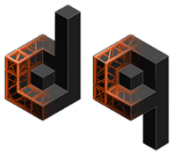
13.04.22



Unit 2 15 Percy Street,
Auburn New South Wales 2144

ATTENTION: Ian Wood

STRUCTURAL DESIGN CERTIFICATE FOR TEMPORARY STRUCTURES

EVENT:	Multipurpose Cage Lighting Protector
STRUCTURE:	2.4m(W) x 1.1m(D) x 1.1m(H) Lighting Cage Single and Double Configuration Assessed
LOCATION:	Australia wide
DURATION:	13th April 2022 – 13th April 2023

We Event Engineering, being professional Chartered Structural Engineers within the meaning of the National Construction Code (NCC) of Australia, confirm that we have been appointed as the engineers responsible for the Structural Certification of the above project. We certify that the design, subject to the limitations listed within this certificate, is in accordance with the relevant provisions of the standard building codes of Australia, accepted engineering practice and principles and the design methods for *Temporary Demountable Structures* as per the *Guidance on Procurement, Design and Use of Temporary Demountable Structures* (Institution of Structural Engineers, 2017).

Indoors use.

We note that this certification is effective only for the dates specified and that further review and certification will be required if the design is modified in any way. This certificate shall not be construed as relieving any other party of their responsibilities, liabilities or contractual obligations. This certificate is applicable only for this installation and relies upon all other risk assessments, WHS requirements and job safety statements associated with this project.

Tatiana Bolshakova
BEng(Civil&Structural)
STRUCTURAL ENGINEER

Morgan Sheehy
MEng (Hons I) Tech Cert Eng (Civil)
MIEAust CPEng NER 3468223 (Civil & Structural)
APEC Engineer IntPE(Aus) RPEQ 14764
PE 657 (Civil Engineer)
SENIOR ENGINEER

1. REFERENCED STANDARDS

1.1. ABCB:2015 Temporary Structures Standard;

1.2. AS1170.0:2002 General principles;

1.3. AS1170.1:2002 Permanent, imposed and other actions;

1.4. AS1170.2:2011 Wind actions;

1.5. AS4100:1998 Steel Structures;

1.6. IStructE:2017 Temporary Demountable Structures.

2. ATTACHMENTS

Att. No.	Title Reference	Issued By	No. Pages
1	Multipurpose Caged Lighting Protector	DESIGN QUINTESSENCE PTY LTD	2
2	General Arrangement Drawings	Event Engineering	2
3	Engineering Calculations	Event Engineering	4

3. DESIGN LIMITATIONS & REQUIREMENTS

3.1. Maximum Loading Single Cage:

3.1.1. Dead:

3.1.1.1. Self Weight 130kg;

3.1.1.2. 70kg/m or;

3.1.1.3. 3 x 60kg point loads;

3.1.1.4. 180kg total additional weight;

3.1.2. Live: No Live loads allowed;

3.2. Maximum Loading Double Cage:

3.2.1. Dead:

3.2.1.1. Self Weight 2x130kg=260kg;

3.2.1.2. 50kg/m or;

3.2.1.3. 6 x 40kg point loads;

3.2.1.4. 240kg total additional weight;

3.2.2. Live: No Live loads allowed;

3.3. Steel Beam (CHS):

3.3.1. Fix each end plate to SHS with M10 grade 8.8 bolt (2 total per beam);

3.4. Stability:

3.4.1. In case of connection to the truss provided by 4No 100kg half couplers per one cage;

3.4.2. In case of connection to the truss by hoists provided by the Chain Hoist 1 ton;

3.5. Supporting Structure:

3.5.1. Cages only to be hung from rated support points;

3.6. Member Specifications:

- **3.6.1.** Steel minimum 235MPa;
- **3.6.2.** 50x3 CHS;
- **3.6.3.** 40x3 SHS;
- **3.6.4.** 6mm Steel Hanging bracket;

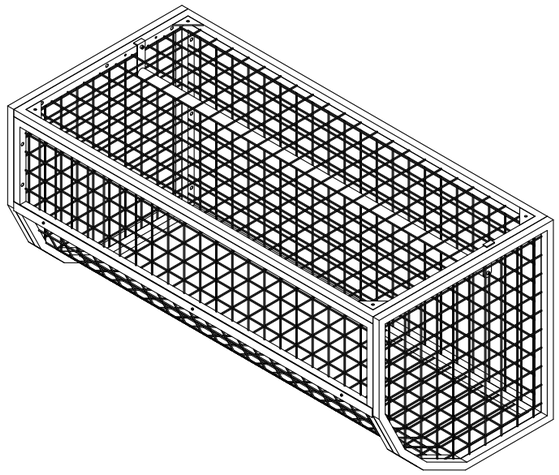
3.7. Minimum Fixings per cage:

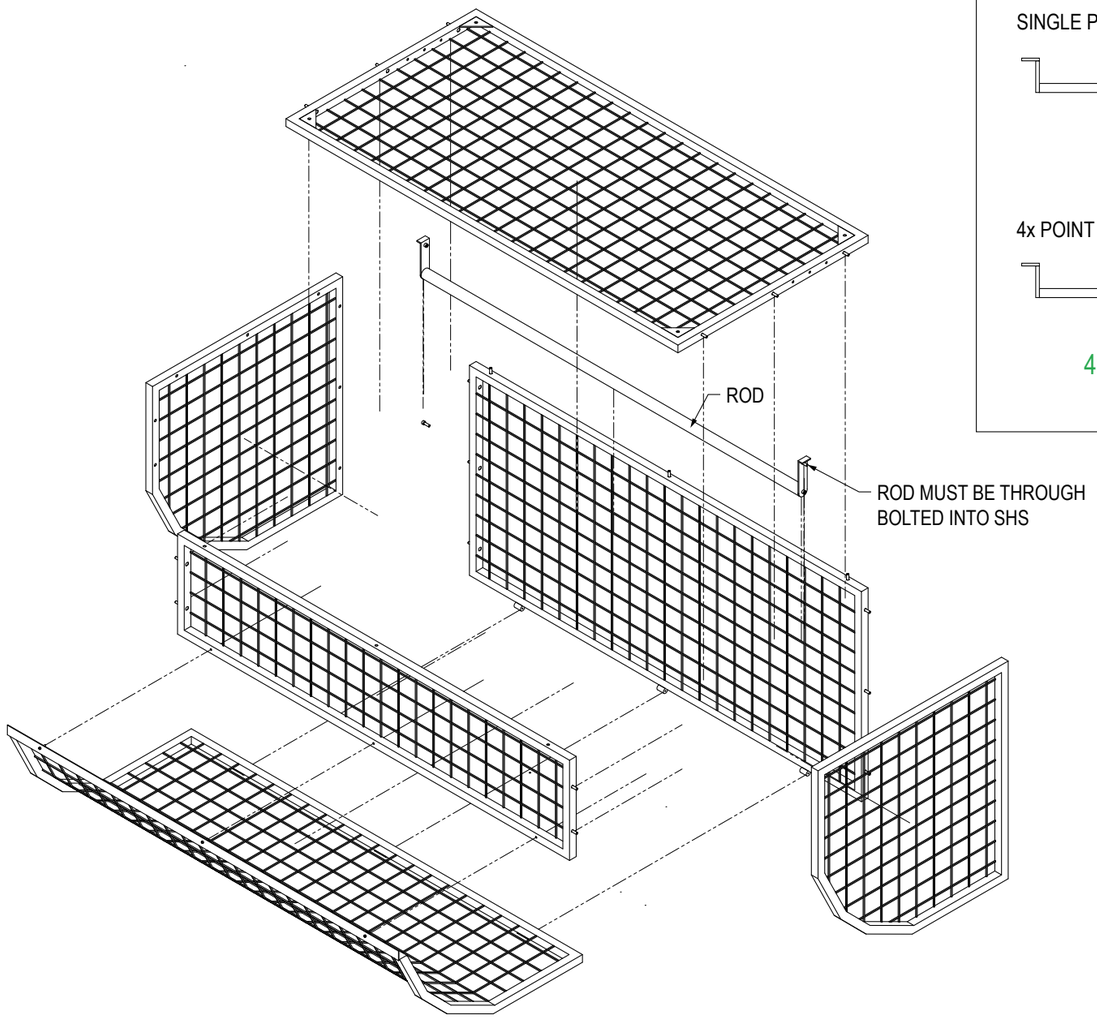
- **3.7.1.** 23No M10x1.5x30 Hex socket head cap screws Grade 8.8;
- **3.7.2.** 3No M6x1.0x30 Hex socket head cap screws;
- **3.7.3.** Double cage to have M10 grade 8.8 bolts at approx. 250mm c/c around perimeter to clamp cages together;

3.8. Catenary Loading: No catenaries to be fixed to structures without review and approval by engineer;

3.9. Rigging: Certified rigging technicians must install and sign-off on all rigging;

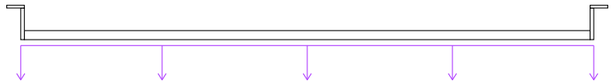
3.10. Workshop Drawings: Shall be submitted for engineer's written approval prior to any additional fabrication or further modifications.





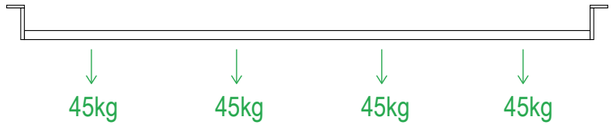
ROD LOADING

UNIFORMLY DISTRIBUTED LOAD



SINGLE POINT LOAD

4x POINT LOADS



DO NOT SCALE DRAWINGS, USE FIGURED DIMENSIONS

REV.	ISSUE / AMENDMENT	BY	APP.	DATE
A	INFORMATION	GC	MS	01/04/2022

CHECKED

DRAWN:	G. CORKETT	01/04/22
DESIGNED:	M. SHEEHY	01/04/22
DRG CHECK:	M. SHEEHY	01/04/22
DESIGN CHK:	M. SHEEHY	01/04/22
APPROVED:	R. TUCKI	01/04/22

EVENT ENGINEERING
ACN 163 597 840
ABN 67 163 597 840
17-19 O'Connor St Chippendale
NSW 2008 Australia
www.eventengineering.com.au

CLIENT
DESIGN QUINTESSENCE

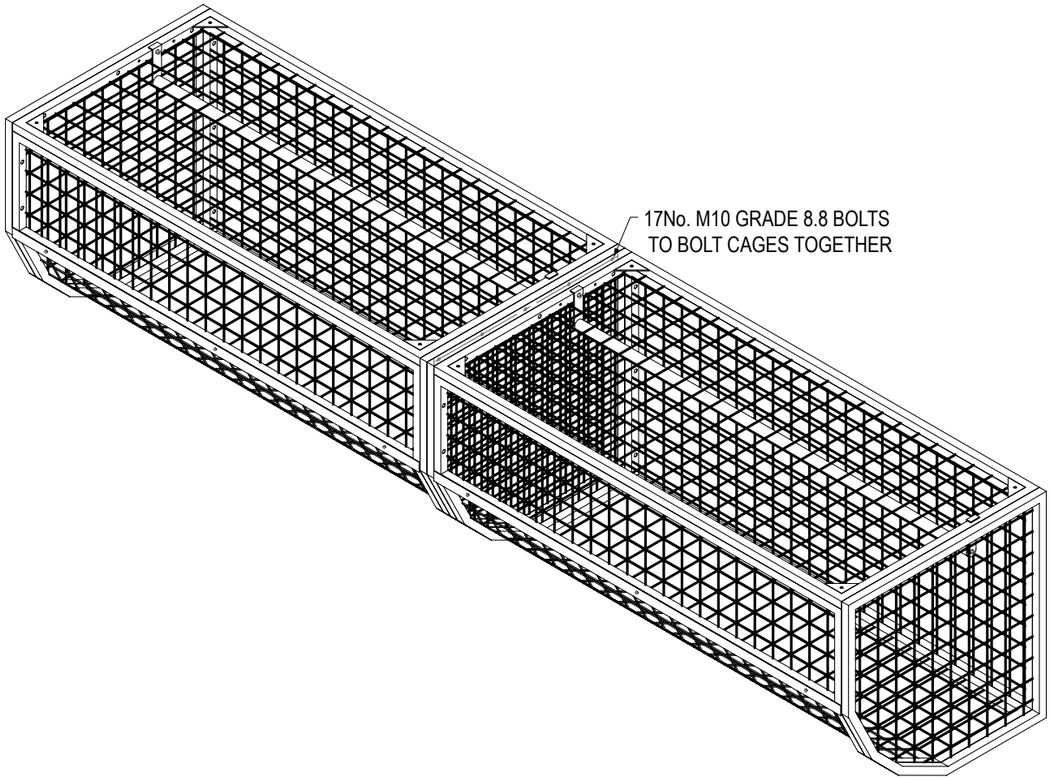
PROJECT
LIGHTING CAGE

TITLE
ROD LOADING DRAWING - SINGLE CAGE CONFIGURATION

FOR INFORMATION

SCALE AT A3	DATE	DESIGNED / DRAWN
N/A	01/04/2022	MS / GC

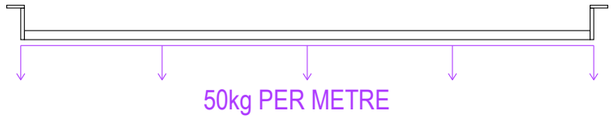
JOB NO.	DRAWING NO.	AMDT.
EE22 206	S1.1	A



ISOMETRIC VIEW

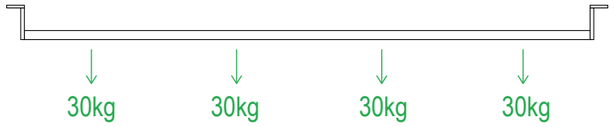
ROD LOADING

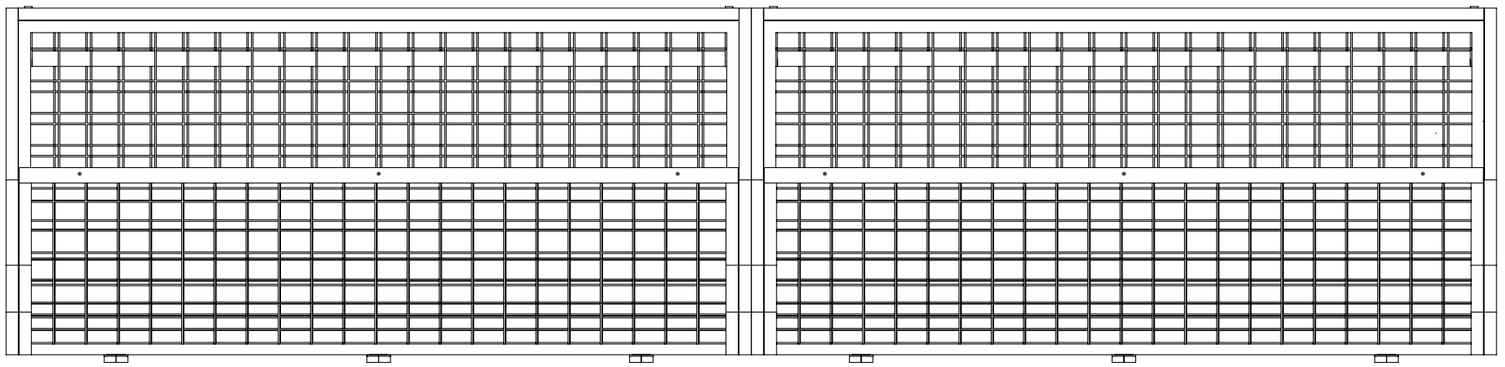
UNIFORMLY DISTRIBUTED LOAD



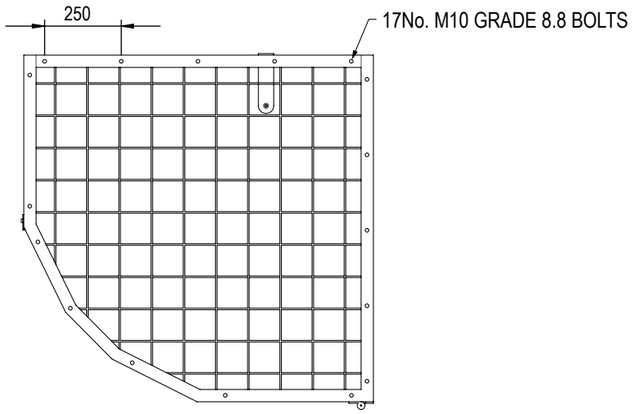
SINGLE POINT LOAD

4x POINT LOADS





FRONT ELEVATION



SIDE ELEVATION

DO NOT SCALE DRAWINGS, USE FIGURED DIMENSIONS

REV.	ISSUE / AMENDMENT	BY	APP.	DATE
A	INFORMATION	GC	MS	01/04/2022

CHECKED

DRAWN: G. CORKETT 01/04/22

DESIGNED: M. SHEEHY 01/04/22

DRG CHECK: M. SHEEHY 01/04/22

DESIGN CHK: M. SHEEHY 01/04/22

APPROVED: R. TUCKI 01/04/22

CLIENT
DESIGN QUINTESSENCE

PROJECT
LIGHTING CAGE

TITLE
ROD LOADING DRAWING - DOUBLE CAGE CONFIGURATION

FOR INFORMATION

DESIGNED		
MS		
SCALE AT A3	DATE	DRAWN
N/A	01/04/2022	GC
JOB NO.	DRAWING NO.	AMDT.
EE22 206	S1.2	A

EVENT ENGINEERING
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NSW 2008 Australia
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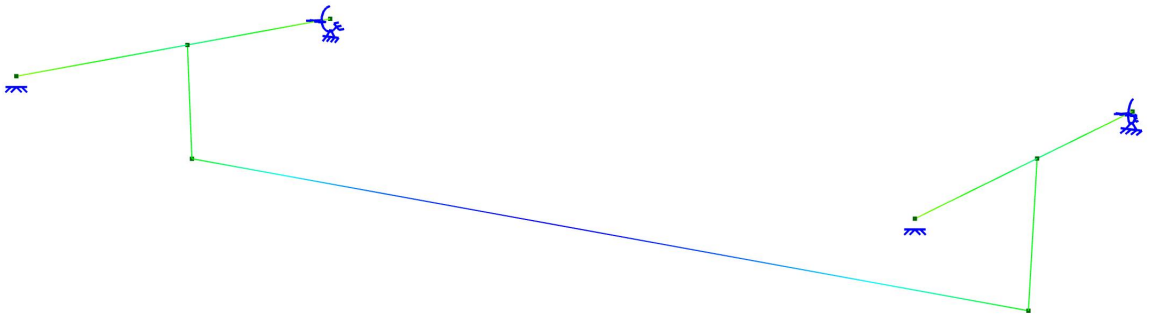
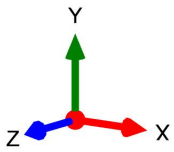
Load case 11 Distributed Load =70kg/m

Axial + Bending Stress:

- 95.41 MPa
- 85.36 MPa
- 75.32 MPa
- 65.28 MPa
- 55.24 MPa
- 45.19 MPa
- 35.15 MPa
- 25.11 MPa
- 15.06 MPa
- 5.02 MPa
- -5.02 MPa
- -15.06 MPa
- -25.11 MPa
- -35.15 MPa
- -45.19 MPa
- -55.24 MPa
- -65.28 MPa
- -75.32 MPa
- -85.36 MPa
- -95.41 MPa





Sections:
- 1 50x3 CHS
- 2 Plate 6mm
- 3 40*3 SHS

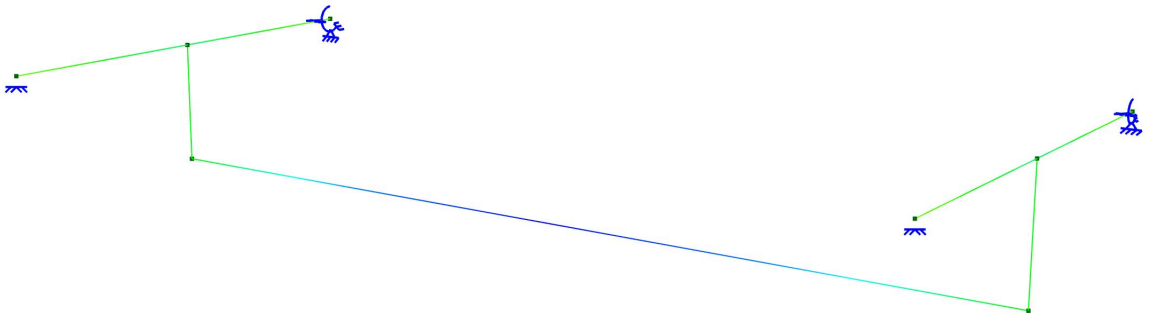
Materials:
- 1 STEEL

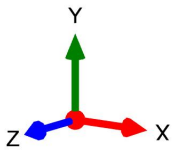
Viewpoint (35,12)

Load case 10 Point Load = 150kg

Axial + Bending Stress:

- 142.45 MPa
- 127.45 MPa
- 112.46 MPa
- 97.46 MPa
- 82.47 MPa
- 67.48 MPa
- 52.48 MPa
- 37.49 MPa
- 22.49 MPa
- 7.50 MPa
- -7.50 MPa
- -22.49 MPa
- -37.49 MPa
- -52.48 MPa
- -67.48 MPa
- -82.47 MPa
- -97.46 MPa
- -112.46 MPa
- -127.45 MPa
- -142.45 MPa





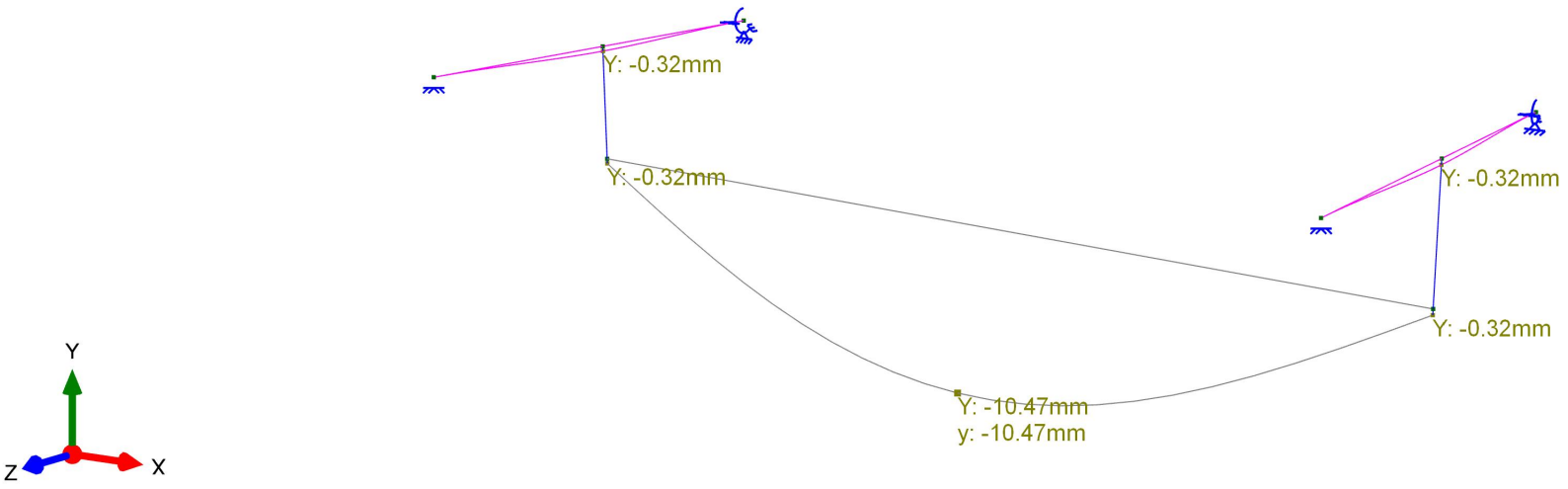
Sections:
- 1 50x3 CHS
- 2 Plate 6mm
- 3 40*3 SHS

Materials:
- 1 STEEL

Viewpoint (35,12)

Load case 11
11 (SW) G+Q(DSTR)

Distributed Load =70kg/m



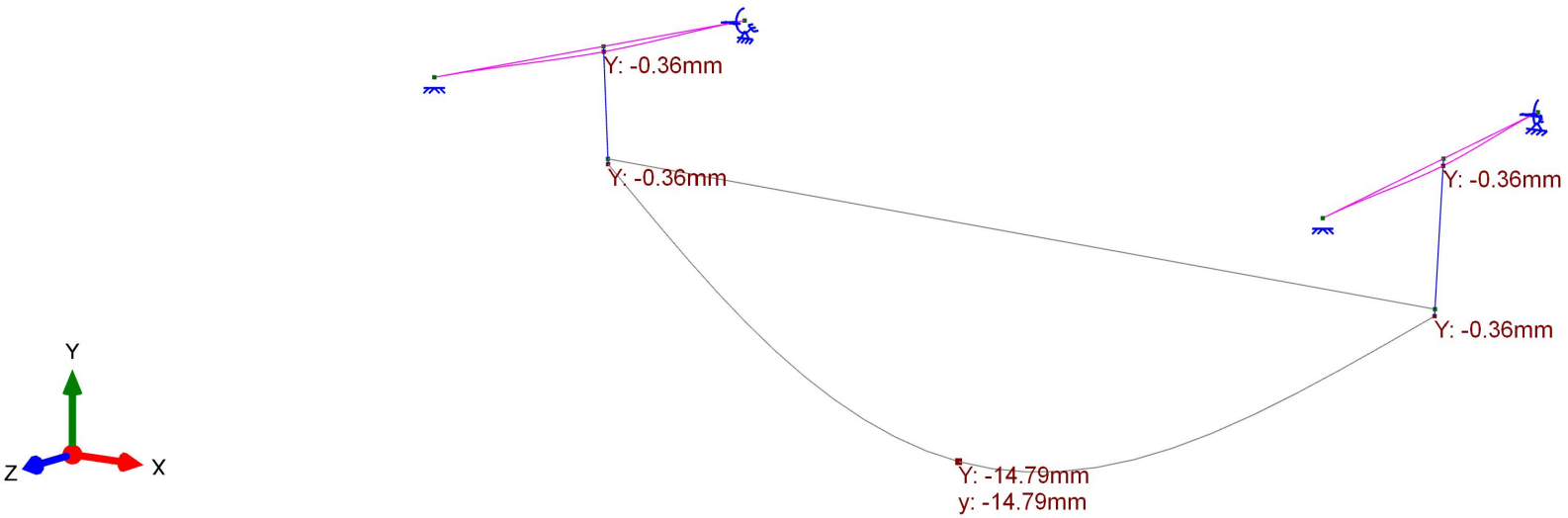
Sections:
1 50x3 CHS
2 Plate 6mm
3 40*3 SHS

Materials:
1 STEEL

Viewpoint (35,12), Displacements

Load case 10
10 (SW) G+Q

Point Load = 150kg



Sections:
1 50x3 CHS
2 Plate 6mm
3 40*3 SHS

Materials:
1 STEEL

Viewpoint (35,12), Displacements