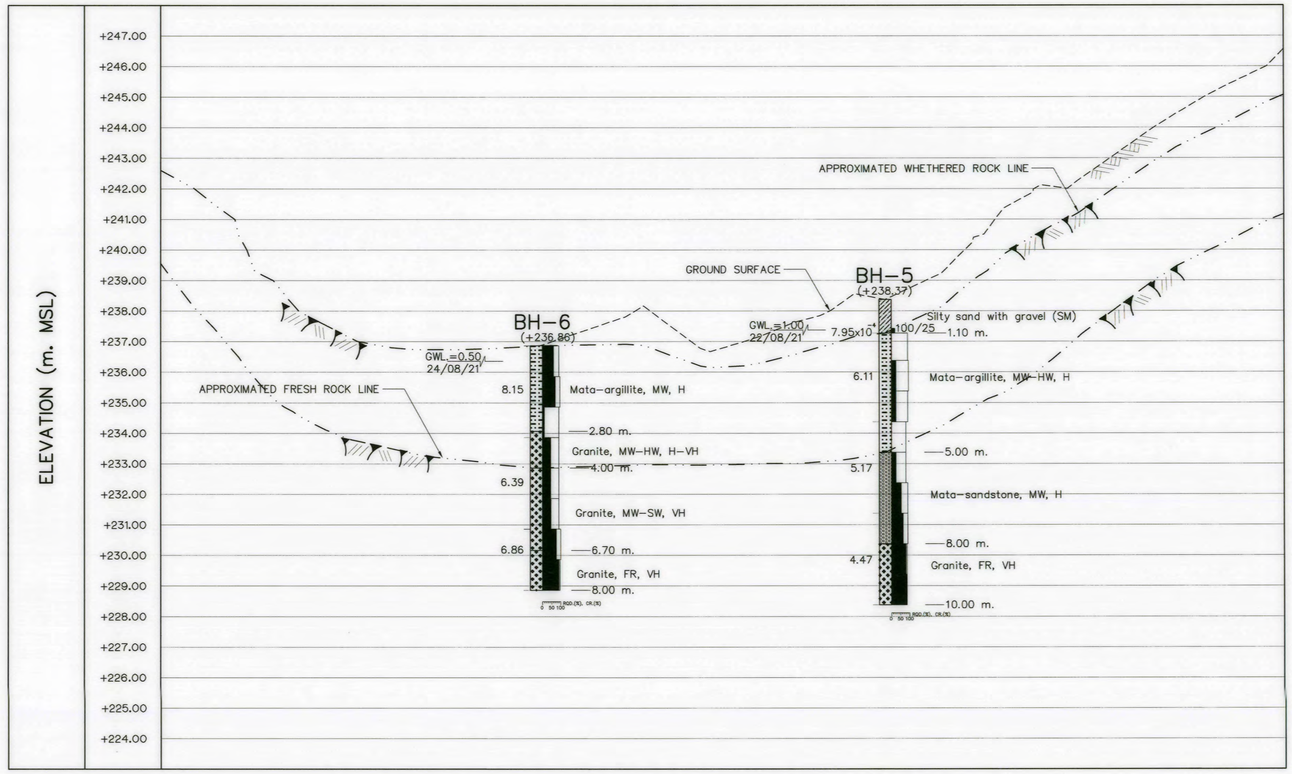
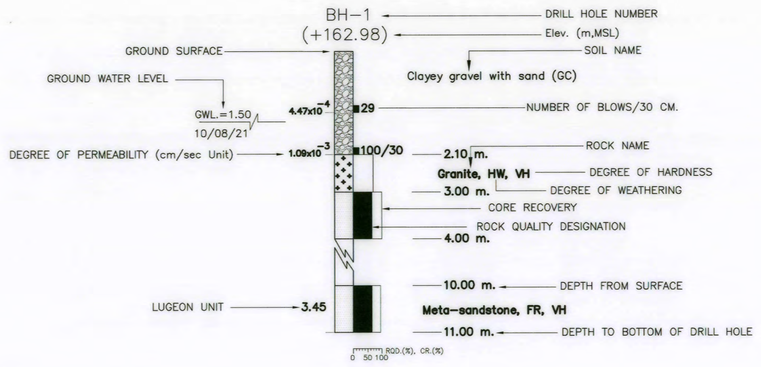


SECTION C-C

SCALE 1:100

EXPLANATION



0 25 50 75 100 125

SCALE 1:100 METERS

NOTES :

1. ALL DIMENSIONS AND ELEVATIONS (M.S.L.) ARE IN METERS. UNLESS OTHERWISE SHOWN.
2. SYMBOLE, ABBREVIATIONS AND CENERAL NOTES SEE DWG. NO. AKP-GN-03

LEGEND

SOIL SYMBOLS

- Clayey gravel with sand
- Sandy clay
- Silty sand

ROCK SYMBOLS

- Granite
- Meta-argillite
- Meta-sandstone
- Meta-sandstone

DEGREE OF WEATHERING

FR.	=	FRESH ROCK
SW	=	SLIGHTLY WEATHERED ROCK
MW	=	MODERATELY WEATHERED ROCK
HW	=	HIGHLY WEATHERED ROCK
CW	=	COMPLETELY WEATHERED ROCK

DEGREE OF HARDNESS

VS	=	VERY SOFT ROCK
S	=	SOFT ROCK
MH	=	MEDIUM HARD ROCK
H	=	HARD ROCK
VH	=	VERY HARD ROCK

DEGREE OF PERCENTAGE OF RQD.

< 25 %	=	VERY POOR ROCK
25-50 %	=	POOR ROCK
50-75 %	=	FAIR ROCK
75-90 %	=	GOOD ROCK
90-100 %	=	VERY GOOD ROCK

DEGREE OF PERMEABILITY

- < 1 LUGEON OR < 10^{-5} CM/SEC = IMPERVIOUS
- 1-5 LUGEON OR 10^{-5} - $5x10^{-5}$ CM/SEC SEMI-IMPERVIOUS
- 5-10 LUGEON OR $5x10^{-5}$ - 10^{-4} CM/SEC SEMI-PERVIOUS
- 10-50 LUGEON OR 10^{-4} - $5x10^{-4}$ CM/SEC RATHER-PERVIOUS
- > 50 LUGEON OR > $5x10^{-4}$ CM/SEC = PERVIOUS

NO.	DATE	REVISIONS	CHECKED	APPROVED
3				
2				
1				
	CONSULTANTS		DEDE	

KINGDOM OF THAILAND
Department of Alternative Energy Development and Efficiency
MINISTRY OF ENERGY

AI KA PO HYDROPOWER PROJECT

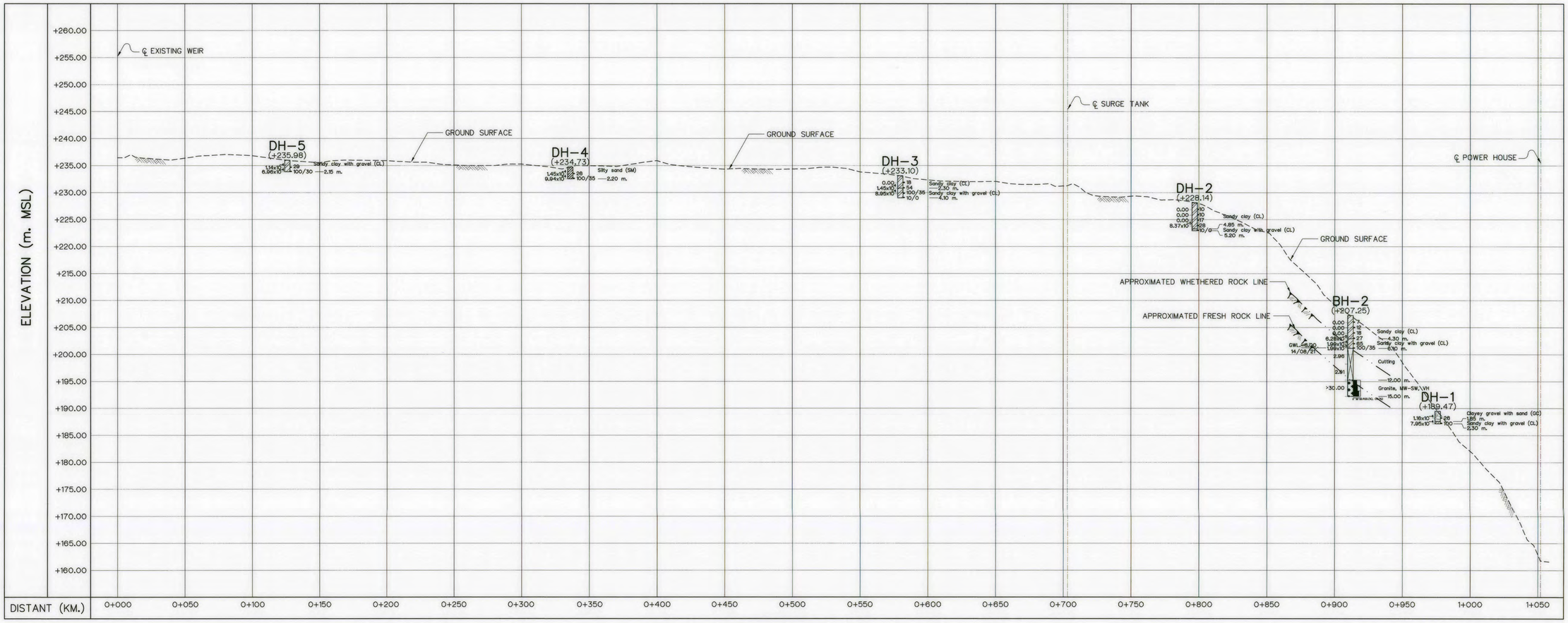
TAMBON PHUKHAO THONG AMPHOE SUKHIRIN CHANGWAT NARATHIWAT

PART : 1 CIVIL WORKS AND TRANSMISSION LINE

GENERAL

GEOLOGICAL SECTION C-C

P&C MANAGEMENT CO., LTD. / SPT CONSULTANTS CO., LTD.	Department of Alternative Energy Development and Efficiency MINISTRY OF ENERGY
DESIGNED	REVIEWED
DRAWN	SUBMITTED
CHECKED Reg.8231	RECOMMENDED
PROJECT MANAGER 28/10/2021 DATE	APPROVED
DRAWING NO. AKP-GN-08	SHEET NO. 8 OF 129

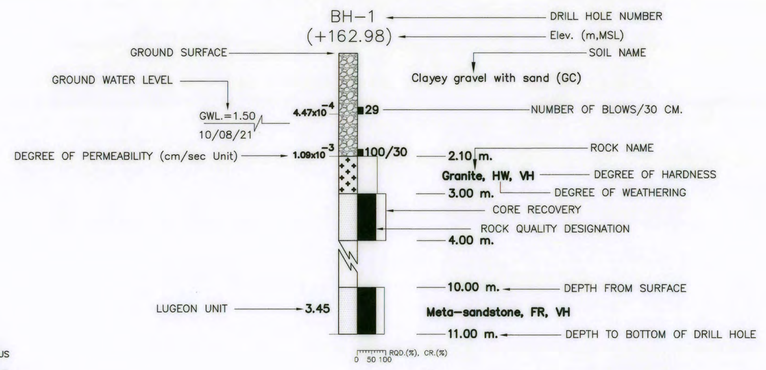


DISTANT (KM.)	0+000	0+050	0+100	0+150	0+200	0+250	0+300	0+350	0+400	0+450	0+500	0+550	0+600	0+650	0+700	0+750	0+800	0+850	0+900	0+950	1+000	1+050

PROFILE

HORIZONTAL SCALE 1:1,600
VERTICAL SCALE 1:400

EXPLANATION



NOTES :

1. ALL DIMENSIONS AND ELEVATIONS (M.S.L.) ARE IN METERS. UNLESS OTHERWISE SHOWN.
2. SYMBOLE, ABBREVIATIONS AND CENERAL NOTES SEE DWG. NO. AKP-GN-03

LEGEND

SOIL SYMBOLS

- Clayey gravel with sand
- Sandy clay
- Silty sand

ROCK SYMBOLS

- Granite
- Meta-argillite
- Meta-sandstone
- Meta-sandstone

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FR.	=	FRESH ROCK
SW	=	SLIGHTLY WEATHERED ROCK
MW	=	MODERATELY WEATHERED ROCK
HW	=	HIGHLY WEATHERED ROCK
CW	=	COMPLETELY WEATHERED ROCK

DEGREE OF PERCENTAGE OF RQD.

< 25 %	=	VERY POOR ROCK
25-50 %	=	POOR ROCK
50-75 %	=	FAIR ROCK
75-90 %	=	GOOD ROCK
90-100 %	=	VERY GOOD ROCK

DEGREE OF HARDNESS

VS	=	VERY SOFT ROCK
S	=	SOFT ROCK
MH	=	MEDIUM HARD ROCK
H	=	HARD ROCK
VH	=	VERY HARD ROCK

DEGREE OF PERMEABILITY

- < 1 LUGEON OR < 10^{-5} CM/SEC = IMPERVIOUS
- 1-5 LUGEON OR 10^{-5} - 5x10^{-5} CM/SEC SEMI-IMPERVIOUS
- 5-10 LUGEON OR 5x10^{-5} - 10^{-4} CM/SEC SEMI-PERVIOUS
- 10-50 LUGEON OR 10^{-4} - 5x10^{-4} CM/SEC RATHER-PERVIOUS
- > 50 LUGEON OR > 5x10^{-4} CM/SEC = PERVIOUS

0 10 20 30 40 50
SCALE 1:400 METERS

0 50 100 150 200
SCALE 1:1,600 METERS

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

GENERAL

GEOLOGICAL OF HEADRACE AND PENSTOCK

NO.	DATE	REVISIONS	CHECKED	APPROVED
3				
2				
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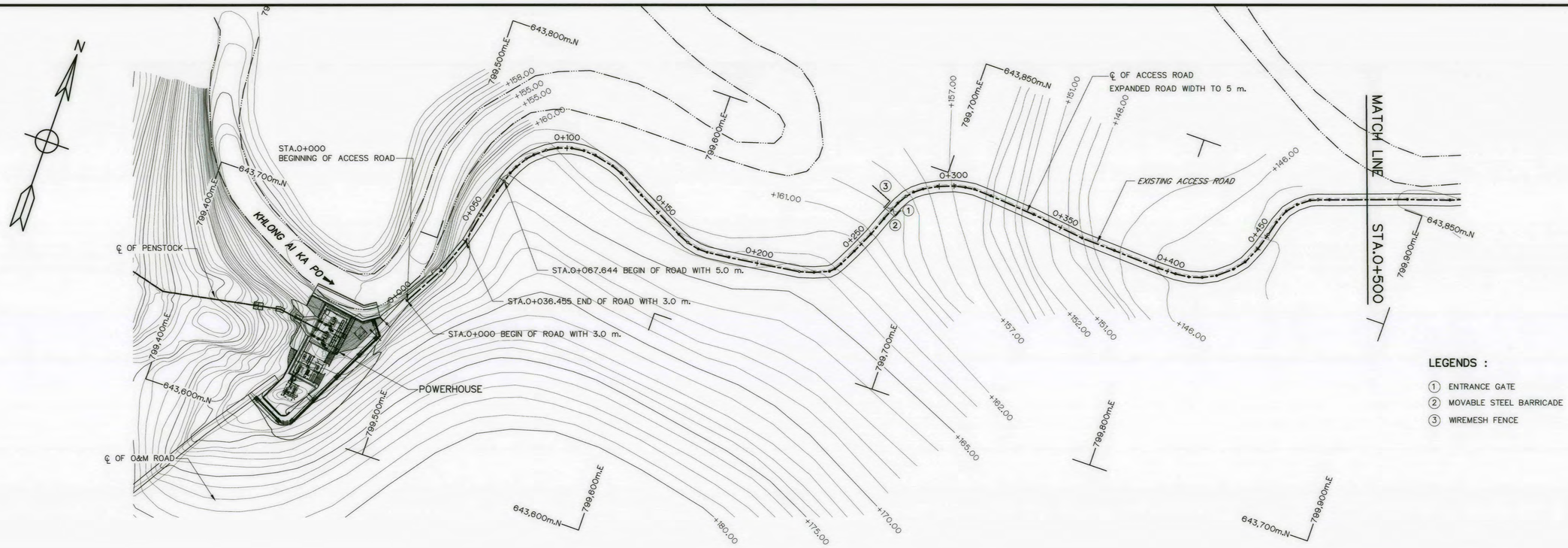
CONSULTANTS: PCM P&C MANAGEMENT CO., LTD. / SPT CONSULTANTS CO., LTD.

DEDE: Department of Alternative Energy Development and Efficiency, MINISTRY OF ENERGY

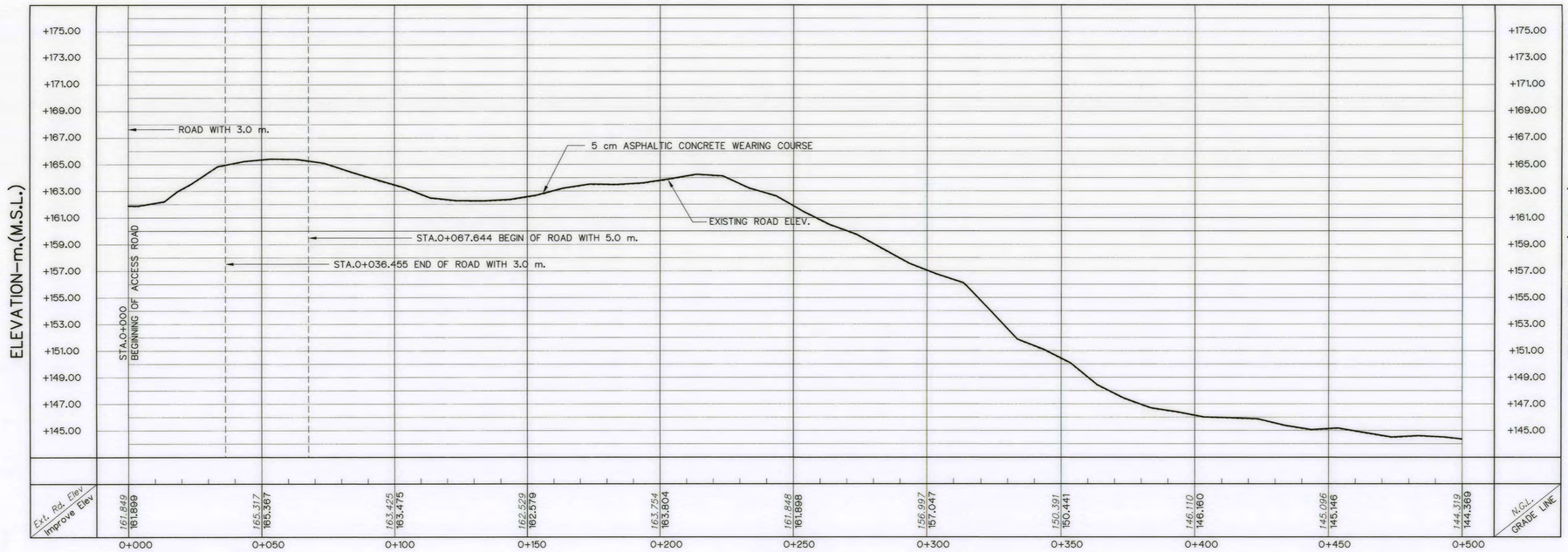
DESIGNED	Lt.Col.Wisanu Lt.29074 Sathob	REVIEWED	
DRAWN		SUBMITTED	
CHECKED	Lt.8231	RECOMMENDED	
PROJECT MANAGER	28/10/2021 DATE	APPROVED	

DRAWING NO. AKP-GN-09

SHEET NO. 9 OF 129



PLAN
SCALE 1:1,000



PROFILE
VERTICAL SCALE 1:200
HORIZONTAL SCALE 1:1,000

NOTES :

1. ALL DIMENSIONS AND ELEVATIONS (M.S.L.) ARE IN METERS,UNLESS OTHERWISE SHOWN
2. SYMBOLS, ABBREVIATIONS AND GENERAL NOTES SEE DWG. NO. AKP-GN-03
3. THE CONTRACTOR HAS TO SUBMITED SURVEYING AND ROAD ALIGNMENT FOR APPROVAL.

REFERENCE DRAWING :

1. ACCESS ROAD, PLAN AND PROFILE STA.0+500 TO STA.0+789.373	AKP-AR-02
2. POWER HOUSE, MOVABLE STEEL BARRICADE	AKP-PH-16
3. POWER HOUSE, CHAIN LINK FENCE AND GATE WIDTH 1.00 M.	AKP-PH-17
4. POWER HOUSE, EXTERNAL LIGHTING PLAN	AKP-PH-27

0 5 10 15
SCALE 1:200 METERS

0 10 20 40 50 80
SCALE 1:1,000 METERS

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
ACCESS ROAD
PLAN AND PROFILE STA.0+000 TO STA.0+500

NO.	DATE	REVISIONS	CHECKED	APPROVED
3				
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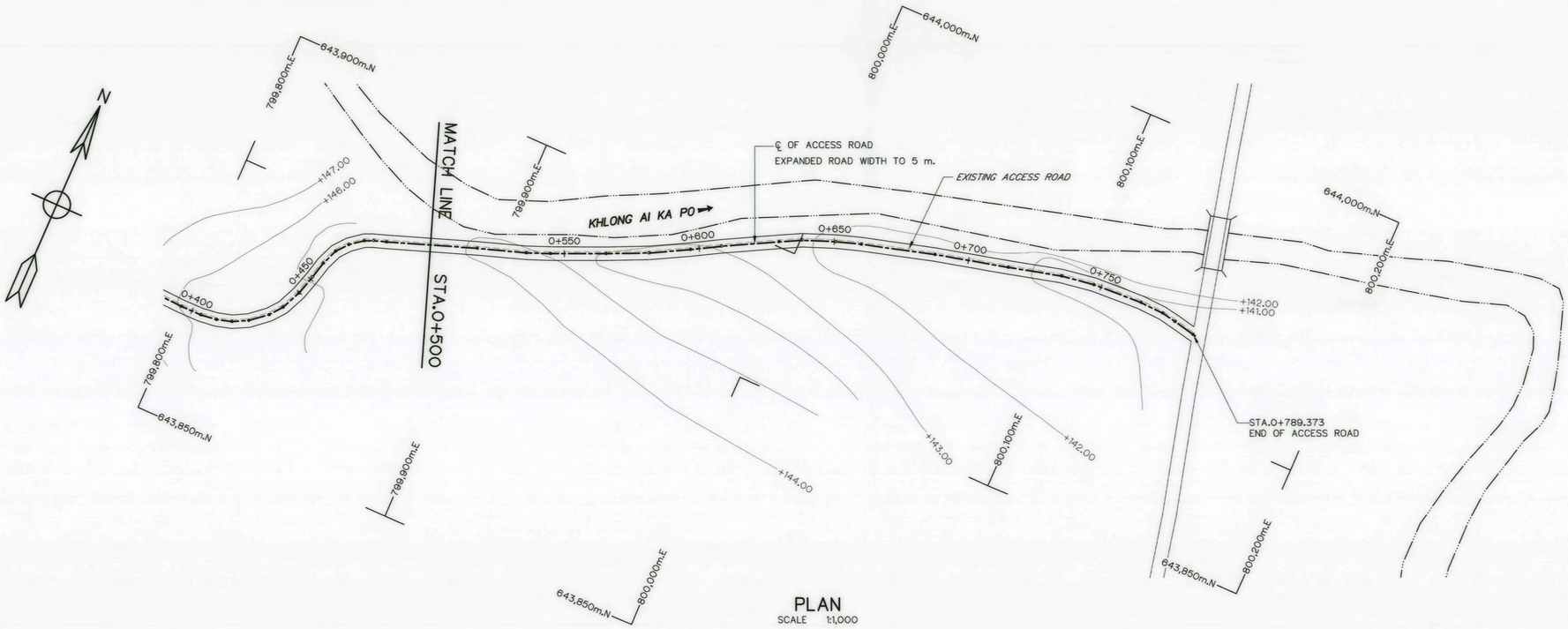
	CONSULTANTS		DEDE	

PCM P&C MANAGEMENT CO., LTD.
SPT CONSULTANTS CO., LTD.

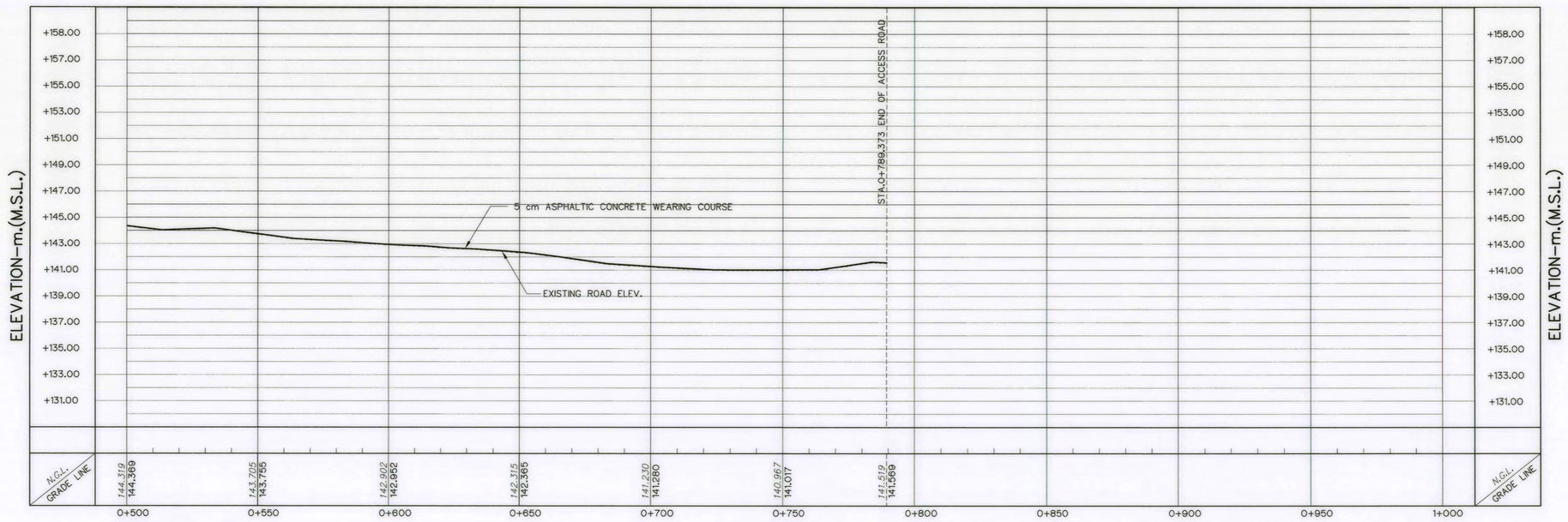
DESIGNED วิศ.29074 วิศ.9462
DRAWN
CHECKED วิศ.8231
28/10/2021
PROJECT MANAGER DATE

Department of Alternative Energy Development and Efficiency
MINISTRY OF ENERGY
REVIEWED
SUBMITTED
RECOMMENDED
APPROVED

DRAWING NO. AKP-AR-01
SHEET NO. 10 OF 129



PLAN
SCALE 1:1,000



PROFILE
VERTICAL SCALE 1:200
HORIZONTAL SCALE 1:1,000

NOTES :

1. ALL DIMENSIONS AND ELEVATIONS (M.S.L.) ARE IN METERS,UNLESS OTHERWISE SHOWN
2. SYMBOLS, ABBREVIATIONS AND GENERAL NOTES SEE DWG. NO. AKP-GN-03
3. THE CONTRACTOR HAS TO SUBMITED SURVEYING AND ROAD ALIGNMENT FOR APPROVAL.

REFERENCE DRAWING :

1. ACCESS ROAD,PLAN AND PROFILE STA.0+000 TO STA.0+500 AKP-AR-01

0 5 10 15
SCALE 1:200 METERS

0 10 20 40 50 80
SCALE 1:1,000 METERS

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

ACCESS ROAD

PLAN AND PROFILE STA.0+500 TO STA.0+789.373

NO.	DATE	REVISIONS	CHECKED	APPROVED
3				
2				
1				

CONSULTANTS: P&C MANAGEMENT CO., LTD. / SPT CONSULTANTS CO., LTD.

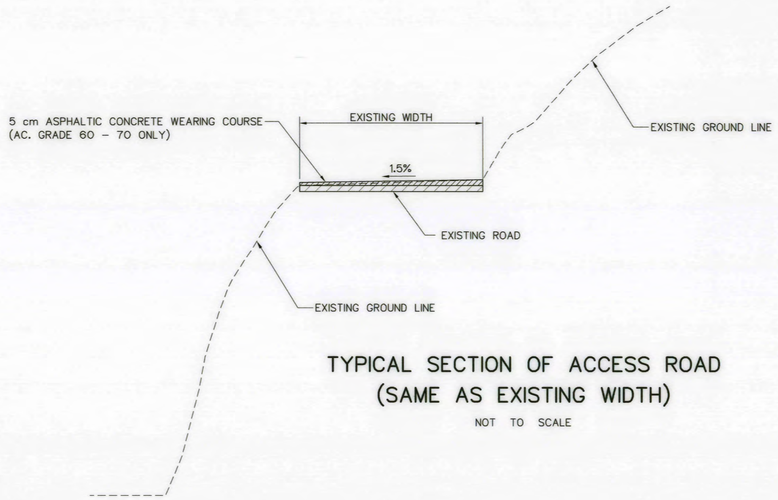
DEDE: Department of Alternative Energy Development and Efficiency, MINISTRY OF ENERGY

DESIGNED ส.ท.29074 ส.ท.9462
DRAWN
CHECKED ส.ท.8231
PROJECT MANAGER 28/10/2021 DATE

REVIEWED
SUBMITTED
RECOMMENDED
APPROVED

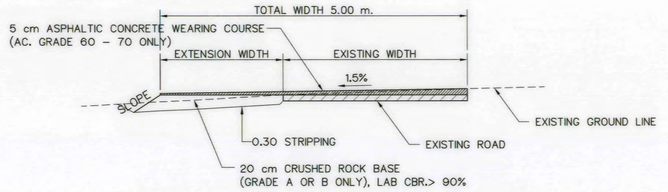
DRAWING NO. AKP-AR-02

SHEET NO. 11 OF 129



TYPICAL SECTION OF ACCESS ROAD
(SAME AS EXISTING WIDTH)

NOT TO SCALE



TYPICAL SECTION OF ACCESS ROAD
(EXTENSION WIDTH)

NOT TO SCALE

NOTES :

1. ALL DIMENSIONS AND ELEVATIONS (M.S.L.) ARE IN METERS, UNLESS OTHERWISE SHOWN.
2. CLEARING AND GRUBBING METHOD SHALL CONFORM TO THE REQUIREMENTS AS SPECIFILED IN THE TECHNICAL SPECIFICATIONS.
3. ACCESS ROAD ALIGNMENT MAY BE RE-ADJUSTED TO SUIT THE FIELD CONDITIONS, BUT UNDER THE APPROVAL OF FIELD ENGINEERS.
4. THE FIELD ENGINEER MAY ORDER SIDE SLOPE IN DIFFERENCE FROM TYPICALLY SHOWN IN THIS DRAWING.
5. THE MATERIAL FOR LATERITE CRUSHE STONE SHALL HAVE AC. OR VALUE NOT LESS THAN 15% AND ITS PHYSICAL PROPERTIES AS FOLLOWS
   - LIQUID LIMIT (LL) NOT GREATER THAN 34%
   - PLASTIC INDEX (PI) IN RANGE OF 5 TO 11
   - PERCENTAGE OF WEAR NOT GREATER THAN 50%

   AND OTHER PROPERTIES AS SPECIFIED IN THE TECHNICAL SPECIFICATIONS.
6. THE PAVEMENT OF ACCESS ROAD IS ASPHALTIC CONCRETE

SLOPE IN CUT AND FILL SECTIONS

EXISTING GROUND SLOPE 1:S	EARTH		HARD ROCK	
	CUT 1:S	FILL 1:S	CUT 1:S	FILL 1:S
OVER 1 : 1	OVER 1:0.5	1/	1:0	1/
1:1 – 1:1.5	1:0.5	1/	1:0	1/
1:1.5 – 1:2	1:1	1:1	1:0	1:1
1:2 – 1:3	1:1	1:1.5	1:0	1:1.5
LOWER 1:3	1:1	1:2	1:0	1:2

1/ = FILL SHOULD BE AVOIDED
2/ = FOR DOUBTFUL CASES FIELD ENGINEER

NO.	DATE	REVISIONS	CHECKED	APPROVED
3				
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1				
	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

ACCESS ROAD

TYPICAL SECTIONS, STOPPING AND PASSING PLACES

PCM P&C MANAGEMENT CO., LTD. / SPT CONSULTANTS CO., LTD.	Department of Alternative Energy Development and Efficiency MINISTRY OF ENERGY
DESIGNED ณัฐวุฒิ 29074 ศุภชัย 9462	REVIEWED
DRAWN	SUBMITTED
CHECKED ณัฐวุฒิ 8231	RECOMMENDED
PROJECT MANAGER 28/10/2021 DATE	APPROVED
DRAWING NO. AKP-AR-03	SHEET NO. 12 OF 129