REPUBLIC OF THE PHILIPPINES

DEPARTMENT OF
PUBLIC WORKS AND HIGHWAYS

THE DETAILED DESIGN STUDY FOR THE PASIG-MARIKINA RIVER CHANNEL IMPROVEMENT PROJECT (PHASE IV)

FINAL REPORT (PRIOR RELEASE VERSION)

VOLUME-3
APPENDIX FOR GEOTECHNICAL INVESTIGATION

AUGUST 2020

JAPAN INTERNATIONAL COOPERATION AGENCY

CTI ENGINEERING INTERNATIONAL CO., LTD.
JAPAN WATER AGENCY
NIPPON KOEI CO., LTD.
CTI ENGINEERING CO., LTD.

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COMPOSITION OF FINAL REPORT
(PRIOR RELEASE VERSION)

VOLUME-1A	**:**	**MAIN REPORT (CHAPTER 1 to 6)**
VOLUME-1B	**:**	**MAIN REPORT (CHAPTER 7 / 7.1 to 7.3)**
VOLUME-1C	**:**	**MAIN REPORT (CHAPTER 7 / 7.4 to 7.6)**
VOLUME-1D	**:**	**MAIN REPORT (CHAPTER 8 to 12)**
VOLUME-2	**:**	**APPENDIX**
VOLUME-3	**:**	**APPENDIX FOR GEOTECHNICAL INVESTIGATION**

EXCHANGE RATES USED IN THE REPORT:
PHP 1.0 = JPY 2.15
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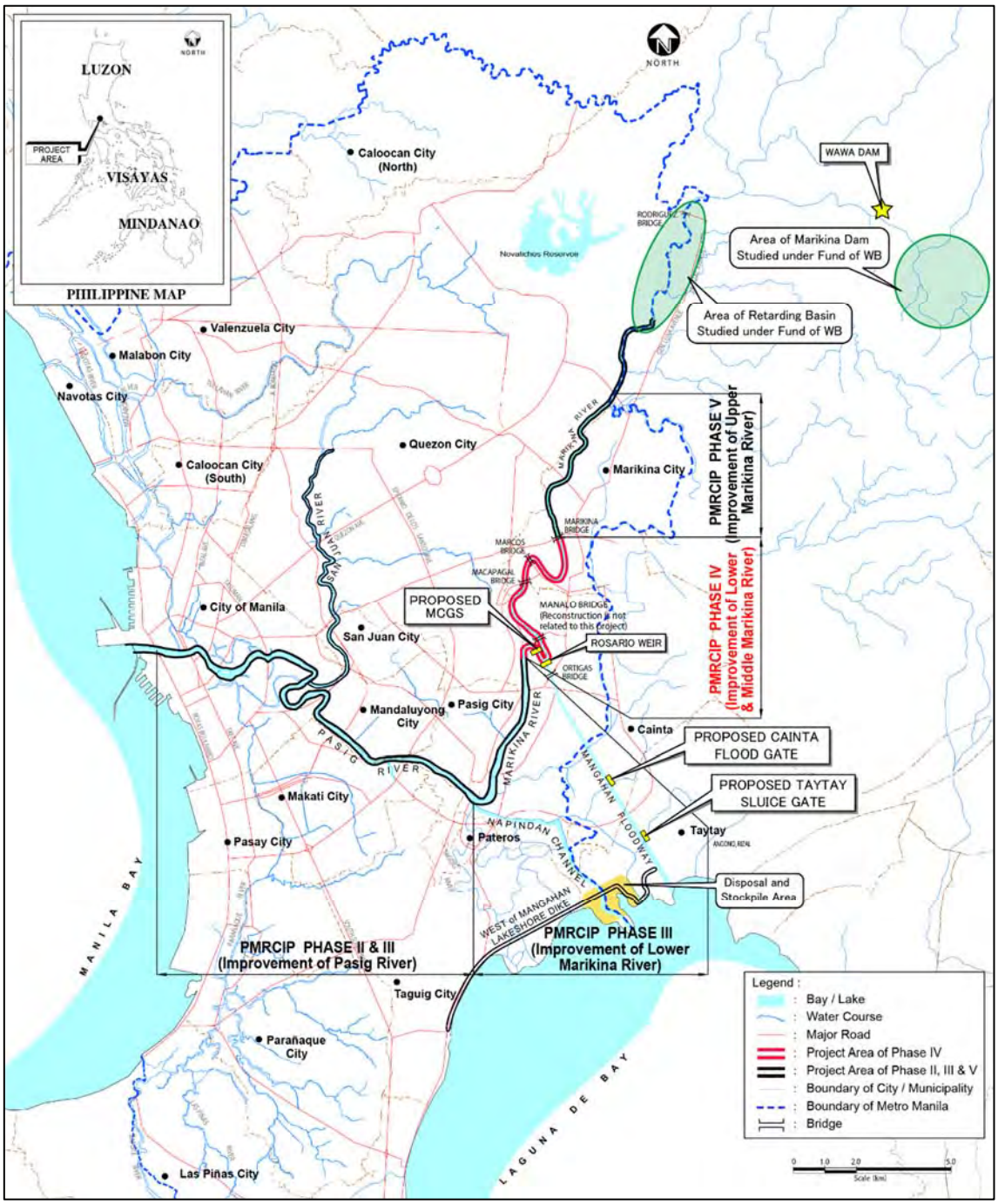
(November 2019)



PROJECT LOCATION MAP

THE DETAILED DESIGN STUDY FOR THE PASIG-MARIKINA RIVER CHANNEL IMPROVEMENT PROJECT (PHASE IV)

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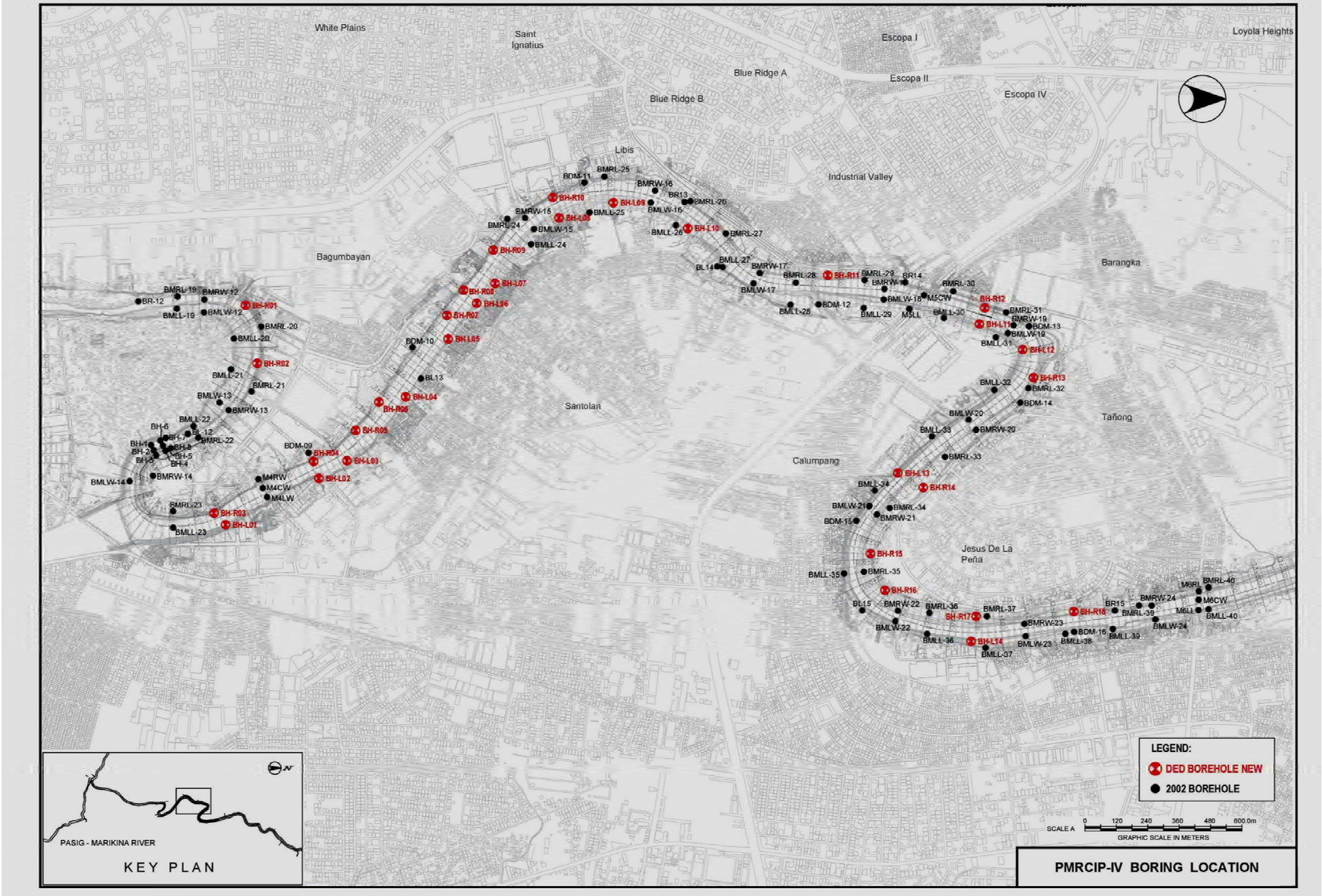


Figure 5-1-1 Location Maps of Boreholes at Marikina River

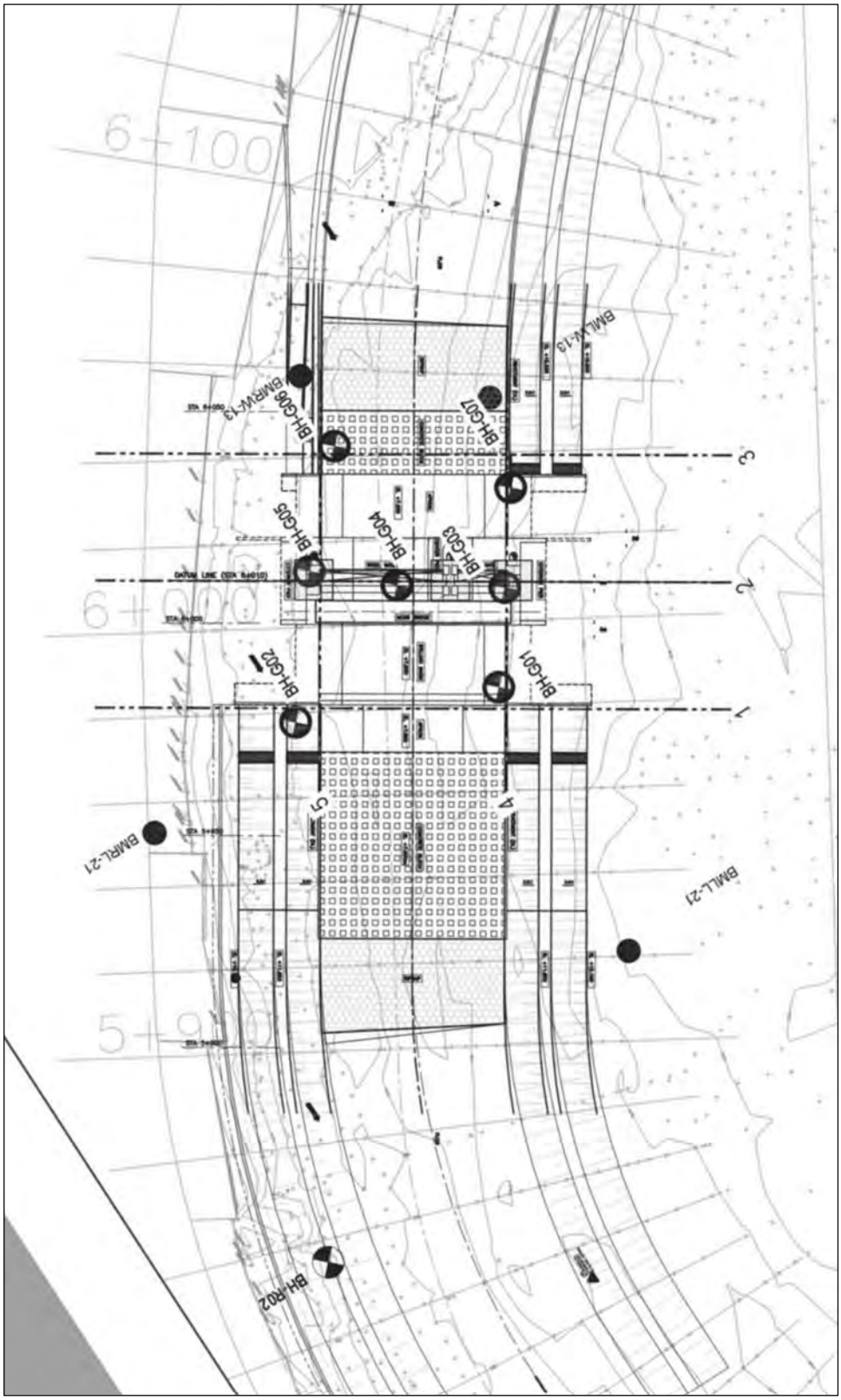


Figure 5-1-2　Location Maps of Boreholes at MCGS Site

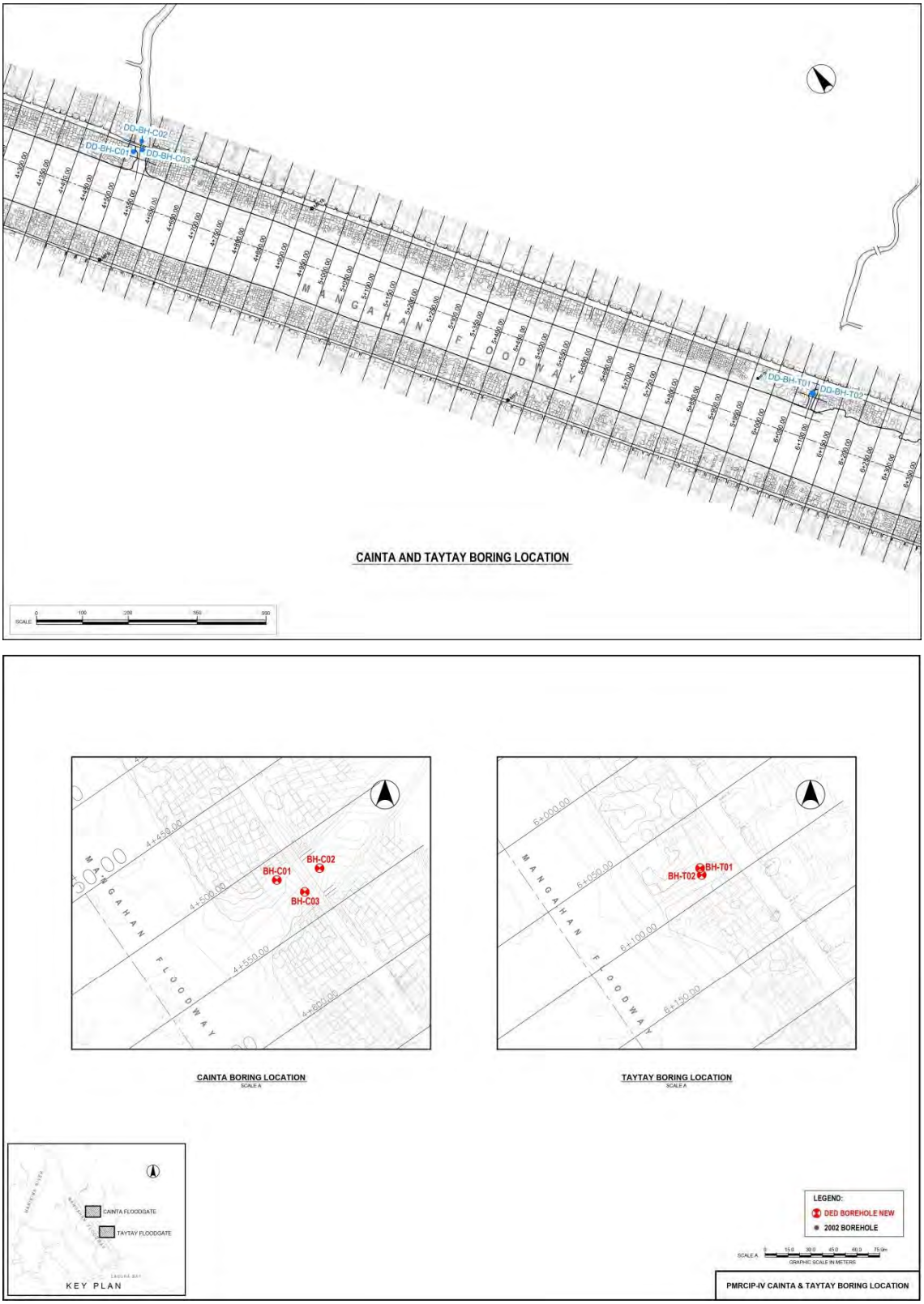
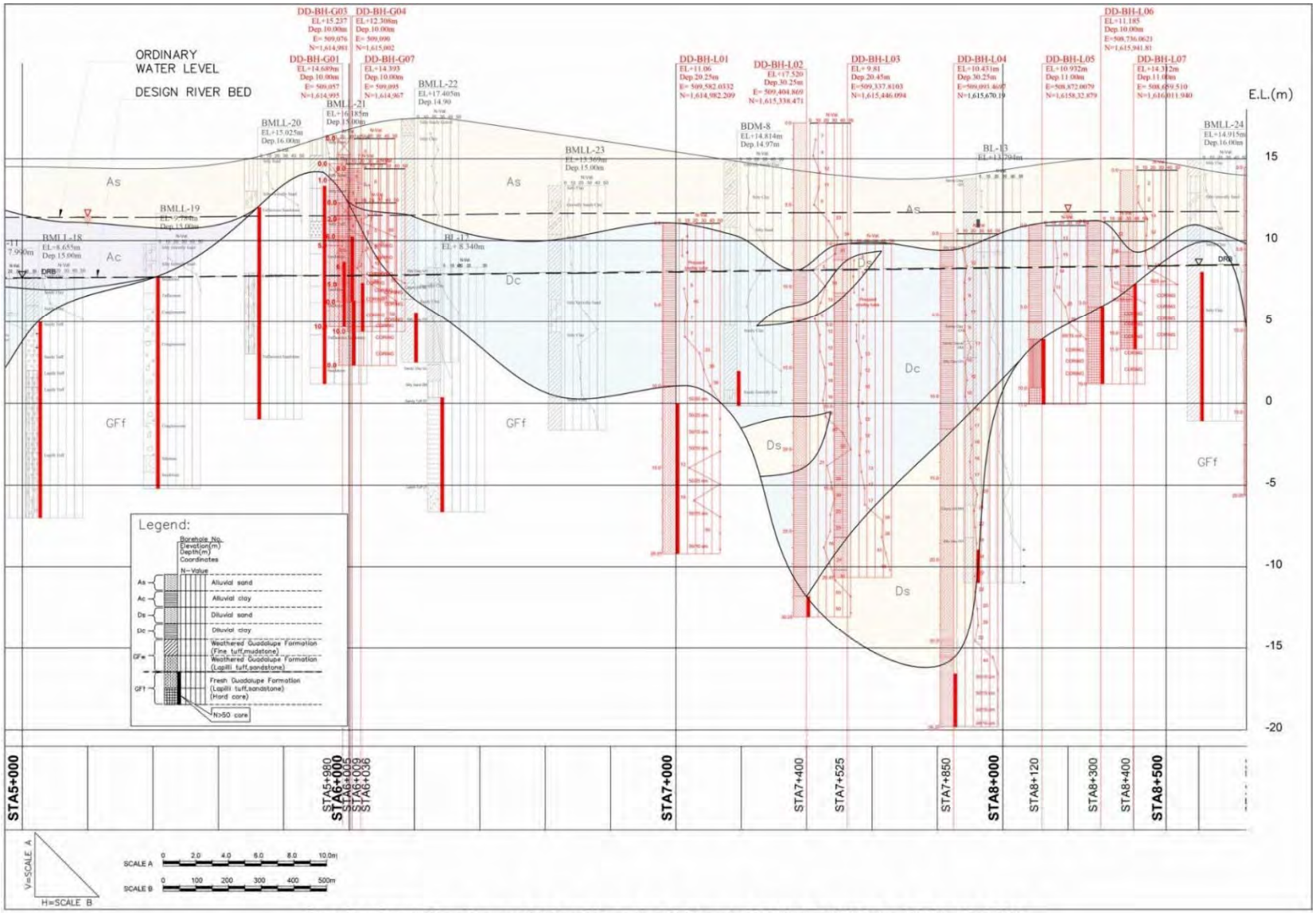
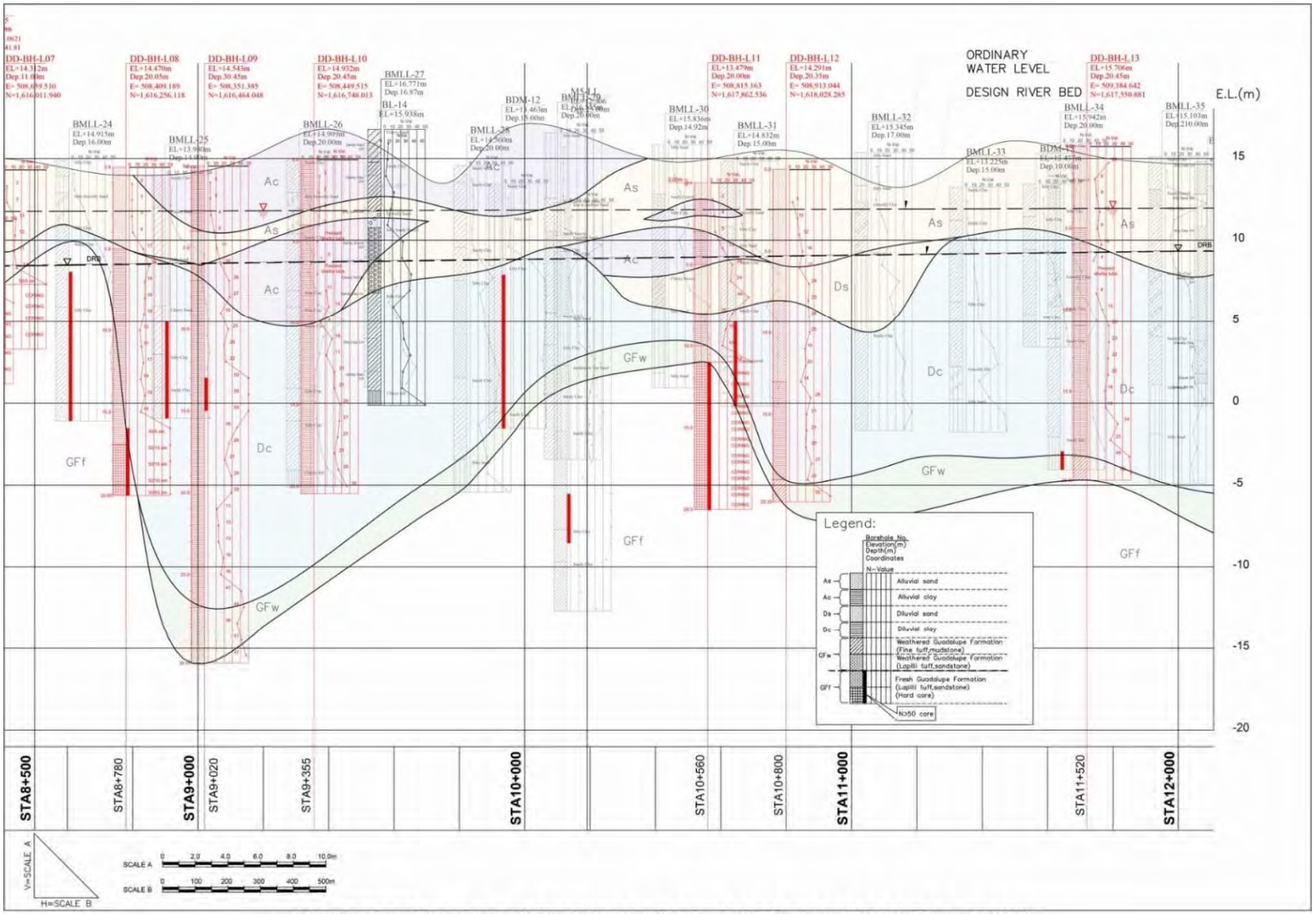


Figure 5-1-3 Location Maps of Boreholes at Cainta / Taytay Site



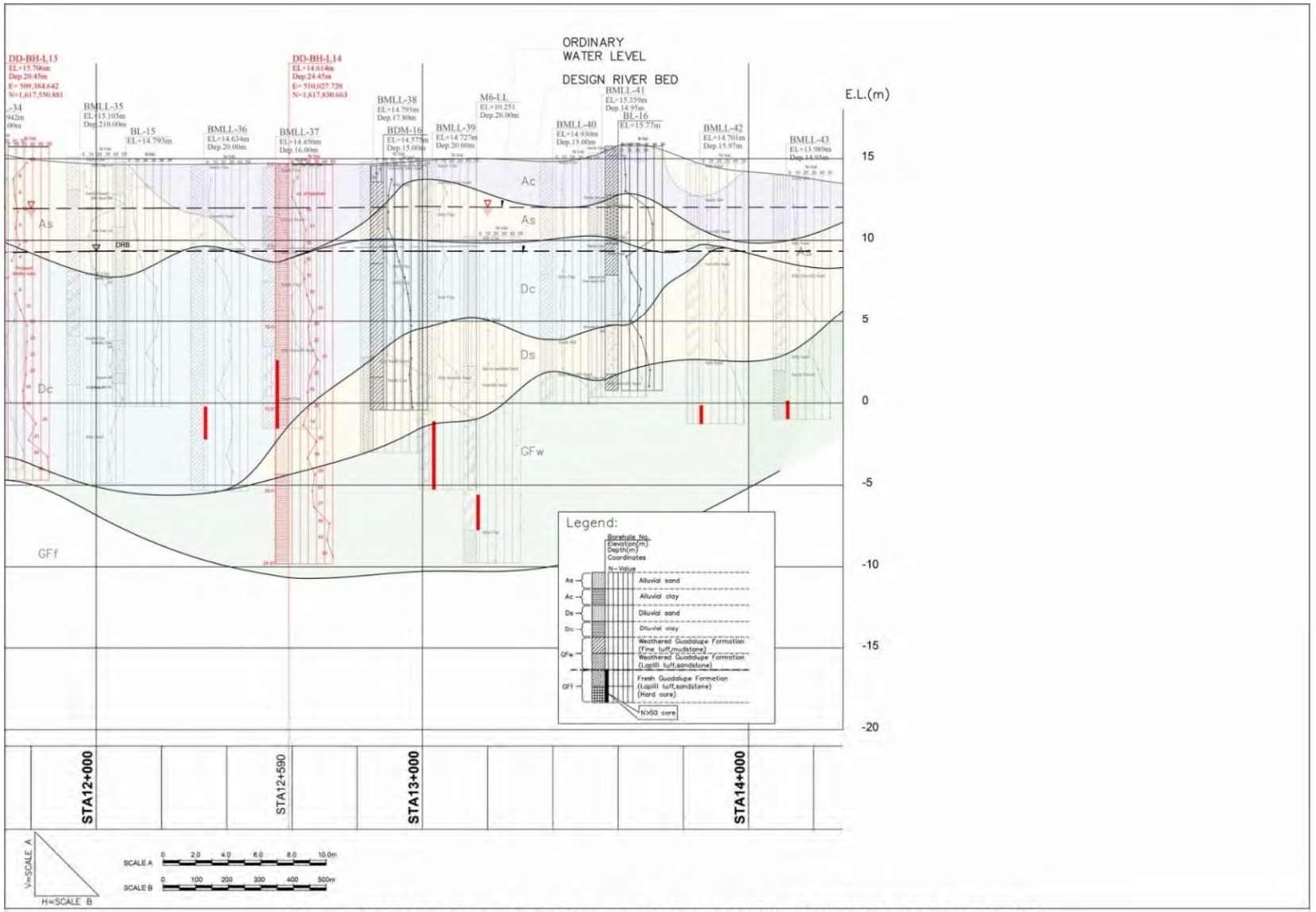
Geological Section of Marikina Left Bank STA 5+000 to STA 8+500

Figure 5-2-1（1/3）Geological Section of Marikina Left Bank



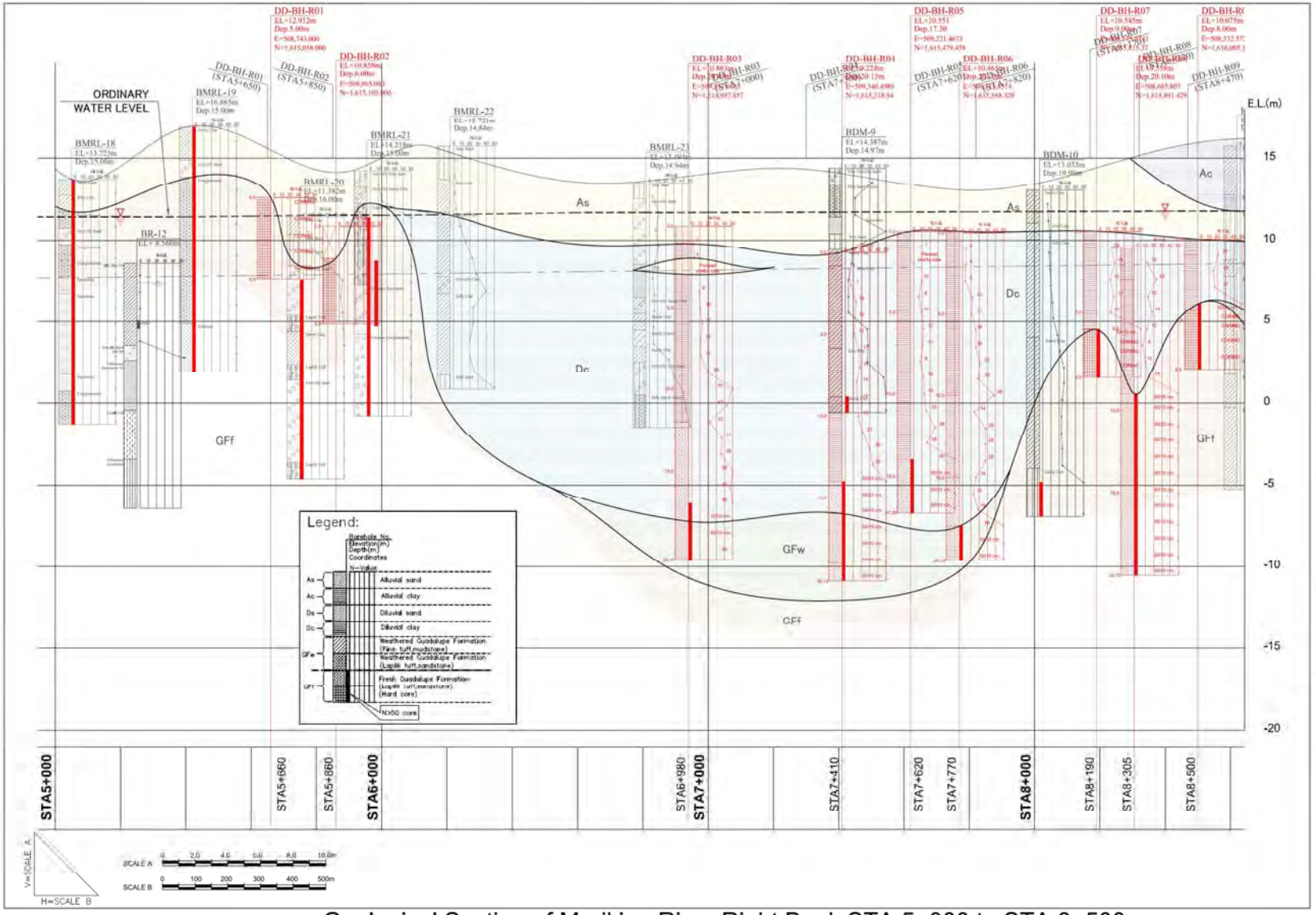
Geological Section of Marikina Left Bank STA 8+500 to STA 12+000

Figure 5-2-1 (2/3) Geological Section of Marikina Left Bank



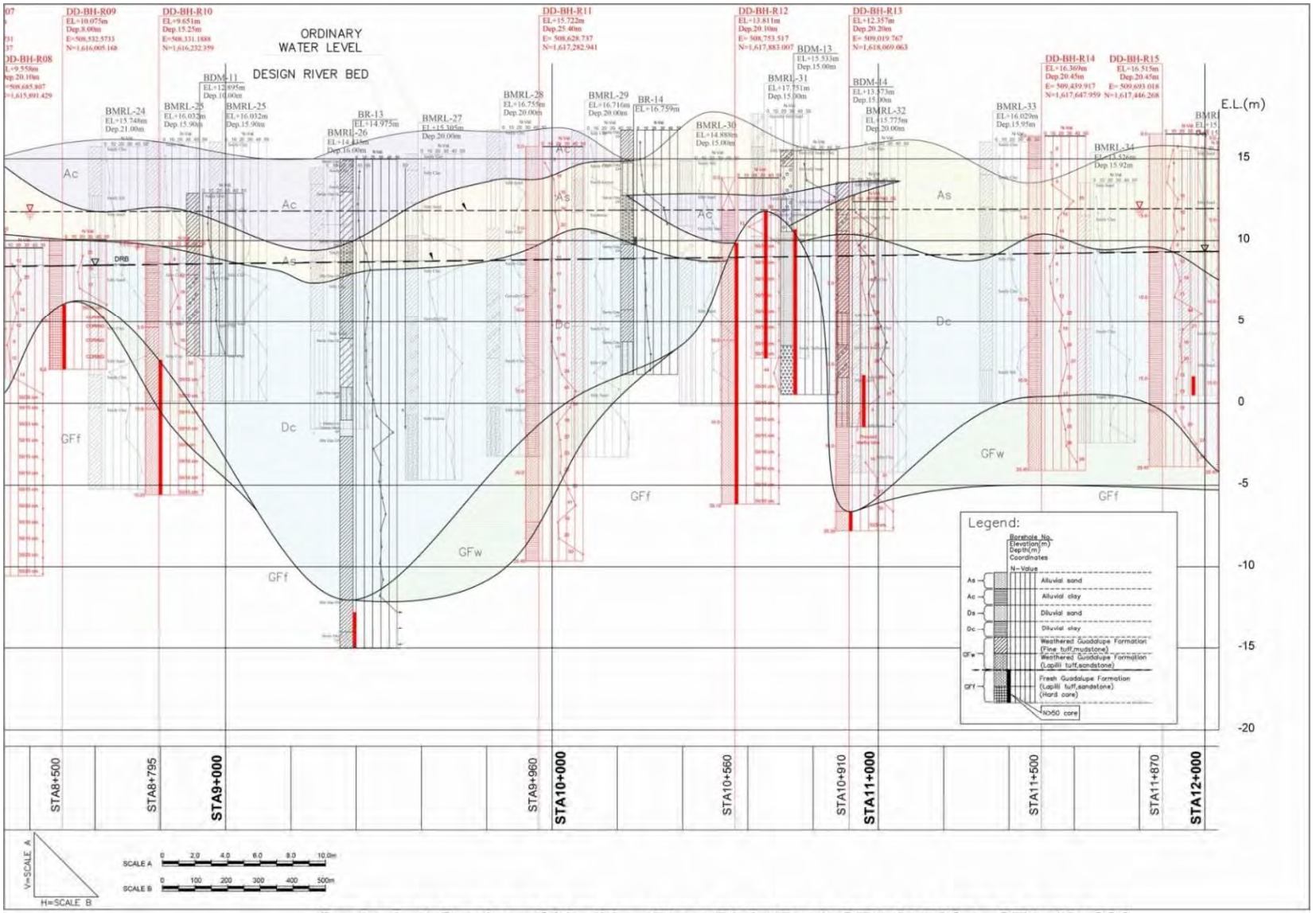
Geological Section of Marikina Left Bank STA 12+000 to STA 14+000

Figure 5-2-1（3/3）Geological Section of Marikina Left Bank



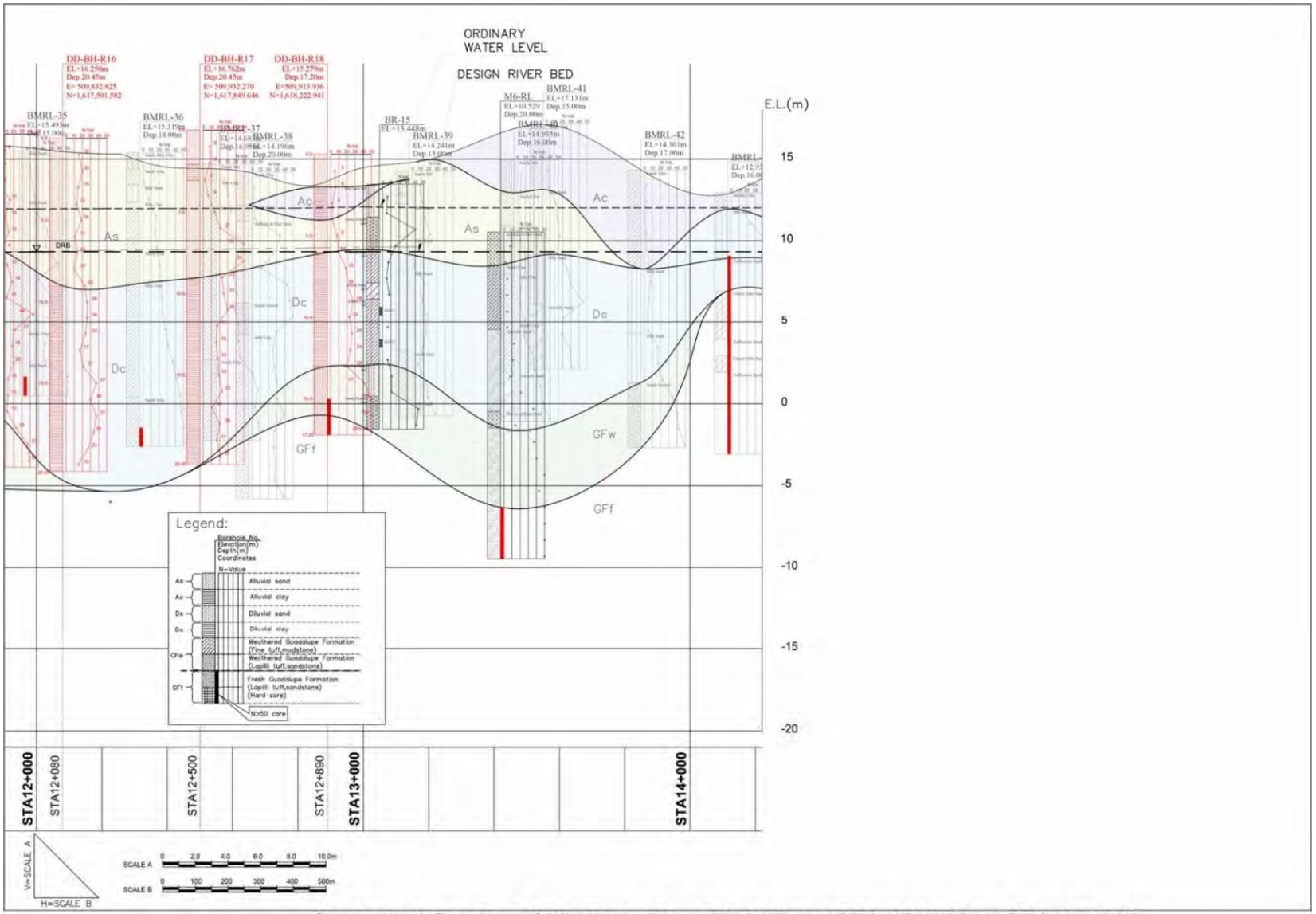
Geological Section of Marikina River Right Bank STA 5+000 to STA 8+500

Figure 5-2-2 (1/3) Geological Section of Marikina Right Bank



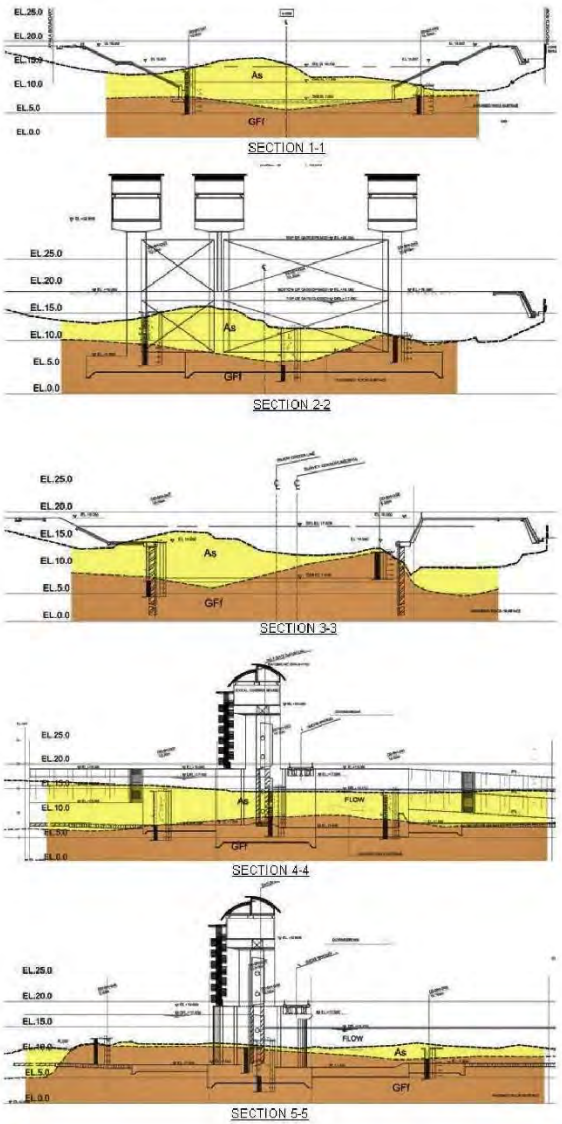
Geological Section of Marikina River Right Bank STA 8+500 to STA 12+000

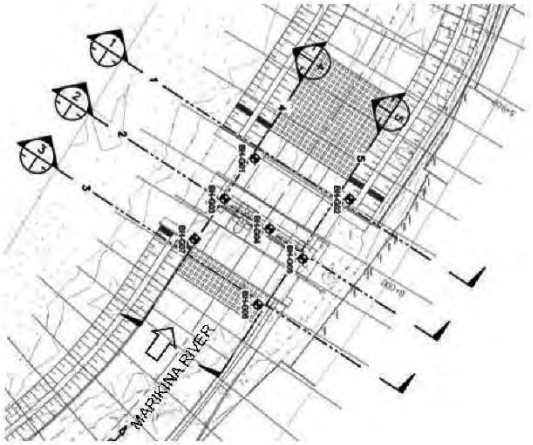
Figure 5-2-2 (2/3) Geological Section of Marikina Right Bank



Geological Section of Marikina River Right Bank STA 12+000 to STA 14+000

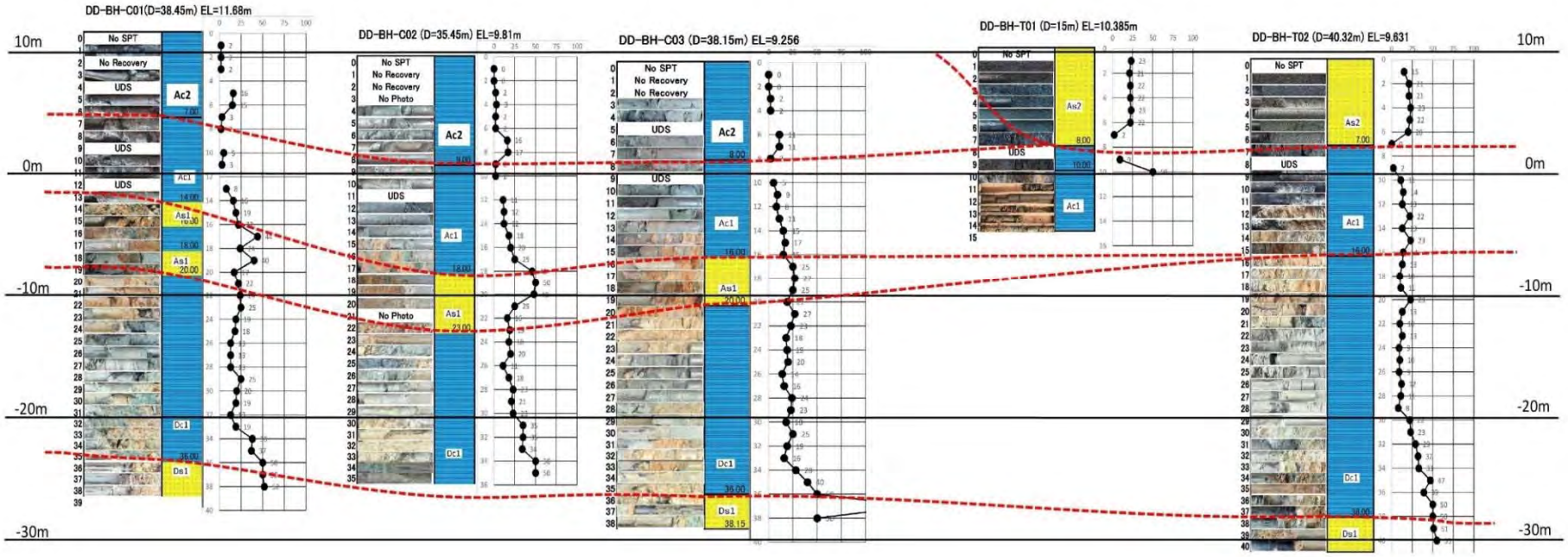
Figure 5-2-2 (3/3) Geological Section of Marikina Right Bank





As	Alluvial sands. Unconsolidated sediment
GFt	Guadalupe layer. Consolidated tuff

Figure 5-2-3 Geological Section of MCGS Site



Geology	average N value	Thickness	Characteristic
As2	20	6m	Sand layer distributed on the surface layer at TAYTAY point, Often contains shell shards and has a relative density of medium.
Ac 2	6	7m	Clay layer, a soft clay distributed on the surface layer at the CAINTA point. N value increases with sand at the bottom
Ac1	13	10m	Clay layer, Distributed at both CAINTA and TAYTAY sites, N value increases at the bottom At TAYTAY, at a depth of 10 m, N value exceeded 50, but it could not be confirmed by adjacent boring. Local phenomenon and judgment.
As1	29	5m	Sand layer. Confirmed at CAINTA location, oxidation progressed and turned brown. Judged as a permeable stratum
Dc2	22	16m	Clay layer. It is distributed at a depth of 16-20m or less, and the N value is stable at 15-20, but sand is mixed in the lower part, and the N value is as large as 30 or more.
Ds1	50	3m	Sand layer. Confirmed at CAINTA, TAYTAY at a depth of 36-38m or less. It is a very dense sand layer. The thickness of this layer is unknown, indicating a light brown color.

Figure 5-2-4 Geological Section of CAINTA-TAYTAY Site

Boring log
with
Core box, SPT sample and SPT graph

In order to clarity, the SPT soil sample photo is processed

Legend

Geological Age		Symbol/ colour	MARIKINA/MCGS	Symbol/ colour	CAINTA/TAYTAY
Quaternary	Holocene (Alluvium)	As	Alluvial sand、	As2	Alluvial sand、TAYTAY表層に分布
				As1	Alluvial sand、CAINTAで確認
		Ac	Alluvial clay	Ac2	Alluvial clay、CAINTA表層に分布
				Ac1	Alluvial clay、CAINTA、TAYTAYに分布
	Pleistocene (Diluvium)	Ds	Diluvial sand	Ds1	Diluvial sand、CAINTA、TAYTAYで確認
		Dc	Diluvial clay	Dc1	Diluvial clay、CAINTA、TAYTAYで確認
		GFw	**Weathered Guadalupe Formation (Lapilli tuff, Sand stone)**		
		GFf	Fresh Guadalupe Formation (Lapilli tuff, Sand stone)		

Figure 5-3-1（1/103）BORING LOGS（PHASE IV）

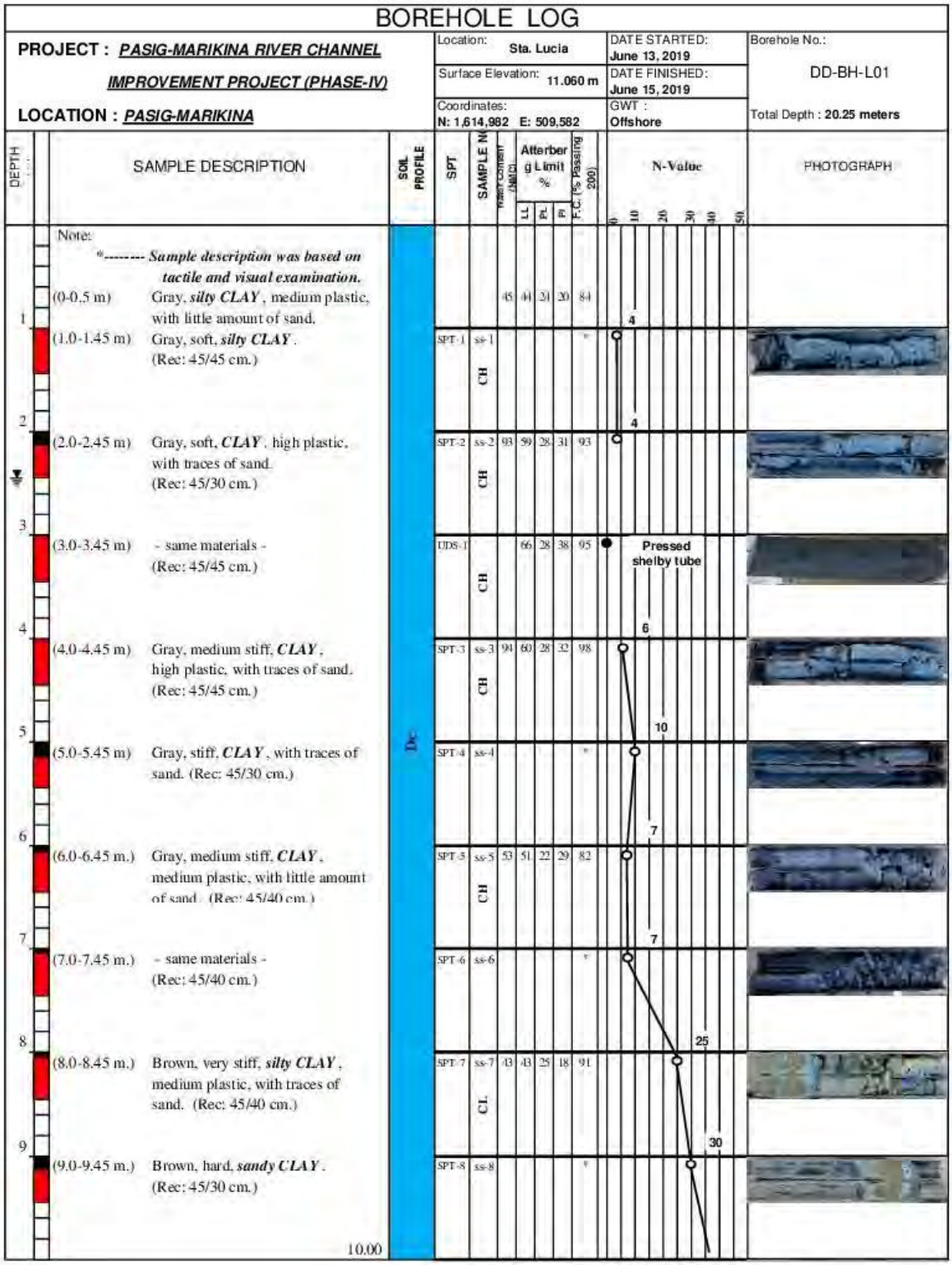


Figure 5-3-1（2/103）BORING LOGS（PHASE IV）

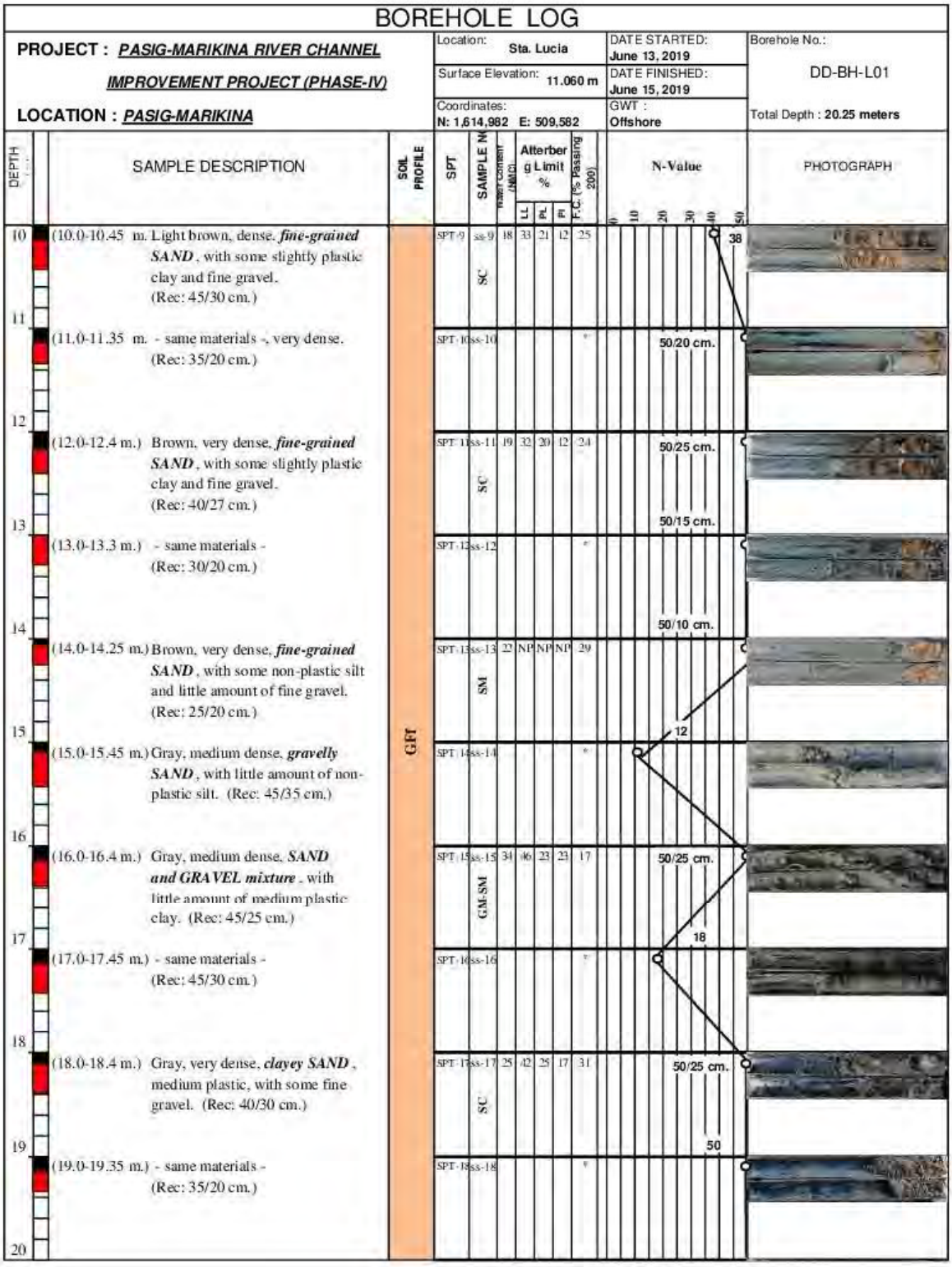
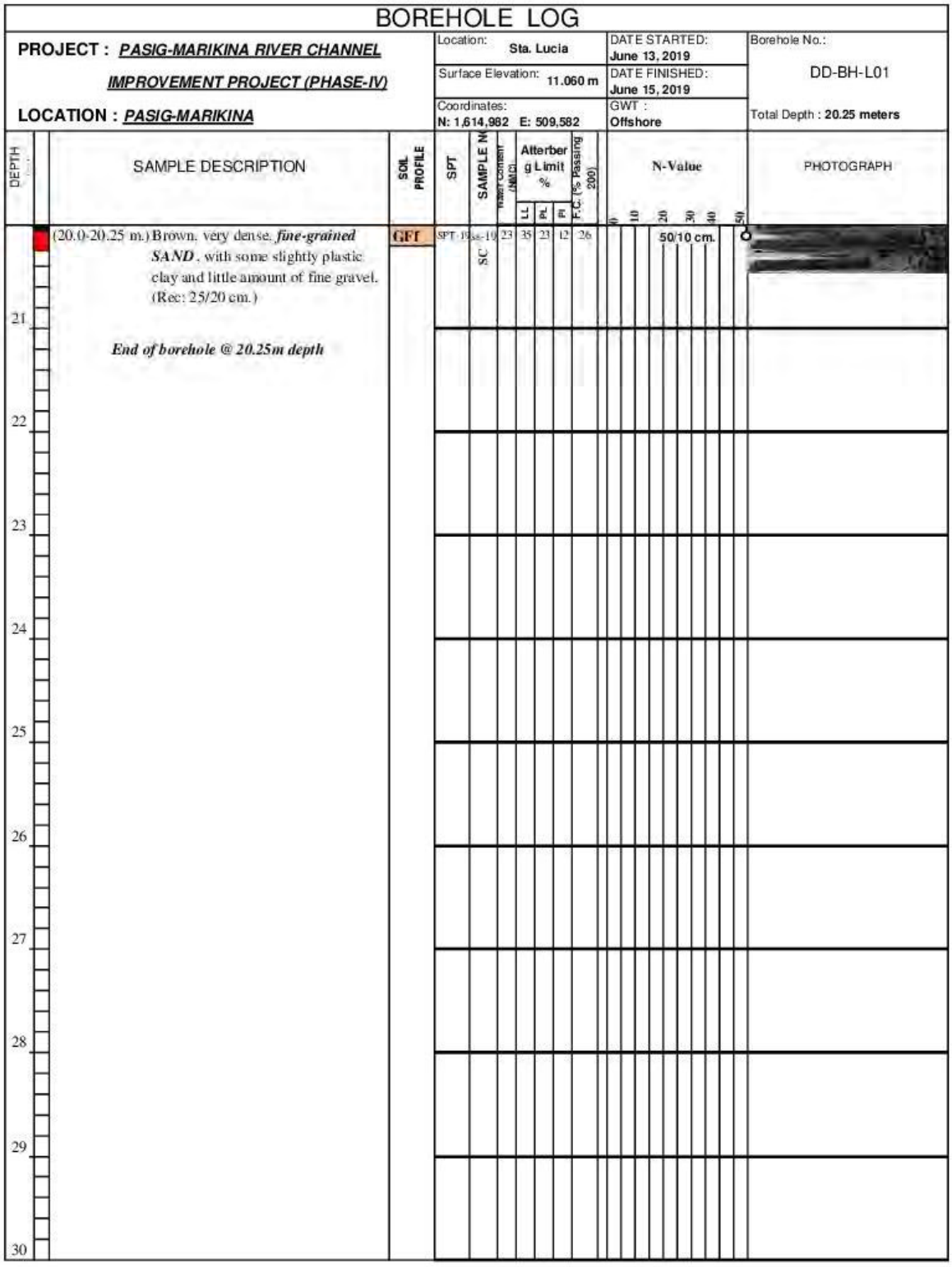


Figure 5-3-1（3/103）BORING LOGS（PHASE IV）



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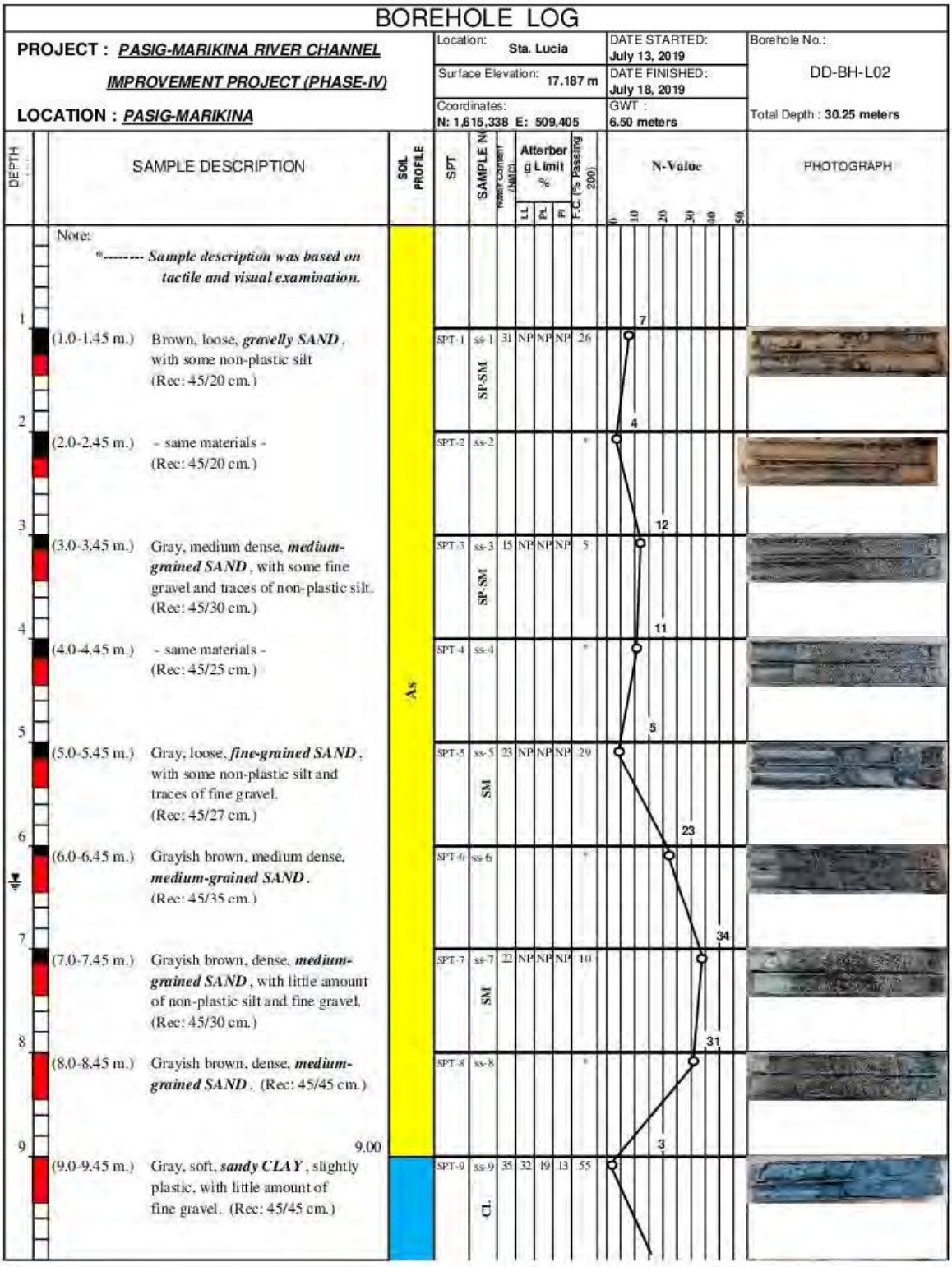

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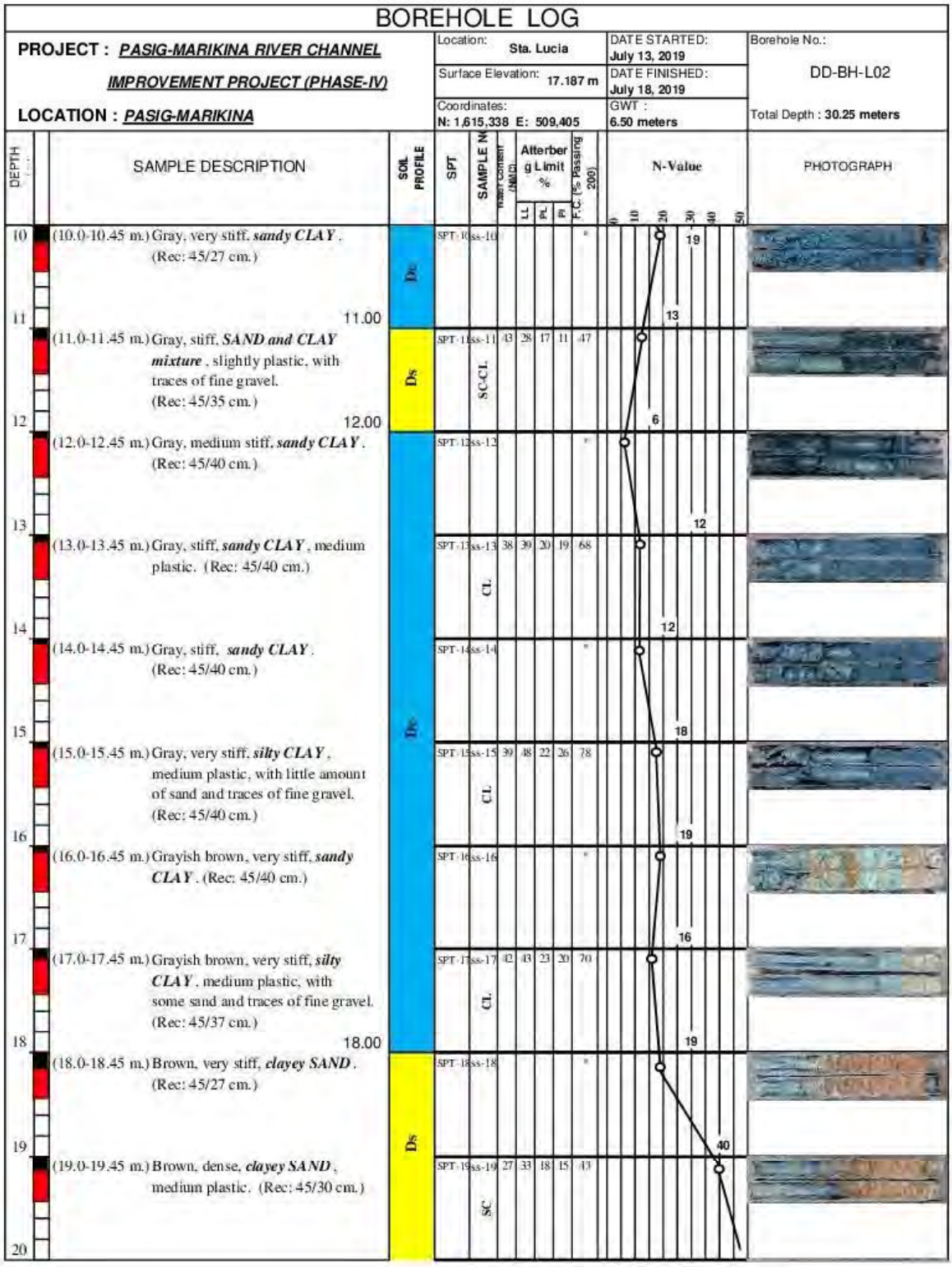

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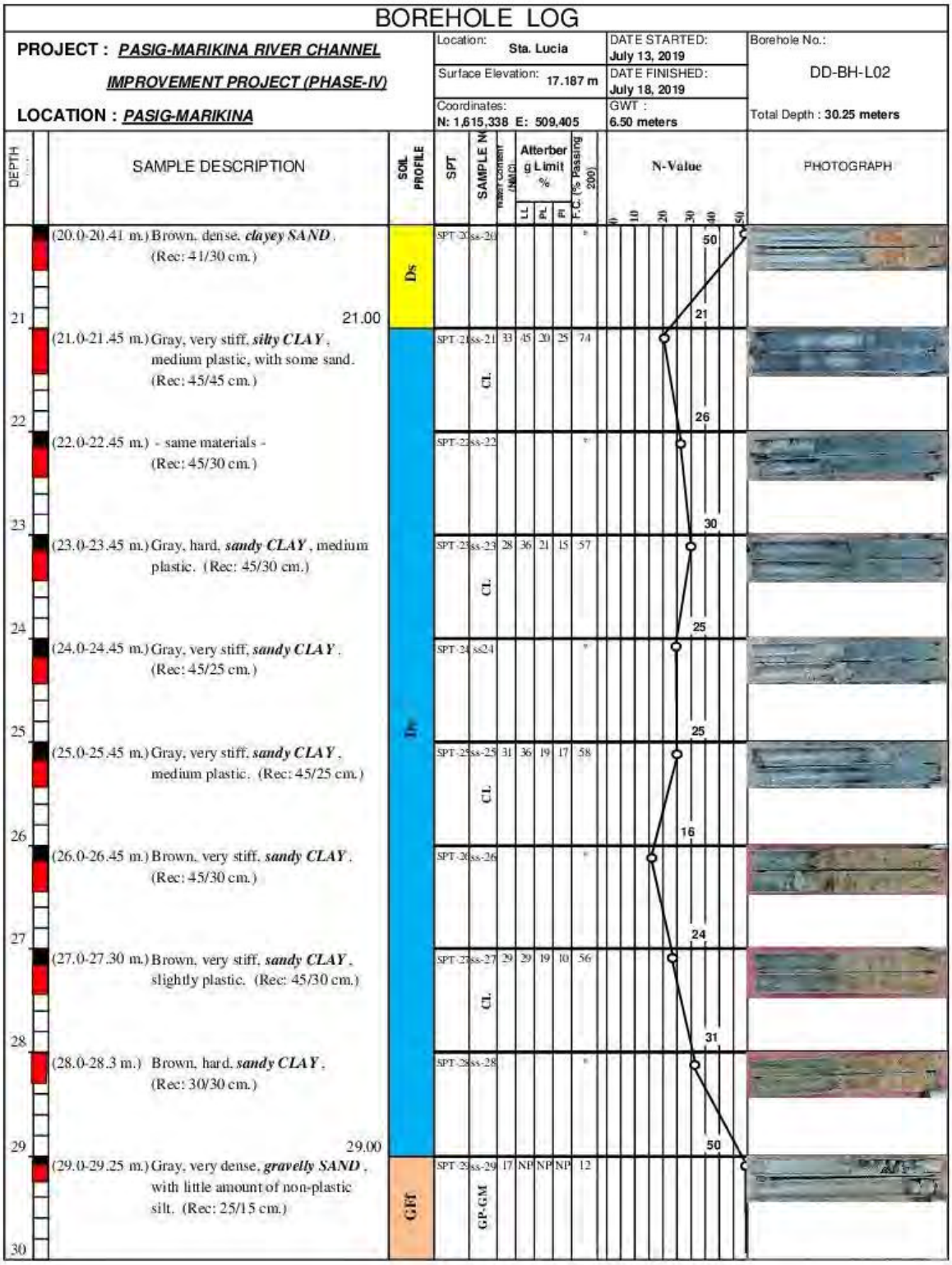

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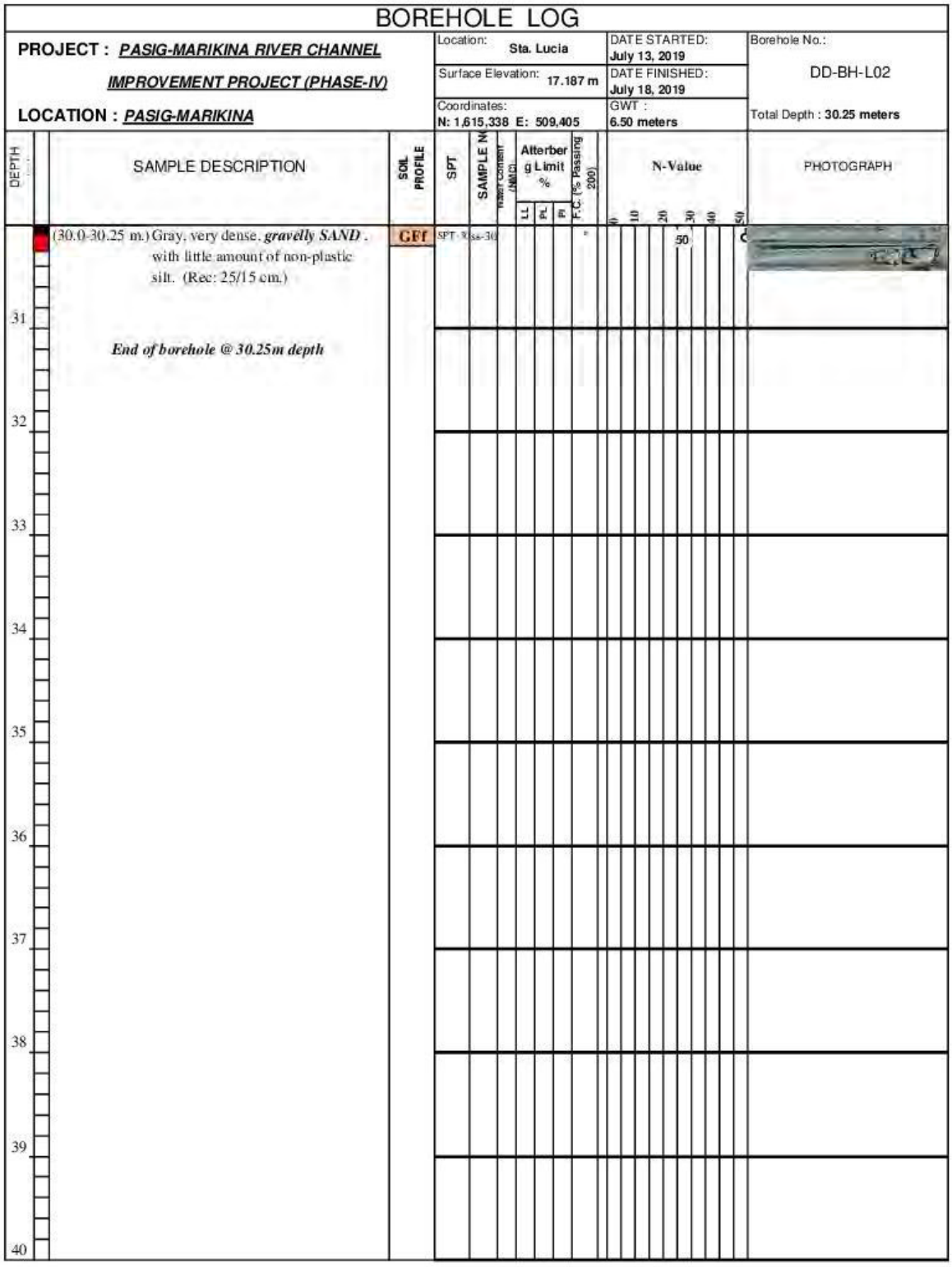

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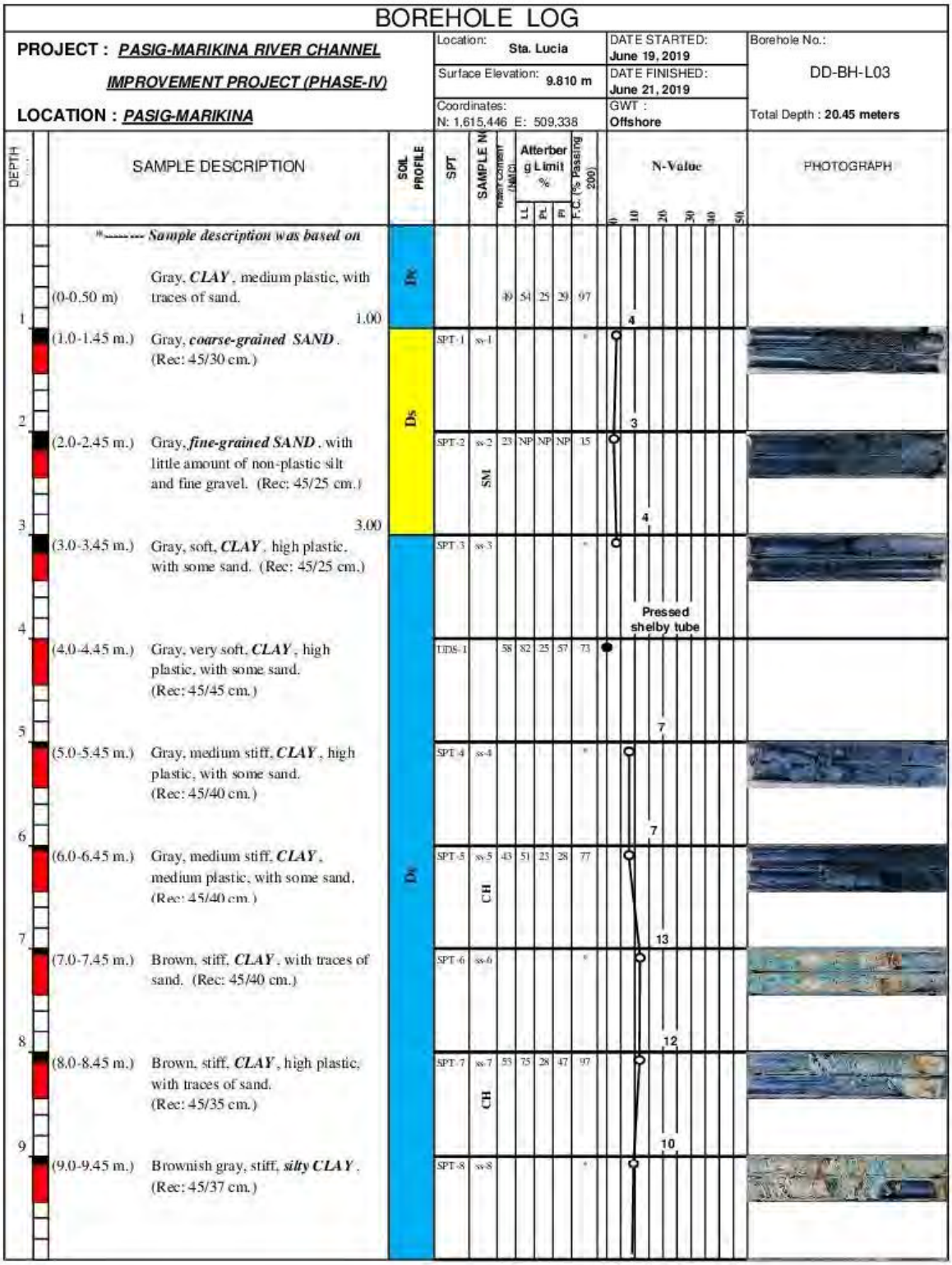


Figure 5-3-1（9/103）BORING LOGS（PHASE IV）

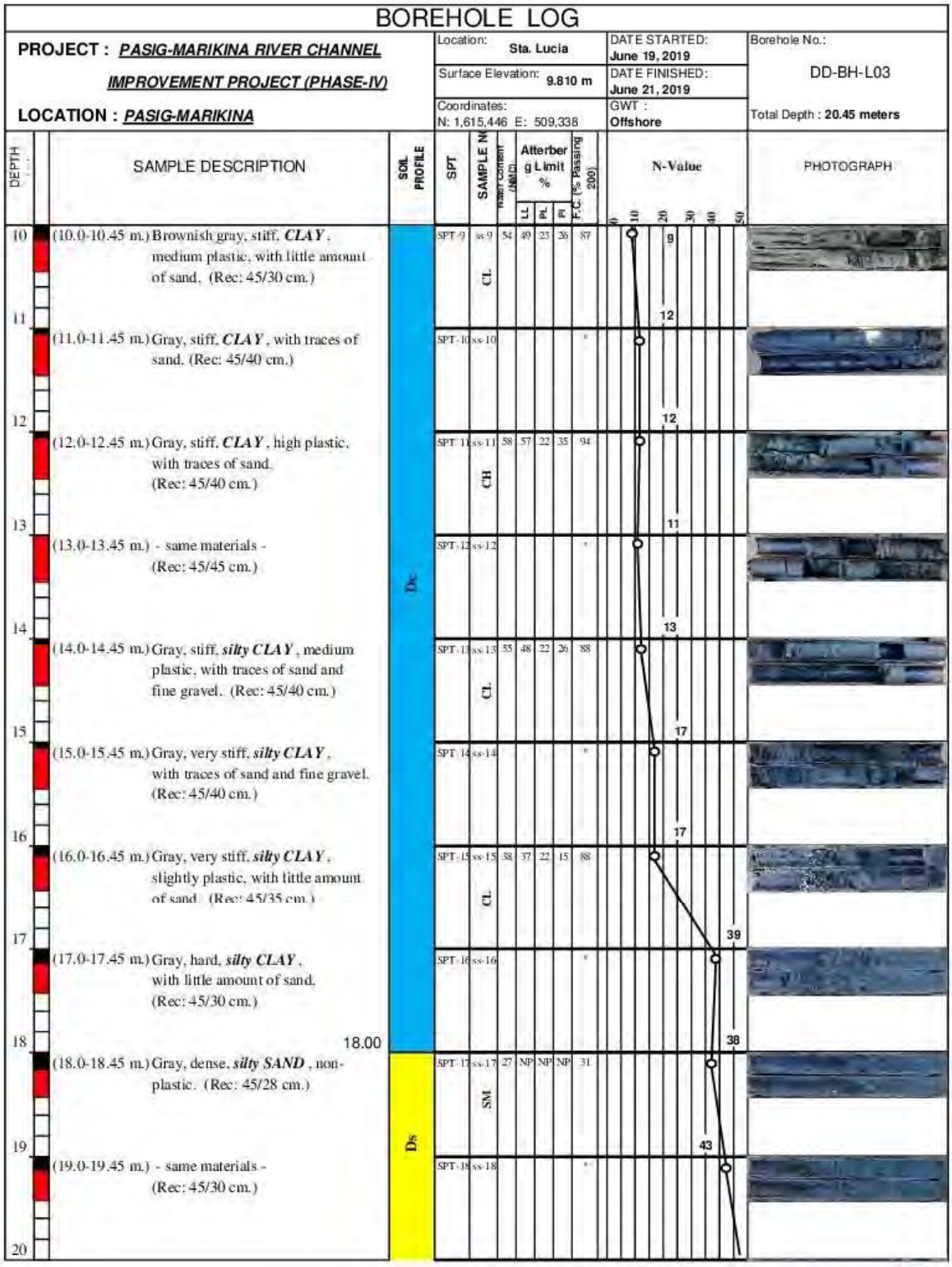
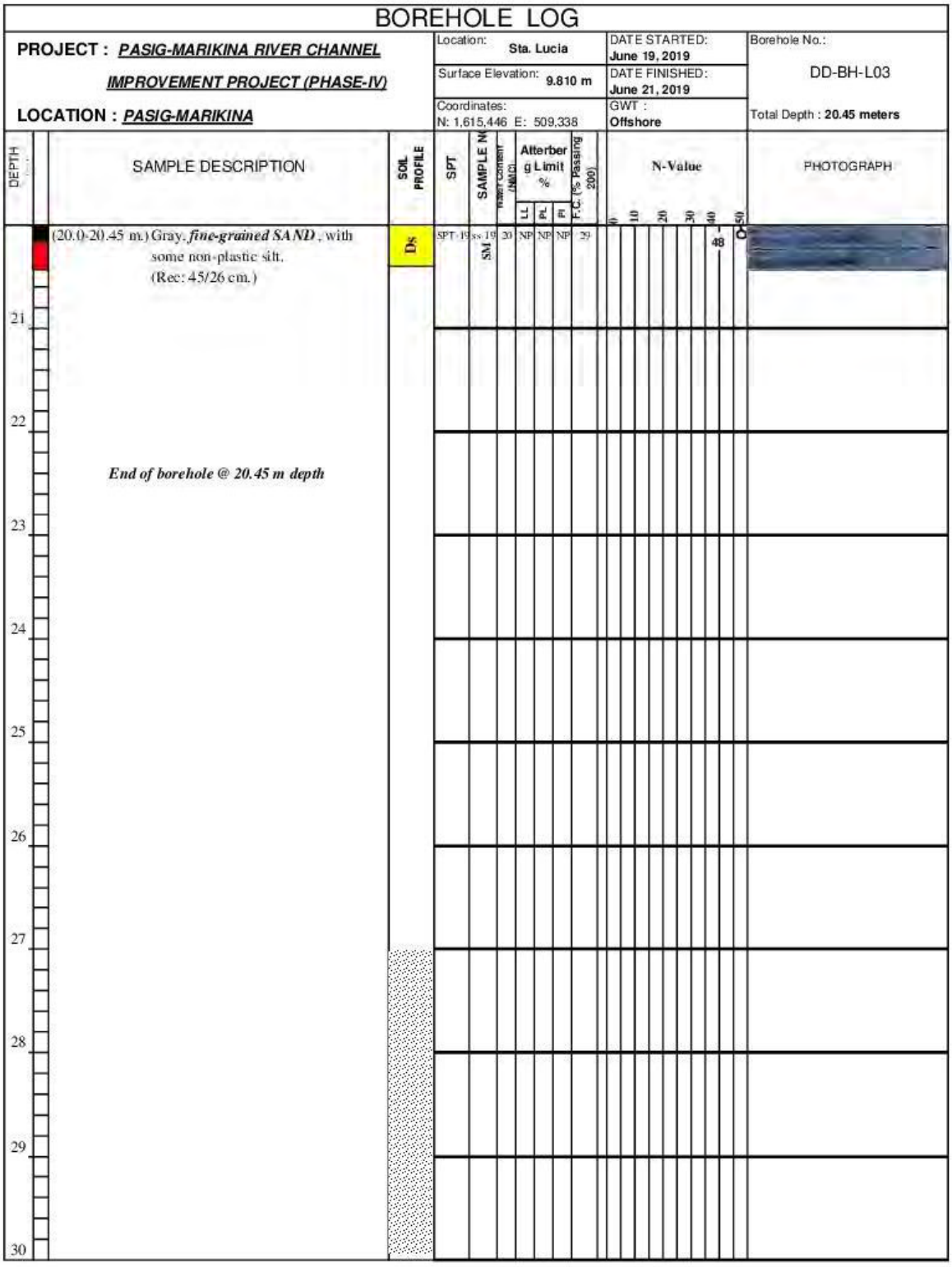


Figure 5-3-1（10/103）BORING LOGS（PHASE IV）



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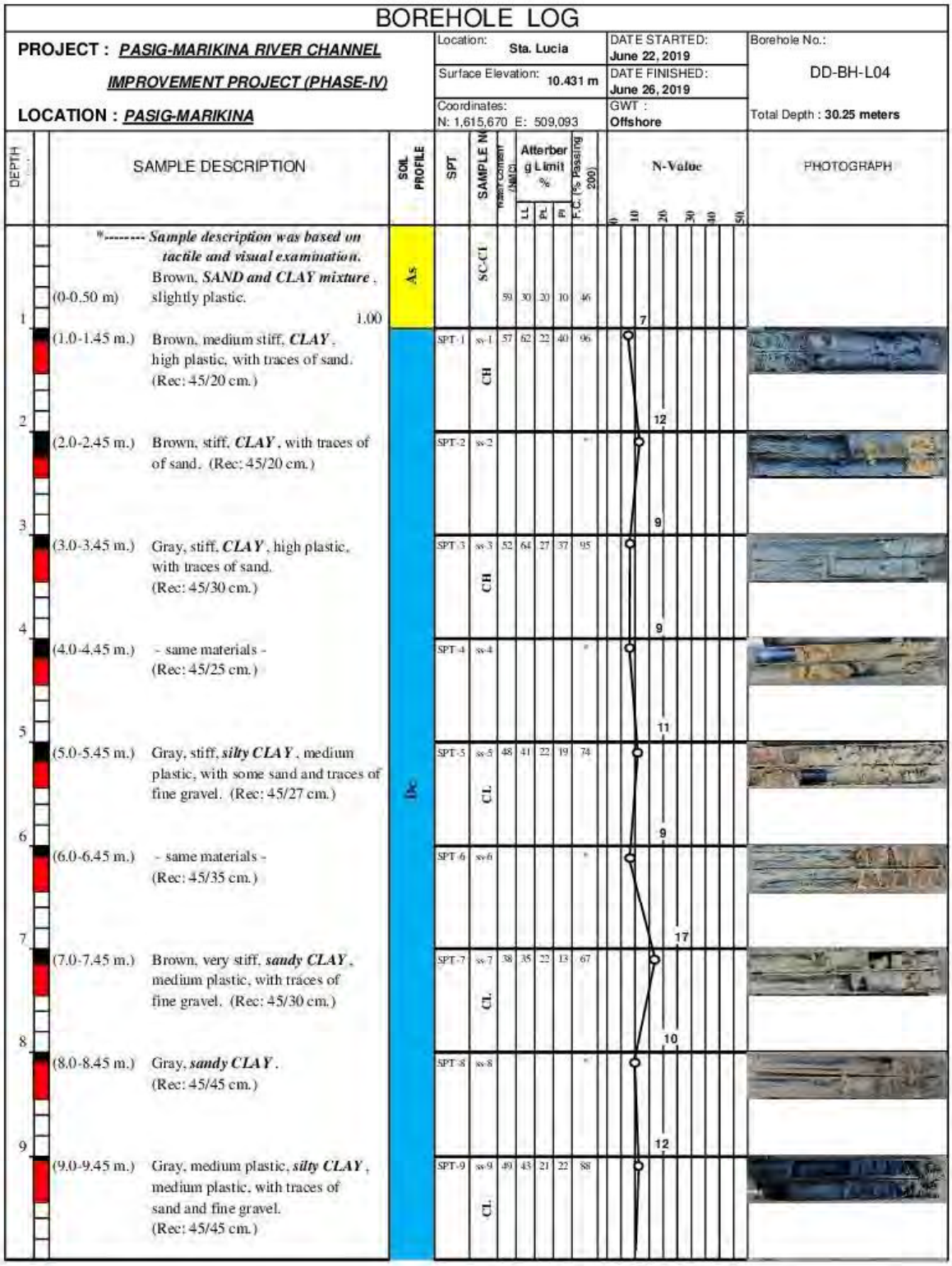

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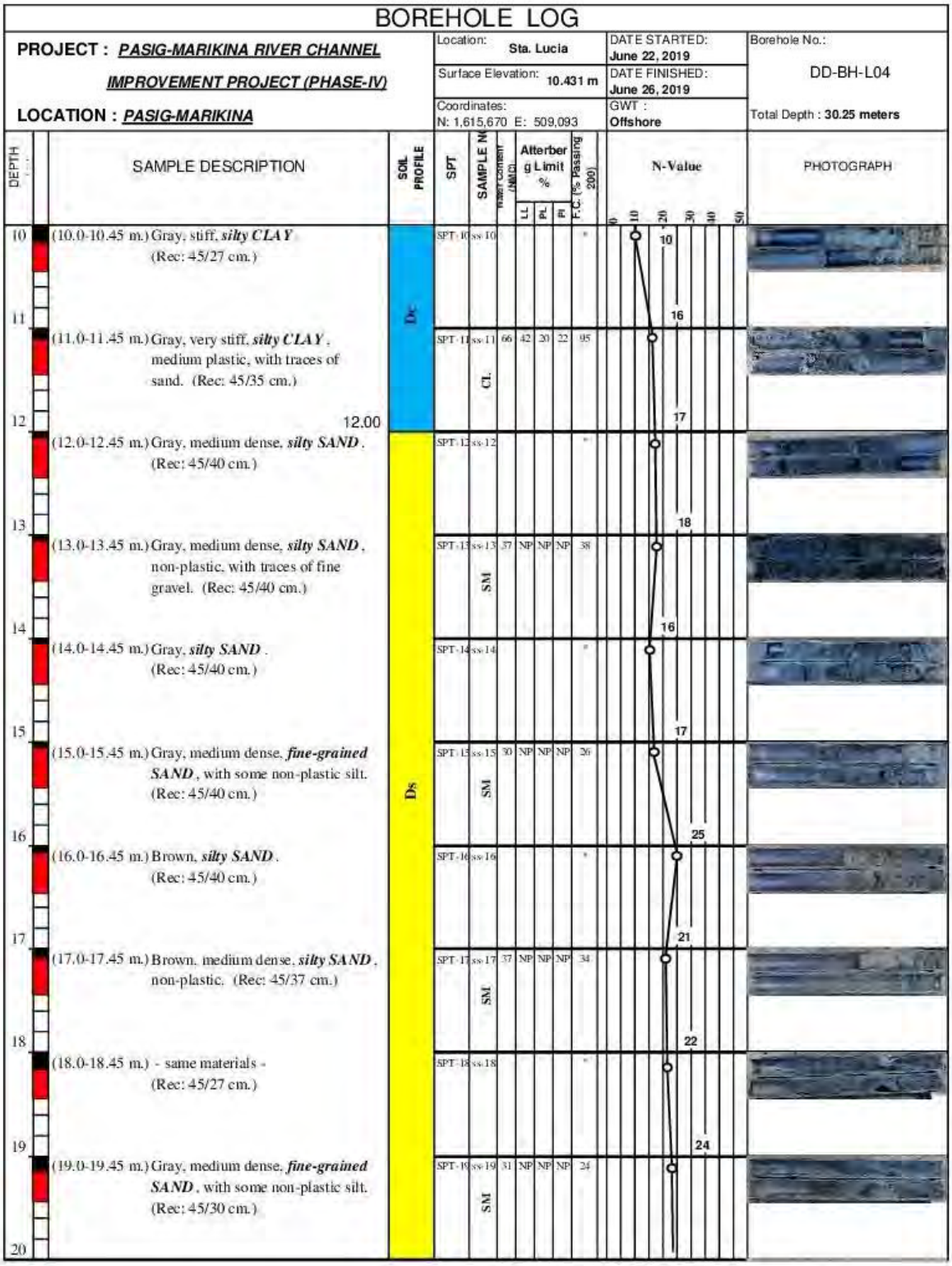

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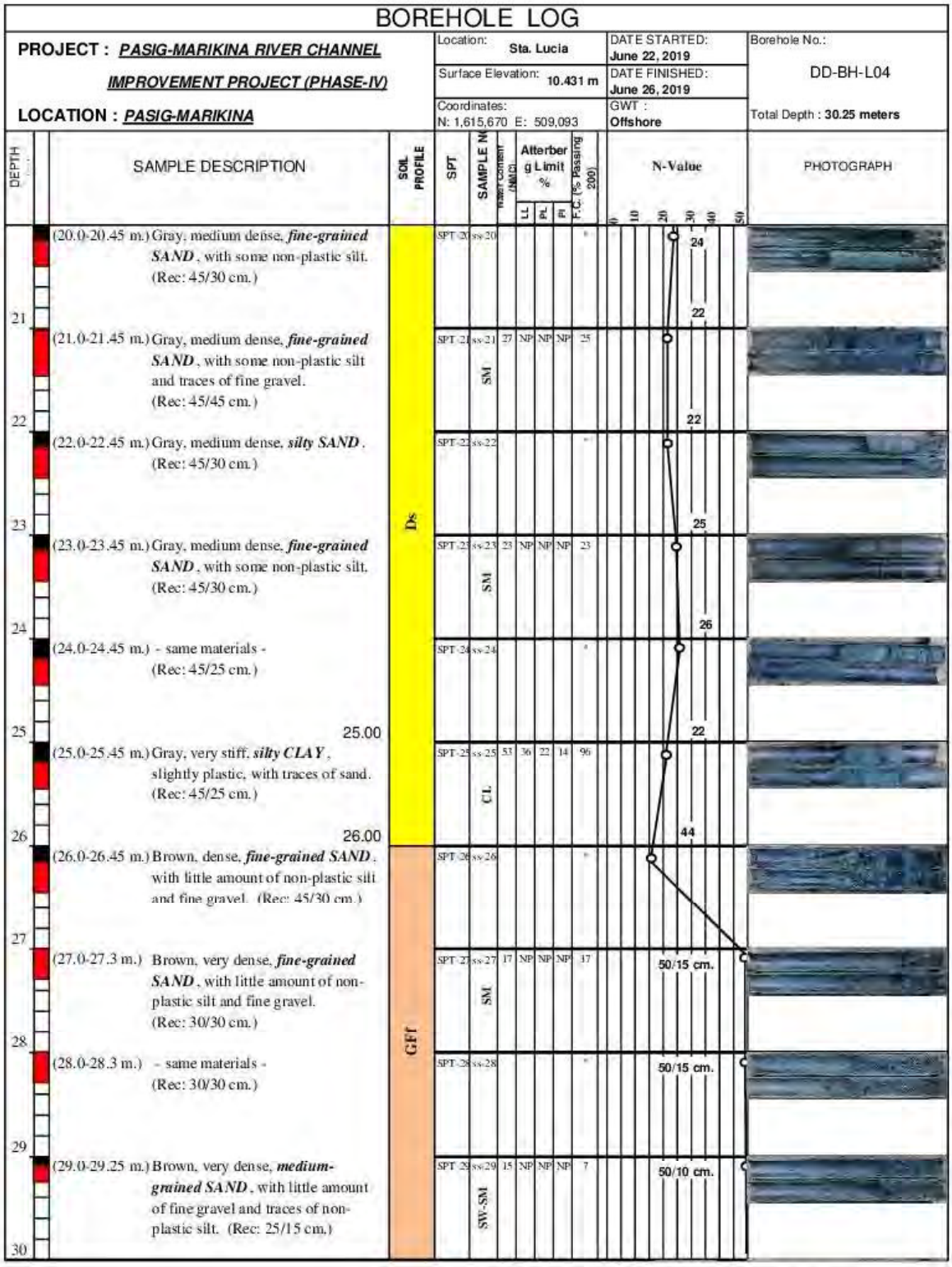

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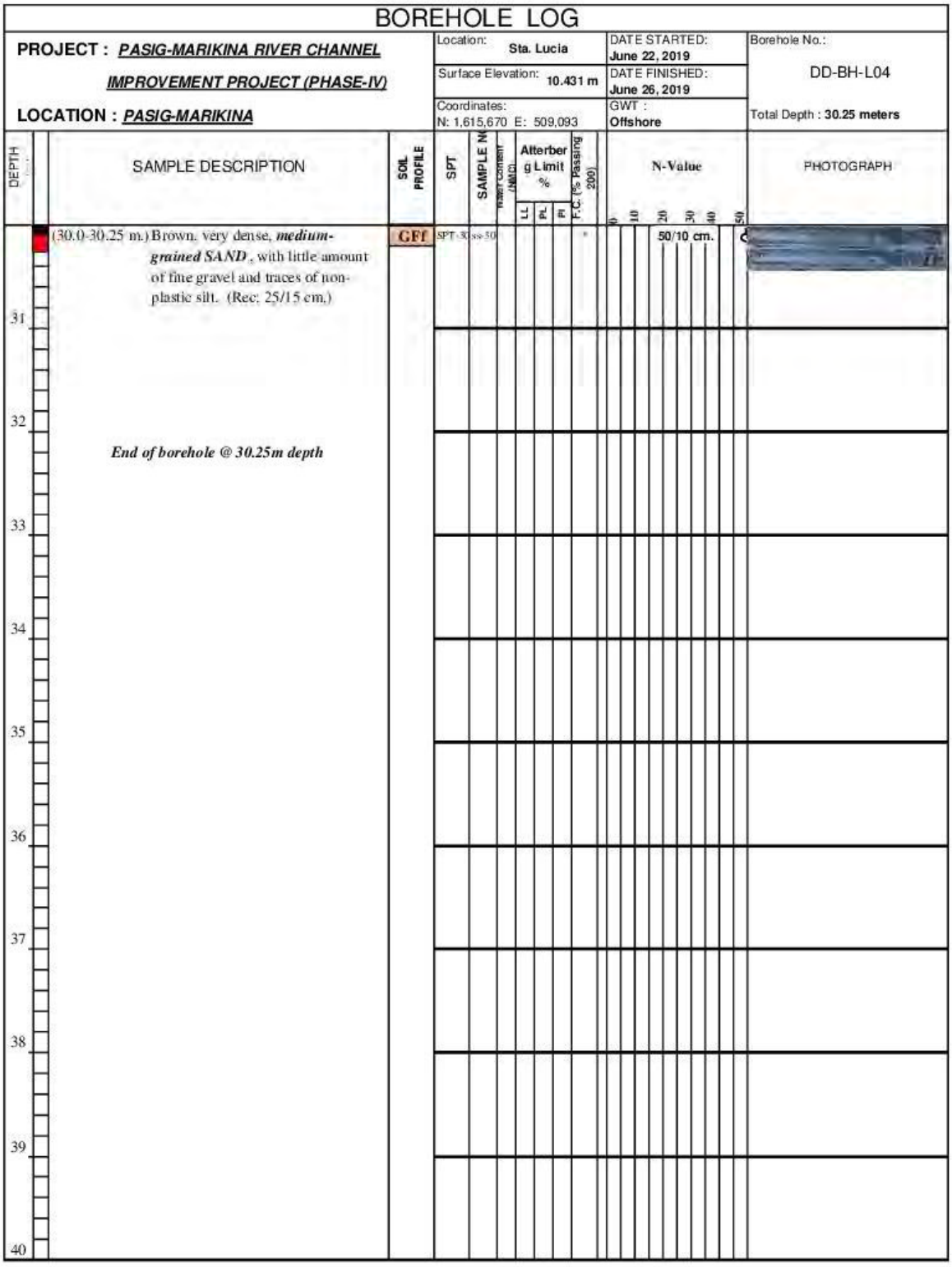

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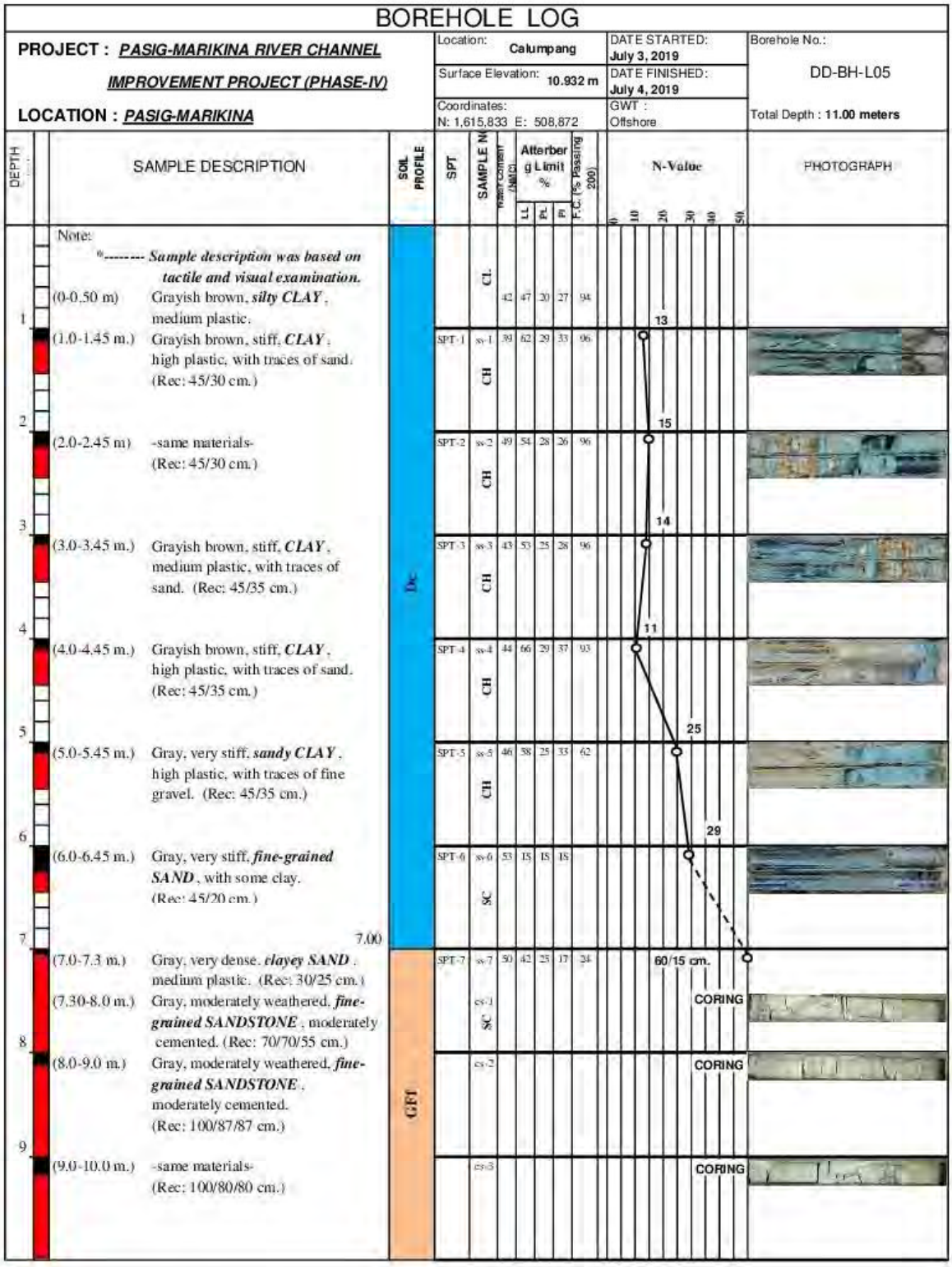

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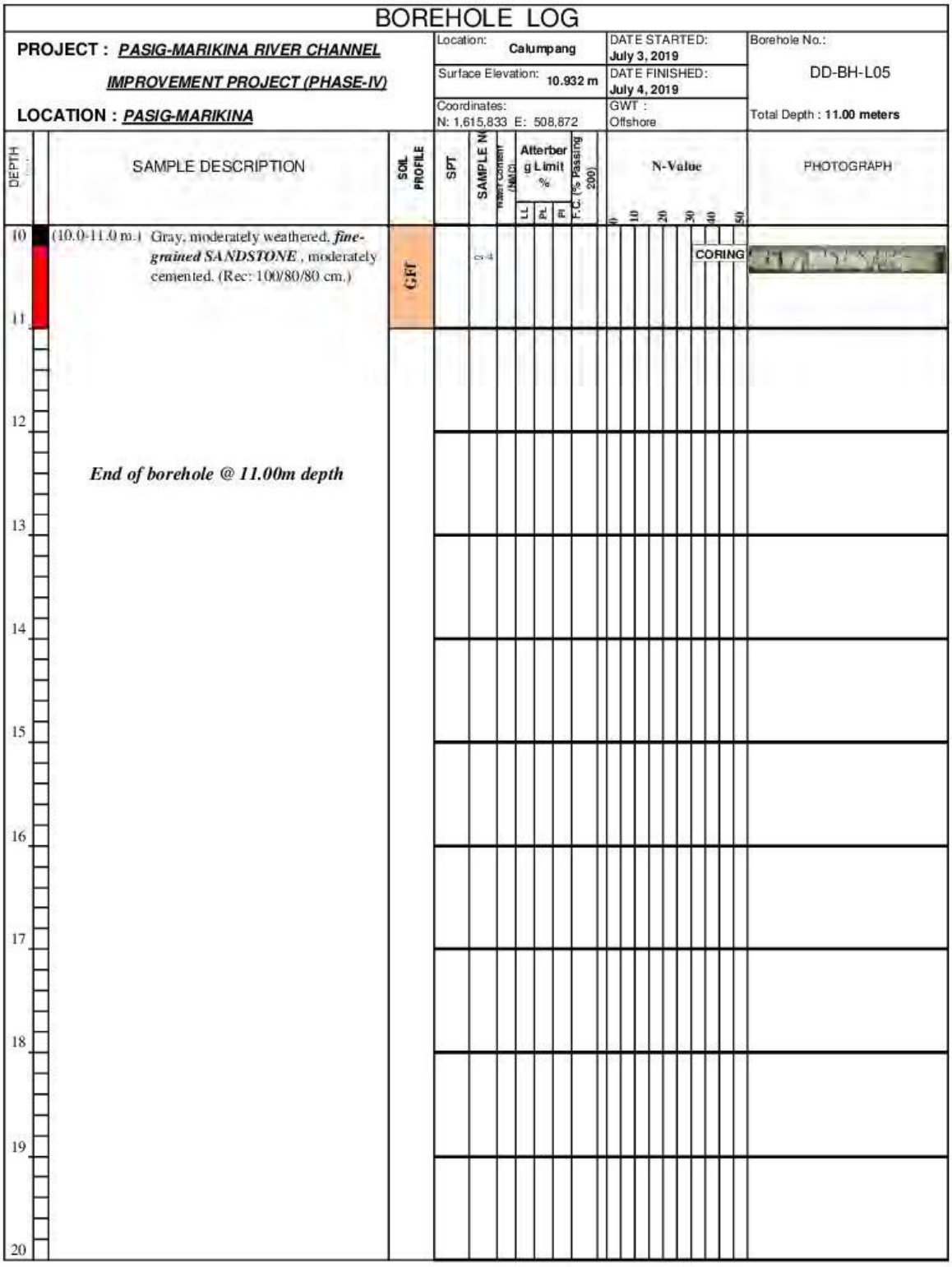

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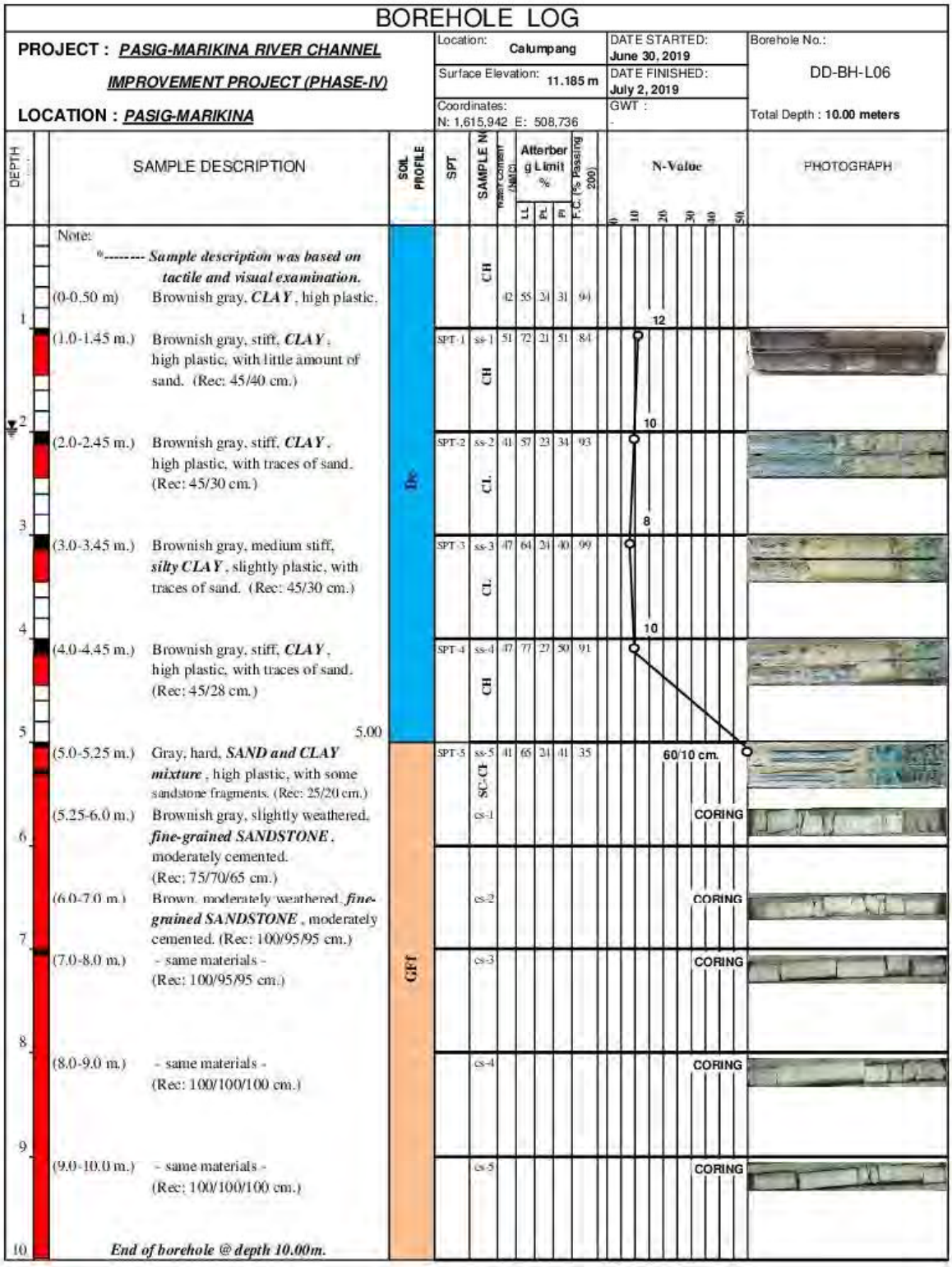

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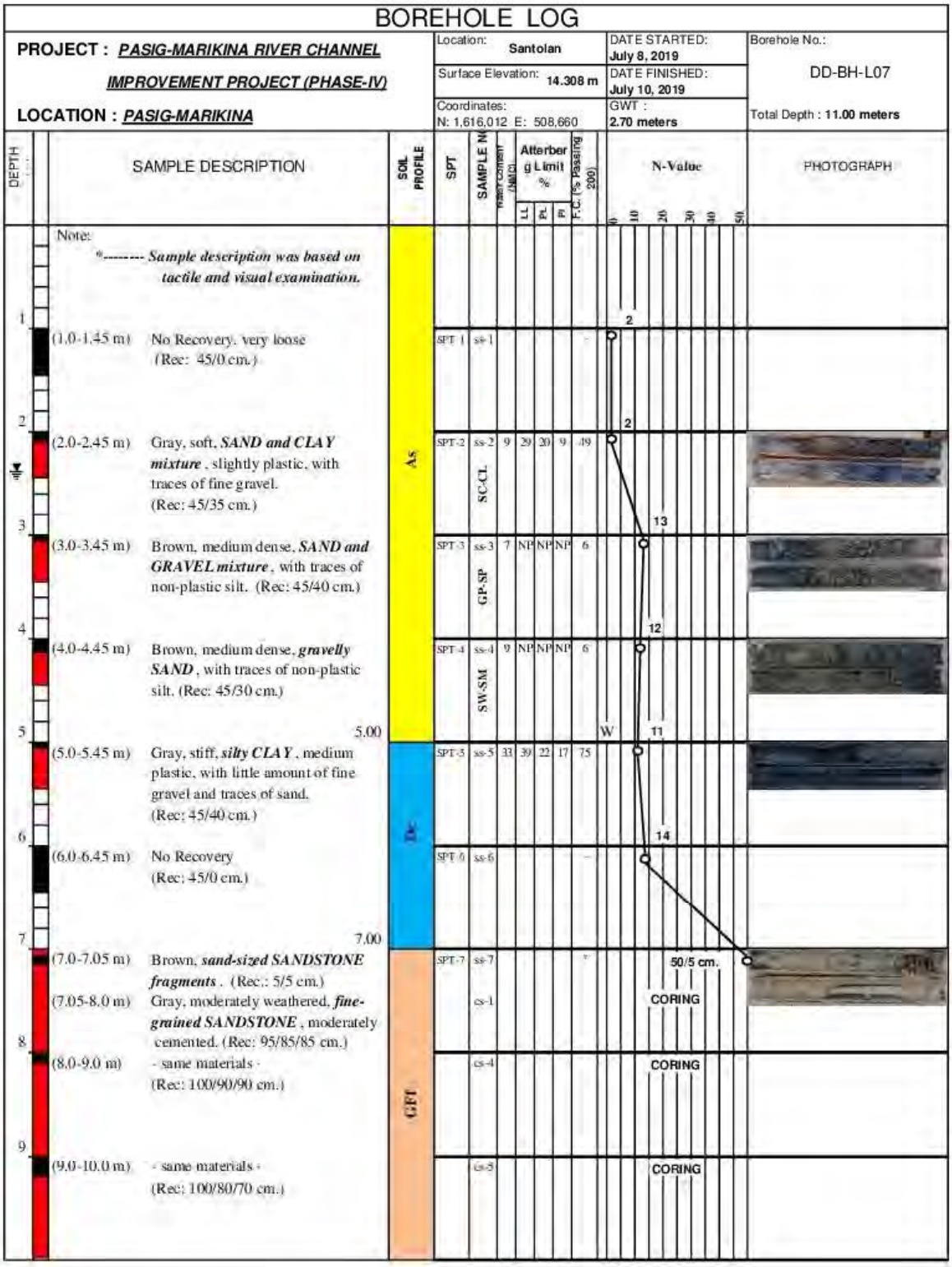

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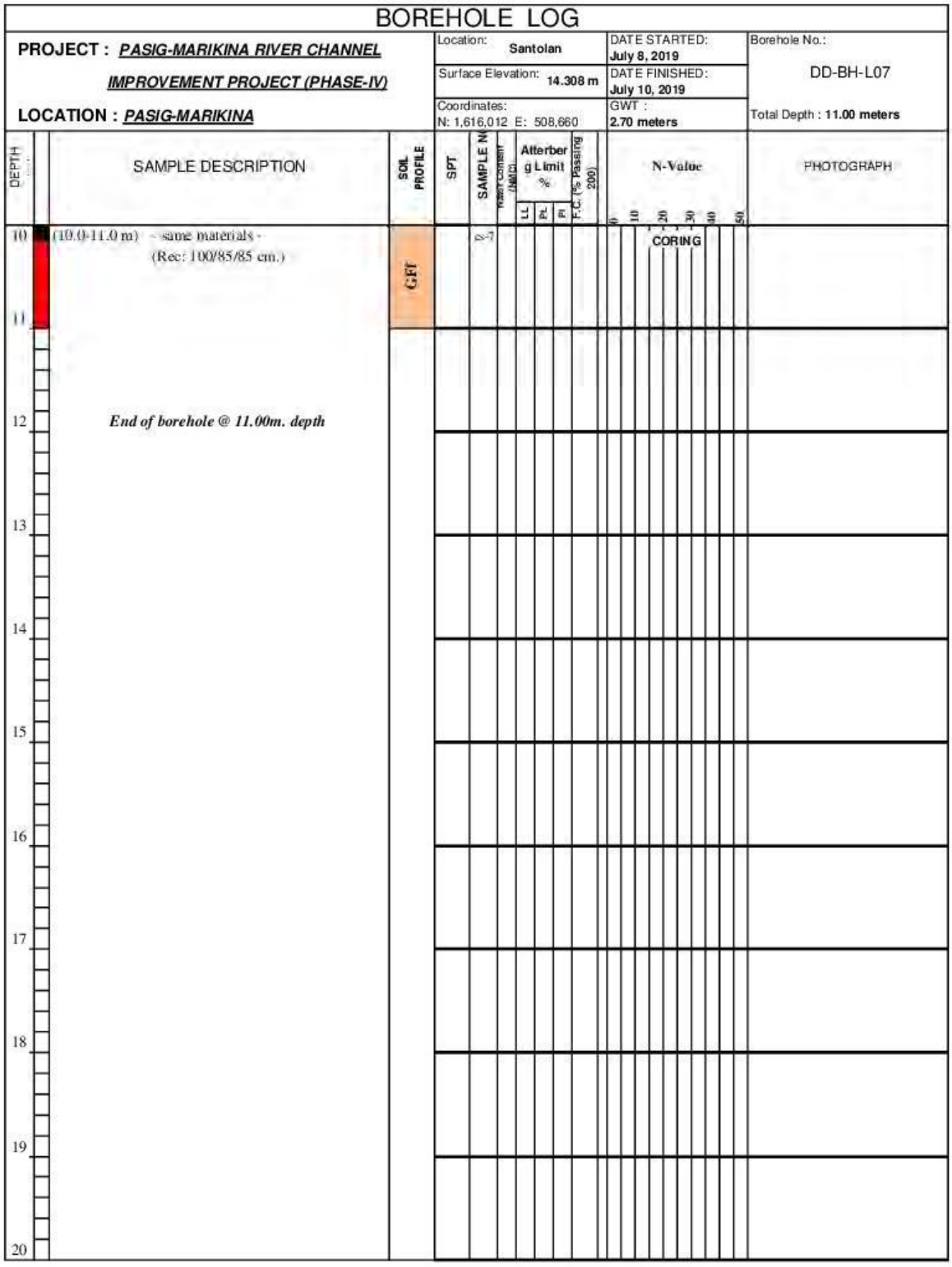

Figure 5-3-1（20/103）BORING LOGS（PHASE IV）

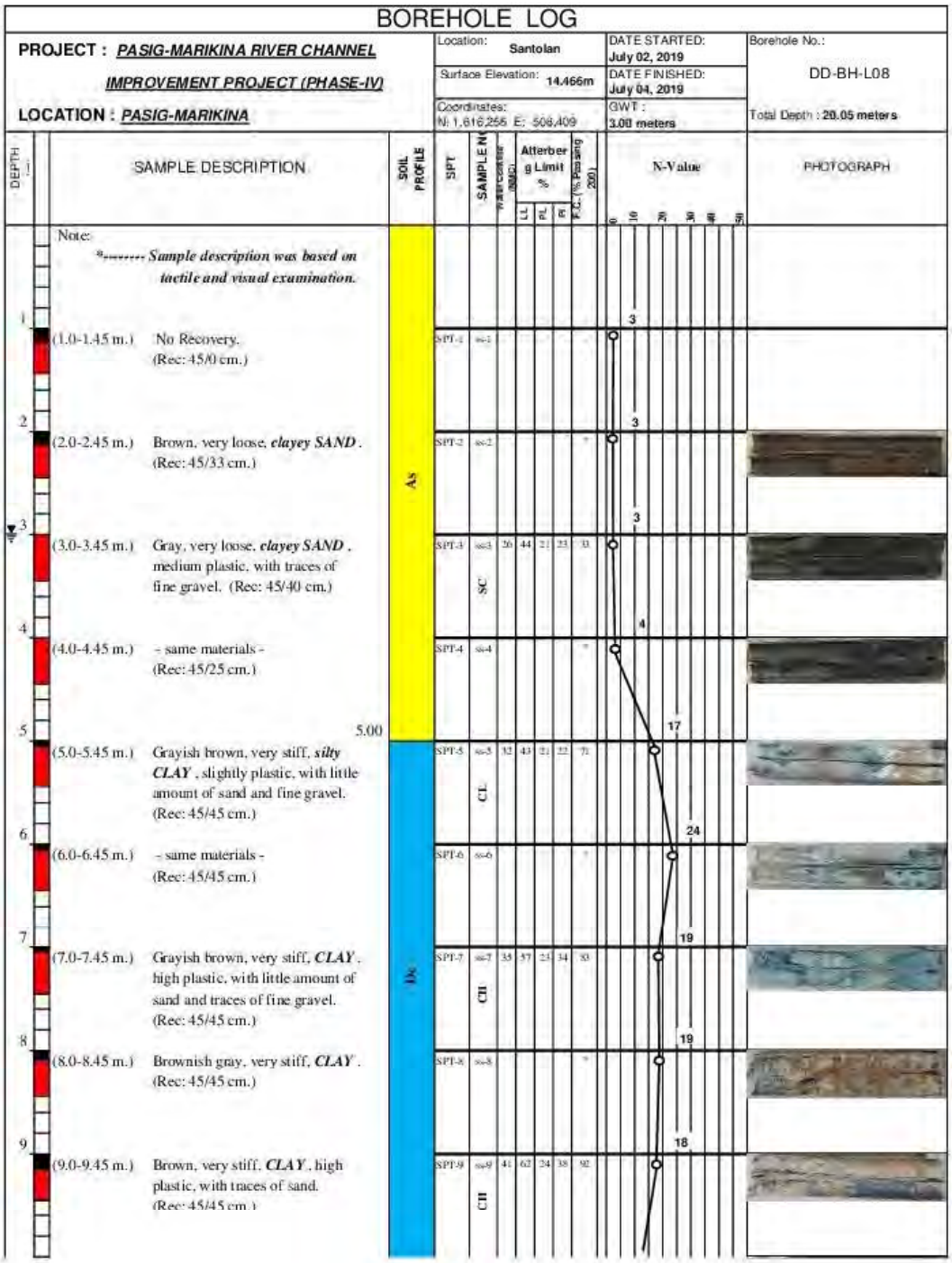

Figure 5-3-1（21/103）BORING LOGS（PHASE IV）

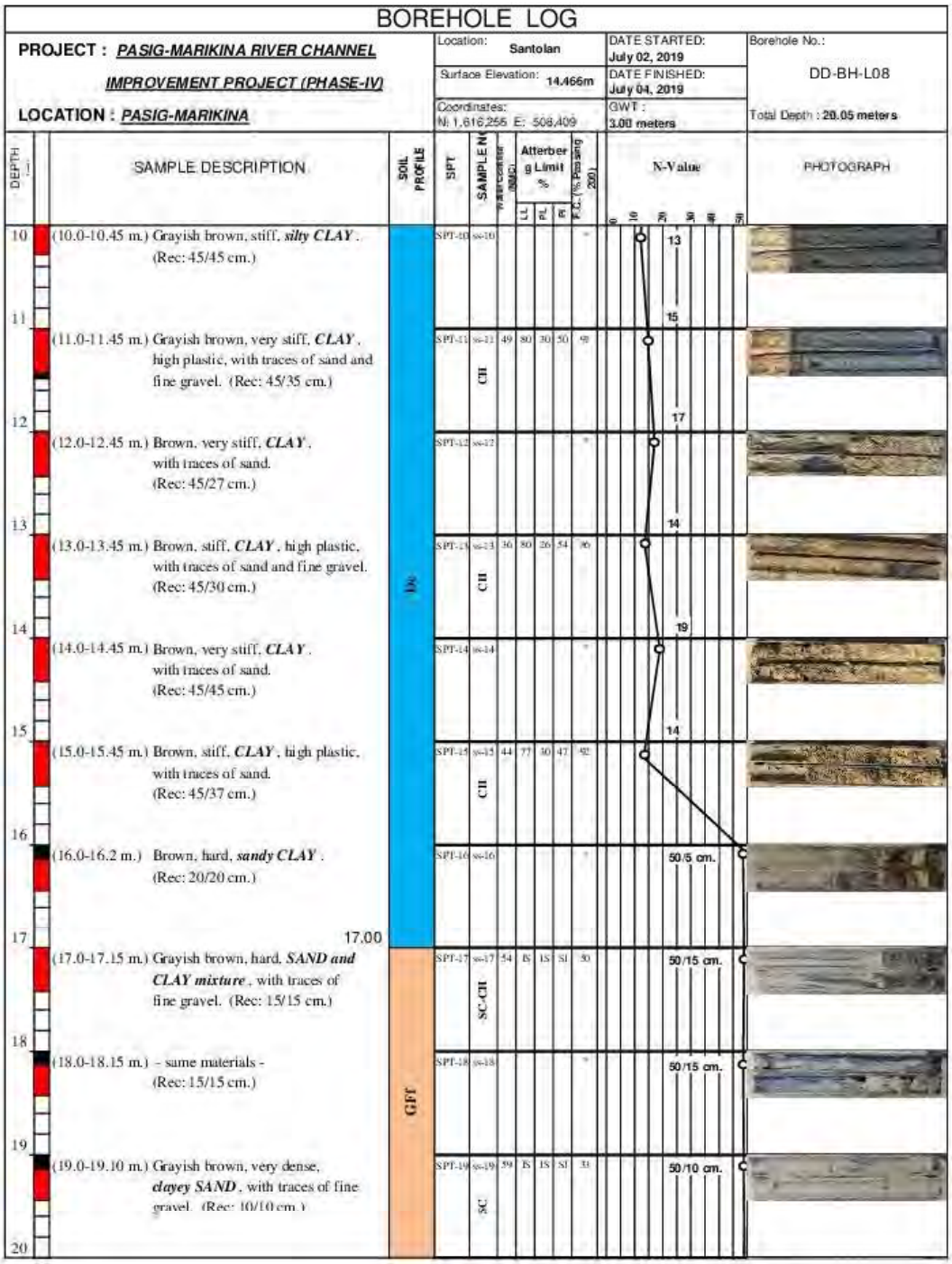

Figure 5-3-1（22/103）BORING LOGS（PHASE IV）

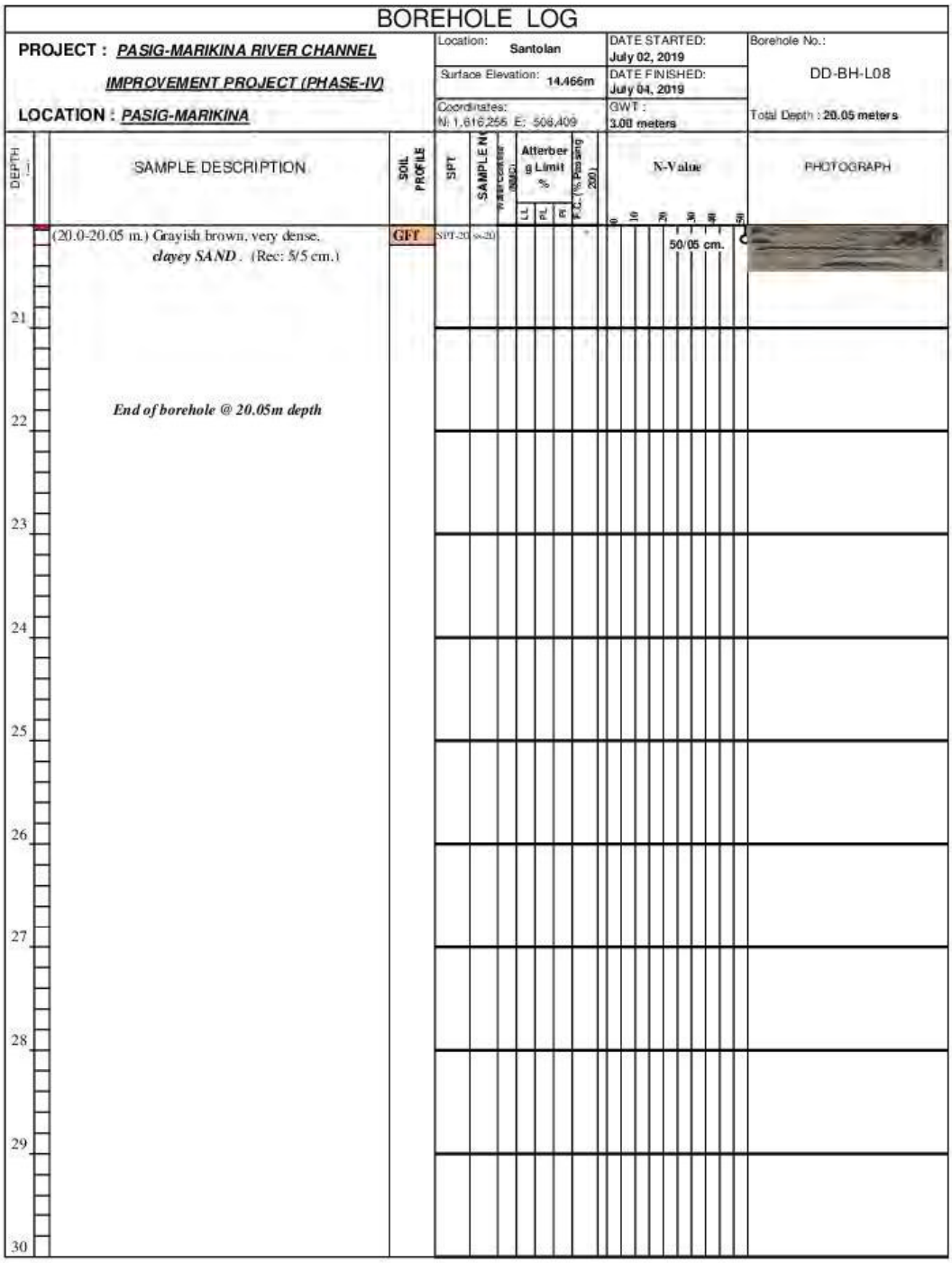

Figure 5-3-1（23/103）BORING LOGS（PHASE IV）

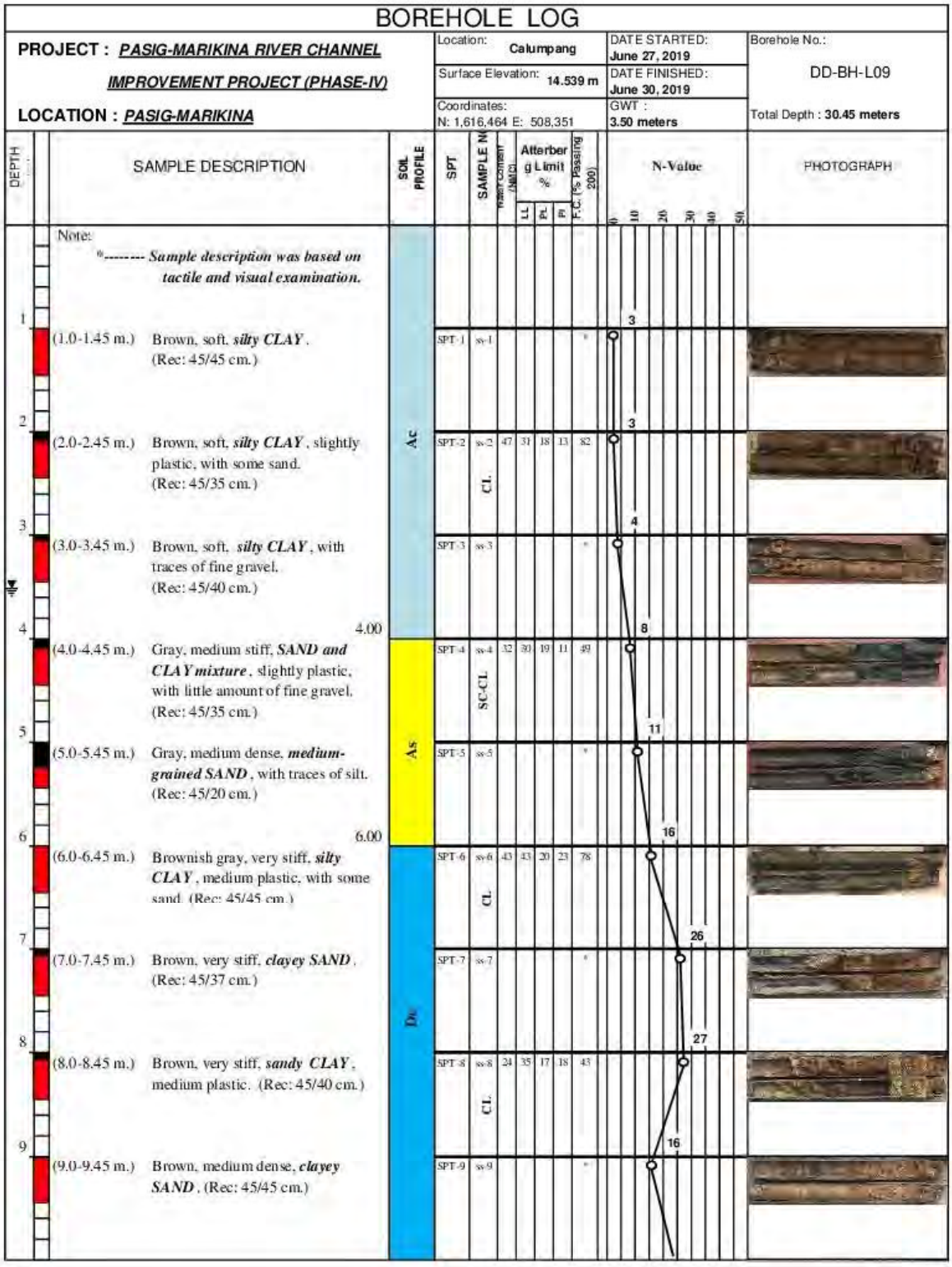

Figure 5-3-1（24/103）BORING LOGS（PHASE IV）

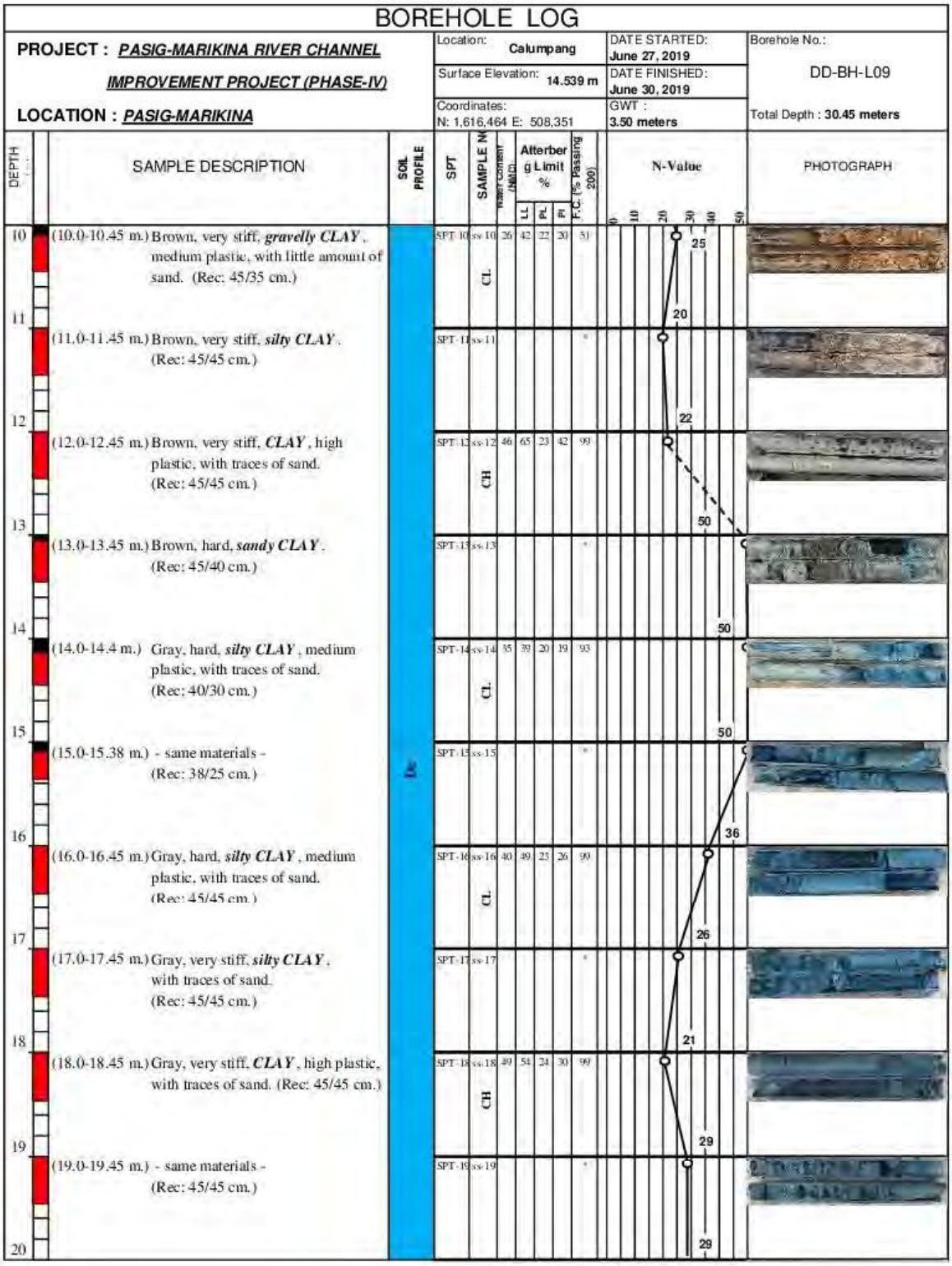

Figure 5-3-1（25/103）BORING LOGS（PHASE IV）

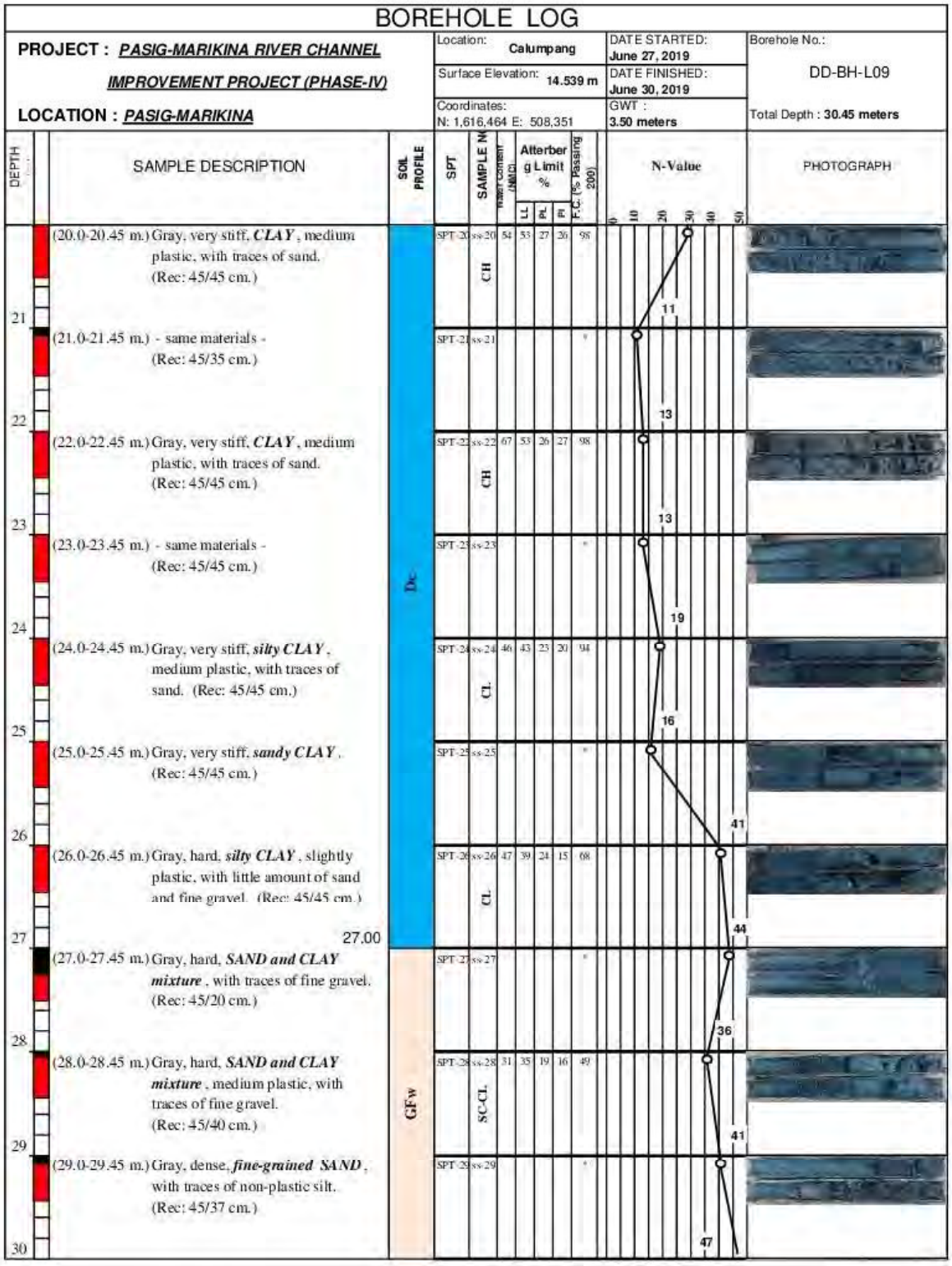

Figure 5-3-1（26/103）BORING LOGS（PHASE IV）

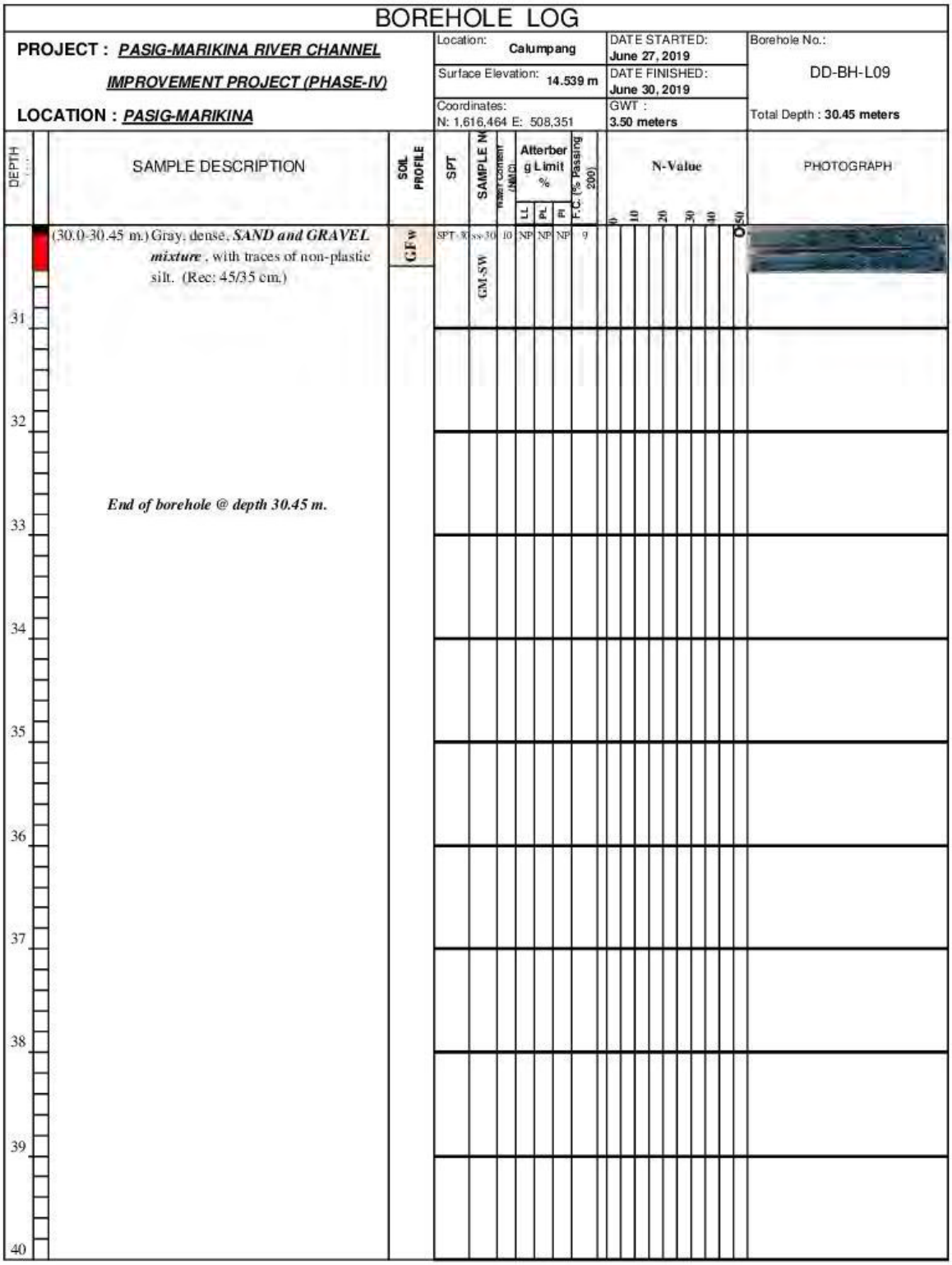

Figure 5-3-1（27/103）BORING LOGS（PHASE IV）

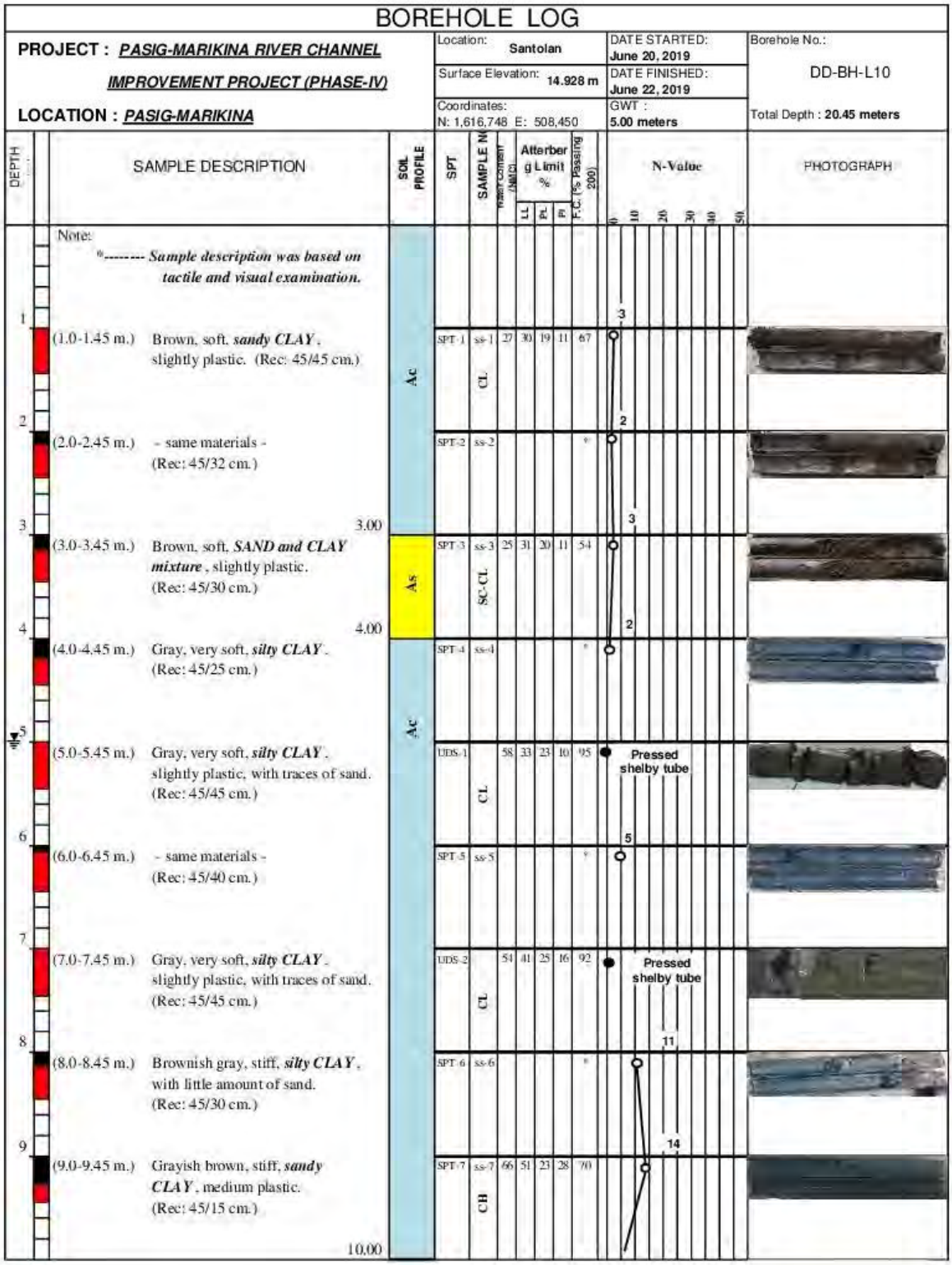

Figure 5-3-1（28/103）BORING LOGS（PHASE IV）

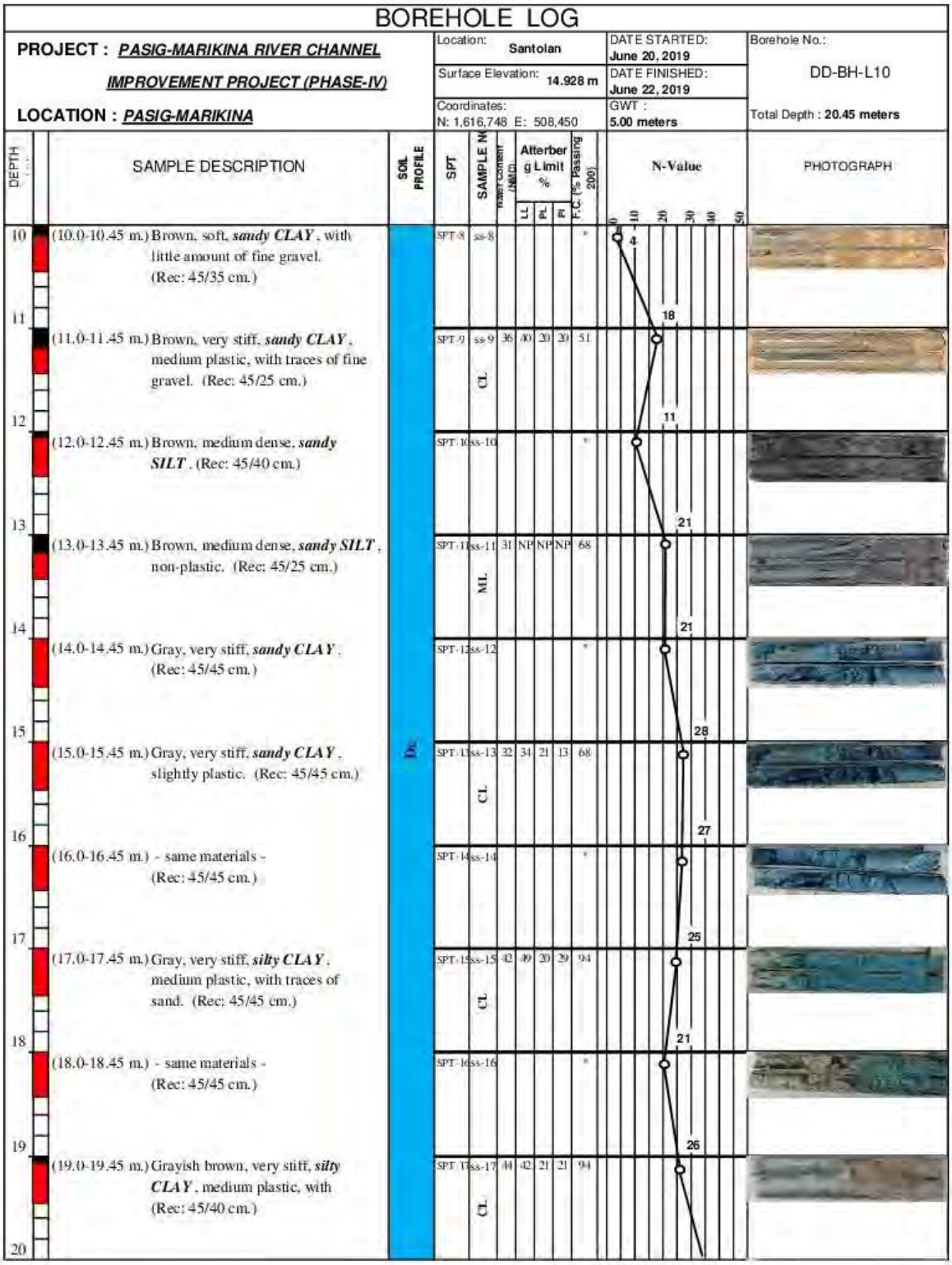

Figure 5-3-1（29/103）BORING LOGS（PHASE IV）

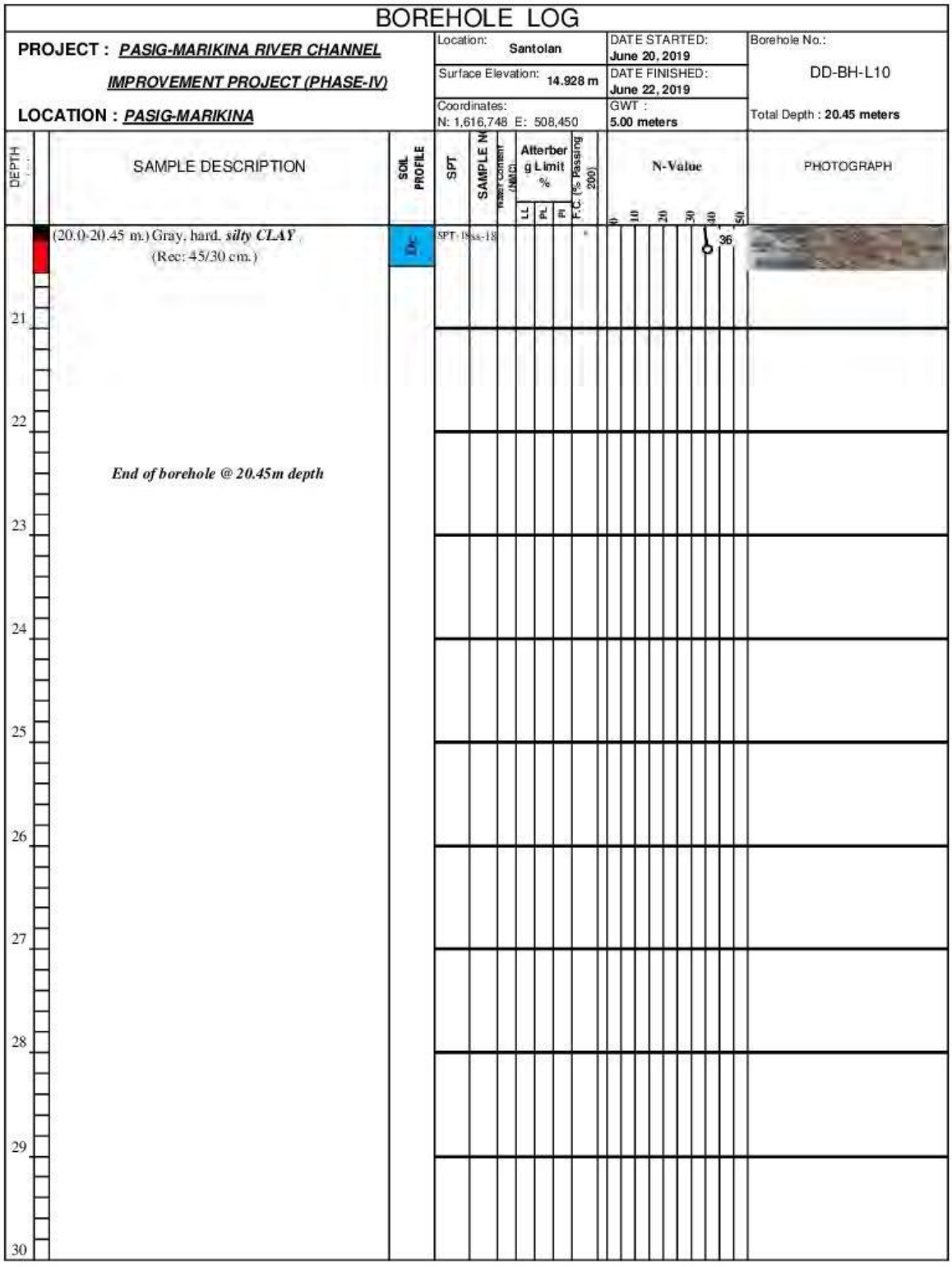

Figure 5-3-1（30/103）BORING LOGS（PHASE IV）

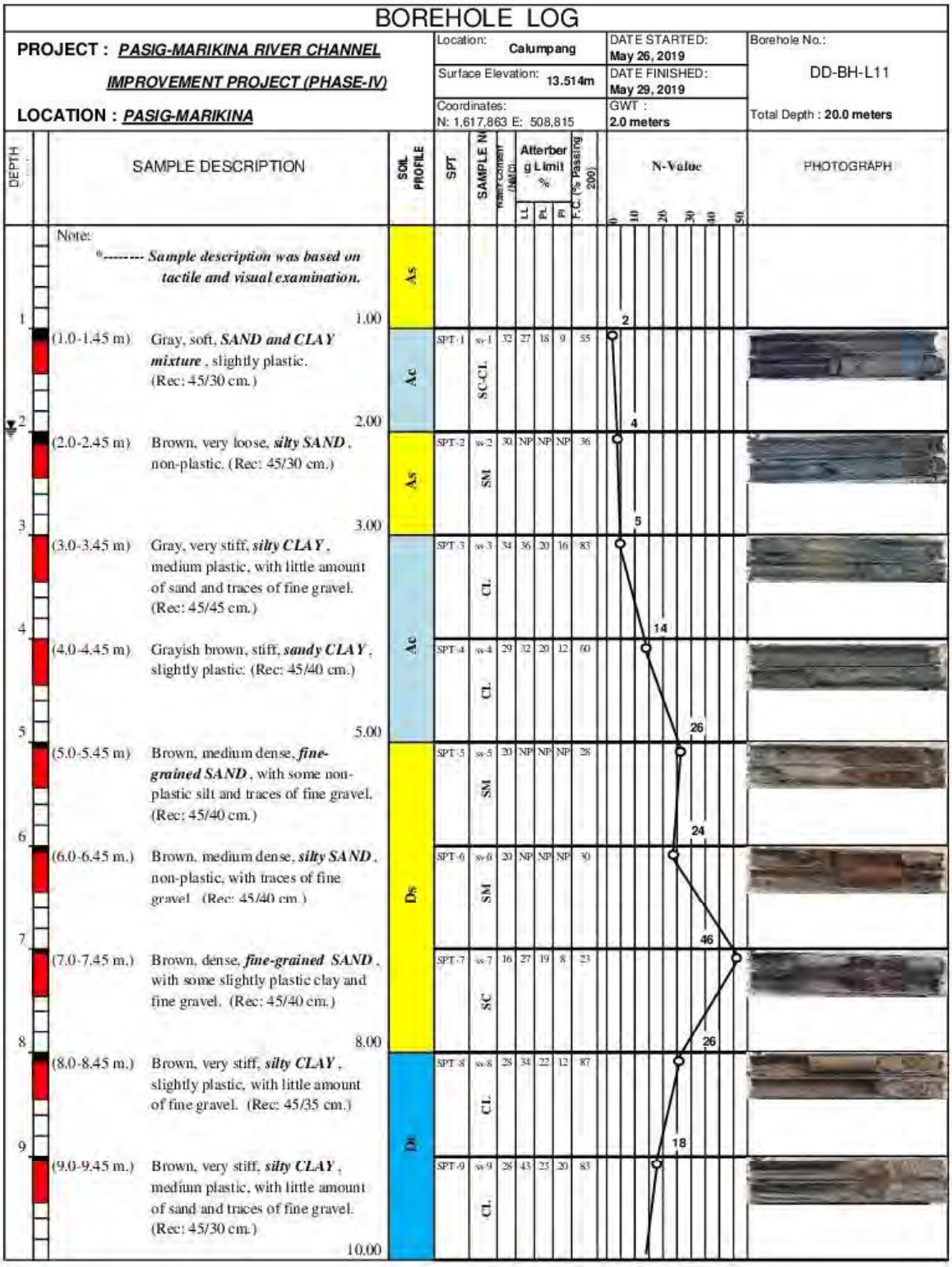

Figure 5-3-1（31/103）BORING LOGS（PHASE IV）

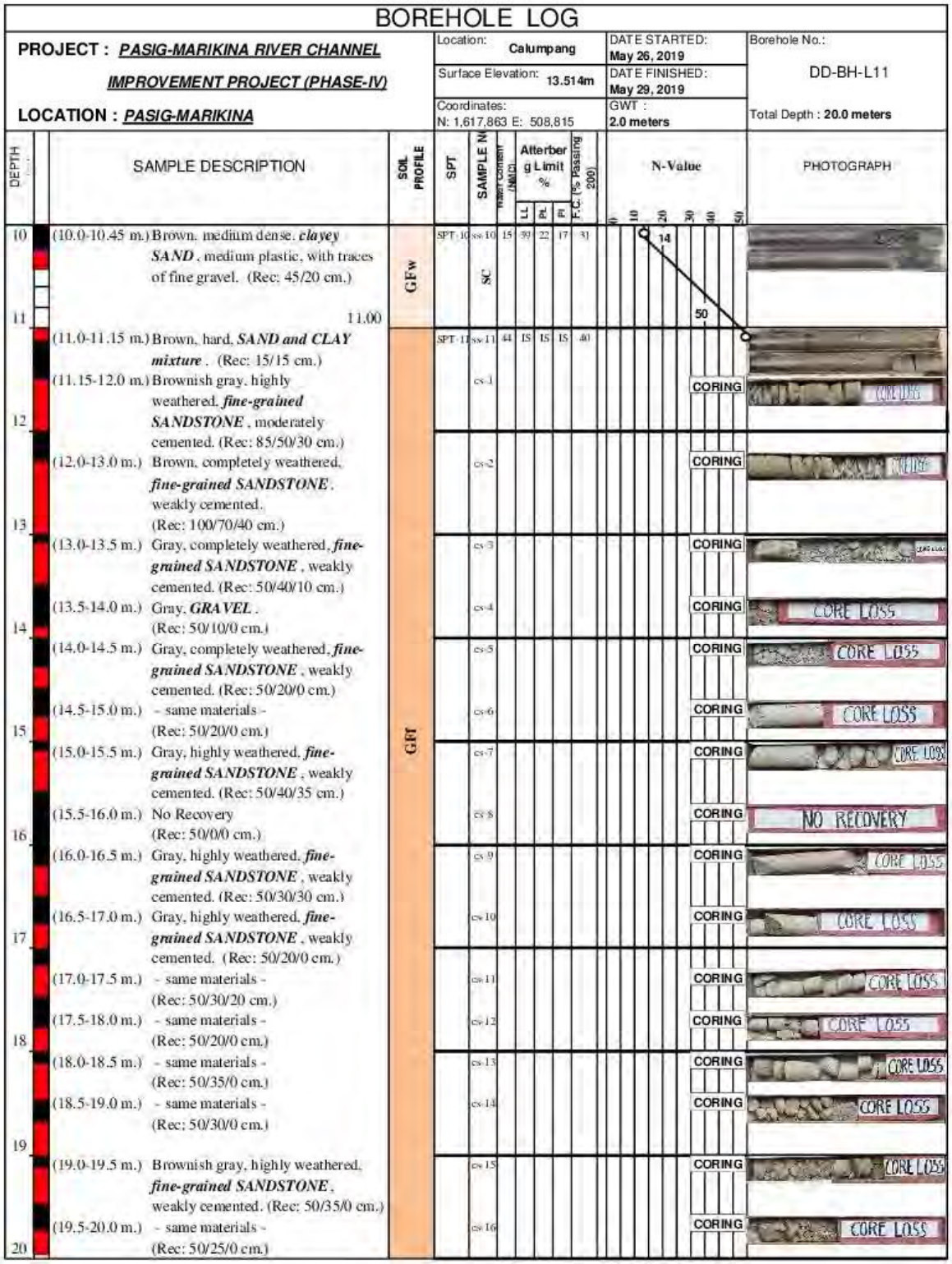

Figure 5-3-1（32/103）BORING LOGS（PHASE IV）

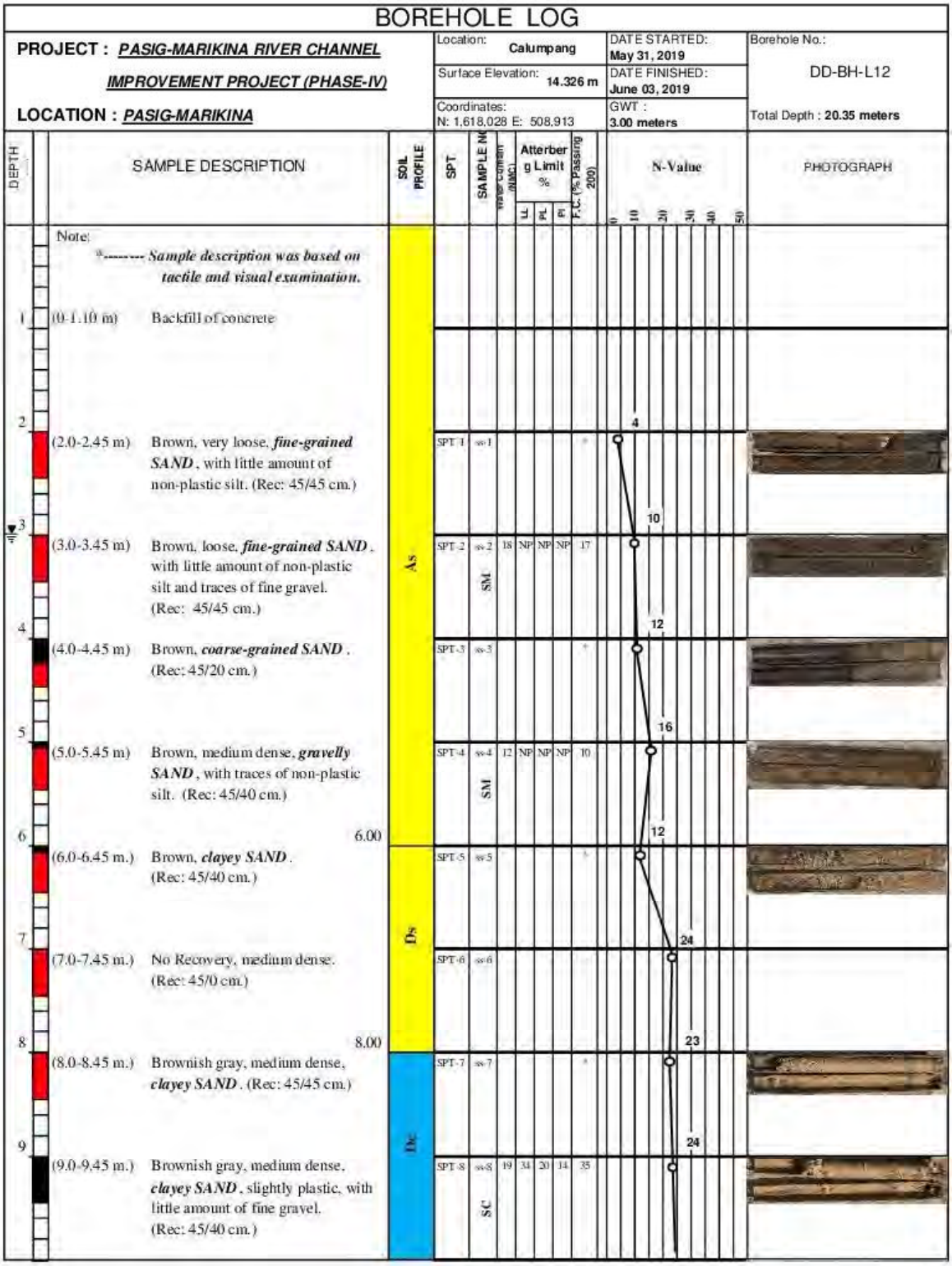

Figure 5-3-1（33/103）BORING LOGS（PHASE IV）

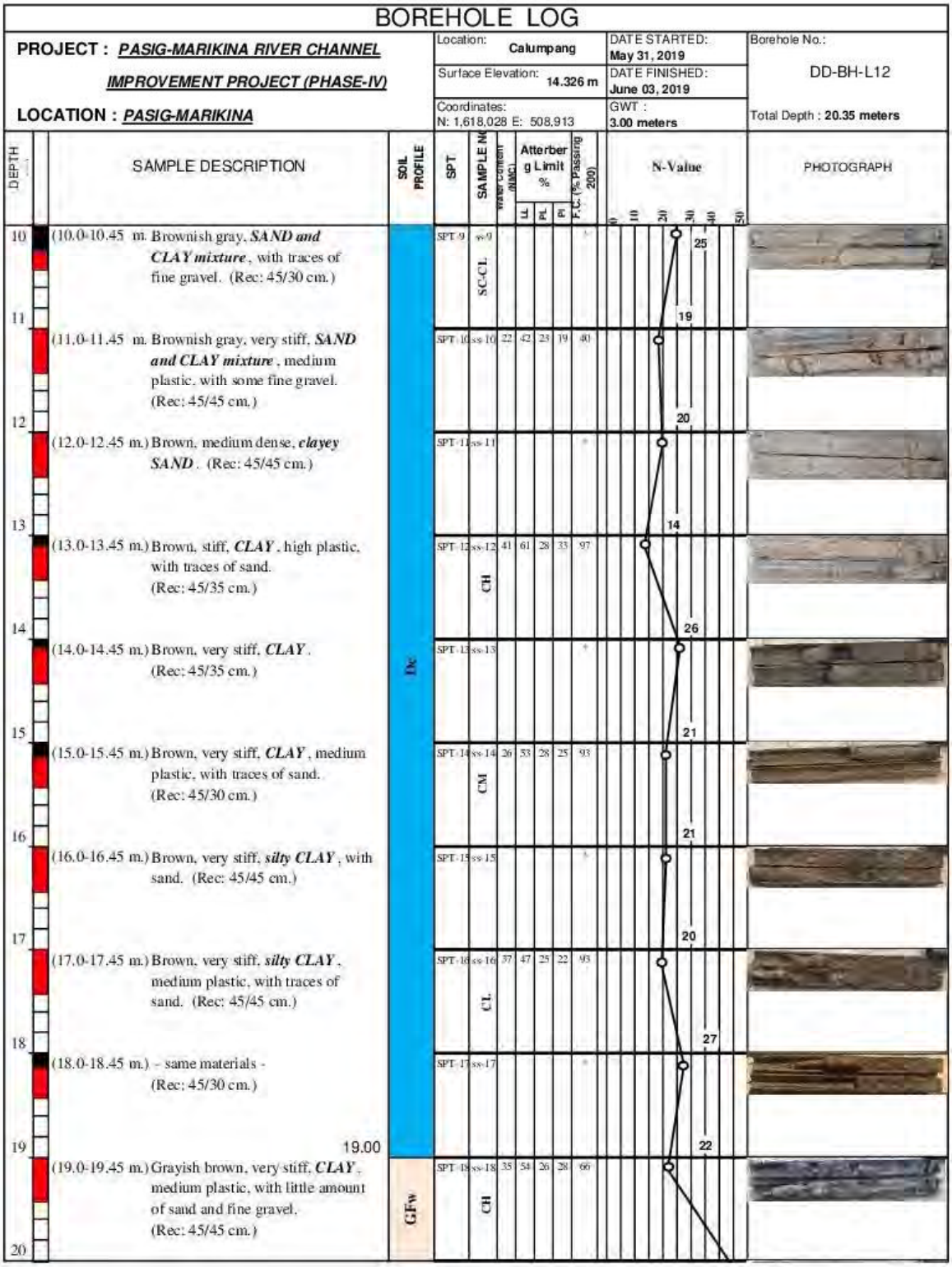

Figure 5-3-1（34/103）BORING LOGS（PHASE IV）

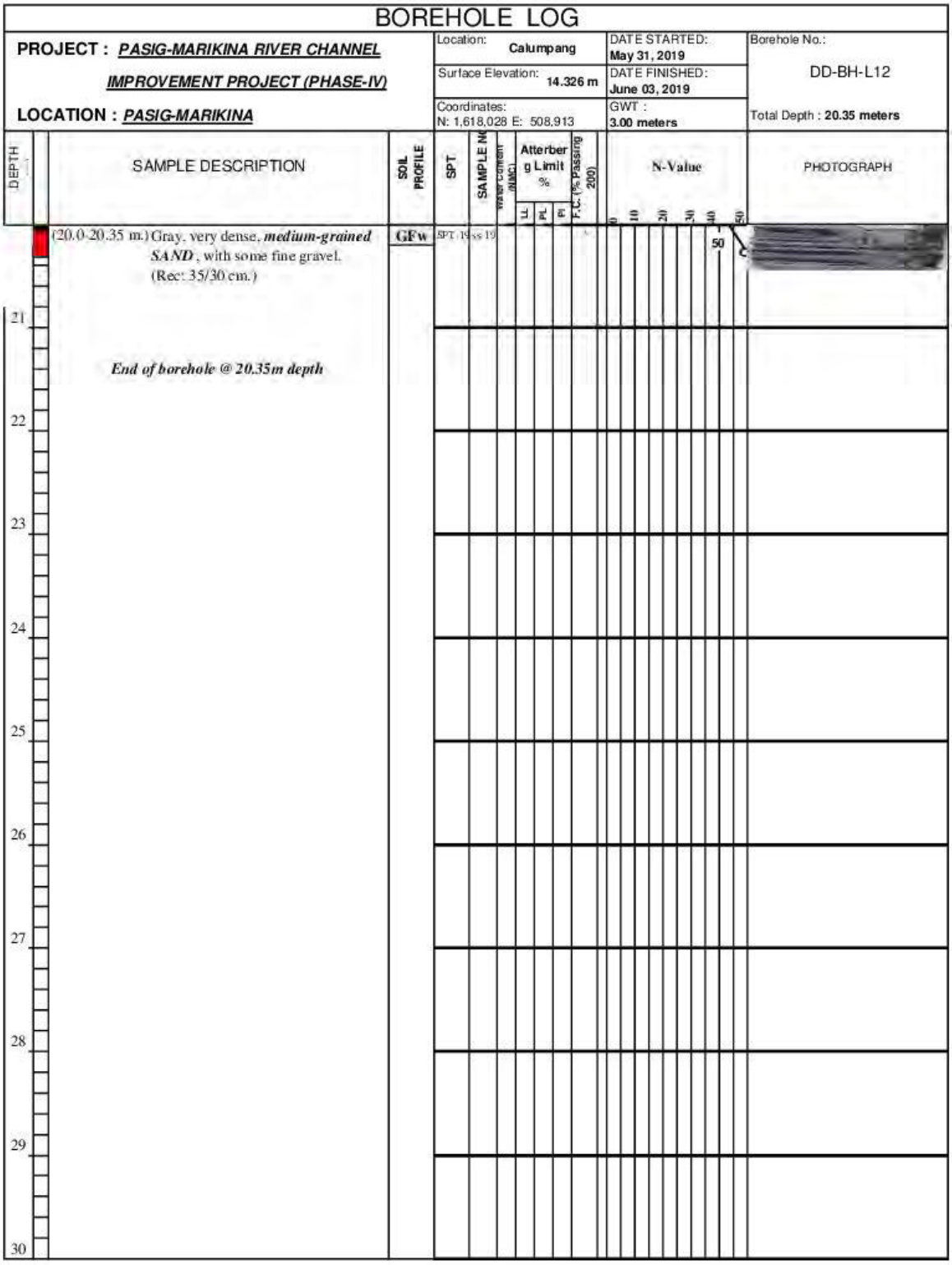

Figure 5-3-1（35/103）BORING LOGS（PHASE IV）

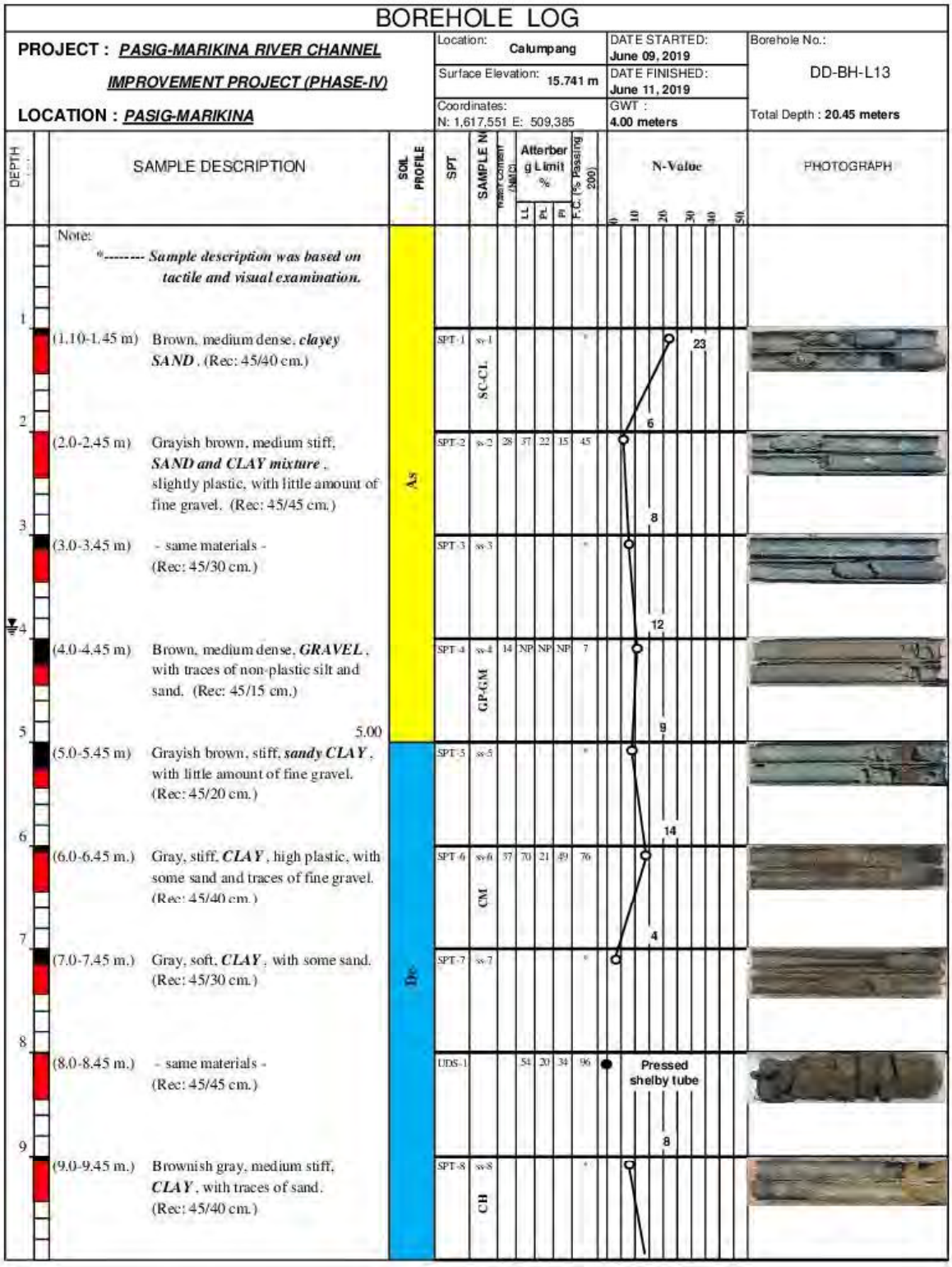

Figure 5-3-1（36/103）BORING LOGS（PHASE IV）

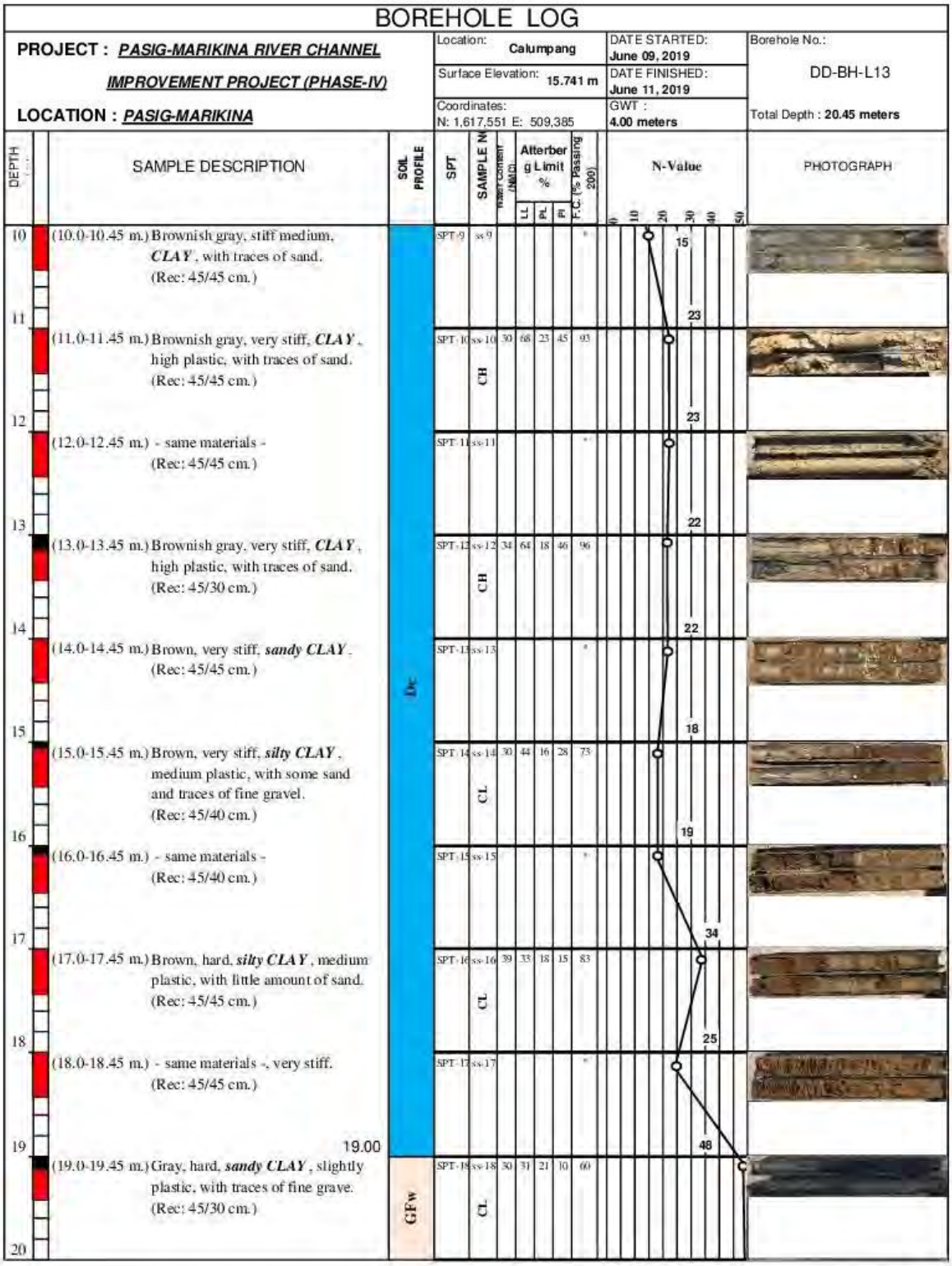

Figure 5-3-1（37/103）BORING LOGS（PHASE IV）

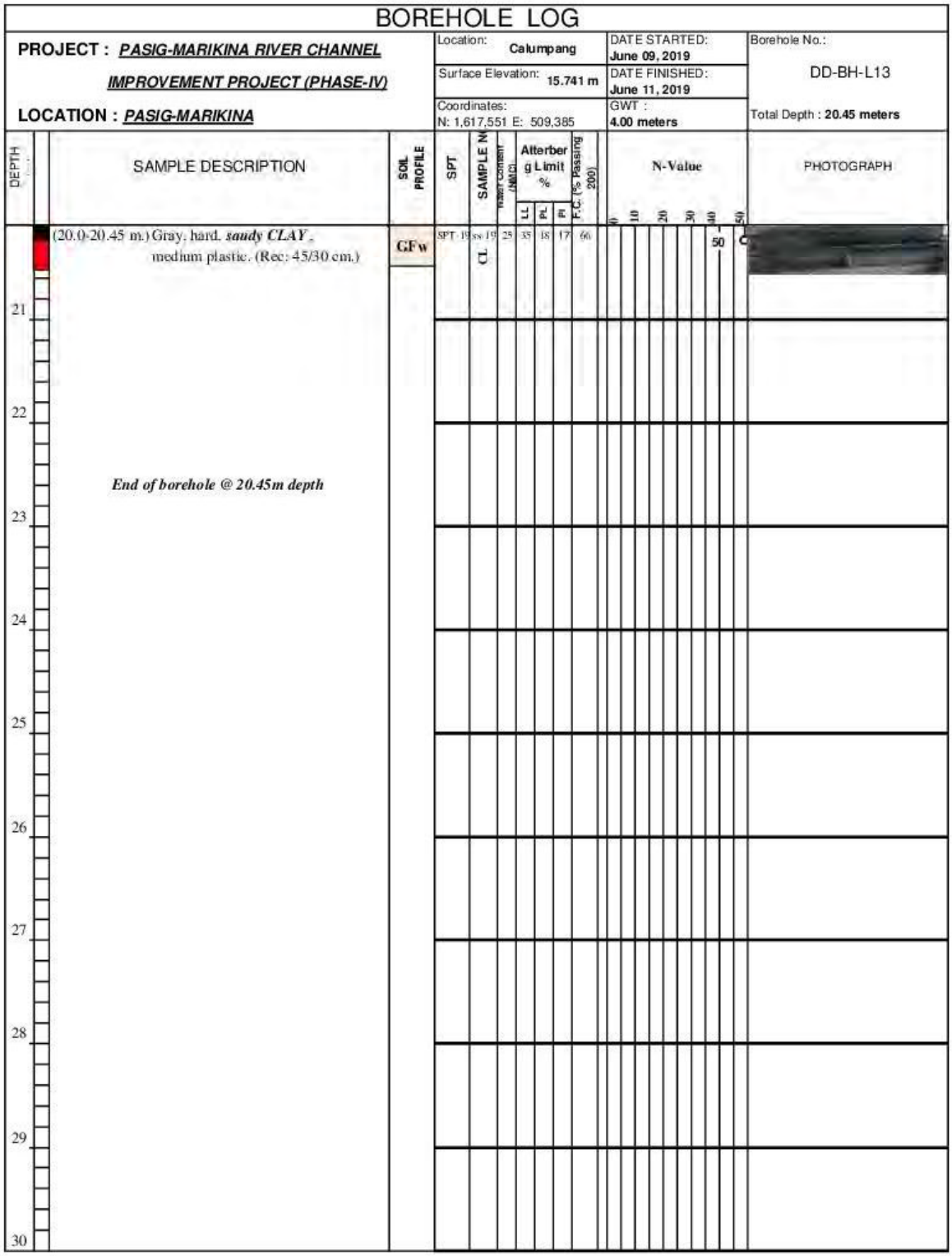

Figure 5-3-1（38/103）BORING LOGS（PHASE IV）

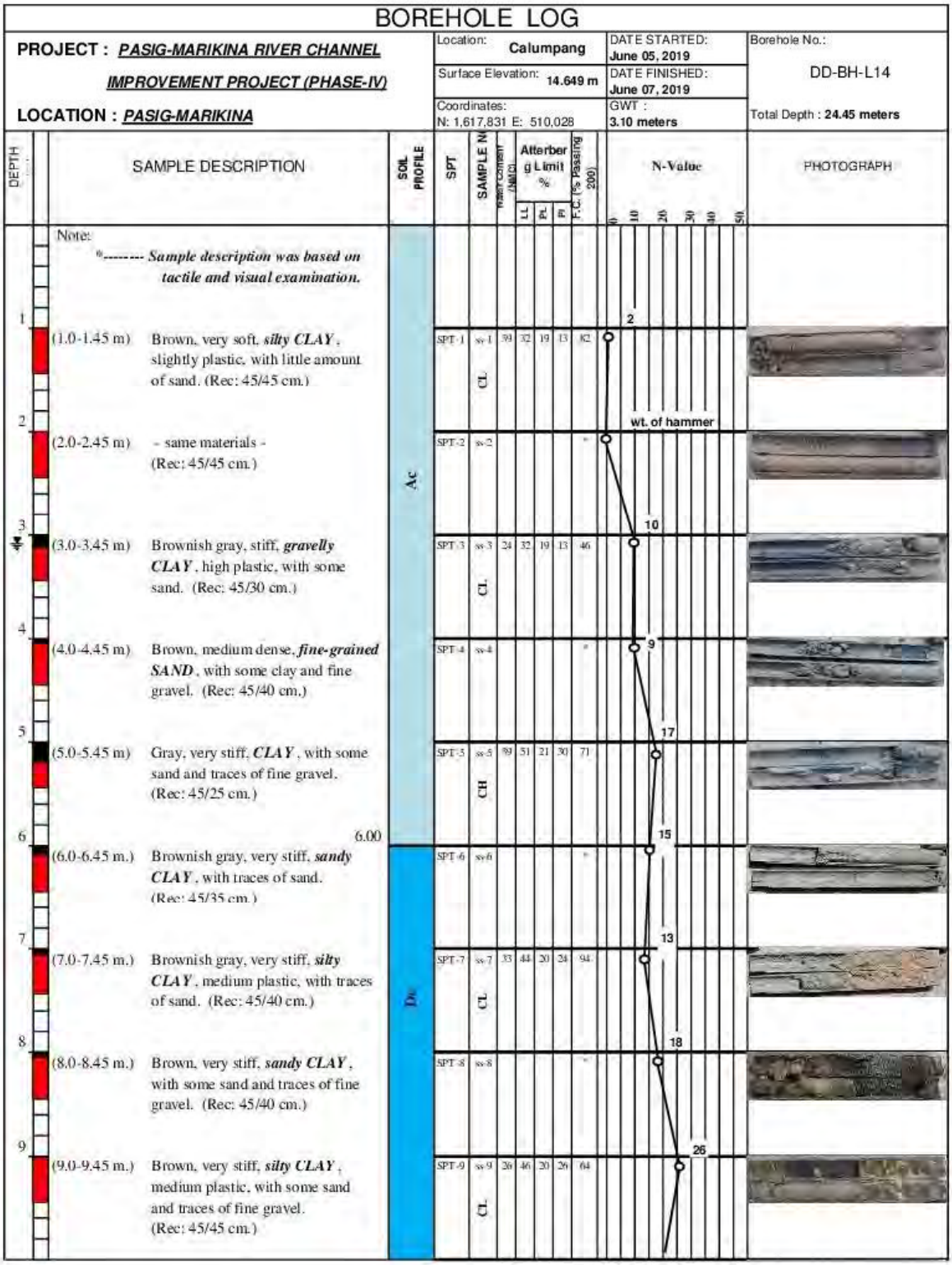

Figure 5-3-1（39/103）BORING LOGS（PHASE IV）

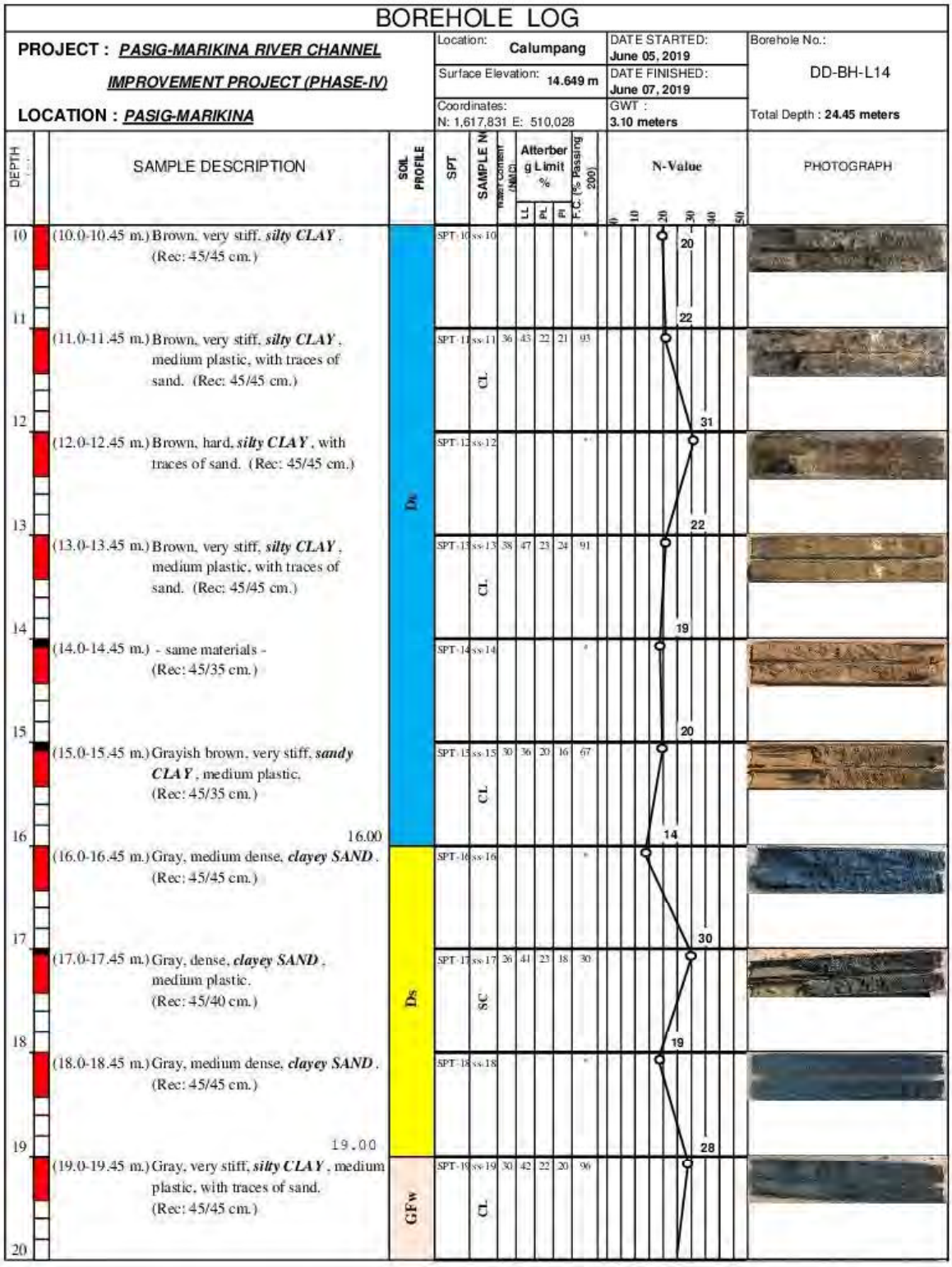

Figure 5-3-1（40/103）BORING LOGS（PHASE IV）

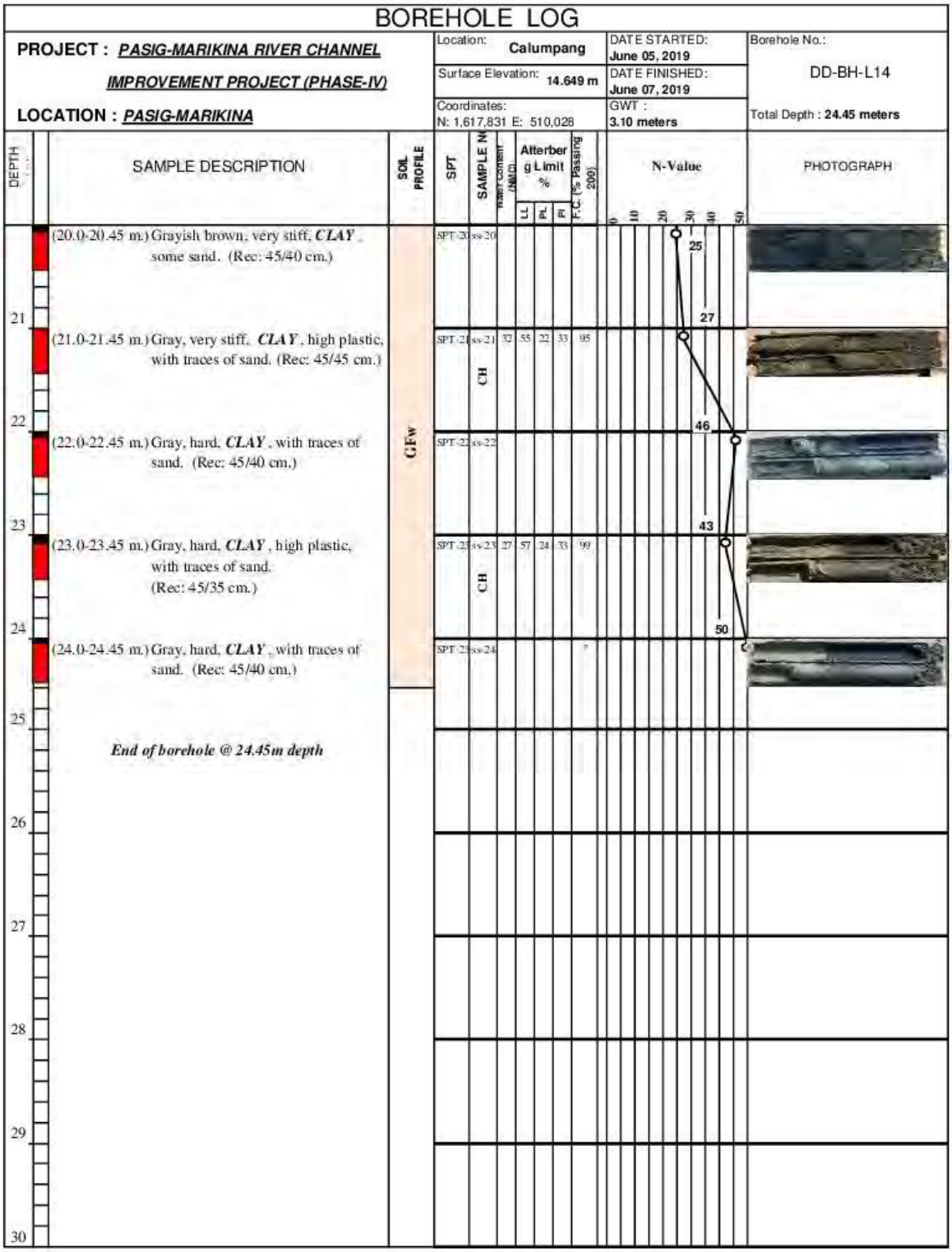

Figure 5-3-1（41/103）BORING LOGS（PHASE IV）

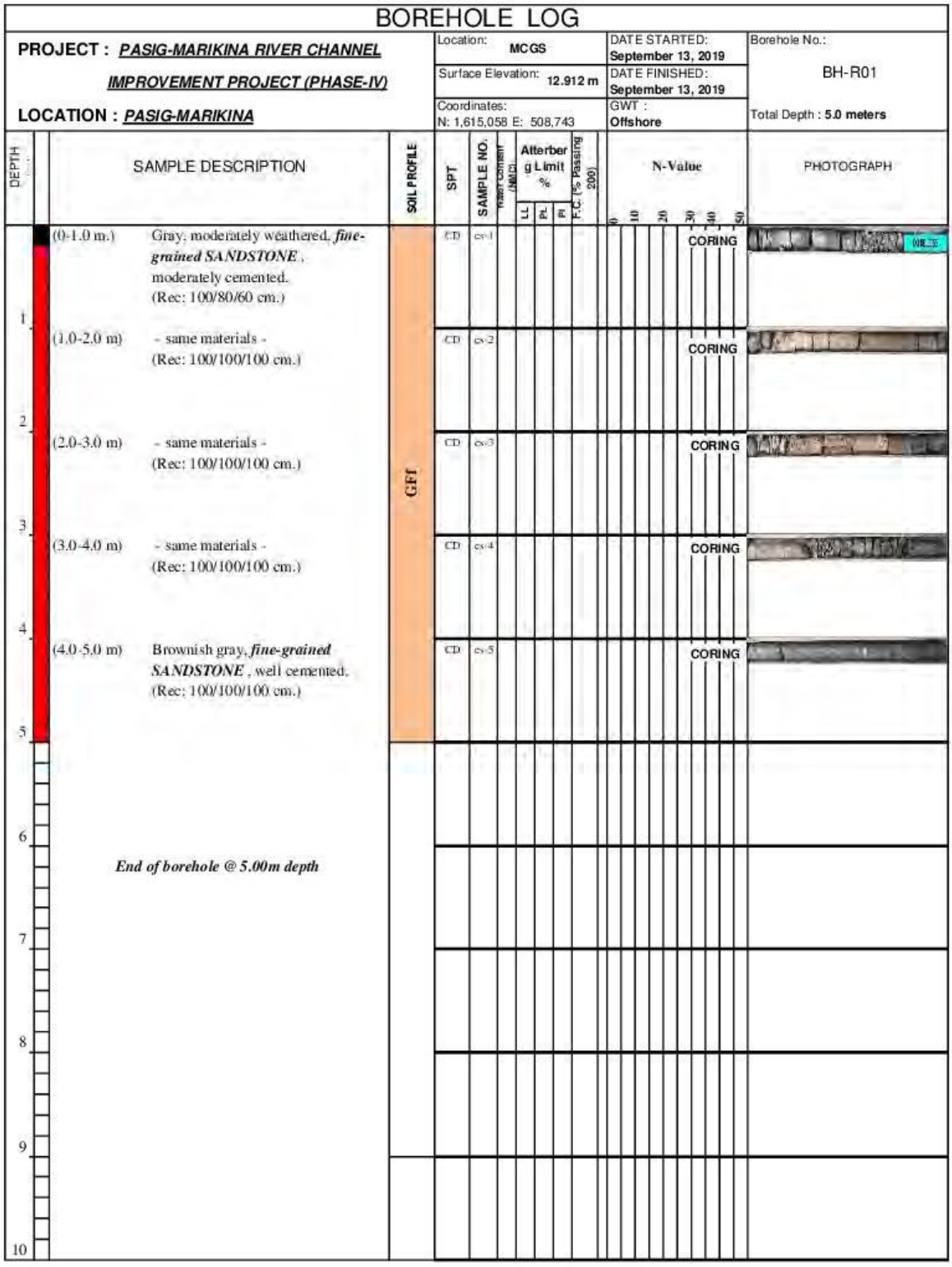

Figure 5-3-1（42/103）BORING LOGS（PHASE IV）

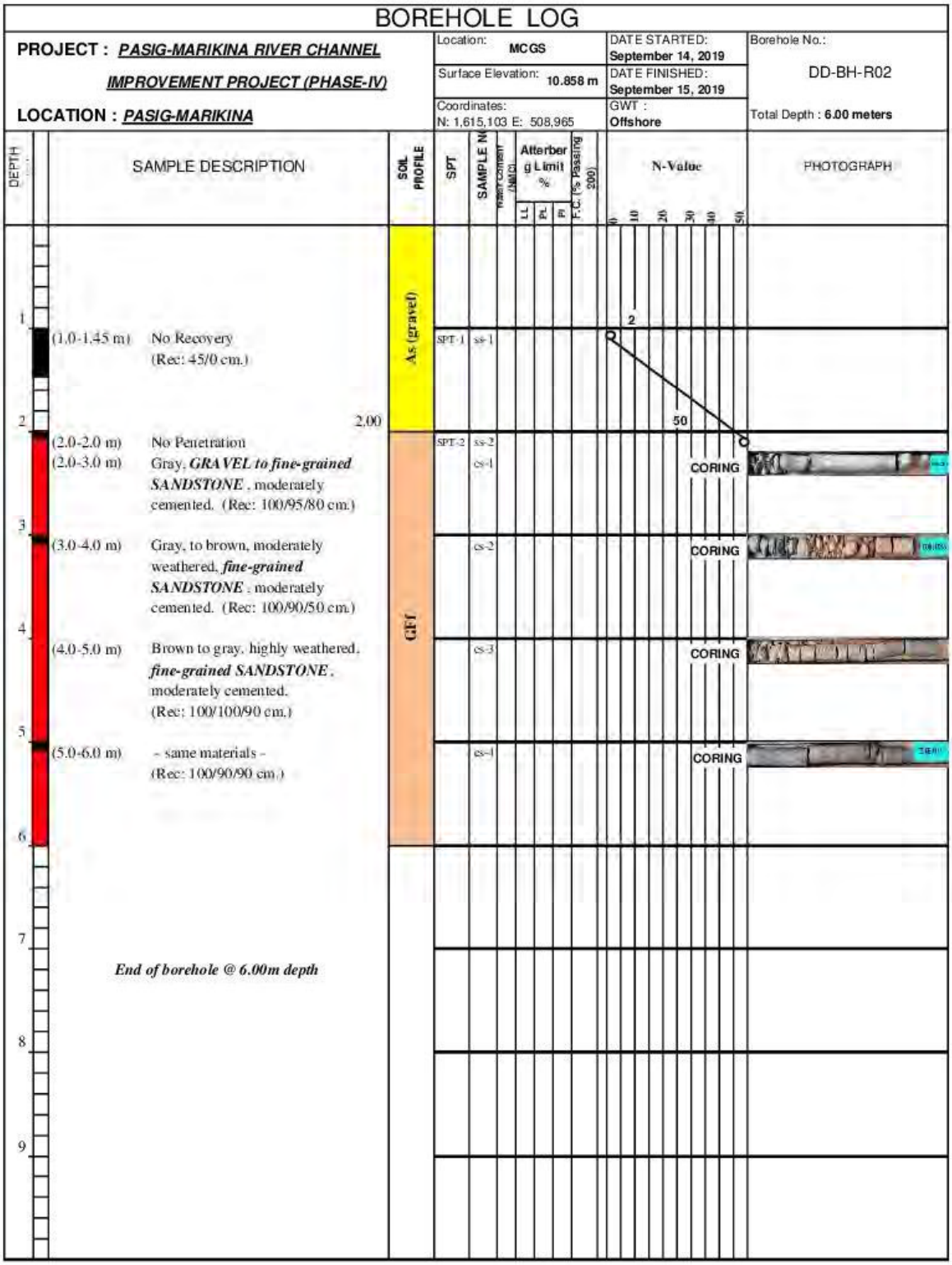

Figure 5-3-1（43/103）BORING LOGS（PHASE IV）

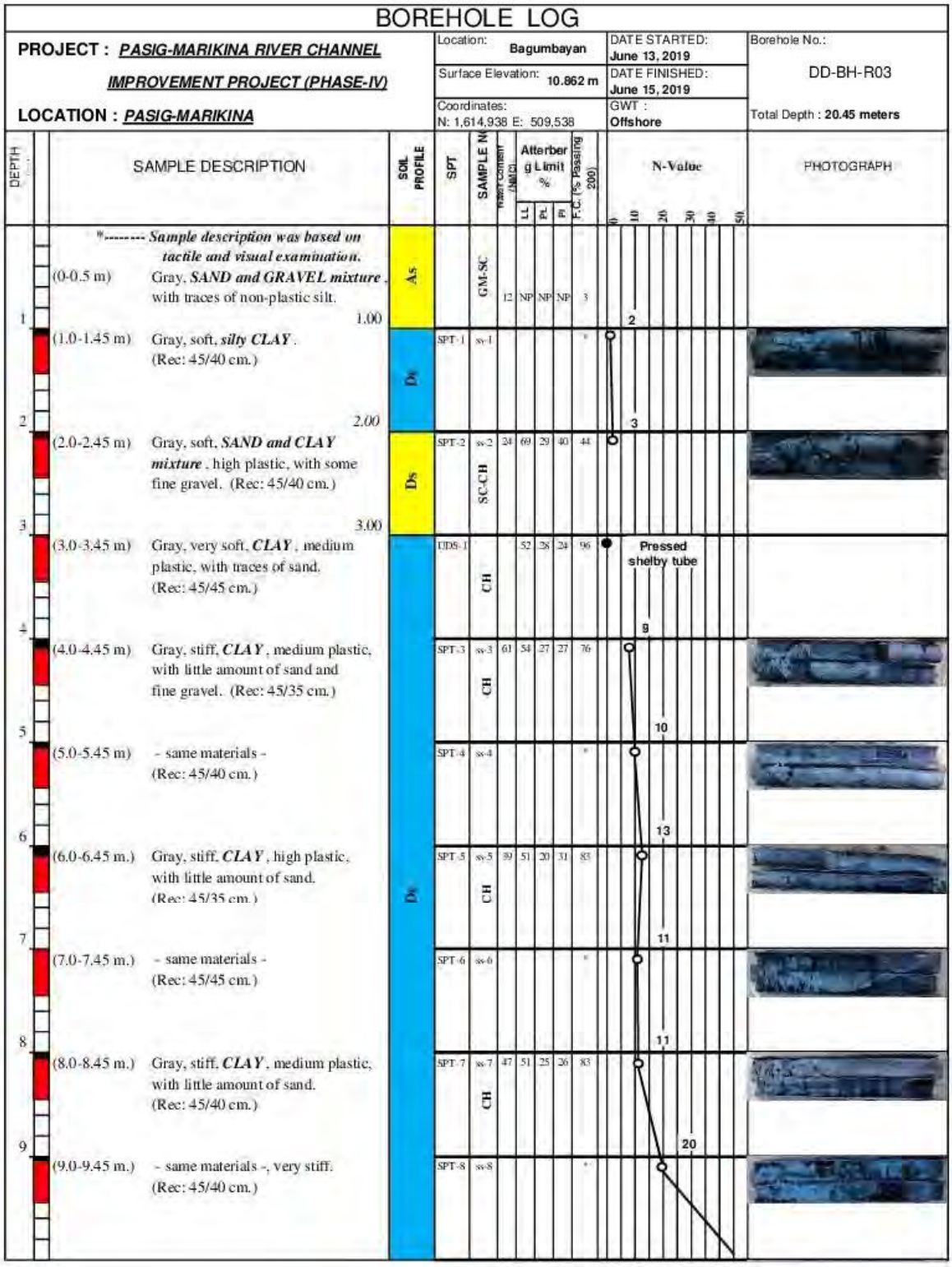

Figure 5-3-1（44/103）BORING LOGS（PHASE IV）

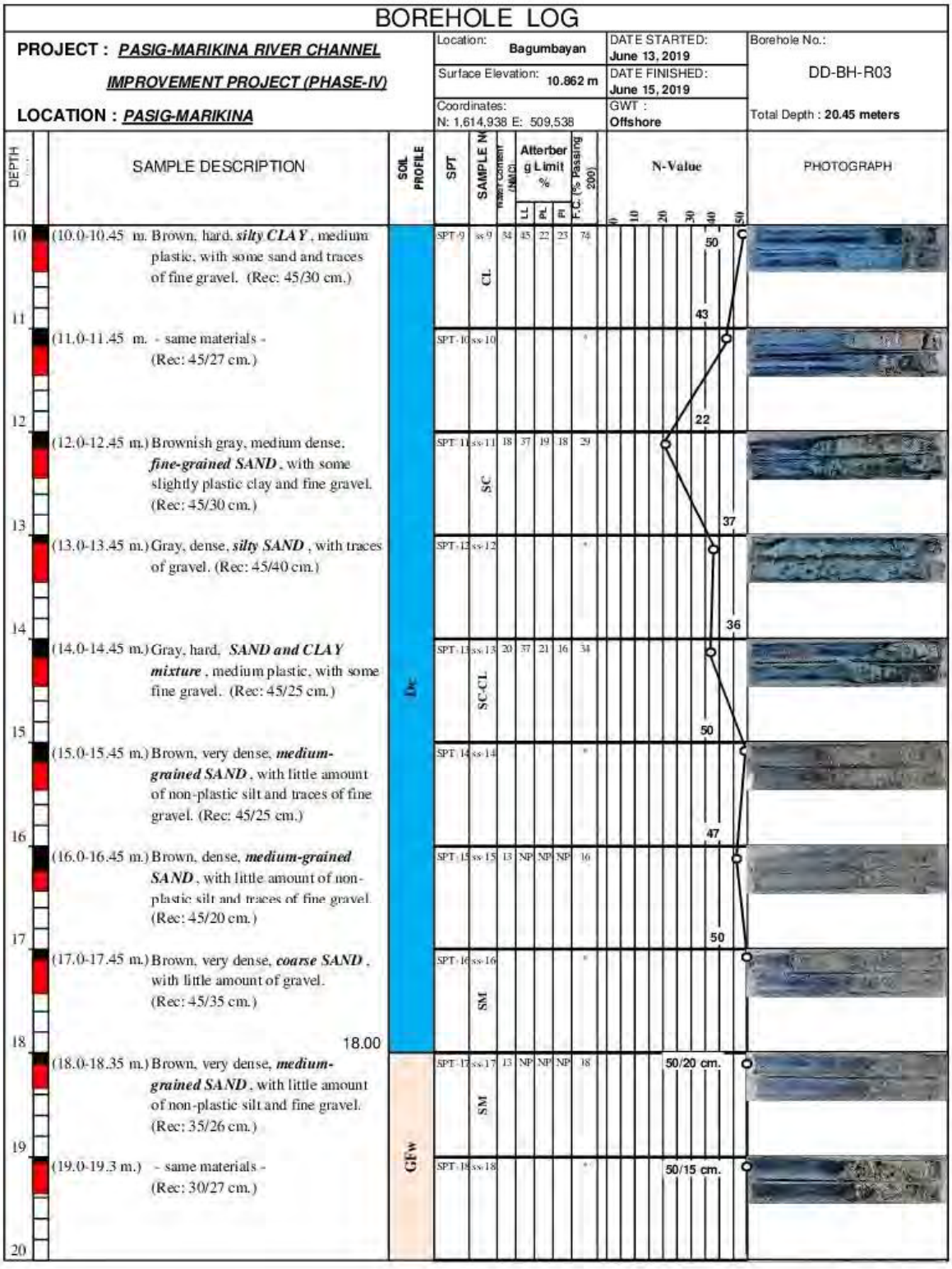

Figure 5-3-1（45/103）BORING LOGS（PHASE IV）

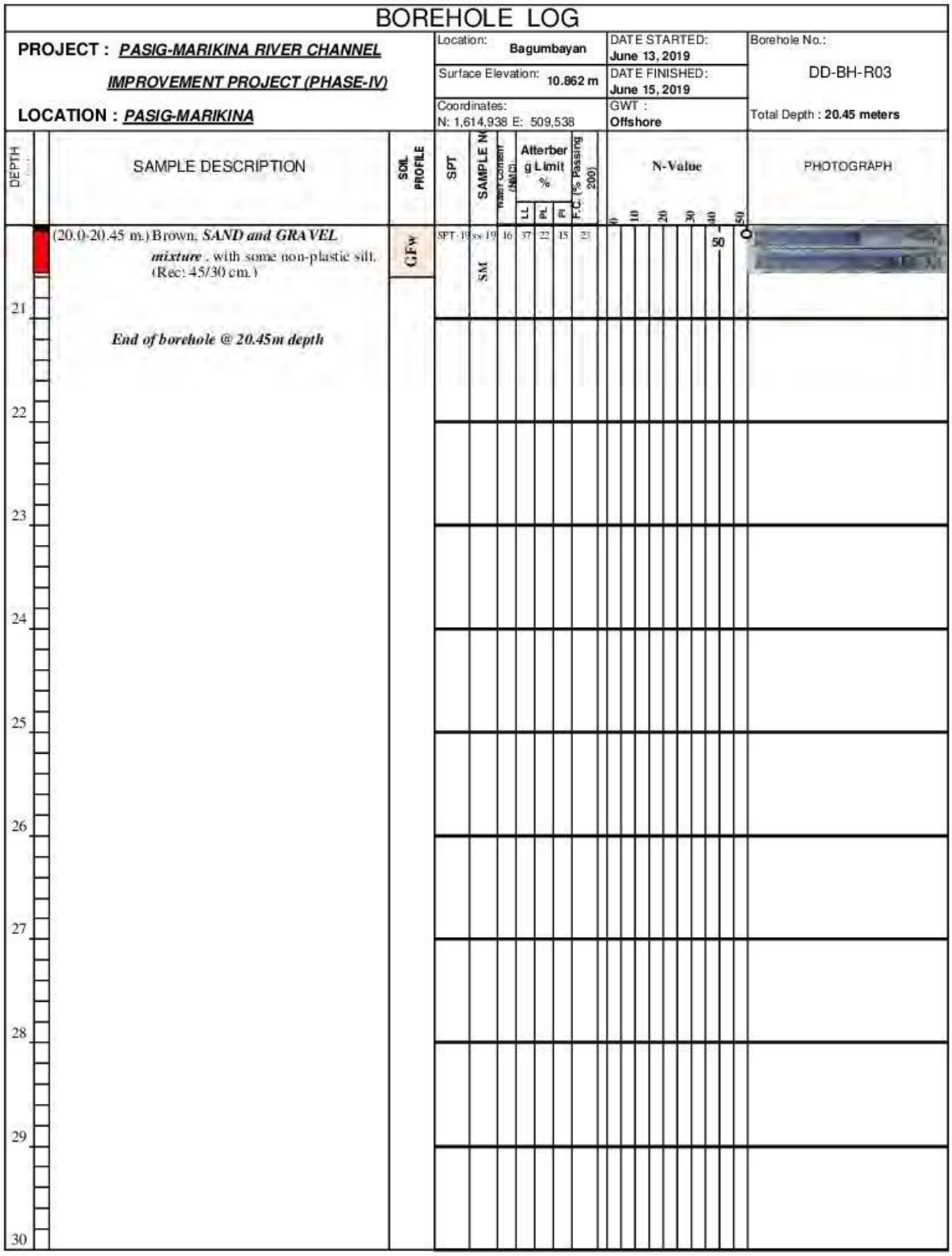

Figure 5-3-1（46/103）BORING LOGS（PHASE IV）

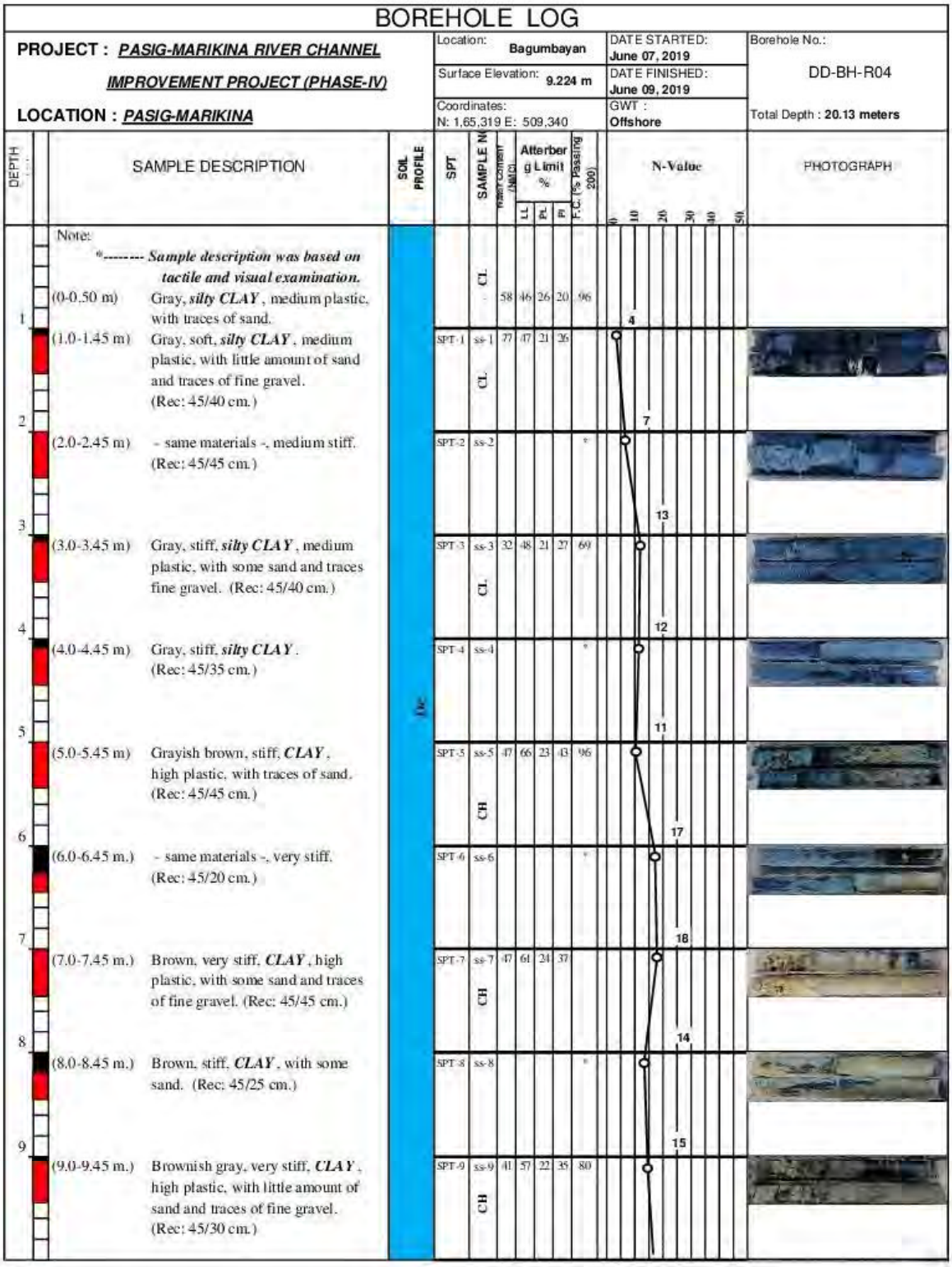

Figure 5-3-1（47/103）BORING LOGS（PHASE IV）

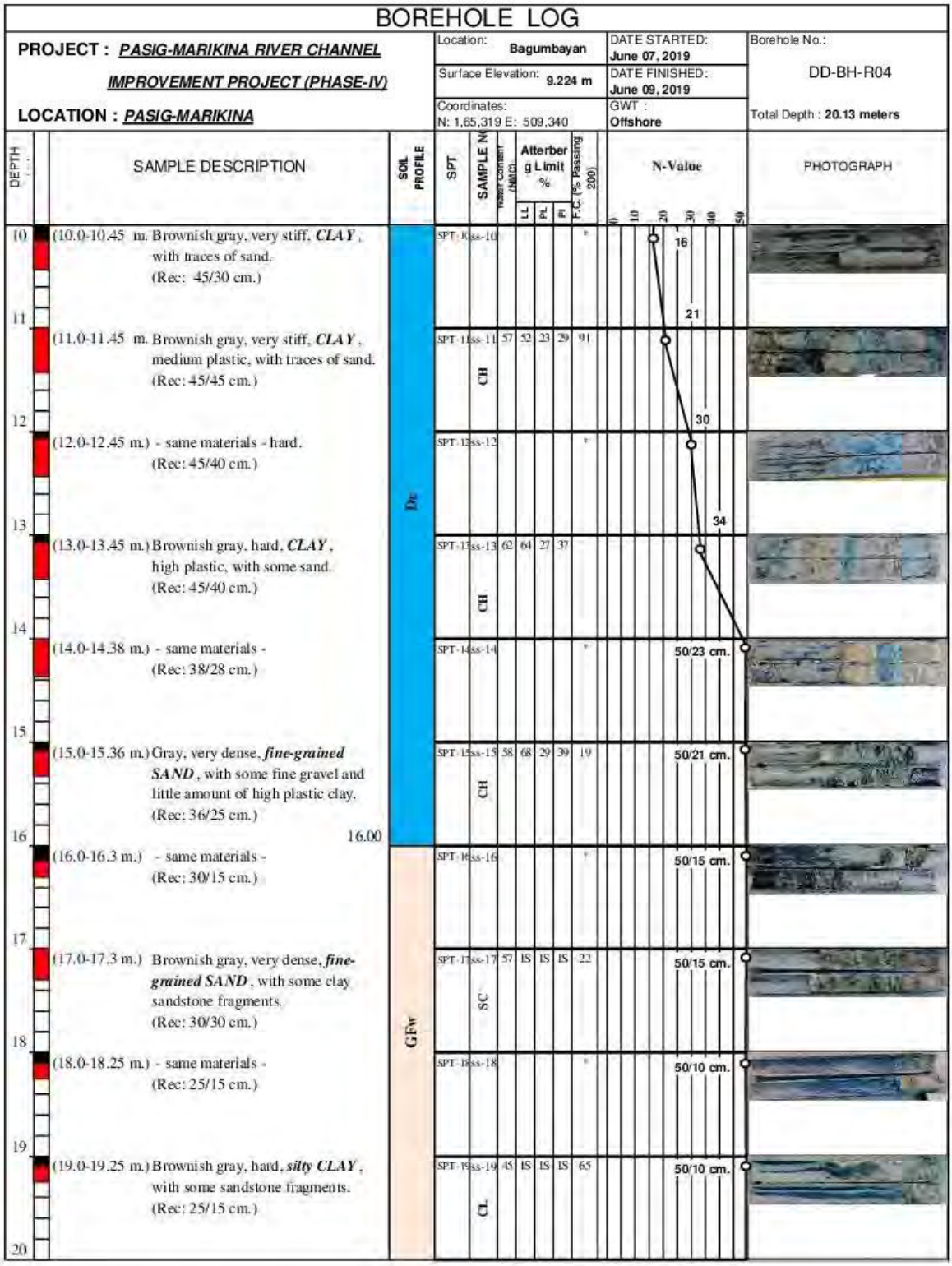

Figure 5-3-1（48/103）BORING LOGS（PHASE IV）

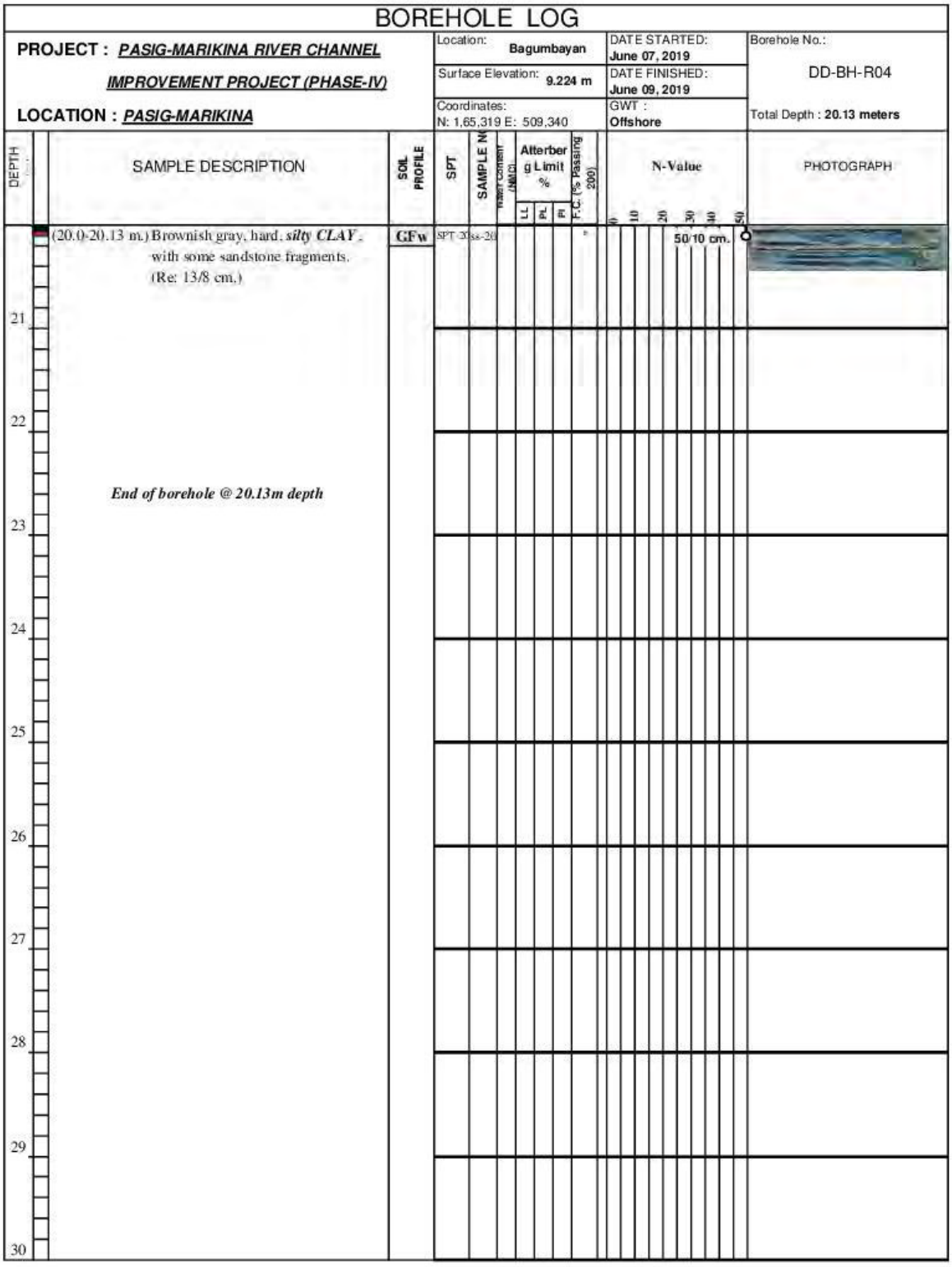

Figure 5-3-1（49/103）BORING LOGS（PHASE IV）

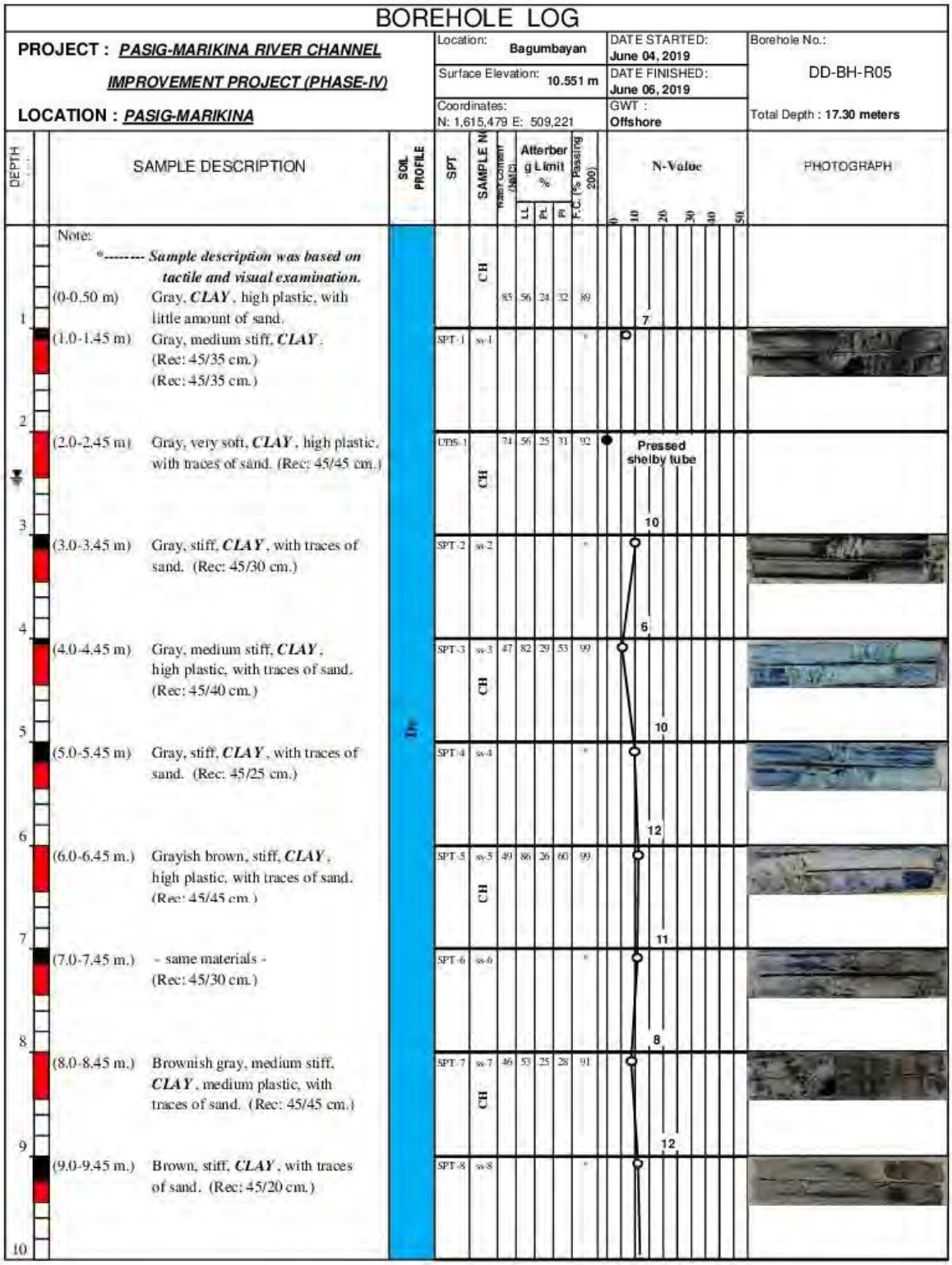

Figure 5-3-1（50/103）BORING LOGS（PHASE IV）

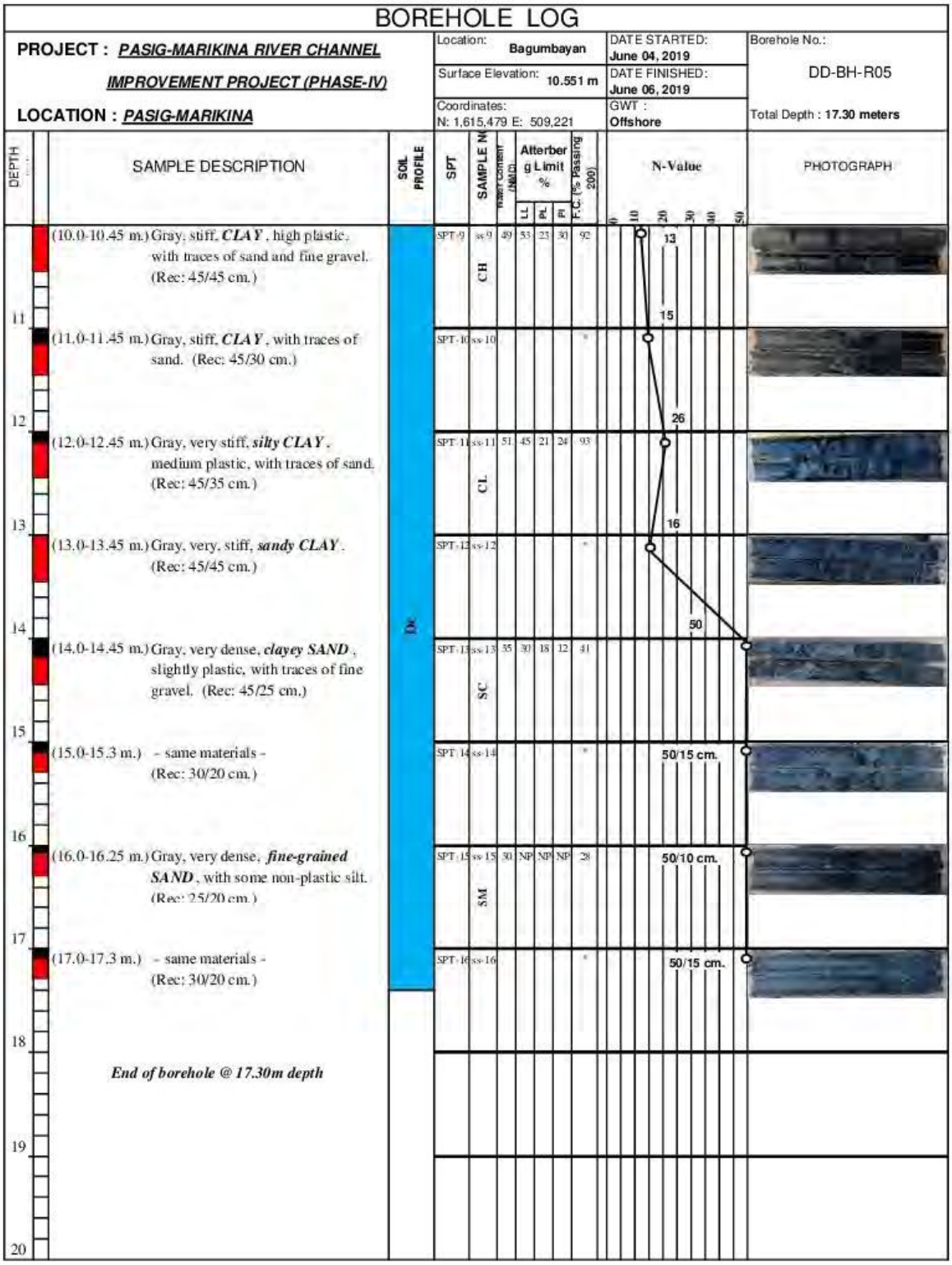

Figure 5-3-1（51/103）BORING LOGS（PHASE IV）

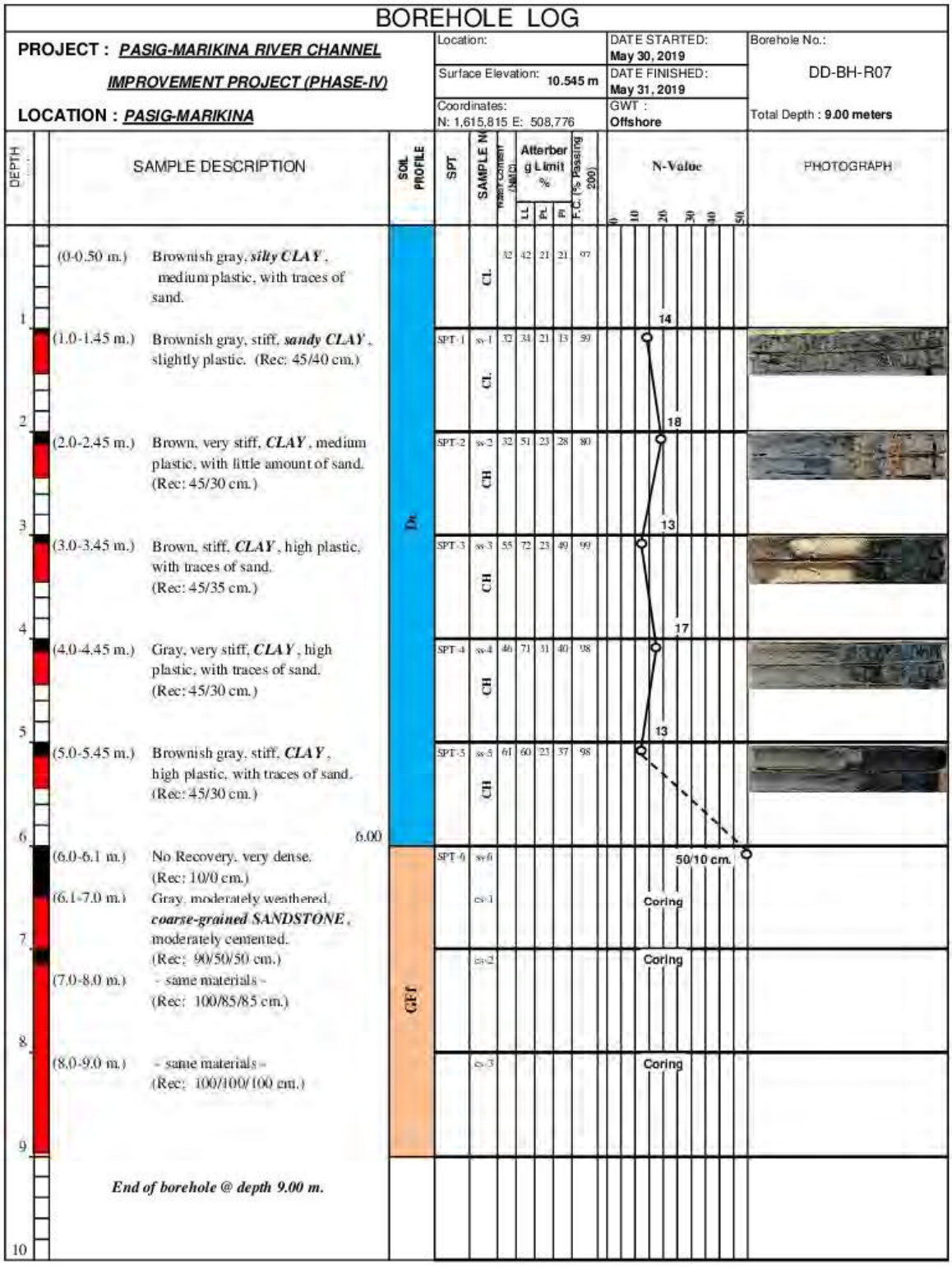

Figure 5-3-1（52/103）BORING LOGS（PHASE IV）

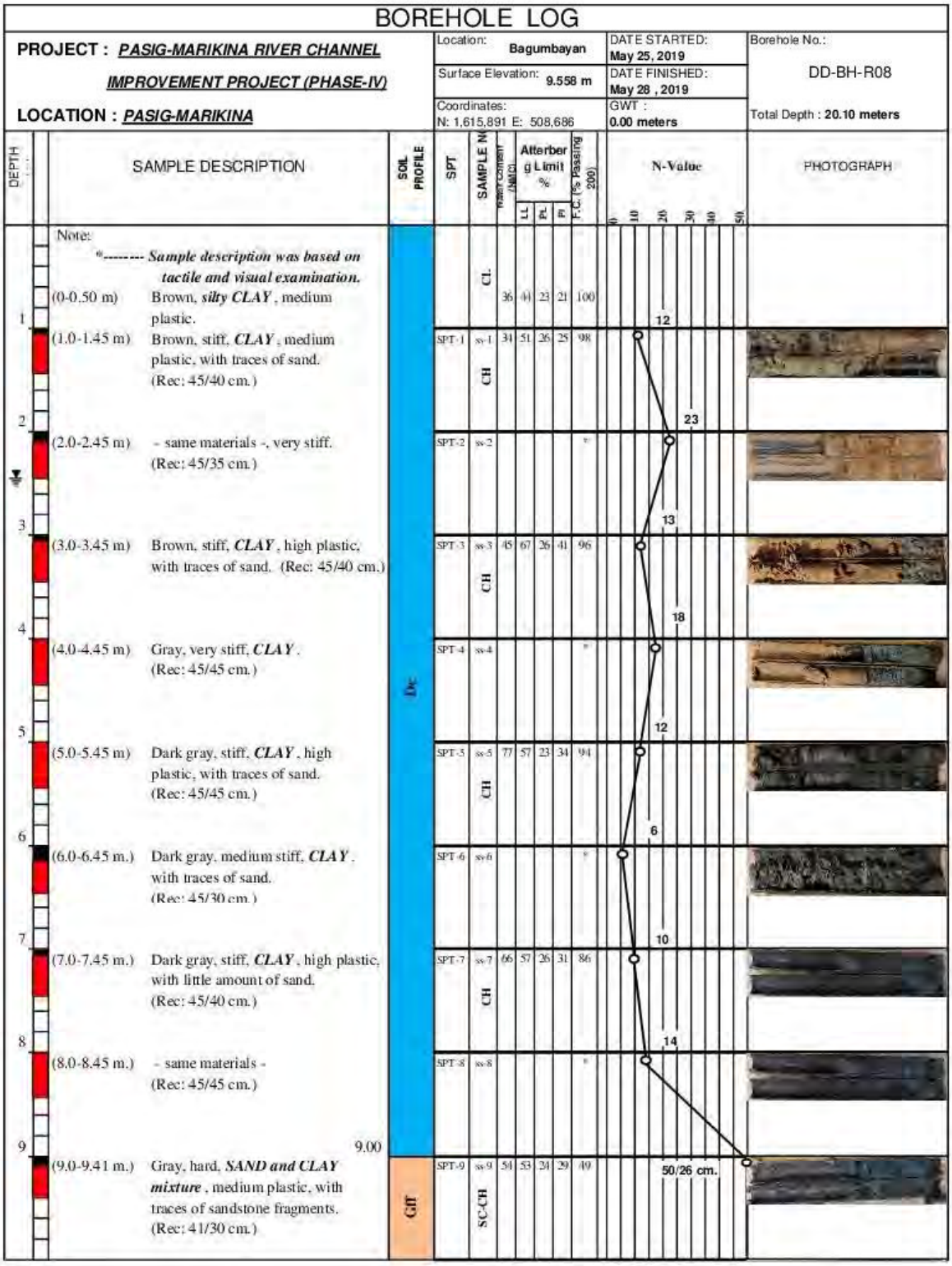

Figure 5-3-1（53/103）BORING LOGS（PHASE IV）

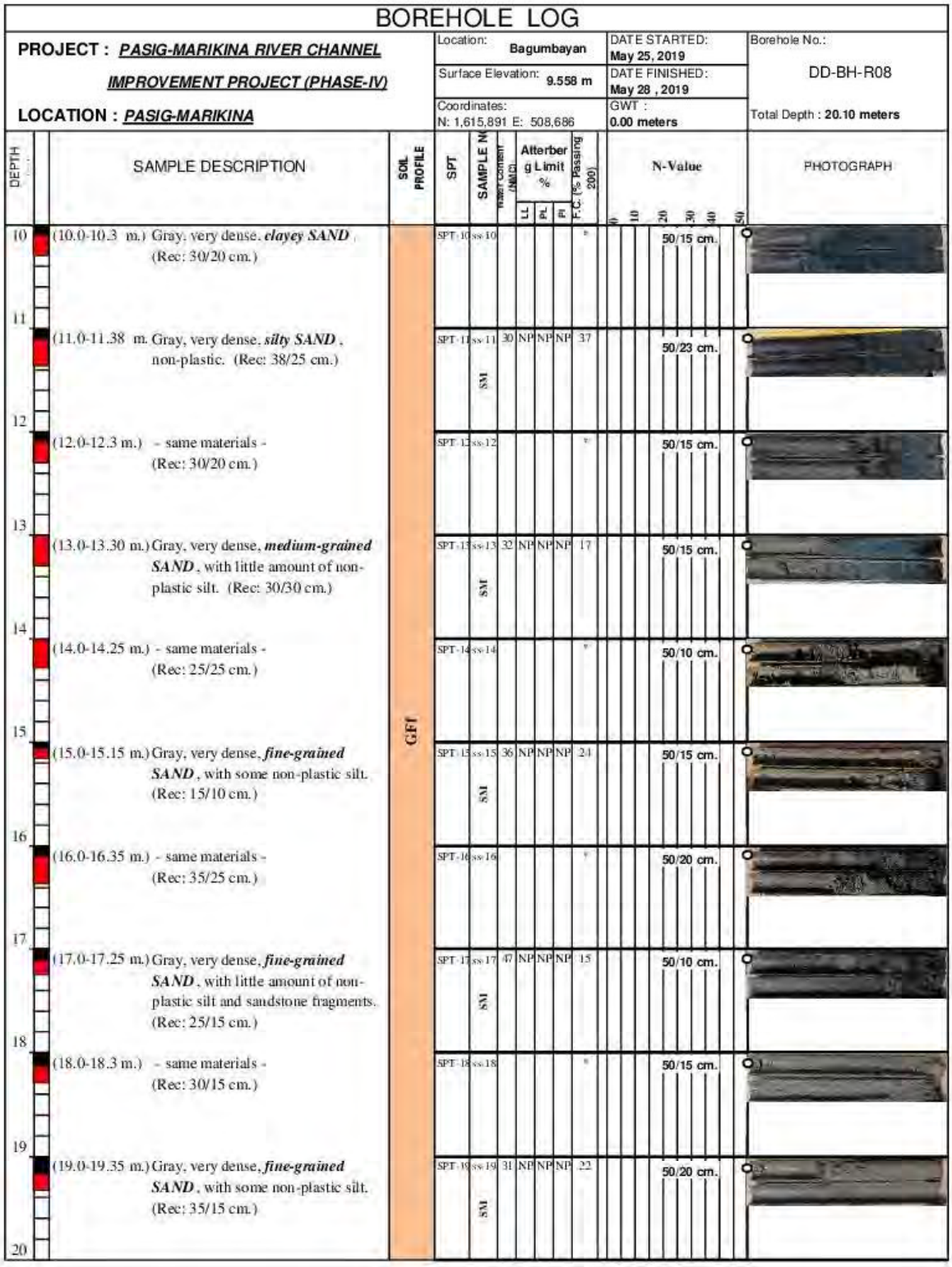

Figure 5-3-1（54/103）BORING LOGS（PHASE IV）

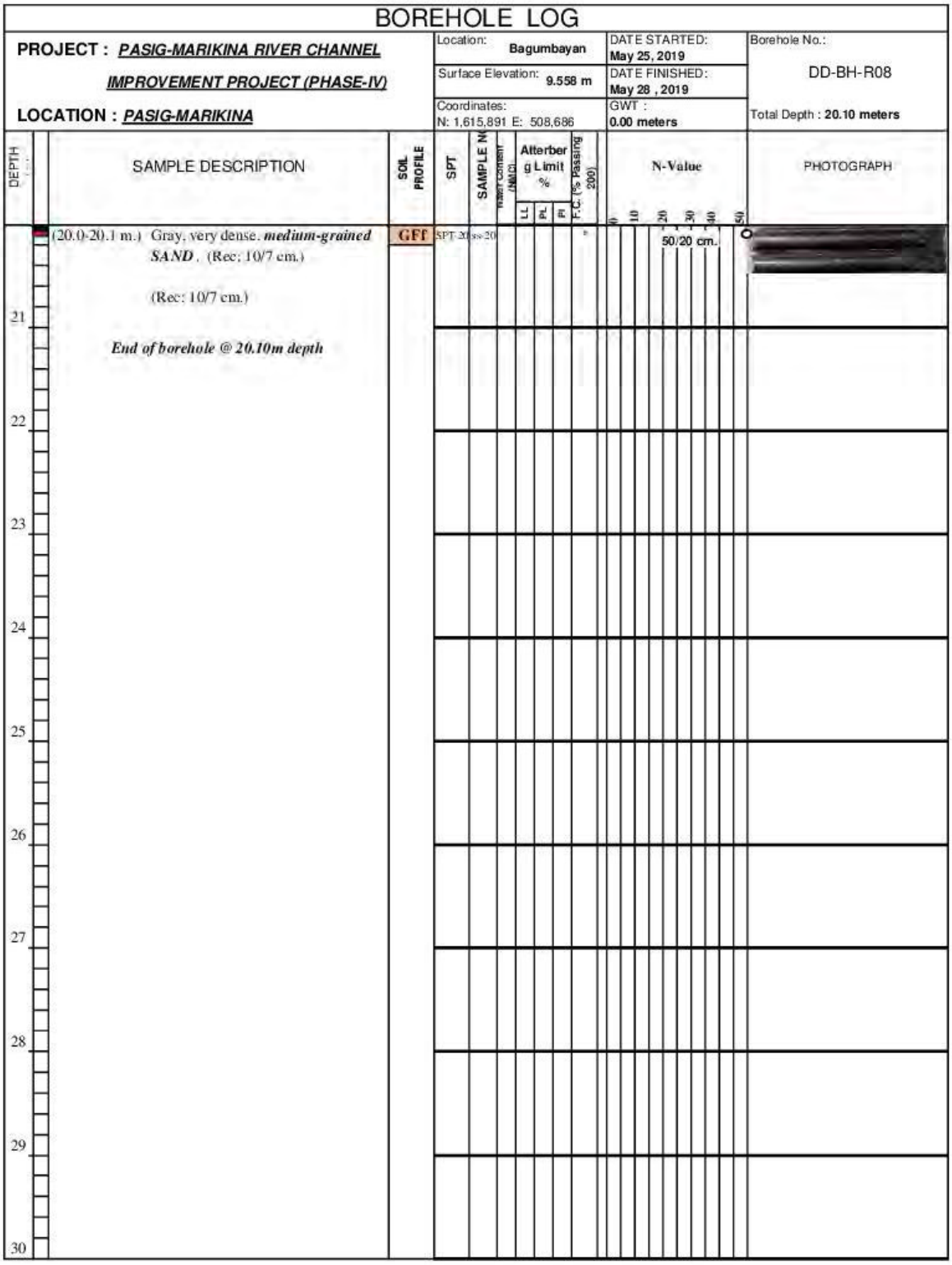

Figure 5-3-1（55/103）BORING LOGS（PHASE IV）

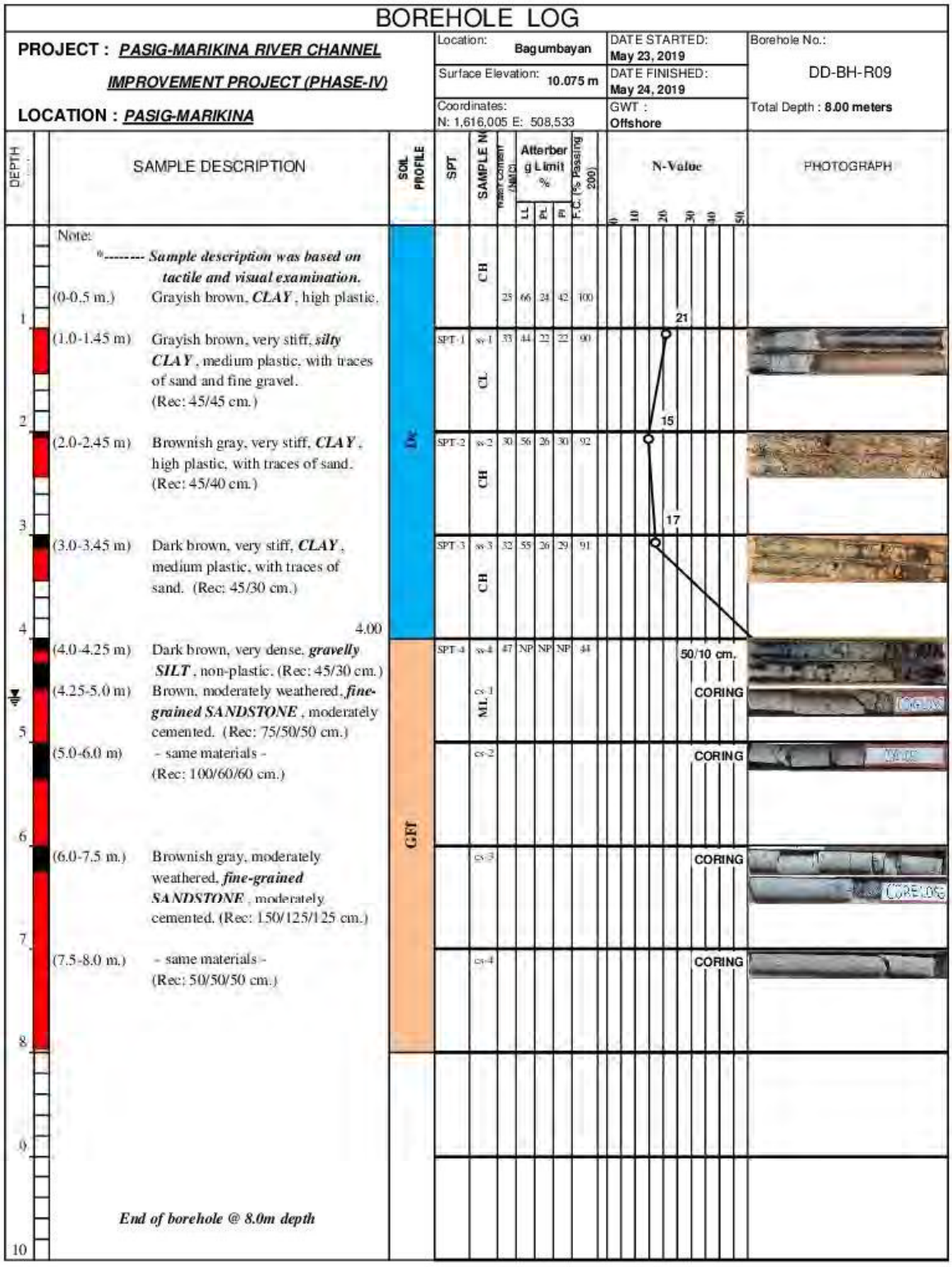

Figure 5-3-1（56/103）BORING LOGS（PHASE IV）

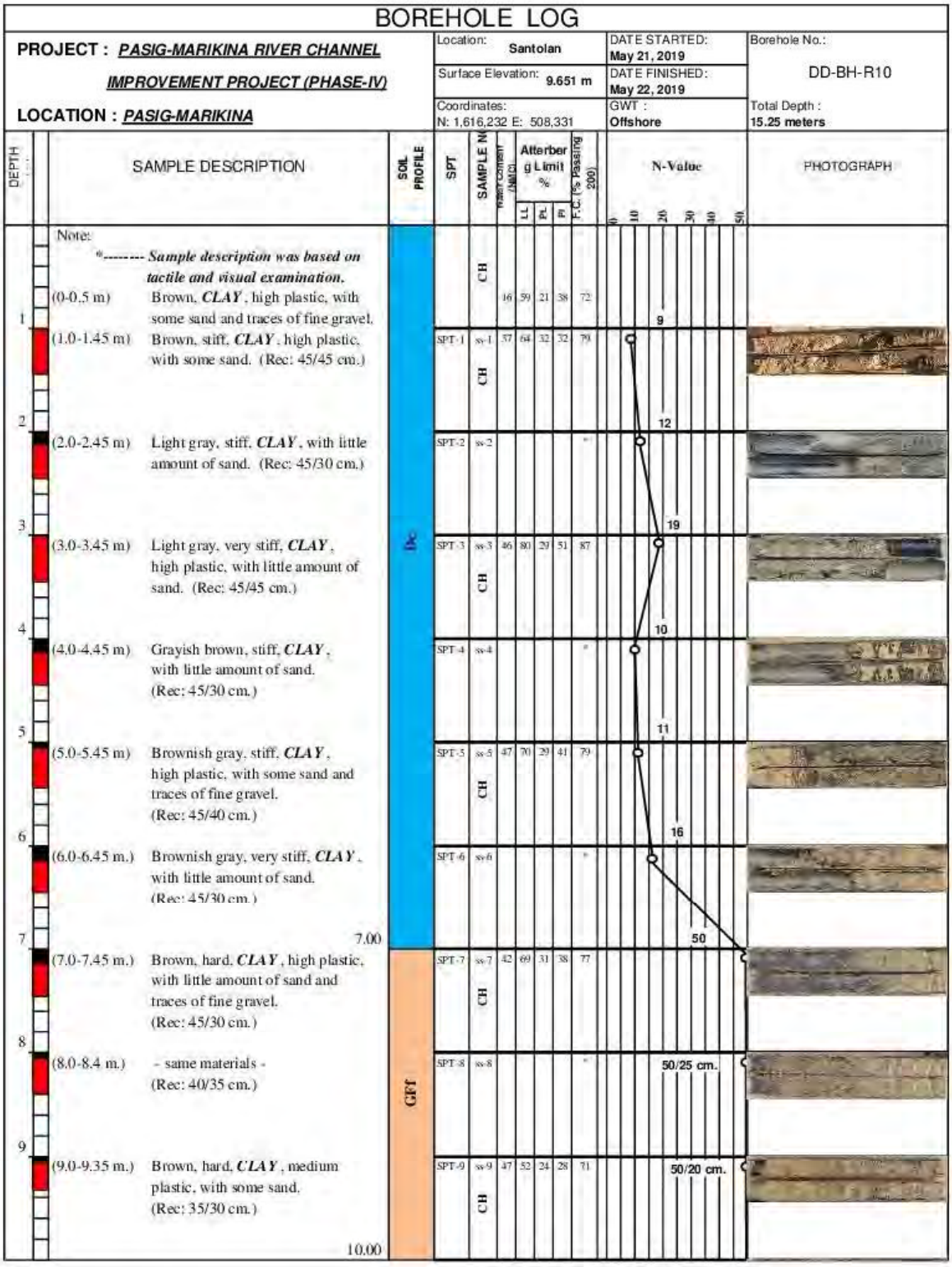

Figure 5-3-1（57/103）BORING LOGS（PHASE IV）

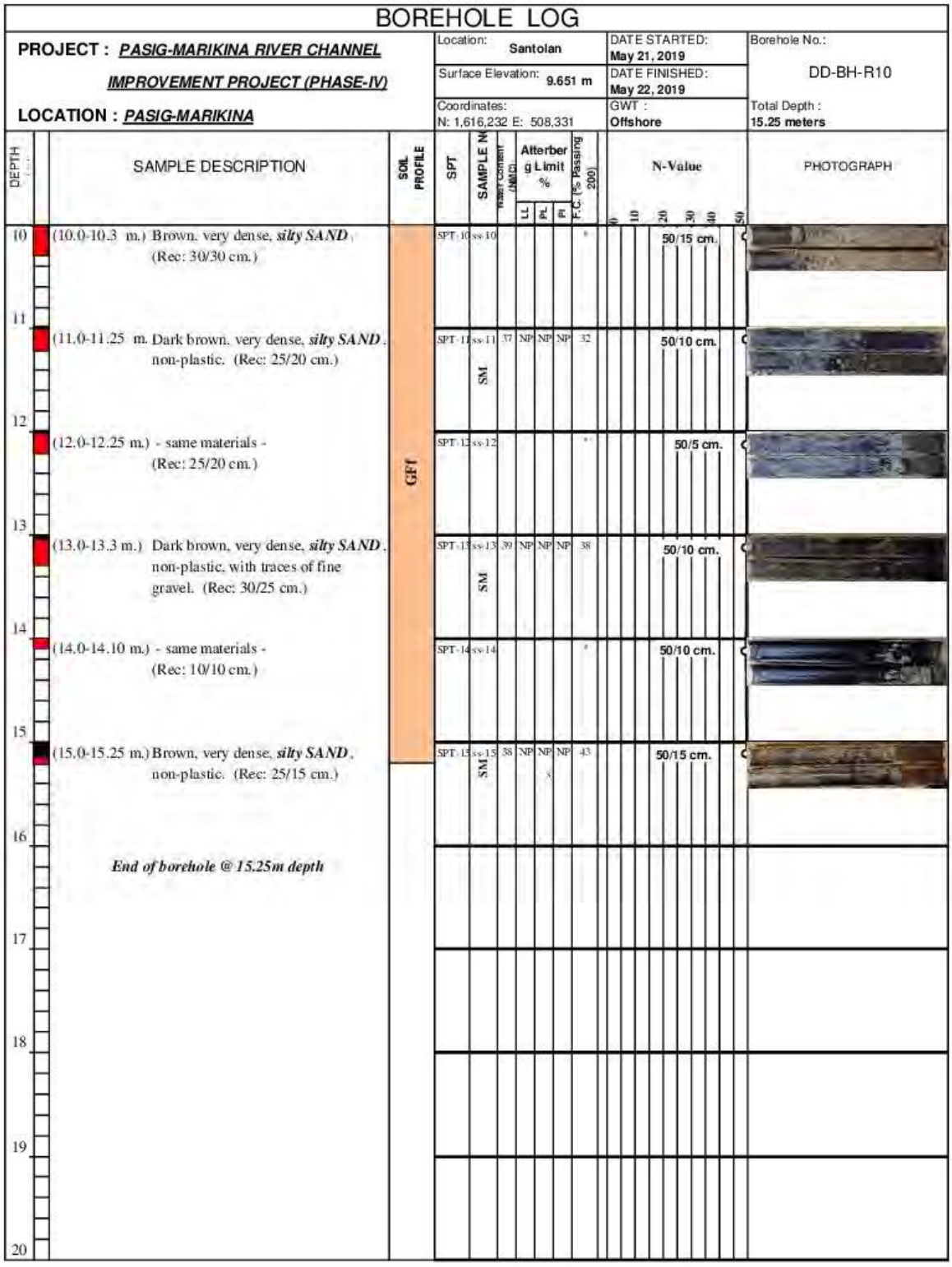

Figure 5-3-1（58/103）BORING LOGS（PHASE IV）

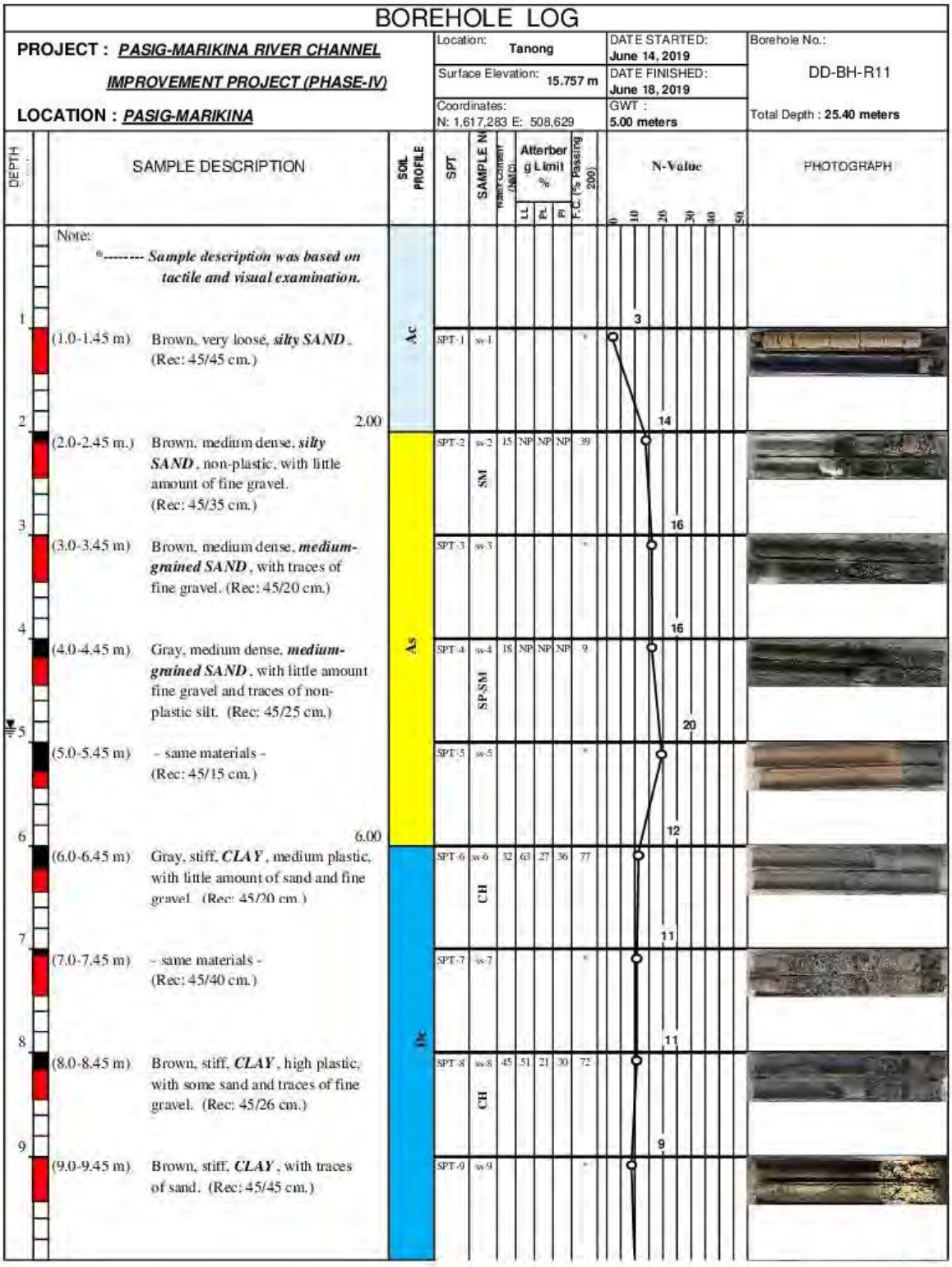

Figure 5-3-1（59/103）BORING LOGS（PHASE IV）

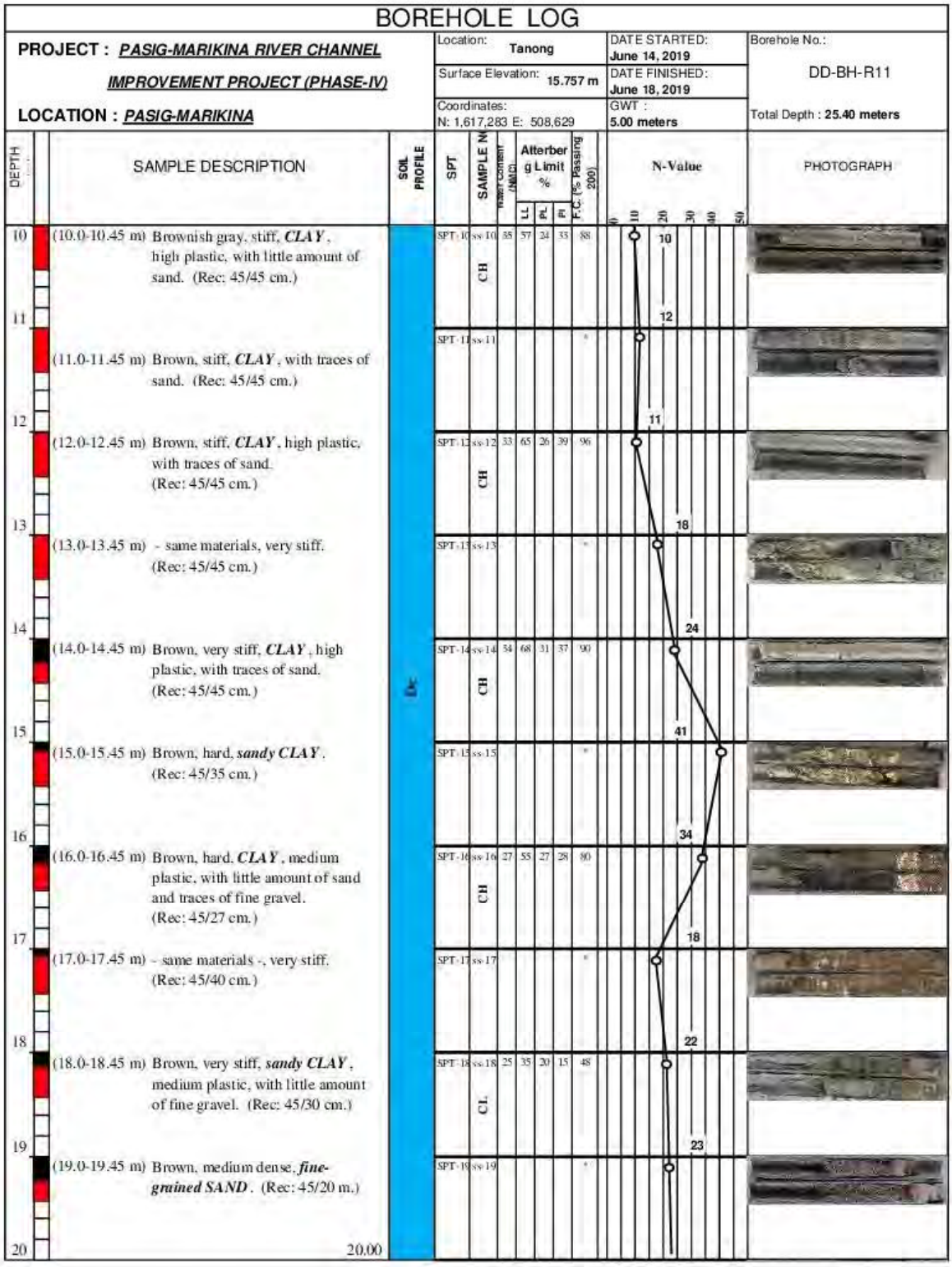

Figure 5-3-1（60/103）BORING LOGS（PHASE IV）

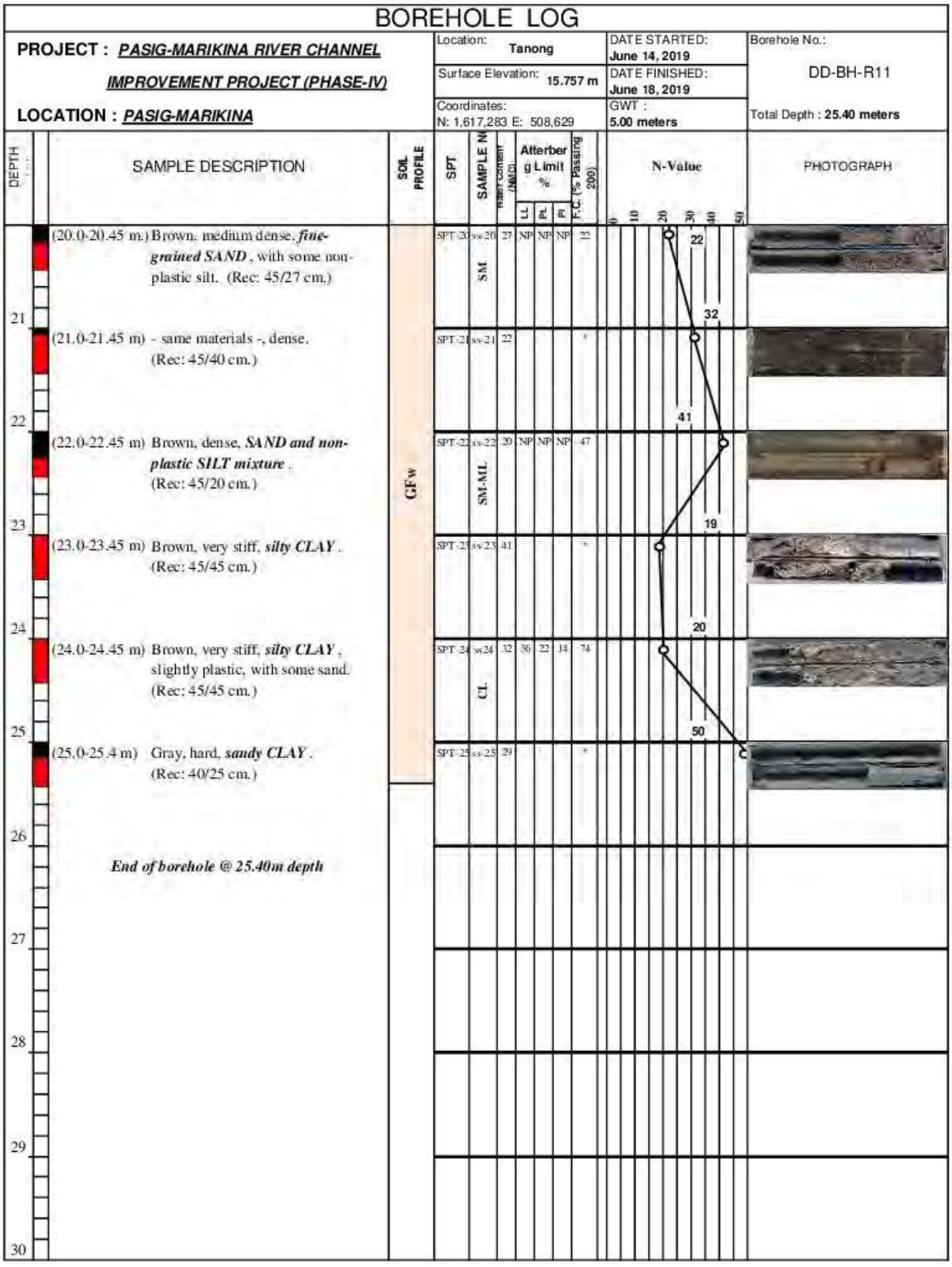

Figure 5-3-1（61/103）BORING LOGS（PHASE IV）

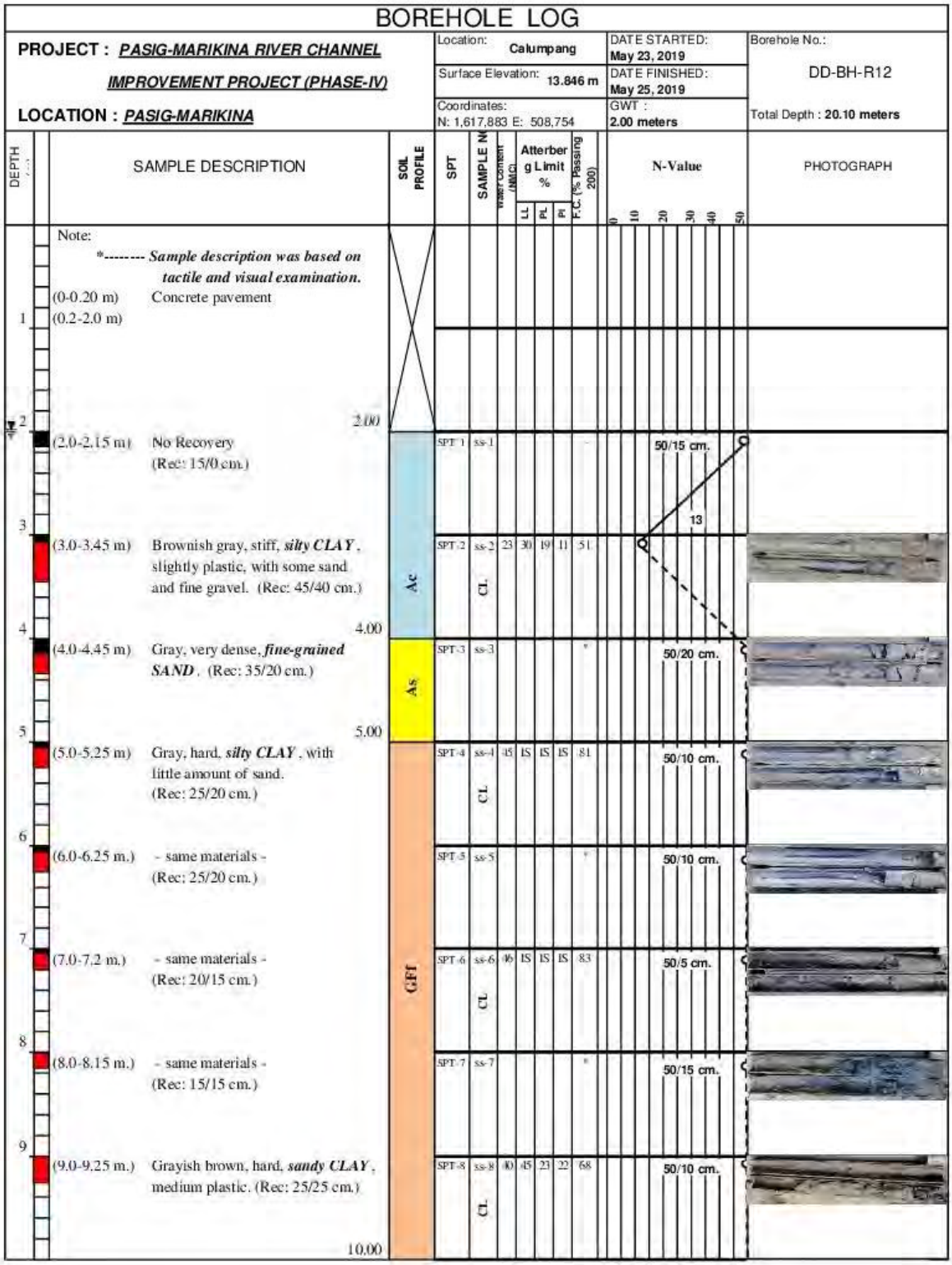

Figure 5-3-1（62/103）BORING LOGS（PHASE IV）

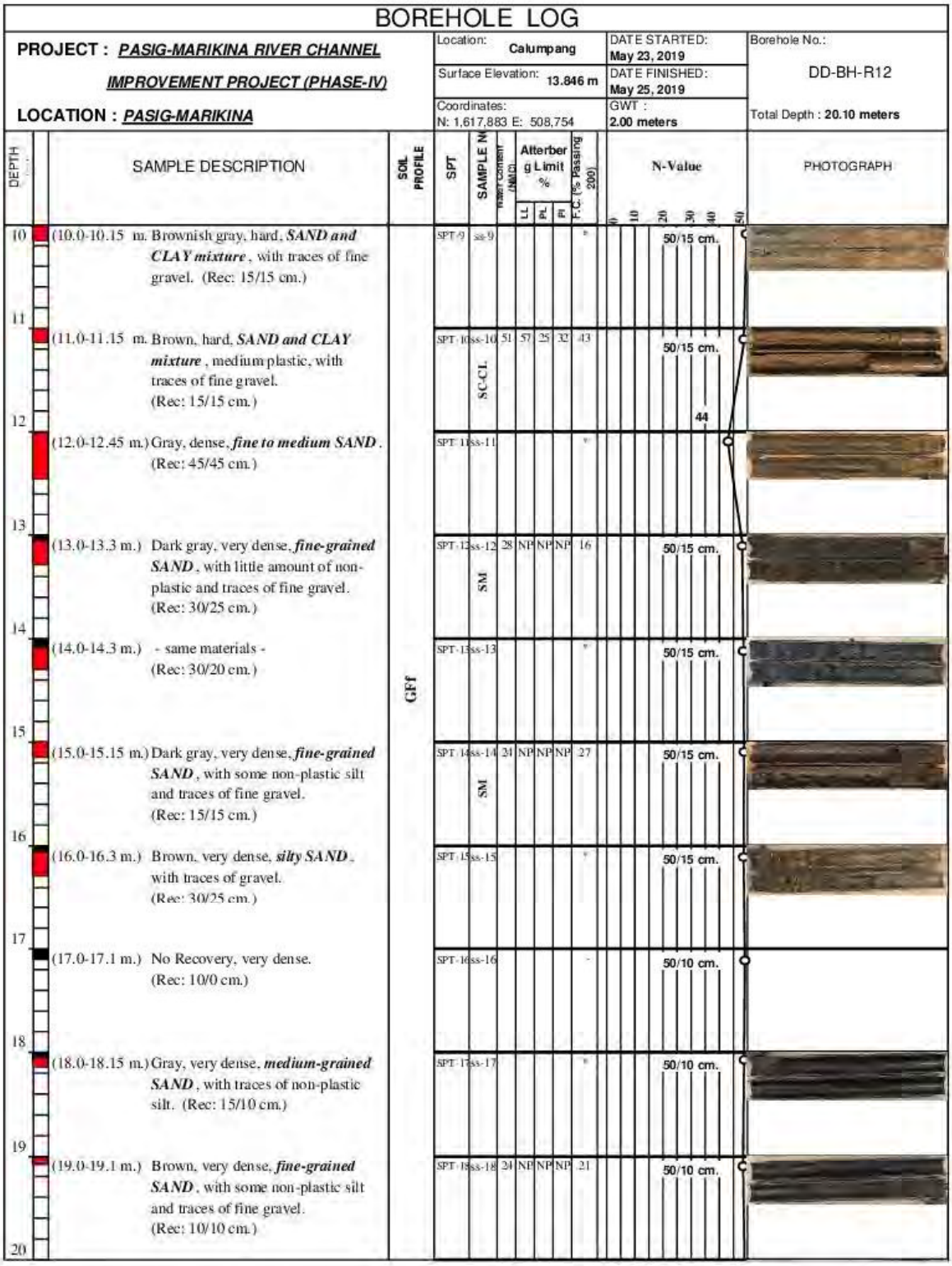

Figure 5-3-1（63/103）BORING LOGS（PHASE IV）

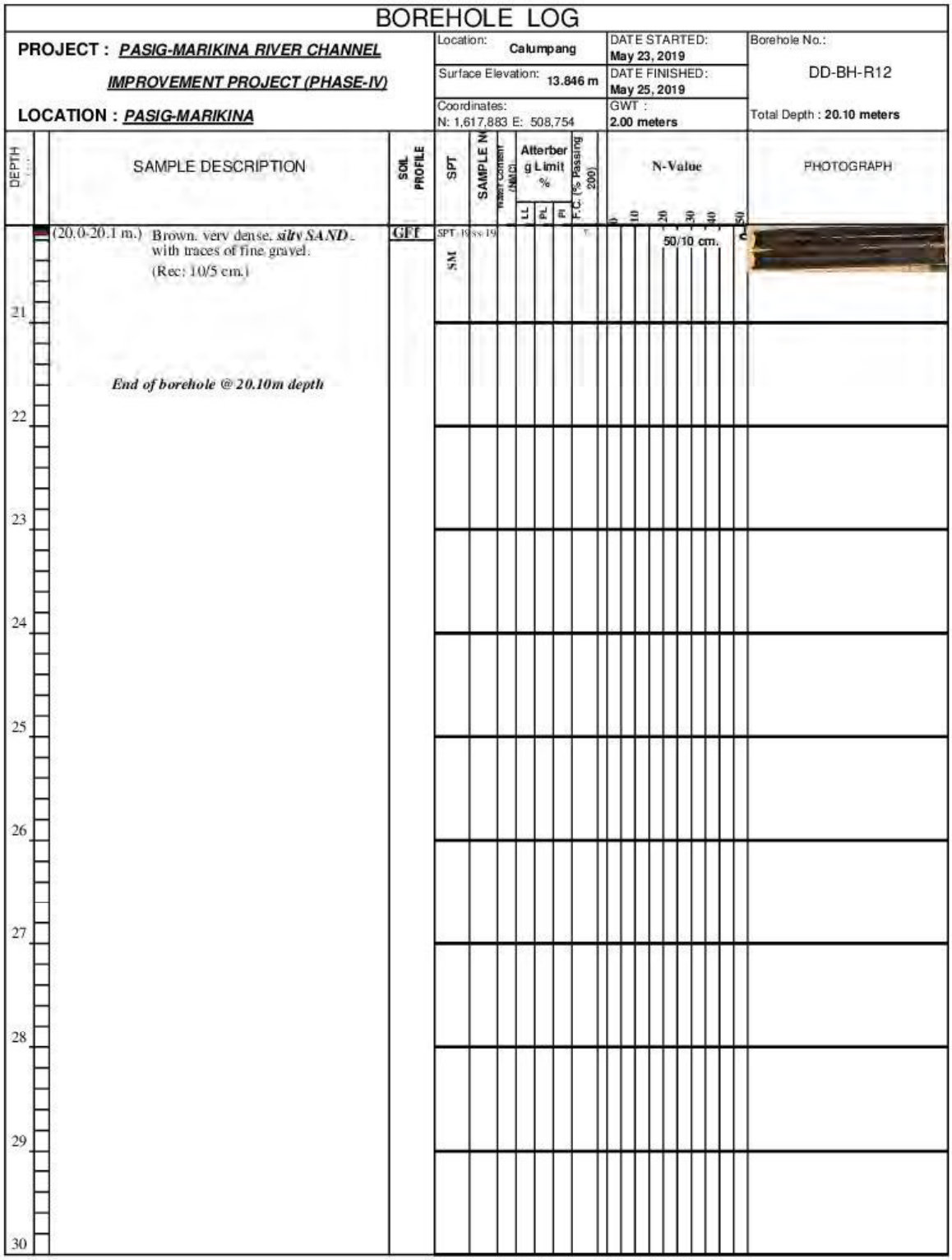

Figure 5-3-1（64/103）BORING LOGS（PHASE IV）

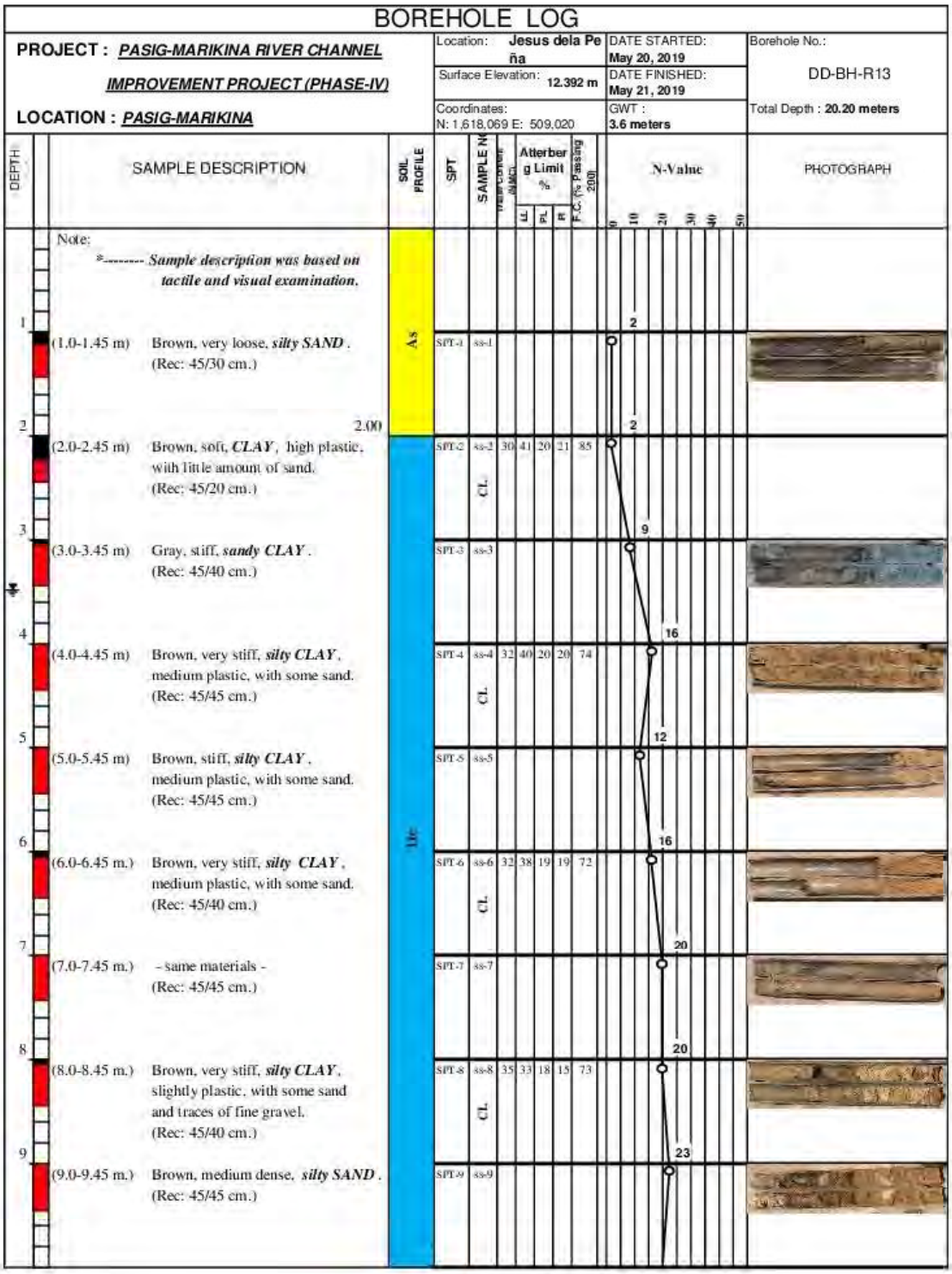

Figure 5-3-1（65/103）BORING LOGS（PHASE IV）

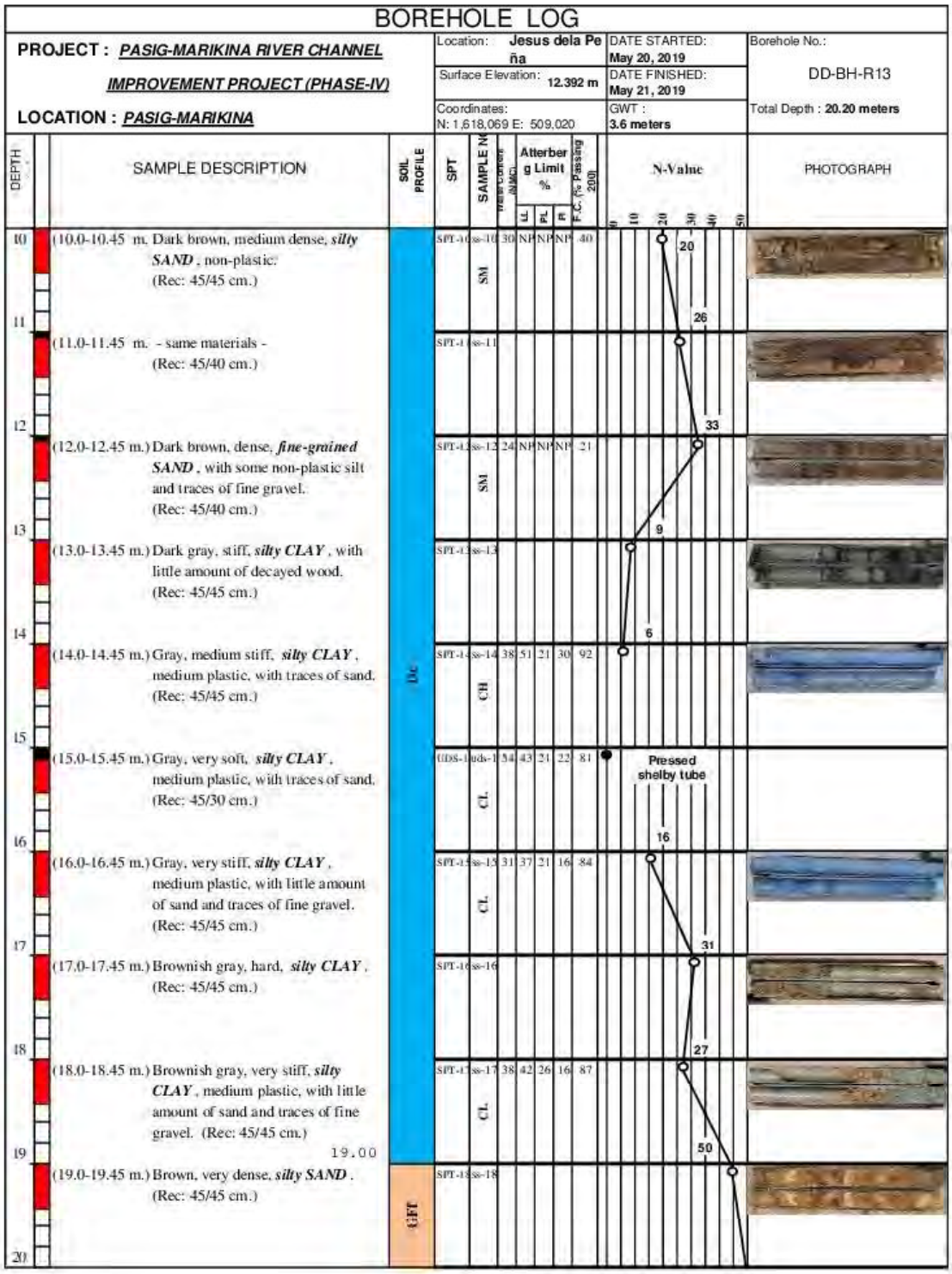

Figure 5-3-1（66/103）BORING LOGS（PHASE IV）

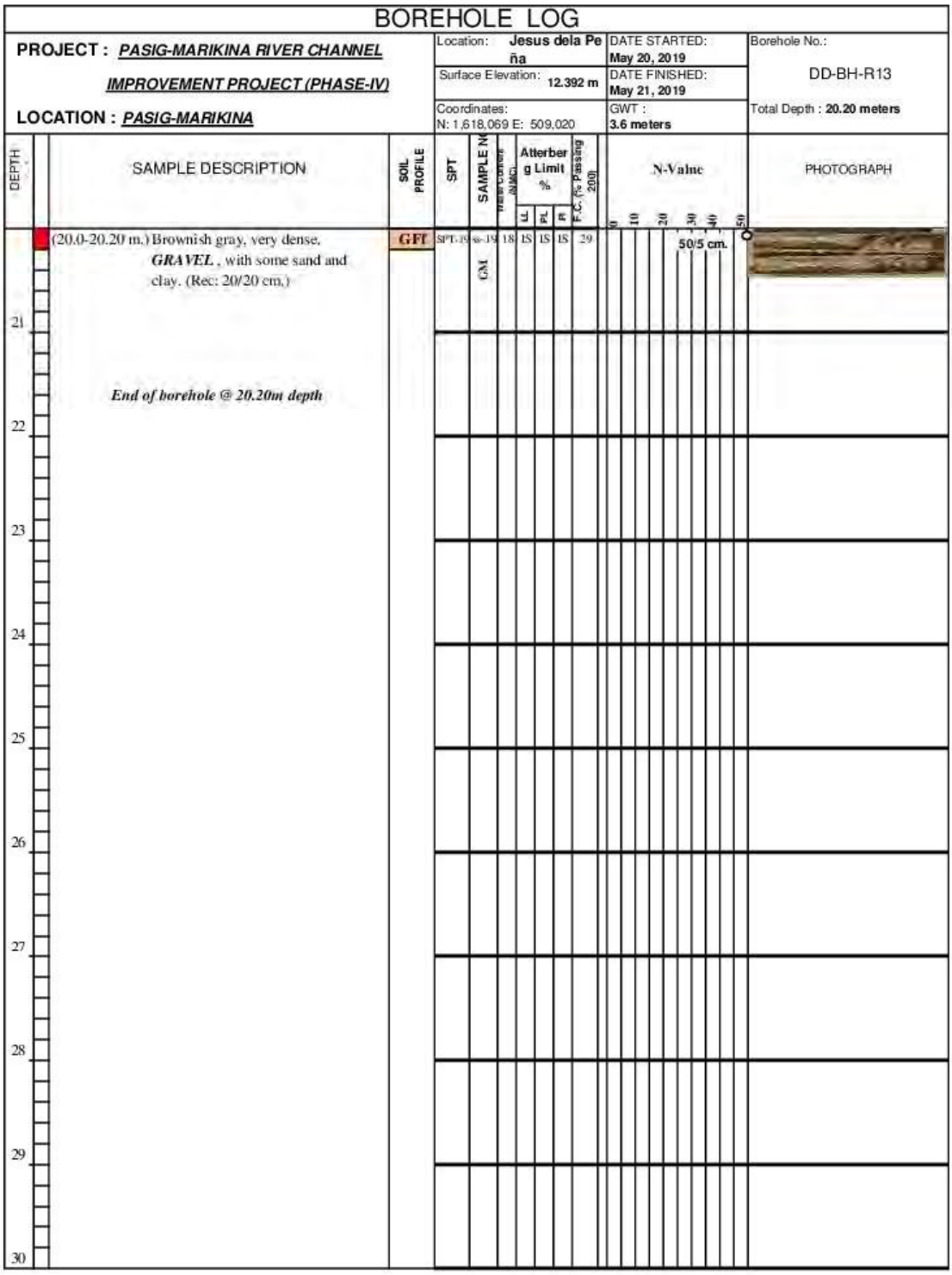

Figure 5-3-1（67/103）BORING LOGS（PHASE IV）

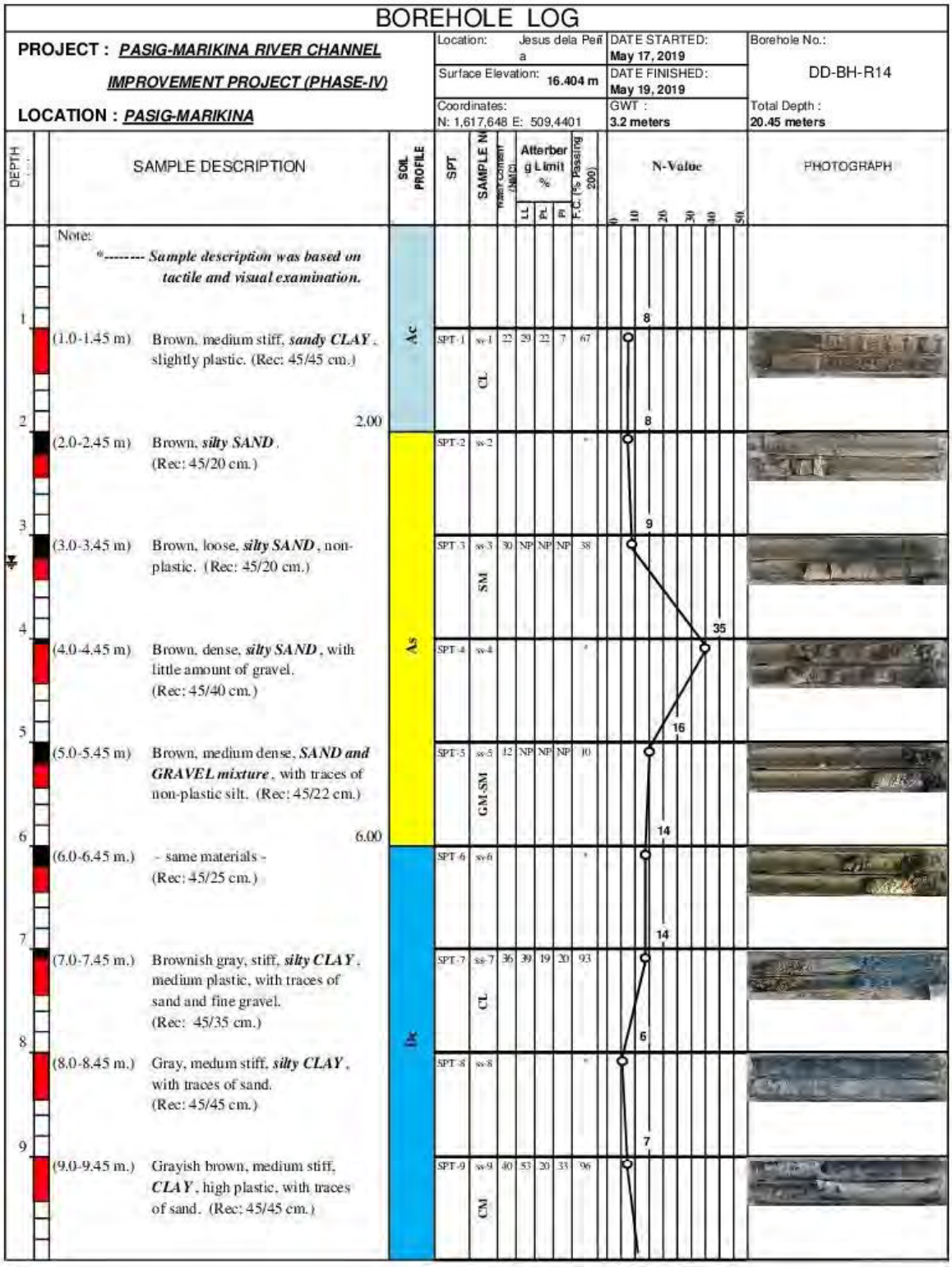

Figure 5-3-1（68/103）BORING LOGS（PHASE IV）

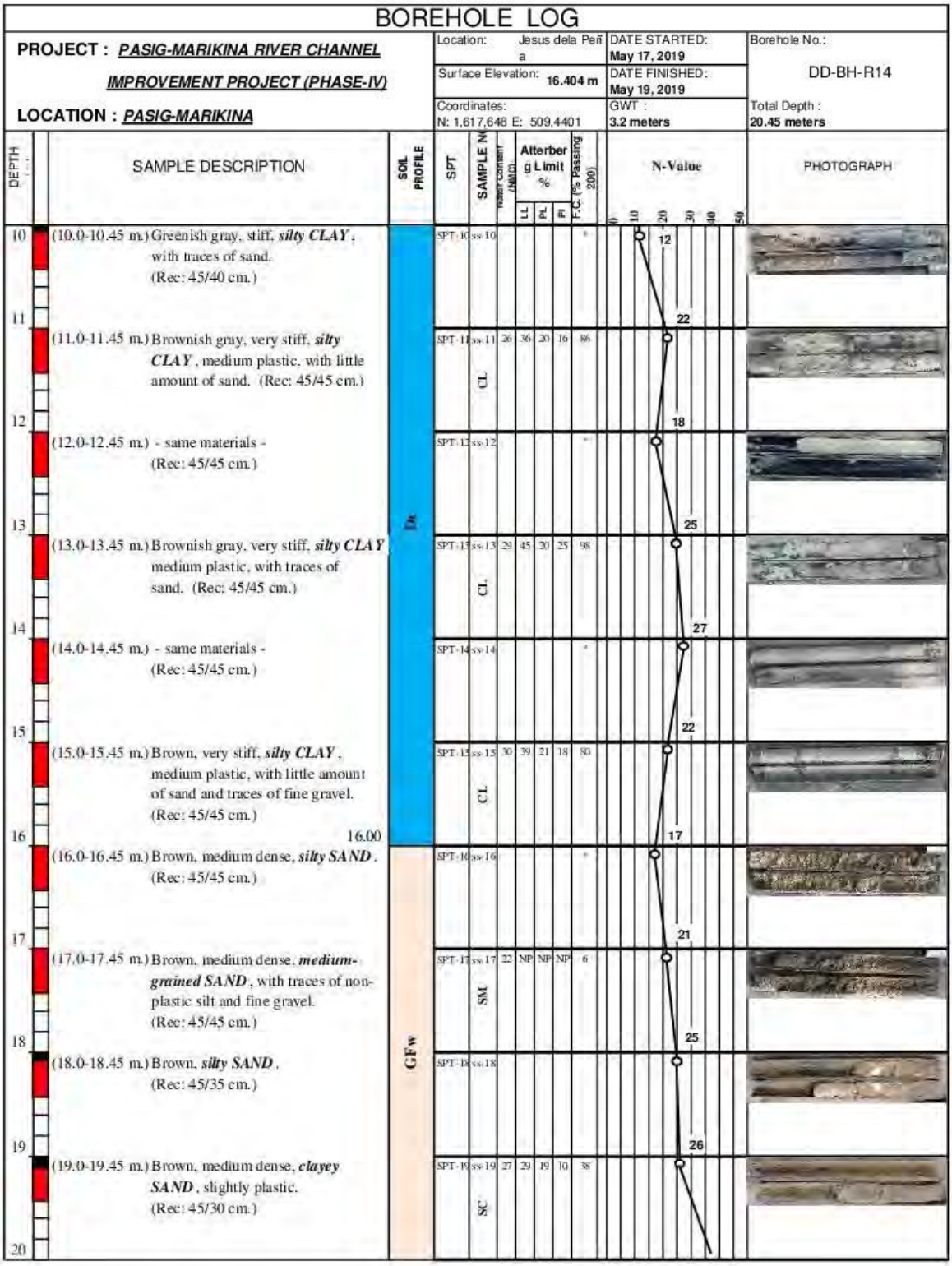

Figure 5-3-1（69/103）BORING LOGS（PHASE IV）

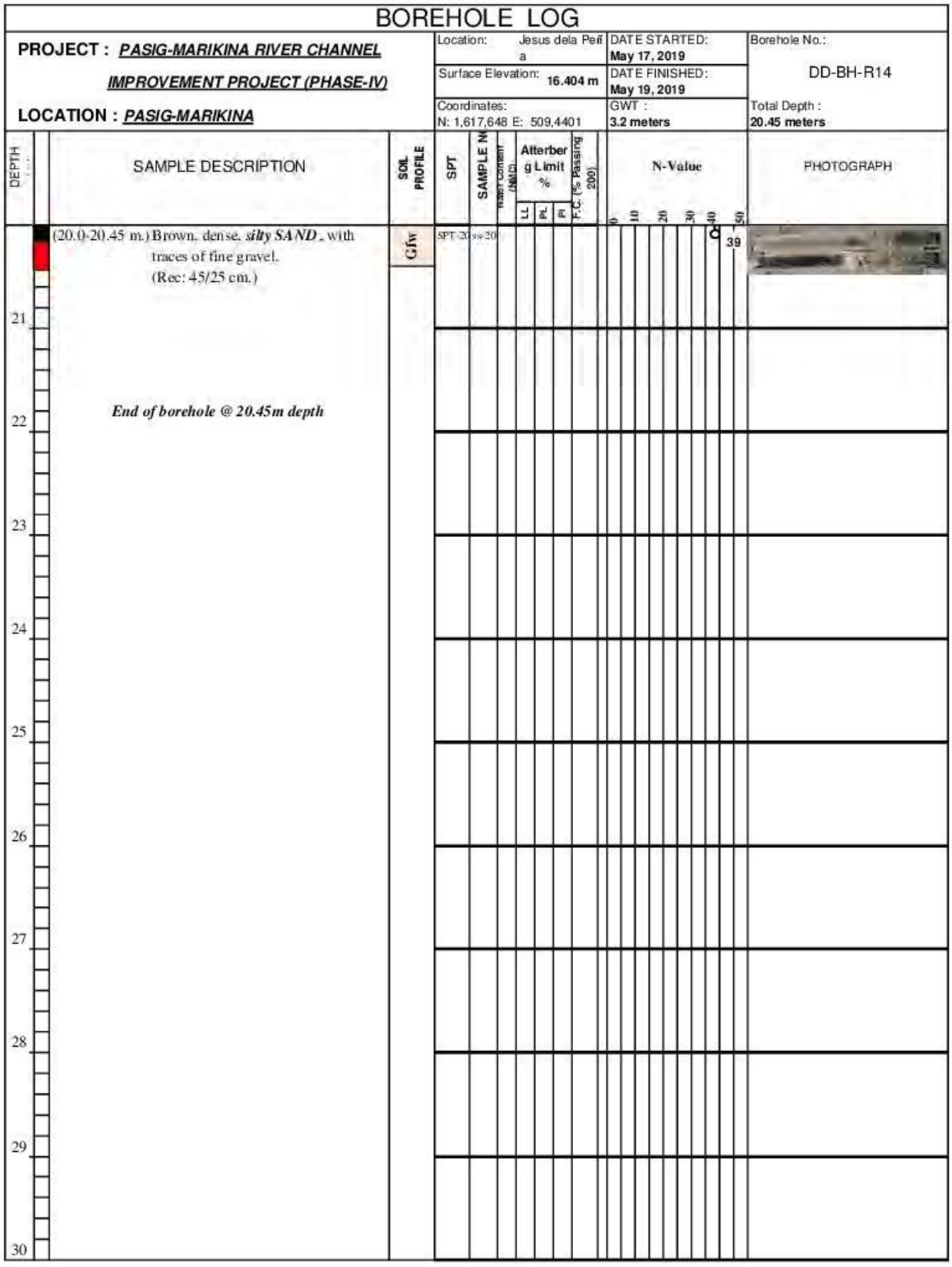

Figure 5-3-1（70/103）BORING LOGS（PHASE IV）

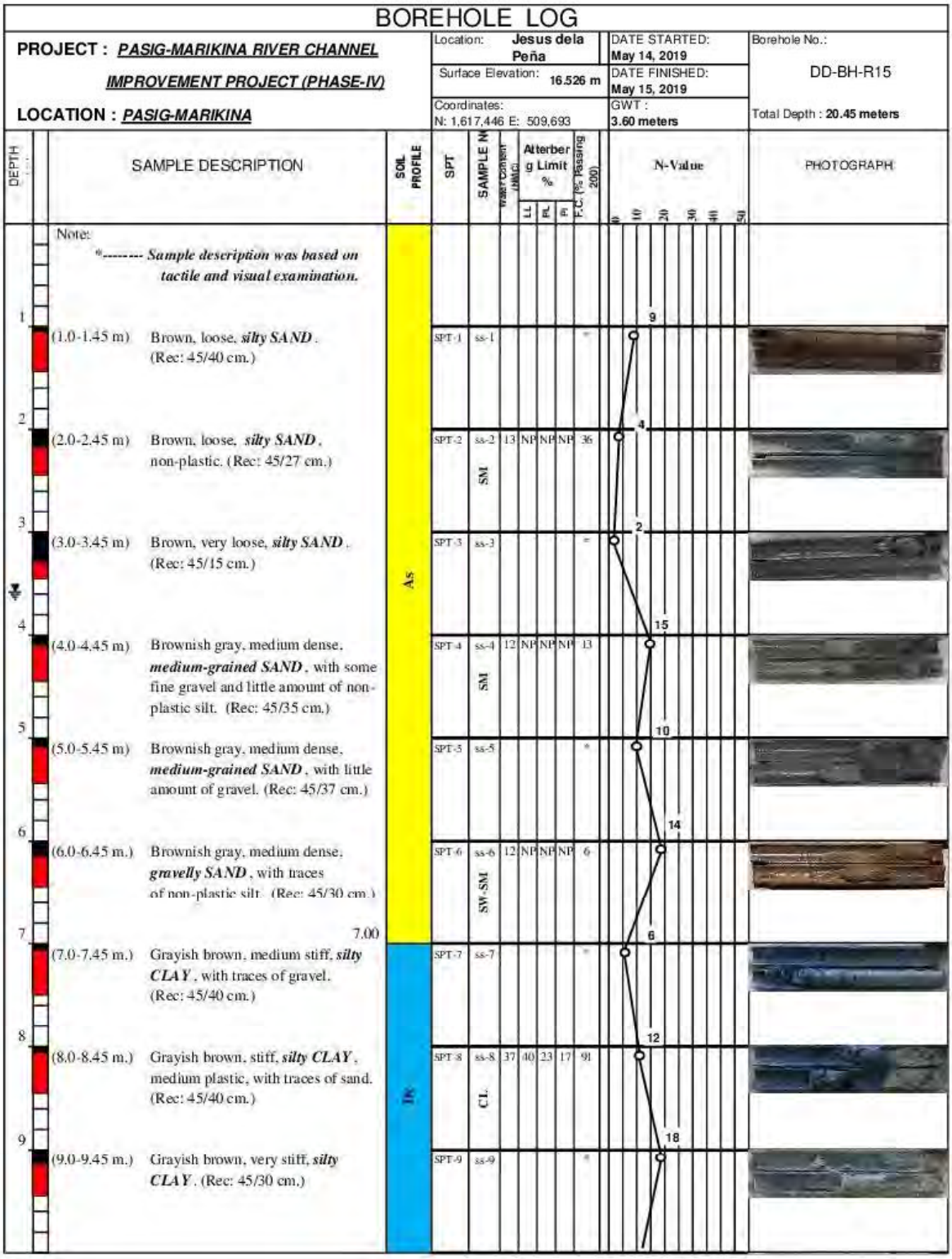

Figure 5-3-1（71/103）BORING LOGS（PHASE IV）

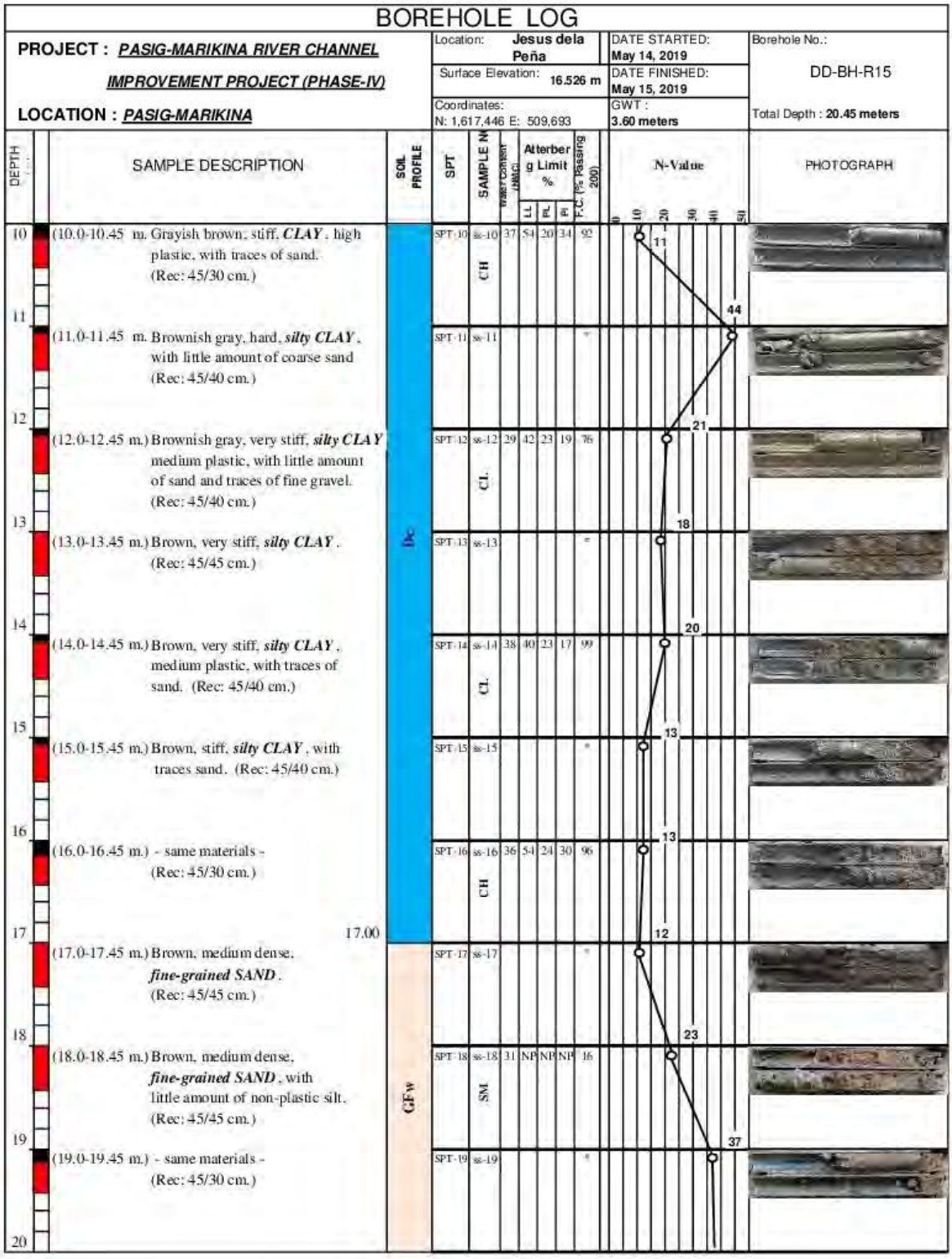

Figure 5-3-1（72/103）BORING LOGS（PHASE IV）

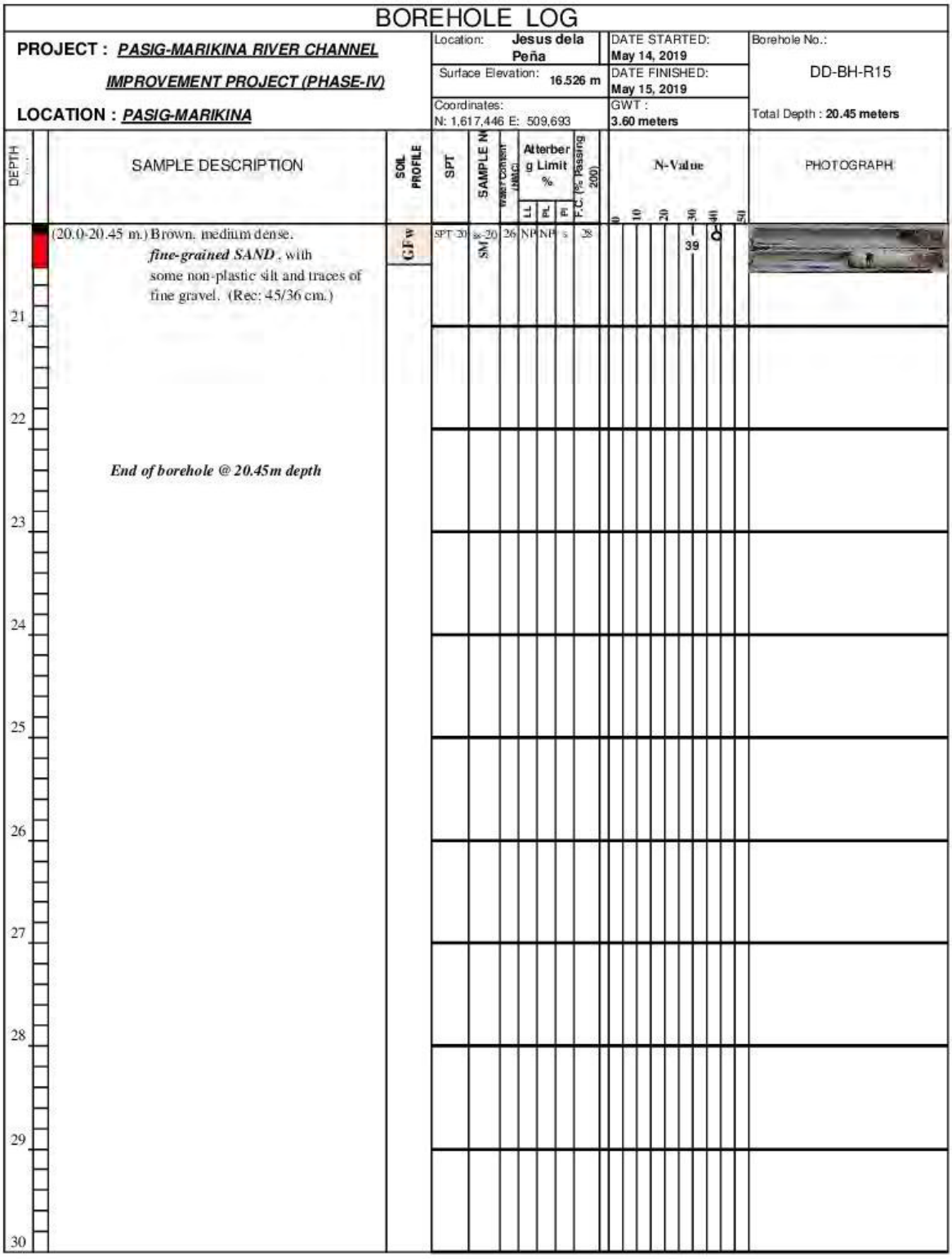

Figure 5-3-1（73/103）BORING LOGS（PHASE IV）

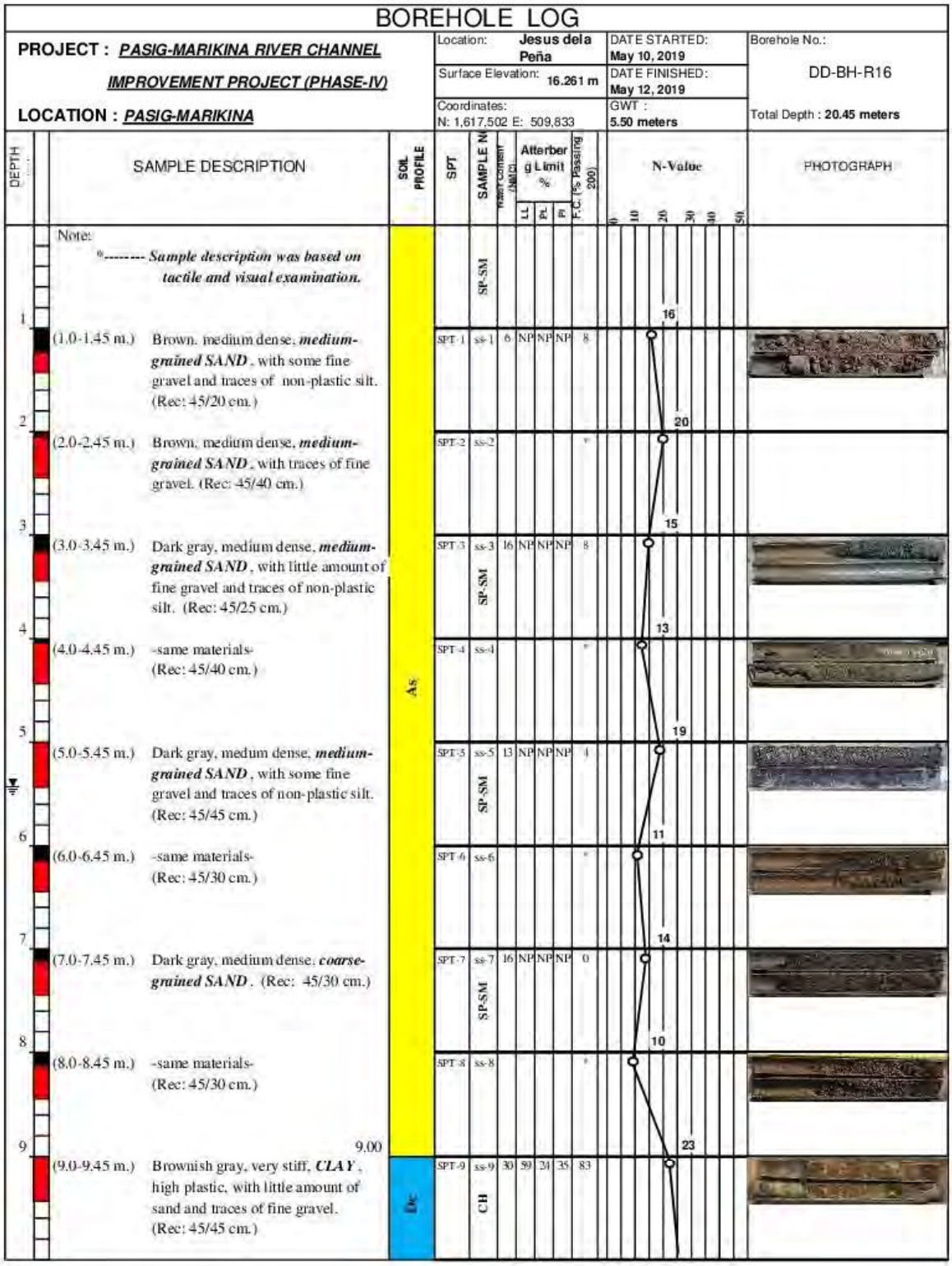

Figure 5-3-1（74/103）BORING LOGS（PHASE IV）

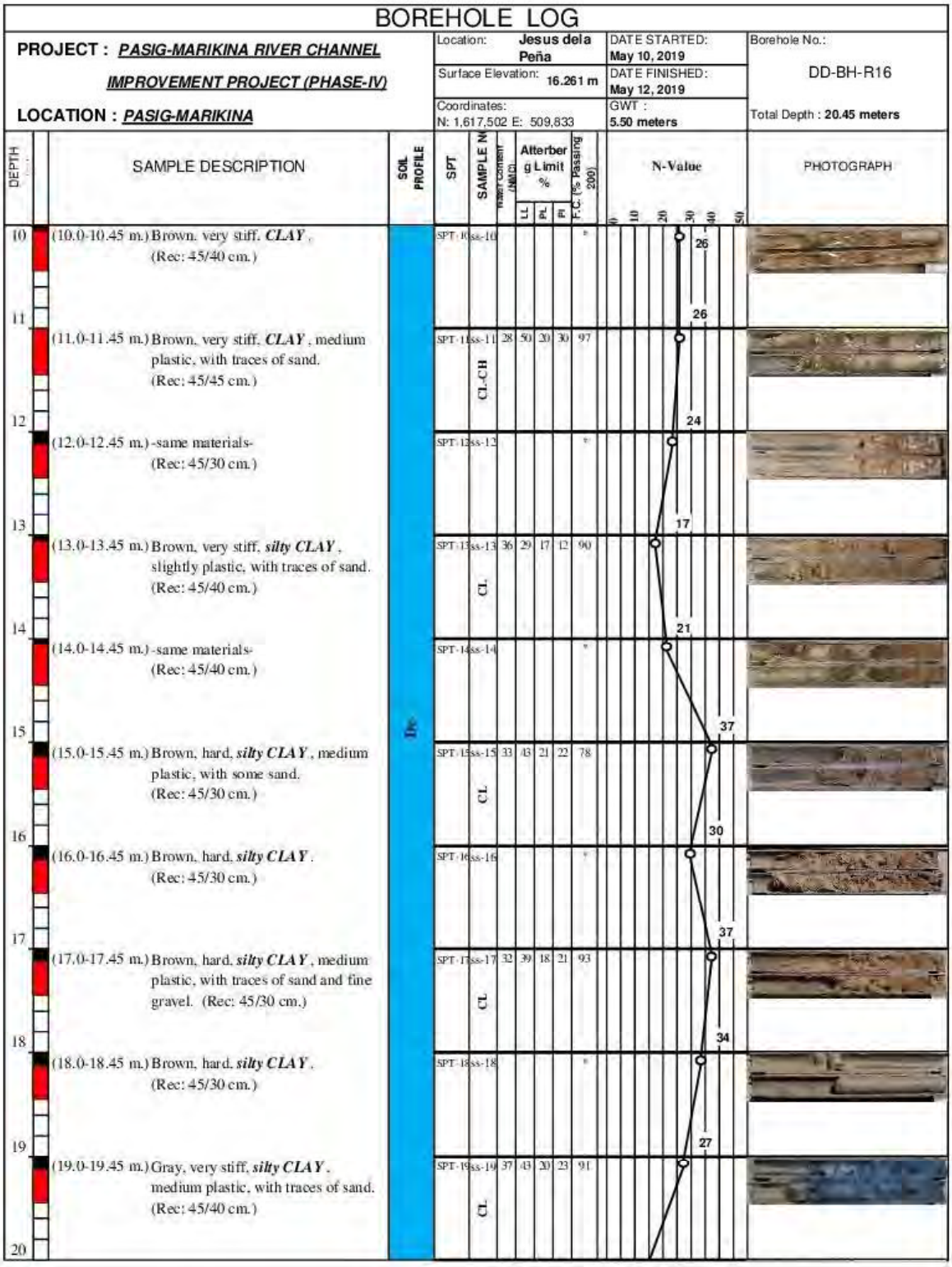

Figure 5-3-1（75/103）BORING LOGS（PHASE IV）

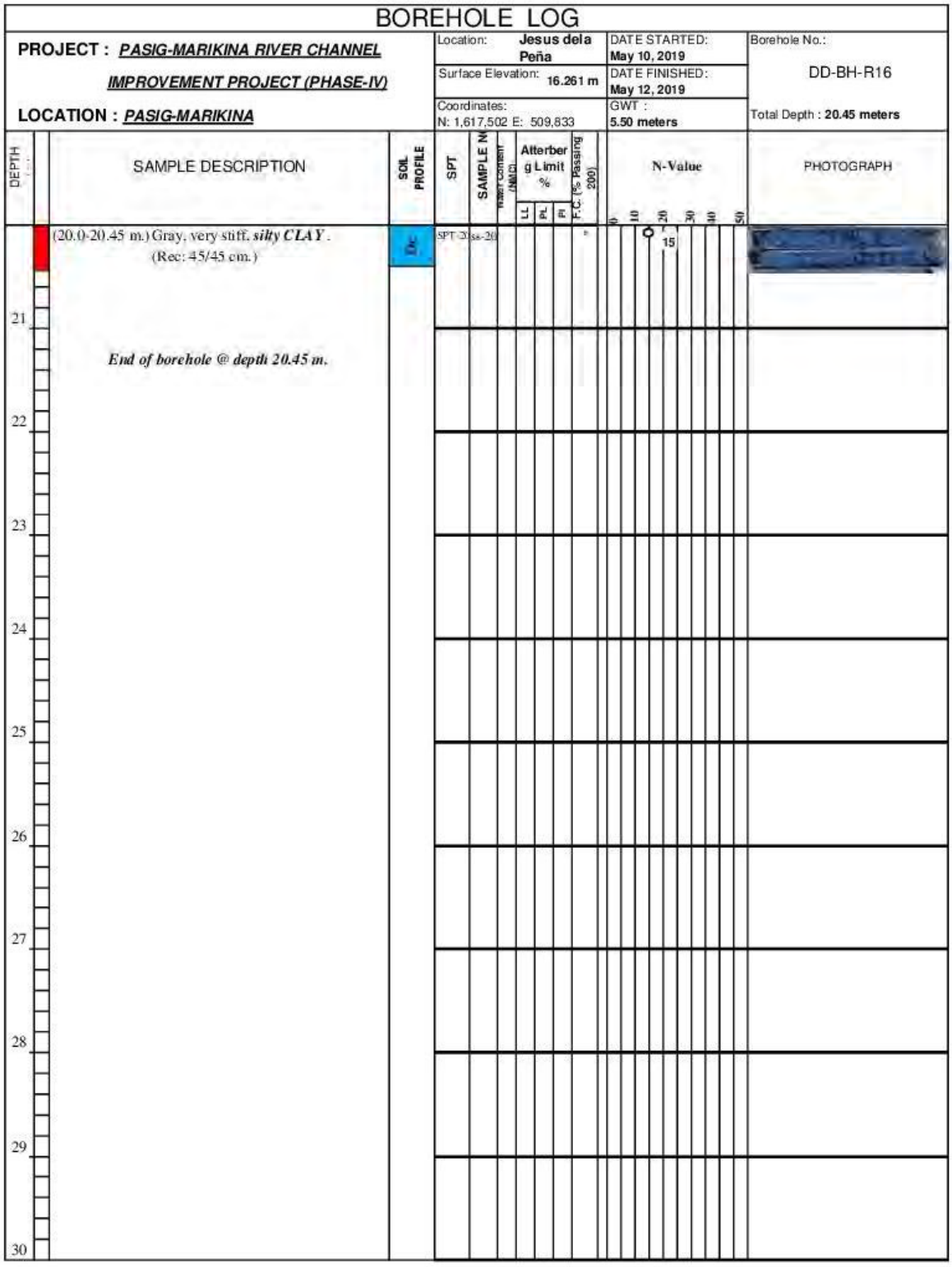

Figure 5-3-1（76/103）BORING LOGS（PHASE IV）

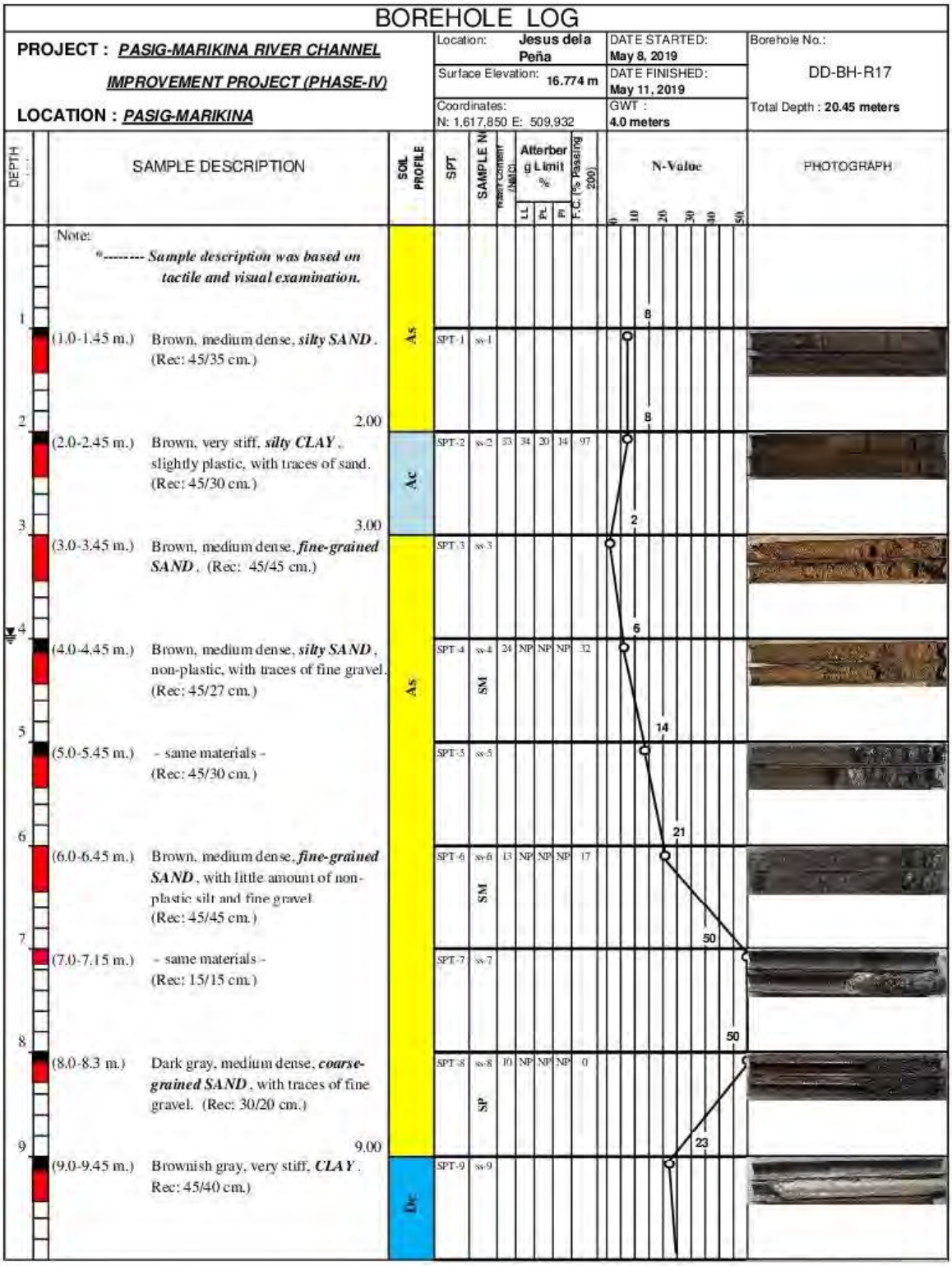

Figure 5-3-1（77/103）BORING LOGS（PHASE IV）

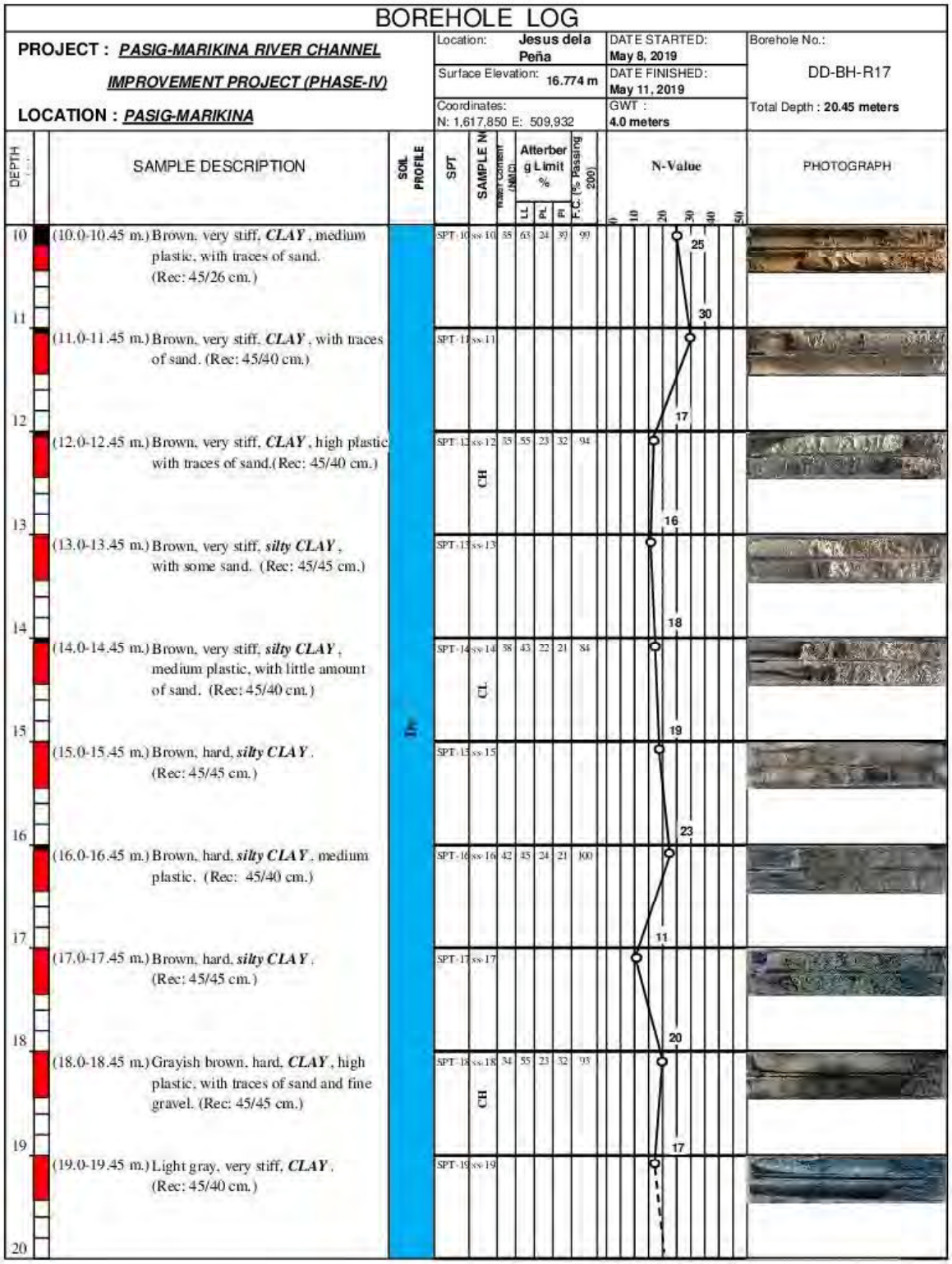

Figure 5-3-1（78/103）BORING LOGS（PHASE IV）

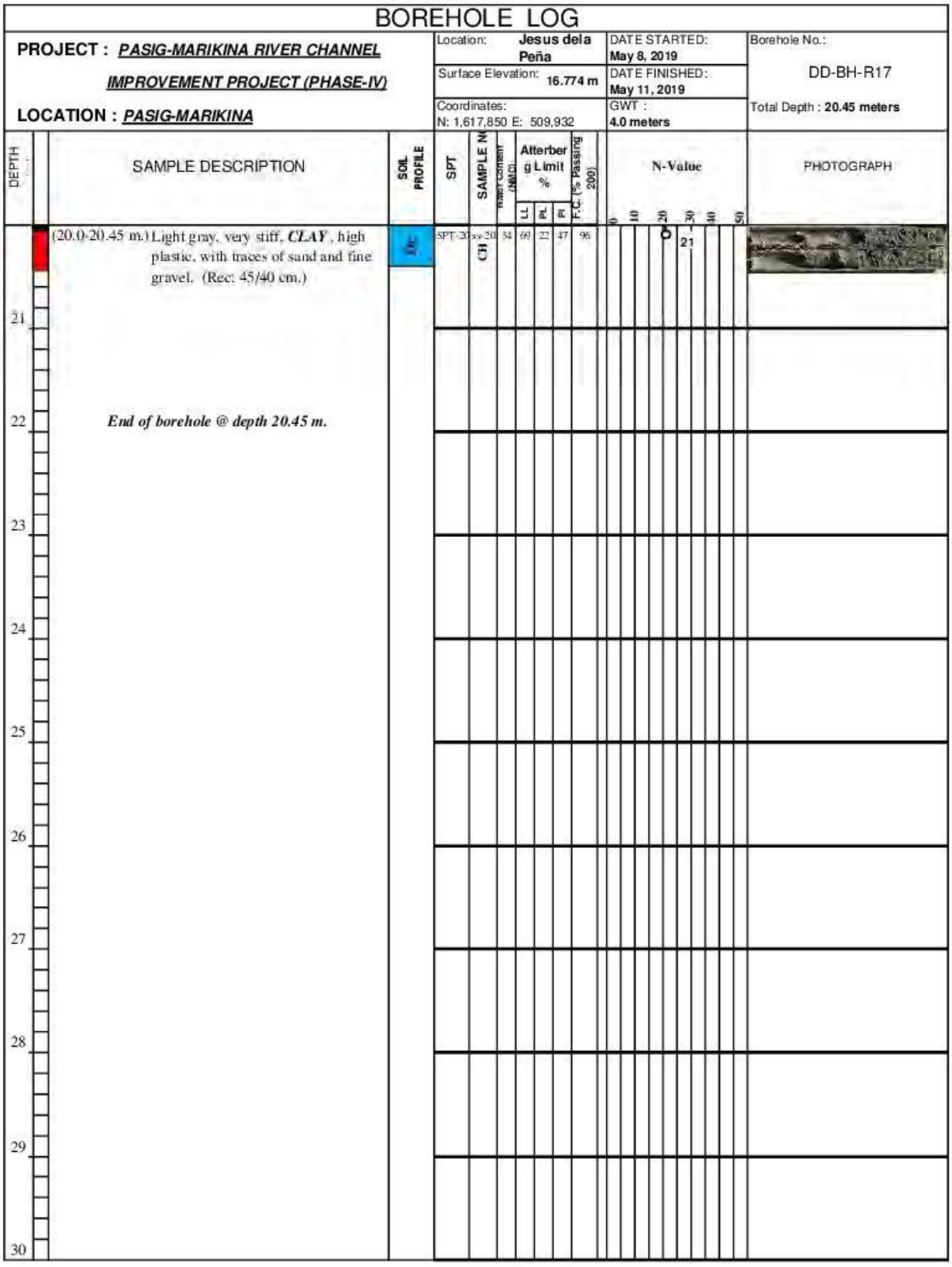

Figure 5-3-1（79/103）BORING LOGS（PHASE IV）

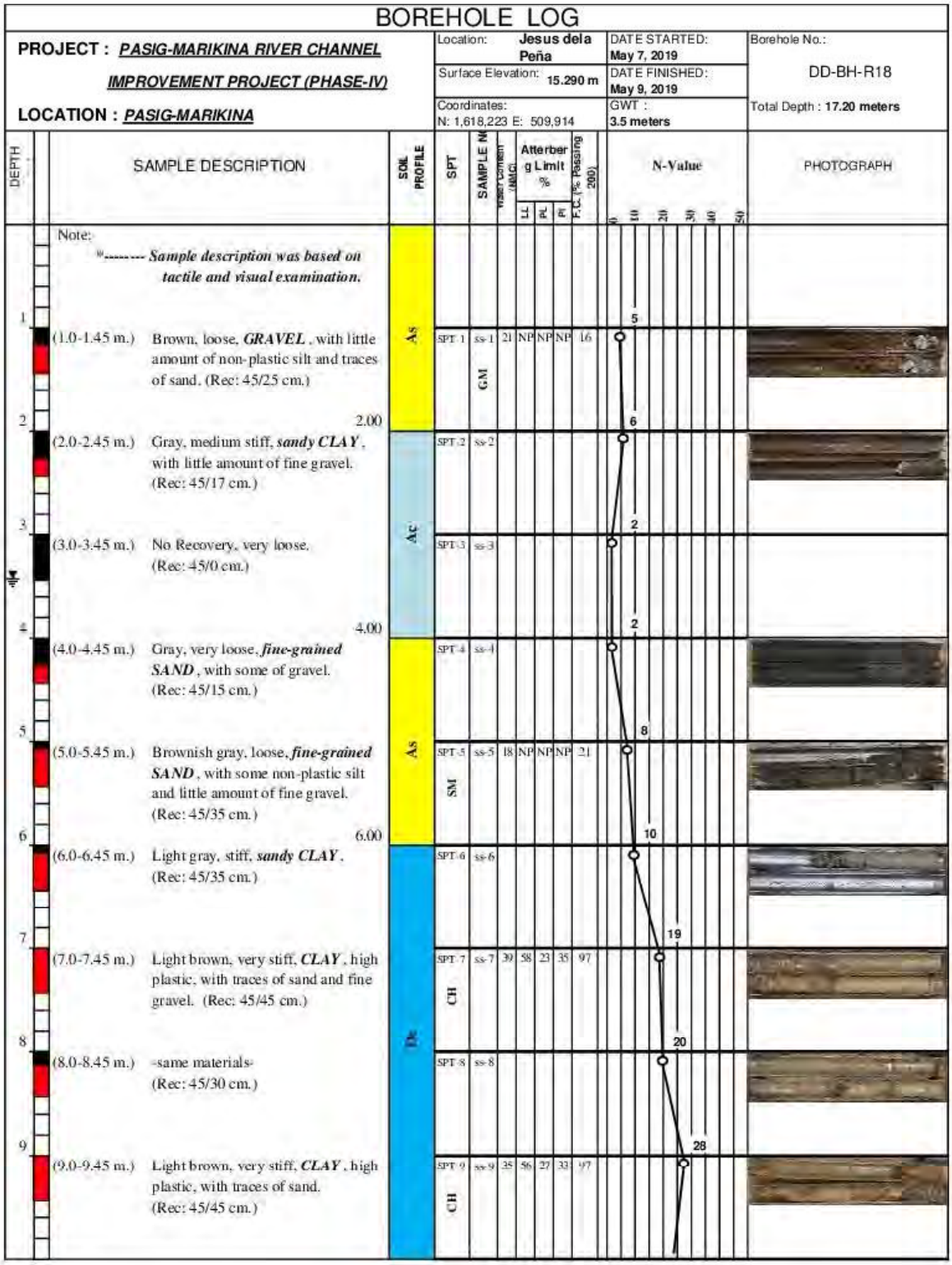

Figure 5-3-1（80/103）BORING LOGS（PHASE IV）

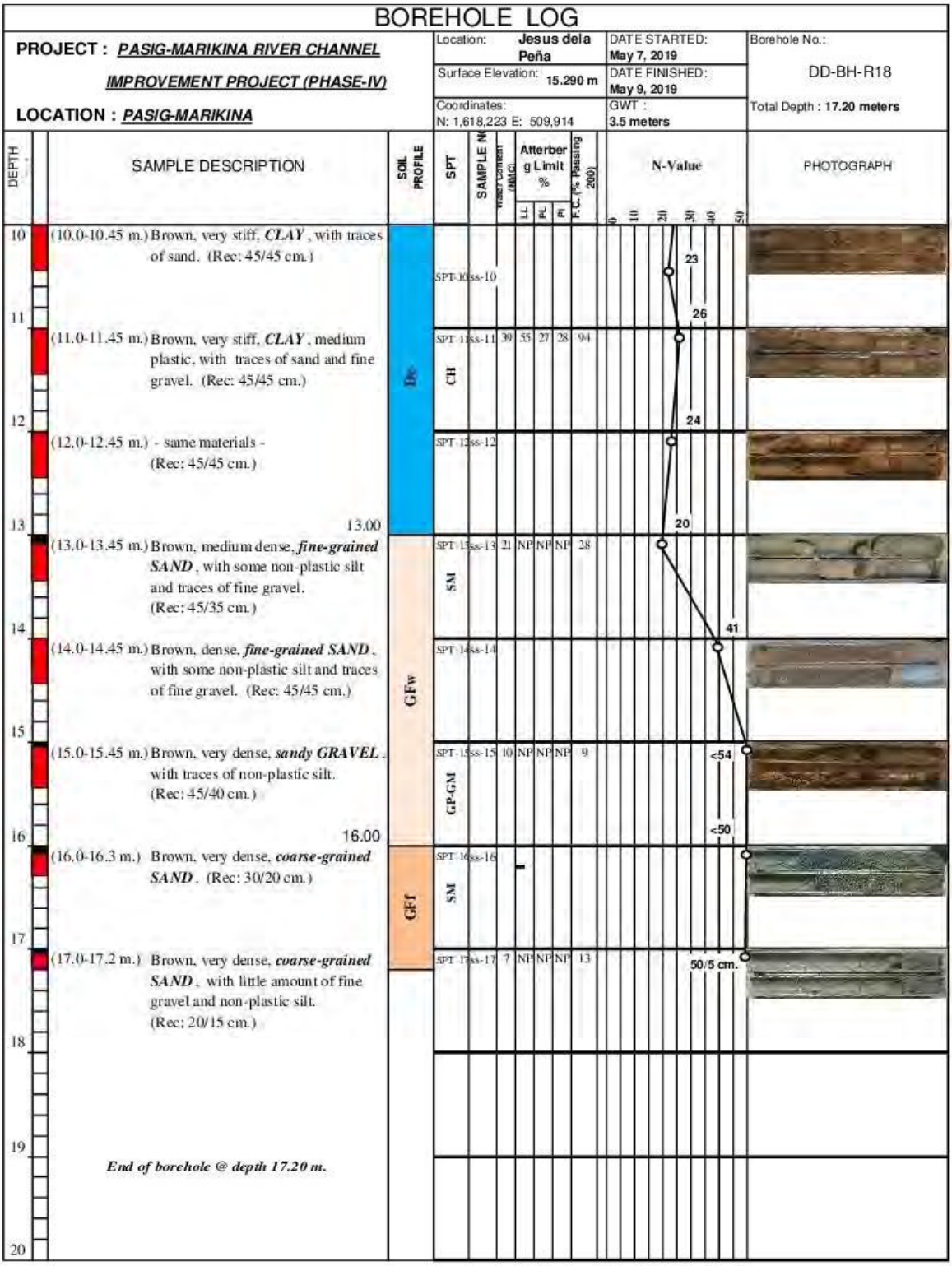

Figure 5-3-1（81/103）BORING LOGS（PHASE IV）

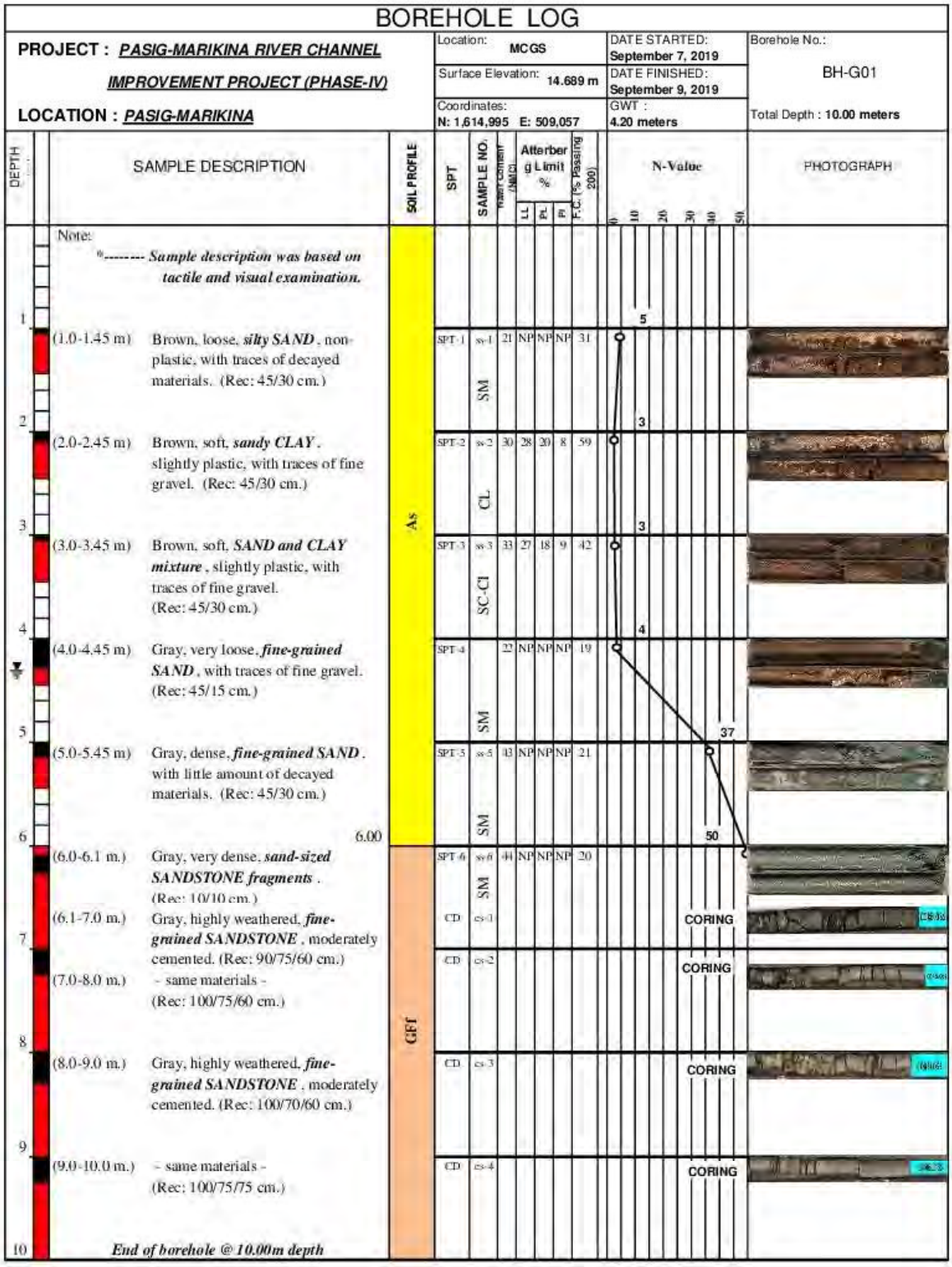

Figure 5-3-1（82/103）BORING LOGS（PHASE IV）

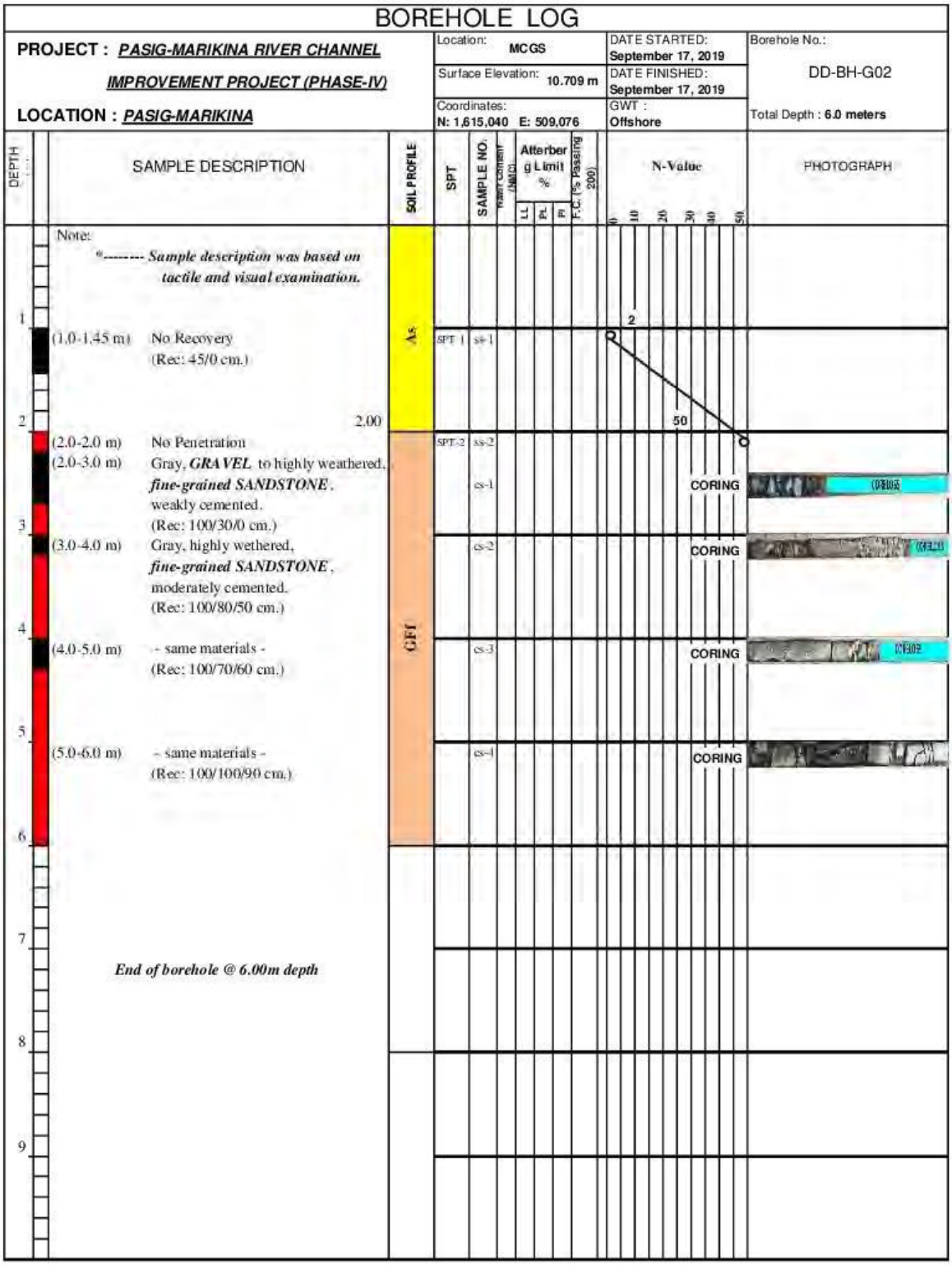

Figure 5-3-1（83/103）BORING LOGS（PHASE IV）

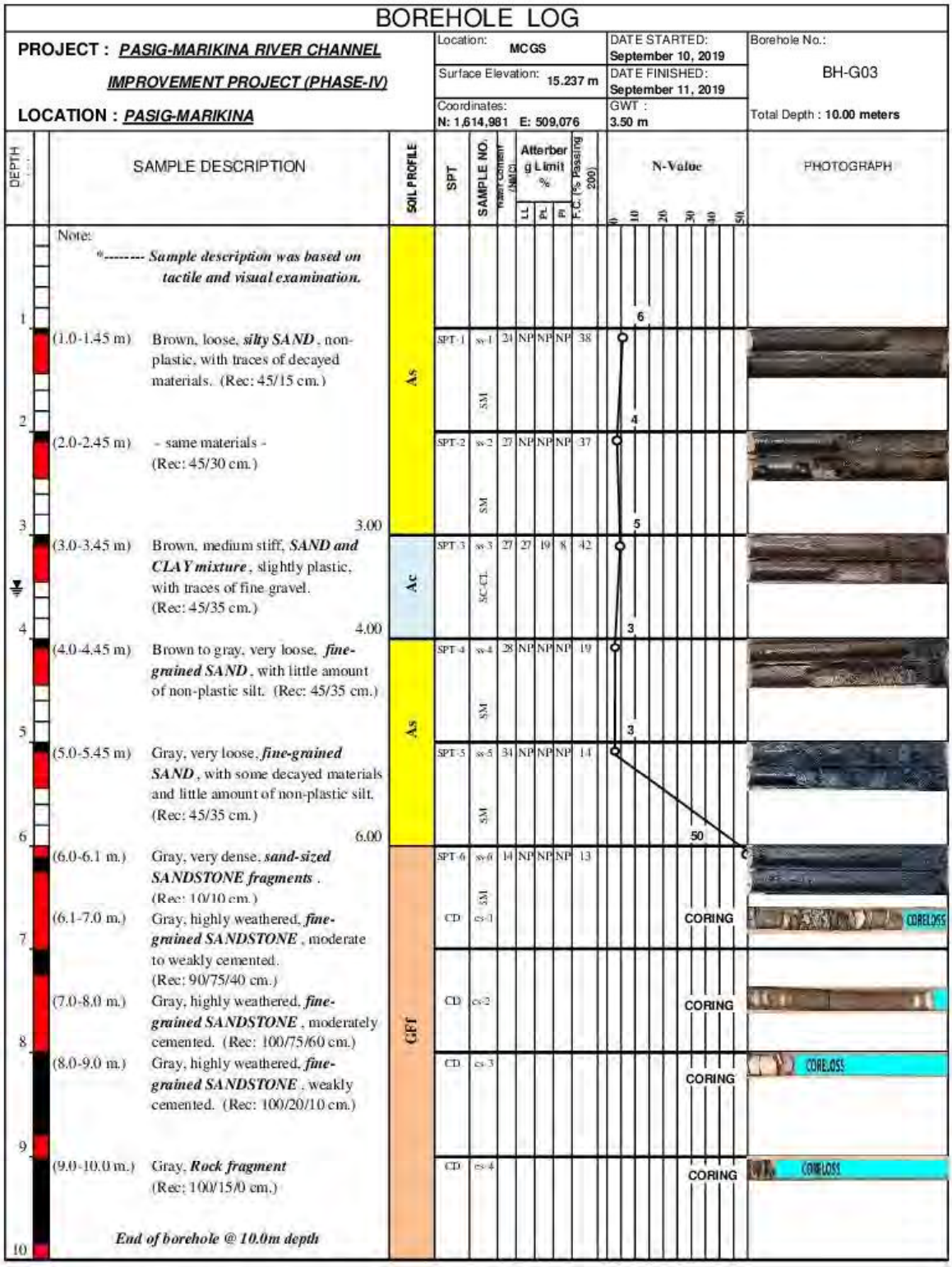

Figure 5-3-1（84/103）BORING LOGS（PHASE IV）

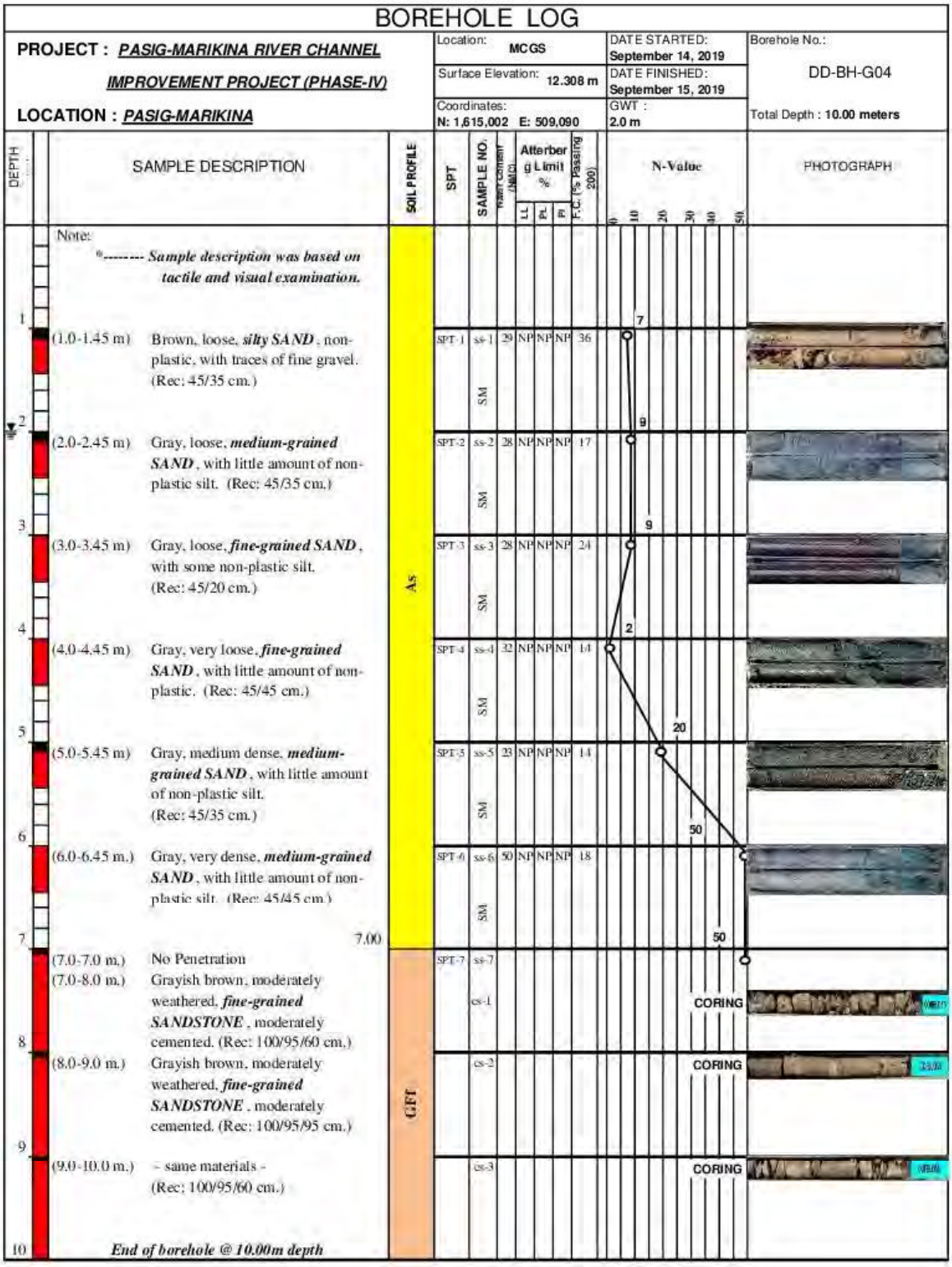

Figure 5-3-1（85/103）BORING LOGS（PHASE IV）

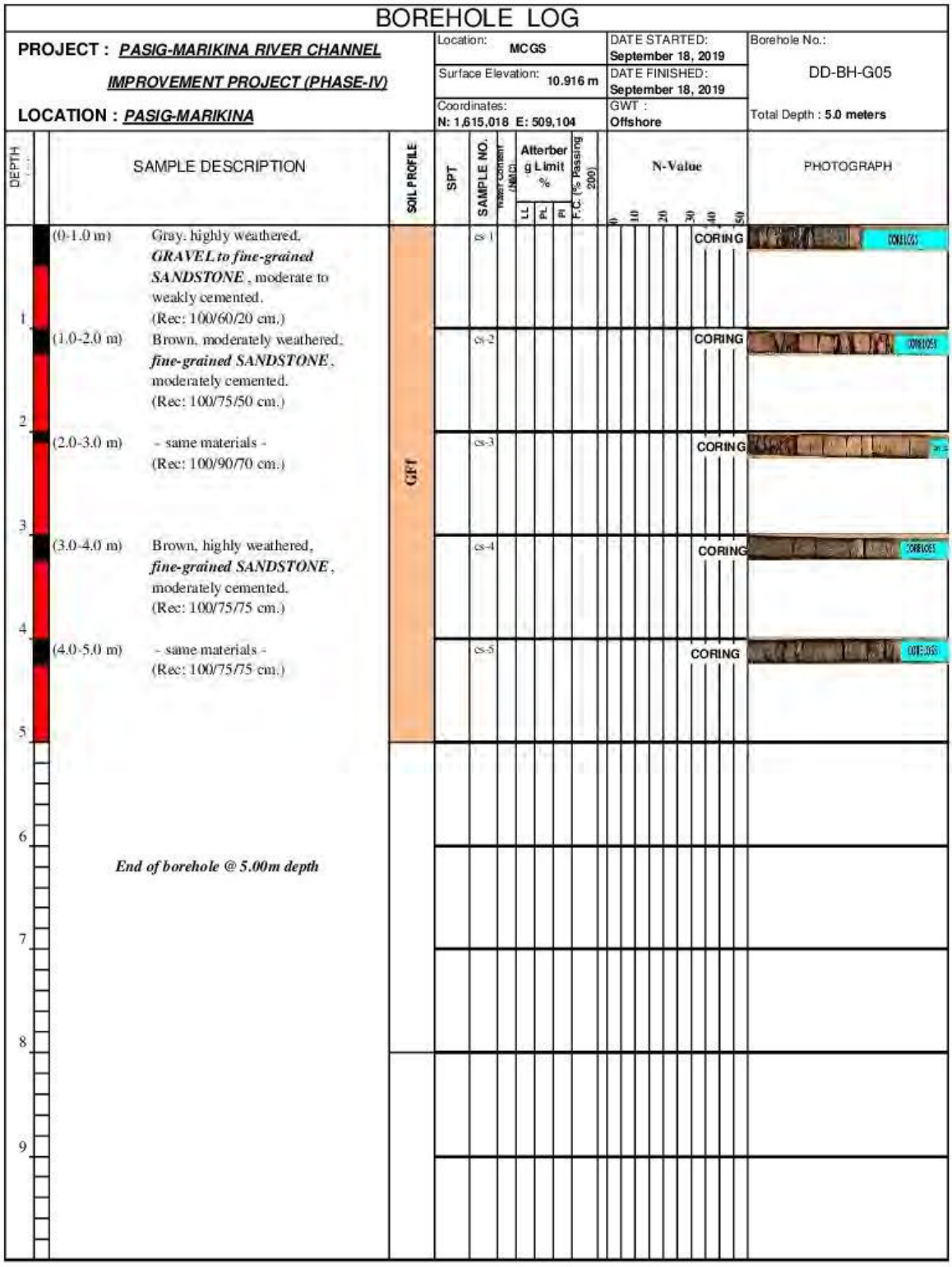

Figure 5-3-1（86/103）BORING LOGS（PHASE IV）

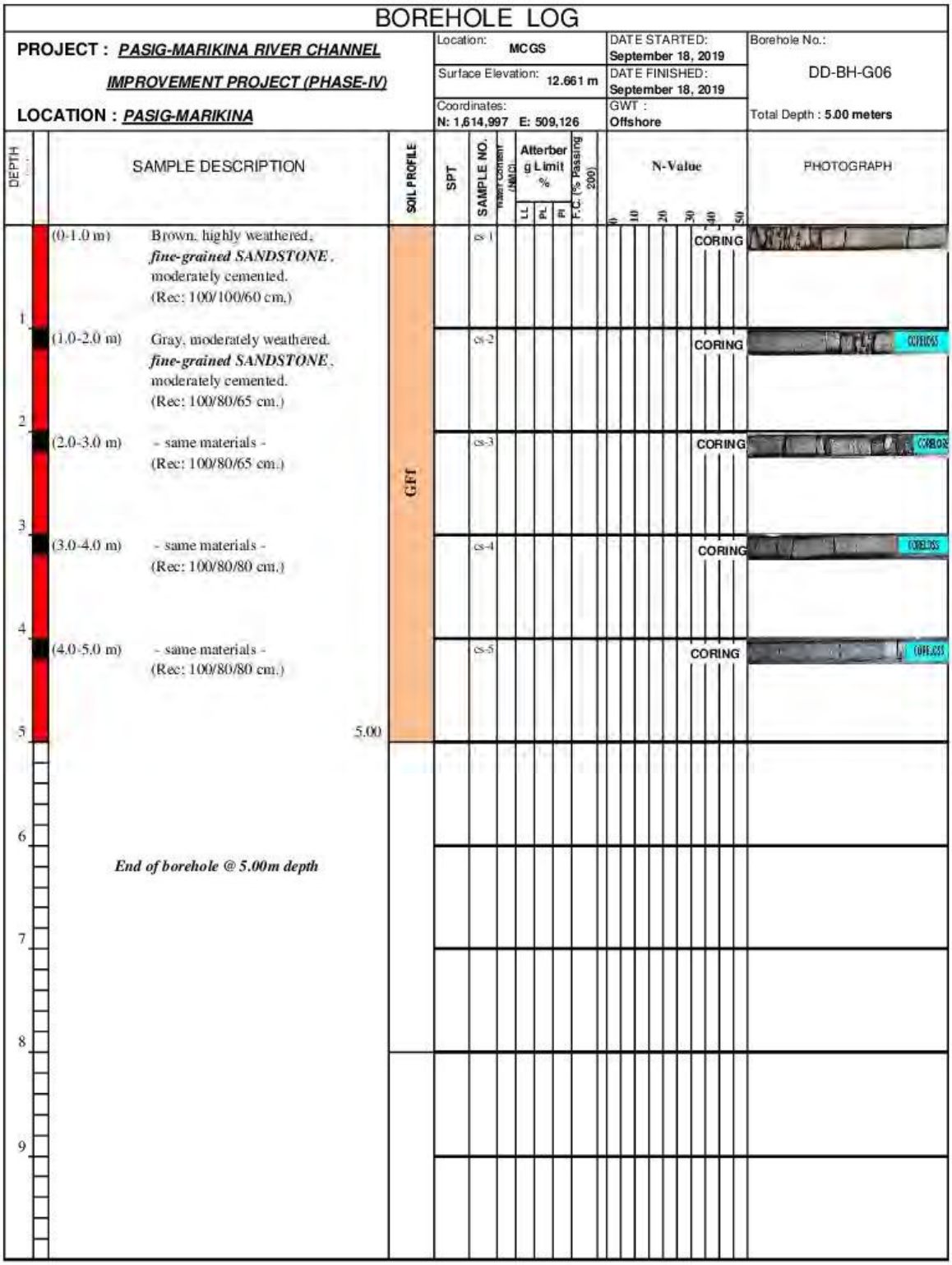

Figure 5-3-1（87/103）BORING LOGS（PHASE IV）

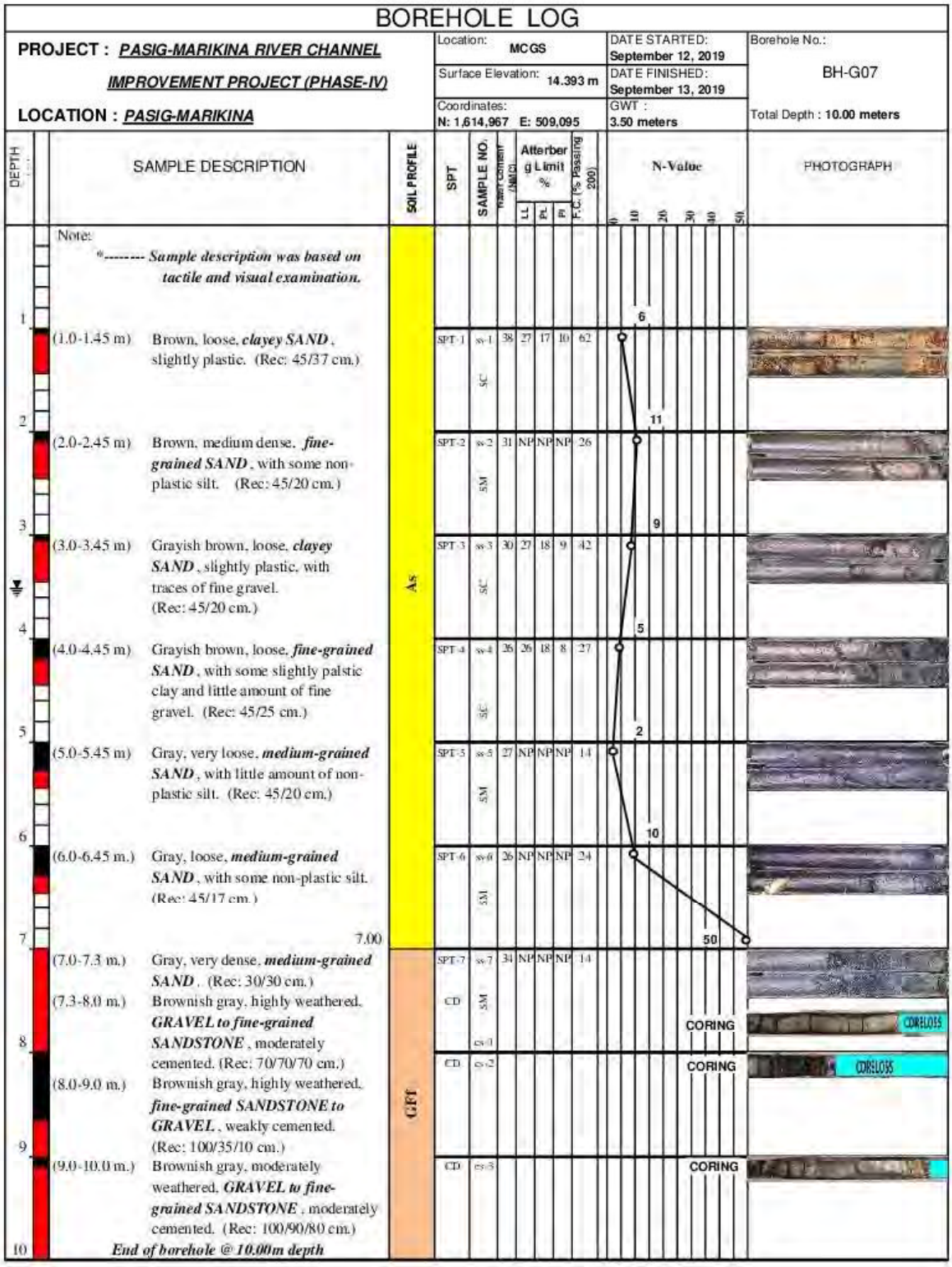

Figure 5-3-1（88/103）BORING LOGS（PHASE IV）

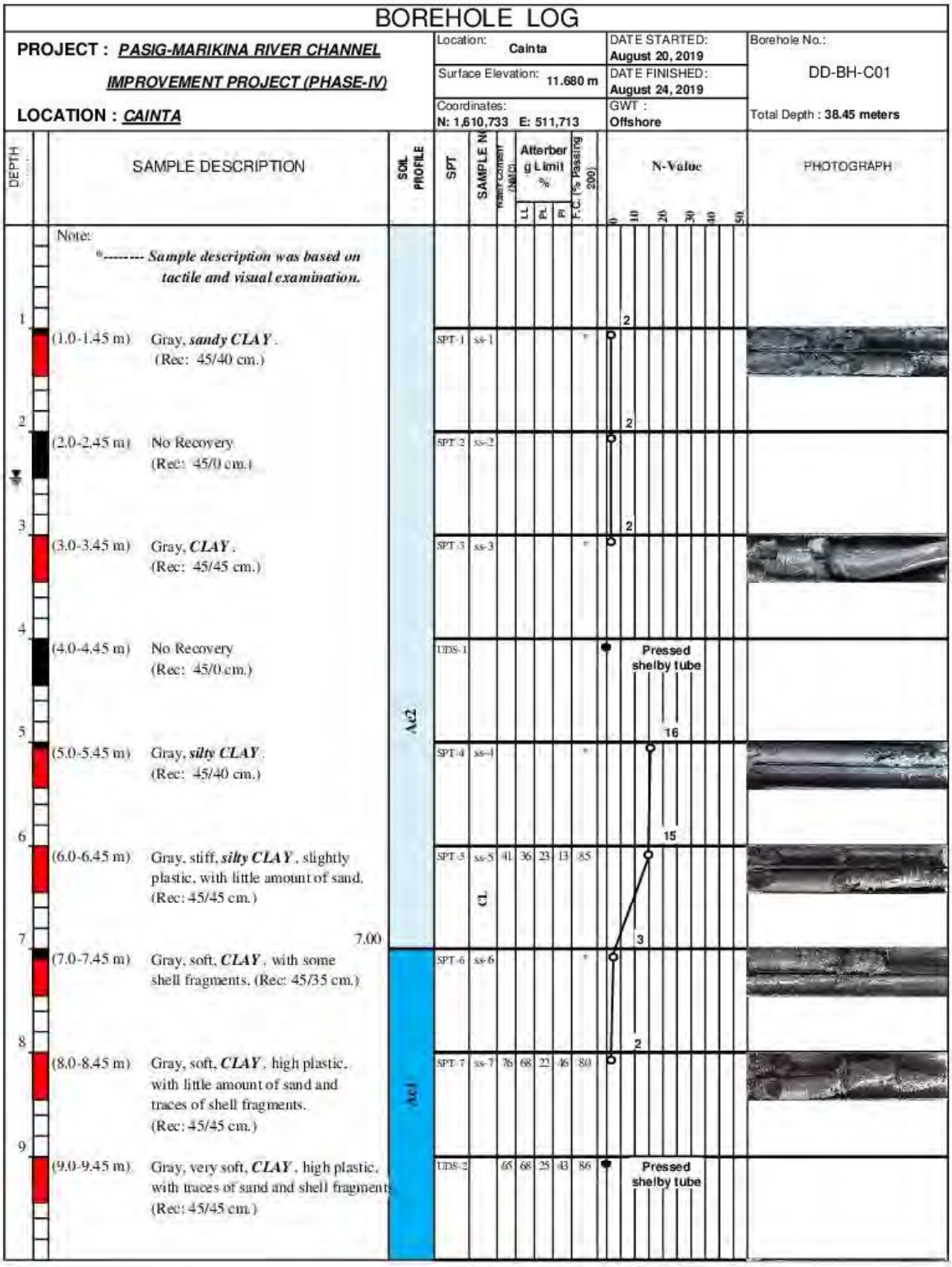

Figure 5-3-1（89/103）BORING LOGS（PHASE IV）

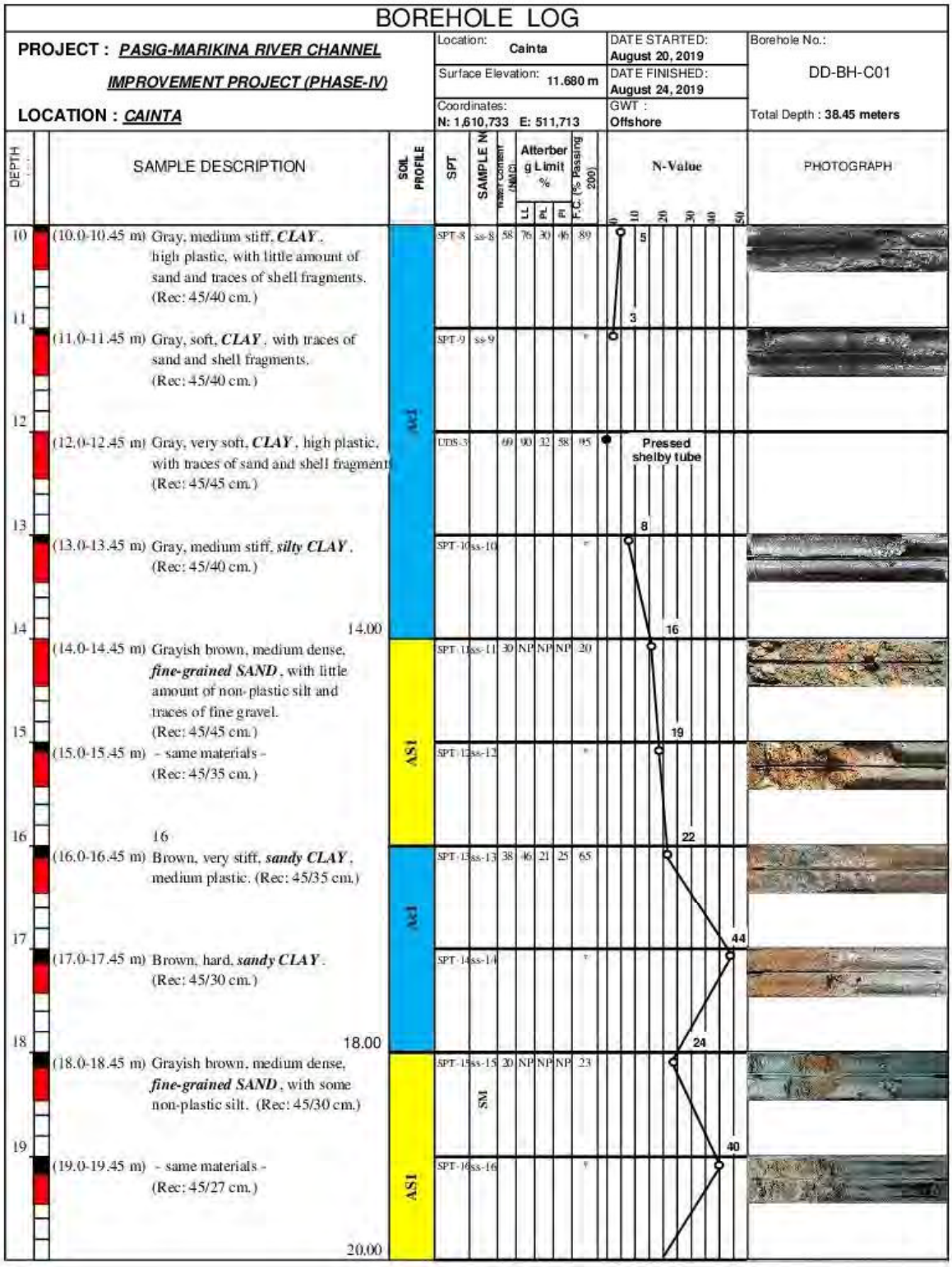

Figure 5-3-1（90/103）BORING LOGS（PHASE IV）

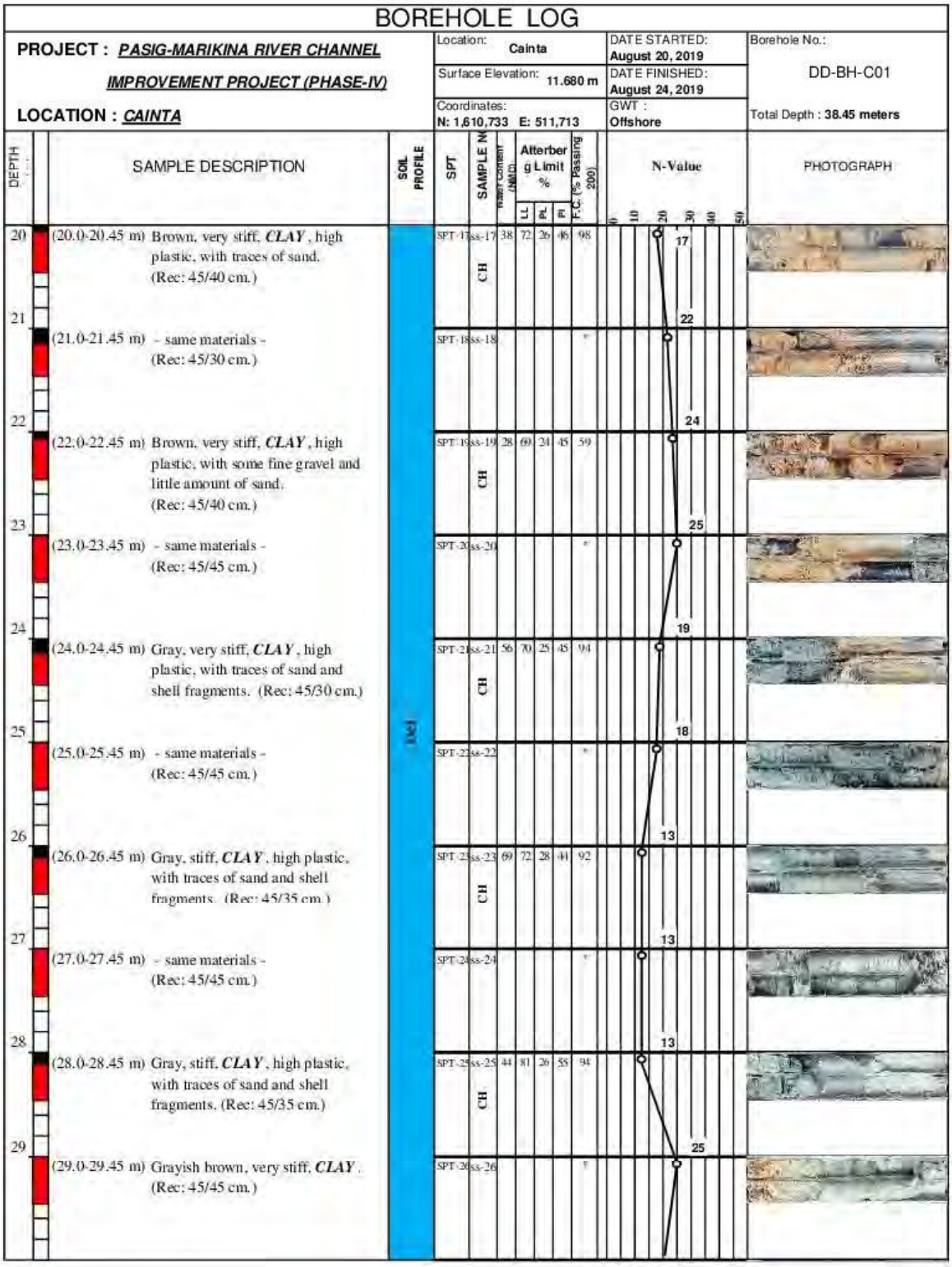

Figure 5-3-1（91/103）BORING LOGS（PHASE IV）

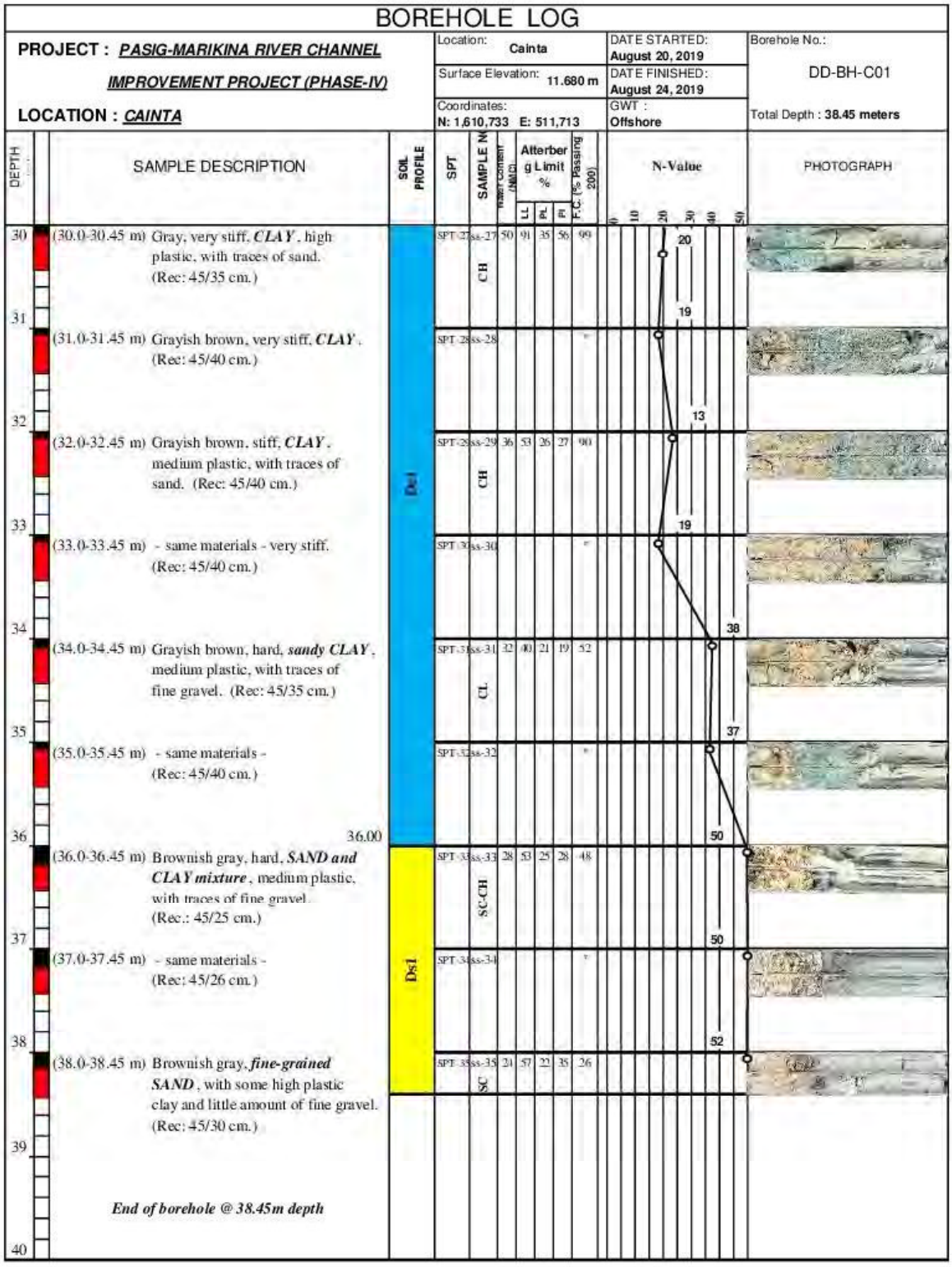

Figure 5-3-1（92/103）BORING LOGS（PHASE IV）

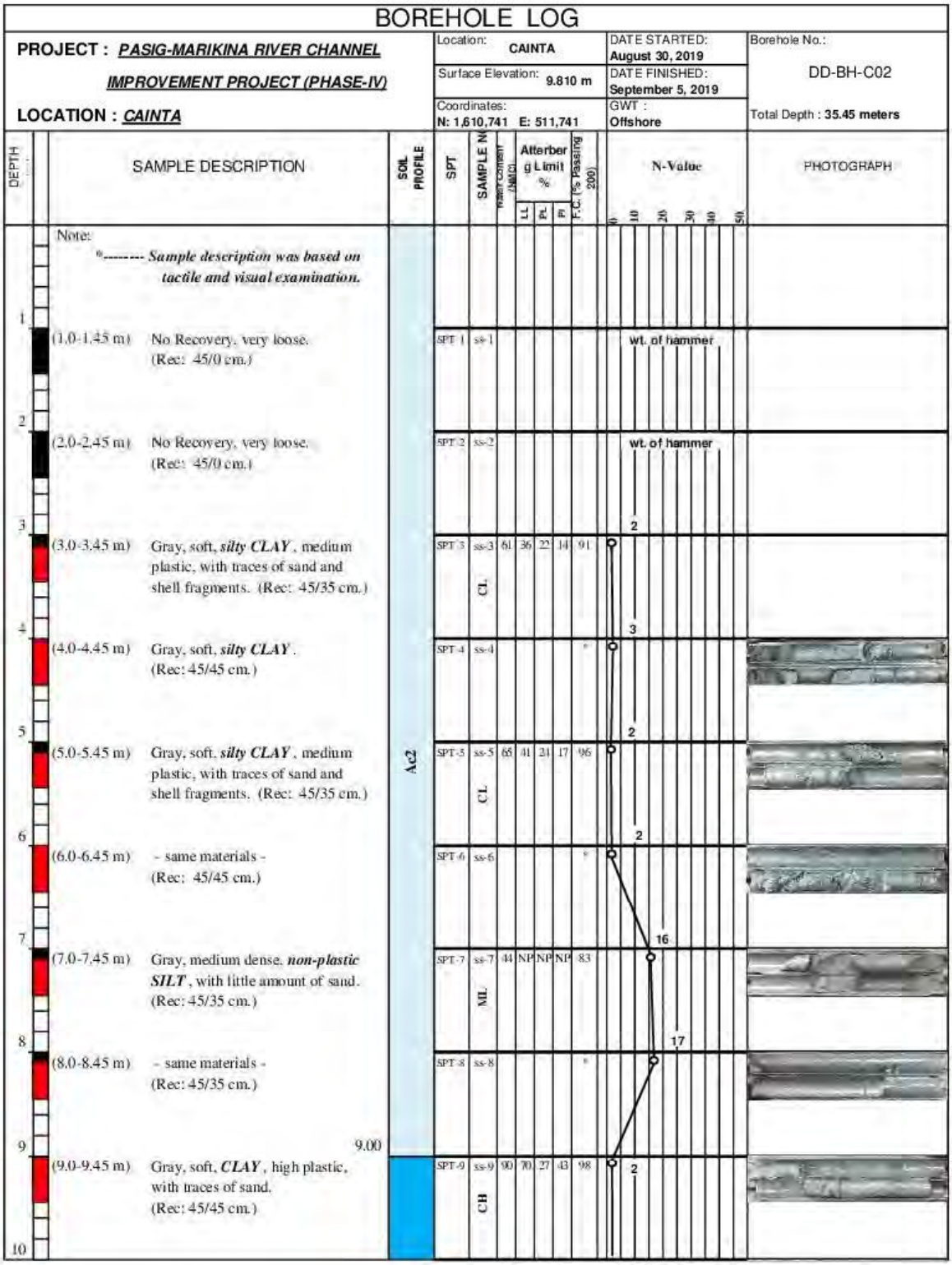

Figure 5-3-1（93/103）BORING LOGS（PHASE IV）

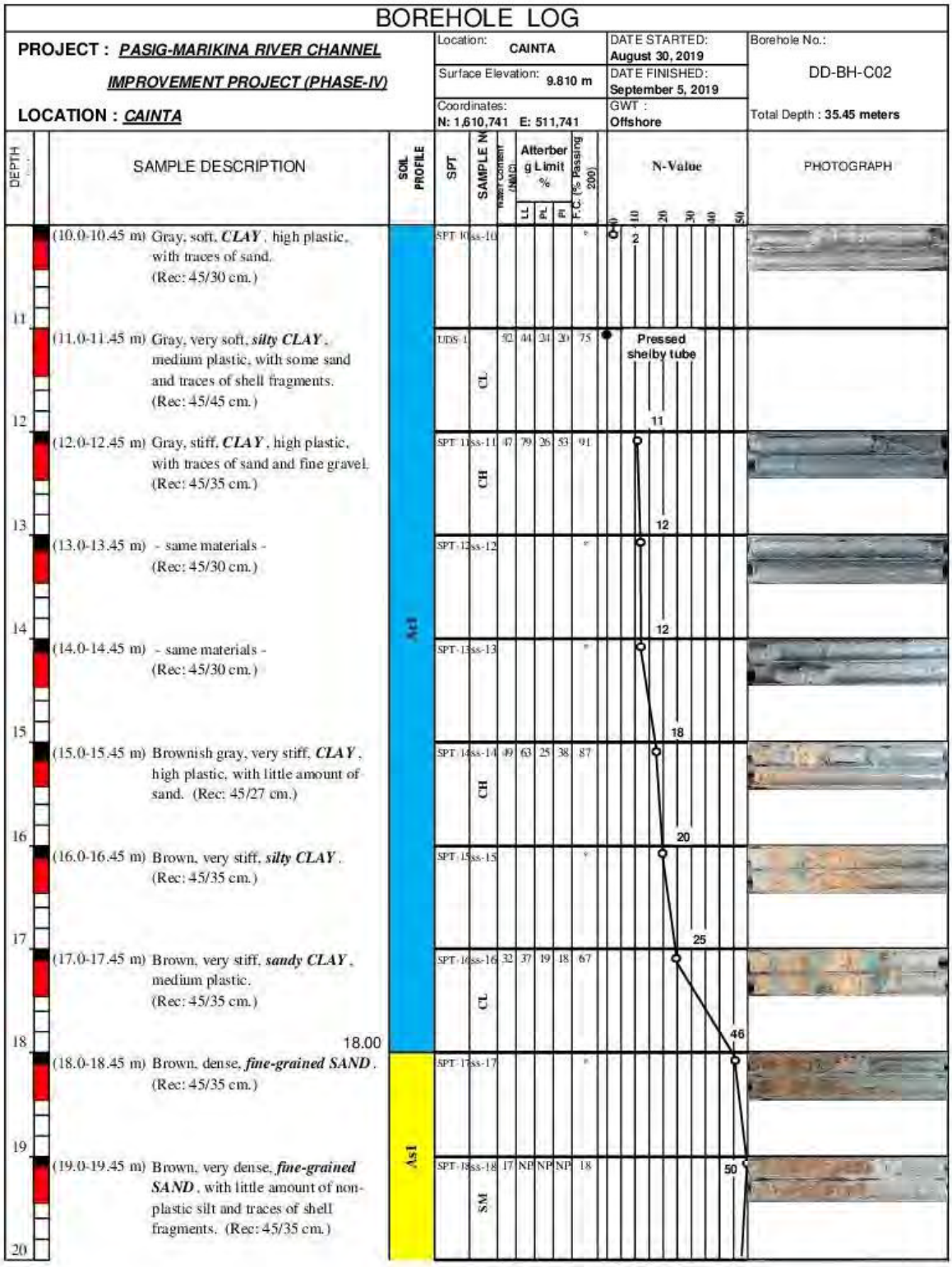

Figure 5-3-1（94/103）BORING LOGS（PHASE IV）

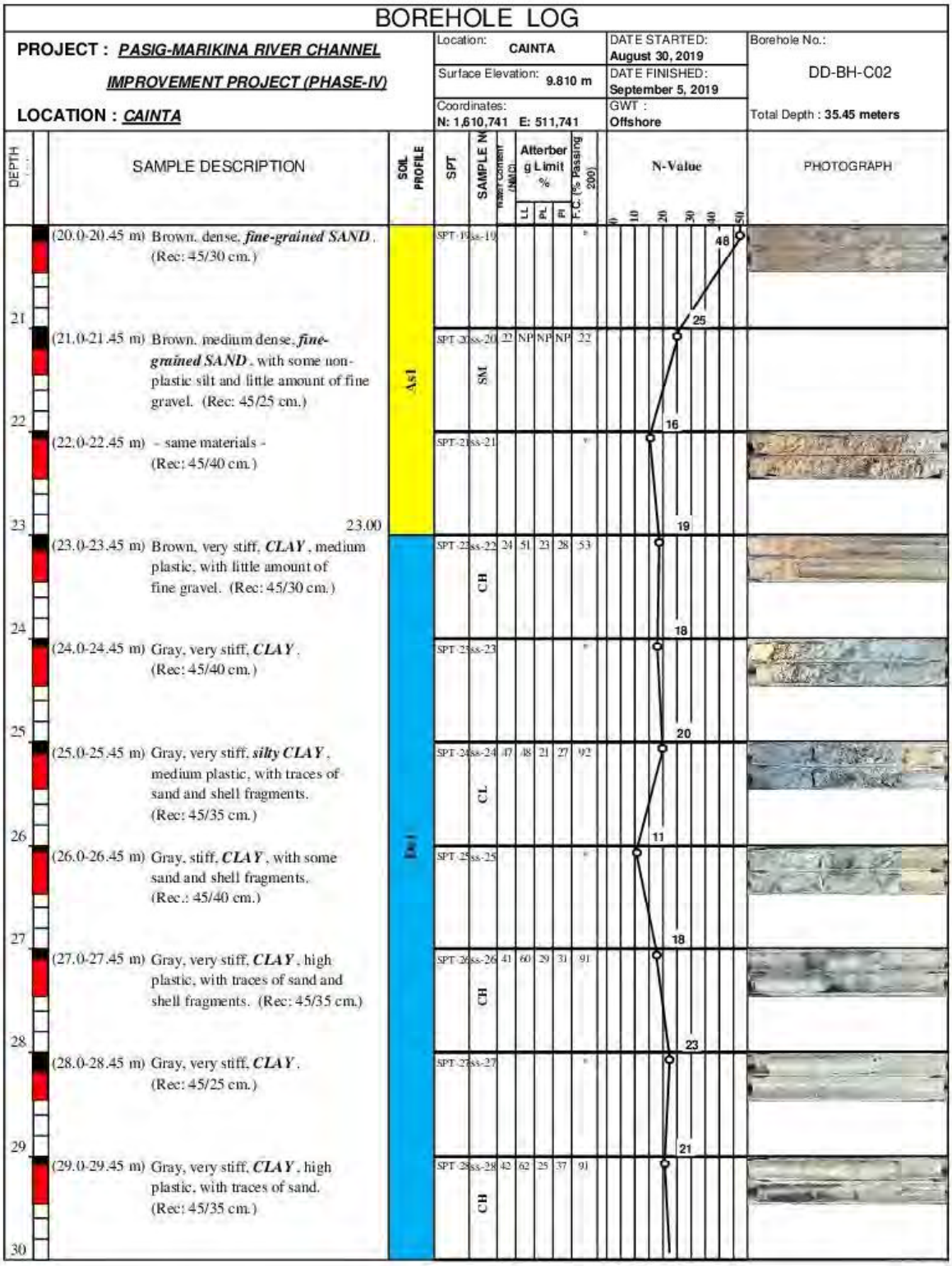

Figure 5-3-1（95/103）BORING LOGS（PHASE IV）

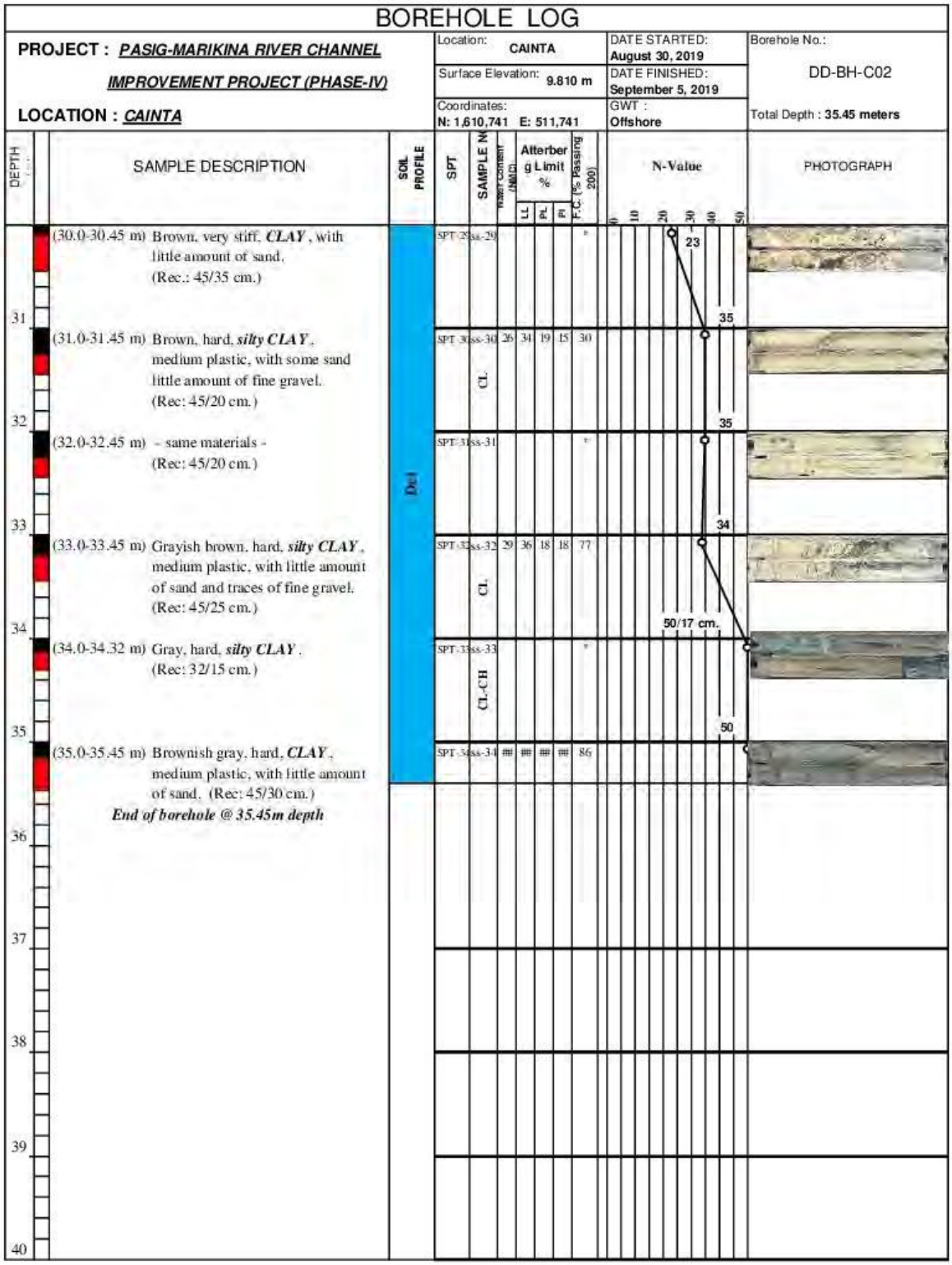

Figure 5-3-1（96/103）BORING LOGS（PHASE IV）

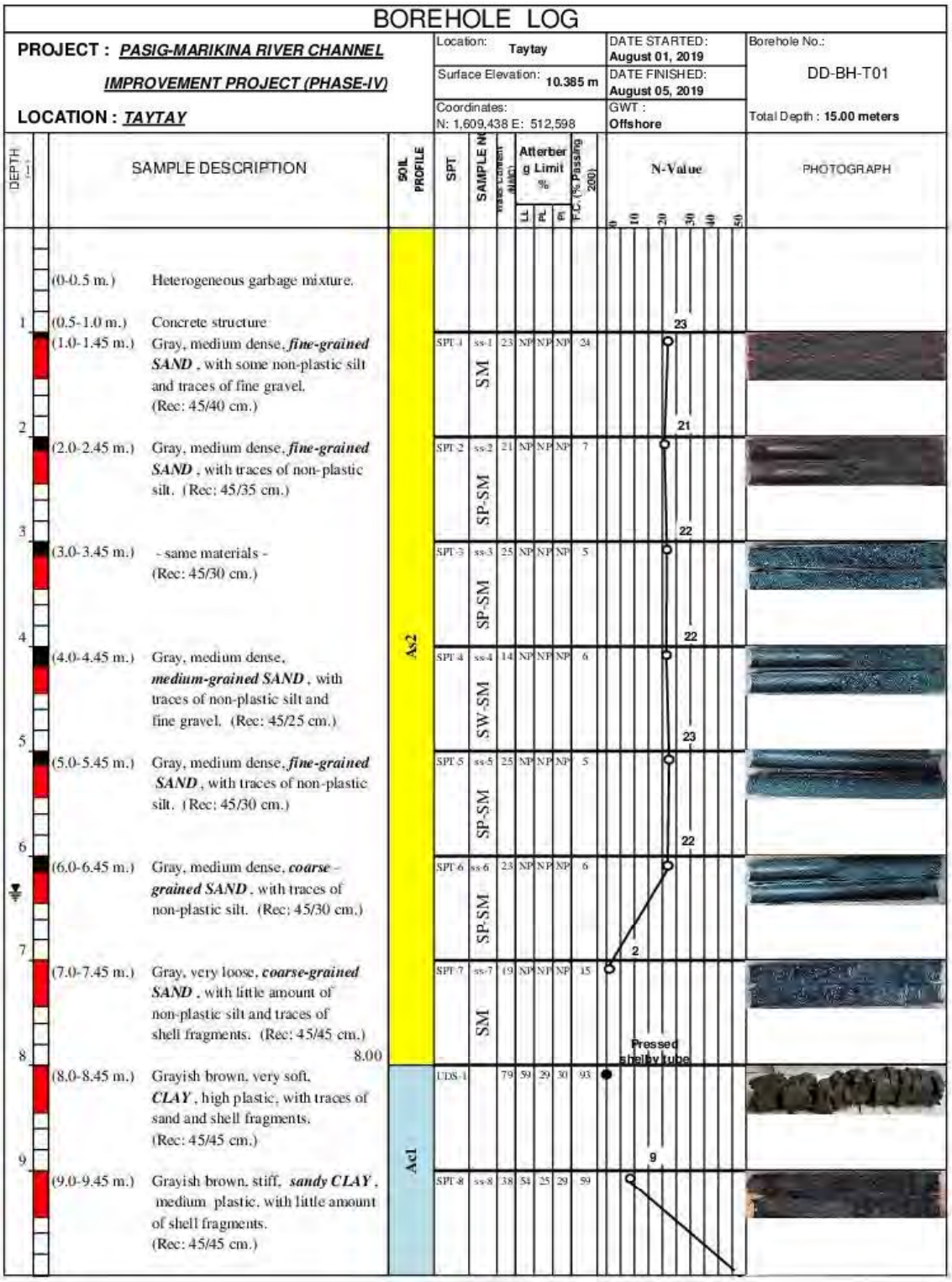

Figure 5-3-1（97/103）BORING LOGS（PHASE IV）

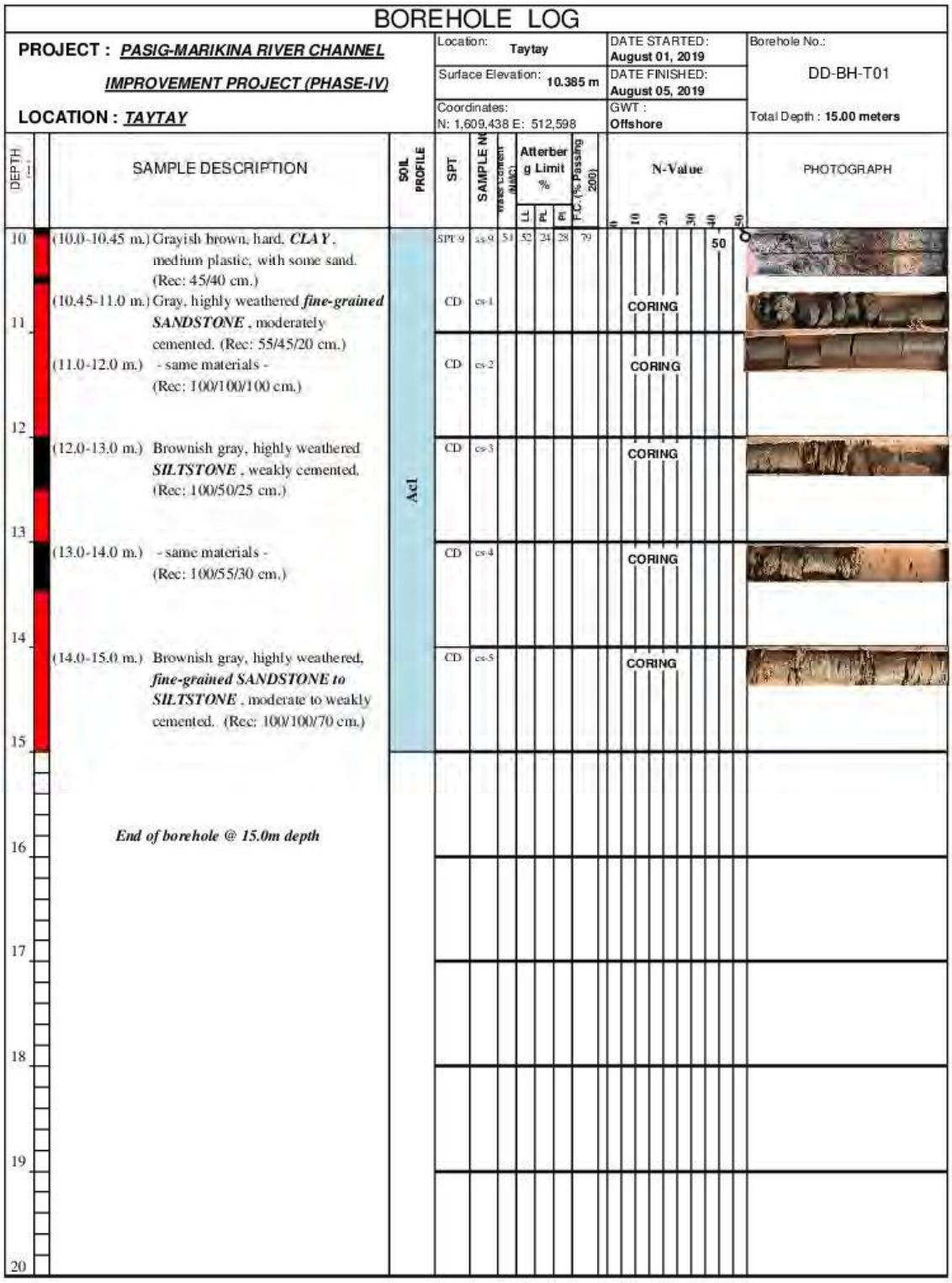

Figure 5-3-1（98/103）BORING LOGS（PHASE IV）

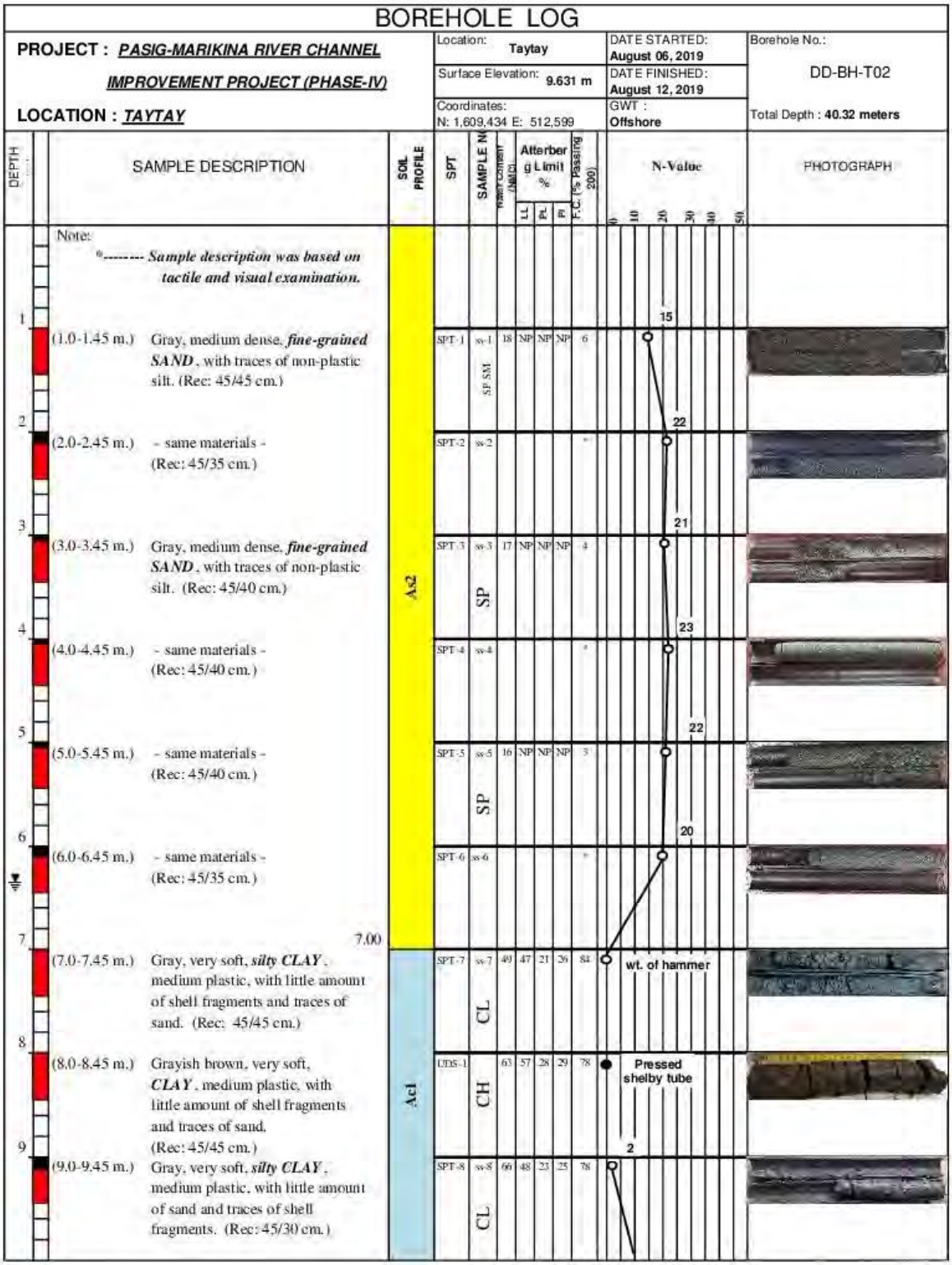

Figure 5-3-1（99/103）BORING LOGS（PHASE IV）

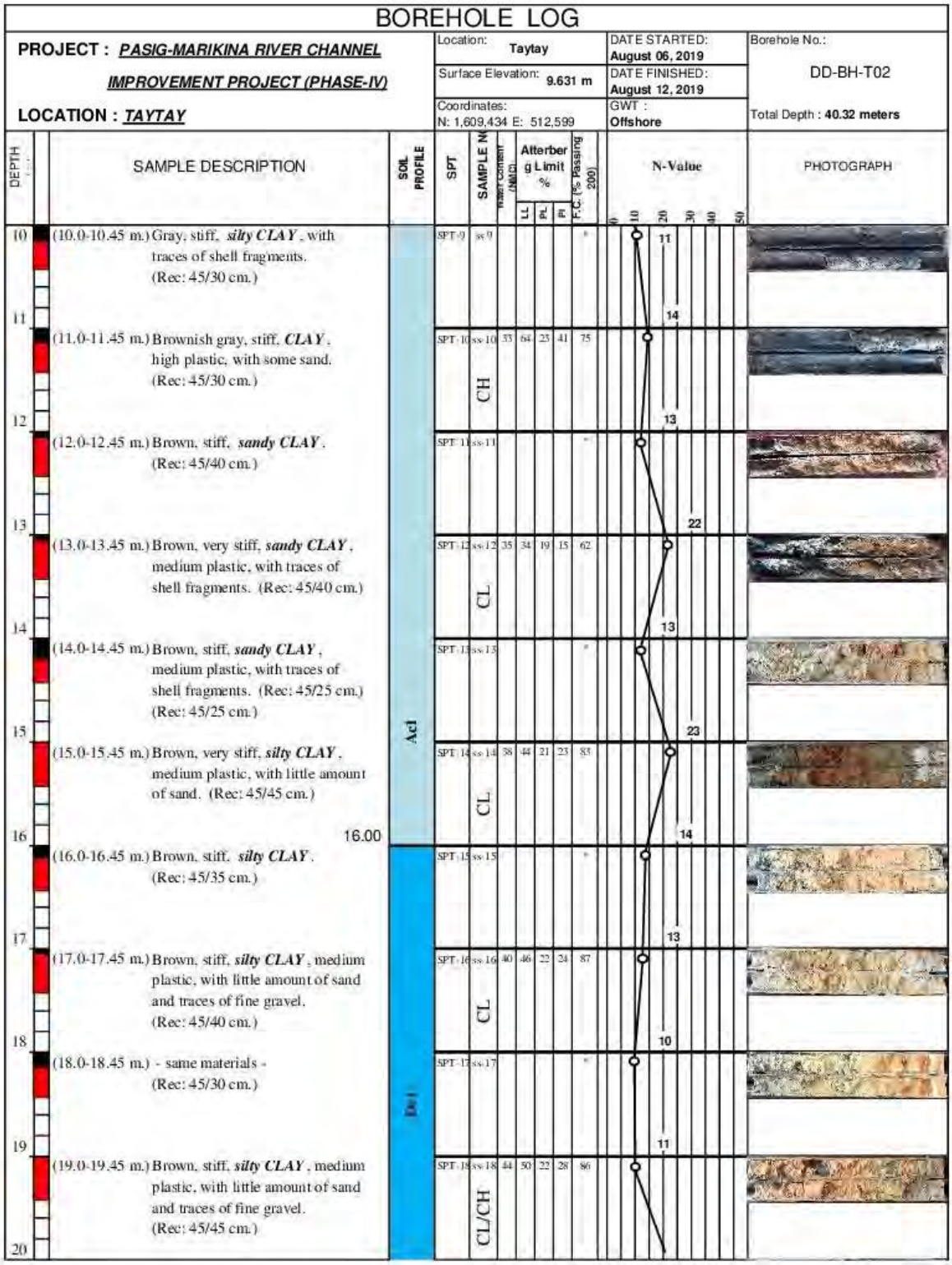

Figure 5-3-1（100/103）BORING LOGS（PHASE IV）

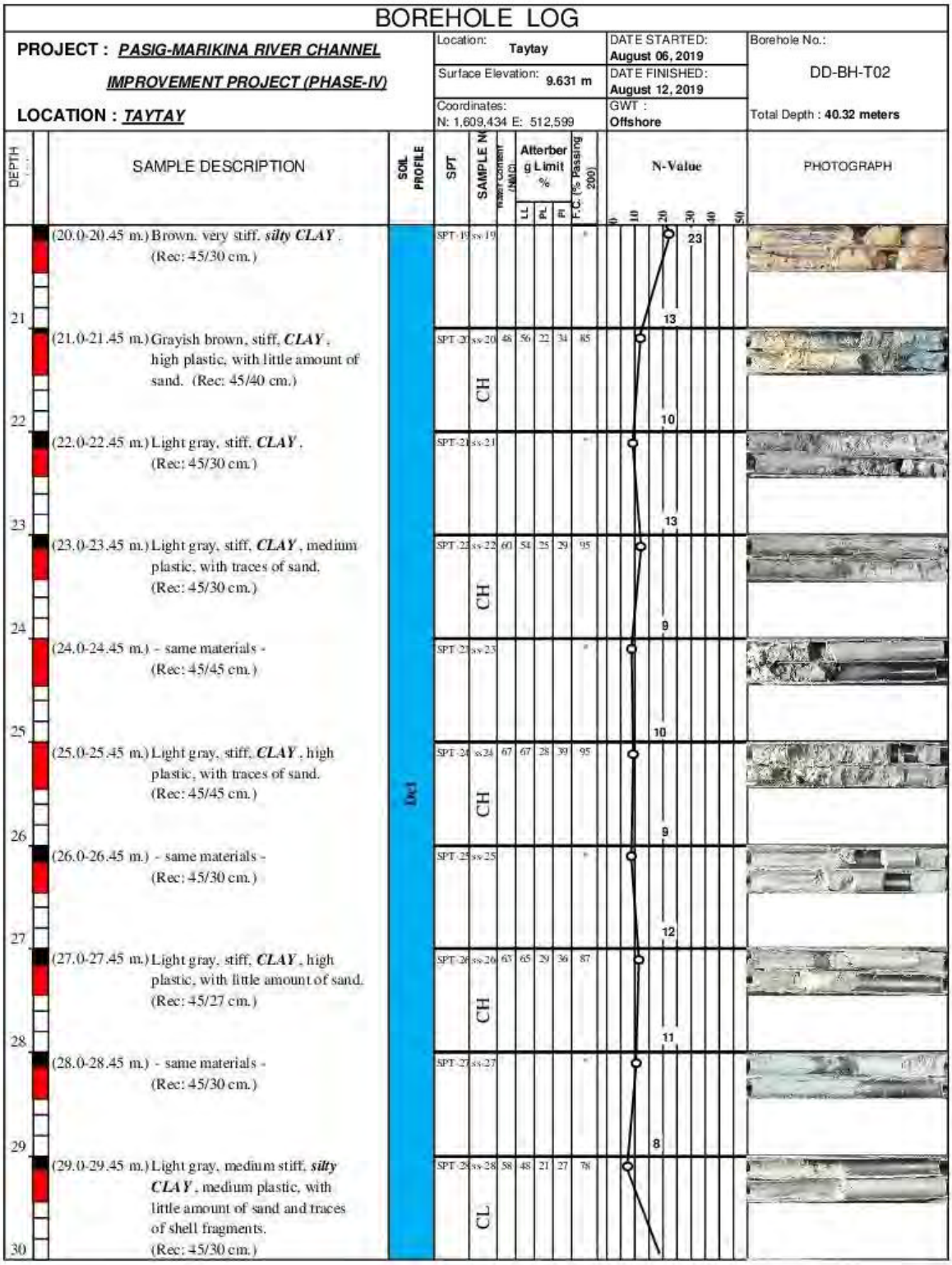

Figure 5-3-1（101/103）BORING LOGS（PHASE IV）

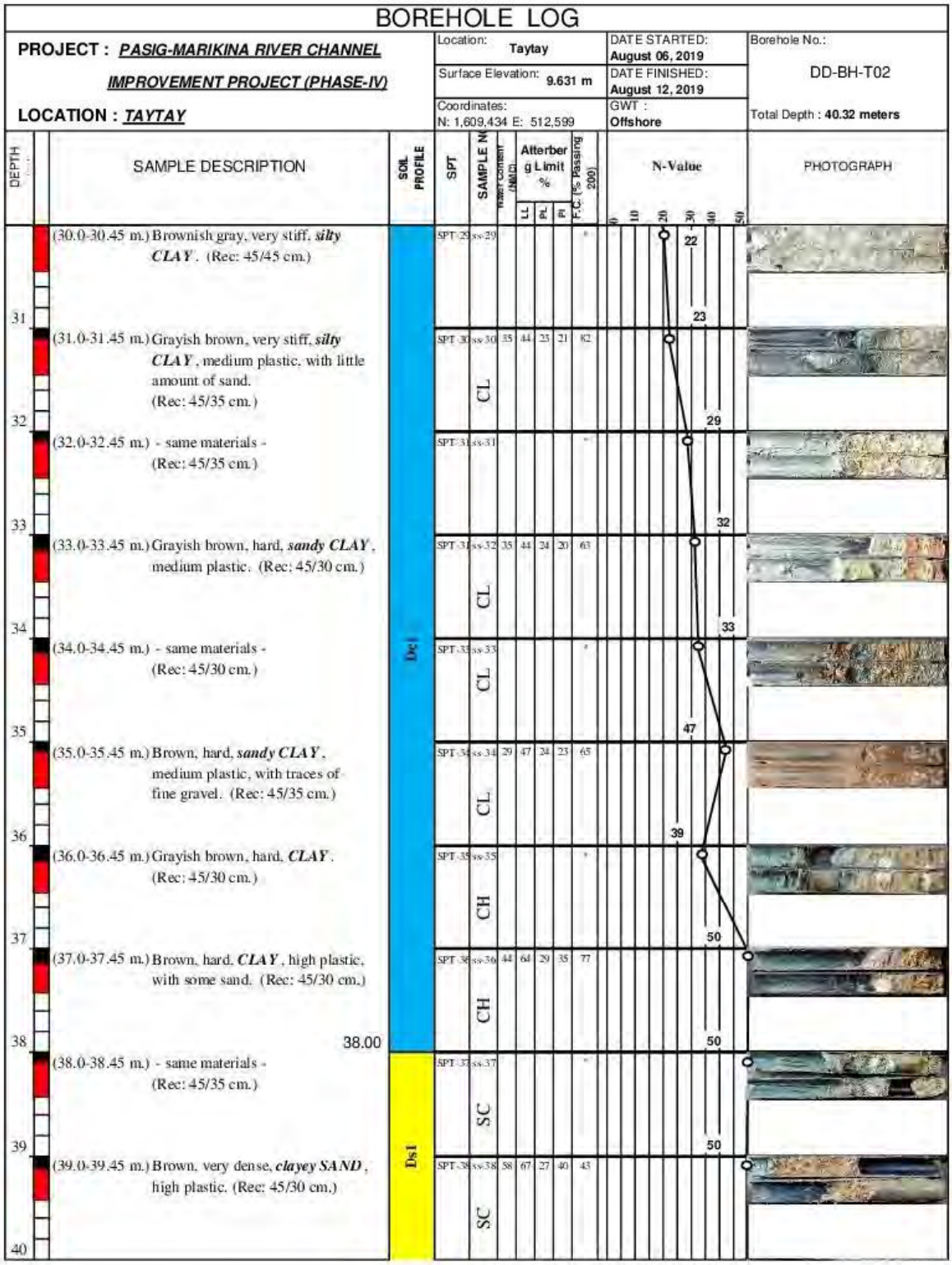

Figure 5-3-1（102/103）BORING LOGS（PHASE IV）

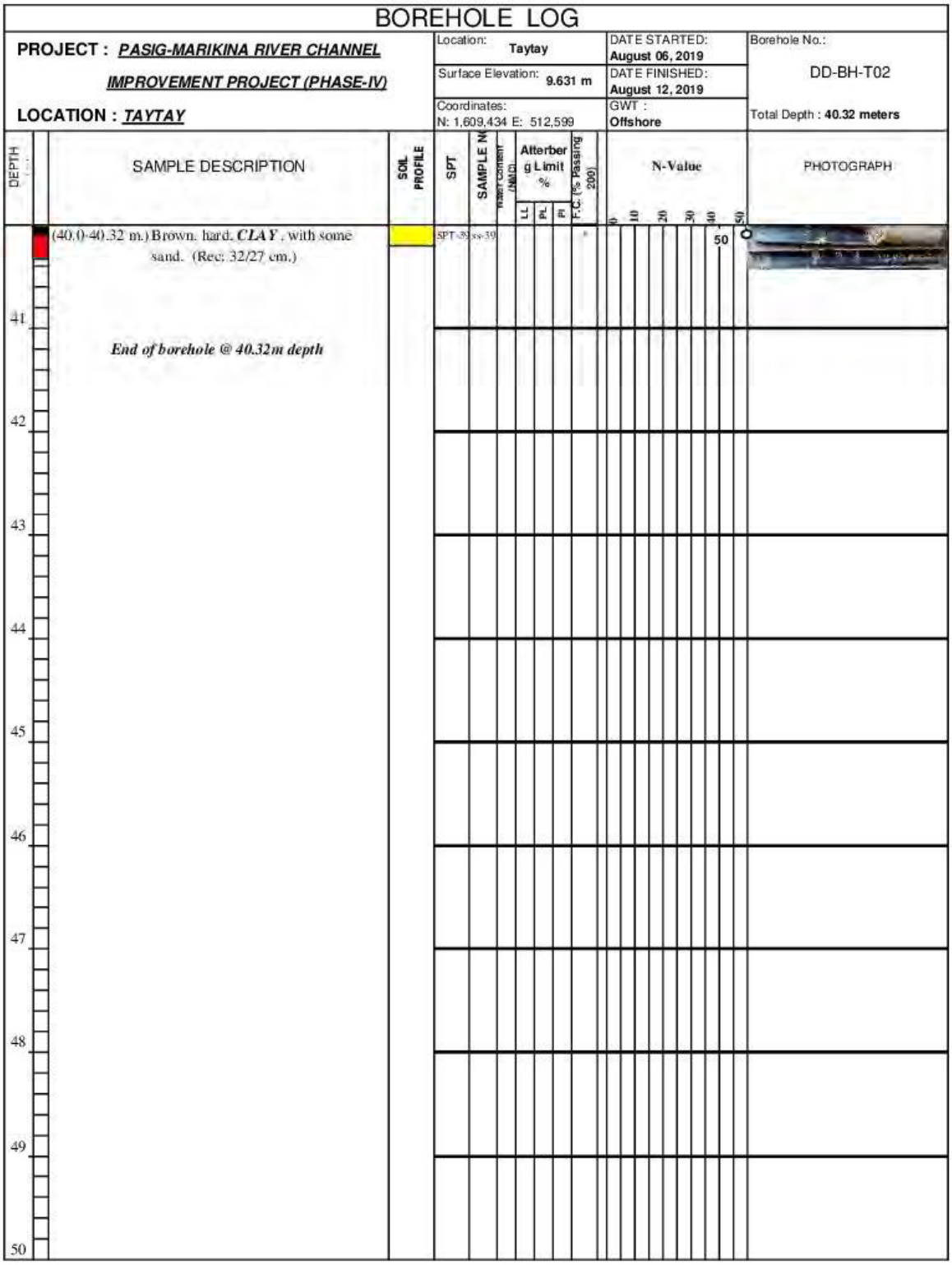

Figure 5-3-1（103/103）BORING LOGS（PHASE IV）

Boring log
with
Core box, SPT sample and SPT graph

In order to clarity, the SPT soil sample photo is processed

Legend

Geological Age		Symbol/ colour	MARIKINA/MCGS	Symbol/ colour	CAINTA/TAYTAY
Quaternary	Holocene (Alluvium)	As	Alluvial sand、	As2	Alluvial sand、TAYTAY表層に分布
				As1	Alluvial sand、CAINTAで確認
		Ac	Alluvial clay	Ac2	Alluvial clay、CAINTA表層に分布
				Ac1	Alluvial clay、CAINTA、TAYTAYに分布
	Pleistocene (Diluvium)	Ds	Diluvial sand	Ds1	Diluvial sand、CAINTA、TAYTAYで確認
		Dc	Diluvial clay	Dc1	Diluvial clay、CAINTA、TAYTAYで確認
		GFw	**Weathered Guadalupe Formation (Lapilli tuff, Sand stone)**		
		GFf	Fresh Guadalupe Formation (Lapilli tuff, Sand stone)		

Figure 5-3-2（1/17）BORING LOGS（PHASE IV）with Core Photos

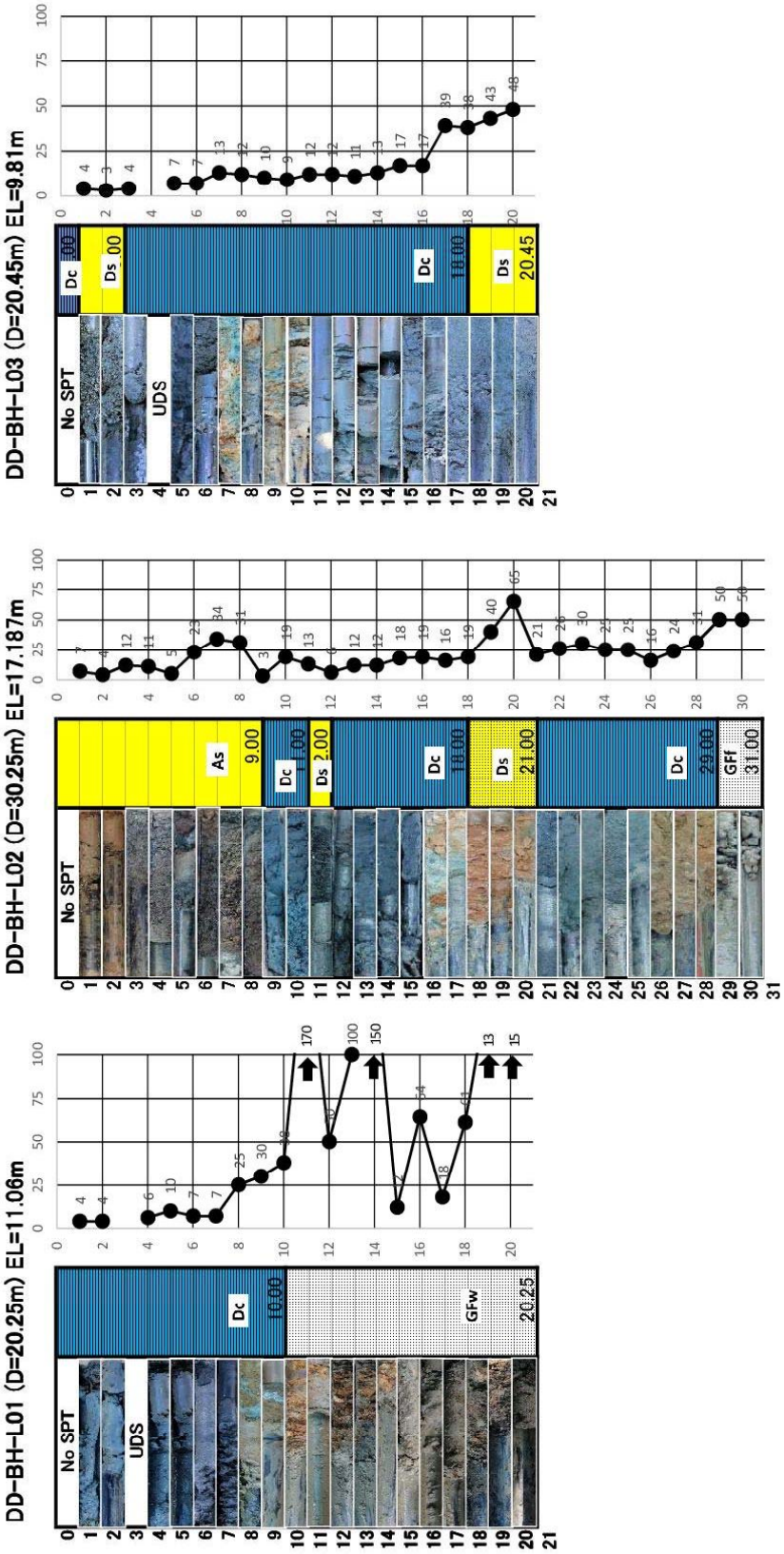

Figure 5-3-2（2/17）BORING LOGS（PHASE IV）with Core Photos

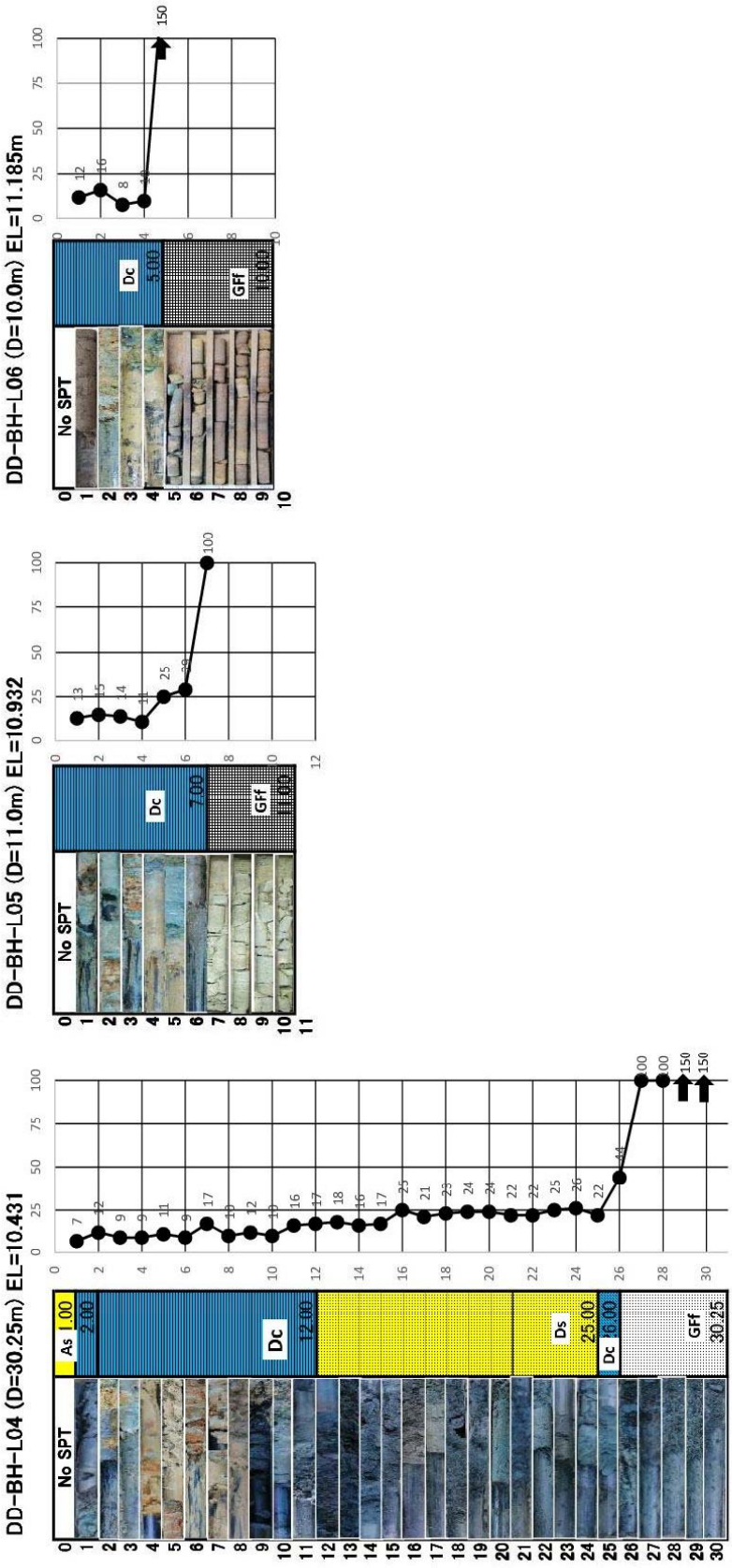

Figure 5-3-2（3/17）BORING LOGS（PHASE IV）with Core Photos

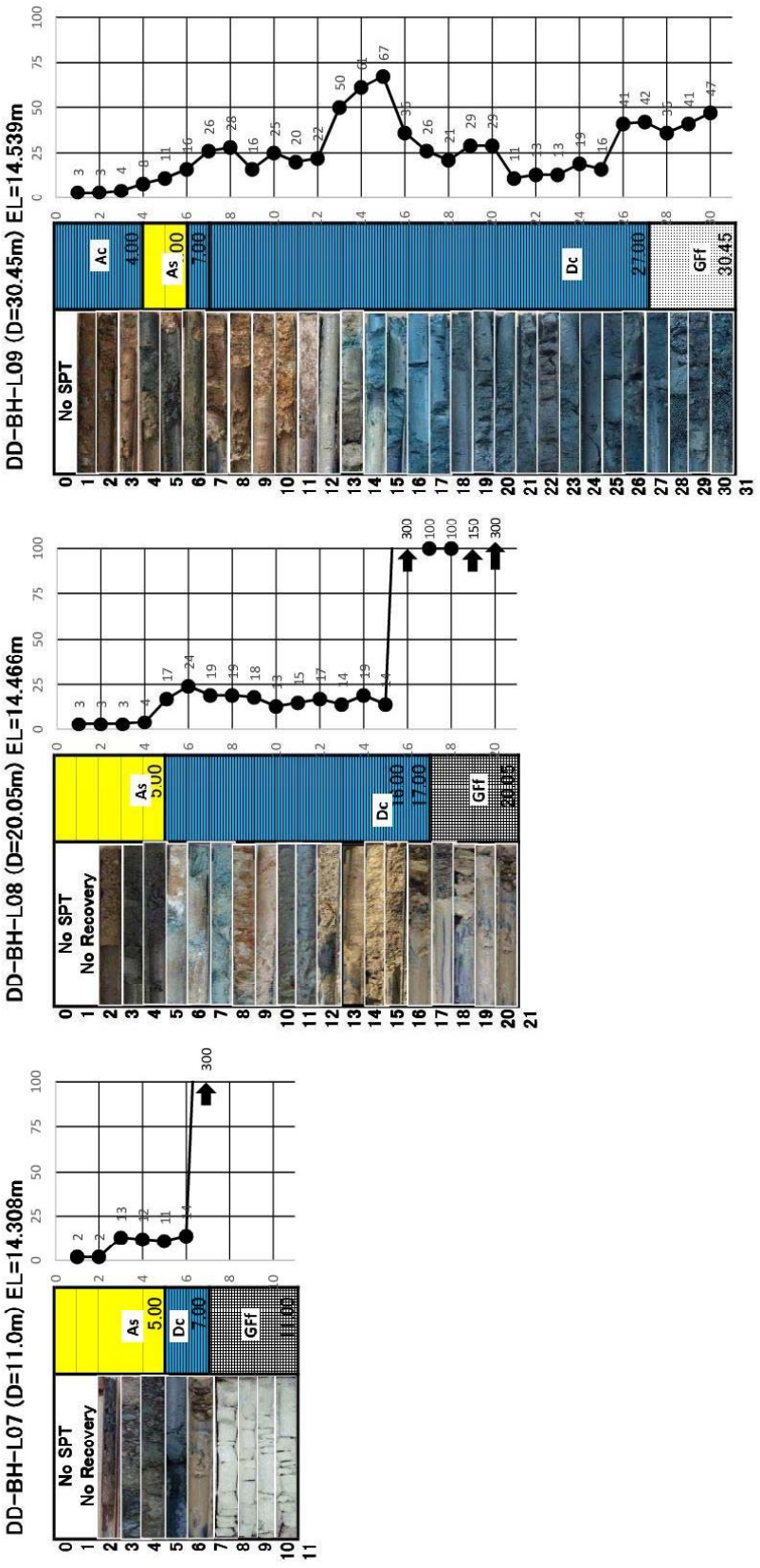

Figure 5-3-2（4/17）BORING LOGS（PHASE IV）with Core Photos

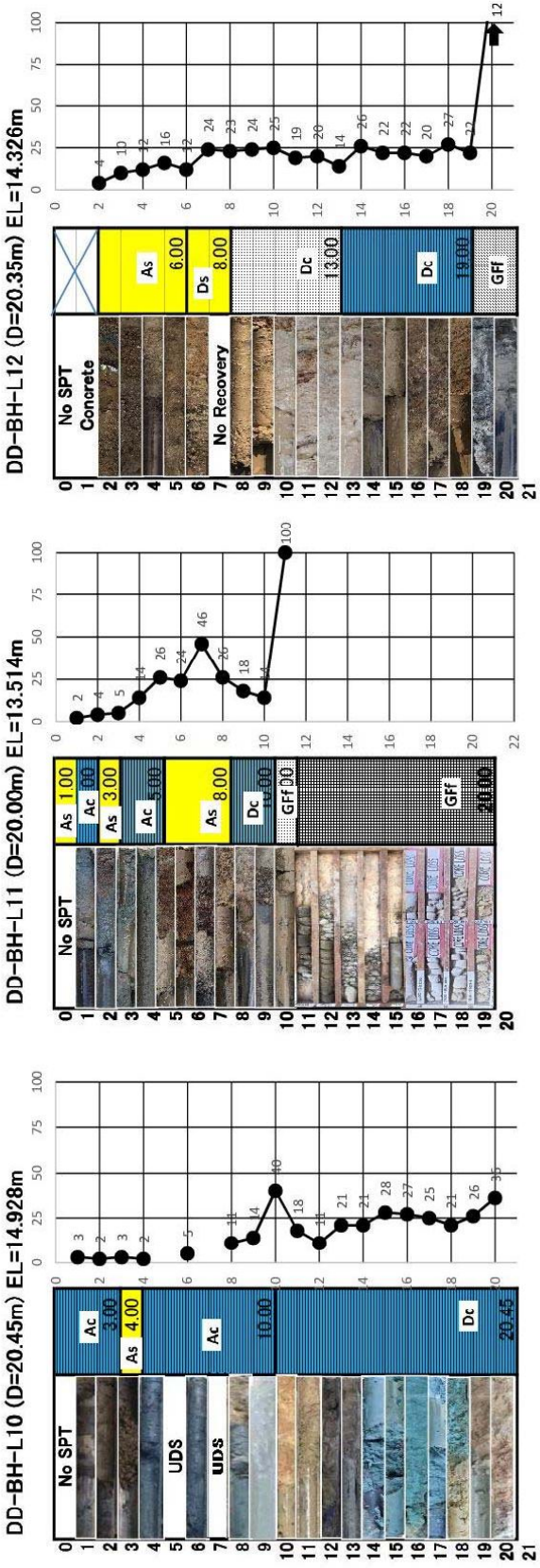

Figure 5-3-2（5/17）BORING LOGS（PHASE IV）with Core Photos

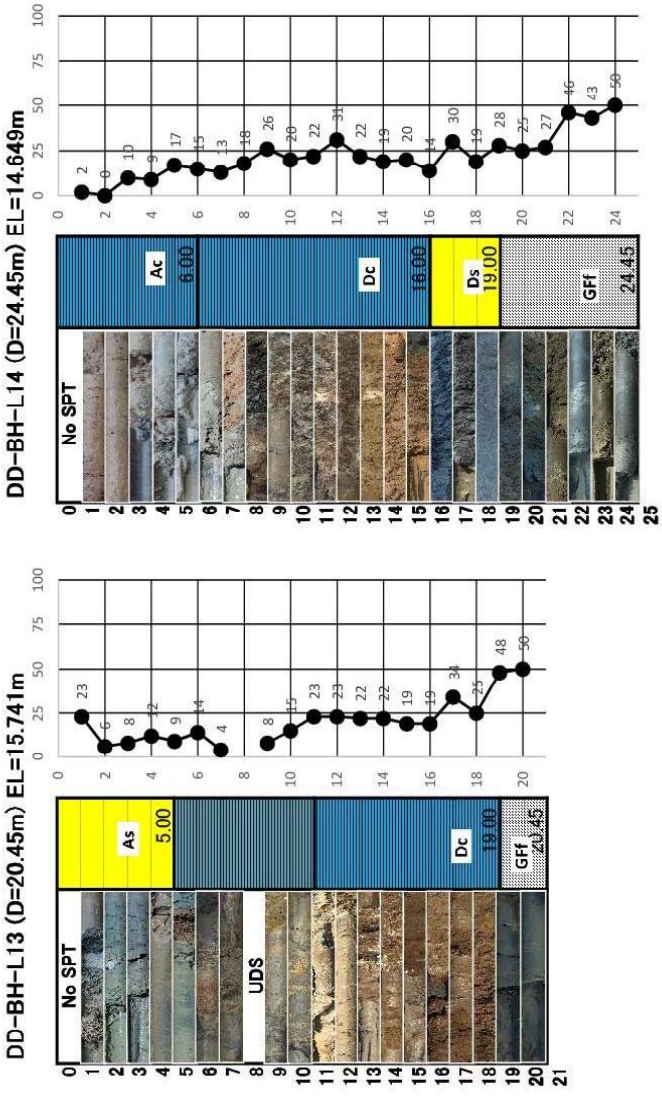

Figure 5-3-2（6/17）BORING LOGS（PHASE IV）with Core Photos

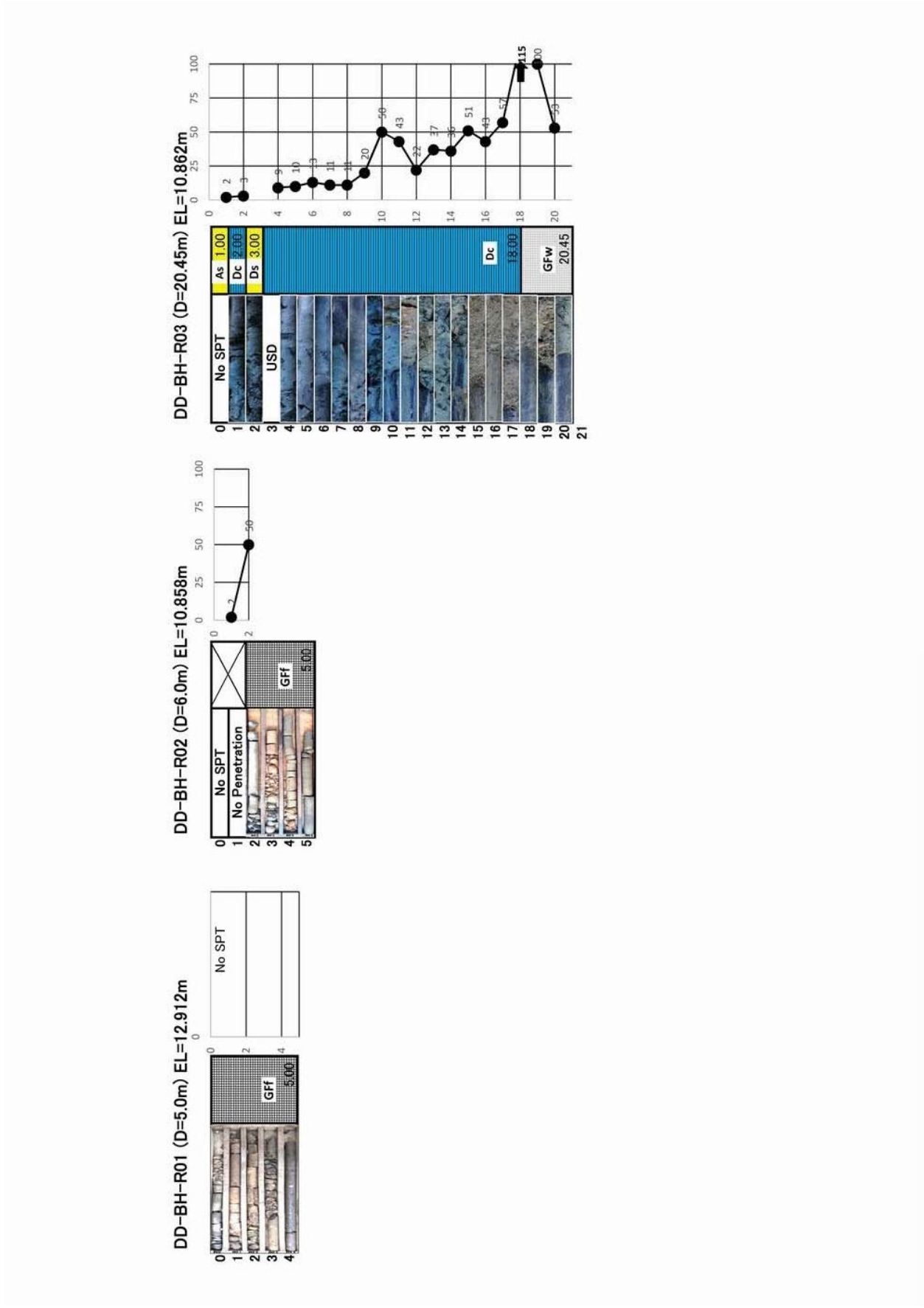

Figure 5-3-2（7/17）BORING LOGS（PHASE IV）with Core Photos

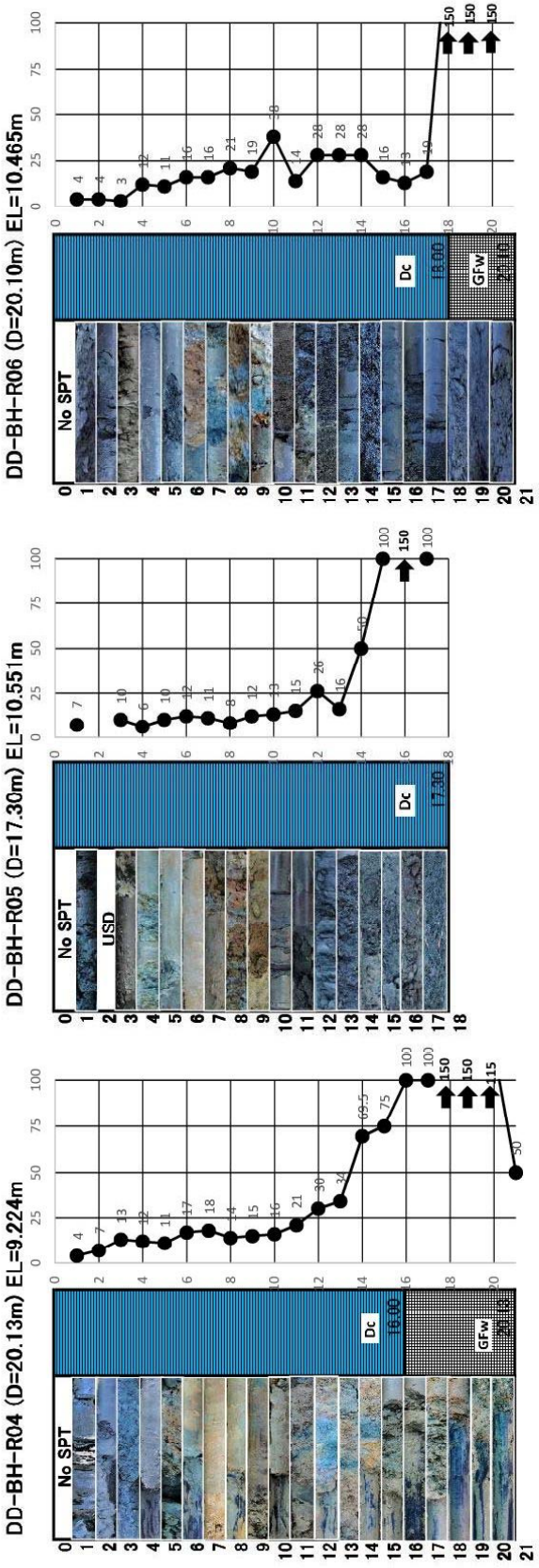

Figure 5-3-2（8/17）BORING LOGS（PHASE IV）with Core Photos

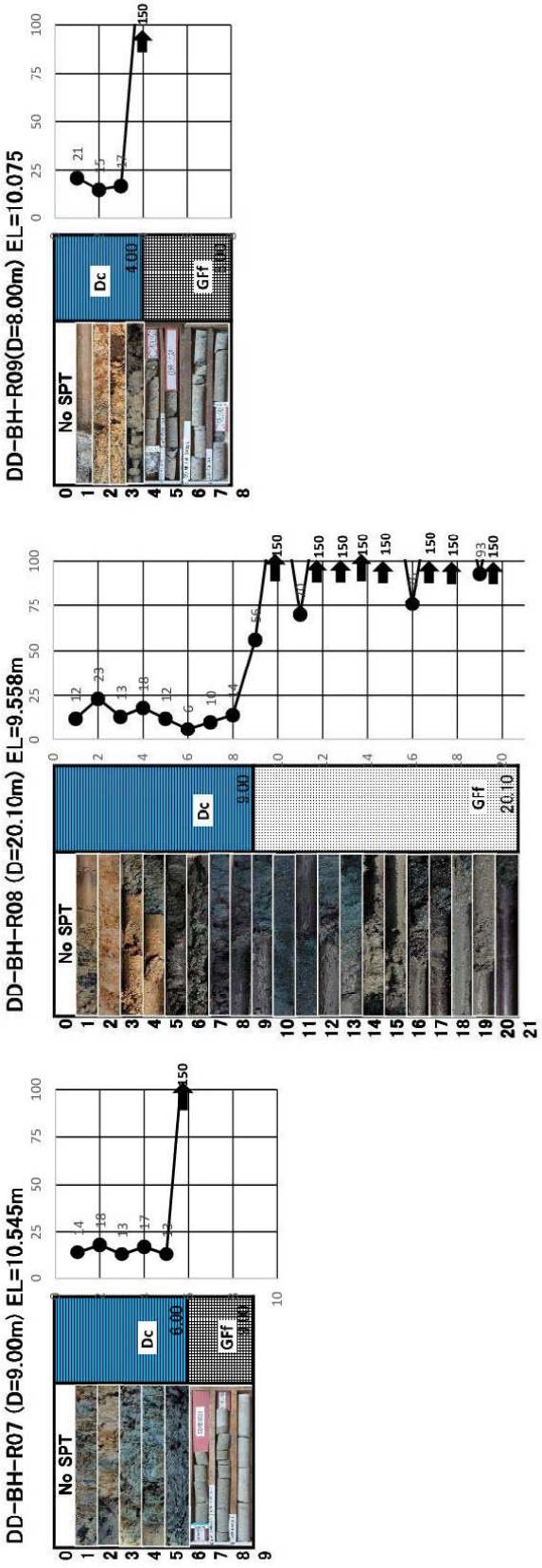

Figure 5-3-2（9/17）BORING LOGS（PHASE IV）with Core Photos

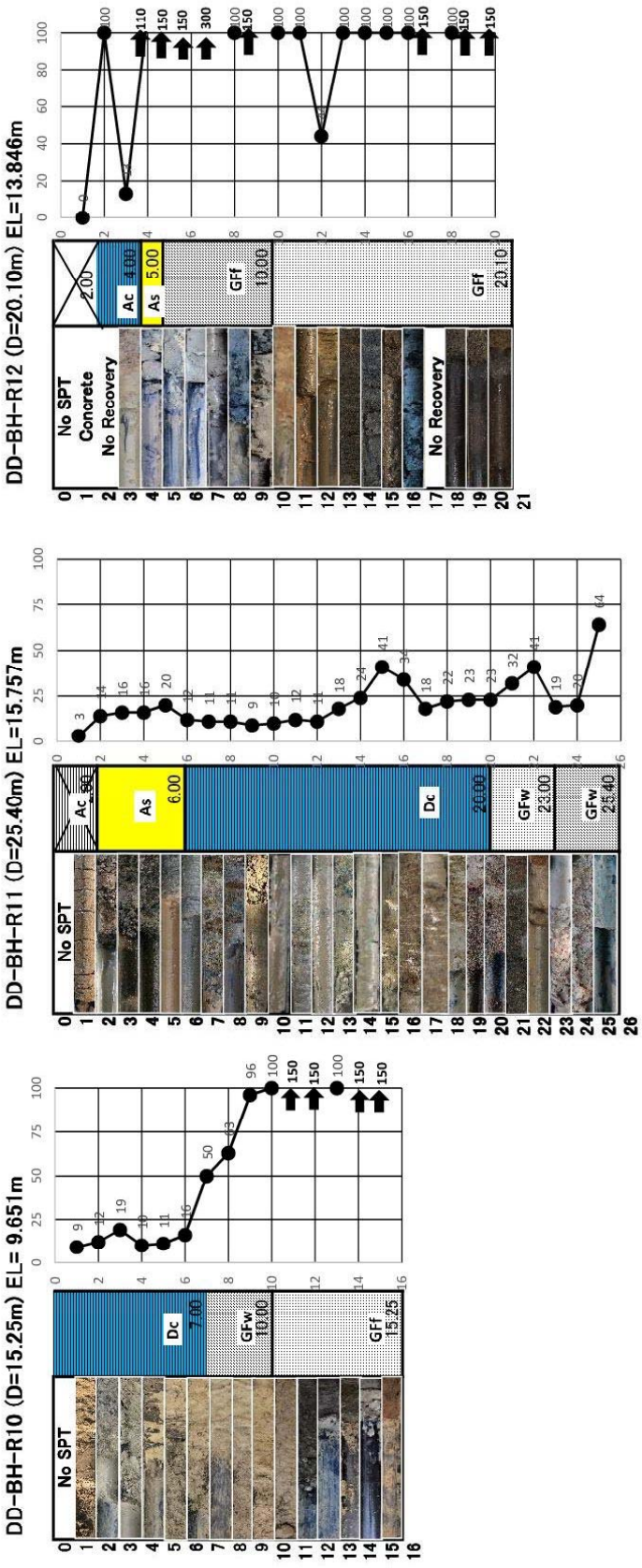

Figure 5-3-2（10/17）BORING LOGS（PHASE IV）with Core Photos

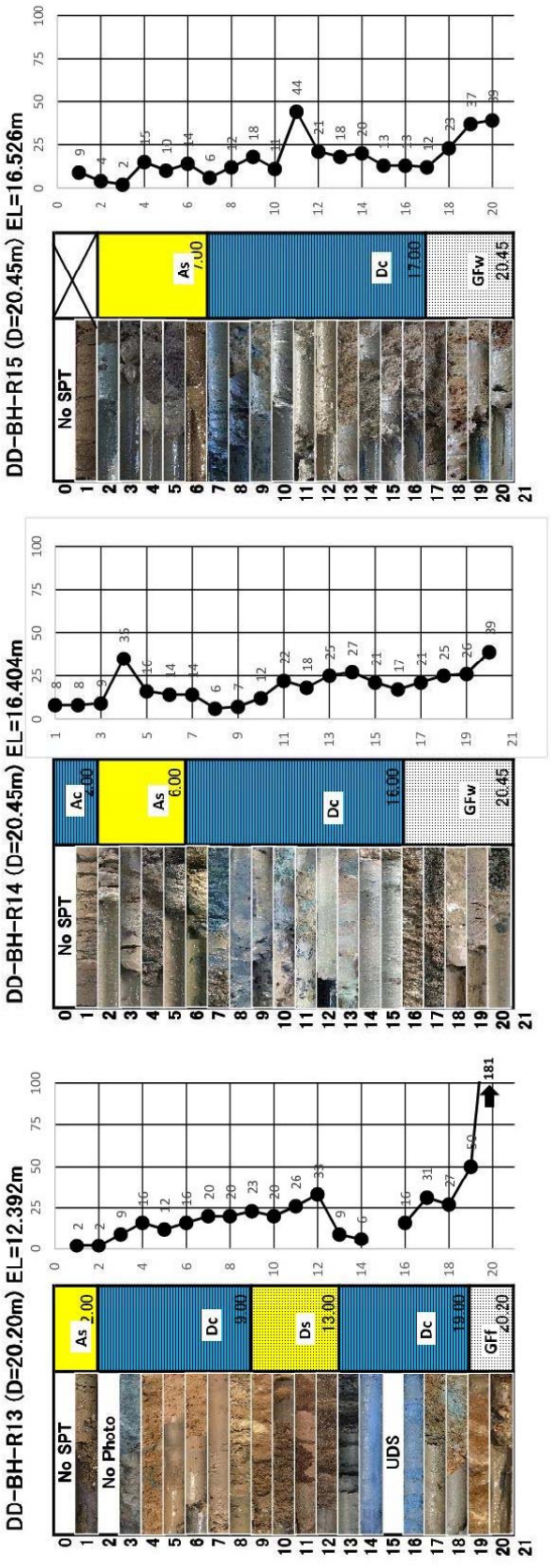

Figure 5-3-2（11/17）BORING LOGS（PHASE IV）with Core Photos

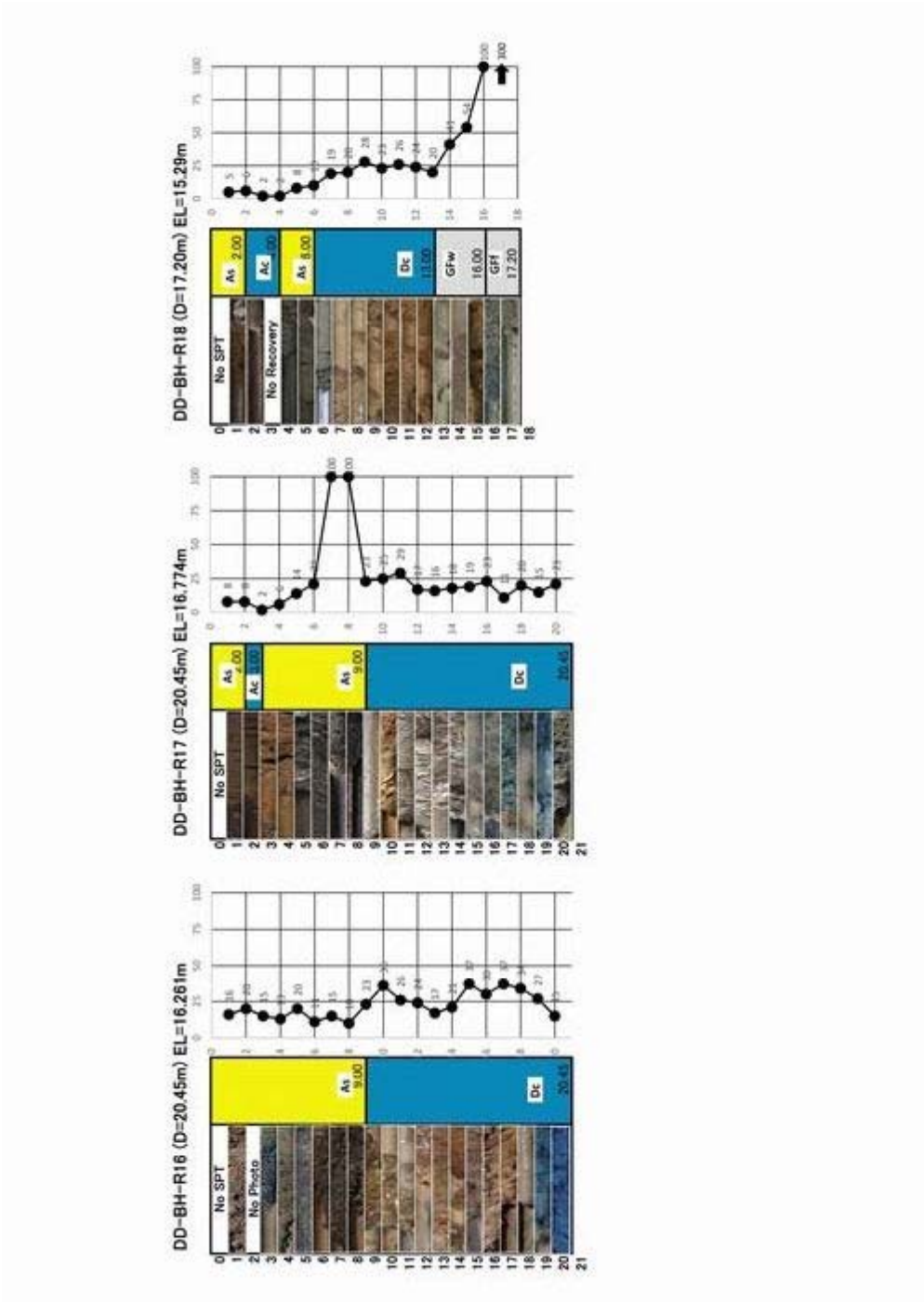

Figure 5-3-2（12/17）BORING LOGS（PHASE IV）with Core Photos

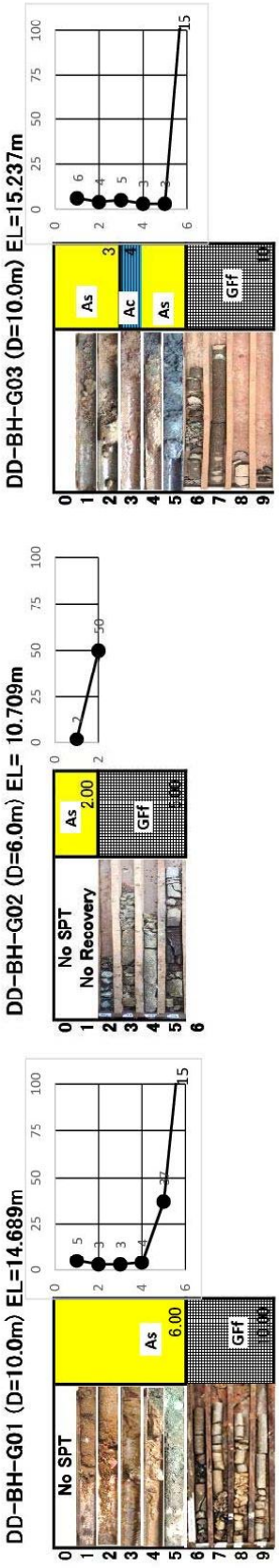

Figure 5-3-2（13/17）BORING LOGS（PHASE IV）with Core Photos

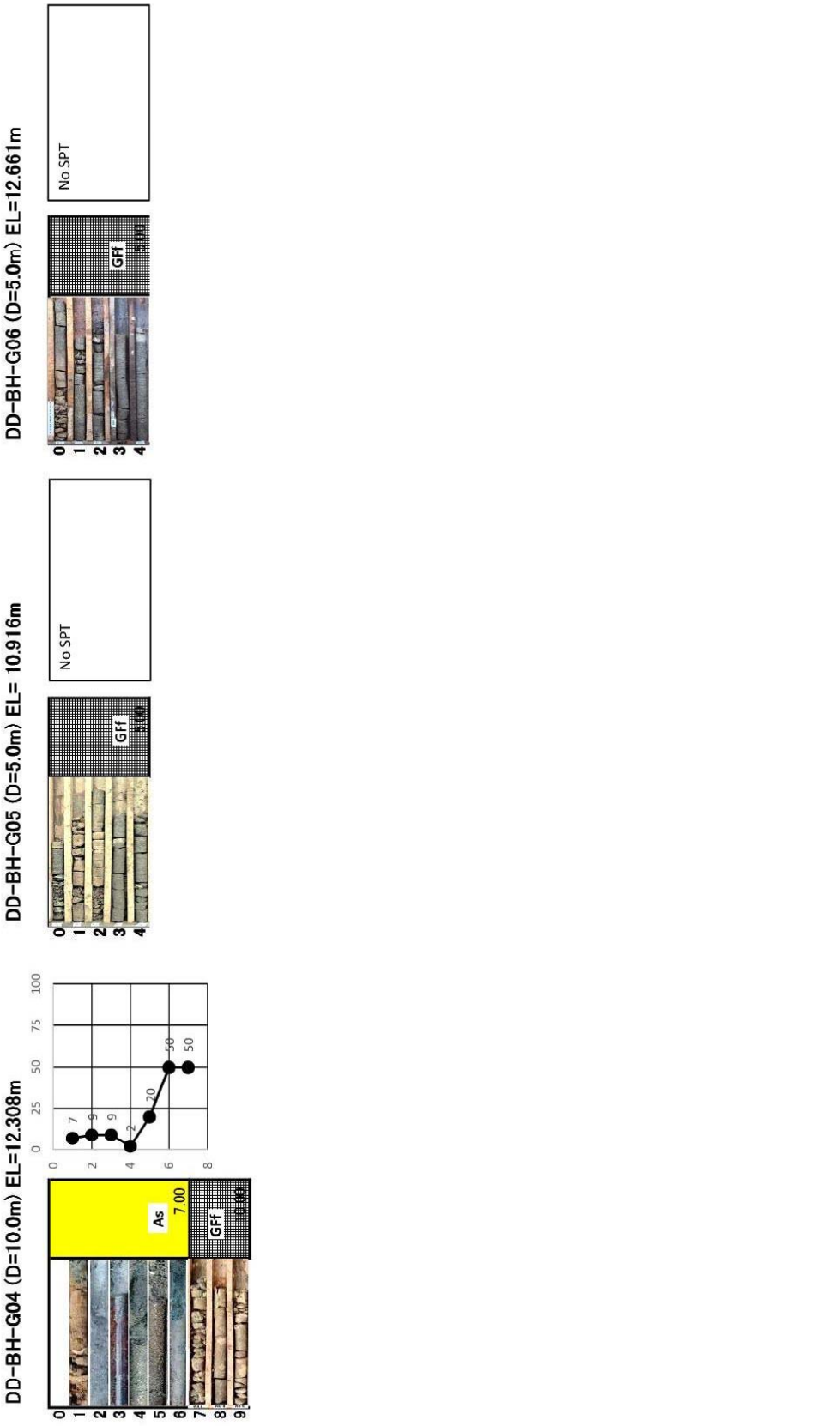

Figure 5-3-2（14/17）BORING LOGS（PHASE IV）with Core Photos

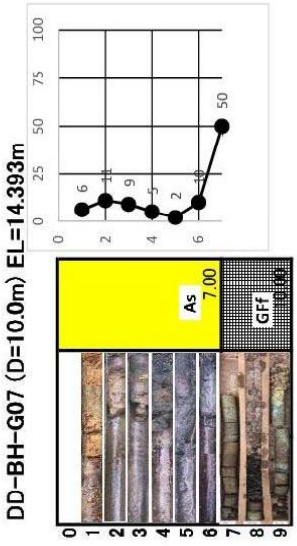

Figure 5-3-2（15/17）BORING LOGS（PHASE IV）with Core Photos

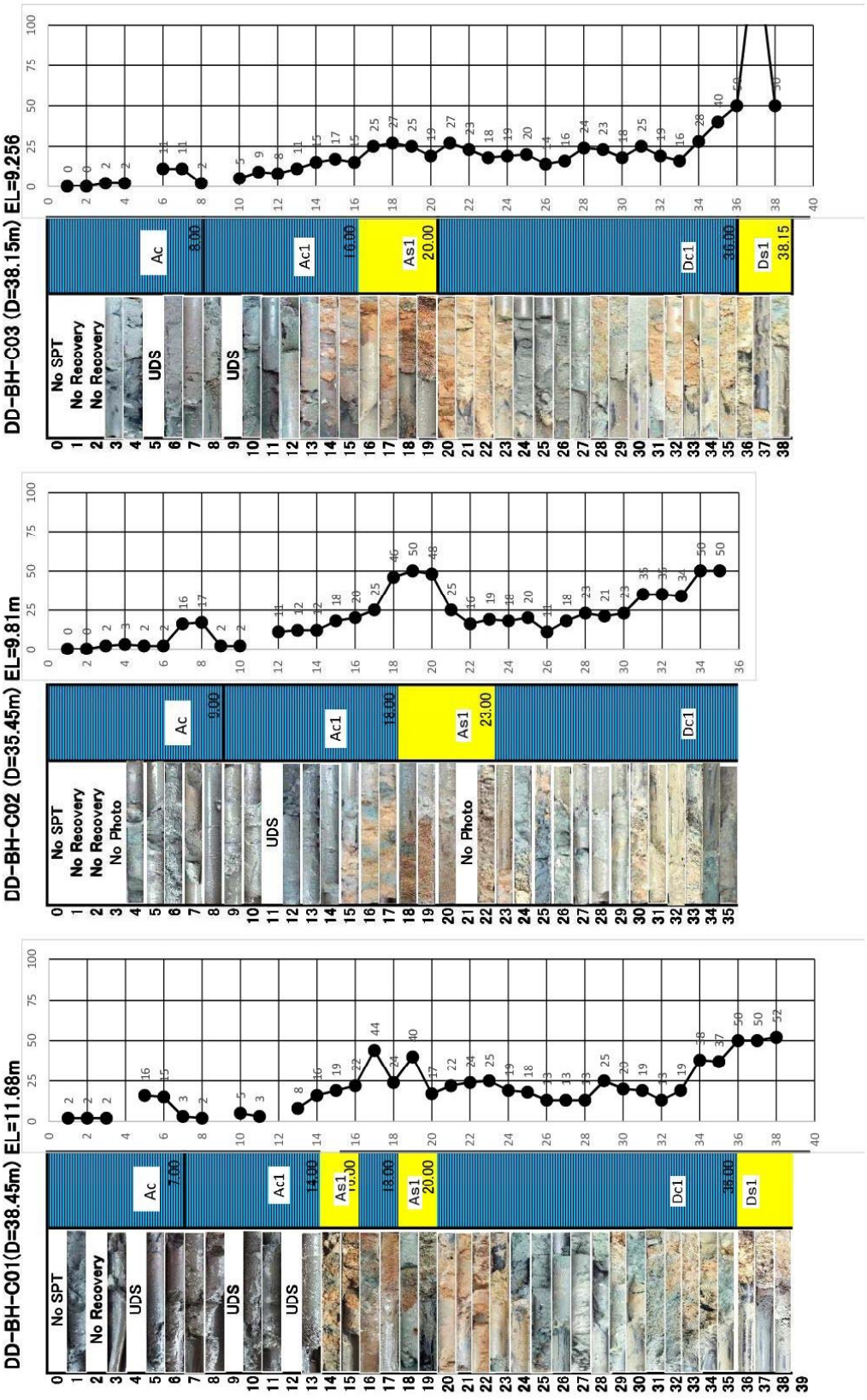

Figure 5-3-2（16/17）BORING LOGS（PHASE IV）with Core Photos

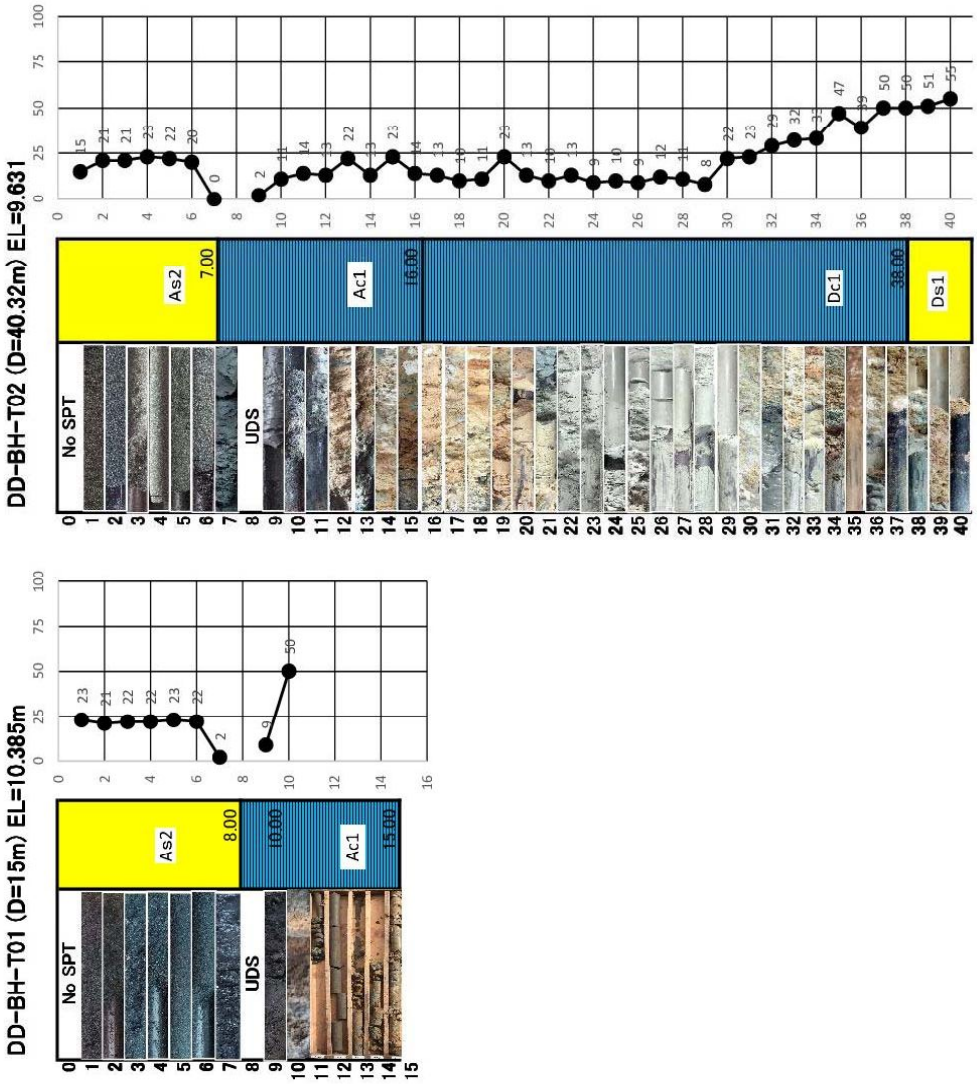

Figure 5-3-2（17/17）BORING LOGS（PHASE IV）with Core Photos