City Care Milton Street Depot – Tradesmens Workshop
Detailed Engineering Evaluation
BU 1141-001 EQ2
Quantitative Report

Prepared for Christchurch City Council (Client)

By Beca Carter Hollings & Ferner Ltd (Beca)

4 October 2013

Revision History

Revision Nº	Prepared By	Description	Date
A	Laura Chen	Draft for CCC review	26 September 2013
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Document Acceptance

Action	Name	Signed	Date
Prepared by	Laura Chen		4 October 2013
Reviewed by	Jonathan Barnett		4 October 2013
Approved by	David Whittaker		4 October 2013
on behalf of	Beca Carter Hollings & Ferner Ltd		

City Care Milton Street Depot –Tradesmens Workshop BU 1141-001 EQ2

Detailed Engineering Evaluation Quantitative Report – SUMMARY
Version 1

Address
245 Milton Street
Sydenham
Christchurch

Background

This is a summary of the Quantitative Assessment report for the building structure, and is based on the document 'Guidance on Detailed Engineering Evaluation of Earthquake Affected Non-residential Buildings in Canterbury – Part 2 Evaluation Procedure' (draft) Revision 7 issued by the Engineering Advisory Group (EAG) in 2012.

A Qualitative Assessment report for the Tradesmens Workshop was issued to CCC on 7 June 2012

The Tradesmens Workshop is located at the City Care Milton St Depot at 245 Milton Street, Sydenham, Christchurch. It is a steel portal frame building with precast concrete shear walls. The structural drawings available indicate the Tradesmens Workshop was designed in 1974. Calculations have been undertaken as part of the Quantitative Assessment.

The format and content of this report follows a template provided by CCC, which is based on the EAG document.

Key Damage Observed

Visual inspections on 8 February 2012 and 9 October 2012 indicate the building has suffered moderate damage. Key damage observed include:

- Vertical cracking and spalling to the western and southern concrete walls adjacent to joints.
- Significant spalling to one columns' concrete encasement adjacent to the weld plate joints in the Sign Shop area. It was noted that this panel has been secured with steel brackets prior to our inspection.
- Diagonal cracking at the base of the concrete wall in the stairwell to the second storey office.
- Cracking and spalling to the column concrete encasement at various portal frame knee joints.
- Cracking to precast concrete wall panels at the portal frame knee cast in connections.

Critical Structural Weaknesses (CSW)

The following Critical Structural Weaknesses have been identified:

- Site characteristics due to liquefaction occurring on the Milton St site.

- Difference in stiffness between the western Sign Shop area and the rest of the building due to the portal frame orientation.

Indicative Building Strength (from Detailed Assessment)

The building has been assessed to have a seismic capacity of 10%NBS in one localised area, using the New Zealand Society for Earthquake Engineering (NZSEE) Detailed Assessment guideline 'Assessment and Improvement of the Structural Performance of Buildings in Earthquakes' (AISPBE), 2006, and is therefore Earthquake Prone and classified as Seismic Grade E.

Our assessment has identified the structural components that have governed/limited the building's seismic performance, and their potential failure mechanisms, are as follows:

- The beam supporting the southern Sign Shop portal frames achieve 10%NBS under longitudinal (out-of-plane) loading.
- The knee connection of the steel portal frames at the eastern end of the building achieve 35%NBS under transverse (in-plane) loading.
- The steel portal frame rafters at the eastern end of the building achieve 39%NBS under transverse (in-plane) loading.

There are a number of other elements in the building which have assessed seismic capacities greater than 33%NBS and less than 67%NBS.

The structural damage observed to the precast concrete panels is moderate and the seismic capacity of the precast concrete panels is considered to have reduced due to the damage from 100%NBS to 67%NBS. This reduction does not affect the overall seismic capacity of the building however, since this is limited by the Sign Shop portal frame support beam. No significant damage was noted to this element.

Recommendations

In order that the owner can make an informed decision about the on-going use and occupancy of their building the following information is presented in line with the Department of Building and Housing document 'Guidance for engineers assessing the seismic performance of non-residential and multi-unit residential buildings in greater Christchurch', June 2012.

The building is considered to be earthquake prone, having an assessed capacity less than 33%NBS, and is classified as Seismic Grade E. The risk of collapse of an earthquake prone building of this grade is considered to be more than 25 times greater than that of an equivalent new building.

For greater Christchurch the definition of a "dangerous" building in the Building Act has been extended (by the Canterbury Earthquake (Building Act) Order 2011) to include buildings at risk of collapsing in a moderate earthquake, that is earthquake prone buildings with a capacity at or below 33%NBS. Where council requires a dangerous building or an earthquake prone building to be upgraded, it may prohibit the use of the building until the works are carried out.

The structural damage observed to the precast concrete panels is moderate and the seismic capacity of the precast concrete panels is considered to have reduced due to the damage. This reduction does not affect the overall seismic capacity of the building. No significant damage was noted to the structural element that is the limiting capacity of the building.

It is recommended that:

- The immediate area under the southern Sign Shop portals is vacated or restricted use until local strengthening of the support beam is completed.
- The roof bracing in the trussed roof area should be installed as shown on the drawings.
- A full damage assessment is carried out for insurance purposes.
- A settlement survey could be carried out to determine the extent of settlement of the building for insurance purposes.
- According to the recent CCC Instructions to Engineers document (16 October 2012), Council's insurance provides for repairing damaged elements to a condition substantially as new. We suggest you consult further with your insurance advisor.

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Appendices

1 Background

Beca Carter Hollings & Ferner Ltd (Beca) has been engaged by Christchurch City Council (CCC) to undertake a Quantitative Detailed Engineering Evaluation (DEE) of the Tradesmens Workshop building located at 245 Milton Street, Sydenham, Christchurch.

This report is a Quantitative Assessment of the building structure, and is based on the document 'Guidance on Detailed Engineering Evaluation of Earthquake Affected Non-residential Buildings in Canterbury – Part 2 Evaluation Procedure' (draft) Revision 7 issued by the Engineering Advisory Group in 2012.

A quantitative assessment involves analytical calculations of the building's strength and may involve material testing, geotechnical testing and intrusive investigation. The qualitative assessment previously carried out involved inspections of the building, a desktop review of existing structural and geotechnical information, including existing drawings and calculations, if available and an assessment of the level of seismic capacity against current code using the Initial Evaluation Procedure (IEP).

The purpose of these assessments is to determine the likely building performance and damage patterns, to identify any potential Critical Structural Weaknesses (CSW) or collapse hazards, and to make an assessment of the likely building strength in terms of percentage of New Building Standard (%NBS).

A full set of structural drawings (consent issue) was made available and has been used in our assessment of the building. The building description below is based on a review of the drawings and our visual inspections.

The format and content of this report follows a template provided by CCC, which is based on the EAG document.

2 Compliance

This section contains a brief summary of the requirements of the various statutes and authorities that control activities in relation to buildings in Christchurch at present.

2.1 Canterbury Earthquake Recovery Authority (CERA)

CERA was established on 28 March 2011 to take control of the recovery of Christchurch using powers established by the Canterbury Earthquake Recovery Act enacted on 18 April 2011. This act gives the Chief Executive Officer of CERA wide powers in relation to building safety, demolition and repair. Two relevant sections are:

Section 38 – Works

This section outlines a process in which the chief executive can give notice that a building is to be demolished and if the owner does not carry out the demolition, the chief executive can commission the demolition and recover the costs from the owner or by placing a charge on the owners' land.

Section 51 – Requiring Structural Survey

This section enables the chief executive to require a building owner, insurer or mortgagee carry out a full structural survey before the building is re-occupied.

We understand that CERA will require a detailed engineering evaluation to be carried out for all buildings (other than those exempt from the Earthquake Prone Building definition in the Building Act). It is understood that CERA is adopting the Detailed Engineering Evaluation Procedure document (draft) Revision 7 issued by the Engineering Advisory Group in 2012, which sets out a methodology for both qualitative and quantitative assessments. We understand this report will be used in response to CERA Section 51.

The qualitative assessment includes a thorough visual inspection of the building coupled with a desktop review of available documentation such as drawings, specifications and IEP's. The quantitative assessment involves analytical calculation of the building's strength and may require non-destructive or destructive material testing, geotechnical testing and intrusive investigation.

It is anticipated that factors determining the extent of evaluation and strengthening level required will include:

- The importance level and occupancy of the building
- The placard status that was assigned during the state of emergency following the 22 February 2011 earthquake
- The age and structural type of the building
- Consideration of any Critical Structural Weaknesses
- The extent of any earthquake damage

2.2 Building Act

Several sections of the Building Act are relevant when considering structural requirements:

Section 112 – Alterations

This section requires that an existing building complies with the relevant sections of the Building Code to at least the extent that it did prior to any alteration. This effectively means that a building cannot be weakened as a result of an alteration (including partial demolition).

Section 115 – Change of Use

This section requires that the territorial authority (in this case Christchurch City Council (CCC)) be satisfied that the building with a new use complies with the relevant sections of the Building Code 'as near as is reasonably practicable'. Regarding seismic capacity 'as near as reasonably practicable' has previously been interpreted by CCC as achieving a minimum of 67%NBS however where practical achieving 100%NBS is desirable. The New Zealand Society for Earthquake Engineering (NZSEE) recommend a minimum of 67%NBS.

Section 121 – Dangerous Buildings

The definition of dangerous building in the Act was extended by the Canterbury Earthquake (Building Act) Order 2010, and it now defines a building as dangerous if:

- In the ordinary course of events (excluding the occurrence of an earthquake), the building is likely to cause injury or death or damage to other property; or
- In the event of fire, injury or death to any persons in the building or on other property is likely because of fire hazard or the occupancy of the building; or
- There is a risk that the building could collapse or otherwise cause injury or death as a result of earthquake shaking that is less than a 'moderate earthquake' (refer to Section 122 below); or
- There is a risk that that other property could collapse or otherwise cause injury or death; or

- A territorial authority has not been able to undertake an inspection to determine whether the building is dangerous.

Section 122 – Earthquake Prone Buildings

This section defines a building as earthquake prone if its ultimate capacity would be exceeded in a 'moderate earthquake' and it would be likely to collapse causing injury or death, or damage to other property. A moderate earthquake is defined by the building regulations as one that would generate ground shaking 33% of the shaking used to design an equivalent new building.

Section 124 – Powers of Territorial Authorities

This section gives the territorial authority the power to require strengthening work within specified timeframes or to close and prevent occupancy to any building defined as dangerous or earthquake prone.

Section 131 – Earthquake Prone Building Policy

This section requires the territorial authority to adopt a specific policy for earthquake prone, dangerous and insanitary buildings.

2.3 Christchurch City Council Policy

Christchurch City Council adopted their Earthquake Prone, Dangerous and Insanitary Building Policy in 2006. This policy was amended immediately following the Darfield Earthquake of the 4th September 2010.

The 2010 amendment includes the following:

- A process for identifying, categorising and prioritising Earthquake Prone Buildings, commencing on 1 July 2012;
- A strengthening target level of 67% of a new building for buildings that are Earthquake Prone;
- A timeframe of 15-30 years for Earthquake Prone Buildings to be strengthened; and,
- Repair works for buildings damaged by earthquakes will be required to comply with the above.

The council has stated their willingness to consider retrofit proposals on a case by case basis, considering the economic impact of such a retrofit.

It is understood that any building with a capacity of less than 33%NBS (including consideration of Critical Structural Weaknesses) will need to be strengthened to a target of 67%NBS of new building standard as recommended by the Policy.

If strengthening works are undertaken, a building consent will be required. A requirement of the consent will require upgrade of the building to comply 'as near as is reasonably practicable' with:

- The accessibility requirements of the Building Code.
- The fire requirements of the Building Code. This is likely to require a fire report to be submitted with the building consent application.

2.4 Building Code

The building code outlines performance standards for buildings and the Building Act requires that all new buildings comply with this code. Compliance Documents published by The Department of Building and Housing can be used to demonstrate compliance with the Building Code.

On 19 May 2011, Compliance Document B1: Structure was amended to include increased seismic design requirements for Canterbury as follows:

a. Hazard Factor increased from 0.22 to 0.3 (36% increase in the basic seismic design load)

b. Serviceability Return Period Factor increased from 0.25 to 0.33 (80% increase in the serviceability design loads when combined with the Hazard Factor increase)

The increase in the above factors has resulted in a reduction in the level of compliance of an existing building relative to a new building despite the capacity of the existing building not changing.

3 Earthquake Resistance Standards

For this assessment, the building's Ultimate Limit State earthquake resistance is compared with the current New Zealand Building Code requirements for a new building constructed on the site. This is expressed as a percentage of new building standard (%NBS). The new building standard load requirements have been determined in accordance with the current earthquake loading standard (NZS 1170.5:2004 Structural design actions - Earthquake actions - New Zealand).

No consideration has been given at this stage to checking the level of compliance against the increased Serviceability Limit State requirements.

The likely ultimate capacity of this building has been derived in accordance with the New Zealand Society for Earthquake Engineering (NZSEE) guidelines 'Assessment and Improvement of the Structural Performance of Buildings in Earthquakes' (AISPBE), 2006. These guidelines provide an Initial Evaluation Procedure that assesses a building's capacity based on a comparison of loading codes from when the building was designed and currently. It is a quick high-level procedure that can be used when undertaking a Qualitative analysis of a building. The guidelines also provide guidance on calculating a modified Ultimate Limit State capacity of the building which is much more accurate and can be used when undertaking a Quantitative analysis.

The New Zealand Society for Earthquake Engineering has proposed a way for classifying earthquake risk for existing buildings in terms of %NBS and this is shown in Figure 3.1 below.

Description	Grade	Risk	%NBS	Existing Building Structural Performance	Improvement of Structural Performance	
					Legal Requirement	NZSEE Recommendation
Low Risk Building	A or B	Low	Above 67	Acceptable (improvement may be desirable)	The Building Act sets no required level of structural improvement (unless change in use) This is for each TA to decide. Improvement is not limited to 34%NBS.	100%NBS desirable. Improvement should achieve at least 67%NBS
Moderate Risk Building	B or C	Moderate	34 to 66	Acceptable legally. Improvement recommended		Not recommended. Acceptable only in exceptional circumstances
High Risk Building	D or E	High	33 or lower	Unacceptable (Improvement	Unacceptable	Unacceptable

Figure 3.1: NZSEE Risk Classifications Extracted from Table 2.2 of the NZSEE 2006 AISPBE Guidelines

Table 3.1 below compares the percentage NBS to the relative risk of the building failing in a seismic event with a 10% risk of exceedance in 50 years (i.e. on average 0.2% in any year). It is noted that the current seismic risk in Christchurch results in a 6% risk of exceedance in the next year.

Table 3.1: %NBS Compared to Relative Risk of Failure

Building Grade	Percentage of New Building Standard (*%NBS*)	Approx. Risk Relative to a New Building
A+	>100	<1
A	80-100	1-2 times
B	67-80	2-5 times
C	33-67	5-10 times
D	20-33	10-25 times
E	<20	>25 times

4 Building Description

4.1 General

Summary information about the building is given in the following table.

Table 4.1: Building Summary Information

Item	Details	Comment
Building name	City Care Milton Street Depot – Tradesmens Workshop	
Street Address	245 Milton Street Sydenham Christchurch	
Age	Designed in 1974, approved in 1977	From drawings available
Description	Series of workshops for the Sign Shop, Building Services and Plant Pool Hire, offices for City Care Facilities Management, and storage	
Building Footprint / Floor Area	Approx. 72.1m x 15.5m and 6.3m x 30.9m. 1310m^2 internally	
No. of storeys / basements	Mostly 1 storey/no basement	Mezzanine storage floors in eastern workshop area. Second storey office above building services workshop
Occupancy / use	Workshops, offices and storage	Importance Level 2
Construction	Steel portal frames with glazed infill's and concrete walls	
Gravity load resisting system	Steel roof onto steel purlins, which are supported by steel portal frames	

Item	Details	Comment
Seismic load resisting system	Steel portal frames transversely with precast concrete shear walls longitudinally. Steel cross bracing in the roof. The direction of each system changes at the western end of the building.	The drawings indicate roof bracing in the trussed roof area of the building between gridlines 7 and 9. Site inspections revealed that only one of the bays of bracing was constructed in accordance with the drawings. Site inspections also revealed that the internal precast concrete wall along gridline 3 was also not constructed. These items have not been included in this assessment.
Foundation system	Reinforced concrete slab with concrete pads and tie beams.	Inferred from drawings.
Stair system	Timber stairs to upstairs office.	
Other notable features	Mezzanines at eastern end of building.	
External works		
Construction information	Structural drawings by City Engineer's Department dated 1974 and partial Architectural drawings by Lucking and Vial. Both consent copies dated 1977.	
Likely design standard	NZSS 1900, Chapter 8:1965	Inferred from age of building.
Heritage status	No known heritage status	
Other	Steel framed silo support adjacent to Building Services workshop.	Not attached and not considered part of the building.

4.2 Structural 'Hot-spots'

Areas in which damage may be expected to occur from earthquake shaking are outlined below;

- Precast concrete wall panels and column encasements due to out-of-plane movement.
- Cast-in wall connections to the portal frame column.
- Elements in the area where the Sign Shop and the main workshop area meet.
- Southern precast concrete wall panels orthogonal to the panels supporting the office mezzanine due to stiffness incompatibility between portal frames.
- Roof bracing connections.
- Connections between the Sign Shop portal frames and their support beam on gridline 2.

5 Site Investigations

5.1 Previous Assessments

It is understood that Opus International Consultants undertook rapid assessments of the buildings on the Milton St Depot site. These reports were not available for review. City Care carried out a damage assessment in April 2011 (refer Appendix D).

Visual inspections as part of the Level 4 assessment were undertaken on 8 February 2012. A Qualitative Report was issued to CCC on 7 June 2012.

5.2 Level 5 Intrusive Investigations

A further inspection was carried out on 9 October 2012 as part of the Level 5 Quantitative Assessment. This inspection revealed the missing bay of roof bracing in the trussed roof area.

6 Damage Assessment

6.1 Damage Summary

The table below provides a summary of damage that we observed on our inspection visit. Refer to Appendix A for photographs.

Table 6.1: Damage Summary

Damage type	Unknown	Minor	Moderate	Major	Comment
settlement of foundations	✓				None observed during visual inspection. Level survey may be required to confirm.
tilt of building	✓				No visual observation noted during visual inspection. Verticality survey may be required to confirm.
liquefaction		✓			None observed during visual inspection. Contacts on site stated it had occurred in areas throughout the site. The aerial reconnaissance on 24 Feb 2011 indicates the extent was minor.
settlement of external ground					None observed during visual inspection.
lateral spread / ground cracks					None observed during visual inspection.
frame			✓		Damage to a columns concrete encasement in the Sign Shop, possibly indicating pull-out of the panel connection, was observed. This was temporarily repaired prior to our visual inspections. Various other column concrete encasements had minor cracking and some spalling at the top of the encasement at the portal knee was observed.

Damage type	Unknown	Minor	Moderate	Major	Comment
concrete walls			✓		Cracking and some spalling adjacent to the joints and connections of the precast concrete panels was observed. Minor diagonal cracking to the concrete walls of the second storey office and the Plant Hire area was observed.
cracking to concrete floors	✓				None observed during inspection, however some areas could not be viewed due to carpet, heavy machinery and equipment etc.
bracing					No damage was observed during our visual inspection.
precast flooring seating					No damage was observed during our visual inspection.
stairs					No damage was observed during our visual inspection.
cladding /envelope		✓			Cracking to precast concrete wall panels observed as described above
internal fit out		✓			Minor plasterboard cracking observed.
building services	✓				No inspections of services were carried out.
adjacent building					No adjacent buildings are close enough to affect this building in an earthquake.
other					

6.2 Surrounding Buildings

There are no adjacent structures that are close enough that they may affect the Tradesmens Workshop during an earthquake.

The steel frame silo support adjacent to the Building Services Workshop has not been considered part of the building for the assessment. It is not attached to the Trademsens Workshop structure and a separate assessment may be required. No damage was observed to this during the visual inspection.

6.3 Residual Displacements and General Observations

No evidence of permanent settlement or displacements was observed during our visual inspection, however a global settlement survey may reveal movement that could be described as damage under insurance entitlement.

6.4 Implication of Damage

The structural damage observed to the precast concrete panels is moderate and the seismic capacity of the precast concrete panels is considered to have reduced due to the damage from 100%NBS to 67%NBS. This reduction does not affect the overall seismic capacity of the building

which is governed by the assessed capacity of the portal frame support beam, above the Sign Shop.

Where temporary works have been installed a full 'as new' repair, including strengthening as required, will need to be designed and constructed. A Building Consent will be required for any structural repair or strengthening. Fire and Access reports will also be required as part of the Building Consent process and a geotechnical report may also be required.

7 Generic Issues

The following generic issues referred to in Appendix A of the EAG guideline document have been identified as applicable to the Tradesmens Workshop building:

Single Level Tilt Panel

- Brittle panel connections and/or cracked panels at the connections.
- Panel span/thickness ratio too high, leading to panel buckling concerns.
- Steel bracing in adequate.

Welded and Bolted Steel Moment Frames

- Inadequate stiffness as a whole meaning the building exceeds drift limits.

8 Geotechnical Consideration

No geotechnical information was available for this site. During the inspection, no damage to the surrounding pavement was noted and no effect to the structure was considered.

9 Survey

No level or verticality surveys were carried out as there was no visible evidence of settlement or displacement observed during the inspection. CCC may wish to undertake a level survey as part of insurance entitlement considerations.

A spirit level 'plumb' check should be done as a minimum as part of the full damage inspections.

10 Detailed Seismic Capacity Assessment

10.1 Assessment Methodology

The building has had its seismic capacity assessed using the Forced-based Detailed Assessment Procedures in the NZSEE 2006 AISPBE guidelines, based on the drawings and visual inspections.

The structure has suffered moderate damage to the precast concrete panels. The post-damage capacity of the panels is considered to be less than the original capacity, however this does not affect the overall seismic capacity of the building.

10.2 Assumptions

The following assumptions were used in our quantitative assessment:

- Reinforcing steel yield strength f_y = 275 MPa (as noted on the drawings)
- Concrete compressive strength f_c' = 25 MPa (as noted on the drawings)
- Structural steel yield strength f_y = 250 MPa
- Timber diaphragm strength of 5kN/m (as suggested in the NZSEE 2006 AISPBE guidelines)

10.3 Critical Structural Weaknesses

The following Critical Structural Weaknesses have been identified:

- Site characteristics due to liquefaction occurring on the Milton St site
- Difference in stiffness between the western Sign Shop area and the rest of the building.

The site characteristics have been identified as a potential CSW in our earlier Qualitative Report. We note that liquefaction is still considered a potential CSW however has not been considered in this quantitative assessment as we believe it will not have a direct impact on the structure's ability to resist further loads or cause global failure of the structure.

The two areas have similar lateral load resisting systems, orientated in orthogonal directions. This will result in the buildings responding differently in each load direction and may be the cause of the damage to column in the Sign Shop area.

10.4 Seismic Parameters

The seismic design parameters based on current design requirements from NZS 1170.5:2004 and the NZBC clause B1 for this building are:

- Site soil class: D – NZS 1170.5:2004, Clause 3.1.3, Soft Soil
- Site hazard factor, Z = 0.3 – NZBC, Clause B1 Structure, Amendment 11 effective from 19 May 2011
- Return period factor Ru = 1 – NZS 1170.5:2004, Table 3.5, Importance Level 2 structure with a 50 year design life.
- Near fault factor N(T,D) = 1 – NZS 1170.5:2004, Clause 3.1.6, Distance more than 20 km from fault line.

10.5 Results of Seismic Assessment

The results of our quantitative assessment indicate the building has a seismic capacity in the order of 10%NBS. This is lower than the IEP assessment of 36%NBS in the previous Qualitative Report. Table 10.1 presents the evaluated seismic capacity in terms of %NBS of the individual structural systems and components in each building direction.

Table 10.1: Summary of Seismic Assessment of Structural Systems

Item	Loading Direction	Ductility, μ	Seismic Performance	Notes
Overall %NBS adopted from DEE	**Longitudinal**	**1.25**	**10%NBS**	**Governed by weak axis bending of the Sign Shop portal frame support beam**
Portal frames – main area	Transverse	1.25	39%NBS	Eastern portal frame rafters in flexure
Portal frame connections – main area	Transverse	1.25	35%NBS	Knee connection stiffener yield capacity

Item	Loading Direction	Ductility, μ	Seismic Performance	Notes
Portal frames – Sign Shop area	Longitudinal	1.25	57%NBS	Excessive deflection of the northern frames
Portal frame connections – Sign Shop area	Longitudinal	1.25	67%NBS	Knee connection stiffener yield capacity
Frames connecting the Sign Shop and main areas	Longitudinal	1.25	10%NBS	Weak axis bending of beam supporting Sign Shop portal frames
Precast panel, in-plane capacity	Longitudinal	1.25	69%NBS	Uplift resistance of foundations
Precast panel connections (damaged)	Longitudinal	1.0	67%NBS	Shear capacity of damaged welded connections under in-plane loading
Precast panel, out-of-plane capacity (damaged)	Both	1.25	100%NBS	Precast panels have been analysed as a part. Damaged connections have lost some resilience, however still achieve 100%NBS
Roof bracing and connections	Longitudinal	1.0	41%NBS	Tension capacity of flat bracing in main area
Two-storey office area walls	Longitudinal	1.25	96%NBS	Uplift resistance of foundations
Two-storey office area connections	Both	1.0	100%NBS	Between precast floor units and precast walls
Steel trussed roof area	Longitudinal	1.25	89%NBS	Minor axis bending of portal frame rafters supporting transverse PC panels
Southern mezzanine	Longitudinal	1.25	77%NBS	Flexural capacity of the columns
Main mezzanine	Longitudinal Transverse	1.25 3.0	100%NBS 100%NBS	Moment resisting steel frames Timber floor diaphragm
Eaves beam	Longitudinal	1.25	66%NBS	Axial compression

Note: Ductility factors are in accordance with values recommended in the NZSEE 2006 AISPBE guidelines.

10.6 Discussion of results

The key findings of the assessment are as follows:

- The beam supporting the southern Sign Shop portal frames achieve 10%NBS under longitudinal (out-of-plane) loading.
- The knee connection of the steel portal frames at the eastern end of the building achieve 35%NBS under transverse (in-plane) loading.

- The steel portal frame rafters at the eastern end of the building achieve 39%NBS under transverse (in-plane) loading.

There are a number of other elements in the building which have assessed seismic capacities greater than 33%NBS and less than 67%NBS.

Based on the results of our Quantitative Assessment, the Tradesmens Workshop is considered Earthquake Prone, as the seismic capacity was assessed to be less than 33%NBS, and is classified as Seismic Grade E.

11 Recommendations

11.1 Occupancy

In order that the owner can make an informed decision about the on-going use and occupancy of their building the following information is presented in line with the Department of Building and Housing document 'Guidance for engineers assessing the seismic performance of non-residential and multi-unit residential buildings in greater Christchurch', June 2012.

The building is considered to be earthquake prone, having an assessed capacity less than 33%NBS, and is classified as Seismic Grade E. The risk of collapse of an earthquake prone building of this grade is considered to be more than 25 times greater than that of an equivalent new building.

For greater Christchurch the definition of a "dangerous" building in the Building Act has been extended (by the Canterbury Earthquake (Building Act) Order 2011) to include buildings at risk of collapsing in a moderate earthquake, that is earthquake prone buildings with a capacity at or below 33%NBS. Where council requires a dangerous building or an earthquake prone building to be upgraded, it may prohibit the use of the building until the works are carried out.

The structural damage observed to the precast concrete panels is moderate and the seismic capacity of the precast concrete panels is considered to have reduced due to the damage. This reduction does not affect the overall seismic capacity of the building. No significant damage was noted to the structural element that is the limiting capacity of the building. Vacate the immediate area under the southern Sign Shop portals until the support beam is strengthened.

11.2 Further Investigations, Survey or Geotechnical Work

It is recommended that:

- The immediate area under the southern Sign Shop portals is vacated or restricted use until local strengthening of the support beam is completed.
- The roof bracing in the trussed roof area should be installed as shown on the drawings.
- A full damage assessment is carried out for insurance purposes.
- A verticality survey could be carried out to determine the extent of movement of the building for insurance purposes. A spirit level 'plumb' check should be done as a minimum as part of the full damage inspections.

11.3 Damage Reinstatement

According to the recent CCC Instructions to Engineers document (16 October 2012), Council's insurance provides for repairing damaged elements to a condition substantially as new. We suggest you consult further with your insurance advisor.

12 Design Features Report

Repairs will be required to reinstate the existing structural system. A repair methodology has not been prepared at this stage. No new load paths are expected as a result of the repairs required.

13 Limitations

The following limitations apply to this engagement:

- Beca and its employees and agents are not able to give any warranty or guarantee that all defects, damage, conditions or qualities have been identified.
- Inspections are primarily limited to visible structural components. Appropriate locations for invasive inspection, if required, will be based on damage patterns observed in visible elements, and review of the construction drawings and structural system. As such, there will be concealed structural elements that will not be directly inspected.
- The inspections are limited to building structural components only.
- Inspection of building services, pipework, pavement, and fire safety systems is excluded from the scope of this report.
- Inspection of the glazing system, linings, carpets, claddings, finishes, suspended ceilings, partitions, tenant fit-out, or the general water tightness envelope is excluded from the scope of this report.
- The assessment of the lateral load capacity of the building is limited by the completeness and accuracy of the drawings provided. Assumptions have been made in respect of the geotechnical conditions at the site and any aspects or material properties not clear on the drawings. Where these assumptions are considered material to the outcome further investigations may be recommended. It is noted the assessment has not been exhaustive, our analysis and calculations have focused on representative areas only to determine the level of provision made. At this stage we have not undertaken any checks of the gravity system, wind load capacity, or foundations.
- The information in this report provides a snapshot of building damage at the time the detailed inspection was carried out. Additional inspections required as a result of significant aftershocks are outside the scope of this work.

This report is of defined scope and is for reliance by CCC only, and only for this commission. Beca should be consulted where any question regarding the interpretation or completeness of our inspection or reporting arises.

Appendix A

Photographs

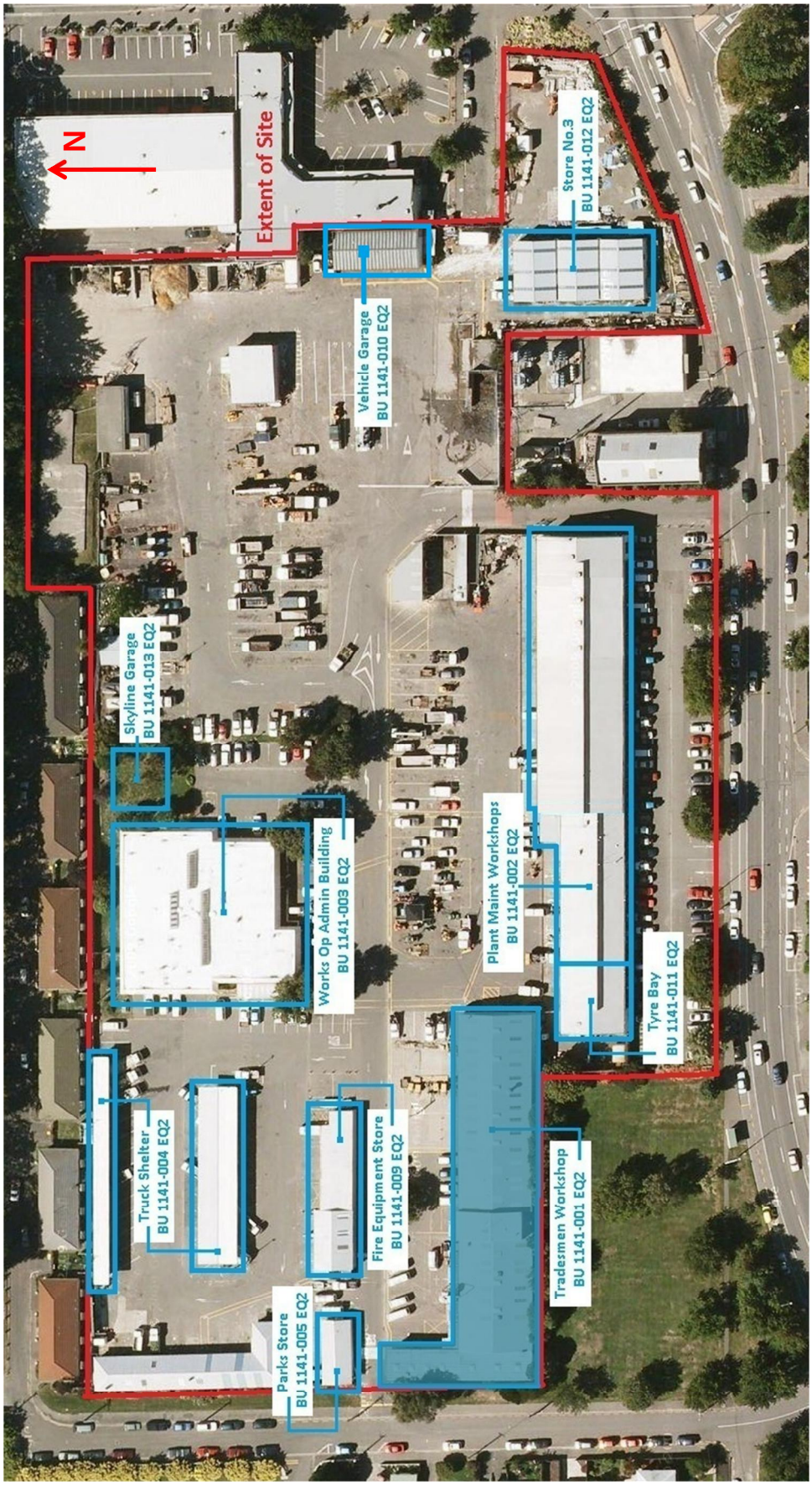


Figure 1A: Site Layout (North is to left of page)

Photo 1: Exterior view of Sign Shop and Building Services Workshop (North-west elevation)

Photo 2: Exterior view of Facilities Management (North elevation)

Photo 3: Exterior view of Hire Pool / Storage / Weed Spraying areas (North-east elevation)

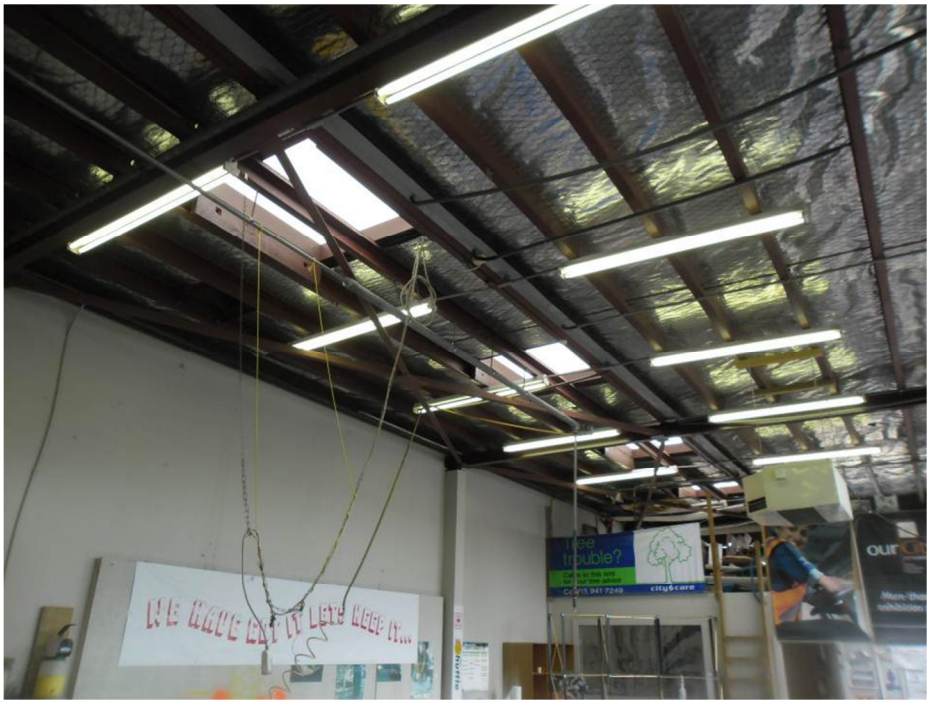


Photo 4: Interior view of Sign Shop

Photo 5: Interior view of Building Services Workshop

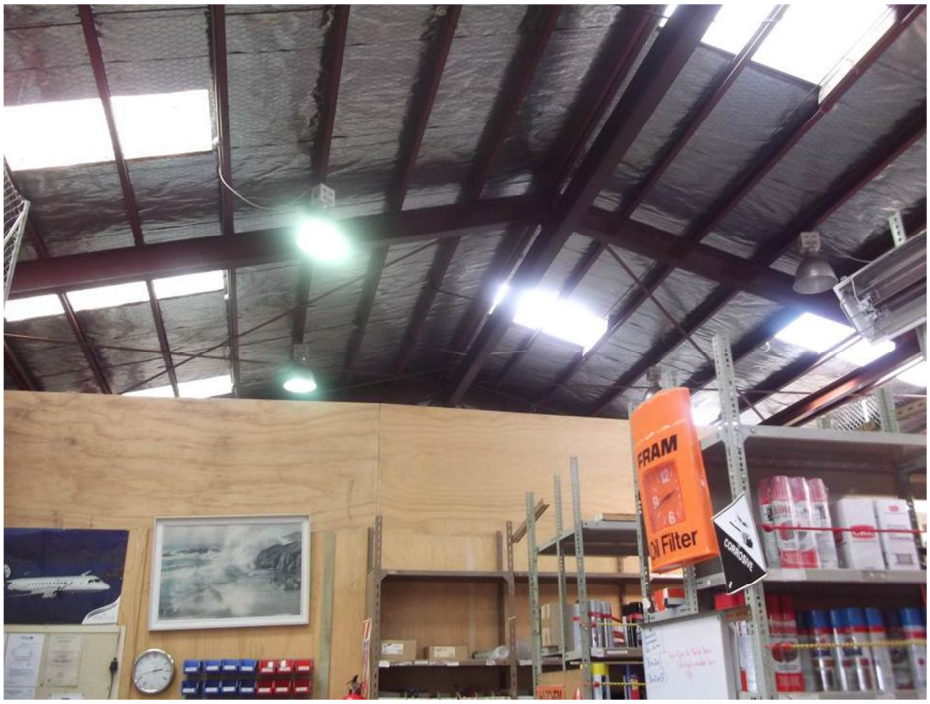


Photo 6: Interior view of Hire Pool / Storage / Weed Spraying areas

Photo 7: Damage to column encasement

Damage Description: Possible pull out of connection causing damage to column encasement, with temporary repair bracket

Photo 8: Damage to wall on other side of Photo 7.

Damage Description: Possible pull out of connection causing damage to column encasement, with temporary repair bracket

Photo 9: Cracking to concrete wall panel

Damage Description: Cracking to concrete wall panel adjacent to movement joint

Photo 10: Typical cracking to concrete wall panel

Damage Description: Cracking to concrete wall panel at bottom corner adjacent to movement joint

Photo 11: Typical cracking to concrete wall panel

Damage Description: Cracking to concrete wall panel protruding from weld plate at portal knee

Photo 12: Cracking to concrete wall

Damage Description: Diagonal crack to concrete wall in stairwell

Photo 13: Cracking to concrete wall

Damage Description: Cracking to concrete panels in Plant Hire area protruding from doorway

Photo 14: Cracking to concrete wall

Damage Description: Cracking to concrete panels in Plant Hire area by doorway

Photo 15: Cracking to concrete wall

Damage Description: Cracking to concrete panels in Plant Hire area

Appendix B

Existing Drawings

80

CCC 387

CCC
Johnson St
Central Depot

(1) Amendment noted to drawings.

(2) All sanitary plumbing & drainage to comply with regulations & C.D.B. Bylaws.

CHRISTCHURCH
PLAN No. ....
LETTER REF. ....
J.H.S. ....
INSP. ....
DATE ....
DRAINAGE BOARD

STAGE 1

NEW CENTRAL DEPOT JOHNSON ST. SYDENHAM FOR THE CHRISTCHURCH CITY COUNCIL

architects

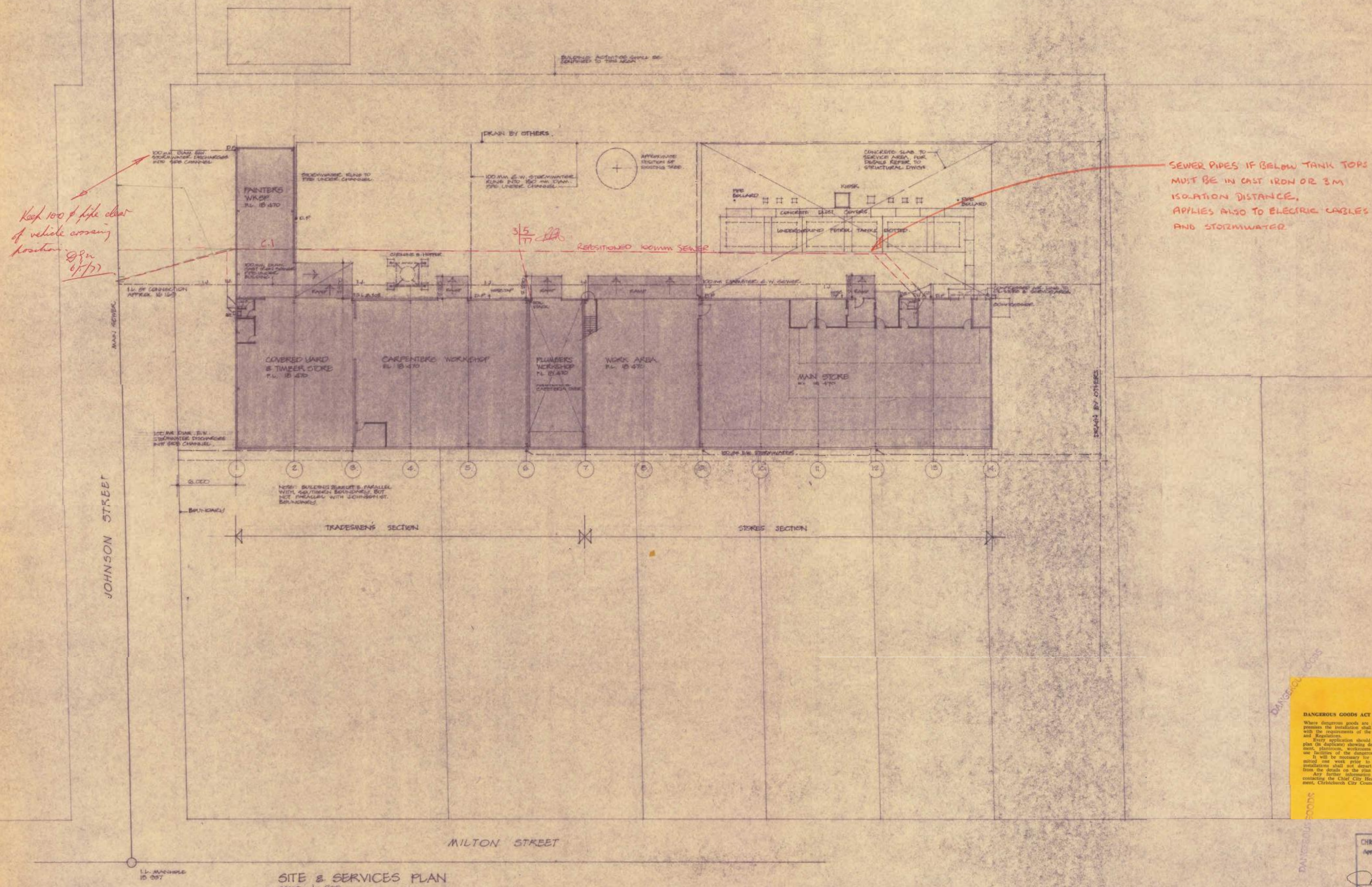
LUCKING & VIAL
CHRISTCHURCH

structural & electrical engineer

CHRISTCHURCH CITY COUNCIL
CITY ENGINEERS DEPARTMENT

quantity surveyor

CHRISTCHURCH CITY COUNCIL
CITY ENGINEERS DEPARTMENT



SITE & SERVICES PLAN
SCALE 1 : 200

DANGEROUS GOODS ACT AND REGULATIONS

Where dangerous goods are stored or used on any premises the installation shall comply in all respects with the requirements of the Dangerous Goods Act and Regulations.

Every application should be accompanied by a plan (in duplicate) showing details of oil fired equipment, plantroom, workrooms and the storage and use facilities of the dangerous goods.

It will be necessary for the details to be submitted one week prior to any installation, and installations shall not depart in any material way from the details on the plan subsequently approved.

Any further information may be obtained by contacting the Chief City Health Inspector's Department, Christchurch City Council.

CHRISTCHURCH CITY Cou. C.
Approved Subject to the By-Laws
17 MAY 1977
for City Engineer

Lucking & Vial Architects Christchurch	CONSULTANTS FOR STRUCTURAL & ELECTRICAL CHRISTCHURCH CITY COUNCIL CITY ENGINEERS DEPARTMENT	NEW CENTRAL DEPOT JOHNSON STREET SYDENHAM FOR THE CHRISTCHURCH CITY COUNCIL	SCALES AS SHOWN	SITE & SERVICES PLAN	FILE NO. 149/4	SHEET 1

CONTRACTOR SHALL VERIFY ALL DIMENSIONS BEFORE STARTING WORK.

NORTH ELEVATION
SCALE 1:100

SOUTH ELEVATION
SCALE 1:100

WEST ELEVATION
SCALE 1:100

EAST ELEVATION
SCALE 1:100

FLOOR PLAN
SCALE 1:100

MEZZANINE FLOOR PLAN

LEGEND

NOTES
ALL ARCHITECTURAL DRAWINGS MUST BE READ IN CONJUNCTION WITH STRUCTURAL DRAWINGS
ALL DIMENSIONS ARE APPROXIMATE
ALL PANELS ARE SHOWN IN STRUCTURAL ENGINEERS DRAWINGS

CHRISTCHURCH CITY COUNCIL
Approved Subject to the By-laws
17 MAY 1977
for City Engineer

Lucking & Vial Architects Christchurch	CONSULTANTS FOR STRUCTURAL & ELECTRICAL CHRISTCHURCH CITY COUNCIL CITY ENGINEERS DEPARTMENT	NEW CENTRAL DEPOT JOHNSON STREET SYDENHAM FOR THE CHRISTCHURCH CITY COUNCIL	SCALES As shown	FLOOR PLANS ELEVATIONS	FILE NO. 149/4	SHEET 2
			CONTRACTOR SHALL VERIFY ALL DIMENSIONS BEFORE STARTING WORK.			

SECTION A A PLUMBERS WORKSHOP
SCALE 1:100

SECTION B-B CARPENTERS WORKSHOP
SCALE 1:100

SECTION C-C COVERED YARD
SCALE 1:100

SECTION D-D PAINTERS WORKSHOP
SCALE 1:100

DETAIL AT RIDGE
SCALE 1:20

PLAN CANOPY TO DOORS D9 & D10
SCALE 1:20

DETAIL SECTION 3
SCALE 1:20

DETAIL 4
SCALE 1:20

DETAIL 1
SCALE 1:10

DETAIL SECTION 2
SCALE 1:10

EXPANSION JOINT IN GUTTER
SCALE 1:20

ISOMETRIC RAINWATER HEAD
SCALE 1:10

SLIDING DOOR JAMB DETAIL
SCALE 1:5

SECTION E
SCALE 1:20

SECTION F
SCALE 1:20

SECTION G
SCALE 1:20

SECTION H
SCALE 1:20

SECTION J
SCALE 1:20

CHRISTCHURCH CITY COLLEGE
17 MAY 1977

Lucking & Vial
Architects Christchurch

CONSULTANTS
FOR STRUCTURAL & ELECTRICAL
CHRISTCHURCH CITY COUNCIL
CITY ENGINEERS
DEPARTMENT

NEW CENTRAL DEPOT JOHNSON STREET SYDENHAM
FOR THE CHRISTCHURCH CITY COUNCIL

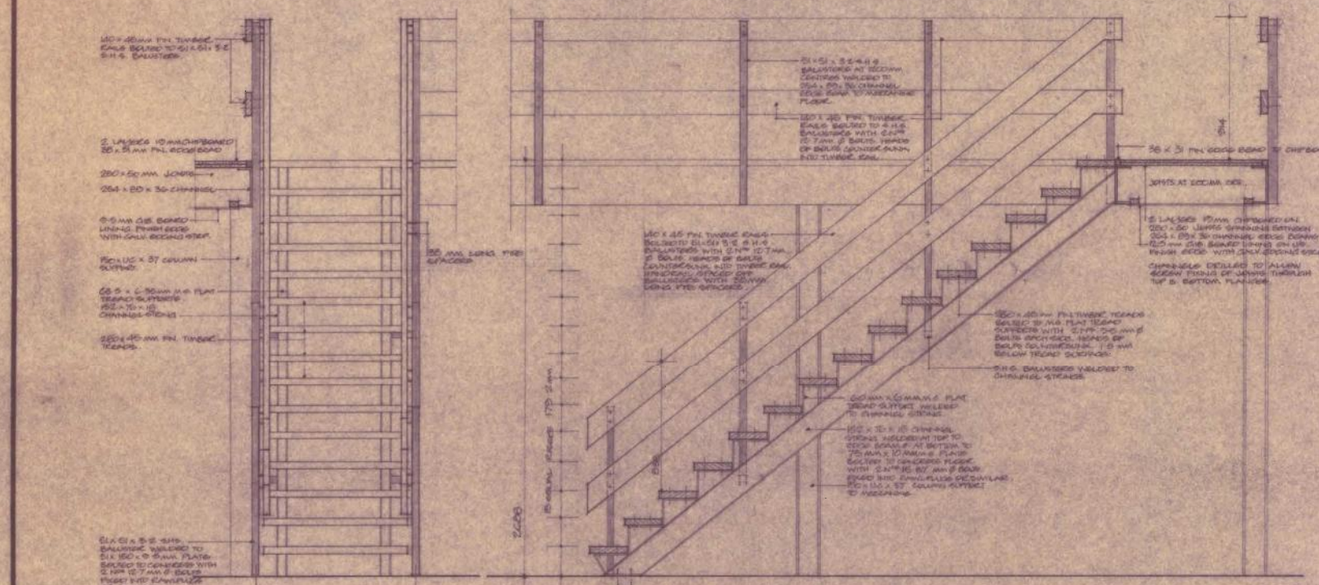
SCALES
AS SHOWN

CROSS SECTIONS WORKSHOPS
DETAIL SECTIONS
DETAILS

FILE NO.
1194

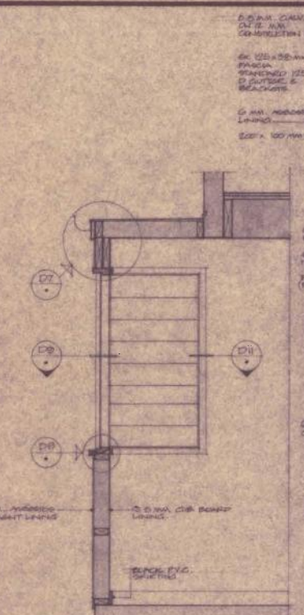
SHEET
3

CONTRACTOR SHALL VERIFY ALL DIMENSIONS BEFORE STARTING WORK

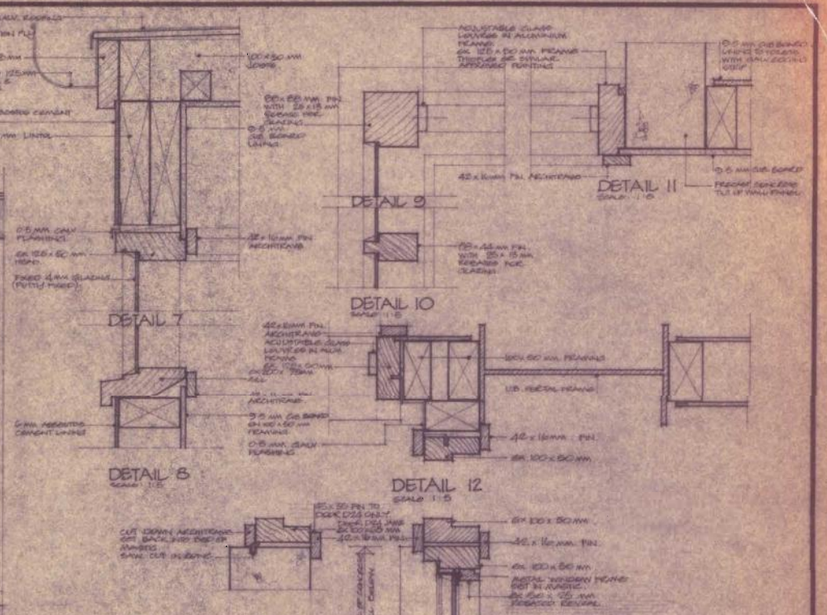


ELEVATION Q
SCALE 1:20

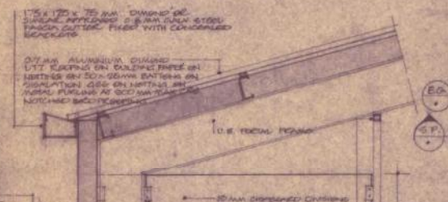
SECTION P-P
SCALE 1:20



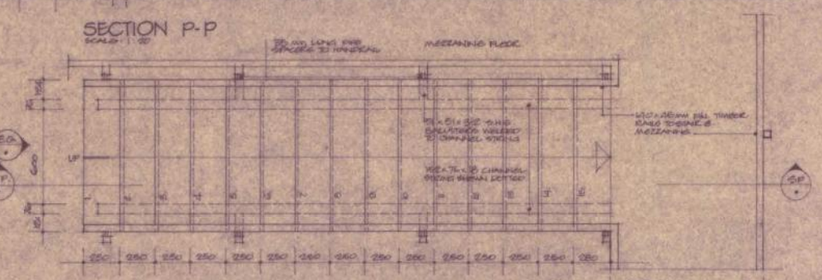
SECTION O-O
SCALE 1:20
OBSERVATION WINDOW



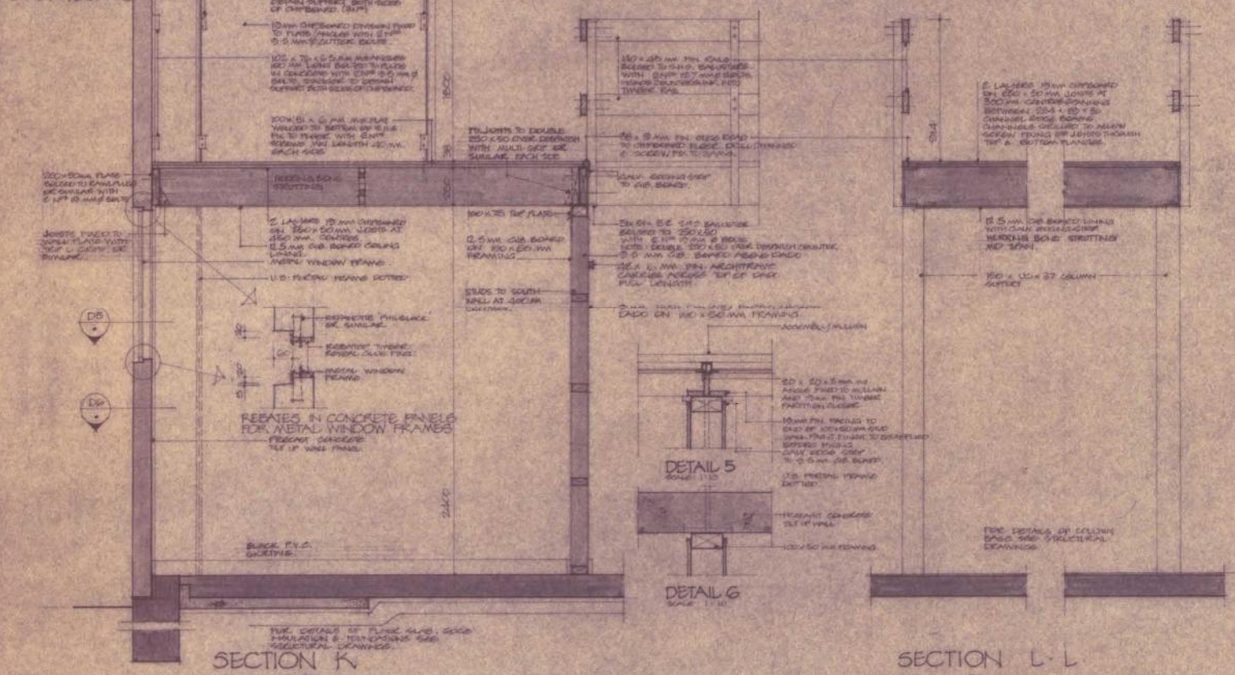
DETAIL 7
DETAIL 8
DETAIL 9
DETAIL 10
DETAIL 11
DETAIL 12
DETAIL 13
DETAIL 14



FIXING OF BIRDPROOFING



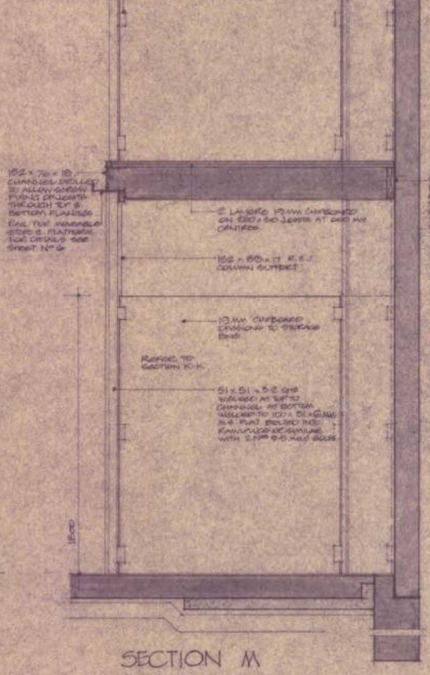
PLAN · STAIR TO MEZZANINE
SCALE 1:20



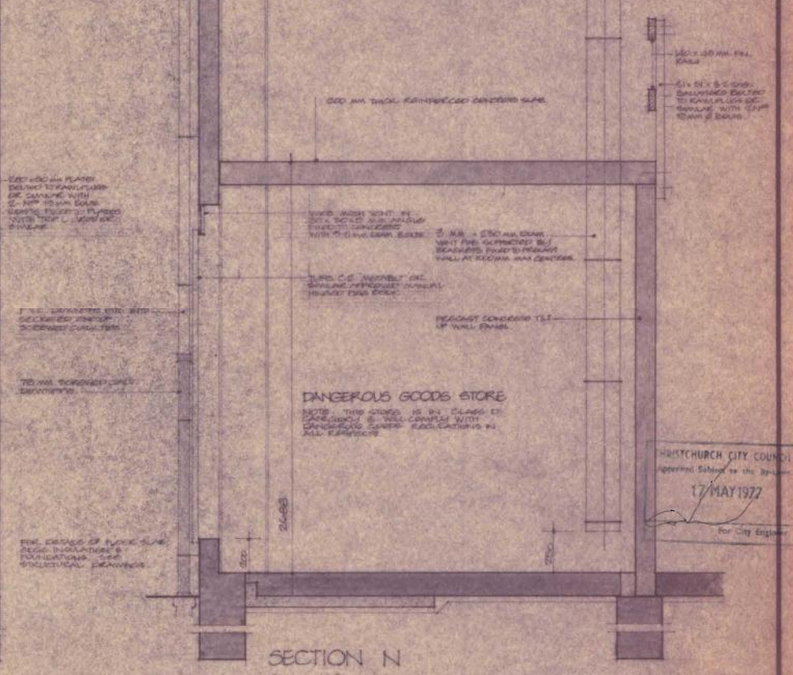
SECTION K
SCALE 1:20

DETAIL 5
DETAIL 6

SECTION L-L
SCALE 1:20



SECTION M
SCALE 1:20

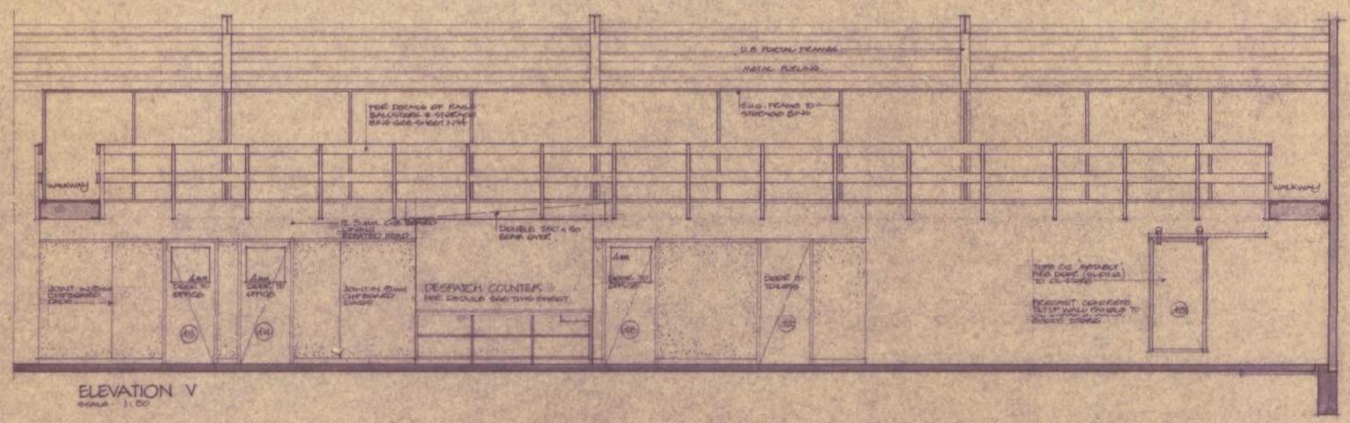


DANGEROUS GOODS STORE

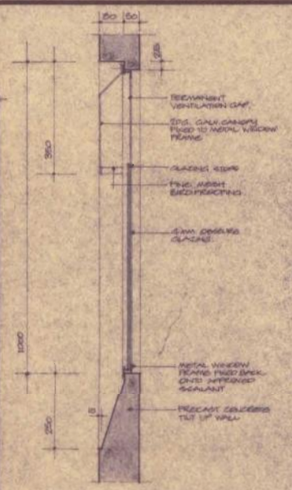
SECTION N
SCALE 1:20

CHRISTCHURCH CITY COUNCIL
Approved Subject to the By-laws
17 MAY 1977
For City Engineer

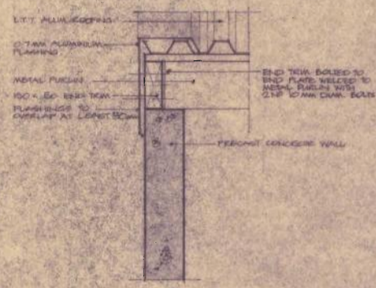
Lucking & Vial Architects Christchurch	CONSULTANTS FIRE, STRUCTURAL & ELECTRICAL CHRISTCHURCH CITY COUNCIL CITY ENGINEERS DEPARTMENT	NEW CENTRAL DEPOT JOHNSON STREET SYDENHAM FOR THE CHRISTCHURCH CITY COUNCIL	SCALES AS SHOWN	DETAIL SECTIONS STORE DETAILS STAIR DETAILS FILE NO. 149/4 SHEET 4 CONTRACTOR SHALL VERIFY ALL DIMENSIONS BEFORE STARTING WORK.



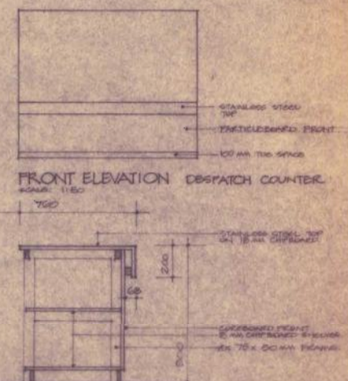
ELEVATION V
SCALE 1:50

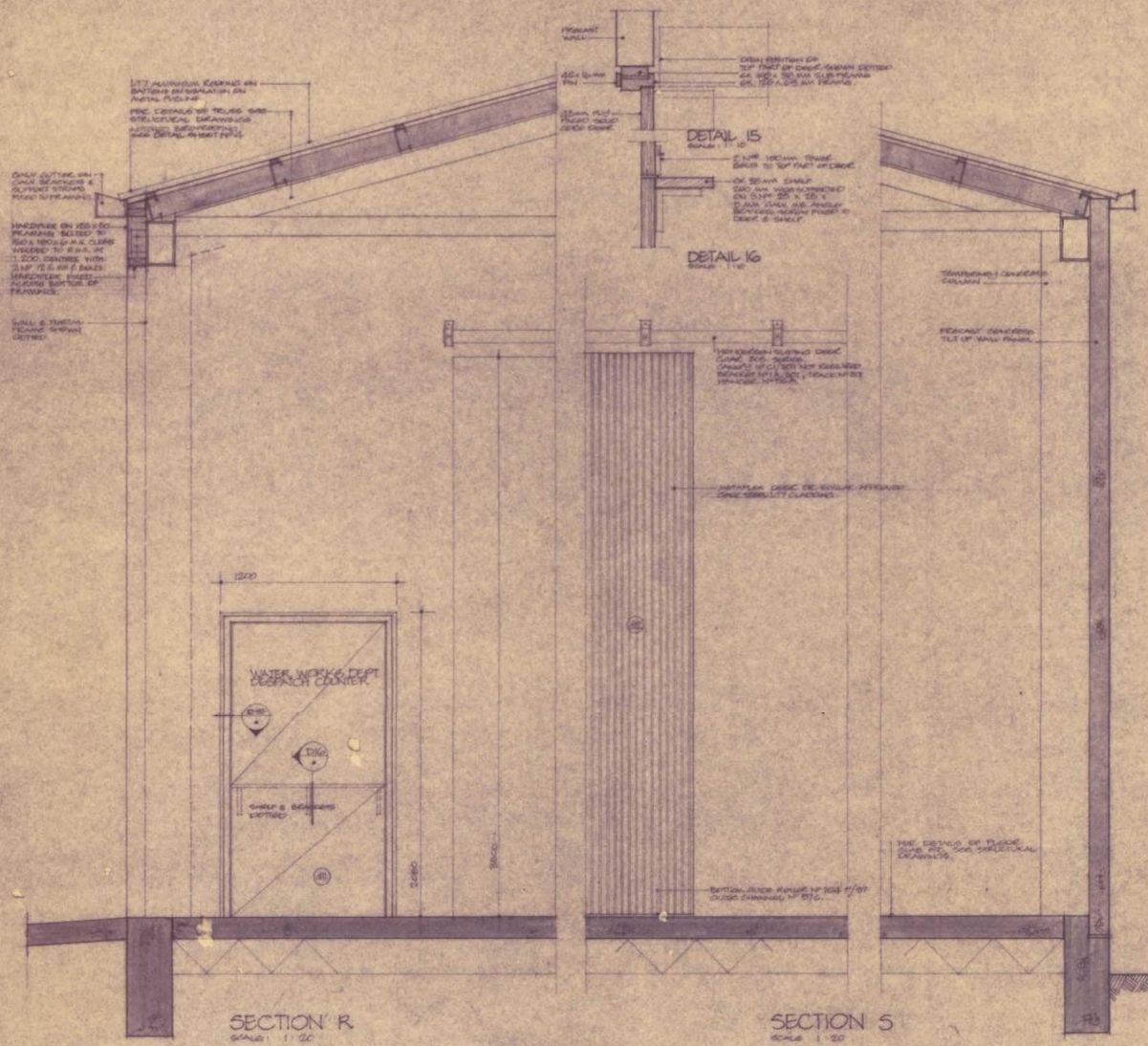


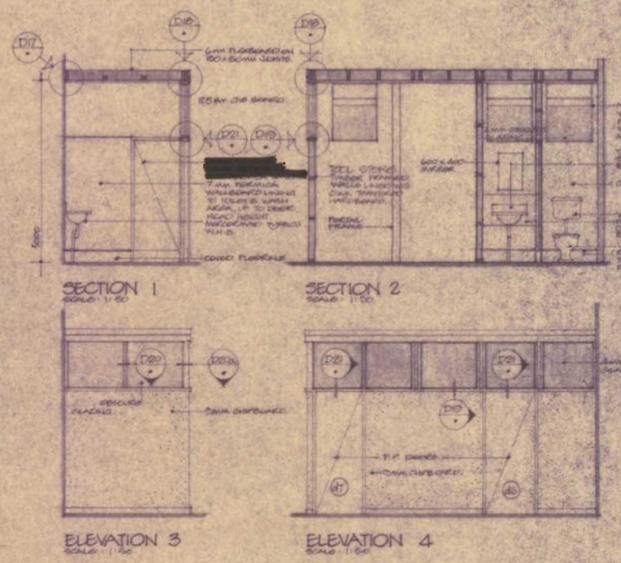
DETAIL SECTION 21
SCALE 1:10

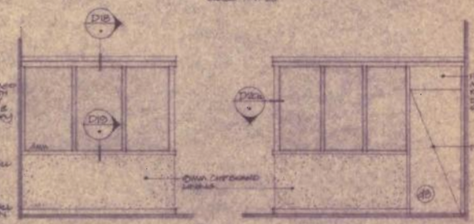


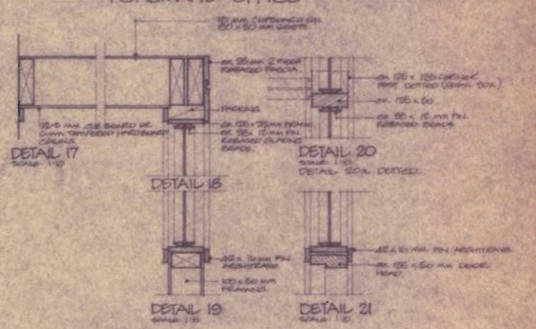
DETAIL GABLE END GRID LINE 14
SCALE 1:10

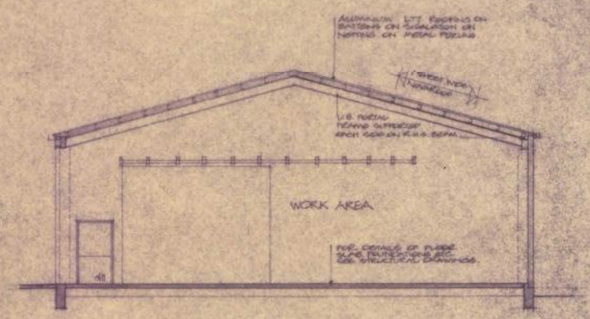


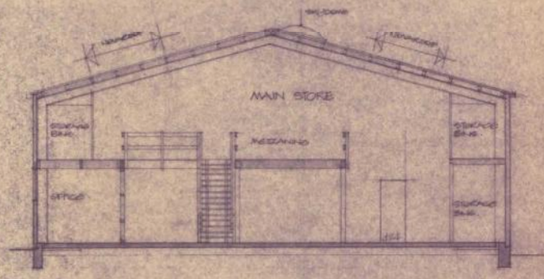












CHRISTCHURCH CITY C.C.
Approved pursuant to the Bylaws
17 MAY 1977
For City Engineer

Lucking & Vial
Architects Christchurch

CONSULTANTS
FOR STRUCTURAL & ELECTRICAL
CHRISTCHURCH CITY COUNCIL
CITY ENGINEERS DEPARTMENT

NEW CENTRAL DEPOT JOHNSON STREET SYDENHAM
FOR THE CHRISTCHURCH CITY COUNCIL

SCALES AS SHOWN

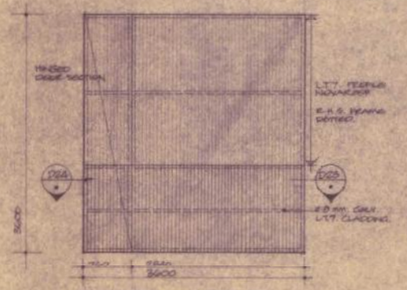
CROSS SECTIONS / STORE
DETAIL SECTIONS
DETAILS

FILE NO. 4914

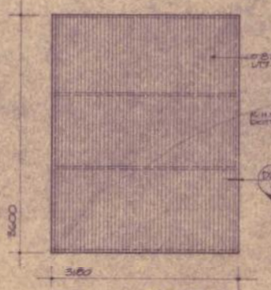
SHEET 5

CONTRACTOR SHALL VERIFY ALL DIMENSIONS BEFORE STARTING WORK.

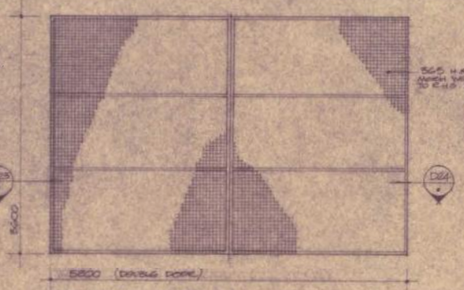
NOTE : ALL HEIGHTS & WIDTHS MUST BE CHECKED ON SITE BEFORE FABRICATION OF DOORS



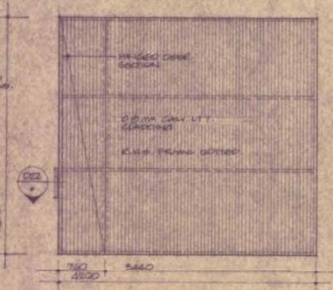
ELEVATION DOOR D1
SCALE 1:50



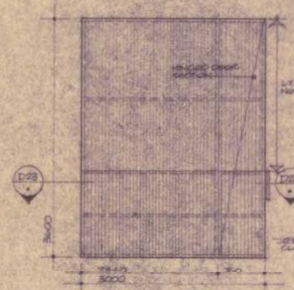
ELEVATION DOOR D2
SCALE 1:50



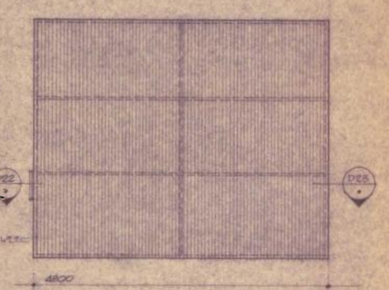
ELEVATION DOOR D8
SCALE 1:50



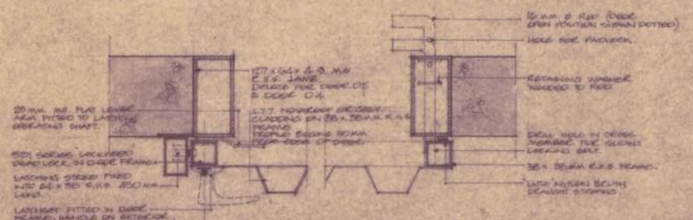
ELEVATION DOOR D4
SCALE 1:50



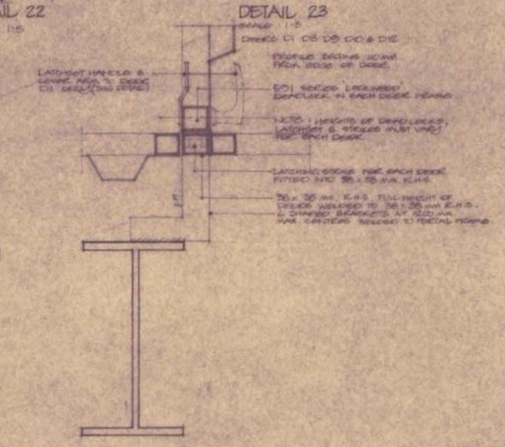
ELEVATION DOORS D9 & D10
SCALE 1:50



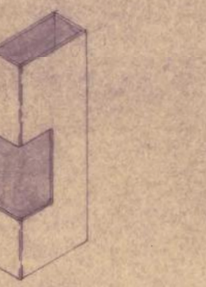
ELEVATION DOOR D12
SCALE 1:50



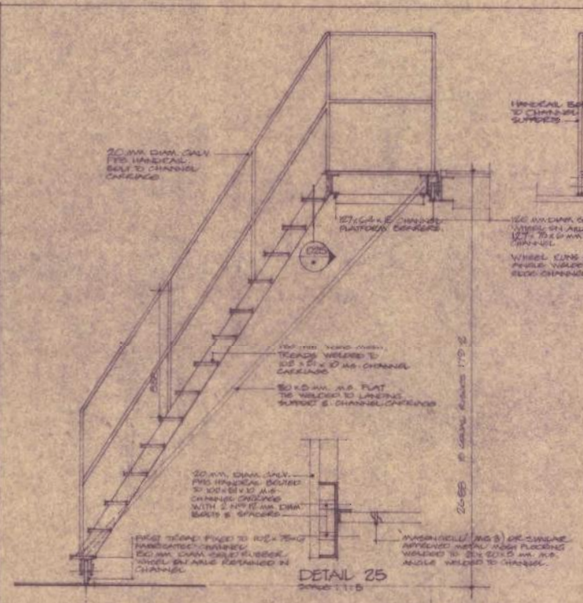
DETAIL 22
SCALE 1:5



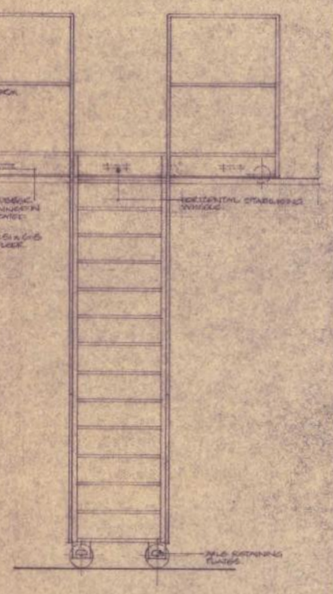
DETAIL 23
SCALE 1:5



DETAIL 24
SCALE 1:5



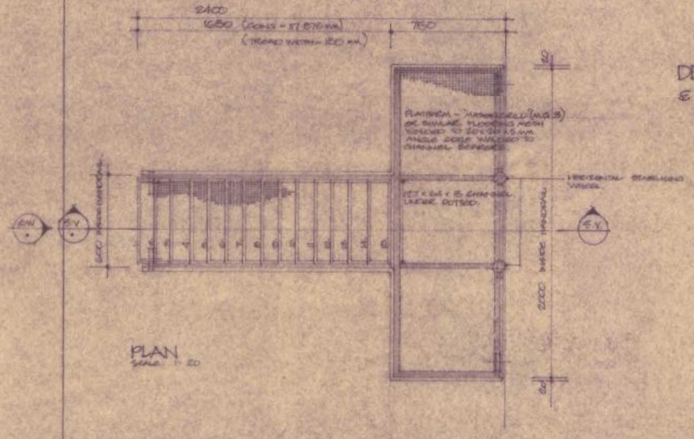
DETAIL 25
SCALE 1:5



ELEVATION W
SCALE 1:20

SECTION V-V
SCALE 1:20

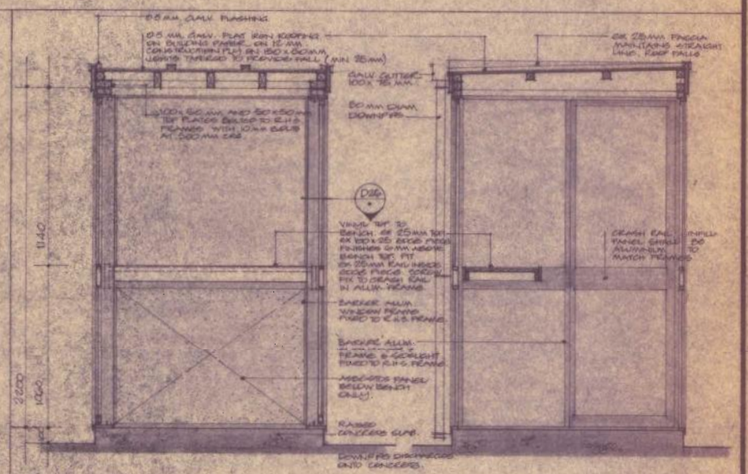
DETAILS · MOVEABLE STEPS & PLATFORM TO STORE



PLAN
SCALE 1:20

ISOMETRIC SKETCH

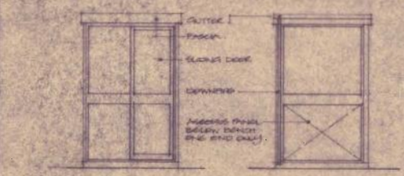
ISOMETRIC SKETCH



SECTION X-X
SCALE 1:20

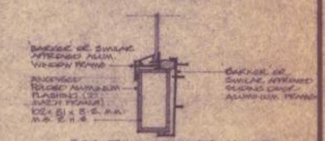
SECTION Y-Y
SCALE 1:20

DETAILS PETROL PUMP KIOSK.

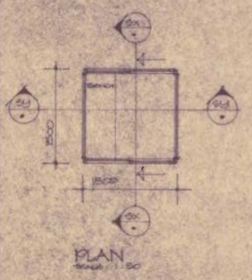


NORTH & SOUTH ELEVATIONS
SCALE 1:50

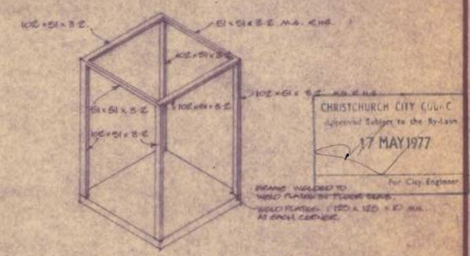
EAST & WEST ELEVATIONS
SCALE 1:50



DETAIL 26
SCALE 1:5

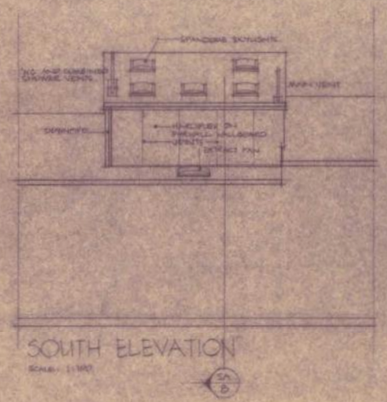


PLAN
SCALE 1:50

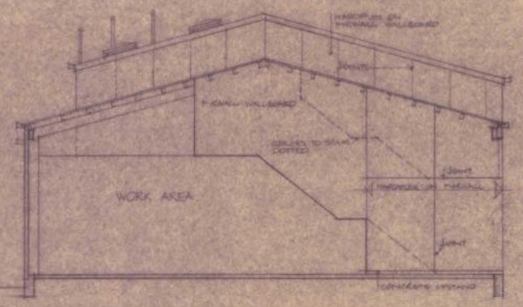


ISOMETRIC R.H.S. FRAME
SCALE 1:50

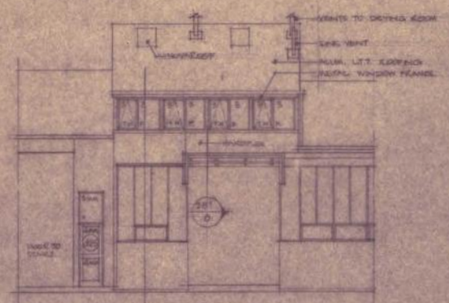
Lucking & Vial Architects Christchurch	CONSULTANTS' CHRISTCHURCH CITY COUNCIL CITY ENGINEERS DEPARTMENT	NEW CENTRAL DEPOT JOHNSON STREET SYDENHAM FOR THE CHRISTCHURCH CITY COUNCIL	SCALES AS SHOWN	DOOR SCHEDULE & DETAILS MOVEABLE STAIR DETAILS PETROL PUMP KIOSK.	FILE NO. 449/4 / SHEET 6
			CONTRACTOR SHALL VERIFY ALL DIMENSIONS BEFORE STARTING WORK.		



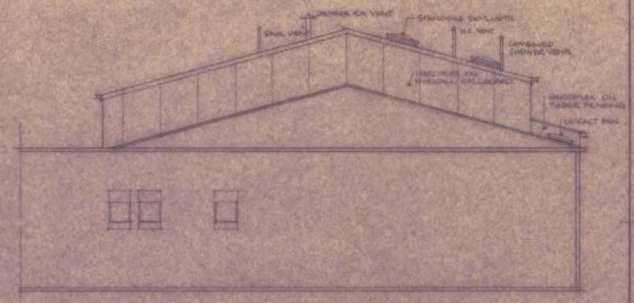
SOUTH ELEVATION



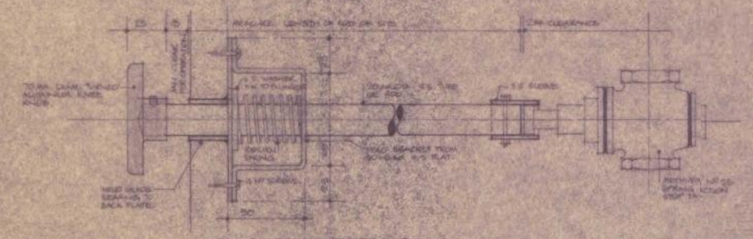
SECTION 1-1



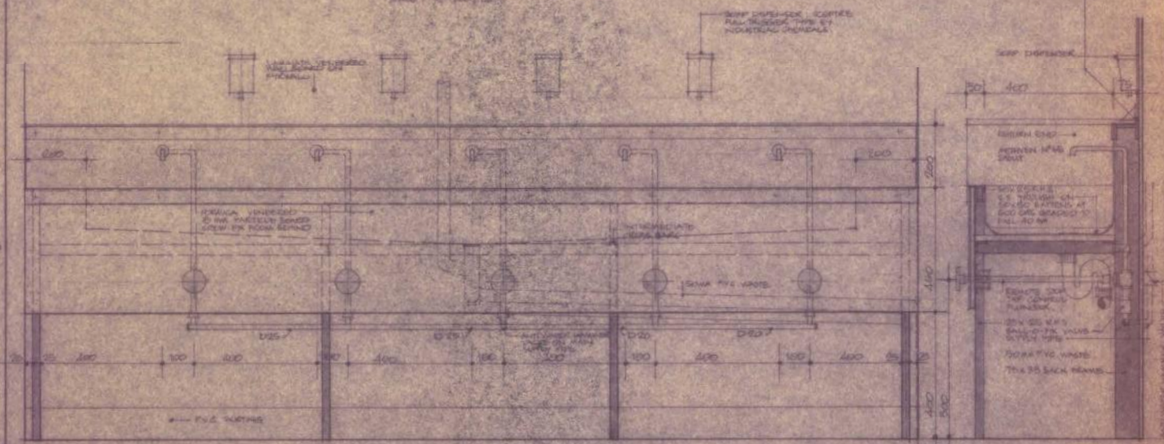
NORTH ELEVATION



WEST ELEVATION



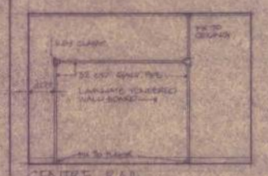
PLUNGER DETAILS



ELEVATION WASH TROUGH

SECTION

DRYING ROOM DETAILS

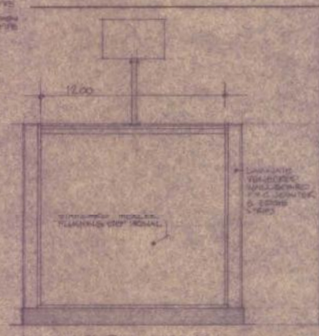


CENTRE RAIL

NORTH WALL

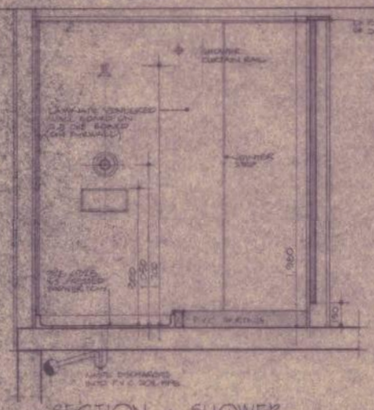
WEST WALL

CLOTHES HANGER 40 OFF



ELEVATION URINAL

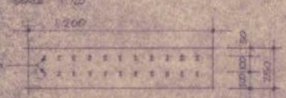
SECTION



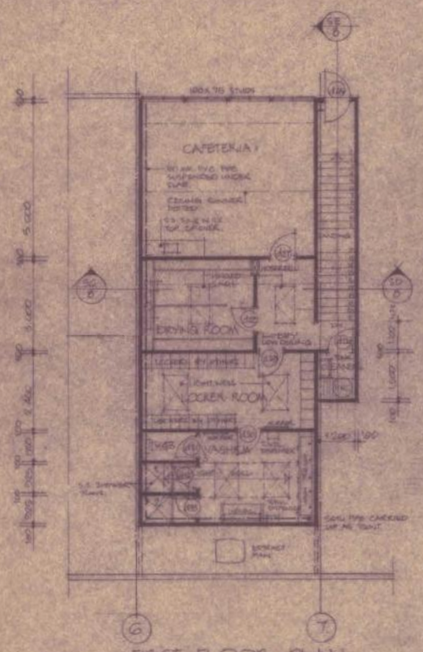
SECTION - SHOWER

ELEVATION BENCH CAFETERIA

SECTION

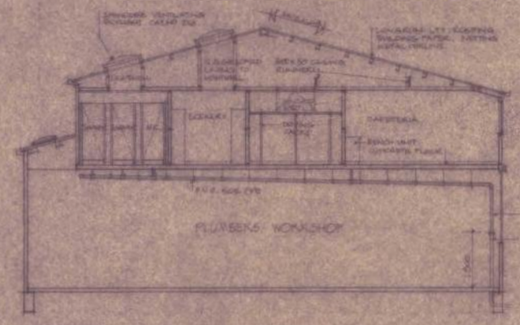


CUP HOOK PANEL

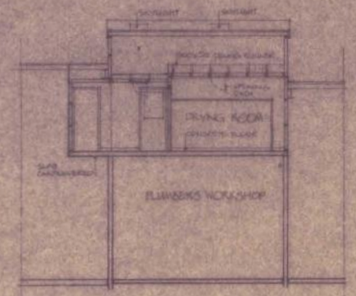


FIRST FLOOR PLAN

NOTE



SECTION 2-2



SECTION 3-3

CHRISTCHURCH CITY COUNCIL
Approved Subject to the By-Laws
17 MAY 1977
For City Engineer

Lucking & Vial
Architects Christchurch

CONSULTANTS:
FOR STRUCTURAL & ELECTRICAL
CHRISTCHURCH CITY COUNCIL
CITY ENGINEERS
DEPARTMENT

NEW CENTRAL DEPOT JOHNSON STREET SYDENHAM
FOR THE CHRISTCHURCH CITY COUNCIL

SCALES

AMENITIES BLOCK

FILE NO. 14-/4

SHEET 7

CONTRACTOR SHALL VERIFY ALL DIMENSIONS BEFORE STARTING WORK.

SECTION B1
SCALE 1:20

SECTION E
SCALE 1:50

PLUMBERS WORKSHOP

SECTION A
SCALE 1:50

SECTION B
SCALE 1:20

SECTION C
SCALE 1:20

SECTION D
SCALE 1:20

PLAN STAIR
SCALE 1:50

CHRISTCHURCH CITY COUNCIL
Approved Subject to the By-Laws
17 MAY 1977
For City Engineer

Lucking & Vial
Architects Christchurch

CONSULTANT
CHRISTCHURCH CITY COUNCIL
CITY ENGINEERS DEPARTMENT

NEW CENTRAL DEPOT JOHNSON STREET SYDENHAM
FOR THE CHRISTCHURCH CITY COUNCIL

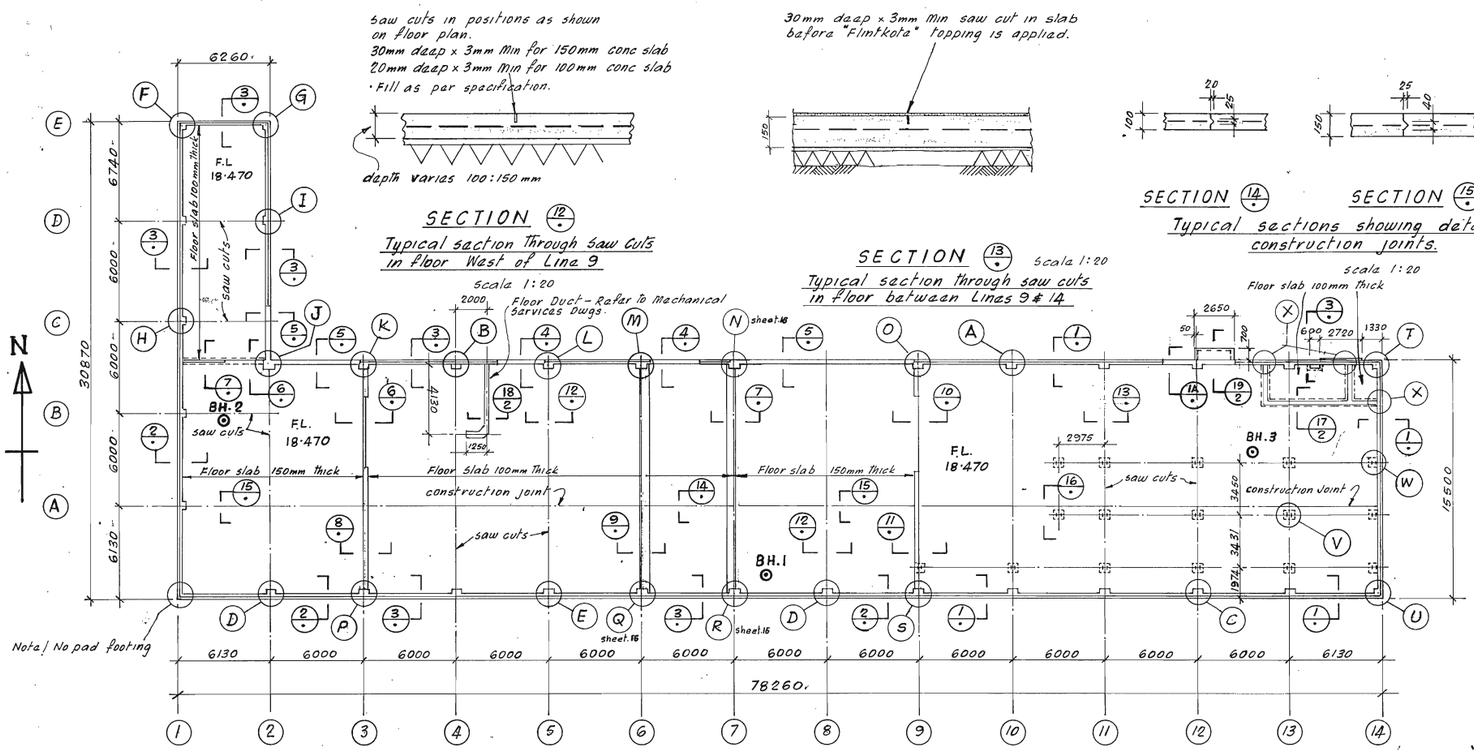
SCALES

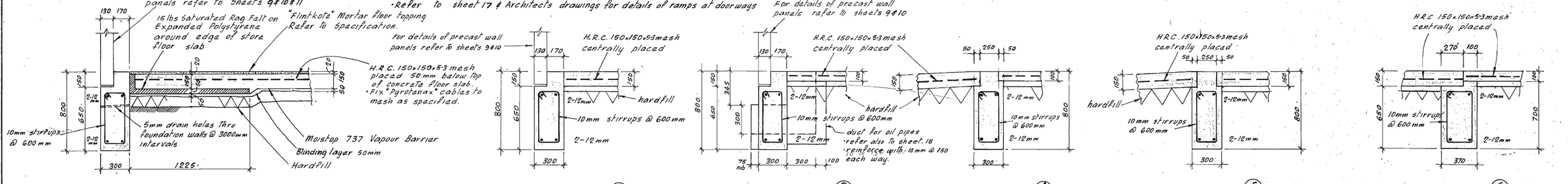
ABLUTIONS & CAFETERIA

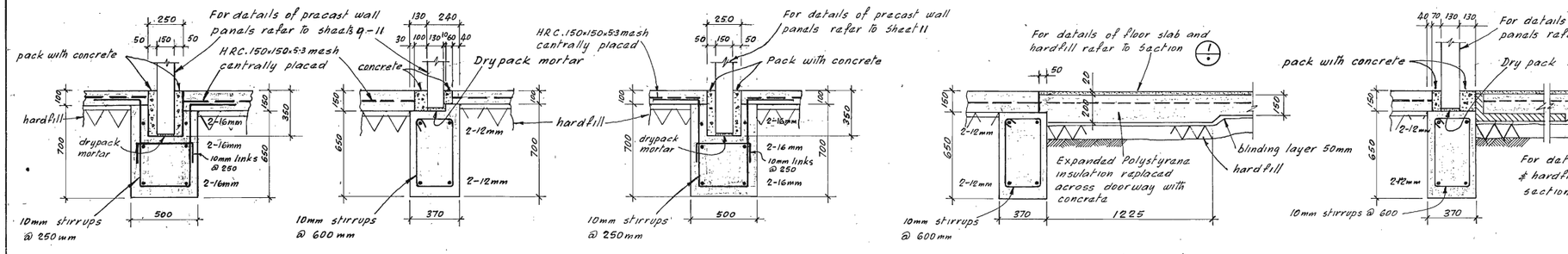
FILE NO. 1494

SHEET 8

CONTRACTOR SHALL VERIFY ALL DIMENSIONS BEFORE STARTING WORK.







Notes.

(1) Concrete:
a. Concrete strength (f'c) = 20MPa for foundation beams, pads and floor slabs.
b. Cover for foundation beams & pads
75mm against ground
50mm against formwork
c. Floor slabs shall be to Thicknesses indicated on the drawings. Those floors without underfloor heating shall be poured
on dpc (refer to specification)
on hardfill (refer to specification)
That area with underfloor heating shall be constructed as indicated on the drawing.

(2) Reinforcement
a. All bars deformed Grade 275 except that stirrups & ties are plain Grade 275
b. Reinforcement to be continuous throughout
c. Laps to be 10mm = 350mm
12mm = 400 mm
16 mm = 550 mm
20 mm = 650 mm

(3) General
a. Refer to Architects drawings for all door opening dimensions.
b. Where sizes of reinforcement & bolts are shown which are not available in metric sizes, the Imperial equivalent may be used.
c. Refer to Architects & Mechanical Services drawings for positions of floor chases for services, not detailed on Structural Drawings.

(4) All dimensions are in mm unless specifically shown otherwise.

CHRISTCHURCH CITY COUNCIL
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For City Engineer

Service	Initials	Service	Initials
H.P. Water		Lands & Survey	
Sewer		Planning	
S.W. Drainage			
Gas			
Cables (M.E.D.)			
(P.O.)			

Amendments	Initials	Date

	Book	Page	Initials	Date
Surveyed				
Levelled				
B.M.				
Compiled from				

		Date
Designed	D.J. Bates	10/74
Drawn	D.J. Bates	10/74
Traced	A.E. Bainbridge	11/74
Dwg. Chk	D.J. Bates	1/75
Des. Chk		
Indexed	LB	9/4/75

Approved: Design Engineer — Date
City Engineer

CHRISTCHURCH CITY COUNCIL — CITY ENGINEER'S DEPARTMENT

MAIN STORE - NEW CENTRAL DEPOT - JOHNSON STREET - FOUNDATION PLAN, SECTIONS AND DETAILS

Scales: 1:200, 1:20, 1:10

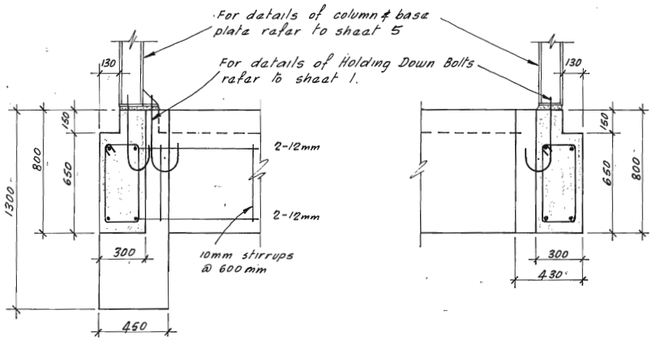
METRIC

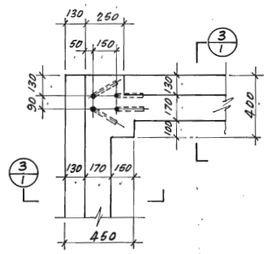
File No. BU/9/10

Issue

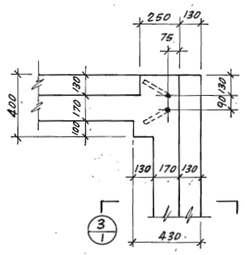
D1813

Sheet 1 of 18

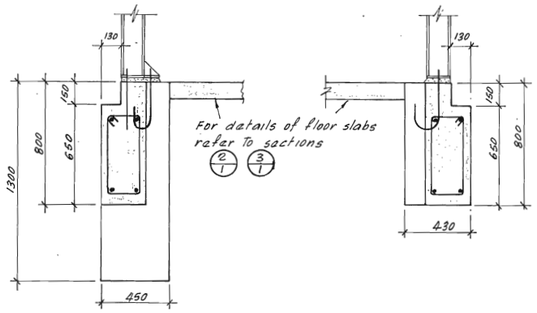


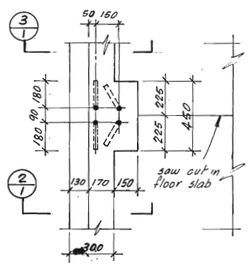


DETAIL F
scale 1:20



DETAIL G
scale 1:20





DETAIL H
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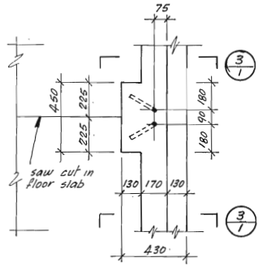
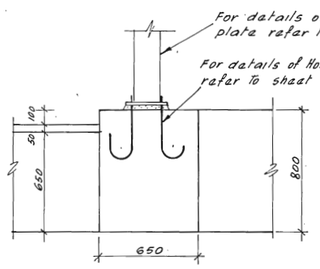
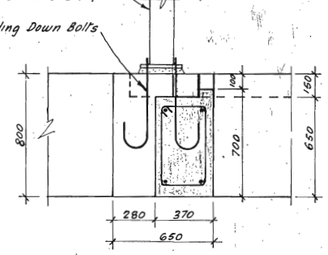
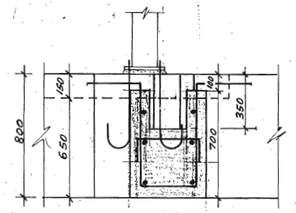
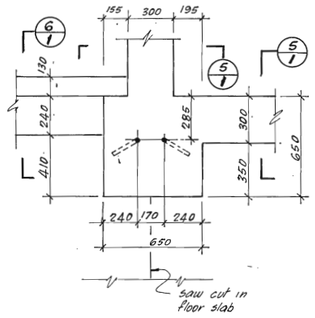


DETAIL I
scale 1:20

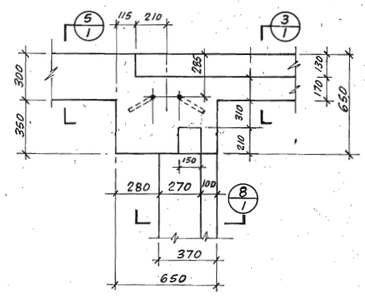




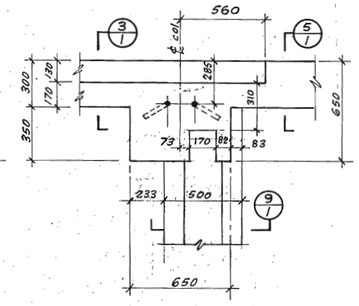




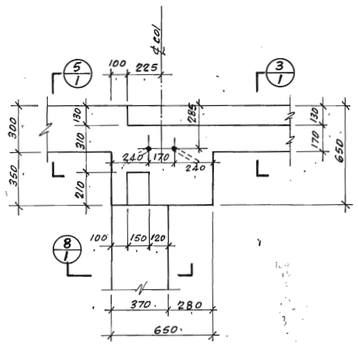
DETAIL J
scale 1:20



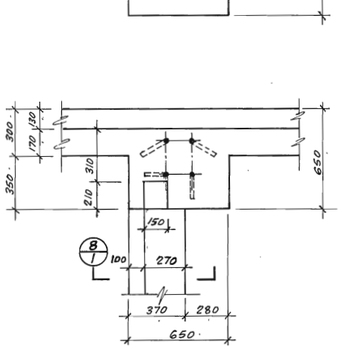
DETAIL K
DETAIL L similar except no cross wall foundation
scale 1:20



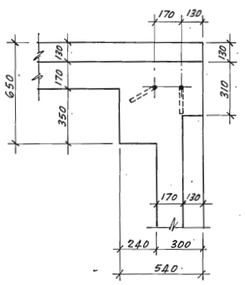
DETAIL M



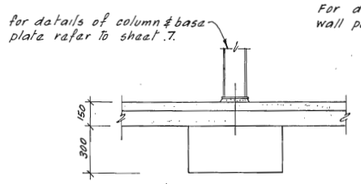
DETAIL O
scale 1:20

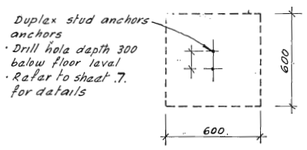


DETAIL P
DETAIL S opposite hand, section 11/1 replaces 8/1
scale 1:20

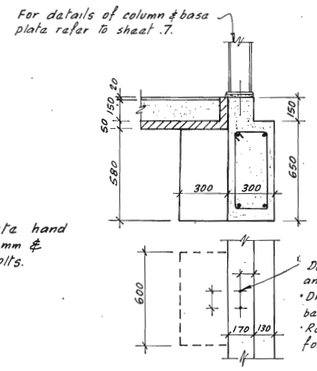


DETAIL T
DETAIL U opposite hand
depth of footing 1300mm & four holding down bolts.

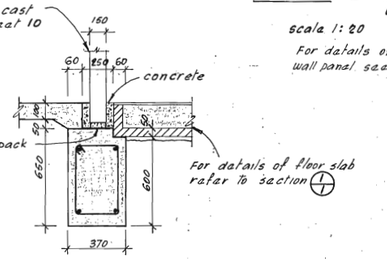




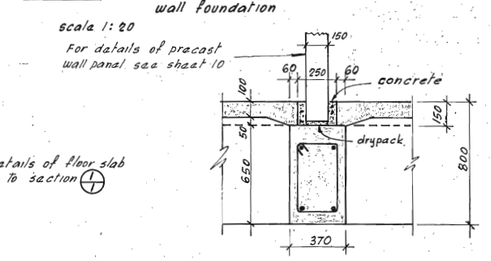
DETAIL V
scale 1:20

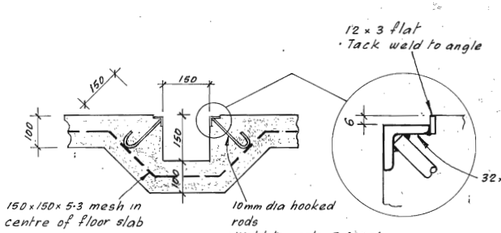


DETAIL W

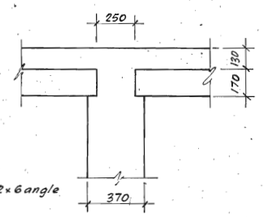


SECTION 17/1





SECTION 18/1
through floor channel



DETAIL X
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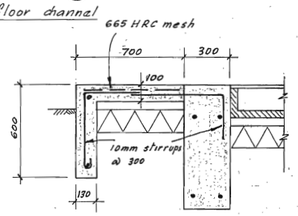


SECTION 19/1
scale 1:20

CHRISTCHURCH CITY COUNCIL
Approved Subject to the By-Laws
17 MAY 1977
For City Engineer

Notes :
. (1) Notes as for sheet 1.

Service	Initials	Service	Initials
H.P. Water		Lands & Survey	
Sewer		Planning	
S.W. Drainage			
Gas			
Cables (M.E.D.)			
(P.O.)			

Amendments	Initials	Date

	Book	Page	Initials	Date
Surveyed				
Levelled				
B.M.				
Compiled from				

		Date
Designed	D.V. Bates	10/74
Drawn	A.E. Bambridge	11/74
Traced	A.E. Bambridge	11/74
Dwg. Chk	D.V. Bates	1/75
Drs. Chk.		
Indexed	LB	9/4/75

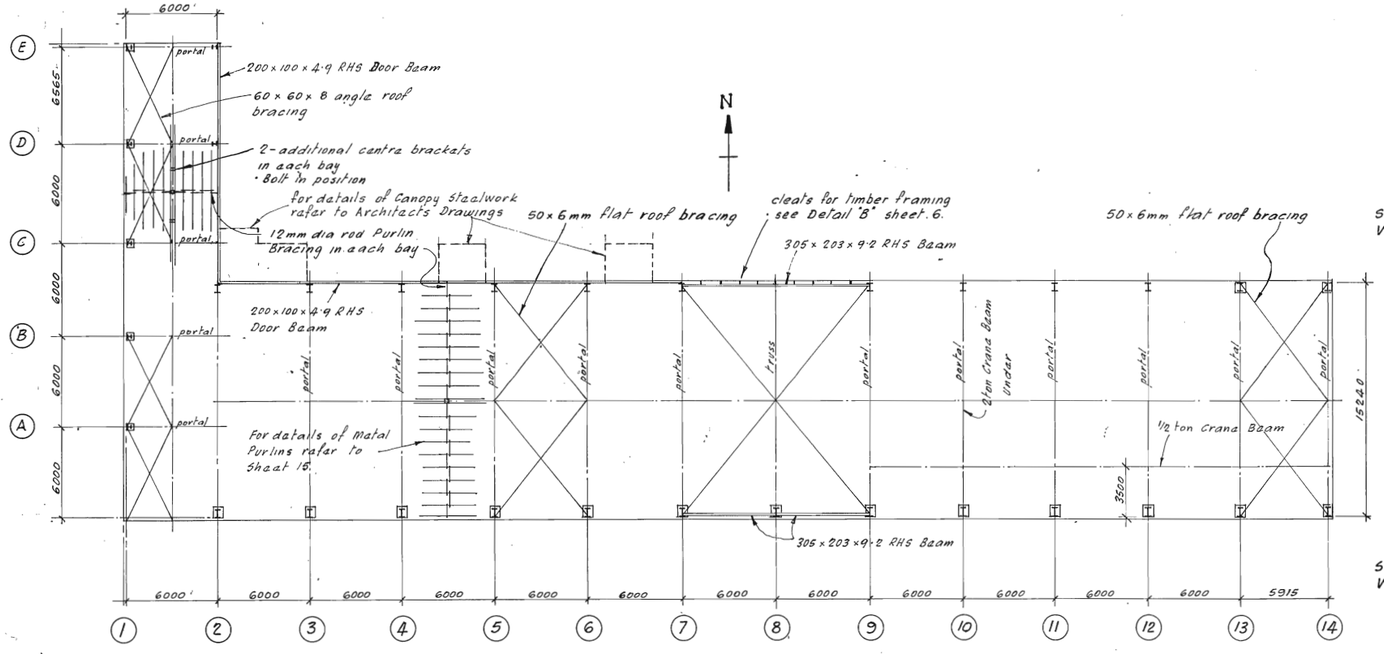
Approved
Design Engineer — Date
City Engineer

CHRISTCHURCH CITY COUNCIL — CITY ENGINEER'S DEPARTMENT

MAIN STORE - NEW CENTRAL DEPOT - JOHNSON STREET - FOUNDATION DETAILS

Scales: 1:20

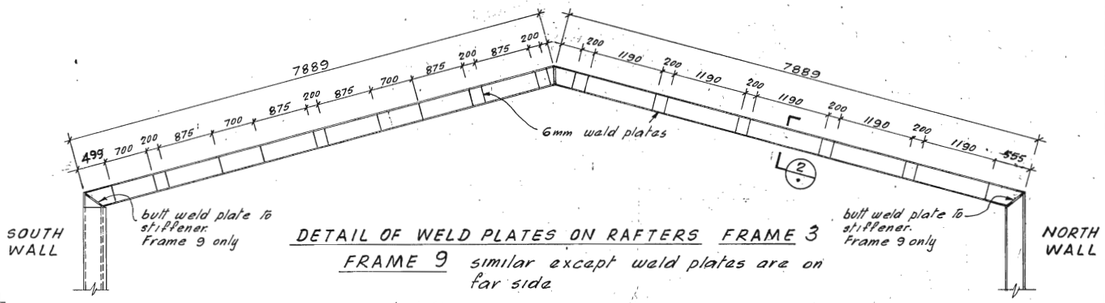
METRIC
File No BU/9/10
Issue
D1813
Sheet 2 of 18



STEEL FRAMING PLAN metal purlins not shown

scale 1:200

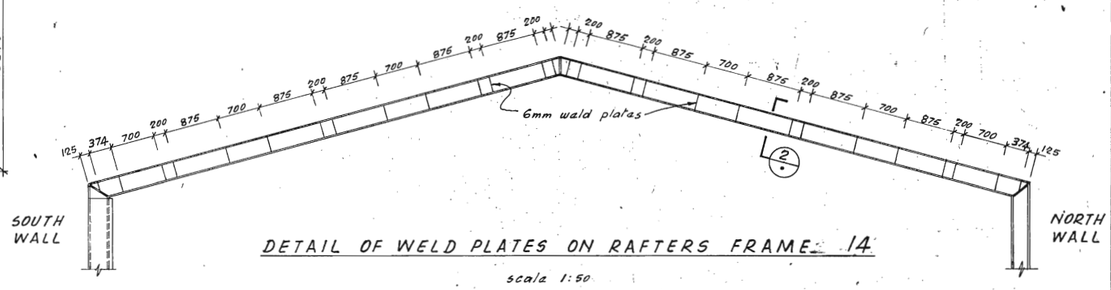
For details of Roof Bracing refer to Sheet 6.
For details of Purlin Bracing refer to Sheet 6.



DETAIL OF WELD PLATES ON RAFTERS FRAME 3

FRAME 9 similar except weld plates are on far side

scale 1:50



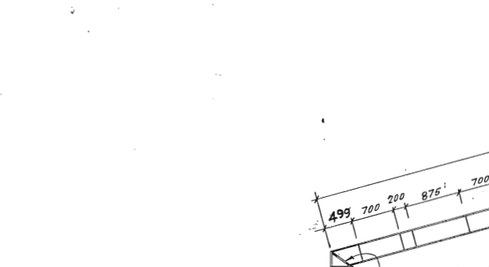
DETAIL OF WELD PLATES ON RAFTERS FRAME 14

scale 1:50

ELEVATION - FRAMES LINE 4 & 5 & 6

FRAMES LINE 3 similar except weld plates required on rafters. See details above

scale 1:50



TYPICAL KNEE JOINT 310 x UB x 40

Concrete casing shown where applicable

scale 1:10

SECTION 1

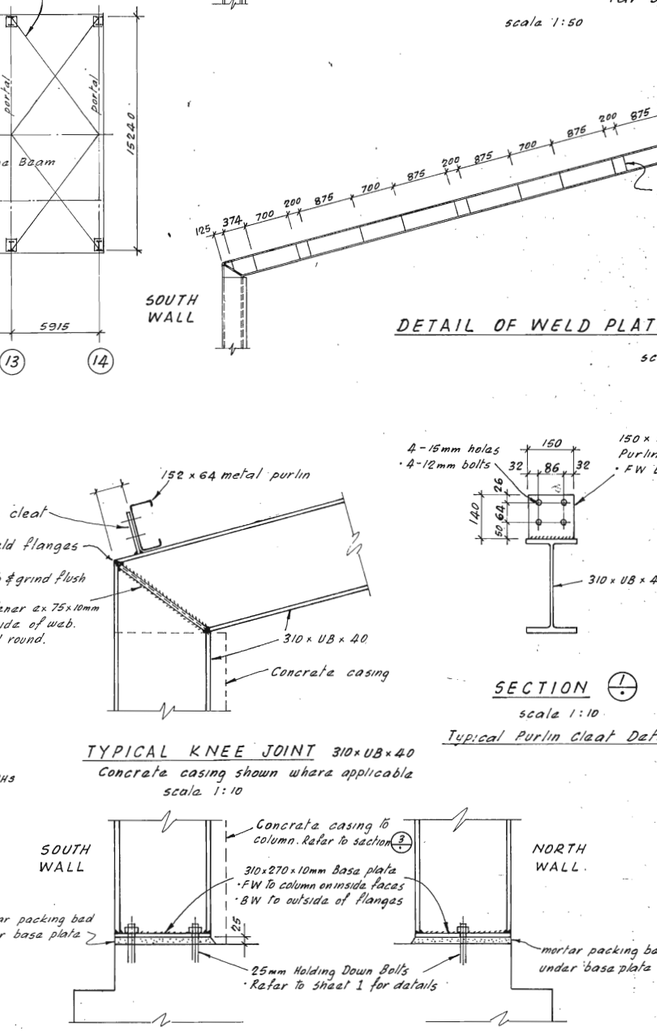
scale 1:10

Typical Purlin Cleat Detail

SECTION 2

scale 1:10

Purlin cleat not shown



DETAILS OF COLUMN BASE PLATES

scale 1:10

SECTION 3

scale 1:10

Typical Section Through Concrete Casing To Columns. 310 x UB x 40 columns.

Notes:

a. All welds to be 6mm fillet welds unless otherwise specified.
b. All lines of contact at joints to be welded.
c. BW indicates full penetration butt weld.
d. FW indicates fillet weld.

CHRISTCHURCH CITY COUNCIL
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17 MAY 1977
For City Engineer

METRIC

Service	Initials	Service	Initials
H.P. Water		Lands & Survey	
Sewer		Planning	
S.W. Drainage			
Gas			
Cables (M.E.D.)			
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Amendments | Initials | Date

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Designed	D.J. Batas	10/74
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Dwg. Chk.	D.J. Batas	1/75
Des. Chk		
Indexed	LB	9/4/75

Approved

Design Engineer Date

City Engineer

CHRISTCHURCH CITY COUNCIL — CITY ENGINEER'S DEPARTMENT

MAIN STORE - NEW CENTRAL DEPOT - JOHNSON STREET - STRUCTURAL STEELWORK - FRAMING PLAN - FRAMES 3,4,5 & 6

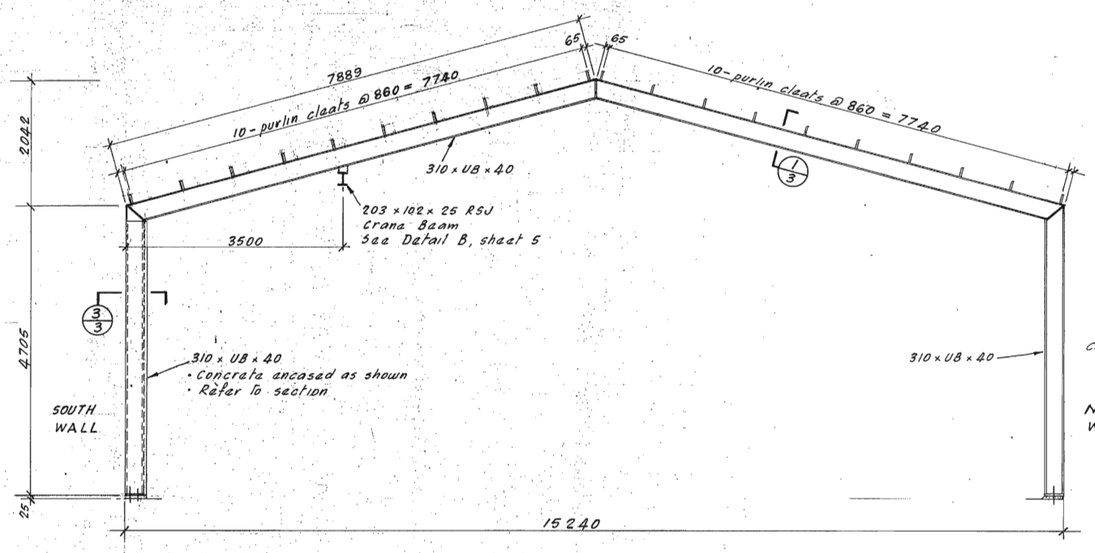
Scales
1:200
1:10
1:50

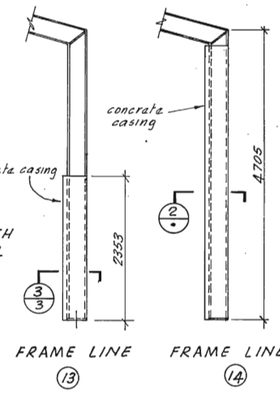
File No. BU/9/10

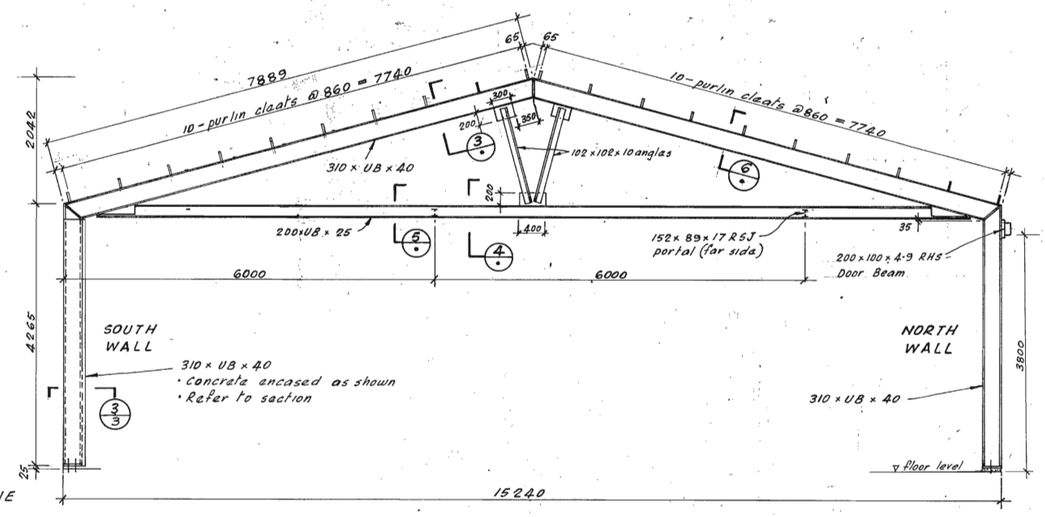
Issue

D1813

Sheet 3 of 18







ELEVATION – FRAMES LINE 11 & 12

scale 1:50

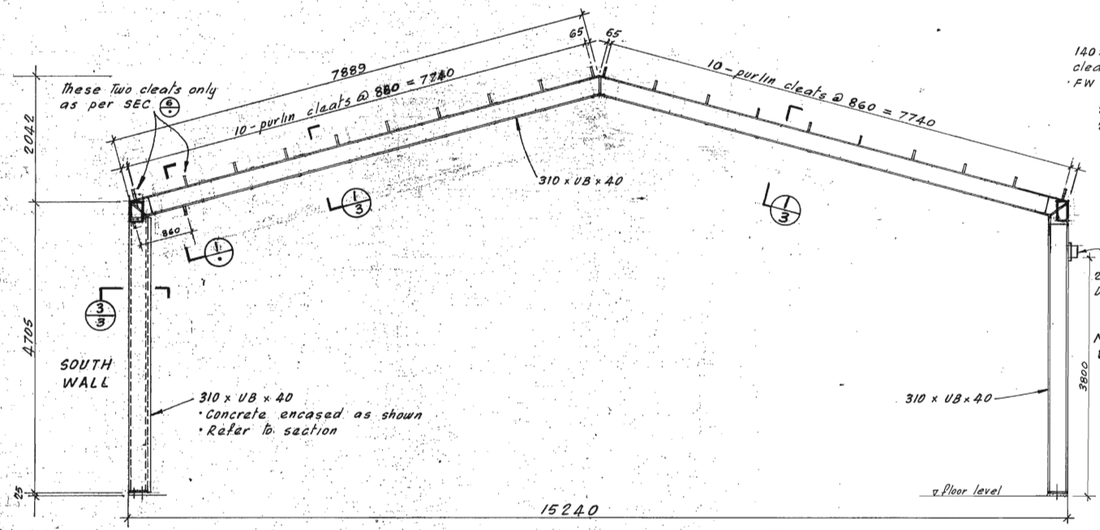
FRAME LINE 9 similar except weld plates required on rafters see detail sheet 3. Knee detail as for Frame Line 7

FRAME LINE 13 similar except North Wall Column cased, see detail above.

FRAME LINE 14 similar except North Wall Column cased, see detail above. Weld plates required on rafters, see detail sheet 3.

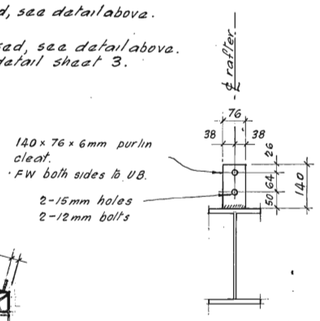
ELEVATION – FRAME LINE 2

scale 1:50

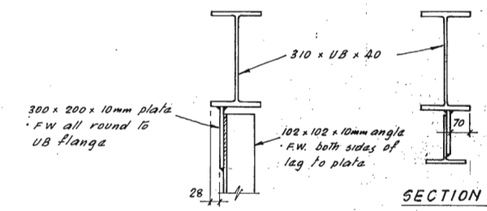


ELEVATION – FRAME LINE 7

scale 1:50



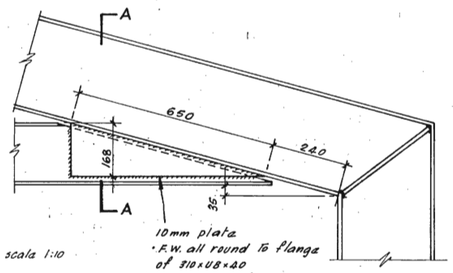
SECTION 6



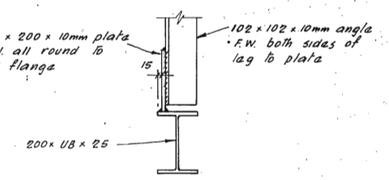
SECTION 3

scale 1:10

SECTION A-A

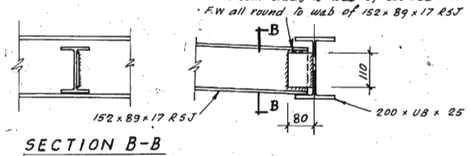


scale 1:10



SECTION 4

scale 1:10

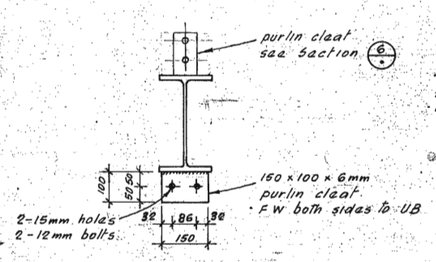


SECTION B-B

scale 1:10.

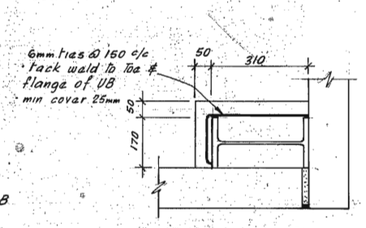
SECTION 5

BRACING CONNECTIONS – FRAME LINE 2.



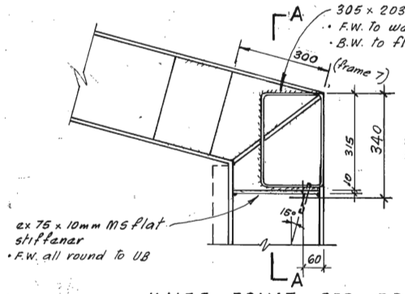
SECTION 1

scale 1:10

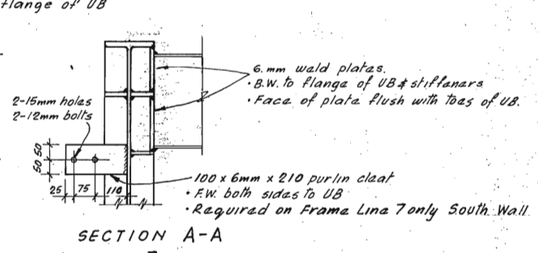


SECTION 2

Frame Line 14 North Wall as drawn
South Wall opposite hand



KNEE JOINT FOR FRAME LINE 7



SECTION A-A

FRAME LINE 9 except weld plates & RHS beam are on far side

Notes :

Refer to sheet 3

CHRISTCHURCH CITY COUNCIL
Approved Subject to the By-Laws
17 MAY 1977
For City Engineer

Service	Initials	Service	Initials
H.P. Water		Lands & Survey	
Sewer		Planning	
S.W. Drainage			
Gas			
Cables (M.E.D.)			
(P.O.)			

Amendments	Initials	Date

	Book	Page	Initials	Date
Surveyed				
Levelled				
B.M.				
Compiled from				

		Date
Designed	D.J. Bates	18/7/74
Drawn	A.E. Bainbridge	18/7/74
Traced	A.E. Bainbridge	18/7/74
Dwg. Chk.	D.J. Bates	1/75
Des. Chk.		
Indexed	LB	9/4/75

Approved: Design Engineer ____ Date ____ City Engineer

CHRISTCHURCH CITY COUNCIL — CITY ENGINEER'S DEPARTMENT

MAIN STORE – NEW CENTRAL DEPOT – JOHNSON STREET – STRUCTURAL STEELWORK – FRAMES 2, 7, 9, 11, 12, 13 & 14

Scales 1:10 1:50

METRIC

File No. BU/9/18

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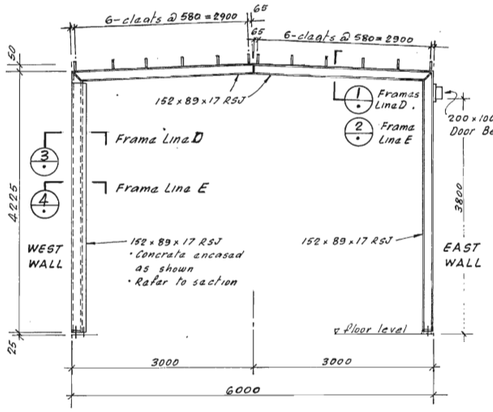
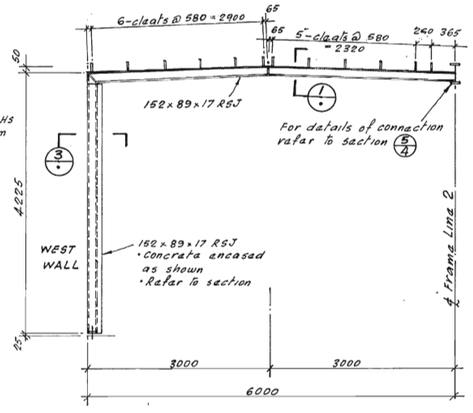
Sheet 4 of 18



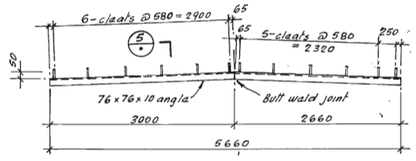
ELEVATION - FRAME LINE D

scale 1:50



ELEVATION - FRAMES A & B

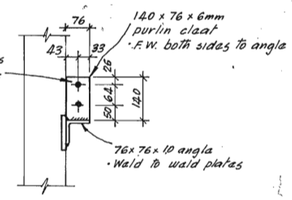
scale 1:50



GABLE RAFTER - SOUTH WALL

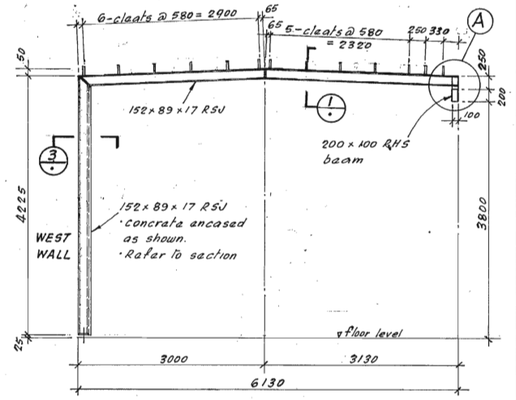
scale 1:50

connections for roof bracing not shown.



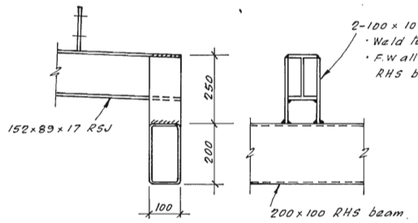
SECTION (5)

scale 1:10



ELEVATION - FRAME LINE C

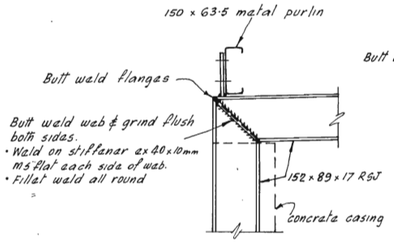
scale 1:50



DETAIL A

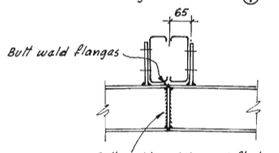
scale 1:10

FRAME LINE E similar except purlin cleats to Section (2) & concrete casing to section (4)



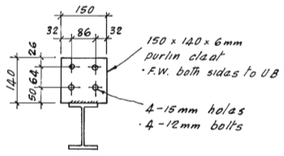
KNEE JOINT

scale 1:10

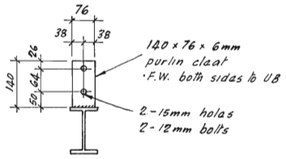


APEX JOINT

scale 1:10

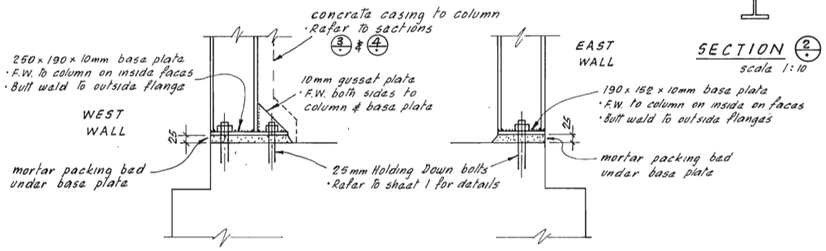


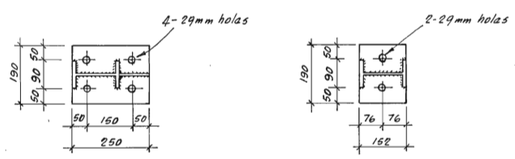
SECTION (1)



SECTION (2)

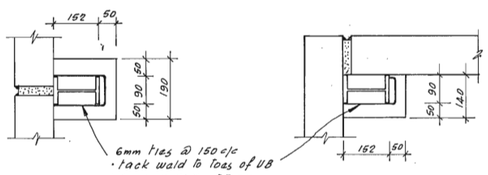
scale 1:10





DETAIL OF COLUMN BASE PLATES

scale 1:10

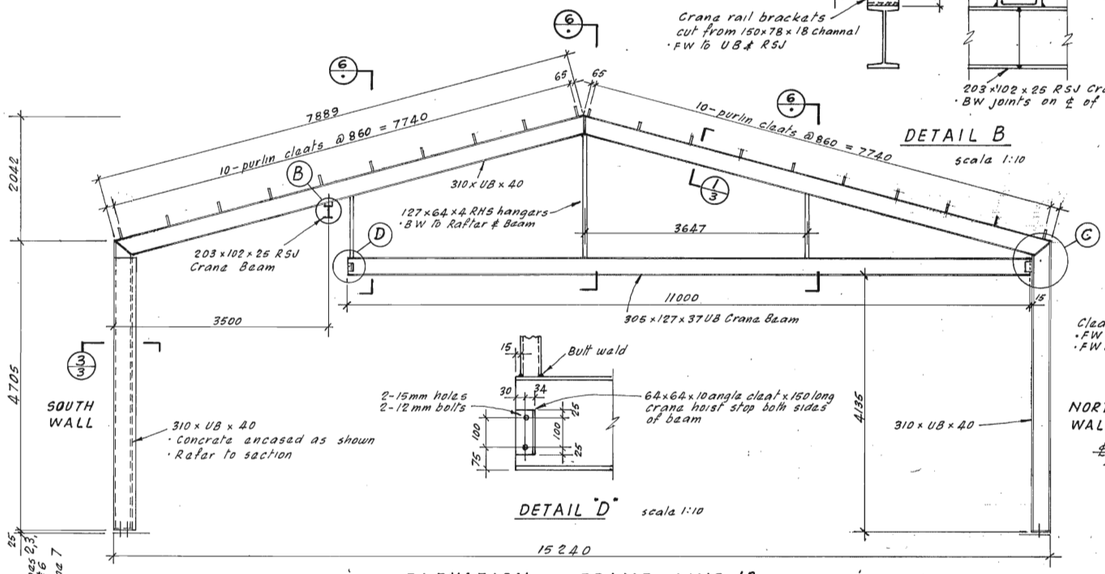


SECTION (3)

scale 1:10

SECTION (4)

scale 1:10

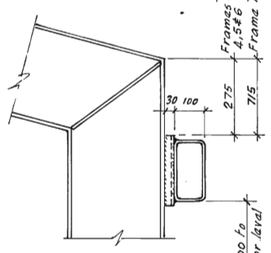


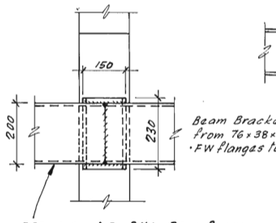
DETAIL "D"

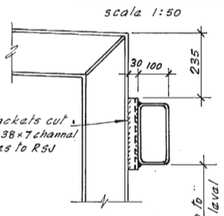
scale 1:10

ELEVATION - FRAME LINE 10

scale 1:50





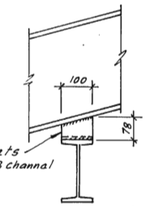


FRAMES 2, 3, 4, 5, 6 & 7

FRAMES C, D & E

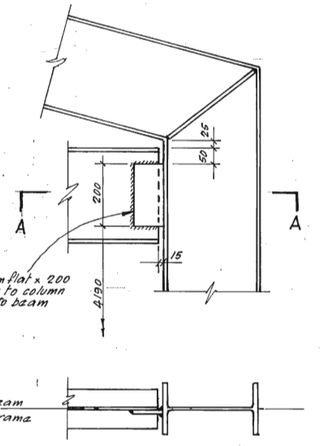
TYPICAL CONNECTIONS OF DOOR BEAMS TO PORTAL FRAMES

scale 1:10



DETAIL B

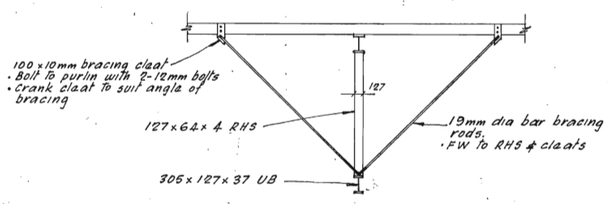
scale 1:10



SECTION A-A

DETAIL "C"

scale 1:10



TYPICAL SECTION (6)

scale 1:50

Notes :

Refer to sheet 3

Service	Initials	Service	Initials
H.P. Water		Lands & Survey	
Sewer		Planning	
S.W. Drainage			
Gas			
Cables (M.E.D.)			
" (P.O.)			

Amendments	Initials	Date

	Book	Page	Initials	Date
Surveyed				
Levelled				
B.M.				
Compiled from				

		Date
Designed	D.J. Bates	10/74
Drawn	A.E. Bainbridge	12/74
Traced	A.E. Bainbridge	12/74
Dwg. Chk.	D.J. Bates	1/75
Des. Chk.		
Indexed	LB	9/4/75

Approved

..... Design Engineer Date

..... City Engineer

CHRISTCHURCH CITY COUNCIL — CITY ENGINEER'S DEPARTMENT

MAIN STORE - NEW CENTRAL DEPOT - JOHNSON STREET - STRUCTURAL STEELWORK - FRAMES 10, A, B, C, D & E

Scales

1 : 50

1 : 10

METRIC

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Issue

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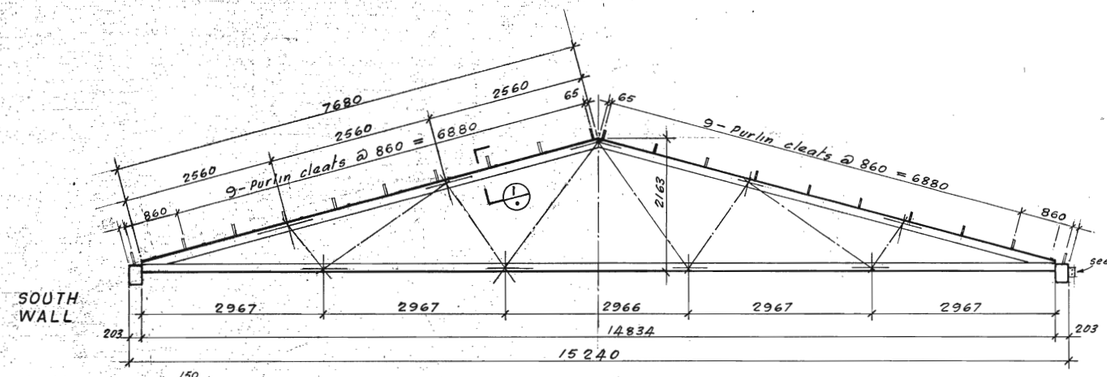
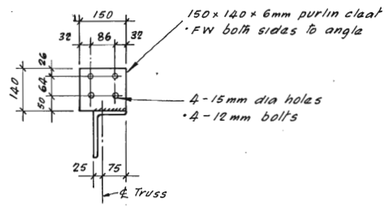
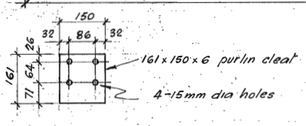


ELEVATION OF TRUSS ON LINE 8

scale 1:50

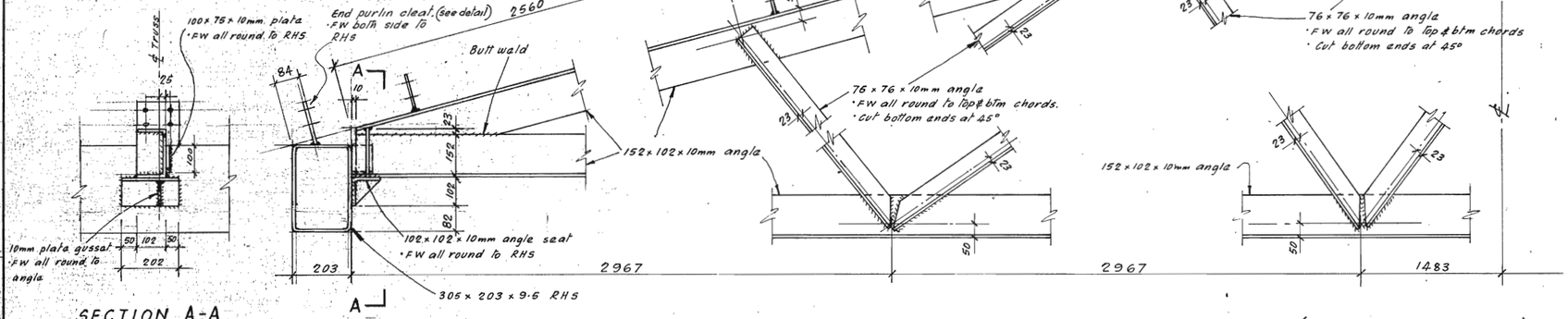


SECTION



END PURLIN CLEAT

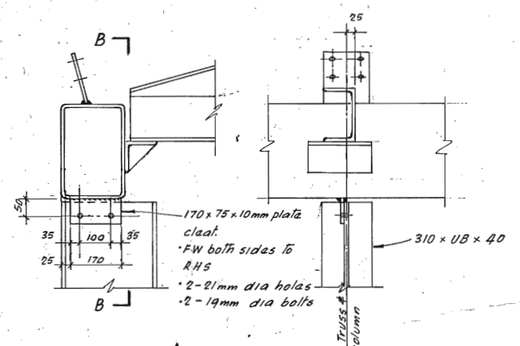
scale 1:10



SECTION A-A

DETAILS OF TRUSS BRACING CONNECTIONS (truss symmatrical about ℄)

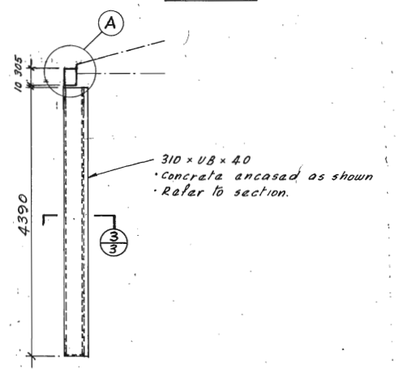
scale 1:10



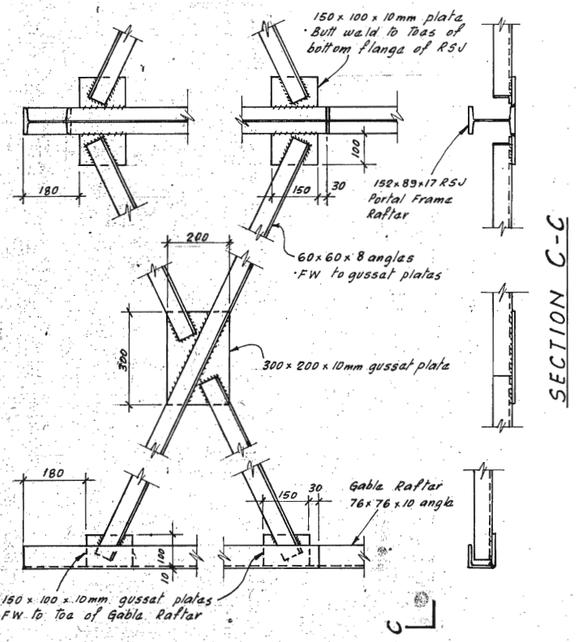
DETAIL A

scale 1:10

SECTION B-B

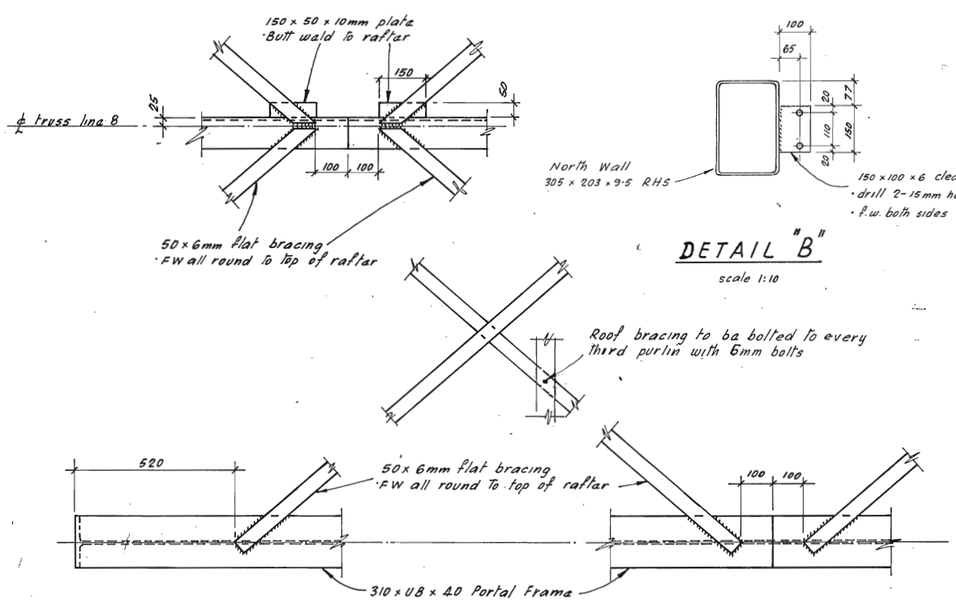


SOUTH WALL COLUMN - LINE 8



TYPICAL DETAILS OF ROOF BRACING BETWEEN SOUTH WALL - FRAME B & FRAMES C-E

Scale 1:10

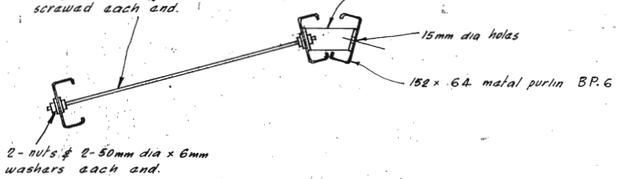


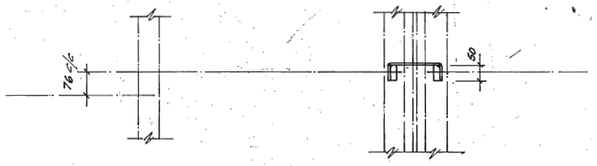
TYPICAL DETAILS OF ROOF BRACING BETWEEN FRAMES 5-6, 7-8-9 & 13-14

Scale 1:10

DETAIL "B"

scale 1:10





TYPICAL DETAILS OF PURLIN BRACING

Scale 1:10

CHRISTCHURCH CITY COUNCIL
Approved Subject to the By-Laws
17 MAY 1977
For City Engineer

Notes:
- Refer to sheet 3.

Service	Initials	Service	Initials
H.P. Water		Lands & Survey	
Sewer		Planning	
S.W. Drainage			
Gas			
Cables (M.E.D.)			
(P.O.)			

Amendments	Initials	Date

	Book	Page	Initials	Date
Surveyed				
Levelled				
B.M.				
Compiled from				

			Date
Designed	D.J. Balas		10/74
Drawn	A.E. Bainbridge		12/74
Traced	A.E. Bainbridge		12/74
Dwg. Chk.	D.J. Balas		1/75
Des. Chk.			
Indexed	LB		9/4/75

Approved

Design Engineer Date

City Engineer

CHRISTCHURCH CITY COUNCIL — CITY ENGINEER'S DEPARTMENT

MAIN STORE - NEW CENTRAL DEPOT - JOHNSON STREET - STRUCTURAL STEELWORK - TRUSS LINE 8 - ROOF BRACING -

Scales: 1:50, 1:10

METRIC

File No. BU/9/10

Issue

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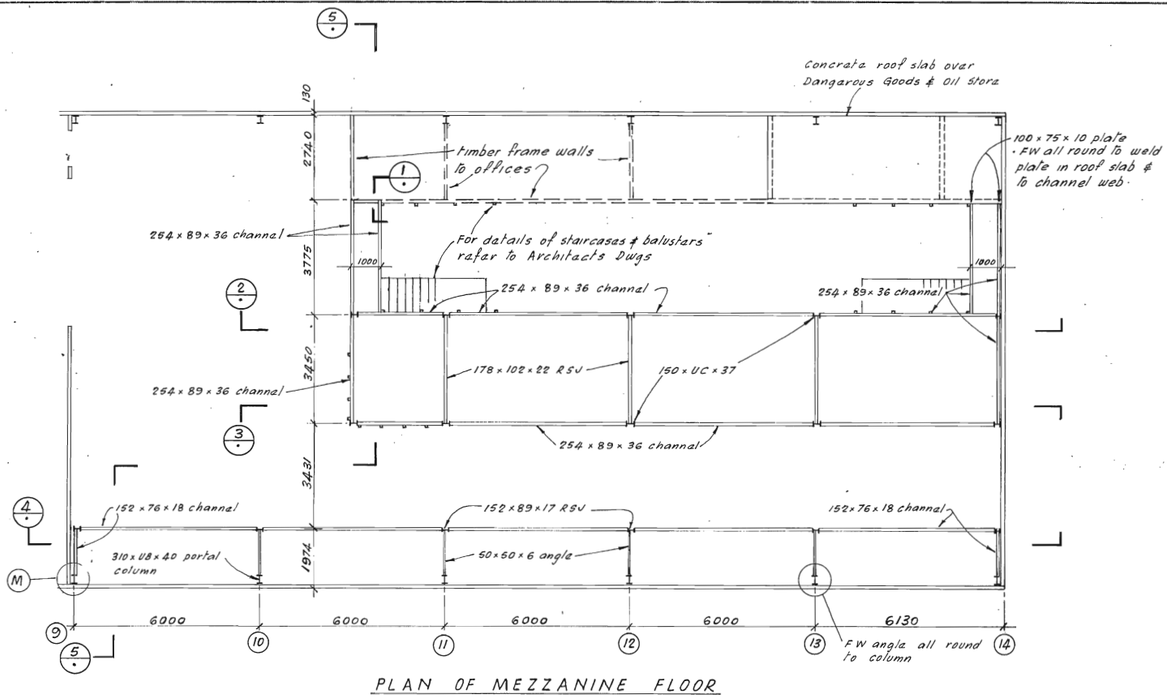
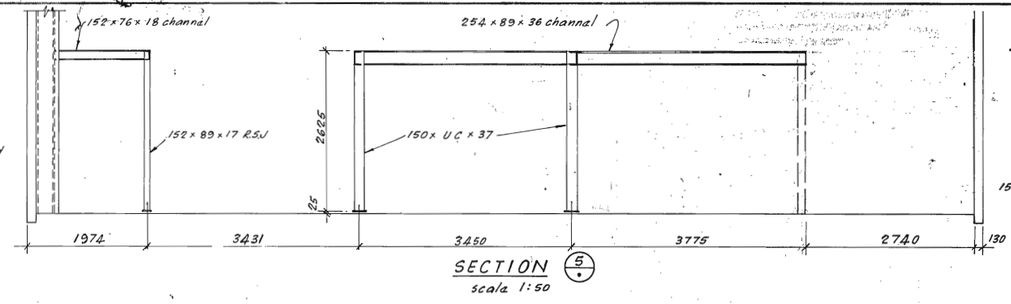
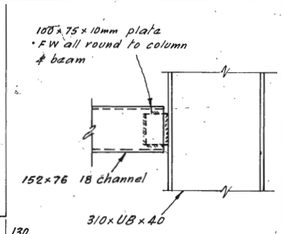


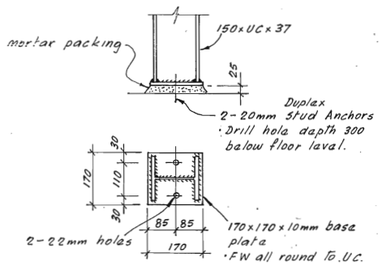
PLAN OF MEZZANINE FLOOR
scale 1:100
Floor joists & flooring not shown.



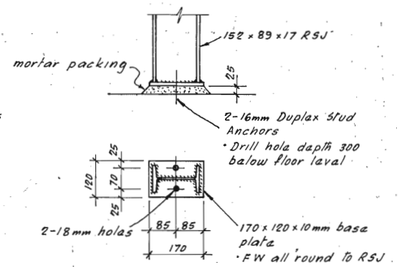
SECTION 5
scale 1:50



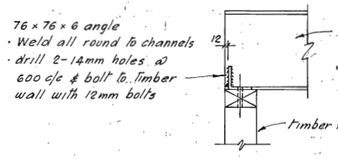
DETAIL M
scale 1:10



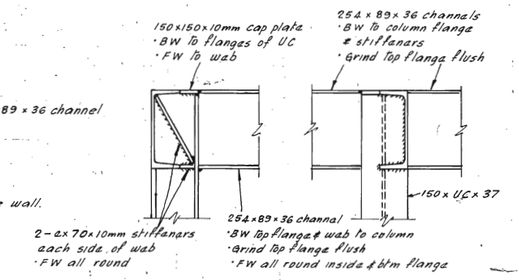
DETAIL B
scale 1:10



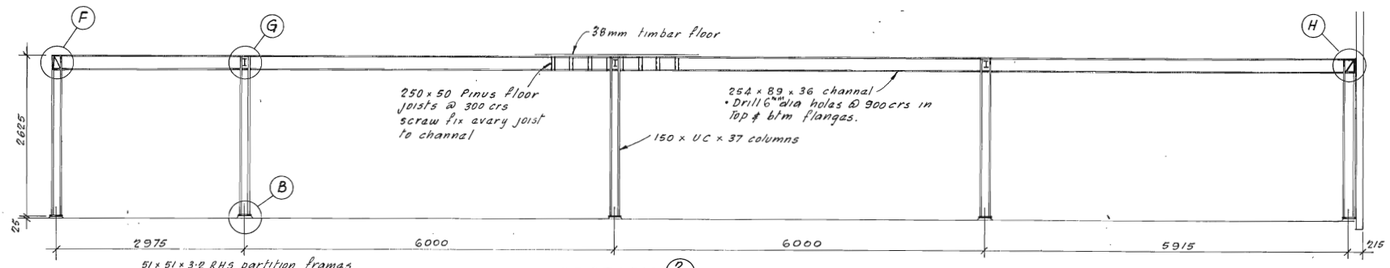
DETAIL C
scale 1:10



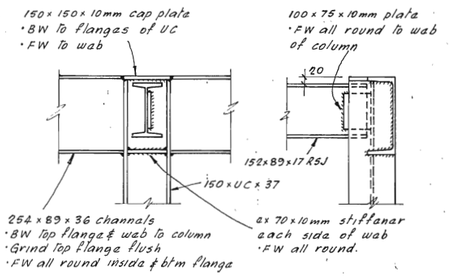
SECTION 1
scale 1:10



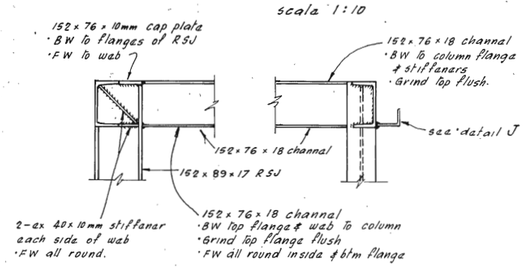
DETAIL F
DETAIL H opposite hand.
scale 1:10



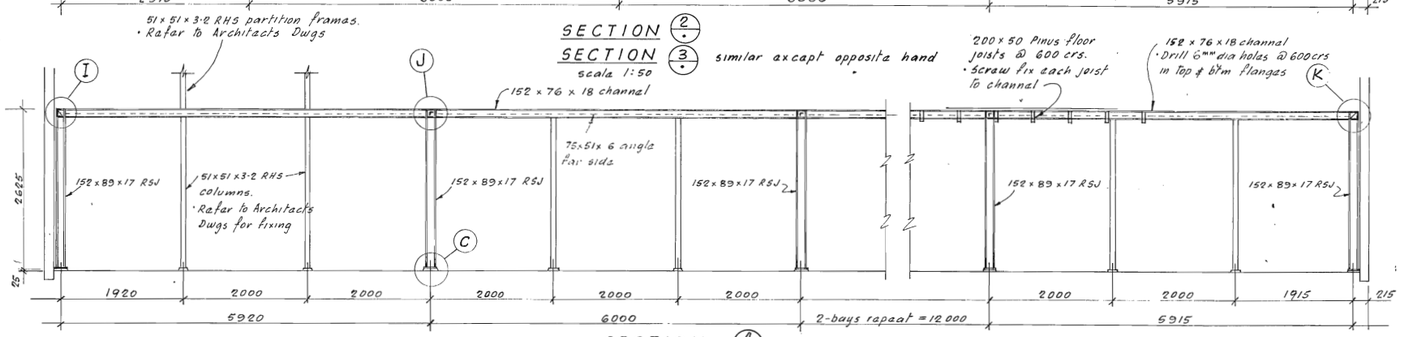
SECTION 2
SECTION 3
scale 1:50
similar ax capt opposite hand



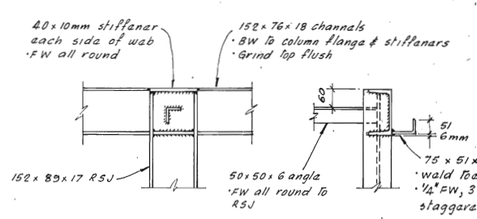
DETAIL G
scale 1:10



DETAIL I
DETAIL K opposite hand



SECTION 4
scale 1:50



DETAIL J
scale 1:10

Notes:

1. Steelwork
   - a. All welds to be 6mm fillet welds unless otherwise specified
   - b. All lines of contact at joints to be welded.
   - c. BW indicates full penetration butt weld
   - d. FW indicates fillet weld.
2. Flooring
   - a. For details of floor joists, flooring, staircases, balustars & partition framing refer to Architects Drawings.

CHRISTCHURCH CITY Approved Subject to the By-Laws 17 MAY 1977 For City Engineer

			D.V. Batas 11/74
			A.E. Bainbridge 12/74
			A.E. Bainbridge 12/74 Design Engineer
			D.V. Batas 1/75
			JB 9/4/75

CHRISTCHURCH CITY COUNCIL — CITY ENGINEER'S DEPARTMENT

MAIN STORE - NEW CENTRAL DEPOT - JOHNSON STREET - STRUCTURAL STEELWORK - MEZZANINE FLOOR -

Scales: 1:100, 1:50, 1:10

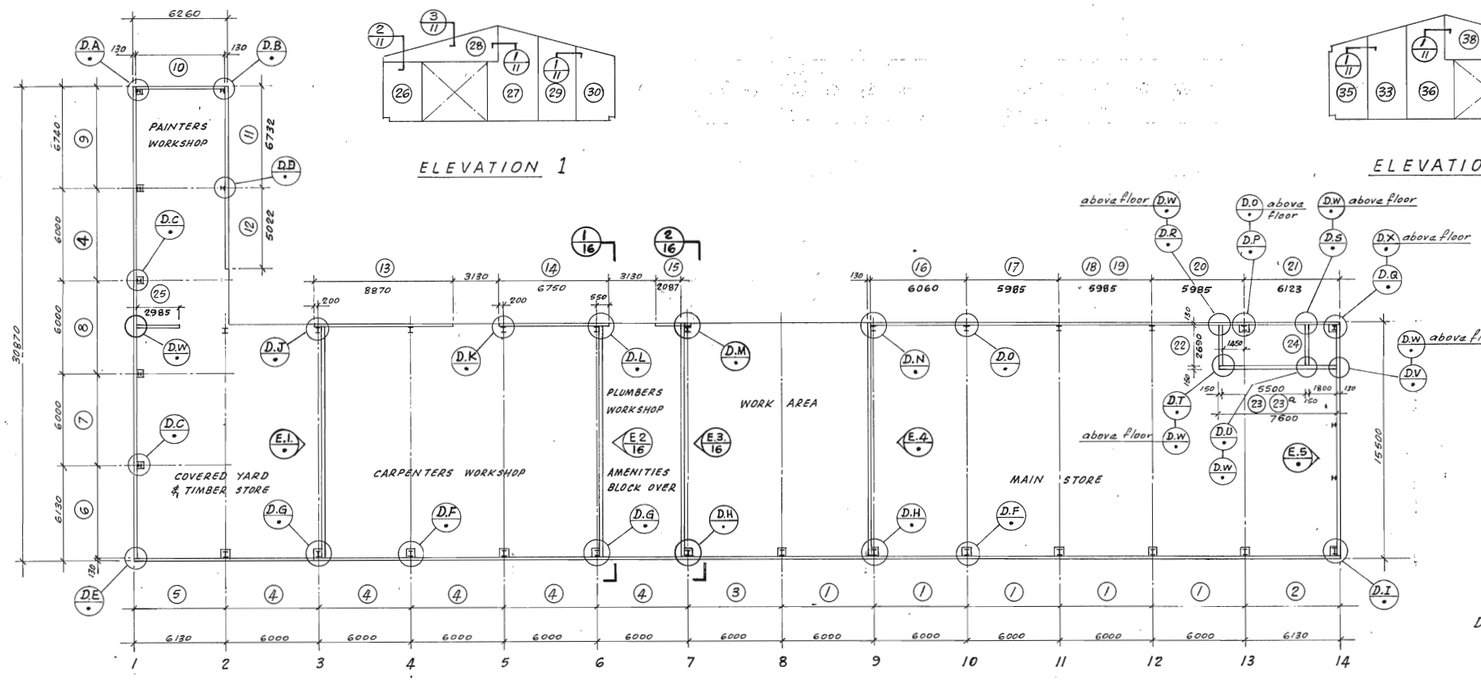
METRIC

File No BU/9/10

Issue

D1813

Sheet 7 of 18

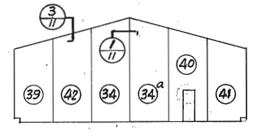


PLAN SHOWING PRECAST CONCRETE WALL PANELS

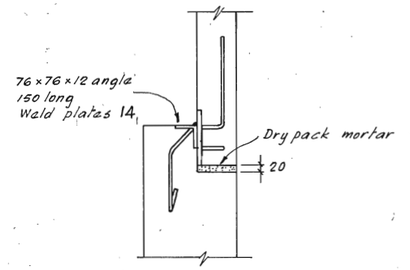
scale 1:200

ELEVATION 1

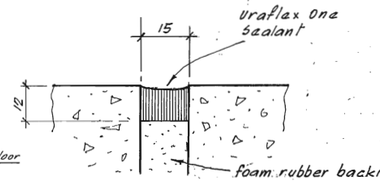
ELEVATION 4



ELEVATION 5

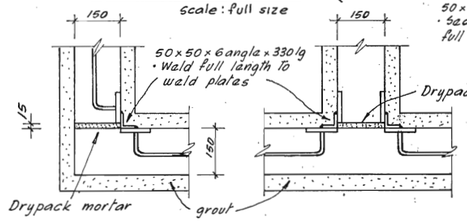


CONNECTION OF PRECAST PANELS TO FOUNDATION



DETAIL OF JOINT IN PRECAST PANELS (Joints in panels at Oil & Dangerous Goods Stores to be filled with Drypack Mortar)

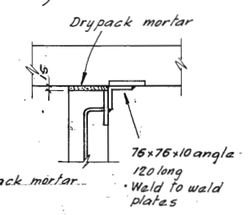
scale: Full size



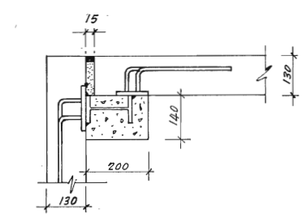
DETAIL T

DETAIL U

DETAIL V

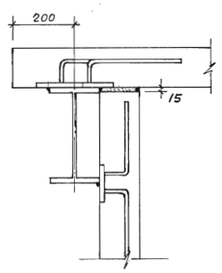


DETAIL W
Typical



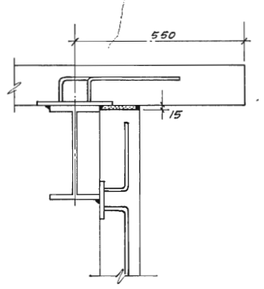
DETAIL A

DETAIL B opposite hand but column not cased

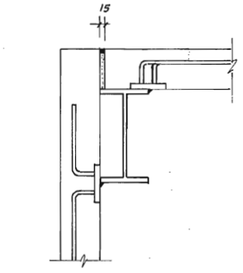


DETAIL J

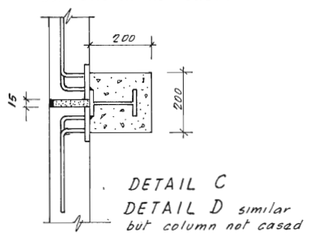
DETAIL K similar but no cross wall



DETAIL L

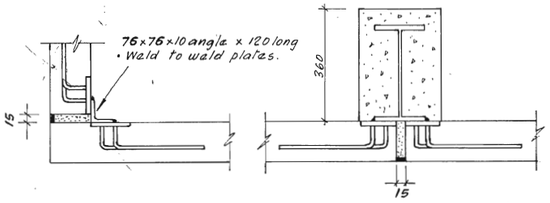


DETAIL N



DETAIL C

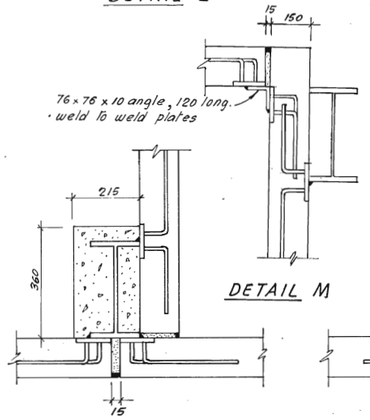
DETAIL D similar but column not cased



DETAIL E

DETAIL F

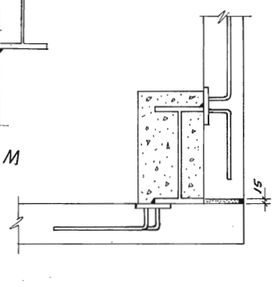
DETAIL O similar but column not cased



DETAIL M

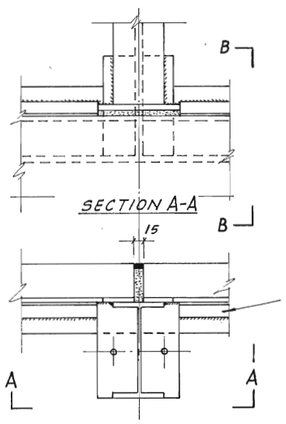
DETAIL G

DETAIL H opposite hand



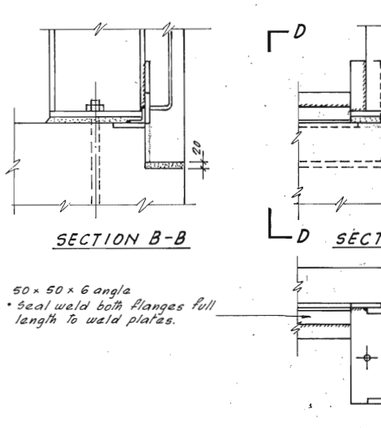
DETAIL I

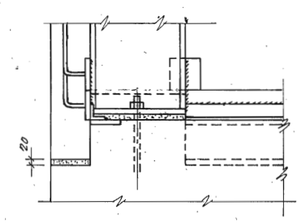
DETAIL X opposite hand.

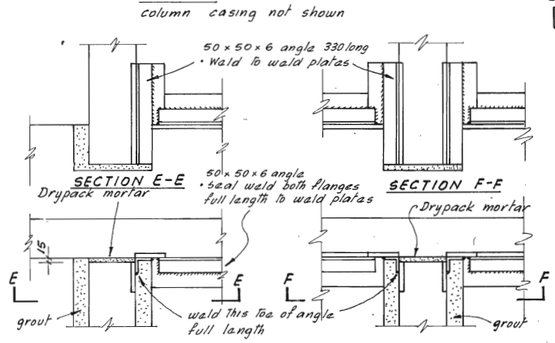


DETAIL P

column casing not shown

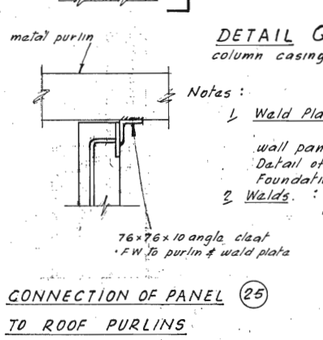






DETAIL R

DETAIL S



DETAIL Q

column casing not shown

Notes:

1. Weld Plates. Refer to elevations of wall panels sheets 9, 10 & 11, & 17. Detail of Weld Plates sheet 12 & 17. Foundation weld plate plan sheet 13.
2. Welds: All welds 6mm F.W unless otherwise stated.

CONNECTION OF PANEL (25) TO ROOF PURLINS

CHRISTCHURCH CITY COUNCIL
Approved subject to the By-Laws
17 MAY 1977
For City Engineer

Service	Existing	Service	Existing
H.P. Water		Lines & Survey	
Sewer		Plumbing	
S.W. Dr. Road			
Gas			
Cables (M.L.D.)			
(P.O.)			

Amendments	Drawing & Date

Rev.	Pipe Protected	Date

		Date
Designed	D.J. Batas	10/74
Drawn	A.E. Bainbridge	11/74
Traced	A.E. Bainbridge	11/74
Dsn. Chk.	D.J. Batas	1/75
Det. Chk.		
Approved	LB	9/4/75

Approved: Design Engineer — Date: City Engineer

CHRISTCHURCH CITY COUNCIL — CITY ENGINEER'S DEPARTMENT

MAIN STORE - NEW CENTRAL DEPOT - JOHNSON STREET - PRECAST CONCRETE WALL PANELS - PLAN & JOINT DETAILS -

Scales: 1:200, 1:10

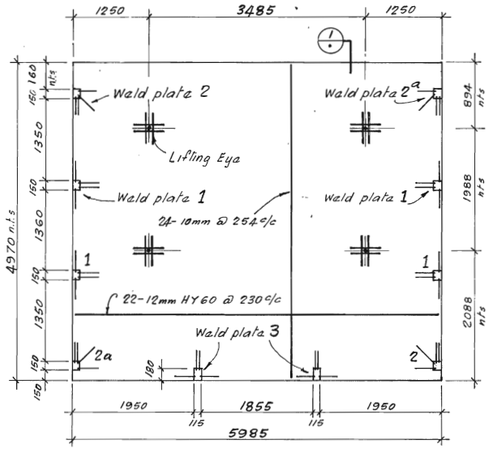
METRIC

File No. BU9/10

Issue

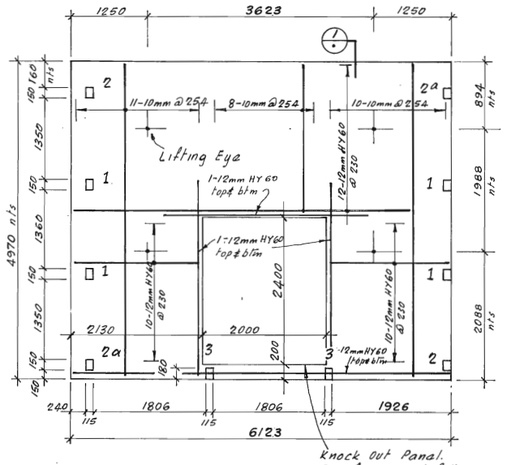
D1813

Sheet 8 of 18



PANEL (1)
5-OFF

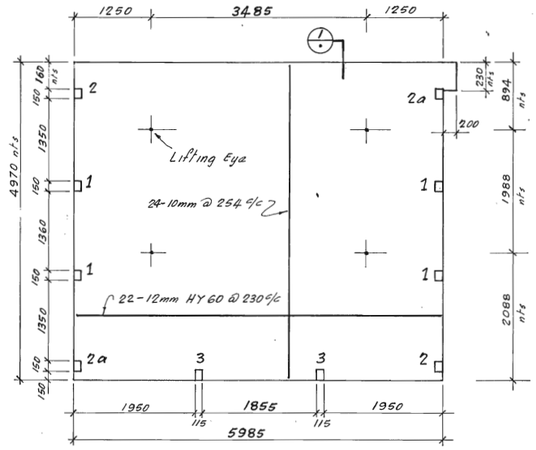
scale 1:50



PANEL (2)
1-OFF

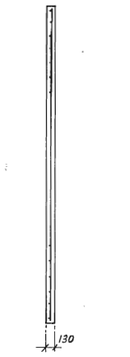
scale 1:50

knock out Panel.
Reinforcement follows similar pattern 10mm @ 230 & 254 respectively in both directions.
Construction method must ensure that panel can be removed at later date to leave clean opening.

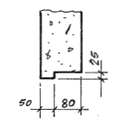


PANEL (3)
1-OFF

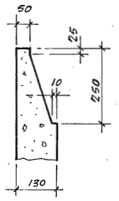
scale 1:50



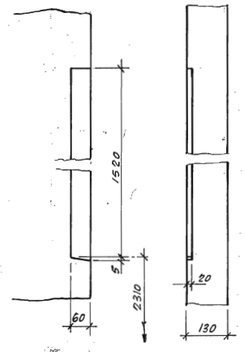
SECTION (1/·)



SECTION (4)
scale 1:10



SECTION (5)
scale 1:10



DETAIL B
scale 1:10

Notes :

1. Concrete.
   (a) Concrete strength. f'c = 20MPa before lifting of any panel commences. f'c = 30MPa at 28 days

2. Reinforcing
   (a) All reinforcing to be deformed structural grade except main horizontal reinforcement is HY60 Grade high yield deformed steel.
   (b) All steel to be placed centrally in panel.
   (c) Cover at panel edges to be 25mm min.

3. General
   (a) All panels 130mm thick unless indicated otherwise.
   (b) Panels elevated looking from the inside of the building except for cross walls which are elevated as shown on Sheet 8
   (c) Final positions of panels as shown on Sheet 8
   (d) Tolerances — length +0-0mm −6mm
   height ± 10mm
   Thickness ± 3mm.
   (e) Refer to Architect's Drawings for details of fixing for door tracks etc to wall panels.

4. Wald Plates.
   (a) Wald plates indicated on panel elevations thus □2.
   (b) For details of wald plates refer to Sheet 12&17
   (c) All wald plates on near face unless otherwise indicated.
   (d) All edges of wald plates to be wrapped in Plastic Tape to allow for expansion of the plates without spalling of the adjacent concrete.

5. Lifting Eyes.
   (a) All lifting eyes to be 4 ton Con-Sart type.
   (b) Position & number of lifting eyes for each panel as shown
   (c) All lifting eyes on near face of panels.
   (d) For details of extra reinforcing at lifting eyes refer to Sheet 11

PANEL (4) 6-OFF

scale 1:50

PANEL (5)
1-OFF

scale 1:50

SECTION (2/·)

SECTION A-A

ROOF SLAB OVER DANGEROUS GOODS & OIL STORE

scale 1:50

DETAIL C
scale 1:20

PANEL (6)
1-OFF

scale 1:50

PANEL (7)
1-OFF

scale 1:50

PANEL (8)
1-OFF

scale 1:50
Cut horizontal & vertical steel to suit window openings

PANEL (9)
1-OFF

scale 1:50

ELEV^N 1 SEC^N (3)

CHRISTCHURCH CITY C C
Approved Subject to the By-Law
17 MAY 1977
For City Engineer

METRIC

Service	Letters	Service	Initials
HP Water		Fuels & Sewer	
Sewer		Power	
SW Drainage			
Gas			
Cables (MED)			
(PO)			

Amendments	Initials	Date

	Sign	Pass	Initials	Date
Surveyed				
Levelled				
S.M.				
Computations				

		Date
Designed	D.J. Bates	10/74
Drawn	A.E. Bainbridge	11/74
Traced	A.E. Bainbridge	11/74
Dwg. Chk	D.J. Bates	1/75
Dup. Chk		
Issued	LB	9/4/75

Approved: Design Engineer Date

City Engineer

CHRISTCHURCH CITY COUNCIL — CITY ENGINEER'S DEPARTMENT

MAIN STORE - NEW CENTRAL DEPOT - JOHNSON STREET - PRECAST CONCRETE WALL PANELS - ELEVATIONS - PANELS 1-9.

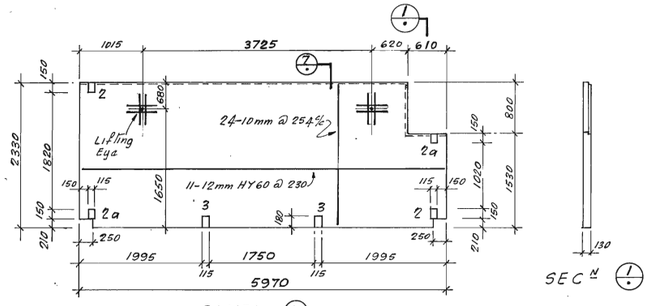
Scales: 1:50, 1:20, 1:10

File No. 80/9/10

Issue

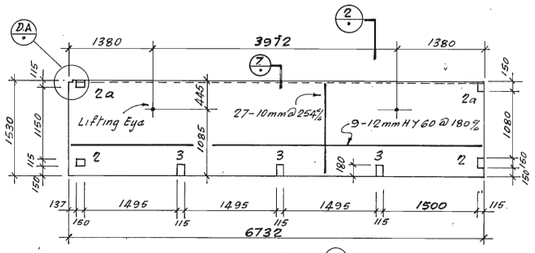
D1813

Sheet 9 of 18

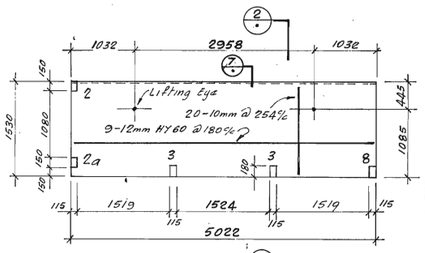


PANEL (10)
1 - OFF

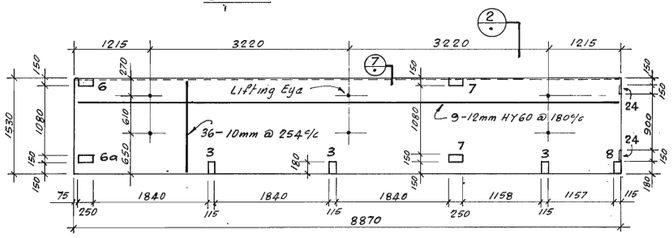
SEC N (1)



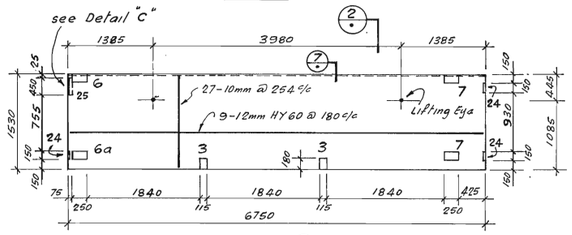
PANEL (11)
1 - OFF



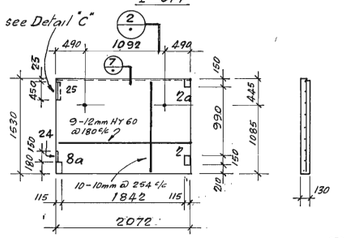
PANEL (12)
1 - OFF



PANEL (13)
1 - OFF

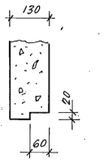


PANEL (14)
1 - OFF

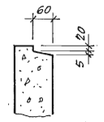


PANEL (15)
1 - OFF

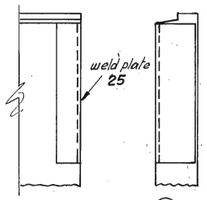
SEC N (2)



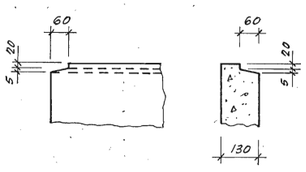
SECTION (6)



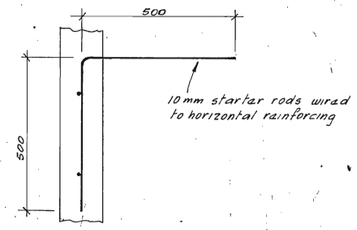
SECTION (7)



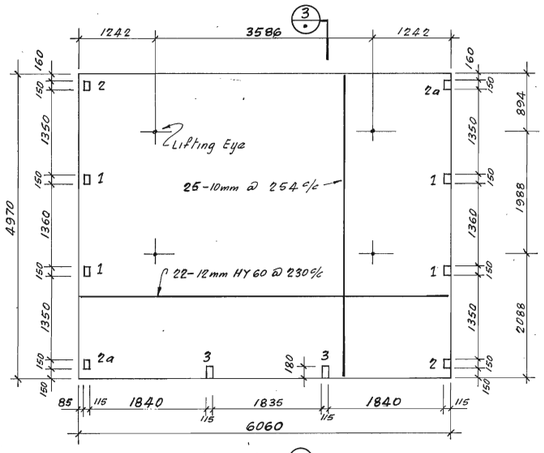
DETAIL (C)



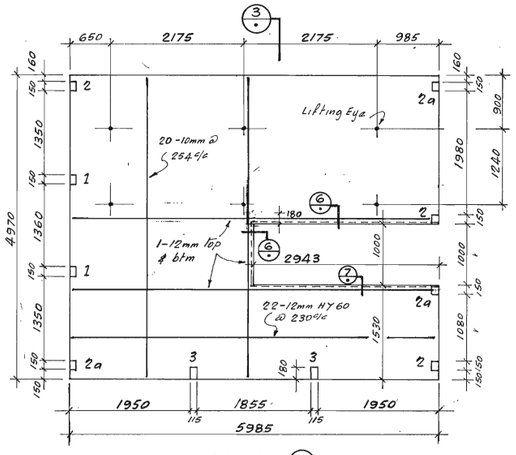
DETAIL (A)



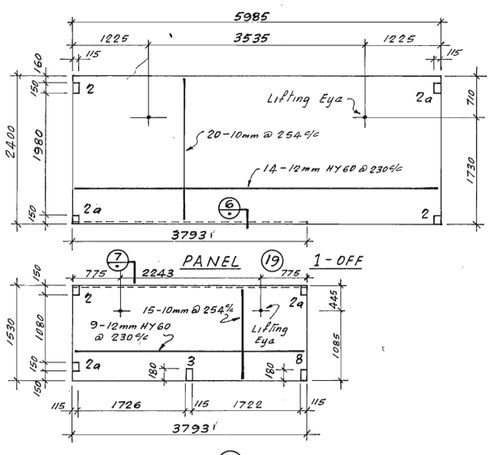
DETAIL (B)



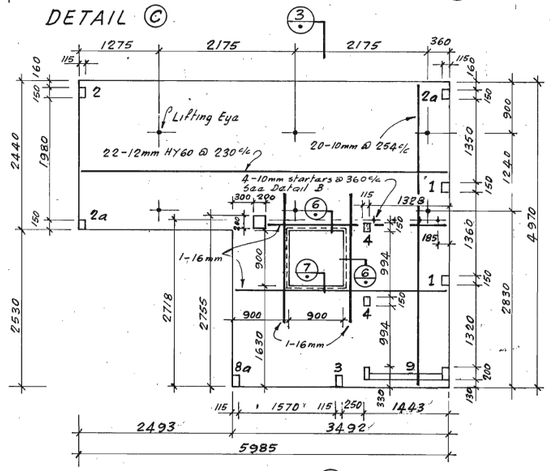
PANEL (16)
1 - OFF



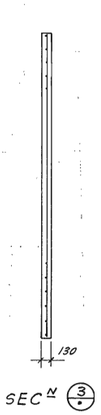
PANEL (17)
1 - OFF



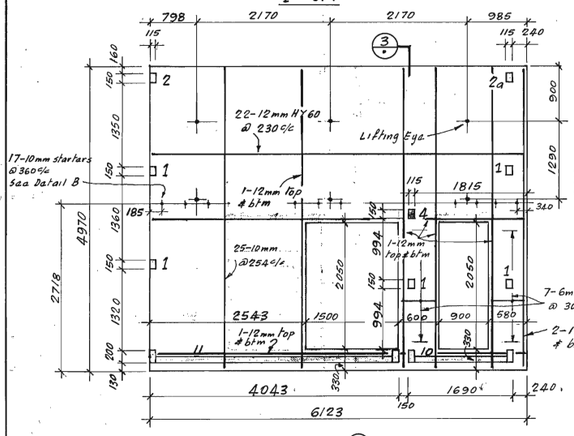
PANEL (18)
1 - OFF



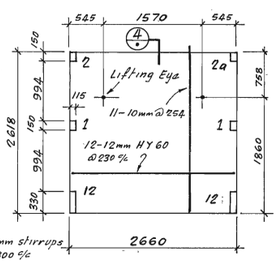
PANEL (20)
1 - OFF



SEC N (3)

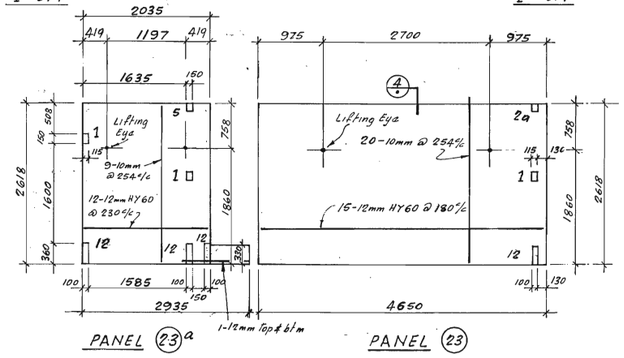


PANEL (21)
1 - OFF



PANEL (22)
1 - OFF

Nota : This panel 150mm Thick

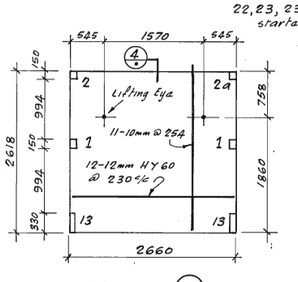


PANEL (23)a
1 - OFF

PANEL (23)
1 - OFF.

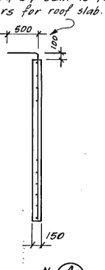
Nota : These panels 150mm Thick

Vertical rods in Panels 22, 23, 24 bent to form starters for roof slab.

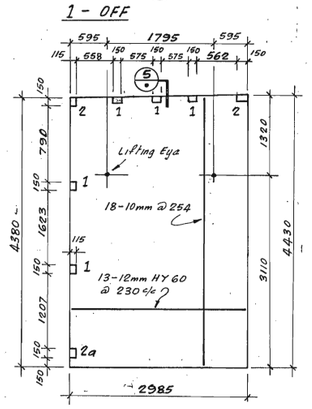


PANEL (24)
1 - OFF

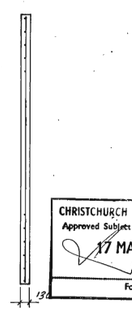
Nota : This panel 150mm Thick



SEC N (4)



PANEL (25)
1 - OFF



SEC N (5)

Notes :
Refer to notes 1-6 sheet 9.

CHRISTCHURCH CITY COUNCIL
Approved Subject to the By-Laws
17 MAY 1977
For City Engineer

Service	Initials	Service	Initials
H.P. Water		Lands & Survey	
Sewer		Planning	
S.W. Drainage			
Gas			
Cables (M.E.D.)			
(P.O.)			

Amendments	Initials	Date

	Book	Page	Initials	Date
Surveyed				
Levelled				
B.M.				
Compiled from				

			Date	Approved
Designed	D.J. Bates		10/74	
Drawn	A.E. Bainbridge		12/74	
Traced	A.E. Bainbridge		12/74	Design Engineer Date
Dwg. Chk.				
Des. Chk.				
Indexed	LB		9/4/75	C.E. Engineer

CHRISTCHURCH CITY COUNCIL — CITY ENGINEER'S DEPARTMENT

MAIN STORE - NEW CENTRAL DEPOT - JOHNSON STREET - PRECAST CONCRETE WALL PANELS - ELEVATIONS - PANELS 10-25.

Scales: 1:50, 1:10

METRIC

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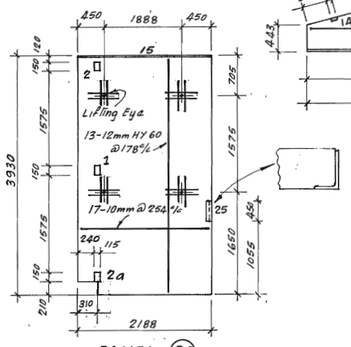
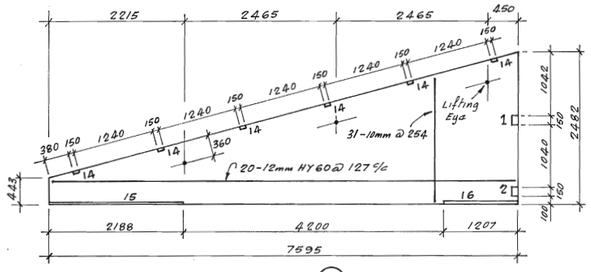
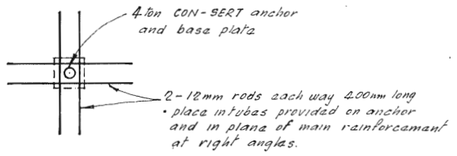
Sheet 10 of 18



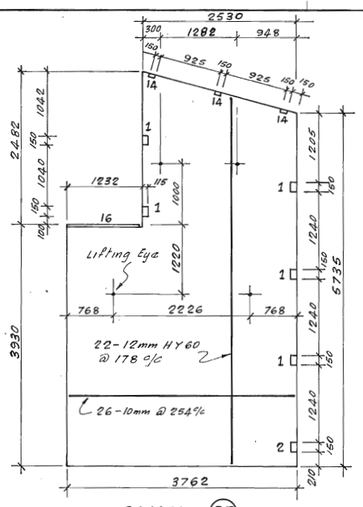
PANEL (26)
1 - OFF
scale 1:50



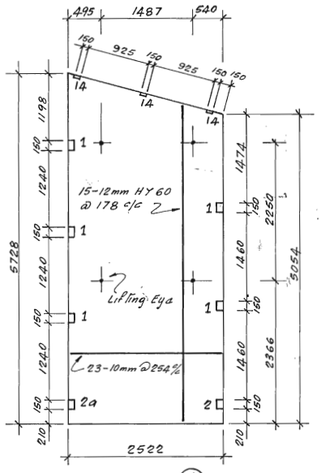
PANEL (28)
1 - OFF
scale 1:60



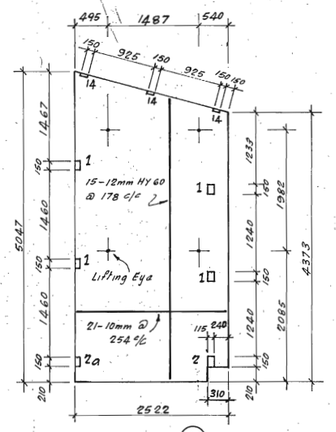
LIFTING EYE ANCHOR DETAIL
210 - OFF



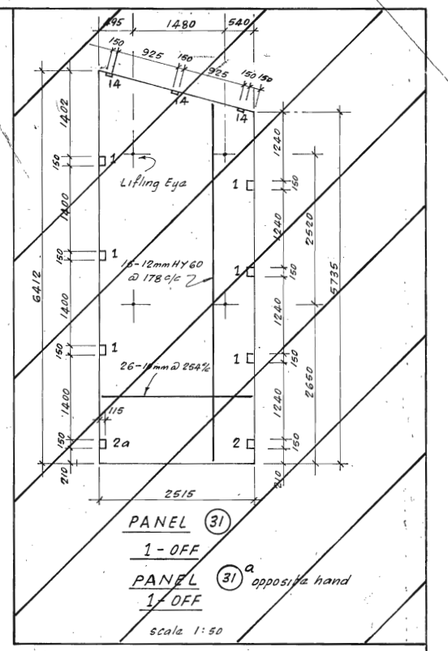
PANEL (27)
1 - OFF
scale 1:50



PANEL (29)
1 - OFF

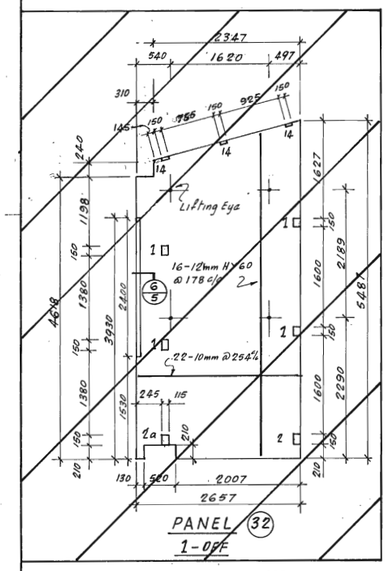


PANEL (30)
1 - OFF

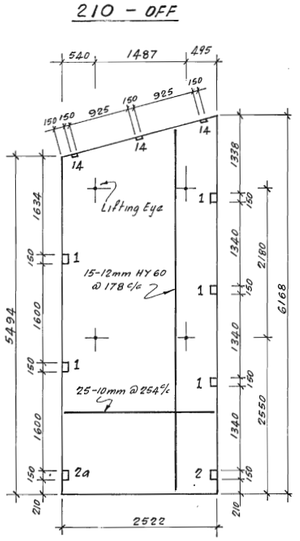


PANEL (31)
1 - OFF

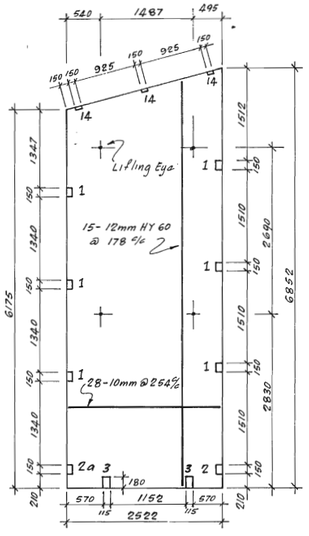
PANEL (31)[a] opposite hand
1 - OFF
scale 1:50



PANEL (32)
1 - OFF

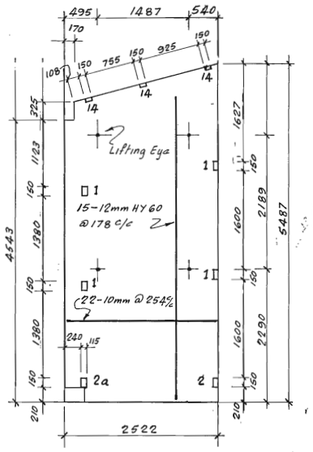


PANEL (33)
1 - OFF

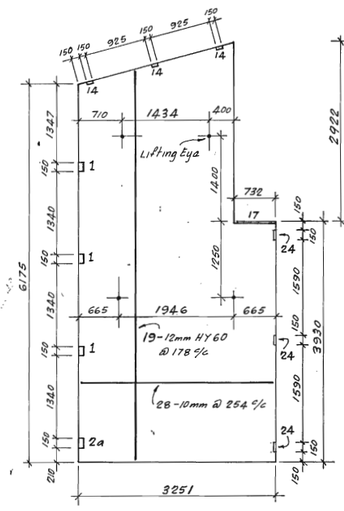


PANEL (34)
1 - OFF

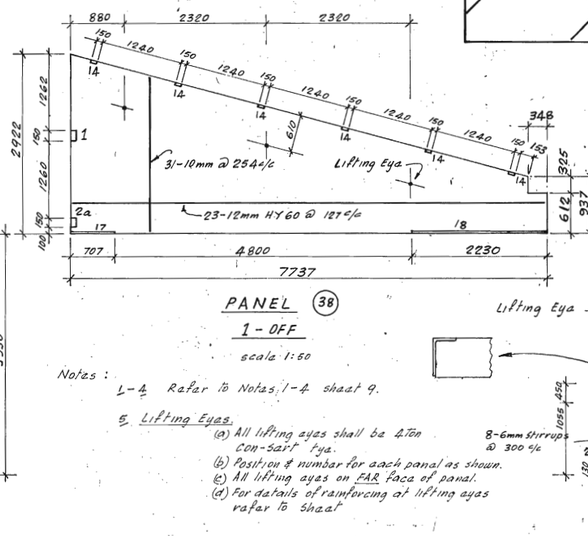
PANEL (34)[a] opposite hand
1 - OFF
scale 1:50



PANEL (35) opposite hand
1 - OFF
scale 1:50



PANEL (36)
1 - OFF
scale 1:50

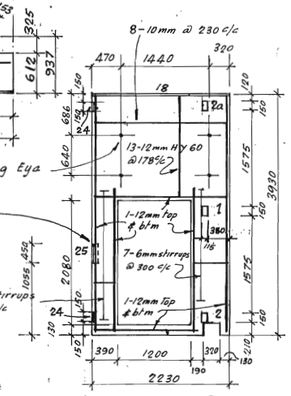


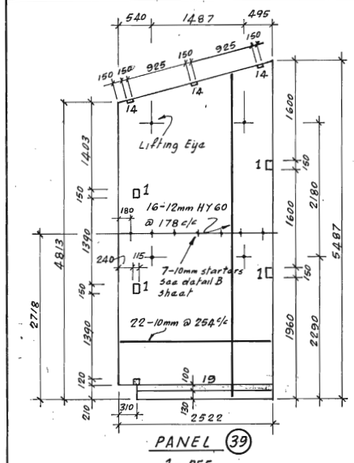
PANEL (38)
1 - OFF
scale 1:50

Notes :

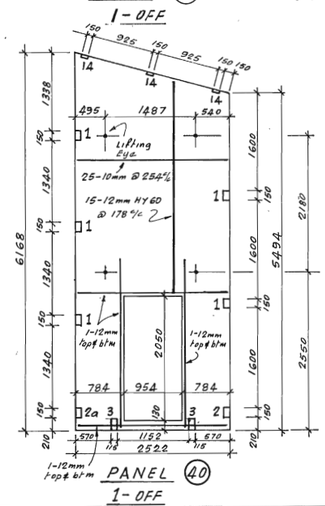
1-4 Refer to Notes 1-4 sheet 9.

5. Lifting Eyes.
(a) All lifting eyes shall be 4 Ton Con-Sert Eye.
(b) Position & number for each panel as shown.
(c) All lifting eyes on FAR face of panel.
(d) For details of reinforcing at lifting eyes refer to Sheet

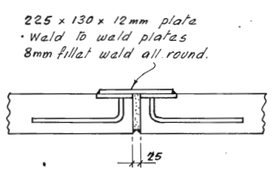




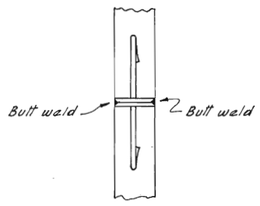
PANEL (39)
1 - OFF



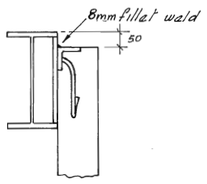
PANEL (40)
1 - OFF



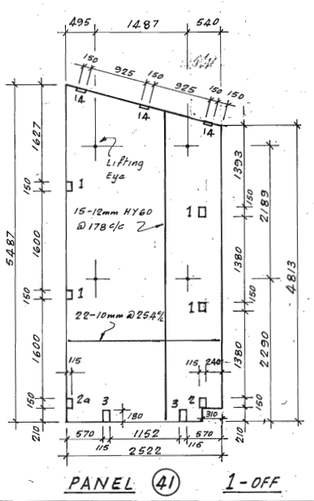
SECTION (1/5)
scale 1:10



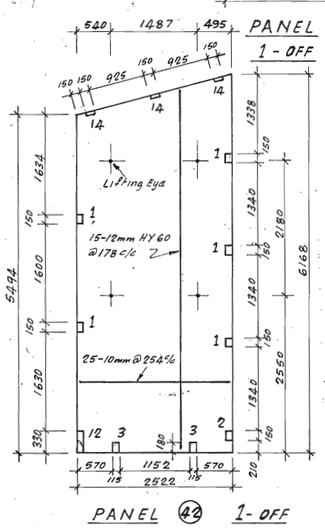
SECTION (2/5)
scale 1:10



SECTION (3/5)
scale 1:10



PANEL (41) 1 - OFF



PANEL (42) 1 - OFF

CHRISTCHURCH CITY COUNCIL
Approved Subject to the By-Laws
17 MAY 1977
For City Engineer

Service	Initials	Service	Initials
H.P. Water		Lands & Survey	
Sewer		Planning	
S.W. Drainage			
Gas			
Cables (M.E.D.)			
" (P.O.)			

Amendments	Initials	Date

	Book	Page	Initials	Date
Surveyed				
Levelled				
B.M.				
Compiled from				

		Date
Designed	D.V. Batas	10/74
Drawn	A.E. Bambridge	11/74
Traced	A.E. Bambridge	11/74
Dwg. Chk.	D.V. Batas	1/75
Des. Chk.		
Indexed	LB	9/4/75

Approved

Design Engineer ..... Date

City Engineer

CHRISTCHURCH CITY COUNCIL — CITY ENGINEER'S DEPARTMENT

MAIN STORE - NEW CENTRAL DEPOT - JOHNSON STREET - PRECAST CONCRETE WALL PANELS - ELEVATIONS - PANELS 26-42

Scales: 1:50, 1:10

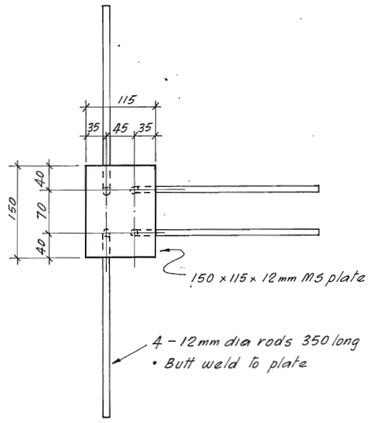
METRIC

File No BU/9/10

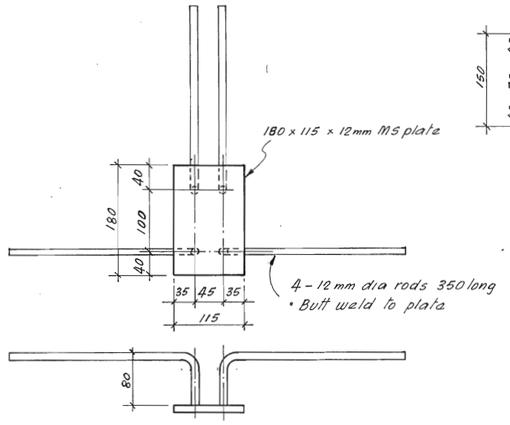
Issue

D1813

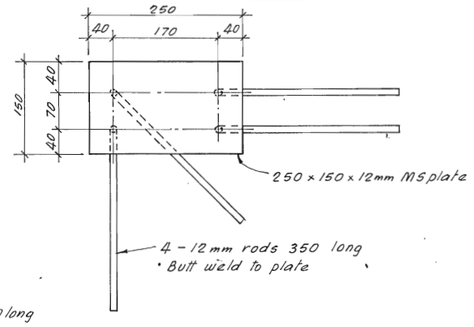
Sheet 11 of 18

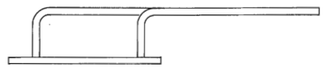


WELD PLATE 1
177 - OFF

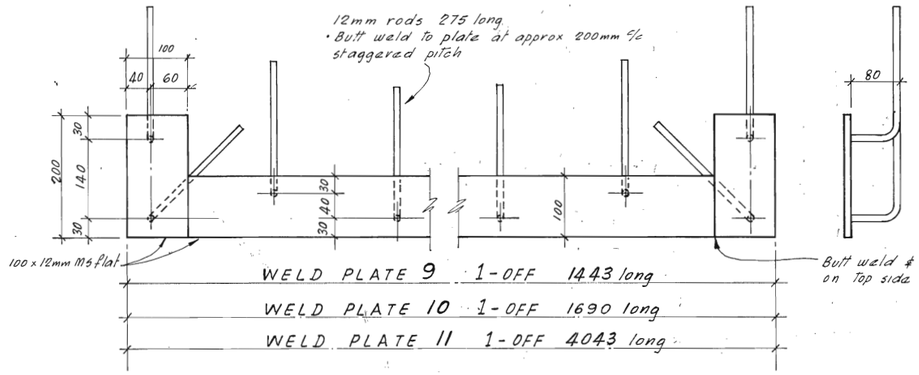


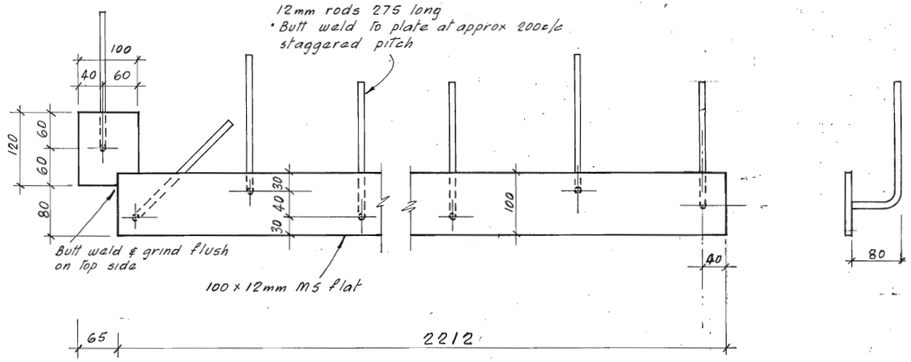
WELD PLATE 3
65 - OFF



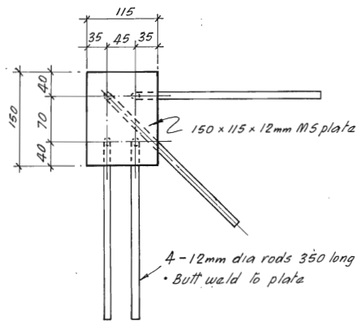


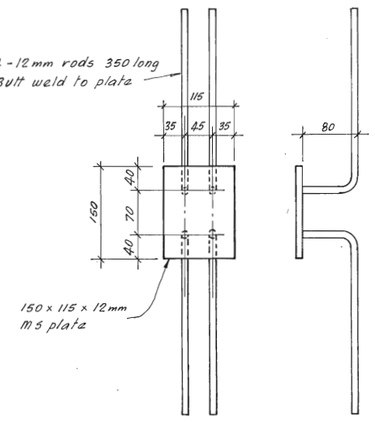
WELD PLATE 6 2 - OFF
WELD PLATE 6a opposite hand
2 - OFF



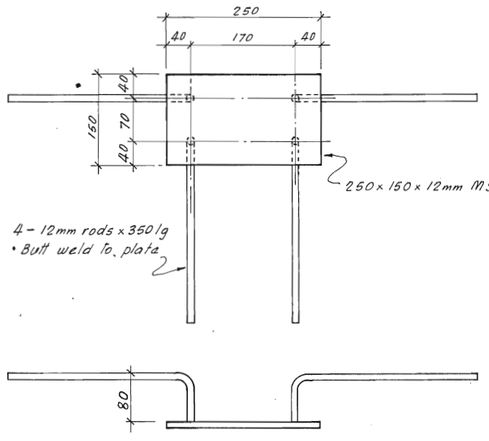


WELD PLATE 19 1-OFF

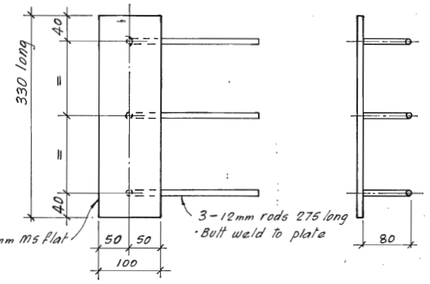




WELD PLATE 4
11 - OFF



WELD PLATE 7
4 - OFF



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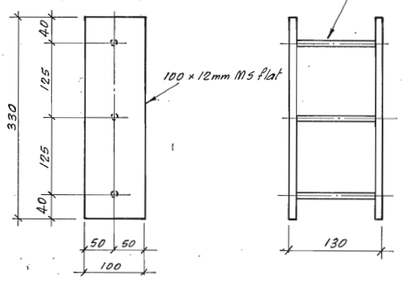
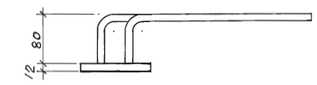
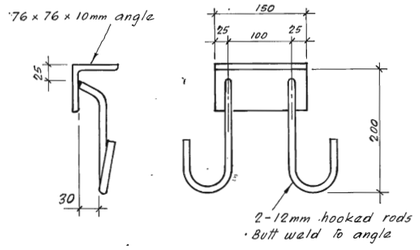


WELD PLATE 13 2 - OFF



WELD PLATE 2 77 - OFF
WELD PLATE 2a opposite hand
80 - OFF



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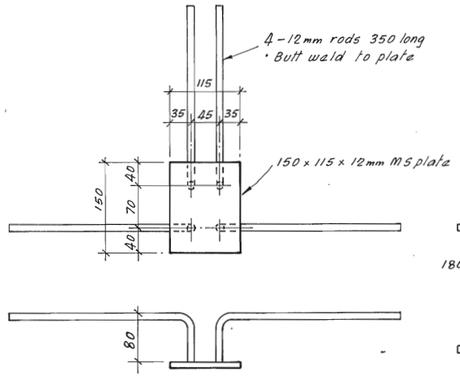
118 - OFF



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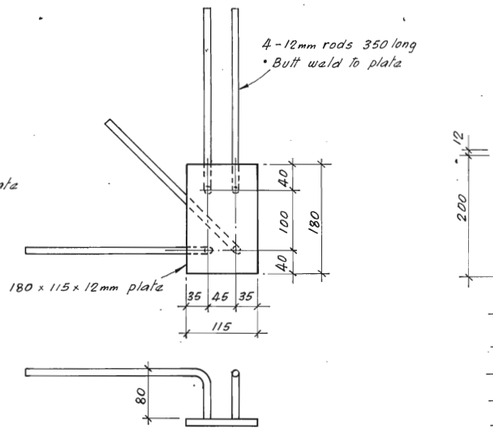
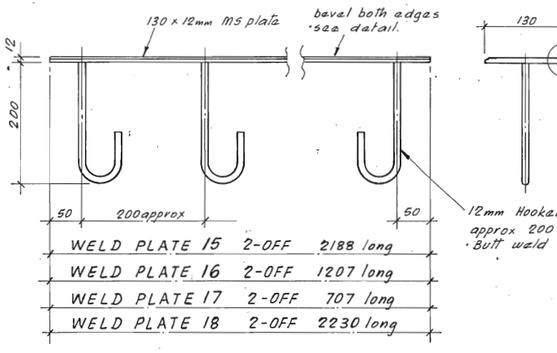
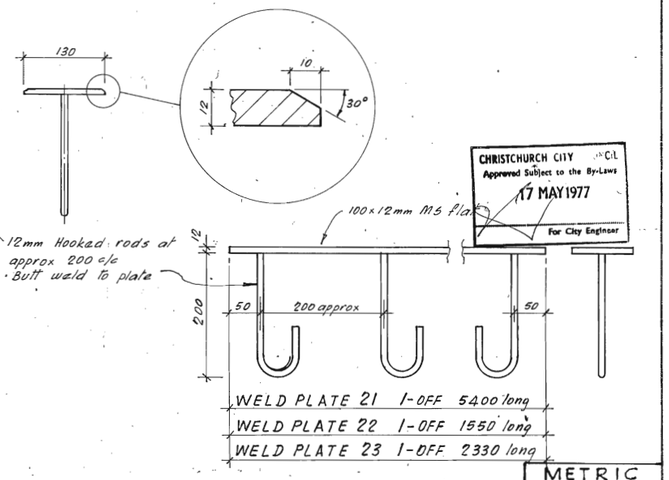
5 - OFF



WELD PLATE 8 3 - OFF
WELD PLATE 8a opposite hand 2 - OFF





Service	Initials	Service	Initials
H.P. Water		Lands & Survey	
Sewer		Planning	
S.W. Drainage			
Gas			
Cables (M.T.D.)			
(P.O.)			

Amendments	Initials	Date

	Book	Page	Initials	Date
Surveyed				
Levelled				
S.M.				
Compiled from				

		Date
Designed	D.J. Bates	10/74
Drawn	A.E. Bainbridge	11/74
Traced	A.E. Bainbridge	11/74
Dwg. Chk	D.J. Bates	1/75
Dup. Chk		
Indexed	LB	9/4/75

Approved

Design Engineer Date

City Engineer

CHRISTCHURCH CITY COUNCIL — CITY ENGINEER'S DEPARTMENT

MAIN STORE - NEW CENTRAL DEPOT - JOHNSON STREET - PRECAST CONCRETE WALL PANELS - WELD PLATES -

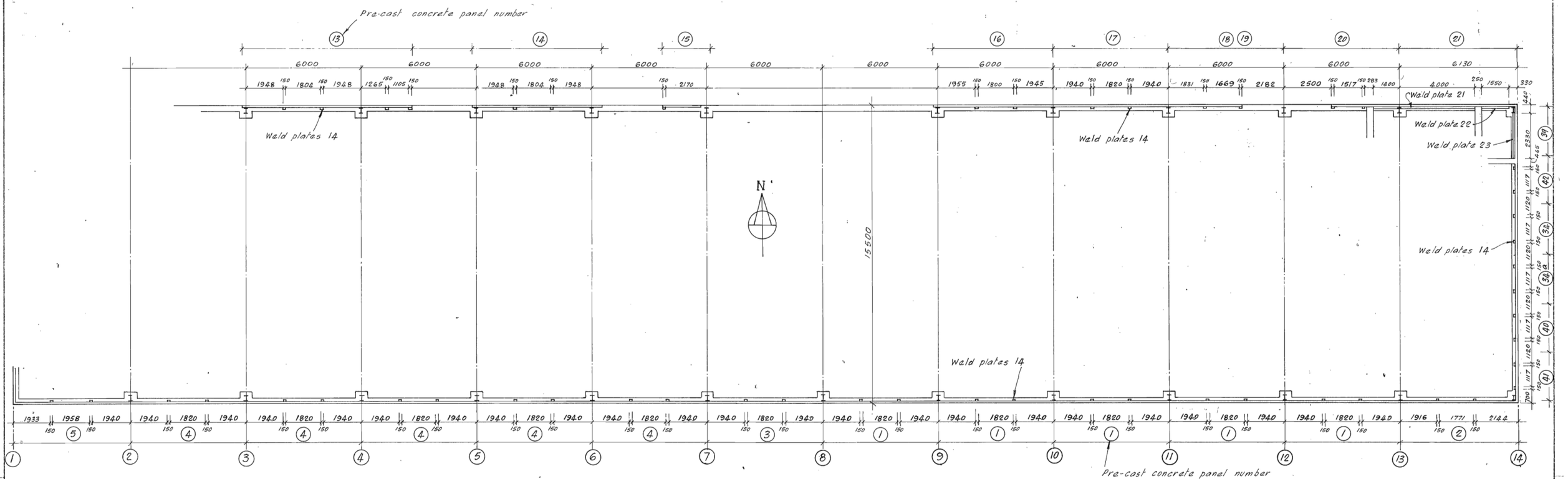
Scales 1 : 5

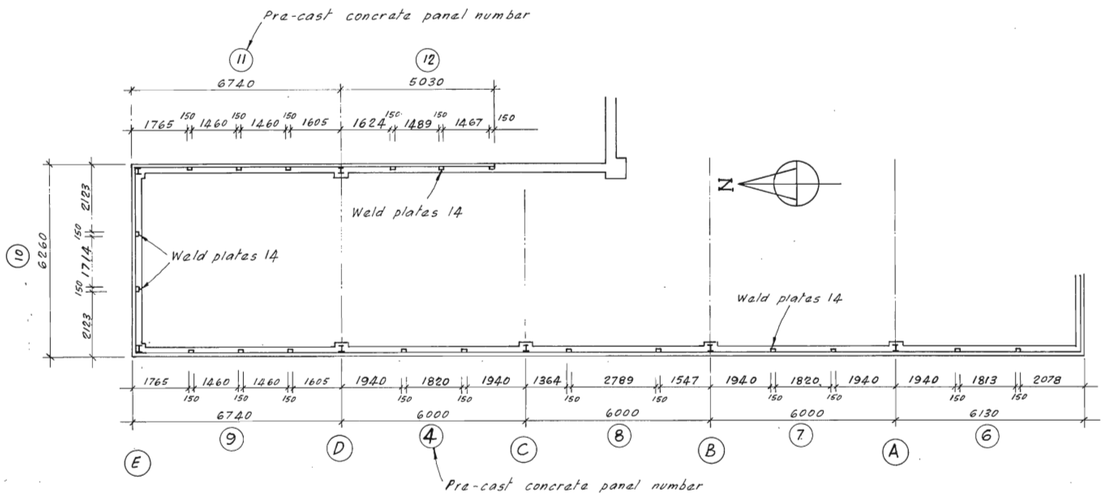
METRIC

File No. BU/9/10

Drawing D1813

Sheet 12 of 18

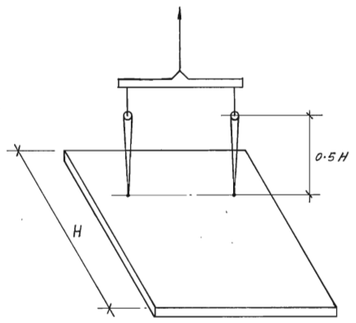




CHRISTCHURCH CITY COUNCIL
Approved Subject to the By-Laws
17 MAY 1977
For City Engineer

Designed	D.J. Bates	10/74	Approved			METRIC	
Drawn	A.E. Bainbridge	12/74					
Traced	A.E. Bainbridge	12/74	Design Engineer	Date	CHRISTCHURCH CITY COUNCIL — CITY ENGINEER'S DEPARTMENT	Scale	File No. BU/9/10
Dwg. Chk.	D.J. Bates	1/75			MAIN STORE - NEW CENTRAL DEPOT - JOHNSON STREET - PLAN OF FOUNDATION SHOWING LOCATION OF WELD PLATES FOR P.C. PANELS	1:100	D1813
Des. Chk.							Sheet 13 of 18
Issued	LB	9/4/75					

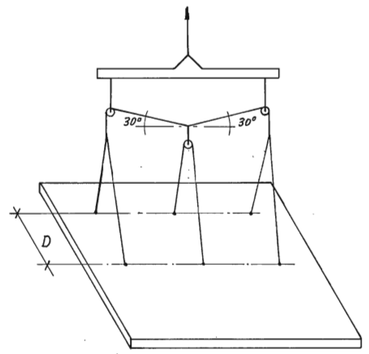
LIFTING PROCEEDURES FOR PRE-CAST CONCRETE PANELS



2 x 1 RIGGING

To be used for

PANELS (10) (11) (12) (14) (15) (18) (19) (22) (23) (23)[a] (24) (25)



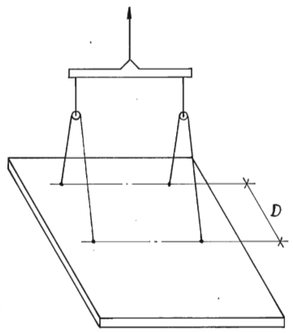
3 x 2 RIGGING

To be used for

PANELS (8) (13) (17) (20) (21)

Notes :

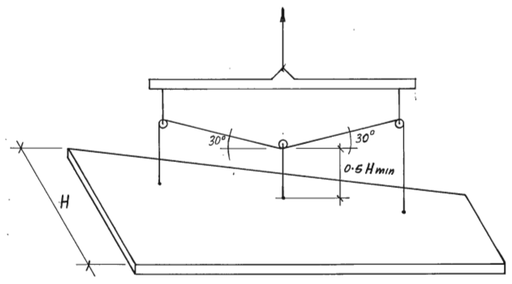
1. Cables for lifting slings shall be long enough to provide at least 60 degree angle from the plane of the panel at initial lift from the horizontal
2. All details of proposed rigging & lifting equipment shall be discussed with the Engineer before lifting commences.



2 x 2 RIGGING

To be used for

PANELS (1) (2) (3) (4) (5) (6) (7) (9) (16) (26) (27) (29) (30) (33) (34) (35) (36) (37) (39) (40) (41) (42) (43) (44) (45) (46)



3 x 1 RIGGING

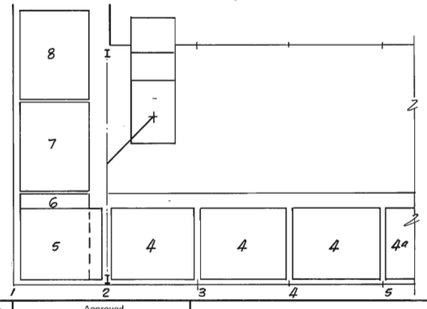
To be used for

PANELS (28) (38)

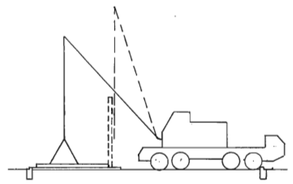
Construction Procedure.

Outline only, refer to drawings & specification for details of each operation

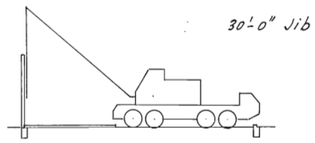
1. Pour all foundation beams.
2. Place hardfill for all floors & compact.
3. Pour floor in Painters Workshop & between frame lines 1-2 in Covered Yard. Pour floor to the South of the construction joint shown on Sheet 1 and adjacent to the South wall
4. Place formwork for and pour West wall tilt-up panels on the concrete floor adjacent to their final vertical positions.
5. Similarly place formwork and pour South wall tilt-up panels adjacent to their final positions. Wall panel (5) stack cast on panel (6)
6. Assemble Portal Frames outside building area and place in position for lifting.
7. Prepare casting beds outside building and stack cast Wall Units 26 - 46
8. Erect Frame Line 2 Portal with crane on the hardfill thus - & temporarily brace

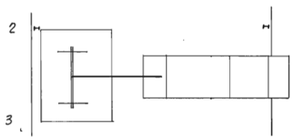


9. Erect wall unit (4) between Frame Lines 2-3 and weld to Portal leg and foundation, bracing the other end of the panel.

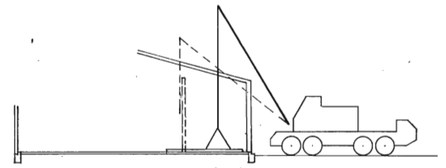


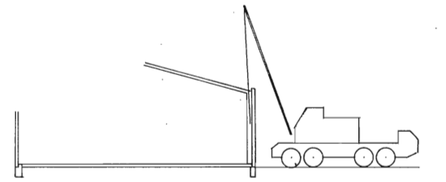
30[T] Crane
30'-0" Jib





10. Move crane to next bay Frame Lines 3-4
11. Erect Portal Frame Line 3 and weld to wall unit 4 already erected. Temporary brace north column of Portal.
12. Erect wall unit 4, between Frames Line 3-4 and weld to Portal leg, bracing the free end of the panel.
13. Place cross wall units on Frame Line 3 with crane still operating off hardfill.
14. Proceed erecting Portals and south wall panels in the same sequence, completing cross walls before erecting the next Portal Frame; i.e: Portal Frame Line 4
    Wall unit 4, Frame Line 4-5
    Portal Frame Line 5
    Wall unit 4a, Frame Line 5-6
    Portal Frame Line 6
    Wall unit 4, Frame Line 6-7
    Cross wall units, Frame 6
    Portal Frame Line 7
    etc,
15. Return to the West end of the building, and follow a similar procedure to erect the West wall units and Portal Frames lines A, B, C, D & E.
16. Pour remaining floors.
17. Place formwork for and pour all remaining wall units on the concrete floor adjacent to their final positions.
18. Either form and pour wall units 22 - 24 outside on casting beds or on floor adjacent to South Wall.
19. Erect remaining wall units with the crane outside the building.





Panels slewed to bring them from inside the portals in the vertical position to their final position outside.

20. Complete fixing of purlins & wind bracing & roofing.

Notes :

All panels to be lifted by tilting about bottom edge & there after to remain in vertical position. Panels can not be lifted or handled in the flat position without using strongback frames, - details of frames to be submitted for approval by the Engineer prior to flat lifting

CHRISTCHURCH CITY COUNCIL
Approved Subject to the By-Laws
17 MAY 1977
For City Engineer

Service	Initials	Service	Initials
H.P. Water		Lands & Survey	
Sewer		Planning	
S.W. Drainage			
Gas			
Cables (M.E.D.)			
" (P.O.)			

Amendments	Initials	Date

	Book	Page	Initials	Date
Surveyed				
Levelled				
B.M.				
Compiled from				

		Date
Designed	D.J. Bates	1/75
Drawn	A.E. Bainbridge	1/75
Traced	A.E. Bainbridge	1/75
Dwg. Chk.		
Des. Chk.		
Indexed	LB	9/4/75

Approved: Design Engineer ..... Date .....
City Engineer

CHRISTCHURCH CITY COUNCIL — CITY ENGINEER'S DEPARTMENT

MAIN STORE - NEW CENTRAL DEPOT - JOHNSON STREET - CONSTRUCTION PROCEDURE

Scales: 1 : 200

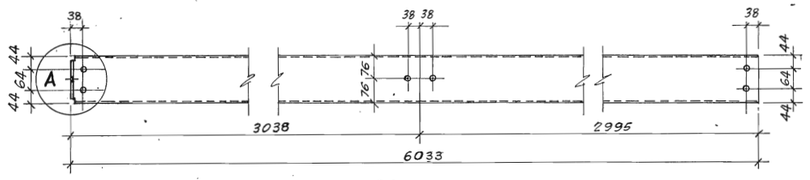
METRIC

File No. 80/9/10

Issue

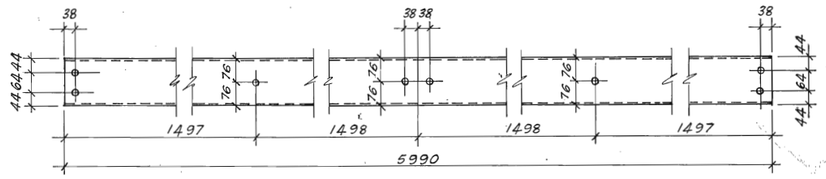
D1813

Sheet 14 of 18



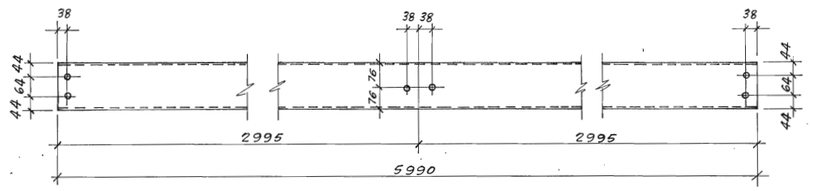
22 - OFF

Use in Bays 2-3, 7-8 south side 2-only



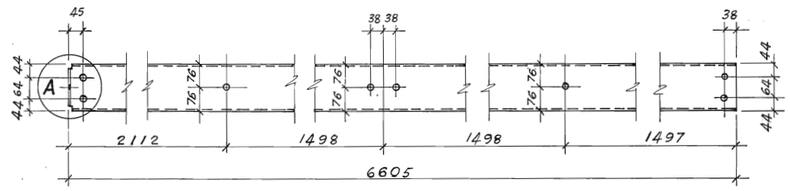
8 - OFF

Use in Bays 1-A B-C (Ridge)
A-B C-D



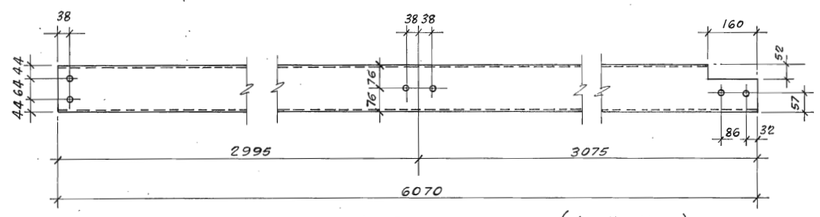
182 - OFF

Use in Bays				
	3-4	8-9	11-12	A-B
	4-5	9-10	12-13	B-C
	5-6	10-11	1-A	C-D

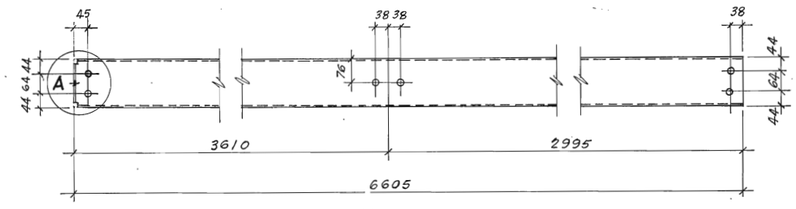


2 - OFF

Use in Bay D-E (Ridge)

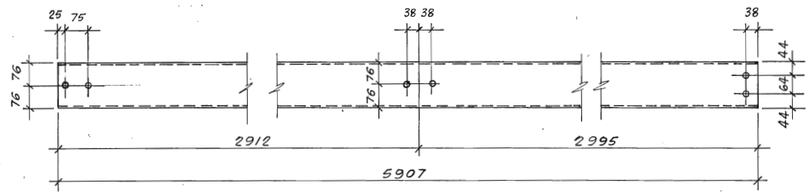


Use in Bay 6-7 1 - OFF as drawn (South Slope)



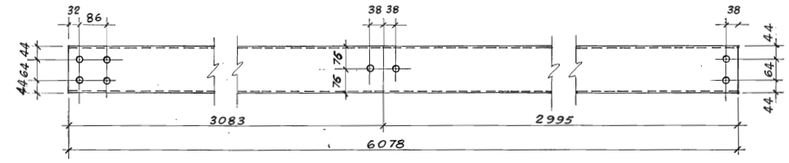
10 - OFF

Use in Bay D-E



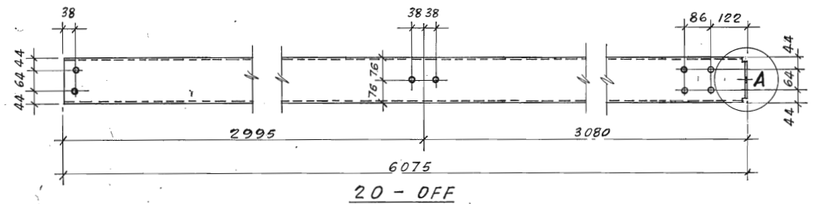
1 - OFF

Use in Bay 6-7 (South Side)



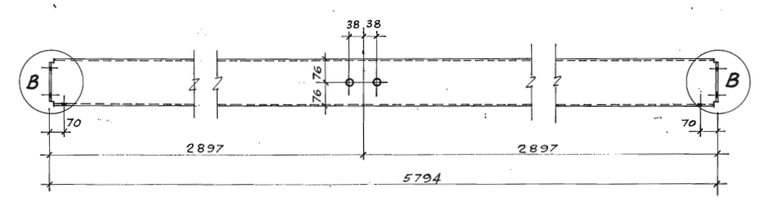
36 - OFF

Use in Bays 5-6 7-8



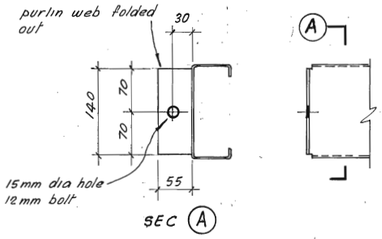
20 - OFF

Use in Bay 13-14

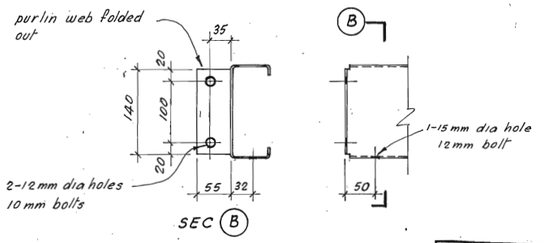


18 - OFF

Use over Amenities Block



DETAIL "A"



DETAIL "B"

Notes:

1. All purlins are "Brownbuilt" metal purlins B.P.6. 152 x 64
2. All holes are 15mm dia. except where shown otherwise

CHRISTCHURCH CITY COUNCIL
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17 MAY 1977
For City Engineer

Service	Initials	Service	Initials
H.P. Water		Lands & Survey	
Sewer		Planning	
S.W. Drainage			
Gas			
Cables (M.E.D.)			
(P.O.)			

Amendments	Initials	Date

	Book	Page	Initials	Date
Surveyed				
Levelled				
B.M.				
Compiled from				

		Date
Designed	D.J. Batas	1/75
Drawn	A.E. Bainbridge	1/75
Traced	A.E. Bainbridge	1/75
Dwg. Chk.		
Des. Chk.		
Indexed	LB	9/4/75

Approved

Design Engineer Date

City Engineer

CHRISTCHURCH CITY COUNCIL — CITY ENGINEER'S DEPARTMENT

MAIN STORE - NEW CENTRAL DEPOT - JOHNSON STREET - STRUCTURAL STEELWORK - METAL ROOF PURLINS -

Scales: 1:10

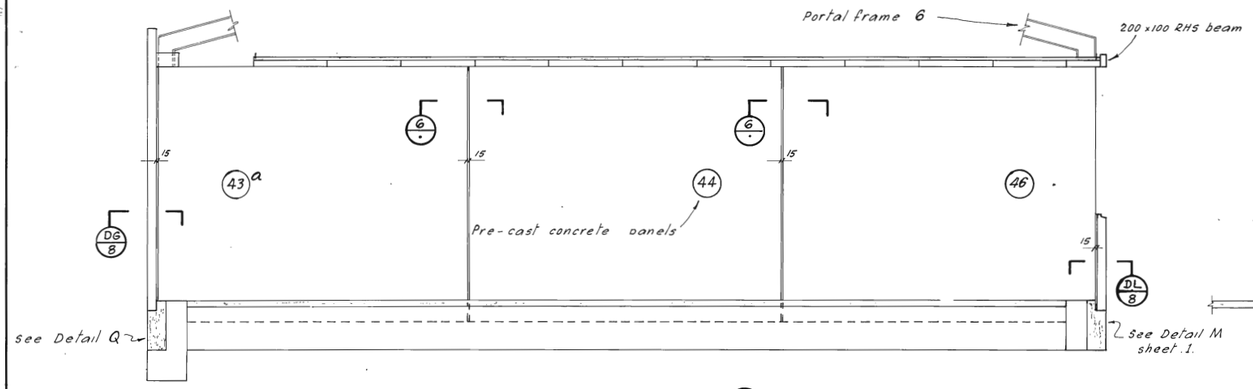
METRIC

File No BU/9/10

Issue

D1813

Sheet 15 of 18



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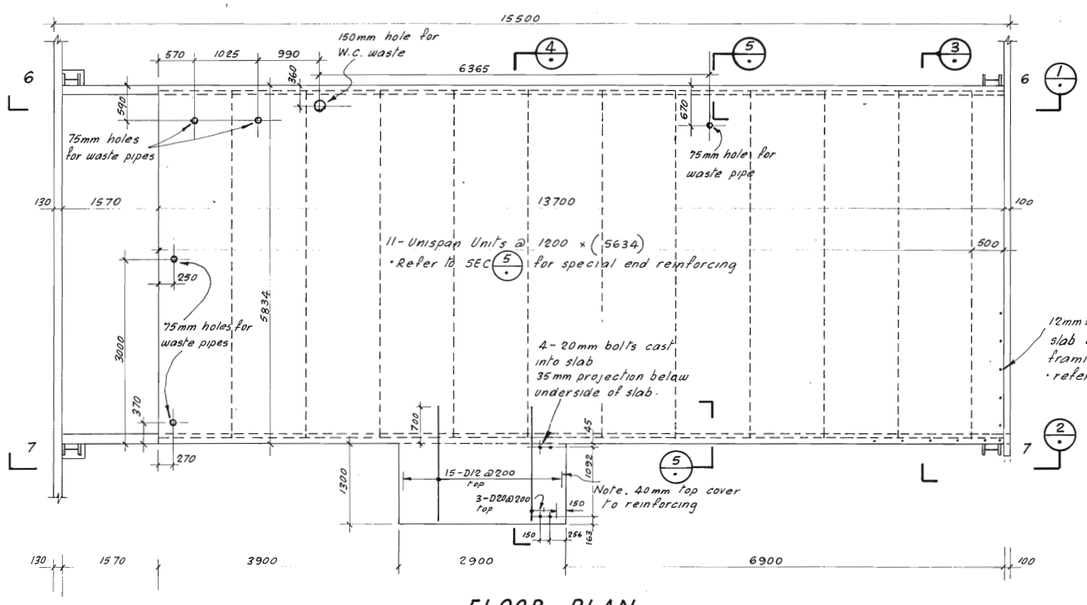
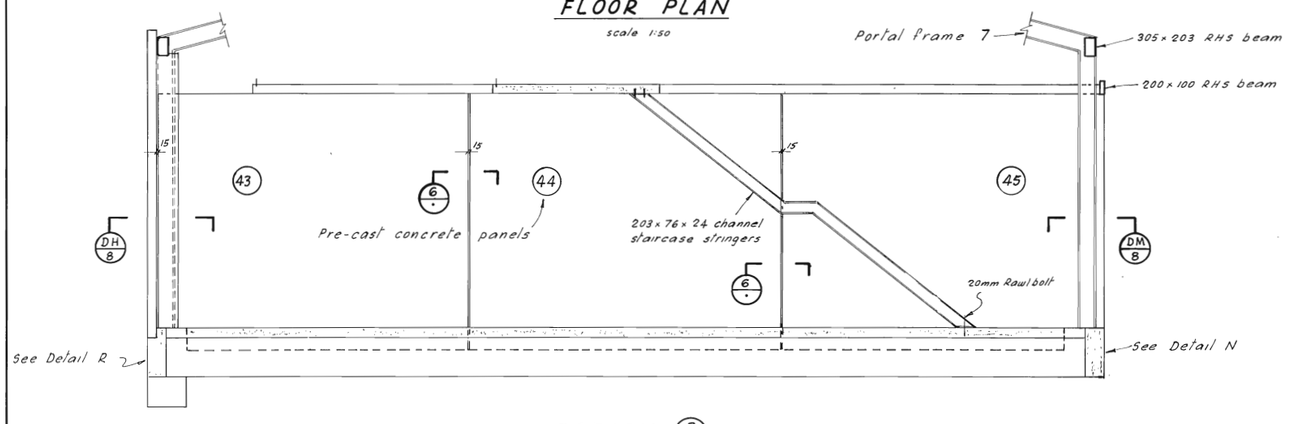


FLOOR PLAN
scale 1:50



SECTION (2)
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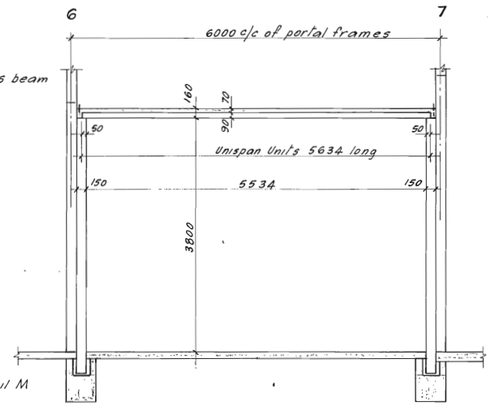

SECTION (3)
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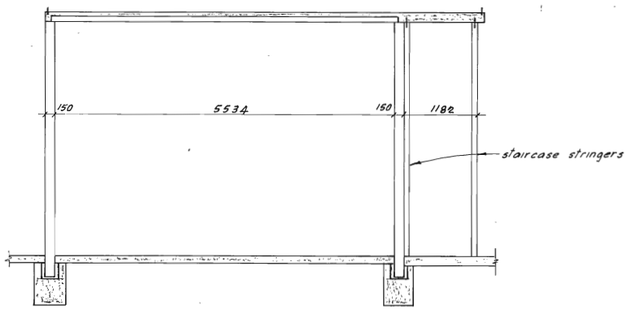

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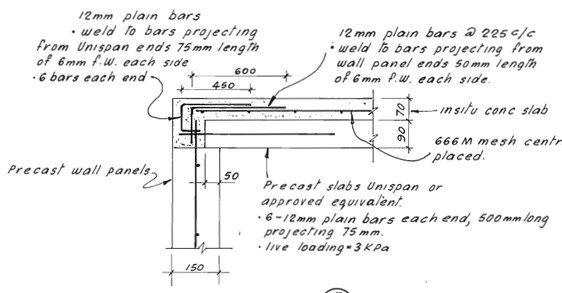

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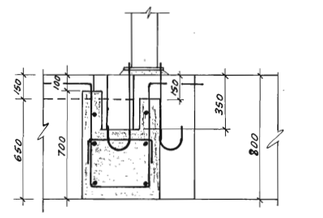
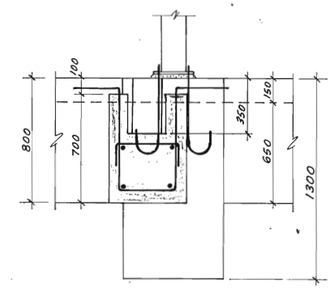
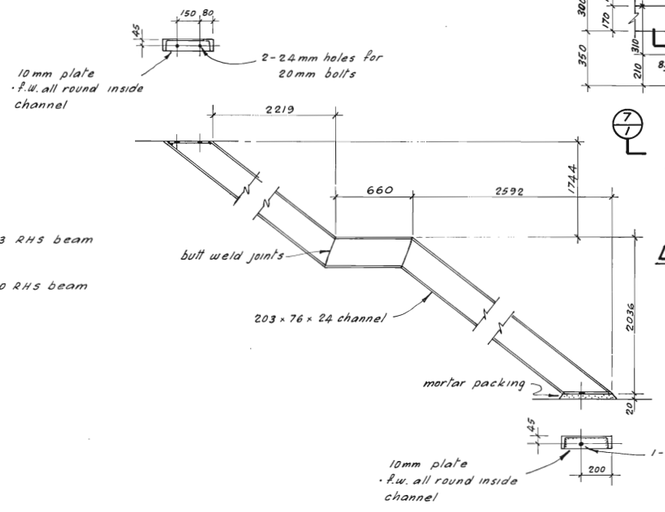
scale 1:10

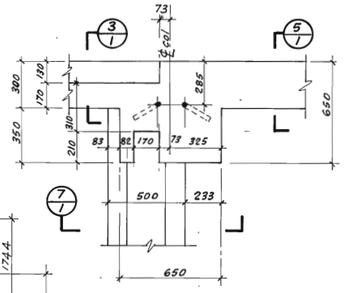


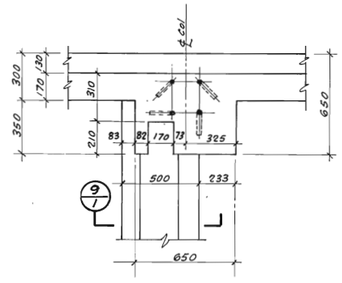




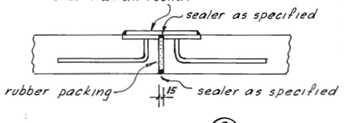
DETAIL OF STAIRCASE STRINGERS
1 - OFF as drawn
1 - OFF opposite hand.
scale 1:20

DETAIL N
scale 1:20





DETAIL Q
DETAIL R opposite hand
section (7/1) replaces section (9/1)
scale 1:20



SECTION (6)
scale 1:10

Notes:

1. Refer to notes on sheet 1.
2. Amenities Block precast slab & topping
   (a) Design:
   Slabs to be designed by the manufacturer to support live load of 3KPa in accordance with elastic design principals of NZR 32 : 1968 & ultimate design of NZS 3101 P : 1970
   (b) Construction Proceedure
   1. Erect wall panels & plumb
   2. Pack around base with concrete
   3. Erect precast floor units & prop according to manufacturers instructions
   4. Weld knee reinforcing & pour Topping

CHRISTCHURCH CITY Approved Subject to the By-Laws 17 MAY 1977 For City Engineer

Service	Initials	Service	Initials
H.P. Water		Lands & Survey	
Sewer		Planning	
S.W. Drainage			
Gas			
Cables (M.E.D.)			
" (P.O.)			

Amendments	Initials	Date

	Book	Page	Initials	Date
Surveyed				
Levelled				
B.M.				
Compiled from				

		Date
Designed	M.J. Stockwell	11/76
Drawn	A.E. Bainbridge	11/76
Traced		
Dwg. Chk.		
Des. Chk.		
Indexed		

Approved
Design Engineer Date
City Engineer

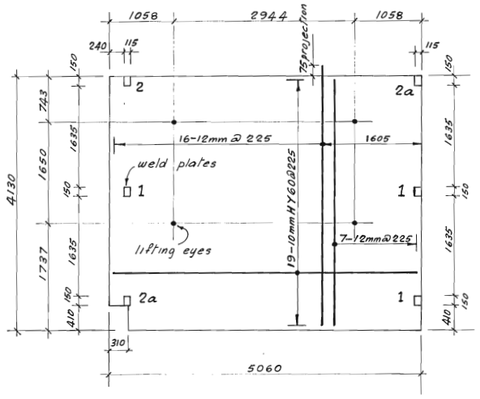
CHRISTCHURCH CITY COUNCIL — CITY ENGINEER'S DEPARTMENT

· MAIN STORE - NEW CENTRAL DEPOT - JOHNSON STREET - WALLS & FLOOR ETC FOR AMENITIES BLOCK / PLUMBERS WKSP -

Scales
1:10
1:20
1:50

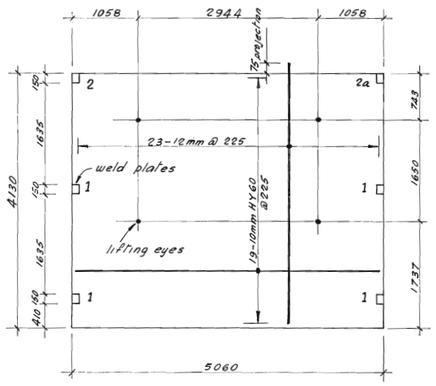
File No. BU 9/10
Issue
D.1813
Sheet 16 of 18

Original scale of millimetres 0 20 40 60 80 100

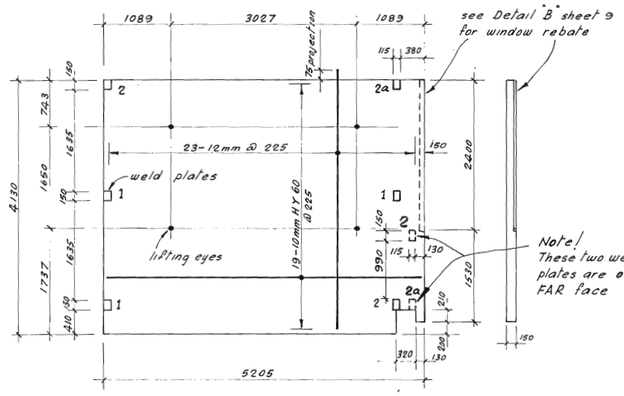


PANEL (43)
1-OFF

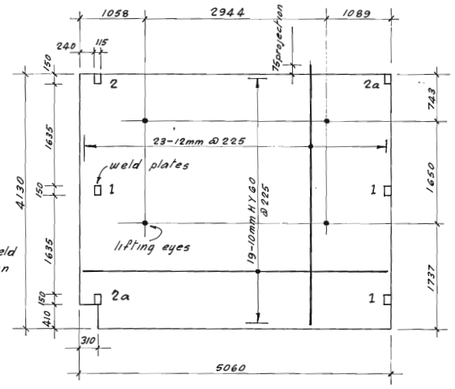
PANEL (43)[a] opposite hand
1-OFF



PANEL (44)
2-OFF

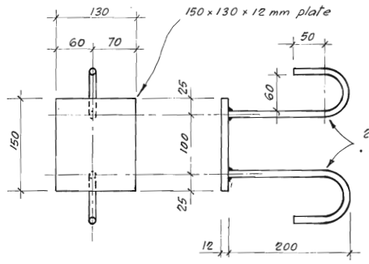


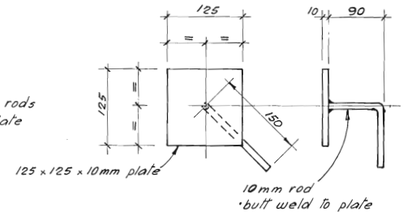
PANEL (45)
1-OFF



PANEL (46)
1-OFF

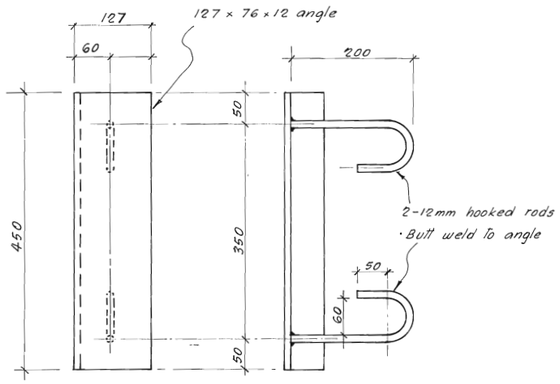
Note / Panels 43 to 46 inclusive are 150mm thick



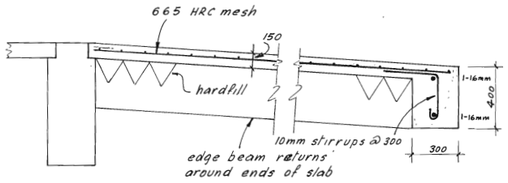


WELD PLATE 26
4-OFF

WELD PLATE 24
10-OFF
scale 1:5



WELD PLATE 25
4-OFF
scale 1:5



TYPICAL SECTION THROUGH VEHICLE RAMPS AT DOORWAYS

· For dimensions of Ramps refer to Architects drawings.
scale 1:20

Notes.
1. All weld plates are on NEAR face except where shown otherwise on panel 45
2. All Lifting Eyes are on FAR face.
3. Refer to Notes on sheet 9.

CHRISTCHURCH CITY COUNCIL
Approved Subject to the By-Laws
17 MAY 1977
For City Engineer

Service	Initials	Service	Initials
H.P. Water		Lands & Survey	
Sewer		Planning	
S.W. Drainage			
Gas			
Cables (M.E.D.)			
" (P.O.)			

Amendments	Initials	Date

	Book	Page	Initials	Date
Surveyed				
Levelled				
B.M.				
Compiled from				

		Date
Designed	M.J. Stockwell	11/76
Drawn	A.E. Bainbridge	11/76
Traced		
Dwg. Chk.		
Des. Chk		
Indexed		

Approved
Design Engineer Date
City Engineer

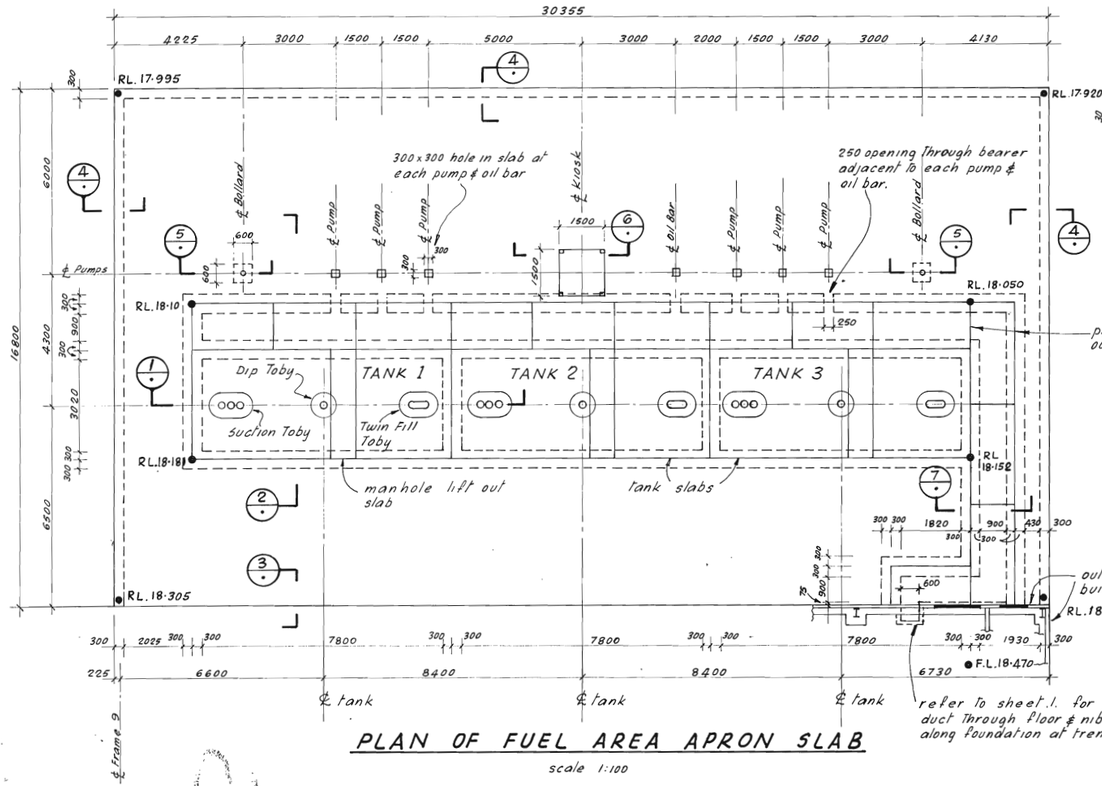
CHRISTCHURCH CITY COUNCIL — CITY ENGINEER'S DEPARTMENT

MAIN STORE - NEW CENTRAL DEPOT - JOHNSON STREET -
PRECAST CONCRETE WALL PANELS 43-46-WELD PLATES 24-26

Scales
1:50
1:5

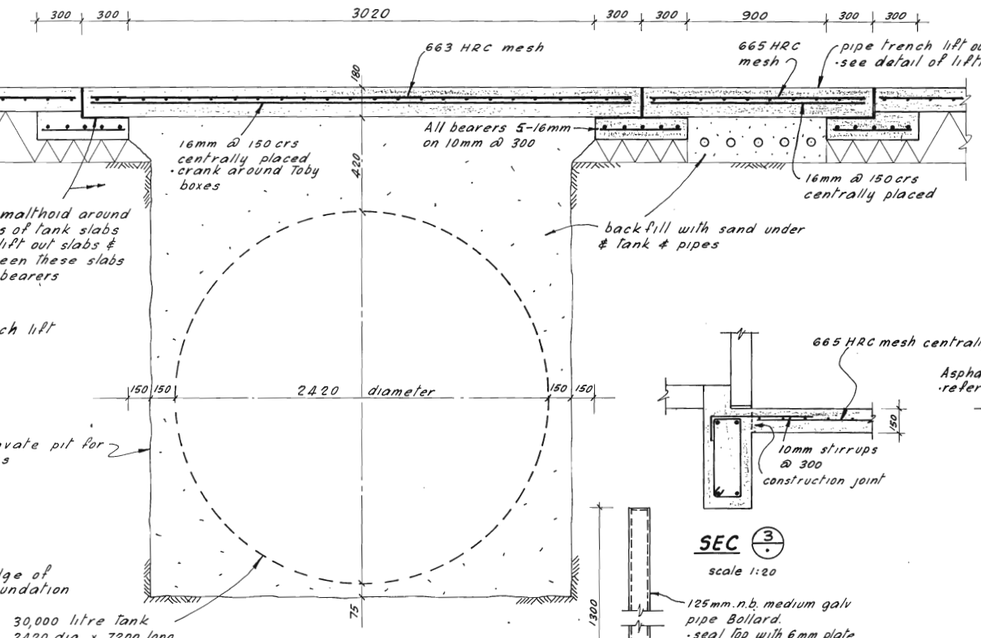
File No. BU/9/10
Issue
D.1813
Sheet 17 of 18

Original scale of millimetres



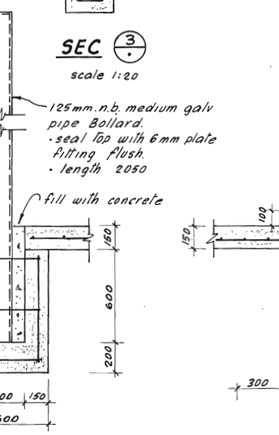
PLAN OF FUEL AREA APRON SLAB

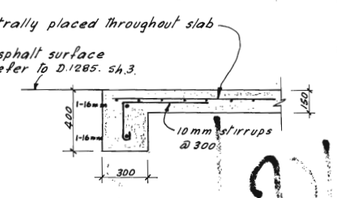
scale 1:100



SEC (3)

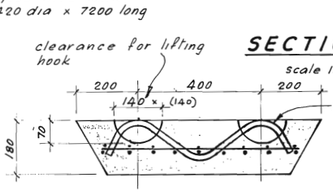
scale 1:20





SEC (4)

scale 1:20



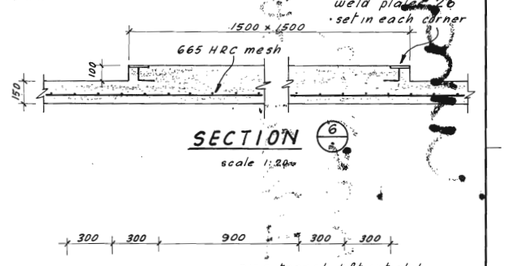
SECTION (2)

scale 1:20

DETAIL OF LIFTING EYE

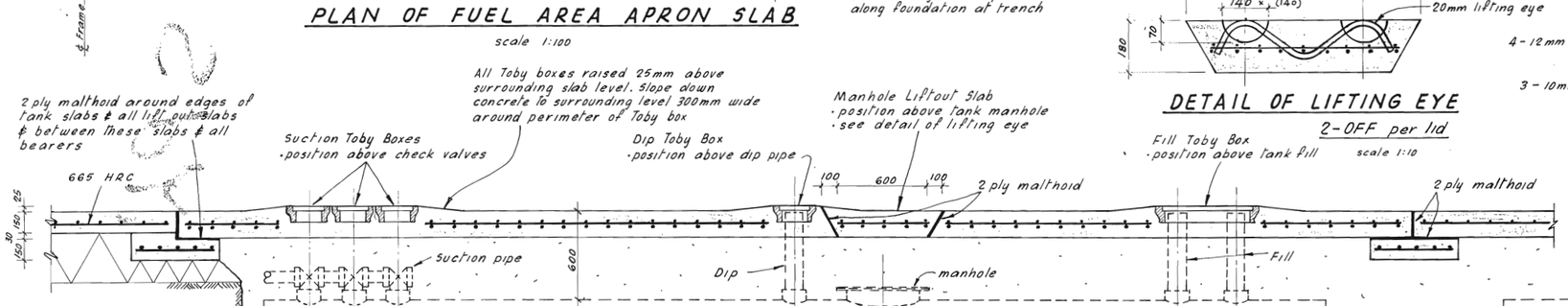
2-OFF per lid

scale 1:10



SECTION (6)

scale 1:20



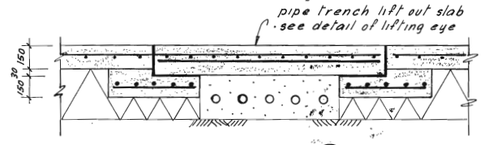
SEC (5)

scale 1:20

SECTION (1)

· Refer to SECTION (2) for reinforcing & filling

scale 1:20



SECTION (7)

· Refer to SECTION (2) for reinforcing & filling

scale 1:20

Notes

1. Concrete Refer to sheet 1.
2. Reinforcement Refer to sheet 1.
3. Refer to Architects drawings for Kiosk details.
4. Fuel Tanks
   Fuel tanks & pipework supplied & installed by others but excavation & filling under & around tank & pipework is part of this contract.
   Co-operate with others during installation
5. Toby Boxes
   Supplied by others but installation is part of this contract
6. Pumps & Bolts
   Supplied by others but casting in bolts is part of this contract

CHRISTCHURCH CITY COUNCIL
Approved Subject to the By-Laws
17 MAY 1977
For City Engineer

Service	Initials	Service	Initials
H.P. Water		Lands & Survey	
Sewer		Planning	
S.W. Drainage			
Gas			
Cables (M.E.D.)			
(P.O.)			

Amendments	Initials	Date

	Book	Page	Initials	Date
Surveyed				
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		Date
Designed	M.J. Stockwell	11/76
Drawn	A.E. Bainbridge	11/76
Traced		
Dwg. Chk.		
Des. Chk.		
Indexed		

Approved

Design Engineer Date

City Engineer

CHRISTCHURCH CITY COUNCIL — CITY ENGINEER'S DEPARTMENT

MAIN STORE – NEW CENTRAL DEPOT – JOHNSON STREET – FUEL AREA APRON SLABS

Scales
1:10
1:20
1:100

File No. 80/9/10
Issue
D.1813
Sheet 18 of 18

Original scale of millimetres

Appendix C

CERA DEE Summary Data

Detailed Engineering Evaluation Summary Data V1.11

Location

Building Name:	Milton St Depot - Tradesmen Workshop			Reviewer:	David Whittaker
	Unit	No:	Street	CPEng No:	123089
Building Address:		245	Milton Street	Company:	Beca
Legal Description:	BU 1141-001 EQ2			Company project number:	5323355
				Company phone number:	03 3663521
	Degrees	Min	Sec		
GPS south:				Date of submission:	22/07/2013
GPS east:				Inspection Date:	9/10/2012
				Revision:	A
Building Unique Identifier (CCC):				Is there a full report with this summary?	yes

Site

Site slope:	flat	Max retaining height (m):	0
Soil type:		Soil Profile (if available):	
Site Class (to NZS1170.5):	D		
Proximity to waterway (m, if <100m):		If Ground improvement on site, describe:	
Proximity to cliff top (m, if < 100m):			
Proximity to cliff base (m,if <100m):		Approx site elevation (m):	

Building

No. of storeys above ground:	1	single storey = 1		Ground floor elevation (Absolute) (m):	
Ground floor split?	no			Ground floor elevation above ground (m):	0.00
Storeys below ground	0				
Foundation type:	pads with tie beams			if Foundation type is other, describe:	
Building height (m):	6.75			height from ground to level of uppermost seismic mass (for IEP only) (m):	4.7
Floor footprint area (approx):	1311				
Age of Building (years):	25			Date of design:	1976-1992
Strengthening present?	no			If so, when (year)?	
				And what load level (%g)?	
Use (ground floor):	other (specify)			Brief strengthening description:	N/A
Use (upper floors):					
Use notes (if required):	workshops, storage, office				
Importance level (to NZS1170.5):	IL2				

Gravity Structure

Gravity System:	frame system		
Roof:	steel framed	rafter type, purlin type and cladding	steel rafters and purlins and profiled metal sheet roofing
Floors:	precast concrete with topping	unit type and depth (mm), topping	90mm Unispan with 70mm topping
Beams:	steel non-composite	beam and connector type	portal frames
Columns:	structural steel	typical dimensions (mm x mm)	concrete encased one side
Walls:	non-load bearing	0	

Lateral load resisting structure

Lateral system along:	single level tilt panel	**Note: Define along and across in detailed report!**		note total length of wall at ground (m):	115
Ductility assumed, μ:	1.25			wall thickness (m):	0.13
Period along:	0.40	0.00		estimate or calculation?	estimated
Total deflection (ULS) (mm):				estimate or calculation?	
maximum interstorey deflection (ULS) (mm):				estimate or calculation?	
Lateral system across:	welded and bolted steel moment frame			note typical bay length (m)	6
Ductility assumed, μ:	1.25				
Period across:	0.80	0.00		estimate or calculation?	calculated
Total deflection (ULS) (mm):				estimate or calculation?	
maximum interstorey deflection (ULS) (mm):				estimate or calculation?	

Separations:

north (mm):		leave blank if not relevant
east (mm):		
south (mm):		
west (mm):		

Non-structural elements

Stairs:	timber	describe supports	
Wall cladding:	exposed structure	describe	concrete walls and glazing
Roof Cladding:	Metal	describe	corrugated metal roof sheeting
Glazing:	timber frames		
Ceilings:	light tiles		
Services(list):	electrical		

Available documentation

Architectural	partial	original designer name/date	Lucking and Vial / 1977 approved
Structural	full	original designer name/date	City Engineers Department / 1977 approved
Mechanical	none	original designer name/date	not available
Electrical	none	original designer name/date	not available
Geotech report	none	original designer name/date	not available

Damage

Site:	Site performance:	slight	Describe damage: Cracking to precast concrete panels
(refer DEE Table 4-2)			
	Settlement:	none observed	notes (if applicable):
	Differential settlement:	none observed	notes (if applicable):
	Liquefaction:	0-2 m²/100m²	notes (if applicable): estimated from 24th Feb aerial photo
	Lateral Spread:	none apparent	notes (if applicable):
	Differential lateral spread:	none apparent	notes (if applicable):
	Ground cracks:	0-20mm/20m	notes (if applicable):
	Damage to area:	slight	notes (if applicable):

Building:

	Current Placard Status:	green		
Along	Damage ratio:	0%	Describe how damage ratio arrived at:	damage not to governing elements
	Describe (summary):			
Across	Damage ratio:	0%	$Damage\_Ratio = \frac{(\%NBS\ (before) - \%NBS\ (after))}{\%NBS\ (before)}$	
	Describe (summary):			
Diaphragms	Damage?:	no	Describe:	
CSWs:	Damage?:	no	Describe:	
Pounding:	Damage?:		Describe:	NA
Non-structural:	Damage?:	no	Describe:	

Recommendations

	Level of repair/strengthening required:	minor structural		Describe:	concrete crack repair
	Building Consent required:	no		Describe:	
	Interim occupancy recommendations:	full occupancy		Describe:	cordon off under beam until strengthened
Along	Assessed %NBS before:	10%	#### %NBS from IEP below	If IEP not used, please detail assessment methodology:	Forced-based Quantitative Assessment
	Assessed %NBS after:	10%			
Across	Assessed %NBS before:	35%	#### %NBS from IEP below		
	Assessed %NBS after:	35%			

IEP **Use of this method is not mandatory - more detailed analysis may give a different answer, which would take precedence. Do not fill in fields if not using IEP.**

Period of design of building (from above): 1976-1992 — h_n from above: 4.7m

Seismic Zone, if designed between 1965 and 1992: — not required for this age of building / not required for this age of building

	along	across
Period (from above):	0.4	0.8
(%NBS)nom from Fig 3.3:		

Note:1 for specifically design public buildings, to the code of the day: pre-1965 = 1.25; 1965-1976, Zone A =1.33; 1965-1976, Zone B = 1.2; all else 1.0
Note 2: for RC buildings designed between 1976-1984, use 1.2
Note 3: for buildngs designed prior to 1935 use 0.8, except in Wellington (1.0)

	along	across
Final (%NBS)$_{nom}$:	**0%**	**0%**

2.2 Near Fault Scaling Factor

Near Fault scaling factor, from NZS1170.5, cl 3.1.6:

	along	across
Near Fault scaling factor (1/N(T,D), **Factor A**:	#DIV/0!	#DIV/0!

2.3 Hazard Scaling Factor

Hazard factor Z for site from AS1170.5, Table 3.3:
Z_{1992}, from NZS4203:1992
Hazard scaling factor, **Factor B:** #DIV/0!

2.4 Return Period Scaling Factor

Building Importance level (from above):
Return Period Scaling factor from Table 3.1, **Factor C**:

2.5 Ductility Scaling Factor

	along	across
Assessed ductility (less than max in Table 3.2)		
Ductility scaling factor: =1 from 1976 onwards; or =k_μ, if pre-1976, fromTable 3.3:		
Ductility Scaling Factor, **Factor D**:	1.00	1.00

2.6 Structural Performance Scaling Factor:

Sp:		
Structural Performance Scaling Factor **Factor E**:	#DIV/0!	#DIV/0!

2.7 Baseline %NBS, $(NBS\%)_b = (\%NBS)_{nom} \times A \times B \times C \times D \times E$

%NBS$_b$:	**#DIV/0!**	**#DIV/0!**

Global Critical Structural Weaknesses: (refer to NZSEE IEP Table 3.4)

3.1. Plan Irregularity, factor A: 1

3.2. Vertical irregularity, Factor B: 1

3.3. Short columns, Factor C: 1

3.4. Pounding potential
Pounding effect D1, from Table to right
Height Difference effect D2, from Table to right

Therefore, Factor D: 0

3.5. Site Characteristics 1

Table for selection of D1	Severe	Significant	Insignificant/none
Separation	0<sep<.005H	.005<sep<.01H	Sep>.01H
Alignment of floors within 20% of H	**0.7**	**0.8**	**1**
Alignment of floors not within 20% of H	**0.4**	**0.7**	**0.8**

Table for Selection of D2	Severe	Significant	Insignificant/none
Separation	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

3.6. Other factors, Factor F

	Along	Across
For ≤ 3 storeys, max value =2.5, otherwise max valule =1.5, no minimum		
Rationale for choice of F factor, if not 1		

Detail Critical Structural Weaknesses: (refer to DEE Procedure section 6)
List any: Refer also section 6.3.1 of DEE for discussion of F factor modification for other critical structural weaknesses

3.7. Overall Performance Achievement ratio (PAR)

	0.00	**0.00**

4.3 PAR x (%NBS)b:

PAR x Baselline %NBS:	**#DIV/0!**	**#DIV/0!**

4.4 Percentage New Building Standard (%NBS), (before) **#DIV/0!**

Official Use only:

Accepted By:
Date:

Appendix D

Previous Reports and Assessments

city care

Project

Job No/File Ref

Description BU 1141-001 EQZ

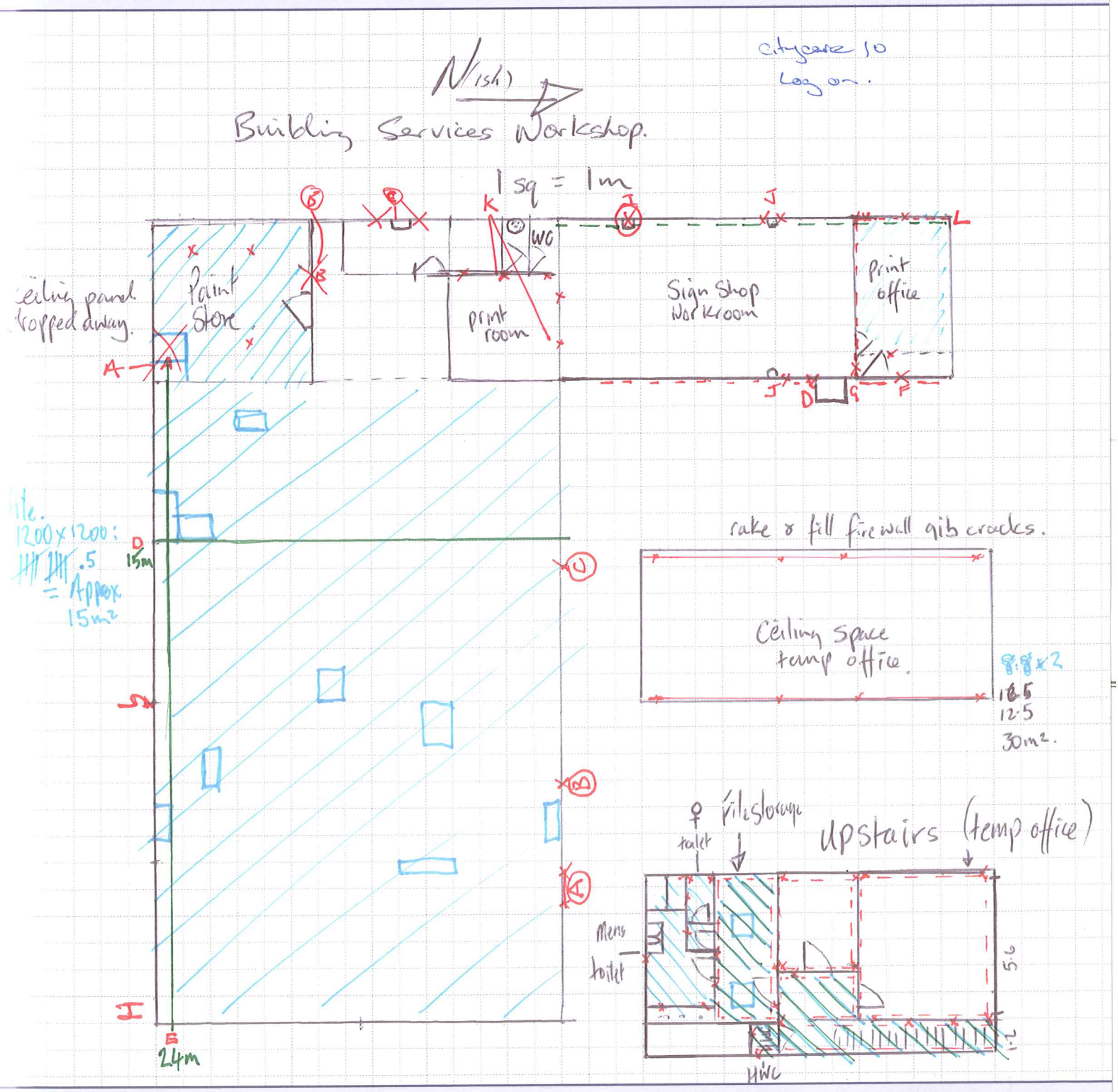
Prepared by

15m x

Date / /

Sheet No of

Site Instruction: ☐ Memo: ☐ Meeting: ☐ File Note: ☐ Variation / Detail: ☐



Approved Client Contractor

Date / / Date / /

Distribution: Principal: ☐ Contractor: ☐ Site Copy: ☐ Engineer: ☐ Sub-Contractor: ☐ Job File: ☐

City Care Ltd, 245 Milton Street, PO Box 7669, Christchurch, New Zealand Phone 03 941 7200 Fax 03 941 7202

ISO14001 Certified ISO9001 Certified

Scope of Works & Cost Estimate Form For EQ Damage

Building Name Milton st Depot-Tradesmen Workshop
Building BU No. **BU 1141-001 EQC**

Date 4/05/2011
CCL Fee 16.66%
Page 1 1
Date Visited 11/04/2011
Site Contact Mike Okey
Ph

Inspection Team **CCL** **Brent williams**
CL Scott Titheridge

DAMAGED AREA (ROOM)	Ref No	WORK REQUIRED (DETAILED SCOPE OF WORK)	Unit	Quantity	Rate ($)	Rate Including CCL fee	Cost included CCL Fee
Tradesmen Work Shop							
Female Toilet		Ceiling Cracks - General any substrate - Rake, RTV and touch up.	Lm	2	$ 12.00	$ 14	$ 28
Paint Store	A	Re Screw Popped Nails	m2	2	$ 50.00	$ 58	$ 117
	A	Ceilings - Paint - Repaint -2 coats	m2	36	$ 17.00	$ 20	$ 714
	B	Wall - Cracks - Plasterboard - Rake & no more gaps	Lm	3	$ 10.00	$ 12	$ 35
		Scaffolding mobil	d	5	$ 25.00	$ 29	$ 146
		Stop ceiling	M2	3	$ 15.00	$ 17	$ 52
Joinery Wok Room	C	Re Place Damaged Ceiling Tiles	day	3	$ 480.00	$ 560	$ 1,680
		Lift - Scissor lift 6m	day	3	$ 100.00	$ 117	$ 350
		New Replacement Tiles	M2	15	$ 40.00	$ 47	$ 700
		Lift - Scissor lift 6m transport	Bothways	1	$ 90.00	$ 105	$ 105
	D+E	Repair cracks Concrete floor blow out and Grind andEpoxy	Lm	39	$ 14.00	$ 16	$ 637
Sign Shop Office	F	Wall - Cracks - Pre cast panels Structurally repaired using Epozy injection	Lm	1	$ 197.98	$ 231	$ 231
		Walls - Paint - Repaint	m2	3.7	$ 12.00	$ 14	$ 52
	G	Wall - Cracks - Plasterboard - Rake & Stop	Lm	2	$ 12.00	$ 14	$ 28
		Walls - Paint - Repaint	m2	9	$ 12.00	$ 14	$ 126
	H	Wall - Cracks - Plasterboard - Rake & Stop	Lm	4	$ 12.00	$ 14	$ 56
	I	Ceiling - Cracks - Plasterboard - Rake & Stop	Lm	3	$ 14.50	$ 17	$ 51
		Ceilings - Paint - Repaint -2 coats	m2	20	$ 17.00	$ 20	$ 397
Sign Work Room	J	Wall Cracks - General any substrate - Rake, RTV and touch up.	Lm	20	$ 10.00	$ 12	$ 233
		Walls - Paint - Repaint	m2	2	$ 12.00	$ 14	$ 28
		Scaffolding mobil	Day	2	$ 25.00	$ 29	$ 58
Print Shop	k	Wall - Cracks - Plasterboard - Rake & Stop	Lm	5	$ 12.00	$ 14	$ 70
		Walls - Paint - Repaint	m2	14	$ 12.00	$ 14	$ 196
Sign Work Shop Floor		Blow out , install 10mm dia PF rod and fill with Seks Grey RTV.	Lm	15	$ 25.00	$ 29	$ 437
Column Sign Work Shop	L	Engineers Inspection, Report and Design Brief (Provisional Sum)	PS	1	$ 1,500.00	$ 1,750	$ 1,750
Temp Office Stair	A	Ceiling - Cracks - Plasterboard - Rake & Stop	Lm	6	$ 14.50	$ 17	$ 101
		Ceilings - Paint - Repaint -2 coats	m2	15.5	$ 17.00	$ 20	$ 307
Walls Stairs	B	Wall - Cracks - Plasterboard - Rake & Stop	Lm	8.2	$ 12.00	$ 14	$ 115
		Walls - Paint - Repaint	m2	32	$ 12.00	$ 14	$ 448
Cylinder Cupboard	C	Ceiling - Cracks - Plasterboard - Rake & Stop	Lm	3.6	$ 14.50	$ 17	$ 61
		Ceilings - Paint - Repaint -2 coats	m2	1.7	$ 17.00	$ 20	$ 34
		Wall - Cracks - Plasterboard - Rake & no more gaps	Lm	2.5	$ 10.00	$ 12	$ 29
		Walls - Paint - Repaint	m2	9.2	$ 12.00	$ 14	$ 129
Store Room	D	Ceiling - Cracks - Plasterboard - Rake & Stop	Lm	11	$ 14.50	$ 17	$ 186
		Ceilings - Paint - Repaint -2 coats	m2	19	$ 17.00	$ 20	$ 377

DAMAGED AREA (ROOM)	Ref No	WORK REQUIRED (DETAILED SCOPE OF WORK)	Unit	Quantity	Rate ($)	Rate Including CCL fee	Cost included CCL Fee
		Wall - Cracks - Plasterboard - Rake & Stop	Lm	1.4	$ 12.00	$ 14	$ 20
		Walls - Paint - Repaint	m2	22.5	$ 12.00	$ 14	$ 315
		Labour - Handyman (Incl. Vehicle)	h	4	$ 32.90	$ 38	$ 154
Mens Toilet	E	Ceiling - Cracks - Plasterboard - Rake & Stop	Lm	10.2	$ 14.50	$ 17	$ 173
		Ceilings - Paint - Repaint -2 coats	m2	20	$ 17.00	$ 20	$ 397
Ladies Toilet	F	Ceiling - Cracks - Plasterboard - Rake & Stop	Lm	3.8	$ 14.50	$ 17	$ 64
		Ceilings - Paint - Repaint -2 coats	m2	3	$ 17.00	$ 20	$ 59
Store 2	G	Wall - Cracks - Plasterboard - Rake & Stop	Lm	9.6	$ 12.00	$ 14	$ 134
		Walls - Paint - Repaint	m2	30	$ 12.00	$ 14	$ 420
		Labour - Handyman (Incl. Vehicle)	h	2	$ 32.90	$ 38	$ 77
Office	H	Ceiling - Cracks - Junctions & Negative Details - RTV Fill	Lm	10	$ 5.50	$ 6	$ 64
		Ceilings - Paint - Repaint -2 coats	m2	2	$ 17.00	$ 20	$ 40
		Wall - Cracks - Plasterboard - Rake & Stop	Lm	5	$ 12.00	$ 14	$ 70
		Walls - Paint - Repaint	m2	44	$ 12.00	$ 14	$ 616
		Labour - Handyman (Incl. Vehicle)	h	2	$ 32.90	$ 38	$ 77
		Popped Screws/Nails Walls	Per	12	$ 4.00	$ 5	$ 56
Roof Space Fire Walls	I	Ceiling - Cracks - Plasterboard - Rake, Stop & Touchup Paint	Lm	30	$ 24.50	$ 29	$ 857
Fire Hose	J	Re Fix Back to wall	Hr	0.5	$ 39.32	$ 46	$ 23
Tradesmens Store Room	K	Wall Cracks - General any substrate - Rake, RTV and touch up.	Lm	7.8	$ 10.00	$ 12	$ 91
		Labour - Handyman (Incl. Vehicle)	h	4	$ 32.90	$ 38	$ 154
		Mobil Scaffold	Day	2	$ 25.00	$ 29	$ 58
Floor Repair to Floor at door		Grind sand cerment	Lm	2.3	$ 39.00	$ 45	$ 105
Outside Building	A	Wall Cracks - General any substrate - Rake, RTV and touch up.	Lm	2	$ 10.00	$ 12	$ 23
	B	Wall - Rake and repoint block walls	m2	1.5	$ 40.00	$ 47	$ 70
		Walls - Paint - Repaint	m2	3	$ 12.00	$ 14	$ 42
	C	Wall Cracks - General any substrate - Rake, RTV and touch up.	Lm	0.5	$ 10.00	$ 12	$ 6
	D	Wall - Rake and repoint block walls	m2	1.5	$ 40.00	$ 47	$ 70
		Walls - Paint - Repaint	m2	1.5	$ 12.00	$ 14	$ 21
		Walls - Paint - Repaint	m2	3	$ 12.00	$ 14	$ 42
	E	Window Frame - Paint -Repaint	m2	40	$ 20.50	$ 24	$ 957
Refer to J Sign Shop	F	Wall - Cracks - Pre cast panels Structurally repaired using Epozy injection	Lm	4.3	$ 197.98	$ 231	$ 993
		Walls - Paint - Repaint	m2	26.2	$ 12.00	$ 14	$ 367
	G	Wall - Cracks - Pre cast panels Structurally repaired using Epozy injection	Lm	4.5	$ 197.98	$ 231	$ 1,039
		Walls - Paint - Repaint	m2	26.2	$ 12.00	$ 14	$ 367
	H	Wall - Cracks - Pre cast panels Structurally repaired using Epozy injection	Lm	4.5	$ 197.98	$ 231	$ 1,039
		Walls - Paint - Repaint	m2	26.2	$ 12.00	$ 14	$ 367
		Mobil Scaffold	Day	5	$ 25.00	$ 29	$ 146
		Prune trees prior to painting	unit	1	$ 300.00	$ 350	$ 350
Admin Office Tradesmens Building North Wall Entrance	A	Wall - Cracks - Plasterboard - Rake & Stop	Lm	12	$ 12.00	$ 14	$ 168
		Walls - Paint - Repaint	m2	24	$ 12.00	$ 14	$ 336
		Popped Screws/Nails Walls	Per	6	$ 4.00	$ 5	$ 28
		Door & Frame - Paint - Repaint 2 coats	m2	4.5	$ 24.00	$ 28	$ 126
South Wall	B	Window Frame - Paint -Repaint	m2	20	$ 20.50	$ 24	$ 478
West Wall under stair	C	Wall - Cracks - Plasterboard - Rake & Stop	Lm	1.9	$ 12.00	$ 14	$ 27
		Walls - Paint - Repaint	m2	29	$ 12.00	$ 14	$ 406
		Labour - Handyman (Incl. Vehicle)	h	2	$ 32.90	$ 38	$ 77
Internal Office	D	Popped Screws/Nails Walls	Per	1	$ 4.00	$ 5	$ 5
		Walls Interior - paint - <= 300mm	Lm	7	$ 9.00	$ 10	$ 73
		Wall - Cracks - Plasterboard - Rake & Stop	Lm	0.3	$ 12.00	$ 14	$ 4
		Walls - Paint - Repaint	m2	7	$ 12.00	$ 14	$ 98
Ceiling Tiles	E	Readjust Tiles	hr	1	$ 40.00	$ 47	$ 47
		Light cover Replace	Uint	1	$ 200.00	$ 233	$ 233
Hire Pool North Wall Entrance	G	Wall Cracks - General any substrate - Rake, RTV and touch up.	Lm	1	$ 10.00	$ 12	$ 12
West Wall	H	Tilt Panal Joins Reseal	Lm	8.1	$ 18.50	$ 22	$ 175

DAMAGED AREA (ROOM)	Ref No	WORK REQUIRED (DETAILED SCOPE OF WORK)	Unit	Quantity	Rate ($)	Rate Including CCL fee	Cost included CCL Fee
		Mobil Scaffold	Day	4	$ 25.00	$ 29	$ 117
		Walls - Paint - Repaint	m2	85	$ 12.00	$ 14	$ 1,190
Floor	I	Floor crack -Concrete-blow out -pf rod-RTV	Lm	11.7	$ 25.00	$ 29	$ 341
Store	J	Wall Cracks - General any substrate - Rake, RTV and touch up.	Lm	8.1	$ 10.00	$ 12	$ 94
IT Room	K	Wall - Cracks - Plasterboard - Rake & Stop	Lm	4	$ 12.00	$ 14	$ 56
		Walls - Paint - Repaint	m2	27	$ 12.00	$ 14	$ 378
		Labour - Handyman (Incl. Vehicle)	h	4	$ 32.90	$ 38	$ 154
	L	Floor crack -Concrete-blow out -pf rod-RTV	Lm	6	$ 25.00	$ 29	$ 175
		Carpert-Glued -Lift -Relay	Unit	6	$ 150.00	$ 175	$ 1,050
Foyer	M	Floor crack -Concrete-blow out -pf rod-RTV	Lm	2.9	$ 25.00	$ 29	$ 85
	N	Wall Cracks - General any substrate - Rake, RTV and touch up.	Lm	7	$ 10.00	$ 12	$ 82
Office	O	Ceiling - Cracks - Plasterboard - Rake & Stop	Lm	1.2	$ 14.50	$ 17	$ 20
		Ceilings - Paint - Repaint -2 coats	m2	8.3	$ 17.00	$ 20	$ 165
	P	Wall - Cracks - Plasterboard - Rake & Stop	Lm	1.4	$ 12.00	$ 14	$ 20
		Walls - Paint - Repaint	m2	17	$ 12.00	$ 14	$ 238
		Labour - Handyman (Incl. Vehicle)	h	4	$ 32.90	$ 38	$ 154
Toilet	Q	Ceiling - Cracks - Plasterboard - Rake & Stop	Lm	4.4	$ 14.50	$ 17	$ 74
		Ceilings - Paint - Repaint -2 coats	m2	5.6	$ 17.00	$ 20	$ 111
	R	Wall - Cracks - Plasterboard -Rake & RTV	Lm	5.6	$ 11.00	$ 13	$ 72
		Wall - Cracks - Plasterboard - Rake & Stop	Lm	8.3	$ 12.00	$ 14	$ 116
		Window Frame - Paint -Repaint	m2	22.2	$ 20.50	$ 24	$ 531
		Floor crack -Concrete-blow out -pf rod-RTV	Lm	1.8	$ 25.00	$ 29	$ 52
		Labour - Handyman (Incl. Vehicle)	h	2	$ 32.90	$ 38	$ 77
		Vinyl-Remove-Relay New	m2	1.7	$ 100.00	$ 117	$ 198
Mezzanine	S	Cracks -Top-Columns	Lm	4.8	$ 20.00	$ 23	$ 112
Spray Shop	T	Wall Cracks - General any substrate - Rake, RTV and touch up.	Lm	2	$ 10.00	$ 12	$ 23
		Labour - Handyman (Incl. Vehicle)	h	4	$ 32.90	$ 38	$ 154
Fammable liquids store	U	Wall Cracks - General any substrate - Rake, RTV and touch up.	Lm	4.2	$ 10.00	$ 12	$ 49
		Labour - Handyman (Incl. Vehicle)	h	2	$ 32.90	$ 38	$ 77
Radioactive store	V	Wall Cracks - General any substrate - Rake, RTV and touch up.	Lm	4.8	$ 10.00	$ 12	$ 56
		Labour - Handyman (Incl. Vehicle)	h	4	$ 32.90	$ 38	$ 154
Outside Building B	A	Wall Cracks - General any substrate - Rake, RTV and touch up.	Lm	7	$ 10.00	$ 12	$ 82
	B	Wall - Cracks - Pre cast panels Structurally repaired using Epozy injection	Lm	1	$ 197.98	$ 231	$ 231
	C	Window Frame - Paint -Repaint	m2	3.2	$ 20.50	$ 24	$ 77
		Mobil Scaffold	Day	2	$ 25.00	$ 29	$ 58
	D	Wall - Cracks - Pre cast panels Structurally repaired using Epozy injection	Lm	1	$ 197.98	$ 231	$ 231
	E	Wall - Cracks - Pre cast panels Structurally repaired using Epozy injection	Lm	1	$ 197.98	$ 231	$ 231
	F	Tilt Panal Joins Reseal	Lm	4.5	$ 25.00	$ 29	$ 131
		Prune trees prior to painting	Unit	1	$ 300.00	$ 350	$ 350
		Mobil Scaffold	Day	2	$ 25.00	$ 29	$ 58
Fleet Services Work shop Sheet D. Lube Store	A	Ceiling - Cracks - Lath & Plaster - Rake & Stop	Lm	0.9	$ 15.50	$ 18	$ 16
		Door & Frame - Paint - Repaint 2 coats	m2	1	$ 24.00	$ 28	$ 28
		Mobil Scaffold	Day	2	$ 25.00	$ 29	$ 58
Wall East	B	Tilt Panal Joins Reseal	Lm	21.5	$ 25.00	$ 29	$ 627
		Labour - Handyman (Incl. Vehicle)	h	8	$ 32.90	$ 38	$ 307
Block Wall	C	Wall Cracks - General any substrate - Rake, RTV and touch up.	Lm	3	$ 10.00	$ 12	$ 35
Wall West	D	Tilt Panal Joins Reseal	Lm	1.5	$ 25.00	$ 29	$ 44
Mezzanine	E	Wall - Cracks - Plasterboard - Rake & Stop	Lm	2	$ 12.00	$ 14	$ 28
		Walls - Paint - Repaint	m2	4	$ 12.00	$ 14	$ 56
Office	F	Wall - Cracks - Plasterboard - Rake & Stop	Lm	2.4	$ 12.00	$ 14	$ 34
		Walls - Paint - Repaint	m2	5	$ 12.00	$ 14	$ 70
Compressor room	G	Tilt Panal Joins Reseal	Lm	0.9	$ 25.00	$ 29	$ 26
		Walls - Paint - Repaint	m2	5	$ 12.00	$ 14	$ 70
Lube Bay	H	Tilt Panal Joins Reseal	Lm	7	$ 25.00	$ 29	$ 204
Plant Matanince	I	Tilt Panal Joins Reseal	Lm	6	$ 25.00	$ 29	$ 175

DAMAGED AREA (ROOM)	Ref No	WORK REQUIRED (DETAILED SCOPE OF WORK)	Unit	Quantity	Rate ($)	Rate Including CCL fee	Cost included CCL Fee
Staff Room Café	J	Wall - Cracks - Plasterboard - Rake & Stop	Lm	13.2	$ 12.00	$ 14	$ 185
		Walls - Paint - Repaint	m2	66	$ 12.00	$ 14	$ 924
		Labour - Handyman (Incl. Vehicle)	h	2	$ 32.90	$ 38	$ 77
Ladies Toilet	k	Wall - Cracks - Plasterboard - Rake & Stop	Lm	1.8	$ 12.00	$ 14	$ 25
		Walls - Paint - Repaint	m2	8	$ 12.00	$ 14	$ 112
Mens Toilet	L	Wall - Cracks - Plasterboard - Rake & Stop	Lm	2.1	$ 12.00	$ 14	$ 29
		Walls - Paint - Repaint	m2	7	$ 12.00	$ 14	$ 98
office	M	Popped Screws/Nails Walls	Per	6	$ 4.00	$ 5	$ 28
		Ceilings - Paint - Repaint -2 coats	m2	25	$ 17.00	$ 20	$ 496
	N	Wall - Cracks - Plasterboard - Rake & Stop	Lm	3	$ 12.00	$ 14	$ 42
		Walls - Paint - Repaint	m2	14.5	$ 12.00	$ 14	$ 203
		Labour - Handyman (Incl. Vehicle)	h	2	$ 32.90	$ 38	$ 77
Upstairs office stairs	O	Ceiling - Cracks - Plasterboard - Rake & Stop	Lm	11.8	$ 14.50	$ 17	$ 200
		Ceilings - Paint - Repaint -2 coats	m2	14.5	$ 17.00	$ 20	$ 288
		Scaffolding assembled on site with 2 weeks hire.	m2	25	$ 15.00	$ 17	$ 437
	P	Wall - Cracks - Plasterboard - Rake & Stop	Lm	10	$ 12.00	$ 14	$ 140
		Walls - Paint - Repaint	m2	65	$ 12.00	$ 14	$ 910
		Popped Screws/Nails Walls	Per	6	$ 4.00	$ 5	$ 28
Office top of stairs	Q	Wall - Cracks - Plasterboard - Rake & Stop	Lm	0.6	$ 12.00	$ 14	$ 8
		Walls - Paint - Repaint	m2	8	$ 12.00	$ 14	$ 112
Main office	R	Window Frame - Paint -Repaint	m2	10.5	$ 20.50	$ 24	$ 251
Replace ceiling light fittings and Tile	S	Labour - Handyman (Incl. Vehicle)	h	4	$ 32.90	$ 38	$ 154
		Ceiling - new exposed grid with mineral fibre tiles.	m2	1	$ 52.30	$ 61	$ 61
Foyer	T	Ceiling - Cracks - Plasterboard - Rake & Stop	Lm	1	$ 14.50	$ 17	$ 17
		Ceilings - Paint - Repaint -2 coats	m2	10.4	$ 17.00	$ 20	$ 206
		Popped Screws/Nails Walls	Per	8	$ 4.00	$ 5	$ 37
	U	Wall - Cracks - Plasterboard - Rake & Stop	Lm	1	$ 12.00	$ 14	$ 14
		Walls - Paint - Repaint	Per	3	$ 12.00	$ 14	$ 42
Computer Room	V	Wall - Cracks - Plasterboard - Rake & Stop	Lm	5	$ 12.00	$ 14	$ 70
		Walls - Paint - Repaint	m2	20	$ 12.00	$ 14	$ 280
		Popped Screws/Nails Walls	Per	6	$ 4.00	$ 5	$ 28
Middle West Office	W	Wall - Cracks - Plasterboard - Rake & Stop	Lm	0.15	$ 12.00	$ 14	$ 2
		Window Frame - Paint -Repaint	m2	6.5	$ 20.50	$ 24	$ 155
North West Office	X	Wall - Cracks - Plasterboard - Rake & Stop	Lm	10	$ 12.00	$ 14	$ 140
		Walls - Paint - Repaint	m2	30	$ 12.00	$ 14	$ 420
North 1Office	Y	Wall - Cracks - Plasterboard - Rake & Stop	Lm	17	$ 12.00	$ 14	$ 238
		Walls - Paint - Repaint	m2	41	$ 12.00	$ 14	$ 574
North 2 Office	Z	Wall - Cracks - Plasterboard - Rake & Stop	Lm	5.5	$ 12.00	$ 14	$ 77
		Walls - Paint - Repaint	m2	30	$ 12.00	$ 14	$ 420
		Popped Screws/Nails Walls	Per	2	$ 4.00	$ 5	$ 9
		Labour - Handyman (Incl. Vehicle)	h	8	$ 32.90	$ 38	$ 307
Outside Building D West	A	Wall Cracks - General any substrate - Rake, RTV and touch up	Lm	2	$ 10.00	$ 12	$ 23
North	B	Wall Cracks - General any substrate - Rake, RTV and touch up	Lm	12	$ 10.00	$ 12	$ 140
		Walls - Paint - Repaint	m2	31.5	$ 12.00	$ 14	$ 441
Office North Outside	C	Wall - Cracks - Exterior Stucco -	Lm	34	$ 17.00	$ 20	$ 674
		Walls - Paint - Repaint	m2	55	$ 12.00	$ 14	$ 770
Entrance Office	D	Grind And fill -Sealant	Lm	1.5	$ 25.00	$ 29	$ 44
South outside	E	Grind And fill -Sealant Concrete	Lm	1.5	$ 25.00	$ 29	$ 44
Building E Verhicle Work shop	A	Glazing - Reinstall or replace rubber seals. Up to 1 m2 standerd glass	m2	0.5	$ 120.00	$ 140	$ 70
East Wall	B	Reseal joins Tilt Panals	Lm	8	$ 25.00	$ 29	$ 233
		Walls - Paint - Repaint	m2	4	$ 12.00	$ 14	$ 56
		Mobil Scaffold	Day	1	$ 25.00	$ 29	$ 29
Workshop 2 SW corner	C	Weld Weld plates to Portal -Epoxy below bottom plate and reseal	Price	1	$ 250.00	$ 292	$ 292
Ceiling	D	Re fit Tiles	Hr	1	$ 40.00	$ 47	$ 47
		Lift - Scissor lift 6m	day	1	$ 100.00	$ 117	$ 117
		Lift - Scissor lift 6m transport	Bothways	1	$ 90.00	$ 105	$ 105
Workshop 3	E	Seal cracks east wall left side	Lm	6.2	$ 25.00	$ 29	$ 181
Outside Building North	F	Wall Cracks - General any substrate - Rake, RTV and touch up.	Lm	10.6	$ 10.00	$ 12	$ 124

DAMAGED AREA (ROOM)	Ref No	WORK REQUIRED (DETAILED SCOPE OF WORK)	Unit	Quantity	Rate ($)	Rate Including CCL fee	Cost included CCL Fee
East Wall	G	Wall Cracks - General any substrate - Rake, RTV and touch up.	Lm	4	$ 10.00	$ 12	$ 47
		Walls - Paint - Repaint	m2	6.2	$ 12.00	$ 14	$ 87
South	H	Ceiling Cracks - General any substrate - Rake, RTV and touch up.	Lm	3.4	$ 12.00	$ 14	$ 48
		<Select from list or provide details>			$ -	$ -	$ -
						$ -	$ -
						$ -	$ -
						$ -	$ -
						$ -	$ -
						$ -	$ -
					EX GST	**TOTAL**	$ 43,170

Clarifications / Notes

Ref.

General — Rates assume works are carried out in normal works hours without penal labour rates.

General — No Allowance for Resource or Buildings Consents as and if they prove to be necessary

General — No allowance for removal of furniture and fixtures that may prove necessary (joinery shop)

Work can commence 2 - 4 weeks from receipt of PO.

The project will take approximately 4 weeks to complete.

Item not covered by Insurance -These items would be done via a P.O. From City Council. **19.2%**

AREA (ROOM)	Ref No	WORK REQUIRED (DETAILED SCOPE OF WORK)	Unit	Quantity	Rate ($)	Rate Including CCL fee	
		<Select from list or provide details>			$ -	$ -	$ -
		<Select from list or provide details>			$ -	$ -	$ -
		<Select from list or provide details>			$ -	$ -	$ -
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					EX GST	**TOTAL**	