



Laser Display Safety Record

For a temporary installation

at the Halstead Public Gardens

Date: Wednesday 9th December, 2026

Company Representatives: Matthew Ayers



Section 1: Introduction.

Laserfire is a special effects company dedicated to providing lasers, lights, flames, cold sparks and other effects with foremost and utmost safety. This document includes the relevant and important information for the safe use of lasers to comply with Health & Safety Executive HS(G)95 now superseded by Plasa document 2016, and BSEN60825-3:2008.

Section 2: Installer and operator details.

Laserfire fulfills the roles of both installer and operator in addition to show designers and modifiers.

Laserfire contact details:

Tel 0800 326 5570

Email info@laserfire.uk

LSO contact details:

Matthew Ayers

Tel 07515 339885

Section 3: Venue and performance details

Information for the safe use of special effects within premises required under the Licensing Authorities Standard Conditions for Public Entertainment's Licences.

Local Government (miscellaneous Provisions Act 1982. Section 1 Sub section 1).

Venue	Public Gardens, Halstead, Essex
Address	As above
Venue contact	Sarah Greateorex
Contact tel	07808547290
Client	Halstead Council
Date	Wednesday 9 th December 2026
Number of lasers in use?	1
Show duration	9 minutes
Show time	7.30pm (tbc)
Beam alignment time	5pm or when appropriate
Number of Laserfire staff present	3



Section 4: Equipment specifications.

All of the lasers used conforms to IEC 60825-1.

Specifications	Green 8W	RGB 50W
General	Solid state	Solid state
System type	Diode	Diode
Manufacturer	Swisslab	Laserworld
Classification	Class 4	Class 4
Control System	Pangolin Quickshow	Pangolin Quickshow
Wavelengths	520nm	450nm – 638nm
Beam divergence	1.0mR	1.3mR
NOHD	633M @0.25 Secs	770M @0.25 Secs
Used at this venue?	no	yes
Number used	0	1

Section 5: Effect description.

A series of choreographed scanning patterns such as waves, cones and sheets will terminate on the roof of the Pump House shown in site plan, beamed from RGB laser that will be at ground level.

No static beams will be used.

No crowd scanning effects will be used.

Section 6: Method statement.

Written procedures have been prepared by the Company for the operations carried out away from the Company's premises. They are intended as a means of implementing, at least in part, the company's duties under Section 6 of the Health & Safety at Work etc Act 1974.

Each member of staff is required to have read and understood the contents of these Written Procedures. A record of this is maintained in section 13 of this DSR.

All staff will work in a safe and responsible manner with due regard for their own safety and that of others.

All equipment should be regularly checked and maintained. All equipment should be checked prior to loading onto vehicles for the show. Special attention should be paid to the integrity of cables.

Staff should use appropriate protective equipment. Staff shall employ correct manual handling techniques.



Before powering up any of the equipment a check should be made of the layout and integrity of the power systems. The structural integrity of the support structure should be confirmed.

During alignment work the number of people in the vicinity should be minimized and if reasonably possible eliminated completely. Those remaining (if any) should be informed of the potential risk.

Alignment should be carried out at the minimum power necessary and, where possible, with the laser beam constrained, ie by using aperture masking.

An operator will be in control of the show at all times. Where more than one operator is involved, communication links between the operators should be confirmed prior to the commencement of the performance.

The show will have been pre-programmed and aligned to ensure that no members of the audience or staff are at risk.

In the event of a developing situation in the audience, such as unruliness, each operator is aware of the duty to terminate the laser show if appropriate. Each operator can make this decision without reference to the other operators. Emergency stop interlock will always be employed.

Failure of the control system or primary optics should result in the automatic operation of the scan fail detection and shut device down. However, the operator will decide whether the performance from that laser can continue safely in any form.

Lighting levels will be adequate for safe dismantling and staff will have sufficient rest to reduce tiredness.

If an actual or suspected eye exposure occurs then a judgement will need to be made on the course of action. If the incident involves a third party then they should be referred to an ophthalmologist. An employee of the Company will be encouraged to see an ophthalmologist within 24 hours.

First aid support for other injuries is available on site from the first aid officer.

Laserfire recognizes that the main control measure to reduce the risk of injury to all persons is the quality of the training of its employees. Copies of training certificates for employees on this show are filed section 11.

Each of the lasers is key operated and will be secured in a place not accessible to public. Signage will be employed in addition to verbal warnings and instructions to warn staff of laser radiation.

It is our policy to promote safe working conditions and a healthy environment for all employees and customers.

We believe that safety is the concern of management and employees. All employees will be given the necessary advice and instruction as part of their training.



Laserfire recognizes the importance of Health & Safety legislation and the responsibility of the employer to adhere to, Health & Safety legislation as set out in the Health & Safety Act 1974, and to inform all employees of relevant regulations and their implementation.

Laserfire will conduct any activities in adherence to health & safety regulations in relation to employees as far as is reasonably practical.

Laserfire regards neglect of safety and health requirements as serious behavior and may result in disciplinary action being taken according to the company terms & conditions of employment.

The implementation and upgrading of the company policy is the responsibility of the Managing Director, Fantastic Fireworks.

Jon Culverhouse
Managing Director
Laserfire



Section 7. Risk assessment.

This risk assessment is provided in compliance with The Laser Display Company's duties under Regulation 3 of the Management of Health and Safety at Work Regulations. Consideration is also given to the requirements for an Installation Safety Assessment in the Plasa document 2016.

7.1: Transportation

Hazards	Persons at Risk	Control Measures	Risk
Manual Handling crushed limbs crushed extremities back injuries	Employees	Training	Low risk
Movement of Load During Transit	Employees Others	Training Case installation planned to minimize movement Restraining straps used	Low risk
Road Traffic Accident	Employees Others	Driver training and demonstration of competence with the vehicle.	Low risk
Vehicle Breakdown	Employees affecting repair Others	Regular vehicle maintenance Pre-journey check schedule. High visibility vests provided in vehicle to be worn if vehicle does break down	Low risk
Vehicle Fire	Employees Others.	Regular vehicle maintenance Pre-journey check schedule Vehicle fire extinguisher carried in cab. Staff have received training in its operation	Low risk



7.2: Installation

Most of the risks during installation relate to the weight of some components of the laser display system and working at height. It is assumed for this assessment that none of the equipment is switched on. The assessment for the alignment work covers the next stage where equipment is switched on.

The assessment is broken down into the different segments of the display.

7.2.1: Lasers

Hazard	Persons at Risk	Control Measures	Risk
Manual Handling Crushed limbs Crushed extremities Back injuries	Employees Others in the vicinity	Training Provision of gloves for employees Provision of appropriate footwear for employees The appropriate number of staff will lift heavy equipment.	Low risk
Working at height Falling Dropping laser	Employees Others in the vicinity	Training Provision of appropriate footwear for employees	Low risk

7.2.2: Equipment Associated with Lasers

Flame effects & PA system			
Hazard	Persons at Risk	Control Measures	Risk
Burns	Employees Others in the vicinity	Area to be cordoned off at a distance of 5 metres from audience	Low risk
Electric shock	Employees	Training in electrics.	Low risk

Cables			



Support Structures

Hazard	Persons at Risk	Control Measures	Risk
Manual Handling ☞ crushed limbs ☞ crushed extremities ☞ back injuries	Employees Others in the vicinity	Training Appropriate footwear will be worn	Low risk
Truss stability ☞ crushing hazard	Employees Others in the vicinity	Minimum 2 truss clamps and security cable used to secure.	Low risk
Working at height ☞ falling ☞ dropping laser	Employees Others in the vicinity	Training Provision of appropriate footwear for employees	Low risk

7.3 External Factors

Hazard	Persons at Risk	Control Measures	Risk
Rain	Employees	Suitable footwear and rainwear is to be worn.	Low risk

7.4 Alignment

Hazard	Persons at Risk	Control Measures	Comments
Laser radiation	Employees	Training. Laser projection zone evacuated during alignment stage. Only trained personnel permitted in projection zone. Output masking is employed to reduce risk of laser radiation where not wanted.	Low risk



7.4: Accidental Exposure to Laser Radiation

Hazard	Persons at Risk	Control measures	Risk
Laser radiation	Public Employees	Training of staff Alignment and programming ensure beams are properly directed Masking ensures non-audience scanning effects or stray beams cannot be accidentally directed into audience Scan fail protection ensures automatic shutdown in event of scanner or software failure during audience scanning	Low Risk
Radiation from public unruliness	Public	Training of staff Operators continually at control panel and will terminate laser effects if necessary Emergency stop interlock employed	Low Risk

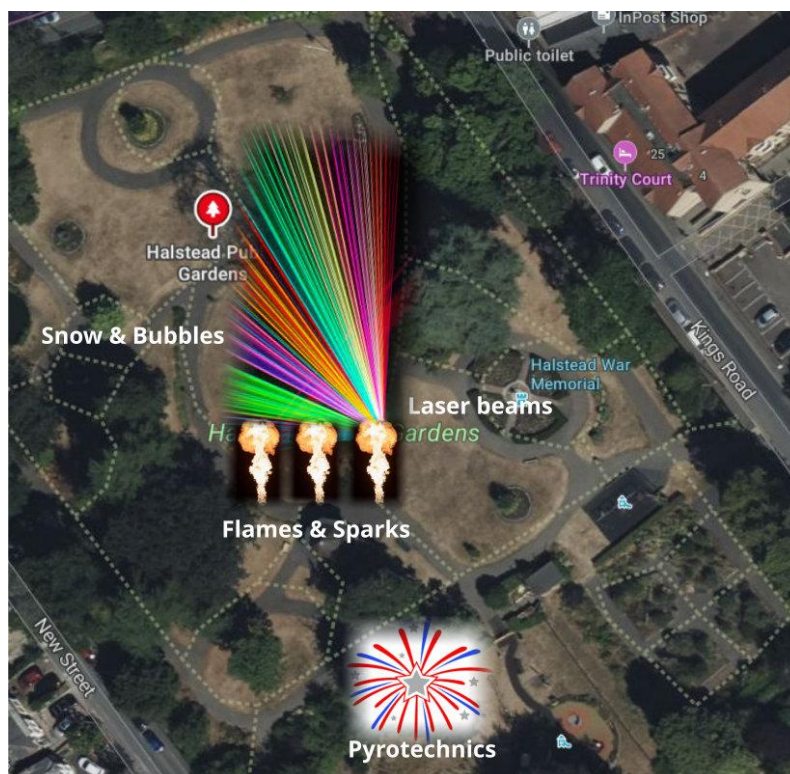
7.5: Dismantling

The risks during dismantling are considered to be similar to those during installation. However there are some additional risks which require consideration.

Hazard	Persons at Risk	Control Measures	Risk
Tiredness or rushing ☞ Crush ☞ Electrocution ☞ Falling ☞ Dropping equipment	Employees Others in vicinity	Training Appropriate working hours and rest periods.	Low Risk



Section 8: Display site layout.



Section 9: Operational approvals.

Is there requirement for CAA NOTAM?	Yes
Has it been sent?	n/a
Is there requirement to alert the coastguard?	No
What is the coastguard ref?	n/a
Is there requirement for venue temporary laser permit?	n/a
What are the details?	n/a



Section 10: Working at Height and Near Water

Fall of Operators from height	Display Operators, Members of public	Likelihood = 3 Severity = 5 Risk Index = 15 HIGH RISK	Suitable harnesses worn when working within 2m of unprotected water's edge Area below closed to public. Minimum parapet/rail height for un-harnessed work of 0.95m	Likelihood = 1 Severity = 5 Risk Index = 5 LOW RISK
Fall of equipment from height	Display Operators, Members of public	Likelihood = 3 Severity = 5 Risk Index = 15 HIGH RISK	No unsecured equipment installed within 2m of unprotected edge.	Likelihood = 1 Severity = 5 Risk Index = 5 LOW RISK
Slip or trip hazards on roof structure	Display Operators	Likelihood = 3 Severity = 3 Risk Index = 9 MED-HIGH RISK	Assessment made during site visit roof structure and surface material. Controls as per fall from height.	Likelihood = 1 Severity = 3 Risk Index = 3 LOW RISK
Restricted access to/between fireworks sequences because of limited space	Display Operators	Likelihood = 3 Severity = 5 Risk Index = 15 HIGH RISK	Display to only be electrically fired. No hand firing permitted. Operators to remain behind sufficient barrier throughout display	Likelihood = 1 Severity = 5 Risk Index = 5 LOW RISK
Adjacent areas of exposed glass	Display Operators, Buildings and Structures, Occupants	Likelihood = 3 Severity = 4 Risk Index = 12 HIGH RISK	All effects mounted to ensure safe direction of operation. Safety area extends within occupied buildings	Likelihood = 1 Severity = 4 Risk Index = 4 LOW RISK
Fall of Operators into Water	Display Operators	Likelihood = 2 Severity = 5 Risk Index = 10 MED-HIGH RISK	Display Operators confirm ability to swim. Lifejackets to be worn by firing team whilst on working on/adjacent to waterway	Likelihood = 2 Severity = 1 Risk Index = 2 LOW RISK



FLAMES, SPARKS & BUBBLES RAMS

The flame, sparks (& bubbles if included) system for this event consists of individual flame & spark projectors plus a pumped system emitting non-hazardous bubbles. The chief operator will be: Matthew Ayers (details above).

The projectors are manufactured by an industry recognised brand to high quality. The flame projectors contain two or four canisters of butane / propane mix. The system is controlled by DMX with remote safety cut off. Other safety measures include a 3 second auto cut off if a continuous signal is received. Only trained personnel shall operate the system.

The sparks are created by grinding titanium powder in an enclosed chamber, creating low temperature sparks that are cold to the touch and non-flammable.

The bubbles are created by blowing air through a specially formulated mix of liquid soap which produce hundreds of bubbles which dissolve without trace in minutes. It is safe to touch.

Method statement

No spectators will be within the area in which the flames, sparks & bubbles are positioned. No spectators will be within the 3 metre safety distance and the area will be securely cordoned off.

Potential injury: Burns Risk: Low Prevention measures: Audience will kept at a safe distance The siting of the projectors is shown in the site plan.