

## CHAPTER VI

### CONCLUSION

#### 6.1 Conclusion

After engaging in an internship program, the author accumulated significant experience, particularly in the practical application of knowledge within the field, resulting in valuable insights for conducting construction activities. The author acquired skills in the steel structure industry, steel structure analysis and decision-making on-site. However, due to time and data limitations, observations on the implementation of the PT. Krakatau Steel subholding PT. Krakatau Baja Konstruksi Project were confined to the fabrication stages.

#### 6.2 Suggestion

Based on the hands-on experience gained at the PT. Krakatau Steel subholding PT. Krakatau Baja Konstruksi, the following suggestions are offered:

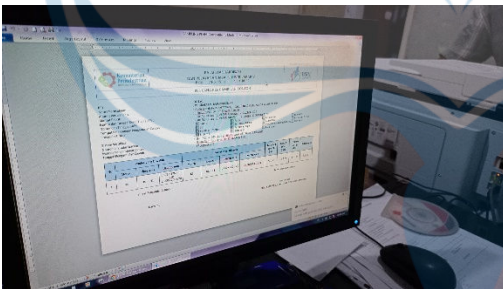
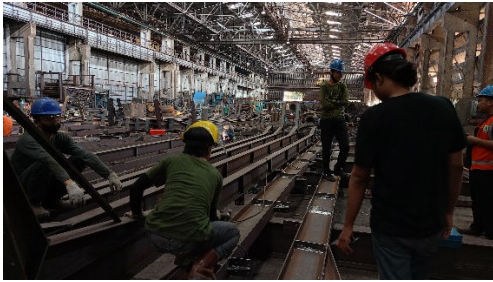
- a. Enhance communication between the designer and owner to minimize design alterations during the construction phase.
- b. Place greater emphasis on maintaining safety training of the workers.
- c. Ensure the health and safety tools are prepared in every working site.

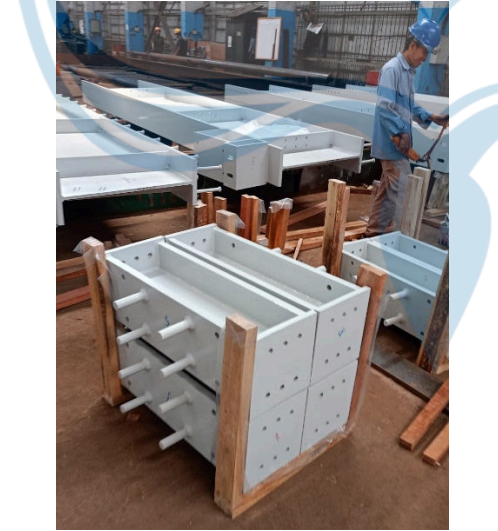
## REFERENCES

- Ali Murtaza Rasool, Y. E. (2022). Analysis of communication tower with different heights subjected to wind loads using TIA-222-G and TIA-222-H standards. *Journal of Asian Architecture and Building Engineering*.
- American Institute of Steel Construction. (2016). ANSI/AISC 360-16 Specification for Structural Steel Buildings. Chicago, Illinois: American National Standard.
- American Society of Civil Engineers. (2017). ASCE/SEI 7-16 Minimum Design Loads and Associated Criteria for Buildings and Other Structures. Virginia: Structural Engineering Institute.
- American Welding Society. (2020). AWS D1.1/D1.1M Structural Welding Code-Steel. American National Standard.
- Amiri, G. B. (2002). SEISMIC BEHAVIOR OF 4-LEGGED SELF-SUPPORTING TELECOMMUNICATION TOWERS. *Malaysian Journal of Civil Engineering*.
- ASTM International. (2017). Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products. ASTM International.
- Badan Standarisasi Nasional. (2006). Baja profil siku sama kaki proses canai panas (BJ P Siku sama kaki). Standar Nasional Indonesia.
- Badan Standarisasi Nasional. (2006). Baja lembaran, pelat dan gulungan canai panas (BJ P). Standar Nasional Indonesia.
- Barsoum, I. (2012). Structural Analysis of a New Generation of Guyed Telecom Mast with a Wind Turbine. *International Journal of Engineering and Technology* Volume 2 No. 9.
- International Standard. (2015). Hot dip galvanized coatings on fabricated iron and steel articles – Specification and test methods. International Organization for Standardization.
- Kononova, N. (2023). Comparison of EPA values based on TIA-222-G, TIA-222-H and wind tunnel test. Their impact on the structure capacity. *Delmec*.
- Telecommunication Industry Association. (2017). Structural Standard for Antenna Supporting Structures and Antennas and Small Wind Turbine Support Structures. American National Standard.
- Telecommunications Industry Association. (2005). TIA-222-G Structural Standard for Antenna Supporting Structures and Antennas. American National Standard.
- Telecommunications industry Association. (1996). TIA/EIA-222-F Structural Standards for Steel Antenna Towers and Antenna Supporting Structures. American National Standard.
- The American Society of Mechanical Engineers. (2023). ASME Boiler and Pressure Vessel Code and International Code: Nondestructive Examination. New York: The American Society of Mechanical Engineers.
- Yasmin Elhakim, T. I. (2022). Optimum Selection of Communication Tower Structures Based on Wind Loads & lifecycle cost analysis. *Congent Engineering*.



**ATTACHMENT**







**TOWER BTS SST 45M 3 LEG 1 TENANT**

**A. MATERIAL SPESIFICATION**

Material	Standard	Grade
Steel Shapes & Plates	ASTM A36 / JIS G3101 / SS 400	fy : 235 Mpa
Bolts & Nuts	8.8 / JIS B1051	fy : 640 Mpa
Anchor Bolts	ASTM A307	fy : 240 Mpa
Steel Pipes	ASTM A53 / JIS G3444	fy : 235 Mpa
Welding	AWS D1.1 E60XX	fy : 330 Mpa
Hot Dip Galvanized	ASTM A123	Coating Grade 85 (85 μm or 600g/m <sup>2</sup> )

**B. DESIGN STANDARD**

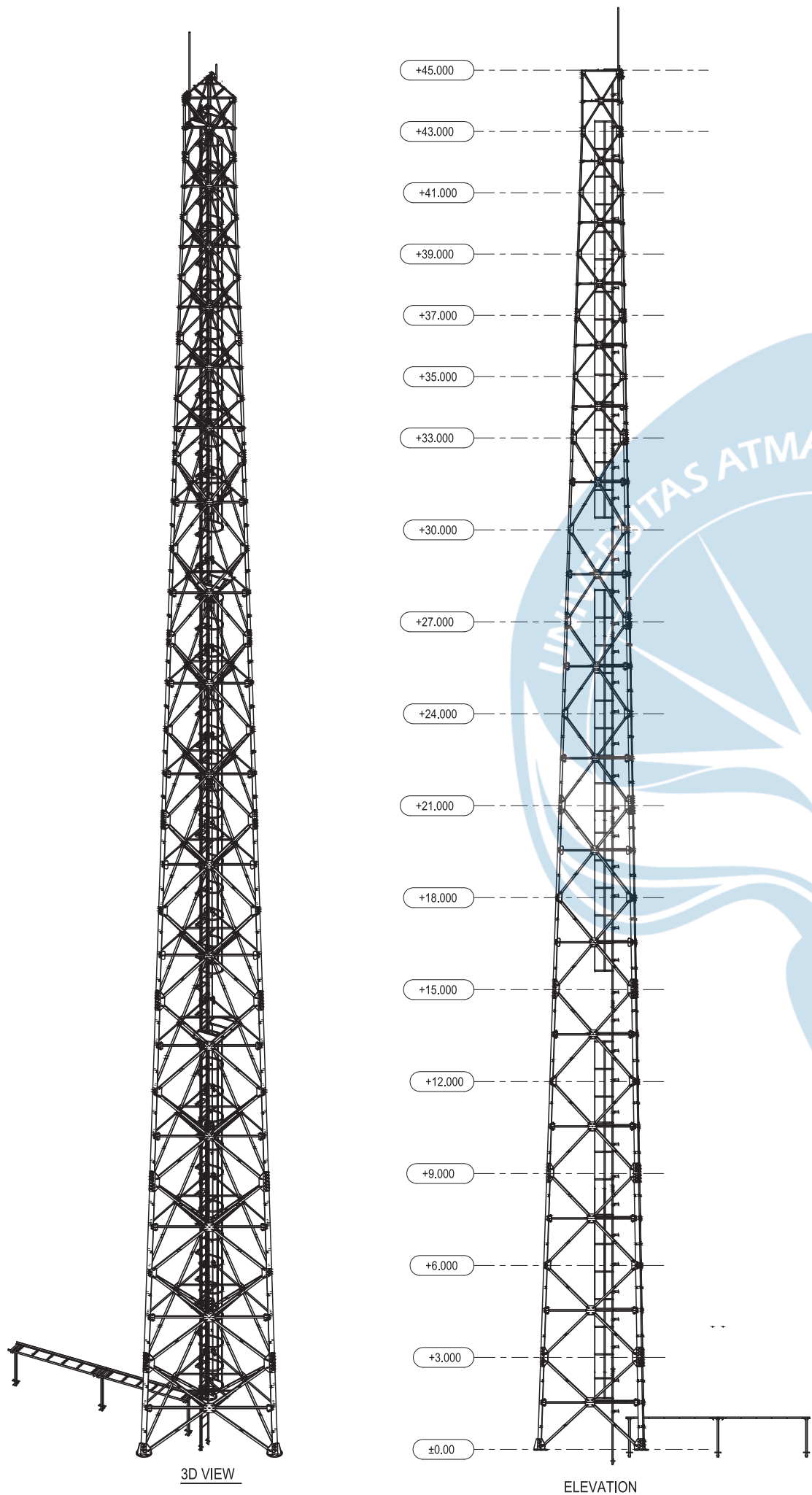
TIA / EIA - 222F

**C. LOADING ANTENNA**

Antenna Type	Qty	Dimension ( m )
RF 1	3	2.698 x 0.448 x 0.188
RF 2	3	2.580 x 0.262 x 0.116
MW 1	1	Ø 1.2
MW 2	1	Ø 1.2
RRU 1	3	0.169 x 0.383 x 0.636
RRU 2	3	0.169 x 0.383 x 0.636
Filter	3	0.192 x 0.230 x 0.450

**D. DESIGN CRITERIA**

Basic Wind Speed : 120 kph  
 In Operational Wind Speed : 81 kph  
 Twist < 1°  
 Sway < 1°  
 Deflection : H/100  
 Tower Verticality : H/800 WITHOUT ANTENNA  
 H/400 WITH ANTENNA  
 H : Height of Tower



3D VIEW

ELEVATION

OWNER



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NOTES/REMARK

NOTE :

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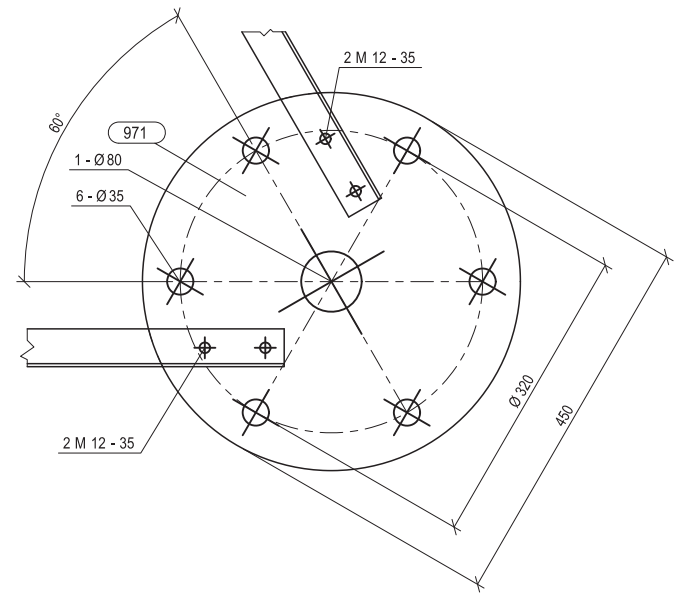
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TOWER BTS SST 45M - 3LEG 1 TENANT

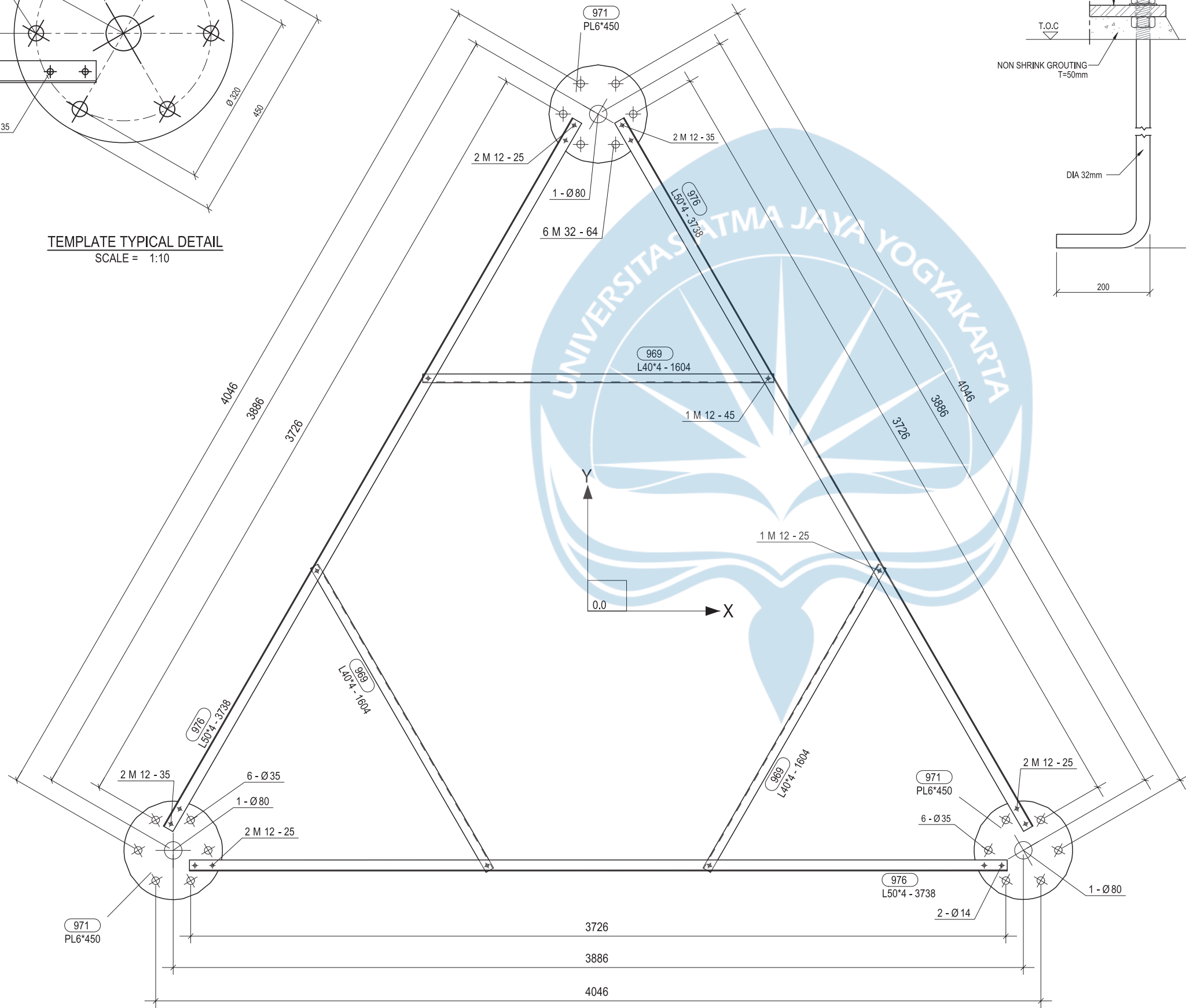
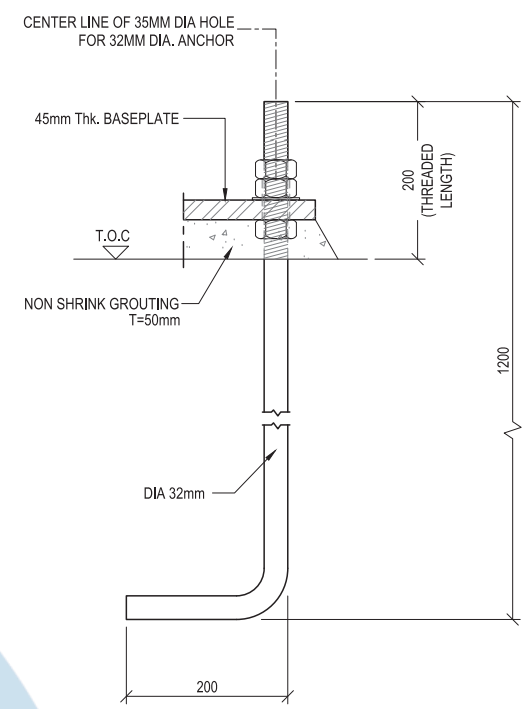
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TEMPLATE TYPICAL DETAIL  
SCALE = 1:10



ANCHOR TEMPLATE SETTING  
SCALE = 1:20

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NOTES/REMARK

NOTE :

ANCHOR TEMPLATE BOLTS LIST

No	GRADE	Site / Shop	Size	Quantity
1	8.8	Site	BOLT M 12X35	12
2	8.8	Site	BOLT M 12X30	6

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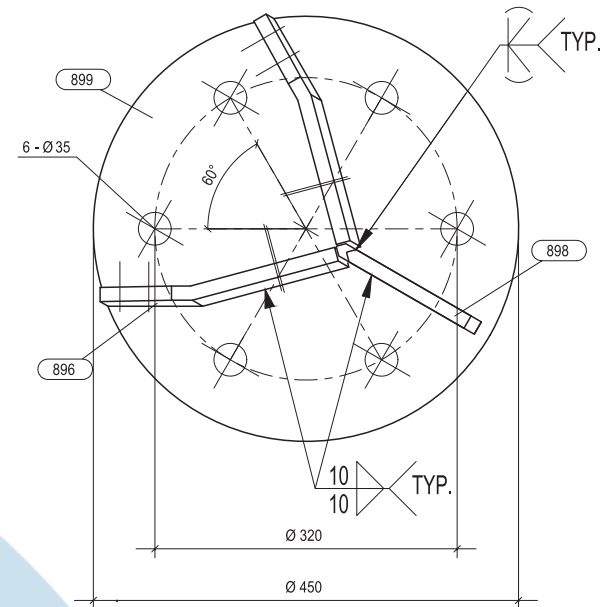
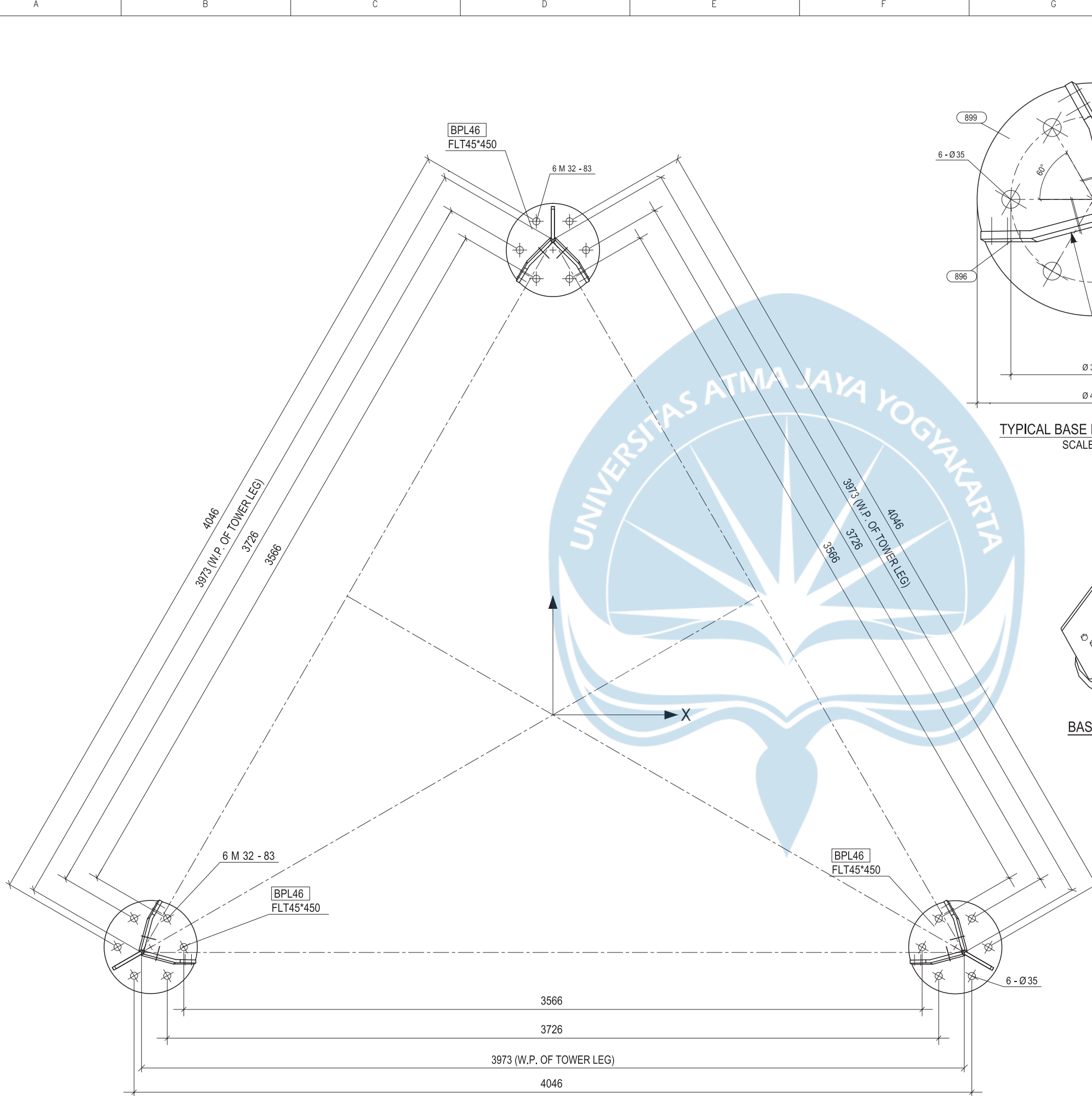
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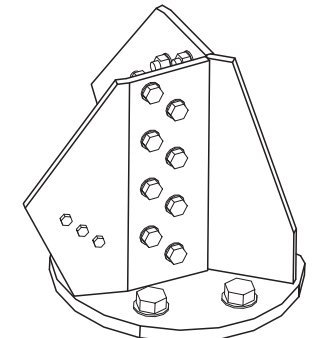
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TYPICAL BASE PLATE DETAIL  
SCALE = 1:10



BASE PLATE - ISOMERTIC VIEW

BASE PLATE LAYOUT - PLAN  
SCALE = 1:20

OWNER



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NOTES/REMARK

NOTE :

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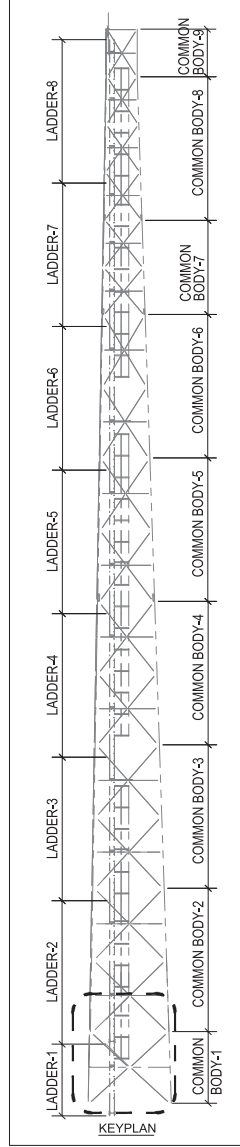
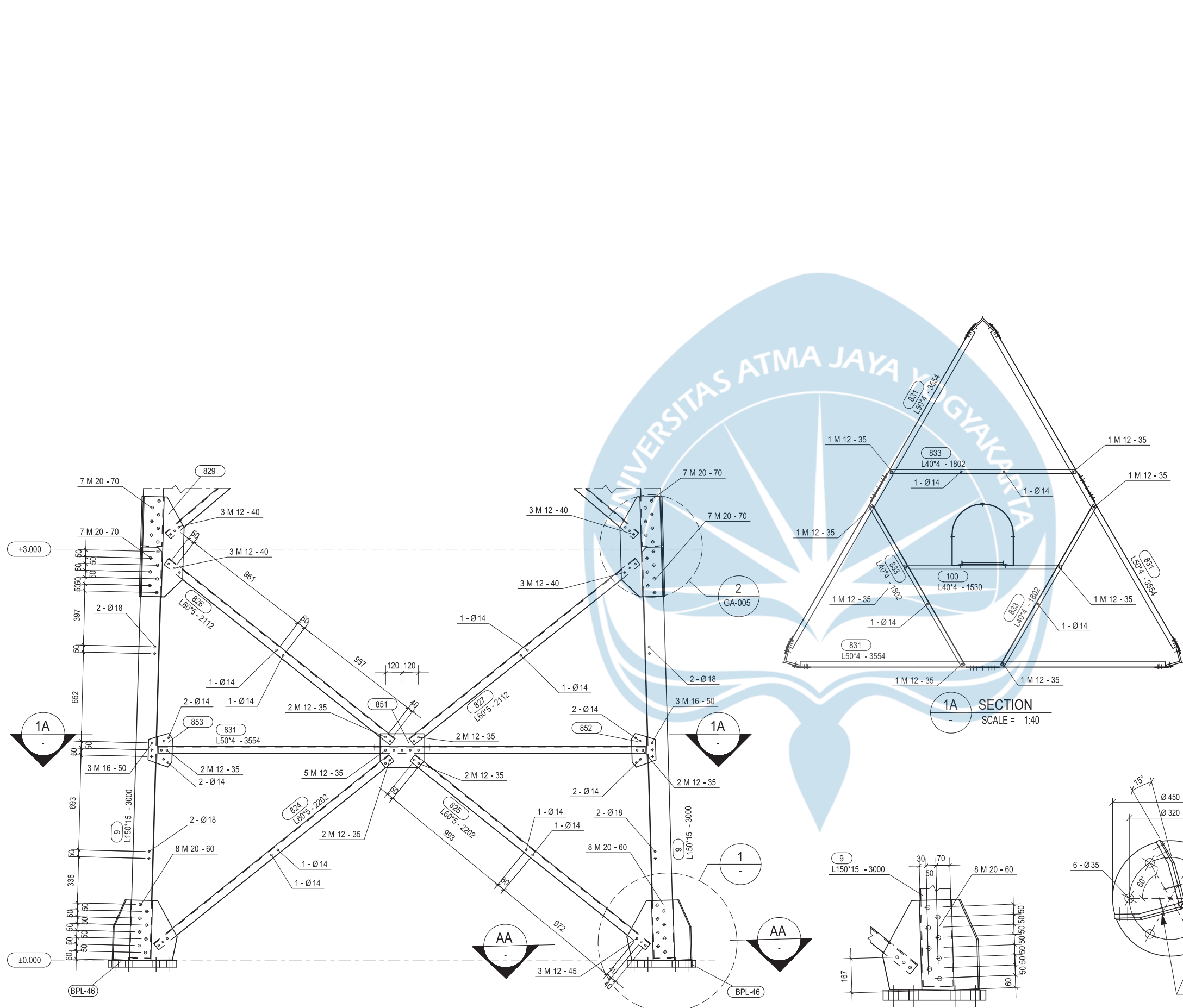
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BASEPLATE LAYOUT  
AND DETAIL

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ELEVATION VIEW  
SCALE = 1:30

DETAIL - 1  
BASE PLATE (BPL-46)  
SCALE = 1:20

AA SECTION  
SCALE = 1:20

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NOTES/REMARK

NOTE :

COMMON BODY-1 BOLTS LIST

No	GRADE	Site / Shop	Size	Quantity
1	8.8	Site	BOLT M 20 x 60	48
2	8.8	Site	BOLT M 16 x 50	18
3	8.8	Site	BOLT M 16 x 45	18
4	8.8	Site	BOLT M 12 x 45	18
5	8.8	Site	BOLT M 12 x 40	30
6	8.8	Site	BOLT M 12 x 35	75

REVISION

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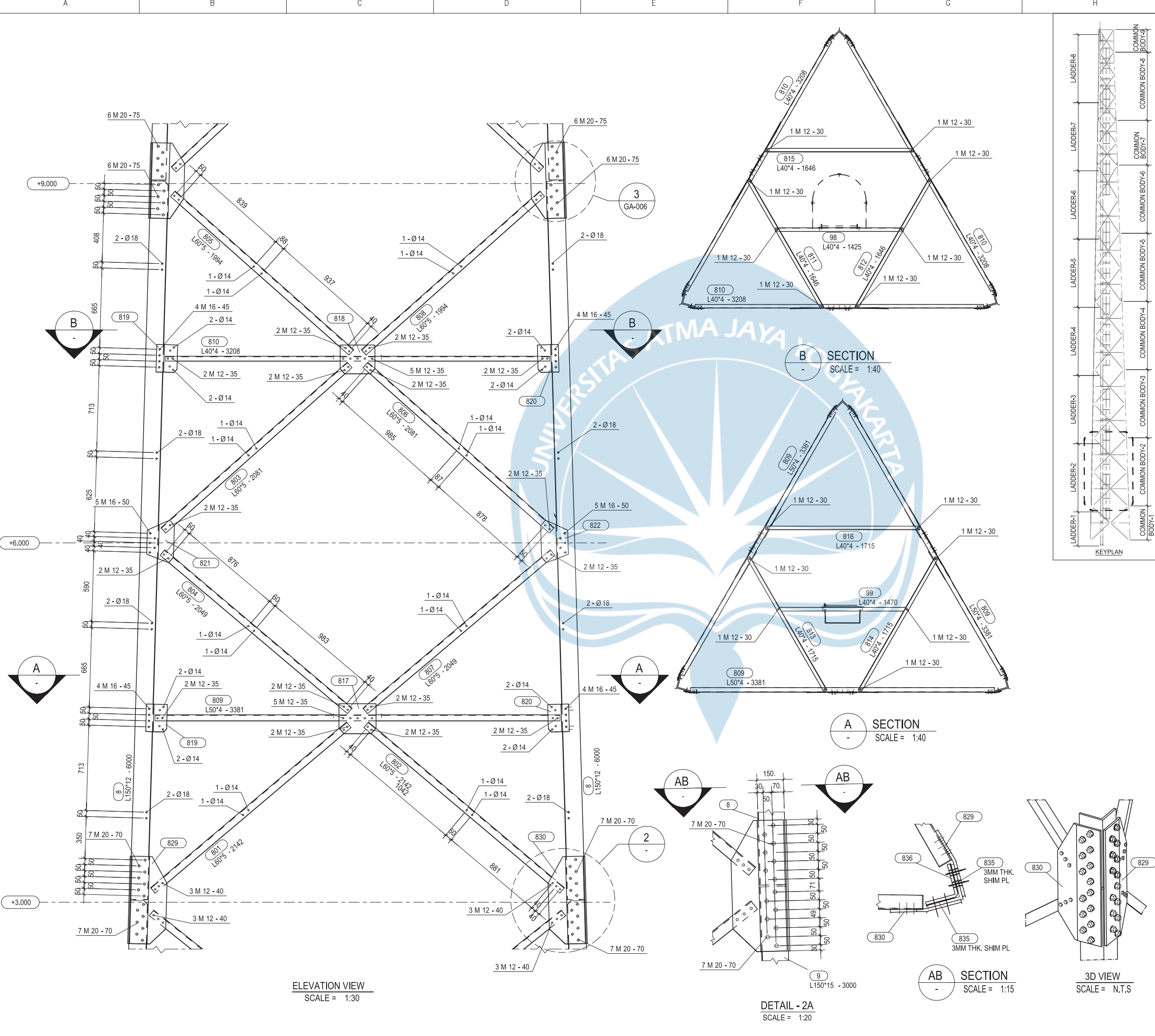
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DRAWING TITLE  
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NOTES/REMARK

NOTE :

COMMON BODY-2\_BOLTS LIST

No	GRADE	Site / Shop	Size	Quantity
1	8.8	Site	BOLT M 20 x 70	84
2	8.8	Site	BOLT M 16 x 50	30
3	8.8	Site	BOLT M 16 x 45	48
4	8.8	Site	BOLT M 12 x 40	75
5	8.8	Site	BOLT M 12 x 35	186
6	8.8	Site	BOLT M 12 x 30	16

REVISION

NO.	DATE	CHANGE	CHECK & SIGN
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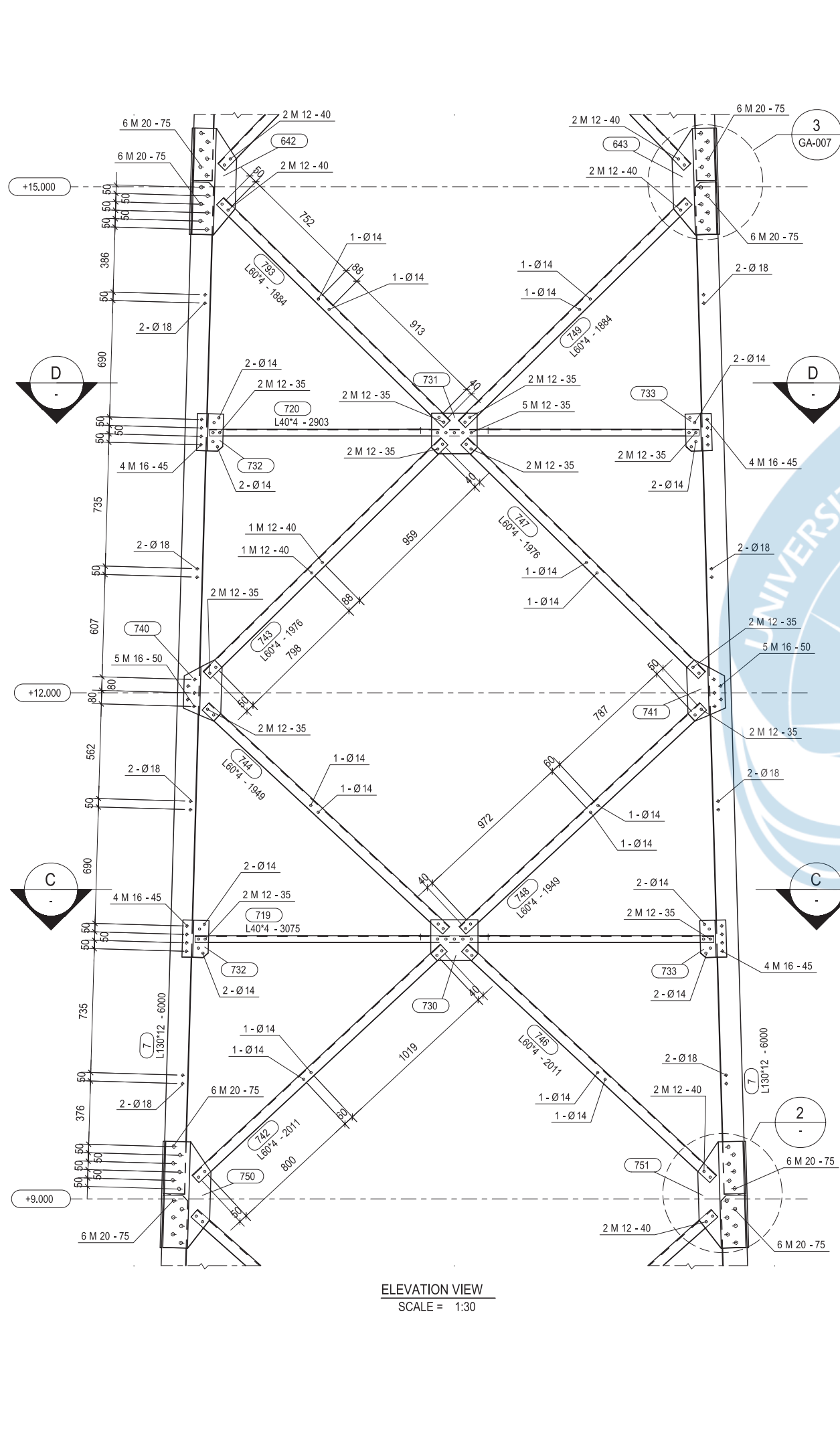
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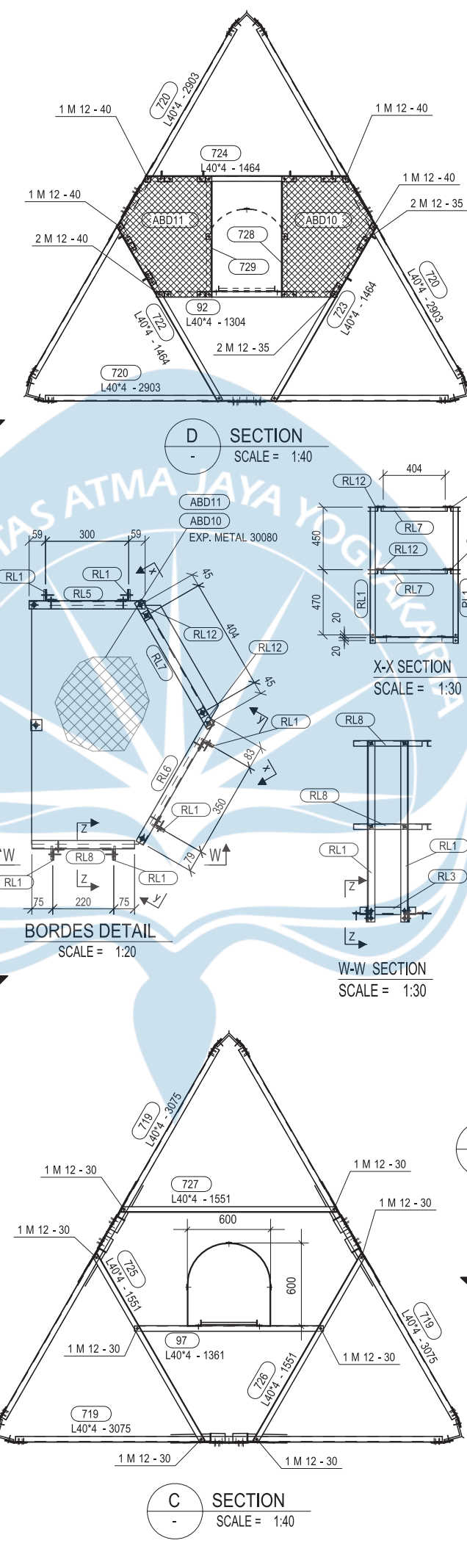
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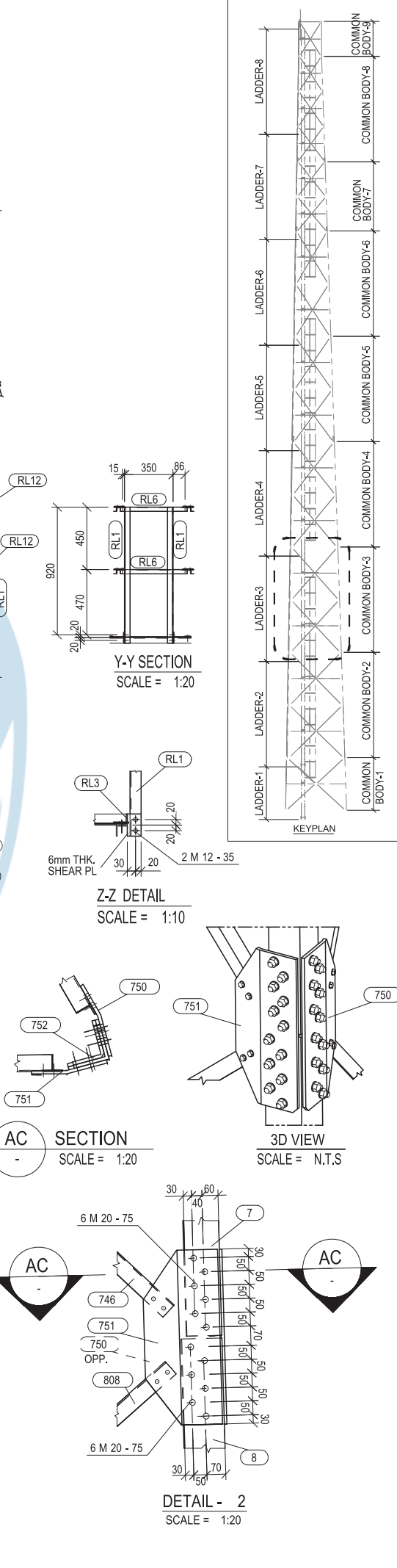
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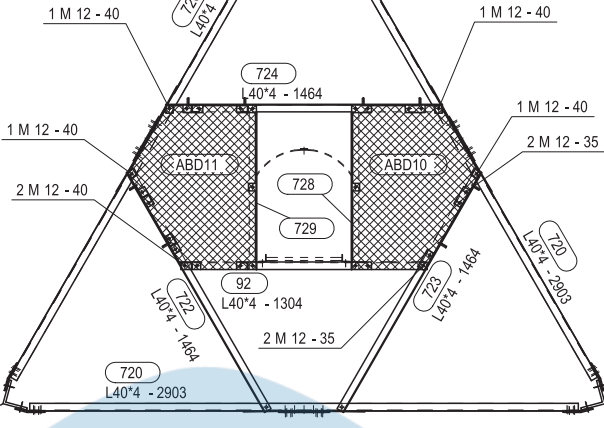
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AC SECTION  
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3D VIEW  
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DETAIL - 2  
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ABD11  
ABD10  
EXP. METAL 30080

X-X SECTION  
SCALE = 1:30

Y-Y SECTION  
SCALE = 1:20

Z-Z DETAIL  
SCALE = 1:10

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NOTES/REMARK

NOTE :

COMMON BODY-3 BOLTS LIST

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2	8.8	Site	BOLT M 16X50	30
3	8.8	Site	BOLT M 16X45	48
4	8.8	Site	BOLT M 12X40	56
5	8.8	Site	BOLT M 12X35	178
6	8.8	Site	BOLT M 12X30	50

REVISION

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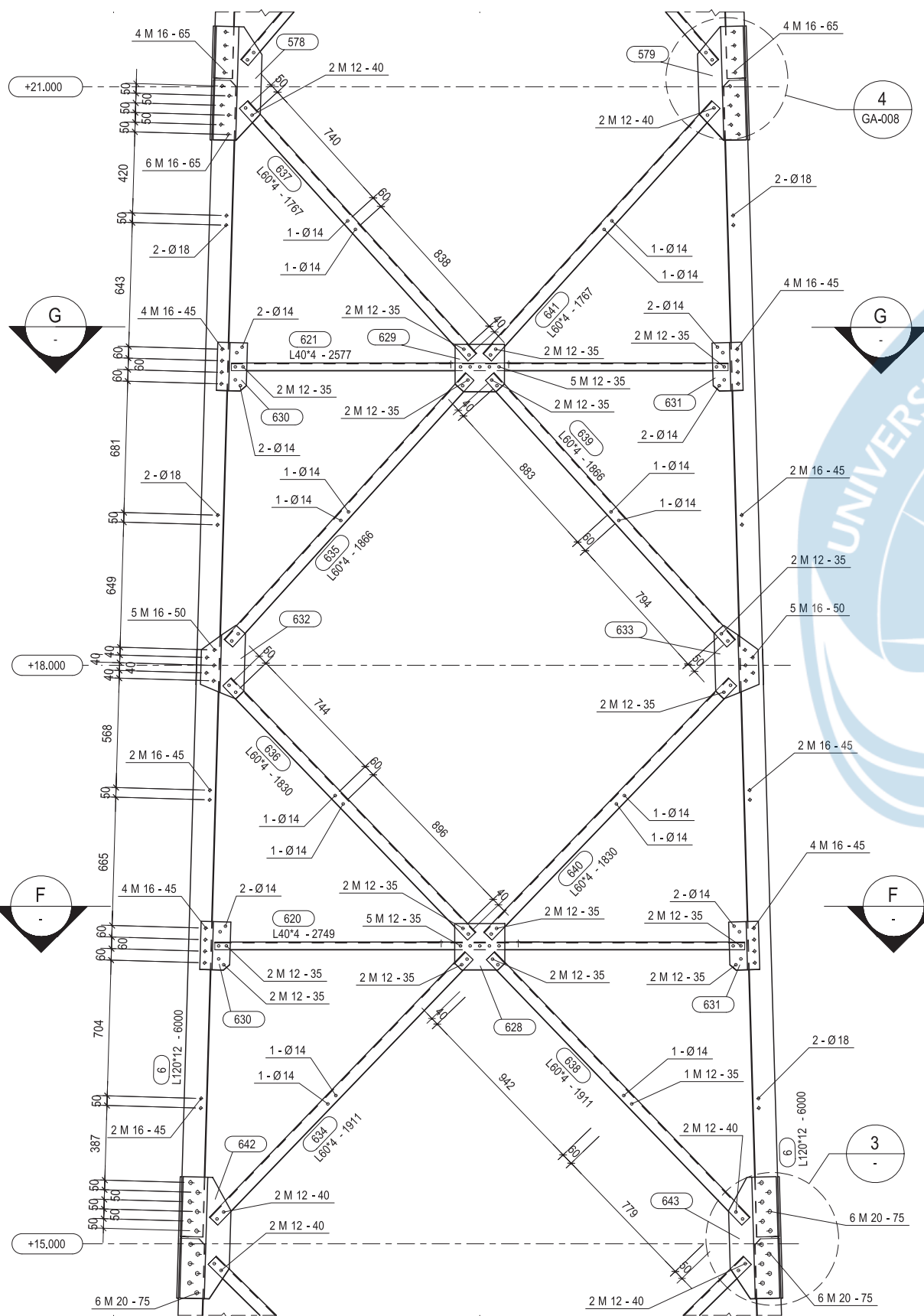
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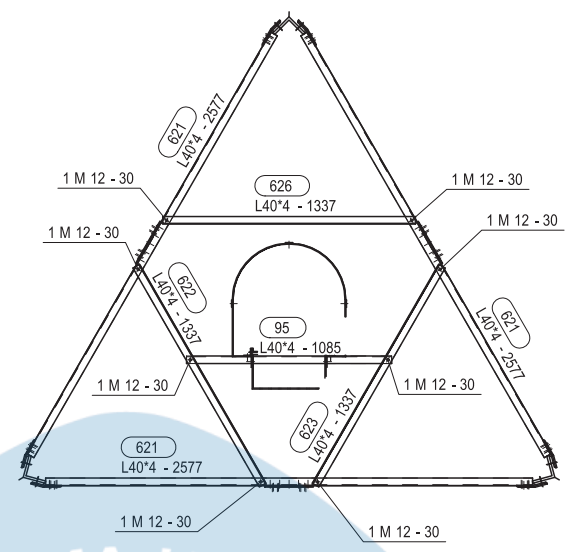
PROJECT NAME  
TOWER BTS SST 45M - 3LEG 1 TENANT

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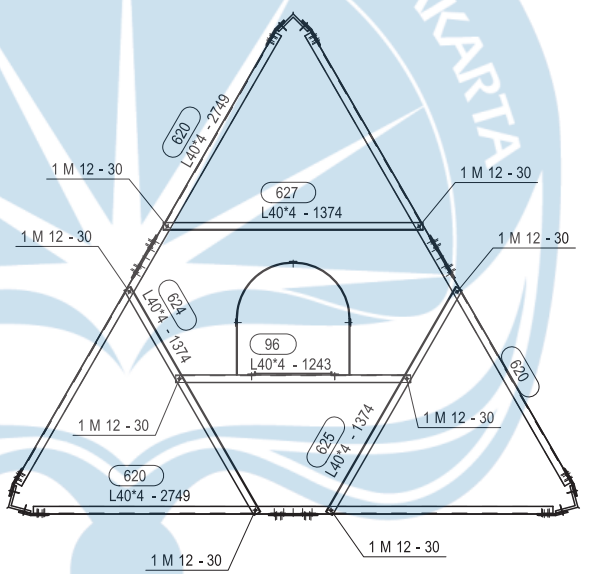
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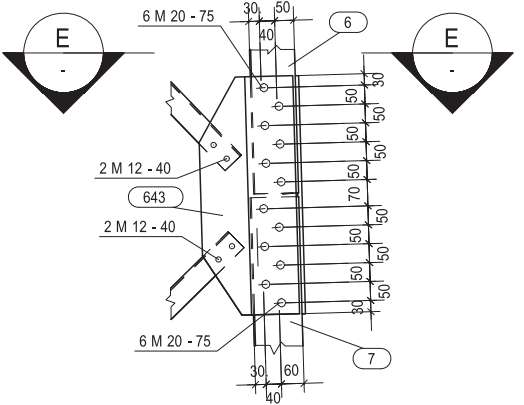
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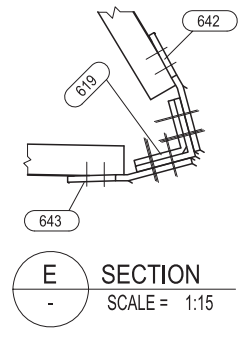
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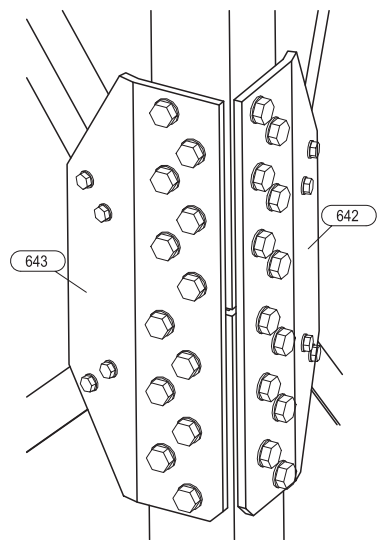
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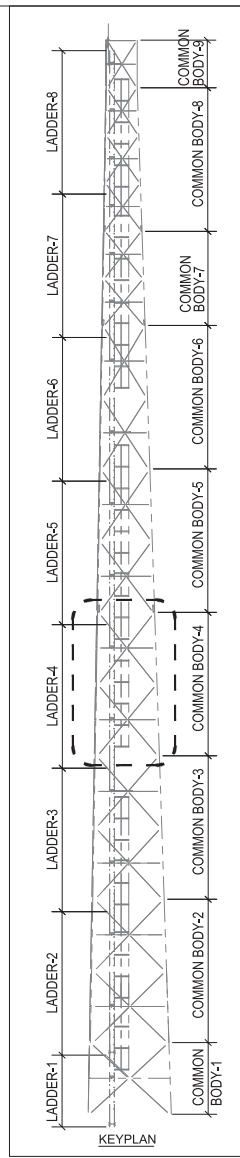
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SECTION E  
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3D VIEW  
SCALE = N.T.S



KEYPLAN

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NOTES/REMARK

NOTE :

COMMON BODY-4 BOLTS LIST

No	GRADE	Site / Shop	Size	Quantity
1	8.8	Site	BOLT M 20X75	72
2	8.8	Site	BOLT M 16X50	30
3	8.8	Site	BOLT M 16X45	48
4	8.8	Site	BOLT M 12X40	36
5	8.8	Site	BOLT M 12X35	138
6	8.8	Site	BOLT M 12X30	16

REVISION

NO.	DATE	CHANGE	CHECK & SIGN
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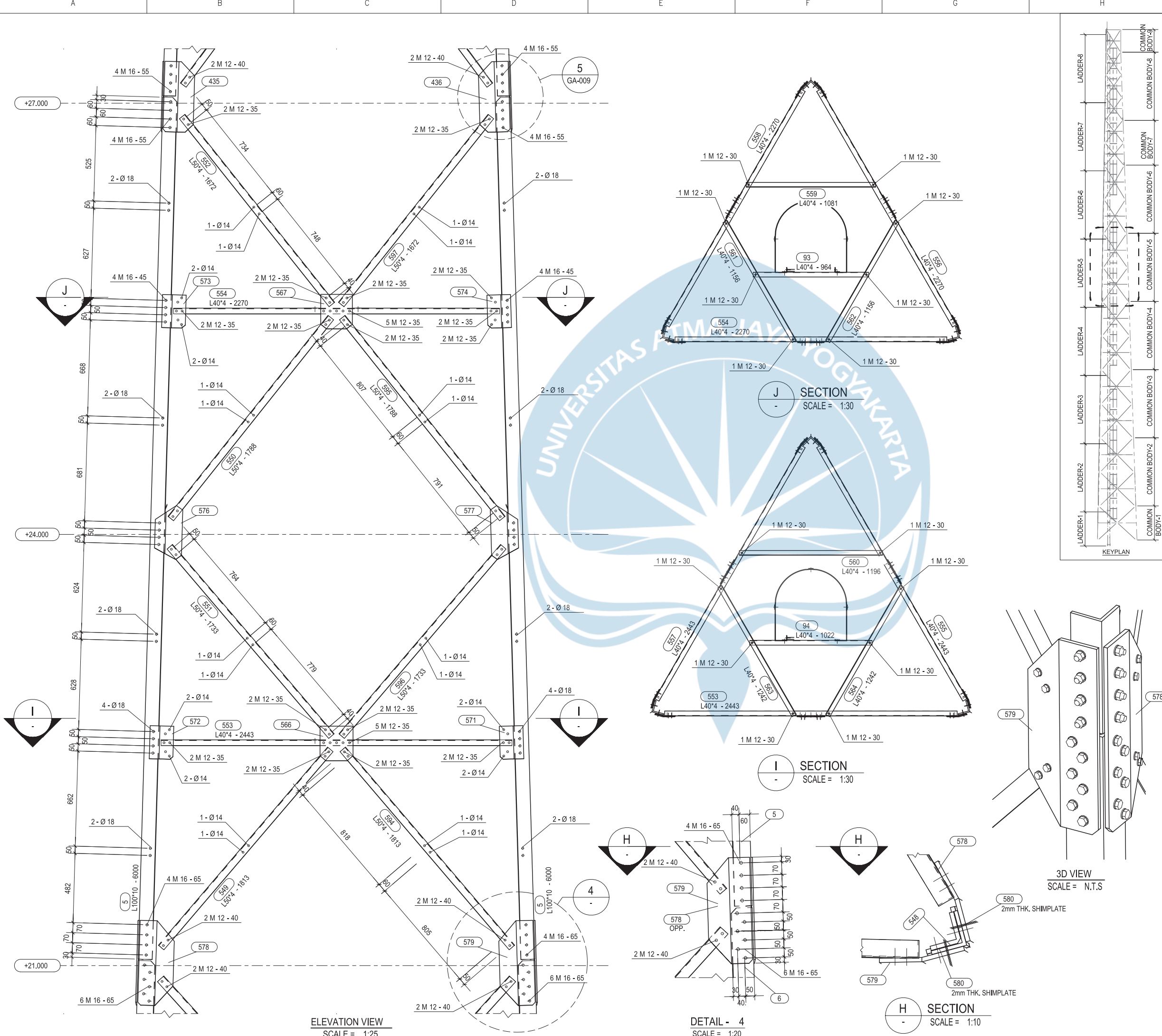
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TOWER BTS SST 45M - 3LEG 1 TENANT

DRAWING TITLE

COMMON BODY 4

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NOTES/REMARK

NOTE :

COMMON BODY-5 BOLTS LIST

No	GRADE	Site / Shop	Size	Quantity
1	8.8	Site	BOLT M 16X65	60
2	8.8	Site	BOLT M 16X45	72
3	8.8	Site	BOLT M 12X40	54
4	8.8	Site	BOLT M 12X35	192
5	8.8	Site	BOLT M 12X30	16

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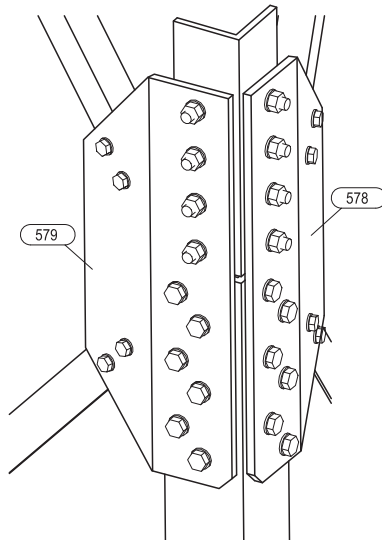
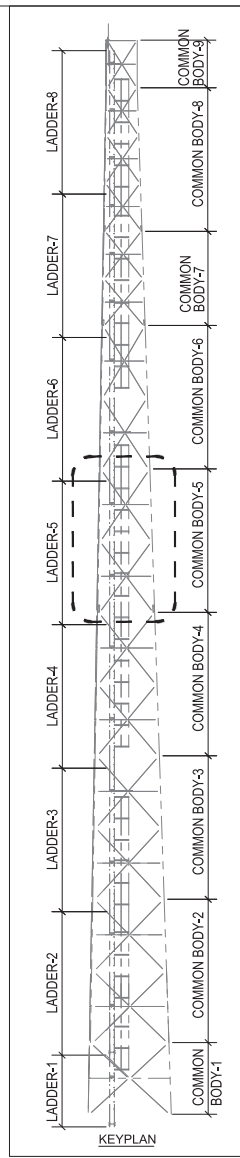
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**KRAKATAU** PT. KRAKATAU PIPE INDUSTRIES  
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 Jl. Jend Gatot Subroto Kav. 54 - Jakarta 12950  
 Tlp. (62-21) 5254140  
 Fax. (62-21) 5204002

PREPARED	CHECKED	APPROVED
SPR	MDE	AS

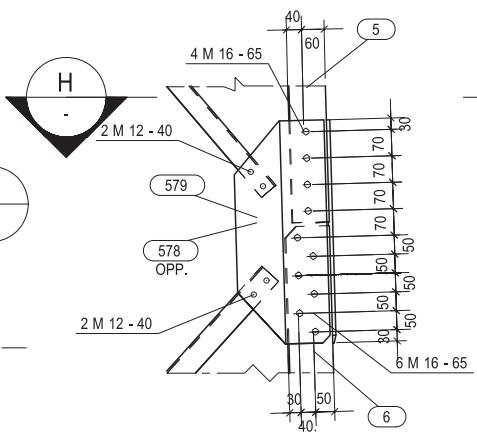
PROJECT NAME  
 TOWER BTS SST 45M - 3LEG 1 TENANT

DRAWING TITLE  
 COMMON BODY 5

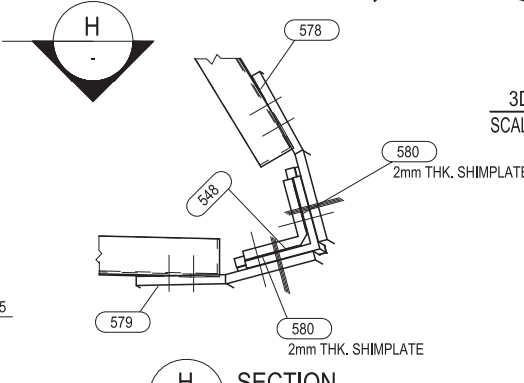
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B	ISSUED FOR APPROVAL	05-NOV-21	
A	ISSUED FOR COMMENT	22-APR-21	
REV. MARK	DESCRIPTION	DATE	
SCALE	SIZE	DRAWING NO.	REVISION
AS NOTED	A1	KPI-45M-SST-1T-GA-008	0



3D VIEW  
 SCALE = N.T.S



DETAIL - 4  
 SCALE = 1:20

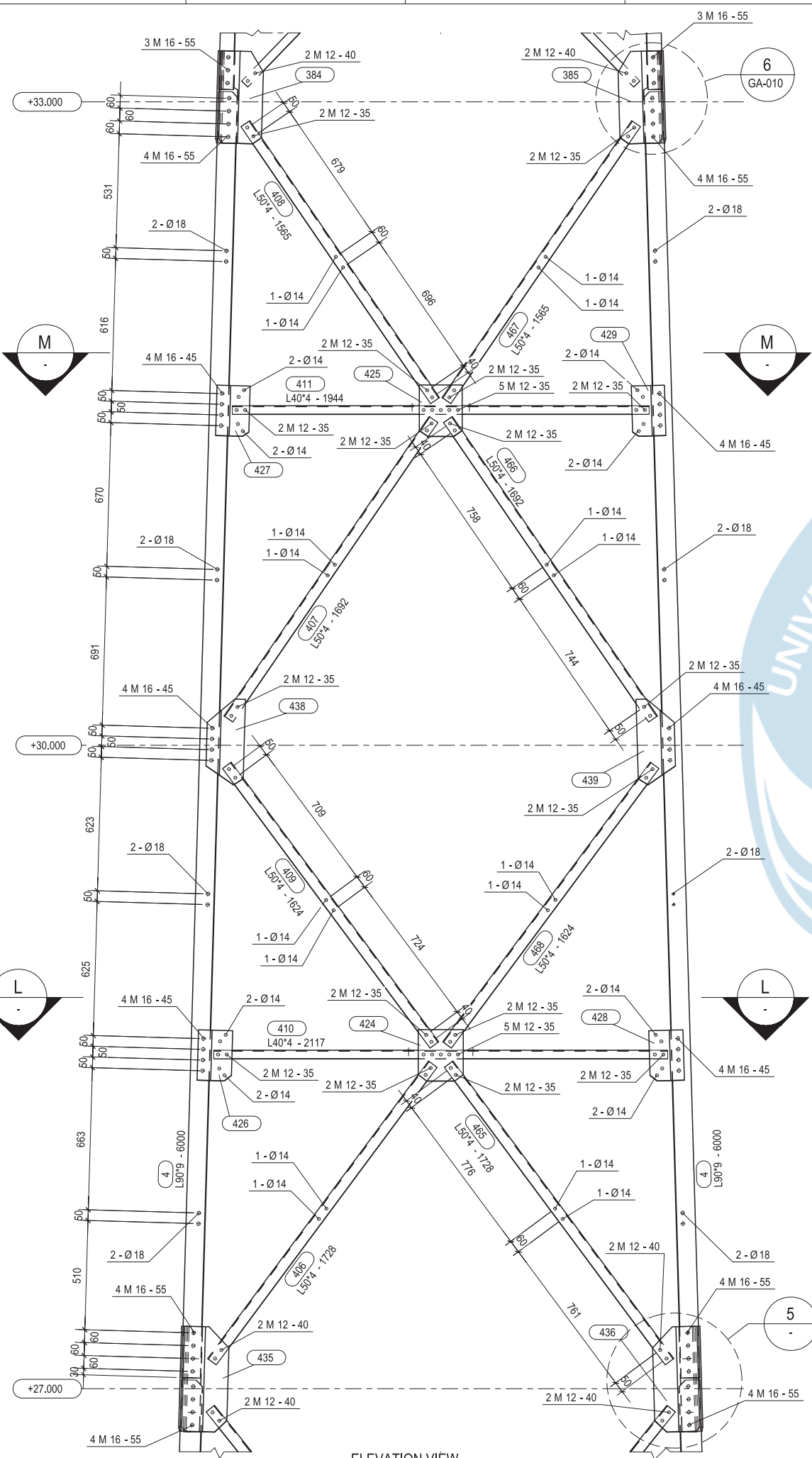


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 SCALE = 1:10

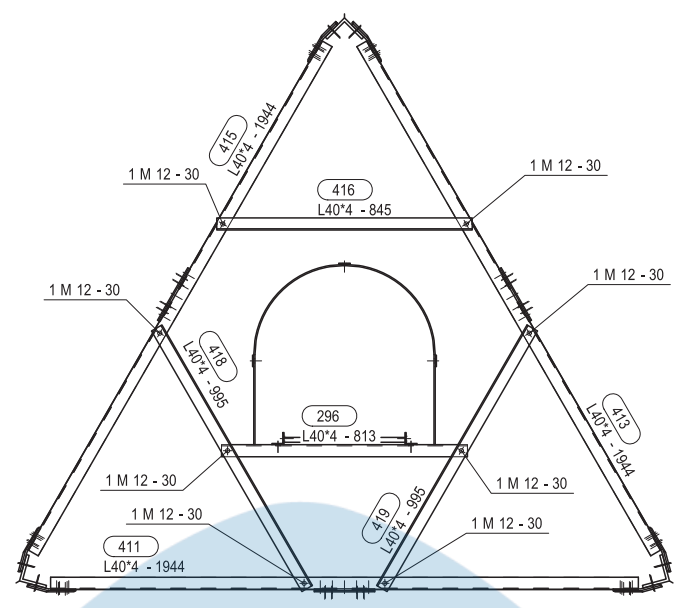
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 SCALE = 1:30

SECTION I  
 SCALE = 1:30

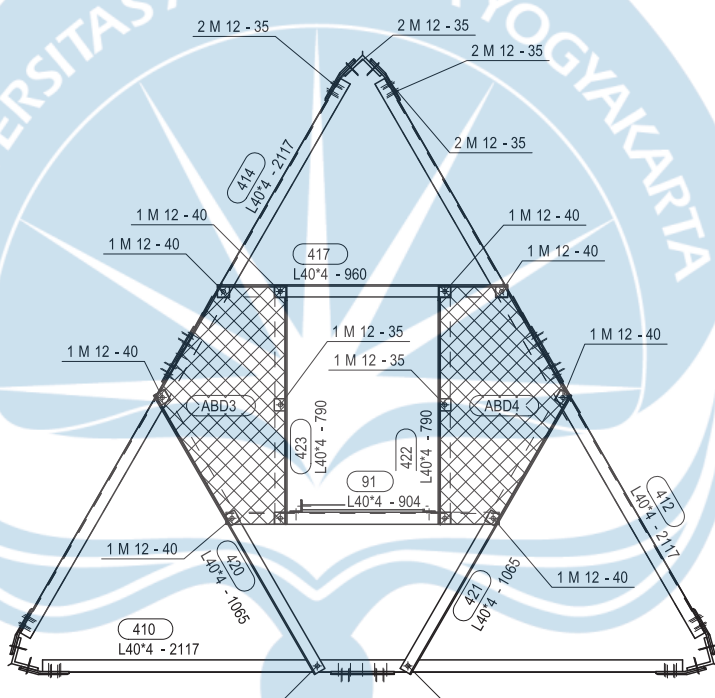
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 SCALE = 1:25



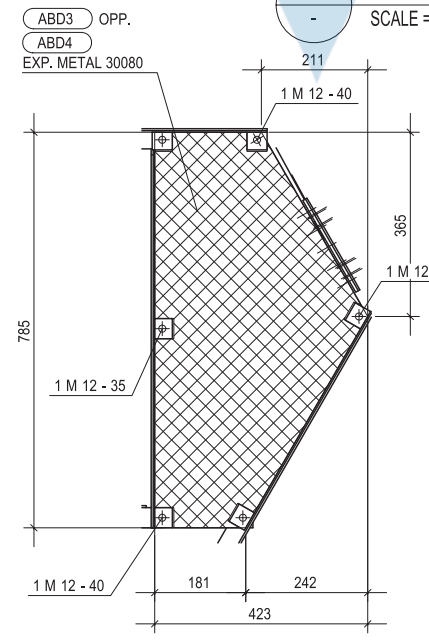
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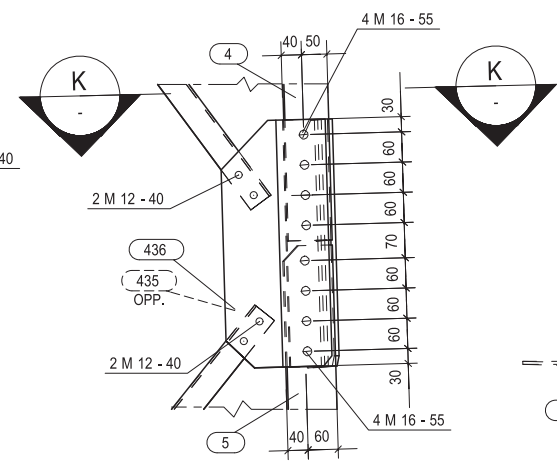
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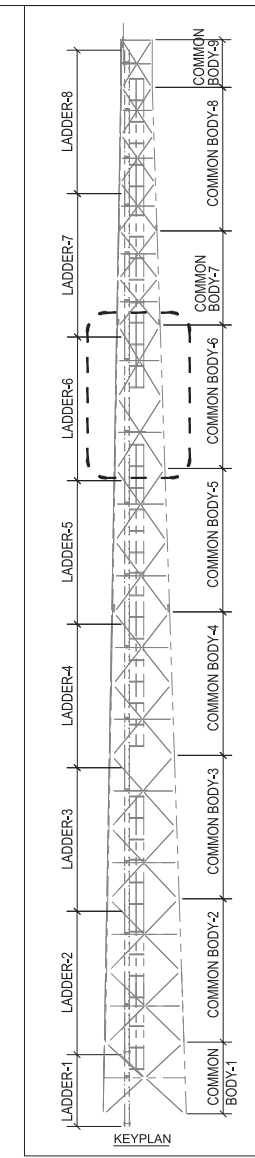
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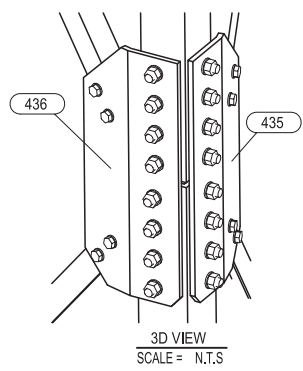
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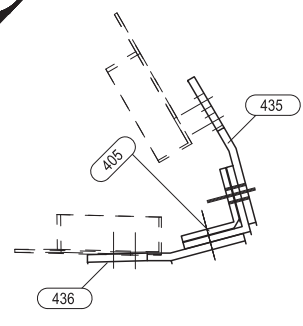
DETAIL - 5  
SCALE = 1:15



KEYPLAN



3D VIEW  
SCALE = N.T.S



K SECTION  
SCALE = 1:10

OWNER



AS PLANNED DRAWING

NOTES/REMARK

NOTE :

COMMON BODY-6 BOLTS LIST				
No	GRADE	Site / Shop	Size	Quantity
1	8.8	Site	BOLT M 16X55	48
2	8.8	Site	BOLT M 16X45	72
3	8.8	Site	BOLT M 12X40	64
4	8.8	Site	BOLT M 12X35	194
5	8.8	Site	BOLT M 12X30	10

REVISION

NO.	DATE	CHANGE	CHECK & SIGN
1			
2			
3			

APPROVED By

PT. INTI BANGUN SEJAHTERA, TBK

DESIGN By

**PT. KRAKATAU ENGINEERING**  
GEDUNG KE, JL. Asia Raya Kav. O.3,  
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Tlp. (62-254) 394100  
Fax. (62-254) 391602 / 391657

FABRICATOR

**PT. KRAKATAU PIPE INDUSTRIES**  
Krakatau Steel Building 7th Floor  
Jl. Jend Gatot Subroto Kav. 54 - Jakarta 12950  
Tlp. (62-21) 5254140  
Fax. (62-21) 5204002

PREPARED

SPR

CHECKED

MDE

APPROVED

AS

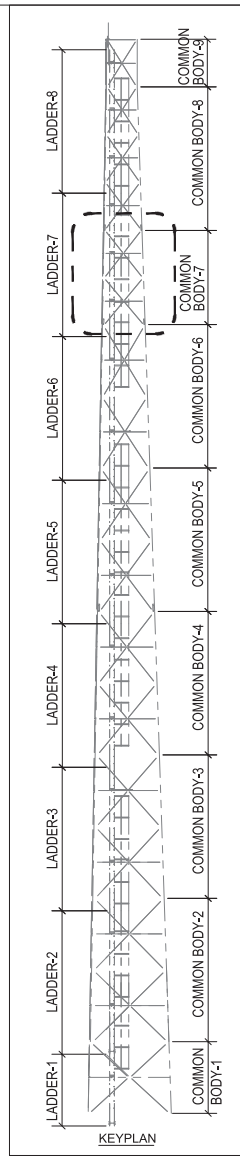
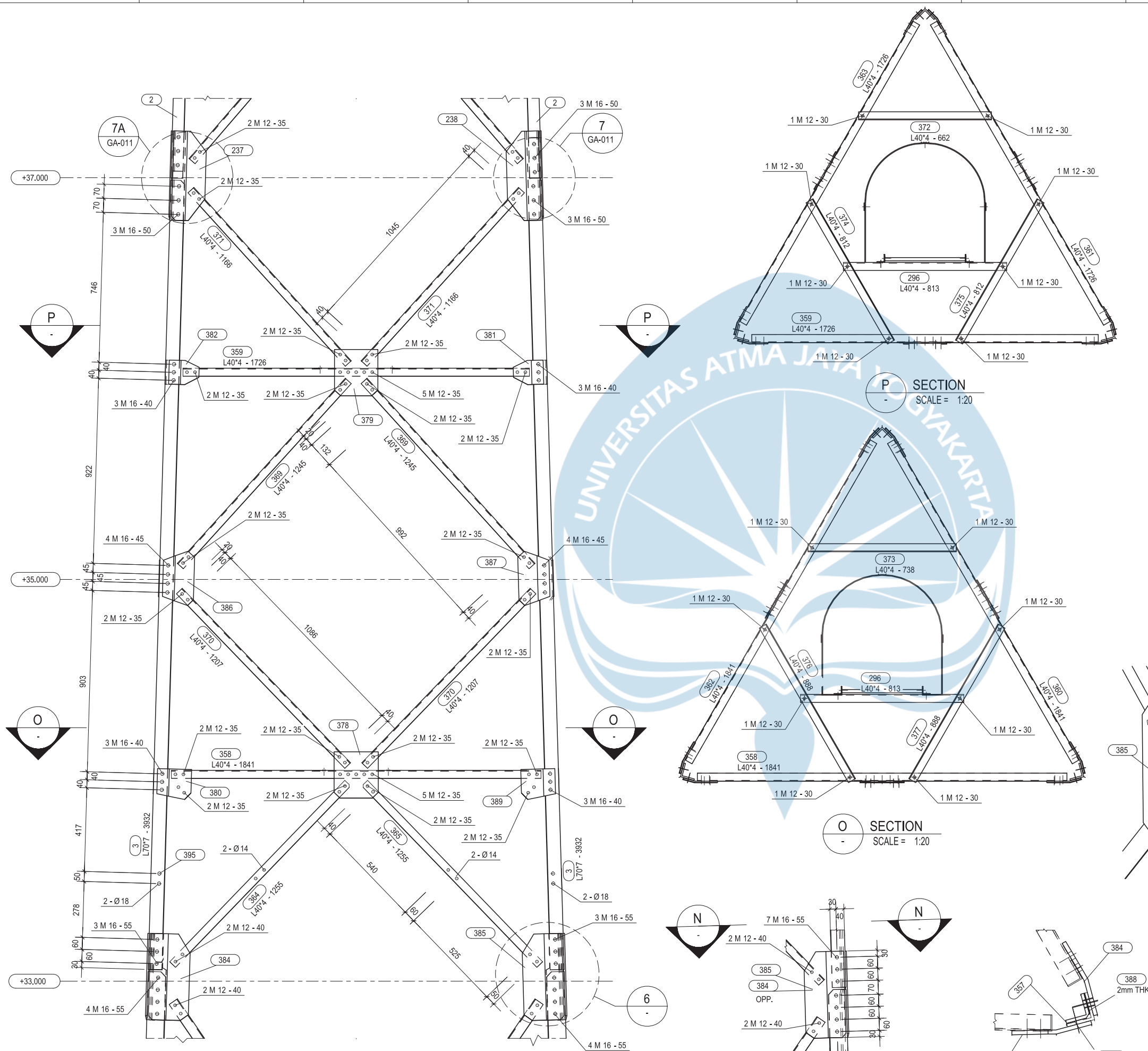
PROJECT NAME

TOWER BTS SST 45M - 3LEG 1 TENANT

DRAWING TITLE

COMMON BODY 6

0	APPROVED FOR CONSTRUCTION	01-DEC-21
B	ISSUED FOR APPROVAL	05-NOV-21
A	ISSUED FOR COMMENT	22-APR-21
REV. MARK	DESCRIPTION	DATE
SCALE	SIZE	DRAWING NO.
AS NOTED	A1	KPI-45M-SST-1T-GA-009
		REVISION
		0



**OWNER**

**ibs** PT. Inti Bangun Sejahtera, TBK  
Innovative Solution Provider

**AS PLANNED DRAWING**

**NOTES/REMARK**

**NOTE :**

COMMON BODY-7\_BOLTS LIST

No	GRADE	Site / Shop	Size	Quantity
1	8.8	Site	BOLT M 16X55	42
2	8.8	Site	BOLT M 16X45	36
3	8.8	Site	BOLT M 16X40	36
4	8.8	Site	BOLT M 12X40	24
5	8.8	Site	BOLT M 12X35	150
6	8.8	Site	BOLT M 12X30	16

**REVISION**

NO.	DATE	CHANGE	CHECK & SIGN
1			
2			
3			

**APPROVED By**

**PT. INTI BANGUN SEJAHTERA, TBK**

**DESIGN By**

**PT. KRAKATAU ENGINEERING**  
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**FABRICATOR**

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Fax. (62-21) 5204002

PREPARED	CHECKED	APPROVED
SPR	MDE	AS

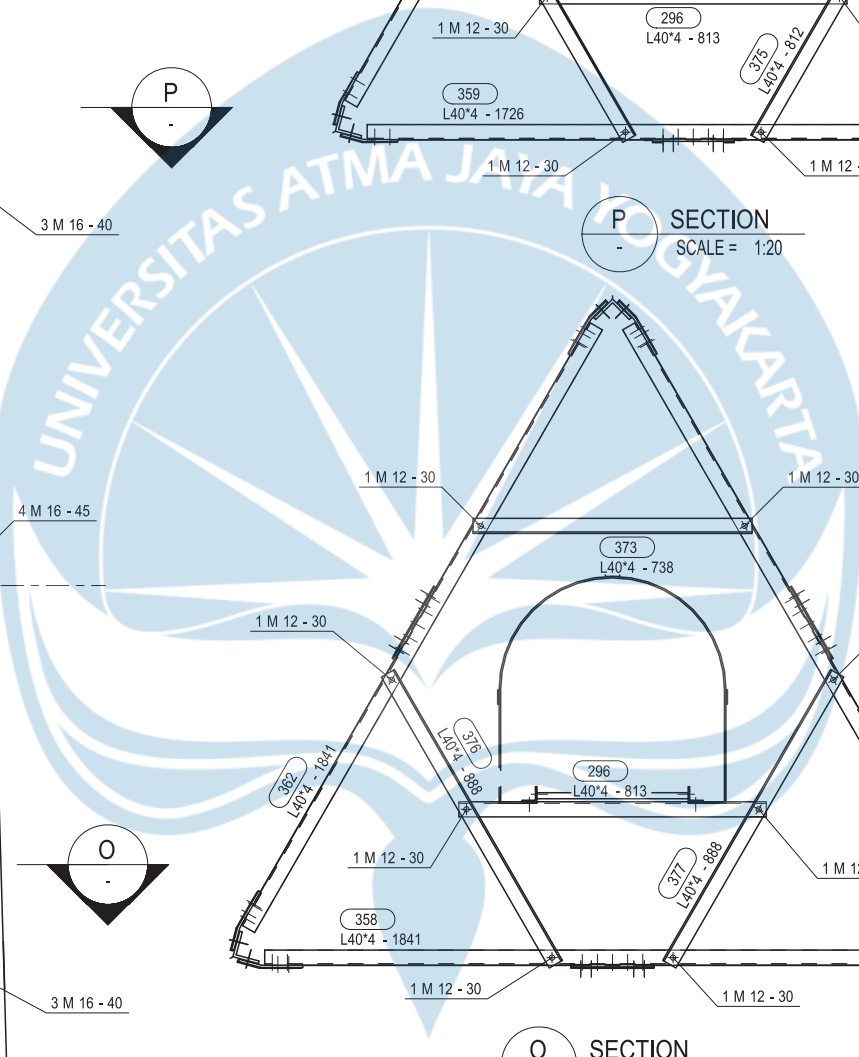
**PROJECT NAME**

**TOWER BTS SST 45M - 3LEG 1 TENANT**

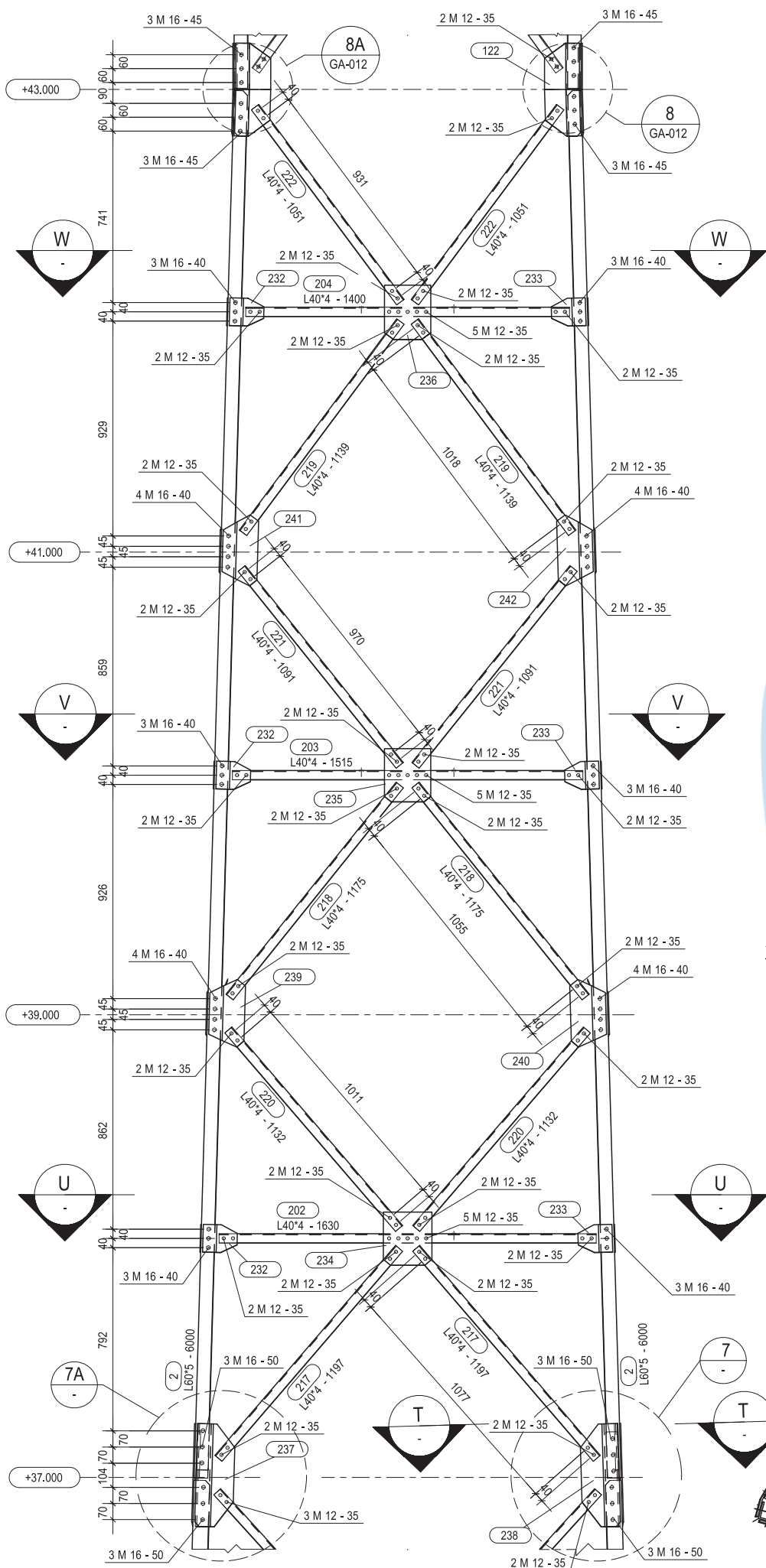
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**COMMON BODY 7**

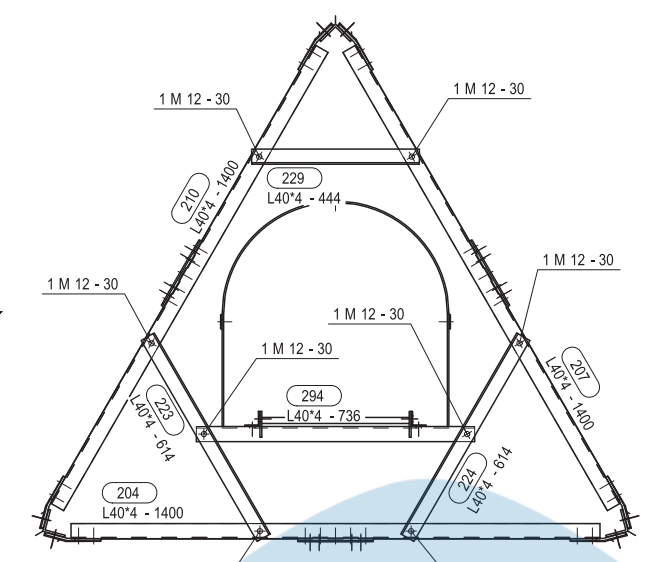
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B	ISSUED FOR APPROVAL	05-NOV-21
A	ISSUED FOR COMMENT	22-APR-21
REV. MARK	DESCRIPTION	DATE
SCALE	SIZE	DRAWING NO.
AS NOTED	A1	KPI-45M-SST-1T-GA-010
		REVISION
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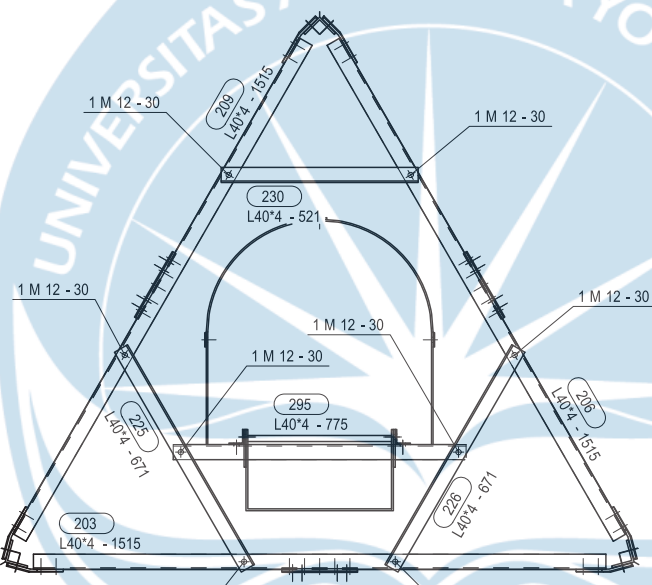




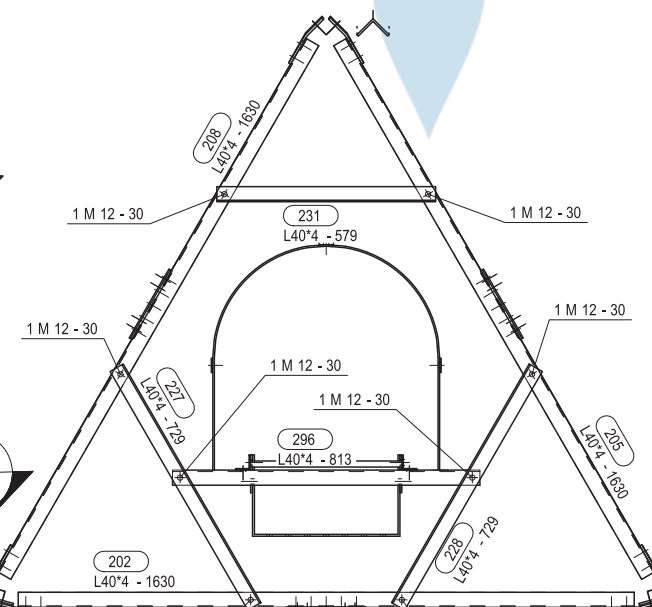
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SCALE = 1:25



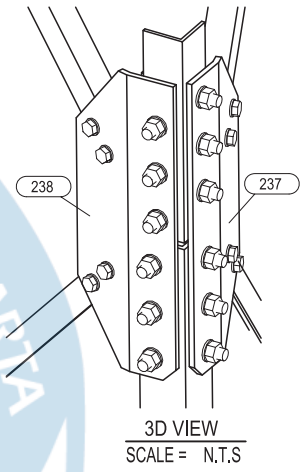
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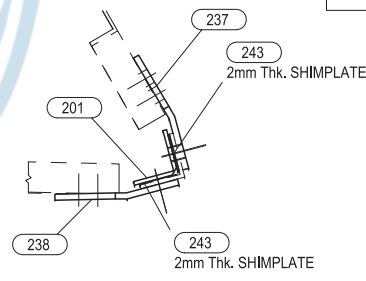
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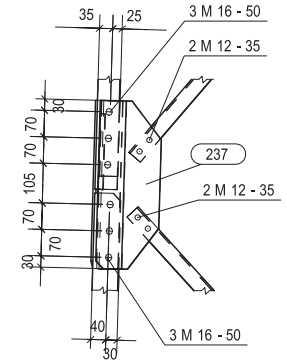
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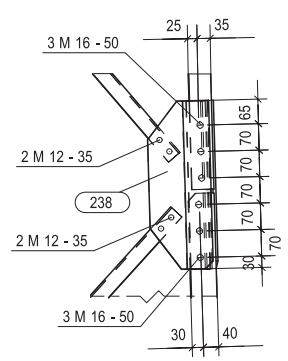
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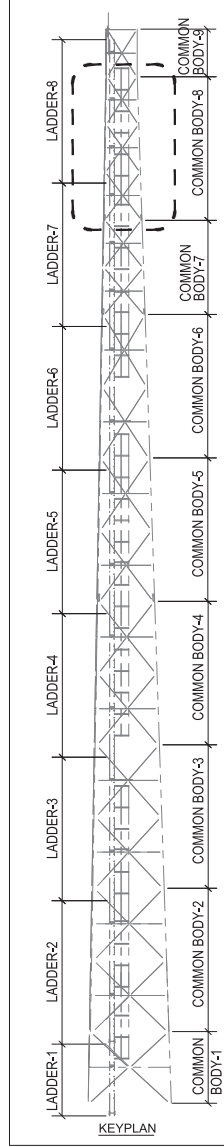
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DETAIL - 7A  
SCALE = 1:20



DETAIL - 7  
SCALE = 1:20



OWNER  
**ibs** PT. Inti Bangun Sejahtera, TBK  
Innovative Solution Provider

AS PLANNED DRAWING

NOTES/REMARK

NOTE :

COMMON BODY-8 BOLTS LIST

No	GRADE	Site / Shop	Size	Quantity
1	8.8	Site	BOLT M 16X50	36
2	8.8	Site	BOLT M 16X40	102
3	8.8	Site	BOLT M 12X35	237
4	8.8	Site	BOLT M 12X30	24

REVISION

NO.	DATE	CHANGE	CHECK & SIGN
1			
2			
3			

APPROVED By  
PT. INTI BANGUN SEJAHTERA, TBK

DESIGN By  
**KRAKATAU** PT. KRAKATAU ENGINEERING  
GEDUNG KE, JL. Asia Raya Kav. O.3,  
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FABRICATOR  
**KRAKATAU** PT. KRAKATAU PIPE INDUSTRIES  
Krakatau Steel Building 7th Floor  
Jl. Jend Gatot Subroto Kav. 54 - Jakarta 12950  
Tlp. (62-21) 5254140  
Fax. (62-21) 5204002

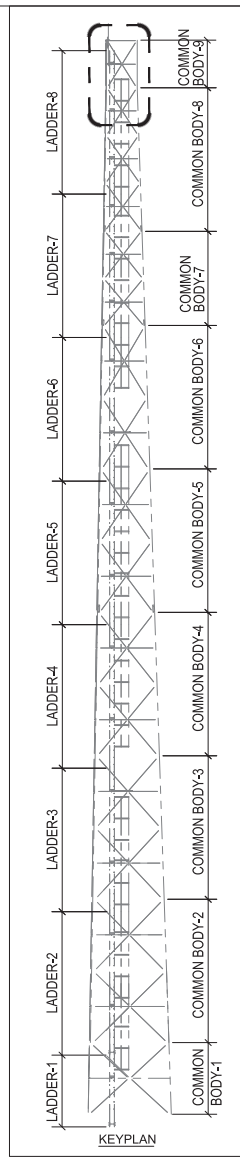
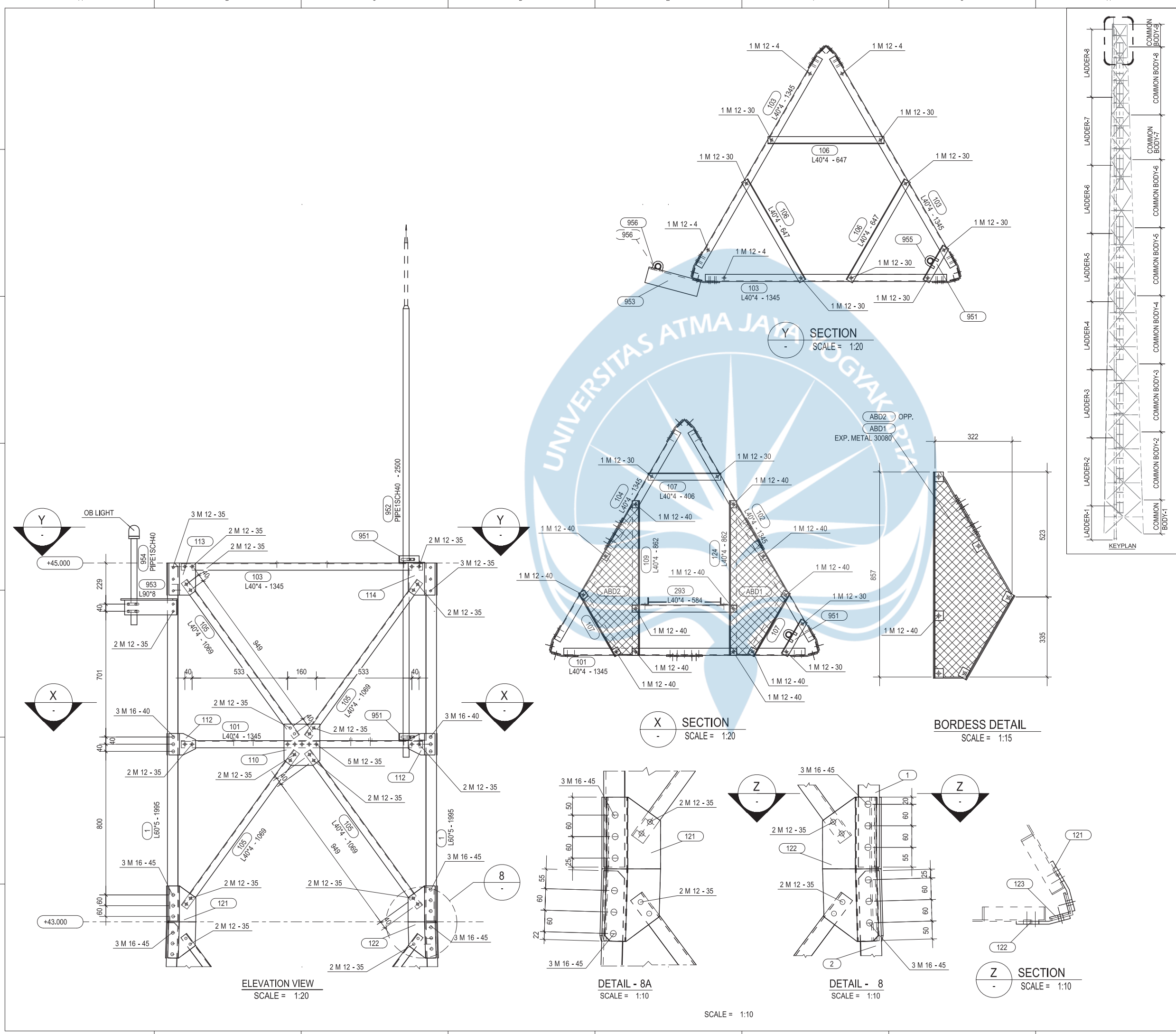
PREPARED	CHECKED	APPROVED
SPR	MDE	AS

PROJECT NAME  
**TOWER BTS SST 45M - 3LEG 1 TENANT**

DRAWING TITLE  
**COMMON BODY-8**

REV. MARK	DESCRIPTION	DATE
0	APPROVED FOR CONSTRUCTION	01-DEC-21
B	ISSUED FOR APPROVAL	05-NOV-21
A	ISSUED FOR COMMENT	22-APR-21

SCALE	SIZE	DRAWING NO.	REVISION
AS NOTED	A1	KPI-45M-SST-1T-GA-011	0



<b>OWNER</b>				
<b>PT. Inti Bangun Sejahtera, TBK</b> Innovative Solution Provider				
<b>AS PLANNED DRAWING</b>				
NOTES/REMARK				
NOTE :				
COMMON BODY-9 BOLTS LIST				
No	GRADE	Site / Shop	Size	Quantity
1	8.8	Site	BOLT M 16X45	36
2	8.8	Site	BOLT M 16X40	18
3	8.8	Site	BOLT M 12X40	12
4	8.8	Site	BOLT M 12X35	117
5	8.8	Site	BOLT M 12X30	12
REVISION				
NO.	DATE	CHANGE	CHECK & SIGN	
1				
2				
3				
APPROVED By				
PT. INTI BANGUN SEJAHTERA, TBK				

<b>DESIGN By</b>	
<b>PT. KRAKATAU ENGINEERING</b> Gedung KE, Jl. Asia Raya Kav. 0.3, Cilegon 42435, Indonesia Tlp. (62-254) 394100 Fax. (62-254) 391602 / 391657	

<b>FABRICATOR</b>	
<b>PT. KRAKATAU PIPE INDUSTRIES</b> Krakatau Steel Building 7th Floor Jl. Jend Gatot Subroto Kav. 54 - Jakarta 12950 Tlp. (62-21) 5254140 Fax. (62-21) 5204002	

PREPARED	CHECKED	APPROVED
SPR	MDE	AS

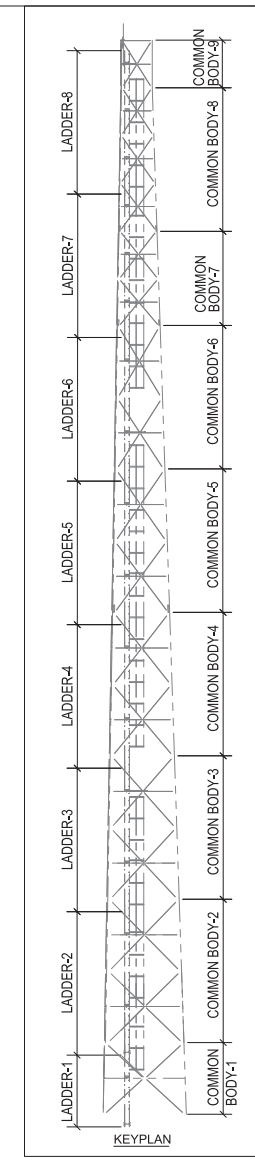
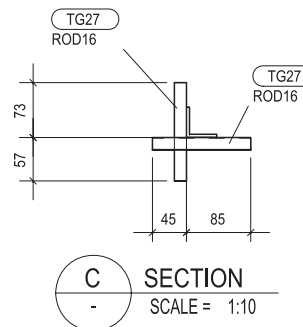
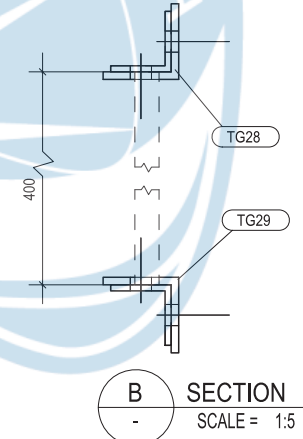
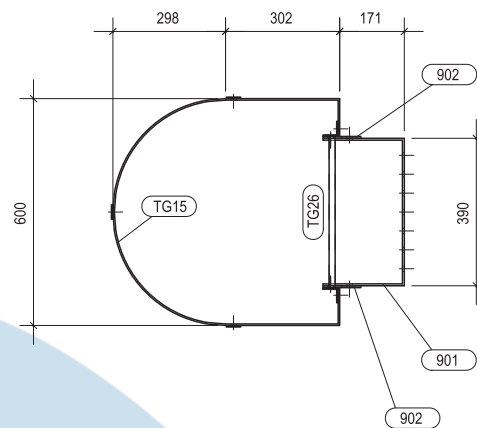
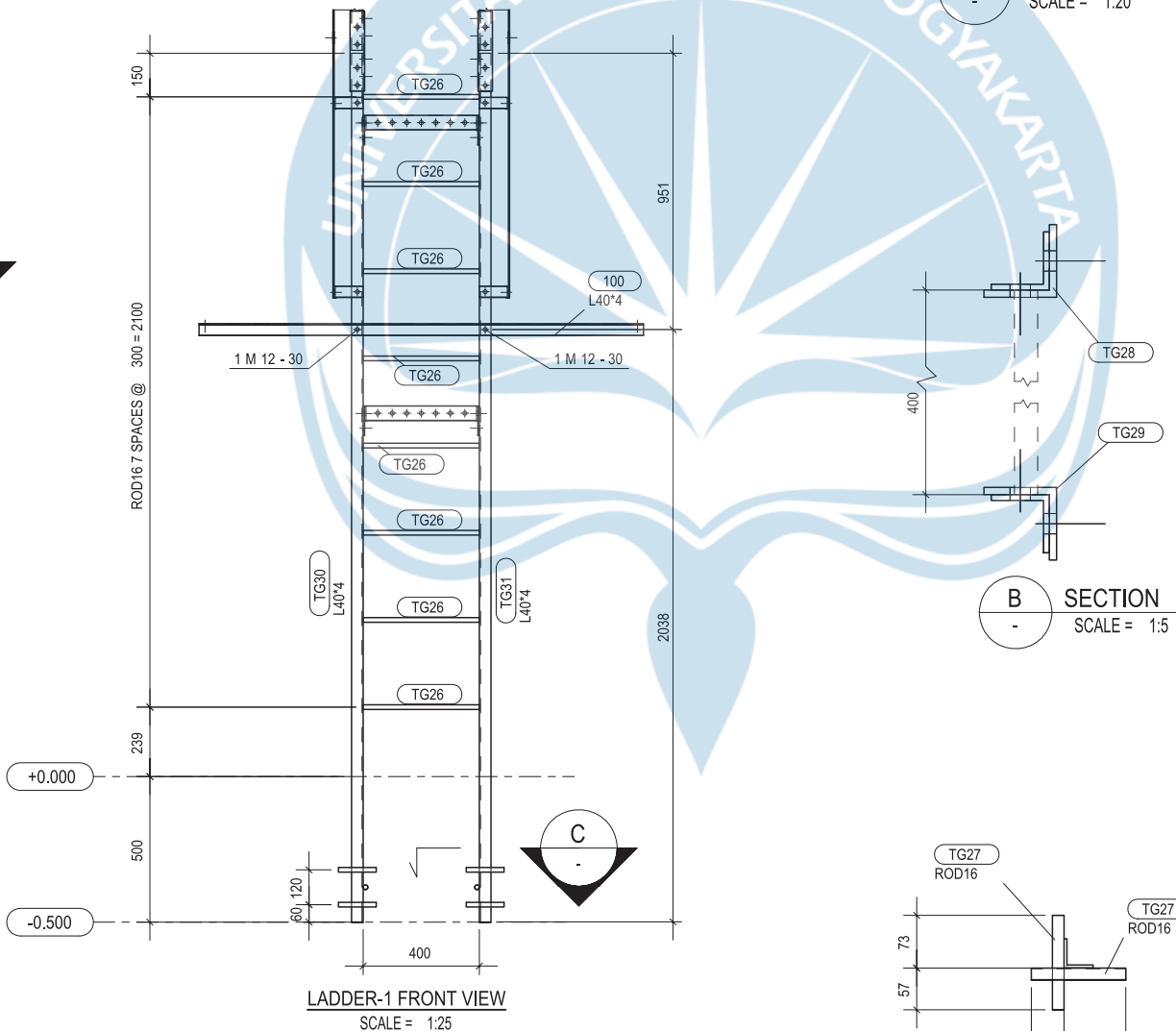
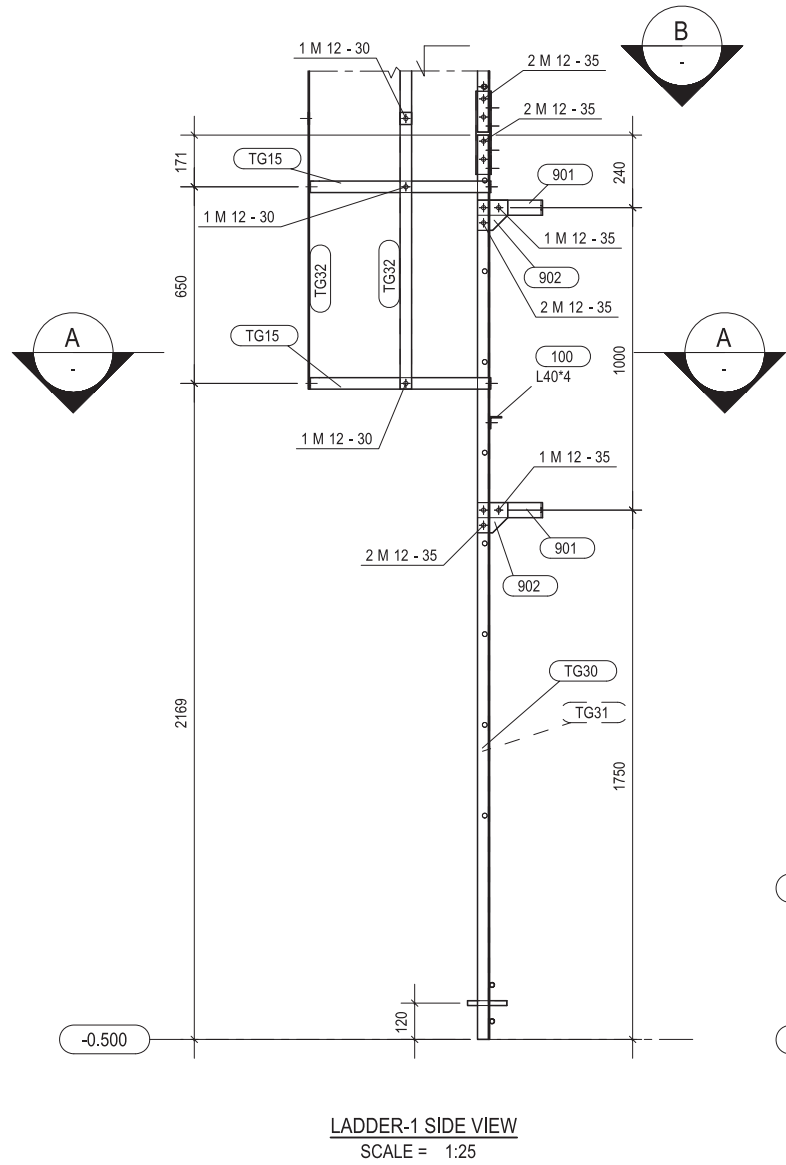
PROJECT NAME

**TOWER BTS SST 45M - 3LEG 1 TENANT**

DRAWING TITLE

**COMMON BODY-9**

0	APPROVED FOR CONSTRUCTION	01-DEC-21
B	ISSUED FOR APPROVAL	05-NOV-21
A	ISSUED FOR COMMENT	22-APR-21
REV. MARK	DESCRIPTION	DATE
SCALE	SIZE	DRAWING NO.
AS NOTED	A1	KPI-45M-SST-1T-GA-012
		REVISION
		0



**OWNER**  
**ibs** PT. Inti Bangun Sejahtera, TBK  
Innovative Solution Provider

**AS PLANNED DRAWING**

**NOTES/REMARK**

**NOTE :**

**LADDER-1 BOLTS LIST**

No	GRADE	Site / Shop	Size	Quantity
1	8.8	Site	BOLT M 12X35	16
2	8.8	Site	BOLT M 12X30	16

**REVISION**

NO.	DATE	CHANGE	CHECK & SIGN
1			
2			
3			

**APPROVED By**  
**PT. INTI BANGUN SEJAHTERA, TBK**

**DESIGN By**  
**PT. KRAKATAU ENGINEERING**  
GEDUNG KE, JL. Asia Raya Kav. O.3,  
Cilegon 42435, Indonesia  
Tlp. (62-254) 394100  
Fax. (62-254) 391602 / 391657

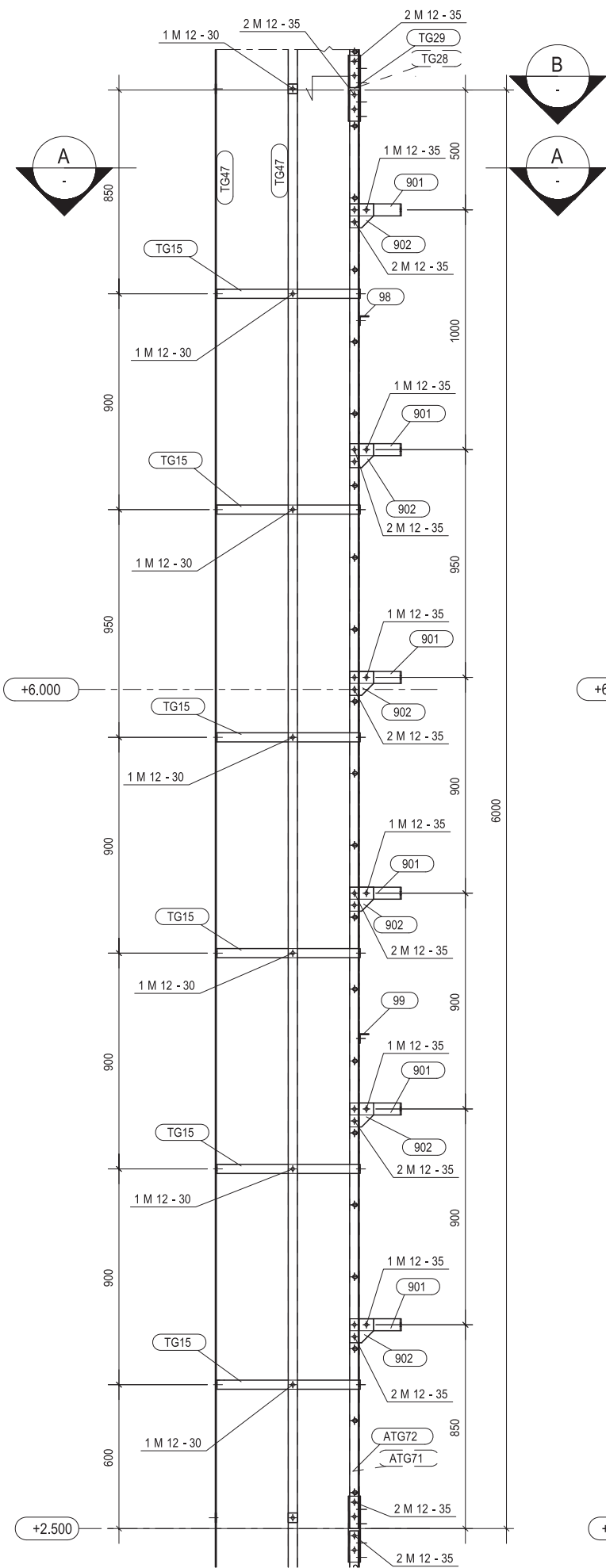
**FABRICATOR**  
**PT. KRAKATAU PIPE INDUSTRIES**  
Krakatau Steel Building 7th Floor  
Jl. Jend Gatot Subroto Kav. 54 - Jakarta 12950  
Tlp. (62-21) 5254140  
Fax. (62-21) 5204002

PREPARED	CHECKED	APPROVED
SPR	MDE	AS

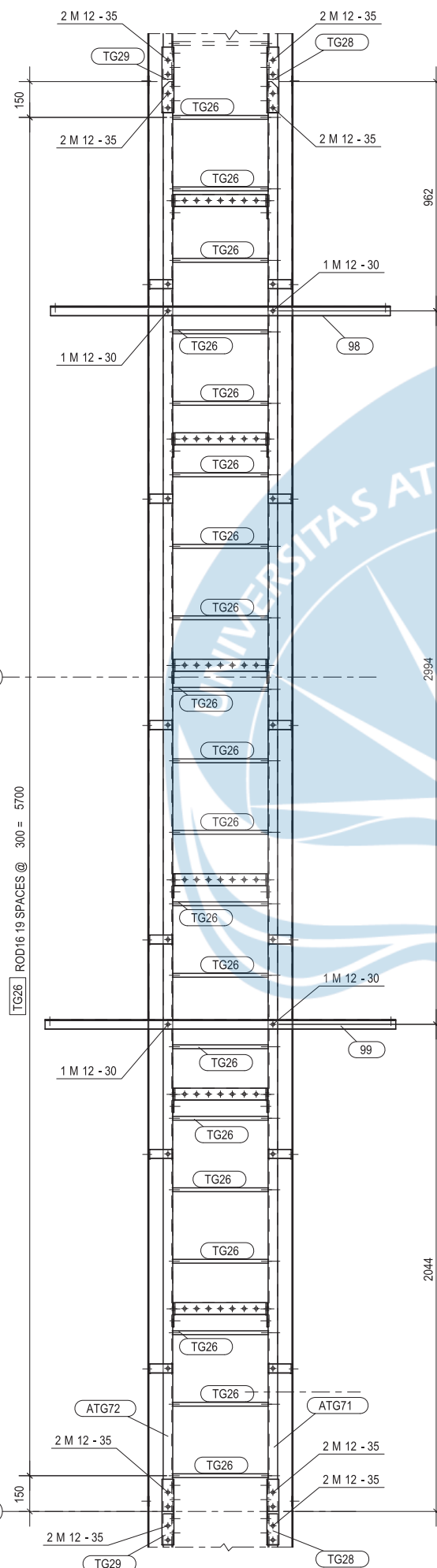
**PROJECT NAME**  
**TOWER BTS SST 45M - 3LEG 1 TENANT**

**DRAWING TITLE**  
**LADDER-1**

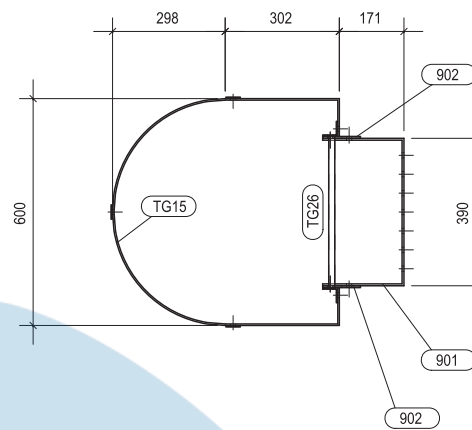
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B	ISSUED FOR APPROVAL	05-NOV-21	
A	ISSUED FOR COMMENT	22-APR-21	
REV. MARK	DESCRIPTION	DATE	
SCALE	SIZE	DRAWING NO.	REVISION
AS NOTED	A1	KPI-45M-SST-1T-GA-013	0



LADDER-2 SIDE VIEW  
SCALE = 1:25

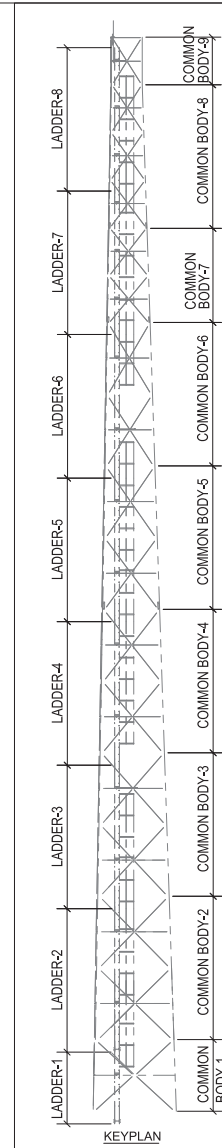


LADDER-2 FRONT VIEW  
SCALE = 1:25



A SECTION  
SCALE = 1:20

B SECTION  
SCALE = 1:5



KEYPLAN

OWNER



AS PLANNED DRAWING

NOTES/REMARK

NOTE :

LADDER-2 BOLTS LIST

No	GRADE	Site / Shop	Size	Quantity
1	8.8	Site	BOLT M 12X35	52
2	8.8	Site	BOLT M 12X30	42

REVISION

NO.	DATE	CHANGE	CHECK & SIGN
1			
2			
3			

APPROVED By

PT. INTI BANGUN SEJAHTERA, TBK

DESIGN By



PT. KRAKATAU ENGINEERING  
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Jl. Jend Gatot Subroto Kav. 54 - Jakarta 12950  
Tlp. (62-21) 5254140  
Fax. (62-21) 5204002

PREPARED	CHECKED	APPROVED
SPR	MDE	AS

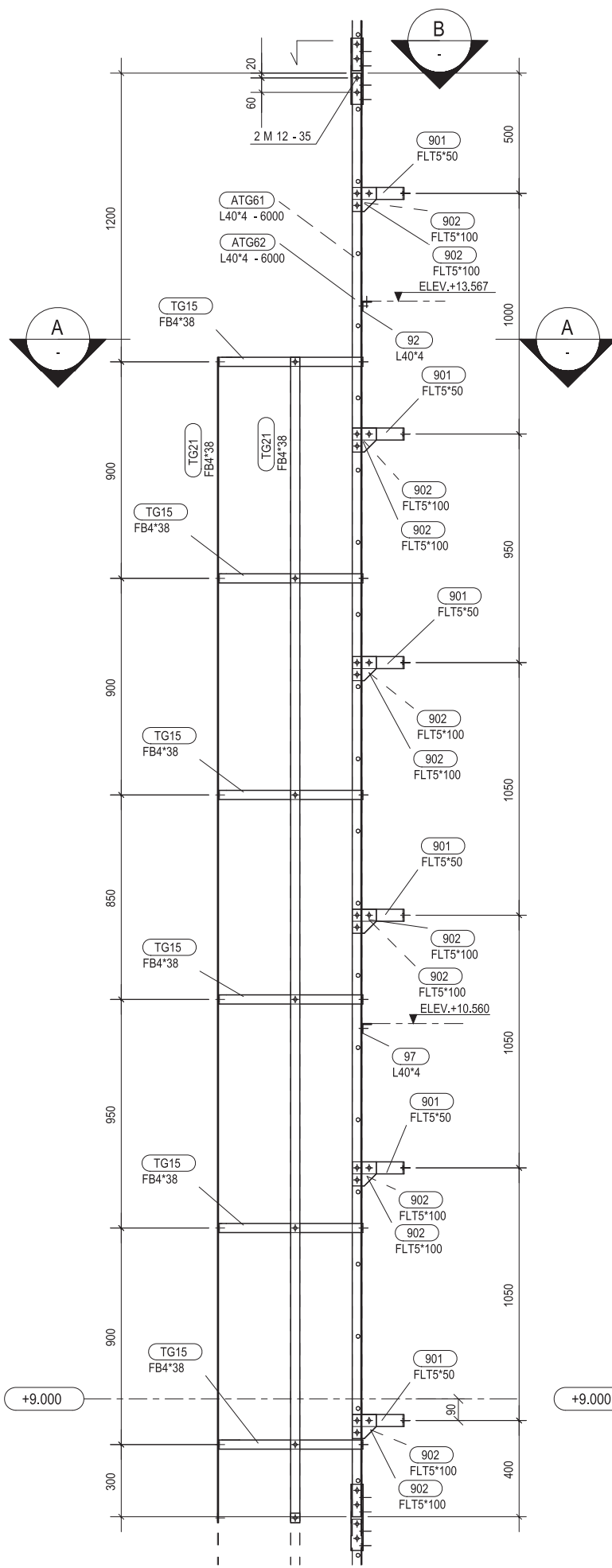
PROJECT NAME

TOWER BTS SST 45M - 3LEG 1 TENANT

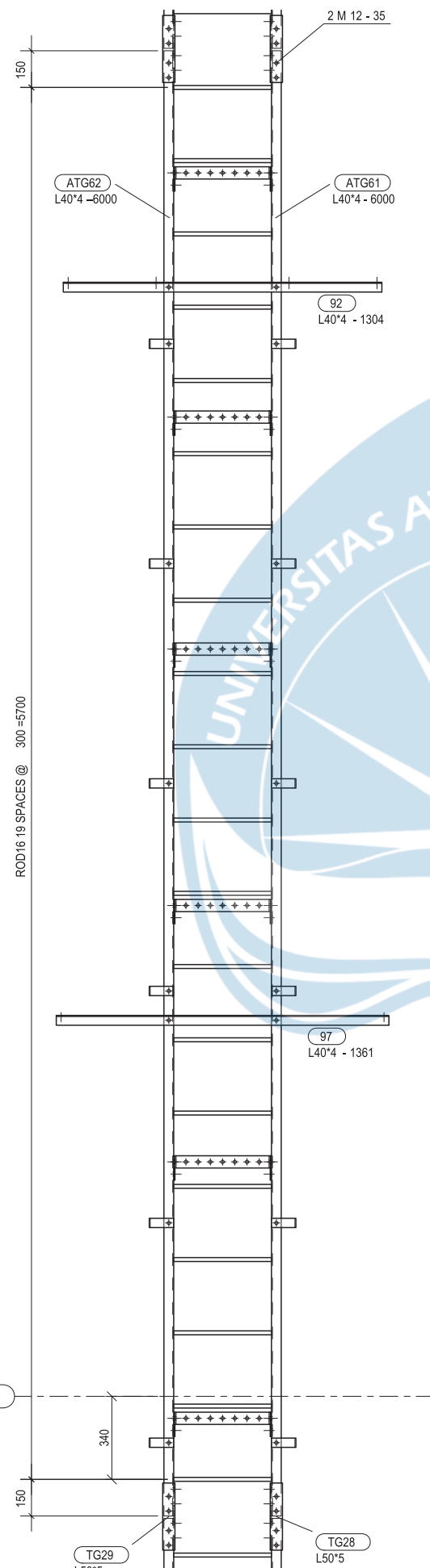
DRAWING TITLE

LADDER-2

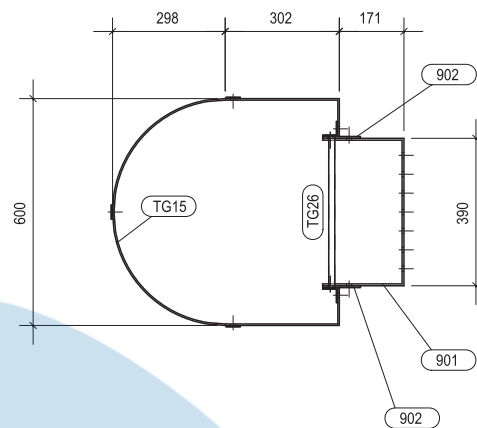
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B	ISSUED FOR APPROVAL	05-NOV-21
A	ISSUED FOR COMMENT	22-APR-21
REV. MARK	DESCRIPTION	DATE
SCALE	SIZE	DRAWING NO.
AS NOTED	A1	KPI-45M-SST-1T-GA-014
REVISION		



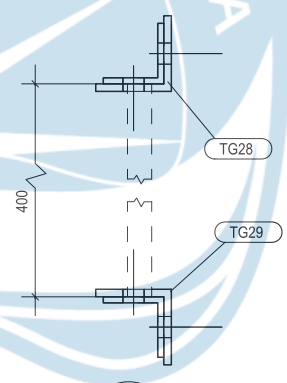
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SCALE = 1:25



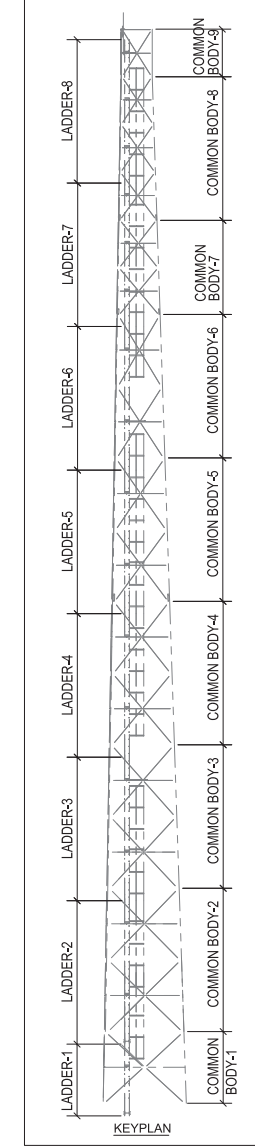
LADDER-3 FRONT VIEW  
SCALE = 1:25



A SECTION  
SCALE = 1:20



B SECTION  
SCALE = 1:5



KEYPLAN

OWNER



AS PLANNED DRAWING

NOTES/REMARK

NOTE :

LADDER-3 BOLTS LIST

No	GRADE	Site / Shop	Size	Quantity
1	8.8	Site	BOLT M 12X35	52
2	8.8	Site	BOLT M 12X30	34

REVISION

NO.	DATE	CHANGE	CHECK & SIGN
1			
2			
3			

APPROVED By

PT. INTI BANGUN SEJAHTERA, TBK

DESIGN By

**PT. KRAKATAU ENGINEERING**  
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FABRICATOR

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 Tlp. (62-21) 5254140  
 Fax. (62-21) 5204002

PREPARED	CHECKED	APPROVED
SPR	MDE	AS

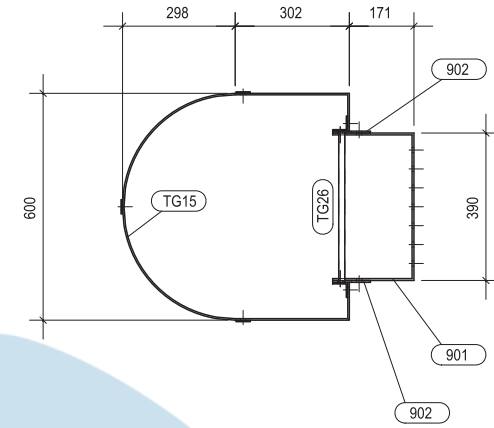
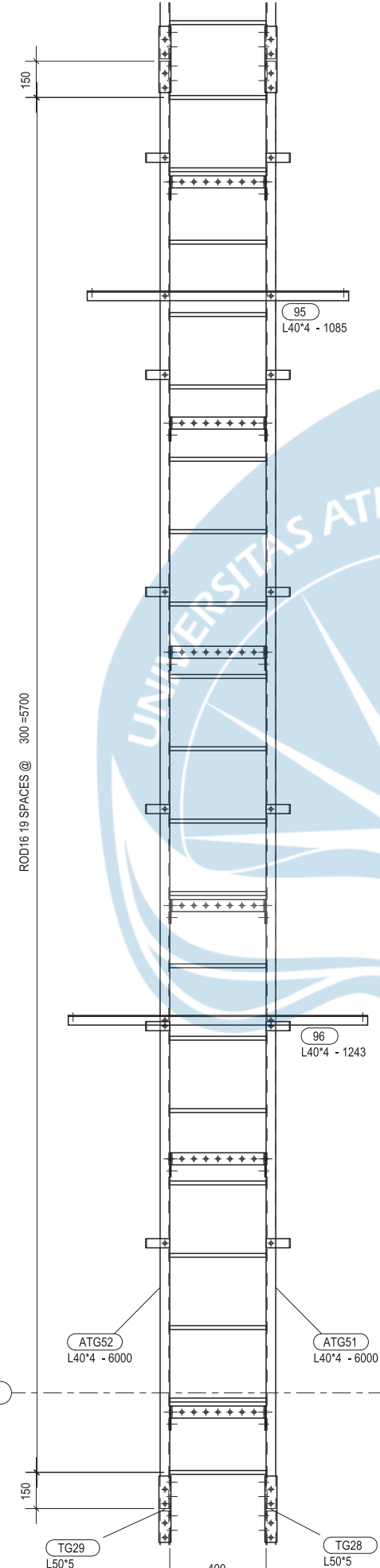
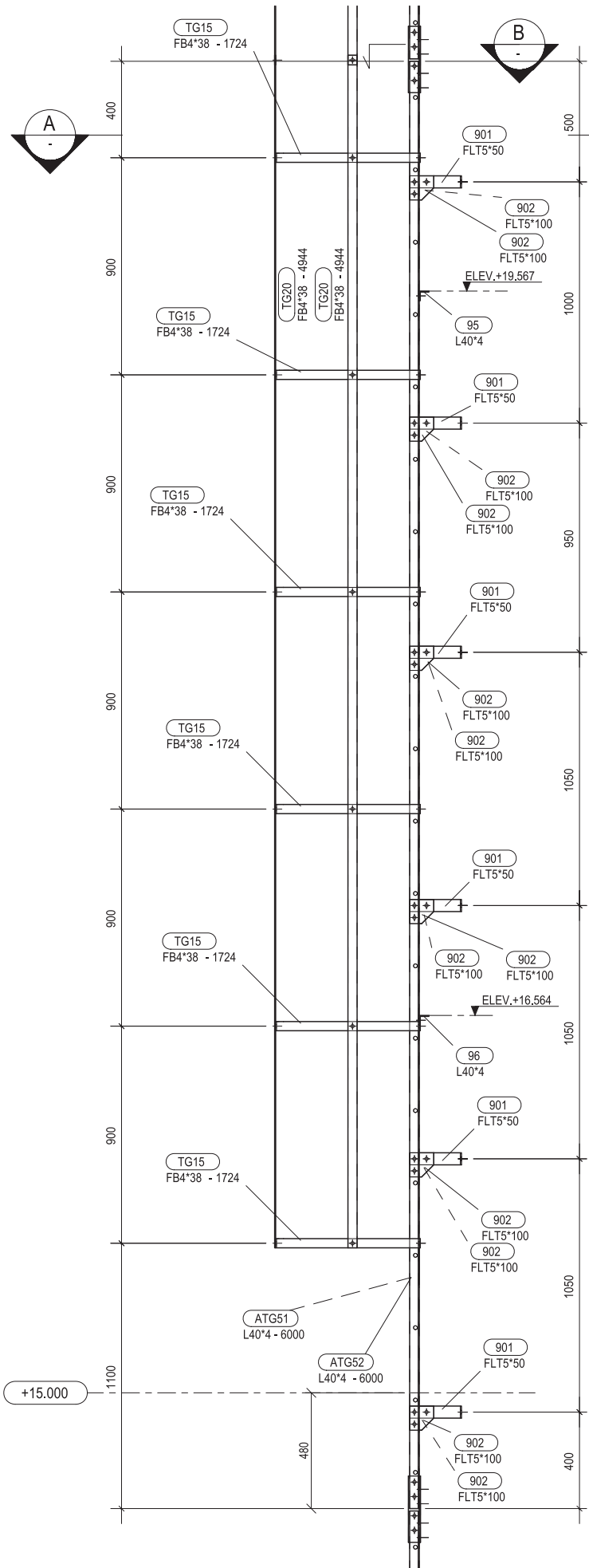
PROJECT NAME

TOWER BTS SST 45M - 3LEG 1 TENANT

DRAWING TITLE

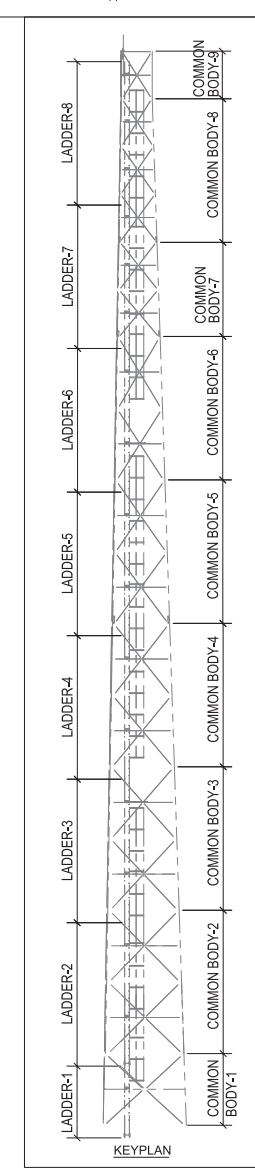
LADDER-3

0	APPROVED FOR CONSTRUCTION	01-DEC-21
B	ISSUED FOR APPROVAL	05-NOV-21
A	ISSUED FOR COMMENT	22-APR-21
REV. MARK	DESCRIPTION	DATE
SCALE	SIZE	DRAWING NO.
AS NOTED	A1	KPI-45M-SST-1T-GA-015
REVISION		
		0



**A SECTION**  
SCALE = 1:20

**B SECTION**  
SCALE = 1:5



OWNER



AS PLANNED DRAWING

NOTES/REMARK

NOTE :

LADDER-4 BOLTS LIST

No	GRADE	Site / Shop	Size	Quantity
1	8.8	Site	BOLT M 12X35	52
2	8.8	Site	BOLT M 12X30	34

REVISION

NO.	DATE	CHANGE	CHECK & SIGN
1			
2			
3			

APPROVED By

PT. INTI BANGUN SEJAHTERA, TBK

DESIGN By



FABRICATOR



PREPARED	CHECKED	APPROVED
SPR	MDE	AS

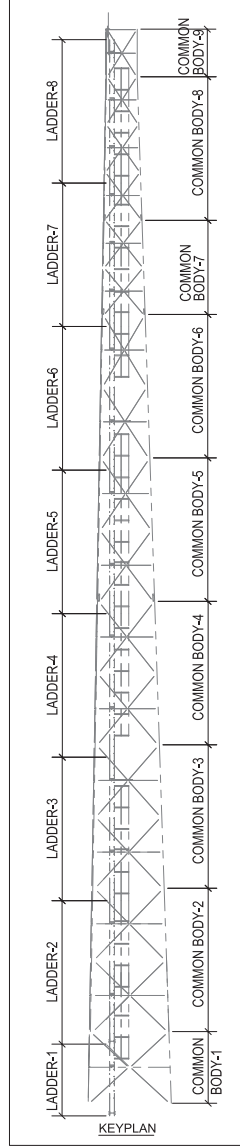
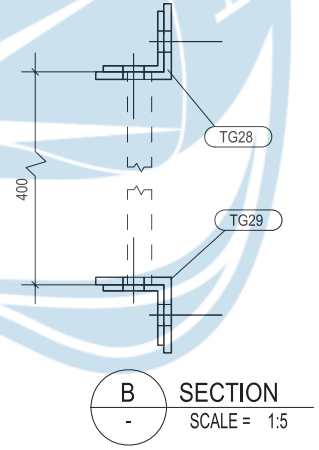
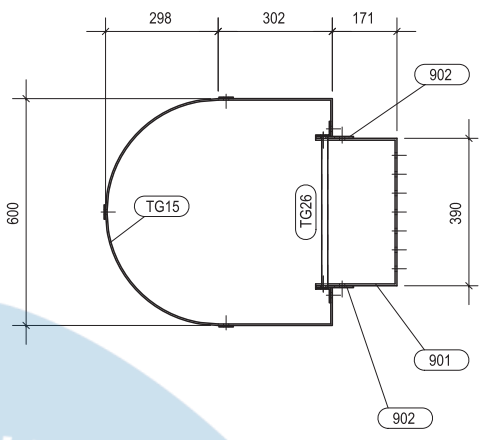
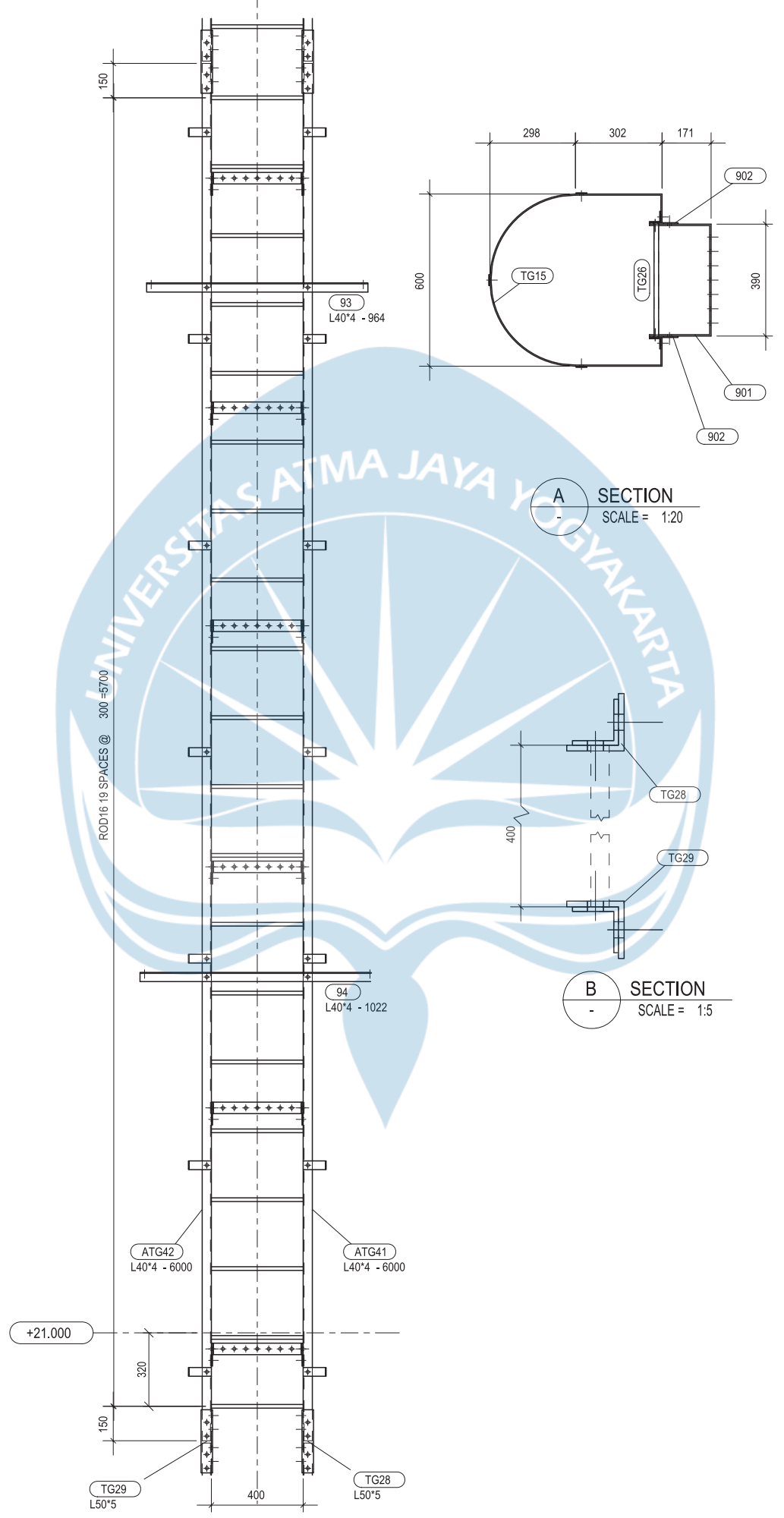
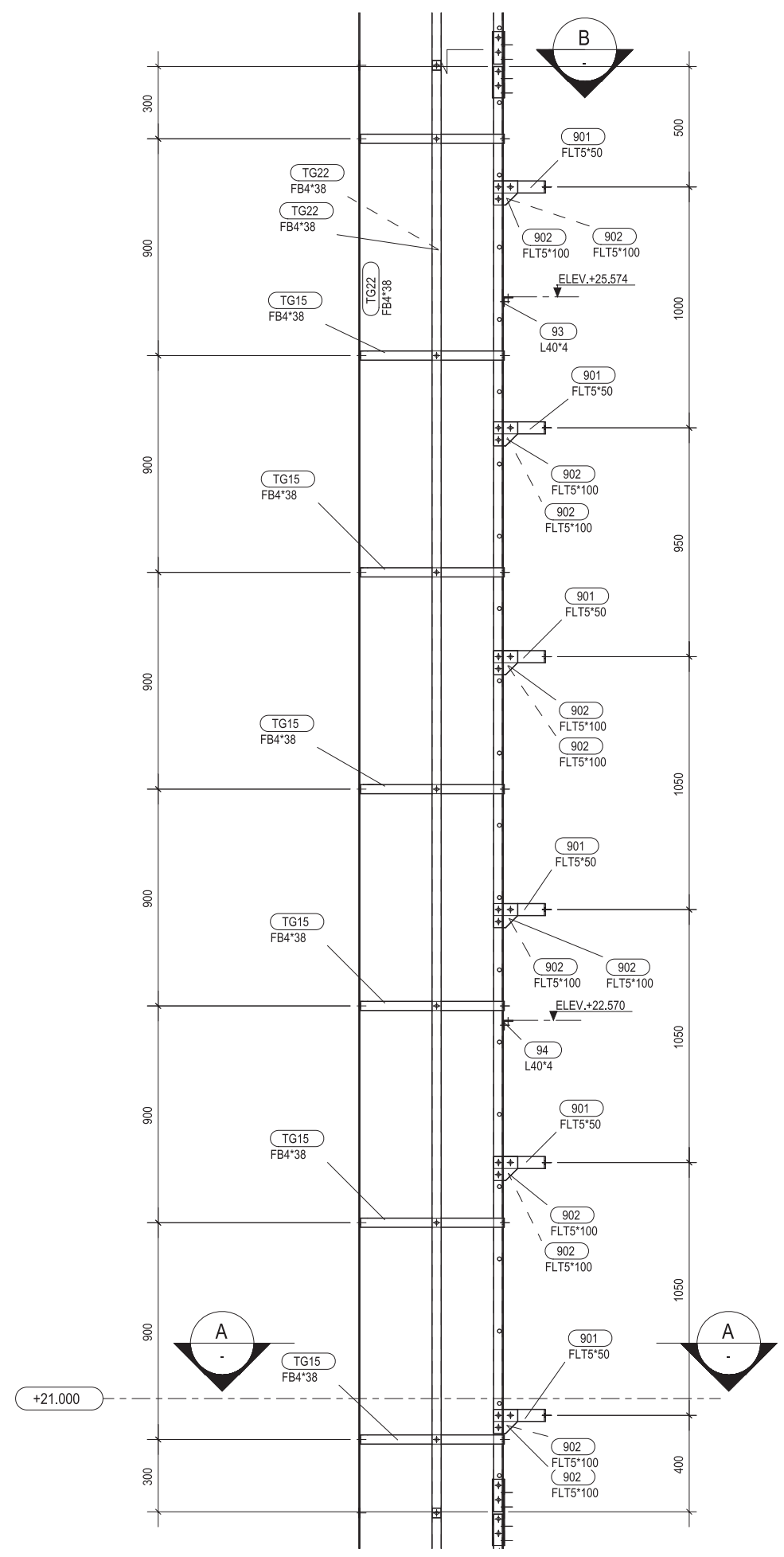
PROJECT NAME

TOWER BTS SST 45M - 3LEG 1 TENANT

DRAWING TITLE

LADDER-4

0	APPROVED FOR CONSTRUCTION	01-DEC-21
B	ISSUED FOR APPROVAL	05-NOV-21
A	ISSUED FOR COMMENT	22-APR-21
REV. MARK	DESCRIPTION	DATE
SCALE	SIZE	DRAWING NO.
AS NOTED	A1	KPI-45M-SST-1T-GA-016
REVISION		



**OWNER**  
**PT. Inti Bangun Sejahtera, TBK**  
 Innovative Solution Provider

**AS PLANNED DRAWING**

**NOTES/REMARK**

**NOTE :**

**LADDER-5 BOLTS LIST**

No	GRADE	Site / Shop	Size	Quantity
1	8.8	Site	BOLT M 12X35	52
2	8.8	Site	BOLT M 12X30	45

**REVISION**

NO.	DATE	CHANGE	CHECK & SIGN
1			
2			
3			

**APPROVED By**  
**PT. INTI BANGUN SEJAHTERA, TBK**

**DESIGN By**  
**PT. KRAKATAU ENGINEERING**  
 Gedung KE, Jl. Asia Raya Kav. O.3,  
 Cilegon 42435, Indonesia  
 Tlp. (62-254) 394100  
 Fax. (62-254) 391602 / 391657

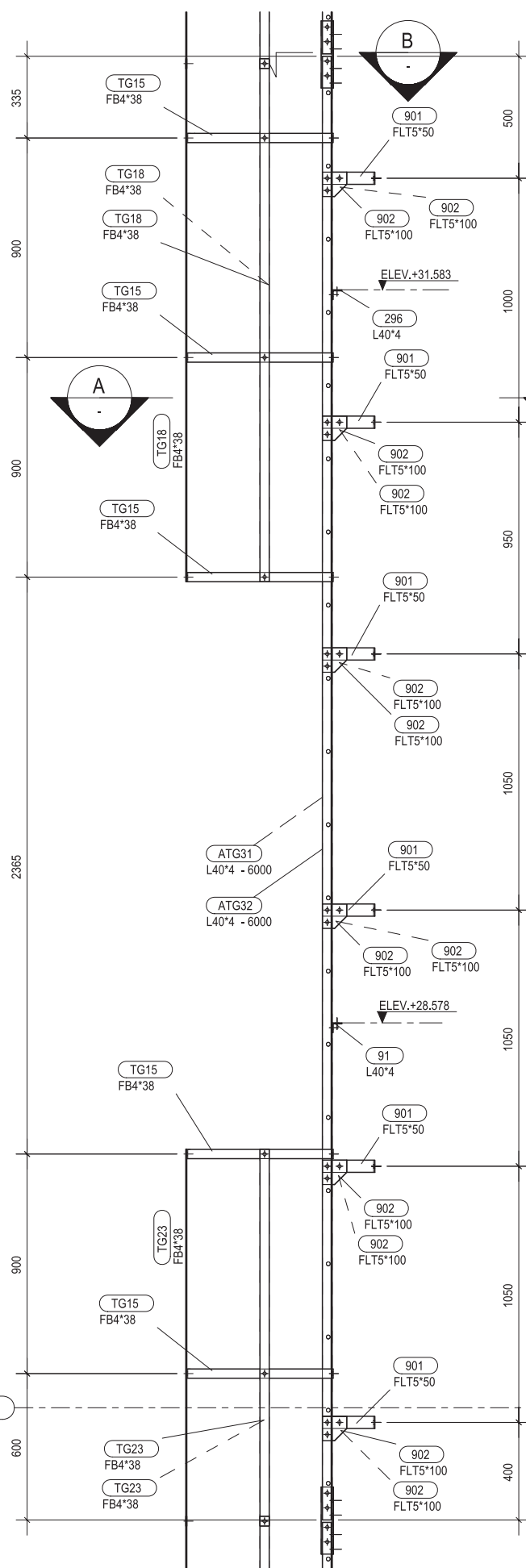
**FABRICATOR**  
**PT. KRAKATAU PIPE INDUSTRIES**  
 Krakatau Steel Building 7th Floor  
 Jl. Jend Gatot Subroto Kav. 54 - Jakarta 12950  
 Tlp. (62-21) 5254140  
 Fax. (62-21) 5204002

PREPARED	CHECKED	APPROVED
SPR	MDE	AS

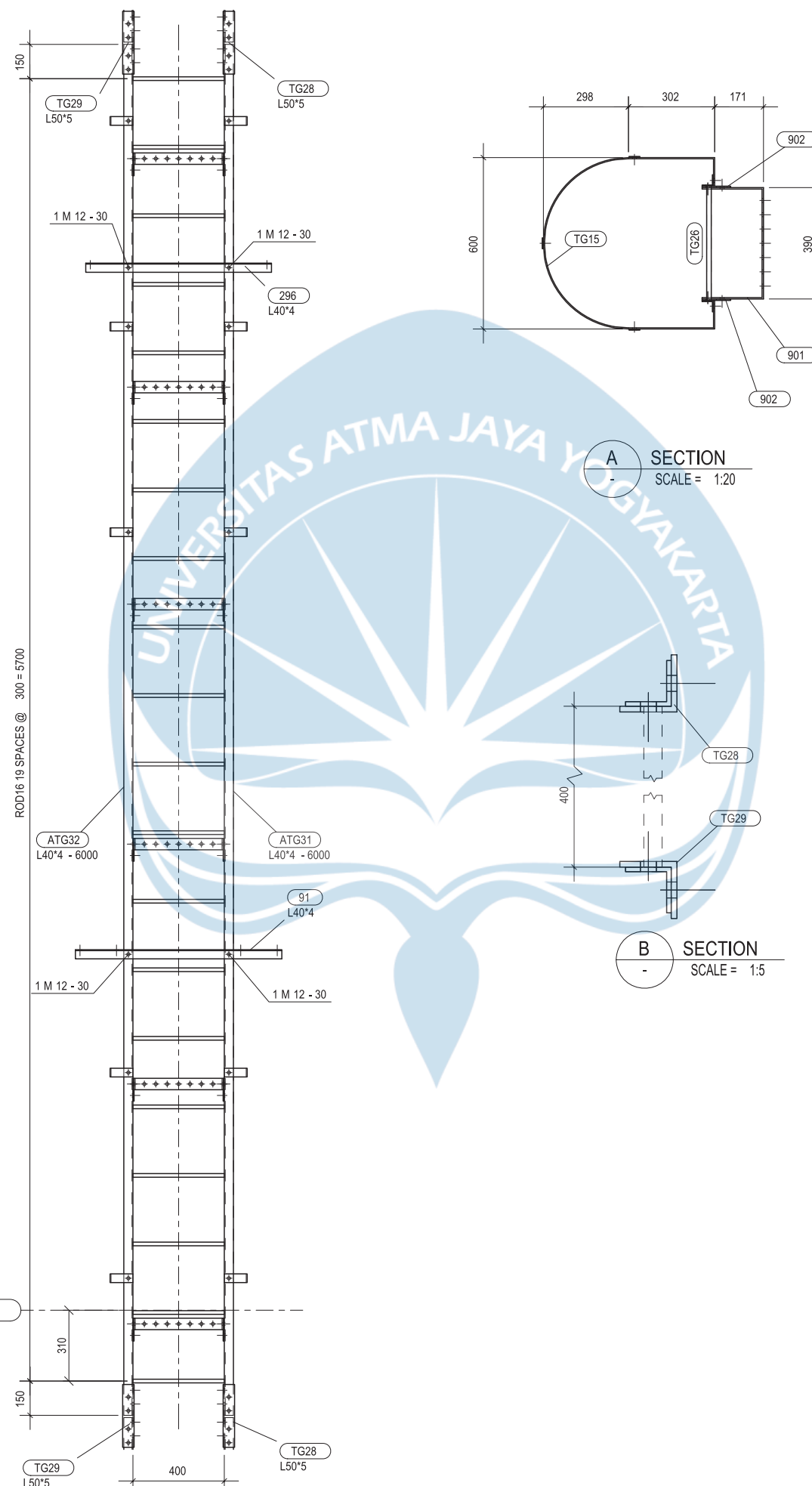
**PROJECT NAME**  
**TOWER BTS SST 45M - 3LEG 1 TENANT**

**DRAWING TITLE**  
**LADDER-5**

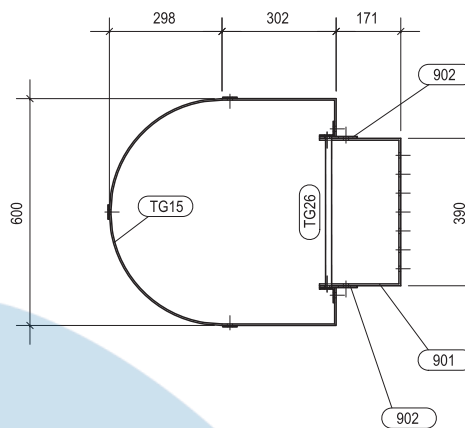
0	APPROVED FOR CONSTRUCTION	01-DEC-21
B	ISSUED FOR APPROVAL	05-NOV-21
A	ISSUED FOR COMMENT	22-APR-21
REV. MARK	DESCRIPTION	DATE
SCALE	SIZE	DRAWING NO.
AS NOTED	A1	KPI-45M-SST-1T-GA-017
REVISION		



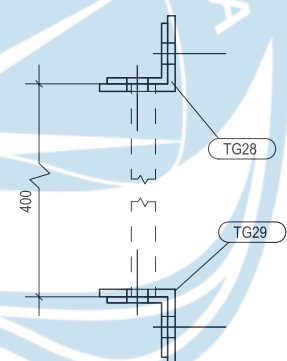
LADDER-6 SIDE VIEW  
SCALE = 1:25



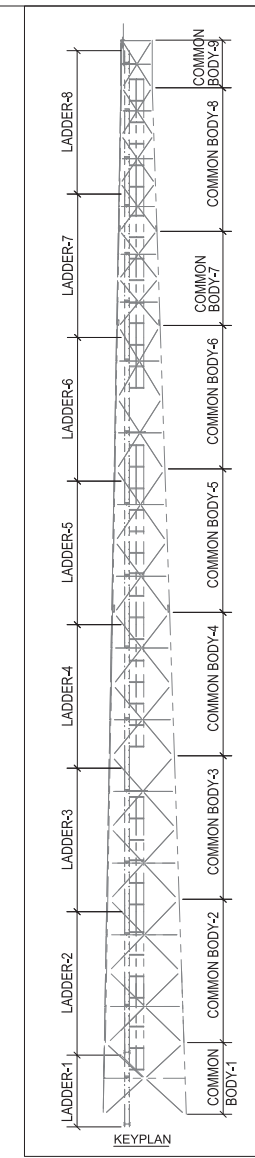
LADDER-6 FRONT VIEW  
SCALE = 1:25



A SECTION  
SCALE = 1:20



B SECTION  
SCALE = 1:5



KEYPLAN

OWNER



AS PLANNED DRAWING

NOTES/REMARK

NOTE :

LADDER-6 BOLTS LIST

No	GRADE	Site / Shop	Size	Quantity
1	8.8	Site	BOLT M 12X35	52
2	8.8	Site	BOLT M 12X30	32

REVISION

NO.	DATE	CHANGE	CHECK & SIGN
1			
2			
3			

APPROVED By

PT. INTI BANGUN SEJAHTERA, TBK

DESIGN By



PT. KRAKATAU ENGINEERING  
GEDUNG KE, JL. Asia Raya Kav. O.3,  
Cilegon 42435, Indonesia  
Tlp. (62-254) 394100  
Fax. (62-254) 391602 / 391657

FABRICATOR



PT. KRAKATAU PIPE INDUSTRIES  
Krakatau Steel Building 7th Floor  
Jl. Jend Gatot Subroto Kav. 54 - Jakarta 12950  
Tlp. (62-21) 5254140  
Fax. (62-21) 5204002

PREPARED	CHECKED	APPROVED
SPR	MDE	AS

PROJECT NAME

TOWER BTS SST 45M - 3LEG 1 TENANT

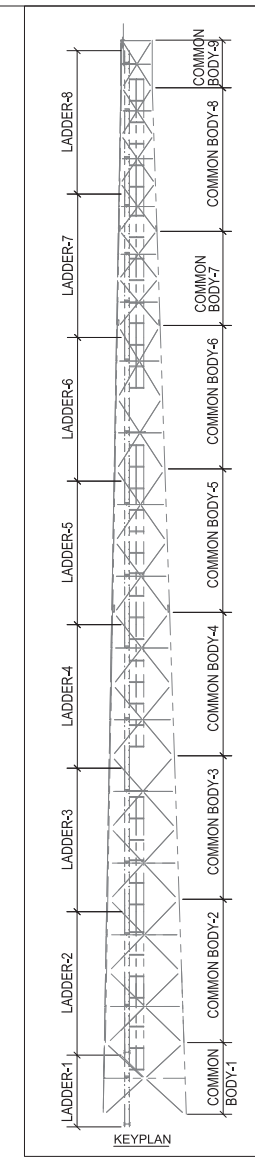
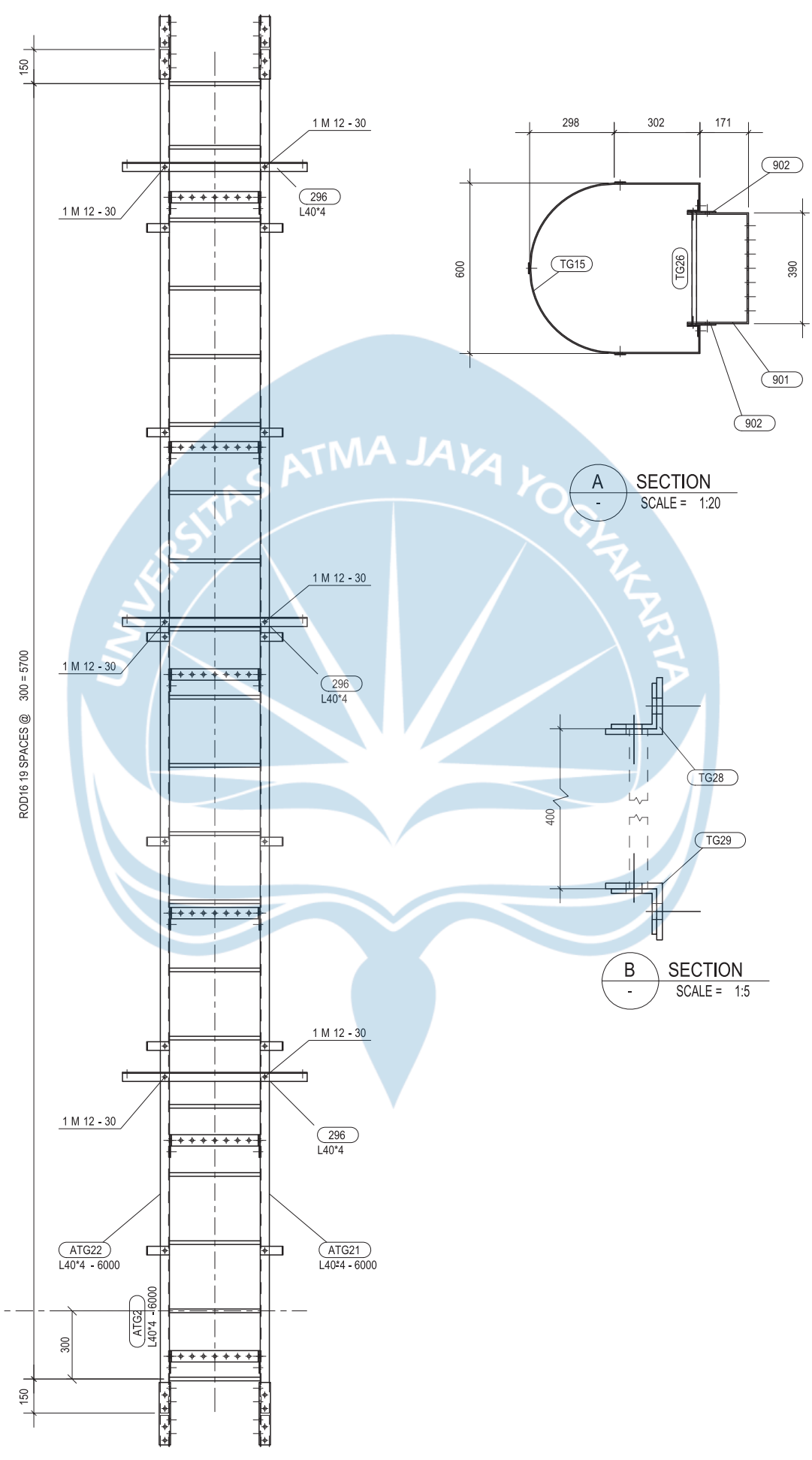
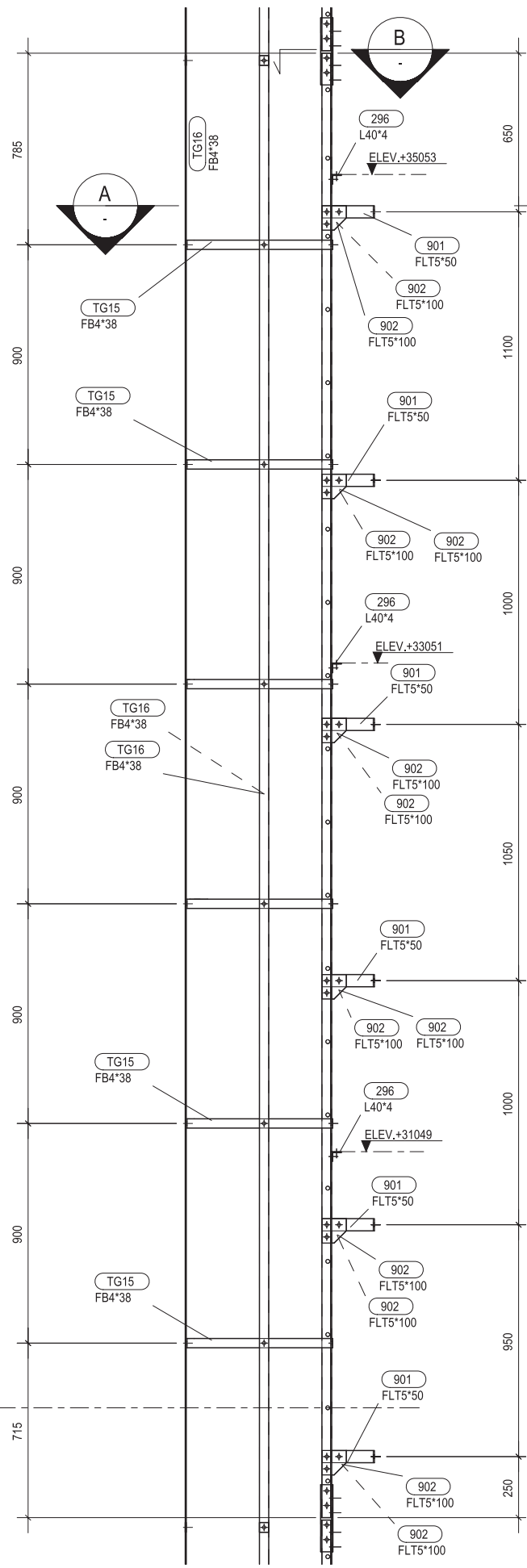
DRAWING TITLE

LADDER-6

0	APPROVED FOR CONSTRUCTION	01-DEC-21
B	ISSUED FOR APPROVAL	05-NOV-21
A	ISSUED FOR COMMENT	22-APR-21
REV. MARK	DESCRIPTION	DATE
SCALE	SIZE	DRAWING NO.
AS NOTED	A1	KPI-45M-SST-1T-GA-018
REVISION		



A B C D E F G H I J



**OWNER**

**ibs** PT. Inti Bangun Sejahtera, TBK  
Innovative Solution Provider

**AS PLANNED DRAWING**

**NOTES/REMARK**

**NOTE :**

**LADDER-7 BOLTS LIST**

No	GRADE	Site / Shop	Size	Quantity
1	8.8	Site	BOLT M 12X35	52
2	8.8	Site	BOLT M 12X30	49

**REVISION**

NO.	DATE	CHANGE	CHECK & SIGN
1			
2			
3			

**APPROVED By**

**PT. INTI BANGUN SEJAHTERA, TBK**

**DESIGN By**

**PT. KRAKATAU ENGINEERING**  
GEDUNG KE, JL. Asia Raya Kav. O.3,  
Cilegon 42435, Indonesia  
Tlp. (62-254) 394100  
Fax. (62-254) 391602 / 391657

**FABRICATOR**

**PT. KRAKATAU PIPE INDUSTRIES**  
Krakatau Steel Building 7th Floor  
Jl. Jend Gatot Subroto Kav. 54 - Jakarta 12950  
Tlp. (62-21) 5254140  
Fax. (62-21) 5204002

PREPARED	CHECKED	APPROVED
SPR	MDE	AS

**PROJECT NAME**

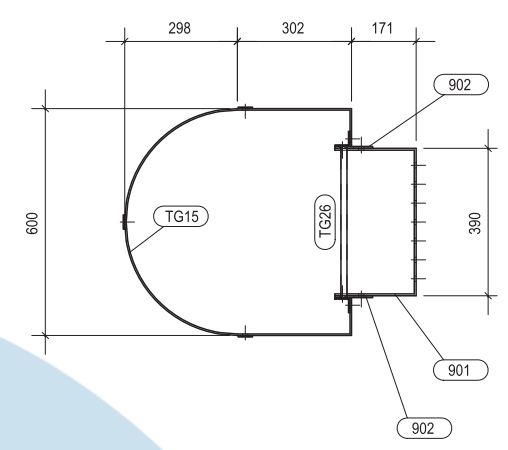
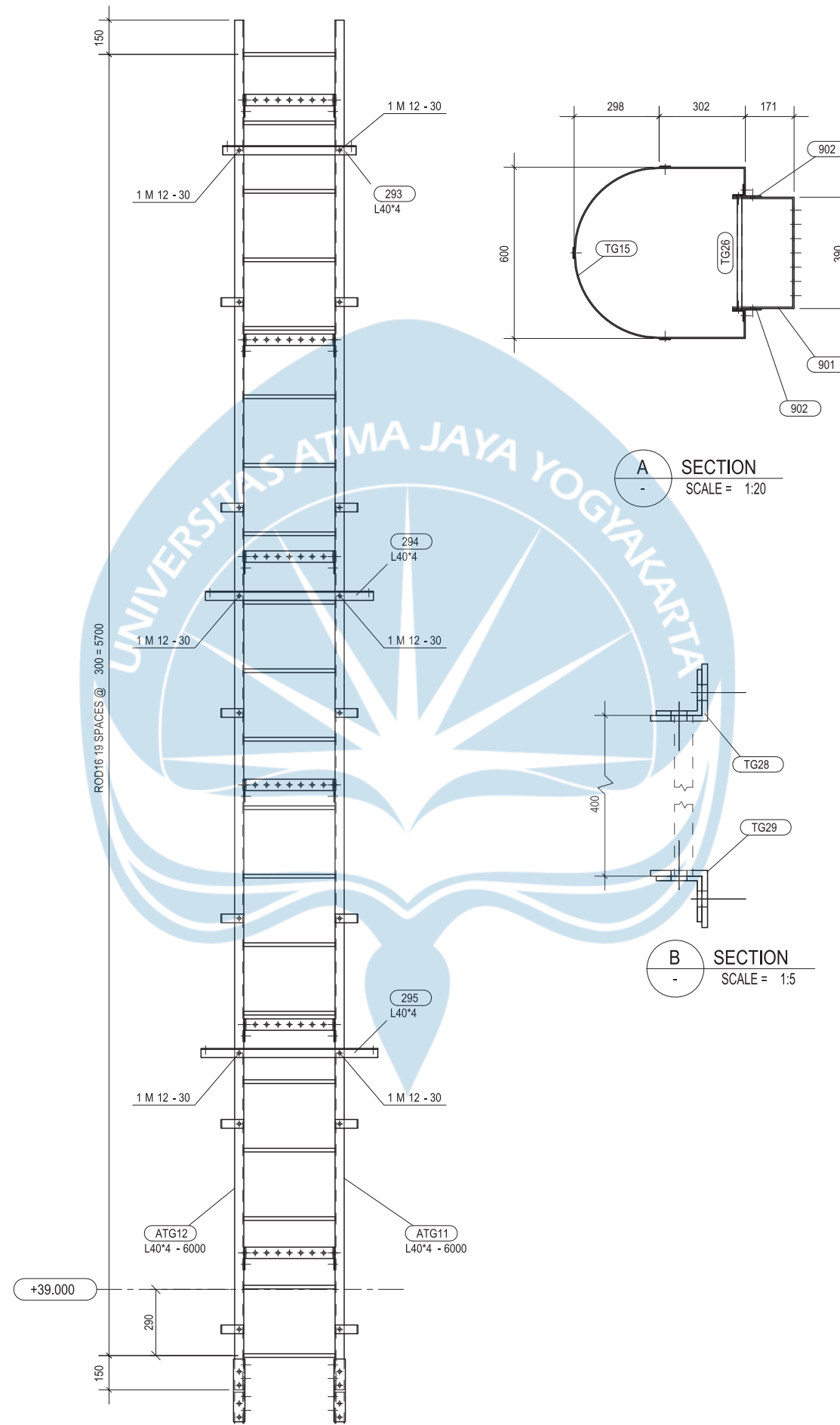
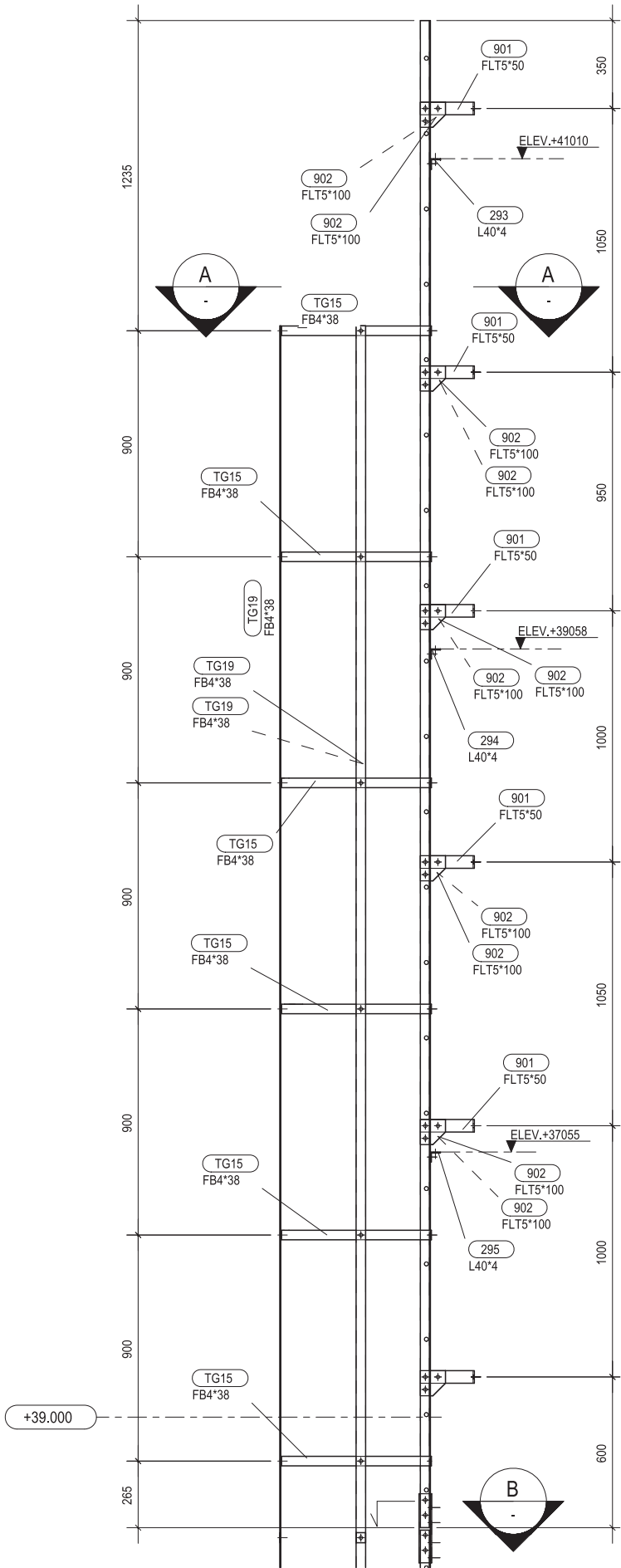
**TOWER BTS SST 45M - 3LEG 1 TENANT**

**DRAWING TITLE**

**LADDER-7**

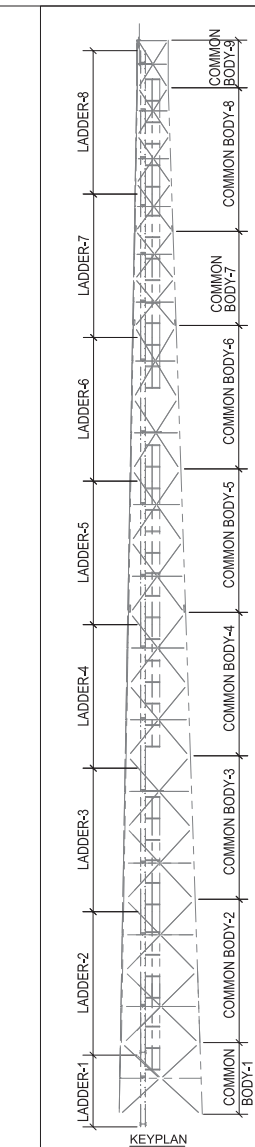
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B	ISSUED FOR APPROVAL	05-NOV-21
A	ISSUED FOR COMMENT	22-APR-21
REV. MARK	DESCRIPTION	DATE
SCALE	SIZE	DRAWING NO.
AS NOTED	A1	KPI-45M-SST-1T-GA-019
REVISION		

A B C D E F G H I J



**A SECTION**  
SCALE = 1:20

**B SECTION**  
SCALE = 1:5



**OWNER**  
**ibs** PT. Inti Bangun Sejahtera, TBK  
Innovative Solution Provider

**AS PLANNED DRAWING**

**NOTES/REMARK**

**NOTE :**

**LADDER-8 BOLTS LIST**

No	GRADE	Site / Shop	Size	Quantity
1	8.8	Site	BOLT M 12X35	52
2	8.8	Site	BOLT M 12X30	39

**REVISION**

NO.	DATE	CHANGE	CHECK & SIGN
1			
2			
3			

**APPROVED By**  
**PT. INTI BANGUN SEJAHTERA, TBK**

**DESIGN By**  
**PT. KRAKATAU ENGINEERING**  
GEDUNG KE, JL. Asia Raya Kav. O.3,  
Cilegon 42435, Indonesia  
Tlp. (62-254) 394100  
Fax. (62-254) 391602 / 391657

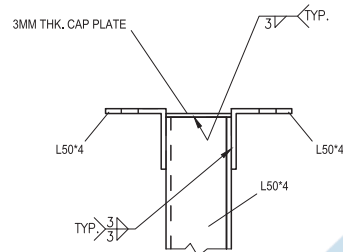
**FABRICATOR**  
**PT. KRAKATAU PIPE INDUSTRIES**  
Krakatau Steel Building 7th Floor  
Jl. Jend Gatot Subroto Kav. 54 - Jakarta 12950  
Tlp. (62-21) 5254140  
Fax. (62-21) 5204002

PREPARED	CHECKED	APPROVED
SPR	MDE	AS

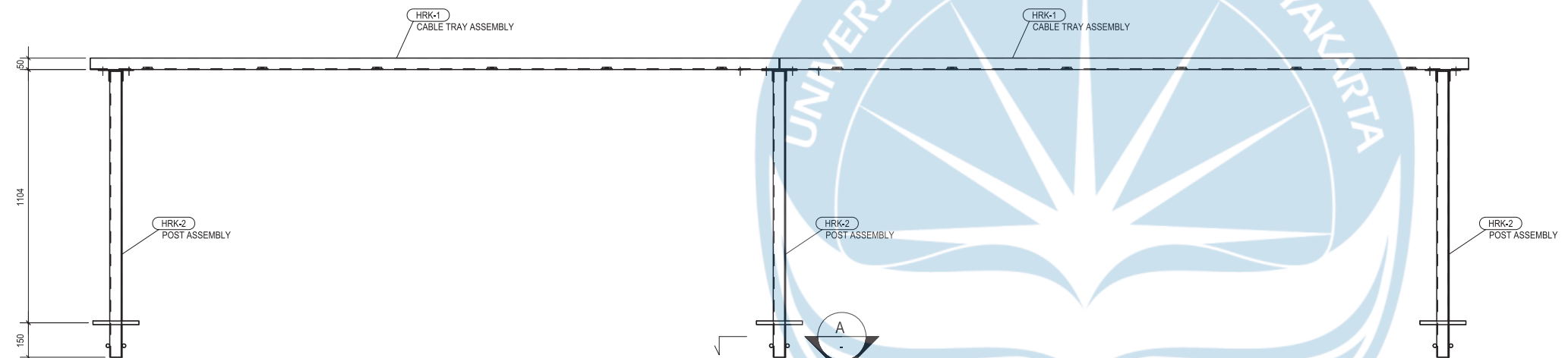
**PROJECT NAME**  
**TOWER BTS SST 45M - 3LEG 1 TENANT**

**DRAWING TITLE**  
**LADDER-8**

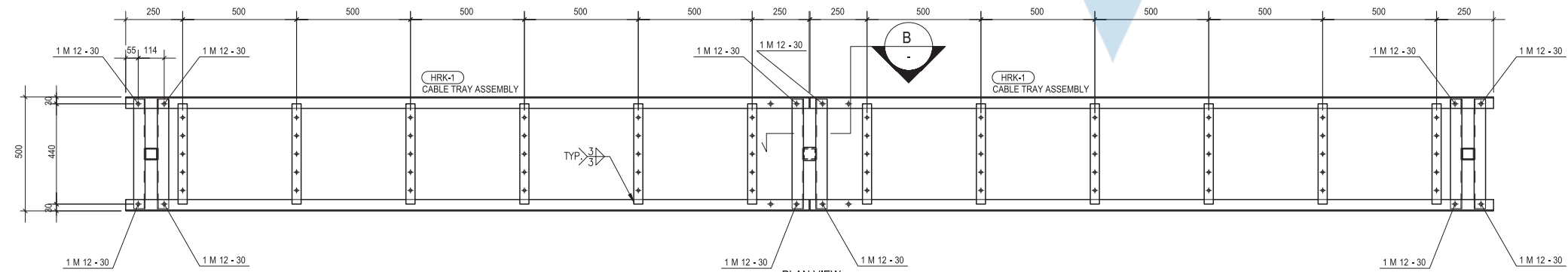
0	APPROVED FOR CONSTRUCTION	01-DEC-21
B	ISSUED FOR APPROVAL	05-NOV-21
A	ISSUED FOR COMMENT	22-APR-21
REV. MARK	DESCRIPTION	DATE
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AS NOTED	A1	KPI-45M-SST-1T-GA-020
REVISION		



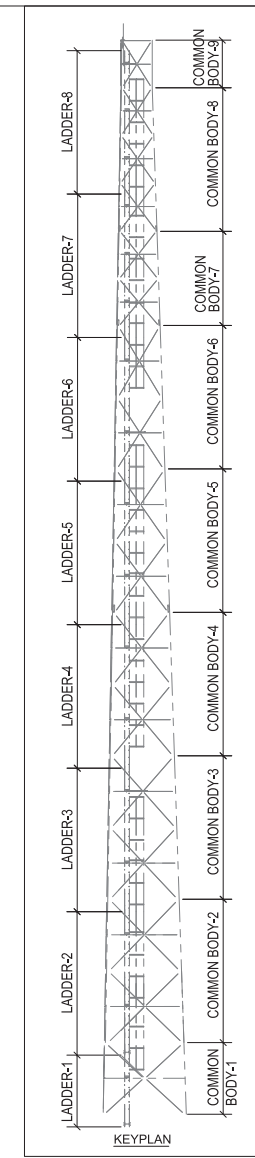
**B**  
SECTION  
(HRK-2 DETAIL)  
N.T.S



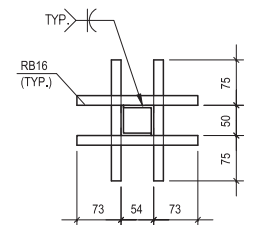
**ELEVATION VIEW**  
SCALE = 1:25



**PLAN VIEW**  
SCALE = 1:25



**KEYPLAN**



**A**  
SECTION  
SCALE = 1:10

OWNER



AS PLANNED DRAWING

NOTES/REMARK

NOTE :

HORIZONTAL CABLE TRAY BOLTS LIST

No	GRADE	Site / Shop Site	Size BOLT	Quantity
1	8.8		M 12X30	12

REVISION

NO.	DATE	CHANGE	CHECK & SIGN
1			
2			
3			

APPROVED By

PT. INTI BANGUN SEJAHTERA, TBK

DESIGN By



**PT. KRAKATAU ENGINEERING**  
GEDUNG KE, JL. Asia Raya Kav. O.3,  
Cilegon 42435, Indonesia  
Tlp. (62-254) 394100  
Fax. (62-254) 391602 / 391657

FABRICATOR



**PT. KRAKATAU PIPE INDUSTRIES**  
Krakatau Steel Building 7th Floor  
Jl. Jend Gatot Subroto Kav. 54 - Jakarta 12950  
Tlp. (62-21) 5254140  
Fax. (62-21) 5204002

PREPARED	CHECKED	APPROVED
SPR	MDE	AS

PROJECT NAME

TOWER BTS SST 45M - 3LEG 1 TENANT

DRAWING TITLE

**CABLE TRAY**

0	APPROVED FOR CONSTRUCTION	01-DEC-21
B	ISSUED FOR APPROVAL	05-NOV-21
A	ISSUED FOR COMMENT	22-APR-21
REV. MARK	DESCRIPTION	DATE
SCALE	SIZE	DRAWING NO.
AS NOTED	A1	KPI-45M-SST-1T-GA-021
REVISION		
		0



**UNIVERSITAS ATMA JAYA YOGYAKARTA**

*serviens in lumine veritatis*

## KARTU MAHASISWA

*I Dewa Gede Ananda Kusuma*

**NPM** : 201318132  
**Program Studi** : Teknik Sipil Program Internasional  
: Program Sarjana  
**Email** : 201318132@students.uajy.ac.id



**Berlaku: 31 Januari 2024**

## KARTU MAHASISWA INI UNTUK KEPENTINGAN AKADEMIK

**Rektor**



**Dr. G. Sri Nurhartanto, S.H., LL.M**

**Jl. Babarsari No. 44 Yogyakarta 55281 Indonesia**  
**Telp. +62-274-487711 (Hunting) +62-274-487748**  
**Website: <http://www.uajy.ac.id>**





Nomor : 201318132/P-KPM-12072023

12 Juli 2023

Hal : Magang

Kepada:

Yth. Pimpinan Perusahaan

PT. Krakatau Steel (Persero), Tbk.

Gedung Krakatau Steel, Lt. 4, Jl. Gatot Subroto Kav. 54, RT.1/RW.4, Kuningan Tim., Kecamatan Setiabudi,  
Kota Jakarta Selatan, Daerah Khusus Ibukota Jakarta 12950, Jakarta Selatan

Daerah Khusus Ibukota Jakarta

Dengan hormat,

Dalam rangka menyelesaikan pendidikan tingkat sarjana pada Program Studi Teknik Sipil Internasional Fakultas Teknik Universitas Atma Jaya Yogyakarta, setiap mahasiswa diwajibkan melakukan Magang pada proyek-proyek pembangunan untuk memperoleh pengetahuan dasar-dasar pekerjaan perencanaan bangunan dan pengalaman praktik organisasi.

Sehubungan dengan hal tersebut, kami mohon Bapak/Ibu berkenan memberikan izin kepada mahasiswa sebagai berikut:

Nama : I Dewa Gede Ananda Kusuma

NPM : 201318132

Program : Teknik Sipil Internasional  
Studi

Semester : Semester Genap T.A. 2022/2023

untuk melakukan Magang sekurang-kurangnya 160 hari mulai tanggal 15 Agustus 2023 sampai dengan tanggal 22 Januari 2024, pada proyek Kantor Pusat.

Dalam melakukan Magang tersebut, setiap mahasiswa praktikan harus hadir di lapangan sekurang-kurangnya 75% dari waktu yang telah ditentukan.

Atas perhatian dan kerjasamanya, kami ucapkan terima kasih.

Dekan,

ttd.

Dr.Eng. Luky Handoko, S.T., M.Eng.

Tembusan Yth.

Ir. Peter F. Kaming, M.Eng., Ph.D. (Sebagai Dosen Pembimbing).

Dokumen ini merupakan dokumen resmi UAJY yang tidak memerlukan tanda tangan karena dihasilkan secara elektronik oleh Sistem Bimbingan UAJY. UAJY bertanggung jawab penuh atas informasi yang tertera di dalam dokumen ini

**Alamat**

Kampus II Gedung Thomas Aquinas  
Jalan Babarsari 44 Yogyakarta 55281

**URL**

<https://ft.uajy.ac.id>

**Kontak**

Telepon : +62-274-487711  
Fax : +62-274-487748  
Surel : [fteknik@uajy.ac.id](mailto:fteknik@uajy.ac.id)



## SURAT PERSETUJUAN ORANG TUA UNTUK MAGANG / KERJA PRAKTIK LAPANGAN

Yang bertanda-tangan di bawah ini:

Nama : I Dewa Gede Gunastha, S.H., M.Kn.  
Alamat : Br. Anggarkasih, Desa Medahan, Kec. Blahbatuh, Kab.  
Gianyar, Bali  
No. HP : 087889010207

selaku orang tua dari Mahasiswa Program Studi Teknik Sipil Universitas Atmajaya Yogyakarta,

Nama : I Dewa Gede Ananda Kusuma  
NPM : 201318132  
Alamat : Br. Anggarkasih, Desa Medahan, Kec. Blahbatuh, Kab.  
Gianyar, Bali

Menyetujui putra/putri kami untuk melaksanakan Magang/Kerja Praktik Lapangan pada Semester Gasal T.A. 2023/2024 di Perusahaan/Proyek: PT. Krakatau Steel serta mengikuti berbagai peraturan yang ada baik di Perusahaan/Proyek Magang/Kerja Praktik tersebut maupun Program Studi Teknik Sipil Universitas Atma Jaya Yogyakarta.

Pilihan untuk melaksanakan Magang/Kerja Praktik Lapangan di Perusahaan/Proyek ini bebas dari paksaan pihak manapun.

Demikian Surat Persetujuan ini kami buat dengan sesungguhnya dan tanpa paksaan dari pihak manapun.

Dibuat di : Jakarta Selatan  
Pada tanggal : Rabu, 05 Juli 2023

**Mahasiswa**



I Dewa Gede Ananda Kusuma  
NPM: 201318132

**Orang Tua Mahasiswa**



I Dewa Gede Gunastha, S.H., M.Kn.

Nomor : 975/DIV.SDM&G-KBK/VIII/2023  
Lampiran : -  
Perihal : **Balasan Permohonan Magang**

Cilegon, 18 Agustus 2023

Kepada Yth.  
**Dekan Fakultas Teknik**  
**Universitas Atma Jaya Yogyakarta**  
di  
Tempat

Dengan hormat,

Menindaklanjuti surat dari Nomor : 201318132/P-KPM-12072023 tanggal 12 Juli 2023 perihal Magang, bersama ini kami sampaikan bahwa pada prinsipnya kami dapat membantu pelaksanaan Magang tersebut untuk mahasiswa dengan rincian sebagai berikut :

Nama : **I Dewa Gede Ananda Kusuma**  
NIM : **201318132**  
Program Studi : **Teknik Sipil Internasional**  
Periode Pelaksanaan : **23 Agustus 2023 – 30 Januari 2024**  
Area : **Divisi Pengembangan Bisnis & SCI**

Selanjutnya, mengingat kondisi kerja di pabrik PT Krakatau Baja Konstruksi maka diwajibkan kepada mahasiswa untuk membawa dan memakai APD (*safety helmet & safety shoes*) masing-masing dikarenakan PT Krakatau Baja Konstruksi tidak menyediakan sarana tersebut.

Demikian disampaikan, atas perhatiannya diucapkan terima kasih.

**PT KRAKATAU BAJA KONSTRUKSI**  
**DIVISI SDM & GUDANG**



**KRAKATAU**  
STEEL CONSTRUCTION INDUSTRIES  
**UNTUNG MARDONO**  
Manager

- Cc : 1. Yth. Manager Pengembangan Bisnis & SCI PT KBK  
2. Yth. Staff K3LH PT KBK  
3. Yth. Dan Posko  
4. Arsip

**SURAT KETERANGAN**

Nomor : 1201 /DIV.SDM&G-KBK/XII/2023

Yang bertandatangan di bawah ini, kami selaku Divisi SDM & Gudang PT. Krakatau Baja Konstruksi menerangkan bahwa :

Nama : **I Dewa Gede Ananda Kusuma**  
NIM : **201318132**  
Program Studi : **Teknik Sipil Internasional**  
Perguruan Tinggi : **Universitas Atma Jaya Yogyakarta**  
Area Kerja : **Divisi Pengembangan Bisnis & SCI**

Adalah benar bahwa nama tersebut di atas telah melakukan kegiatan **Magang** di **Divisi Pengembangan Bisnis & SCI** PT. Krakatau Baja Konstruksi, dari tanggal **23 Agustus 2023 s.d 15 Desember 2023**.

Demikian surat keterangan ini dibuat, untuk dapat dipergunakan sebagaimana mestinya.

Cilegon, 19 Desember 2023

**PT KRAKATAU BAJA KONSTRUKSI**  
**DIVISI SDM & GUDANG**



**UNTUNG MARDONO**  
Manager

Cc. Arsip





**LEMBAR LOGBOOK MAHASISWA MAGANG MBKM SEMESTER GENAP**

**TAHUN AJARAN 2023/2024**

Nama : I Dewa Gede Ananda Kusuma  
NPM : 201318132  
Nama Tempat : PT. Krakatau Steel, Subholding PT. Krakatau Baja Konstruksi  
Lokasi Proyek : Cilegon, Banten, Indonesia.  
Jam Kerja : Senin – Jumat (08.00 – 16.30 WIB)  
Dosen Pembimbing : Dr. Okkie Putriani  
Dosen Penggerak MBKM : William Wijaya, S.T., M.Eng.  
Pembimbing Lapangan : Rendy Sutiyono, S.T., M.M.

No.	Tanggal	Kegiatan	Paraf Pembimbing
1	15 Agustus 2023	Introduction Perusahaan PT. Krakatau Steel	
2	16 Agustus 2023	Kordinasi Bersama Pimpinan PT. Krakatau Steel	
3	17 Agustus 2023	Kordinasi SDM PT. Krakatau Steel Subholding Krakatau Baja Konstruksi	
4	21 Agustus 2023	Pembagian Lokasi dan Penempatan	
5	22 Agustus 2023	Site Coordination dan Penyesuaian Penempatan	
5	23 Agustus 2023	Safety Induction, Perkenalan Perusahaan dan Divisi Pengembangan Bisnis dan SCI dan Pemberian Jobdesk	
6	28 Agustus 2023	Modelling Struktur Baja Modular Direksi Keet PT. Hutama Karya Tbk.	
7	29 Agustus 2023	Analisa Struktur Baja Modular Direction Keet PT. Hutama Karya Tbk. Zona A	
8	30 Agustus 2023	Modelling Struktur Baja Modular Direksi Keet ASN 2 IKN Nusantara PT. Hutama Karya Tbk. Zona B	
9	31 Agustus 2023	Modelling Struktur Baja Modular Direksi Keet ASN 2 IKN zona C	
10	01 September 2023	Modelling Struktur Baja Modular Direksi Keet ASN 2 IKN Zona D	



11	04 September 2023	Pengerjaan Laporan Analisa Struktur Baja Modular Direksi Keet ASN 2 IKN	
12	05 September 2023	Preliminary Design Project PUPR	
13	06 September 2023	Quality Control Material Pelat Baja, Girder Baja, Pipa Baja, dan Tiang Baja.	
14	07 September 2023	Laboratory Tensile Test Baja Tulangan dan Pelat Baja	
15	08 September 2023	Pengerjaan BIM Menggunakan Software Tekla	
16	12 September 2023	Analisa Inovasi Rumah Dewa Ruci; Beton Komposit	
17	13 September 2023	Analisa Sambungan	
18	14 September 2023	Analisa Shallow Foundation	
19	15 September 2023	Checklist Proses Fabrikasi Jembatan Sorowako PT. Mahameru Baja Indonesia	
20	18 September 2023	Checklist Proses Fabrikasi Electric Pole 400 Unit PT. Mahameru Baja Indonesia	
21	19 September 2023	Pembahasan Struktur Penambahan Girder Crane CFD	
22	20 September 2023	Preliminary Struktur Baja Girder Crane area CFD	
23	21 September 2023	Preliminary Struktur Baja Gedung Motorcycle Park 8 Lantai	
24	25 September 2023	Analisis Struktur Baja Gedung Motorcycle Park 8 Lantai	
25	26 September 2023	Survey Project Struktur Baja Girder Crane CFD	
26	27 September 2023	Analisa Struktur Baja Girder Crane CFD	
27	30 September 2023	Preliminary Struktur Tower Tenant 1	
28	31 September 2023	Preliminary Struktur Tower Tenant 1	
29	01 Oktober 2023	Checklist PT. Mahameru Steel Jembatan Sarowako	
30	02 Oktober 2023	Checklist PT. Mahameru Steel Jembatan Sarowako	
31	03 Oktober 2023	Checklist PT. Mahameru Steel Jembatan Sarowako	
32	04 Oktober 2023	Checklist PT. Mahameru Steel Jembatan Sarowako	




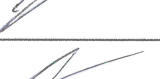


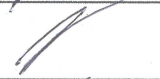





33	05 Oktober 2023	Checklist PT. Mahameru Steel Jembatan Sarowako	
34	06 Oktober 2023	Checklist PT. Mahameru Steel Jembatan Sarowako	
35	09 Oktober 2023	Checklist Fabrikasi Electric Pole JTM PLN 9/200	
36	10 Oktober 2023	Checklist Fabrikasi Electric Pole JTM PLN 9/200	
37	11 Oktober 2023	Checklist Fabrikasi Electric Pole JTM PLN 9/200	
38	13 Oktober 2023	Pengerjaan Analisis Struktur Tower 3 Leg Tenant 2	
39	14 Oktober 2023	Checklist Fabrikasi Electric Pole JTM PLN 9/200	
40	15 Oktober 2023	Checklist Fabrikasi Gudang KSP bentang 12m	
41	16 Oktober 2023	Checklist Pengecatan Electric Pole JTM PLN	
42	17 Oktober 2023	Pengenalan Divisi Quality Control dan Laboratorium Uji Mekanis	
43	18 Oktober 2023	Pengenalan Bar Mill, Section Mill dan Gudang	
44	19 Oktober 2023	Uji NDT pada Project Gudang Krakatau Steel Piping	
45	20 Oktober 2023	Preparasi Uji Mekanik Baja L250x20	
46	23 Oktober 2023	Uji NDT Project Gudang Krakatau Steel Piping	
47	24 Oktober 2023	Checklist Bar Mill Baja Profil	
48	25 Oktober 2023	Checklist Project Gudang Krakatau Steel Piping	
49	26 Oktober 2023	Checklist Project Electric Pole JTM PLN 9/200	
50	27 Oktober 2023	Checklist material Project Hopper	
51	30 Oktober 2023	Quality Check UNP 200x100x5x5 Hot Mill	
52	31 Oktober 2023	Checklist Fit Up Project Hopper	
53	01 November 2023	Checklist Krakatau Steel Piping Warehouse	
54	02 November 2023	Checklist Coating Krakatau Steel Piping Warehouse	



55	03 November 2023	Checklist Coating Krakatau Steel Piping Warehouse	
56	06 November 2023	Checklist Fit Up Dimension Project Hopper	
57	07 November 2023	Checklist KSP Warehouse & Hopper	
58	08 November 2023	Checklist Fit-Up BPL-6 Project Hopper	
59	09 November 2023	Checklist Project Beam BPL-3 Project Hopper	
60	10 November 2023	Checklist Project Beam BPL-4 Project Hopper	
61	13 November 2023	Checklist Project BPL-5 Project Hopper	
62	14 November 2023	Checklist Project Beam BPL-4 Project Hopper	
63	15 November 2023	Checklist Project Beam BPL-5 Project Hopper	
64	16 November 2023	Checklist Project Beam BPL-6 Project Hopper	
65	17 November 2023	Fit Up Plate Girder Beam Hopper 1	
66	20 November 2023	Fit Up Plate Girder Beam Hooper 1	
67	21 November 2023	Checklist Project Hopper BPL-1 Column	
68	22 November 2023	Checklist Project Hopper BPL-2 Column	
69	23 November 2023	Checklist Material Incoming Pipe	
70	24 November 2023	Checklist Mobilization KSP	
71	27 November 2023	Checklist Project Electric Pole JTM PLN 9/200	
72	28 November 2023	Checklist Project Electric Pole JTM PLN 9/200	
73	29 November 2023	Checklist Project Wika Modular	
74	30 November 2023	Checklist Project Hopper BPL-3 Column	
75	01 Desember 2023	Checklist Project Hopper BPL-3 Column	
76	03 Desember 2023	Checklist Coating Project Truss Hopper	



77	04 Desember 2023	Report Progress Presentation	
78	05 Desember 2023	Checklist Coating Project Hopper	
79	06 Desember 2023	Checklist Dimension Project Hopper	
80	07 Desember 2023	Checklist Weld Project Hopper	
81	08 Desember 2023	Daily Report Administration	
82	11 Desember 2023	Daily Report Administration	
83	12 Desember 2023	Daily Report Administration	
84	13 Desember 2023	Daily Report Administration	
85	14 Desember 2023	Daily Report Administration	
86	15 Desember 2023	Presentation and Final Assessment	

Mengetahui,

Site Supervisor



**KRAKATAU**  
STEEL CONSTRUCTION INDUSTRIES  
**Rendy Sutiyono, S.T., M.M.**  
EIN 200389



**LEMBAR ASISTENSI MAHASISWA MAGANG MBKM SEMESTER GANJIL**

**TAHUN AJARAN 2023/2024**

Pembimbing Magang : Dr. Okkie Putriani, S.T., M.T., CIAR.  
Nama : I Dewa Gede Ananda Kusuma  
NPM : 201318132  
Nama Tempat : PT. Krakatau Steel, Subholding PT. Krakatau Baja Konstruksi  
Lokasi Proyek : Cilegon, Banten, Indonesia.  
Dosen Penggerak MBKM : William Wijaya, S.T., M.Eng.  
Pembimbing Lapangan : Rendy Sutiyono, S.T., M.M.

No.	Tanggal	Kegiatan	Paraf Pembimbing
1	26 September 2023	Diskusi kegiatan magang dan penetapan topik tugas akhir	
2	13 Oktober 2023	Diskusi cakupan topik tugas akhir dan literature review.	
3	02 November 2023	Diskusi format laporan tugas akhir dan review Chapter I dan Chapter II laporan	
4	11 November 2023	Diskusi format penulisan dan review per Chapter	
5	12 Desember 2023	Diskusi kendala-kendala penulisan laporan dan penyesuaian format penulisan	
6	03 Januari 2023	Pengesahan Laporan Final	

Mengetahui,

Dosen Pembimbing

**Dr. Okkie Putriani, S.T., M.T., CIAR.**  
EIN 08.18.1009



## LAMPIRAN

Okkie Putriani, S.T., M.T. 9/26/23 10:00 AM

**Internship Supervisor #1 Nanda & Arrian**  
Tuesday, September 26, 2023 11:00 AM

Scheduled a meeting

1 replies from Okkie Putriani, S.T., M.T.

Recording  
Okkie Putriani, S.T., M.T.  
56m 22s

This recording is set to expire. View or change the expiration date [here](#). [Learn more](#)

Reply

I Dewa Gede Ananda Kusuma 10/13/23 7:46 AM

**Internship Supervisor #2 Nanda & Arrian**  
Friday, October 13, 2023 11:00 AM

Scheduled a meeting


Okkie Putriani, S.T., M.T. 10/13/23 8:17 AM  
Dear Ananda n Arrian, so sorry at 9 am I have an impromptu meeting with KPSP. Can we rearrange our meeting at 11? Thank you


I Dewa Gede Ananda Kusuma 10/13/23 8:23 AM  
alright miss

Recording  
I Dewa Gede Ananda Ku...  
15m 59s

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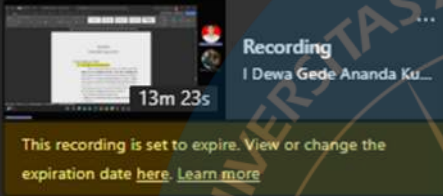
 I Dewa Gede Ananda Kusuma 11/2/23 7:58 AM


 **Internship Supervisor #3 Nanda & Arrian**  
Thursday, November 2, 2023 10:00 AM ... Join


Scheduled a meeting


2 replies from you and Arrian Fernaldi Soetardji


 Arrian Fernaldi Soetardji 11/2/23 10:09 AM  
Im sorry miss Okkie Putriani, S.T., M.T. i still ad the clinic to do a check up with my condition. I just want to ask about how we choose the main topic. Is it based on our experiance in the field? That is the struggle i had miss.  
Thank you miss 🙏🙏🙏


  
Recording  
I Dewa Gede Ananda Ku...  
13m 23s  
This recording is set to expire. View or change the expiration date [here](#). [Learn more](#)

 Reply

 I Dewa Gede Ananda Kusuma 11/7/23 8:06 AM

 Sosialisasi\_Format\_Penulisan\_TAPI\_konv... ...

 I Dewa Gede Ananda Kusuma 11/7/23 8:06 AM  
Writing Format

 Reply





I Dewa Gede Ananda Kusuma 11/11/23 9:29 AM

**Internship Supervisor #4 Arrian & Nanda**  
Sunday, November 12, 2023 10:00 AM Join

Scheduled a meeting

2 replies from you and Okkie Putriani, S.T., M.T.

Okkie Putriani, S.T., M.T. 11/12/23 11:16 AM

11:14 70%  
You  
November 9, 11:11 PM

see more

Recording  
I Dewa Gede Ananda Ku...  
56m 22s

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Reply

Okkie Putriani, S.T., M.T. 11/14/23 9:02 AM



Water Dashboard - Microsoft  
Internship M1 (First Semester of 2023-2024 Academic Year)

see more


1


Reply





 Okkie Putriani, S.T., M.T. 12/7/23 10:58 AM 

For Nanda and Arryan, how's your internship report, is ther any obstacles? can you complete it in the before end semester?

 I Dewa Gede Ananda Kusuma 12/12/23 7:30 PM  
My struggle is due to the deadline, the last topics will be only address the structure analysis and fabrication cost estimation of BTS Tower SST45M according to AHSP 2022


 Reply

 I Dewa Gede Ananda Kusuma 12/12/23 7:21 PM


 **Intership Supervisor #5 Nanda & Arryan**  
Thursday, December 14, 2023 2:00 AM ...


Scheduled a meeting


1 replies from you

 **Recording**  
I Dewa Gede Ananda Ku...  
42m 42s

This recording is set to expire. View or change the expiration date [here](#). [Learn more](#)



 Reply


 I Dewa Gede Ananda Kusuma Yesterday 6:21 AM

 **Intership Supervisor #6 Nanda & Arryan**  
Wednesday, January 3, 2024 10:00 AM ...

Scheduled a meeting


1 replies from Okkie Putriani, S.T., M.T.


 I Dewa Gede Ananda Kusuma Yesterday 6:21 AM 

 **Intership Supervisor #6 Nanda & Arryan**  
Wednesday, January 3, 2024 10:00 AM ...

Scheduled a meeting

1 replies from Okkie Putriani, S.T., M.T.

 Okkie Putriani, S.T., M.T. Yesterday 11:01 AM  
[ISO 45001:2018\(en\), Occupational health and safety management systems — Requirements with guidance for use](#)

 Reply

## **FORMULIR PENDAFTARAN PENDADARAN PRODI S1 TEKNIK SIPIL**

Saya yang bertanda tangan di bawah ini:

Nama : I Dewa Gede Ananda Kusuma (NPM: 201318132)

Kelas / no. kelompok : ICEP/Kelas Z

Judul Tugas Akhir : STRUCTURE ANALYSIS AND FABRICATION COST ANALYSIS OF BTS 3 LEG  
2<sup>nd</sup> TENANT SST45M TELECOMMUNICATION TOWER  
AT PT. KRAKATAU STEEL SUBHOLDING PT. KRAKATAU BAJA KONSTRUKSI

Dosen Pembimbing : Dr. Okkie Putriani, S.T., M.T., CIAR.

Pembimbing Lapangan : RENDY SUTIYONO, S.T., M.T.

telah disetujui untuk dapat mendaftar pendadaran.

Mengetahui,

Yogyakarta, 04 Januari 2024

Dosen Pembimbing TA

Mahasiswa



(Dr. Okkie Putriani, S.T., M.T., CIAR.)



(I Dewa Gede Ananda Kusuma)