

DESIGN REPORT

Client / Project Name: **Standard** Ref No.: 20-11-26-16-18-49

Cutting List: Standard 1:57:55, 355WA 2017, Rev1: Sect 3T-17

Mast Description: **30m, HIGHLIGHT MAST, NOTE: Genlux Solarhood**

Site Terrain Category	Site Altitude	Regional Wind speed	Artificial Base Height	Importance Factor	Steel Yield Stress
2	1000m	40.0m/s	0.0m	0.85	355MPa

Mast Loading:

Description of Concentrated Loadings	Aw (m ²)	Ci	Installation Height from Top (m)	Mass (kg)
Lamp Cage	0.26	0	0	70
9 x 1000W, Circular, HL Mast Ring	1.41	1.5	0	238.5

Applied Bending Moment: No Applied Bending Moment

Mast Geometry:	Top Diameter	Bottom Diameter	The mast cross-section is: Round	Top Section No.	Bottom Section No.	Mast Actual Height
	0.153m	0.550m		3T	17	29.8m

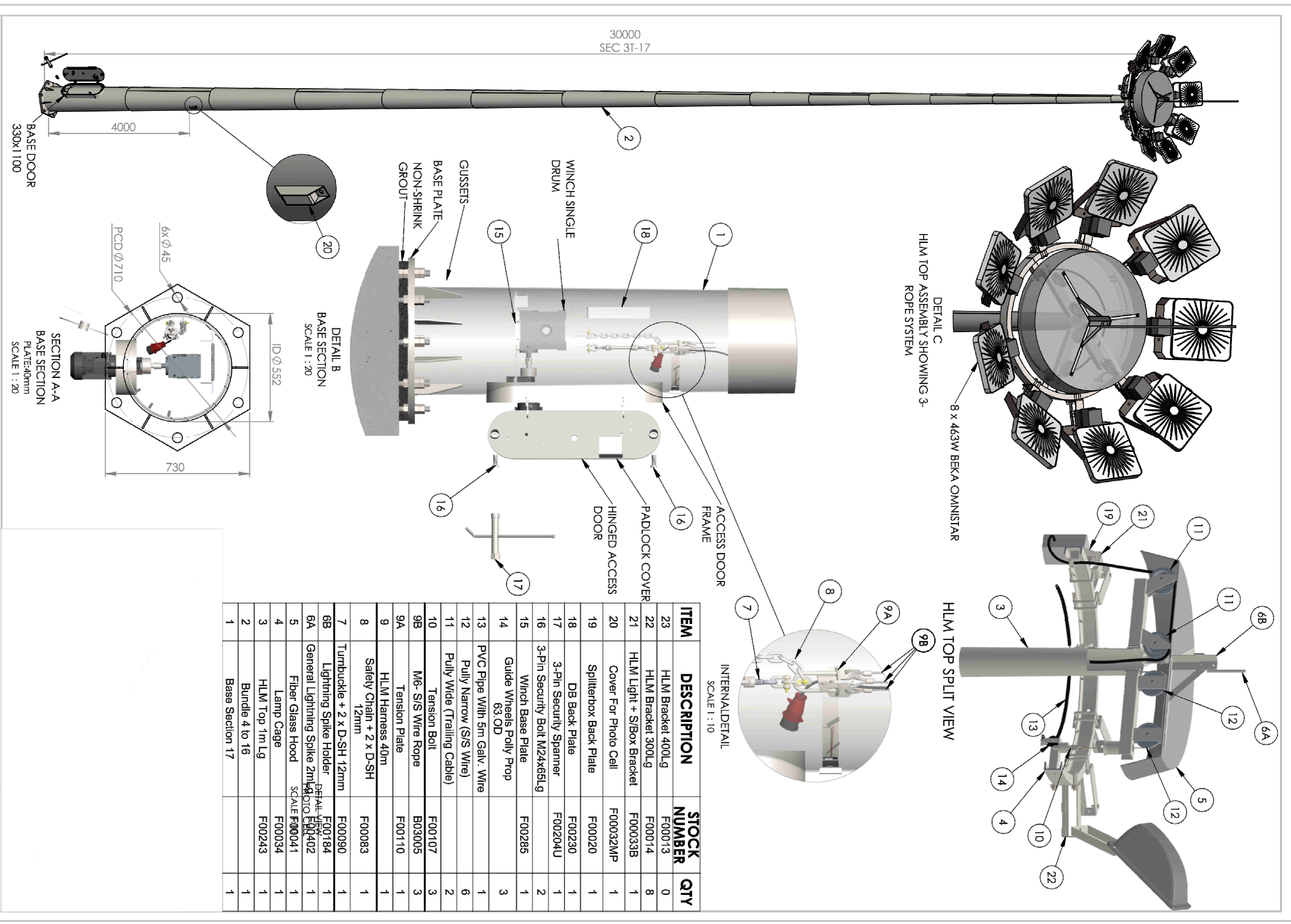
Bending Moments & Forces:	Max Actual/Allow Bending Moment at 15.8m	Actual (kNm)	Allowable (Actual/Allowable)
		44.37kNm	91.5kNm
		116.4kNm	236.1kNm
		6.3kNm	12.9kNm

Deflections:	Maximum Angle	Maximum Displacement	Serviceability	Ultimate Limit State
	4.8°	1.12m	9.7°	2.28m

Hold-down Bolts:	Minimum Tensile Strength: 550MPa	Actual	Allowable (Actual/Allow)
		226.0kN	301.0kN
			75.1%

Base Flange:	552mm	710mm	842mm	40mm
	ID	PCD	OD	t

Originator: Benny Schrader Date: 2020-11-26 Signature of Pr. Eng: Pr. Number: Date:



SECTIONAL POLES

Drawing Number: FD-BS-20-11-26-16-18-49.pdf

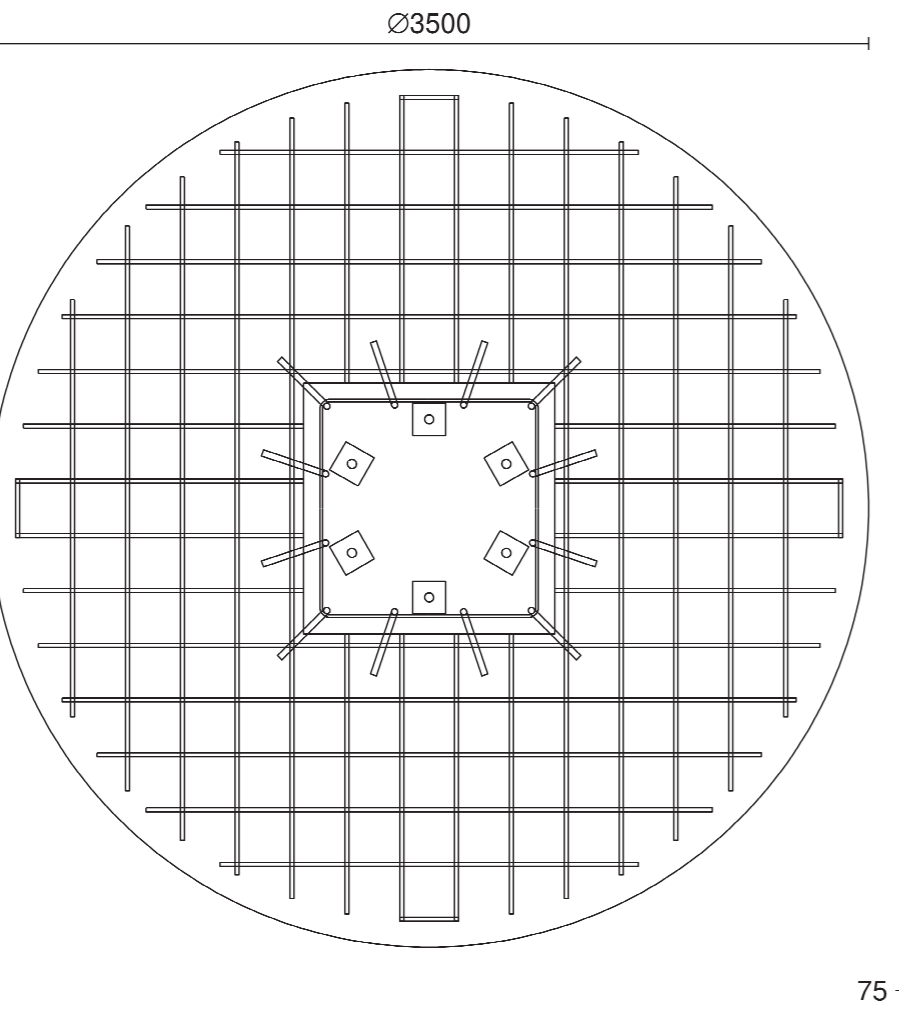
Mast/Structure Description: 30m HL Mast, 9x1000W, Cat2, Hasi:1000m

Bending Moment (ULS): 238.1 kNm
 Shear Force (ULS): 12.3 kN
 Structure Mass: 1668.8 kg
 Applied Vertical Force (ULS): 0.0 kN
 Required Soil Pressure: 144.3 kPa

Concrete Volume: 4.9 m³
 Reinforcement Mass: 25 MPa
 Excavation Volume: 9.2 m³
 Backfill Volume: 5.2 m³

Shape codes and dimensions of steel reinforcement according to SANS 82:

Ref.	Quantity	Diameter	Full Length	Diagram	Shape Code
a1	4	16	3593	3293	38
a2	4	16	3594	3294	
a3	4	16	3413	3113	
a4	4	16	3414	3114	
a5	4	16	2946	2646	
a6	4	16	2554	2254	
a7	4	16	1965	1665	
a8	4	16	594	234	
b	12	25	1168	A-253	37
				B-478	
c	3	10	3500	A	60
				A-B-870	
d	16	12	1347	B	83
				A-C-D-392	
				B-146	



- Notes:
- Foundation Bolts per Pully: 6x M8SP, 710 mm PCD, UTS 550 MPa min, fixing templates to be placed at top and bottom of bolts before casting
 - Positioning of stools (Ref. d) to be determined on site to provide sufficient support between Top and Bottom bars (Ref. a)
 - Bottom and top reinforcement mats each consist of 16 x 16 bars at 218 mm spacing

NOTES:

REVISIONS:

Ref.	Date	Description
0	2020/11/26	Issued for Approval

Client: DITSBOTLA LOCAL MUNICIPALITY

Consultant: K&A BACCARE ENGINEERING CONSULTANTS

Project Description: SHEILA HIGH MAST LIGHTS

Project Name: M/GN/2749/CL/21/22

Date of Issue: Date of Rev:

Drawn By: LIGHT SPECIFICATIONS

Check By:

Scale: AS SHOWN

Information Only: DRAWING ISSUED FOR: (indicate X)
 - LOCAL AUTHORITY APPROVAL: X
 - CONSTRUCTION: X

Drawn By: KEO/DL/MSH/LWL/S01

Rev: 0