	REVISION	BY	DATE
A	BUILDING CONSENT	MG	11.07.06

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CLIENT

AMP capital INVESTORS

PROJECT
BLOCK B
BETHLEHEM
SHOPPING CENTRE

DRAWING TITLE
ROOFING PLAN

DATE	SCALE
11 JULY 2006	
DRAWN: MG	CHECK:	PROJECT NO.: 457-05-19

DRAWING NUMBER
A1700 (A)

GENERAL NOTES

1. DO NOT SCALE OFF DRAWING

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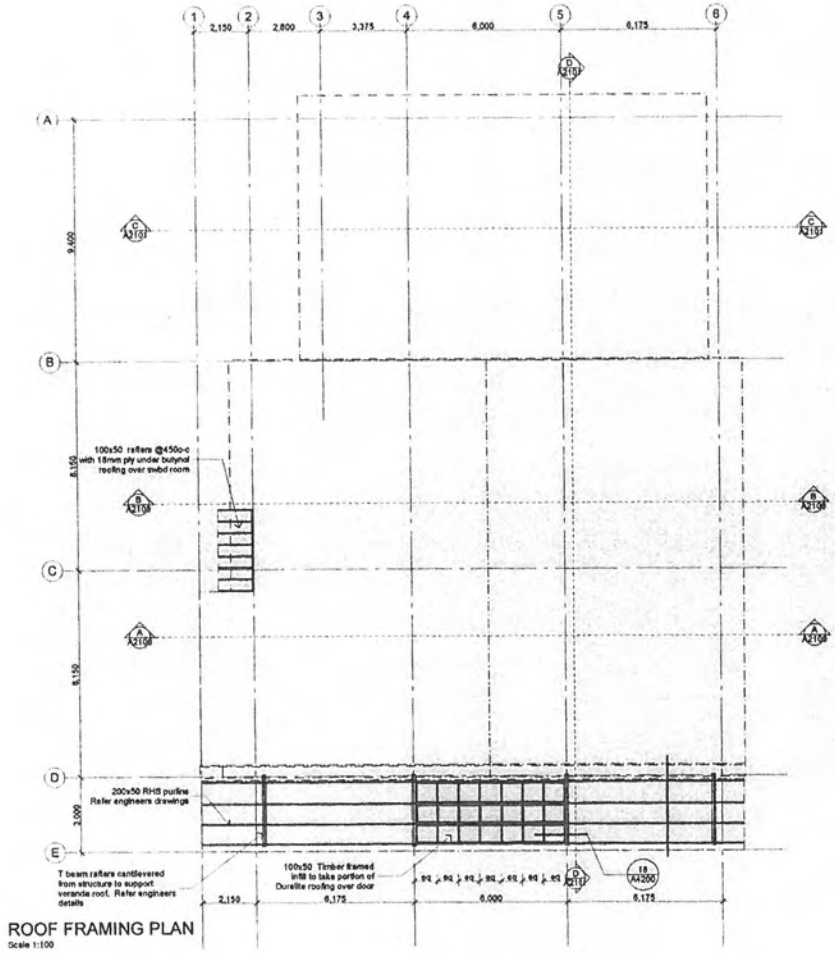
3. ARCHITECTS TO BE NOTIFIED OF ANY VARIATION BETWEEN SITE DIMENSIONS AND THOSE ON PLANS.

4. THESE DRAWINGS REMAIN THE PROPERTY OF IGNITE ARCHITECTS LTD AND SHOULD NOT BE COPIED IN ANY FORM OR PASSED ON TO A THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT.



ROOF FRAMING PLAN
Scale 1:100

APPROVED
These plans are approved in accordance wi
The NZ Building Code.
These plans must remain on site
TAURANGA CITY COUNCIL

TCC172951

ISSUE	REVISION	BY	DATE
A	BUILDING CONSENT	MG	11.07.06

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www.igniteachitects.com

CLIENT

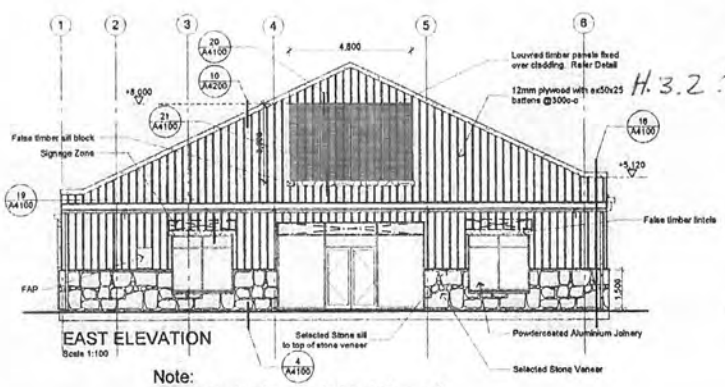
AMP capital INVESTORS

PROJECT
BLOCK B
BETHLEHEM
SHOPPING CENTRE

DRAWING TITLE
ROOF FRAMING PLAN

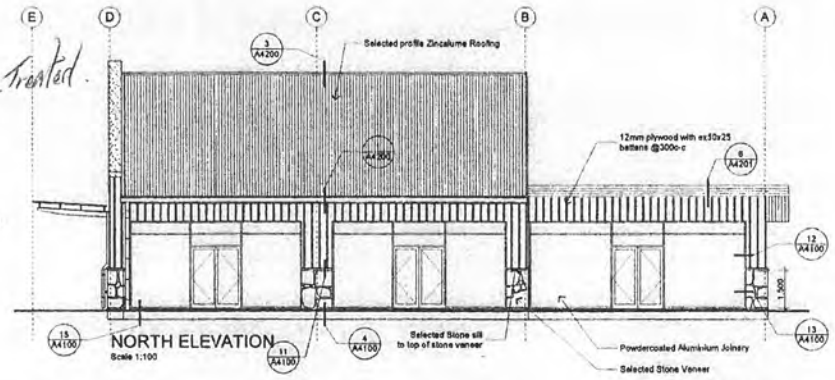
DATE	SCALE
11 JULY 2006	
DRAWN: MG	CHECK:
PROJECT NO.: 457-05-19	

DRAWING NUMBER
A1701 (A)



EAST ELEVATION
Scale 1:100

H. 3.2 Treated.



NORTH ELEVATION
Scale 1:100

Note:
40mm Drained cavity behind plywood cladding to walls on Grid line B and D only.

TAURANGA CITY COUNCIL
PROJECT INFORMATION MEMORANDA
29760
Refer to accompanying documentation

TCC17295Z

APPROVED
These plans are approved in accordance with
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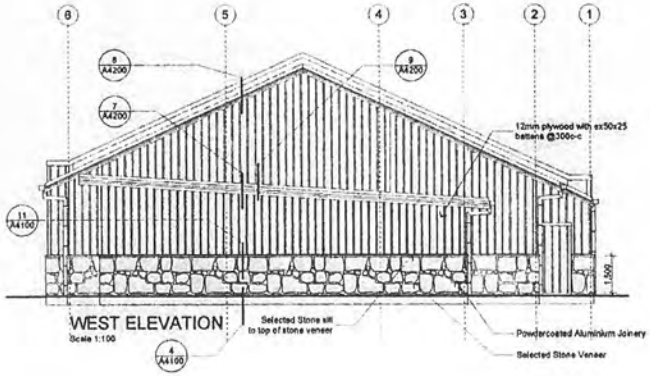
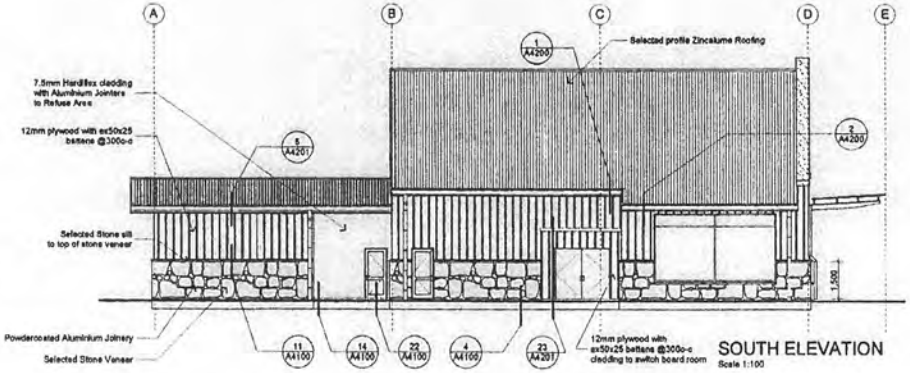
TAURANGA CITY COUNCIL



WEST ELEVATION
Scale 1:100



SOUTH ELEVATION
Scale 1:100

GENERAL NOTES

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ISSUE	REVISION	BY	DATE
A	BUILDING CONSENT	MG	11.07.06

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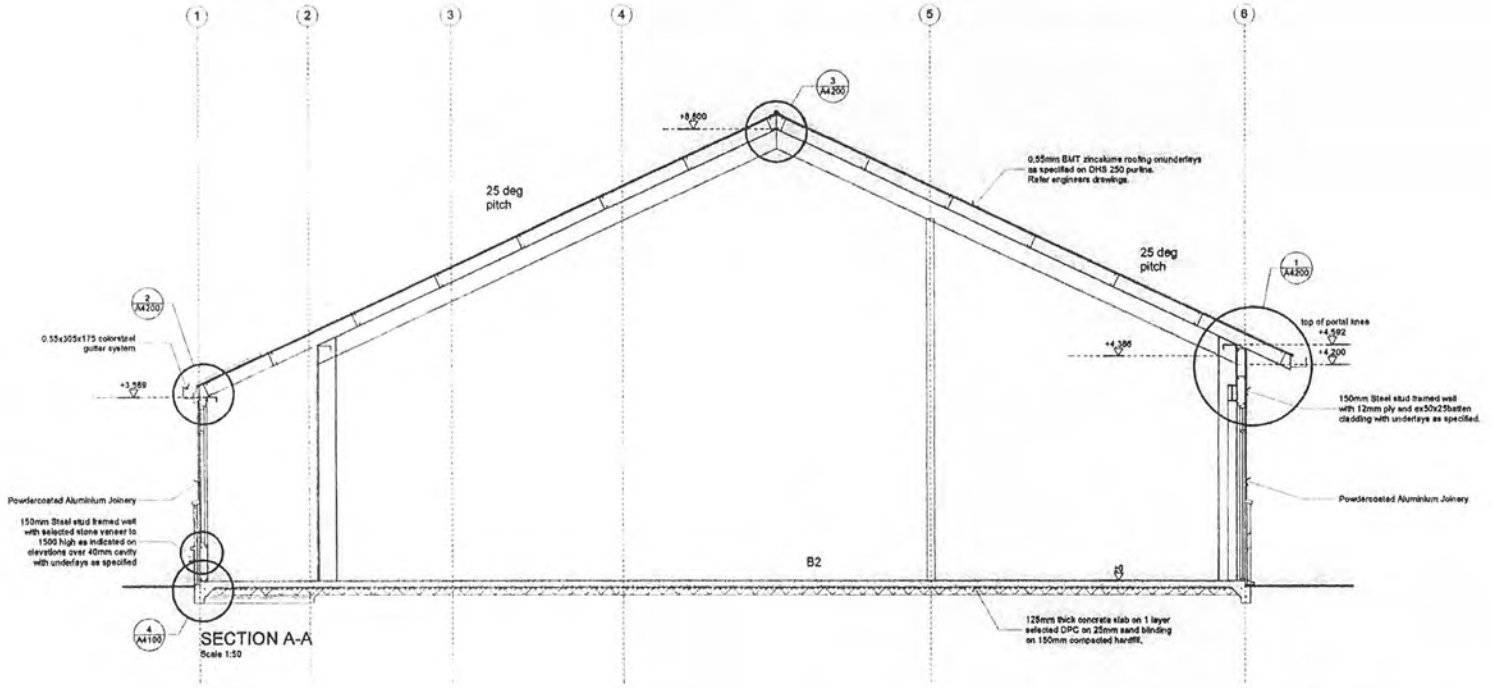
CLIENT

AMP capital INVESTORS

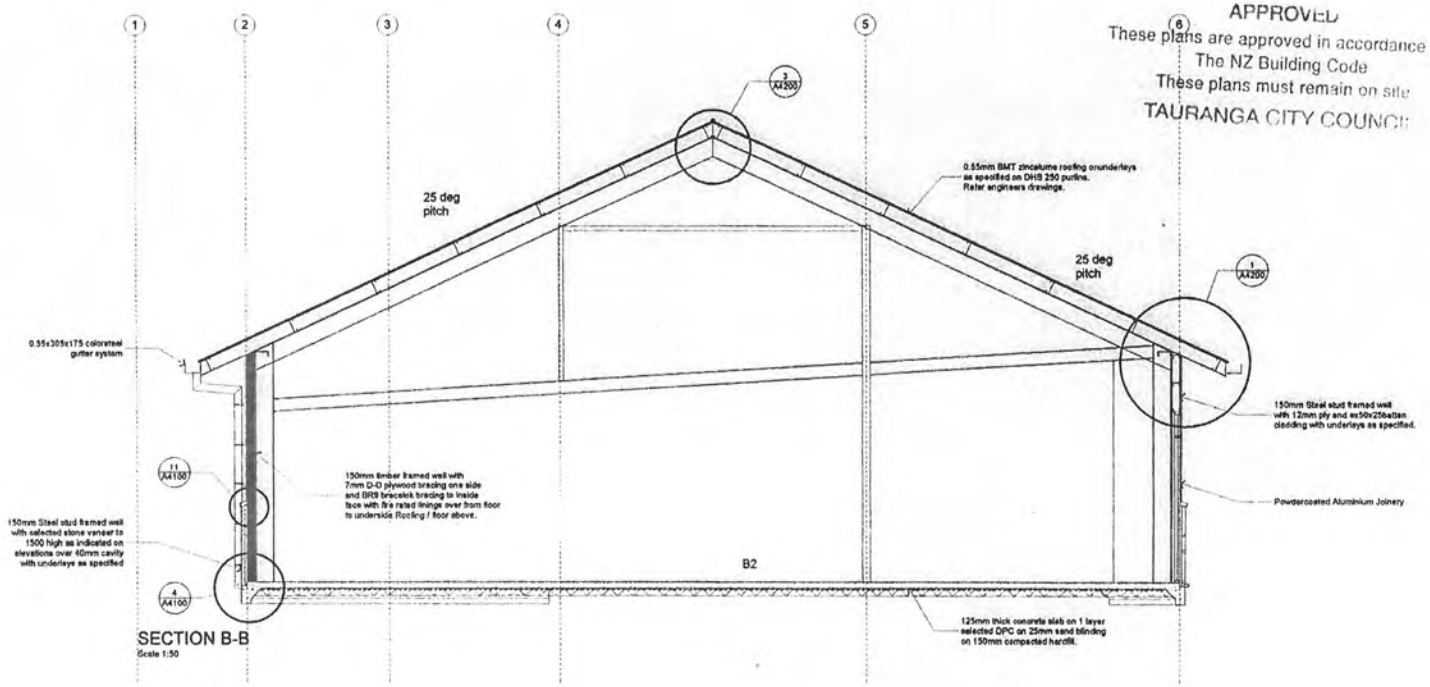
PROJECT
BLOCK B
BETHLEHEM
SHOPPING CENTRE

DRAWING TITLE
ELEVATIONS

DATE	SCALE
11 JULY 2006	
DRAWN: MG	CHECK:
PROJECT NO.: 457-05-19	
DRAWING NUMBER: A2000	(A)



SECTION A-A
Scale 1:50



SECTION B-B
Scale 1:50

APPROVED
These plans are approved in accordance wit
The NZ Building Code
These plans must remain on site
TAURANGA CITY COUNCIL

GENERAL NOTES

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ISSUE	REVISION	BY	DATE
A	BUILDING CONSENT	MG	11.07.06

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AMP capital INVESTORS

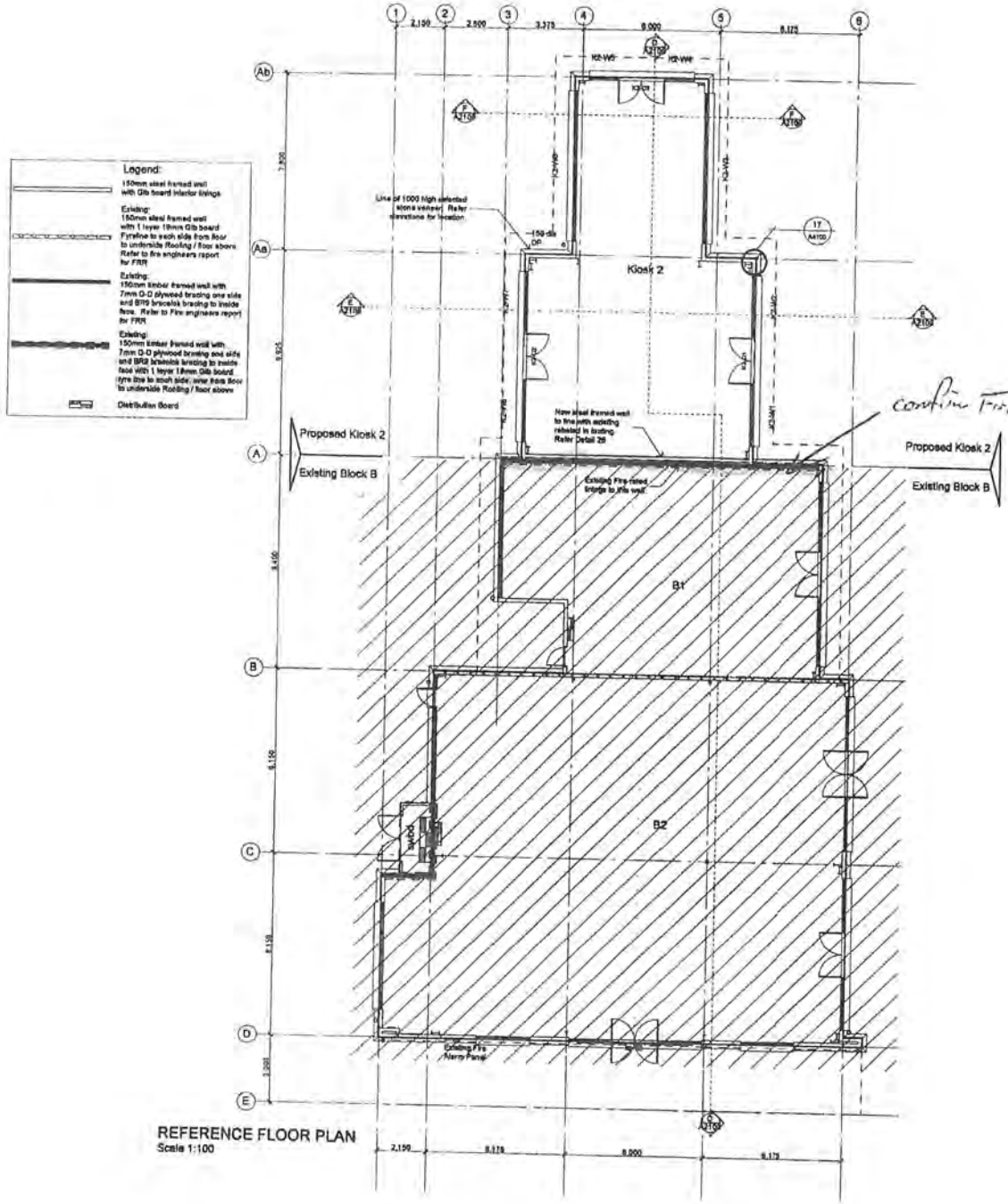
PROJECT
BLOCK B
BETHLEHEM
SHOPPING CENTRE

DRAWING TITLE
SECTIONS

TCC17955

DATE	SCALE
11 JULY 2006	
DRAWN: MG	CHECK:
PROJECT NO. 457-05-19	

DRAWING NUMBER
A2100 (A)



GENERAL NOTES

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3. ARCHITECTS TO BE REFERRED OF ANY VARIATION BETWEEN SITE DIMENSIONS AND THOSE ON PLANS.
4. THESE DRAWINGS REMAIN THE PROPERTY OF IGNITE ARCHITECTS LTD AND SHOULD NOT BE COPIED IN ANY FORM OR PASSED ON TO A THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT.

North

A	Building Consent	MG	27.03.07
ISSUE	REVISION	BY	DATE

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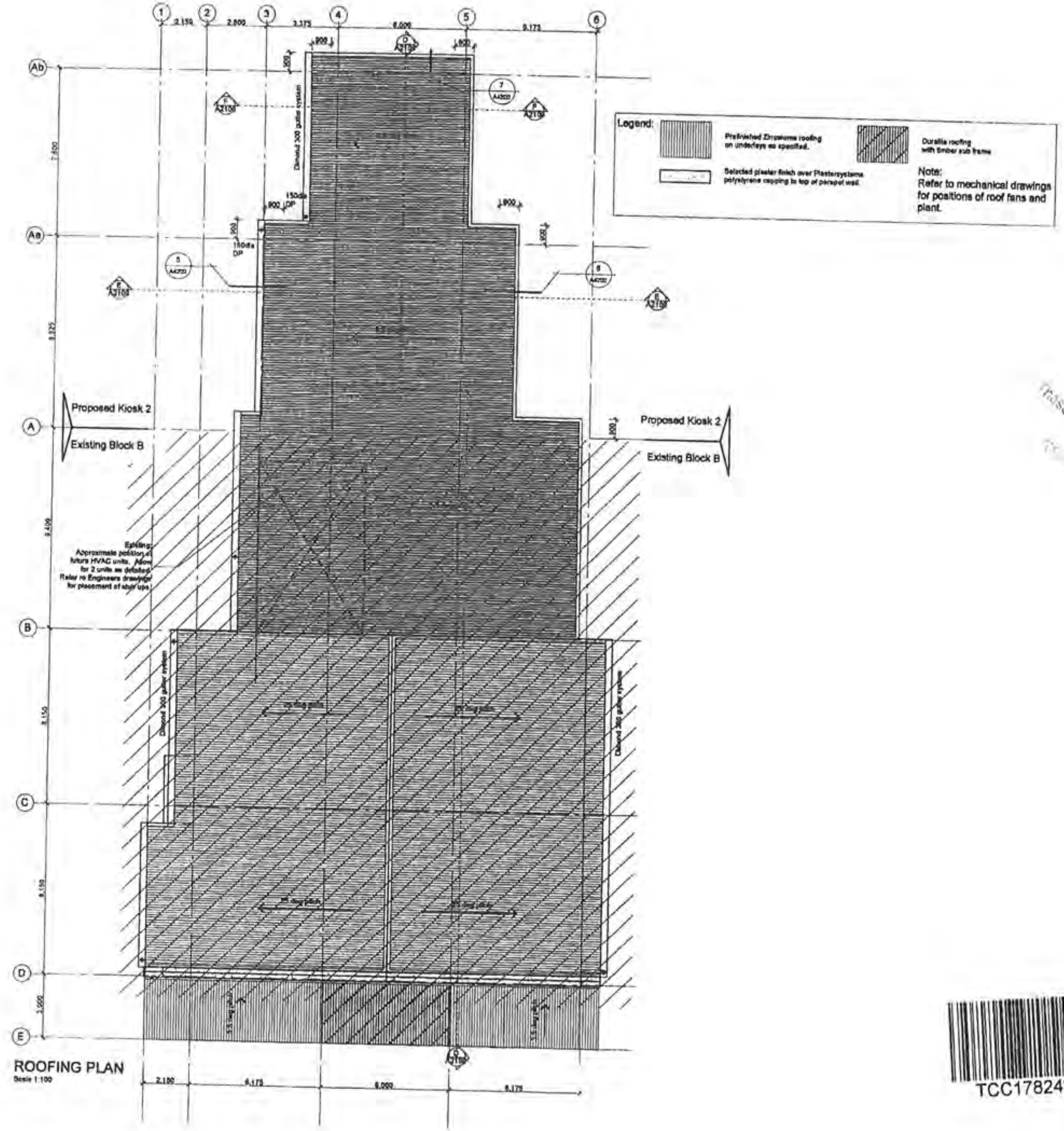
CLIENT

PROJECT
BLOCK B
BETHLEHEM
SHOPPING CENTRE

DRAWING TITLE
REFERENCE FLOOR PLAN

TCC178240

DATE: 27 MARCH 2007		SCALE: 1:100 @A1 1:200 @A3	
DRAWN: MG	CHECK: CMcM	PROJECT NO: 457-05-19	
DRAWING NUMBER: A1300		(A)	



ROOFING PLAN
Scale 1:100

GENERAL NOTES

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North

ISSUE	REVISION	BY	DATE
A	Building Consent	MG	27 03 07

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CLIENT

PROJECT
BLOCK B
BETHLEHEM
SHOPPING CENTRE

DRAWING TITLE
ROOFING PLAN

TCC178243

DATE	SCALE
27 MARCH 2007	1:100 @A1 1:200 @A3

DRAWN	CHECK	PROJECT NO.
MG	CM/M	457-05-19

DRAWING NUMBER
A1700 (A)

GENERAL NOTES

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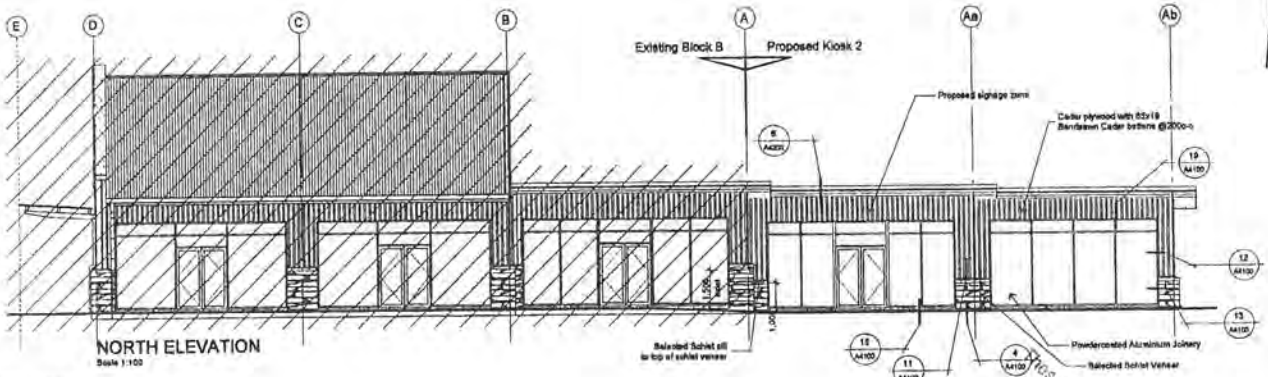
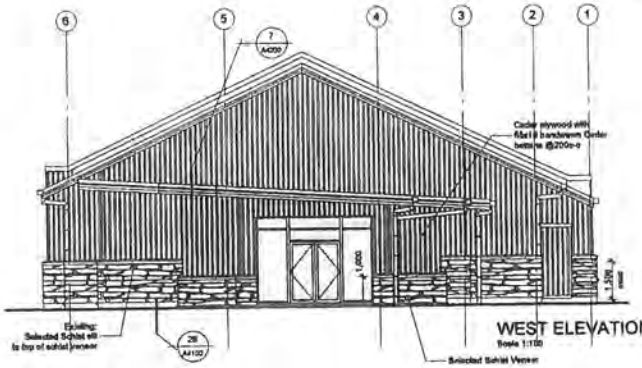
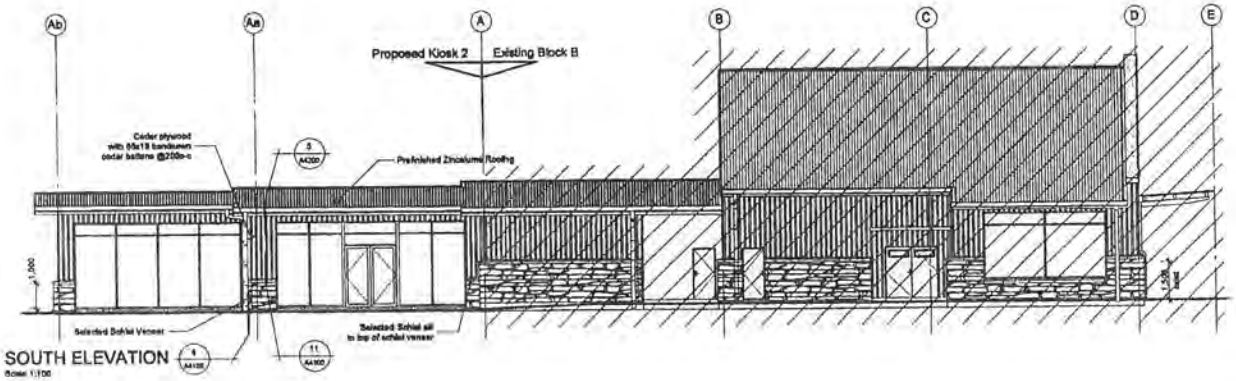
TCC178244



NORTH ELEVATION
Scale 1:100



WEST ELEVATION
Scale 1:100



SOUTH ELEVATION
Scale 1:100

TAURANGA CITY COUNCIL
PROJECT INFORMATION MEMORANDA
25144
Refer to accompanying documentation

A	Building Consent	MG	27.03.07
ISSUE	REVISION	BY	DATE

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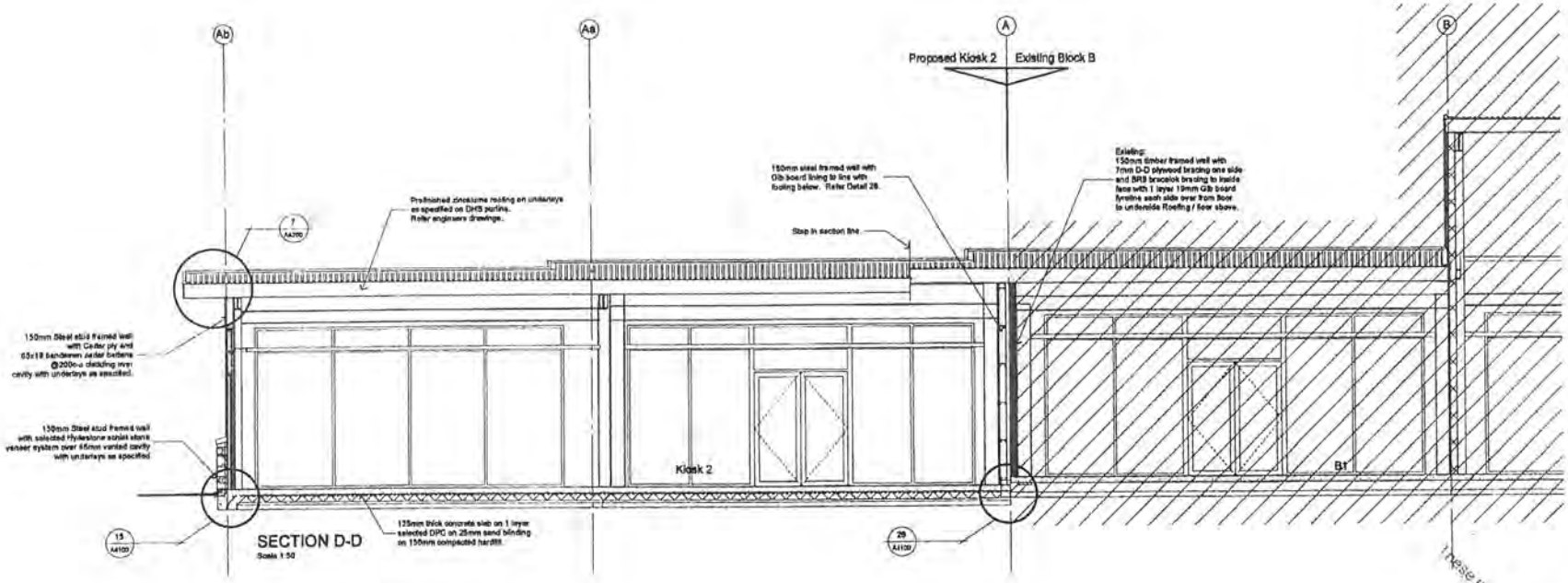
CLIENT

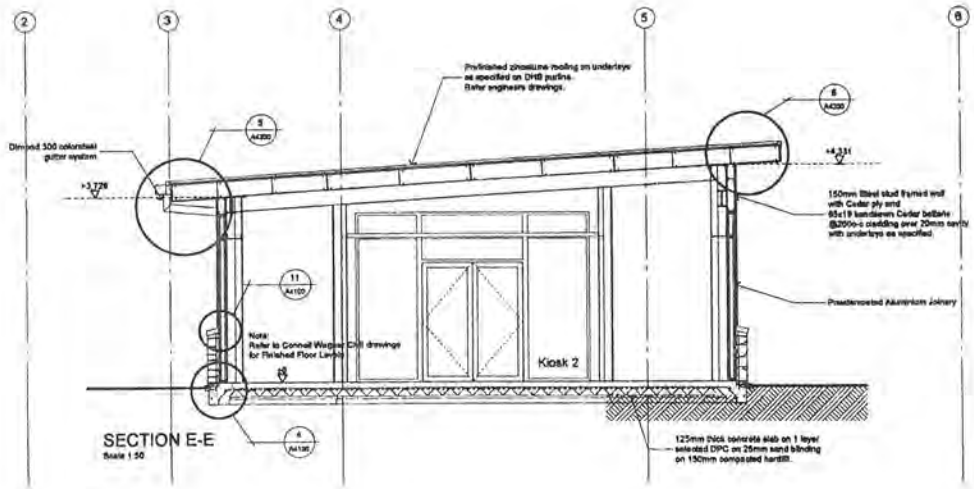
PROJECT
BLOCK B
BETHLEHEM
SHOPPING CENTRE

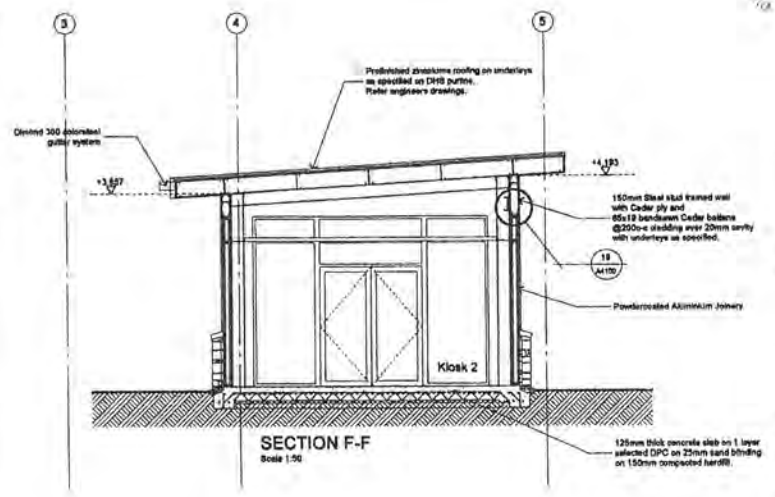
DRAWING TITLE
ELEVATIONS

DATE: 27 MARCH 2007		SCALE: 1:100 @A1, 1:200 @A3
DRAWN: MG	CHECK: Chkd	PROJECT NO.: 457-05-19

DRAWING NUMBER
A2000 (A)







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TCC178246

ISSUE	REVISION	BY	DATE
A	Building Consent	MG	27.03.07

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CLIENT

PROJECT
BLOCK B
BETHLEHEM
SHOPPING CENTRE

DRAWING TITLE
SECTIONS

DATE	SCALE
27 MARCH 2007	1:50 @A1 1:100 @A3
DRAWN: MG	CHECK: CMcM
PROJECT NO.	457-05-19

DRAWING NUMBER
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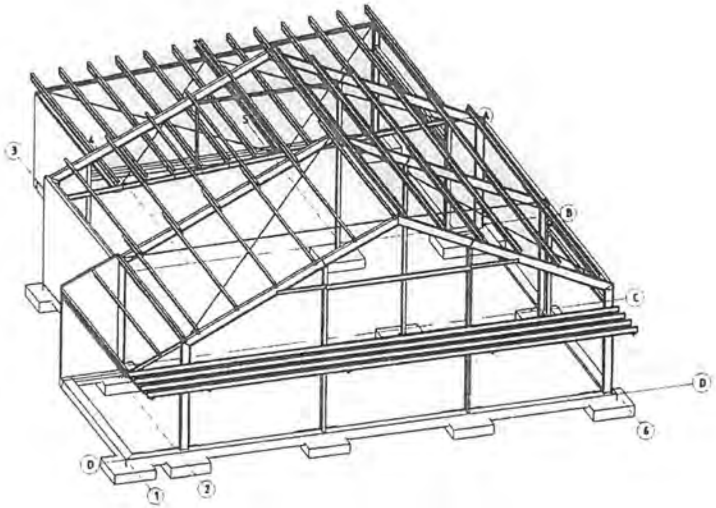
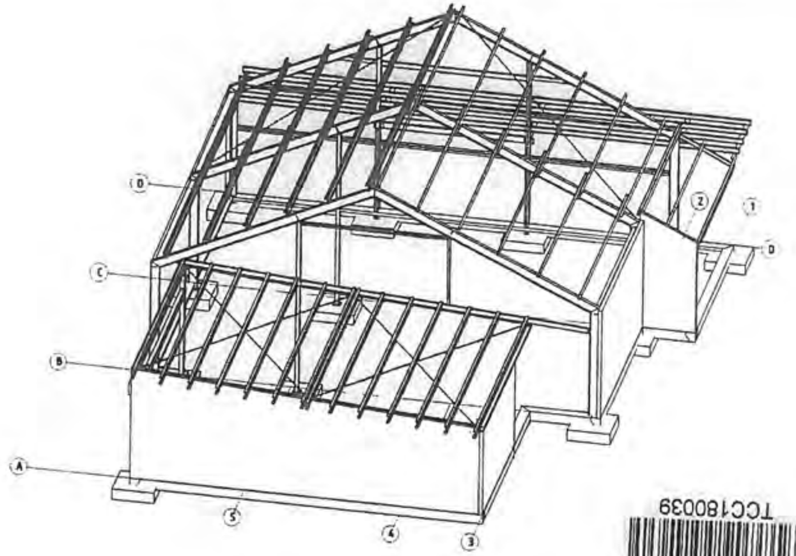
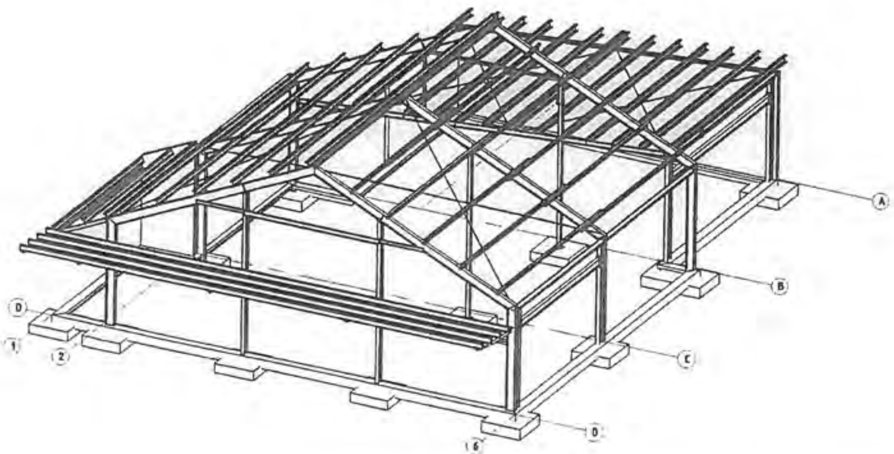
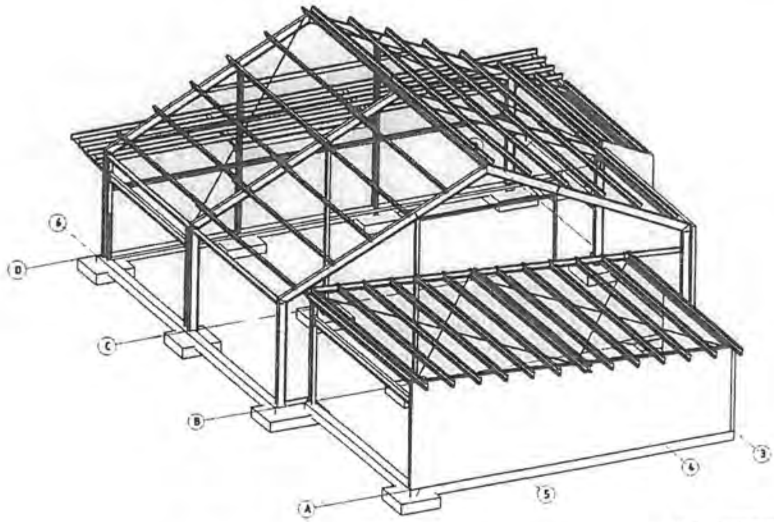




TCC180039





Rev	Date	Revision Details	Drn	Ver.	App
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
03	10.07.06	CONSENT	-	-	-
02	30.06.06	COORDINATION	-	-	-
01	08.06.06	PRELIMINARY	-	-	-

Connell Wagner

Connell Wagner Limited Auckland Office
PO Box 9762, Newmarket, Auckland
Telephone: +64 9 520-6019
Facsimile: +64 9 524-7815

Client: AMP capital INVESTORS

Project: BETHLEHEM SHOPPING CENTRE

Drawn AID	Signed AID	Date 10.07.06
Designed DPL	Signed DPL	Date 10.07.06
Verified ECS	Signed ECS	Date 10.07.06
Approved SMB	Signed SMB	Date 10.07.06

Drawing Title: STRUCTURAL BLOCK B

CONSENT
NOT FOR CONSTRUCTION

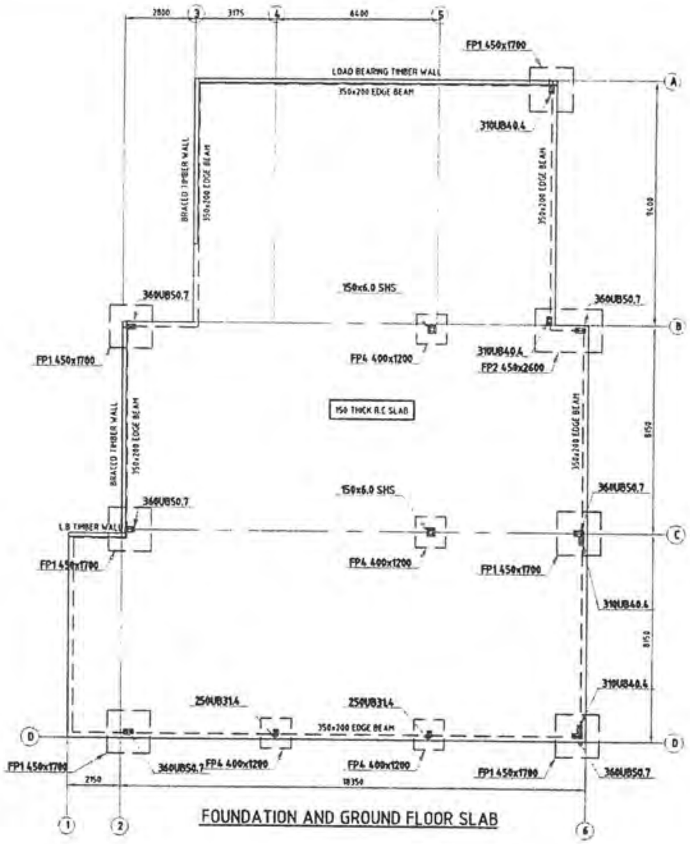
Project No. B236

Scale 1:100 A1 1:200 A3

Sheet Size A1

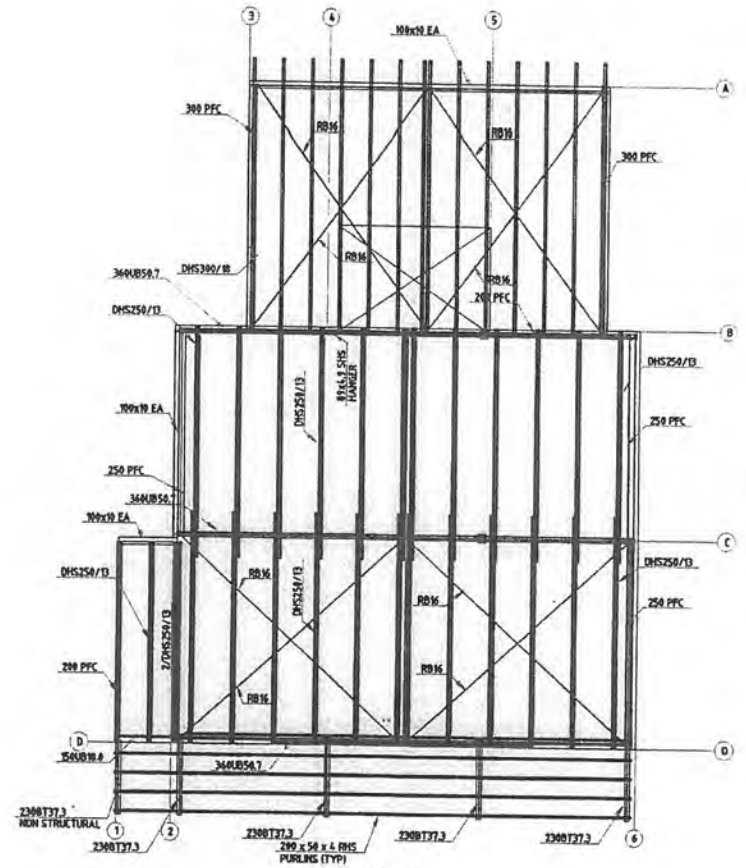
Drawing No. B236-S0.200

Rev 03



FOUNDATION AND GROUND FLOOR SLAB

KEY
FP1 = 1700x1700x450 FOUNDATION PAD
FP2 = 2600x1700x450 FOUNDATION PAD
FP3 = 1800x1500x450 FOUNDATION PAD
FP4 = 1200x1200x400 FOUNDATION PAD
SF1 = 250x400W STRIP FOOTING



ROOF PLAN

NOTES
1. REFER TO ARCHITECTS FOR FLOOR LEVELS AND FALLS
2. BUILDING PLATFORM FOR 125 SLAB ON GRADE TO CONSIST OF 1 LAYER OF DPC ON 25mm SAND BLINDING ON 150mm COMPACTED HARDFILL.
3. PROVIDE 665 MESH TO SLAB ON GRADE U.N.O
4. PROVIDE SAWCUTS AT 5000 CRS EACH WAY AND CONSTRUCTION JOINTS AT 20000 EACH WAY U.N.O
5. REFER TO GEOTECHNICAL REPORT FOR FOUNDATION BEARING PRESSURES. ALL FOUNDATIONS TO BE INSPECTED BY AN ENGINEER PRIOR TO POURING OF THE FOUNDATION.
6. REFER TO HYDRAULICS DRAWINGS FOR IN GROUND SEVICES UNDER THE 125 SLAB ON GRADE.
7. REFER TO STRUCTURAL SPECIFICATION FOR CONCRETE COMPRESSIVE STRENGTHS.
8. TIMBER FRAMING FOR LOAD BEARING / BRACED TIMBER WALLS TO BE 150x50 STUDS AT 400 CRS
9. CLADDING FOR LOAD BEARING/ BRACED TIMBER WALLS TO CONSIST OF 7mm D-D PLYWOOD ONE SIDE WITH BRACELOK OMEGA BPL BRACING UNIT! OTHER. ALL FIXINGS TO BE IN ACCORDANCE WITH THE MANUFACTURERS SPECIFICATION
10. ALL TIMBER FRAMING DETAILS TO BE TO NZS 3604
11. PROVIDE FLY-BRACEES AT 5400 CRS TO ALL PORTAL FRAMES UNO
12. PROVIDE 1 ROW OF FAST BRACE BRACING TO EACH PURLIN BAY UNO
13. LAP PURLINS (WHERE SHOWN) 0.1x LENGTH OF ADJACENT REFER TO MANUFACTURERS SPECIFICATION FOR DETAIL

MECHANICAL PLANT PLATFORM 6.0M x 4.7M
NOTE: STEEL BEAMS TO CONTINUE ACROSS TO GRID A

TCC180065

APPROVED
These plans are approved in accordance with The NZ Building Code
These plans must remain on site
TAURANGA CITY COUNCIL

Rev.	Date	Revision Details	Drn	Ver	App.
03	10.07.06	CONSENT	-	-	-
02	30.06.06	COORDINATION	AD	-	-
01	08.06.06	PRELIMINARY	-	-	-

Connell Wagner

Client: AMP capital INVESTORS

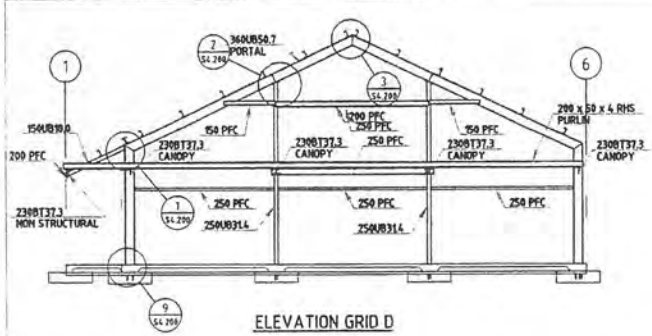
Project: BETHLEHEM SHOPPING CENTRE

Drawn AD	Signed AD	Date 10.07.06
Designed DPL	Signed DPL	Date 10.07.06
Verified ECS	Signed ECS	Date 10.07.06
Approved SMB	Signed SMB	Date 10.07.06

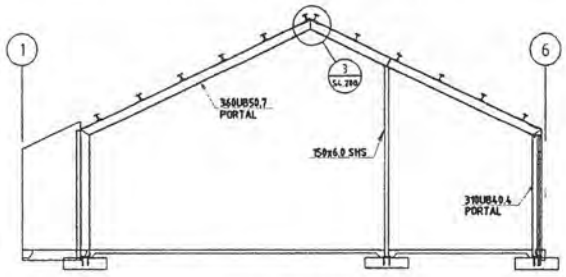
Drawing Title: STRUCTURAL BLOCK B FOUNDATIONS AND GROUND FLOOR AND ROOF PLAN

CONSENT
NOT FOR CONSTRUCTION

Project No B236
Scale 1:100 A1, 1:200 A3
Sheet Size A1
Drawing No B236-S1.200
Rev 03



ELEVATION GRID D



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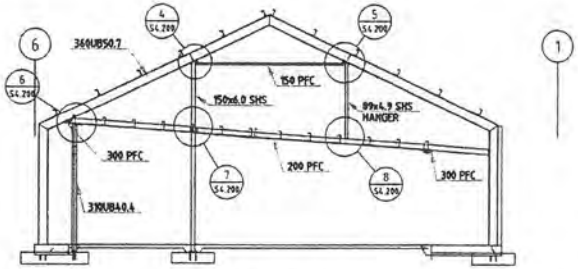
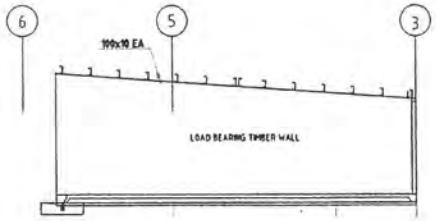


ELEVATION GRIDB



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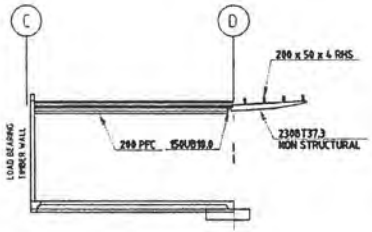
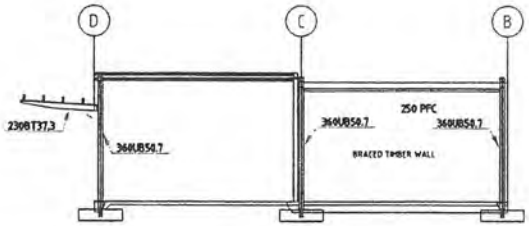
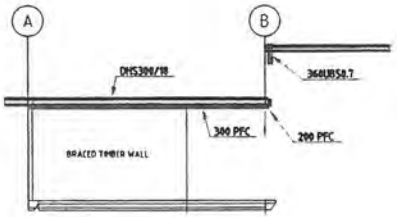


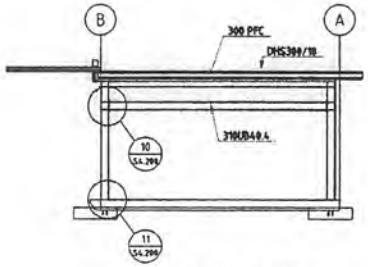
ELEVATION GRID 1



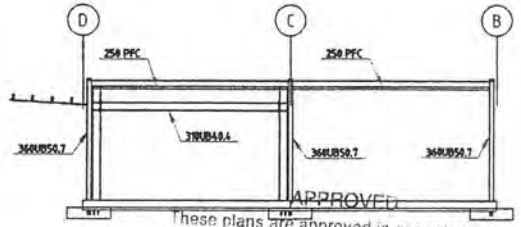
ELEVATION GRID 2



ELEVATION GRID 3



ELEVATION GRID 6-



ELEVATION GRID 6

TCC18004 9

APPROVED
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The NZ Building Code
To remain on site
TAURANGA CITY COUNCIL

NOTES
1. TIMBER FRAMING FOR LOAD BEARING / BRACED TIMBER WALLS TO BE 150x50 STUDS AT 600 CRS.
2. CLADDING FOR LOAD BEARING/ BRACED TIMBER WALLS TO CONSIST OF 7mm O-D PLYWOOD ONE SIDE WITH BRACELOK OMG6 BPL BRACING UNIT) OTHER. ALL FIXINGS TO BE IN ACCORDANCE WITH THE MANUFACTURERS SPECIFICATION.
3. ALL TIMBER FRAMING DETAILS TO BE TO NZS 3604.

CONSENT
NOT FOR CONSTRUCTION

Rev.	Date	Revison Details	Drn.	Ver.	App.
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
03	10.07.06	CONSENT	-	-	-
02	30.06.06	COORDINATION	AD	-	-
01	08.06.06	PRELIMINARY	-	-	-

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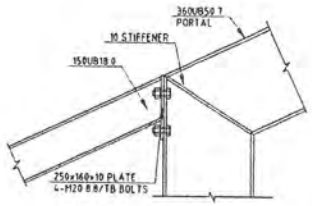
Client: AMP capital INVESTORS

Project: BETHLEHEM SHOPPING CENTRE

Drawn AID	Signed AID	Date 10.07.06
Designed DPL	Signed DPL	Date 10.07.06
Verified ECS	Signed ECS	Date 10.07.06
Approved SMB	Signed SMB	Date 10.07.06

Drawing Title: STRUCTURAL BLOCK B ELEVATIONS

Project No: B236
Scale: 1:100 A1, 1:200 A3
Sheet Size: A1
Drawing No: B236-S2.200
Rev: 03



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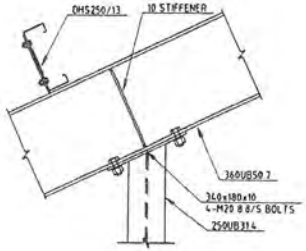

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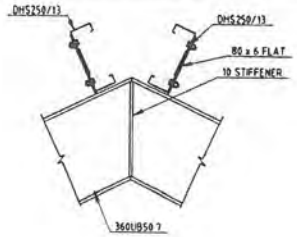

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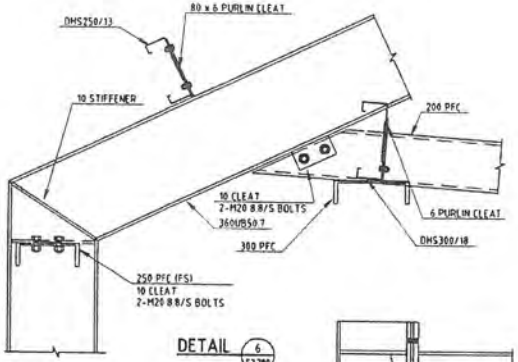

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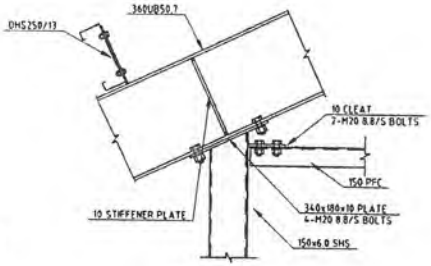

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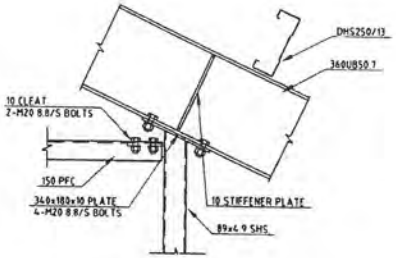

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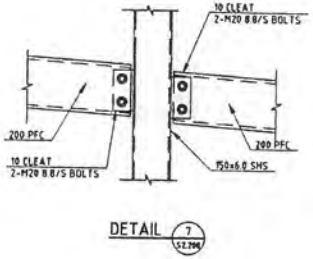

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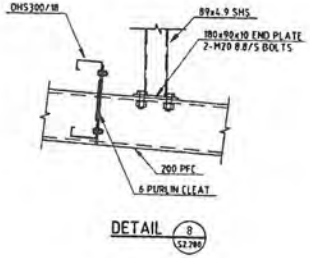

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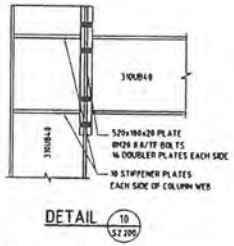

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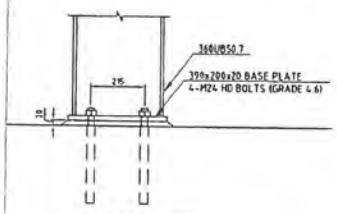

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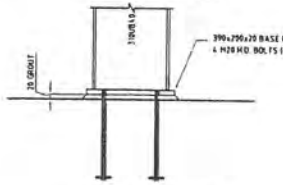

DETAIL 11 S2.200

Rev.	Date	Revision Details	Drn	Ver.	App.
02	10.07.06	CONSENT			
01	30.06.06	COORDINATION			

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Client: AMP capital INVESTORS

Project: BETHLEHEM SHOPPING CENTRE

Drawn AID	Signed AID	Date 10.07.06	
Designed DPL	Signed DPL	Date 10.07.06	
Verified ECS	Signed ECS	Date 10.07.06	
Approved SMB	Signed SMB	Date 10.07.06	

Drawing Title: STRUCTURAL
BLOCK B
STEEL DETAILS
SHEET 1

CONSENT
NOT FOR CONSTRUCTION

Project No. B236

Scale 1:10 A1
1:20 A3

Sheet Size A1

Drawing No. B236-S4.200

Rev. 02

Description:

Building C was designed in 2006 and there was an alteration carried out in 2016, which from the details in the property file drawings, appears to have been only fit-out work that did not affect the primary lateral load resisting system.

The building consists of three rectangular, single storey sections, that have their longitudinal axis orientated nominally north south. It has three distinct footprint shapes, effectively there being two steps in the footprint, on the western side. The roof has two orthogonal mono-pitch forms, the southern rectangular footprint pitches north-south, and the middle and north footprints pitch east-west. It is a stand-alone building that has a car park frontage on the south, east, and west sides, and a significant seismic gap to the Block D on the northern side. It is seismically isolated from all other buildings.

This building has a relatively large foot-print and is a single storey, mono-pitched roof warehouse type building, with 8 bays in the north-south longitudinal direction and between two and five bays in the east-west, transverse, direction. There are canopies on the south and east sides.

Construction of the warehouse type envelope consists of long-run metal mono-pitch roof sheeting over cold rolled steel purlins, supported on structural steel portal frame rafters, which are located on each primary transverse frame grid in the middle and northern sections but are orientated on the longitudinal grids in the south section of the building. Each of the primary frame portal rafters is supported by structural steel portal columns at the span ends, and there are internal columns at approximately mid-span of each portal rafter. These columns are 150 x 6mm SHS posts and as such do not significantly contribute to the lateral load resisting stiffness and strength. The structural steel columns land on the conventional reinforced concrete pad foundations that are below the level of the concrete on-grade slab. There are specific details of the pad and strip footing reinforcement in the structural drawings.

The canopies have reasonable sized structural steel T shaped cantilever beams supporting structural steel rectangular hollow section (RHS) purlins. The cantilever beams appear to be bolted directly into the main portal frame columns and wind columns, with robust connections, and this combination provides adequate lateral stability.

There are 150mm thick reinforced precast concrete wall panels along the north and west elevations, and these panels are virtually continuous along each elevation. There is shop front glazing on the south and east elevations.

There are 2 full bays of full width diagonal structural steel rod and double purlin roof bracing in the longitudinal direction, in the south section of the building, and there is one full bay, and one part bay, of transverse diagonal structural steel rod and double purlin roof bracing in the middle section of the building. There is one full bay of full width of transverse diagonal structural steel rod and double purlin roof bracing in the northern section of the building. There are substantial parallel flange channel (PFC) eaves ties on all elevations that do not have a main portal frame at eaves level, and these PFCs act as collector beams to distribute lateral loads from the roof plane bracing to the precast concrete panels loaded as in-plane shear walls.

The on-grade floor slab consists of a conventional mesh reinforced 125mm thick on-grade slab and this is recorded as being laid over DPC and 150mm of compacted metal hardfill. These details are on the structural engineering drawings.

Seismic Load Resisting Structure:

The lateral load resisting system for the building envelope consists primarily of the diagonal structural steel roof bracing in conjunction with the precast reinforced concrete wall panels acting as in-plane loaded shear walls, in both the transverse and longitudinal directions. The transverse lateral loads in the east west direction in the middle and northern sections of the building, and the longitudinal lateral loads in the north south direction in the southern section of the building, are also sustained by the structural steel moment resisting portal frames, which as described above are orthogonal in the two distinct areas of the building. This nuance is considered to be a redundancy in the lateral load resisting system, in both principal directions. There are details in the drawings of the reinforcement in the precast concrete wall panels and likewise there are specific details of the foundations and their connections to the wall panels, so we have been able to determine that the panels have been designed to sustain the post-fire lateral loads by cantilever action above the on-grade floor slab. This is another lateral load resisting system redundancy.

There is sufficient robust detail obtained from information contained in the property file to allow us to make a reliable assessment of the likely seismic performance of the building at a level of certainty well above that generally associated with an ISA.

No severe structural weaknesses or critical structural weaknesses have been detected in this building structure.

There are no alterations or modifications to the building recorded in the documentation that we hold.

Seismic Assessment:

We have used the following parameters in the ISA assessment.

- Building era 2004 – 2011.
- Seismic Zone B, Tauranga.
- Class D soft soil.
- Natural period 0.4 seconds, (this is based on the structural steel diagonal roof bracing distributing the lateral loads to the full height precast reinforced concrete wall panels acting as in-plane loaded shear walls. There are structural steel moment resisting portal frames in both principal directions which suggests that the natural period could be somewhat longer for these secondary elements, and this is addressed in the Performance Achievement Ratio (PAR) section).
- Building Importance Level 2.
- Structural Ductility factor 1.25 (this is based on the diagonal structural steel roof plane braces and the in-plane loaded reinforced concrete wall panels).
- Plan irregularity 1.0 (this value has been selected despite the asymmetric arrangement of the lateral load resisting walls in both directions. The reason is that because of the type of construction, the design philosophy for the building was no doubt that it would act as a series of discrete tributary loaded resisting structural elements. This is addressed in the PAR section).
- Vertical irregularity 1.0.
- Pounding Potential 1.0 (because the building has no neighbours).
- Site Characteristics 1.0 (because there is no recorded risk of liquefaction or site instability).
- Performance Achievement Ratio 1.1. (This is based on the regularity, pounding and site factors as detailed above but includes an enhancement 'other' factor of 1.1 which is less than the maximum of 2.5 available for buildings less than or equal to 3 storeys.

  This 'other factor' was selected because the natural period is arguably too short, and the ductility factor too low, for this building if the moment resisting structural steel

portal frames were considered as anything other than a redundant secondary lateral load resisting element. The density of the steel moment resisting frames in both principal directions suggests that they would probably be able to sustain the full seismic shears on their own and the roof bracing would be able to distribute the shears between the sections of orthogonal portals. This represents a significant redundancy in both principal directions.

Also, the precast concrete wall panels have been designed and detailed to sustain the post fire lateral load whilst acting as face loaded cantilevers above the foundation and on-grade slab, and this represents another redundancy in the system.

All of these factors have been nominally recognised by an 'other factor' of 1.2).

Seismic Rating and Grade:

The Baseline rating of 100% NBS is modified by the Performance Achievement Ratio of 1.2 resulting in a Seismic Rating of >100% NBS which makes this Block C building neither an Earthquake Risk nor Earthquake Prone.

Rating >100% NBS.
Grade A+.

Initial Evaluation Procedure (IEP) Assessment - Completed for {Client/TA}

WARNING!! *This initial evaluation has been carried out solely as an initial seismic assessment of the building following the procedure set out in the "The Seismic Assessment of Existing Buildings" Technical Guidelines for Engineering Assessments, July 2017. This spreadsheet must be read in conjunction with the limitations set out in the accompanying report, and should not be relied on by any party for any other purpose. Detailed inspections and engineering calculations, or engineering judgements based on them, have not been undertaken, and these may lead to a different result or seismic grade.*

Street Number & Name:	Bethlehem Shopping Centre	Job No.:	2470
AKA:		By:	SME
Name of building:	Block C	Date:	1/04/2021
City:	Tauranga	Revision No.:	A

Table IEP-1 Initial Evaluation Procedure Step 1

Step 1 - General Information

1.1 Photos (attach sufficient to describe building)

NOTE: THERE ARE MORE PHOTOS ON PAGE 1a ATTACHED

1.2 Sketches (plans etc, show items of interest)

NOTE: THERE ARE MORE SKETCHES ON PAGE 1a ATTACHED

1.3 List relevant features (Note: only 10 lines of text will print in this box. If further text required use Page 1a)

Refer to report details.

1.4 Note information sources Tick as appropriate

Visual Inspection of Exterior	☑	Specifications	☐
Visual Inspection of Interior	☐	Geotechnical Reports	☑
Drawings (note type)	☑	Other (list)	☐

Property File.

Initial Evaluation Procedure (IEP) Assessment - Completed for {Client/TA}

Street Number & Name:	Bethlehem Shopping Centre	Job No.:	2470
AKA:		By:	SME
Name of building:	Block C	Date:	1/04/2021
City:	Tauranga	Revision No.:	A

Table IEP-2 Initial Evaluation Procedure Step 2

Step 2 - Determination of *(%NBS)* $_b$

(Baseline *(%NBS)* for particular building - refer Section B5)

2.1 Determine nominal *(%NBS)* = *(%NBS)* $_{nom}$

	Longitudinal	Transverse
a) Building Strengthening Data		
Tick if building is known to have been strengthened in this direction	☐	☐
If strengthened, enter percentage of code the building has been strengthened to	N/A	N/A
b) Year of Design/Strengthening, Building Type and Seismic Zone		
Pre 1935	○	○
1935-1965	○	○
1965-1976	○	○
1976-1984	○	○
1984-1992	○	○
1992-2004	○	○
2004-2011	◉	◉
Post Aug 2011	○	○
Building Type:	**Not applicable**	**Not applicable**
Seismic Zone:	**Not applicable**	**Not applicable**
c) Soil Type		
From NZS1170.5:2004, Cl 3.1.3 :	D Soft Soil	D Soft Soil
From NZS4203:1992, Cl 4.6.2.2 : (for 1992 to 2004 and only if known)	**Not applicable**	**Not applicable**
d) Estimate Period, *T*		
Comment:		
h_n =	6	6 m
A_c =	1.00	1.00 m^2
Moment Resisting Concrete Frames: $T = \max\{0.09h_n^{0.75}, 0.4\}$	○	○
Moment Resisting Steel Frames: $T = \max\{0.14h_n^{0.75}, 0.4\}$	○	○
Eccentrically Braced Steel Frames: $T = \max\{0.08h_n^{0.75}, 0.4\}$	○	○
All Other Frame Structures: $T = \max\{0.06h_n^{0.75}, 0.4\}$	○	○
Concrete Shear Walls $T = \max\{0.09h_n^{0.75}/A_c^{0.5}, 0.4\}$	○	○
Masonry Shear Walls: $T \leq 0.4$sec	○	○
User Defined (input Period):	◉	◉
Where h_n = height in metres from the base of the structure to the uppermost seismic weight or mass	T: 0.40	0.40
e) Factor A: Strengthening factor determined using result from (a) above (set to 1.0 if not strengthened)	Factor A: 1.00	1.00
f) Factor B: Determined from NZSEE Guidelines Figure 3A.1 using results (a) to (e) above	Factor B: 1.00	1.00
g) Factor C: For reinforced concrete buildings designed between 1976-84 Factor C = 1.2, otherwise take as 1.0.	Factor C: 1.00	1.00
h) Factor D: For buildings designed prior to 1935 Factor D = 0.8 except for Wellington and Napier (1931-1935) where Factor D may be taken as 1.0, otherwise take as 1.0.	Factor D: 1.00	1.00
***(%NBS)* $_{nom}$ = AxBxCxD**	***(%NBS)* $_{nom}$** 100%	100%

WARNING!! *This initial evaluation has been carried out solely as an initial seismic assessment of the building following the procedure set out in "The Seismic Assessment of Existing Buildings" Technical Guidelines for Engineering Assessments, July 2017. This spreadsheet must be read in conjunction with the limitations set out in the accompanying report, and should not be relied on by any party for any other purpose. Detailed inspections and engineering calculations, or engineering judgements based on them, have not been undertaken, and these may lead to a different result or seismic grade.*

Initial Evaluation Procedure (IEP) Assessment - Completed for {Client/TA}

Street Number & Name:	Bethlehem Shopping Centre	Job No.:	2470
AKA:		By:	SME
Name of building:	Block C	Date:	1/04/2021
City:	Tauranga	Revision No.:	A

Table IEP-2 Initial Evaluation Procedure Step 2 continued

2.2 Near Fault Scaling Factor, Factor E

If $T \leq 1.5$sec, Factor E = 1

		Longitudinal	Transverse
a) Near Fault Factor, *N(T,D)* (from NZS1170.5:2004, Cl 3.1.6)	N(T,D):	1	1
b) Factor E = 1/N(T,D)	Factor E:	1.00	1.00

2.3 Hazard Scaling Factor, Factor F

a) Hazard Factor, *Z*, for site

Location: Tauranga — Refer right for user-defined locations

Z =	0.2	(from NZS1170.5:2004, Table 3.3)
Z_{1992} =	0.85	(NZS4203:1992 Zone Factor from accompanying Figure 3.5(b))
Z_{2004} =	0.2	(from NZS1170.5:2004, Table 3.3)

b) Factor F

		Longitudinal	Transverse
For pre 1992	= 1/Z		
For 1992-2011	= Z_{1992}/Z		
For post 2011	= Z_{2004}/Z		
	Factor F:	1.00	1.00

2.4 Return Period Scaling Factor, Factor G

a) Design Importance Level, I

(Set to 1 if not known. For buildings designed prior to 1965 and known to be designed as a public building set to 1.25. For buildings designed 1965-1976 and known to be designed as a public building set to 1.33 for Zone A or 1.2 for Zone B. For 1976-1984 set I value.)

	Longitudinal	Transverse
I =	1	1

b) Design Risk Factor, R_o (set to 1.0 if other than 1976-2004, or not known)

	Longitudinal	Transverse
R_o =	1	1

c) Return Period Factor, R (from NZS1170.0:2004 Building Importance Level)

Choose Importance Level: ○ 1 ◉ 2 ○ 3 ○ 4 (Longitudinal) ○ 1 ◉ 2 ○ 3 ○ 4 (Transverse)

	Longitudinal	Transverse
R =	1.0	1.0

d) Factor G = IR_o/R

	Longitudinal	Transverse
Factor G:	1.00	1.00

2.5 Ductility Scaling Factor, Factor H

a) Available Displacement Ductility Within Existing Structure

Comment:

	Longitudinal	Transverse
μ =	1.25	1.25

b) Factor H

	k_μ (Longitudinal)	k_μ (Transverse)
For pre 1976 (maximum of 2)	1.14	1.14
For 1976 onwards	1	1
Factor H:	1.00	1.00

(where kμ is NZS1170.5:2004 Inelastic Spectrum Scaling Factor, from accompanying Table 3.3)

2.6 Structural Performance Scaling Factor, Factor I

a) Structural Performance Factor, S_p (from accompanying Figure 3.4)

Tick if light timber-framed construction in this direction: ☐ (Longitudinal) ☐ (Transverse)

	Longitudinal	Transverse
S_p =	0.93	0.93

b) Structural Performance Scaling Factor = $1/S_p$

	Longitudinal	Transverse
Factor I:	1.00	1.00

Note Factor B values for 1992 to 2004 have been multiplied by 0.67 to account for Sp in this period.

2.7 Baseline *%NBS* for Building, $(\%NBS)_b$ (equals $(\%NBS)_{nom}$ x E x F x G x H x I)

Longitudinal	Transverse
100%	100%

WARNING!! *This initial evaluation has been carried out solely as an initial seismic assessment of the building following the procedure set out in "The Seismic Assessment of Existing Buildings" Technical Guidelines for Engineering Assessments, July 2017. This spreadsheet must be read in conjunction with the limitations set out in the accompanying report, and should not be relied on by any party for any other purpose. Detailed inspections and engineering calculations, or engineering judgements based on them, have not been undertaken, and these may lead to a different result or seismic grade.*

Initial Evaluation Procedure (IEP) Assessment - Completed for {Client/TA}

Street Number & Name:	Bethlehem Shopping Centre	Job No.:	2470
AKA:		By:	SME
Name of building:	Block C	Date:	1/04/2021
City:	Tauranga	Revision No.:	A

Table IEP-3 Initial Evaluation Procedure Step 3

Step 3 - Assessment of Performance Achievement Ratio (PAR)
(Refer Appendix B - Section B3.2)

a) Longitudinal Direction

potential CSWs — **Effect on Structural Performance** (Choose a value - Do not interpolate) — **Factors**

3.1 Plan Irregularity
Effect on Structural Performance ○ Severe ○ Significant ◉ Insignificant — **Factor A** 1.0
Comment

3.2 Vertical Irregularity
Effect on Structural Performance ○ Severe ○ Significant ◉ Insignificant — **Factor B** 1.0
Comment

3.3 Short Columns
Effect on Structural Performance ○ Severe ○ Significant ◉ Insignificant — **Factor C** 1.0
Comment

3.4 Pounding Potential
(Estimate D1 and D2 and set D = the lower of the two, or 1.0 if no potential for pounding, or consequences are considered to be minimal)

a) Factor D1: - Pounding Effect

Note:
Values given assume the building has a frame structure. For stiff buildings (eg shear walls), the effect of pounding may be reduced by taking the coefficient to the right of the value applicable to frame buildings.

Factor D1 For Longitudinal Direction: 1.0

Table for Selection of Factor D1	Severe	Significant	Insignificant
Separation	0<Sep<.005H	.005<Sep<.01H	Sep>.01H
Alignment of Floors within 20% of Storey Height	○ 1	○ 1	◉ 1
Alignment of Floors not within 20% of Storey Height	○ 0.4	○ 0.7	○ 0.8

Comment

b) Factor D2: - Height Difference Effect

Factor D2 For Longitudinal Direction: 1.0

Table for Selection of Factor D2	Severe	Significant	Insignificant
	0<Sep<.005H	.005<Sep<.01H	Sep>.01H
Height Difference > 4 Storeys	○ 0.4	○ 0.7	○ 1
Height Difference 2 to 4 Storeys	○ 0.7	○ 0.9	○ 1
Height Difference < 2 Storeys	○ 1	○ 1	◉ 1

Comment

Factor D 1.0

3.5 Site Characteristics - *Stability, landslide threat, liquefaction etc as it affects the structural performance from a life-safety perspective*

Effect on Structural Performance ○ Severe ○ Significant ◉ Insignificant — **Factor E** 1.0
Comment

3.6 Other Factors - *for allowance of all other relevant characterstics of the building*
Record rationale for choice of Factor F:
Refer to report

For ≤ 3 storeys - Maximum value 2.5
otherwise - Maximum value 1.5.
No minimum.

Factor F 1.2

3.7 Performance Achievement Ratio (PAR)
(equals **A x B x C x D x E x F**)

PAR
Longitudinal 1.20

WARNING!! *This initial evaluation has been carried out solely as an initial seismic assessment of the building following the procedure set out in "The Seismic Assessment of Existing Buildings" Technical Guidelines for Engineering Assessments, July 2017. This spreadsheet must be read in conjunction with the limitations set out in the accompanying report, and should not be relied on by any party for any other purpose. Detailed inspections and engineering calculations, or engineering judgements based on them, have not been undertaken, and these may lead to a different result or seismic grade.*

Initial Evaluation Procedure (IEP) Assessment - Completed for {Client/TA}

Street Number & Name:	Bethlehem Shopping Centre	Job No.:	2470
AKA:		By:	SME
Name of building:	Block C	Date:	1/04/2021
City:	Tauranga	Revision No.:	A

Table IEP-3 Initial Evaluation Procedure Step 3

Step 3 - Assessment of Performance Achievement Ratio (PAR)

(Refer Appendix B - Section B3.2)

b) Transverse Direction

potential CSWs	Effect on Structural Performance (Choose a value - Do not interpolate)			Factors
3.1 Plan Irregularity				
Effect on Structural Performance	○ *Severe*	○ *Significant*	◉ *Insignificant*	**Factor A** 1.0
Comment				
3.2 Vertical Irregularity				
Effect on Structural Performance	○ *Severe*	○ *Significant*	◉ *Insignificant*	**Factor B** 1.0
Comment				
3.3 Short Columns				
Effect on Structural Performance	○ *Severe*	○ *Significant*	◉ *Insignificant*	**Factor C** 1.0
Comment				

3.4 Pounding Potential

(Estimate D1 and D2 and set D = the lower of the two, or 1.0 if no potential for pounding, or consequences are considered to be minimal)

a) Factor D1: - Pounding Effect

Note:
Values given assume the building has a frame structure. For stiff buildings (eg shear walls), the effect of pounding may be reduced by taking the coefficient to the right of the value applicable to frame buildings.

Factor D1 For Transverse Direction: 1.0

Table for Selection of Factor D1	Severe	Significant	Insignificant
Separation	0<Sep<.005H	.005<Sep<.01H	Sep>.01H
Alignment of Floors within 20% of Storey Height	○ 1	○ 1	◉ 1
Alignment of Floors not within 20% of Storey Height	○ 0.4	○ 0.7	○ 0.8

Comment

b) Factor D2: - Height Difference Effect

Factor D2 For Transverse Direction: 1.0

Table for Selection of Factor D2	Severe	Significant	Insignificant
	0<Sep<.005H	.005<Sep<.01H	Sep>.01H
Height Difference > 4 Storeys	○ 0.4	○ 0.7	○ 1
Height Difference 2 to 4 Storeys	○ 0.7	○ 0.9	○ 1
Height Difference < 2 Storeys	○ 1	○ 1	◉ 1

Comment

Factor D 1.0

3.5 Site Characteristics - *Stability, landslide threat, liquefaction etc as it affects the structural performance from a life-safety perspective*

Effect on Structural Performance ○ *Severe* ○ *Significant* ◉ *Insignificant* **Factor E** 1.0

Comment

3.6 Other Factors - *for allowance of all other relevant characterstics of the building*

Record rationale for choice of Factor F:

For ≤ 3 storeys - Maximum value 2.5
otherwise - Maximum value 1.5.
No minimum.

Factor F 1.20

Refer to report

3.7 Performance Achievement Ratio (PAR)
(equals **A x B x C x D x E x F**)

	PAR
Transverse	**1.20**

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Initial Evaluation Procedure (IEP) Assessment - Completed for {Client/TA}

Street Number & Name:	Bethlehem Shopping Centre	Job No.:	2470
AKA:		By:	SME
Name of building:	Block C	Date:	1/04/2021
City:	Tauranga	Revision No.:	A

Table IEP-4 Initial Evaluation Procedure Steps 4, 5, 6 and 7

Step 4 - Percentage of New Building Standard *(%NBS)*

		Longitudinal	Transverse
4.1	Assessed Baseline *%NBS* $(\%NBS)_b$ (from Table IEP - 1)	100%	100%
4.2	Performance Achievement Ratio (PAR) (from Table IEP - 2)	1.20	1.20
4.3	PAR x Baseline $(\%NBS)_b$	>100%	>100%
4.4	Percentage New Building Standard *(%NBS)* - Seismic Rating (Use lower of two values from Step 4.3)		>100%

Step 5 - Is *%NBS* < 34? NO

Step 6 - Potentially Earthquake Risk (is *%NBS* < 67)? NO

Step 7 - Provisional Grading for Seismic Risk based on IEP

Seismic Grade: A+

Additional Comments (items of note affecting IEP based seismic rating)

Relationship between Grade and *%NBS*:

Grade:	A+	A	B	C	D	E
%NBS:	> 100	100 to 80	79 to 67	66 to 34	< 34 to 20	< 20

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Street Number & Name:	Bethlehem Shopping Centre	Job No.:	2470
AKA:		By:	SME
Name of building:	Block C	Date:	1/04/2021
City:	Tauranga	Revision No.:	A

Table IEP-5 Initial Evaluation Procedure Step 8

Step 8 - Identification of potential Severe Structural Weaknesses (SSWs) that could result in significant risk to a significant number of occupants

8.1	Number of storeys above ground level	1
8.2	Presence of heavy concrete floors and/or concrete roof? (Y/N)	Y

Potential Severe Structural Weaknesses (SSWs):

Note: Options that are greyed out are not applicable and need not be considered.

Occupancy not considered to be significant - no further consideration required

Risk not considered to be significant - no further consideration required

The following potential Severe Structural Weaknesses (SSWs) have been identified in the building that could result in significant risk to a significant number of occupants:

1. None identified
2. Weak or soft storey (except top storey)
3. Brittle columns and/or beam-column joints the deformations of which are not constrained by other structural elements
4. Flat slab buildings with lateral capacity reliant on low ductility slab-to-column connections
5. No identifiable connection between primary structure and diaphragms
6. Ledge and gap stairs

IEP Assessment Confirmed by: Signature

S R Mitchell Name

70562 CPEng. No

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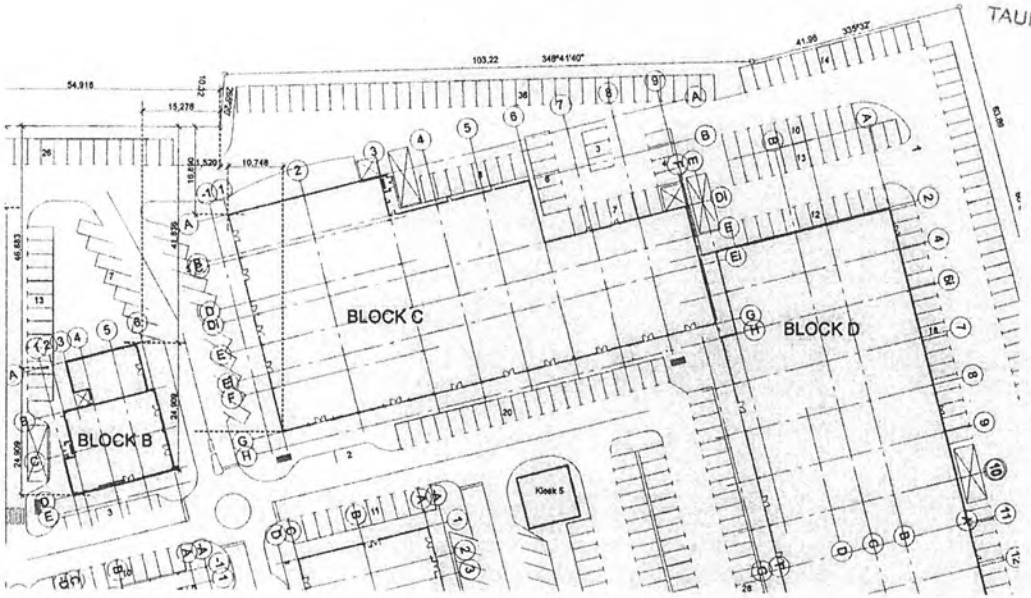

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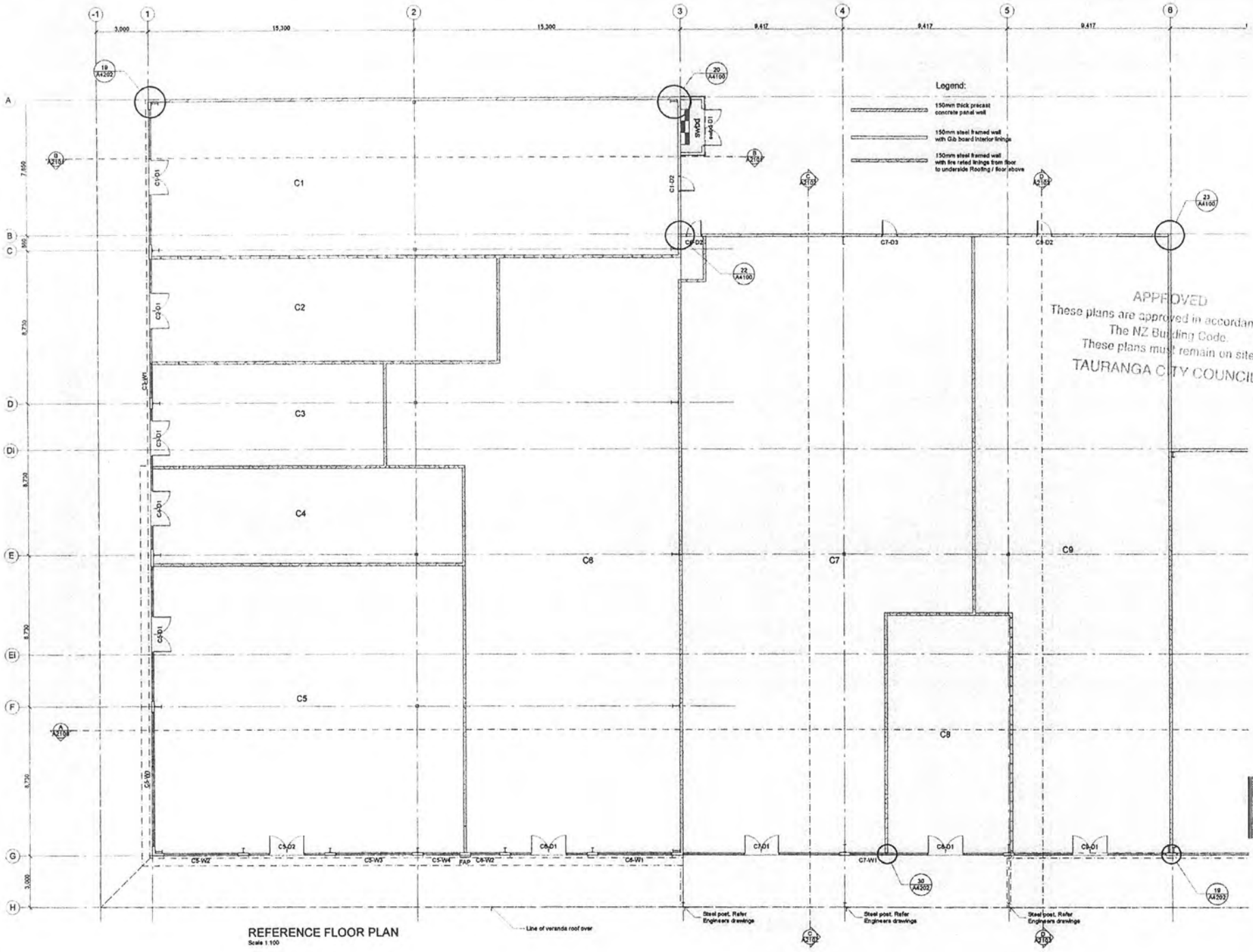

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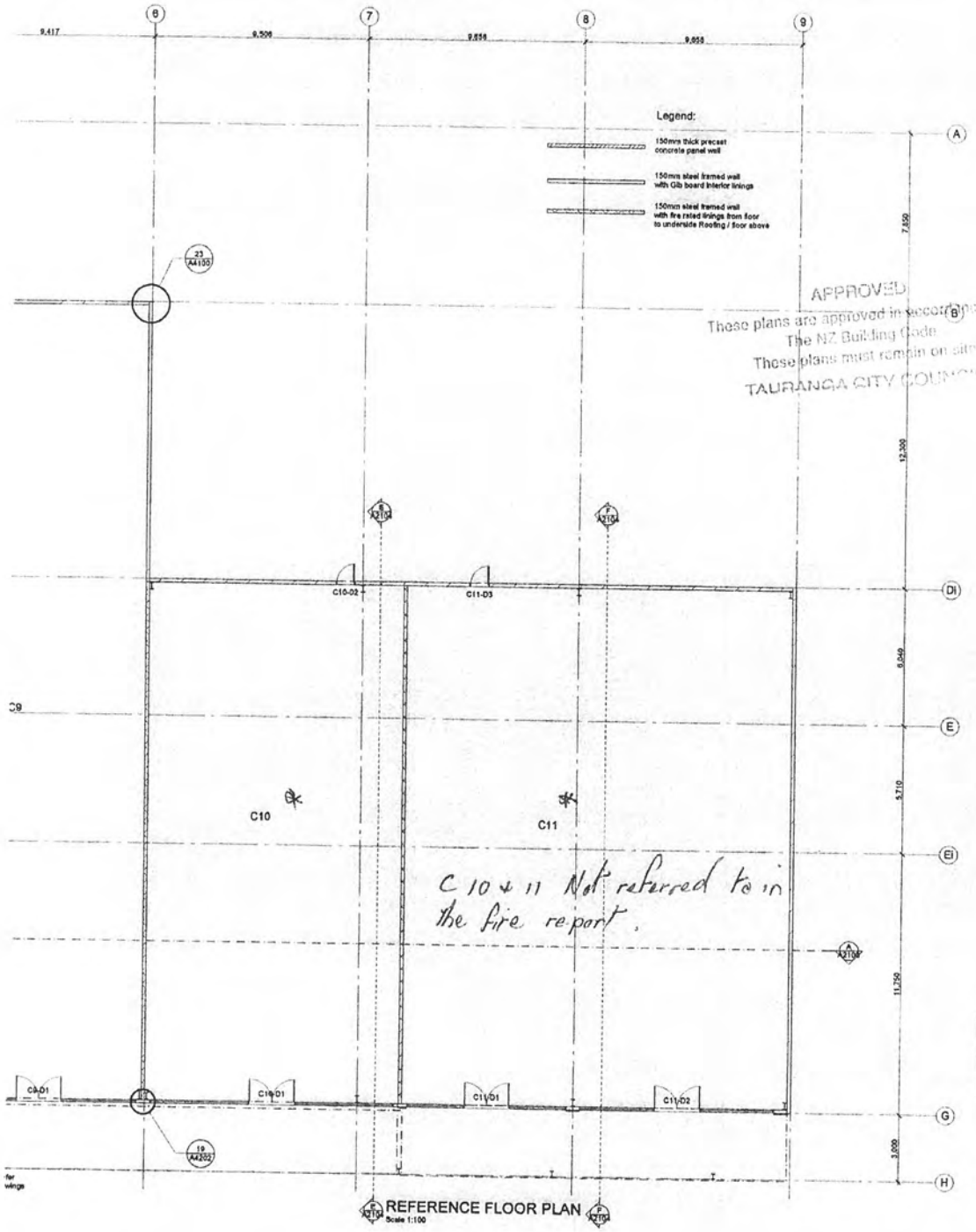

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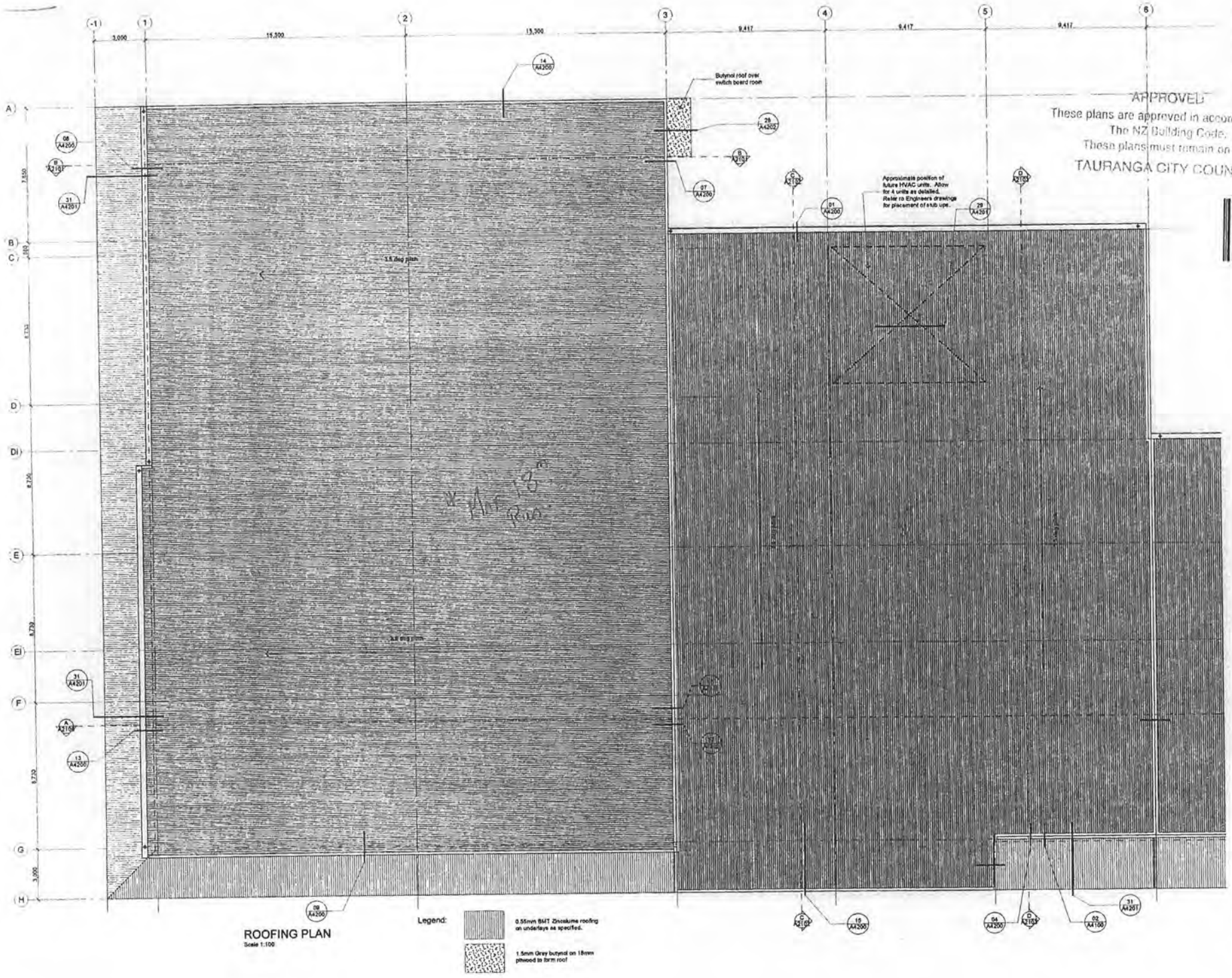

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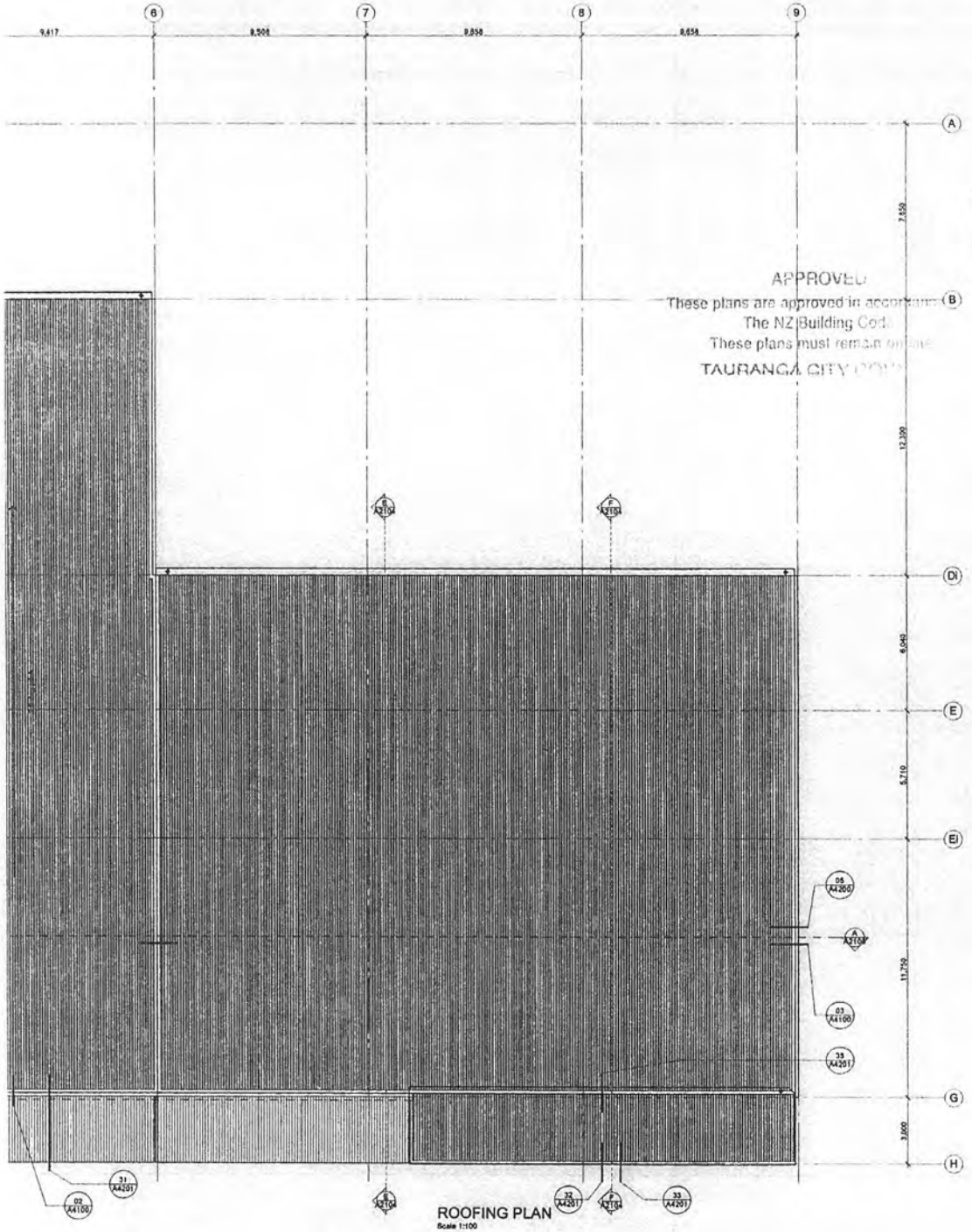

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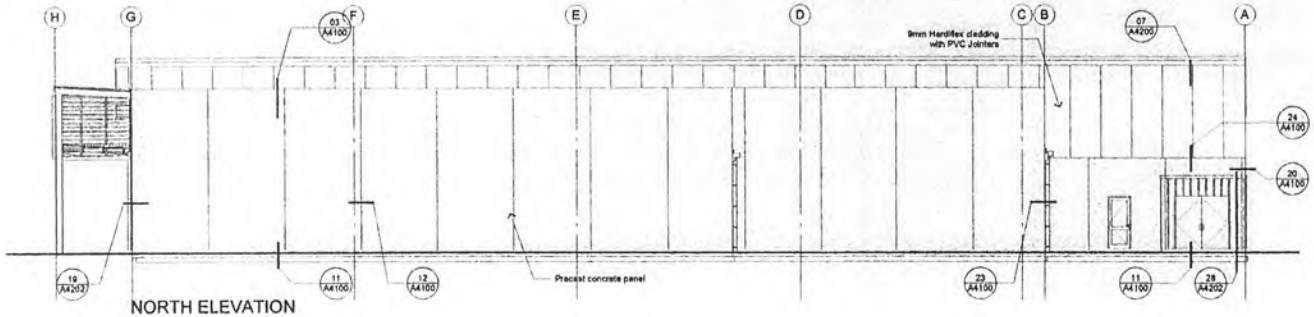

NORTH ELEVATION
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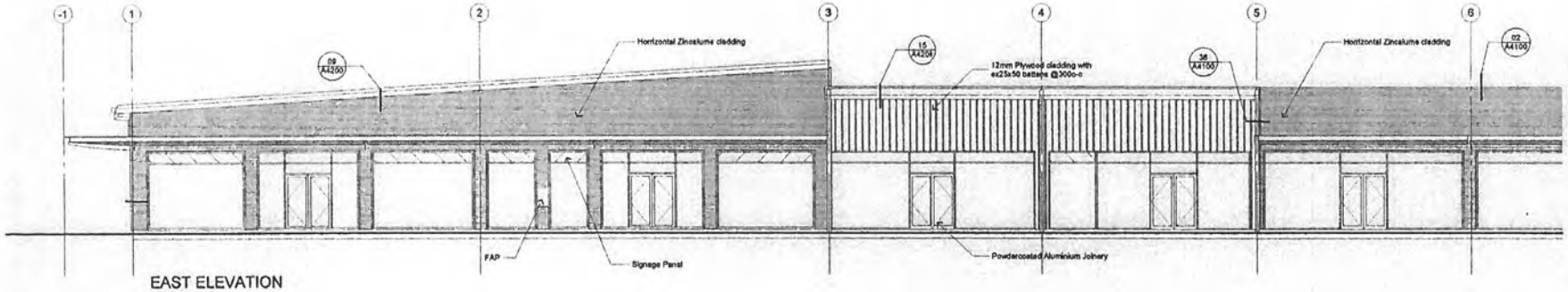

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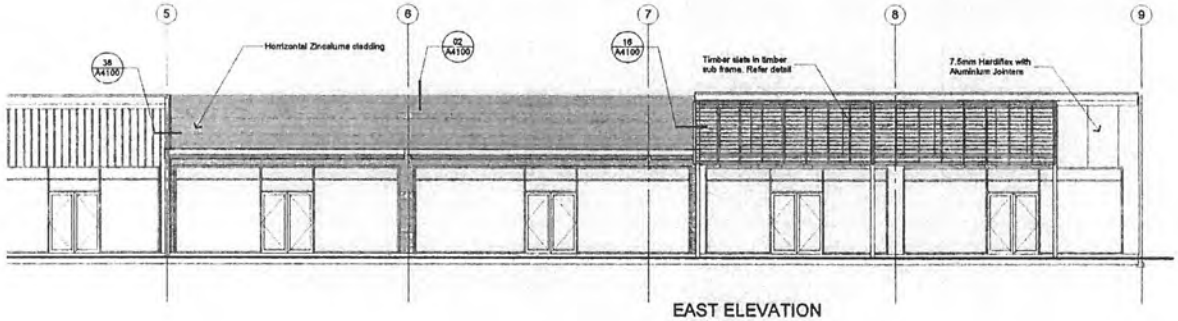

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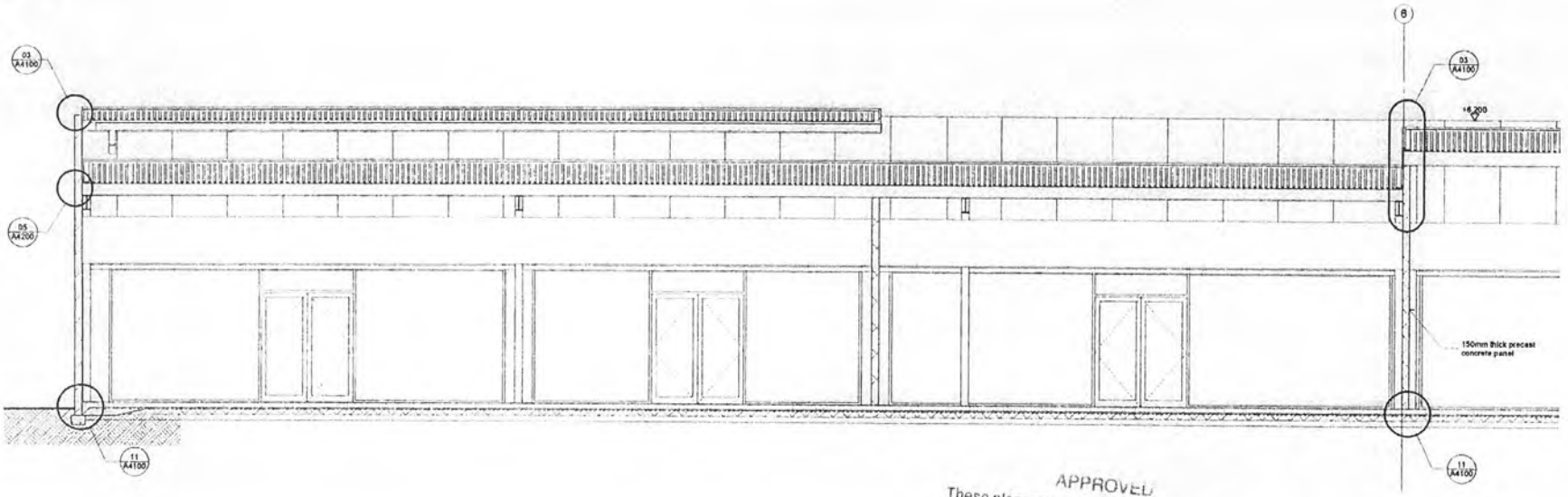

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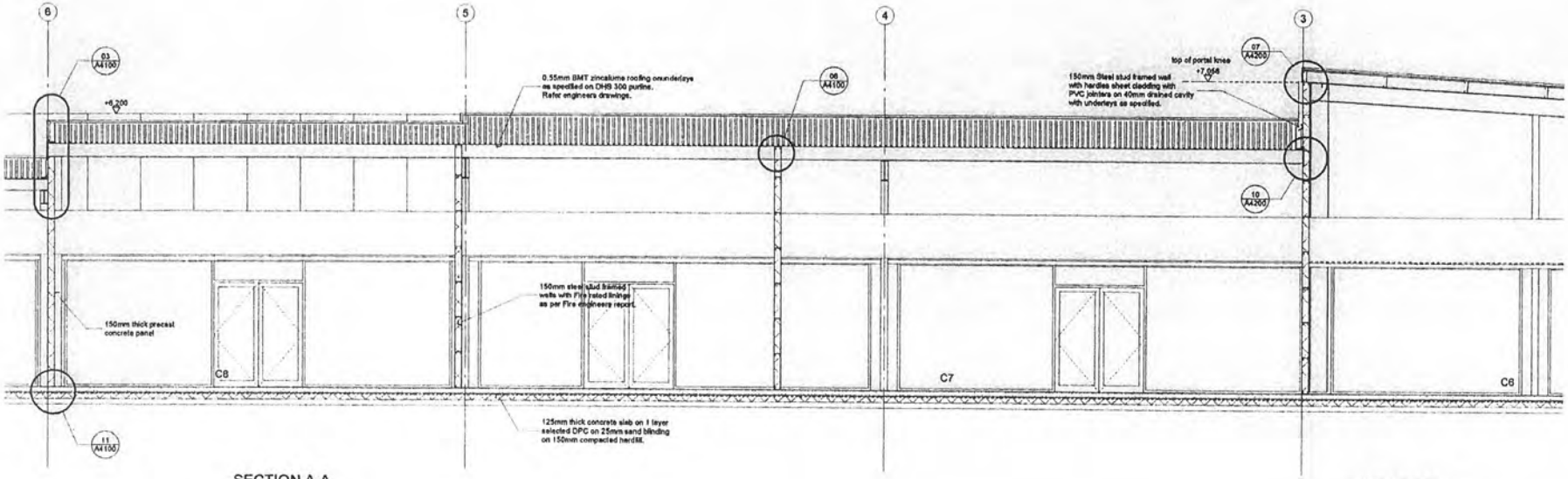

SECTION A-A
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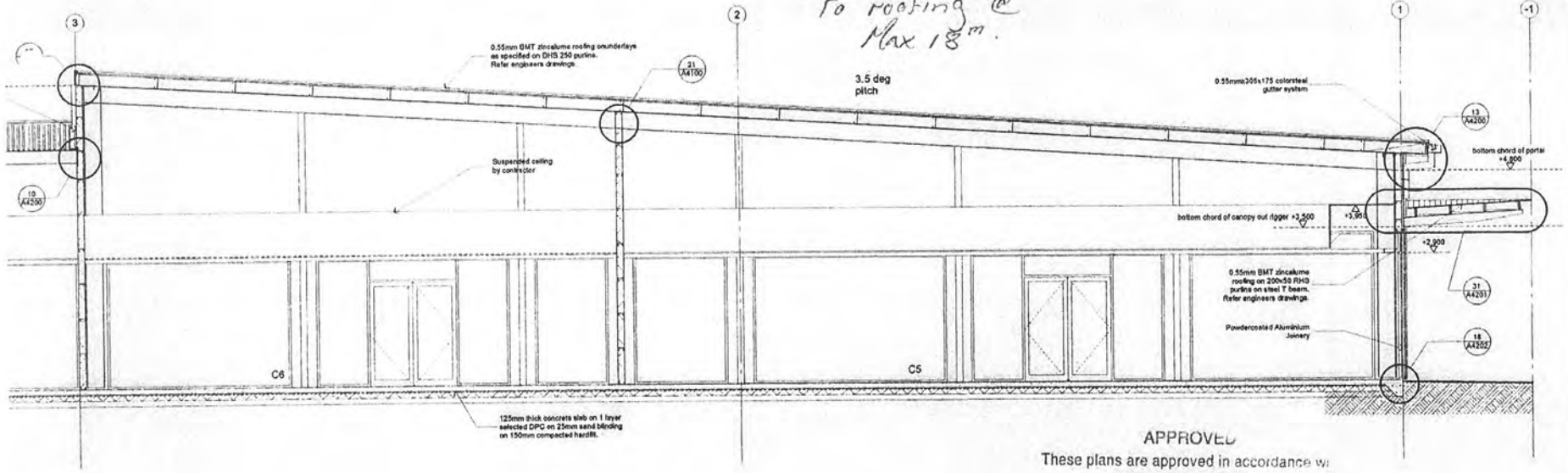

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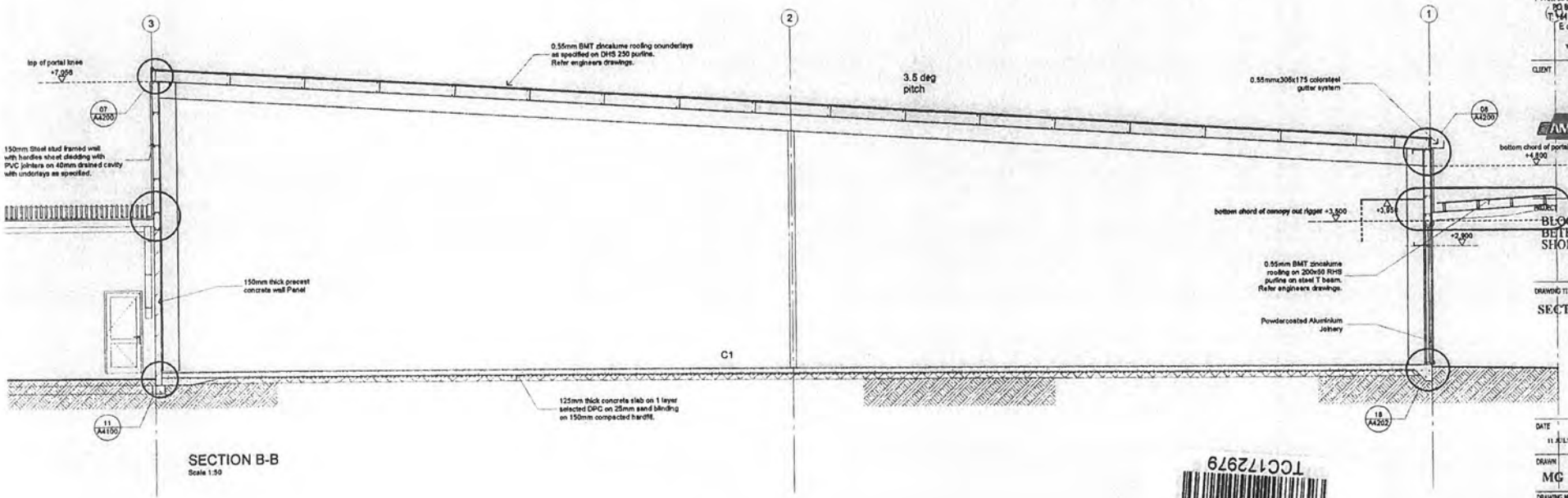

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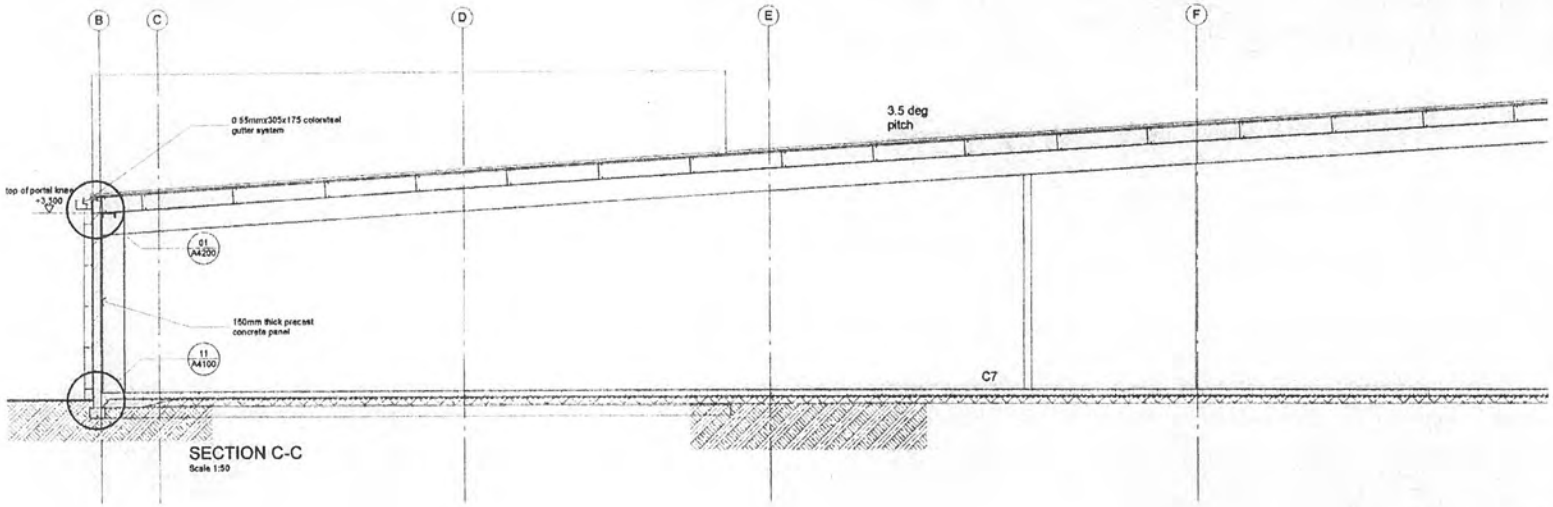

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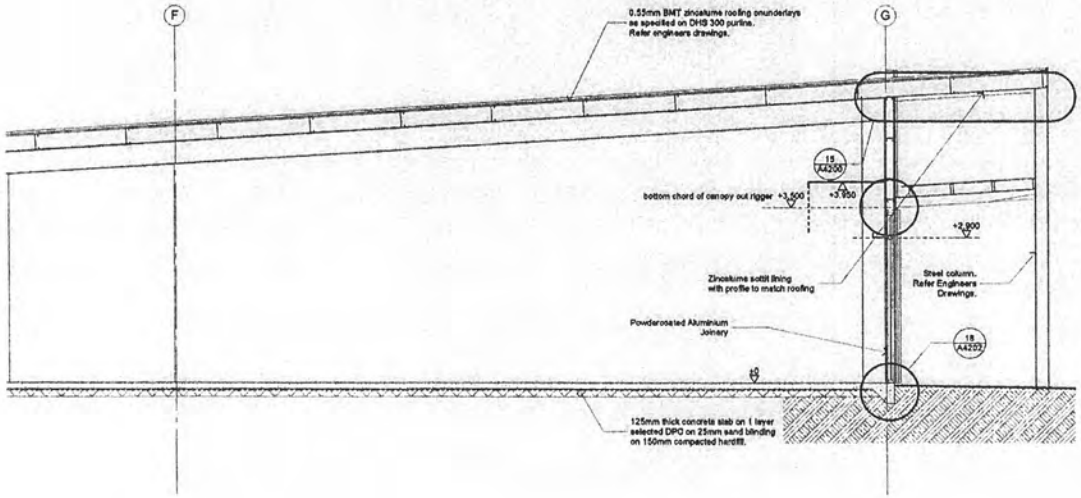

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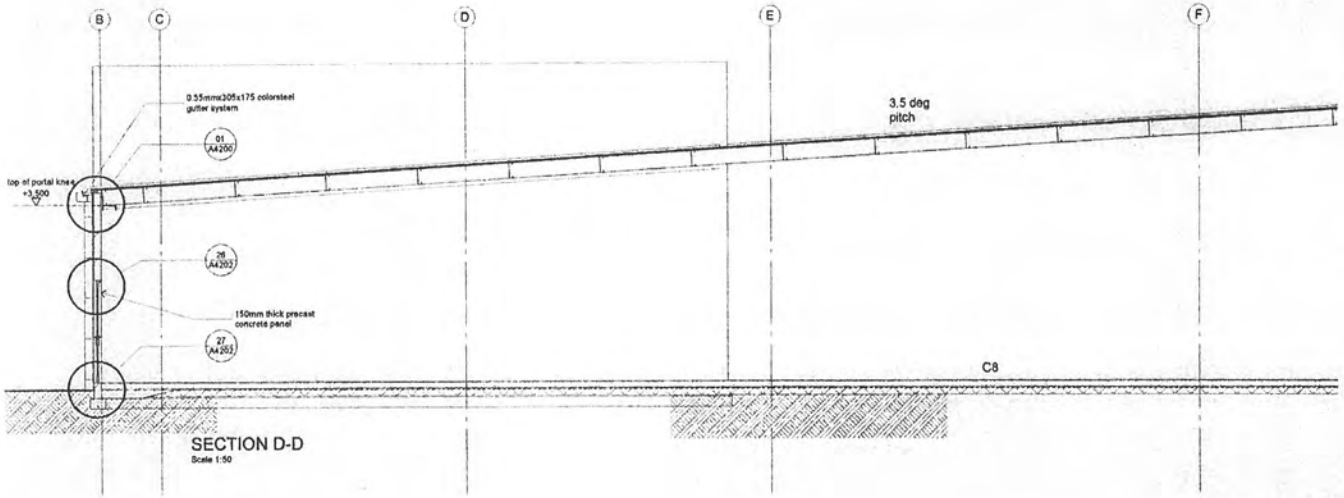

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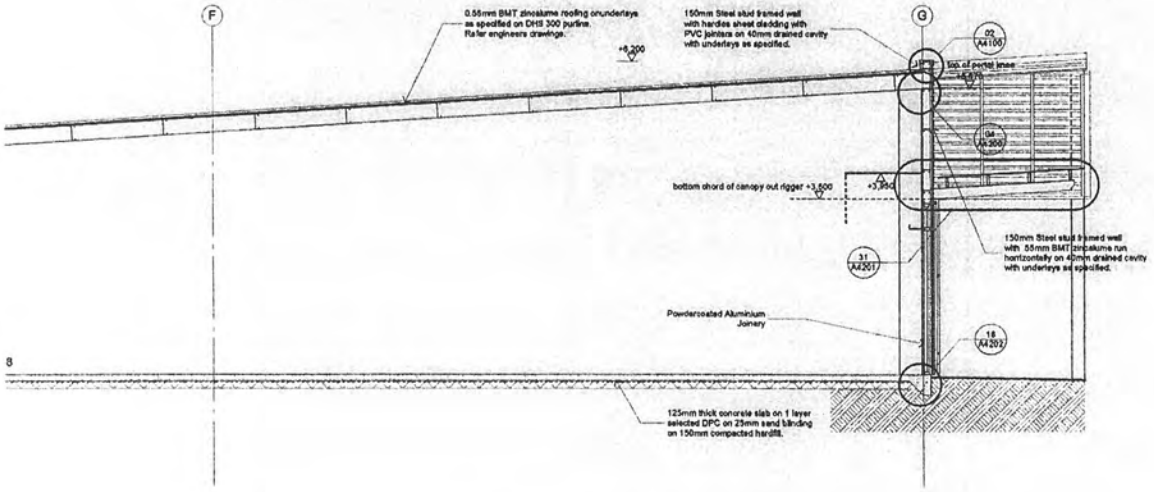

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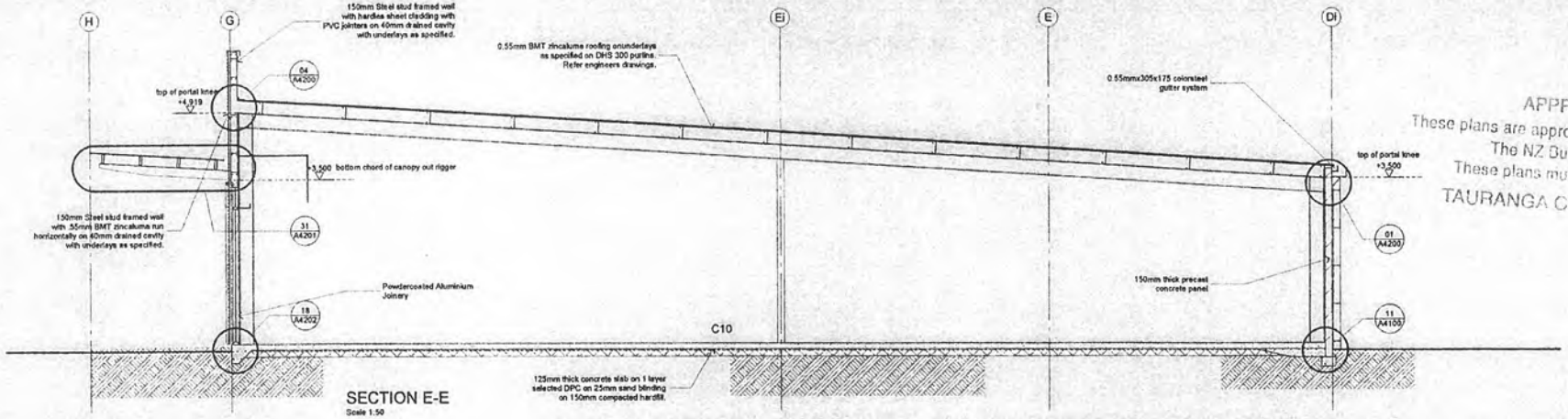

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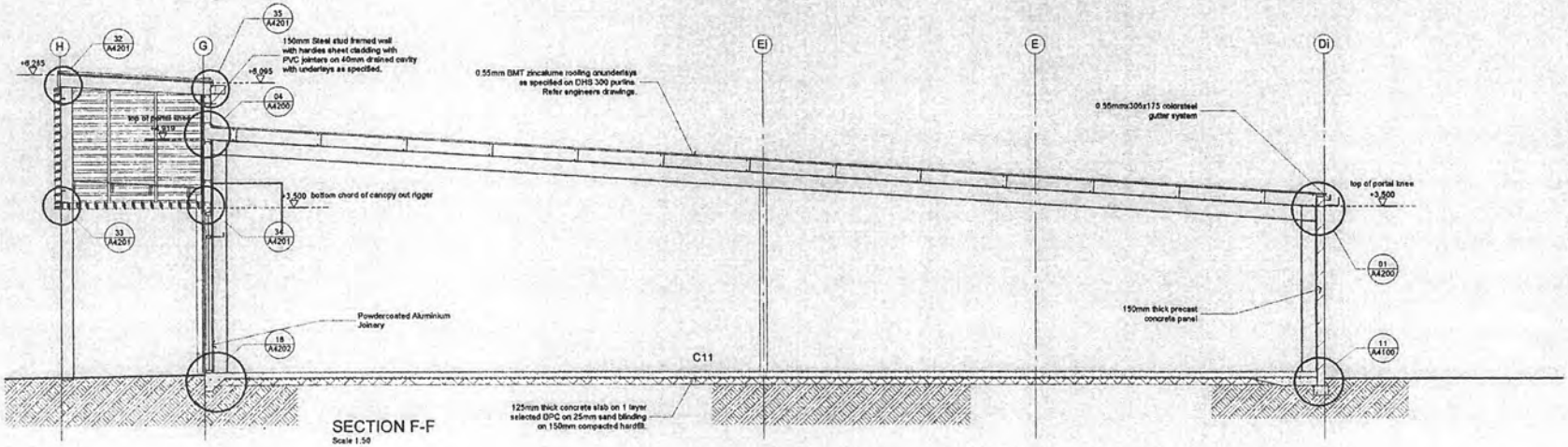

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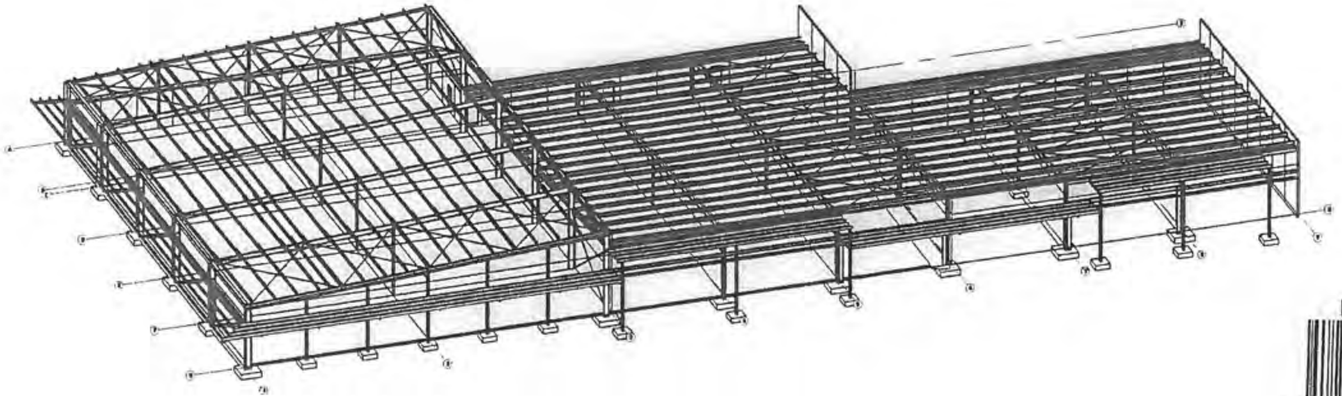

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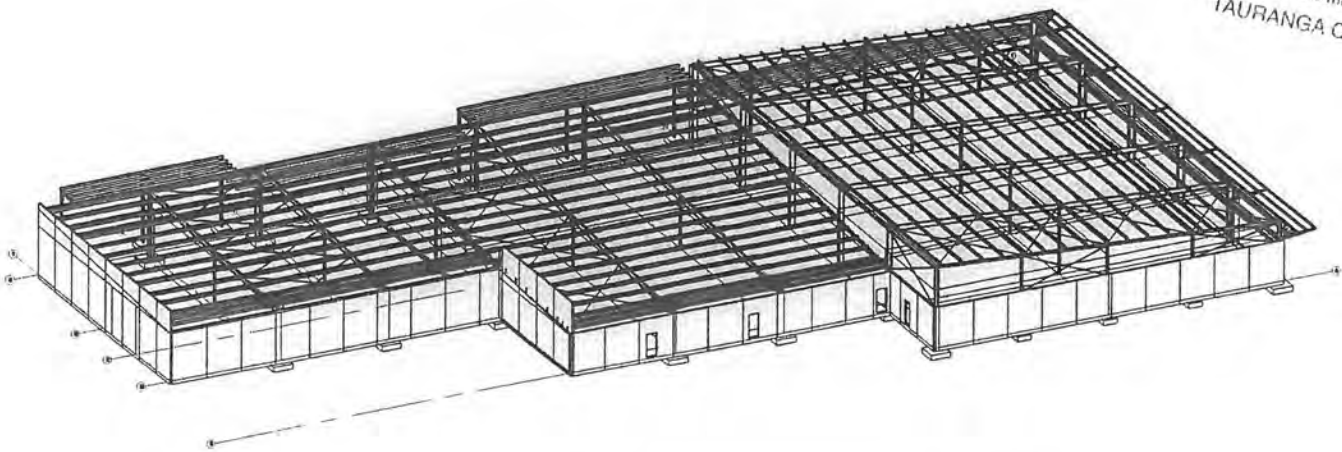

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-	-	-	-	-	-
-	-	-	-	-	-
03	10.07.06	CONSENT	-	-	-
02	30.06.06	COORDINATION	-	-	-
01	08.06.06	PRELIMINARY	-	-	-

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Client: AMP capital INVESTORS

Project: BETHLEHEM SHOPPING CENTRE

Drawn	Signed	Date
AID	AID	10.07.06
Designed DPL	Signed DPL	Date 10.07.06
Verified ECS	Signed ECS	Date 10.07.06
Approved SMB	Signed SMB	Date 10.07.06

Drawing Title: STRUCTURAL BLOCK C

CONSENT

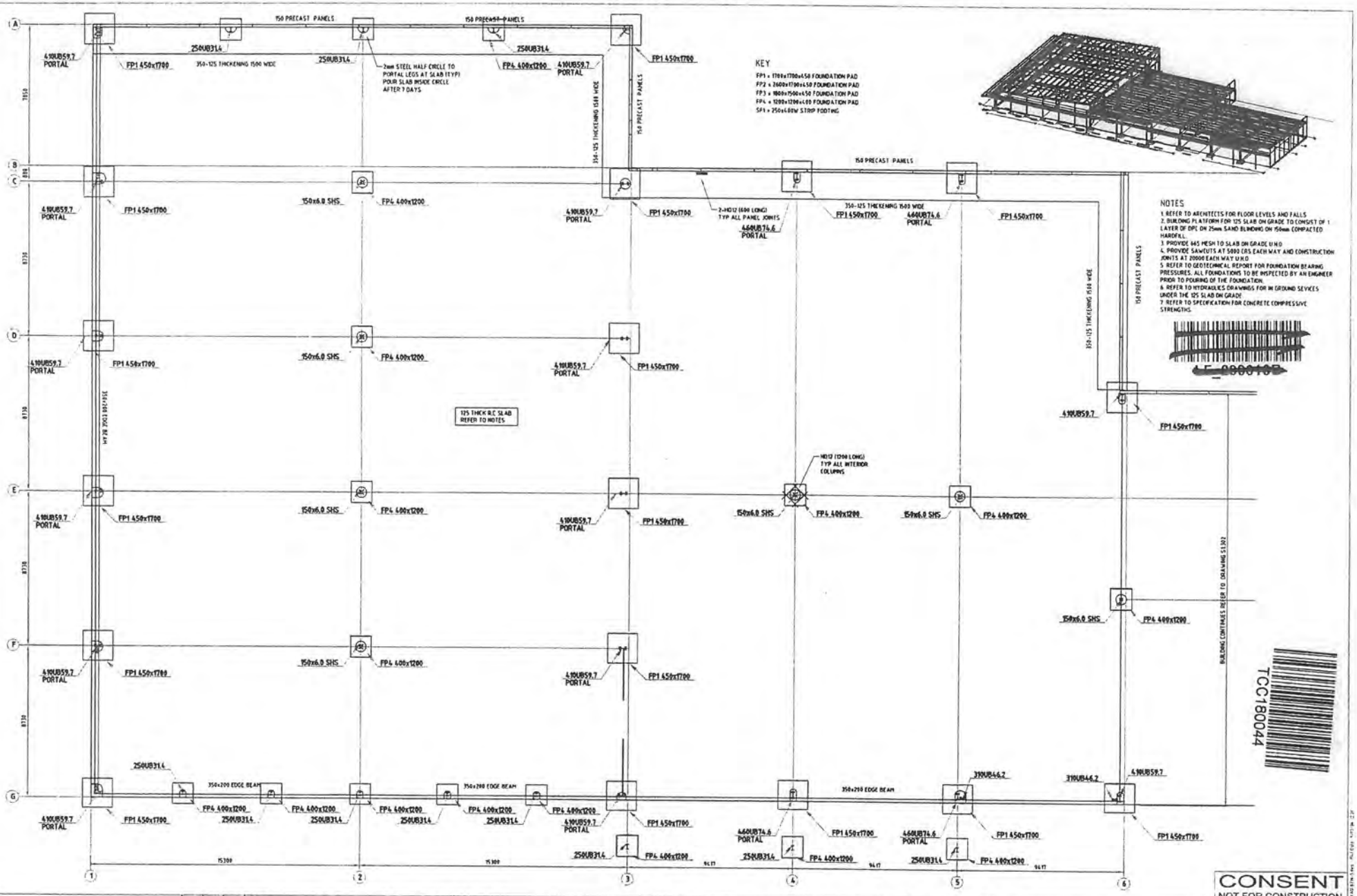
Project No: B236

Scale: 1:200 A1, 1:400 A3

Sheet Size: A1

Drawing No: B236-S0.300

Rev: 03



Rev.	Date	Revision Details	Drn	Ver.	App.
02	10.07.06	CONSENT	-	-	-
01	08.06.06	PRELIMINARY	-	-	-

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Project: BETHLEHEM SHOPPING CENTRE

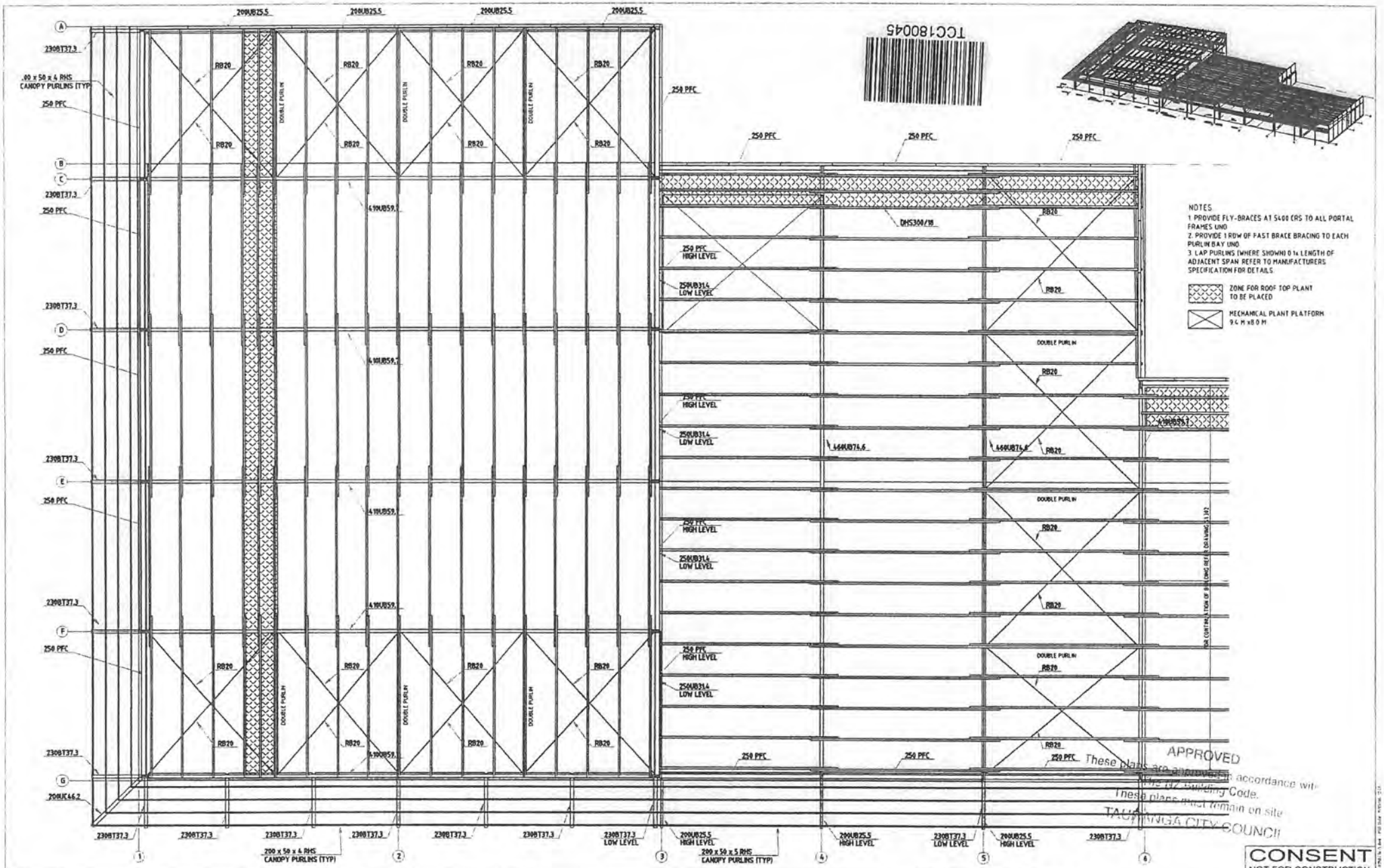
Drawn AID	Signed AID	Date 10.07.06	
Designed DPL	Signed DPL	Date 10.07.06	
Verified ECS	Signed ECS	Date 10.07.06	
Approved SMB	Signed SMB	Date 10.07.06	

Drawing Title: STRUCTURAL
BLOCK C
FOUNDATION AND GROUND FLOOR

CONSENT
NOT FOR CONSTRUCTION

Project No. B236
Scale 1:100 A1, 1:200 A3
Sheet Size A1
Drawing No. B236-S1.300
Rev 03

TCC180044



TCC18004S

Rev.	Date	Revision Details	Drn	Ver.	App.
03	10.07.06	CONSENT	-	-	-
02	30.06.06	COORDINATION	AD	-	-
01	08.06.06	PRELIMINARY	-	-	-

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Project: BETHLEHEM SHOPPING CENTRE

Drawn AID	Signed AID	Date 10.07.06
Designed DPL	Signed DPL	Date 10.07.06
Verified ECS	Signed ECS	Date 10.07.06
Approved SMB	Signed SMB	Date 10.07.06

Drawing Title: STRUCTURAL BLOCK C ROOF PLAN SHEET 1

Project No: B236
Scale: 1:100 A1, 1:200 A3
Sheet Size: A1
Drawing No: B236-S1.301
Rev: 03

KEY

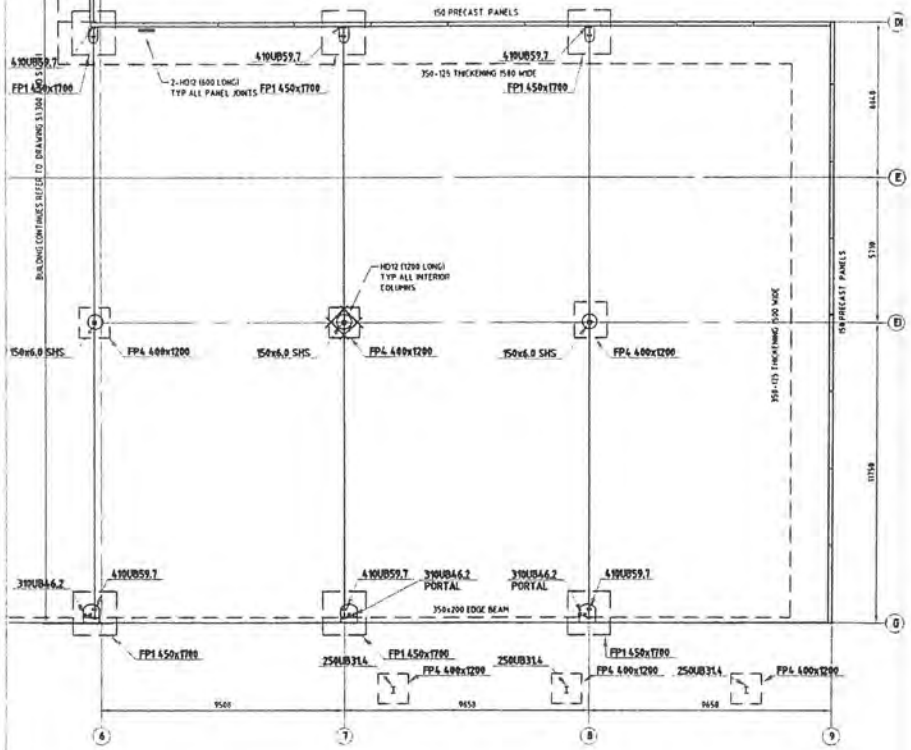
FP1 = 1700x1700x450 FOUNDATION PAD
FP2 = 2600x1700x450 FOUNDATION PAD
FP3 = 1800x1500x450 FOUNDATION PAD
FP4 = 1200x1200x450 FOUNDATION PAD
SF1 = 250x400W STRIP FOOTING

NOTES

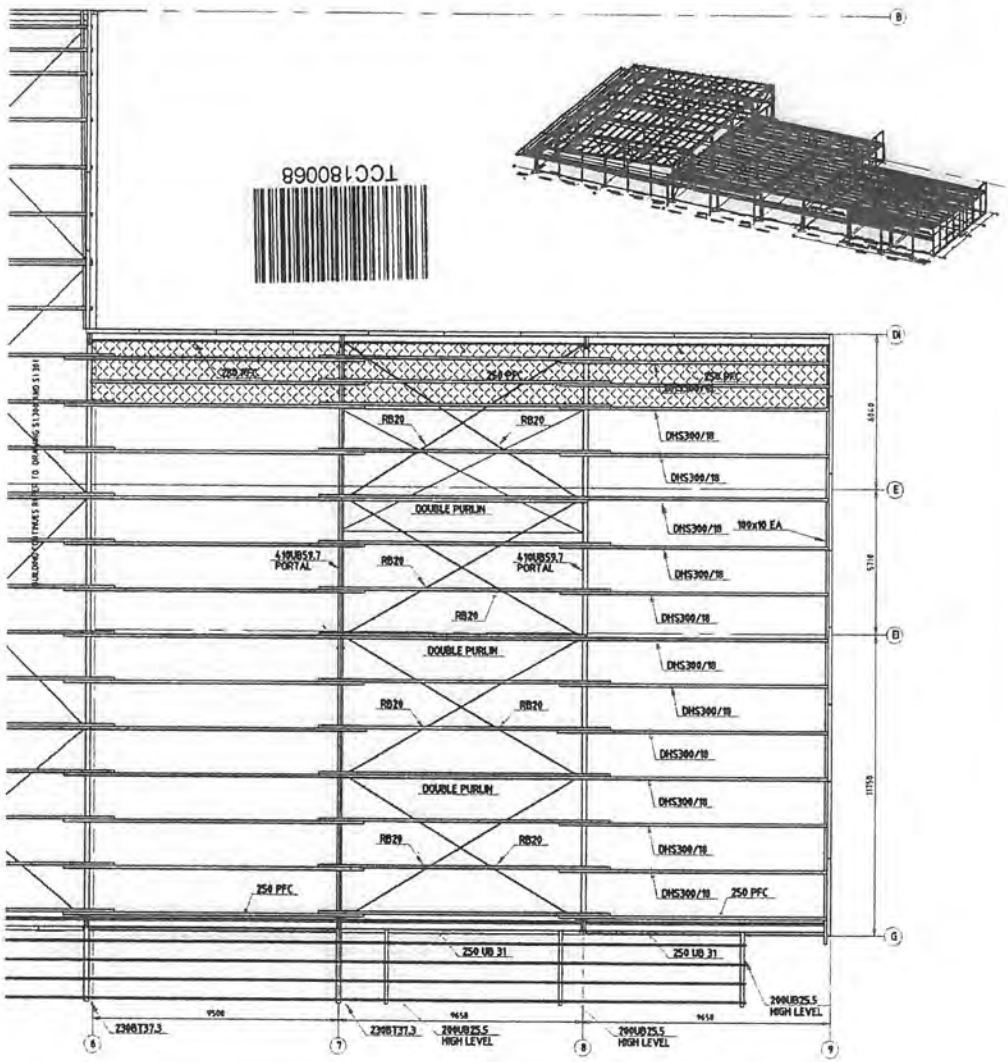
1. REFER TO ARCHITECTS FOR FLOOR LEVELS AND FALLS
2. BUILDING PLATFORM FOR 125 SLAB ON GRADE TO CONSIST OF 1 LAYER OF DPC ON 25mm SAND BLINDING ON 150mm COMPACTED HARDFILL
3. PROVIDE 665 MESH TO SLAB ON GRADE U.N.O
4. PROVIDE SAWCUTS AT 5000 CRS EACH WAY AND CONSTRUCTION JOINTS AT 20000 EACH WAY U.N.O
5. REFER TO GEOTECHNICAL REPORT FOR FOUNDATION BEARING PRESSURES. ALL FOUNDATIONS TO BE INSPECTED BY AN ENGINEER PRIOR TO POURING OF THE FOUNDATION.
6. REFER TO HYDRAULICS DRAWINGS FOR IN GROUND SEVICES UNDER THE 125 SLAB ON GRADE
7. REFER TO SPECIFICATION FOR CONCRETE COMPRESSIVE STRENGTHS
8. PROVIDE FLY-BRACES AT 5400 CRS TO ALL PORTAL FRAMES UNO
9. PROVIDE 1 ROW OF FAST BRACE BRACING TO EACH PURLIN BAY.
10. LAP PURLINS (WHERE SHOWN) 0.1x LENGTH OF ADJACENT SPAN. REFEF TO MANUFACTURERS SPECIFICATION FOR DETAILS

ZONE FOR ROOF TOP PLANT TO BE PLACED

MECHANICAL PLANT PLATFORM 9.6 M x 4.2 M



FOUNDATION AND GROUND FLOOR PLAN



ROOR PLAN

CONSENT
NOT FOR CONSTRUCTION

Rev	Date	Revision Details	Drn	Ver	App.
01	10.07.06	CONSENT			

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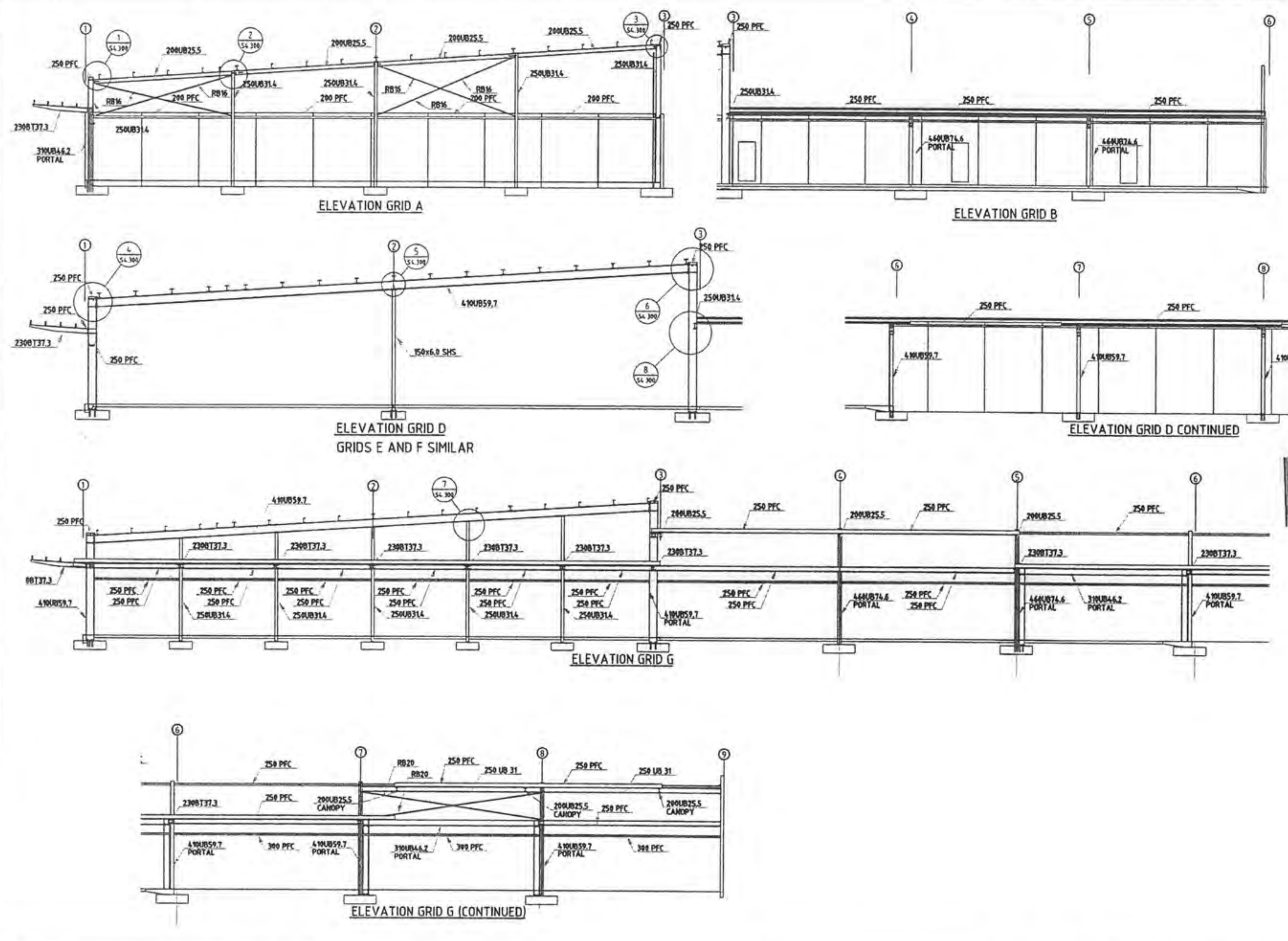
Client: AMP capital INVESTORS

Project: BETHLEHEM SHOPPING CENTRE

Drawn: AJD	Signed: AJD	Date: 10.07.06	
Designed: DPL	Signed: DPL	Date: 10.07.06	
Verified: ECS	Signed: ECS	Date: 10.07.06	
Approved: SMB	Signed: SMB	Date: 10.07.06	

Drawing Title:
STRUCTURAL
BLOCK C
PART GROUND FLOOR SLAB AND
PART ROOF PLAN

Project No.: B236
Scale: 1:100 A1, 1:200 A3
Sheet Size: A1
Drawing No.: B236-S1.302
Rev: 01



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-	-	-	-	-	-
-	-	-	-	-	-
03	10.07.06	CONSENT	-	-	-
02	30.06.06	COORDINATION	AD	-	-
01	08.06.06	PRELIMINARY	-	-	-

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Client: AMP capital INVESTORS

Project: BETHLEHEM SHOPPING CENTRE

Drawn AD	Signed AD	Date 10.07.06
Designed DPL	Signed DPL	Date 10.07.06
Verified ECS	Signed ECS	Date 10.07.06
Approved SMB	Signed SMB	Date 10.07.06

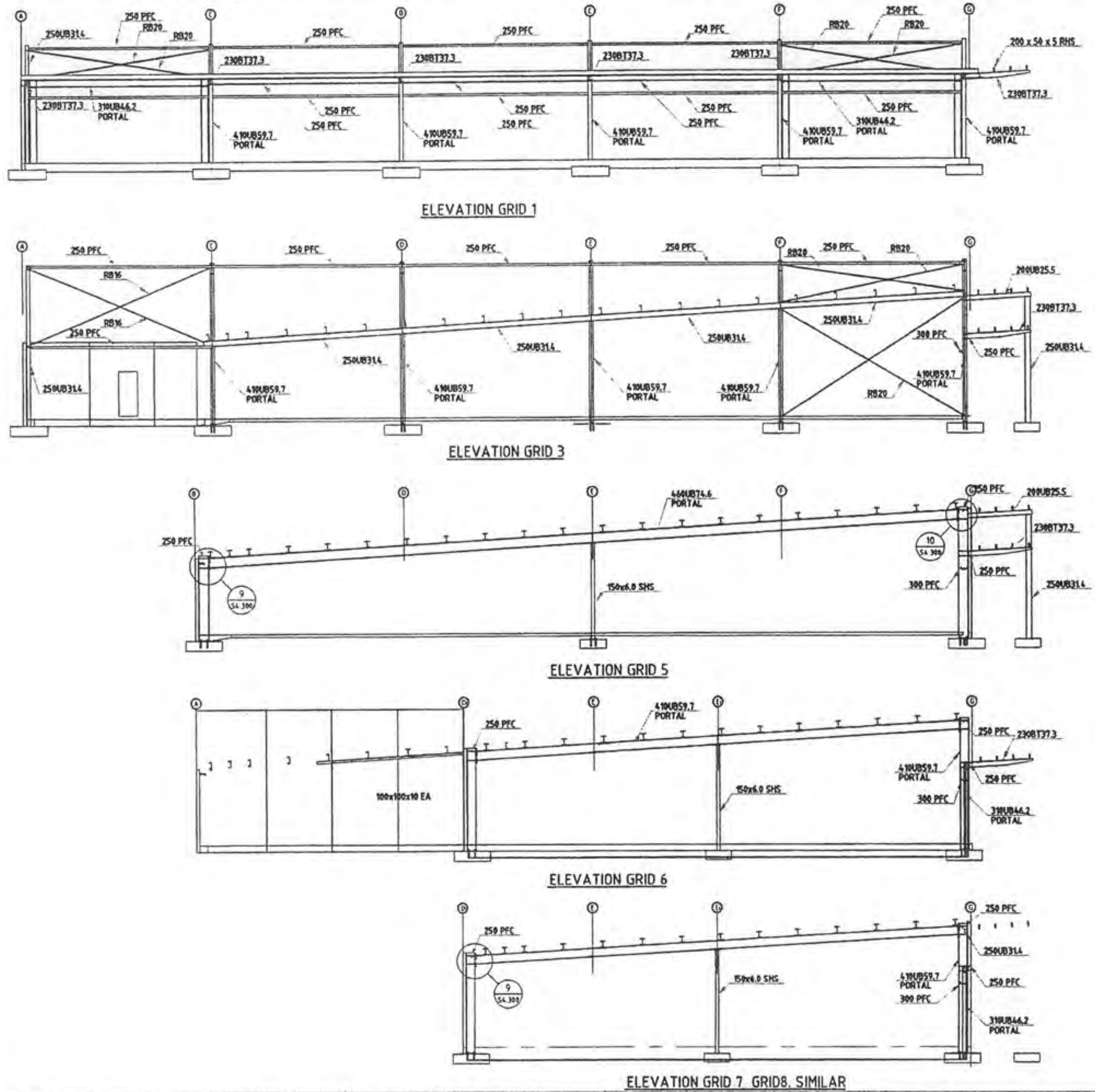
Drawing Title: STRUCTURAL BLOCK C ELEVATIONS SHEET 1

CONSENT
NOT FOR CONSTRUCTION

Project No. B236

Scale 1:100 A1, 1:200 A3 | Sheet Size A1

Drawing No. B236-S2.300 | Rev 03



TCC180073

Rev.	Date	Revision Details	Drn	Ver	App
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-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
03	10.07.06	CONSENT	-	-	-
02	30.06.06	COORDINATION	AD	-	-
01	08.06.06	PRELIMINARY	-	-	-

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Client: AMP capital INVESTORS

Project: BETHLEHEM SHOPPING CENTRE

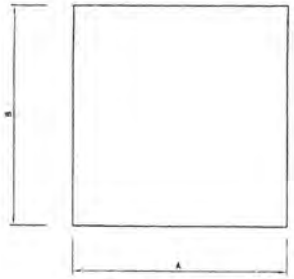
Drawn AD	Signed AD	Date 10.07.06
Designed DPL	Signed DPL	Date 10.07.06
Verified ECS	Signed ECS	Date 10.07.06
Approved SMB	Signed SMB	Date 10.07.06

Drawing Title: STRUCTURAL BLOCK C ELEVATIONS SHEET 2

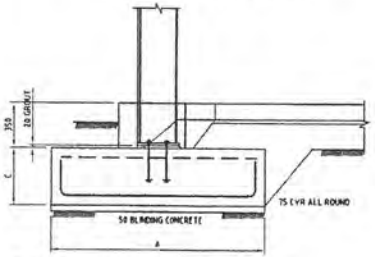
CONSENT
NOT FOR CONSTRUCTION

Project No. B236
Scale 1:100 A1 1:200 A3
Sheet Size A1
Drawing No. B236-S2.301
Rev. 03

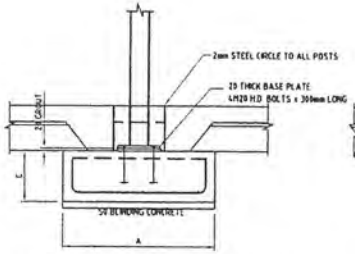
FOUNDATION PAD FOOTING SCHEDULE					
PAD TYPE	FP1	FP2	FP3	FP4	FP5
SIZE (AxB)	1700x1700	1600x1700	1050x1500	1200x1200	1800x1800
DEPTH (C)	450	450	450	600	450
BTM REINFORCEMENT (EW)	HD16-300	HD16-300	HD16-300	HD12-250	HD16-300
TOP REINFORCEMENT	663 MESH	663 MESH	663 MESH	663 MESH	663 MESH



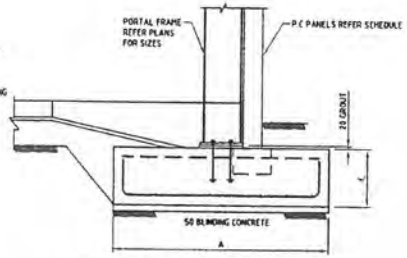
FOUNDATION PLAN VIEW



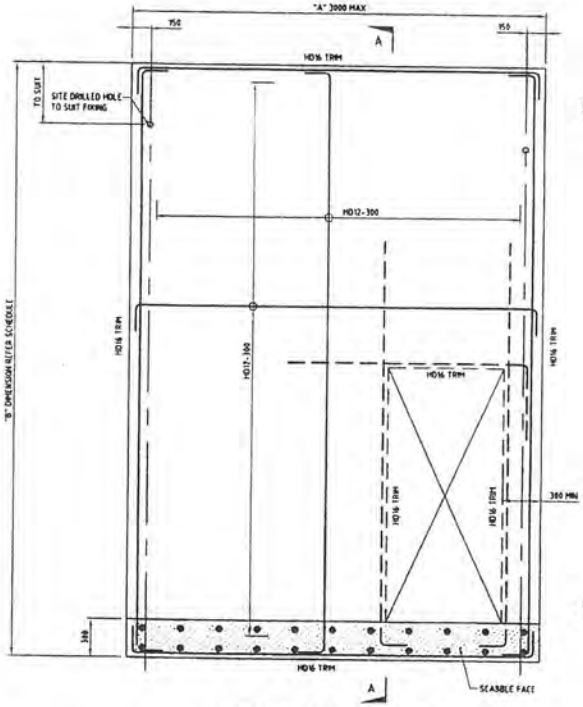
TYPICAL PORTAL FRAME FOUNDATION AT SHOP FRONT



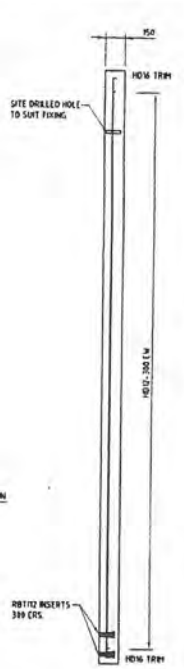
TYPICAL INTERIOR COLUMN FOUNDATION



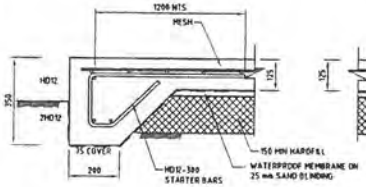
TYPICAL PORTAL FRAME FOUNDATION WITH PRECAST PANEL



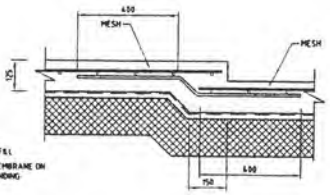
TYPICAL P.C PANEL ELEVATION
SCALE = 1:20



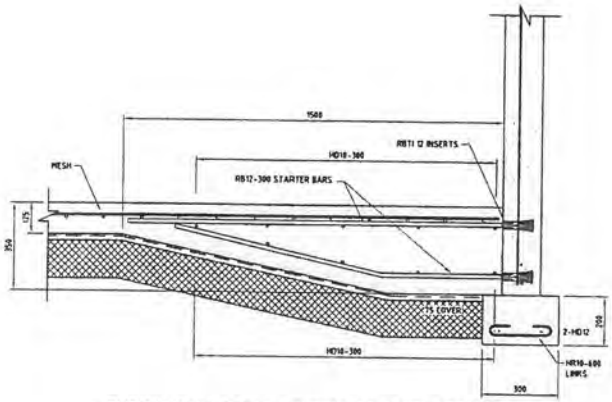
SECTION A-A
SCALE = 1:20



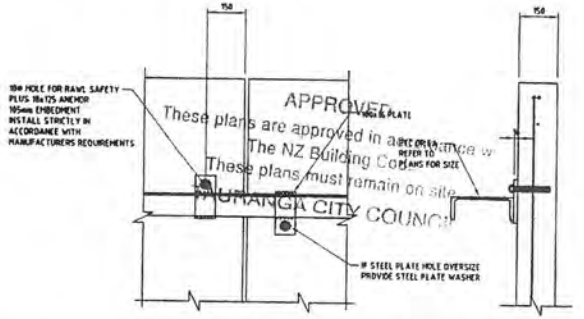
TYPICAL SLAB DETAIL AT SHOP FRONTS



TYPICAL SLAB SET DOWN DETAIL



TYPICAL SLAB DETAIL AT PRECAST PANEL LOCATION



TYPICAL PRECAST PANEL FIXING

TCC18005Z

CONSENT
NOT FOR CONSTRUCTION

Rev.	Date	Revision Details	Drn	Ver.	App.
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
03	10.07.06	CONSENT	-	-	-
02	30.06.06	COORDINATION	AD	-	-
01	08.06.06	PRELIMINARY	-	-	-

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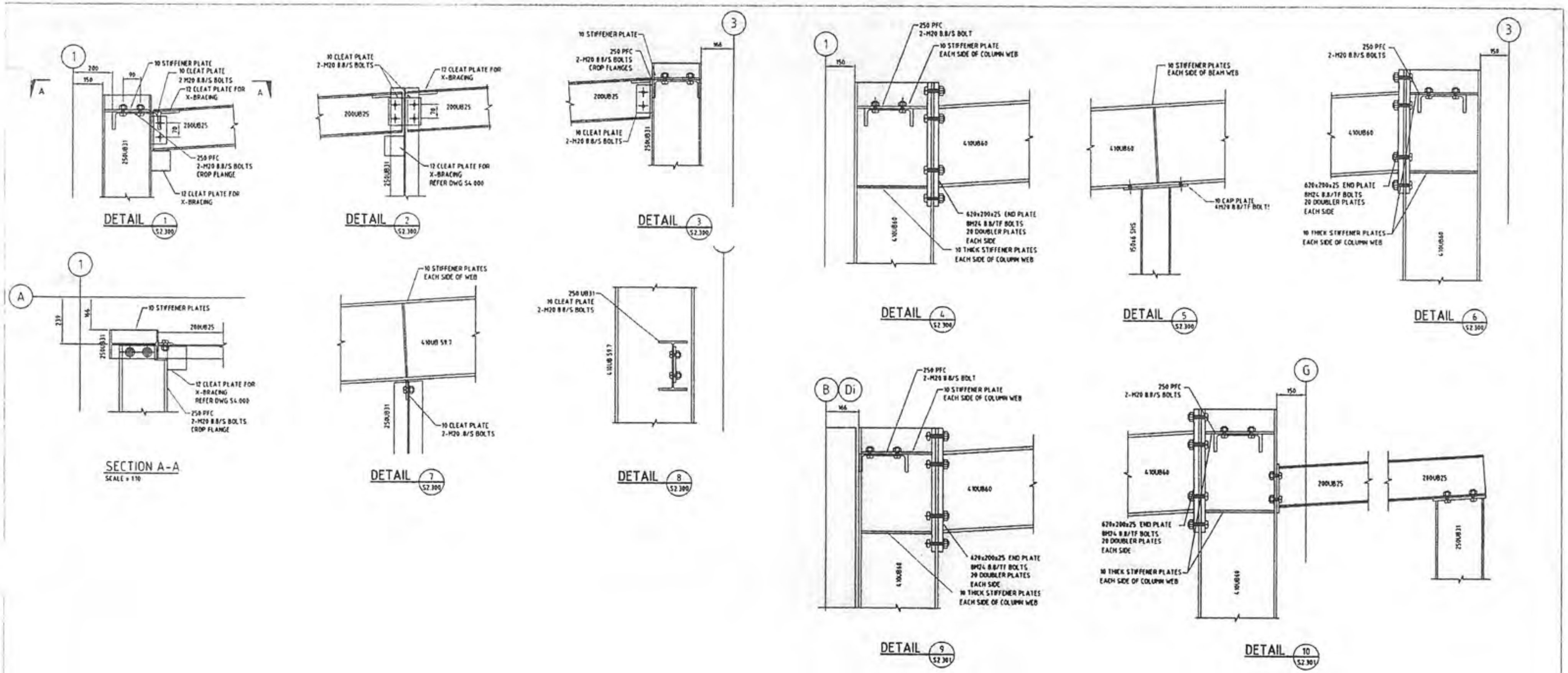
Designed DPL	Signed DPL	Date 10.07.06
Verified ECS	Signed ECS	Date 10.07.06
Approved SMB	Signed SMB	Date 10.07.06

Drawing Title: STRUCTURAL
TYPICAL CONCRETE DETAILS
FOUNDATIONS AND PRECAST PANELS

Project No: B236
Scale: 1:20 A1 1:10 1:40 A3
Sheet Size: A1
Drawing No: B236-S3.000
Rev: 03



TCC180080

APPROVED
These plans are approved in accordance with
The NZ Building Code
These plans must remain on site
TAURANGA CITY COUNCIL

Rev.	Date	Revision Details	Drn	Ver.	App
02	10.07.06	CONSENT			
01	30.06.06	COORDINATION			

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Client: AMP capital INVESTORS

Project: BETHLEHEM SHOPPING CENTRE

	Name	Signed	Date
Drawn	AJD	AJD	10.07.06
Designed	DPL	DPL	10.07.06
Verified	ECS	ECS	10.07.06
Approved	SMB	SMB	10.07.06

Drawing Title: STRUCTURAL BLOCK C STEEL DETAILS SHEET 1

CONSENT
NOT FOR CONSTRUCTION

Project No. B236
Scale 1:10 A1, 1:20 A3
Sheet Size A1
Drawing No. B236-S4.300
Rev. 01

Description:

Building D was the first building of the second stage of the development of the site following stage 1, which encompassed Blocks A, B and C. Block D was designed in 2006 but it appears that a major interior fit out was conducted in mid-2008 for Smith City Bethlehem. We presume that this fit out occurred on completion of the building envelope and the original drawings show that there were no alterations to the lateral load resisting system.

This is a rectangular single storey mono-pitch roof Block that is located in the north west corner of the shopping complex. The building has its long axis orientated in a nominal east-west direction. It is a stand-alone building that has a car park frontage on the north and west sides. The south side partially fronts a car park area and also the northern end of Block C to which there is a significant seismic gap. On the east side, Block E (the K-Mart building) has been constructed, and this has an adequate seismic gap to Block D. Block D is seismically isolated from all other buildings.

This building is a medium sized foot-print single storey, pitched roof warehouse type building, with 6 bays in the east-west longitudinal direction and 2 bays in the north-south transverse direction. There is a canopy that continues partially along the northern elevation.

Construction of the warehouse type envelope consists of long-run metal mono-pitch roof sheeting over cold rolled steel purlins, supported on structural steel portal frame rafters, which are located on each primary transverse frame grid. Each of the primary frame portal rafters is supported by structural steel portal columns at the span ends, and there are internal 150 x 6mm SHS columns at approximately mid-span of the portal rafters and as such these columns do not significantly contribute to the lateral load resisting stiffness and strength. The structural steel columns land on the conventional reinforced concrete pad foundations that are below the concrete on-grade slab. The strip footings and pad foundations that have been recorded as being reinforced concrete, although there are sizes given in the Block D set of structural drawings, and there is a detail of the column connection to the foundations pad, there are no specific details of the foundation reinforcement. We have however, located sheets of 'Typical Foundation and Wall Details' for what was called 'Stage 1' of the shopping centre development, and we are confident that these details are also appropriate to Block D, which of course is in Stage 2.

The canopy has cold rolled steel purlins, structural steel rafters, supported on steel columns and independent foundation pads. It is architecturally configured as a bulkhead rather than the cantilever type canopy that is more prevalent on the other Blocks. The canopy rafters are connected as an extension of the main structural rafters in the building envelope, and this provides adequate lateral stability.

There are 150mm thick reinforced precast concrete wall panels along the north and west elevations, and these panels are continuous along each of these elevations. There is a combination of precast concrete wall panels and shop front glazing on the south elevation. The east elevation is recorded in the architectural drawings as "adjoining Building E". Wall section 09/A2101 in the Block E set of drawings, shows a 120 minute fire rated wall, presumably of light weight construction, in the Block D building, and this is seismically separated from a similar wall in the end of Block E. These walls will not affect the lateral load resistance of either Block.

There are 2 full bays of full width diagonal structural steel rod and double purlin roof bracing in the transverse direction. There are substantial parallel flange channel (PFC) eaves ties on the north and south elevations, and these appear to act as collector beams to distribute

lateral loads from the roof plane bracing to the precast concrete wall panels loaded as in-plane shear walls.

The on-grade floor slab consists of a conventional mesh reinforced 125mm thick on-grade slab.

Seismic Load Resisting Structure:

The lateral load resisting system for the building envelope consists primarily of the diagonal structural steel roof bracing in conjunction with the precast reinforced concrete wall panels acting as in-plane loaded shear walls in the longitudinal direction. The transverse lateral loads (in the north-south direction) are sustained by the structural steel moment resisting portal frames. It is most likely that the original design engineer apportioned the seismic loads in the building to the different structural elements in proportion to the tributary area. This is a common design technique and means that the various structural elements are designed to safely sustain the seismic loading attributed to them based on the vertical and horizontal area that they directly support. On this basis the western precast concrete wall would be considered as capable of sustaining the seismic design actions generated by the self-weight of the wall and the attached roof structure, by in-plane bending as a shear wall.

There are no details of the reinforcement in the precast concrete wall panels in the drawings specifically for this Block, and likewise there are no specific details of the foundations (other than the sizes in the key notes), or their connections to the wall panels, however, as described above, we have discovered sheets of 'Typical Details' which describe the structural elements missing off the Block specific drawings. Anyway, it is typical for the precast concrete wall panels to have been designed to sustain the post-fire lateral face loads by cantilever action above the on-grade floor slab, and we see no reason why this would not be the case for this building. This feature represents a redundancy in the lateral load resisting system.

Whilst there is paucity in the detail obtained from information contained in the property file, specifically for this Block, however, when read with the 'Typical Details' for 'Stage 1' it is sufficiently comprehensive that it allows us to make a robust assessment of the likely seismic performance of the building at a level of certainty well above that generally associated with an ISA.

No severe structural weaknesses or critical structural weaknesses have been detected in this building structure.

There are no alterations or modifications to the building recorded in the documentation that we hold.

Seismic Assessment:

We have used the following parameters in the ISA assessment.

- Building era 2004 – 2011.
- Seismic Zone B, Tauranga.
- Class D soft soil.
- Natural period 0.4 seconds, (this is based on the structural steel diagonal roof bracing distributing the lateral loads to the full height precast reinforced concrete wall panels acting as in-plane loaded shear walls, in the longitudinal direction. In the transverse direction, there are structural steel moment resisting portal frames which suggests that the natural period could be somewhat longer for these elements, but the western precast concrete wall will act as an in-plane loaded shear wall and this will have a minimum natural period. This is addressed in the Performance Achievement Ratio (PAR) section).
- Building Importance Level 2.

- Structural Ductility factor 1.25 (this is based on the diagonal roof bracing and the in-plane loaded reinforced concrete wall panels and is conservative for the structural steel portal frames).
- Plan irregularity 1.0 (this value has been selected despite the asymmetric arrangement of the lateral load resisting walls in both directions. The reason is that because of the type of construction, the design philosophy for the building was no doubt that it would act as a series of discrete tributary loaded resisting structural elements. This is addressed in the PAR section).
- Vertical irregularity 1.0.
- Pounding Potential 1.0 (because the building has no neighbours).
- Site Characteristics 1.0 (because there is no recorded risk of liquefaction or site instability).
- Performance Achievement Ratio 1.1. (This is based on the regularity, pounding and site factors as detailed above but includes an enhancement 'other' factor of 1.1 which is less than the maximum of 2.5 available for buildings less than or equal to 3 storeys. This 'other factor' was selected because the natural period is arguably too short, and the ductility factor too low, for the moment resisting structural steel portal frames. Also, the precast concrete wall panels have no doubt been designed and detailed to sustain the post fire lateral load whilst acting as face loaded cantilevers above the foundation and on-grade slab, and this represents another redundancy in the system. All of these factors have been nominally recognised by an 'other factor' of 1.1).

Seismic Rating and Grade:

The Baseline rating of 100% NBS is modified by the Performance Achievement Ratio of 1.1 resulting in a Seismic Rating of >100% NBS which makes this Block A building neither an Earthquake Risk nor Earthquake Prone.

Rating >100% NBS.
Grade A+.

Initial Evaluation Procedure (IEP) Assessment - Completed for {Client/TA}

WARNING!! *This initial evaluation has been carried out solely as an initial seismic assessment of the building following the procedure set out in the "The Seismic Assessment of Existing Buildings" Technical Guidelines for Engineering Assessments, July 2017. This spreadsheet must be read in conjunction with the limitations set out in the accompanying report, and should not be relied on by any party for any other purpose. Detailed inspections and engineering calculations, or engineering judgements based on them, have not been undertaken, and these may lead to a different result or seismic grade.*

Street Number & Name:	Bethlehem Shopping Centre	Job No.:	2470
AKA:		By:	SME
Name of building:	Block D	Date:	8/04/2021
City:	Tauranga	Revision No.:	A

Table IEP-1 Initial Evaluation Procedure Step 1

Step 1 - General Information

1.1 Photos (attach sufficient to describe building)

NOTE: THERE ARE MORE PHOTOS ON PAGE 1a ATTACHED

1.2 Sketches (plans etc, show items of interest)

NOTE: THERE ARE MORE SKETCHES ON PAGE 1a ATTACHED

1.3 List relevant features (Note: only 10 lines of text will print in this box. If further text required use Page 1a)

Refer to report details.

1.4 Note information sources Tick as appropriate

Visual Inspection of Exterior	☑	Specifications	☐
Visual Inspection of Interior	☐	Geotechnical Reports	☑
Drawings (note type)	☑	Other (list)	☐

Property File.

Initial Evaluation Procedure (IEP) Assessment - Completed for {Client/TA}

Street Number & Name:	Bethlehem Shopping Centre	Job No.:	2470
AKA:		By:	SME
Name of building:	Block D	Date:	8/04/2021
City:	Tauranga	Revision No.:	A

Table IEP-2 Initial Evaluation Procedure Step 2

Step 2 - Determination of $(\%NBS)_b$

(Baseline *(%NBS)* for particular building - refer Section B5)

2.1 Determine nominal $(\%NBS) = (\%NBS)_{nom}$

	Longitudinal	Transverse
a) Building Strengthening Data		
Tick if building is known to have been strengthened in this direction	☐	☐
If strengthened, enter percentage of code the building has been strengthened to	N/A	N/A
b) Year of Design/Strengthening, Building Type and Seismic Zone		
Pre 1935	○	○
1935-1965	○	○
1965-1976	○	○
1976-1984	○	○
1984-1992	○	○
1992-2004	○	○
2004-2011	◉	◉
Post Aug 2011	○	○
Building Type:	Not applicable	Not applicable
Seismic Zone:	Not applicable	Not applicable
c) Soil Type		
From NZS1170.5:2004, Cl 3.1.3 :	D Soft Soil	D Soft Soil
From NZS4203:1992, Cl 4.6.2.2 : (for 1992 to 2004 and only if known)	Not applicable	Not applicable
d) Estimate Period, *T*		
Comment:		
h_n =	6	6 m
A_c =	1.00	1.00 m^2
Moment Resisting Concrete Frames: $T = \max(0.09h_n^{0.75}, 0.4)$	○	○
Moment Resisting Steel Frames: $T = \max(0.14h_n^{0.75}, 0.4)$	○	○
Eccentrically Braced Steel Frames: $T = \max(0.08h_n^{0.75}, 0.4)$	○	○
All Other Frame Structures: $T = \max(0.06h_n^{0.75}, 0.4)$	○	○
Concrete Shear Walls $T = \max(0.09h_n^{0.75}/A_c^{0.5}, 0.4)$	○	○
Masonry Shear Walls: $T \leq 0.4$sec	○	○
User Defined (input Period):	◉	◉
Where h_n = height in metres from the base of the structure to the uppermost seismic weight or mass.	T: 0.40	0.40
e) Factor A: Strengthening factor determined using result from (a) above (set to 1.0 if not strengthened)	Factor A: 1.00	1.00
f) Factor B: Determined from NZSEE Guidelines Figure 3A.1 using results (a) to (e) above	Factor B: 1.00	1.00
g) Factor C: For reinforced concrete buildings designed between 1976-84 Factor C = 1.2, otherwise take as 1.0.	Factor C: 1.00	1.00
h) Factor D: For buildings designed prior to 1935 Factor D = 0.8 except for Wellington and Napier (1931-1935) where Factor D may be taken as 1.0, otherwise take as 1.0.	Factor D: 1.00	1.00
$(\%NBS)_{nom}$ = AxBxCxD	$(\%NBS)_{nom}$ 100%	100%

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Initial Evaluation Procedure (IEP) Assessment - Completed for {Client/TA}

Street Number & Name:	Bethlehem Shopping Centre	Job No.:	2470
AKA:		By:	SME
Name of building:	Block D	Date:	8/04/2021
City:	Tauranga	Revision No.:	A

Table IEP-2 Initial Evaluation Procedure Step 2 continued

2.2 Near Fault Scaling Factor, Factor E

If $T \leq 1.5$sec, Factor E = 1

		Longitudinal	Transverse
a) Near Fault Factor, *N(T,D)* (from NZS1170.5:2004, Cl 3.1.6)	N(T,D):	1	1
b) Factor E = 1/N(T,D)	Factor E:	1.00	1.00

2.3 Hazard Scaling Factor, Factor F

a) Hazard Factor, *Z*, for site

Location: Tauranga — Refer right for user-defined locations

Z =	0.2	(from NZS1170.5:2004, Table 3.3)
Z_{1992} =	0.85	(NZS4203:1992 Zone Factor from accompanying Figure 3.5(b))
Z_{2004} =	0.2	(from NZS1170.5:2004, Table 3.3)

b) Factor F

For pre 1992	=	1/Z
For 1992-2011	=	Z_{1992}/Z
For post 2011	=	Z_{2004}/Z

Factor F: 1.00 | 1.00

2.4 Return Period Scaling Factor, Factor G

a) Design Importance Level, I

(Set to 1 if not known. For buildings designed prior to 1965 and known to be designed as a public building set to 1.25. For buildings designed 1965-1976 and known to be designed as a public building set to 1.33 for Zone A or 1.2 for Zone B. For 1976-1984 set I value.)

I = 1 | 1

b) Design Risk Factor, R_o (set to 1.0 if other than 1976-2004, or not known)

R_o = 1 | 1

c) Return Period Factor, R (from NZS1170.0:2004 Building Importance Level)

Choose Importance Level: ○ 1 ◉ 2 ○ 3 ○ 4 | ○ 1 ◉ 2 ○ 3 ○ 4

R = 1.0 | 1.0

d) Factor G = IR_o/R

Factor G: 1.00 | 1.00

2.5 Ductility Scaling Factor, Factor H

a) Available Displacement Ductility Within Existing Structure

Comment:

μ = 1.25 | 1.25

b) Factor H

		k_μ	k_μ
For pre 1976 (maximum of 2)	=	1.14	1.14
For 1976 onwards	=	1	1
	Factor H:	1.00	1.00

(where k_μ is NZS1170.5:2004 Inelastic Spectrum Scaling Factor, from accompanying Table 3.3)

2.6 Structural Performance Scaling Factor, Factor I

a) Structural Performance Factor, S_p (from accompanying Figure 3.4)

Tick if light timber-framed construction in this direction: ☐ | ☐

S_p = 0.93 | 0.93

b) Structural Performance Scaling Factor = $1/S_p$

Factor I: 1.00 | 1.00

Note Factor B values for 1992 to 2004 have been multiplied by 0.67 to account for Sp in this period

2.7 Baseline *%NBS* for Building, $(\%NBS)_b$

(equals $(\%NBS)_{nom}$ x E x F x G x H x I)

100% | 100%

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Name of building:	Block D	Date:	8/04/2021
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Table IEP-3 Initial Evaluation Procedure Step 3

Step 3 - Assessment of Performance Achievement Ratio (PAR)
(Refer Appendix B - Section B3.2)

a) Longitudinal Direction

potential CSWs	Effect on Structural Performance (Choose a value - Do not interpolate)			Factors
3.1 Plan Irregularity				
Effect on Structural Performance	○ *Severe*	○ *Significant*	◉ *Insignificant*	Factor A 1.0
Comment				
3.2 Vertical Irregularity				
Effect on Structural Performance	○ *Severe*	○ *Significant*	◉ *Insignificant*	Factor B 1.0
Comment				
3.3 Short Columns				
Effect on Structural Performance	○ *Severe*	○ *Significant*	◉ *Insignificant*	Factor C 1.0
Comment				

3.4 Pounding Potential
(Estimate D1 and D2 and set D = the lower of the two, or 1.0 if no potential for pounding, or consequences are considered to be minimal)

a) **Factor D1: - Pounding Effect**

Note:
Values given assume the building has a frame structure. For stiff buildings (eg shear walls), the effect of pounding may be reduced by taking the coefficient to the right of the value applicable to frame buildings.

Factor D1 For Longitudinal Direction: 1.0

Table for Selection of Factor D1	Severe	Significant	Insignificant
Separation	0<Sep<.005H	.005<Sep<.01H	Sep>.01H
Alignment of Floors within 20% of Storey Height	○ 1	○ 1	◉ 1
Alignment of Floors not within 20% of Storey Height	○ 0.4	○ 0.7	○ 0.8

Comment

b) **Factor D2: - Height Difference Effect**

Factor D2 For Longitudinal Direction: 1.0

Table for Selection of Factor D2	Severe	Significant	Insignificant
	0<Sep<.005H	.005<Sep<.01H	Sep>.01H
Height Difference > 4 Storeys	○ 0.4	○ 0.7	○ 1
Height Difference 2 to 4 Storeys	○ 0.7	○ 0.9	○ 1
Height Difference < 2 Storeys	○ 1	○ 1	◉ 1

Comment

Factor D 1.0

3.5 Site Characteristics - *Stability, landslide threat, liquefaction etc as it affects the structural performance from a life-safety perspective*

Effect on Structural Performance ○ *Severe* ○ *Significant* ◉ *Insignificant* Factor E 1.0

Comment

3.6 Other Factors - *for allowance of all other relevant characterstics of the building*

For ≤ 3 storeys - Maximum value 2.5
otherwise - Maximum value 1.5.
No minimum.

Factor F 1.1

Record rationale for choice of Factor F:

Refer to report

3.7 Performance Achievement Ratio (PAR)
(equals **A x B x C x D x E x F**)

PAR
Longitudinal 1.10

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AKA:		By:	SME
Name of building:	Block D	Date:	8/04/2021
City:	Tauranga	Revision No.:	A

Table IEP-3 Initial Evaluation Procedure Step 3

Step 3 - Assessment of Performance Achievement Ratio (PAR)
(Refer Appendix B - Section B3.2)

b) Transverse Direction

potential CSWs	Effect on Structural Performance (Choose a value - Do not interpolate)			Factors
3.1 Plan Irregularity				
Effect on Structural Performance	○ *Severe*	○ *Significant*	◉ *Insignificant*	**Factor A** 1.0
Comment				
3.2 Vertical Irregularity				
Effect on Structural Performance	○ *Severe*	○ *Significant*	◉ *Insignificant*	**Factor B** 1.0
Comment				
3.3 Short Columns				
Effect on Structural Performance	○ *Severe*	○ *Significant*	◉ *Insignificant*	**Factor C** 1.0
Comment				

3.4 Pounding Potential
(Estimate D1 and D2 and set D = the lower of the two, or 1.0 if no potential for pounding, or consequences are considered to be minimal)

a) Factor D1: - Pounding Effect

Note:
Values given assume the building has a frame structure. For stiff buildings (eg shear walls), the effect of pounding may be reduced by taking the coefficient to the right of the value applicable to frame buildings.

Factor D1 For Transverse Direction: 1.0

Table for Selection of Factor D1	Severe	Significant	Insignificant
Separation	0<Sep<.005H	.005<Sep<.01H	Sep>.01H
Alignment of Floors within 20% of Storey Height	○ 1	○ 1	◉ 1
Alignment of Floors not within 20% of Storey Height	○ 0.4	○ 0.7	○ 0.8

Comment

b) Factor D2: - Height Difference Effect

Factor D2 For Transverse Direction: 1.0

Table for Selection of Factor D2	Severe	Significant	Insignificant
	0<Sep<.005H	.005<Sep<.01H	Sep>.01H
Height Difference > 4 Storeys	○ 0.4	○ 0.7	○ 1
Height Difference 2 to 4 Storeys	○ 0.7	○ 0.9	○ 1
Height Difference < 2 Storeys	○ 1	○ 1	◉ 1

Comment

Factor D 1.0

3.5 Site Characteristics - *Stability, landslide threat, liquefaction etc as it affects the structural performance from a life-safety perspective*

Effect on Structural Performance	○ *Severe*	○ *Significant*	◉ *Insignificant*	**Factor E** 1.0
Comment				

3.6 Other Factors - *for allowance of all other relevant characterstics of the building*

Record rationale for choice of Factor F:

For ≤ 3 storeys - Maximum value 2.5
otherwise - Maximum value 1.5.
No minimum.

Factor F 1.10

Refer to report

3.7 Performance Achievement Ratio (PAR)
(equals **A x B x C x D x E x F**)

PAR
Transverse 1.10

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Initial Evaluation Procedure (IEP) Assessment - Completed for {Client/TA}

Street Number & Name:	Bethlehem Shopping Centre	Job No.:	2470
AKA:		By:	SME
Name of building:	Block D	Date:	8/04/2021
City:	Tauranga	Revision No.:	A

Table IEP-4 Initial Evaluation Procedure Steps 4, 5, 6 and 7

Step 4 - Percentage of New Building Standard *(%NBS)*

		Longitudinal	Transverse
4.1	Assessed Baseline *%NBS* $(\%NBS)_b$ (from Table IEP - 1)	100%	100%
4.2	Performance Achievement Ratio (PAR) (from Table IEP - 2)	1.10	1.10
4.3	PAR x Baseline $(\%NBS)_b$	>100%	>100%
4.4	Percentage New Building Standard *(%NBS)* - Seismic Rating (Use lower of two values from Step 4.3)		>100%

Step 5 - Is *%NBS* < 34? NO

Step 6 - Potentially Earthquake Risk (is *%NBS* < 67)? NO

Step 7 - Provisional Grading for Seismic Risk based on IEP

Seismic Grade: A+

Additional Comments (items of note affecting IEP based seismic rating)

Relationship between Grade and *%NBS*:

Grade:	A+	A	B	C	D	E
%NBS:	> 100	100 to 80	79 to 67	66 to 34	< 34 to 20	< 20

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Initial Evaluation Procedure (IEP) Assessment - Completed for {Client/TA}

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Name of building:	Block D	Date:	8/04/2021
City:	Tauranga	Revision No.:	A

Table IEP-5 Initial Evaluation Procedure Step 8

Step 8 - Identification of potential Severe Structural Weaknesses (SSWs) that could result in significant risk to a significant number of occupants

8.1	Number of storeys above ground level	1
8.2	Presence of heavy concrete floors and/or concrete roof? (Y/N)	N

Potential Severe Structural Weaknesses (SSWs):

Note: Options that are greyed out are not applicable and need not be considered.

Occupancy not considered to be significant - no further consideration required

Risk not considered to be significant - no further consideration required

The following potential Severe Structural Weaknesses (SSWs) have been identified in the building that could result in significant risk to a significant number of occupants:

1. None identified
2. Weak or soft storey (except top storey)
3. Brittle columns and/or beam-column joints the deformations of which are not constrained by other structural elements
4. Flat slab buildings with lateral capacity reliant on low ductility slab-to-column connections
5. No identifiable connection between primary structure and diaphragms
6. Unique and gap stairs

IEP Assessment Confirmed by Signature

S R Mitchell **Name**

70562 **CPEng. No**

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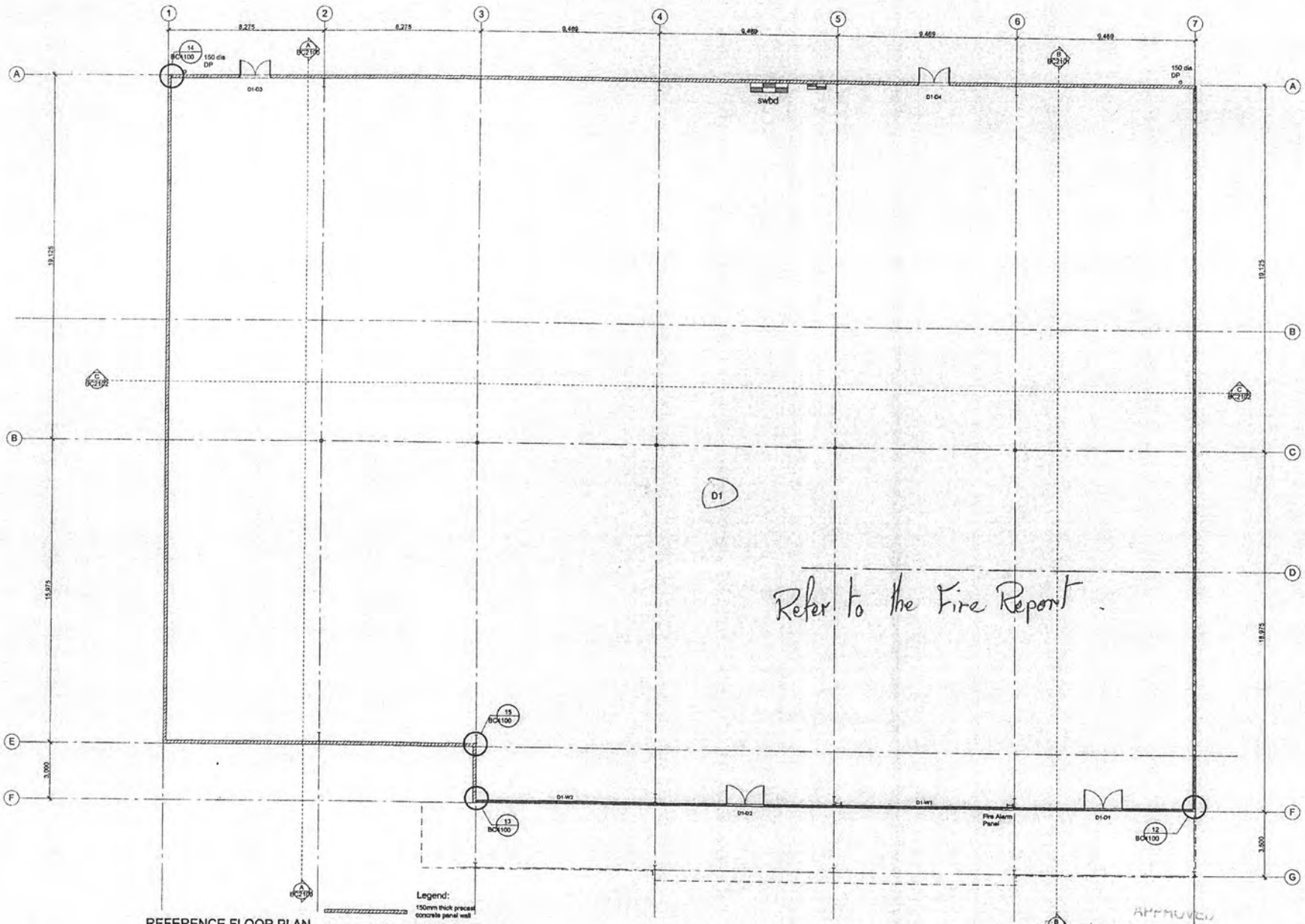

REFERENCE FLOOR PLAN
Scale 1:100

Legend:
150mm thick precast concrete panel wall
150mm steel stud wall framing with 1 layer 19mm Gib board lining to each side of framing. Refer. Fire engineers report.
Distrubution Board

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These plans are approved in accordance wi
The NZ Building Code
These plans must remain on site
TAURANGA CITY COUNCIL

GENERAL NOTES
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PROJECT
BLOCK D
BETHLEHEM SHOPPING CENTRE

DRAWING TITLE
REFERENCE FLOOR PLAN

DATE	SCALE
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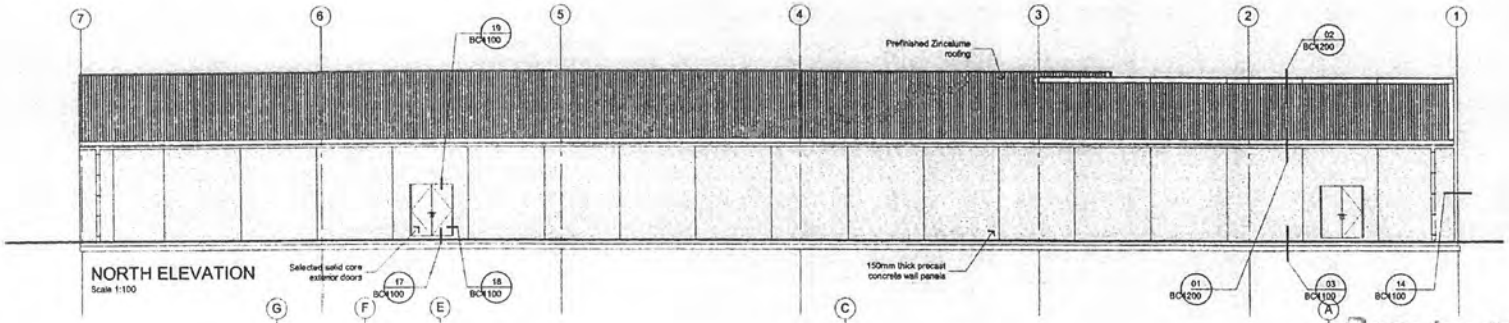
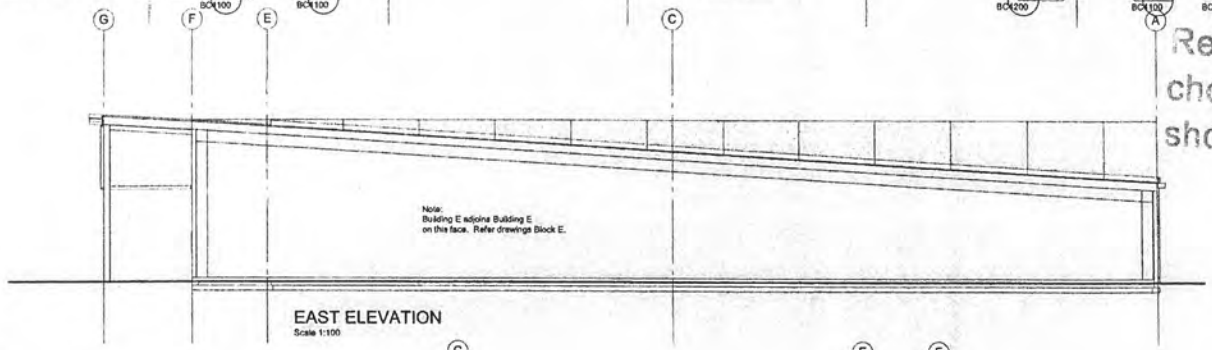
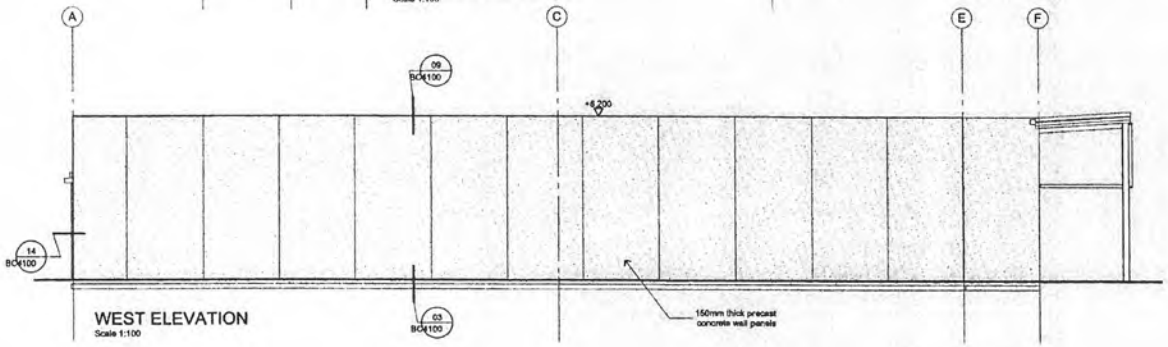


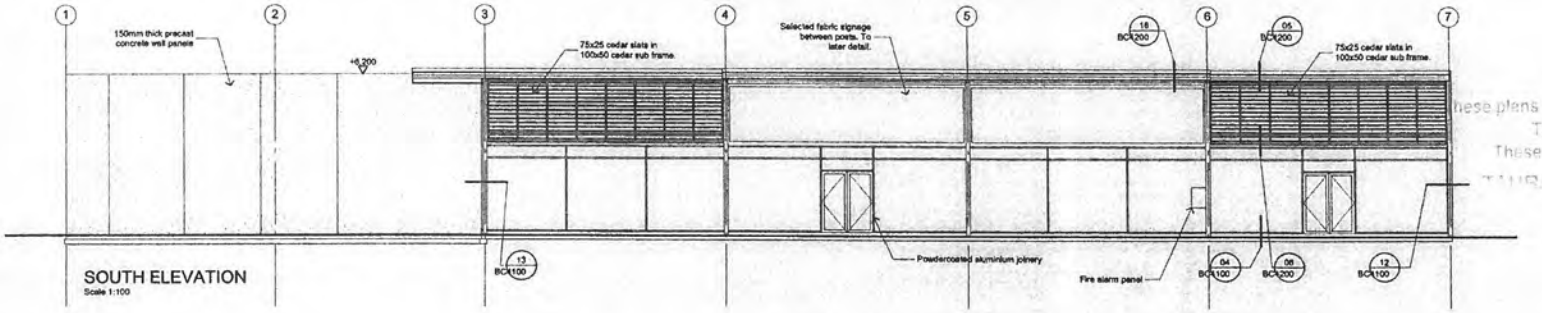
NORTH ELEVATION
Scale 1:100



EAST ELEVATION
Scale 1:100



WEST ELEVATION
Scale 1:100



SOUTH ELEVATION
Scale 1:100

TCC189014

Regular Maintenance checks of the exterior should be undertaken by the owner

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Refer to accompanying documentation

PROJECT
BLOCK D
BETHLEHEM SHOPPING CENTRE

DRAWING TITLE
ELEVATIONS

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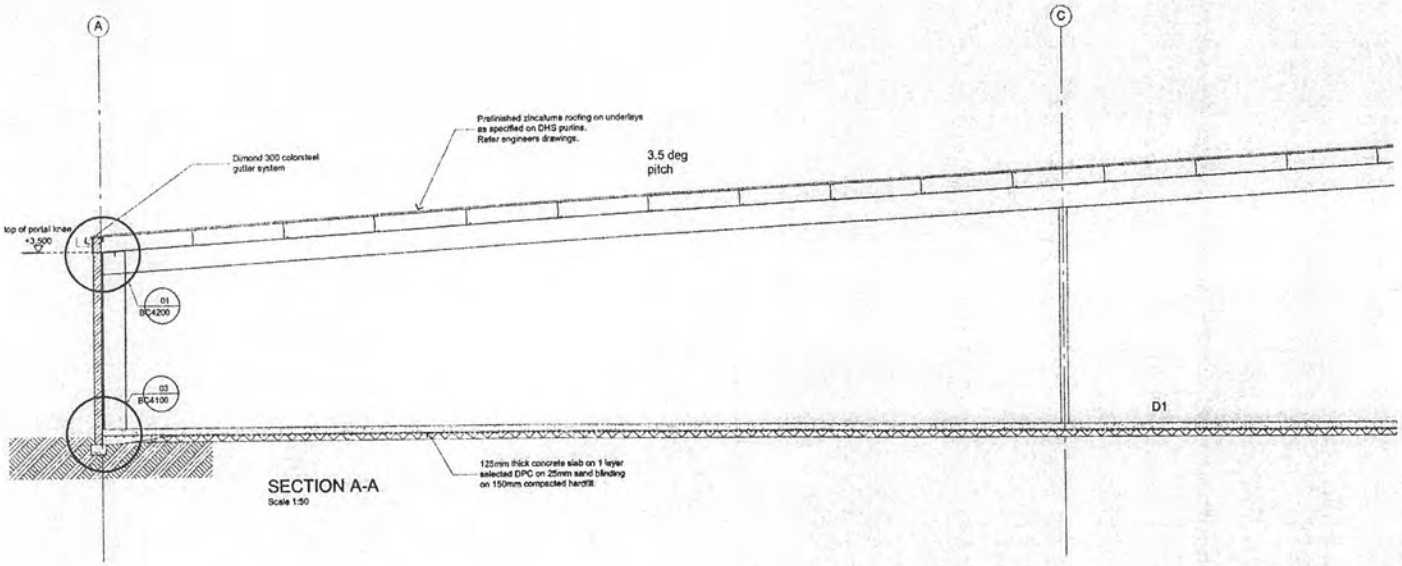
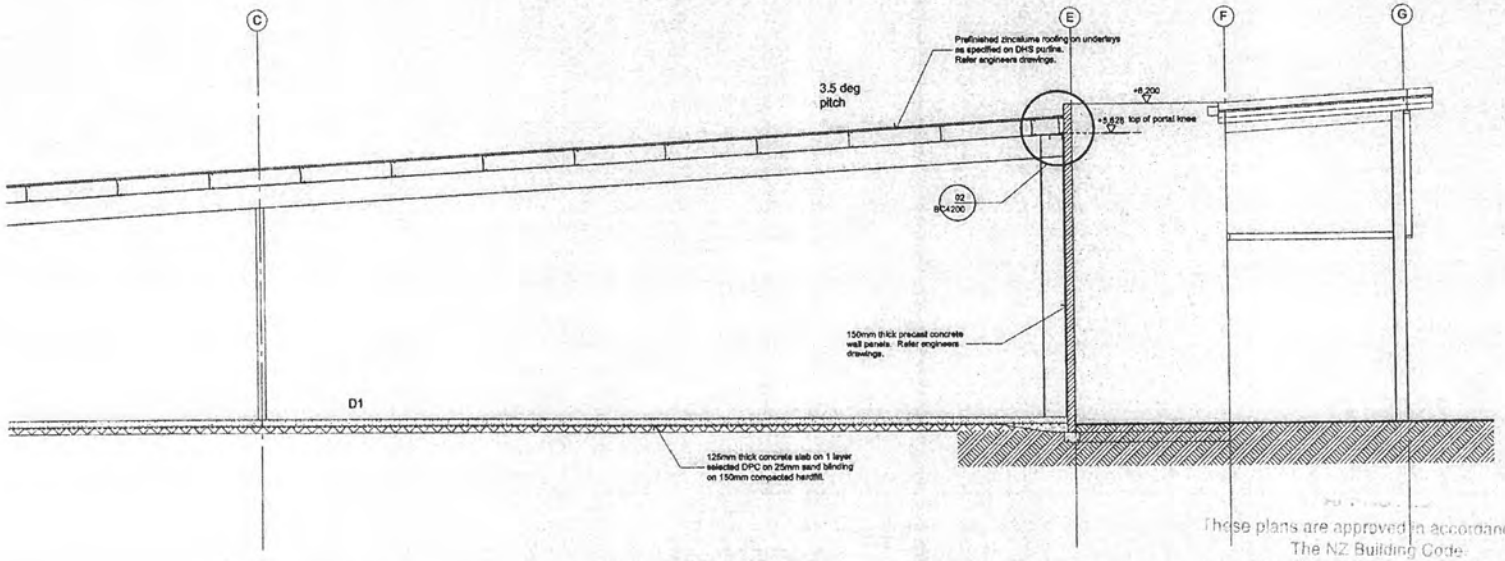


SECTION A-A
Scale 1:50



All work to satisfy the requirements of N.Z.B.C. including Clause E2 (External Moisture)

TCC189017

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The NZ Building Code
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PROJECT

BLOCK D
BETHLEHEM SHOPPING CENTRE

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SECTIONS

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DRAWING NUMBER: BC2100 (A)

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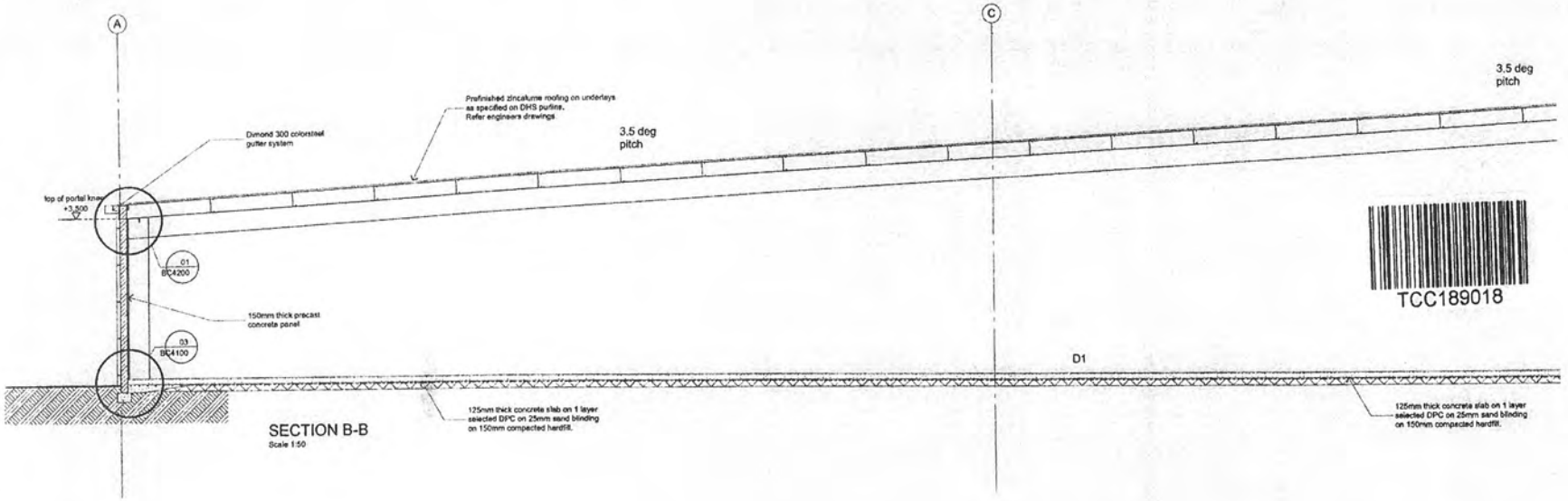
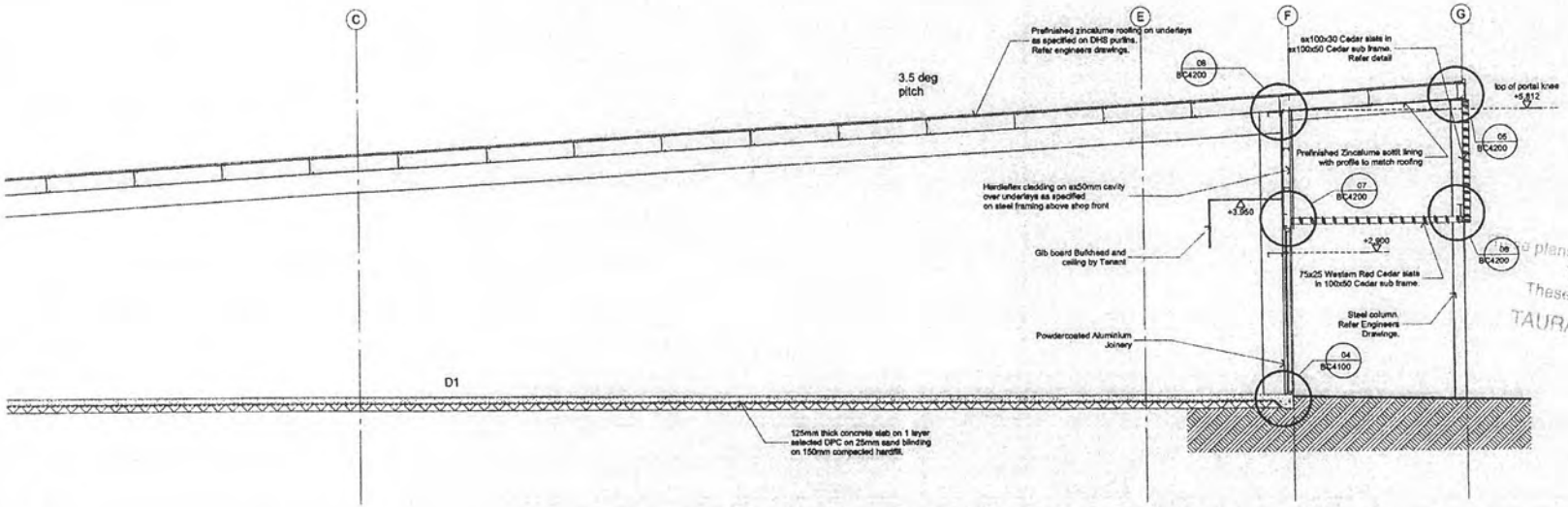


SECTION B-B
Scale 1:50



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DATE	SCALE
28 AUGUST 2006	1:50 @ A1
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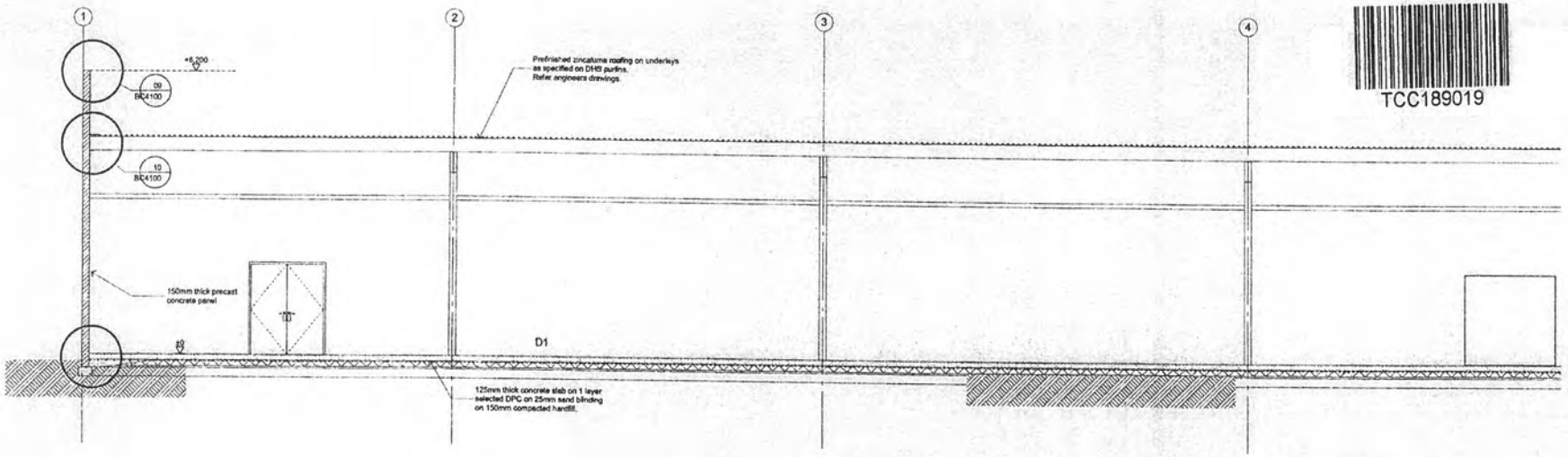
PROJECT NO.: 457-05-19	
DRAWING NUMBER: BC2101	A



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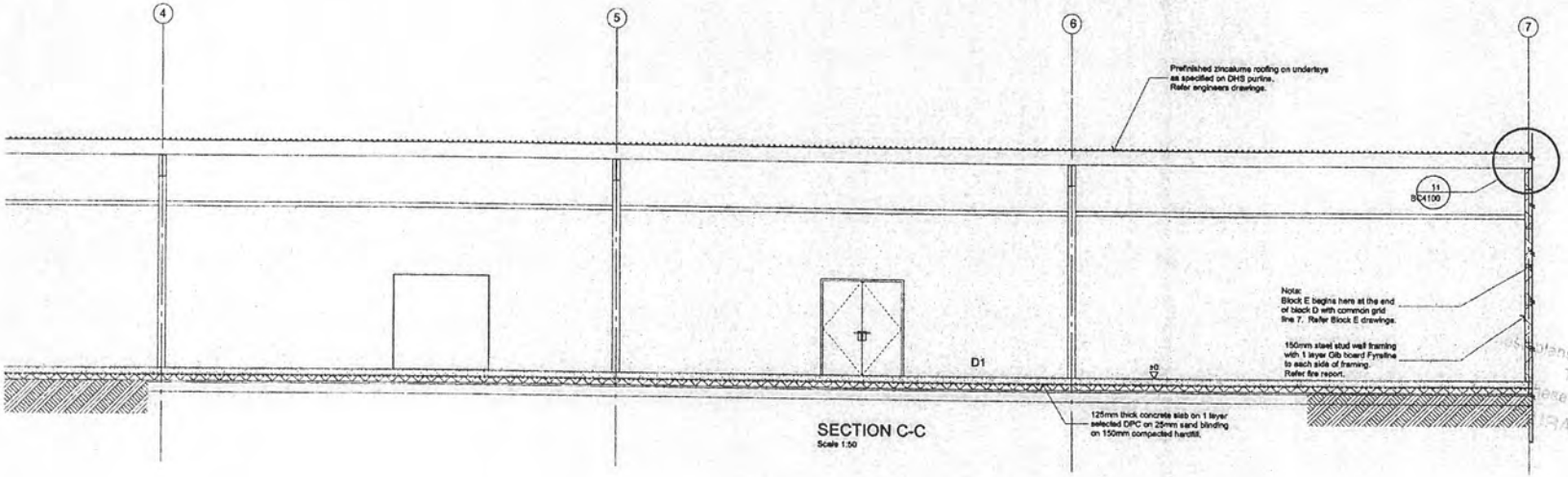

SECTION C-C
Scale 1:50

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PROJECT
BLOCK D
BETHLEHEM SHOPPING CENTRE

DRAWING TITLE
SECTIONS

APPROVED
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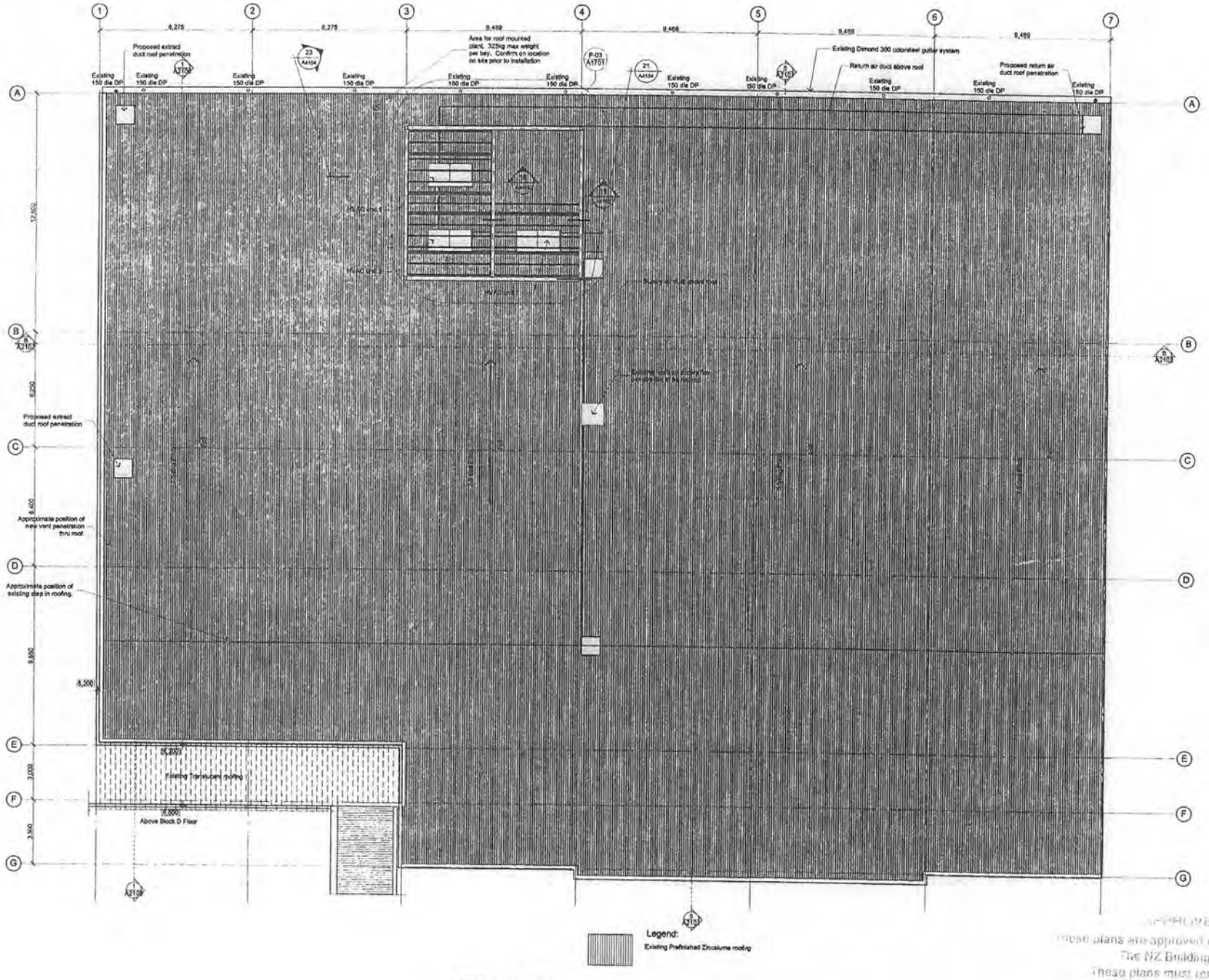
PROJECT NO: 457-05-19	

DRAWING NUMBER
BC2102 (A)



ROOF PLAN
1:100

GENERAL NOTES

1. DO NOT SCALE OFF DRAWING
2. CONTRACTOR SHALL VERIFY AND BE RESPONSIBLE FOR ALL DIMENSIONS ON SITE.
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TCC178365

ID	Description	Drawn	Date
A	Building Consent	MG	7/08/2008

BUILDING CONSENT

IGNITE

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CLIENT
SMITH CITY

PROJECT
SMITH CITY BETHLEHEM
BETHLEHEM SHOPPING CENTRE
BETHLEHEM ROAD TAURANGA

DRAWING TITLE
ROOF PLAN

DATE		SCALE
6/08/2008		A.S.
DRAWN	CHECK	PROJECT NO.
MG	MG	0457-019-22
STAGE: BUILDING CONSENT		Last Saved By: mattg Last Saved At: 6/08/2008

DRAWING NUMBER
A1700 (A)

PLOT DATE AND PATH: 6/08/2008

APPROVED
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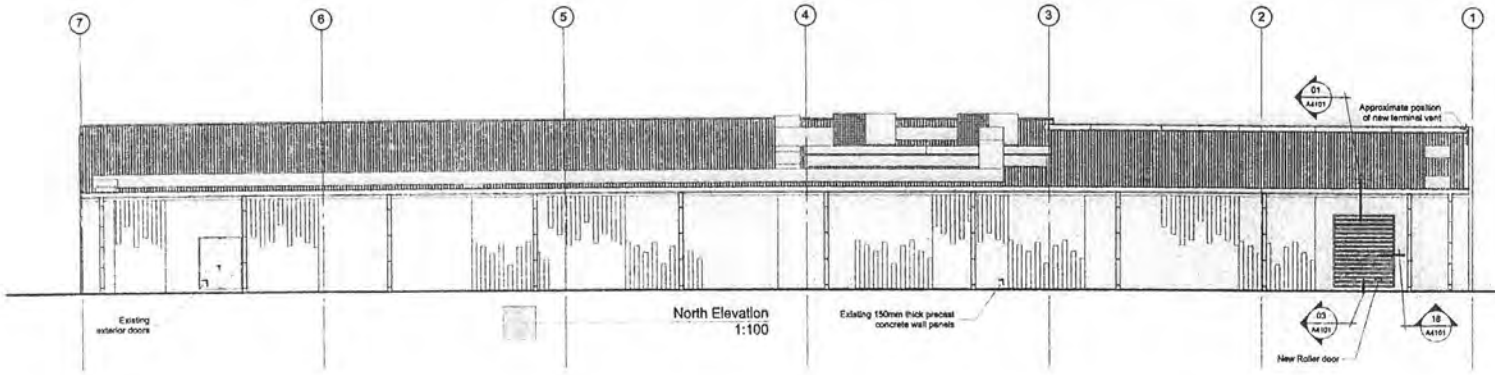
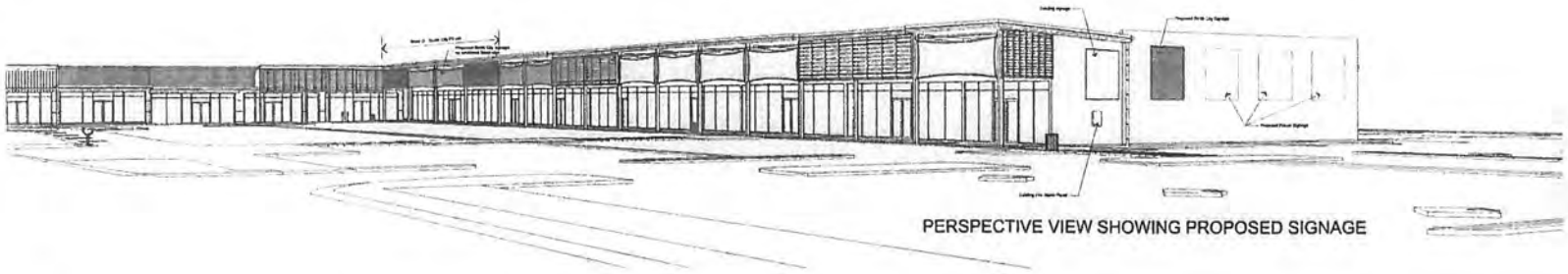
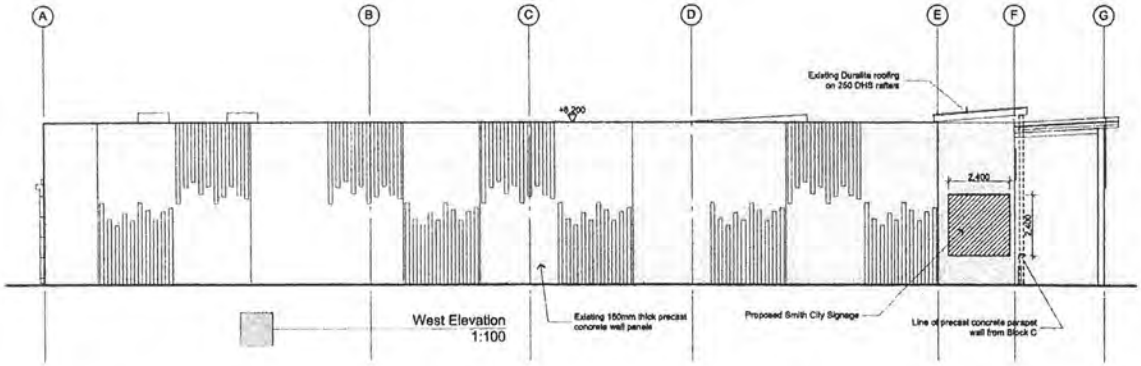
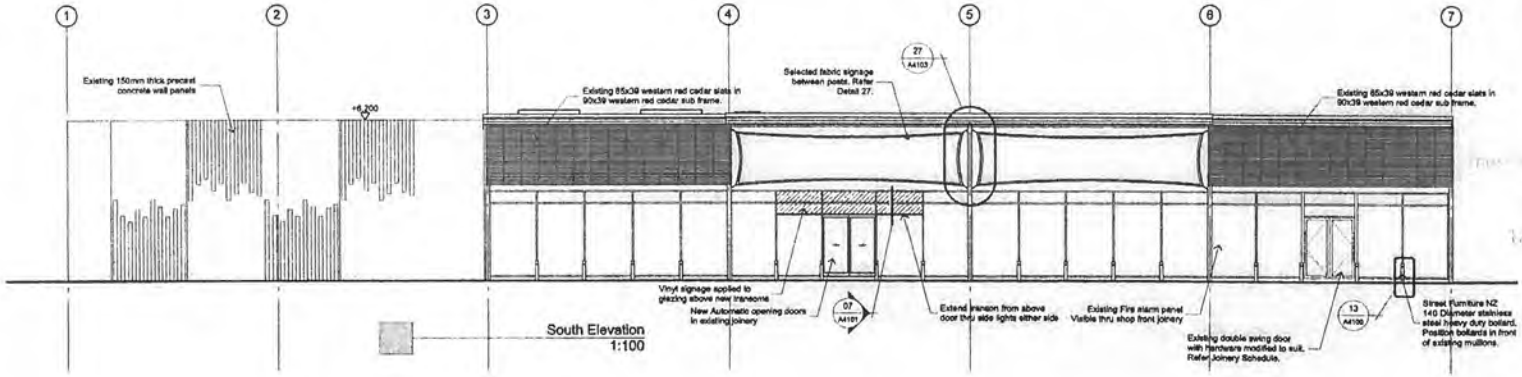




PERSPECTIVE VIEW SHOWING PROPOSED SIGNAGE





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TAURANGA CITY COUNCIL
PROJECT INFORMATION PACKAGE
28375
Refer to accompanying documentation

TCC178367

No.	Description	Drawn	Date
A	Building Consent	MG	7/05/2008

BUILDING CONSENT

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CLIENT
SMITH CITY

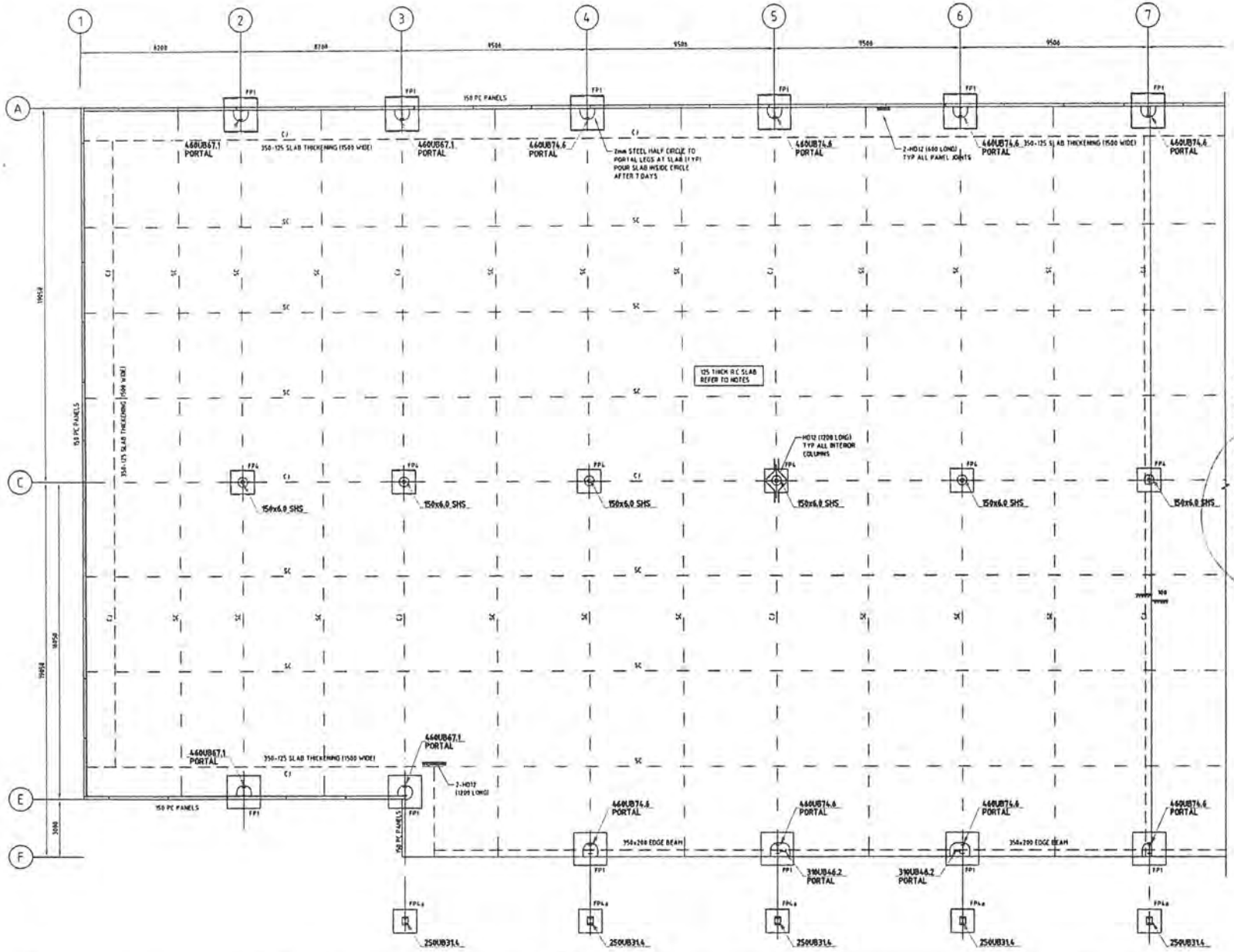
PROJECT
SMITH CITY BETHLEHEM
BETHLEHEM SHOPPING CENTRE
BETHLEHEM ROAD TAURANGA

DRAWING TITLE
ELEVATIONS

DATE	SCALE
6/05/2008	A.S.
DRAWN: MG / CHECK: MG	PROJECT NO. 0457-019-22
STAGE: BUILDING CONSENT	Last Saved By: matty
	Last Saved At: 5/05/2008

DRAWING NUMBER
A2000 (A)

PLOT DATE AND PATH: 6/05/2008



NOTES

1 REFER TO ARCHITECTS FOR FLOOR LEVELS AND FALLS
2 BUILDING PLATFORM FOR 125 SLAB ON GRADE TO CONSIST OF 1 LAYER OF DPC ON 25mm SAND BLINDING ON 150mm COMPACTED HARDFILL
3. PROVIDE 665 MESH TO SLAB ON GRADE U.N.O
4. REFER TO GEOTECHNICAL REPORT FOR FOUNDATION BEARING PRESSURES. ALL FOUNDATIONS TO BE INSPECTED BY AN ENGINEER PRIOR TO POURING OF THE FOUNDATION
5. REFER TO HYDRAULICS DRAWINGS FOR IN GROUND SERVICES UNDER THE 125 SLAB ON GRADE
6. REFER TO SPECIFICATION FOR CONCRETE COMPRESSIVE STRENGTHS

KEY

FP1 = 1700x1700x450 FOUNDATION PAD
FP2 = 2600x1700x450 FOUNDATION PAD
FP3 = 1800x1500x450 FOUNDATION PAD
FP4 = 1200x1200x600 FOUNDATION PAD
SF1 = 250x600W STRIP FOOTING

REFER TO ELECTRICAL SPECIFICATION FOR EARTHING REQUIREMENTS

Note
Any adverse soil conditions encountered are to be reported to the geotech. engineer

TCC169948

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TAURANGA CITY COUNCIL

Rev	Date	Revision Details	Drn	Ver.	App.
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
03	24.08.06	CONSENT	-	-	-
02	09.08.06	TENDER	-	-	-
01	14.07.06	COORDINATION	-	-	-

Connell Wagner

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Telephone: +64 9 529-5699
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Client: AMP capital INVESTORS

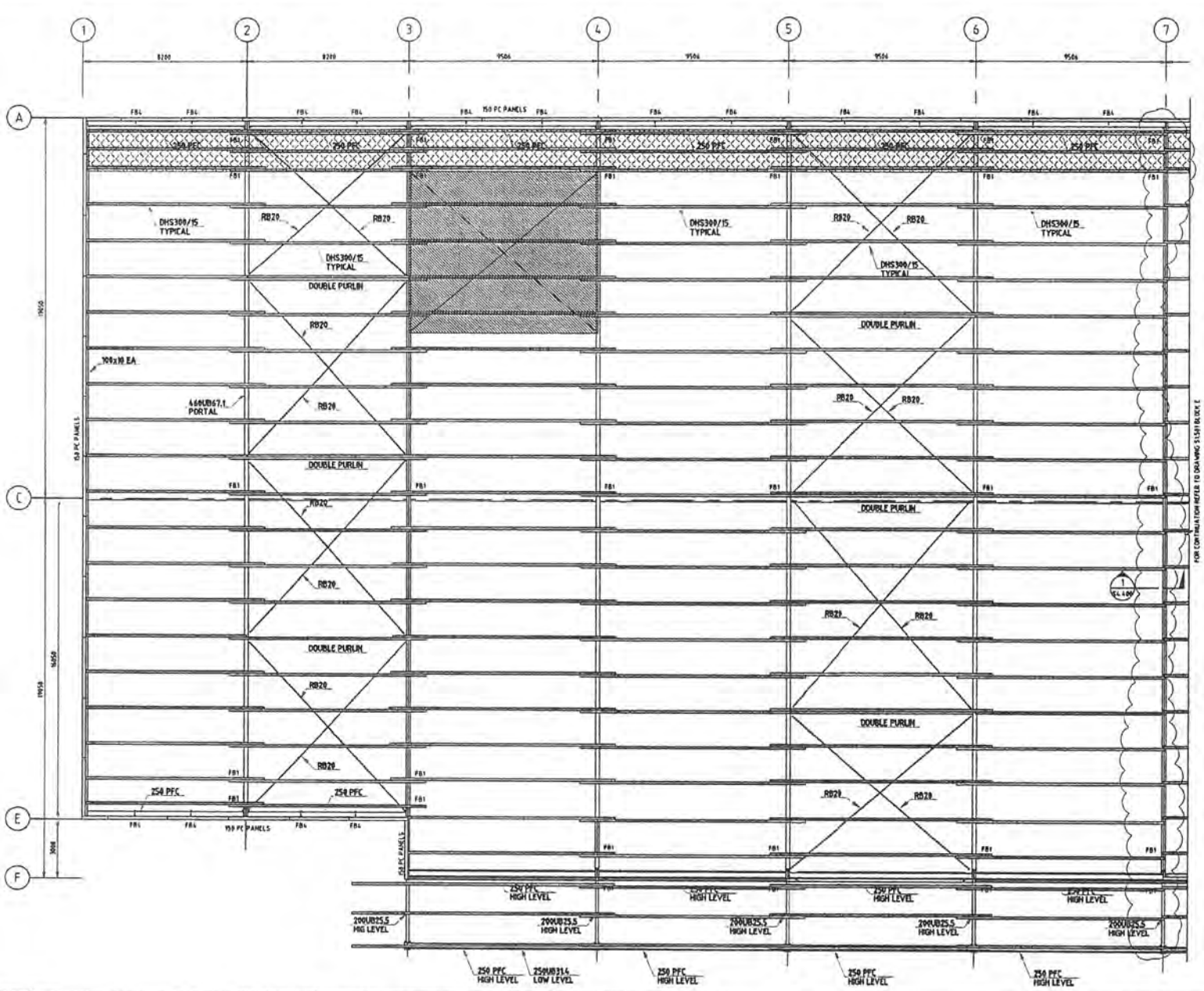
Project: BETHLEHEM SHOPPING CENTRE STAGE 2

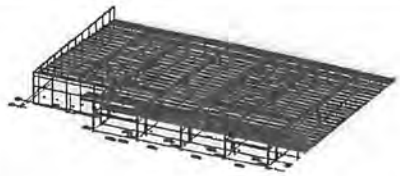
Drawn GJD	Signed GJH	Date 09.08.06	
Designed DPL	Signed DPL	Date 09.08.06	
Verified PB	Signed -	Date -	
Approved SMB	Signed SMB	Date 09.08.06	

Drawing Title: STRUCTURAL BLOCK D FLOOR PLAN

CONSENT
NOT FOR CONSTRUCTION

Project No.	B236
Scale	1:100 A1 1:200 A3
Sheet Size	A1
Drawing No.	B236-S1.400
Rev.	03





NOTES
1. PROVIDE 1 ROW OF FAST BRACE BRACING TO EACH PURLIN BAY UNO
2. LAP PURLINS (WHERE SHOWN) 0.1x LENGTH OF ADJACENT SPAN. REFER TO MANUFACTURERS SPECIFICATION FOR DETAILS

LEGEND

ZONE FOR ROOF TOP PLANT TO BE PLACED MAXIMUM WEIGHT OF PLANT IN ANY 1 BAY = 325kg

MECHANICAL PLANT PLATFORM 9.5m x 8.8m

PROVIDE 114x4.8 CHS COLUMN STUB TO EACH CORNER OF PLANT PLATFORM
NOTE: ALL PLANT PLATFORM DETAILS TO BE CONFIRMED PRIOR TO FABRICATION

PROVIDE HANGERS BETWEEN DHS PURLINS & 150 PFC AT TOP OF INTERTENANCY WALLS AT 3.6m CRS UNO

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03	24.08.06	CONSENT	-	-	-
02	09.08.06	TENDER	-	-	-
01	14.07.06	COORDINATION	-	-	-

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Client: AMP capital INVESTORS

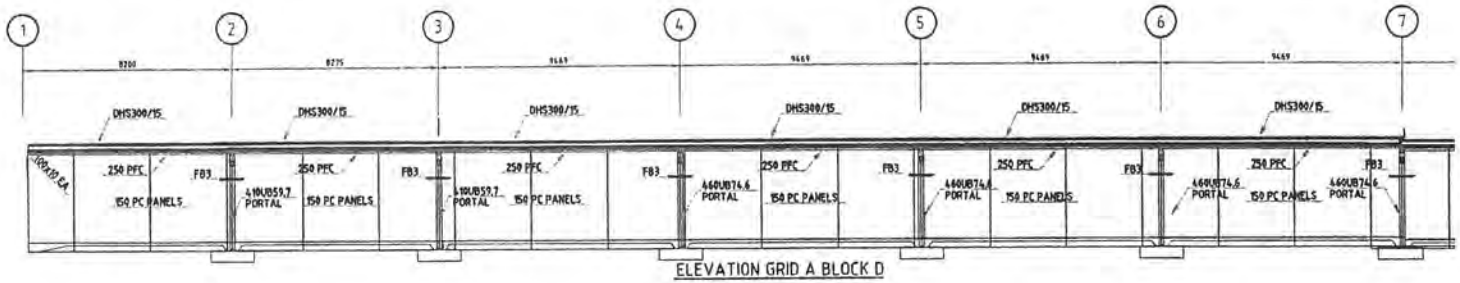
Project: BETHLEHEM SHOPPING CENTRE STAGE 2

Drawn GJD	Signed GJH	Date 09.08.06	
Designed DPL	Signed DPL	Date 09.08.06	
Verified PB	Signed -	Date -	
Approved SMB	Signed SMB	Date 09.08.06	

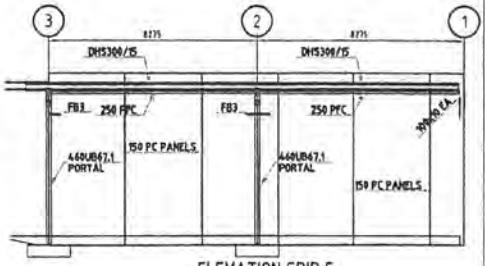
Drawing Title: STRUCTURAL BLOCK D ROOF PLAN

CONSENT
NOT FOR CONSTRUCTION

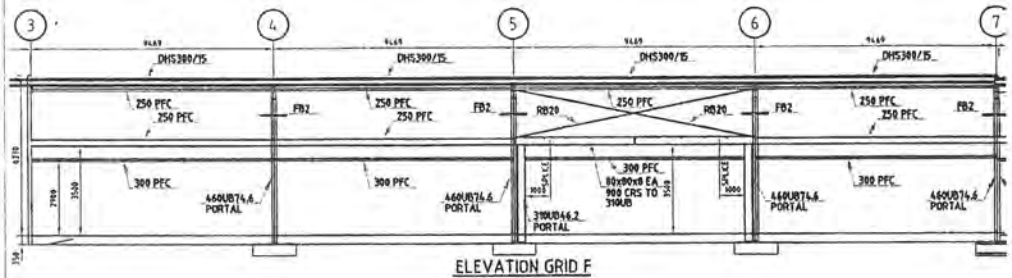
Project No: B236
Scale: 1:100 A1, 1:200 A3
Sheet Size: A1
Drawing No: B236-S1.401
Rev: 03



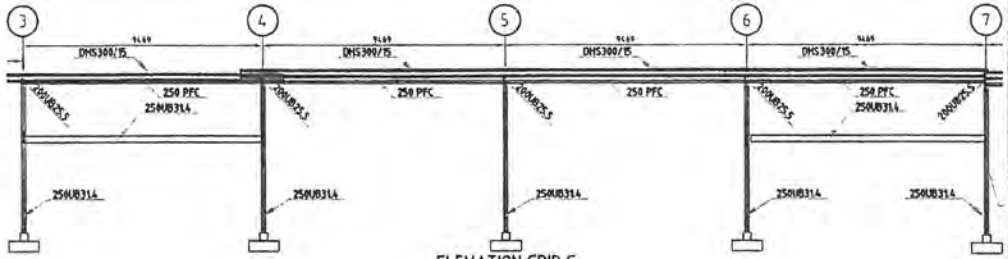
ELEVATION GRID A BLOCK D



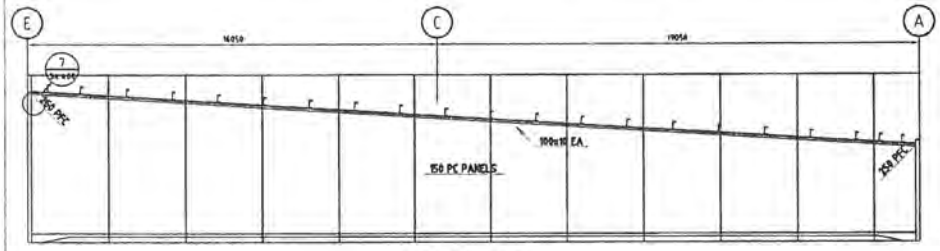
ELEVATION GRID E



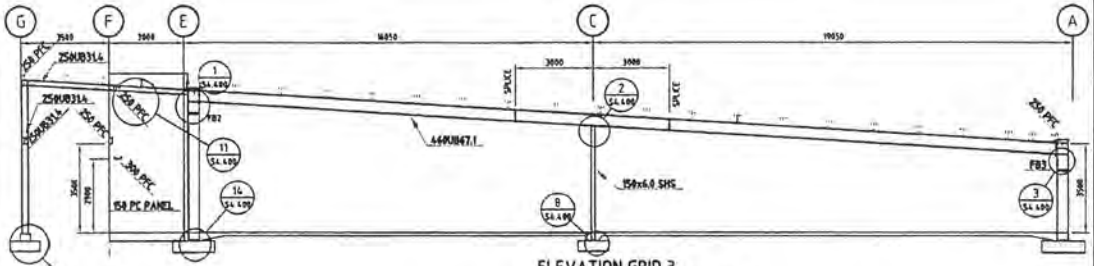
ELEVATION GRID F



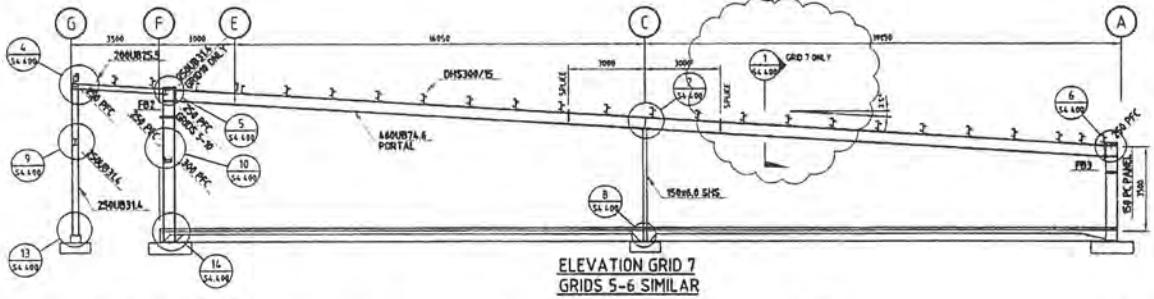
ELEVATION GRID G



ELEVATION GRID 1



ELEVATION GRID 3
ELEVATION GRID 2 SIMILAR



ELEVATION GRID 7
GRIDS 5-6 SIMILAR

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TCC169952

Rev.	Date	Revision Details	Drn	Ver.	App.
03	24.06.09	CONSENT	-	-	-
02	09.08.06	TENDER	-	-	-
01	14.07.06	COORDINATION	-	-	-

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Client: AMP capital INVESTORS

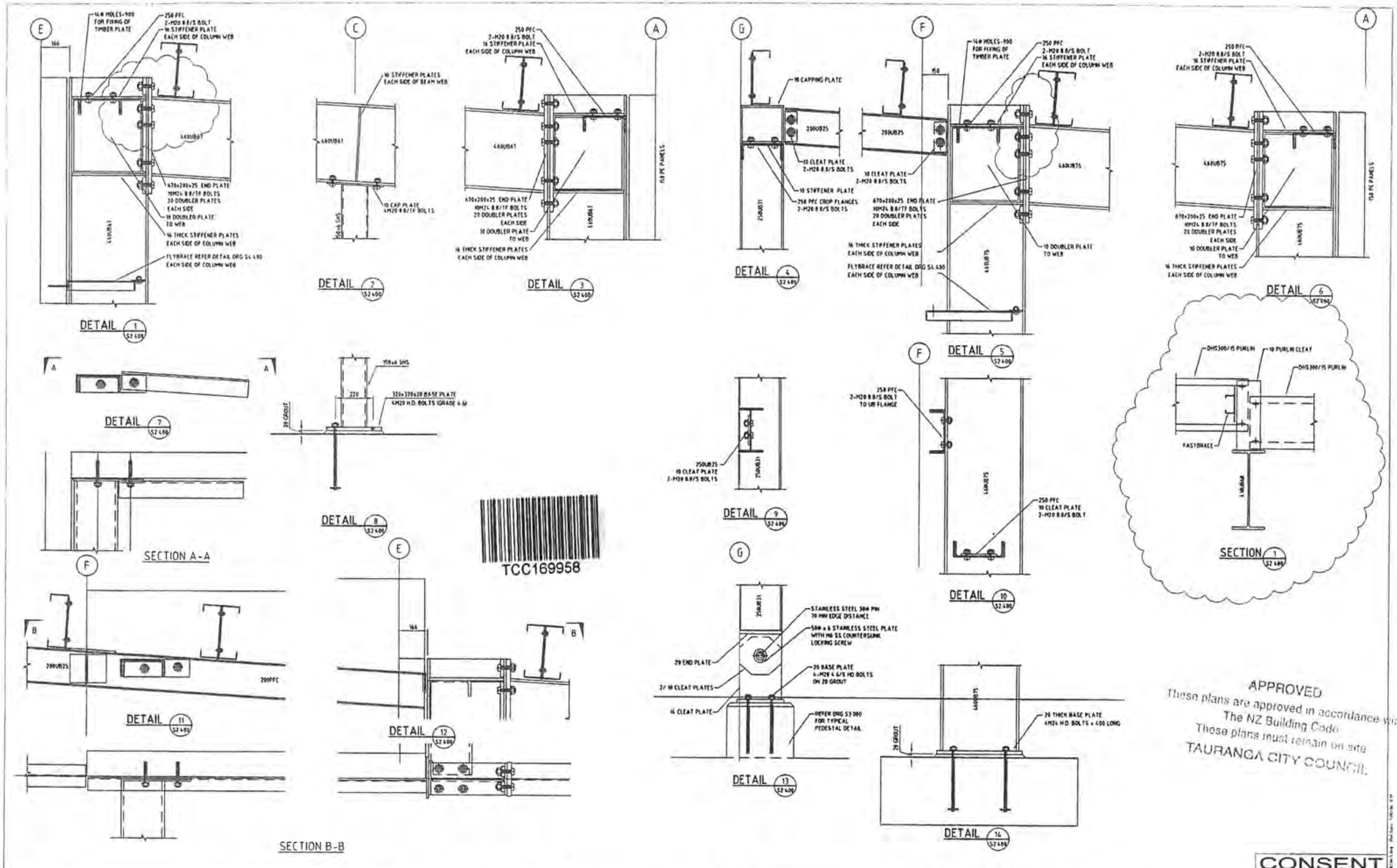
Project: BETHLEHEM SHOPPING CENTRE STAGE 2

Drawn GJD	Signed GJH	Date 09.08.06	
Designed DPL	Signed DPL	Date 09.08.06	
Verified PB	Signed -	Date -	
Approved SHB	Signed SHB	Date 09.08.06	

Drawing Title: STRUCTURAL BLOCK D ELEVATIONS

CONSENT
~~NOT~~ FOR CONSTRUCTION

Project No.	B236
Scale	1:100 A1 1:200 A3
Sheet Size	A1
Drawing No.	B236-S2.400
Rev.	03



Rev	Date	Revision Details	Drn	Ver.	App.
02	24.08.06	CONSENT			
01	09.08.06	TENDER			

Connell Wagner

Client: AMP capital INVESTORS

Project: BETHLEHEM SHOPPING CENTRE STAGE 2

Drawn GJD	Signed GJH	Date 09.08.06
Designed DPL	Signed DPL	Date 09.08.06
Verified PB	Signed -	Date -
Approved SMB	Signed SMB	Date 09.08.06

Drawing Title: STRUCTURAL BLOCK D STEEL DETAILS SHEET 1

CONSENT NOT FOR CONSTRUCTION

Project No. B236

Scale 1:10 A1 1:20 A3 — Sheet Size A1

Drawing No. B236-S4.400 — Rev 02

Description:

Block E was the second building in the second stage of the development of the site, following on from stage 1 which encompassed Blocks A, B and C. Block E was built after Block D, but some 9 years later, and appears to be a bespoke development for K-Mart. It was initially designed in 2006 by Ignite Architects and Connell Wagner did some initial structural engineering plans, sections, and details. It appears that the on-grade floor slab, and possibly the foundations for this original design were constructed, and although we cannot tell if any superstructure was built, we do know that the original slab was incorporated onto the current building, which has a significantly larger footprint than the original.

In 2014/2015 Ignite redesigned the building to the current K-Mart format and in a break from the traditional structural engineers used on this complex, (Connell Wagner), the structural engineering design was done by BCD Group. The geotechnical report that was done for Block E was also carried out by the same consultants. There are several iterations of the architectural drawings in the property file, and only the January 2015 drawings appear to accurately reflect the entire building as it now is. However, the BCD Group structural engineering drawings do replicate the current building, and we rely more heavily on these to carry out a robust assessment.

This is a rectangular single storey, pitched roof Block that is located along the northern boundary of the shopping complex with the eastern end of the building adjacent to Bethlehem Road. The building has its long axis orientated in a nominal east-west direction. It is a stand-alone building that has a car park frontage on the north, south and east sides. The south side was extended southward in the final design to form what was designated on the original architectural drawings as "Sleeve Retail". The west end of Block E has been constructed with an adequate seismic gap to Block D. Block E is seismically isolated from all other buildings.

This Block is a large sized foot-print single storey, pitched roof warehouse type building, with 12 bays in the east-west longitudinal direction and 4 bays in the north-south transverse direction. There is a canopy that continues fully along the southern elevation.

Construction of the warehouse type envelope consists of long-run metal roof sheeting over cold rolled steel purlins, supported on structural steel portal frame rafters, which are located on each primary transverse frame grid. In an unusual arrangement, that is perhaps a hangover from the original 2006 design, the primary transverse structural steel moment resisting portal frames occupy the internal second and third bays, with rafter extensions over the outer bays to the north and south. Therefore, the primary portal columns are on the internal grids and they are separated by a 125 x 6mm SHS column at approximately mid-span of the primary portal rafters. The outer sections of the rafter, north and south of the primary frame, are supported on either steel Universal Beam (UB) wind columns or SHS posts, and as such these columns do not significantly contribute to the lateral load resisting stiffness and strength.

All of the structural steel columns land on the conventional reinforced concrete pad foundations that are below the concrete on-grade slab, but unusually the primary moment resisting portal frame columns are shown in the frame elevations to have significant horizontal returns, running in the plane of the portal frames and encapsulated in reinforced concrete ground beam, under the floor slab, and referred to on the original foundation plan as "Stabiliser Beams". The strip footings and pad foundations that have been recorded as being reinforced concrete, there are comprehensive details in the set of structural drawings.

The canopy has cold rolled steel purlins, structural steel rafters, supported on steel columns and independent foundation pads. The canopy rafters are connected as an extension of the main structural rafters in the building envelope, and there 4 bays of significant longitudinal bracing and this provides adequate lateral stability.

Virtually all elevations have low height (generally varying between 2.4m and 4.0m above the finished floor level), 150mm thick precast reinforced concrete wall panels with light weight framed and lined walls above the panels. There is a combination of light weight wall panels and shop front glazing on the south elevation. The west elevation is recorded in the architectural drawings as "adjoining Building D". Wall section 09/A2101 in the Block E set of drawings, shows a 120 minute fire rated wall on the Block D side of the junction, which is presumably of light weight construction, in the Block E building there is a similar framed and lined wall, and there is seismic separation between the two. These walls will not affect the lateral load resistance of either Block.

There are 4 full bays of full width diagonal structural steel rod and double purlin roof bracing in the transverse direction with complimentary wall panels containing steel rod diagonal bracing. There are several sections of roof containing multiple bays of bracing in the longitudinal direction. There are substantial SHS eaves ties on the north and south elevations, and these appear to act as collector beams to distribute lateral loads from the roof plane bracing to the braced wall panels.

The on-grade floor slab consists of a conventional ductile mesh reinforced 125mm thick on-grade slab and details show how this has been stitched to the remaining section of slab from the earlier construction. All of these details are robust.

Seismic Load Resisting Structure:

The lateral load resisting system for the building envelope consists primarily of the diagonal structural steel roof bracing in conjunction with the diagonal structural steel wall bracing in the longitudinal direction. The transverse lateral loads (in the north-south direction) are sustained by the structural steel moment resisting portal frames. It is noted that these have a sub-floor return beam as mentioned earlier, and this would have been used to increase the stiffness and lateral load resisting capacity of the primary steel portal frames. It is most likely that the original design engineer apportioned the seismic loads in the building to the different structural elements in proportion to the tributary area. This is a common design technique and means that the various structural elements are designed to safely sustain the seismic loading attributed to them based on the vertical and horizontal area that they directly support. The structural system appears to be well refined and does not appear to include any lateral load resisting redundancies.

No severe structural weaknesses or critical structural weaknesses have been detected in this building structure.

The structural engineering drawings are comprehensive and that allows us to make a robust assessment of the likely seismic performance of the building at a level of certainty well above that generally associated with an ISA.

There are no alterations or modifications to the building recorded in the documentation that we hold.

Seismic Assessment:

We have used the following parameters in the ISA assessment.

- Building era Post 2011.
- Seismic Zone B, Tauranga.
- Class D soft soil.

- Natural period 0.4 seconds, (this is based on the structural steel diagonal roof bracing distributing the lateral loads to the structural steel diagonally braced wall panels acting in the longitudinal direction. In the transverse direction there are structural steel moment resisting portal frames, but the base detailing suggests that the natural period would be unlikely to be above the default minimum for these elements).
- Building Importance Level 2.
- Structural Ductility factor 1.25 (this is based on the in-plane loaded diagonal steel braced roof and wall panels in the longitudinal direction and this may be conservative for the structural steel portal frames in the transverse direction).
- Plan irregularity 1.0 (this value has been selected because of the symmetrical arrangement of the lateral load resisting systems in both directions).
- Vertical irregularity 1.0.
- Pounding Potential 1.0 (because the building has no neighbours).
- Site Characteristics 1.0 (because there is no recorded risk of liquefaction or site instability).
- Performance Achievement Ratio 1.0. (This is based on the regularity, pounding and site factors as detailed above but includes an enhancement/diminishment 'other' factor of 1.0 which is because the longitudinal direction will be critical and there are no significant lateral load resisting redundancies in this building structure).

Seismic Rating and Grade:

The Baseline rating of 100% NBS is not modified by the Performance Achievement Ratio of 1.0 resulting in a Seismic Rating of 100% NBS which makes this Block A building neither an Earthquake Risk nor Earthquake Prone.

Rating 100% NBS.
Grade A.

Initial Evaluation Procedure (IEP) Assessment - Completed for {Client/TA}

WARNING!! *This initial evaluation has been carried out solely as an initial seismic assessment of the building following the procedure set out in the "The Seismic Assessment of Existing Buildings" Technical Guidelines for Engineering Assessments, July 2017. This spreadsheet must be read in conjunction with the limitations set out in the accompanying report, and should not be relied on by any party for any other purpose. Detailed inspections and engineering calculations, or engineering judgements based on them, have not been undertaken, and these may lead to a different result or seismic grade.*

Street Number & Name:	Bethlehem Shopping Centre	Job No.:	2470
AKA:		By:	SME
Name of building:	Block E	Date:	12/04/2021
City:	Tauranga	Revision No.:	A

Table IEP-1 Initial Evaluation Procedure Step 1

Step 1 - General Information

1.1 Photos (attach sufficient to describe building)

NOTE: THERE ARE MORE PHOTOS ON PAGE 1a ATTACHED

1.2 Sketches (plans etc, show items of interest)

NOTE: THERE ARE MORE SKETCHES ON PAGE 1a ATTACHED

1.3 List relevant features (Note: only 10 lines of text will print in this box. If further text required use Page 1a)

Refer to report details.

1.4 Note information sources Tick as appropriate

Visual Inspection of Exterior	☑	Specifications	☐
Visual Inspection of Interior	☐	Geotechnical Reports	☑
Drawings (note type)	☑	Other (list)	☐

Property File.

Initial Evaluation Procedure (IEP) Assessment - Completed for {Client/TA}

Street Number & Name:	Bethlehem Shopping Centre	Job No.:	2470
AKA:		By:	SME
Name of building:	Block E	Date:	12/04/2021
City:	Tauranga	Revision No.:	A

Table IEP-2 Initial Evaluation Procedure Step 2

Step 2 - Determination of *(%NBS)*$_b$

(Baseline *(%NBS)* for particular building - refer Section B5)

2.1 Determine nominal *(%NBS)* = *(%NBS)*$_{nom}$

	Longitudinal	Transverse
a) Building Strengthening Data		
Tick if building is known to have been strengthened in this direction	☐	☐
If strengthened, enter percentage of code the building has been strengthened to	N/A	N/A
b) Year of Design/Strengthening, Building Type and Seismic Zone		
Pre 1935	○	○
1935-1965	○	○
1965-1976	○	○
1976-1984	○	○
1984-1992	○	○
1992-2004	○	○
2004-2011	○	○
Post Aug 2011	◉	◉
Building Type:	Not applicable	Not applicable
Seismic Zone:	Not applicable	Not applicable
c) Soil Type		
From NZS1170.5:2004, Cl 3.1.3 :	D Soft Soil	D Soft Soil
From NZS4203:1992, Cl 4.6.2.2 : (for 1992 to 2004 and only if known)	Not applicable	Not applicable
d) Estimate Period, *T*		
Comment:		
h_n =	6	6 m
A_c =	1.00	1.00 m^2
Moment Resisting Concrete Frames: $T = \max\{0.09h_n^{0.75}, 0.4\}$	○	○
Moment Resisting Steel Frames: $T = \max\{0.14h_n^{0.75}, 0.4\}$	○	○
Eccentrically Braced Steel Frames: $T = \max\{0.08h_n^{0.75}, 0.4\}$	○	○
All Other Frame Structures: $T = \max\{0.06h_n^{0.75}, 0.4\}$	○	○
Concrete Shear Walls $T = \max\{0.09h_n^{0.75}/A_c^{0.5}, 0.4\}$	○	○
Masonry Shear Walls: $T \leq 0.4$sec	○	○
User Defined (input Period):	◉	◉
Where h_n = height in metres from the base of the structure to the uppermost seismic weight or mass.	T: 0.40	0.40
e) Factor A: Strengthening factor determined using result from (a) above (set to 1.0 if not strengthened)	Factor A: 1.00	1.00
f) Factor B: Determined from NZSEE Guidelines Figure 3A.1 using results (a) to (e) above	Factor B: 1.00	1.00
g) Factor C: For reinforced concrete buildings designed between 1976-84 Factor C = 1.2, otherwise take as 1.0.	Factor C: 1.00	1.00
h) Factor D: For buildings designed prior to 1935 Factor D = 0.8 except for Wellington and Napier (1931-1935) where Factor D may be taken as 1.0, otherwise take as 1.0.	Factor D: 1.00	1.00
***(%NBS)*$_{nom}$ = AxBxCxD**	*(%NBS)*$_{nom}$ 100%	100%

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Initial Evaluation Procedure (IEP) Assessment - Completed for {Client/TA}

Street Number & Name:	Bethlehem Shopping Centre	Job No.:	2470
AKA:		By:	SME
Name of building:	Block E	Date:	12/04/2021
City:	Tauranga	Revision No.:	A

Table IEP-2 Initial Evaluation Procedure Step 2 continued

2.2 Near Fault Scaling Factor, Factor E

If $T \leq 1.5$sec, Factor E = 1

		Longitudinal	Transverse
a) Near Fault Factor, *N(T,D)* (from NZS1170.5:2004, Cl 3.1.6)	N(T,D):	1	1
b) Factor E = 1/N(T,D)	Factor E:	1.00	1.00

2.3 Hazard Scaling Factor, Factor F

a) Hazard Factor, *Z*, for site

Location: Tauranga — Refer right for user-defined locations

Z =	0.2	(from NZS1170.5:2004, Table 3.3)
Z_{1992} =	0.85	(NZS4203:1992 Zone Factor from accompanying Figure 3.5(b))
Z_{2004} =	0.2	(from NZS1170.5:2004, Table 3.3)

b) Factor F

For pre 1992	=	1/Z
For 1992-2011	=	Z_{1992}/Z
For post 2011	=	Z_{2004}/Z

	Longitudinal	Transverse
Factor F:	1.00	1.00

2.4 Return Period Scaling Factor, Factor G

a) Design Importance Level, I

(Set to 1 if not known. For buildings designed prior to 1965 and known to be designed as a public building set to 1.25. For buildings designed 1965-1976 and known to be designed as a public building set to 1.33 for Zone A or 1.2 for Zone B. For 1976-1984 set I value.)

	Longitudinal	Transverse
I =	1	1

b) Design Risk Factor, R_o (set to 1.0 if other than 1976-2004, or not known)

	Longitudinal	Transverse
R_o =	1	1

c) Return Period Factor, R (from NZS1170.0:2004 Building Importance Level)

Choose Importance Level: ○ 1 ◉ 2 ○ 3 ○ 4 (Longitudinal) ○ 1 ◉ 2 ○ 3 ○ 4 (Transverse)

	Longitudinal	Transverse
R =	1.0	1.0

d) Factor G = IR_o/R

	Longitudinal	Transverse
Factor G:	1.00	1.00

2.5 Ductility Scaling Factor, Factor H

a) Available Displacement Ductility Within Existing Structure

Comment:

	Longitudinal	Transverse
μ =	1.25	1.25

b) Factor H

		k_μ (Longitudinal)	k_μ (Transverse)
For pre 1976 (maximum of 2)	=	1.14	1.14
For 1976 onwards	=	1	1
Factor H:		1.00	1.00

(where kμ is NZS1170.5:2004 Inelastic Spectrum Scaling Factor, from accompanying Table 3.3)

2.6 Structural Performance Scaling Factor, Factor I

a) Structural Performance Factor, S_p (from accompanying Figure 3.4)

Tick if light timber-framed construction in this direction: ☐ (Longitudinal) ☐ (Transverse)

	Longitudinal	Transverse
S_p =	0.93	0.93

b) Structural Performance Scaling Factor = $1/S_p$

	Longitudinal	Transverse
Factor I:	1.00	1.00

Note Factor B values for 1992 to 2004 have been multiplied by 0.67 to account for Sp in this period.

2.7 Baseline *%NBS* for Building, $(\%NBS)_b$

(equals $(\%NBS)_{nom}$ x E x F x G x H x I)

	Longitudinal	Transverse
	100%	100%

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Initial Evaluation Procedure (IEP) Assessment - Completed for {Client/TA}

Street Number & Name:	Bethlehem Shopping Centre	Job No.:	2470
AKA:		By:	SME
Name of building:	Block E	Date:	12/04/2021
City:	Tauranga	Revision No.:	A

Table IEP-3 Initial Evaluation Procedure Step 3

Step 3 - Assessment of Performance Achievement Ratio (PAR)
(Refer Appendix B - Section B3.2)

a) Longitudinal Direction

potential CSWs	Effect on Structural Performance (Choose a value - Do not interpolate)			Factors
3.1 Plan Irregularity				
Effect on Structural Performance	○ *Severe*	○ *Significant*	◉ *Insignificant*	Factor A 1.0
Comment				
3.2 Vertical Irregularity				
Effect on Structural Performance	○ *Severe*	○ *Significant*	◉ *Insignificant*	Factor B 1.0
Comment				
3.3 Short Columns				
Effect on Structural Performance	○ *Severe*	○ *Significant*	◉ *Insignificant*	Factor C 1.0
Comment				

3.4 Pounding Potential
(Estimate D1 and D2 and set D = the lower of the two, or 1.0 if no potential for pounding, or consequences are considered to be minimal)

a) **Factor D1: - Pounding Effect**

Note:
Values given assume the building has a frame structure. For stiff buildings (eg shear walls), the effect of pounding may be reduced by taking the coefficient to the right of the value applicable to frame buildings.

Factor D1 For Longitudinal Direction: 1.0

Table for Selection of Factor D1	Severe	Significant	Insignificant
Separation	0<Sep<.005H	.005<Sep<.01H	Sep>.01H
Alignment of Floors within 20% of Storey Height	○ 1	○ 1	◉ 1
Alignment of Floors not within 20% of Storey Height	○ 0.4	○ 0.7	○ 0.8

Comment

b) **Factor D2: - Height Difference Effect**

Factor D2 For Longitudinal Direction: 1.0

Table for Selection of Factor D2	Severe	Significant	Insignificant
	0<Sep<.005H	.005<Sep<.01H	Sep>.01H
Height Difference > 4 Storeys	○ 0.4	○ 0.7	○ 1
Height Difference 2 to 4 Storeys	○ 0.7	○ 0.9	○ 1
Height Difference < 2 Storeys	○ 1	○ 1	◉ 1

Comment

Factor D 1.0

3.5 Site Characteristics - *Stability, landslide threat, liquefaction etc as it affects the structural performance from a life-safety perspective*

Effect on Structural Performance ○ *Severe* ○ *Significant* ◉ *Insignificant* **Factor E 1.0**

Comment

3.6 Other Factors - *for allowance of all other relevant characterstics of the building*

For ≤ 3 storeys - Maximum value 2.5
otherwise - Maximum value 1.5.
No minimum.

Factor F 1.0

Record rationale for choice of Factor F:

Refer to report

3.7 Performance Achievement Ratio (PAR)
(equals **A x B x C x D x E x F**)

PAR
Longitudinal 1.00

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Initial Evaluation Procedure (IEP) Assessment - Completed for {Client/TA}

Street Number & Name:	Bethlehem Shopping Centre	Job No.:	2470
AKA:		By:	SME
Name of building:	Block E	Date:	12/04/2021
City:	Tauranga	Revision No.:	A

Table IEP-3 Initial Evaluation Procedure Step 3

Step 3 - Assessment of Performance Achievement Ratio (PAR)
(Refer Appendix B - Section B3.2)

b) Transverse Direction

potential CSWs — **Effect on Structural Performance** (Choose a value - Do not interpolate) — **Factors**

3.1 Plan Irregularity
Effect on Structural Performance ○ Severe ○ Significant ◉ Insignificant — **Factor A** 1.0
Comment

3.2 Vertical Irregularity
Effect on Structural Performance ○ Severe ○ Significant ◉ Insignificant — **Factor B** 1.0
Comment

3.3 Short Columns
Effect on Structural Performance ○ Severe ○ Significant ◉ Insignificant — **Factor C** 1.0
Comment

3.4 Pounding Potential
(Estimate D1 and D2 and set D = the lower of the two, or 1.0 if no potential for pounding, or consequences are considered to be minimal)

a) Factor D1: - Pounding Effect

Note:
Values given assume the building has a frame structure. For stiff buildings (eg shear walls), the effect of pounding may be reduced by taking the coefficient to the right of the value applicable to frame buildings.

Factor D1 For Transverse Direction: 1.0

Table for Selection of Factor D1	Severe	Significant	Insignificant
Separation	0<Sep<.005H	.005<Sep<.01H	Sep>.01H
Alignment of Floors within 20% of Storey Height	○ 1	○ 1	◉ 1
Alignment of Floors not within 20% of Storey Height	○ 0.4	○ 0.7	○ 0.8

Comment

b) Factor D2: - Height Difference Effect

Factor D2 For Transverse Direction: 1.0

Table for Selection of Factor D2	Severe	Significant	Insignificant
	0<Sep<.005H	.005<Sep<.01H	Sep>.01H
Height Difference > 4 Storeys	○ 0.4	○ 0.7	○ 1
Height Difference 2 to 4 Storeys	○ 0.7	○ 0.9	○ 1
Height Difference < 2 Storeys	○ 1	○ 1	◉ 1

Comment

Factor D 1.0

3.5 Site Characteristics - *Stability, landslide threat, liquefaction etc as it affects the structural performance from a life-safety perspective*

Effect on Structural Performance ○ Severe ○ Significant ◉ Insignificant — **Factor E** 1.0
Comment

3.6 Other Factors - *for allowance of all other relevant characterstics of the building*
For ≤ 3 storeys - Maximum value 2.5 otherwise - Maximum value 1.5. No minimum.
Factor F 1.00

Record rationale for choice of Factor F:
Refer to report

3.7 Performance Achievement Ratio (PAR)
(equals **A x B x C x D x E x F**)

PAR
Transverse 1.00

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Initial Evaluation Procedure (IEP) Assessment - Completed for {Client/TA}

Street Number & Name:	Bethlehem Shopping Centre	Job No.:	2470
AKA:		By:	SME
Name of building:	Block E	Date:	12/04/2021
City:	Tauranga	Revision No.:	A

Table IEP-4 Initial Evaluation Procedure Steps 4, 5, 6 and 7

Step 4 - Percentage of New Building Standard *(%NBS)*

		Longitudinal	Transverse
4.1	Assessed Baseline *%NBS* $(\%NBS)_b$ (from Table IEP - 1)	100%	100%
4.2	Performance Achievement Ratio (PAR) (from Table IEP - 2)	1.00	1.00
4.3	PAR x Baseline $(\%NBS)_b$	100%	100%
4.4	Percentage New Building Standard *(%NBS)* - Seismic Rating (Use lower of two values from Step 4.3)		100%

Step 5 - Is *%NBS* < 34? NO

Step 6 - Potentially Earthquake Risk (is *%NBS* < 67)? NO

Step 7 - Provisional Grading for Seismic Risk based on IEP

Seismic Grade A

Additional Comments (items of note affecting IEP based seismic rating)

Relationship between Grade and *%NBS*:

Grade:	A+	A	B	C	D	E
%NBS:	> 100	100 to 80	79 to 67	66 to 34	< 34 to 20	< 20

WARNING!! *This initial evaluation has been carried out solely as an initial seismic assessment of the building following the procedure set out in "The Seismic Assessment of Existing Buildings" Technical Guidelines for Engineering Assessments, July 2017. This spreadsheet must be read in conjunction with the limitations set out in the accompanying report, and should not be relied on by any party for any other purpose. Detailed inspections and engineering calculations, or engineering judgements based on them, have not been undertaken, and these may lead to a different result or seismic grade.*

Initial Evaluation Procedure (IEP) Assessment - Completed for {Client/TA}

Street Number & Name:	Bethlehem Shopping Centre	Job No.:	2470
AKA:		By:	SME
Name of building:	Block E	Date:	12/04/2021
City:	Tauranga	Revision No.:	A

Table IEP-5 Initial Evaluation Procedure Step 8

Step 8 - Identification of potential Severe Structural Weaknesses (SSWs) that could result in significant risk to a significant number of occupants

8.1	Number of storeys above ground level	1
8.2	Presence of heavy concrete floors and/or concrete roof? (Y/N)	N

Potential Severe Structural Weaknesses (SSWs):

Note: Options that are greyed out are not applicable and need not be considered.

Occupancy not considered to be significant - no further consideration required

Risk not considered to be significant - no further consideration required

The following potential Severe Structural Weaknesses (SSWs) have been identified in the building that could result in significant risk to a significant number of occupants:

1. None Identified
2. Weak or soft storey (except top storey)
3. Brittle columns and/or beam-column joints the deformations of which are not constrained by other structural elements
4. Flat slab buildings with lateral capacity reliant on low ductility slab-to-column connections
5. No identifiable connection between primary structure and diaphragms
6. Cable car/rope stairs

IEP Assessment Confirmed by S.R. Mitchell **Signature**

S R Mitchell **Name**

70562 **CPEng. No**

WARNING!! *This initial evaluation has been carried out solely as an initial seismic assessment of the building following the procedure set out in "The Seismic Assessment of Existing Buildings" Technical Guidelines for Engineering Assessments, July 2017. This spreadsheet must be read in conjunction with the limitations set out in the accompanying report, and should not be relied on by any party for any other purpose. Detailed inspections and engineering calculations, or engineering judgements based on them, have not been undertaken, and these may lead to a different result or seismic grade.*

GENERAL NOTES

1. DO NOT SCALE OFF DRAWINGS.
2. CONTRACTOR SHALL VERIFY AND BE RESPONSIBLE FOR ALL FOR ALL DIMENSIONS ON SITE.
3. ARCHITECTS TO BE NOTIFIED OF ANY VARIATION BETWEEN SITE DIMENSIONS AND THOSE ON PLANS.

BUILDING CONSENT			
Rev	Description	By	Date
A	BUILDING CONSENT	MG	25/03/2015

EXISTING PYLON SIGN WITH NEW SIGNAGE

EXISTING COUNTDOWN

EXISTING BLOCK A

RELOCATED PLAYGROUND REFER TO SHEET A7008

EXISTING BLOCK B

EXISTING BLOCK C

EXISTING BLOCK D

EXISTING BLOCK E

EXISTING BLOCK G

EXISTING BLOCK J

PROPOSED NEW PYLON SIGN (Type 2) REFER TO A7304

PROPOSED BULK RETAIL

RL 29.700

NEW LOCATION FOR RELOCATED BUS STOP REFER SHEET A7101

DIMENSION POINT CORNER BOUNDARY

PROPOSED NEW PYLON SIGN MAX HEIGHT 6.5m (Type 1) REFER TO A7301

BETHLEHEM ROAD

93160

1 GRID SET OUT PLAN
A1 SCALE 1 : 500

APPROVED

IGNITE

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WWW.ignitearchitects.com

Client
AMP CAPITAL PROPERTY PORTFOLIO LTD

Project Name
BETHLEHEM TOWN CENTRE
STATE HIGHWAY 2

KMART STORE NUMBER: 8217

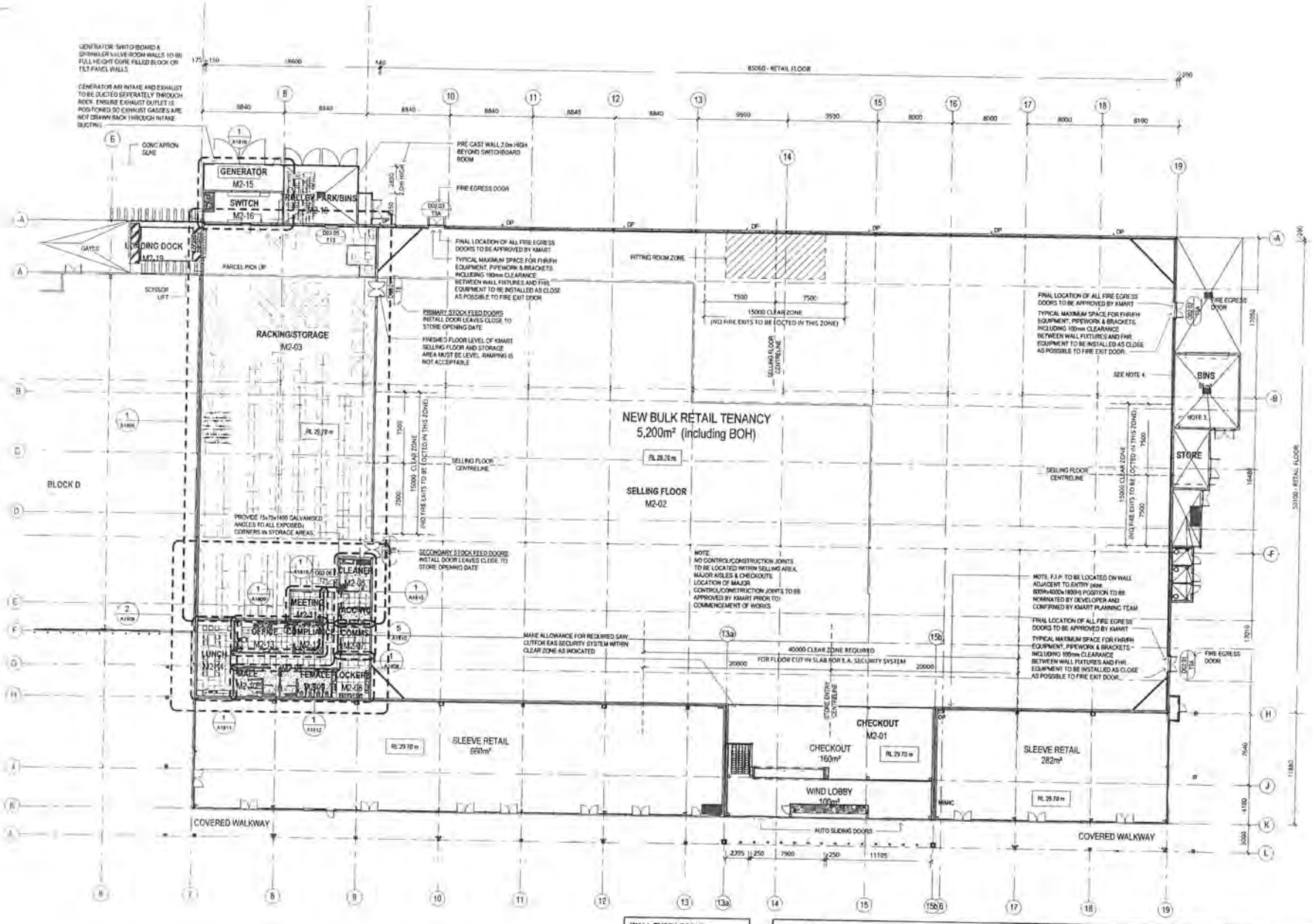
Drawing Title
GRID SET OUT PLAN

REFER TO KMART STANDARD DRAWINGS AS BASE FOR THIS DRAWING.
KMART STANDARD DRAWING NUMBER:

TCC845052

BASE DRAWING DATE:

Architect	Drawn	Checked
GA	SP	MG
Project Commenced	Scale	Size
JAN 2015	1 : 500	A1
Project Number	Drawing Number	Rev
0457-046	A1201	A



1 KMART - ARCHITECTURAL LAYOUT
A1 SCALE 1 : 200

WALL TYPE LEGEND

- WA1 = STRUCTURAL WALL
- WA2 = BLOCKWORK WALL
- WA3 = STUD WALL
- WA4 = LAMINATE PARTITION SYSTEM

NOTE: TIMBER STUD WALLS TO SELLING FLOOR PERIMETER TO HAVE NOGGINS FLUSH FACED TO INTERNAL PLASTERBOARD FACE AT 2100 A.F.F.L. FOR WALL FIXTURE SUPPORT.

GENERAL NOTES:

1. COMPACTOR:
COMPACTOR SUPPLIED AND INSTALLED BY LESSOR. COMPACTOR CHAIN MESH ENCLOSURE BY LESSOR. *(SEE DWG BSD-09 SERIES FOR DETAILS)*
2. DOCK AREA:
DELIVERY LIFT TABLE SUPPLIED & INSTALLED BY LESSOR. AREA MUST HAVE CONCRETE LOADING APRON. BITUMEN/ASPHALT TYPE IS NOT ACCEPTABLE *(SEE DWG BSD-03 SERIES FOR DETAILS)*
3. GENERATOR:
GENERATOR SUPPLIED AND INSTALLED BY LESSOR. LOCATION TO BE APPROVED BY KMART
4. DOOR TYPES & SCHEDULE:
REFER TO STANDARD DRAWINGS *(SEE DWG BSD-05 SERIES FOR LAYOUT & DETAILS)*

1665 S TYPE 99 — REFERS TO DOOR NUMBER / REFERS TO DOOR TYPE

DIMENSIONS REFER TO CENTRELINE OF OPENING - UNLESS OTHERWISE NOTED

5. HOSE REELS & HYDRANTS:
HOSE REEL AND FIRE HYDRANT LOCATIONS ON TRADING/SELLING FLOOR AREA ARE INDICATIVE ONLY AND SUBJECT TO AUTHORITY REQUIREMENTS AND KMART APPROVAL
6. EMERGENCY EXIT:
FIRE EXIT LOCATIONS ARE INDICATIVE ONLY. FINAL LOCATIONS TO BE APPROVED BY KMART.
7. COLUMN SPACING:
COLUMN SPACING WHICH DIFFER FROM THOSE SHOWN ARE TO BE APPROVED BY KMART
8. ALUMINIUM EXPANSION JOINTS:
LOCATION OF ALUMINIUM EXPANSION JOINTS TO BE APPROVED BY KMART PRIOR TO FINALIZING STRUCTURAL DESIGN. *(SEE DWG BSD-08 01 FOR DETAILS)*
9. SELLING AREA WALLS:
ALL INTERNAL SELLING AREA WALLS TO BE FLUSH

TCC845054

GENERAL NOTES:

1. DO NOT SCALE OFF DRAWINGS.
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3. ARCHITECTS TO BE NOTIFIED OF ANY VARIATION BETWEEN SITE DIMENSIONS AND THOSE ON PLANS.

BUILDING CONSENT

Rev	Description	By	Date
A	REVIEW APPROVAL	DI	30/01/2015
B	KMART APPROVAL	DI	25/02/2015
C	BUILDING CONSENT	MG	25/03/2015

APPROVED

Kmart

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Client
AMP CAPITAL PROPERTY PORTFOLIO LTD

Project Name
BETHLEHEM TOWN CENTRE
STATE HIGHWAY 2

KMART STORE NUMBER: 8217

Drawing Title
ARCHITECTURAL LAYOUT

REFER TO KMART STANDARD DRAWINGS AS BASE FOR THIS DRAWING.
KMART STANDARD DRAWING NUMBER: BSL - 01
BASE DRAWING DATE: 31/05/2013

Architect	Drawn	Checked
GA	dsfk	MG
Project Commenced	Scale	Size
JAN 2015	1 : 200	A1
Project Number	Drawing Number	Rev
0457-046	A1301	C

GENERAL NOTES:

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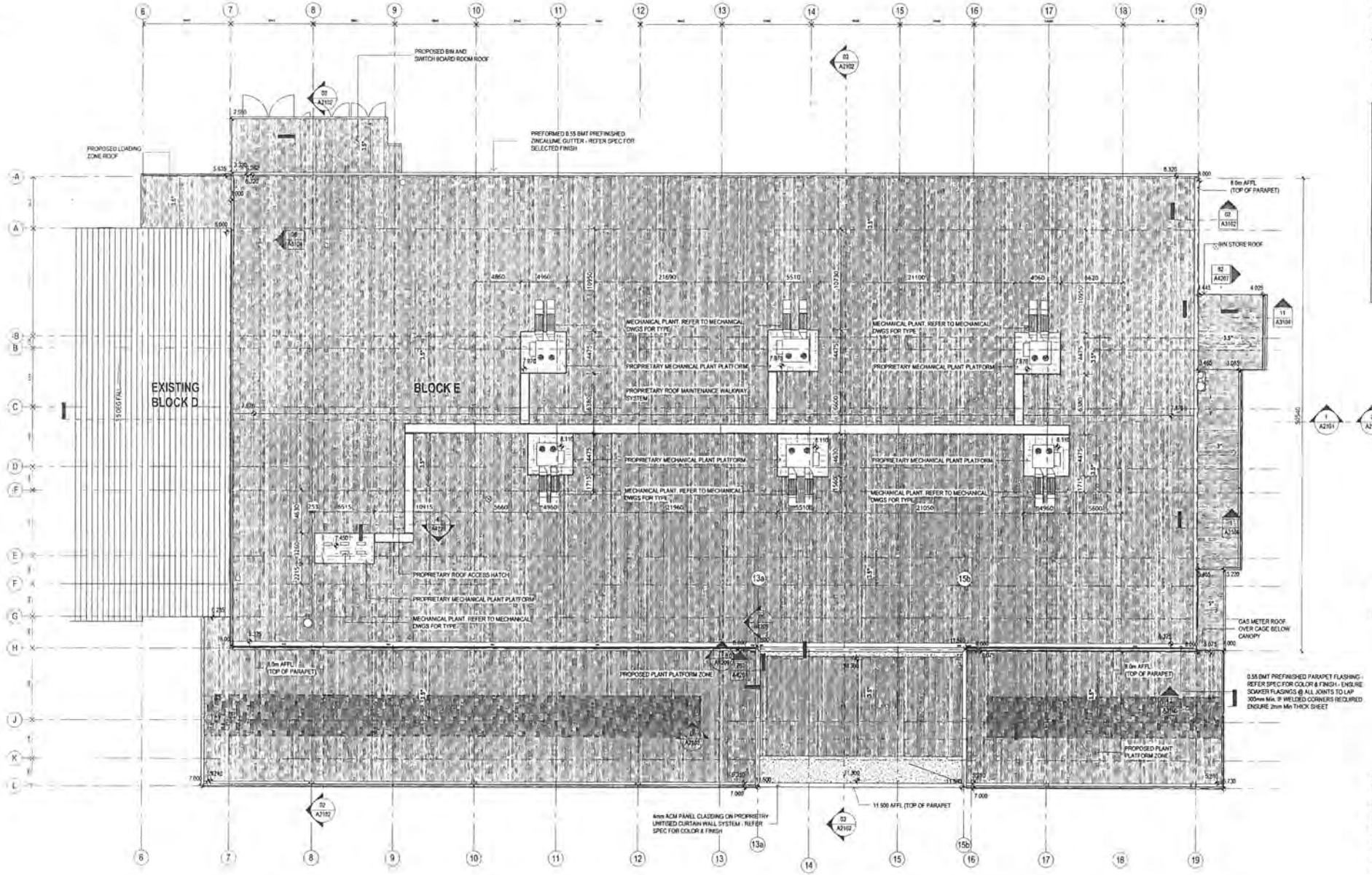
BUILDING CONSENT

Rev	Description	By	Date
A	DEVELOPED DESIGN	dlb	1 WD/2015
B	BUILDING CONSENT	MG	29/03/2015



1 ROOF PLAN
A1 SCALE 1 : 200

ROOF LEGEND

- COLORSTEEL ROOFING. REFER TO SPEC. FOR TYPE AND FINISH
- PLY MEMBRANE. REFER TO SPEC. FOR TYPE AND FINISH
- SLEEVE RETAIL PLANT PLATFORM ZONE
- GUTTER BOX
- DOWNPIPE
- OVERFLOW
- EXPANSION JOINT

NOTE:
ALL PLATFORMS AND WALKWAYS TO BE MONKEYTOE

FINAL SIZES AND LOCATIONS OF PLATFORMS TO BE CONFIRMED BY THE MECHANICAL ENGINEER

SHOP DRAWINGS TO BE SUBMITTED TO THE MECHANICAL ENGINEER FOR APPROVAL PRIOR TO ORDERING

AIR EXTRACT ROOF PENETRATION FOR SLEEVE RETAIL TO BE 600 X 600. FINAL LOCATION TO BE CONFIRMED BY TENANT SEPARATELY

APPROVED

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Client
AMP CAPITAL PROPERTY PORTFOLIO LTD

Project Name
BETHLEHEM TOWN CENTRE
STATE HIGHWAY 2

KMART STORE NUMBER: 8217

Drawing Title
ROOF PLAN

REFER TO KMART STANDARD DRAWINGS AS BASE FOR THIS DRAWING. KMART STANDARD DRAWING NUMBER:
TCC845069

BASE DRAWING DATE: 31/05/2013

Scale@A1	Drawn	Checked
GA	SP	MG
Project Commenced	Scale	Size
JAN 2015	As indicated	A1
Project Number	Drawing Number	Rev.
0457-046	A1701	B

GENERAL NOTES:

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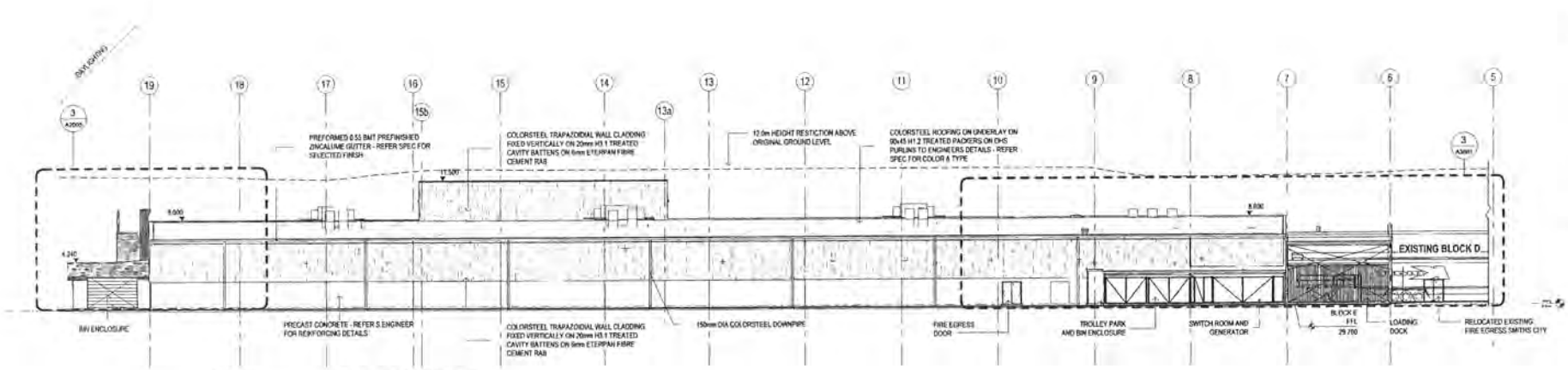
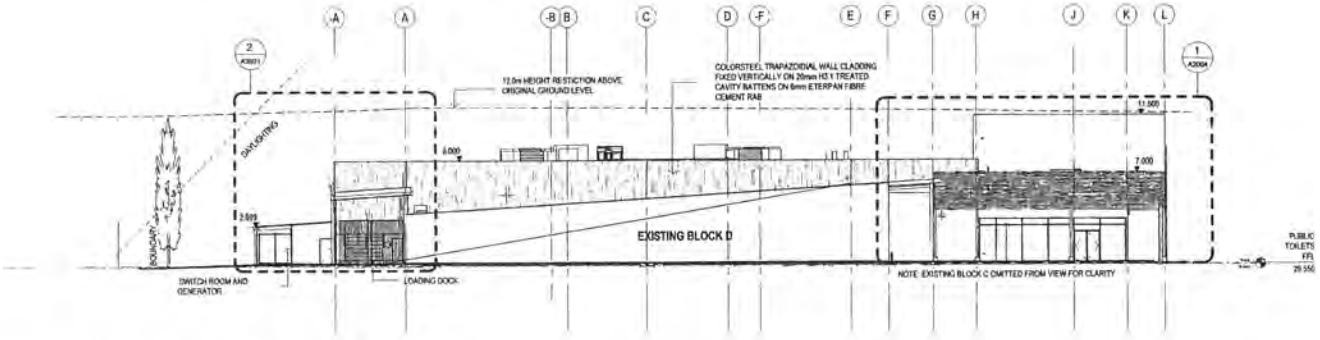
BUILDING CONSENT

Rev	Description	By	Date
A	REVIEW/APPROVAL	DI	30/01/2015
B	BUILDING CONSENT	MG	25/03/2015



NORTH A1302 — NORTH ELEVATION - DD
A1 SCALE 1 : 200



WEST A1302 — WEST ELEVATION - DD
A1 SCALE 1 : 200

BUILDING ENVELOPE RISK SCORE		NORTH, SOUTH, EAST AND WEST WALLS							
			RISK SEVERITY						
RISK FACTOR	LOW	SCORE	MEDIUM	SCORE	HIGH	SCORE	VERY HIGH	SCORE	SUBTOTALS FOR EACH RISK FACTOR
WIND ZONE (per NZS 3604)	0		0	0	1		2		0
NUMBER OF STOREYS	0		1	2	2		4		1
ROOF/WALL INTERSECTION DESIGN	0		1		1	3	5		3
EAVES WIDTH	0		1		2		5	5	5
ENVELOPE COMPLEXITY	0	0	1		3		6		0
DECK DESIGN	0	0	2		1		6		0
							TOTAL RISK SCORE FOR USE IN TABLE 3:		9

KMART

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Client
AMP CAPITAL PROPERTY PORTFOLIO LTD

Project Name
BETHLEHEM TOWN CENTRE
STATE HIGHWAY 2

KMART STORE NUMBER: 8217

Drawing Title
ELEVATIONS

REFER TO KMART STANDARD DRAWINGS AS BASE FOR THIS DRAWING: KMART STANDARD DRAWING NUMBER: TCC845087

BASE DRAWING DATE: 31/05/2013

Architect	Drawn	Checked
GA	DDK	MG
Project Commenced	Scale	Size
JAN 2015	As indicated	A1
Project Number	Drawing Number	Rev
0457-046	A2002	B

GENERAL NOTES:

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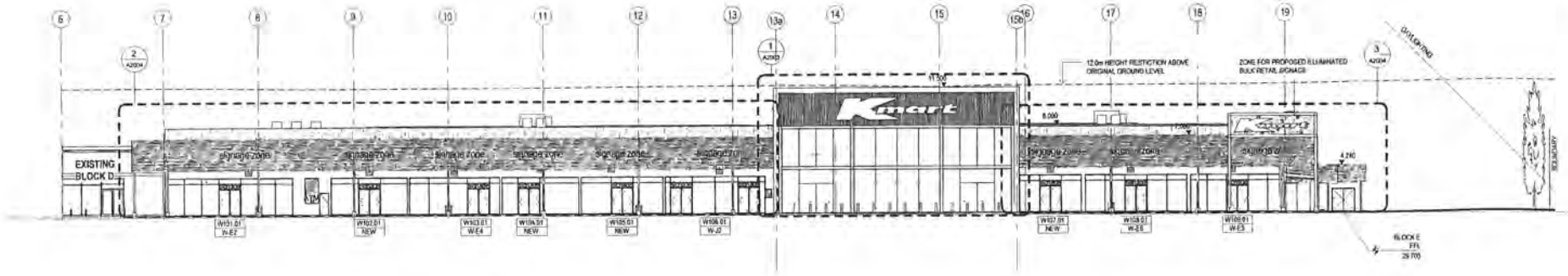
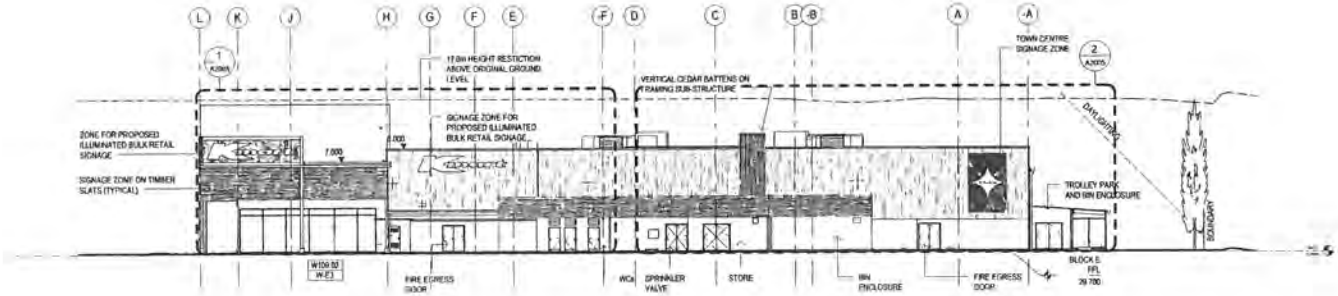
BUILDING CONSENT

Rev	Description	By	Date
A	REVIEW/APPROVAL	DI	30/01/2015
B	BUILDING CONSENT	MG	25/03/2015



SOUTH A1302 — SOUTH ELEVATION - DD
A1 SCALE 1 : 200



EAST A1302 — EAST ELEVATION - DD
A1 SCALE 1 : 200

BUILDING ENVELOPE RISK SCORE			NORTH, SOUTH, EAST AND WEST WALLS							
			RISK SEVERITY							
RISK FACTOR	LOW	SCORE	MEDIUM	SCORE	HIGH	SCORE	VERY HIGH	SCORE	SUBTOTALES FOR EACH RISK FACTOR	
WIND ZONE (per NZS 3604)	0		0	0	1		2		0	
NUMBER OF STOREYS	0		1	1	2		4		1	
ROOF/WALL INTERSECTION DESIGN	0		2		3	3	4		3	
EAVES WIDTH	0		1		2		5	5	5	
ENVELOPE COMPLEXITY	0	0	1		3		6		0	
DECK DESIGN	0	0	2		4		6		0	
							TOTAL RISK SCORE FOR USE IN TABLE 3:		9	

HUTT CITY COUNCIL
APPROVED
25/03/15

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Client
AMP CAPITAL PROPERTY PORTFOLIO LTD

Project Name
BETHLEHEM TOWN CENTRE
STATE HIGHWAY 2

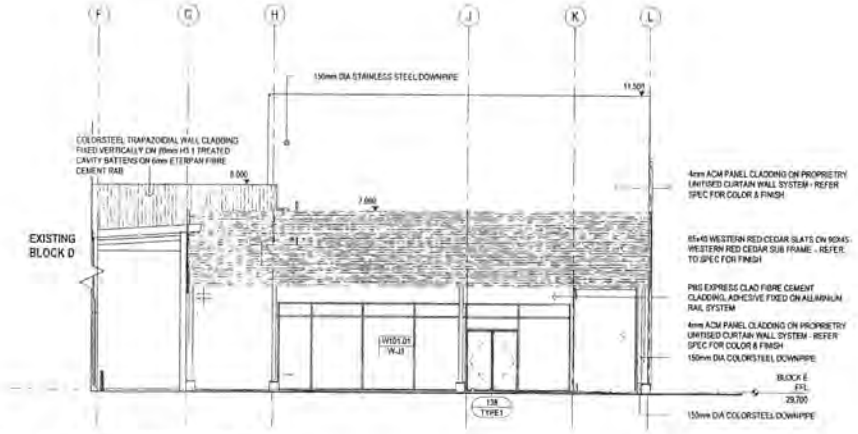
KMART STORE NUMBER: 6217

Drawing Title
ELEVATIONS

REFER TO KMART STANDARD DRAWINGS AS BASE FOR THIS DRAWING
KMART STANDARD DRAWING NUMBER: TCC845088

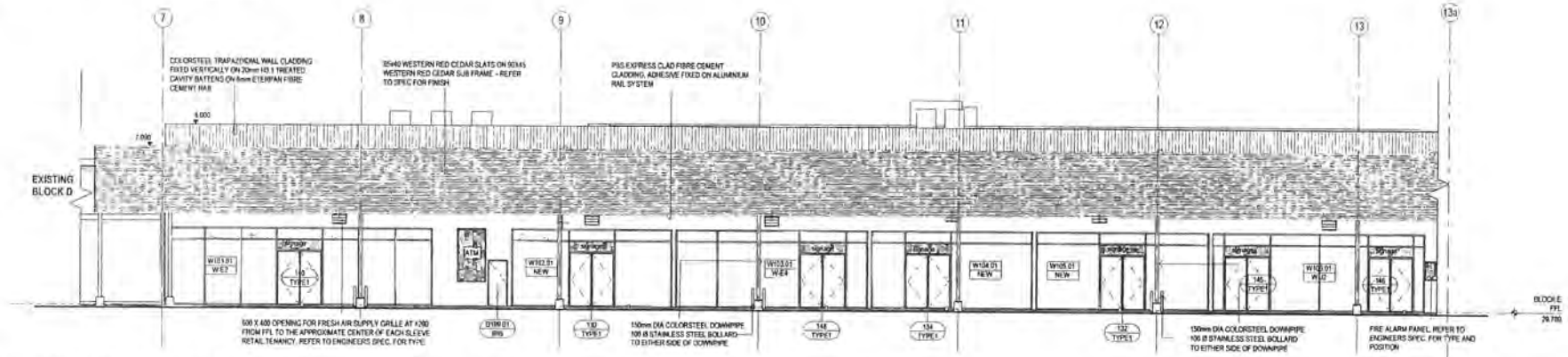
BASE DRAWING DATE:

Architect	Drawn	Checked
GA	DDK	MG
Project Commenced	Scale	Size
JAN 2015	As indicated	A1
Project Number	Drawing Number	Rev
0457-046	A2001	B



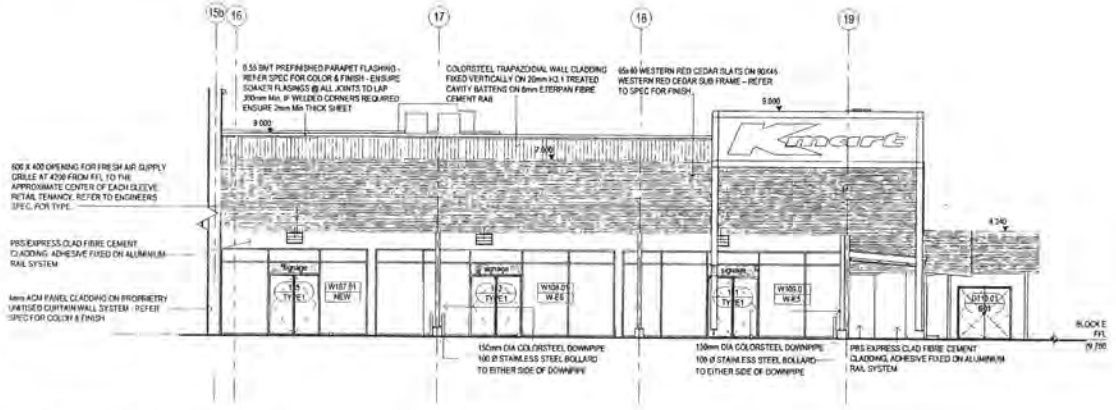
1 A2002 WEST ELEVATION SLEEVE RETAIL

A1 SCALE 1 : 100



2 A2001 SLEEVE RETAIL ELEVATION PART 1

A1 SCALE 1 : 100



3 A2001 SLEEVE RETAIL ELEVATION PART 2

A1 SCALE 1 : 100

GENERAL NOTES:

1. DO NOT SCALE OFF DRAWINGS.
2. CONTRACTOR SHALL VERIFY AND BE RESPONSIBLE FOR ALL FOR ALL DIMENSIONS ON SITE
3. ARCHITECTS TO BE NOTIFIED OF ANY VARIATION BETWEEN SITE DIMENSIONS AND THOSE ON PLANS.

BUILDING CONSENT

Rev	Description	By	Date
A	BUILDING CONSENT	MG	25/03/2015

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Client
AMP CAPITAL PROPERTY PORTFOLIO LTD

Project Name
BETHLEHEM TOWN CENTRE
STATE HIGHWAY 2

KMART STORE NUMBER: 8217

Drawing Title
SLEEVE RETAIL PART ELEVATIONS

REFER TO KMART STANDARD DRAWINGS AS BASE FOR THIS DRAWING. KMART STANDARD DRAWING NUMBER:

TCC845090

BASE DRAWING DATE:

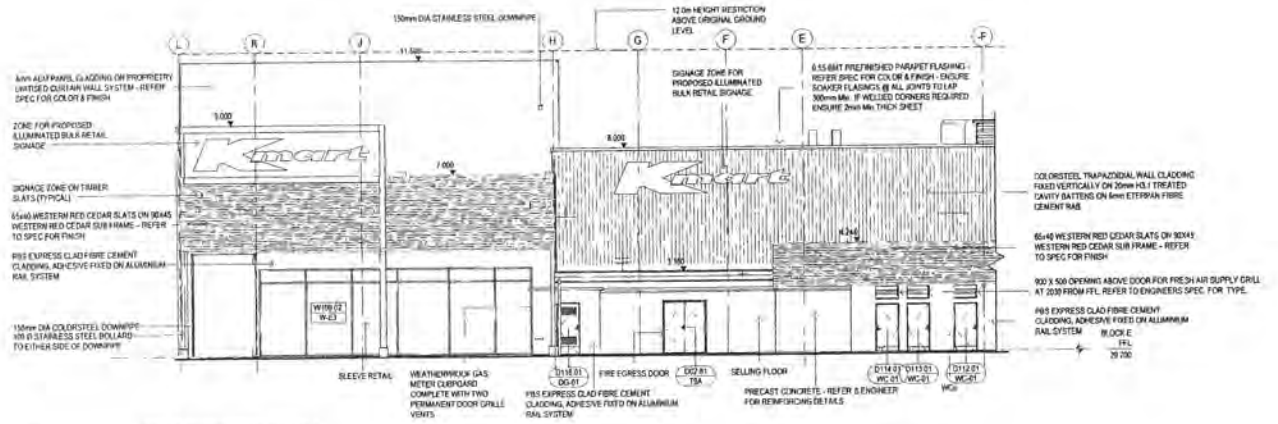
Architect	Drawn	Checked
GA	DDK	MG
Project Commenced	Scale	Size
JAN 2015	1 : 100	A1
Project Number	Drawing Number	Rev
0457-046	A2004	A

GENERAL NOTES

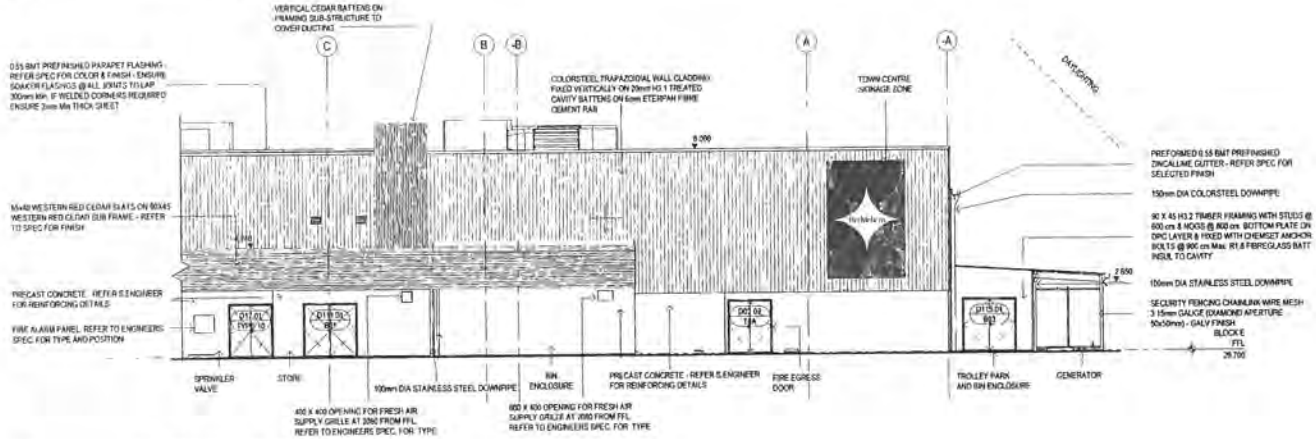
1. DO NOT SCALE OFF DRAWINGS.
2. CONTRACTOR SHALL VERIFY AND BE RESPONSIBLE FOR ALL FOR ALL DIMENSIONS ON SITE
3. ARCHITECTS TO BE NOTIFIED OF ANY VARIATION BETWEEN SITE DIMENSIONS AND THOSE ON PLANS

BUILDING CONSENT

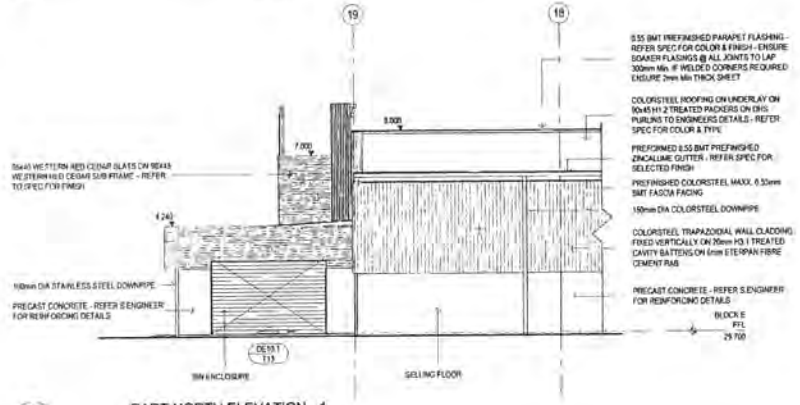
Rev	Description	By	Date
A	BUILDING CONSENT	MG	25/03/2015



1 A2001 EAST ELEVATION PART 1
A1 SCALE 1 : 100



2 A2001 EAST ELEVATION PART 2
A1 SCALE 1 : 100



3 A2002 PART NORTH ELEVATION - 1
A1 SCALE 1 : 100

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Client
AMP CAPITAL PROPERTY PORTFOLIO LTD

Project Name
BETHLEHEM TOWN CENTRE
STATE HIGHWAY 2

KMART STORE NUMBER 8217

Drawing Title
PART EAST/NORTH ELEVATIONS

REFER TO KMART STANDARD DRAWINGS AS BASE FOR THIS DRAWING:
KMART STANDARD DRAWING NUMBER: TCC845091

BASE DRAWING DATE:

Stylebord	Drawn	Checked
GA	SP	MG
Project Commenced	Scale	Size
JAN 2015	1 : 100	A1
Project Number	Drawing Number	Rev
0457-046	A2005	A

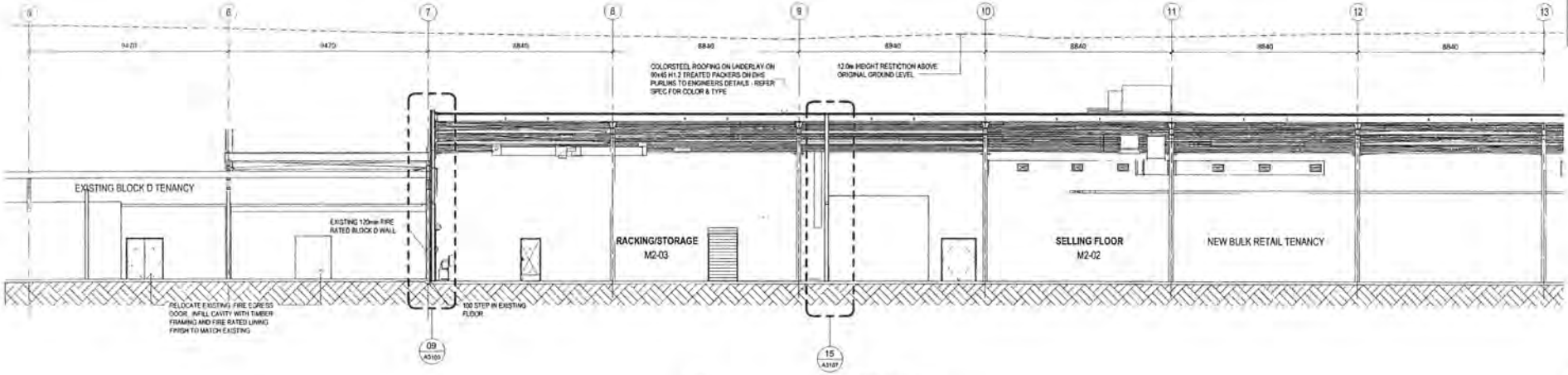
RESOURCE MANAGEMENT ACT 1991
PROJECT INFORMATION MEMORANDA
5204

GENERAL NOTES:

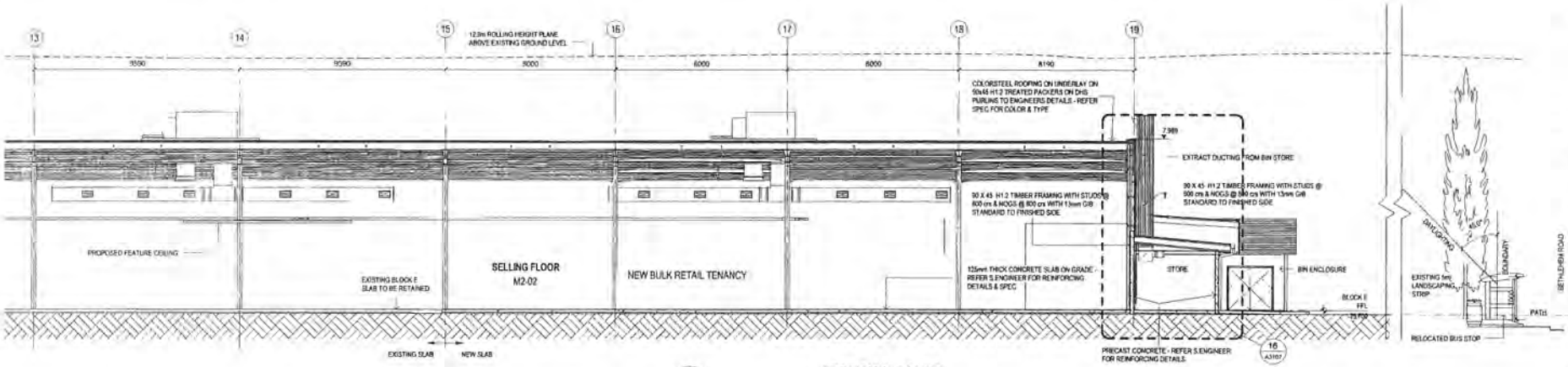
1. DO NOT SCALE OFF DRAWING(S)
2. CONTRACTOR SHALL VERIFY AND BE RESPONSIBLE FOR ALL FOR ALL DIMENSIONS ON SITE
3. ARCHITECTS TO BE NOTIFIED OF ANY VARIATION BETWEEN SITE DIMENSIONS AND THOSE ON PLANS

BUILDING CONSENT

Rev	Description	By	Date
A	DEVELOPED DESIGN	MG	13/02/2015
B	BUILDING CONSENT	MG	25/03/2015



1 A1202 SECTION 1 - PART 1
A1 SCALE 1 : 100



2 A1202 SECTION 1 - PART 2
A1 SCALE 1 : 100

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Client
AMP CAPITAL PROPERTY PORTFOLIO LTD

Project Name
BETHLEHEM TOWN CENTRE
STATE HIGHWAY 2

KMART STORE NUMBER: 8217

Drawing Title
SECTIONS

REFER TO KMART STANDARD DRAWINGS AS BASE FOR THIS DRAWING KMART STANDARD DRAWING NUMBER:
TCC845092

BASE DRAWING DATE: 31/05/2013

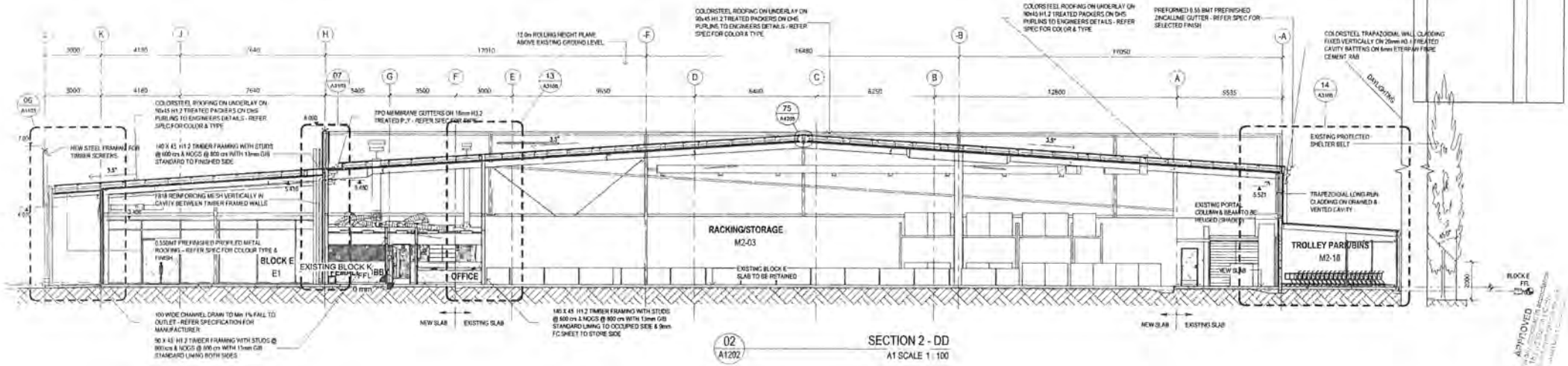
Architect	Drawn	Checked
GA	DOK	MG
Project Commenced	Scale	Size
JAN 2015	1 : 100	A1
Project Number	Drawing Number	Rev
0457-046	A2101	B

GENERAL NOTES:

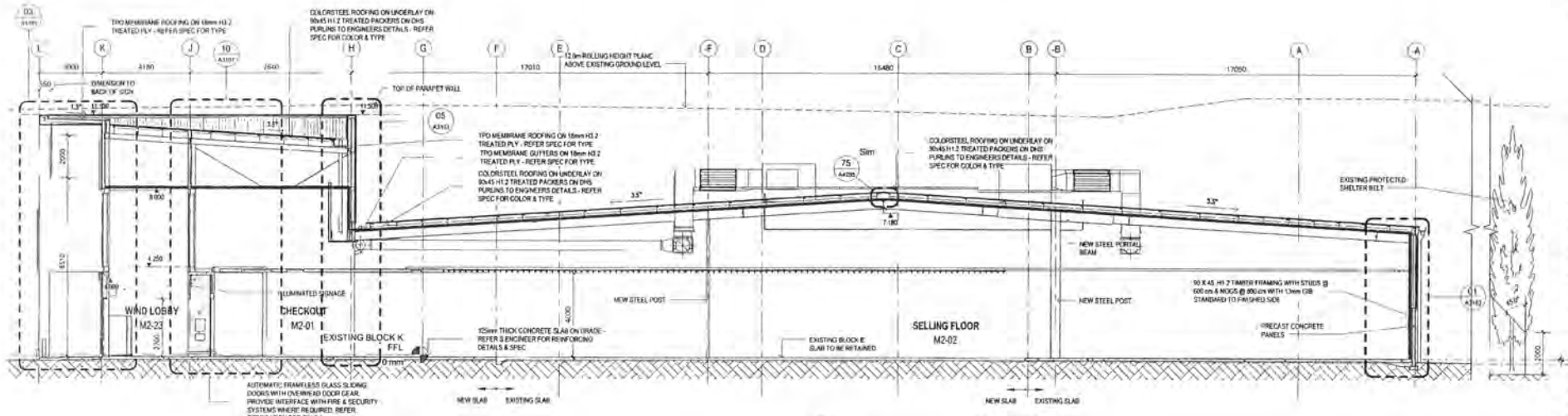
1. DO NOT SCALE OFF DRAWINGS.
2. CONTRACTOR SHALL VERIFY AND BE RESPONSIBLE FOR ALL FOR ALL DIMENSIONS ON SITE.
3. ARCHITECTS TO BE NOTIFIED OF ANY VARIATION BETWEEN SITE DIMENSIONS AND THOSE ON PLANS.

BUILDING CONSENT

Rev	Description	By	Date
A	REVIEW/APPROVAL	DK	30/01/2015
B	BUILDING CONSENT	MG	25/03/2015



02 A1202 SECTION 2 - DD
A1 SCALE 1 : 100



03 A1202 SECTION 3 - DD
A1 SCALE 1 : 100

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Client
AMP CAPITAL PROPERTY PORTFOLIO LTD

Project Name
BETHLEHEM TOWN CENTRE
STATE HIGHWAY 2

KMART STORE NUMBER: 8217

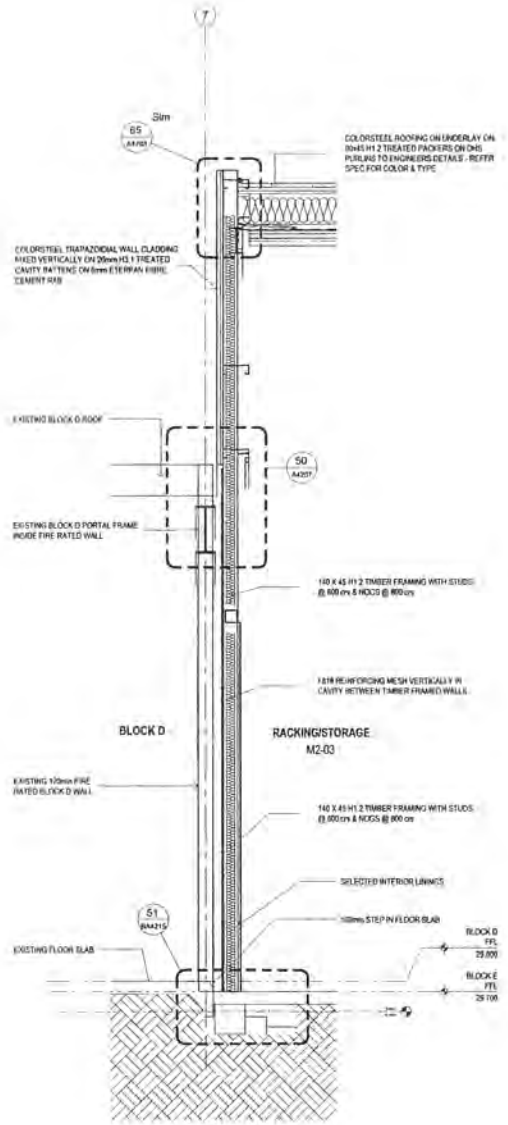
Drawing Title
SECTIONS

BLOCK E
REFER TO KMART STANDARD DRAWINGS AS BASE FOR THIS DRAWING.
KMART STANDARD DRAWING NUMBER:

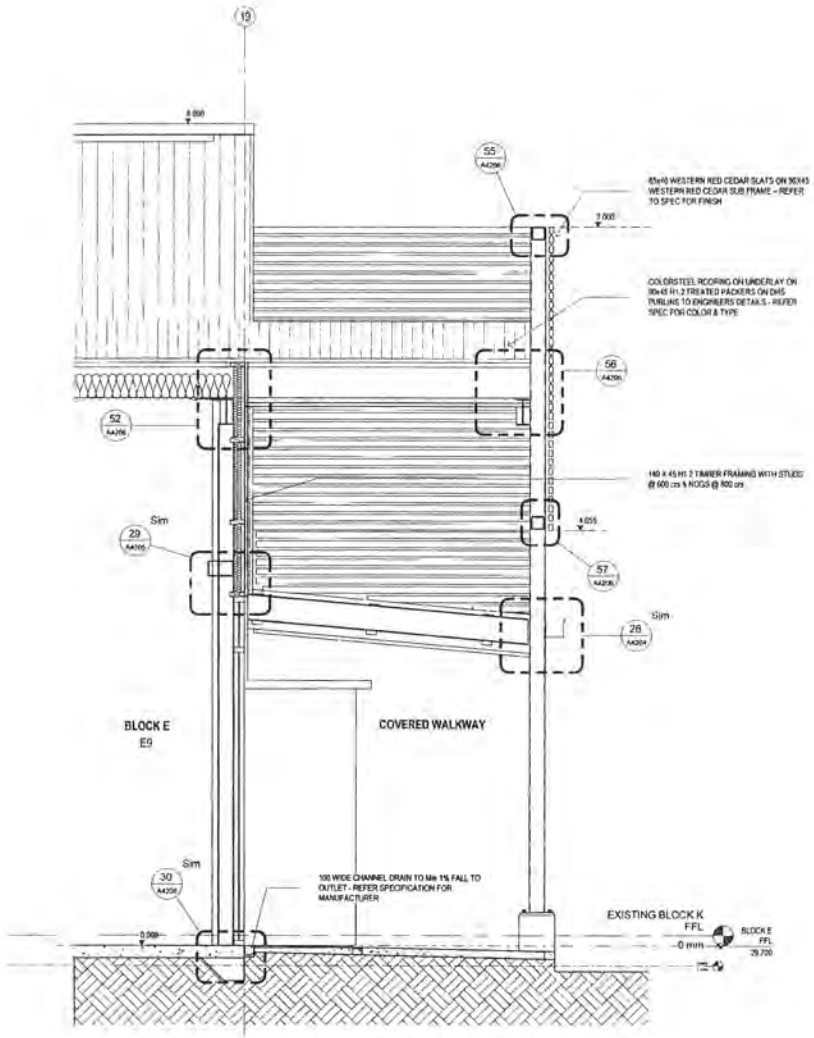
TCC845093

BASE DRAWING DATE: 31/05/2013

Architect	Drawn	Checked
GA	DDK	MG
Project Commenced	Scale	Size
JAN 2015	1 : 100	A1
Project Number	Drawing Number	Rev
0457-046	A2102	B



09 A2101 WALL SECTION 09
A1 SCALE 1 : 25



12 A1302 WALL SECTION 12
A1 SCALE 1 : 25

GENERAL NOTES:

1. DO NOT SCALE OFF DRAWINGS.
2. CONTRACTOR SHALL VERIFY AND BE RESPONSIBLE FOR ALL FOR ALL DIMENSIONS ON SITE.
3. ARCHITECTS TO BE NOTIFIED OF ANY VARIATION BETWEEN SITE DIMENSIONS AND THOSE ON PLANS.

BUILDING CONSENT

Rev	Description	By	Date
A	REVIEW/APPROVAL	DI	30/01/2015
B	BUILDING CONSENT	MG	25/03/2015

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Client
AMP CAPITAL PROPERTY PORTFOLIO LTD

Project Name
BETHLEHEM TOWN CENTRE
STATE HIGHWAY 2

KMART STORE NUMBER: 8217

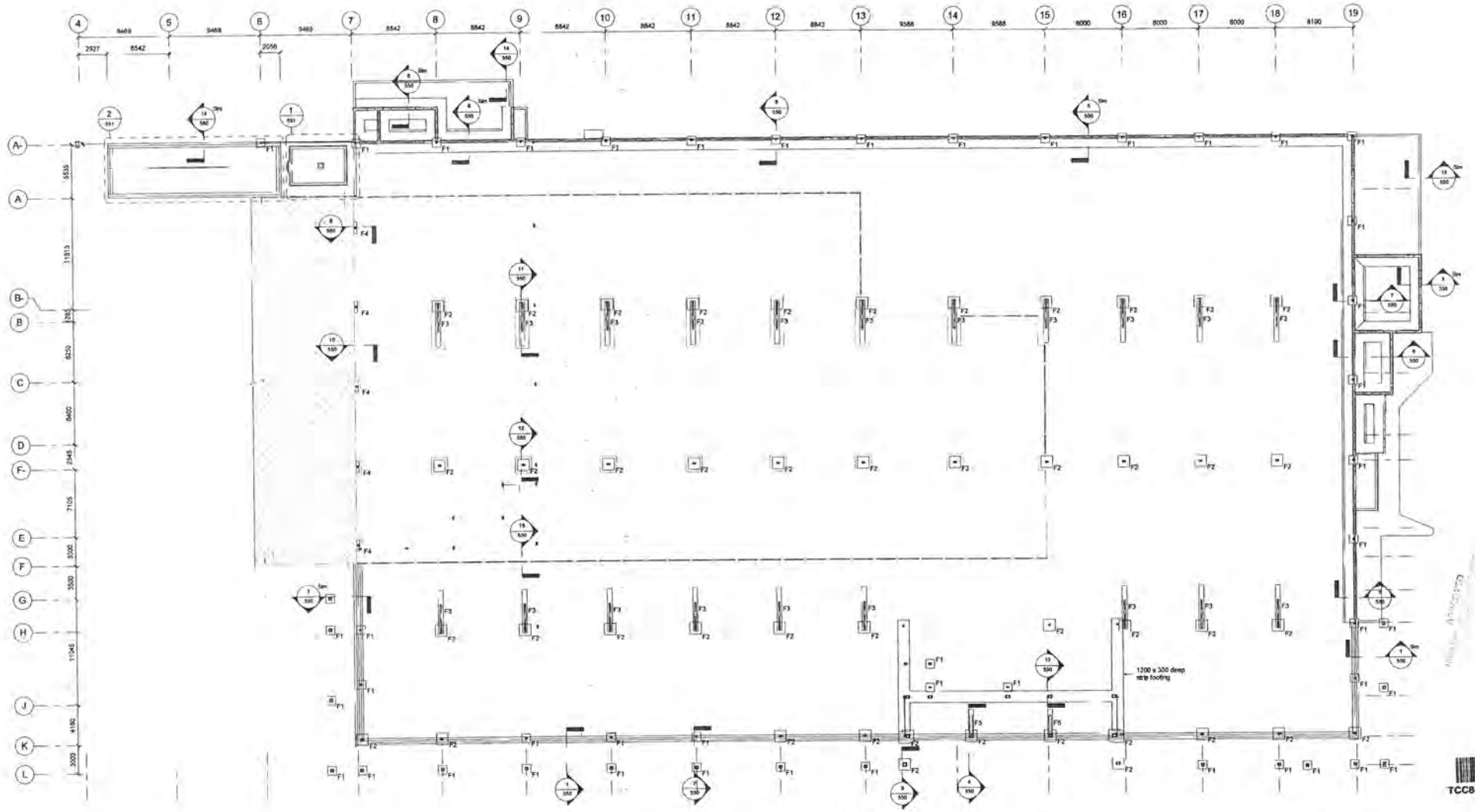
Drawing Title
WALL SECTIONS

REFER TO KMART STANDARD DRAWINGS AS BASE FOR THIS DRAWING. KMART STANDARD DRAWING NUMBER:

BASE DRAWING DATE:

Architect	Drawn	Checked
GA	DDK	MG
Project Commenced	Scale	Size
JAN 2015	1 : 25	A1
Project Number	Drawing Number	Rev
0457-046	A3105	B

TCC845563



Foundation Plan
1 : 200

Structural Foundation Schedule		
Type Mark	Type	Reinforcing
F1	900 x 900 x 300mm deep pad foundation	HD12 bars at 200crs e/w
F2	1200 x 1200 x 300mm deep pad foundation	HD16 bars at 200crs e/w
F3	500 x 600mm x 4000mm long stabiliser foundation	2/HD25 bars top and bottom with R10 stirrups at 200crs
F4	300 x 300mm x 1200mm long pad foundation	2/HD16bars top and bottom with R10 stirrups at 200crs
F5	500 x 600mm x 3000mm long stabiliser foundation	2/HD25 bars top and bottom with R10 stirrups at 200crs

TCC845604

all dimensions to be verified on site before making any shop drawings or commencing any work.

FOR INFORMATION 20/03/15

1	25/03/15	L.R.	FOR BUILDING CONSENT
rev	date	by	revision

contractor

client

consultant: BCD GROUP

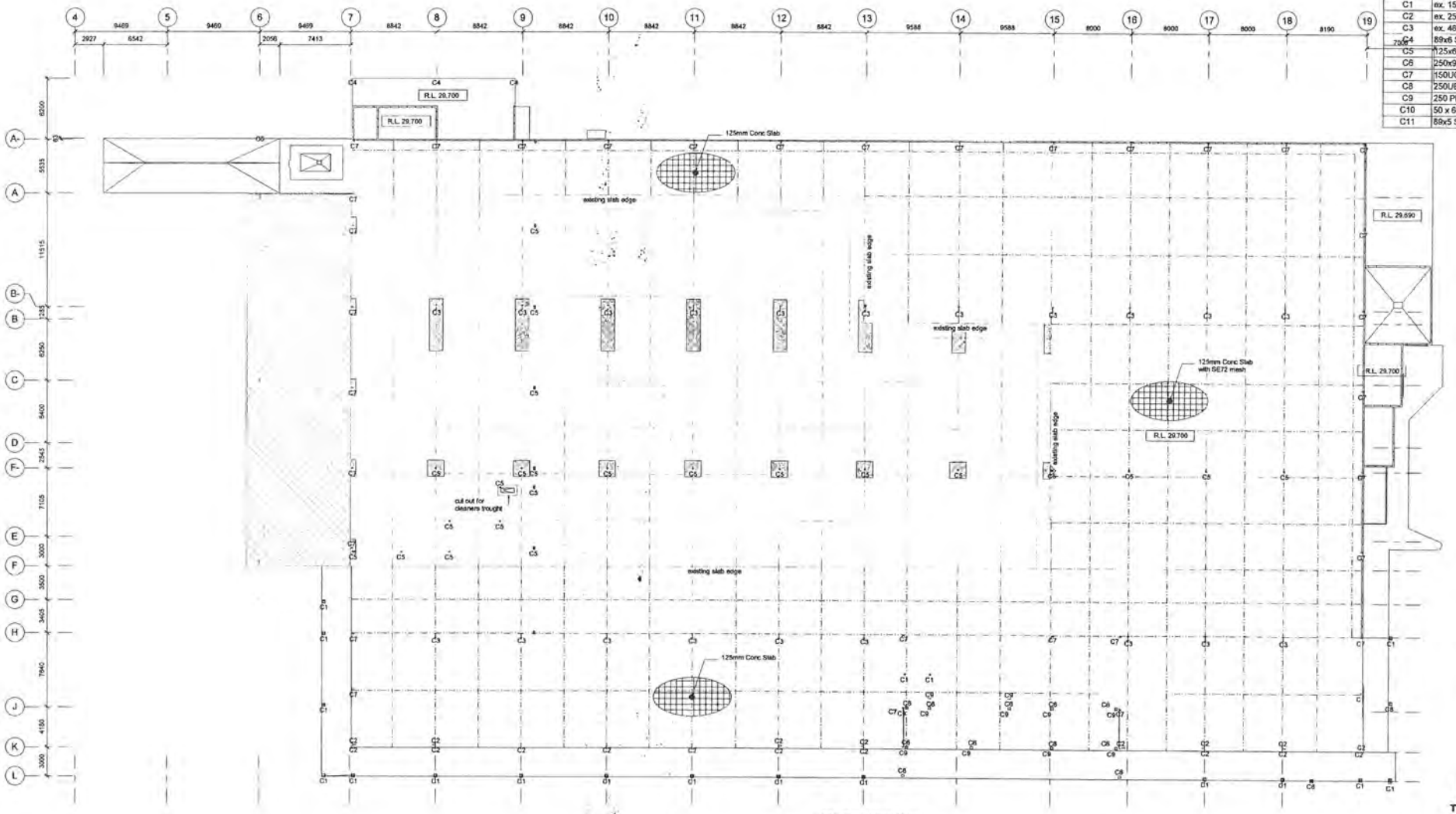
project title: BULK RETAIL TENANCY
BETHLEHEM TOWN CENTRE

sheet title: FOUNDATION PLAN

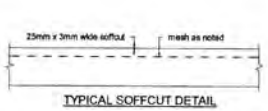
drawn: Author | scale: 1 : 200 | at A1

job no	sheet no	revision
13-324	501	1

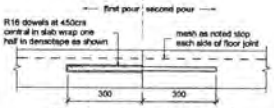
Structural Column Schedule	
Type Mark	Type
	350 x 350mm
C1	ex. 150x6 SHS
C2	ex. 250UB31
C3	ex. 460UB75
C4	89x6 SHS
C5	125x6 SHS
C6	250x9 SHS
C7	150UC30
C8	250UB31
C9	250 PFC
C10	50 x 6 SHS
C11	89x5 SHS



Structural Floor Plan
1:200



TYPICAL SOFFCUT DETAIL



TYPICAL CONTROL JOINT DETAIL

TCC845605

all dimensions to be verified on site before creating any shop drawings or commencing any work.

project status FOR INFORMATION 20/03/15

rev	date	by	reason
1	25/03/15	LB.	FOR BUILDING CONSENT

contractor

client

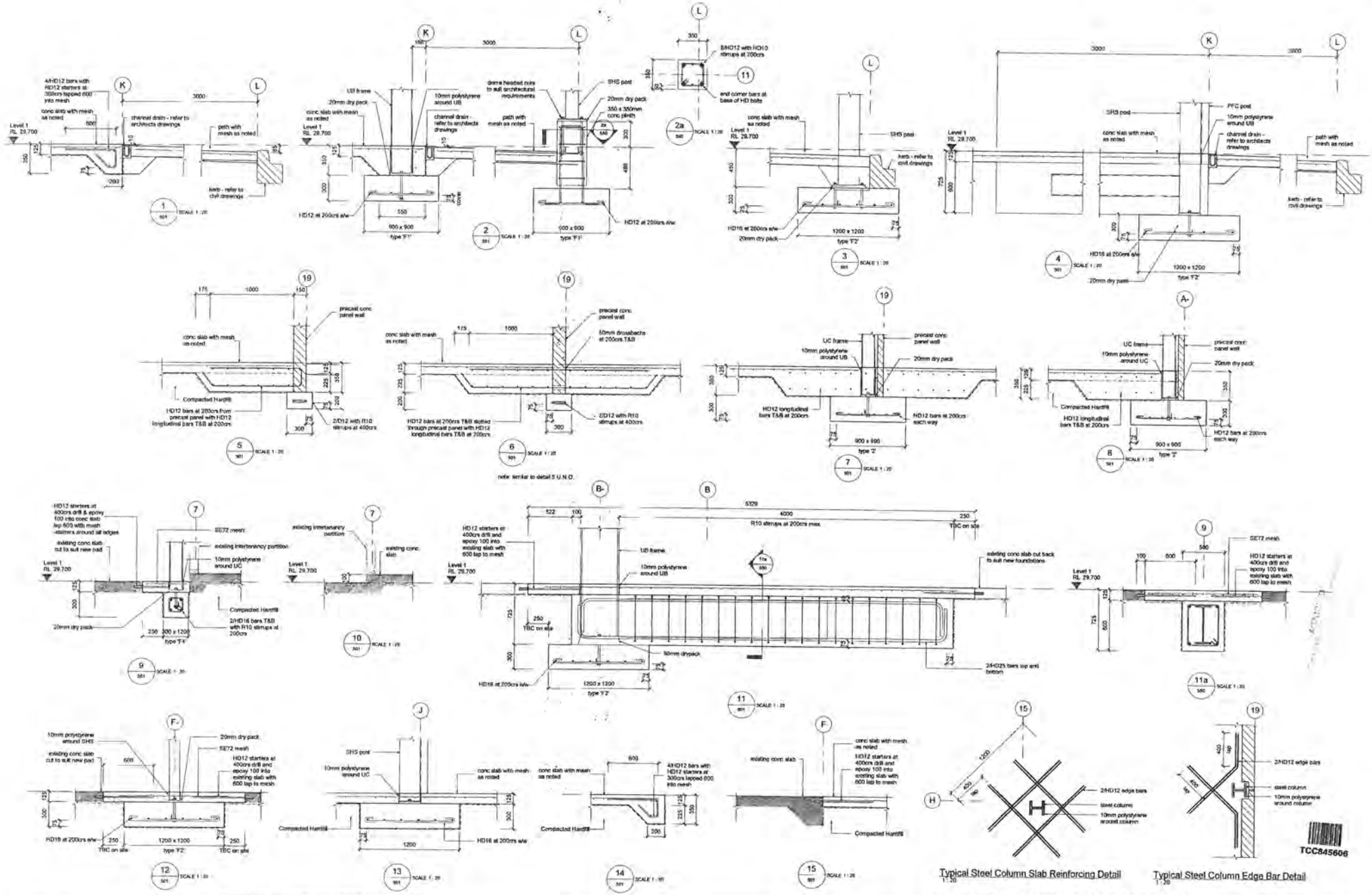
consultant: BCD GROUP

project title: BULK RETAIL TENANCY
BETHLEHEM TOWN CENTRE

sheet title: STRUCTURAL FLOOR PLAN

drawn: Author | scale: As indicated | at A1

job no	sheet no	revision
13-324	502	1



FOR INFORMATION 20/03/15

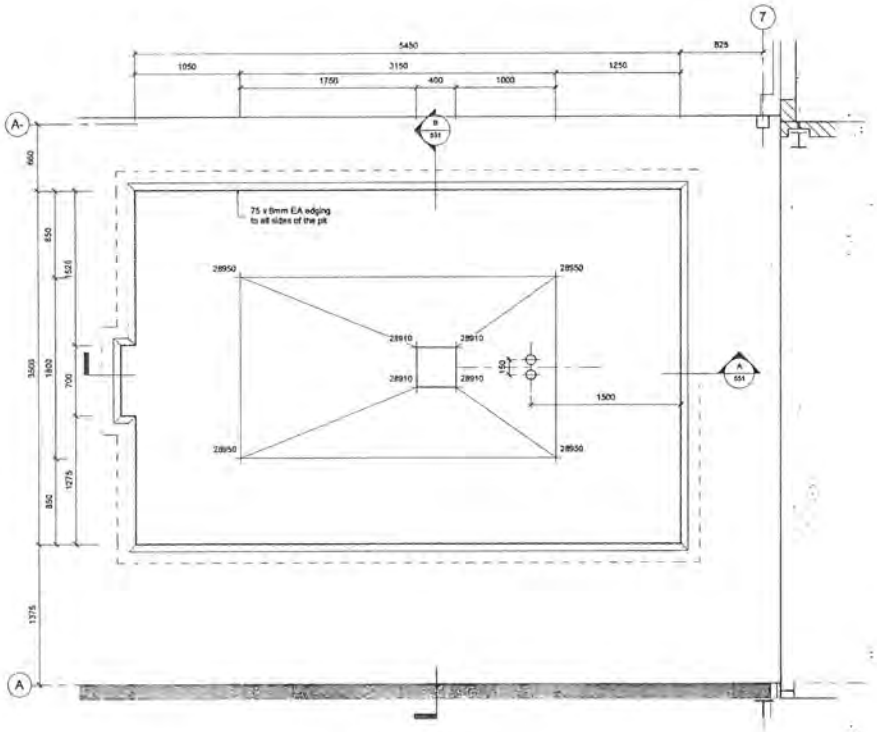
rev	date	by	reason
1	24/03/15	L.B.	FOR BUILDING CONSENT

BCD GROUP

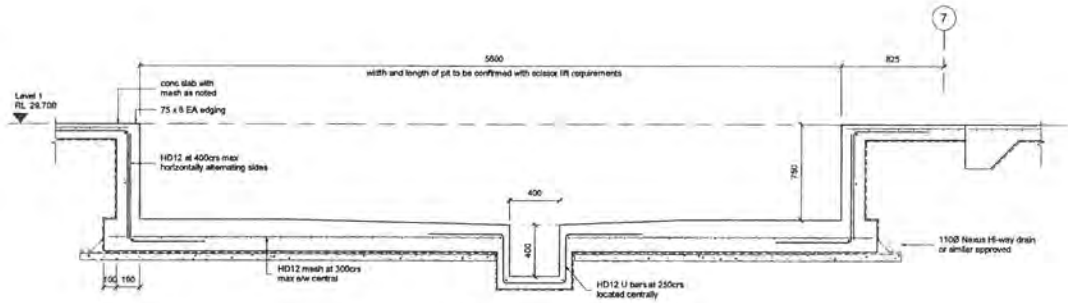
BULK RETAIL TENANCY
BETHLEHEM TOWN CENTRE

FOUNDATION DETAILS

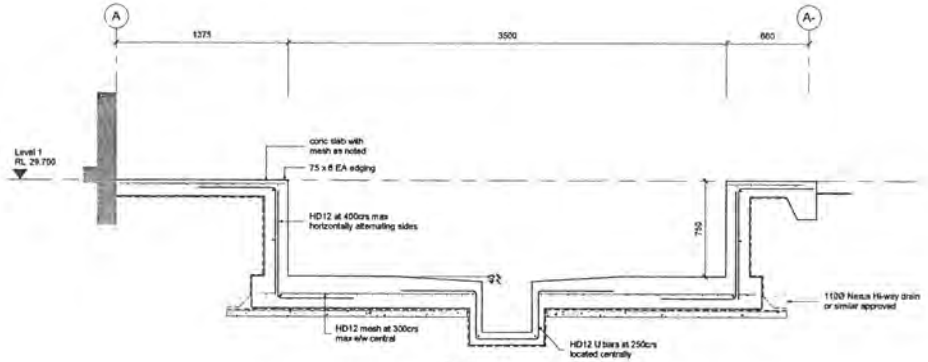
drawn: Author	scale: 1 : 20	at A1
job no.	sheet no.	revision
13-324	550	1



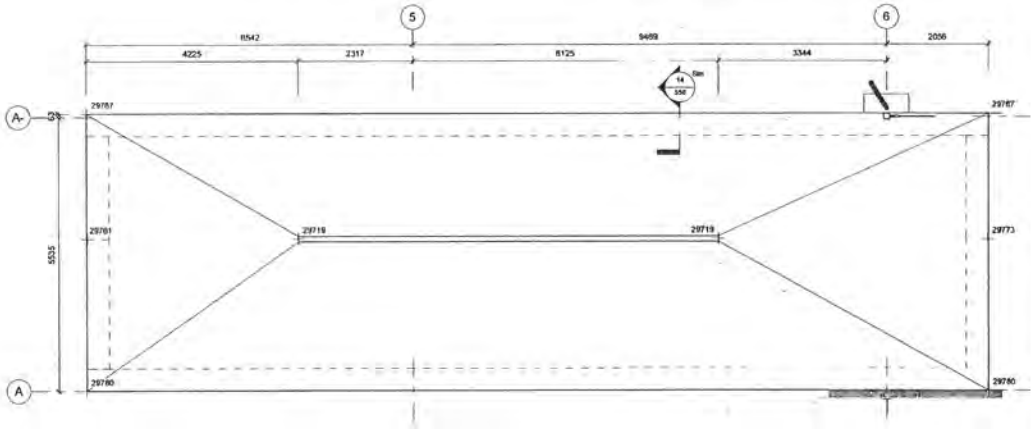
1 / 501 Scissor Lift Pit
1 : 25



A / 551 Scissor Lift Section A-A
1 : 20



B / 551 Scissor Lift Section B-B
1 : 20



2 / 501 Truck Hard Stand
1 : 50

TCC845607

all dimensions to be verified on site before making any shop drawings or commencing any work

project status FOR INFORMATION 20/03/15

rev	date	by	reason
1	23/03/15	L.S.	FOR BUILDING CONSENT

contractor

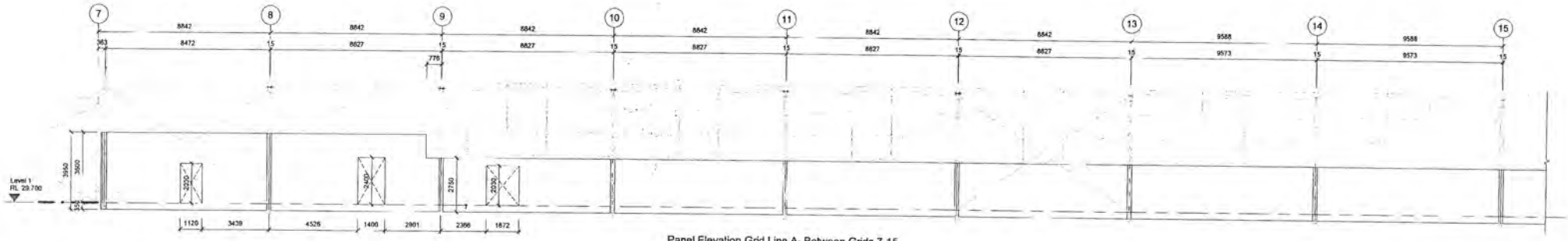
client

consultant: BCD GROUP

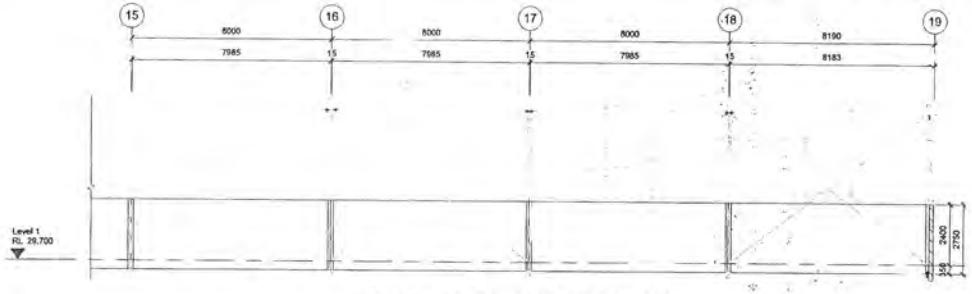
project title: BULK RETAIL TENANCY
BETHLEHEM TOWN CENTRE

sheet title: FOUNDATION DETAILS

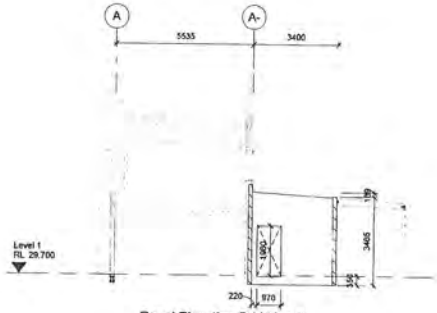
drawn: Author	scale: As indicated	at A1
job no: 13-324	sheet no: 551	revision: 1



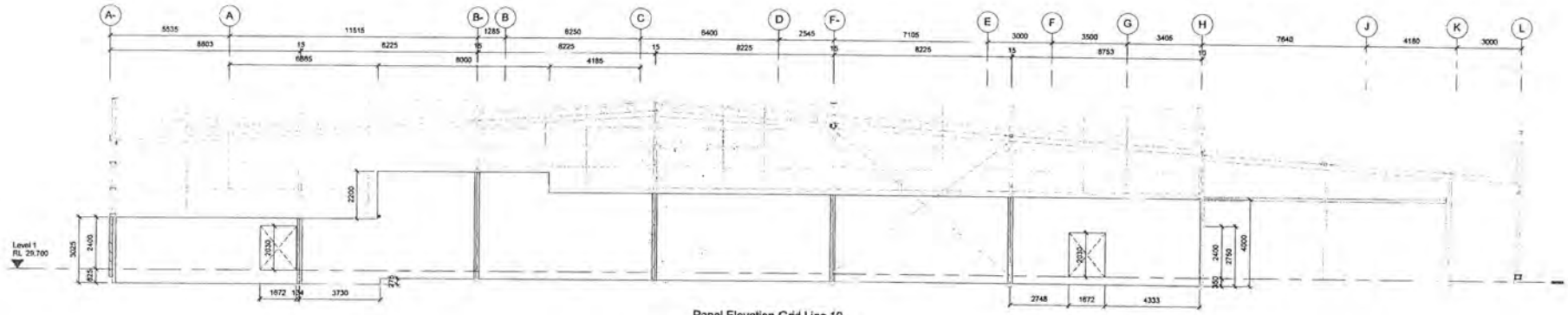
Panel Elevation Grid Line A- Between Grids 7-15
1 : 100



Panel Elevation Grid Line A- Between Grids 15-19
1 : 100



Panel Elevation Grid Line 7
1 : 100



Panel Elevation Grid Line 19
1 : 100

TCC845608

all dimensions to be verified on site before making any shop drawings or commencing any work.

contractor

client

consultant

BCD GROUP

project title

BULK RETAIL TENANCY
BETHLEHEM TOWN CENTRE

project status FOR INFORMATION 20/03/15

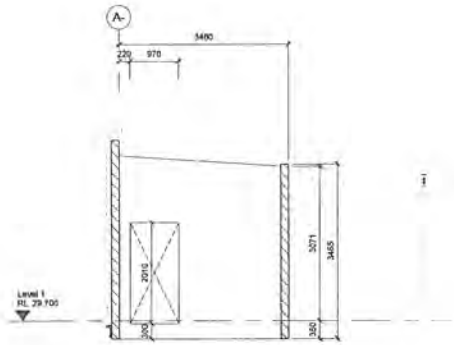
sheet title

PRECAST CONCRETE PANEL ELEVATIONS

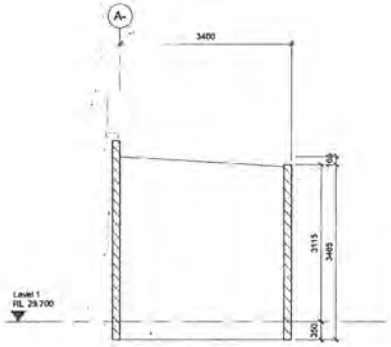
rev	date	by	reason
1	25/03/15	LS	FOR BUILDING CONSENT

drawn: Author scale: 1 : 100 at A1

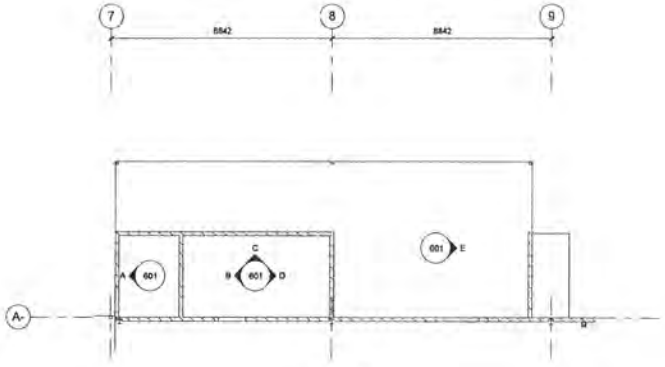
job no	sheet no	revision
13-324	600	1



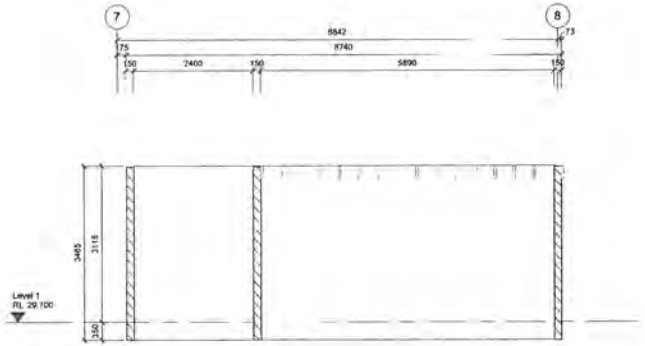
A 601 Concrete Panel Elevation A
1 : 50



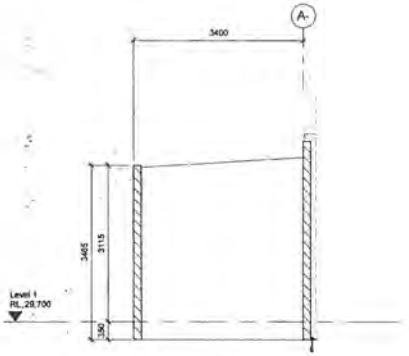
B 601 Concrete Panel Elevation B
1 : 50



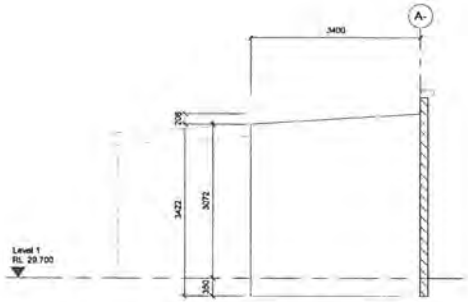
Key Plan 01
1 : 100



C 601 Concrete Panel Elevation C
1 : 50



D 601 Concrete Panel Elevation D
1 : 50



E 601 Concrete Panel Elevation E
1 : 50

TCC845609

all dimensions to be verified on site before making any shop drawings or commencing any work.

project status: FOR INFORMATION 20/03/15

rev	date	by	description
1	23/03/15	L.B.	FOR BUILDING CONSENT

reversible

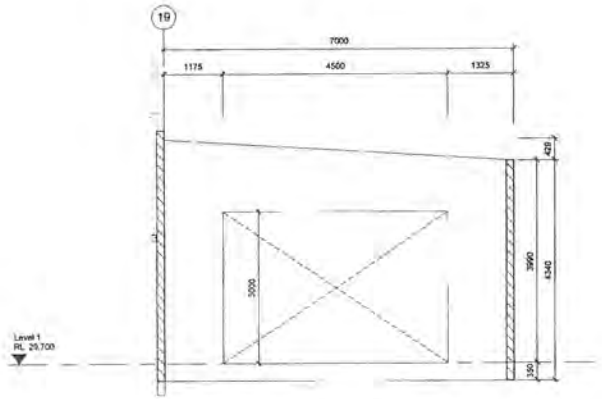
client

consultant: BCD GROUP

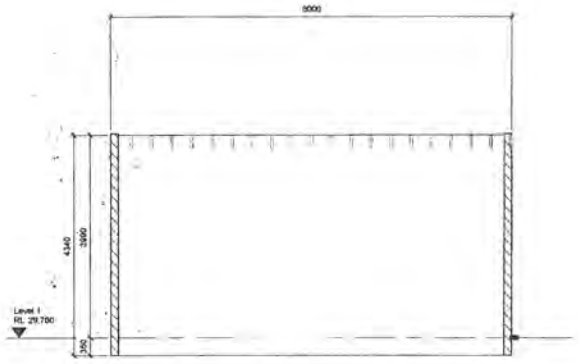
project title: BULK RETAIL TENANCY
BETHLEHEM TOWN CENTRE

sheet title: PRECAST CONCRETE PANEL ELEVATIONS

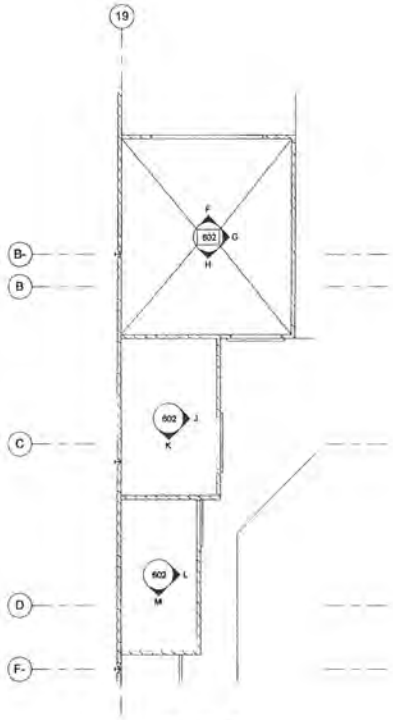
drawn: L.B.	scale: As indicated	at A1
job no: 13-324	sheet no: 601	revision: 1



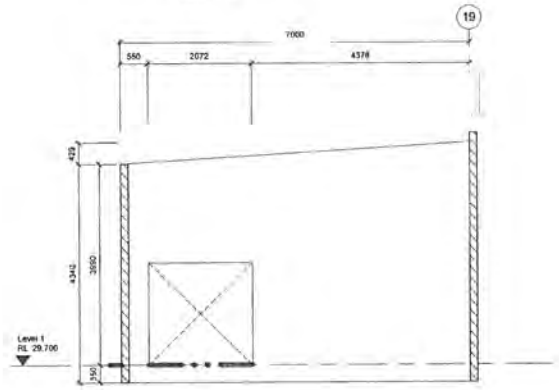
F 602 Concrete Panel Elevation F
1 : 50



G 602 Concrete Panel Elevation G
1 : 50



Key Plan 02
1 : 100



H 602 Concrete Panel Elevation H
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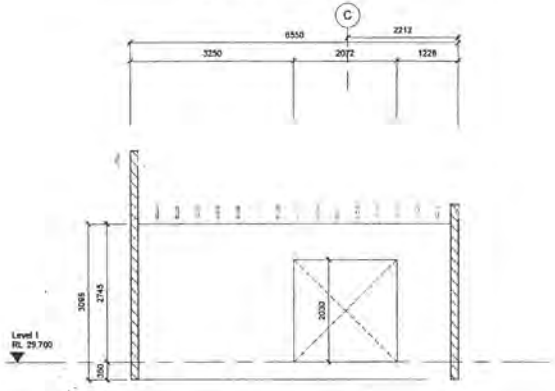
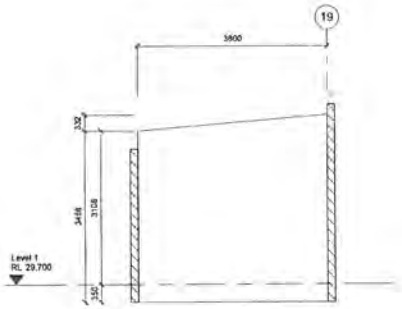
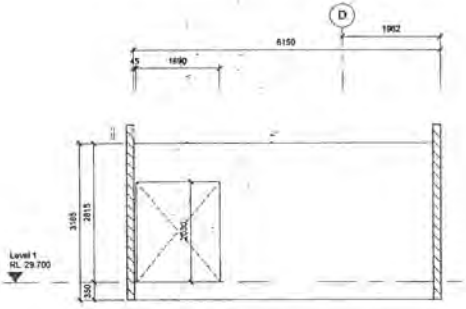


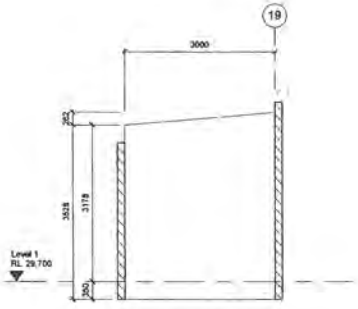
J 602 Concrete Panel Elevation J
1 : 50



K 602 Concrete Panel Elevation K
1 : 50



L 602 Concrete Panel Elevation L
1 : 50



M 602 Concrete Panel Elevation M
1 : 50

TCC845610

project status: FOR INFORMATION 20/03/15

all dimensions to be verified on site before making any shop drawings or commencing any work.

rev	date	by	reason
1	23/03/15	LB	FOR BUILDING CONSENT

contractor

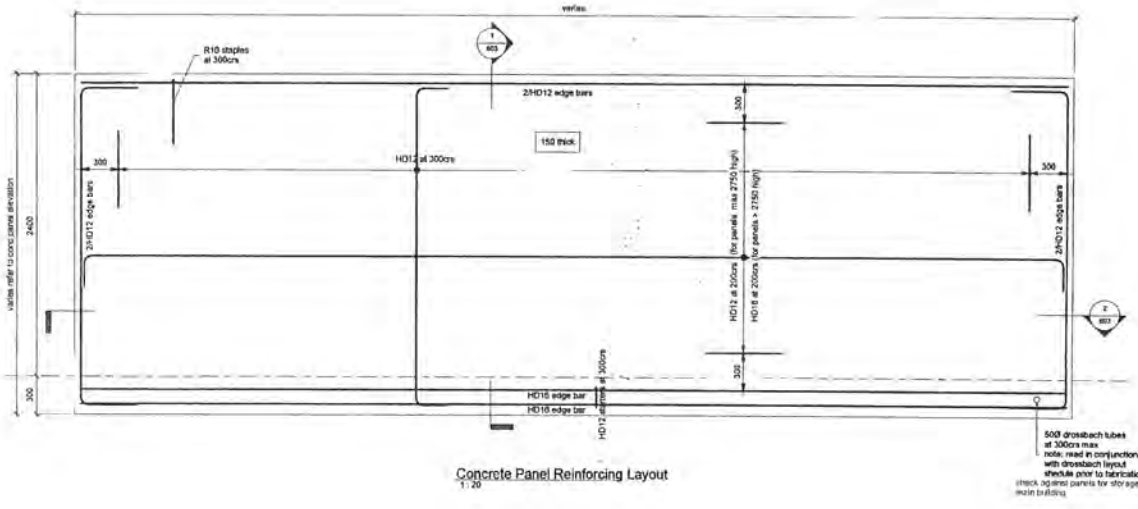
client

consultant: BCD GROUP

project title: BULK RETAIL TENANCY
BETHLEHEM TOWN CENTRE

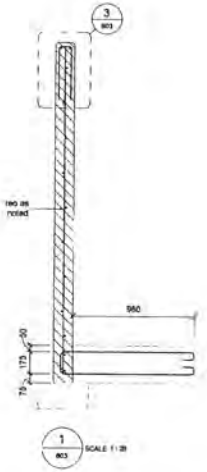
sheet title: PRECAST CONCRETE PANEL ELEVATIONS

drawn: Author	scale: As indicated	at A1
job no.	sheet no	revision
13-324	602	1

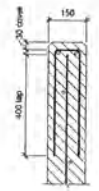


Concrete Panel Reinforcing Layout
1:20

2 / 603 SCALE 1:20



1 / 603 SCALE 1:20



3 / 603 SCALE 1:10

TCC845611

all dimensions to be verified on site before making any shop drawings or commencing any work

project status: FOR INFORMATION 20/03/15

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rev	date	by	reason
1	25/03/15	L.B.	FOR BUILDING CONSENT

contractor:

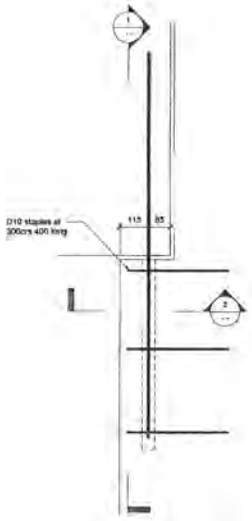
client:

consultant: BCD GROUP

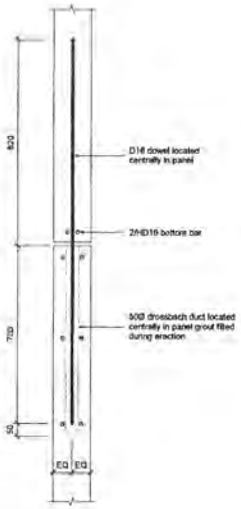
project title: BULK RETAIL TENANCY
BETHLEHEM TOWN CENTRE

sheet title: CONCRETE PANEL REINFORCING
ELEVATIONS AND DETAILS

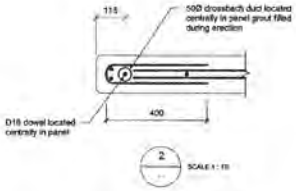
drawn: L.B.	scale: As Indicated	at A1
job no.	sheet no.	revision
13-324	603	1



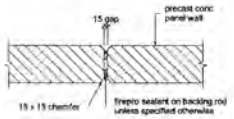
Typical Drossbatch Detail
1 : 10



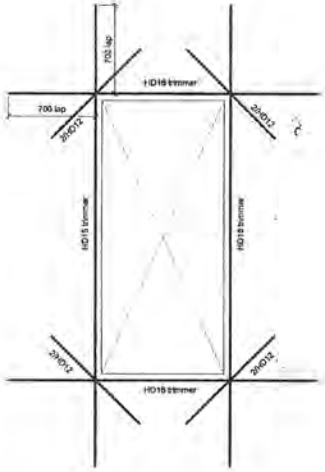
1 SCALE 1 : 10



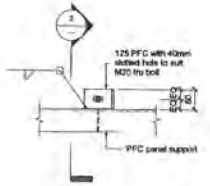
2 SCALE 1 : 10



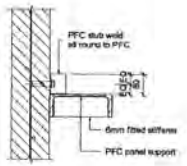
Typical Panel Joint
1 : 10



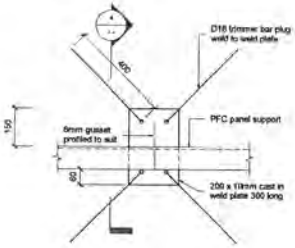
Typical Precast Panel Opening Reinforcing
1 : 20



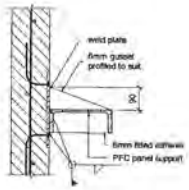
P1 - PFC Panel Support 125 PFC Connection
1 : 10



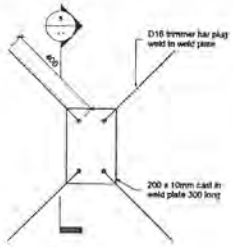
3 SCALE 1 : 10



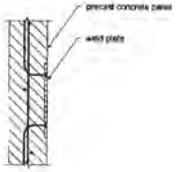
P2 - PFC Panel Support Cast-in weld Plate
1 : 10



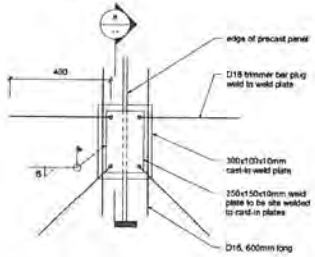
4 SCALE 1 : 10



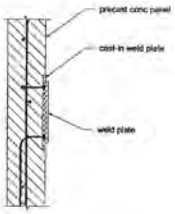
P3 - Cast-in Weld Plate For Steel Connection
1 : 10



5 SCALE 1 : 10



P4 - Cast-in Weld Plate Panel Connection
1 : 10



6 SCALE 1 : 10

TCC845612

project status: FOR INFORMATION 20/03/15

rev	date	by	reason
-1	25/03/15	LB	FOR BUILDING CONSENT

consultant: BCD GROUP

project title: BULK RETAIL TENANCY
BETHLEHEM TOWN CENTRE

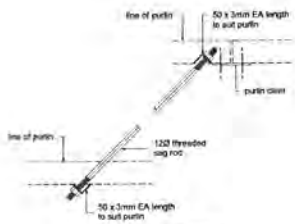
sheet title: STANDARD PRECAST CONCRETE PANEL CONECTION DETAILS

drawn: Author | scale: 1 : 10 | at A1

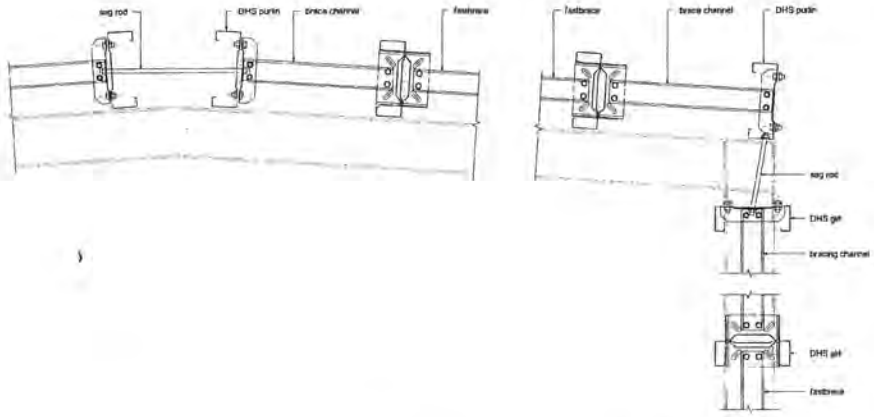
job no	sheet no	revision
13-324	604	1

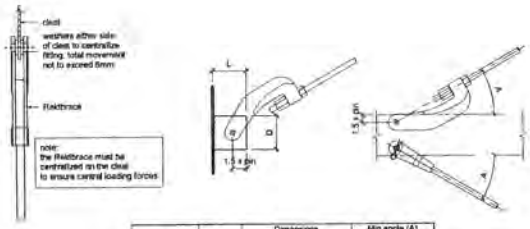
NOTES

- All bolts to be M20 grade 8.8/S for steel connections.
- Purlin connections to have M12 grade 8.8/S for 150 & 200.
- Purlin connections to have M16 grade 8.8/S for 250 & 300.
- All welds to be 6mm fillet weld unless noted otherwise.
- All Plates to be grade G250 unless noted otherwise.
- To be read in conjuction with BCD structural steelwork specification.
- All Reidbrace must be centralised on the bracket with washers either side of the bracket to ensure central loading forces - total movement not to exceed 6mm
- To reduce the noise from crossed bracing, a plastic sleeve can be specified to be wired to one of the braces where they cross and the brace wired together.



SAG ROD DETAIL

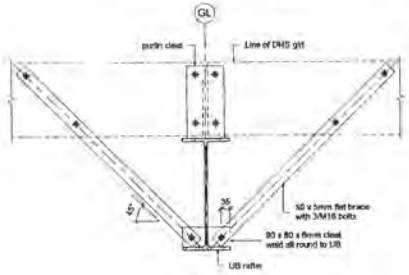




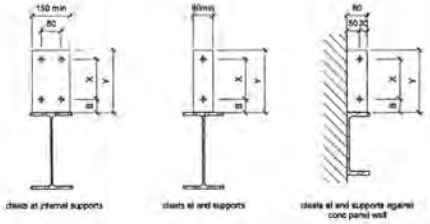
Reidbrace	Pin Size	Dimensions			Min angle (A)	
		1.5 x pin	L	D	Brace	End
RB12/16	16Ø	24			30	32/30
RB20	20Ø	30			32	30
RB25/32	30Ø	45			34	32/30

TYPICAL REIDBRACE CLEAT DIMENSIONS & MIMIMUM ANGLE of BRACING to FIXTURE

note: read in conjunction with the Reid Bracing Tie Down Technical Data Manual.

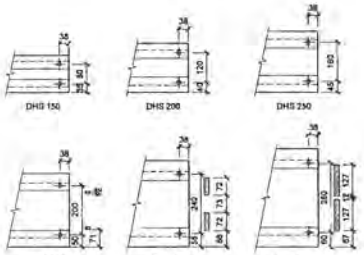


FLY BRACE



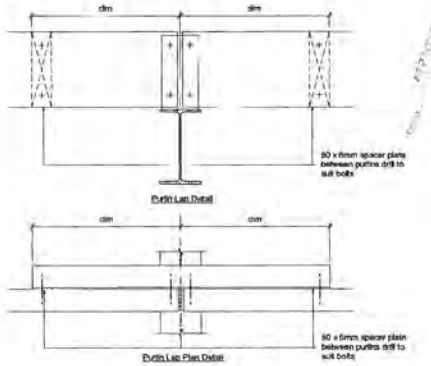
DHS purlin	Dimensions		
	B	X	Y
150/12 and 15	41	80	150
200/12, 15 and 18	48	120	200
250/13, 15 and 18	53	160	250
300/15 and 18	55	210	300
350/18	65	240	340
400/20	70	280	380

STANDARD DHS CLEAT DIMENSIONS



NOTE: Holes cannot be punched in the areas shown as in the diagram above.

STANDARD HOLE LOCATIONS



STANDARD PURLIN LAP DETAIL

TCC845613

all dimensions to be verified on site before making any shop drawings or commencing any work

rev	date	by	revision
1	26/03/15	LB	FOR BUILDING CONSENT

consultants: BCD GROUP

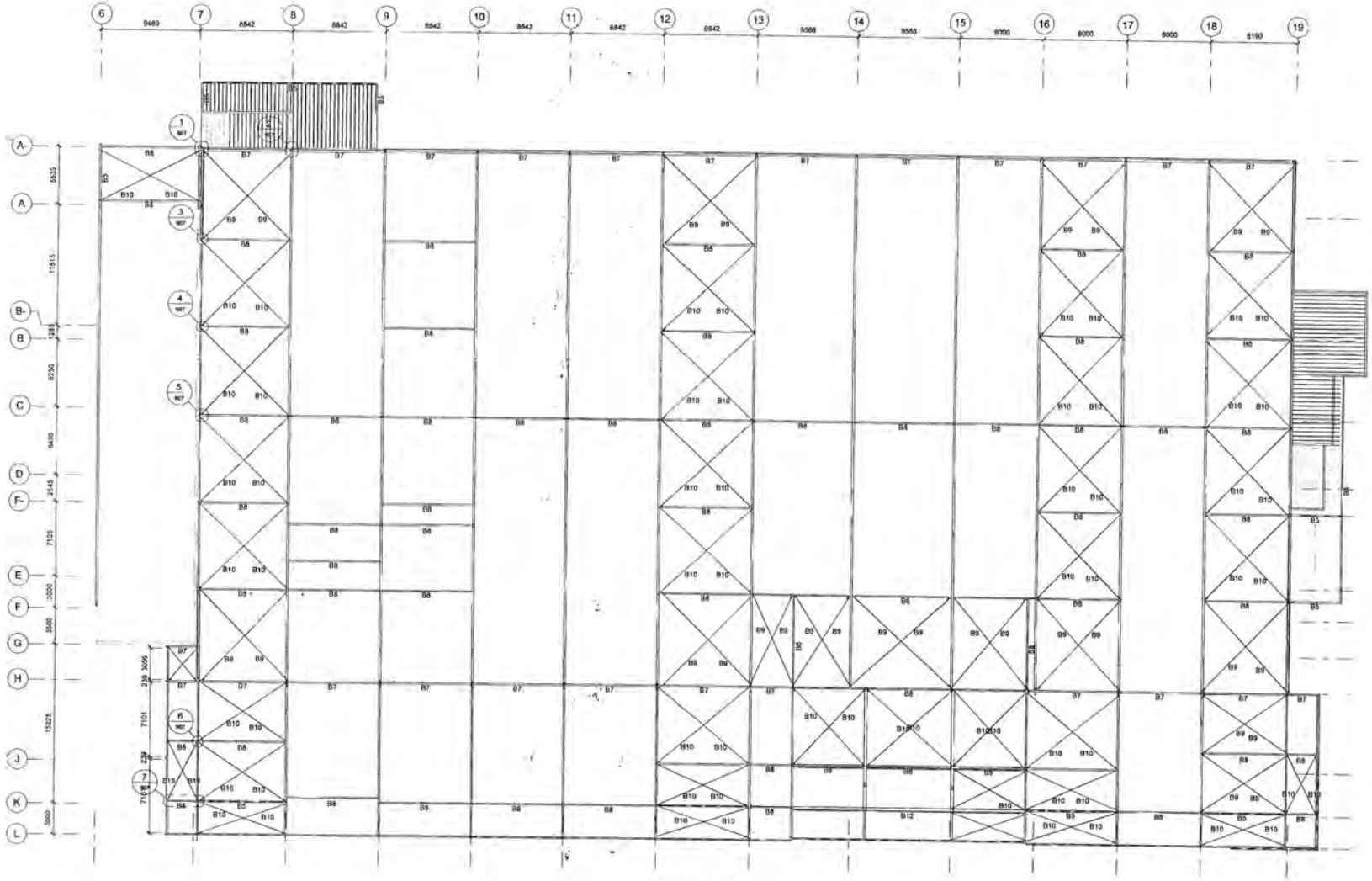
project title: BULK RETAIL TENANCY BETHLEHEM TOWN CENTRE

sheet title: STANDARD PURLIN CLEAT & DIAGONAL CROSS BRACING DETAILS

project status: FOR INFORMATION 20/03/15

drawn: BCD	scale: 1 : 10	at: A1
job no: 13-324	sheet no: 700	revision: 1

Structural Framing Schedule	
Type Mark	Type
	DHS300
B1	ex. 250UB31
B2	ex. 460UB75
B3	310UB40
B4	250UB25
B5	250UB31
B6	410UB60
B7	150 x 6 SHS
B8	125 x 6 SHS
B9	RB20
B10	RB16
B11	RB25
B12	250 PFC
B13	250 DHS 18
B14	250UC73
B15	150UC30
B16	250 x 9 SHS
B19	150 PFC
B20	RHS250x150x5
B21	300 DHS 15



Steel Bracing Plan
1:200

TCC845614

1	24/03/15	L.S.	FOR BUILDING CONSENT
rev	date	by	reason

all dimensions to be verified on site before making any shop drawings or commencing any work.

contractor

client

consultant

BCD GROUP

project status: FOR INFORMATION 20/03/15

project title: BULK RETAIL TENANCY
BETHLEHEM TOWN CENTRE

sheet title: STEEL BRACING PLAN

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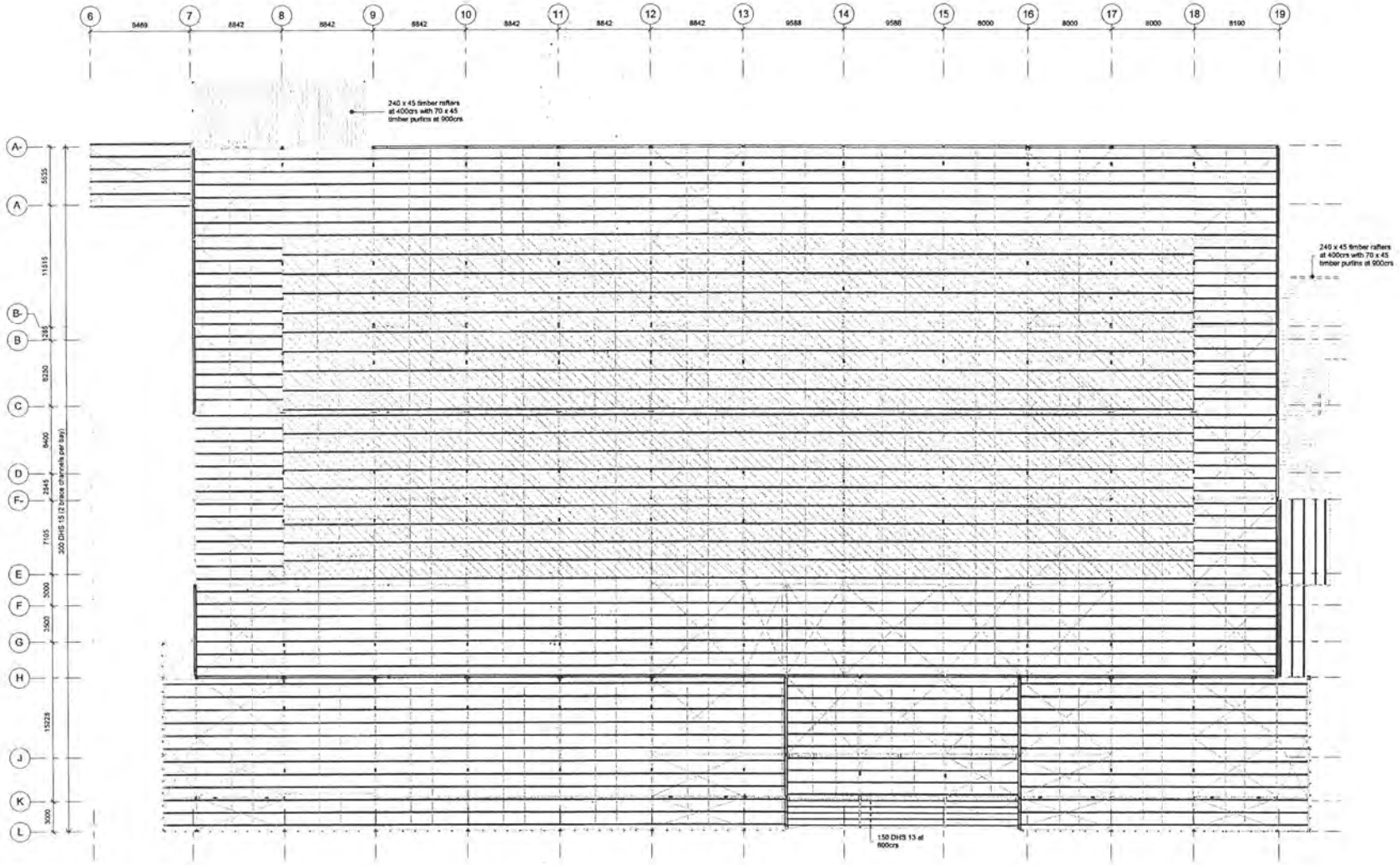
drawn: Author | scale: 1 : 200 | at A1

job no.	sheet no.	revision
13-324	702	1



Purlin Plan
1 : 200

TCC845615

all dimensions to be verified on site before making any shop drawings or commencing any work.

project status FOR INFORMATION 20/03/15

the copyright of this drawing remains with BCD Group

rev	date	by	reason
1	25/03/15	L.R.	FOR BUILDING CONSENT

contractor

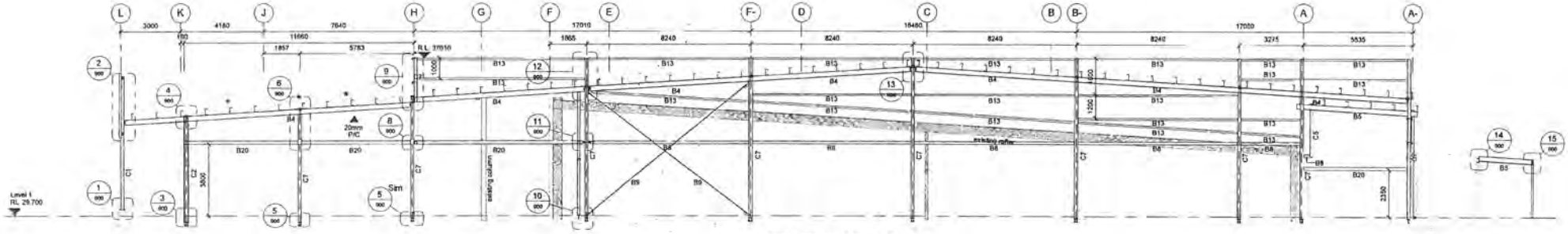
client

consultant
BCD GROUP
Consulting Engineers and Planners
5 stage wholesale

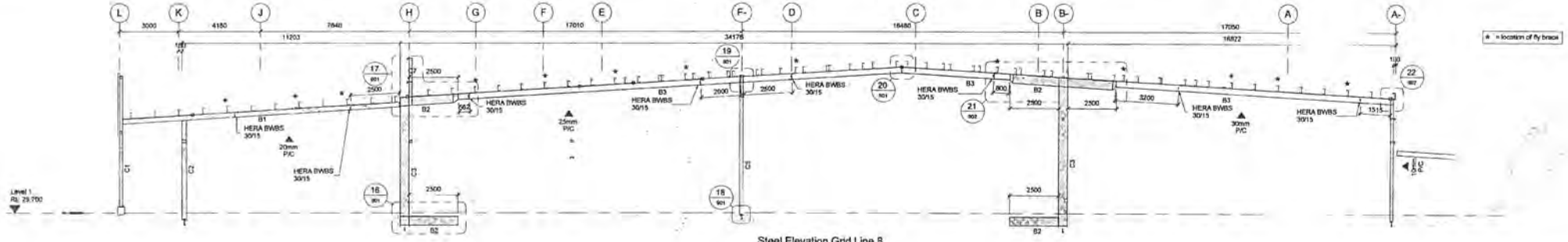
project title
BULK RETAIL TENANCY
BETHLEHEM TOWN CENTRE

sheet title
STEEL PURLIN PLAN

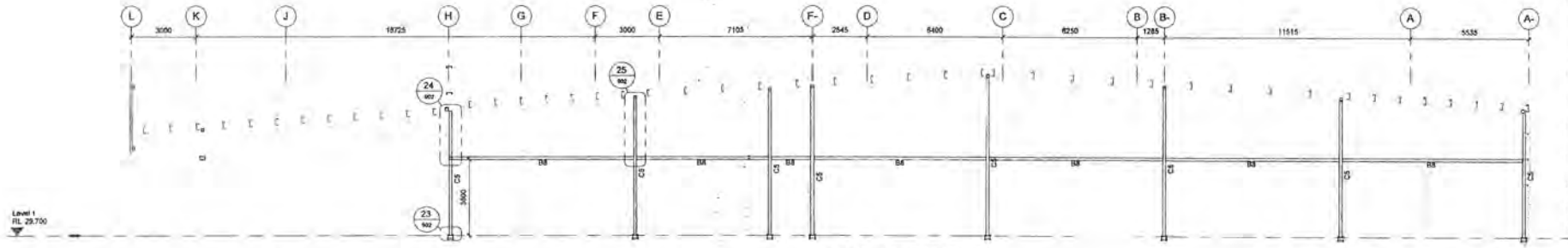
drawn: Author	scale: 1 : 200	at A1
job no	sheet no	revision
13-324	703	1



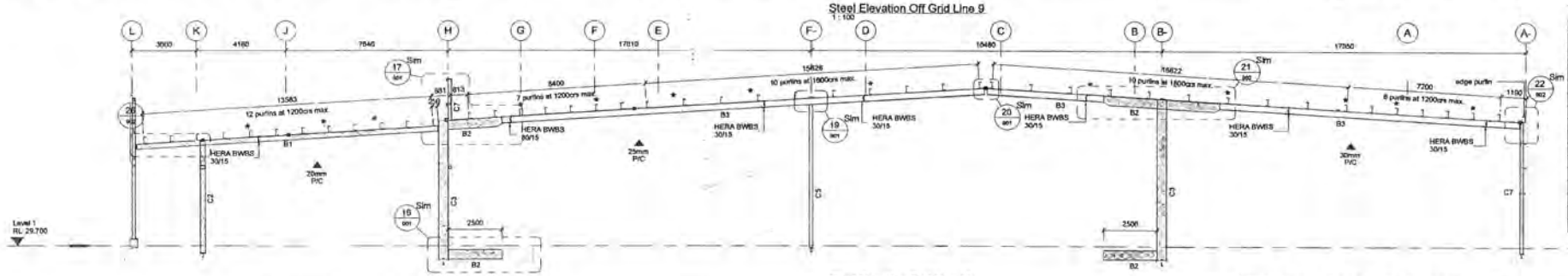
Steel Elevation Grid Line 7
1 : 100



Steel Elevation Grid Line 8
1 : 100
Grids 9, 10, 11, 12, 13, 16, 17, 18 sim



Steel Elevation Off Grid Line 9
1 : 100



Steel Elevation Grid Line 13
1 : 100

Structural Column Schedule	
Type Mark	Type
	350 x 350mm
C1	ex. 150x6 SHS
C2	ex. 250UB31
C3	ex. 460UB75
C4	89x6 SHS
C5	125x6 SHS
C6	250x9 SHS
C7	150UC30
C8	250UB31
C9	250 PFC
C10	50 x 6 SHS
C11	89x5 SHS

Structural Framing Schedule	
Type Mark	Type
	DHS300
B1	ex. 250UB31
B2	ex. 460UB75
B3	310UB40
B4	250UB25
B5	250UB31
B6	410UB60
B7	150 x 6 SHS
B8	125 x 6 SHS
B9	RB20
B10	RB16
B11	RB25
B12	250 PFC
B13	250 DHS 18
B14	250UC73
B15	150UC30
B16	250 x 9 SHS
B19	150 PFC
B20	RHS250x150x5
B21	300 DHS 15

all dimensions to be verified on site before ordering any shop drawings or commencing any work.

project status: FOR INFORMATION 20/03/15

rev	date	by	issue
1	23/03/15	L.R.	FOR BUILDING CONSENT

contractor

client

consultant: BCD GROUP

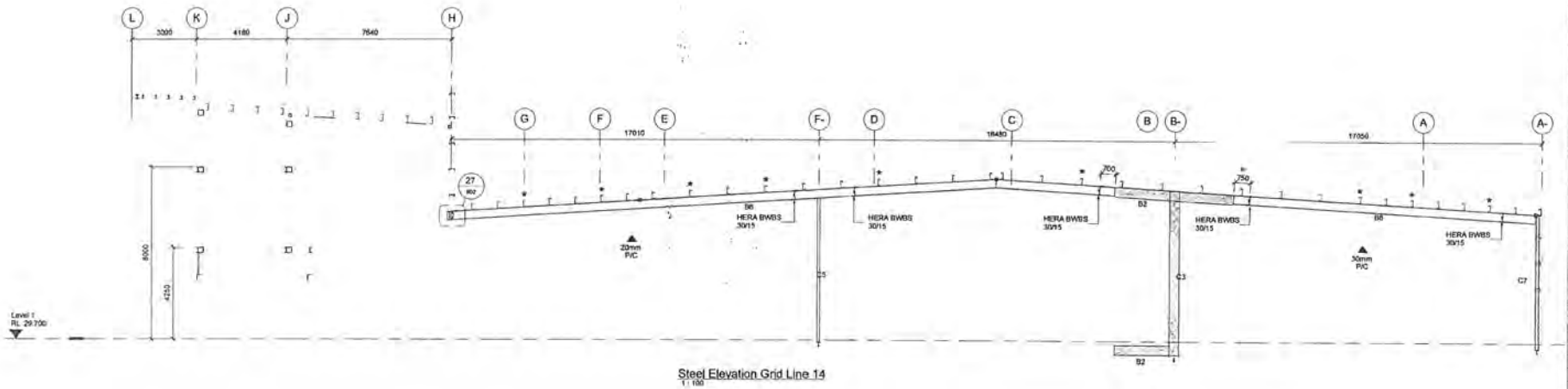
project title: BULK RETAIL TENANCY
BETHLEHEM TOWN CENTRE

sheet title: STEEL ELEVATIONS

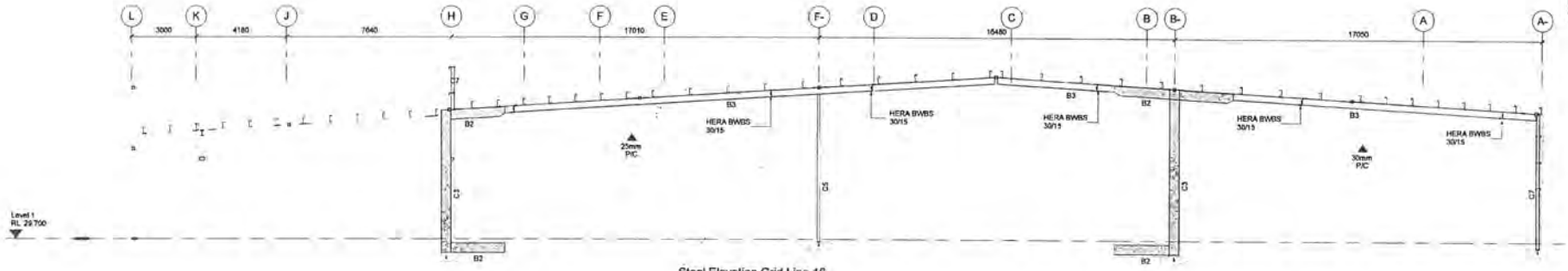
TCC845616

drawn: Author | scale: 1 : 100 | @ A1

job no	sheet no	revision
13-324	800	1



Steel Elevation Grid Line 14
1 : 100



Steel Elevation Grid Line 16
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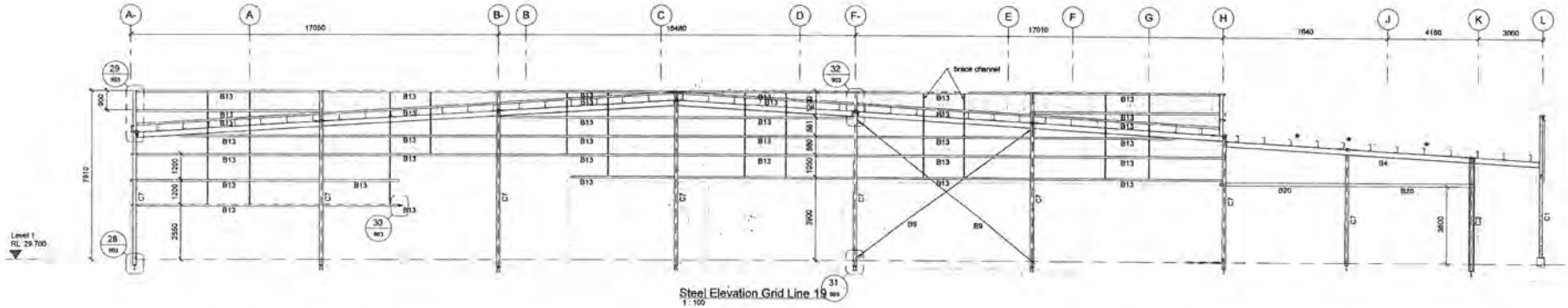


Steel Elevation Grid Line 19
1 : 100

Structural Column Schedule	
Type Mark	Type
	350 x 350mm
C1	ex. 150x6 SHS
C2	ex. 250UB31
C3	ex. 460UB75
C4	89x6 SHS
C5	125x6 SHS
C6	250x9 SHS
C7	150UC30
C8	250UB31
C9	250 PFC
C10	50 x 6 SHS
C11	89x5 SHS

Structural Framing Schedule	
Type Mark	Type
	DHS300
B1	ex. 250UB31
B2	ex. 460UB75
B3	310UB40
B4	250UB25
B5	250UB31
B6	410UB60
B7	150 x 6 SHS
B8	125 x 6 SHS
B9	RB20
B10	RB16
B11	RB25
B12	250 PFC
B13	250 DHS 16
B14	250UC73
B15	150UC30
B16	250 x 9 SHS
B19	150 PFC
B20	RHS250x150x5
B21	300 DHS 15

* = location of fly brace

TCC845617

All dimensions to be verified on site before making any shop drawings or commencing any work.

project status: FOR INFORMATION 20/03/15

rev	date	by	reason
1	2/03/15	LB	FOR BUILDING CONSENT

contractor:

client:

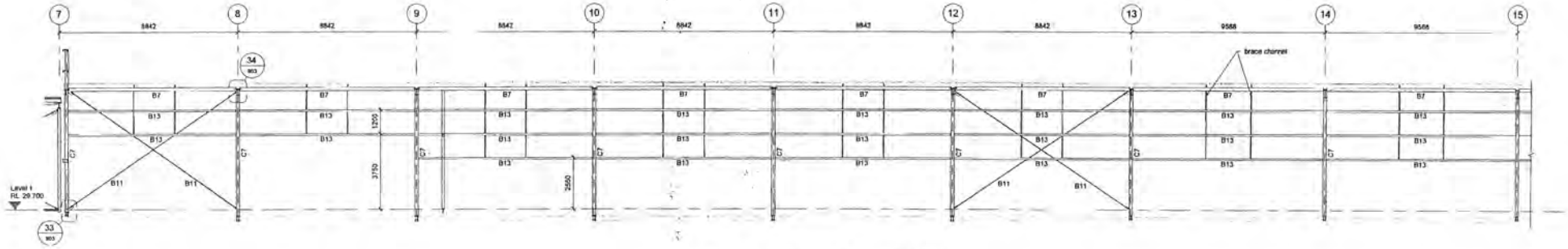
consultant: BCD GROUP

project title: BULK RETAIL TENANCY
BETHLEHEM TOWN CENTRE

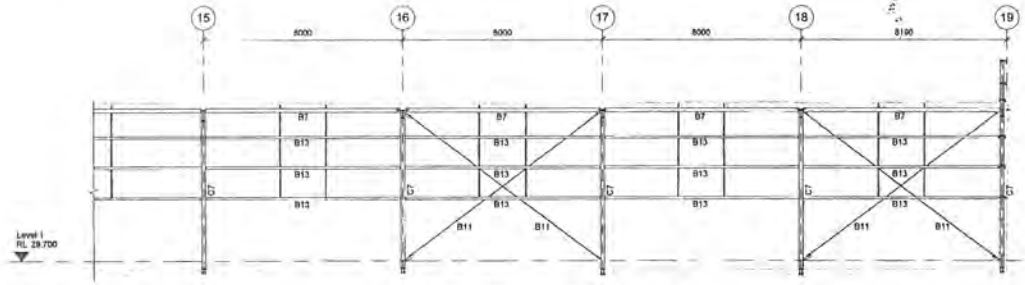
sheet title: STEEL ELEVATIONS

drawn: Author | scale: 1 : 100 @ A1

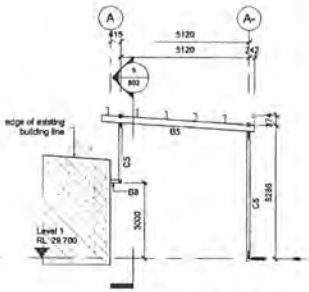
job no	sheet no	revision
13-324	801	1



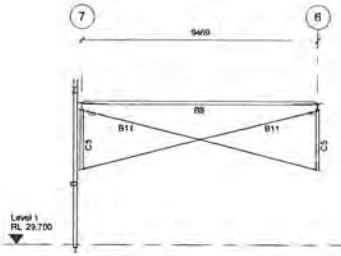
Steel Elevation Grid Line A- Between Grids 7-15
1 : 100



Steel Elevation Grid Line A- Between Grids 15-19
1 : 100



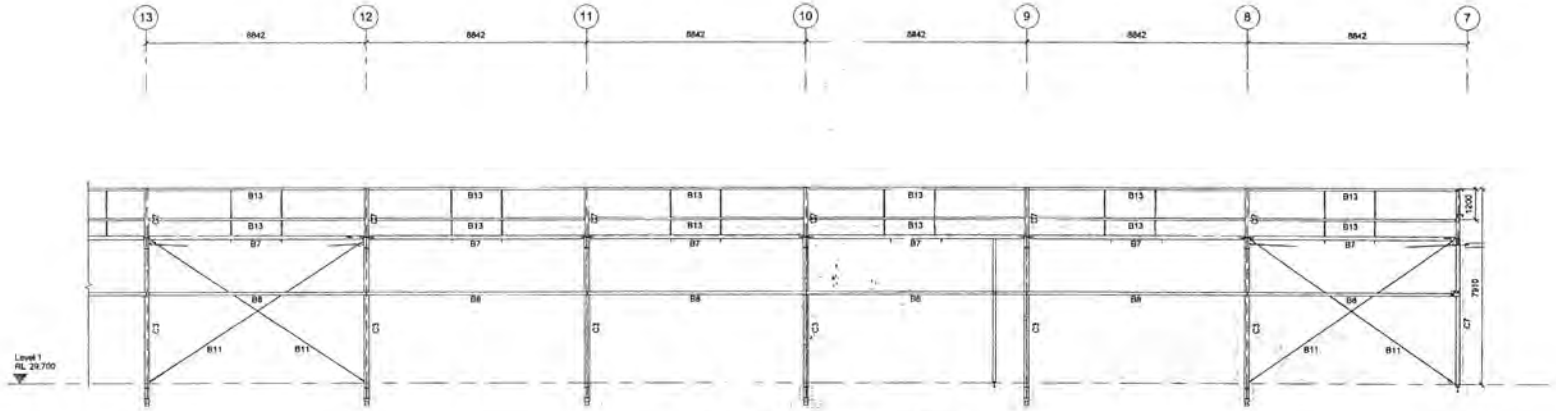
Steel Elevation Grid Line 6
1 : 100
note: steel elevation grid line 7 similar



Steel Section G-G
1 : 100

Structural Column Schedule	
Type Mark	Type
	350 x 350mm
C1	ex. 150x6 SHS
C2	ex. 250UB31
C3	ex. 460UB75
C4	89x6 SHS
C5	125x6 SHS
C6	250x9 SHS
C7	150UC30
C8	250UB31
C9	250 PFC
C10	50 x 6 SHS
C11	89x5 SHS

Structural Framing Schedule	
Type Mark	Type
	DHS300
B1	ex. 250UB31
B2	ex. 460UB75
B3	310UB40
B4	250UB25
B5	250UB31
B6	410UB60
B7	150 x 6 SHS
B8	125 x 6 SHS
B9	RB20
B10	RB16
B11	RB25
B12	250 PFC
B13	250 DHS 16
B14	250UC73
B15	150UC30
B16	250 x 9 SHS
B19	150 PFC
B20	RHS250x150x5
B21	300 DHS 15



Steel Elevation Grid Line H Between Grids 7-13
1 : 100

TCC845618

all dimensions to be verified on site before making any shop drawings or commencing any work.

project status FOR INFORMATION 20/03/15

rev	date	by	reason
1	24/03/15	L.S.	FOR BUILDING CONSENT

contractor

client

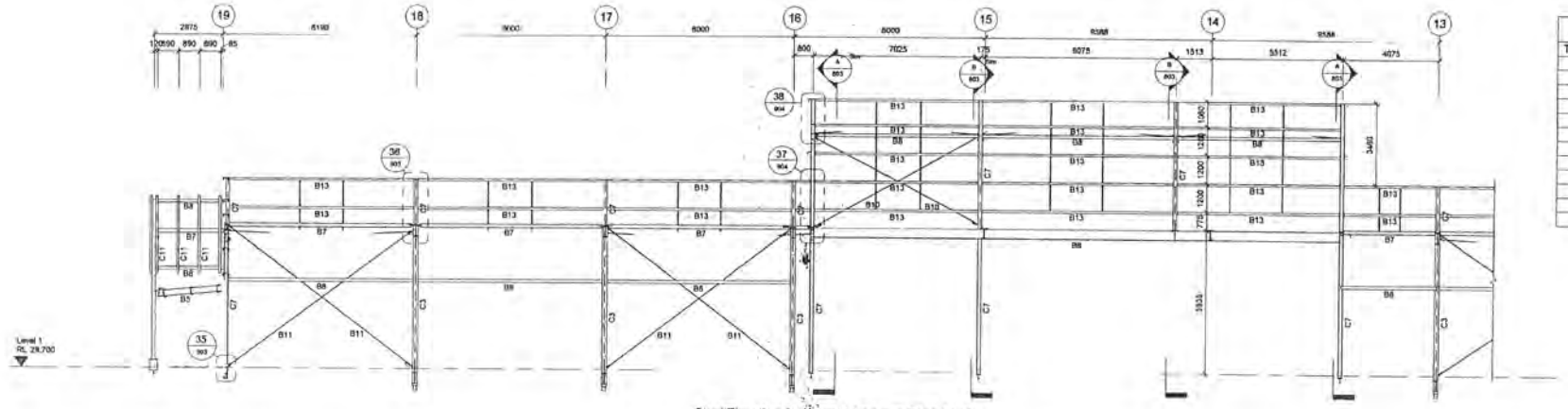
consultant: BCD GROUP

project title: BULK RETAIL TENANCY
BETHLEHEM TOWN CENTRE

sheet title: STEEL ELEVATIONS

drawn: Author | scale: 1 : 100 | at A1

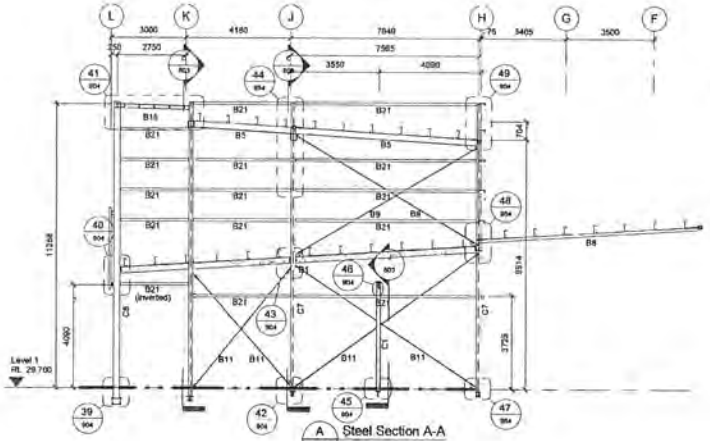
job no.	sheet no.	revision
13-324	802	1



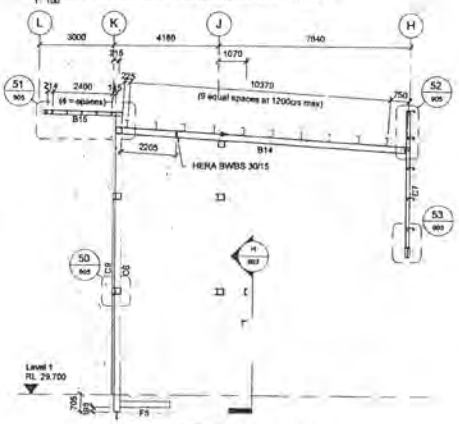
Steel Elevation Grid Line H Between Grids 13-19
1 : 100

Structural Column Schedule	
Type Mark	Type
	350 x 350mm
C1	ex. 150x6 SHS
C2	ex. 250UB31
C3	ex. 460UB75
C4	89x6 SHS
C5	125x6 SHS
C6	250x9 SHS
C7	150UC30
C8	250UB31
C9	250 PFC
C10	50 x 6 SHS
C11	89x5 SHS

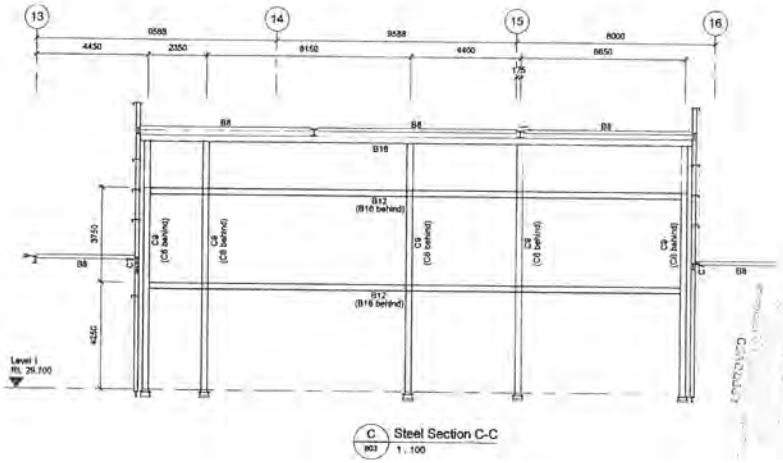
Structural Framing Schedule	
Type Mark	Type
	DHS300
B1	ex. 250UB31
B2	ex. 460UB75
B3	310UB40
B4	250UB25
B5	250UB31
B6	410UB60
B7	150 x 6 SHS
B8	125 x 6 SHS
B9	RB20
B10	RB16
B11	RB25
B12	250 PFC
B13	250 DHS 18
B14	250UC73
B15	150UC30
B16	250 x 9 SHS
B19	150 PFC
B20	RHS250x150x5
B21	300 DHS 15



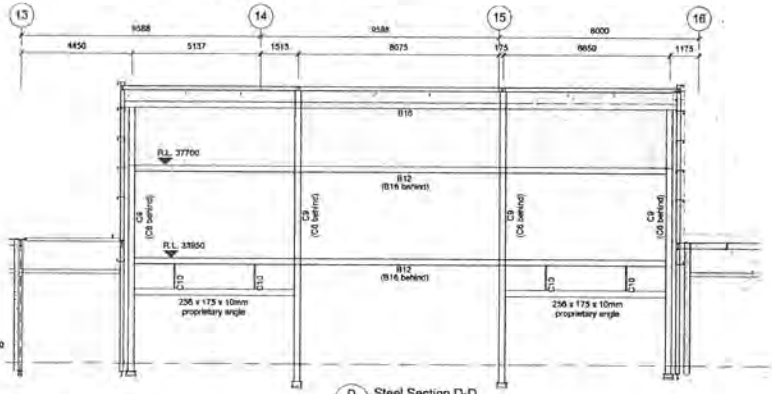
A 803 Steel Section A-A
1 : 100



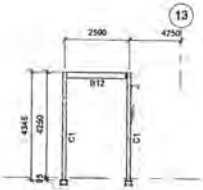
B 803 Steel Section B-B
1 : 100



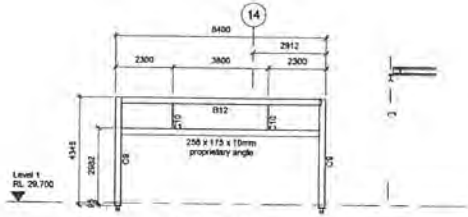
C 803 Steel Section C-C
1 : 100



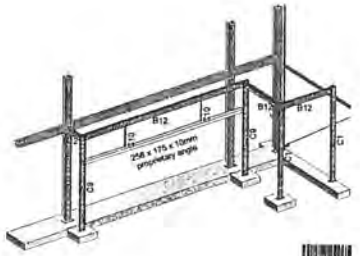
D 803 Steel Section D-D
1 : 100



J 803 Steel Section J-J
1 : 100



H 803 Steel Section H-H
1 : 100



3D Steel Section H-H

TCC845619

All dimensions to be verified on site before fixing any shop drawings or commencing any work.

project status: FOR INFORMATION 20/03/15

rev	date	by	issue
1	20/03/15	LB	FOR BUILDING CONSENT

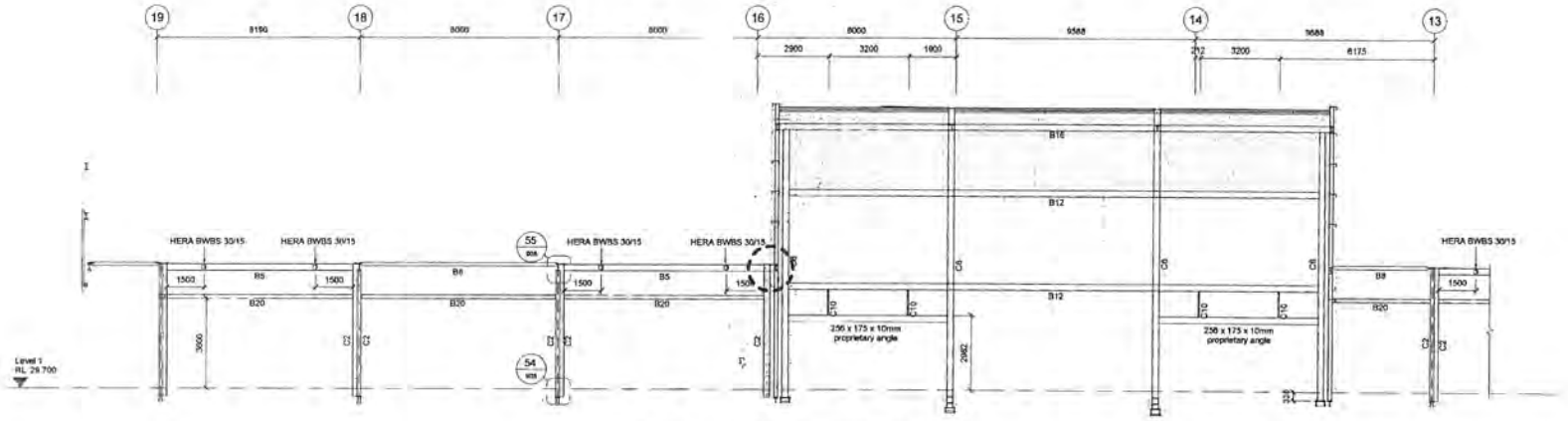
BCD GROUP

BULK RETAIL TENANCY
BETHLEHEM TOWN CENTRE

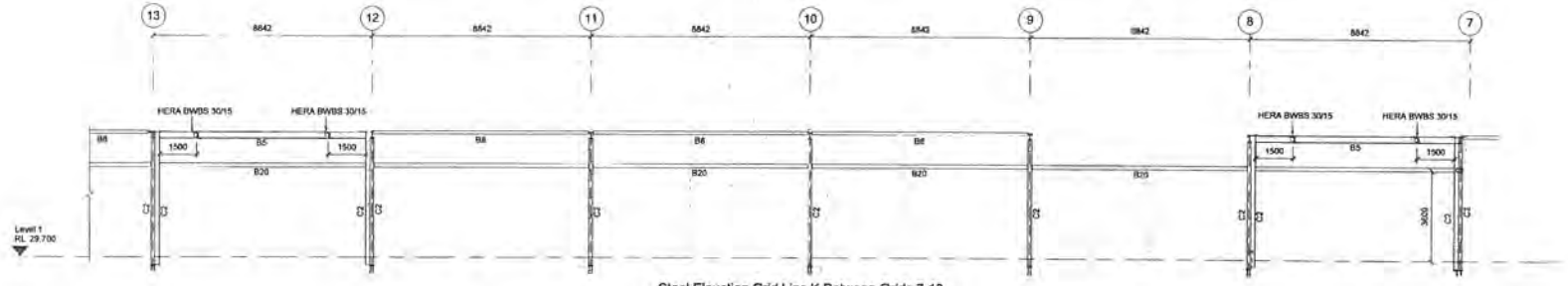
STEEL ELEVATIONS

drawn: AUthor | scale: 1 : 100 | at A1

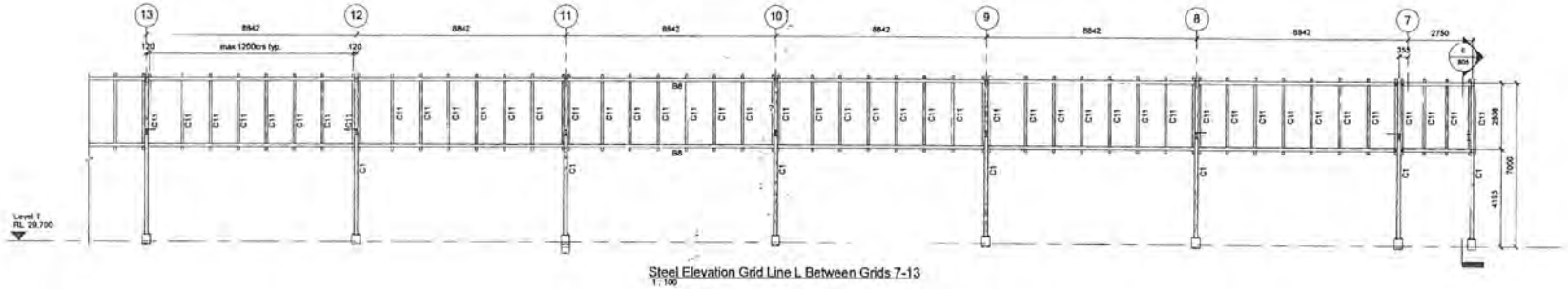
job no	sheet no	revision
13-324	803	1



Steel Elevation Grid Line K Between Grids 13-19
1 : 100



Steel Elevation Grid Line K Between Grids 7-13
1 : 100



Steel Elevation Grid Line L Between Grids 7-13
1 : 100

Structural Column Schedule	
Type Mark	Type
	350 x 350mm
C1	ex. 150x6 SHS
C2	ex. 250UB31
C3	ex. 460UB75
C4	89x6 SHS
C5	125x6 SHS
C6	250x9 SHS
C7	150UC30
C8	250UB31
C9	250 PFC
C10	50 x 6 SHS
C11	89x5 SHS

Structural Framing Schedule	
Type Mark	Type
	DHS300
B1	ex. 250UB31
B2	ex. 460UB75
B3	310UB40
B4	250UB25
B5	250UB31
B6	410UB60
B7	150 x 6 SHS
B8	125 x 6 SHS
B9	RB20
B10	RB16
B11	RB25
B12	250 PFC
B13	250 DHS 18
B14	250UC73
B15	150UC30
B16	250 x 9 SHS
B19	150 PFC
B20	RHS250x150x5
B21	300 DHS 15

TCC845620

all dimensions to be verified on site before making any shop drawings or commencing any work.

rev	date	by	reason
1	25/03/15	L.B.	FOR BUILDING CONSENT

contractor | client

consultant: BCD GROUP

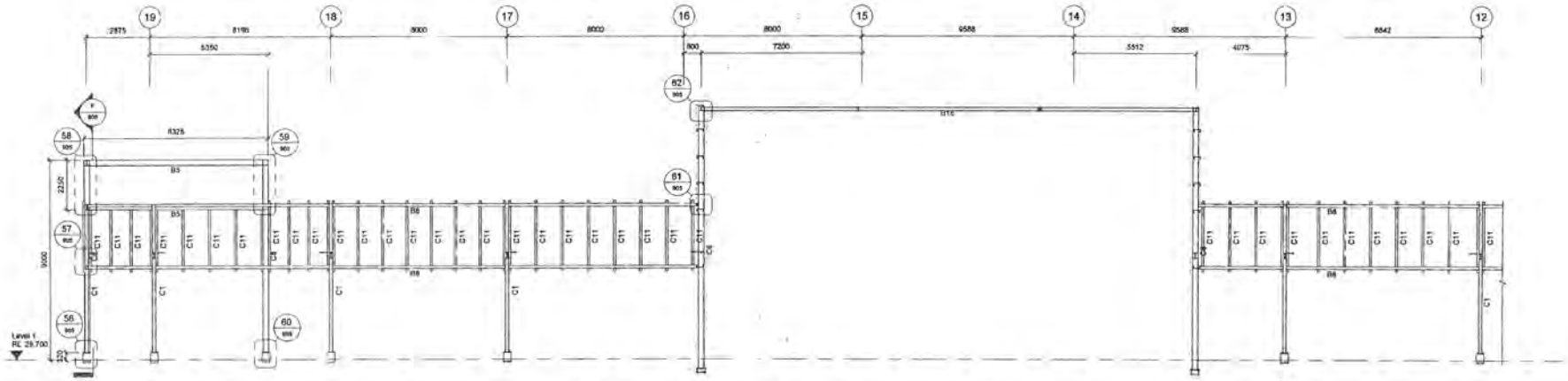
project title: BULK RETAIL TENANCY
BETHLEHEM TOWN CENTRE

project status: FOR INFORMATION 20/03/15

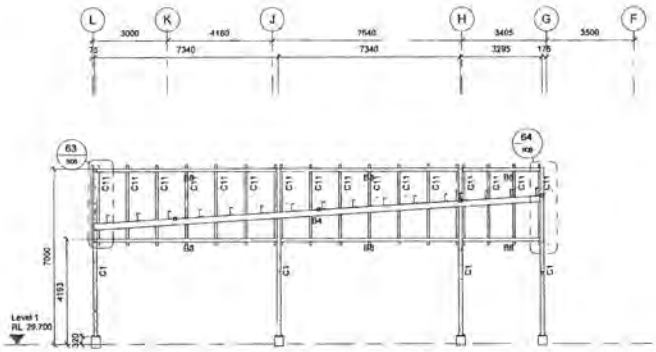
sheet title: STEEL ELEVATIONS

drawn: L.B | scale: 1 : 100 @ A1

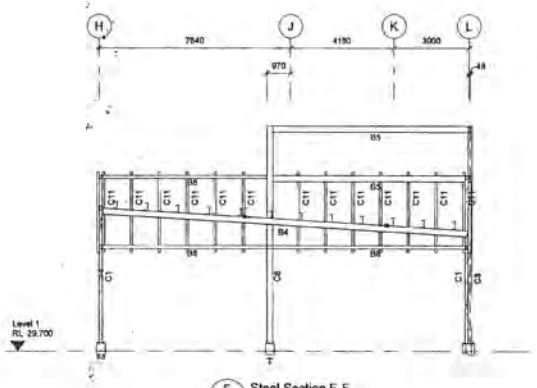
job no	sheet no	revision
13-324	804	1



Steel Elevation Grid Line L Between Grids 13-19
1 : 100



E Steel Section E-E
1 : 100



F Steel Section F-F
1 : 100

Structural Column Schedule	
Type Mark	Type
	350 x 350mm
C1	ex. 150x6 SHS
C2	ex. 250UB31
C3	ex. 460UB75
C4	89x6 SHS
C5	125x6 SHS
C6	250x9 SHS
C7	150UC30
C8	250UB31
C9	250 PFC
C10	50 x 6 SHS
C11	89x5 SHS

Structural Framing Schedule	
Type Mark	Type
	DHS300
B1	ex. 250UB31
B2	ex. 460UB75
B3	310UB40
B4	250UB25
B5	250UB31
B6	410UB60
B7	150 x 6 SHS
B8	125 x 6 SHS
B9	RB20
B10	RB16
B11	RB25
B12	250 PFC
B13	250 DHS 18
B14	250UC73
B15	150UC30
B16	250 x 9 SHS
B19	150 PFC
B20	RHS250x150x5
B21	300 DHS 15

TCC845621

all dimensions to be verified on site before making any shop drawings or commencing any work.

project status: FOR INFORMATION 20/03/15

the copyright of this drawing remains with BCD Group

rev	date	by	reason
1	25/03/15	L.B.	FOR BUILDING CONSENT

contractor | client

consultant: BCD GROUP

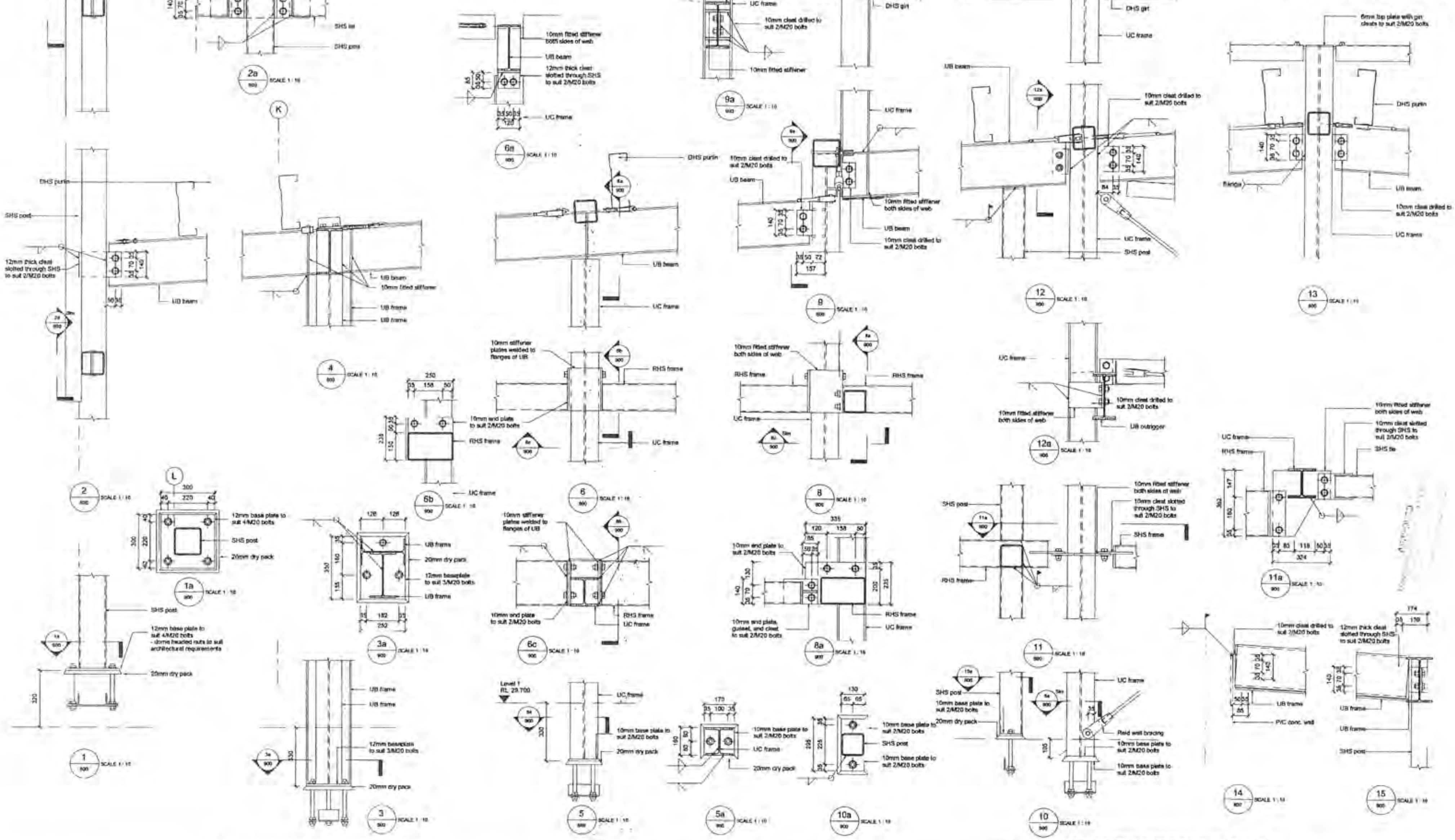
project title: BULK RETAIL TENANCY
BETHLEHEM TOWN CENTRE

sheet title: STEEL ELEVATIONS

drawn: L.B.	scale: 1 : 100	at A1
job no: 13-324	sheet no: 805	revision: 1

STRUCTURAL NOTES

All bolts to be M/20 grade 8.8/S for steel connections UNO.
Purlin connections to have M12 grade 4.4/S for 150 & 200
Purlin connections to have M16 grade 4.4/S for 250 & 300
All welds to be 6mm fillet weld unless noted otherwise
All Plates to be grade G350 unless noted otherwise
Allow for 12mm Ø holes at 900 crs to web for timber framing as required
To be read in conjuction with BCD structural steelwork specification
All Reidbrace must be centralised on the bracket with washers either side of the bracket to ensure central loading forces - total movement not to exceed 6mm



All dimensions to be verified on site before making any shop drawings or commencing any work.

project status: **FOR INFORMATION 20/03/15**

rev	date	by	revision
1	20/03/15	LB	FOR BUILDING CONSENT

BCD GROUP

project title: BULK RETAIL TENANCY
BETHLEHEM TOWN CENTRE

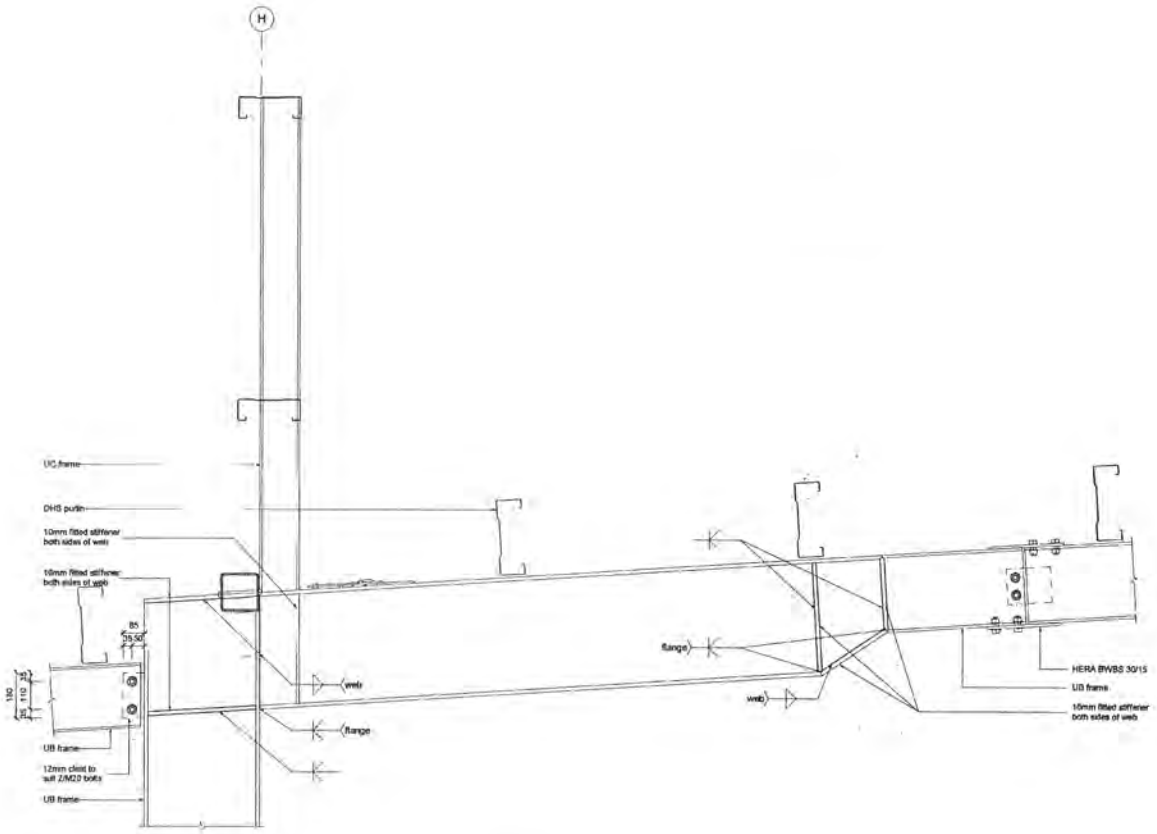
sheet title: STEEL DETAILS

TCC845622

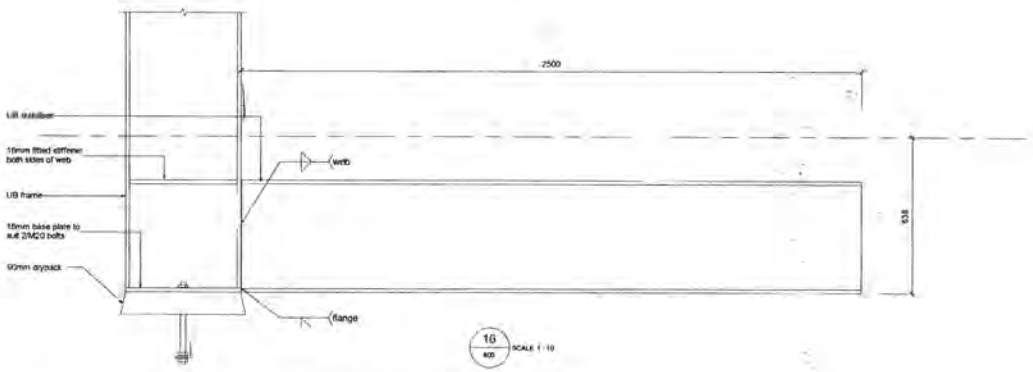
drawn	scale	
Author	1 : 10	at A1
job no	sheet no	revision
13-324	900	1

STRUCTURAL NOTES

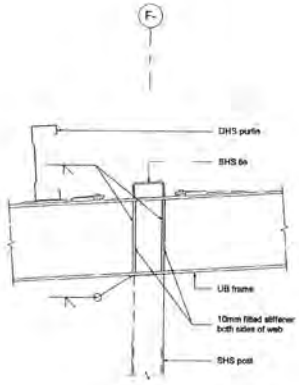
All bolts to be M20 grade 8.8/S for steel connections UNO.
Purlin connections to have M12 grade 4.4/S for 150 & 200
Purlin connections to have M16 grade 4.4/S for 250 & 300
All welds to be 6mm fillet weld unless noted otherwise
All Plates to be grade G350 unless noted otherwise
Allow for 12mm ø holes at 900 crs to web for timber framing as required
To be read in conjuction with BCD structural steelwork specification.
All Rodbrace must be centralised on the bracket with washers either side of the bracket to ensure central loading forces - total movement not to exceed 6mm



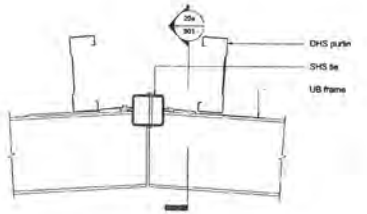
17 / 800 SCALE 1 : 10



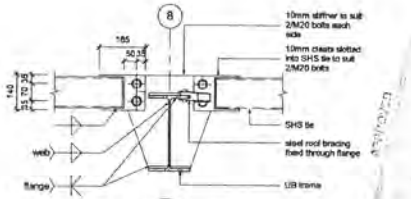
16 / 800 SCALE 1 : 10



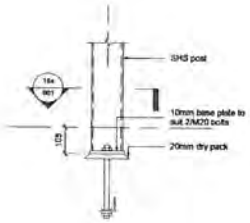
19 / 800 SCALE 1 : 10



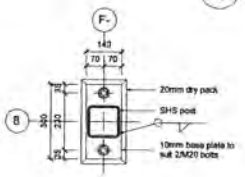
20 / 800 SCALE 1 : 10



20a / 901 SCALE 1 : 10



18 / 800 SCALE 1 : 10



18a / 901 SCALE 1 : 10

TCC845823

all dimensions to be verified on site before making any shop drawings or commencing any work.

PROJECT STATUS: FOR INFORMATION 20/03/15

Rev	Date	By	Reason
1	23/03/15	LB	FOR BUILDING CONSENT

contractor | client

consultant: BCD GROUP

project title: BULK RETAIL TENANCY
BETHLEHEM TOWN CENTRE

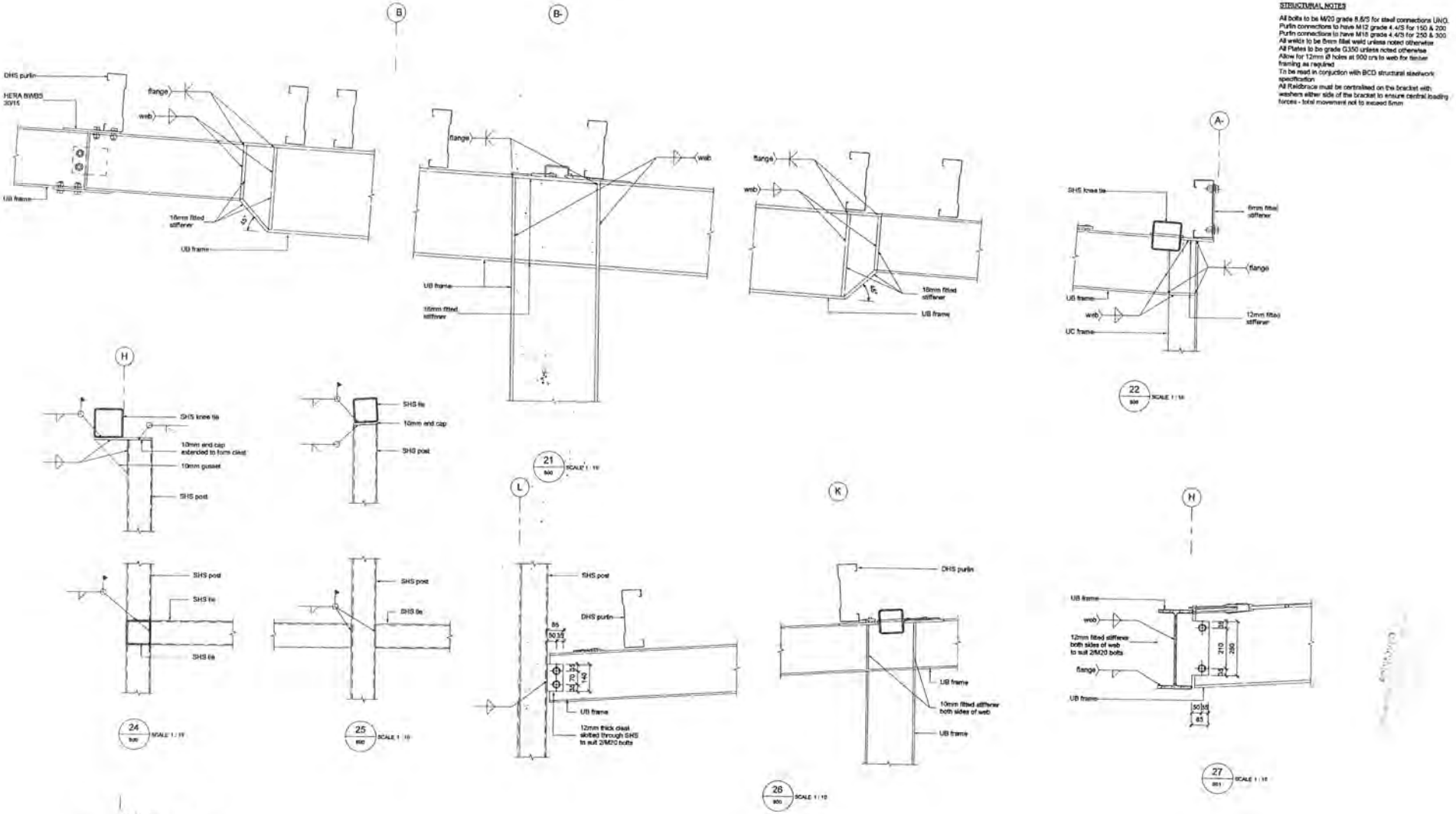
sheet title: STEEL DETAILS

drawn: Author | scale: 1 : 10 | at A1

job no	sheet no	revision
13-324	901	1

STRUCTURAL NOTES

All bolts to be M20 grade 8.8/S for steel connections UNO.
Purlin connections to have M12 grade 4.4/S for 150 & 200
Purlin connections to have M16 grade 4.4/S for 250 & 300
All welds to be 6mm fillet weld unless noted otherwise
All Plates to be grade G350 unless noted otherwise
Allow for 12mm ø holes at 900 crs to web for timber framing as required
To be read in conjuction with BCD structural steelwork specification
All Reldbrace must be centralised on the bracket with washers either side of the bracket to ensure central loading forces - total movement not to exceed 5mm



TCC845624

all dimensions to be verified on site before making any shop drawings or commencing any work.

rev	date	by	reason
1	20/03/15	L.S.	FOR BUILDING CONSENT

contractor

client

consultants

BCD GROUP

project status FOR INFORMATION 20/03/15

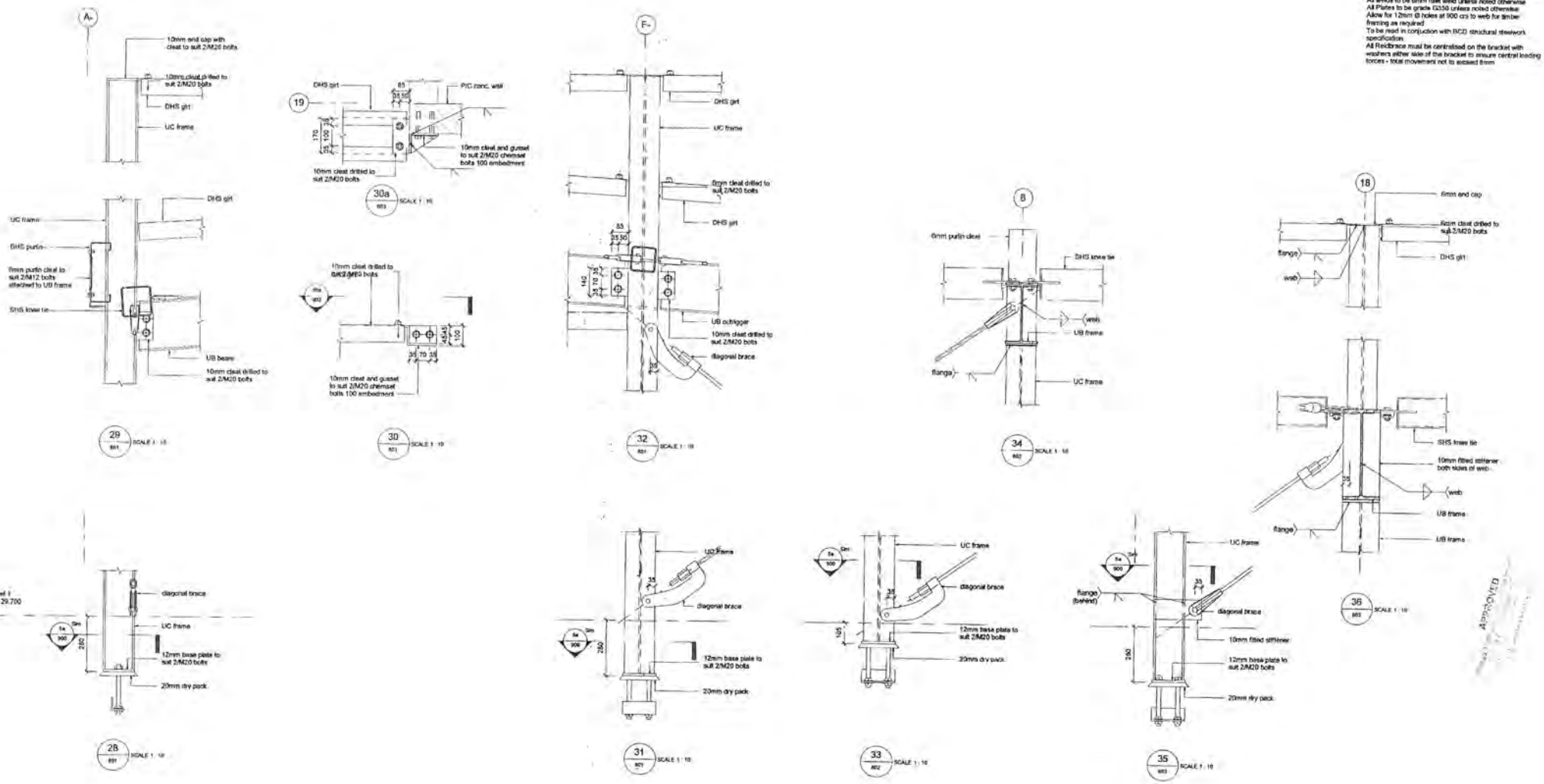
project title
BULK RETAIL TENANCY
BETHLEHEM TOWN CENTRE

sheet title
STEEL DETAILS

drawn: Author	scale: 1 : 10	at A1
job no. 13-324	sheet no. 902	revision 1

STRUCTURAL NOTES

All bolts to be M/20 grade 8.8/S friction grip steel connections UNO.
Purlin connections to have M12 grade 4.4/S for 150 & 200
Purlin connections to have M16 grade 4.4/S for 250 & 300
All welds to be 6mm fillet weld unless noted otherwise
All Plates to be grade G350 unless noted otherwise
Allow for 12mm Ø holes at 900 crs to web for timber framing as required
To be read in conjuction with BCD structural steelwork specification
All Rectbrace must be centralised on the bracket with washers either side of the bracket to ensure central loading forces - total movement not to exceed 6mm



TCC845625

all dimensions to be verified on site before making any shop drawings or commencing any work.

rev	date	by	reason
1	25/03/15	I.R.	FOR BUILDING CONSENT

contractor

client

consultant: BCD GROUP

project title: BULK RETAIL TENANCY
BETHLEHEM TOWN CENTRE

project status: FOR INFORMATION 20/03/15

sheet title: STEEL DETAILS

drawn: Author	scale: 1 : 10	at A1
job no: 13-324	sheet no: 903	revision: 1

STRUCTURAL NOTES

All bolts to be M/20 grade 8.8/S for steel connections UNO.
Purlin connections to have M12 grade 4.4/S for 150 & 200
Purlin connections to have M16 grade 4.4/S for 250 & 300
All welds to be 6mm fillet weld unless noted otherwise
All Plates to be grade G350 unless noted otherwise
Allow for 12mm Ø holes at 900 crs to web for timber framing as required
To be read in conjuction with BCD structural steelwork specification
All Rielbrace must be centralised on the bracket with washers either side of the bracket to ensure central loading forces - total movement not to exceed 6mm

TCC845626

1	25/03/15	LR	FOR BUILDING CONSENT
rev	date	by	reason

contractor | client | consultant: BCD GROUP

project title: BULK RETAIL TENANCY
BETHLEHEM TOWN CENTRE

project status: FOR INFORMATION 20/03/15

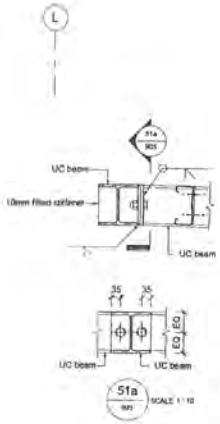
sheet title: STEEL DETAILS

drawn: Author | scale: 1 : 10 | at A1

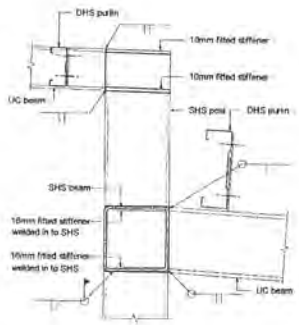
job no	sheet no	revision
13-324	904	1

STRUCTURAL NOTES

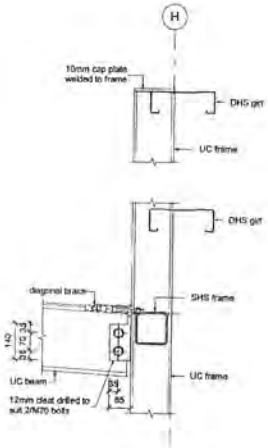
All bolts to be M/20 grade 8.8/S for steel connections UNO.
Purlin connections to have M12 grade 4.4/S for 150 & 200
Purlin connections to have M18 grade 4.4/S for 250 & 300
All welds to be 6mm fillet weld unless noted otherwise
All Plates to be grade G350 unless noted otherwise
Allow for 12mm Ø holes at 900 crs to web for timber framing as required
To be read in conjuction with BCD structural steelwork specification
All Reidbrace must be centralised on the bracket with washers either side of the bracket to ensure central loading forces - total movement not to exceed 6mm



51a SCALE 1 : 10



51 SCALE 1 : 10



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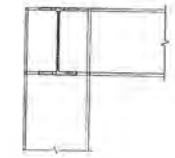

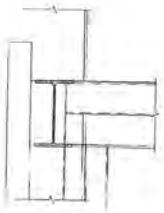

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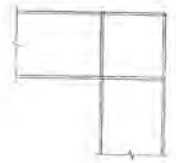

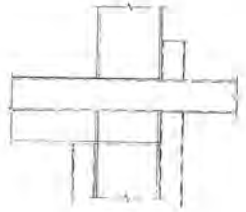

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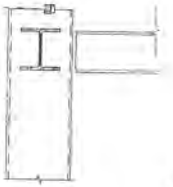

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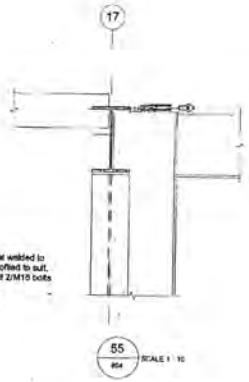

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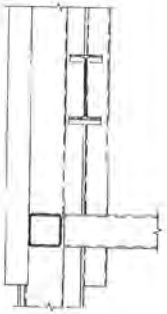

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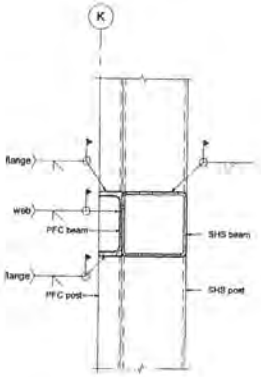

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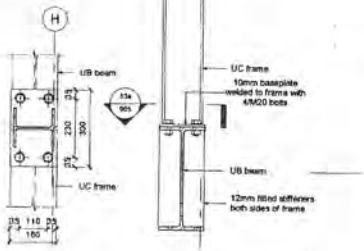
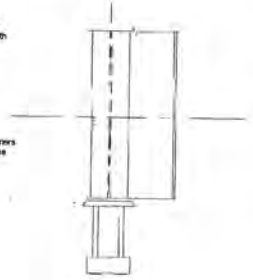


53a SCALE 1 : 10

53 SCALE 1 : 10



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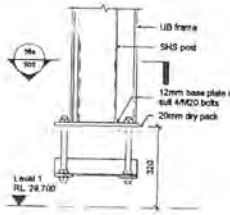

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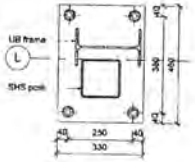

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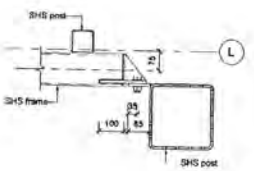

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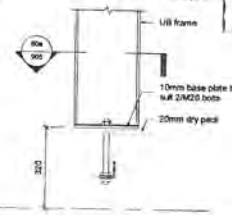

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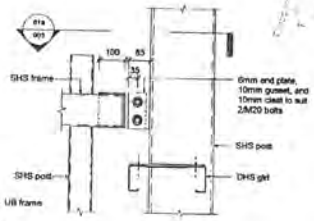

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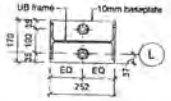

60a SCALE 1 : 10

APPROVED

TCC845627

All dimensions to be verified on site before making any shop drawings or commencing any work.

rev	date	by	reason
1	23/03/15	L.B.	FOR BUILDING CONSENT

contractor

client

consultant: BCD GROUP Consulting Engineers and Planners

project title: BULK RETAIL TENANCY BETHLEHEM TOWN CENTRE

project status: FOR INFORMATION 20/03/15

sheet title: STEEL DETAILS

drawn: Author	scale: 1 : 10	at A1
job no: 13-324	sheet no: 905	revision: 1

Description:

Building G was designed in 2006 as part of Stage 3 of the shopping centre. It is a rectangular single storey block that has its long axis orientated east west but it has a small two storey, almost square shaped office section in the western end of the building. It is a stand-alone building that has a car park frontage on all 4 sides. It is seismically isolated from all other buildings.

This building is a moderate sized foot-print, single storey, mono-pitched roof warehouse type building, with 7 bays in the east-west longitudinal direction and two or three bays in the north-south transverse direction. The two storey section of the building occupies the full north-south width of the western 3 bays and the roof over this section is raised above the roof of the single storey section and again has a mono-pitch configuration. There are canopies on all elevations except the east.

Construction of the warehouse type envelope, which occupies the eastern 4 bays, consists of long-run metal mono-pitch roof sheeting over cold rolled steel purlins, supported on structural steel portal frame rafters, which are located on each primary transverse frame grid. Each of the primary frame portal rafters is supported by structural steel portal columns at the span ends, and there are internal 150 x 6mm SHS columns at approximately mid-span of the rafters. These structural steel columns land on conventional reinforced concrete foundation pads at a level below the concrete on-grade slab. This section of the building is surrounded by a reinforced concrete ground beam integrated into the conventional pad foundations that are under the structural steel columns. The foundations have been shown and recorded as being reinforced concrete on the foundation plan, but there are no specific dimensions, or details of the pads, or the reinforcement, in the structural drawings. By inspection of the building plans and sections, the foundations appear to be of a reasonable size and robust configuration.

The canopies are a combination of extended main roof rafters and structural steel T section cantilever beams supporting structural steel rectangular hollow section (RHS) purlins. The cantilever beams are bolted directly into the main portal frame columns with robust connections and this combination provides adequate lateral stability.

The original architectural drawings call up that there is a combination of shop front glazing and prefinished Zincalume and plywood cladding on all elevations, all of which represents a lightweight cladding system.

Over the single storey area there is a single bay of full width diagonal structural steel rod and double purlin roof bracing in both the longitudinal and transverse directions. There are substantial parallel flange channel (PFC) eaves ties on the north and south elevations, and these appear to act as collector beams to distribute lateral loads from the roof plane bracing to the reinforced concrete floor support framing of the two storey section.

The on-grade floor slab consists of a conventional mesh reinforced 125mm thick on-grade slab.

The two storey area in the western end of the main building occupies 3 bays in both directions. There are comprehensive details of the suspended floor construction, but the specific details of the roof framing have had to be derived from an examination of the general structural steel work cross sections and the structural steel details. The roof construction appears to replicate that in the single storey area of the building and is supported on structural steel portal frames with in-plane diagonal steel rod roof bracing.