OHSAS 18001

Occupational Health & Safety
Certified Management System

Safe System of Work & Construction Phase Plan

Document Number	4.00 - 13207
Version	B
Project Name	Butlins Temporary Venue - Bognor Regis
Project Number	13207

Company Policies	**Level 1**
Product Technical Files	**Level 2**
Safe Work Procedure	**Level 3**
Safe System of Work	**Level 4**
System Management	**Level 5**

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OHS Management System

The principal activities of the company are the provision of stages, grandstands, rigging, other temporary event structures and design services for indoor and outdoor events. These require the supply and operation of a significant number of different products, in sometimes challenging environments, across the world.

A core feature of our OHS management system is that we have combined our Risk Assessments and Method Statements for each product, to produce a single risk assessed Method Statement that is presented as a Job Safety Analysis (JSA). This technique is widely used for major hazard sites and has been found to be particularly effective as a "bottom up worker engagement method" to reduce unsafe conditions and drive behavioural change.

To ensure that our Occupational Health and Safety documentation remains focussed, up to date and accessible to all users, our certified management system uses a hierarchical approach that cascades information down through four levels, each of which is written in language to suit the intended readers:

Level 1 - Company Policies
This level sets out the company's over-arching strategies and describes the arrangements for processes that are not product or project specific (such as Transport, Crane operations, Warehousing, Yard Operations, COSHH, HAV etc). Intended readers include Clients, Senior Managers, Project Managers and Crew Chiefs.

Level 2 - Product Technical Files
Every Star Live product has a Technical File. Based on the methodology of *Temporary Demountable Structures, 4th Edition*, these include all Basis of Design information, technical specifications and drawings, generic lift plan, bad weather arrangements and any other details needed for safe erection and use.
The JSA contains clear identification of any residual risks and the mitigation measures to enable the Product to be safely installed and removed. The mitigation measures reference relevant Level 3 '*Safe Work Procedures*' when greater task specific details are required. Intended readers include Clients, outside organisations who work on our structures, Project Managers and Crew Chiefs.

Level 3 - Safe Work Procedures
These are task specific and are deliberately written in simple, frequently pictorial, language for site workers, regardless of the length or status of their work for/with us. They focus on the key requirements to mitigate the risks from the relevant activity and are referenced in all our JSAs.

Level 4 - Safe Systems of Work
A Safe System of Work document is created for every project, some of which will feature the deployment of multiple products. This document draws on the information in Levels 1 to 3 and sets out how we will manage health and safety on that project, including any project or site-specific changes required to the generic information for the products. Intended readers include our Clients, Project Managers, Crew Chiefs & crew.

System Management
Alongside the documents that make up the 4-level system there is a complete suite of forms and document templates required to operate our certified OHS system and capture essential data.

Information Gathering
Our management of Occupational Health & Safety generates data from a combination of:

- Near miss reporting
- Safety audits
- Site inspections
- Work premises inspections
- Employee and sub-contractor reports and feedback

This is collated and assessed by our Health & Safety Committee and used to modify procedures and documents in all five levels. OHS is a standing agenda item at all Board meetings.

This is a Level 4 document.

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Responsibilities
Star Live takes its responsibilities to provide safe structures that are built using safe methods very seriously. Consequently, relevant principal officers of the company can be contacted directly in the event of any concerns. The lead director for all Occupational Health & Safety issues is Roger Barrett, who is a Specialist Fellow of the International Institute of Risk & Safety Management.

Technical		
Roger Barrett Eng Tech, TIStructE, SFIIRSM, MIoD	Technical Director	roger@stargrouplive.com
Andrew Grantham	Design Manager	a.grantham@stargrouplive.com
Work Methods		
Andrew Moss	Group Operations Manager	a.moss@stargrouplive.com
Gavin Scott	Special Projects Manager	g.scott@stargrouplive.com
Compliance		
Grahame Muir	Chief Operating Officer	grahame@stargrouplive.com

Confidential reporting
Anyone, including staff, clients and third-party workers can confidentially report any concerns or suggestions at any time:

Safety concerns or suggestions	safety@stargrouplive.com
Technical concerns or suggestions	design@stargrouplive.com

Implementation
Star Live, its officers, staff and approved sub-contractors are committed to the implementation, monitoring and review of the health and safety arrangements outlined within the documents in this OHS management system. Star Live recognises and acknowledges that the relevant documents form part of its arrangements for delivering contracted structures and services for all projects.

Sub-contractors working on behalf of Star Live are aware that by **NOT** applying and following the procedures and controls established within this document series, they may be deemed to have failed to make suitable and sufficient arrangements for Health and Safety and would be in breach of their agreed Contract for Service with Star Live.

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Document Status

All our OHS management System documents are reviewed on an annual basis to ensure the control measures in place are still effective as the business changes and new products are introduced.

Date	Assessor	Comments	Signature	Version
11 January 2021	Gavin Scott	Document created or main structure installation, fit-out not included		DRAFT
14 January 2021	Roger Barrett	Approval for issue		A
15 January 2021	Gavin Scott	Updates on traffic management and site working hours		B

Project Information

The information set out in this section is specific to the project and the activities required have been reviewed. The procedures outlined in the JSA's found in the Level 2 Product Technical Files are applicable to the project. Any further procedural information that is not already outlined or is different to what is currently contained in the Level 2 documents will be added to the JSA section towards the rear of this safe system of work.

1. General	
Project	Butlins Temporary Venues - Bognor Regis
Project Reference	13207
Site Address	Butlins Bognor Regis, Upper Bognor Rd, Bognor Regis PO21 1JJ
Activity	temporary 65m x 40m clear span venue installation. Internal fit-out to be added in later version.
Start Date	18 April 2021
Finish Date	23 May 2021

2. Key Roles & Contact Numbers		
Technical Director	Roger Barrett	07802 323 677
Project Manager	Loren Johnson	07986 995 766
Project/Site Manager	Gavin Scott	07931 562 667
Project/Site Manager	Joe Stimpson	07894 804 760
Head Rigger	Steve Nelmes	07970 692 690
Construction Manager	Chris Lewis	07786 660 095

3. CDM	
Client	Bourne Leisure Ltd
Principal Designer	Bourne Leisure Ltd
Principal Contractor	Star Group Live Ltd
Contractor	Various
Notifiable project?	No
HSE Ref	n/a

4. Site Opening Hours	
Monday to Friday	08:00am to 18:00pm
Saturday	08:00am to 13:00pm
Sunday	Closed
NB: Any works taking place outside this time will need prior approval from the Butlins Resort Management and will be limited to 'quiet' works only.	

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5. Traffic Management	
Site Routing	To avoid any site transport diverting through the Bognor Regis town centre and the Esplanade, all delivery trucks will be requested to approach (and subsequently leave) the site using the A259 Bognor Road (from Chichester), taking the North Berstead Bypass and Rowan Way routing before picking up the A29 Shripney Road southbound. Taking the first exit at the Bognor Regis War Memorial Hospital roundabout they will drive down the B2259 before taking a right turn at the NE corner of Hatham Park and driving down High Street. At the mini roundabout they will turn off on to Gloucester Road before turning left on the unmarked road north of the Gloucester Road car park and left again into the Butlin Day Visitors entrance. Please refer to 'Appendix C - Site Routing' for supporting maps.
Site Entrance	All site personnel and deliveries will use the Gloucester Road 'Day Visitors' entrance to the west of the resort. The resort security staff at the entrance will notify the site office (via radio) and once approved will usher vehicles the short distance west bound directly to the site compound/parking area.
Site Perimeter	The security hoarding for the site will consist of Heras style fencing along with covers supplied by Butlins. Wind bracing bays for the fencing will be utilised in accordance with product guidance. Fencing will be erected during our 'site set up' phase which takes place over two days and will involve delivery of our site office (10ft x 8ft) and stores containers (20ft x 8ft). No construction activity is permitted until the site is fully secure with all welfare facilities in place. The site will have a separate delivery and personnel/visitor car-parking entrance with a pedestrian route/gate to the side of the site office between the two zones.
Material Delivery/Storage	All materials/equipment being delivered to site will use the main delivery entrance. Deliveries will be limited to a maximum of 2 x trucks at any time, both of which can be positioned with the site compound. As the building is relatively quick to install, materials used in the construction will be distributed around site (using forklifts) in a sequential manner that minimises the distance travelled when manual handling parts. Materials that are on site but not being used will be placed in suitable positions around the perimeter of the compound by the construction manager.
Delivery Schedule	This is not expected to be a busy site. We expect no more than 3 x deliveries on any given day with several days where there will be no traffic other than vehicles used by site personnel. Saturday deliveries will be avoided wherever possible and will only take place with the prior approval of the Butlin's Resort management.
Vehicle Type	Delivery vehicles will range from small 'Sprinter' style vans to 45ft curtain sided articulated lorries.
Personnel/Visitor Parking	A designated parking area will be provided within the site compound which is within the Butlins resort boundaries. No local
Plant Compound	We will have a designated plant compound within the site to the south of the current tarmac carpark where machines will be stored when the site is inactive.

6. Management Arrangements		
Monitoring Arrangements	The designated site manager will ensure regular inspections of the works are carried out and highlight any concerns. All structures will be inspected and signed off after a) construction; b) production install; c) prior to the first event and at periodic intervals agreed with the Butlins resort management.	
First Aid Provision	At least one nominated first-aider present on-site throughout First aid kits situated in site office	
Nominated First Aider(s)	Chris Lewis Steve Nelmes Neil Gamble	07786 660 095 07970 692 690 07834 768 991
Welfare Provision	Toilet and handwashing facilities positioned close to the work area. This will be accommodation units provided by Butlins or temporary hired units. Toilets cleaned daily. During the pandemic construction crew have been asked to bring their own drinking water to site, to avoid sharing bottles. Warm drinks and biscuits will be provided in a social distanced setting.	
Emergency Procedures	Emergency procedures to be followed as per the wider site rules provided by the Client. In the event of a fire or other emergency requiring evacuation during the construction phase the muster point will be just outside the delivery entrance to the site in the SE corner of the site.	
Nearest Hospital(s)	For minor injuries/trauma's only - see supporting document "BWMH MIU conditions" for further breakdown. Address - Bognor War Memorial Hospital, Minor Injuries Unit, Shripney Road, Bognor Regis, West Sussex. PO22 9PP Open - 09:00am till 17:00pm Telephone - 01754 762 401 Journey time - 1 mile or 3 minutes Nearest A&E department Address - St Richards Hospital, A&E Department, Spitalfield Lane, Chichester PO19 6SE. Open - 24hrs Telephone - 01243 788 122 Journey time - 6.9 mile or 17 minutes via A259	
Environmental Considerations	Waste - Skips/bins provided for waste and packing products. Diesel/hydraulic oil - Spills must be reported as soon as possible to the Star Live site office. The site manager will deploy spill kits for this. Noise - The site will operate normal working hours in the week and limited hours over the weekend (see Section 4) Wheel washing - All site vehicles will be kept on hard standing (tarmac) whilst on site so wheel washing facilities are required.	

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6. Covid-19 Arrangements	
Covid-19 Procedure	Before arriving at work all personnel must sign up to the free NHS COVID 19 App. https://www.nhs.uk/apps-library/nhs-covid-19/ Contractor teams will be asked to arrive at specific time slots each day to avoid congestion at the registration tent. Whilst queueing for the site registration 2m social distancing measures must be adopted and face coverings are mandatory. Prior to registration, each person's temperature will be taken and must be lower than 38°C to gain access to site. Anybody with a temperature of 38°C or higher will be asked to leave site, go home and follow government advice regarding self-isolation and testing. Anybody with a reading between 37.5°C and 37.9°C will not be allowed on site and will be monitored with temperature checks every 15 mins until their temperature lowers below 37.5°C. Checks will be hourly thereafter. At the registration tent all personnel must scan the site track and trace QR code which will be displayed on the tent walls. All personnel will be asked to sanitise their hands before signing in and maintain high hygiene levels throughout the day. Sanitising station will be positioned around site. All personnel are required to sign in and record their temperature reading, every time they enter site. Face coverings are mandatory whilst working in any shared enclosed space and social distancing should be maintained where practicable. Everyone on site will be urged to use hand sanitiser regularly and wash hand thoroughly after using the welfare facilities. NB: The procedures above with be reviewed regularly and adapted to follow government advice at the time when the work start on site and the review process will continue throughout the construction phase.
Public Health England 'Health Protection Team'	In the event of a COVID-19 outbreak the nearest PHE health protection team is: Address - PHE Surrey and Sussex Health Protection Team (South East), County Hall, Chart Way, Horsham, RH12 1XA Telephone - 0344 225 3861 Out of hours - 0844 967 0069

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7. Plant Register

Machine Type	Model/Capacity	No	Delivery Date	Trained operators on the team	Supplied by
All-Terrain Forklift	JCB 926 2600 kg	1	Monday 19 April 2021	Yes	Charles Wilson Engineers Ltd
Telescopic Forklift	JCB 535-140 3500 kg	1	Monday 19 April 2021	Yes	Charles Wilson Engineers Ltd
MEWP - Scissor-lift	Genie GS4390 680kg	2	Wednesday 28 April 2021	Yes	Charles Wilson Engineers Ltd
Telescopic Forklift	JCB 535-140 3500 kg	1	Wednesday 28 April 2021	Yes	Charles Wilson Engineers Ltd
MEWP - Cherrypicker	Genie S65 227 kg	2	Monday 03 May 2021	Yes	Charles Wilson Engineers Ltd
Mobile Crane	Terex AC200L 200t/m	1	Monday 03 May 2021	Yes - hire & managed arrangement	NMT Crane Hire Ltd

NB: Plant delivery dates are provisional subject to schedule agreement and final order.

8. Key Supporting Documents

Project Drawings	
1	21-13207-01h Butlins 65m x 40m General Arrangement drawing
2	21-13207-02a Butlins 65m x 40m (3D)
3	21-13207-13b Butlins Bognor Regis - Proposed Site Plan
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Level 1 - Company Polices	
1	OHS 1.01 - H&S Policy Statement
2	OHS 1.02 - Compliance register
3	OHS 1.12 - CDM Compliance
4	OHS 1.24 - PPE Use
5	OHS 1.25 - Signage
6	OHS 1.53 - Crane Operations
7	OHS 1.57 - Event site operations
8	OHS 1.66 - Weather Actions
9	OHS 1.68 - Covid-19
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Level 2 - Product Technical Files	
1	OHS 2.03 - VerTech™ Ground Support
2	OHS 2.07 - VerTech™ Stage Structure
3	OHS 2.75 - I-Novation Modular Building
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	Level 3 - Safe Work Procedures
1	OHS 3.01 - Counterbalance Forklifts
2	OHS 3.02 - Telescopic Forklifts
3	OHS 3.03 - Mobile Elevated Work Platforms
4	OHS 3.04 - Cranes
5	OHS 3.10 - Electricity
6	OHS 3.13 - Manual Handling
7	OHS 3.20 - Moving Vehicles
8	OHS 3.21 - Transport & Driving
9	OHS 3.31 - Work at Height
10	OHS 3.32 - Ladders
11	OHS 3.51 - Hoist Control
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9. Site Safety Assumptions	Tick - if correct	Further control measures required
The construction area has been secured from public and unauthorised entry	✓	No
Suitable welfare arrangements are in place appropriate for the number of personnel on site	✓	No
The construction location can be accessed by HGV delivery vehicles and appropriate plant including but not limited to: forklifts (counterbalance & telescopic types), MEWP's and mobile cranes	✓	No
All ground surfaces beneath the plant operating areas and structure location can support loads of 100kN/m²	✓	No
Any underground power lines, gas and oil pipelines have been clearly identified by the Butlins management team in advance of the works starting	✓	No
There are no overhead transmission lines within 50m horizontally of any part of the structure, MEWP or crane boom	✓	No
We are not located under the landing/take-off zones of an airport and affected by the associated restrictions	✓	No
None of our workers are exposed to unprotected deep water	✓	No
None of our workers are exposed to unprotected edges within venues that have a drop of more than 0.6m	✓	No
None of our workers are exposed to an environment where asbestos is known to be located	✓	No
None of our workers are required to work in a confined space	✓	No
None of our workers are required to work in or will be exposed to deep excavations	✓	No
None of our workers will be exposed to harmful dust or fumes?	✓	No
Other:	☐	

Item	Description of additional control measure required	JSA/Appendix reference
1		
2		
3		

Risk Assessment

Our design philosophy is to create temporary event structures that use best-in-class erection techniques to ensure the health and safety of all workers, performers and members of the public. However, it is acknowledged that it is impossible to design out all risks that are inherent in the erection of large, temporary event structures.

The activities required to build our structures have been fully risk assessed as part of our safety management process, involving consultation with our workforce. The construction activity has been controlled where necessary to get all residual risks to an acceptable level, based on the qualitative scoring system below. The acceptability of the risk is colour coded to give a visual representation of the overall residual risk level involved in the task.

LIKELIHOOD – Probability of risk arising	SEVERITY – What Type of Injury Could Occur				
	Negligible	Minor	Moderate	Major	Catastrophic
Rare	VERY LOW	VERY LOW	LOW	MEDIUM	HIGH
Unlikely	VERY LOW	LOW	LOW	MEDIUM	HIGH
Possible	LOW	LOW	MEDIUM	HIGH	EXTREME
Likely	LOW	MEDIUM	HIGH	HIGH	EXTREME
Very Likely	MEDIUM	MEDIUM	HIGH	EXTREME	EXTREME

A core feature of our OHS management system is that we have combined our Risk Assessments and Method Statements for each product, to produce a single risk assessed Method Statement that is presented as a Job Safety Analysis (JSA). This technique is widely used for major hazard sites and has been found to be particularly effective as a “bottom up worker engagement method” to reduce unsafe conditions and drive behavioural change. The JSA provides a step by step plan for the installation and removal of our products. At each step, the hazards are identified along with any control measures required to mitigate the risk(s) to the acceptable level shown.

Those tasks that have been identified as having a significant residual level of risk (in the yellow/orange bands above) that cannot be designed out and need to be controlled require the use of the referenced Safe Work Procedure (SWP). This hazard control focused approach enables us to communicate the risks and associated good practise to our workers in any of the work activities in clear and simple language, ensuring we meet our general duties as an employer as set out in the Health & Safety at Work etc. Act 1974:

> *(c) the provision of such information, instruction, training and supervision as is necessary to ensure, so far as is reasonably practicable, the health and safety at work of his employees;*
> **Health and Safety at Work etc. Act 1974 General duties of employers to their employees**

The process ensures that all workers have accurate and appropriate Risk Assessment information as they read through the task procedure, without having to cross-reference a separate Risk Assessment document.

Job Safety Analysis updates

The section allows the communication of a variance to the specified JSA outlined in the Level 2 Product Technical File. The product technical file and specific JSA reference need to be documented along with the reason for the variance in procedure. This revised build procedure supersedes the one documented in the Product Technical File.

Mandatory! Please read the following procedures in conjunction with the construction drawings for the project.

Product Technical File	OHS 2.75 - I-Novation Modular Building
Job Safety Analysis reference	
Reason for procedural variance	None

Item	Task Description	Hazard(s)	Residual Risk & SWP Reference (Control)
1.1			
1.2			
1.3			
1.4			
1.5			
1.6			
1.7			
1.8			
1.9			
1.10			
1.11			
1.12			
1.13			
1.14			
1.15			
1.16			
1.17			
1.18			
1.19			
1.20			

Personal Protective Equipment

Personal protective equipment (PPE) is equipment that will protect worker against health and safety risk at work. The tick boxes below highlight the PPE that **must** be used in relation to the construction activity in this document.

✓ Wear Safety Footwear

✓ Wear Head Protection

✓ Wear Hi-Visibility Clothing

✓ Wear Protective Gloves

✓ Wear Eye Protection

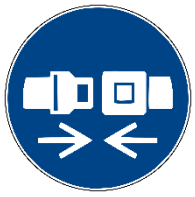
✓ Wear a Safety Harness

✓ Wear Ear Protection

✓ Wear a face covering

☐ Wear a Welding mask

☐ Wear Protective Clothing



✓ Wear Safety Belts

✓ Refer to Instruction Manual

☐ Wear Respiratory Protection

☐ Wear Personal Floatation Devices

☐ Other

Specify any additional PPE required for the activity in the box below:

Weather Actions

All Star Live structures are designed to safely resist the loading (force) applied to them. The most significant loads due to weather are caused by wind. There are two accepted ways of designing for wind actions on temporary structures at events, which are set out in the Fourth Edition of *Temporary Demountable Structures. Guidance on procurement, design and use*. Published by the Institution of Structural Engineers in 2017, this is an edited extract:

***Option A**: Design for the maximum likely wind speeds to be experienced in the geographical area in which the structure is to be used. This may be feasible for certain, crane-erected, structural frameworks where considerable dead load will be in place to counteract the effects of wind, but it is unlikely to be economical for lighter structures where hand erection and speed of delivery is paramount.*

***Option B**: Design for a maximum operational wind gust speed that is less than that derived from Option A and is in accordance with the Client requirements. If using Option B, then an effective wind speed is usually chosen in a range from 18m/s to 25m/s depending on the level of commercial resilience required for the event. A limit of 25m/s would usually be considered appropriate — not causing too much conservatism or be too likely to trigger the action plan. However, there is a distinct possibility of this value being exceeded in quite a large range of UK venues throughout the year.*

It should also be recognised that on a site containing many differing types of structure, the operational wind speed for the event is likely to be set by the weakest structure present, and that this may have commercial implications.

Critical factors to consider are:

- *Will it be possible to evacuate the public and staff safely from the site, especially if strong winds occur during the event?*
- *If the maximum gust speed is exceeded, then the possibility of structural failure must be considered*
- *Will load-reducing measures e.g. removal of cladding and other removable elements that contribute to wind loading, be possible?*
- *Should additional bracing or kentledge be considered?*
- *Is there a danger from wind-blown debris?*
- *Are exclusion zones practical? These are notoriously difficult to determine due to the uncertainty over the travel distance of displaced items*

Ensuring the safe operation of facilities up to a maximum gust wind speed requires continuous measurement while people are on or around the structure. There should be a management plan defining the procedures and actions to be put in place, should the operational maximum gust wind speed be exceeded.

The products covered by this document are designed to the **Option B** process.

The management plan requirements are found in the product Technical File and are summarised in the Weather matrix on the following page.

A further explanation of our policies on dealing with severe weather can be found in '*Star Live OHS 1.66 – Weather actions*'.

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Weather Matrix Summary

Structure	40m I-Novation building	
Operational Wind Speed	27.8 m/s	At 10m above ground level
Operational Wind Speed (approx equivalent)	62 mph	
Measurement height above ground	12 Metres	Correction applied to wind speeds below
Gust duration measured	3 Seconds	

Threat	Alert method	Phase B (During Construction)	Phase B (Construction Complete)	Phase C (Production)	Event
Winds in excess of 28.2 m/s 63.1 mph	Building Anemometer	Onset of potential structural collapse Immediate TOTAL EVACUATION & seek shelter			
Lightning within 5 miles	Weather monitoring	Move to safe place of refuge	Remain in structure, 3m away from frame	Remain in structure, 3m away from frame	Close doors, keep occupants 3m away from side walls
Wind Action Level 3 25.4 m/s 56.8 mph	Building Anemometer	Evacuate building area (height x 3)	Evacuate building	Evacuate building	Evacuate staff from building
Wind Action Level 2 22.6 m/s 50.5 mph	Building Anemometer	Evacuate building	Monitor structure	Monitor structure	Evacuate public from building
Wind Action Level 1 21.2 m/s 47.3 mph	Building Anemometer	Stop work. Secure loose items	Close all doors Check all anchorage points	Close all doors Monitor wind speeds	Contact Star Live Close doors Prepare to SHOWSTOP
Winds in excess of 12.2 m/s 27.3 mph	Building Anemometer	Stop use of cranes + MEWPs No roof lift or lower	Low-level work only	Monitor weather for rising wind speed	Monitor weather for rising wind speed
Winds in excess of 10.2 m/s 22.7 mph	Building Anemometer	Monitor Conditons	No action required	No action required	No action required
Storm/lightning tracking towards site within 20 miles	Weather monitoring	Monitor Proximity	Monitor Proximity	No action required	No action required
Heavy rain event tracking towards site within 20 miles	Weather monitoring	Monitor Proximity	Monitor Proximity	Secure & cover outdoor equipment	No action required
All clear	Weather monitoring	Normal activities			

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Response to Lightning

In the event of lightning tracking towards the site/structure, the organiser's Lightning Action Plan should be instigated. Key elements of the potential effects on outdoor structures are provided in '*Lightning Guidance for Outdoor Events*', published in 2019 and reproduced below by kind permission of the publishers, PLASA (Professional Light & Sound Association).

The types of shelter at an event site that could be considered lightning safe include:
- *Clubhouse*
- *Farmhouse*
- *Office building*
- *School building*
- *Church*
- *Shopping centre and high street shops*

A vehicle can be used as a lightning safe shelter and a safe vehicle is one that is fully enclosed, and metal topped. Examples may include a bus, truck, car and minivan. Occupants need to be advised not to touch the internal metalwork of the vehicle itself, and ensure windows are closed.

Organisers should identify the location of the lightning safe structures and consider this when determining the evacuation times needed to allow people to get to a shelter. An event may have identified that the only lightning safe structures are cars and therefore need to allow reasonable time between notification of incoming storm and time taken to get to a shelter. There are several variables to this including size of event site, proximity of car parks (staff and public) to main event areas, proximity of any identified lightning safe structure and volume of people.

The requirement to identify and list lightning safe structures should also apply during the build and break phases of the event as part of the organiser's duty of care. This should include weather monitoring and response procedures; these can include stopping outdoor work, evacuating hazardous positions such as PA masts and stage roofs, and moving all employees to a designated safe place.

Temporary structures
Based on the information in Section 3 of (the PLASA Lightning Guidance), a temporary event structure can only be considered Lightning Safe if it meets the definition of a Faraday Cage and people can be kept more than 3m away from a potential conductive path to ground.

Structures likely to be lightning unsafe
- *Grandstands (with the possible exception of those with a full roof)*
- *'Underworld' production areas under concert stages*
- *Front of House structures*
- *Delay Towers*
- *Screen support goalposts*
- *Concessions tents*

In all the above cases people must be kept at least 3m away from any metal parts of the above until the risk of lightning has passed.

Structures that could be lightning safe
- *Large roofed stages where people can be kept on the wooden stage deck more than 3m away from metalwork*
- *Large enclosed tents where people can be kept more than 3m away from metalwork*
- *Shipping containers*
- *Production cabins*

In all of the above cases effective earthing of the structure to ground will help, but it is important to understand that the 3m distance should be seen as a minimum. Step-potentials could exist beyond 3m if the structures are not earthed but as noted previously, the distances have to be balanced with the need to accommodate large crowds and ensure sufficient flows.

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Project Declaration

This Safe System of Work has been completed and reviewed.

This declaration confirms:

- All construction tasks required during the project have been considered and controlled to a level as low as is reasonably practicable.
- Any procedural variance to the JSA required for the project that are not already covered in our Product Technical Files have been documented.
- Any additional control measures required for the crane lift operation have been included in the Appendix A at the rear of the document.
- All structures supplied have a specified wind management plan
- Design drawing references included are the latest issue at the time of publication.

Author	Gavin Scott	Authorised By	Roger Barrett
Position	Project Manager	Position	Technical Director
Signature		Signature	
Date	15 January 2021	Date	15 January 2021

Supervisor Declaration

I confirm that I have read and understand the requirements in this Safe System of Work including the associated Job Safety Analysis and Safe Work Procedures. I have communicated them to the operatives under my control and to others who may be affected by its requirements.

Name	Company	Position	Date	Signature
Chris Lewis	Star Group Live Ltd	Construction Manager		

Worker Declaration

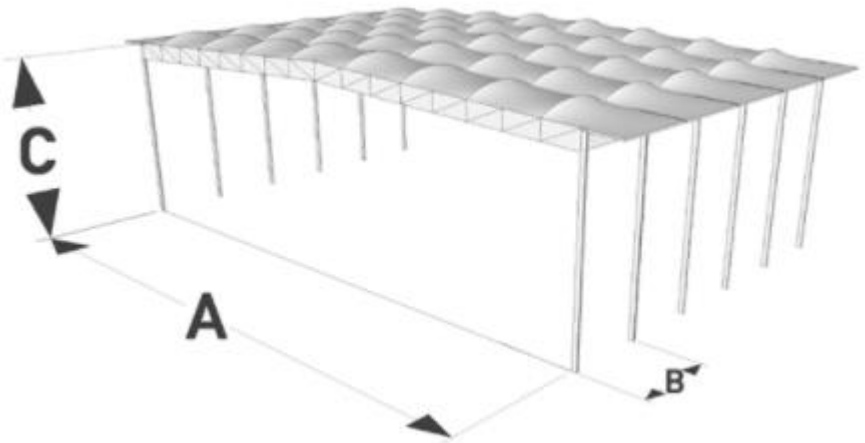
I have read and understood the information provided in this Safe System of Work and will agree to adhere to the methodology and good practise described in the Job Safety Analysis and the Safe Work Procedure documents. I am aware that all safety documents applicable to this project are available for reference when needed. I confirm that if I am unsure of how to do any task requested of me, I will ask an experienced crew member or project manager for clarification.

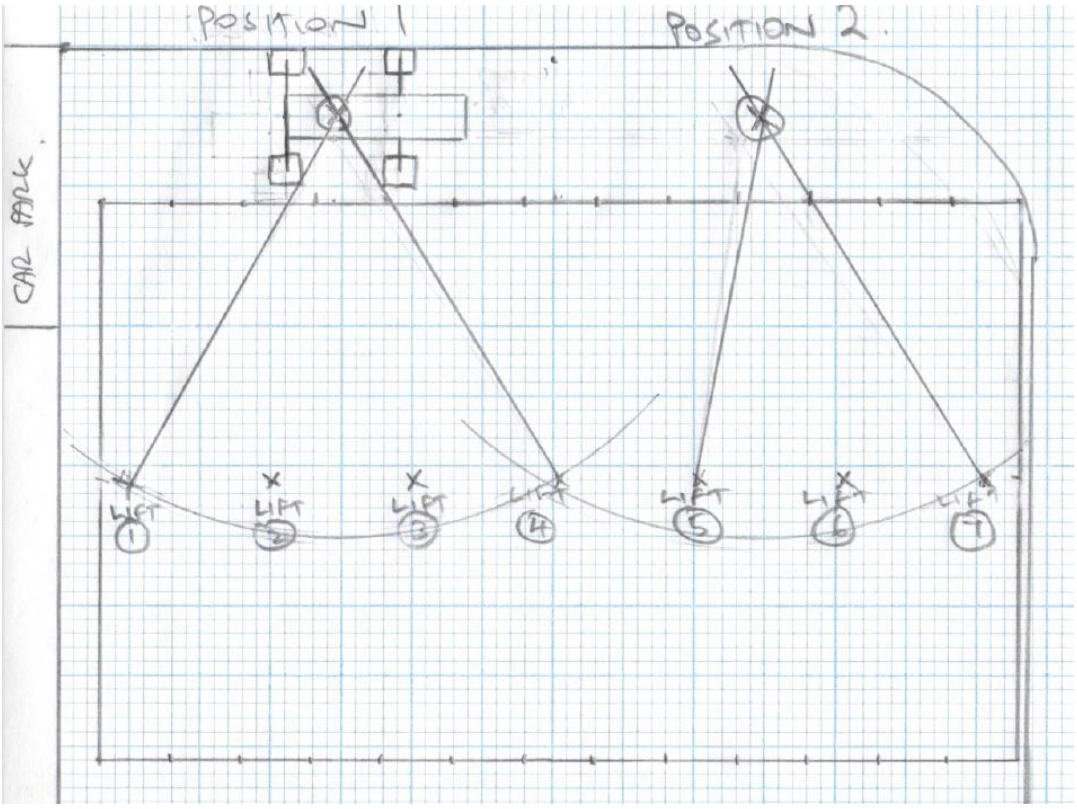
Name	Company	Position	Date	Signature
Jim Baron	Star Group Live Ltd	Tent Crew		
Neil Gamble	Star Group Live Ltd	Tent Crew		
Steven Newman	Star Group Live Ltd	Tent Crew		
Nathan Carey	Star Group Live Ltd	Tent Crew		
Dhugal Mackillop	Star Group Live Ltd	Tent Crew		
Matt Lakeman	Star Group Live Ltd	Tent Crew		
	Star Group Live Ltd	Tent Crew		
	NMT Crane Hire Ltd	Crane Operator		
	NMT Crane Hire Ltd	Crane Operator		

Appendix A – Lift Plan

1. Description of Lifting Operation

Lift pre-assembled roof portal sections into place on 40m span x 8m high temporary building





2. Risk Assessment

This Assessment should be read in conjunction with *Star Live OHS 1.53 – Crane Operations* and *Star Live OHS 2.75 - I-Novation Modular Building*. The lifts required for the installation and removal of this product are well known and have been carried out repetitively over several years. This lift plan is consequently generic (as permitted in *BS7121-3-2017 4.3.2.2 NOTE 5*) subject to completion of the project specific OHS Level 4 Safe System of Work document that this Lift Plan forms an Appendix to.

The generic plan is acceptable for any location where all the statements in the Hazard Assessment tables below are true and the ground bearing pressure is acceptable as calculated in this plan.

Load Hazards		
a.	The centre of gravity is marked or known	✓
b.	All loads are at ambient temperature	✓
c.	There are no loose items or fluids within the loads	✓
d.	No people are to be lifted	✓
e.	The location of the lifting points are marked or known	✓
f.	There are no complex slinging arrangements required	✓
g.	There are no conditions such as suction or adhesion that could affect the magnitude of the load	✓
h.	None of the lifts require more than one crane	✓
i.	There are no concerns about the integrity of any of the loads	✓
j.	There are no dynamic effects (such as a floating load)	✓
k.	No load has a large surface area that would be particularly affected by wind action	✓
l.	Loads are not transferred from one crane to another in the air	✓
m.	The orientation of the loads will not side load the crane jib	✓
n.	The loads are not fragile	✓
o.	The loads have no unprotected sharp edges	✓
p.	The loads can be restrained by tag lines or similar	✓
q.	There are no lifts from high level to low level that exceed 25m in height	✓

If all the statements in the Load hazard table are true, the Load Hazard category is L1.

Environmental Hazards		
a.	The schedule has sufficient time for lifts to be halted in the event of heavy rain	✓
b.	The date and location of the project is such that ice is not a risk	✓
c.	The date and location of the project is such that snow is not a risk	✓
d.	The schedule has sufficient time for lifts to be halted in the event of winds above 12m/s	✓
e.	The project is not close enough to tidal water to be affected by the water	✓
f.	No part of the lifting operation takes place within 75 metres of a railway track	✓
g.	No part of the lifting operation takes place within 75 metres of a public highway	✓
h.	No part of the lifting operation takes place within 75 metres of a navigable waterway	✓
i.	The project does not take place in or adjacent to a petrochemical or nuclear plant	✓
j.	The project is not within 6km of an operational airport (or the crane is no more than 10m higher than surrounding buildings/trees)	✓
k.	The crane location is not within 100m of a telecommunications mast	✓
l.	The project does not take place in a corrosive atmosphere	✓
m.	The project does not require the use of adjacent cranes that could clash with each other	✓
n.	There are no overhead powerlines within 100m of the crane location	✓
o.	There are no underground power lines in the crane working area	☐
p.	The public are excluded from the project site	✓
q.	The crane operator has good line of sight for the start of each lift	✓
r.	The crane will not be free-on-wheels whilst lifting	✓
s.	Loads are not lifted whilst set into the ground	✓
t.	There is no uncontrolled demolition involved in the project	✓
u.	The schedule has sufficient time for lifts to be halted in the event of lightning within 6 km	✓
v.	There are no people at risk in the event of a crane failure	✓
w.	The ground conditions are adequate for the crane to access and operate safely	✓
x.	There are no crane access issues such as unprotected edges, steep inclines etc	✓

If all the statements in the Environmental hazard table are true, the Environmental Hazard category is E1.

Load Complexity

Environmental complexity (E)			
3	Complex	Complex	Complex
2	Intermediate	Intermediate	Complex
1	Basic	Intermediate	Complex
	1	2	3
	Load complexity (L)		

Reproduced from Figure 10 – BS7121-3-2017

Hazard categories of L1 and E1 classify the lifts required for this project as Basic and the generic Lift Plan that follows may be used, subject to all L1 and E1 requirements being met.

3. Method Statement

i-Novation structures have been designed to use crane lifting as an integral part of the install and removal process. Consequently, the risk assessed Method Statement for the whole installation and removal process, including the crane lift elements, can be found in the Job Safety Analysis in *Star Live OHS 2.75 - I-Novation Modular Building*.

4. Lifts Required

There are 7 lifts required for a 65m long building with alternate 5m roof bays being lifted by crane. These 7 lifts vary only with the radius and so crane selection is based on the worst-case radius of 35m.

5. Crane Information

Crane details	Manufacturer	Terex Demag	
	Model	AC200-1	
	Capacity	200	t
	Axles	5	
	Travel weight	60	t
	Travel height	4	m
	Travel length	14.72	m
	Main boom (m)	68	m
	Fly jib (m)	17	m
	Outriggers (across chassis)	8.20	m
	Outriggers (along chassis)	8.44	m
	Ballast	69	t
	Hook weight (to 29.4t)	0.6	t
	Hook weight (Single line 9.9t)	0.35	t
	Max wind speed	9.8	m/s

69 t 360° **DIN/ISO**

Radius · Ausladung Portée Sbraccio Radio	Main boom · Hauptausleger · Flèche principale · Braccio base · Pluma principal																Radius · Ausladung Portée Sbraccio Radio
m	12,4*	12,4	16,6	20,9	25,1	29,4	33,6	37,9	42,1	46,4	50,6	54,9	59,1	63,4	67,8		m
	t	t	t	t	t	t	t	t	t	t	t	t	t	t	t		
	200,0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
3	147,0	147,0	146,5	146,0	121,0	-	-	-	-	-	-	-	-	-	-		3
3,5	146,5	135,0	135,5	134,5	121,0	-	-	-	-	-	-	-	-	-	-		3,5
4	136,0	125,0	125,0	124,5	121,0	94,8	-	-	-	-	-	-	-	-	-		4
4,5	127,0	116,0	116,0	116,0	115,0	94,8	-	-	-	-	-	-	-	-	-		4,5
5	119,0	108,0	108,0	108,0	107,0	94,8	73,7	-	-	-	-	-	-	-	-		5
6	104,5	94,8	94,9	94,5	93,7	93,0	73,6	-	-	-	-	-	-	-	-		6
7	92,2	84,0	84,2	83,8	83,0	83,6	70,4	52,8	-	-	-	-	-	-	-		7
8	79,7	75,3	75,5	75,0	74,8	74,9	67,1	50,8	44,9	-	-	-	-	-	-		8
9	64,7	64,7	68,5	67,8	68,3	67,7	63,8	48,8	42,1	37,5	-	-	-	-	-		9
10	-	-	62,7	61,7	62,2	61,6	60,4	47,0	39,2	35,0	30,8	-	-	-	-		10
12	-	-	53,0	52,5	52,5	51,9	52,7	44,0	34,1	30,8	27,7	24,0	-	-	-		12
14	-	-	-	44,6	44,1	44,6	44,2	40,9	30,4	27,3	24,8	22,1	19,6	15,6	-		14
16	-	-	-	38,0	37,5	38,3	37,5	37,9	26,8	24,6	22,3	20,1	18,2	15,6	12,0		16
18	-	-	-	-	32,2	33,1	32,3	33,1	24,1	21,9	20,3	18,4	16,8	14,7	12,0		18
20	-	-	-	-	29,0	28,3	29,2	28,3	22,0	19,7	18,3	16,9	15,6	13,7	11,9		20
22	-	-	-	-	-	24,5	25,3	24,5	19,9	18,2	16,5	15,5	14,5	12,9	11,4		22
24	-	-	-	-	-	22,9	22,2	21,4	18,5	16,6	15,3	14,0	13,4	12,1	10,8		24
26	-	-	-	-	-	-	19,7	18,9	17,5	15,0	14,1	13,0	12,3	11,4	10,2		26
28	-	-	-	-	-	-	17,6	16,8	16,6	13,7	12,9	12,1	11,5	10,6	9,7		28
30	-	-	-	-	-	-	15,0	15,0	15,7	12,8	11,7	11,2	10,7	9,9	9,1		30
32	-	-	-	-	-	-	-	14,2	14,1	11,9	10,9	10,2	10,0	9,4	8,6		32
34	-	-	-	-	-	-	-	13,6	12,8	11,1	10,1	9,4	9,2	8,8	8,1		34
36	-	-	-	-	-	-	-	-	11,7	10,6	9,4	8,8	8,4	8,2	7,6		36
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46	-	-	-	-	-	-	-	-	-	-	7,5	6,4	5,9	5,9	5,4		46
48	-	-	-	-	-	-	-	-	-	-	-	6,1	5,6	5,5	5,1		48
50	-	-	-	-	-	-	-	-	-	-	-	5,9	5,3	5,1	4,8		50
54	-	-	-	-	-	-	-	-	-	-	-	-	4,8	4,5	4,1		54
58	-	-	-	-	-	-	-	-	-	-	-	-	-	3,7	3,6		58
62	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2,9		62
66	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		66

6. Load Information

Load and slinging details

Lifts	Weight (t)	A	B	C	D	E
Load description		Roof frame				
Designated lifting points		Top frame				
Max weight of load (t)		5.95				
Hook weight		0.60	0.60	0.60	0.60	0.60
Lifting accessories						
SWL of weakest accessory (t)						
4-leg chains	0.2	0.20				
2-leg chains	0.1					
4-leg webbing	0.02					
2-leg webbing	0.01					
2 x round-slings	0.01	0.04				
1 x round-sling	0.01					
Other						

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7. Lift Data and Ground Bearing Assessment

Crane rigging details	Gross lift weight (t)		6.79	0.60	0.60	0.60	0.60
	Max radius (m)		35.00				
	Max height of lift (m)		26.00				
	Boom length in use (m)		50.60				
	Safe capacity at given radius (t)		9.70				
	Spare capacity for lift (t)		2.91				
	Capacity of crane in use (%)		70%				
	Spare capacity for lift (%)		30%				
	Max outrigger load (t)		46.20				
	Crane mat size (m^2)	**A**	**6.00**				
	Load to ground (t/m^2)		7.70				
	Ground capacity (kN/m^2)		100.00				
	Ground capacity (t/m^2)		10.20				
	Minimum crane mat size (m^2)	**B**	**4.53**				
	A greater than B ∴ OK ?		Yes				

8. Crane Supplier Assessment

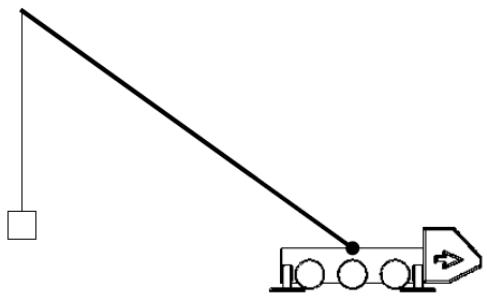
ground-bearing pressure, load chart
and crane configuration for crane no.: 1

Project_ID: 001
job site location: butlins skegness
created on: 2021-01-07 08:27:53

crane setup

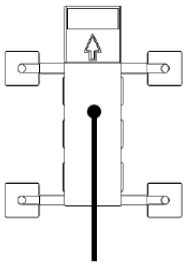
crane model:	AC 200-1	configuration:	HA	outrigger base:	8.44x8.2m
indent number:	22134412	slew range:	0-360 °	DIN / ISO:	EN/ISO
CWT:	69 t	central ballast:	0 t	DS-code:	□□□□□□□□□□
no. of lines:	1x3	load attached to:	mb	LK-code:	58
mb length:	46.4 m	mb angle:	37.1 °	mb tele-sequence:	45-45-45-45-90-90
superstructure-angle:	0 °	radius:	35 m		
load:	7 t	max. Load at radius:	10.9 t		

90° view of superstructure / boom



Top view

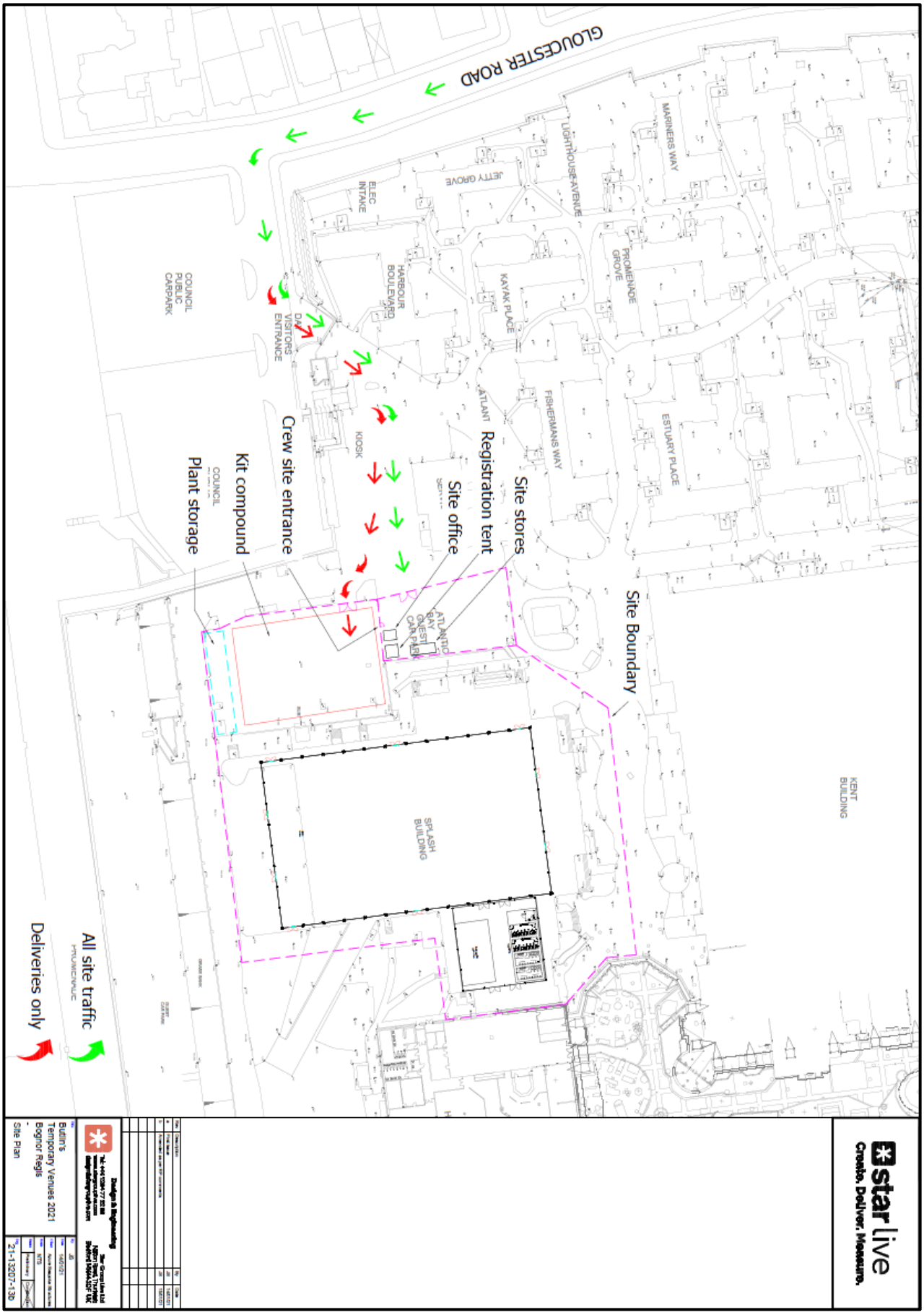
D-max = 48.9 t max **C-max = 48.3 t max**
D-act = 20.3 t **C-act = 20.3 t**



B-act = 46.2 t **A-act = 46.2 t**
B-max = 52.6 t max **A-max = 53.4 t max**

load capacity 64.2% / 10.9 t

Appendix B - Proposed Site Plan



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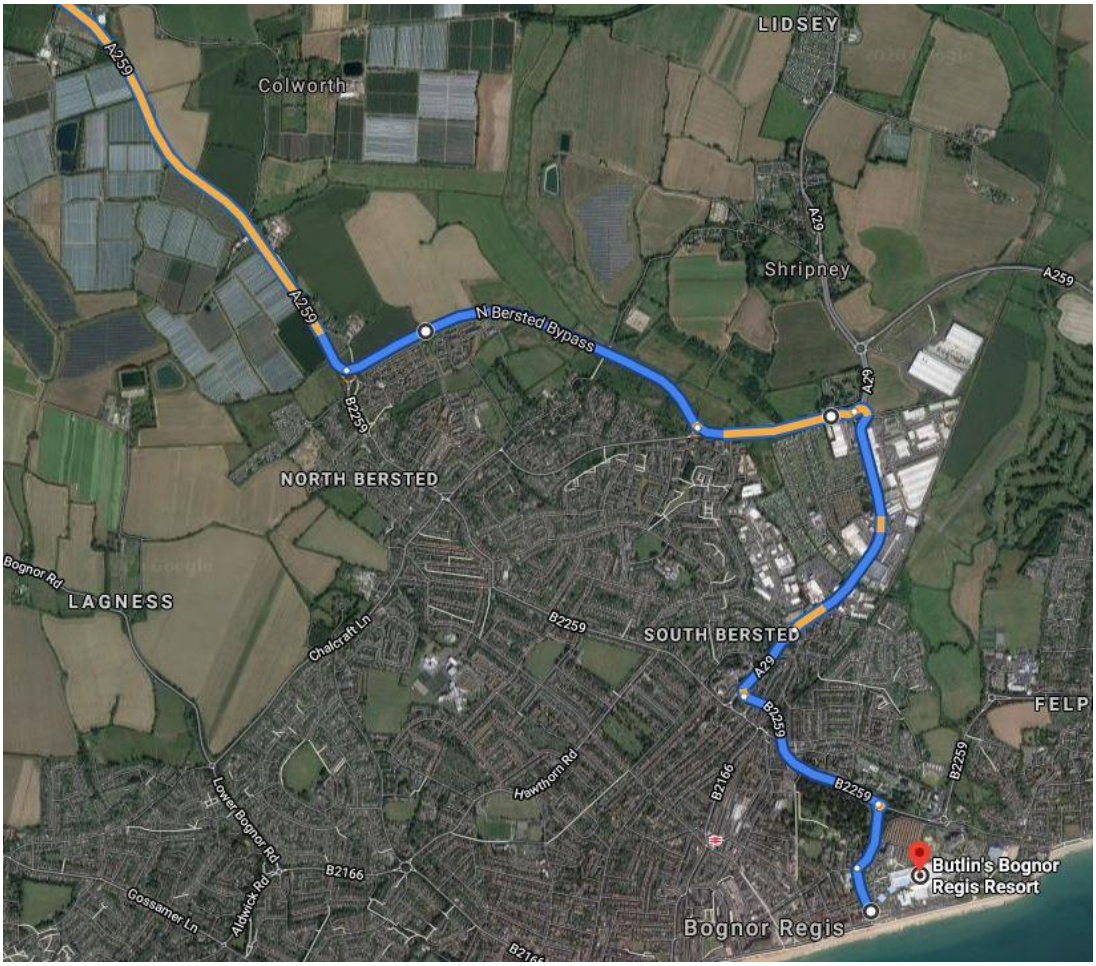
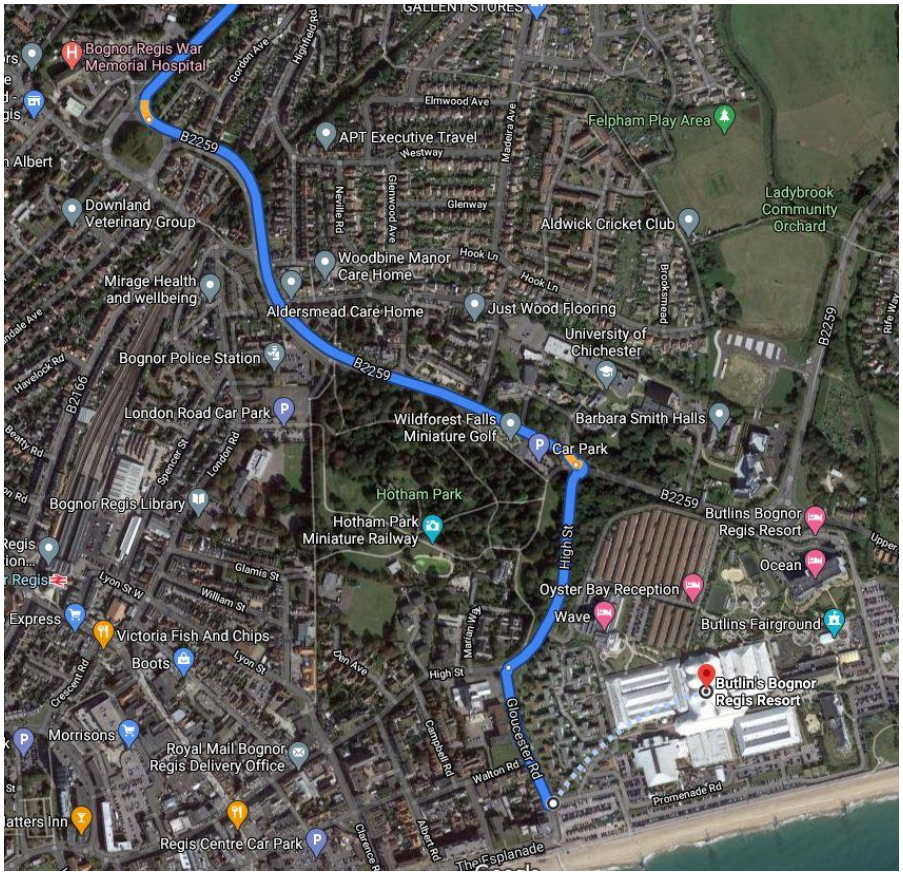
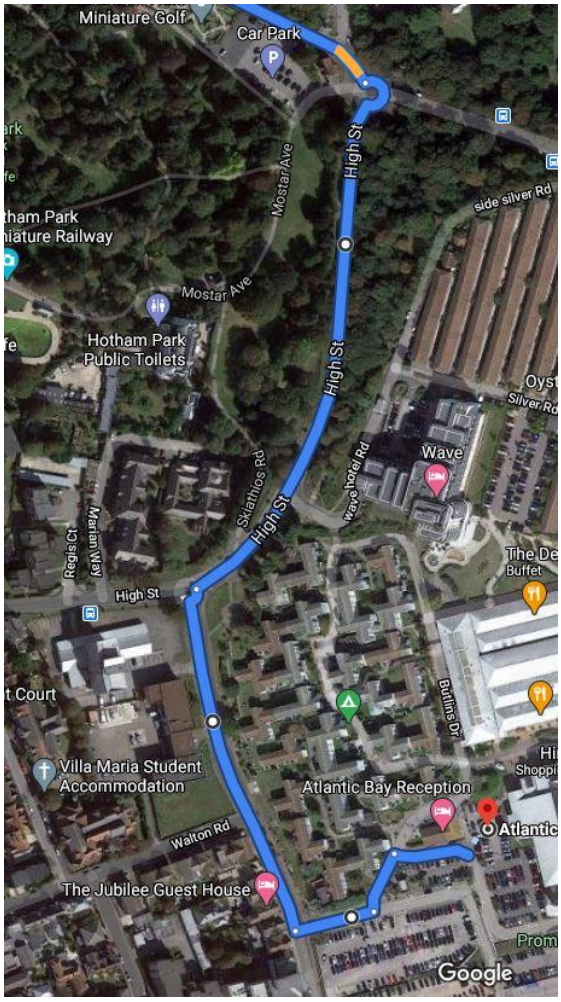
Appendix C - Site Routing




Bognor Regis War Memorial Hospital
APT Executive Travel
Felpham Play Area
Downland Veterinary Group
Aldwick Cricket Club
Ladybrook Community Orchard
Woodbine Manor Care Home
Mirage Health and wellbeing
Aldersmead Care Home
Just Wood Flooring
University of Chichester
Bognor Police Station
London Road Car Park
Wildforest Falls Miniature Golf
Barbara Smith Halls
Car Park
Hotham Park
Bognor Regis Library
Hotham Park Miniature Railway
Butlins Bognor Regis Resort
Ocean
Oyster Bay Reception
Wave
Butlins Fairground
Victoria Fish And Chips
Boots
Butlin's Bognor Regis Resort
Morrisons
Royal Mail Bognor Regis Delivery Office
Regis Centre Car Park
B2259
High St
Gloucester Rd
Promenade Rd
The Esplanade


Miniature Golf
Car Park
High St
Mostar Ave
side silver Rd
Hotham Park Public Toilets
Wave
Skiathios Rd
Marian Way
Regis Ct
High St
Butlins Dr
Villa Maria Student Accommodation
Atlantic Bay Reception
Walton Rd
The Jubilee Guest House
Google

Gloucester Rd
Walton Rd
Atlantic Bay Reception
Atlantic Bay Reception
Butlins day visitors station
Promenade Rd
he Jubilee Guest House
Gloucester Rd Car Park
Gloucester Rd
Bognor Regis Promenade
The Esplanade