

Oxford Humanities
Operation & Maintenance Manual

POWERED FLYING SYSTEMS

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J&C Joel 

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1. Document Control

1.1. Identification

Client: Laing O'Rourke

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1.2. Document History

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1.3. Contact Details

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1.4. Warranty

Limited warranty is valid for twelve (12) months from the date of practical completion and handover to the client or clients representative (whichever occurs first.)

1. The warranty shall be limited to the free supply of replacement materials and workmanship for the faulty materials or workmanship and shall not cover other damage or defects how so ever caused.
2. It shall be the client's responsibility to notify J&C Joel Ltd in writing for any defects in the machinery and the warranty shall be void if repairs or other works were carried out by third parties.
3. This warranty shall only apply to the areas where J&C Joel Ltd have been applied and completed the works.
4. The supply of replacement materials and workmanship under this warranty shall in no event exceed the quantity specified and supplied and shall only be applied to proven defective areas by checking and tests conducted under the control of the owner, the consultant or its representative and J&C Joel Ltd or its representatives.
5. This warrantee shall be interpreted according to the laws of the United Kingdom.

1.5. Copyright

This document contains material that is proprietary to J&C Joel Ltd. This information is provided on the understanding that it is used solely for the purpose of information, installing and maintaining the equipment described, and that it will not be revealed to third parties or otherwise disposed of without the prior written consent of J&C Joel Ltd.

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2. How To Use This Manual

Read the instructions carefully before use and follow them accordingly. Keep this document safe for future reference. Non-observance of these instructions may lead to hazardous situations and / or malfunctions or to failure of the equipment, resulting in damage or injury.

The user is advised not to operate or undertake any work on the systems without first reading and understanding the contents of this manual.

All maintenance should be carried out strictly in accordance with the instructions contained in this and the manufacturer's reference manuals as may be attached and undertaken by suitably trained and qualified personnel.

This manual describes the J&C Joel Power Flying Systems as installed within the Stephen Schwarzman Centre for the Humanities at Oxford University. It sets out the different Power Flying Systems within the building, outlines maintenance procedures, and gives a technical description of the various components. Servicing of main fault conditions is not covered; in such cases, please contact J&C Joel immediately.

This document is intended to provide the user with sufficient information to allow regular routine maintenance of the equipment described. It is intended to clearly instruct the user in the following areas:

- System philosophy and overview
- Description of systems
- Maintenance of systems
- Equipment lists
- Other Supplier's documentation

If in doubt about anything contained in this manual, please contact the Projects Department at J&C Joel Ltd. T: +44 (0)1422 833835 – E: Projects@jcjoel.com

3. Health and Safety

3.1. General

The machinery is designed for use in theatres and venues of public entertainment and must be operated strictly according to its intended purpose. Compliance with all relevant local laws, regulations, and machinery directives regarding operation and accident prevention is mandatory. Regular inspections and maintenance are essential for ensuring the equipment's proper functioning. Only fully trained and competent personnel should conduct operations, inspections, and maintenance activities.

Personnel are required to possess comprehensive knowledge of the equipment, including adherence to operating and maintenance guidelines. The client's staff bear the responsibility for ensuring safe operation in accordance with the client's safety manual and must promptly address any defects or damages. Minor issues may be rectified by the client's operating company; otherwise, please contact J&C Joel Ltd to ensure proper safety measures are taken.

In situations where the condition of the equipment is uncertain, operations should be conducted exclusively under the supervision of a qualified expert. Ensure that all loads are removed or securely fastened prior to inspecting or maintaining movable installations.

The maintenance supervisor is accountable for complying with all relevant health and safety regulations and must ensure that maintenance switches are deactivated when servicing drive units.

Authorized personnel are required to inspect, maintain, and lubricate parts regularly. Safety devices, such as protective covers, should be properly installed. Equipment and installations should be used only for their intended purposes, following all operating instructions and technical specifications.

The client's technical supervisor is required to verify that all operators or technicians engaged in work on live equipment up to 400 VAC possess the necessary training and qualifications.

The electrical equipment must be connected to an appropriate power supply that meets the required technical specifications and tolerances. The client is responsible for ensuring proper equipotential bonding.

- Nominal Voltage = 230 V AC (in accordance with EN 60204-1).
- Nominal frequency: = 50 Hz, (in accordance with EN 60204-1).
- Control voltage: Consult Control System Operation Manual

The client's supervisor is responsible for ensuring that a current copy of the company's local health and safety regulations is always accessible within the venue. The supervisor must ensure that all personnel who are required to work on the equipment and systems referenced in this manual are fully acquainted with the health and safety regulations and are provided with the necessary personal protective equipment prior to commencing any work on the equipment. Additionally, they must have the appropriate tools and equipment as listed herein and thoroughly understand the requirements of BSEN 17206:2020 Entertainment Technology Machinery for Stages and Other Production Areas, Safety Requirements and Inspections and Use.

3.2. Disposal Instructions

At the end of the service life of the equipment, normally between 15 and 20 years, any parts or items that may be upgraded or replaced must be removed and disposed of in accordance with laws and regulations in force at the time. Generally, the equipment comprises of non-hazardous steel fabrications and machinery, electrical installation materials and accessories, and electronic assemblies. Some PLC components contain batteries which must also be disposed of correctly. Gearboxes have small amounts of lubricating oil inside which should be disposed of using a properly licensed facility.

3.3. Electrical Maintenance Safety



CAUTION



Many racks feature multiple power supplies, including mains supplies, clean supply, and auto-transformer supply, among others. Each supply has a warning indicator located on the front panel. Additionally, within the equipment and contactor racks, there are exposed live terminals that must be handled with caution. **Ensure that all supplies are isolated and locked off before attempting to carry out any work.**

After isolating all supplies, it is imperative to display a warning notice at the isolation point. This notice must indicate that maintenance is being performed on the downstream equipment and that re-energizing is strictly prohibited.

In situations where it is unavoidable to work on live equipment, it is imperative that the individual performing the task is appropriately trained and that the work adheres to the regulations set forth by the "Health and Safety at Work Act".

Microprocessor systems are inherently complex, requiring specialized knowledge for detailed fault diagnosis. It is essential that individuals servicing this equipment have attained sufficient expertise before undertaking such tasks. Consequently, this manual does not provide tutorials on electronic circuits and microprocessor systems; it assumes that the reader is fully competent in this area.

4. General Usage

The Power Flying Systems, as depicted in the as-built drawings, have been strategically placed at various locations chosen by the Theatre Consultant, Charcoal Blue, during the design phase. These systems are employed to regulate the heights of scenery and stage lighting necessary for the performance space.

Please be aware that the flying machinery is intended solely for set-up purposes and utilization during performances within the venue. It is not engineered for the transportation or movement of people.

Only authorized stage technicians are permitted within the hazard zone of the machinery during its setup for a performance.

The control system operator should be able to observe all machines throughout their entire range of motion during operation.

The machinery should be operated according to its intended purpose and maintained in optimal technical condition. Adherence to regulations and BS EN 17206:2020 standards is critical for ensuring the operational safety of the equipment.

If a fault or issue is identified with the machine, it must not be used further until it has undergone a complete inspection by qualified personnel, and the problem has been resolved.

4.1. Misuse

Any use that does not comply with the "intended use" or exceeds its scope shall be considered inappropriate use.

Each power flying system unit is specifically engineered to support the loads indicated on the loading notices at the ends of each Fly Bar. It is imperative that these stated load limits are not exceeded. For comprehensive details regarding permissible Fly Bar loadings, please consult the as-built drawings.

The manufacturer shall not be held responsible for any damages resulting from improper use. Such misuse may lead to unsafe conditions and/or material damage, thereby voiding the warranty.

4.2. Modification and Changes

Modifying or changing the equipment and electrical installations can create hazardous situations and material damage. Such actions will also invalidate the warranty and any CE marking.

4.3. Spare Parts

Using parts from other manufacturers may present risks. It is recommended to use parts approved by the original manufacturers. The manufacturer does not assume liability for any damage caused by unapproved parts, which can create hazards and void the warranty and CE marking.

4.4. Equipment Risks

When using the equipment risks and injuries may arise to:

- The life and limbs of the operator or third parties
- For the equipment itself,
- other property.

The safe handling and efficient operation of this equipment depend on thorough knowledge of the safety and user instructions detailed in this manual.

Ensure that this manual is always kept with the equipment so that it remains readily accessible to both operators and maintenance personnel.

Additionally, adhere to the general and local safety and accident prevention regulations, specifically BSEN 17206:2020.

4.5. Residual Risks

The equipment and electrical installations have been manufactured and installed in compliance with the latest certified safety regulations and standards.



WARNING



Operating theatre equipment entails inherent risks and hazards for all participants; therefore, it is imperative to conduct a comprehensive risk assessment for each phase of the intended operation. This process should identify all risks and hazards that need to be mitigated through appropriate countermeasures to achieve an acceptable level of safety. Furthermore, the sequence of events should be reviewed with all involved personnel to ensure preparedness.

The responsibility for managing risks and hazards that occur during normal operation of the equipment rests with the client's operating company. They must consistently comply with all health and safety regulations.

4.6. Operational Crew

The Client's operating crew must ensure that only authorized personnel operate the equipment who;

- Are familiar with the basic regulations on work safety and accident prevention
- Are trained in the operation of the equipment
- Have read and understood these operating and maintenance instructions
- Are 18 years old and over
- Are physically and mentally suitable
- Have been trained and instructed about the relevant work
- Carry out all the required work in a safety-conscious and reliable way

The requirements of BS EN 17206:2020 together with the EC Directive 2007/30/EC on the use of work equipment are to be always fully complied with.

4.7. Installation Personnel

Installation personnel must possess experience in the installation or dismantling of stage mechanical and electrical equipment. Furthermore, they should have expertise in commissioning, maintaining, and troubleshooting mechanical and electrical stage equipment, as well as training in operating relevant control systems.

5. Standard Abbreviations

The following items are commonly referred to in the text in abbreviated form:

kg	-	Kilogram
N	-	Newton
kN	-	Kilo Newton's
Nm	-	Newton Meter
m	-	Metre
mm	-	Millimetre
/	-	Nominal length
min	-	Minute
sec	-	Second
m/sec	-	Metre per second
W	-	Watts
V	-	Volts
VAC	-	Volts Alternating Current
amp	-	Ampere
RPM	-	Revolutions per Minute
PCD	-	Pitch circle diameter
SWR	-	Steel wire rope
WLL	-	Working Load Limit
ELL	-	Entertainment Load Limit (same as WLL)
OD	-	Outside diameter
ID	-	Inner diameter
Ø	-	Diameter
Tonne	-	Tonne (metric)
PSU	-	Power Supply Unit
MCB	-	Miniature Circuit Breaker
PLC	-	Programmable logic controller

6. Power Flying Systems

6.1. Overview of Motorised Fly Bars

There are three areas of the project where the J&C Joel Stagehand Pilewind Winches are installed. All winches are for Use Case 1 as per BS EN 17206:2020, no persons should be in hazard zone while the winch is in operation.

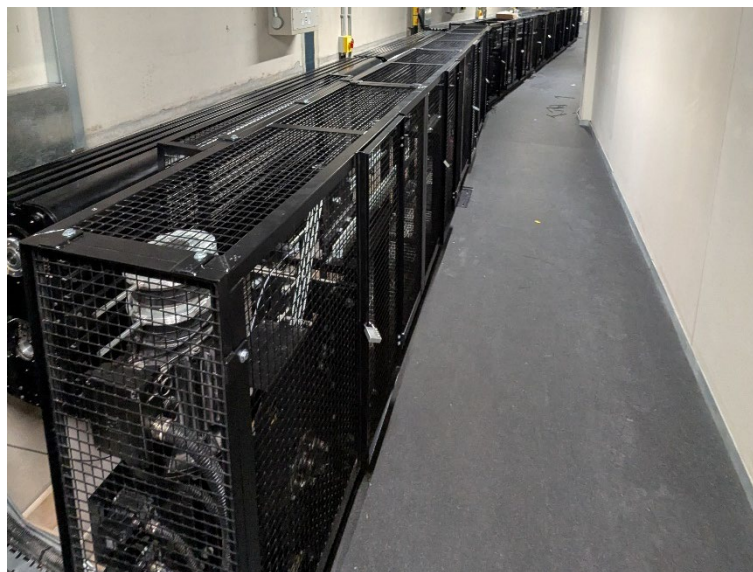
Concert Hall – 9no. over stage flying system units

- Fly Bars P1 to P8; 8no. 5-line, 500kg WLL, speed 0.1 – 0.2m/s, 5mm steel wire rope.
- Fly Bars P9; 8no. 4-line, 500kg WLL, speed 0.1 – 0.2m/s, 6mm steel wire rope.
- These hoists are not Suitable for Performer Flying.



Concert Hall – 6no. perimeter flying system units

- Fly Bars P10 to P15; 6no. 4-line, 500kg WLL, speed 0.1 – 0.2m/s, 5mm steel wire rope.
- These hoists are not Suitable for Performer Flying.

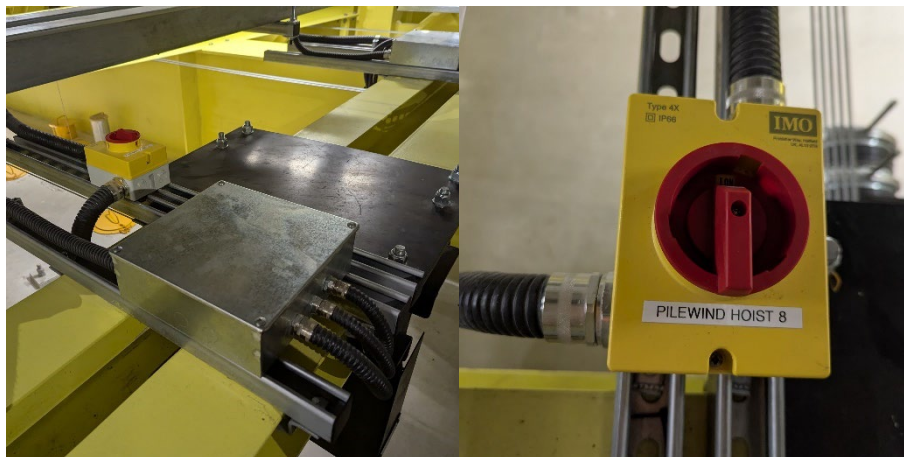


250 Seat Theatre – 11no. cross stage flying system units

- Fly Bars P01 to P11; 11no. 5-line, 300kg WLL, speed 0.1 – 0.2m/s, 5mm steel wire rope.
- These hoists are not Suitable for Performer Flying.



All winches have a local junction box and a local isolator. The isolators are all labelled with the hoist number.



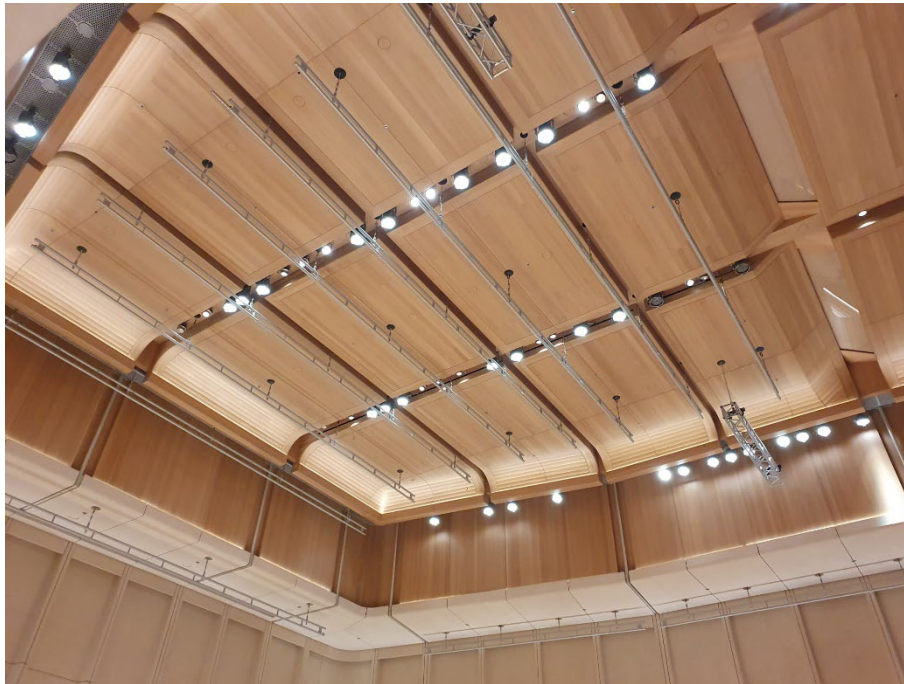
All winches have slackline detection and overload monitoring. The overload system should not be used as a weight measuring system, it is purely a safety system and the rigger or technical team should know and calculate the weight of items before these are attached to any piece of rigging equipment.

All winches in the concert hall have encoders fitted for positioning. The winches in the 250 seat theatre do not have this feature.

6.2. Operation and Use

6.2.1. Concert Hall Cross Stage System Description

There are eight J&C Joel Stagehand Pilewind Winch Units (Model JCJ-PW+700-5), identified as P1 to P8, installed at Level SSL 67.626 (Concert Hall Technical Loft) off-stage on the right side of Gridline 08. Additionally, the ninth unit, P9 (Model JCJ-PW+700-4), is mounted to support steels below the SSL 67.626 floor of the Concert Hall Technical Loft and above (Level 01 FFL66.691) as indicated in the as-built drawings. All nine winches are positioned between Gridlines K and N above the stage area, according to the plan view in the as-built drawings.



The cross-stage fly bars are designated P1 to P8 and are suspended using five steel wire ropes each, while fly bar P9 utilizes four steel wire ropes. The wire ropes are routed from the Pilewind winch drum units via pulleys down to the fly bars. There are two different types of cross stage fly bars. Fly bars numbered P2, P4, P6, P8 are made from steel and should NOT be demounted. There are five removable bars numbered P1, P3, P5, P7, P9, these are demountable and are made from aluminium to be lighter and easier for removing and carrying. They consist of two parallel aluminium tubes 48.3mm, spaced at an overall dimension of 200mm and connected by vertical aluminium plates that are 5mm thick, each of these aluminium fly bars sections will weigh between 12kg and 15.5kg after removal and disassembling.

The load distribution on the bars should be uniform, as indicated by the loading indicator labels located at each end of the fly bars. Please note that the scenery ladder bar associated with P9 has restricted lifting height due to its location above the first balcony seating row.



Shown in the image above, there is a pin to hold the extension bar. These extension bars can extend the primary ladder bar by 500mm each end. The indexing pin allows for 50mm increments of extension, corresponding with the holes in the extension bars.

It is important to inform all concerned with use and operation of the fly system that these flying bars are not designed for performer flying or any man-riding applications.

There are five Stage Scenery Bars (P1, P3, P5, P7, and P9) that can be demounted from the suspension wire ropes according to operational requirements when they are not in use. These scenery bars can be removed either individually or collectively. Bob weights are attached to the suspension wire ropes and raised through holes in the ceiling. Acoustically designed hole bungs, provided by third parties (not under J&C Joel's responsibility), will then be installed to close the exposed holes. The removal of the five stage scenery bars is detailed below.

1. First arrange with the theatre safety officer to set up a close period work schedule for the Concert Hall for all persons and visitors except the theatre technical staff who will be required to carry out the work on the over-stage fly system for the period necessary for the work to be completed. Post relevant notification on all Concert Hall access doors as required by the theatre safety policy.
2. It is necessary to arrange with the Fly System Control System Operator to be in attendance during the full period necessary for the work to be completed, during which time he or she will be required to power up the control system to lower the required cross-stage bars, as to the requirements of the theatre safety policy. And after the work has been completed and signed off as safe to use by the Theatre Safety Officer, he or she will be responsible to return the fly system and fly bars to the required theatre safety policy physical flow

positions, and then power down the Fly System Control System, lock off the system, and finally deliver the control system keys into the care of the Theatre Key holder.

3. Obtain from the Stage Manager, the schedule of Cross-stage bars that are required to be removed. Assemble the required crew of theatre stagehands and safety officer.
4. Bring into the auditorium from the technical storage area, the required number of Bob Weights to close the ceiling holes following removal of the cross-stage fly bars, the maintenance toolbox with tools listed elsewhere in this document, and a supply of cleaning cloths and WD40.



5. 2 teams of technical staff are required to carry out the following steps, team 1 will be on the auditorium floor level, and team 2 will be in the Concert Hall Technical Loft area level 64.642 Top Hat FFL Gallery above the rear stage.
6. Team 2 in the Concert Hall SSL 67.626 Technical Loft, or the level 64.642 Top Hat FFL Gallery above the rear stage, requires a minimum of 2 stagehands with required PPE and emergency handheld lighting flashlights, are first to check all required Bung units as shown on the as-built drawings, are available at each Cross-stage bar position that is to

be removed and then check each bar is in a safe condition to be operated, then advise the Team 1 leader to proceed.

7. Team 1 in the Auditorium floor level, a minimum of 4 stagehands, and the Fly System Control operator are required for the duration of the works. After team 1 advised it is safe to operate the fly system bars, the required cross-stage scenery bars may be lowered to the bottom travel limit stop position in the planned order. The cross stage bars are to be released from the suspension wire ropes as indicated on the as built drawings and are to be disassembled and placed onto the trolleys in the numbered order with protective packing material, and any loose fixing items placed into a small storage box, after which the Bob weights are to be attached to each of the suspension steel wire ropes as to details shown on the as built drawings. Then team 2 in the CH Technical Loft can be notified that the respective cross-stage bar set with bob weights attached is ready to be raised.



8. Prior to raising the cross-stage fly system with the Bob weights attached it shall only be operated when there is no discernible swinging movement of the wire ropes to ensure there is no possibility of a Bob Weight contacting the edge of the ceiling openings when they are raised up through the ceiling holes. The fly system control operator will be aware of the respective fly set reaching the top dead over travel service position limit switch stop, and will notify Team 2 that the respective ceiling Acoustic Bunges can be fitted, It is to be noted that all of the Acoustic Bunges installed in the Concert Hall Technical Loft area are not under J&C Joel scope of work so for these items please consult the suppliers as-built approved drawings and operation and maintenance manual for the correct instructions for operation and use, if there may be any doubt or questions regarding the acoustic Bunges please contact the manufacturer direct before proceeding. Once the acoustic Bunges have all been placed correctly into their respective ceiling positions the fly system control operator will be required to configure the control system so that the respective cross-stage fly set is out of service and inoperable until the respective cross-stage bar is reinstated for normal use by reversing of the above instructions.



9. Repeat items 3 to 8 until all cross-stage bars have been demounted as to the operational requirements.
10. Finally remove the cross-stage scenery bar sections and the maintenance toolbox and fixings into the technical storage area and place the scenery bar sections onto storage hooks on the allocated wall storage area as instructed by the stage manager.

11. The ladder bars are all made as matched sets, and on the joint of each bar there is a bar number and a letter denoting each joint. These need to fit back together as a set when being reassembled.



6.2.2. Perimeter Flying System Description

There are a total of 6 x J&C Joel Stagehand Pilewind Winch Units Model JCJ-PW+700-4 installed along both the stage-left and stage-right walkways at Level 64.642 FFL above the stage area as shown on the As-Built drawings between gridline J to just after gridline M. These winch units are identified as P10, P11, P12, on stage-left side and P13, P14 & P15 on stage-right side P10 and P13 are the furthest downstage with P12 and P15 being the most upstage on their respective sides. The perimeter stage bars are suspended from 4 x steel wire ropes that are diverted from the pile wind winch drum via pulleys down onto the scenery ladder beam which consists of two parallel 48.3mm dia x 3mm thick Aluminium tubes spaced at 200mm overall dimension joined together by a series of vertical aluminium plates 5mm thick. The load to be hung from the bar should be uniformly distributed as is indicated on the loading indicator labels on each end of the fly bars. The 6 x JCJ Pilewind Winches are each enclosed in a steel mesh guard cabinet with lockable access doors all with RS PRO Padlock 276-9568 combination locks, the default combination for all locks is 4334 and this can be changed later as required. Please be informed that the flying bars are not designed for performer flying or any man riding applications.

The Stage Scenery Bars P10, P11, P12, on stage-left and P13, P14, P15, on stage-right are all demountable from the Suspension wire ropes to suit operational requirements as and when necessary if they are not being used. The 6 scenery Bars can be removed individually or all at the same time. Bob weights are fitted to the suspension wire ropes to replace the weight of the Fly Bar, then raised up through holes in the ceiling level. Acoustically designed hole bungs which are provided by others and not under J&C Joel responsibility will then be fitted to close the exposed holes. The removal of the scenery bars can be carried out as follows.

1. Refer to and follow the detailed directions as given in Notes 1 to 4, of the above Item 6.2.1.1.
2. 2 teams of technical staff are required to carry out the following steps, team 1 will be on the relevant auditorium floor level, and team 2 will be in the relevant Concert Hall Top Hat Gallery at level 64.642 FFL on stage-right or stage-left for the perimeter flying system.
3. Team 2 to work in either the stage-right or stage-left Concert Hall Top Hat Gallery requires a minimum of 2 stagehands with required PPE and emergency handheld lighting flashlights, are first to unlock the relevant mesh guard cabinet with the combination provided by the theatre key holder, then check all required Bung units as shown on the as-built drawings are available at each side stage fly bar position for the perimeter flying system that is to be removed and then check each bar is in a safe condition to be operated, then advise the Team 1 leader to proceed.
4. Team 1 on the Auditorium floor level, a minimum of 4 stagehands, and the Fly System Control operator are required for the duration of the works. After team 1 advised it is safe to operate the fly system bars, the required side stage scenery bar or bars for the perimeter flying system may be lowered to the bottom travel stop position by the control system operator in the planned order. The side stage fly bar or bars should be released one by one from the suspension wire ropes to the details as indicated on the as built drawings and are to be disassembled and placed onto the trolleys in the numbered order with protective packing material, and any loose fixing items placed into a small storage box, after which the Bob weights are to be attached to each of the suspension steel wire ropes as to details shown on the as built drawings. Then team 2 in the Concert Hall Top Hat Gallery can be notified that the respective side stage fly bar set number with bob weights attached is ready to be raised.

5. Prior to raising the side stage fly system with the Bob weights attached it shall only be operated when there is no discernible swinging movement of the wire ropes to ensure there is no possibility of a Bob Weight contacting the edge of the ceiling openings when they are raised up through the ceiling holes. The fly system control operator will be aware of the respective fly set reaching the top dead over travel service stop position and will notify Team 2 that the respective ceiling Acoustic Bungs can be fitted. It is to be noted that all of the Acoustic Bungs installed in the Concert Hall Top Hat Gallery area are not under J&C Joel scope of work so for these items please consult the suppliers as-built approved drawings and operation and maintenance manual for the correct instructions for operation and use, if there may be any doubt or questions regarding the acoustic Bungs please contact the manufacturer direct before proceeding. Once the acoustic Bungs have all been placed correctly into their respective ceiling positions the fly system control operator will be required to configure the control system so that the respective perimeter side stage fly bar or bars are out of service and inoperable until the respective perimeter side stage fly bar is reinstated for normal use by reversing of the above instructions.
6. Repeat items 1 to 6 until all side stage fly bars have been demounted as to the operational requirements.
7. After completing the demounting of the required perimeter stage fly bars and to ensure everything is working correctly it is suggested to test the complete flying control system over full travel up and down for the remaining perimeter fly system Fly bars that were not removed.
8. Finally remove the cross-stage scenery bar sections and the maintenance toolbox and fixings into the technical storage area and place the scenery bar sections onto storage hooks on the allocated wall storage area as instructed by the stage manager.

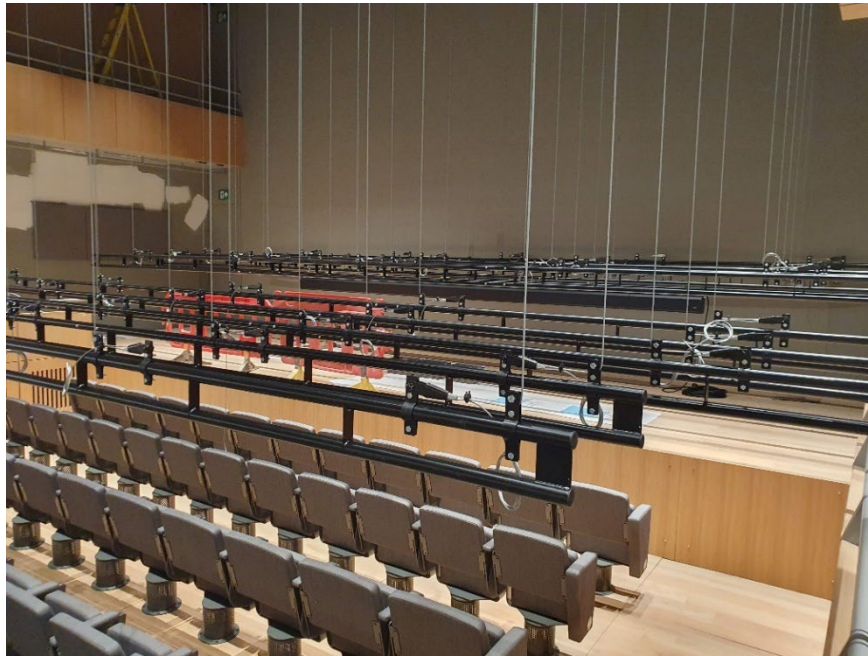


6.2.3. 250 Theatre Overstage System Description

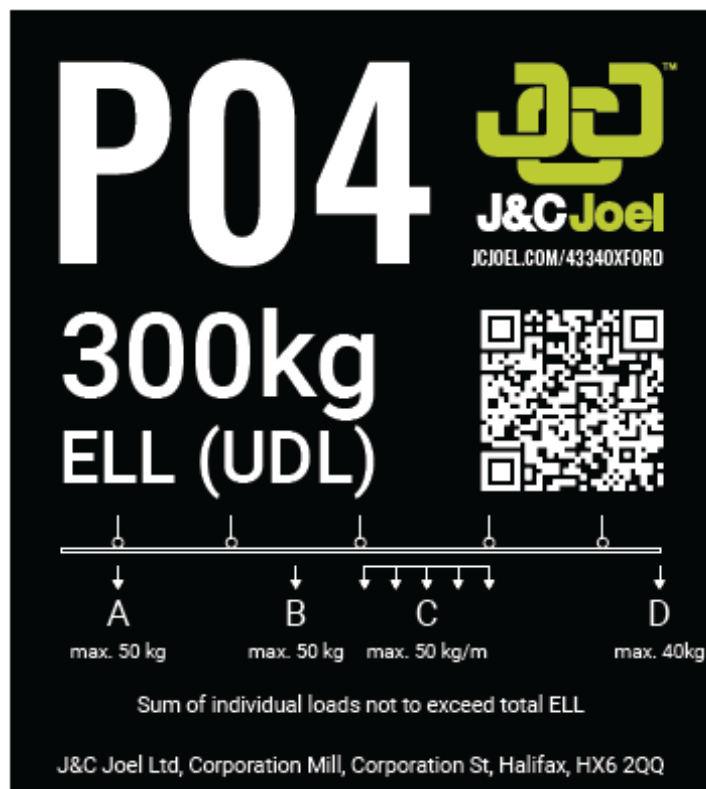
There are 11 J&C Joel Stagehand Pilewind Winch Units Model JCJ-PW+500-5 with a WLL of 500kg, directly mounted to the lower flanges of 2 high-level winch mounting steel beams beneath the theatre roof, adjacent to gridline 10 on the stage-right side above the stage floor area, as indicated in the as-built drawings. These winch units are designated as P1 through P11, from the down-stage front edge towards the rear-stage catwalk. Fly bars P1 and P2 measure 8,300mm in length, while P3 to P11 measure 10,000mm in length. Fly Bars P1 to P5 are spaced at 600mm centres, with a space of 1,800mm between P5 and P6; Fly Bars P6 to P11 are spaced at 600mm centres.

The 11 cross-stage fly bars are suspended from 5 steel wire ropes at 2,000mm centres, diverted from the pile wind winch drum via pulleys onto the cross-stage fly bars. The fly bars consist of two parallel 48.3mm dia x 3mm thick mild steel tubes spaced at an overall dimension of 200mm,

joined by a series of welded vertical steel plates. The P3 – P11 fly bars are 10,000mm long with an internal telescopic extension of 500mm at each end on the lower tube only, the downstage bars P1 & P2 are 8,300mm long and do not contain extension bars. The load hung from the bar should be uniformly distributed as indicated on the loading indicator labels at each end of the fly bars. Each fly bar within the 250 seat theatre has a WLL of 300kg. Do not exceed this stated load and ensure that all loading is uniform.



The loading signage for the ladder bars in the 250;



6.3. Winch Operation

For operating the J&C Joel Ltd. Stagehand Pilewind Winch Units, refer to the control operation manual 4334-99-OM-0001. This manual includes instructions for operation, maintenance, and service.

6.3.1. Start-up

To move any Fly Bar, the following devices must be powered on.

- Power Distribution Cabinets
- All MCCs
- AVW Control Console

Additionally, the following devices should be checked:

- E-stop system – all E-stops released, and E-stop system reset if necessary.
- Daily & Weekly checks as required.

6.3.2. Shutdown

System shutdown should be carried out in the following order:

- An e-stop should be struck
- The AVW Control Console should be shut down.
- The MCCs can then be turned off using the isolator switches as required.

6.3.3. Control Points

There is one control point for the overstage system in the concert hall, this is located outside the stage left door. For the e-stops to function the dummy plug must remain plugged in when the plug in point is not in use. If not, the system will recognise an e-stop and not allow movement of anything within the concert hall.



In the 250, there is only one plug in point, this is located within a wall panel on stage left. There is no dummy plug for the system in this room.



6.3.4. E-Stops

The concert hall has five e-stops within the venue; two in the loft space, two on the technical gantry, and one above the plug in points at stage level. There are also three distributed between the MCC panels. There is an additional e-stop on the control pendant. Each e-stop has a unique identifying number and when triggered can be identified on the e-stop trace page of the control.

The 250 seat theatre has three e-stops within the venue; two on the technical gantry and one at stage level behind a false wall panel. This panel must be open during operation to ensure that access to the e-stop is available in the case of an emergency.

6.3.5. Control Console Troubleshooting

If the AVW control console does not operate as expected, problem solving should be attempted starting from physical connections, as this is the most likely area to have problems. There are no user-serviceable components within the AVW Control Console therefore to avoid invalidating the warranty please contact J&C Joel Ltd for assistance.

Confirm the following:

- The connection cable must be properly connected
- Power is reaching the AVW Control Console, which can be confirmed with the power indicator lights on the control console
- If the control point is not powered up, check the 24V power supply source.
- Whether any e-stops are triggered.
- Whether the global e-stop panel is switched on.
- Whether the dummy plugs are connected into the plug in points
- Check all isolators are on for the machinery that is intended to run.

If these measures do not help rectify the problem, contact J&C Joel Ltd support for further assistance.

6.3.6. First Line Fault Diagnosis

The Control System is a complex system and more harm than good can be done by incorrect investigation into possible problems. Comprehensive training will be provided in the control O&M manual (4334-99-OM-0001) to enable rapid diagnosis of most common system faults. In the event of any unfamiliar errors or problems, contact J&C Joel Ltd support for further assistance.

6.4. List of Drawings

DRAWING NO.	TITLE
UOONHB-JCJ-CH-ZZ-DR-OT-020001	Concert Hall - Cross Stage Flying System - Plan View - General Arrangement
UOONHB-JCJ-CH-ZZ-DR-OT-020002	Concert Hall - Cross Stage Flying System - Section View
UOONHB-JCJ-CH-ZZ-DR-OT-020003	Concert Hall - Cross Stage Flying System - Elevation View
UOONHB-JCJ-CH-XX-DR-OT-020004	Concert Hall - Cross Stage Flying System - Hoist & Pulley Detail
UOONHB-JCJ-CH-XX-DR-OT-020005	Concert Hall - Cross Stage Flying System - Ladder Bar Detail
UOONHB-JCJ-CH-BM-DR-OT-040001	Concert Hall - Perimeter Powered Flying System - Plan
UOONHB-JCJ-CH-ZZ-DR-OT-040002	Concert Hall - Perimeter Powered Flying System - Long Section
UOONHB-JCJ-CH-ZZ-DR-OT-040003	Concert Hall - Perimeter Powered Flying System - Short Section
UOONHB-JCJ-CH-XX-DR-OT-040005	Concert Hall - Perimeter Flying System - Ladder Bar Detail
UOONHB-JCJ-T2-04-DR-OT-140001	250 Seat Theatre - Overstage System - Plan
UOONHB-JCJ-T2-XX-DR-OT-140002	250 Seat Theatre - Overstage System - Section
UOONHB-JCJ-T2-XX-DR-OT-140003	250 Seat Theatre - Overstage System - Elevation
UOONHB-JCJ-T2-XX-DR-OT-140004	250 Seat Theatre - Overstage System - Hoist & Pulley Detail
UOONHB-JCJ-T2-XX-DR-OT-140005	250 Seat Theatre - Cross Stage Flying System - Ladder Bar Detail
UOONHB-JCJ-CH-ZZ-DR-OT-990101	Concert Hall - Control Layout - Technical Loft
UOONHB-JCJ-CH-ZZ-DR-OT-990102	Concert Hall - Control Layout - Gantry
UOONHB-JCJ-CH-ZZ-DR-OT-990111	Concert Hall - Overstage Equipment Control System - Line Diagram
UOONHB-JCJ-CH-ZZ-DR-OT-990112	Concert Hall - Overstage Equipment Control System - Power Diagram
UOONHB-JCJ-CH-ZZ-DR-OT-990113	Concert Hall - Overstage Equipment Control System - Control Diagram
UOONHB-JCJ-CH-ZZ-DR-OT-990114	Concert Hall - Overstage Equipment Control System - General Arrangement
UOONHB-JCJ-CH-ZZ-DR-OT-990115	Concert Hall - Overstage Equipment Control System - PLC Map Diagram
UOONHB-JCJ-CH-ZZ-DR-OT-990141	Concert Hall - E-Stop - Electrical Schematic
UOONHB-JCJ-CH-ZZ-DR-OT-990142	Concert Hall - E-Stop - General Arrangement
UOONHB-JCJ-T2-ZZ-DR-OT-990201	250 Seat Theatre - Control Layout - General Arrangement
UOONHB-JCJ-T2-ZZ-DR-OT-990211	250 Seat Theatre - Overstage Equipment Control System - Line Diagram
UOONHB-JCJ-T2-ZZ-DR-OT-990212	250 Seat Theatre - Overstage Equipment Control System - Power Diagram
UOONHB-JCJ-T2-ZZ-DR-OT-990213	250 Seat Theatre - Overstage Equipment Control System - Control Diagram
UOONHB-JCJ-T2-ZZ-DR-OT-990214	250 Seat Theatre - Overstage Equipment Control System - General Arrangement

6.5. List of Winches

WINCH No.	SERIAL NO.	TRAVEL (m)	SPEED (m/s)	WINCH WLL (kg)
Concert Hall Over Stage Flying P1	W1114012024	11.98	0,1 – 0,2	650
Concert Hall Over Stage Flying P2	W1116012024	11.98	0,1 – 0,2	650
Concert Hall Over Stage Flying P3	W1115012024	11.98	0,1 – 0,2	650
Concert Hall Over Stage Flying P4	W1113012024	11.98	0,1 – 0,2	650
Concert Hall Over Stage Flying P5	W1110012024	11.98	0,1 – 0,2	650
Concert Hall Over Stage Flying P6	W1112012024	11.98	0,1 – 0,2	650
Concert Hall Over Stage Flying P7	W1117012024	11.98	0,1 – 0,2	650
Concert Hall Over Stage Flying P8	W1111012024	11.98	0,1 – 0,2	650
Concert Hall Over Stage Flying P9	W1118012024	7.00	0,1 – 0,2	650
Concert Hall Perimeter Flying P10	W11200072024	6.60	0,1 – 0,2	650
Concert Hall Perimeter Flying P11	W11202072024	6.60	0,1 – 0,2	650
Concert Hall Perimeter Flying P12	W11205072024	6.60	0,1 – 0,2	650
Concert Hall Perimeter Flying P13	W11204072024	6.60	0,1 – 0,2	650
Concert Hall Perimeter Flying P14	W11201072024	6.60	0,1 – 0,2	650
Concert Hall Perimeter Flying P15	W11203072024	6.60	0,1 – 0,2	650
250 Seat Theatre Cross Stage Flying P1	W11206072024	5.92	0,1 – 0,2	500
250 Seat Theatre Cross Stage Flying P2	W11212072024	5.92	0,1 – 0,2	500
250 Seat Theatre Cross Stage Flying P3	W11208072024	5.92	0,1 – 0,2	500
250 Seat Theatre Cross Stage Flying P4	W11207072024	5.92	0,1 – 0,2	500
250 Seat Theatre Cross Stage Flying P5	W11210072024	5.92	0,1 – 0,2	500
250 Seat Theatre Cross Stage Flying P6	W11216072024	5.41	0,1 – 0,2	500
250 Seat Theatre Cross Stage Flying P7	W11209072024	5.41	0,1 – 0,2	500
250 Seat Theatre Cross Stage Flying P8	W11214072024	5.41	0,1 – 0,2	500
250 Seat Theatre Cross Stage Flying P9	W11215072024	5.41	0,1 – 0,2	500
250 Seat Theatre Cross Stage Flying P10	W11211072024	5.41	0,1 – 0,2	500
250 Seat Theatre Cross Stage Flying P11	W11213072024	5.41	0,1 – 0,2	500

Each Winch is designed to lift the total dynamic load specified above. Do not exceed these stated loads. Ensure that any loads carried by the winch are distributed as detailed on the loading figures given here and indicated on the loading labels at each end of the relevant Fly bar.

Due to the self-weight of rigging equipment and ladder bars, the WLL on the bars is different to the WLL of the winches.

The winches are not designed for the transportation of people.

Common features to all Power Flying Systems.

- All manufactured in 2024.
- All use a supply voltage of 400V AC and a control voltage of 24 V.
- All travel at a speed indicated under item 6.5 above.
- All designed in accordance with EN 17206:2020 for use case 1.

6.7. Stagehand 17206 Winches

Please read this manual before performing any maintenance on the J&C Joel Stagehand Pilewind Winches to ensure that the equipment is being operated in accordance with safety requirements and the following service instructions. For additional technical features, service instructions not included here, or other information, contact J&C Joel Limited at www.jcjoel.com.

This manual applies to all variants of the J&C Joel Stagehand Pilewind Winches. It does not apply to other machinery from J&C Joel or machinery from other manufacturers.

The Stagehand Pilewind Winch is designed for lifting and lowering stage bars or trusses, hanging, and static suspension of loads above individuals on the stage floor below. It is not intended for performer flying or any man-riding applications.

The Stagehand Pilewind Winch is intended to be part of the stage fly bar lifting system. The safety of the entire lifting system, its Working Load Limit (WLL), and other characteristics depend on the system compilation and final assembly. J&C Joel shall not be responsible for the operation of the entire lifting system when delivering this product in isolation.

The equipment complies with essential health and safety requirements in BS EN 17206:2020.

The equipment is intended for use under the following environmental conditions:

- Ambient temperature: -15°C to +40°C
- Air humidity: not more than 50% at +40°C or 90% at +20°C
- Altitude above sea level - not higher than 1000m

6.8. General Safety Information

Upon delivery, verify that the information on the ID plate meets the specified requirements. Check that the equipment has not been damaged during transportation. If any damages are found, immediately notify the carrier or J&C Joel.

Installation, operation, maintenance, and repair must only be carried out by properly qualified personnel who have received comprehensive training in all aspects of the specific Stagehand Pilewind Winches. Suitable tools should be utilized. Before starting any inspection or maintenance, ensure the equipment is electrically isolated to prevent any potential danger to nearby items due to movement.

Avoid touching the winch motor's body during or immediately after operation, as the temperature of the motor cover and brakes may reach up to +50°C.

The equipment contains parts that move or carry live voltage during operation. Removing protective covers or electrical control unit covers, as well as performing improper or incorrect maintenance, can result in serious harm to personnel or other equipment.

6.9. Restrictions

The equipment is intended solely for lifting and lowering loads. Usage of the equipment for any other purposes is strictly prohibited. These winches are NOT designed for performer flying.

Do not exceed the Working Load Limit (WLL) as specified on the equipment.

Do not use equipment that is damaged or malfunctioning. Modifying the equipment in any manner will void the warranty.

Do not use several winches for lifting one load. Do not share a load between several winches.

Do not use damaged or malfunctioning equipment.

Do not modify the equipment in any way.

Do not swing or jerk the load while lifting/ lowering. If the load is swinging, stabilise it is safe to do so, if not wait for it to stop swinging before operating the winch.

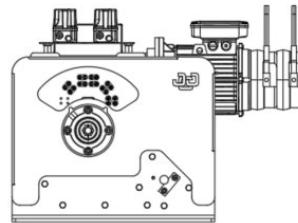
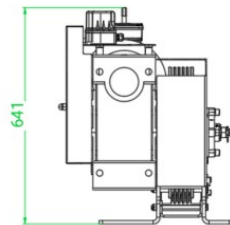
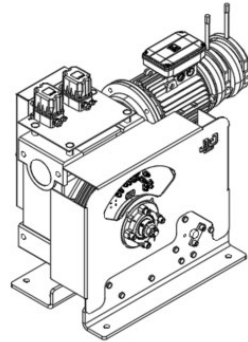
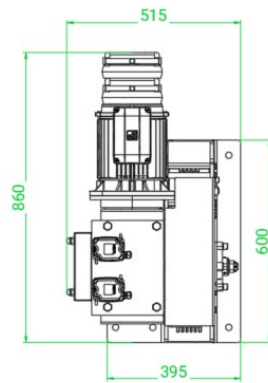
Ensure the load remains visible to the operator throughout the entire operation. Do not operate the winch if the load is out of sight. Always maintain focus on the load during operation. Avoid swinging or jerking the load while the winch is in use.

6.10. Winch Variants

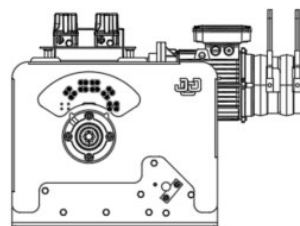
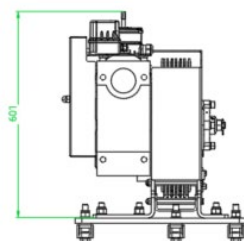
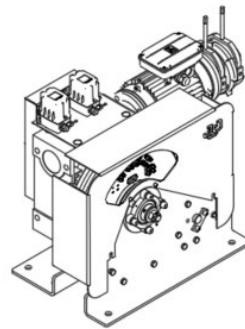
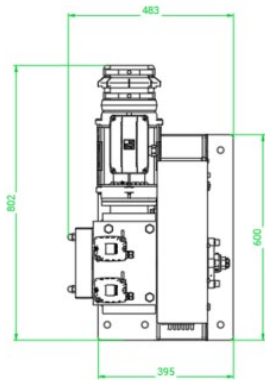
Winch Variant ID	WLL (kg)	No. Lines	Speed (m/s)	Travel (m)	Rope Ø (mm)	Self-Weight (kg)	Power (kW)	Dim. X (mm)	Dim. Y (mm)	Dim. Z (mm)
JCJ-PW+500-5	500	5	0.1 – 0.2	12	5	173	1.85	802	601	685
JCJ-PW+700-4	650	4	0.1 – 0.2	12	5 or 6*	200	2.2	888	641	536
JCJ-PW+700-5	650	5	0.1 – 0.2	12	5	207	2.2	888	641	536

* The concert hall perimeter flying system winches use 5mm wire rope, whilst the concert hall cross stage P9 winch uses 6mm wire rope.

JCJ-PW+700-5 WINCH;



JCJ-PW+500-5 WINCH;



7. Maintenance

Before undertaking any maintenance on the Fly System and winches, it is imperative to thoroughly review and comprehend the sections on Safety and Intended Use as outlined in this manual.

It is advisable that all stage equipment undergo regular inspection and maintenance to ensure longevity and uninterrupted operation. The frequency of maintenance should be determined based on factors such as temperature, humidity, time, and both the frequency and intensity of use. Adjustments to the recommended maintenance schedule may be necessary due to localized conditions. At a minimum, this should be performed every 12 months.

Once established, this maintenance schedule should be diligently followed and records maintained for future reference. These records will provide valuable information regarding service duration and any changes that might indicate the need for replacement parts.

In addition to "In House Inspection and Maintenance," it is highly recommended to conduct periodic safety inspections by a professional theatre rigging firm or J&C Joel Limited the designer and supplier of the complete stage equipment for the project.

7.1.1. Training of Personnel

All personnel assigned to maintenance or cleaning duties must have completed appropriate training on the designated equipment to ensure safe and effective work practices. Furthermore, staff are expected to be thoroughly familiar with and comply with all applicable local safety procedures.

Before any maintenance is carried out the below must be followed.

1. Power to the equipment must be turned off at the relevant isolator switch and the switch locked in the off position.
2. Only suitably qualified personnel must carry out all maintenance.
3. When maintenance work is being carried out, no unauthorized personnel should be present in the immediate vicinity.
4. Suitable personal protective equipment must be worn by all persons carrying out the work and within the vicinity, see below PPE requirements.
5. Loose clothing should not be worn when servicing the equipment.
6. All safety guards and covers must be replaced prior to power being turned back on.
7. All local regulations relating to safe working practices are to be adhered to in the course of carrying out any inspection, installation or maintenance work.
8. All maintenance must be carried out strictly in accordance with either the manufacturer's reference or this manual.

Visual inspection before running the Fly Bar

- Check the integrity of all load attachments for suspended equipment.
- Look for any cables, lamps, luminaries, or scenery rubbing or interfering with Fly Bar.
- Check steel wire rope anchors for visual integrity.

Visual Inspection while running Fly Bar up or down

- While running the Fly Bar check for interference or rubbing of rigged equipment with any moving parts. Pay attention to the steel wire rope paths and listen out for any unusual noises etc... This is especially important after changing the scenery on the flybar.

Tools Required

In addition to a standard set of mechanical tools the following specific tools are required for installation and maintenance of the Fly System:

- 8mm – 20mm spanners and sockets
- 2mm – 10mm allen keys
- Internal circlip pliers
- External circlip pliers
- Soft-faced mallet
- Flat screwdriver set
- Needle nosed pliers
- Torque Wrench

Fastener Torques

All fasteners should be tightened to the appropriate torque as listed in the following table:

Fastener Size	Tightening Torque Gr8.8 (Nm)
M4	3.1
M5	6.1
M6	10.4
M8	25
M10	51
M12	87
M16	215
M20	430

Personal Protective Equipment

PPE is to be worn by all personnel engaged in maintenance/cleaning tasks:

- Safety footwear.
- Protective helmet/hard hat, as applicable.
- High visibility vest. (ORANGE/YELLOW).
- Protective gloves (as required, rigger-type to protect from cuts/abrasions).
- Eye protection (goggles/safety spectacles).
- Proprietary pre-work barrier cream.

Additional PPE may be required for specialised tasks, such as:

- Dust masks, as required by the working conditions.
- Ear defenders in noisy environments.
- Safety harnesses (required where work is carried out at height).
- Back support belt for any tasks involving more than light manual lifting.

7.2. Preparation

First clean the immediate area then the winches and pulleys should be wiped clean of any dust accumulation.

7.3. Check Sheets

The check sheets are designed for the Maintenance Manager to maintain an accurate record of the service history and condition of the Fly System equipment for each of the three systems described above. These reports and check sheets should be stored with the operation and maintenance manuals for review if required by J&C Joels engineers during any scheduled service visit. The check sheets are located at the end of this O&M Manual for copying and use during the servicing and maintenance visits.

7.4. Inspection Requirements

The Maintenance Manager should check off each item on the Inspection sheets as soon as the Fly Systems have been inspected, checked and passed. The boxes shall all have been checked off as “Pass, or Fail, if any of the items are checked as “Fail”, the Maintenance Manager should compile a full report sheet with full details of the malfunction and arrange for service of the faults by J&C Joel Limited. Once these faults have all been corrected the “Rectified” box should be checked off and the document signed and dated by the Inspector and Maintenance Manager and the original copies of the inspection check sheets are to be filed with the O&M Manual for future review and use as may be required.

The section “Inspection Notes” of the document is intended for recording any observations, or individual component characteristics that may not have been included in the inspection check sheets.

7.5. Inspection Intervals

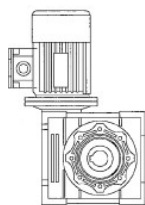
Each machine should be inspected every 12 months at a minimum or sooner if any operational problems may occur.

Blank Check Sheets and Maintenance Log Check Sheets are provided later in this O&M Manual for the maintenance manager to produce copies for use during the Maintenance inspection.

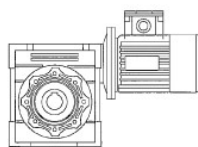
7.6. Gearbox Oil

Winches are supplied with gearboxes filled with the required amount of mineral oil, the table below lists the minimum oil required for each position.

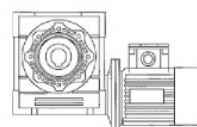
Position	JCJ-PW-250	JCJ-PW-500	JCJ-PW-1000
V5	3L	4.5L	7L ²
B3	3L	4.5L	7L
B8	2.2L	3.3L ³	5.1L ¹
V6	2.2L	3.3L	5.1L



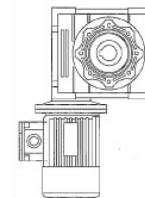
V5



B3



B8



V6

¹ This is the position & oil level for the concert hall cross stage flying winches.

² This is the position & oil level for the concert hall perimeter flying winches.

³ This is the position & oil level for the 250 seat theatre overstage flying winches.

The oil used in the gearbox – is ISO VG 320 or 220. For example;

- AGIP (BLASIA 320/220),
- SHELL (OMALA OIL 320/220)
- IP (MELLANA OIL 320/220)

An oil change is recommended after a running period of approx. 300 hours.

7.7. Breathing Plugs

To aid with transportation, breathing plugs are not installed by default to avoid any oil leakage. In hard working conditions, the inner pressure of the gearbox can rise and cause oil leakage from oil seals. After the winch is installed, breathing plugs must be installed above the maximum oil level position. Two types of breathing plugs may be supplied:

- Aluminium plugs with breathing holes to substitute filling plug. One is provided with the winch.
- Copper ones with rubber lips. These are already installed in the correct position, however before operation the rubber lips must be completely removed.

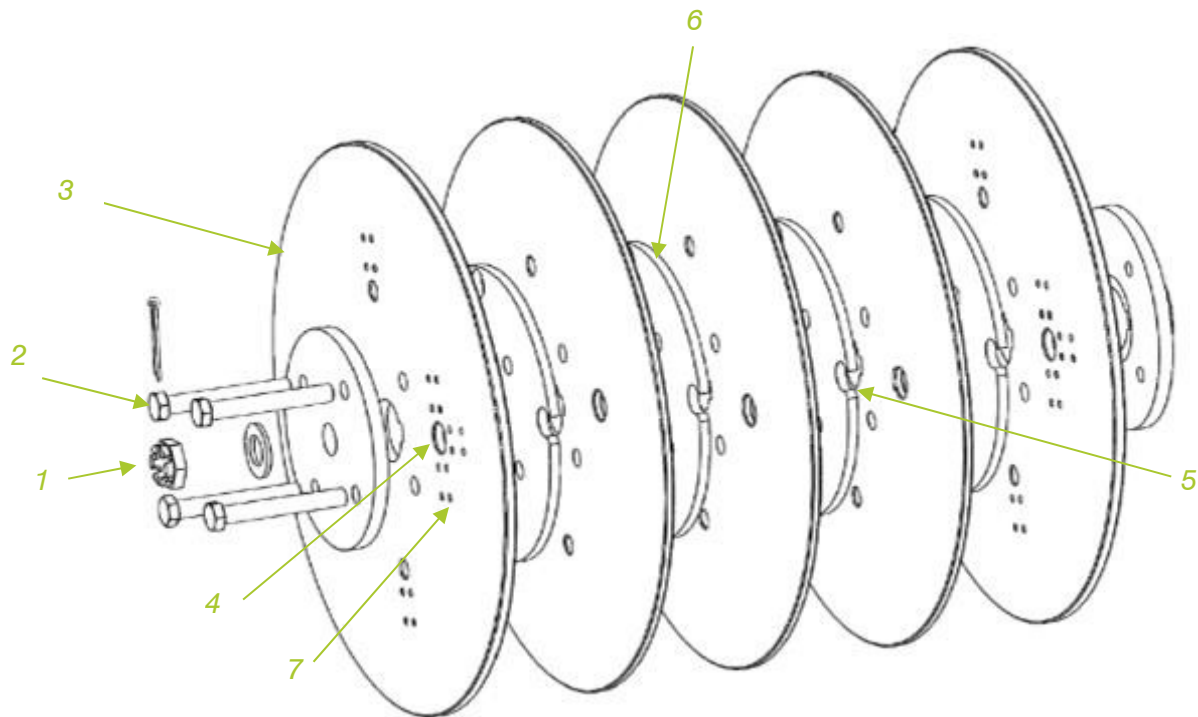
The breather plugs have already been installed by J&C Joel during the installation phase.

7.8. Steel Wire Ropes

Schedule of installed ropes;

- Concert Hall Bars P1, P2, P3, P4, P5, P6, P7 & P8 use 5mm wire rope.
- Concert Hall Bars P9, P10, P11, P12, P13, P14 & P15 use 6mm wire rope.
- 250 Bars P1, P2, P3, P4, P5, P6, P7, P8, P9, P10 & P11 use 5mm wire rope.

Upon installing the stage bar lifting system, only 6mm or 5mm 7x19 galvanised anti-rotational wire rope should be used for lifting loads. The size of the wire rope depends on the model variant, if in doubt refer to the table shown earlier in this document. When replacing any wire ropes during servicing it is recommended to use all wire ropes from the same manufacturer and off the same supplied drum for all wire rope lines to avoid deviations in the wire rope diameter.



To install wire ropes, unscrew the central screw nut (1) and mounting bolts (2) and take off the disks.

Pull the wires through the hole (4) in the outer disk (3). Each wire rope needs to sit in its own chamber around the smaller disks (6). The wire rope should be pulled through into the notch (5) on the smaller disk (6). The smaller disks are not circular and become larger as the profile continues round the shape. This is to ensure that the wire ropes all coil up smoothly over the full lifting and lowering travel distance. The rope needs to wrap in the correct direction, and the smaller plates (6) need to be in the correct orientation for the direction of lifting.

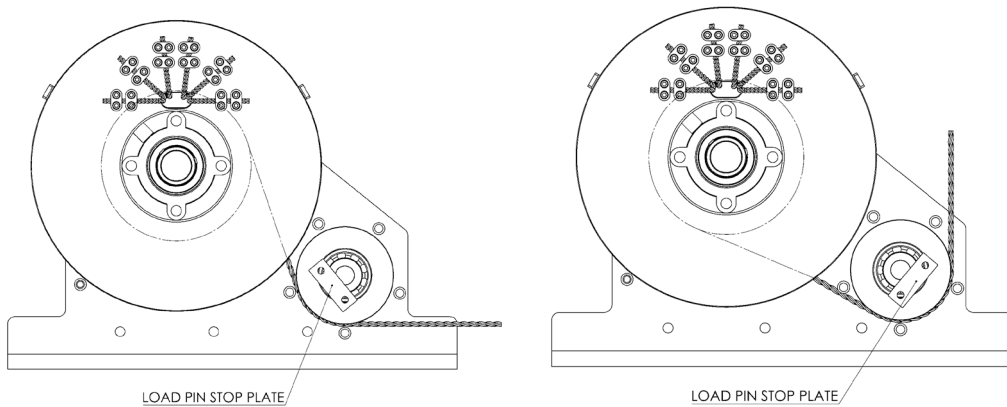
Depending on the amount of wire rope lines, it may be necessary to attach lines from both ends of the spooling assembly, there may be two outer plates (3) to affix lines to.

Once the wire ropes are sufficiently pulled through, affix them in position with the cable clamp plates as indicated in the pictures below (7), leave 50mm of cable past the end of the last cable clamp plate (7). Once this is completed, reattach the central screw nut (1) and the mounting bolts (2). The wires can now wrap around the core.

The length of the steel wire rope and limit switch adjustments should be chosen to leave two complete turns of steel wire rope on the spool in the lower position.

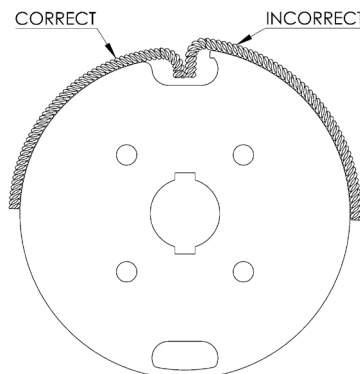


The line can be sent in two different directions.



The wire should be wound on the drum differently, depending on the desired exit direction of the line (shown with dash-dotted line). Also the load pin stop plates position depends on the line exit direction.

The importance of information about line direction upon an order lies in the different mounting positions of the inner disc. The line should always wind in the correct direction in relation of the inner disc. If this information hasn't been given and the wire winds incorrectly, the spool needs to be disassembled and inner discs should be mounted the other way around.



The inner plates on all supplied winches have been set in the correct orientation. If changing wire ropes ensure that the ropes exit the winches in the same direction as indicated on the J&C Joel drawings.

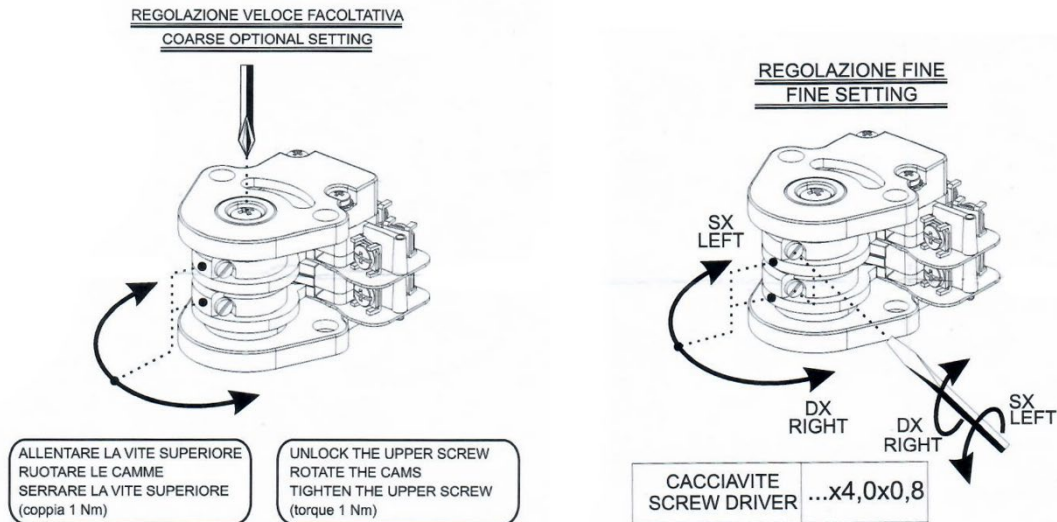
7.9. Adjusting the Limit Switches

Limit switches will have been set during the installation and when the system is being changed or rebuilt. Limit switches should be adjusted by competent personnel only.

The equipment has two independent limit switches – “end of travel” and “ultimate”. In normal operating conditions, the “end of travel” switch is used. The “ultimate” switch is intended for backup if an error occurs and the “end of travel” switch malfunctions.

Firstly, set-up the “ultimate” switch. The limit switch should be set to limit the maximum possible load movement, considering the time necessary for the fully loaded system to stop. In this case, the “ultimate” switch should be set not to cause breakage in case of an emergency system stop. The “end of travel” switch should be installed to ensure normal operation of the system within the space limited by the “ultimate” switch.

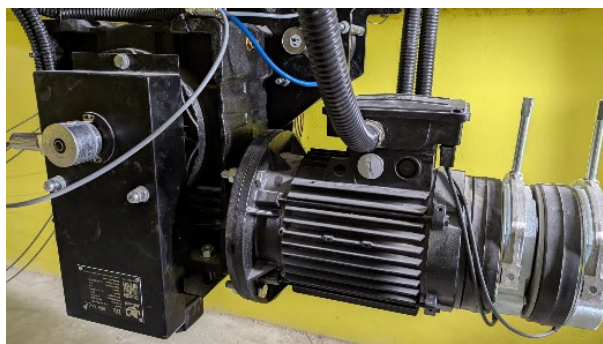
To adjust the limit switches, remove the switch’s body cover by removing the retaining screws. Each limit switch has two Normally Closed (NC) switches – Up and Down. The ‘Up’ switch stops the lifting; the ‘Down’ switch stops the lowering of the load. Use bolts (white) to adjust the position of the switches.



7.10. Winch Brakes

Winches are supplied with BMBM series motors and equipped with double DC brakes. DC brake coil is supplied through a rectifier in the terminal box (the standard voltage supply is 230V 50/60Hz). The rectifier is provided with over-voltage and radio frequency emission protection devices. The brake torque remains the same in both rotational directions, and the motor brakes without shaft axial sliding.

Check periodically that the two hand operated release levers, as shown on the picture below, on the brakes are operating properly. Before checking the brakes, ensure that no one is underneath the load or in a hazard zone. Also ensure that no load is applied to the bar, do not electrically operate the winch during this operation. To perform the check, pull back on the hand levers to check that the brake is disengaging fully. After any adjustment, it is necessary to ensure that the adjustment has not caused a reduction in brake torque.

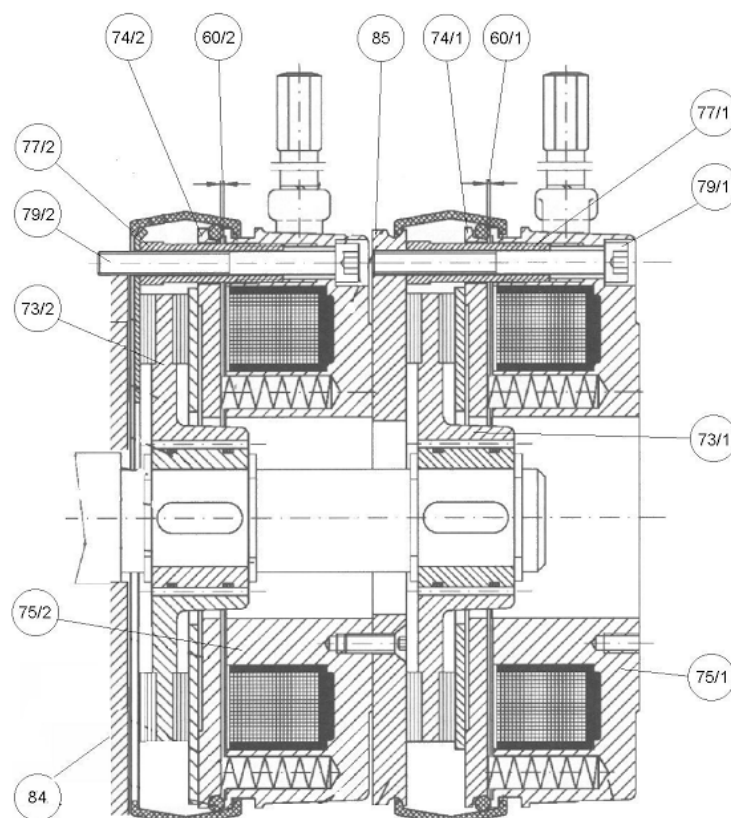


7.11. Brake Air Gap Adjustment

It is advisable to check the air gap no less than once a year, because it increases due to brake disc wear. The air gaps (60/1 and 60/2 on the image below), and the distance between the brake

moving elements and the brake coils, which can be measured using a feeler gauge, must be set to the nominal value when the maximum values stated in the following table are reached.

For this purpose, starting from the brake assembly N. 2, operate on the connecting screws (77/2) to obtain, turning the fixing screws (79/2), the brake coil (75/2) forward displacement towards the rear cover (84). After verifying the airgap smoothness in correspondence with the fixing screw (79/2), operate again on the connecting screws (77/2), turning them clockwise to block the brake coil in the new position. Once the operation is completed, verify the obtained airgap and, if necessary, repeat it. Once completing the airgap adjustment on brake assembly N. 2, proceed with the same procedure on brake assembly N. 1.



Brake Assembly 2

Brake Assembly 1

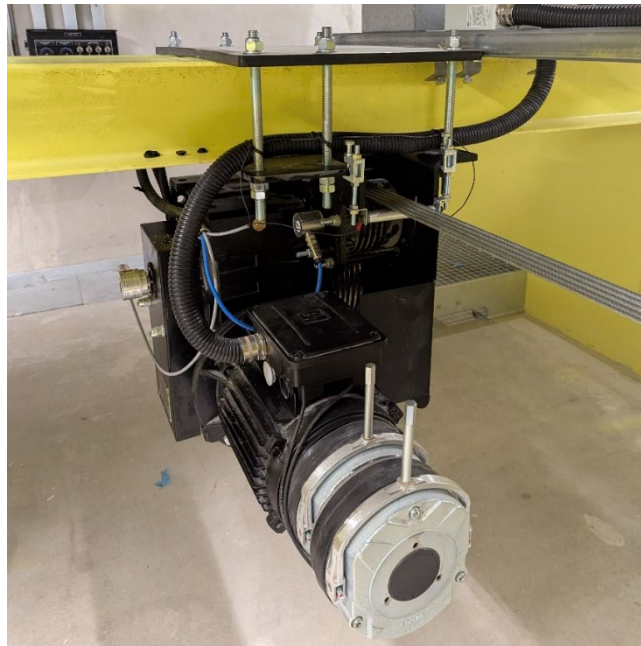
Brake type	08	10	13	15	17	20	23	26	30	40
BMBM motor frame size	63 - 71	80	90	100	112	132	160	180 - 200	225	250
Nominal airgap (mm)	0.3 - 0.45	0.3 - 0.45	0.3 - 0.45	0.3 - 0.45	0.3 - 0.45	0.4 - 0.55	0.4 - 0.55	0.5 - 0.7	0.5 - 0.7	0.6 - 0.8
Maximum airgap (mm)	0.65	0.65	0.75	0.75	0.75	0.75	0.75	0.9	0.9	1.2
Minimum brake disc thickness (mm)	4.5	5.5	7.5	9.5	11.5	12.5	14.5	16.5	16.5	18.5

Note: this chart indicates the standard brake assembly mounted depending on the BMBM motor frame size. For special execution, a different brake assembly type could be mounted on the motor. Please get in touch with MGM for more information.

7.12. Slackline Detection

Each hoist is fitted with slackline detection. This consists of an isolated aluminium bar with connected at either end with a cable loop that feeds into a normally-closed circuit. The steel wire ropes are grounded, and if the ropes touch the aluminium bar the circuit is broken, signalling to the control system that the system is in a “slack” state. The control system will prohibit movement until this is rectified.

Typical for the Concert Hall Cross Stage and the 250 Theatre Overstage;



The position of this detector has been set during installation, however should it need adjustment slacken the nuts on the studding and raise / lower the bar accordingly. This operation must only be performed by qualified professionals.

Typical for the Concert Hall Perimeter Flying System



7.13. Overload Detection

Each hoist is equipped with an on-board load cell pin to prevent overloading of the fly bars. No adjustment of the positions of these pins should be required. The overload thresholds are set slightly over the WLL of the fly bars. When an overload case is triggered, the control system will prevent raising of the hoists but will allow descent for safe removal of the load.

The thresholds are as follows;

- Concert Hall Overstage; WLL on bar 500kg, overload threshold 560kg.
- Concert Hall Perimeter Flying; WLL on bar 500kg, overload threshold 560kg.
- 250 Seat Theatre; WLL on bar 300kg, overload threshold 340kg.

The overloads are set higher to ensure the system does not trigger during acceleration.

NEVER exceed the stated WLLs.

8.2. ML01 Inspection Check Sheet

Winch Fly Set Designation: _____ (Continued overleaf)

		Pass	Fail	Rectified	N/A
1	Appearance				
1.1	Check equipment is neat and tidy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1.2	Check equipment is clean	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	General				
2.1	Check equipment for signs of water damage	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.2	Check equipment for signs of any other damage	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	Mechanical				
3.1	At winch check all wire rope lifting lines for security	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.2	Check wire rope lines are correctly wound onto drum	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.3	Check wire rope lines for signs of fraying or wear	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.4	Check drums for signs of wear	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.5	Check all bolts fixing hoist to steelwork are secure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.6	Check all coupling bolts for security	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.7	Check all couplers for security	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.8	Check load side brake for signs of wear	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.9	Check motor side brake for signs of wear	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.10	Check all gearbox fitting bolts are secure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.11	Check gearbox oil seals for signs of wear (replace if necessary)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.12	Check for signs of oil leaks (rectify if leaks are evident)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.13	Check gearbox oil level (top up if necessary)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.14	Clean gearbox assembly	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.15	Check limit box belt for signs of wear and security	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.16	Check all electric motor fixing bolts for security	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	Electrical				
4.1	Check all electric motor connections for security	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.2	Check electric motor air intake vents are not obstructed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.3	Check the electric motor runs smoothly	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.4	Check the motor runs with no abnormal rise in temperature	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.5	Clean the motor assembly	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.6	Check all limit box electrical connections for security	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.7	Run hoist full travel to check limit switch function is correct	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.8	Clean limit switch box and replace cover	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.9	Check all cables to control and MCC are undamaged	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.10	Check all cables are fixed away from snag risks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.11	Check the isolators operate freely	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.12	Check all encoders are working correctly and clean	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.13	Check all lids or covers are fitted and all screws are present	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

ML01 Inspection Check Sheet - Continued

Winch Fly Set Designation: _____

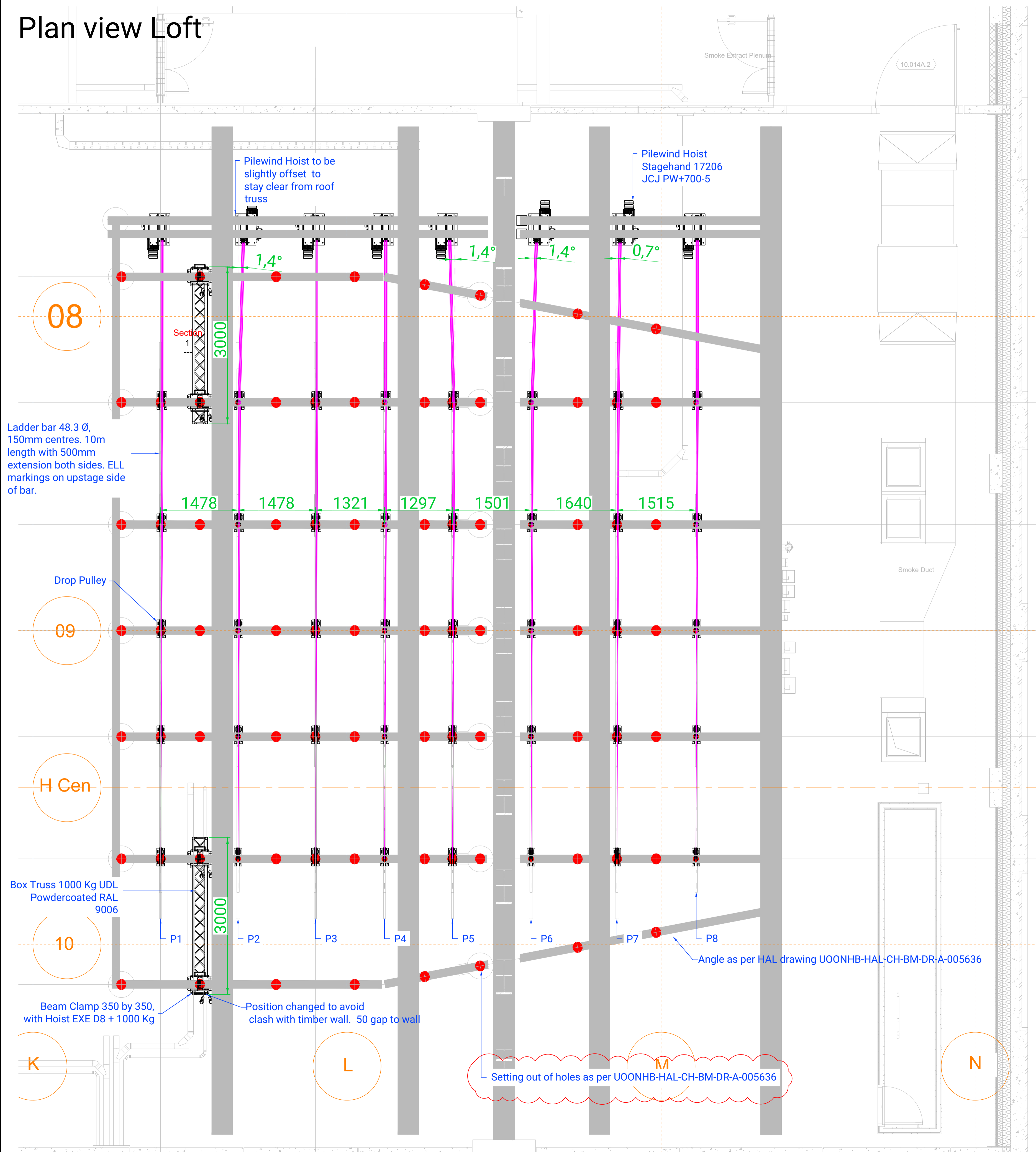
		Pass	Fail	Rectified	N/A
5.	Pulleys				
5.1	Check all bolts fixing pulleys to steelwork are secure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.2	Check that each pulley rotates freely	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.3	Check that all pulley groove edges are not damaged	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.4	Check that all pulley retaining key plates are secure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.5	Clean all pulleys	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6.	Fly Bars				
6.1	Inspect the bar for any sign of damage or misuse	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6.2	Check that all fly bar joints are secure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6.3	Check that any equipment fitted to the fly bar is secure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6.4	Check all wire rope connections to the fly bar are secure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6.5	Check that all loading panels are undamaged and readable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6.6	Check that all fly bar extensions move in and out and lock	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7.	Bob Weights				
7.1	Check all removable fly bar bob weights are available	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7.2	Check all bob weights fixings are complete and undamaged	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8.	Winch Unit				
8.1	Check section 7. Maintenance of this Manual for details	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9.	Winch Cabinets				
9.1	Check section 6.2.1.2. of this manual for details	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10.	Concert Hall 9 units of over stage flying system				
10.1	Check section 6.2.1.1. of this manual for details	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11.	Concert Hall 6 units of perimeter flying system				
11.1	Check section 6.2.1.2. of this manual for details	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12.	250-Seat Theatre 11 units of cross stage flying system				
12.1	Check section 6.2.1.3. of this manual for details	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Please note in addition to the above, a LOLER inspection must be carried out at least once every 12 months. This may need to be more frequent depending on the actual usage of the points, this will form part of the venue's internal risk assessment.

9. Referenced Drawings

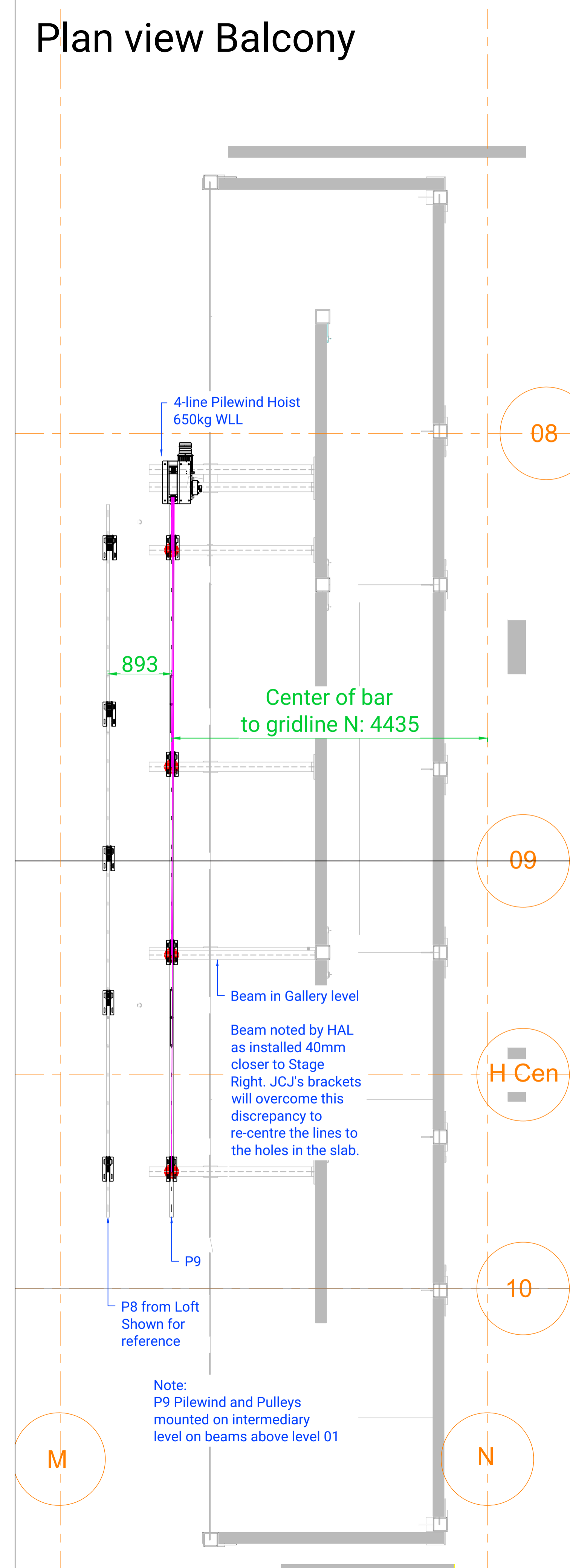
Drawings are shown overleaf.

Plan view Loft



Scale 1:40

Plan view Balcony



Scale 1:40

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REVISIONS			
REV.	BY	DESCRIPTION	DATE
P01	PT	FIRST ISSUE	22/09/2023
P02	AM	HOIST SETTING OUT UPDATED AS PER COMMENT	09/11/2023
C01	PT	RESPONSE TO CONSULTANT'S COMMENTS	22/02/2024
C02	SH	For record	16/04/2025

Notes:
To be read in conjunction with;
UOONHB-JCJ-CH-ZZ-DR-OT-020002
UOONHB-JCJ-CH-ZZ-DR-OT-020003
UOONHB-JCJ-CH-XX-DR-OT-020004

Status:
A - B - C -

All dimensions in mm unless otherwise stated. Do not scale.

DRAWN:	SH	DATE:	16/04/2025
CHECKED:	JC	DATE:	16/04/2025
APPROVED:	OS	DATE:	16/04/2025
SCALE:	ON SHEET	PAPER SIZE:	A1

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PROJECT	4334 - Oxford Humanities
JCJ NO.	4334- GA-02-0001
Client No.	UOONHB-JCJ-CH-ZZ-DR-OT-020001

TITLE	Concert Hall Cross Stage Flying System Plan View General Arrangement
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PURPOSE	A5 - Accepted as Suitable for Record
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REV C02

REVISIONS			
REV.	BY	DESCRIPTION	DATE
P01	PT	FIRST ISSUE	22/09/2023
P02	JC	AS PER COMMENTS	09/11/2023
C01	PT	RESPONSE TO CONSULTANT'S COMMENTS	22/02/2024
C02	SH	FOR RECORD	16/04/2025
C03	JC	FOR RECORD	22/12/2025

Notes:
To be read in conjunction with;
UOONHB-JCJ-CH-ZZ-DR-OT-020001
UOONHB-JCJ-CH-ZZ-DR-OT-020003
UOONHB-JCJ-CH-XX-DR-OT-020004

Status:
A - B - C -

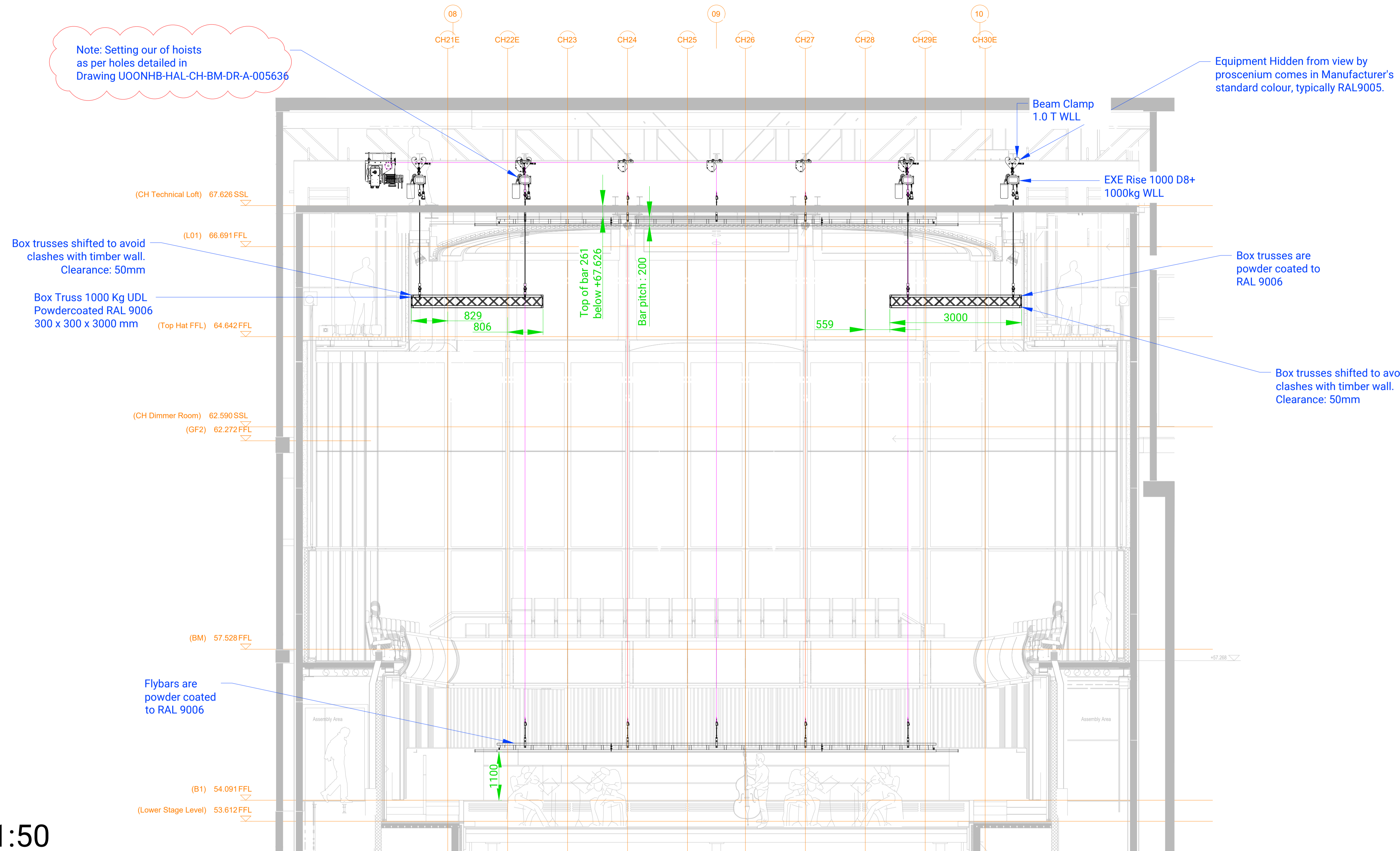
All dimensions in mm unless otherwise stated. Do not scale.

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CHECKED:	JC	DATE:	16/04/2025
APPROVED:	OS	DATE:	16/04/2025
SCALE:	ON SHEET	PAPER SIZE:	A1

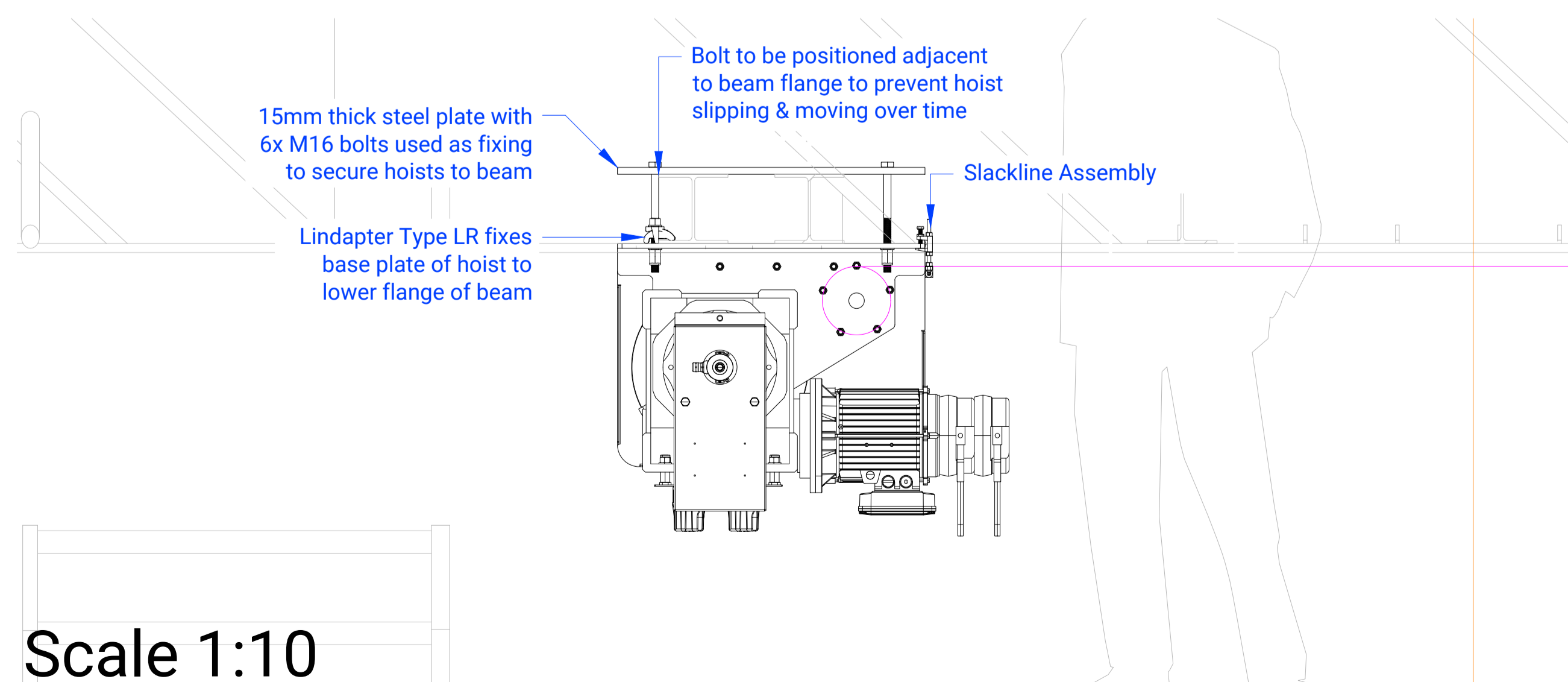
J&C Joel
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PROJECT	4334 - Oxford Humanities
JCJ NO.	4334-GA-02-0002
Client No.	UOONHB-JCJ-CH-ZZ-DR-OT-020002
TITLE	Concert Hall Cross Stage Flying System Section Elevation View Short Section View
PURPOSE	A5 - Accepted as Suitable for Record
REV	C03

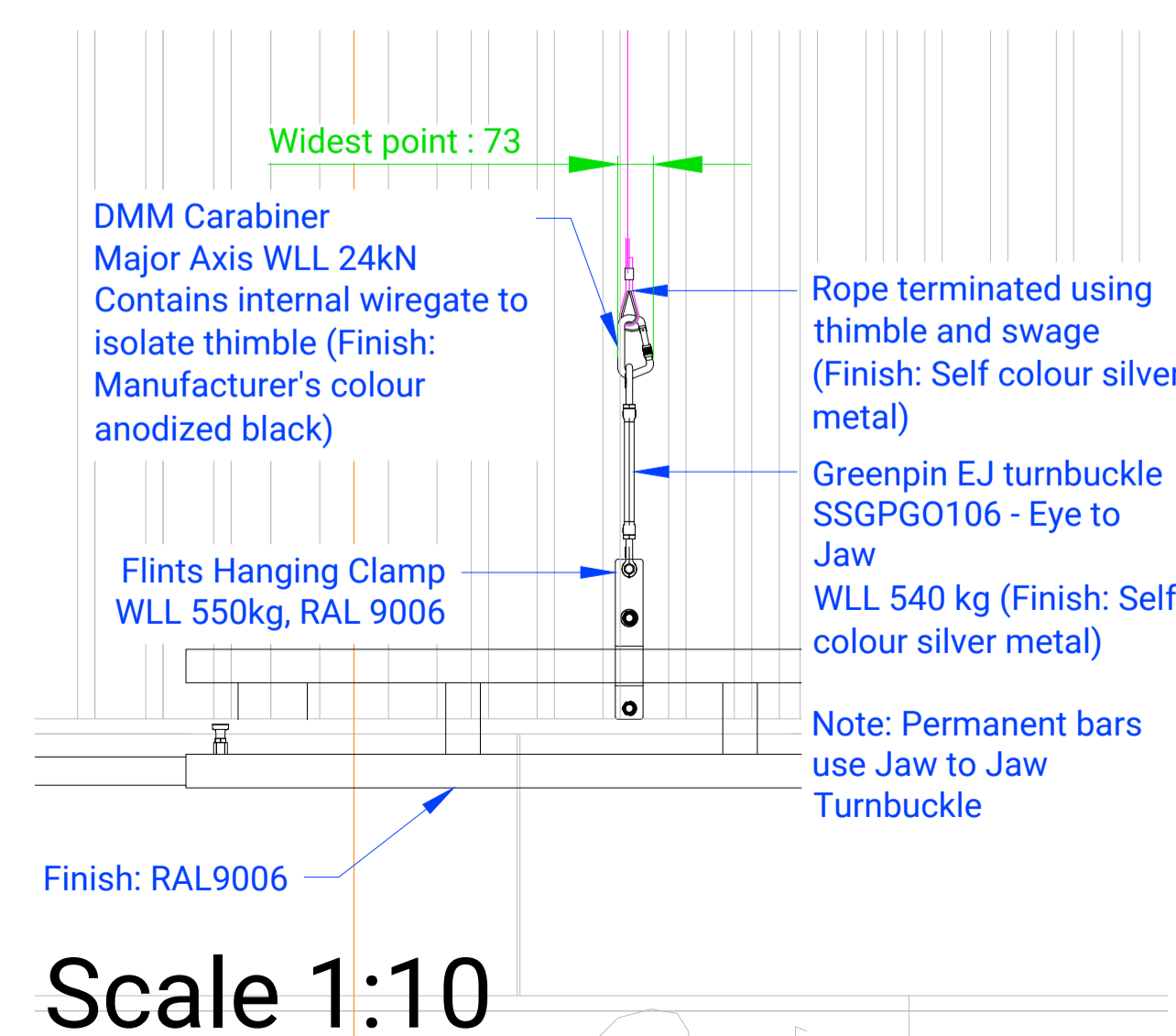
Note: Setting out of hoists as per holes detailed in Drawing UOONHB-HAL-CH-BM-DR-A-005636



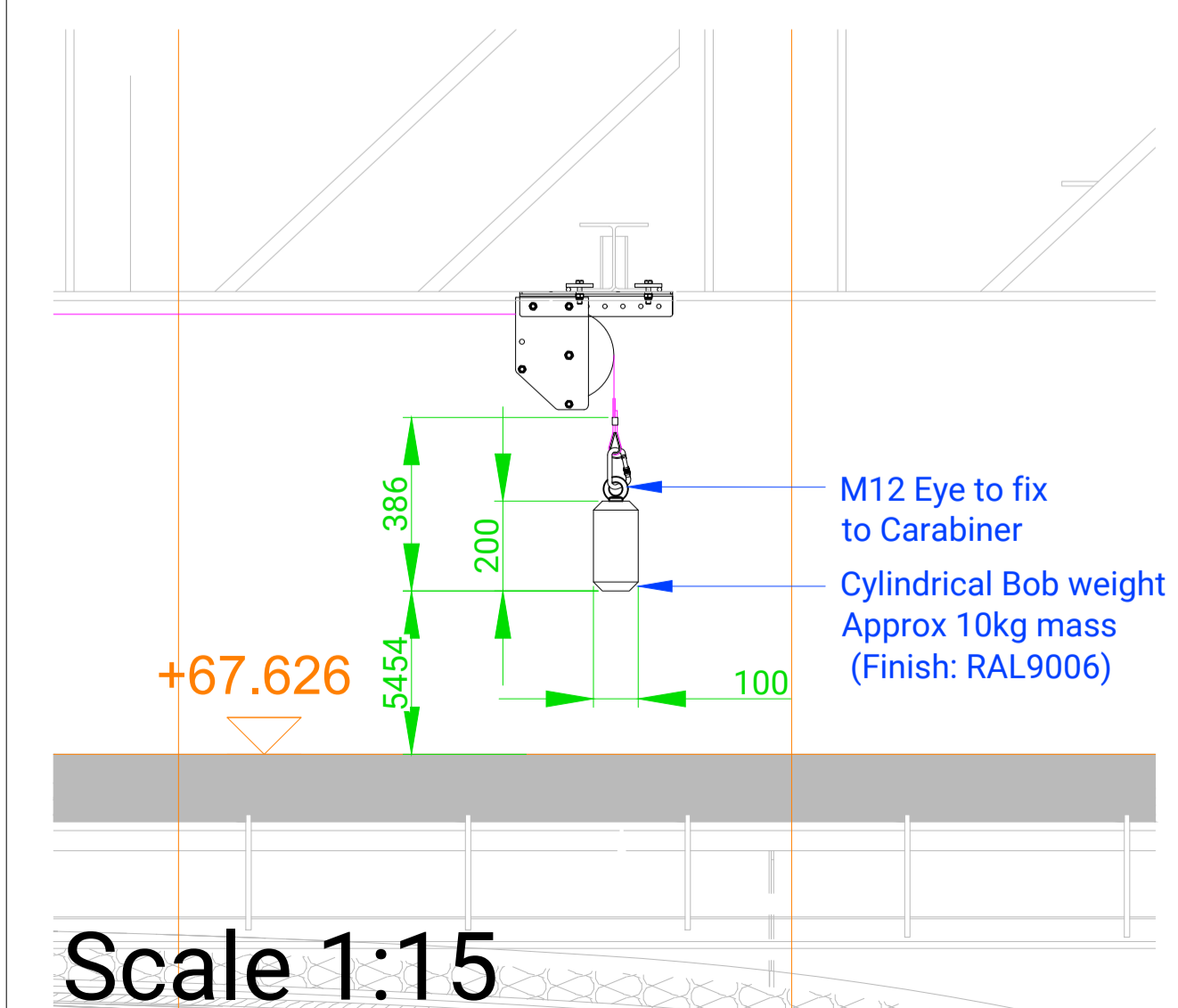
Scale 1:50



Scale 1:10



Scale 1:10



Scale 1:15

REVISIONS			
REV.	BY	DESCRIPTION	DATE
P01	PT	FIRST ISSUE	22/09/2023
P02	JC	HOIST SETTING OUT UPDATED AS PER COMMENT	10/11/2023
C01	PT	HOIST SETTING OUT UPDATED AS PER COMMENT	21/02/2024
C02	SH	For Record	16/04/2025

Notes:
To be read in conjunction with;
UOONHB-JCJ-CH-ZZ-DR-OT-020001
UOONHB-JCJ-CH-ZZ-DR-OT-020002
UOONHB-JCJ-CH-XX-DR-OT-020004

Status:
A - B - C -

All dimensions in mm unless otherwise stated. Do not scale.

DRAWN:	SH	DATE:	16/04/2025
CHECKED:	JC	DATE:	16/04/2025
APPROVED:	OS	DATE:	16/04/2025
SCALE:	ON SHEET	PAPER SIZE:	A1

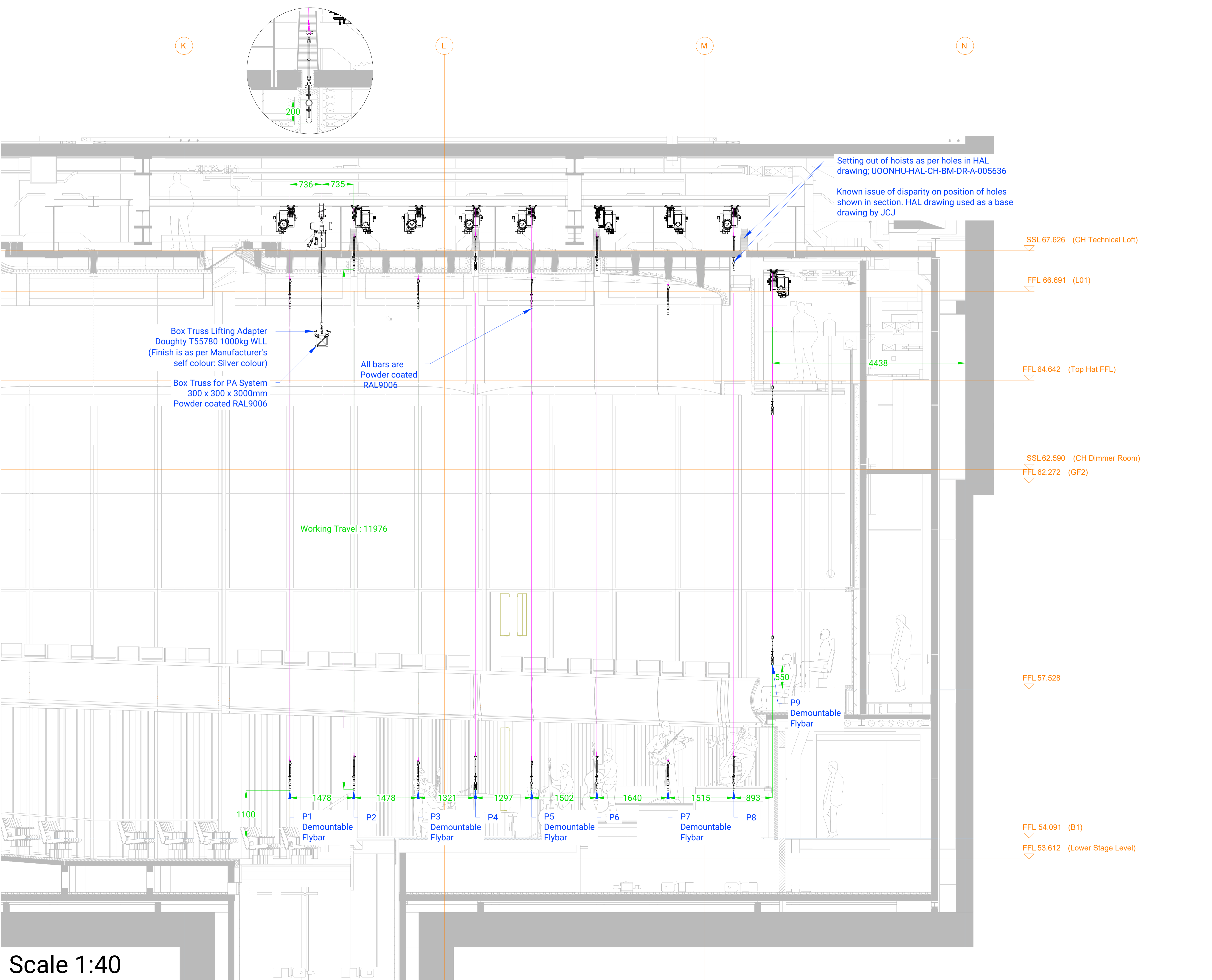
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PROJECT	4334 - Oxford Humanities
JCJ NO.	4334-GA-02-0003
Client No.	UOONHB-JCJ-CH-ZZ-DR-OT-020003

TITLE	Concert Hall Cross Stage Flying System Section Elevation View
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PURPOSE	A5 - Accepted as Suitable for Record
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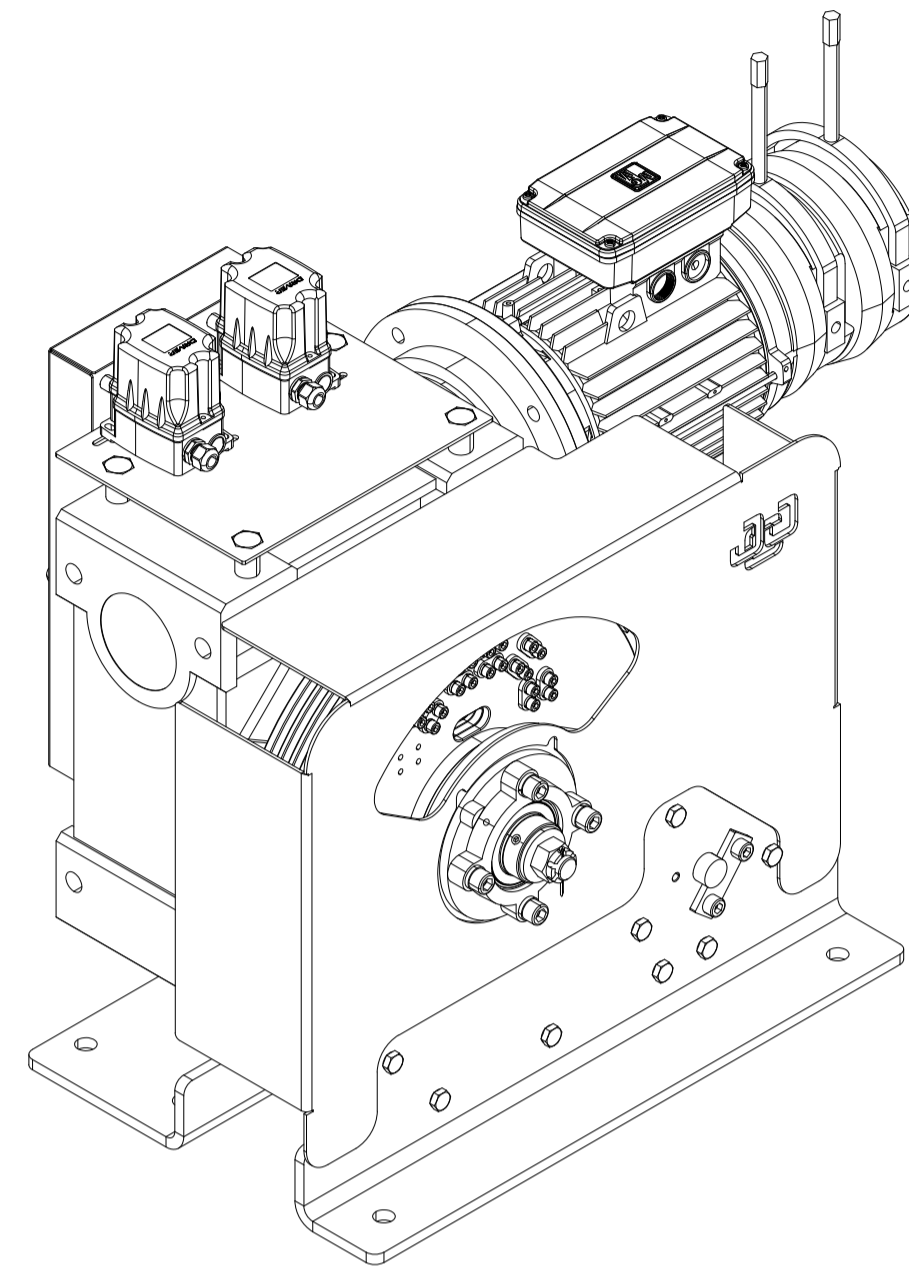
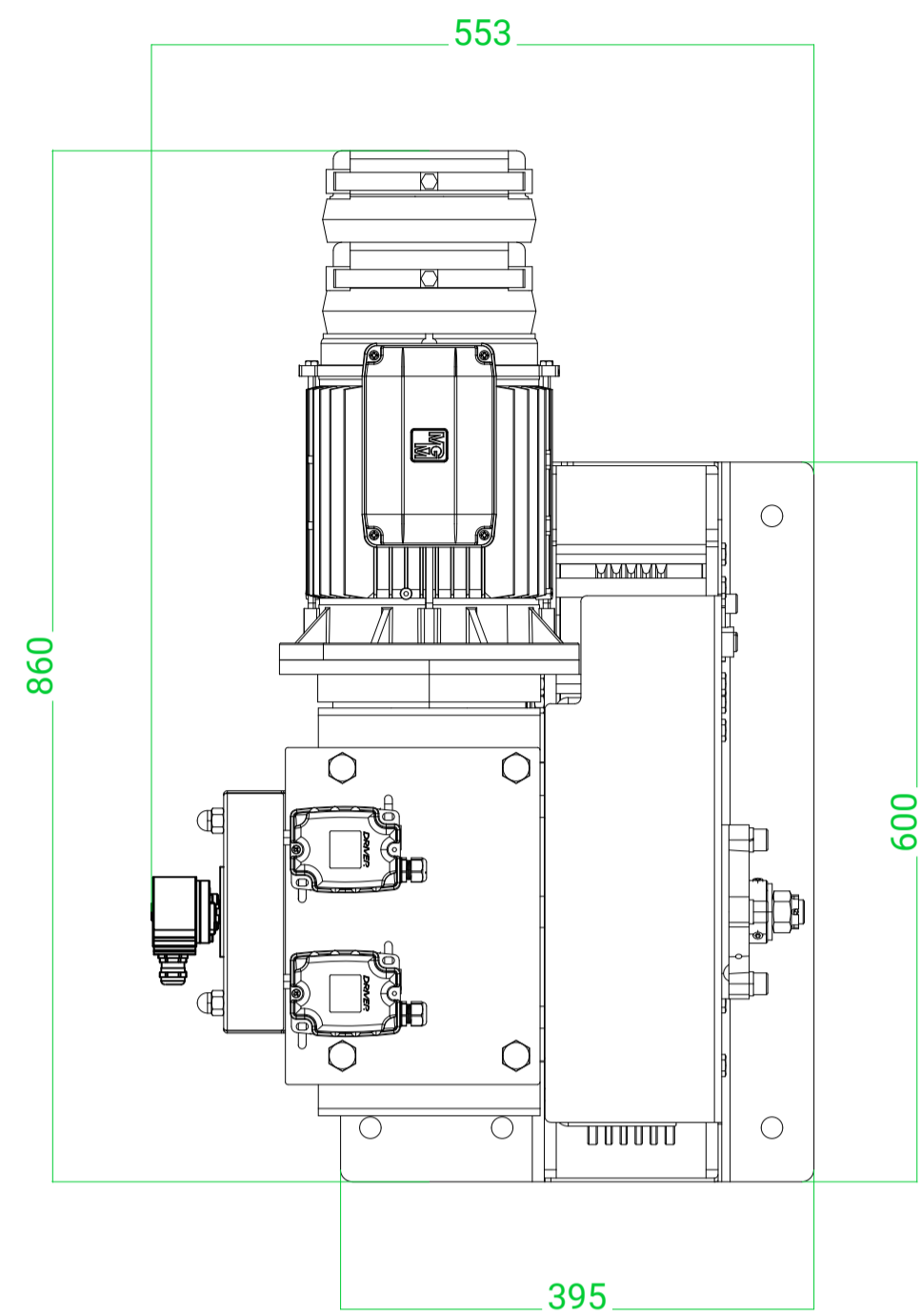
REV C02



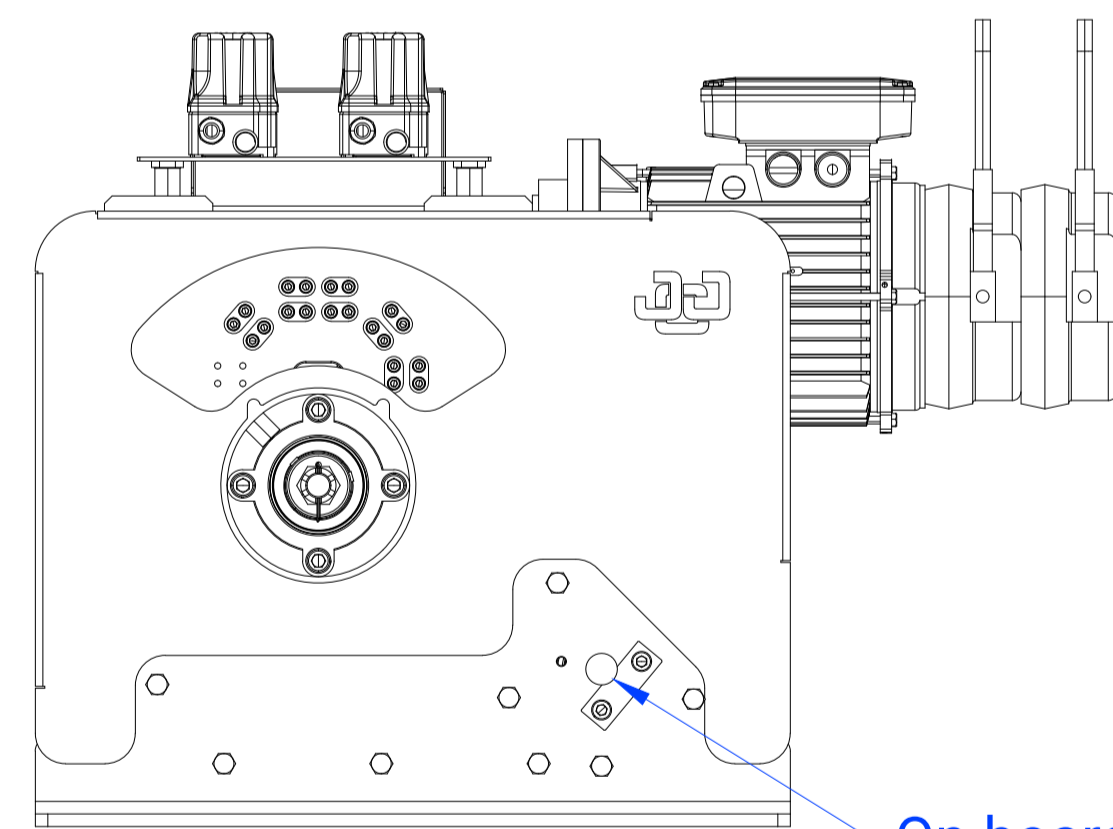
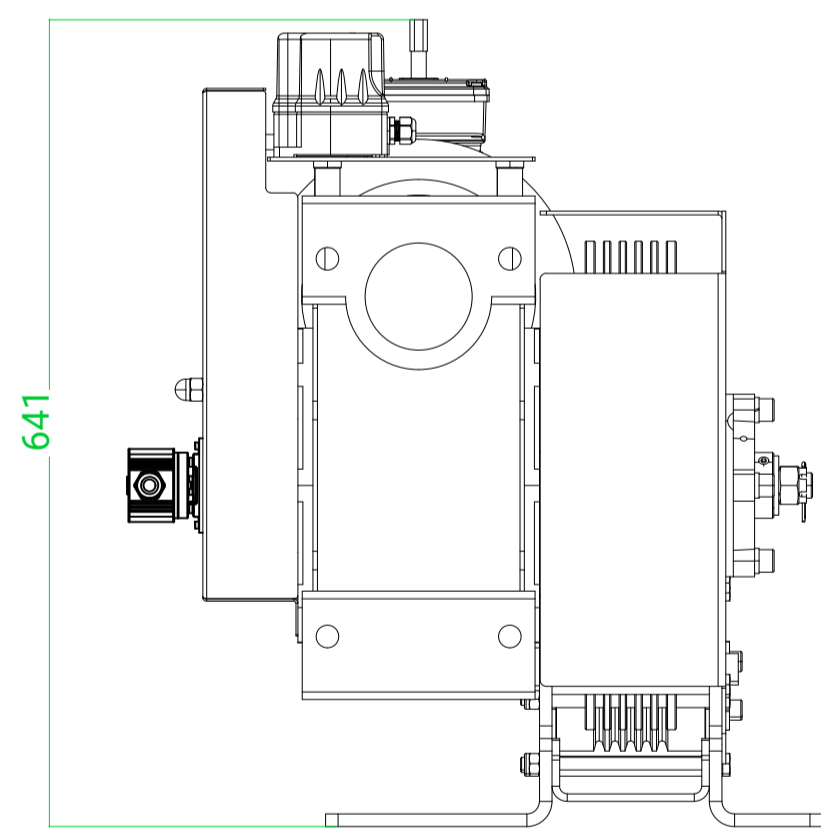
Scale 1:40

HOIST DETAIL

Size of hoist checked for clashes in co-ordinated BIM Model



Body colour:
Black RAL 9005



On-board head pulley

HOIST INFORMATION

MODEL: JCJ-PW+700-5
 WLL: 650 kg
 SPEED: 0.1-0.2 m/s
 LINES: 5
 TRAVEL: 12 m
 ROPE Ø: 5 mm
 SELF-WEIGHT: 207 kg
 POWER: 3.0 kW

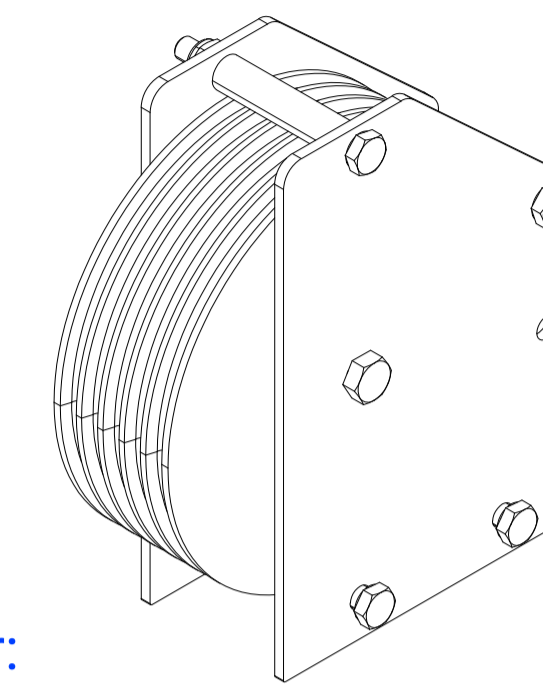
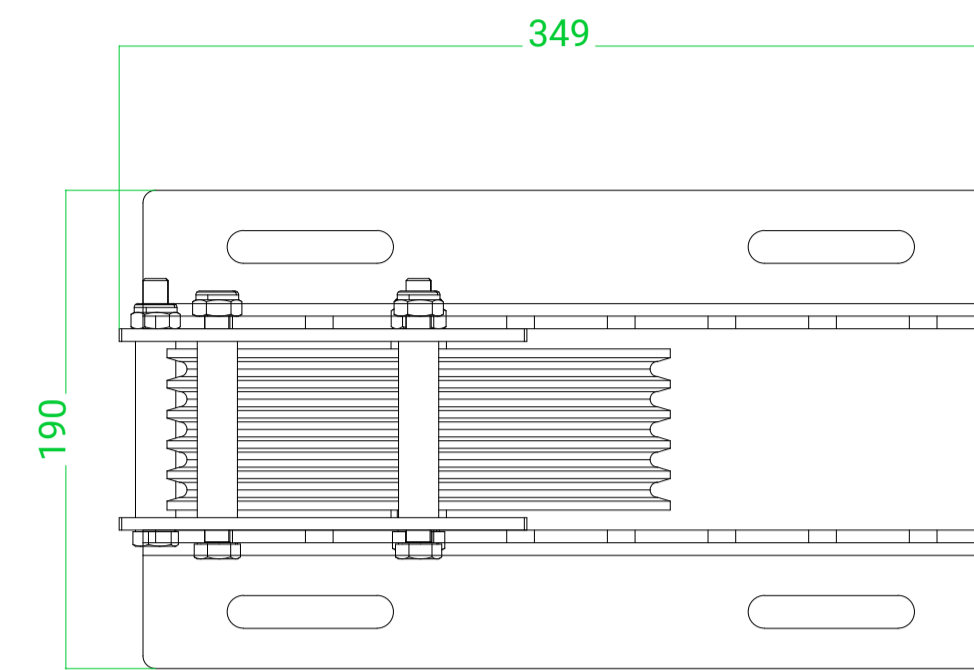
- Loadcell mounted on headpulley
- Self-sustaining Gearbox
- 2x Two Position Limit Switches for end of travel and ultimate positioning.
- All outer enclosure parts to be Matt Black RAL9005 Paint.
- Pilewind disks to be zinc-plated for durability, covered by cover.
- Incremental Encoder per Hoist

Scale 1:6

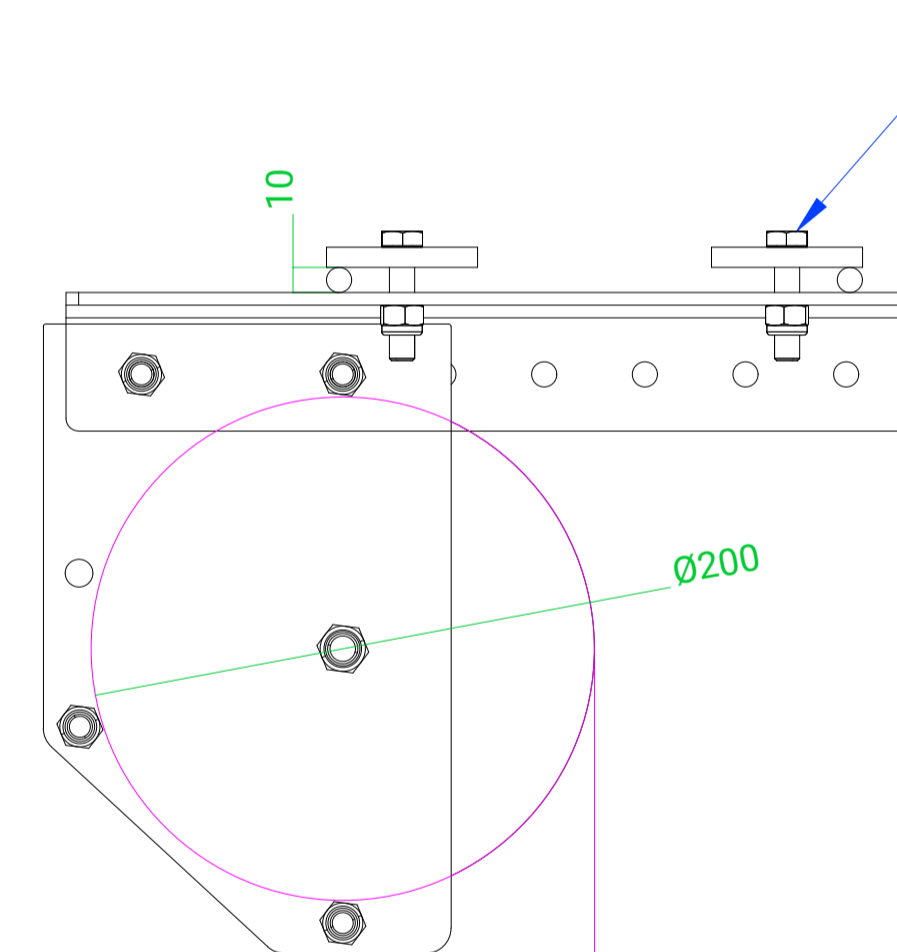
* Applicable for bars P1-P8. P9 will have 4 lines, 6mm rope and reduced travel

PULLEY DETAIL

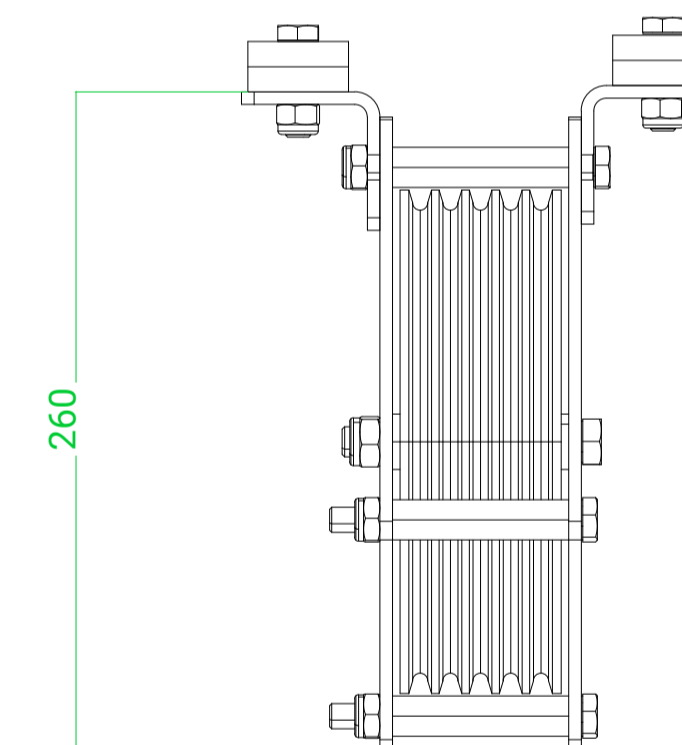
Size of pulley checked for clashes in co-ordinated BIM Model



Body colour:
Black RAL 9005



M10 Bolts with
Nylock Nuts



PULLEY INFORMATION

MODEL: JCJ-PU-200
 WLL: 250 kg
 SPEED: 0.1-0.2 m/s
 LINES: 1 to 5
 ROPE Ø: 5 mm
 SELF-WEIGHT: 6.4kg (for 5 line)

- Pulley contains two bearings
- All steel parts to be Matt Black RAL9005 Paint.
- Pulley is made from black polyamide.

Scale 1:3

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REVISIONS			
REV.	BY	DESCRIPTION	DATE
P01	JC	FIRST ISSUE	22/09/2023
P02	JC	PULLEY DIAMETER & ROPE SIZE	09/11/2023
C01	JC	RESPONSE TO CONSULTANT'S COMMENTS	21/02/2024
C02	PT	RESPONSE TO CONSULTANT'S COMMENTS	13/03/2024
C03	SH	FOR RECORD	16/04/2025
C04	JC	FOR RECORD	22/12/2025

Notes:
 To be read in conjunction with;
 UOONHB-JCJ-CH-ZZ-DR-OT-020001
 UOONHB-JCJ-CH-ZZ-DR-OT-020002
 UOONHB-JCJ-CH-XX-DR-OT-020003

Status:
 A - B - C -

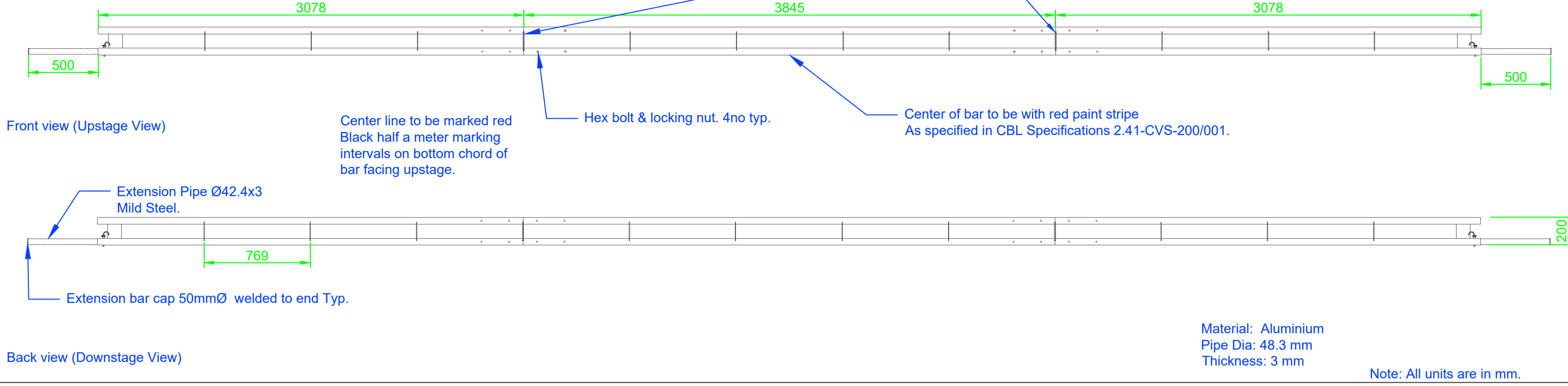
All dimensions in mm unless otherwise stated. Do not scale.

DRAWN:	SH	DATE:	16/04/2025
CHECKED:	JC	DATE:	16/04/2025
APPROVED:	OS	DATE:	16/04/2025
SCALE:	ON SHEET	PAPER SIZE:	A1

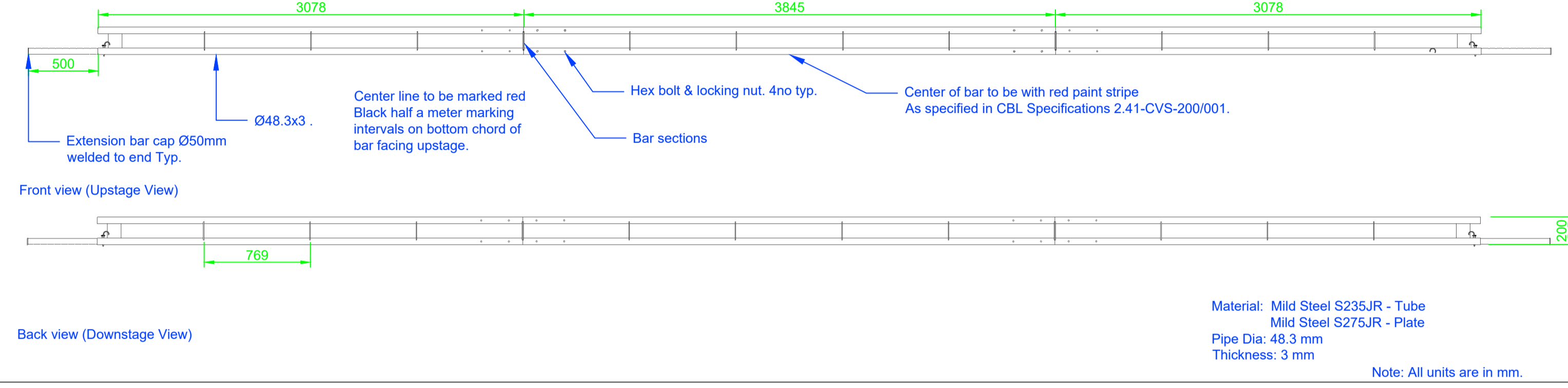
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PROJECT	4334 - Oxford Humanities
JCJ NO.	4334-GA-02-0004
DRG NO.	UOONHB-JCJ-CH-XX-DR-OT-020004
TITLE	Concert Hall Cross Stage Flying System Hoist & Pulley Detail
PURPOSE	A5 - Accepted as Suitable for Record
REV	C04

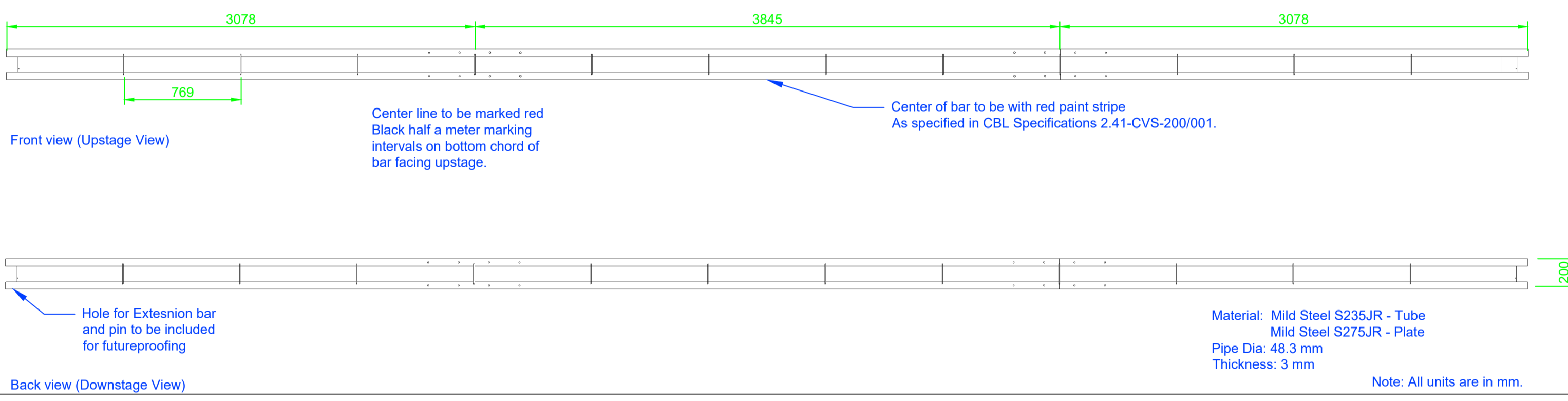
Ladder Bars P1, P3, P5 and P7



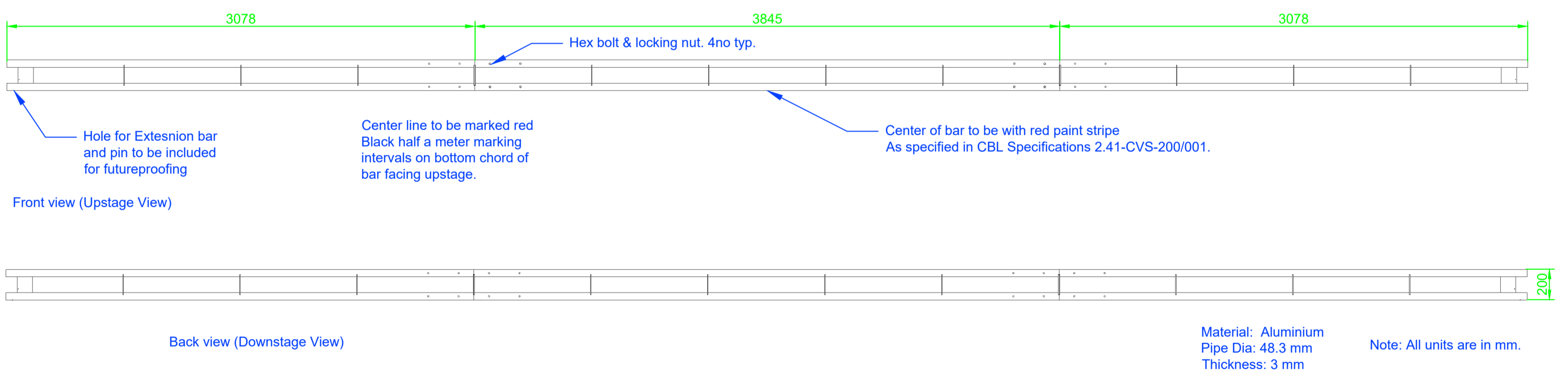
Ladder Bars P2, P4, and P6



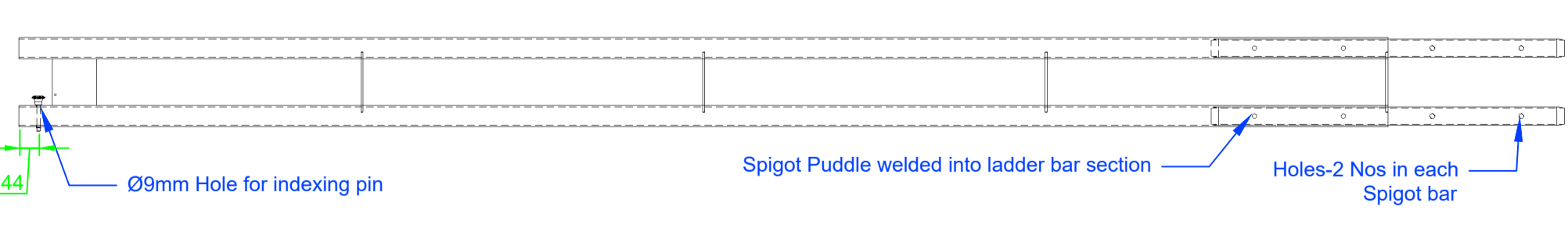
Ladder Bar P8



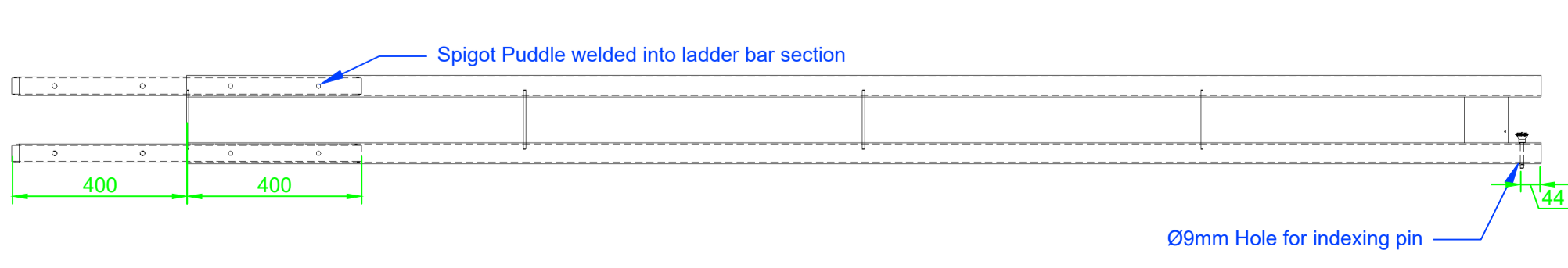
Ladder Bar P9



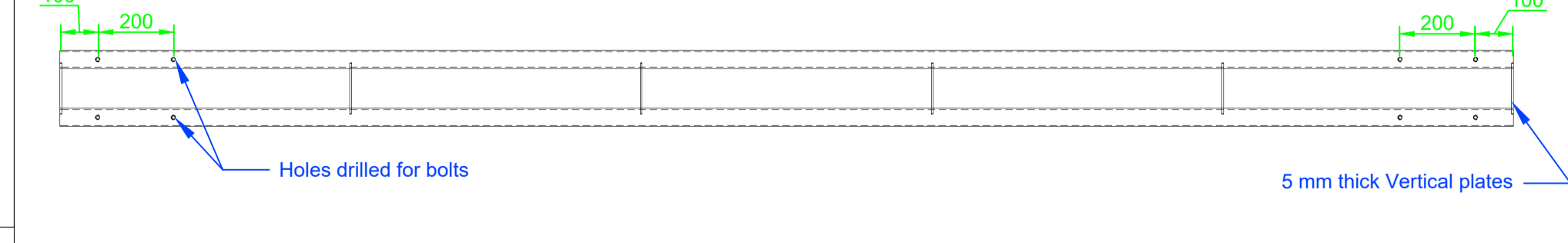
Left Side Ladder Bar Section (Viewing from Upstage)



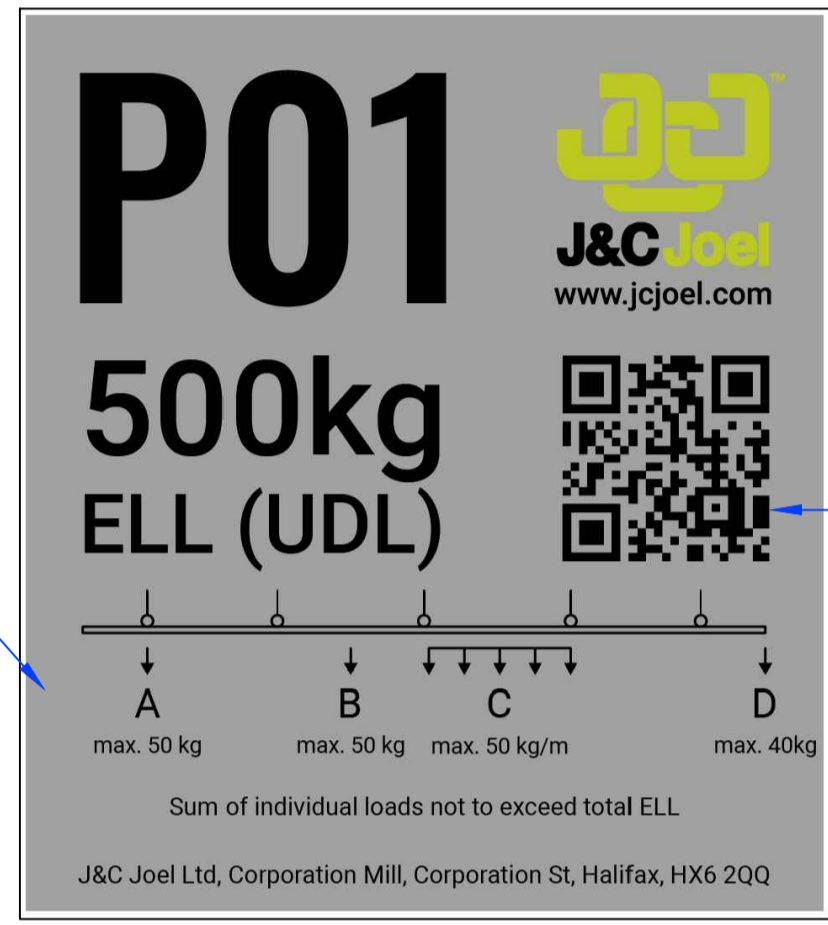
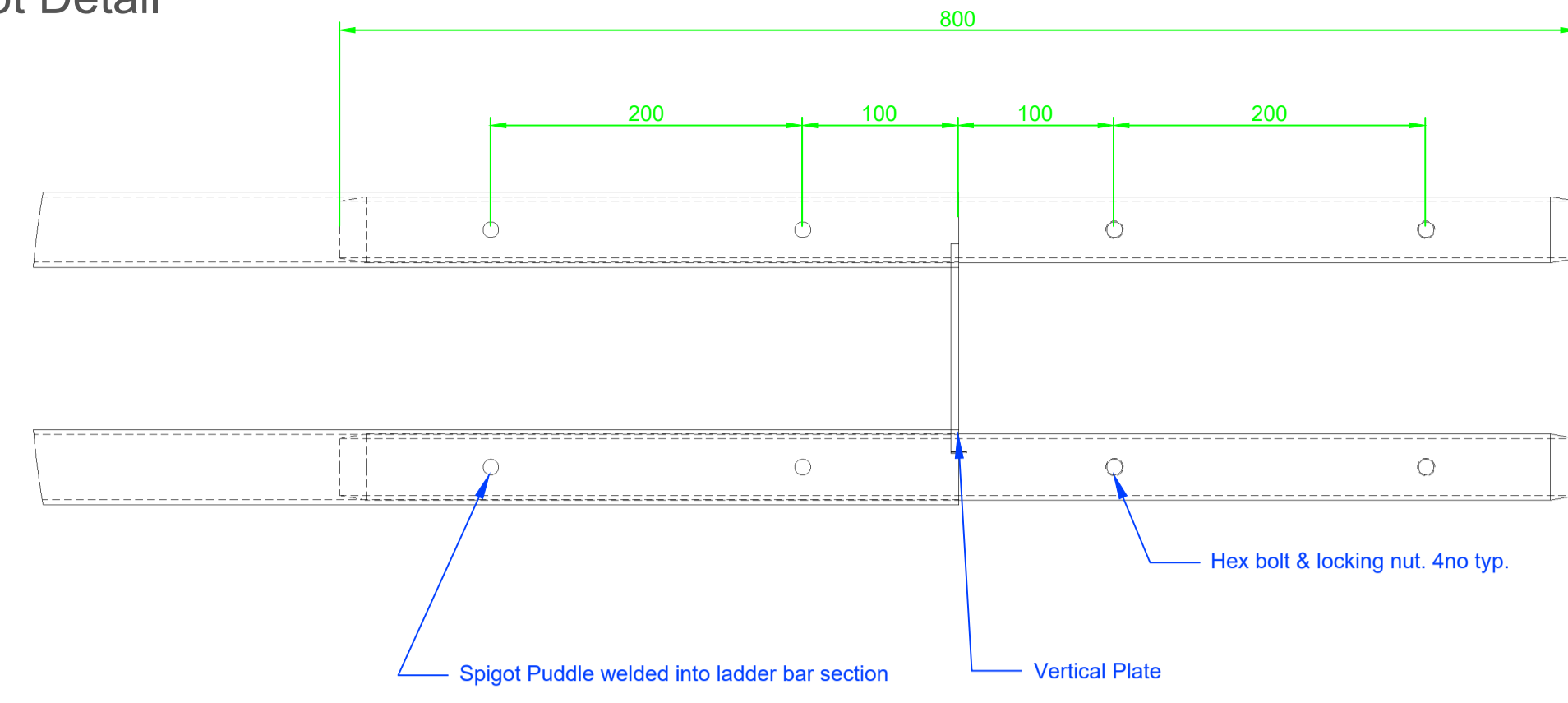
Right Side Ladder Bar Section (Viewing from Upstage)



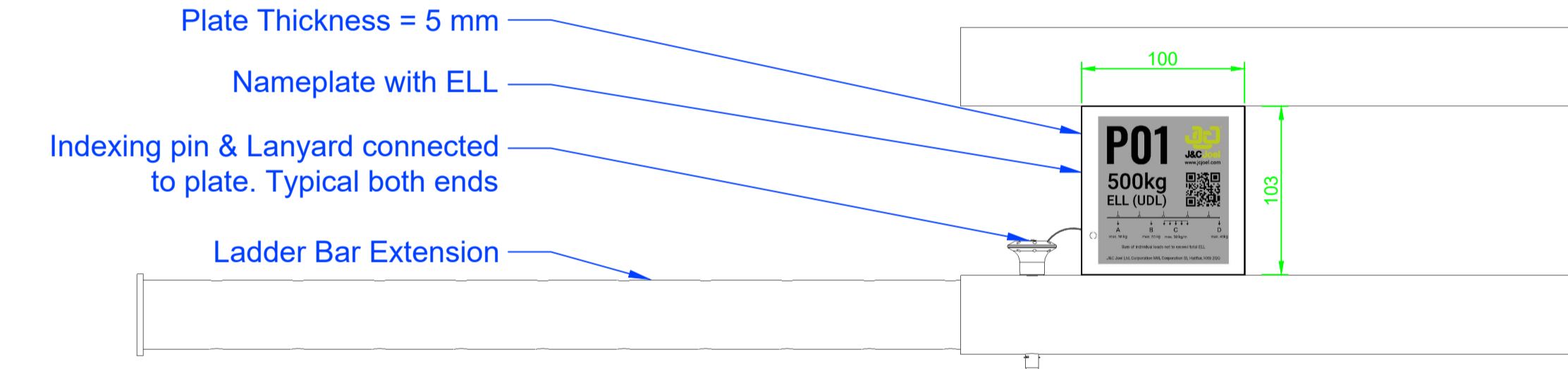
Middle Ladder Bar Section (Viewing from Upstage)



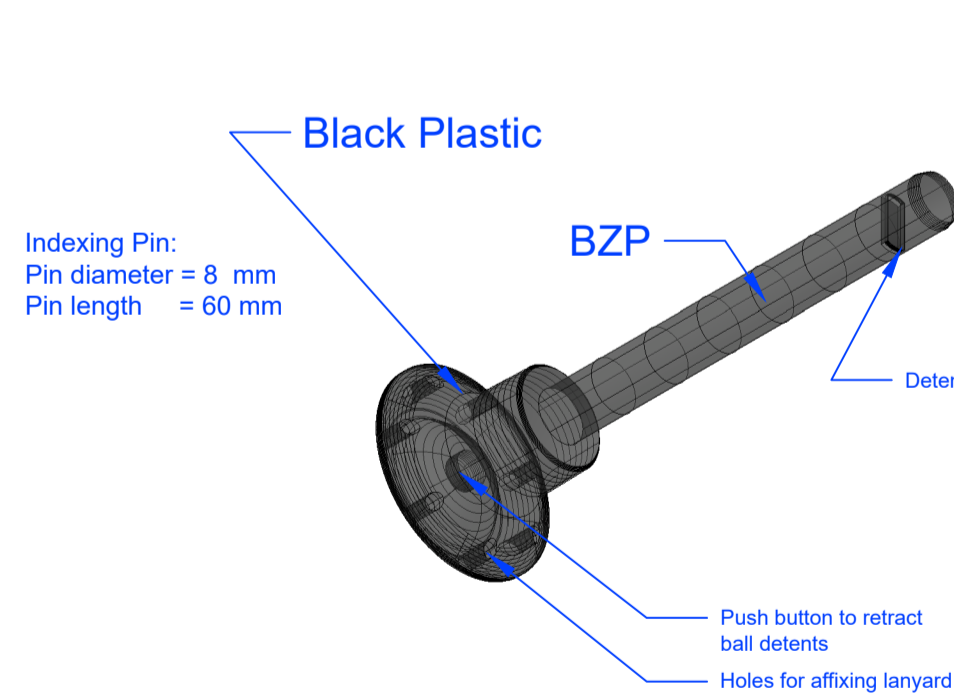
Spigot Detail



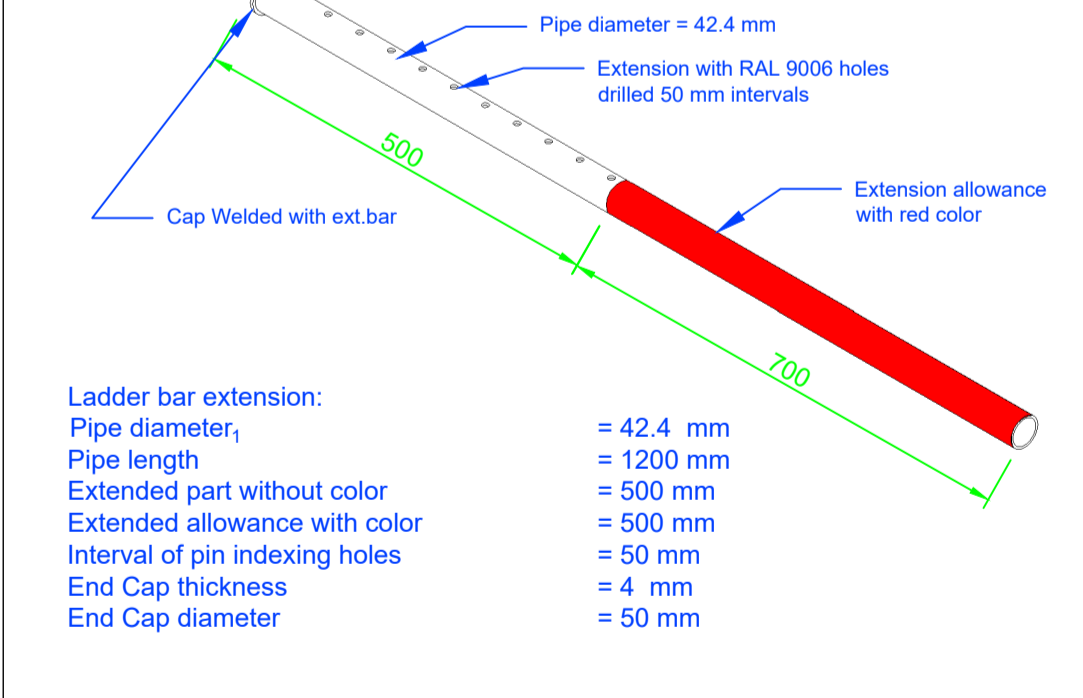
Ladder Bar with extension end example



Indexing Pin



Ladder Bar with extension end example



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REVISIONS

REV.	BY	DESCRIPTION	DATE
P01	PT	FIRST ISSUE	22/09/2023
P02	PT	REVISED	26/02/2024
C01	PT	REVISED	19/03/2024
C02	SH	REVISED AS PER CONSULTANT COMMENTS	28/08/2024
C03	SH	FOR RECORD	16/04/2025
C04	JC	FOR RECORD	22/12/2025

Notes:

Status:

A - B - C -

All dimensions in mm unless otherwise stated. Do not scale.

DRAWN:	SH	DATE:	16/04/2025
CHECKED:	JC	DATE:	16/04/2025
APPROVED:	OS	DATE:	16/04/2025
SCALE:	ON SHEET	PAPER SIZE:	A1

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PROJECT	4334 Oxford Humanities
JCJ NO.	4334-DE-02-0005
Client Dwg no.	U00NHB-JCJ-CH-XX-DR-0T-020005

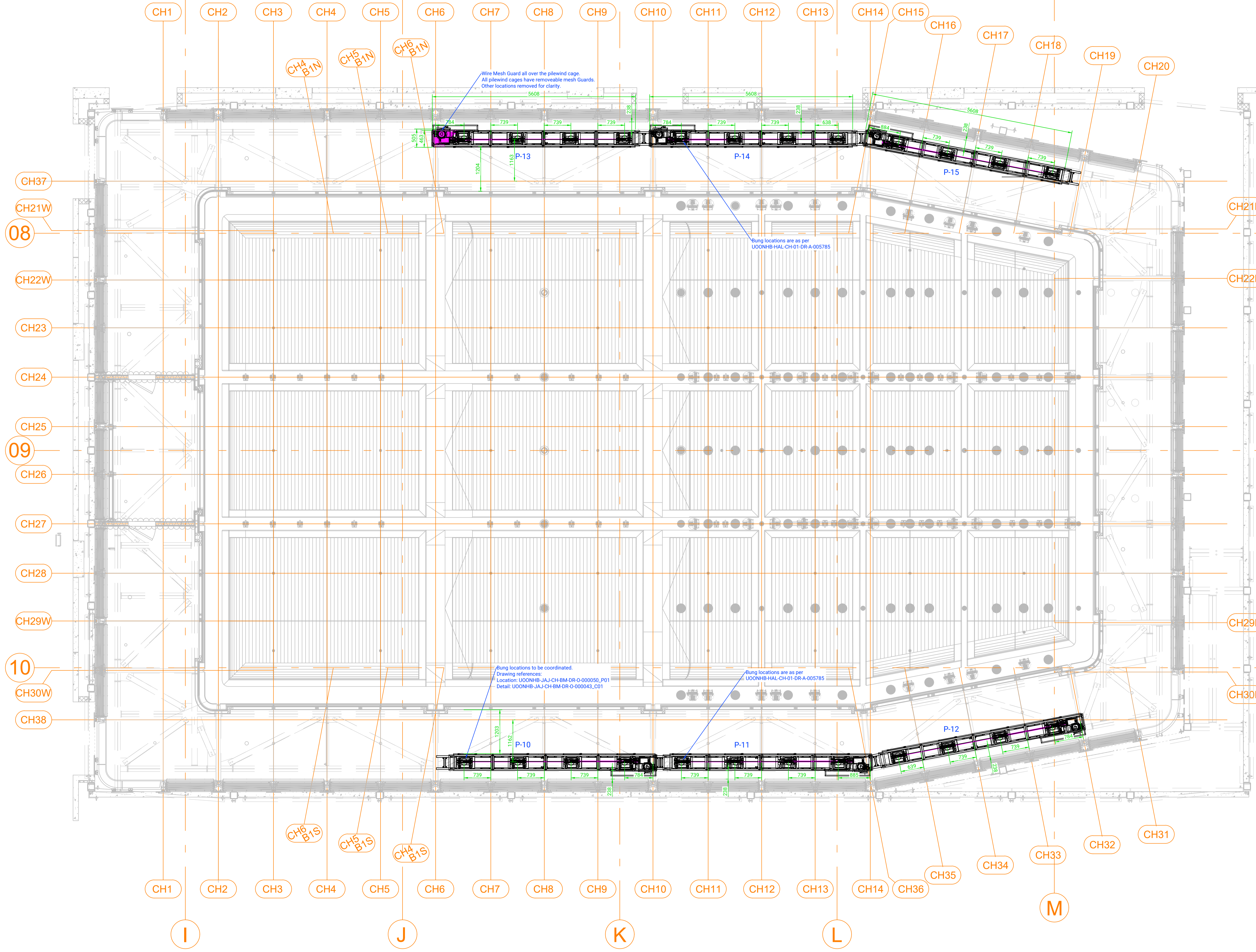
TITLE
Concert Hall
Cross Stage Flying System
Ladder Bar Detail

PURPOSE
A5 - Accepted as Suitable for Record

REV C04

All pipes and plates to be PPC RAL 9006 unless otherwise stated.
Bar ends without extension to be capped with Plastic caps painted RAL 9006

Concert Hall Perimeter Flying System General Arrangement Plan



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REVISIONS			
REV.	BY	DESCRIPTION	DATE
P01	PT	FIRST ISSUE	15/01/2024
P02	PT	RESPONSE TO CONSULTANT COMMENTS	06/03/2024
C01	JC	CONSTRUCTION STATUS & PADLOCKS ADDED	14/05/2024
C02	SH	FOR RECORD	12/05/2025
C03	JC	FOR RECORD	22/12/2025

Notes:
 To be read in conjunction with the following drawings:
 - UOONHB-JCJ-CH-ZZ-DR-OT-040002
 - UOONHB-JCJ-CH-ZZ-DR-OT-040003

Base drawing references:
 - UOONHB-JAJ-CH-BM-DR-O-000043_C01
 - UOONHB-JAJ-CH-BM-DR-O-000050_C01
 - UOONHB-HAL-CH-BM-DR-A-005636_P09
 - UOONHB-HAL-CH-00-DR-A-005666_P02
 - UOONHB-HAL-CH-01-DR-A-005785

Slots give each pulley podium has ± 20 mm tolerance for positioning towards / away from stage.

Slots give each pulley has ± 15 mm tolerance for positioning stage left / right.

Status:
 A - B - C -

All dimensions in mm unless otherwise stated. Do not scale.

DRAWN:	SH	DATE:	12/05/2025
CHECKED:	JC	DATE:	12/05/2025
APPROVED:	OS	DATE:	12/05/2025
SCALE:	ON SHEET	PAPER SIZE:	A1

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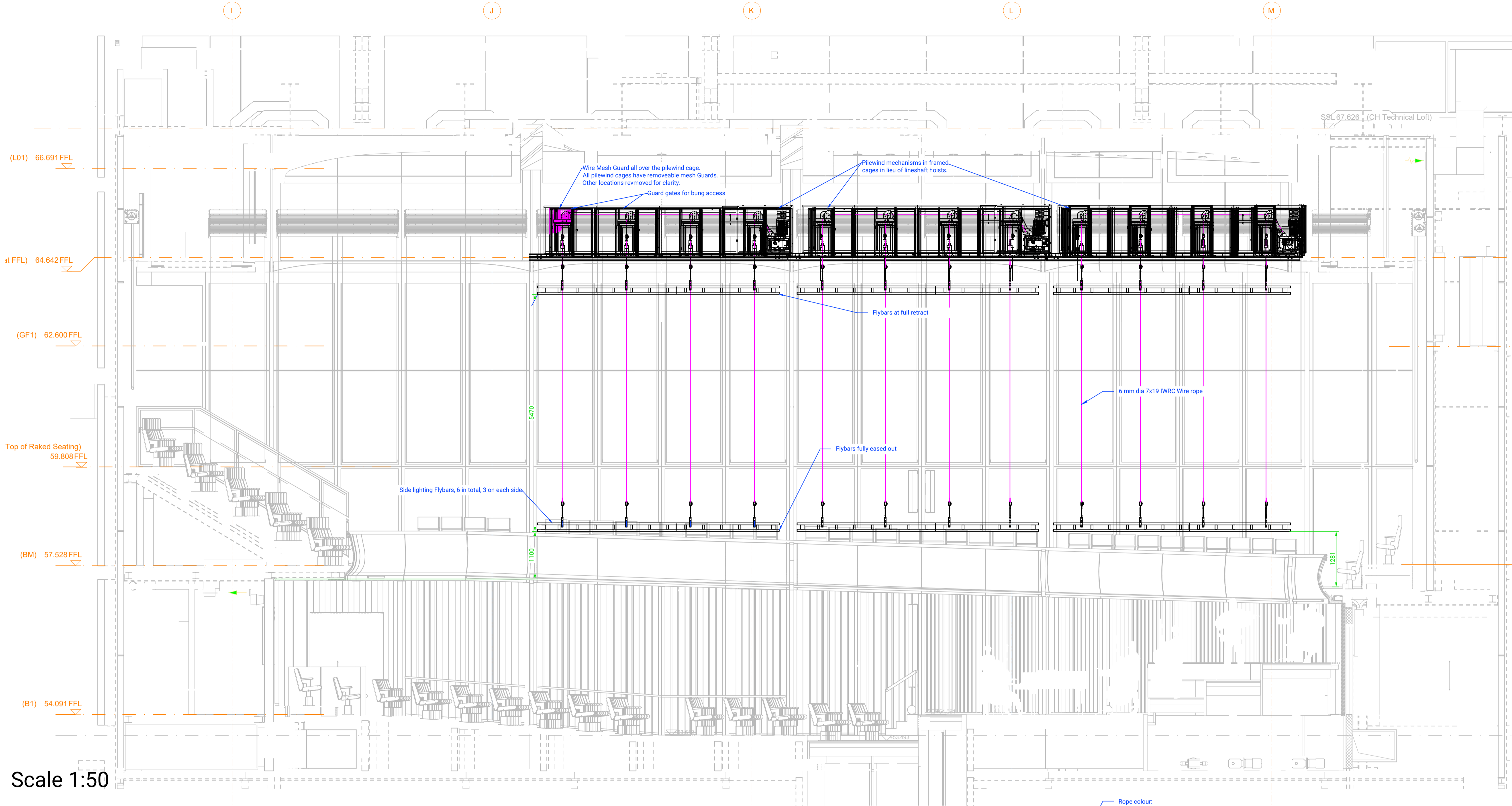
PROJECT	4334 - Oxford Humanities
JCJ NO.	4334-GA-04-0001
PROJECT	UOONHB-JCJ-CH-BM-DR-OT-040001
TITLE	Concert Hall Perimeter Powered Flying System General Arrangement Plan View
PURPOSE	A5 - Accepted as Suitable for Record
REV	C03

Scale 1:50

Concert Hall Perimeter Flying System Long Section View

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REVISIONS			
REV.	BY	DESCRIPTION	DATE
P01	PT	FIRST ISSUE	15/01/2024
P02	PT	RESPONSE TO CONSULTANT COMMENTS	06/03/2024
C01	JC	CONSTRUCTION STATUS & PADLOCKS ADDED	14/05/2024
C02	SH	FOR RECORD	12/05/2025
C03	JC	FOR RECORD	22/12/2025



Notes:
To be read in conjunction with the following drawings:
- UOONHB-JCJ-CH-BM-DR-OT-040001
- UOONHB-JCJ-CH-ZZ-DR-OT-040003

Base drawing references:
- UOONHB-JAJ-CH-BM-DR-O-000043_C01
- UOONHB-JAJ-CH-BM-DR-O-000050_C01
- UOONHB-HAL-CH-BM-DR-A-005636_P09
- UOONHB-HAL-CH-00-DR-A-005666_P02
- UOONHB-HAL-CH-01-DR-A-005785

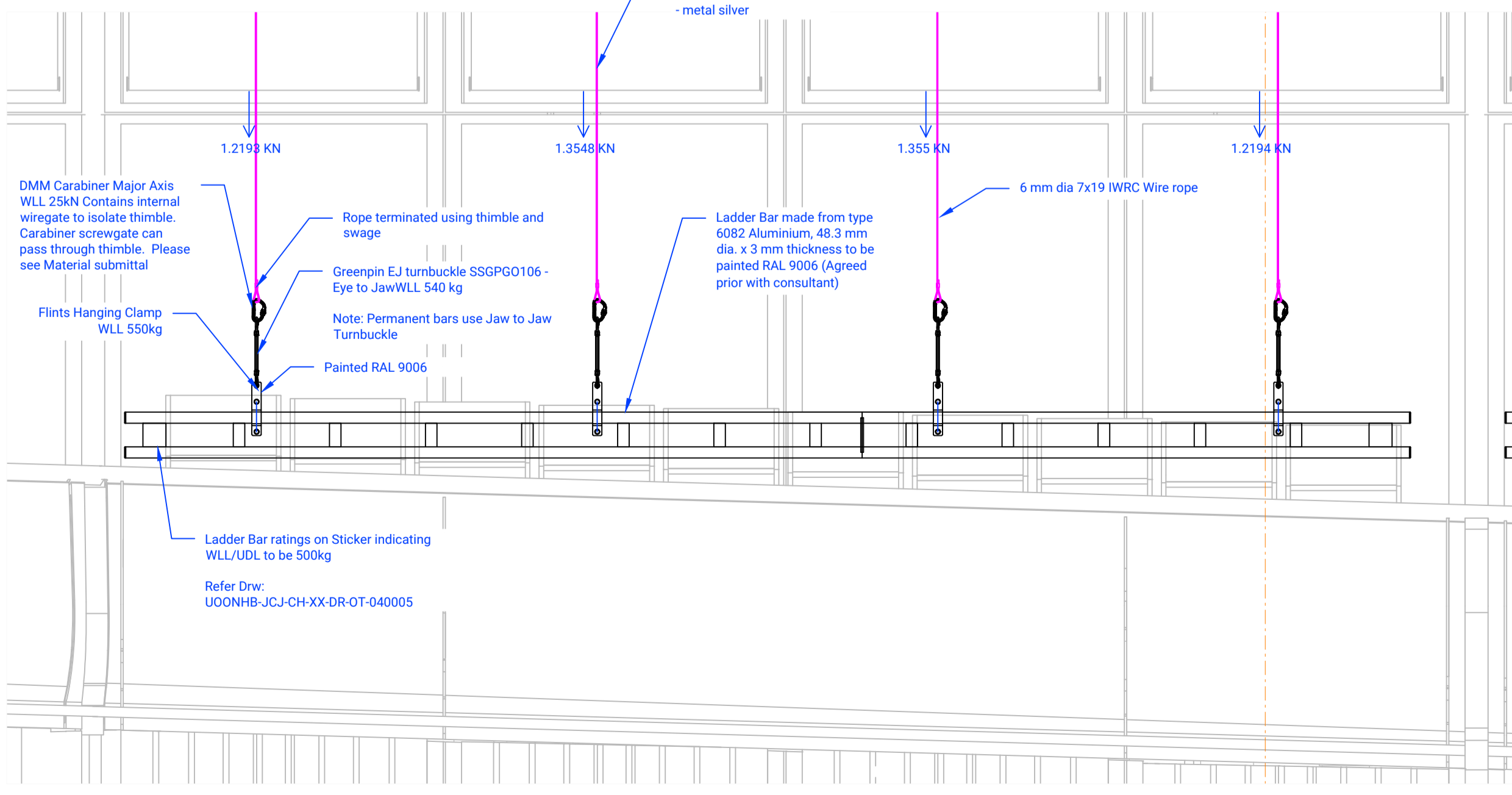
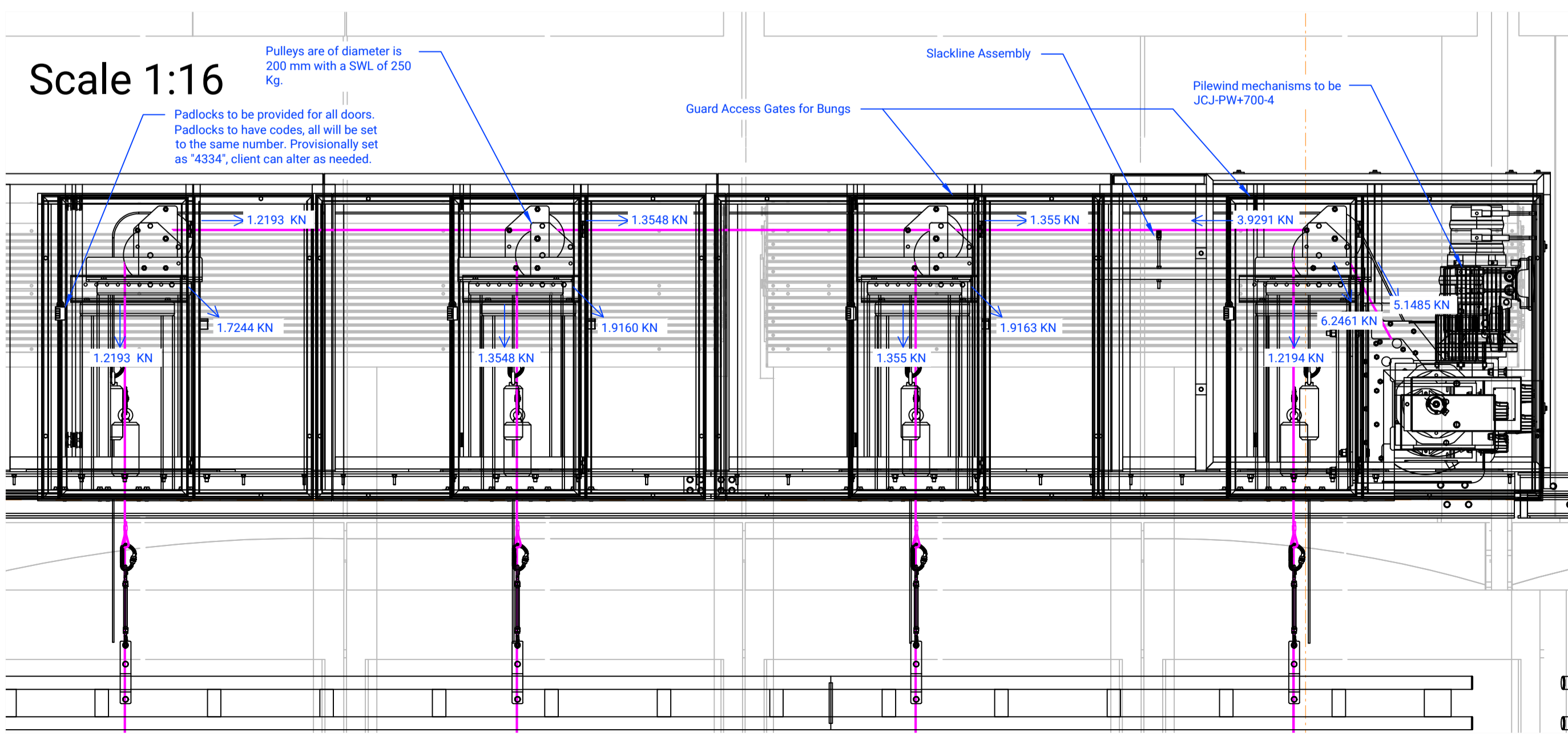
Slots give each pulley podium has ±20mm tolerance for positioning towards / away from stage.
Slots give each pulley has ±15mm tolerance for positioning stage left / right.

Status:
A - B - C -

All dimensions in mm unless otherwise stated. Do not scale.

DRAWN:	SH	DATE:	12/05/2025
CHECKED:	JC	DATE:	12/05/2025
APPROVED:	OS	DATE:	12/05/2025
SCALE:	ON SHEET	PAPER SIZE:	A1

Scale 1:50



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PROJECT	4334 - Oxford Humanities
JCJ NO.	4334-GA-04-0002
PROJECT	UOONHB-JCJ-CH-ZZ-DR-OT-040002
TITLE	Concert Hall Perimeter Powered Flying System Long Section View Plan View
PURPOSE	A5 - Accepted as Suitable for Record
REV	C03

Concert Hall Perimeter Flying System Short Section View

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REVISIONS			
REV.	BY	DESCRIPTION	DATE
P01	PT	FIRST ISSUE	15/01/2024
P02	PT	RESPONSE TO CONSULTANT COMMENTS	06/03/2024
C01	JC	CONSTRUCTION STATUS & PADLOCKS ADDED	14/05/2024
C02	SH	For Record	12/05/2025

Notes:
To be read in conjunction with the following drawings:
- UOONHB-JCJ-CH-BM-DR-OT-040001
- UOONHB-JCJ-CH-ZZ-DR-OT-040003

Base drawing references:
- UOONHB-JAJ-CH-BM-DR-O-000043_C01
- UOONHB-JAJ-CH-BM-DR-O-000050_C01
- UOONHB-HAL-CH-BM-DR-A-005636_P09
- UOONHB-HAL-CH-00-DR-A-005666_P02
- UOONHB-HAL-CH-01-DR-A-005785

Slots give each pulley podium has ±20mm tolerance for positioning towards / away from stage.

Slots give each pulley has ±15mm tolerance for positioning stage left / right.

Status:
A - B - C -

All dimensions in mm unless otherwise stated. Do not scale.

DRAWN:	SH	DATE:	12/05/2025
CHECKED:	JC	DATE:	12/05/2025
APPROVED:	OS	DATE:	12/05/2025
SCALE:	ON SHEET	PAPER SIZE:	A1

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PROJECT 4334 - Oxford Humanities

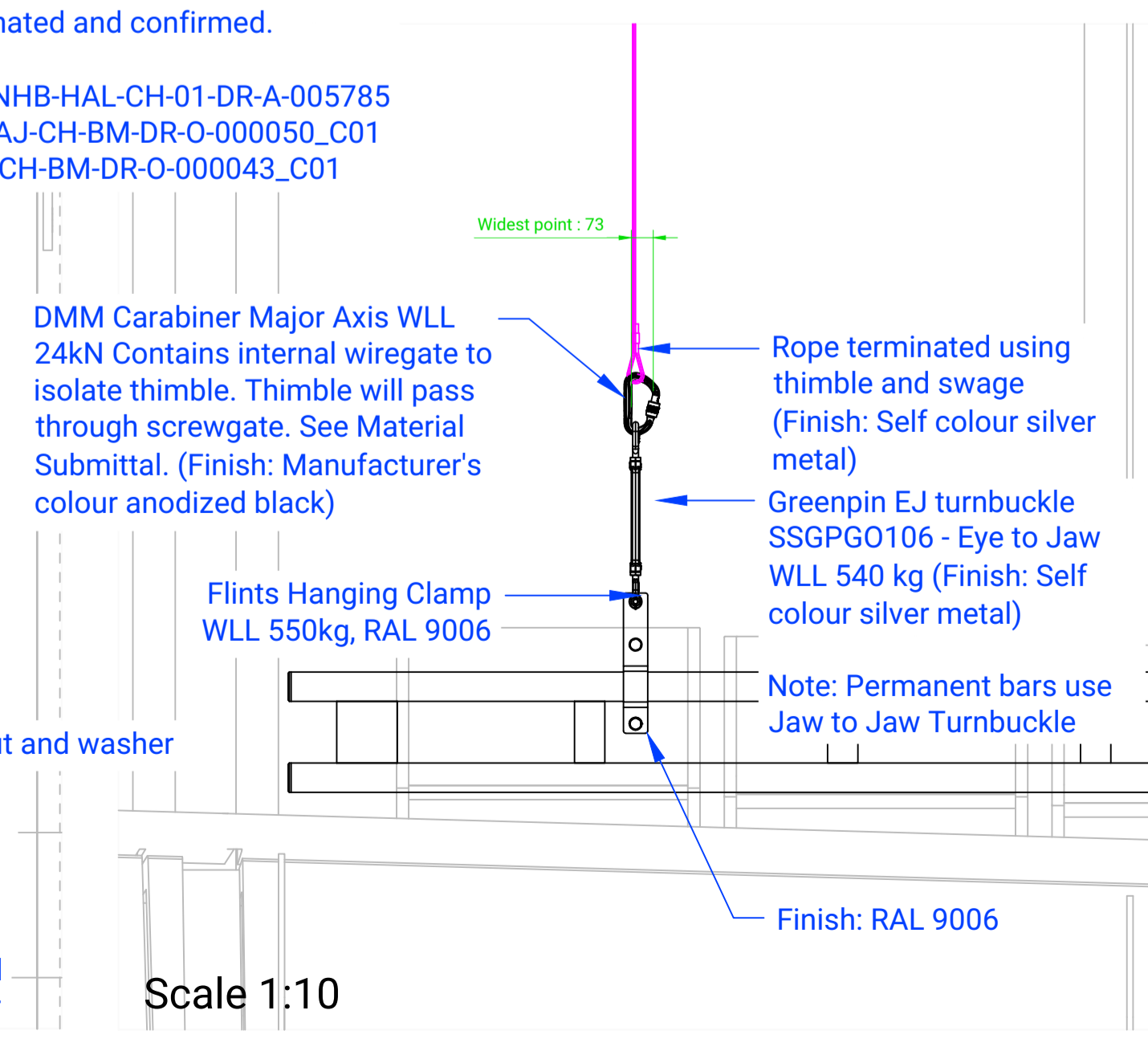
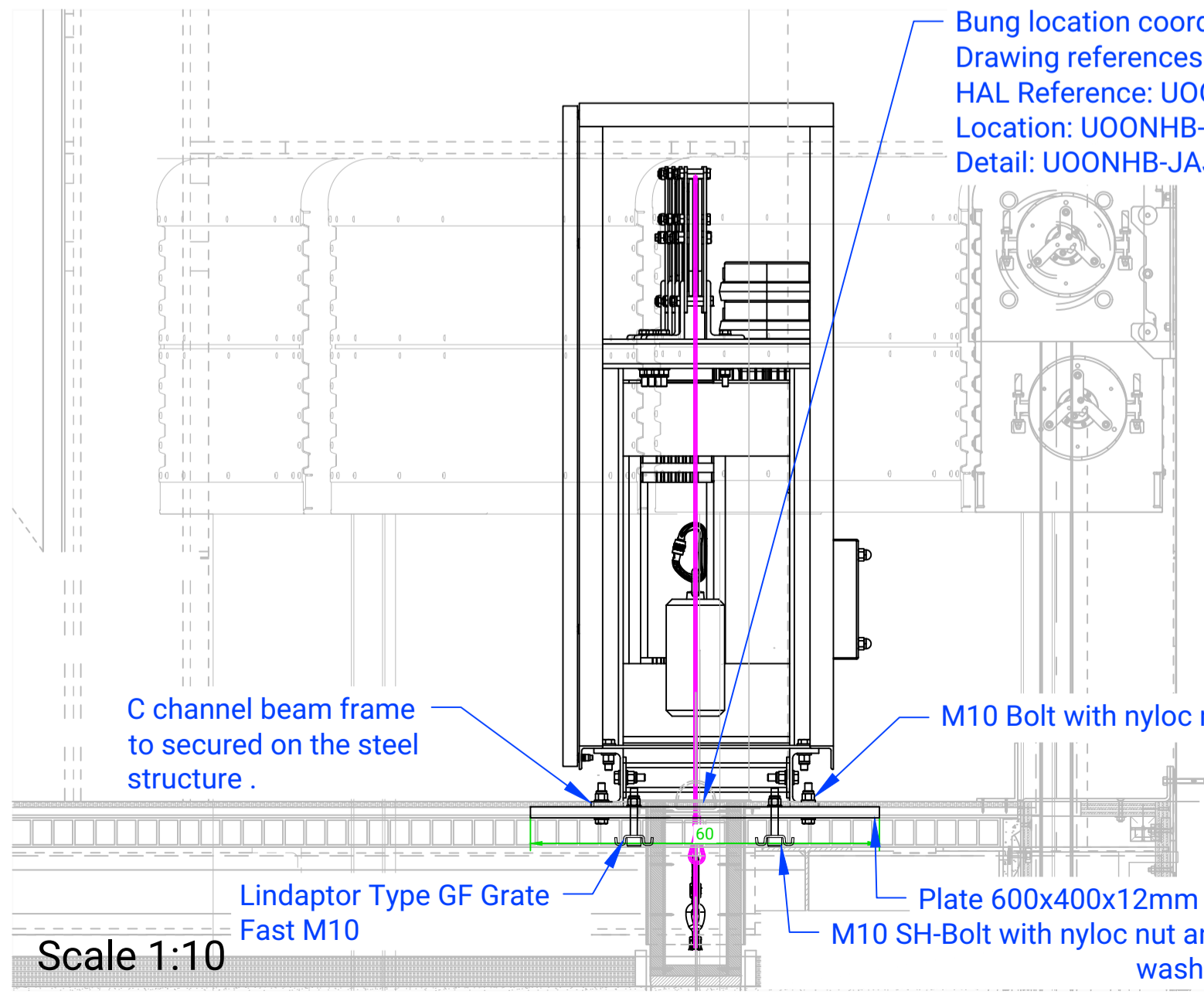
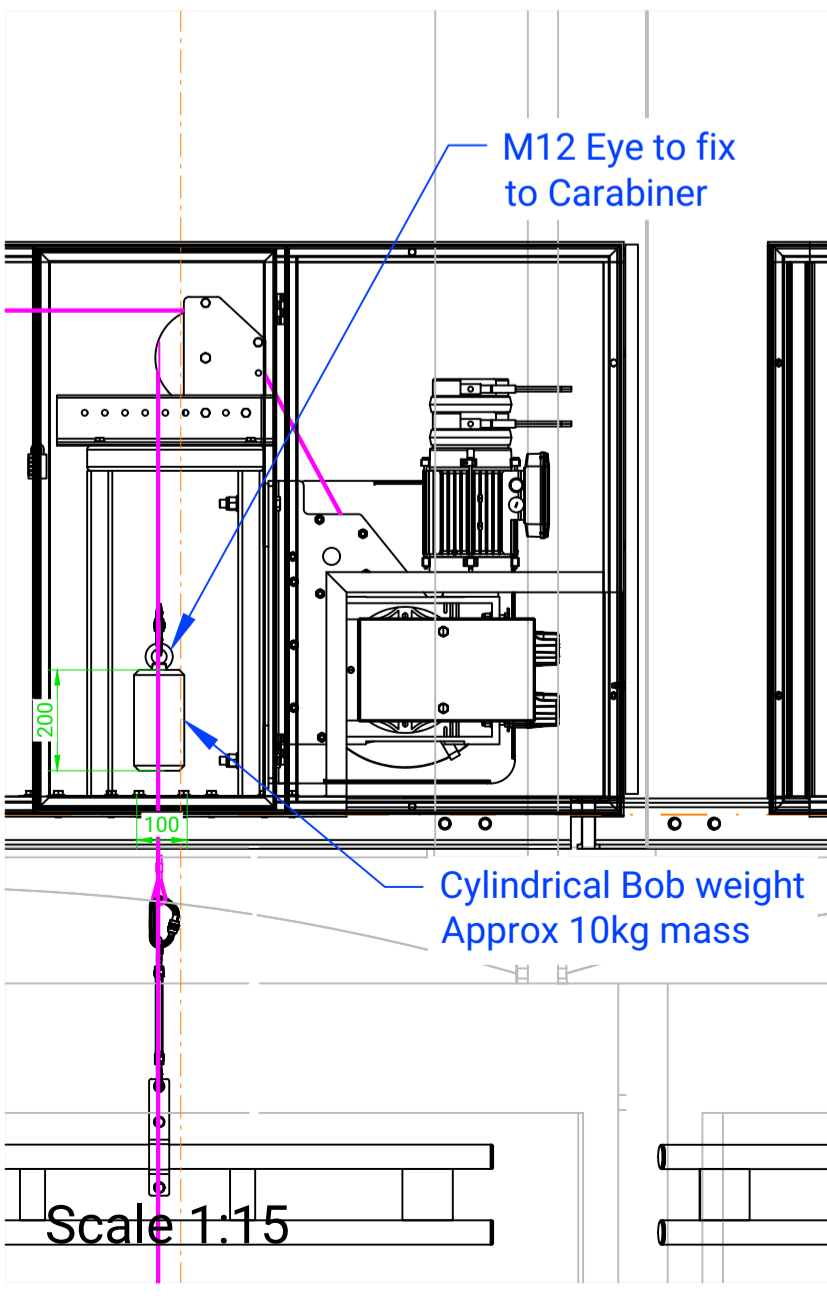
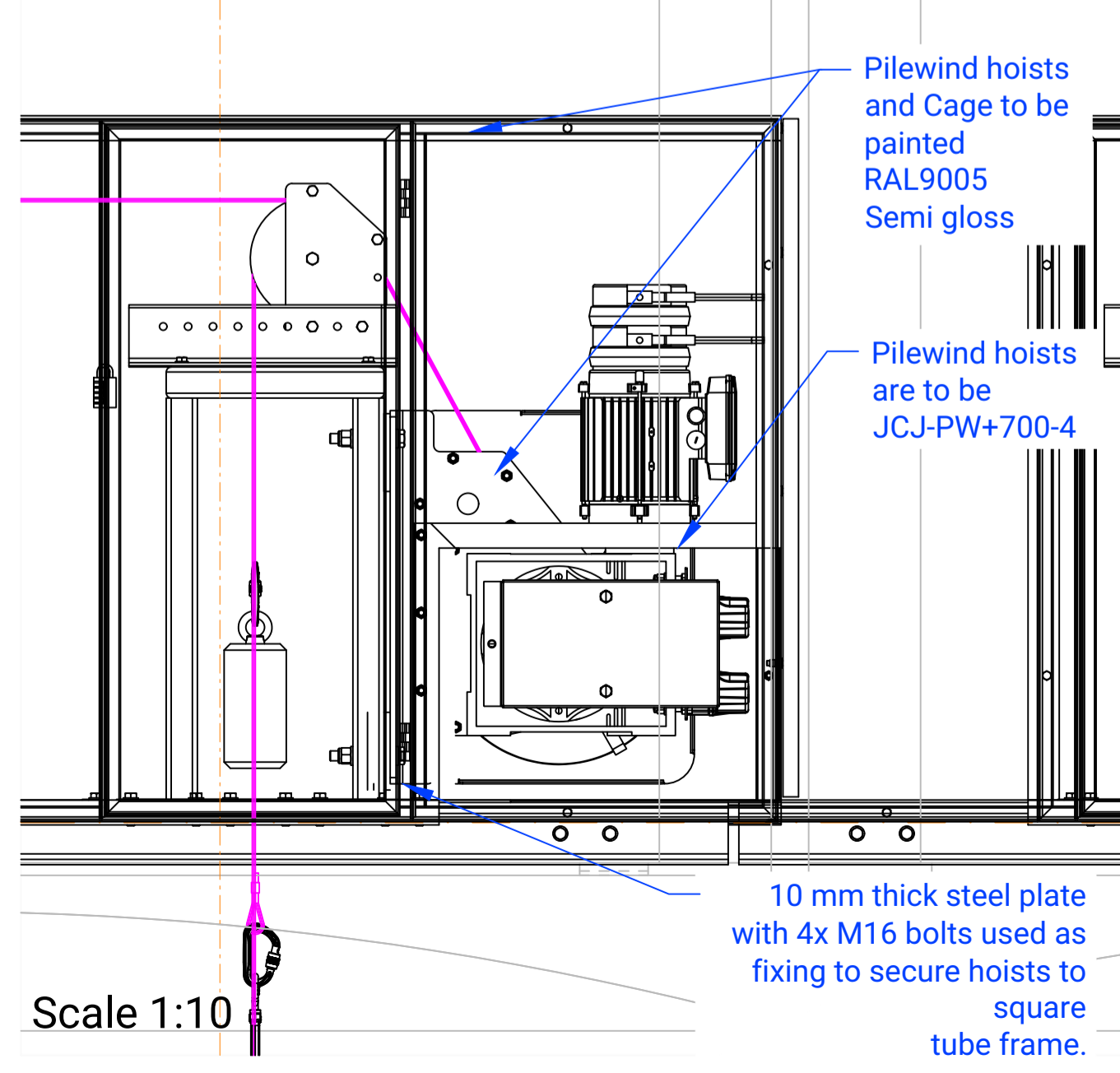
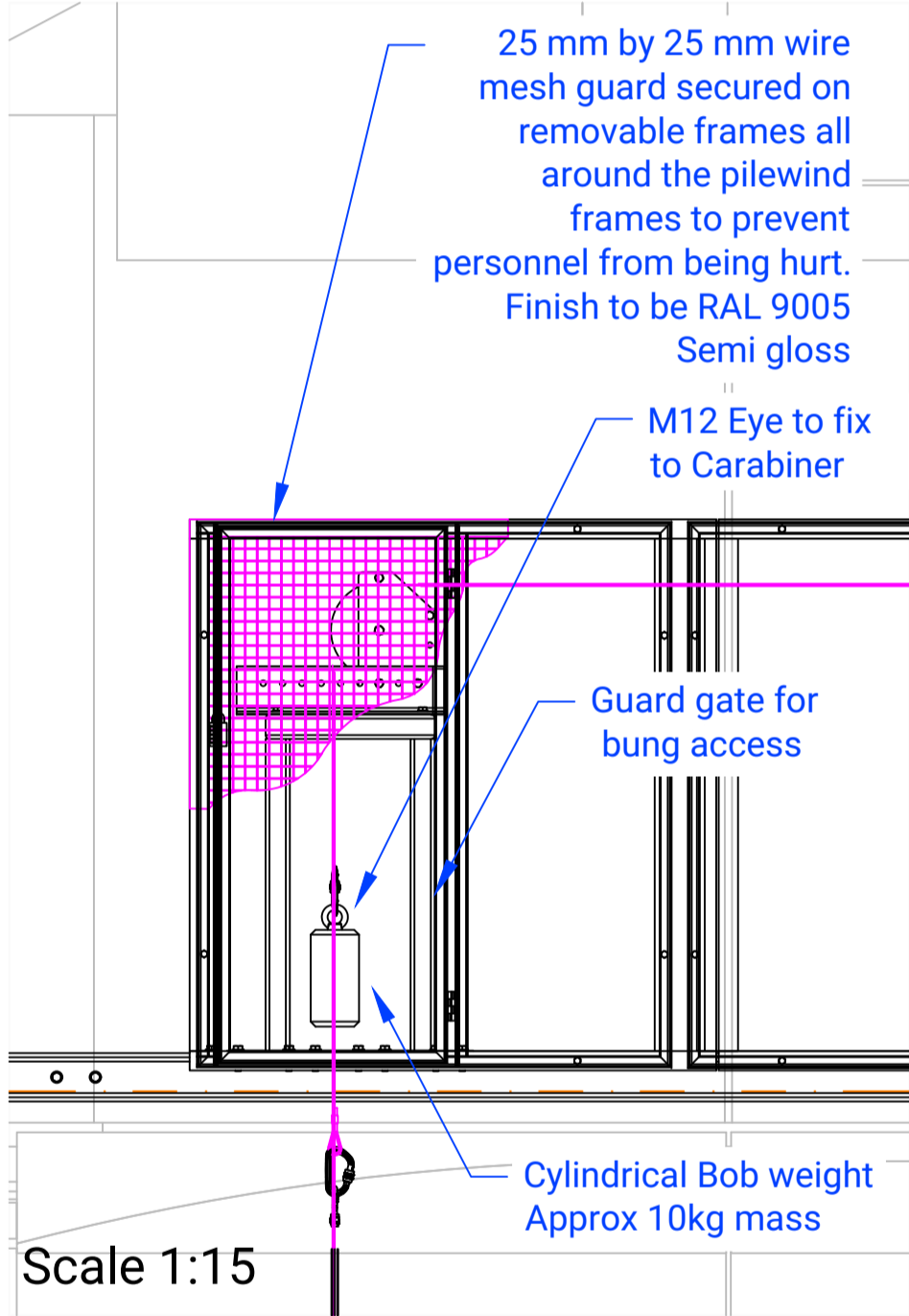
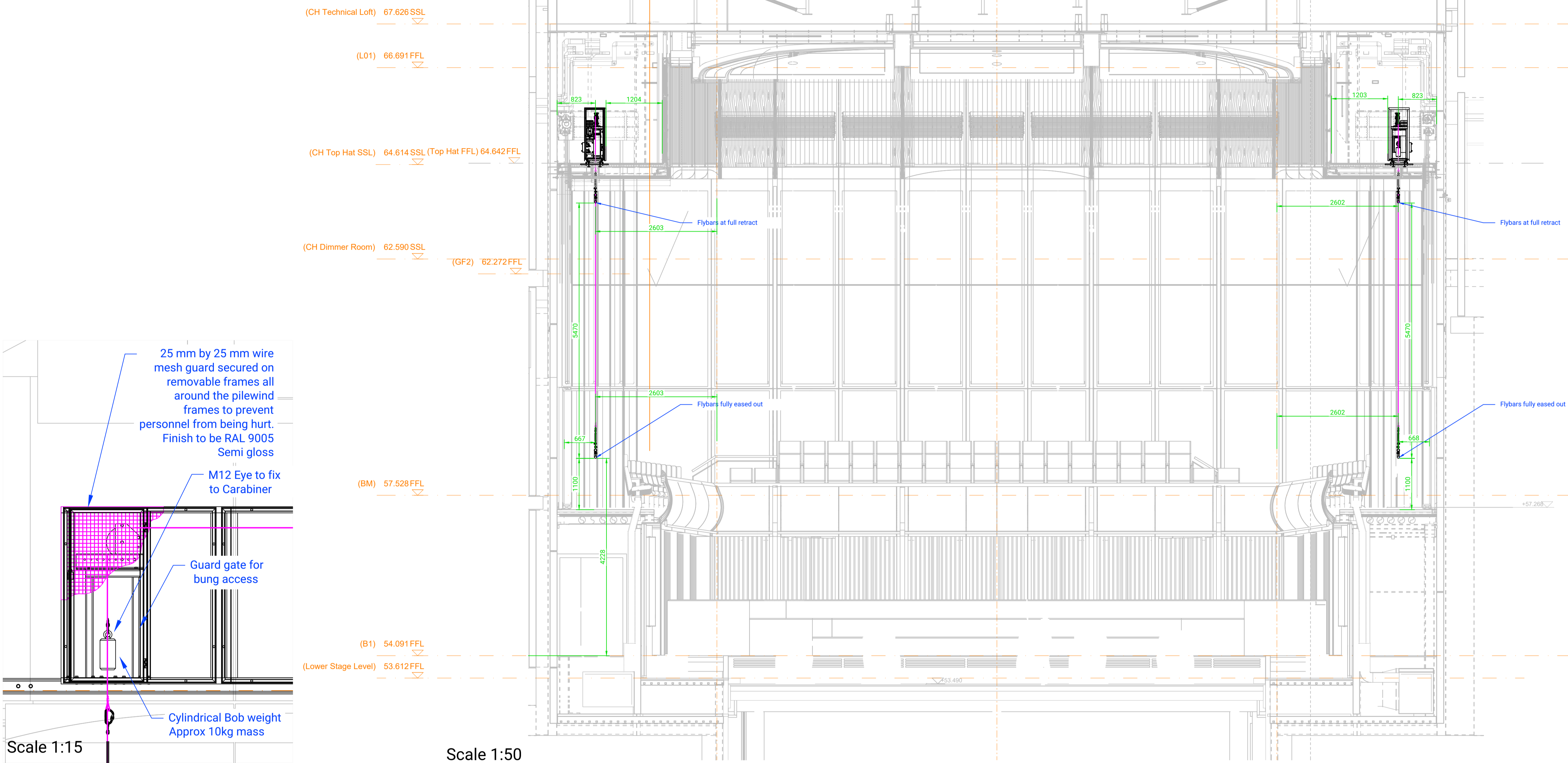
JCJ NO. 4334-GA-04-0003

PROJECT UOONHB-JCJ-CH-ZZ-DR-OT-040003

TITLE Concert Hall
Perimeter Powered
Flying System
Section Elevation View
Short Section View

PURPOSE A5 - Accepted as Suitable for Record

REV C02



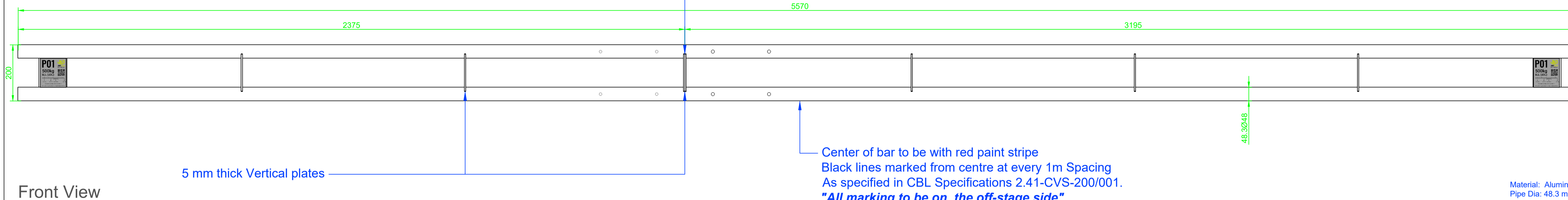
REVISIONS

REV.	BY	DESCRIPTION	DATE
P01	SH	FIRST ISSUE	09/09/2024
C01	SH	ADDED NOTE	27/09/2024
C02	SH	For Record	28/04/2025

Notes:

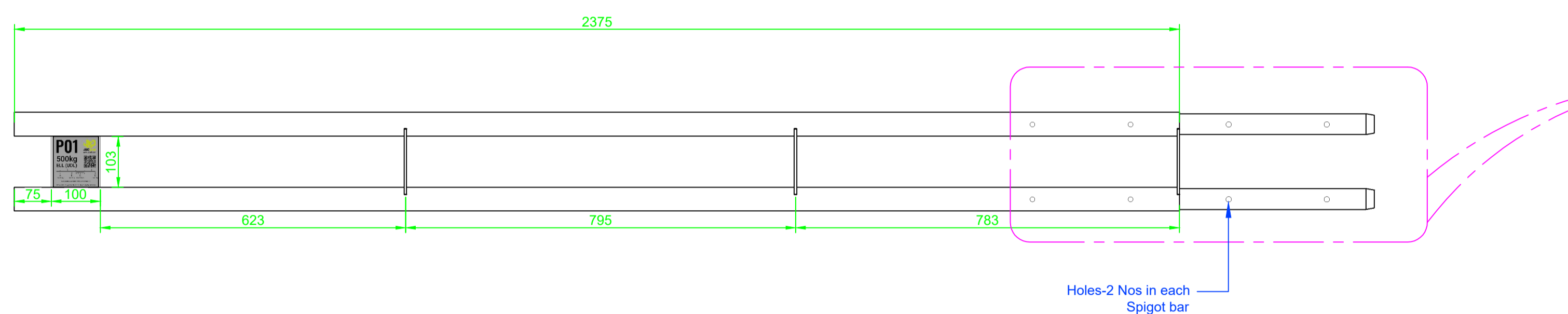
Material: Aluminium
Pipe Dia: 48.3 mm
Thickness: 3 mm
Note: All units are in mm.

Ladder Bars P10, P11, P12, P13, P14 and P15

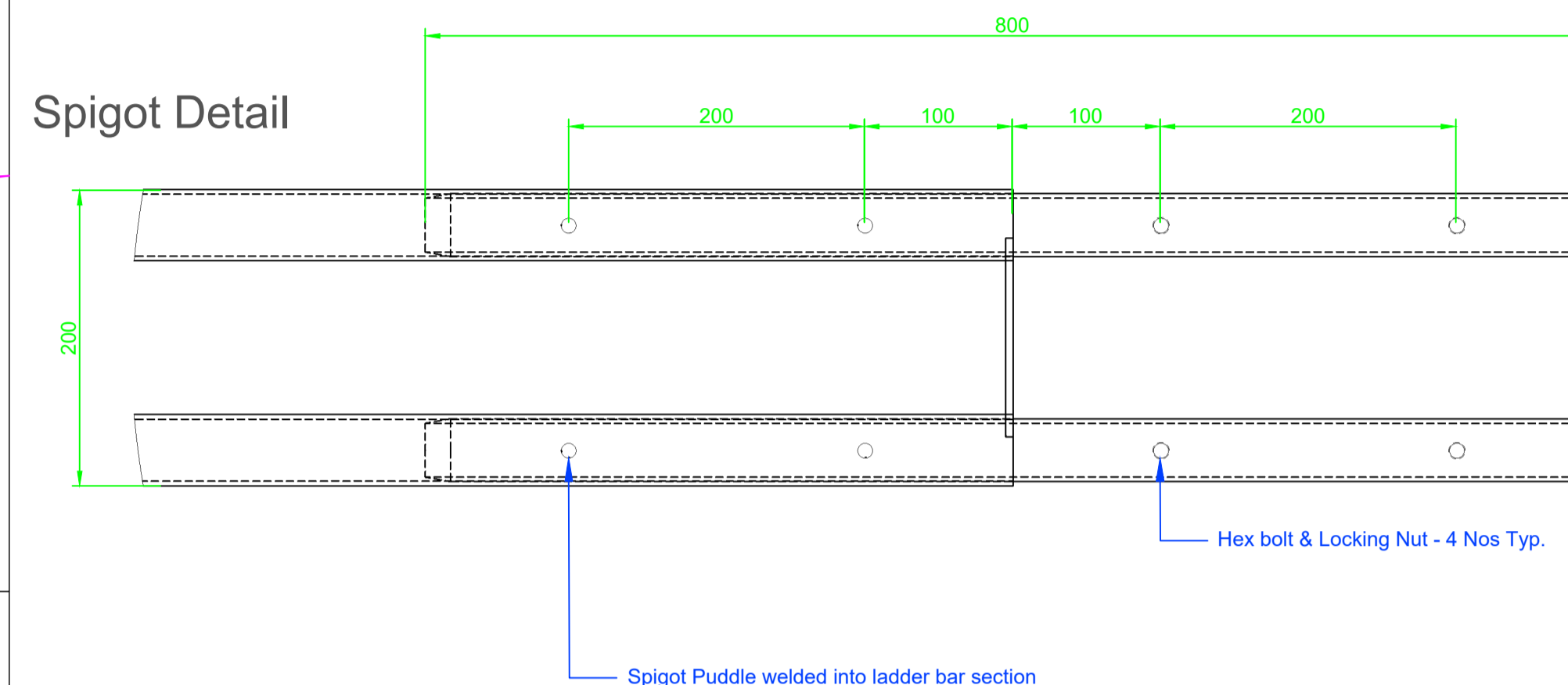


Front View

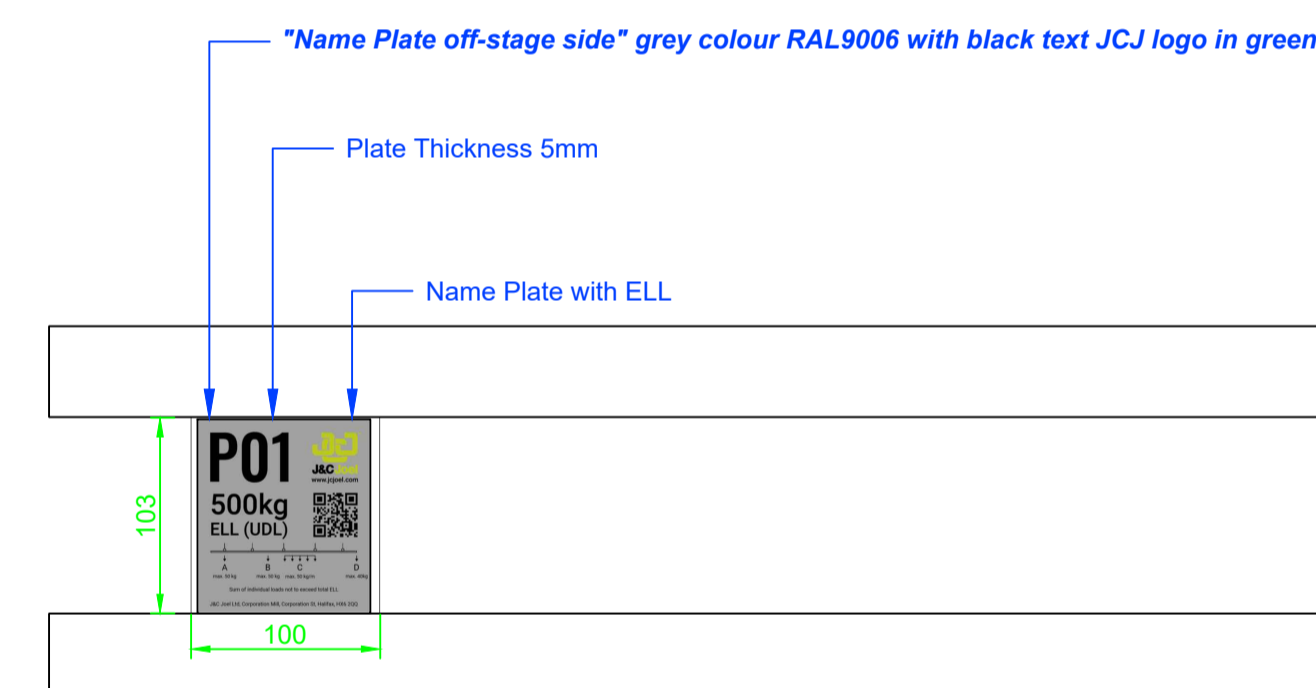
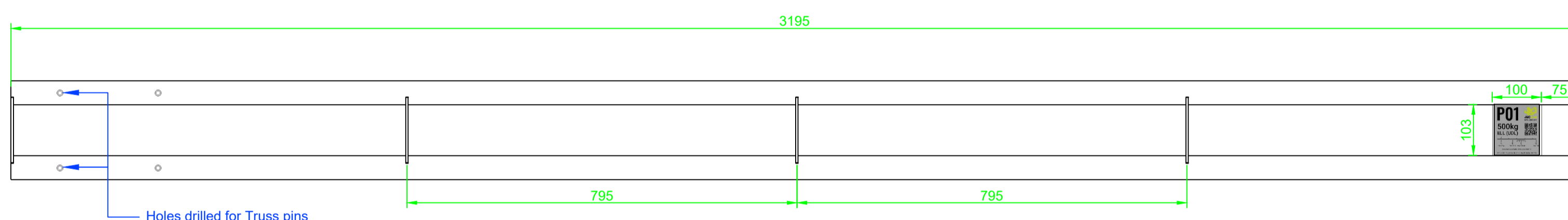
Left Side Ladder Bar Section



Spigot Detail



Right Side Ladder Bar Section



Status:

A - B - C -

All dimensions in mm unless otherwise stated. Do not scale.

DRAWN:	SH	DATE:	28/04/2025
CHECKED:	JC	DATE:	28/04/2025
APPROVED:	OS	DATE:	28/04/2025
SCALE:	ON SHEET	PAPER SIZE:	A1

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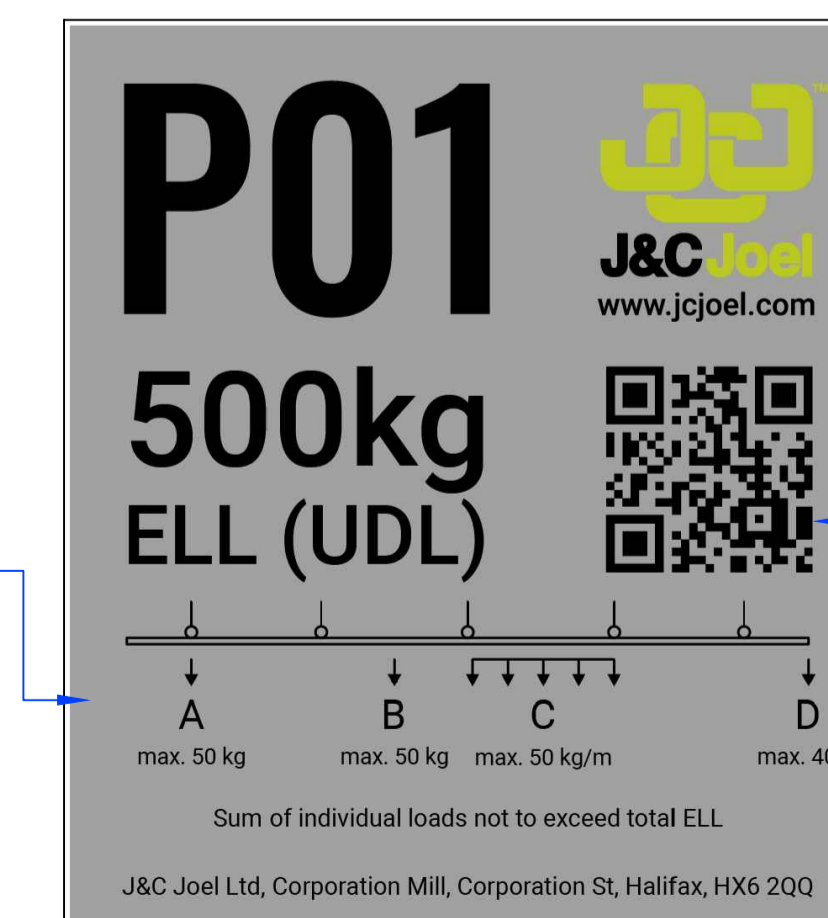
PROJECT	4334 Oxford Humanities
JCJ NO.	4334-DE-04-0005
Client Dwg no.	U00NHB-JCJ-CH-XX-DR-0T-040005

TITLE	Concert Hall Perimeter Flying System Ladder Bar Detail
PURPOSE	A5 - Accepted as Suitable for Record

REV C02

- Figures A, B, C & D given as per EN 17206:2020
- A - Point load under the drop line
 - B - Point load between two drop lines
 - C - Distributed load at any place along the bar or on the extension bars
 - D - Point load on the extreme edge of the extension bar

"Label on off-stage side. Grey colour RAL9006 with black text. JCJ logo in green"



All pipes and plates to be PPC RAL 9006 unless otherwise stated.
Bar to be capped with Plastic caps painted RAL 9006

PLAN

4no. Fixed Equipment Bars shown in grey.
To be supplied & installed by JCJ, detailed
on other drawings. Shown for context.

10m ladder bar with
500mm extensions

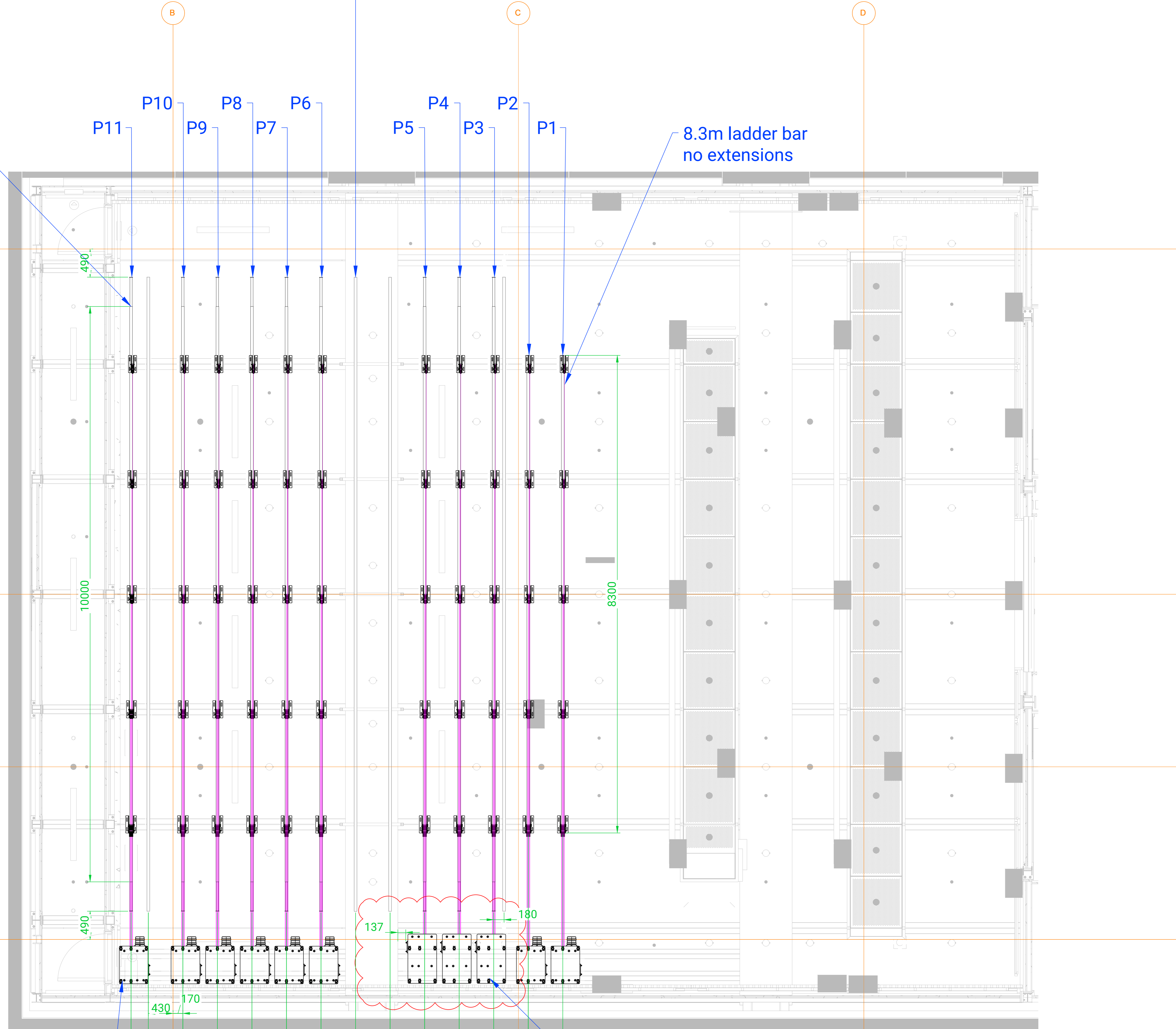
8.3m ladder bar
no extensions

08

09

H
Cen

10



For performance details of the hoist please refer
to drawing UOONHB-JCJ-T2-XX-DR-OT-140004

Orientation of three winches
has been swapped to avoid
clash with curtain.

Scale 1:40

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REVISIONS			
REV.	BY	DESCRIPTION	DATE
P01	JC	FIRST ISSUE	18/09/2023
P02	JC	HOIST ORIENTATION	05/12/2023
C01	PT	For Construction	21/03/2024
C02	SH	For Record	28/04/2025

Notes:

To be read in conjunction with;
UOONHB-JCJ-T2-XX-DR-OT-140002
UOONHB-JCJ-T2-XX-DR-OT-140003
UOONHB-JCJ-T2-XX-DR-OT-140004

Status:

A - B - C -

All dimensions in mm unless otherwise stated. Do not scale.

DRAWN: SH DATE: 28/04/2025

CHECKED: JC DATE: 28/04/2025

APPROVED: OS DATE: 28/04/2025

SCALE: ON SHEET PAPER SIZE: A1

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PROJECT 4334 - Oxford Humanities

JCJ NO. 4334-GA-14-0001

DRG NO. UOONHB-JCJ-T2-04-DR-OT-140001

TITLE 250 Seat Theatre
Overstage System
Plan

PURPOSE A5 - Accepted as
Suitable for Record

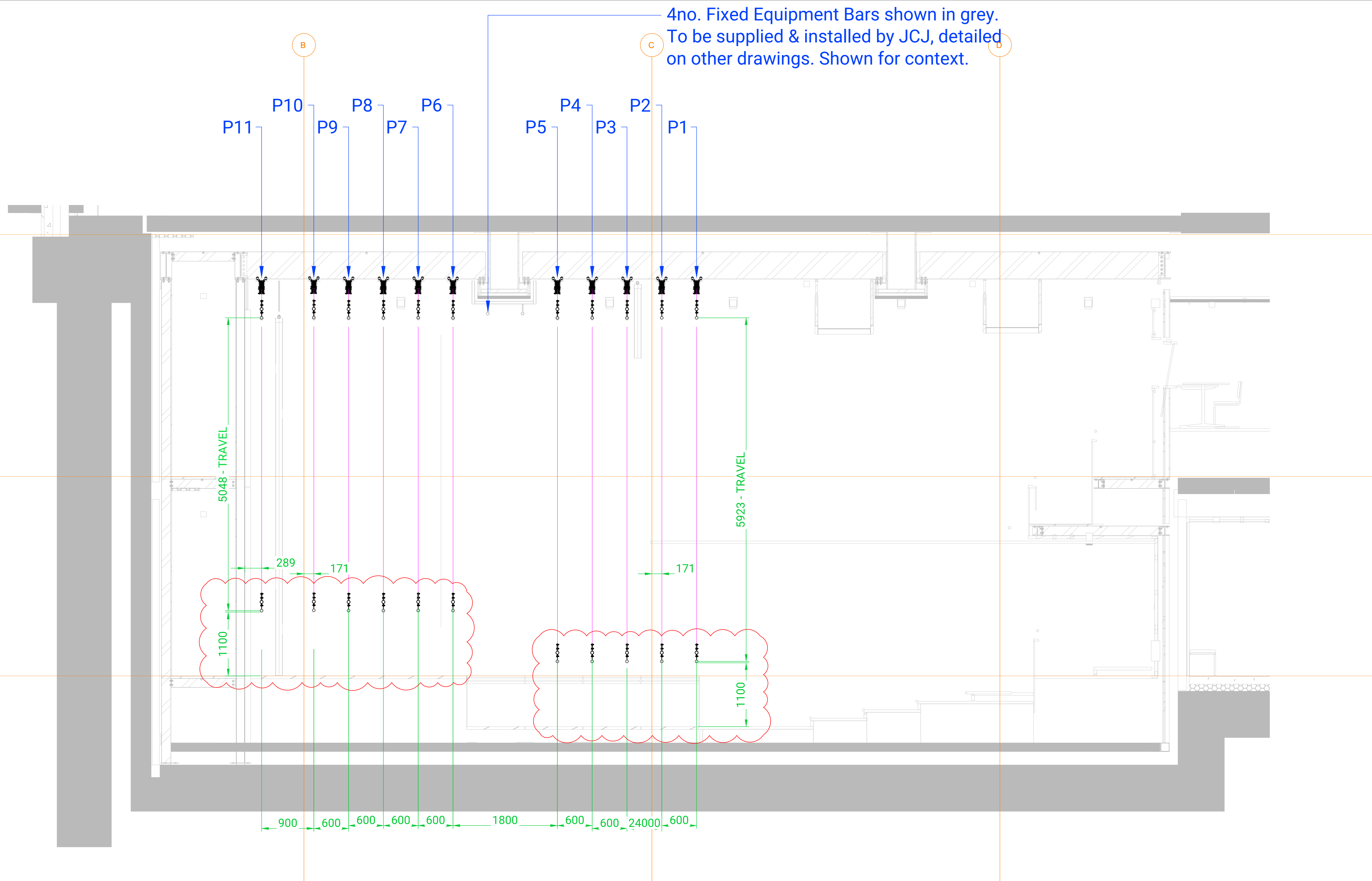
REV C02

SECTION

GF5
61697

B1M
57528

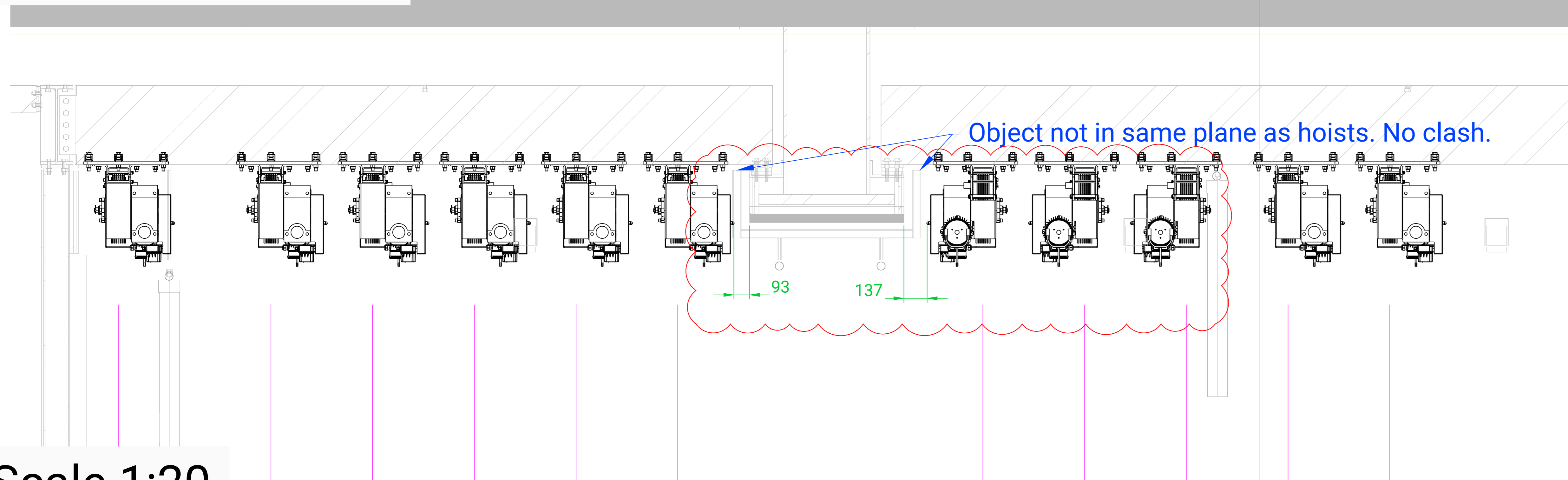
B1
54091



4no. Fixed Equipment Bars shown in grey.
To be supplied & installed by JCJ, detailed
on other drawings. Shown for context.

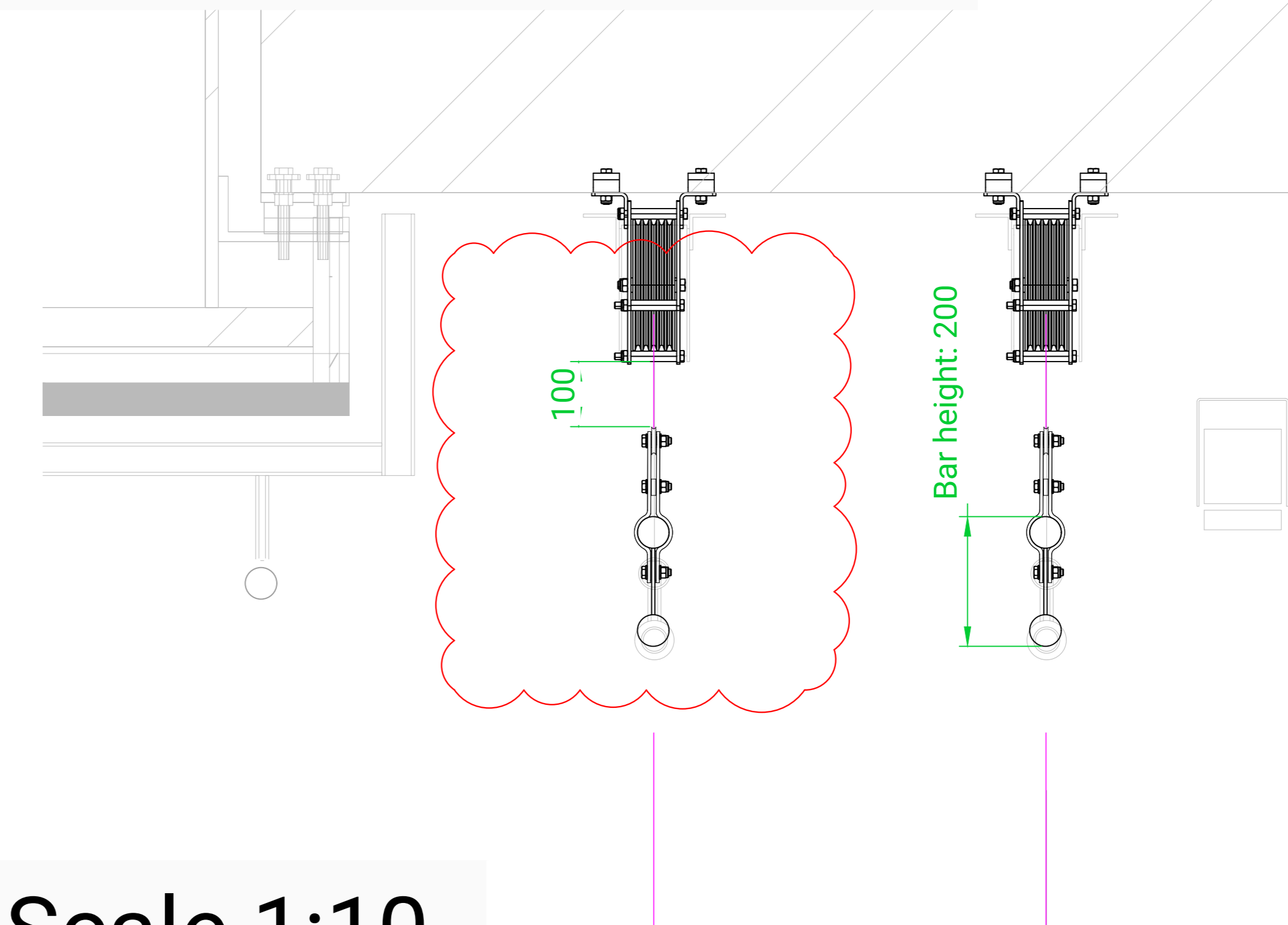
Scale 1:40

HOIST POSITIONS



Scale 1:20

PULLEY & BAR DETAIL



Scale 1:10

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REVISIONS			
REV.	BY	DESCRIPTION	DATE
P01	JC	FIRST ISSUE	20/09/2023
P02	JC	AS PER COMMENTS	05/12/2023
C01	PT	For Construction	21/03/2024
C02	SH	For Record	28/04/2025

Notes:

To be read in conjunction with;
UOONHB-JCJ-T2-XX-DR-OT-140001
UOONHB-JCJ-T2-XX-DR-OT-140003
UOONHB-JCJ-T2-XX-DR-OT-140004

Status:

A - B - C -

All dimensions in mm unless otherwise stated. Do not scale.

DRAWN:	SH	DATE:	28/04/2025
CHECKED:	JC	DATE:	28/04/2025
APPROVED:	OS	DATE:	28/04/2025
SCALE:	ON SHEET	PAPER SIZE:	A1

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PROJECT	4334 - Oxford Humanities
JCJ NO.	4334-GA-14-0002
DRG NO.	UOONHB-JCJ-T2-XX-DR-OT-140002
TITLE	250 Seat Theatre Overstage System Section
PURPOSE	A5 - Accepted as Suitable for Record
REV	C02

ELEVATION

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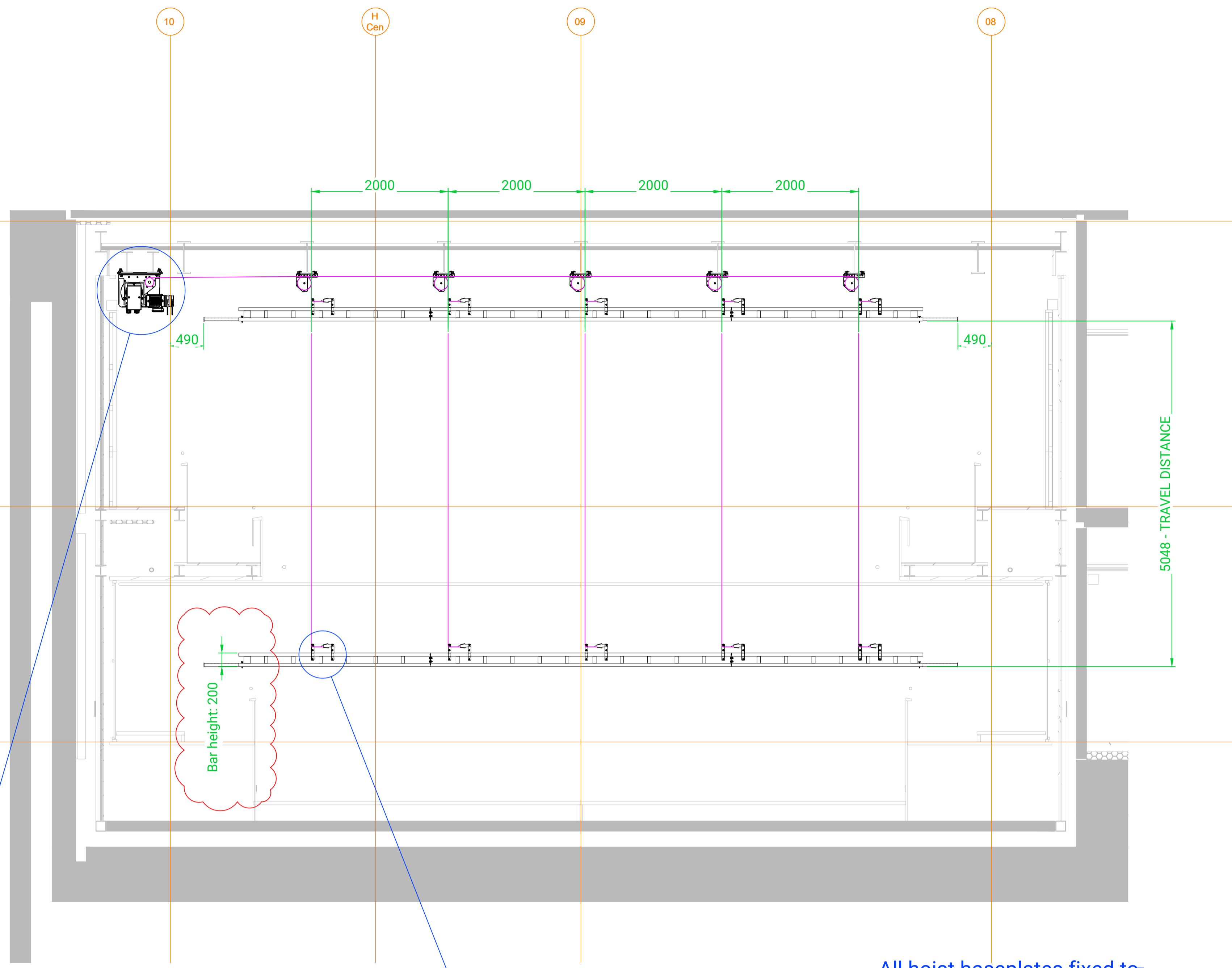
REVISIONS			
REV.	BY	DESCRIPTION	DATE
P01	JC	FIRST ISSUE	18/09/2023
P02	JC	HOIST ORIENTATION	05/12/2023
C01	PT	FOR CONSTRUCTION	21/03/2024
C02	SH	FOR CONSTRUCTION	06/08/2024
C03	SH	FOR CONSTRUCTION	02/09/2024
C04	SH	FOR RECORD	28/04/2025
C05	JC	FOR RECORD	22/12/2025

Notes:
 To be read in conjunction with;
 UOONHB-JCJ-T2-XX-DR-OT-140001
 UOONHB-JCJ-T2-XX-DR-OT-140002
 UOONHB-JCJ-T2-XX-DR-OT-140004

GF5
61697

B1M
57528

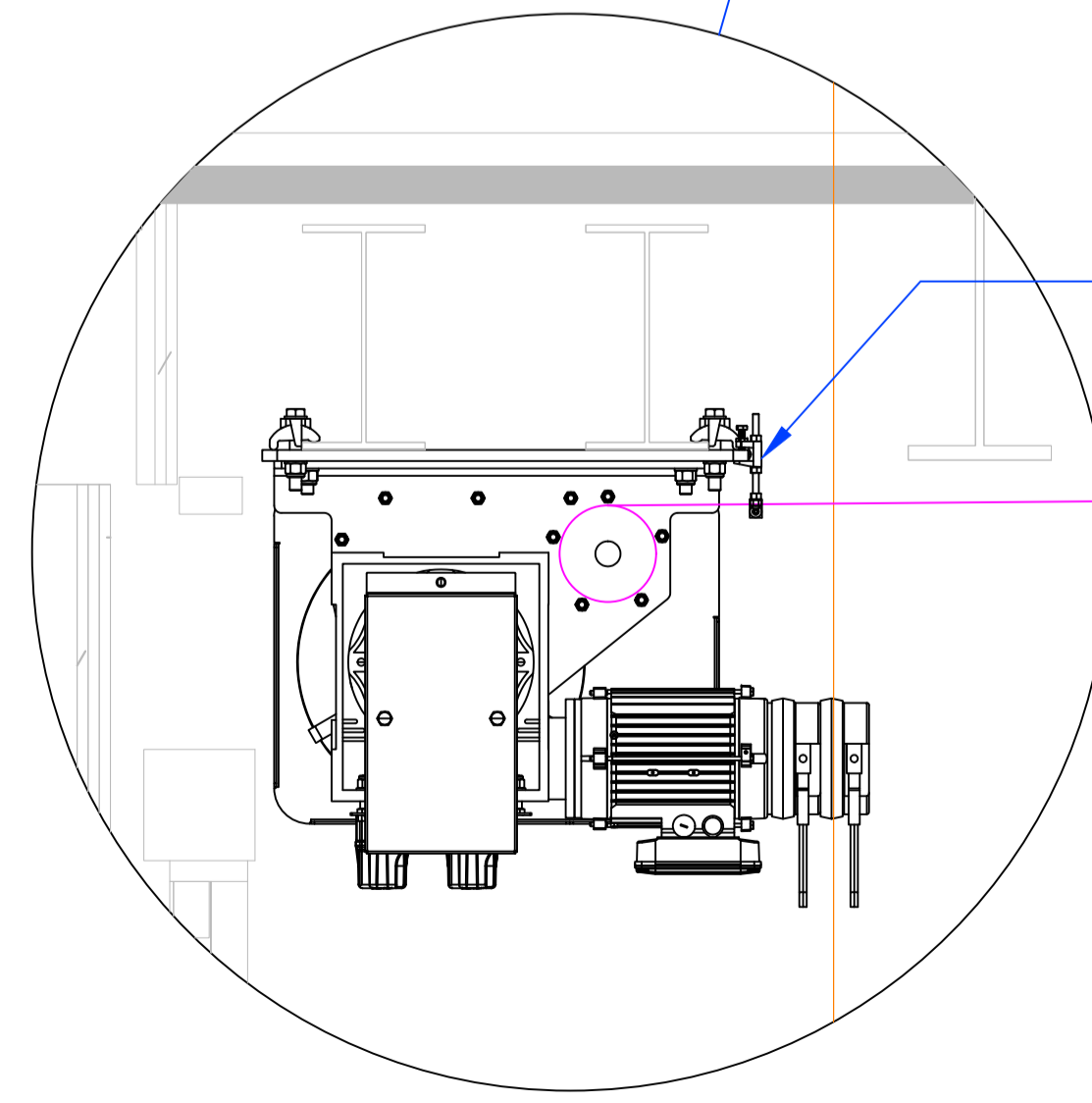
B1
54091



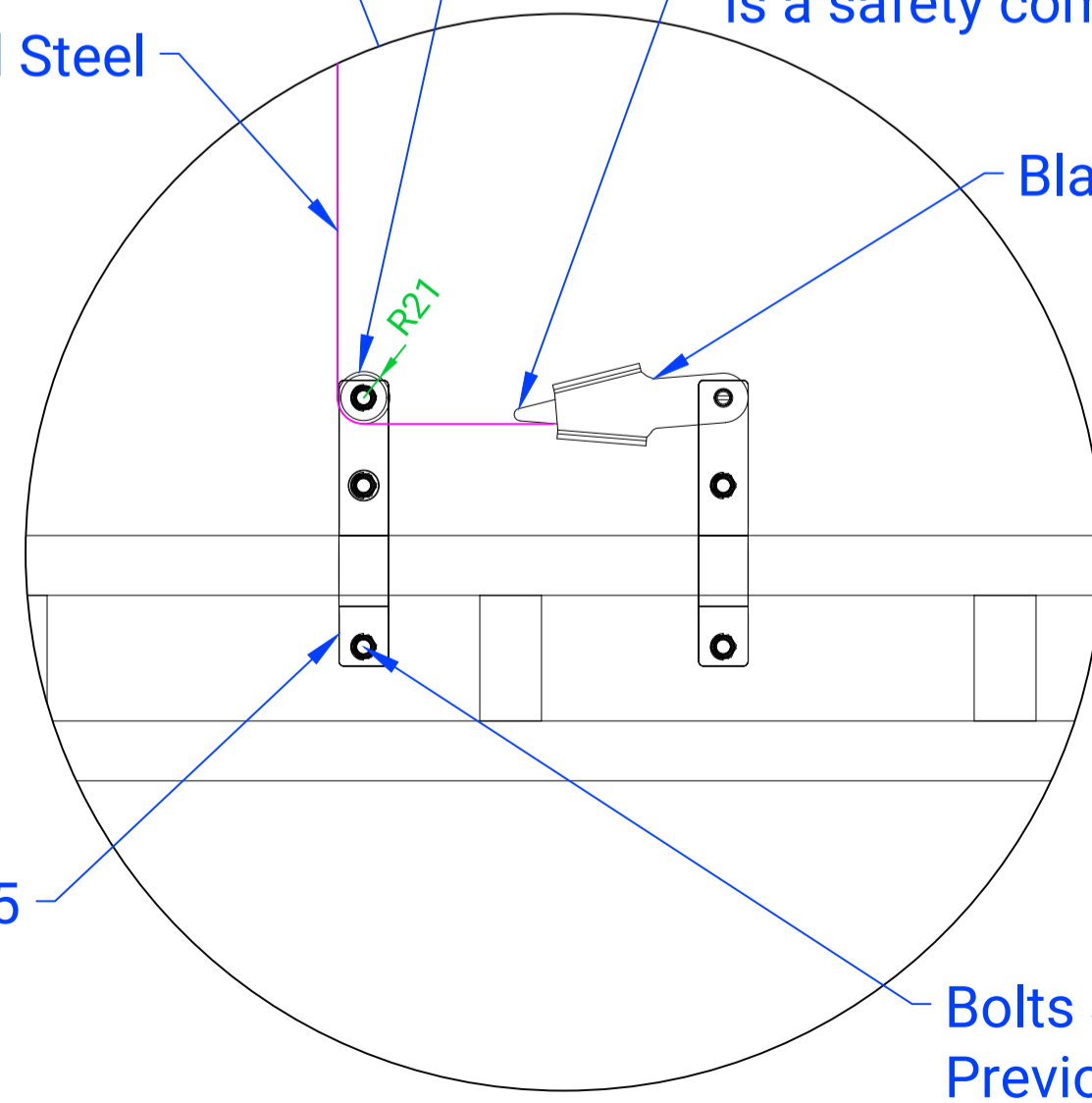
Status:
 A - B - C -

All dimensions in mm unless otherwise stated. Do not scale.

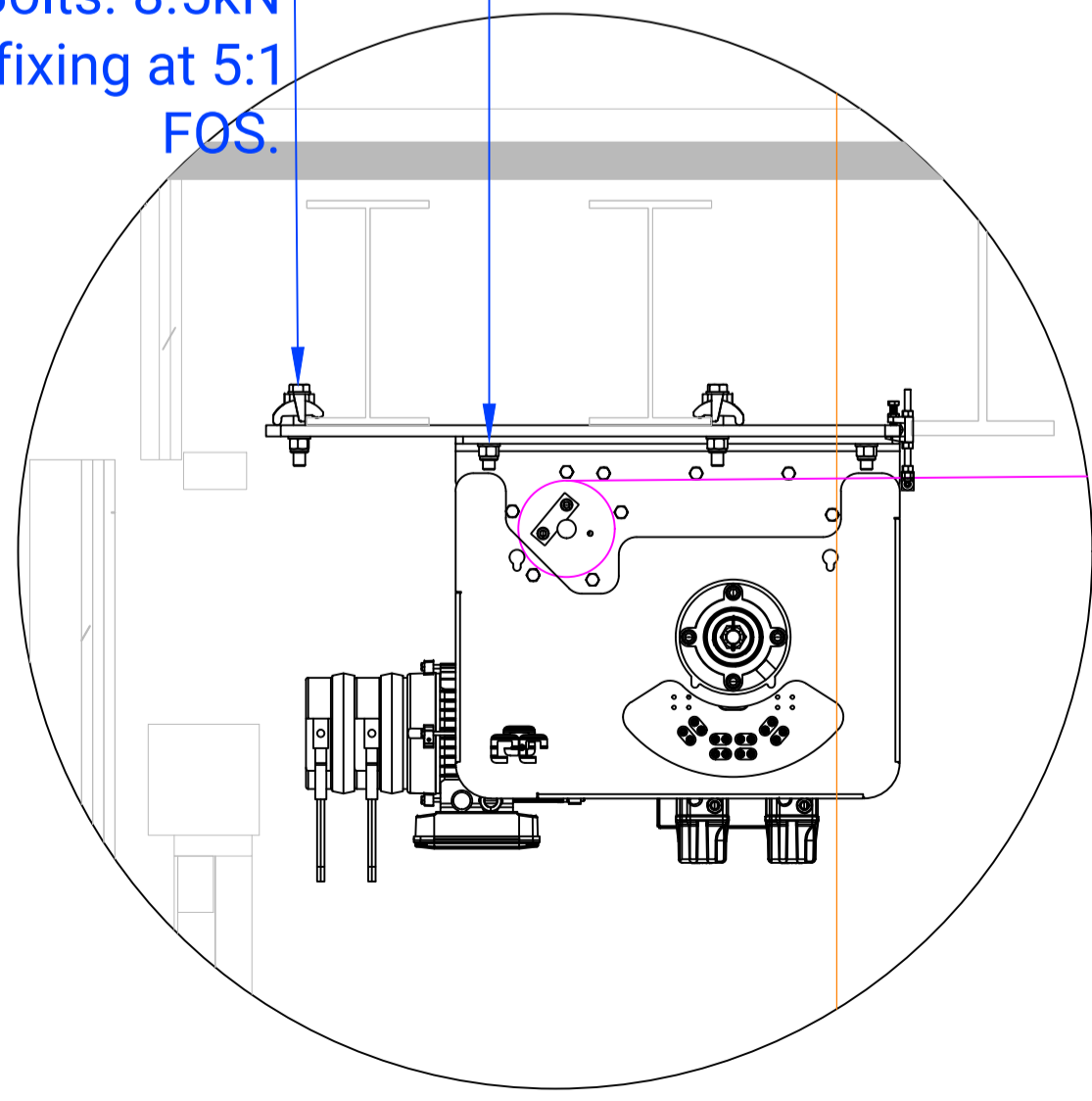
DRAWN:	SH	DATE:	28/04/2025
CHECKED:	JC	DATE:	28/04/2025
APPROVED:	OS	DATE:	28/04/2025
SCALE:	ON SHEET	PAPER SIZE:	A1



Detail A - Hoist mounting detail for all other bars
Scale 1:40



Detail B - Bar Mounting Detail
Scale 1:10



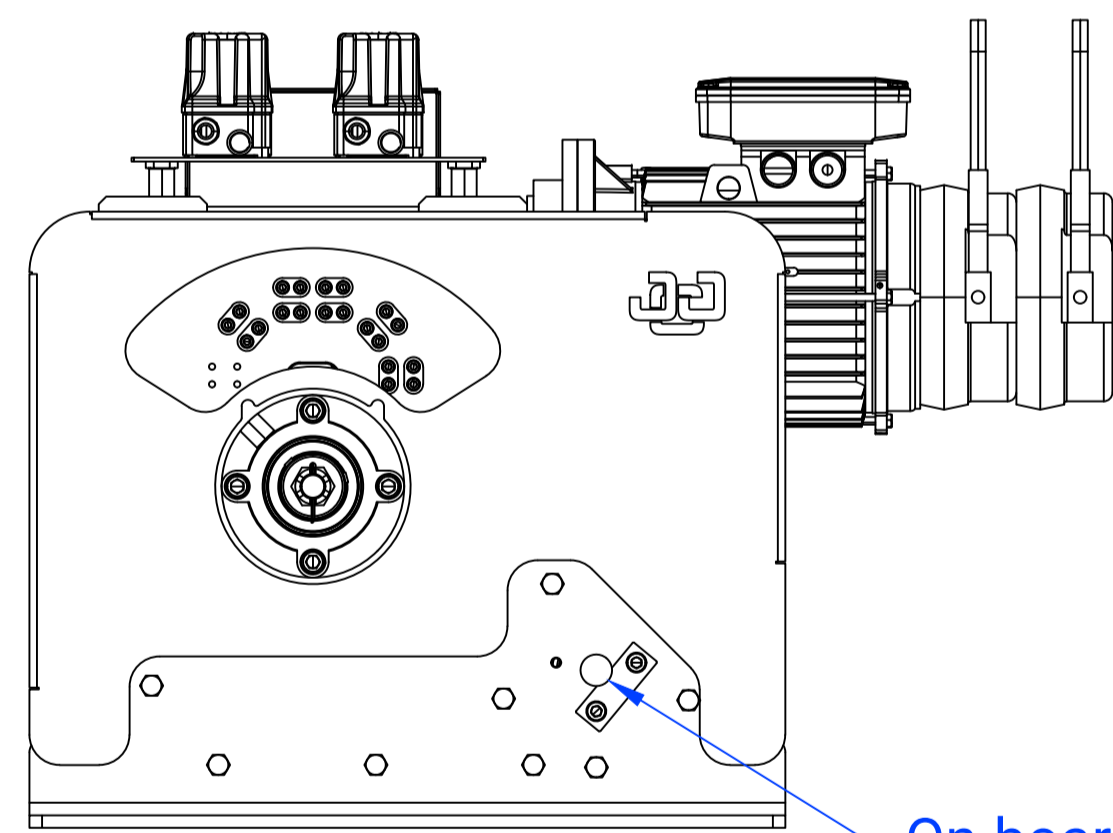
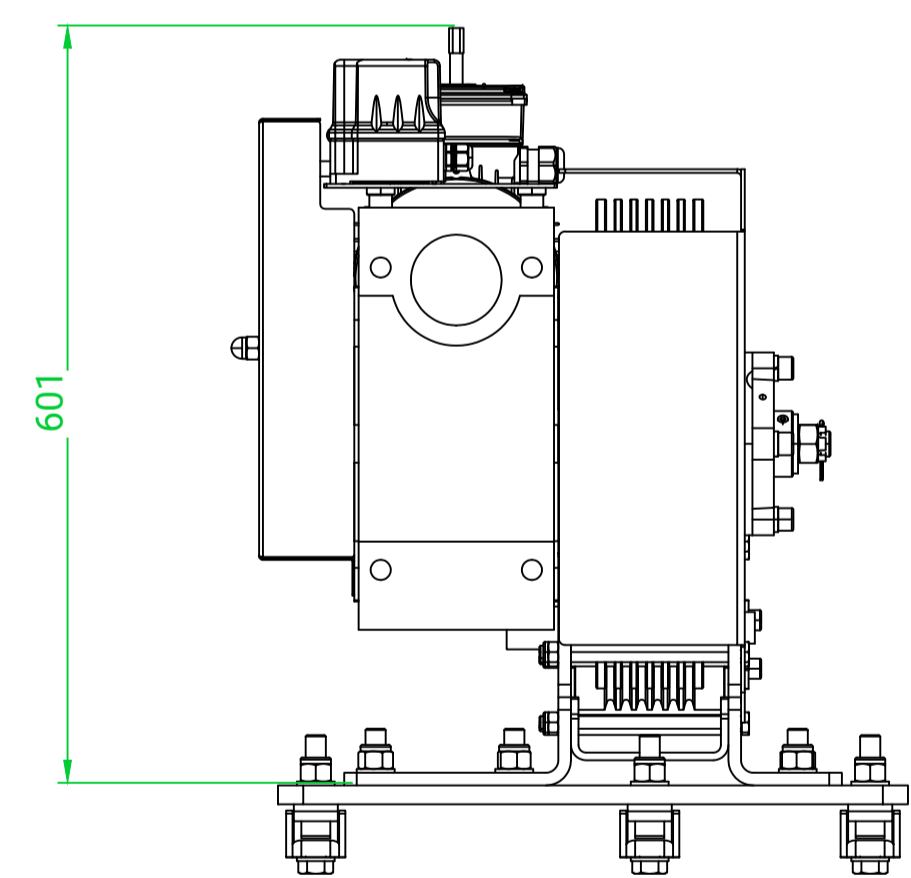
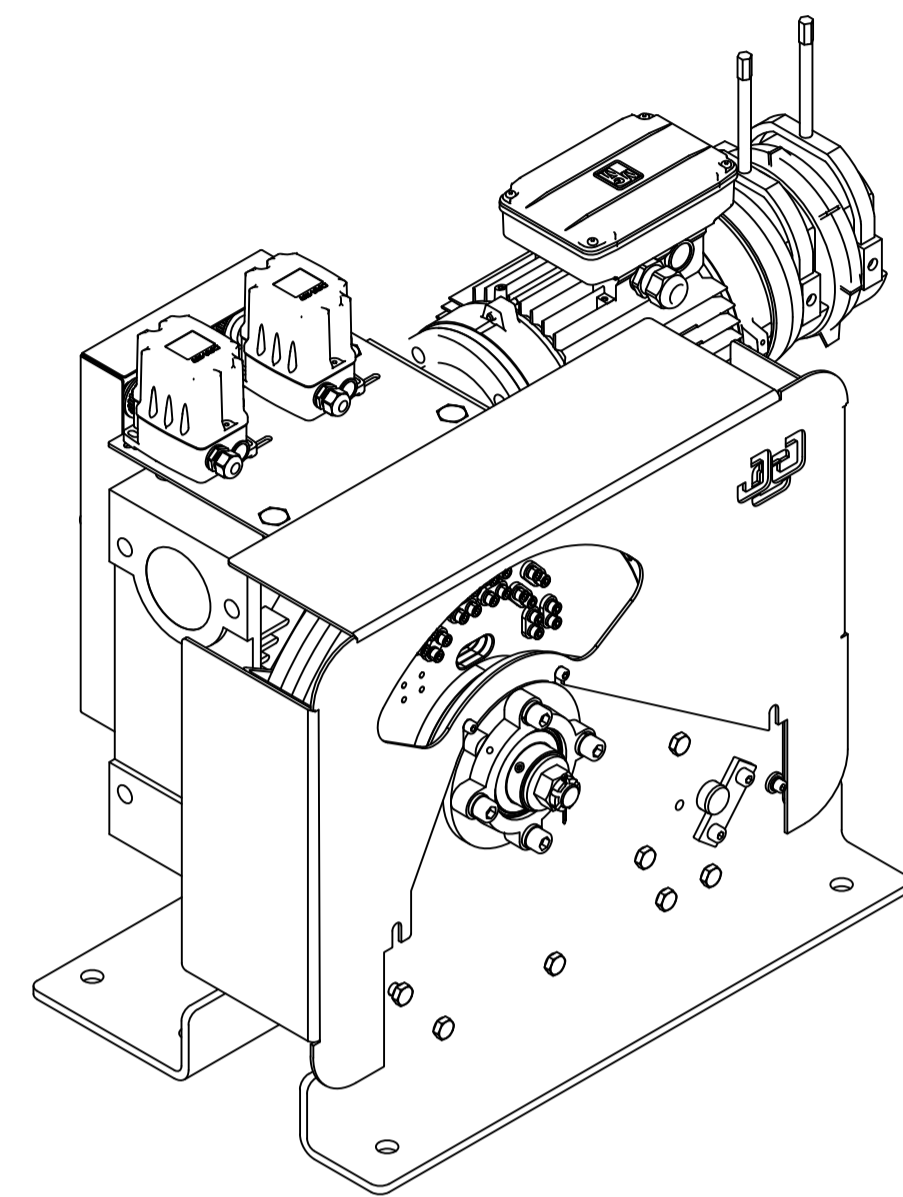
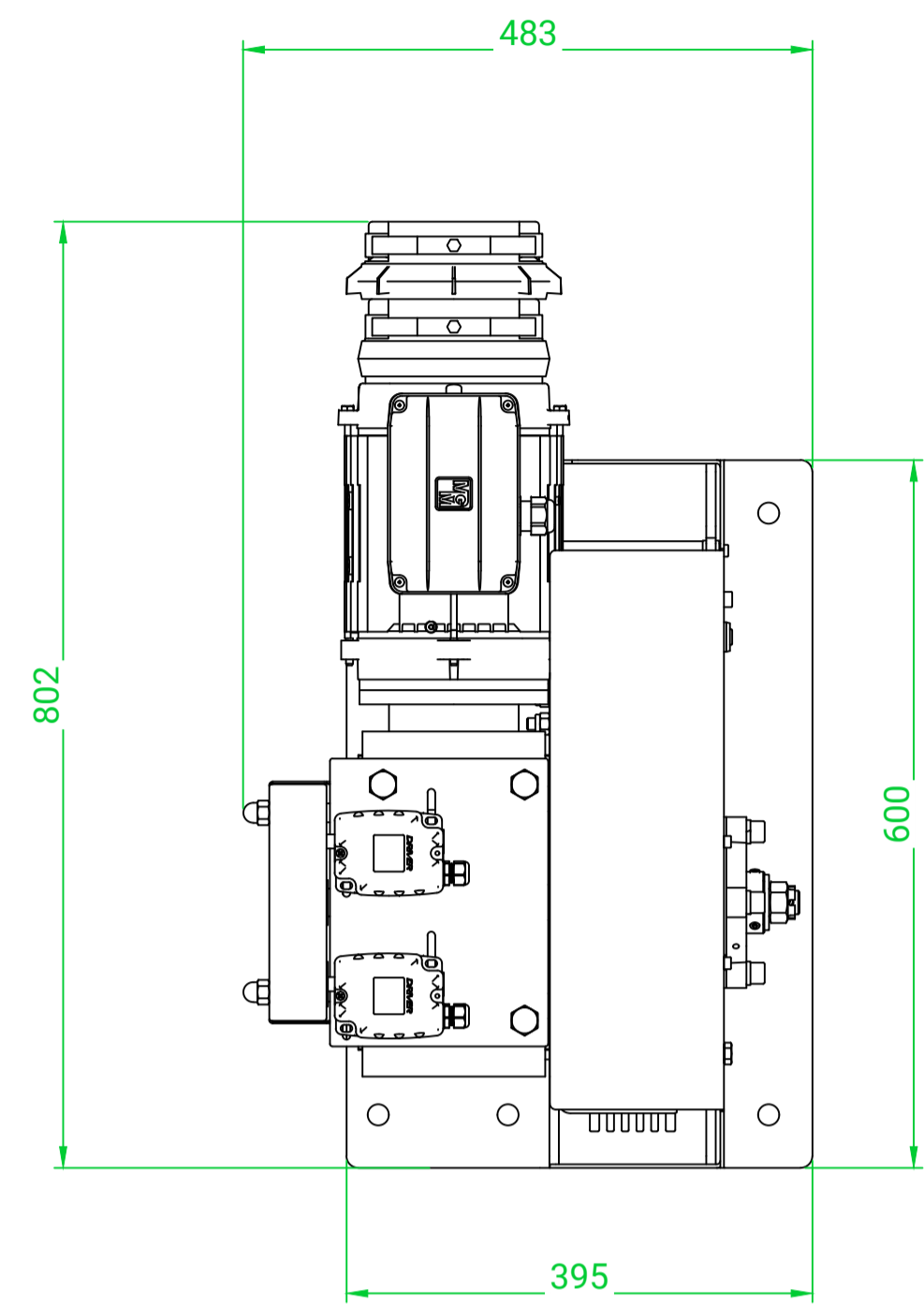
Detail C - Hoist mounting detail for bars P3, 4 & 5
Scale 1:10

Black Plastic
 Silver - cannot be PPC as is a safety component
 Galvanised Steel
 Black PPC RAL 9005
 Bolts Self colour black - Previous statement on not able to be PPC was issued in error
 All hoist baseplates fixed to beams using M16 Lindapter LR Clamps and M16 10.9 Grade Bolts. 8.5kN Capacity per fixing at 5:1 FOS.
 All hoists fixed to baseplate using 6no. M16 10.9 Grade Bolts

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PROJECT	4334 - Oxford Humanities		
JCJ NO.	4334-GA-14-0003		
DRG NO.	UOONHB-JCJ-T2-XX-DR-OT-140003		
TITLE	250 Seat Theatre Overstage System Elevation		
PURPOSE	A5 - Accepted as Suitable for Record		
	REV	C05	

HOIST DETAIL



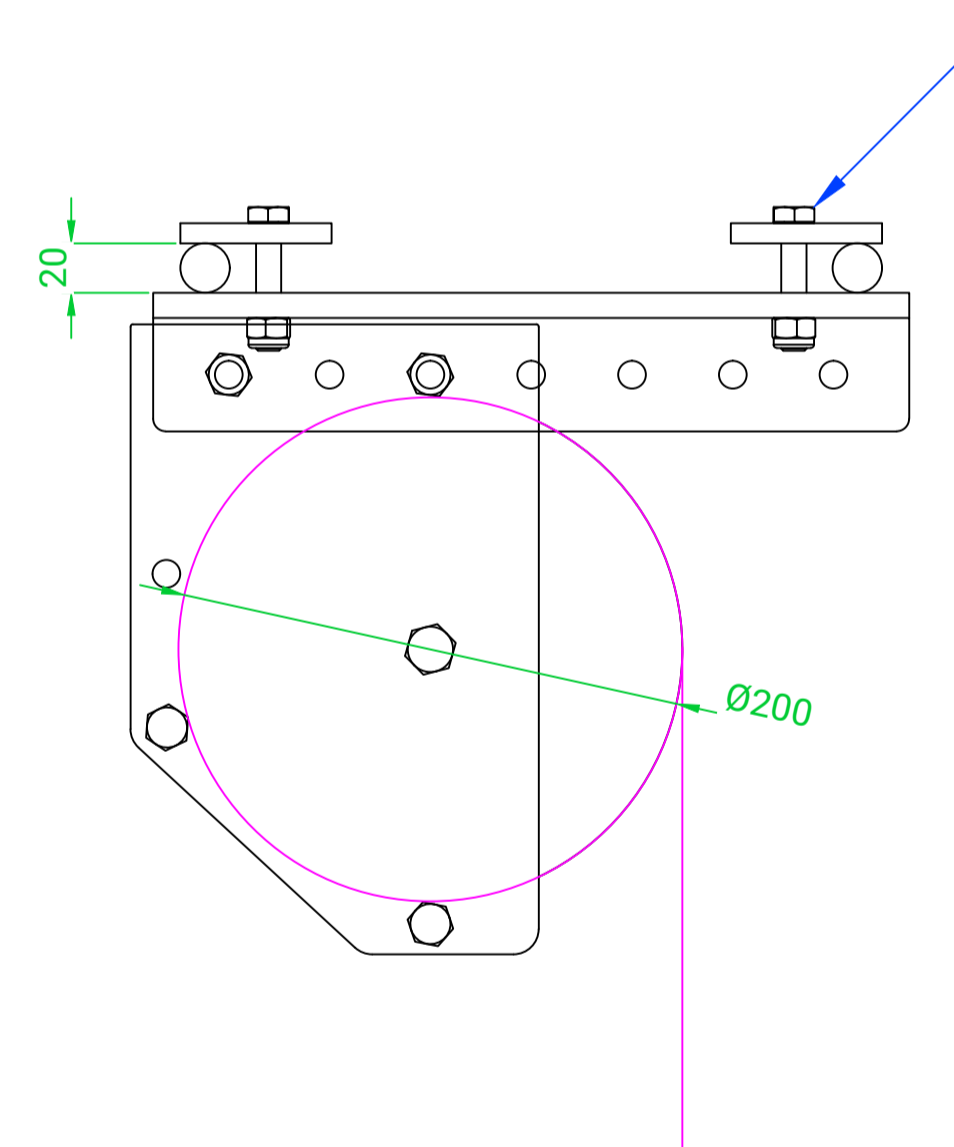
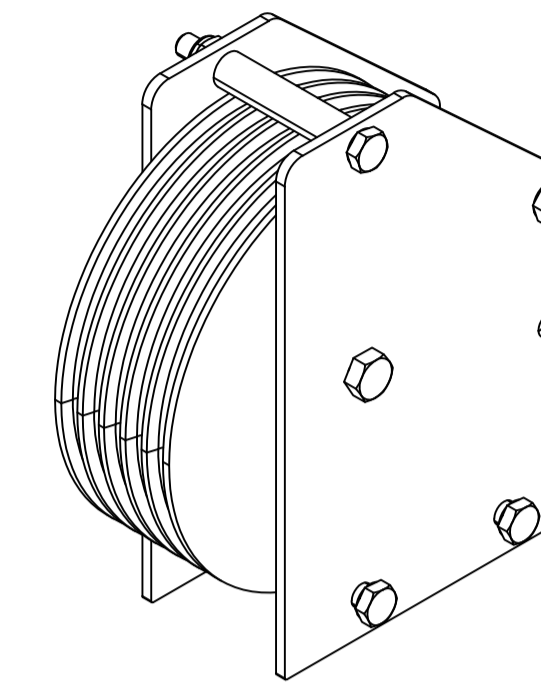
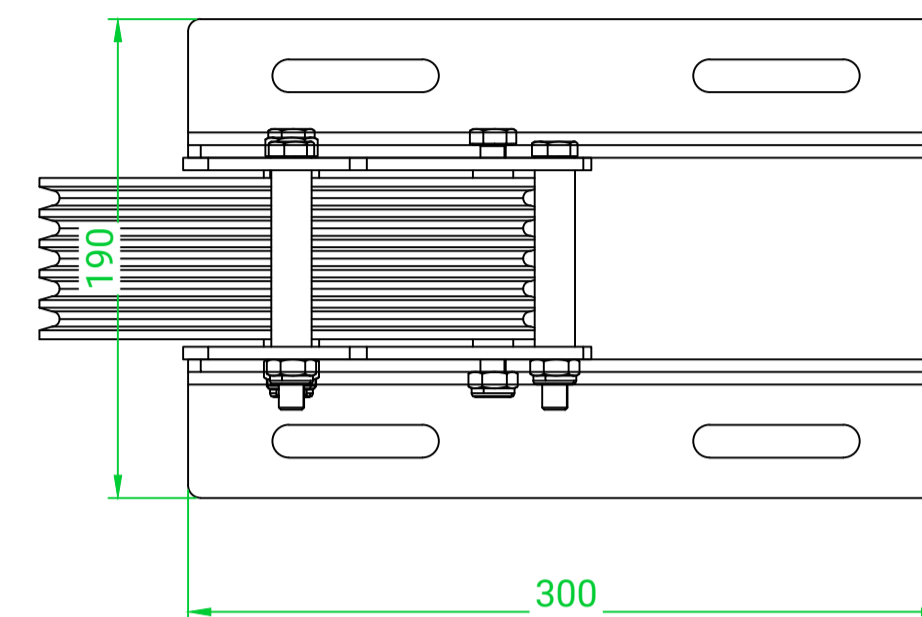
HOIST INFORMATION

MODEL: JCJ-PW+500-5
WLL: 500 kg
SPEED: 0.1-0.2 m/s
LINES: 5
TRAVEL: 7 m
ROPE Ø: 6 mm
SELF-WEIGHT: 173 kg
POWER: 1.85 kW

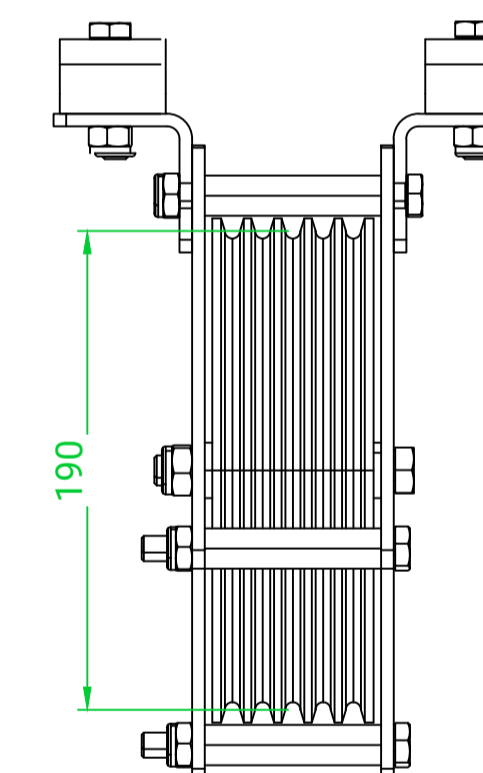
- Loadcell mounted on headpulley
- Self-sustaining Gearbox
- 2x Two Position Limit Switches for end of travel and ultimate positioning.
- All outer enclosure parts to be Matt Black RAL9005 Paint.
- Pilewind disks to be zinc-plated for durability, covered by cover.

Scale 1:6

PULLEY DETAIL



M10 Bolts with Nylock Nuts



PULLEY INFORMATION

MODEL: JCJ-PU-200
WLL: 250 kg
SPEED: 0.1-0.2 m/s
LINES: 1 to 5
ROPE Ø: 6 mm
SELF-WEIGHT: 6.4kg (for 5 line)

- Pulley contains two bearings
- Loadcell mounted on headpulley
- All steel parts to be Matt Black RAL9005 Paint.
- Pulley is made from black polyamide.

Scale 1:3

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REVISIONS			
REV.	BY	DESCRIPTION	DATE
P01	JC	FIRST ISSUE	20/09/2023
P02	JC	PULLEY DIAMETER CHANGE	05/12/2023
C01	PT	FOR CONSTRUCTION	21/03/2024
C02	SH	FOR RECORD	28/04/2025
C03	JC	FOR RECORD	22/12/2025

Notes:

To be read in conjunction with;
 UOONHB-JCJ-T2-XX-DR-OT-140001
 UOONHB-JCJ-T2-XX-DR-OT-140002
 UOONHB-JCJ-T2-XX-DR-OT-140003

Status:

A - B - C -

All dimensions in mm unless otherwise stated. Do not scale.

DRAWN:	PT	DATE:	28/04/2025
CHECKED:	JC	DATE:	28/04/2025
APPROVED:	AM	DATE:	28/04/2025
SCALE:	ON SHEET	PAPER SIZE:	A1

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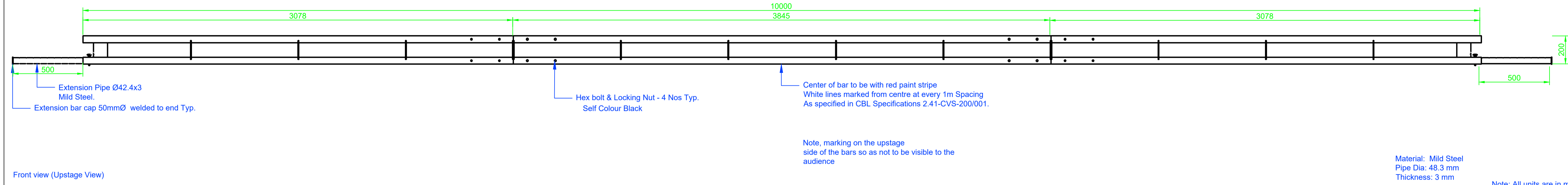
PROJECT	4334 - Oxford Humanities
JCJ NO.	4334-GA-14-0004
DRG NO.	UOONHB-JCJ-T2-XX-DR-OT-140004
TITLE	250 Seat Theatre Overstage System Hoist & Pulley Detail
PURPOSE	A5 - Accepted as Suitable for Record
	REV C03

Ladder Bars P3 to P11

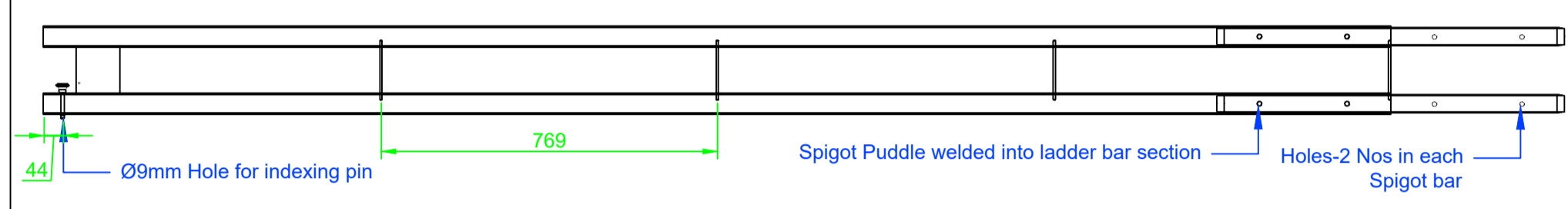
This drawing is the property of J&C Joel Limited and associated companies. It must not be copied or the contents divulged to any third party without prior written consent.

REVISIONS

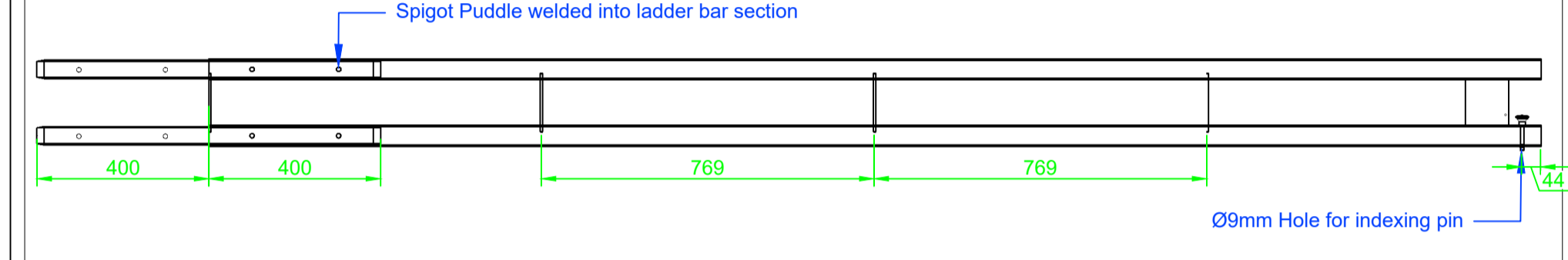
REV.	BY	DESCRIPTION	DATE
P01	SH	FIRST ISSUE	10/09/2024
C01	SH	REVISED	23/10/2024
C02	SH	For Record	28/04/2025



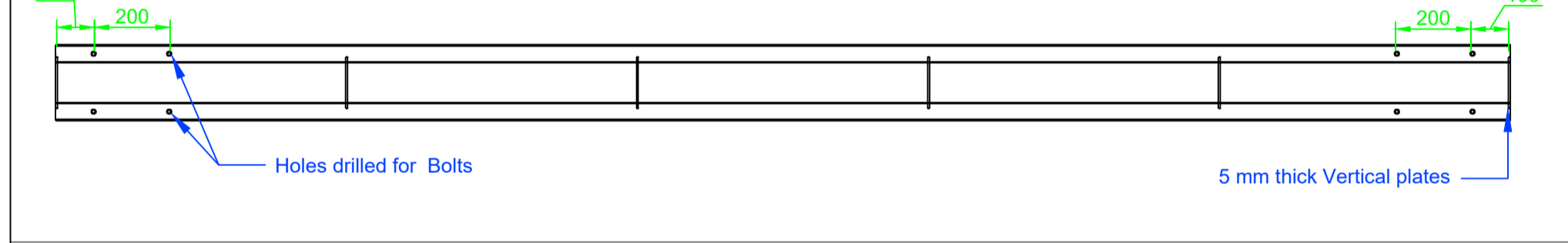
Left Side Ladder Bar Section (Viewing from Upstage)



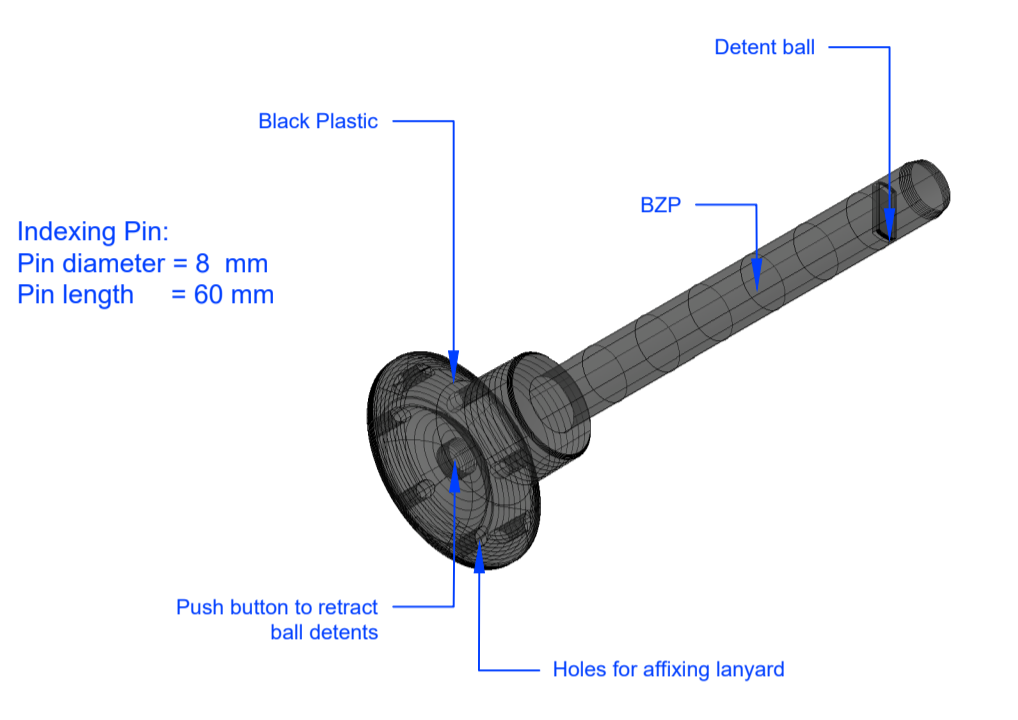
Right Side Ladder Bar Section (Viewing from Upstage)



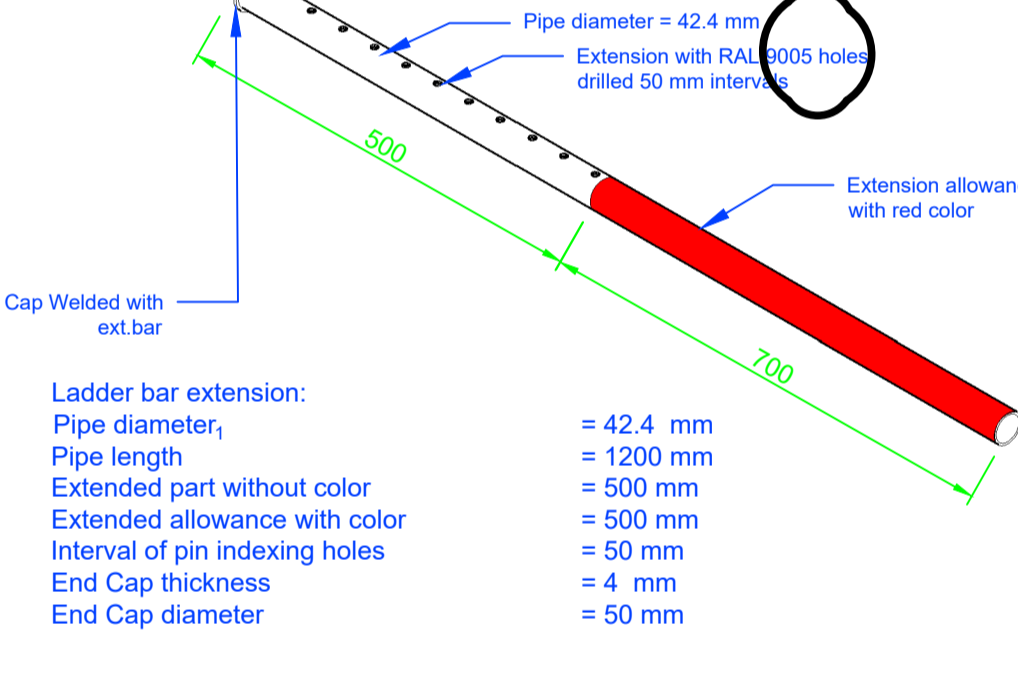
Middle Ladder Bar Section (Viewing from Upstage)



Indexing Pin



Ladder Bar with extension end example

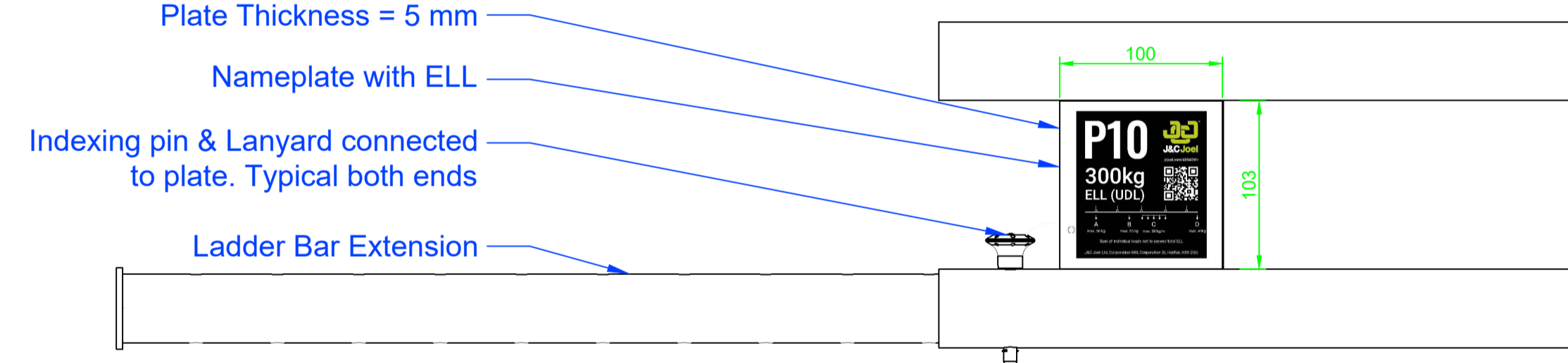


Material: Mild Steel
Pipe Dia: 48.3 mm
Thickness: 3 mm
Note: All units are in mm.

Figures A, B, C & D given as per EN 17206:2020

- A - Point load under the drop line
- B - Point load between two drop lines
- C - Distributed load at any place along the bar or on the extension bars
- D - Point load on the extreme edge of the extension bar

Ladder Bar with extension end example



Notes:

Status:

A - B - C -

All dimensions in mm unless otherwise stated. Do not scale.

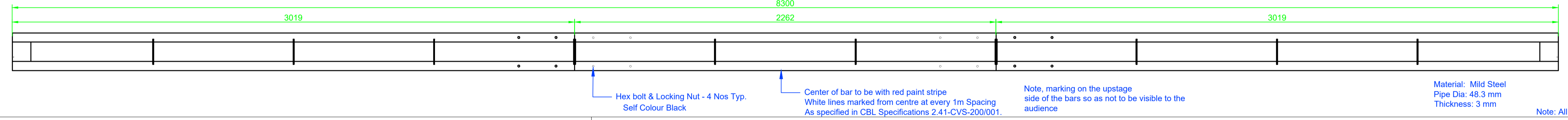
DRAWN:	SH	DATE:	28/04/2025
CHECKED:	JC	DATE:	28/04/2025
APPROVED:	OS	DATE:	28/04/2025
SCALE:	ON SHEET	PAPER SIZE:	A1



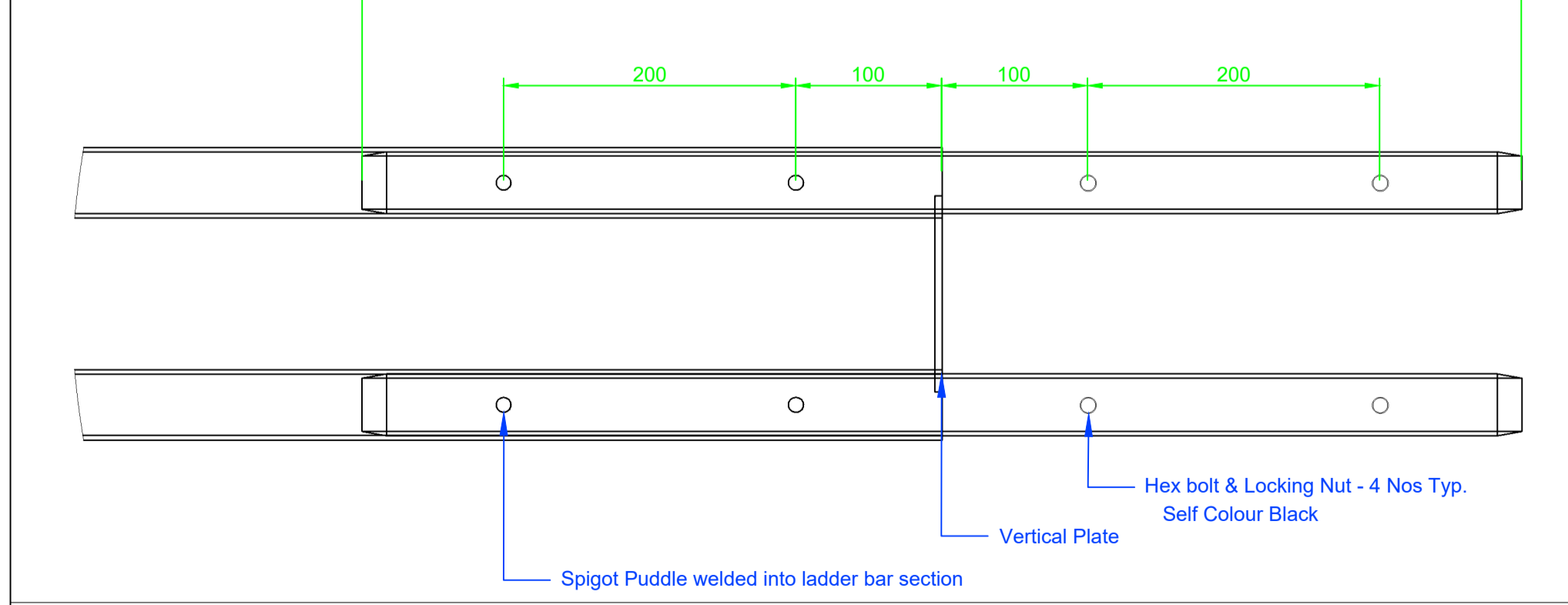
PROJECT	4334 Oxford Humanities
JCJ NO.	4334-DE-14-0005
Client Dwg no.	U00NHB-JCJ-T2-XX-DR-0T-140005

TITLE	250 Seat Theatre Cross Stage Flying System Ladder Bar Detail
PURPOSE	A5 - Accepted as Suitable for Record

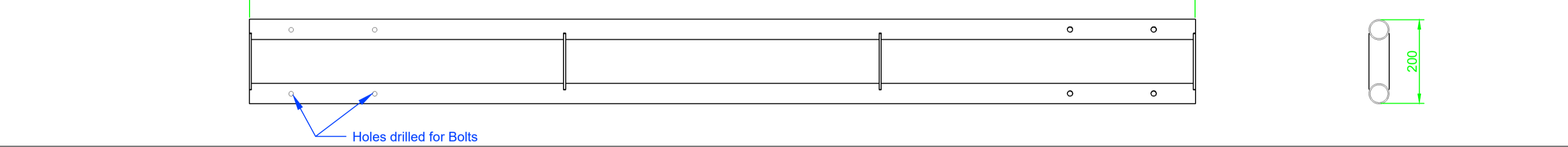
Ladder Bars P1 & P2



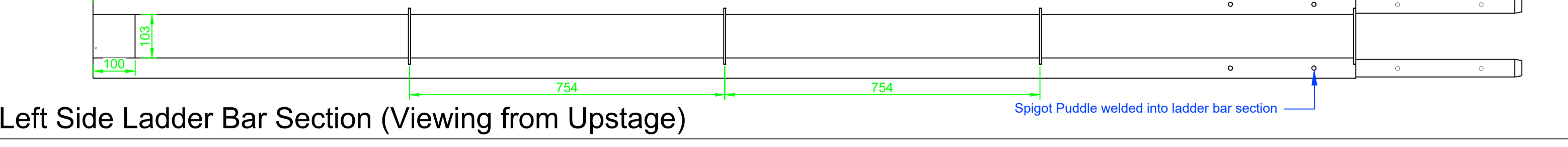
Spigot Detail



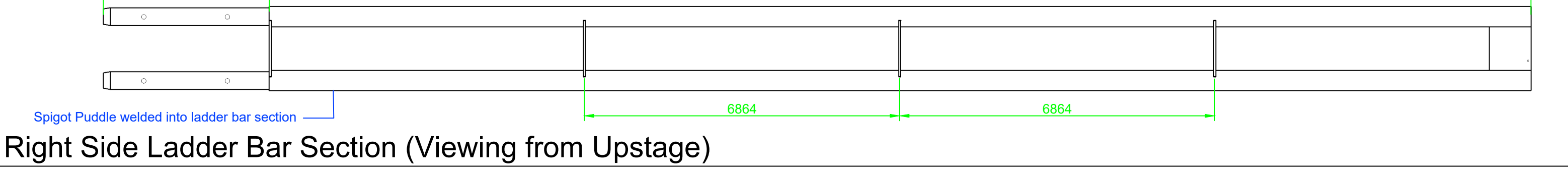
Middle Ladder Bar Section (Viewing from Upstage)



Left Side Ladder Bar Section (Viewing from Upstage)

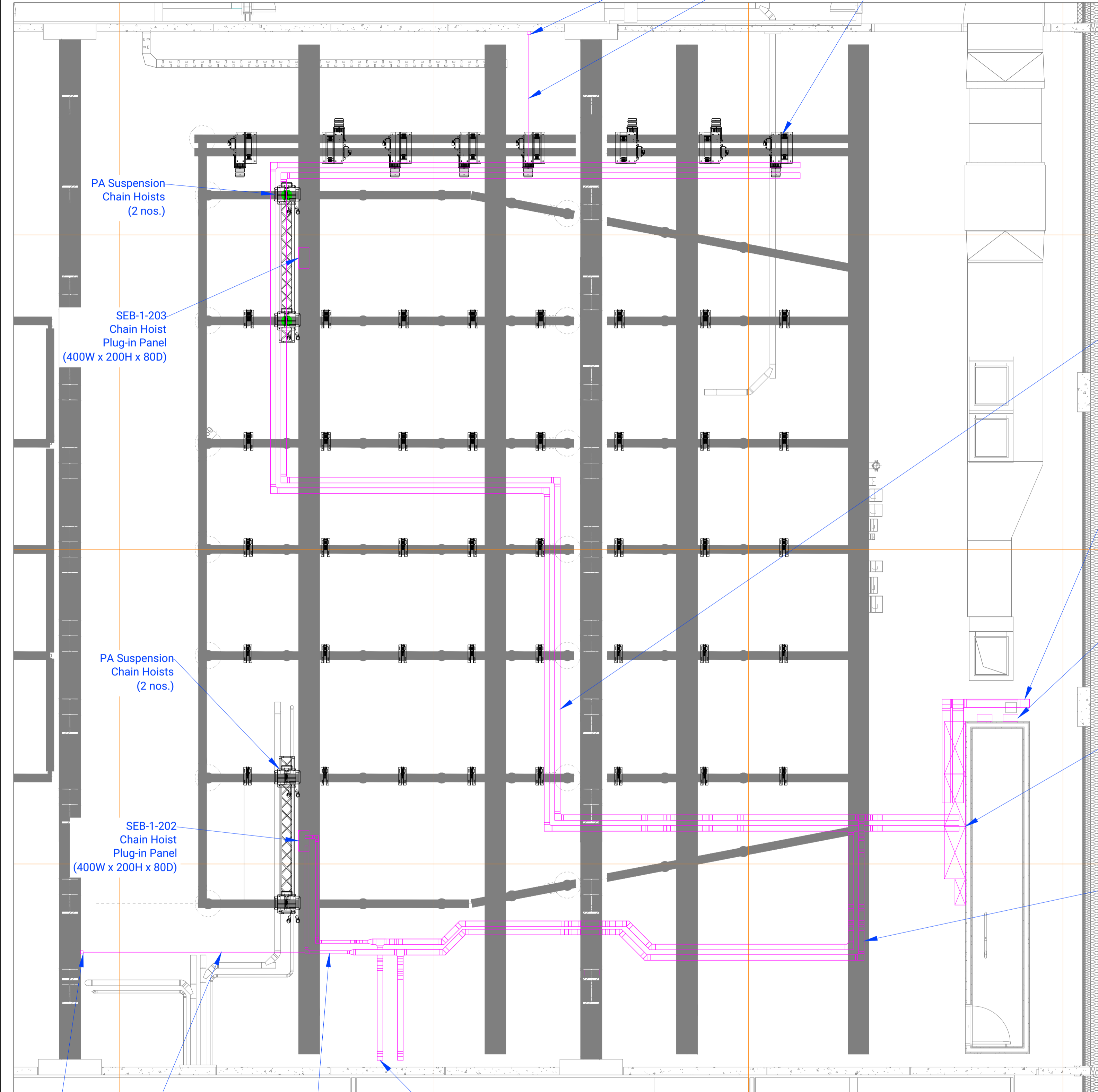


Right Side Ladder Bar Section (Viewing from Upstage)

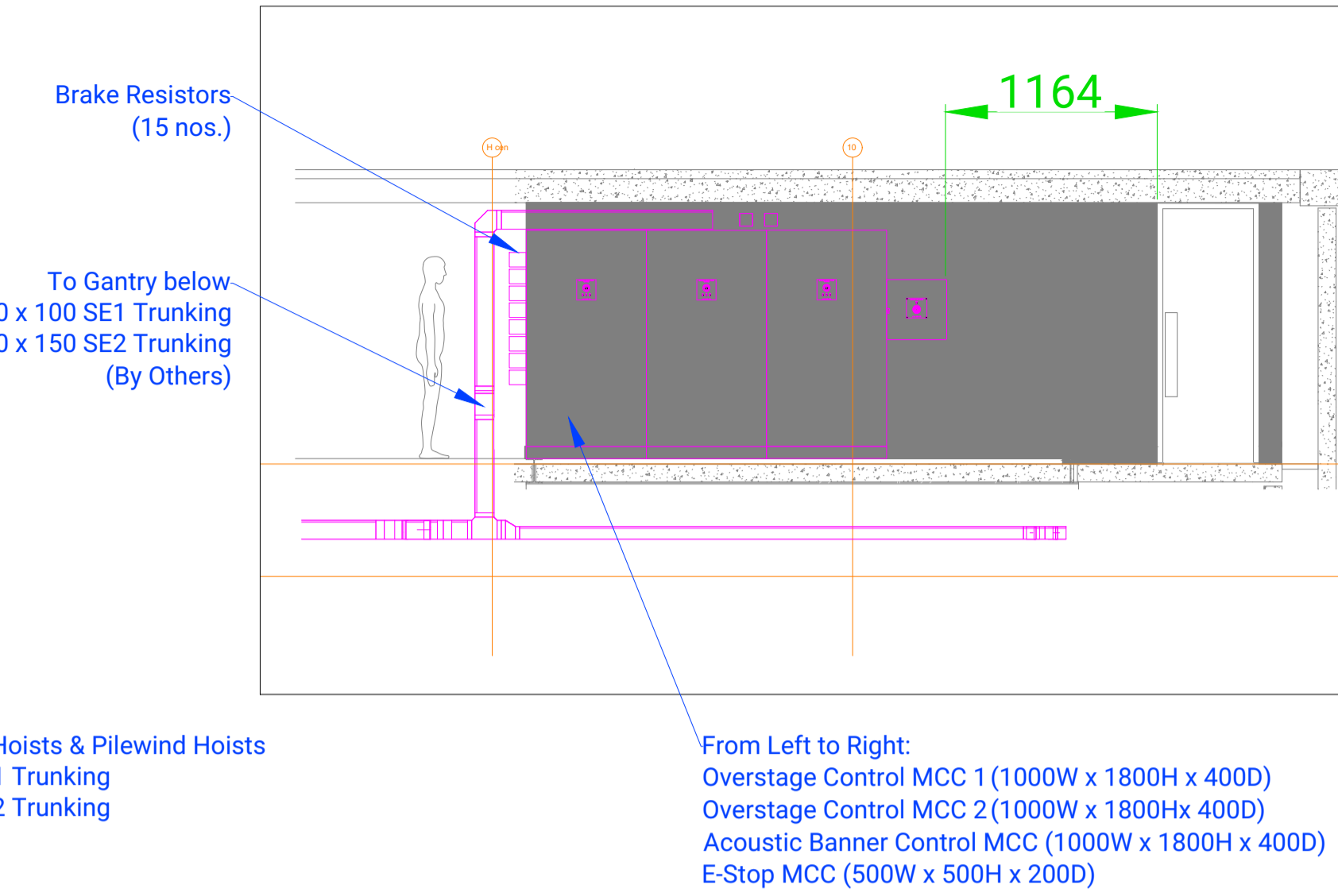


All pipes and plates to be PPC RAL 9005 unless otherwise stated.
Bar ends without extension to be capped with Plastic caps painted RAL 9005

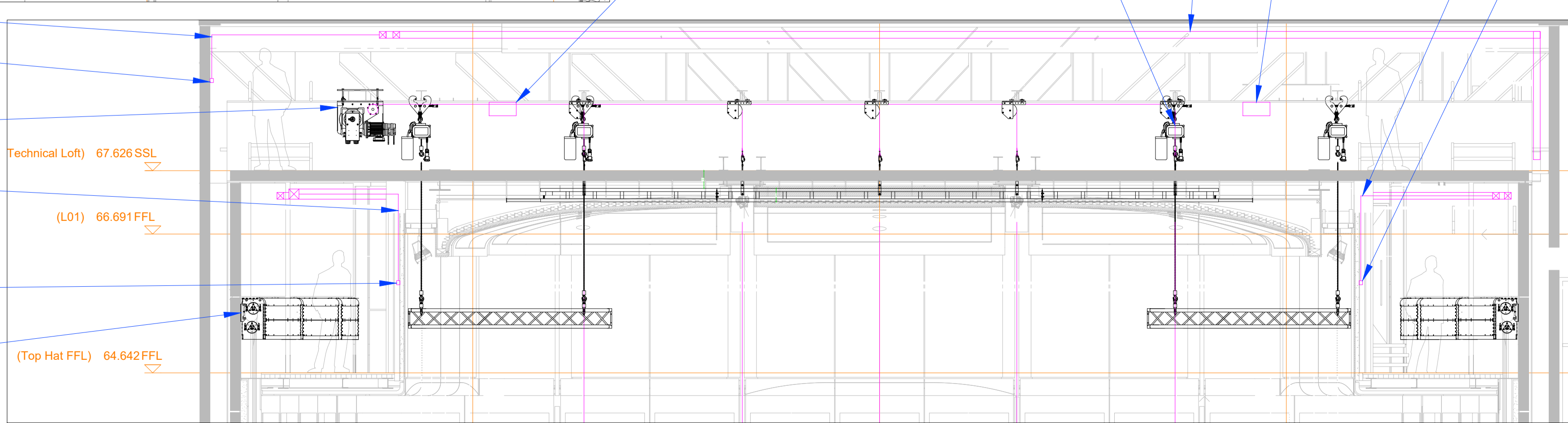
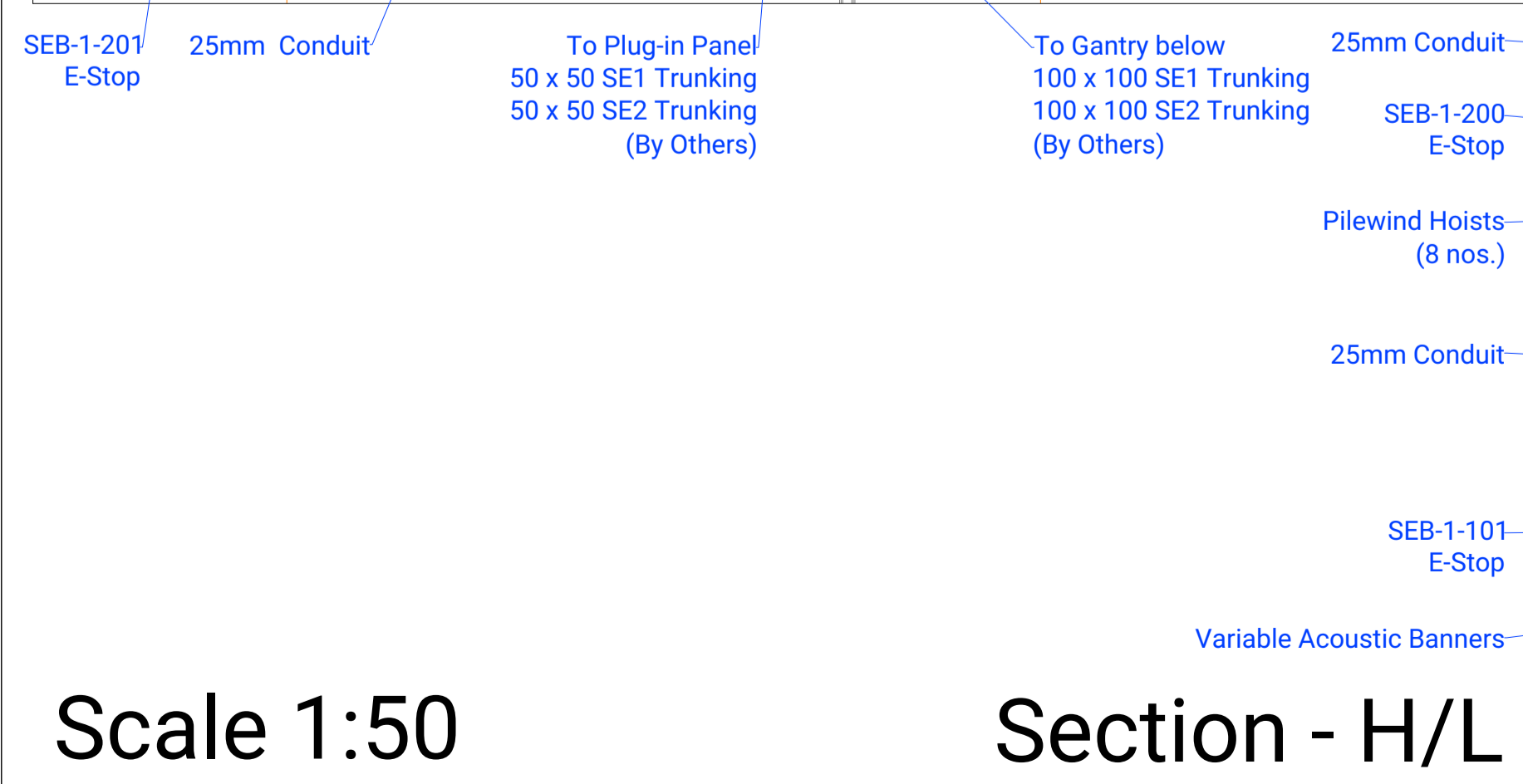
Plan - Concert Hall (Technical Loft)



Elevation - MCCs



- Power Requirement (By Others) :**
- Overstage Control MCC 1 & 2
400VAC TPN&E 125A 50Hz
 - Acoustic Banner Control MCC
400VAC TPN&E 64A 50Hz
 - E-Stop MCC
200VAC 1PN&E 10A



Scale 1:50

Section - H/L

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REVISIONS			
REV.	BY	DESCRIPTION	DATE
P01	AM	FIRST ISSUE	17/05/2024
C01	JC	CONSTRUCTION ISSUE	18/09/2024
C02	SH	FOR RECORD	28/04/2025

- Notes:
- Stage Engineering Equipment schedule listed in the material submission.
 - Should be read in conjunction with the following drawings:
 - UOONHB-JCJ-CH-ZZ-DR-OT-020001 ~ 003
 - UOONHB-JCJ-CH-01-DR-OT-030002
 - UOONHB-JCJ-CH-ZZ-DR-OT-030003 ~ 004
 - UOONHB-JCJ-CH-BM-DR-OT-040001
 - UOONHB-JCJ-CH-ZZ-DR-OT-040002 ~ 003
 - UOONHB-JCJ-CH-ZZ-DR-OT-990111 ~ 115
 - UOONHB-JCJ-CH-ZZ-DR-OT-990121 ~ 125
 - UOONHB-JCJ-CH-ZZ-DR-OT-990141 ~ 142
 - Base drawing used
 - UOONHB-HAL-CH-01-DR-A-005634_P03
 - UOONHB-HAL-CH-ZZ-DR-A-005005_C02
 - Primary containment SE1 & SE2 provided by others

Status:
 A - B - C -

All dimensions in mm unless otherwise stated. Do not scale.

DRAWN:	SH	DATE:	28/04/2025
CHECKED:	JC	DATE:	28/04/2025
APPROVED:	OS	DATE:	28/04/2025
SCALE:	1 : 50	PAPER SIZE:	A1

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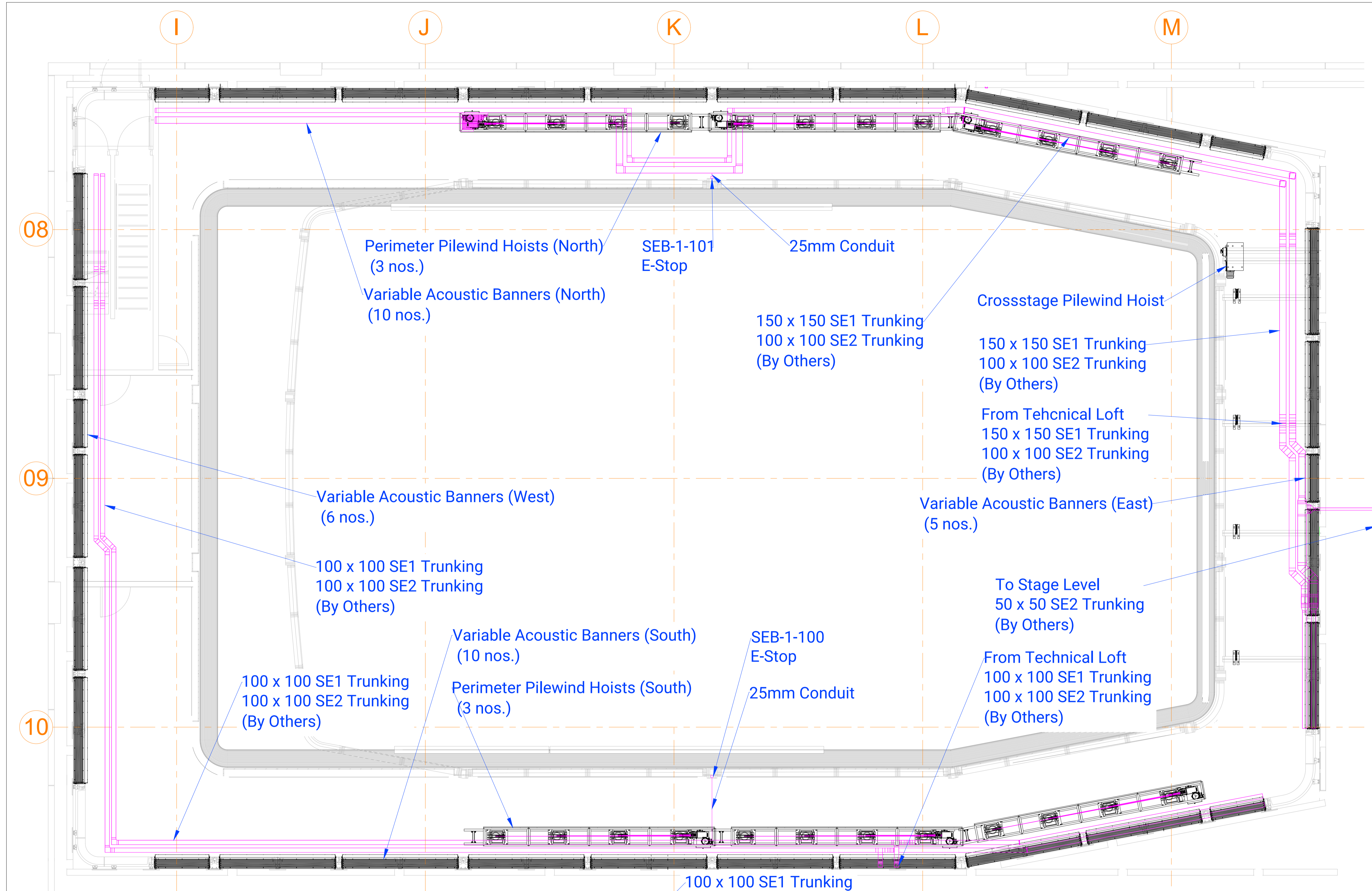
PROJECT	4334 - Oxford Humanities
JCJ NO.	4334-GA-99-0101
CLIENT NO.	UOONHB-JCJ-CH-ZZ-DR-OT-990101
TITLE	Concert Hall Control Layout Technical Loft
PURPOSE	A5 - Accepted as Suitable for Record
REV	C02

Plan - Concert Hall (Gantry)

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REVISIONS			
REV.	BY	DESCRIPTION	DATE
P01	AM	FIRST ISSUE	17/05/2024
C01	JC	CONSTRUCTION ISSUE	18/09/2024
C02	SH	FOR RECORD	28/04/2025

- Notes:
- Stage Engineering Equipment schedule listed in the material submission.
 - Should be read in conjunction with the following drawings:
 - UOONHB-JCJ-CH-ZZ-DR-OT-020001 ~ 003
 - UOONHB-JCJ-CH-01-DR-OT-030002
 - UOONHB-JCJ-CH-ZZ-DR-OT-030003 ~ 004
 - UOONHB-JCJ-CH-BM-DR-OT-040001
 - UOONHB-JCJ-CH-ZZ-DR-OT-040002 ~ 003
 - UOONHB-JCJ-CH-ZZ-DR-OT-990111 ~ 115
 - UOONHB-JCJ-CH-ZZ-DR-OT-990121 ~ 125
 - UOONHB-JCJ-CH-ZZ-DR-OT-990141 ~ 142
 - Primary containment SE1 & SE2 provided by others



Status:
 A - B - C -

All dimensions in mm unless otherwise stated. Do not scale.

DRAWN: SH DATE: 28/04/2025
 CHECKED: JC DATE: 28/04/2025
 APPROVED: OS DATE: 28/04/2025
 SCALE: 1 : 50 PAPER SIZE: A1

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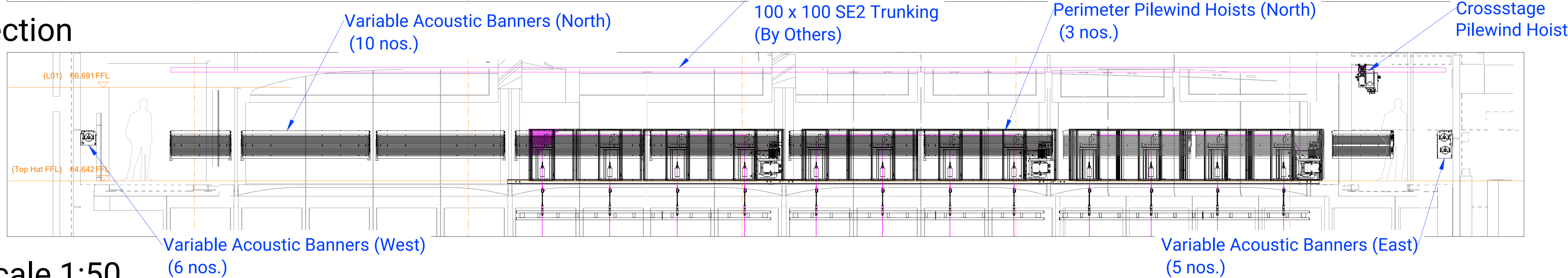
PROJECT: 4334 - Oxford Humanities
 JCJ NO.: 4334-GA-99-0102
 CLIENT NO.: UOONHB-JCJ-CH-ZZ-DR-OT-990102

TITLE: Concert Hall Control Layout Gantry

PURPOSE: A5 - Accepted as Suitable for Record

REV C02

Section



Scale 1:50

REVISIONS

REV.	BY	DESCRIPTION	DATE
P01	PT	FIRST ISSUE	03/01/2024
CD1	PT	Response to Consultant's Comments & For Construction	03/01/2024
C02	JC	OUES SCHEDULE ADDED	03/06/2024
C03	SH	FOR RECORD	28/04/2025

Notes:

Status:

A - B - C -

All dimensions in mm unless otherwise stated. Do not scale.

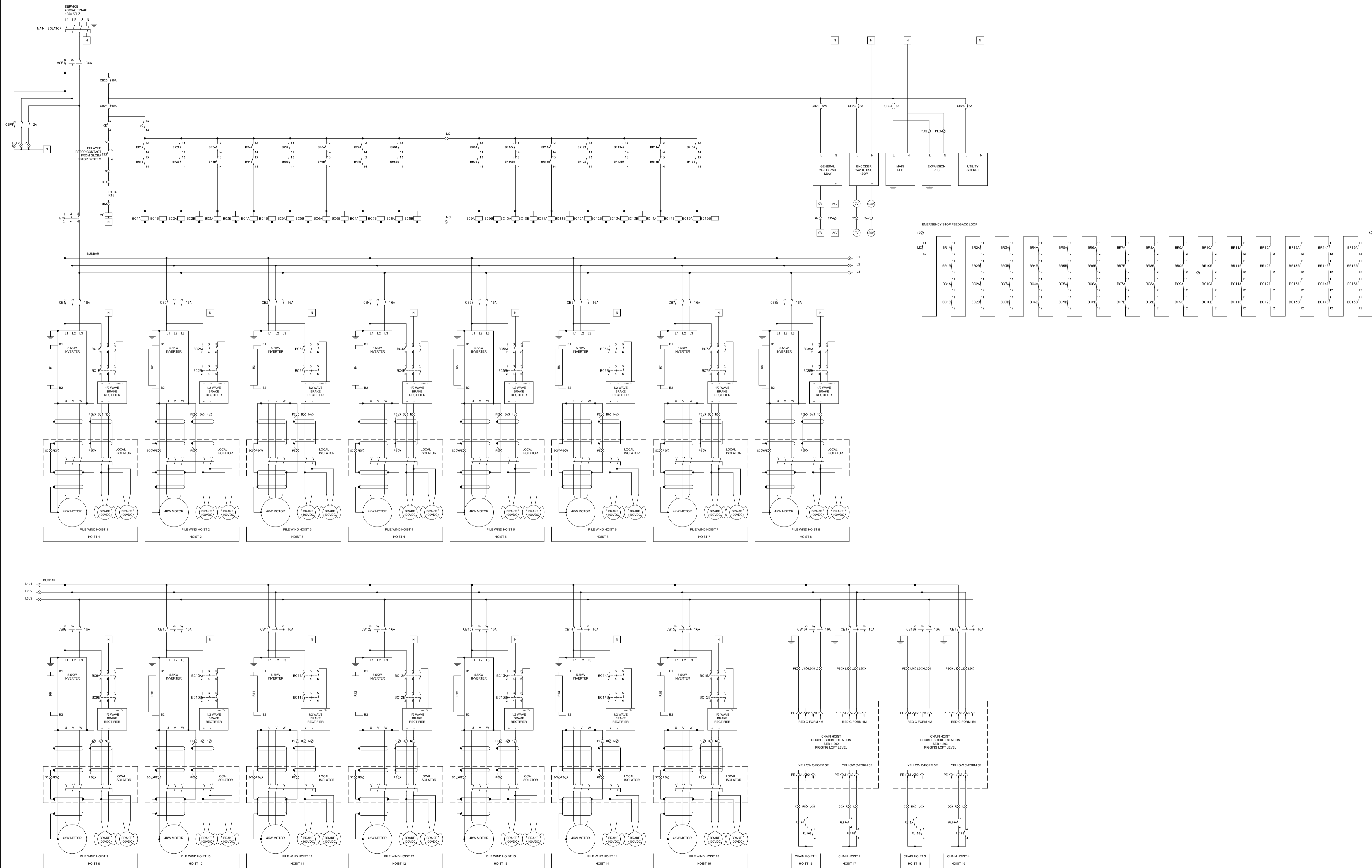
DRAWN:	SH	DATE:	28/04/2025
CHECKED:	JC	DATE:	28/04/2025
APPROVED:	OS	DATE:	28/04/2025
SCALE:	N.T.S.	PAPER SIZE:	A1



PROJECT	4334 - Oxford Humanities
JCJ NO.	4334-DE-99-0112
CLIENT NO.	U00NH-B-JC-J-CH-ZZ-DR-OT-990112

TITLE	Concert Hall Overstage Equipment Control System Power Diagram
PURPOSE	A5 - Accepted as Suitable for Record

Note: OUES Circuit Reference:
10/016/103/01.123N



Scale N.T.S.

REVISIONS			
REV.	BY	DESCRIPTION	DATE
P01	PT	FIRST ISSUE	03/01/2024
CD1	PT	For Construction	01/04/2024
C02	SH	FOR RECORD	28/04/2025

Notes:

Status:
 A - B - C -

All dimensions in mm unless otherwise stated. Do not scale.

DRAWN:	SH	DATE:	28/04/2025
CHECKED:	JC	DATE:	28/04/2025
APPROVED:	OS	DATE:	28/04/2025
SCALE:	N.T.S.	PAPER SIZE:	A1



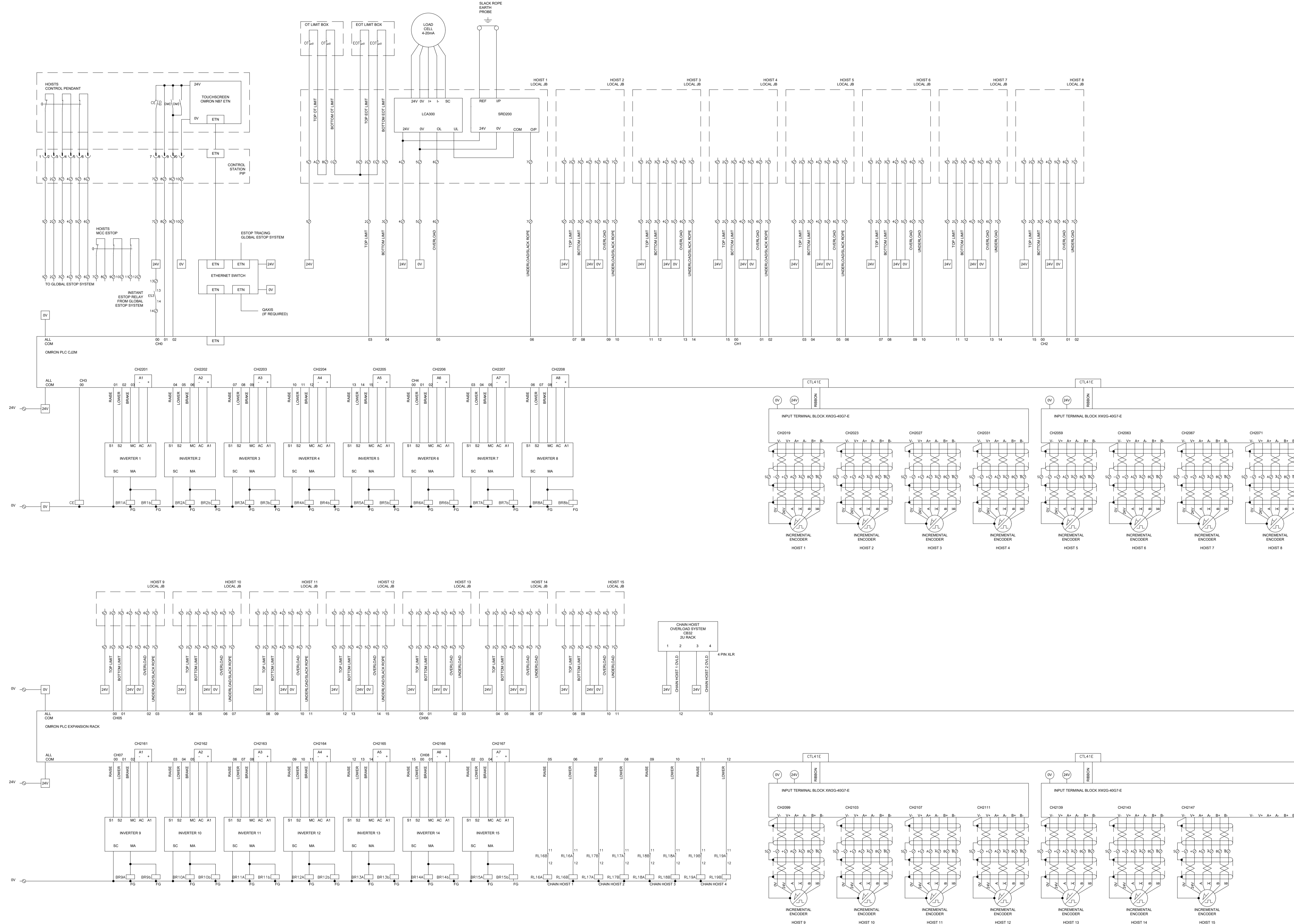
PROJECT 4334 - Oxford Humanities

JCJ NO. 4334-DE-99-0113

CLIENT NO. U00NH8-JCJ-CH-ZZ-DR-OT-990113

TITLE
 Concert Hall
 Overstage Equipment Control
 System
 Control Diagram

PURPOSE A5 - Accepted as Suitable for Record



Scale N.T.S.

REVISIONS			
REV.	BY	DESCRIPTION	DATE
P01	PT	FIRST ISSUE	03/01/2024
C01	PT	Response to Consultant's Comments & For Construction	28/03/2024
C02	JC	OUES SCHEDULE ADDED	03/06/2024
C04	SH	FOR RECORD	28/04/2025

Notes:
OUES Reference to be placed on door of MCCs;
10/016/103/6L123N

Location of MCCs & E-Stops shown on;
U00NHB-JCJ-CH-ZZ-DR-OT-990101

Status:
A - B - C -

All dimensions in mm unless otherwise stated. Do not scale.

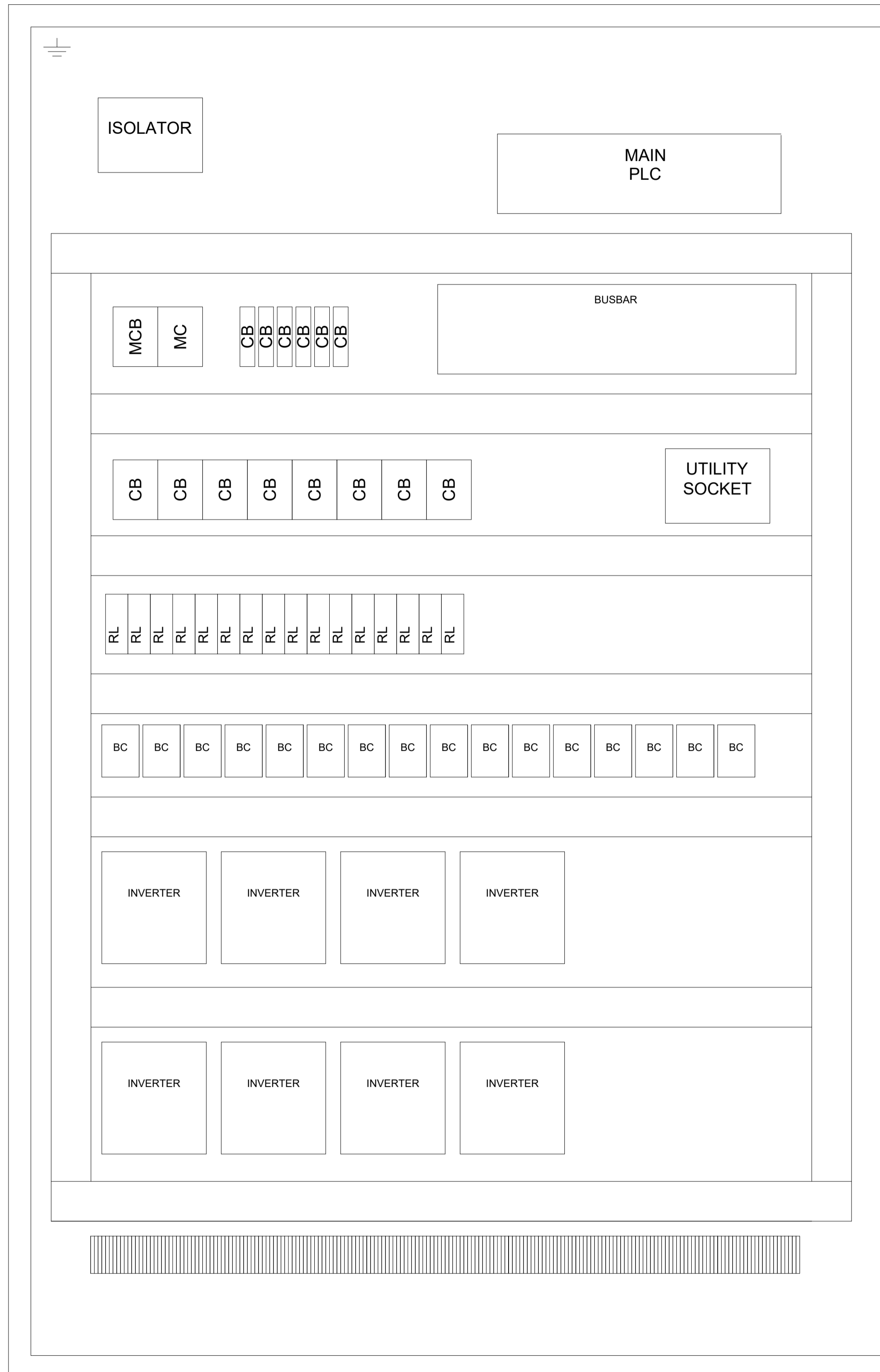
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CHECKED:	JC	DATE:	28/04/2025
APPROVED:	OS	DATE:	28/04/2025
SCALE:	N.T.S	PAPER SIZE:	A1

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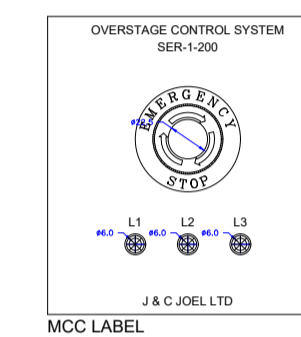
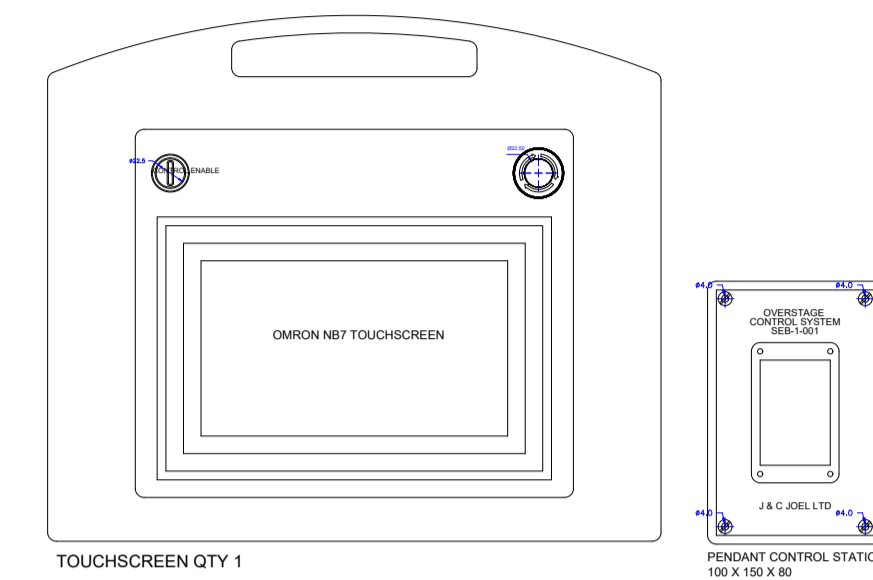
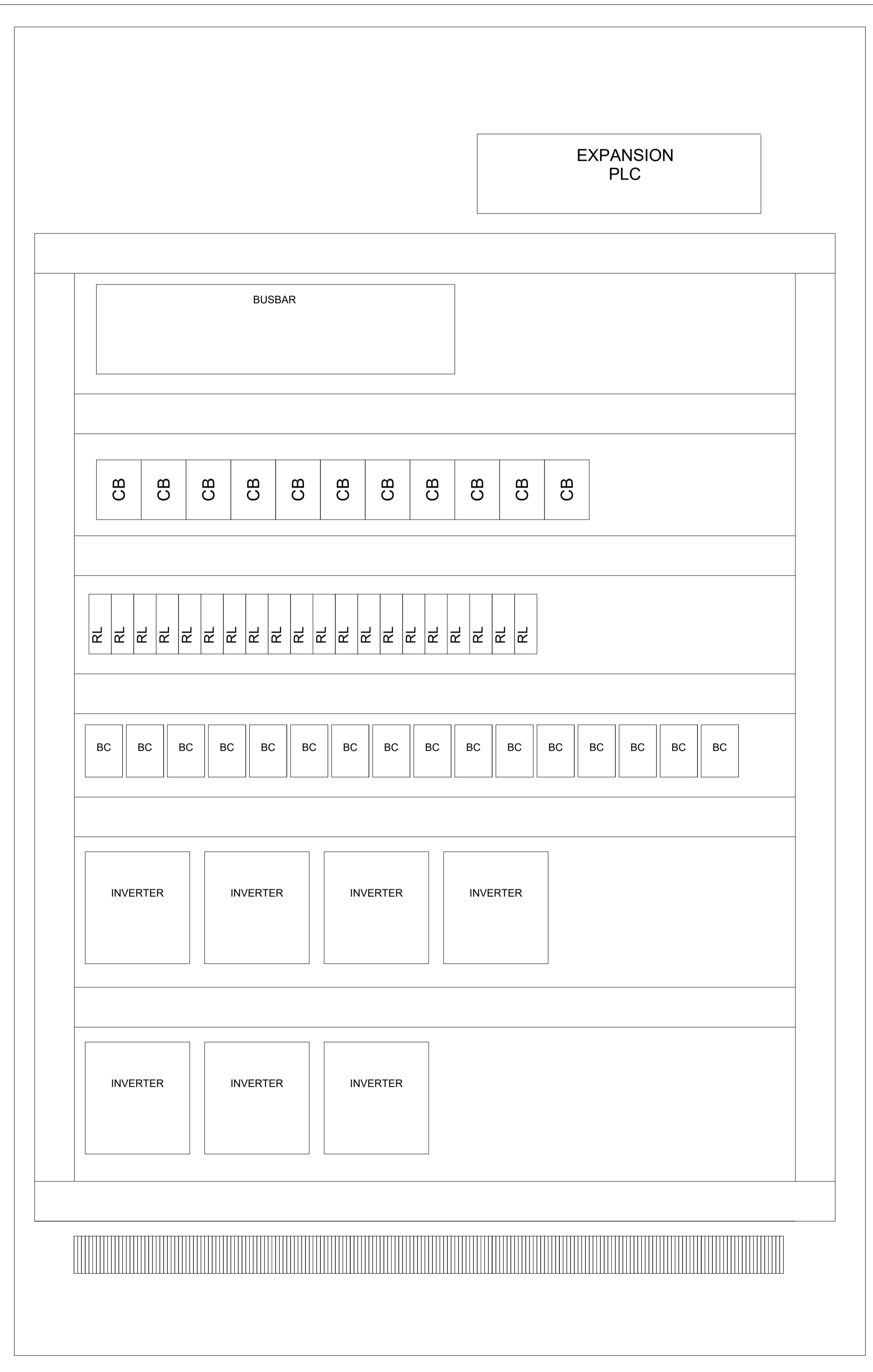
PROJECT	4334 - Oxford Humanities
JCJ NO.	4334-DE-99-0114
CLIENT NO.	U00NHB-JCJ-CH-ZZ-DR-OT-990114

TITLE	Concert Hall Overstage Equipment Control System General Arrangement
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PURPOSE	A5 - Accepted as Suitable for Record
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OVERSTAGE MCC
2NO 1800 X 1000 X 400



BRAKE RESISTOR MOUNTING TBD

REVISIONS			
REV.	BY	DESCRIPTION	DATE
P01	PT	FIRST ISSUE	03/01/2024
CD1	PT	For Construction	01/04/2024
C02	SH	FOR RECORD	28/04/2025

Notes:

Status:
 A - B - C -

All dimensions in mm unless otherwise stated. Do not scale.

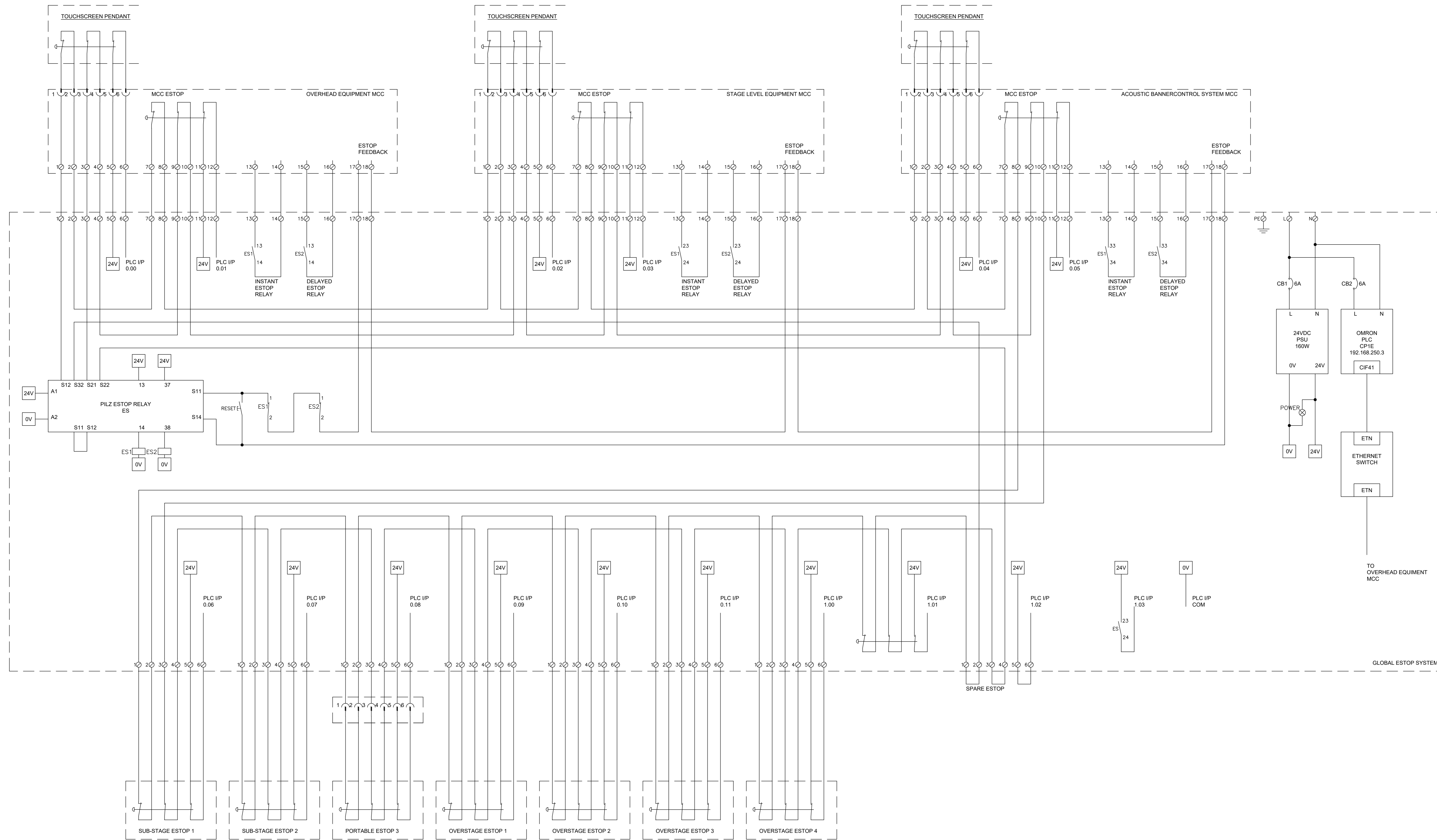
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CHECKED:	JC	DATE:	28/04/2025
APPROVED:	OS	DATE:	28/04/2025
SCALE:	N.T.S.	PAPER SIZE:	A1

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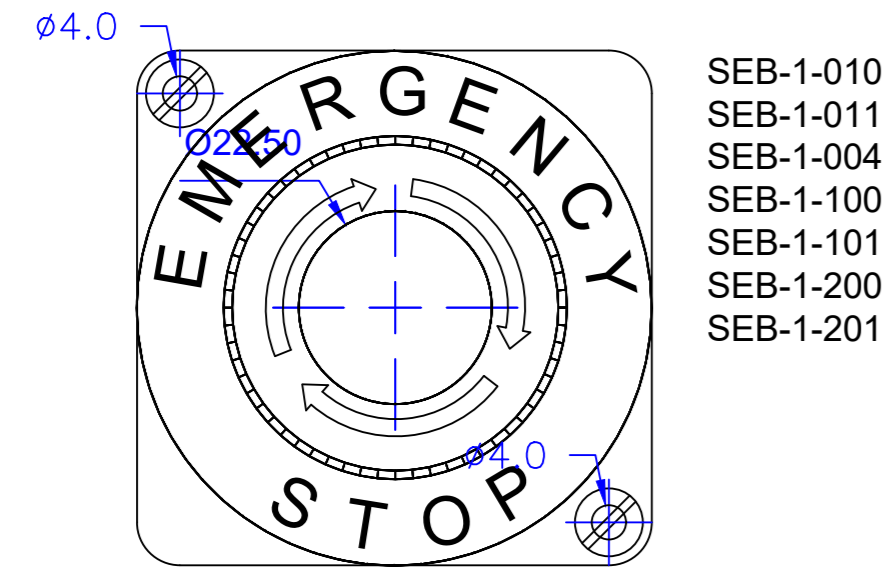
PROJECT	4334 - Oxford Humanities
JCJ NO.	4334-DE-99-0141
CLIENT NO.	U00NH-B-JC-J-CH-ZZ-DR-OT-990141

TITLE	Concert Hall E-Stop - Electrical Schematic Diagram
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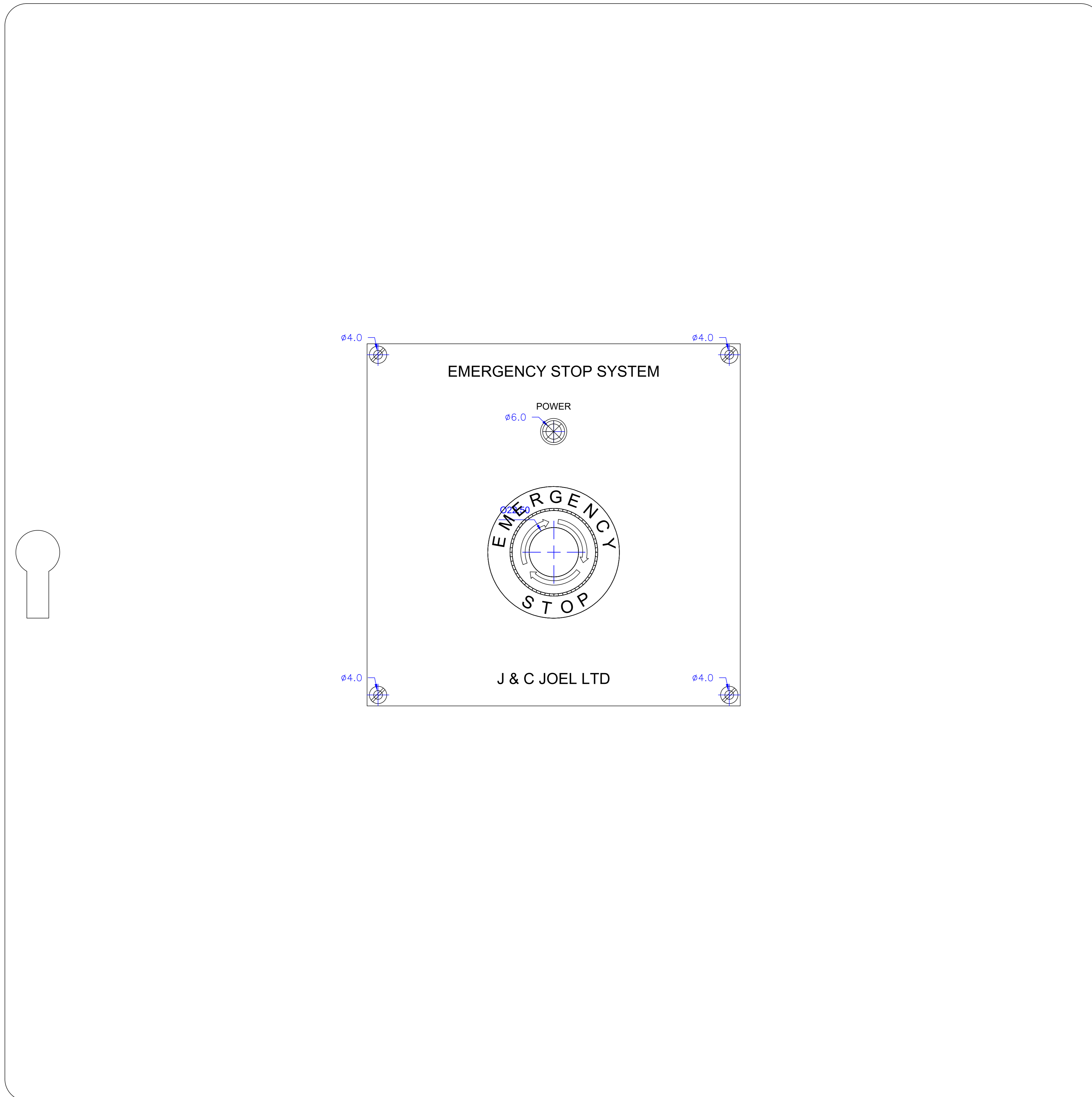
PURPOSE	A5 - Accepted as Suitable for Record
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Scale N.T.S.



**ESTOP STATIONS
QTY 7**



See drawing

U00NHB-JCJ-CH-ZZ-DR-OT-990101
U00NHB-JCJ-CH-ZZ-DR-OT-990102
U00NHB-JCJ-CH-ZZ-DR-OT-990103

for Setting Out .

Colour Light Grey, No custom colour allowed for any item

Status:
A - B - C -

All dimensions in mm unless otherwise stated. Do not scale.

DRAWN:	SH	DATE:	28/04/2025
CHECKED:	JC	DATE:	28/04/2025
APPROVED:	OS	DATE:	28/04/2025
SCALE:	N.T.S	PAPER SIZE:	A1

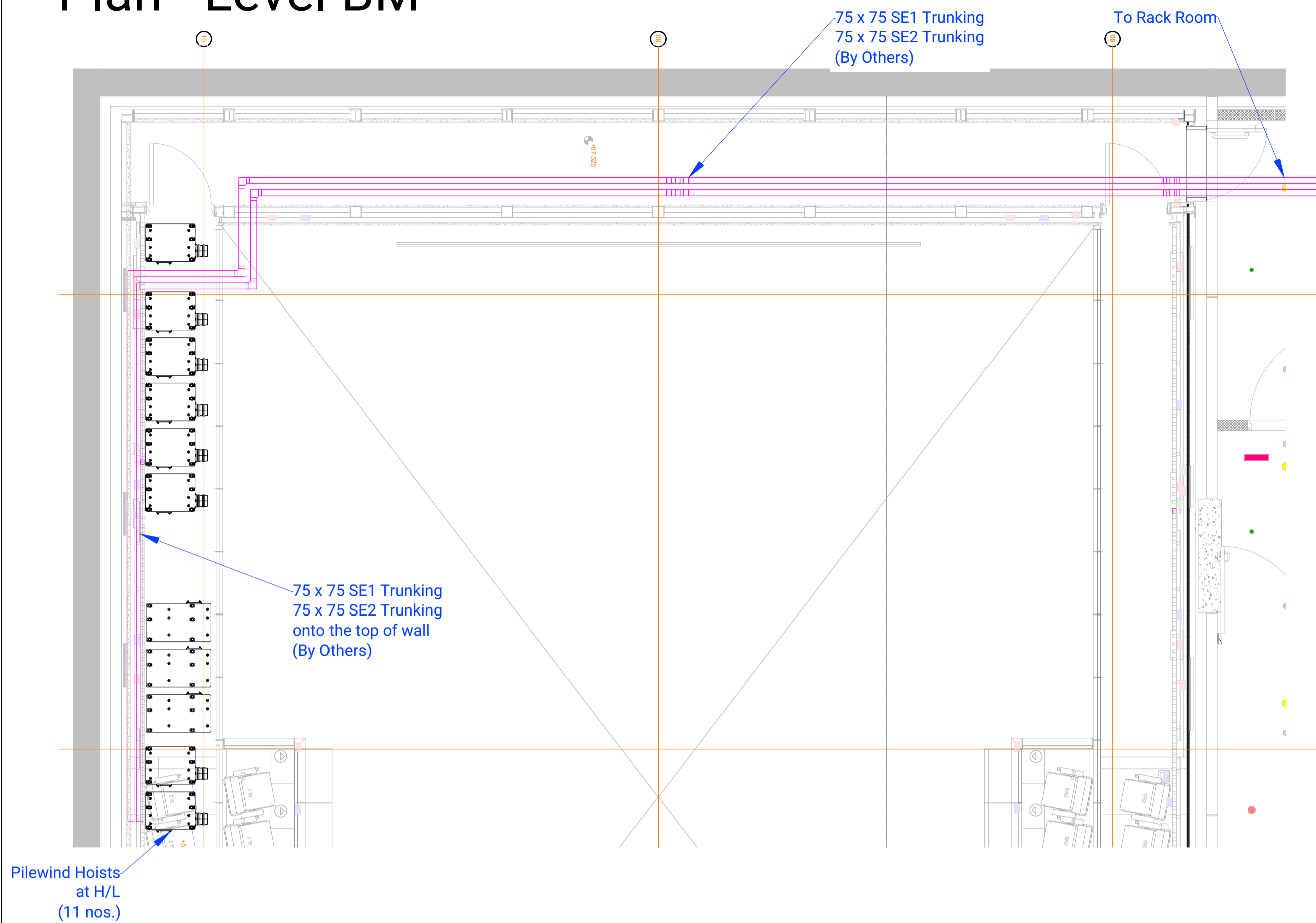
J&C Joel 
Inspiration in every performance

PROJECT	4334 - Oxford Humanities		
JCJ NO.	4334-DE-99-0142		
CLIENT NO.	U00NHB-JCJ-CH-ZZ-DR-OT-990142		
TITLE	Concert Hall E-Stop General Arrangement		
PURPOSE	A5 - Accepted as Suitable for Record		
	REV	C03	

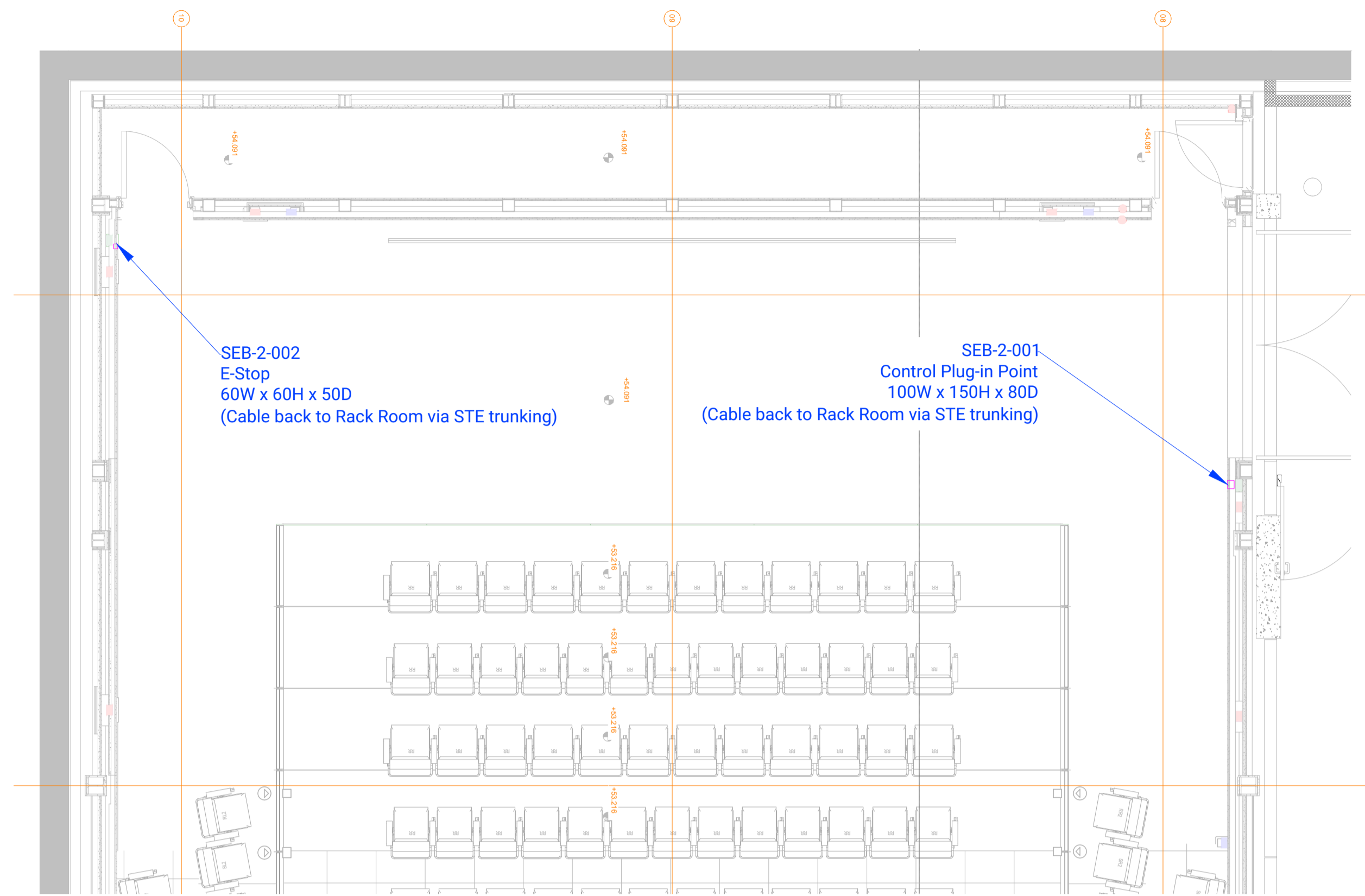
**EMERGENCY STOP SYSTEM
500 X 500 X 200**

Scale N.T.S.

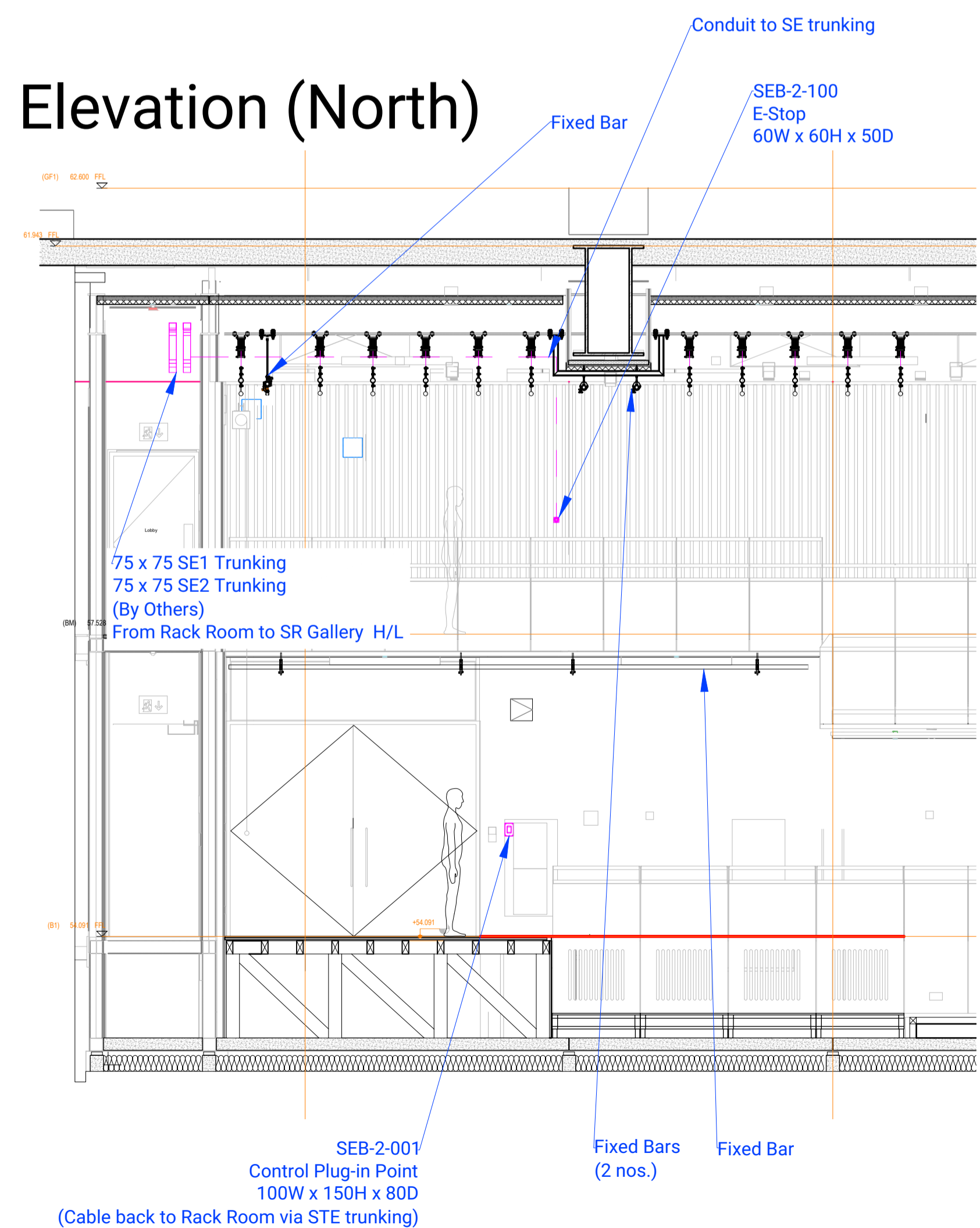
Plan - Level BM



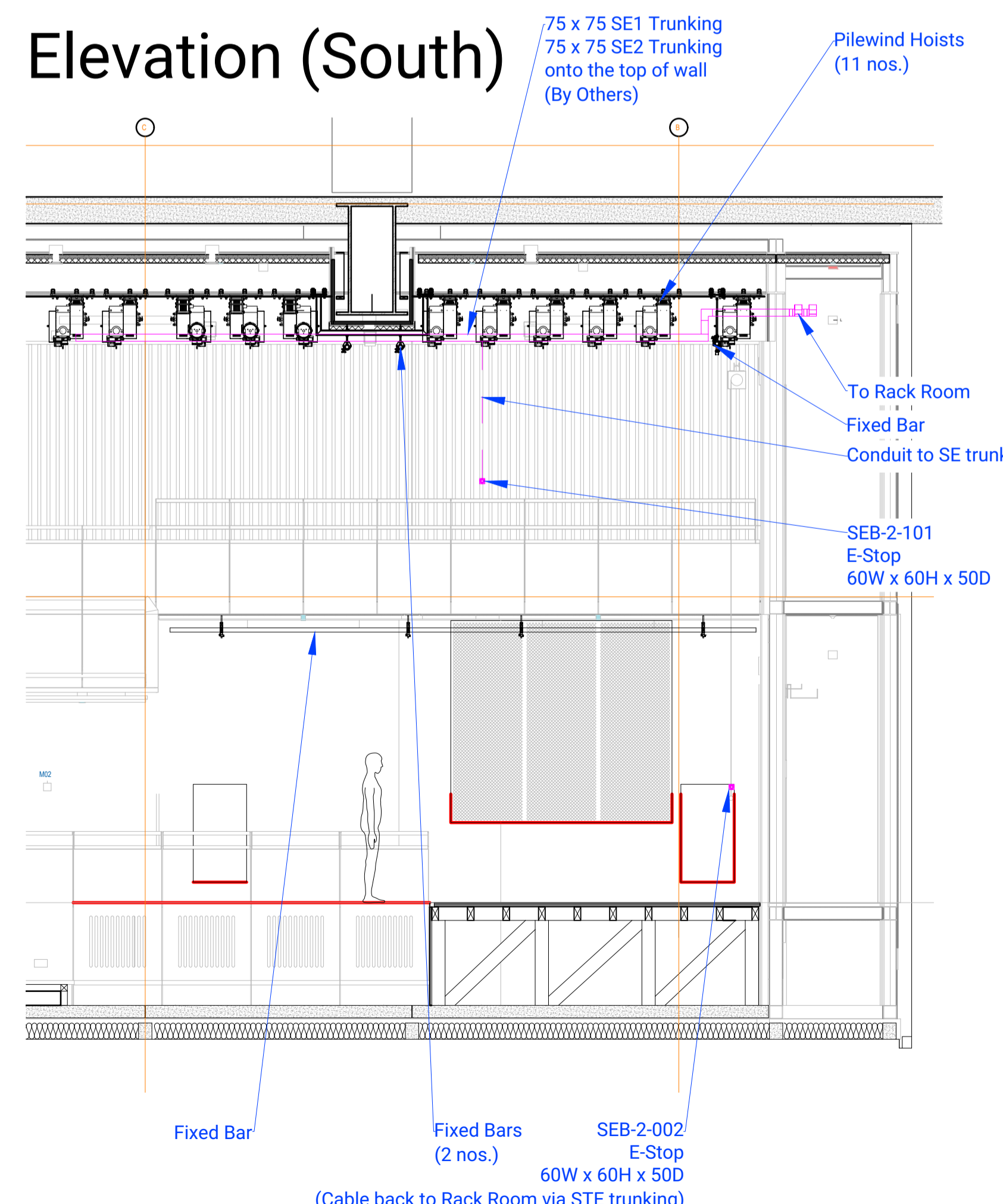
Plan - Level B1



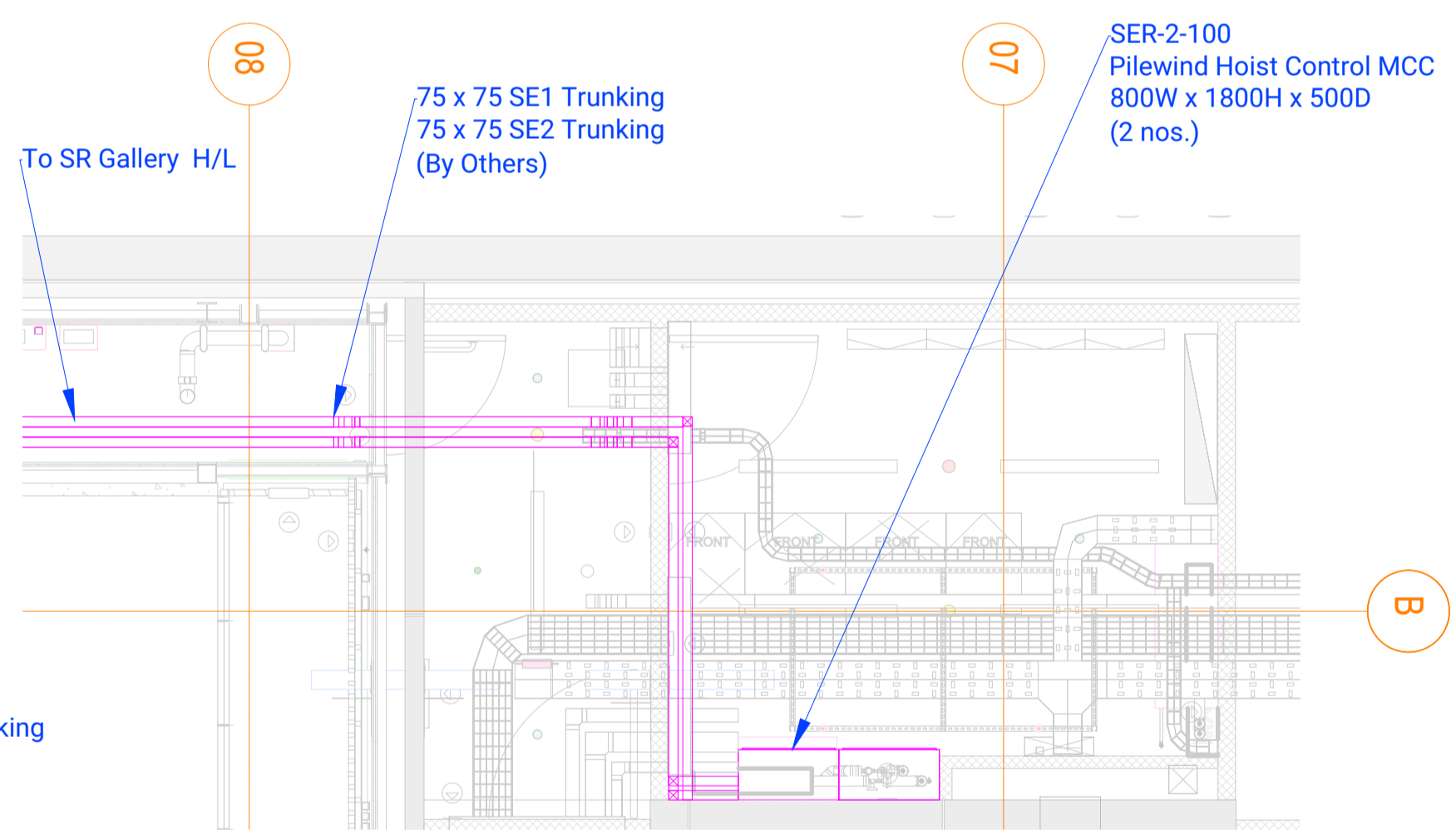
Elevation (North)



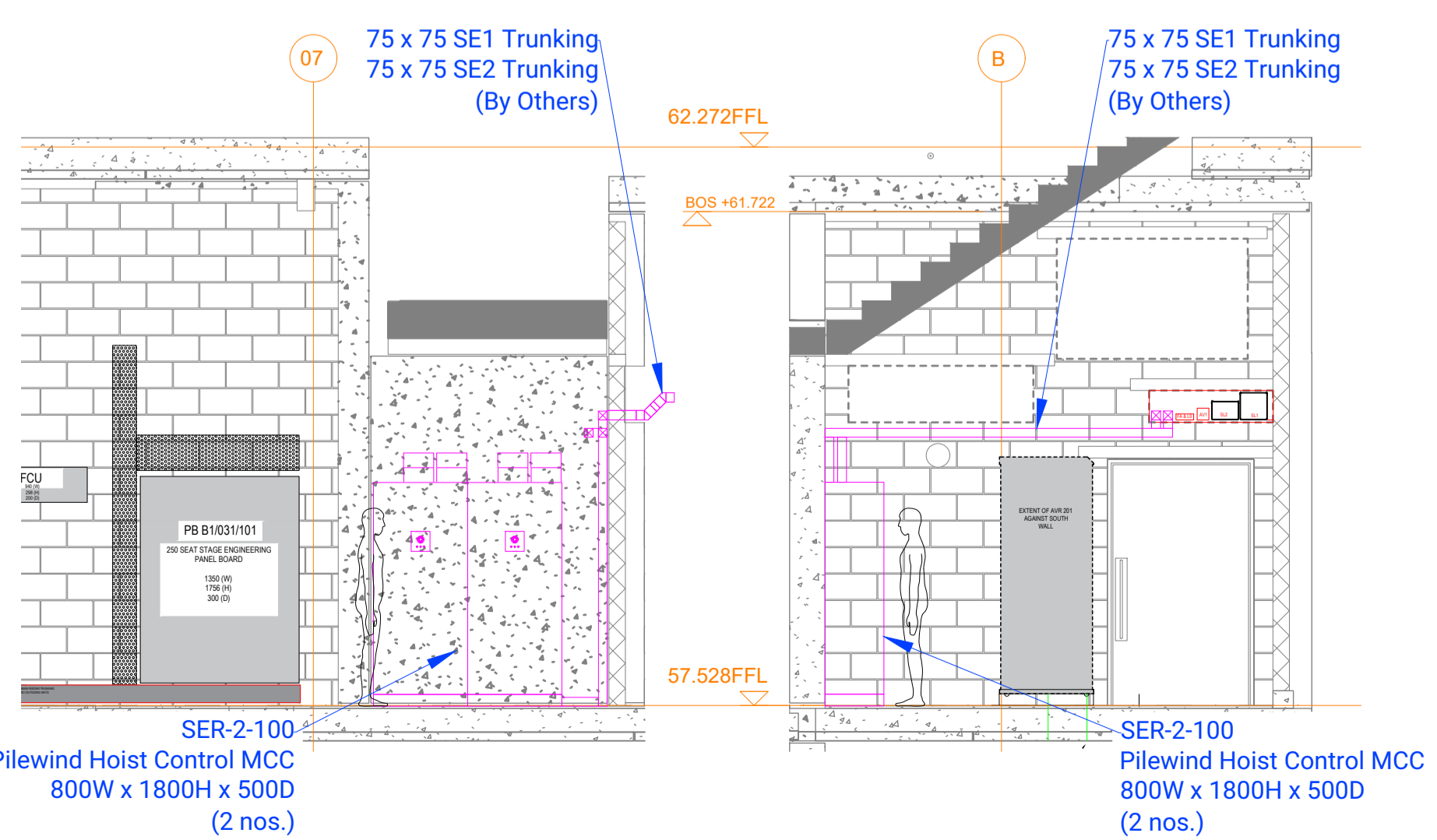
Elevation (South)



Plan - Rack Room



Elevation - Rack Room (North & East)



Scale 1:50

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REVISIONS			
REV.	BY	DESCRIPTION	DATE
A	AM	FIRST ISSUE	23/05/2024
C01	SH	CONSTRUCTION ISSUE	15/04/2025
C02	SH	For Record	28/04/2025

Notes:

- Should be read in conjunction with the following drawings:
 - UOONHB-JCJ-T2-04-DR-OT-140001
 - UOONHB-JCJ-T2-XX-DR-OT-140002
 - UOONHB-JCJ-T2-XX-DR-OT-140003
 - UOONHB-JCJ-T2-XX-DR-OT-140004
 - UOONHB-JCJ-T2-XX-DR-OT-140007
 - UOONHB-JCJ-T2-ZZ-DR-OT-140008
 - UOONHB-JCJ-T2-ZZ-DR-OT-140009
 - UOONHB-JCJ-T2-ZZ-DR-OT-140010
 - UOONHB-JCJ-T2-ZZ-DR-OT-140011
 - UOONHB-JCJ-T2-ZZ-DR-OT-990211
 - UOONHB-JCJ-T2-ZZ-DR-OT-990212
 - UOONHB-JCJ-T2-ZZ-DR-OT-990213
 - UOONHB-JCJ-T2-ZZ-DR-OT-990214
- Base drawing used
 - UOONHB-HAL-T2-BM-DR-A-005700_P02
 - UOONHB-HAL-T2-BM-DR-A-005701_P02
 - UOONHB-HAL-T2-ZZ-DR-A-005720_P02
 - UOONHB-HAL-T2-ZZ-DR-A-005722_P03
 - UOONHB-STE-T2-BM-DR-OT-132910_P01
- Primary containment SE1 & SE2 provided by others
- 400VAC TPN&E 125A power supply to MCC provided by others

Status:

A - B - C -

All dimensions in mm unless otherwise stated. Do not scale.

DRAWN:	AM	DATE:	28/04/2025
CHECKED:	JC	DATE:	28/04/2025
APPROVED:	OS	DATE:	28/04/2025
SCALE:	1 : 50	PAPER SIZE:	A1

J&C Joel

Inspiration in every performance

PROJECT	4334 - Oxford Humanities
JCJ NO.	4334-GA-99-0201
CLIENT NO.	UOONHB-JCJ-BB-ZZ-DR-OT-990201
TITLE	260 Seat Theatre Control Layout General Arrangement
PURPOSE	A5 - Accepted as Suitable for Record

REV	C02
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REVISIONS

REV.	BY	DESCRIPTION	DATE
P01	PT	FIRST ISSUE	04/01/2024
C01	PT	Response to Consultant's Comments & For Construction	29/03/2024
C02	JC	OUES SCHEDULE ADDED	03/06/2024
C03	SH	FOR RECORD	28/04/2025

Notes:

Status:

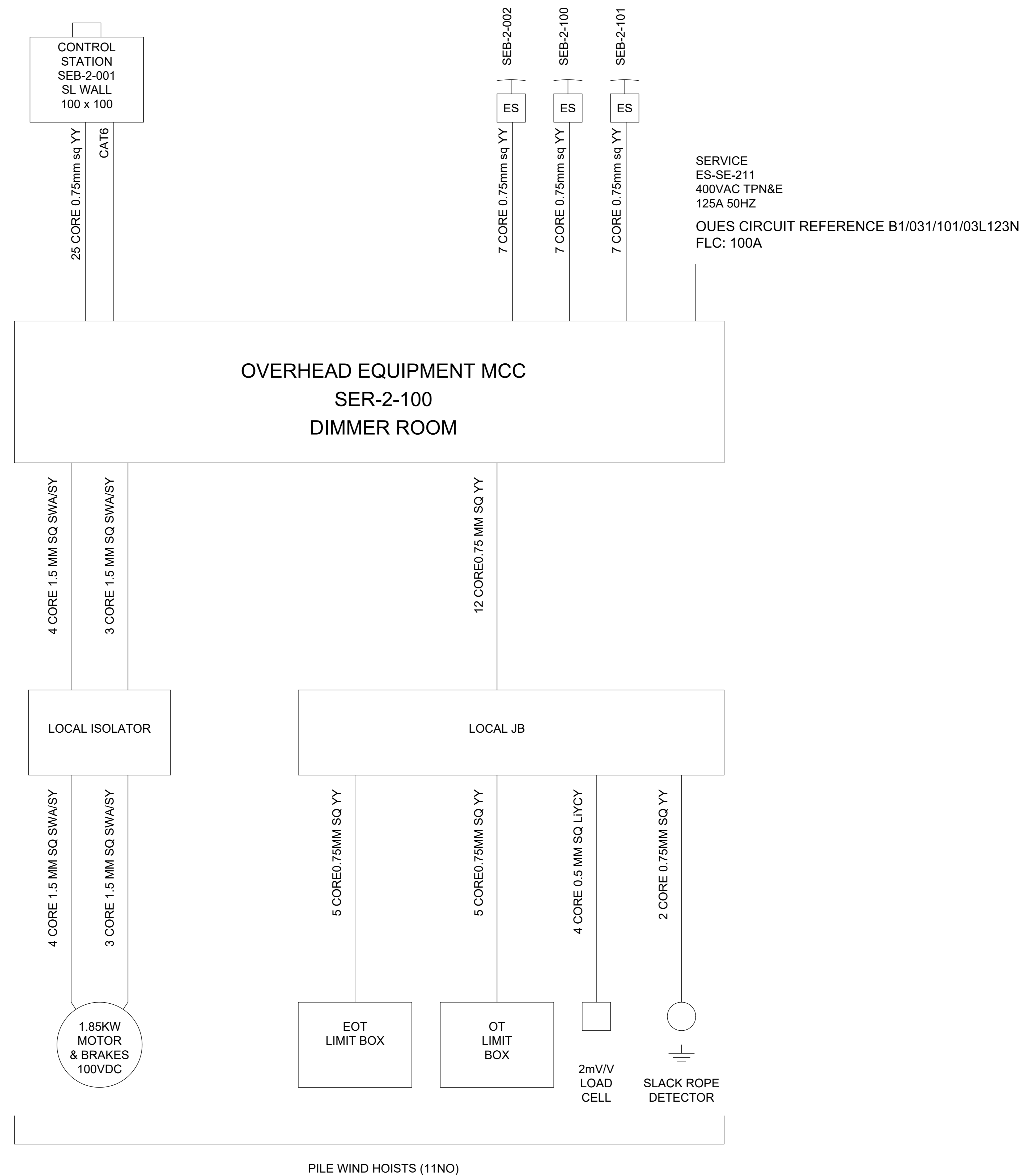
A - B - C -

All dimensions in mm unless otherwise stated. Do not scale.

DRAWN:	SH	DATE:	28/04/2025
CHECKED:	JC	DATE:	28/04/2025
APPROVED:	OS	DATE:	28/04/2025
SCALE:	N.T.S	PAPER SIZE:	A1

J&C Joel 
Inspiration in every performance

PROJECT	4334 - Oxford Humanities		
JCJ NO.	4334-DE-99-0211		
CLIENT NO.	U00NHB-JCJ-T2-ZZ-DR-OT-990211		
TITLE	250 Seat Theatre Overstage Equipment Control System Line Diagram		
PURPOSE	A5 - Accepted as Suitable for Record		
	REV	C03	



Scale N.T.S.

REVISIONS			
REV.	BY	DESCRIPTION	DATE
P01	PT	FIRST ISSUE	04/01/2024
C01	PT	Response to Consultant's Comments & For Construction	29/03/2024
C02	JC	OUES SCHEDULE ADDED	03/06/2024
C03	SH	FOR RECORD	28/04/2025

Notes:

Status:
 A - B - C -

All dimensions in mm unless otherwise stated. Do not scale.

DRAWN:	SH	DATE:	28/04/2025
CHECKED:	JC	DATE:	28/04/2025
APPROVED:	OS	DATE:	28/04/2025
SCALE:	N.T.S.	PAPER SIZE:	A1

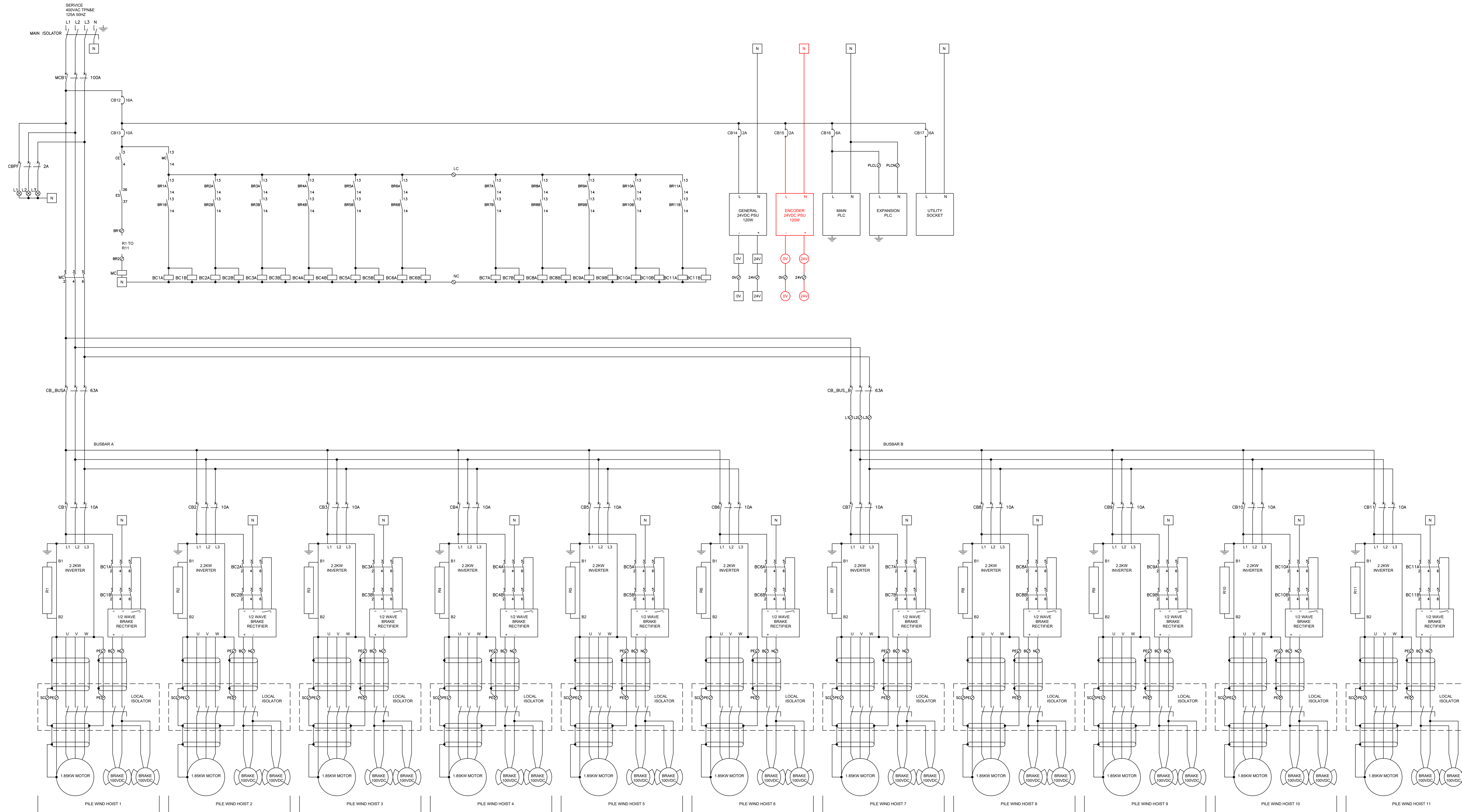


PROJECT	4334 - Oxford Humanities
JCJ NO.	4334-DE-99-0212
CLIENT NO.	U00NHB-JCJ-T2-ZZ-DR-OT-990212

TITLE
 250 Seat Theatre
 Overstage Equipment Control
 System
 Power Diagram

PURPOSE
 A5 - Accepted as
 Suitable for Record

Note: OUES Circuit Reference
 B1/031/101/03L123N



Scale N.T.S.

REVISIONS			
REV.	BY	DESCRIPTION	DATE
P01	PT	FIRST ISSUE	04/01/2024
C01	PT	For Construction	02/04/2024
C02	SH	FOR RECORD	28/04/2025

Notes:

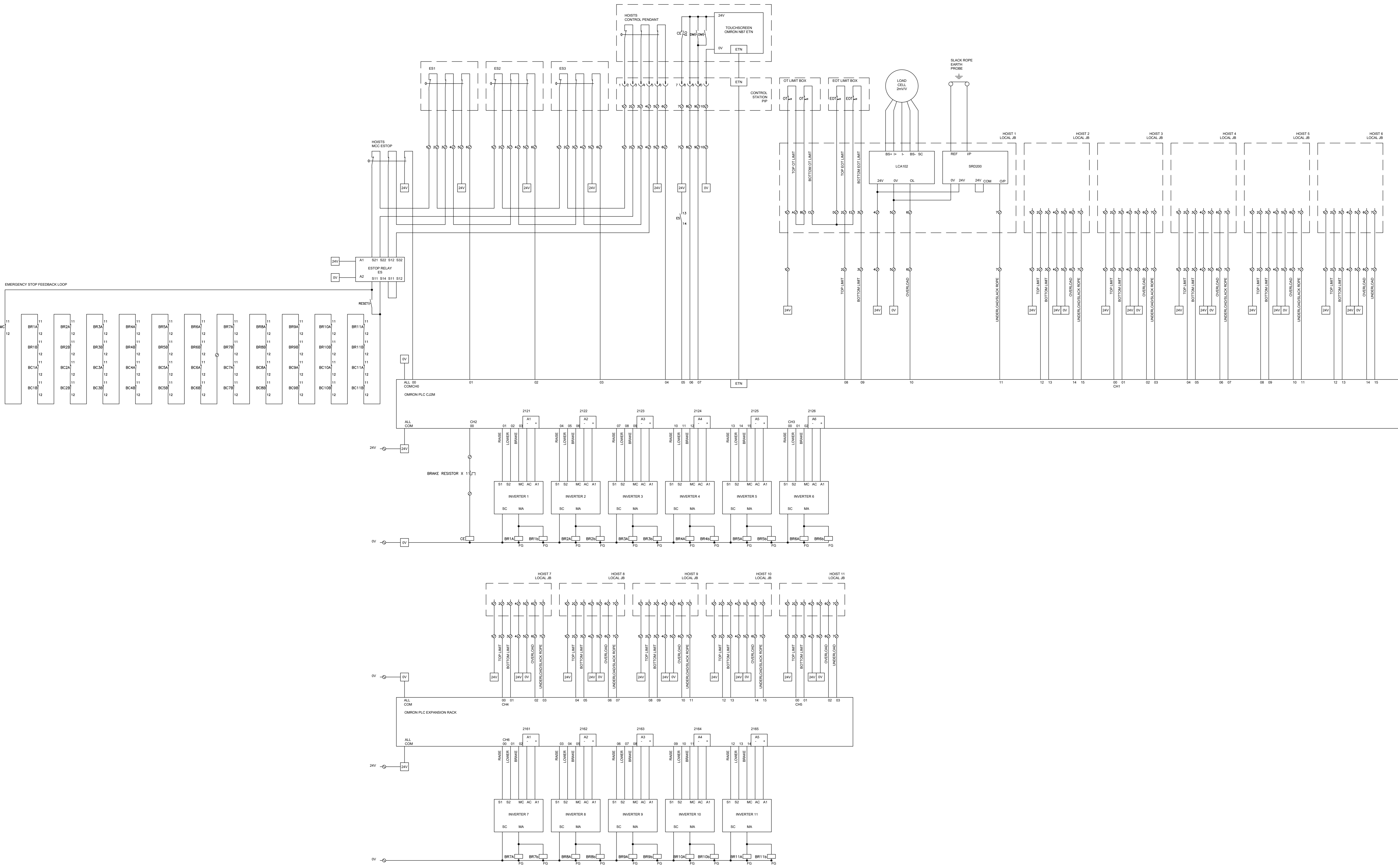
Status:
 A - B - C -

All dimensions in mm unless otherwise stated. Do not scale.

DRAWN:	SH	DATE:	28/04/2025
CHECKED:	JC	DATE:	28/04/2025
APPROVED:	OS	DATE:	28/04/2025
SCALE:	N.T.S.	PAPER SIZE:	A1



PROJECT	4334 - Oxford Humanities		
JCJ NO.	4334-DE-99-0213		
CLIENT NO.	U00NHB-JCJ-T2-ZZ-DR-OT-990213		
TITLE	250 Seat Theatre Overstage Equipment Control System Control Diagram		
PURPOSE	A5 - Accepted as Suitable for Record		
		REV	C02



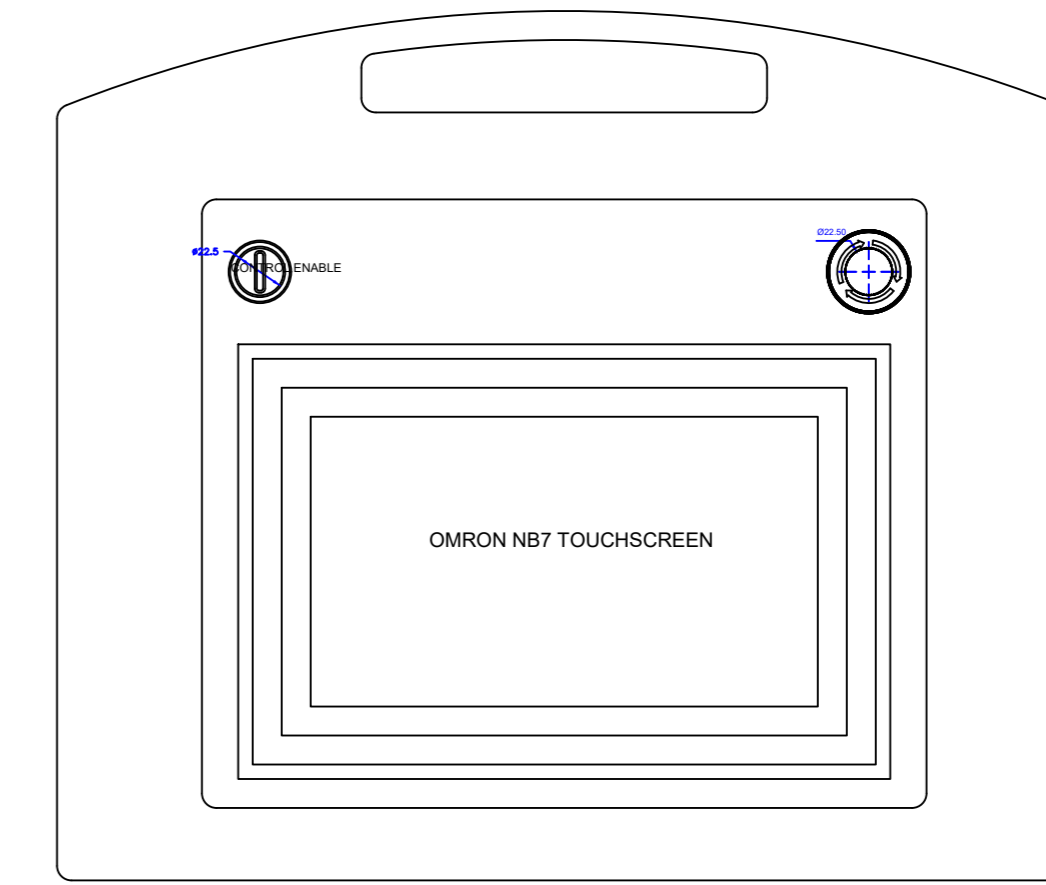
Scale N.T.S.

REVISIONS

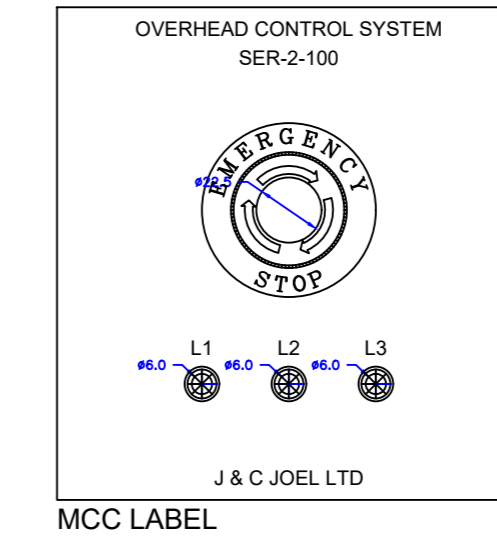
REV.	BY	DESCRIPTION	DATE
P01	PT	FIRST ISSUE	04/01/2024
C01	PT	Response to Consultant's Comments & For Construction	04/01/2024
C02	JC	OUES SCHEDULE ADDED	03/06/2024
C03	SH	FOR RECORD	28/04/2025

Note: OUES Circuit Reference Label to be placed on the cabinet door; B1/031/101/03L123N

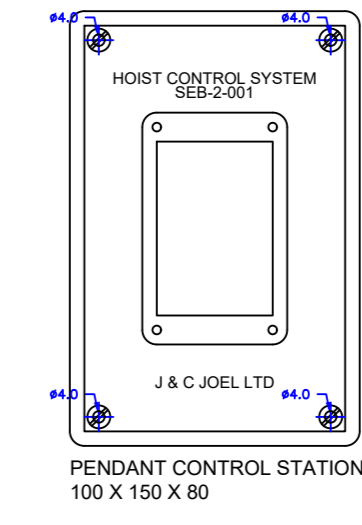
Location of MCCs & E-Stops:
UOONHB-JCJ-T2-ZZ-DR-OT-990201



TOUCHSCREEN QTY 1



MCC LABEL



PENDANT CONTROL STATION 150 X 150 X 80

BRAKE RESISTOR MOUNTING TBD

Status:

A - B - C -

All dimensions in mm unless otherwise stated. Do not scale.

DRAWN:	SH	DATE:	28/04/2025
CHECKED:	JC	DATE:	28/04/2025
APPROVED:	OS	DATE:	28/04/2025
SCALE:	N.T.S	PAPER SIZE:	A1

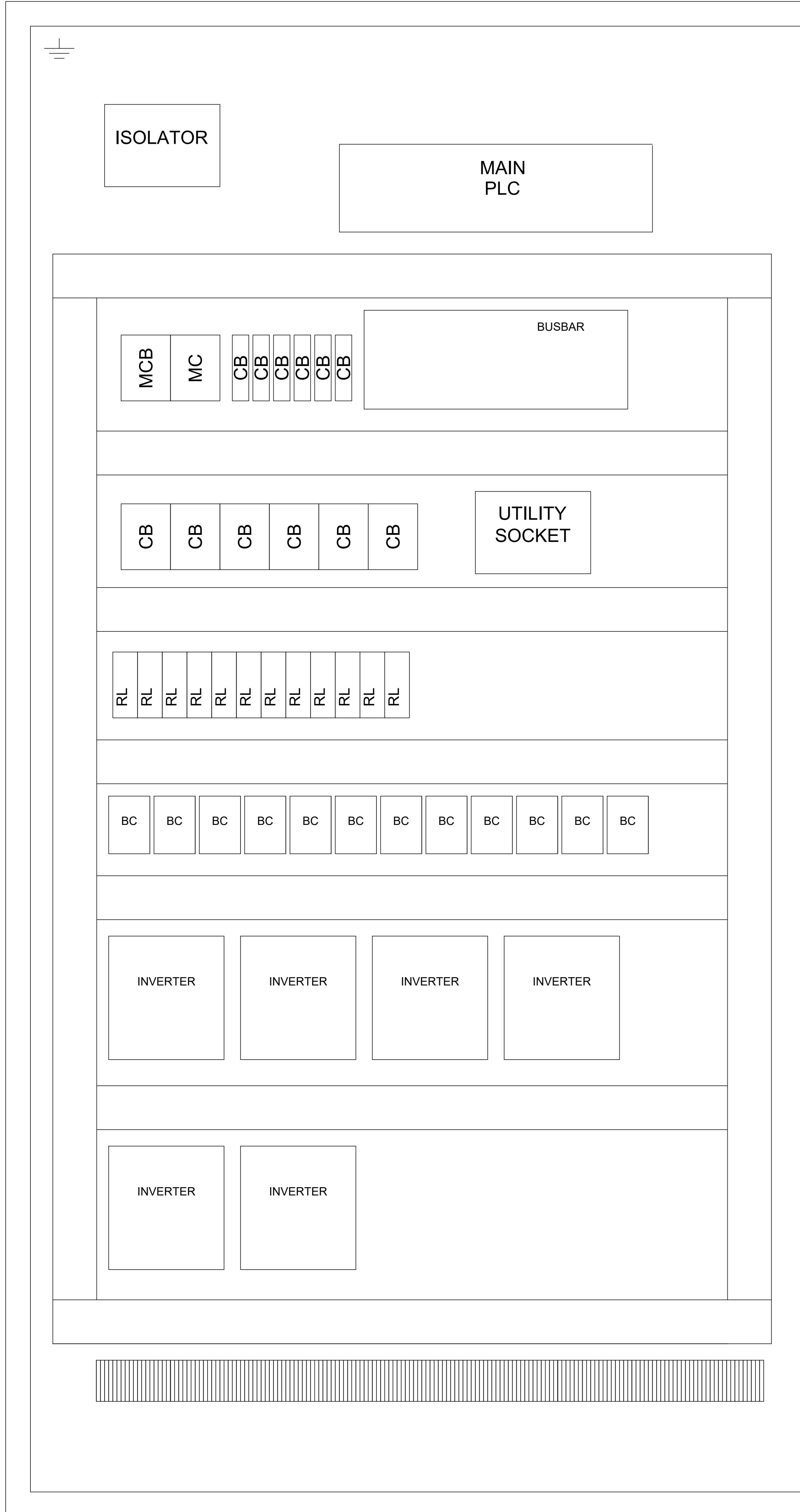
J&C Joel 
Inspiration in every performance

PROJECT	4334 - Oxford Humanities
JCJ NO.	4334-DE-99-0214
CLIENT NO.	UOONHB-JCJ-T2-ZZ-DR-OT-990214

TITLE	250 Seat Theatre Overstage Equipment Control System General Arrangement
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PURPOSE	A5 - Accepted as Suitable for Record
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REV C03



OVERHEAD MCC
2NO 1800 X 800 X 500 (DOUBLE DOORS)

Scale N.T.S.

