

earthquake damage report

project	Pacific Tower, 166 Gloucester Street	project no	5631
date	19 th May 2011	from	Sean Gardiner
client	Pacific Tower Body Corporate		

1 Scope of this Report

This report covers our assessment of the structural condition of Pacific Tower located at 166 Gloucester Street, Christchurch on the 31st March 2011 based on a visual inspection inside and out and isolated removal of internal linings to expose the steel superstructure.

Our earlier initial inspection dated 25th February 2011 mainly addresses initial safety matters relating to the building. This subsequent inspection and report describes the damage observed in more detail, and comments on remedial work options for repair of the building as well as further suggested investigations.

This report does not cover a detailed structural strength assessment; which we consider is not warranted given its recent construction and minimal structural damage.

2 Scope of Investigation

On the 31st March 2011, we visually inspected the building including:

- The exterior from ground level
- The interior including:
 - Stairwells
 - Floor levels 1, 2 (including carstackers), 6, 7, 11, 16 and 22
 - Steel frames exposed at the above levels

This report is based on our assessment of the building at the time stated. Photos that are attached are indicative of the damage. Any subsequent loading by aftershocks, or high winds, may initiate further damage.

3 Building Description

Pacific Tower consists of a twenty-two storey, steel framed building with precast concrete cladding panels for most of its height. It has a reinforced masonry block lift machine room centrally on the roof.

The lower portion of the building (to the underside of level 6) is clad on the north and west sides with stone, with the south end of the building constructed from reinforced masonry. Part of the western elevation cantilevers over a Right Of Way access to the basement of Cathedral Junction to the south.

The floors and roof are typically constructed with a 150mm thick reinforced concrete topping on steel Comflor 80 flooring supported on composite steel beams.

The building is supported laterally with a combination of steel Eccentrically Braced Frames (EBF), in both 'K' and 'D' configurations, and Moment Resisting Frames (MRF). There are transfer diaphragms at levels 2, 6 and 11 to maintain EBF continuity.

Reinforced concrete pile caps and foundation beams are supported on a combination of bored (caisson) concrete piles, and steel screw piles (used primarily for tension loads).

4 Damage Description

The building has suffered minor structural and non-structural damage as noted below:

- Onset of yielding and some minor permanent deformation of the active links of EBF's, refer following section on detailed frame investigations. No damage was observed to steel MRFs, columns, braces or welded or bolted connections.
- The lift technicians have measured the vertical alignment of the lift shafts and have observed the following worst case permanent displacements:
 - 66mm to the south relative to the base at around L11/L12, returning to around 38mm offset at L18 and above.
 - 50mm to the east relative to the base at around L11/L12, returning to around 25mm offset at L19 and above.

These offsets are not of structural concern as they are well within the displacements allowed for during the design of the building.

- Isolated damage to a precast panel connection was noted and while not causing immediate concern, warrants further inspections (by way of exterior survey of the panels, and exposure of a sample of interior connections). Two fly-brace connections at panel fixing locations are missing their anchors to the floor at level 2 (east wall at top of ramp).
- Movement of podium level stone cladding to engage veneer ties, though there does not appear to be any connection failures. These should also be inspected as part of exterior survey.
- The concrete panels will have likely suffered further minor cracking and isolated spalling to that noted after the 4th September 2010 (refer previous exterior survey and subsequent repair specification sent on 7th October 2010). The extent of the cracking/spalling should also be verified during the external survey. Panels that have "bound" should be sawcut free, so there is no connection between adjacent panels, and the joints resealed. Otherwise, the sliding panel connections appear to have performed well as expected.
- The soffit linings to some of the balconies on the north face have fallen off, and there have been locations of further damage to the tiled junction between the balcony deck and the precast cladding panels. These should be repaired as previously specified with gaps to allow vertical seismic movements to occur.
- Fire rated Gib linings (non-structural) are severely cracked throughout both stairwells for the full height of the building. Subject to a report from the fire engineer these stairwells are not likely to comply with the Building Code requirements for Egress from Fire due to the Gib damage. The sliding stair details for the building appear to have performed well structurally. There is minor damage to the stair landings including isolated spalling of floor levelling compound where the central timber framed wall has impacted.
- The cross-bracing in many of the car stackers has unhooked at midway along its length. These will require repair/reinstatement prior to carstacker operation. (We suggest "D" shaped shackles be used to prevent this happening again). Inspection of

the carstacker restraints at the top of the carstackers by Kiwi Sparky (electrical contractor) have identified two fractured SHS restraints and some cleat connections that have pulled out, which will require repair.

- The seismic flashings between the south reinforced masonry block area and the main tower have been crushed full height and will require replacement. It is likely there is isolated roof damage as well. Flashings have also been dislodged at the junction with the Sampan Noodle House to the east, and may have suffered damage at the corners of the building.
- There is minor damage at the lift landing areas and we have been advised there has been damage to the lift shafts and guide rails rendering the lifts partially inoperable. The minor permanent displacement of the building will require the guide rail brackets to be re-aligned and the lift door locations to be adjusted at most levels. We understand a lift technician's report will confirm the full extent of the damage.
- Most rooms have damage similar in nature to the 4th September and Boxing Day quakes including cracked wall and ceiling linings, tiles, glass doors and wardrobes. There is also jamming of several hotel room doors preventing closure or access.
- We understand there is no emergency lighting operating in the building.

In addition, the required investigation works to verify the structural condition of the braced frames following the earthquake have lead to damaged wall and ceiling Gib linings and compromised the fire-rating in some locations.

We understand a report on damage to the fire systems is also being completed by the fire engineer.

5 Detailed frame investigations

The linings were removed (where necessary) and the steel frames (EBF active links and MRF Potential Plastic Hinge Region locations) visually inspected for yielding and any significant permanent offset or fracture at the flowing locations (based on original construction grids):

Level 1: Grid E1(MRF), F2(MRF)
 Level 2: Grid E½1, F5, C4(west)
 Level 6: Grid C2, C4(west), D4(east), C½6
 Level 7: Grid C2, C4(west), D4(east), C½6, F5
 Level 11: Grid C2, C4(west), D4(west & east), C½6
 Level 16: Grid C4(west), D4(west & east), C½6
 Level 22: Grid C½4, C½6, D4(east), E(MRF)

These locations were selected due being at transfer diaphragms levels as well as being at the levels of greatest observed non-structural damage (jamming doors, etc), suggesting greatest movement. Generally all of the readily accessible links at each selected level were inspected. It is anticipated the viewed active links would be relined with (fire rated) access panels to allow easier future inspection.

There was evidence of the onset of yielding, with diagonal Lueder's lines and paint flaking being evident in some active link regions. Only one link had any significant permanent displacement (at L2, grid E½1) and which had paint flaking at the ends of the braces as well as the active link region. This beam, adjacent to a carstacker, has no slab on top and was restrained laterally by a 327 HCC beam on its side (similar to the ones directly above).

Interim advice on criteria for actions on EBF inelastically responding active links from Charles Clifton and others from the University of Auckland suggests "where the maximum applied strain is in the order of +/- 2 TO 5% for a small number of load cycles, for example 3, then there is no need for metallurgical treatment of the steel". An upper limit of +/- 5% peak strain has been set to ensure that the toughness requirements of NZS3404 are still able to be met. With strains in these regions "...all the indications point to the steel retaining sufficient ability to absorb damage to withstand, at least, another ultimate limit state earthquake."

Inter-storey drifts, based on visible "scuff" marks, localised crushing of Gib, etc, appear to be in the order of 15mm. The applied strain, based on the damage observed, is estimated to be within the range 2-5%. This estimate should also be compared with that calculated by the method noted in section 8.

No damage or sign of any permanent displacement was observed to steel MRFs, columns, braces or welded or bolted connections.

6 Structural Safety Evaluation of Building

We did not observe any apparent structural safety hazards.

7 Temporary Securing of the Building

As the building is new, has suffered no significant structural damage and there are no observed falling hazards, we consider that no temporary securing work is required.

8 Long Term Repair

The following further investigation work should be undertaken:

- Exterior survey of precast panels and stone cladding. Please note extents and locations of any concrete cracking and spalling, locations where panels have "bound", as well as any panels that are now misaligned which may indicate damage/failure of a panel connection. The panel fixings at these locations should be exposed on the inside face for inspection.
- Ongoing correspondence with Charles Clifton (University of Auckland) has suggested a further assessment and estimate of the inelastic demand on the active links may be warranted. This would require a measurement or estimate of the interstorey displacements at the frame locations followed by a desktop study based on the frame geometries. We can conduct this assessment early in the repair phase.

The following repair work should be undertaken based on our observations to date:

- Repair damaged panels/balconies. Drill and epoxy inject cracks 0.2mm wide or greater with Sika Injectokit system. Finish with a faring coat. Cracks smaller than 0.2mm may be painted with a flexible brushable crack filler. Spalled sections of concrete should be repaired with the Sika Monotop system (primer, structural mortar and faring coat). Install in accordance with manufacturers literature. Panels that have "bound" should be sawcut free, so there is no connection between adjacent panels, and any damaged joints resealed.
- Repair stair landings with Sika Monotop system as above and floor levelling compound. Please provide 20mm seismic gap at ends of the lightweight/Gib lined stairwell central wall at landing locations and fill with fire rated sealant.
- Reinstate carstacker cross braces and top lateral restraints. Re-weld fractured restraints with FPBW, examine other restraints for signs of damage and

repair/reinforce welds as required. Replace and re-fix anchors which have pulled out of the blockwork masonry.

- Install missing anchors between braces and floor at L2 (top of ramp) on east wall.
- Repair non-structural damage to roofing, flashings, tiles, door frames, ceilings, linings, etc in accordance with manufacturer's recommendations.
- Repair lifts and fire systems in accordance with lift technician's report and fire engineer's report respectively.
- Repaint flaked intumescent paint to exposed steel beams at L2 (prepare steel in accordance with manufacturer's recommendations).

9 Limitations

Findings presented as part of this report are for the sole use of the client. The findings are not intended for use by other parties, and may not contain sufficient information for the purposes of other parties or other uses. Our professional services are performed using a degree of care and skill normally exercised, under similar circumstances, by reputable consultants practicing in this field at this time. No other warranty, expressed or implied, is made as to the professional advice presented in this report.

Report by:



Sean Gardiner
B.E.(Hons), MIPENZ, CPEng (#242020)
Structural Engineer
Studio2 Limited

Reviewed by:



Geoff Banks
B.E.(Hons), MIPENZ
Director
Studio2 Limited

Appendix: Photos of Damage



L6, Grid C2, active link



L6, Grid C2, brace weld



L6, Grid C2



L6, Grid C2, no offset



L6, Grid C2, column weld



L6, Grid C2, brace weld



L6, Grid D4(east), active link



L6, Grid D4(east), no offset



L6, Grid D4(east), brace weld



L6, Grid D4(east), column weld



L6, Grid C4(west), active link



L6, Grid C4(west), brace connection



L6, Grid C1/26 active link



L6, Grid C1/26 active link



L7, Grid C2, active link



L7, Grid C2, some offset



L7, Grid C2, Lueder's lines to active link



L7, Grid C2, brace connection



L7, Grid C4(west), no offset



L7, Grid C4(west), active link



L7, Grid D4(east), no offset



L7, Grid C1/26



L7, Grid C1/26, minor offset



L7 floor at Grid C1/26, essentially level



L7, Grid F5, active link



L7, Grid F5, active link and brace connection



L11, Grid C2, active link



L11, Grid C2, damaged panel fixing



L11, Grid D4(east), active link



L11, Grid C4(west), active link



L11, Grid D4(west), active link



L11, grid C1/26, active link



L11, grid C1/26, active link



L11, grid C1/26, active link



L11, Grid C1/26, active link



L11, Grid D4(east), active link



L11, Grid D4, column joint



L16, Grid D4(east), active link



L16, Grid D4(west) active link



L16, Grid D4(west) active link



L16, Grid C4(west), active link



L22, Grid E MRF



L22 crack to floor diaphragm (from stairwell to NE)



L22, Grid D4, active link.



L22, Grid C½ 4 and 6 active links



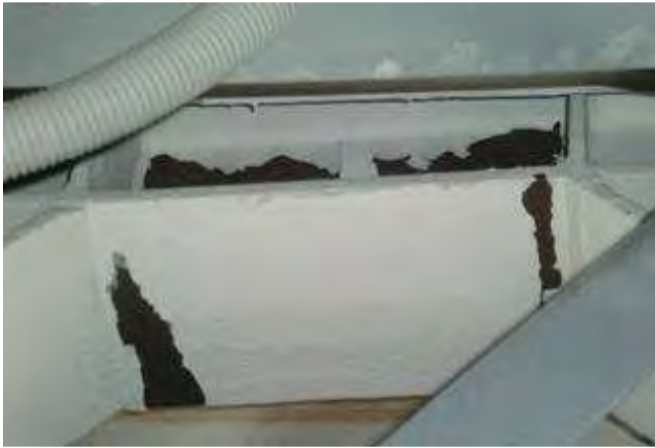
L2, Grid C4(west) active link



L2, Grid C4(west) active link



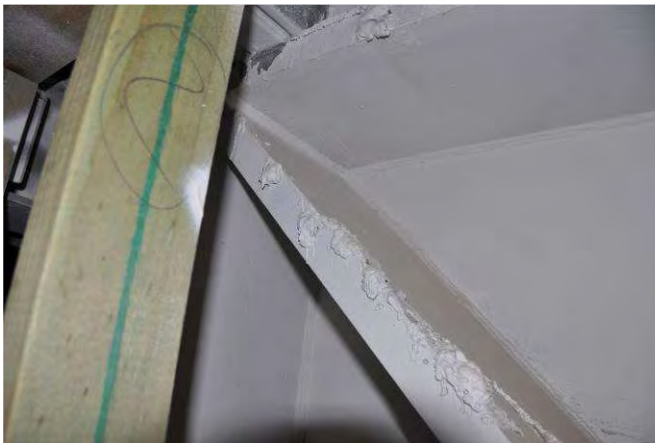
L2, Grid E½1, active link, permanent offset



L2, Grid E 1/2, active link



L2, Grid F5, active link



L1, Grid E1, MRF



L1, Grid E1, MRF



L1, Grid F, MRF



L2 Carstacker crossbraces "unhooked"



Movement of L2 east wall



Missing floor anchors at L2 east wall at top of ramp



Flashings between masonry block and tower



Fractured carstacker top lateral restraints



Pacific Tower 2 March 2011 (some damage to north balcony soffits visible).

Christchurch Eq RAPID Assessment Form - LEVEL 2

Inspector Initials
Territorial Authority

SG-CPG
Christchurch City

Date
Time

24/6/11
3pm

Final Posting
(e.g. UNSAFE)

INSPECTED-G2

Building Name

Pacific Tower

Short Name

Address

166 Gloucester St

GPS Co-ordinates

S° E°

Contact Name

Ernest Duval

Contact Phone

027 226 4123

Storeys at and above
ground level

22

Below
ground
level

-

Total gross floor area
(m²)

Year
built

2009

No of residential Units

Photo Taken

Yes

No

Type of Construction

☐

Timber frame

☒

Steel frame

☐

Tilt-up concrete

☐

Concrete frame

☐

RC frame with masonry infill

Primary Occupancy

☐

Dwelling

☒

Other residential

☐

Public assembly

☐

School

☐

Religious

☐

Concrete shear wall

☐

Unreinforced masonry

☐

Reinforced masonry

☐

Confined masonry

☐

Other:

☐

Commercial/ Offices

☐

Industrial

☐

Government

☐

Heritage Listed

☐

Other Hotel

Investigate the building for the conditions listed on page 1 and 2, and check the appropriate column. A sketch may be added on page 3

Overall Hazards / Damage

Minor/None

Moderate

Severe

Comments

Collapse, partial collapse, off foundation

☒
☐
☐

Building or storey leaning

☒
☐
☐

Wall or other structural damage

☒
☐
☐

Overhead falling hazard

☐
☒
☐

Ground movement, settlement, slips

☒
☐
☐

Neighbouring building hazard

☒
☐
☐

Electrical, gas, sewerage, water, hazmats

☒
☐
☐

Loose tile NE corner, loose flashings.

Record any existing placard on this building:

Existing
Placard Type
(e.g. UNSAFE)

INSPECTED

Choose a new posting based on the new evaluation and team judgement. Severe conditions affecting the whole building are grounds for an UNSAFE posting. Localised Severe and overall Moderate conditions may require a RESTRICTED USE. Place INSPECTED placard at main entrance. Post all other placards at every significant entrance. Transfer the chosen posting to the top of this page.

INSPECTED

GREEN

G1

G2

RESTRICTED USE

YELLOW

Y1

Y2

UNSAFE

RED

R1

R2

R3

Record any restriction on use or entry:

Further Action Recommended:

Tick the boxes below only if further actions are recommended

☐ Barricades are needed (state location):

☒ Detailed engineering evaluation recommended

☒ Structural

☐ Geotechnical

☐ Other:

☐ Other recommendations:

Estimated Overall Building Damage (Exclude Contents)

None

☐

0-1 %

☐

31-60 %

☐

2-10 %

☐

61-99 %

☐

11-30 %

☒

100 %

☐

Inspection ID: (Office Use Only)

Sign here on completion

Date & Time
ID

24/6/11 3pm
SG-CPG
021 243 2553

Structural Hazards/ Damage	Minor/None	Moderate	Severe	Comments
Foundations	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Roofs, floors (vertical load)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Columns, pilasters, corbels	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Diaphragms, horizontal bracing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Damage to block face SW corner.
Pre-cast connections	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Minor yielding of active links (as previous)
Beam	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	New damage observed to 2 crns east face at L3/L4.
Non-structural Hazards / Damage				
Parapets, ornamentation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Cladding, glazing	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Movement of panels / stones observed.
Ceilings, light fixtures	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Some spalling of joints, hairline cracks.
Interior walls, partitions	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Damage to balcony soffits & precast.
Elevators	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Cracking to GIB board throughout.
Stairs/ Exits	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Likely further misalignment of lift shafts.
Utilities (eg. gas, electricity, water)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Severe cracking to GIB board linings.
Other Carstackers	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Some jamming doors.
Geotechnical Hazards / Damage				
Slope failure, debris	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Unlatching of crossbraces.
Ground movement, fissures	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Soil bulging, liquefaction	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
General Comment	<p>Viewed active links previously exposed. No significant evidence of further yielding observed.</p> <p>There appeared to be some permanent offset to active braced frame adjacent to lift lobby areas (L6, L7, L11).</p>			

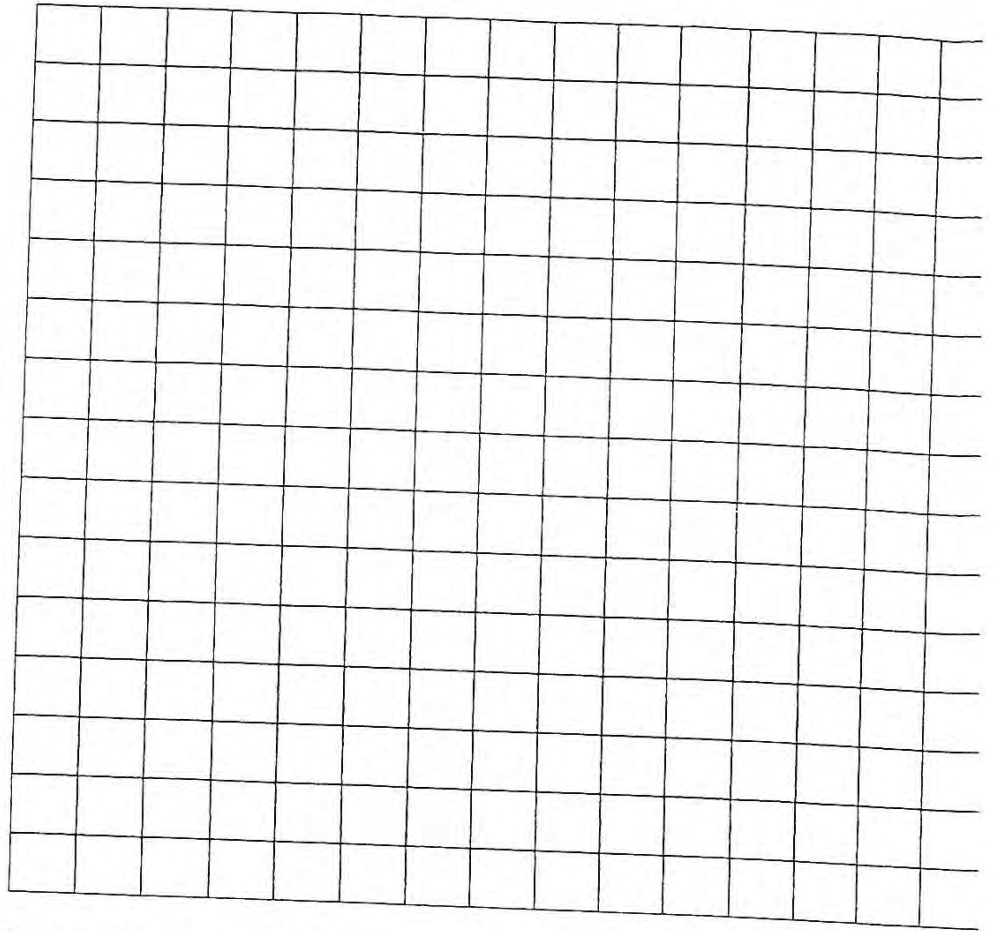
Usability Category

Damage Intensity	Posting	Usability Category	Remarks
Light damage	Inspected (Green)	G1. Occupiable, no immediate further investigation required	
Low risk		G2. Occupiable, repairs required	
Medium damage	Restricted Use (Yellow)	Y1. Short term entry	
Medium risk		Y2. No entry to parts until repaired or demolished	
Heavy damage	Unsafe (Red)	R1. Significant damage: repairs, strengthening possible	
High risk		R2. Severe damage: demolition likely	
		R3. At risk from adjacent premises or from ground failure	

2 Inspection ID: _____ (Office Use Only)

Sketch (optional)

Provide a sketch of the entire building or damage points. Indicate damage points.



Recommendations for Repair and Reconstruction or Demolition (Optional)

- Reinvestigate alignment of lift shafts.
- Resurvey exterior panels/stones and inspect interior connections where there is apparent movement. Repair
- Repair non-structural damage (Gib, tiles, etc) damaged areas.



let110720-Offer fo Professional Engineering Services to Fortis Construction-ca

20 July 2011

Pacific Tower Body Corporate
c/- Fortis Construction
PO Box 13413
CHRISTCHURCH 8141

Attention: Ernest Duval

Email: etp@etp.co.nz

Dear Ernest

**Pacific Tower Detailed Engineering Evaluation
Offer of Professional Engineering Services**

Thank you for the opportunity to provide a proposal to you for professional engineering services for the above project.

We have enclosed our understanding of the scope of work, our fee proposal, proposed programme and conditions of engagement for your consideration.

1. Scope of Services

We propose that the scope of our services covers the following:

- L2 Building Safety Evaluation (BSE) following 13 June, 2011 aftershocks (completed);
- Detailed Engineering Evaluation (DEE) – Qualitative, in accordance with the draft SESOC/EAG “Detailed Engineering Evaluation Procedure”, including detailed investigations of structural members and fixings. This would be an update and an extension of the Structex report dated 19 May, 2011. This would also include an estimate of the peak inelastic demand in the braced frames and their residential capacity in conjunction with discussions with the University of Auckland.

Our deliveries will be:

- Handwritten Level 2 RAPID Building Safety Evaluation (complete);
- Detailed Engineering Evaluation (Qualitative) report.

We note the following specific exclusions to our scope of services:

- Lift shaft survey (by others)
- Exterior damage survey (by others)
- Topographical survey;
- Geotechnical engineering;
- Cost Estimating;
- Specialist advice/testing of steel, if required;
- Specific Fire engineering (by others)

2. Professional Fees

We propose to carry out the above services on the basis of hourly rate plus disbursements at the following charge out rates:

Charge Out Rates

Associate (CPEng)	\$260p/h
Senior Engineer (CPEng)	\$170p/h

CPG New Zealand Ltd

55 Shands Road Hornby PO Box 13-875 Christchurch 8141 New Zealand T 64 3 374 6515 F 64 3 374 6516
christchurch@nz.cpg-global.com



Let110707 Offer of Professional Services PTBC 166 Gloucester Street

Page 2 of 2

Engineer \$120p/h

For your budgeting purposes, we estimate the following:

- L2 Building Safety Evaluation \$780
- Detailed Engineering Evaluation (Qualitative) \$5000

The estimate excludes any fees or deposits that Council may levy.

A 5% charge will be added to include for disbursements such as mileage, photocopying, photography, information technology, telephone and other miscellaneous charges.

We note that any changes or variations that arise from Client requests or commencement prior to planning approvals, etc which cause additional work or rework will be an additional fee for such work and would be advised in writing, prior to the work being carried out.

We note that additional work outside our scope of service may be required but an additional fee for such work would be agreed in writing, prior to the work being carried out.

All charges quoted are exclusive of GST.

We assume that all invoices for our services will be forwarded to the same Client and address as shown on this letter. Please let us know if you would prefer the invoices to go to another address.

3. Programme

We will be able to commence this work 7 days of your confirming that we are to proceed.

4. Conditions of Engagement

Our terms of engagement will be in accordance with the ACENZ/IPENZ Short Form Agreement for Consultant Engagement.

A copy of which is attached.

5. Conclusion

We trust we have interpreted your requirements correctly. If you wish to proceed on this basis could you please sign the attached Short Form Agreement to confirm that we are to proceed with the work either email sean.gardiner@nz.cpg-global.com or fax it 374 6516.

We thank you for this opportunity and look forward to completion of professional services that meet your expectations.

Yours sincerely

CPG

Sean Gardiner
Senior Structural Engineer

cc: Rob Young - Rob@fortisconstruction.co.nz

Attached

» Short Form Agreement for Consultant Engagement

SHORT FORM AGREEMENT FOR CONSULTANT ENGAGEMENT

BETWEEN:	PACIFIC TOWER BODY CORPORATE (CLIENT)
AND:	CPG NEW ZEALAND LTD (CONSULTANT)
Collectively referred to herein as the "Parties" and individually as a "Party"	
PROJECT: PACIFIC TOWER DETAILED ENGINEERING EVALUATION	LOCATION: 166 GLOUCESTER STREET
SCOPE & NATURE OF THE SERVICES: — REFER CPG LETTER DATED 7 JULY 2011	
PROGRAMME FOR THE SERVICES: — REFER CPG LETTER DATED 7 JULY 2011	
FEES & TIMING OF PAYMENTS: — REFER CPG LETTER DATED 7 JULY 2011 AND OVERLEAF	
INFORMATION OR SERVICES TO BE PROVIDED BY THE CLIENT: NIL	
<p><i>The Client engages the Consultant to provide the Services described above and the Consultant agrees to perform the Services for the remuneration provided above. Both Parties agree to be bound by the provision of the Short Form Model Conditions of Engagement (overleaf), including clauses 2, 3, 9 and 10 and any variations noted below. Once signed, this agreement, together with the conditions overleaf and any attachments, will replace all or any oral agreement previously reached between the Parties.</i></p>	
VARIATIONS TO THE SHORT FORM MODEL CONDITIONS OF ENGAGEMENT (OVERLEAF): NIL	
CLIENT AUTHORISED SIGNATORY (IES): PRINT NAME: DATE:	CONSULTANTS AUTHORISED SIGNATORY (IES):  PRINT NAME: SEAN GARDINER DATE: 7 JULY 2011

SHORT FORM MODEL CONDITIONS OF ENGAGEMENT

1. The Consultant shall perform the Services as described in the attached documents.
2. Nothing in this Agreement shall restrict, negate, modify or limit any of the Client's rights under the Consumer Guarantees Act 1993 where the Services acquired are of a kind ordinarily acquired for personal, domestic or household use or consumption and the Client is not acquiring the Services for the purpose of a business.
3. The Client and the Consultant agree that where all, or any of, the Services are acquired for the purposes of a business the provisions of the Consumer Guarantees Act 1993 are excluded in relation to those Services.
4. In providing the Services the Consultant shall exercise the degree of skill, care and diligence normally expected of a competent professional.
5. The Client shall provide to the Consultant, free of cost, as soon as practicable following any request for information, all information in his or her power to obtain which may relate to the Services. The Consultant shall not, without the Client's prior consent, use information provided by the Client for purposes unrelated to the Services. In providing the information to the Consultant, the Client shall ensure compliance with the Copyright Act 1994 and shall identify any proprietary rights that any other person may have in any information provided.
6. The Client may order variations to the Services in writing or may request the Consultant to submit proposals for variation to the Services. Where the Consultant considers a direction from the Client or any other circumstance is a Variation the Consultant shall notify the Client as soon as practicable.
7. The Client shall pay the Consultant for the Services the fees and expenses at the times and in the manner set out in the attached documents. Where this Agreement has been entered by an agent (or a person purporting to act as agent) on behalf of the Client, the agent and Client shall be jointly and severally liable for payment of all fees and expenses due to the Consultant under this Agreement.
8. All amounts payable by the Client shall be paid within twenty (20) working days of the relevant invoice being mailed to the Client. Late payment shall constitute a default, and the Client shall pay default interest on overdue amounts from the date payment falls due to the date of payment at the rate of the Consultant's overdraft rate plus 2% and in addition the costs of any actions taken by the Consultant to recover the debt.
9. Where Services are carried out on a time charge basis, the Consultant may purchase such incidental goods and/or Services as are reasonably required for the Consultant to perform the Services. The cost of obtaining such incidental goods and/or Services shall be payable by the Client. The Consultant shall maintain records which clearly identify time and expenses incurred.
10. Where the Consultant breaches this Agreement, the Consultant is liable to the Client for reasonably foreseeable claims, damages, liabilities, losses or expenses caused directly by the breach. The Consultant shall not be liable to the Client under this Agreement for the Client's indirect, consequential or special loss, or loss of profit, however arising, whether under contract, in tort or otherwise.
11. The maximum aggregate amount payable, whether in contract, tort or otherwise, in relation to claims, damages, liabilities, losses or expenses, shall be five times the fee (exclusive of GST and disbursements) with a maximum limit of \$NZ250,000.
12. Neither Party shall be liable for any loss or damage occurring after a period of six years from the date on which the Services were completed.
13. The Consultant acknowledges that the Consultant currently holds a policy of Professional Indemnity insurance for the amount of liability under clause 11. The Consultant undertakes to use all reasonable endeavours to maintain a similar policy of insurance for six years after the completion of the Services.
14. If either Party is found liable to the other (whether in contract, tort or otherwise), and the claiming Party and/or a Third Party has contributed to the loss or damage, the liable Party shall only be liable to the proportional extent of its own contribution.
15. The Consultant shall retain intellectual property/copyright in all drawings, specifications and other documents prepared by the Consultant. The Client shall be entitled to use them or copy them only for the works to which the Services relate and the purpose for which they are intended. The ownership of data and factual information collected by the Consultant and paid for by the Client shall, after payment by the Client, lie with the Client. The Client may reproduce drawings, specifications and other documents in which the Consultant has copyright, as reasonably required in connection with the project but not otherwise. The Client shall have no right to use any of these documents where any or all of the fees and expenses remain payable to the Consultant.
16. The Consultant has not and will not assume any obligation as the Client's Agent or otherwise which may be imposed upon the Client from time to time pursuant to the Health and Safety in Employment Act 1992 ("the Act") arising out of this engagement. The Consultant and Client agree that in terms of the Act, the Consultant will not be the person who controls the place of work.
17. The Client may suspend all or part of the Services by notice to the Consultant who shall immediately make arrangements to stop the Services and minimise further expenditure. The Client and the Consultant may (in the event the other Party is in material default) terminate the Agreement by notice to the other Party. Suspension or termination shall not prejudice or affect the accrued rights or claims and liabilities of the Parties.
18. The Parties shall attempt in good faith to settle any dispute by mediation.
19. This Agreement is governed by the New Zealand law, the New Zealand courts have jurisdiction in respect of this Agreement, and all amounts are payable in New Zealand dollars.



Site Inspection Record Sheet

Job Name Pacific Tower File No _____

Job Location 166 Gloucester St. Job No _____

Ref No _____

Inspection Type EQ repairs.

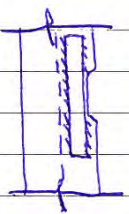
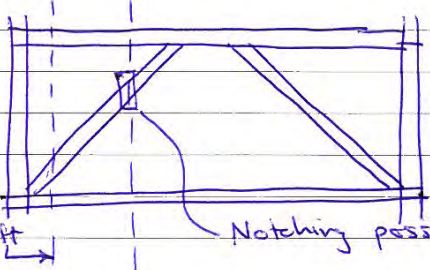
Inspection Date 19 / 7 / 11 Time 11:00 Page 1 of 1

Weather Fine

Inspection Undertaken By SG Contact No 0212432553

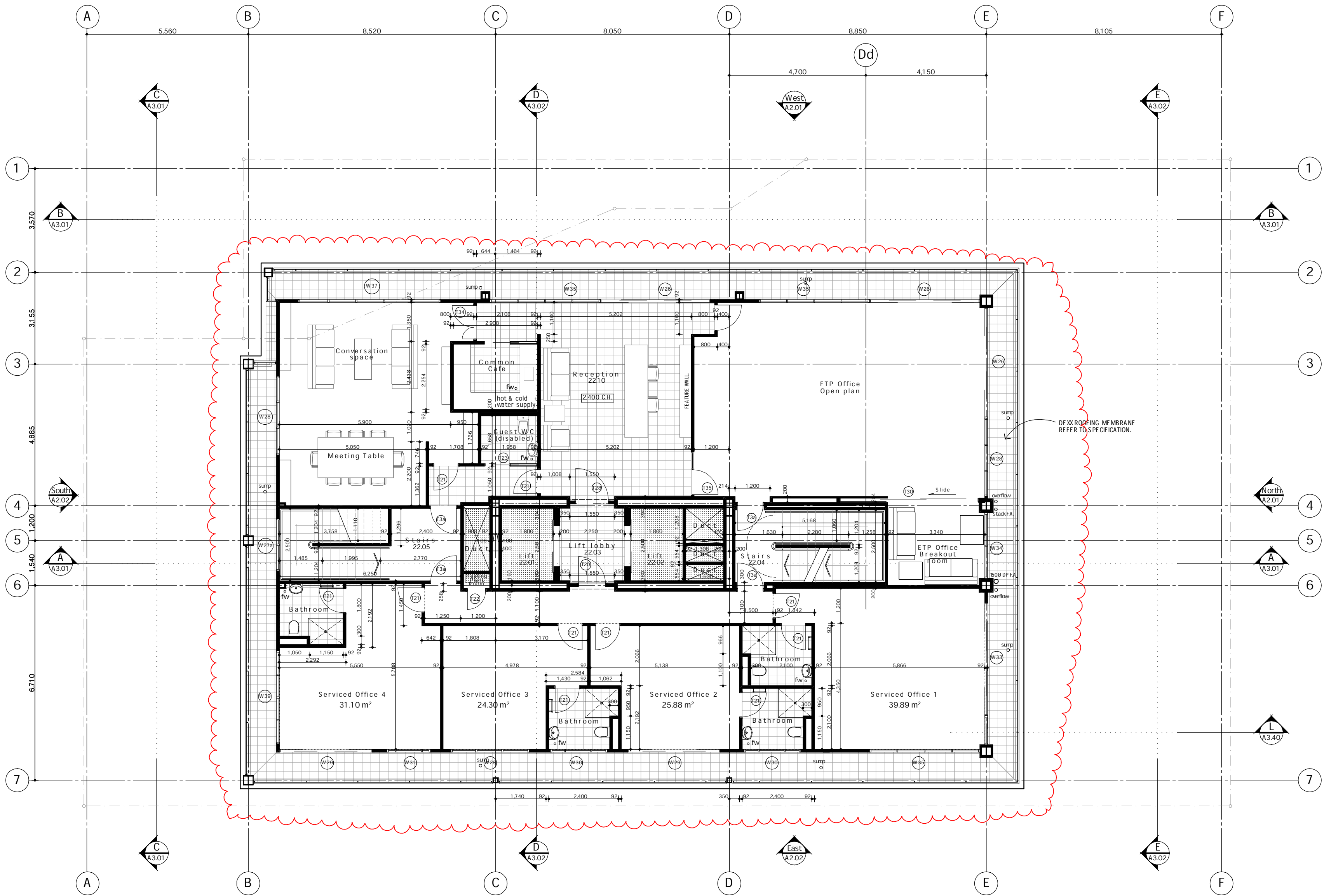
Inspection Undertaken With Lift technicians

Other _____

Item No.	Observations / Notes
	Inspected Northern lift shaft from top of lift car. L2 - L8.
	Further minor bowing of lift shaft to East. Please confirm new permanent offsets in both directions.
	Comment was requested on being able to notch the flanges of a steel brace to allow future further lift door movement.
	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <p>plan</p>  <p>e.g. lift shaft</p> </div> <div style="text-align: center;">  <p>elevation</p> <p>Notching possible?</p> </div> </div>
	Preliminary advice, including discussions with the University of Canterbury, suggests the diagonal braces should not be altered; and future tolerance should be obtained by relocating the lift gear.

Inspector's Signature _____

John Jarlin



LEVEL 22 - EXECUTIVE OFFICES
Scale 1:100

- Revisions:
- | # | DATE | DESCRIPTION |
|-----|----------|---|
| Mj | 02/07/09 | Relabelled to Executive Offices |
| Mh | 01/07/09 | Dimensions added |
| Mg | 17/06/09 | Add hot & cold water supply + floor wastes |
| Mgl | 15/05/09 | ETP Executive Offices with 4 x services offices |
| Mf | 09/10/08 | Level 22 to match Level 21 Apartment |
| Me | 14/08/08 | Windows Moved Board Room Altered |
| Md | 16/06/08 | Dimensions added |
| Mc | 29/04/08 | Balcony handrail and columns revised |
| Mb | 14/03/08 | Door numbers revised |
| Ma | 23/10/07 | duct change |
| M | 13/09/07 | Client Approval |
| L | 15/08/07 | Client Approval |
| K | 02/08/07 | Client Approval |
| J | 27/07/07 | Client Approval |
| H | 23/07/07 | Client Approval |
| G | 13/07/07 | Client Approval |
| F | 06/07/07 | Client Approval |
| E | 03/07/07 | Client Approval |
| D | 22/06/07 | Client Approval |
| C | 14/06/07 | Client Approval |
| A | 29/05/07 | Client Approval |
| - | 27/04/07 | Building Consent Issue |

architecture
FOLEYDESIGN

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30 Southwark Street
P O Box 22166
Christchurch, New Zealand

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PROJECT TITLE
C1 TOWER

FILE NUMBER
1403

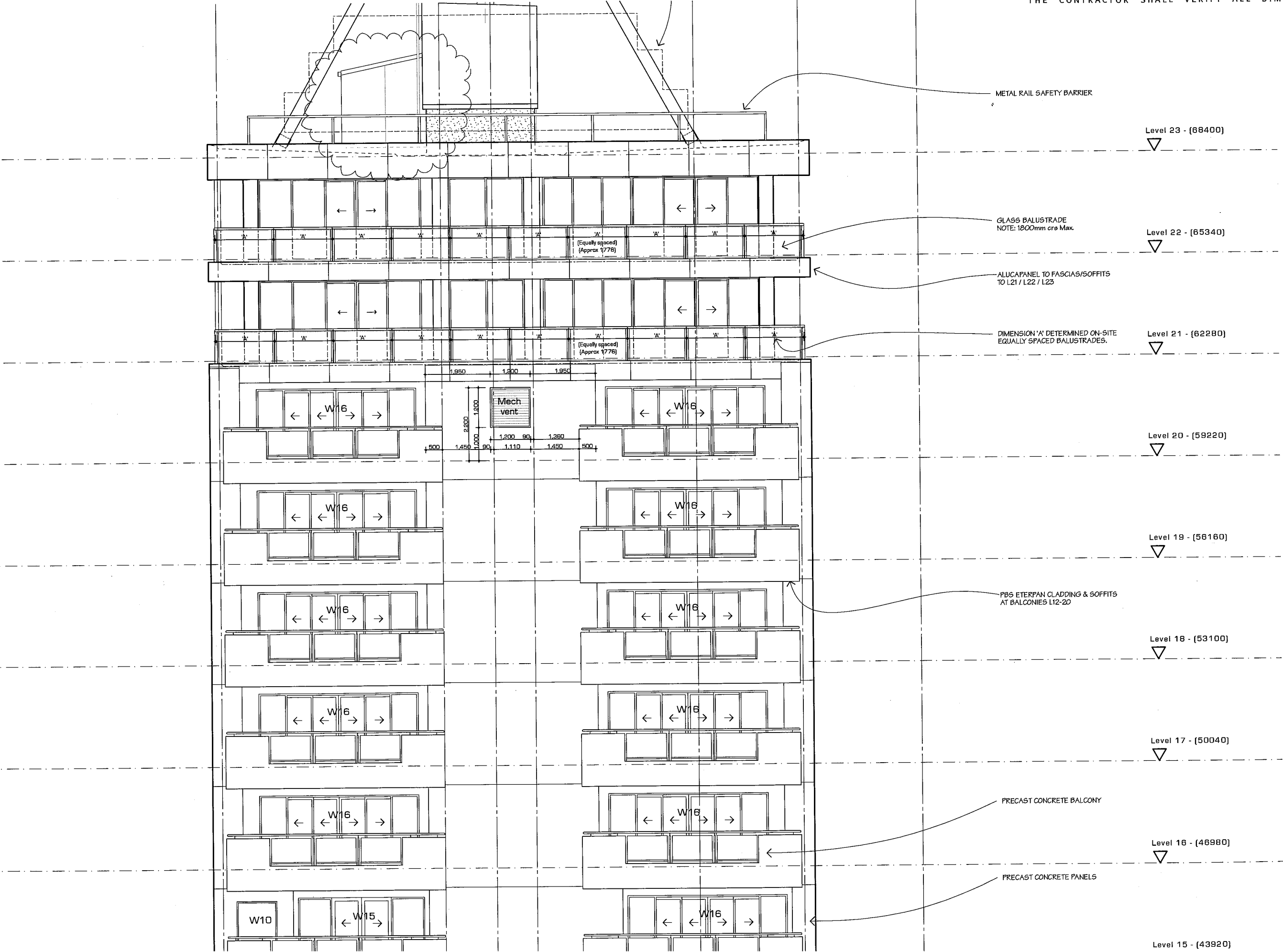
DRAWING TITLE
LEVEL 22

DESIGNED BY: **Rob Campbell** DRAWN BY: **Steve Foote**

SCALE: **1:100 @ A2** DATE: **02 July 2009**

DRAWING NUMBER **A1.22** REVISION **Mj**

THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS ON SITE



REVISIONS	
#	DATE
C	14/06/0
B	08/06/0
A	31/05/0
-	27/04/0
E	03/07/0
F	06/07/0
G	13/07/0
H	23/07/0
J	27/07/0
K	02/08/0
L	15/08/0
M	13/09/0
Ma	12/11/07
Mb	03/03/01
Mc	09/04/01
Md	29/04/0
Me	14/08/08
Mf	09/10/01
Mg	28/07/0

FOLE

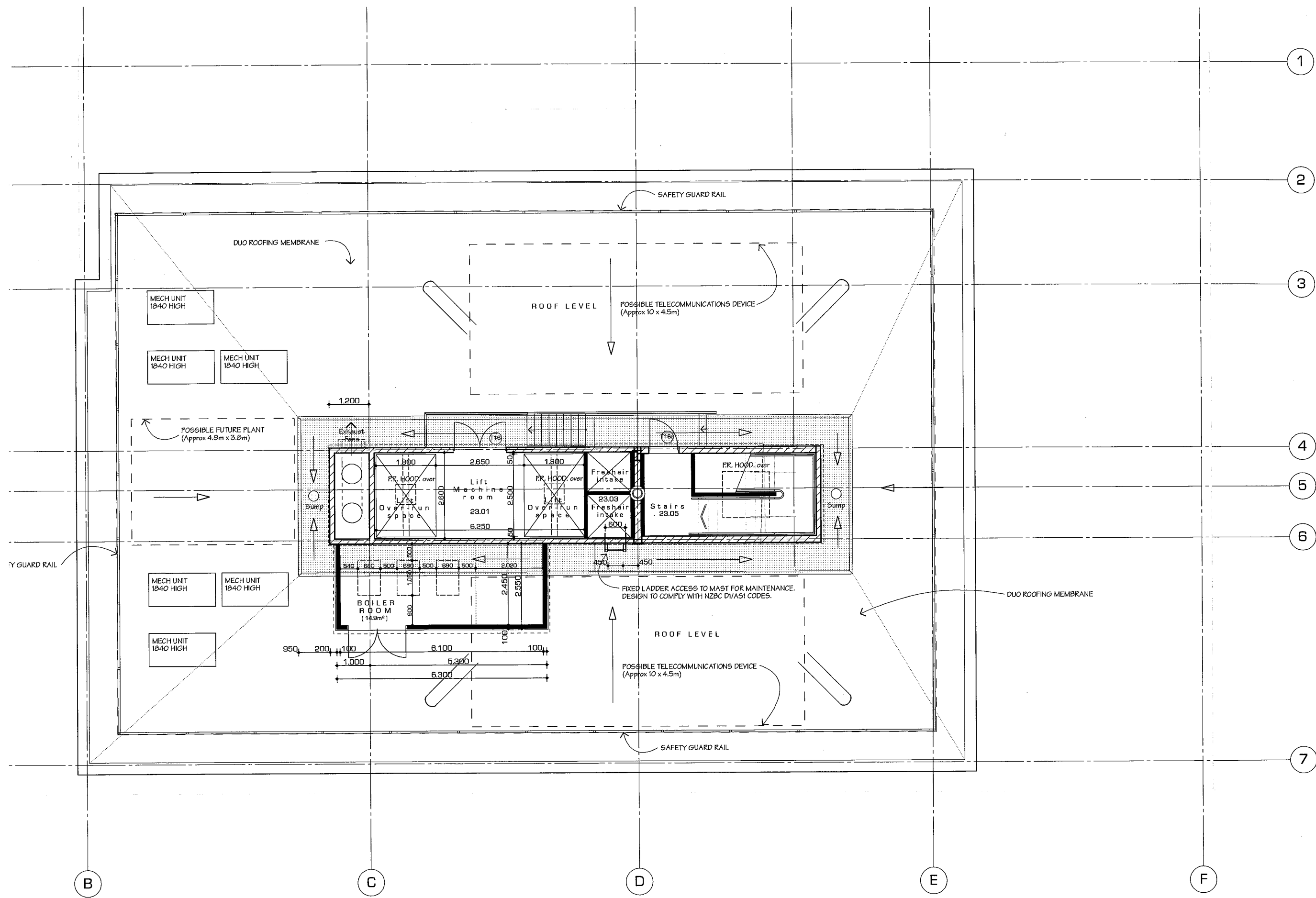


F



PANELS





ROOFING LEVEL 23
LIFT PLANT / OVER-RUN
Scale 1:100

Mc	2.
Mb	0.
Ma	1.
M	1.
L	1.
K	0.
J	2.
H	2.
G	1.
F	0.
E	0.
D	2.
C	1.
B	0.
A	2.
-	2.
#	D

FOI



THE CISO/AMCC

PROJECT TITLE
C1 T

FILE NUMBER

DRAWING TITLE

LEVEL - ROOM

report	Date: 17 May 2007	structex
Project: C1 Tower	By: Sean Gardiner	Ref: 10053
Title	Building Analysis Assumptions & Design Procedures	

ETABS Model

- Our calculated total building seismic weight ($G+0.3Q$) is 63340 kN. This has an allowance for additional floor at levels 3 and 5, areas of plant, a 50 kN mass at top of building, and 120mm thick precast panels up to the underside of level 20. I have attached our load take for your information.
- Designed to AS/NZS 1170 response spectrum for Christchurch, category D soils, (base shear scaled to 100% equivalent static base shear).
- We have assumed rigid diaphragms.
- The foundations have been modelled as pin-based (to model potential hinges), with vertical springs to model foundation flexibility. Following discussions with Geotech Consulting, we have assumed a deflection of +/- 10mm under a ULS earthquake would be reasonable.
- Fundamental building periods were determined as $T=3.68$ sec (long direction) and $T=3.04$ sec (short direction).
- P-delta effects were included in the analysis based on AS/NZS 1170. IE. we assessed the elastic deflection and found the required forces at each level to resist the displaced weight of each level. These forces were added as a static load case to the model response cases (Absolute Values). We did not use the ETABS P-delta automatic module.

Design

- Design of EBFs based on NZS 3404 and HERA Report R4-76, as well as parts of proposed amendment 2 to NZS 3404 and discussions with HERA and SCNZ.
- The maximum design actions on members were based on the over-strength of the actual links or E_{max} (typically corresponding to $\mu = 1.25$ earthquake as $\mu_{act} > 1.5$, except for grid 2 (where $\mu_{act} < 1.5$, E_{max} based on $\mu = 1.0$ levels of load).
- The frames were designed to be limited ductile ie. $\mu = 3.0$ in the short director and $\mu = 2.4$ in the long direction (based on minimum base shear coefficient = 0.031).
- The active links were sized to resist μ (design) actions as well as the gravity shear component through the links (which became significant for D-braced frames). The link length was sized less than 1.6 Ms/Vv to ensure primarily shear yielding. We found the moment in the link due to gravity plus the moment due to the brace caused the link to approach yield in flexure as well as shear, and this was acceptable to HERA. The link rotation was limited to 0.09 radians as per NZS 3404, and stiffened appropriately. Restraint is provided by the floor slab typically (except grid 1 frame at levels 3, 4 and 5 where it is provided by a 327 HCC beam on its side).

- The braces and collector beams were designed for the over-strength of the link, or E_{max} , plus the gravity component in the member, plus the gravity component of shear going through the link where appropriate. This axial force was combined with the bending in the member due to the earthquake and gravity loads for the design, (ie. combined actions).
- The columns design was generally based on E_{max} (as the dynamic magnification factor in conjunction with the over-strength loads, was generally much greater) in conjunction with local gravity loads plus gravity loads from the active link where appropriate. The columns C2 and D2 are unrestrained between levels 2 and 6 in the strong axis direction. The columns on C2, C6, D2 and D6 were subjected to bi-axial bending, even in perpendicular earthquakes, as well as axial load. They were also subjected to concurrent actions of 100% in one direction and 30% in the perpendicular direction (due to the low actual ductility) in accordance with AS/NZS 1170, following discussions with HERA. The columns (and beams and braces, where appropriate) were designed to the alternative design provisions of NZS 3404 with $\beta_m=0$. Columns C2 and D2 are concrete encased at level 1.

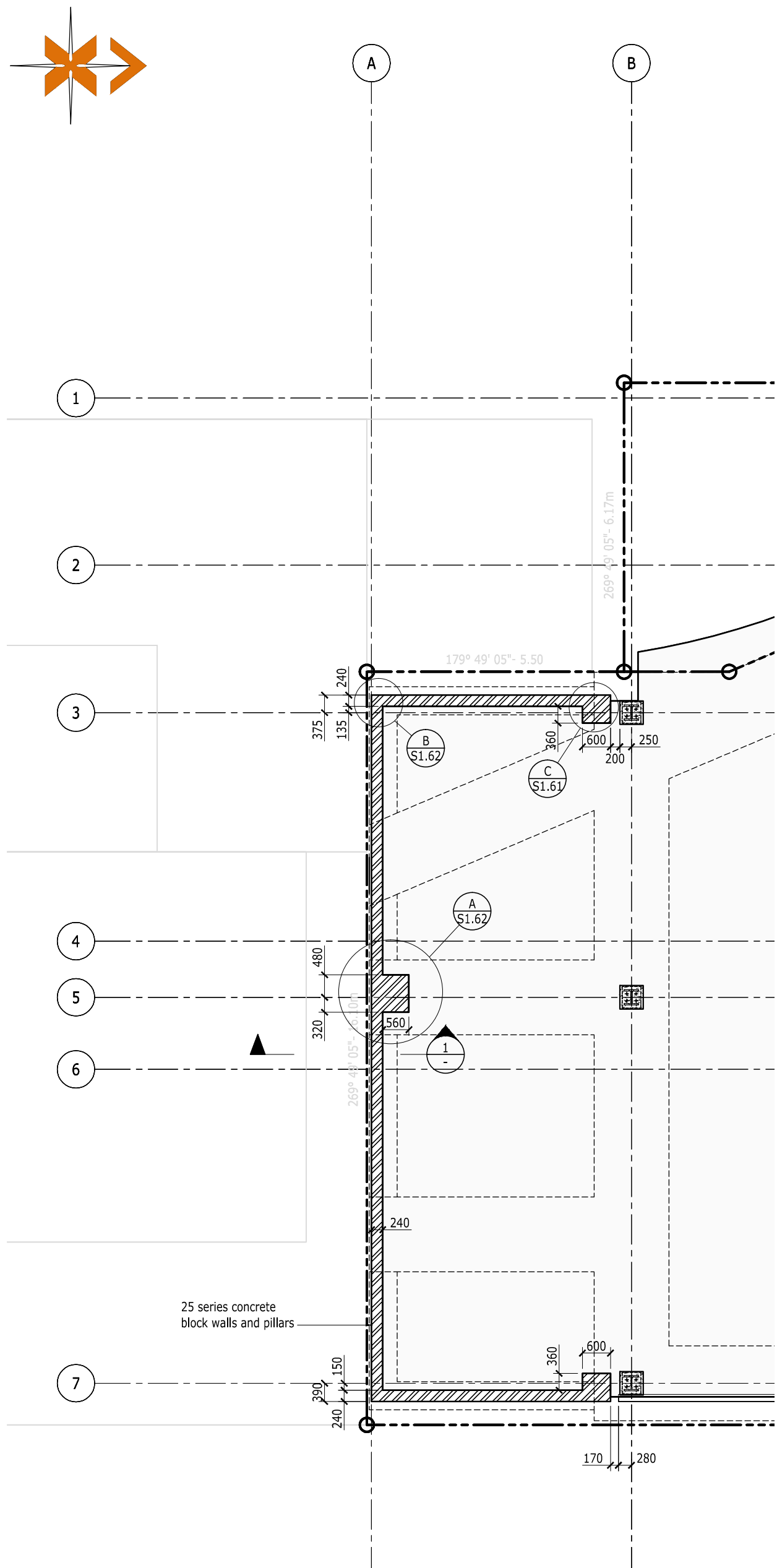
We used the axial load limits from the proposed amendment 2 to NZS 3404 (end yielding criteria) for the design (refer cl.12.8.3.1), as an alternative to the current NZS 3404 requirements.

The columns were also designed for the moment induced from nodding eccentricity where the beam-brace centrelines lined up with the column flanges, (where the beam and brace came into the web the centrelines line up and there is no nodding eccentricity).

- The studs have generally been designed to take E_{max} loads ($\mu=1.25$) with a capacity of 62.6 kN/stud (19 dia x 125 long), from ComFlor literature).
- The connections have generally been designed for the greater of minimum design actions from NZS 3404 or E_{max} plus gravity loads. The gravity column splices have full contact bearing and therefore nominal connections to resist minimum design actions. The seismic columns splices have full contact bearing and have been design for earthquake tension as well as bi-axial bending and shear. The braces and beams have been designed without full contact bearing, as full tension splices. The gussets/bolts and connections take the components of shear in each direction. Following discussions with HERA, as the nodding eccentricity was taken account of in the column design the gussets did not require design to the uniform force method.
- The fillet welds in the Steltech sections, between the flanges and web, were designed to take the maximum shear flow actions (based on maximum shear, or change in moment) in the columns. Where a Steltech section is required as a beam/active link, the flanges have been fully welded to the web with complete penetration butt welds. I have attached useful Steltech section tables for your information.

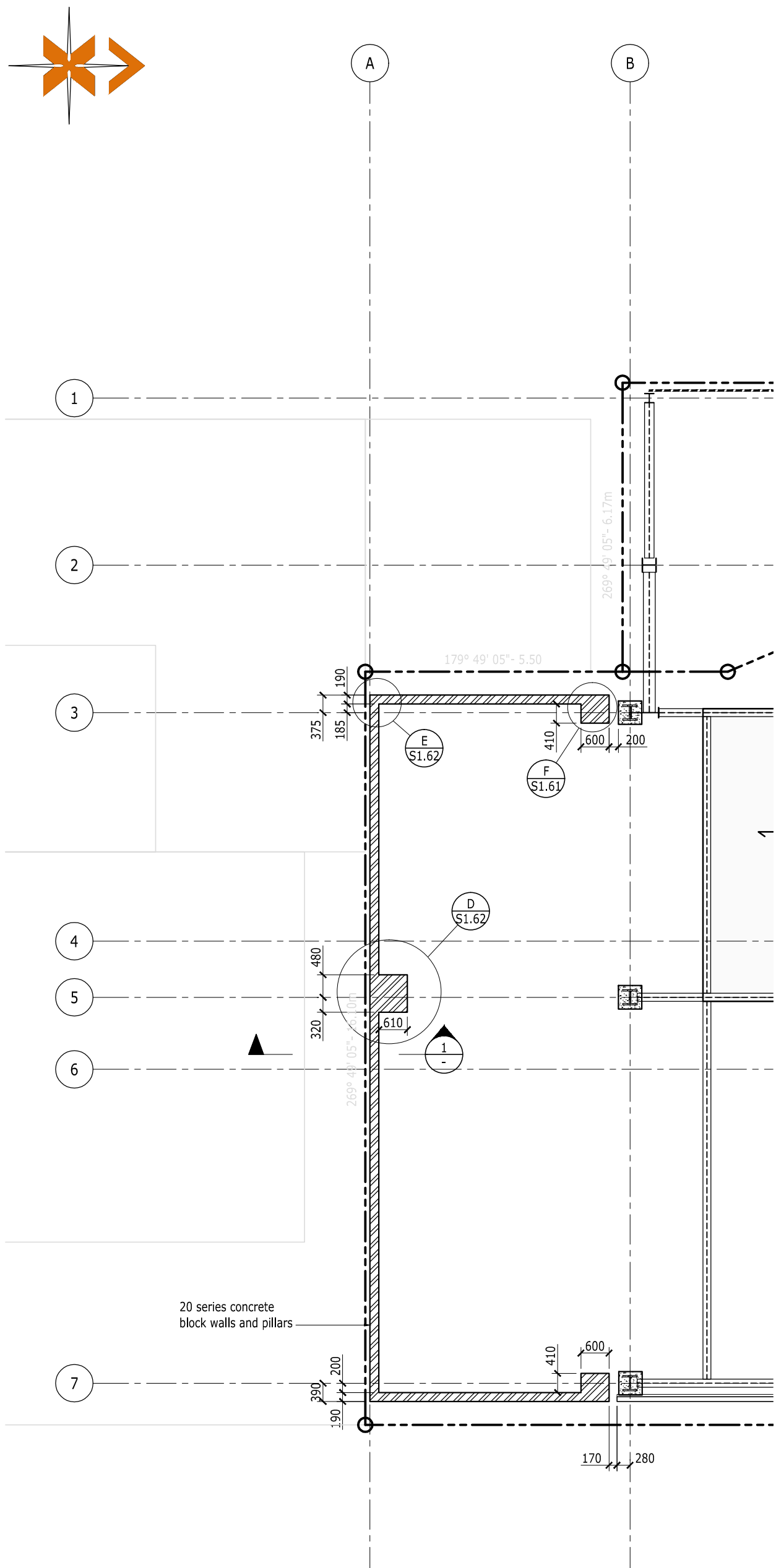
Sean Gardiner
Engineer





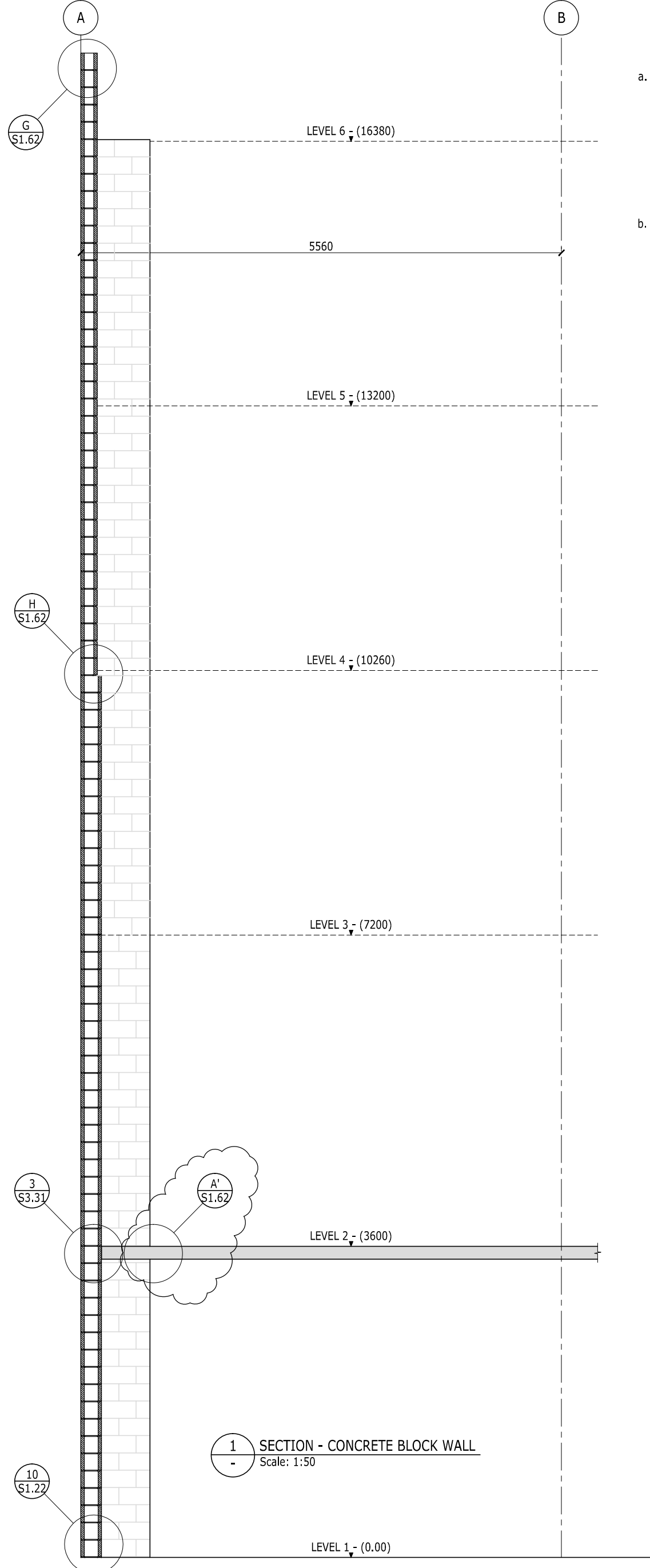
CONCRETE BLOCK WALL PLAN - LEVELS 1 - 4
Scale: 1:100

Note: Level 1 shown - levels 2-4 similar



CONCRETE BLOCK WALL PLAN - LEVELS 5 & 6
Scale: 1:100

Note: Level 4 shown - level 6 similar



NOTES:

- a. Typical block wall reinforcing unless noted otherwise:
- | | |
|-------------|--|
| Level 1 - 3 | H16-400 vertical
H16-400 horizontal |
| Level 3 - 4 | H16-600 vertical
H16-400 horizontal |
| Level 4 - 6 | H12-600 vertical
H16-400 horizontal |
- b. Lap vertical reinforcement above each floor level

2	CONSTRUCTION ISSUE	JL	SG	12-12-07
issue	description	by	appd.	date

GA	GB		1:50 1:100
drawn	designed	approved	scales

AMC CONSTRUCTION
client

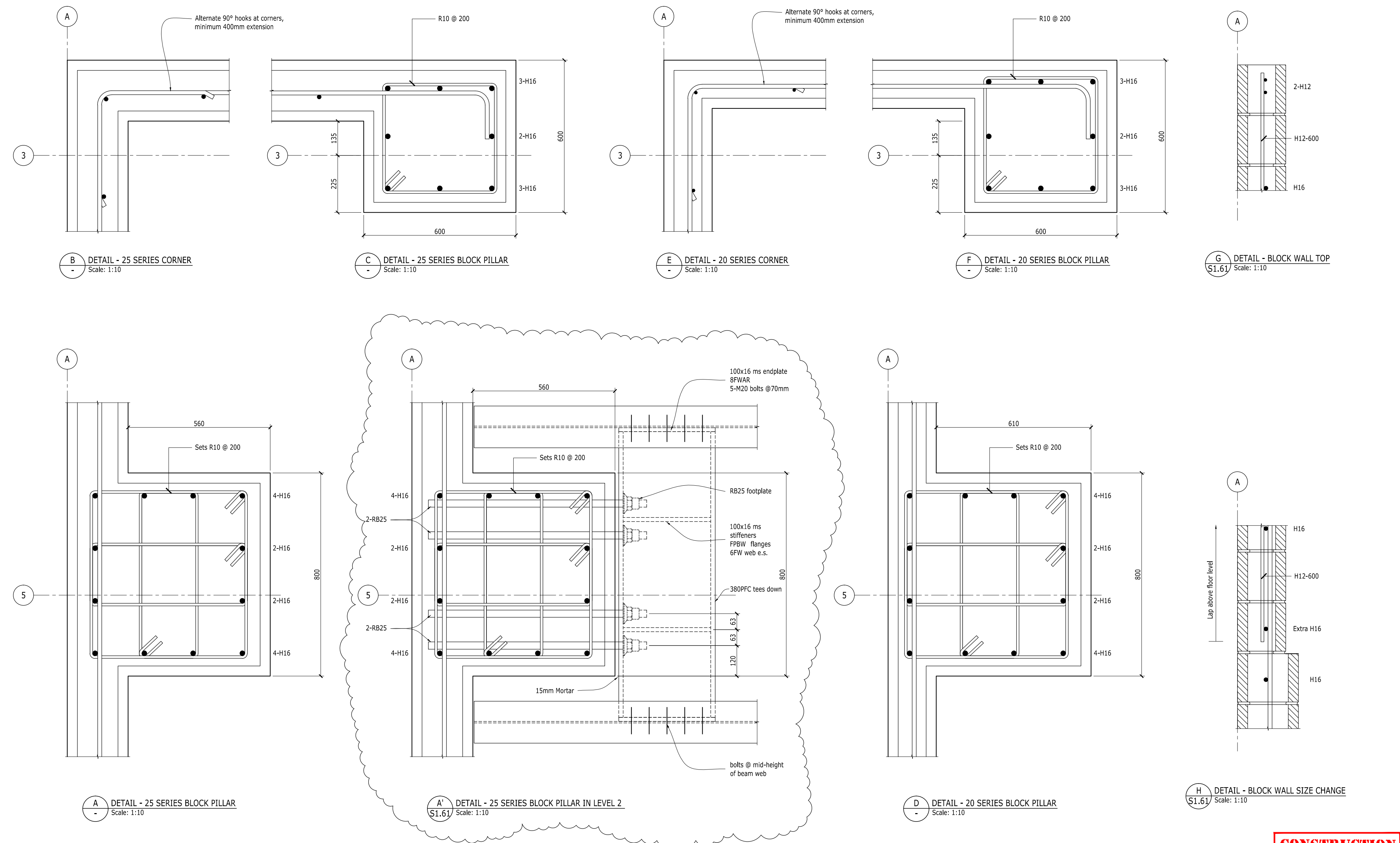
C1 TOWER
project title



CONCRETE BLOCK WALL PLANS & SECTION
drawing title

S1.61	project 1770
drawing no	2 issue

CONSTRUCTION



CONSTRUCTION

2	CONSTRUCTION ISSUE	JL	SG	12-12-07	
issue	description	by	appd.	date	

GA	GB		1: 10
drawn	designed	approved	scales

AMC CONSTRUCTION
client

C1 TOWER
project title

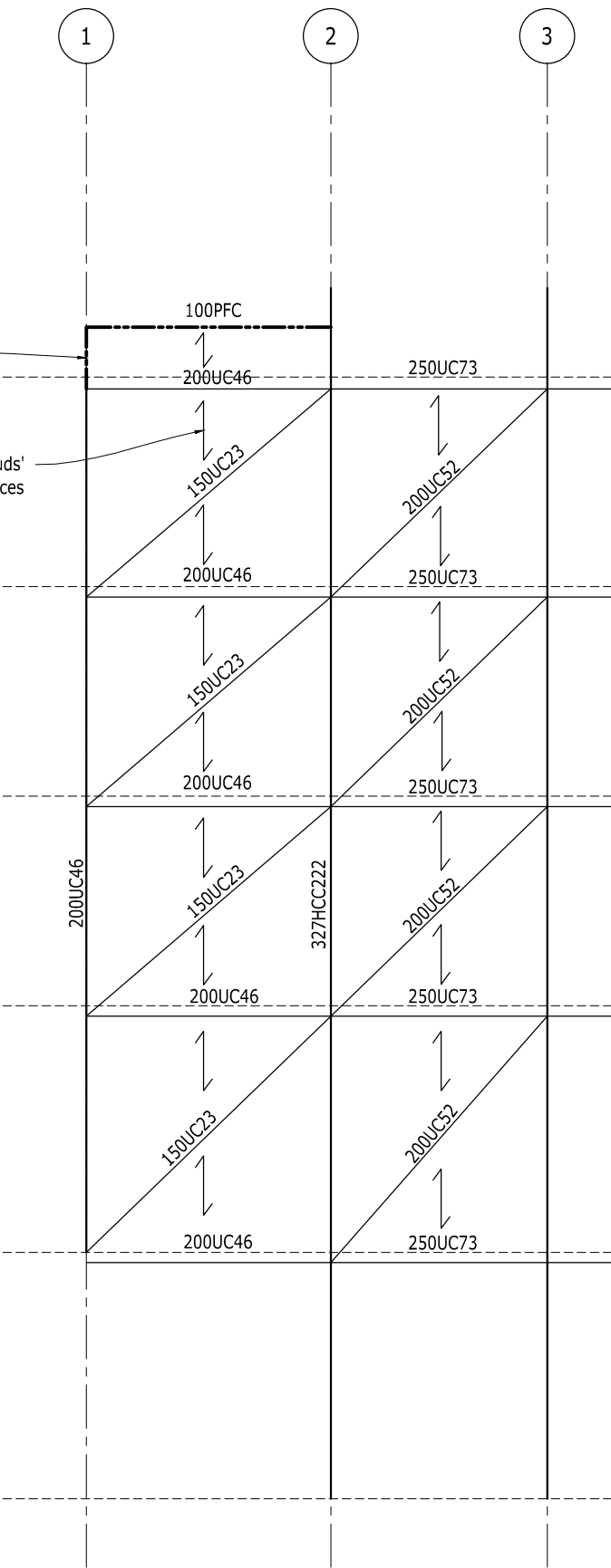
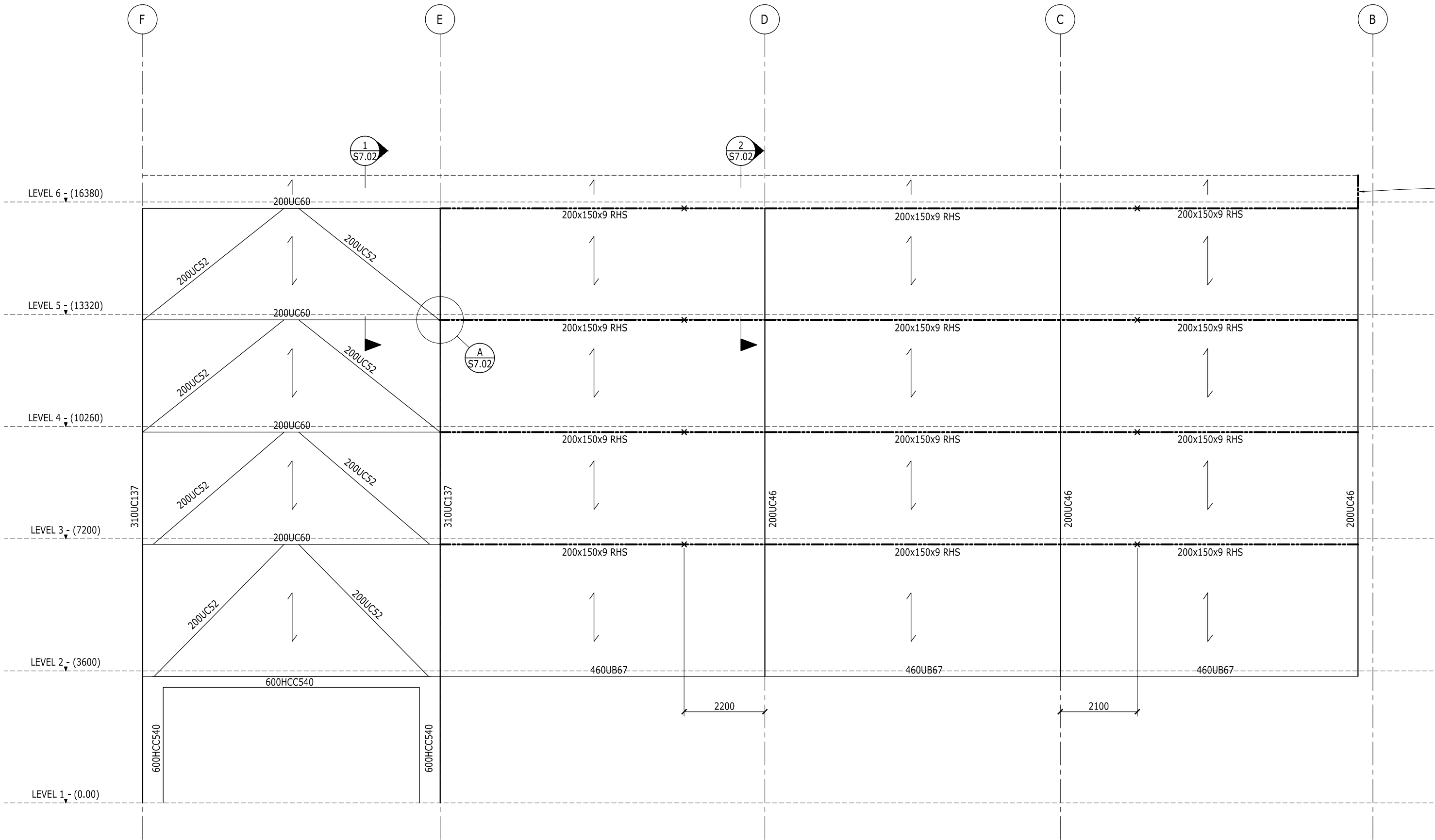
structex
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CONCRETE BLOCK WALL DETAILS
drawing title

S1.62	project 1770
drawing no	2
issue	

NOTES:

- × Beam Splice position - refer sheet S7.02 for detail
- ↕ Dimond 100/19 'studs' to suit cladding brackets at 1200 crs max
- ↕ Dimond 100/19 canterlever 'studs' to suit cladding brackets at 1200 crs max



2	CONSTRUCTION ISSUE	JL	SG	12-12-07
issue	description	by	appd.	date

GA	SG		1: 100
drawn	designed	approved	scales

AMC CONSTRUCTION
client

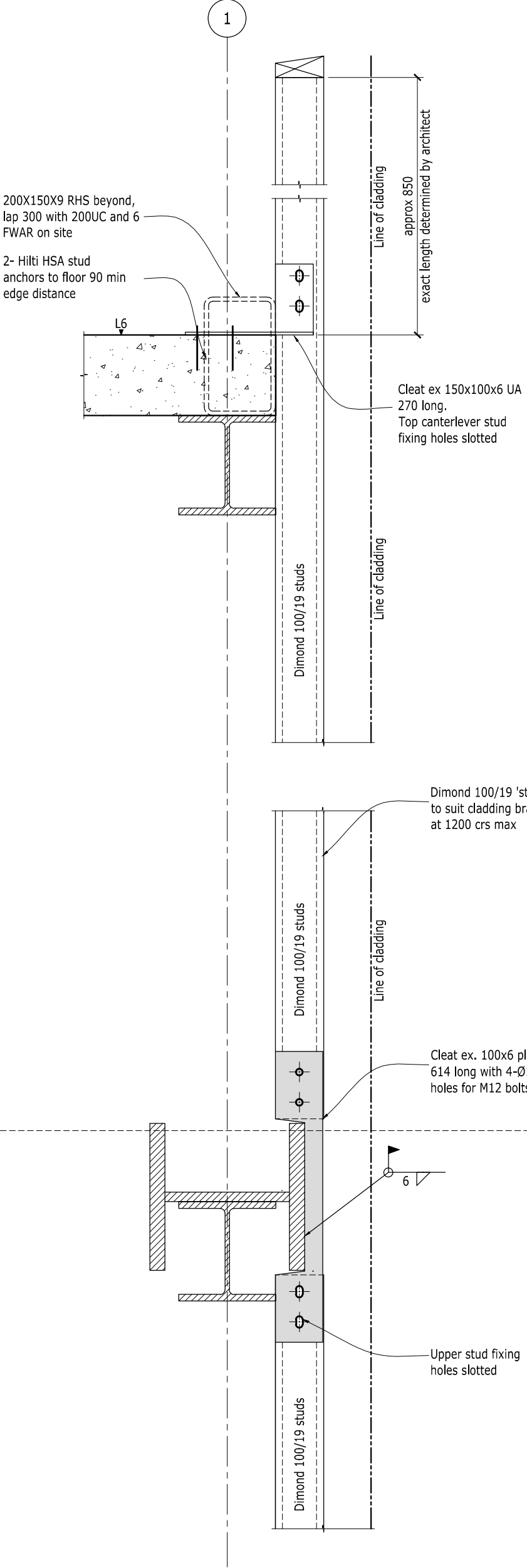
C1 TOWER
project title



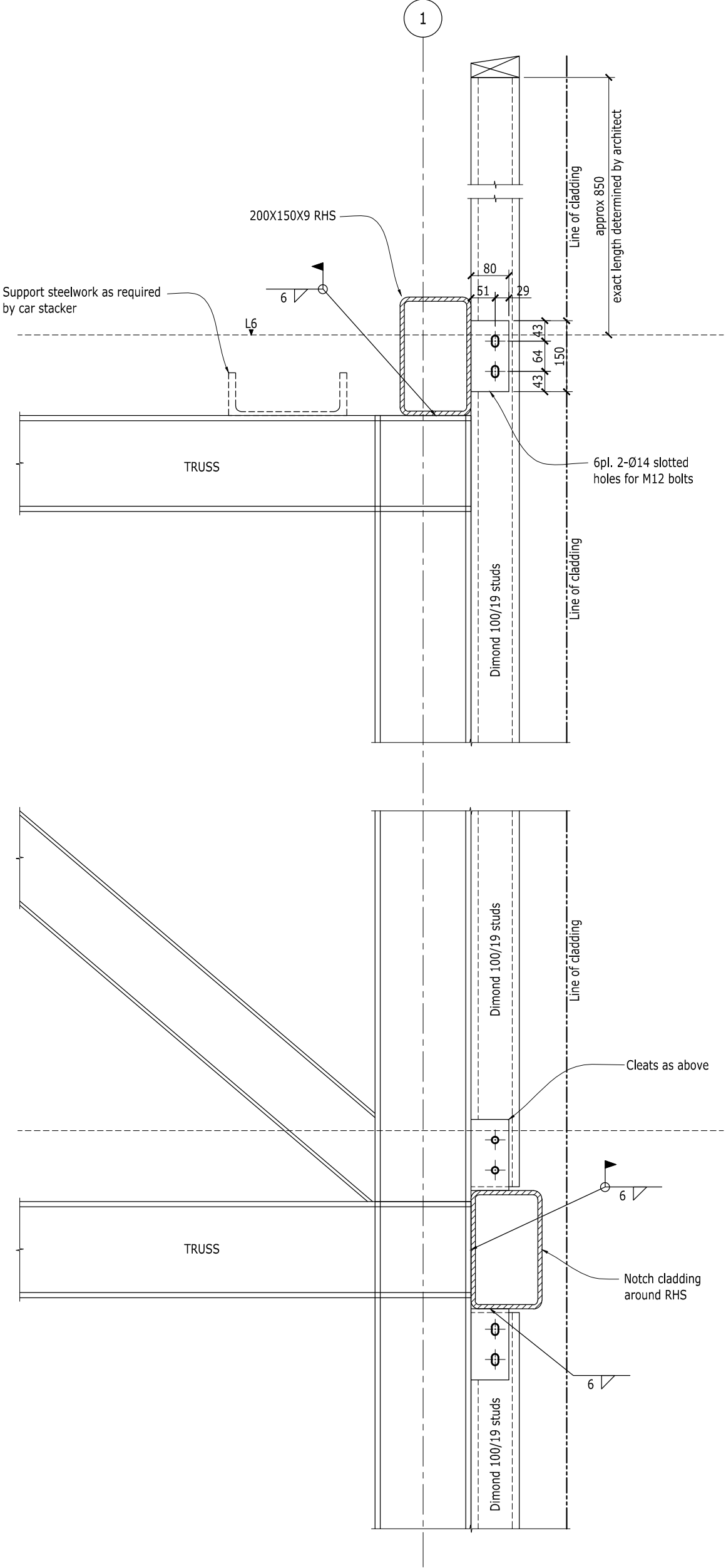
CLADDING SUPPORT STRUCTURE - ELEVATIONS
drawing title

S7.01	project 1770
drawing no	2
	issue

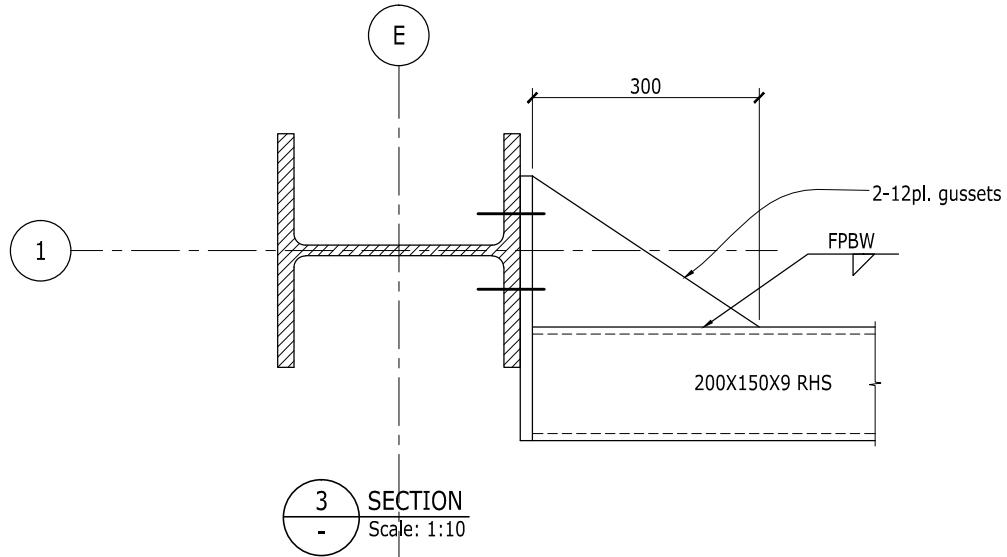
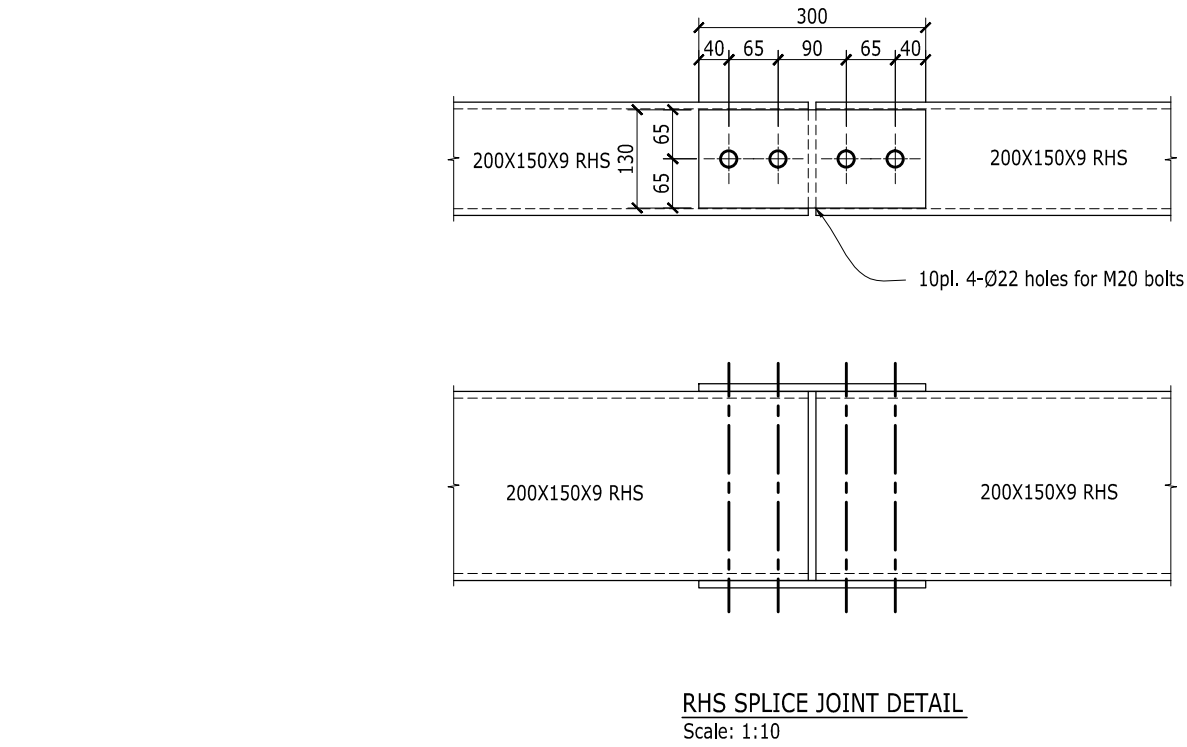
CONSTRUCTION



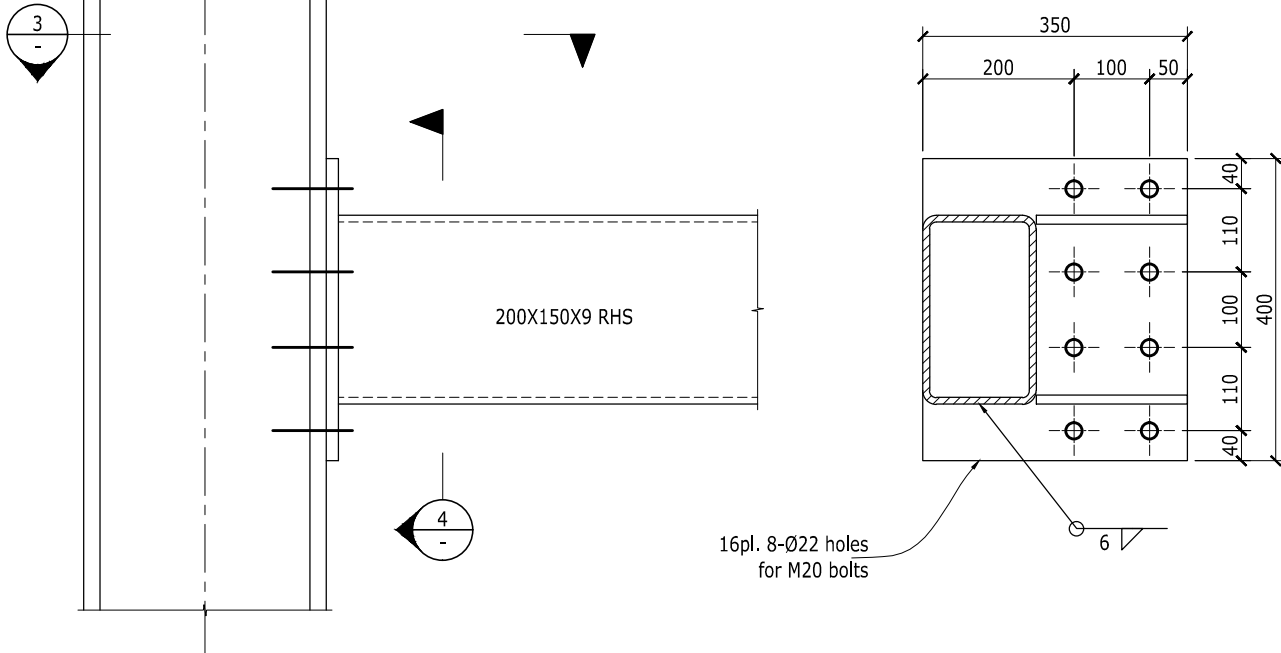
1 SECTION - CLADDING SUPPORT STRUCTURE
Scale: 1:10



2 SECTION - CLADDING SUPPORT STRUCTURE
Scale: 1:10



3 SECTION
Scale: 1:10



A DETAIL - CLADDING SUPPORT STRUCTURE
Scale: 1:10

4 SECTION
Scale: 1:10

CONSTRUCTION

2	CONSTRUCTION ISSUE	JL	SG	12-12-07
Issue	description	by	appd.	date

GA	SG		1:10
drawn	designed	approved	scales

AMC CONSTRUCTION

client

C1 TOWER

project title

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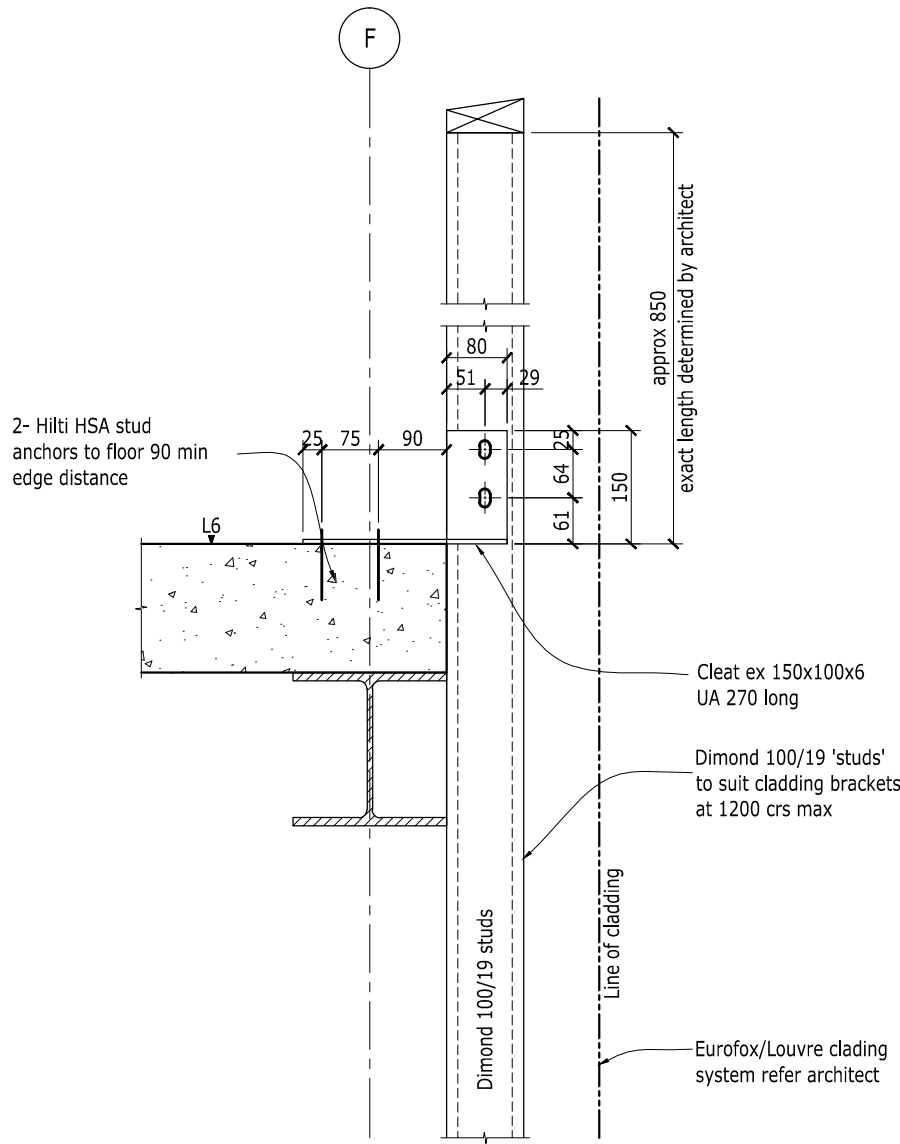
CLADDING SUPPORT
STRUCTURE DETAILS

drawing title

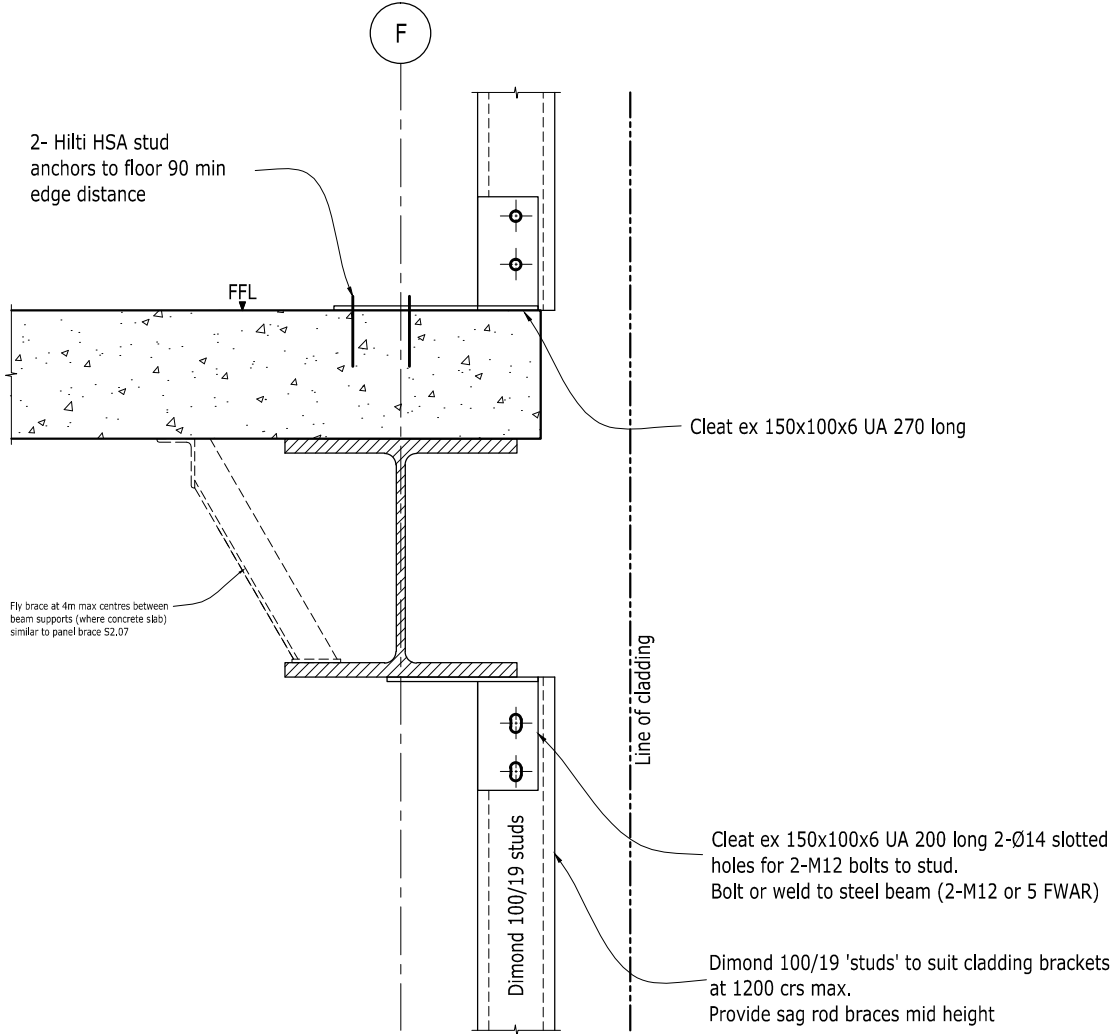
S7.02

drawing no

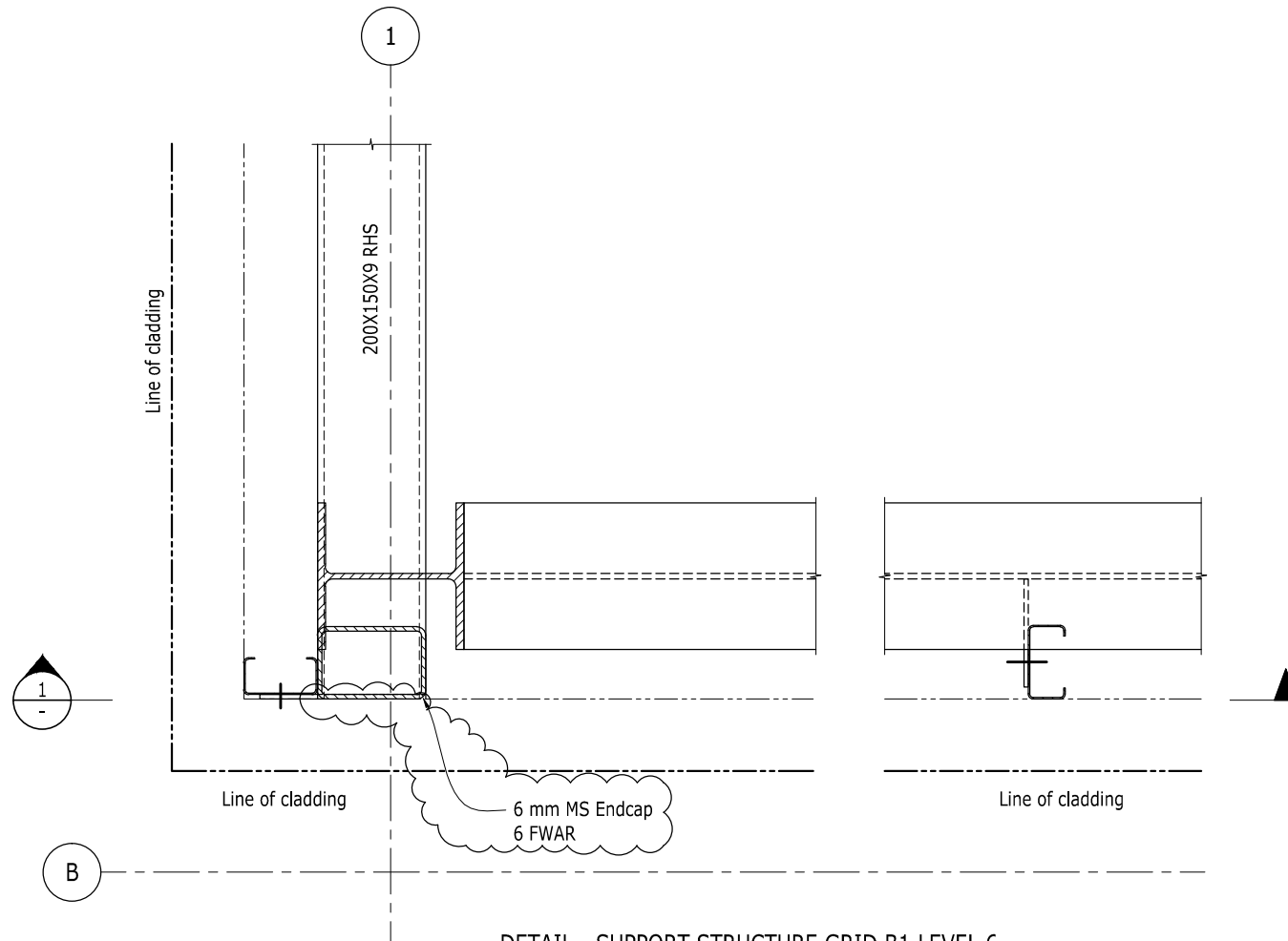
project	1770
issue	2



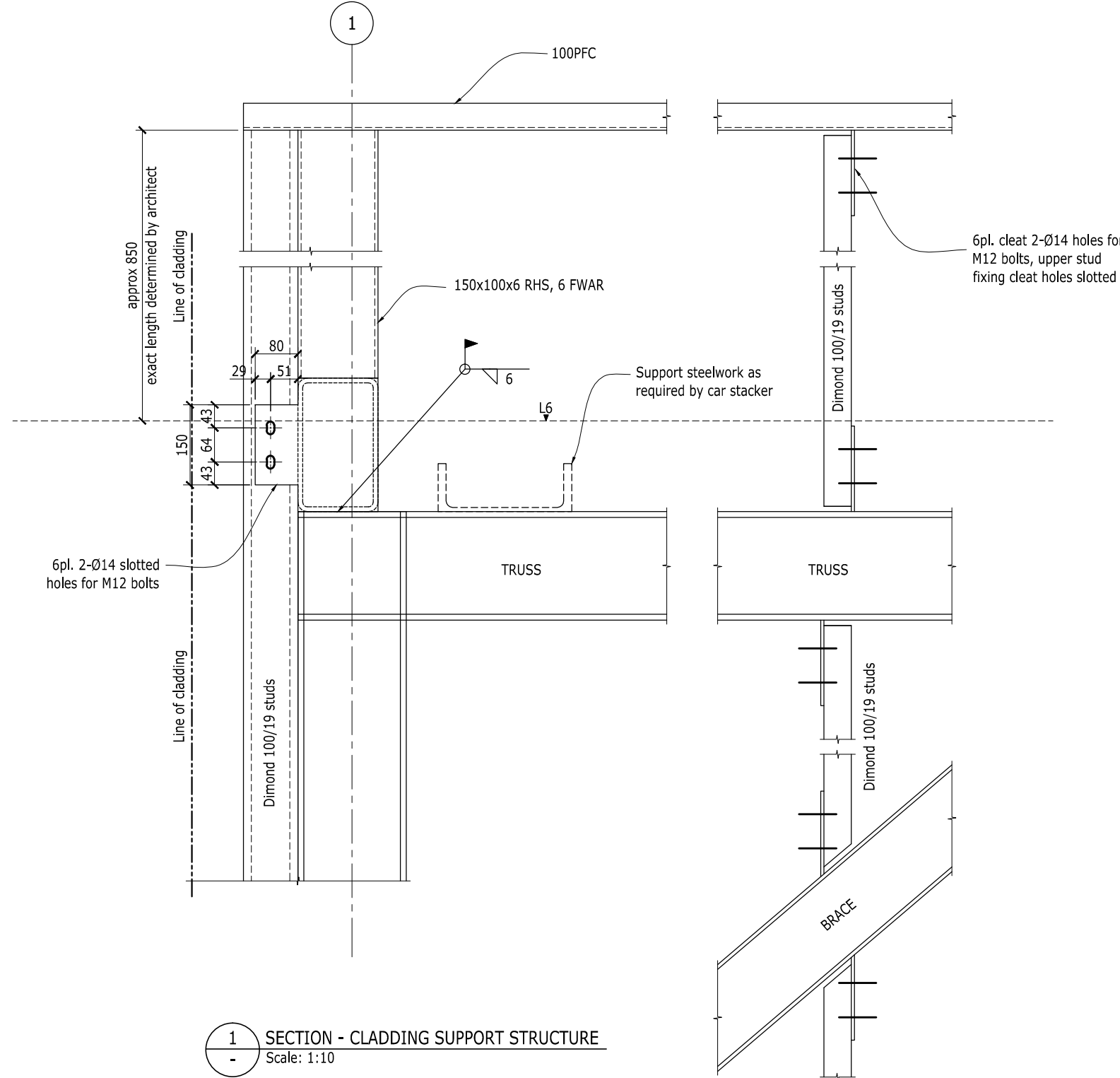
DETAIL - SUPPORT STRUCTURE GRID F1-F2
Scale: 1:10



DETAIL - SUPPORT STRUCTURE GRID F2-F7
Scale: 1:10



DETAIL - SUPPORT STRUCTURE GRID B1 LEVEL 6
Scale: 1:10



SECTION - CLADDING SUPPORT STRUCTURE
Scale: 1:10

2	CONSTRUCTION ISSUE	JL	SG	12-12-07
issue	description	by	appd.	date

GA	SG		1:10
drawn	designed	approved	scales

AMC CONSTRUCTION
client

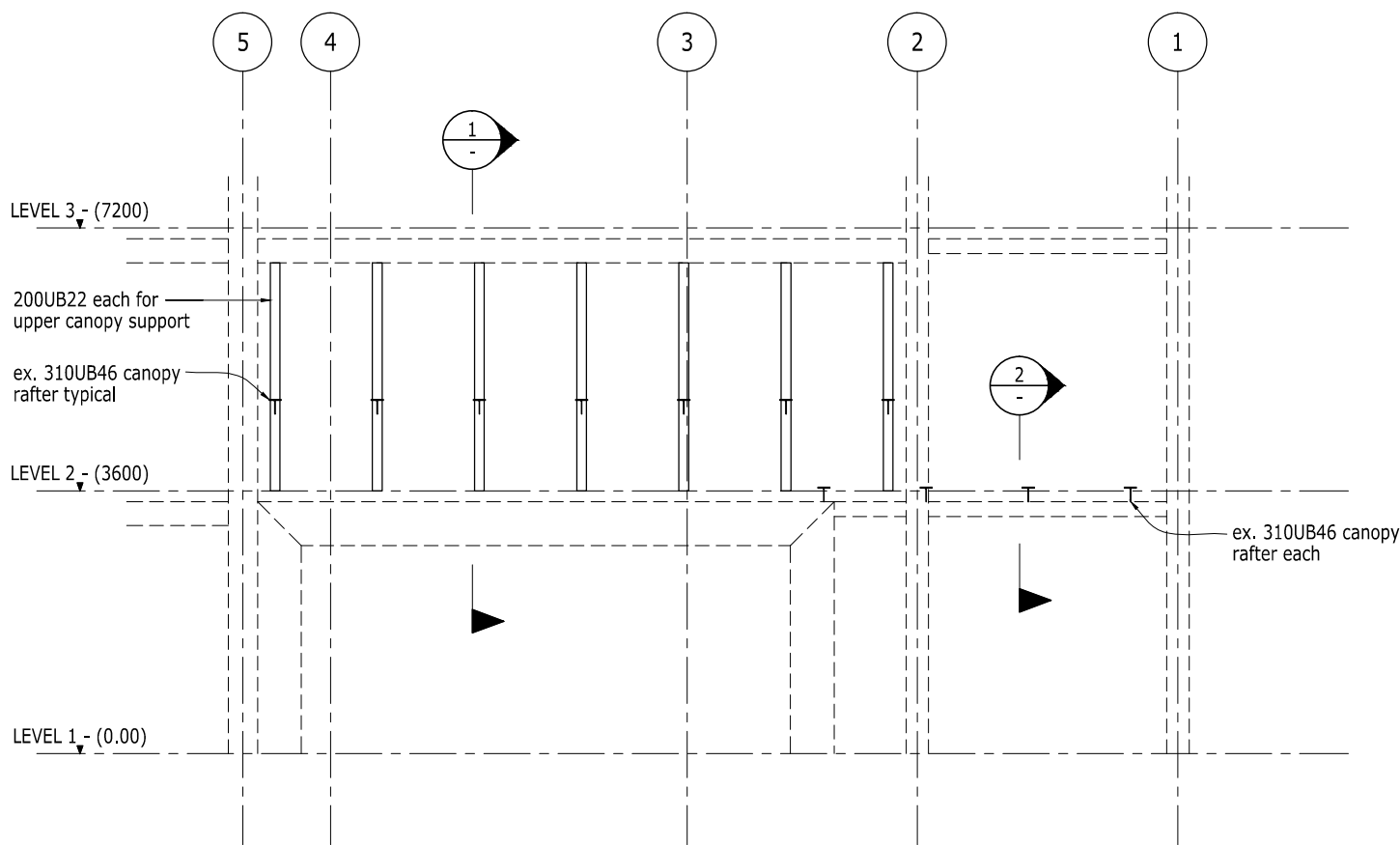
C1 TOWER
project title

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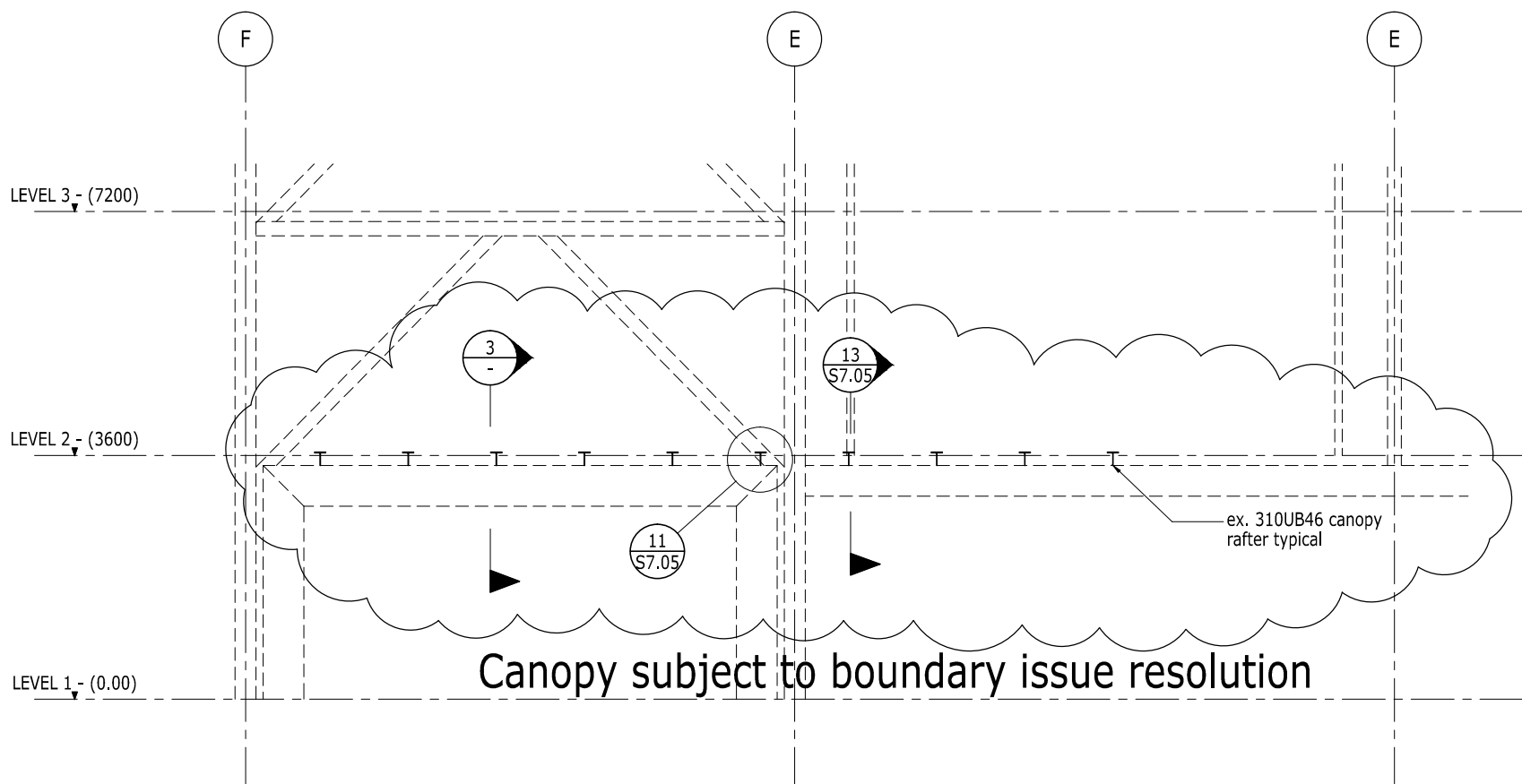
CLADDING SUPPORT STRUCTURE DETAILS
drawing title

S7.03	project 1770
drawing no	2 issue

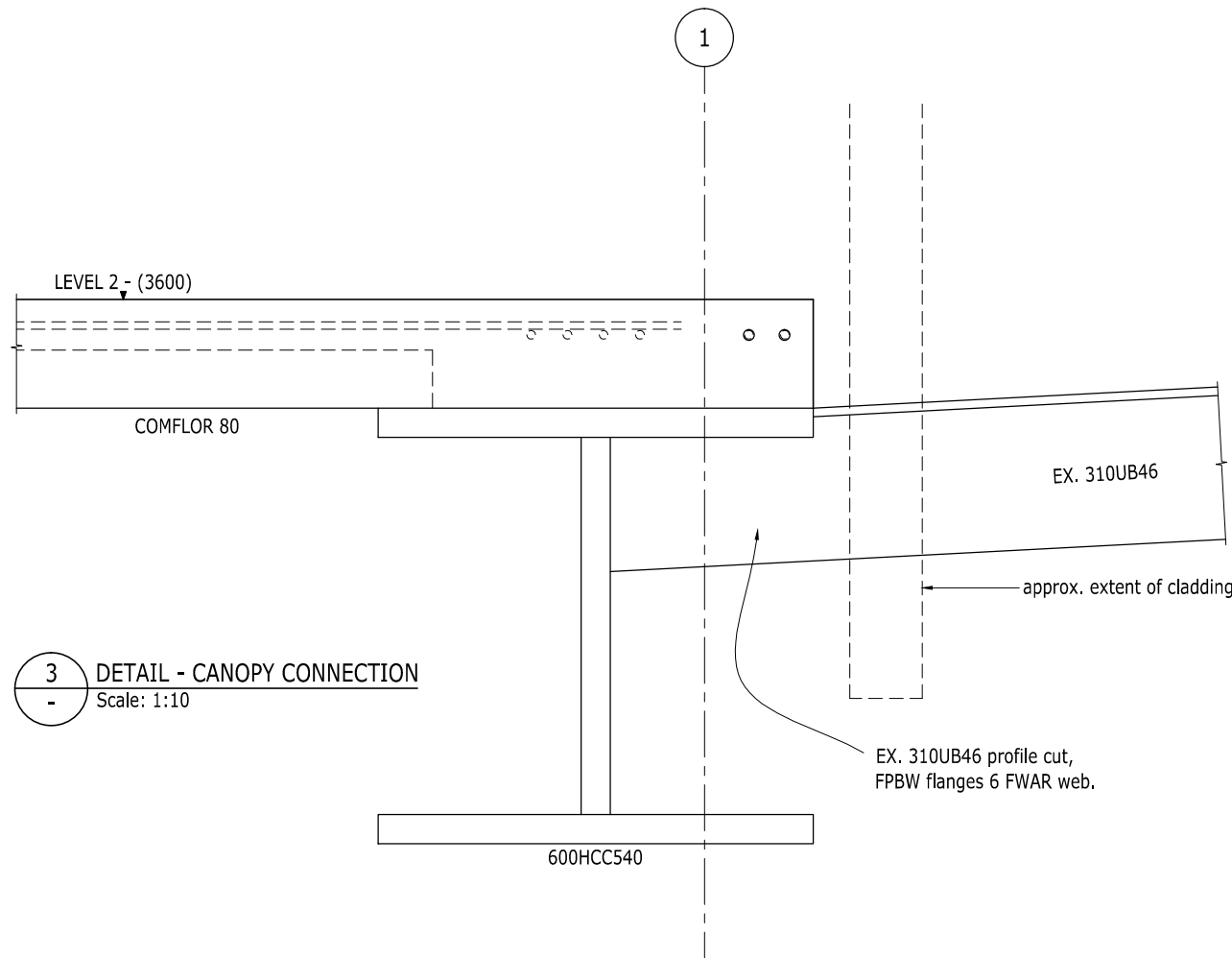
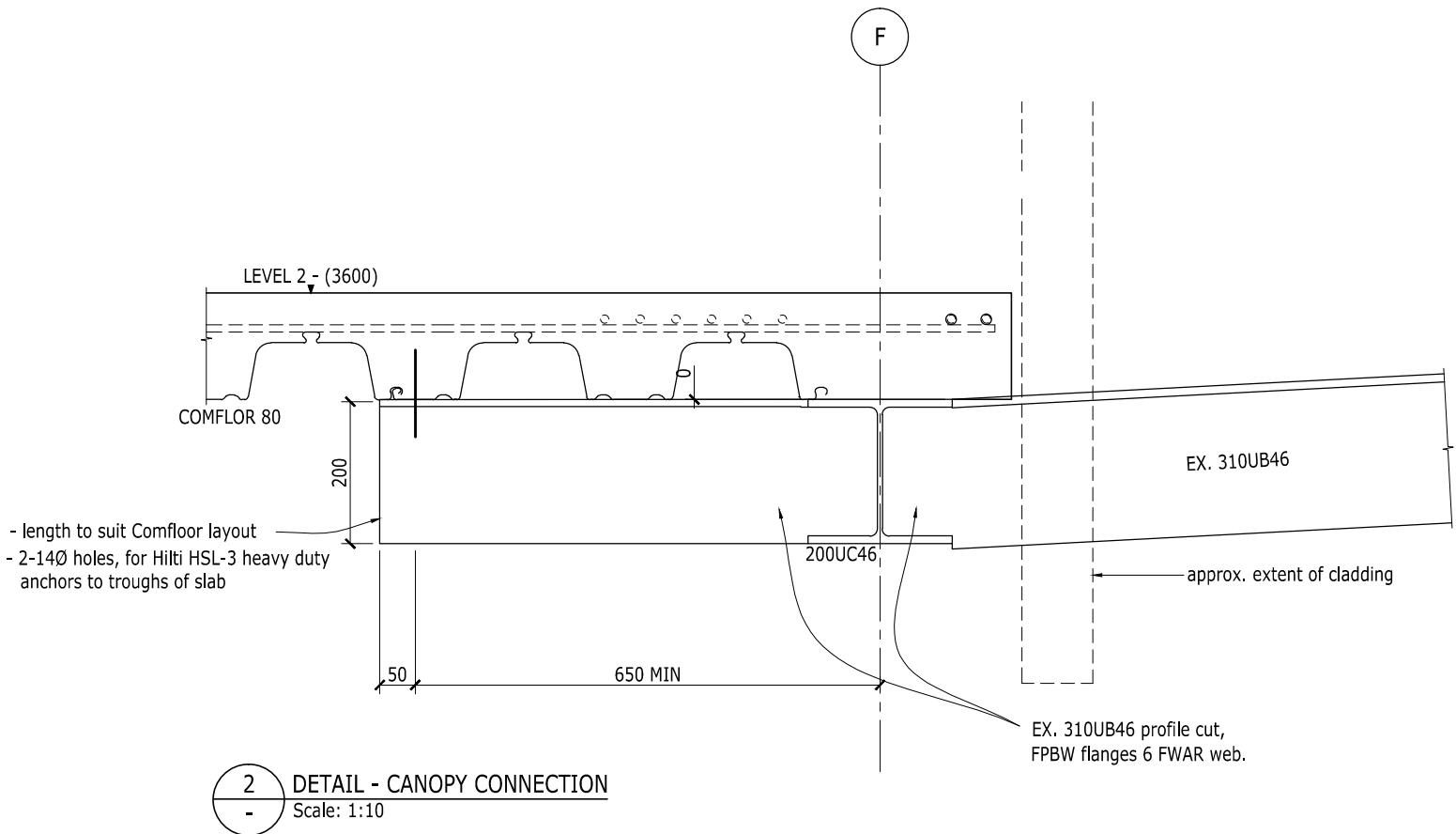
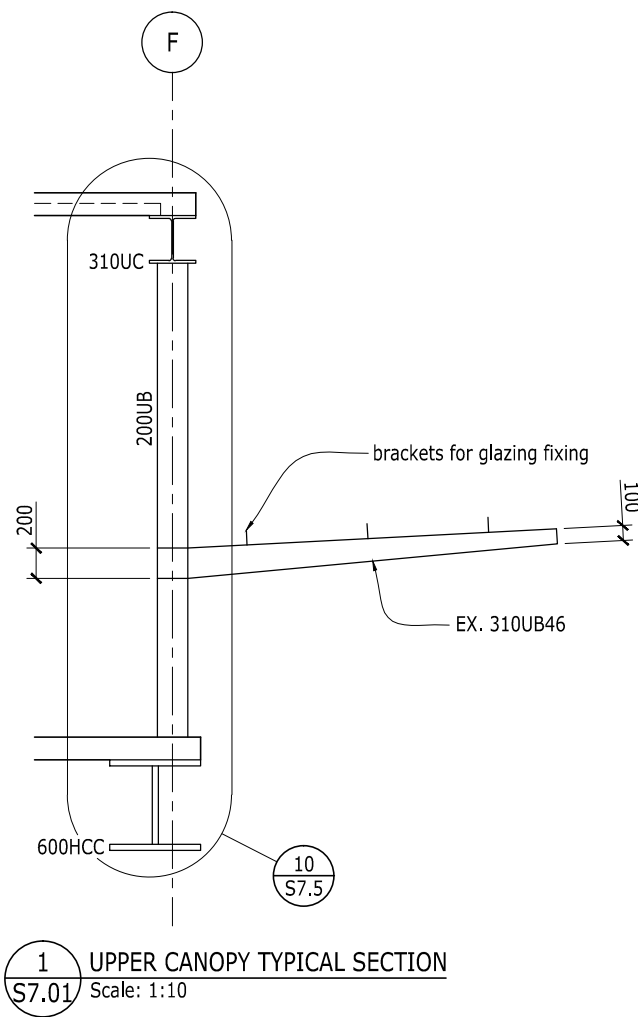
CONSTRUCTION



GRID F CANOPY STRUCTURE ELEVATION
Scale: 1:100



GRID 1 CANOPY STRUCTURE ELEVATION
Scale: 1:100



2	CONSTRUCTION ISSUE	JL	SG	12-12-07	
issue	description	by	appd.	date	

JM	SG		1: 100 1: 50 1: 10
drawn	designed	approved	scales

AMC CONSTRUCTION
client

C1 TOWER
project title

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CANOPY STRUCTURE
drawing title

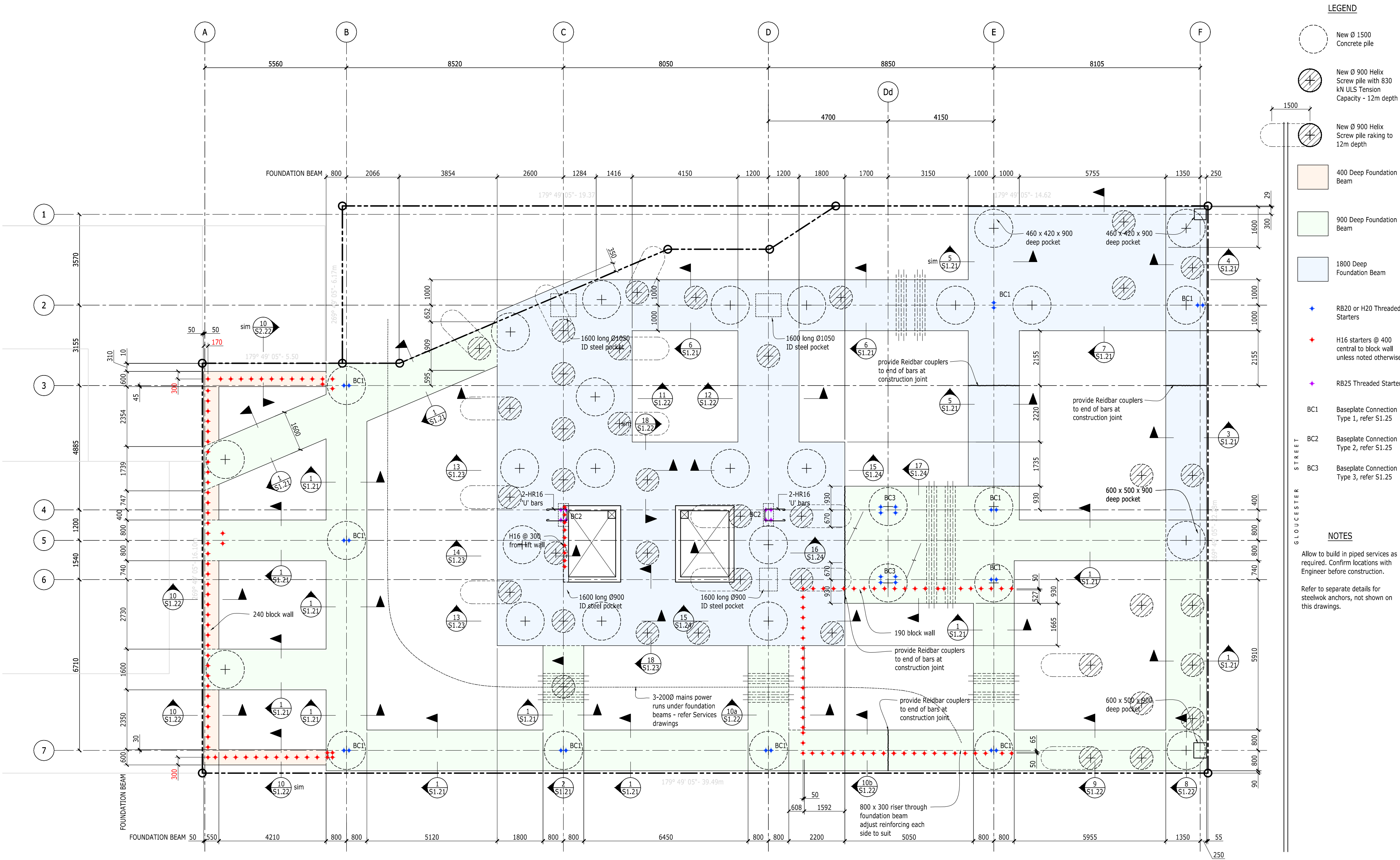
S7.04	project 1770
2	issue

CONSTRUCTION



CONSENT

[illegible]



LEGEND

- New Ø 1500 Concrete pile
- New Ø 900 Helix Screw pile with 830 kN ULS Tension Capacity - 12m depth
- New Ø 900 Helix Screw pile raking to 12m depth
- 400 Deep Foundation Beam
- 900 Deep Foundation Beam
- 1800 Deep Foundation Beam
- RB20 or H20 Threaded Starters
- H16 starters @ 400 central to block wall unless noted otherwise
- RB25 Threaded Starters
- BC1 Baseplate Connection Type 1, refer S1.25
- BC2 Baseplate Connection Type 2, refer S1.25
- BC3 Baseplate Connection Type 3, refer S1.25

NOTES

Allow to build in piped services as required. Confirm locations with Engineer before construction.

Refer to separate details for steelwork anchors, not shown on this drawings.

E	PRELIMINARY	CL	GB	18-04-07
OA	FOR CONSENT	CL	GB	29-03-07
O	FOR CONSENT	CL	GB	15-03-07

D	PRELIMINARY	GA	GB	08-03-07
C	PRELIMINARY	GA	GB	07-03-07
B	PRELIMINARY	GA	GB	28-02-07
A	PRELIMINARY	GA	GB	05-02-07
Issue	description	by	appd.	date

GA	BG	GB	1:100
drawn	designed	approved	scales

AMC CONSTRUCTION

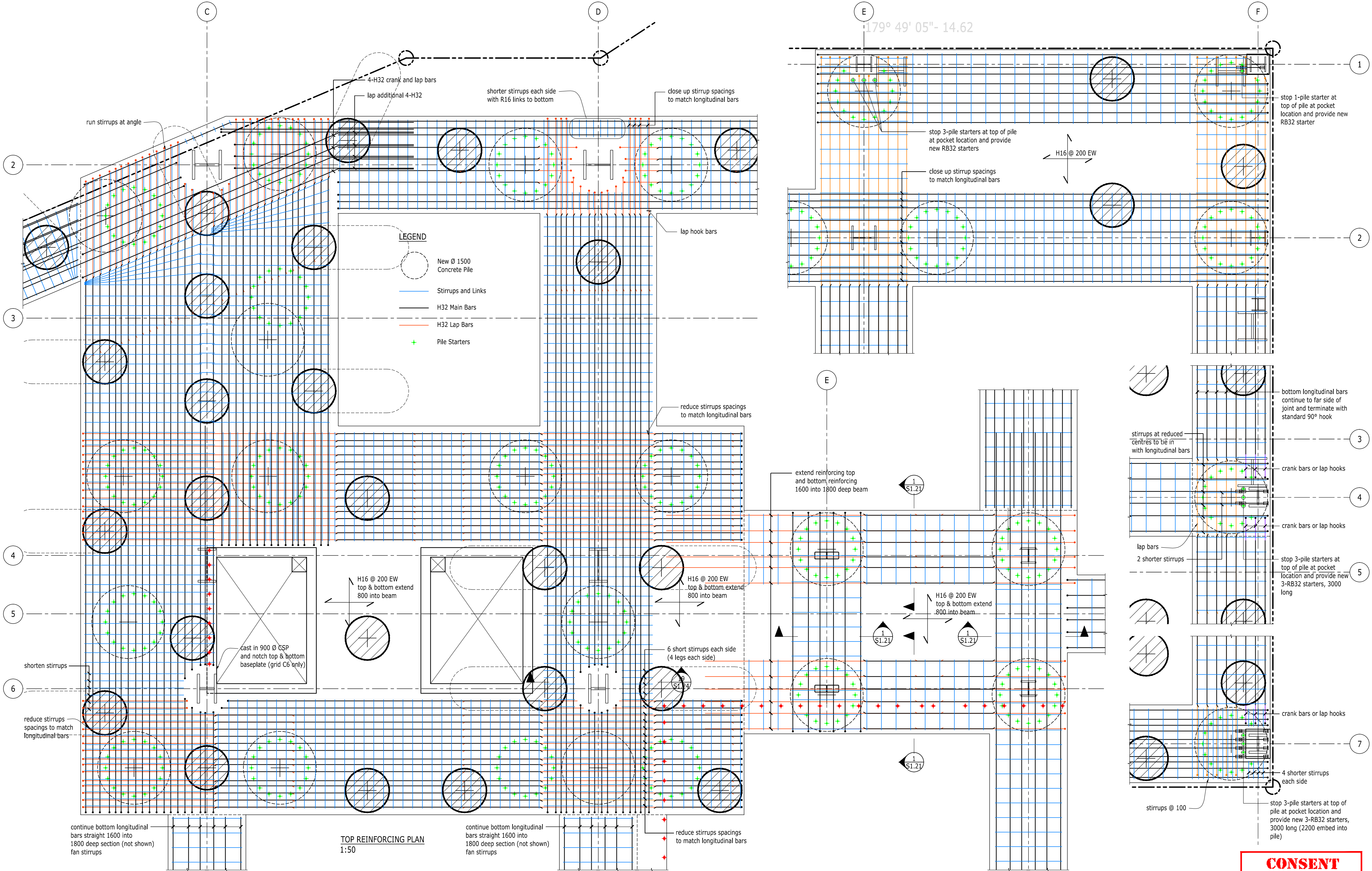
C1 TOWER

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FOUNDATION BEAM PLAN

CONSENT

S1.11	project 1770
drawing no	E
issue	



CONSENT

A	PRELIMINARY	CL	GB	18-04-07	
Issue	description	by	appd.	date	

CL	SG	GB	1:50
drawn	designed	approved	scales

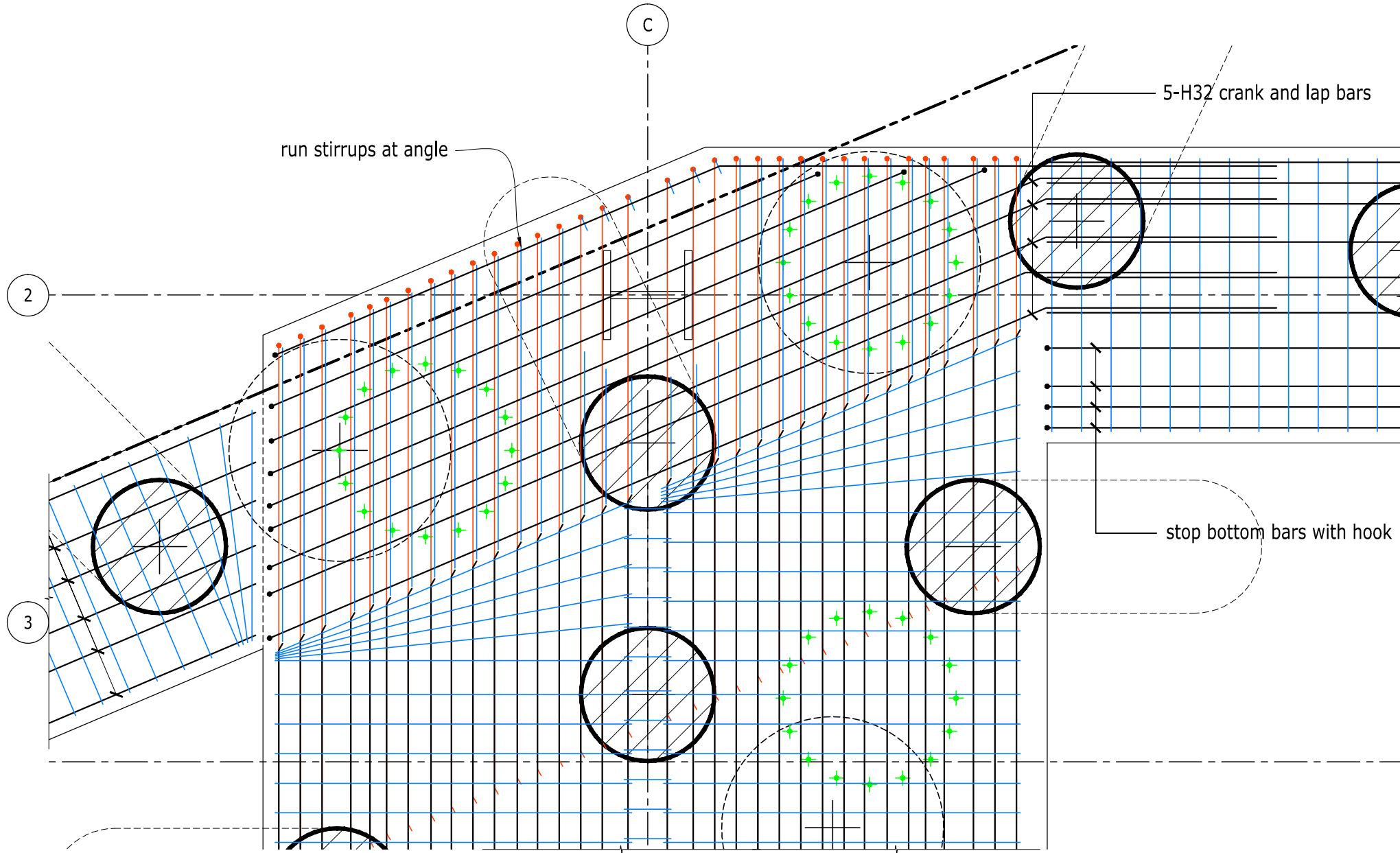
AMC CONSTRUCTION
client

C1 TOWER
project title








FOUNDATION TOP REINFORCING PLAN
drawing title

S1.12	project 1770
drawing no	A
	issue



LEGEND

-  New Ø 1500 Concrete Pile
-  Stirrups and Links
-  H32 Main Bars
-  H32 Lap Bars
-  Pile Starters

A	PRELIMINARY	CL	GB	18-04-07
Issue	Description	by	appd.	date

CL	SG	GB	1:50
drawn	designed	approved	scales

AMC CONSTRUCTION
client

C1 TOWER
project title

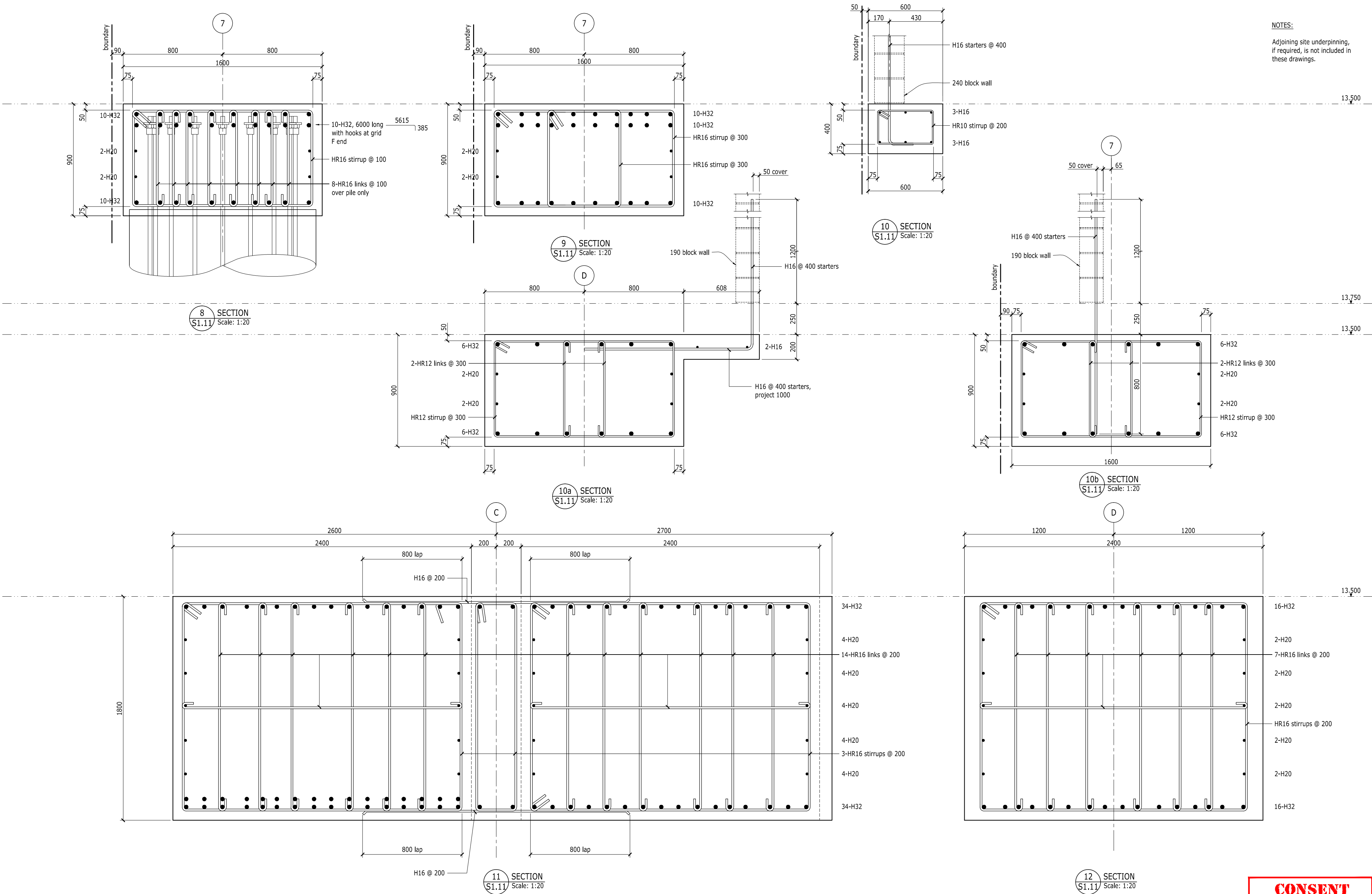
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FOUNDATION BOTTOM REINFORCING PLAN
drawing title

S1.13	project 1770
drawing no	A
	issue

CONSENT

[illegible]



NOTES:

Adjoining site underpinning, if required, is not included in these drawings.

0	FOR CONSENT		CL	GB	15-03-07
Issue	description		by	appt.	date

CL	BG	GB	1:20
drawn	designed	approved	scales

AMC CONSTRUCTION
client

C1 TOWER
project title

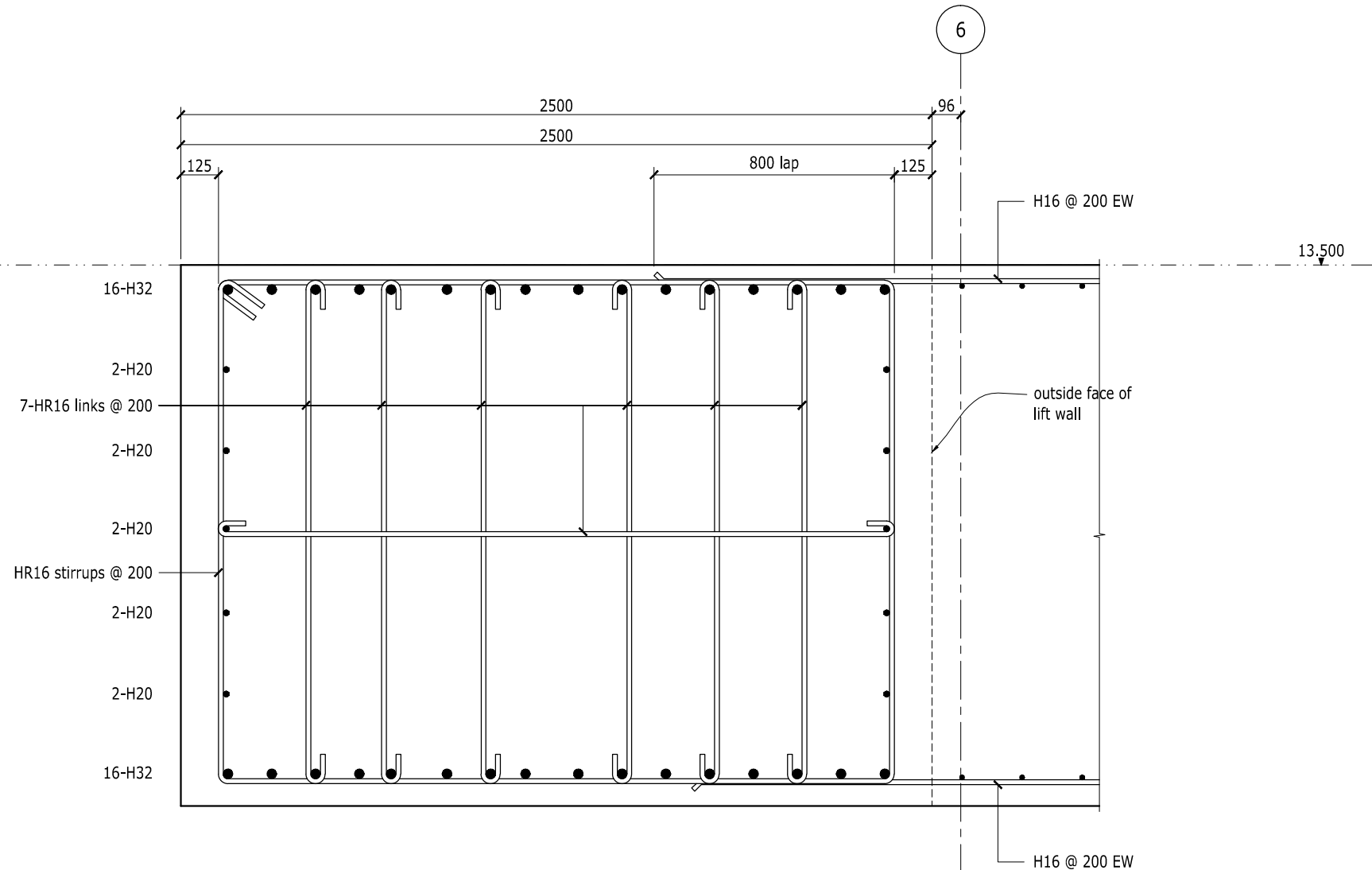
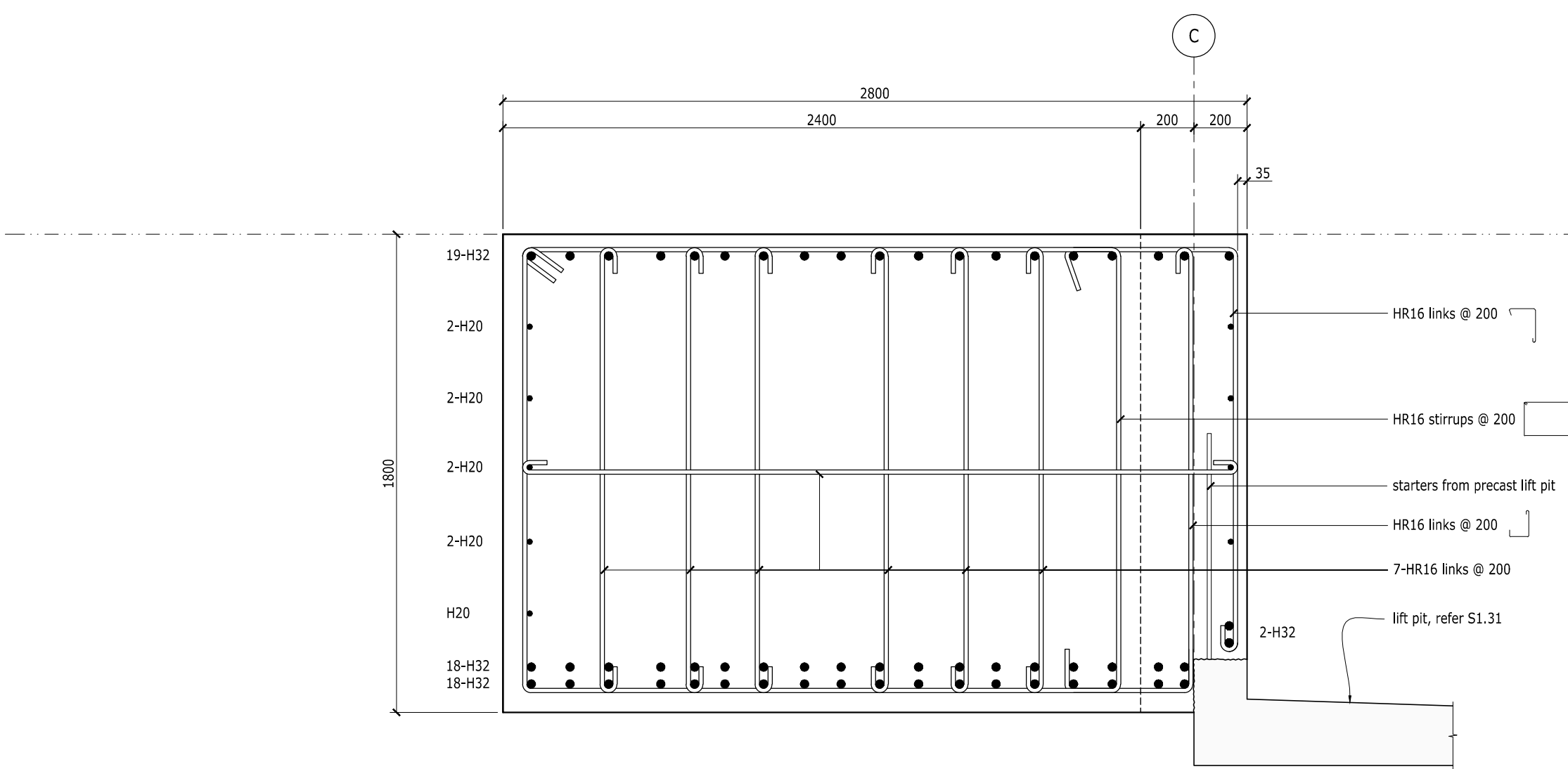
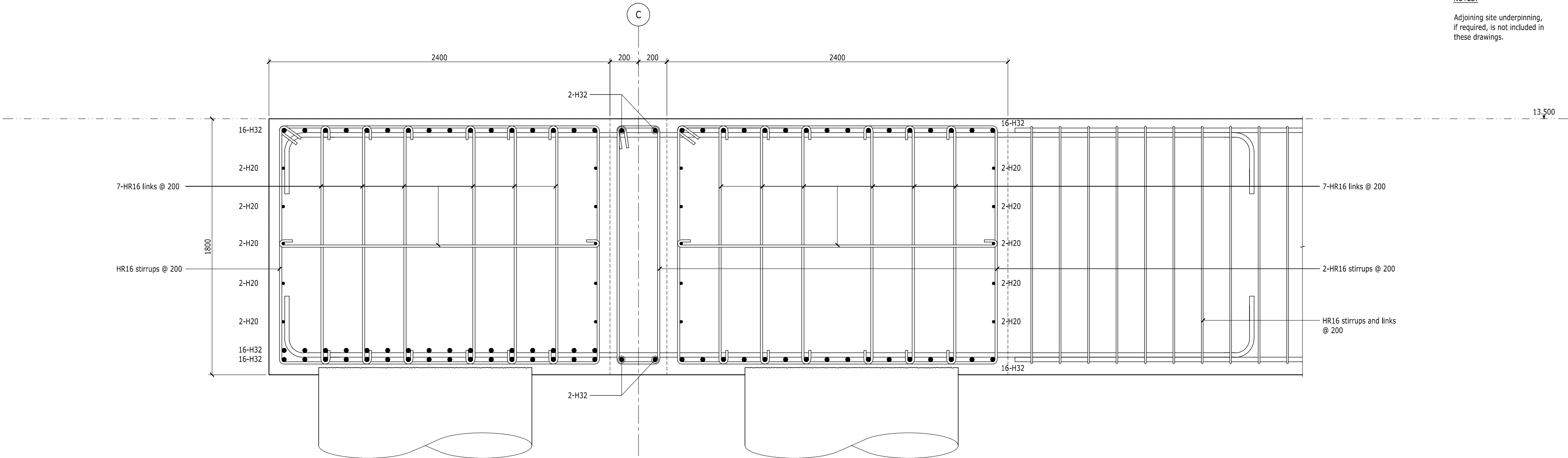


FOUNDATION DETAILS
drawing title

CONSENT	
S1.22	project 1770
drawing no	0
	issue

NOTES:

Adjoining site underpinning, if required, is not included in these drawings.



A	PRELIMINARY	CL	GB	18-04-07
O	FOR CONSENT	CL	GB	15-03-07
Issue	description	by	appd.	date

CL	BG	GB	1:20
drawn	designed	approved	scales

AMC CONSTRUCTION
client

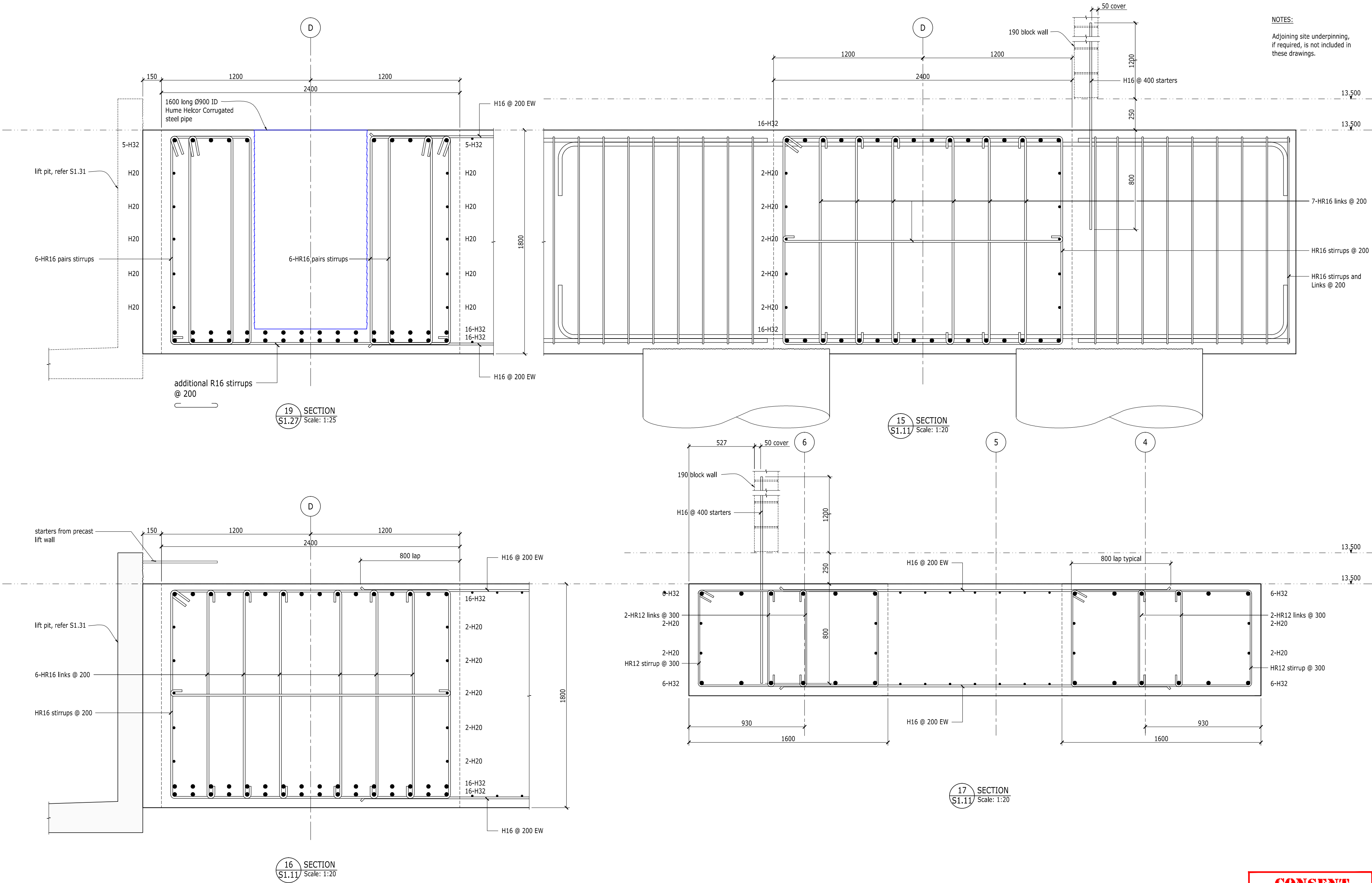
C1 TOWER
project title

structex
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FOUNDATION DETAILS
drawing title

S1.23	project
drawing no	1770
	A
	issue

CONSENT



CONSENT

A	PRELIMINARY	CL	GB	18-04-07
O	FOR CONSENT	CL	GB	15-03-07
Issue	description	by	appd.	date

CL	BG	GB	1:20
drawn	designed	approved	scales

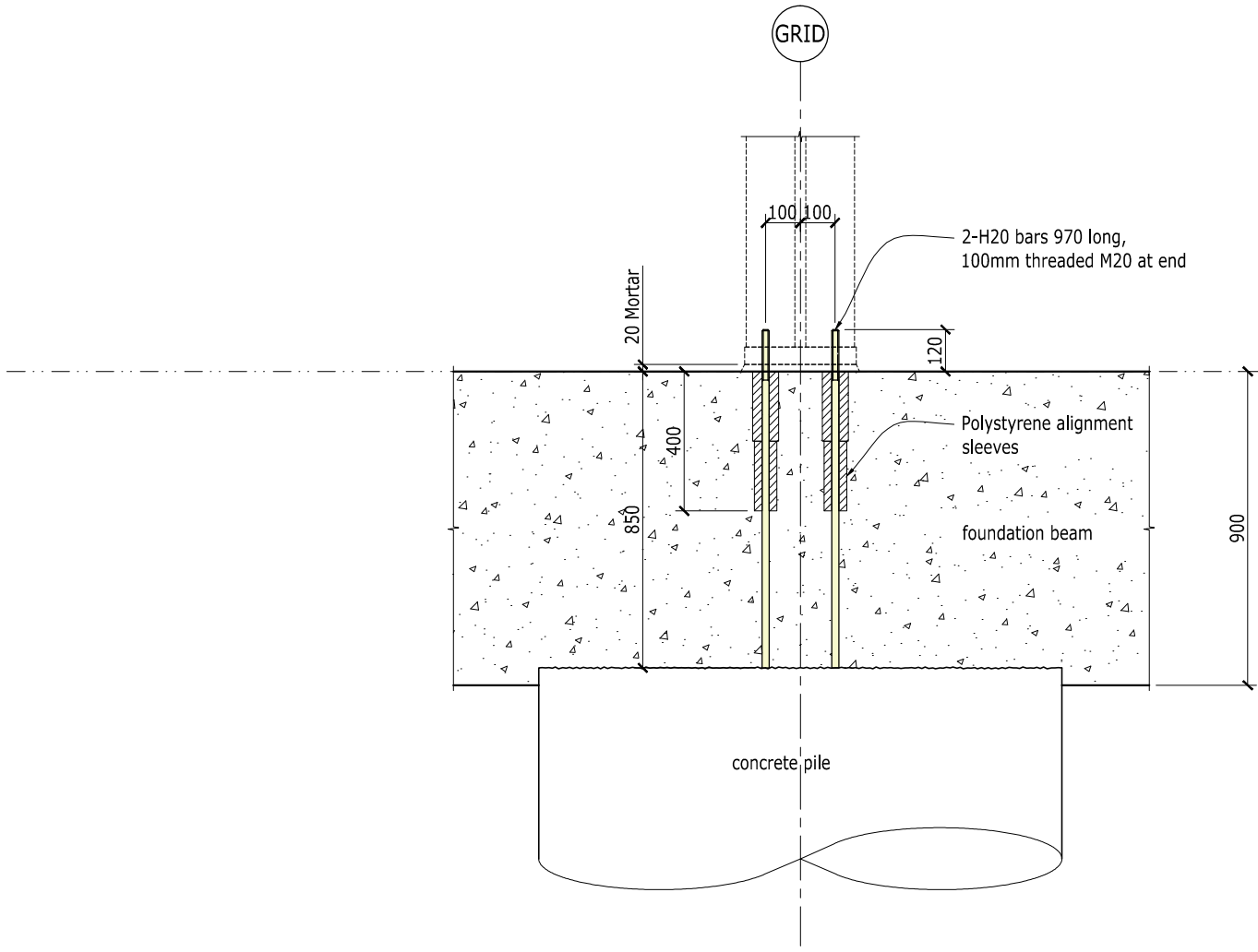
AMC CONSTRUCTION
client

C1 TOWER
project title

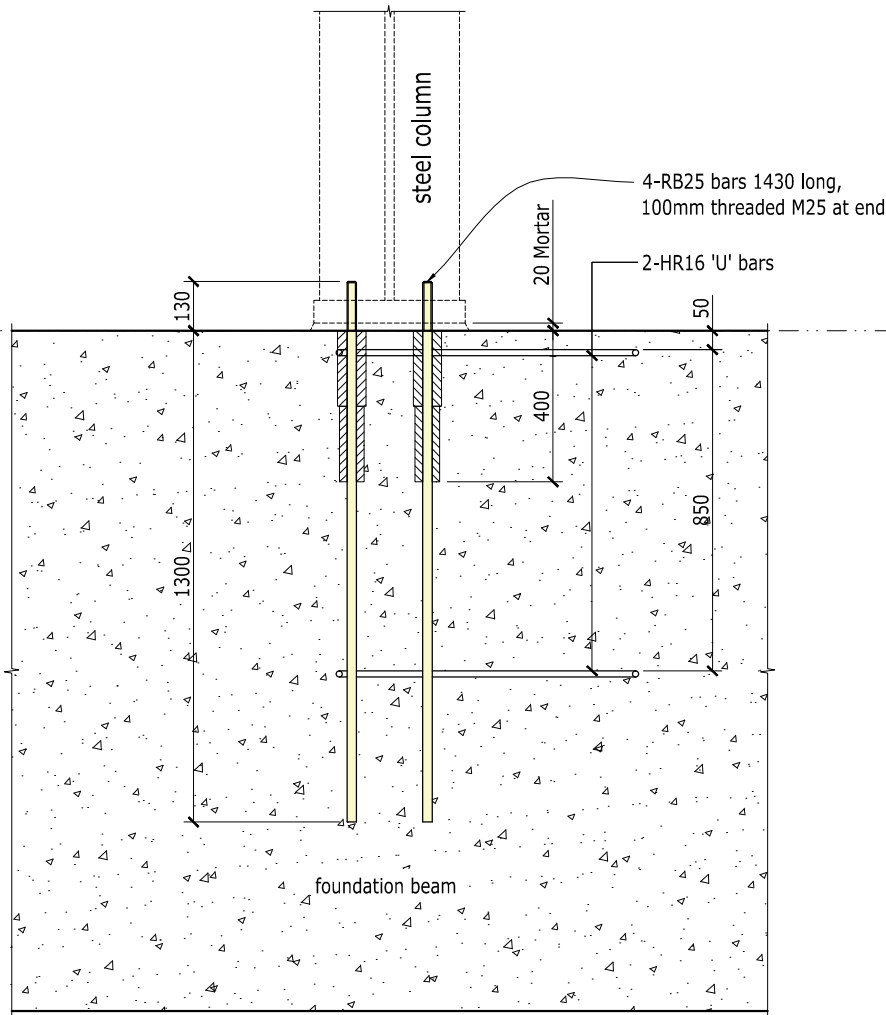
structex
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FOUNDATION DETAILS
drawing title

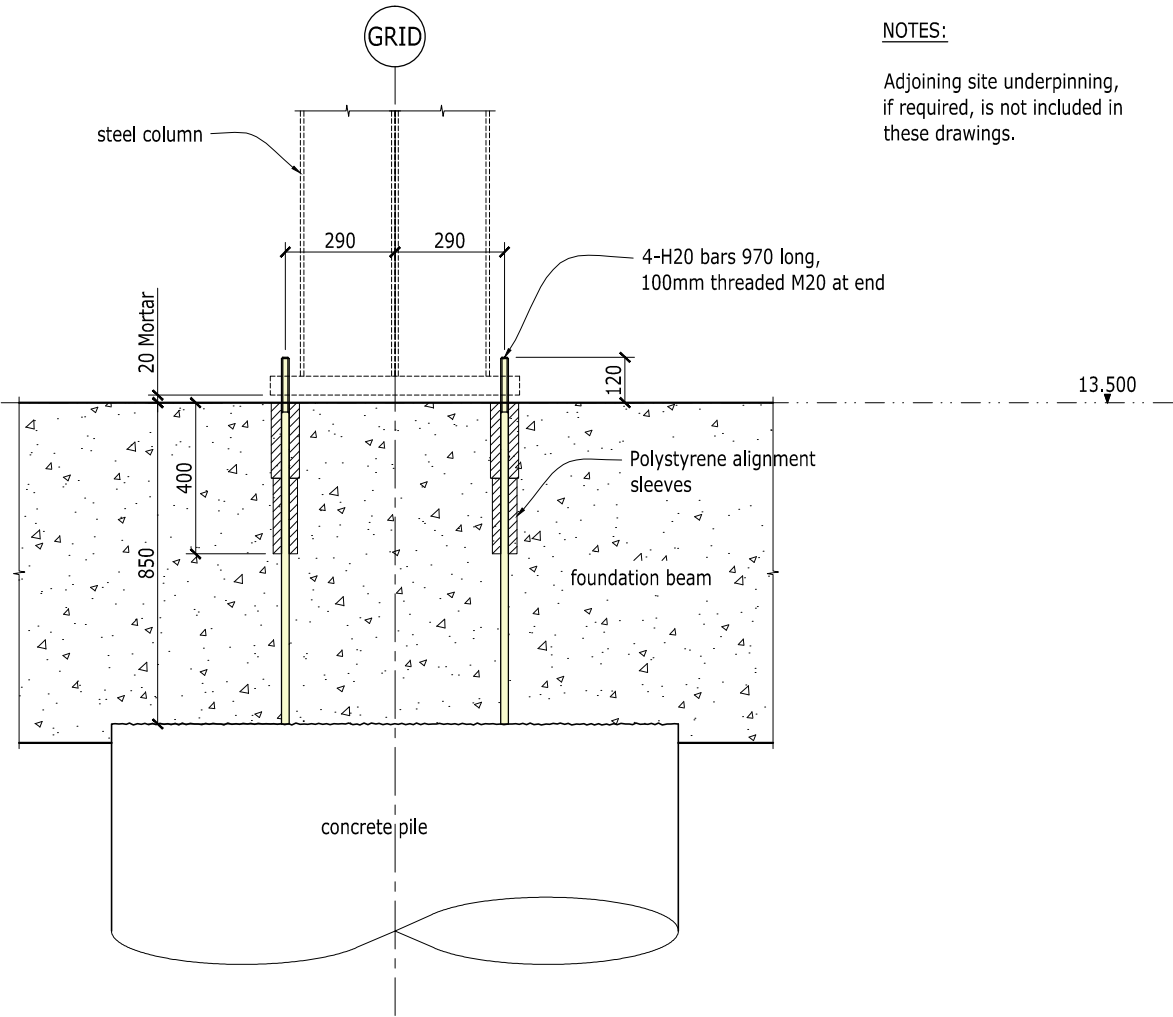
S1.24	project 1770 A
drawing no	issue



21 SECTION - BC1
Scale: 1:20



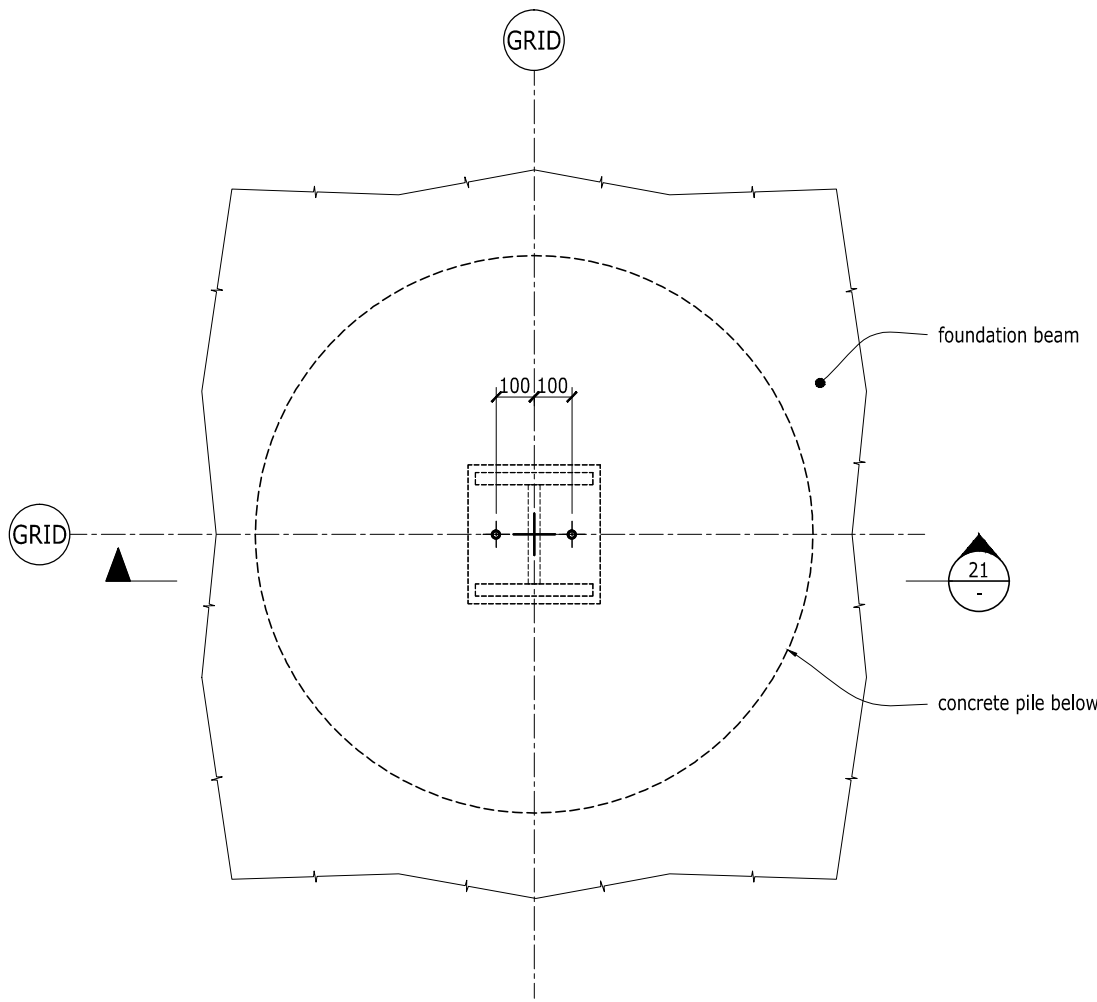
23 SECTION - BC2
Scale: 1:20



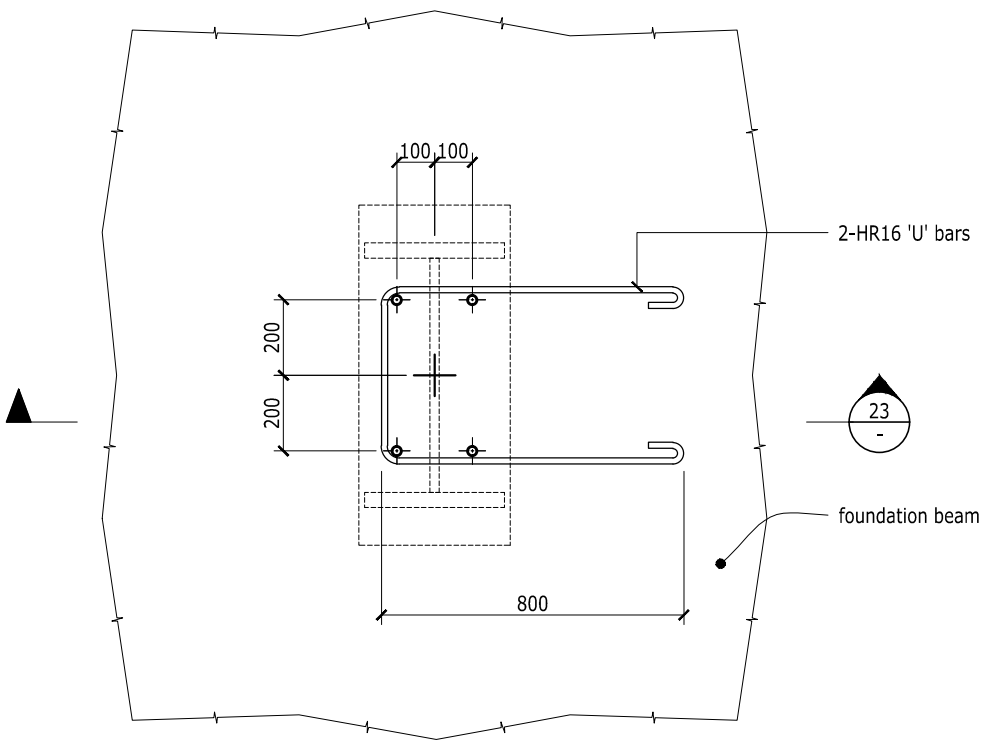
25 SECTION - BC2
Scale: 1:20

NOTES:

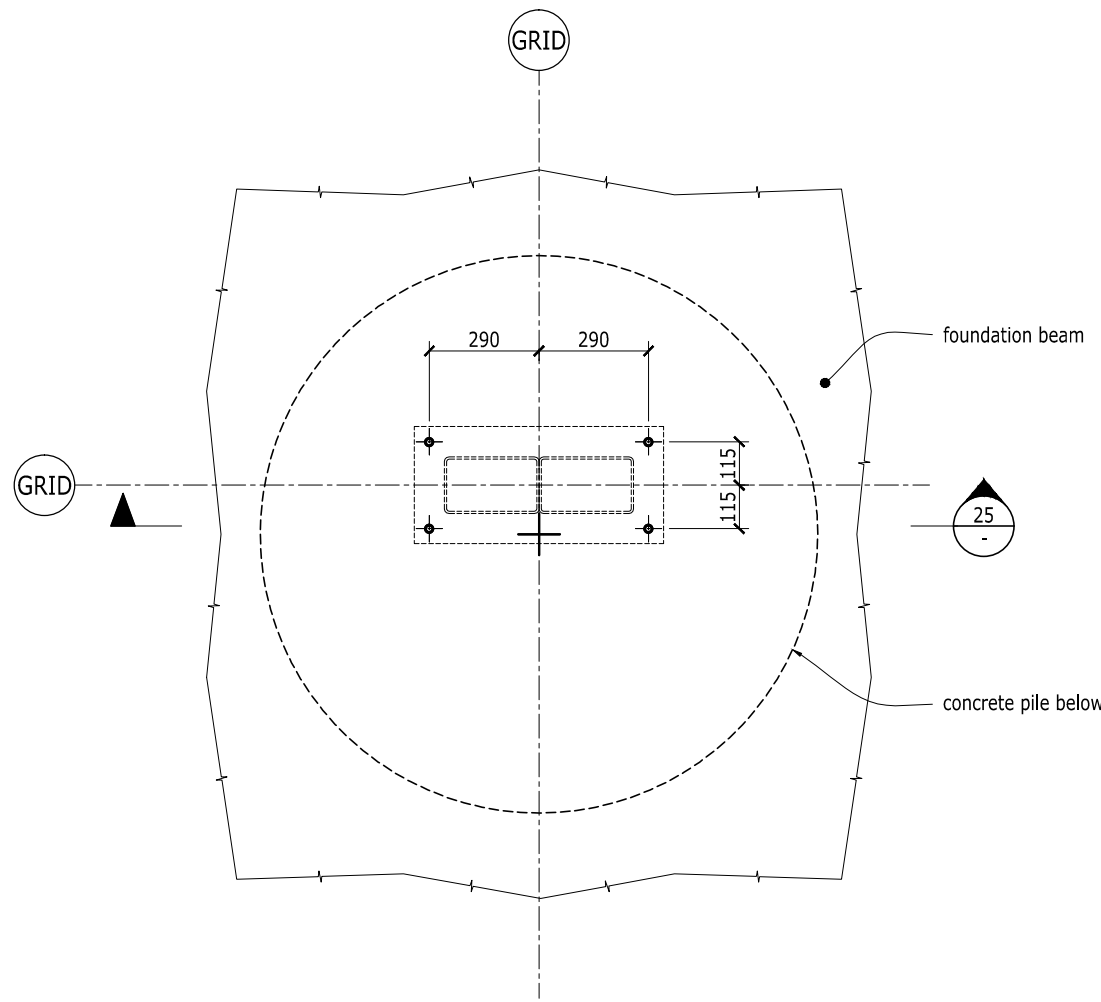
Adjoining site underpinning, if required, is not included in these drawings.



22 BC1 - BASEPLATE CONNECTION TYPE 1
Scale: 1:20



24 BC2 - BASEPLATE CONNECTION TYPE 2
Scale: 1:20



26 BC3 - BASEPLATE CONNECTION TYPE 3
Scale: 1:20

CONSENT

A	PRELIMINARY	CL	GB	18-04-07
O	FOR CONSENT	CL	GB	29-03-07
Issue	description	by	appd.	date

CL	BG	GB	1:20
drawn	designed	approved	scales

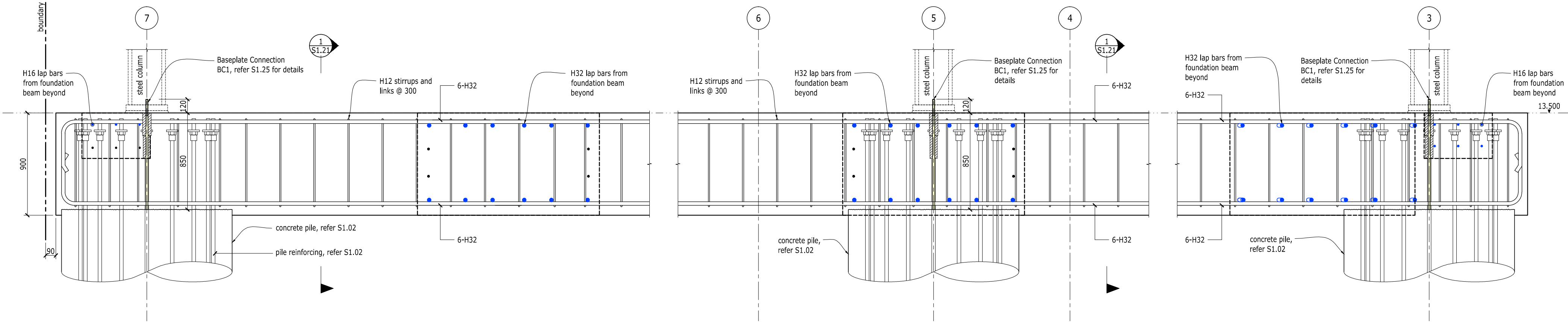
AMC CONSTRUCTION
client

C1 TOWER
project title

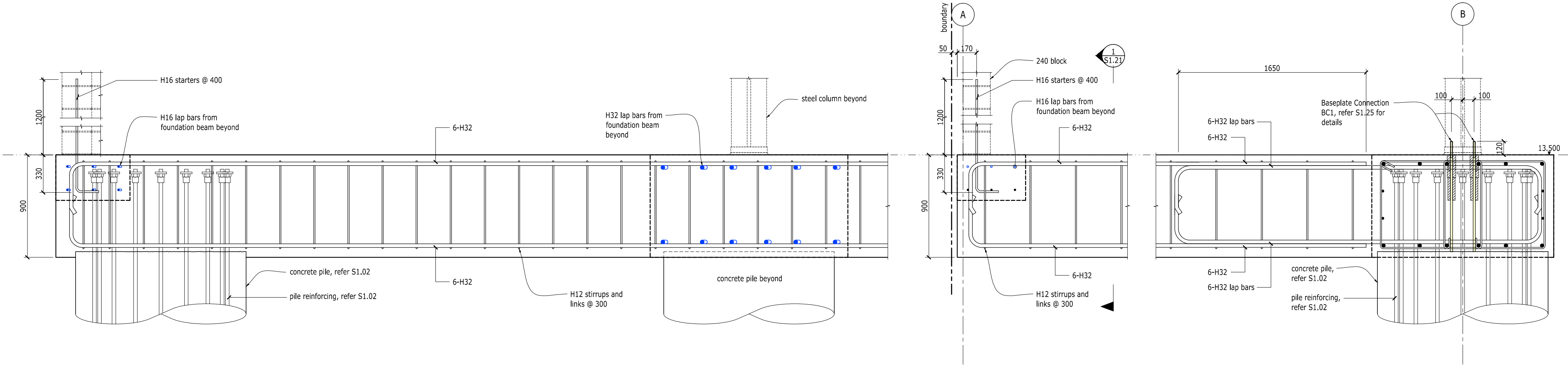
structex
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FOUNDATION DETAILS
drawing title

S1.25	project
drawing no	1770
	A
	issue



BEAM ELEVATION GRID B
Scale: 1:25

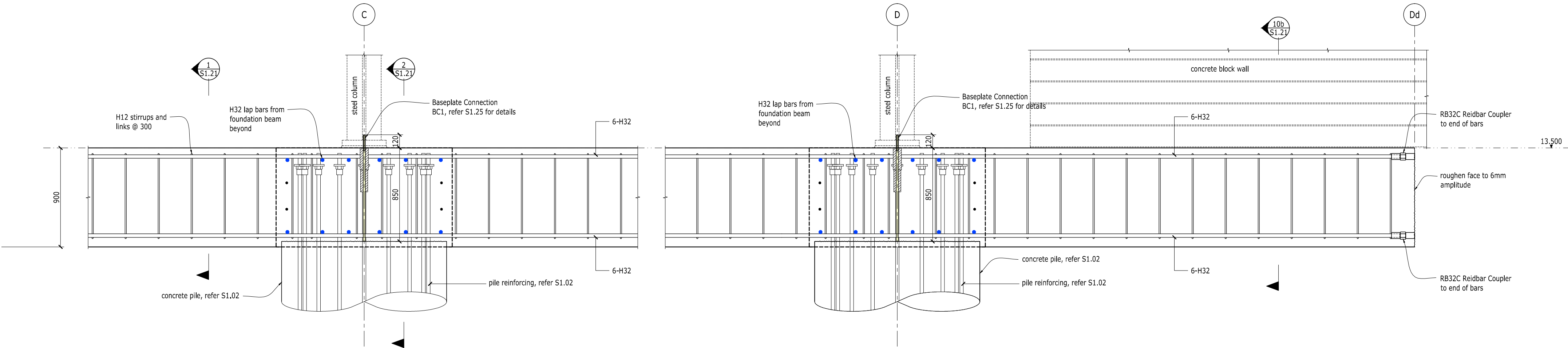


BEAM ELEVATION BETWEEN GRID 3 AND GRID 4 (DIAGONAL BEAM)
Scale: 1:25

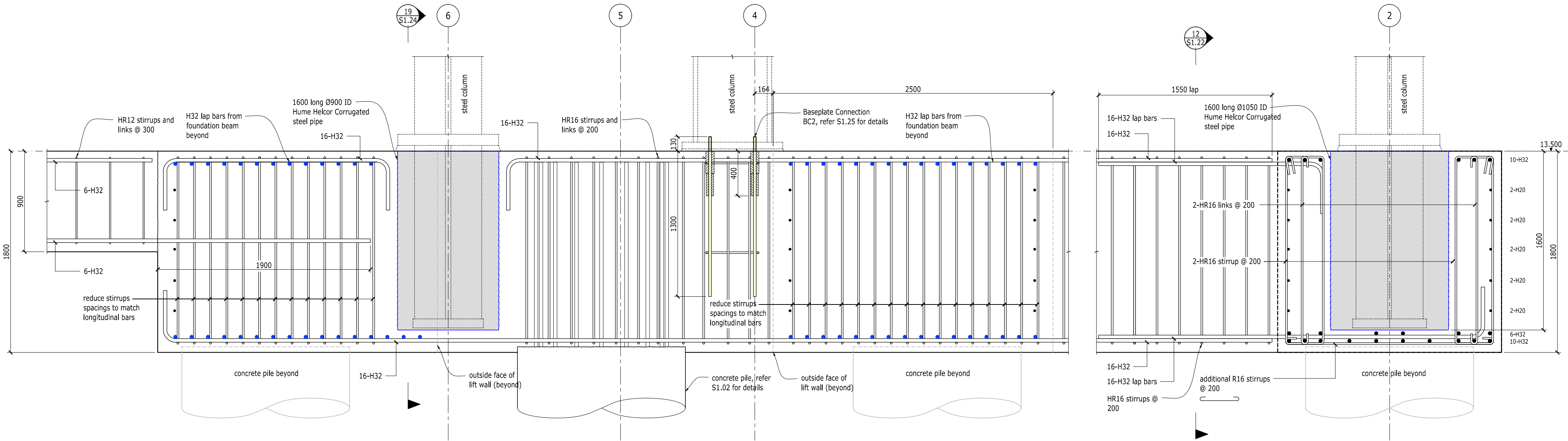
BEAM ELEVATION GRID 5
Scale: 1:25

					CL	BG	GB	1:25	AMC CONSTRUCTION	C1 TOWER	structex	FOUNDATION BEAM ELEVATION GRIDS B & 5	S1.26	project 1770 A
A	PRELIMINARY	CL	GB	18-04-07	drawn	designed	approved	scales	client	project title	Giving support a whole new meaning™ www.structex.co.nz	drawing title	drawing no	issue
O	FOR CONSENT	CL	GB	29-03-07										
Issue	description	by	appd.	date										

CONSENT



BEAM ELEVATION GRID 7
Scale: 1:25



BEAM ELEVATION GRID D
Scale: 1:25

CONSENT

A	PRELIMINARY	CL	GB	18-04-07
O	FOR CONSENT	CL	GB	05-04-07
Issue	description	by	appd.	date

CL	BG	GB	1:25
drawn	designed	approved	scales

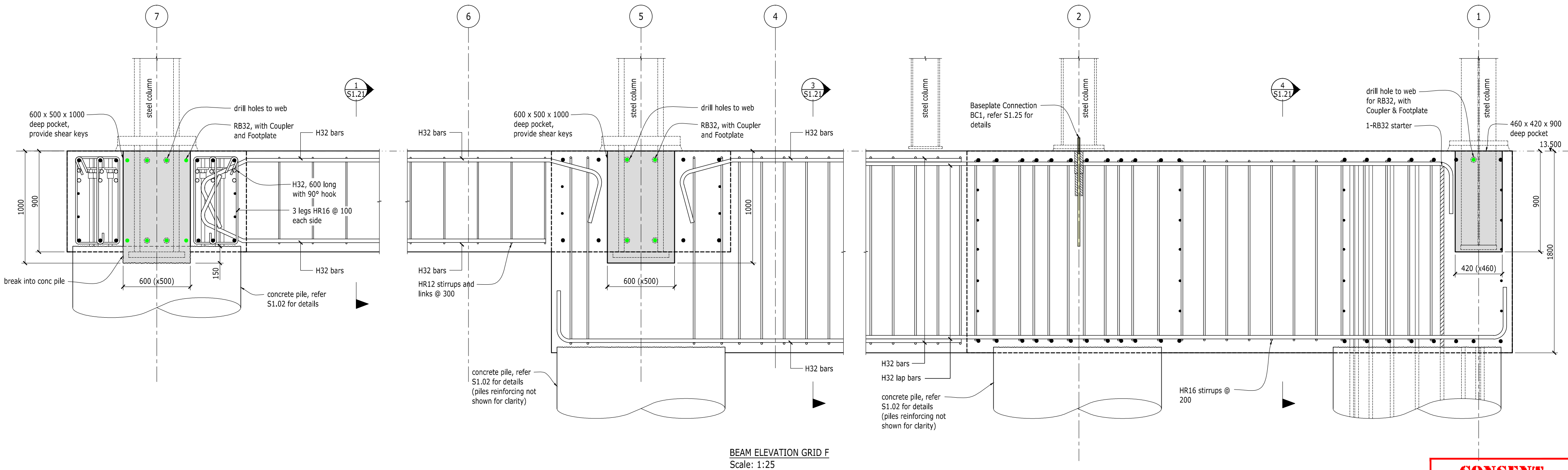
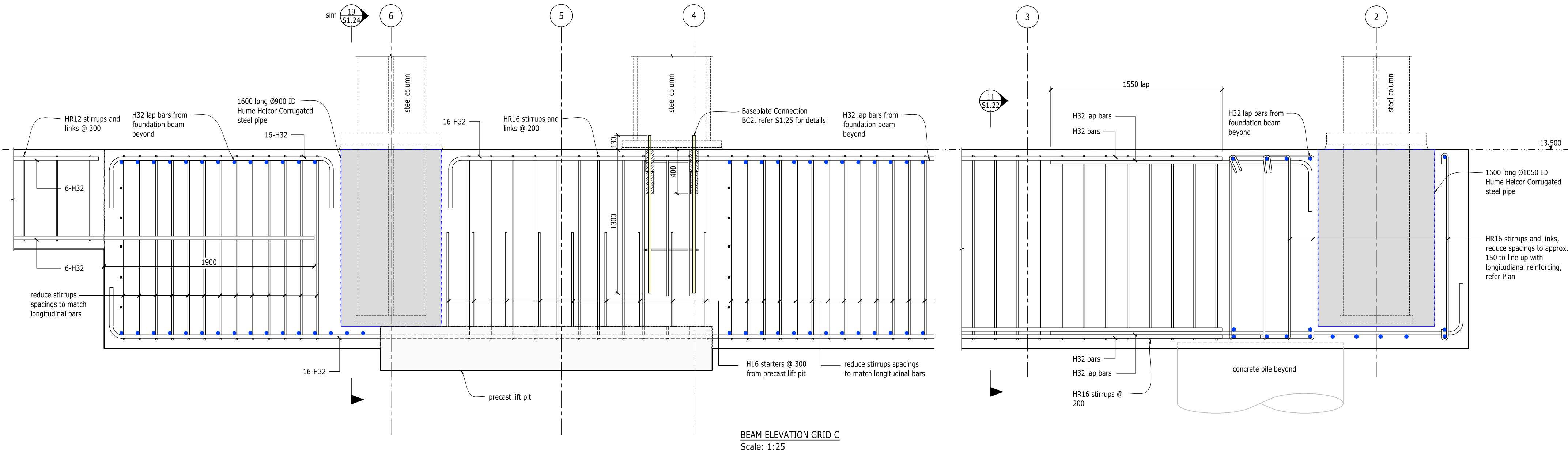
AMC CONSTRUCTION
client

C1 TOWER
project title

structex
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FOUNDATION BEAM ELEVATION GRIDS 7 & D
drawing title

S1.27	project 1770
drawing no	A issue



CONSENT

A	PRELIMINARY	CL	GB	18-04-07
issue	description	by	appd.	date

CL	BG	GB	1:25
drawn	designed	approved	scales

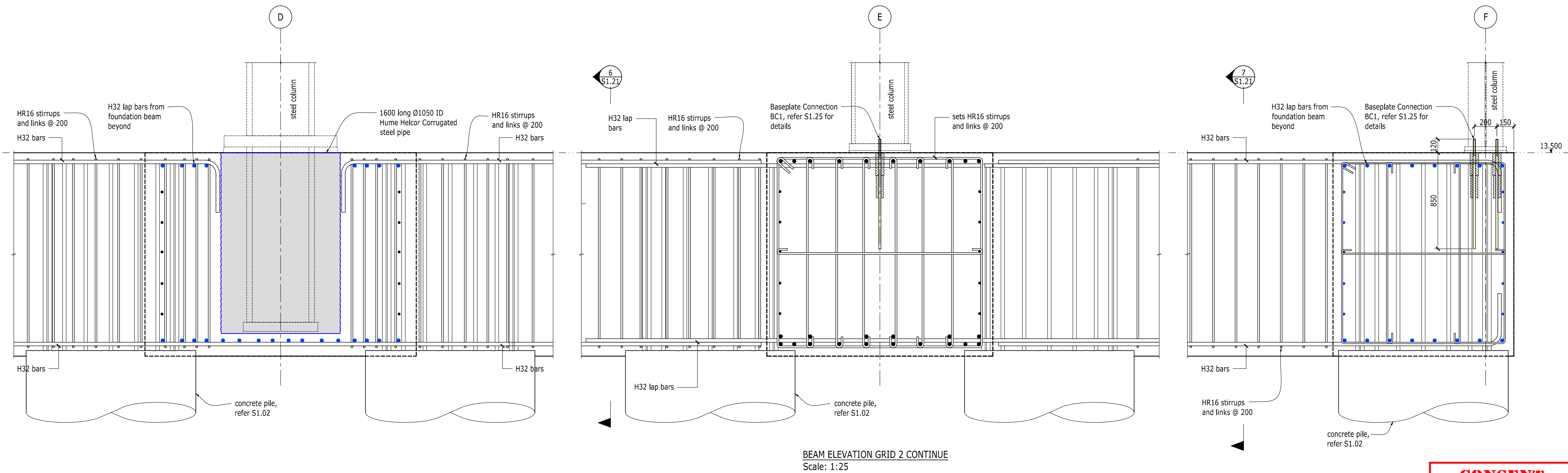
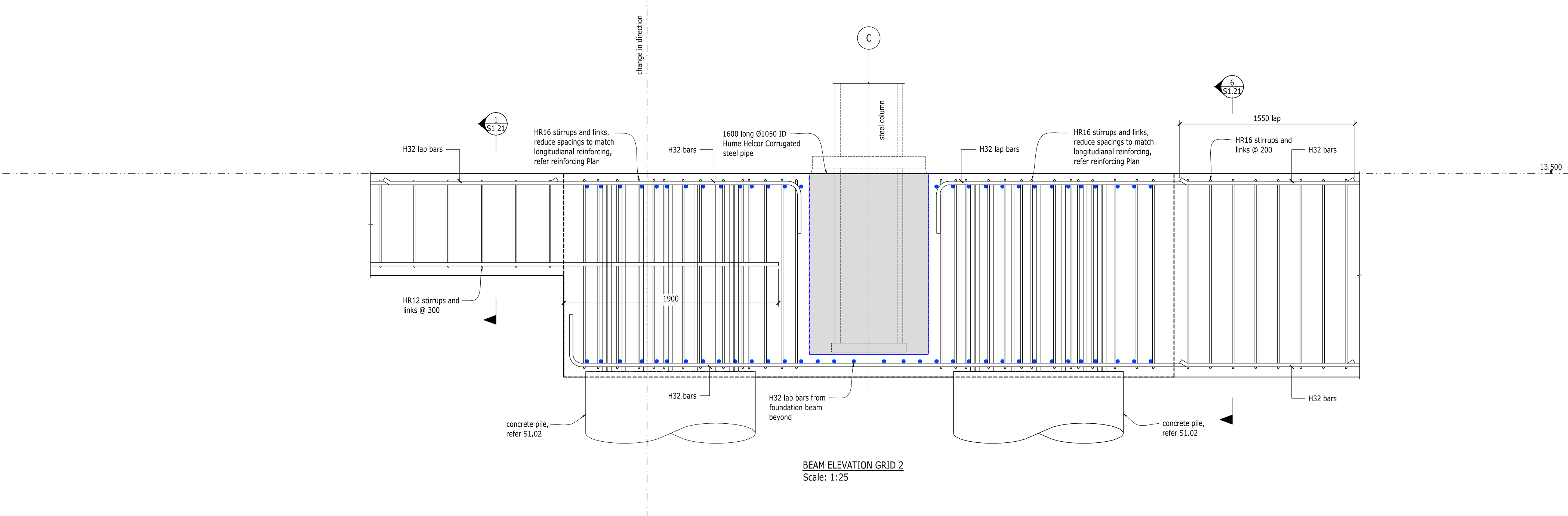
AMC CONSTRUCTION
client

C1 TOWER
project title

structex
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FOUNDATION BEAM ELEVATIONS GRID 4, 5, C, F
drawing title

S1.28	project 1770
drawing no	A
	issue



CONSENT

A	PRELIMINARY		CL	GB	18-04-07
Issue	description		by	appd.	date

CL	BG	GB	1:25
drawn	designed	approved	scales

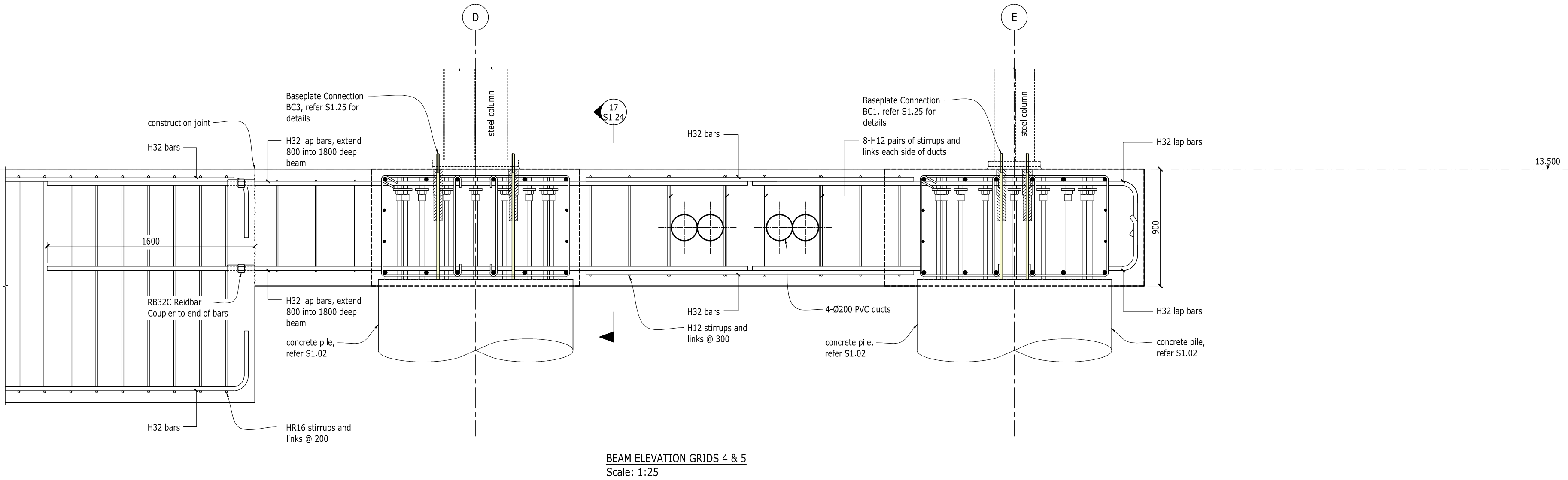
AMC CONSTRUCTION
client

C1 TOWER
project title

structex
"Giving support a whole new meaning" www.structex.co.nz

FOUNDATION BEAM ELEVATION GRID 2
drawing title

S1.29	project 1770
drawing no	A
	issue



A	PRELIMINARY	CL	GB	18-04-07
issue	description	by	appd.	date

CL	BG	GB	1:25
drawn	designed	approved	scales

AMC CONSTRUCTION
client

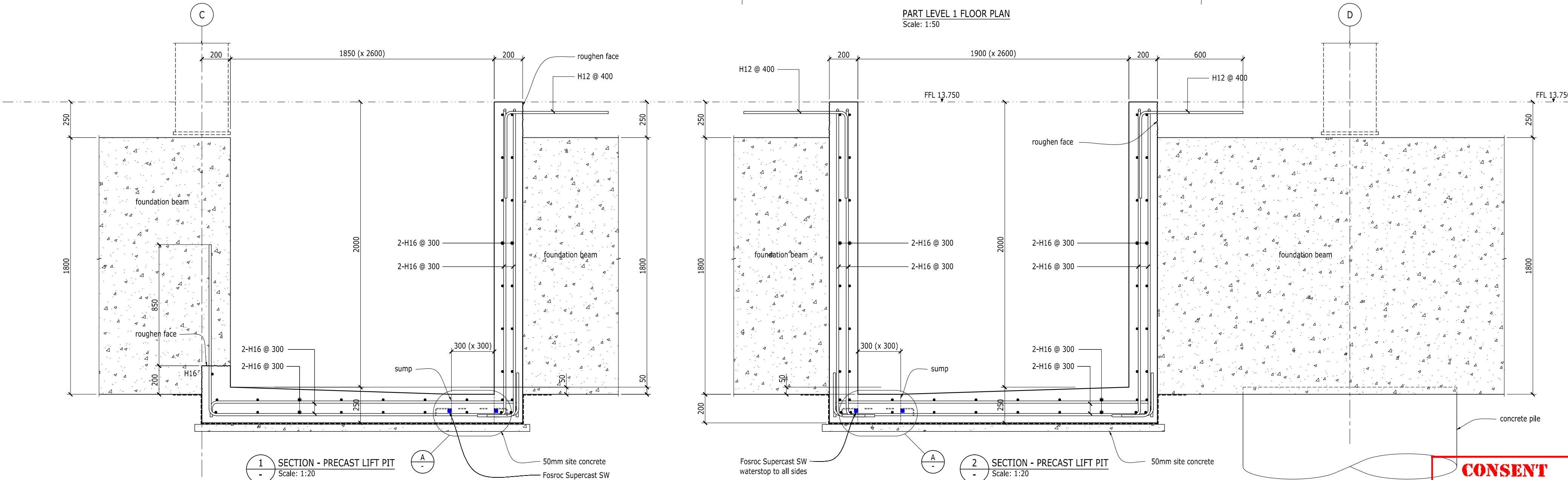
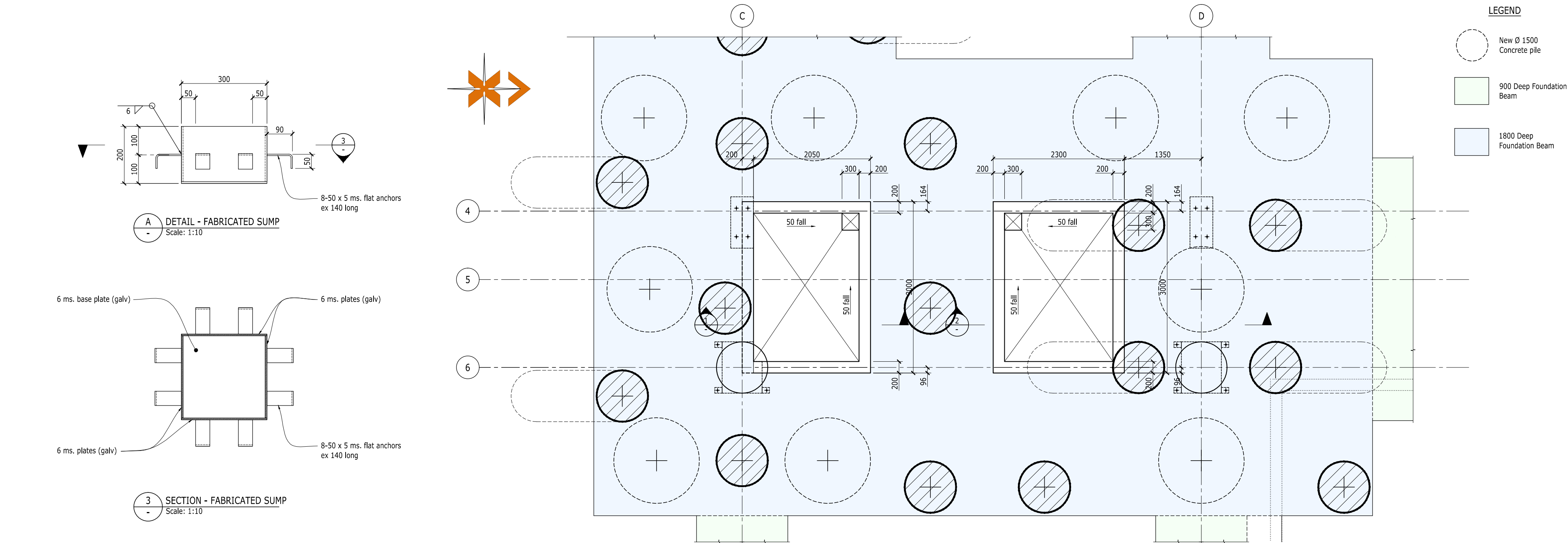
C1 TOWER
project title



FOUNDATION BEAM ELEVATIONS GRIDS 4, 5
drawing title

S1.31	project 1770
drawing no	A issue

CONSENT



CONSENT

A	PRELIMINARY	CL	GB	18-04-07
Issue	description	by	appd.	date

CL	BG	GB	1:50
drawn	designed	approved	scales
			1:20

AMC CONSTRUCTION

client

C1 TOWER

project title

structex
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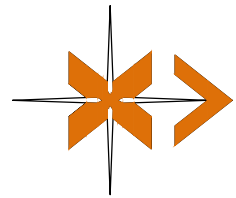
LIFT PIT DETAILS

drawing title

S1.41

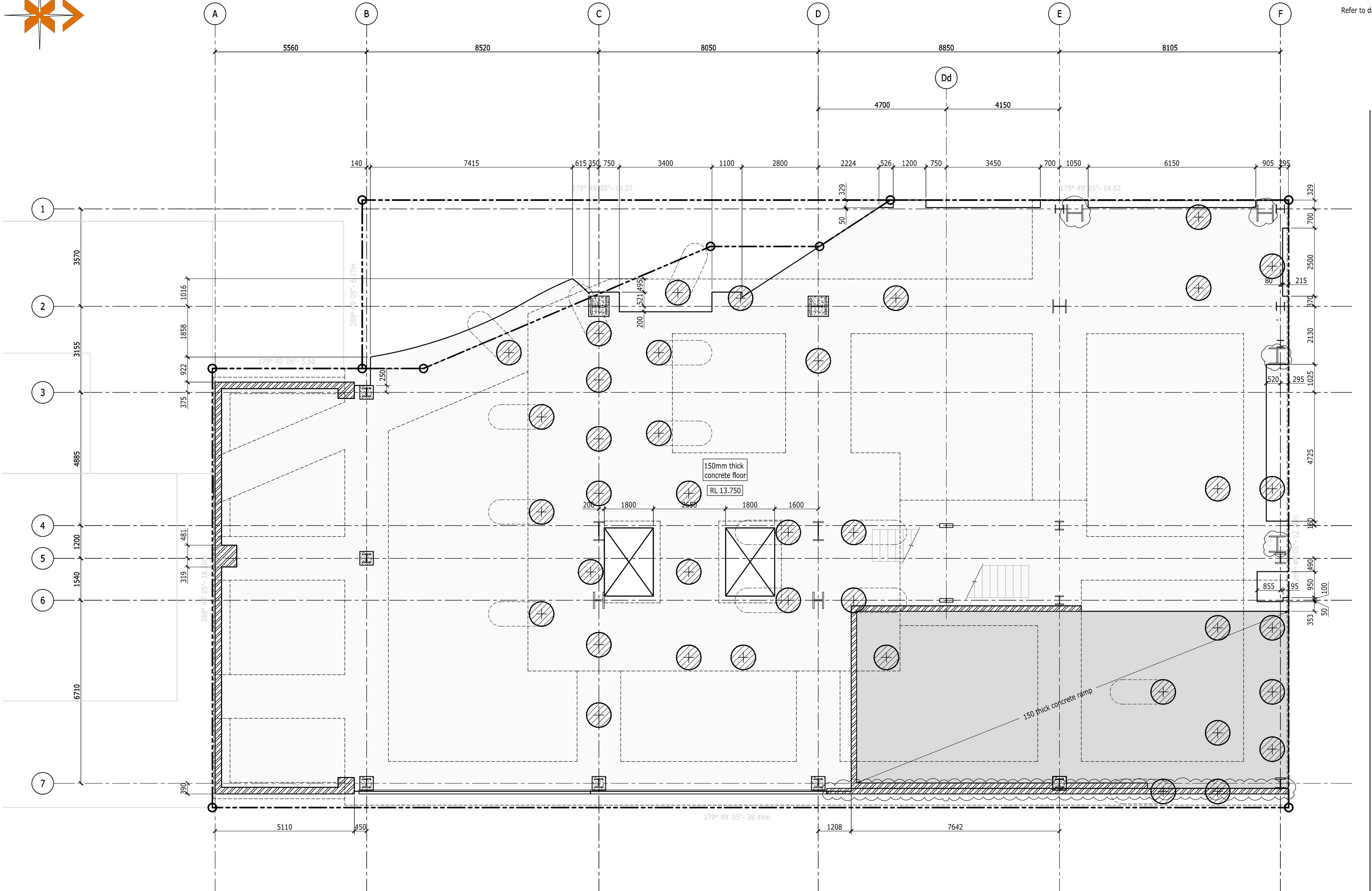
drawing no

project	1770
issue	A



NOTES:

Refer to drawing S1.52 for Level 1 reinforcing



GLoucester STREET

CONSTRUCTION

2	CONSTRUCTION ISSUE	JL	SG	12-12-07
issue	description	by	appd.	date

GA	GB		1:100
drawn	designed	approved	scales

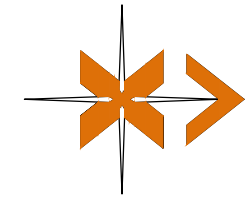
AMC CONSTRUCTION
client

C1 TOWER
project title



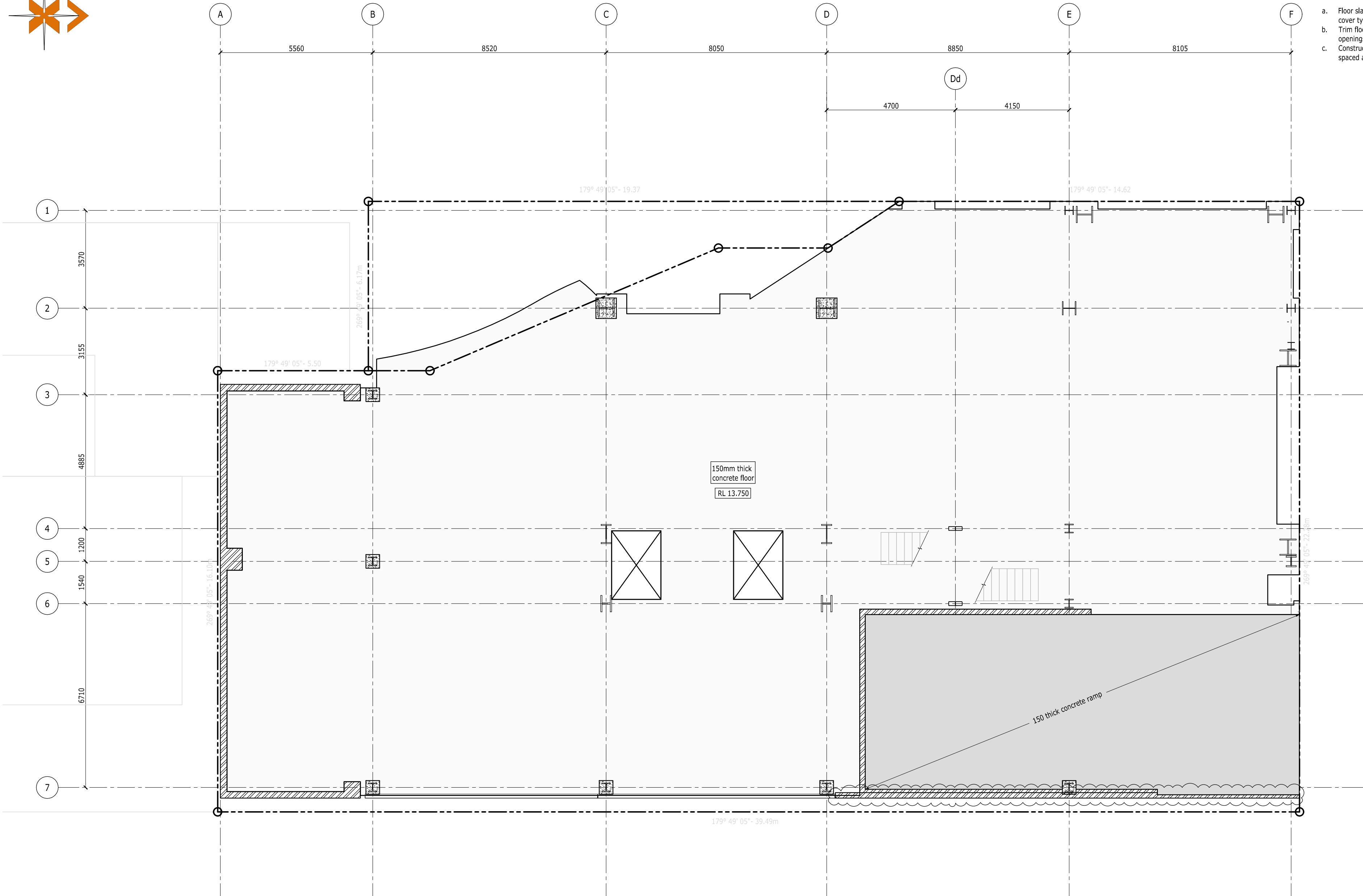
LEVEL 1 PLAN
drawing title

S1.51	project 1770
drawing no	2
issue	



NOTES:

- a. Floor slab to be reinforced with 665 mesh 50 top cover typical
- b. Trim floor with 2-H12 reinforcing bars to edges and openings
- c. Construction joints or shrinkage control joints to be spaced at 4.0m max centres each way



GLOUCESTER STREET

2	CONSTRUCTION ISSUE	JL	SG	12-12-07
issue	description	by	appd.	date

GA	GB		1:100
drawn	designed	approved	scales

AMC CONSTRUCTION
client

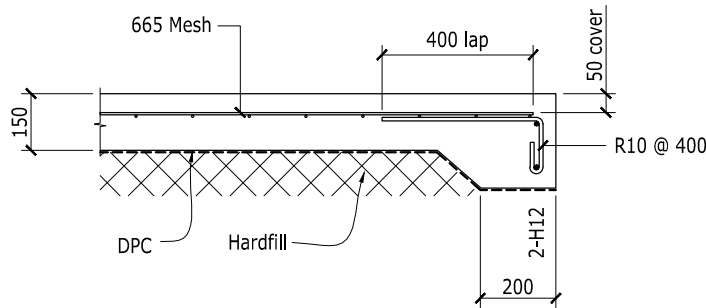
C1 TOWER
project title



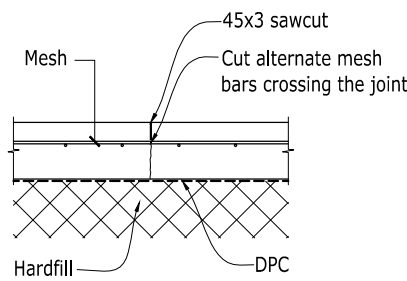
LEVEL 1 REINFORCING PLAN
drawing title

S1.52	project 1770
drawing no	2 issue

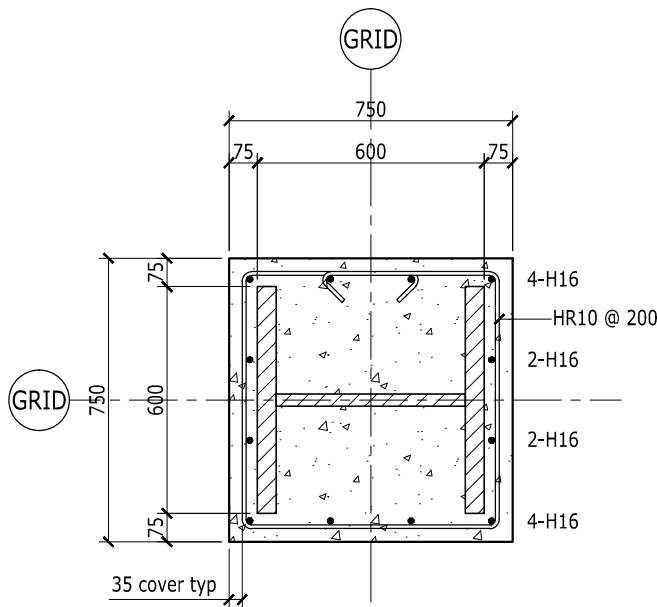
CONSTRUCTION



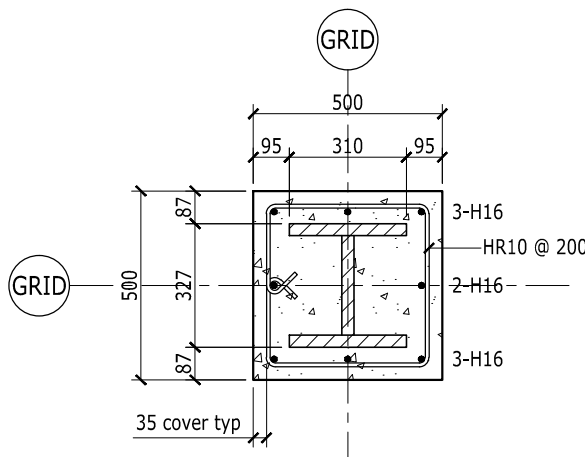
1
S1.51 SECTION - FLOOR EDGE
Scale: 1:20



CJ1 UNFILLED SAWCUT JOINT
Scale: 1:20



COLUMN ENCASEMENT - GRIDS C2, D2 - LEVEL 1
Scale: 1:20



COLUMN ENCASEMENT - GRIDS B3, B5, B7, C7, D7, E7 - LEVELS 1-6
Scale: 1:20

2	CONSTRUCTION ISSUE	JL	SG	12-12-07
issue	description	by	appd.	date

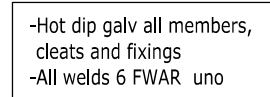
GA	GB		1:10
drawn	designed	approved	scales

AMC CONSTRUCTION
client

C1 TOWER
project title

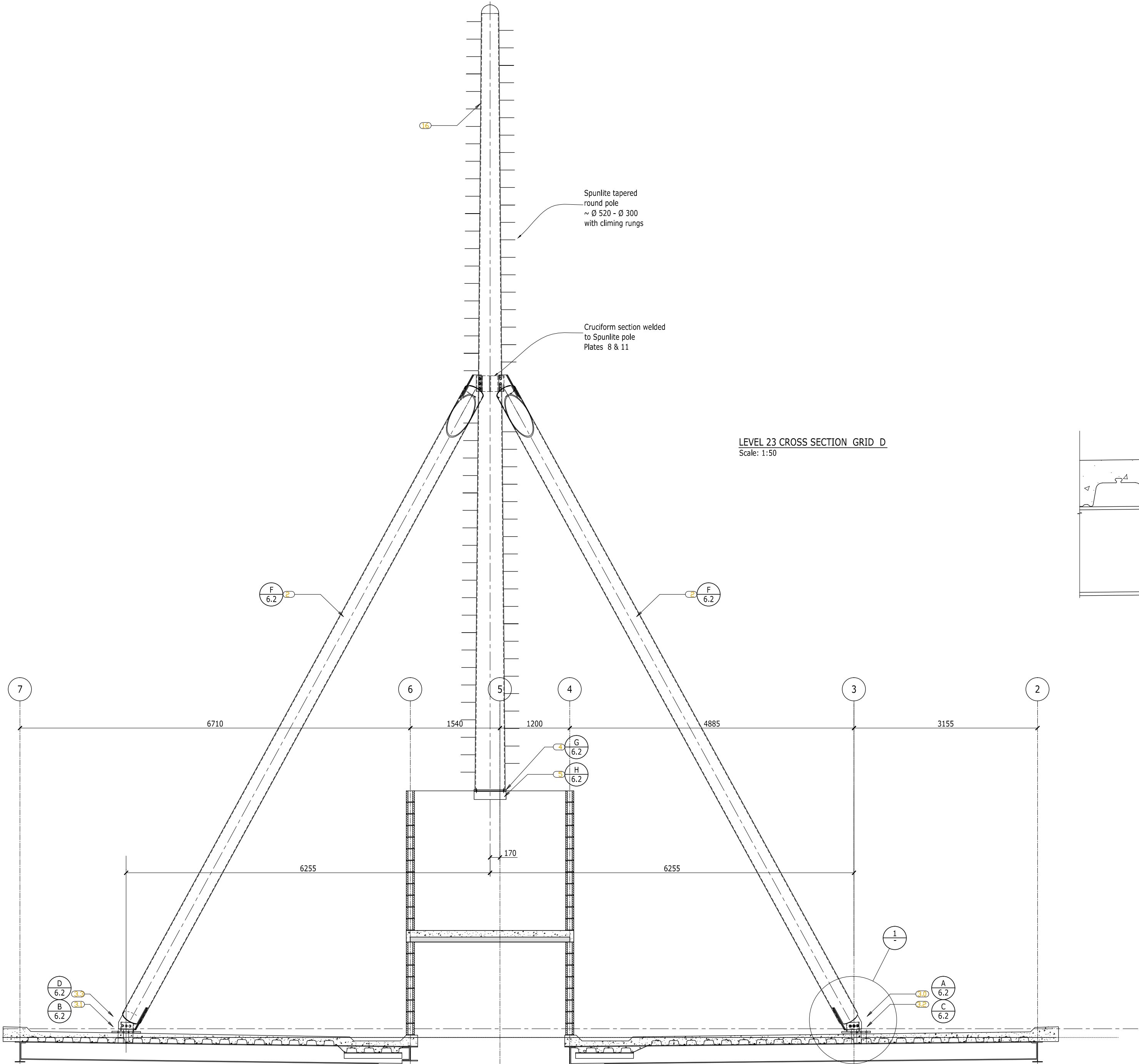
LEVEL 1 DETAILS
drawing title

CONSTRUCTION	
S1.55	project 1770
drawing no	2 issue

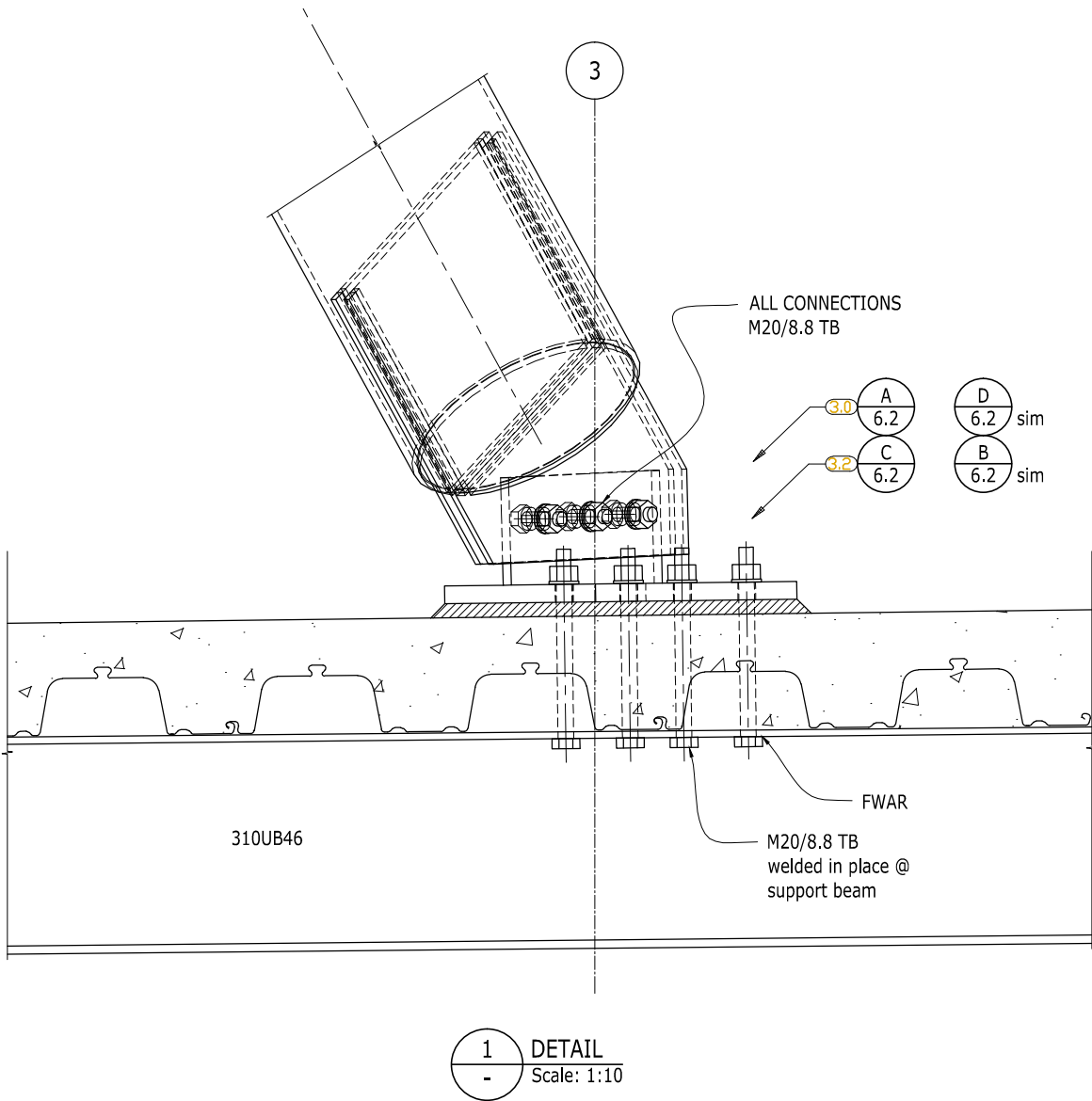


S6.01	project
	1770
	2
drawing no	issue

C1 TOWER



LEVEL 23 CROSS SECTION GRID D
Scale: 1:50



2	CONSTRUCTION ISSUE	JL	SG	12-12-07	
Issue	description	by	appd.	date	

JL	SG		1:50
drawn	designed	approved	scales

AMC CONSTRUCTION
client

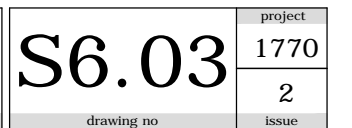
C1 TOWER
project title

structex
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ROOFTOP A - FRAME PYRAMID SECTION GRID D
drawing title

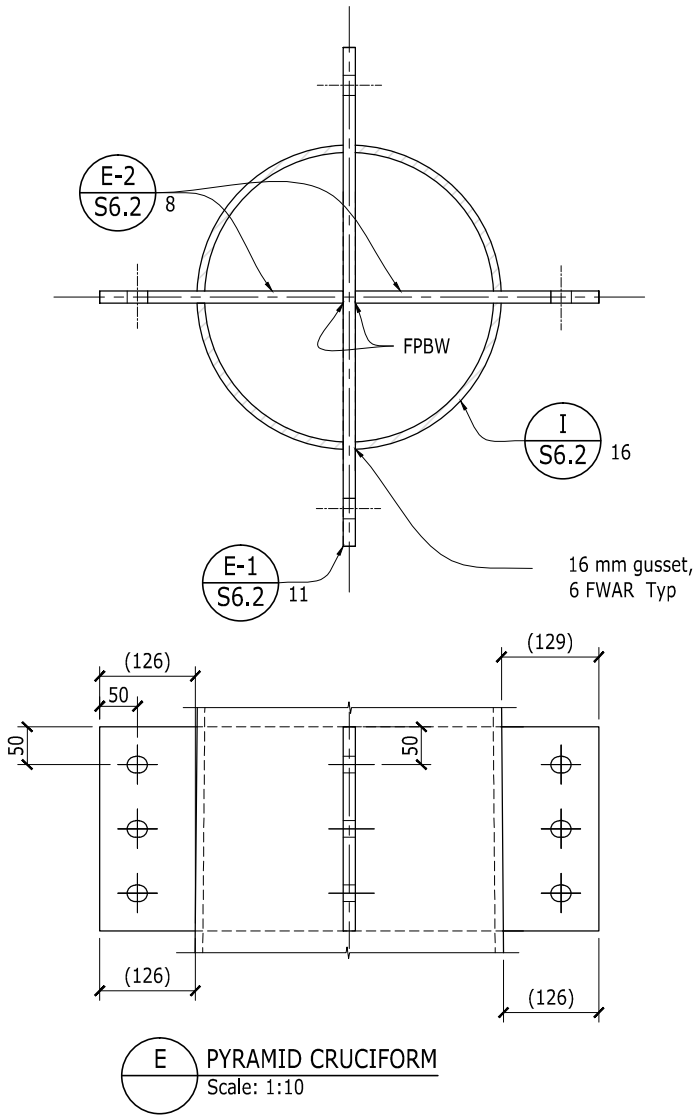
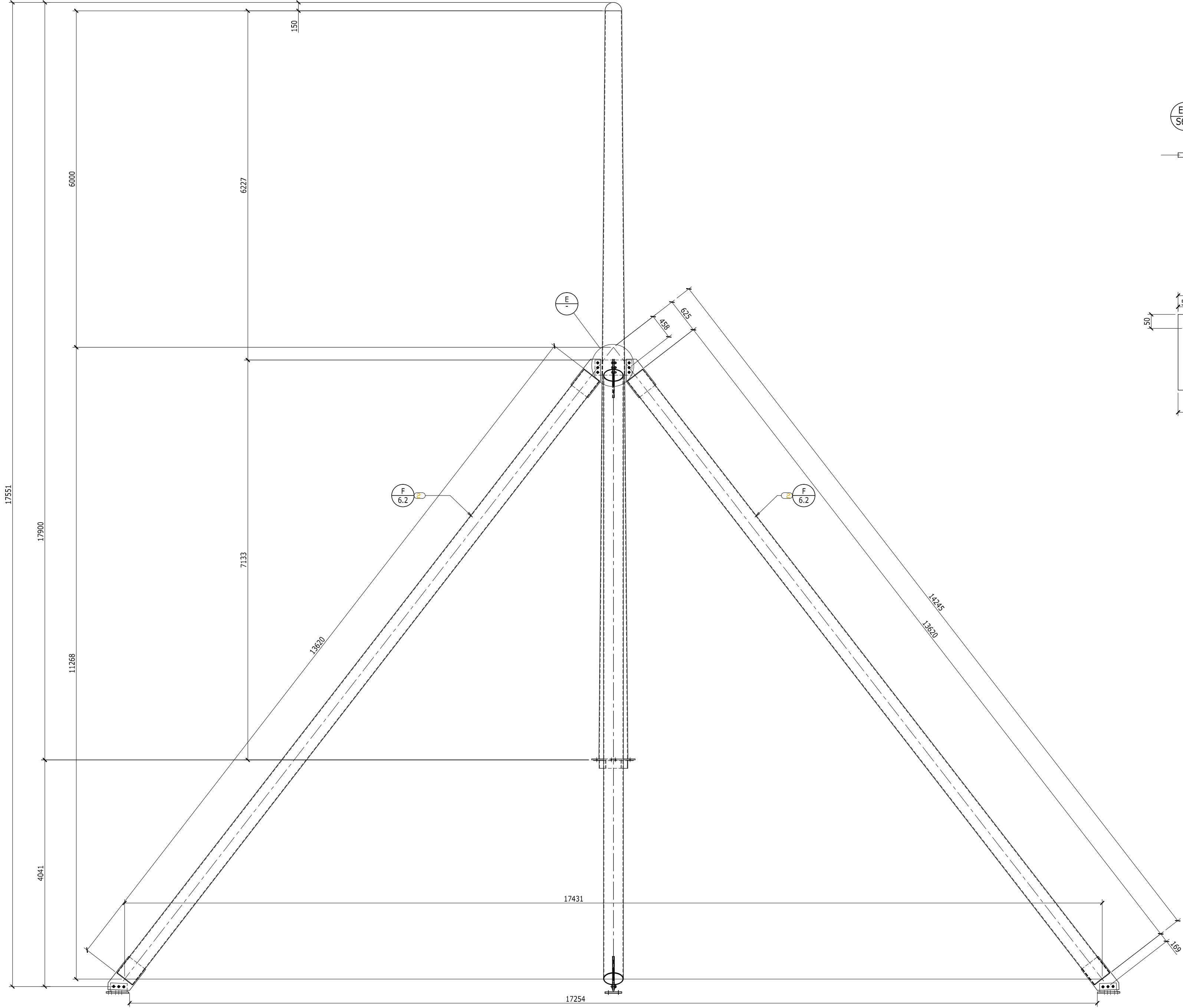
S6.02	project 1770
2	issue

CONSTRUCTION



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P:\PROJECTS\1770\DWG\1770S6.0.DWG - 25\10\07 19:02 A2 ORIGINAL



CONSTRUCTION

2	CONSTRUCTION ISSUE	JL	SG	12-12-07	
issue	description	by	appd.	date	

JL	SG		1:50
drawn	designed	approved	scales

AMC CONSTRUCTION
client

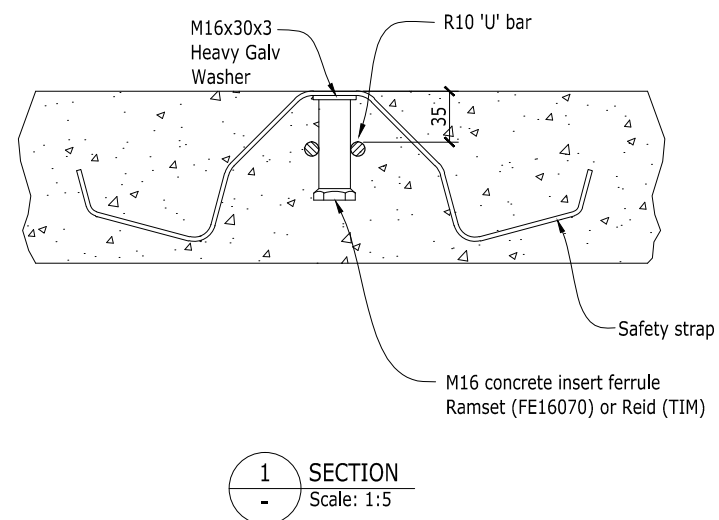
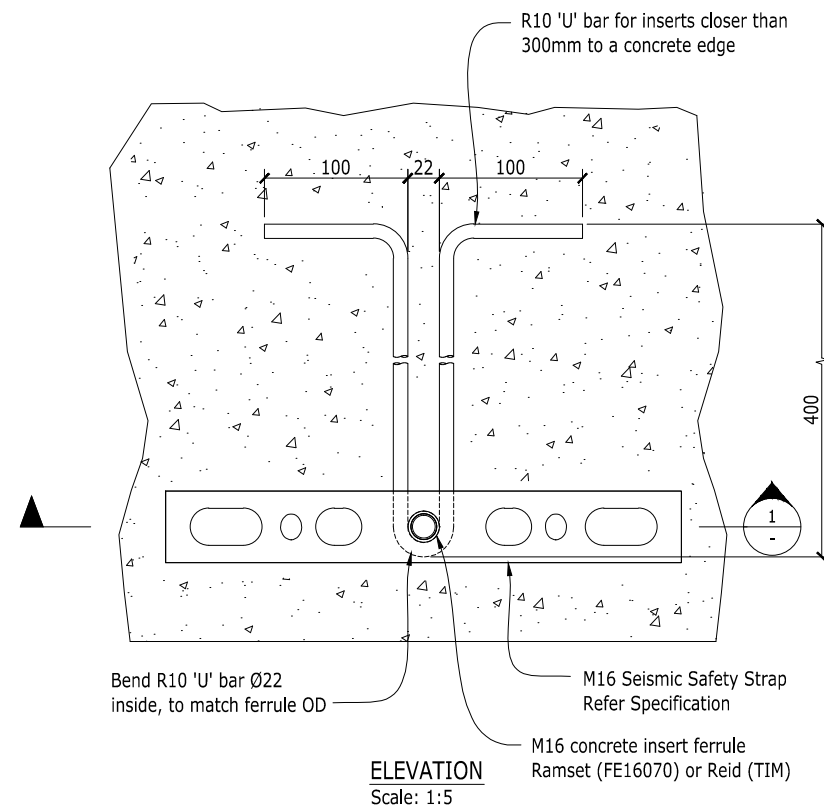
C1 TOWER
project title

structex
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ROOFTOP A - FRAME PYRAMID SECTION DIAGONAL
drawing title

S6.04	project 1770
drawing no	2 issue

For typical stair reinforcement refer:
Lower Stair - S2.75
Upper Stair - S2.73



SEISMIC SAFETY STRAP - ARRANGEMENT
Scale: 1:5

[illegible]

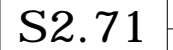
Refer to drawing S2.70 for notes and details



2	CONSTRUCTION ISSUE	JL	SG	12-12-07

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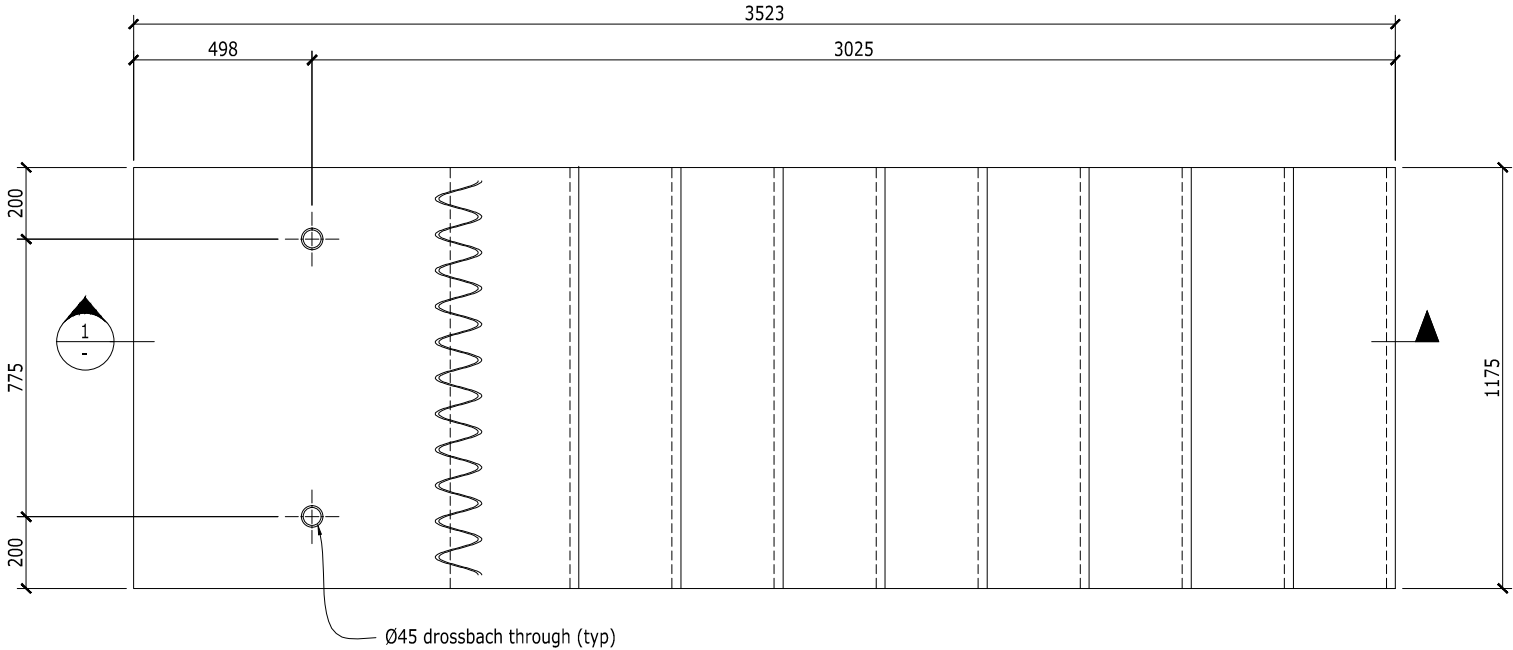
C1 TOWER



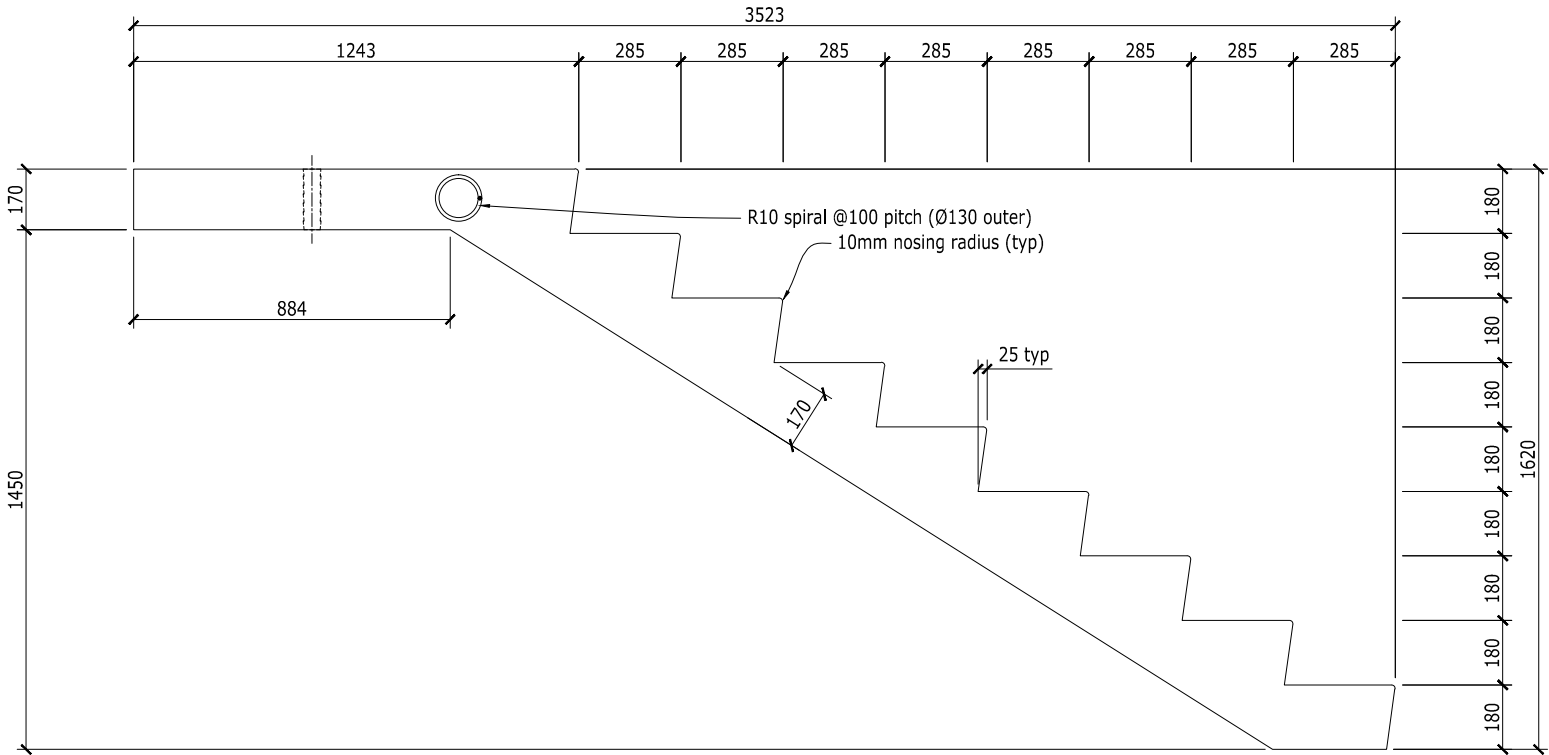
project
1770
2

NOTES:

Refer to drawing S2.70 for notes and details



PLAN - PRECAST STAIR TYPE - 2
Scale: 1:20



1 SECTION
Scale: 1:20

CONSTRUCTION

2	CONSTRUCTION ISSUE	JL	SG	12-12-07
issue	description	by	appl.	date

GA	GB		1:20
drawn	designed	approved	scales

AMC CONSTRUCTION
client

C1 TOWER
project title

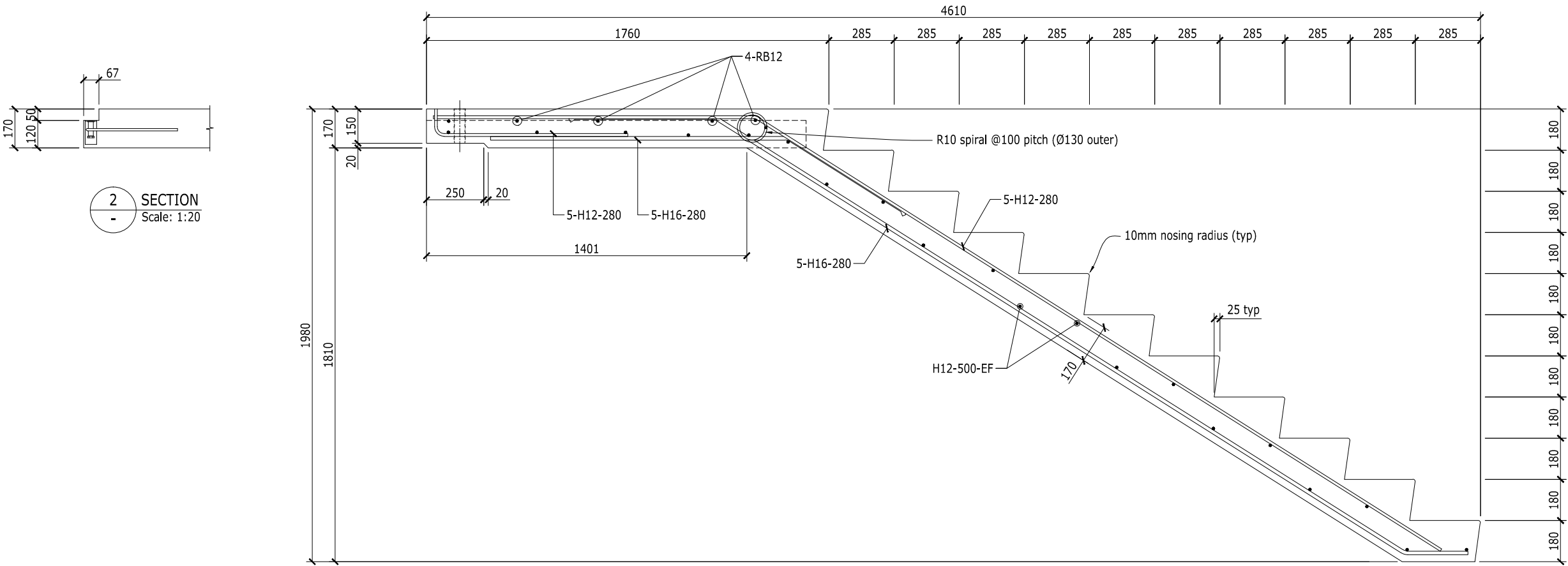
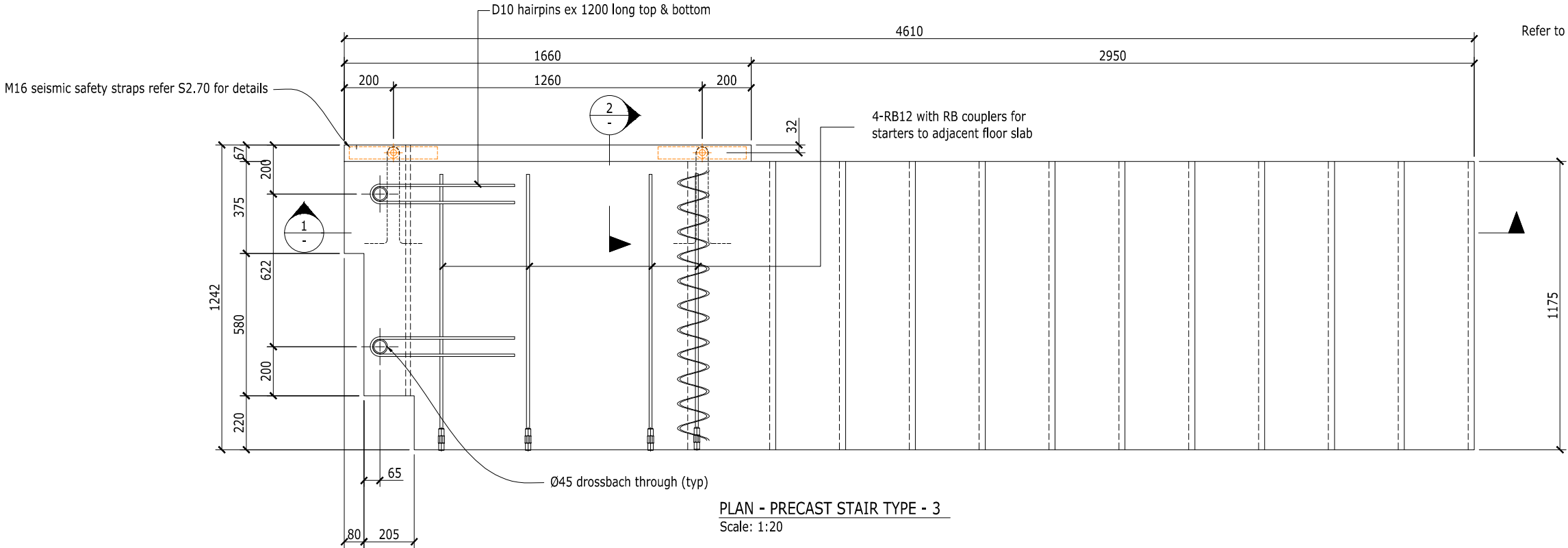


PRECAST STAIR TYPE 2
drawing title

S2.72	1770
drawing no	project
	2
	issue

NOTES:

Refer to drawing S2.70 for notes and details



SECTION 2
Scale: 1:20

SECTION 1
Scale: 1:20

CONSTRUCTION

2	CONSTRUCTION ISSUE	JL	SG	12-12-07	
issue	description	by	appl.	date	

GA	GB		1:20
drawn	designed	approved	scales

AMC CONSTRUCTION
client

C1 TOWER
project title

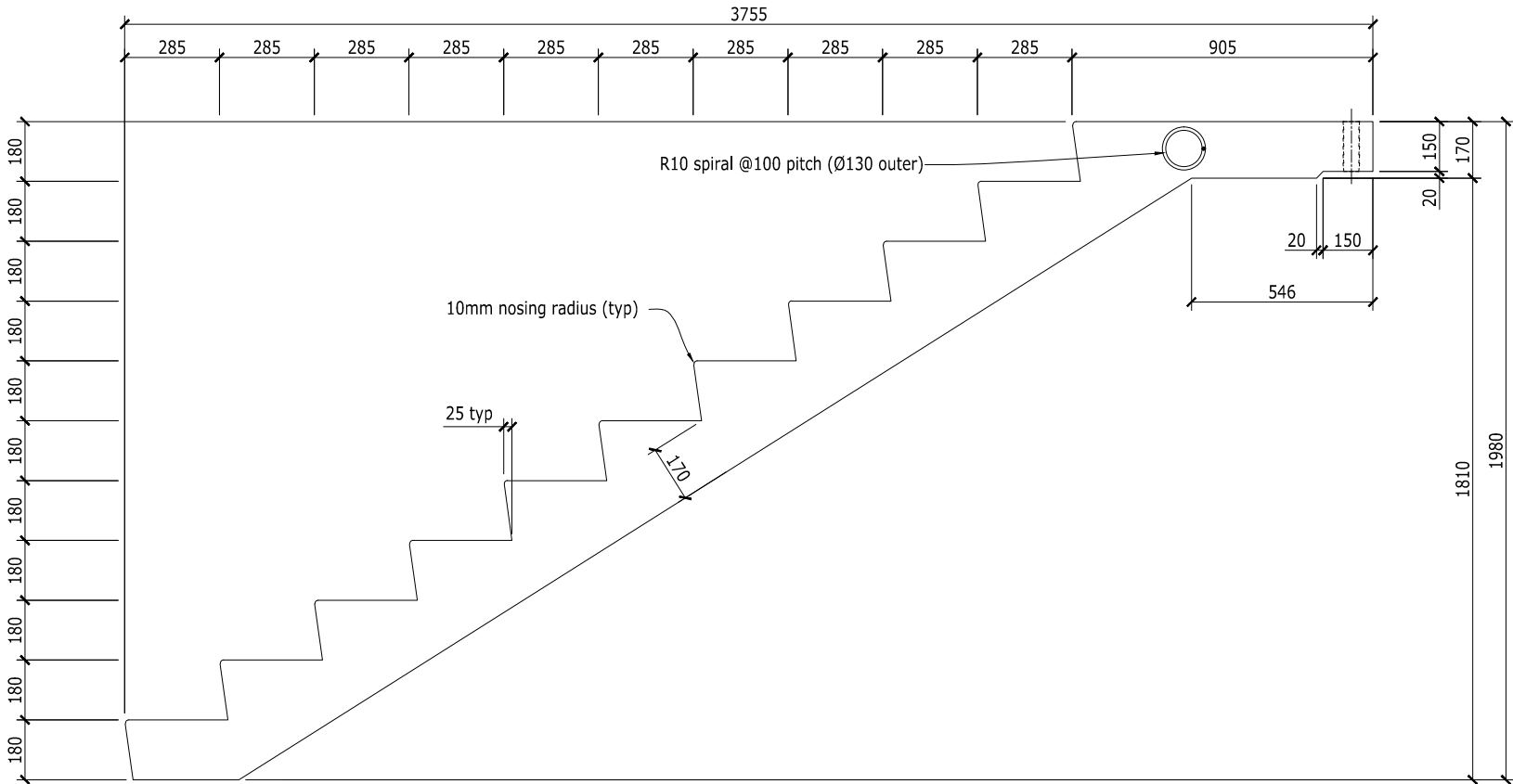
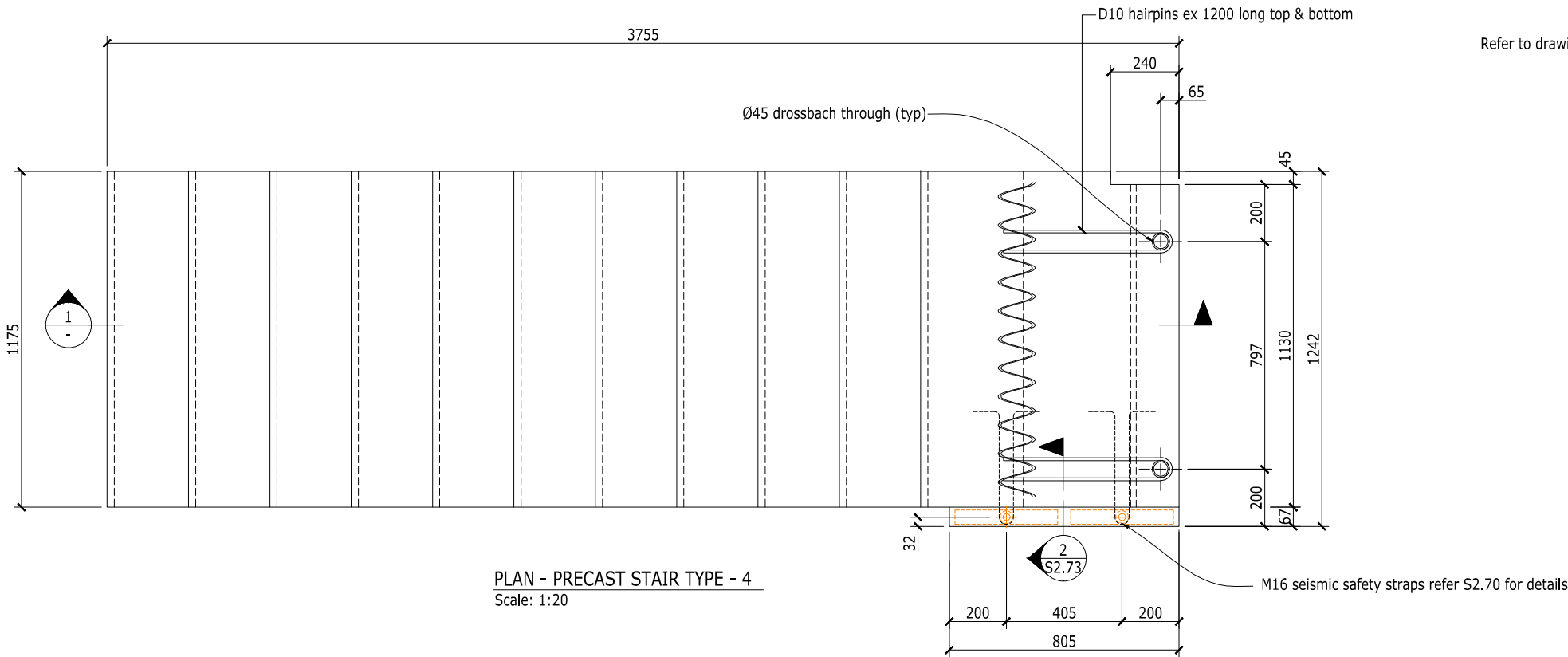


PRECAST STAIR TYPE 3
drawing title

S2.73	project
drawing no	1770
	2
	issue

NOTES:

Refer to drawing S2.70 for notes and details



CONSTRUCTION

2	CONSTRUCTION ISSUE	JL	SG	12-12-07
issue	description	by	appl.	date

GA	GB		1:20
drawn	designed	approved	scales

AMC CONSTRUCTION
client

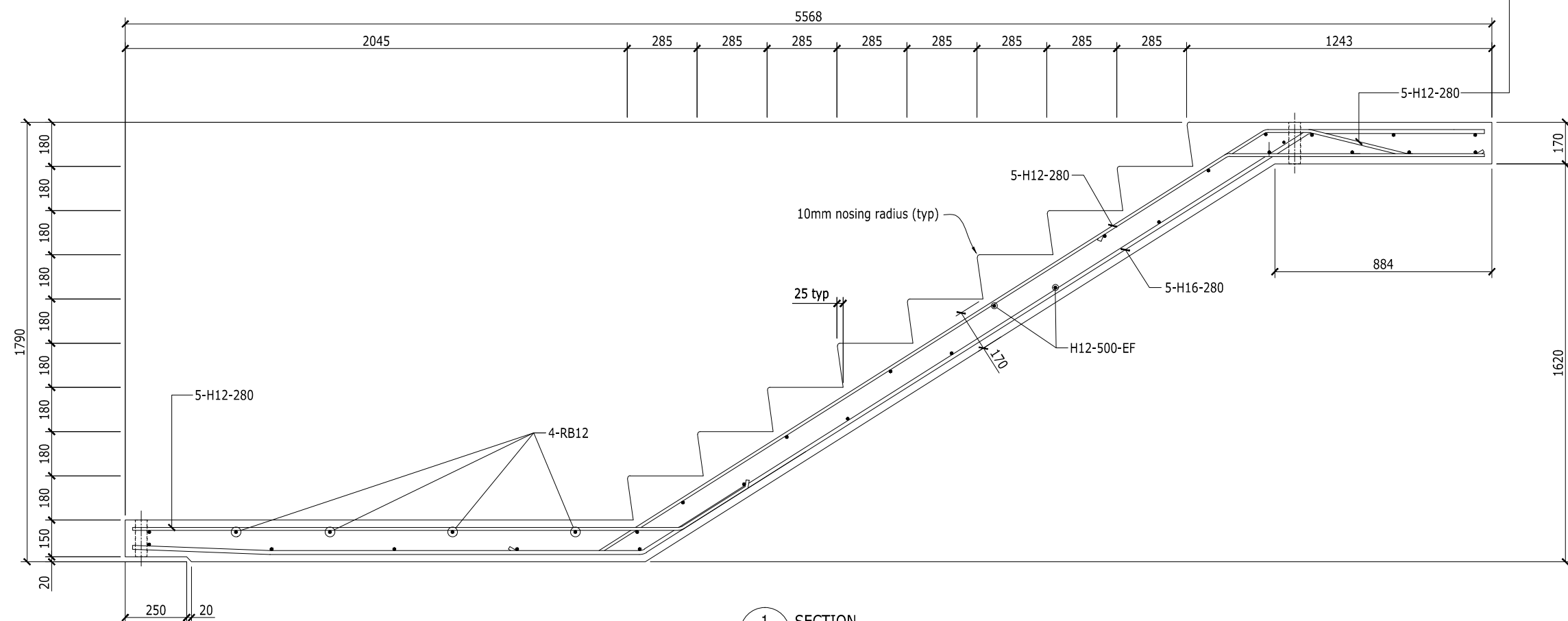
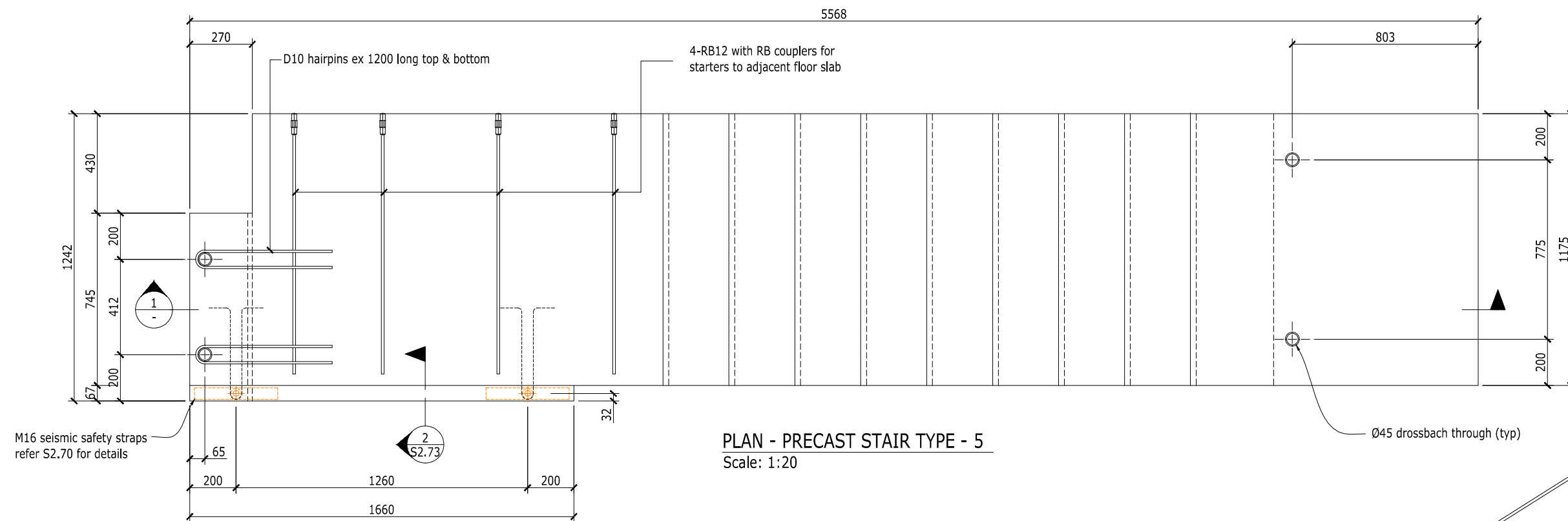
C1 TOWER
project title



PRECAST STAIR TYPE 4
drawing title

S2.74	project
drawing no	1770
	2
	issue

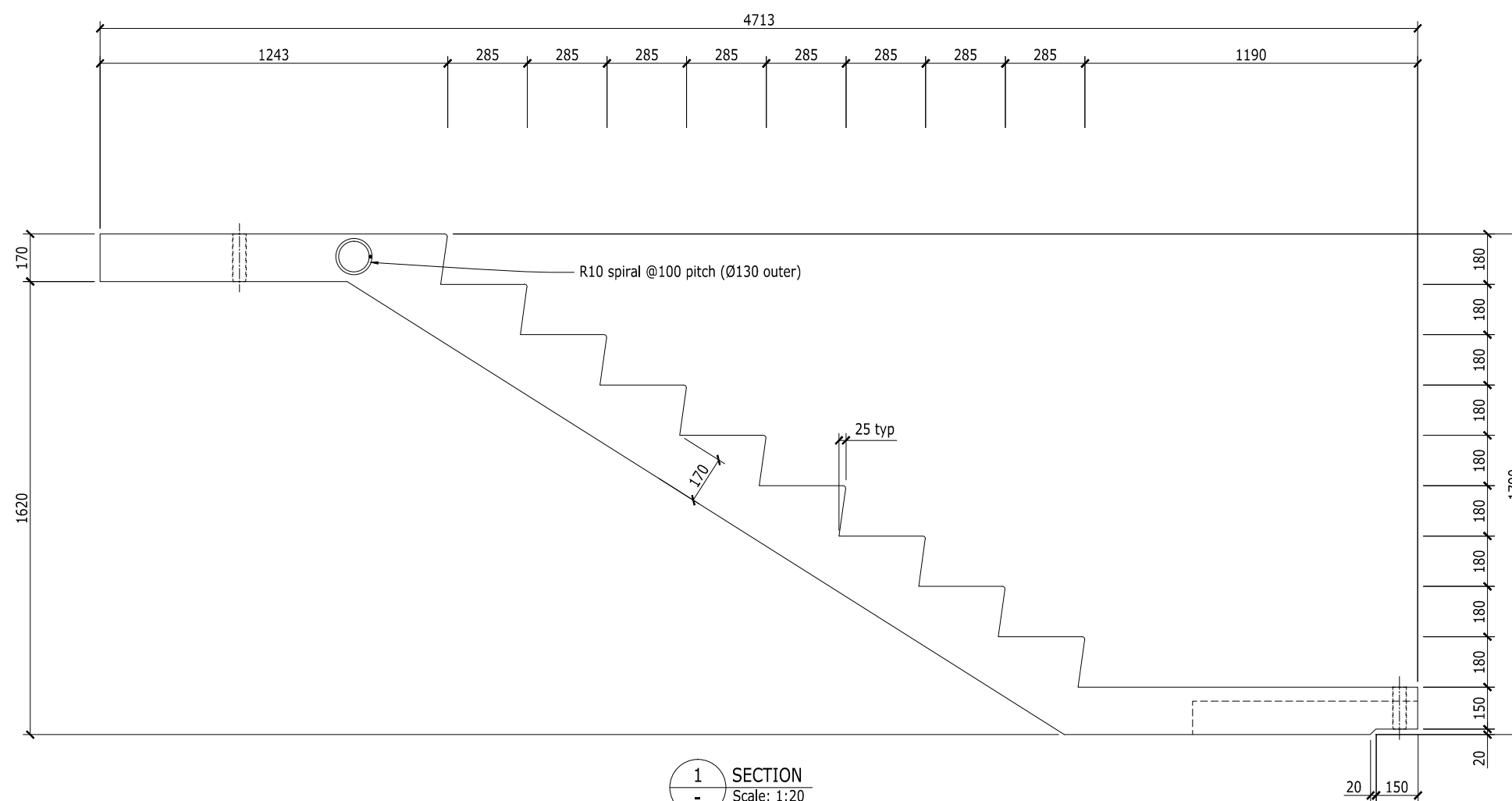
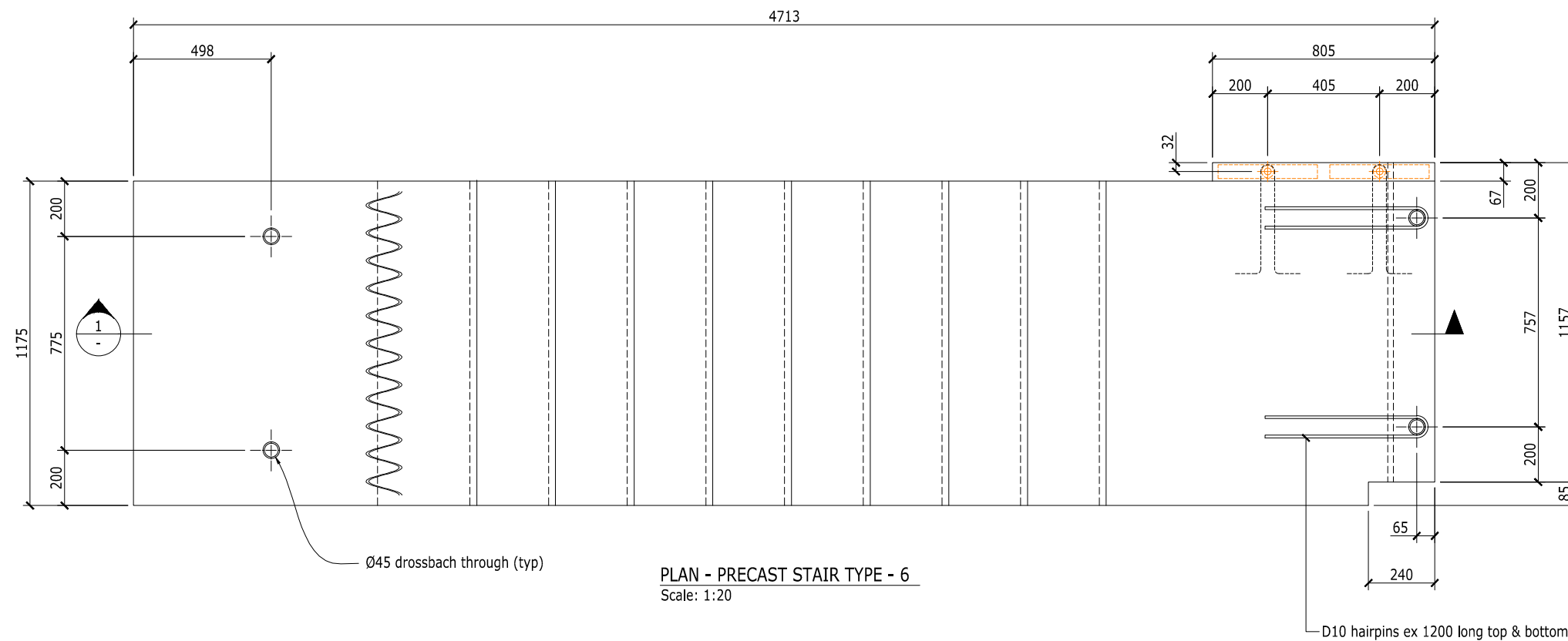
Refer to drawing S2.70 for notes and details



1 SECTION
- Scale: 1:20

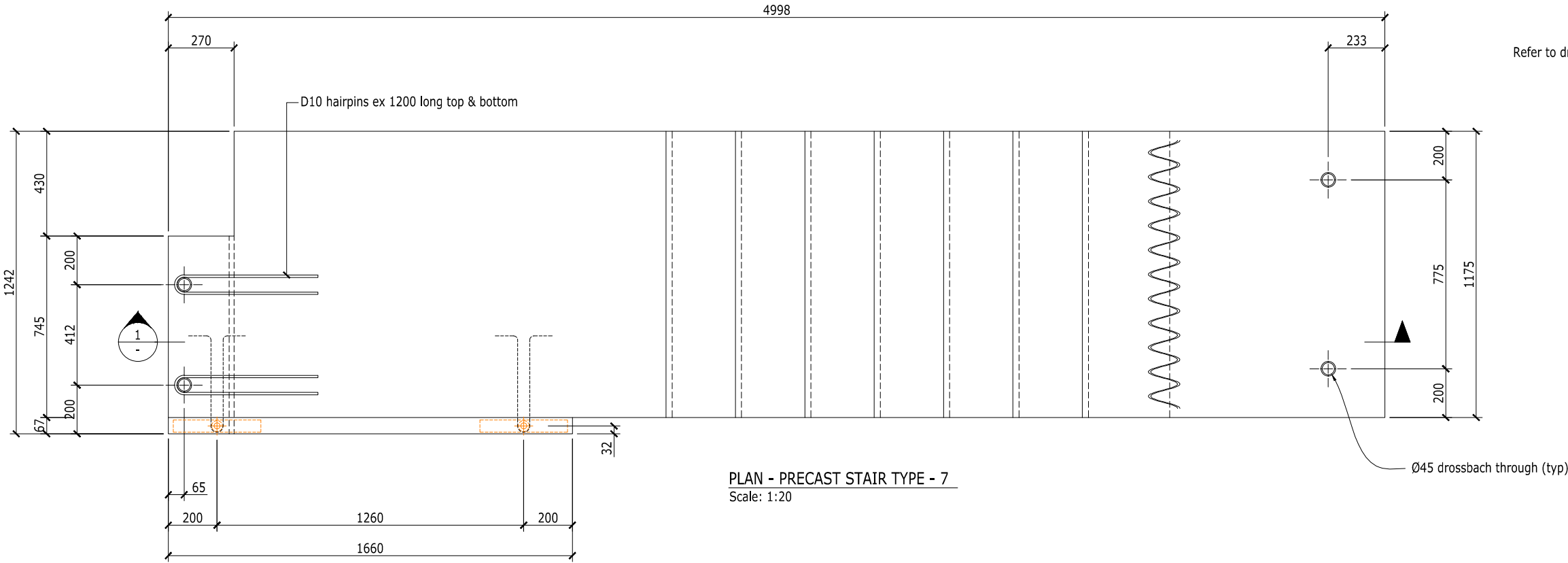
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project	1770																		
2																			
issue																			
2	CONSTRUCTION ISSUE	JL	SC	12-12-07	drawn	designed	approved	scale	client	project title	drawing title	drawing no.	issue						

Refer to drawing S2.70 for notes and details

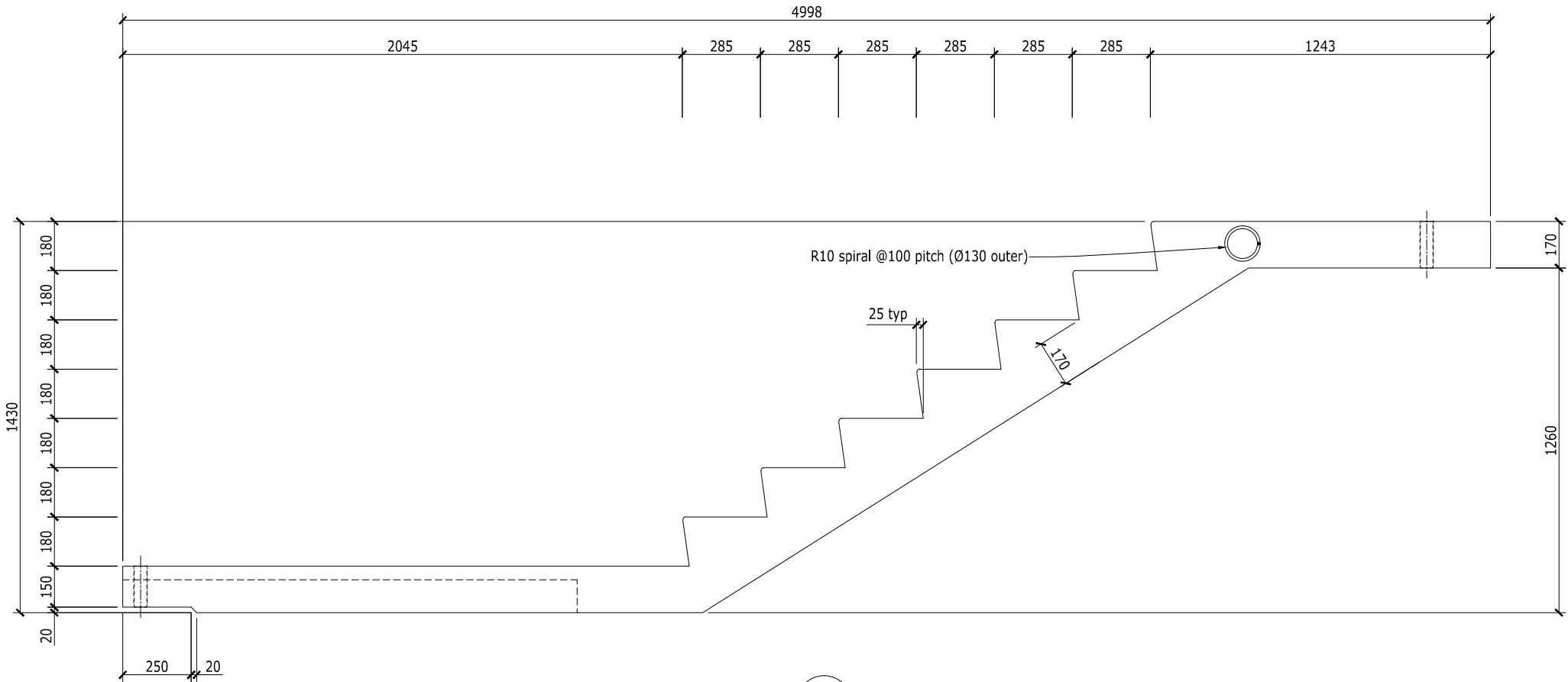


CONSTRUCTION

					GA	GB	1:20	AMC CONSTRUCTION	C1 TOWER	 "Giving support a whole new meaning" www.structex.co.nz	PRECAST STAIR TYPE 6	S2.76	<table><tr><td>project</td><td>1770</td></tr><tr><td>2</td><td></td></tr><tr><td>issue</td><td></td></tr></table>	project	1770	2		issue	
project	1770																		
2																			
issue																			
2	CONSTRUCTION ISSUE	JL	SC	12-12-07	drawn	designed	approved	scale	client	project title	drawing title	drawing no.	issue						



NOTES:
Refer to drawing S2.70 for notes and details



CONSTRUCTION

2	CONSTRUCTION ISSUE	JL	SG	12-12-07
issue	description	by	appd.	date

GA	GB		1:20
drawn	designed	approved	scales

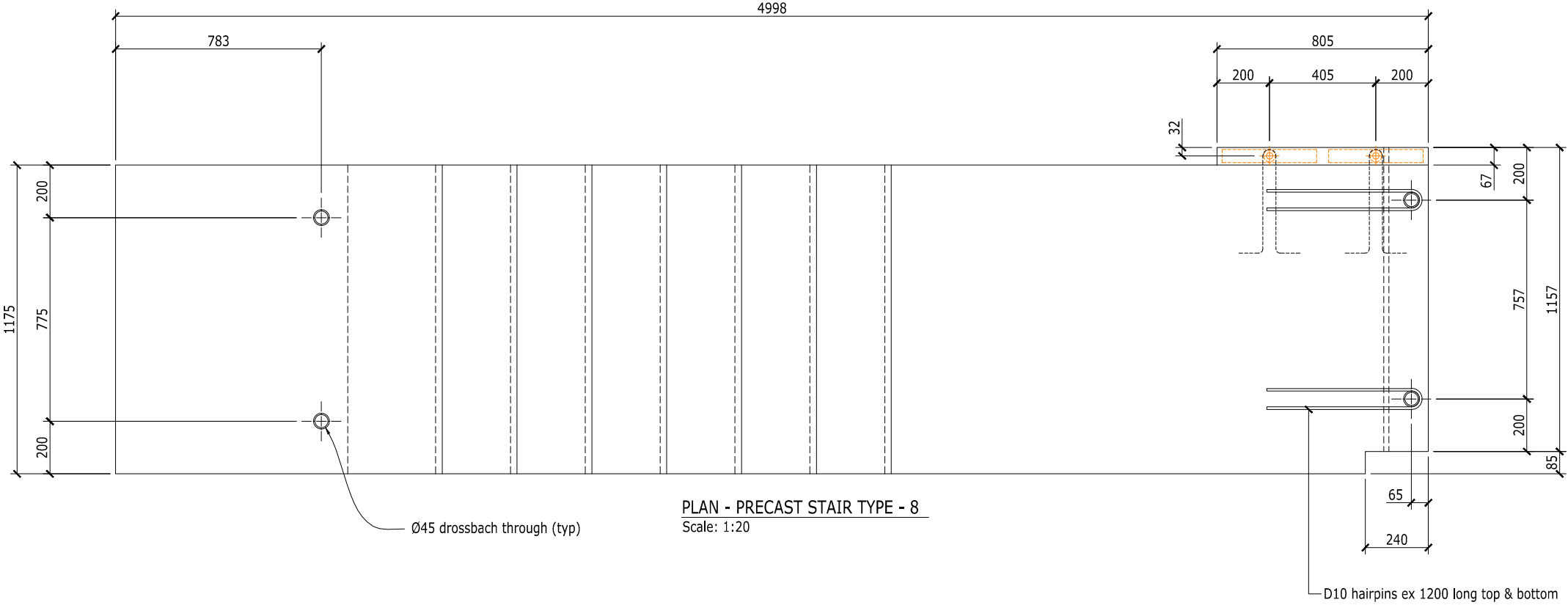
AMC CONSTRUCTION
client

C1 TOWER
project title



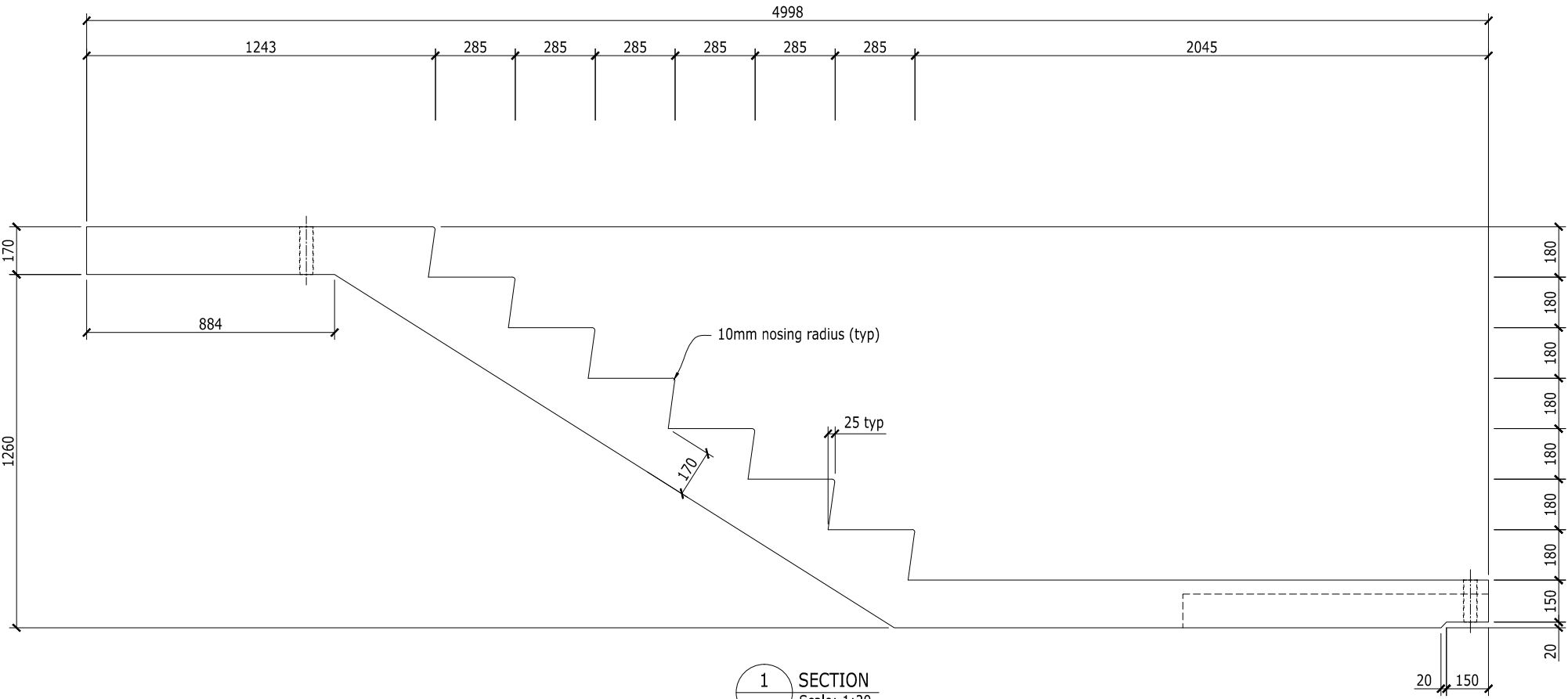
PRECAST STAIR TYPE 7
drawing title

S2.77	1770
drawing no	project
	2
	issue



NOTES:

Refer to drawing S2.70 for notes and details



CONSTRUCTION

2	CONSTRUCTION ISSUE	JL	SG	12-12-07
issue	description	by	appl.	date

GA	GB		1:20
drawn	designed	approved	scales

AMC CONSTRUCTION
client

C1 TOWER
project title

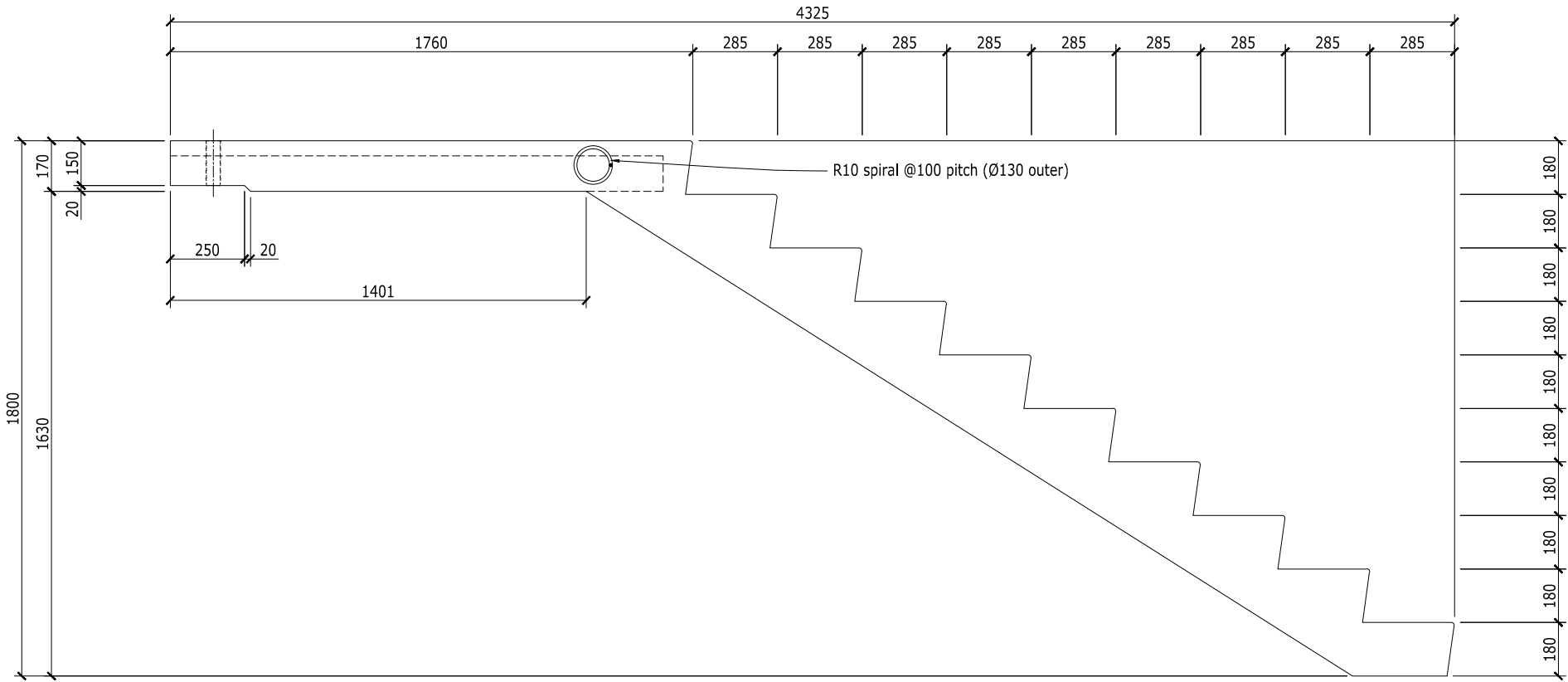
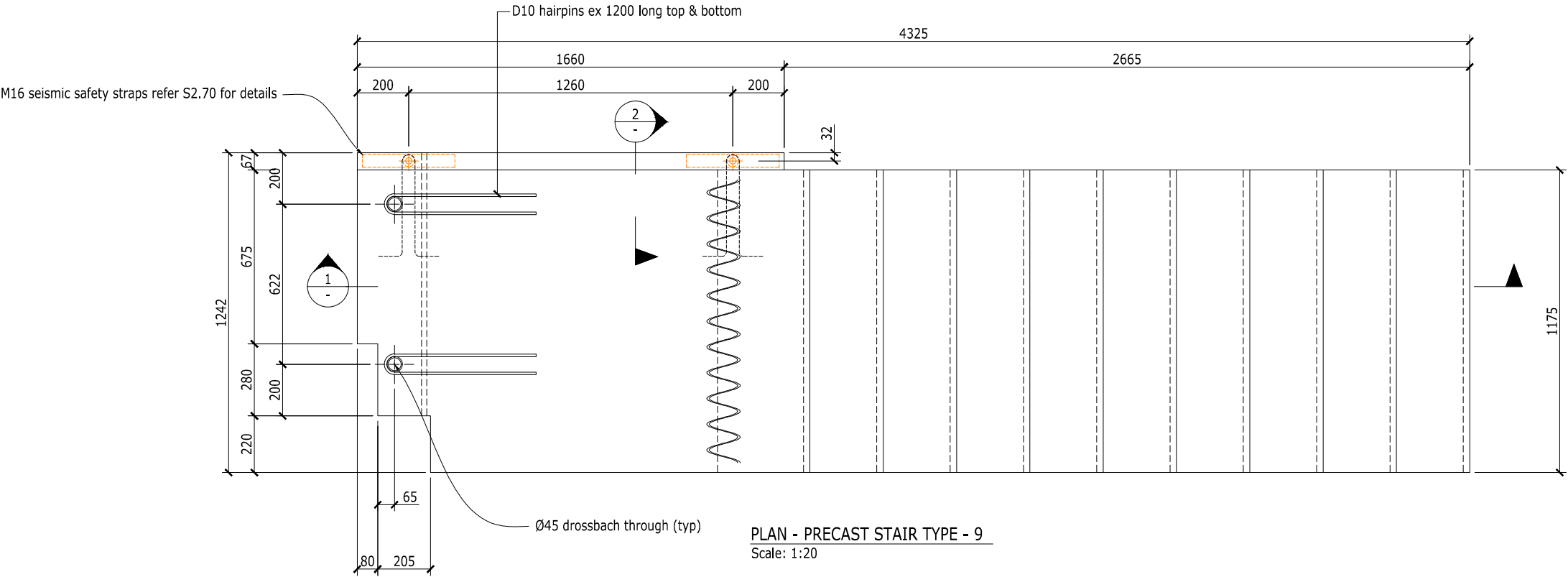


PRECAST STAIR TYPE 8
drawing title

S2.78	project
2	1770
issue	

NOTES:

Refer to drawing S2.70 for notes and details



2	CONSTRUCTION ISSUE	JL	SG	12-12-07
issue	description	by	appl.	date

GA	GB		1:20
drawn	designed	approved	scales

AMC CONSTRUCTION
client

C1 TOWER
project title



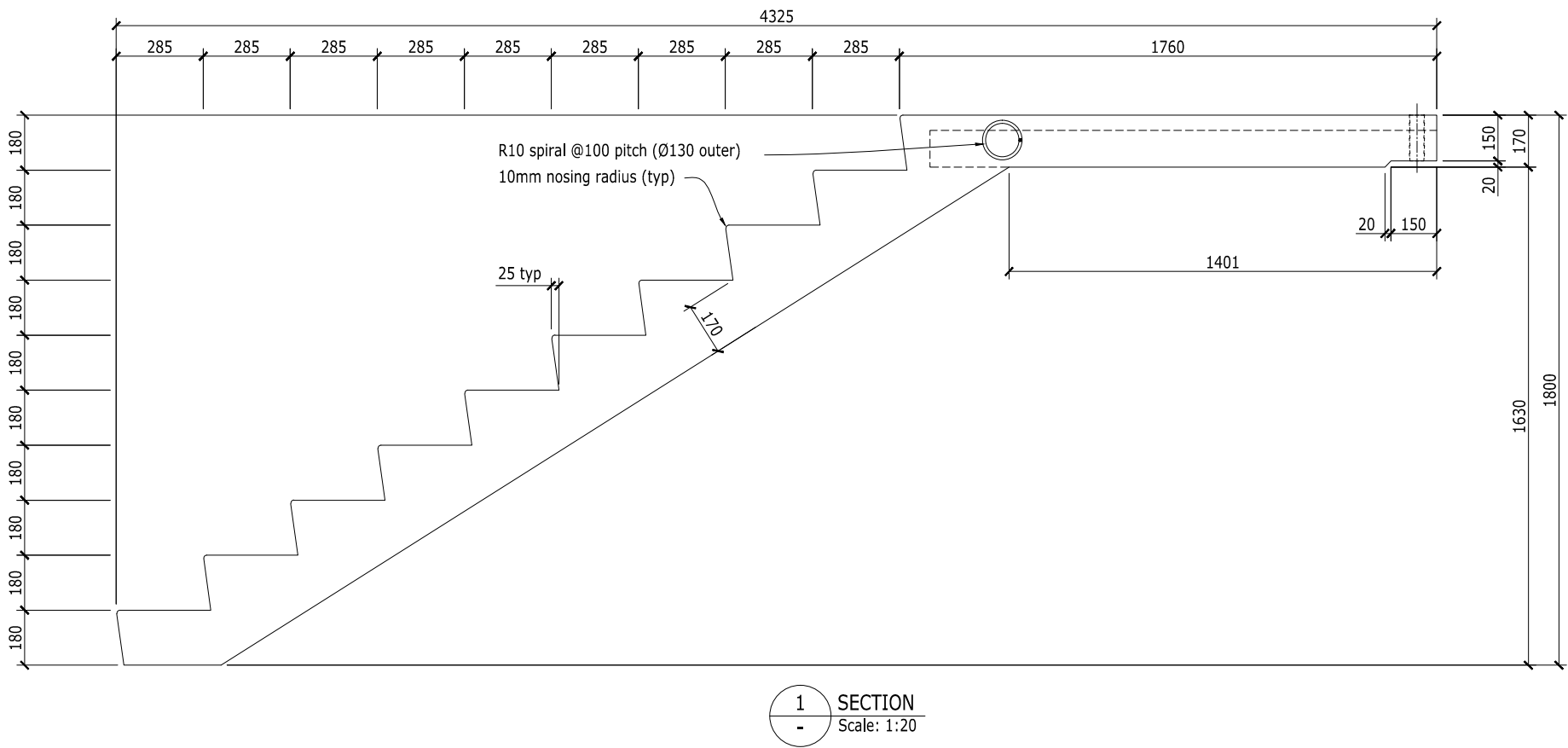
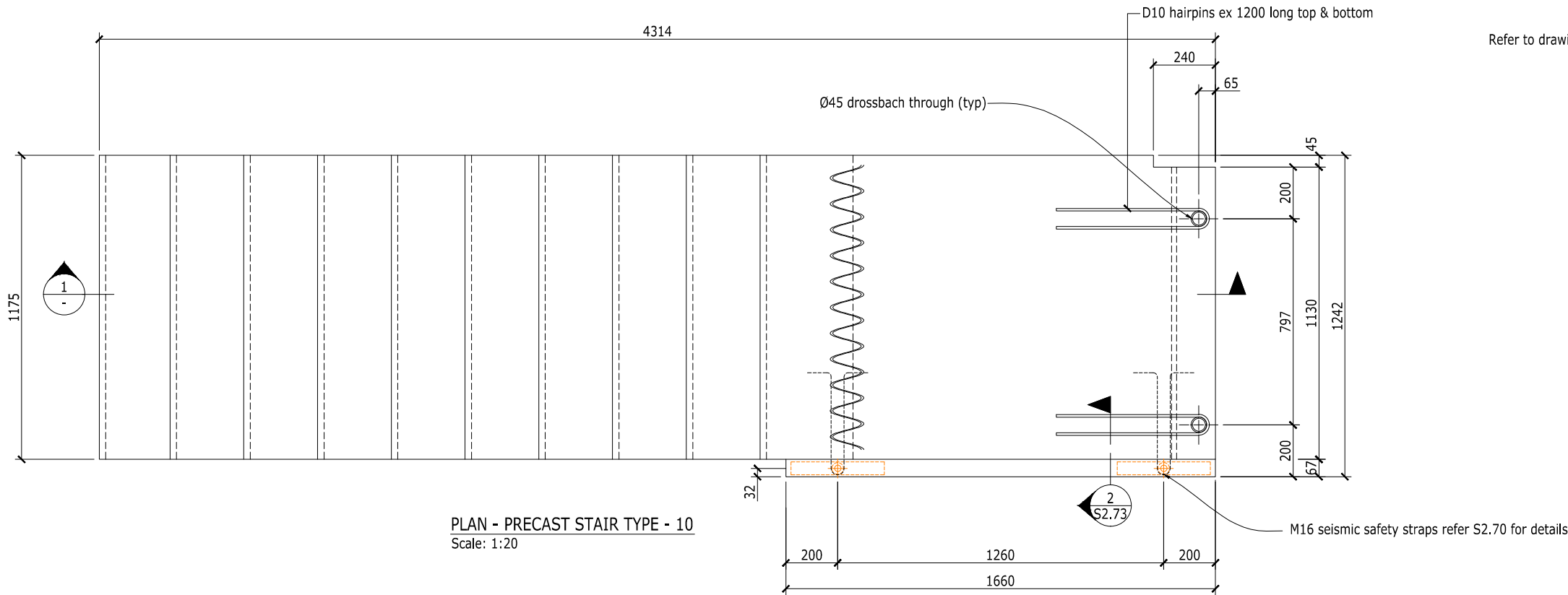
PRECAST STAIR TYPE 9
drawing title

S2.79	1770
drawing no	project
	2
	issue

CONSTRUCTION

NOTES:

Refer to drawing S2.70 for notes and details



CONSTRUCTION

2	CONSTRUCTION ISSUE	JL	SG	12-12-07
issue	description	by	appl.	date

GA	GB		1:20
drawn	designed	approved	scales

AMC CONSTRUCTION
client

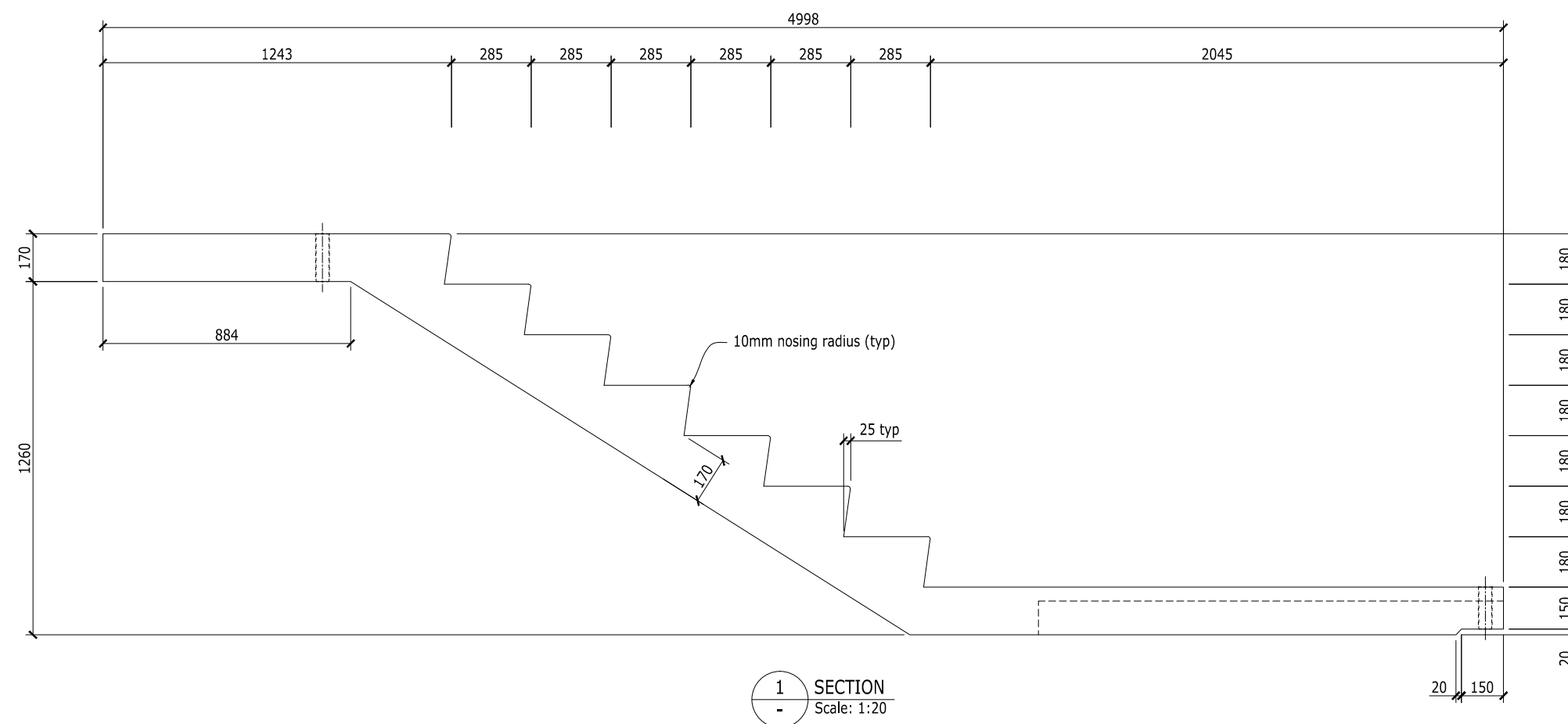
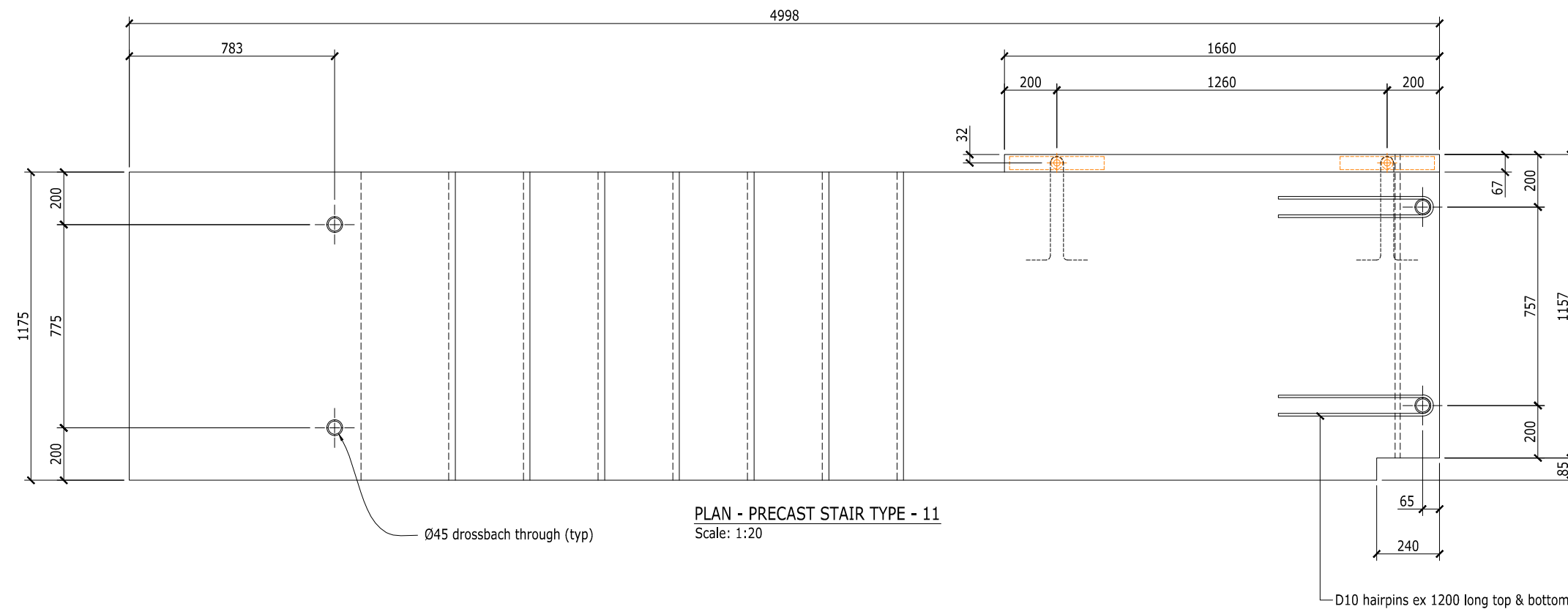
C1 TOWER
project title



PRECAST STAIR TYPE 10
drawing title

S2.80	project
drawing no	1770
	2
	issue

Refer to drawing S2.70 for notes and details

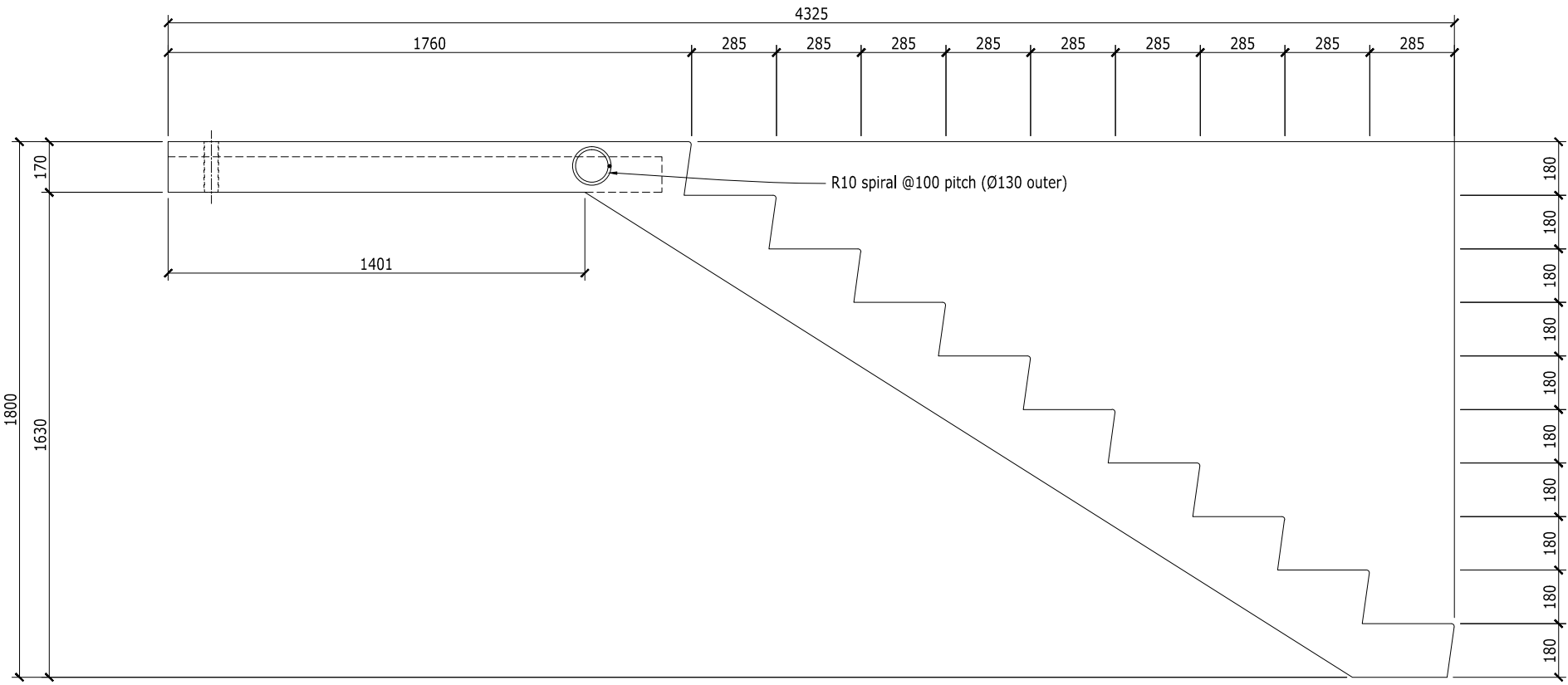
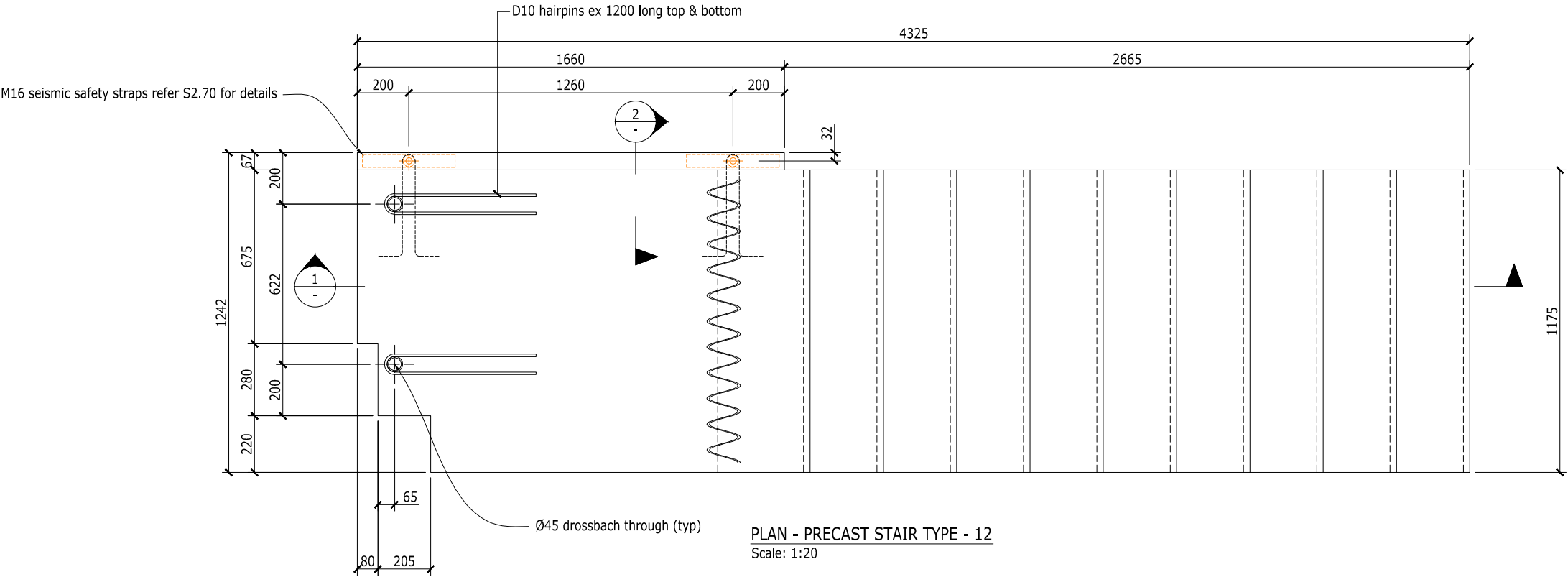


CONSTRUCTION

					GA	GB	1:20	AMC CONSTRUCTION	C1 TOWER	 "Giving support a whole new meaning" www.structex.co.nz	PRECAST STAIR TYPE 11	S2.81	<table><tr><td>project</td><td>1770</td></tr><tr><td>2</td><td></td></tr><tr><td>issue</td><td></td></tr></table>	project	1770	2		issue	
project	1770																		
2																			
issue																			
2	CONSTRUCTION ISSUE	JL	SC	12-12-07	drawn	designed	approved	checked	project title	drawing title	drawing no.	issue							

NOTES:

Refer to drawing S2.70 for notes and details



2	CONSTRUCTION ISSUE	JL	SG	12-12-07
issue	description	by	appl.	date

GA	GB		1:20
drawn	designed	approved	scales

AMC CONSTRUCTION
client

C1 TOWER
project title



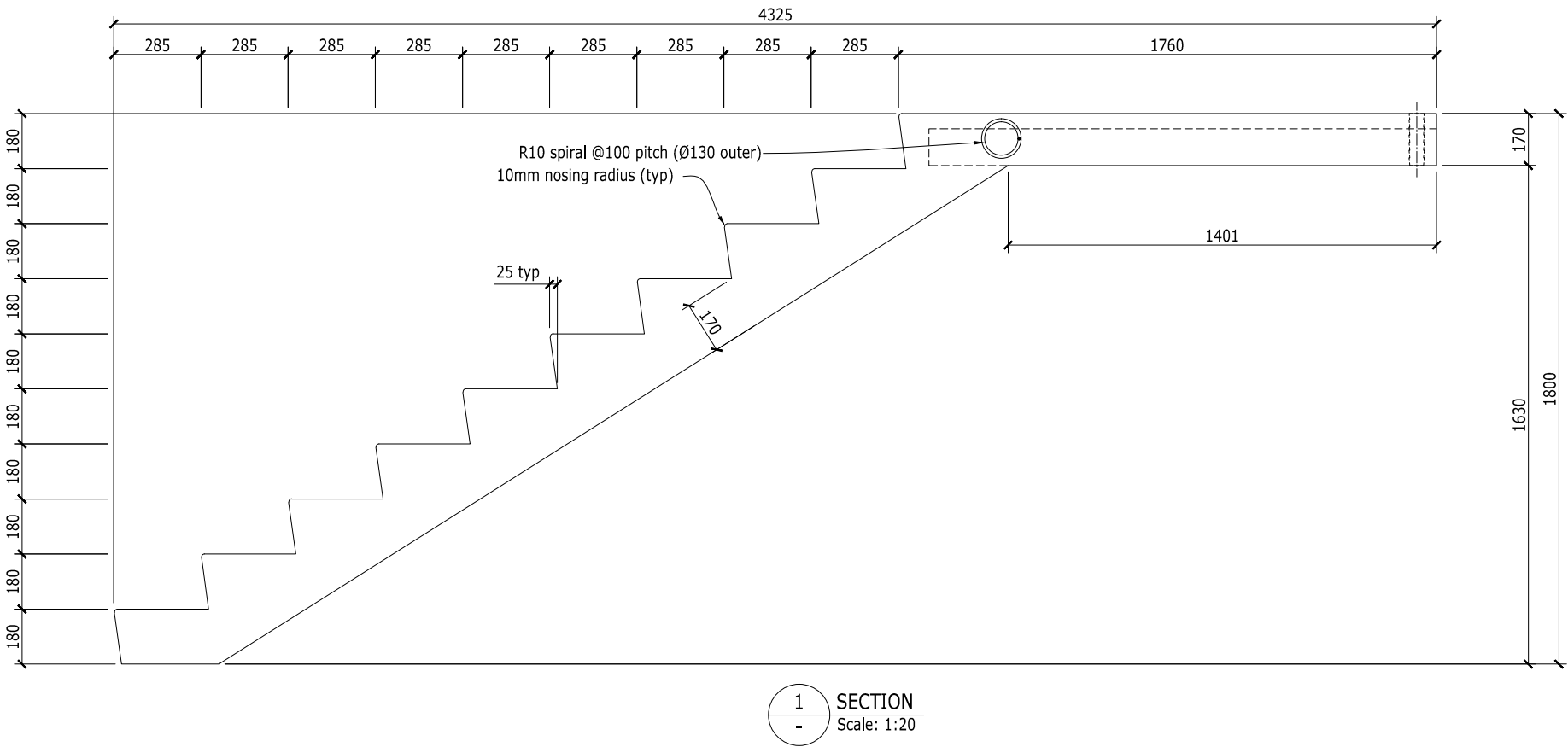
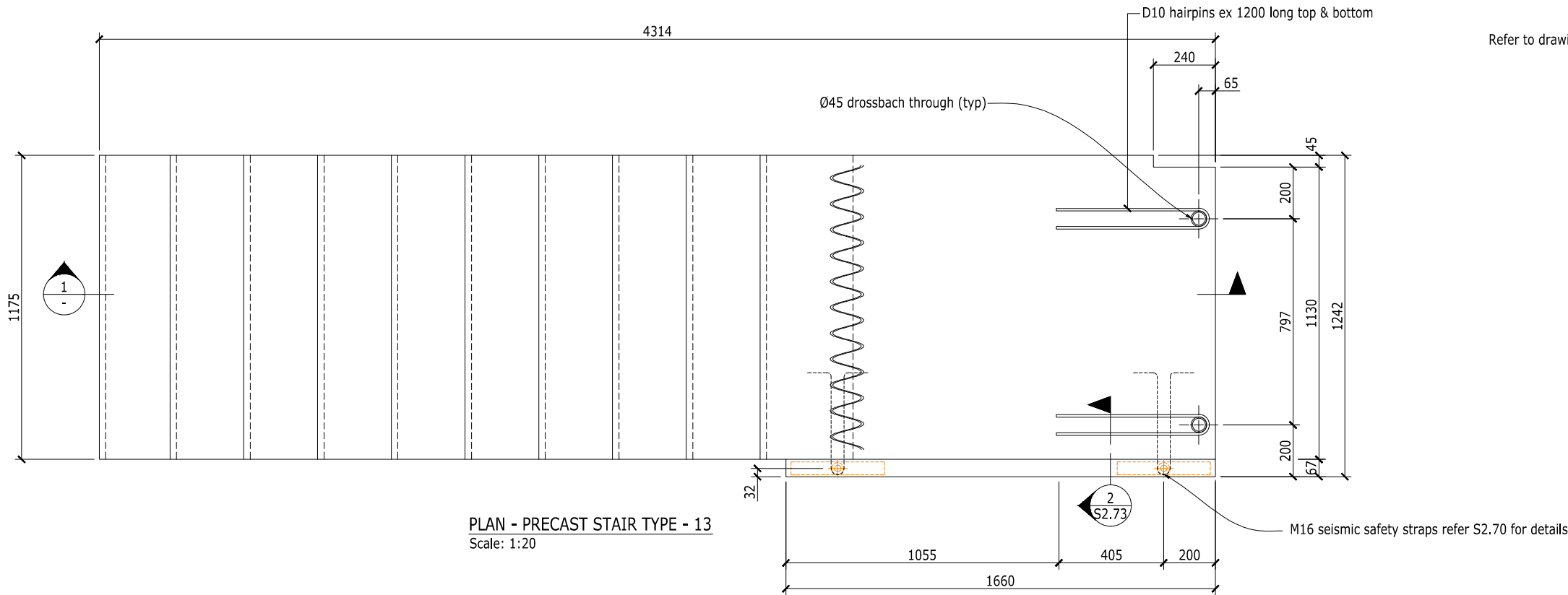
PRECAST STAIR TYPE 12
drawing title

S2.82	1770
drawing no	project
	2
	issue

CONSTRUCTION

NOTES:

Refer to drawing S2.70 for notes and details



CONSTRUCTION

2	CONSTRUCTION ISSUE	JL	SG	12-12-07
issue	description	by	appl.	date

GA	GB		1:20
drawn	designed	approved	scales

AMC CONSTRUCTION
client

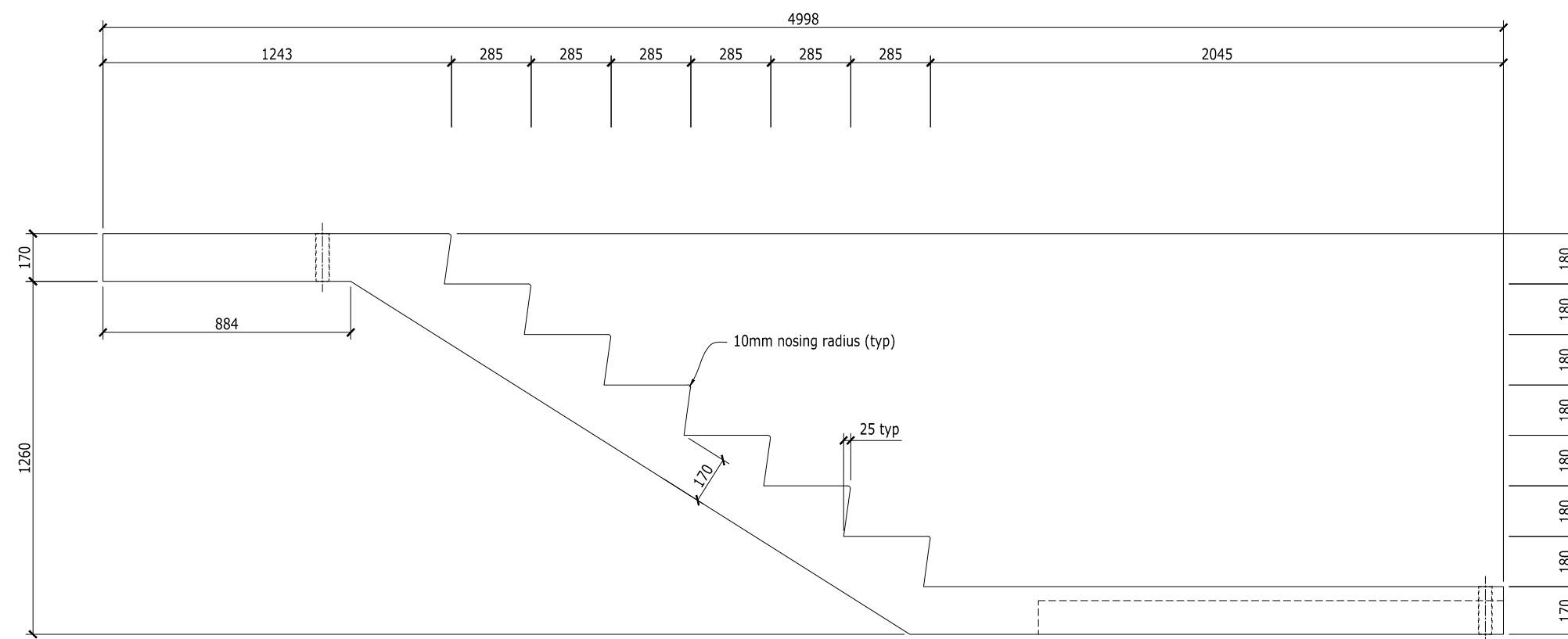
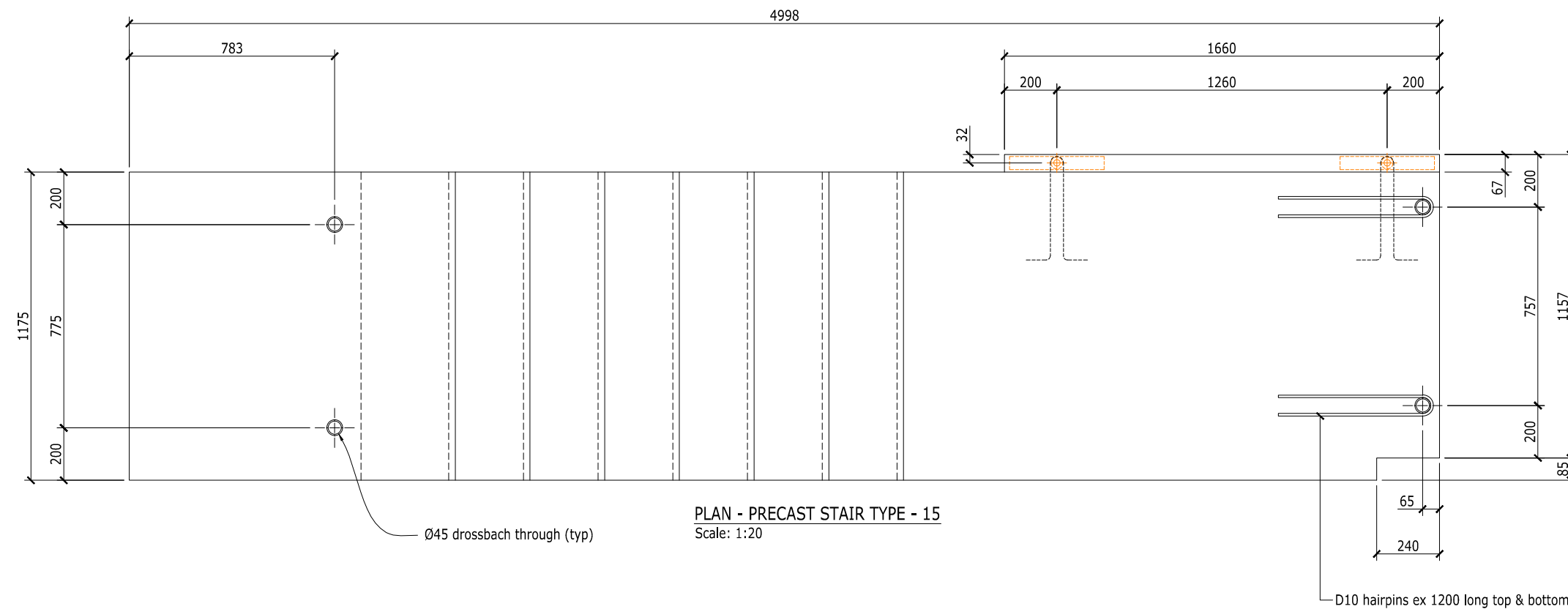
C1 TOWER
project title



PRECAST STAIR TYPE 13
drawing title

S2.83	project
drawing no	1770
	2
	issue

Refer to drawing S2.70 for notes and details

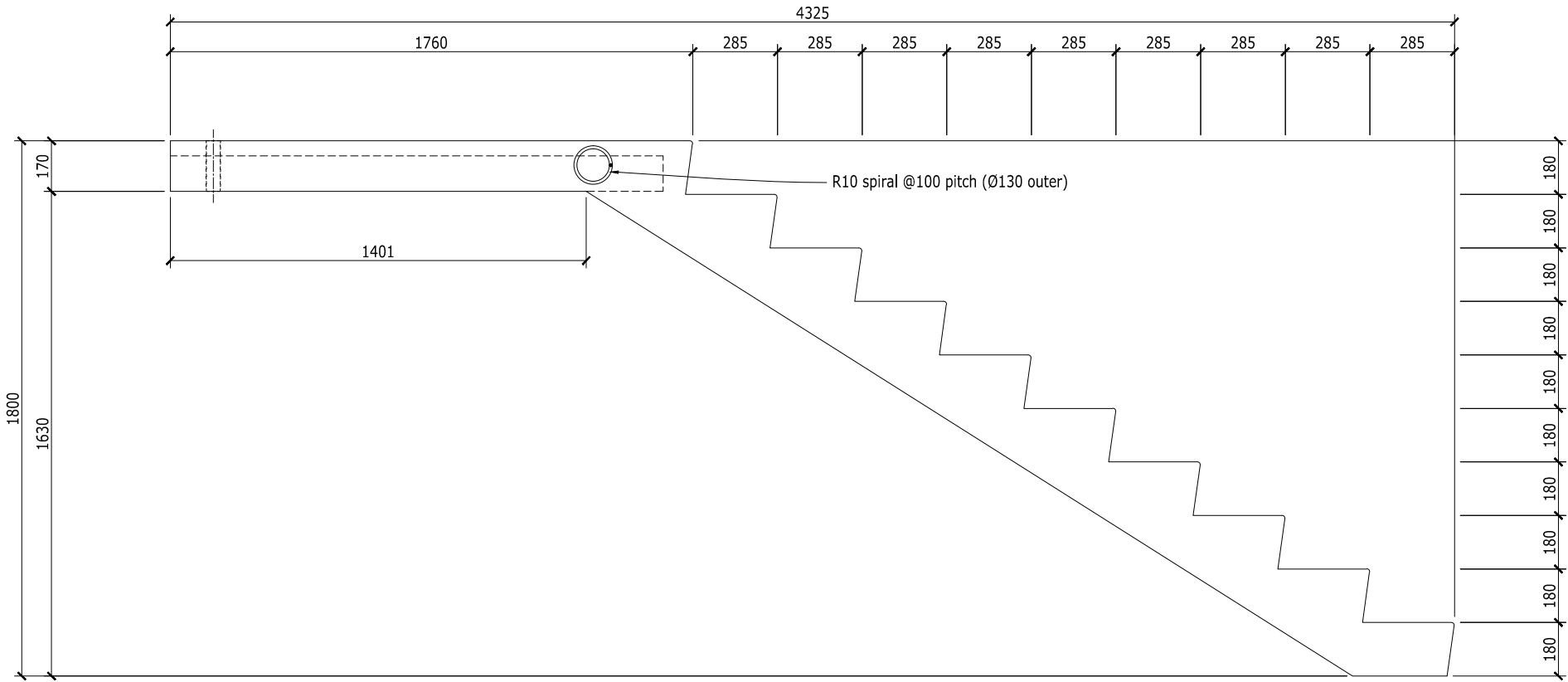
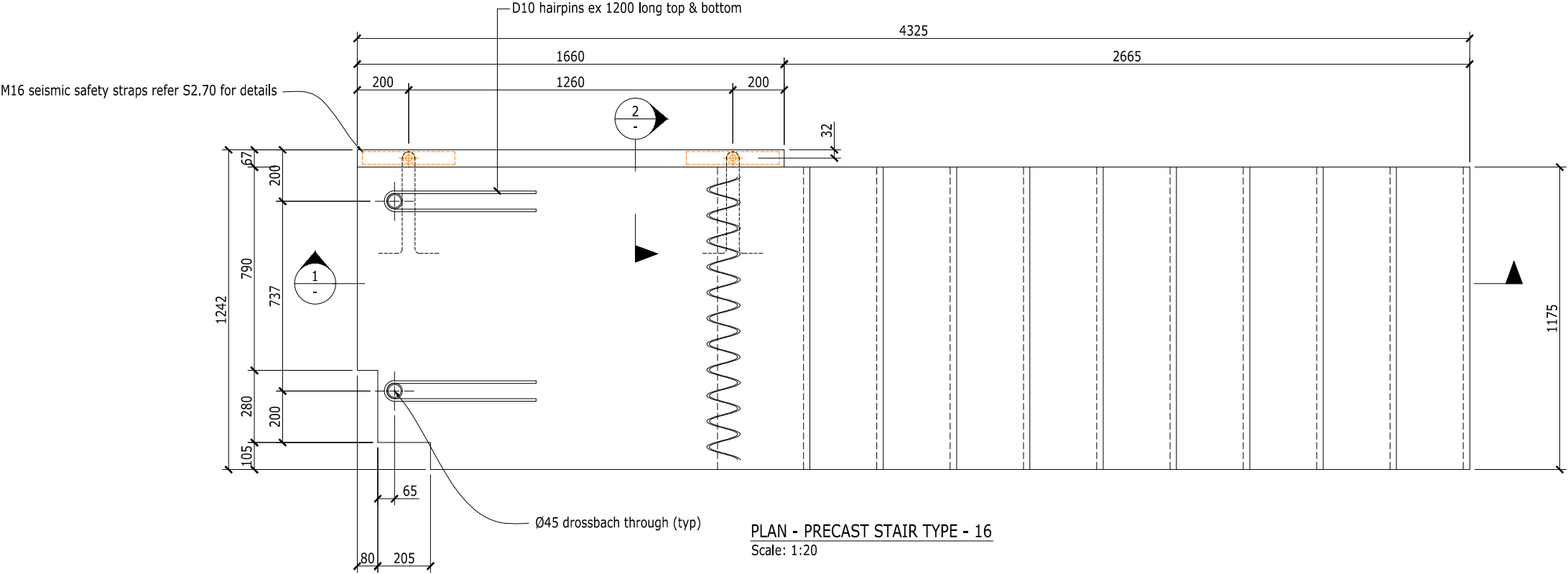


1 SECTION
- Scale: 1:20

					GA	GB	1:20	AMC CONSTRUCTION	C1 TOWER	 "Giving support a whole new meaning" www.structex.co.nz	PRECAST STAIR TYPE 15	S2.85	<table><tr><td>project</td><td>1770</td></tr><tr><td>2</td><td></td></tr><tr><td>issue</td><td></td></tr></table>	project	1770	2		issue	
project	1770																		
2																			
issue																			
2	CONSTRUCTION ISSUE	JL	SC	12-12-07	drawn	designed	approved	scale	client	project title	drawing title	drawing no.	issue						

NOTES:

Refer to drawing S2.70 for notes and details



2	CONSTRUCTION ISSUE	JL	SG	12-12-07
issue	description	by	appl.	date

GA	GB		1:20
drawn	designed	approved	scales

AMC CONSTRUCTION
client

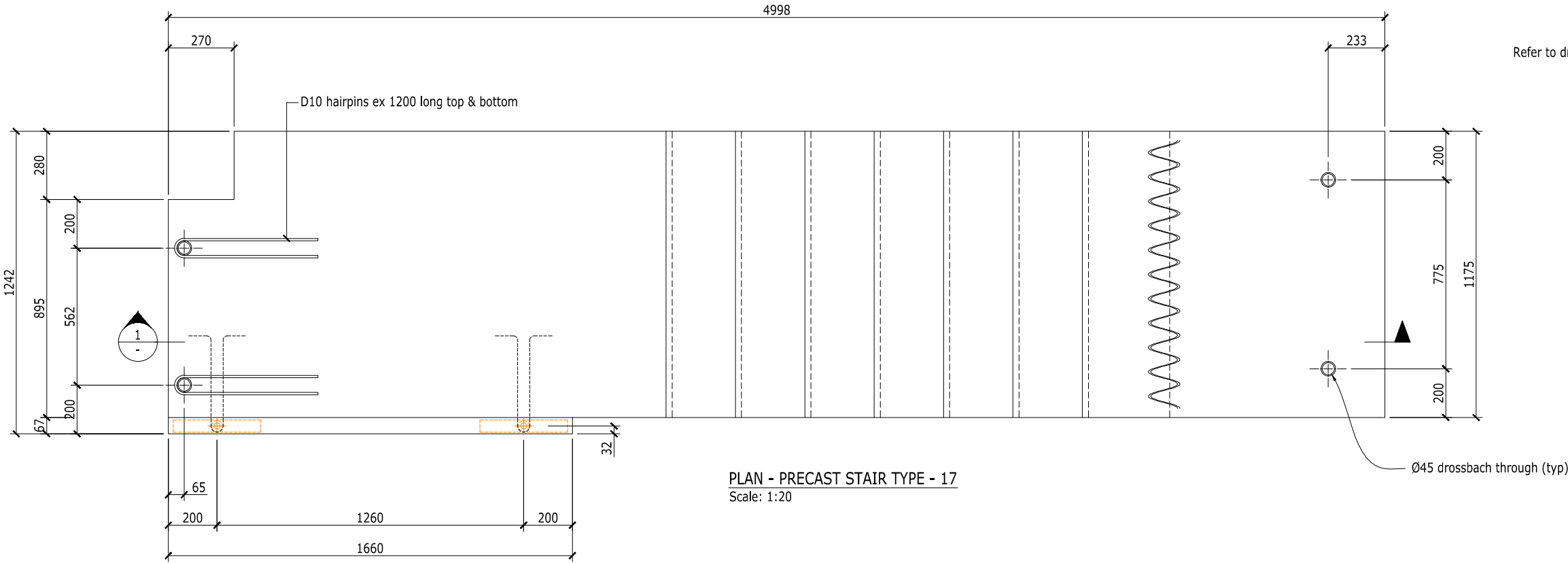
C1 TOWER
project title



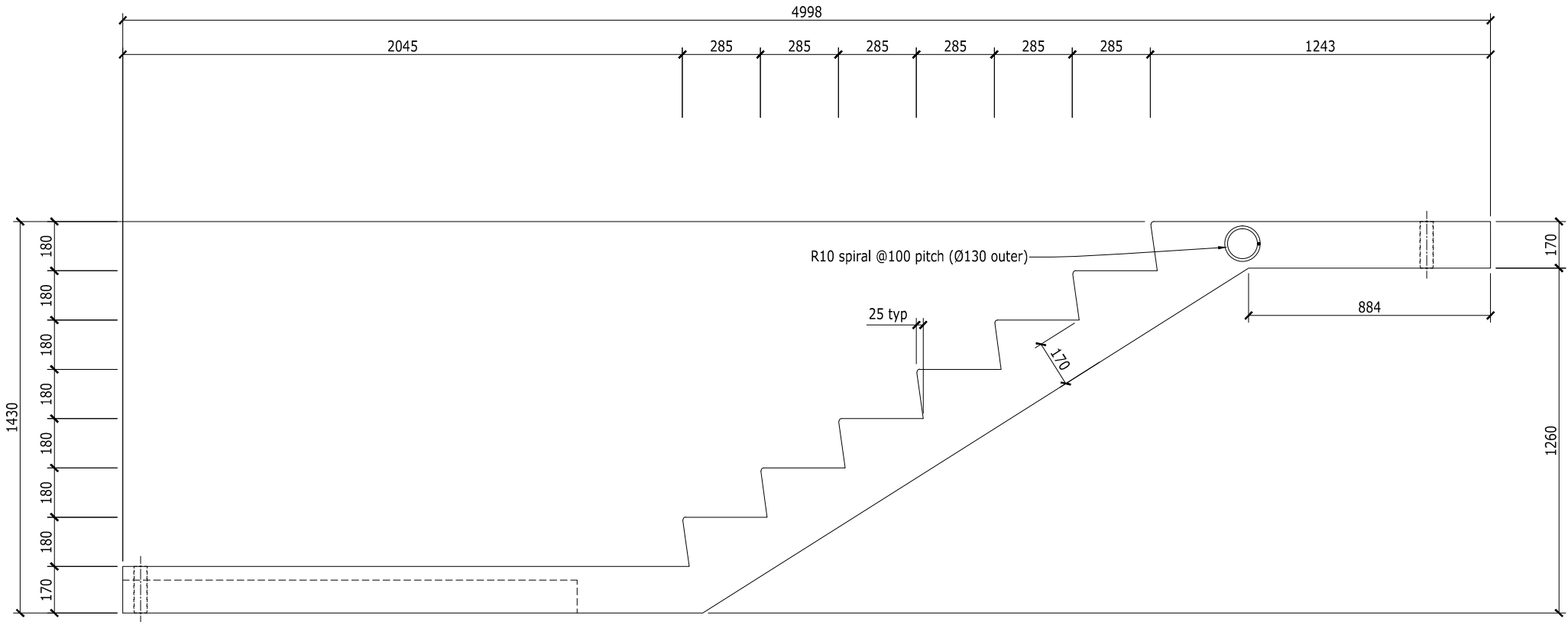
PRECAST STAIR TYPE 16
drawing title

S2.86	1770
drawing no	project
	2
	issue

CONSTRUCTION



NOTES:
Refer to drawing S2.70 for notes and details



CONSTRUCTION

2	CONSTRUCTION ISSUE	JL	SG	12-12-07
issue	description	by	appd.	date

GA	GB		1:20
drawn	designed	approved	scales

AMC CONSTRUCTION
client

C1 TOWER
project title

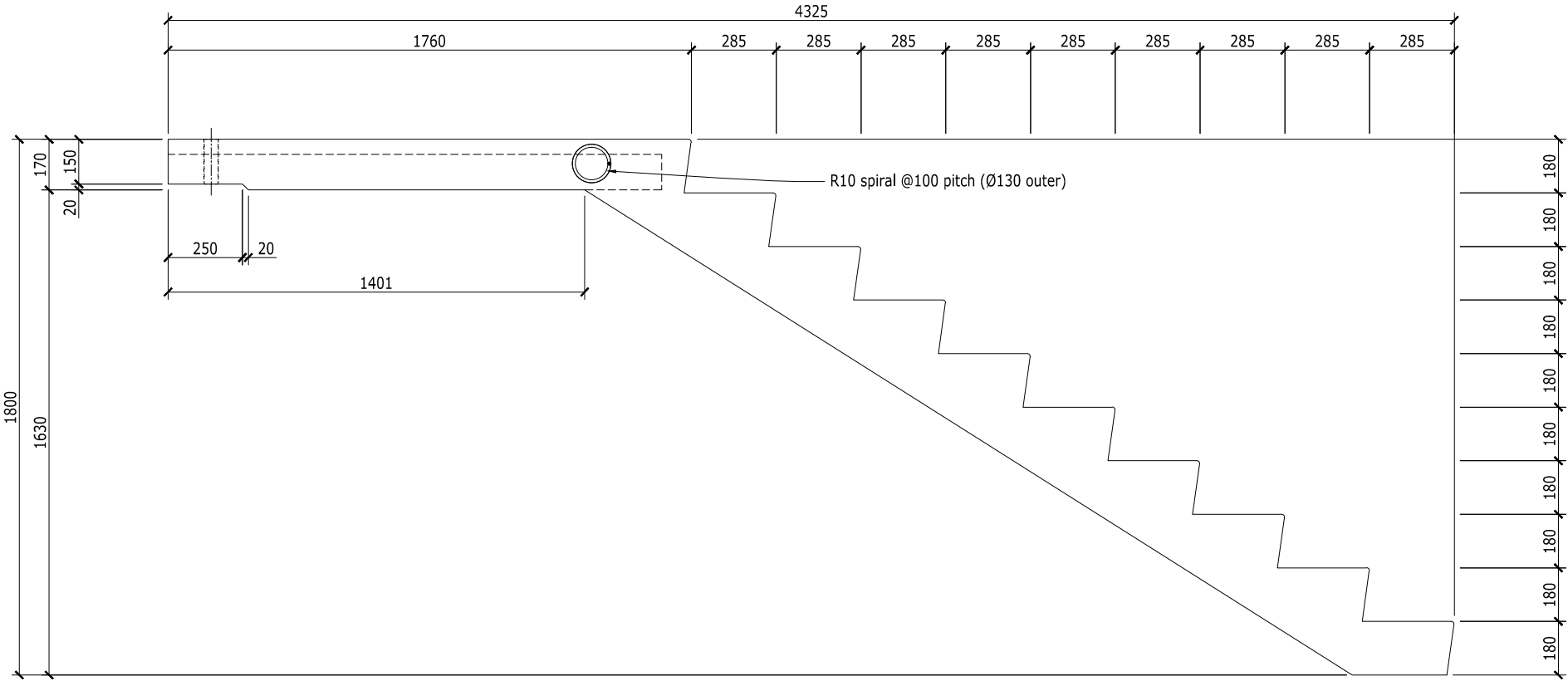
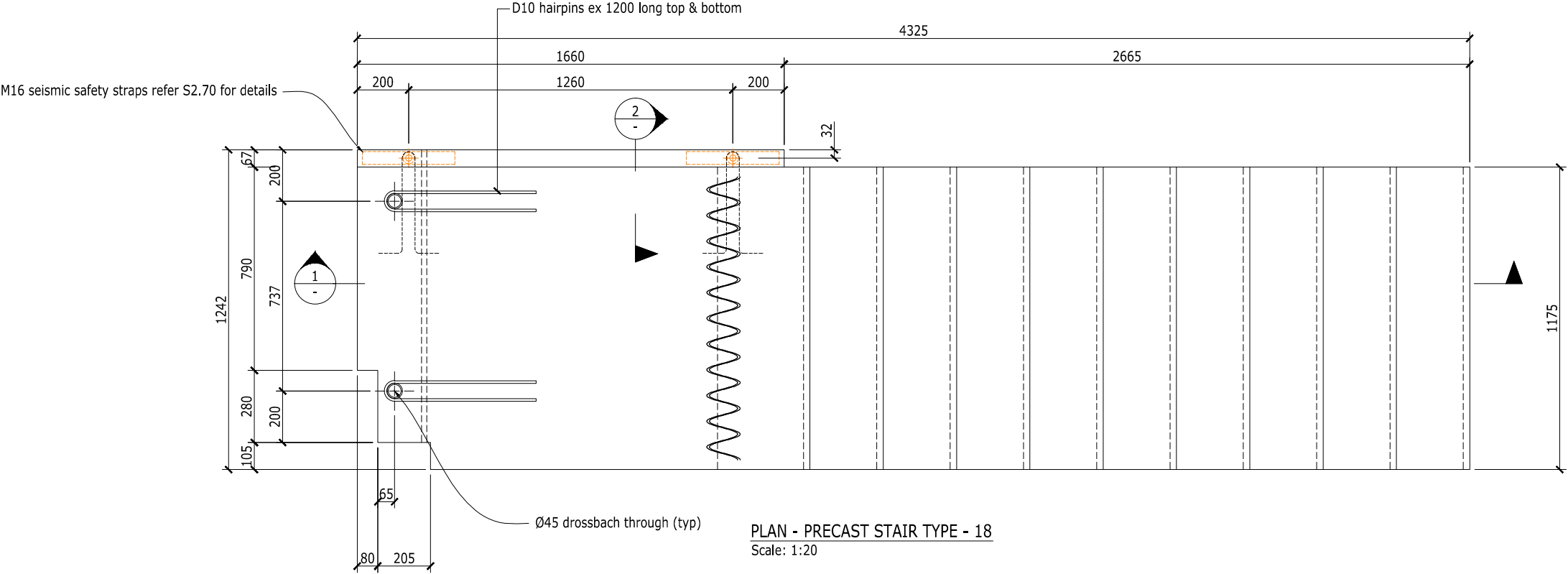


PRECAST STAIR TYPE 17
drawing title

S2.87	1770
drawing no	project
2	issue

NOTES:

Refer to drawing S2.70 for notes and details



2	CONSTRUCTION ISSUE	JL	SG	12-12-07
issue	description	by	appl.	date

GA	GB		1:20
drawn	designed	approved	scales

AMC CONSTRUCTION
client

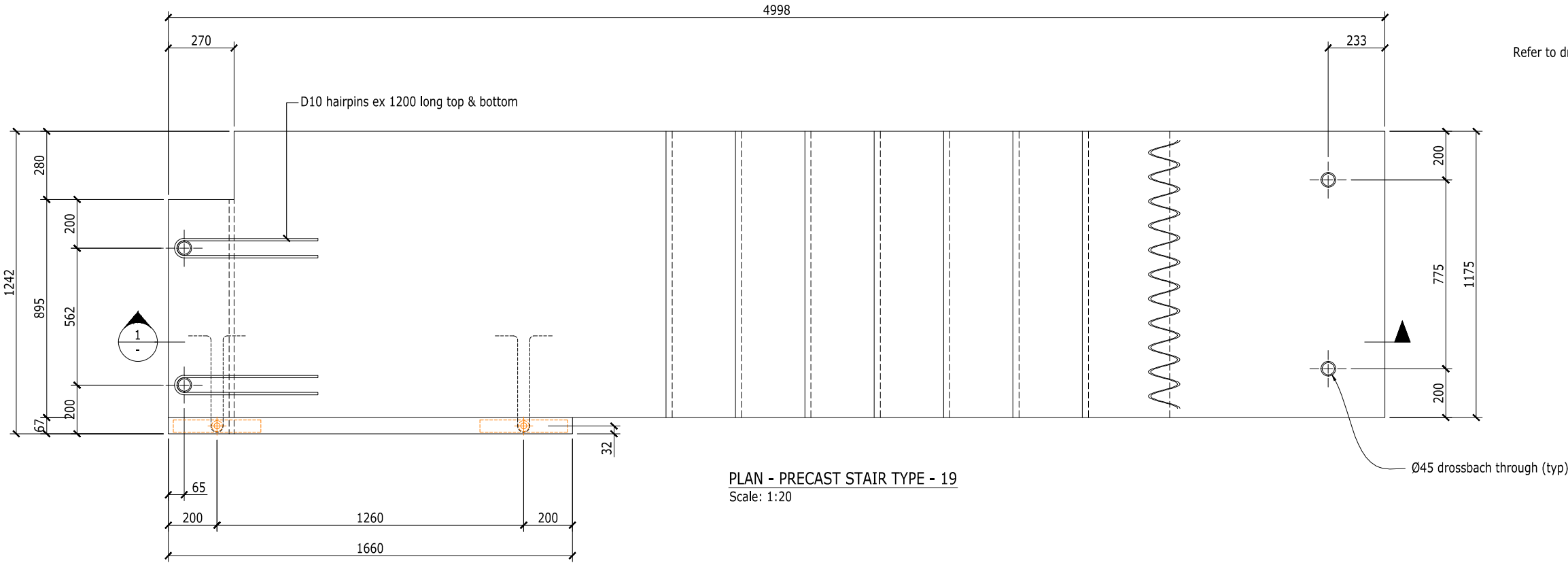
C1 TOWER
project title



PRECAST STAIR TYPE 18
drawing title

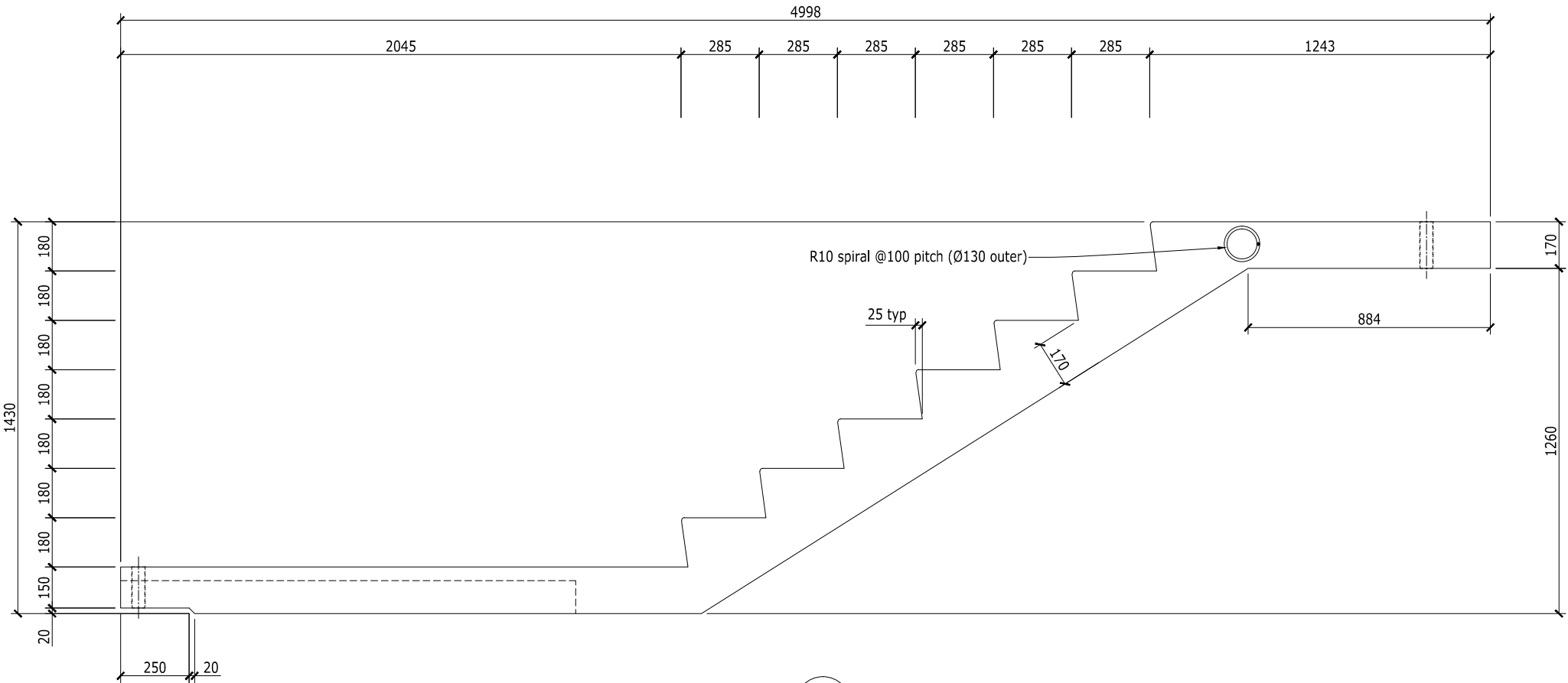
S2.88	1770
drawing no	project
	2
	issue

CONSTRUCTION



NOTES:

Refer to drawing S2.70 for notes and details



1 SECTION
- Scale: 1:20

CONSTRUCTION

2	CONSTRUCTION ISSUE	JL	SG	12-12-07
issue	description	by	appl.	date

GA	GB		1:20
drawn	designed	approved	scales

AMC CONSTRUCTION
client

C1 TOWER
project title

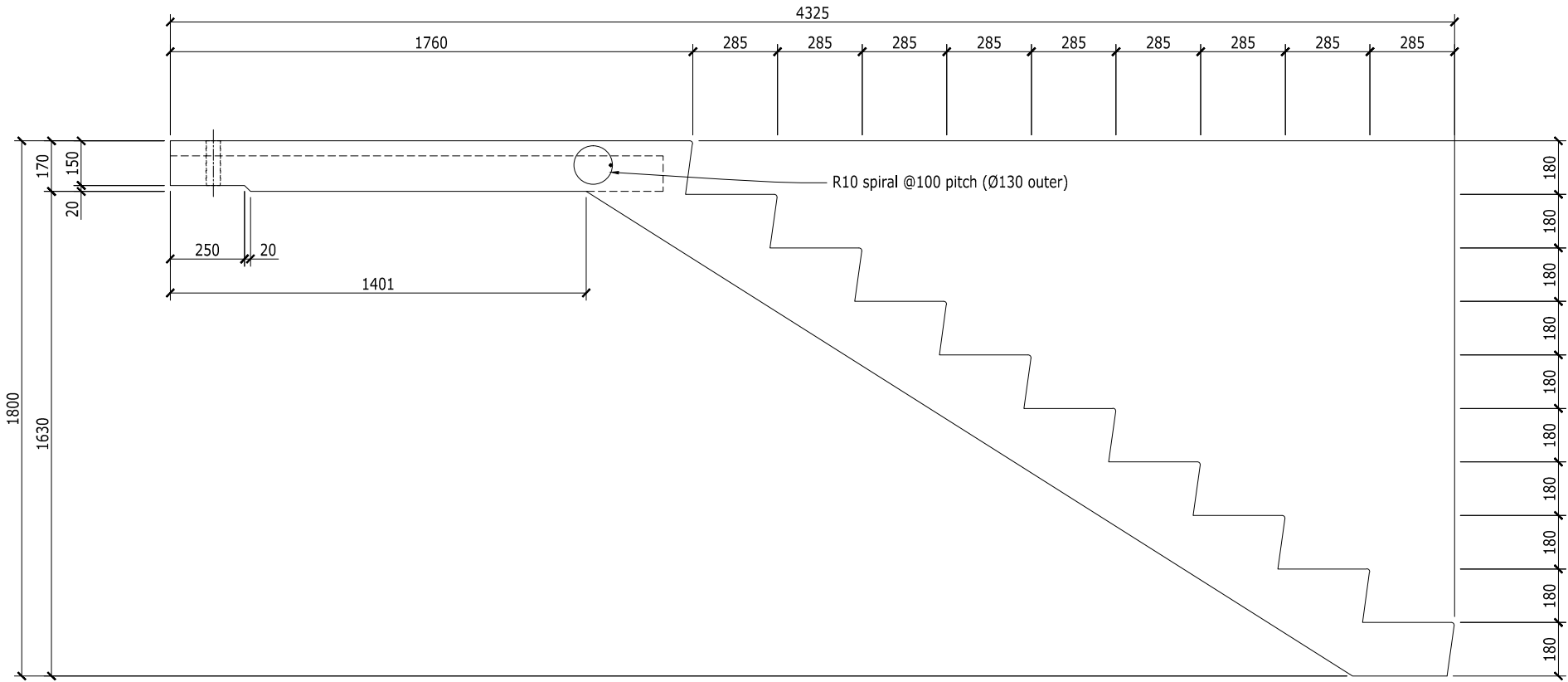
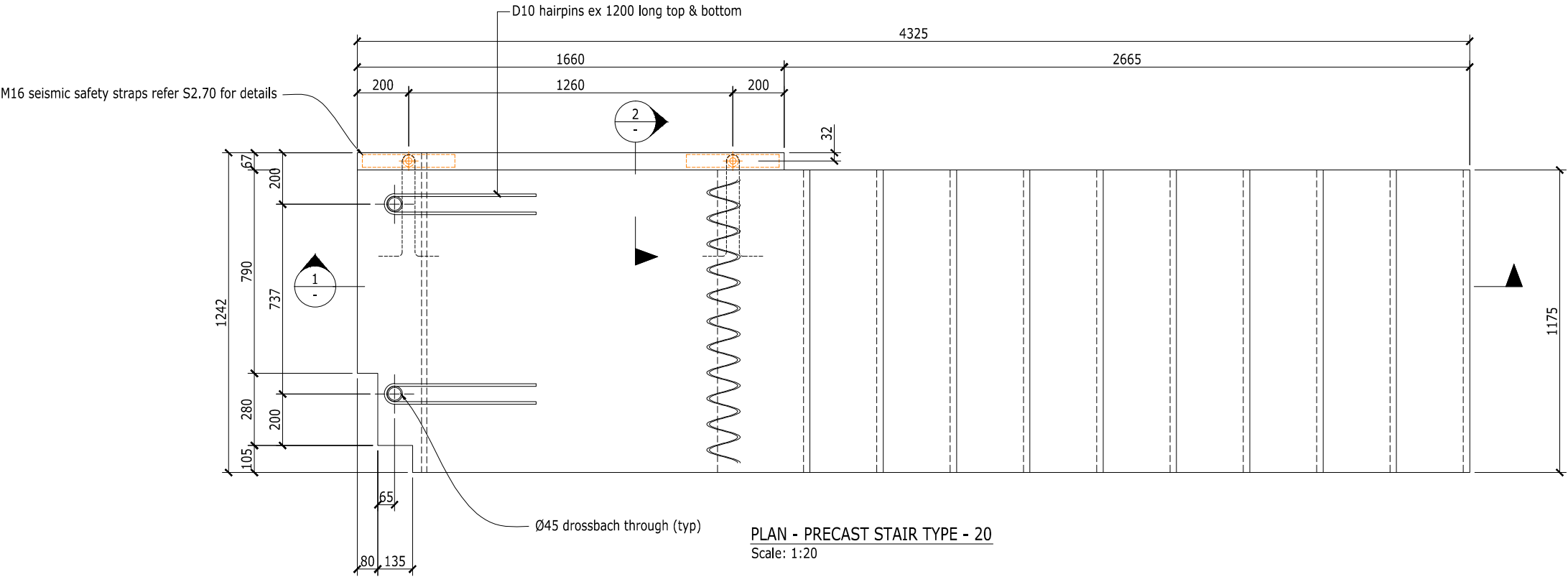


PRECAST STAIR TYPE 19
drawing title

S2.89	1770
drawing no	project
	2
	issue

NOTES:

Refer to drawing S2.70 for notes and details



2	CONSTRUCTION ISSUE	JL	SG	12-12-07
issue	description	by	appl.	date

GA	GB		1:20
drawn	designed	approved	scales

AMC CONSTRUCTION
client

C1 TOWER
project title

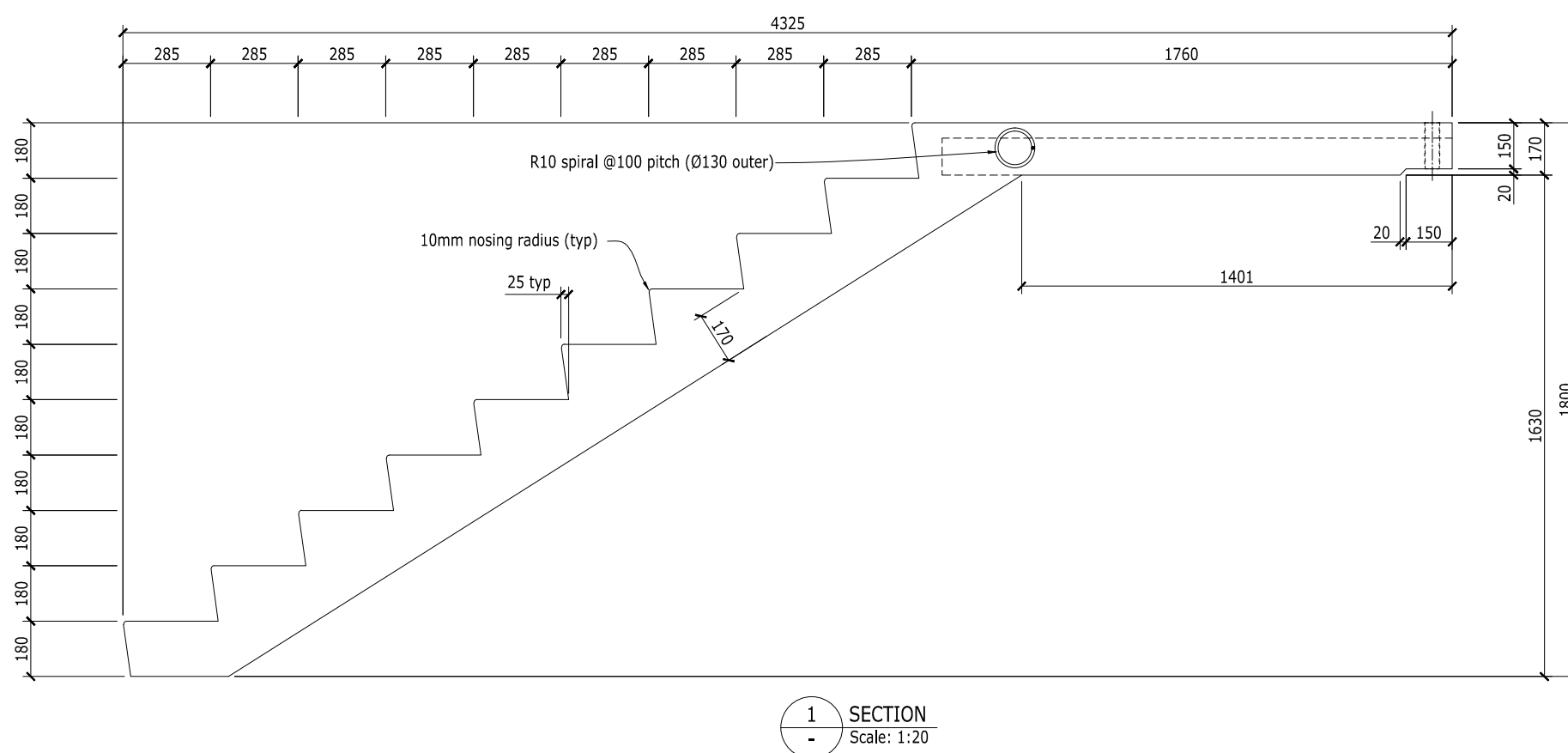
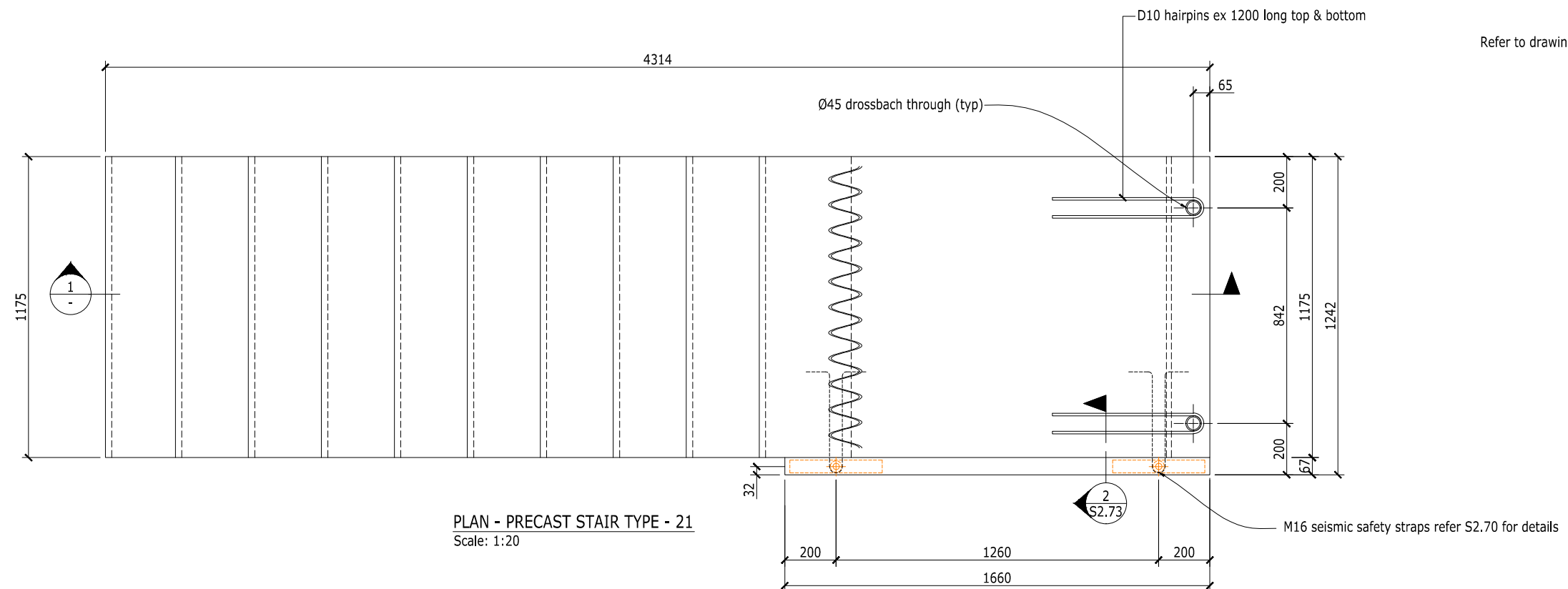


PRECAST STAIR TYPE 20
drawing title

S2.90	1770
drawing no	project
	2
	issue

CONSTRUCTION

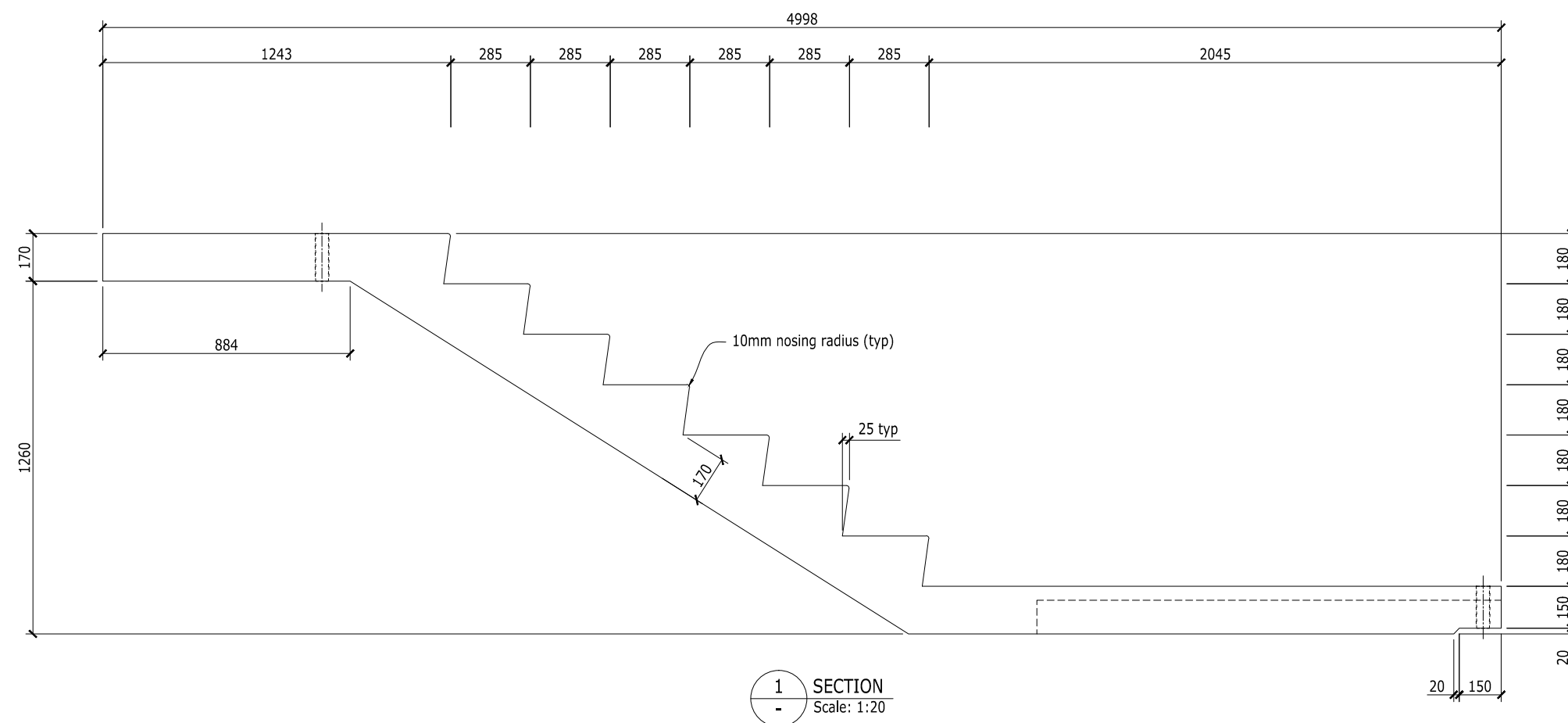
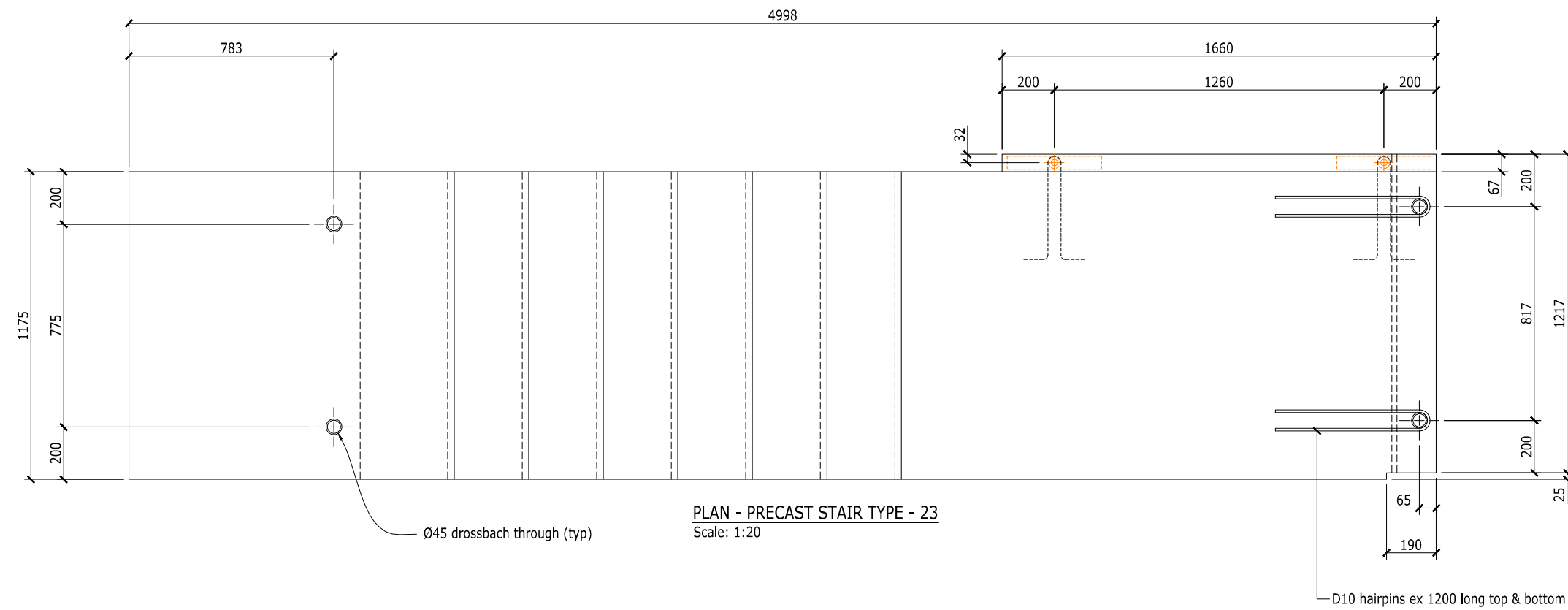
Refer to drawing S2.70 for notes and details



CONSTRUCTION

					GA	GB	1:20	AMC CONSTRUCTION	C1 TOWER	 "Giving support a whole new meaning" www.structex.co.nz	PRECAST STAIR TYPE 21	S2.91	<table><tr><td>project</td></tr><tr><td>1770</td></tr><tr><td>2</td></tr><tr><td>issue</td></tr></table>	project	1770	2	issue
project																	
1770																	
2																	
issue																	
2	CONSTRUCTION ISSUE	JL	SC	12-12-07	drawn	designed	approved	checked	project title	drawing title	drawing no.	issue					

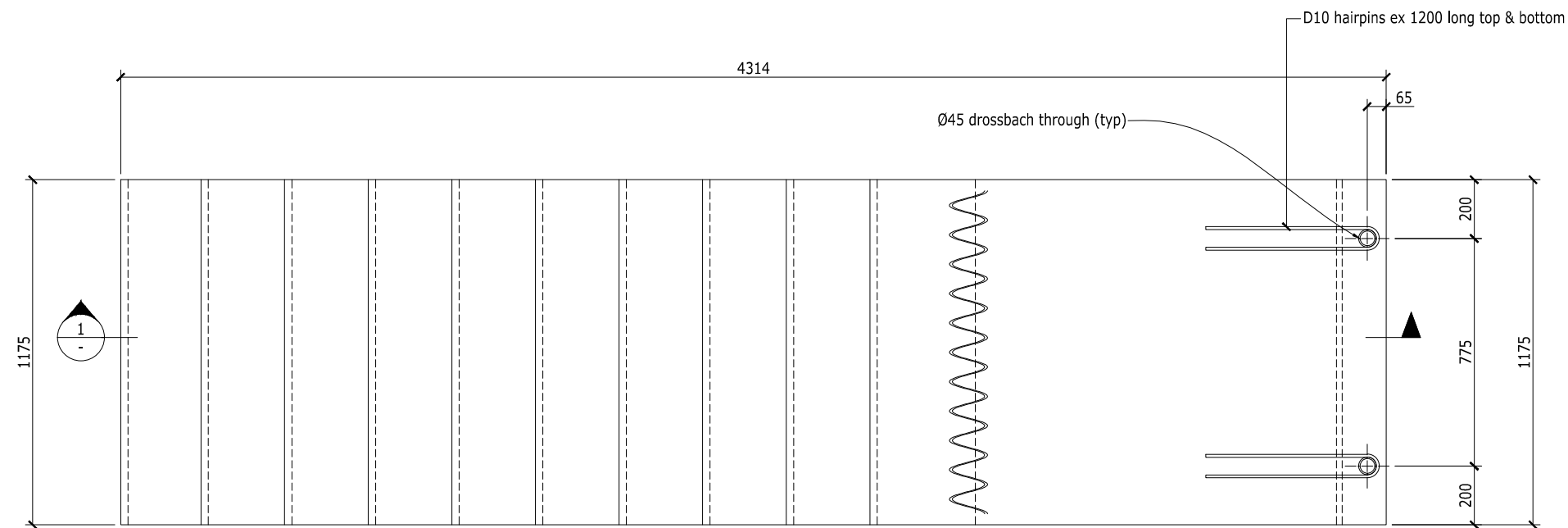
Refer to drawing S2.70 for notes and details



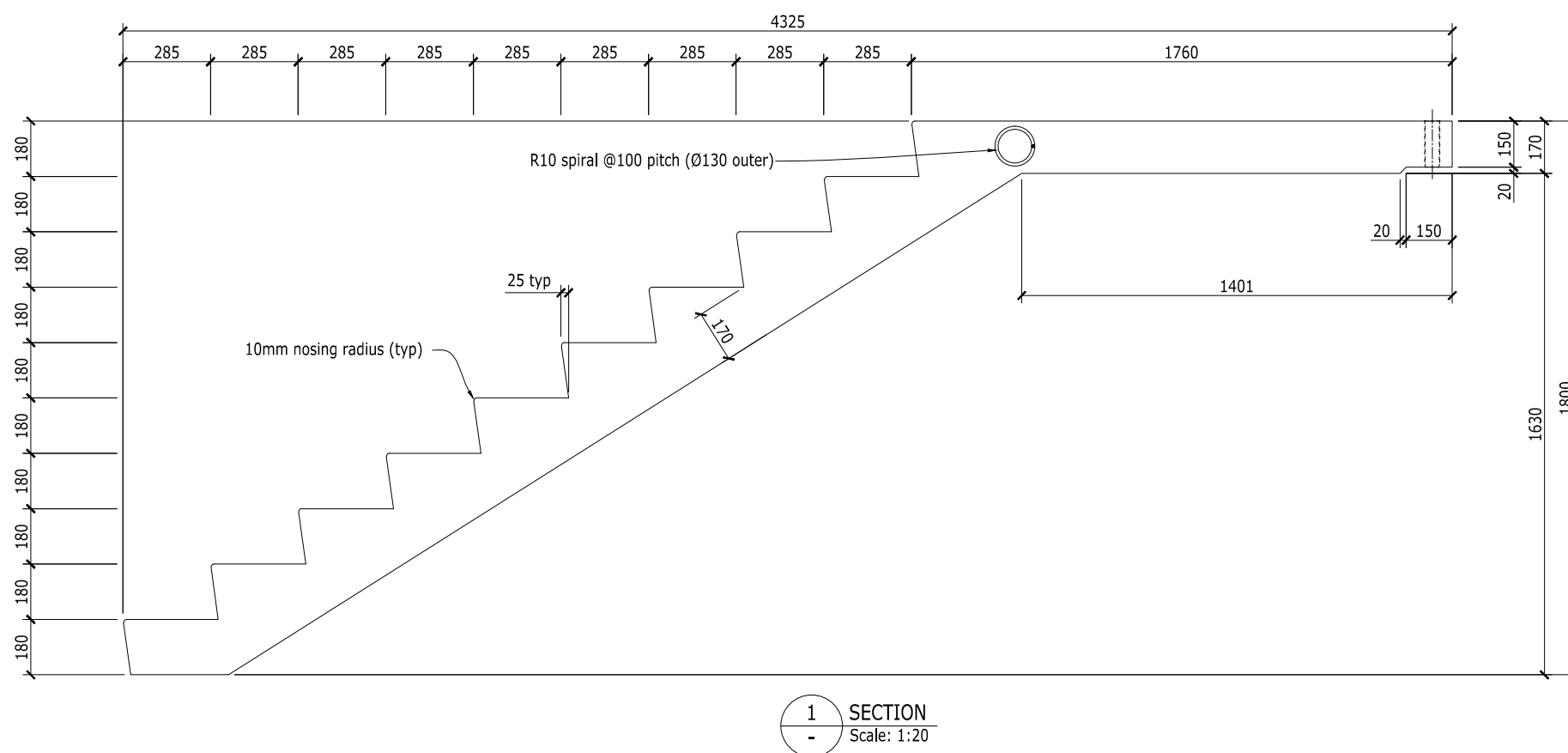
CONSTRUCTION

					GA	GB	1:20	AMC CONSTRUCTION	C1 TOWER	 "Giving support a whole new meaning" www.structex.co.nz	PRECAST STAIR TYPE 23	S2.93	<table><tr><td>project</td><td>1770</td></tr><tr><td>2</td><td></td></tr><tr><td>issue</td><td></td></tr></table>	project	1770	2		issue	
project	1770																		
2																			
issue																			
2	CONSTRUCTION ISSUE	JL	SG	12-12-07	design	designed	approved	scale	client	project title	description title	description no.	issue						

Refer to drawing S2.70 for notes and details



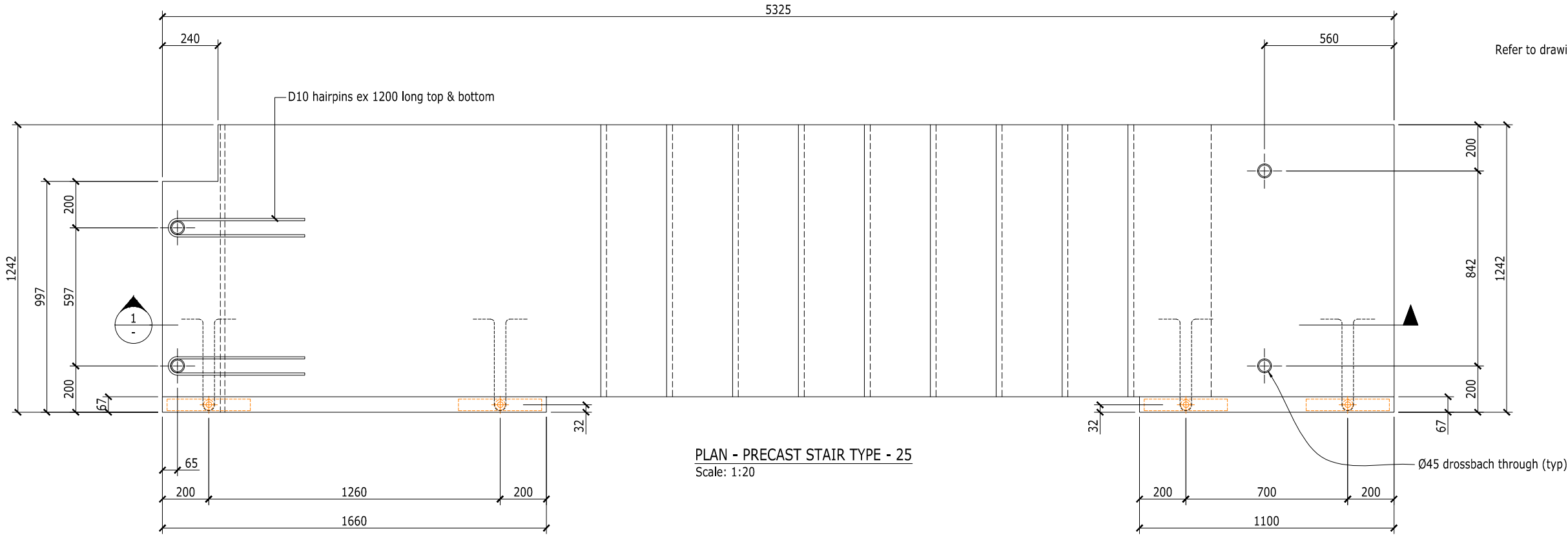
PLAN - PRECAST STAIR TYPE - 24
Scale: 1:20



1 SECTION
- Scale: 1:20

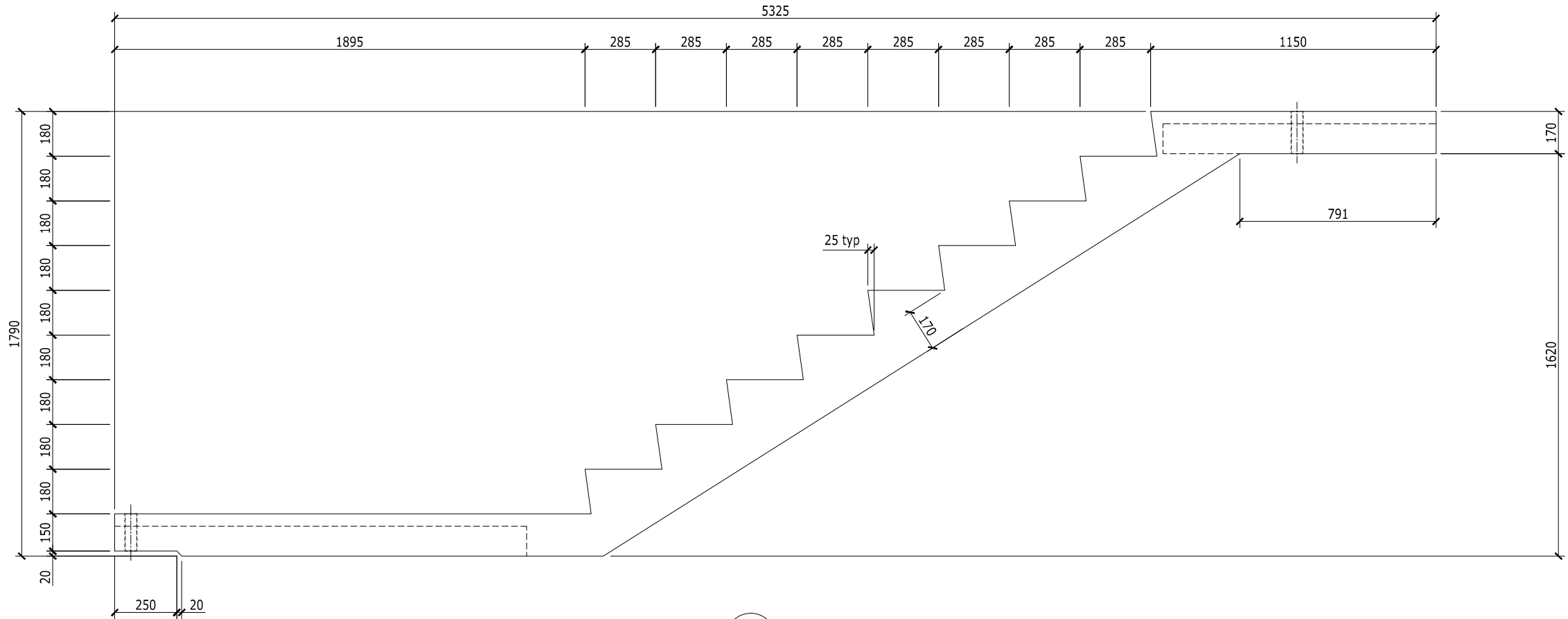
CONSTRUCTION

					GA	GB	1:20	AMC CONSTRUCTION	C1 TOWER	 "Giving support a whole new meaning" www.structex.co.nz	PRECAST STAIR TYPE 24	S2.94	<table><tr><td>project</td><td>1770</td></tr><tr><td>2</td><td></td></tr><tr><td>issue</td><td></td></tr></table>	project	1770	2		issue	
project	1770																		
2																			
issue																			
2	CONSTRUCTION ISSUE	JL	SC	12-12-07	drawn	designed	approved	checked	project title	drawing title	drawing no.	issue							



NOTES:

Refer to drawing S2.70 for notes and details



2	CONSTRUCTION ISSUE	JL	SG	12-12-07
issue	description	by	appl.	date

GA	GB		1:20
drawn	designed	approved	scales

AMC CONSTRUCTION
client

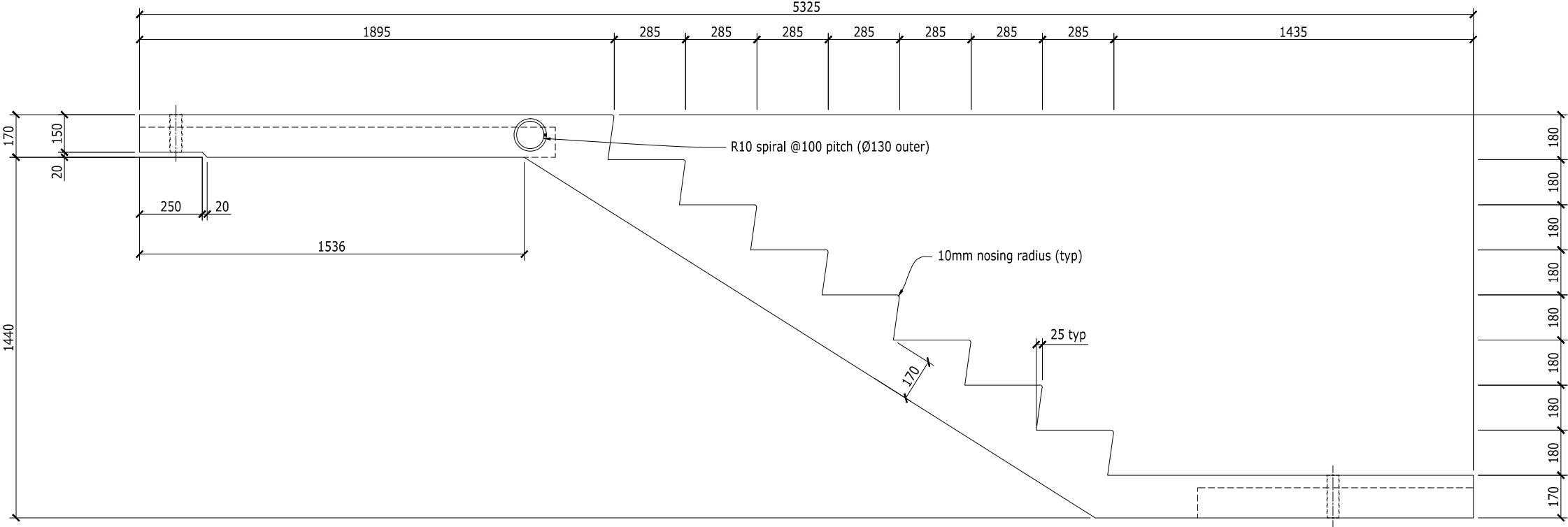
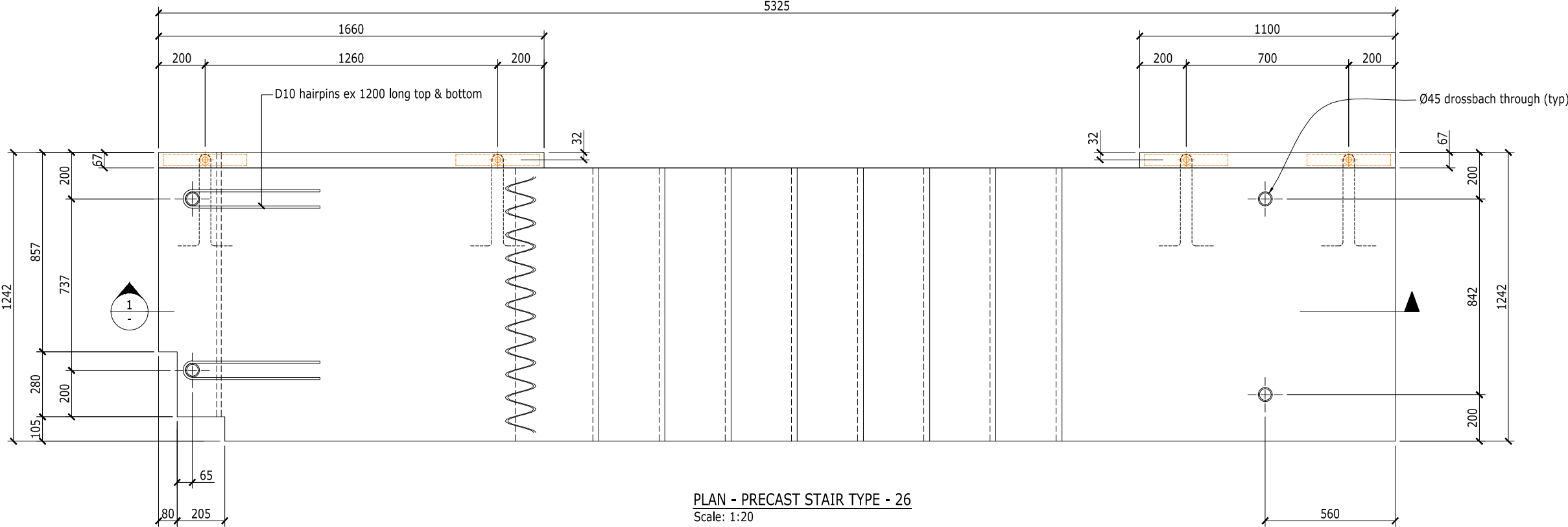
C1 TOWER
project title



PRECAST STAIR TYPE 25
drawing title

S2.95	1770
drawing no	project
	2
	issue

CONSTRUCTION



CONSTRUCTION

2	CONSTRUCTION ISSUE	JL	SG	12-12-07
issue	description	by	appl.	date

GA	GB		1:20
drawn	designed	approved	scales

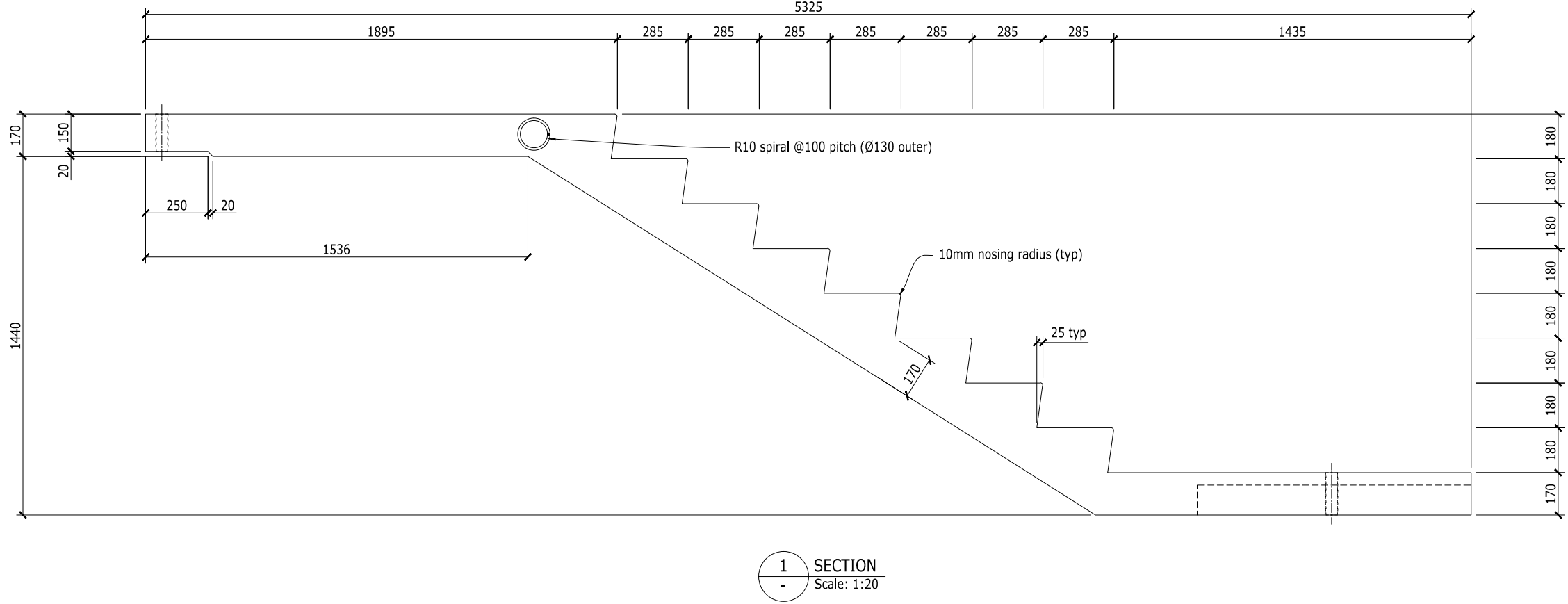
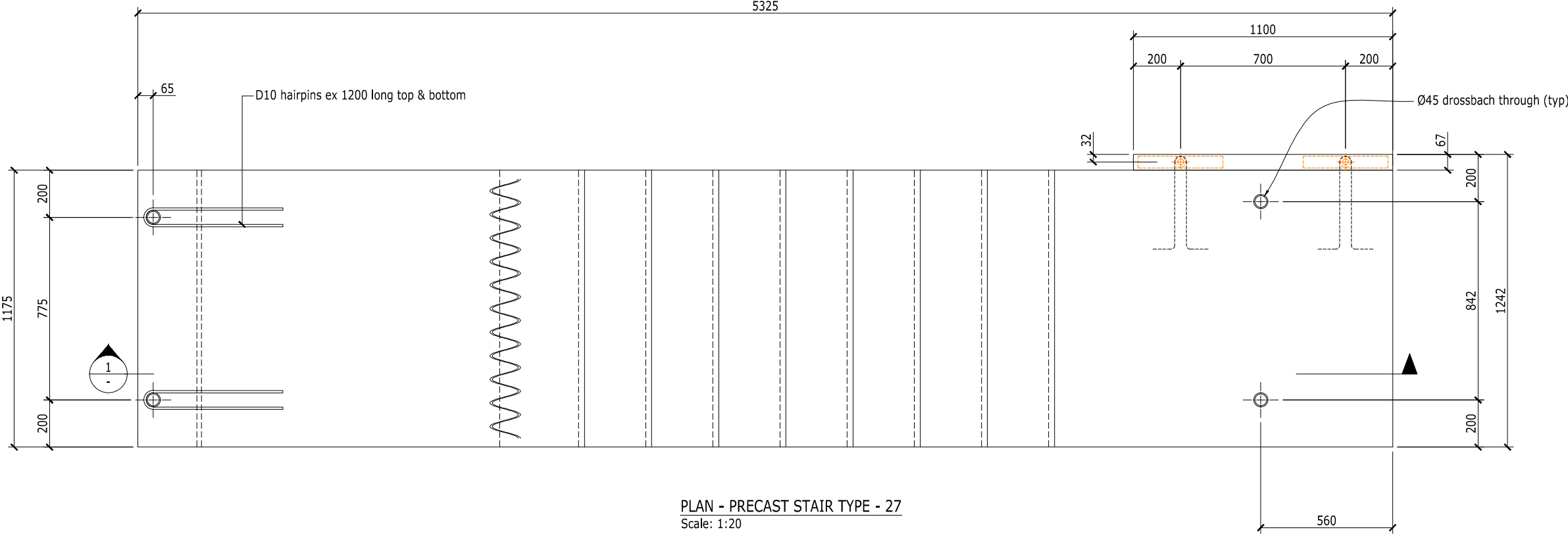
AMC CONSTRUCTION
client

C1 TOWER
project title



PRECAST STAIR TYPE 26
drawing title

S2.96	1770
drawing no	project
	2
	issue



CONSTRUCTION

2	CONSTRUCTION ISSUE	JL	SG	12-12-07
issue	description	by	appl.	date

GA	GB		1:20
drawn	designed	approved	scales

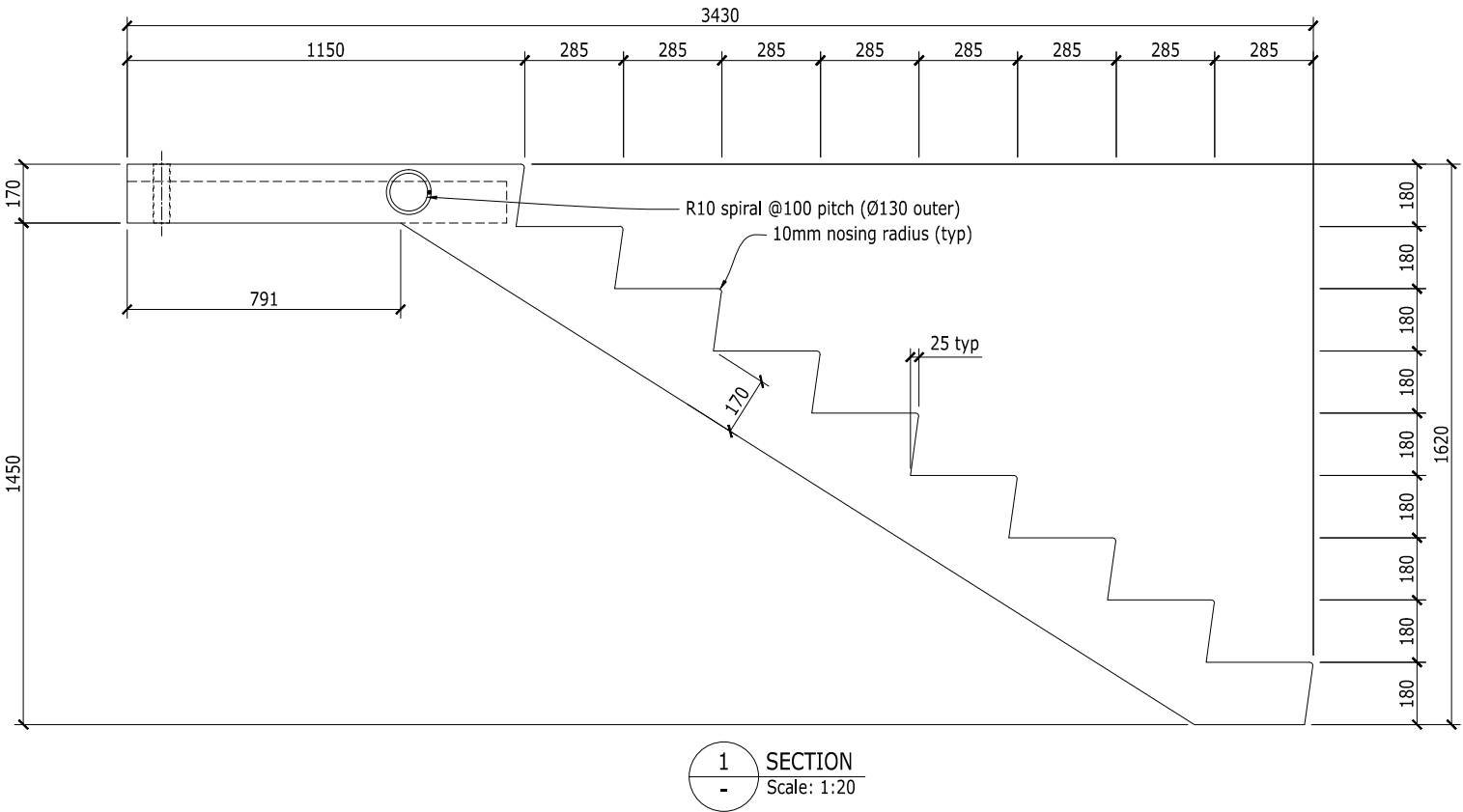
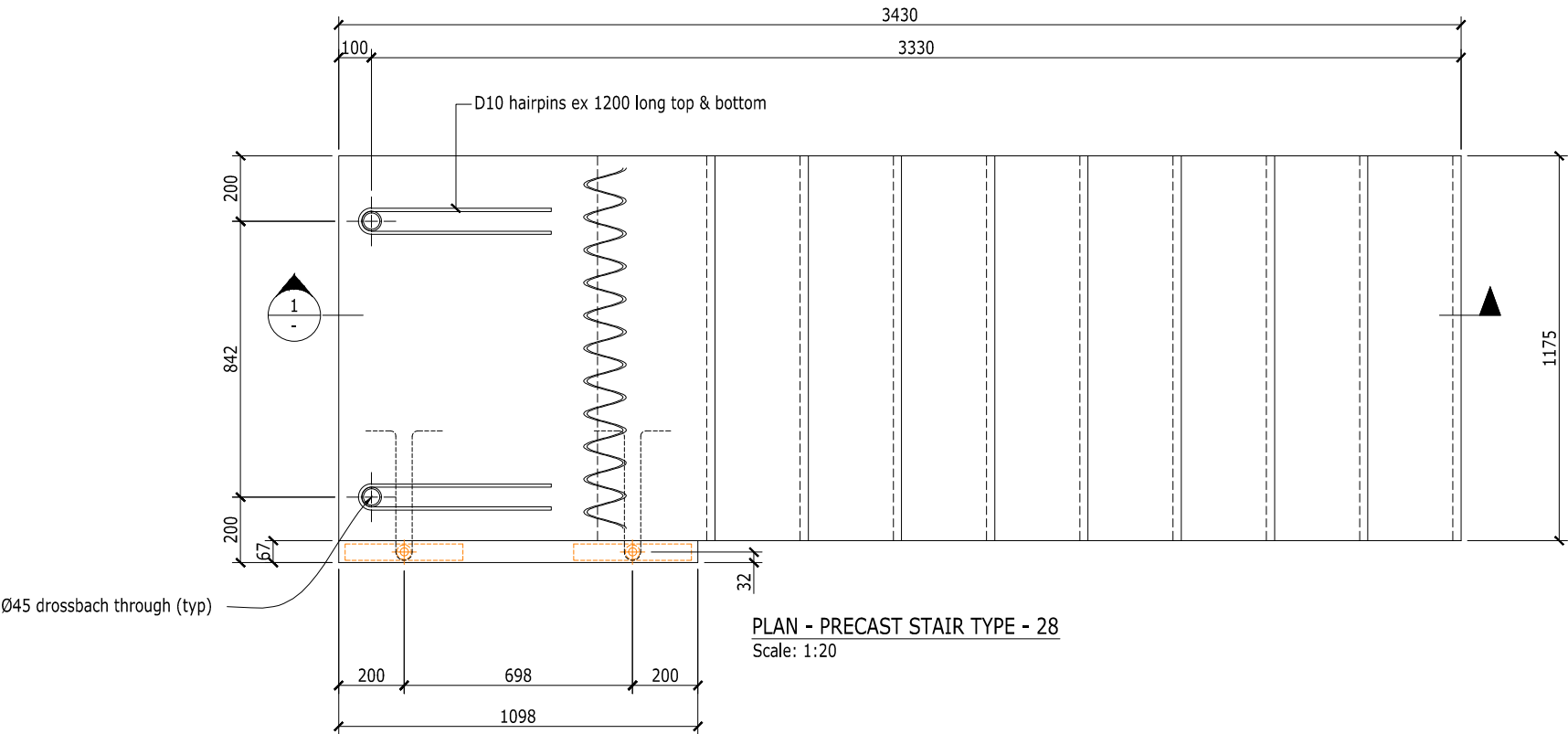
AMC CONSTRUCTION
client

C1 TOWER
project title



PRECAST STAIR TYPE 27
drawing title

S2.97	1770
drawing no	project
	2
	issue



CONSTRUCTION

2	CONSTRUCTION ISSUE	JL	SG	12-12-07
issue	description	by	appl.	date

GA	GB		1:20
drawn	designed	approved	scales

AMC CONSTRUCTION
client

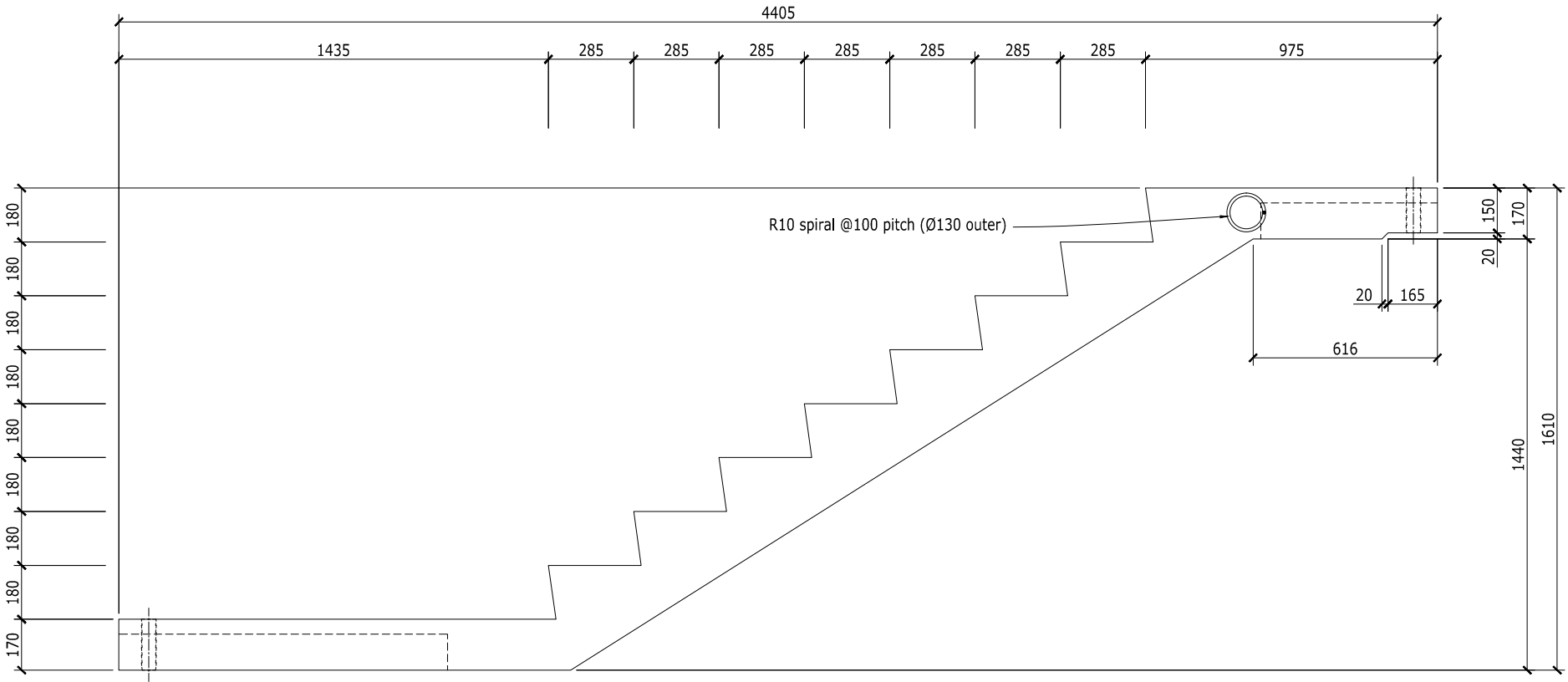
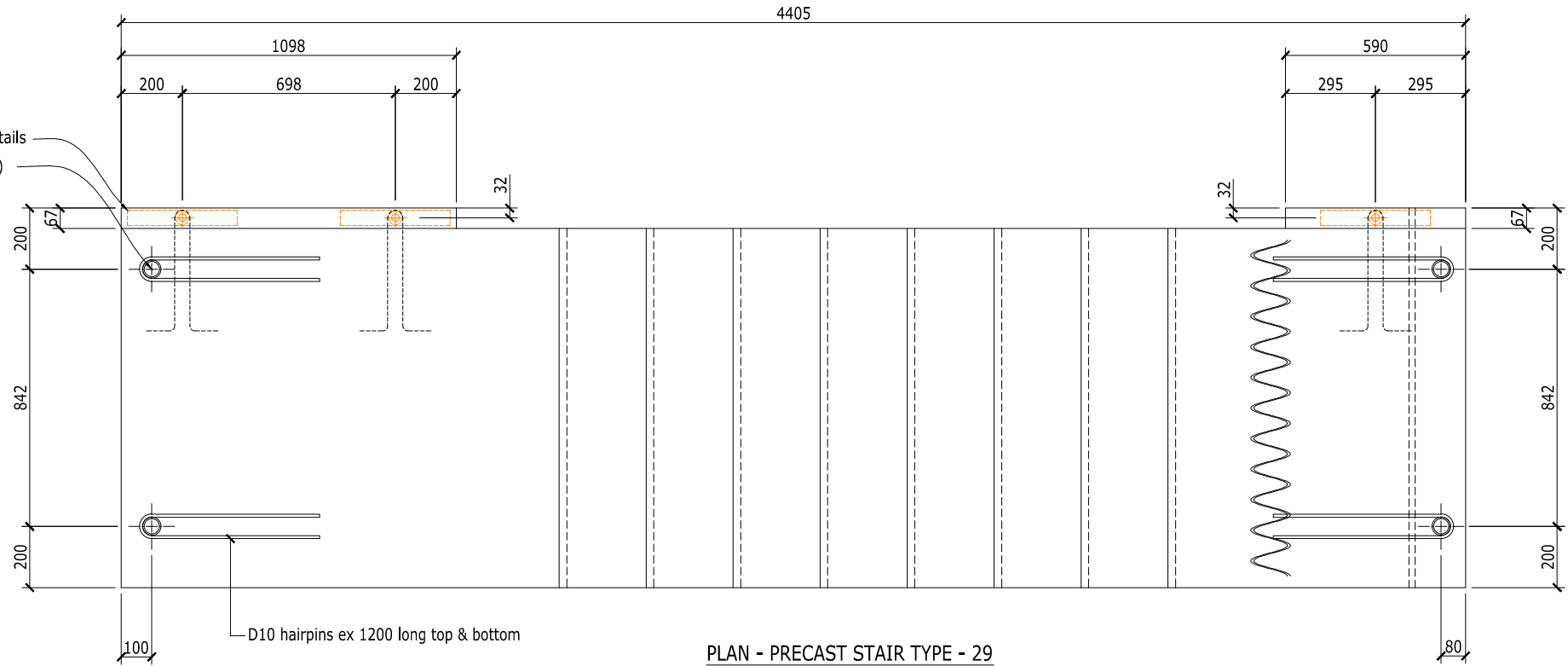
C1 TOWER
project title



PRECAST STAIR TYPE 28
drawing title

S2.98	1770
drawing no	project
2	2
issue	issue

M16 seismic safety straps refer S2.70 for details
Ø45 crossbach through (typ)



CONSTRUCTION

2	CONSTRUCTION ISSUE	JL	SG	12-12-07
issue	description	by	appl.	date

GA	GB		1:20
drawn	designed	approved	scales

AMC CONSTRUCTION
client

C1 TOWER
project title



PRECAST STAIR TYPE 29
drawing title

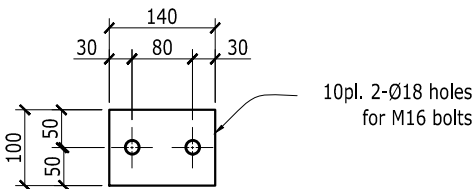
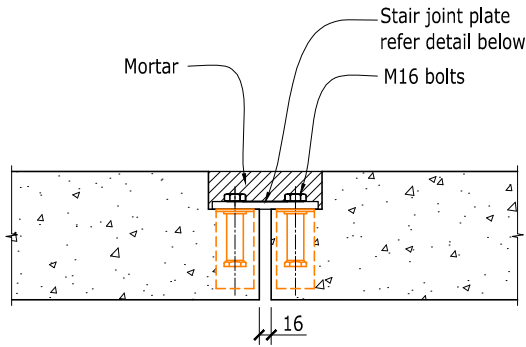
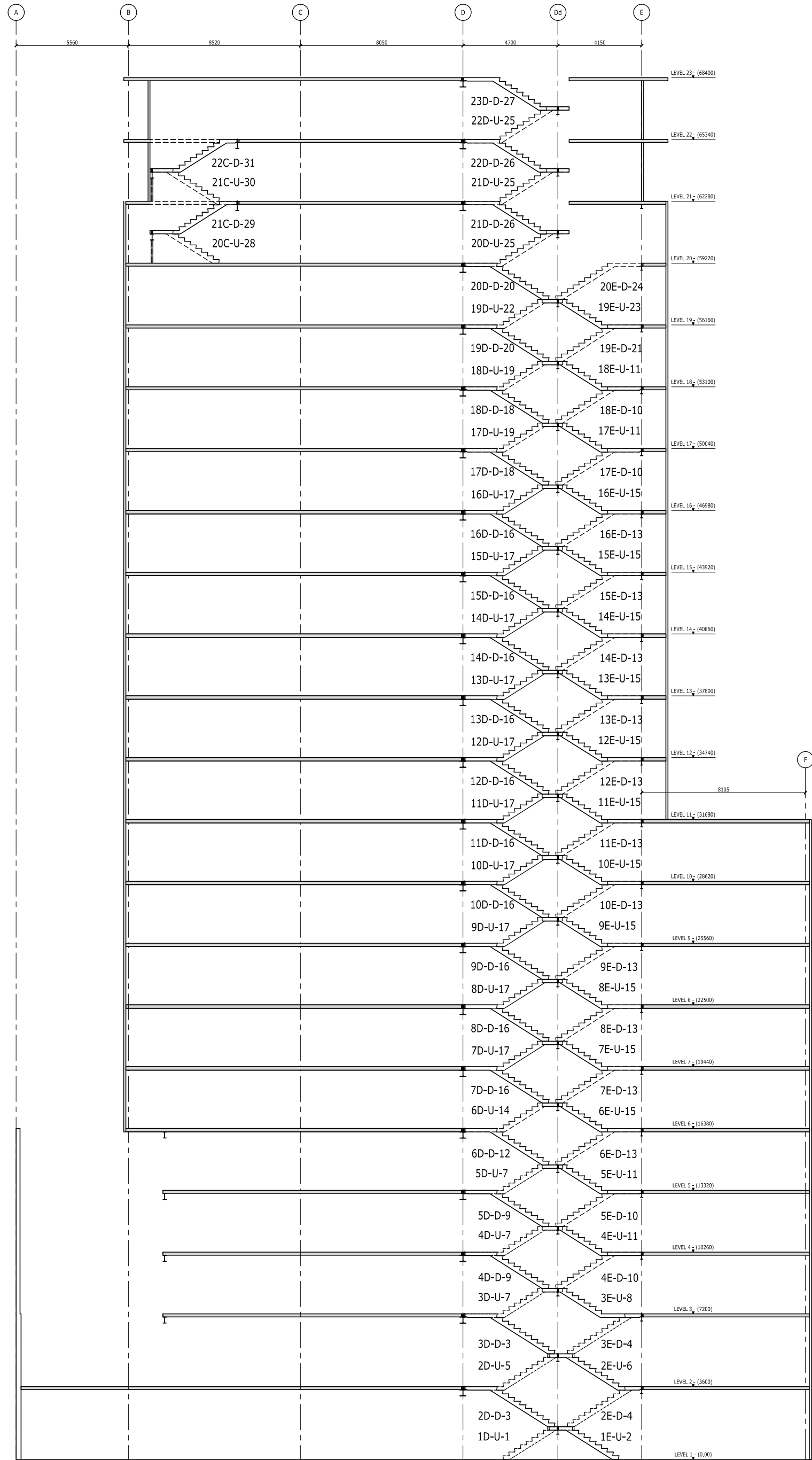
S2.99	1770
drawing no	project
	2
	issue



Project
770
2



					GA	GB	1:20	AMC CONSTRUCTION	C1 TOWER	 "Giving support a whole new meaning" www.structex.co.nz	PRECAST STAIR TYPE 31	S2.101	<table><tr><td>project</td></tr><tr><td>1770</td></tr><tr><td>2</td></tr><tr><td>issue</td></tr></table>	project	1770	2	issue
project																	
1770																	
2																	
issue																	
2	CONSTRUCTION ISSUE	JL	SG	12-12-07	design	designed	approved	scale	client	project title	description title	description no.	issue				



NOTES:

Stair Reference Legend

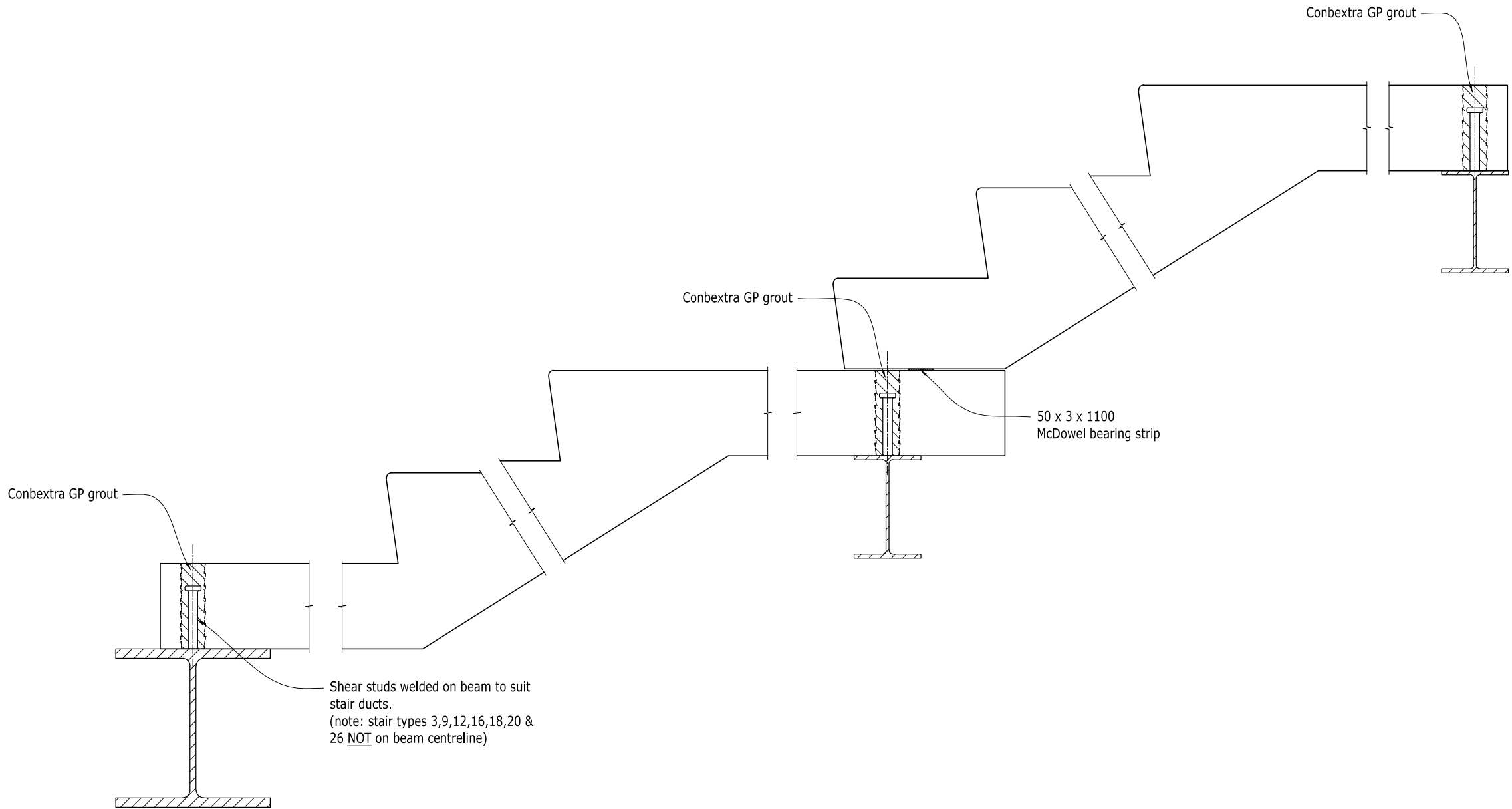
4D-D-9

Level

Grid

Up or Down

Stair Type



2	CONSTRUCTION ISSUE	JL	SG	12-12-07	
Issue	description	by	appd.	date	

GA	GB		1:10
drawn	designed	approved	scales

AMC CONSTRUCTION
client

C1 TOWER
project title

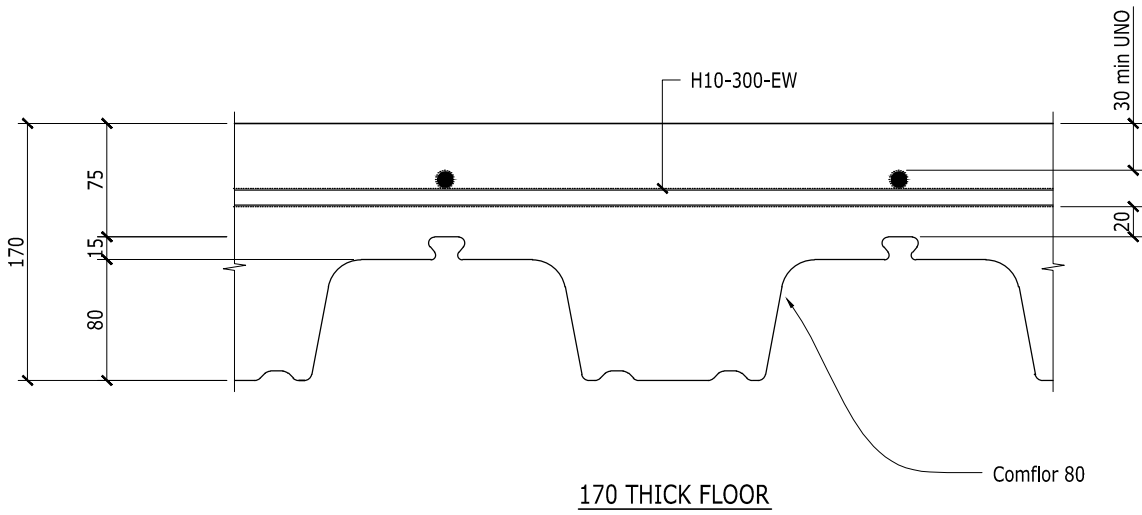
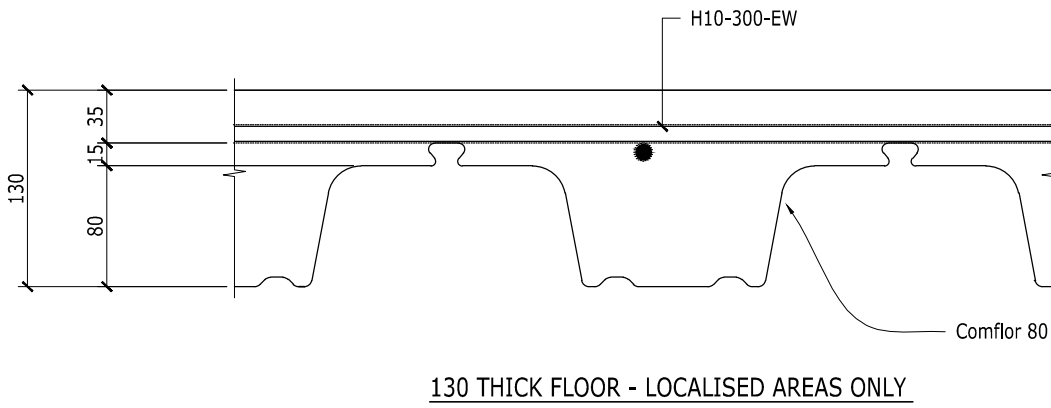
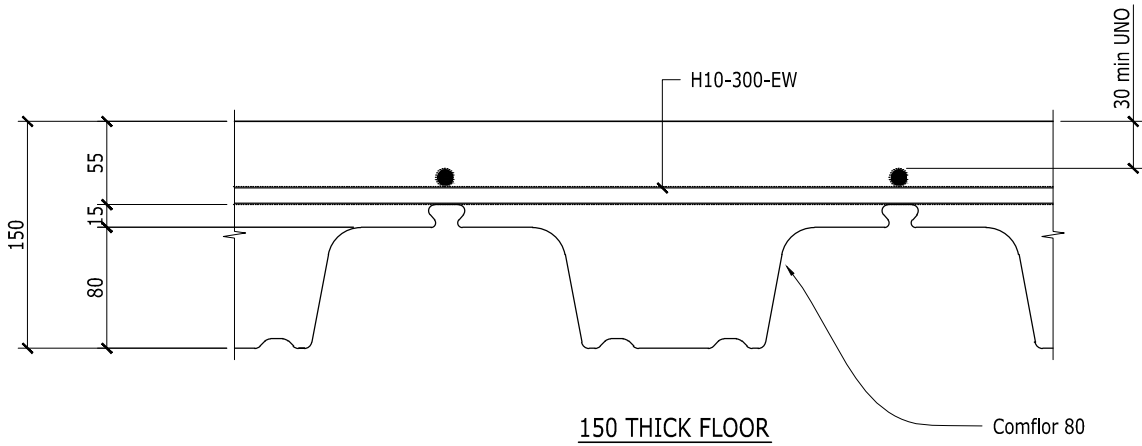
PRECAST STAIR LOCATION & SETOUT
drawing title

CONSTRUCTION
S2.03
drawing no

project
1770
2
issue

NOTES:

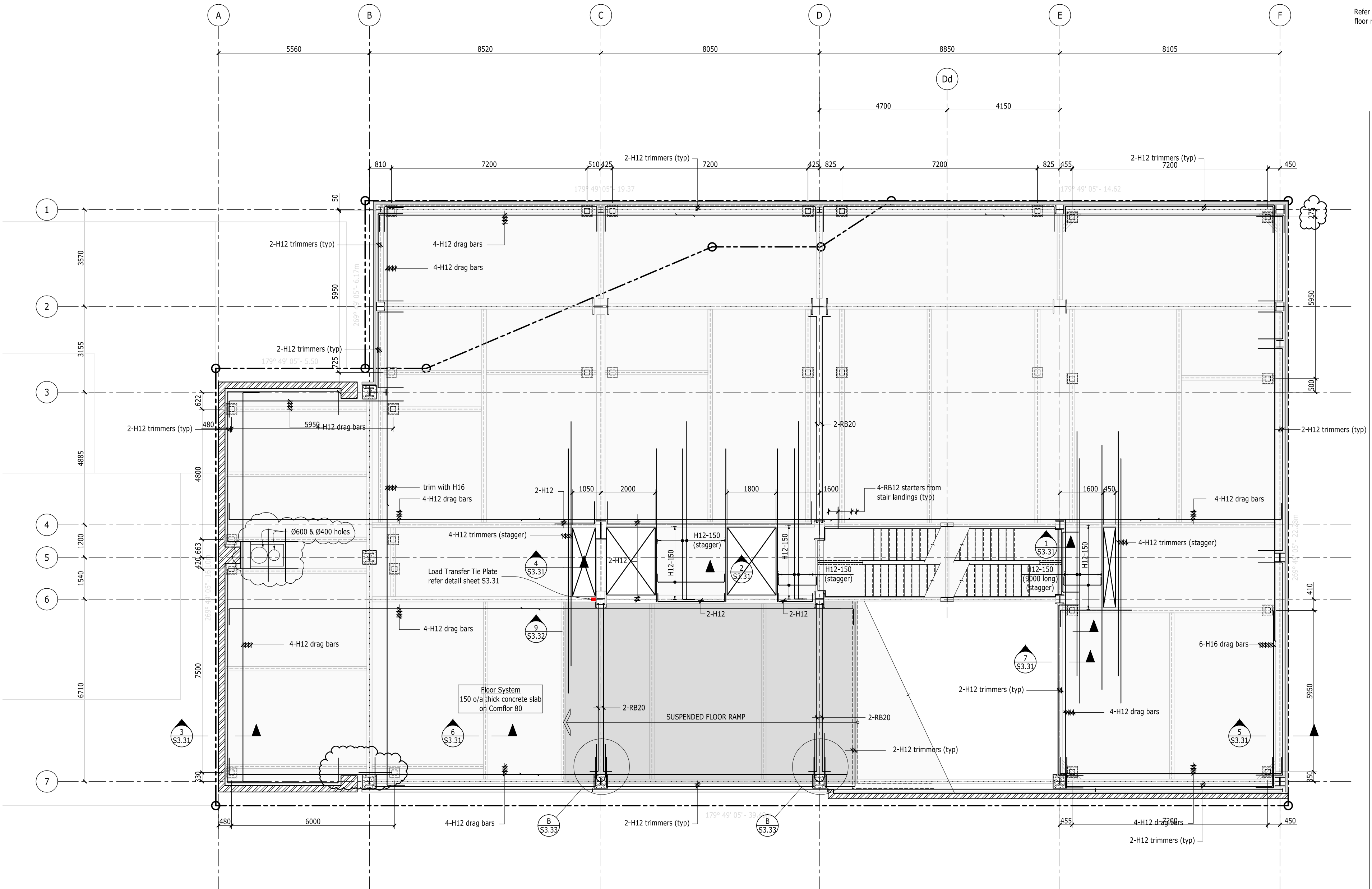
- a. Typical suspended floor reinforcing to be H10 at 300 centres each way
- b. Trimmers to slab wedges to be 4-H12 unless detailed otherwise
- c. Refer Steelwork drawings for layout of comflor 80 system



TYPICAL SUSPENDED FLOOR REINFORCEMENT
Scale: 1:5

NOTES:

Refer to drawing S3.00 for suspended floor notes & general details



CONSTRUCTION

2	CONSTRUCTION ISSUE	JL	SG	12-12-07
Issue	description	by	appd.	date

GA	GB		1: 100
drawn	designed	approved	scales

AMC CONSTRUCTION
client

C1 TOWER
project title

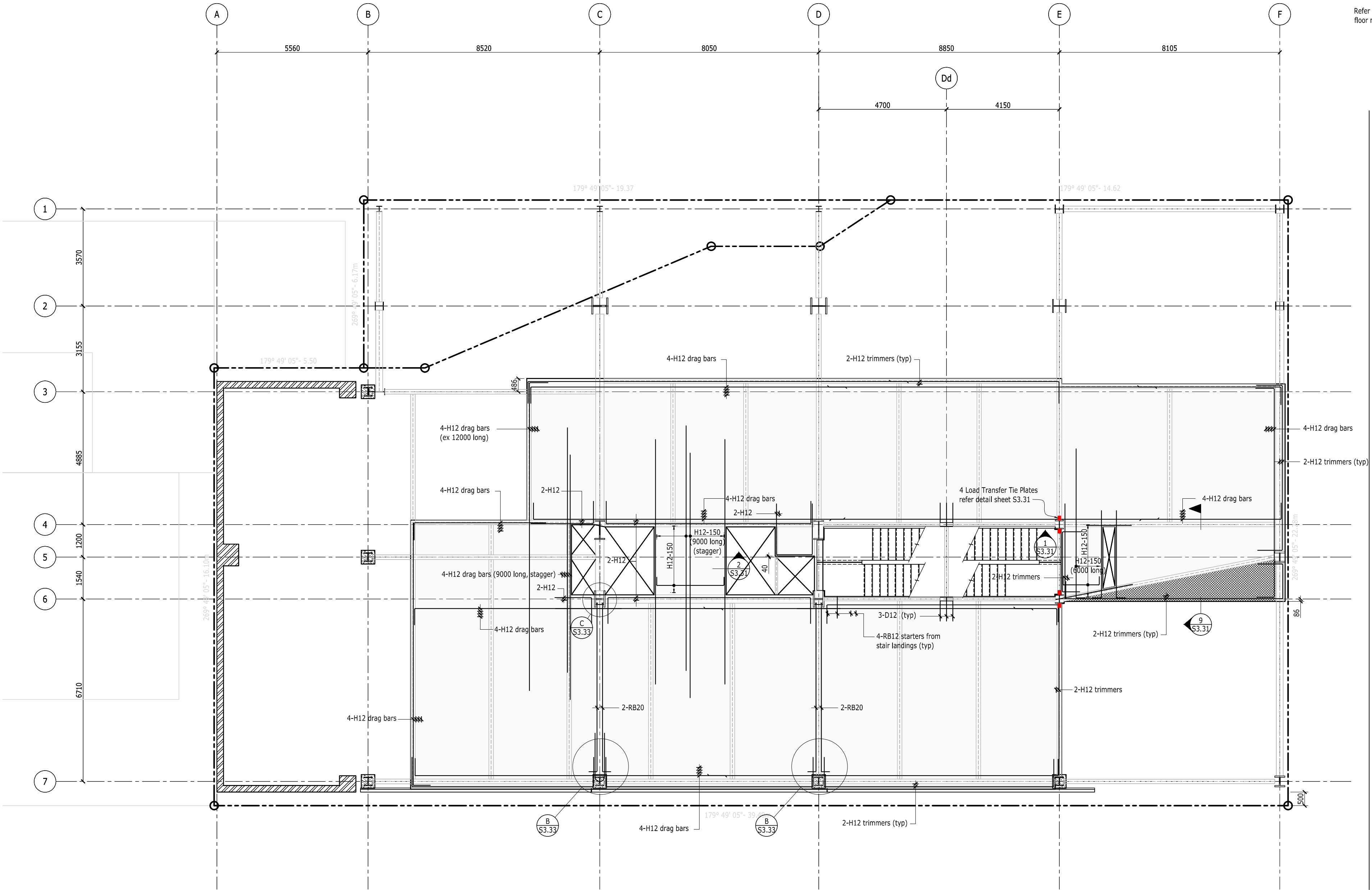


LEVEL 2 FLOOR PLAN
drawing title

S3.02	project 1770
drawing no	2
issue	

NOTES:

Refer to drawing S3.00 for suspended floor notes & general details



GLoucester Street

CONSTRUCTION

2	CONSTRUCTION ISSUE	JL	SG	12-12-07
Issue	Description	by	appd.	date

GA	GB		1:100
drawn	designed	approved	scales

AMC CONSTRUCTION
client

C1 TOWER
project title

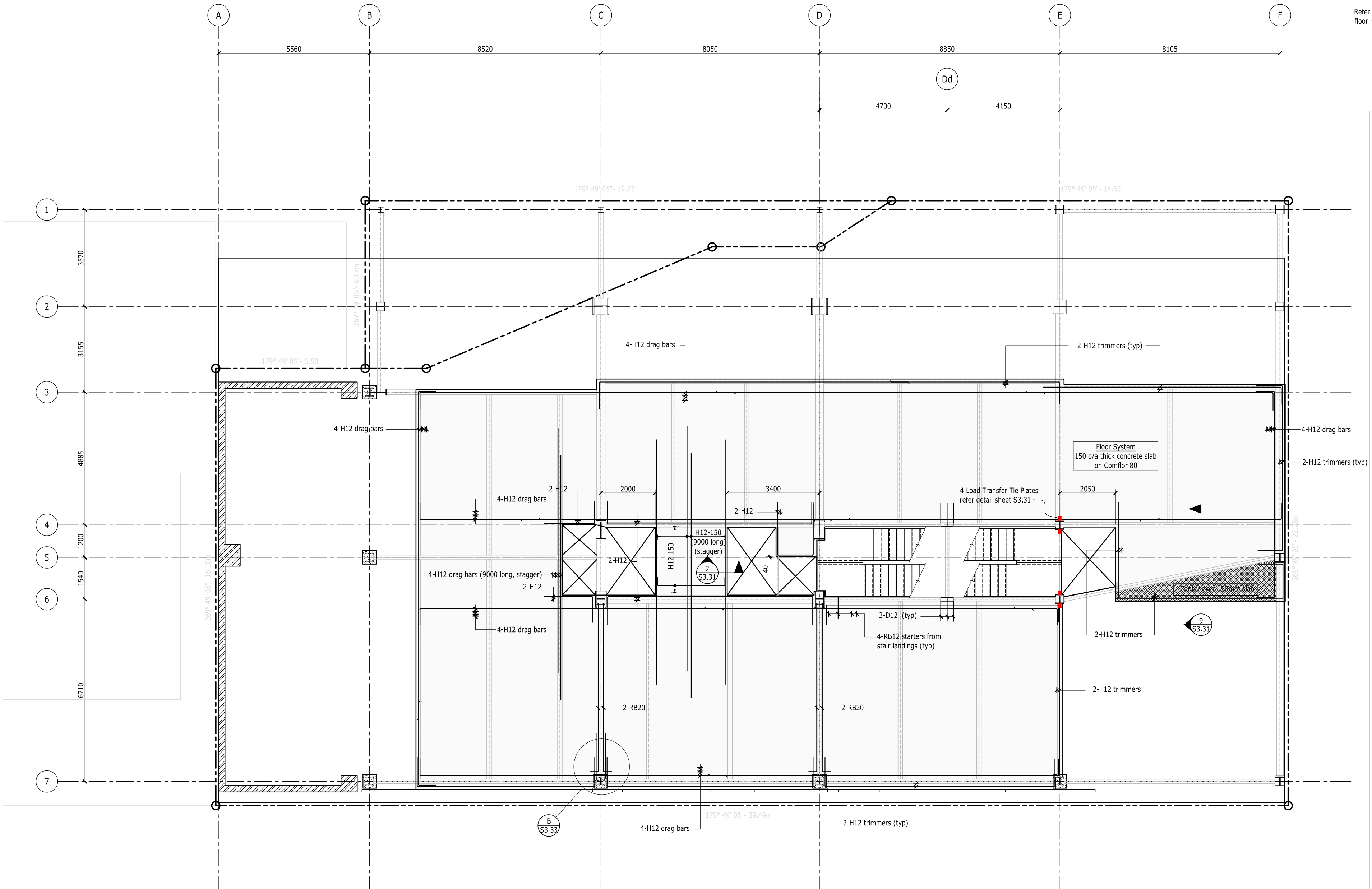


LEVEL 3 FLOOR PLAN
drawing title

S3.03	project
drawing no	1770
issue	2

NOTES:

Refer to drawing S3.00 for suspended floor notes & general details



CONSTRUCTION

2	CONSTRUCTION ISSUE	JL	SG	12-12-07
issue	description	by	appd.	date

GA	GB		1:100
drawn	designed	approved	scales

AMC CONSTRUCTION
client

C1 TOWER
project title

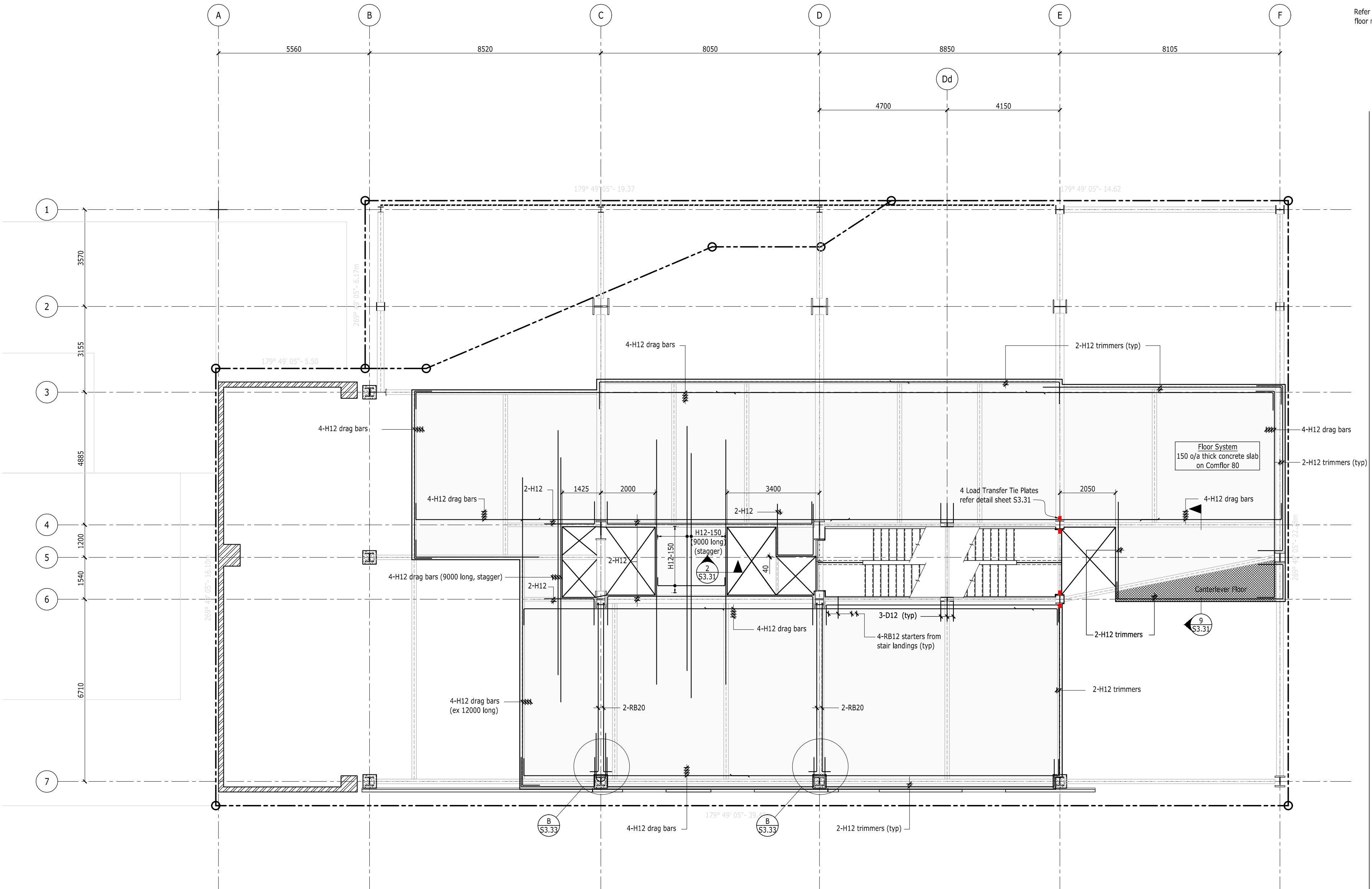


LEVEL 4 FLOOR PLAN
drawing title

S3.04	project 1770
drawing no	2
issue	

NOTES:

Refer to drawing S3.00 for suspended floor notes & general details



CONSTRUCTION

2	CONSTRUCTION ISSUE	JL	SG	12-12-07
issue	description	by	appd.	date

GA	GB		1: 100
drawn	designed	approved	scales

AMC CONSTRUCTION
client

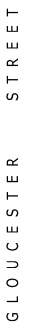
C1 TOWER
project title



LEVEL 5 FLOOR PLAN
drawing title

S3.05	project 1770
drawing no	2 issue

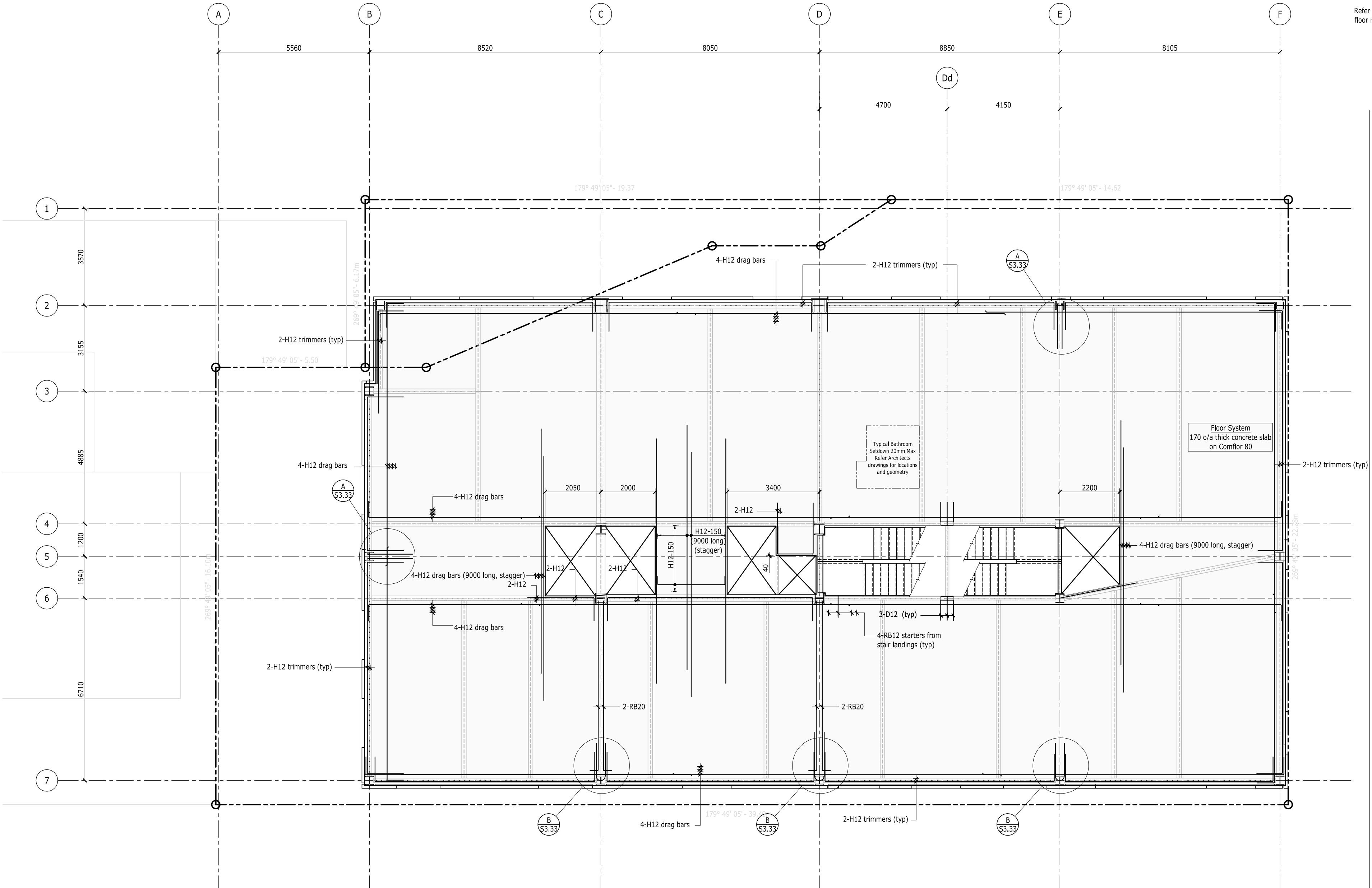
Refer to drawing S3.00 for suspended floor notes & general details



S3.06	project
	1770
drawing no	2
	issue

NOTES:

Refer to drawing S3.00 for suspended floor notes & general details



CONSTRUCTION

2	CONSTRUCTION ISSUE	JL	SG	12-12-07
Issue	Description	by	appd.	date

GA	GB		1:100
drawn	designed	approved	scales

AMC CONSTRUCTION
client

C1 TOWER
project title

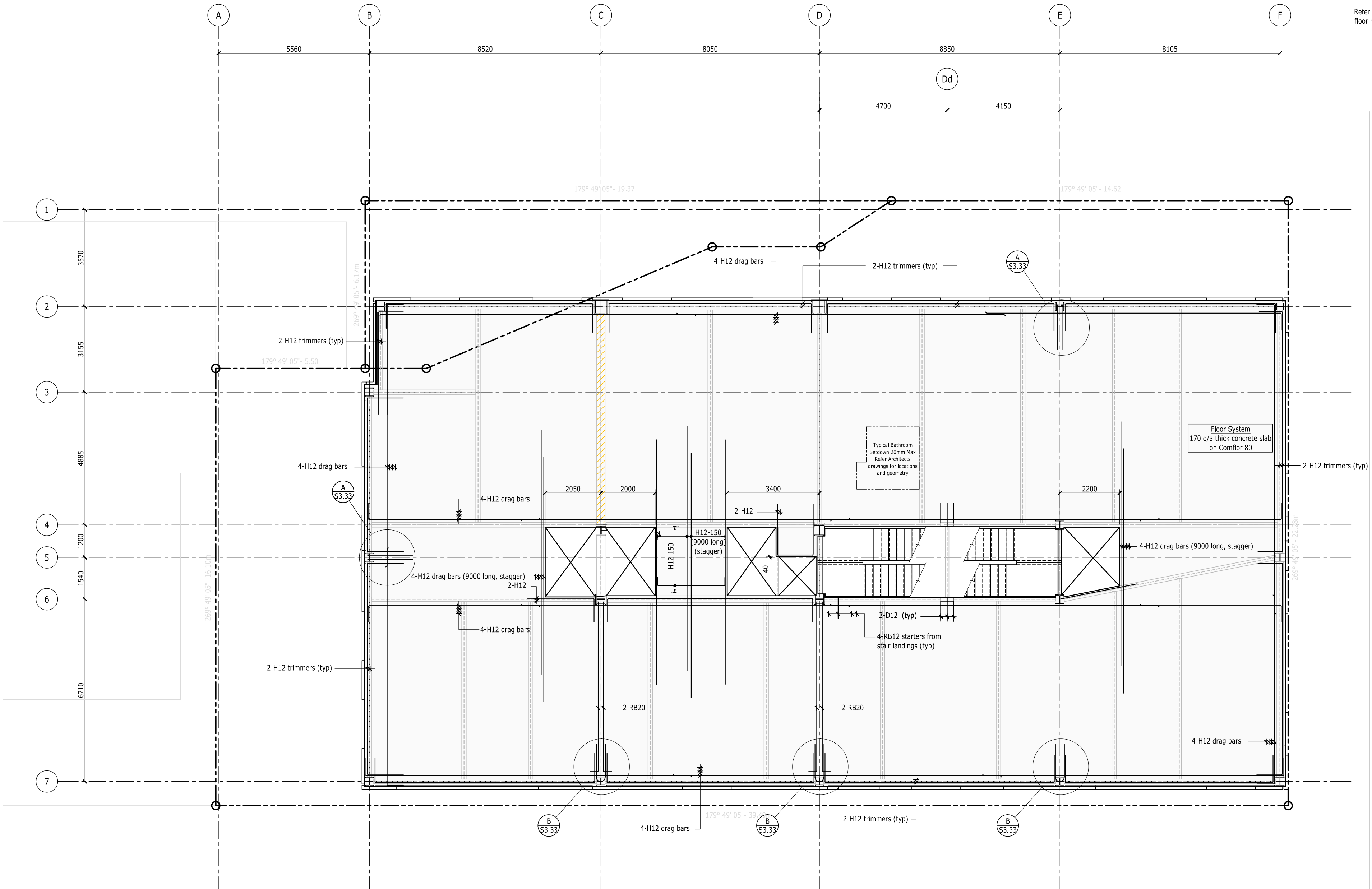


LEVEL 7 FLOOR PLAN
drawing title

S3.07	project 1770
drawing no	2 issue

NOTES:

Refer to drawing S3.00 for suspended floor notes & general details



CONSTRUCTION

2	CONSTRUCTION ISSUE	JL	SG	12-12-07
Issue	Description	by	appd.	date

GA	GB		1:100
drawn	designed	approved	scales

AMC CONSTRUCTION
client

C1 TOWER
project title

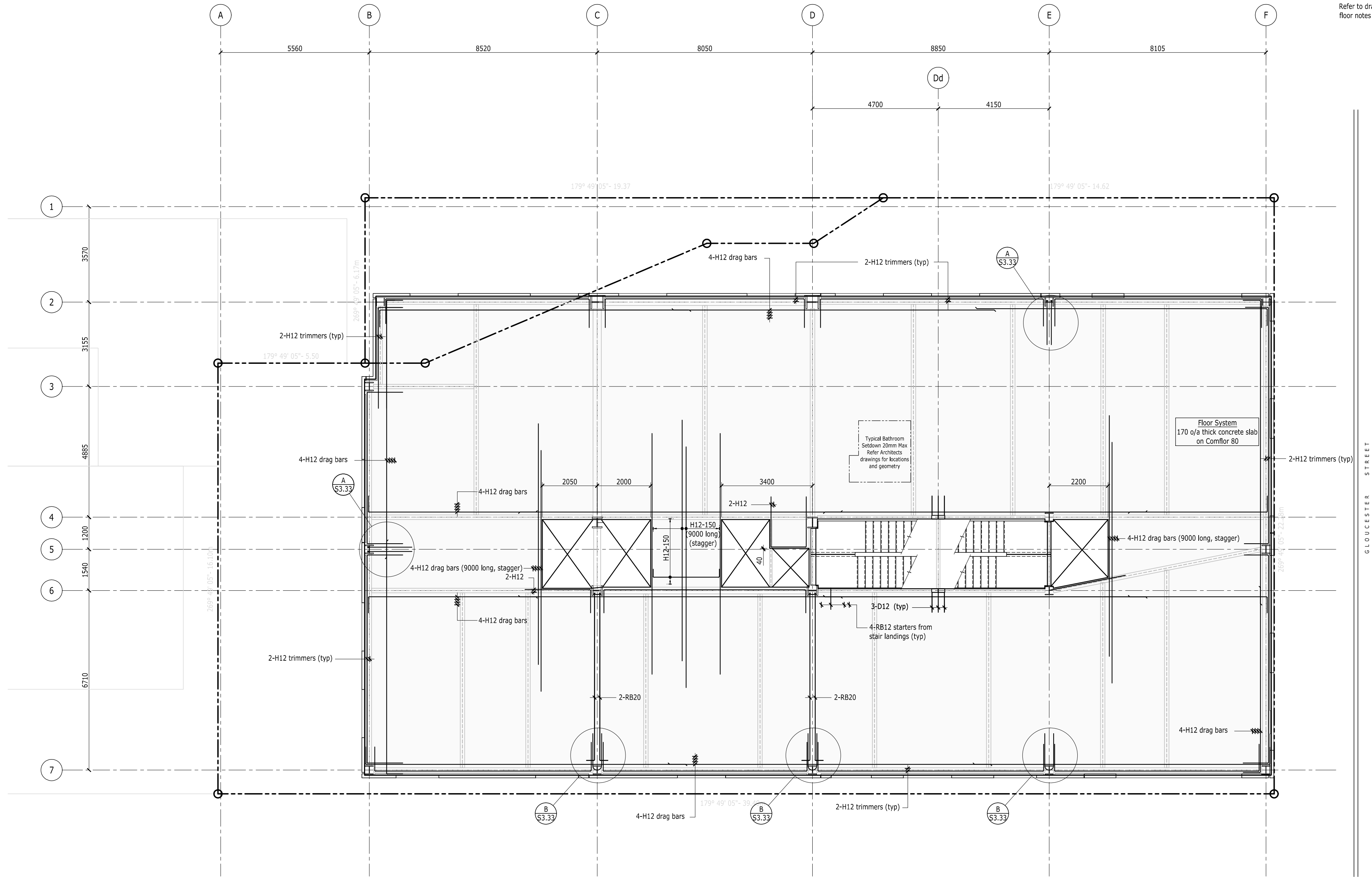


LEVEL 8 FLOOR PLAN
drawing title

S3.08	project 1770
drawing no	2
issue	

NOTES:

Refer to drawing S3.00 for suspended floor notes & general details



CONSTRUCTION

2	CONSTRUCTION ISSUE	JL	SG	12-12-07
Issue	description	by	appd.	date

GA	GB		1: 100
drawn	designed	approved	scales

AMC CONSTRUCTION
client

C1 TOWER
project title

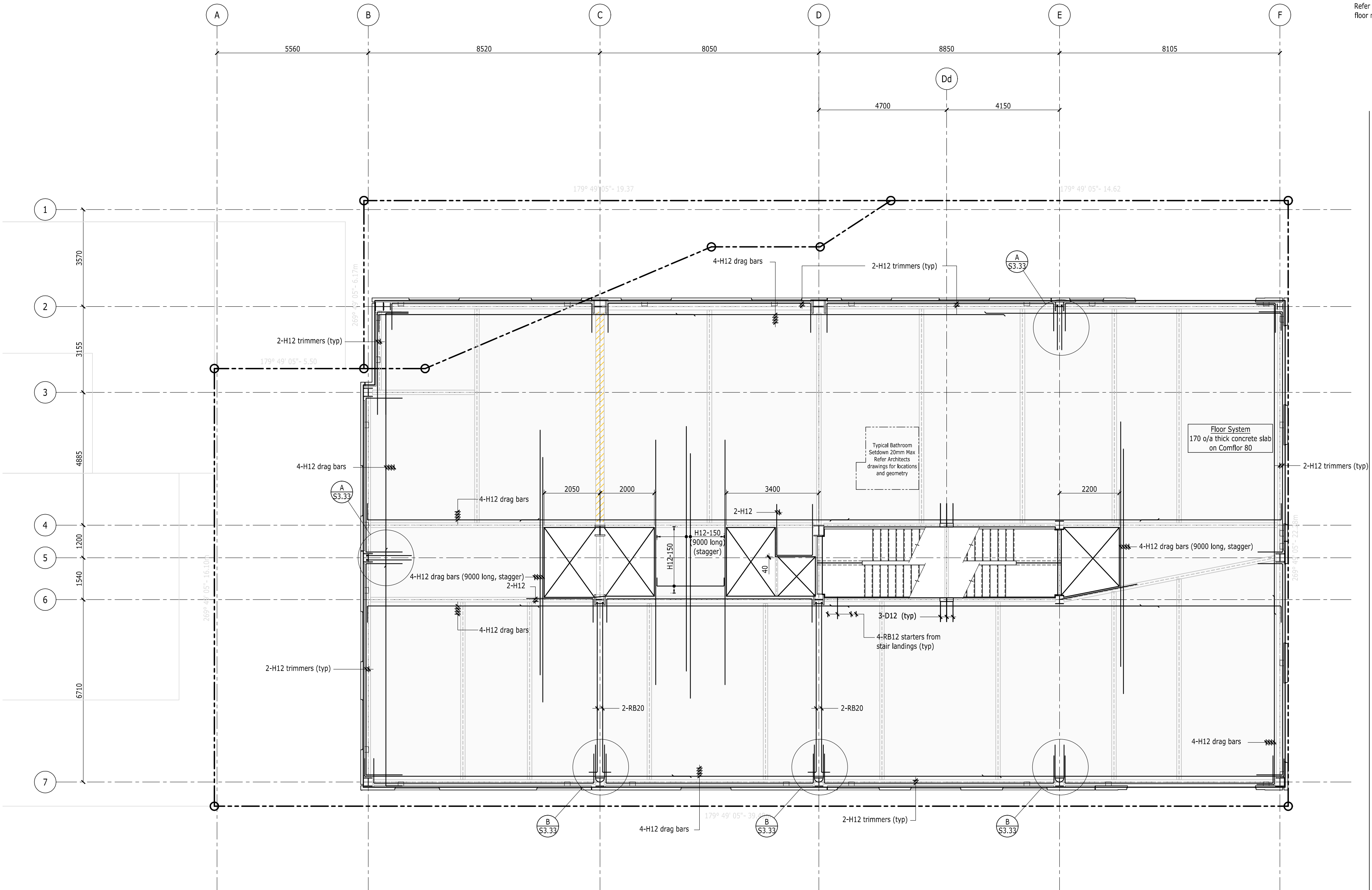


LEVEL 9 FLOOR PLAN
drawing title

S3.09	project 1770
drawing no	2
issue	

NOTES:

Refer to drawing S3.00 for suspended floor notes & general details



CONSTRUCTION

2	CONSTRUCTION ISSUE	JL	SG	12-12-07
Issue	Description	by	appd.	date

GA	GB		1:100
drawn	designed	approved	scales

AMC CONSTRUCTION
client

C1 TOWER
project title

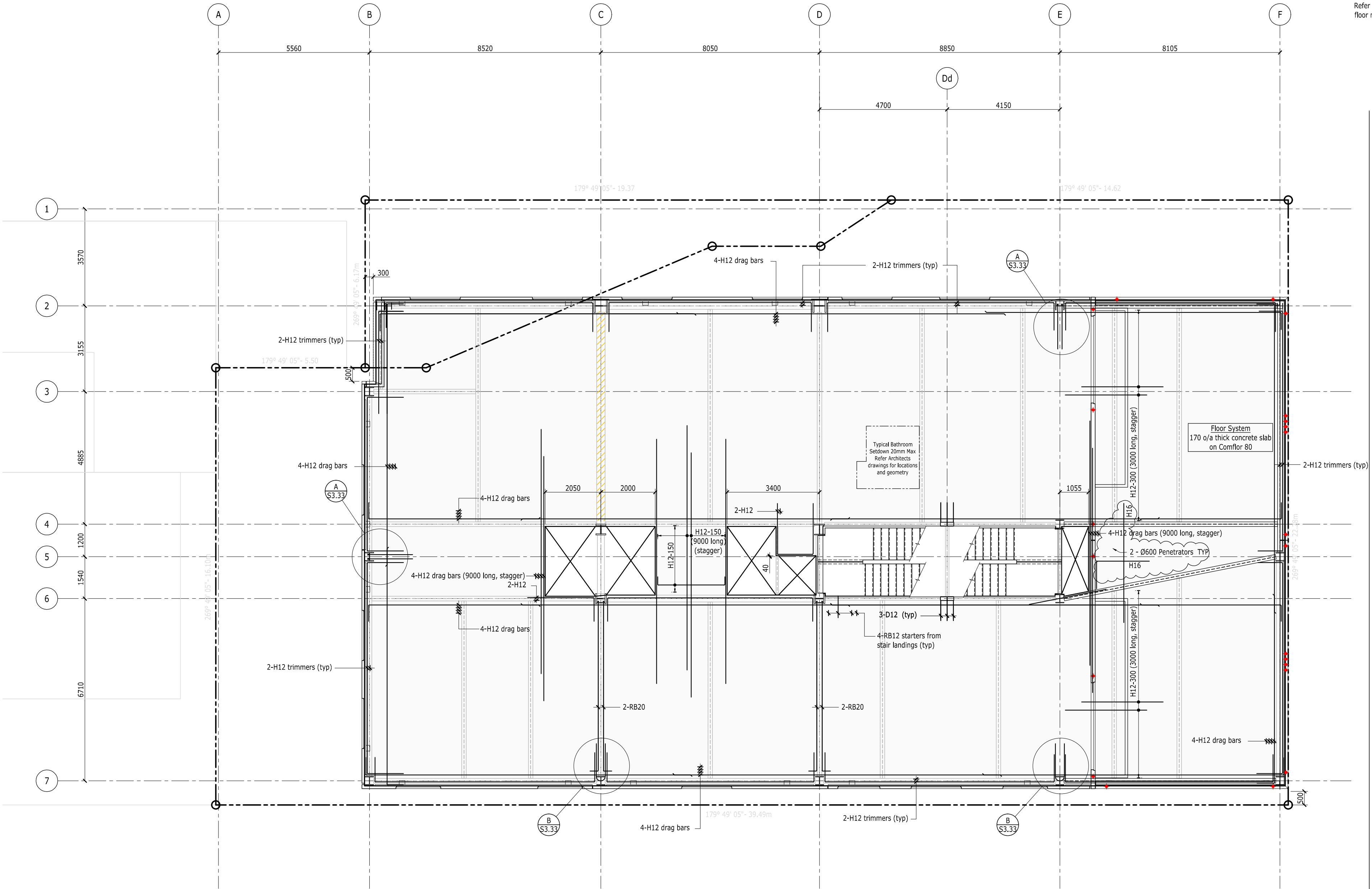


LEVEL 10 FLOOR PLAN
drawing title

S3.10	project 1770
drawing no	2
issue	

NOTES:

Refer to drawing S3.00 for suspended floor notes & general details



CONSTRUCTION

2	CONSTRUCTION ISSUE	JL	SG	12-12-07
Issue	description	by	appd.	date

GA	GB		1: 100
drawn	designed	approved	scales

AMC CONSTRUCTION
client

C1 TOWER
project title



LEVEL 11 FLOOR PLAN
drawing title

S3.11	project 1770
drawing no	2
issue	

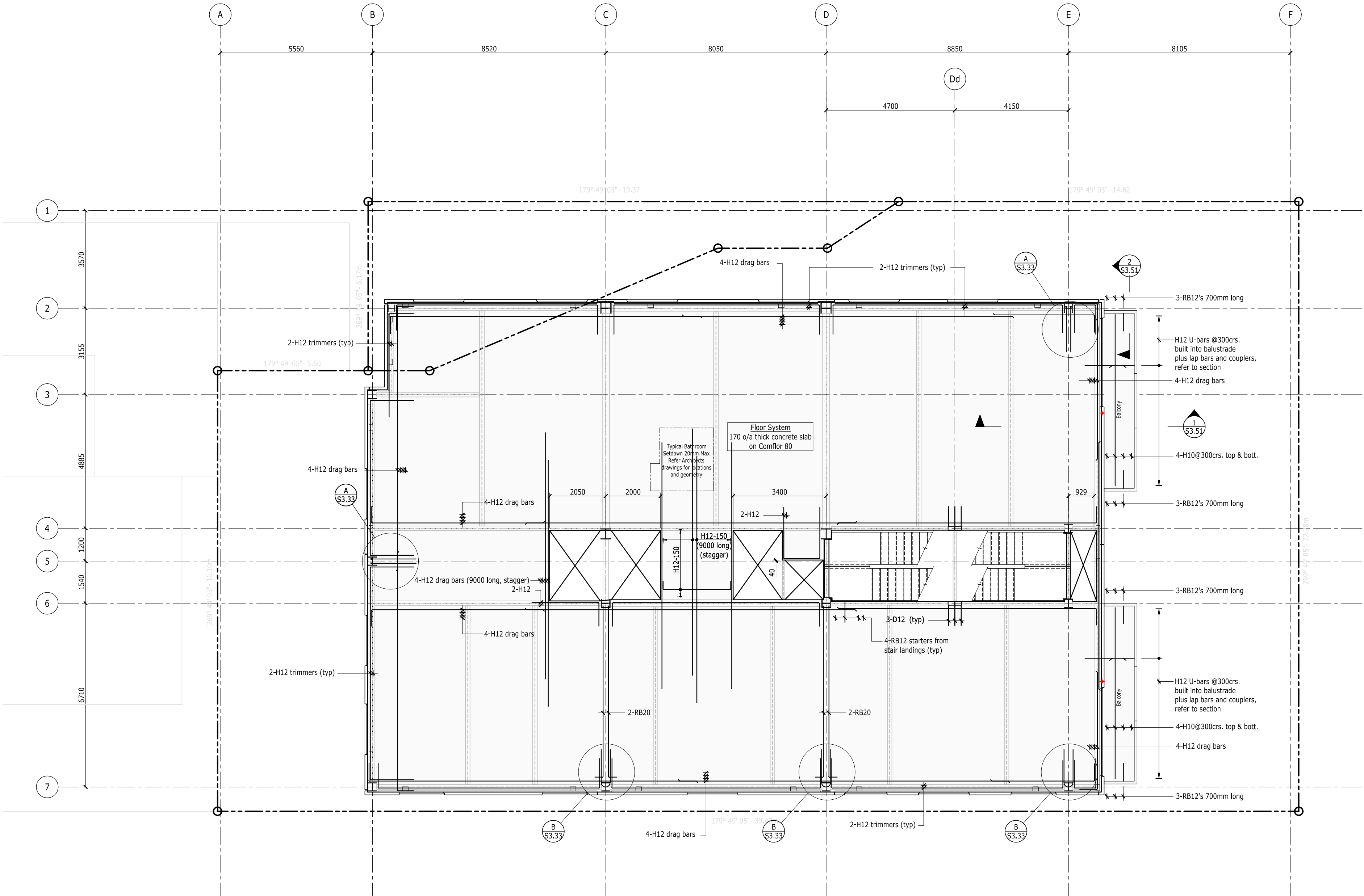
Refer to drawing S3.00 for suspended floor notes & general details



project
1770
2
issue

NOTES:

Refer to drawing S3.00 for suspended floor notes & general details



CONSTRUCTION

2	CONSTRUCTION ISSUE	JL	SG	12-12-07
Issue	description	by	appd.	date

GA	GB		1: 100
drawn	designed	approved	scales

AMC CONSTRUCTION
client

C1 TOWER
project title

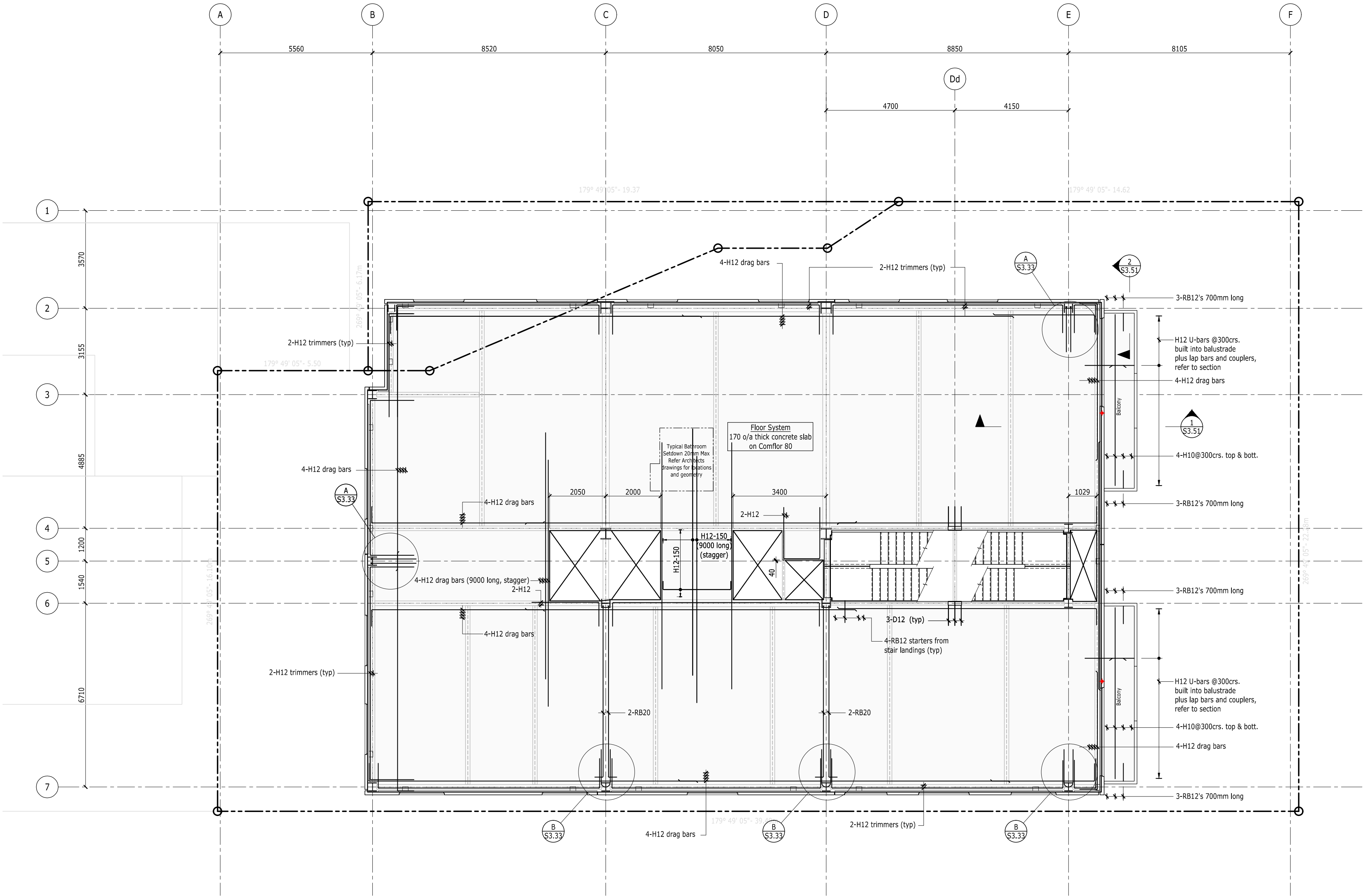


LEVEL 13 FLOOR PLAN
drawing title

S3.13	project 1770
drawing no	2
issue	

NOTES:

Refer to drawing S3.00 for suspended floor notes & general details



GLOUCESTER STREET

CONSTRUCTION

2	CONSTRUCTION ISSUE	JL	SG	12-12-07
Issue	Description	by	appd.	date

GA	GB		1: 100
drawn	designed	approved	scales

AMC CONSTRUCTION
client

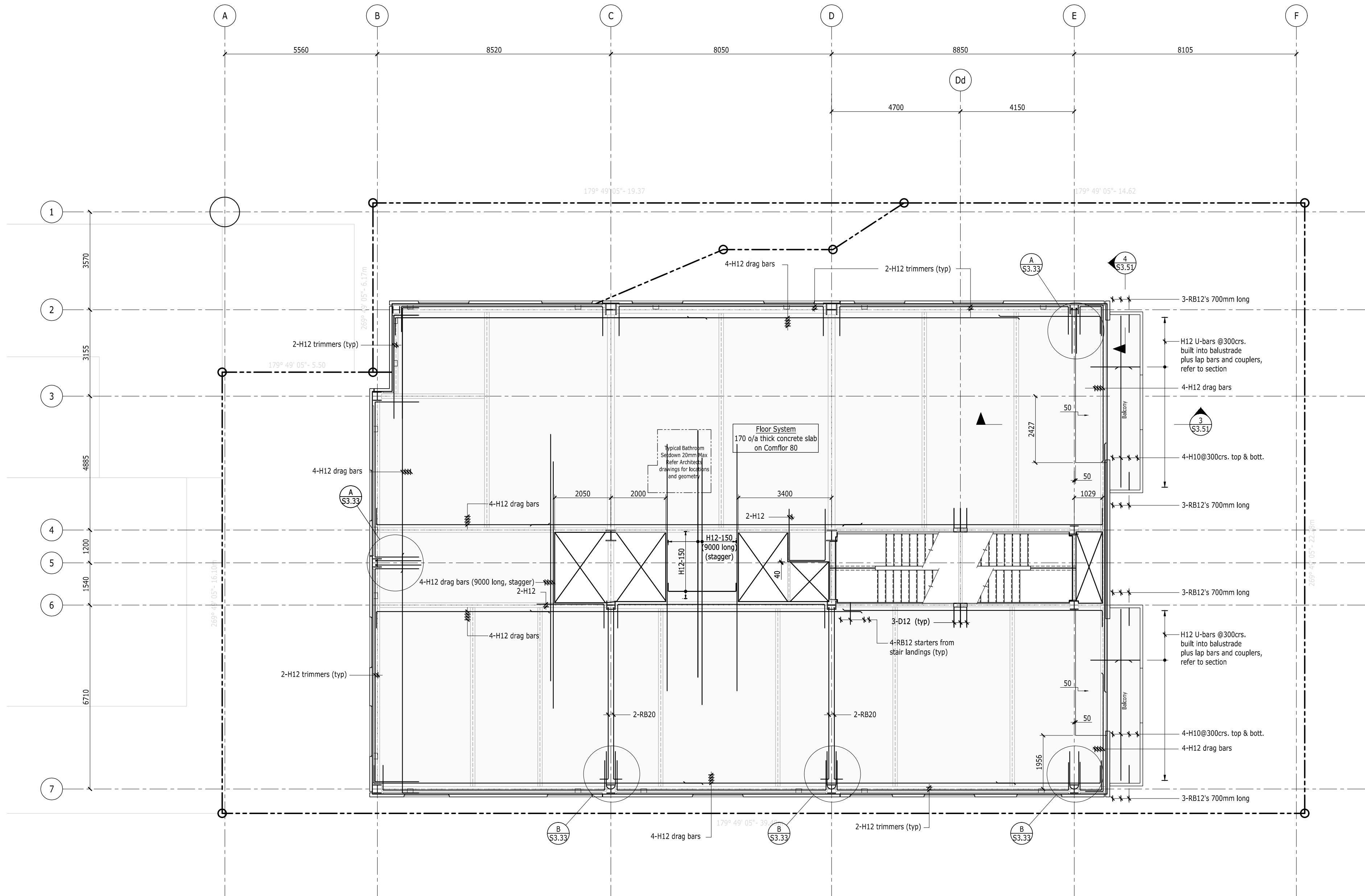
C1 TOWER
project title



LEVEL 14 FLOOR PLAN
drawing title

S3.14	project 1770
drawing no	2
issue	

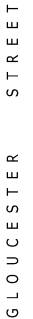
Refer to drawing S3.00 for suspended
floor notes & general details



CONSTRUCTION

[illegible]

Refer to drawing S3.00 for suspended floor notes & general details

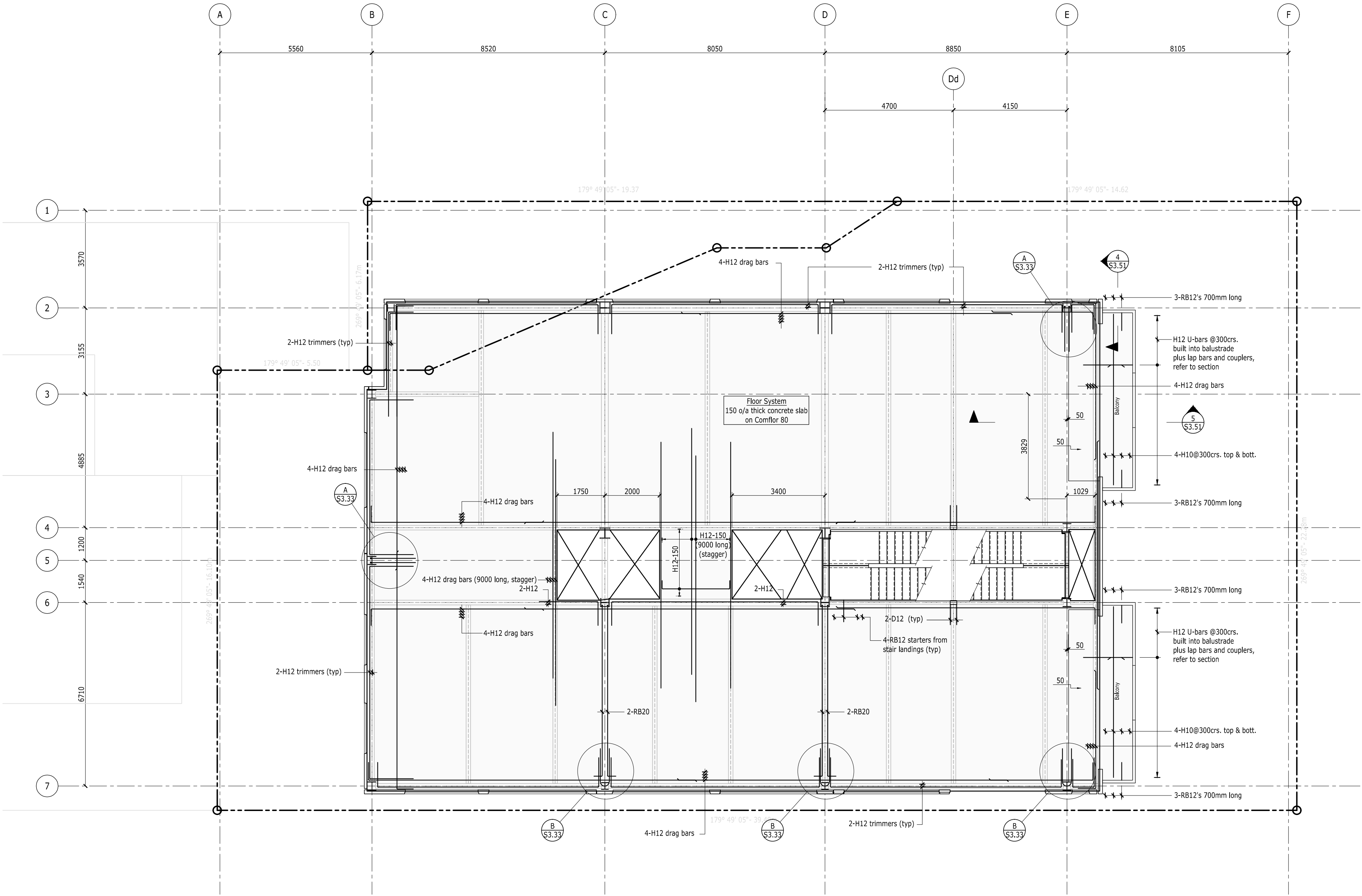


S3.16

[illegible]

NOTES:

Refer to drawing S3.00 for suspended floor notes & general details



CONSTRUCTION

2	CONSTRUCTION ISSUE	JL	SG	12-12-07
Issue	description	by	appd.	date

GA	GB		1:100
drawn	designed	approved	scales

AMC CONSTRUCTION
client

C1 TOWER
project title

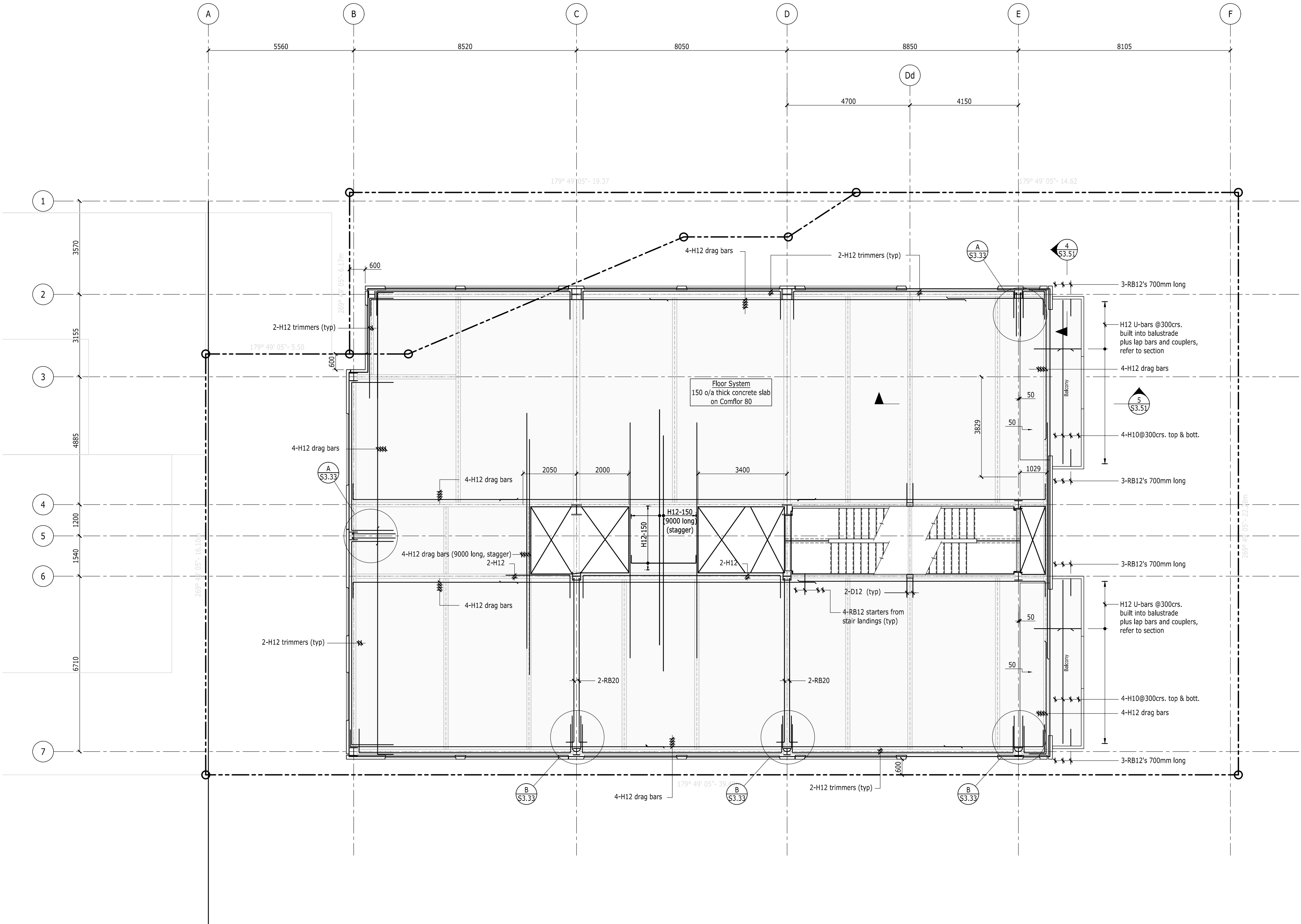


LEVEL 17 FLOOR PLAN
drawing title

S3.17	project 1770
drawing no	2
issue	

NOTES:

Refer to drawing S3.00 for suspended floor notes & general details



CONSTRUCTION

2	CONSTRUCTION ISSUE	JL	SG	12-12-07
Issue	Description	by	appd.	date

GA	GB		1:100
drawn	designed	approved	scales

AMC CONSTRUCTION
client

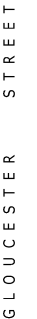
C1 TOWER
project title



LEVEL 18 FLOOR PLAN
drawing title

S3.18	project
drawing no	1770
issue	2

Refer to drawing S3.00 for suspended floor notes & general details

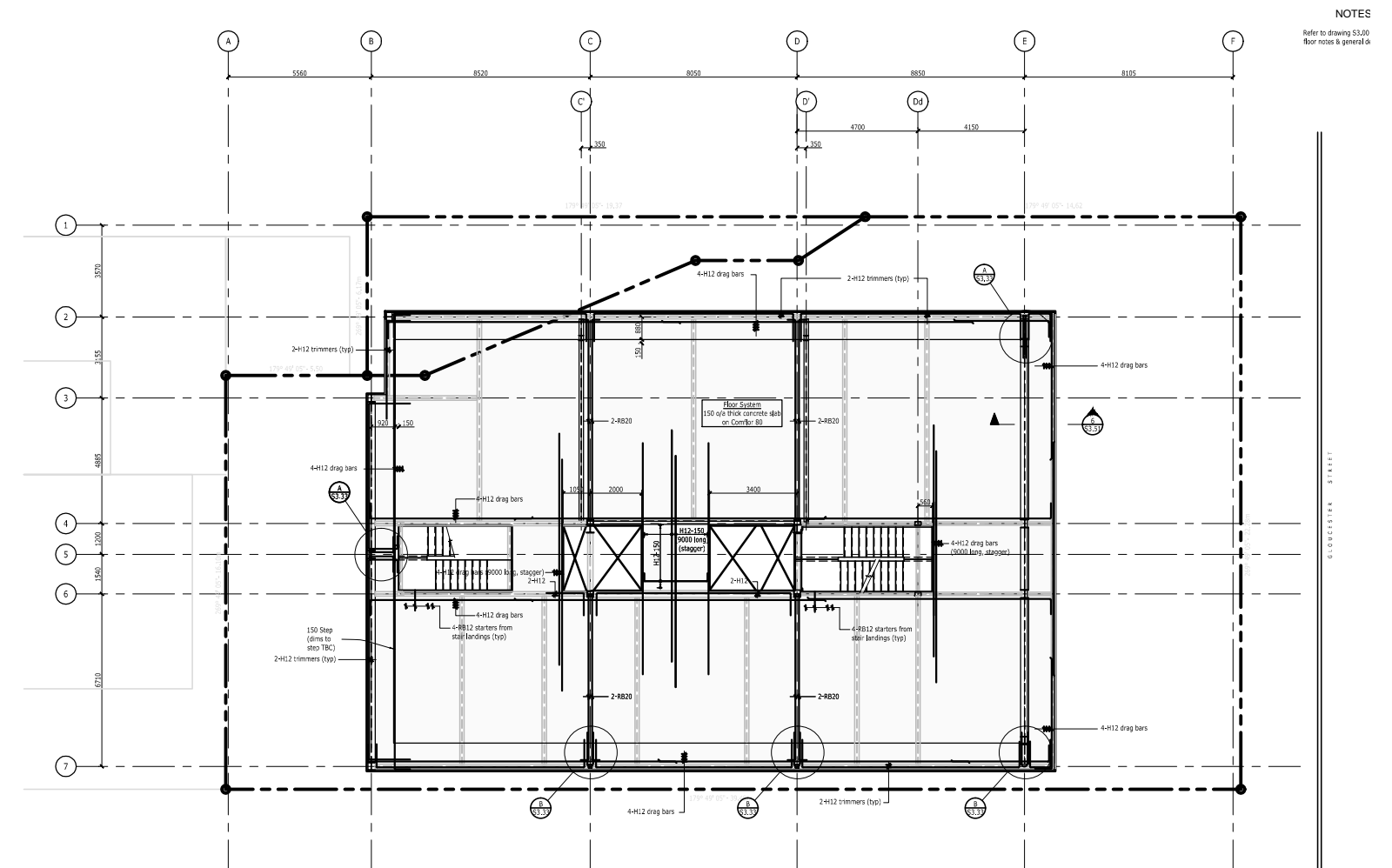
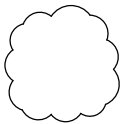


S3.19

Refer to drawing S3.00 for suspended floor notes & general details



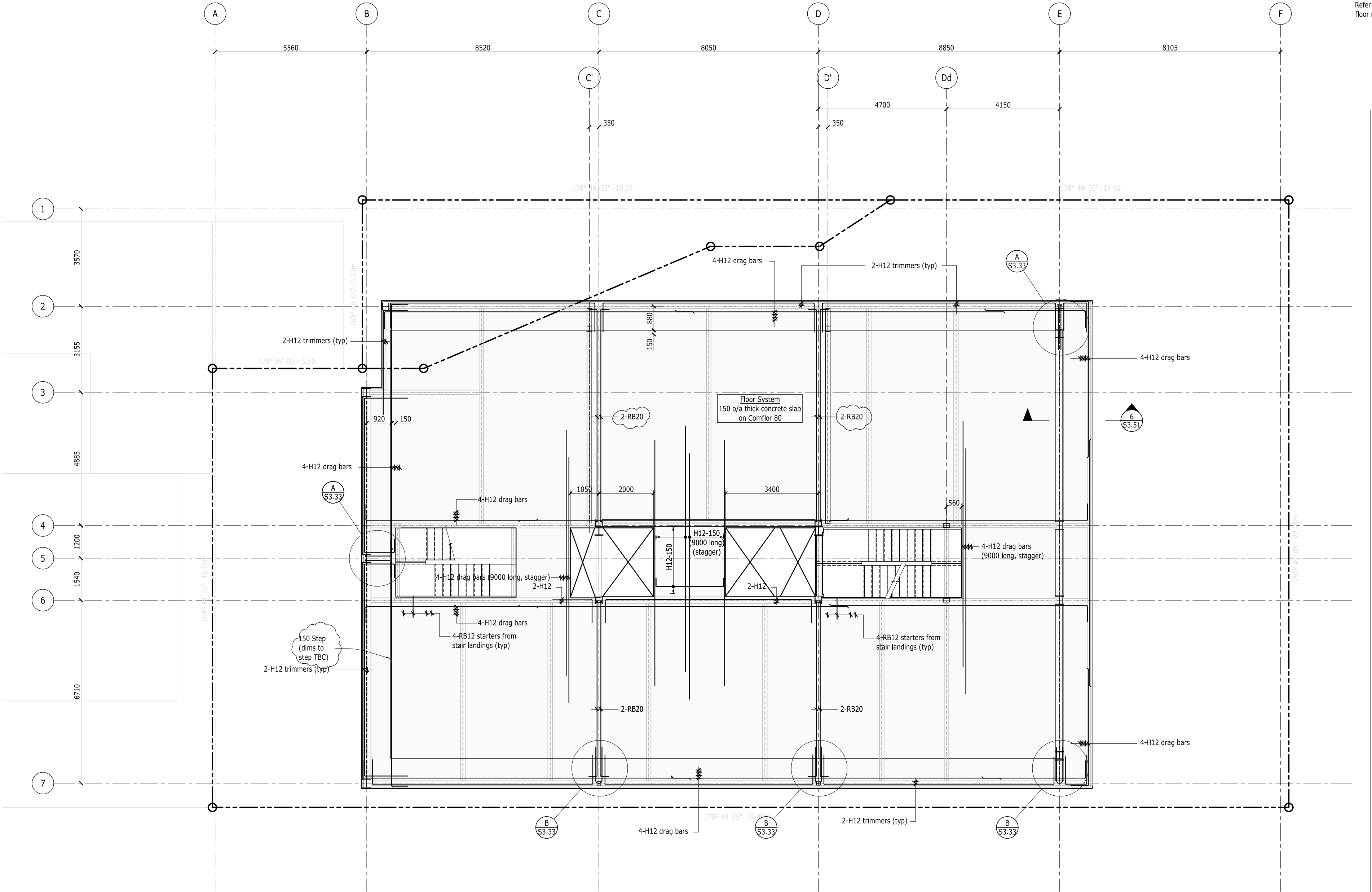
S3.20	project
	1770
drawing no	2
	issue



CONSTRUCTION

NOTES:

Refer to drawing S3.00 for suspended floor notes & general details



CONSTRUCTION

2	CONSTRUCTION ISSUE	JL	SG	12-12-07
Issue	Description	by	appd.	date

GA	GB		1:100
drawn	designed	approved	scales

AMC CONSTRUCTION
client

C1 TOWER
project title



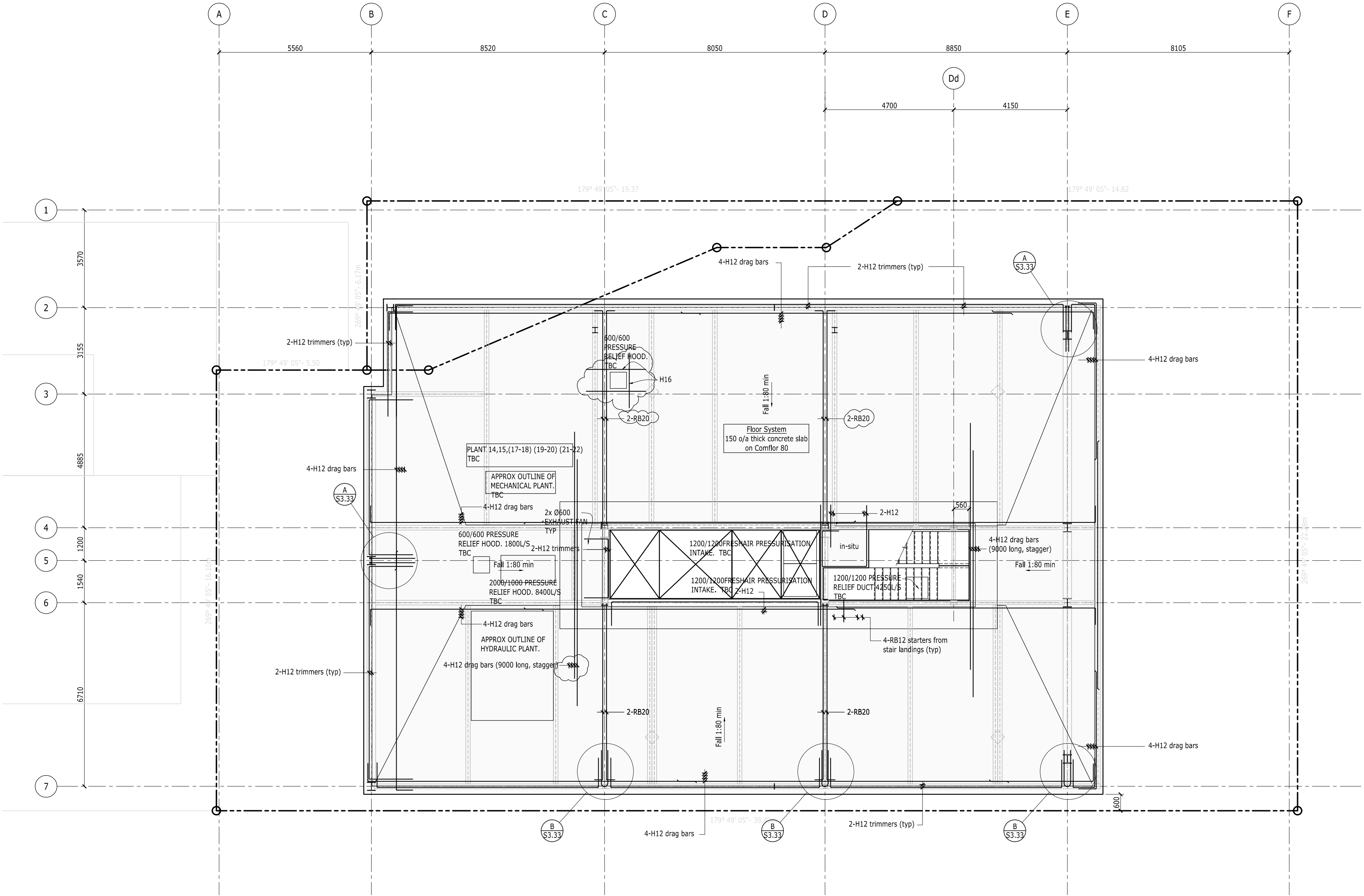
LEVEL 22 FLOOR PLAN
drawing title

S3.22	project 1770
drawing no	2
issue	

NOTES:

Refer to drawing S3.00 for suspended floor notes & general details

For cross section and details of Level 23 refer drawing S3.41



GLOUCESTER STREET

CONSTRUCTION

2	CONSTRUCTION ISSUE	JL	SG	12-12-07
Issue	description	by	appd.	date

GA	GB		1: 100
drawn	designed	approved	scales

AMC CONSTRUCTION
client

C1 TOWER
project title

structex
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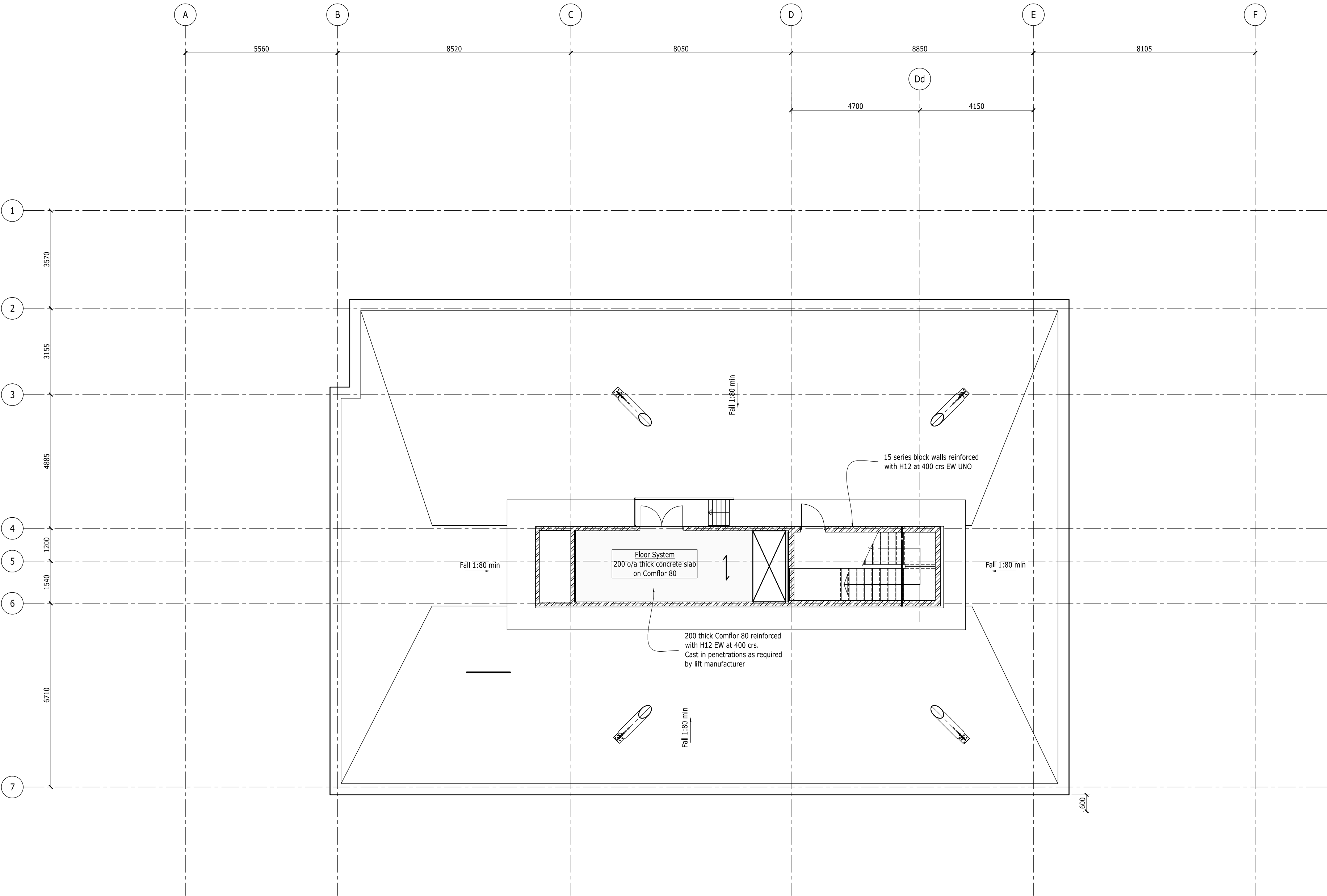
LEVEL 23 FLOOR PLAN
drawing title

S3.23	project 1770
drawing no	2 issue

NOTES:

Refer to drawing S3.00 for suspended floor notes & general details

For cross section and details of Level 23 refer drawing S3.41



2	CONSTRUCTION ISSUE	JL	SG	12-12-07
issue	description	by	appd.	date

GA	GB		1:100
drawn	designed	approved	scales

AMC CONSTRUCTION
client

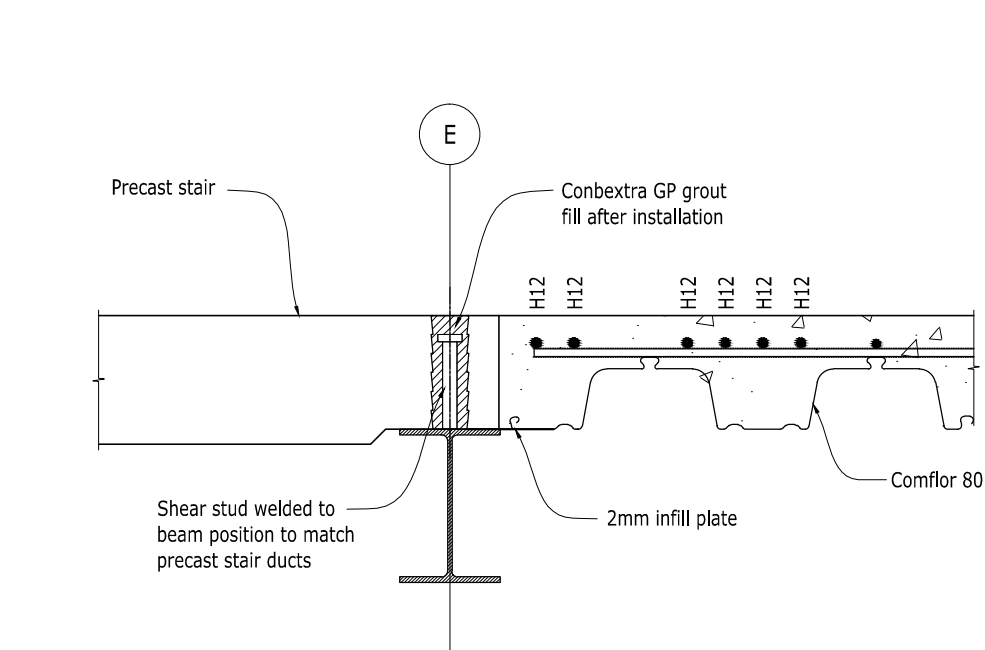
C1 TOWER
project title



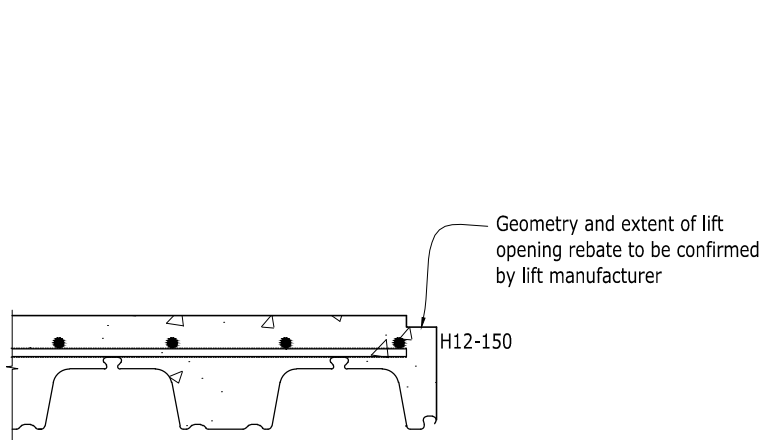
LEVEL 24 FLOOR PLAN
drawing title

S3.24	project 1770
drawing no	2 issue

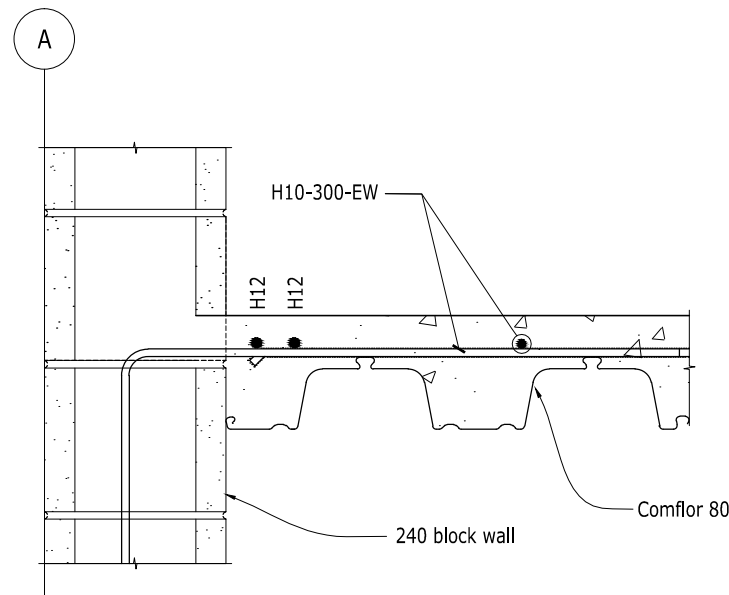
CONSTRUCTION



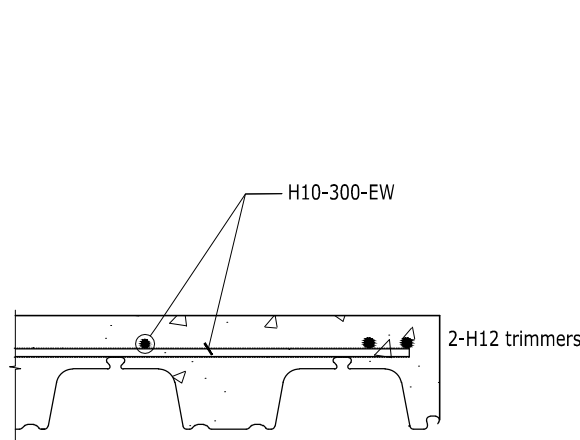
1 SECTION - STAIR FLOOR JUNCTION
S3.02 Scale: 1:10



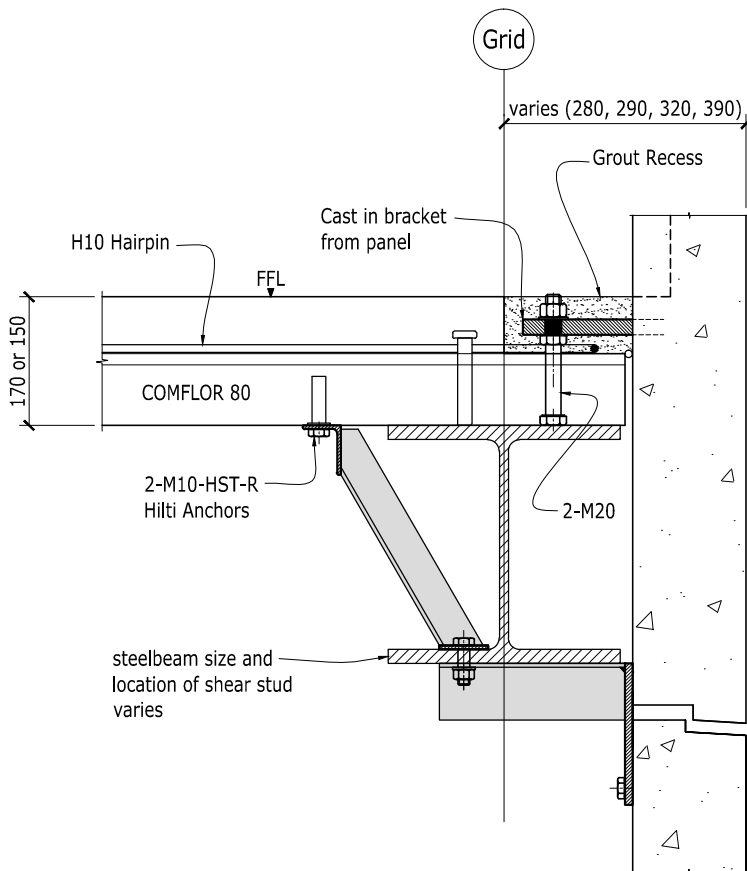
2 SECTION - LIFT OPENING REBATE
S3.02 Scale: 1:10



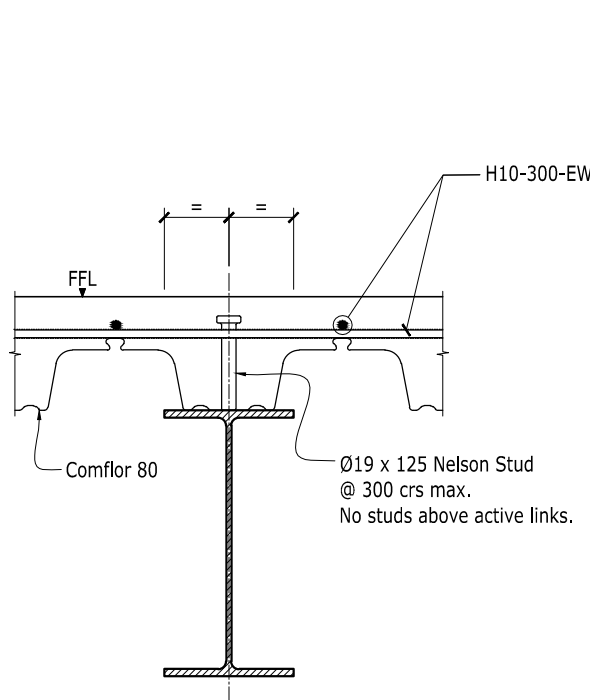
3 SECTION - FLOOR SLAB AT BLOCK WALL
S3.02 Scale: 1:10



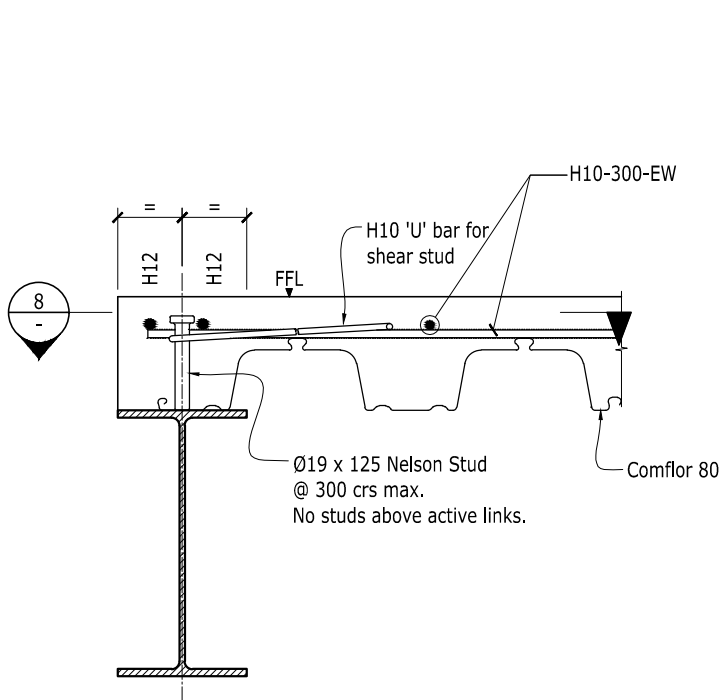
4 SECTION - FLOOR SLAB AT EDGE
S3.02 Scale: 1:10



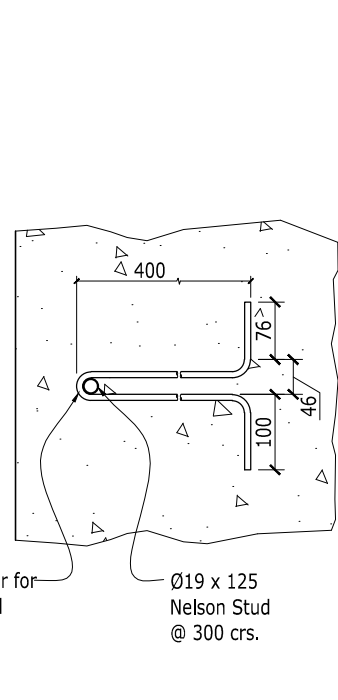
5 SECTION - FLOOR SLAB AT PANEL
S3.02 Scale: 1:10



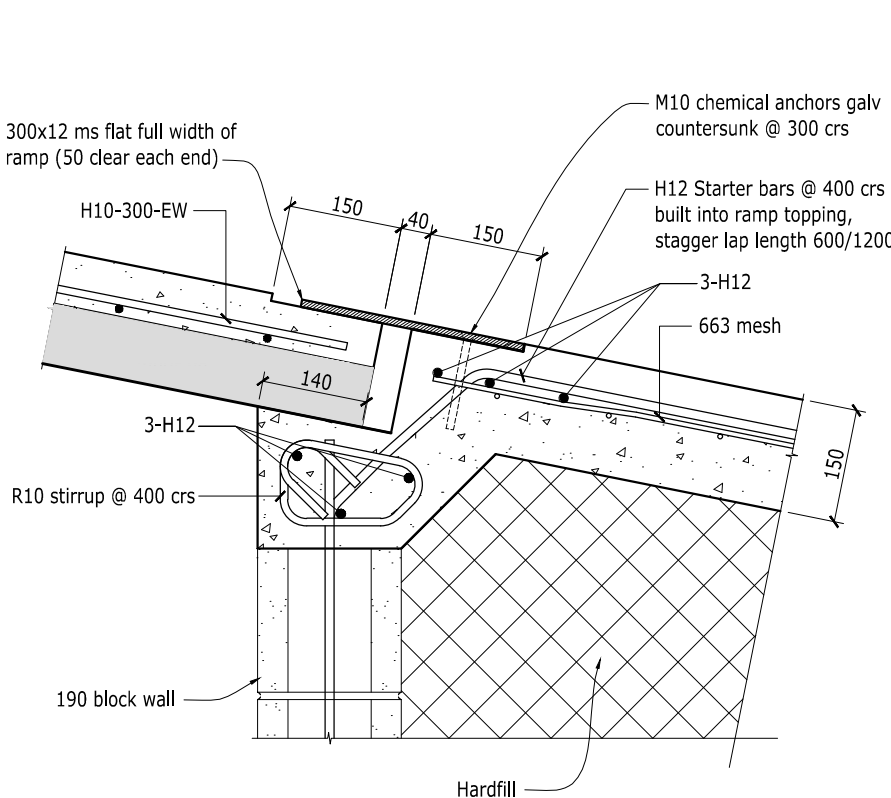
6 SECTION - SHEAR STUD
S3.02 Scale: 1:10



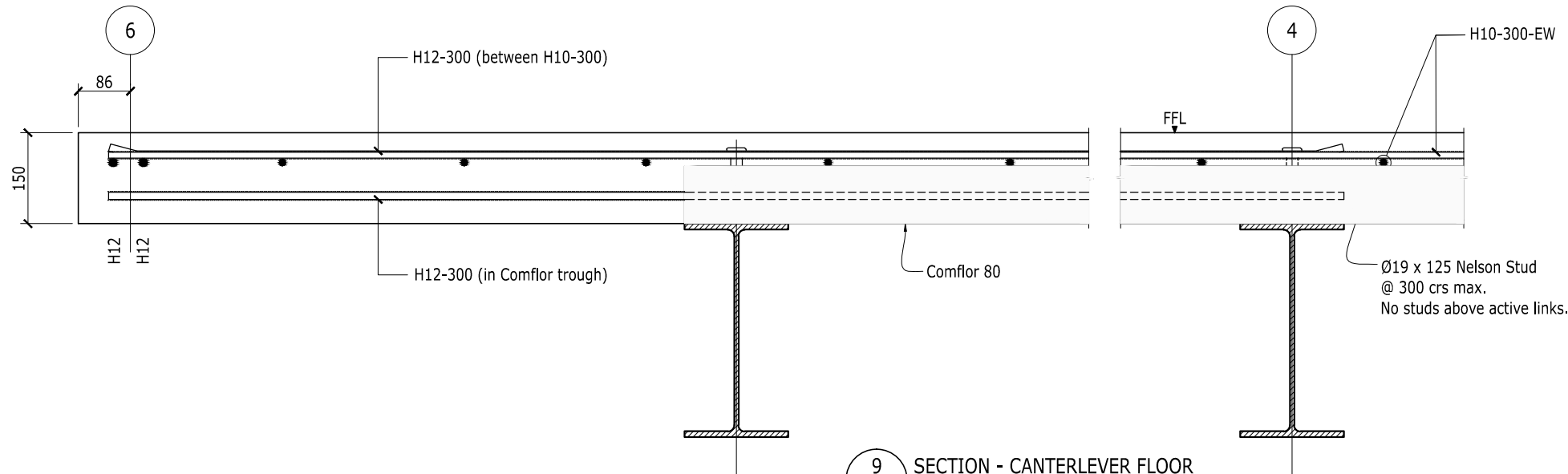
7 SECTION - SHEAR STUD
S3.02 Scale: 1:10



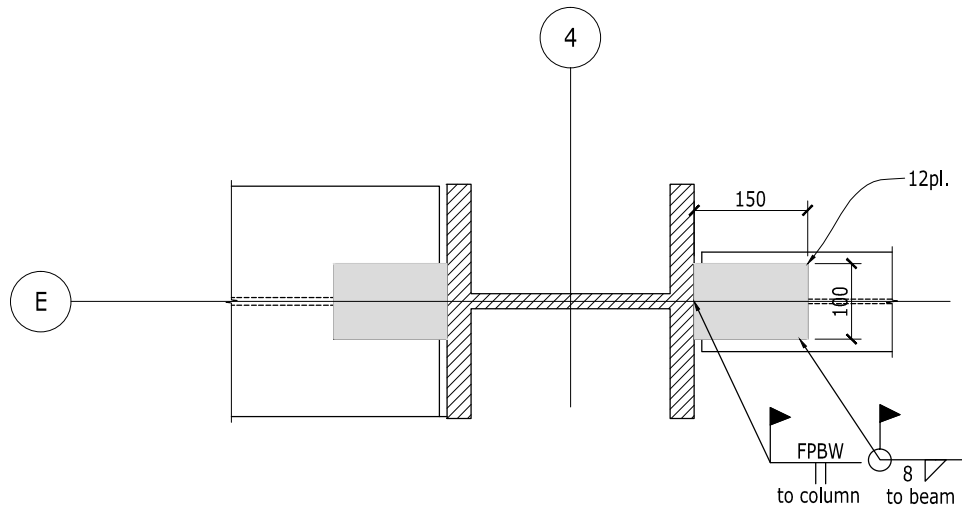
8 SECTION
S3.02 Scale: 1:10



A DETAIL - AT RAMP/BLOCK WALL SEISMIC JOINT
S3.32 Scale: 1:10



9 SECTION - CANTERLEVER FLOOR
S3.03 Scale: 1:10



LOAD TRANSFER TIE PLATE - DETAIL
Scale: 1:10

Note: Occurs at grids E4 & E6 levels
3, 4 & 5 and grid C6 level 2,
refer floor plans

2	CONSTRUCTION ISSUE	JL	SG	12-12-07
issue	description	by	appd.	date

GA	GB		1:10
drawn	designed	approved	scales

AMC CONSTRUCTION

client

C1 TOWER

project title

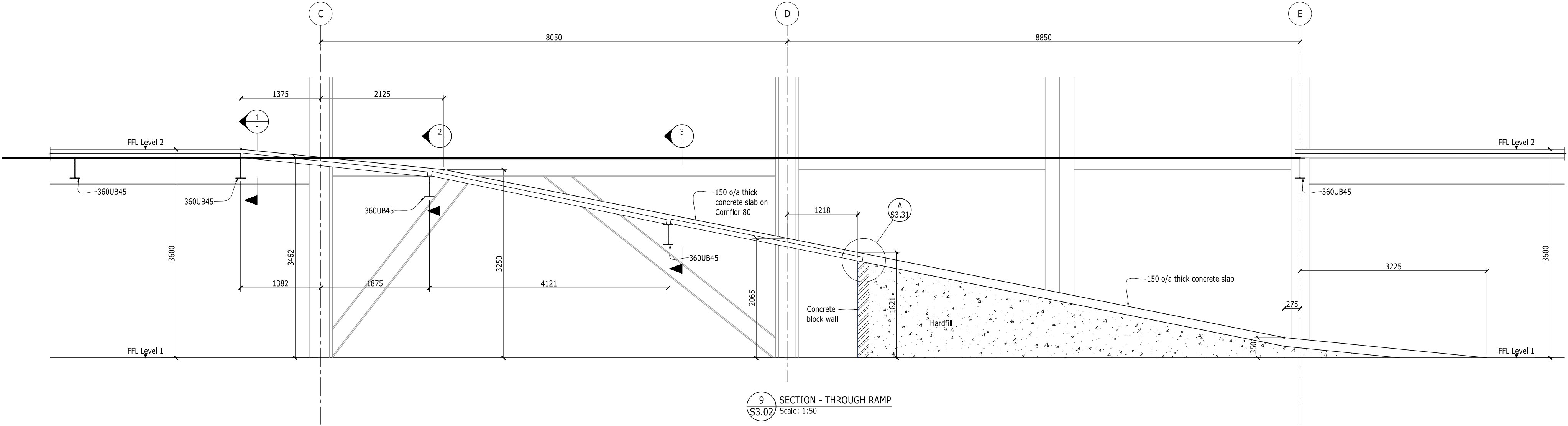
structex
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SUSPENDED FLOOR DETAILS
SHEET1
drawing title

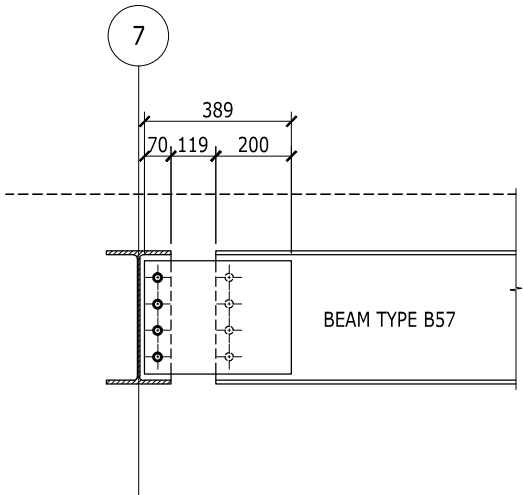
CONSTRUCTION

S3.31
drawing no

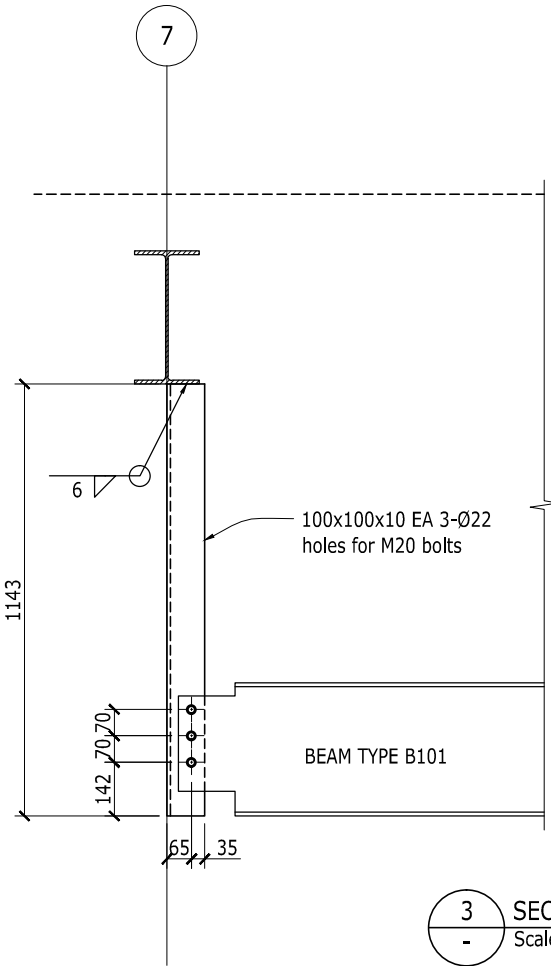
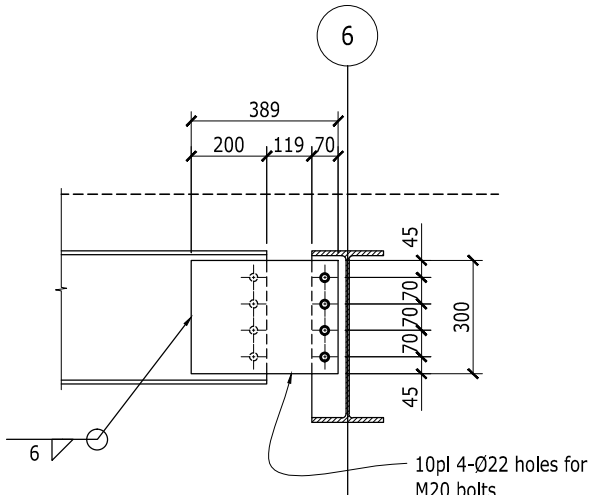
project
1770
2
issue



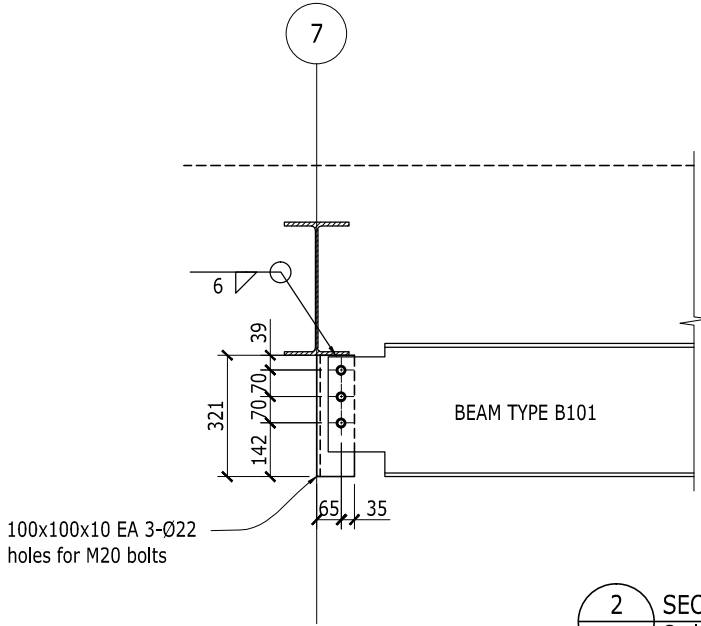
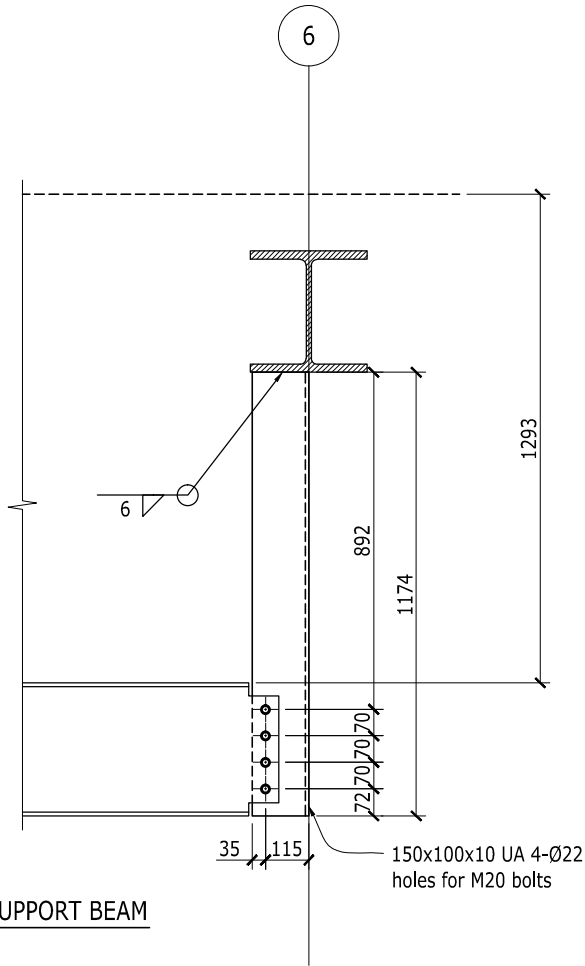
9 SECTION - THROUGH RAMP
S3.02 Scale: 1:50



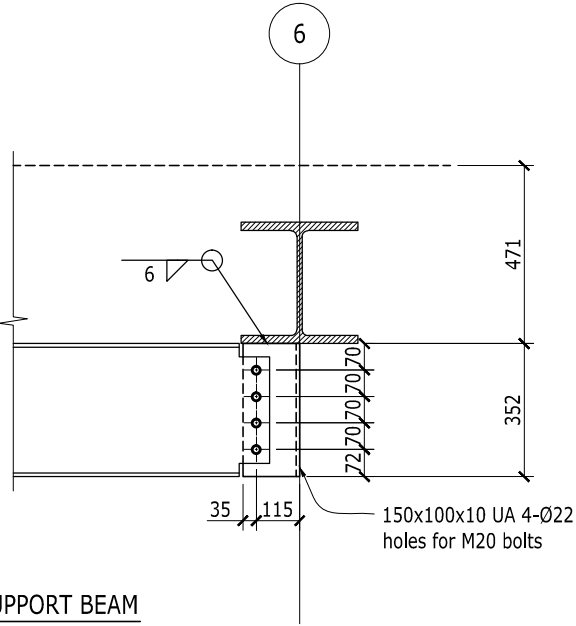
1 SECTION - RAMP SUPPORT BEAM
Scale: 1:20



3 SECTION - RAMP SUPPORT BEAM
Scale: 1:20



2 SECTION - RAMP SUPPORT BEAM
Scale: 1:20



2	CONSTRUCTION ISSUE	JL	SG	12-12-07
issue	description	by	appl.	date

GA	GB	1:50
drawn	designed	scales

AMC CONSTRUCTION
client

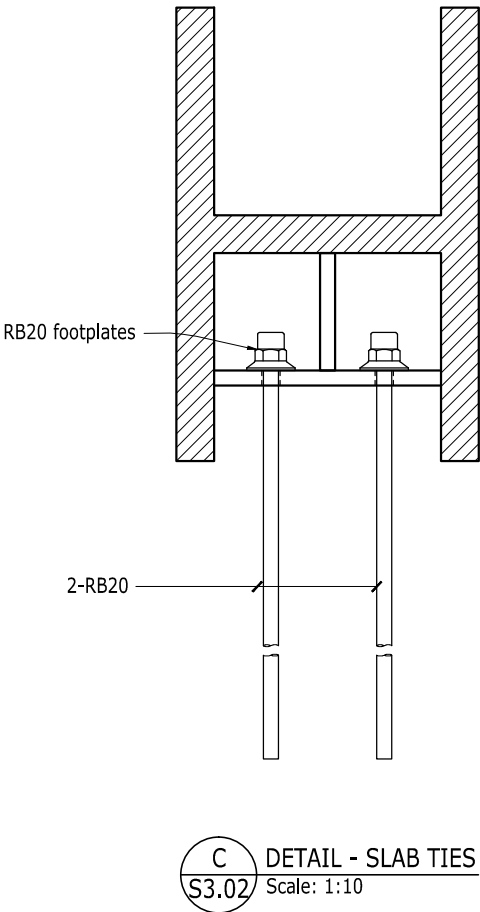
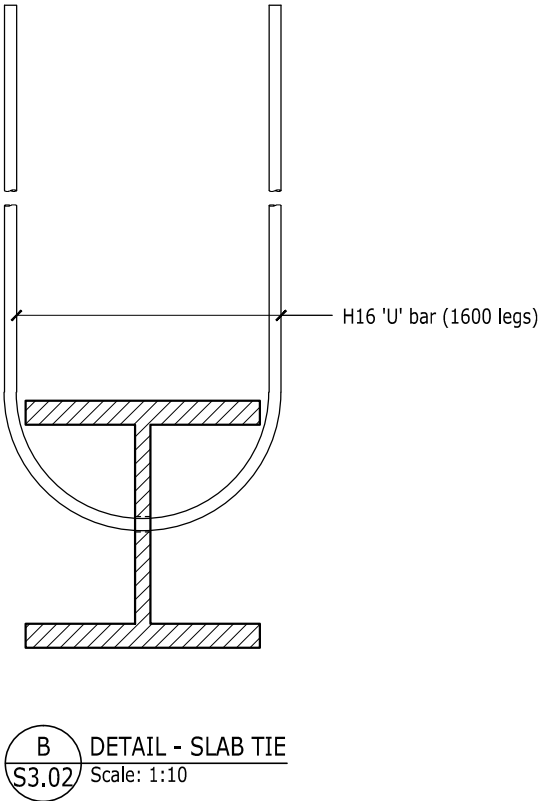
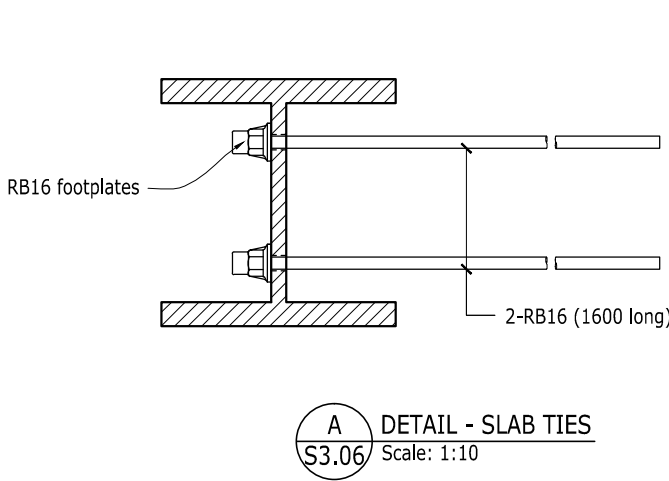
C1 TOWER
project title



SUSPENDED FLOOR DETAILS SHEET 2
drawing title

S3.32	project 1770
drawing no	issue 2

CONSTRUCTION



2	CONSTRUCTION ISSUE	JL	SG	12-12-07
issue	description	by	appd.	date

GA	GB		1:10
drawn	designed	approved	scales

AMC CONSTRUCTION
client

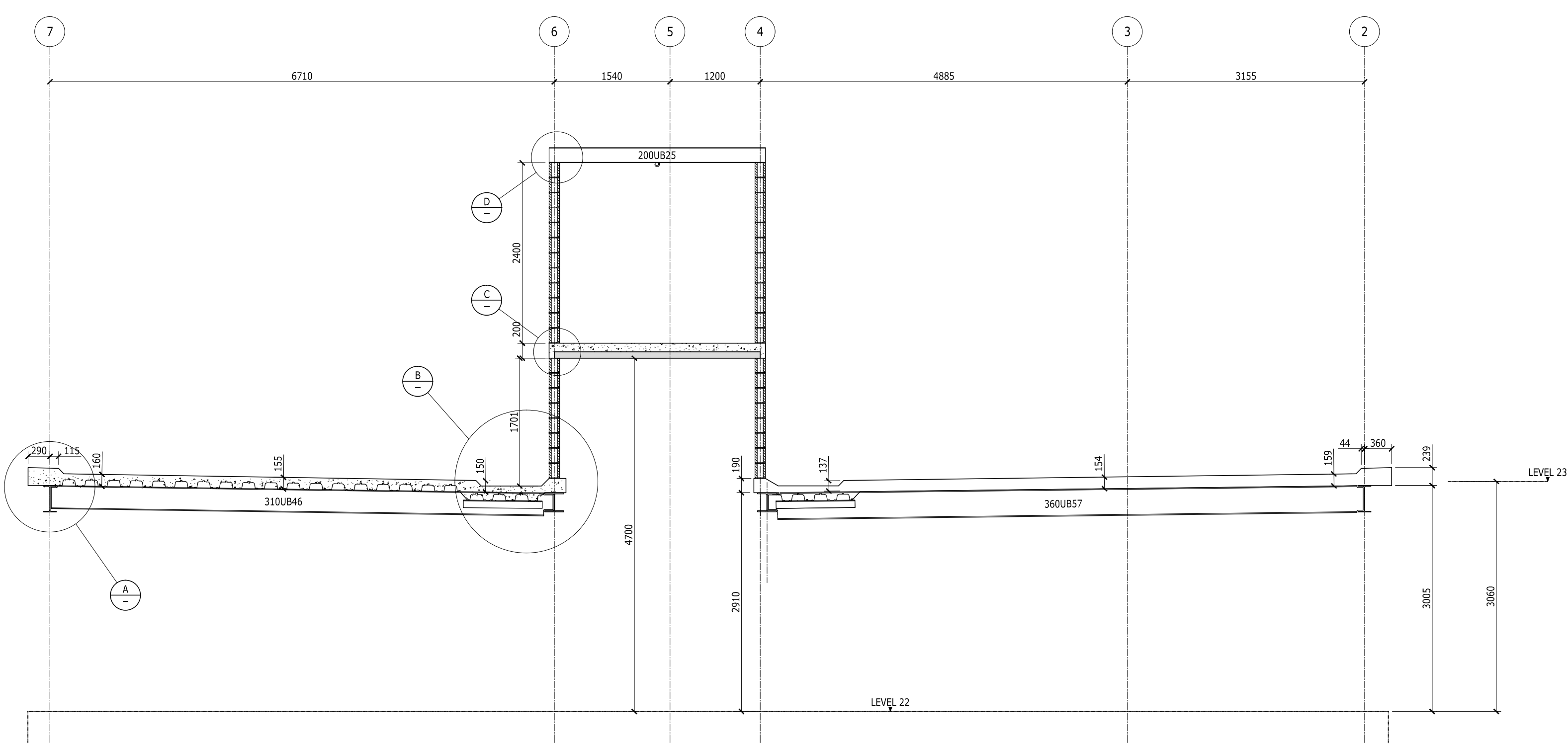
C1 TOWER
project title

structex
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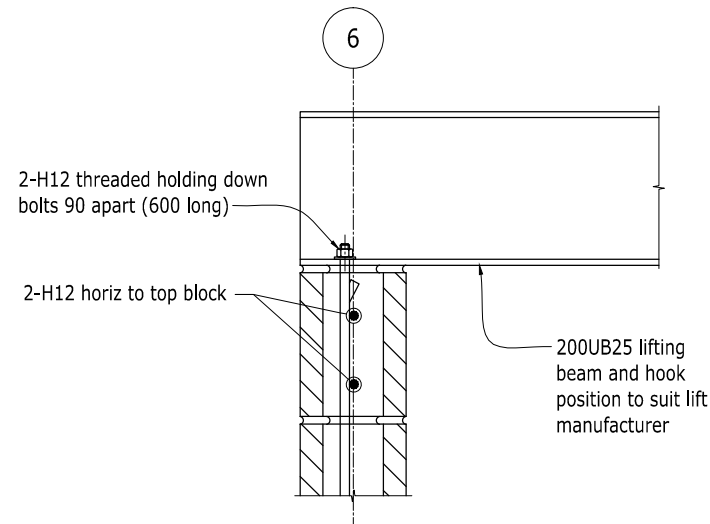
SUSPENDED FLOOR DETAILS SHEET 3
drawing title

S3.33	project 1770
drawing no	2 issue

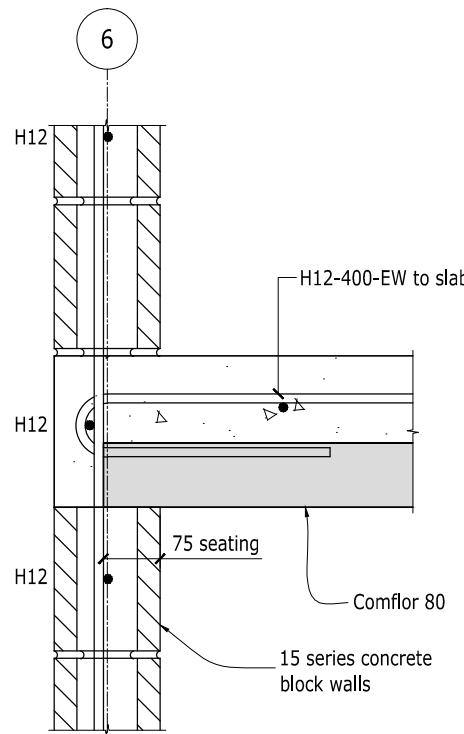
CONSTRUCTION



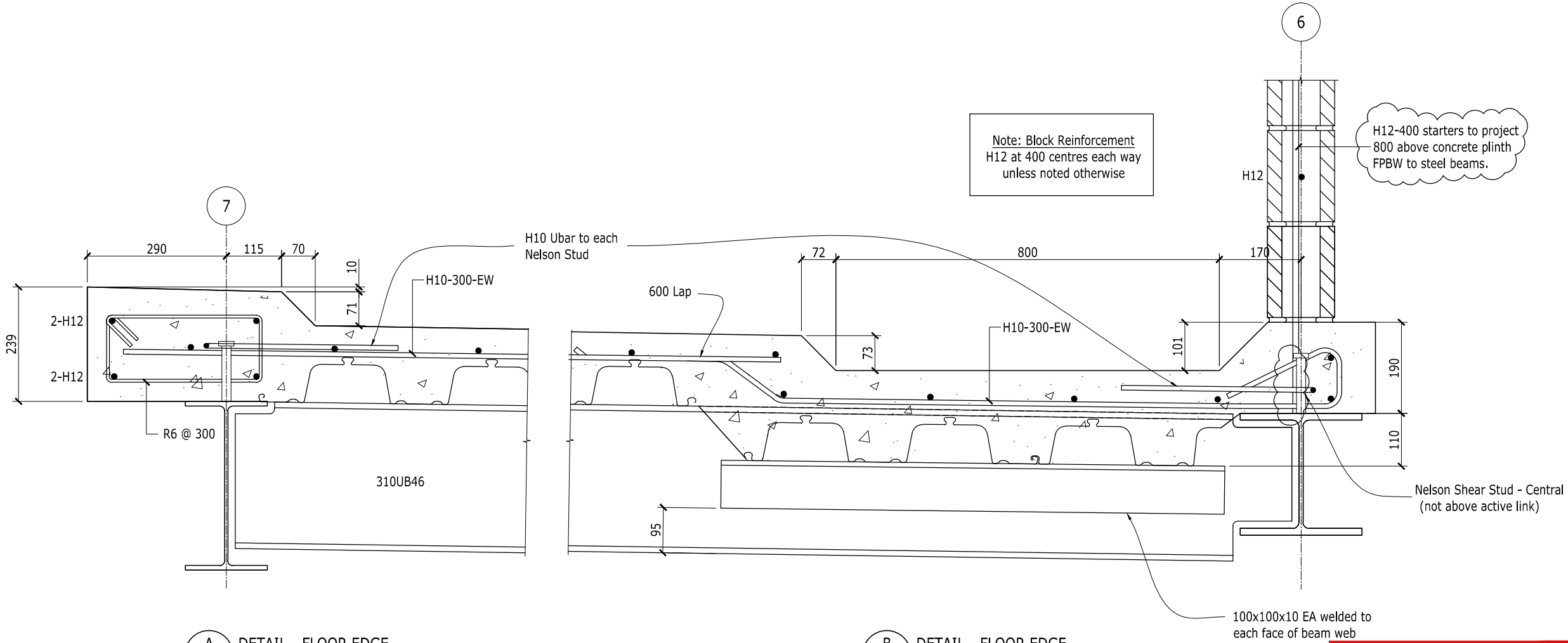
LEVEL 23 CROSS SECTION BETWEEN GRIDS C & D
Scale: 1:50



D
-
DETAIL - LIFTING BEAM
Scale: 1:10



C
-
DETAIL - LIFT PLANTROOM FLOOR
Scale: 1:10



A
-
DETAIL - FLOOR EDGE
Scale: 1:10

B
-
DETAIL - FLOOR EDGE
Scale: 1:10

Note: Block Reinforcement
H12 at 400 centres each way
unless noted otherwise

H12-400 starters to project
800 above concrete plinth
FPBW to steel beams.

Nelson Shear Stud - Central
(not above active link)

100x100x10 EA welded to
each face of beam web

CONSTRUCTION

2	CONSTRUCTION ISSUE	JL	SG	12-12-07
issue	description	by	appd.	date

GA	GB		1:10
drawn	designed	approved	scales

AMC CONSTRUCTION

client

C1 TOWER

project title

structex
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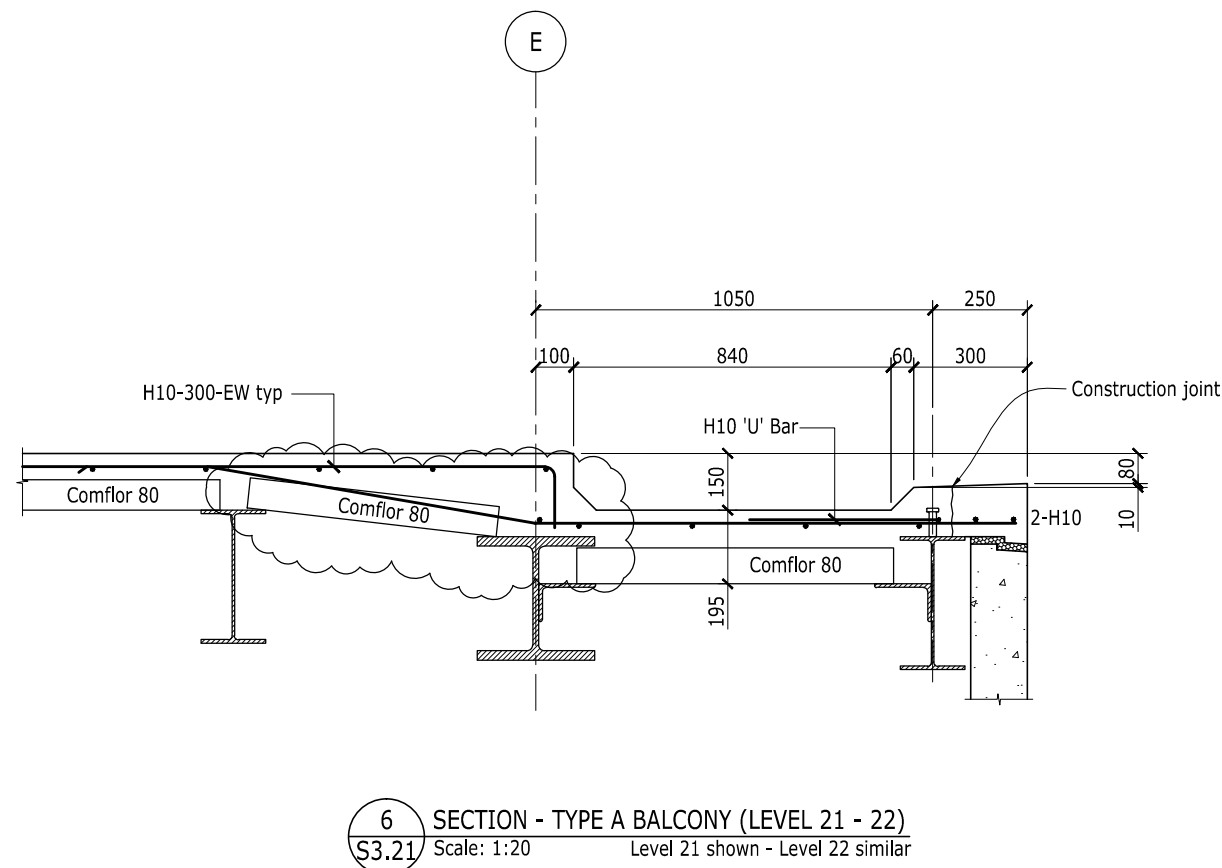
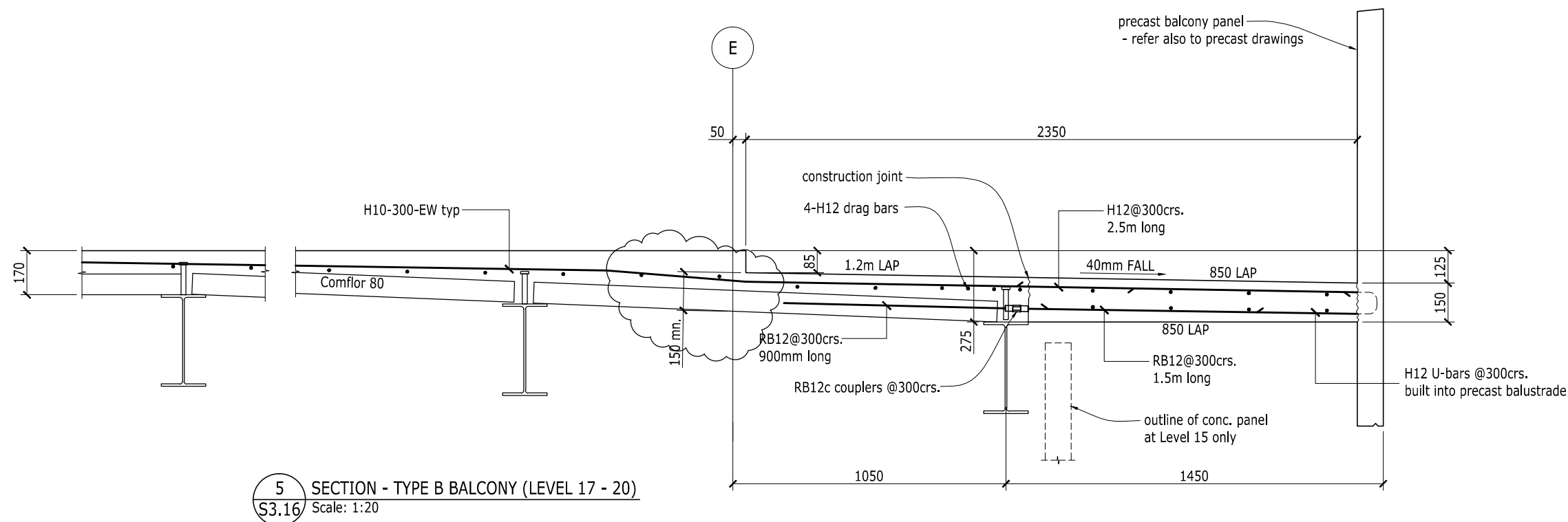
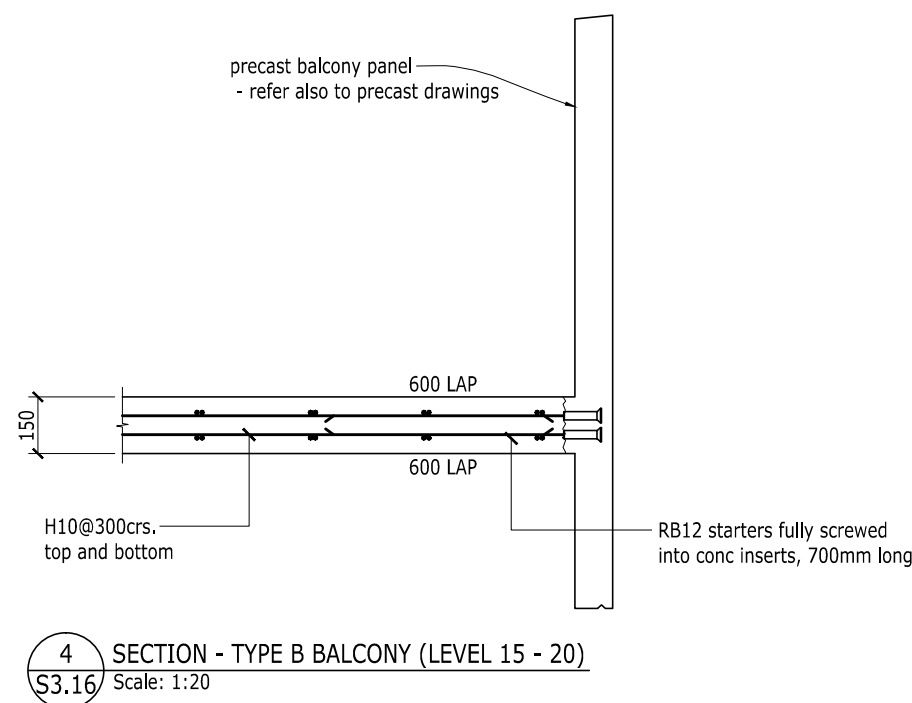
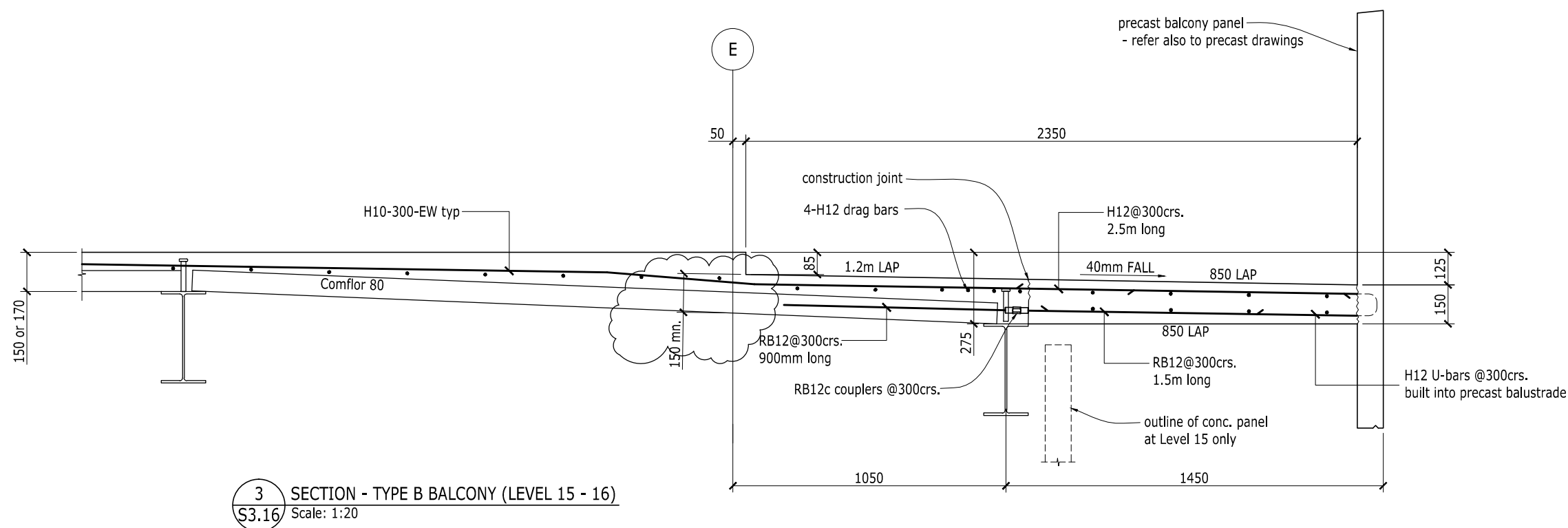
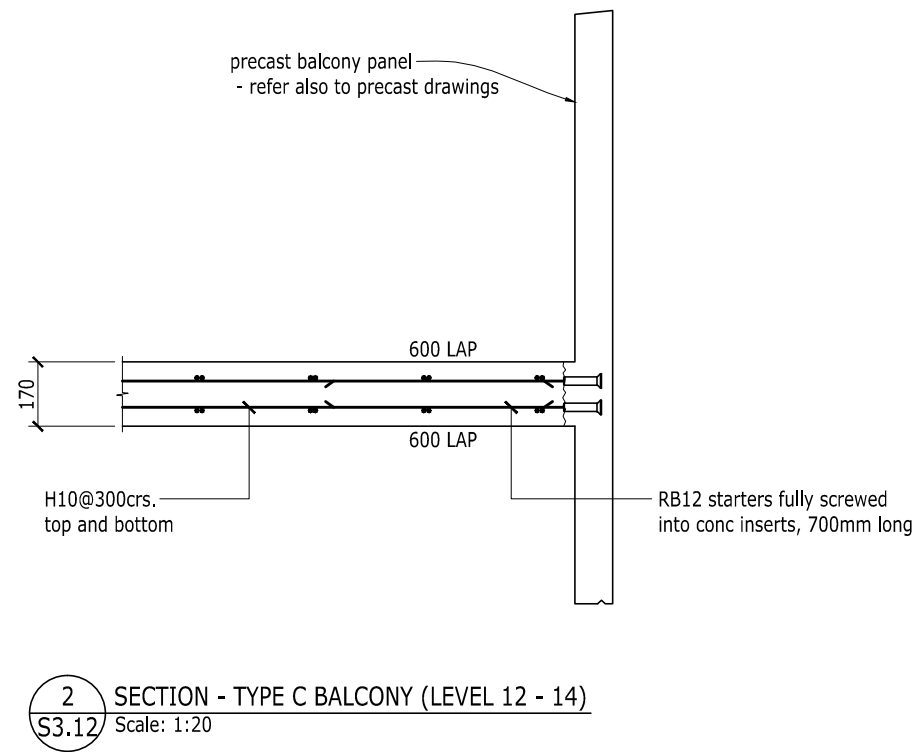
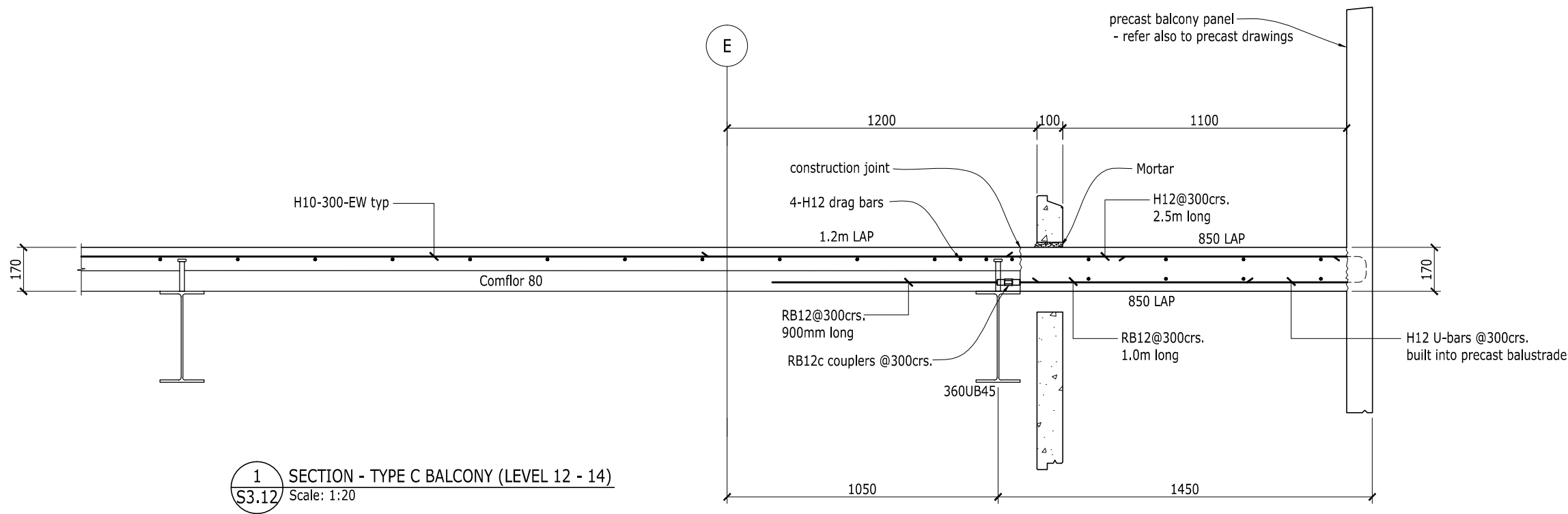
LEVEL 23 CROSS SECTION
AND DETAILS

drawing title

S3.41

drawing no

project	1770
issue	2



CONSTRUCTION

2	CONSTRUCTION ISSUE	JL	SG	12-12-07
Issue	description	by	appd.	date

GA	GB		1:20
drawn	designed	approved	scales

AMC CONSTRUCTION
client

C1 TOWER
project title

structex
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BALCONY CROSS SECTIONS AND DETAILS
drawing title

S3.51	project 1770
drawn no	2
issue	