



Standard Test Procedures Manual

Section: SAMPLING

Subject: SAMPLING FOR BORROW TYPE MATERIAL

1. SCOPE

1.1. Description of Test

This method covers the sampling of material from deep type borrow sources.

2. APPARATUS AND MATERIALS

2.1. Equipment Required

A suitable drilling rig equipped with a 150 mm auger.

Sample containers capable of retaining natural moisture content (e.g.: glass jars).

Munsel color chart.

Pocket penetrometer.

Large cotton bags (with tags).

3. PROCEDURE

3.1. Test Procedure

3.1.1. Preliminary Borrow Testing

Design Resident in consultation with the Materials section will give the location of the areas to be tested. The location of the test holes will be such as to provide samples that will be representative of the area. Drill test holes at an average of 0.8 km intervals.

Record the distance and direction from hubline and depths of the test holes at each site.

Section:

SAMPLING

Subject:

SAMPLING FOR BORROW TYPE MATERIAL

3.2. Borrow Testing

After reviewing the preliminary borrow testing, the Design Resident and A.M.S. will give the specific locations of the areas to be tested.

Drill a minimum of one additional test hole for each prospective site. If material varies greatly, a second, third or even fourth hole will be necessary.

Drill continuously until each sample depth is reached. Then the auger will be pulled up rather than twisted up in order to obtain a good sample.

Take moisture contents at 0.9 m, 1.5 m and then at every 1.5 m to a depth of 10.0 m. Color coding and penetrometer reading may be taken when sampling for moisture content. Moisture contents are required in topsoil and sand, but not gravel.

Record the depth of each material change as outlined in Figure 104-3.

Symbols used for geological soil classification are as follows:

TS - Sutherland Till

TB - Battleford Till

TF - Floral Till

u - Subscript to describe an unoxidized till, i.e., TFu

o - Subscript to describe an oxidized till, i.e., TFo

SI - Silt

CL - Clay

SD - Sand

GR - Gravel

Take 15-20 kg sample of each soil type from each pit location for further testing. Label all samples clearly as to hole number, station, depth and material type.

Record depth of water table. If free water is evident, leave holes open for sufficient time to determine actual water table elevation.

Standard Test Procedures Manual

STP 104-3

Section:
SOILS

Subject:
SAMPLING FOR BORROW TYPE MATERIAL

4. RESULTS AND CALCUATIONS

4.1. Reporting Results

Record station, depth, geological soil classification, percent moisture, color and penetrometer readings for each hole tested as illustrated in Figure 104-3.

5. ADDED INFORMATION

5.1. General

Use munsel color chart to color code all material at existing field moisture content.

Use STP 205-3 for testing moisture content.

All samples and material changes should be clearly defined and well documented.

FIGURE 104-3
TYPICAL FORM FOT BORROW

SASKATCHEWAN HIGHWAYS AND TRANSPORTATION
PIT TESTING

C.S. 310-01 DATE Dec. 31,1991 TECHNICIAN J. Tester

HOLE No.	STATION	OFFSET FROM C _L	DEPTH m	GEOL. SOIL CLASS	TARE NO.	% MOIST	COLOR	PEN	REMARKS
4	7+450		0.0-0.3	TS					
			0.3-0.9	TB	7 at 0.9	18.5	2.5Y5/4		
			0.9-1.5	TB	8 at 1.5	17.1	2.5y5/4	1.75	SAMPLE 18
			1.5-3.0	TB 2.8/TF	9.0 at 3.0	12.3	2.5y4/4	2.25	Fe stained
			3.0-4.5	TF	10 at 4.5	14.4	2.5y4/4	2.25	Fe stained
			4.5-6.0	TF	11 at 6.0	13.2	2.5y4/2	2.25	SAMPLE 19
			6.0-7.5	TF	12 at 7.5	13.5	2.5y4/3	2.25	
			7.5-9.0	TF	13 at 9.0	1.31	2.5y3/2	3.0	Wet Seam at
	9.0-10.5	TF							

Standard Test Procedures Manual

STP 104-3

Section:
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Subject:
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APPROVAL SHEET

New Revision X Date of Previous Document 85-04-01

Effective Date: - -

Description of Revision (Reason for Revision):

- Format of test procedure updated.

Review/Implementation Process:

- Reviewed by the Materials Section of the Technical Standards and Policies Branch.

Other Manuals/Policies Affected:

Nil

Follow Up/Training Required:

Nil

Comments/Concerns/Implications (Budget/Environment/Stakeholders):

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Quality Control Engineer Date

Approval Recommended by R.A. Widger - -
Senior Materials Engineer Date

Approval Recommended by A.R. Gerbrandt - -
Dir., Technical Standards & Policies Br. Date

Approved by D.G. Metz - -
Assistant Deputy Minister, Infrastructure Date

Electronic File Updated - -
Update Mailed - -