

# Chapter 1 General Principles

## 1 Scope

The purpose of this guideline (draft) is to accurately prepare a borehole log and to correctly handle and store drilled cores.

## 2 Types of borehole logs

The types of borehole logs stipulated by this guideline (draft) are a borehole log in rock mass, a borehole log in soil (for core drilling), a borehole log in soil (for standard penetration test), a borehole log in a landslide (for core drilling) and a borehole log in a landslide (for standard penetration test ).

## 3 Scope of application

The guideline (draft) applies to preparing borehole logs including drilling in rock mass, drilling in soil (for core drilling), drilling in soil (for standard penetration test ), drilling in a landslide (for core drilling) and drilling in a landslide (for standard penetration test), drilled core photographs, and handling and storing drilled cores.

## 4 Constitution

This guideline (draft) consists of a title section, a log of boreholes in rockmass log, a log of boreholes in soil (for core drilling), a log of boreholes in soil (for standard penetration test ), a log of boreholes in a landslide (for core drilling) and a log of boreholes in a landslide (for standard penetration test), drilled core photographs, and handling and storing drilled cores and reference documents.

## 5 Electronic delivery

Electronic delivery of borehole logs and drilled core photos etc. prepared according to this guideline (draft), are done according to “Guideline for Electric Delivery of Geological and Soil Investigation Results (draft) ”.

## 6 Terms and definitions

The following are definitions of major terms used in this guideline (draft).

(1) Drilling

Drilling a bore hole in ground using a machine.

(2) Drilling in rock mass

Drilling a borehole in rock mass consisting of consolidated rock.

(3) Drilling in soil

Drilling a borehole in unconsolidated sedimentary deposits of various kinds.

(4) Drilling in a landslide

Drilling a borehole in a landslide.

(5) Core drilling

Drilling to obtain a full-length drilled core.

(6) Borehole log

A figure that shows geological classification based on engineering properties clarified by a drilling investigation, tests, or geophysical logging arranged in sequence by depth (based on JIS A 0206<sup>1)</sup>).

(7) Drilled core

Cylindrical sample obtained by drilling.

(8) Name of geological classification based on engineering properties

Rock name combining a rock name categorized based on geological systems with engineering geological information with regard to bedrock formed by consolidated rock.

(9) Site soil name

Soil name decided based on visual observation of unconsolidated sedimentary deposits of various kinds.

(10) Drilled core photograph

Images photographed with a digital camera of drilled cores stored in individual boxes.

(11) Connected drilled core photograph

Result of connecting images of drilled cores photographed in individual boxes on a computer to link the full length from the top to bottom of a borehole or a specified section of a borehole.

# Chapter 2 General Section

## 1 General section

Figure 2-1 shows the standard general section, and the following are rules for entering information.

Investigation title \_\_\_\_\_

Title of project or construction \_\_\_\_\_

Purpose and object of investigation \_\_\_\_\_

Borehole No.					Borehole location					Latitude		
Client					Drilling period					Longitude		
Contractor					Project engineer		Site coordinator		Core appraiser		Drilling supervisor	
Elevation of borehole top	m	Inclination from		Direction of non-vertical borehole		Inclination of ground		Drilling rig		Pump		
Total depth of drilling	m	vertical						Engine				

**Figure 2-1 General section**

## 2 Investigation title

In the investigation title box, the title of the ordered investigation is entered.

## 3 Title of project or construction

In the title of project or construction box, the title of project or construction is entered.

## 4 Purpose and object of investigation

In the purpose and object of investigation box, the purpose and object of the investigation are entered.

## 5 Borehole number

In the borehole number box, the borehole number is entered systematically according to the serial number of the investigation location etc.

## 6 Borehole location

In the borehole location box, the place-name of the location of the top of the borehole is entered including prefecture, subprefecture, municipality, district, and block. In the case of drilling in a landslide, the landslide block name is entered in parentheses.

## 7 Latitude and longitude

In the latitude and longitude box, the latitude and longitude of the top of the borehole are entered.

## **8 Client**

In the client box, the name of the client ordering the investigation is entered.

## **9 Drilling period**

In the drilling period box, the dates that the drilling begins and ends are entered.

## **10 Contractor and persons performing the drilling etc.**

In the contractor and persons performing the drilling box, as the contractor and persons performing the drilling, from among the project engineer, site coordinator, core appraiser, and drilling supervisor, people who actually performed the drilling work are entered.

## **11 Elevation of borehole top**

In the elevation of borehole top box, the elevation of borehole top is entered in units of 1/100m based on surveying results.

## **12 Total depth of drilling**

In the total depth of drilling box, the total depth of the drilling done is entered in 1/100m units.

## **13 Inclination from vertical**

In the inclination from vertical box, the angle formed by a vertical line and the vertical component in the borehole direction is entered.

## **14 Direction of non-vertical borehole**

In the direction of non-vertical borehole box, if the drilling is inclined, the horizontal component in the borehole direction is entered based on the 360°orientation method moving right from true north.

## **15 Inclination of ground**

In the inclination of ground box, the average inclination for about 5 m on the slope above and below the center of the borehole top is entered.

## **16 Drilling equipment**

In the machines used box, the names of the manufacturers of, model numbers of, and capabilities of the drill rig, engine, and pump are entered.

# Chapter 3 Log of Borehole in Rock Mass

## 1 Borehole log

Figure 3-1 shows the standard log form used for drilling in rock mass, and the following are rules for entering information.

		Conditions of drilling																		
		Returned water rate (L/min)	Drilling fluids and flow rate (L/min)	Injected water pressure (MPa)	Revolution speed (rpm)	Supply pressure (MPa)	Sample tube and drill bit	Borehole diameter (mm) and borehole wall stabilizing	Drilling rate (cm/h)	Drilling date	Testing (3)									
		Testing (2)	Testing (1)	Ground water level / Measurement date	Description	Core recovery (%)	Max. length of core pieces (cm)	RQD(%)	Rock classification	State of discontinuity	Discontinuity spacing	Hardness	Degree of hydrothermal alteration	Degree of weathering	Color tones	Geological classification based on engineering properties	Geological classification based on engineering properties (graphic symbols)	Depth (m)	Elevation (m)	Scale mark (m)
						0	50	100										1		
																		2		
																		3		
																		4		
																		5		

Figure 3-1 Form of a log of borehole in rock mass

## 2 Scale mark

The scale mark is entered starting from the borehole top in 1 m units. The borehole deepening work is also done with the borehole top as the starting point. The scale of the scale mark on the borehole log is, in principle, 1/100.

## 3 Elevation

In the elevation box, the elevation of each boundary of geological classification based on engineering properties names etc. is entered. The elevation is also calculated and entered for inclined boring.

#### **4 Depth**

In the depth box, the depth of each boundary of geological classification based on engineering properties names etc. is entered based on distance from the borehole top.

#### **5 Geological classification based on engineering properties (graphic symbols)**

In the geological classification based on engineering properties (graphic symbols) box, rock type etc. are entered based on graphic symbols.

#### **6 Geological classification based on engineering properties**

In the geological classification based on engineering properties box, rock type etc. are entered.

#### **7 Color tones**

In the color tones box, the color of the core observed in wet condition in bright natural light is entered.

#### **8 Degree of weathering**

In the degree of weathering box, the degree of weathering is categorized based on the state of alteration or oxidization of the constituent minerals of the rock and the code is entered.

#### **9 Degree of hydrothermal alternation**

In the degree of hydrothermal alternation box, the degree of hydrothermal alteration is categorized based on the state of alteration of the constituent minerals of the rock and the code is entered.

#### **10 Hardness**

In the hardness box, the hardness of drilled core is categorized by hammering it and the code is entered.

#### **11 Discontinuity spacing**

In the discontinuity spacing box, mainly the discontinuity spacing is categorized and the code is entered.

#### **12 State of discontinuity**

In the state of discontinuity box, the degree of weathering and alteration along the discontinuity and the discontinuity aperture etc. are categorized and the codes are entered.

### **13 Rock classification**

In the rock classification box, the rock classification is appraised and entered based on hardness, discontinuity spacing, state of discontinuity, weathering, hydrothermal alternation, core recovery, maximum core length, RQD and other rock mass properties.

### **14 Core recovery, maximum length of core pieces or RQD**

In the core recovery, maximum length of core pieces or RQD box, the values of core recovery per sampler lift (for drilling length of each run), maximum length of core pieces in 1 m sections or RQD are plotted and entered along with numerical values.

### **15 Remarks**

In the remarks box, any other noteworthy items are entered.

### **16 Description**

In the description box, any matters which could not be entered among any matters stipulated until now are entered.

### **17 Ground water level**

In the ground water level box, the water levels inside the borehole at the start of drilling each day are entered accompanied by the dates of measurement.

### **18 Testing (1)**

In the testing (1) box, the name of the test using the borehole and drilled core is entered and the diagram after analyzing and calculated values for these tests are also entered.

### **19 Testing (2)**

In the testing (2) box, the test section depth and test name etc. for tests other than those in "18 Testing (1)" are entered.

### **20 Testing (3)**

In the testing (3) box, the test section depth and test name etc. for tests other than those in "18 Testing (1)" and "19 Testing (2)" are entered.

### **21 Drilling date**

In the drilling date box, the depth of section drilled each day and dates are entered.

## **22 Drilling rate**

In the drilling rate box, drilling rate is calculated by the drilled section length and time required for each drilling and entered.

## **23 Borehole diameter and borehole wall stabilizing**

In the borehole diameter and borehole wall stabilizing box, the borehole diameter, and in the case where the borehole wall was protected, the method and section depth are entered.

## **24 Sample tube and drill bit**

In the sample tube and drill bit box, the types of sample tube and core bit used for the drilling along with the drilled section depth are entered.

## **25 Supply pressure**

In the supply pressure box, the supply pressure during drilling is entered.

## **26 Revolution speed**

In the revolution speed box, the revolution speed during drilling is entered.

## **27 Injected water pressure**

In the injected water pressure box, the injected water pressure during drilling is entered.

## **28 Drilling fluids and flow rate**

In the drilling fluids and flow rate box, the type of drilling fluids, depth of each drilled section used, and flow rate of water during drilling are entered.

## **29 Returned water rate**

In the returned water rate box, the rate of returned water during drilling is entered.





#### **4 Depth**

In the depth box, the depth of each boundary of site soil names etc. is entered based on distance from the borehole top.

#### **5 Site soil name (graphic symbols)**

In the site soil name (graphic symbols) box, the site soil name etc. is entered by graphic symbols.

#### **6 Site soil name**

In the site soil name box, the site soil name is categorized and entered based on visual observation.

#### **7 Classification of geomaterials**

In the classification of geomaterials box, the drilled core is entered categorized based on the technical standard by the Japanese Geotechnical Society (JGS 00513).

#### **8 Color tones**

In the color tones box, the color of the core observed in wet condition in bright natural light is entered.

#### **9 Relative consistency**

In the relative consistency box, the relative consistency is judged on site and entered.

#### **10 Core recovery, maximum length of core pieces**

In the core recovery and maximum length of core pieces box, the core recovery for each sampler lift (drilled length for each run), and maximum length of core pieces for each 1 m section are plotted and entered by numerical values.

#### **11 Remarks**

In the remarks box, any other noteworthy items are entered.

#### **12 Description**

In the description box, any matters which could not be entered among any matters stipulated until now are entered.

### **13 Ground water level**

In the ground water level box, the water levels inside the borehole at the start of drilling each day are entered accompanied by the dates of measurement.

### **14 Testing (1)**

In the testing (1) box, the depth of testing sections of the testing done using the borehole and drilled core, or sampling depths, sample numbers, sampling method, test name and test number are entered. And if they can be entered, the test results are entered.

### **15 Testing (2)**

In the testing (2) box, the test section depth and test name etc. for tests other than those in “14 Testing (1)” are entered.

### **16 Testing (3)**

In the testing (3) box, the test section depth and test name etc. for tests other than those in “14 Testing (1)” and “15 Testing (2)” are entered.

### **17 Drilling date**

In the drilling date box, the depth of section drilled each day and dates are entered.

### **18 Drilling rate**

In the drilling rate box, drilling rate is calculated by the drilled section length and time required for each drilling and entered.

### **19 Borehole diameter and borehole wall stabilizing**

In the borehole diameter and borehole wall stabilizing box, the borehole diameter, and in the case where the borehole wall was protected, the method and section depth are entered.

### **20 Sample tube and drill bit**

In the sample tube and drill bit box, the types of sample tube and core bit used for the drilling along with the drilled section depth are entered.

### **21 Supply pressure**

In the supply pressure box, the supply pressure during drilling is entered.

## **22 Revolution speed**

In the revolution speed box, the revolution speed during drilling is entered.

## **23 Injected water pressure**

In the injected water pressure box, the injected water pressure during drilling is entered.

## **24 Drilling fluids and flow rate**

In the drilling fluids and flow rate box, the type of drilling fluids, depth of each drilled section used, and flow rate of water during drilling are entered.

## **25 Returned water rate**

In the returned water rate box, the rate of returned water during drilling is entered.



#### **4 Depth**

In the depth box, the depth of each boundary of site soil names etc. is entered based on distance from the borehole top.

#### **5 Site soil name (graphic symbols)**

In the site soil name (graphic symbols) box, the site soil name etc. is entered by graphic symbols.

#### **6 Site soil name**

In the site soil name box, the site soil name is categorized and entered based on visual observation.

#### **7 Classification of geomaterials**

In the classification of geomaterials box, the drilled core is entered categorized based on the technical standard by the Japanese Geotechnical Society (JGS 00513).

#### **8 Color tones**

In the color tones box, the color of the core observed in wet condition in bright natural light is entered.

#### **9 Relative density, relative consistency**

In the relative density box, the relative density is assessed based on the N-value for a case where a standard penetration test was performed, and a code is entered. In the relative consistency box, the relative consistency is assessed on site and a code is entered.

#### **10 Remarks**

In the remarks box, any other noteworthy items are entered.

#### **11 Description**

In the description box, any matters which could not be entered among any matters stipulated until now are entered.

#### **12 Ground water level**

In the ground water level box, the water levels inside the borehole at the start of drilling each day are entered accompanied by the dates of measurement.

### **13 Standard penetration test**

In the standard penetration test box, for each 100mm of test depth, the number of blows and the number of percussions/penetration are entered. The  $N$ -value is represented by the line graph and entered along with a numerical value.

### **14 Testing (1)**

In the testing (1) box, the depth of testing sections of the testing done using the borehole and drilled core, or sampling depths, sample numbers, sampling method, test name and test number are entered. And if they can be entered, the test results are entered.

### **15 Testing (2)**

In the testing (2) box, the test section depth and test name etc. for tests other than those in “14 Testing (1)” are entered.

### **16 Testing (3)**

In the testing (3) box, the test section depth and test name etc. for tests other than those in “14 Testing (1)” and “15 Testing (2)” are entered.

### **17 Drilling date**

In the drilling date box, the depth of section drilled each day and dates are entered.





#### **4 Depth**

In the depth box, the depth of each boundary of geological classification based on engineering properties names or site soil names etc. is entered based on distance from the borehole top.

#### **5 Geological classification based on engineering properties name (graphic symbols) or site soil name (graphic symbols)**

In the geological classification based on engineering properties name (graphic symbols)/site soil name (graphic symbols) box, the rock type or site soil name etc. are entered by graphic symbols.

#### **6 Geological classification based on engineering properties name or site soil name**

In the geological classification based on engineering properties name box, the rock type is entered. In the site soil name box, the site soil name is categorized and entered based on visual observation.

#### **7 Color tones**

In the color tones box, the color of the core observed in wet condition in bright natural light is entered.

#### **8 Degree of weathering**

In the degree of weathering box, the degree of weathering is categorized based on the state of alteration or oxidization of the constituent minerals of the rock and the code is entered.

#### **9 Degree of hydrothermal alternation**

In the degree of hydrothermal alternation box, the degree of hydrothermal alteration is categorized based on the state of alteration of the constituent minerals of the rock and the code is entered.

#### **10 Degree of crushing**

In the degree of crushing box, the degree of crushing due to landslide movement etc. is categorized and entered.

#### **11 Hardness and relative consistency**

In the hardness box, the hardness of a rock fragment is categorized by hammering and the code is entered. In the relative consistency box, the relative consistency is assessed on site and the code is entered.

## **12 Core recovery**

In the core recovery box, the values of core recovery per sampler lift (for drilling length of each run) are entered along with numerical values.

## **13 Description**

In the description box, any matters which could not be entered among any matters stipulated until now are entered.

## **14 Core weight**

In the core weight box, the depth of the section where the core was weighed and its weight are entered.

## **15 Groundwater prospecting**

When groundwater prospecting was done, the prospecting method performed and its results are entered in the groundwater prospecting box. Resistivity is plotted and detected sections are also entered.

## **16 Testing (1)**

In the testing (1) box, the test section depth and test name etc. for tests other than those in “15 Groundwater prospecting” are entered.

## **17 Testing (2)**

In the testing (2) box, the test section depth and test name etc. for tests other than those in “15 Groundwater prospecting” and “16 Testing (1)” are entered.

## **18 Drilling date**

In the drilling date box, the depth of section drilled each day and dates are entered.

## **19 Depth of casing bottom**

In the depth of casing bottom box, the depth when the work is completed on the drilling date is entered.

## **20 Ground water depth**

In the ground water depth box, the water levels in the borehole before and after the work of drilling on the drilling date and the stable water level after the completion of all work are entered.

## **21 Borehole diameter**

In the borehole diameter box, the borehole diameter is entered.

## **22 Method**

In the method box, the method of borehole wall stabilizing used is entered by a code.

## **23 Reason**

In the reason box, the reason for executing borehole wall stabilizing is entered.

## **24 Screen pipe**

In the screen pipe box, if a screen pipe was installed after completion of drilling, its specifications are entered.

## **25 Drilling rate**

In the drilling rate box, drilling rate is calculated by the drilled section length and time required for each drilling and entered.

## **26 Sample tube and drill bit**

In the sample tube and drill bit box, the types of sample tube and core bit used for the drilling along with the drilled section depth are entered.

## **27 Supply pressure**

In the supply pressure box, the supply pressure during drilling is entered.

## **28 Revolution speed**

In the revolution speed box, the revolution speed during drilling is entered.

## **29 Injected water pressure**

In the injected water pressure box, the injected water pressure during drilling is entered.

## **30 Drilling fluids and flow rate**

In the drilling fluids and flow rate box, the type of drilling fluids, depth of each drilled section used, and flow rate of water during drilling are entered.

## **31 Returned water rate**

In the returned water rate box, the rate of returned water during drilling is entered.

# Chapter 7 Log of Borehole in Landslide (For Standard Penetration Test)

## 1 Borehole log

Figure 7-1 is the standard log used for drilling in a landslide for standard penetration test and the following are the instructions for entering information.

Description	Standard penetration test				Testing (1)	Testing (2)	Testing (3)	Ground water level for each drillin date		Borehole wall stabilizing		Screen pipe	Conditions of drilling	
	Depth — N-value	Penetration when SPT sampler was settled	Penetration at 50 (100) times blows	Penetration for each blow				Reason	Method	Depth of casing bottom	Ground water level		Borehole diameter (mm)	Returned water rate (L/min)
Relative density														
Hardness and relative consistency														
Degree of crushing														
Degree of hydrothermal alteration														
Degree of weathering														
Color tones														
Geological classification based on engineering properties														
Geological classification based on engineering properties (graphic symbols)														
Depth (m)														
Elevation (m)														
Scale mark (m)														

Figure 7-1 Form of a log of borehole in landslide (for standard penetration test)

## 2 Scale mark

The scale mark is entered starting from the borehole top in 1 m units. The borehole deepening work is also done with the borehole top as the starting point. The scale of the scale mark on the borehole log is, in principle, 1/100.

## 3 Elevation

In the elevation box, the elevation of each boundary of geological classification based on engineering properties names or site soil names etc. is entered. The elevation is also calculated and entered for inclined boring.

#### **4 Depth**

In the depth box, the depth of each boundary of geological classification based on engineering properties names or site soil names etc. is entered based on distance from the borehole top.

#### **5 Geological classification based on engineering properties name (graphic symbols) or site soil name (graphic symbols)**

In the geological classification based on engineering properties name (graphic symbols)/site soil name (graphic symbols) box, the rock type or site soil name etc. are entered by graphic symbols.

#### **6 Geological classification based on engineering properties name or site soil name**

In the geological classification based on engineering properties name box, the rock type is entered. In the site soil name box, the site soil name is categorized and entered based on visual observation.

#### **7 Color tones**

In the color tones box, the color of the core observed in wet condition in bright natural light is entered.

#### **8 Degree of weathering**

In the degree of weathering box, the degree of weathering is categorized based on the state of alteration or oxidization of the constituent minerals of the rock and the code is entered.

#### **9 Degree of hydrothermal alternation**

In the degree of hydrothermal alternation box, the degree of hydrothermal alteration is categorized based on the state of alteration of the constituent minerals of the rock and the code is entered.

#### **10 Degree of crushing**

In the degree of crushing box, the degree of crushing due to landslide movement etc. is categorized and entered.

## **11 Hardness and relative consistency**

In the hardness box, the hardness of a rock fragment is categorized by hammering and the code is entered. In the relative consistency box, the relative consistency is assessed on site and the code is entered.

## **12 Relative density**

In the relative density box, the relative density is assessed based on the  $N$ -value for a case where a standard penetration test was performed, and a code is entered.

## **13 Description**

In the description box, any matters which could not be entered among any matters stipulated until now are entered.

## **14 Standard penetration test**

In the standard penetration test box, for each 100 mm of test depth, the number of blows and the number of blows/penetration are entered. The numerical value of the  $N$ -value is entered.

## **15 Testing (1)**

In the testing (1) box, the test section depth and test name etc. are entered.

## **16 Testing (2)**

In the testing (2) box, the test section depth and test name etc. for tests other than those in “15 Testing (1)” are entered.

## **17 Testing (3)**

In the testing (3) box, the test section depth and test name etc. for tests other than those in “15 Testing (1)” and “16 Testing (2)” are entered.

## **18 Drilling date**

In the drilling date box, the depth of section drilled each day and dates are entered.

## **19 Depth of casing bottom**

In the depth of casing bottom box, the depth when the work is completed on the drilling date is entered.

## **20 Ground water depth**

In the ground water depth box, the water levels in the borehole before and after the work of drilling on the drilling date and the stable water level after the completion of all work are entered.

## **21 Borehole diameter**

In the borehole diameter box, the borehole diameter is entered.

## **22 Method**

In the method box, the method of borehole wall stabilizing used is entered by a code.

## **23 Reason**

In the reason box, the reason for executing borehole wall stabilizing is entered.

## **24 Groundwater prospecting**

When groundwater prospecting was done, the prospecting method performed and its results are entered in the groundwater prospecting box.

## **25 Screen pipe**

In the screen pipe box, if a screen pipe was installed after completion of drilling, its specifications are entered.

## **26 Sample tube and drill bit**

In the sample tube and drill bit box, the types of sample tube and core bit used for the drilling along with the drilled section depth are entered.

## **27 Drilling fluids and flow rate**

In the drilling fluids and flow rate box, the type of drilling fluids, depth of each drilled section used, and flow rate of water during drilling are entered.

## **28 Returned water rate**

In the returned water rate box, the rate of returned water during drilling is entered.

## **Chapter 8 Drilled Core Photographs**

### **1 Scope of application**

This chapter applies to taking photographs of drilled cores.

### **2 Drilled core photographs**

#### **2-1 Drilled core photographs**

Drilled core photographs are taken with a digital camera to ensure picture quality with resolution of at least 1 mm or better.

#### **2-2 Test photographing and photographing method of drilled core photographs**

When taking drilled core photographs, a test photograph is always taken first to clarify photographic conditions capable of achieving resolution of about 1 mm or better, then information about a color sample and the drilled core are simultaneously photographed, with careful attention paid to the weather during photography, shadows during photography and the moisture content of each drilled core.

#### **2-3 File format and specifications of drilled core photographs**

The file format of drilled core photographs is basically JPEG format, and the number of recording pixels and compression ratio are such that picture quality does not decline. Corrections such as color calibration of the photographs taken must not be done.

### **3 Connected drilled core photographs**

#### **3-1 Specifications of connected drilled core photographs**

Connected drilled core photographs are prepared by connecting drilled core photographs taken of each box of cores on a computer.

#### **3-2 File specifications of connected drilled core photographs**

The file format of connected drilled core photographs is optional.



## **Chapter 9 Smplicated Log**

### **1 Configuration of simplified log**

A simplified log consists of parts showing attributes of boreholes and parts showing a simplified log.

### **2 Attributes of boreholes**

Attributes of boreholes always shown are boring number, borehole top elevation, and total borehole depth; while latitude and longitude, inclination from vertical, and direction of non-vertical borehole are shown as necessary.

### **3 Simplified log in the narrow sense**

A simplified log in the narrow sense always shows the scale mark, geological classification based on engineering properties (graphic symbols), and site soil name (graphic symbols), while necessary information from the logs specified from Chapter 3 through Chapter 7 is shown.

## Chapter 10 Methods of Handling and Storing Drilled Cores

### 1 Scope of application

This Chapter presents general standards for handling and storage methods of drilled cores, and does not apply to cases where, because of the purpose of the investigation etc., it is difficult to comply with this Chapter.

### 2 Core box

#### 2-1 External shape and dimensions

A core box has rectangular external shape, and the internal dimensions are length of 103 cm, so that the number of 100 cm long drilled cores it can hold are 5 pieces that are about 50 mm in diameter, 3 pieces that are about 70 mm in diameter, and 2 pieces that are about 100 mm in diameter.

#### 2-2 Markings

The following are marked on core boxes in waterproof ink, paint etc.

[1] Outside of lid

The investigation title, borehole number, core box number, depth interval, drilling period, and contractor are marked.

[2] Sides of the boxes

Boring number, core box number and depth interval are marked.

#### 2-3 Rim plates

On each side, a scale in 10cm units is marked from the left of the core box. The borehole number, core box number, section depth, and depth are marked.

#### 2-4 Partition

On the partition, a scale in 10 cm units is marked from the left side of the core box.

#### 2-5 Lid

The lid of a core box is in principle, removable.

#### 2-6 Material

The material of a core box is, in principle, wood, and it is adequately strong including hardware.

### **3 Handling drilled cores**

#### **3-1 Extracting a drilled core from inner tube**

When extracting a drilled core from inner tube, the drilled core is set on a holder and carefully arranged. When a drilled core is extracted, great care is taken to avoid damaging the drilled core by tapping the inner tube or breaking the drilled core.

#### **3-2 Cutting a drilled core**

A drilled core too long to be stored in a core box is cut with an electric cutter, and then stored in the core box.

#### **3-3 Storing a drilled core in a core box**

A drilled core that has been extracted from an inner tube and arranged in the core holder is stored in the specified core box for each 1m of depth.

#### **3-4 Inserting spacer plates**

A spacer plate is inserted for drilled length of each run. A spacer plate is marked with the borehole depth for each run. And so it will be used for a rock testing, when the drilled core has been pulled out, the spacer plate is inserted, and the depth above and below the section where it was pulled out and the sample number are marked on it.

#### **3-5 Cleaning the surface of drilled cores**

The drilled core surfaces are cleaned by the following procedure.

[1] The sleeve around the drilled core that has been taken out of the inner tube is peeled off.

[2] Mud cake adhering to the surface of the drilled core after the sleeve has been peeled off is carefully washed off.

#### **3-6 Photographing drilled cores**

The drilled cores are photographed immediately after the drilled cores that should be stored in the same core box have all be stored.

#### **3-7 Treatment of soft rock etc.**

When drilled cores made of soft rock or unconsolidated sediment that will deteriorate quickly after they are taken out of the inner tubes must be provided for laboratory testing, they must be inserted in PVC or acrylic tubes or sealed inside vinyl bags.

### **3-8 Indicating man-made cracks**

When a drilled core is cracked by hammering for example, a seal is attached indicating that the crack at the location was man-made.

### **3-9 Handling core boxes during transport**

When transporting core boxes containing drilled cores, great care is taken to prevent any damage to the drilled cores.

### **4 Storing drilled cores**

To prevent the deterioration of drilled cores, they are stored by appropriately managing the temperature and humidity of the core boxes.