TM CONSULTANTS
KNOWLEDGE YOU CAN BUILD ON

TM Consultants Ltd.
A. 5 Burdale Street:
P.O. Box 8874,
Christchurch 8440.
New Zealand
P. 03 348 6066
F. 03 348 6065
E. info@tmco.co.nz

PRODUCER STATEMENT - DESIGN (ISSUE A)

File No. 141008

ISSUED BY: **TM CONSULTANTS LIMITED**
DESIGN ENGINEER: **CLEMENT WONG**
TO: **LIGHTNING CONSTRUCTION LTD**
TO BE SUPPLIED TO: **CHRISTCHURCH CITY COUNCIL**
IN RESPECT OF: **ELECTRICAL AND EMERGENCY LIGHTING SYSTEM**
AT: **49 STONELEIGH DR, ROLLESTON**
LOTS: DP:

TM CONSULTANTS LIMITED has been engaged by **KEVIN STEVENSON** to provide **ELECTRICAL AND EMERGENCY LIGHTING ENGINEERING** services in respect of the requirements of Clause(s) **F6, F8, G8, G9 & H1** of the Building Code 2004 for:

- ☑ All
- ☐ Part only as specified above

of the proposed building work. The design carried out by us has been prepared in accordance with

- ☑ Compliance Documents issued by Department of Building & Housing **F6/AS1, F8/AS1, G8/AS1, G9 & H1** of the approved documents
- ☐ Alternative solution as per the attached schedule

The proposed building work covered by this Producer Statement is described on **TM CONSULTANTS LIMITED'S** drawings titled **GRATON HOLDINGS WAREHOUSE, 49 STONELEIGH DR, ROLLESTON** and numbered **E1.0 – E1.2, E2.1, E3.1, H1 Calculation Report and Electrical Specifications** attached to this statement.

On behalf of TM Consultants Ltd, and subject to:

i. The verification of the following design assumptions: N/A
ii. All proprietary products meeting their performance specification requirement

I believe on reasonable grounds the building, if constructed in accordance with the dra
provided or listed in the attached schedule, will comply with the relevant provisions of

This Producer Statement - Design is valid for 1 year only from the date of issue.

I **Clement Tieng Hwa Wong** am CPEng **1025407.** I am a Member of IPENZ and hold the following qualifications **B(E)(Electrical), MIPENZ(Electrical), CPEng, , IntPE(NZ).**

TM Consultants Ltd is a member of ACENZ.

SIGNED BY.....Clement Wong.....**ON BEHALF OF** TM Consultants Ltd **DATE: 13 Feb 2015**

TM Consultants Ltd in issuing this statement holds a current policy of Professional Indemnity insurance no less than $200,000.
Note: This statement shall only be relied upon by the Building Consent Authority named above. Liability under this statement accrues to TM Consultants Ltd only. The total maximum amount of damages payable arising from this statement and all other statements provided to the Building Consent Authority in relation to this building work, whether in contract, tort or otherwise (including negligence), is limited to the sum of $200,000.

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141008

PROTECTION FROM FIRE DESIGN REPORT

GRATON HOLDINGS WAREHOUSE
49 STONELEIGH DRIVE, ROLLESTON

ISSUE A

EXECUTIVE SUMMARY

This project includes the construction of a new 'Commercial' building for Graton Holdings Warehouse at 49 Stoneleigh Drive, Rolleston. The location of this is indicated on the attached site plan (fire drawing F1).

The building is proposed to comprise of a warehouse space with supporting office area. In addition, the building is also proposed to have an apartment within the office area.

A Type 3 automatic fire alarm, emergency lighting and illuminated exit signs shall be installed throughout the building as part of this project. In addition, domestic smoke alarm shall be provided in the apartment.

Doors located on egress routes shall be provided with adequate width and locking hardware. Wall and ceiling surface finishes shall meet the specific group number requirements to meet surface finish requirements.

The external fire rated walls shall have a 180/180/180 fire resistance rating and meet post fire structural stability requirements.

The apartment shall form a separate firecell, separated from the rest of the building by construction having no less than a 60/60/60 fire resistance rating.

Compliance with C1-6, D1, F6 or F8 is established using the applicable compliance documents	☑
A modification or waiver to C1-6, D1, F6 or F8 is not required	☑
The project does not involve an alteration, change of use or subdivision which affects a 'specified' system (except where the effect on the fire safety system is minor)	☑

New Zealand Gazette, 3rd May 2012, No. 49, page 1406 states that the building consent application for this building need not be issued to the New Zealand Fire Service DRU.

Issue	Date	For	Designer	Qualification	Approved for Issue
1	15.12.14	Draft – For Comment	Kevin S	BE(Civil)	John Collie
A	26.01.15	Building Consent	Kevin S	BE(Civil)	John Collie

CONTENTS

1.0 PHILOSOPHY

This project includes the construction of a new 'Commercial' building for Graton Holdings Warehouse at 49 Stoneleigh Drive, Rolleston. The location of this is indicated on the attached site plan (fire drawing F1).

The building is proposed to comprise of a warehouse space with supporting office area. In addition, the building is also proposed to have an apartment which will be used by existing staff on an occasional basis.

Take note that although the building's warehouse space is capable of storage greater than 3 m high, given the height to the apex is less than 8 m and the building floor area is less than 4200 m^2, the space is classified as having a WB risk group.

The project buildings shall be assessed in full against C/AS2 and C/AS5 (Acceptable Solutions for achieving compliance with C1-C6 of the New Zealand Building Code). Unless requiring specific emphasis, these clauses will be referred to as C/ASx throughout the remainder of this report.

2.0 FIRE SAFETY SYSTEMS

Risk Group: SM & WB

Design Occupant Load: 16 (this includes 1 occupant within the accommodation space and 15 occupants within other spaces)

The above occupant loads are calculated using the most appropriate values from Table 1.2 of C/ASx and are indicated (including the associated density) on the attached drawings.

This includes the storage warehouse having an occupant density of 100 m^2/person and the office spaces having an occupant density of 10 m^2/person. For the accommodation space, the occupant load is calculated based on the room being fitout for a single occupant. No occupant load has been allocated to the toilet areas, lunch room and store room as these will be used by those present in other areas of the building.

Fire safety systems shall be installed in compliance with C/ASx section 2.2, as follow.

Given the building has a warehouse space capable of storing greater than 3 m (with an apex height of less than 8 m, and the building floor area is less than 4200 m^2), no less than a non-brigade connected Type 3 fire alarm system is required throughout the project building. This will include automatic heat detection, manual call points and sounders all complying with NZS 4512.

Given the apartment firecell provides temporary accommodation for a single occupant with egress opening directly to the outside (at ground level), a domestic smoke alarms complying with Acceptable Solution F7/AS1 shall be provided within the apartment in addition to the automatic heat detection system installed throughout the building.

Given fire service hose run distances are less than 75 m, a fire hydrant system is not required within the building.

In addition to the requirements of the C Clauses of the New Zealand Building Code; illumination of egress routes shall be assessed in accordance with F6/AS1.

Emergency lighting shall be provided along egress routes where path lengths are greater than 20 m. The areas requiring coverage are indicated on the attached fire drawing.

3.0 MEANS OF ESCAPE

Given the low occupant load from the office and apartment, a single direction of escape is sufficient to comply with the requirements of C/ASx. Note however that two directions of escape are provided from the warehouse space to comply with path length requirements.

The number of available egress routes complies with C/ASx as indicated on the attached fire drawings.

3.1 Lengths

The Dead End Open Path (DOP) and Total Open Path (TOP) lengths have been calculated from the most remote locations to a final exit (as indicated on the attached fire drawings).

Path lengths meet the requirements of C/ASx, noting that the maximum allowable DOP length is 20 m from the apartment firecell, and the maximum allowable DOP and TOP length is 35 m and 75 m from everywhere else.

3.2 Doors

Given the total design occupant load from each space is less than 50 people, all doors located on egress routes can swing in any direction.

All doors located on egress routes shall have a clear (unobstructed) width not less than 760 mm. They shall include hardware that always allows an easy escape from the inside (i.e. keyless and not include tower bolts).

3.3 Signs

New illuminated exit signs shall be provided in the positions indicated on the attached fire drawings. These shall form part of the emergency lighting system for the building.

4.0 FIRE SPREAD

4.1 Internal Fire Spread

The apartment shall form a separate 60 minute firecell, separated from the rest of the building.

All service penetrations passing into or through the fire rated walls shall maintain the fire rating of these elements.

4.2 External Fire Spread

The applicable 'Property Rating' applying to any walls that need to be fire rated to meet compliance with Part 5 of C/AS5 (having the most onerous requirements) shall have no less than a 180/180/180 fire resistance rating.

The project building is located on the south western boundary. The entire wall shall be 100% fire rated. It shall be designed to resist a 0.5 kPa face loading during post fire conditions (as required by the NZBC for post fire structural stability). In addition, the wall shall extend no less than 450 mm above the roof to form a parapet in order to protect the adjacent property from horizontal fire spread from the roof.

No unfire rated openings are permitted in this wall.

The canopy forms an attached open sided building which has a total roof area less than 40 m^2, shall be located no less than 0.3 m from the south western boundary.

The building is located remote (greater than 15 m) from all other relevant boundaries.

5.0 HAND HELD FIRE FIGHTING EQUIPMENT

Although not required by C/ASx, it is recommended that fire extinguishers be provided throughout the project buildings. Proposed locations are indicated on the attached fire drawings.

6.0 SURFACE FINISHES

Take note that the following surface finish requirements do not apply to door sets, structural elements, joinery, general decorative trims, electrical fixtures and fittings and small areas of non-conforming product with a total area less than 5 m^2.

Internal Walls and Ceilings:

The internal surface finishes of walls and ceilings within the building (including the apartment) shall have a group number no greater than 3.

External Walls:

The surface finishes of the fire rated wall shall not exceed a peak heat release rate of 100 kW/m^2 and not exceed a total heat released of 25 MJ/m^2.

Given the building height is greater than 7 m, the surface finishes of all other external walls shall have linings that do not exceed a peak heat release rate of 150 kW/m^2 and do not exceed a total heat released of 50 MJ/m^2.

Note however, these requirements do not apply to surface finishes that have a thickness less than 1 mm which are applied directly on non-combustible substrates.

Floors:

Flooring in all spaces (with the exception of the apartment firecell which has no limitation) shall either be non-combustible or when tested to ISO 9239-1, shall have a critical radiant flux of not less than 1.2 kW/m^2.

Other:

Limitations also apply to suspended flexible fabrics, membrane structures, expanded plastics (i.e. polystyrene insulation) and HVAC ducting. Note however, none are proposed to be installed within the building as part of this project.

7.0 FIRE SERVICE ACCESS AND FIRE FIGHTING FACILITIES

7.1 Vehicle access

The propose route providing vehicle access to the site, from Stoneleigh Drive, shall be designed to accommodate heavy traffic. As a result it is expected to meet the necessary NZFS vehicle access requirements of C/ASx.

7.2 Evacuation Plan

More than 100 persons can gather together	☒
Employment is provided for more than 10 persons	☑
Accommodation is provided for more than 5 persons (other than in 3 or fewer house hold units)	☒
Early childhood facilities are provided (other than in a household unit)	☒
Nursing, medical, or geriatric care facilities are provided (other than in a household unit)	☒
Specialised care for persons with disabilities are provided (other than in a household unit)	☒
Accommodation for persons under lawful detention is provided (limitation apply)	☒

The Fire Service Act 1975 states that the buildings shall have an approved evacuation plan.

8.0 SUMMARY OF WORK

This section shall be read together with the attached fire drawing (Appendix A).

8.1 Fire Alarms System

A new Type 3 automatic fire alarm system shall be installed throughout the building (including the apartment). This system shall comply with NZS 4512 and need not automatically notify the NZFS.

A new fire alarm panel complying with NZS 4512 shall be provided as part of this project.

It shall be located in a position approved by the project architect (the New Zealand Fire Services as necessary) and complying with the requirement of NZS 4512.

A dedicated power supply shall be provided to the fire alarm panel.

Install automatic heat detectors, call points and sounders throughout the building, as necessary to achieve compliance with NZS 4512.

In areas where detectors are subjected to moisture, fully encapsulated detectors shall be provided.

Cabling within office and apartment area shall be completely concealed in wall and ceiling cavities. Any cabling that is not proposed to be concealed, shall be run neatly enclosed within a suitably coloured neat-cap/conduct and shall be approved firstly by the project architect before installation occurs.

The contractor shall coordinate the location of the new fire alarm panel, heat detectors, call points and sounders with all other service trades, architectural and structural elements. The location of these components shall be approved by the architect prior to installation on site.

FPIS (or another suitably qualified person) shall certify the fire alarm system upon completion of its installation.

8.2 Domestic Smoke Alarms

A domestic smoke alarm shall be installed (in addition to the heat detection) within the apartment in accordance with F7/AS1.

The smoke alarm shall be manufactured to either AS 3786, ISO 12239 or BS EN 14604.

The smoke alarm shall be either hard wired or battery powered but need not be interconnected. It shall be provided with a test button and a hush button that silences the alarm for a minimum duration of 60 seconds.

It shall be ceiling mounted. A proposed location is indicated on the fire drawing.

8.3 Emergency Lighting

Emergency lighting complying with F6/AS1 is required in the positions indicated on the attached fire drawings (Appendix A). This system shall be designed by suitably qualified person and shall ensure that no less than 1 Lux of illumination is provided in the positions indicated for a duration not less than 30 minutes.

This system, including the installation, shall comply in full with AS 2293. This includes the installation of independent test switch at the building's main electrical distribution board.

8.4 Signs

Illuminated exit signs shall be located in the positions indicated on the attached fire drawings (Appendix A). These shall be 'normally illuminated' and form part of the emergency lighting system for the building.

8.5 Doors

All doors located on egress routes shall have a minimum clear (unobstructed) width of 760 mm and shall include 'simple' hardware that always allows an easy escape from the inside (i.e. keyless and not include tower bolts).

8.6 Fire Rated Construction

Fire Rated 180/180/180 Wall

The external wall that need to be fire rated (indicated in red on the fire drawing F2) is proposed to construct using 150 mm thick reinforced concrete panels, cantilevered from the foundations to meet the necessary post fire structural stability requirements. The structural engineer for the project shall confirm that this will provide the necessary (two-way) 180 minute fire resistance rating. This wall shall extend no less than 450 mm above the roof to form a parapet.

Panel joints shall be sealed using a system that meets the durability requirements and provides no less than two-way 180/180/180 fire resistance rating.

Fire Rated 60/60/60 Walls

The walls separating the apartment firecell (indicated in green on the fire drawings F2) from the rest of the building are proposed to be lightweight walls. They shall have a timber frame lined on both sides with one layer of 13 mm GIB Fyreline. They shall be constructed in accordance with certified GIB fire rated system GBTL 60 and the GIB Site Guide. This shall include all GIB sheet joints occurring over solid blocking and all exposed sheet joins and fasteners being stopped. Note that, the use of glue (for fixing, even in addition to mechanical fixings) is not permitted. The walls shall extend to the underside of the roof above. Seal, as necessary, between the wall linings and roof cladding above to ensure the smoke and fire rating of the wall system is maintained.

The door providing access through the wall shall be a new certified -/60/30sm fire door system complying with NZS 4520 and F8/AS1. It shall open in the direction indicated on the fire drawings and shall include certification tags on both the door frame and leaf, compliant latching door hardware, door closer, rebated fire and smoke seals and compliant green on white 'Fire Door – Please Keep Closed' signage on both sides of the leaf.

Penetrations and Fire Stopping:

All cables and pipes penetrating through the fire rated walls shall include fire collars, fire wraps and intumescent sealant as appropriate to maintain the fire resistance rating.

All flush boxes penetrating the fire rated walls shall be fire rated using an appropriate certified steel flush box, intumescent block and intumescent sealant.

Take note that additional solid blocking and Fyreline linings may be necessary to maintain the fire resistance rating of the fire rated building elements being penetrated (refer to penetrations in GIB Fire Rated System for guidance).

All fire stopping shall be completed in accordance with the manufacturer's instructions for the materials used. The products used shall maintain the fire resistance rating (both fire and smoke ratings) of the fire rated building elements through which they penetrate and comply with C/ASx and AS 1530.4.

8.7 Surface Finishes

Internal Walls and Ceilings:

The internal surface finishes of walls and ceilings within the building (including the apartment) shall have a group number no greater than 3.

Exposed concrete and metal claddings throughout the warehouse area and painted GIB board in other areas.

External Walls:

The surface finishes of the fire rated wall shall not exceed a peak heat release rate of 100 kW/m^2 and not exceed a total heat released of 25 MJ/m^2.

Given the building height is greater than 7 m, the surface finishes of all other external walls shall have linings that do not exceed a peak heat release rate of 150 kW/m^2 and do not exceed a total heat released of 50 MJ/m^2.

Note however, these requirements do not apply to surface finishes that have a thickness less than 1 mm which are applied directly on non-combustible substrates.

The proposed concrete panels (painted or not) meet the above requirements.

Floors:

Flooring in all spaces (with the exception of the apartment firecell which has no limitation) shall either be non-combustible or when tested to ISO 9239-1, shall have a critical radiant flux of not less than 1.2 kW/m^2.

The exposed concrete flooring proposed throughout the warehouse spaces meets the above requirement.

The commercial grade carpet and vinyl floor coverings proposed throughout the rest of the building are expected to meet the above requirement.

9.0 COMPLIANCE SCHEDULE

The following specified systems are existing, being altered, added to, new, or removed in the course if the building works.	Existing	New	Altered	Removed
2. Automatic or manual emergency warning systems for fire or other dangers (Non brigade connected Type 3 automatic fire alarm system).		☑		
4. Emergency lighting systems		☑		
14. Emergency power systems for, or signs relating to, a system or feature specified in any of the clauses 1 to 13				
14.2 Signs (applying to how to operate mcp signage)		☑		
15. Other fire safety systems or features				
15.2 Final exit		☑		
15.3 Fire Separations (door, walls and penetrations)		☑		
15.4 Signs for communicating information intended to facilitate evacuation (applying to illuminated exit signs)		☑		

These systems shall be installed, inspected and maintained in accordance with the standard requirements listed in the 'Compliance Schedule Handbook'.

These are elaborated on within Appendix B.

10.0 CONSTRUCTION MONITORING

It is recommended that construction monitoring of the project be completed to a CM2 level.

This will include inspections to check the construction of the fire rated walls (to check the correct installation of GIB Fyreline, solid blocking of sheet joints and the number and location of GIB fastenings), the application of any fire stopping and fire sealant to panel joints, the door widths and locking hardware, and the installation of the automatic fire alarm system, domestic smoke alarm, fire rated door, emergency lighting and illuminated exit signs.

Reliance for the correct installation of the automatic fire alarm system will be based upon a PS3 from the fire contractor responsible for completing the installation of this system and the presentation of an FPIS certificate (or certification from another suitably qualified person).

Although checked to ensure presence of the system, illuminated exit signage and emergency lighting shall be reviewed upon completion by the suitably qualified person responsible for the design of this system. The individuals responsible for checking these systems shall provide a PS4 to sign off these systems.

Reliance on the correct application of fire sealant between panels shall be based upon receiving a PS3 from the contractor responsible for its installation (this shall be supported with all necessary data sheets for the product used).

All structural systems supporting fire rated walls shall be reviewed by the structural engineer for the project. Noting that post fire stability forms part of their consented design; their standard PS4 (stating the construction of the building is in accordance with their design) is assumed to cover off this aspect of the fire design.

TMCO will issue a PS4 at the conclusion of the project once all necessary works (as required by these documents and any additional requirements that might arise during the consent process) have been completed.

11.0 EVACUATION PLAN

An evacuation plan approved by the New Zealand Fire Service shall be provided prior to the building being occupied by members of the public (i.e. not including contractors as part of the building project).

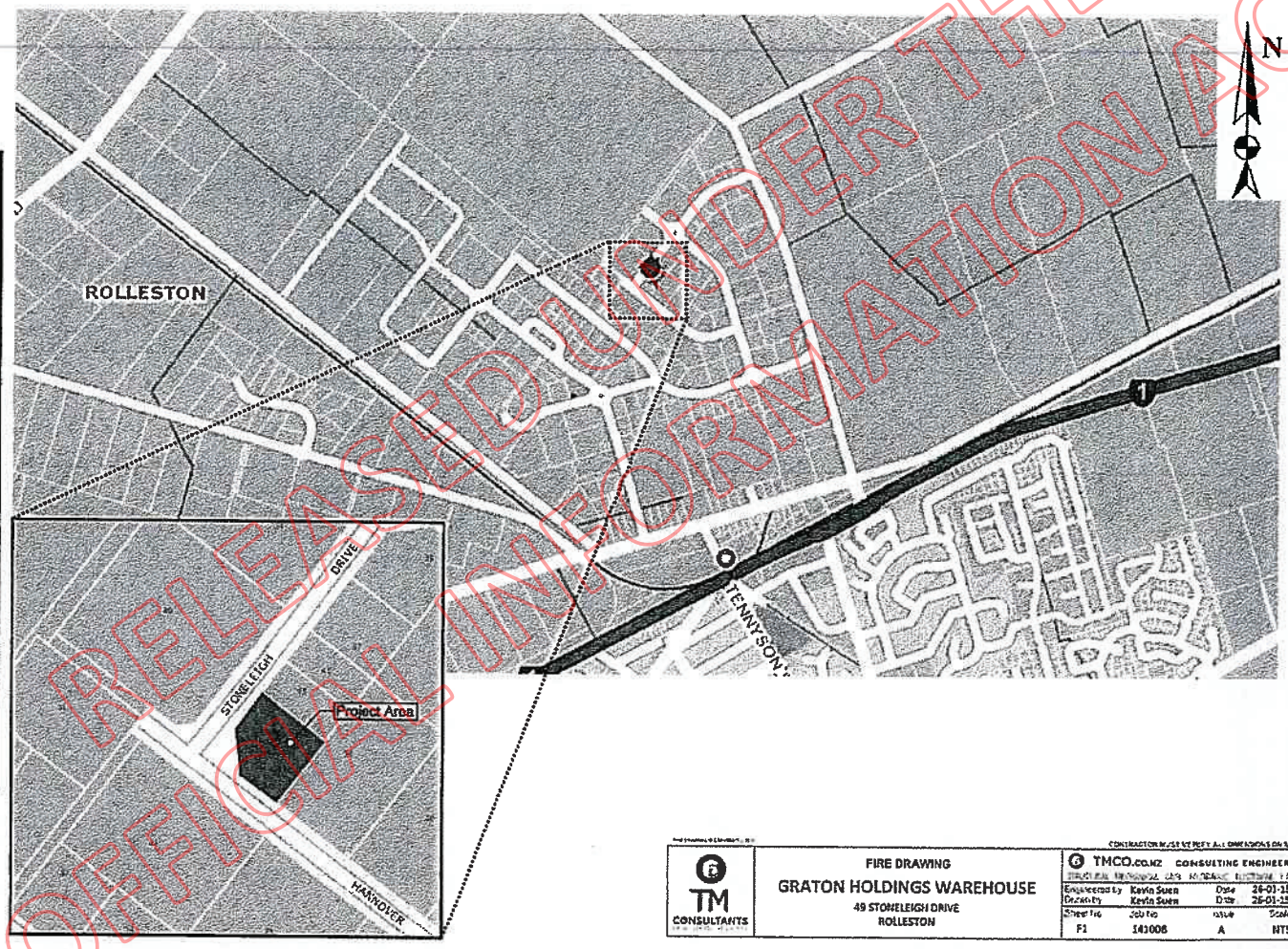
Kevin Suen
Fire Engineer

TM Consultants Limited

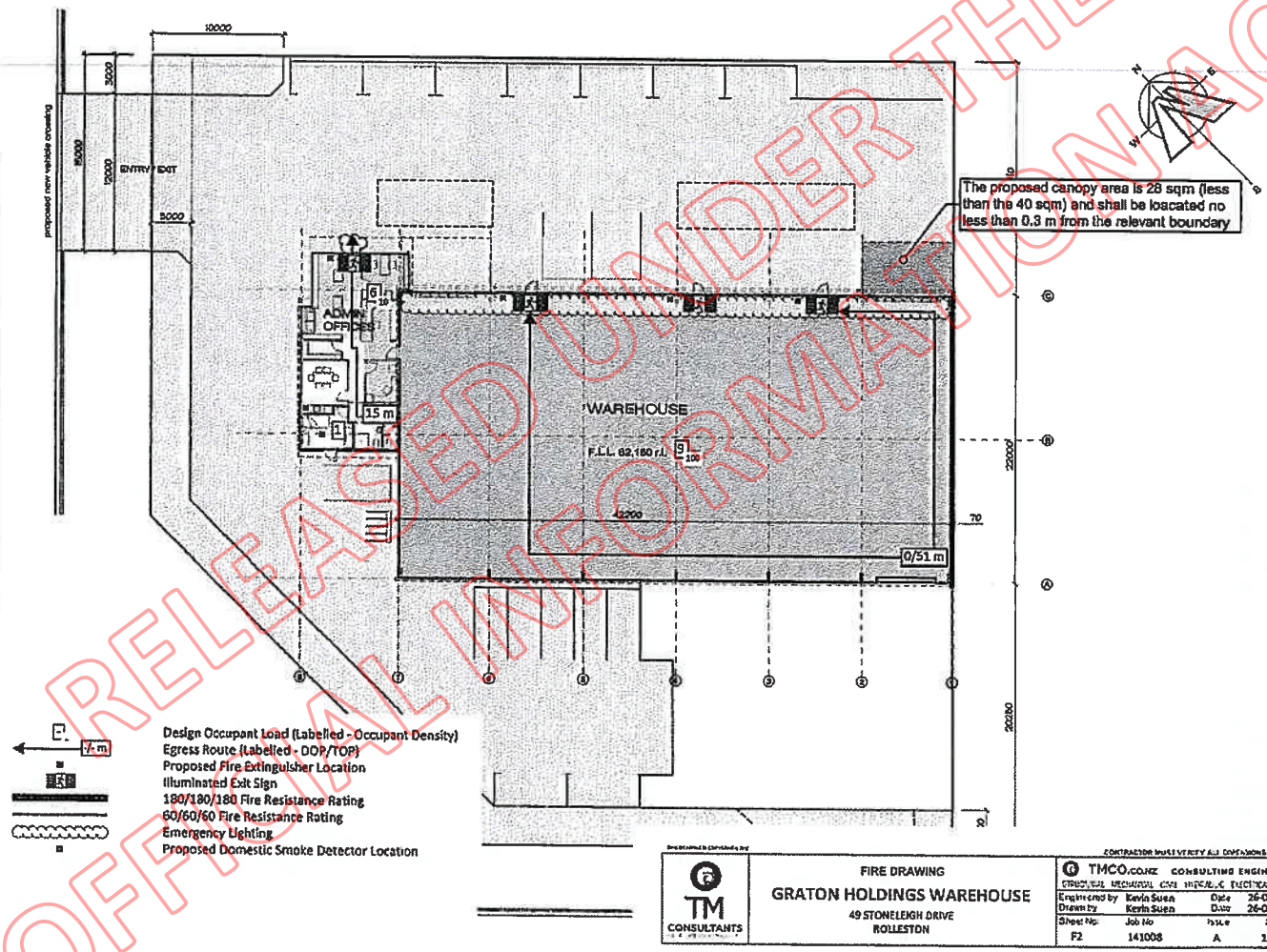
APPENDIX A

Fire Drawings

- F1 – Site Plan
- F2 – Floor Plan



TM CONSULTANTS	FIRE DRAWING GRATON HOLDINGS WAREHOUSE 49 STONELEIGH DRIVE ROLLESTON	TMCO.CO.NZ CONSULTING ENGINEERS Engineered by: Kevin Suen Date: 26-01-15 Drawn by: Kevin Suen Date: 26-01-15 Sheet No: F1 Job No: 141008 Issue: A Scale: NTS



Design Occupant Load (Labelled - Occupant Density)
Egress Route (Labelled - DOP/TOP)
Proposed Fire Extinguisher Location
Illuminated Exit Sign
180/180/180 Fire Resistance Rating
60/60/60 Fire Resistance Rating
Emergency Lighting
Proposed Domestic Smoke Detector Location

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FIRE DRAWING

GRATON HOLDINGS WAREHOUSE

49 STONELEIGH DRIVE
ROLLESTON

TMCO.CO.NZ CONSULTING ENGINEERS

Engineered by	Kevin Suen	Date	26-01-15
Drawn by	Kevin Suen	Date	26-01-15
Sheet No.	Job No	Issue	Scale
F2	141008	A	1:250

APPENDIX B

Draft Compliance Schedule

DRAFT COMPLIANCE SCHEDULE

The following specified systems are present within the building.	Description	Installation Performance Standard	Maintenance	Inspection and reporting frequency
2. Automatic or manual emergency warning systems for fire or other dangers	Type 3 automatic fire alarm system (not Brigade connected)	NZS 4512	NZS 4512	In accordance to NZS 4512. **Monthly and Annual Inspections** Completed by an IQP.
4.0 Emergency lighting systems	Emergency Lighting	AS 2293: Parts 1 & 3 Installed in the areas indicated on the attached fire drawings and the emergency lighting specification, providing no less than 1 lux unless otherwise stated.	AS/ NZS 2293: Part 2	AS/ NZS 2293: Part 2. **3 Monthly Inspections** Carried out by the building owner or their representative. **Annual Inspection** Completed by an IQP.
14.2 Signs	Signage associated with the fire alarm system and emergency lighting system.	Install in accordance with F8/AS1 and any other appropriate performance standard. i.e. how to use a manual call point and labelling of an accessible route	Maintenance should be carried out in accordance with the nominated performance standard and F8/AS1.	**Monthly Inspection** Carried out by the building owner or their representative. Signs should be inspected to ensure they are: • correct type • present and in the right locations • legible

				Annual Inspection Completed by an IQP. As per the above. Also inspected as part of other specified systems within the building.
15.2 Final exit	Exit Doors	Best practise	Responsive maintenance should be carried out to ensure occupants are not prevented from leaving the building in the event of an emergency. In particular, the final exits should be maintained to ensure they are: • clearly identified • free of obstructions • unlocked • easily-used	**Daily & Monthly Inspections** Final exits should be inspected to ensure they can be opened and are not: • locked • barred • blocked And that door-locking devices: • are clearly visible • are easily operated without a key or other security device
15.3 Fire Separations	Fire Rated Walls and Fire Rated Door	Installed (as appropriate) in the locations indicated and specified on the consented fire drawings and Fire Design Report.	Responsive maintenance should be carried out to ensure occupants are not prevented from leaving the building in the event of an emergency. In particular, the fire separations should be maintained to ensure they are no: • sign of damage or deterioration • new penetration without suitable fire-stopping If material damage has occurred	**Daily & Monthly Inspections** Carried out by the building owner or their representative. Fire separations should be visually inspected for: • sign of damage or deterioration • new penetration without suitable fire-stopping **Annual Inspection** Completed by an IQP.

			they shall be repaired or replaced as necessary to ensure compliance is maintained.	As per the above.
15.4 Signs for communicating information intended to facilitate evacuation	Illuminated Exit Signs Other signage associated with accessibility, hazards, hand held fire fighting equipment, sanitary facilities etc.	AS 2293: Parts 1 & 3 Install in accordance with F8/AS1 and any other appropriate performance standard.	AS/ NZS 2293: Part 2 Maintenance should be carried out in accordance with the nominated performance standard and F8/AS1.	AS/ NZS 2293: Part 2 Inspected as part of the specified system 4.0. Monthly Inspection Carried out by the building owner or their representative. Signs should be inspected to ensure they are: • correct type • present and in the right locations • legible Annual Inspection Completed by an IQP. As per the above. Also inspected as part of other specified systems within the building.