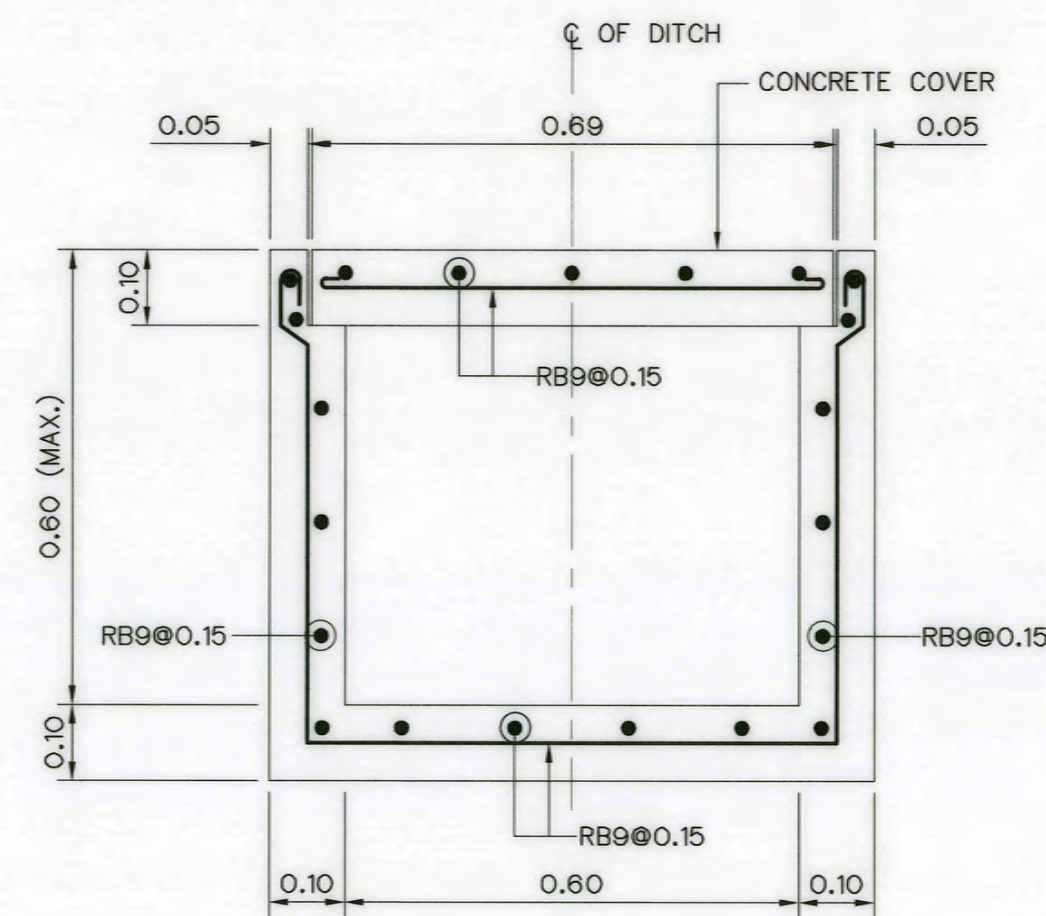
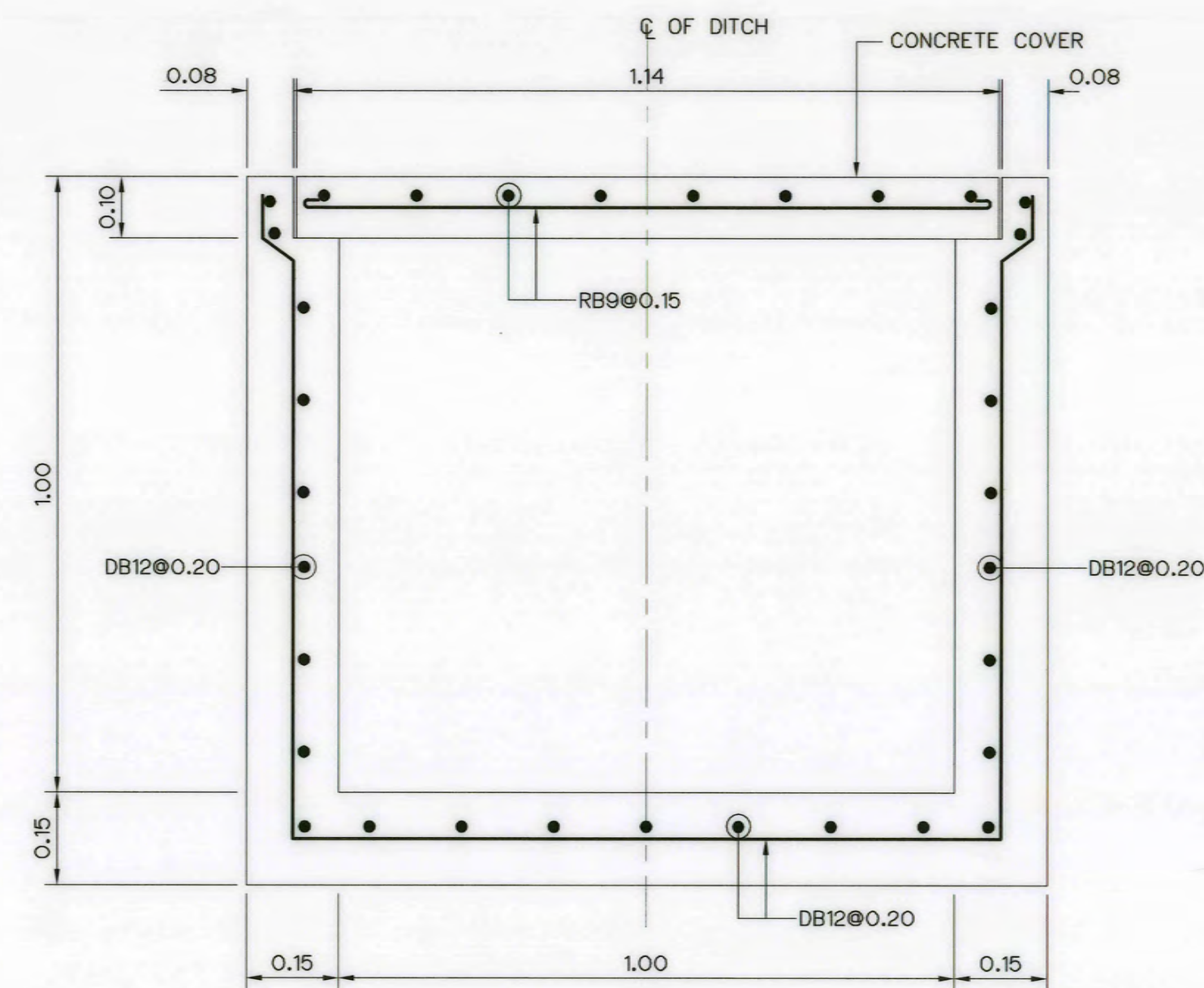
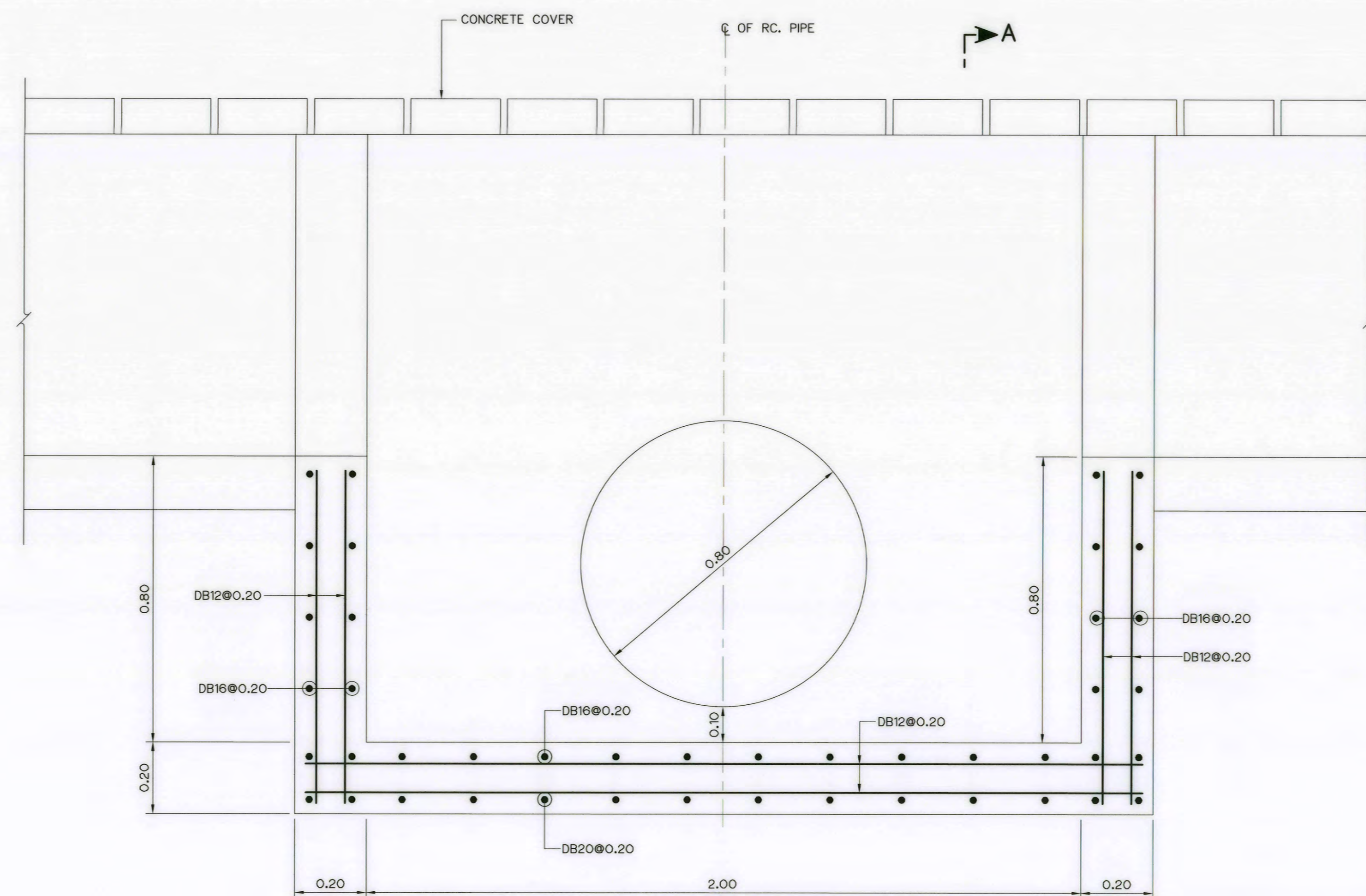




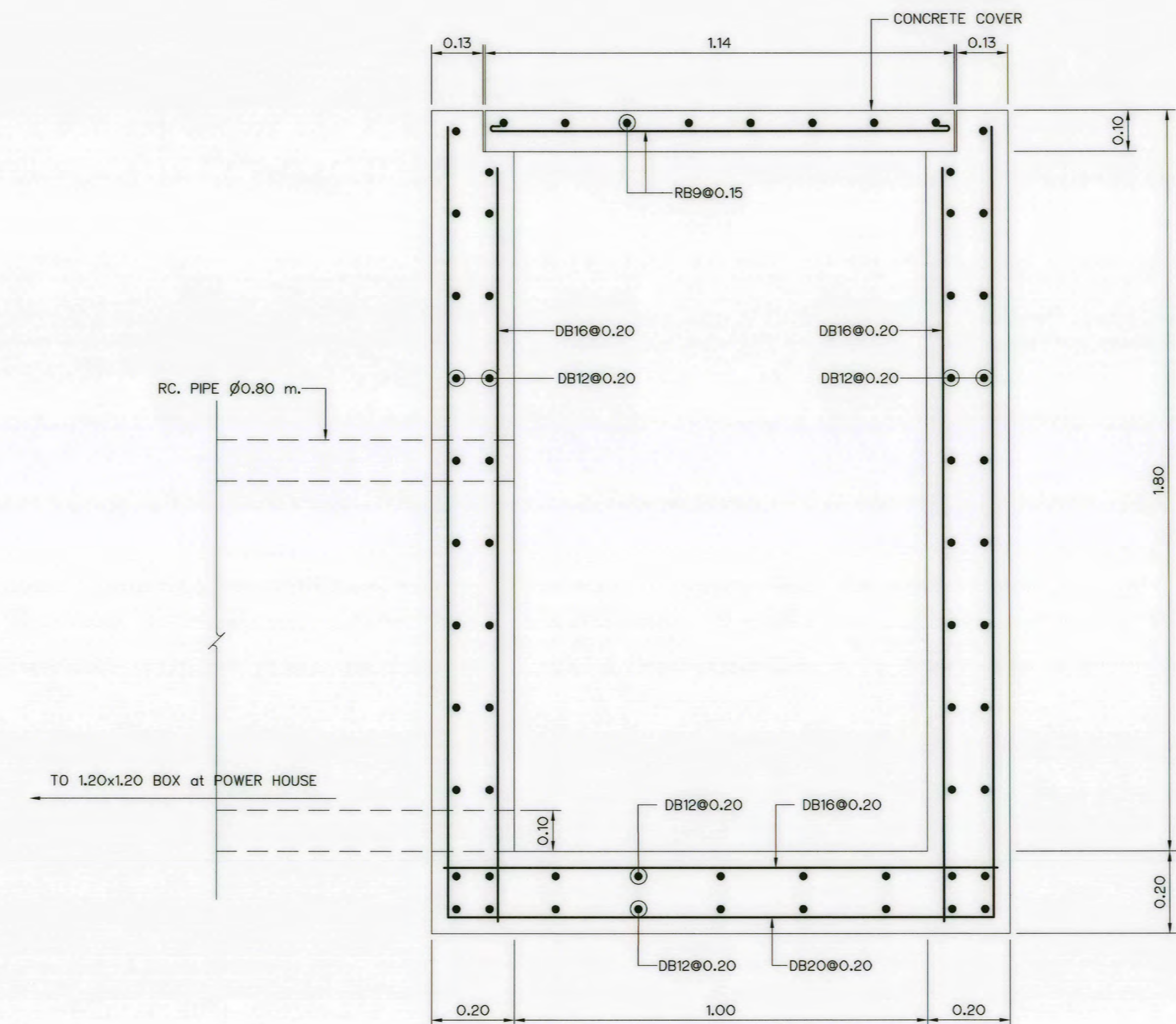
SIDE DITCH TYPE 1
SCALE 1:10



SIDE DITCH TYPE 2
SCALE 1:10

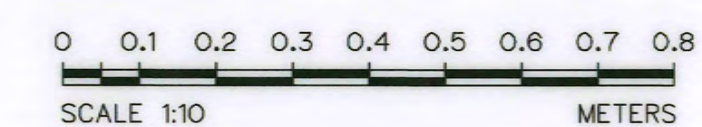


SIDE DITCH MANHOLE
SCALE 1:10



SECTION A-A
SCALE 1:10

- NOTES :
1. ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE INDICATED.
 2. EXPANSION JOINT SHALL BE CONSTRUCTED AT THE INTERVAL OF 90 METERS.

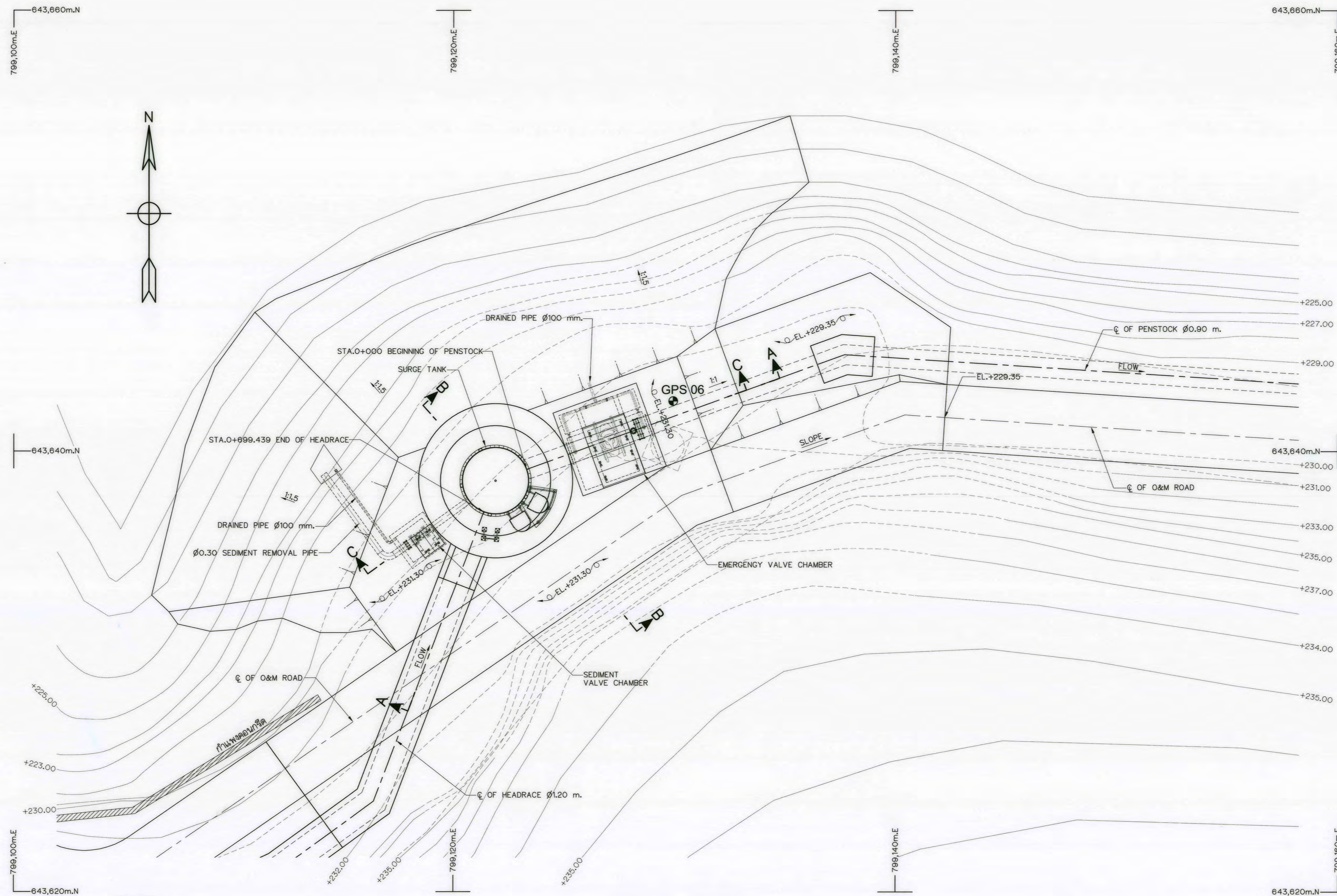


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NO.	DATE	REVISIONS	CHECKED	APPROVED

CONSULTANTS DEDE

KINGDOM OF THAILAND Department of Alternative Energy Development and Efficiency MINISTRY OF ENERGY	
AI KA PO HYDROPOWER PROJECT TAMBON PHUKHAO THONG AMPHOE SUKHIRIN CHANGWAT NARATHIWAT	
PART : 1 CIVIL WORKS AND TRANSMISSION LINE O&M ROAD TYPICAL SIDE DITCH TYPE 1 AND SIDE DITCH TYPE 2	
P&M MANAGEMENT CO., LTD. SPT CONSULTANTS CO., LTD.	Department of Alternative Energy Development and Efficiency MINISTRY OF ENERGY
DESIGNED 28/10/21 28/10/21 DRAWN 28/10/21 CHECKED 28/10/21	REVIEWED SUBMITTED RECOMMENDED APPROVED
PROJECT MANAGER DATE	DRAWING NO. SHEET NO.

AKP-OM-06 38 OF 129



NOTES :

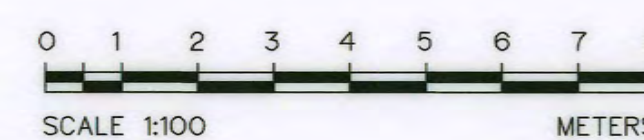
1. ALL DIMENSIONS AND ELEVATIONS ARE IN METERS, UNLESS OTHERWISE SHOWN.
2. STEEL PIPE SHELL CONFORM TO JIS G 3101 SS34
3. BEFORE EXCAVATION SHOULD BE EVALUATED AND ANALYSIS BY FIELD GEOTECHNICAL ENGINEER OR ENGINEERING GEOLOGIST.
4. CORROSION PROTECTION OF STEEL PIPE OR GUARDRAIL IS WARNED TO STRICTLY FOLLOW GALVANIZE SPECIFICATION
5. STEEL TANK , GIRDER AND STIFFENER SHALL CONFORM TO JIS G 3101 SS34

REFERENCE DRAWING :

- | | |
|--|-----------|
| 1. SURGE TANK, SECTIONS | AKP-ST-02 |
| 2. SURGE TANK, EMERGENCY VALVE CHAMBER PLAN SECTIONS AND DETAILS | AKP-ST-07 |
| 3. SURGE TANK, SEDIMENT VALVE CHAMBER PLAN SECTIONS AND DETAILS | AKP-ST-09 |

GENERAL LAYOUT

SCALE 1:100

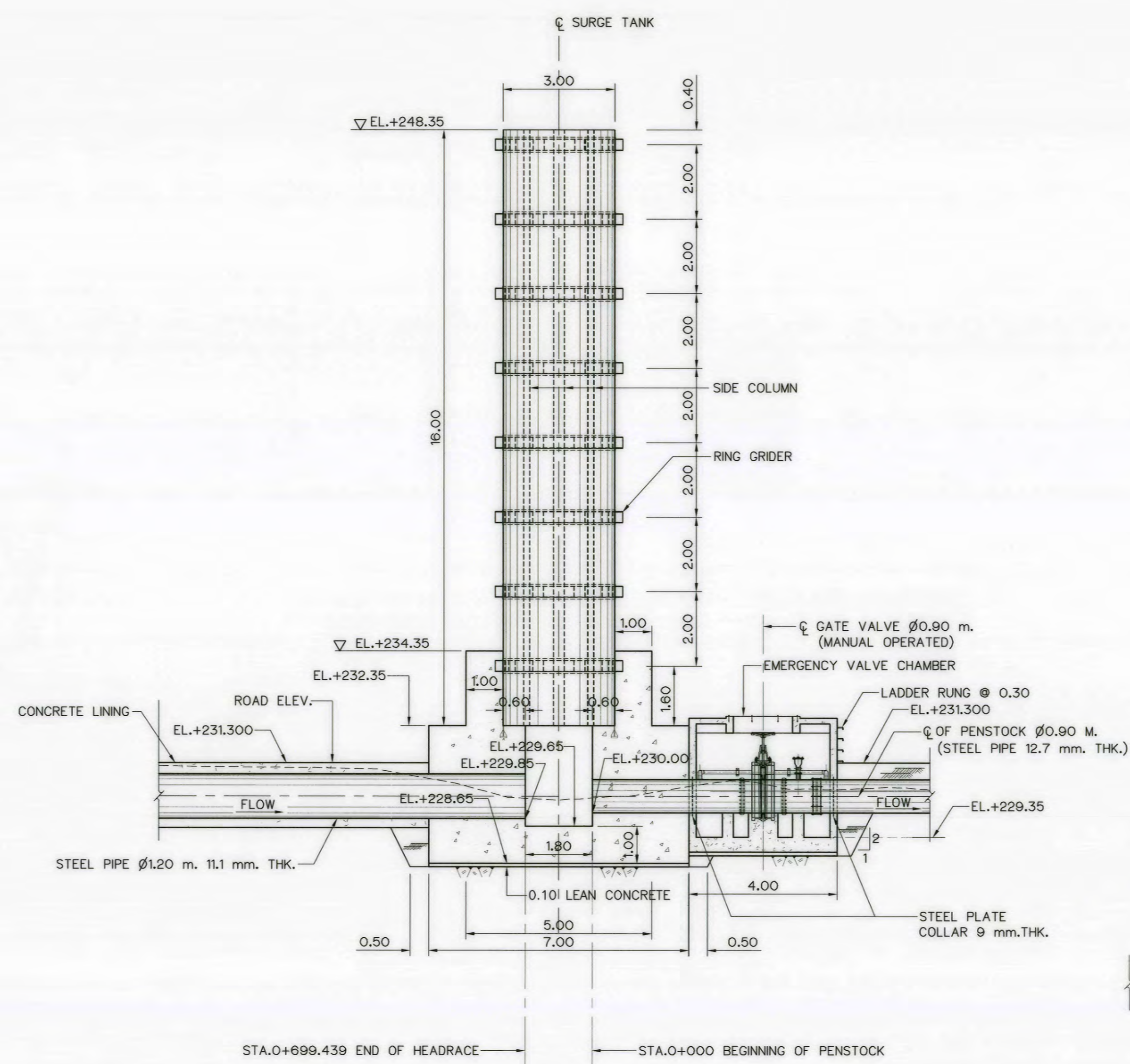


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NO.	DATE	REVISIONS	CHECKED	APPROVED

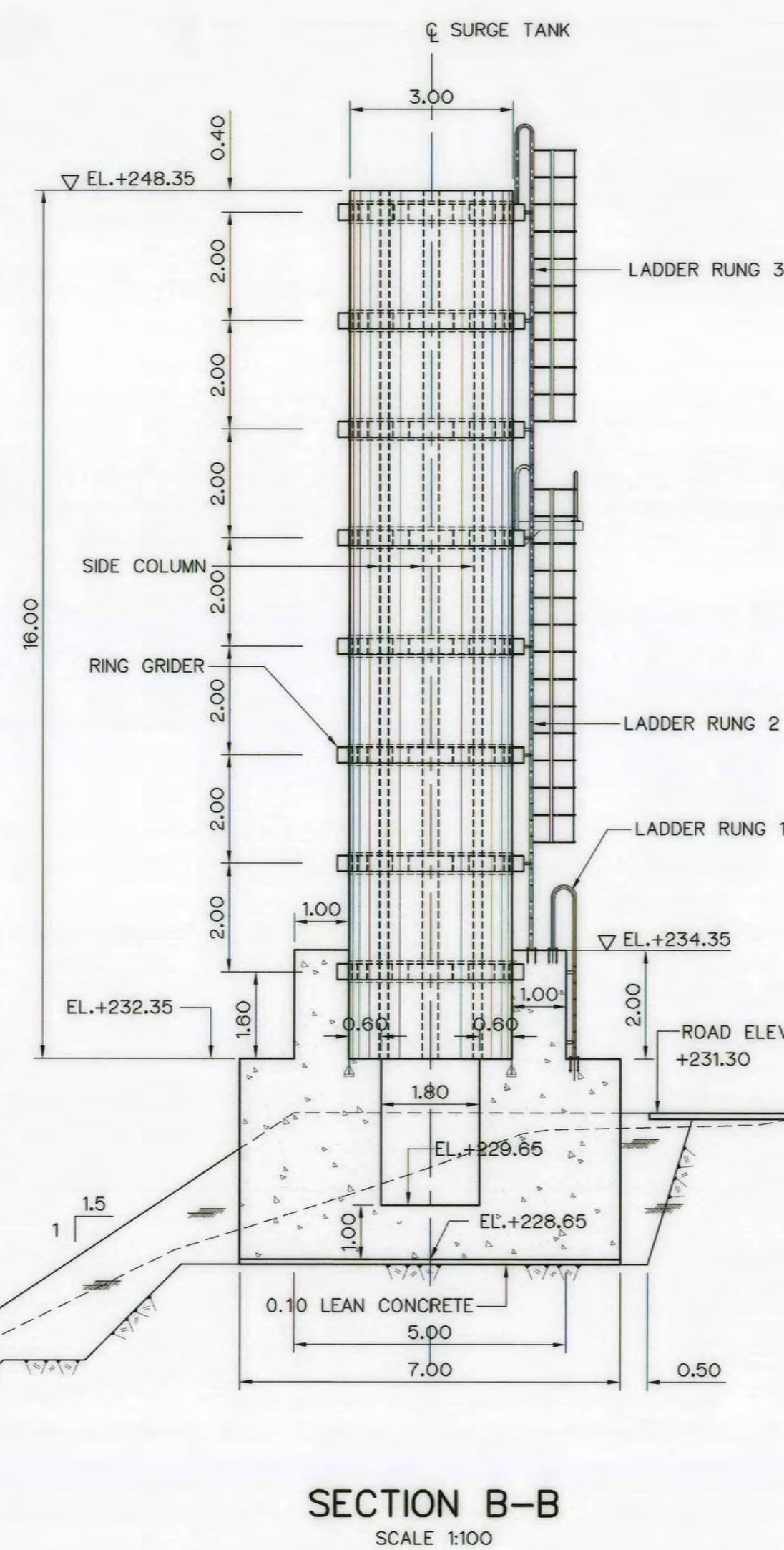
CONSULTANTS

DEDE

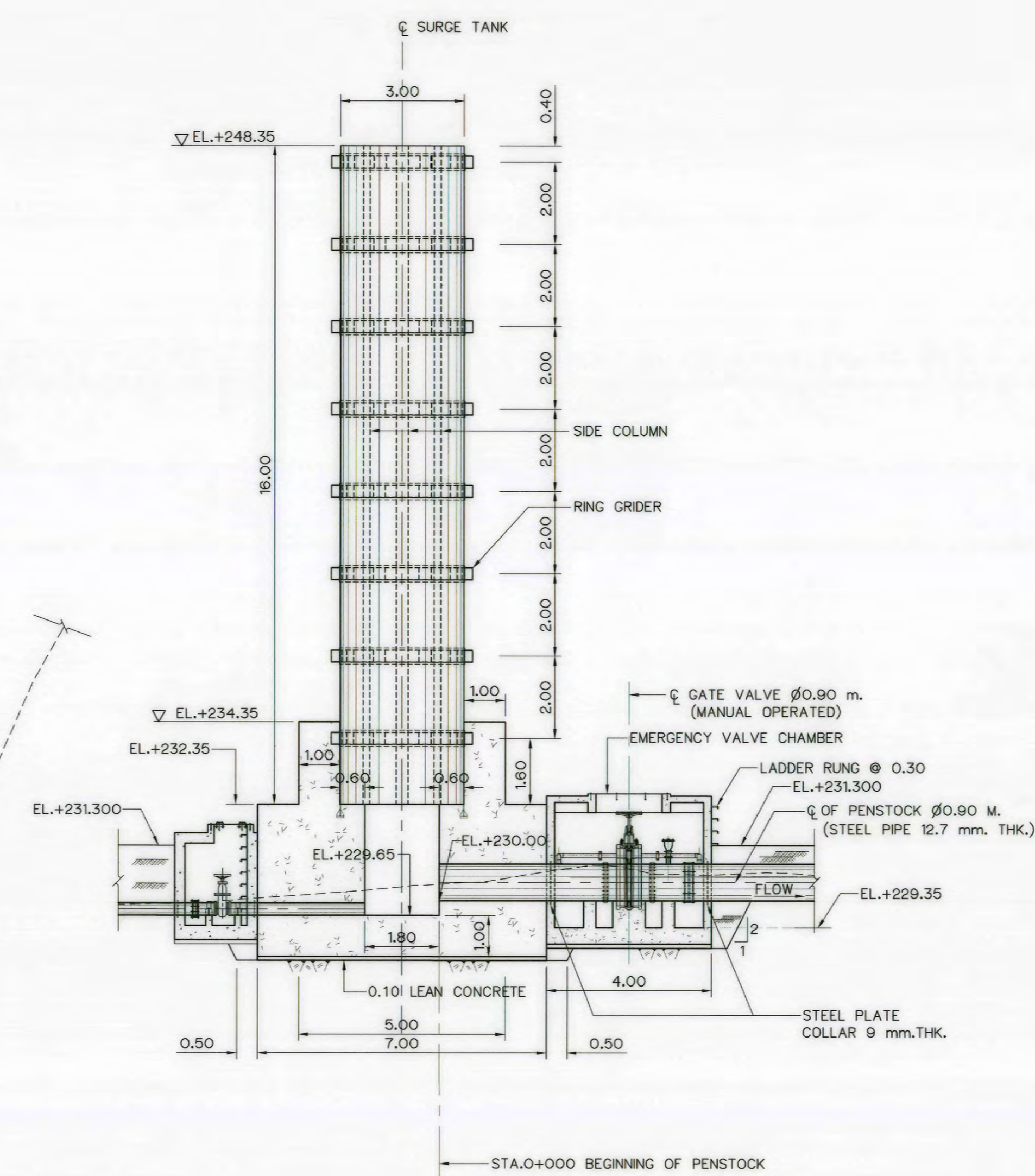
KINGDOM OF THAILAND Department of Alternative Energy Development and Efficiency MINISTRY OF ENERGY	
AI KA PO HYDROPOWER PROJECT TAMBON PHUKHAO THONG AMPHOE SUKHIRIN CHANGWAT NARATHIWAT	
PART : 1 CIVIL WORKS AND TRANSMISSION LINE SURGE TANK GENERAL LAYOUT	
PCM P&C MANAGEMENT CO., LTD. SPT CONSULTANTS CO., LTD.	Department of Alternative Energy Development and Efficiency MINISTRY OF ENERGY
DESIGNED 28/10/2021 28.10.2021	REVIEWED 28/10/2021
DRAWN 28/10/2021	SUBMITTED 28/10/2021
CHECKED 28/10/2021	RECOMMENDED 28/10/2021
APPROVED 28/10/2021	APPROVED 28/10/2021
PROJECT MANAGER DATE	DRAWING NO. SHEET NO. AKP-ST-01 39 OF 129



SECTION A-A
SCALE 1:100



SECTION B-B
SCALE 1:100



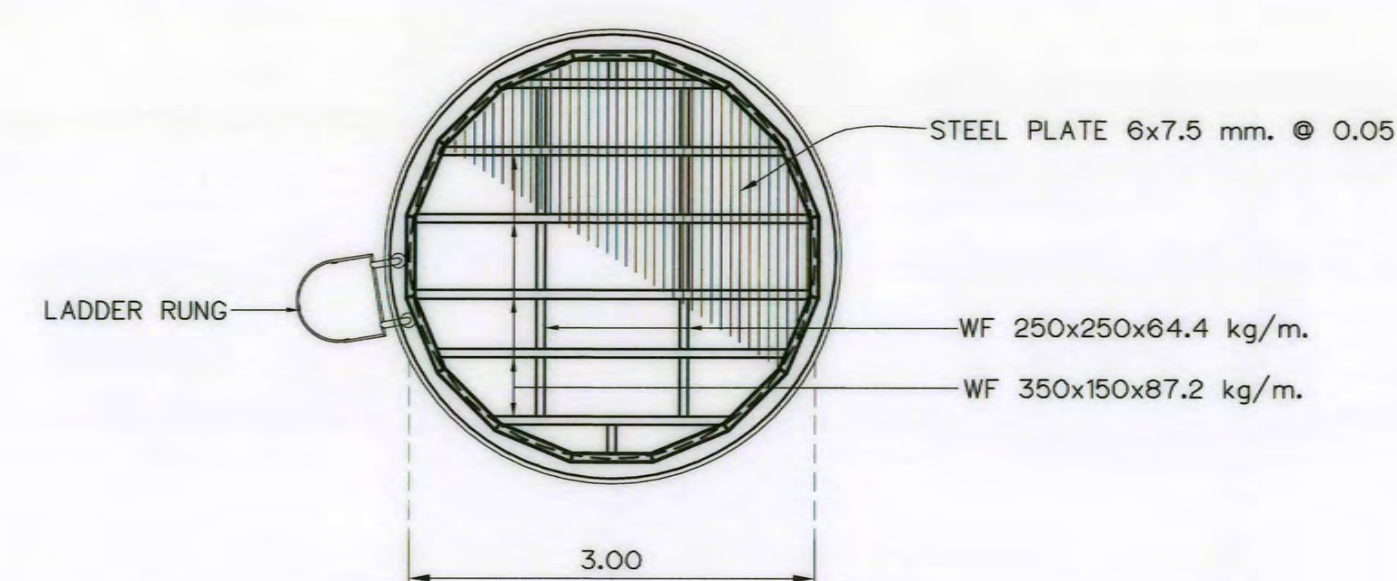
SECTION C-C
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NOTES :

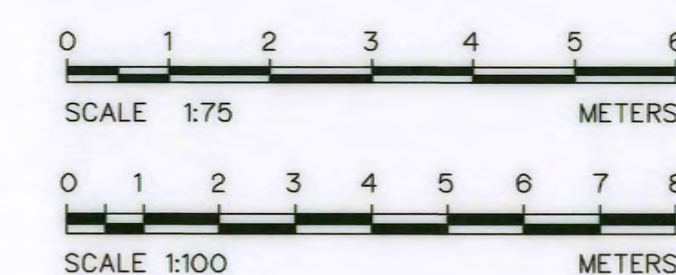
1. ALL DIMENSIONS AND ELEVATIONS ARE IN METERS, UNLESS OTHERWISE SHOWN.
2. STEEL PIPE SHELL CONFORM TO JIS G 3101 SS34
3. BEFORE EXCAVATION SHOULD BE EVALUATED AND ANALYSIS BY FIELD GEOTECHNICAL ENGINEER OR ENGINEERING GEOLOGIST.
4. CORROSION PROTECTION OF STEEL PIPE OR GUARDRAIL IS WARNED TO STRICTLY FOLLOW GALVANIZE SPECIFICATION
5. STEEL TANK , GIRDER AND STIFFENER SHALL CONFORM TO JIS G 3101 SS34

REFERENCE DRAWING :

- | | |
|---|-----------|
| 1. SURGE TANK, GENERAL LAYOUT | AKP-ST-01 |
| 2. SURGE TANK, RING GIRDER AND HANDRAIL DETAILS | AKP-ST-03 |
| 3. SURGE TANK, LADDER RUNG DETAILS | AKP-ST-04 |
| 4. SURGE TANK, PLATFORM DETAILS | AKP-ST-05 |

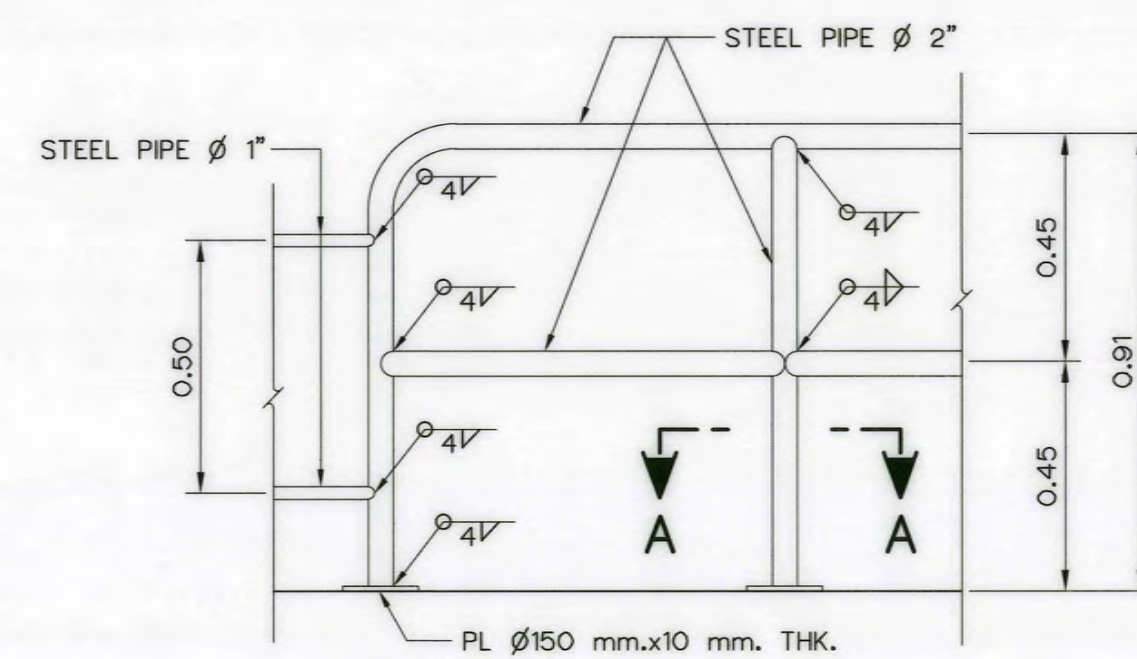


PLAN ON TOP LEVEL
SCALE 1:100

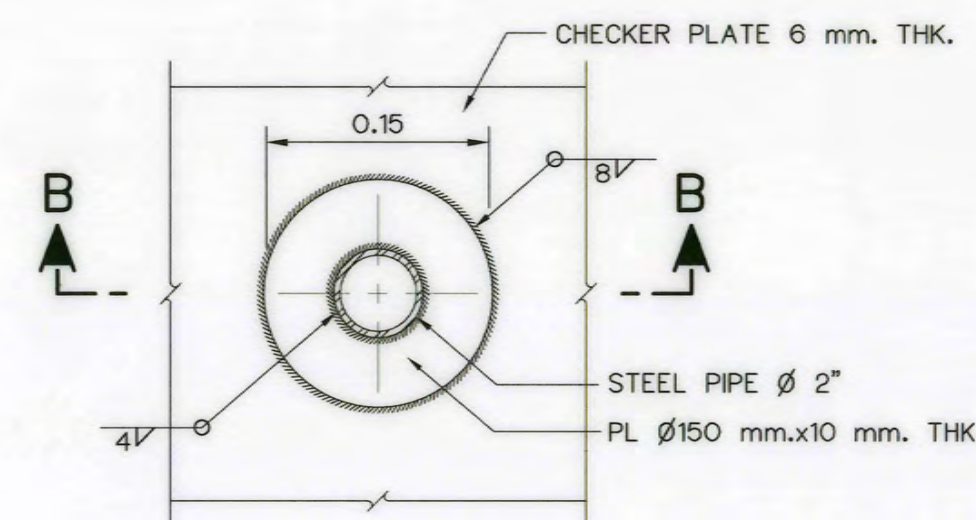


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NO.	DATE	REVISIONS	CHECKED	APPROVED
			CONSULTANTS	DEDE

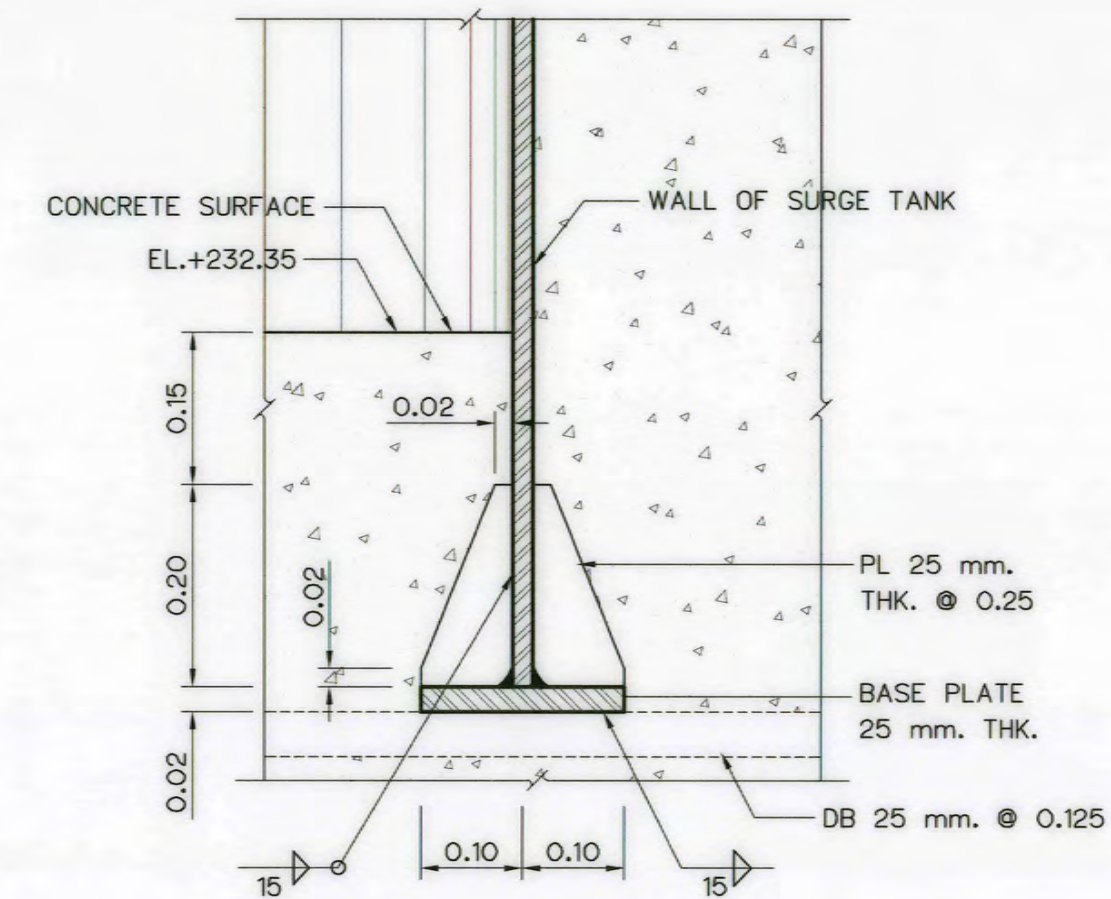
KINGDOM OF THAILAND Department of Alternative Energy Development and Efficiency MINISTRY OF ENERGY	
AI KA PO HYDROPOWER PROJECT TAMBON PHUKHAO THONG AMPHOE SUKHIRIN CHANGWAT NARATHIWAT	
PART : 1 CIVIL WORKS AND TRANSMISSION LINE SURGE TANK SECTIONS	
P&C MANAGEMENT CO., LTD. SPT CONSULTANTS CO., LTD.	Department of Alternative Energy Development and Efficiency MINISTRY OF ENERGY
DESIGNED: 28/10/21	SUBMITTED: 28/10/21
DRAWN: 28/10/21	RECOMMENDED: 28/10/21
CHECKED: 28/10/21	APPROVED: 28/10/21
PROJECT MANAGER: 28/10/21	DRAWING NO. AKP-ST-02
DATE: 28/10/21	SHEET NO. 40 OF 129



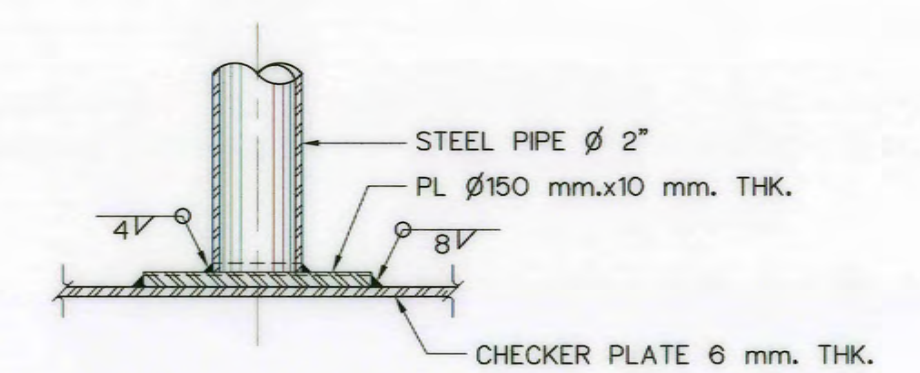
DETAIL OF HANDRAIL
SCALE 1:15



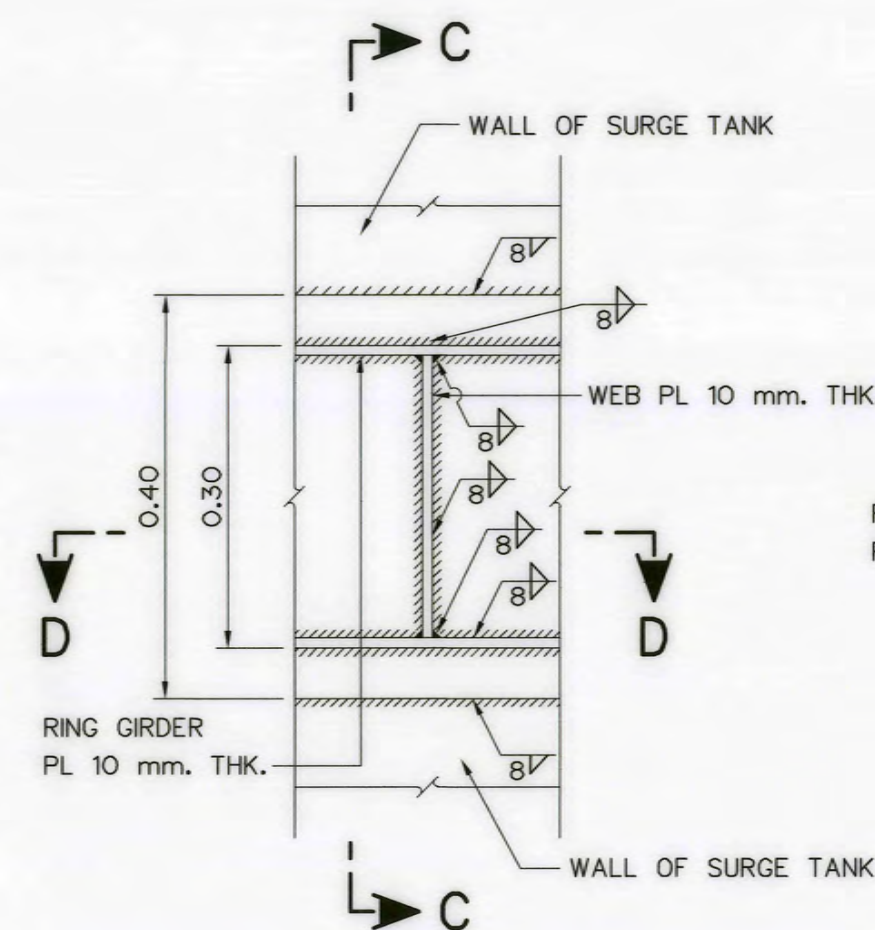
SECTION A-A
SCALE 1:5



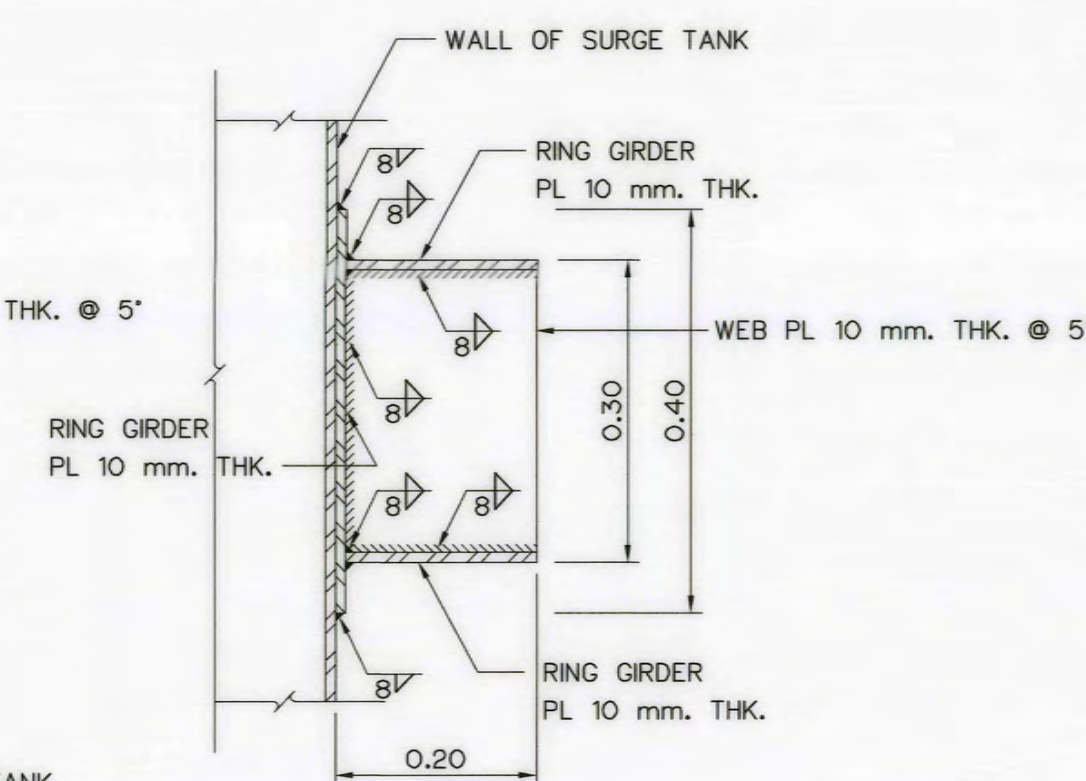
DETAIL "A" (AKP-ST-02)
SCALE 1:10



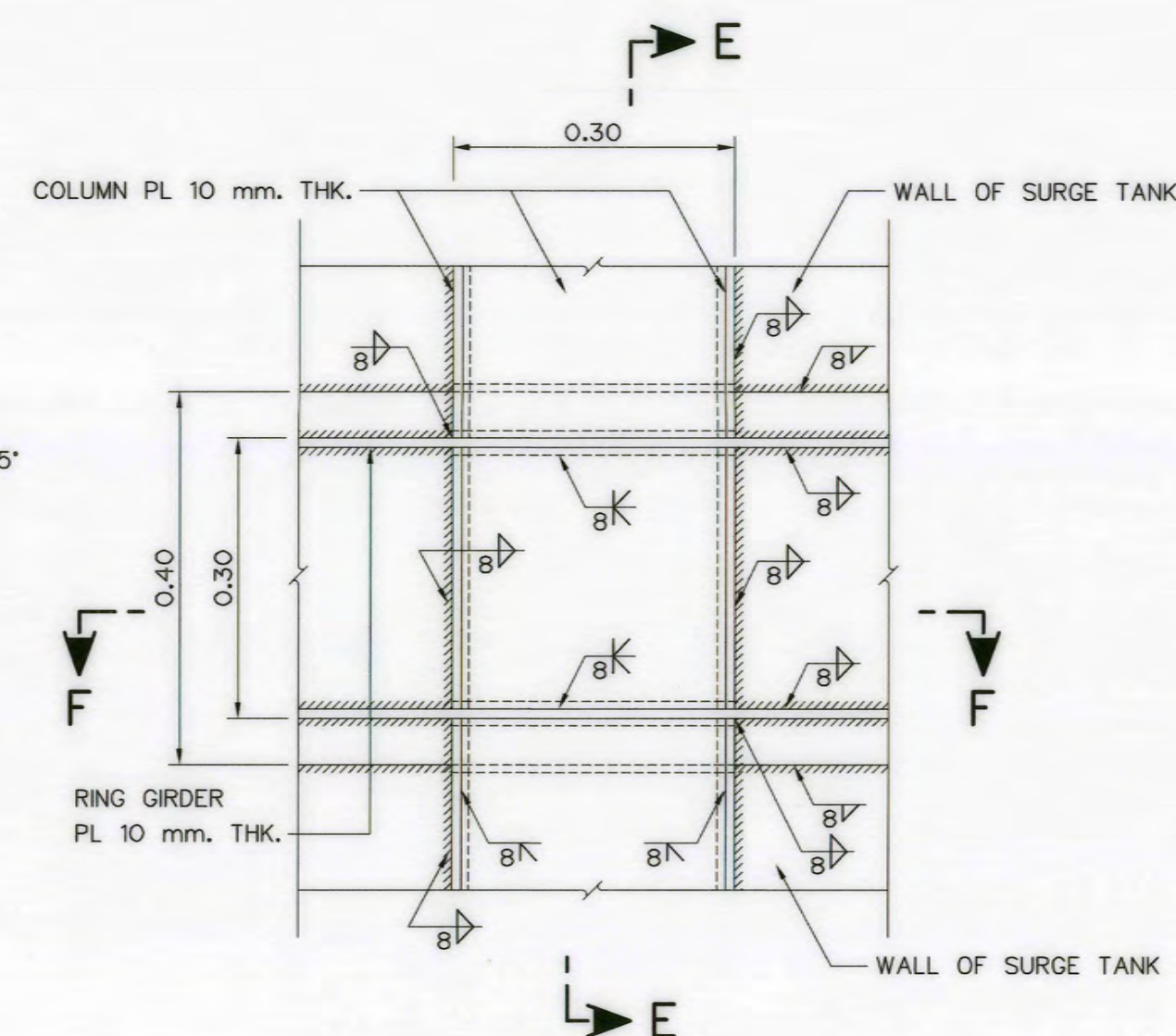
SECTION B-B
SCALE 1:5



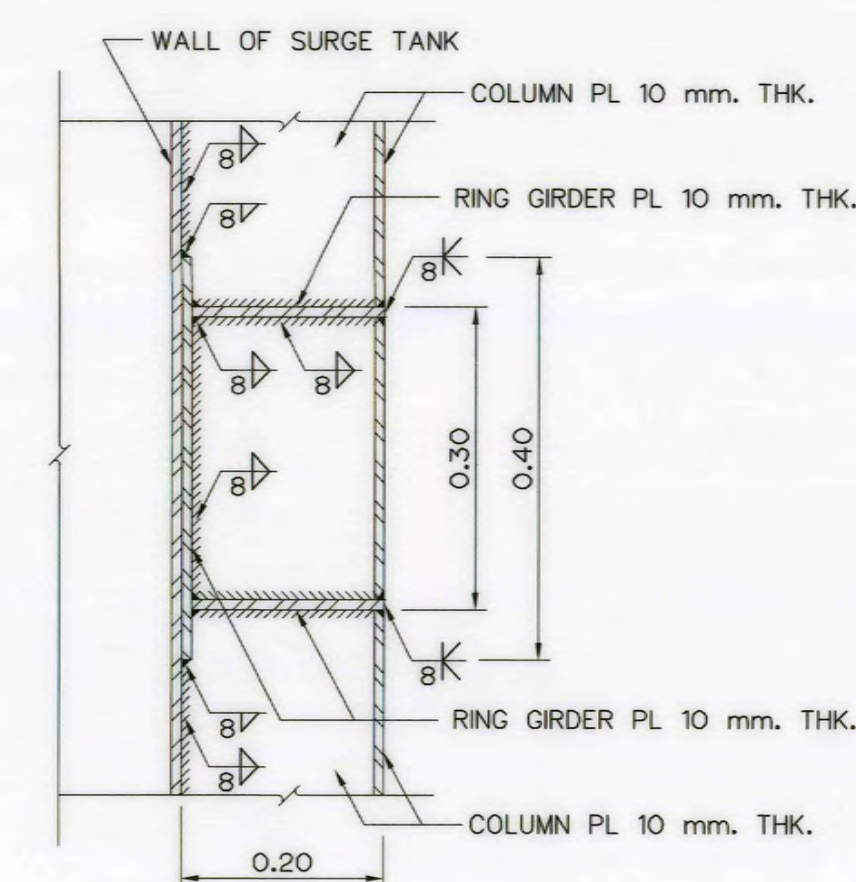
SIDE VIEW OF RING GIRDER
SCALE 1:7.5



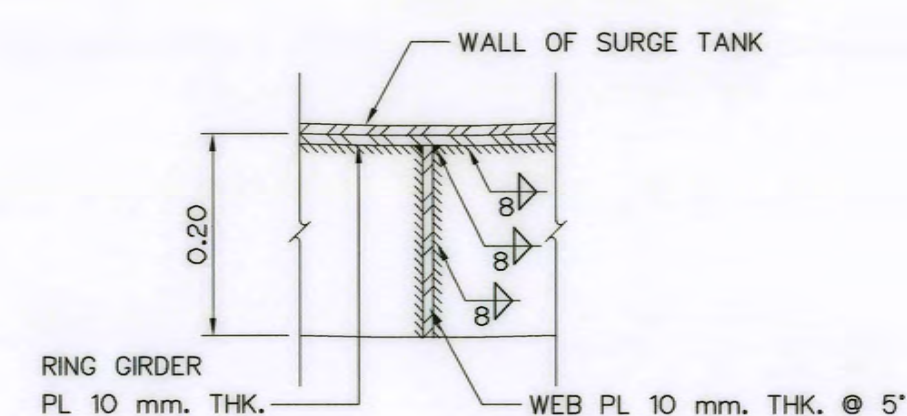
SECTION C-C
SCALE 1:7.5



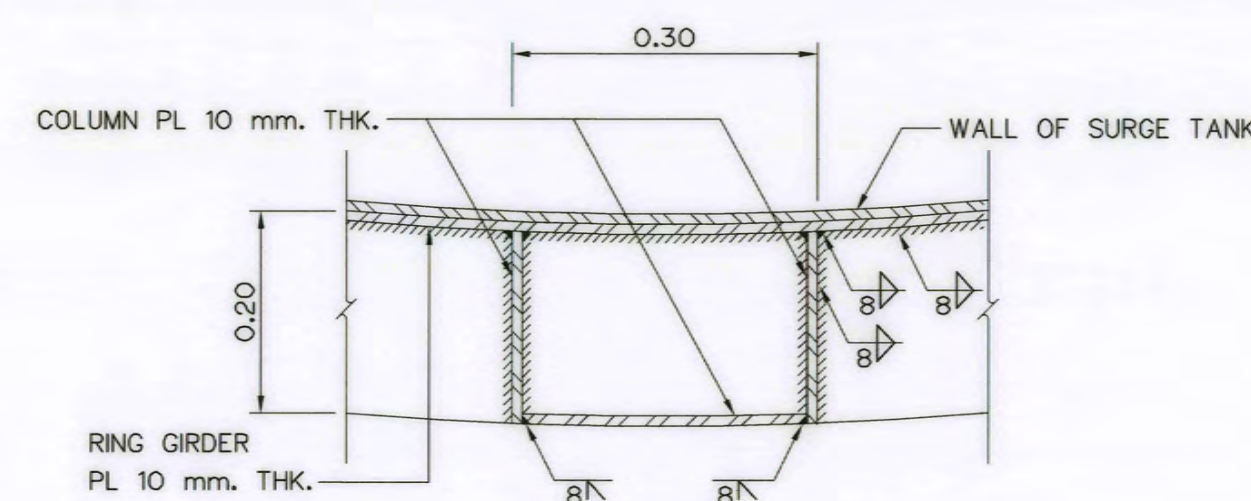
SIDE VIEW OF COLUMN
AND RING GIRDER
SCALE 1:7.5



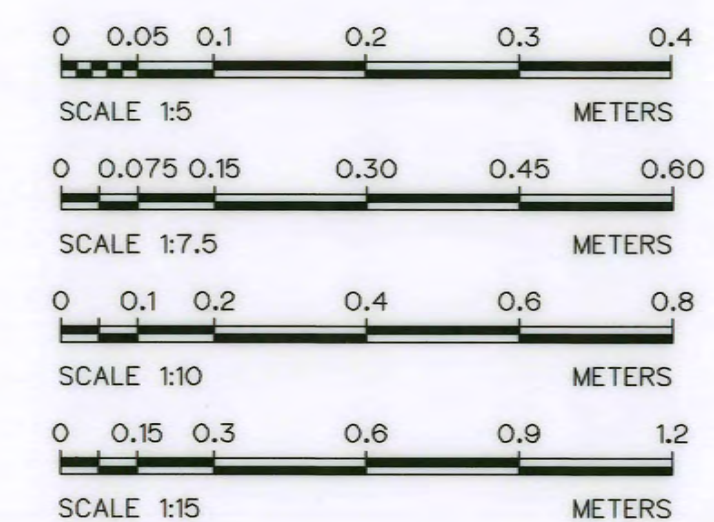
SECTION E-E
SCALE 1:7.5



SECTION D-D
SCALE 1:7.5



SECTION F-F
SCALE 1:7.5



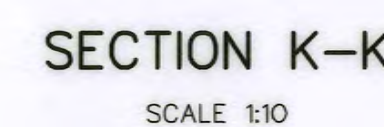
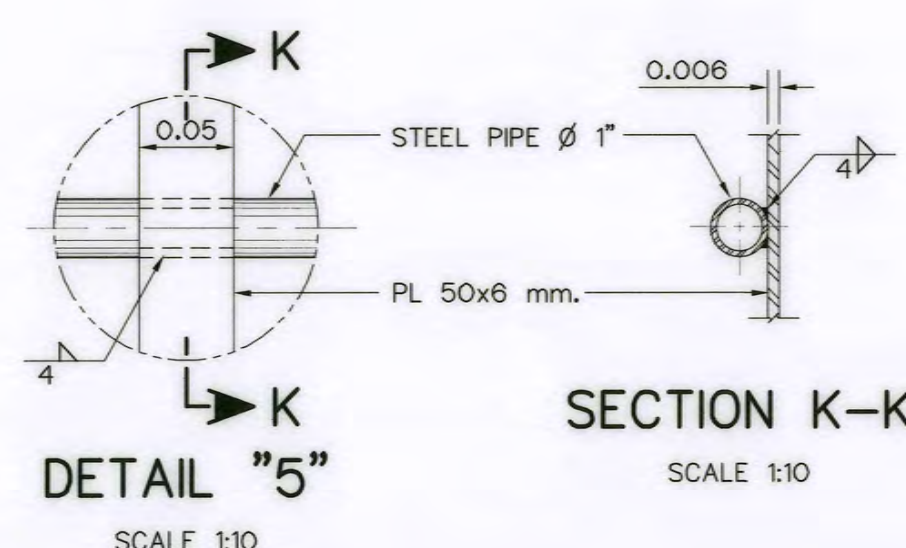
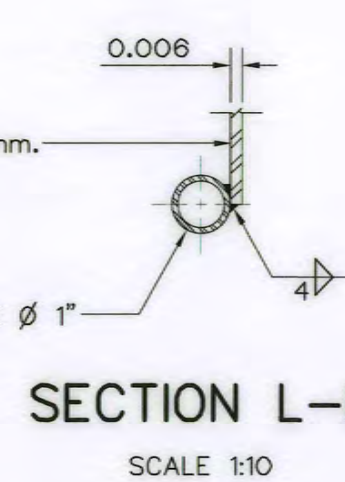
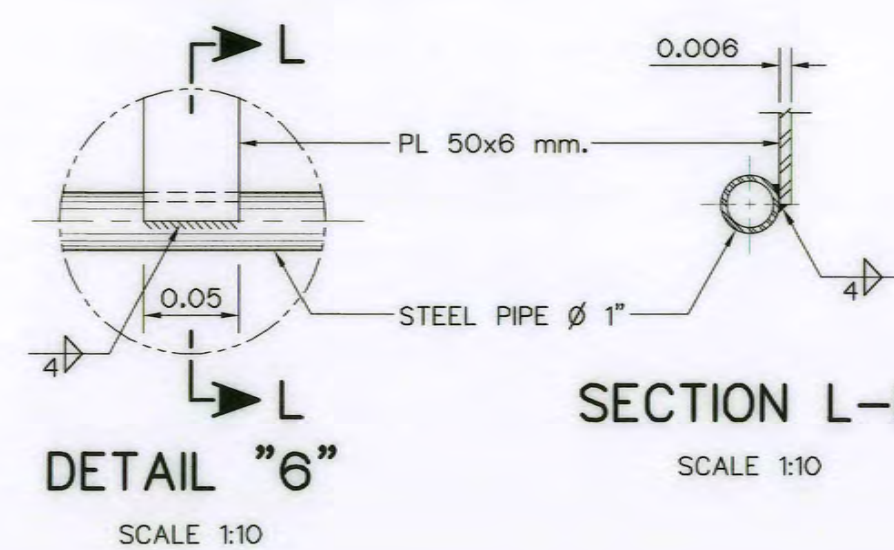
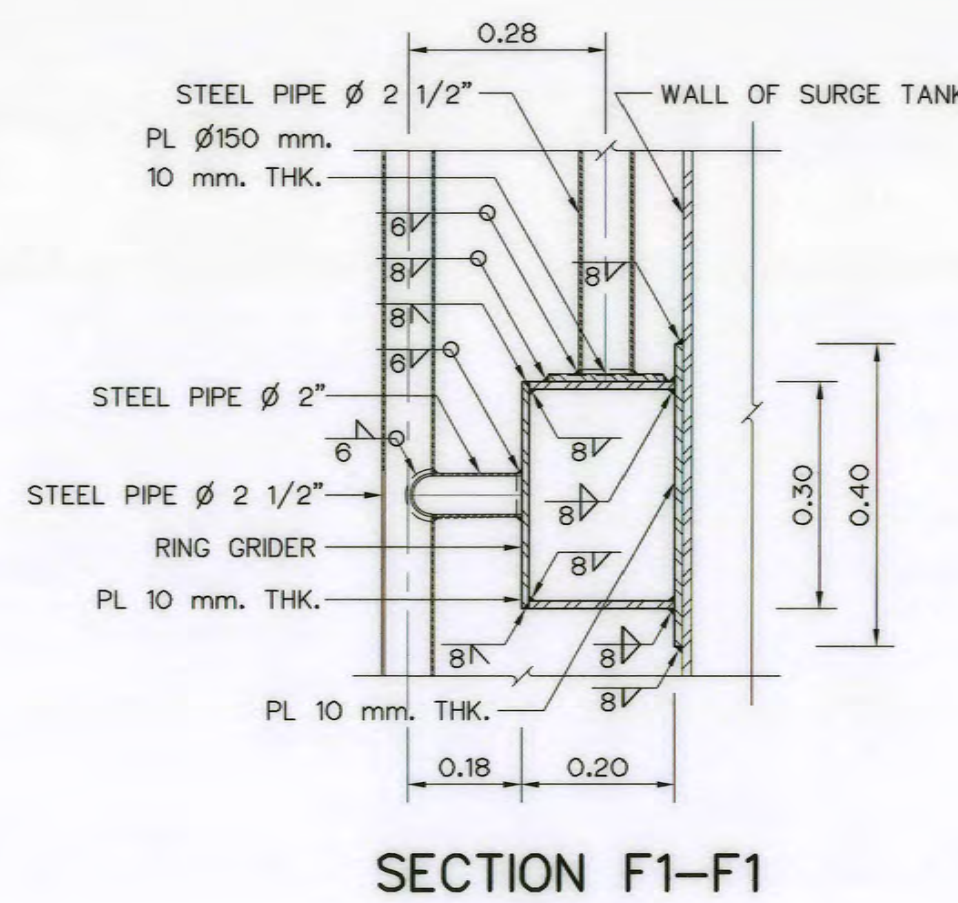
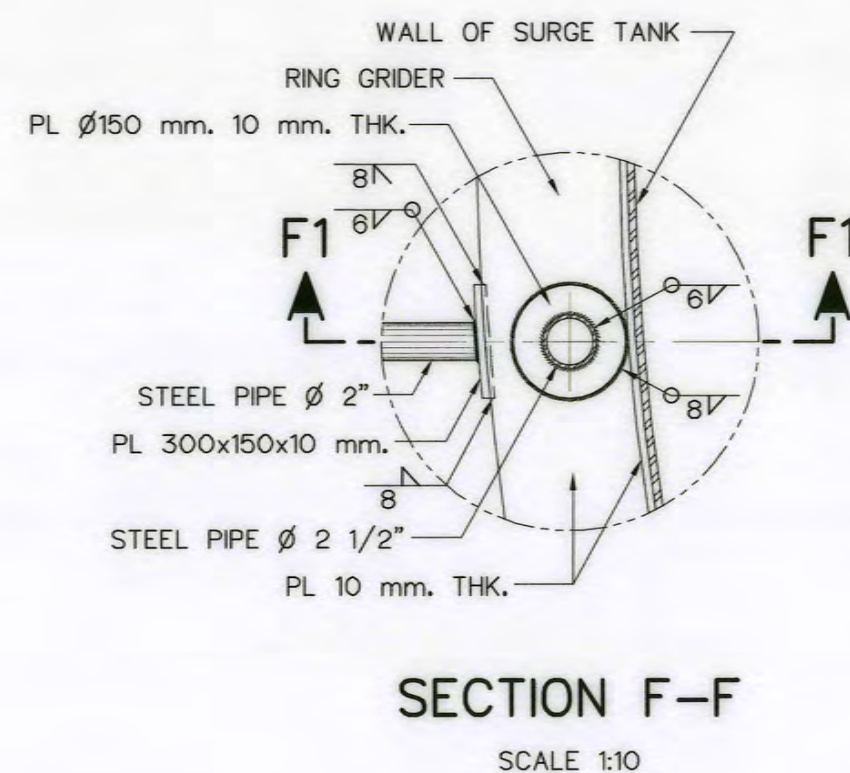
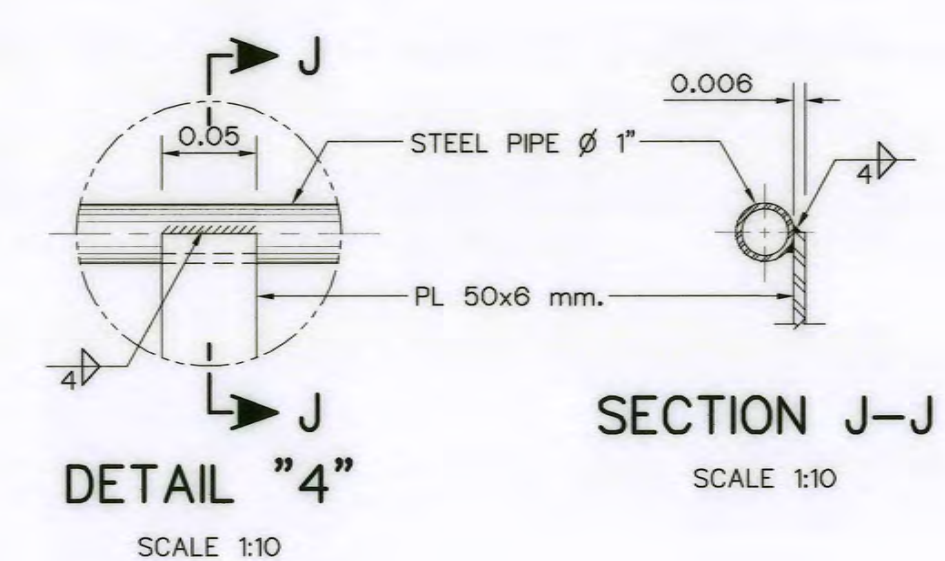
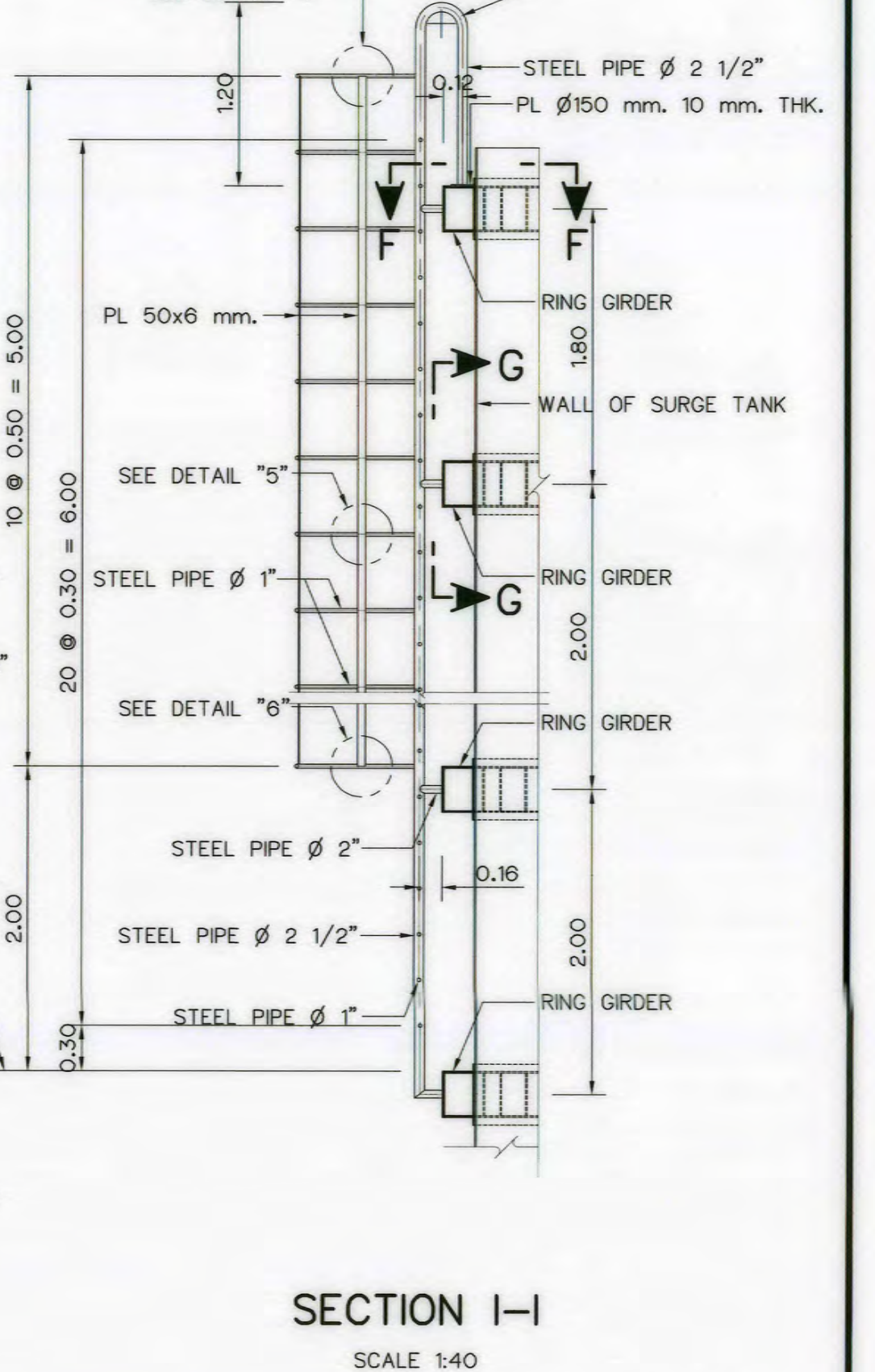
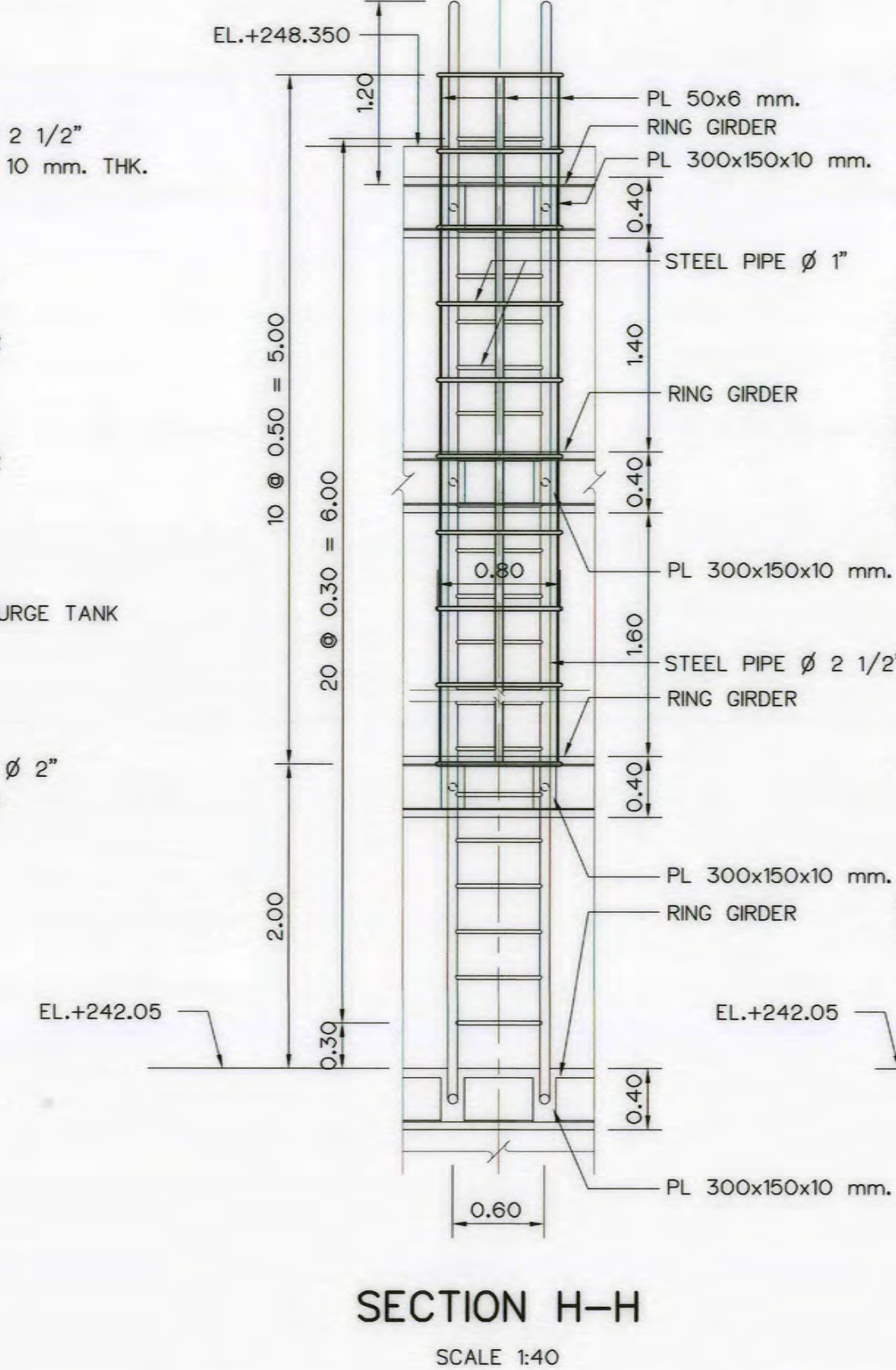
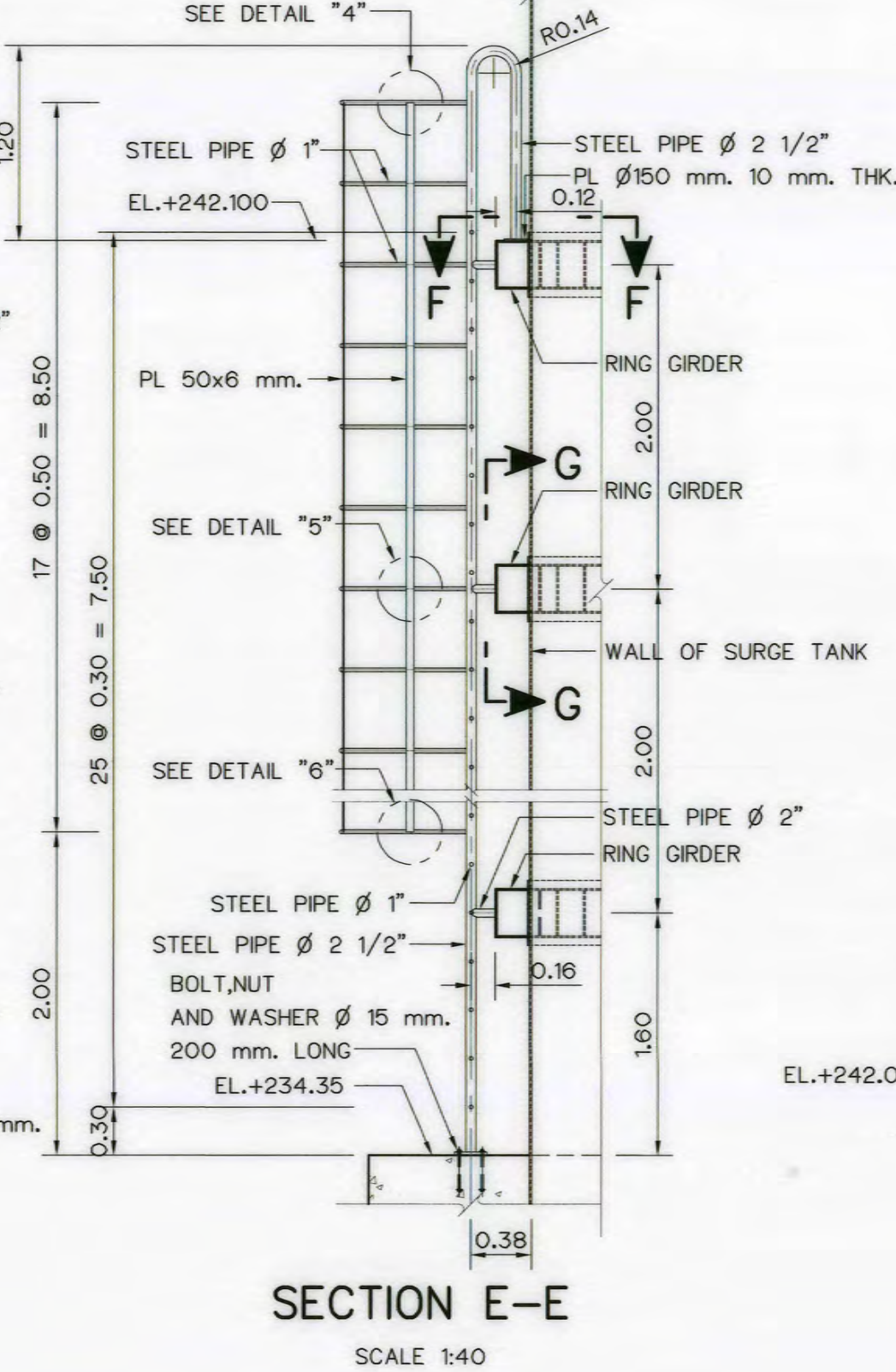
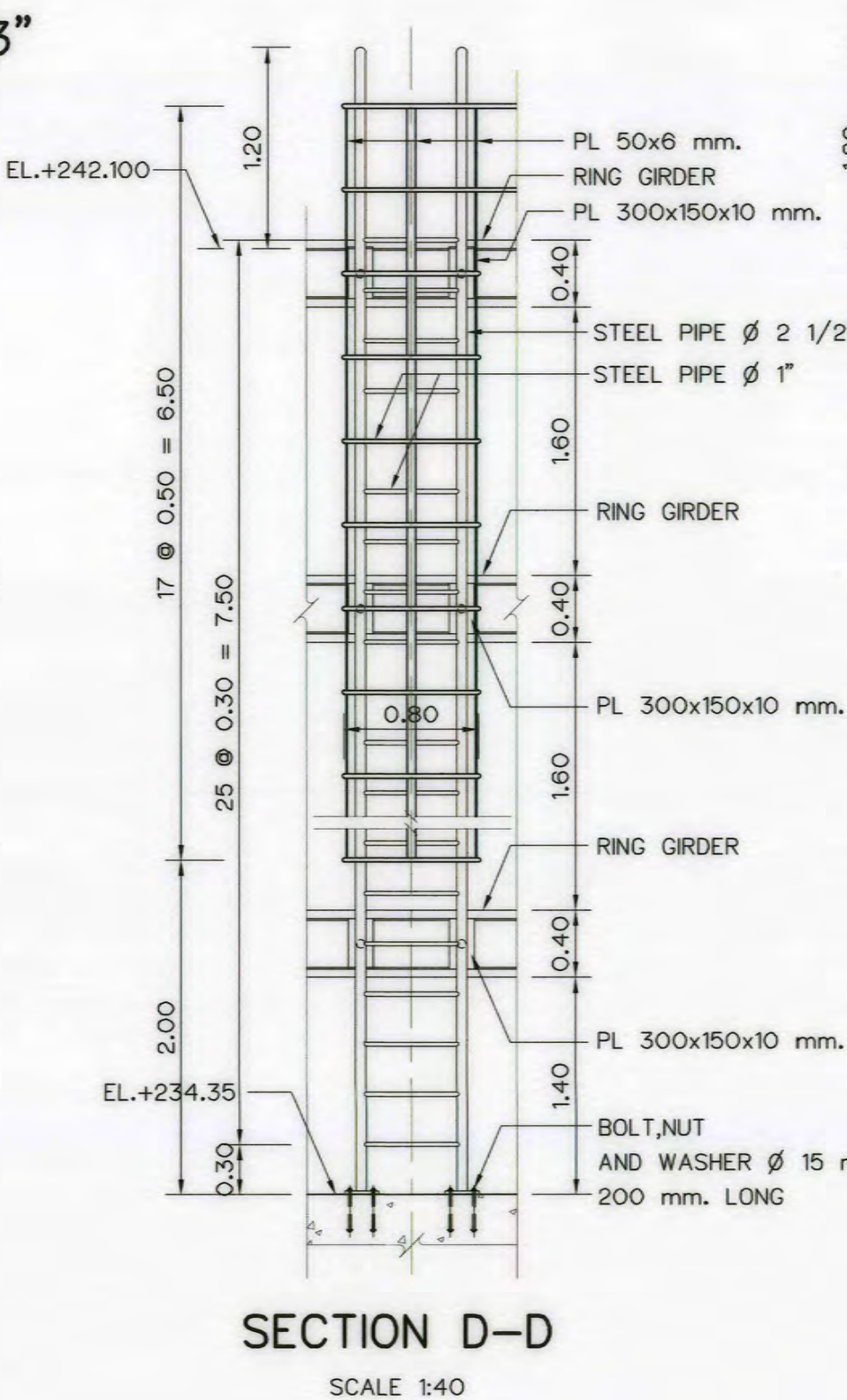
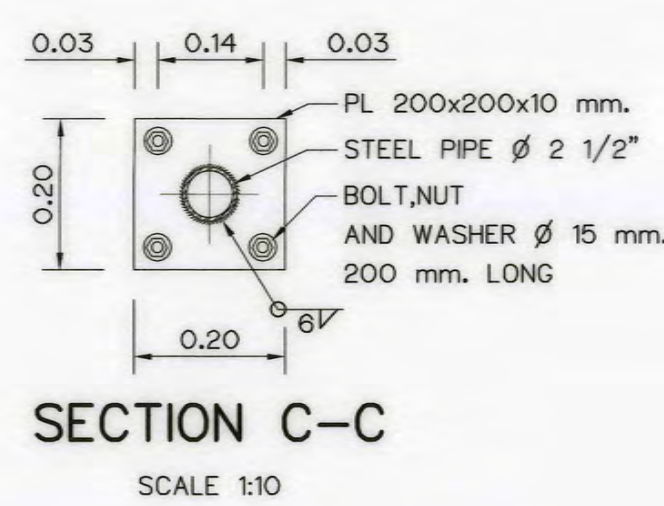
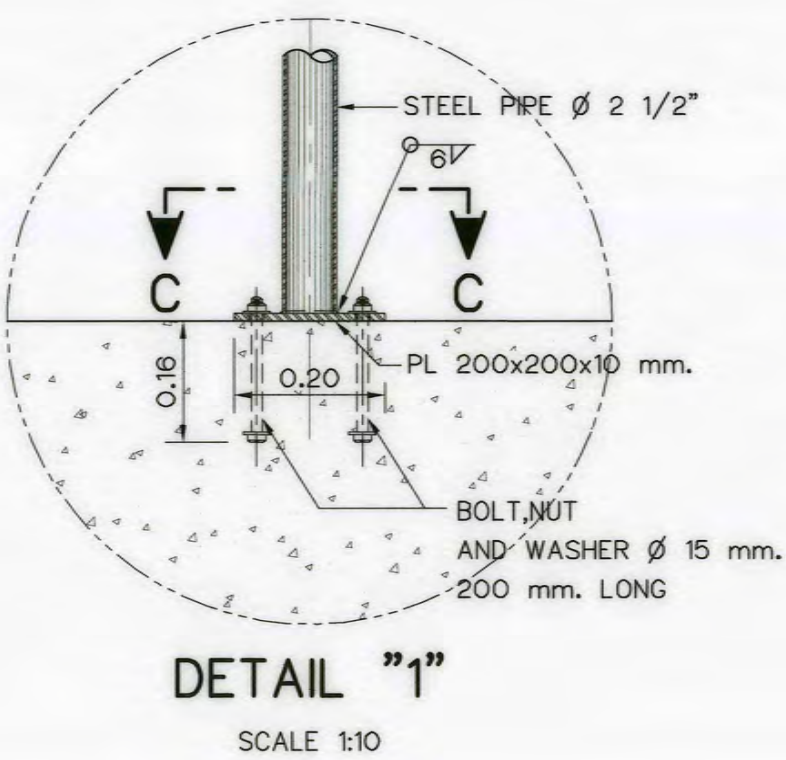
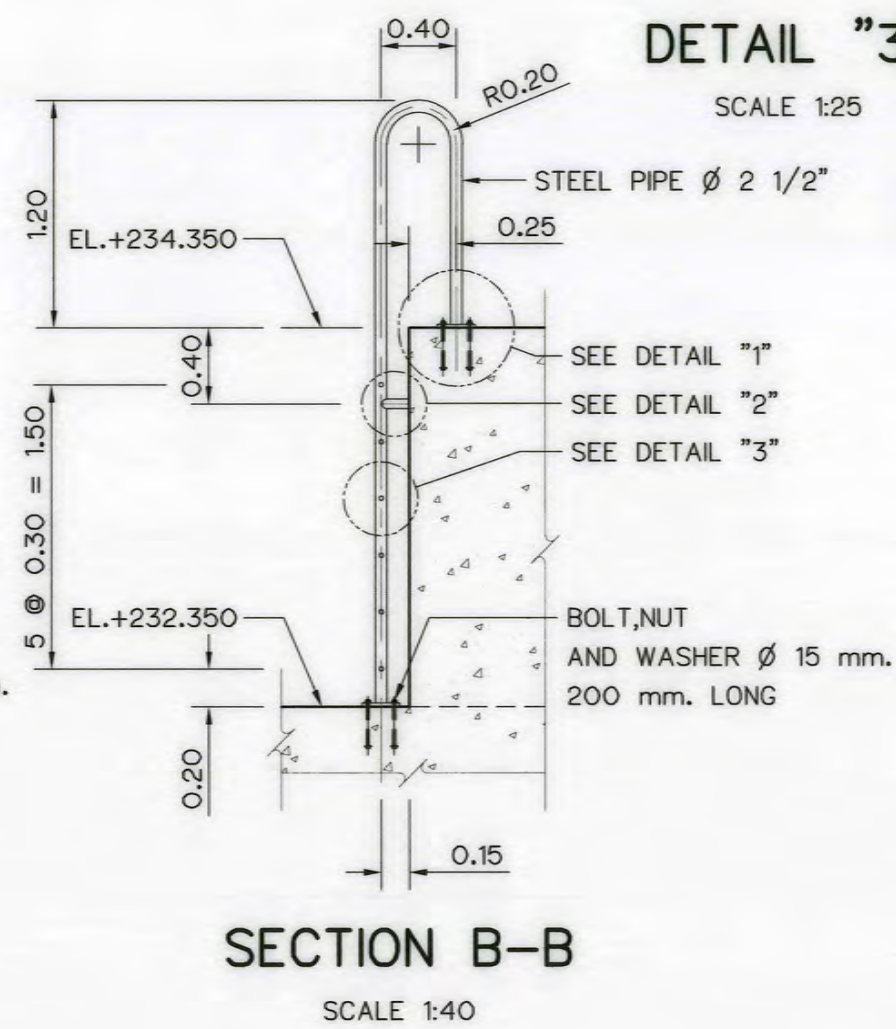
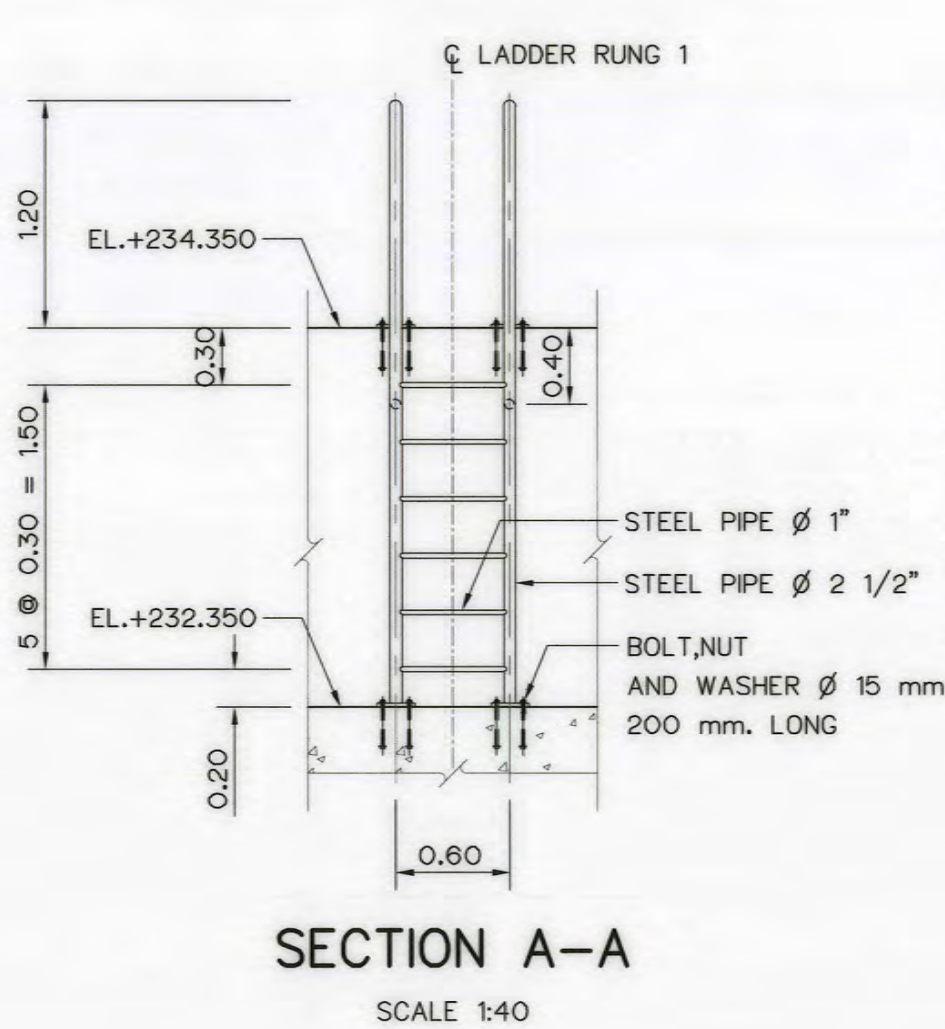
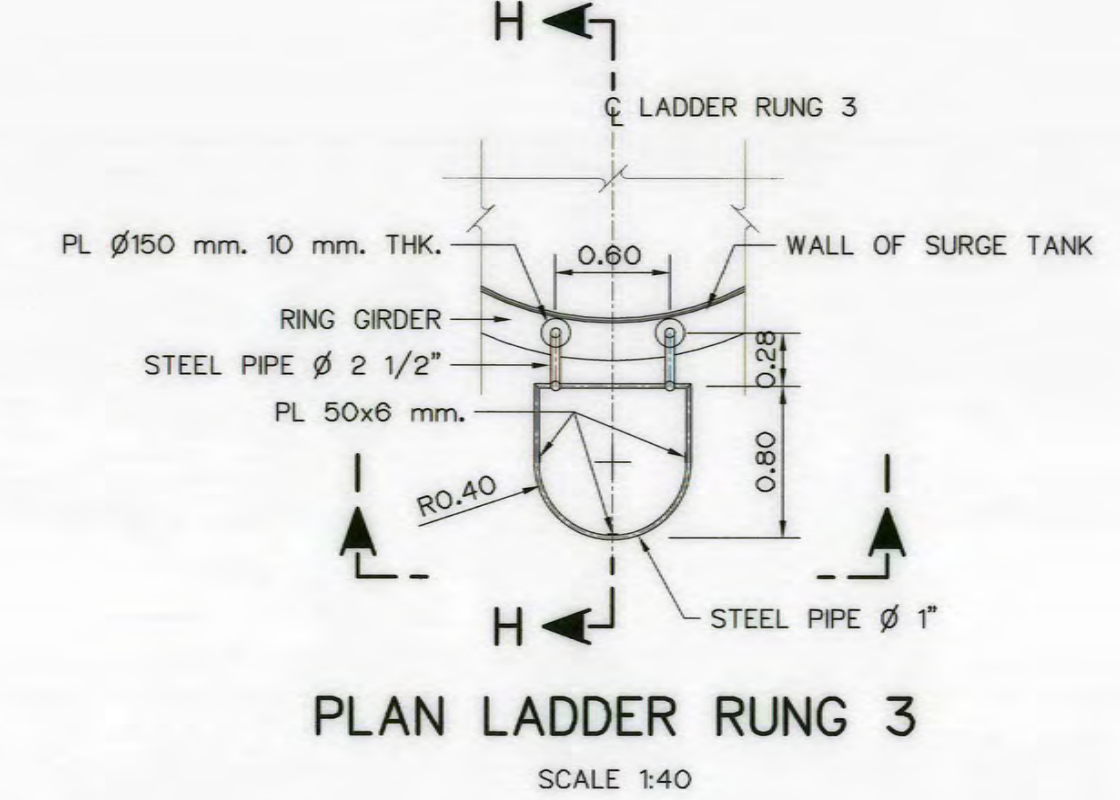
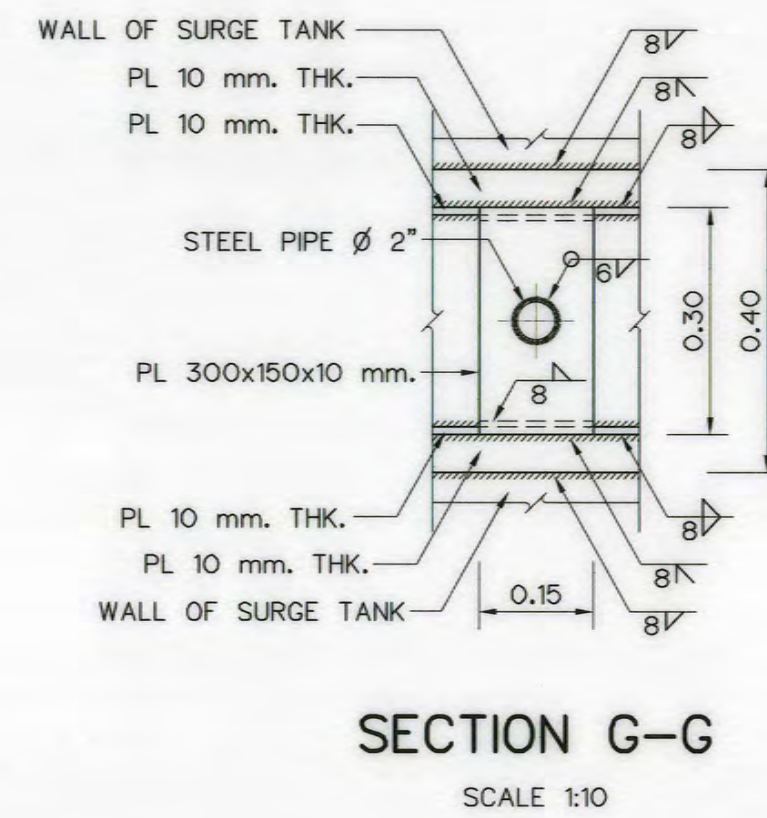
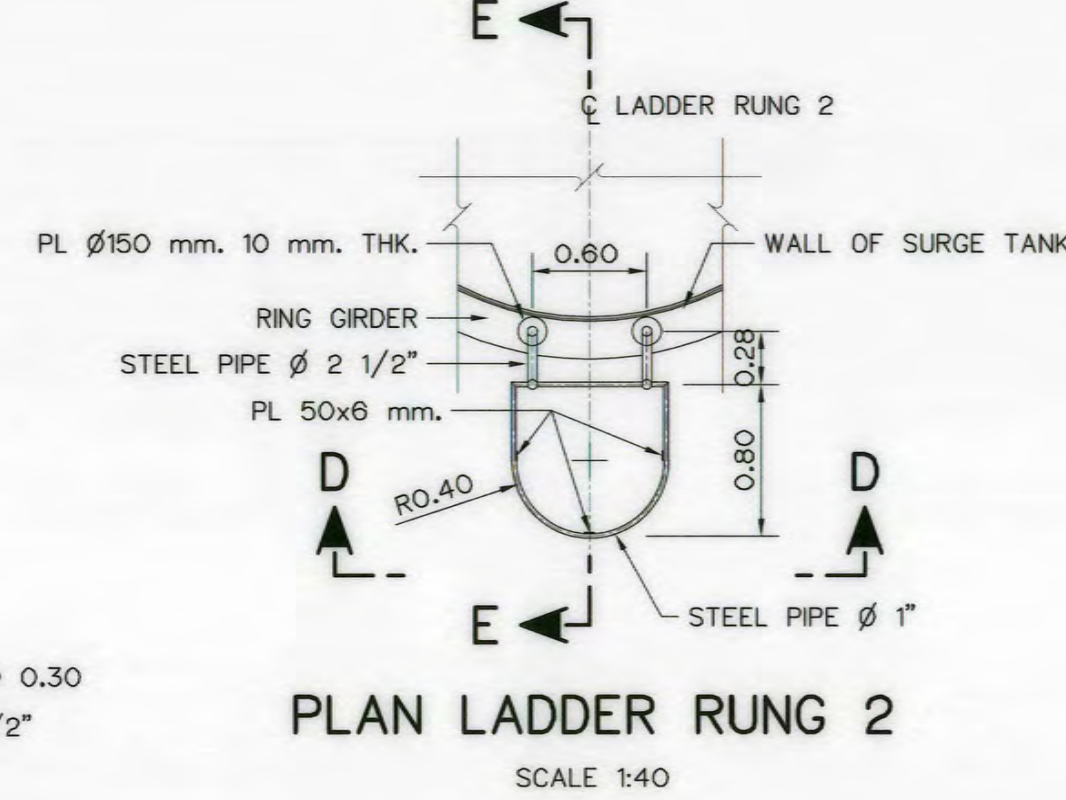
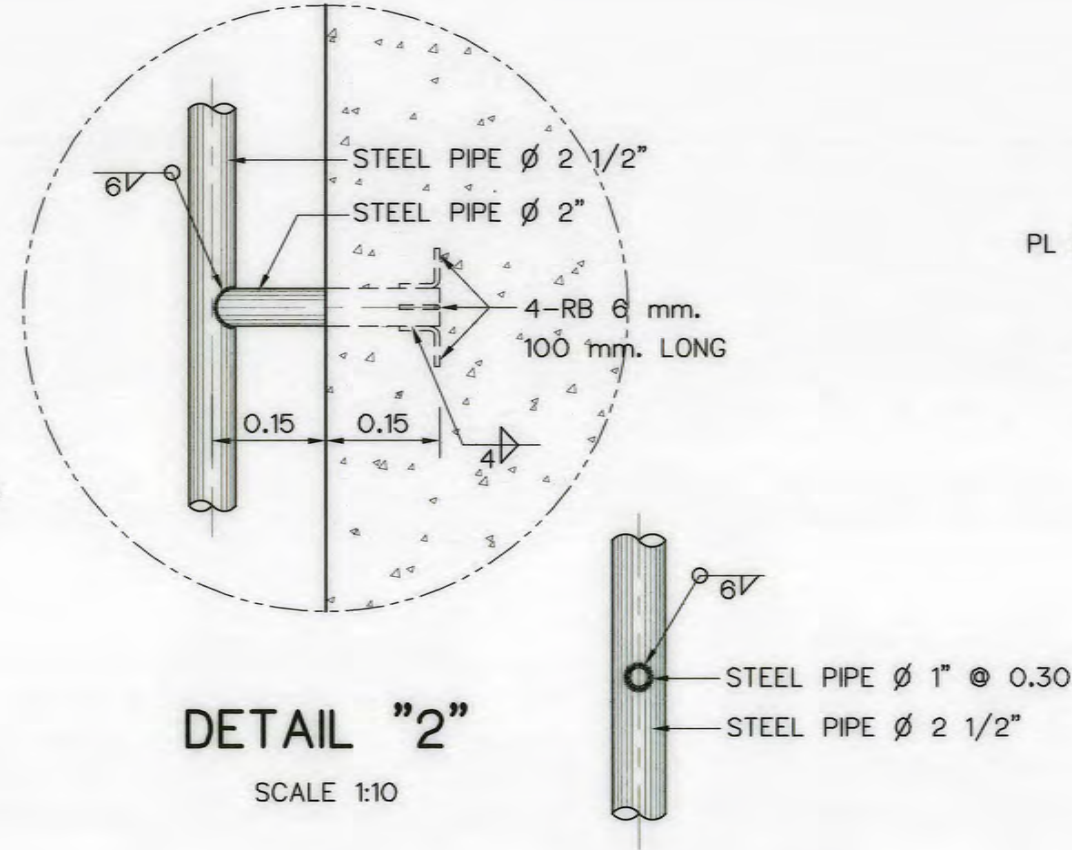
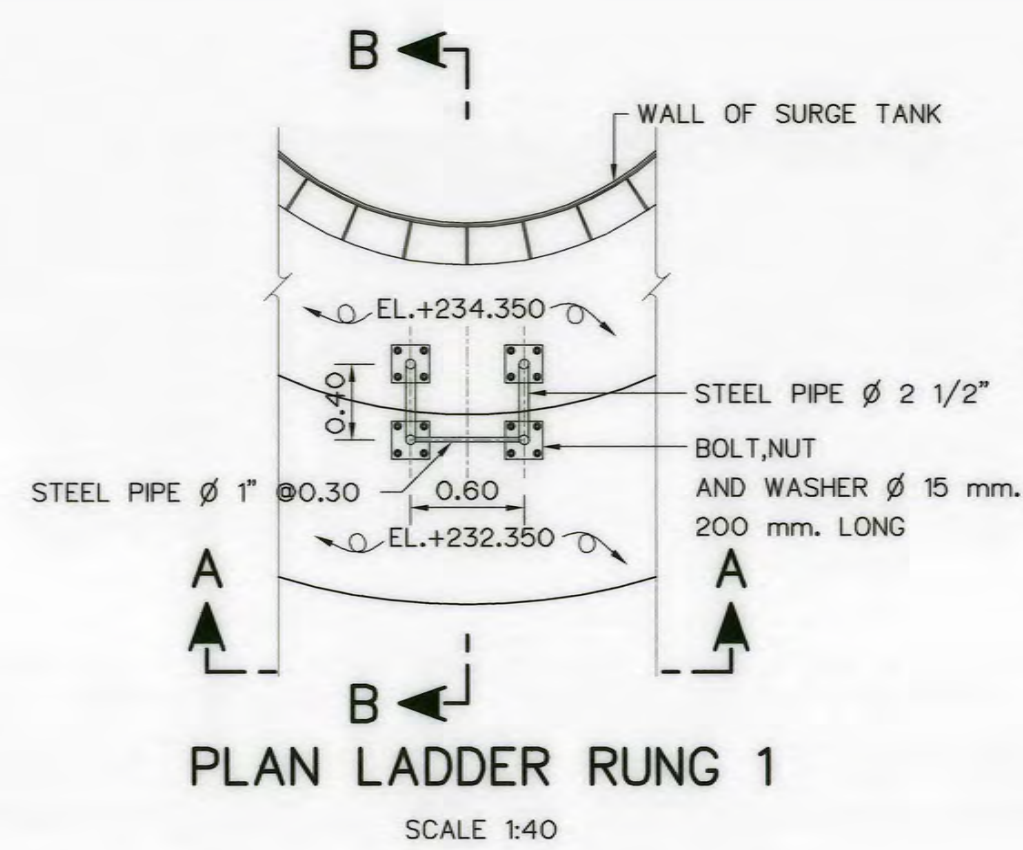
NOTES :

1. ALL DIMENSIONS AND ELEVATIONS ARE IN METERS, UNLESS OTHERWISE SHOWN
2. STEEL PIPE CONFORM TO JIS G 3101 SS34
3. CORROSION PROTECTION OF STEEL PIPE OR GUARDRAIL IS WARNED TO STRICTLY FOLLOW GALVANIZE SPECIFICATION
4. STEEL TANK , GIRDER AND STIFFENER SHALL CONFORM TO JIS G 3101 SS34
5. STEEL TANK , WALL OF SURGE TANK 15 mm. THK.

REFERENCE DRAWINGS :

- | | |
|------------------------------------|-----------|
| 1. SURGE TANK, GENERAL LAYOUT | AKP-ST-01 |
| 2. SURGE TANK, SECTIONS | AKP-ST-02 |
| 3. SURGE TANK, LADDER RUNG DETAILS | AKP-ST-04 |
| 4. SURGE TANK, PLATFORM DETAILS | AKP-ST-05 |

KINGDOM OF THAILAND Department of Alternative Energy Development and Efficiency MINISTRY OF ENERGY	
AI KA PO HYDROPOWER PROJECT TAMBON PHUKHAO THONG AMPHOE SUKHIRIN CHANGWAT NARATHIWAT	
PART : 1 CIVIL WORKS AND TRANSMISSION LINE SURGE TANK RING GIRDER AND HANDRAIL DETAILS	
PCM P&C MANAGEMENT CO., LTD. SPT CONSULTANTS CO., LTD.	Department of Alternative Energy Development and Efficiency MINISTRY OF ENERGY
DESIGNED <i>Wipon</i> 28/10/2021	REVIEWED <i>Wipon</i>
DRAWN <i>Wipon</i>	SUBMITTED <i>Wipon</i>
CHECKED <i>Wipon</i> 28/10/2021	RECOMMENDED <i>Wipon</i>
APPROVED <i>Wipon</i>	APPROVED <i>Wipon</i>
PROJECT MANAGER	DRAWING NO. 41 OF 129

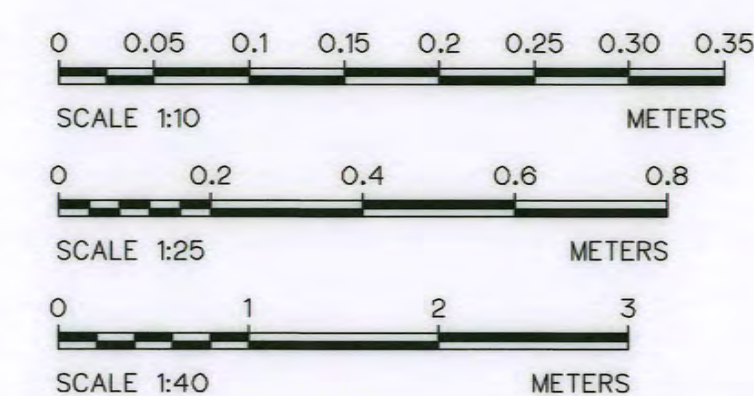


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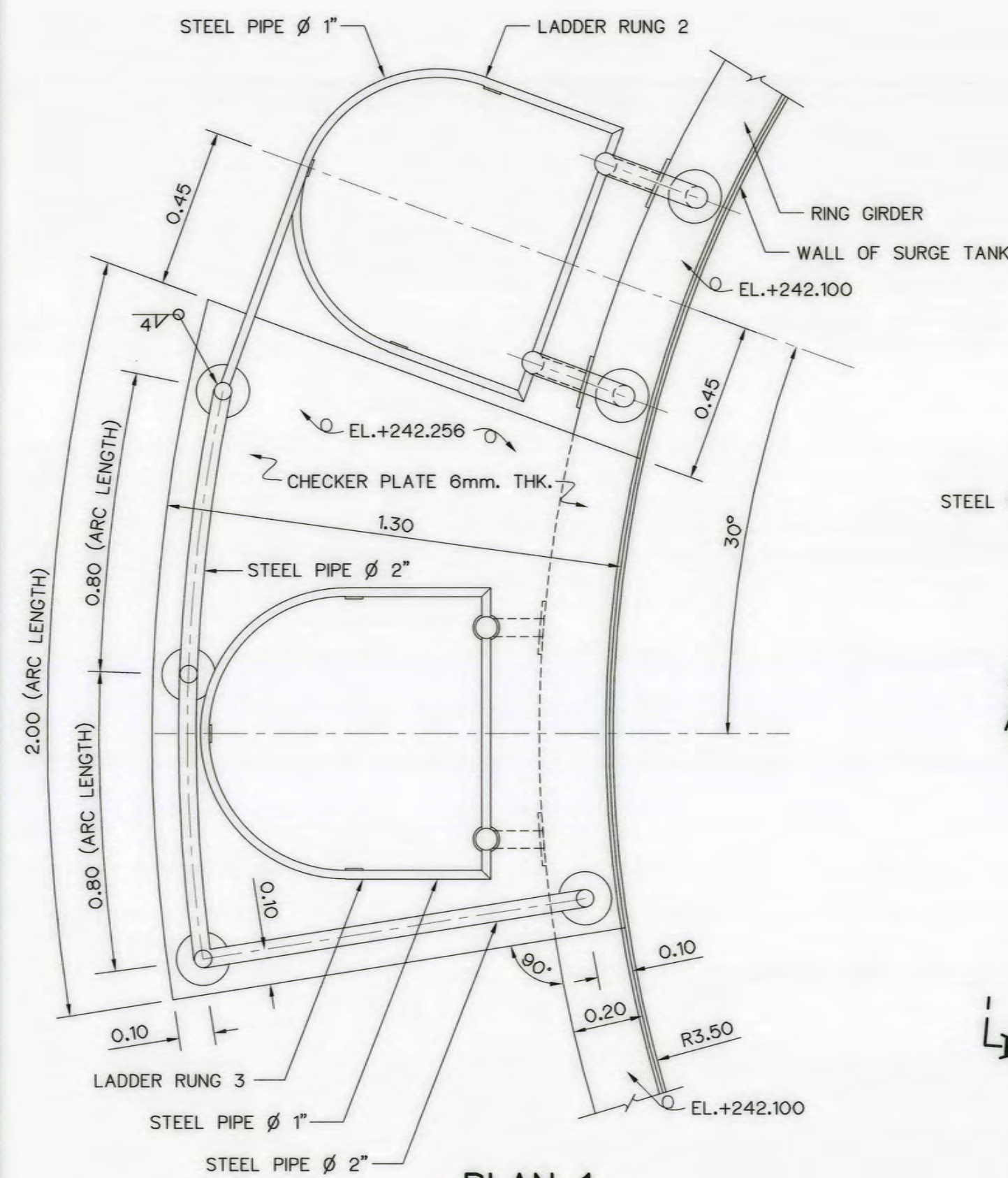
- ALL DIMENSIONS AND ELEVATIONS ARE IN METERS, UNLESS OTHERWISE SHOWN
- STEEL PIPE CONFORM TO JIS G 3101 SS34
- CORROSION PROTECTION OF STEEL PIPE OR GUARDRAIL IS WARNED TO STRICTLY FOLLOW GALVANIZE SPECIFICATION
- STEEL TANK, GIRDER AND STIFFENER SHALL CONFORM TO JIS G 3101 SS34
- STEEL TANK, WALL OF SURGE TANK 15 mm. THK.

REFERENCE DRAWINGS :

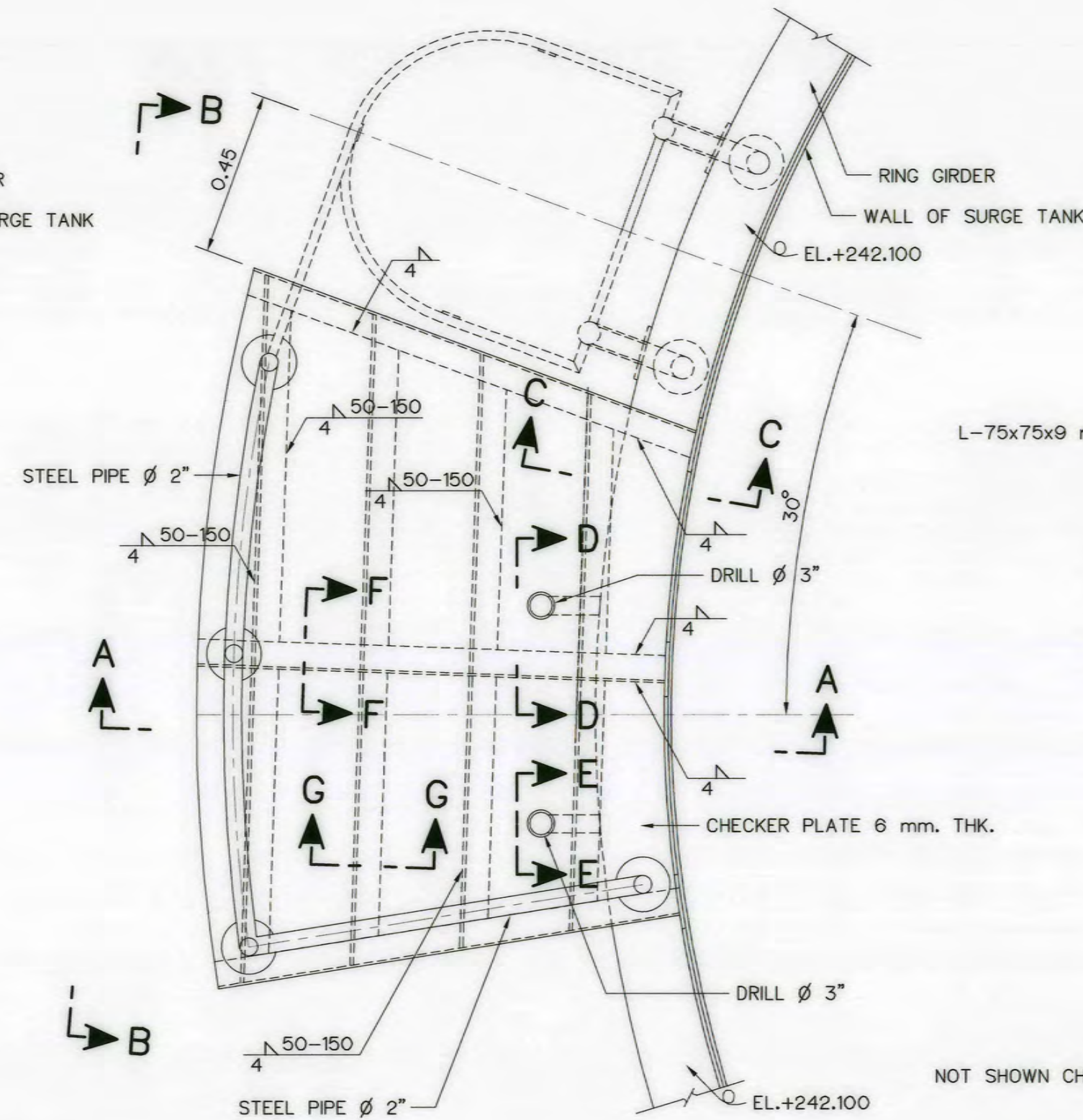
- SURGE TANK, GENERAL LAYOUT
AKP-ST-01
- SURGE TANK, SECTIONS
AKP-ST-02
- SURGE TANK, LADDER RUNG 1 DETAILS
AKP-ST-05



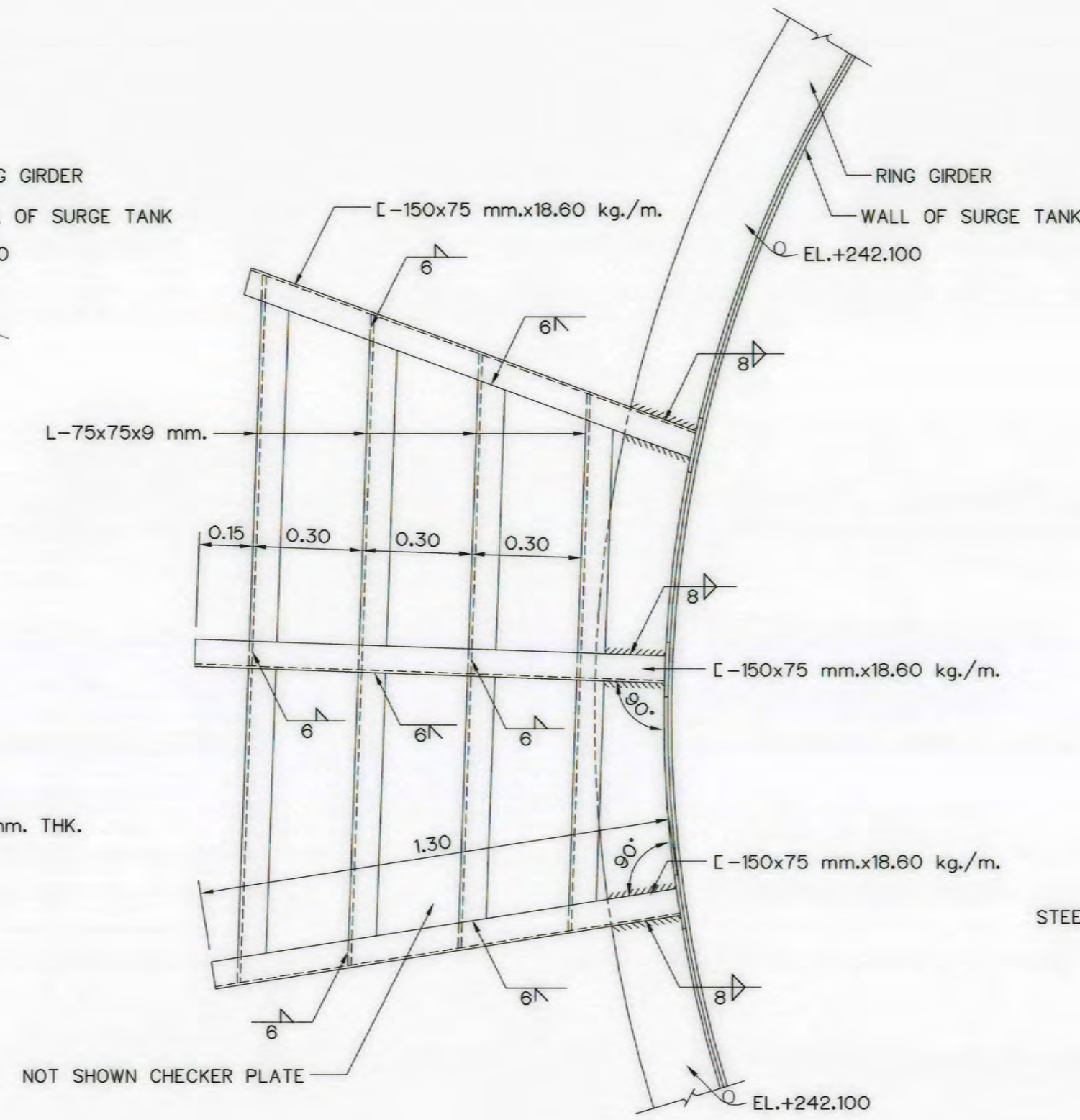
KINGDOM OF THAILAND Department of Alternative Energy Development and Efficiency MINISTRY OF ENERGY			
AI KA PO HYDROPOWER PROJECT TAMBON PHUKHAO THONG AMPHOE SUKHIRIN CHANGWAT NARATHIWAT			
PART : 1 CIVIL WORKS AND TRANSMISSION LINE SURGE TANK LADDER RUNG DETAILS			
P&C MANAGEMENT CO., LTD. SPT CONSULTANTS CO., LTD.		Department of Alternative Energy Development and Efficiency MINISTRY OF ENERGY	
DESIGNED <i>Wim</i> 28/10/2021		REVIEWED <i>Wim</i>	
DRAWN <i>Wim</i>		SUBMITTED <i>Wim</i>	
CHECKED <i>Wim</i> 28/10/2021		RECOMMENDED <i>Wim</i>	
APPROVED <i>Wim</i>		APPROVED <i>Wim</i>	
PROJECT MANAGER		DRAWING NO. AKP-ST-04	
DATE		SHEET NO. 42 OF 129	



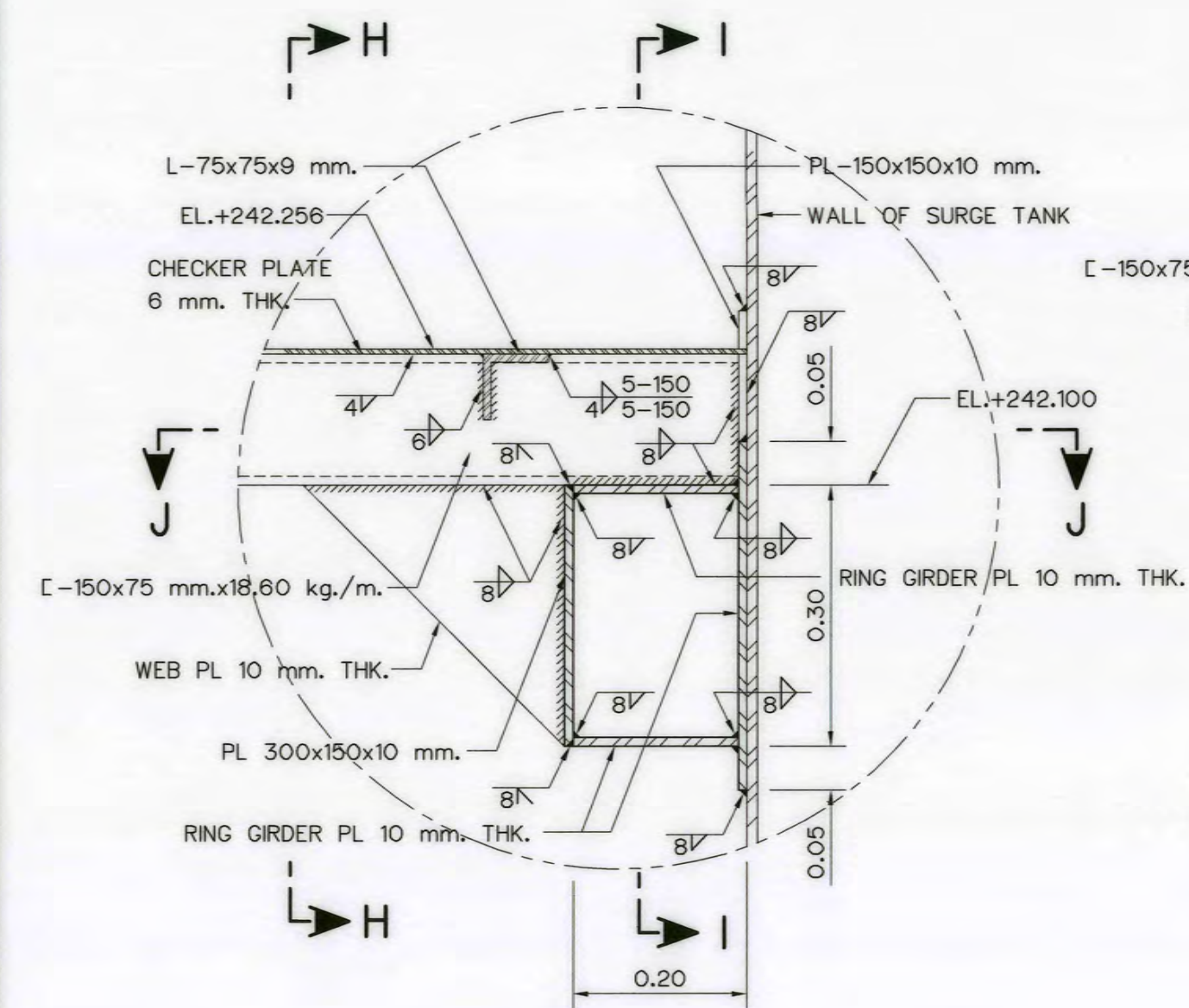
PLAN 1
SCALE 1:15



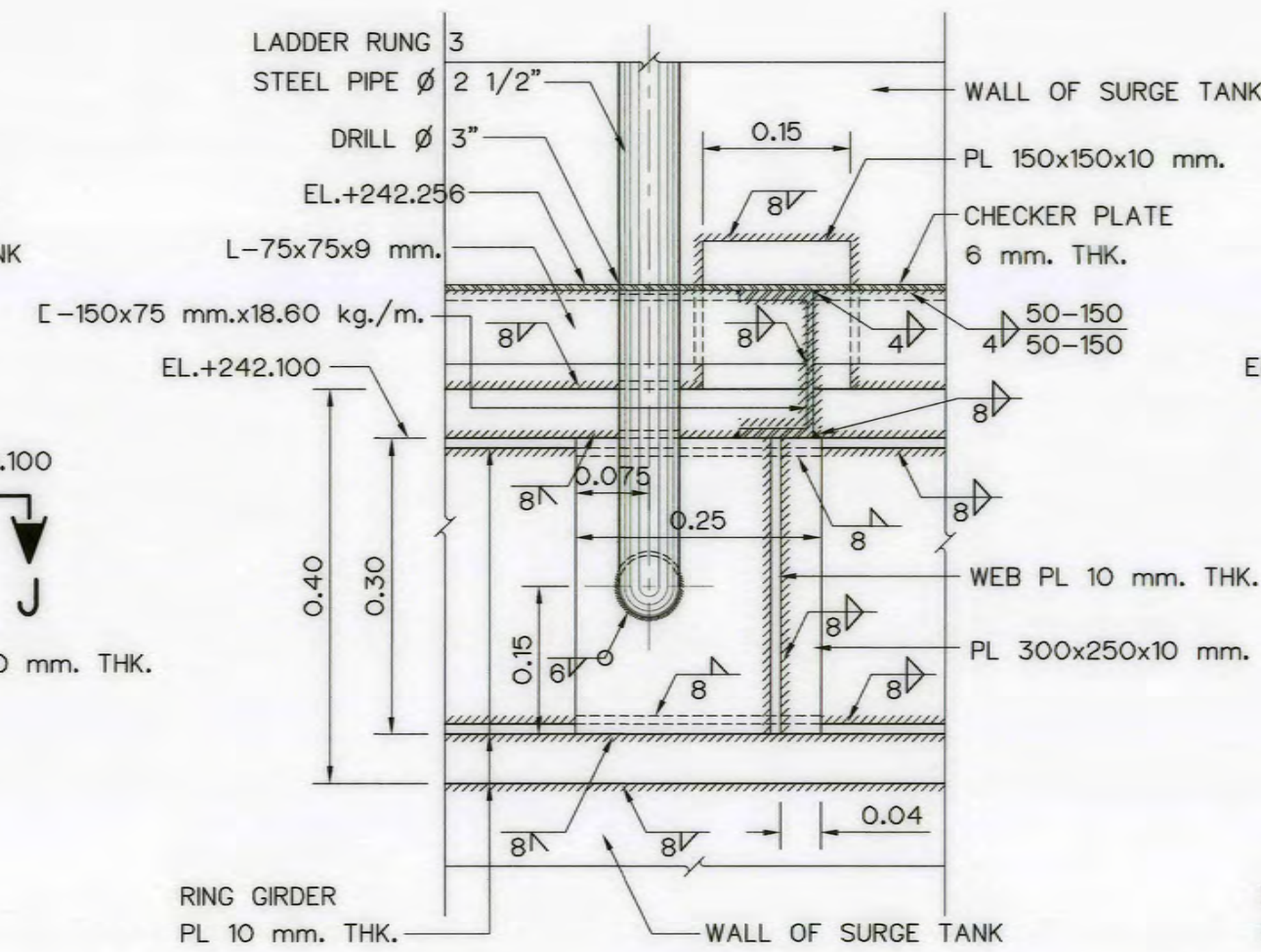
PLAN 2
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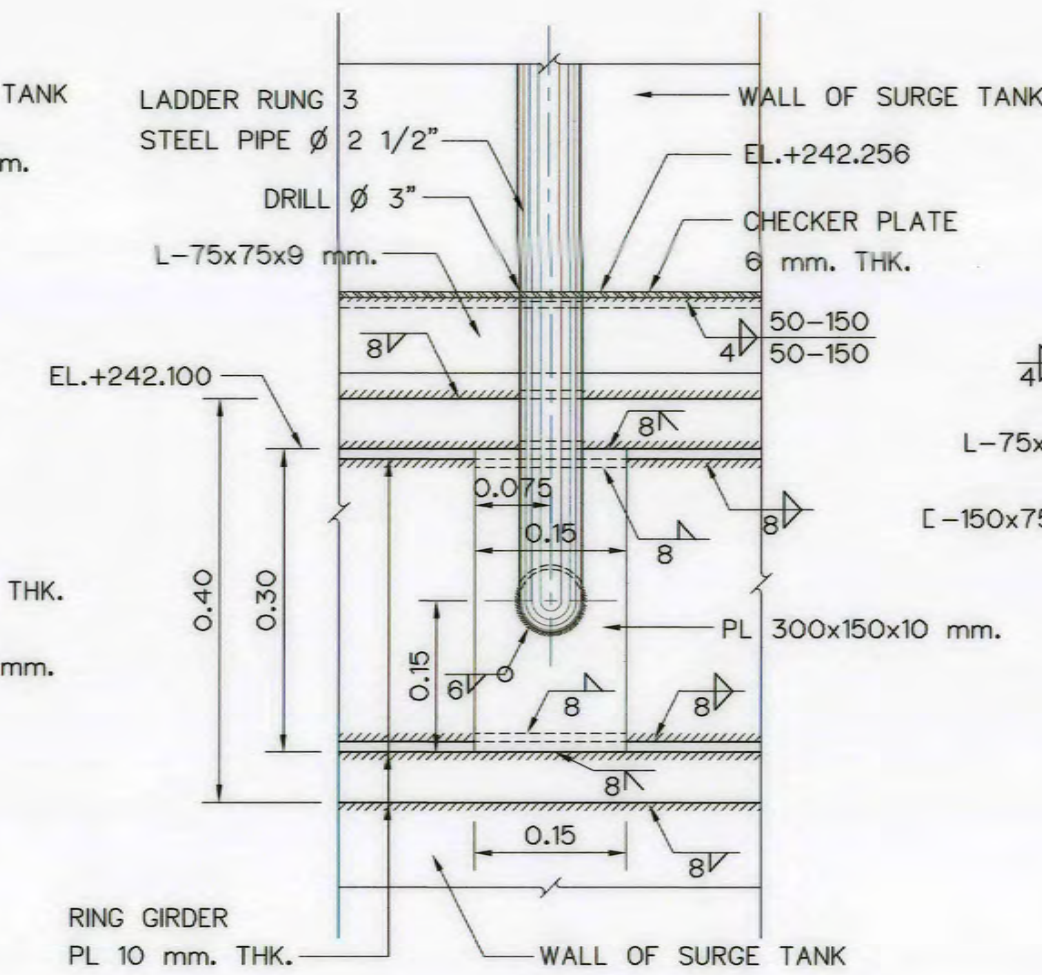
PLAN 3
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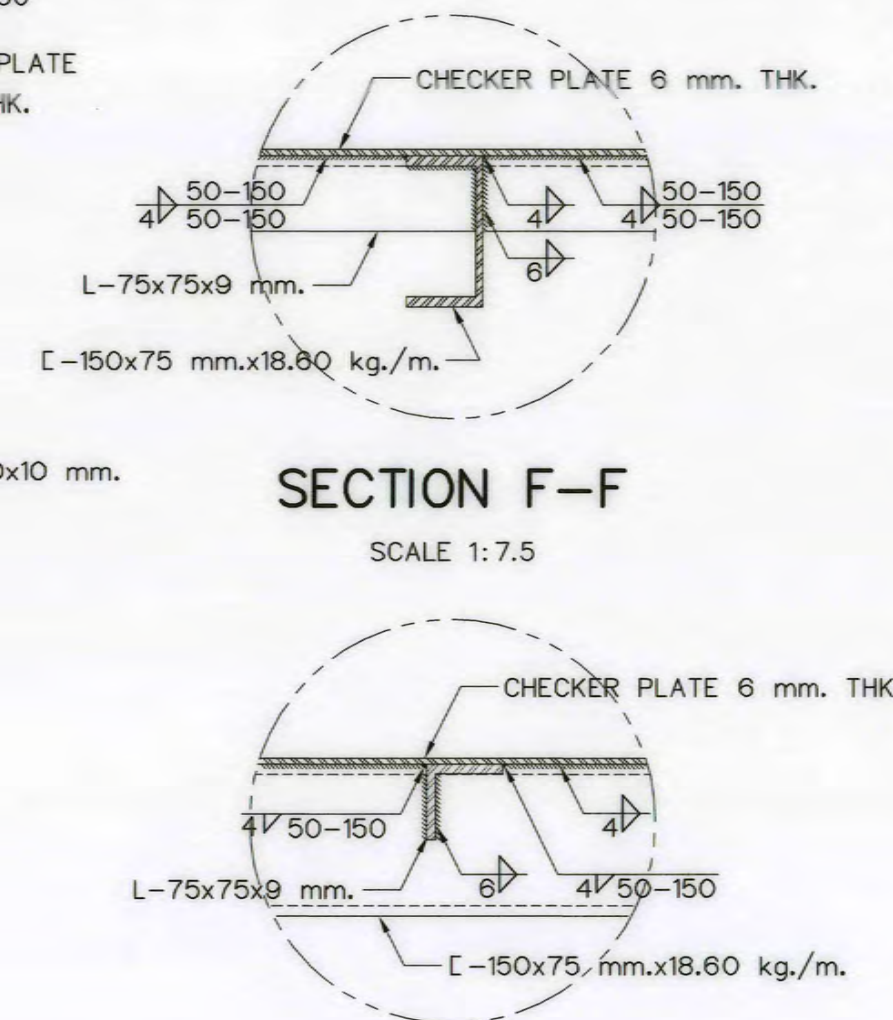
SECTION C-C
SCALE 1:7.5



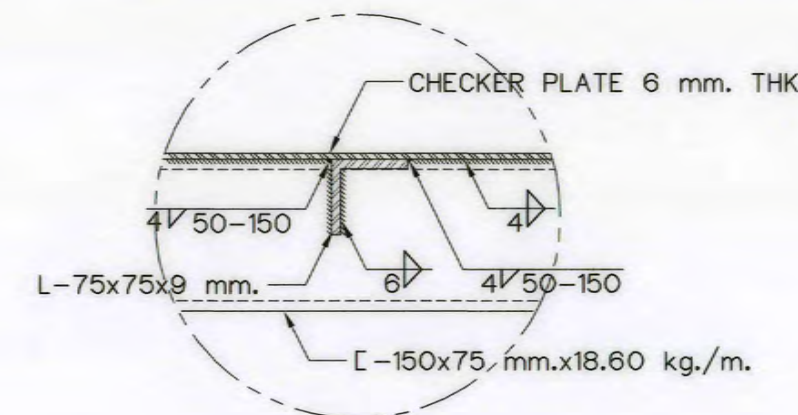
SECTION D-D
SCALE 1:7.5



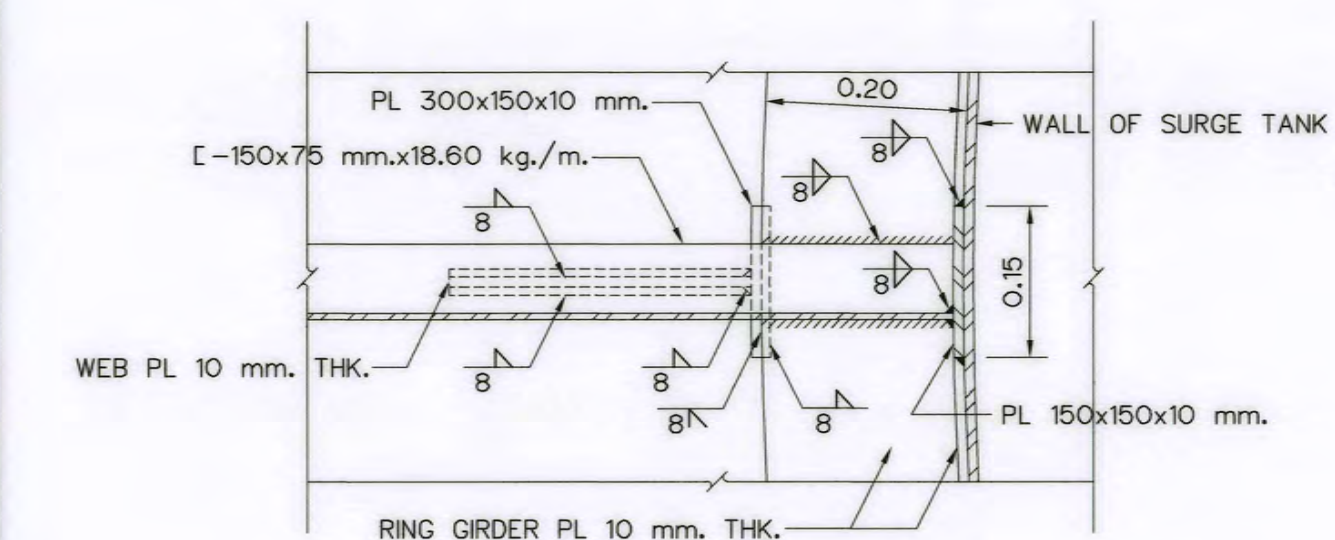
SECTION E-E
SCALE 1:7.5



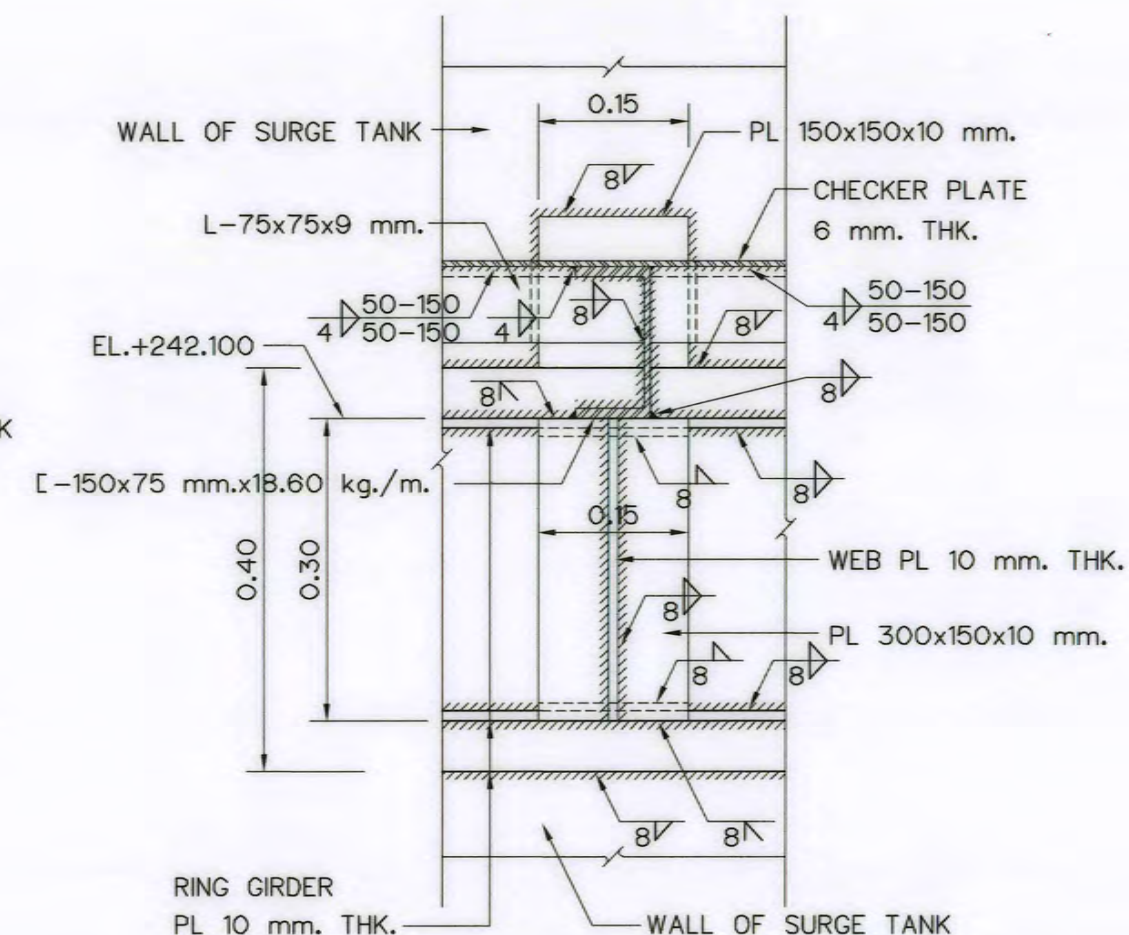
SECTION F-F
SCALE 1:7.5



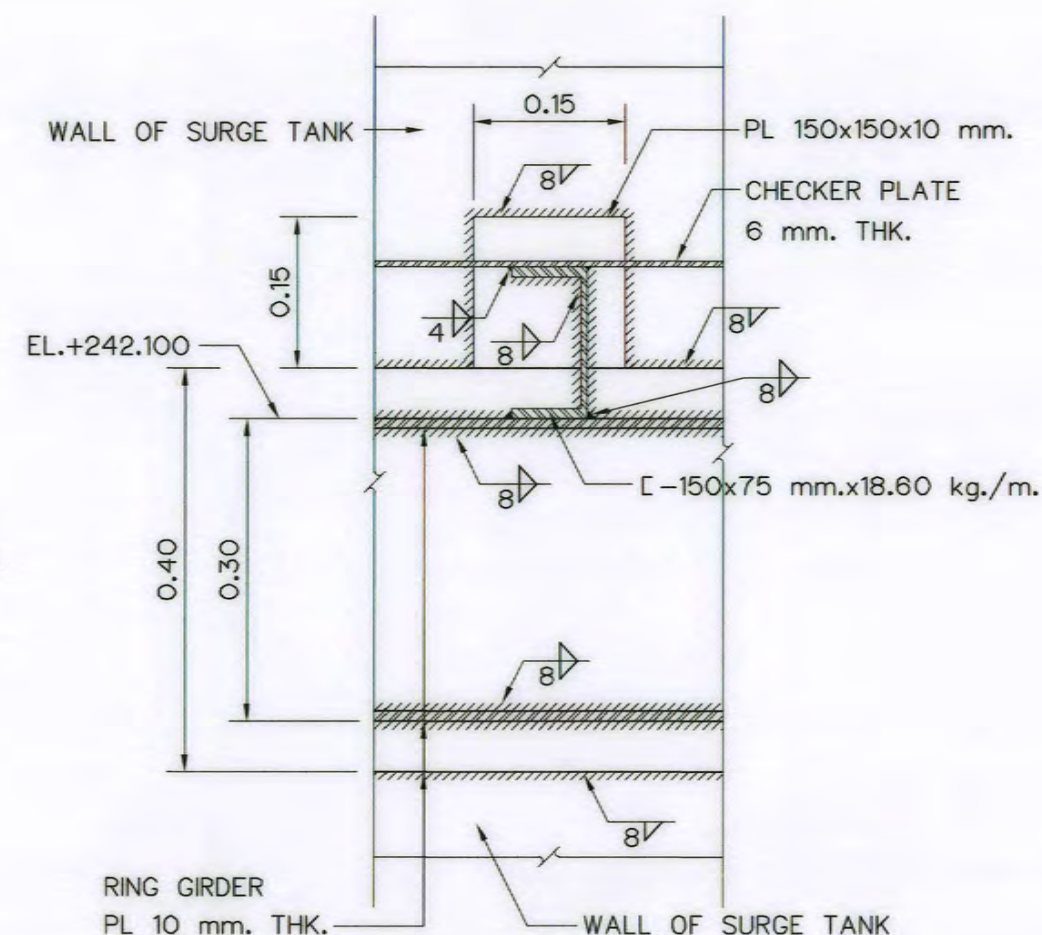
SECTION G-G
SCALE 1:7.5



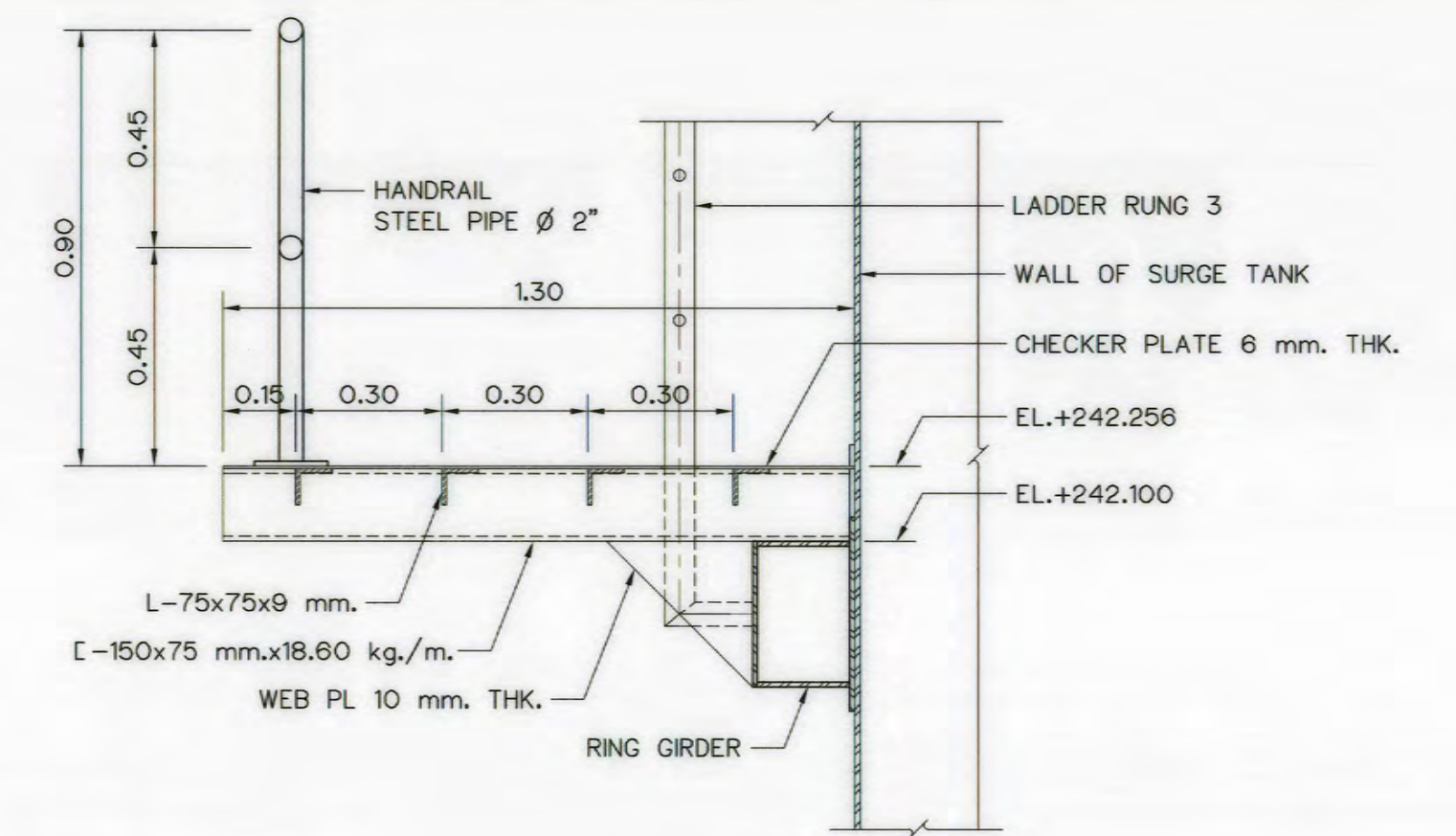
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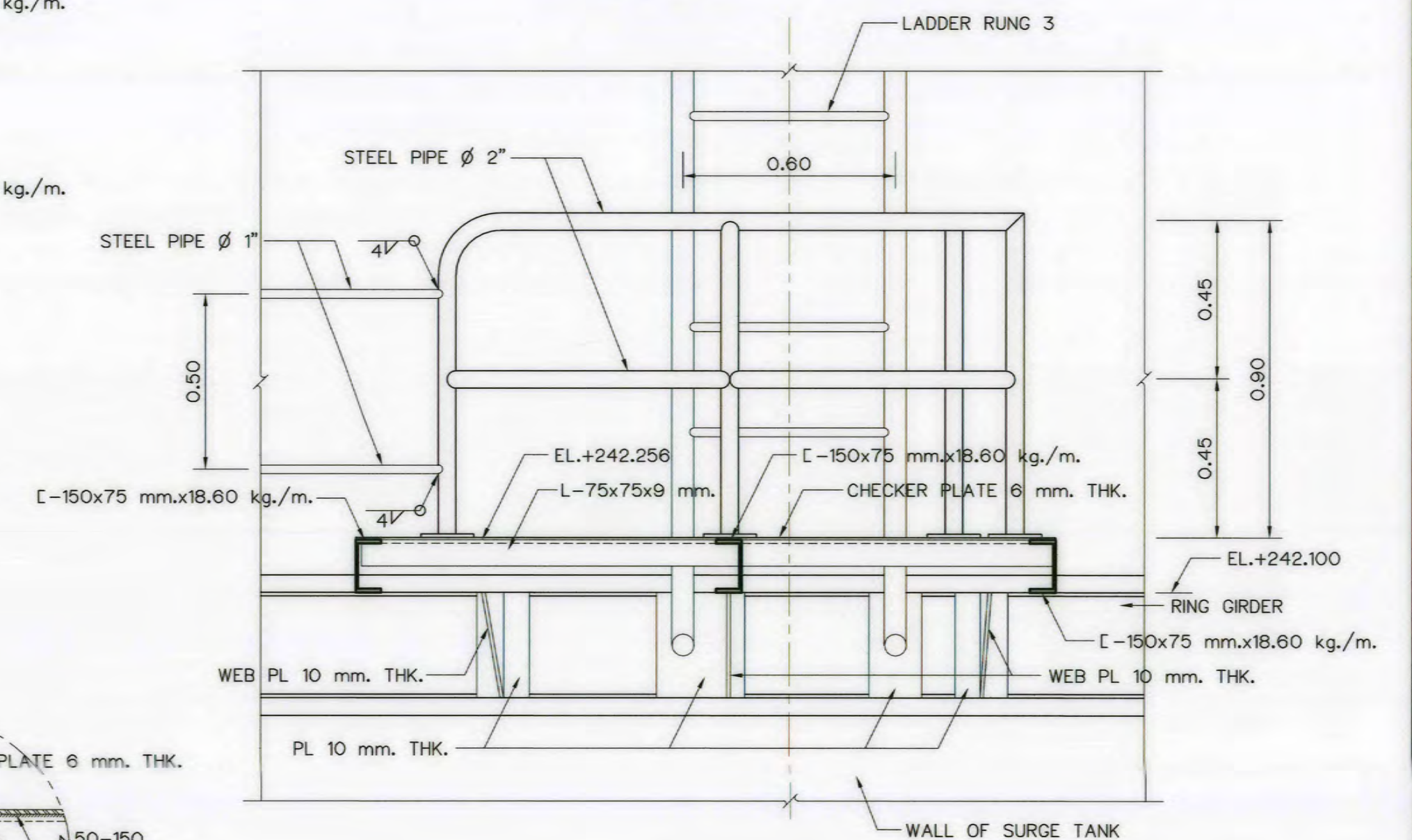
SECTION H-H
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SECTION I-I
SCALE 1:7.5



SECTION A-A
SCALE 1:15



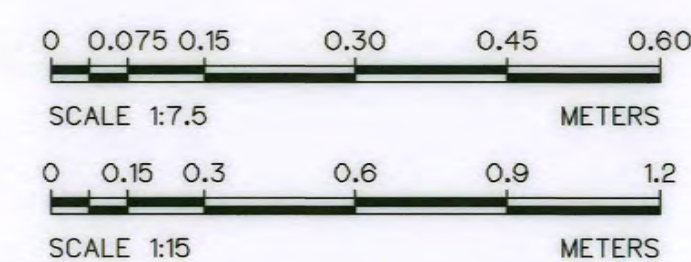
SECTION B-B
SCALE 1:15

NOTE :

1. ALL DIMENSIONS AND ELEVATIONS ARE IN METERS, UNLESS OTHERWISE SHOWN
2. STEEL PIPE CONFORM TO JIS G 3101 SS34
3. CORROSION PROTECTION OF STEEL PIPE OR GUARDRAIL IS WARNED TO STRICTLY FOLLOW GALVANIZE SPECIFICATION
4. STEEL TANK, GIRDER AND STIFFENEL SHALL CONFORM TO JIS G 3101 SS34

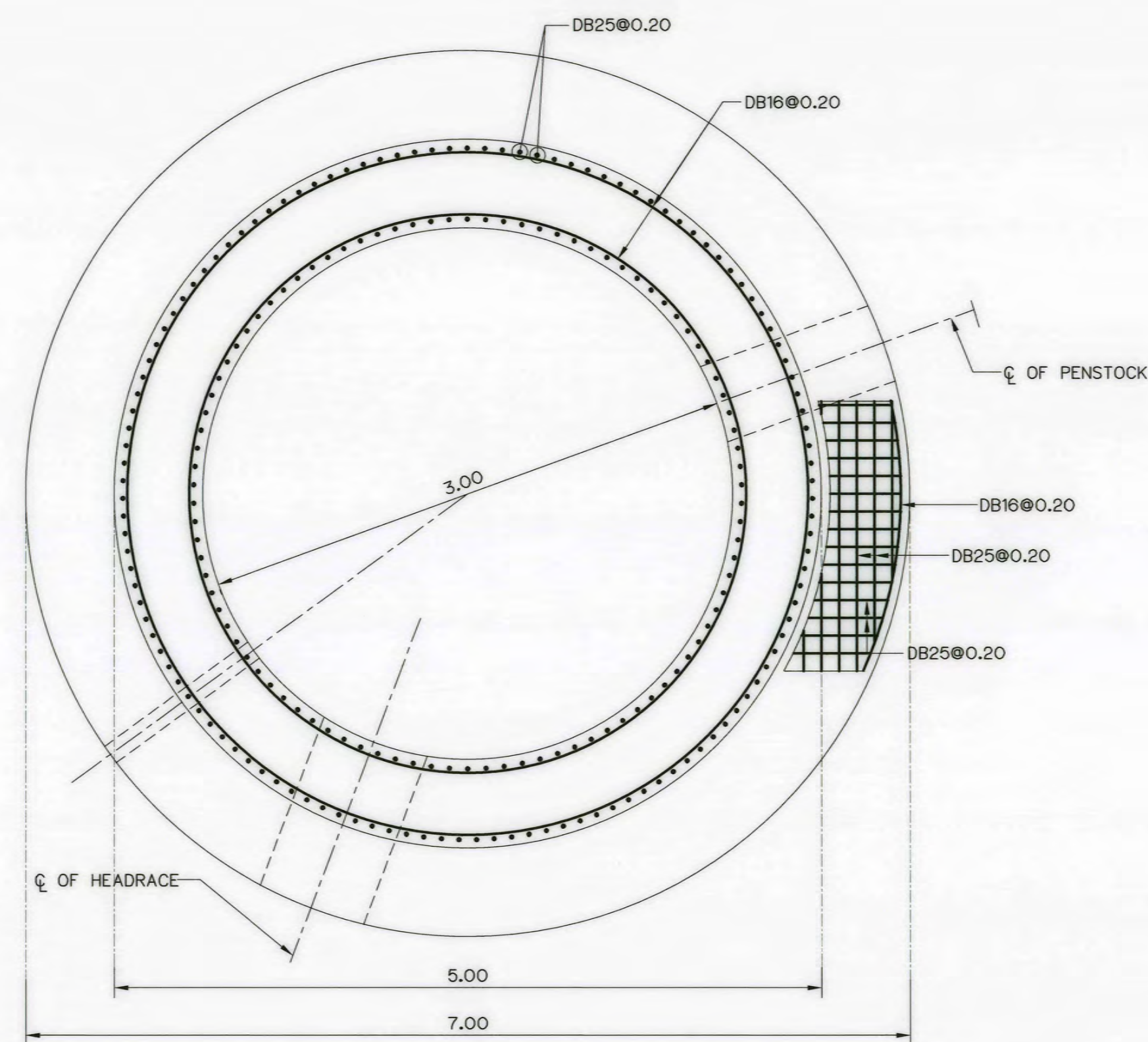
REFERENCE DRAWING :

1. SURGE TANK GENERAL LAY-OUT AKP-ST-01
2. SURGE TANK SECTIONS AKP-ST-02
3. SURGE TANK RING GIRDER AND HANDRAIL AKP-ST-03
4. SURGE TANK LADDER RUNG DETAILS AKP-ST-04

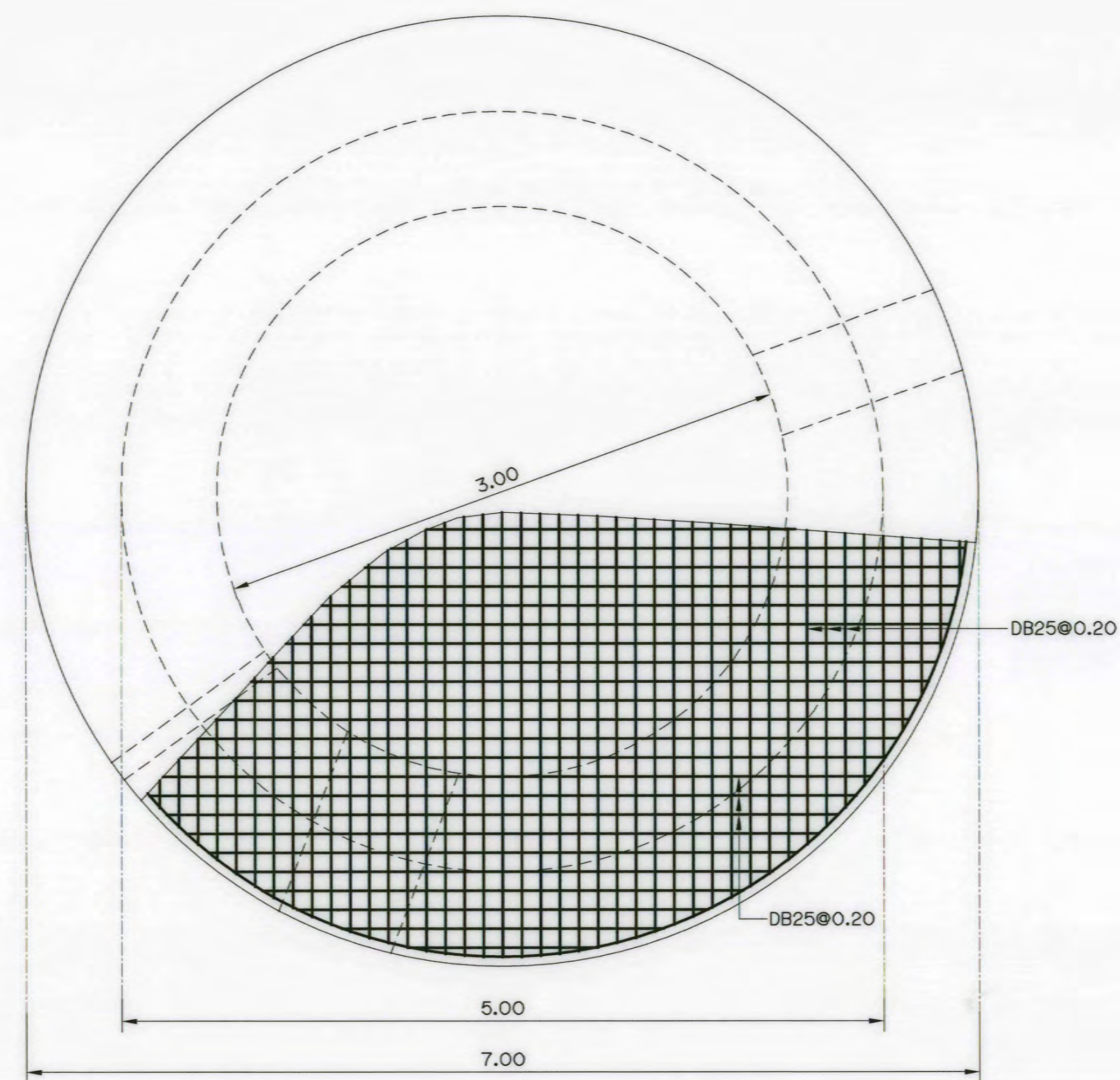


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1				
NO.	DATE	REVISIONS	CHECKED	APPROVED
			CONSULTANTS	DEDE

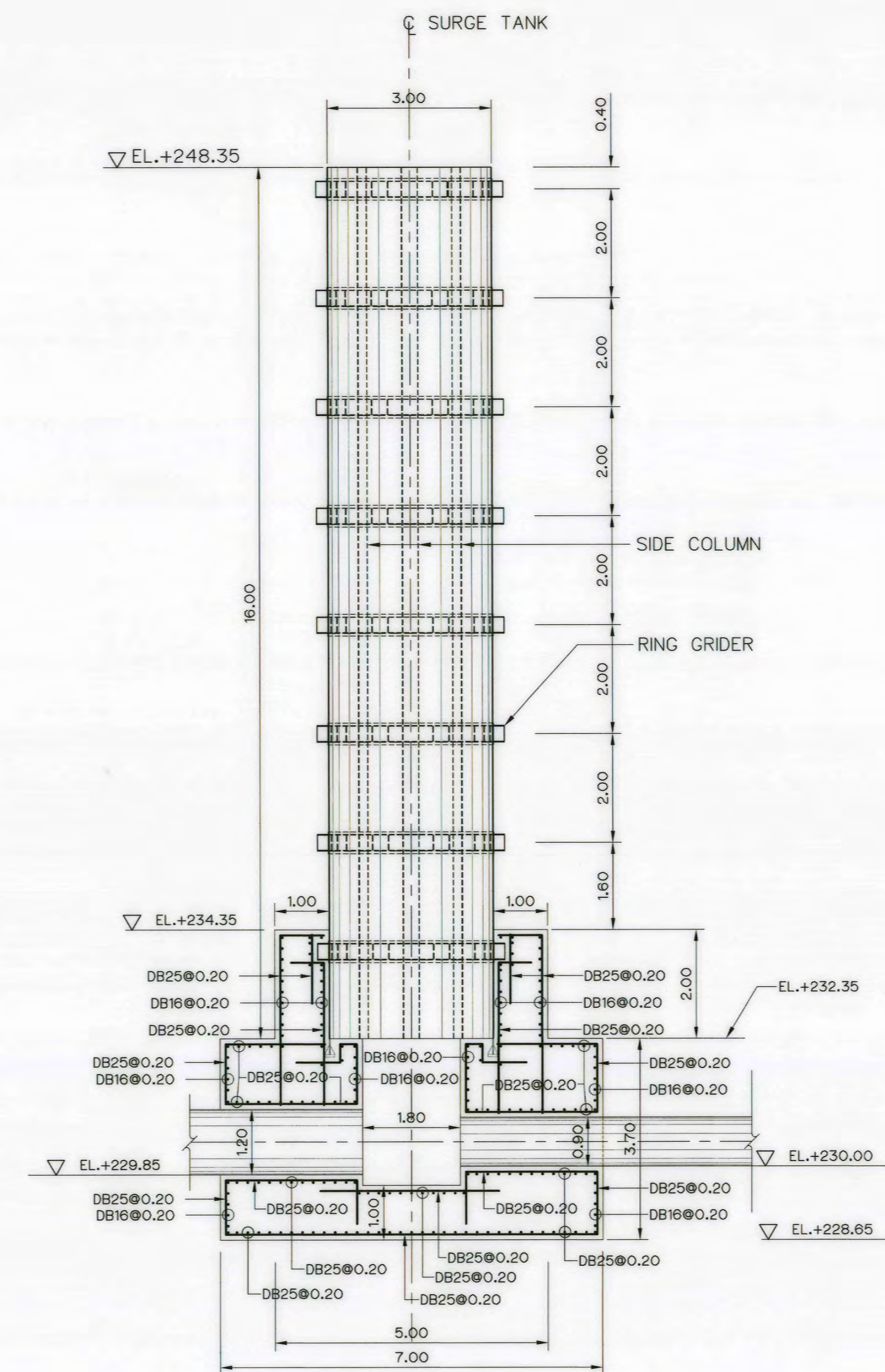
KINGDOM OF THAILAND Department of Alternative Energy Development and Efficiency MINISTRY OF ENERGY	
AI KA PO HYDROPOWER PROJECT TAMBON PHUKHAO THONG AMPHOE SUKHIRIN CHANGWAT NARATHIWAT	
PART : 1 CIVIL WORKS AND TRANSMISSION LINE SURGE TANK PLATFORM DETAILS	
DESIGNED <i>[Signature]</i> 28.29074 DRAWN <i>[Signature]</i> CHECKED <i>[Signature]</i> 28.8231 PROJECT MANAGER	REVIEWED <i>[Signature]</i> SUBMITTED <i>[Signature]</i> RECOMMENDED <i>[Signature]</i> APPROVED <i>[Signature]</i> DRAWING NO. AKP-ST-05 SHEET NO. 43 OF 129



UPPER STEEL PLAN
SCALE 1:75



LOWER STEEL PLAN
SCALE 1:75



SECTION A-A
SCALE 1:100

NOTES :

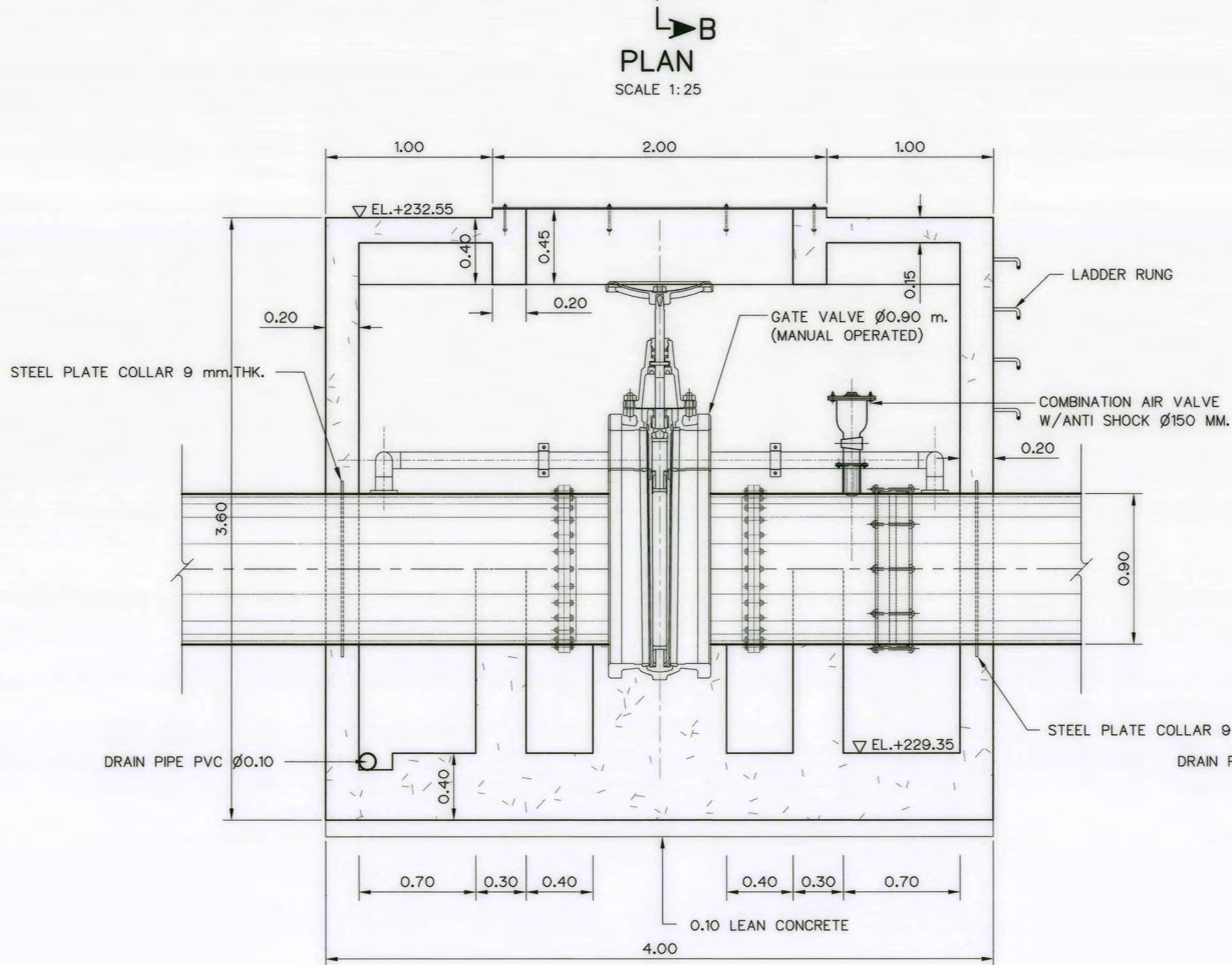
1. ALL DIMENSIONS AND ELEVATIONS ARE IN METERS, UNLESS OTHERWISE SHOWN
2. STEEL PIPE CONFORM TO JIS G 3101 SS34
3. CORROSION PROTECTION OF STEEL PIPE OR GUARDRAIL
IS WARNED TO STRICTLY FOLLOW GALVANIZE SPECIFICATION
5. STEEL TANK , GIRDER AND STIFFENER SHALL CONFORM TO JIS G 3101 SS34

REFERENCE DRAWINGS :

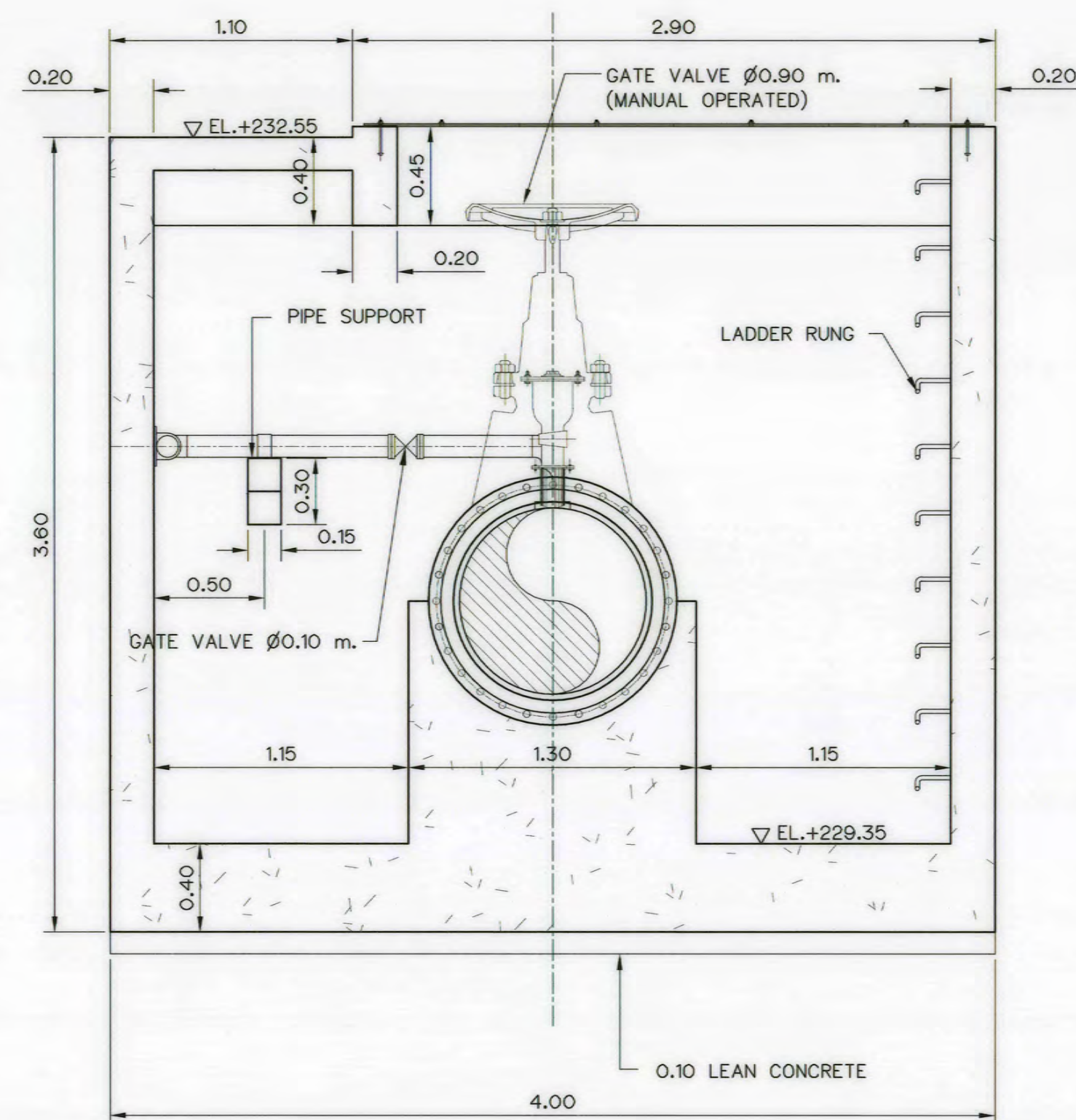
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|-------------------------------|-----------|
| 1. SURGE TANK, GENERAL LAYOUT | AKP-ST-01 |
| 2. SURGE TANK, SECTIONS | AKP-ST-02 |



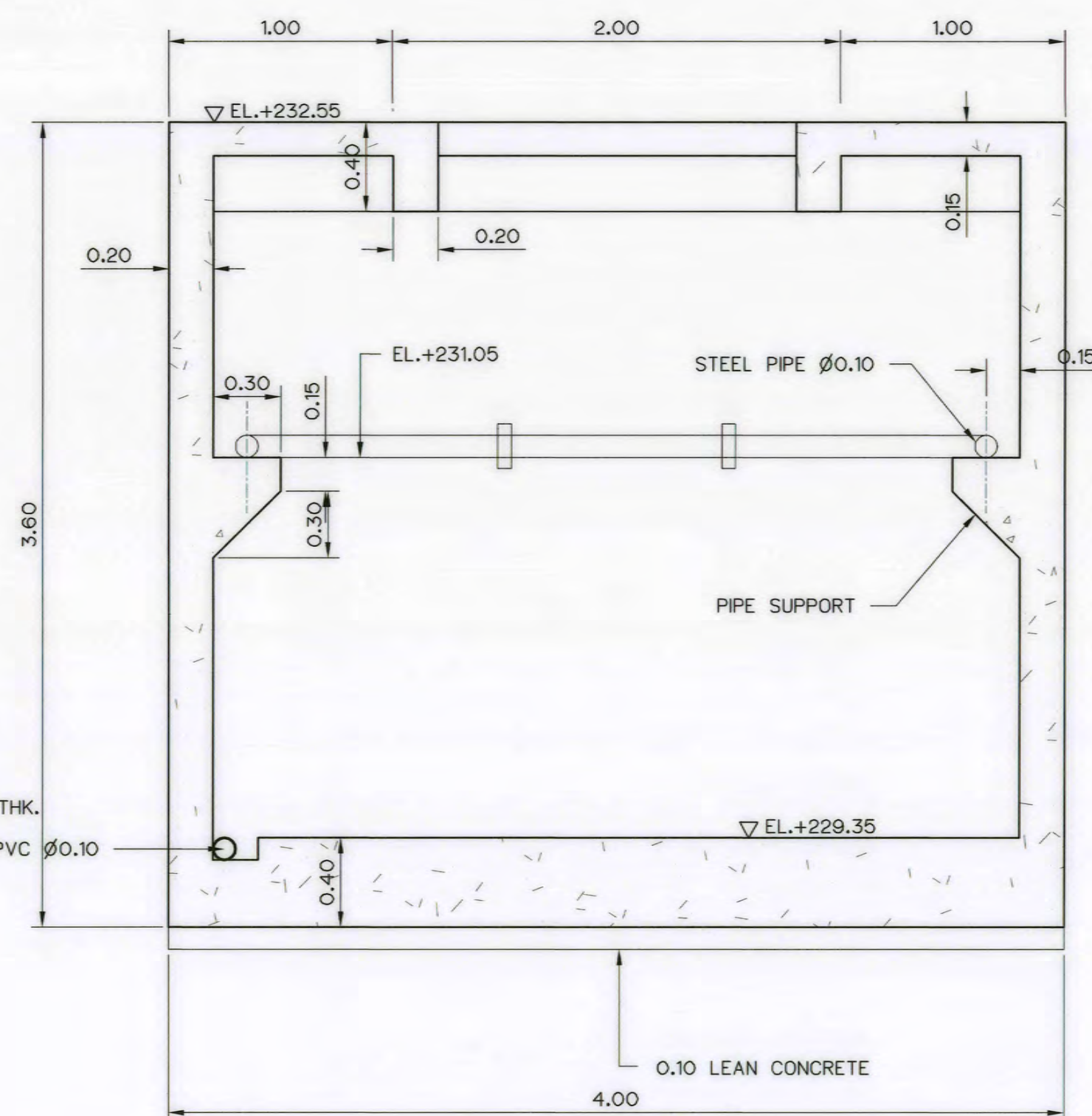
3					KINGDOM OF THAILAND Department of Alternative Energy Development and Efficiency MINISTRY OF ENERGY	
2					AI KA PO HYDROPOWER PROJECT TAMBON PHUKHAO THONG AMPHOE SUKHIRIN CHANGWAT NARATHIWAT	
1					PART : 1 CIVIL WORKS AND TRANSMISSION LINE SURGE TANK REINFORCEMENT DETAILS	
NO.					DESIGNED	REVIEWED
DATE					CHECKED	APPROVED
REVISIONS					PROJECT MANAGER	SHEET NO.
CHECKED					DATE	44 OF 129
APPROVED					AKP-ST-06	



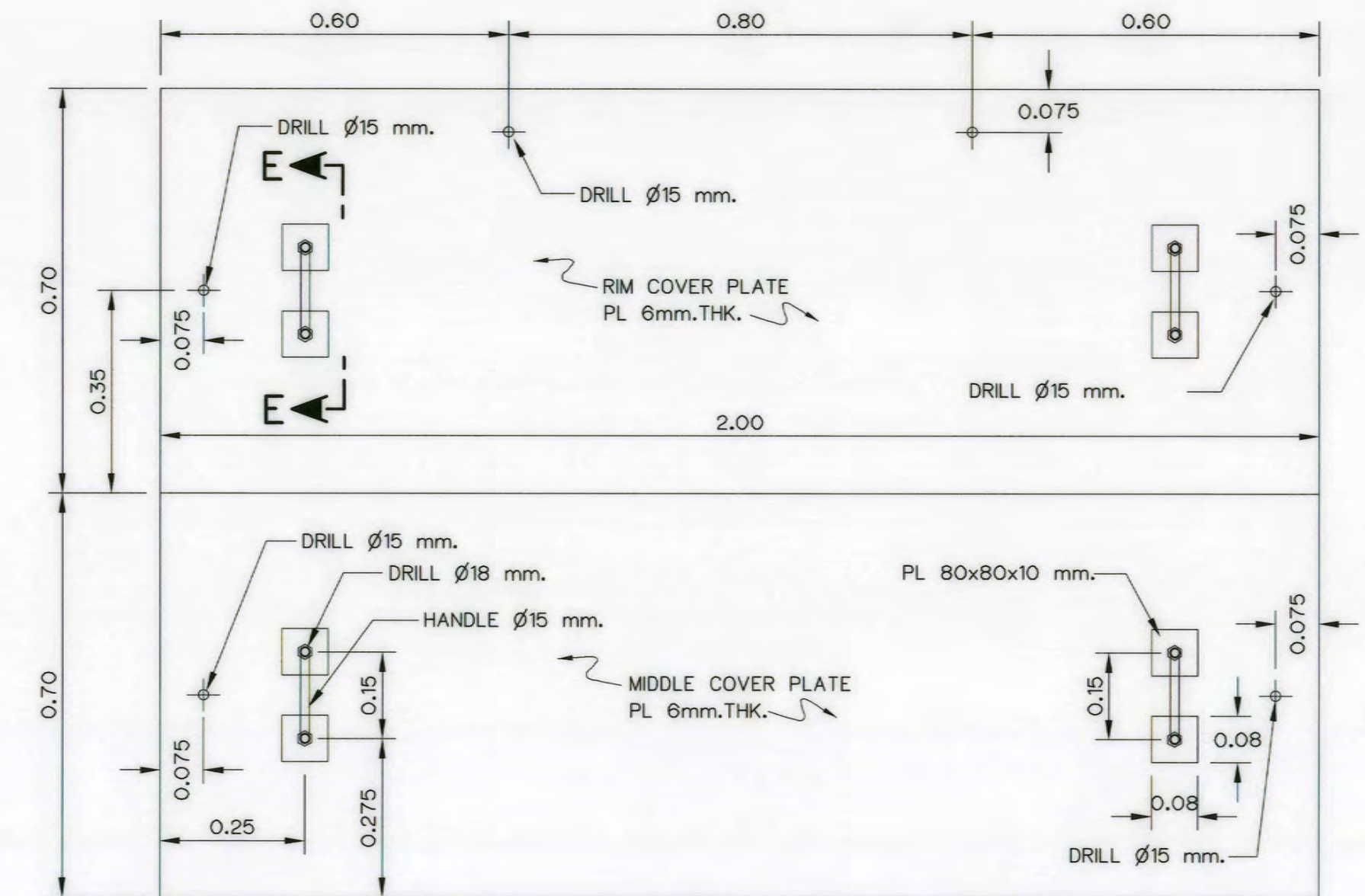
SECTION A-A
SCALE 1:25



SECTION B-B
SCALE 1:25

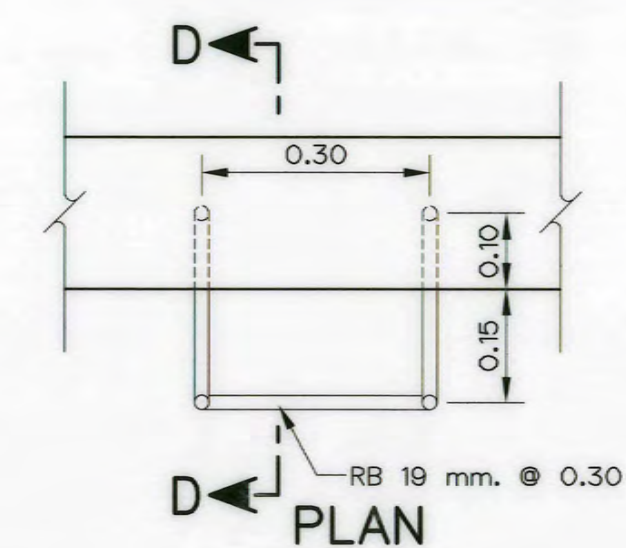


SECTION C-C
SCALE 1:25

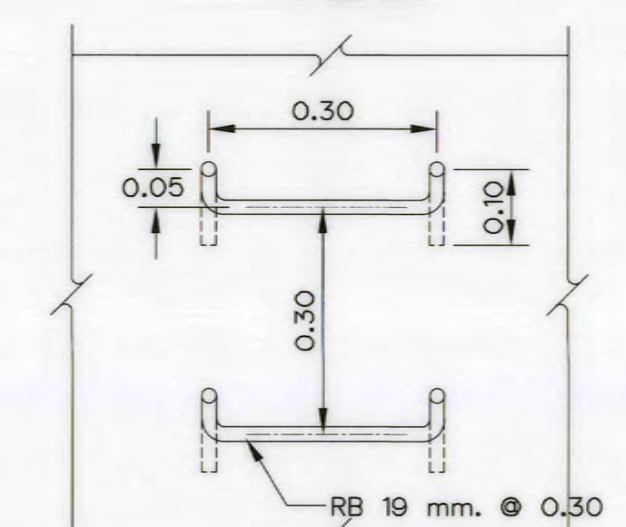


PLAN STEEL COVER PLATE

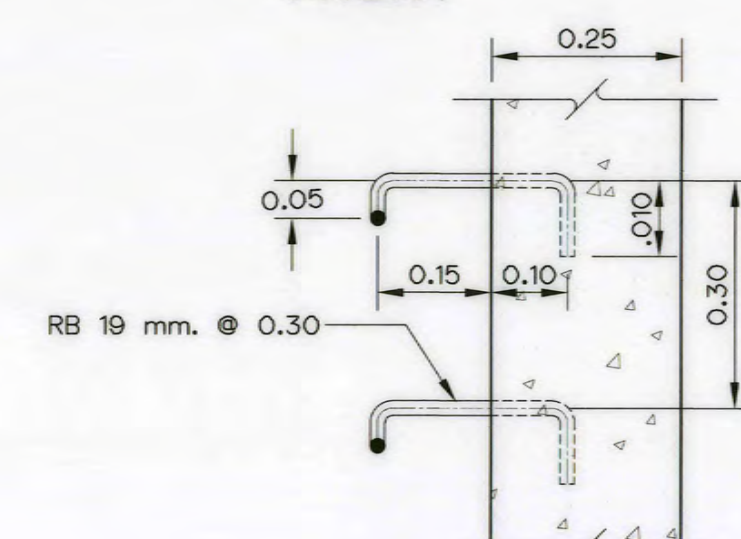
SCALE 1:10



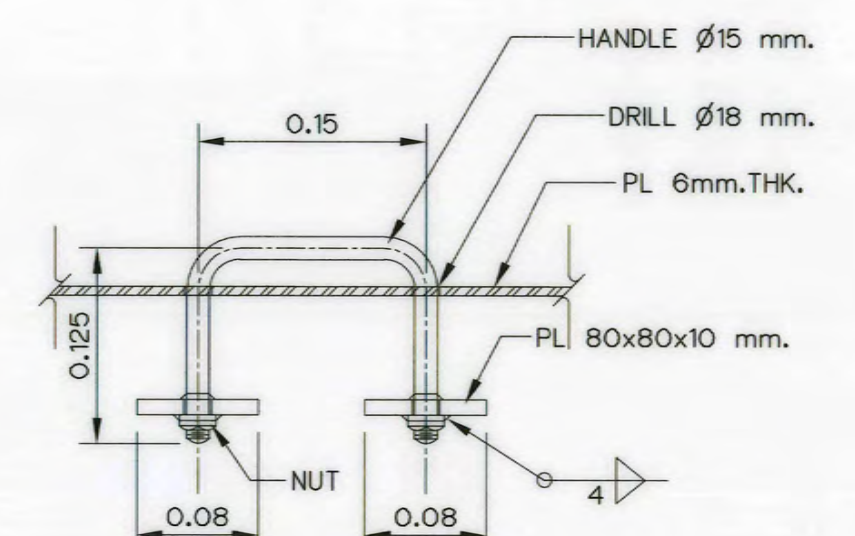
PLAN



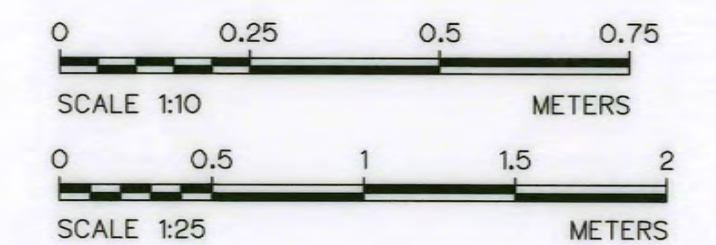
FRONT



SECTION D-D
DETAIL OF LADDER RUNG
SCALE 1:10



SECTION E-E
SCALE 1:5



NOTE :

1. ALL DIMENSIONS AND ELEVATIONS ARE IN METERS,
UNLESS OTHERWISE SHOWN

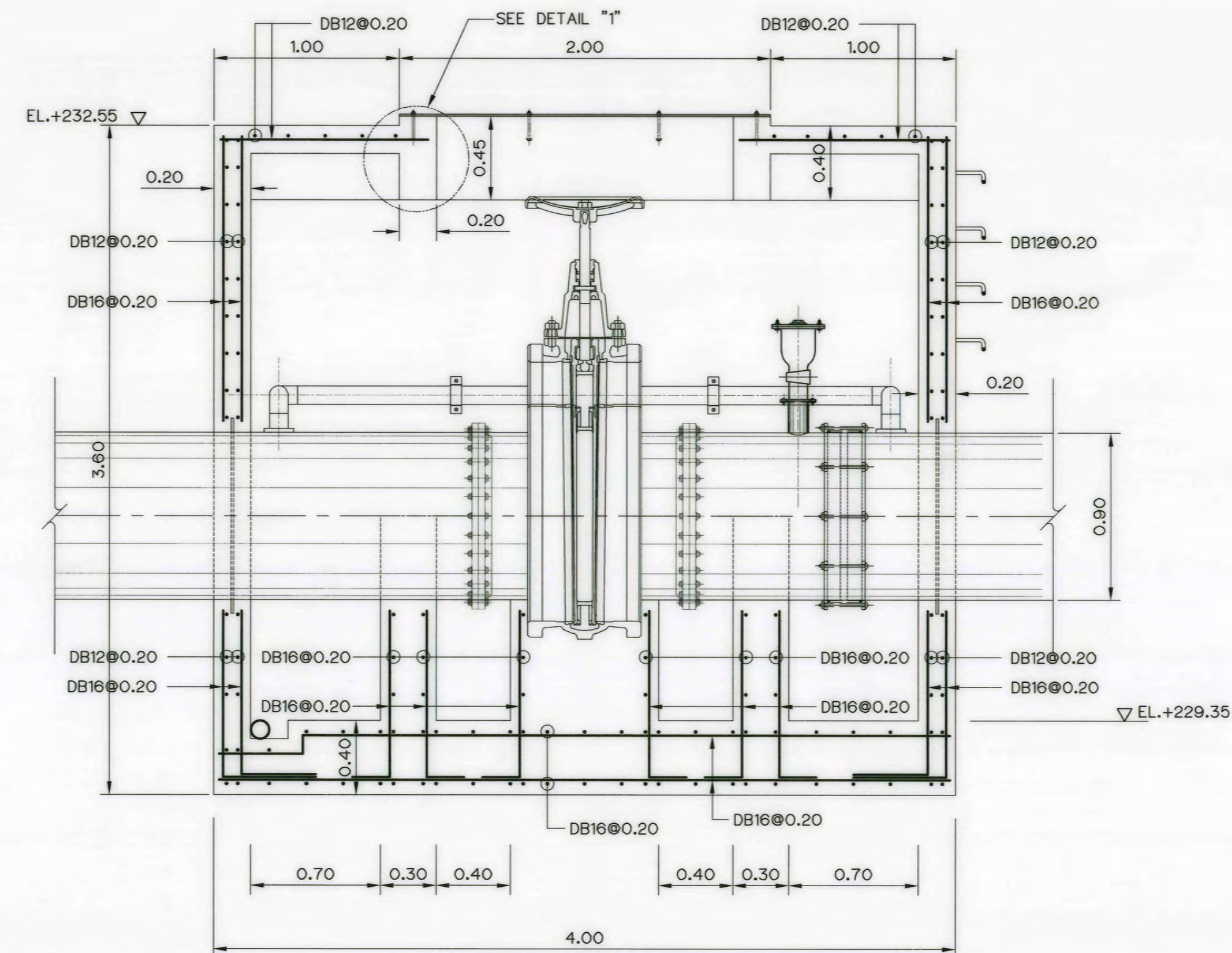
REFERENCE DRAWING :

1. SURGE TANK, GENERAL LAYOUT
2. SURGE TANK, EMERGENCY VALVE CHAMBER REINFORCEMENT DETAILS

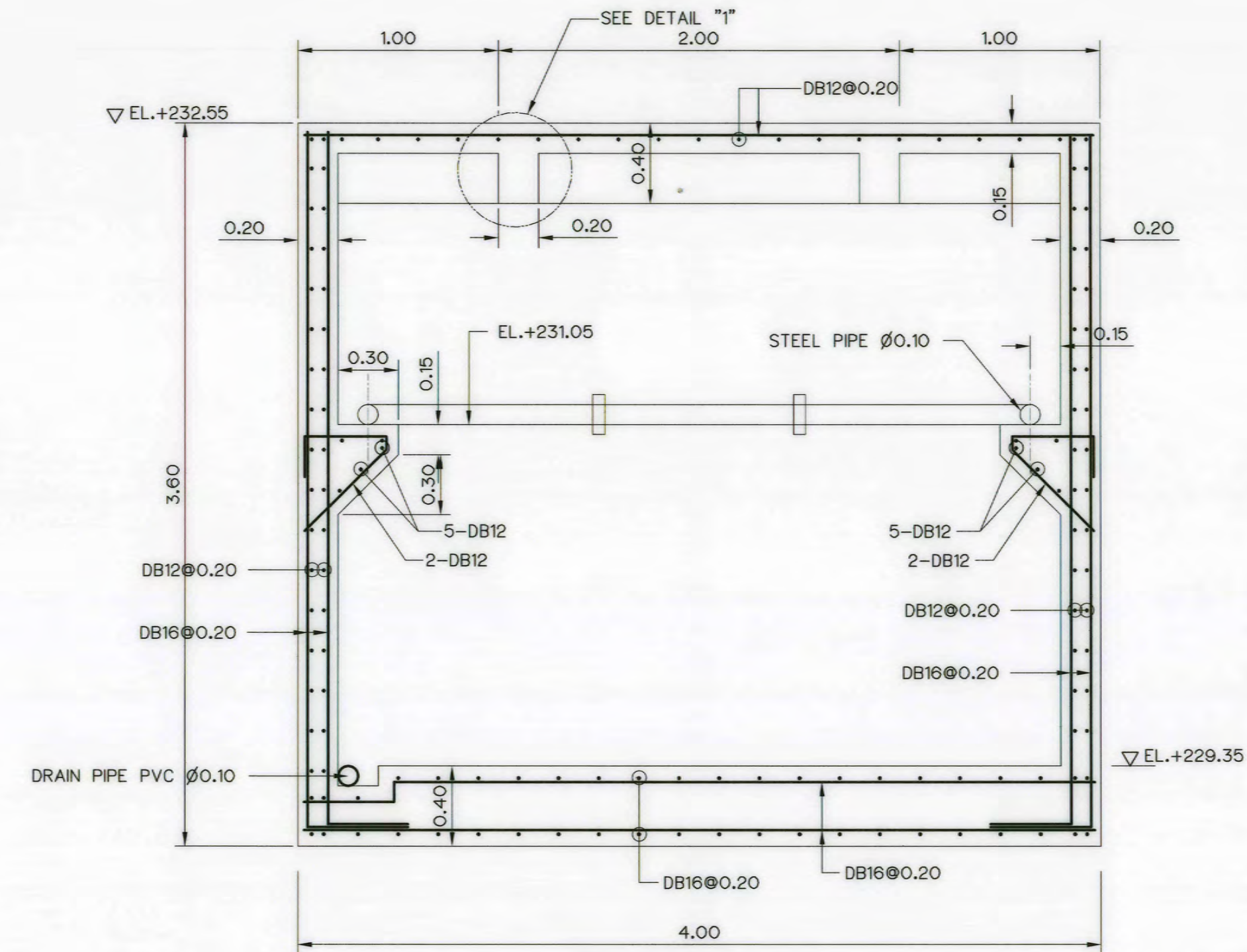
AKP-ST-01
AKP-ST-08

3				
2				
1				
NO.	DATE	REVISIONS	CHECKED	APPROVED
	CONSULTANTS		DEDE	

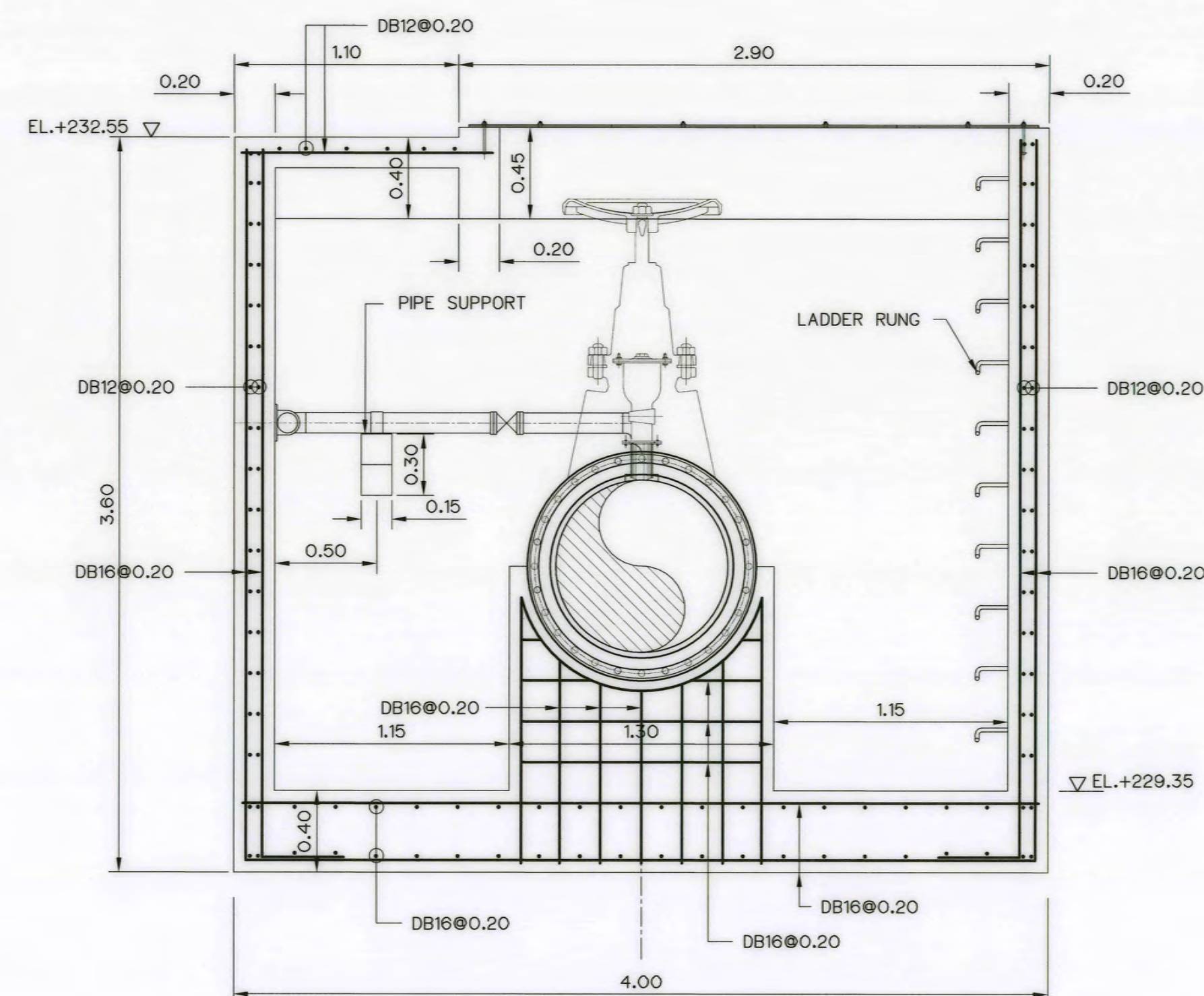
 KINGDOM OF THAILAND Department of Alternative Energy Development and Efficiency MINISTRY OF ENERGY	
AI KA PO HYDROPOWER PROJECT TAMBON PHUKHAO THONG AMPHOE SUKHIRIN CHANGWAT NARATHIWAT	
PART : 1 CIVIL WORKS AND TRANSMISSION LINE SURGE TANK EMERGENCY VALVE CHAMBER PLAN SECTIONS AND DETAILS	
 P&C MANAGEMENT CO., LTD. SPT CONSULTANTS CO., LTD.	 Department of Alternative Energy Development and Efficiency MINISTRY OF ENERGY
DESIGNED <i>Wim J8.29074</i> <i>[Signature]</i> J8.9462	REVIEWED <i>[Signature]</i>
DRAWN <i>[Signature]</i>	RECOMMENDED <i>[Signature]</i>
CHECKED <i>[Signature]</i> J8.8231	APPROVED <i>[Signature]</i>
28/10/2021	DRAWING NO. AKP-ST-07
PROJECT MANAGER DATE	SHEET NO. 45 OF 129



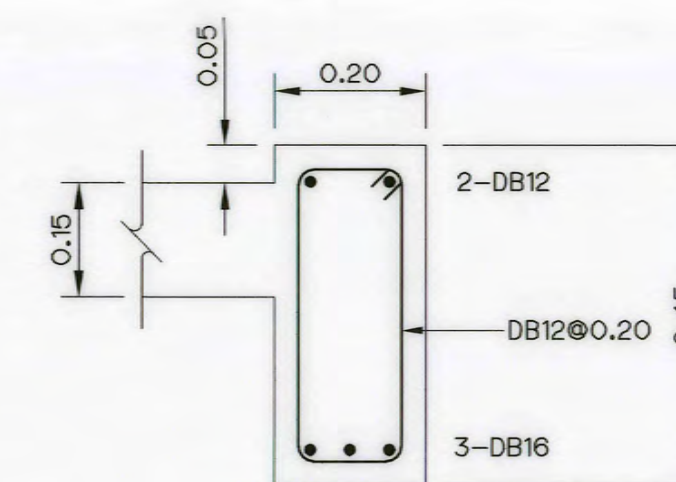
SECTION A-A
SCALE 1:25



SECTION C-C
SCALE 1:25



SECTION B-B
SCALE 1:25



DETAIL "1"
SCALE 1:10

NOTE :

1. ALL DIMENSIONS AND ELEVATIONS ARE IN METERS, UNLESS OTHERWISE SHOWN

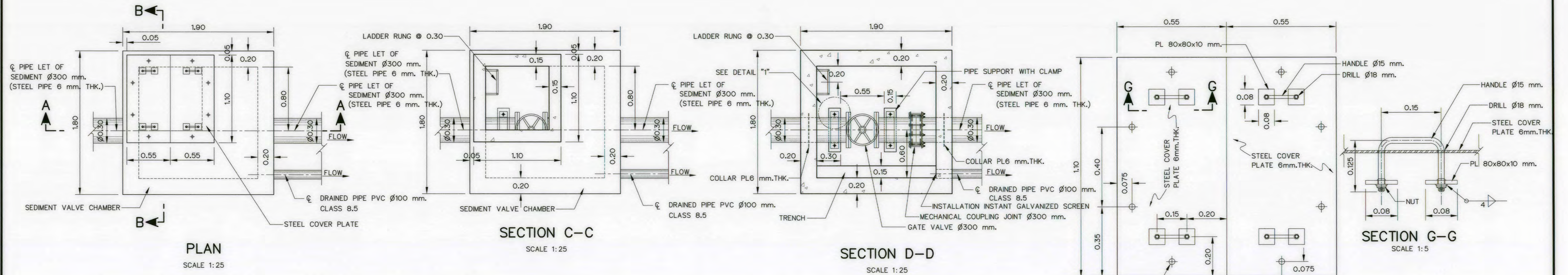
REFERENCE DRAWING :

1. SURGE TANK, GENERAL LAYOUT
2. SURGE TANK, EMERGENCY VALVE CHAMBER PLAN SECTIONS AND DETAILS

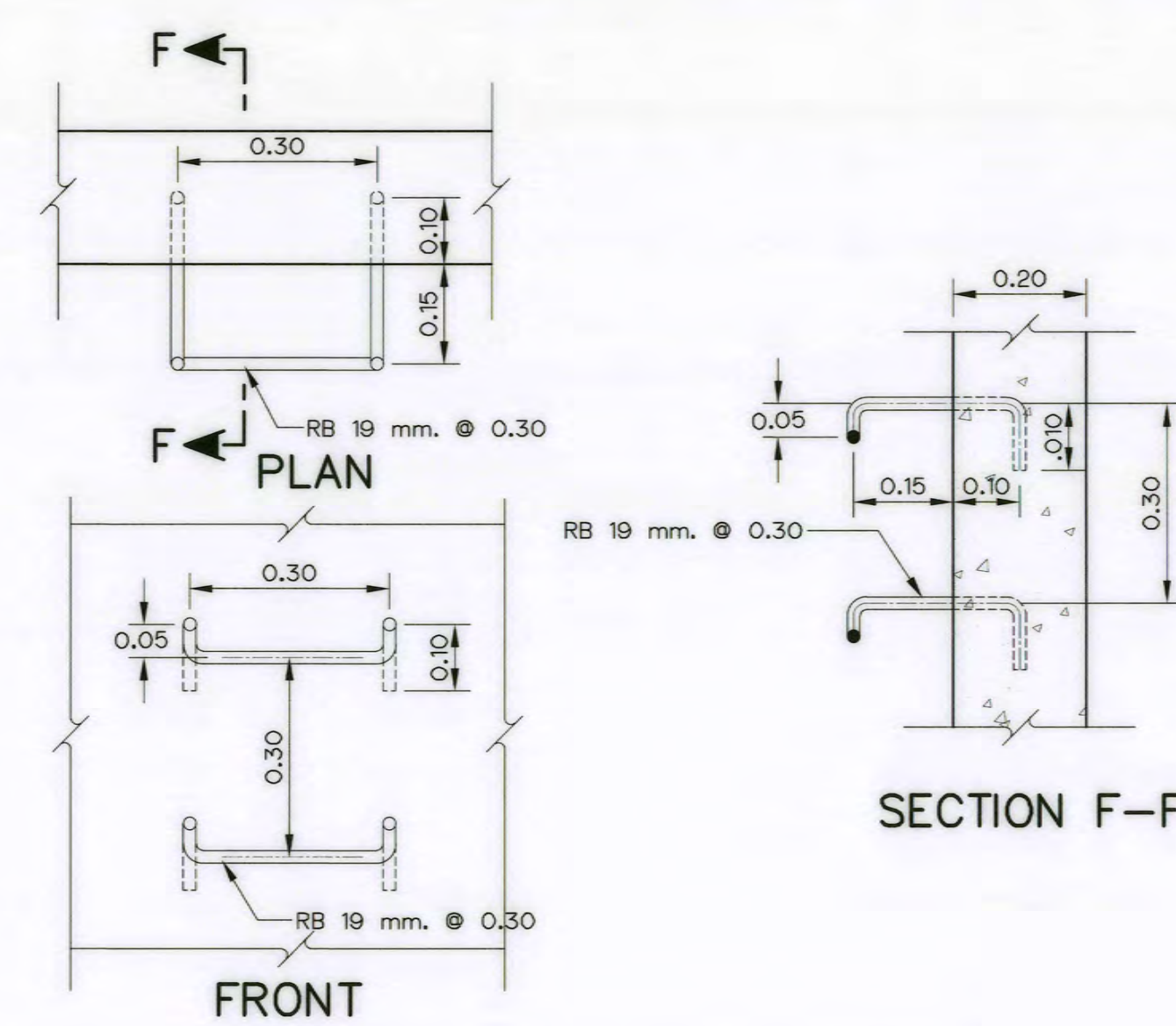
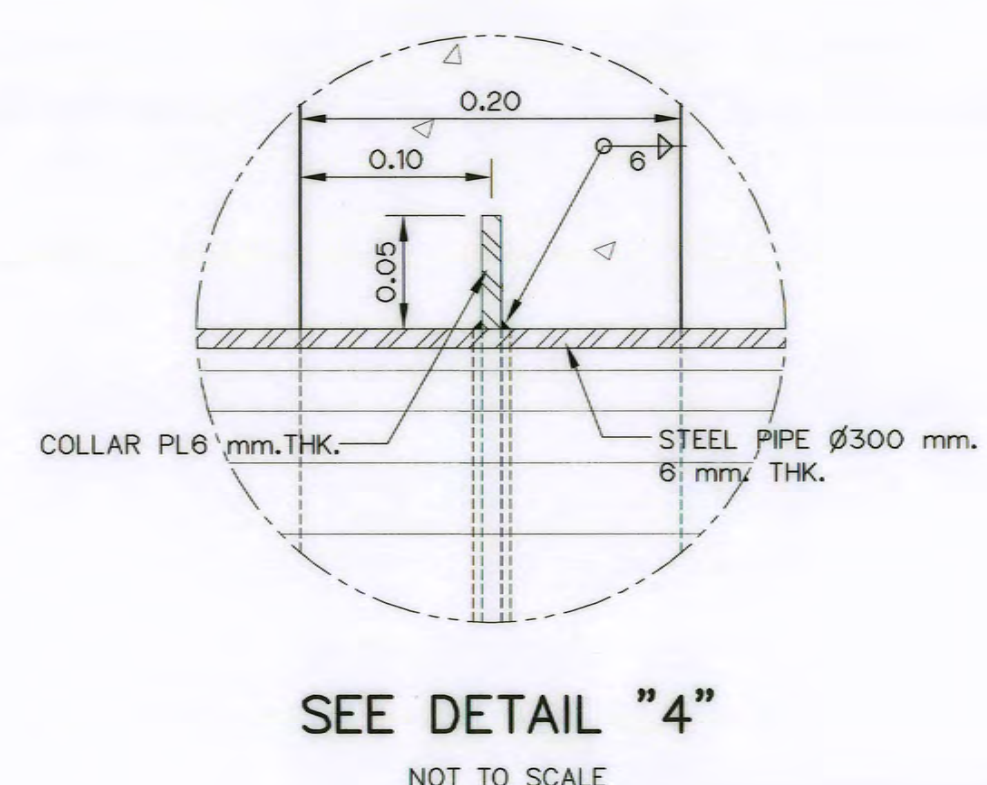
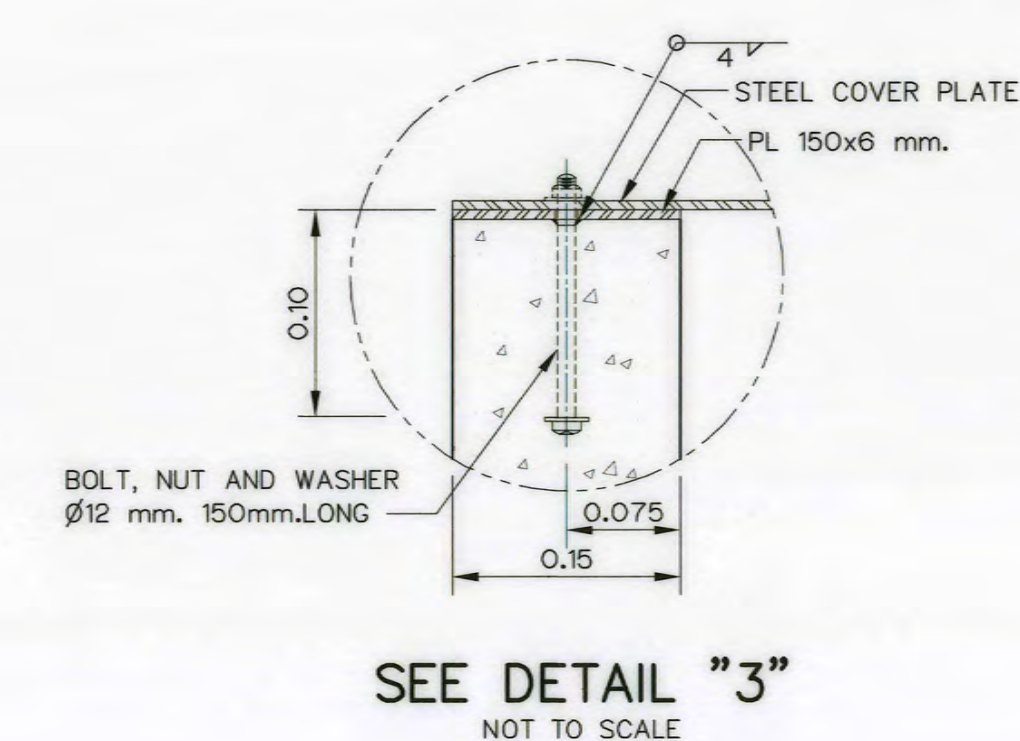
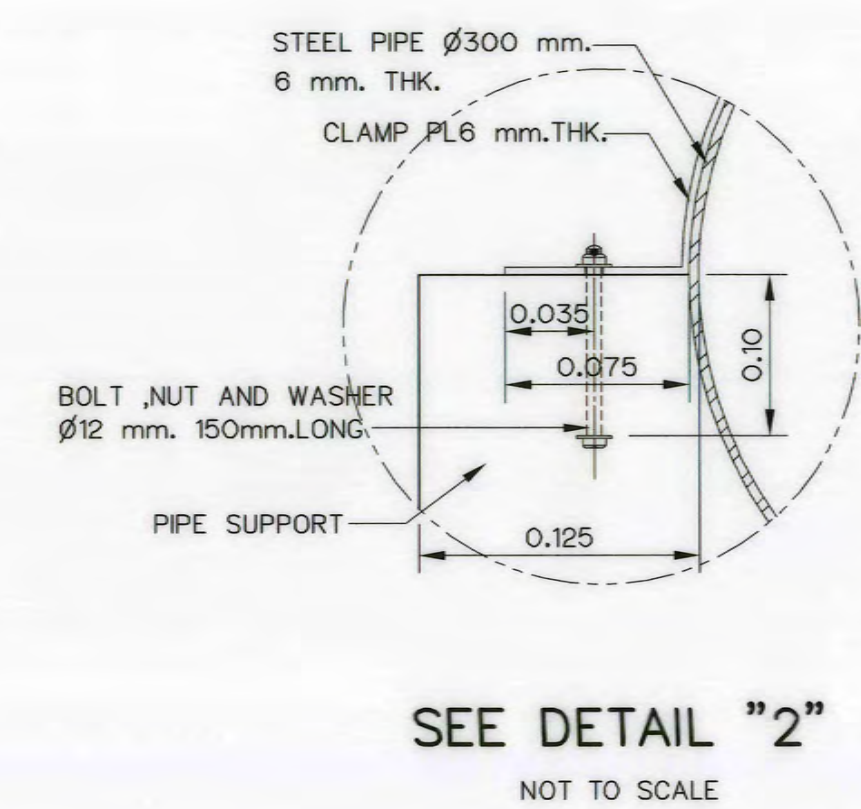
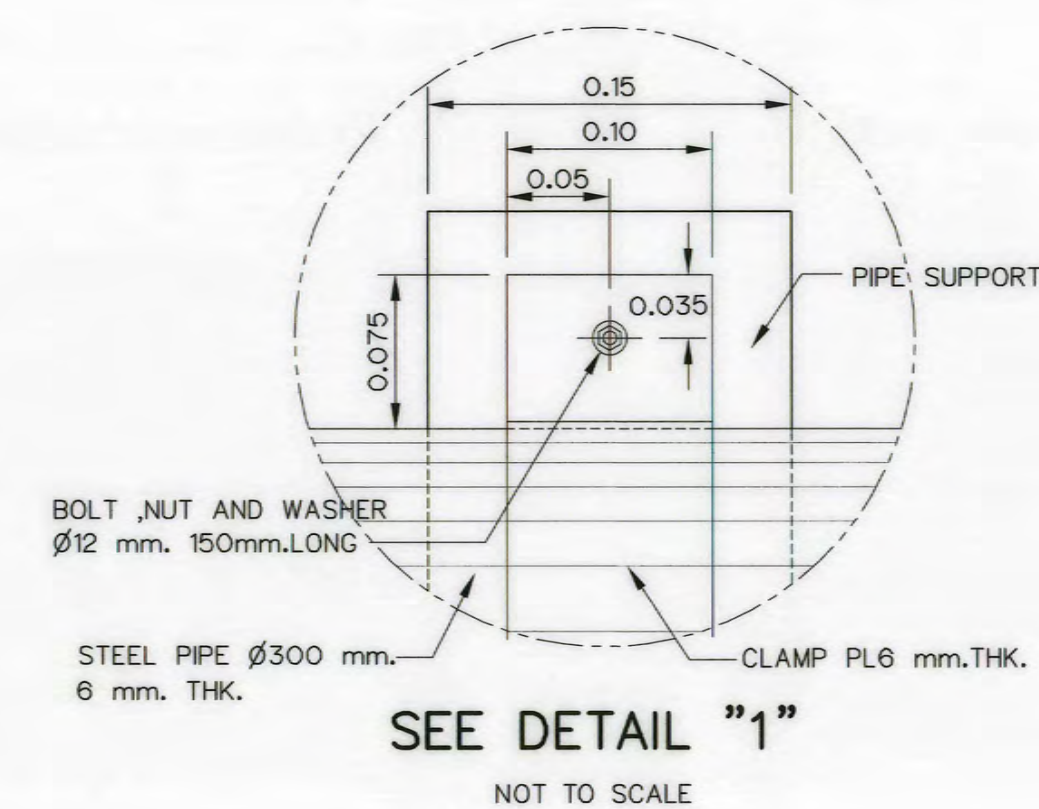
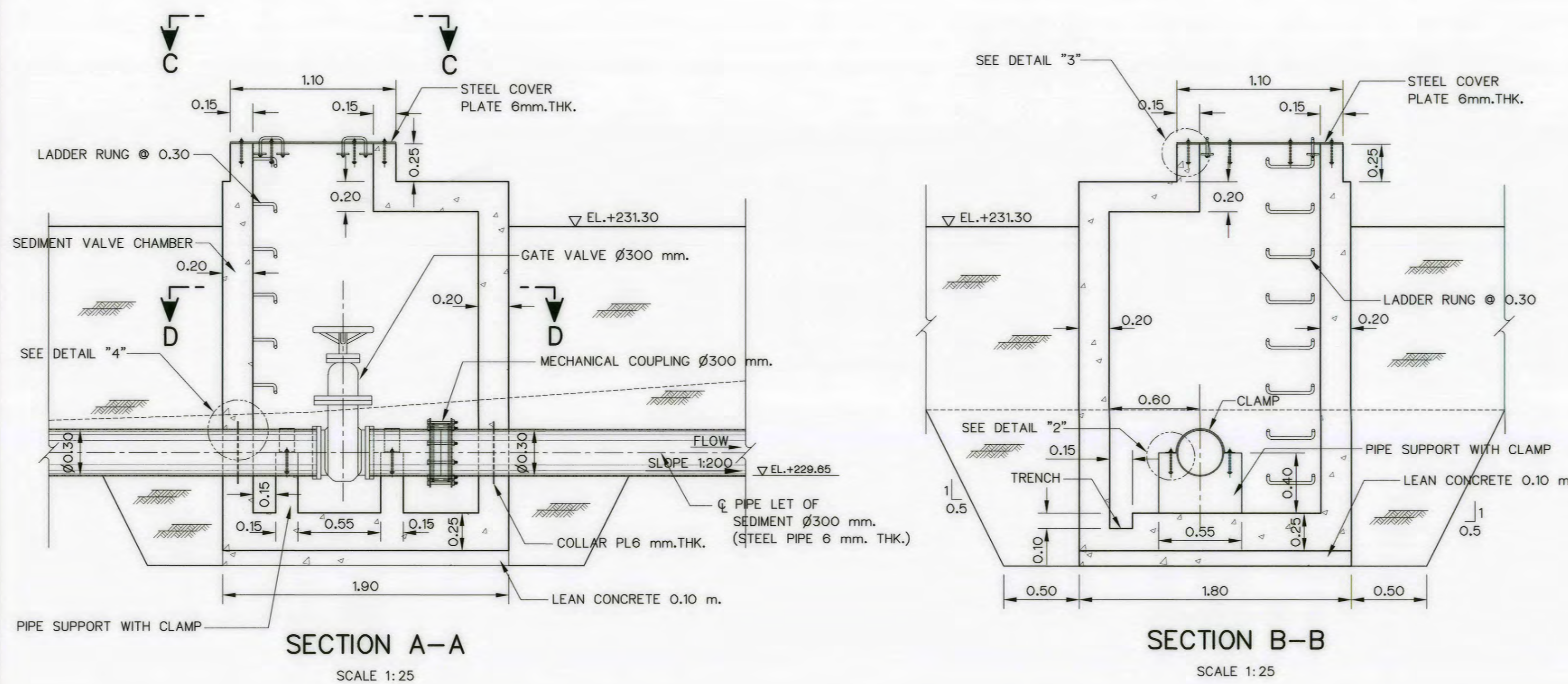
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AKP-ST-07

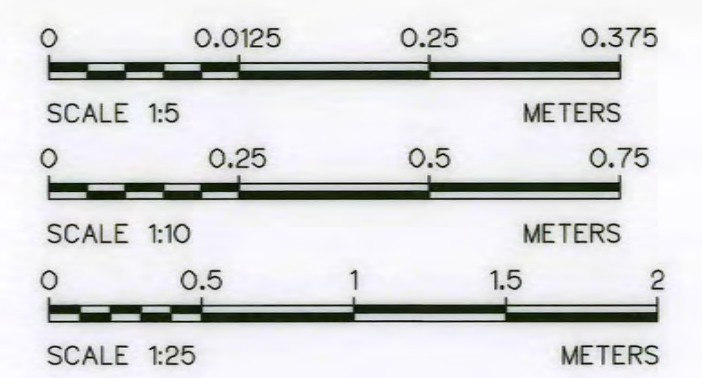
 KINGDOM OF THAILAND Department of Alternative Energy Development and Efficiency MINISTRY OF ENERGY	
AI KA PO HYDROPOWER PROJECT TAMBON PHUKHAO THONG AMPHOE SUKHIRIN CHANGWAT NARATHIWAT	
PART : 1 CIVIL WORKS AND TRANSMISSION LINE SURGE TANK EMERGENCY VALVE CHAMBER REINFORCEMENT DETAILS	
 P&C MANAGEMENT CO., LTD.  SPT CONSULTANTS CO., LTD.	 Department of Alternative Energy Development and Efficiency MINISTRY OF ENERGY
DESIGNED <i>Wira</i> 28.10.2017 28.9.462	REVIEWED <i>APB</i>
DRAWN <i>Qus</i>	SUBMITTED <i>W</i>
CHECKED <i>[Signature]</i> 28.8.231	RECOMMENDED <i>Yes</i>
<i>[Signature]</i> 28/10/2021	APPROVED <i>Worab</i>
PROJECT MANAGER	DRAWING NO. AKP-ST-08
DATE	SHEET NO. 46 OF 129



PLAN STEEL COVER PLATE
SCALE 1:10



- NOTE :**
- ALL DIMENSIONS AND ELEVATIONS ARE IN METERS, UNLESS OTHERWISE SHOWN
- REFERENCE DRAWING :**
- SURGE TANK, GENERAL LAYOUT AKP-ST-01
 - SURGE TANK, SEDIMENT VALVE CHAMBER REINFORCEMENT DETAILS AKP-ST-10



KINGDOM OF THAILAND Department of Alternative Energy Development and Efficiency MINISTRY OF ENERGY AI KA PO HYDROPOWER PROJECT TAMBON PHUKHAO THONG AMPHOE SUKHIRIN CHANGWAT NARATHIWAT PART : 1 CIVIL WORKS AND TRANSMISSION LINE SURGE TANK SEDIMENT VALVE CHAMBER PLAN SECTIONS AND DETAILS			
DESIGNED <i>[Signature]</i> 28/10/2021	REVIEWED <i>[Signature]</i>	PROJECT MANAGER DATE	
DRAWN <i>[Signature]</i>	RECOMMENDED <i>[Signature]</i>	DRAWING NO. SHEET NO.	
CHECKED <i>[Signature]</i> 28/10/2021	APPROVED <i>[Signature]</i>	AKP-ST-09 47 OF 129	