Appendix B
Historical Geotechnical Data

December 2019

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LIST OF ANNEXES

LIST OF ACRONYMS AND SYMBOLS

CPTu	Cone penetration test
CR	Compression ratio
DMT	Marchetti dilatometer test
DOC	Degree of compaction
INA	*Indicadore de nivel d'água* (water level indicator)
m msl	Meters, Mean sea level
PPD	Pore pressure dissipation
SIRGAS2000	*Sistema de Referencia Geocéntrico para las Américas 2000*
SBT	Soil behavior type
SPT	Standard penetration test
TXAPU	Anisotropically consolidated undrained triaxial with pore pressure increase
TXICU	Isotropically consolidated undrained triaxial compression
TXK_0CU	K_0-consolidated undrained triaxial compression
TXACU	Anisotropically consolidated undrained triaxial compression
FVT	Field vane shear test
c	Coefficient of consolidation
$c_{v,NC}$	Normally consolidated coefficient of consolidation
$c_{v,OC}$	Overconsolidated coefficient of consolidation
e	Void ratio
e_0	*In situ* void ratio
G	Specific gravity of solids
K	Hydraulic conductivity
K_0	Coefficient of lateral earth pressure defined as the ratio of the horizontal effective stress to the vertical effective stress
M	Constrained modulus
p'	Mean effective stress
q	Shear stress
q_t	Corrected cone resistance
r_0	Radius of the CPTu penetrometer
$s_{u,FV}$	Undrained shear strength measured from a field vane shear test
$s_{u,rem,FV}$	Remolded undrained shear strength measured from a field vane shear test
t_{50}	Measured time for 50% consolidation to occur
T_{50}	Modified theoretical time factor for 50% consolidation for a cone with pore pressure sensor in the u_2 position
w_0	*In situ* water content

α_M	Empirical factor to estimate the constrained modulus based on the normalized cone resistance
γ_w	Unit weight of water
σ'_p	Apparent preconsolidation stress
σ_{v0}	Total overburden stress

1. INTRODUCTION

This Appendix presents a compilation of selected geotechnical information and data obtained from geotechnical field and laboratory tests performed prior to the failure of the Vale S.A. ("Vale") Córrego do Feijão Mine Dam I ("Dam I") in Brumadinho, Brazil.

Field tests included cone penetration tests with measurement of pore pressure dissipation (CPTu), constant-head infiltration tests, field vane shear tests (FVT), and seismic shear wave velocity (Vs) measurements. Laboratory tests include: index tests (water content, specific gravity, and Atterberg limits); grain size distribution analyses; isotropically consolidated undrained triaxial compression test (TXICU), K_0-consolidated undrained triaxial compression test (TXK_0CU), anisotropically consolidated undrained triaxial compression test (TXACU), anisotropically consolidated undrained triaxial test with pore pressure increase (TXAPU), one-dimensional incremental loading consolidation tests, and chemical composition and mineralogy.

Data were considered to be sufficiently reliable for inclusion in this Appendix when they were accompanied by information about their source, test location and depth, test sample and testing methodology descriptions, and were developed using standard methodologies.

Some of the reviewed data were not developed using standard methodologies and/or did not include sufficient information about their source, test location and depth, and/or test sample and testing methodology descriptions to be deemed sufficiently reliable for inclusion in this Appendix. For example, most of the information regarding embankment materials and foundation soils was insufficient to determine data source or sample location and depth. In addition, certain borehole logs provided limited information regarding the soils encountered during drilling and/or did not specify sample/test depths, locations, or sampling procedures. Furthermore, although standard penetration tests (SPTs) were performed at various locations over the dam's history, the methodology utilized typically was not reported, and the test results generally were found to not correlate well with other tests on similar materials. Accordingly, the SPTs were considered not to provide a consistent or reliable indication of the characteristics of the *in situ* materials.

All Northing and Easting coordinates presented in this Appendix are referenced to the *Sistema de Referencia Geocéntrico para las Américas 2000* (SIRGAS2000) Zone 23S in meters (m), and elevations are referenced to meters (m), relative to mean sea level (msl). Contours presented in the location plan figures were obtained from a 2018 topographic survey.

2. LABORATORY AND FIELD TEST DESCRIPTIONS

This section summarizes the categories of field and laboratory test data presented in this Appendix.

2.1 Field Test Data

The field test data presented in this Appendix were obtained from the results of tests performed during the following geotechnical field explorations:

- CPTu tests and FVTs performed by In Situ Geotecnia Ltda. in 2005;
- CPTu tests, FVTs, and seismic shear wave velocity measurements conducted by Fugro In Situ Geotecnia Ltda. in 2016; and
- Infiltration tests, CPTu tests, and seismic shear wave velocity measurements performed by Fugro In Situ Geotecnia Ltda. in 2018.

Locations of field tests are presented in Figure 2-1a. Figures 2-1b through 2-1e present the approximate locations of CPTu tests, constant-head infiltration tests, FVTs, and seismic shear wave velocity tests. Tables 2-1 through 2-3 summarize the approximate CPTu, FVT, and seismic shear wave velocity measurement test location coordinates and elevations. The results of these field tests are discussed in Section 4 of this Appendix.

2.2 Laboratory Test Data

The laboratory test data summarized in this Appendix were obtained from tests performed as follows:

- index properties and grain size distribution performed by Tecnosan Engenharia S.A. in 1983;
- index properties and grain size distribution reported by Tecnosolo S.A. in 2003;
- index properties, grain size distribution, and TXACUs reported by Geolabor Engenharia in 2006; and
- grain size distribution reported by Geoconsultoria Ltda; grain size distribution and TXK_0CU reported by Grupo Georadar; grain size distribution, TXICU, TXAPU, and incremental loading consolidation tests performed by Pattrol Investigações Geotécnicas Ltda.; and TXICU performed by Geocontrole Br Sondagens SA. All of these tests were performed in 2016.

Most of the laboratory test data summarized in the Appendix are from tests performed on samples of tailings. Few reports of tests performed on embankment materials (and none from foundation (natural soil) materials) provided sufficient information to determine the source of the data and the sample's location. The laboratory test data includes index tests (water content, specific gravity, and Atterberg limits), grain size distribution analyses, and TXICU, TXACU, and TXAPU

tests. TXICU tests were performed on intact and reconstituted samples. TXK_0CU, TXACU, and TXAPU tests were performed only on intact samples. Incremental-loading consolidation tests were performed only on reconstituted samples.

Figure 2-2 presents the approximate exploration locations from which samples used in laboratory tests were collected. Table 2-4 summarizes the approximate location coordinates and ground elevations of the explorations shown in Figure 2-2.

3. GENERALIZED SUBSURFACE CONDITIONS

In this Appendix, the subsurface soil conditions at the site are characterized based on CPTu results by using normalized soil type behavior (SBT) charts[1] to interpret the soil type encountered during testing. SBT charts group soils that exhibit similar engineering behavior properties allowing interpretation of soil type based on the normalized cone resistance and friction test results.

Figures 3-1a through 3-1g present generalized subsurface cross-sections along section lines 1-1' through 3-3' (perpendicular to the axis of the dam) and section lines A-A' through D-D' (parallel to the axis of the dam). The locations of the section lines relative to the CPTu locations are shown in Figure 2-1b. The soil behavior type calculations developed in this Appendix from the CPTu results indicate that the tailings and embankment materials used for the dam raisings consisted primarily of sands, silty sands, and sandy silts. Within the tailings near the embankment, the CPTu results also indicate that the materials are mostly coarse tailings (sand-like tailings) with layers of fine tailings (silt-like tailings).

4. FIELD TEST RESULTS

This section provides a summary of the results of the pore pressure dissipation (PPD) tests, hydraulic conductivity measurements from the constant-head infiltration tests, FVTs, and the seismic shear wave velocity measurements from downhole Marchetti dilatometer tests (DMTs). Figures 2-1b through 2-1e present the approximate CPTu, constant-head infiltration tests, FVTs, and shear wave velocity measurement locations, respectively.

4.1 <u>Pore Pressure Dissipation Tests</u>

The PPD tests that were performed in conjunction with the CPTu tests can be used to estimate the piezometric conditions at the site and evaluate the hydraulic conductivity (K) of the subsurface materials. PPD tests were primarily performed in layers of fine tailings, and their results represent

[1] Robertson, P.K. (2010). Soil behaviour type from the CPT: An update. Proceedings from CPT '10: *The 2nd International Symposium on Cone Penetration Testing*, (P.K. Robertson, & P.W. Mayne, Eds.), Huntington Beach, CA: s.n.

the properties of fine tailings. K values from the PPD tests were estimated using the following equation:[2]

$$K = c\gamma_w / M$$

where,

K	is the hydraulic conductivity of the soil;
c	is the coefficient of consolidation of the soil; and
γ_w	is the unit weight of water (assumed as 9.81 kilonewtons per cubic meter (kN/m^3)).

c was estimated with the following equation:

$$c = (T_{50}/t_{50})({r_0}^2)$$

where,

c	is the coefficient of consolidation of the soil;
T_{50}	is the modified theoretical time factor equal to 0.245 for a cone with pore pressure sensor in the u_2 position;[3]
t_{50}	is the measured time in a PPD test for 50% dissipation to occur; and
r_0	is the radius of the penetrometer, assumed as 1.78 centimeters (cm) for a 10-cm^2 probe.

M was estimated using the following equation:[4]

$$M = \alpha_M (q_t - \sigma_{v0})$$

where,

M	is the constrained modulus of the soil;
α_M	is a factor that varies with the normalized cone resistance (Q_t);

[2] Robertson, P.K., & Cabal, K.L. (2015). *Guide to cone penetration testing for geotechnical engineering* (6th ed.). Signal Hill, CA: Gregg Drilling & Testing, Inc.

[3] Teh, C.I., & Houlsby, G.T. (1991). An analytical study of the cone penetration test in clay. *Geotechnique*, *41*(1), 17-34.

[4] Robertson, P.K. (2009). Interpretation of cone penetration tests – a unified approach. *Canadian Geotechnical Journal*, *46*(11), 1337-1355.

q_t is the corrected cone resistance; and

σ_{v0} is the total overburden stress

Table 4-1 summarizes the estimated K values based on the results from the PPD tests. Figures 4-1a through 4-1g present the equilibrium piezometric levels from the PPD tests along section lines 1-1' through D-D'.

Figures 4-2a through 4-2g present the results of locations and elevations of the K values along section lines 1-1' through D-D', respectively, estimated from the PPD tests. The results in Figures 4-2a through 4-2g also present the range of expected K values based on the predicted CPTu soil type for each PPD test location and K measurements from the infiltration tests.

Figure 4-3a presents the variation with elevation of the K estimates of tailings and foundation soils from the PPD tests. Figure 4-3a also includes the reported K measurements from the infiltration tests (Section 4.2).

4.2 Constant-Head Infiltration Tests

Constant-head infiltration tests were performed to estimate the *in situ* K of saturated and unsaturated embankment soils, tailings, and foundation soils. Figure 2-1c presents the approximate infiltration test locations. The results of constant-head infiltration tests are provided in Table 4-2. For the test results summarized in Table 4-2, the original data were reviewed and calculations of K performed to evaluate whether the results were reliable. Some results, not included in this Appendix, were considered unreliable due to the uncertainty of the length of soils open to infiltration during the test and/or uncertainties of the water level measurement before the test, which influenced the definition of the effective head. The infiltration test results presented in Table 4-2 were performed in standpipe piezometers with screen intervals that ranged in length between 0.5m and 1.5m.

Figures 4-2a through 4-2g present the locations and elevations of hydraulic conductivity (K) values along section lines 1-1' through D-D' measured from the infiltration tests. Figures 4-2a through 4-2g also show the hydraulic conductivity (K) estimates from the PPD tests.

Figure 4-3a presents the variation with elevation of the hydraulic conductivity (K) obtained from the infiltration tests performed in the following materials: tailings, embankment materials, and foundation soils. Figure 4-3b shows the results from the statistical analyses of the hydraulic conductivity measurements from the infiltration tests and estimates from the PPD tests.

4.3 Vane Shear Tests

FVTs were conducted to measure the peak ($s_{u,FV}$) and remolded ($s_{u,rem,FV}$) undrained shear strengths of tailings. Figure 2-1d presents the approximate FVT locations along with the available CPTu locations. The summary of *in situ* undrained shear strengths derived from the field FVTs are provided in Table 4-3. The residual undrained shear strength is the constant strength measured after a vane rotation of 180 degrees or larger. The remolded undrained shear strength is the strength measured after the vane is rotated a minimum of 10 times at a rate larger than 360 degrees per minute.

Figures 4-4a through 4-4i present values of $s_{u,FV}$ with elevation for each of the available FVT locations. The FVT measurements were corrected using a correction factor of 0.90 to account for the effects of strain rate on the strength of soils.[5]

4.4 Seismic Shear Wave Velocity Tests

The shear wave velocity of soils is a material property that is used to evaluate the small-strain stiffness of soils. Seismic shear wave velocity tests were performed using a downhole Marchetti dilatometer device. Table 4-4 summarizes the seismic shear wave velocity measurements from the available test locations. Figure 2-1d presents the approximate seismic shear wave velocity measurement locations. Figures 4-5a through 4-5i present the variation of seismic shear wave velocity with elevation at each of the test locations.

5. LABORATORY TEST RESULTS

This section summarizes the available index and triaxial test results performed on material samples collected at the site. Figure 2-2 presents the approximate collection locations of the samples used in the laboratory tests, and the sampling technique is included in Table 5-1. Also in Table 5-1 is a summary of the results from the available index property tests. Tables 5-2 through 5-5 present a summary of the results of the TXICU, TXK_0CU, TXACU, and TXAPU tests, respectively.

5.1 Index Properties

Index properties are presented for coarse tailings, fine tailings, embankments, and foundation materials in Figures 5-1a through 5-1d. Figure 5-1a presents the index test results graphically by type of material, along with the variation in elevation of *in situ* water content (w_0), plastic and liquid limits, total unit weight (γ_t), specific gravity (G), *in situ* void ratio (e_0), percent fines (the

[5] The correction factor of 0.90 is applicable for low plasticity soils with plasticity index values of 30 or less. Bjerrum, L. (1972). Embankments on soft ground: State of the art report. Proceedings from *The ASCE Specialty Conference on Performance of Earth and Earth Supported Structures*, *2*, 1-54. New York: American Society of Civil Engineers; Bjerrum, L. (1973). State-of-the-art report: Problems of soil mechanics and construction on soft clays and structurally unstable soils. Proceedings from *The Eighth International Conference on Soil Mechanics and Foundation Engineering*, *3*, 111-159. Moscow: s.n.

percentage of soil finer than 0.075 millimeters (mm)), and percent clay (the percentage of soil finer than 0.005 mm). Figure 5-1b presents the grain size distribution curves from the available gradation tests. Figures 5-1c and 5-1d show the results from the statistical analyses of the index properties.

Figure 5-1e presents the results of *in situ* water content and dry density tests, and includes the theoretical lines for 80% to 100% saturation. The test results indicate that the samples collected for laboratory testing were generally partially saturated.

5.2 Triaxial Tests

The available triaxial test data included the results from a series of TXICU, TXK_0CU, TXACU, and TXAPU tests on tailings. The TXICU tests were performed on intact and reconstituted samples. Reconstituted samples were prepared at 79% and 83% relative compaction. The available laboratory test reports did not specify if the compaction values were relative to a standard or modified effort compaction test. The TXK_0CU, TXACU, and TXAPU tests were performed on intact samples.

The triaxial test results are presented in a series of figures that summarize the stress-strain data, effective stress paths and mean effective stress versus void ratio p'- e diagrams. The summary figures of stress-strain data include plots of normalized deviator stress versus axial strain, normalized excess pore pressure versus axial strain, and the pore pressure coefficient A versus axial strain. The deviator stresses and pore pressures are normalized by dividing them by the effective confining stress of each test sample. The effective stress path figures include failure envelopes drawn to fit the data.

The TXICU tests on intact samples were available from two different sets of testing programs referred to in this Appendix as Series I and Series II.

5.2.1 TXICU Tests on Intact Samples

Figures 5-2 and 5-3 summarize the stress-strain data and the effective stress paths from the Series I TXICU tests on intact samples of coarse tailings.

Figures 5-4a and 5-4b summarize the stress-strain data from the Series II TXICU tests on intact samples of coarse tailings. The Series II TXICU tests on coarse tailings are presented separately in Figures 5-4a and 5-4b to highlight the different stress-strain responses measured from the two samples tested. Figures 5-5a and 5-5b present the effective stress paths from the Series II TXICU tests on intact samples of coarse tailings. Figure 5-6 shows the p'-q and p'- e diagrams from the Series II TXICU tests on intact samples of coarse tailings.

Figure 5-7 summarizes the stress-strain data from the Series II TXICU tests on intact samples of fine tailings. Figure 5-8 presents the effective stress paths from the Series II TXICU tests on intact

samples of fine tailings. Figure 5-9 shows the p'-q and p'- e diagrams from the Series II TXICU tests on intact samples of fine tailings.

5.2.2 TXICU Tests on Reconstituted Samples

Figures 5-10a and 5-10b summarize the stress-strain data from the TXICU tests on reconstituted samples of coarse tailings at 79% and 83% relative compaction. Figures 5-11a and 5-11b summarize the effective stress paths from the TXICU tests on reconstituted samples of coarse tailings at 79% and 83% relative compaction. Figure 5-12 presents the p'-q and p'- e diagrams from the TXICU tests on reconstituted samples of coarse tailings.

Figures 5-13a and 5-13b summarize the stress-strain data from the TXICU tests on reconstituted samples of fine tailings at 79% and 83% relative compaction, respectively. Figures 5-14a and 5-14b summarize the effective stress paths from the TXICU tests on reconstituted samples of fine tailings at 79% and 83% relative compaction, respectively. Figure 5-15 presents the p'-q and p'- e diagrams from the TXICU tests on reconstituted samples of fine tailings.

5.2.3 TXK_0CU Tests on Intact Samples

Figure 5-16 summarizes the stress-strain data from the TXK_0CU tests on intact samples of coarse tailings. Figure 5-17 presents the normalized effective stress paths resulting from the TXK_0CU tests on intact samples of coarse tailings. Figure 5-18 shows the p'-q and p'- e diagrams from the TXK_0CU tests on intact samples of coarse tailings.

5.2.4 TXACU Tests on Intact Samples

Figures 5-19 and 5-21 summarize the stress-strain data from the TXACU tests on intact samples of coarse and fine tailings, respectively. Figures 5-20 and 5-22 present the normalized effective stress paths resulting from the TXACU tests on intact samples of coarse and fine tailings, respectively. Figure 5-23 shows the p'-q and p'- e diagrams from the TXACU tests on intact samples of both coarse and fine tailings.

5.2.5 TXAPU Tests on Intact Samples

Figures 5-24a and 5-24b summarize the stress-strain data from the TXAPU tests on intact samples of coarse tailings. Figure 5-25a and 5-25b present the effective stress paths resulting from the TXAPU tests on intact samples of coarse tailings. Figure 5-26 shows the p'-q and p'- e diagrams from the TXAPU tests on intact samples of coarse tailings.

Figure 5-27 summarizes the stress-strain data from the TXAPU tests on intact samples of fine tailings. Figure 5-28 presents the effective stress paths resulting from TXAPU tests on intact samples of fine tailings. Figure 5-29 shows the p'-q and p'- e diagrams from TXAPU tests on

intact samples of fine tailings. These tests were performed on samples from the same soils as those used in the Series II of TXICU tests.

5.3 Incremental-Loading Consolidation Tests

Figure 5-30 presents the vertical hydraulic conductivity values calculated from the incremental-loading consolidation tests performed on reconstituted samples of tailings in 2016 by Pattrol Investigações Geotécnicas Ltda. The results in Figure 5-30 present the variation of vertical hydraulic conductivity with vertical effective consolidation stress and void ratio. Table 5-6 summarizes other relevant parameters estimated from the consolidation tests.

5.4 Chemical Composition and Mineralogy

The chemical compound and mineralogy compositions of tailings appear to have been evaluated in connection with mineralogy studies performed in 2006 and 2007. The available documents from the 2006 study include mineralogy composition determinations and chemical compound determinations, while the 2007 study only shows chemical compound determinations. Figure 5-31 presents the approximate locations where samples for mineralogy testing were collected.

The chemical compound compositions were determined using plasma mass spectrometry analysis and the mineralogy composition was evaluated using X-ray diffraction analysis. Each sample considered in the mineralogy studies was split into subsets, each with different ranges in grain size distribution. Chemical compound and mineralogy determinations were performed on each sample subset, and the overall sample determinations were calculated as the weighted average by mass of each individual sample subset.

Figure 5-32 presents the overall chemical compound and mineralogy distribution determinations from the 2006 mineralogy study. The sample depths used in the 2006 study were unavailable and plots of iron distribution with depth could not be developed.

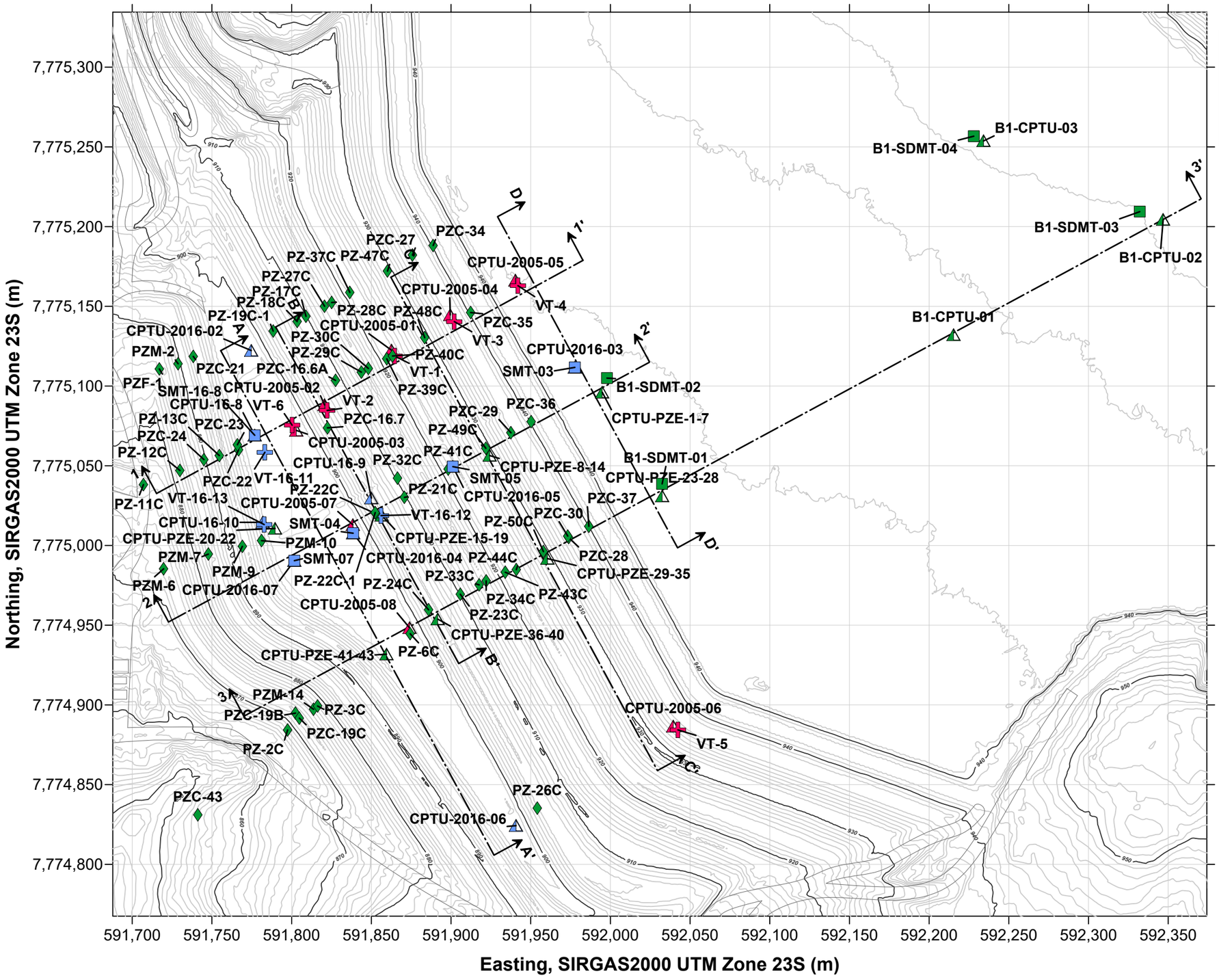
Figures 5-33a and 5-33b present the variation of overall iron percent with depth from the 2007 mineralogy study performed on samples collected from boreholes within the beach and pond areas, respectively. Figures 5-34a and 5-34b present the overall chemical compound distributions performed on samples collected from boreholes within the beach and pond areas, respectively.

Appendix B

Annex 1 – Figures

December 2019

LIST OF FIGURES



Cone Penetration Tests

Symbol	Investigation Year
	2005
	2016
	2018

Infiltration Tests

Symbol	Investigation Year
	2018

Vane Shear Tests

Symbol	Investigation Year
	2005
	2016

Shear Wave Velocity Tests

Symbol	Investigation Year
	2016
	2018

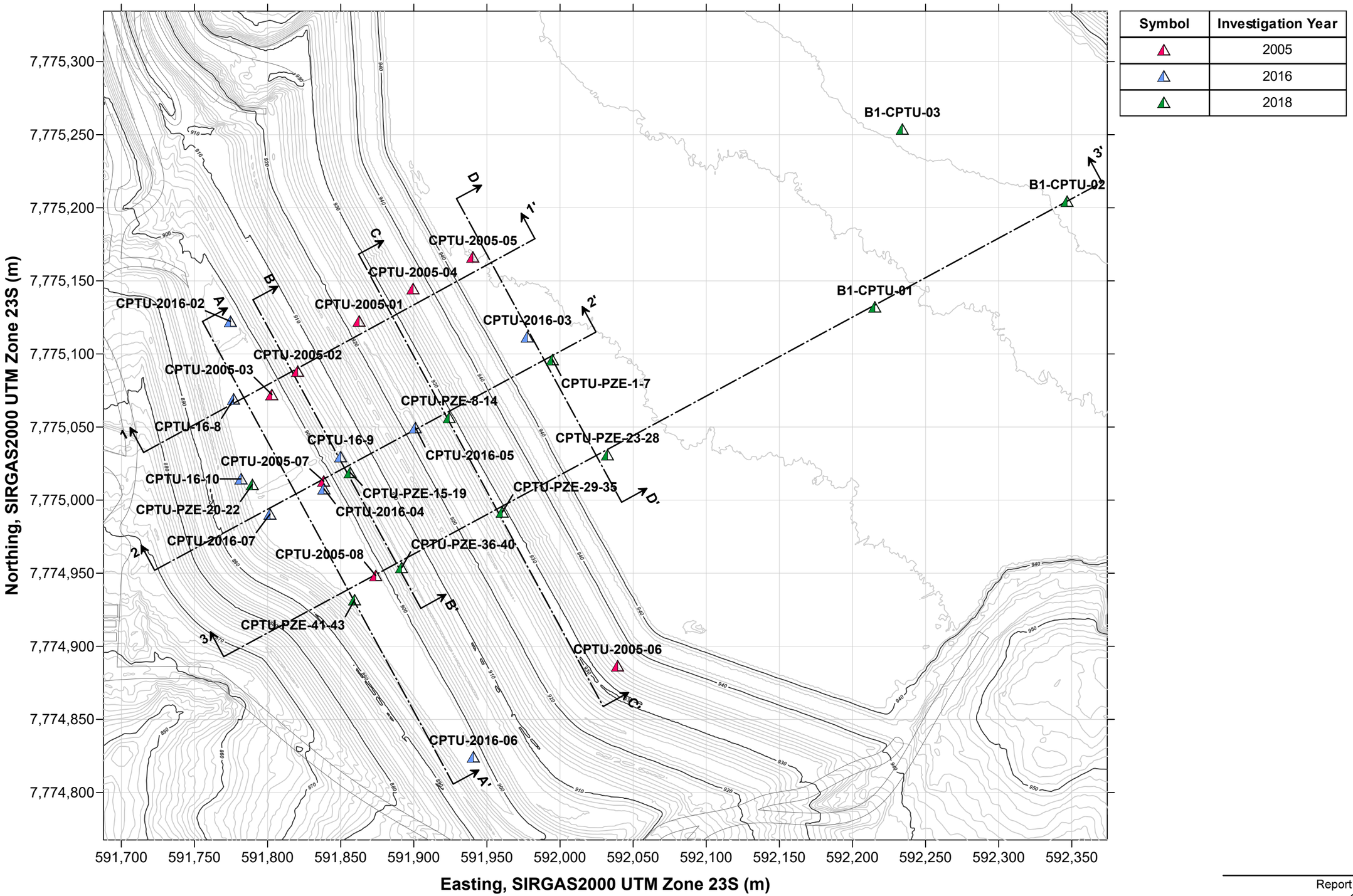
Notes:
1. Contour lines are from 2018 topographic information. Contour interval 1 meter.
2. Horizontal datum is SIRGAS2000 UTM Zone 23S in meters, Vertical datum is Mean Sea Level in meters.
3. Locations are approximate and digitized from 2018 topographic information.

Location Plan of Field Investigations

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I

Appendix B - Historical Geotechnical Data

Figure 2-1a



Notes:
1. Contour lines are from 2018 topographic information. Contour interval 1 meter.
2. Horizontal datum is SIRGAS2000 UTM Zone 23S in meters, Vertical datum is Mean Sea Level in meters.
3. Locations are approximate and digitized from 2018 topographic information.

Location Plan of CPTu Tests

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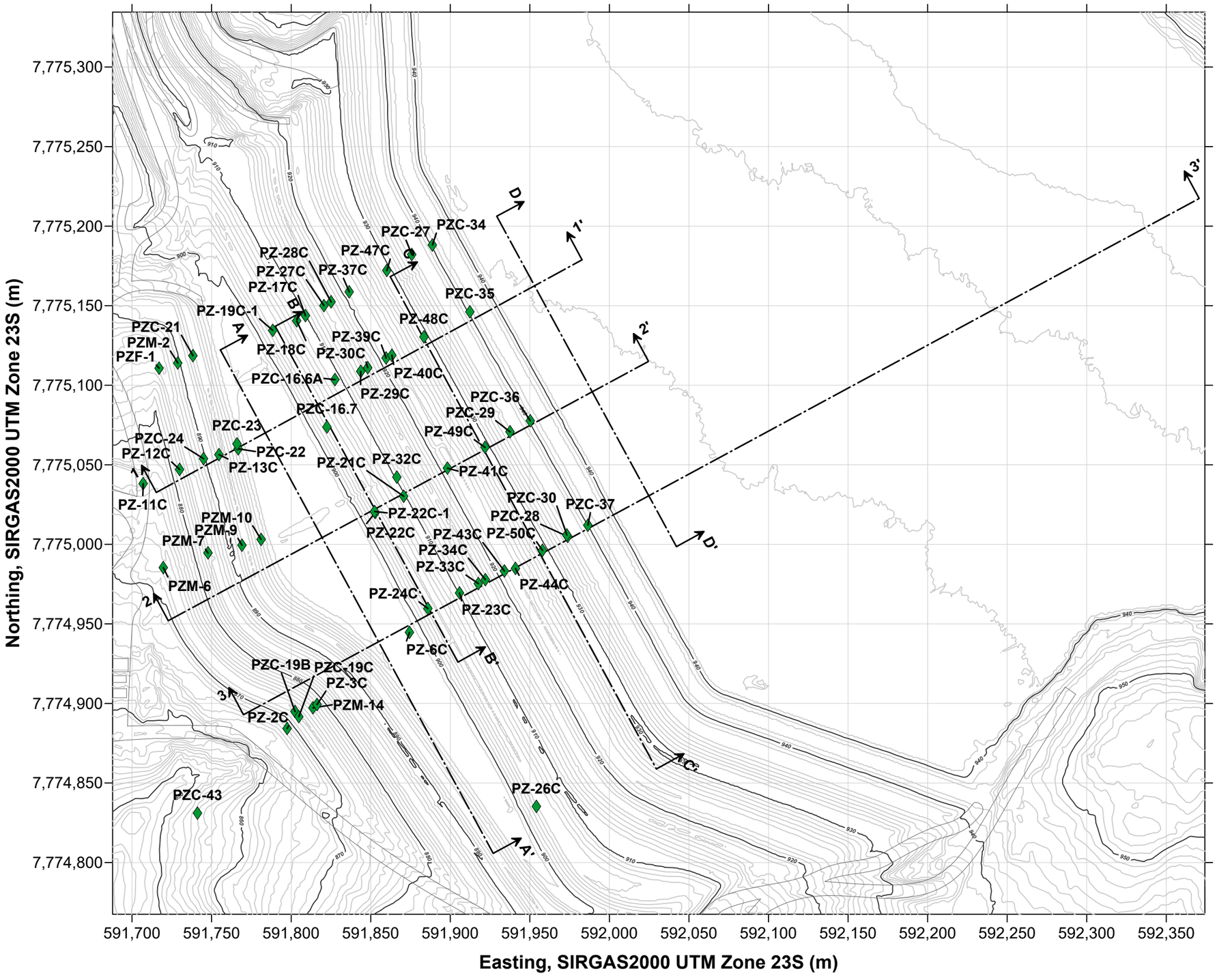
Appendix B - Historical Geotechnical Data

Figure 2-1b



Notes:
1. Contour lines are from 2018 topographic information. Contour interval 1 meter.
2. Horizontal datum is SIRGAS2000 UTM Zone 23S in meters, Vertical datum is Mean Sea Level in meters.
3. Data show tests where a complete set of field information was provided.

Location Plan of Infiltration Tests

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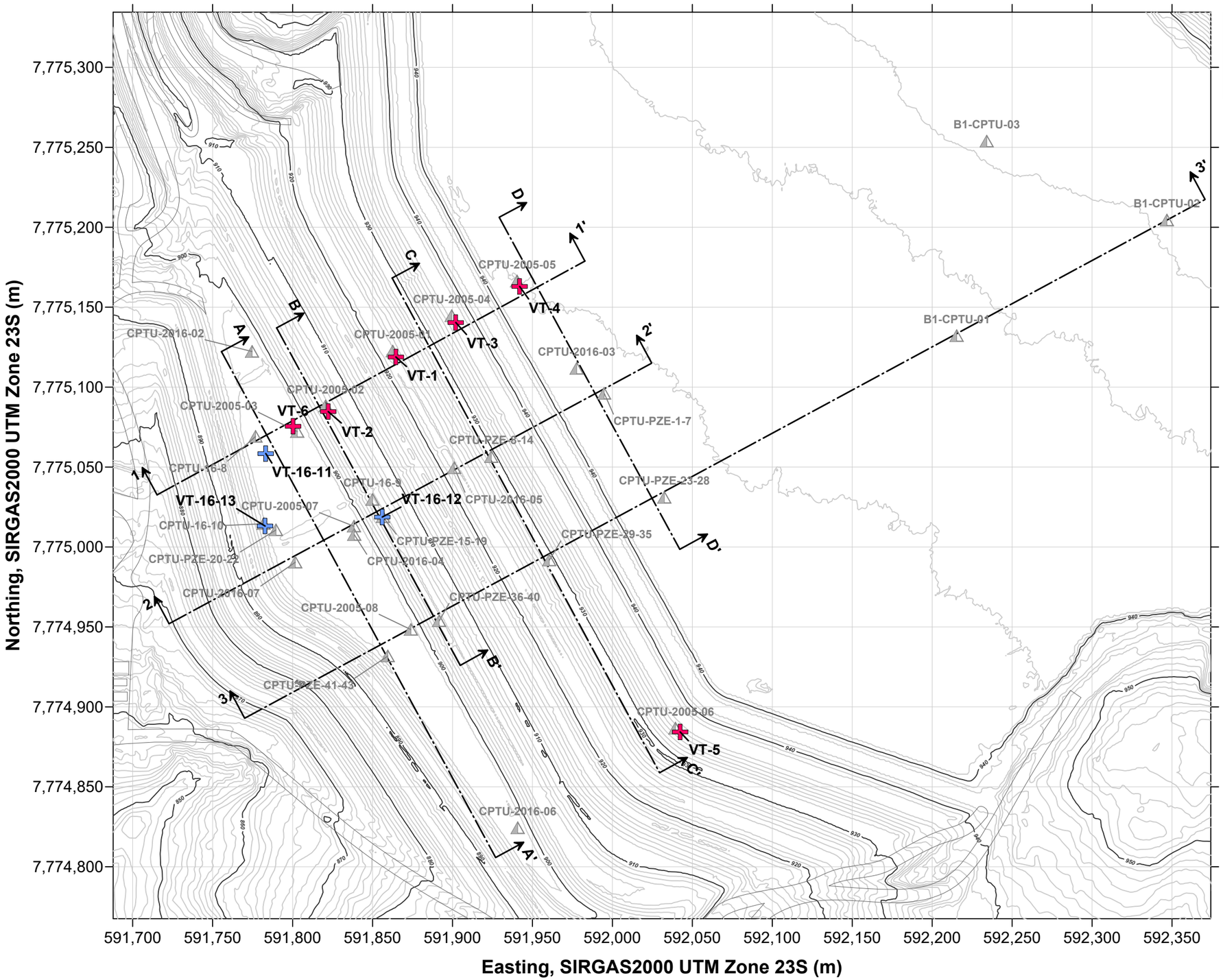
Appendix B - Historical Geotechnical Data

Figure 2-1c



Symbol	Investigation Year
✚	2005
✚	2016

Notes:
1. Contour lines are from 2018 topographic information. Contour interval 1 meter.
2. Horizontal datum is SIRGAS2000 UTM Zone 23S in meters, Vertical datum is Mean Sea Level in meters.

Location Plan of Field Vane Shear Tests

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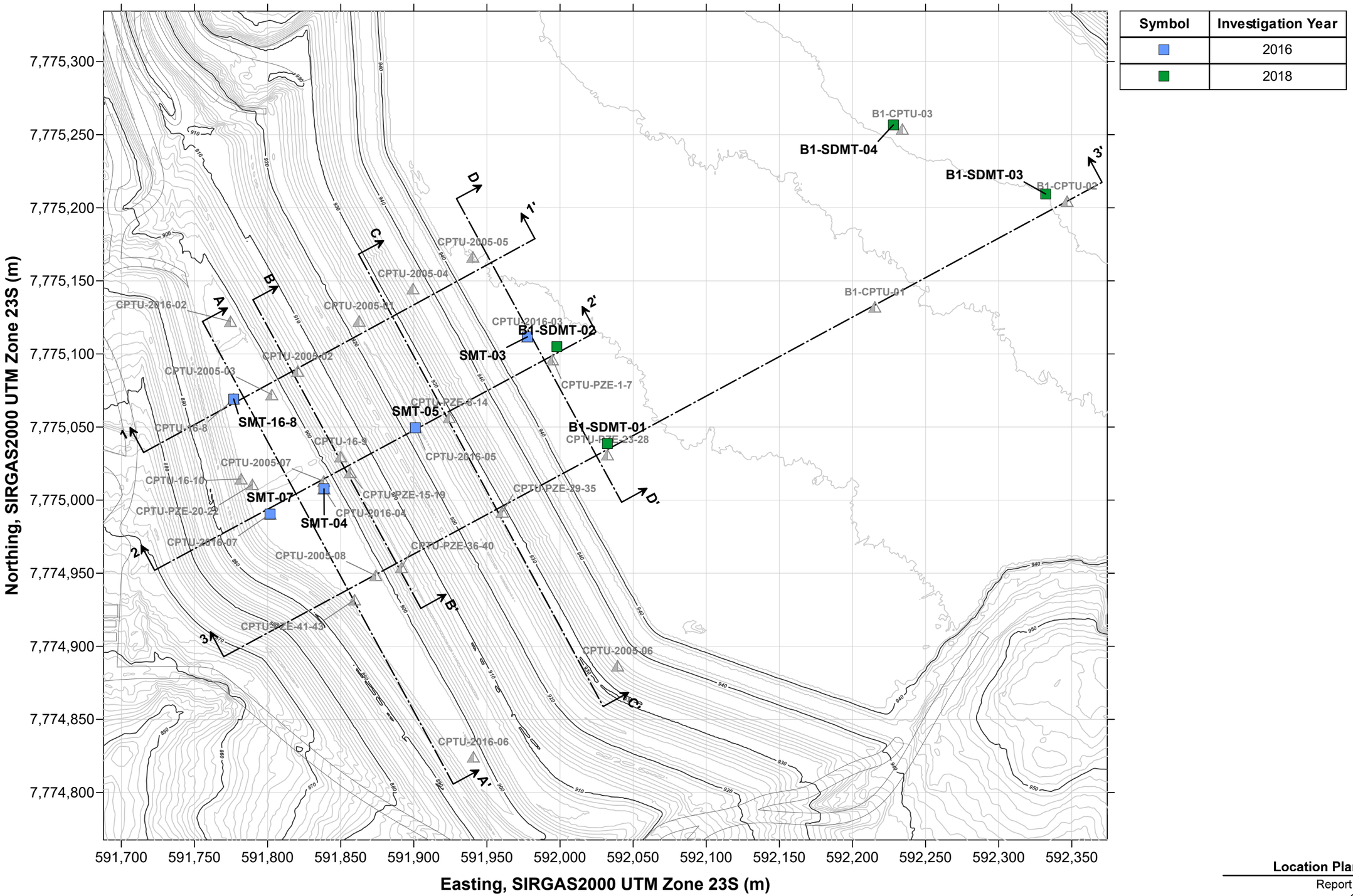
Appendix B - Historical Geotechnical Data

Figure 2-1d



Notes:
1. Contour lines are from 2018 topographic information. Contour interval 1 meter.
2. Horizontal datum is SIRGAS2000 UTM Zone 23S in meters, Vertical datum is Mean Sea Level in meters.

Location Plan of Shear Wave Velocity Tests

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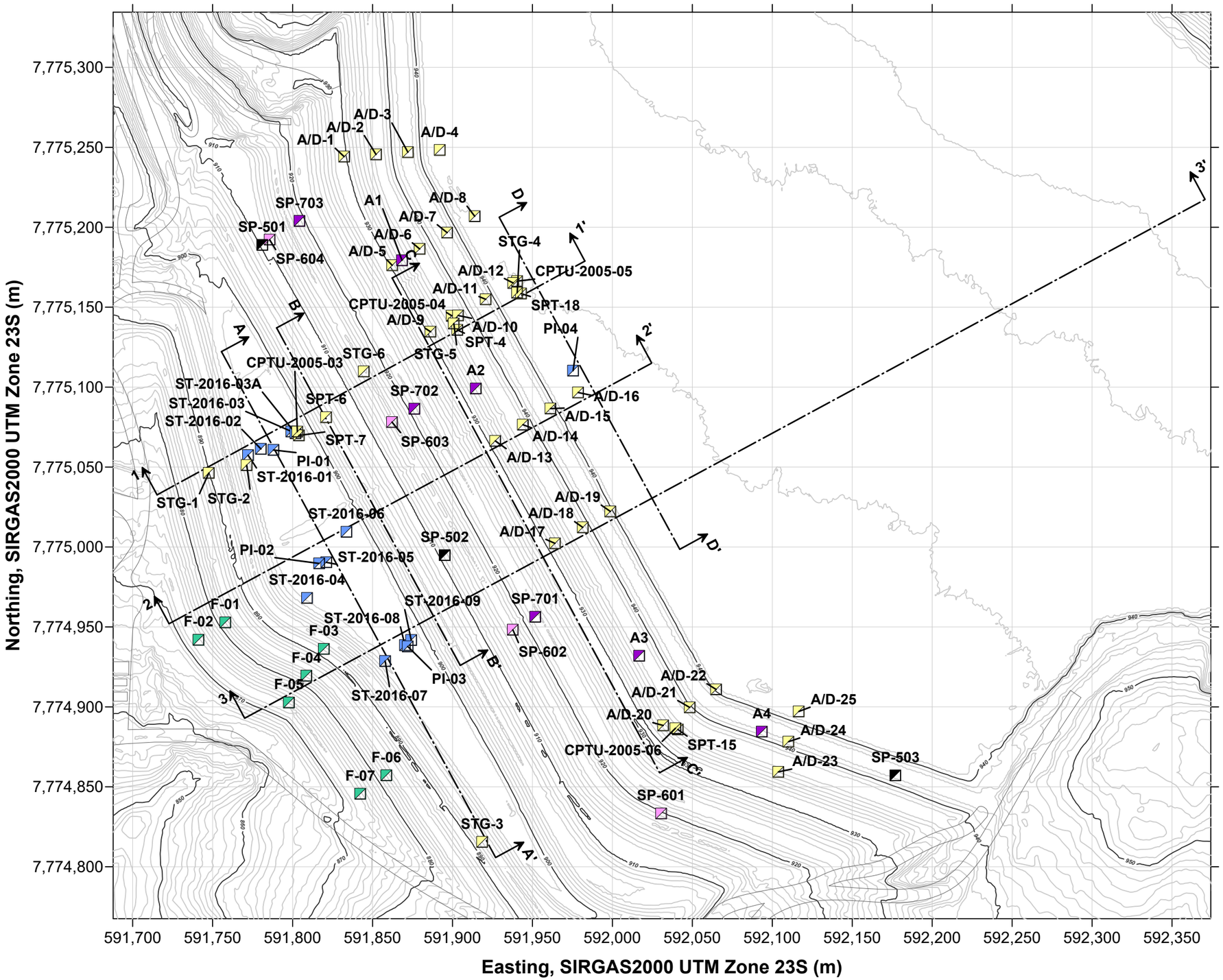
Appendix B - Historical Geotechnical Data

Figure 2-1e



Symbol	Investigation Year	Lab Testing Report Year
	1983	1983
	1998	2003
	2000	
	2001	
	2005	2006
	2016	2016

Notes:
1. Contour lines are from 2018 topographic information. Contour interval 1 meter.
2. Horizontal datum is SIRGAS2000 UTM Zone 23S in meters, Vertical datum is Mean Sea Level in meters.

Location Plan of Boreholes with Relevant Laboratory Test Data

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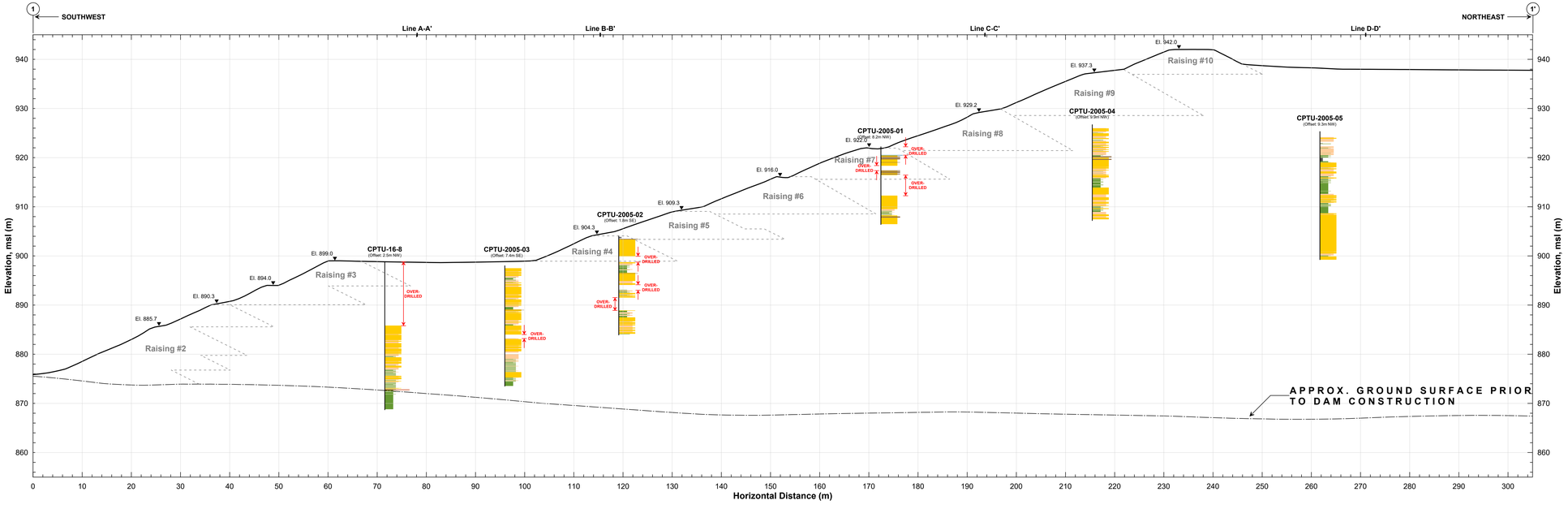
Appendix B - Historical Geotechnical Data

Figure 2-2



SBT [Robertson, 2010]

- 1 Sensitive fine-grained
- 2 Clay - organic soil
- 3 Clays: clay to silty clay
- 4 Silt mixtures: clayey silt and & silty clay
- 5 Sand mixtures: silty sand to sandy silt
- 6 Sands: clean sands to silty sands
- 7 Dense sand to gravelly sand
- 8 Stiff sand to clayey sand (overconsolidated or cemented)
- 9 Stiff fine-grained (overconsolidated or cemented)

Notes:
1. Elevation profile is from 2018 topographic information.
2. Original elevation profile is from topographic surveys prior to dam construction.
3. Vertical datum is Mean Sea Level.
4. Raisings shown are schematic and approximate, and they are not meant to depict the dam configuration prior to failure.
5. Exploration locations are approximate.

SBT Profiles Along Section 1-1'

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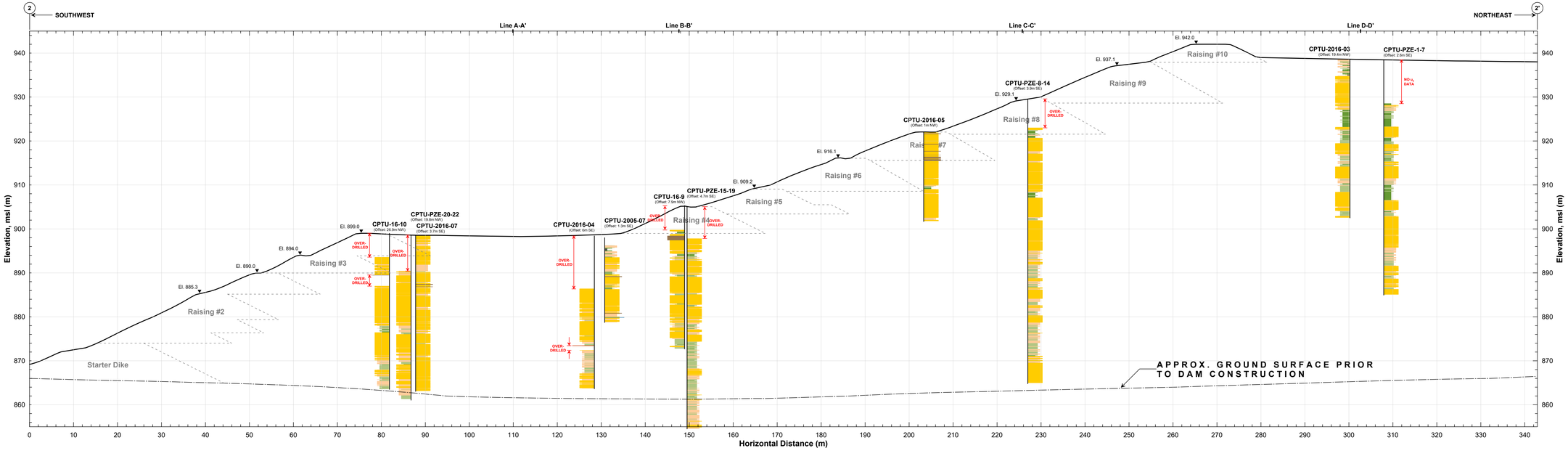
Appendix B - Historical Geotechnical Data

Figure 3-1a



SBT [Robertson, 2010]

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- 9 Stiff fine-grained (overconsolidated or cemented)

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3. Vertical datum is Mean Sea Level.
4. Raisings shown are schematic and approximate, and they are not meant to depict the dam configuration prior to failure.
5. Exploration locations are approximate.

SBT Profiles Along Section 2-2'

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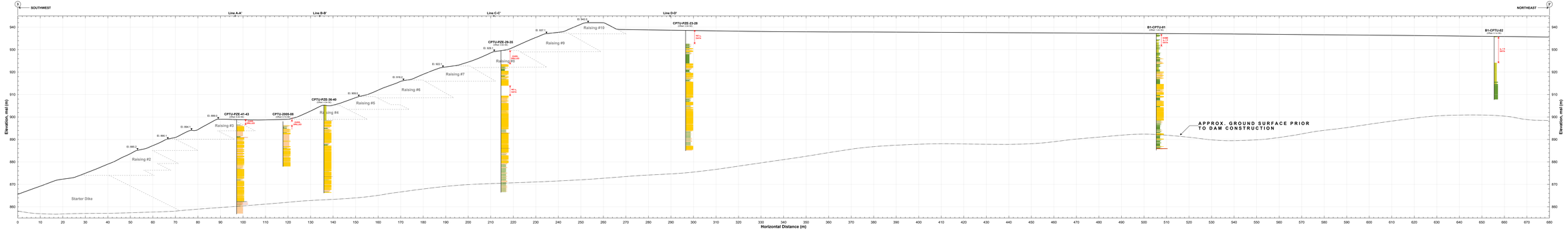
Appendix B - Historical Geotechnical Data

Figure 3-1b



SBT [Robertson, 2016]

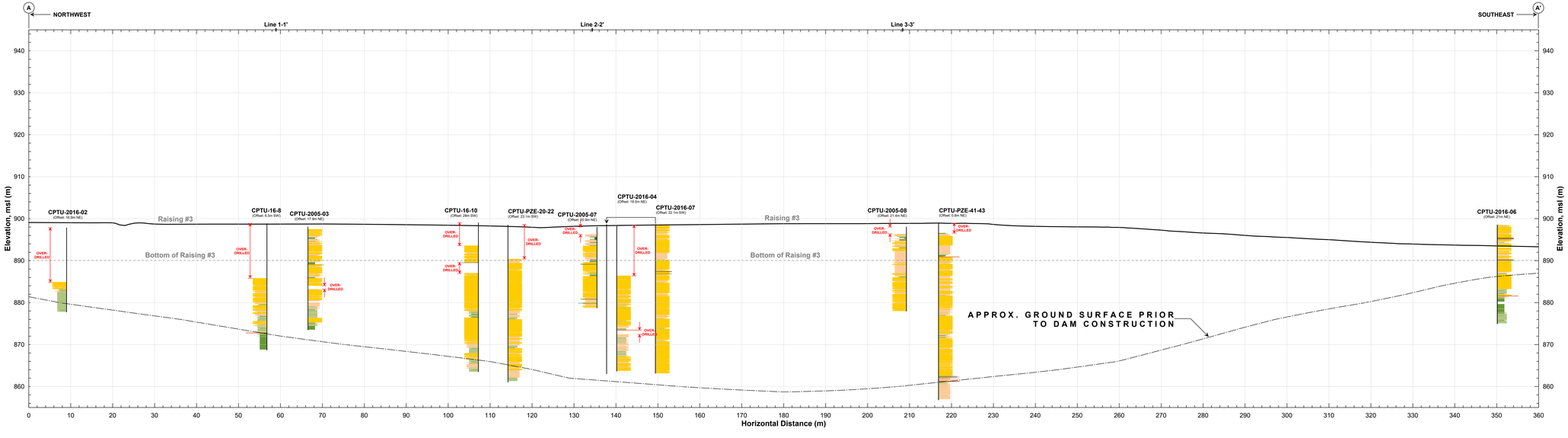
- 1 Sensitive fine-grained
- 2 Clay - organic soil
- 3 Clays: clay to silty clay
- 4 Silt mixtures: clayey silt and & silty clay
- 5 Sand mixtures: silty sand to sandy silt
- 6 Sands: clean sands to silty sands
- 7 Dense sand to gravelly sand
- 8 Stiff sand to clayey sand (overconsolidated or cemented)
- 9 Stiff fine-grained (overconsolidated or cemented)

Notes:
1. Elevation profile is from 2018 topographic information.
2. Original elevation profile is from topographic surveys prior to dam construction.
3. Stratigraphy is from CPT interpretation.
4. Raisings shown are schematic and approximate, and they are not meant to depict the dam configuration prior to failure.
5. Exploration locations are approximate.

SBT Profiles Along Section 3-3'
Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I

Appendix B – Historical Geotechnical Data

Figure 3-1c



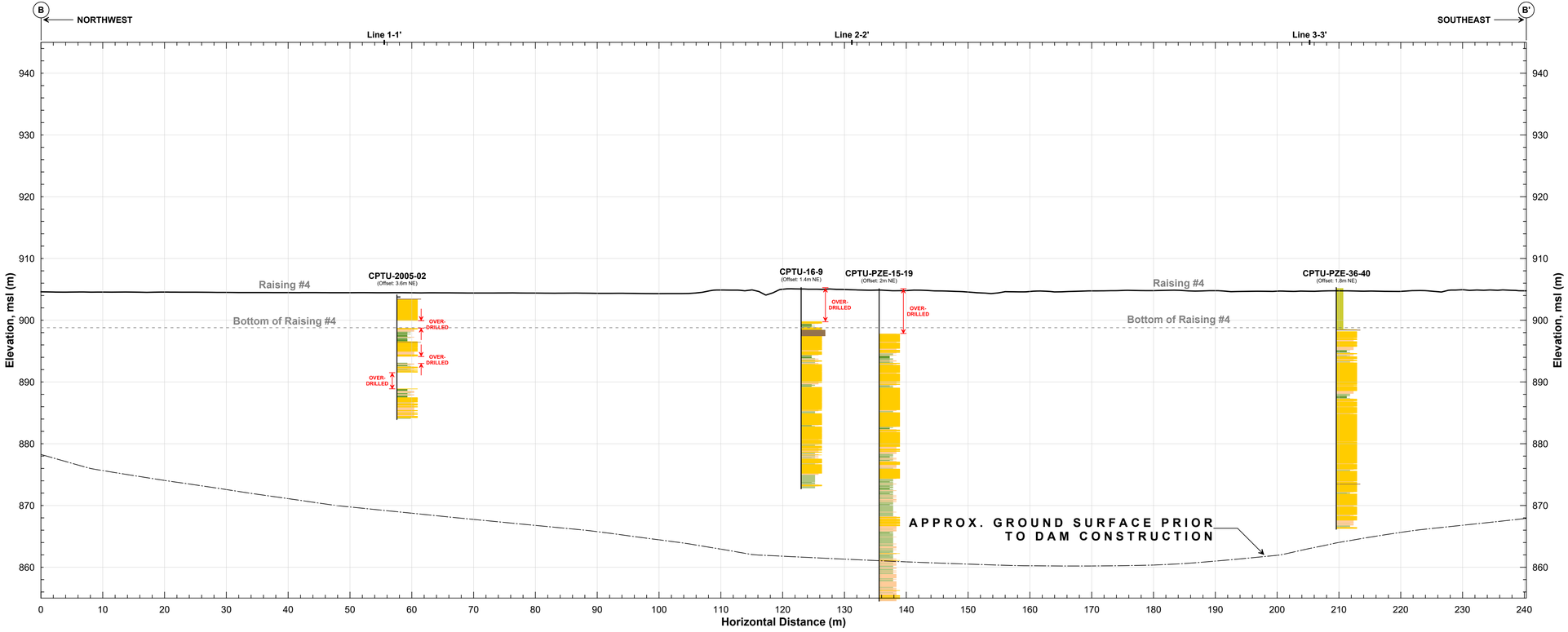
Notes:
1. Elevation profile is from 2018 topographic information.
2. Original elevation profile is from topographic surveys prior to dam construction.
3. Vertical datum is Mean Sea Level.
4. Raisings shown are schematic and approximate, and they are not meant to depict the dam configuration prior to failure.
5. Exploration locations are approximate.

SBT Profiles Along Section A-A'

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I

Appendix B - Historical Geotechnical Data

Figure 3-1d



SBT [Robertson, 2010]

- 1 Sensitive fine-grained
- 2 Clay - organic soil
- 3 Clays: clay to silty clay
- 4 Silt mixtures: clayey silt and & silty clay
- 5 Sand mixtures: silty sand to sandy silt
- 6 Sands: clean sands to silty sands
- 7 Dense sand to gravelly sand
- 8 Stiff sand to clayey sand (overconsolidated or cemented)
- 9 Stiff fine-grained (overconsolidated or cemented)

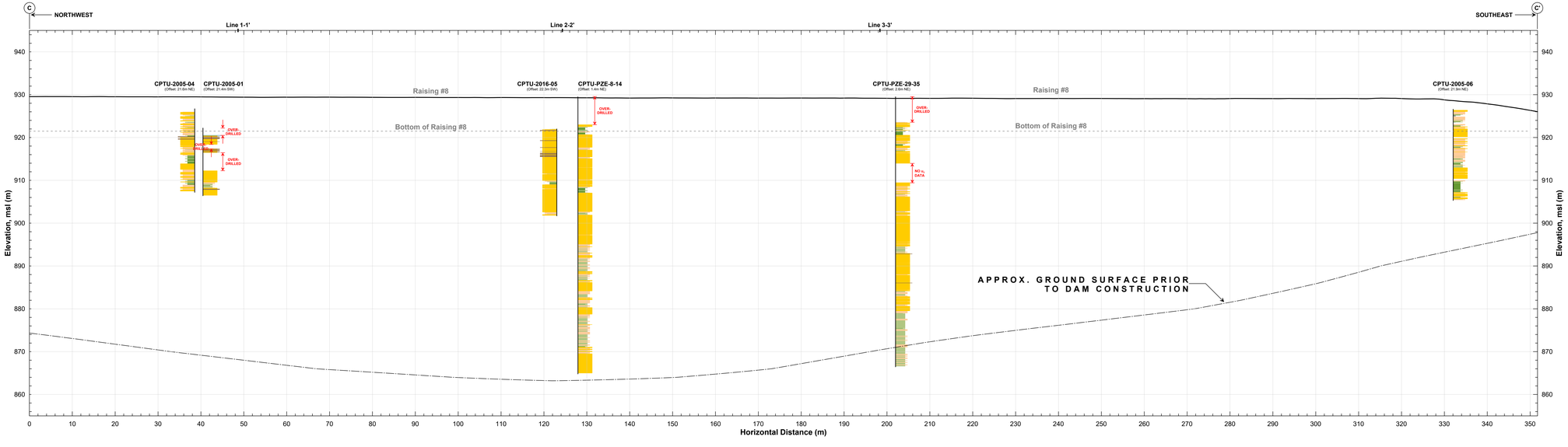
Notes:
1. Elevation profile is from 2018 topographic information.
2. Original elevation profile is from topographic surveys prior to dam construction.
3. Vertical datum is Mean Sea Level.
4. Raisings shown are schematic and approximate, and they are not meant to depict the dam configuration prior to failure.
5. Exploration locations are approximate.

SBT Profiles Along Section B-B'

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I

Appendix B - Historical Geotechnical Data

Figure 3-1e



SBT [Robertson, 2010]

- 1 Sensitive fine-grained
- 2 Clay - organic soil
- 3 Clays: clay to silty clay
- 4 Silt mixtures: clayey silt and & silty clay
- 5 Sand mixtures: silty sand to sandy silt
- 6 Sands: clean sands to silty sands
- 7 Dense sand to gravelly sand
- 8 Stiff sand to clayey sand (overconsolidated or cemented)
- 9 Stiff fine-grained (overconsolidated or cemented)

Notes:

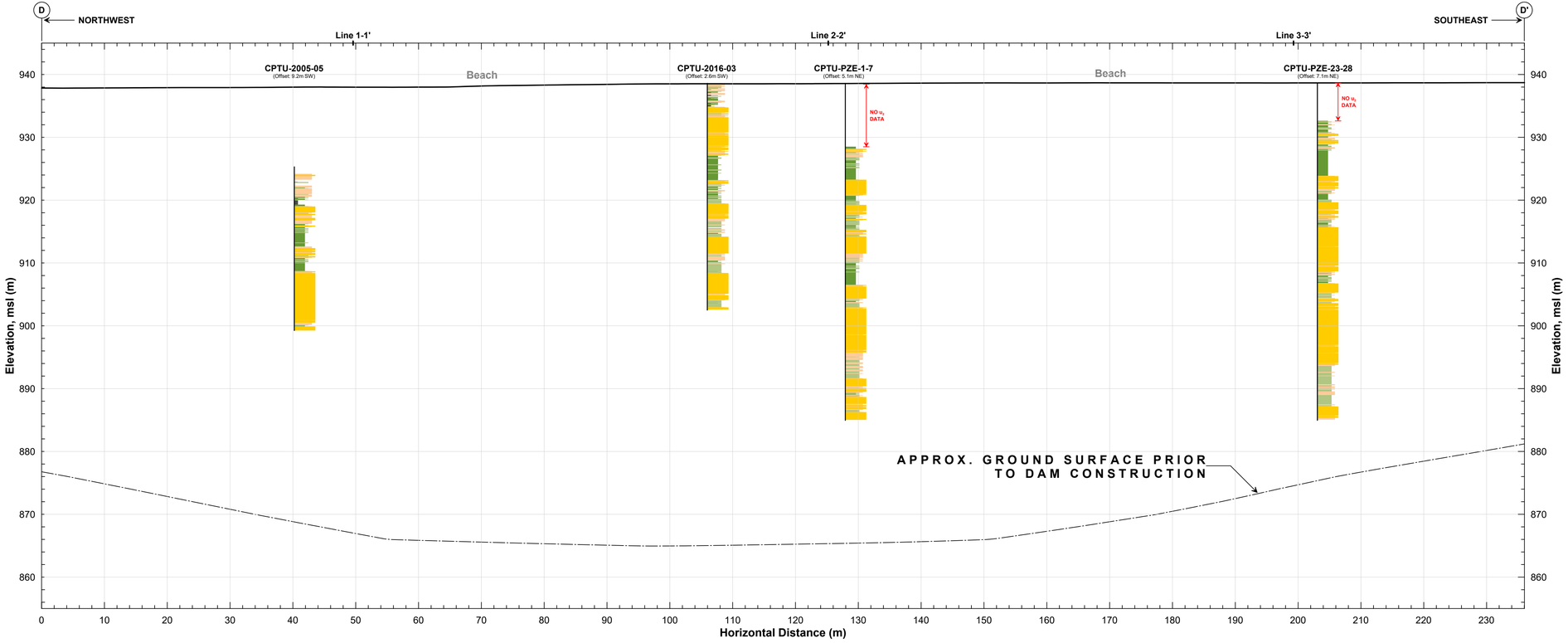
1. Elevation profile is from 2018 topographic information.
2. Original elevation profile is from topographic surveys prior to dam construction.
3. Vertical datum is Mean Sea Level.
4. Raisings shown are schematic and approximate, and they are not meant to depict the dam configuration prior to failure.
5. Exploration locations are approximate.

SBT Profiles Along Section C-C'

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I

Appendix B - Historical Geotechnical Data

Figure 3-1f



SBT [Robertson, 2010]

- 1 Sensitive fine-grained
- 2 Clay - organic soil
- 3 Clays: clay to silty clay
- 4 Silt mixtures: clayey silt and & silty clay
- 5 Sand mixtures: silty sand to sandy silt
- 6 Sands: clean sands to silty sands
- 7 Dense sand to gravelly sand
- 8 Stiff sand to clayey sand (overconsolidated or cemented)
- 9 Stiff fine-grained (overconsolidated or cemented)

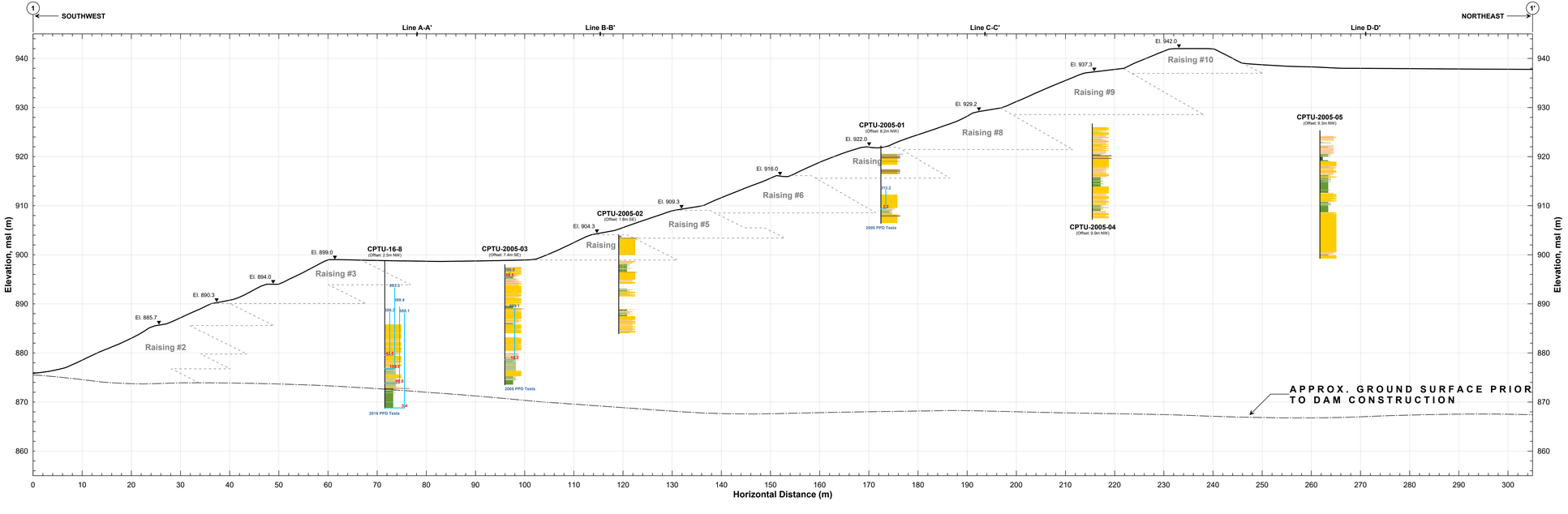
Notes:
1. Elevation profile is from 2018 topographic information.
2. Original elevation profile is from topographic surveys prior to dam construction.
3. Vertical datum is Mean Sea Level.
4. Raisings shown are schematic and approximate, and they are not meant to depict the dam configuration prior to failure.
5. Exploration locations are approximate.

SBT Profiles Along Section D-D'

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I

Appendix B - Historical Geotechnical Data

Figure 3-1g

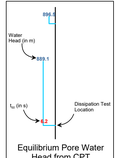


SBT [Robertson, 2010]

- 1 Sensitive fine-grained
- 2 Clay - organic soil
- 3 Clays: clay to silty clay
- 4 Silt mixtures: clayey silt and & silty clay
- 5 Sand mixtures: silty sand to sandy silt
- 6 Sands: clean sands to silty sands
- 7 Dense sand to gravelly sand
- 8 Stiff sand to clayey sand (overconsolidated or cemented)
- 9 Stiff fine-grained (overconsolidated or cemented)

Notes:

1. Elevation profile is from 2018 topographic information.
2. Original elevation profile is from topographic surveys prior to dam construction.
3. Vertical datum is Mean Sea Level.
4. Raisings shown are schematic and approximate, and they are not meant to depict the dam configuration prior to failure.
5. Exploration locations are approximate.



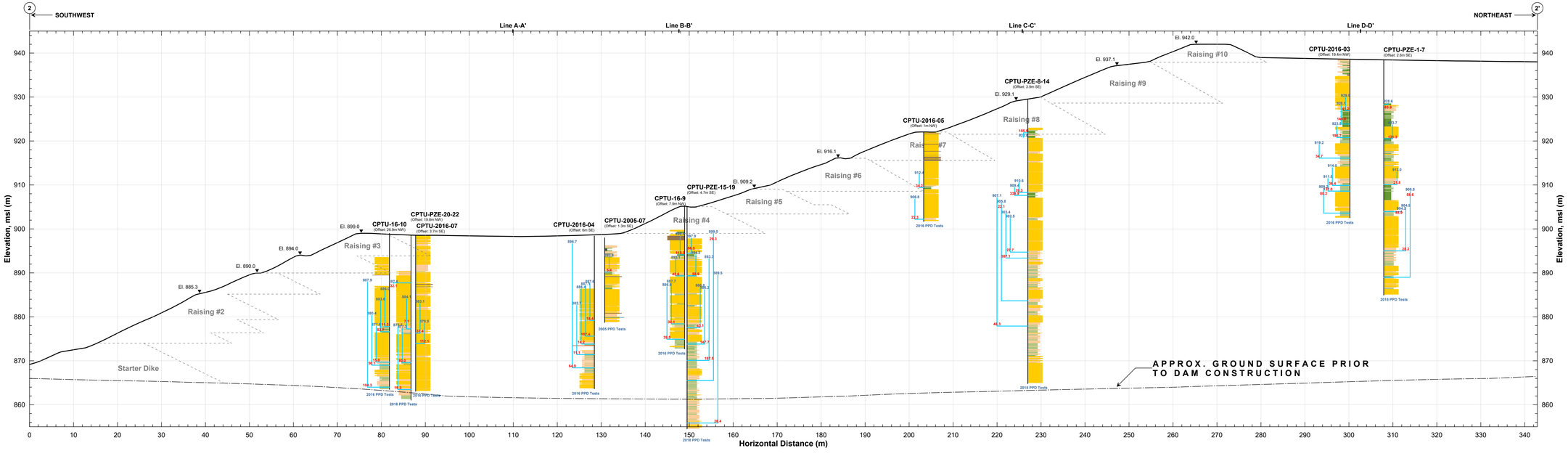
Equilibrium Pore Water Head from CPT Dissipation Tests

CPTu Pore Pressure Dissipation Test Results Along Section 1-1'

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I

Appendix B - Historical Geotechnical Data

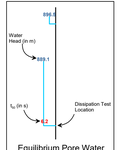
Figure 4-1a



SBT [Robertson, 2010]

1 Sensitive fine-grained
2 Clay - organic soil
3 Clays: clay to silty clay
4 Silt mixtures: clayey silt and & silty clay
5 Sand mixtures: silty sand to sandy silt
6 Sands: clean sands to silty sands
7 Dense sand to gravelly sand
8 Stiff sand to clayey sand (overconsolidated or cemented)
9 Stiff fine-grained (overconsolidated or cemented)

Notes:
1. Elevation profile is from 2018 topographic information.
2. Original elevation profile is from topographic surveys prior to dam construction.
3. Vertical datum is Mean Sea Level.
4. Raisings shown are schematic and approximate, and they are not meant to depict the dam configuration prior to failure.
5. Exploration locations are approximate.



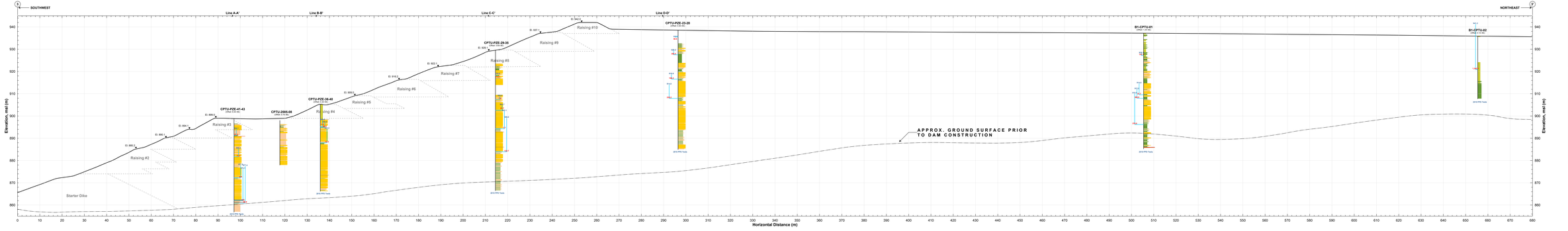
Equilibrium Pore Water Head from CPT Dissipation Tests

CPTu Pore Pressure Dissipation Test Results Along Section 2-2'

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I

Appendix B - Historical Geotechnical Data

Figure 4-1b

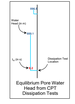


SBT [Robertson, 2016]

- 1 Sensitive fine-grained
- 2 Clay - organic soil
- 3 Clays: clay to silty clay
- 4 Silt mixtures: clayey silt and & silty clay
- 5 Sand mixtures: silty sand to sandy silt
- 6 Sands: clean sands to silty sands
- 7 Dense sand to gravelly sand
- 8 Stiff sand to clayey sand (overconsolidated or cemented)
- 9 Stiff fine-grained (overconsolidated or cemented)

Notes:

1. Elevation profile is from 2016 topographic information.
2. Raising elevations are based on the topographic surveys prior to dam construction.
3. Vertical datum is Mean Sea Level.
4. Raising elevations are approximate, not approximate, and they are not meant to depict the dam configuration prior to failure.
5. Exploration locations are approximate.

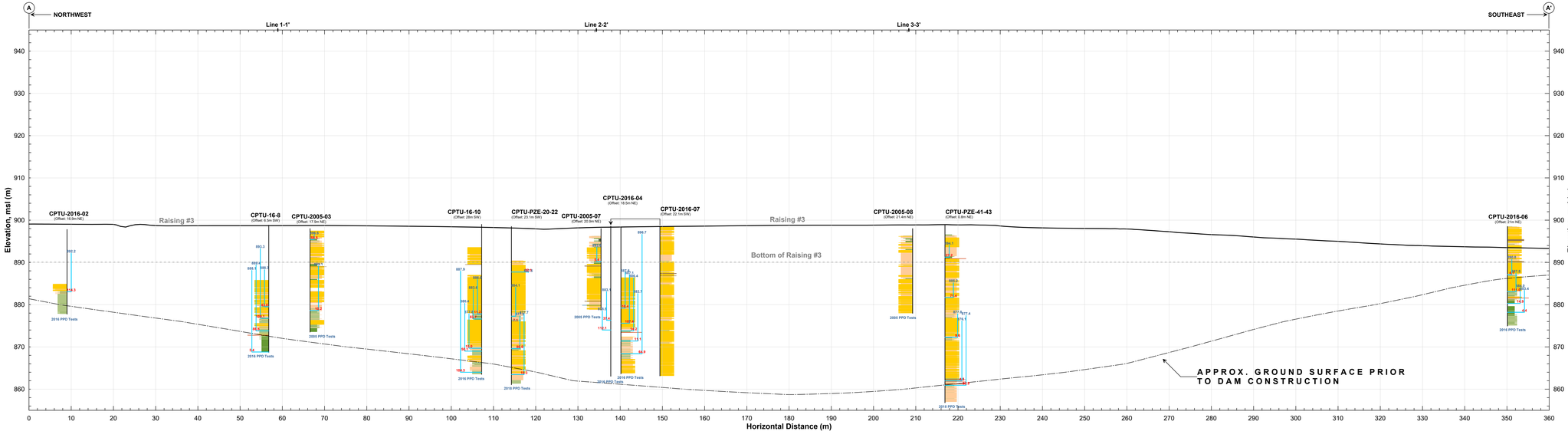


CPTu Pore Pressure Dissipation Test Results Along Section 3-3'

Report of the Expert Panel on the Technical Causes of the Failure of Hatfin Dam I

Appendix B - Historical Geotechnical Data

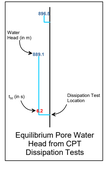
Figure 4-1c



SBT [Robertson, 2010]

1 Sensitive fine-grained
2 Clay - organic soil
3 Clays: clay to silty clay
4 Silt mixtures: clayey silt and & silty clay
5 Sand mixtures: silty sand to sandy silt
6 Sands: clean sands to silty sands
7 Dense sand to gravelly sand
8 Stiff sand to clayey sand (overconsolidated or cemented)
9 Stiff fine-grained (overconsolidated or cemented)

Notes:
1. Elevation profile is from 2018 topographic information.
2. Original elevation profile is from topographic surveys prior to dam construction.
3. Vertical datum is Mean Sea Level.
4. Raisings shown are schematic and approximate, and they are not meant to depict the dam configuration prior to failure.
5. Exploration locations are approximate.

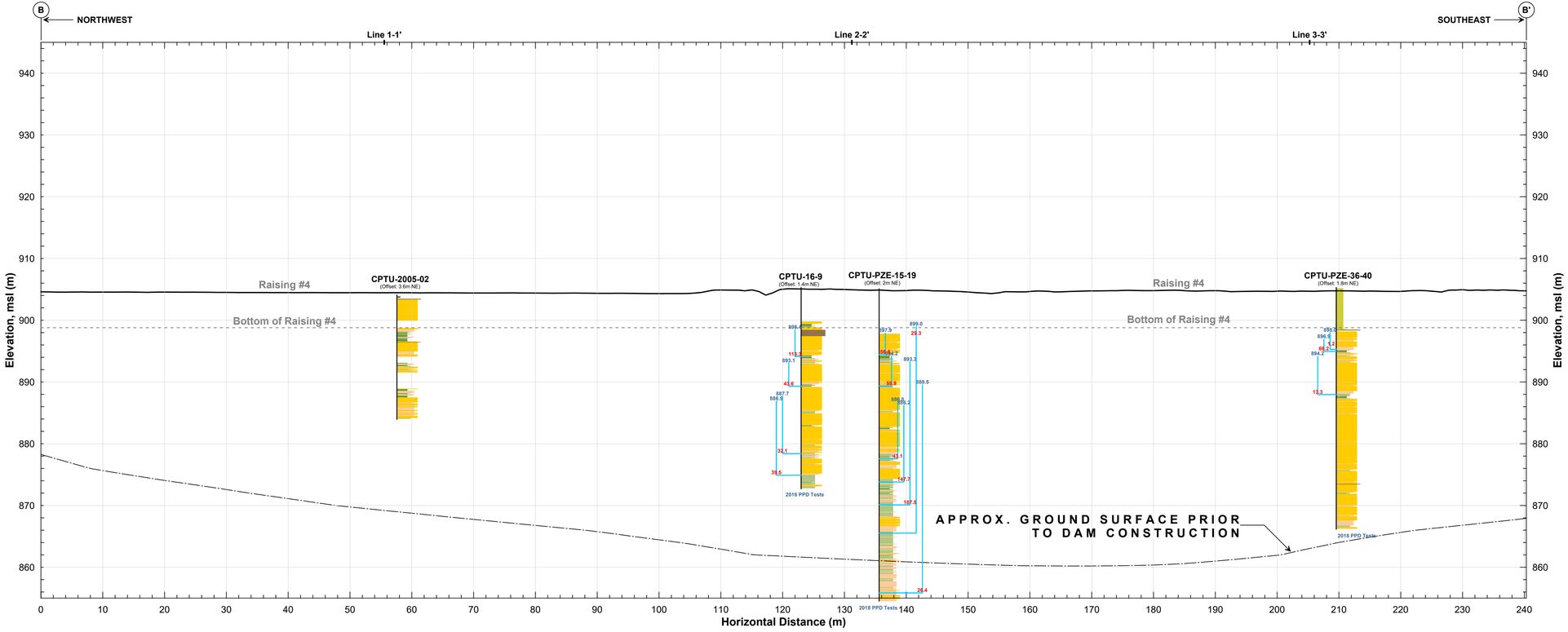


CPTu Pore Pressure Dissipation Test Results Along Section A-A'

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I

Appendix B - Historical Geotechnical Data

Figure 4-1d



SBT [Robertson, 2010]

- 1 Sensitive fine-grained
- 2 Clay - organic soil
- 3 Clays: clay to silty clay
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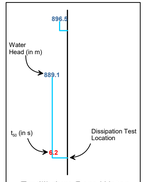
- 6 Sands: clean sands to silty sands
- 7 Dense sand to gravelly sand
- 8 Stiff sand to clayey sand (overconsolidated or cemented)
- 9 Stiff fine-grained (overconsolidated or cemented)

Notes:
1. Elevation profile is from 2018 topographic information.
2. Original elevation profile is from topographic surveys prior to dam construction.
3. Vertical datum is Mean Sea Level.
4. Raisings shown are schematic and approximate, and they are not meant to depict the dam configuration prior to failure.
5. Exploration locations are approximate.



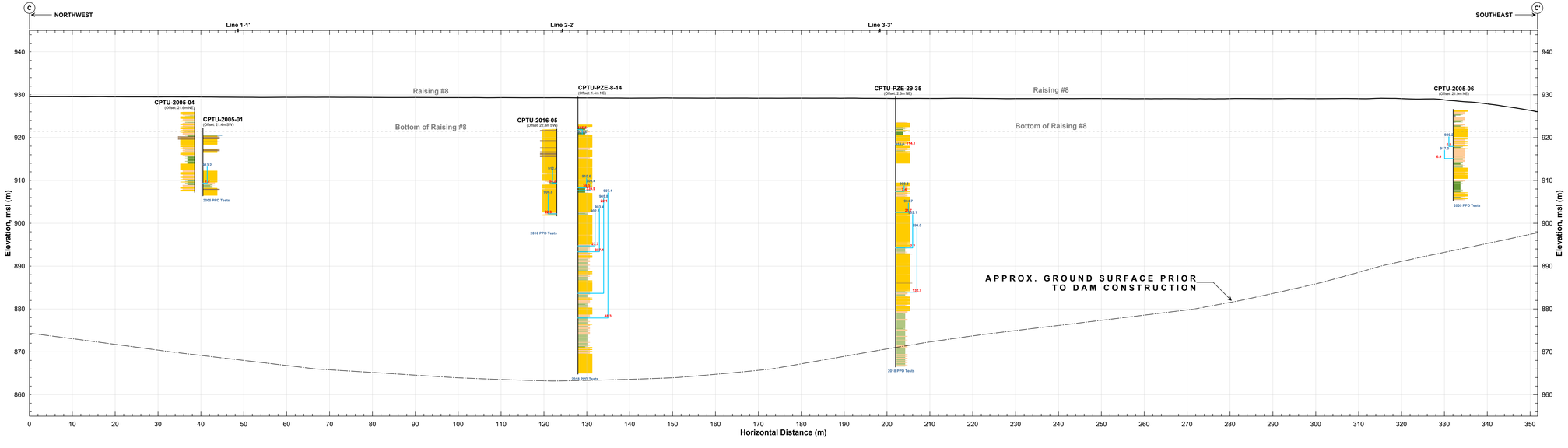
Equilibrium Pore Water Head from CPT Dissipation Tests

CPTu Pore Pressure Dissipation Test Results Along Section B-B'

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I

Appendix B - Historical Geotechnical Data

Figure 4-1e



SBT [Robertson, 2010]

- 1 Sensitive fine-grained
- 2 Clay - organic soil
- 3 Clays: clay to silty clay
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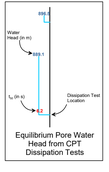
- 5 Sand mixtures: silty sand to sandy silt
- 6 Sands: clean sands to silty sands
- 7 Dense sand to gravelly sand
- 8 Stiff sand to clayey sand (overconsolidated or cemented)
- 9 Stiff fine-grained (overconsolidated or cemented)

Notes:

1. Elevation profile is from 2018 topographic information.
2. Original elevation profile is from topographic surveys prior to dam construction.
3. Vertical datum is Mean Sea Level.
4. Raisings shown are schematic and approximate, and they are not meant to depict the dam configuration prior to failure.
5. Exploration locations are approximate.



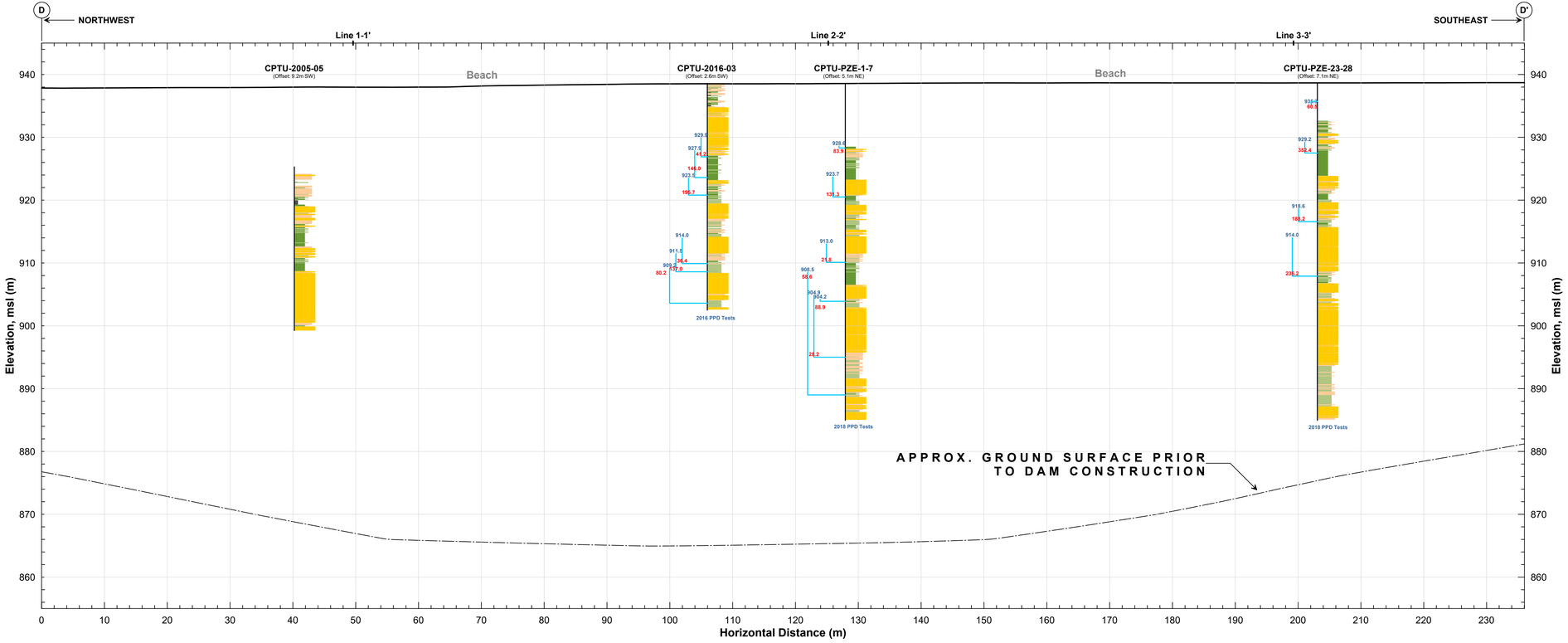
Equilibrium Pore Water Head from CPT Dissipation Tests

CPTu Pore Pressure Dissipation Test Results Along Section C-C'

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I

Appendix B - Historical Geotechnical Data

Figure 4-1f



SBT [Robertson, 2010]

- 1 Sensitive fine-grained
- 2 Clay - organic soil
- 3 Clays: clay to silty clay
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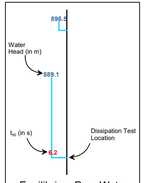
- 6 Sands: clean sands to silty sands
- 7 Dense sand to gravelly sand
- 8 Stiff sand to clayey sand (overconsolidated or cemented)
- 9 Stiff fine-grained (overconsolidated or cemented)

Notes:
1. Elevation profile is from 2018 topographic information.
2. Original elevation profile is from topographic surveys prior to dam construction.
3. Vertical datum is Mean Sea Level.
4. Raisings shown are schematic and approximate, and they are not meant to depict the dam configuration prior to failure.
5. Exploration locations are approximate.



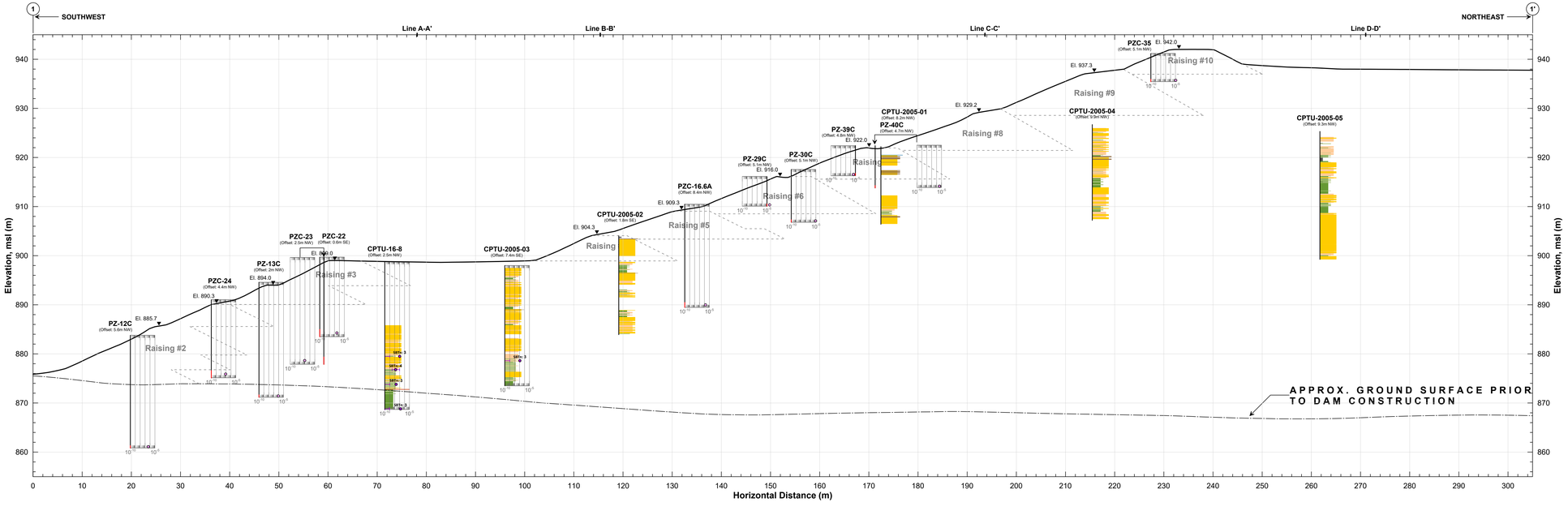
Equilibrium Pore Water Head from CPT Dissipation Tests

CPTu Pore Pressure Dissipation Test Results Along Section D-D'

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I

Appendix B - Historical Geotechnical Data

Figure 4-1g



SBT [Robertson, 2010]

- 1 Sensitive fine-grained
- 2 Clay - organic soil
- 3 Clays: clay to silty clay
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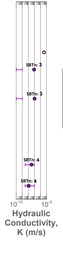
- 6 Sands: clean sands to silty sands
- 7 Dense sand to gravelly sand
- 8 Stiff sand to clayey sand (overconsolidated or cemented)
- 9 Stiff fine-grained (overconsolidated or cemented)

Notes:

1. Elevation profile is from 2018 topographic information.
2. Original elevation profile is from topographic surveys prior to dam construction.
3. Vertical datum is Mean Sea Level.
4. Raisings shown are schematic and approximate, and they are not meant to depict the dam configuration prior to failure.
5. Exploration locations are approximate.



Legend

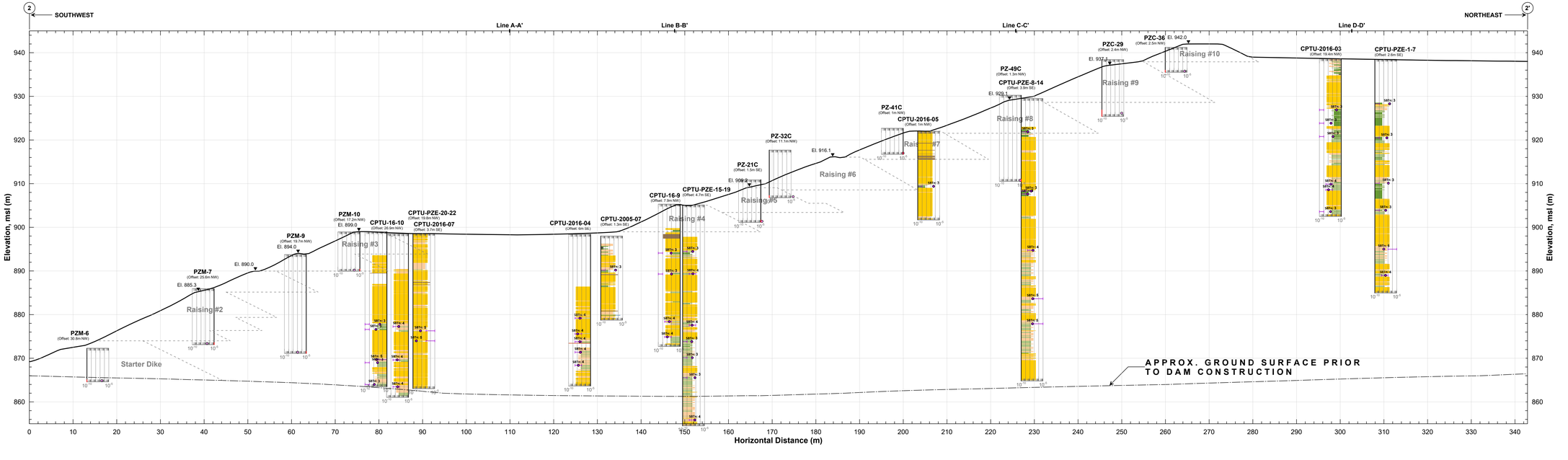
- K Measured from Infiltration Test
- K Estimated from Pore Pressure Dissipation Test
- Expected Range in K Based on SBTn Soil Type

Hydraulic Conductivity Profiles Along Section 1-1'

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I

Appendix B - Historical Geotechnical Data

Figure 4-2a



SBT [Robertson, 2010]

1 Sensitive fine-grained
2 Clay - organic soil
3 Clays: clay to silty clay
4 Silt mixtures: clayey silt and & silty clay
5 Sand mixtures: silty sand to sandy silt
6 Sands: clean sands to silty sands
7 Dense sand to gravelly sand
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Notes:
1. Elevation profile is from 2018 topographic information.
2. Original elevation profile is from topographic surveys prior to dam construction.
3. Vertical datum is Mean Sea Level.
4. Raisings shown are schematic and approximate, and they are not meant to depict the dam configuration prior to failure.
5. Exploration locations are approximate.

Legend

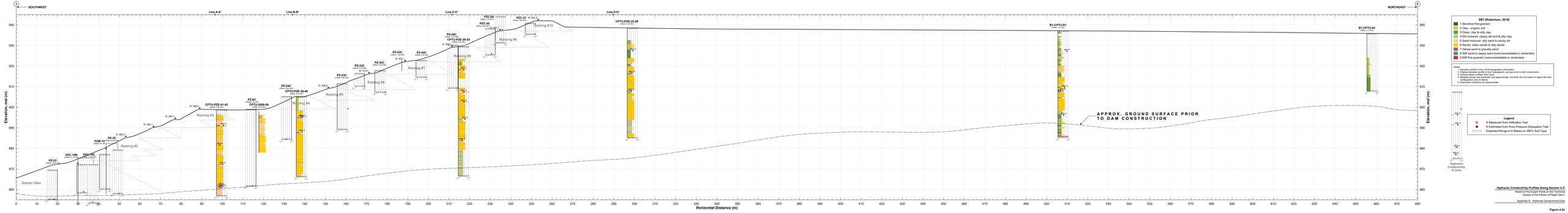
K Measured from Infiltration Test
K Estimated from Pore Pressure Dissipation Test
Expected Range in K Based on SBTn Soil Type

Hydraulic Conductivity Profiles Along Section 2-2'

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I

Appendix B - Historical Geotechnical Data

Figure 4-2b

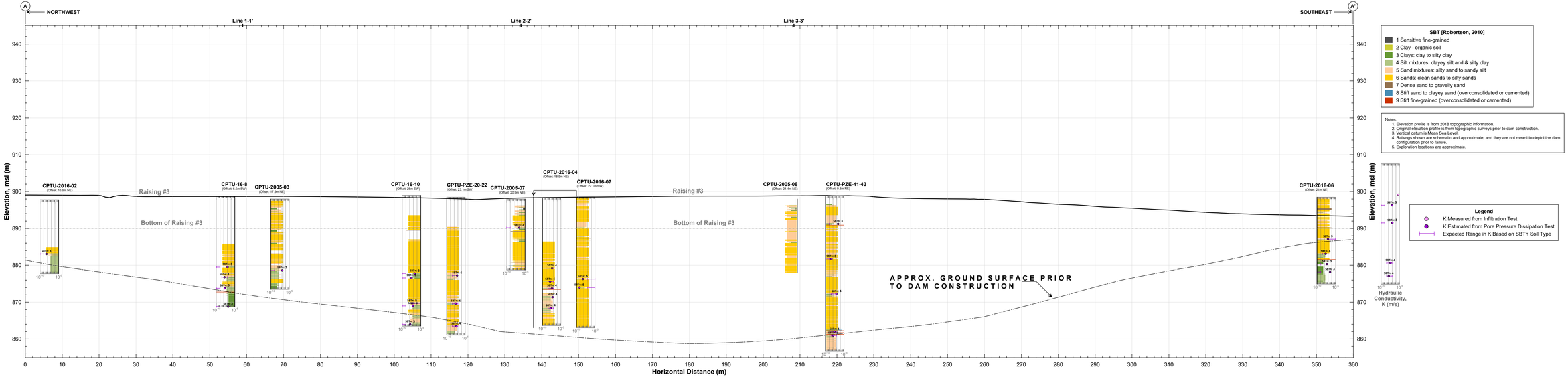


Hydraulic Conductivity Profiles Along Section 3-3'

Report of the Expert Panel on the Technical Causes of the Failure of Hatfin Dam

Appendix B - Historical Geotechnical Data

Figure 4-2c

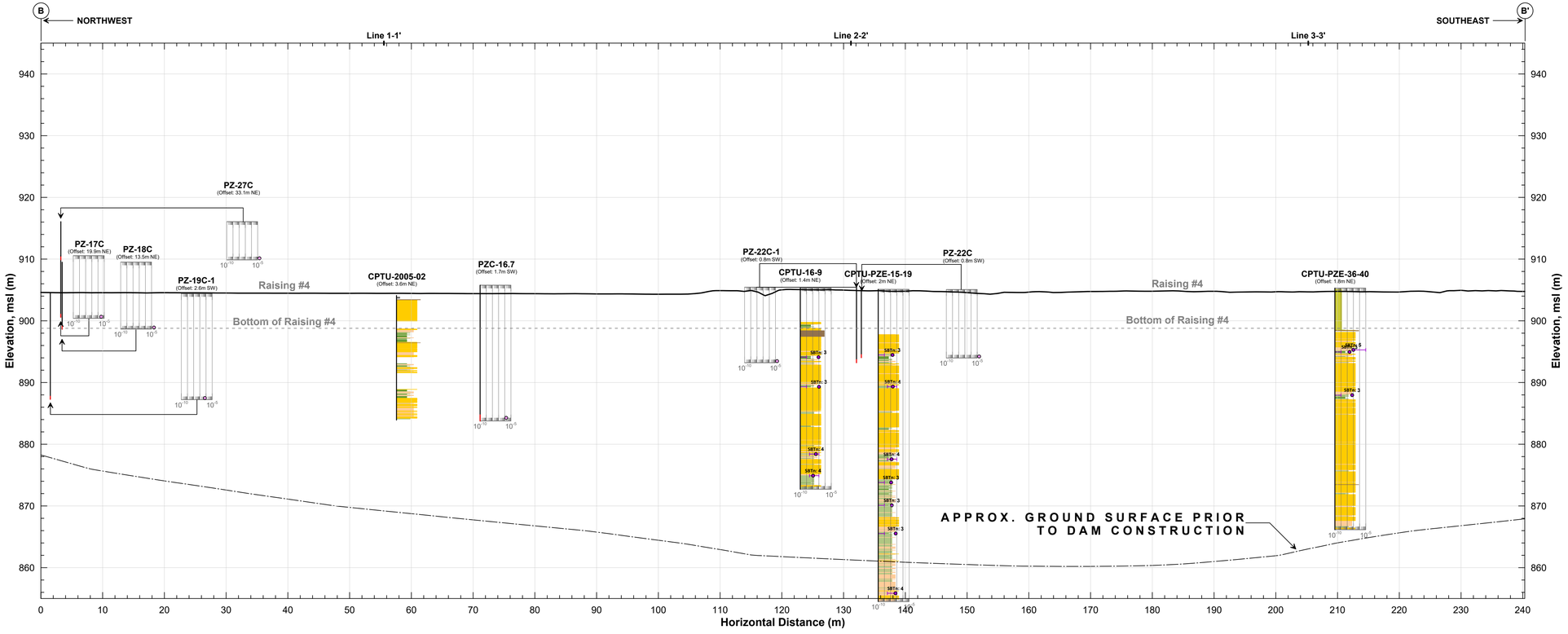


Hydraulic Conductivity Profiles Along Section A-A'

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I

Appendix B - Historical Geotechnical Data

Figure 4-2d



SBT [Robertson, 2010]

- 1 Sensitive fine-grained
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- 3 Clays: clay to silty clay
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- 6 Sands: clean sands to silty sands
- 7 Dense sand to gravelly sand
- 8 Stiff sand to clayey sand (overconsolidated or cemented)
- 9 Stiff fine-grained (overconsolidated or cemented)

Notes:
1. Elevation profile is from 2018 topographic information.
2. Original elevation profile is from topographic surveys prior to dam construction.
3. Vertical datum is Mean Sea Level.
4. Raisings shown are schematic and approximate, and they are not meant to depict the dam configuration prior to failure.
5. Exploration locations are approximate.

Legend

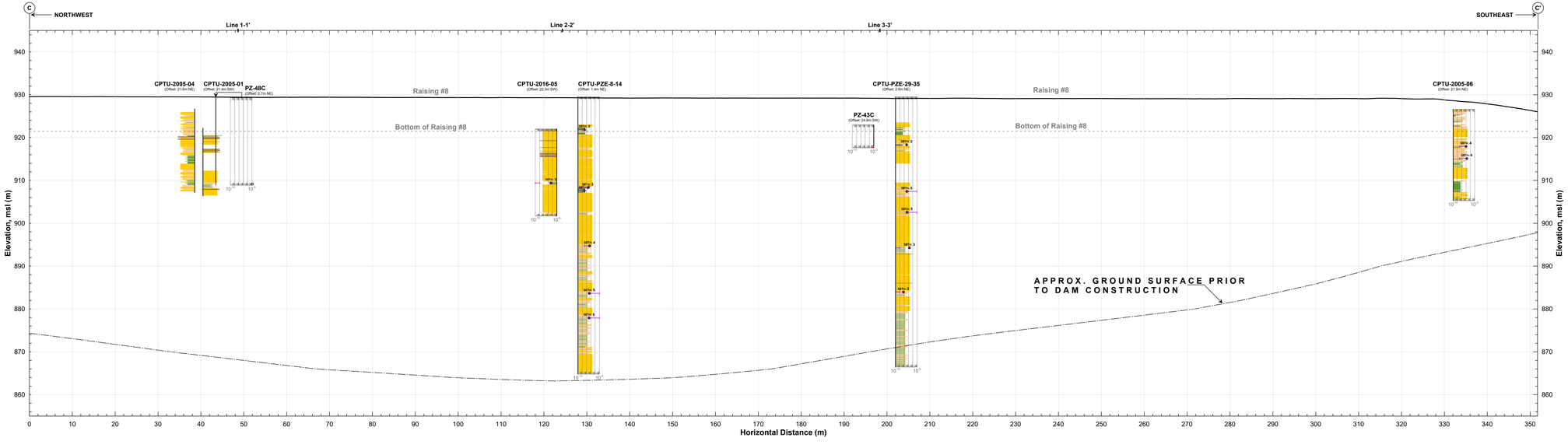
- K Measured from Infiltration Test
- K Estimated from Pore Pressure Dissipation Test
- Expected Range in K Based on SBTn Soil Type

Hydraulic Conductivity Profiles Along Section B-B'

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I

Appendix B - Historical Geotechnical Data

Figure 4-2e



SBT [Robertson, 2010]

1 Sensitive fine-grained
2 Clay - organic soil
3 Clays: clay to silty clay
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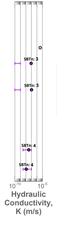
6 Sands: clean sands to silty sands
7 Dense sand to gravelly sand
8 Stiff sand to clayey sand (overconsolidated or cemented)
9 Stiff fine-grained (overconsolidated or cemented)

Notes:
1. Elevation profile is from 2018 topographic information.
2. Original elevation profile is from topographic surveys prior to dam construction.
3. Vertical datum is Mean Sea Level.
4. Raisings shown are schematic and approximate, and they are not meant to depict the dam configuration prior to failure.
5. Exploration locations are approximate.



Legend

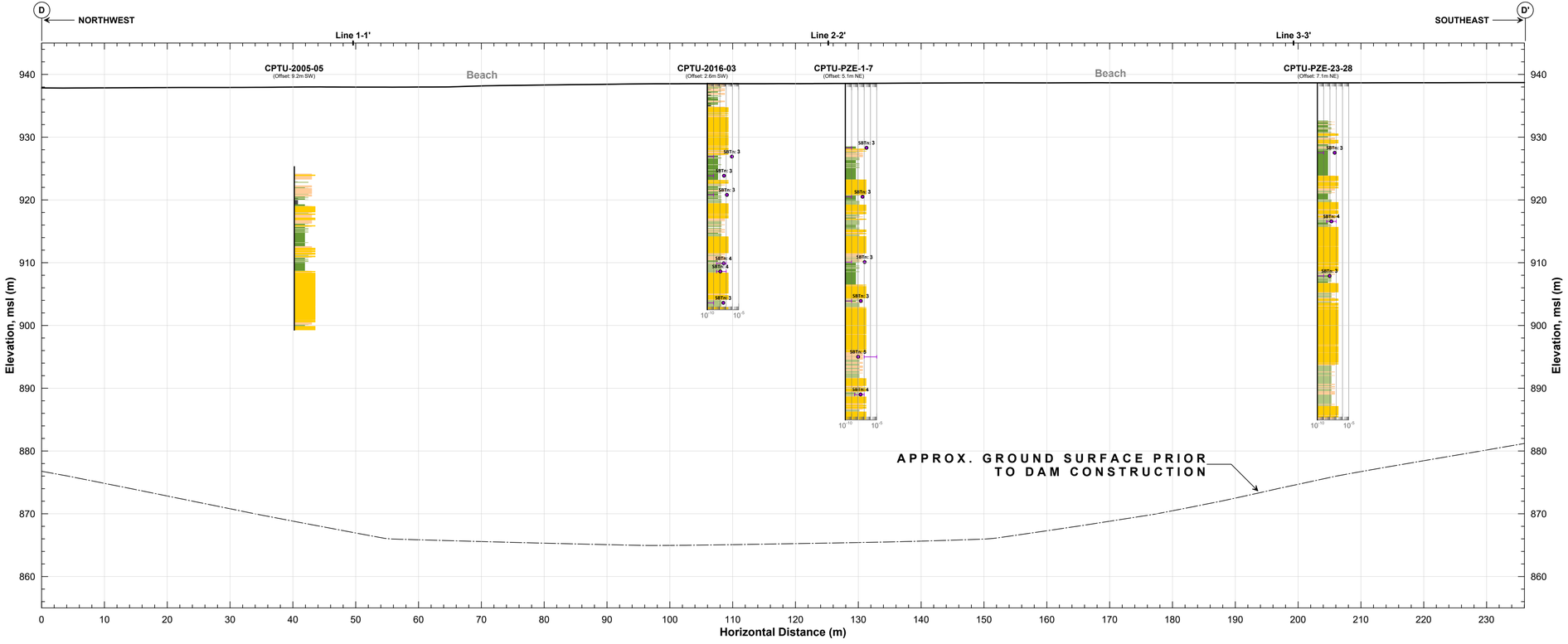
K Measured from Infiltration Test
K Estimated from Pore Pressure Dissipation Test
Expected Range in K Based on SBTn Soil Type

Hydraulic Conductivity Profiles Along Section C-C'

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I

Appendix B - Historical Geotechnical Data

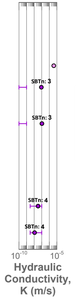
Figure 4-2f



SBT [Robertson, 2010]

1 Sensitive fine-grained
2 Clay - organic soil
3 Clays: clay to silty clay
4 Silt mixtures: clayey silt and & silty clay
5 Sand mixtures: silty sand to sandy silt
6 Sands: clean sands to silty sands
7 Dense sand to gravelly sand
8 Stiff sand to clayey sand (overconsolidated or cemented)
9 Stiff fine-grained (overconsolidated or cemented)

Notes:
1. Elevation profile is from 2018 topographic information.
2. Original elevation profile is from topographic surveys prior to dam construction.
3. Vertical datum is Mean Sea Level.
4. Raisings shown are schematic and approximate, and they are not meant to depict the dam configuration prior to failure.
5. Exploration locations are approximate.



Legend

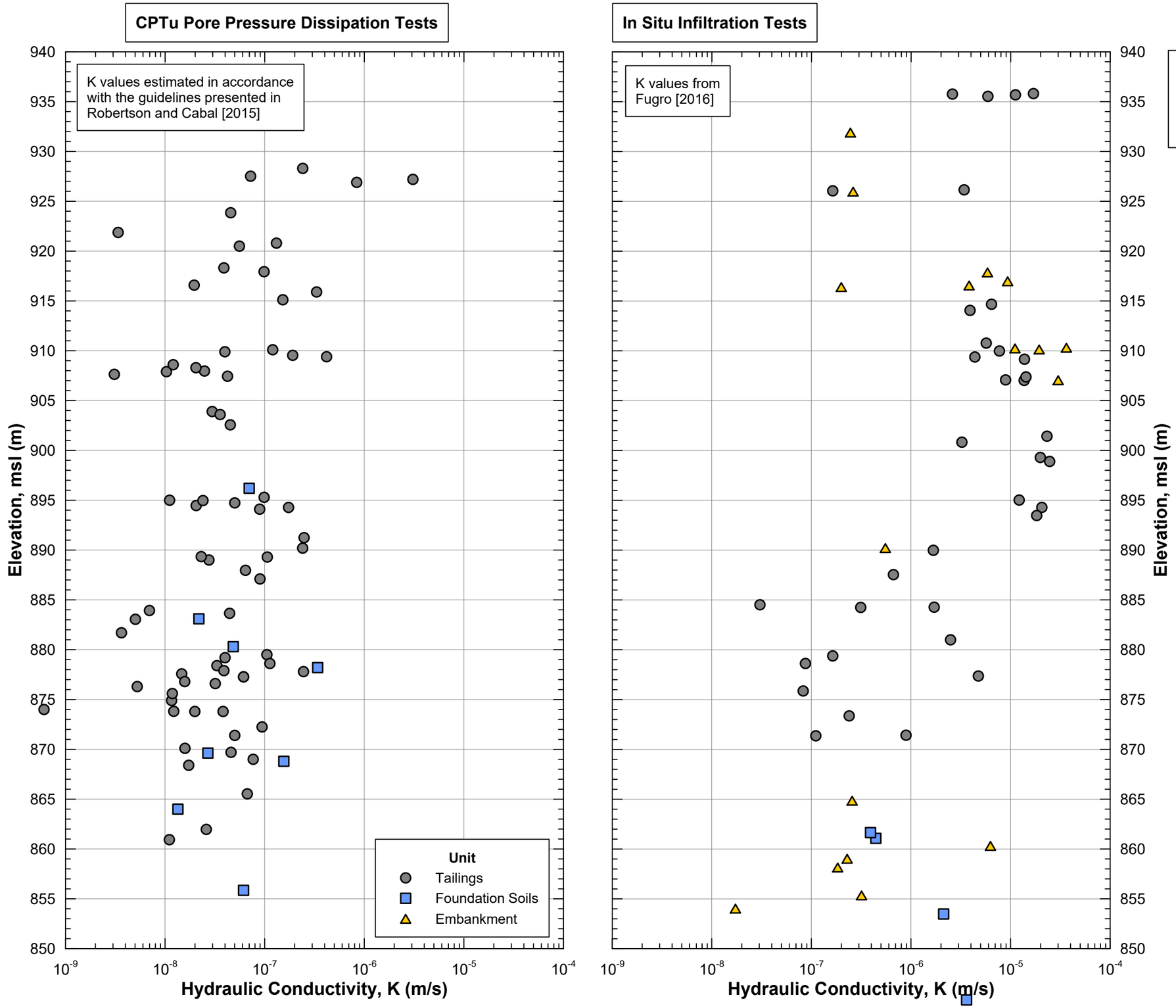
K Measured from Infiltration Test
K Estimated from Pore Pressure Dissipation Test
Expected Range in K Based on SBTn Soil Type

Hydraulic Conductivity Profiles Along Section D-D'

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I

Appendix B - Historical Geotechnical Data

Figure 4-2g



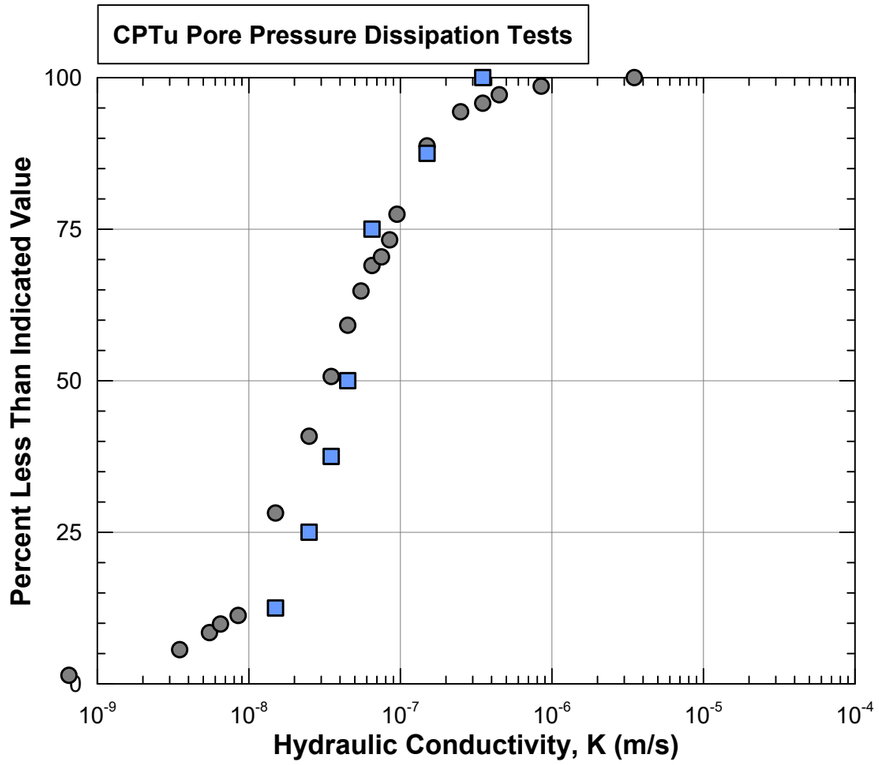
Note:
1. Not enough information was available for the test data of tailings presented here to distinguish if the tests were on coarse or fine tailings, or slimes.

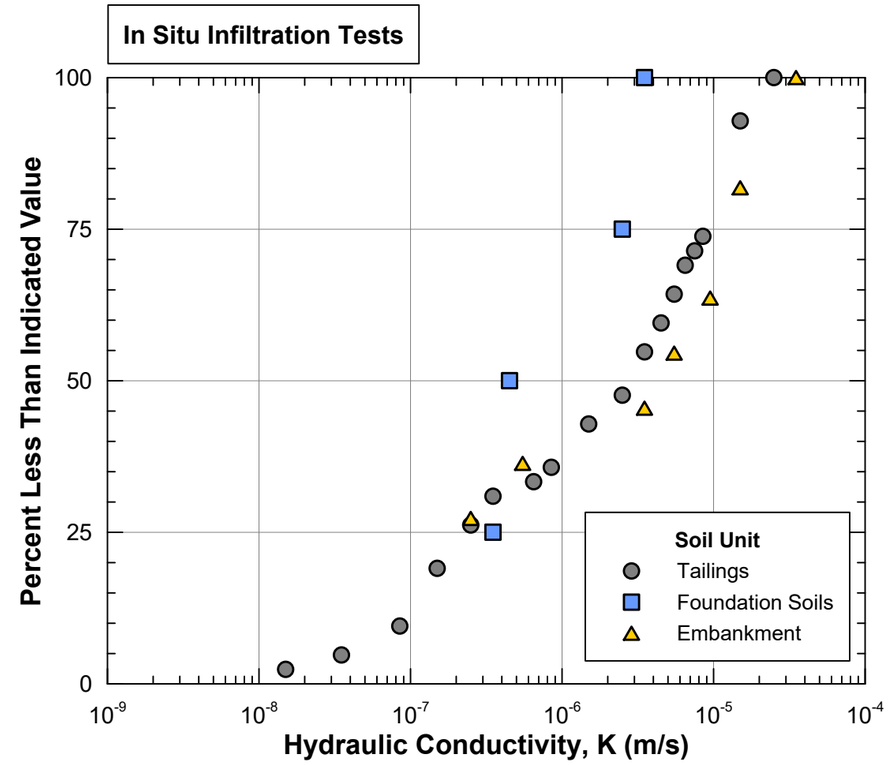
Summary of Hydraulic Conductivity Estimates: Tailings, Embankment, and Foundation Soils

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I

Appendix B - Historical Geotechnical Data

Figure 4-3a





Hydraulic Conductivity CPTu PPD Tests	Unit	
	Tailings	Foundation Soils
Number of Tests	73	8
Average (m/s)	1.2E-07	9.2E-08
Standard Deviation (m/s)	3.7E-07	1.1E-07
Maximum (m/s)	3.1E-06	3.4E-07
Minimum (m/s)	0.0E+00	1.3E-08

Hydraulic Conductivity In Situ Infiltration Tests	Unit		
	Embankment	Tailings	Foundation Soils
Number of Tests	11	42	4
Average (m/s)	1.1E-05	6.3E-06	1.6E-06
Standard Deviation (m/s)	1.3E-05	7.3E-06	1.5E-06
Maximum (m/s)	3.6E-05	2.5E-05	3.6E-06
Minimum (m/s)	2.0E-07	1.7E-08	3.9E-07

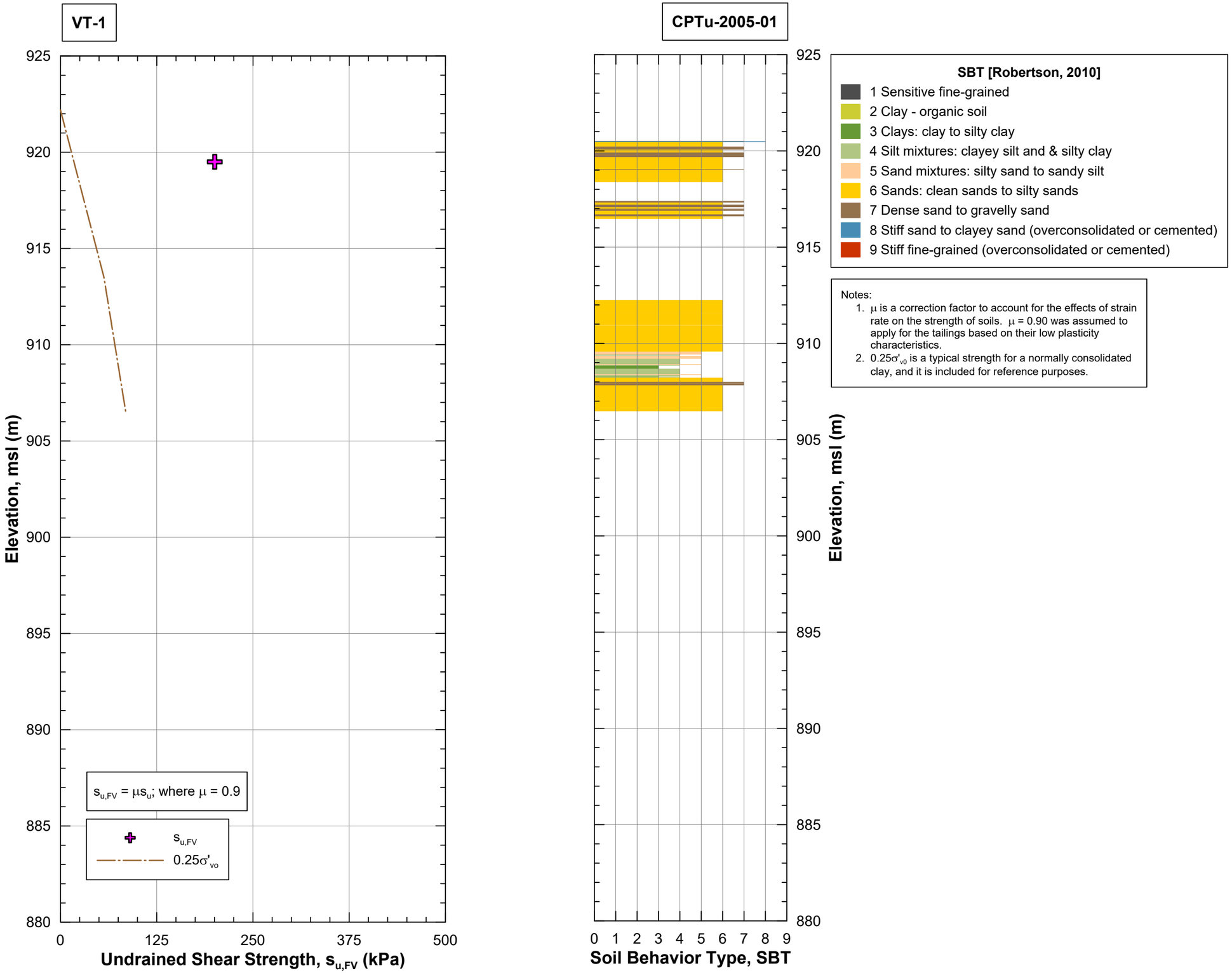
Note:
1. Not enough information was available for the test data of tailings presented here to distinguish if the tests were on coarse or fine tailings, or slimes.

Statistical Analysis of Hydraulic Conductivity: Tailings, Embankment, and Foundation Soils

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I

Appendix B - Historical Geotechnical Data

Figure 4-3b

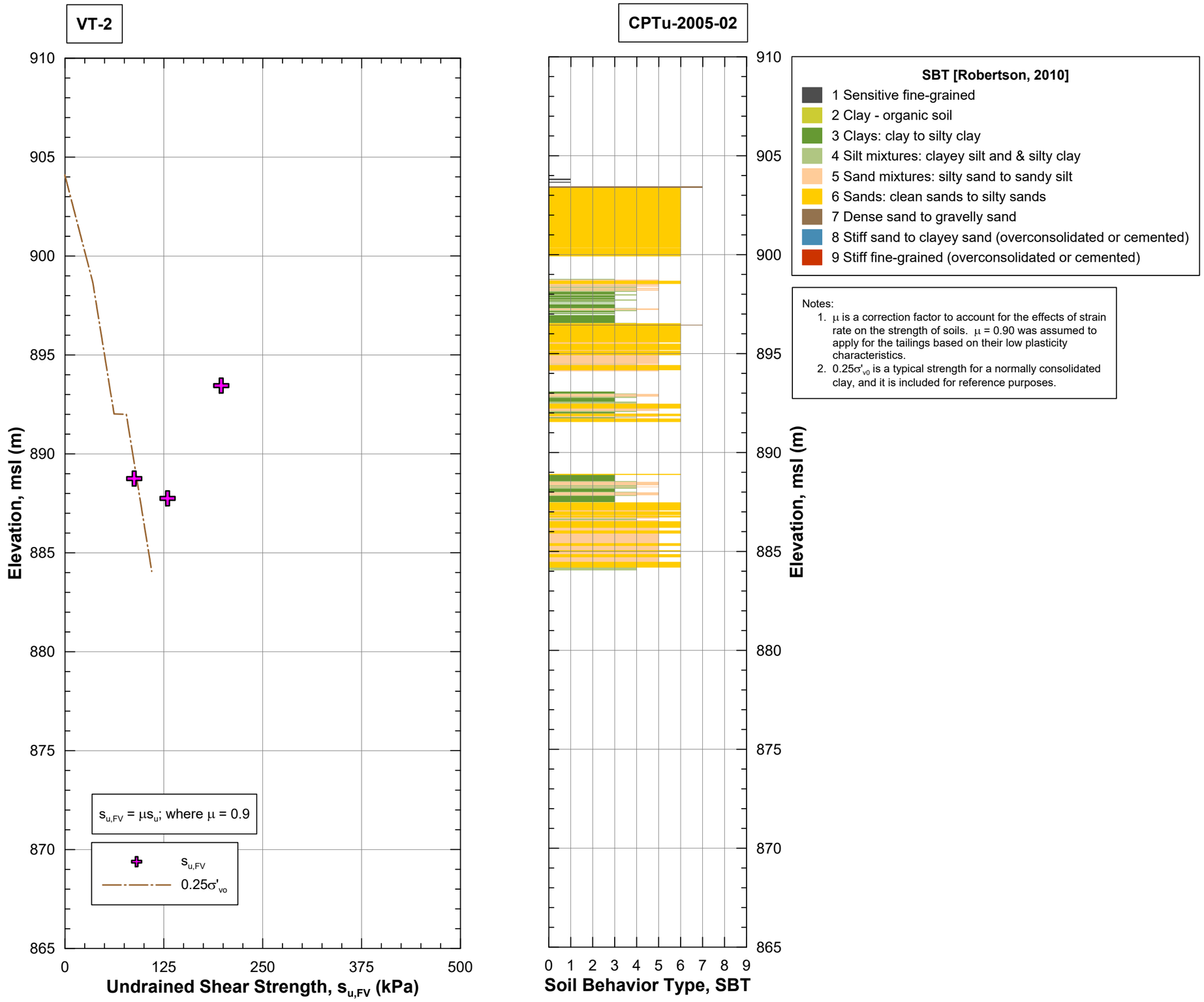


Peak Residual Undrained Shear Strength: VT-1

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I

Appendix B - Historical Geotechnical Data

Figure 4-4a



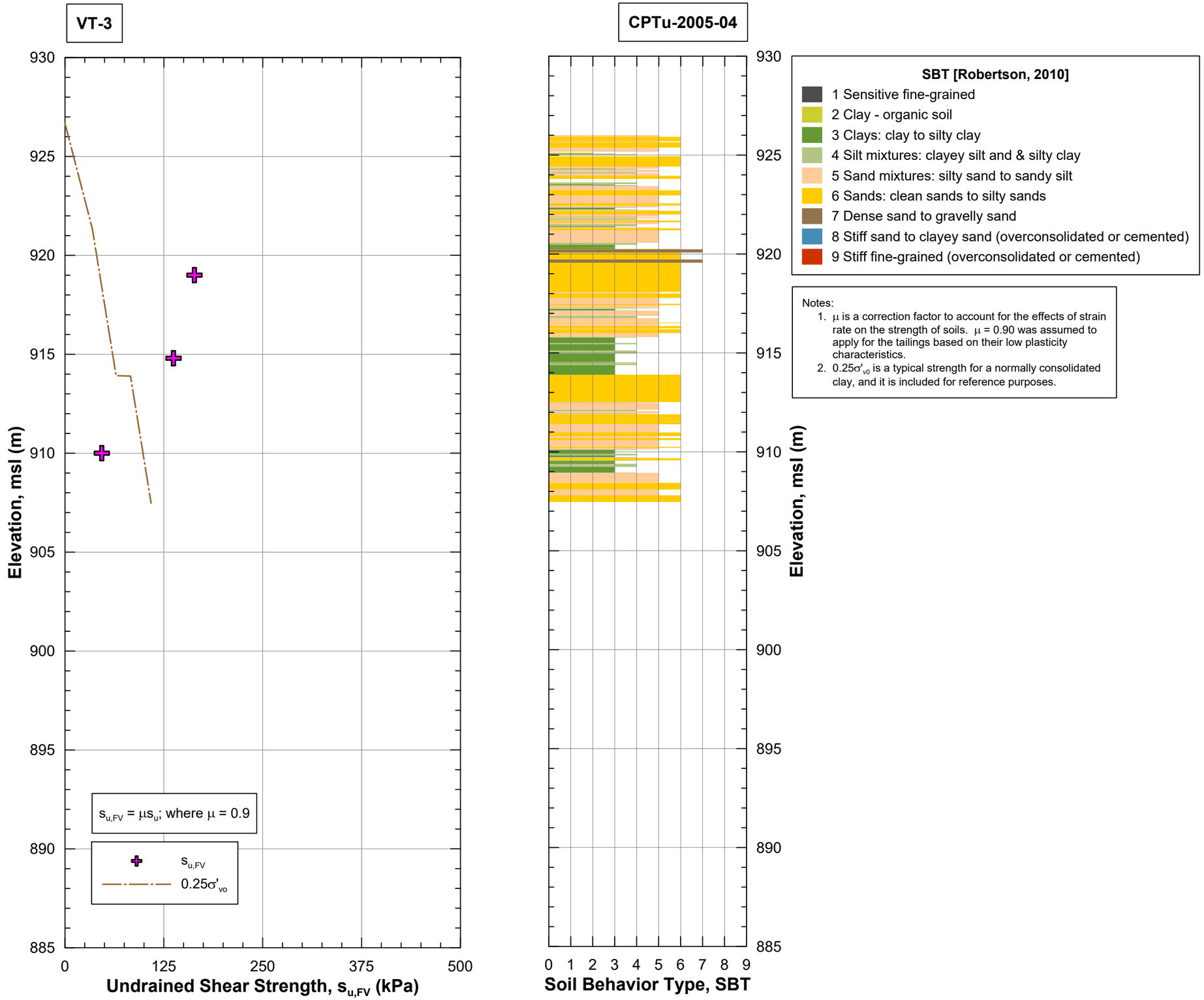
Notes:
1. μ is a correction factor to account for the effects of strain rate on the strength of soils. μ = 0.90 was assumed to apply for the tailings based on their low plasticity characteristics.
2. $0.25\sigma'_{v0}$ is a typical strength for a normally consolidated clay, and it is included for reference purposes.

Peak Residual Undrained Shear Strength: VT-2

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I

Appendix B - Historical Geotechnical Data

Figure 4-4b



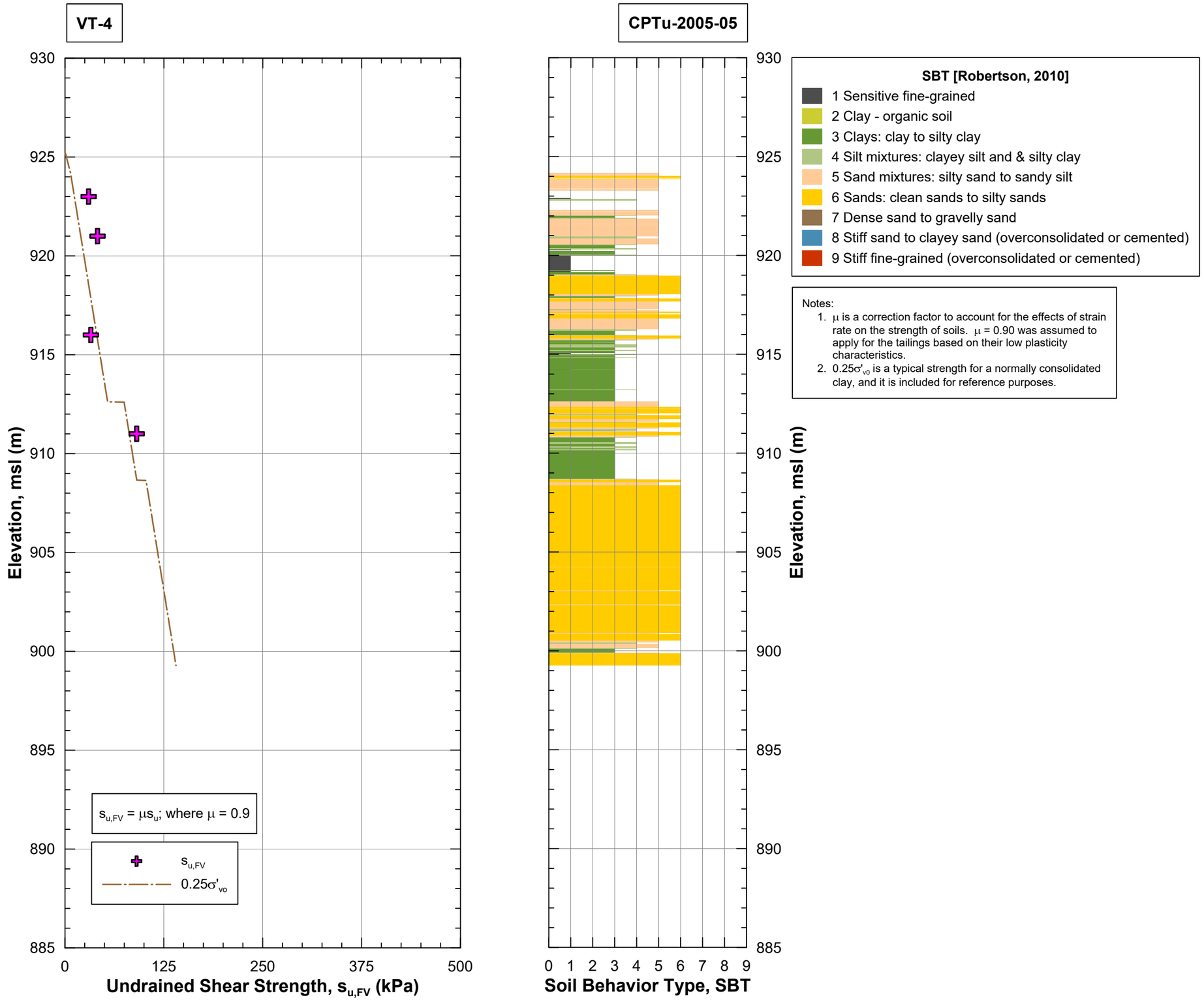
Notes:
1. μ is a correction factor to account for the effects of strain rate on the strength of soils. μ = 0.90 was assumed to apply for the tailings based on their low plasticity characteristics.
2. $0.25\sigma'_{v0}$ is a typical strength for a normally consolidated clay, and it is included for reference purposes.

Peak Residual Undrained Shear Strength: VT-3

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I

Appendix B - Historical Geotechnical Data

Figure 4-4c

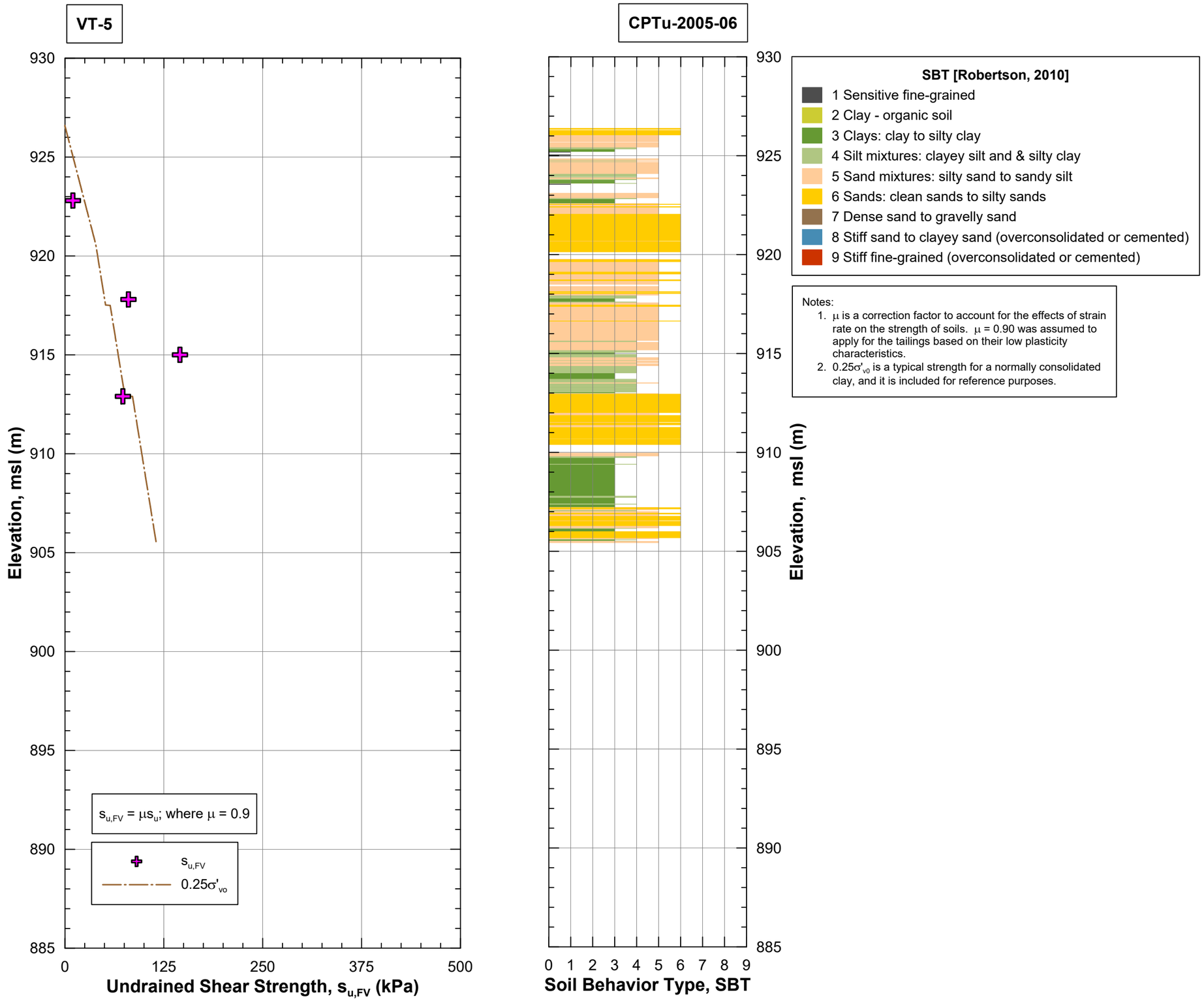


Peak Residual Undrained Shear Strength: VT-4

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I

Appendix B - Historical Geotechnical Data

Figure 4-4d

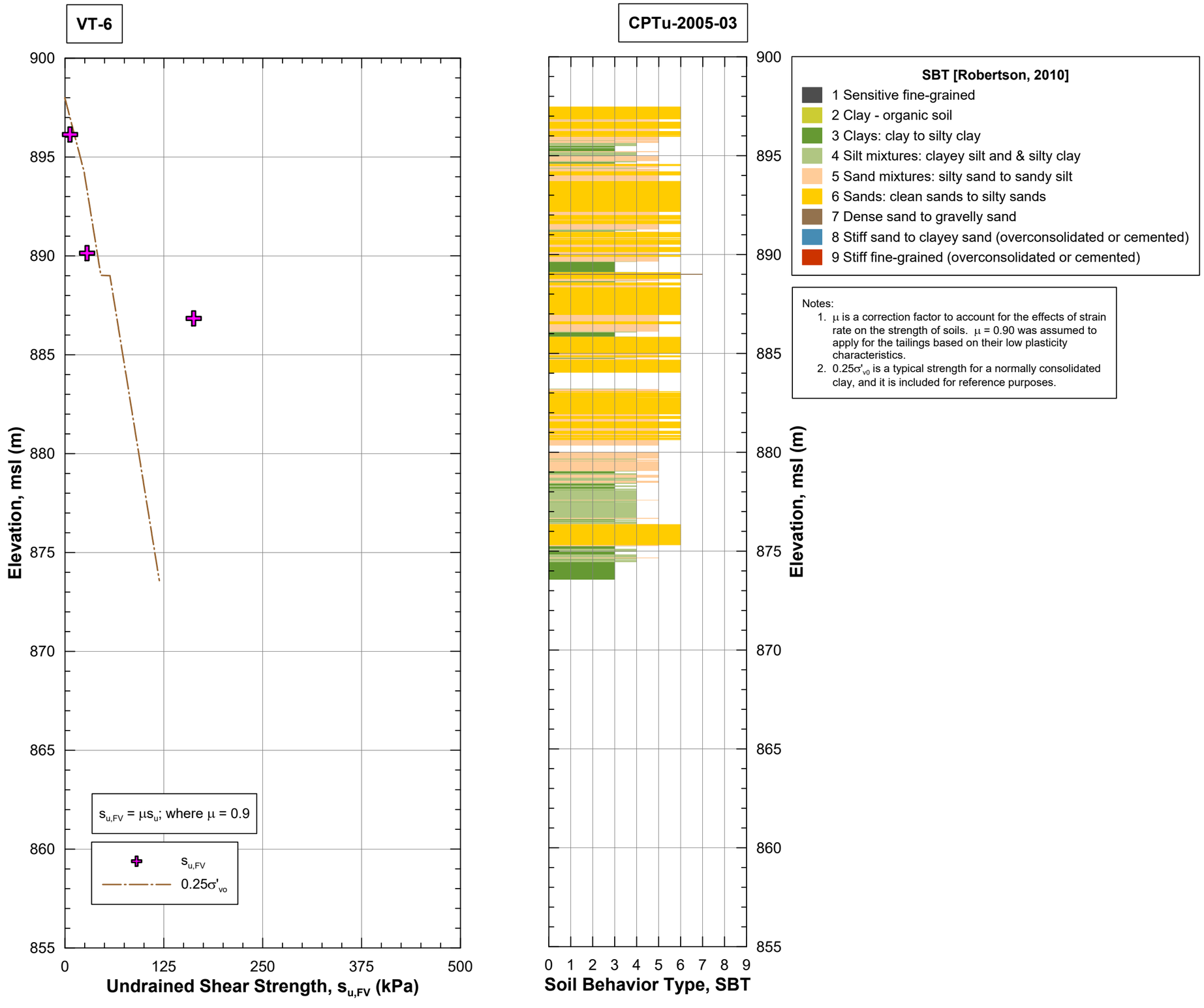


Peak Residual Undrained Shear Strength: VT-5

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I

Appendix B - Historical Geotechnical Data

Figure 4-4e

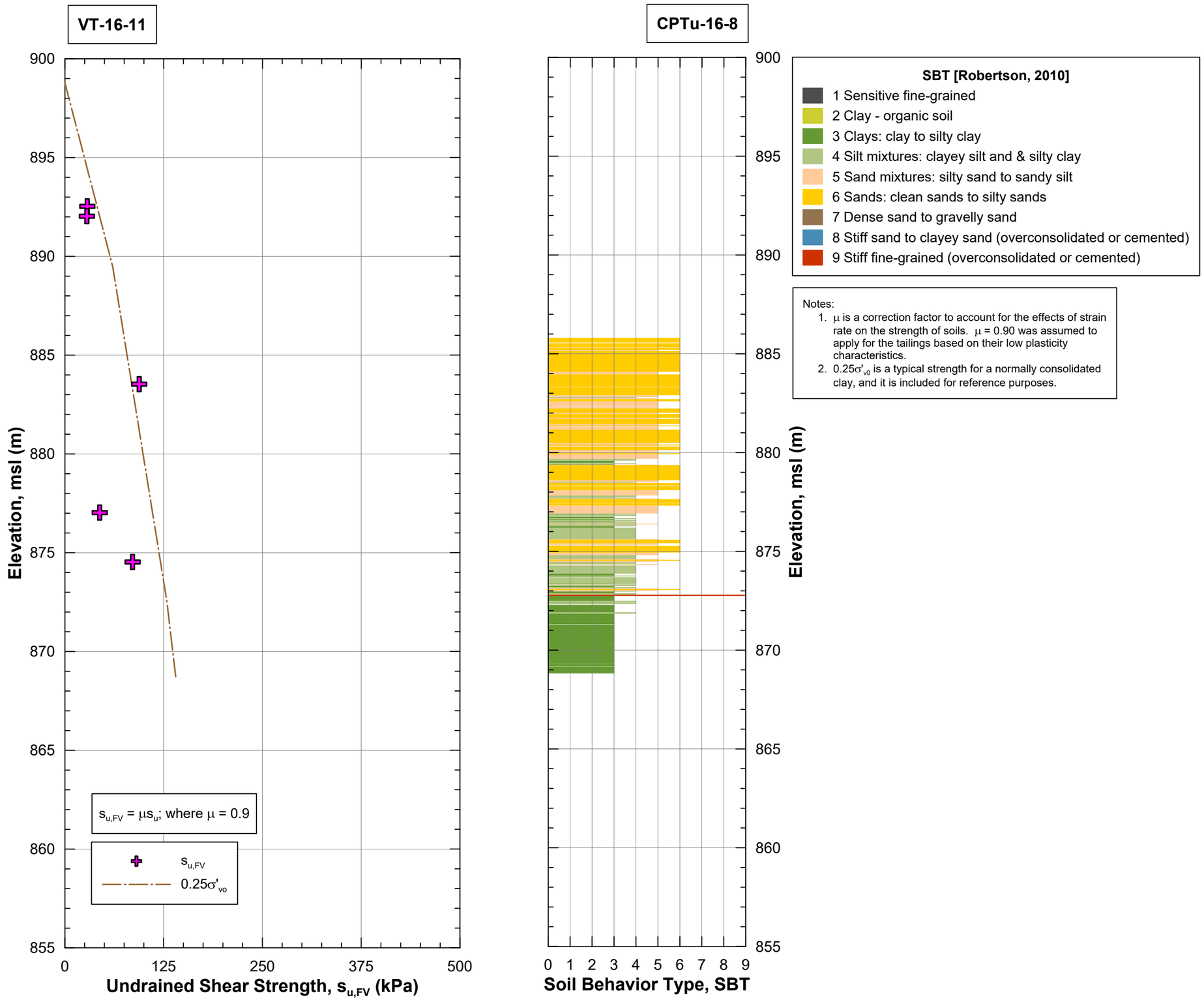


Peak Residual Undrained Shear Strength: VT-6

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I

Appendix B - Historical Geotechnical Data

Figure 4-4f

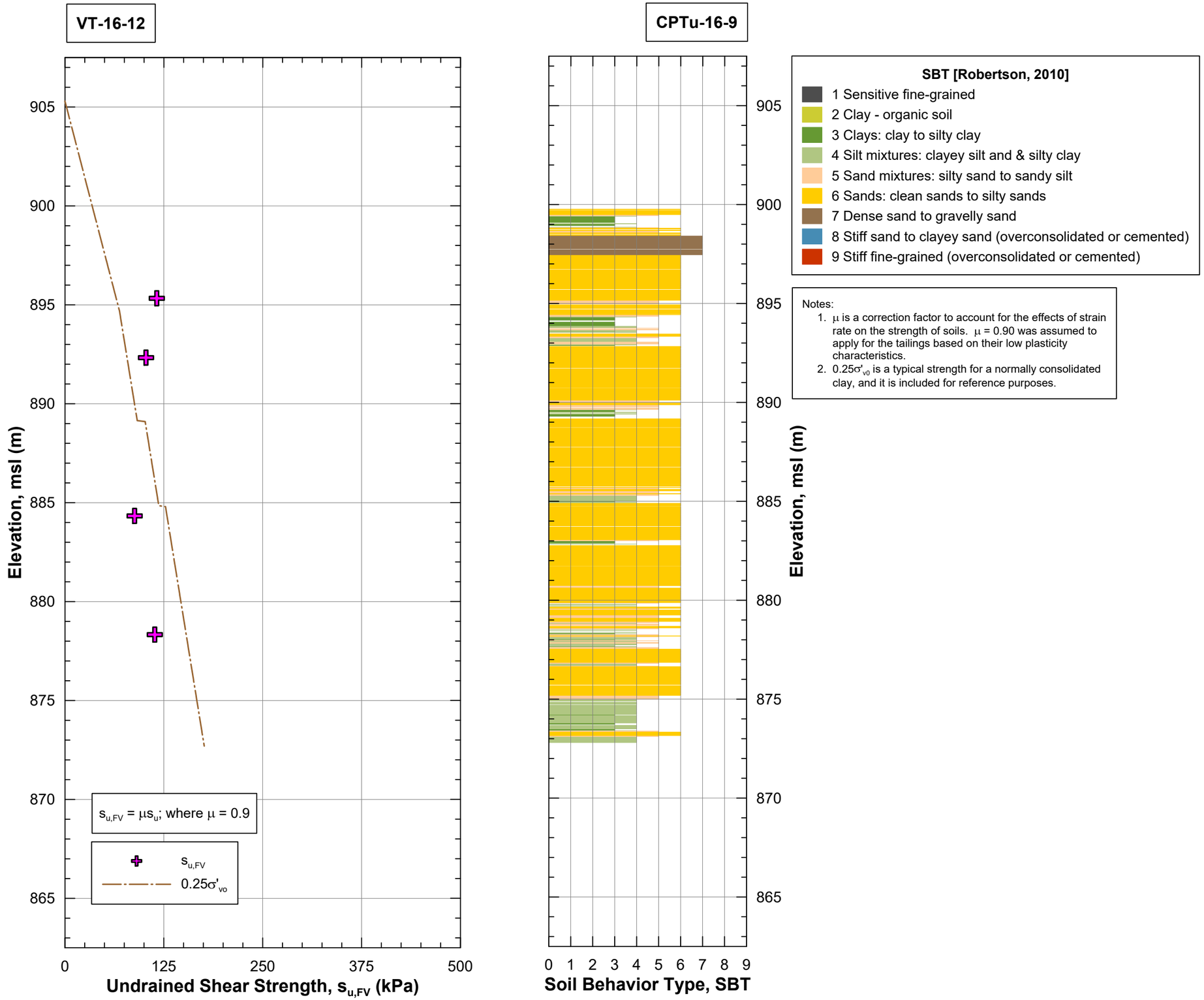


Peak Residual Undrained Shear Strength: VT-16-11

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I

Appendix B - Historical Geotechnical Data

Figure 4-4g



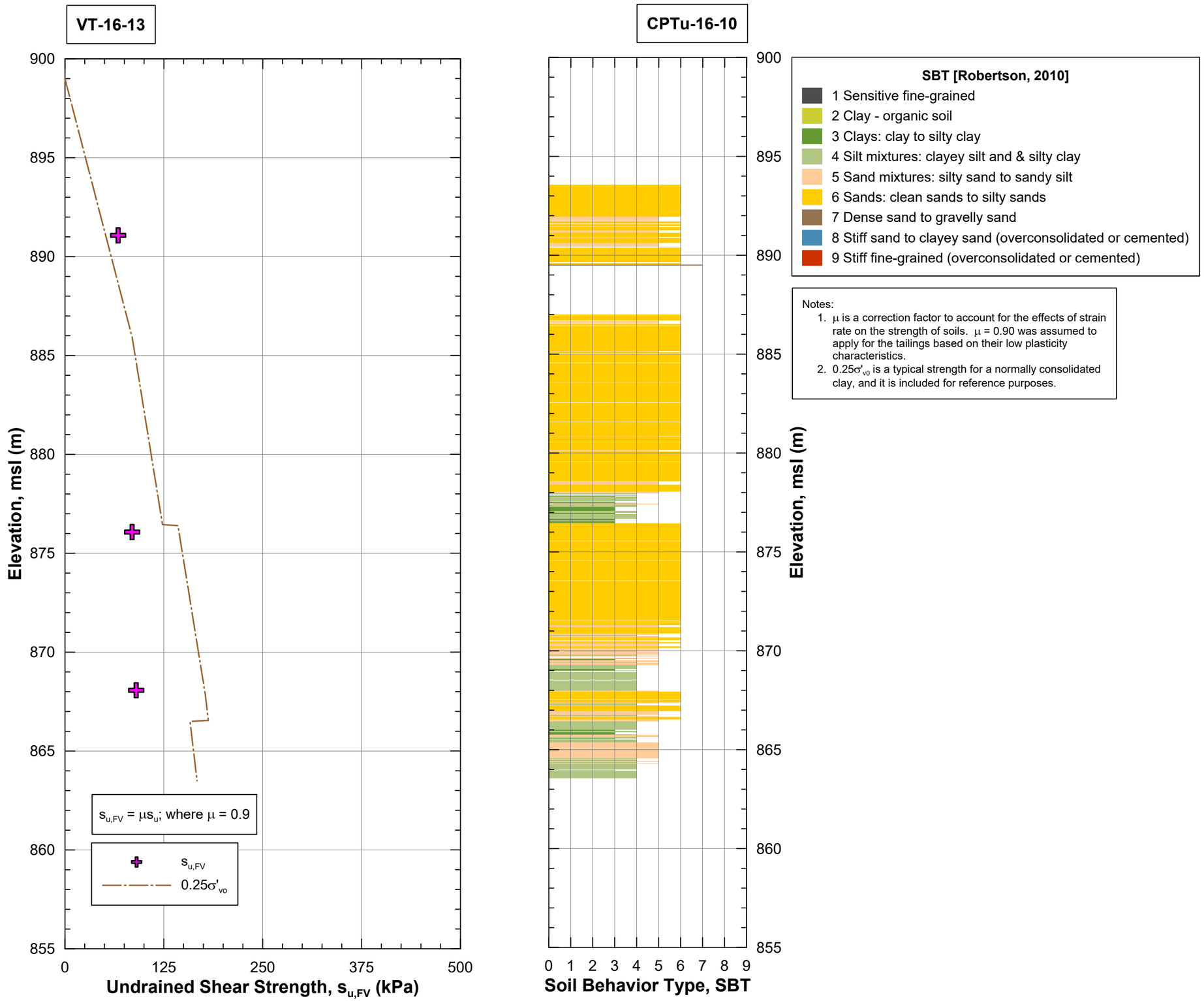
Notes:
1. μ is a correction factor to account for the effects of strain rate on the strength of soils. μ = 0.90 was assumed to apply for the tailings based on their low plasticity characteristics.
2. $0.25\sigma'_{v0}$ is a typical strength for a normally consolidated clay, and it is included for reference purposes.

Peak Residual Undrained Shear Strength: VT-16-12

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I

Appendix B - Historical Geotechnical Data

Figure 4-4h

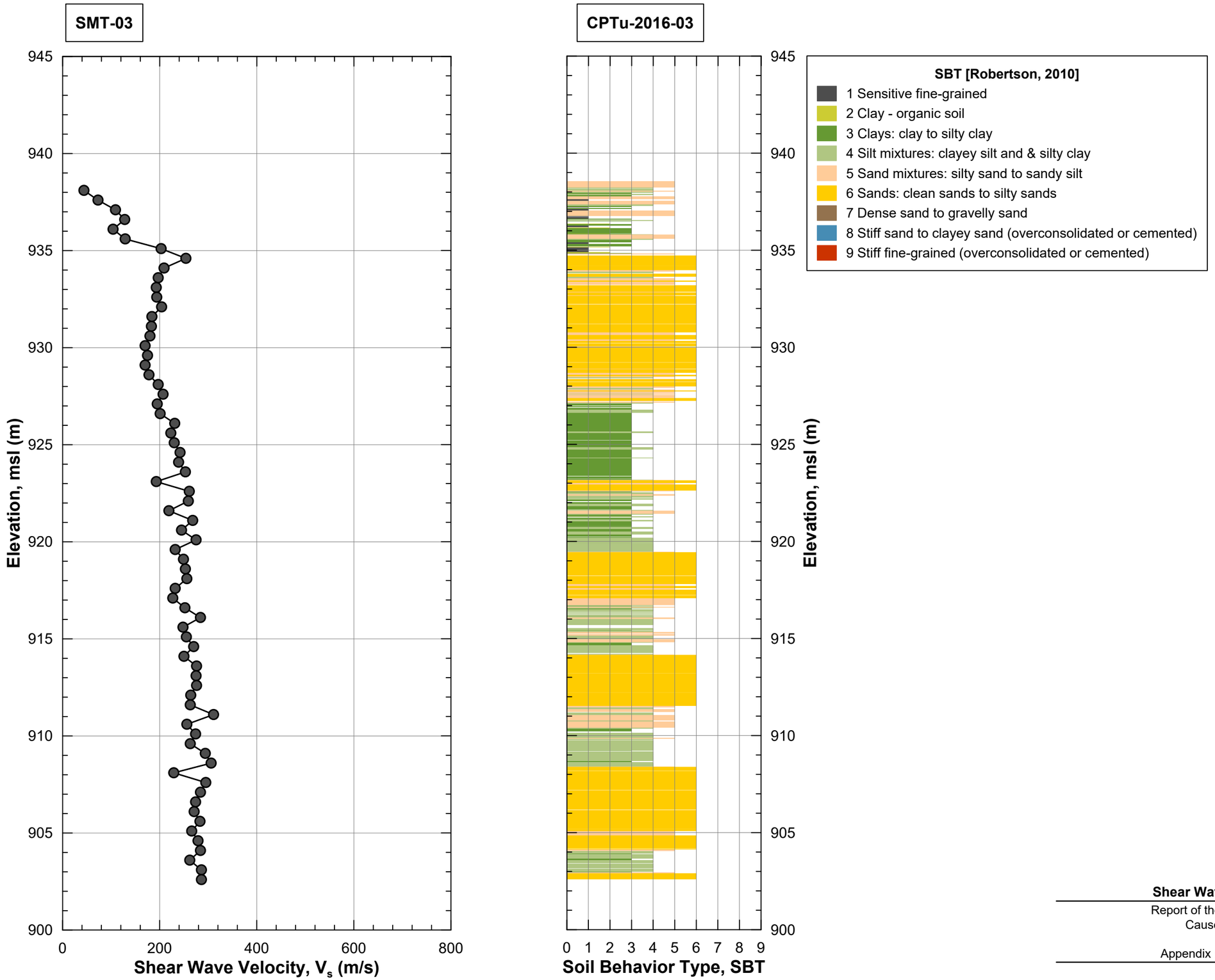


Peak Residual Undrained Shear Strength: VT-16-13

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I

Appendix B - Historical Geotechnical Data

Figure 4-4i

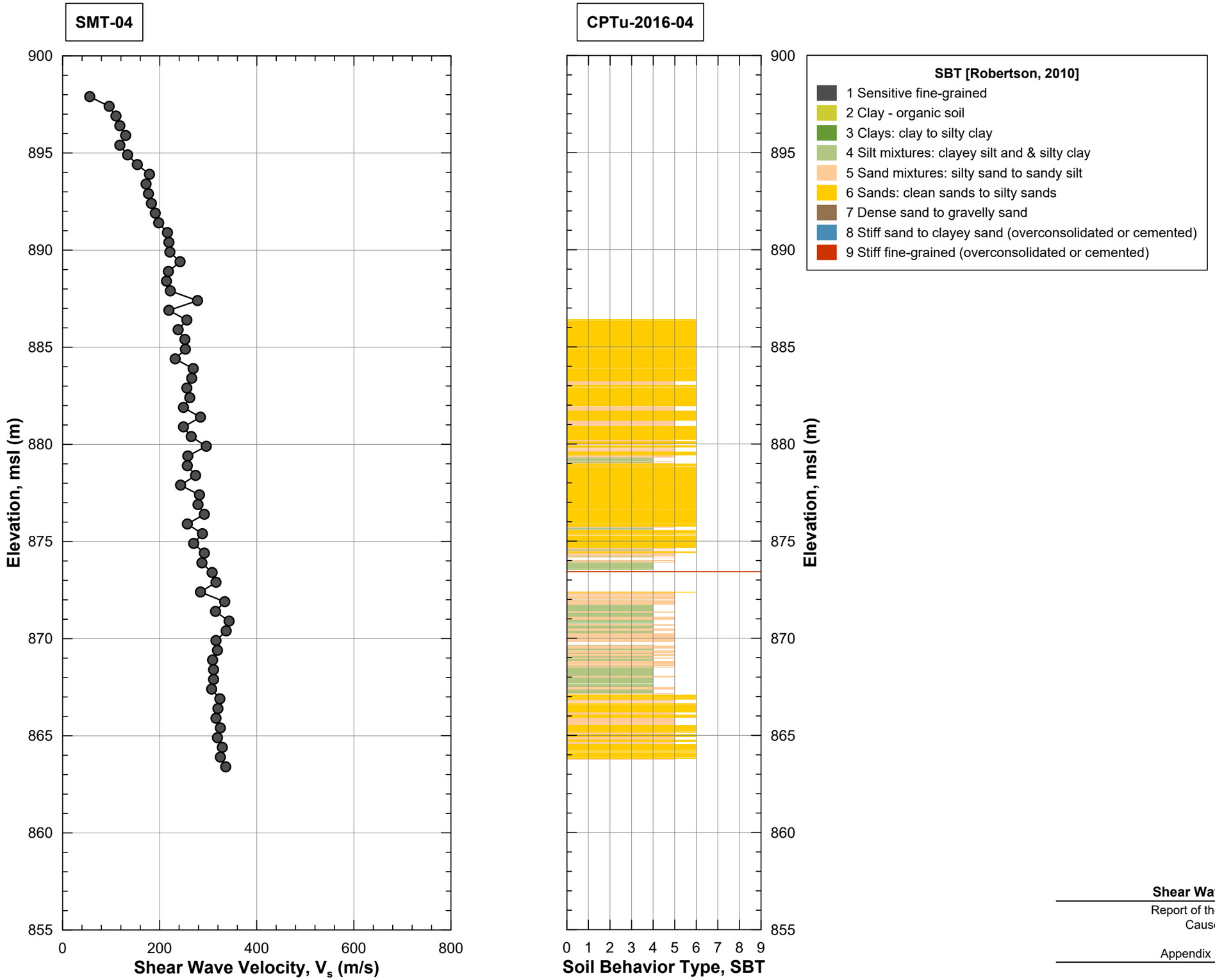


Shear Wave Velocity Profile: SMT-03

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I

Appendix B - Historical Geotechnical Data

Figure 4-5a

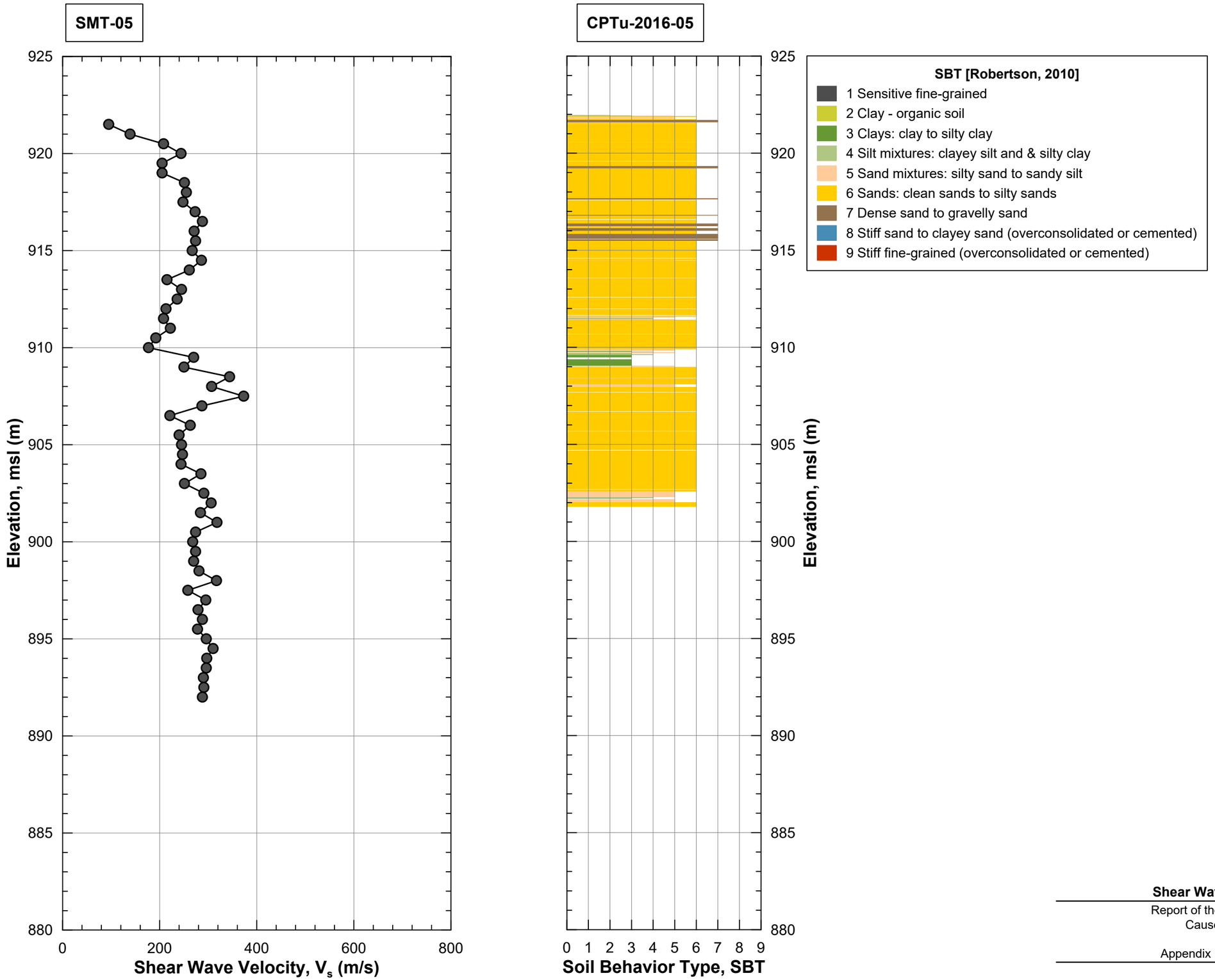


Shear Wave Velocity Profile: SMT-04

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I

Appendix B - Historical Geotechnical Data

Figure 4-5b

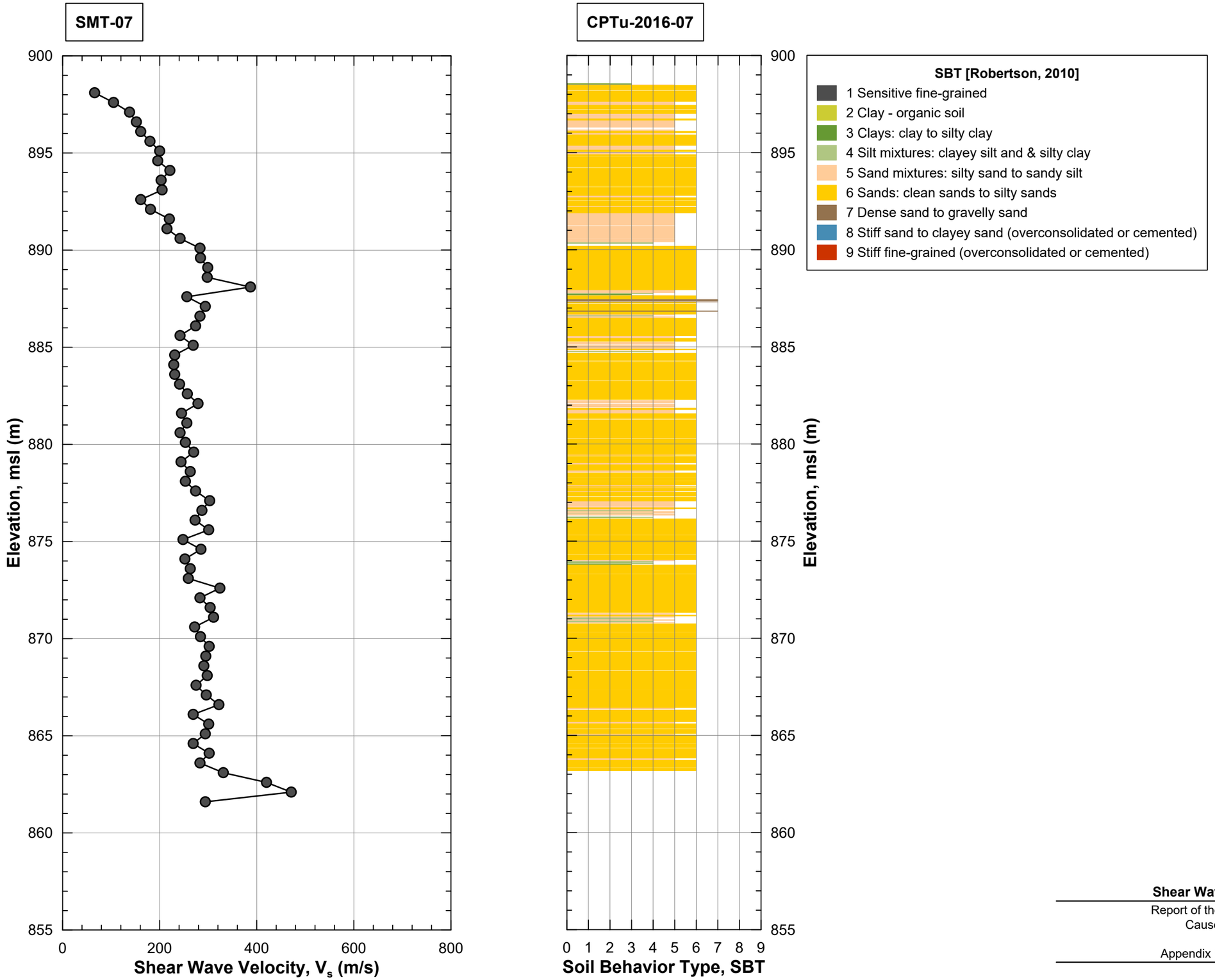


Shear Wave Velocity Profile: SMT-05

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I

Appendix B - Historical Geotechnical Data

Figure 4-5c

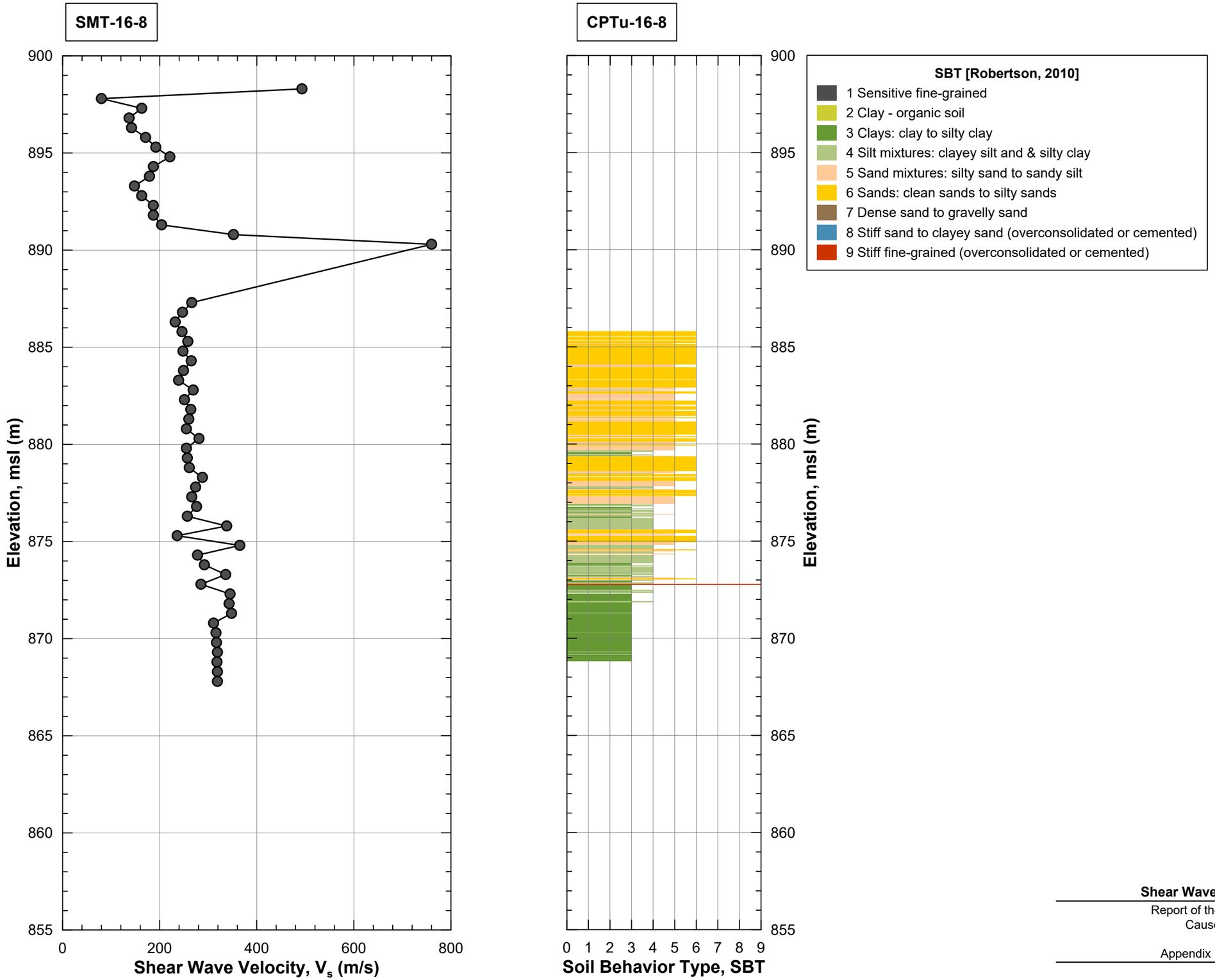


Shear Wave Velocity Profile: SMT-07

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I

Appendix B - Historical Geotechnical Data

Figure 4-5d

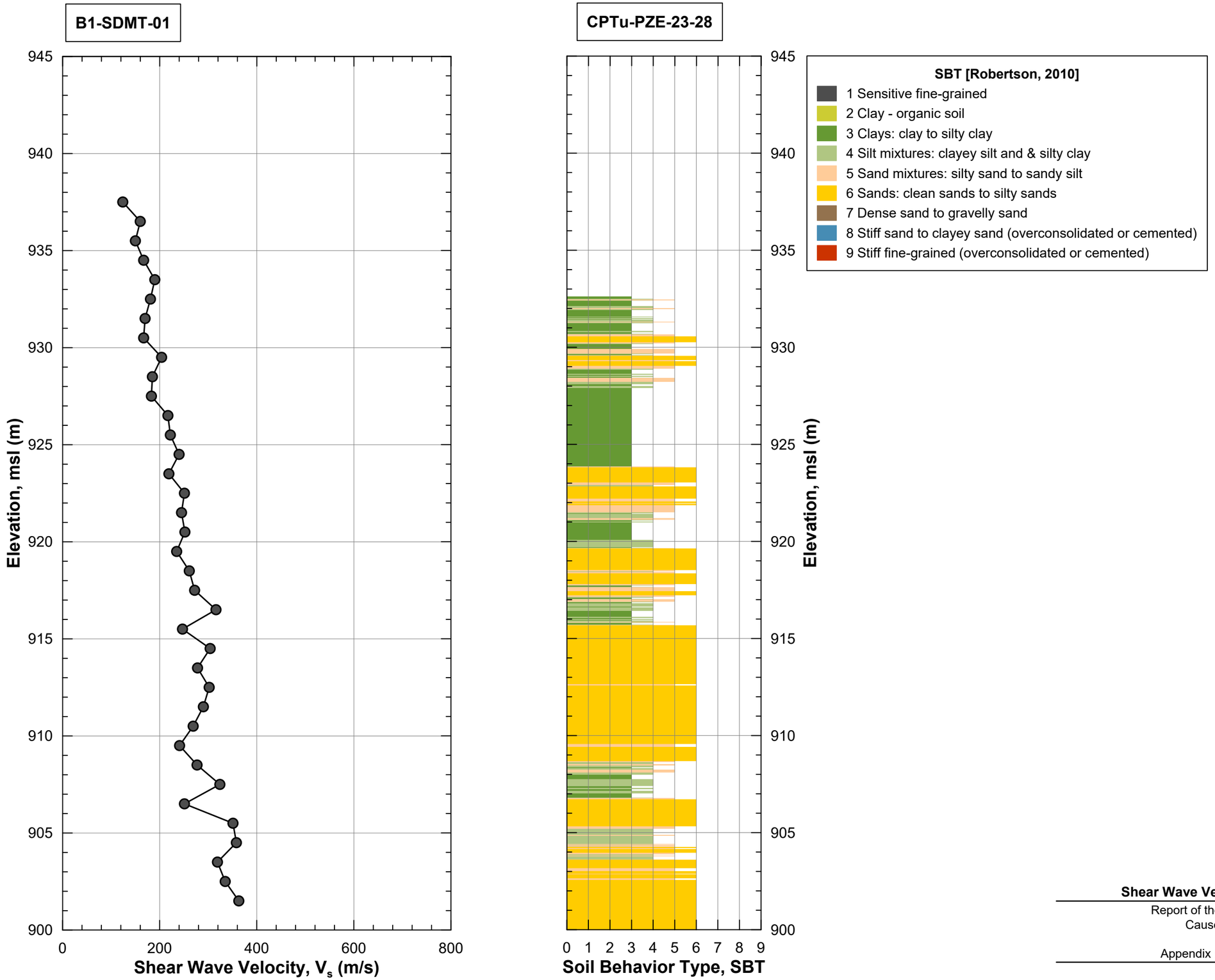


Shear Wave Velocity Profile: SMT-16-8

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I

Appendix B - Historical Geotechnical Data

Figure 4-5e

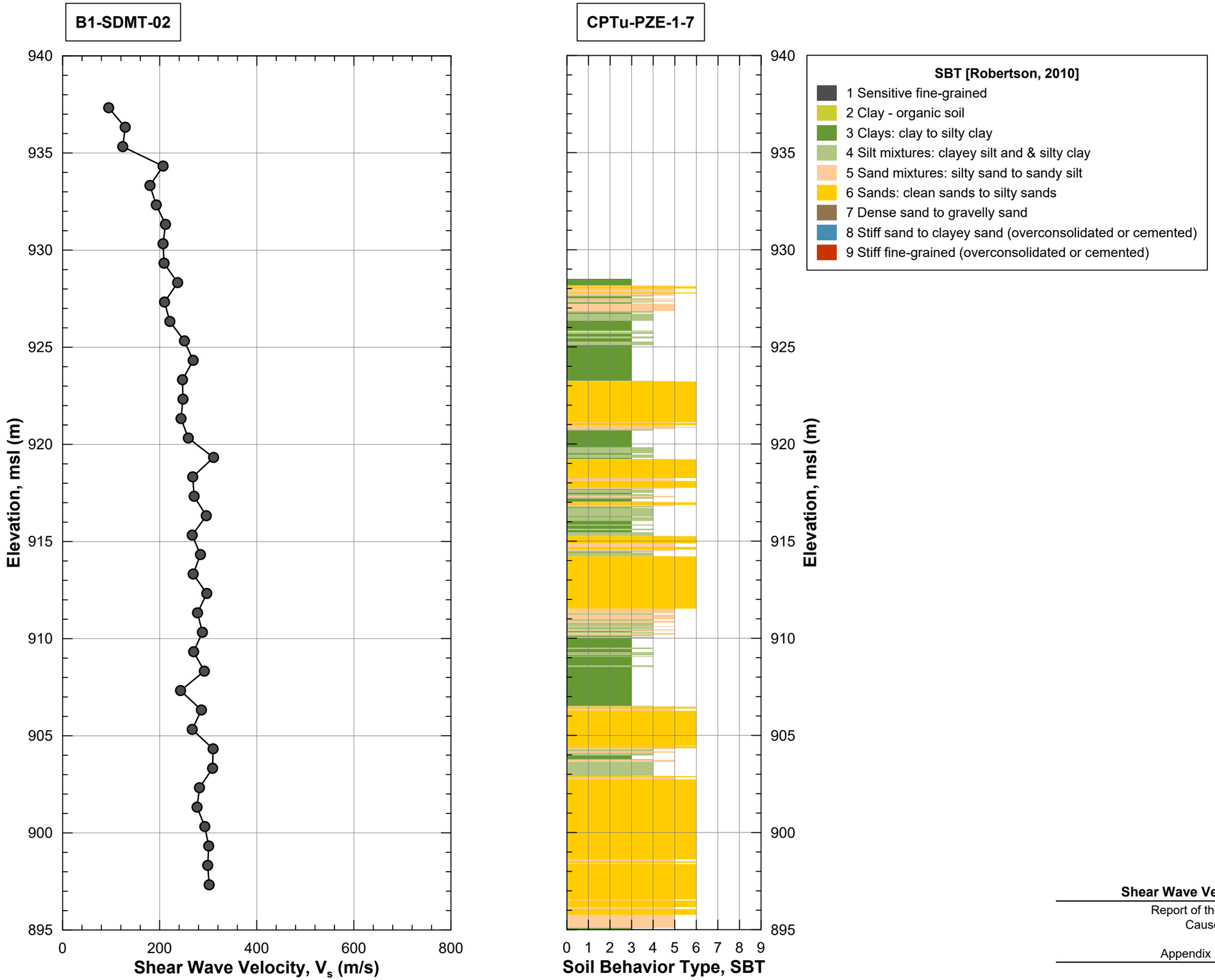


Shear Wave Velocity Profile: B1-SDMT-01

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I

Appendix B - Historical Geotechnical Data

Figure 4-5f

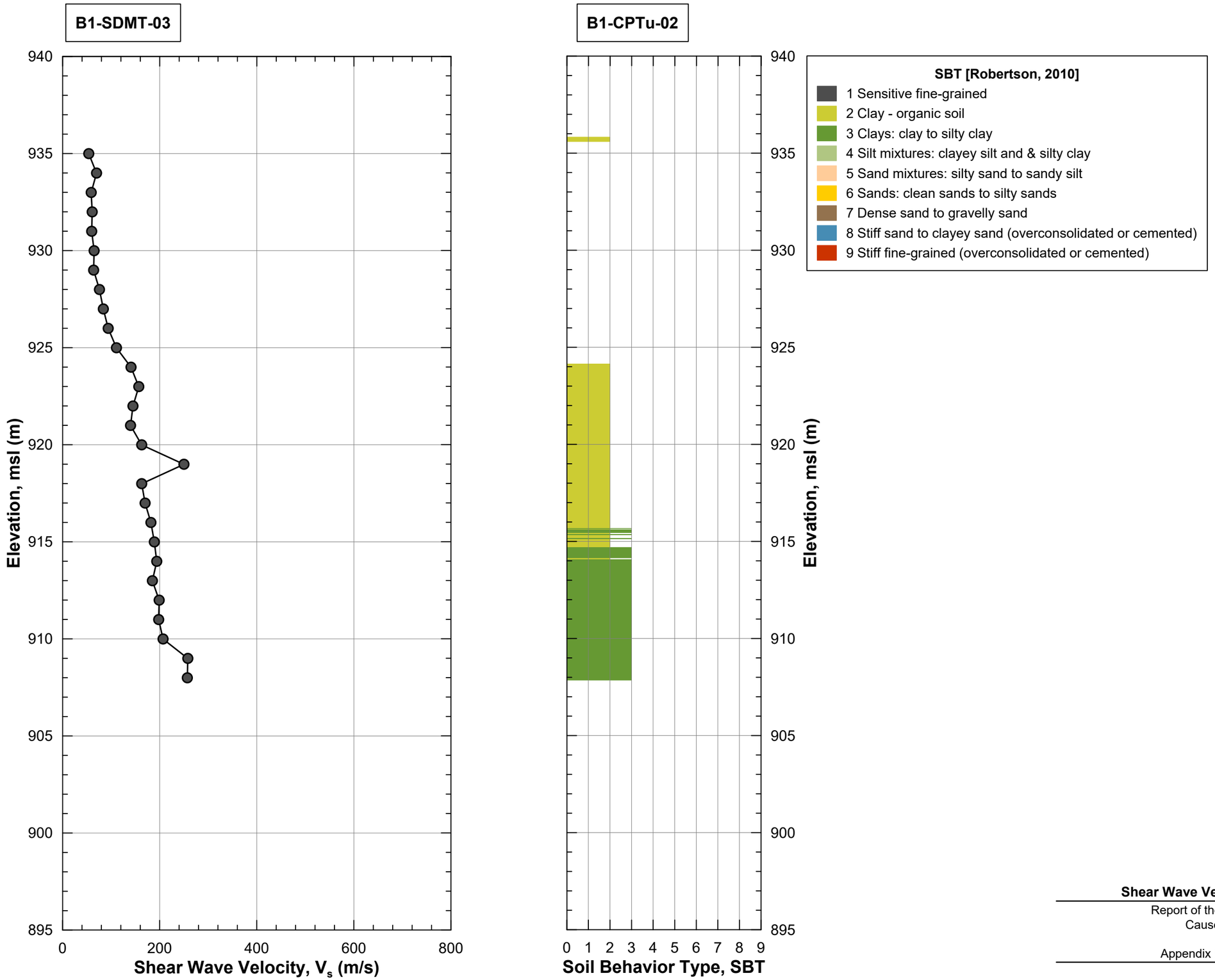


Shear Wave Velocity Profile: B1-SDMT-02

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I

Appendix B - Historical Geotechnical Data

Figure 4-5g

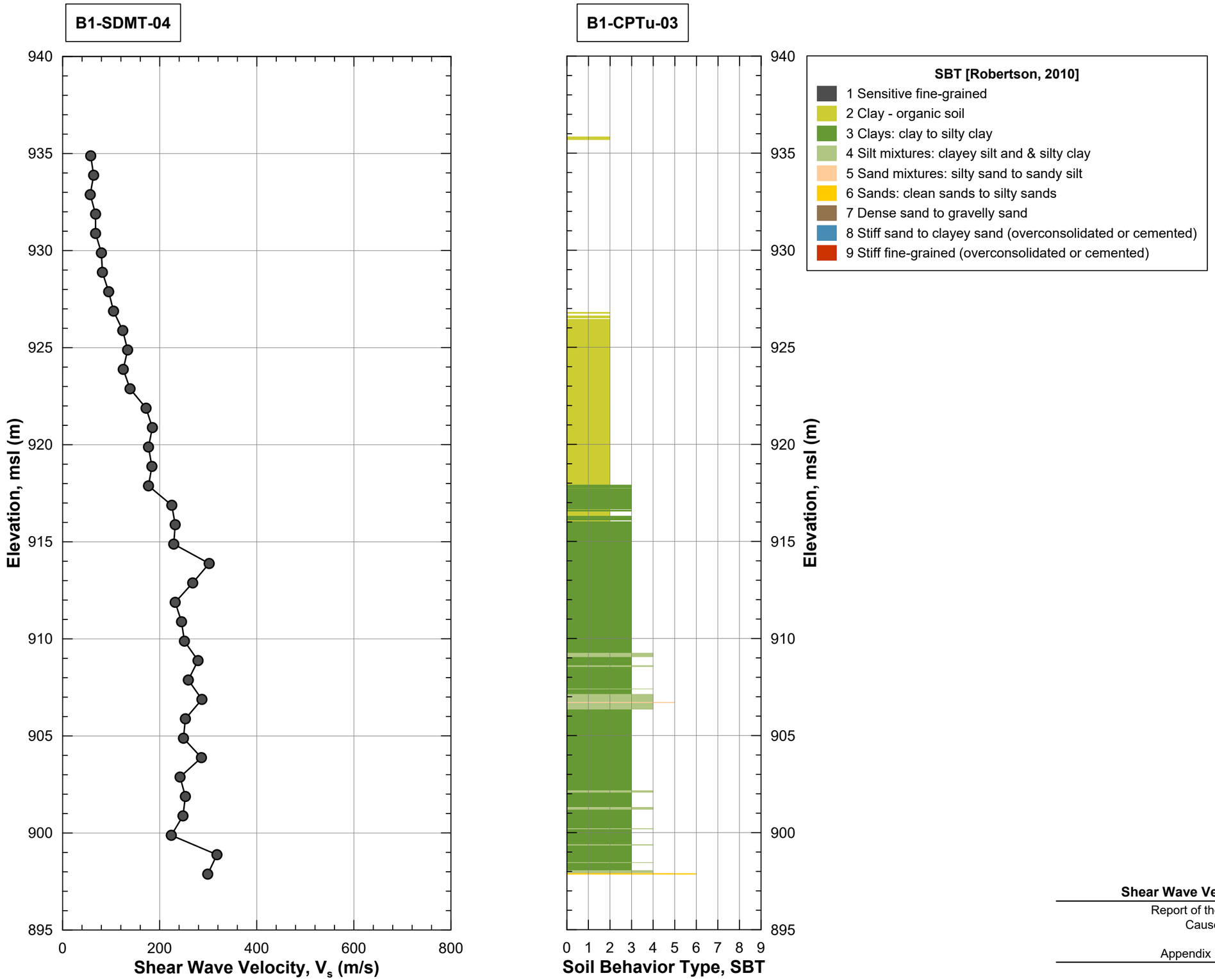


Shear Wave Velocity Profile: B1-SDMT-03

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I

Appendix B - Historical Geotechnical Data

Figure 4-5h

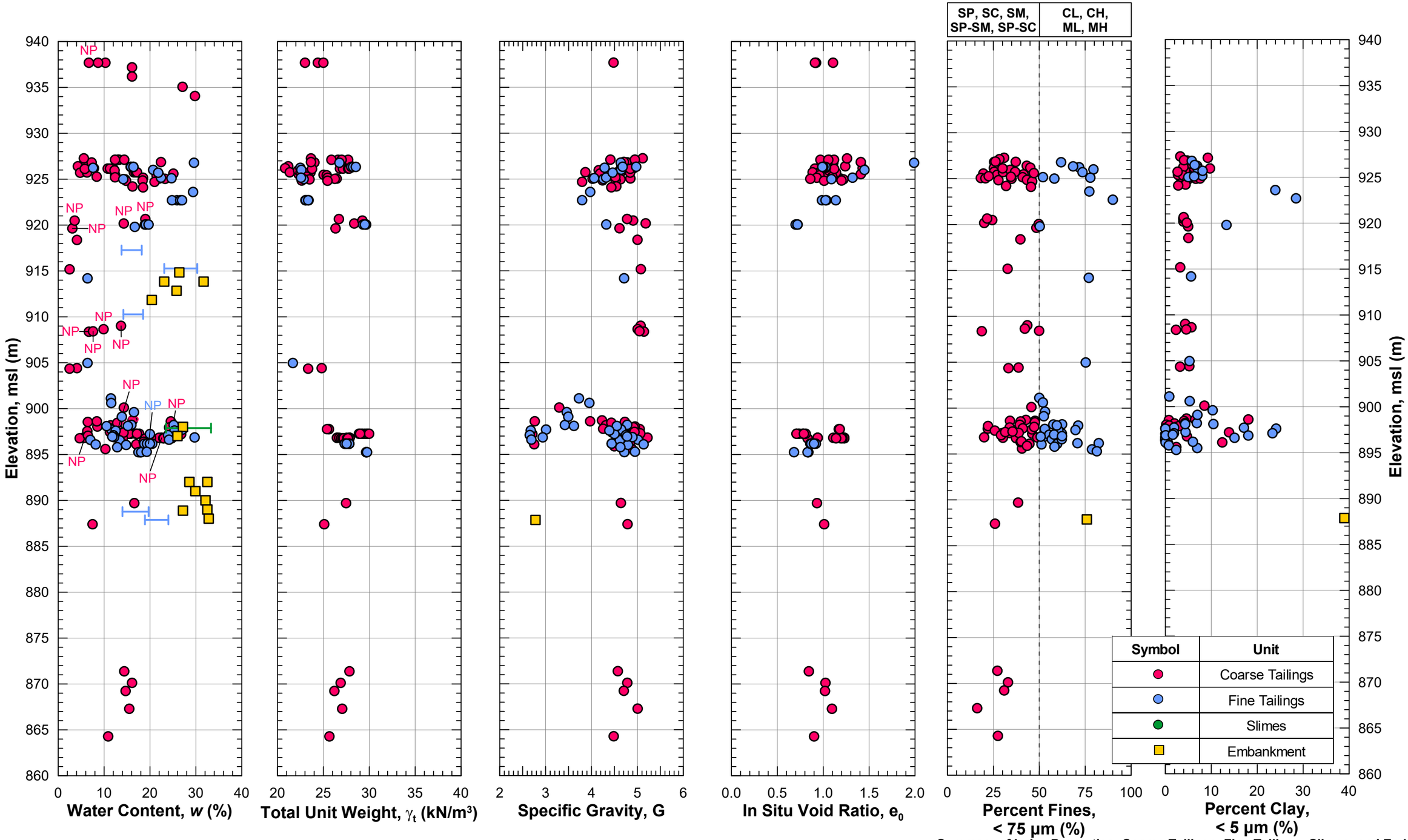


Shear Wave Velocity Profile: B1-SDMT-04

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I

Appendix B - Historical Geotechnical Data

Figure 4-5i



w_o = In situ Water Content
PL = Plastic Limit
LL = Liquid Limit

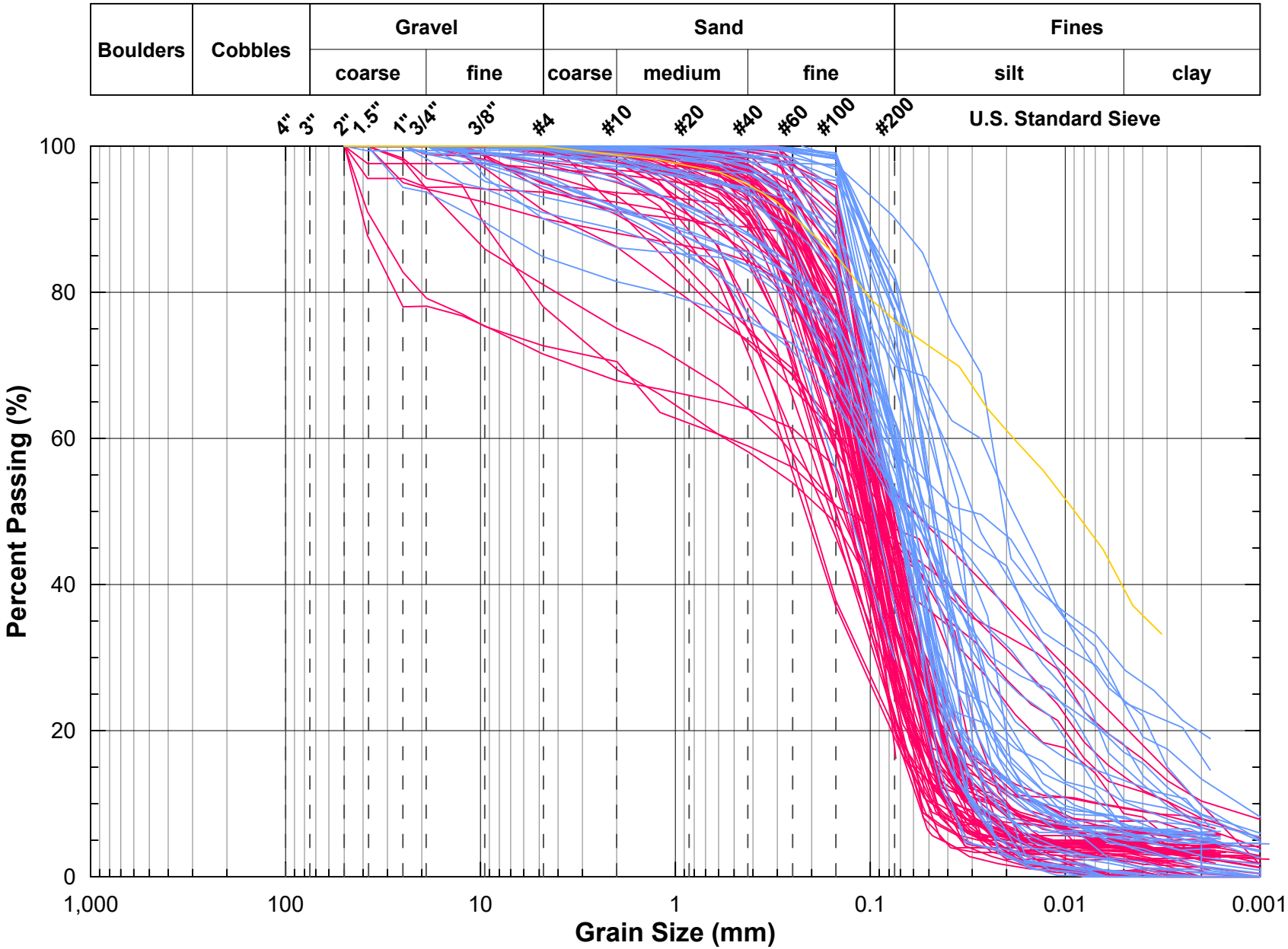
Note:
Water content values were not always available for the plasticity test locations

Summary of Index Properties: Coarse Tailings, Fine Tailings, Slimes, and Embankment

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I

Appendix B - Historical Geotechnical Data

Figure 5-1a



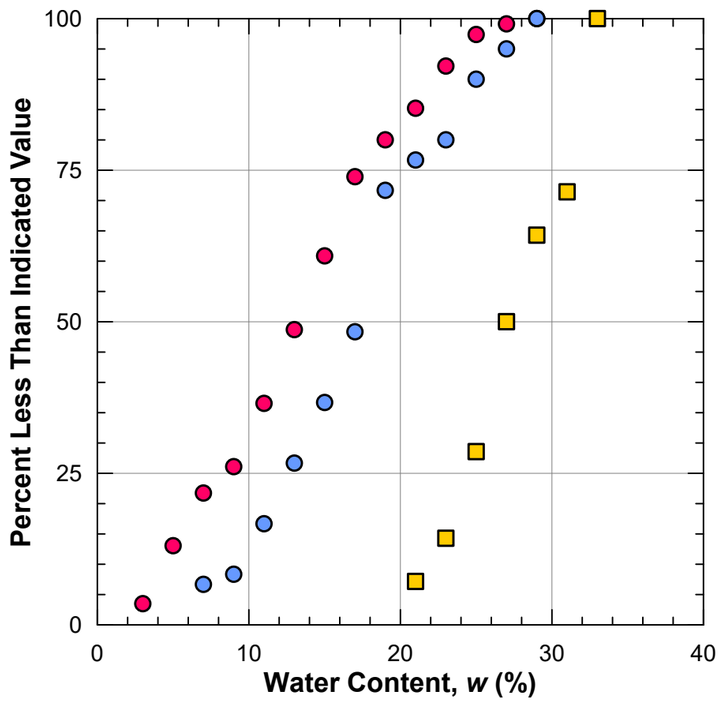
Symbol	Unit
	Coarse Tailings
	Fine Tailings
	Embankment

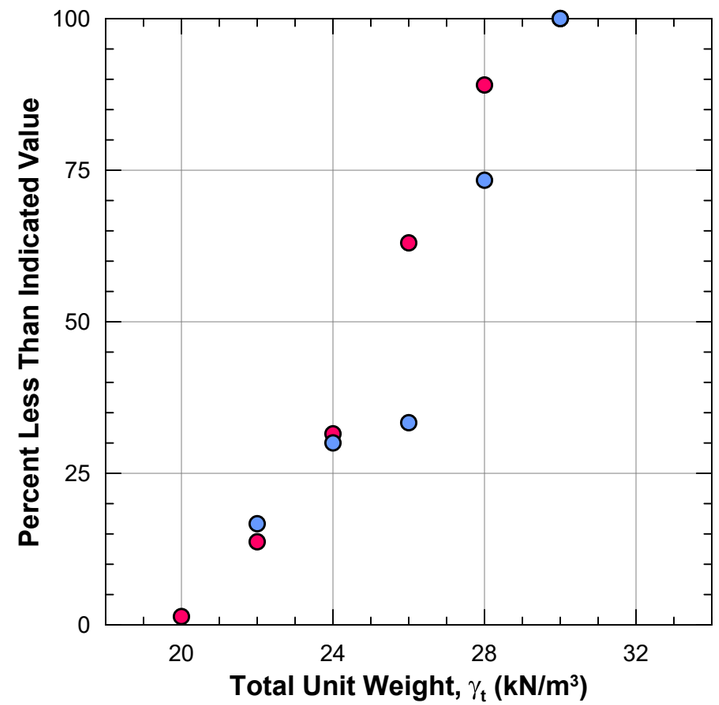
Grain Size Distribution Curves

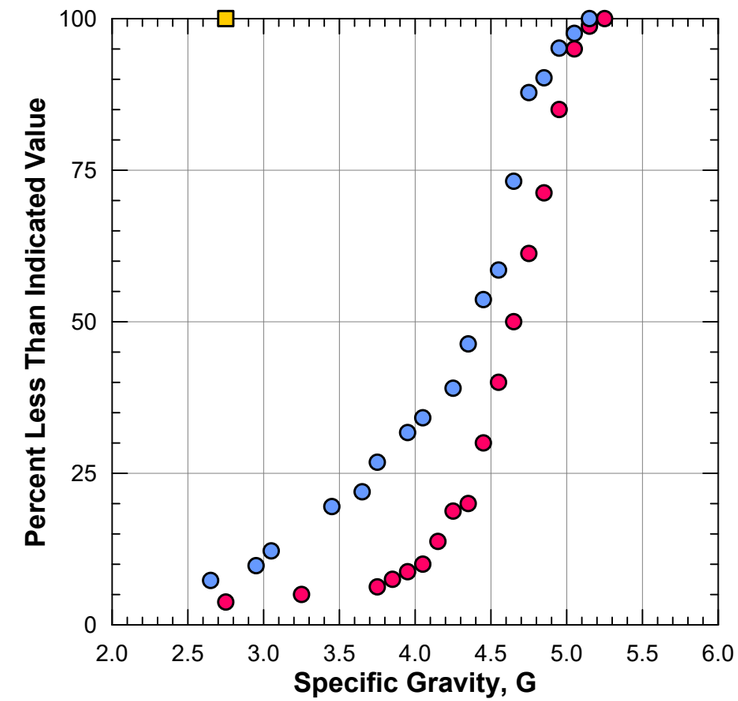
Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I

Appendix B - Historical Geotechnical Data

Figure 5-1b







In Situ Water Content			
	Coarse Tailings	Fine Tailings	Emban-kment
Number of Tests	115	60	14
Average (%)	14.2	18.0	28.3
Standard Deviation (%)	6.4	5.9	3.8
Maximum (%)	29.8	29.7	32.8
Minimum (%)	2.5	6.4	20.4

Total Unit Weight		
	Coarse Tailings	Fine Tailings
Number of Tests	73	30
Average (kN/m^3)	25.93	26.75
Standard Deviation (kN/m^3)	2.30	2.78
Maximum (kN/m^3)	29.98	29.76
Minimum (kN/m^3)	20.83	21.68

Specific Gravity			
	Coarse Tailings	Fine Tailings	Emban-kment
Number of Tests	80	41	1
Average	4.588	4.214	
Standard Deviation	0.504	0.692	
Maximum	5.220	5.135	
Minimum	2.712	2.656	

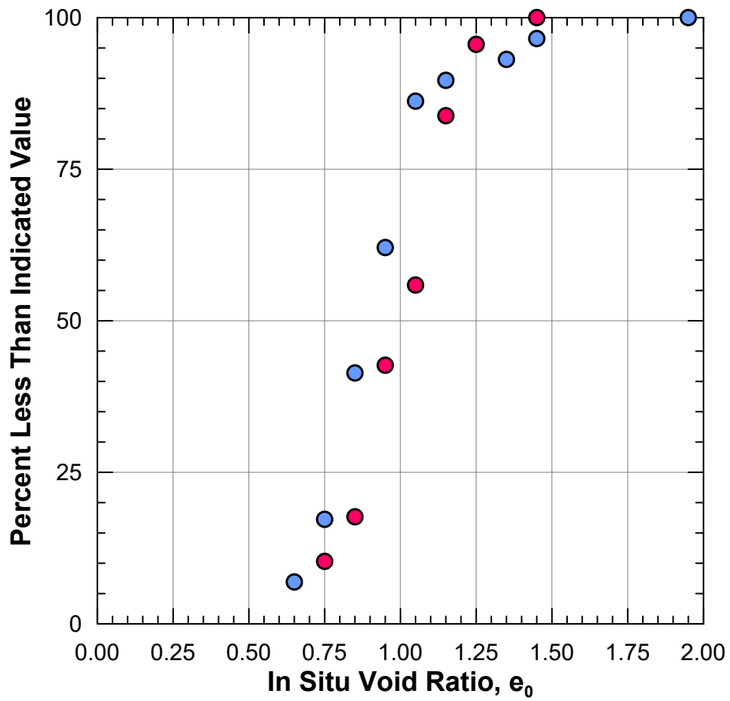
Symbol	Unit
●	Coarse Tailings
●	Fine Tailings
■	Embankment

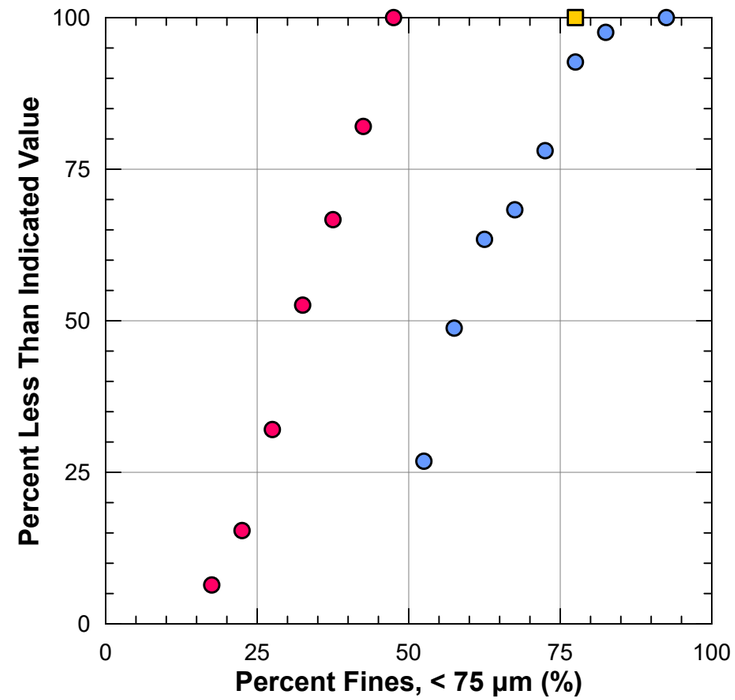
Statistical Analyses of Water Content, Total Unit Weight, and Specific Gravity: Coarse and Fine Tailings, Slimes, and Embankment

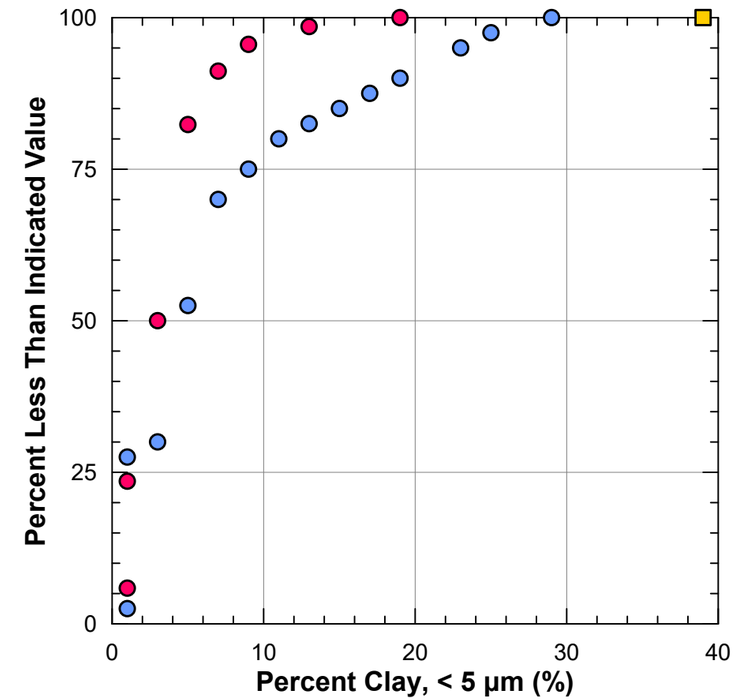
Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I

Appendix B - Historical Geotechnical Data

Figure 5-1c







In Situ Void Ratio	Coarse Tailings	Fine Tailings
Number of Tests	68	29
Average	1.04	0.97
Standard Deviation	0.17	0.26
Maximum	1.43	1.99
Minimum	0.71	0.68

Percent Fines	Coarse Tailings	Fine Tailings	Emban-kment
Number of Tests	78	41	1
Average (%)	34.7	63.7	
Standard Deviation (%)	9.2	10.9	
Maximum (%)	49.9	90.0	
Minimum (%)	16.2	50.0	

Percent Clay	Coarse Tailings	Fine Tailings	Emban-kment
Number of Tests	68	40	1
Average (%)	4.1	7.6	
Standard Deviation (%)	3.3	7.4	
Maximum (%)	18.1	28.5	
Minimum (%)	0.0	0.0	

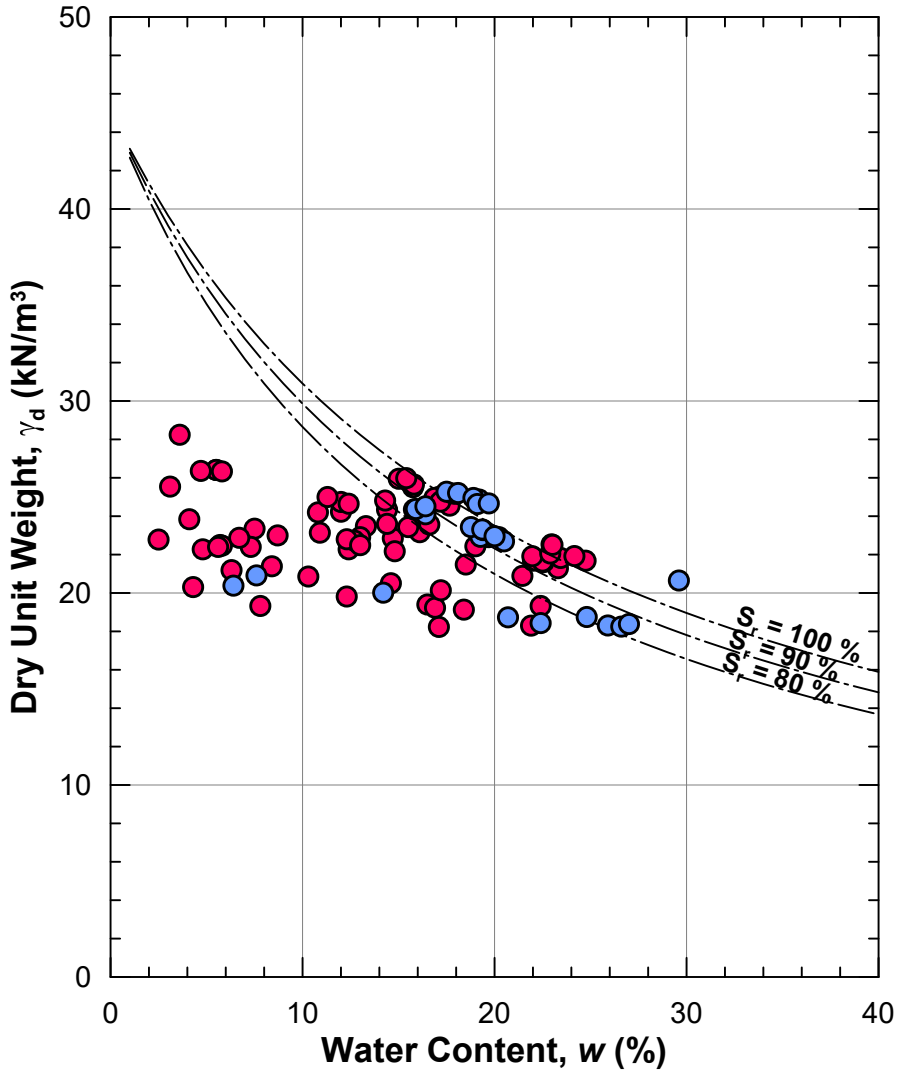
Symbol	Unit
●	Coarse Tailings
●	Fine Tailings
■	Embankment

Statistical Analyses of Void Ratio, and Percent Fines and Clay: Coarse and Fine Tailings, Slimes, and Embankment

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I

Appendix B - Historical Geotechnical Data

Figure 5-1d



Symbol	Unit
●	Coarse Tailings
●	Fine Tailings

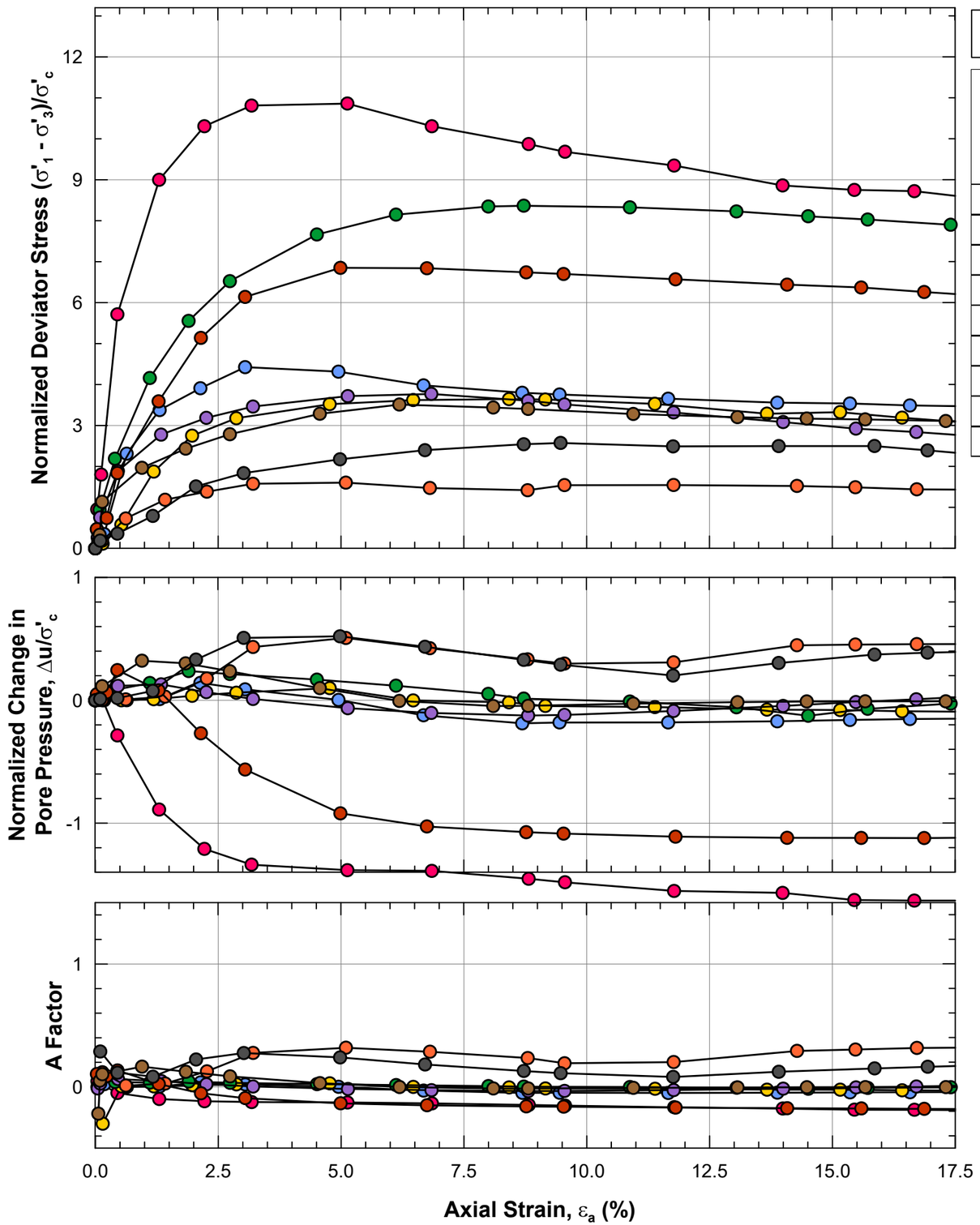
Note:
The saturation curves consider a specific gravity of tailings of 4.600

Dry Unit Weight Versus In Situ Water Content: Coarse and Fine Tailings

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I

Appendix B - Historical Geotechnical Data

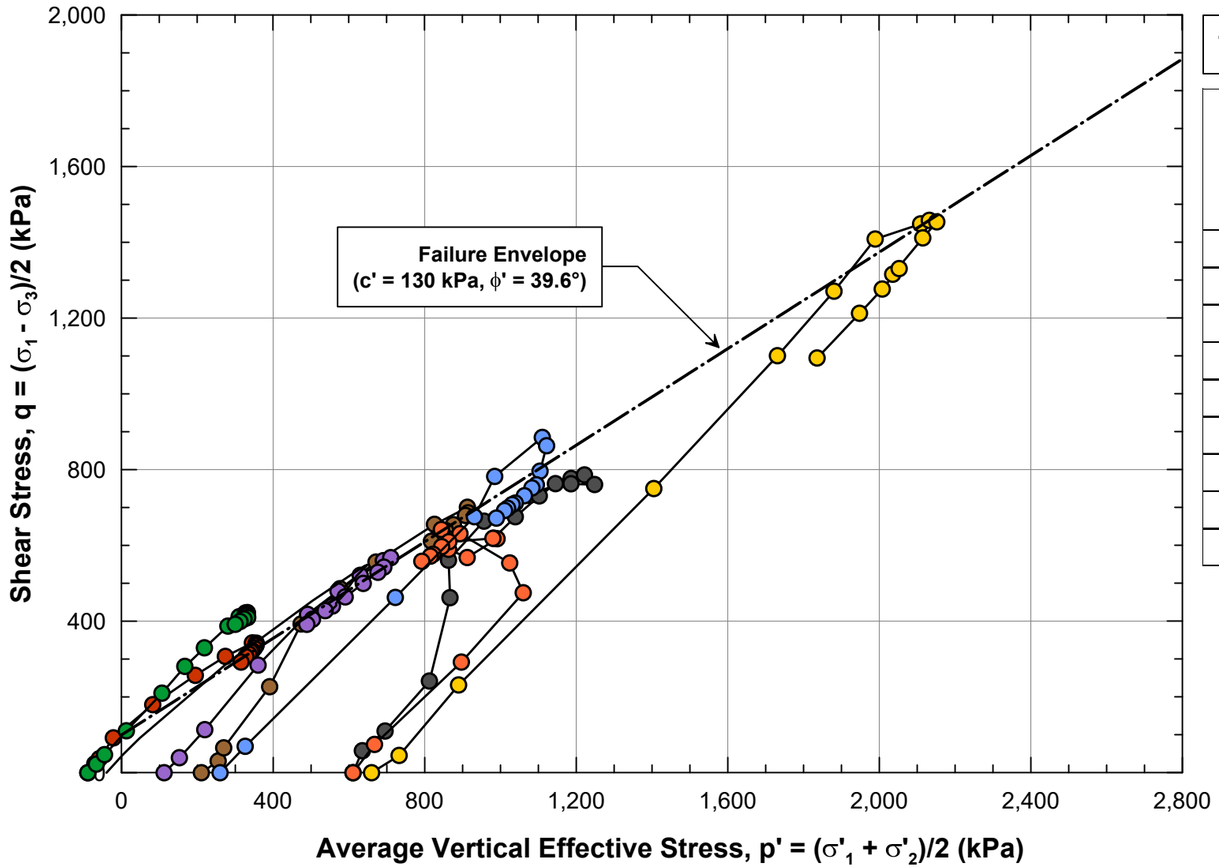
Figure 5-1e



TXICU Tests on Intact Samples - Coarse Tailings (Series I)

Symbol	Exploration ID	Depth (m)	Elevation, msl (m)	Total Unit Weight, γ_t (kN/m^3)	Water Content, w_0 (%)	Specific Gravity, G	Initial Void Ratio, e_0	Pre-Shear Void Ratio, e	Effective Confining Stress, σ'_c (kPa)
	PI-01	1.35	896.82	26.40	5.8	5.220	0.94	0.90	-40
				27.90	5.5		0.94	0.85	260
				27.90	5.5		0.94	0.81	660
	PI-03	0.85	897.76	25.40	13.0	5.050	1.20	1.19	-89
				25.60	12.7		1.18	1.15	112
				25.60	12.3		1.17	1.07	611
	PI-04	0.65	937.69	24.40	6.7	4.480	0.92	0.89	-89
				23.00	10.3		1.11	1.03	210
				25.00	8.7		0.91	0.82	611

Normalized Stress-Strain and Excess Pore Pressure from Isotropically Consolidated Undrained Triaxial Compression Tests: Intact Samples - Coarse Tailings (Series I)



TXICU Tests on Intact Samples - Coarse Tailings (Series I)

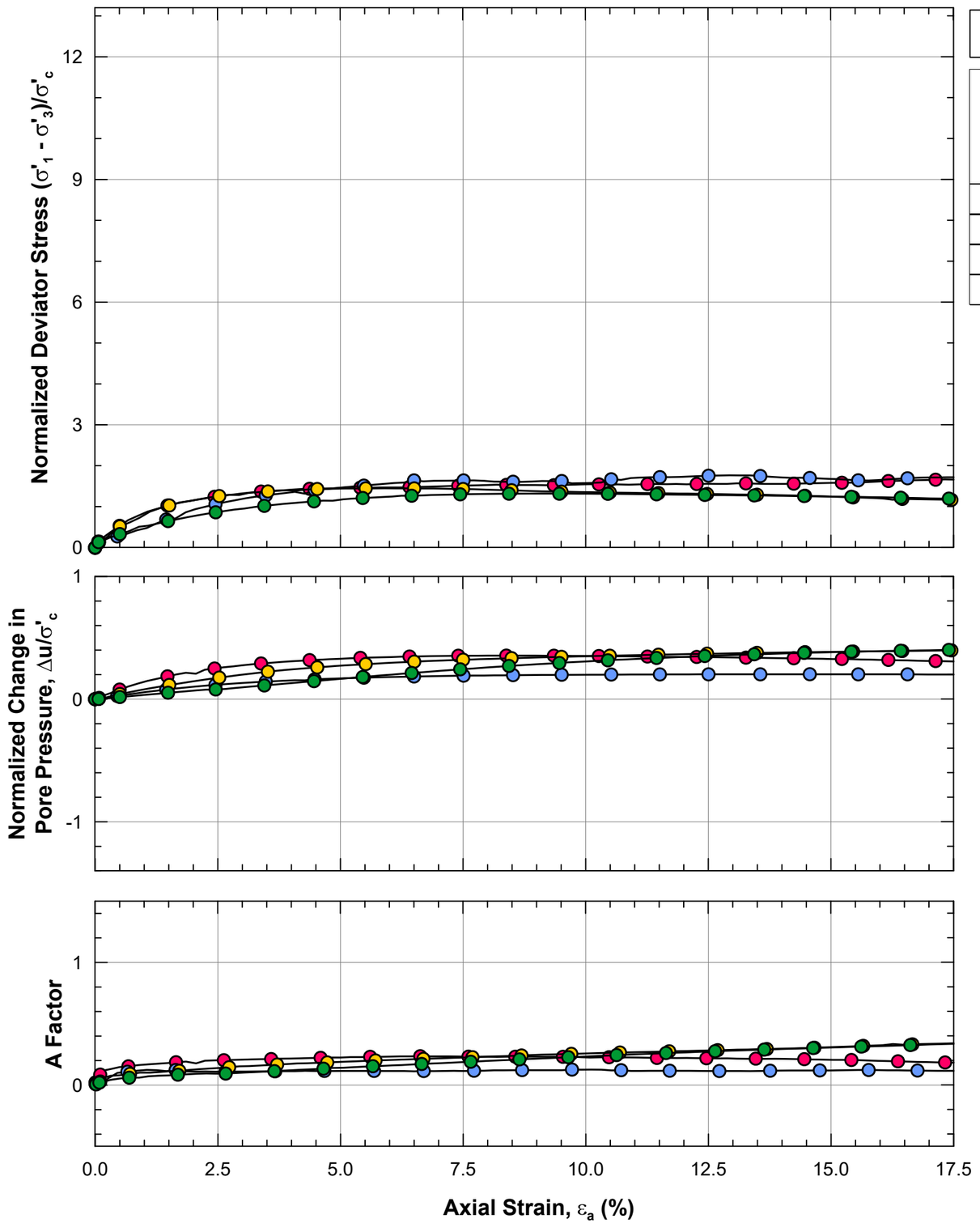
Symbol	Exploration ID	Depth (m)	Elevation, msl (m)	Total Unit Weight, γ_t (kN/m^3)	Water Content, w_0 (%)	Specific Gravity, G	Initial Void Ratio, e_0	Pre-Shear Void Ratio, e	Effective Confining Stress, σ'_c (kPa)
	PI-01	1.35	896.82	26.40	5.8	5.220	0.94	0.90	-40
				27.90	5.5		0.94	0.85	260
				27.90	5.5		0.94	0.81	660
	PI-03	0.85	897.76	25.40	13.0	5.050	1.20	1.19	-89
				25.60	12.7		1.18	1.15	112
				25.60	12.3		1.17	1.07	611
	PI-04	0.65	937.69	24.40	6.7	4.480	0.92	0.89	-89
				23.00	10.3		1.11	1.03	210
				25.00	8.7		0.91	0.82	611

Effective Stress Paths from Isotropically Consolidated Undrained Triaxial Compression Tests: Intact Samples - Coarse Tailings (Series I)

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I

Appendix B - Historical Geotechnical Data

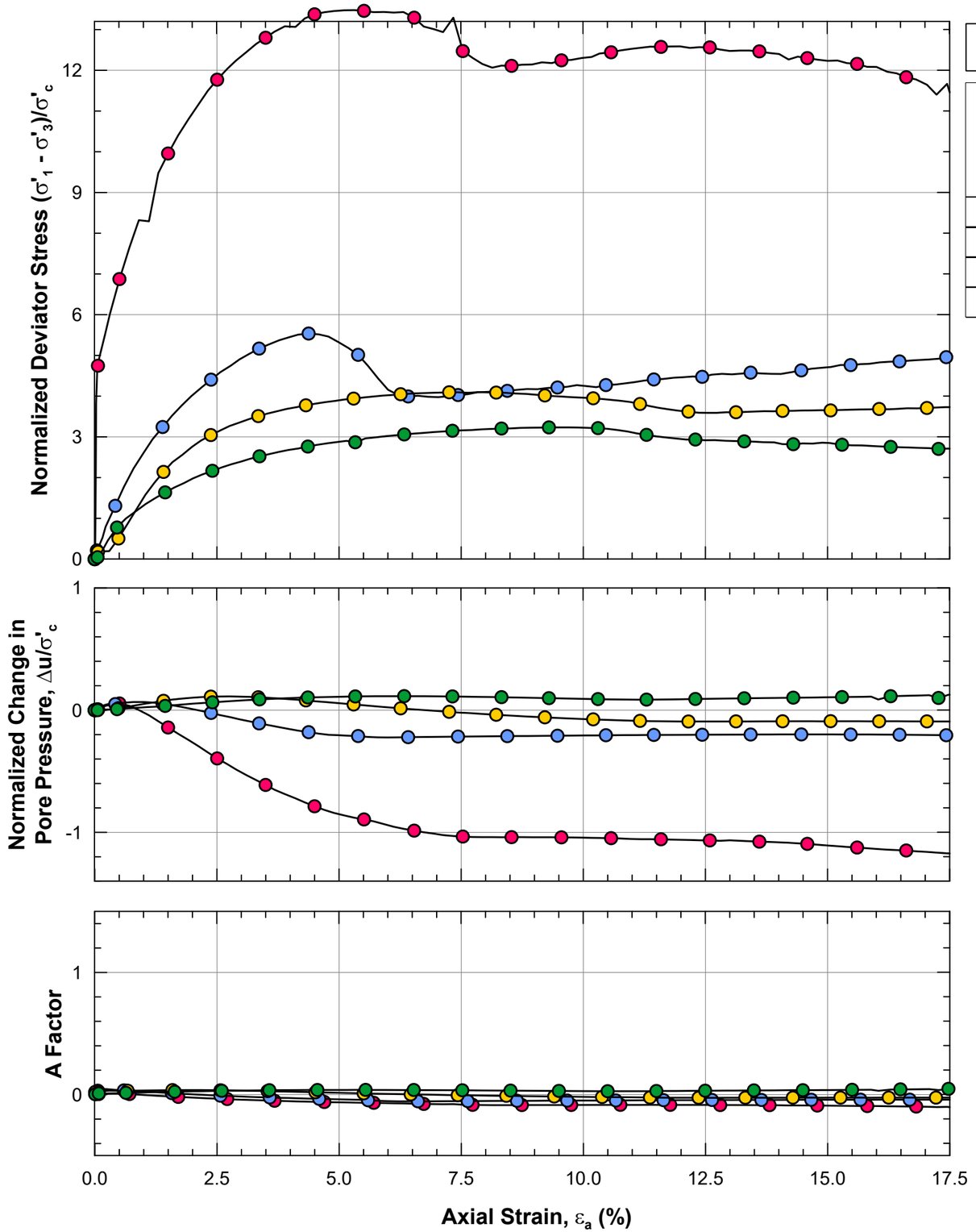
Figure 5-3



TXICU Tests on Intact Samples - Coarse Tailings PI-01 (Series II)

Symbol	Exploration ID	Depth (m)	Elevation, msl (m)	Total Unit Weight, γ_t (kN/m^3)	Water Content, w_0 (%)	Specific Gravity, G	Initial Void Ratio, e_0	Pre-Shear Void Ratio, e	Effective Confining Stress, σ'_c (kPa)
	PI-01	1.45	896.72	26.94	24.6	4.920	1.23	0.91	50
				27.04	24.7		1.23	0.93	100
				26.93	23.4		1.21	0.93	200
				27.11	22.9		1.19	0.78	400

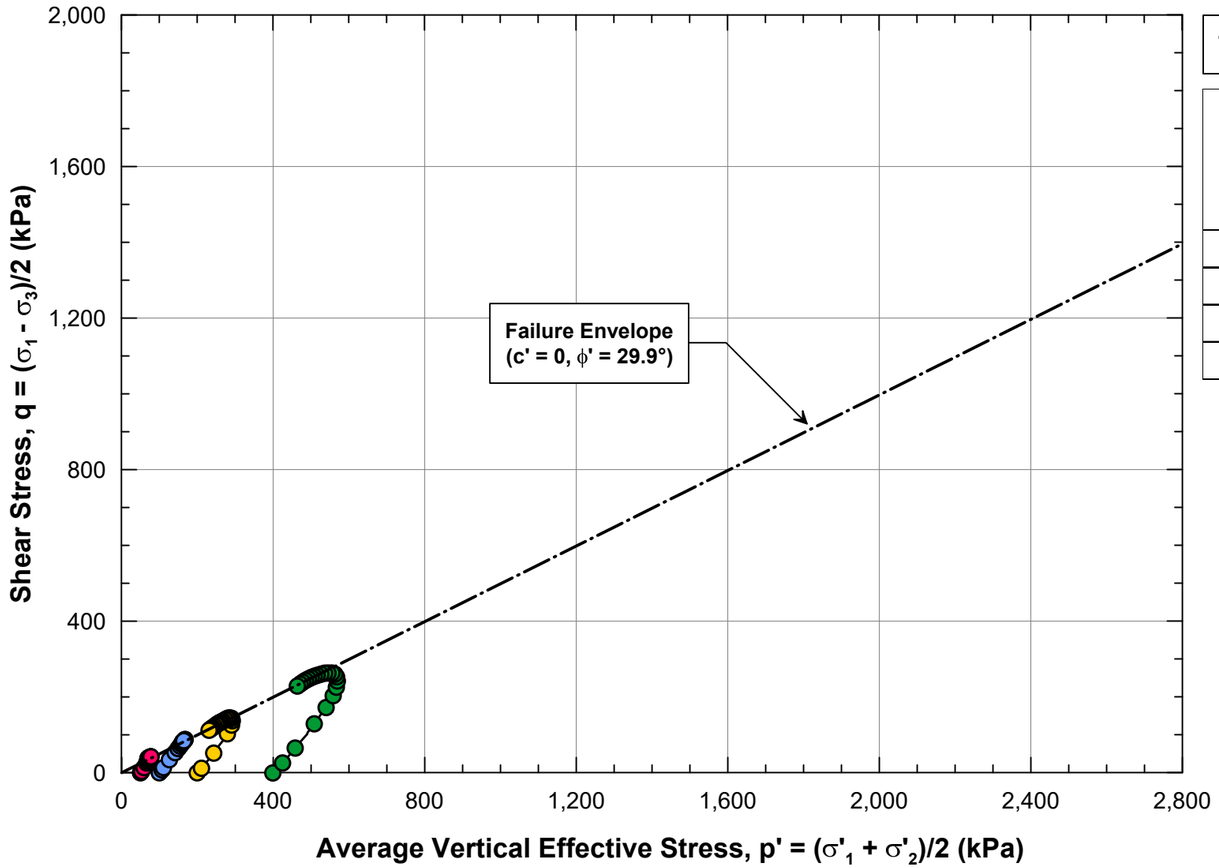
Normalized Stress-Strain and Excess Pore Pressure from Isotropically Consolidated Undrained Triaxial Compression Tests: Intact Samples - Coarse Tailings PI-01 (Series II)



TXICU Tests on Intact Samples - Coarse Tailings PI-03A (Series II)

Symbol	Exploration ID	Depth (m)	Elevation, msl (m)	Total Unit Weight, γ_t (kN/m^3)	Water Content, w_0 (%)	Specific Gravity, G	Initial Void Ratio, e_0	Pre-Shear Void Ratio, e	Effective Confining Stress, σ'_c (kPa)
	PI-03A	1.35	897.26	29.52	15.8	4.530	0.90	0.83	50
				29.85	15.0		0.89	0.84	200
				29.28	17.1		0.90	0.83	400
				28.88	17.7		0.87	0.79	800

Normalized Stress-Strain and Excess Pore Pressure from Isotropically Consolidated Undrained Triaxial Compression Tests: Intact Samples - Coarse Tailings PI-03A (Series II)

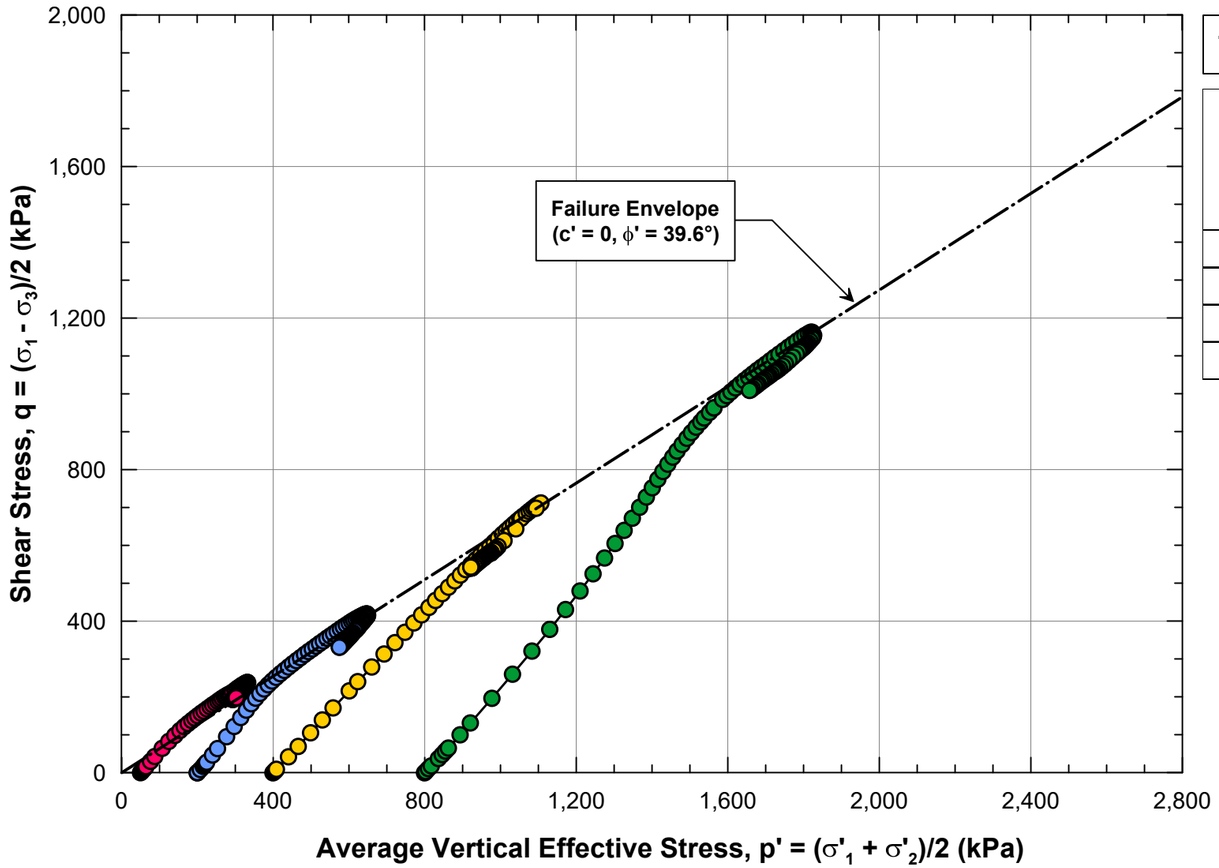


TXICU Tests on Intact Samples - Coarse Tailings PI-01 (Series II)

Symbol	Exploration ID	Depth (m)	Elevation, msl (m)	Total Unit Weight, γ_t (kN/m^3)	Water Content, w_0 (%)	Specific Gravity, G	Initial Void Ratio, e_0	Pre-Shear Void Ratio, e	Effective Confining Stress, σ'_c (kPa)
	PI-01	1.45	896.72	26.94	24.6	4.920	1.23	0.91	50
				27.04	24.7		1.23	0.93	100
				26.93	23.4		1.21	0.93	200
				27.11	22.9		1.19	0.78	400

Effective Stress Paths from Isotropically Consolidated Undrained Triaxial Compression Tests: Intact Samples - Coarse Tailings PI-01 (Series II)

Figure 5-5a

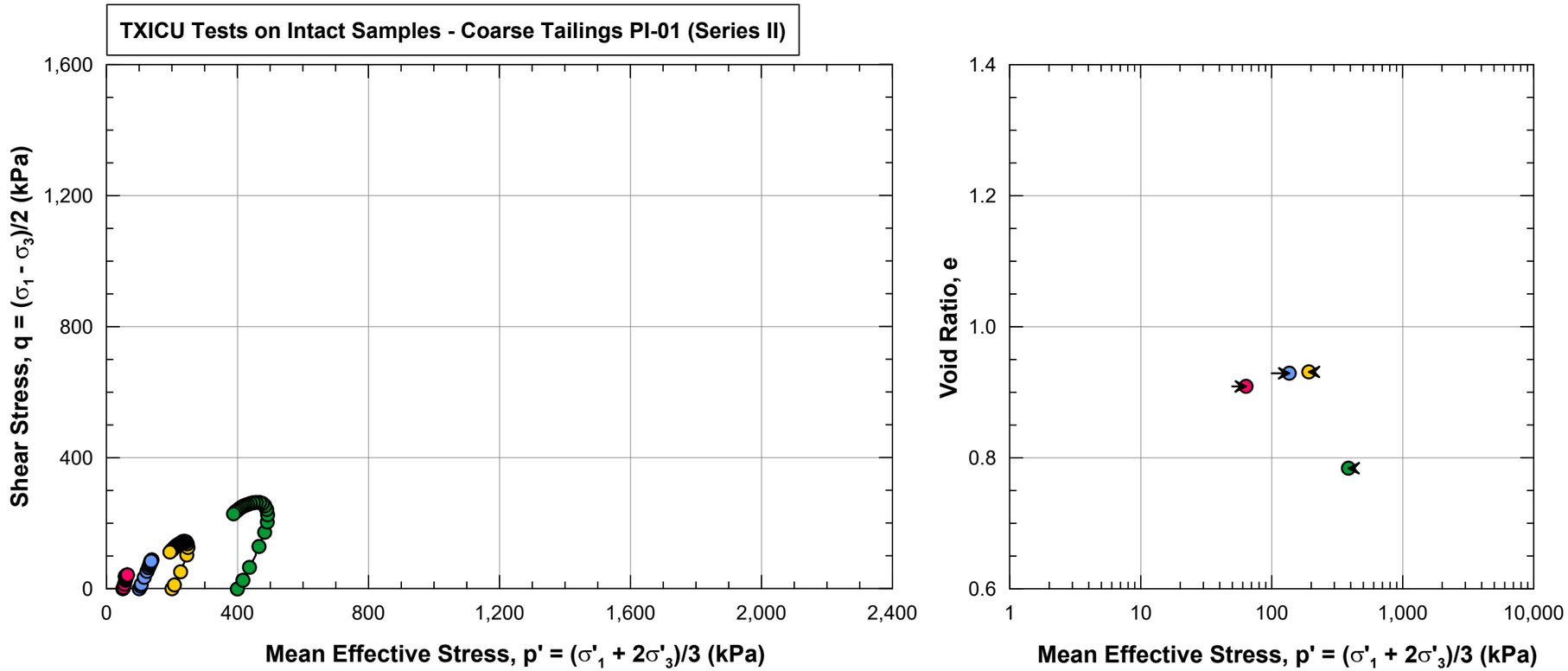


TXICU Tests on Intact Samples - Coarse Tailings PI-03 (Series II)

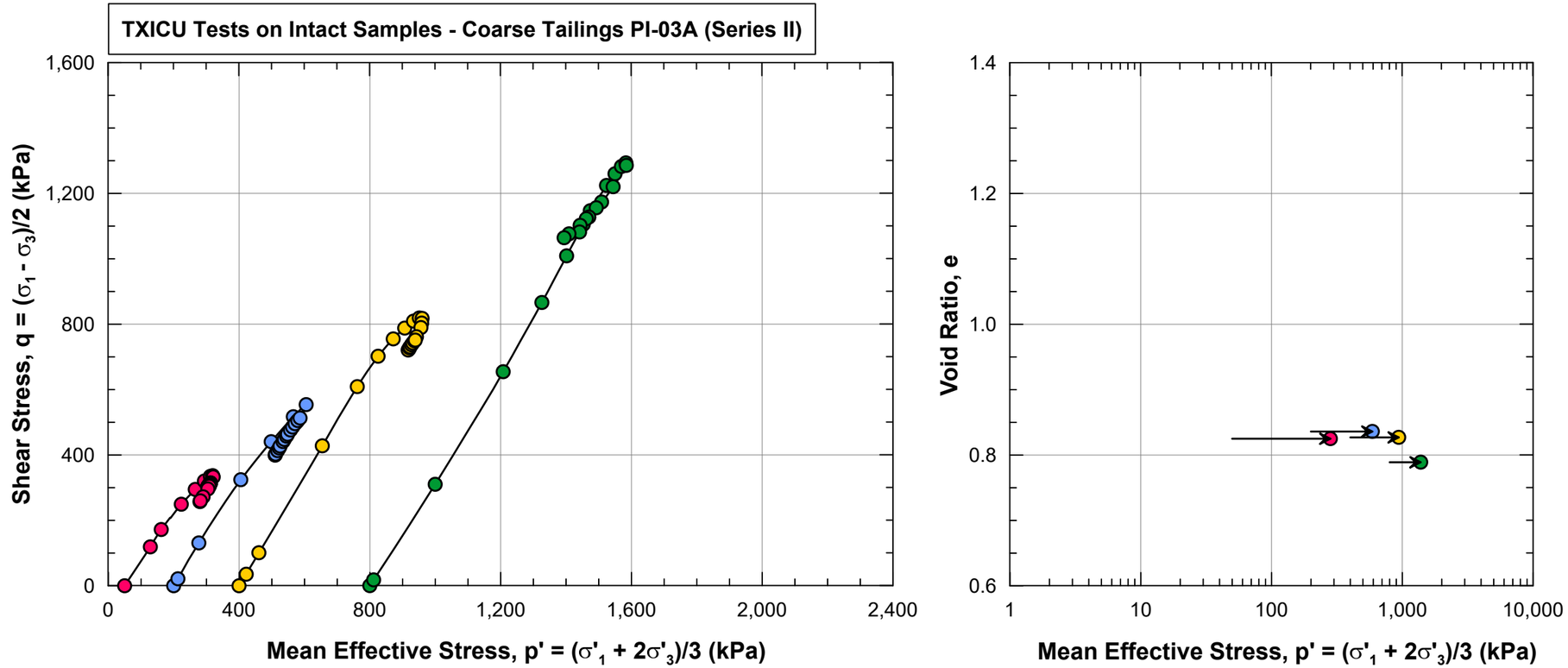
Symbol	Exploration ID	Depth (m)	Elevation, msl (m)	Total Unit Weight, γ_t (kN/m^3)	Water Content, w_0 (%)	Specific Gravity, G	Initial Void Ratio, e_0	Pre-Shear Void Ratio, e	Effective Confining Stress, σ'_c (kPa)
	PI-03A	1.35	897.26	29.52	15.8	4.530	0.90	0.83	50
				29.85	15.0		0.89	0.84	200
				29.28	17.1		0.90	0.83	400
				28.88	17.7		0.87	0.79	800

Effective Stress Paths from Isotropically Consolidated Undrained Triaxial Compression Tests: Intact Samples - Coarse Tailings PI-03A (Series II)

Figure 5-5b

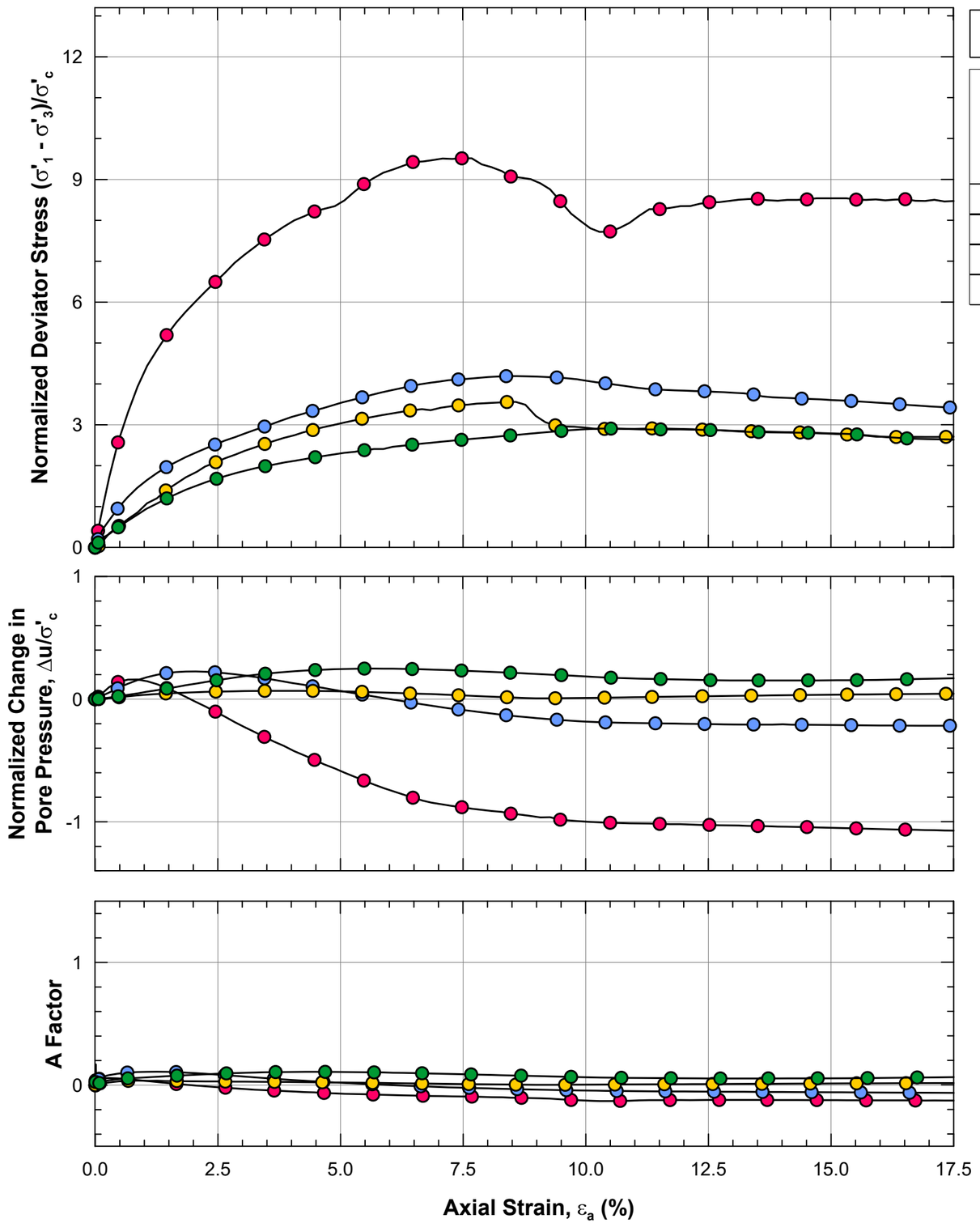


Symbol	Exploration ID	Depth (m)	Elevation, msl (m)	Effective Confining Stress, σ'_c (kPa)
	PI-01	1.45	896.72	50
				100
				200
				400



Symbol	Exploration ID	Depth (m)	Elevation, msl (m)	Effective Confining Stress, σ'_c (kPa)
	PI-03A	1.35	897.26	50
				200
				400
				800

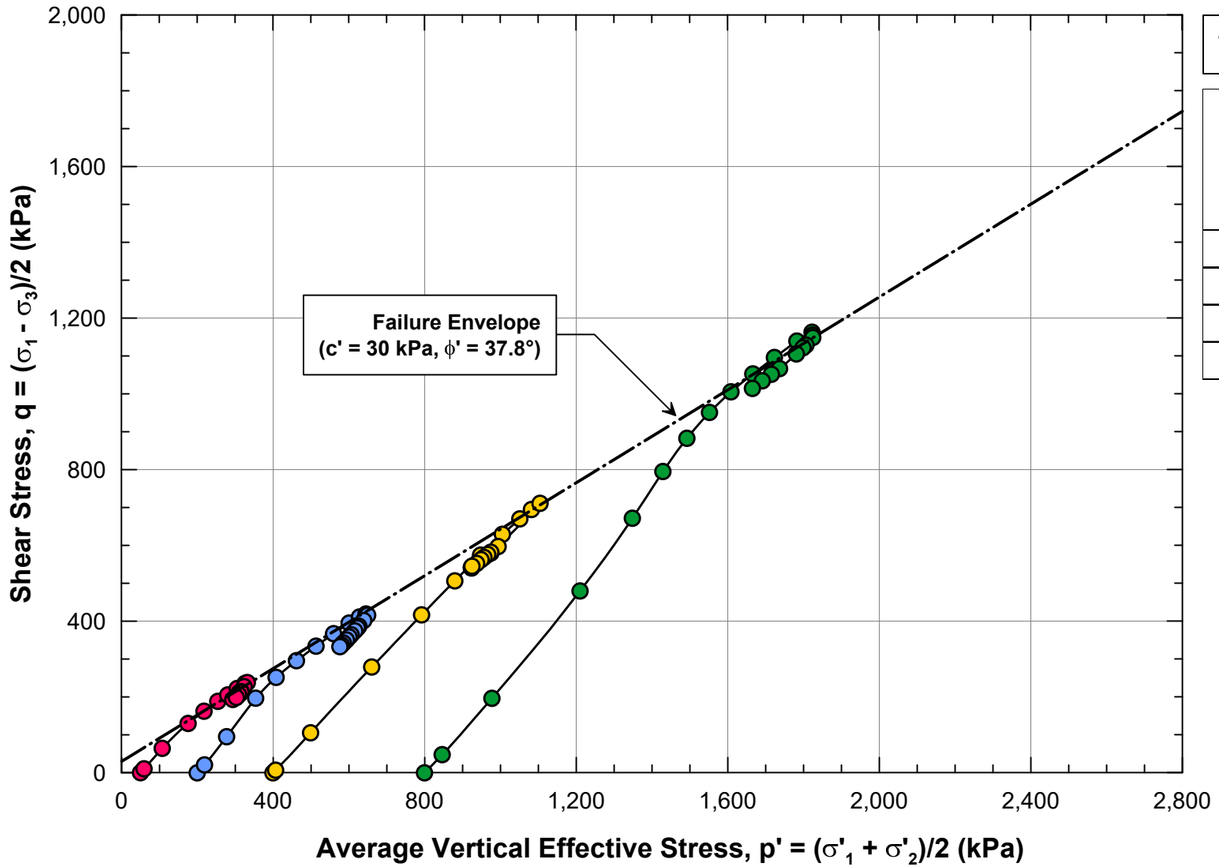
q vs p' and e vs p' Diagrams from Isotropically Consolidated Undrained Triaxial Compression Tests:
Intact Samples - Coarse Tailings PI-01 and PI-03A (Series II)



TXICU Tests on Intact Samples - Fine Tailings (Series II)

Symbol	Exploration ID	Depth (m)	Elevation, msl (m)	Total Unit Weight, γ_t (kN/m^3)	Water Content, w_0 (%)	Specific Gravity, G	Initial Void Ratio, e_0	Pre-Shear Void Ratio, e	Effective Confining Stress, σ'_c (kPa)
	PI-02A	1.35	896.17	29.52	15.8	4.530	0.74	0.83	50
				29.85	15.0		0.71	0.84	200
				29.28	17.1		0.78	0.83	400
				28.88	17.7		0.81	0.79	800

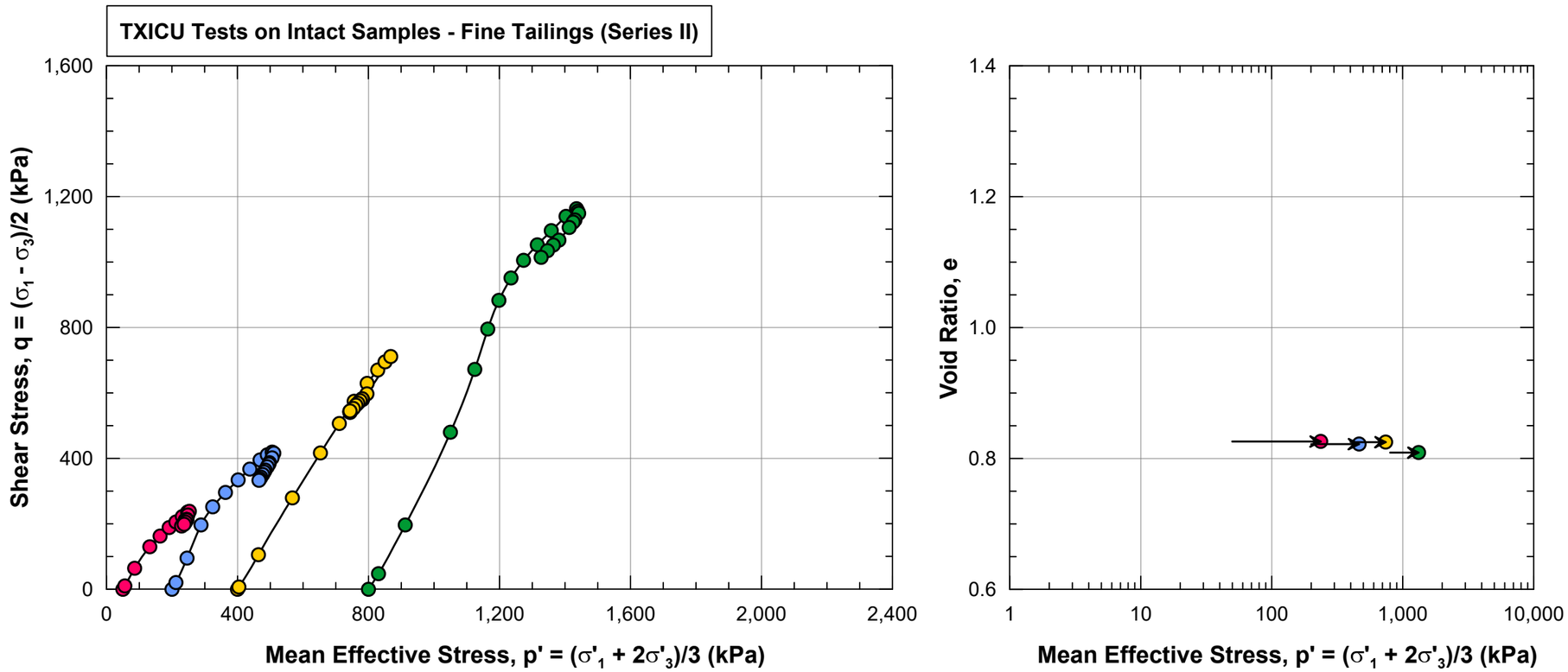
Normalized Stress-Strain and Excess Pore Pressure from Isotropically Consolidated Undrained Triaxial Compression Tests: Intact Samples - Fine Tailings (Series II)



TXICU Tests on Intact Samples - Fine Tailings (Series II)

Symbol	Exploration ID	Depth (m)	Elevation, msl (m)	Total Unit Weight, γ_t (kN/m^3)	Water Content, w_0 (%)	Specific Gravity, G	Initial Void Ratio, e_0	Pre-Shear Void Ratio, e	Effective Confining Stress, σ'_c (kPa)
	PI-02A	1.35	896.17	29.52	15.8	4.530	0.74	0.83	50
				29.85	15.0		0.71	0.84	200
				29.28	17.1		0.78	0.83	400
				28.88	17.7		0.81	0.79	800

Effective Stress Paths from Isotropically Consolidated Undrained Triaxial Compression Tests: Intact Samples - Fine Tailings (Series II)



Symbol	Exploration ID	Depth (m)	Elevation, msl (m)	Effective Confining Stress, σ'_c (kPa)
	PI-02A	1.35	896.17	50
				200
				400
				800

q vs p' and e vs p' Diagrams from Isotropically Consolidated Undrained Triaxial Compression Tests: Intact Samples - Fine Tailings (Series II)

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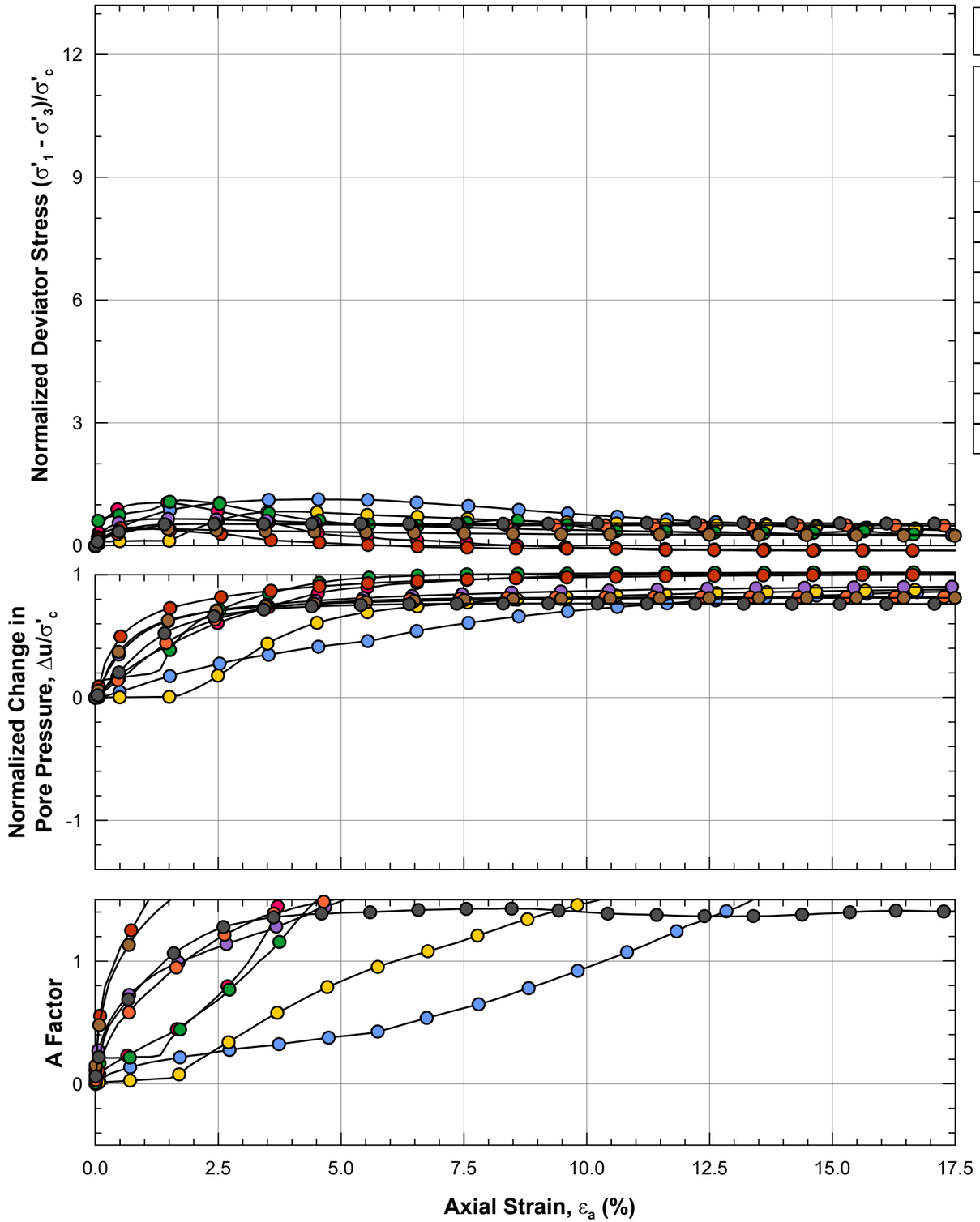
Appendix B - Historical Geotechnical Data

Figure 5-9

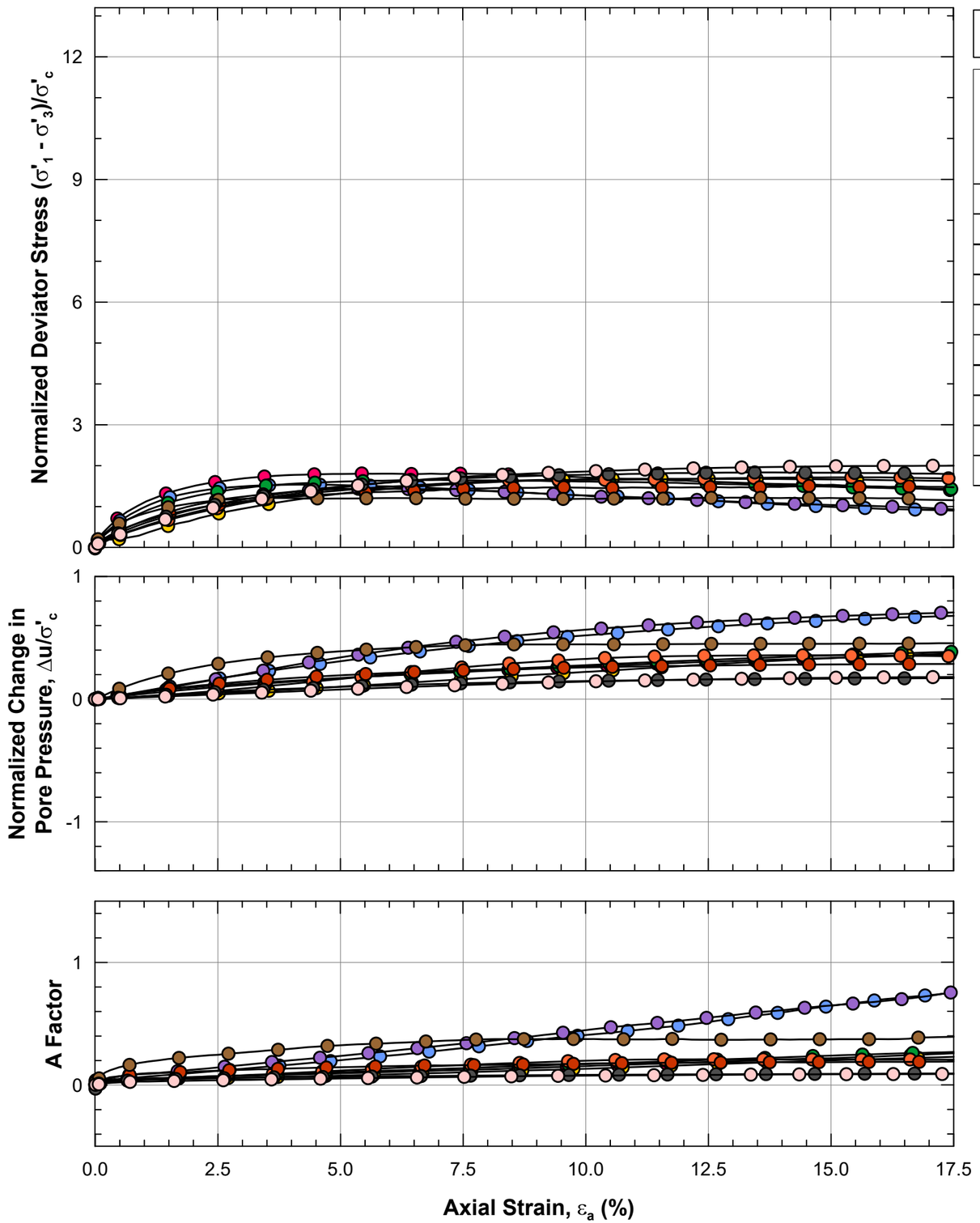


TXICU Tests on Reconstituted Samples (79 % Degree of Compaction) - Coarse Tailings

Symbol	Exploration ID	Depth (m)	Elevation, msl (m)	Total Unit Weight, γ_t (kN/m^3)	Water Content, w_0 (%)	Specific Gravity, G	Initial Void Ratio, e_0	Pre-Shear Void Ratio, e	Effective Confining Stress, σ'_c (kPa)
	PI-01	1.35	896.82	26.45	24.6	4.919	1.27	1.03	100
				26.46	24.6		1.27	0.97	300
				26.45	24.6		1.27	0.93	800
	PI-03	0.85	897.76	23.99	29.2	4.530	1.39	0.81	100
				23.99	29.2		1.39	0.78	300
				24.00	29.2		1.39	0.42	800
	PI-04	0.65	937.69	23.75	30.0	4.500	1.42	0.94	100
				23.74	29.9		1.42	0.91	300
				23.74	29.9		1.42	0.89	800

Normalized Stress-Strain and Excess Pore Pressure from Isotropically Consolidated Undrained Triaxial Compression Tests: Reconstituted Samples (DOC = 79%) - Coarse Tailings

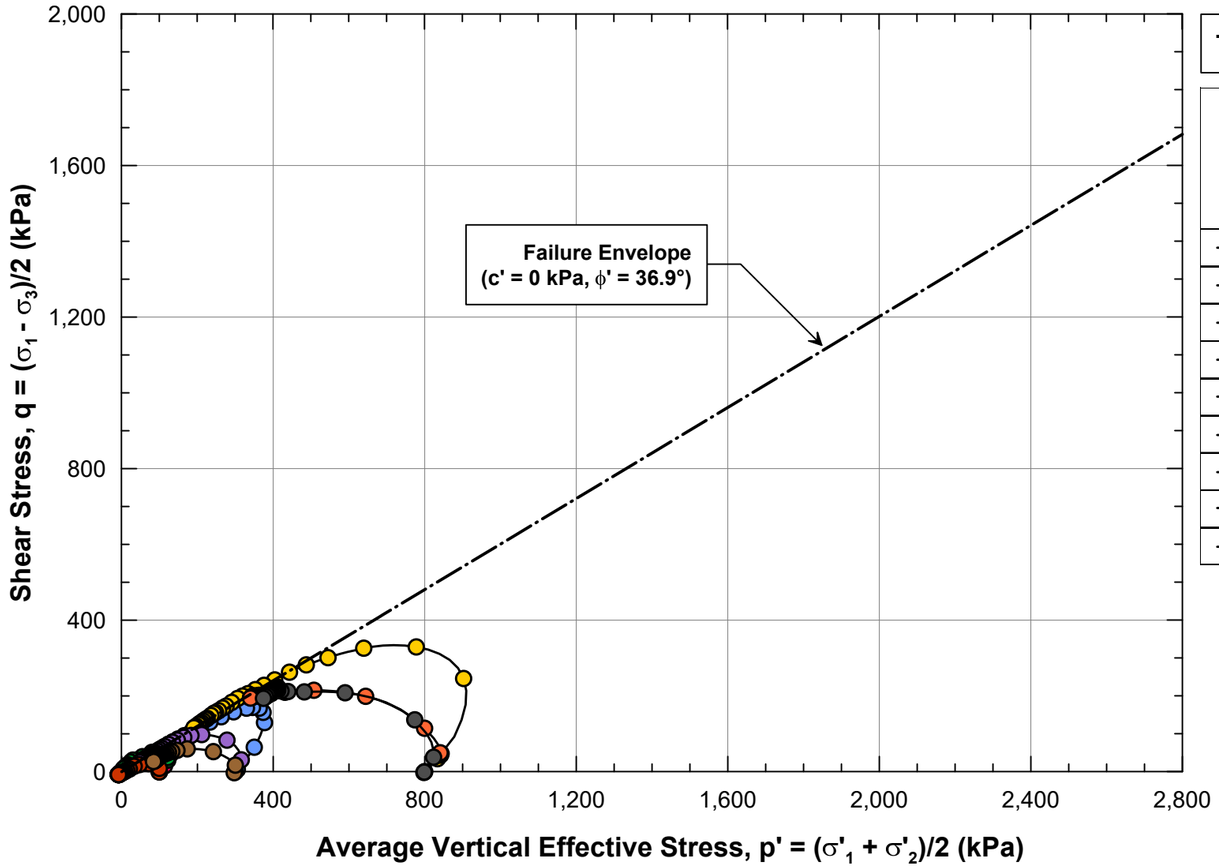
Figure 5-10a



TXICU Tests on Reconstituted Samples (83 % Degree of Compaction) - Coarse Tailings

Symbol	Exploration ID	Depth (m)	Elevation, msl (m)	Total Unit Weight, γ_t (kN/m^3)	Water Content, w_0 (%)	Specific Gravity, G	Initial Void Ratio, e_0	Pre-Shear Void Ratio, e	Effective Confining Stress, σ'_c (kPa)
	PI-01	1.35	896.82	27.31	22.5	4.920	1.16	0.93	100
				27.31	22.5		1.16	0.92	300
				27.31	22.5		1.16	0.80	800
	PI-03	0.85	897.76	24.74	26.8	4.530	1.28	0.89	100
				24.74	26.8		1.28	0.85	300
				24.74	26.8		1.28	0.82	800
	PI-04	0.65	937.69	24.55	27.2	4.500	1.29	0.86	100
				24.58	27.1		1.28	0.99	100
				24.62	27.2		1.29	0.91	300
				24.49	27.4		1.30	0.86	800

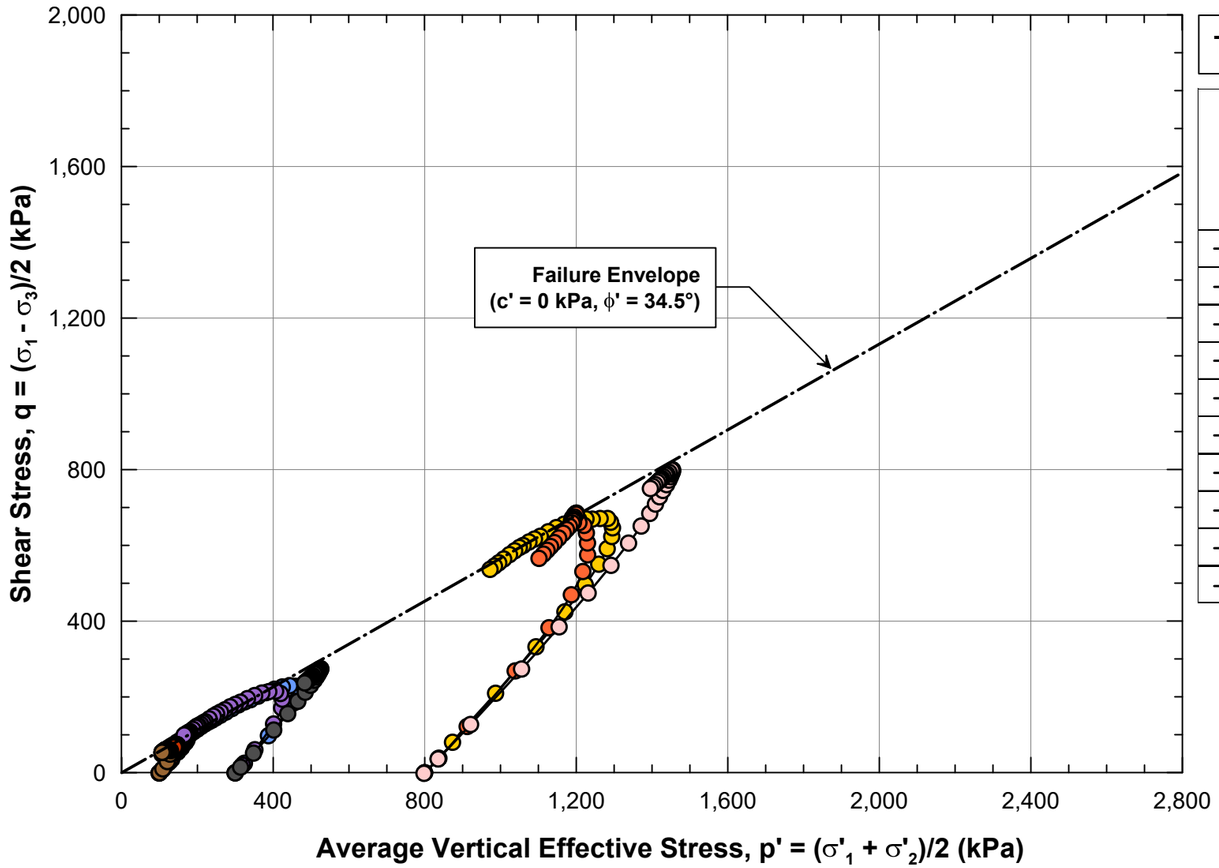
Normalized Stress-Strain and Excess Pore Pressure from Isotropically Consolidated Undrained Triaxial Compression Tests: Reconstituted Samples (DOC = 83%) - Coarse Tailings



TXICU Tests on Reconstituted Samples (79 % Degree of Compaction) - Coarse Tailings

Symbol	Exploration ID	Depth (m)	Elevation, msl (m)	Total Unit Weight, γ_t (kN/m^3)	Water Content, w_0 (%)	Specific Gravity, G	Initial Void Ratio, e_0	Pre-Shear Void Ratio, e	Effective Confining Stress, σ'_c (kPa)
	PI-01	1.35	896.82	26.45	24.6	4.919	1.27	1.03	100
				26.46	24.6		1.27	0.97	300
				26.45	24.6		1.27	0.93	800
	PI-03	0.85	897.76	23.99	29.2	4.530	1.39	0.81	100
				23.99	29.2		1.39	0.78	300
				24.00	29.2		1.39	0.42	800
	PI-04	0.65	937.69	23.75	30.0	4.500	1.42	0.94	100
				23.74	29.9		1.42	0.91	300
				23.74	29.9		1.42	0.89	800

Effective Stress Paths from Isotropically Consolidated Undrained Triaxial Compression Tests: Reconstituted Samples (DOC = 79%) - Coarse Tailings



TXICU Tests on Reconstituted Samples (83 % Degree of Compaction) - Coarse Tailings

Symbol	Exploration ID	Depth (m)	Elevation, msl (m)	Total Unit Weight, γ_t (kN/m^3)	Water Content, w_0 (%)	Specific Gravity, G	Initial Void Ratio, e_0	Pre-Shear Void Ratio, e	Effective Confining Stress, σ'_c (kPa)
	PI-01	1.35	896.82	27.31	22.5	4.920	1.16	0.93	100
				27.31	22.5		1.16	0.92	300
				27.31	22.5		1.16	0.80	800
	PI-03	0.85	897.76	24.74	26.8	4.530	1.28	0.89	100
				24.74	26.8		1.28	0.85	300
				24.74	26.8		1.28	0.82	800
	PI-04	0.65	937.69	24.55	27.2	4.500	1.29	0.86	100
				24.58	27.1		1.28	0.99	100
				24.62	27.2		1.29	0.91	300
				24.49	27.4		1.30	0.86	800

Effective Stress Paths from Isotropically Consolidated Undrained Triaxial Compression Tests: Reconstituted Samples (DOC = 83%) - Coarse Tailings

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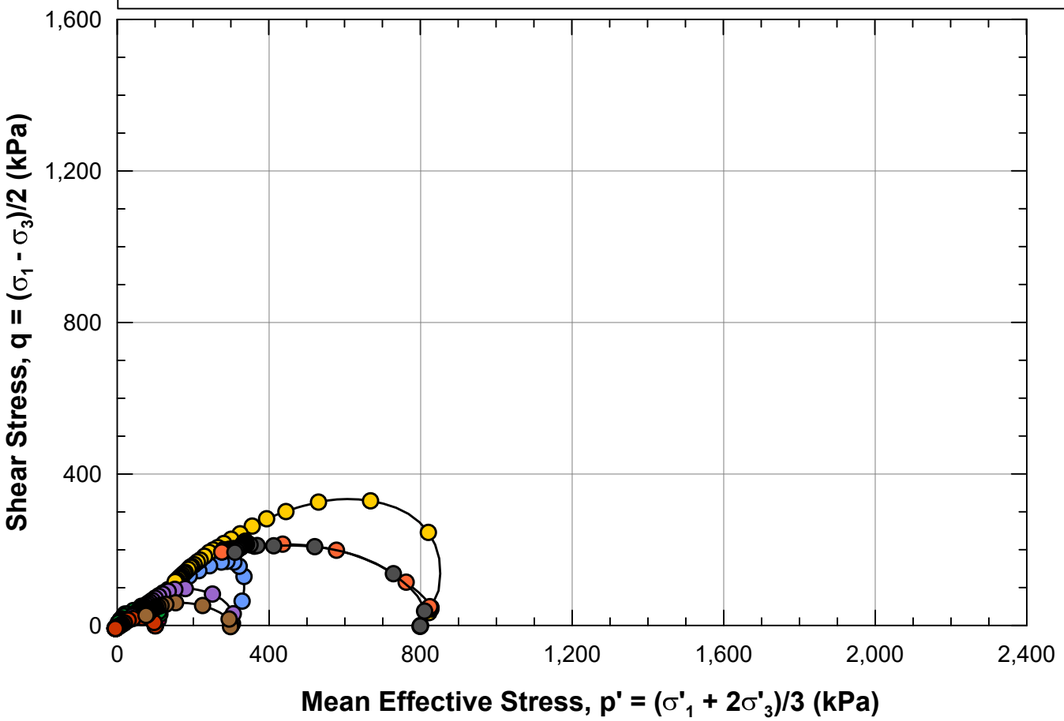
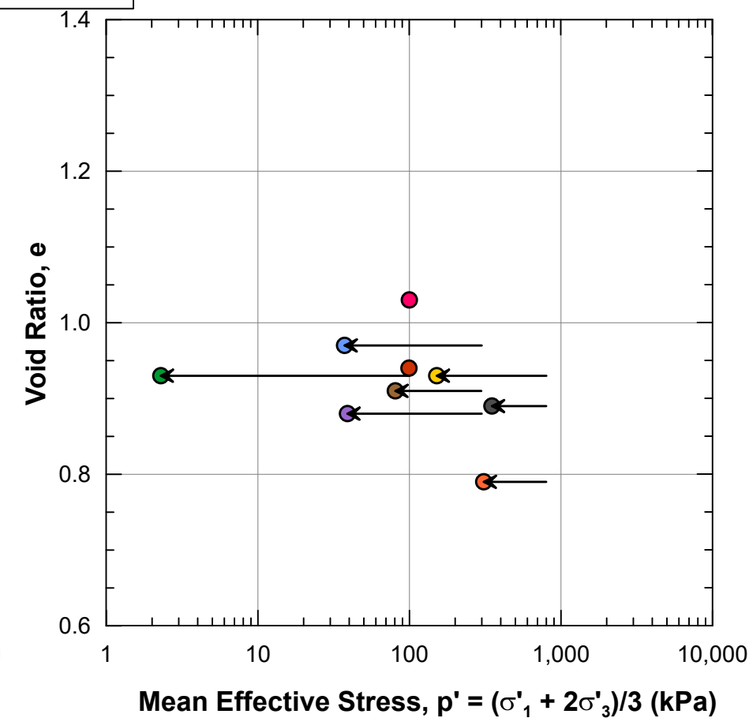
Appendix B - Historical Geotechnical Data

Figure 5-11b

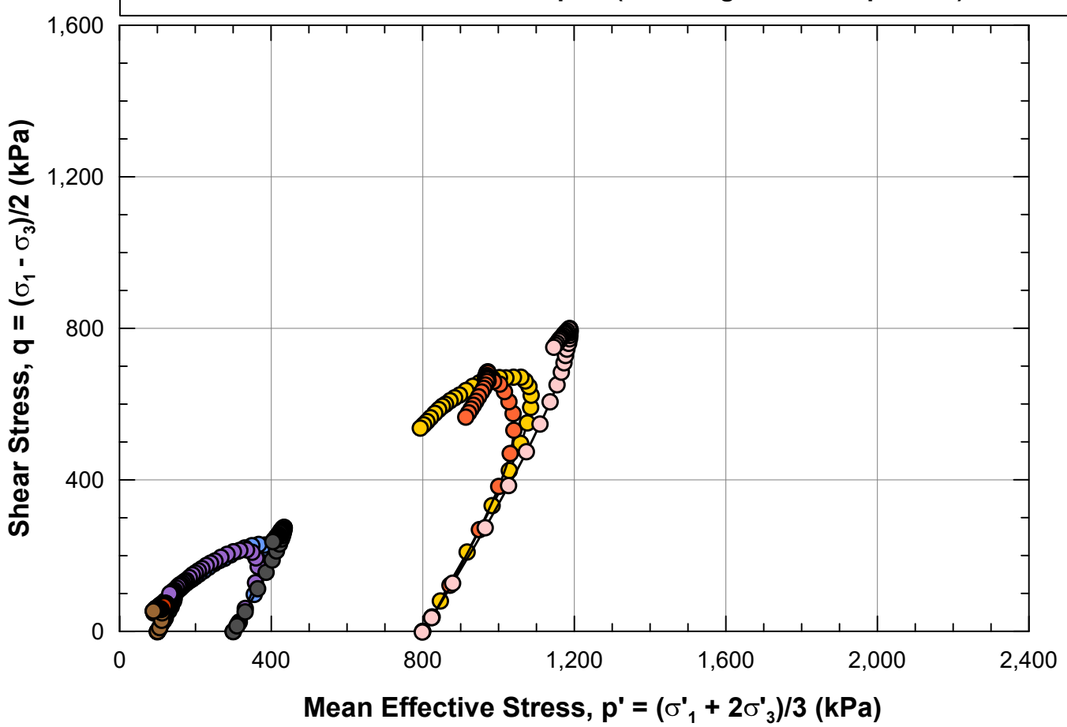
TXICU Tests on Reconstituted Samples (79 % Degree of Compaction) - Coarse Tailings

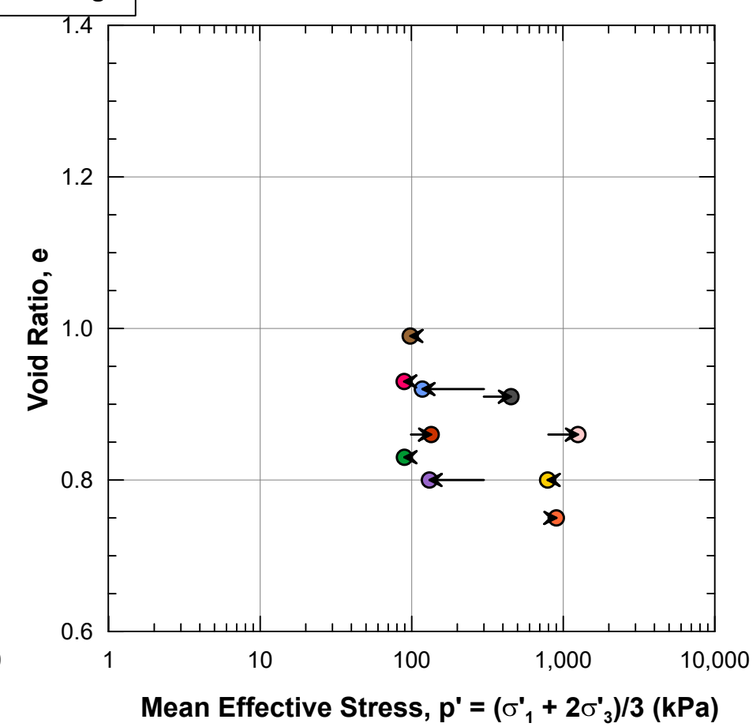




Symbol	Exploration ID	Depth (m)	Elevation, msl (m)	Effective Confining Stress, σ'_c (kPa)
	PI-01	1.35	896.82	100
				300
				800
	PI-03	0.85	897.76	100
				300
				800
	PI-04	0.65	937.69	100
				300
				800

TXICU Tests on Reconstituted Samples (83 % Degree of Compaction) - Coarse Tailings

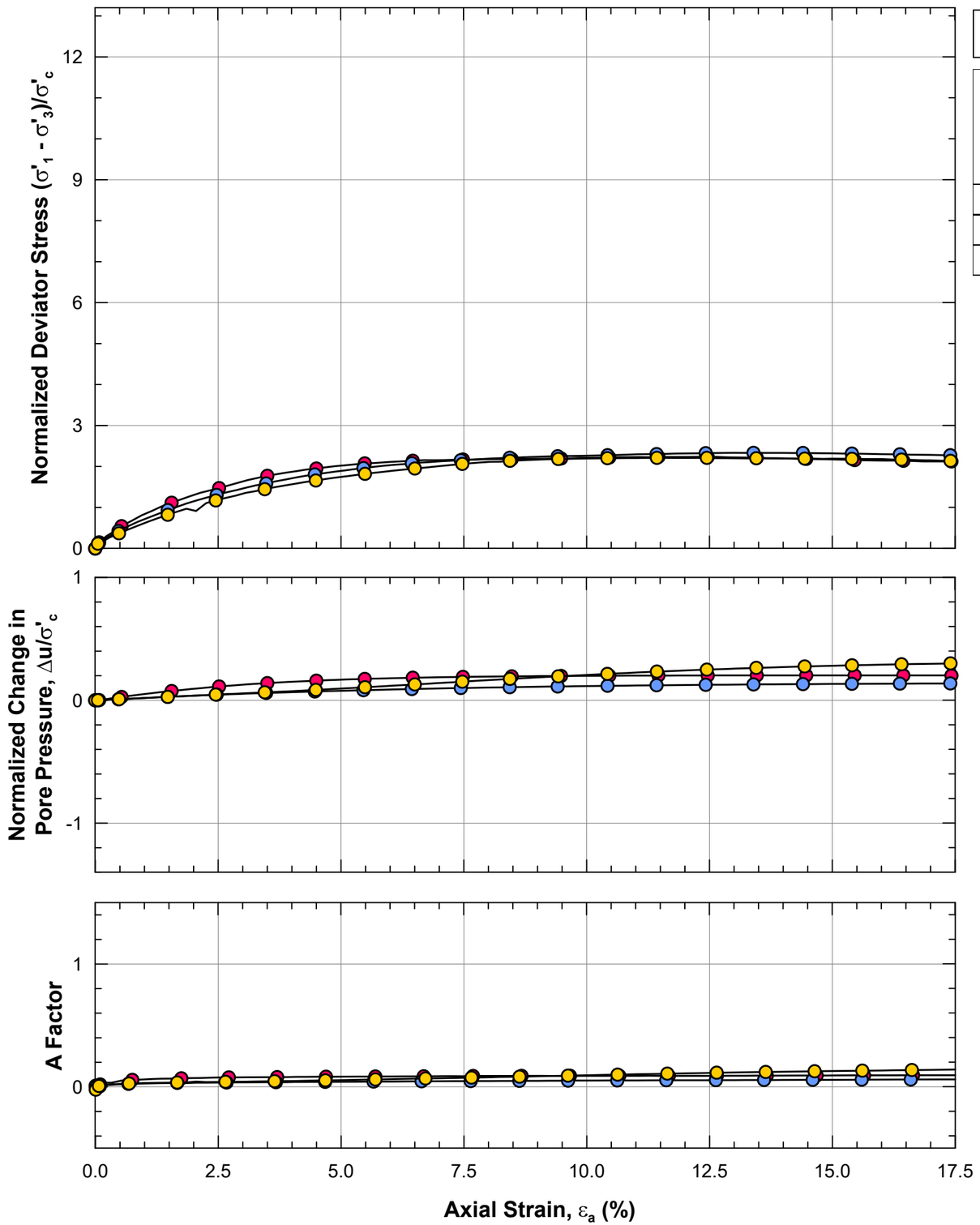




Symbol	Exploration ID	Depth (m)	Elevation, msl (m)	Effective Confining Stress, σ'_c (kPa)
	PI-01	1.35	896.82	100
				300
				800
	PI-03	0.85	897.76	100
				300
				800
	PI-04	0.65	937.69	100
				100
				300
				800

q vs p' and e vs p' Diagrams from Isotropically Consolidated Undrained Triaxial Compression Tests: Reconstituted Samples (DOC = 79 and 83%) - Coarse Tailings

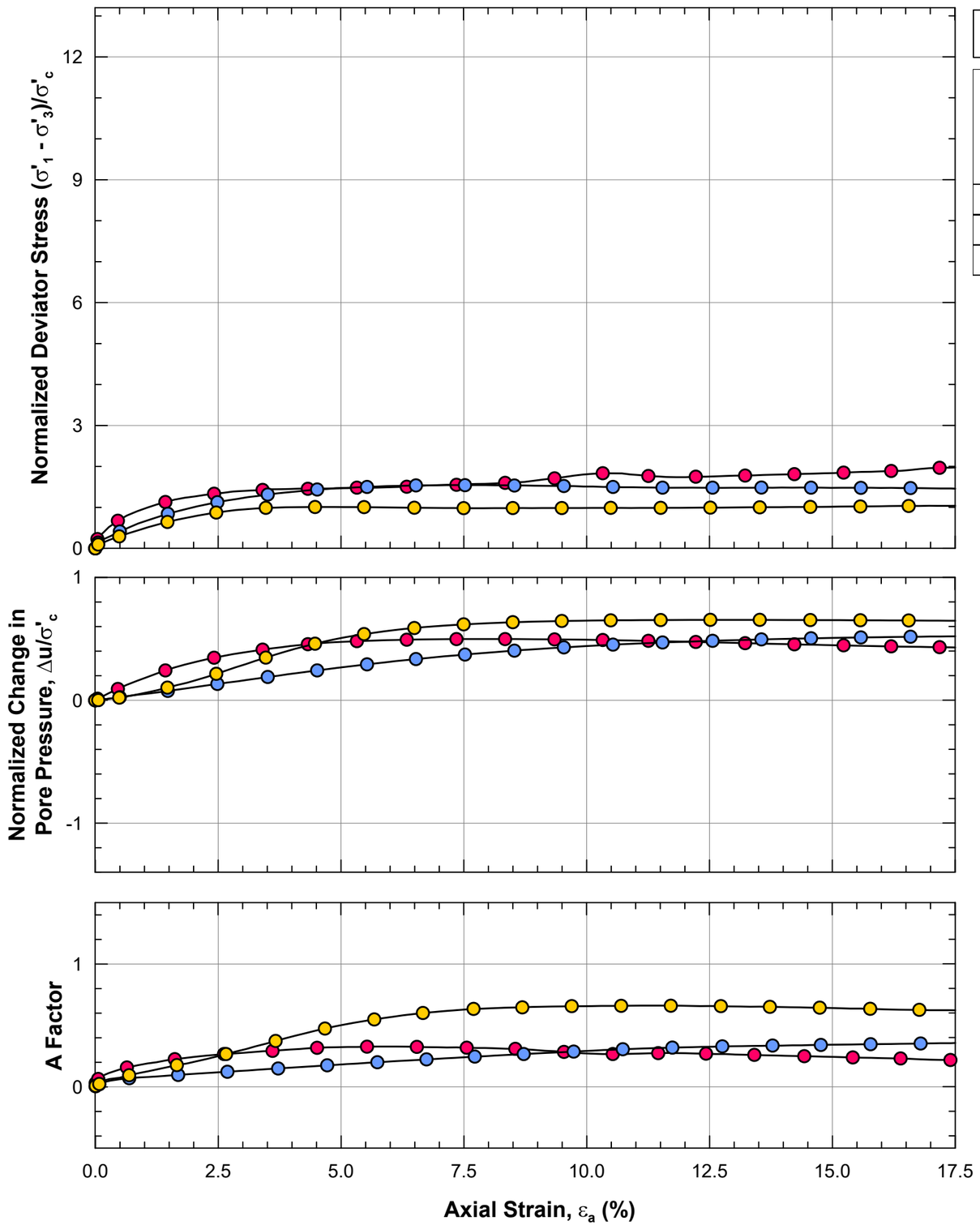
Figure 5-12



TXICU Tests on Reconstituted Samples (79 % Degree of Compaction) - Fine Tailings

Symbol	Exploration ID	Depth (m)	Elevation, msl (m)	Total Unit Weight, γ_t (kN/m^3)	Water Content, w_0 (%)	Specific Gravity, G	Initial Void Ratio, e_0	Pre-Shear Void Ratio, e	Effective Confining Stress, σ'_c (kPa)
	PI-02A	1.35	896.17	23.03	32.1	4.440	1.50	0.81	100
				23.03	32.0		1.50	0.78	300
				23.06	32.3		1.50	0.42	800

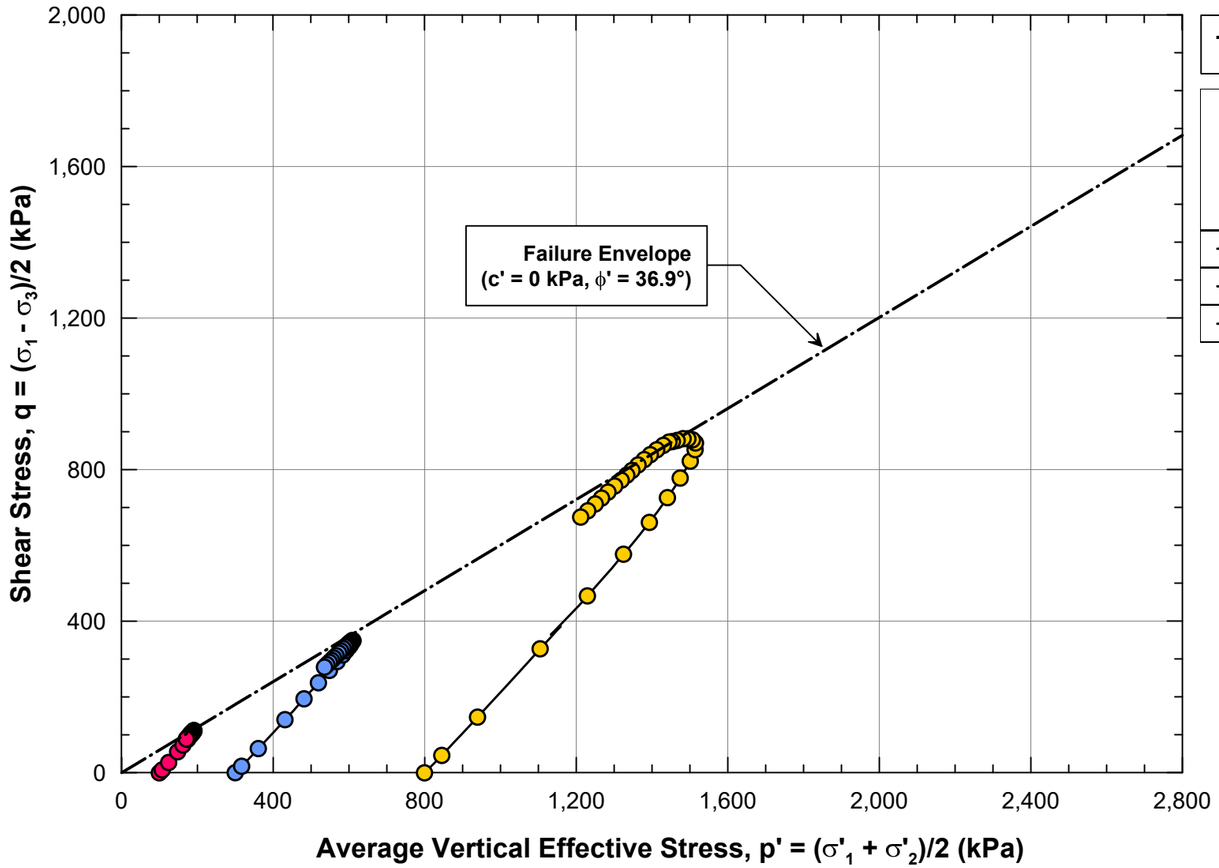
Normalized Stress-Strain and Excess Pore Pressure from Isotropically Consolidated Undrained Triaxial Compression Tests: Reconstituted Samples (DOC = 79%) - Fine Tailings



TXICU Tests on Reconstituted Samples (83 % Degree of Compaction) - Fine Tailings

Symbol	Exploration ID	Depth (m)	Elevation, msl (m)	Total Unit Weight, γ_t (kN/m^3)	Water Content, w_0 (%)	Specific Gravity, G	Initial Void Ratio, e_0	Pre-Shear Void Ratio, e	Effective Confining Stress, σ'_c (kPa)
	PI-02A	1.35	896.17	23.72	29.5	4.440	1.38	0.89	100
				23.73	29.5		1.38	0.85	300
				23.73	29.5		1.38	0.82	800

Normalized Stress-Strain and Excess Pore Pressure from Isotropically Consolidated Undrained Triaxial Compression Tests: Reconstituted Samples (DOC = 83%) - Fine Tailings



TXICU Tests on Reconstituted Samples (79 % Degree of Compaction) - Fine Tailings

Symbol	Exploration ID	Depth (m)	Elevation, msl (m)	Total Unit Weight, γ_t (kN/m^3)	Water Content, w_0 (%)	Specific Gravity, G	Initial Void Ratio, e_0	Pre-Shear Void Ratio, e	Effective Confining Stress, σ'_c (kPa)
	PI-02A	1.35	896.17	23.03	32.1	4.440	1.50	0.81	100
				23.03	32.0		1.50	0.78	300
				23.06	32.3		1.50	0.42	800

Effective Stress Paths from Isotropically Consolidated Undrained Triaxial Compression Tests: Reconstituted Samples (DOC = 79%) - Fine Tailings

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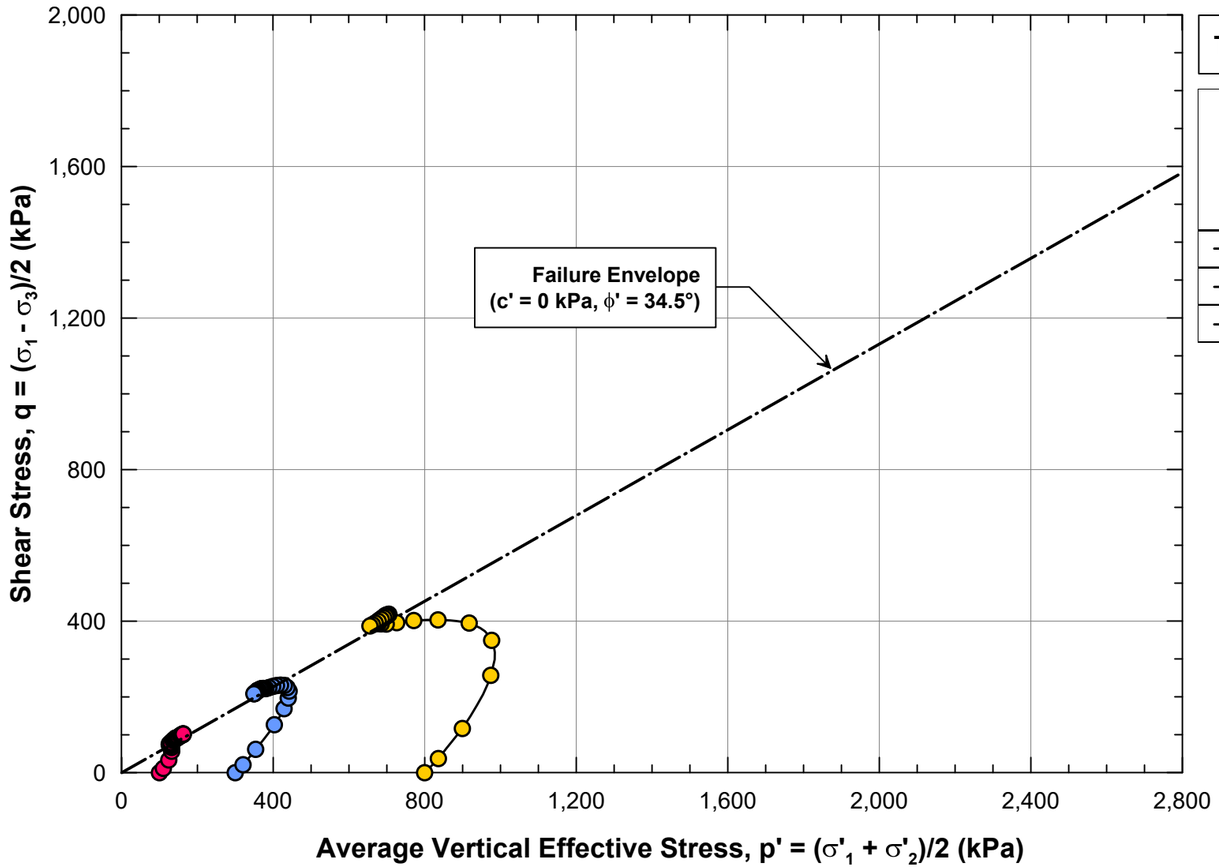
Appendix B - Historical Geotechnical Data

Figure 5-14a



TXICU Tests on Reconstituted Samples (83 % Degree of Compaction) - Fine Tailings

Symbol	Exploration ID	Depth (m)	Elevation, msl (m)	Total Unit Weight, γ_t (kN/m^3)	Water Content, w_0 (%)	Specific Gravity, G	Initial Void Ratio, e_0	Pre-Shear Void Ratio, e	Effective Confining Stress, σ'_c (kPa)
	PI-02A	1.35	896.17	23.72	29.5	4.440	1.38	0.89	100
				23.73	29.5		1.38	0.85	300
				23.73	29.5		1.38	0.82	800

Effective Stress Paths from Isotropically Consolidated Undrained Triaxial Compression Tests: Reconstituted Samples (DOC = 83%) - Fine Tailings

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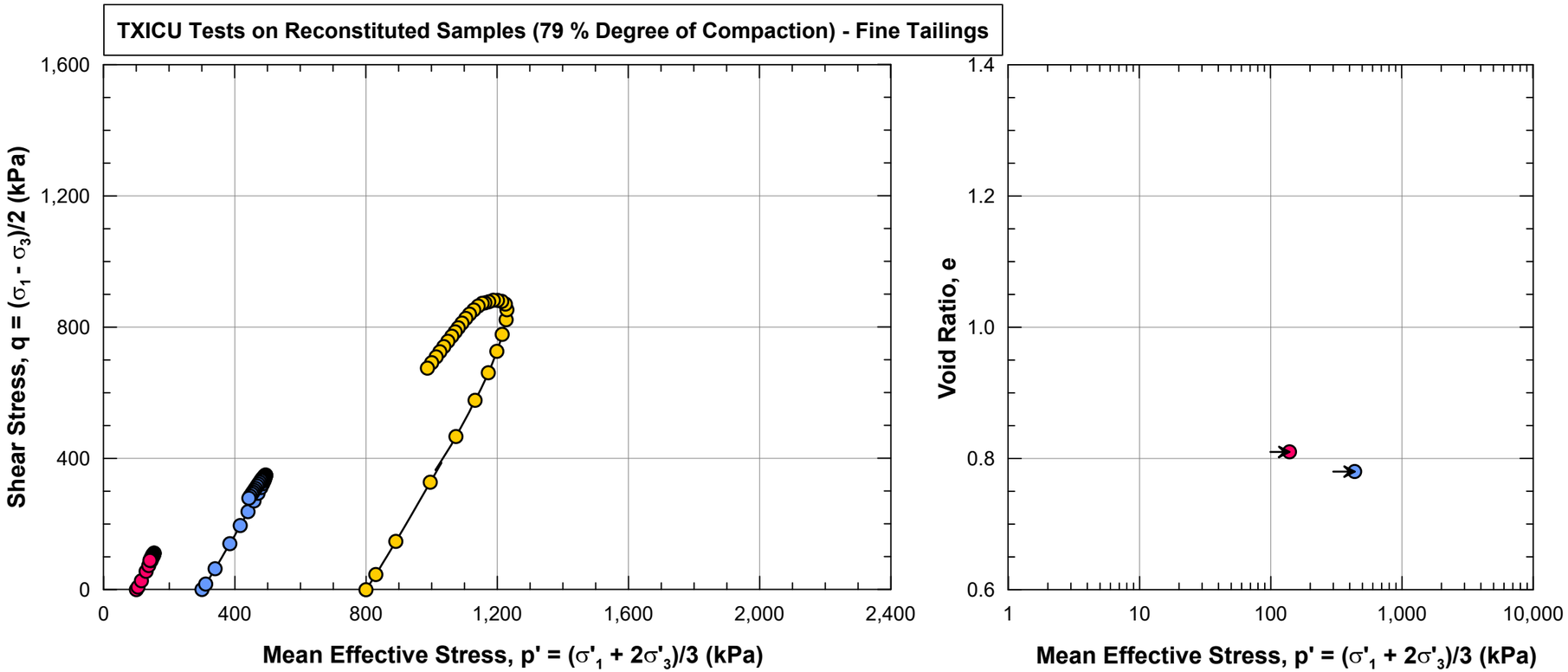
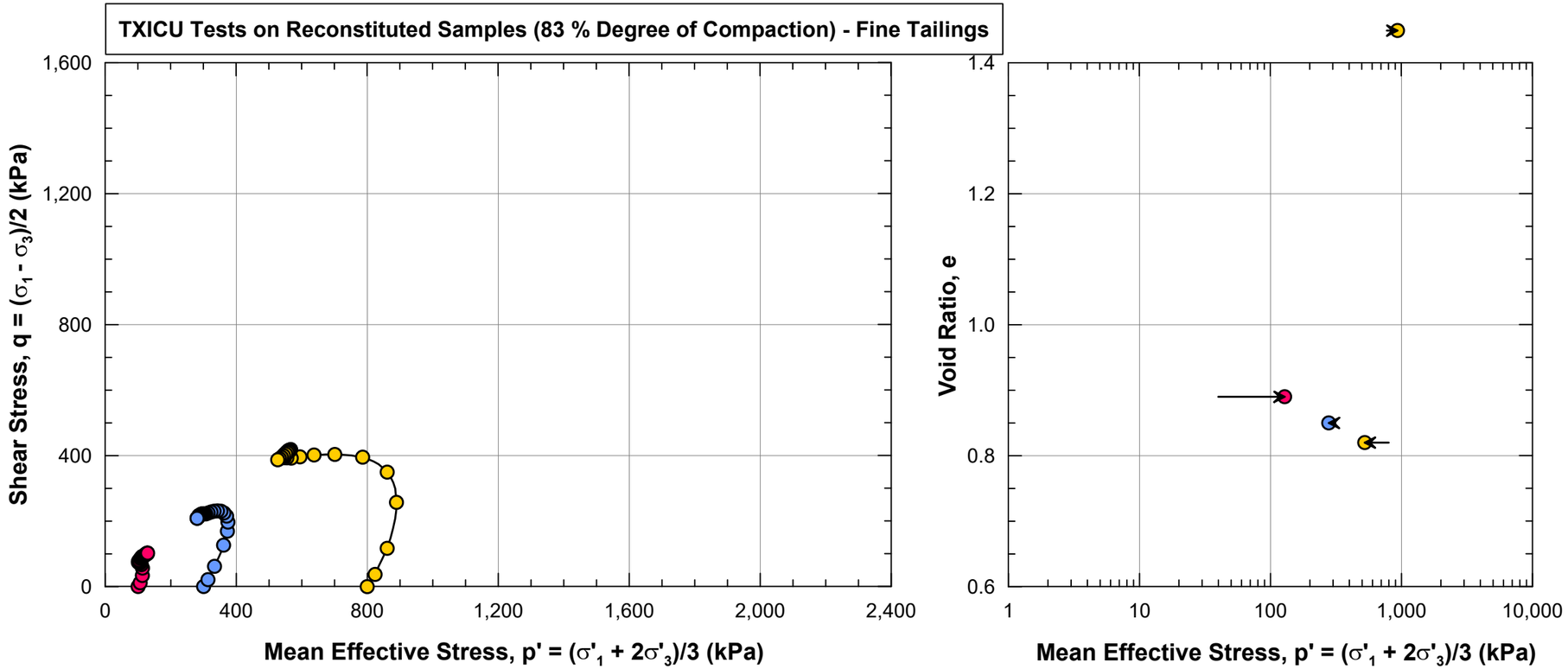
Appendix B - Historical Geotechnical Data

Figure 5-14b

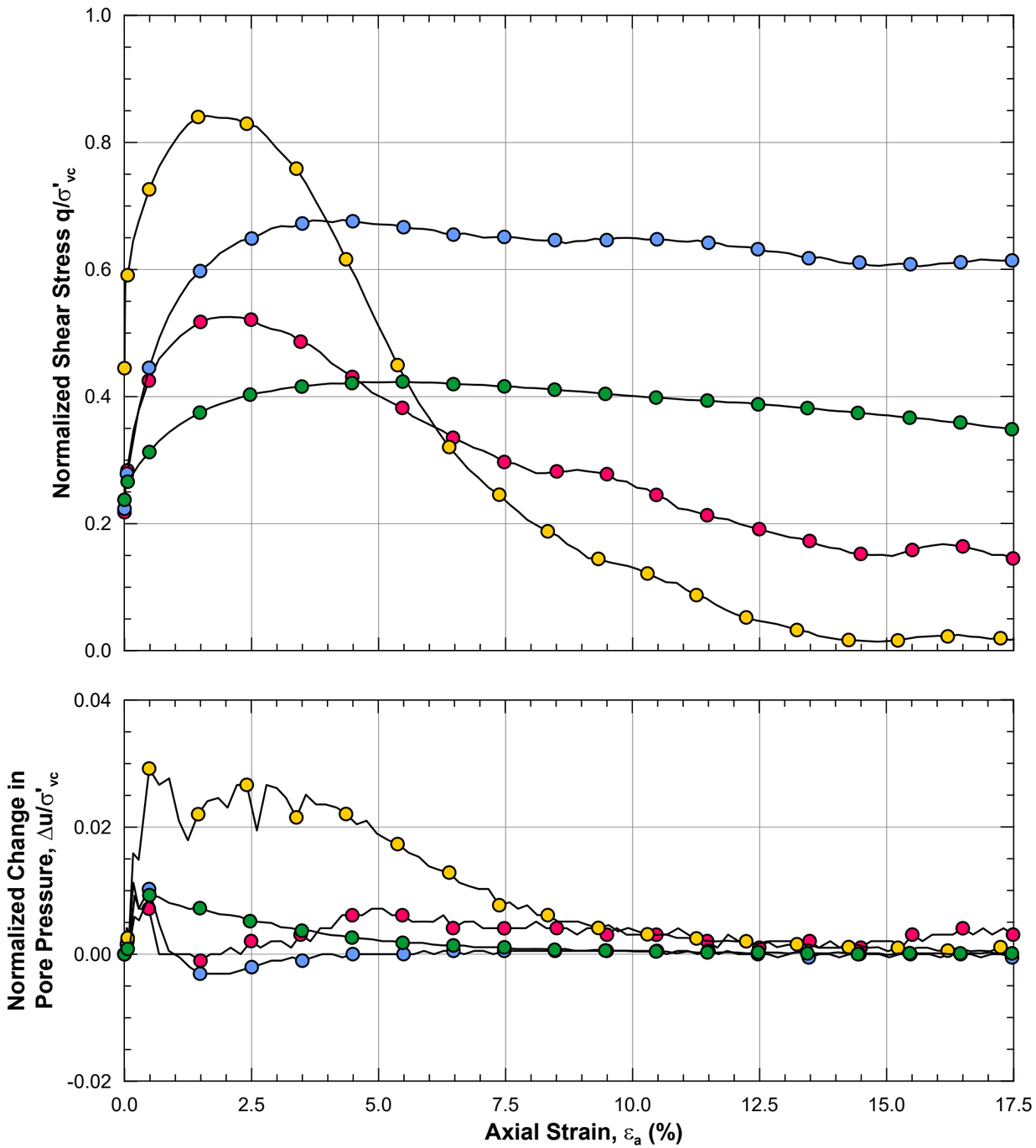


Symbol	Exploration ID	Depth (m)	Elevation, msl (m)	Effective Confining Stress, σ'_c (kPa)
	PI-02A	1.35	896.17	100
				300
				800



Symbol	Exploration ID	Depth (m)	Elevation, msl (m)	Effective Confining Stress, σ'_c (kPa)
	PI-02A	1.35	896.17	100
				300
				800

q vs p' and e vs p' Diagrams from Isotropically Consolidated Undrained Triaxial Compression Tests: Reconstituted Samples (DOC = 79 and 83%) - Fine Tailings

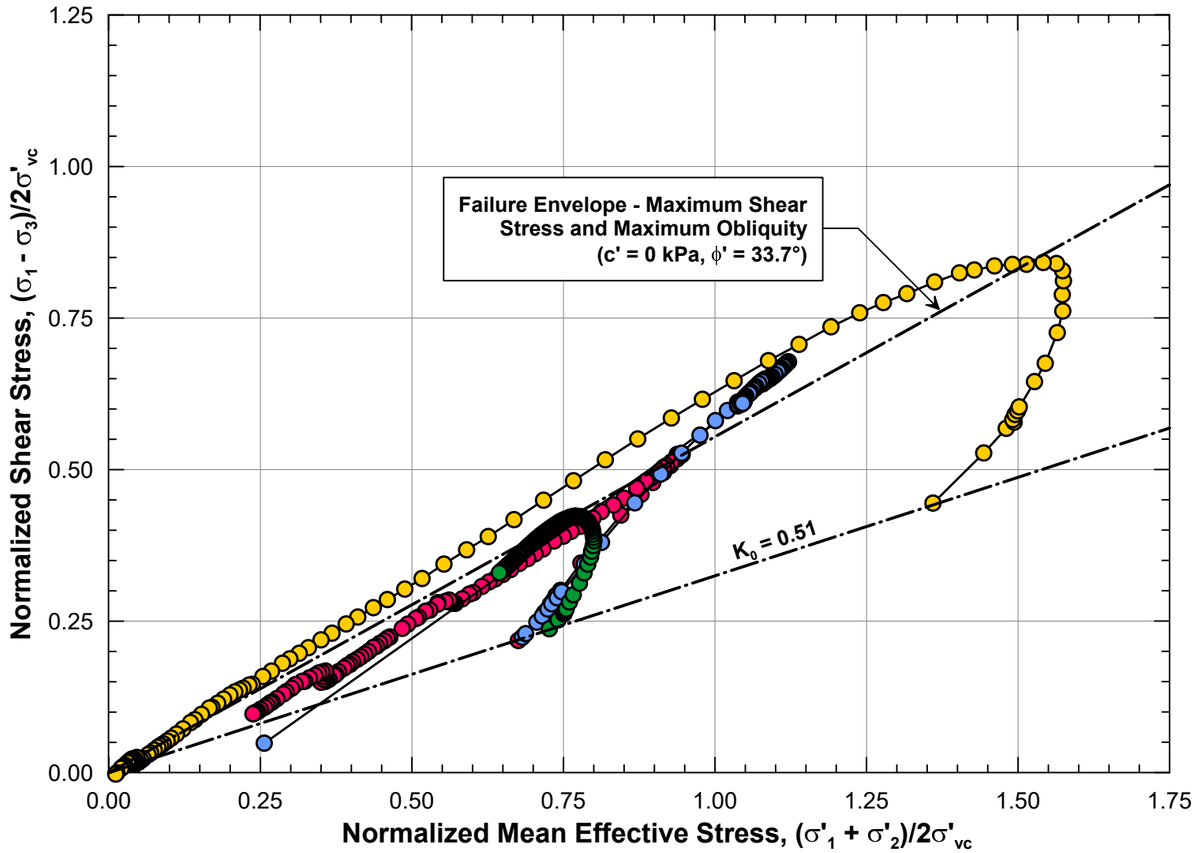


TXK$_0$CU Tests on Intact Samples - Coarse Tailings

Symbol	Exploration ID	Depth (m)	Elevation, msl (m)	Total Unit Weight, γ_t (kN/m^3)	Water Content, w_0 (%)	Specific Gravity, G	Initial Void Ratio, e_0
	PI-01	1.35	896.82	26.48	22.6	4.919	1.23
				26.51	22.5		1.23
				26.73	22.0		1.20
				27.54	20.2		1.11

Symbol	Pre-Shear Void Ratio, e	Pre-Shear Vertical Stress, σ'_{vc} (kPa)	Coefficient of Lateral Earth Pressure At-Rest, K_0	Axial Strain at Failure, ε_a (%)	Normalized Shear Strength, s_u/σ'_{vc} (kPa)	Effective Friction Angle, ϕ' (degrees)
	0.84	55	0.46	2.1	0.53	34.1
	0.84	109	0.46	4.3	0.68	37.2
	0.89	181	0.55	1.6	0.51	33.1
	1.10	409	0.49	5.5	0.42	33.4

Normalized Stress-Strain and Excess Pore Pressure from Ko-Consolidated Undrained Triaxial Compression Tests: Intact Samples - Coarse Tailings



TXK$_0$CU Tests on Intact Samples - Coarse Tailings

Symbol	Exploration ID	Depth (m)	Elevation, msl (m)	Total Unit Weight, γ_t (kN/m^3)	Water Content, w_0 (%)	Specific Gravity, G	Initial Void Ratio, e_0
	PI-01	1.35	896.82	26.48	22.6	4.919	1.23
				26.51	22.5		1.23
				26.73	22.0		1.20
				27.54	20.2		1.11

Symbol	Pre-Shear Void Ratio, e	Pre-Shear Vertical Stress, σ'_{vc} (kPa)	Coefficient of Lateral Earth Pressure At-Rest, K_0	Axial Strain at Failure, ε_a (%)	Normalized Shear Strength, s_u/σ'_{vc} (kPa)	Effective Friction Angle, ϕ' (degrees)
	0.84	55	0.46	2.1	0.53	34.1
	0.84	109	0.46	4.3	0.68	37.2
	0.89	181	0.55	1.6	0.51	33.1
	1.10	409	0.49	5.5	0.42	33.4

Normalized Effective Stress Paths from Ko-Consolidated Undrained Triaxial Compression Tests: Intact Samples - Coarse Tailings

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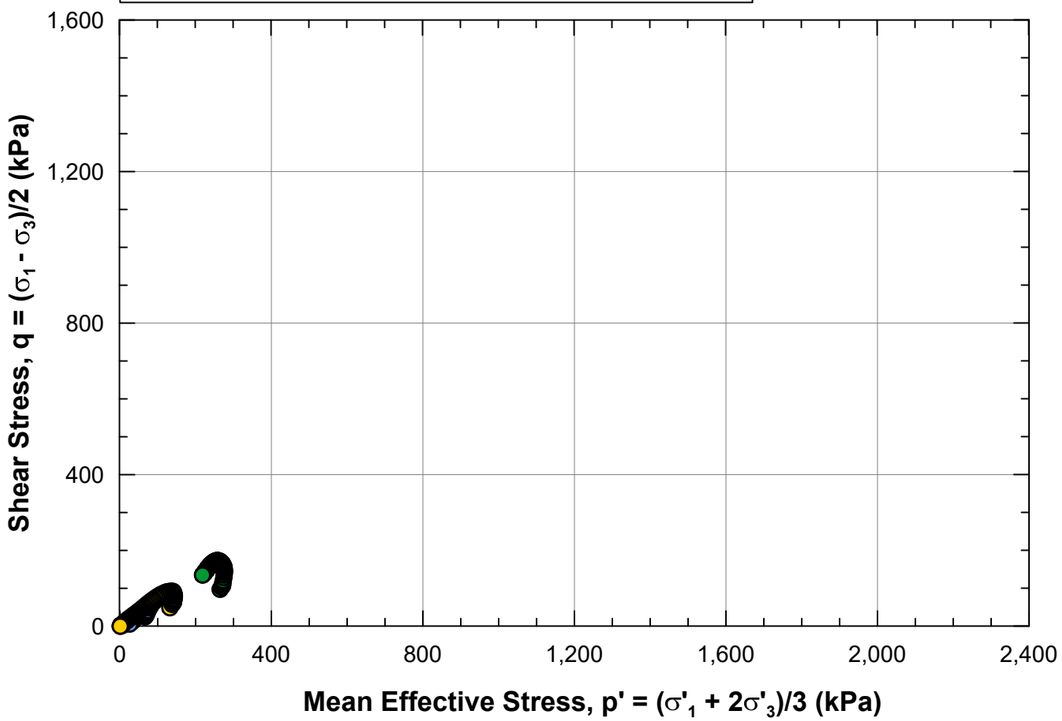
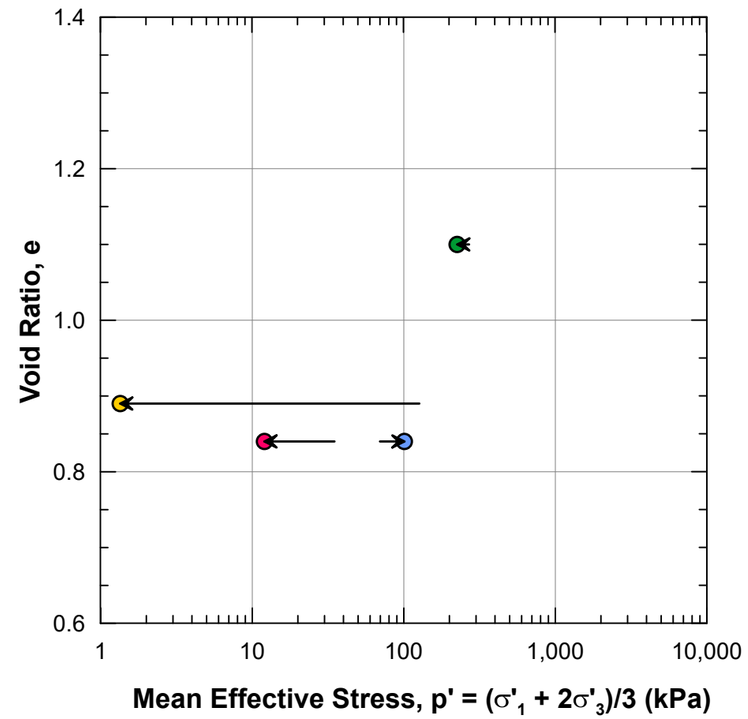
Appendix B - Historical Geotechnical Data

Figure 5-17

TXK$_0$CU Tests on Intact Samples - Coarse Tailings





Symbol	Exploration ID	Depth (m)	Elevation, msl (m)	Pre-Shear Vertical Stress, σ'_{vc} (kPa)
	PI-01	1.35	896.82	55
				109
				181
				409

q vs p' and e vs p' Diagrams from Ko-Consolidated Undrained Triaxial Compression Tests: Intact Samples - Coarse Tailings

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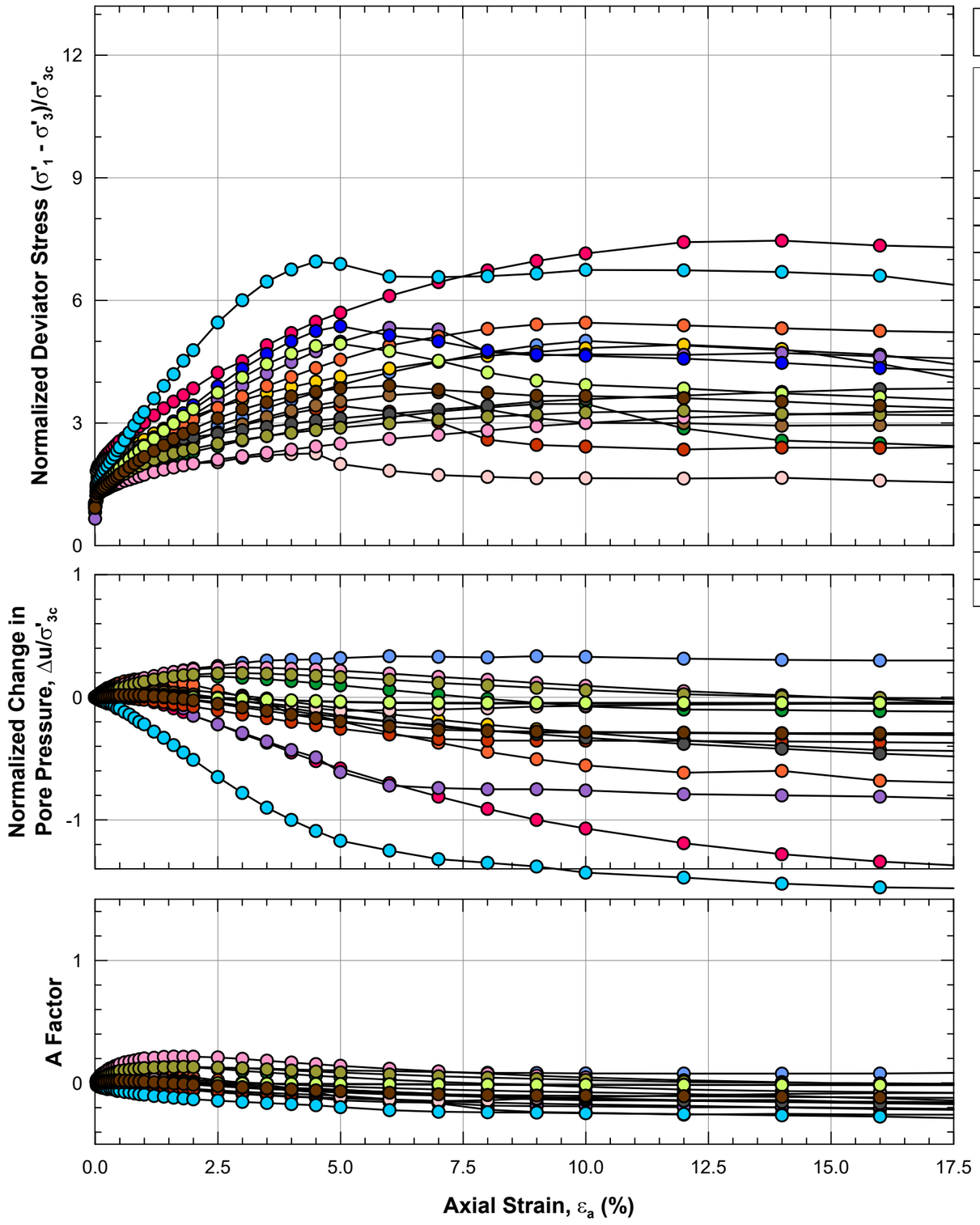
Appendix B - Historical Geotechnical Data

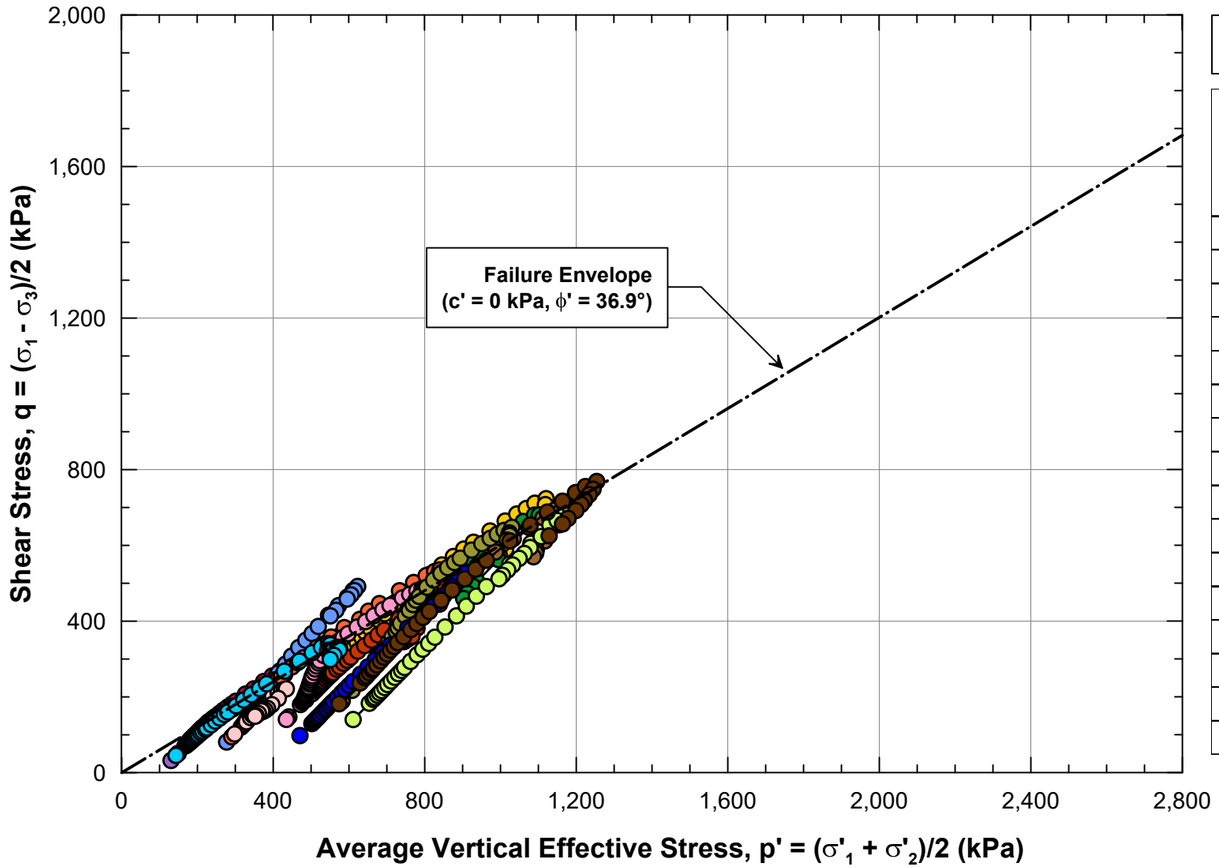
Figure 5-18



TXACU Tests on Intact Samples - Coarse Tailings

Symbol	Exploration ID	Depth (m)	Elevation, msl (m)	Total Unit Weight, γ_t (kN/m^3)	Water Content, w_0 (%)	Specific Gravity, G	Initial Void Ratio, e_0	Pre-Shear Void Ratio, e	Effective Confining Stress, σ'_1 (kPa)	Effective Confining Stress, σ'_3 (kPa)
	A/D-5	0.45	927.12	26.60	13.3	4.945	1.07	1.03	196	98
				25.88	13.0		1.12	1.10	392	196
				27.67	12.4		0.97	0.91	589	294
				27.00	14.4		1.06	1.00	785	392
	A/D-10	0.55	926.15	26.81	10.8	4.866	0.97	0.95	196	98
				27.15	12.0		0.97	0.93	392	196
				27.70	12.0		0.93	0.87	589	294
				27.82	11.3		0.91	0.85	785	392
	A/D-11	0.75	925.75	21.35	17.1	3.868	0.98	0.94	196	98
				22.59	16.5		0.96	0.91	392	196
				22.48	16.9		0.97	0.92	589	294
				23.60	17.2		0.88	0.81	785	392
	CPTU-2005-05	5.25	920.05	29.64	19.2	4.322	0.71	0.69	196	98
				29.67	18.9		0.70	0.66	392	196
				29.33	19.1		0.72	0.66	589	294
				29.52	19.7		0.72	0.63	785	392

Normalized Stress-Strain and Excess Pore Pressure from Anisotropically Consolidated Undrained Triaxial Compression Tests: Intact Samples - Coarse Tailings



TXACU Tests on Intact Samples - Coarse Tailings

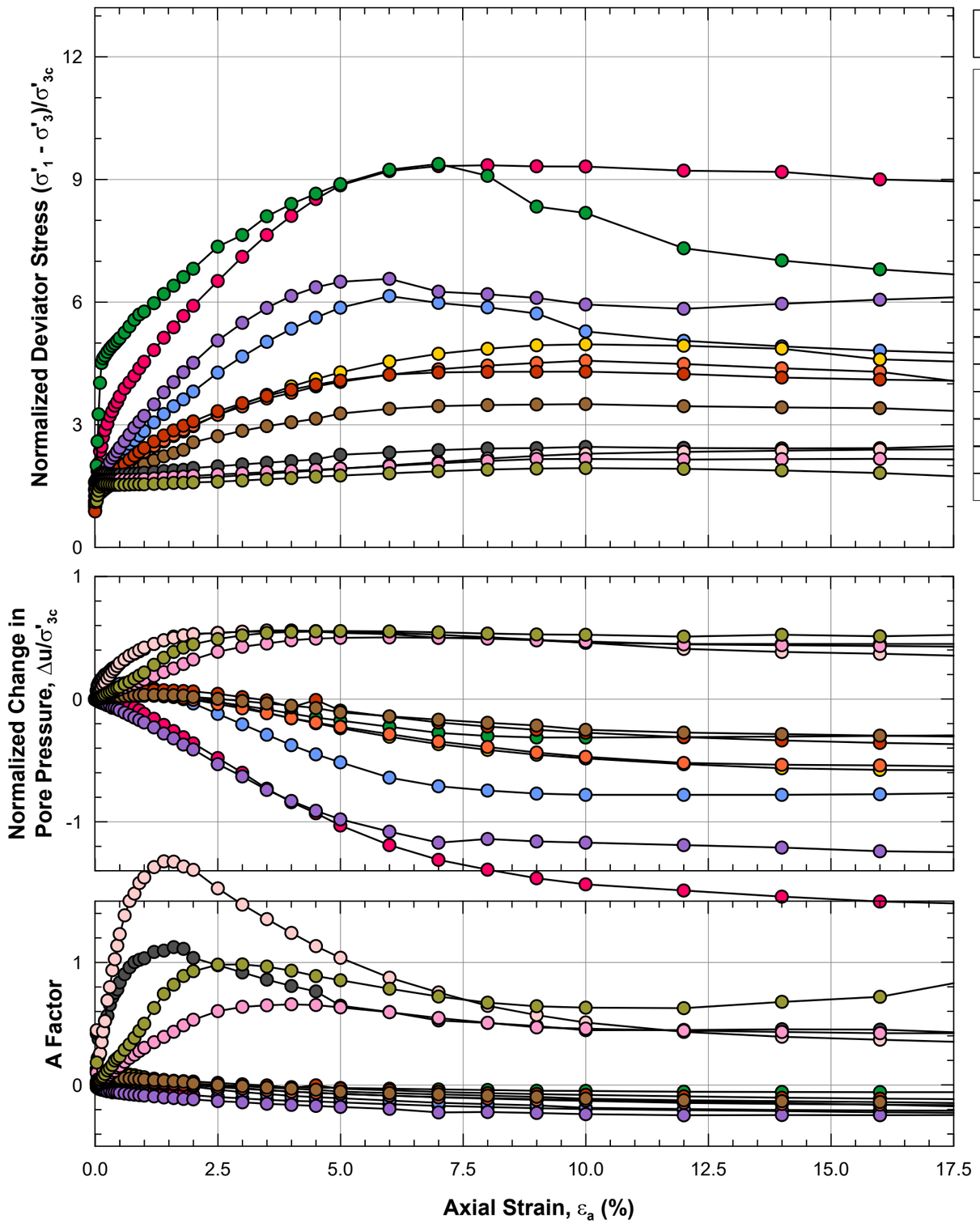
Symbol	Exploration ID	Depth (m)	Elevation, msl (m)	Total Unit Weight, γ_t (kN/m^3)	Water Content, w_0 (%)	Specific Gravity, G	Initial Void Ratio, e_0	Pre-Shear Void Ratio, e	Effective Confining Stress, σ'_1 (kPa)	Effective Confining Stress, σ'_3 (kPa)
	A/D-5	0.45	927.12	26.60	13.3	4.945	1.07	1.03	196	98
				25.88	13.0		1.12	1.10	392	196
				27.67	12.4		0.97	0.91	589	294
				27.00	14.4		1.06	1.00	785	392
	A/D-10	0.55	926.15	26.81	10.8	4.866	0.97	0.95	196	98
				27.15	12.0		0.97	0.93	392	196
				27.70	12.0		0.93	0.87	589	294
				27.82	11.3		0.91	0.85	785	392
	A/D-11	0.75	925.75	21.35	17.1	3.868	0.98	0.94	196	98
				22.59	16.5		0.96	0.91	392	196
				22.48	16.9		0.97	0.92	589	294
				23.60	17.2		0.88	0.81	785	392
	CPTU-2005-05	5.25	920.05	29.64	19.2	4.322	0.71	0.69	196	98
				29.67	18.9		0.70	0.66	392	196
				29.33	19.1		0.72	0.66	589	294
				29.52	19.7		0.72	0.63	785	392

Effective Stress Paths from Anisotropically Consolidated Undrained Triaxial Compression Tests: Intact Samples - Coarse Tailings

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I

Appendix B - Historical Geotechnical Data

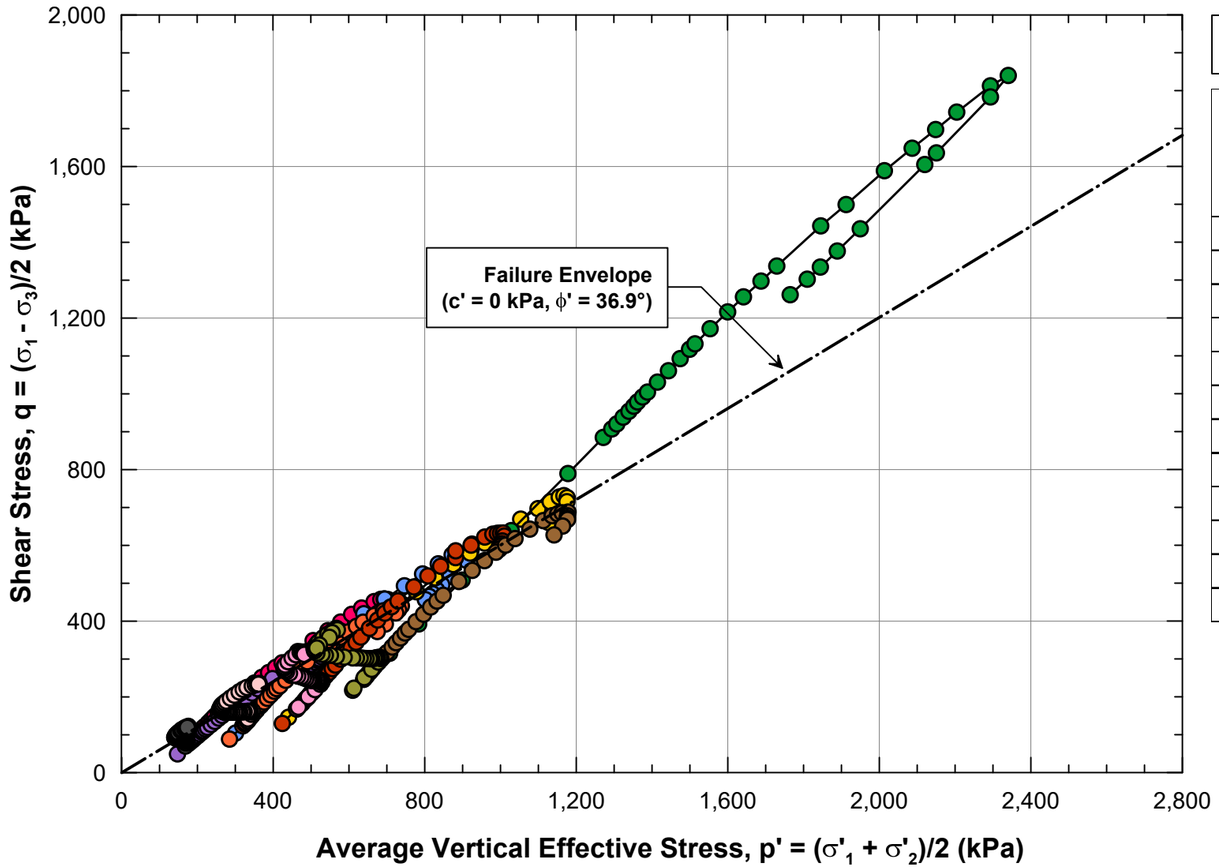
Figure 5-20



TXACU Tests on Intact Samples - Fine Tailings

Symbol	Exploration ID	Depth (m)	Elevation, msl (m)	Total Unit Weight, γ_t (kN/m^3)	Water Content, w_0 (%)	Specific Gravity, G	Initial Void Ratio, e_0	Pre-Shear Void Ratio, e	Effective Confining Stress, σ'_1 (kPa)	Effective Confining Stress, σ'_3 (kPa)
	A/D-9	0.75	926.34	28.19	15.8	4.974	1.00	0.98	196	98
				28.05	16.4		1.03	0.99	392	196
				28.24	15.9		1.00	0.95	589	294
				28.54	16.4		0.99	0.91	785	392
	CPTU-2005-03	2.75	895.25	29.67	17.8	4.715	0.84	0.82	196	98
				29.69	18.0		0.84	0.80	392	196
				29.69	17.5		0.83	0.79	589	294
				29.76	18.1	4.322	0.68	0.58	785	392
	CPTU-2005-04	4.00	922.70	23.04	25.9	3.796	1.03	0.90	196	98
				23.40	24.8		0.99	0.79	392	196
				23.10	26.6		1.14	0.88	589	294
				23.35	27.0		1.03	0.75	785	392

Normalized Stress-Strain and Excess Pore Pressure from Anisotropically Consolidated Undrained Triaxial Compression Tests: Intact Samples - Fine Tailings



TXACU Tests on Intact Samples - Fine Tailings

Symbol	Exploration ID	Depth (m)	Elevation, msl (m)	Total Unit Weight, γ_t (kN/m^3)	Water Content, w_0 (%)	Specific Gravity, G	Initial Void Ratio, e_0	Pre-Shear Void Ratio, e	Effective Confining Stress, σ'_1 (kPa)	Effective Confining Stress, σ'_3 (kPa)
	A/D-9	0.75	926.34	28.19	15.8	4.974	1.00	0.98	196	98
				28.05	16.4		1.03	0.99	392	196
				28.24	15.9		1.00	0.95	589	294
				28.54	16.4		0.99	0.91	785	392
	CPTU-2005-03	2.75	895.25	29.67	17.8	4.715	0.84	0.82	196	98
				29.69	18.0		0.84	0.80	392	196
				29.69	17.5		0.83	0.79	589	294
				29.76	18.1	4.322	0.68	0.58	785	392
	CPTU-2005-04	4.00	922.70	23.04	25.9	3.796	1.03	0.90	196	98
				23.40	24.8		0.99	0.79	392	196
				23.10	26.6		1.14	0.88	589	294
				23.35	27.0		1.03	0.75	785	392

Effective Stress Paths from Anisotropically Consolidated Undrained Triaxial Compression Tests: Intact Samples - Fine Tailings

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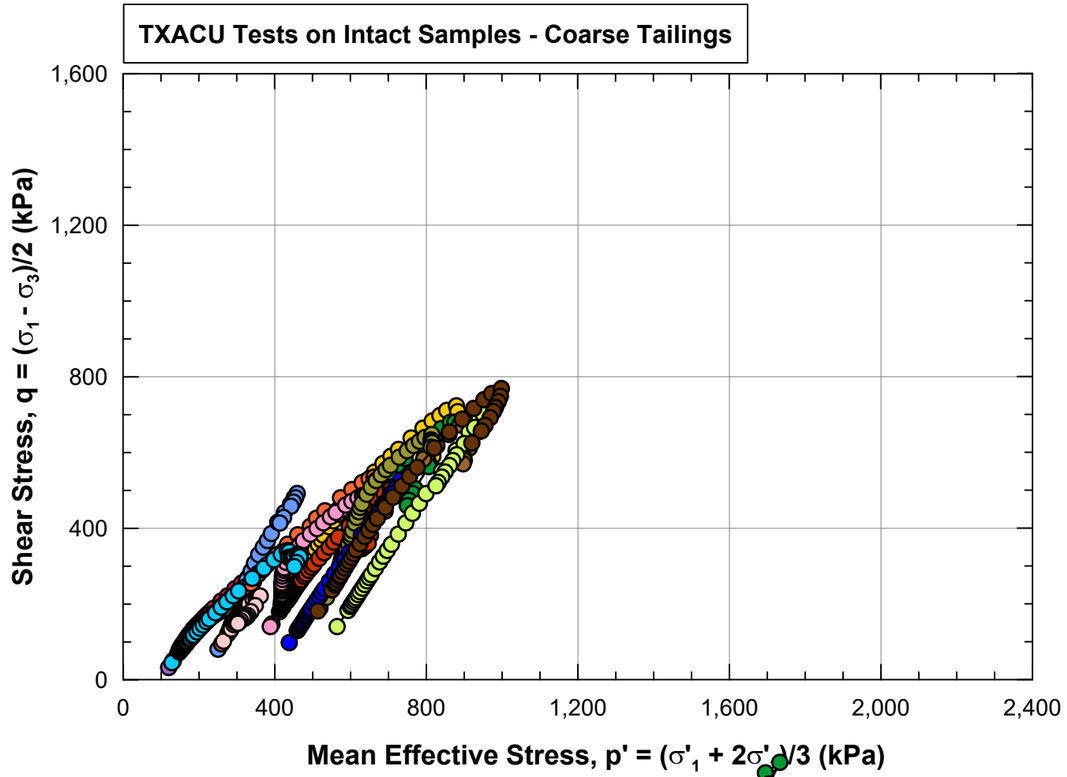
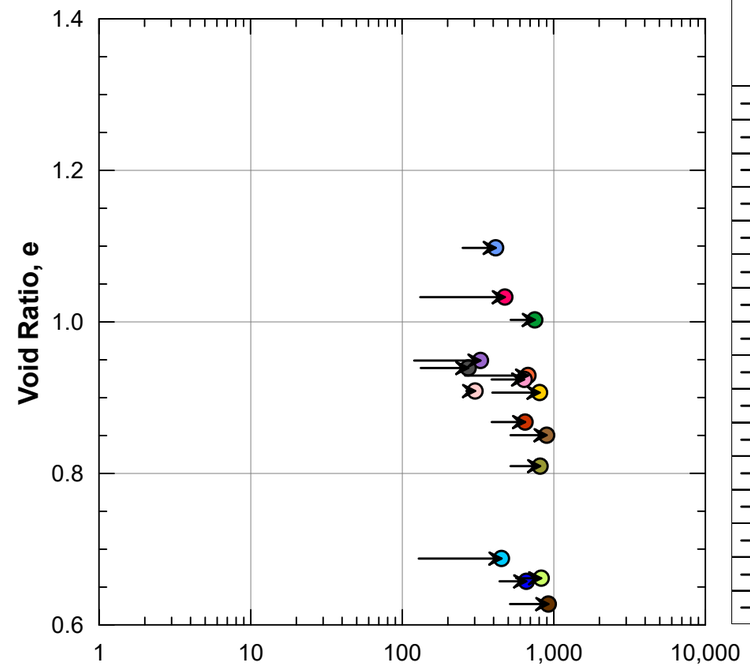
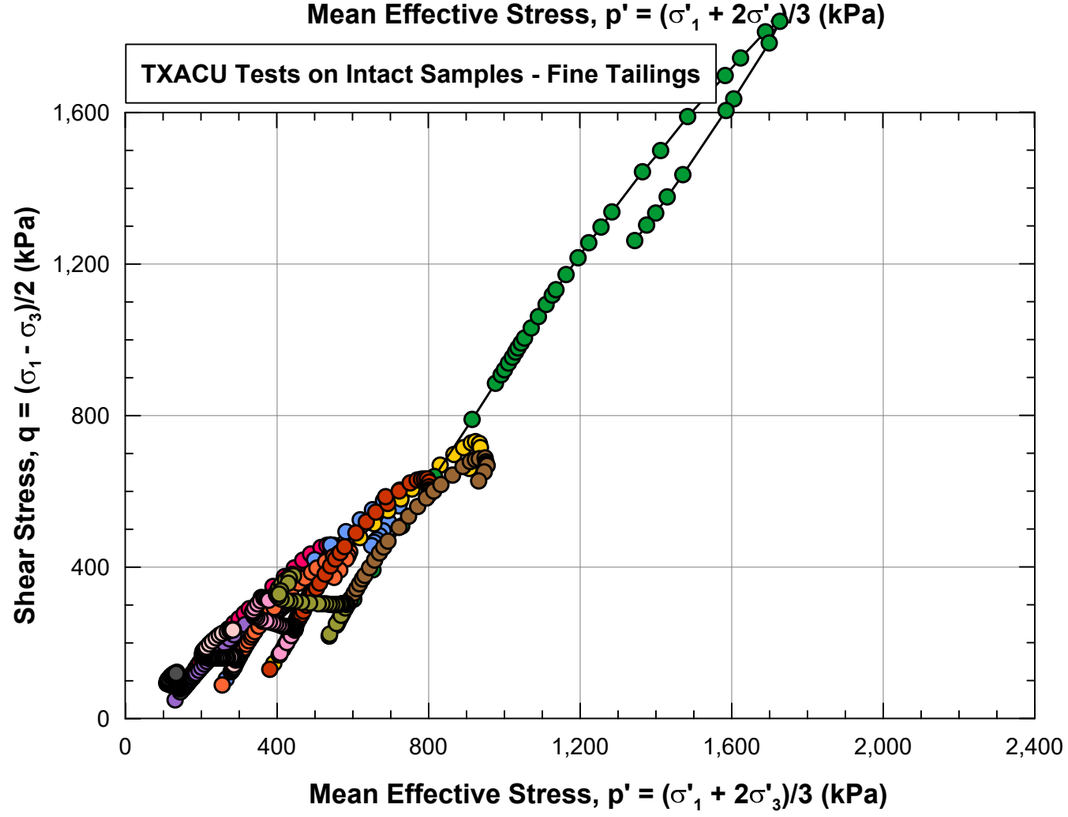
Appendix B - Historical Geotechnical Data

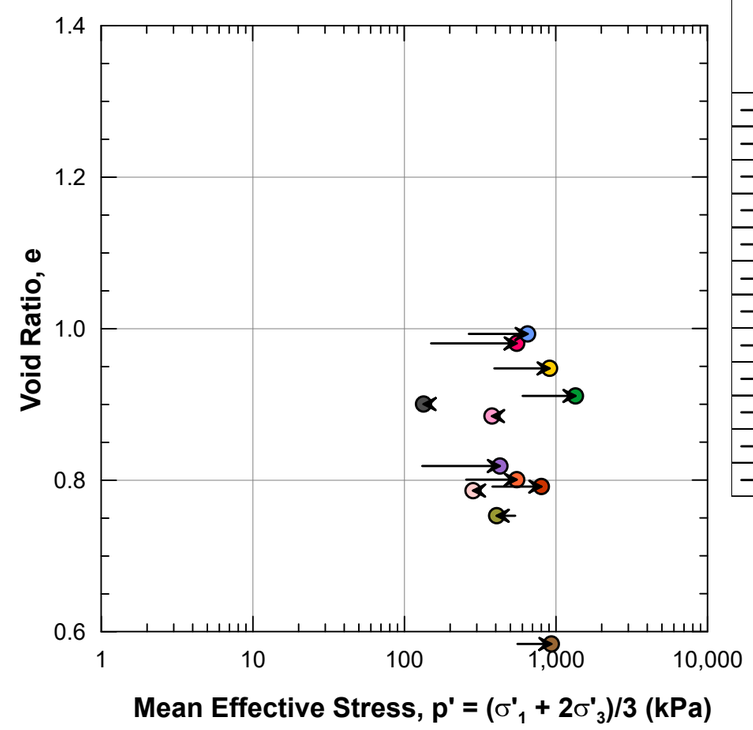
Figure 5-22





Symbol	Exploration ID	Depth (m)	Elevation, msl (m)	Effective Confining Stress, σ'_1 (kPa)	Effective Confining Stress, σ'_3 (kPa)
	A/D-5	0.45	927.12	196	98
				392	196
				589	294
				785	392
	A/D-10	0.55	926.15	196	98
				392	196
				589	294
				785	392
	A/D-11	0.75	925.75	196	98
				392	196
				589	294
				785	392
	CPTU-2005-05	5.25	920.05	196	98
				392	196
				589	294
				785	392





Symbol	Exploration ID	Depth (m)	Elevation, msl (m)	Effective Confining Stress, σ'_1 (kPa)	Effective Confining Stress, σ'_3 (kPa)
	A/D-9	0.75	926.34	196	98
				392	196
				589	294
				785	392
	CPTU-2005-03	2.75	895.25	196	98
				392	196
				589	294
				785	392
	CPTU-2005-04	4.00	922.70	196	98
				392	196
				589	294
				785	392

q vs p' and e vs p' Diagrams from Anisotropically Consolidated Undrained Triaxial Compression Tests: Intact Samples - Coarse and Fine Tailings

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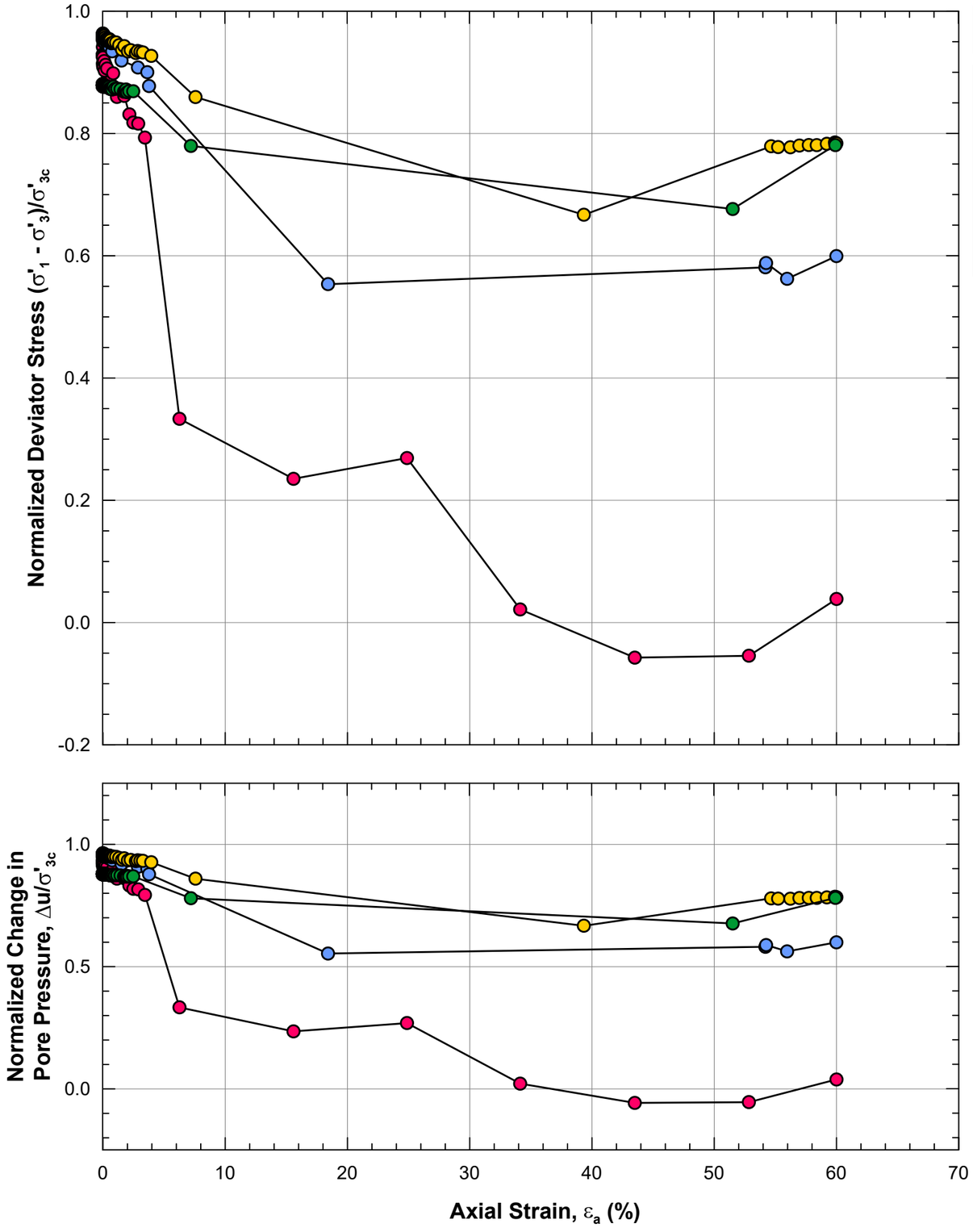
Appendix B - Historical Geotechnical Data

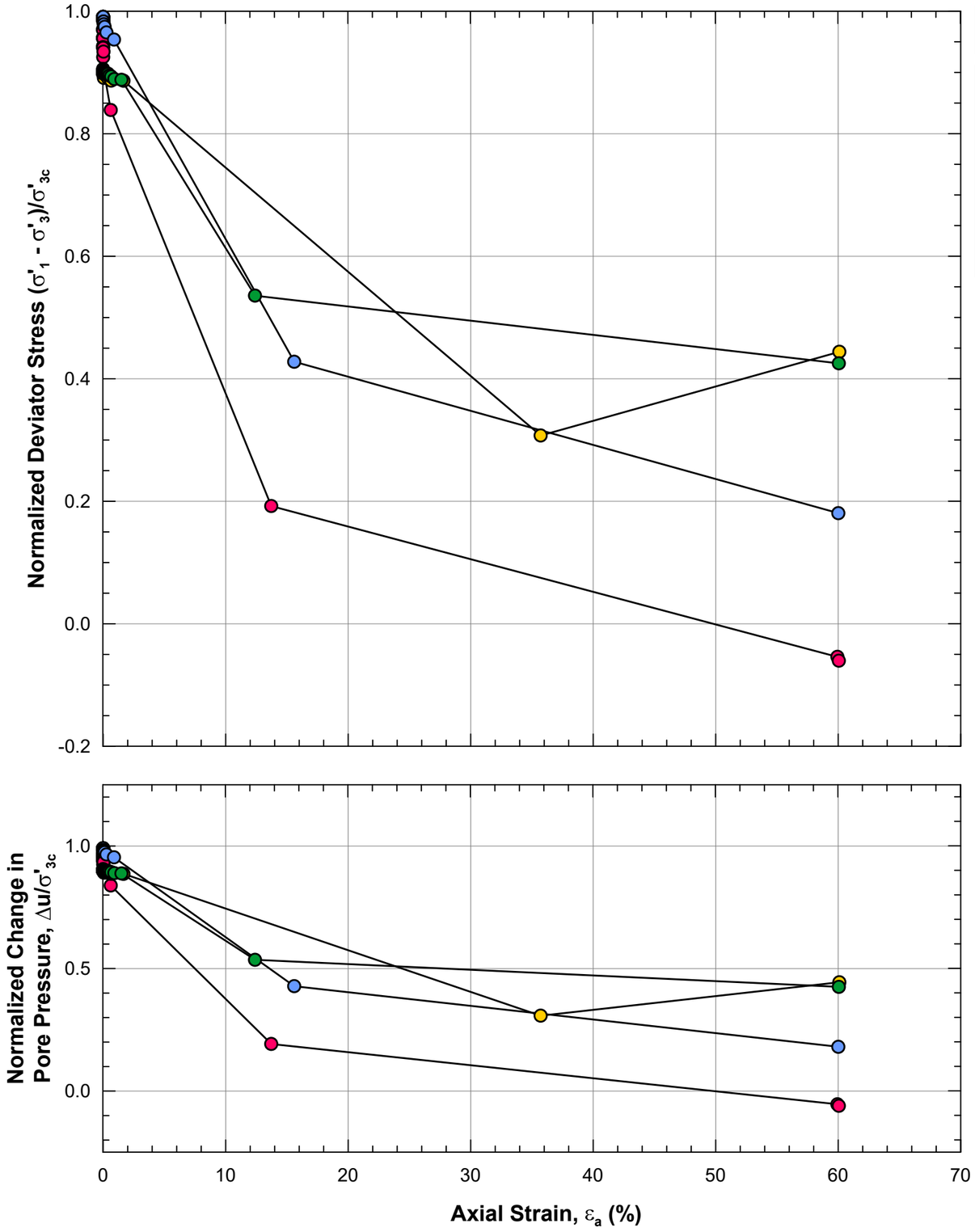
Figure 5-23



TXAPU Tests on Intact Samples - Coarse Tailings PI-01

Symbol	Exploration ID	Depth (m)	Elevation, msl (m)	Total Unit Weight, γ_t (kN/m^3)	Water Content, w_0 (%)	Specific Gravity, G	Initial Void Ratio, e_0	Pre-Shear Void Ratio, e	Effective Confining Stress, σ'_1 (kPa)	Effective Confining Stress, σ'_3 (kPa)
	PI-01	1.45	896.72	27.22	24.2	4.920	1.20	0.98	52	25
				27.70	23.0		1.14	0.94	104	50
				27.60	4.7		0.83	0.88	196	100
				27.68	23.0		1.14	0.99	400	200

Normalized Stress-Strain and Excess Pore Pressure from Anisotropically Consolidated Undrained Triaxial Pore Pressure Increase Tests: Intact Samples - Coarse Tailings PI-01



TXAPU Tests on Intact Samples - Coarse Tailings PI-03A

Symbol	Exploration ID	Depth (m)	Elevation, msl (m)	Total Unit Weight, γ_t (kN/m^3)	Water Content, w_0 (%)	Specific Gravity, G	Initial Void Ratio, e_0	Pre-Shear Void Ratio, e	Effective Confining Stress, σ'_1 (kPa)	Effective Confining Stress, σ'_3 (kPa)
	PI-03A	1.35	897.26	27.34	20.5	4.530	0.92	0.97	49	25
				27.83	18.8		0.86	0.96	96	50
				27.82	19.4		0.87	1.00	191	100
				27.54	20.0		0.90	0.87	398	200

Normalized Stress-Strain and Excess Pore Pressure from Anisotropically Consolidated Undrained Triaxial Pore Pressure Increase Tests: Intact Samples - Coarse Tailings PI-03A

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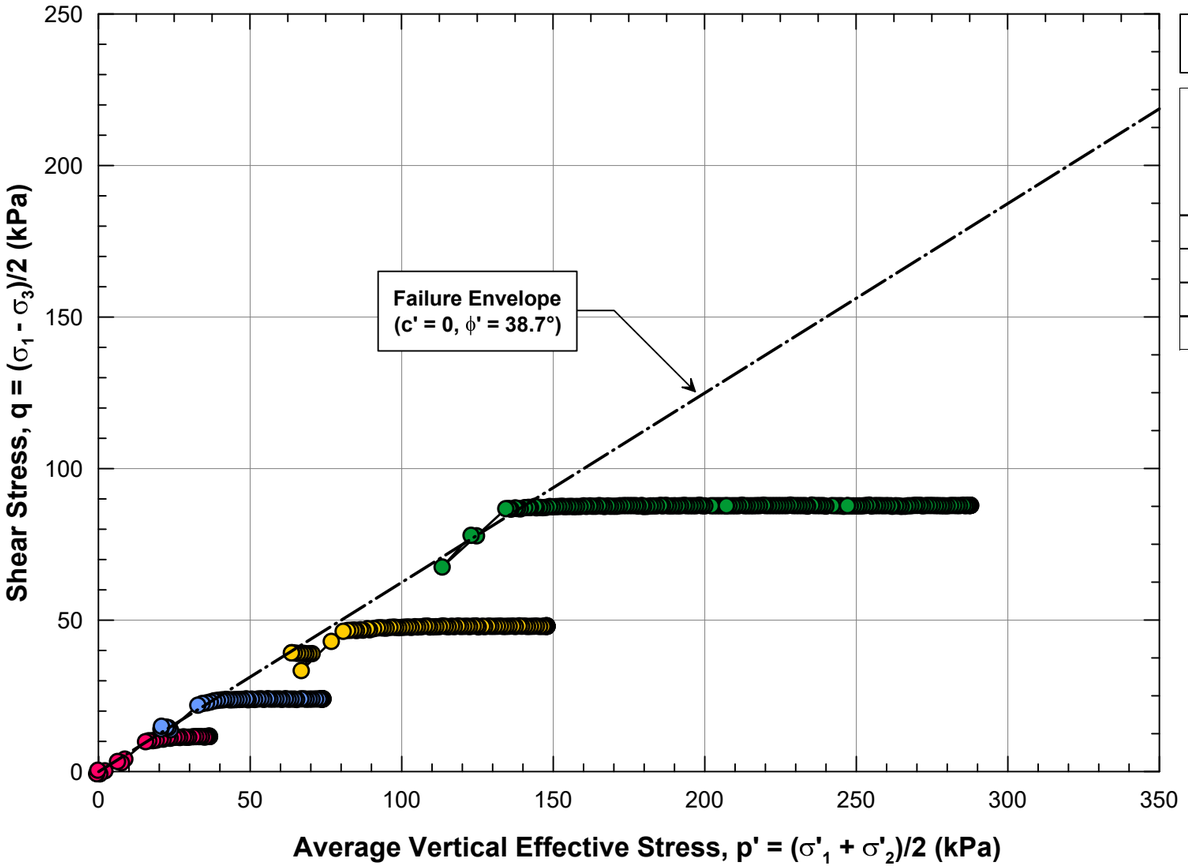
Appendix B - Historical Geotechnical Data

Figure 5-24b

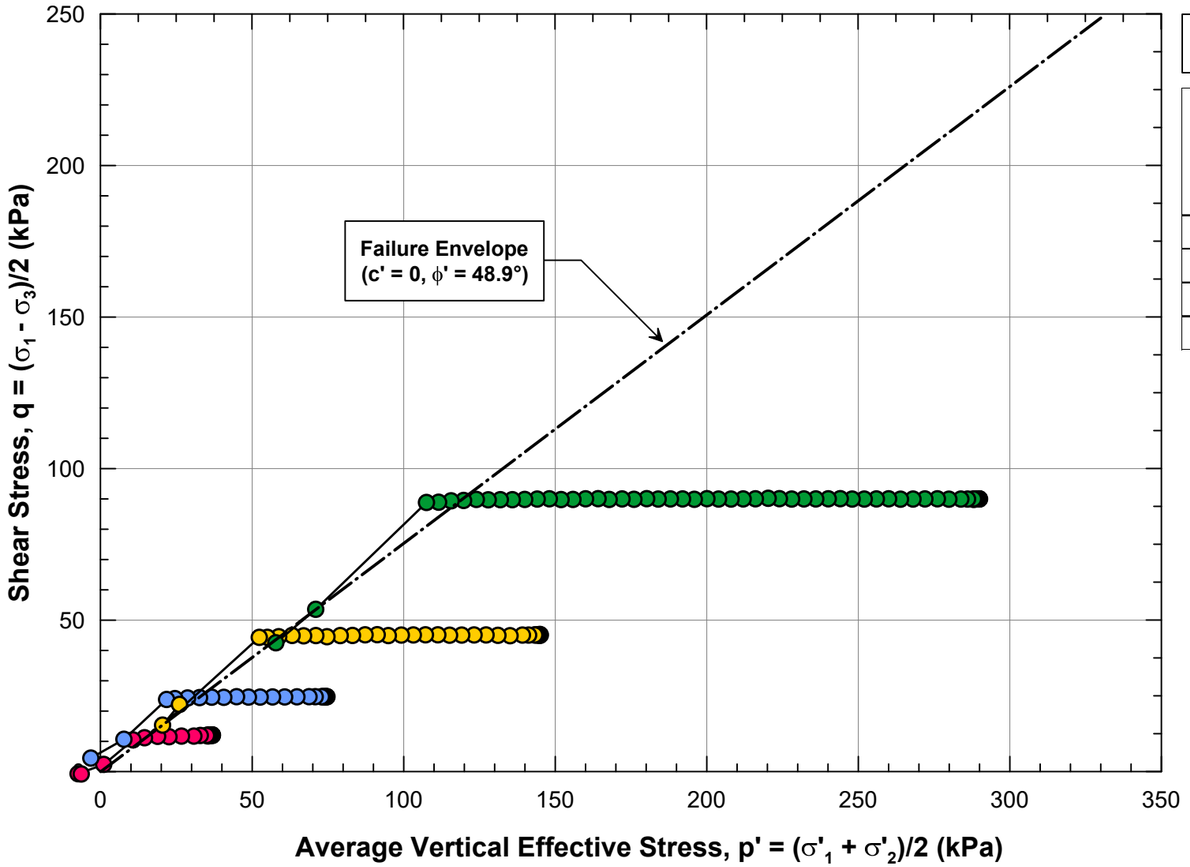


TXAPU Tests on Intact Samples - Coarse Tailings PI-01

Symbol	Exploration ID	Depth (m)	Elevation, msl (m)	Total Unit Weight, γ_t (kN/m^3)	Water Content, w_0 (%)	Specific Gravity, G	Initial Void Ratio, e_0	Pre-Shear Void Ratio, e	Effective Confining Stress, σ'_1 (kPa)	Effective Confining Stress, σ'_3 (kPa)
	PI-01	1.45	896.72	27.22	24.2	4.920	1.20	0.98	52	25
				27.70	23.0		1.14	0.94	104	50
				27.60	4.7		0.83	0.88	196	100
				27.68	23.0		1.14	0.99	400	200

Effective Stress Paths from Anisotropically Consolidated Undrained Triaxial Pore Pressure Increase Tests: Intact Samples - Coarse Tailings PI-01

Figure 5-25a



TXAPU Tests on Intact Samples - Coarse Tailings PI-03A

Symbol	Exploration ID	Depth (m)	Elevation, msl (m)	Total Unit Weight, γ_t (kN/m^3)	Water Content, w_0 (%)	Specific Gravity, G	Initial Void Ratio, e_0	Pre-Shear Void Ratio, e	Effective Confining Stress, σ'_1 (kPa)	Effective Confining Stress, σ'_3 (kPa)
	PI-01	1.45	896.72	27.22	24.2	4.920	1.20	0.98	196	98
				27.70	23.0		1.14	0.94	392	196
				27.60	4.7		0.83	0.88	589	294
				27.68	23.0		1.14	0.99	785	392

Effective Stress Paths from Anisotropically Consolidated Undrained Triaxial Pore Pressure Increase Tests: Intact Samples - Coarse Tailings PI-03A

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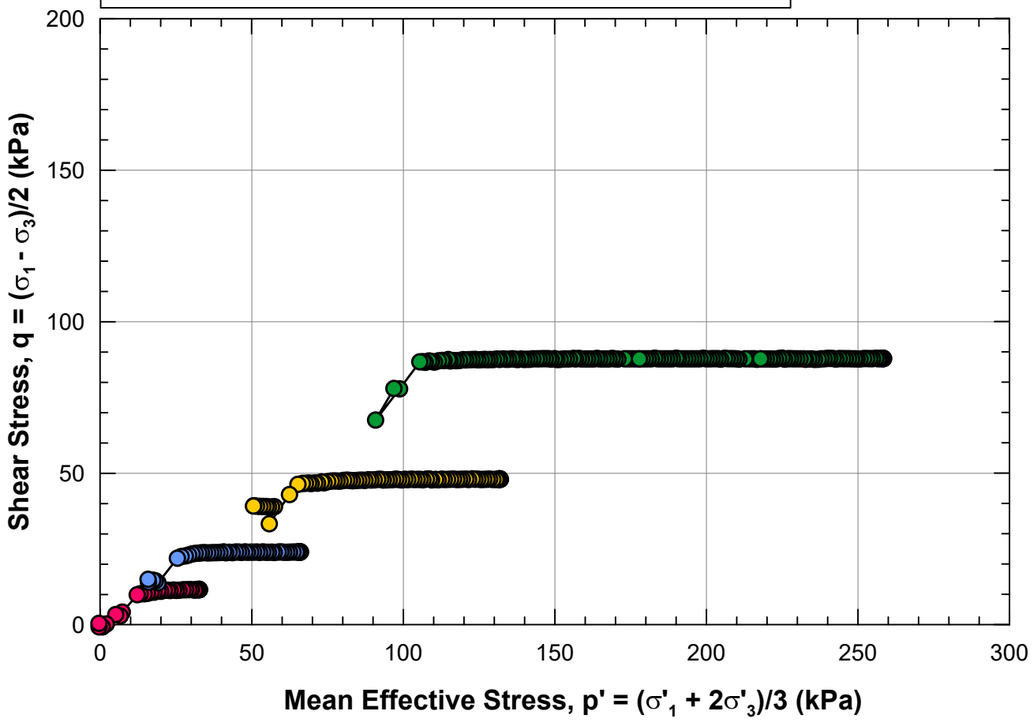
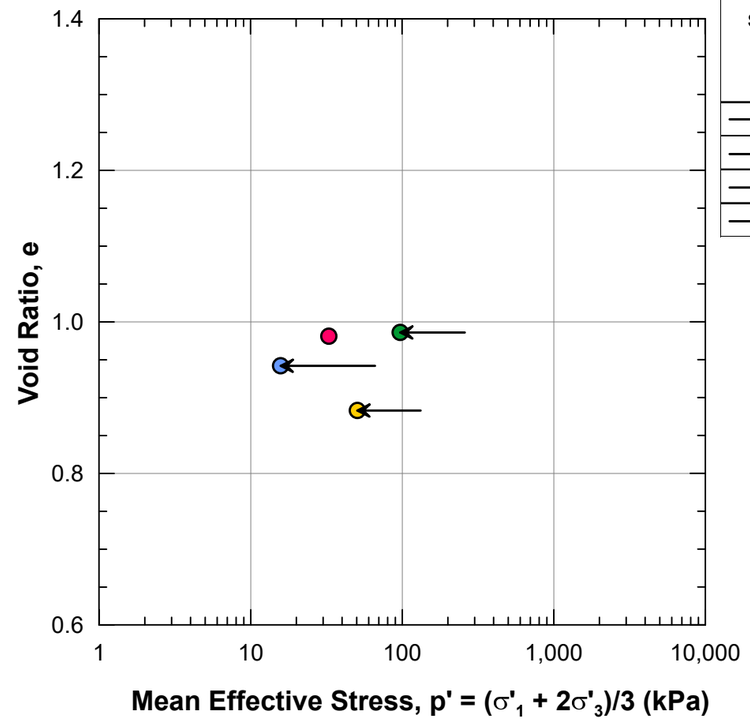
Appendix B - Historical Geotechnical Data

Figure 5-25b

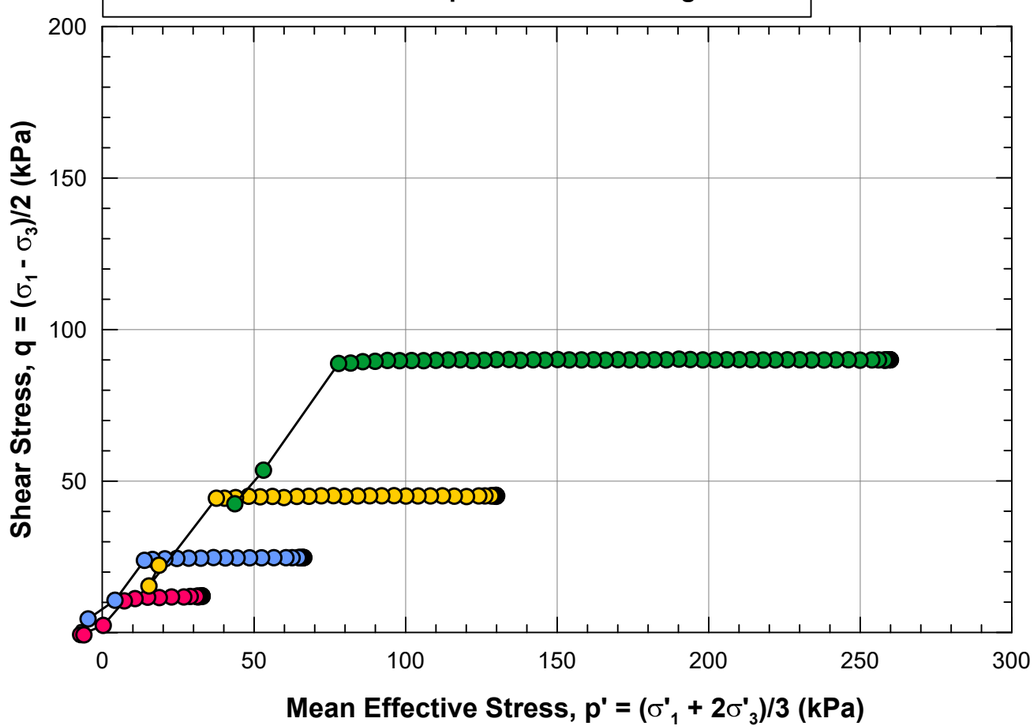
TXAPU Tests on Intact Samples - Coarse Tailings PI-01

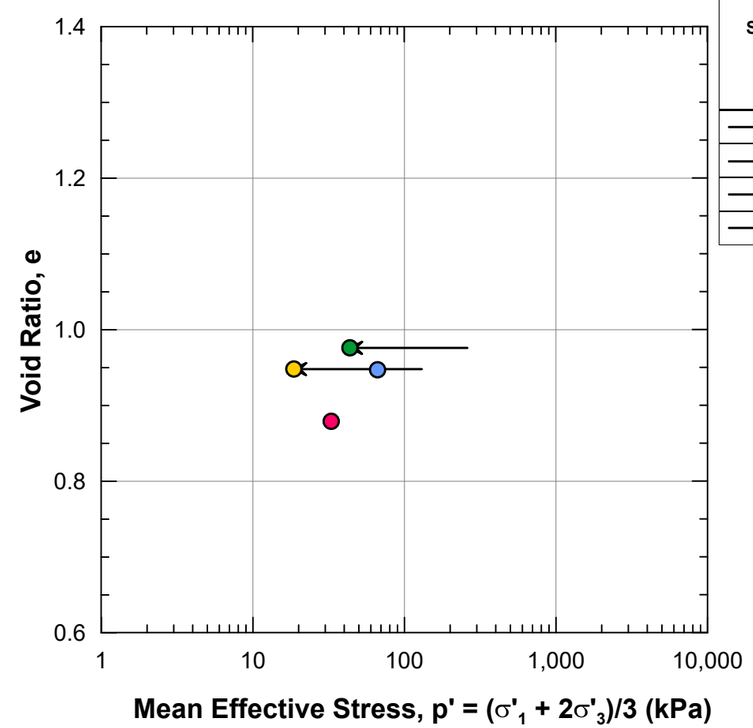




Symbol	Exploration ID	Depth (m)	Elevation, msl (m)	Effective Confining Stress, σ'_1 (kPa)	Effective Confining Stress, σ'_3 (kPa)
	PI-01	1.45	896.72	52	25
				104	50
				196	100
				400	200

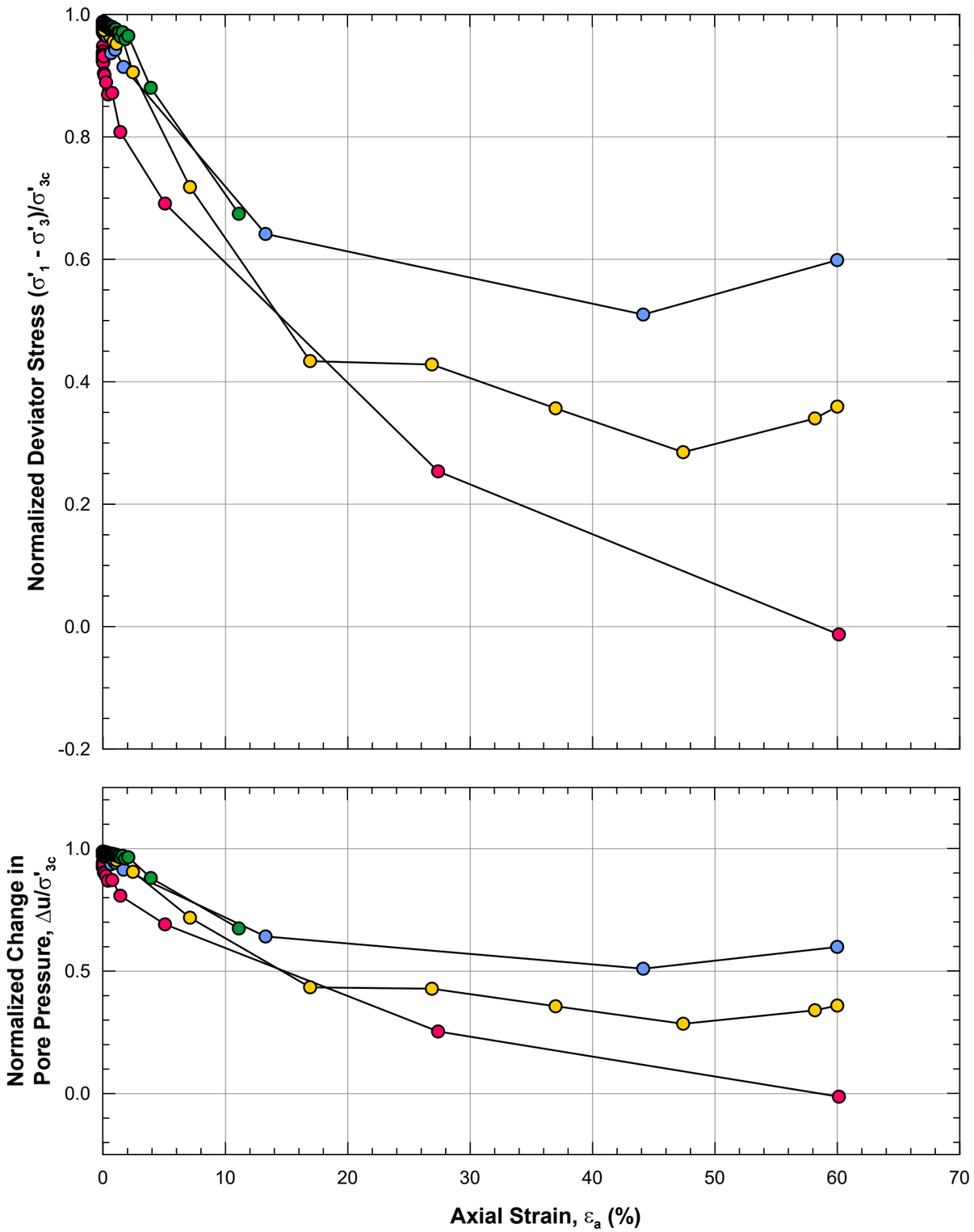
TXAPU Tests on Intact Samples - Coarse Tailings PI-03A





Symbol	Exploration ID	Depth (m)	Elevation, msl (m)	Effective Confining Stress, σ'_1 (kPa)	Effective Confining Stress, σ'_3 (kPa)
	PI-03A	1.35	897.26	49	25
				96	50
				191	100
				398	200

q vs p' and e vs p' Diagrams from Anisotropically Consolidated Undrained Triaxial Pore Pressure Increase Tests: Intact Samples - Coarse Tailings PI-01 and PI-03A



TXAPU Tests on Intact Samples - Fine Tailings

Symbol	Exploration ID	Depth (m)	Elevation, msl (m)	Total Unit Weight, γ_t (kN/m^3)	Water Content, w_0 (%)	Specific Gravity, G	Initial Void Ratio, e_0	Pre-Shear Void Ratio, e	Effective Confining Stress, σ'_1 (kPa)	Effective Confining Stress, σ'_3 (kPa)
	PI-02A	1.35	896.17	29.70	15.8	4.530	0.73	0.88	47	25
				29.16	16.9		0.78	0.95	95	50
				29.98	15.4		0.71	0.95	186	100
				29.00	17.2		0.79	0.98	378	200

Normalized Stress-Strain and Excess Pore Pressure from Anisotropically Consolidated Undrained Triaxial Pore Pressure Increase Tests: Intact Samples - Fine Tailings

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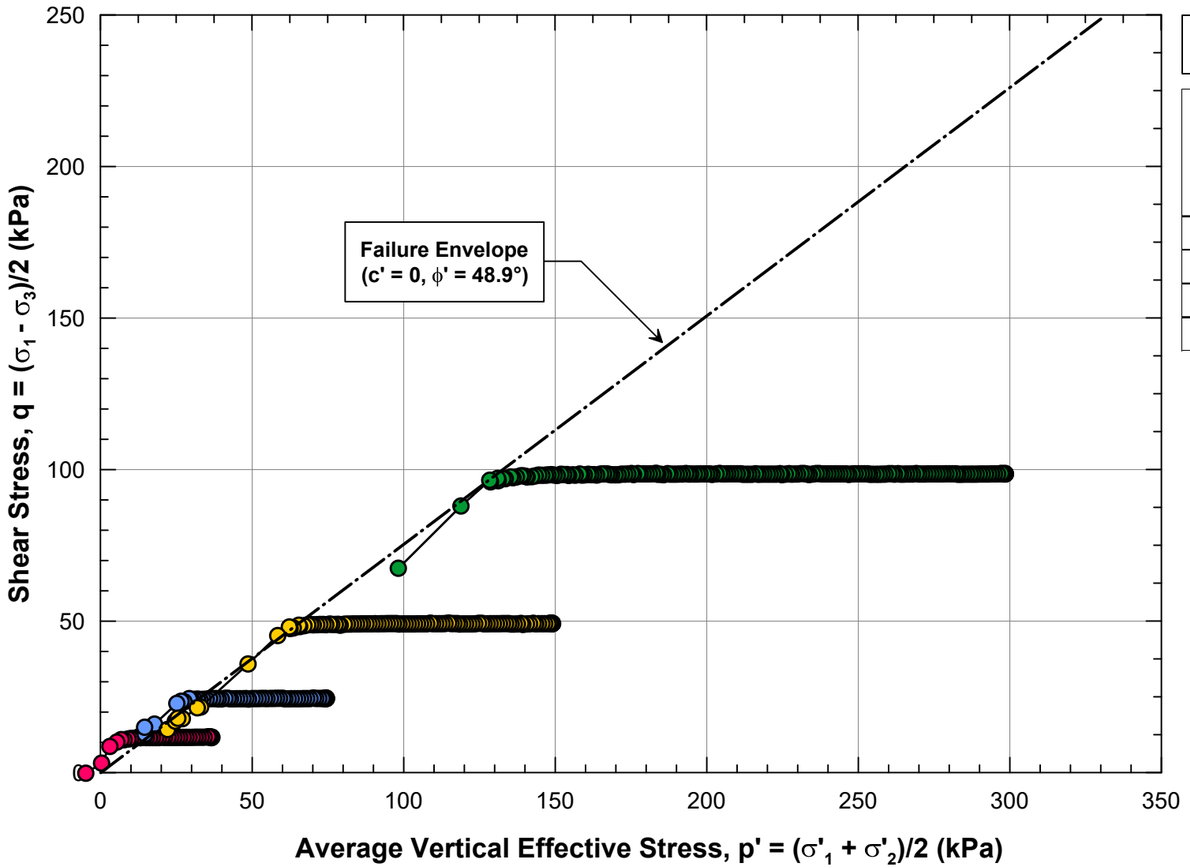
Appendix B - Historical Geotechnical Data

Figure 5-27



TXAPU Tests on Intact Samples - Fine Tailings

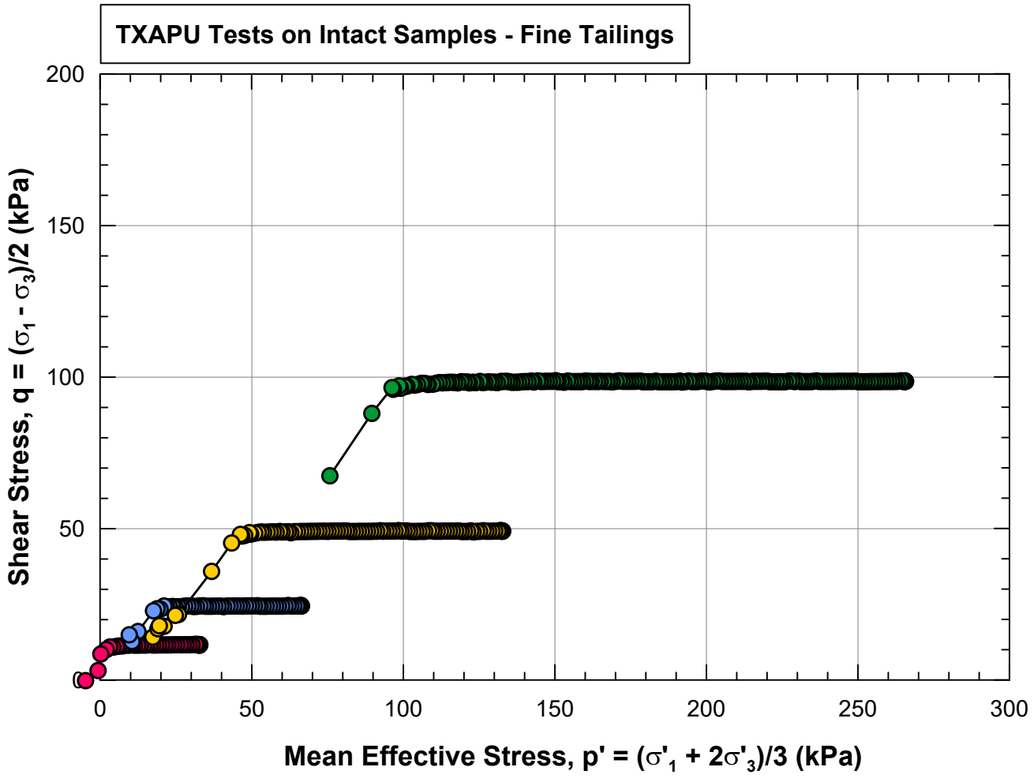
Symbol	Exploration ID	Depth (m)	Elevation, msl (m)	Total Unit Weight, γ_t (kN/m^3)	Water Content, w_0 (%)	Specific Gravity, G	Initial Void Ratio, e_0	Pre-Shear Void Ratio, e	Effective Confining Stress, σ'_1 (kPa)	Effective Confining Stress, σ'_3 (kPa)
	PI-02A	1.35	896.17	29.70	15.8	4.530	0.73	0.88	47	25
				29.16	16.9		0.78	0.95	95	50
				29.98	15.4		0.71	0.95	186	100
				29.00	17.2		0.79	0.98	378	200

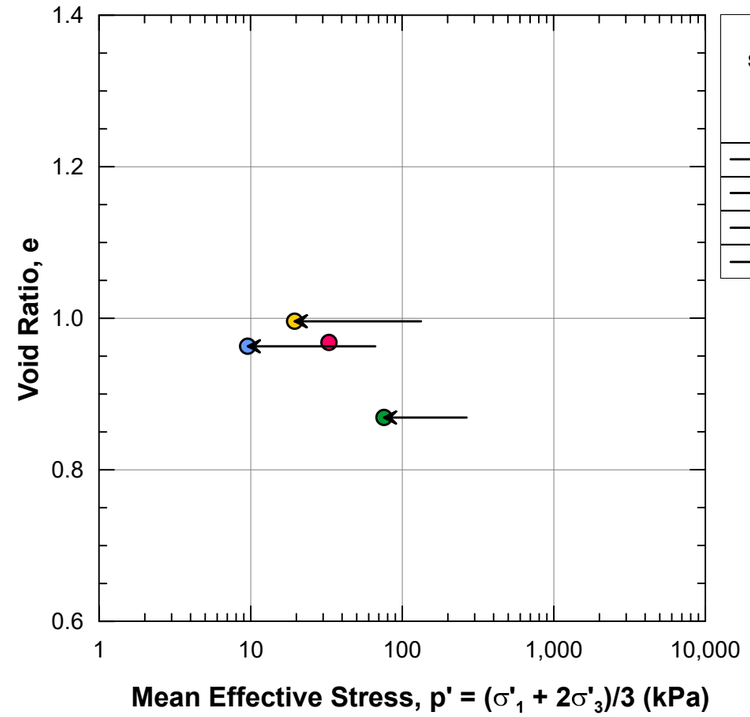
Effective Stress Paths from Anisotropically Consolidated Undrained Triaxial Pore Pressure Increase Tests: Intact Samples - Fine Tailings

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I

Appendix B - Historical Geotechnical Data

Figure 5-28





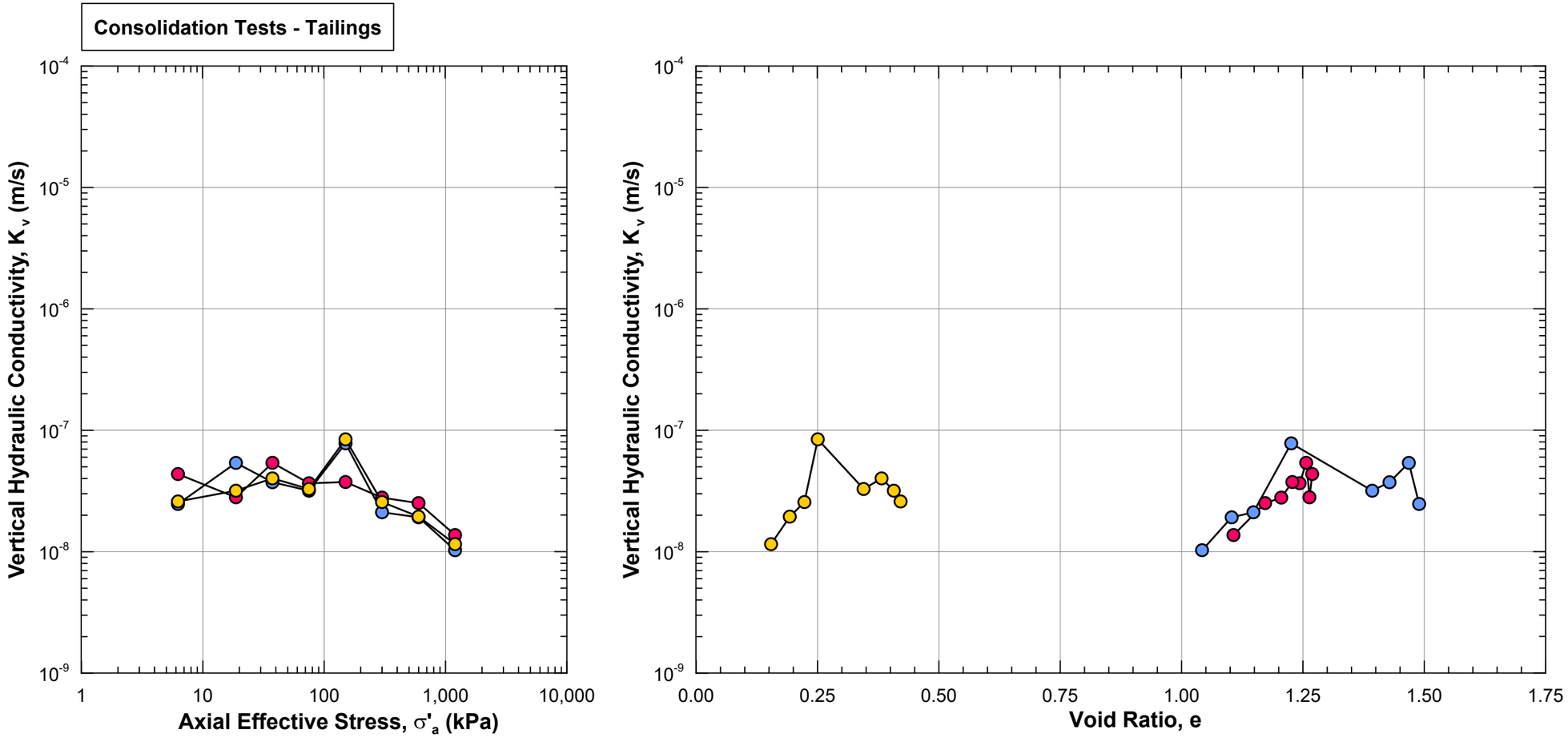
Symbol	Exploration ID	Depth (m)	Elevation, msl (m)	Effective Confining Stress, σ'_1 (kPa)	Effective Confining Stress, σ'_3 (kPa)
	PI-02A	1.35	896.17	47	25
				95	50
				186	100
				378	200

q vs p' and e vs p' Diagrams from Anisotropically Consolidated Undrained Triaxial Pore Pressure Increase Tests: Intact Samples - Fine Tailings

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I

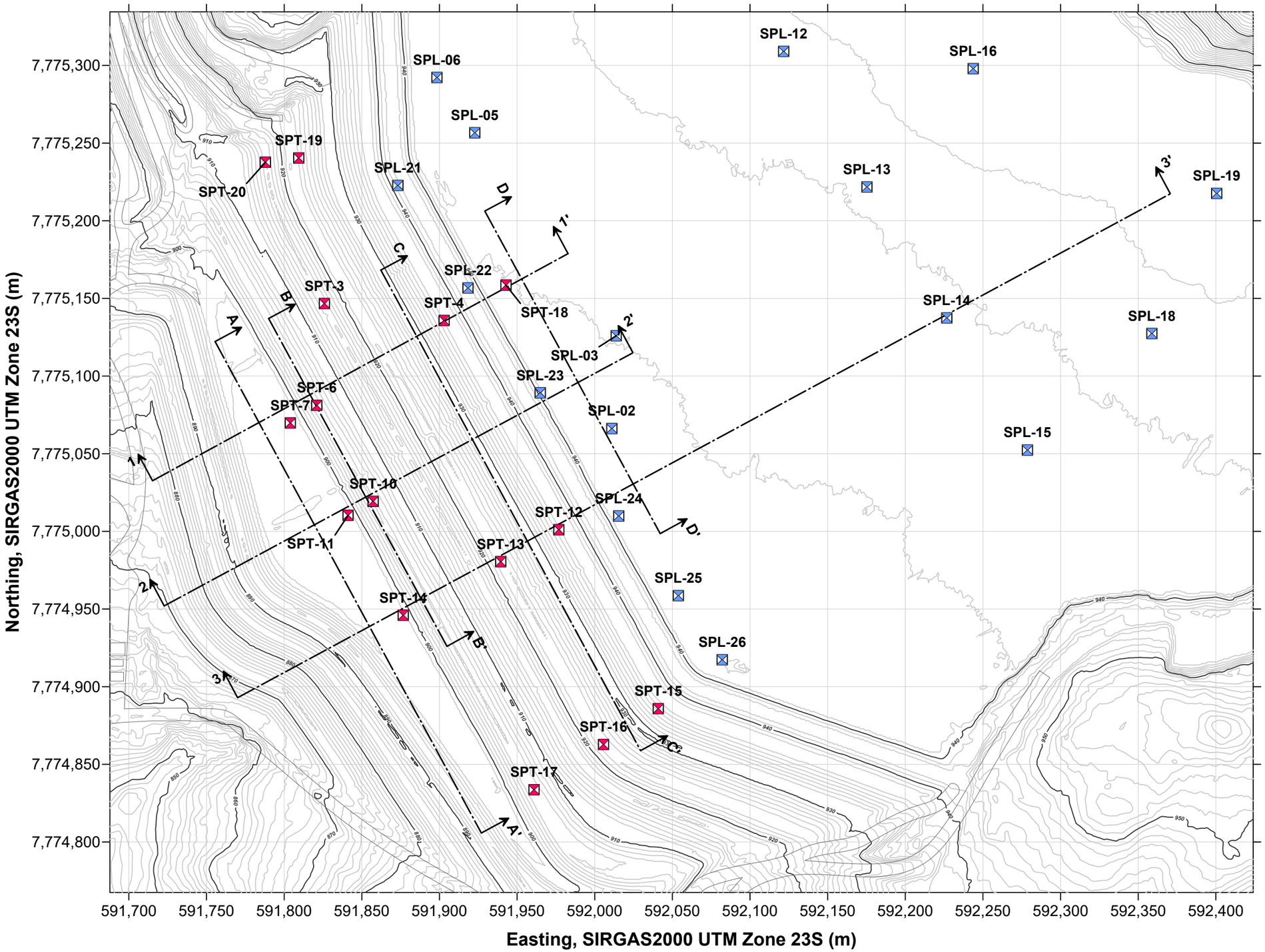
Appendix B - Historical Geotechnical Data

Figure 5-29



Symbol	Exploration ID	Depth (m)	Elevation, msl (m)	Unit	Total Unit Weight, γ_t (kN/m^3)	Water Content, w_0 (%)	Specific Gravity, G	Initial Void Ratio, e_0	Apparent Pre-consolidation Stress, σ'_p (kPa)	Compression Ratio, CR (kPa)	Normally Consolidated Coefficient of Consolidation, $c_{v,NC}$ (m^2/s)	Over-consolidated Coefficient of Consolidation, $c_{v,OC}$ (m^2/s)
	PI-01	1.35	896.82	Coarse Tailings	22.40	5.5	4.919	1.27	427	0.108	1.86E-08	3.69E-08
	PI-02A	1.35	896.17	Fine Tailings	19.86	13.9	4.440	1.50	92	0.135	2.39E-08	3.55E-08
	PI-03	0.85	897.76	Coarse Tailings	34.07	9.4	4.527	0.43	51	0.122	2.76E-08	3.21E-08

Vertical Hydraulic Conductivity Values Calculated from One-Dimensional Incremental-Loading Consolidation Tests: Reconstituted Samples (DOC = 79%) – Tailings



Symbol	Investigation Year
⊠	2006
⊠	2007

Notes:
1. Contour lines are from 2018 topographic information. Contour interval 1 meter.
2. Horizontal datum is SIRGAS2000 UTM Zone 23S in meters, Vertical datum is Mean Sea Level in meters.

Location Plan of Mineralogy Test Samples

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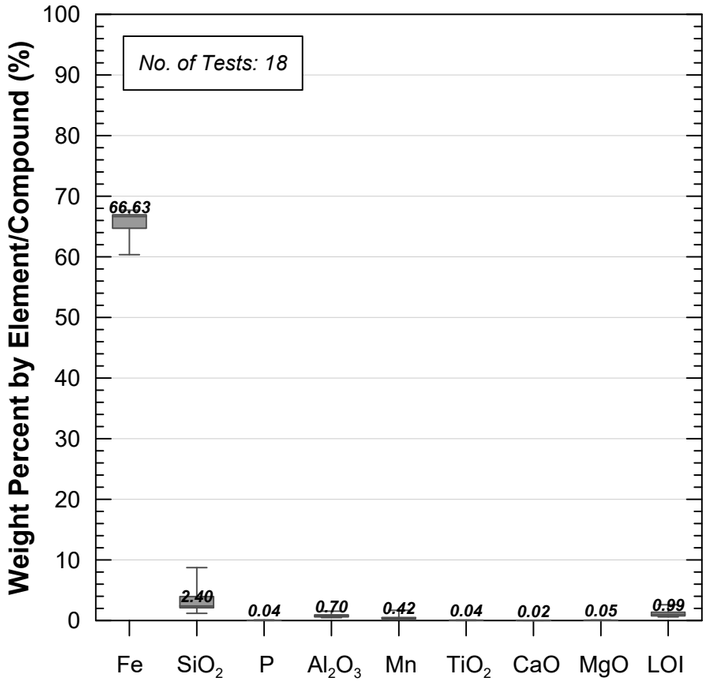
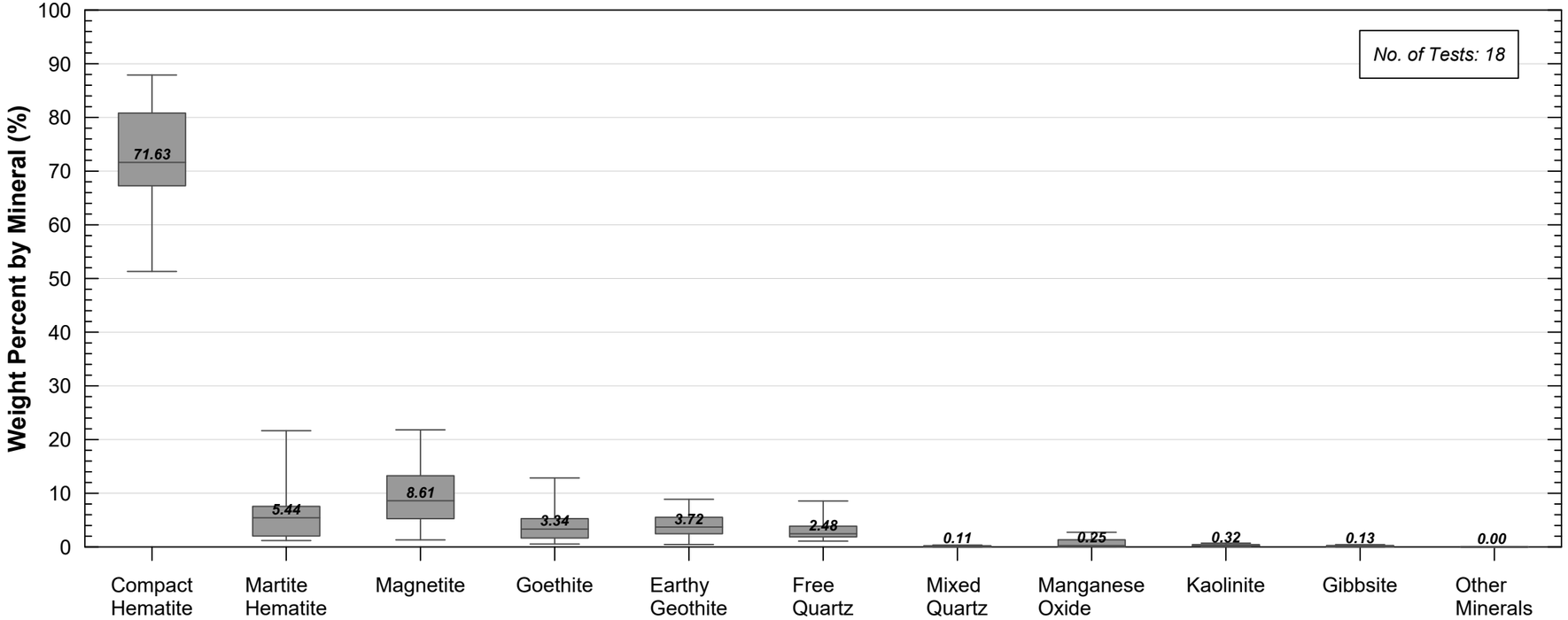
Appendix B - Historical Geotechnical Data

Figure 5-31



Abbreviations:
1. Fe = Iron
2. SiO_2 = Silica
3. P = Phosphorus
4. Al_2O_3 = Aluminum Oxide
5. Mn = Manganese
6. TiO_2 = Titanium Dioxide
7. CaO = Calcium Peroxide
8. MgO = Magnesia
9. LOI = Loss on Ignition

Notes:
1. Number within box is the median
2. Bottom of box is the lower quartile (25th percentile)
3. Top of box is the upper quartile (75th percentile)
4. Bottom of whisker is the minimum value
5. Top of whisker is the maximum value

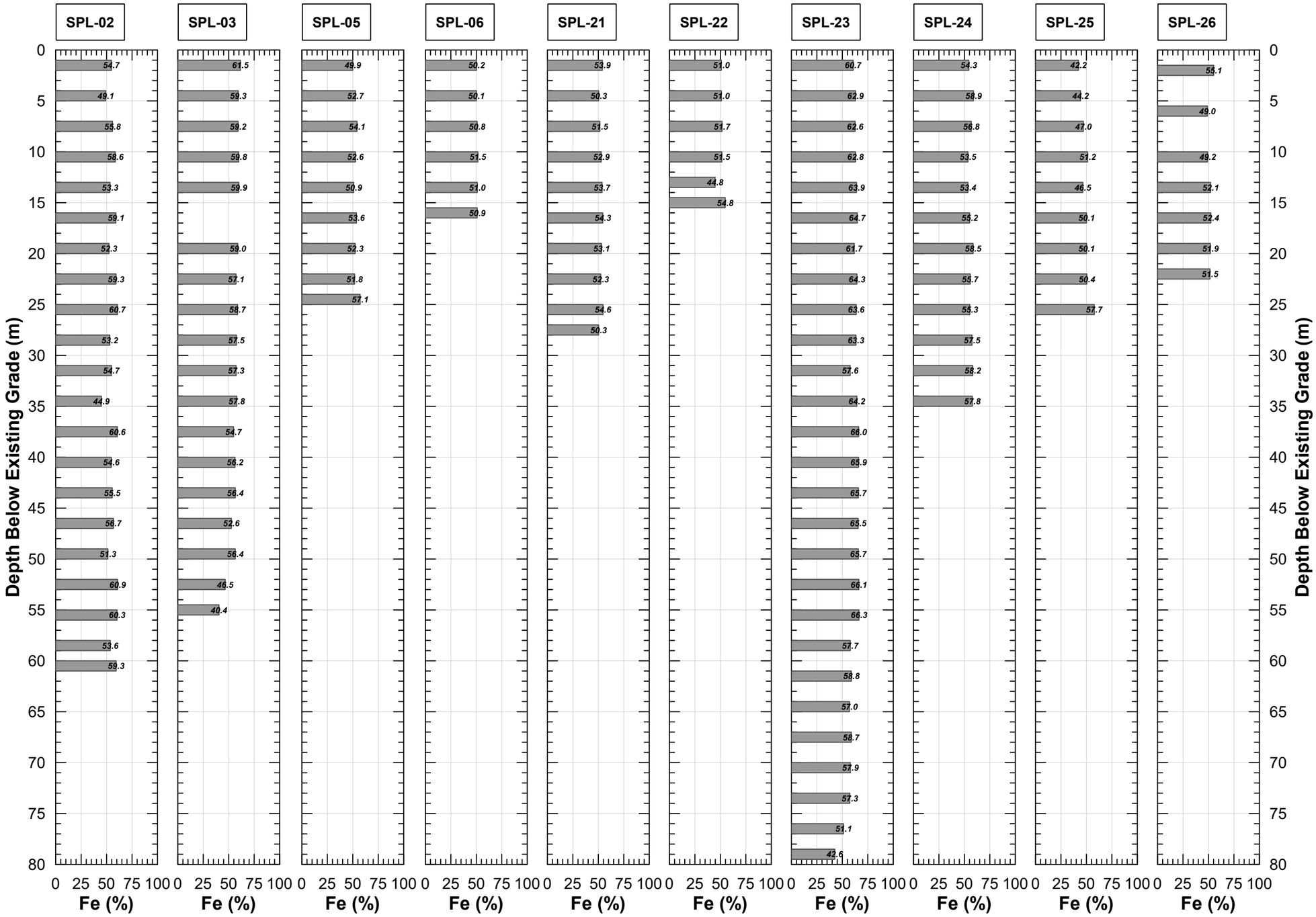


Elemental and Mineral Composition of Tailings: 2006 Mineralogy Study

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I

Appendix B - Historical Geotechnical Data

Figure 5-32



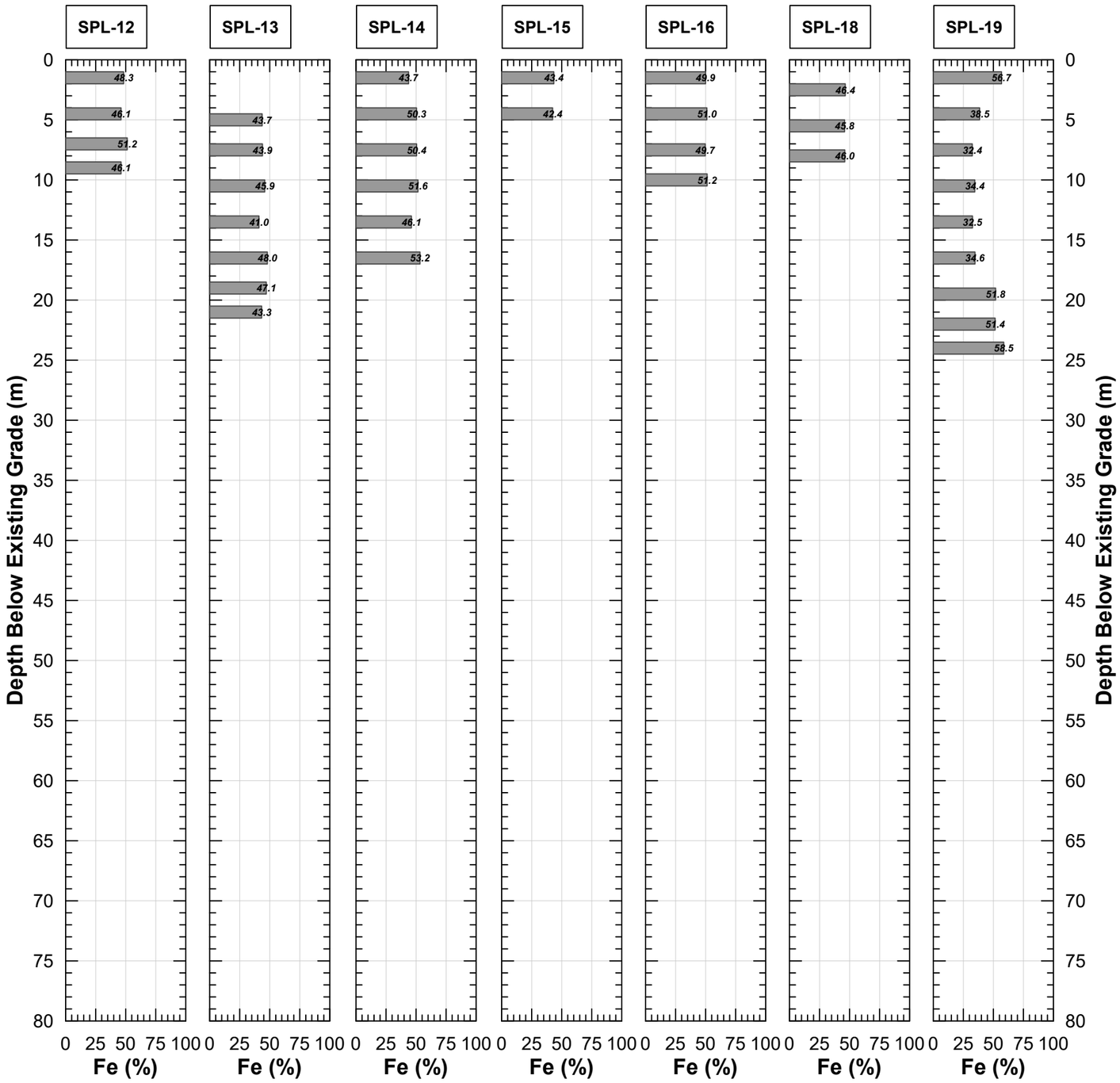
Note:
Fe = Iron

Variation of Percent Fe of Tailings With Depth: Beach Area Boreholes - 2007 Mineralogy Study

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I

Appendix B - Historical Geotechnical Data

Figure 5-33a



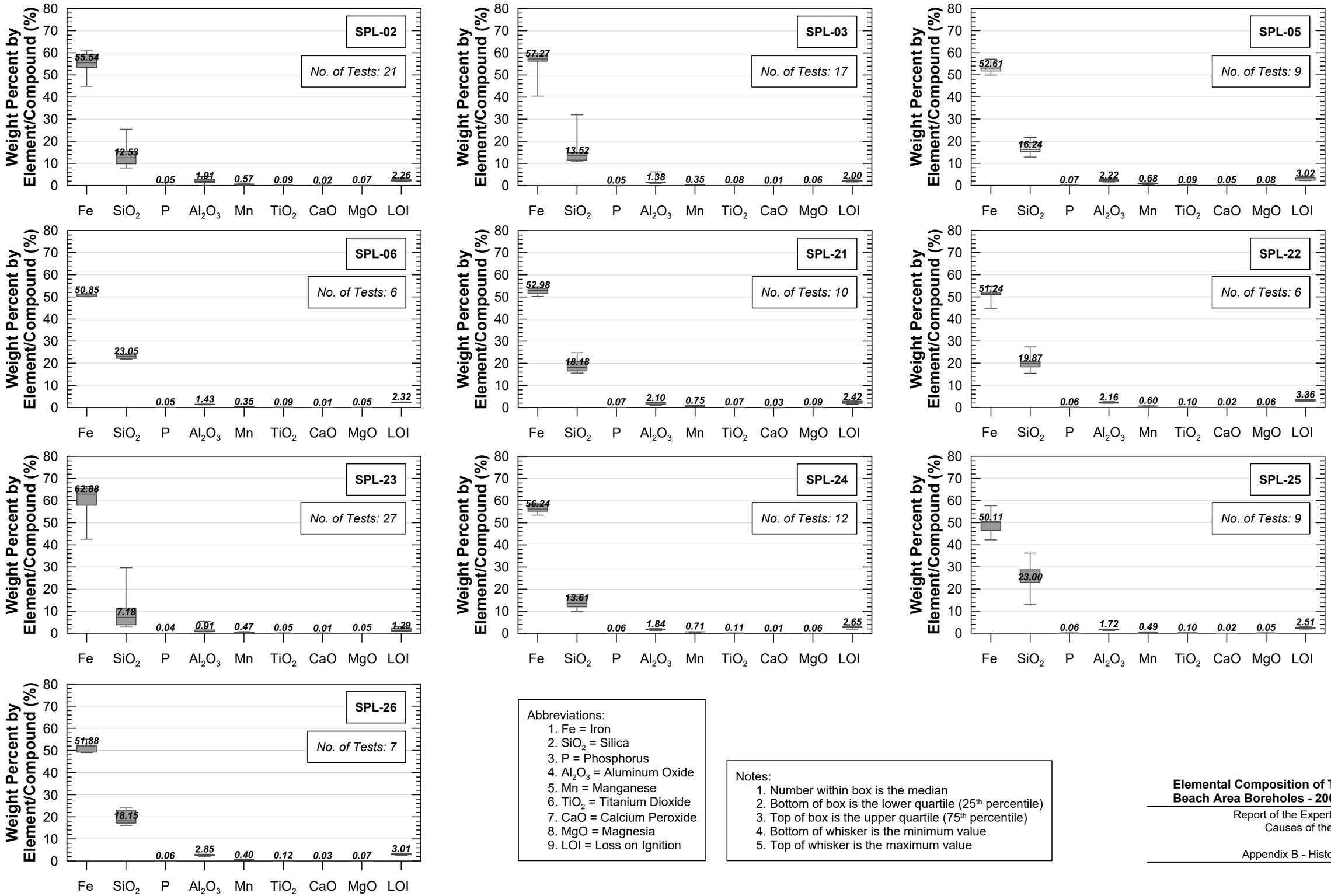
Note:
Fe = Iron

Variation of Percent Fe of Tailings With Depth: Pool Area Boreholes - 2007 Mineralogy Study

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I

Appendix B - Historical Geotechnical Data

Figure 5-33b



Abbreviations:
1. Fe = Iron
2. SiO_2 = Silica
3. P = Phosphorus
4. Al_2O_3 = Aluminum Oxide
5. Mn = Manganese
6. TiO_2 = Titanium Dioxide
7. CaO = Calcium Peroxide
8. MgO = Magnesia
9. LOI = Loss on Ignition

Notes:
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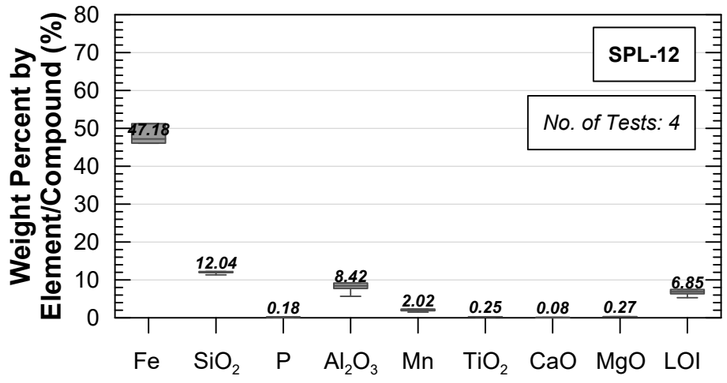
4. Bottom of whisker is the minimum value
5. Top of whisker is the maximum value

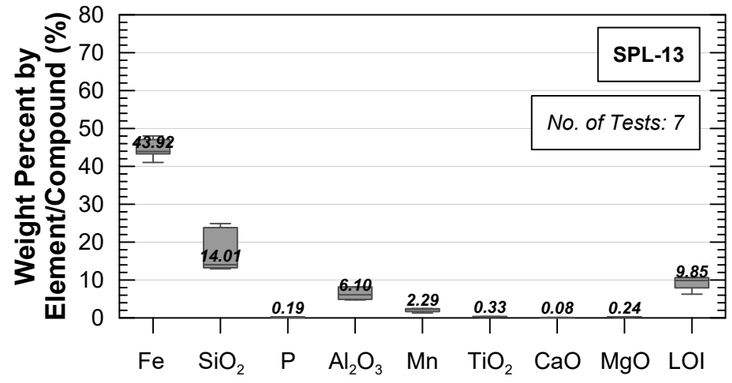
Elemental Composition of Tailings:
Beach Area Boreholes - 2007 Mineralogy Study

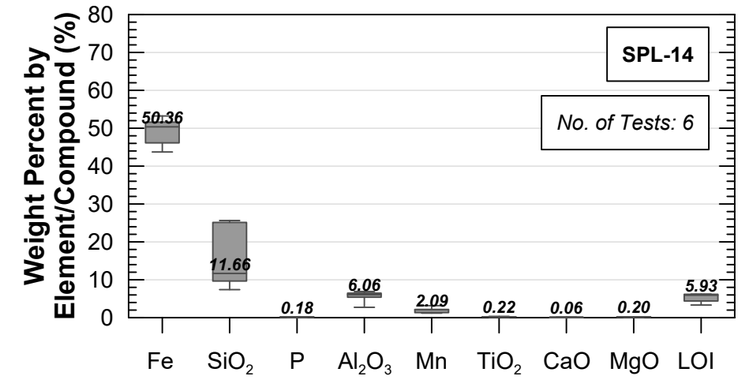
Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I

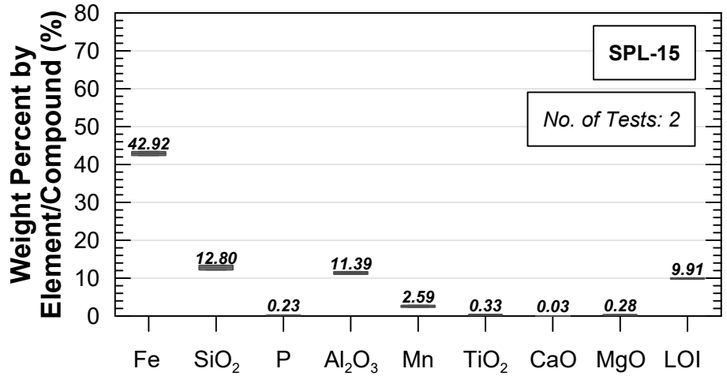
Appendix B - Historical Geotechnical Data

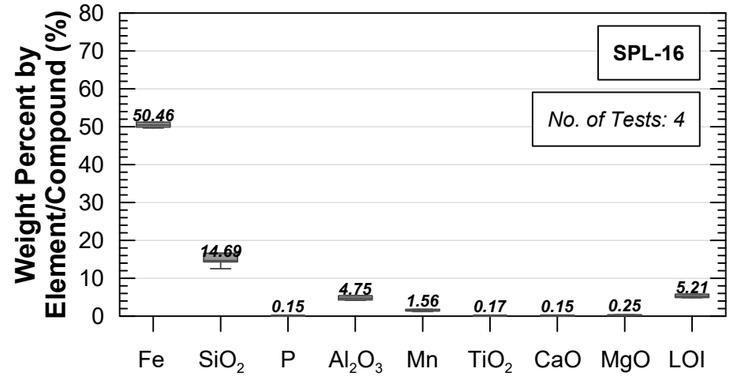
Figure 5-34a

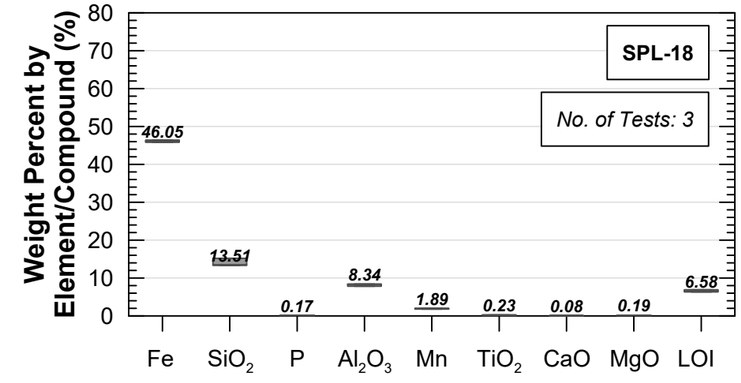


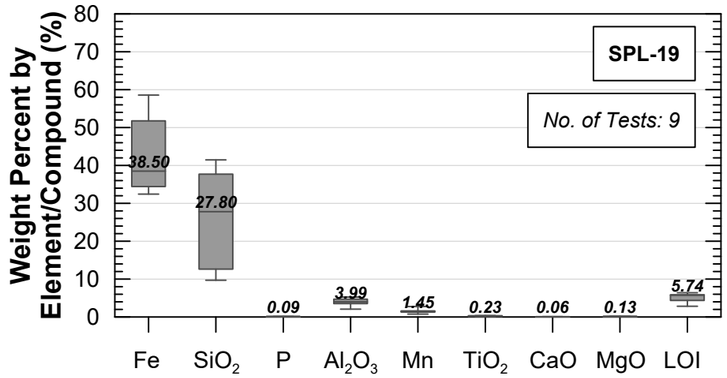












Abbreviations:
1. Fe = Iron
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3. P = Phosphorus
4. Al_2O_3 = Aluminum Oxide
5. Mn = Manganese
6. TiO_2 = Titanium Dioxide
7. CaO = Calcium Peroxide
8. MgO = Magnesia
9. LOI = Loss on Ignition

Notes:
1. Number within box is the median
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3. Top of box is the upper quartile (75th percentile)
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Elemental Composition of Tailings:
Pool Area Boreholes - 2007 Mineralogy Study

Figure 5-34b

Appendix B

Annex 2 – Tables

December 2019

LIST OF TABLES

Table 2-1. Summary of Approximate Location Coordinates and Elevations - CPTu Tests

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I
Appendix B - Historical Geotechnical Data

Exploration ID	Exploration Date	Location Coordinates (SIRGAS200 23S)		Elevation, msl
		Easting (m)	Northing (m)	(m)
CPTU-2005-01	2005	591,862.6	7,775,122.5	922.2
CPTU-2005-02	2005	591,820.6	7,775,088.2	904.1
CPTU-2005-03	2005	591,803.0	7,775,072.1	898.0
CPTU-2005-04	2005	591,899.5	7,775,144.6	926.7
CPTU-2005-05	2005	591,940.5	7,775,166.3	925.3
CPTU-2005-06	2005	592,039.5	7,774,886.6	926.6
CPTU-2005-07	2005	591,838.4	7,775,013.0	898.0
CPTU-2005-08	2005	591,874.0	7,774,948.3	898.0
CPTU-2016-02	2016	591,774.7	7,775,122.3	897.8
CPTU-2016-03	2016	591,977.7	7,775,111.7	938.6
CPTU-2016-04	2016	591,838.6	7,775,007.7	898.4
CPTU-2016-05	2016	591,901.1	7,775,049.5	922.0
CPTU-2016-06	2016	591,940.8	7,774,824.3	898.5
CPTU-2016-07	2016	591,801.7	7,774,990.5	898.6
CPTU-16-8	2016	591,776.8	7,775,069.1	898.8
CPTU-16-9	2016	591,850.0	7,775,029.7	905.3
CPTU-16-10	2016	591,782.0	7,775,014.5	899.0
B1-CPTU-01	2018	592,215.4	7,775,132.2	937.2
B1-CPTU-02	2018	592,346.8	7,775,204.4	935.9
B1-CPTU-03	2018	592,234.2	7,775,253.7	935.9
CPTU-PZE-1-7	2018	591,994.9	7,775,096.0	938.5
CPTU-PZE-8-14	2018	591,924.3	7,775,056.4	929.5
CPTU-PZE-15-19	2018	591,856.5	7,775,018.9	905.1
CPTU-PZE-20-22	2018	591,789.6	7,775,010.7	898.5
CPTU-PZE-23-28	2018	592,032.5	7,775,031.0	938.6
CPTU-PZE-29-35	2018	591,960.6	7,774,991.8	929.5

Table 2-1. Summary of Approximate Location Coordinates and Elevations - CPTu Tests

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I
Appendix B - Historical Geotechnical Data

Exploration ID	Exploration Date	Location Coordinates (SIRGAS200 23S)		Elevation, msl
		Easting (m)	Northing (m)	(m)
CPTU-PZE-36-40	2018	591,891.7	7,774,953.8	905.3
CPTU-PZE-41-43	2018	591,859.6	7,774,931.8	898.9

Table 2-2. Summary of Approximate Location Coordinates and Elevations - Field Vane Tests

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I
Appendix B - Historical Geotechnical Data

Exploration ID	Exploration Date	Location Coordinates (SIRGAS200 23S)		Elevation, msl
		Easting (m)	Northing (m)	(m)
VT-1	2005	591,864.6	7,775,118.8	915.2
VT-2	2005	591,822.3	7,775,084.7	904.4
VT-3	2005	591,902.1	7,775,140.4	926.9
VT-4	2005	591,942.0	7,775,163.0	926.3
VT-5	2005	592,042.4	7,774,884.4	926.2
VT-6	2005	591,800.3	7,775,075.5	898.8
VT-16-11	2016	591,783.2	7,775,058.4	898.8
VT-16-12	2016	591,856.1	7,775,018.7	905.1
VT-16-13	2016	591,782.8	7,775,013.1	899.0

Table 2-3. Summary of Approximate Location Coordinates and Elevations - Shear Wave Velocity Test

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I
Appendix B - Historical Geotechnical Data

Exploration ID	Exploration Date	Location Coordinates (SIRGAS200 23S)		Elevation, msl
		Easting (m)	Northing (m)	(m)
SMT-16-8	2016	591,776.8	7,775,069.1	898.8
SMT-03	2016	591,977.7	7,775,111.7	938.6
SMT-04	2016	591,838.6	7,775,007.7	898.4
SMT-05	2016	591,901.1	7,775,049.5	922.0
SMT-07	2016	591,801.7	7,774,990.5	898.6
B1-SDMT-01	2018	592,032.4	7,775,038.6	938.5
B1-SDMT-02	2018	591,997.9	7,775,105.0	938.3
B1-SDMT-03	2018	592,332.2	7,775,209.4	936.0
B1-SDMT-04	2018	592,228.0	7,775,256.7	935.9

Table 2-4. Summary of Approximate Location Coordinates and Elevations of Boreholes with Relevant Laboratory Test Data

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I
Appendix B - Historical Geotechnical Data

Exploration ID	Exploration Date	Location Coordinates (SIRGAS200 23S)		Elevation, msl
		Easting (m)	Northing (m)	(m)
F-01	1983	591,758.0	7,774,952.8	871.1
F-02	1983	591,741.2	7,774,941.9	870.2
F-03	1983	591,819.6	7,774,936.2	872.4
F-04	1983	591,808.7	7,774,919.5	868.3
F-05	1983	591,797.7	7,774,902.7	865.3
F-06	1983	591,858.7	7,774,857.2	890.7
F-07	1983	591,842.4	7,774,845.6	888.4
SP-501	1998	591,781.1	7,775,188.9	904.9
SP-502	1998	591,895.2	7,774,994.9	904.9
SP-503	1998	592,177.0	7,774,857.1	905.5
SP-601	2000	592,030.5	7,774,833.3	909.5
SP-602	2000	591,937.8	7,774,948.2	908.9
SP-603	2000	591,862.2	7,775,078.1	909.1
SP-604	2000	591,785.7	7,775,192.2	908.9
SP-701	2001	591,951.7	7,774,956.3	918.9
SP-702	2001	591,876.2	7,775,086.4	915.7
SP-703	2001	591,804.3	7,775,203.9	914.7
A1	2001	591,868.4	7,775,179.3	920.1
A2	2001	591,914.6	7,775,099.1	920.7
A3	2001	592,016.8	7,774,931.9	921.0
A4	2001	592,093.5	7,774,884.5	921.2
SPT-4	2005	591,903.0	7,775,135.8	926.0
SPT-6	2005	591,821.0	7,775,081.1	904.1
SPT-7	2005	591,804.0	7,775,069.8	898.0
SPT-15	2005	592,040.9	7,774,885.9	926.5
SPT-18	2005	591,942.9	7,775,158.5	925.5

Table 2-4. Summary of Approximate Location Coordinates and Elevations of Boreholes with Relevant Laboratory Test Data

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I
Appendix B - Historical Geotechnical Data

Exploration ID	Exploration Date	Location Coordinates (SIRGAS200 23S)		Elevation, msl
		Easting (m)	Northing (m)	(m)
CPTU-2005-03	2005	591,803.0	7,775,072.1	898.0
CPTU-2005-04	2005	591,899.5	7,775,144.6	926.7
CPTU-2005-05	2005	591,940.5	7,775,166.3	925.3
CPTU-2005-06	2005	592,039.5	7,774,886.6	926.6
A/D-1	2005	591,832.3	7,775,244.1	927.1
A/D-2	2005	591,852.2	7,775,245.5	927.1
A/D-3	2005	591,872.1	7,775,246.9	926.5
A/D-4	2005	591,892.1	7,775,248.3	926.3
A/D-5	2005	591,862.3	7,775,176.2	927.6
A/D-6	2005	591,879.5	7,775,186.4	927.2
A/D-7	2005	591,896.7	7,775,196.6	925.5
A/D-8	2005	591,913.9	7,775,206.9	925.2
A/D-9	2005	591,886.3	7,775,134.6	927.1
A/D-10	2005	591,903.5	7,775,144.8	926.7
A/D-11	2005	591,920.8	7,775,154.9	926.5
A/D-12	2005	591,938.0	7,775,165.1	925.3
A/D-13	2005	591,926.7	7,775,066.3	925.8
A/D-14	2005	591,944.0	7,775,076.5	925.8
A/D-15	2005	591,961.3	7,775,086.6	925.7
A/D-16	2005	591,978.6	7,775,096.6	925.4
A/D-17	2005	591,964.1	7,775,002.3	926.0
A/D-18	2005	591,981.5	7,775,012.2	925.5
A/D-19	2005	591,998.7	7,775,022.2	925.3
A/D-20	2005	592,031.8	7,774,888.4	926.3
A/D-21	2005	592,048.4	7,774,899.6	926.0
A/D-22	2005	592,064.9	7,774,910.9	925.6

Table 2-4. Summary of Approximate Location Coordinates and Elevations of Boreholes with Relevant Laboratory Test Data

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I
Appendix B - Historical Geotechnical Data

Exploration ID	Exploration Date	Location Coordinates (SIRGAS200 23S)		Elevation, msl
		Easting (m)	Northing (m)	(m)
A/D-23	2005	592,103.7	7,774,859.3	926.4
A/D-24	2005	592,110.1	7,774,878.2	925.3
A/D-25	2005	592,116.6	7,774,897.1	925.1
STG-1	2006	591,747.6	7,775,046.3	889.9
STG-2	2006	591,771.3	7,775,051.2	899.0
STG-3	2006	591,918.6	7,774,815.5	893.0
STG-4	2006	591,940.5	7,775,159.0	938.2
STG-5	2006	591,900.8	7,775,139.7	937.1
STG-6	2006	591,844.6	7,775,109.8	915.8
ST-2016-01	2016	591,772.2	7,775,057.4	899.0
ST-2016-02	2016	591,780.2	7,775,061.3	898.8
ST-2016-03	2016	591,799.2	7,775,072.3	898.4
ST-2016-03A	2016	591,801.8	7,775,071.1	898.5
ST-2016-04	2016	591,809.1	7,774,968.1	901.4
ST-2016-05	2016	591,821.1	7,774,990.4	898.3
ST-2016-06	2016	591,833.7	7,775,009.4	898.0
ST-2016-07	2016	591,857.9	7,774,928.6	898.9
ST-2016-08	2016	591,870.3	7,774,938.6	898.1
ST-2016-09	2016	591,874.2	7,774,941.8	898.7
PI-01	2016	591,788.1	7,775,060.7	898.2
PI-02	2016	591,816.7	7,774,989.7	897.5
PI-03	2016	591,872.0	7,774,937.8	898.6
PI-04	2016	591,975.4	7,775,110.3	938.3

Table 4-1. Summary of CPTu Pore Pressure Dissipation Tests Results: Equilibrium Pore Water Pressure and Hydraulic Conductivity

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I
Appendix B - Historical Geotechnical Data

CPT ID	Test No	Test Depth (m)	Test Elevation, msl (m)	Unit	SBTn Zone [1]	SBTn Soil Behavior Type [1]	In Situ Equilibrium Pore Water Pressure, u_0 (kPa)	In Situ Equilibrium Pore Water Pressure, u_0 (m of H_2O)	Measured Time for 50 % Dissipation, t_{50} (s)	Coefficient of Horizontal Consolidation, c_h (m^2/s)	Horizontal Hydraulic Conductivity, K_h [1] (m/s)	K_h/K_v Ratio	Vertical Hydraulic Conductivity, K_v [1] (m/s)	Range in K Based on SBTn Soil Type [1] (m/s) k_{min}		k_{max}
B1-CPTU-01	1	10.00	927.20	Tailings	2	Clay - organic soil	8.4	0.9	141.1	5.5E-06	3.1E-06	2.0	1.5E-06	1.0E-10	to	1.0E-08
B1-CPTU-01	2	27.66	909.54	Tailings	3	Clays: clay to silty clay	49.2	5.0	37.7	2.1E-05	1.9E-07	2.0	9.6E-08	1.0E-10	to	1.0E-09
B1-CPTU-01	3	29.24	907.96	Tailings	3	Clays: clay to silty clay	39.2	4.0	309.9	2.5E-06	2.5E-08	2.0	1.2E-08	1.0E-10	to	1.0E-09
B1-CPTU-01	4	41.00	896.20	Tailings	3	Clays: clay to silty clay	135.4	13.8	378.0	2.1E-06	7.0E-08	2.0	3.5E-08	1.0E-10	to	1.0E-09
B1-CPTU-02	2	15.01	920.89	Tailings	2	Clay - organic soil	199.2	20.3	1342.8	5.8E-07				1.0E-10	to	1.0E-08
B1-CPTU-03	1	5.01	930.89	Tailings			72.3	7.4	1290.1	6.0E-07						
B1-CPTU-03	2	20.00	915.90	Tailings	3	Clays: clay to silty clay	177.4	18.1	620.1	1.3E-06	3.3E-07	2.0	1.7E-07	1.0E-10	to	1.0E-09
CPTU-PZE-1-7	1	10.20	928.30	Tailings	3	Clays: clay to silty clay	3.1	0.3	83.9	9.3E-06	2.4E-07	2.0	1.2E-07	1.0E-10	to	1.0E-09
CPTU-PZE-1-7	2	18.00	920.50	Tailings	3	Clays: clay to silty clay	31.4	3.2	131.3	5.9E-06	5.6E-08	2.0	2.8E-08	1.0E-10	to	1.0E-09
CPTU-PZE-1-7	3	28.40	910.10	Tailings	3	Clays: clay to silty clay	28.8	2.9	21.8	3.6E-05	1.2E-07	2.0	6.0E-08	1.0E-10	to	1.0E-09
CPTU-PZE-1-7	4	34.60	903.90	Tailings	3	Clays: clay to silty clay	3.1	0.3	88.9	8.7E-06	3.0E-08	2.0	1.5E-08	1.0E-10	to	1.0E-09
CPTU-PZE-1-7	5	43.50	895.00	Tailings	5	Sand mixtures: silty sand to sandy silt	97.0	9.9	28.2	2.8E-05	1.1E-08	2.0	5.6E-09	1.0E-07	to	1.0E-05
CPTU-PZE-1-7	6	49.50	889.00	Tailings	4	Silt mixtures: clayey silt and & silty clay	191.6	19.5	58.6	1.3E-05	2.8E-08	2.0	1.4E-08	3.0E-09	to	1.0E-07
CPTU-PZE-15-19	1	10.64	894.46	Tailings	3	Clays: clay to silty clay	33.9	3.5	56.5	1.4E-05	2.1E-08	2.0	1.0E-08	1.0E-10	to	1.0E-09
CPTU-PZE-15-19	2	15.76	889.34	Tailings	4	Silt mixtures: clayey silt and & silty clay	47.3	4.8	58.9	1.3E-05	2.3E-08	2.0	1.2E-08	3.0E-09	to	1.0E-07
CPTU-PZE-15-19	4	27.53	877.57	Tailings	4	Silt mixtures: clayey silt and & silty clay	90.1	9.2	43.1	1.8E-05	1.5E-08	2.0	7.4E-09	3.0E-09	to	1.0E-07
CPTU-PZE-15-19	5	31.29	873.81	Tailings	3	Clays: clay to silty clay	121.7	12.4	147.7	5.3E-06	1.2E-08	2.0	6.1E-09	1.0E-10	to	1.0E-09
CPTU-PZE-15-19	6	35.00	870.10	Tailings	3	Clays: clay to silty clay	227.1	23.2	187.5	4.1E-06	1.6E-08	2.0	7.9E-09	1.0E-10	to	1.0E-09
CPTU-PZE-15-19	7	39.57	865.53	Tailings	3	Clays: clay to silty clay	328.1	33.4	29.3	2.7E-05	6.7E-08	2.0	3.4E-08	1.0E-10	to	1.0E-09
CPTU-PZE-15-19	8	49.25	855.85	Foundation Soils	4	Silt mixtures: clayey silt and & silty clay	330.4	33.7	26.4	2.9E-05	6.2E-08	2.0	3.1E-08	3.0E-09	to	1.0E-07
CPTU-PZE-20-22	2	21.23	877.27	Tailings	4	Silt mixtures: clayey silt and & silty clay	67.2	6.9	7.1	1.1E-04	6.2E-08	2.0	3.1E-08	3.0E-09	to	1.0E-07
CPTU-PZE-20-22	3	28.88	869.62	Tailings	4	Silt mixtures: clayey silt and & silty clay	75.8	7.7	80.0	9.7E-06	2.7E-08	2.0	1.3E-08	3.0E-09	to	1.0E-07
CPTU-PZE-20-22	4	35.04	863.46	Foundation Soils	4	Silt mixtures: clayey silt and & silty clay	140.1	14.3	18.3	4.2E-05	3.4E-08	2.0	1.7E-08	3.0E-09	to	1.0E-07
CPTU-PZE-23-28	1	2.88	935.72	Tailings			-4.4	-0.5	60.5	1.3E-05						
CPTU-PZE-23-28	2	11.09	927.51	Tailings	3	Clays: clay to silty clay	17.0	1.7	352.4	2.2E-06	7.2E-08	2.0	3.6E-08	1.0E-10	to	1.0E-09
CPTU-PZE-23-28	3	22.02	916.58	Tailings	4	Silt mixtures: clayey silt and & silty clay	20.2	2.1	188.2	4.1E-06	2.0E-08	2.0	9.8E-09	3.0E-09	to	1.0E-07
CPTU-PZE-23-28	4	30.70	907.90	Tailings	3	Clays: clay to silty clay	59.9	6.1	235.2	3.3E-06	1.0E-08	2.0	5.2E-09	1.0E-10	to	1.0E-09
CPTU-PZE-29-35	1	22.06	907.44	Tailings	5	Sand mixtures: silty sand to sandy silt	13.6	1.4	7.4	1.0E-04	4.2E-08	2.0	2.1E-08	1.0E-07	to	1.0E-05
CPTU-PZE-29-35	2	26.94	902.56	Tailings	5	Sand mixtures: silty sand to sandy silt	21.4	2.2	21.7	3.6E-05	4.5E-08	2.0	2.3E-08	1.0E-07	to	1.0E-05
CPTU-PZE-29-35	3	35.23	894.27	Tailings	3	Clays: clay to silty clay	76.9	7.8	7.7	1.0E-04	1.7E-07	2.0	8.7E-08	1.0E-10	to	1.0E-09
CPTU-PZE-29-35	4	45.57	883.93	Tailings	3	Clays: clay to silty clay	148.3	15.1	132.7	5.9E-06	7.0E-09	2.0	3.5E-09	1.0E-10	to	1.0E-09
CPTU-PZE-29-35A	1	11.19	918.31	Tailings	3	Clays: clay to silty clay	-2.7	-0.3	114.1	6.8E-06	3.9E-08	2.0	1.9E-08	1.0E-10	to	1.0E-09
CPTU-PZE-41-43	1	7.66	891.24	Tailings	3	Clays: clay to silty clay	28.0	2.9	27.2	2.8E-05	2.5E-07	2.0	1.2E-07	1.0E-10	to	1.0E-09
CPTU-PZE-41-43	2	17.20	881.70	Tailings	3	Clays: clay to silty clay	34.3	3.5	71.4	1.1E-05	3.7E-09	2.0	1.8E-09	1.0E-10	to	1.0E-09
CPTU-PZE-41-43	3	26.65	872.25	Tailings	4	Silt mixtures: clayey silt and & silty clay	54.6	5.6	9.6	8.1E-05	9.4E-08	2.0	4.7E-08	3.0E-09	to	1.0E-07
CPTU-PZE-41-43	4	36.94	861.96	Tailings	4	Silt mixtures: clayey silt and & silty clay	139.2	14.2	4.3	1.8E-04	2.6E-08	2.0	1.3E-08	3.0E-09	to	1.0E-07
CPTU-PZE-41-43	5	37.97	860.93	Foundation Soils	4	Silt mixtures: clayey silt and & silty clay	162.0	16.5	90.9	8.5E-06	1.1E-08	2.0	5.5E-09	3.0E-09	to	1.0E-07

Table 4-1. Summary of CPTu Pore Pressure Dissipation Tests Results: Equilibrium Pore Water Pressure and Hydraulic Conductivity

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I
Appendix B - Historical Geotechnical Data

CPT ID	Test No	Test Depth (m)	Test Elevation, msl (m)	Unit	SBTn Zone [1]	SBTn Soil Behavior Type [1]	In Situ Equilibrium Pore Water Pressure, u_0 (kPa)	In Situ Equilibrium Pore Water Pressure, u_0 (m of H_2O)	Measured Time for 50 % Dissipation, t_{50} (s)	Coefficient of Horizontal Consolidation, c_h (m^2/s)	Horizontal Hydraulic Conductivity, K_h [1] (m/s)	K_h/K_v Ratio	Vertical Hydraulic Conductivity, K_v [1] (m/s)	Range in K Based on SBTn Soil Type [1] (m/s) k_{min}		k_{max}
CPTU-16-8	1	19.30	879.50	Tailings	3	Clays: clay to silty clay	86.2	8.8	43.0	1.8E-05	1.1E-07	2.0	5.3E-08	1.0E-10	to	1.0E-09
CPTU-16-8	2	22.00	876.80	Tailings	4	Silt mixtures: clayey silt and & silty clay	161.7	16.5	109.1	7.1E-06	1.6E-08	2.0	7.9E-09	3.0E-09	to	1.0E-07
CPTU-16-8	3	25.00	873.80	Tailings	3	Clays: clay to silty clay	152.9	15.6	86.8	8.9E-06	2.0E-08	2.0	1.0E-08	1.0E-10	to	1.0E-09
CPTU-16-8	4	30.00	868.80	Foundation Soils	3	Clays: clay to silty clay	186.6	19.0	3.4	2.3E-04	1.6E-07	2.0	7.8E-08	1.0E-10	to	1.0E-09
CPTU-16-9	1	11.20	894.10	Tailings	3	Clays: clay to silty clay	42.6	4.3	113.3	6.9E-06	8.9E-08	2.0	4.5E-08	1.0E-10	to	1.0E-09
CPTU-16-9	2	16.00	889.30	Tailings	3	Clays: clay to silty clay	37.0	3.8	43.6	1.8E-05	1.1E-07	2.0	5.3E-08	1.0E-10	to	1.0E-09
CPTU-16-9	3	26.90	878.40	Tailings	4	Silt mixtures: clayey silt and & silty clay	90.8	9.3	32.1	2.4E-05	3.3E-08	2.0	1.7E-08	3.0E-09	to	1.0E-07
CPTU-16-9	4	30.40	874.90	Tailings	4	Silt mixtures: clayey silt and & silty clay	117.8	12.0	39.5	2.0E-05	1.2E-08	2.0	5.8E-09	3.0E-09	to	1.0E-07
CPTU-16-10	1	21.20	877.80	Tailings	3	Clays: clay to silty clay	80.1	8.2	11.2	6.9E-05	2.5E-07	2.0	1.2E-07	1.0E-10	to	1.0E-09
CPTU-16-10	2	22.40	876.60	Tailings	3	Clays: clay to silty clay	68.9	7.0	83.7	9.3E-06	3.2E-08	2.0	1.6E-08	1.0E-10	to	1.0E-09
CPTU-16-10	3	29.30	869.70	Tailings	5	Sand mixtures: silty sand to sandy silt	79.9	8.1	15.0	5.2E-05	4.6E-08	2.0	2.3E-08	1.0E-07	to	1.0E-05
CPTU-16-10	4	30.00	869.00	Tailings	3	Clays: clay to silty clay	111.4	11.4	50.1	1.5E-05	7.7E-08	2.0	3.8E-08	1.0E-10	to	1.0E-09
CPTU-16-10	5	35.00	864.00	Foundation Soils	3	Clays: clay to silty clay	234.9	23.9	104.3	7.4E-06	1.3E-08	2.0	6.7E-09	1.0E-10	to	1.0E-09
CPTU-2016-02	1	14.75	883.05	Tailings	3	Clays: clay to silty clay	89.7	9.1	114.3	6.8E-06	5.0E-09	2.0	2.5E-09	1.0E-10	to	1.0E-09
CPTU-2016-03	1	11.70	926.90	Tailings	3	Clays: clay to silty clay	29.6	3.0	41.2	1.9E-05	8.4E-07	2.0	4.2E-07	1.0E-10	to	1.0E-09
CPTU-2016-03	2	14.75	923.85	Tailings	3	Clays: clay to silty clay	41.8	4.3	146.0	5.3E-06	4.6E-08	2.0	2.3E-08	1.0E-10	to	1.0E-09
CPTU-2016-03	3	17.80	920.80	Tailings	3	Clays: clay to silty clay	26.4	2.7	195.7	4.0E-06	1.3E-07	2.0	6.6E-08	1.0E-10	to	1.0E-09
CPTU-2016-03	5	28.70	909.90	Tailings	4	Silt mixtures: clayey silt and & silty clay	39.8	4.1	36.4	2.1E-05	4.0E-08	2.0	2.0E-08	3.0E-09	to	1.0E-07
CPTU-2016-03	6	30.00	908.60	Tailings	4	Silt mixtures: clayey silt and & silty clay	28.2	2.9	137.0	5.7E-06	1.2E-08	2.0	6.0E-09	3.0E-09	to	1.0E-07
CPTU-2016-03	7	35.00	903.60	Tailings	3	Clays: clay to silty clay	54.9	5.6	80.2	9.7E-06	3.6E-08	2.0	1.8E-08	1.0E-10	to	1.0E-09
CPTU-2016-04	1	19.20	879.20	Tailings	4	Silt mixtures: clayey silt and & silty clay	82.6	8.4	18.4	4.2E-05	4.0E-08	2.0	2.0E-08	3.0E-09	to	1.0E-07
CPTU-2016-04	2	22.80	875.60	Tailings	4	Silt mixtures: clayey silt and & silty clay	112.8	11.5	107.4	7.2E-06	1.2E-08	2.0	5.9E-09	3.0E-09	to	1.0E-07
CPTU-2016-04	3	24.60	873.80	Tailings	4	Silt mixtures: clayey silt and & silty clay	123.2	12.6	14.2	5.5E-05	3.8E-08	2.0	1.9E-08	3.0E-09	to	1.0E-07
CPTU-2016-04	4	27.00	871.40	Tailings	4	Silt mixtures: clayey silt and & silty clay	110.4	11.3	11.1	7.0E-05	5.0E-08	2.0	2.5E-08	3.0E-09	to	1.0E-07
CPTU-2016-04	5	30.00	868.40	Tailings	4	Silt mixtures: clayey silt and & silty clay	277.3	28.3	64.9	1.2E-05	1.7E-08	2.0	8.6E-09	3.0E-09	to	1.0E-07
CPTU-2016-05	1	12.60	909.40	Tailings	3	Clays: clay to silty clay	29.1	3.0	34.2	2.3E-05	4.2E-07	2.0	2.1E-07	1.0E-10	to	1.0E-09
CPTU-2016-06	1	11.40	887.10	Tailings	5	Sand mixtures: silty sand to sandy silt	36.2	3.7	4.1	1.9E-04	9.0E-08	2.0	4.5E-08	1.0E-07	to	1.0E-05
CPTU-2016-06	2	15.40	883.10	Foundation Soils	4	Silt mixtures: clayey silt and & silty clay	42.8	4.4	111.0	7.0E-06	2.2E-08	2.0	1.1E-08	3.0E-09	to	1.0E-07
CPTU-2016-06	3	18.20	880.30	Foundation Soils	3	Clays: clay to silty clay	36.4	3.7	14.9	5.2E-05	4.8E-08	2.0	2.4E-08	1.0E-10	to	1.0E-09
CPTU-2016-06	4	20.30	878.20	Foundation Soils	3	Clays: clay to silty clay	50.6	5.2	4.4	1.8E-04	3.4E-07	2.0	1.7E-07	1.0E-10	to	1.0E-09
CPTU-2016-07	1	22.30	876.30	Tailings	5	Sand mixtures: silty sand to sandy silt	66.6	6.8	37.4	2.1E-05	5.3E-09	2.0	2.6E-09	1.0E-07	to	1.0E-05
CPTU-2016-07	2	24.60	874.00	Tailings	5	Sand mixtures: silty sand to sandy silt	44.4	4.5	112.1	6.9E-06	6.1E-10	2.0	3.1E-10	1.0E-07	to	1.0E-05
CPTU-2005-01	3	12.84	909.36	Tailings			37.7	3.8	2.2	3.6E-04						
CPTU-2005-03	1	2.60	895.40	Tailings			11.1	1.1	58.5	1.3E-05						
CPTU-2005-03	3	19.39	878.61	Tailings	3	Clays: clay to silty clay	103.1	10.5	10.2	7.6E-05	1.1E-07	2.0	5.6E-08	1.0E-10	to	1.0E-09
CPTU-2005-06	2	8.67	917.93	Tailings	4	Silt mixtures: clayey silt and & silty clay	22.4	2.3	5.8	1.3E-04	9.9E-08	2.0	4.9E-08	3.0E-09	to	1.0E-07
CPTU-2005-06	3	11.49	915.11	Tailings	4	Silt mixtures: clayey silt and & silty clay	18.8	1.9	6.9	1.1E-04	1.5E-07	2.0	7.6E-08	3.0E-09	to	1.0E-07

Table 4-1. Summary of CPTu Pore Pressure Dissipation Tests Results: Equilibrium Pore Water Pressure and Hydraulic Conductivity

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I
Appendix B - Historical Geotechnical Data

CPT ID	Test No	Test Depth (m)	Test Elevation, msl (m)	Unit	SBTn Zone [1]	SBTn Soil Behavior Type [1]	In Situ Equilibrium Pore Water Pressure, u_0 (kPa)	In Situ Equilibrium Pore Water Pressure, u_0 (m of H_2O)	Measured Time for 50 % Dissipation, t_{50} (s)	Coefficient of Horizontal Consolidation, c_h (m^2/s)	Horizontal Hydraulic Conductivity, K_h [1] (m/s)	K_h/K_v Ratio	Vertical Hydraulic Conductivity, K_v [1] (m/s)	Range in K Based on SBTn Soil Type [1] (m/s) k_{min}		k_{max}
CPTU-2005-07	3	7.81	890.19	Tailings	3	Clays: clay to silty clay	33.6	3.4	5.4	1.4E-04	2.4E-07	2.0	1.2E-07	1.0E-10	to	1.0E-09
CPTU-PZE-8-14	1	7.63	921.87	Tailings	3	Clays: clay to silty clay	-10.1	-1.0	155.5	5.0E-06	3.4E-09	2.0	1.7E-09	1.0E-10	to	1.0E-09
CPTU-PZE-8-14	2	21.20	908.30	Tailings	3	Clays: clay to silty clay	22.1	2.3	39.3	2.0E-05	2.0E-08	2.0	1.0E-08	1.0E-10	to	1.0E-09
CPTU-PZE-8-14	3	21.87	907.63	Tailings	3	Clays: clay to silty clay	17.6	1.8	339.9	2.3E-06	3.1E-09	2.0	1.5E-09	1.0E-10	to	1.0E-09
CPTU-PZE-8-14	4	34.77	894.73	Tailings	4	Silt mixtures: clayey silt and & silty clay	75.8	7.7	27.7	2.8E-05	5.0E-08	2.0	2.5E-08	3.0E-09	to	1.0E-07
CPTU-PZE-8-14	5	36.13	893.37	Tailings			98.5	10.0	387.1	2.0E-06						
CPTU-PZE-8-14	6	45.85	883.65	Tailings	5	Sand mixtures: silty sand to sandy silt	217.6	22.2	22.1	3.5E-05	4.5E-08	2.0	2.2E-08	1.0E-07	to	1.0E-05
CPTU-PZE-8-14	7	51.60	877.90	Tailings	5	Sand mixtures: silty sand to sandy silt	286.9	29.2	48.3	1.6E-05	3.9E-08	2.0	1.9E-08	1.0E-07	to	1.0E-05
CPTU-PZE-36-40	1	10.01	895.29	Tailings	5	Sand mixtures: silty sand to sandy silt	26.6	2.7	1.2	6.6E-04	9.9E-08	2.0	4.9E-08	1.0E-07	to	1.0E-05
CPTU-PZE-36-40	2	10.34	894.96	Tailings	3	Clays: clay to silty clay	19.3	2.0	66.2	1.2E-05	2.4E-08	2.0	1.2E-08	1.0E-10	to	1.0E-09
CPTU-PZE-36-40	3	17.34	887.96	Tailings	3	Clays: clay to silty clay	61.0	6.2	13.3	5.9E-05	6.4E-08	2.0	3.2E-08	1.0E-10	to	1.0E-09
CPTU-2016-03	4	22.50	916.10	Tailings	4	Silt mixtures: clayey silt and & silty clay	30.3	3.1	34.7	2.2E-05	1.2E-07	2.0	5.9E-08	3.0E-09	to	1.0E-07
CPTU-2016-05	2	19.80	902.20	Tailings	3	Clays: clay to silty clay	45.3	4.6	22.3	3.5E-05	1.8E-07	2.0	9.1E-08	1.0E-10	to	1.0E-09
CPTU-PZE-20-22	1	10.77	887.73	Tailings	3	Clays: clay to silty clay	-1.1	-0.1	32.1	2.4E-05	1.1E-08	2.0	5.5E-09	1.0E-10	to	1.0E-09

Notes:

[1] Cells left blank are when the CPT data was insufficient to develop estimates due to measured negative cone resistance q_c, or unavailable pore pressure values u_2

Table 4-2. Hydraulic Conductivity Measurements from In Situ Infiltration Tests

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I
Appendix B - Historical Geotechnical Data

Piezometer ID	Location Coordinates (SIRGAS200 23S)		Test Elevation, msl	Unit [1]	Hydraulic Conductivity
	Easting (m)	Northing (m)	(m)		(m/s)
PZ-17C	591,809.0	7,775,143.7	900.8	Tailings	3.3E-06
PZ-18C	591,803.5	7,775,140.5	898.9	Tailings	2.5E-05
PZ-19C-1	591,788.4	7,775,134.5	887.5	Tailings	6.7E-07
PZ-2C	591,797.5	7,774,884.3	855.3	Foundation Soils	3.2E-07
PZ-21C	591,870.8	7,775,030.2	901.4	Tailings	2.3E-05
PZ-22C	591,852.8	7,775,019.9	894.3	Tailings	2.1E-05
PZ-22C-1	591,852.4	7,775,020.6	893.5	Tailings	1.8E-05
PZ-23C	591,905.8	7,774,969.5	899.3	Tailings	2.0E-05
PZ-24C	591,886.0	7,774,959.7	884.5	Tailings	3.1E-08
PZ-26C	591,954.1	7,774,835.3	895.0	Tailings	1.2E-05
PZ-27C	591,820.6	7,775,150.0	910.1	Embankment	1.9E-05
PZ-28C	591,825.1	7,775,152.4	907.0	Tailings	1.4E-05
PZ-29C	591,843.8	7,775,108.7	910.3	Embankment	3.6E-05
PZ-30C	591,848.1	7,775,111.0	907.1	Tailings	8.9E-06
PZ-32C	591,866.4	7,775,042.2	907.0	Embankment	3.0E-05
PZ-33C	591,917.7	7,774,975.3	910.2	Embankment	1.1E-05
PZ-34C	591,922.1	7,774,977.8	907.4	Tailings	1.4E-05
PZ-37C	591,836.5	7,775,158.7	916.4	Embankment	2.0E-07
PZ-39C	591,859.7	7,775,117.1	916.6	Embankment	3.8E-06
PZ-40C	591,863.3	7,775,118.8	914.0	Tailings	3.9E-06
PZ-41C	591,898.2	7,775,047.9	917.0	Embankment	9.4E-06
PZ-43C	591,934.0	7,774,983.2	917.9	Embankment	5.9E-06
PZ-44C	591,941.0	7,774,984.8	914.7	Tailings	6.4E-06
PZ-47C	591,860.1	7,775,172.1	910.0	Tailings	7.7E-06
PZ-48C	591,883.5	7,775,130.3	909.2	Tailings	1.4E-05
PZ-49C	591,921.9	7,775,061.0	910.8	Tailings	5.7E-06

Table 4-2. Hydraulic Conductivity Measurements from In Situ Infiltration Tests

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I
Appendix B - Historical Geotechnical Data

Piezometer ID	Location Coordinates (SIRGAS200 23S)		Test Elevation, msl	Unit [1]	Hydraulic Conductivity
	Easting (m)	Northing (m)	(m)		(m/s)
PZ-50C	591,958.0	7,774,996.2	909.4	Tailings	4.4E-06
PZC-19B	591,802.5	7,774,894.9	859.0	Embankment	2.3E-07
PZC-19C	591,804.8	7,774,891.7	854.0	Foundation Soils	1.7E-08
PZC-21	591,738.3	7,775,118.6	879.4	Foundation Soils	1.6E-07
PZC-22	591,766.7	7,775,060.0	884.2	Tailings	3.1E-07
PZC-23	591,766.0	7,775,063.2	878.6	Tailings	8.7E-08
PZC-24	591,745.0	7,775,053.8	875.9	Tailings	8.3E-08
PZF-1	591,717.0	7,775,110.7	877.4	Foundation Soils	4.8E-06
PZM-6	591,719.7	7,774,985.4	864.8	Foundation Soils	2.6E-07
PZM-10	591,781.1	7,775,003.0	890.2	Embankment	5.5E-07
PZM-14	591,813.8	7,774,897.3	860.3	Embankment	6.3E-06
PZM-2	591,728.8	7,775,113.9	881.0	Foundation Soils	2.5E-06
PZM-7	591,747.8	7,774,994.6	873.4	Tailings	2.4E-07
PZM-9	591,769.1	7,774,999.4	871.4	Tailings	1.1E-07
PZC-27	591,875.8	7,775,182.2	926.0	Embankment	2.6E-07
PZC-28	591,973.8	7,775,005.0	931.9	Embankment	2.5E-07
PZC-29	591,937.6	7,775,070.7	926.2	Tailings	3.4E-06
PZC-30	591,973.3	7,775,005.9	926.0	Tailings	1.6E-07
PZ-3C	591,816.3	7,774,899.3	858.1	Embankment	1.8E-07
PZ-11C	591,707.0	7,775,038.2	853.5	Foundation Soils	2.1E-06
PZ-12C	591,729.9	7,775,047.0	861.1	Foundation Soils	4.4E-07
PZ-13C	591,754.6	7,775,056.4	871.4	Foundation Soils	8.9E-07
PZ-6C	591,874.4	7,774,944.6	861.6	Foundation Soils	3.9E-07
PZC-34	591,888.8	7,775,188.1	935.8	Tailings	1.7E-05
PZC-35	591,912.3	7,775,146.1	935.7	Tailings	1.1E-05
PZC-36	591,950.3	7,775,077.7	935.8	Tailings	2.6E-06

Table 4-2. Hydraulic Conductivity Measurements from In Situ Infiltration Tests

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I
Appendix B - Historical Geotechnical Data

Piezometer ID	Location Coordinates (SIRGAS200 23S)		Test Elevation, msl	Unit [1]	Hydraulic Conductivity
	Easting (m)	Northing (m)	(m)		(m/s)
PZC-37	591,986.5	7,775,012.0	935.5	Tailings	5.9E-06
PZC-43	591,741.2	7,774,831.0	844.9	Foundation Soils	3.6E-06
PZC-16.6A	591,827.5	7,775,103.5	890.0	Tailings	1.7E-06
PZC-16.7	591,822.5	7,775,073.8	884.3	Tailings	1.7E-06

Note:

[1] Based on estimates from the nearest infiltration test CPT location.

Table 4-3. Summary of In Situ Undrained Shear Strength from Field Vane Tests

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I
Appendix B - Historical Geotechnical Data

Vane ID	Relevant Borehole	Relevant CPT	Test Depth (m)	Test Elevation, msl (m)	Unit[1, 2]	Soil Type[2, 3]	Uncorrected Peak Undrained Shear Strength, s_u			Uncorrected Residual Undrained Shear Strength[4], $s_{u,res}$		Uncorrected Remolded Undrained Shear Strength[5], $s_{u,rem}$			Correction Factor, μ	Corrected Peak Undrained Shear Strength, s_u (kPa)
							Torque, τ (Nm)	s_u (kPa)	τ/s_u	Torque (Nm)	$s_{u,res}$ (kPa)	Torque (Nm)	$s_{u,rem}$ (kPa)	$\tau/s_{u,rem}$		
VT-1	SPT-05	CPTU-2005-01	2.50	912.7	Embankment	SP	102	222.8	0.46						0.90	200.5
VT-2	SPT-06, INC-01	CPTU-2005-02	10.80	893.6	Tailings	SM	100	219.6	0.46						0.90	197.7
VT-2	SPT-06, INC-01	CPTU-2005-02	15.50	888.9	Tailings	ML	44	97.4	0.45			32	68.2	0.46	0.90	87.7
VT-2	SPT-06, INC-01	CPTU-2005-02	16.50	887.9	Tailings	ML	66	144.2	0.46	30	64.6	36	79.3	0.46	0.90	129.8
VT-3	SPT-04	CPTU-2005-04	7.80	919.1	Tailings	SM	83	182.0	0.46	30	64.6	34	74.0	0.46	0.90	163.8
VT-3	SPT-04	CPTU-2005-04	12.00	914.9	Tailings	SM	72	152.6	Te			9	16.9	0.53	0.90	137.3
VT-3	SPT-04	CPTU-2005-04	16.80	910.1	Tailings	SM	24	51.9	0.46			11	24.9	0.46	0.90	46.7
VT-4	SPT-18	CPTU-2005-05	3.00	923.3	Tailings	SM	15	33.4	0.46	15	32.3	10	22.3	0.46	0.90	30.1
VT-4	SPT-18	CPTU-2005-05	5.00	921.3	Tailings	ML	21	45.9	0.46	20	43.1	10	21.0	0.46	0.90	41.3
VT-4	SPT-18	CPTU-2005-05	10.00	916.3	Tailings	ML	17	36.5	0.46	15	32.3	6	13.7	0.46	0.90	32.9
VT-4	SPT-18	CPTU-2005-05	15.00	911.3	Tailings	ML	46	100.8	0.46			35	76.6	0.46	0.90	90.7
VT-5	SPT-15	CPTU-2005-06	3.70	922.5	Tailings	SM	5	11.2	0.46	4	8.6	1	1.9	0.46	0.90	10.1
VT-5	SPT-15	CPTU-2005-06	8.70	917.5	Tailings	SM	41	89.2	0.46			34	74.2	0.46	0.90	80.3
VT-5	SPT-15	CPTU-2005-06	11.50	914.7	Tailings	ML	74	161.6	0.46			48	104.6	0.46	0.90	145.4
VT-5	SPT-15	CPTU-2005-06	13.60	912.6	Tailings	ML	37	81.5	0.46	15	32.3	31	67.7	0.46	0.90	73.3
VT-16-11	INA-16-4	CPTU-16-8	7.00	891.8	Tailings	SM	15	31.6	0.48	6	11.8	11	17.5	0.62	0.90	28.4
VT-16-11	INA-16-4	CPTU-16-8	7.50	891.3	Tailings	SM	16	31.1	0.52	6	11.8	11	21.8	0.52	0.90	28.0
VT-16-11	INA-16-4	CPTU-16-8	16.00	882.8	Tailings	SM	49	104.7	0.47			19	37.7	0.51	0.90	94.2
VT-16-11	INA-16-4	CPTU-16-8	22.50	876.3	Tailings	ML	23	49.1	0.46	6	12.9	17	36.4	0.46	0.90	44.2
VT-16-11	INA-16-4	CPTU-16-8	25.00	873.8	Tailings	ML	43	95.2	0.45			17	34.0	0.50	0.90	85.7
VT-16-11	INA-16-4	CPTU-16-8	28.00	870.8	Foundation Soils	CL	69	148.8							0.90	134.0
VT-16-12	INA-16-2	CPTU-16-9	9.00	896.1	Tailings	SM	61	129.0	0.47	20	43.1	22	37.3	0.58	0.90	116.1
VT-16-12	INA-16-2	CPTU-16-9	12.00	893.1	Tailings	ML	53	114.0	0.46	19	40.9	42	89.8	0.47	0.90	102.6
VT-16-12	INA-16-2	CPTU-16-9	20.00	885.1	Tailings	SM	47	97.9	0.48	31	66.8	22	38.6	0.58	0.90	88.1
VT-16-12	INA-16-2	CPTU-16-9	26.00	879.1	Tailings	SM	59	126.3	0.47	31	66.8	22	40.5	0.53	0.90	113.6
VT-16-13	B1-SM-07	CPTU-16-10	7.00	892.0	Tailings	SM	34	74.9	0.46	28	60.3	30	62.6	0.48	0.90	67.4
VT-16-13	B1-SM-07	CPTU-16-10	22.00	877.0	Tailings	ML	46	94.5	0.48	30	64.6	17	33.2	0.50	0.90	85.1
VT-16-13	B1-SM-07	CPTU-16-10	30.00	869.0	Tailings	ML	49	100.2	0.49	34	73.2	23	45.0	0.52	0.90	90.1
VT-6	SPT-7	CPTU-2005-03	2.7	896.1	Tailings	SM	3.3	7.23	0.46	2.82	6.1	1	1.49	0.46	0.90	6.5
VT-6	SPT-7	CPTU-2005-03	8.7	890.1	Tailings	SM	14.24	31.19	0.46			5	10.82	0.46	0.90	28.1
VT-6	SPT-7	CPTU-2005-03	12	886.8	Tailings	SM	82.6	180.89	0.46	16.41	35.3	15	32.98	0.46	0.90	162.8

Table 4-3. Summary of In Situ Undrained Shear Strength from Field Vane Tests

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I
Appendix B - Historical Geotechnical Data

Vane ID	Relevant Borehole	Relevant CPT	Test Depth (m)	Test Elevation, msl (m)	Unit[1, 2]	Soil Type[2, 3]	Uncorrected Peak Undrained Shear Strength, s_u			Uncorrected Residual Undrained Shear Strength[4], $s_{u,res}$		Uncorrected Remolded Undrained Shear Strength[5], $s_{u,rem}$			Correction Factor, μ	Corrected Peak Undrained Shear Strength, s_u (kPa)
							Torque, τ (Nm)	s_u (kPa)	τ/s_u	Torque (Nm)	$s_{u,res}$ (kPa)	Torque (Nm)	$s_{u,rem}$ (kPa)	$\tau/s_{u,rem}$		

Notes:

[1] Not enough information was available for the test data of tailings to distinguish if the tests were on coarse or fine tailings, or slimes.

[2] Based on estimates from the nearest dilatometer test CPT location.

[3] Soil type per ASTM D2487. SM = Silty sand to silty sand with gravel; ML = Silt to silt with sand/gravel, sandy silt to sandy silt with gravel, gravelly silt to gravely silt with sand; CL = Lean clay to lean clay with sand/gravel, sandy lean clay to sandy lean clay with gravel, gravely lean clay to gravely lean clay with sand.

[4] Residual undrained shear strength is the constant strength measured after a rotation of 180° or larger.

[5] Remolded undrained shear strength is the strength measured after the vane is rotated a minimum of 10 times at a rate larger than 360°/min.

Table 4-4. Summary of In Situ Shear Wave Velocity Measurements from Dilatometer Tests

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I
Appendix B - Historical Geotechnical Data

Exploration ID	Test Depth (m)	Test Elevation, msl (m)	Unit[1, 2]	Soil Type[2, 3]	Shear Wave Velocity, V_s (m/s)	Small Strain Shear Modulus, G_0 (MPa)	Soil Density, ρ (kg/m^3)
SMT-03	0.5	938.1	Tailings	SM	44	3	1,756
SMT-03	1.0	937.6	Tailings	SM	73	9	1,726
SMT-03	1.5	937.1	Tailings	SM	109	21	1,734
SMT-03	2.0	936.6	Tailings	ML	128	28	1,733
SMT-03	2.5	936.1	Tailings	ML	104	19	1,729
SMT-03	3.0	935.6	Tailings	ML	129	29	1,731
SMT-03	3.5	935.1	Tailings	ML	203	71	1,733
SMT-03	4.0	934.6	Tailings	SM	254	112	1,733
SMT-03	4.5	934.1	Tailings	SM	209	76	1,733
SMT-03	5.0	933.6	Tailings	SM	197	67	1,734
SMT-03	5.5	933.1	Tailings	SM	193	65	1,732
SMT-03	6.0	932.6	Tailings	SM	194	65	1,732
SMT-03	6.5	932.1	Tailings	SM	204	72	1,733
SMT-03	7.0	931.6	Tailings	SM	184	59	1,734
SMT-03	7.5	931.1	Tailings	SM	183	58	1,732
SMT-03	8.0	930.6	Tailings	SM	180	56	1,731
SMT-03	8.5	930.1	Tailings	SM	170	50	1,734
SMT-03	9.0	929.6	Tailings	SM	175	53	1,734
SMT-03	9.5	929.1	Tailings	SM	170	50	1,734
SMT-03	10.0	928.6	Tailings	SM	178	55	1,733
SMT-03	10.5	928.1	Tailings	SM	197	67	1,734
SMT-03	11.0	927.6	Tailings	SM	207	74	1,734
SMT-03	11.5	927.1	Tailings	SM	195	66	1,733
SMT-03	12.0	926.6	Tailings	ML	201	70	1,733
SMT-03	12.5	926.1	Tailings	ML	231	93	1,733
SMT-03	13.0	925.6	Tailings	ML	223	86	1,733

Table 4-4. Summary of In Situ Shear Wave Velocity Measurements from Dilatometer Tests

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I
Appendix B - Historical Geotechnical Data

Exploration ID	Test Depth (m)	Test Elevation, msl (m)	Unit[1, 2]	Soil Type[2, 3]	Shear Wave Velocity, V_s (m/s)	Small Strain Shear Modulus, G_0 (MPa)	Soil Density, ρ (kg/m^3)
SMT-03	13.5	925.1	Tailings	ML	230	92	1,733
SMT-03	14.0	924.6	Tailings	ML	242	102	1,733
SMT-03	14.5	924.1	Tailings	ML	239	99	1,733
SMT-03	15.0	923.6	Tailings	ML	253	111	1,733
SMT-03	15.5	923.1	Tailings	SM	193	65	1,732
SMT-03	16.0	922.6	Tailings	SM	261	118	1,732
SMT-03	16.5	922.1	Tailings	ML	259	116	1,732
SMT-03	17.0	921.6	Tailings	ML	219	83	1,733
SMT-03	17.5	921.1	Tailings	ML	268	125	1,733
SMT-03	18.0	920.6	Tailings	ML	245	104	1,733
SMT-03	18.5	920.1	Tailings	ML	275	131	1,734
SMT-03	19.0	919.6	Tailings	ML	232	93	1,733
SMT-03	19.5	919.1	Tailings	SM	249	107	1,732
SMT-03	20.0	918.6	Tailings	SM	253	111	1,733
SMT-03	20.5	918.1	Tailings	SM	256	114	1,733
SMT-03	21.0	917.6	Tailings	SM	232	93	1,733
SMT-03	21.5	917.1	Tailings	SM	227	89	1,733
SMT-03	22.0	916.6	Tailings	ML	252	110	1,732
SMT-03	22.5	916.1	Tailings	ML	284	140	1,733
SMT-03	23.0	915.6	Tailings	ML	248	107	1,733
SMT-03	23.5	915.1	Tailings	ML	255	113	1,733
SMT-03	24.0	914.6	Tailings	ML	270	126	1,733
SMT-03	24.5	914.1	Tailings	SM	250	108	1,733
SMT-03	25.0	913.6	Tailings	SM	276	132	1,733
SMT-03	25.5	913.1	Tailings	SM	275	131	1,734
SMT-03	26.0	912.6	Tailings	SM	276	132	1,733

Table 4-4. Summary of In Situ Shear Wave Velocity Measurements from Dilatometer Tests

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I
Appendix B - Historical Geotechnical Data

Exploration ID	Test Depth (m)	Test Elevation, msl (m)	Unit[1, 2]	Soil Type[2, 3]	Shear Wave Velocity, V_s (m/s)	Small Strain Shear Modulus, G_0 (MPa)	Soil Density, ρ (kg/m^3)
SMT-03	26.5	912.1	Tailings	SM	264	121	1,733
SMT-03	27.0	911.6	Tailings	SM	263	120	1,733
SMT-03	27.5	911.1	Tailings	ML	311	168	1,733
SMT-03	28.0	910.6	Tailings	ML	256	114	1,733
SMT-03	28.5	910.1	Tailings	ML	274	130	1,733
SMT-03	29.0	909.6	Tailings	ML	263	120	1,733
SMT-03	29.5	909.1	Tailings	ML	294	150	1,733
SMT-03	30.0	908.6	Tailings	ML	306	162	1,733
SMT-03	30.5	908.1	Tailings	SM	229	91	1,733
SMT-03	31.0	907.6	Tailings	SM	295	151	1,733
SMT-03	31.5	907.1	Tailings	SM	284	140	1,733
SMT-03	32.0	906.6	Tailings	SM	274	130	1,733
SMT-03	32.5	906.1	Tailings	SM	271	127	1,733
SMT-03	33.0	905.6	Tailings	SM	283	139	1,733
SMT-03	33.5	905.1	Tailings	SM	266	123	1,733
SMT-03	34.0	904.6	Tailings	SM	279	135	1,733
SMT-03	34.5	904.1	Tailings	ML	284	140	1,733
SMT-03	35.0	903.6	Tailings	ML	262	119	1,734
SMT-03	35.5	903.1	Tailings	ML	286	142	1,732
SMT-03	36.0	902.6	Tailings	SM	286	142	1,732
SMT-04	0.5	897.9	Tailings	SM	56	5	1,722
SMT-04	1.0	897.4	Tailings	SM	96	16	1,736
SMT-04	1.5	896.9	Tailings	SM	110	21	1,736
SMT-04	2.0	896.4	Tailings	SM	118	24	1,731
SMT-04	2.5	895.9	Tailings	SM	130	29	1,734
SMT-04	3.0	895.4	Tailings	SM	118	24	1,731

Table 4-4. Summary of In Situ Shear Wave Velocity Measurements from Dilatometer Tests

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I
Appendix B - Historical Geotechnical Data

Exploration ID	Test Depth (m)	Test Elevation, msl (m)	Unit[1, 2]	Soil Type[2, 3]	Shear Wave Velocity, V_s (m/s)	Small Strain Shear Modulus, G_0 (MPa)	Soil Density, ρ (kg/m^3)
SMT-04	3.5	894.9	Tailings	SM	134	31	1,732
SMT-04	4.0	894.4	Tailings	SM	154	41	1,733
SMT-04	4.5	893.9	Tailings	SM	179	56	1,732
SMT-04	5.0	893.4	Tailings	SM	172	51	1,734
SMT-04	5.5	892.9	Tailings	SM	177	54	1,733
SMT-04	6.0	892.4	Tailings	SM	183	58	1,732
SMT-04	6.5	891.9	Tailings	SM	191	63	1,732
SMT-04	7.0	891.4	Tailings	SM	198	68	1,732
SMT-04	7.5	890.9	Tailings	SM	216	81	1,734
SMT-04	8.0	890.4	Tailings	SM	219	83	1,733
SMT-04	8.5	889.9	Tailings	SM	221	85	1,732
SMT-04	9.0	889.4	Tailings	SM	242	102	1,733
SMT-04	9.5	888.9	Tailings	SM	218	82	1,734
SMT-04	10.0	888.4	Tailings	SM	214	79	1,734
SMT-04	10.5	887.9	Tailings	SM	222	85	1,733
SMT-04	11.0	887.4	Tailings	SM	278	134	1,733
SMT-04	11.5	886.9	Tailings	SM	219	83	1,733
SMT-04	12.0	886.4	Tailings	SM	256	114	1,733
SMT-04	12.5	885.9	Tailings	SM	238	98	1,734
SMT-04	13.0	885.4	Tailings	SM	252	110	1,732
SMT-04	13.5	884.9	Tailings	SM	253	111	1,733
SMT-04	14.0	884.4	Tailings	SM	232	93	1,733
SMT-04	14.5	883.9	Tailings	SM	269	125	1,733
SMT-04	15.0	883.4	Tailings	SM	266	123	1,733
SMT-04	15.5	882.9	Tailings	SM	256	114	1,733
SMT-04	16.0	882.4	Tailings	SM	262	119	1,734

Table 4-4. Summary of In Situ Shear Wave Velocity Measurements from Dilatometer Tests

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I
Appendix B - Historical Geotechnical Data

Exploration ID	Test Depth (m)	Test Elevation, msl (m)	Unit[1, 2]	Soil Type[2, 3]	Shear Wave Velocity, V_s (m/s)	Small Strain Shear Modulus, G_0 (MPa)	Soil Density, ρ (kg/m^3)
SMT-04	16.5	881.9	Tailings	SM	249	107	1,732
SMT-04	17.0	881.4	Tailings	SM	284	140	1,733
SMT-04	17.5	880.9	Tailings	SM	249	107	1,732
SMT-04	18.0	880.4	Tailings	SM	265	122	1,733
SMT-04	18.5	879.9	Tailings	SM	296	152	1,733
SMT-04	19.0	879.4	Tailings	SM	258	115	1,734
SMT-04	19.5	878.9	Tailings	SM	257	115	1,734
SMT-04	20.0	878.4	Tailings	SM	274	130	1,733
SMT-04	20.5	877.9	Tailings	SM	243	102	1,732
SMT-04	21.0	877.4	Tailings	SM	282	138	1,733
SMT-04	21.5	876.9	Tailings	SM	279	135	1,733
SMT-04	22.0	876.4	Tailings	SM	292	148	1,733
SMT-04	22.5	875.9	Tailings	SM	257	115	1,734
SMT-04	23.0	875.4	Tailings	SM	288	144	1,732
SMT-04	23.5	874.9	Tailings	SM	270	126	1,733
SMT-04	24.0	874.4	Tailings	ML	292	148	1,733
SMT-04	24.5	873.9	Tailings	ML	287	143	1,732
SMT-04	25.0	873.4	Tailings	ML	308	164	1,733
SMT-04	25.5	872.9	Tailings	ML	316	173	1,732
SMT-04	26.0	872.4	Tailings	ML	284	140	1,733
SMT-04	26.5	871.9	Tailings	ML	334	193	1,733
SMT-04	27.0	871.4	Tailings	ML	315	172	1,732
SMT-04	27.5	870.9	Tailings	ML	343	204	1,733
SMT-04	28.0	870.4	Tailings	ML	337	197	1,733
SMT-04	28.5	869.9	Tailings	ML	316	173	1,732
SMT-04	29.0	869.4	Tailings	ML	319	176	1,732

Table 4-4. Summary of In Situ Shear Wave Velocity Measurements from Dilatometer Tests

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I
Appendix B - Historical Geotechnical Data

Exploration ID	Test Depth (m)	Test Elevation, msl (m)	Unit[1, 2]	Soil Type[2, 3]	Shear Wave Velocity, V_s (m/s)	Small Strain Shear Modulus, G_0 (MPa)	Soil Density, ρ (kg/m^3)
SMT-04	29.5	868.9	Tailings	ML	309	166	1,733
SMT-04	30.0	868.4	Tailings	ML	311	168	1,733
SMT-04	30.5	867.9	Tailings	ML	311	168	1,733
SMT-04	31.0	867.4	Tailings	ML	307	163	1,733
SMT-04	31.5	866.9	Tailings	SM	324	182	1,733
SMT-04	32.0	866.4	Tailings	SM	320	178	1,733
SMT-04	32.5	865.9	Tailings	SM	316	173	1,732
SMT-04	33.0	865.4	Tailings	SM	325	183	1,733
SMT-04	33.5	864.9	Tailings	SM	319	176	1,732
SMT-04	34.0	864.4	Tailings	SM	329	188	1,733
SMT-04	34.5	863.9	Tailings	SM	325	183	1,733
SMT-04	35.0	863.4			336	196	1,733
SMT-05	0.5	921.5	Embankment	SP	95	16	1,729
SMT-05	1.0	921.0	Embankment	SP	139	34	1,734
SMT-05	1.5	920.5	Embankment	SP	208	75	1,734
SMT-05	2.0	920.0	Embankment	SP	244	103	1,733
SMT-05	2.5	919.5	Embankment	SP	205	73	1,732
SMT-05	3.0	919.0	Embankment	SP	205	73	1,732
SMT-05	3.5	918.5	Embankment	SP	251	109	1,733
SMT-05	4.0	918.0	Embankment	SP	255	113	1,733
SMT-05	4.5	917.5	Embankment	SP	248	107	1,733
SMT-05	5.0	917.0	Embankment	SP	273	129	1,734
SMT-05	5.5	916.5	Embankment	SP	288	144	1,732
SMT-05	6.0	916.0	Embankment	SP	271	127	1,733
SMT-05	6.5	915.5	Embankment	SP	274	130	1,733
SMT-05	7.0	915.0	Embankment	SP	267	124	1,732

Table 4-4. Summary of In Situ Shear Wave Velocity Measurements from Dilatometer Tests

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I
Appendix B - Historical Geotechnical Data

Exploration ID	Test Depth (m)	Test Elevation, msl (m)	Unit[1, 2]	Soil Type[2, 3]	Shear Wave Velocity, V_s (m/s)	Small Strain Shear Modulus, G_0 (MPa)	Soil Density, ρ (kg/m^3)
SMT-05	7.5	914.5	Tailings	SM	286	142	1,732
SMT-05	8.0	914.0	Tailings	SM	261	118	1,732
SMT-05	8.5	913.5	Tailings	SM	215	80	1,733
SMT-05	9.0	913.0	Tailings	SM	245	104	1,733
SMT-05	9.5	912.5	Tailings	SM	236	97	1,733
SMT-05	10.0	912.0	Tailings	SM	213	79	1,732
SMT-05	10.5	911.5	Tailings	SM	208	75	1,734
SMT-05	11.0	911.0	Tailings	SM	222	85	1,733
SMT-05	11.5	910.5	Tailings	SM	192	64	1,733
SMT-05	12.0	910.0	Tailings	SM	177	54	1,733
SMT-05	12.5	909.5	Tailings	ML	270	126	1,733
SMT-05	13.0	909.0	Tailings	SM	250	108	1,733
SMT-05	13.5	908.5	Tailings	SM	344	205	1,733
SMT-05	14.0	908.0	Tailings	SM	307	163	1,733
SMT-05	14.5	907.5	Tailings	SM	373	241	1,733
SMT-05	15.0	907.0	Tailings	SM	287	143	1,732
SMT-05	15.5	906.5	Tailings	SM	221	85	1,732
SMT-05	16.0	906.0	Tailings	SM	263	120	1,733
SMT-05	16.5	905.5	Tailings	SM	240	100	1,733
SMT-05	17.0	905.0	Tailings	SM	245	104	1,733
SMT-05	17.5	904.5	Tailings	SM	247	106	1,733
SMT-05	18.0	904.0	Tailings	SM	244	103	1,733
SMT-05	18.5	903.5	Tailings	SM	285	141	1,733
SMT-05	19.0	903.0	Tailings	SM	251	109	1,733
SMT-05	19.5	902.5	Tailings	SM	291	147	1,732
SMT-05	20.0	902.0	Tailings	SM	306	162	1,733

Table 4-4. Summary of In Situ Shear Wave Velocity Measurements from Dilatometer Tests

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I
Appendix B - Historical Geotechnical Data

Exploration ID	Test Depth (m)	Test Elevation, msl (m)	Unit[1, 2]	Soil Type[2, 3]	Shear Wave Velocity, V_s (m/s)	Small Strain Shear Modulus, G_0 (MPa)	Soil Density, ρ (kg/m^3)
SMT-05	20.5	901.5			284	140	1,733
SMT-05	21.0	901.0			318	175	1,733
SMT-05	21.5	900.5			274	130	1,733
SMT-05	22.0	900.0			268	125	1,733
SMT-05	22.5	899.5			274	130	1,733
SMT-05	23.0	899.0			270	126	1,733
SMT-05	23.5	898.5			281	137	1,733
SMT-05	24.0	898.0			317	174	1,733
SMT-05	24.5	897.5			258	115	1,734
SMT-05	25.0	897.0			295	151	1,733
SMT-05	25.5	896.5			279	135	1,733
SMT-05	26.0	896.0			288	144	1,732
SMT-05	26.5	895.5			278	134	1,733
SMT-05	27.0	895.0			296	152	1,733
SMT-05	27.5	894.5			310	167	1,733
SMT-05	28.0	894.0			297	153	1,733
SMT-05	28.5	893.5			296	152	1,733
SMT-05	29.0	893.0			290	146	1,732
SMT-05	29.5	892.5			291	147	1,732
SMT-05	30.0	892.0			288	144	1,732
SMT-07	0.5	898.1	Tailings	SM	66	8	1,722
SMT-07	1.0	897.6	Tailings	SM	105	19	1,732
SMT-07	1.5	897.1	Tailings	SM	138	33	1,733
SMT-07	2.0	896.6	Tailings	SM	152	40	1,731
SMT-07	2.5	896.1	Tailings	SM	161	45	1,732
SMT-07	3.0	895.6	Tailings	SM	180	56	1,731

Table 4-4. Summary of In Situ Shear Wave Velocity Measurements from Dilatometer Tests

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I
Appendix B - Historical Geotechnical Data

Exploration ID	Test Depth (m)	Test Elevation, msl (m)	Unit[1, 2]	Soil Type[2, 3]	Shear Wave Velocity, V_s (m/s)	Small Strain Shear Modulus, G_0 (MPa)	Soil Density, ρ (kg/m^3)
SMT-07	3.5	895.1	Tailings	SM	200	69	1,733
SMT-07	4.0	894.6	Tailings	SM	196	67	1,734
SMT-07	4.5	894.1	Tailings	SM	221	85	1,732
SMT-07	5.0	893.6	Tailings	SM	203	71	1,733
SMT-07	5.5	893.1	Tailings	SM	205	73	1,732
SMT-07	6.0	892.6	Tailings	SM	161	45	1,732
SMT-07	6.5	892.1	Tailings	SM	181	57	1,734
SMT-07	7.0	891.6	Tailings	SM	220	84	1,733
SMT-07	7.5	891.1	Tailings	SM	215	80	1,733
SMT-07	8.0	890.6	Tailings	SM	242	102	1,733
SMT-07	8.5	890.1	Tailings	SM	283	139	1,733
SMT-07	9.0	889.6	Tailings	SM	284	140	1,733
SMT-07	9.5	889.1	Tailings	SM	299	155	1,733
SMT-07	10.0	888.6	Tailings	SM	298	154	1,733
SMT-07	10.5	888.1	Tailings	SM	387	260	1,733
SMT-07	11.0	887.6	Tailings	SM	256	114	1,733
SMT-07	11.5	887.1	Tailings	SM	294	150	1,733
SMT-07	12.0	886.6	Tailings	SM	283	139	1,733
SMT-07	12.5	886.1	Tailings	SM	274	130	1,733
SMT-07	13.0	885.6	Tailings	SM	242	102	1,733
SMT-07	13.5	885.1	Tailings	SM	269	125	1,733
SMT-07	14.0	884.6	Tailings	SM	231	93	1,733
SMT-07	14.5	884.1	Tailings	SM	229	91	1,733
SMT-07	15.0	883.6	Tailings	SM	231	93	1,733
SMT-07	15.5	883.1	Tailings	SM	241	101	1,734
SMT-07	16.0	882.6	Tailings	SM	257	115	1,734

Table 4-4. Summary of In Situ Shear Wave Velocity Measurements from Dilatometer Tests

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I
Appendix B - Historical Geotechnical Data

Exploration ID	Test Depth (m)	Test Elevation, msl (m)	Unit[1, 2]	Soil Type[2, 3]	Shear Wave Velocity, V_s (m/s)	Small Strain Shear Modulus, G_0 (MPa)	Soil Density, ρ (kg/m^3)
SMT-07	16.5	882.1	Tailings	SM	279	135	1,733
SMT-07	17.0	881.6	Tailings	SM	245	104	1,733
SMT-07	17.5	881.1	Tailings	SM	256	114	1,733
SMT-07	18.0	880.6	Tailings	SM	242	102	1,733
SMT-07	18.5	880.1	Tailings	SM	253	111	1,733
SMT-07	19.0	879.6	Tailings	SM	270	126	1,733
SMT-07	19.5	879.1	Tailings	SM	244	103	1,733
SMT-07	20.0	878.6	Tailings	SM	263	120	1,733
SMT-07	20.5	878.1	Tailings	SM	253	111	1,733
SMT-07	21.0	877.6	Tailings	SM	274	130	1,733
SMT-07	21.5	877.1	Tailings	SM	303	159	1,733
SMT-07	22.0	876.6	Tailings	SM	287	143	1,732
SMT-07	22.5	876.1	Tailings	SM	273	129	1,734
SMT-07	23.0	875.6	Tailings	SM	301	157	1,733
SMT-07	23.5	875.1	Tailings	SM	248	107	1,733
SMT-07	24.0	874.6	Tailings	SM	285	141	1,733
SMT-07	24.5	874.1	Tailings	SM	252	110	1,732
SMT-07	25.0	873.6	Tailings	SM	263	120	1,733
SMT-07	25.5	873.1	Tailings	SM	259	116	1,732
SMT-07	26.0	872.6	Tailings	SM	324	182	1,733
SMT-07	26.5	872.1	Tailings	SM	283	139	1,733
SMT-07	27.0	871.6	Tailings	SM	304	160	1,733
SMT-07	27.5	871.1	Tailings	SM	311	168	1,733
SMT-07	28.0	870.6	Tailings	SM	272	128	1,733
SMT-07	28.5	870.1	Tailings	SM	284	140	1,733
SMT-07	29.0	869.6	Tailings	SM	302	158	1,732

Table 4-4. Summary of In Situ Shear Wave Velocity Measurements from Dilatometer Tests

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I
Appendix B - Historical Geotechnical Data

Exploration ID	Test Depth (m)	Test Elevation, msl (m)	Unit[1, 2]	Soil Type[2, 3]	Shear Wave Velocity, V_s (m/s)	Small Strain Shear Modulus, G_0 (MPa)	Soil Density, ρ (kg/m^3)
SMT-07	29.5	869.1	Tailings	SM	295	151	1,733
SMT-07	30.0	868.6	Tailings	SM	291	147	1,732
SMT-07	30.5	868.1	Tailings	SM	298	154	1,733
SMT-07	31.0	867.6	Tailings	SM	275	131	1,734
SMT-07	31.5	867.1	Tailings	SM	296	152	1,733
SMT-07	32.0	866.6	Tailings	SM	322	180	1,733
SMT-07	32.5	866.1	Tailings	SM	269	125	1,733
SMT-07	33.0	865.6	Tailings	SM	301	157	1,733
SMT-07	33.5	865.1	Tailings	SM	294	150	1,733
SMT-07	34.0	864.6	Tailings	SM	269	125	1,733
SMT-07	34.5	864.1	Tailings	SM	302	158	1,732
SMT-07	35.0	863.6	Tailings	SM	283	139	1,733
SMT-07	35.5	863.1	Tailings	SM	331	190	1,733
SMT-07	36.0	862.6			420	306	1,733
SMT-07	36.5	862.1			471	384	1,733
SMT-07	37.0	861.6			294	150	1,733
SMT-16-8	0.5	898.3	Tailings	SM	493	421	1,733
SMT-16-8	1.0	897.8	Tailings	SM	80	11	1,734
SMT-16-8	1.5	897.3	Tailings	SM	163	46	1,731
SMT-16-8	2.0	896.8	Tailings	SM	137	33	1,732
SMT-16-8	2.5	896.3	Tailings	SM	142	35	1,731
SMT-16-8	3.0	895.8	Tailings	SM	171	51	1,734
SMT-16-8	3.5	895.3	Tailings	SM	192	64	1,733
SMT-16-8	4.0	894.8	Tailings	SM	221	85	1,732
SMT-16-8	4.5	894.3	Tailings	SM	187	61	1,733
SMT-16-8	5.0	893.8	Tailings	SM	179	56	1,732

Table 4-4. Summary of In Situ Shear Wave Velocity Measurements from Dilatometer Tests

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I
Appendix B - Historical Geotechnical Data

Exploration ID	Test Depth (m)	Test Elevation, msl (m)	Unit[1, 2]	Soil Type[2, 3]	Shear Wave Velocity, V_s (m/s)	Small Strain Shear Modulus, G_0 (MPa)	Soil Density, ρ (kg/m^3)
SMT-16-8	5.5	893.3	Tailings	SM	148	38	1,735
SMT-16-8	6.0	892.8	Tailings	SM	163	46	1,731
SMT-16-8	6.5	892.3	Tailings	SM	187	61	1,733
SMT-16-8	7.0	891.8	Tailings	SM	187	61	1,733
SMT-16-8	7.5	891.3	Tailings	SM	204	72	1,733
SMT-16-8	8.0	890.8	Tailings	SM	352	215	1,733
SMT-16-8	8.5	890.3	Tailings	SM	760	1001	1,733
SMT-16-8	11.5	887.3	Tailings	SM	266	123	1,733
SMT-16-8	12.0	886.8	Tailings	SM	247	106	1,733
SMT-16-8	12.5	886.3	Tailings	SM	232	93	1,733
SMT-16-8	13.0	885.8	Tailings	SM	246	105	1,733
SMT-16-8	13.5	885.3	Tailings	SM	258	115	1,734
SMT-16-8	14.0	884.8	Tailings	SM	248	107	1,733
SMT-16-8	14.5	884.3	Tailings	SM	265	122	1,733
SMT-16-8	15.0	883.8	Tailings	SM	249	107	1,732
SMT-16-8	15.5	883.3	Tailings	SM	239	99	1,733
SMT-16-8	16.0	882.8	Tailings	SM	269	125	1,733
SMT-16-8	16.5	882.3	Tailings	SM	251	109	1,733
SMT-16-8	17.0	881.8	Tailings	SM	264	121	1,733
SMT-16-8	17.5	881.3	Tailings	SM	260	117	1,732
SMT-16-8	18.0	880.8	Tailings	SM	255	113	1,733
SMT-16-8	18.5	880.3	Tailings	SM	281	137	1,733
SMT-16-8	19.0	879.8	Tailings	SM	255	113	1,733
SMT-16-8	19.5	879.3	Tailings	SM	257	115	1,734
SMT-16-8	20.0	878.8	Tailings	SM	261	118	1,732
SMT-16-8	20.5	878.3	Tailings	SM	288	144	1,732

Table 4-4. Summary of In Situ Shear Wave Velocity Measurements from Dilatometer Tests

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I
Appendix B - Historical Geotechnical Data

Exploration ID	Test Depth (m)	Test Elevation, msl (m)	Unit[1, 2]	Soil Type[2, 3]	Shear Wave Velocity, V_s (m/s)	Small Strain Shear Modulus, G_0 (MPa)	Soil Density, ρ (kg/m^3)
SMT-16-8	21.0	877.8	Tailings	SM	274	130	1,733
SMT-16-8	21.5	877.3	Tailings	SM	266	123	1,733
SMT-16-8	22.0	876.8	Tailings	ML	276	132	1,733
SMT-16-8	22.5	876.3	Tailings	ML	257	115	1,734
SMT-16-8	23.0	875.8	Tailings	ML	338	198	1,733
SMT-16-8	23.5	875.3	Tailings	SM	236	97	1,733
SMT-16-8	24.0	874.8	Tailings	SM	365	231	1,733
SMT-16-8	24.5	874.3	Tailings	ML	278	134	1,733
SMT-16-8	25.0	873.8	Tailings	ML	292	148	1,733
SMT-16-8	25.5	873.3	Tailings	ML	336	196	1,733
SMT-16-8	26.0	872.8	Tailings	ML	285	141	1,733
SMT-16-8	26.5	872.3	Foundation Soils	CL	345	206	1,733
SMT-16-8	27.0	871.8	Foundation Soils	CL	343	204	1,733
SMT-16-8	27.5	871.3	Foundation Soils	CL	348	210	1,733
SMT-16-8	28.0	870.8	Foundation Soils	CL	311	168	1,733
SMT-16-8	28.5	870.3	Foundation Soils	CL	316	173	1,732
SMT-16-8	29.0	869.8	Foundation Soils	CL	317	174	1,733
SMT-16-8	29.5	869.3	Foundation Soils	CL	319	176	1,732
SMT-16-8	30.0	868.8	Foundation Soils	CL	318	175	1,733
SMT-16-8	30.5	868.3			319	176	1,732
SMT-16-8	31.0	867.8			319	176	1,732
B1-SDMT-03	1.0	935.0	Tailings	ML	54	4	1,469
B1-SDMT-03	2.0	934.0	Tailings	ML	70	7	1,515
B1-SDMT-03	3.0	933.0	Tailings	ML	59	5	1,424
B1-SDMT-03	4.0	932.0	Tailings	ML	61	5	1,415
B1-SDMT-03	5.0	931.0	Tailings	ML	60	5	1,393

Table 4-4. Summary of In Situ Shear Wave Velocity Measurements from Dilatometer Tests

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I
Appendix B - Historical Geotechnical Data

Exploration ID	Test Depth (m)	Test Elevation, msl (m)	Unit[1, 2]	Soil Type[2, 3]	Shear Wave Velocity, V_s (m/s)	Small Strain Shear Modulus, G_0 (MPa)	Soil Density, ρ (kg/m^3)
B1-SDMT-03	6.0	930.0	Tailings	ML	65	6	1,410
B1-SDMT-03	7.0	929.0	Tailings	ML	64	6	1,393
B1-SDMT-03	8.0	928.0	Tailings	ML	76	8	1,447
B1-SDMT-03	9.0	927.0	Tailings	ML	84	10	1,475
B1-SDMT-03	10.0	926.0	Tailings	ML	94	13	1,509
B1-SDMT-03	11.0	925.0	Tailings	ML	111	19	1,564
B1-SDMT-03	12.0	924.0	Tailings	ML	141	33	1,646
B1-SDMT-03	13.0	923.0	Tailings	ML	157	41	1,680
B1-SDMT-03	14.0	922.0	Tailings	ML	145	35	1,645
B1-SDMT-03	15.0	921.0	Tailings	ML	140	32	1,627
B1-SDMT-03	16.0	920.0	Tailings	ML	163	45	1,679
B1-SDMT-03	17.0	919.0	Tailings	ML	250	114	1,832
B1-SDMT-03	18.0	918.0	Tailings	ML	163	44	1,670
B1-SDMT-03	19.0	917.0	Tailings	ML	170	49	1,682
B1-SDMT-03	20.0	916.0	Tailings	ML	182	56	1,703
B1-SDMT-03	21.0	915.0	Tailings	ML	189	61	1,714
B1-SDMT-03	22.0	914.0	Tailings	ML	194	65	1,720
B1-SDMT-03	23.0	913.0	Tailings	ML	185	58	1,699
B1-SDMT-03	24.0	912.0	Tailings	ML	199	68	1,723
B1-SDMT-03	25.0	911.0	Tailings	ML	198	67	1,718
B1-SDMT-03	26.0	910.0	Tailings	ML	207	74	1,732
B1-SDMT-03	27.0	909.0	Tailings	ML	258	121	1,810
B1-SDMT-03	28.0	908.0	Tailings	ML	257	119	1,806
B1-SDMT-04	1.0	934.9	Tailings	ML	58	5	1,496
B1-SDMT-04	2.0	933.9	Tailings	ML	64	6	1,482
B1-SDMT-04	3.0	932.9	Tailings	ML	57	5	1,411

Table 4-4. Summary of In Situ Shear Wave Velocity Measurements from Dilatometer Tests

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I
Appendix B - Historical Geotechnical Data

Exploration ID	Test Depth (m)	Test Elevation, msl (m)	Unit[1, 2]	Soil Type[2, 3]	Shear Wave Velocity, V_s (m/s)	Small Strain Shear Modulus, G_0 (MPa)	Soil Density, ρ (kg/m^3)
B1-SDMT-04	4.0	931.9	Tailings	ML	68	7	1,455
B1-SDMT-04	5.0	930.9	Tailings	ML	68	7	1,439
B1-SDMT-04	6.0	929.9	Tailings	ML	80	10	1,486
B1-SDMT-04	7.0	928.9	Tailings	ML	82	10	1,484
B1-SDMT-04	8.0	927.9	Tailings	ML	95	14	1,529
B1-SDMT-04	9.0	926.9	Tailings	ML	105	17	1,558
B1-SDMT-04	10.0	925.9	Tailings	ML	124	25	1,611
B1-SDMT-04	11.0	924.9	Tailings	ML	134	29	1,633
B1-SDMT-04	12.0	923.9	Tailings	ML	125	25	1,601
B1-SDMT-04	13.0	922.9	Tailings	ML	139	32	1,635
B1-SDMT-04	14.0	921.9	Tailings	ML	172	51	1,708
B1-SDMT-04	15.0	920.9	Tailings	ML	185	59	1,730
B1-SDMT-04	16.0	919.9	Tailings	ML	177	54	1,709
B1-SDMT-04	17.0	918.9	Tailings	ML	184	58	1,719
B1-SDMT-04	18.0	917.9	Tailings	ML	177	53	1,701
B1-SDMT-04	19.0	916.9	Tailings	ML	225	90	1,785
B1-SDMT-04	20.0	915.9	Tailings	ML	232	96	1,793
B1-SDMT-04	21.0	914.9	Tailings	ML	229	94	1,784
B1-SDMT-04	22.0	913.9	Tailings	ML	302	172	1,883
B1-SDMT-04	23.0	912.9	Tailings	ML	268	132	1,836
B1-SDMT-04	24.0	911.9	Tailings	ML	232	96	1,780
B1-SDMT-04	25.0	910.9	Tailings	ML	245	108	1,797
B1-SDMT-04	26.0	909.9	Tailings	ML	251	114	1,803
B1-SDMT-04	27.0	908.9	Tailings	ML	279	143	1,839
B1-SDMT-04	28.0	907.9	Tailings	ML	259	121	1,809
B1-SDMT-04	29.0	906.9	Tailings	ML	287	152	1,845

Table 4-4. Summary of In Situ Shear Wave Velocity Measurements from Dilatometer Tests

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I
Appendix B - Historical Geotechnical Data

Exploration ID	Test Depth (m)	Test Elevation, msl (m)	Unit[1, 2]	Soil Type[2, 3]	Shear Wave Velocity, V_s (m/s)	Small Strain Shear Modulus, G_0 (MPa)	Soil Density, ρ (kg/m^3)
B1-SDMT-04	30.0	905.9	Tailings	ML	253	115	1,796
B1-SDMT-04	31.0	904.9	Tailings	ML	249	111	1,787
B1-SDMT-04	32.0	903.9	Tailings	ML	286	150	1,836
B1-SDMT-04	33.0	902.9	Tailings	ML	242	104	1,773
B1-SDMT-04	34.0	901.9	Tailings	ML	253	114	1,787
B1-SDMT-04	35.0	900.9	Tailings	ML	248	109	1,777
B1-SDMT-04	36.0	899.9	Tailings	ML	224	87	1,738
B1-SDMT-04	37.0	898.9	Tailings	ML	318	189	1,865
B1-SDMT-04	38.0	897.9	Tailings	ML	299	165	1,840
B1-SDMT-02	1.0	937.3	Tailings	ML	95	15	1,677
B1-SDMT-02	2.0	936.3	Tailings	ML	129	29	1,741
B1-SDMT-02	3.0	935.3	Tailings	ML	124	26	1,697
B1-SDMT-02	4.0	934.3	Tailings	ML	207	80	1,865
B1-SDMT-02	5.0	933.3	Tailings	ML	180	58	1,798
B1-SDMT-02	6.0	932.3	Tailings	ML	193	67	1,811
B1-SDMT-02	7.0	931.3	Tailings	ML	212	82	1,834
B1-SDMT-02	8.0	930.3	Tailings	ML	207	78	1,816
B1-SDMT-02	9.0	929.3	Tailings	ML	209	79	1,811
B1-SDMT-02	10.0	928.3	Tailings	ML	237	104	1,850
B1-SDMT-02	11.0	927.3	Tailings	ML	210	79	1,799
B1-SDMT-02	12.0	926.3	Tailings	ML	221	88	1,811
B1-SDMT-02	13.0	925.3	Tailings	ML	251	117	1,852
B1-SDMT-02	14.0	924.3	Tailings	ML	269	136	1,873
B1-SDMT-02	15.0	923.3	Tailings	ML	247	112	1,836
B1-SDMT-02	16.0	922.3	Tailings	SM	248	113	1,833
B1-SDMT-02	17.0	921.3	Tailings	SM	244	109	1,823

Table 4-4. Summary of In Situ Shear Wave Velocity Measurements from Dilatometer Tests

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I
Appendix B - Historical Geotechnical Data

Exploration ID	Test Depth (m)	Test Elevation, msl (m)	Unit[1, 2]	Soil Type[2, 3]	Shear Wave Velocity, V_s (m/s)	Small Strain Shear Modulus, G_0 (MPa)	Soil Density, ρ (kg/m^3)
B1-SDMT-02	18.0	920.3	Tailings	ML	259	123	1,841
B1-SDMT-02	19.0	919.3	Tailings	ML	311	184	1,904
B1-SDMT-02	20.0	918.3	Tailings	SM	268	133	1,846
B1-SDMT-02	21.0	917.3	Tailings	ML	271	136	1,846
B1-SDMT-02	22.0	916.3	Tailings	ML	296	164	1,876
B1-SDMT-02	23.0	915.3	Tailings	ML	267	131	1,834
B1-SDMT-02	24.0	914.3	Tailings	SM	284	150	1,854
B1-SDMT-02	25.0	913.3	Tailings	SM	269	133	1,831
B1-SDMT-02	26.0	912.3	Tailings	SM	297	165	1,865
B1-SDMT-02	27.0	911.3	Tailings	ML	278	142	1,838
B1-SDMT-02	28.0	910.3	Tailings	ML	288	153	1,848
B1-SDMT-02	29.0	909.3	Tailings	ML	270	133	1,822
B1-SDMT-02	30.0	908.3	Tailings	ML	292	158	1,849
B1-SDMT-02	31.0	907.3	Tailings	ML	243	105	1,779
B1-SDMT-02	32.0	906.3	Tailings	SM	286	150	1,836
B1-SDMT-02	33.0	905.3	Tailings	SM	267	129	1,809
B1-SDMT-02	34.0	904.3	Tailings	SM	310	179	1,862
B1-SDMT-02	35.0	903.3	Tailings	ML	309	177	1,858
B1-SDMT-02	36.0	902.3	Tailings	SM	282	145	1,823
B1-SDMT-02	37.0	901.3	Tailings	SM	277	139	1,814
B1-SDMT-02	38.0	900.3	Tailings	SM	293	157	1,833
B1-SDMT-02	39.0	899.3	Tailings	SM	301	167	1,841
B1-SDMT-02	40.0	898.3	Tailings	SM	299	164	1,837
B1-SDMT-02	41.0	897.3	Tailings	SM	302	168	1,839
B1-SDMT-01	1.0	937.5	Tailings	ML	124	27	1,775
B1-SDMT-01	2.0	936.5	Tailings	ML	160	47	1,820

Table 4-4. Summary of In Situ Shear Wave Velocity Measurements from Dilatometer Tests

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I
Appendix B - Historical Geotechnical Data

Exploration ID	Test Depth (m)	Test Elevation, msl (m)	Unit[1, 2]	Soil Type[2, 3]	Shear Wave Velocity, V_s (m/s)	Small Strain Shear Modulus, G_0 (MPa)	Soil Density, ρ (kg/m^3)
B1-SDMT-01	3.0	935.5	Tailings	ML	150	40	1,767
B1-SDMT-01	4.0	934.5	Tailings	ML	167	50	1,786
B1-SDMT-01	5.0	933.5	Tailings	ML	190	66	1,818
B1-SDMT-01	6.0	932.5	Tailings	ML	181	59	1,787
B1-SDMT-01	7.0	931.5	Tailings	ML	170	51	1,753
B1-SDMT-01	8.0	930.5	Tailings	SM	167	48	1,737
B1-SDMT-01	9.0	929.5	Tailings	SM	204	75	1,802
B1-SDMT-01	10.0	928.5	Tailings	ML	185	60	1,759
B1-SDMT-01	11.0	927.5	Tailings	ML	183	59	1,748
B1-SDMT-01	12.0	926.5	Tailings	ML	217	85	1,804
B1-SDMT-01	13.0	925.5	Tailings	ML	222	89	1,807
B1-SDMT-01	14.0	924.5	Tailings	ML	240	105	1,831
B1-SDMT-01	15.0	923.5	Tailings	SM	219	86	1,792
B1-SDMT-01	16.0	922.5	Tailings	SM	251	116	1,838
B1-SDMT-01	17.0	921.5	Tailings	ML	245	110	1,824
B1-SDMT-01	18.0	920.5	Tailings	ML	252	116	1,831
B1-SDMT-01	19.0	919.5	Tailings	SM	235	99	1,801
B1-SDMT-01	20.0	918.5	Tailings	SM	261	125	1,836
B1-SDMT-01	21.0	917.5	Tailings	SM	272	137	1,848
B1-SDMT-01	22.0	916.5	Tailings	ML	316	190	1,900
B1-SDMT-01	23.0	915.5	Tailings	SM	247	110	1,806
B1-SDMT-01	24.0	914.5	Tailings	SM	304	174	1,879
B1-SDMT-01	25.0	913.5	Tailings	SM	278	142	1,843
B1-SDMT-01	26.0	912.5	Tailings	SM	302	171	1,871
B1-SDMT-01	27.0	911.5	Tailings	SM	290	156	1,853
B1-SDMT-01	28.0	910.5	Tailings	SM	269	132	1,823
B1-SDMT-01	29.0	909.5	Tailings	SM	241	103	1,780

Table 4-4. Summary of In Situ Shear Wave Velocity Measurements from Dilatometer Tests

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I
Appendix B - Historical Geotechnical Data

Exploration ID	Test Depth (m)	Test Elevation, msl (m)	Unit[1, 2]	Soil Type[2, 3]	Shear Wave Velocity, V_s (m/s)	Small Strain Shear Modulus, G_0 (MPa)	Soil Density, ρ (kg/m^3)
B1-SDMT-01	30.0	908.5	Tailings	ML	277	140	1,829
B1-SDMT-01	31.0	907.5	Tailings	ML	324	198	1,884
B1-SDMT-01	32.0	906.5	Tailings	SM	251	113	1,788
B1-SDMT-01	33.0	905.5	Tailings	SM	351	235	1,909
B1-SDMT-01	34.0	904.5	Tailings	ML	358	245	1,915
B1-SDMT-01	35.0	903.5	Tailings	SM	319	190	1,870
B1-SDMT-01	36.0	902.5	Tailings	SM	335	212	1,886
B1-SDMT-01	37.0	901.5	Tailings	SM	363	252	1,914

Notes:

[1] Not enough information was available for the test data of tailings to distinguish if the tests were on coarse or fine tailings, or slimes.

[2] Based on estimates from the nearest dilatometer test CPT location. Cells left blank are where the available CPT data is shallower than the dilatometer test depth.

[3] Soil type per ASTM D2487. SM = Silty sand to silty sand with gravel; ML = Silt to silt with sand/gravel, sandy silt to sandy silt with gravel, gravelly silt to gravely silt with sand; CL = Lean clay to lean clay with sand/gravel, sandy lean clay to sandy lean clay with gravel, gravely lean clay to gravely lean clay with sand.

Table 5-1. Summary of Index Test Results - Coarse Tailings, Fine Tailngs, Slimes, Embakment, and Foundation Soils

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Appendix B - Historical Geotechnical Data

Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Sample Type	Unit[1]	Soil Type[1, 2]	Total Unit Weight, γ_t (kN/m^3)	Water Content, w_o (%)	In Situ Void Ratio, e_o	Specific Gravity, G_s	Liquid Limit[3], LL	Plastic Limit[3], PL	Plasticity Index[3], PI	Liquidity Index[3], LI	Percent Gravel (%)	Percent Sand (%)	Percent Fines (%)	Percent Clay (%)	Coefficient of Uniformity, C_u	Coefficient of Curvature, C_c
F-01	1.00	870.12	SPT	Coarse Tailings	SM	26.89	16.1	1.03	4.780					0.0	67.0	33.0			
F-02	1.00	869.24	SPT	Coarse Tailings	SM	26.21	14.7	1.02	4.704					0.0	69.1	30.9			
F-03	1.00	871.38	SPT	Coarse Tailings	SM	27.84	14.4	0.84	4.574					0.0	72.8	27.2			
F-04	1.00	867.30	SPT	Coarse Tailings	SM	27.06	15.5	1.10	5.006					0.0	83.8	16.2			
F-05	1.00	864.29	SPT	Coarse Tailings	SM	25.66	10.9	0.90	4.484					6.0	66.5	27.5			
F-06	1.00	889.70	SPT	Coarse Tailings	SM	27.48	16.6	0.93	4.640					0.0	61.5	38.5			
F-07	1.00	887.40	SPT	Coarse Tailings	SM	25.10	7.5	1.01	4.786					0.0	74.1	25.9			
SP-501	0.50	904.41	SPT	Coarse Tailings	SM	24.82	4.1							0.0	61.3	38.7	5.2	2.55	0.78
SP-502	0.50	904.35	SPT	Coarse Tailings	SM	23.35	2.5							0.0	66.8	33.2	3.2	2.22	0.71
SP-503	0.50	904.97	SPT	Fine Tailings	ML	21.68	6.4							0.0	24.7	75.3	5.2	2.34	1.57
SP-601	0.50	909.02	SPT	Coarse Tailings	SM		13.7		5.070	NP	NP	NP	NP	0.0	56.5	43.5	4.3	3.07	1.03
SP-602	0.50	908.38	SPT	Coarse Tailings	SM		6.7		5.142	NP	NP	NP	NP	0.0	81.3	18.7	2.3	4.57	0.93
SP-603	0.50	908.65	SPT	Coarse Tailings	SM		9.9		5.006	NP	NP	NP	NP	0.0	57.8	42.2	5.7	8.19	1.96
SP-604	0.50	908.42	SPT	Coarse Tailings	SM		7.6		5.046	NP	NP	NP	NP	0.0	50.1	49.9	4.5	3.39	1.31
A1	0.50	919.64	GRAB	Coarse Tailings	SM	26.33	3.1		4.610	NP	NP	NP	NP	0.0	51.6	48.4	5.0	2.50	1.06
A2	0.50	920.17	GRAB	Coarse Tailings	SM	28.36	14.3		5.181	NP	NP	NP	NP	0.0	80.0	20.0	3.9	2.72	0.95
A3	0.50	920.48	GRAB	Coarse Tailings	SM	29.25	3.6		4.908	NP	NP	NP	NP	0.0	75.6	24.4	3.9	2.63	0.88
A4	0.50	920.65	GRAB	Coarse Tailings	SM	26.69	19.0		4.776	NP	NP	NP	NP	0.0	78.4	21.6	4.0	3.91	0.77
SP-701	0.50	918.38	SPT	Coarse Tailings	SM		4.1		5.002					0.0	60.2	39.8	5.0	2.43	0.78
SP-702	0.50	915.18	SPT	Coarse Tailings	SM		2.5		5.075					0.0	67.2	32.8	3.2	2.24	0.76
SP-703	0.50	914.19	SPT	Fine Tailings	ML		6.4		4.710					0.0	23.0	77.0	5.6	2.31	1.52
A/D-1	0.30	926.81	GRAB	Coarse Tailings	SM	23.78	5.7	1.11	4.783					0.0	74.5	25.5	4.8	4.61	0.97
A/D-10	0.30	926.40	GRAB	Coarse Tailings	SM	21.18	4.3	1.24	4.652					0.0	56.8	43.2	6.2	5.16	1.46
A/D-10	0.55	926.15	BLOCK	Coarse Tailings	SM				4.911					0.0	74.7	25.3	4.7	2.35	1.10
A/D-10	0.55	926.15	BLOCK	Coarse Tailings	SM	26.81	10.8	0.97	4.866										
A/D-10	0.55	926.15	BLOCK	Coarse Tailings	SM	27.13	12.0	0.97											
A/D-10	0.55	926.15	BLOCK	Coarse Tailings	SM	27.70	12.0	0.93											
A/D-10	0.55	926.15	BLOCK	Coarse Tailings	SM	27.82	11.3	0.91											
A/D-11	0.30	926.20	GRAB	Coarse Tailings	SM	20.83	7.8	1.43	4.791					0.0	54.8	45.2	5.8	4.79	1.50
A/D-11	0.75	925.75	BLOCK	Coarse Tailings	SM				4.565					0.0	74.6	25.4	6.2	6.65	1.77
A/D-11	0.75	925.75	BLOCK	Coarse Tailings	SM	21.35	17.1	0.98	3.868										
A/D-11	0.75	925.75	BLOCK	Coarse Tailings	SM	22.59	16.5	0.96											
A/D-11	0.75	925.75	BLOCK	Coarse Tailings	SM	22.48	16.9	0.97											
A/D-11	0.75	925.75	BLOCK	Coarse Tailings	SM	23.60	17.2	0.88											
A/D-12	0.30	925.00	GRAB	Fine Tailings	ML	22.85	14.2	1.09	4.259					0.2	41.5	58.2	5.0	3.70	1.23
A/D-13	0.30	925.47	GRAB	Coarse Tailings	SM	25.03	12.4	1.03	4.608					0.4	58.2	41.4	5.5	4.73	1.50
A/D-14	0.30	925.55	GRAB	Coarse Tailings	SM	22.30	21.9	1.41	4.468					0.3	80.2	19.6	4.0	6.96	1.19
A/D-15	0.30	925.42	GRAB	Coarse Tailings	SM	25.37	21.5	0.96	4.175					0.0	72.8	27.1	4.7	7.55	1.51
A/D-16	0.30	925.07	GRAB	Coarse Tailings	SM	26.45	22.0	1.19	4.847					1.1	80.8	18.2	3.2	9.72	1.56

Table 5-1. Summary of Index Test Results - Coarse Tailings, Fine Tailngs, Slimes, Embakment, and Foundation Soils

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Sample Type	Unit[1]	Soil Type[1, 2]	Total Unit Weight, γ_t (kN/m^3)	Water Content, w_o (%)	In Situ Void Ratio, e_o	Specific Gravity, G_s	Liquid Limit[3], LL	Plastic Limit[3], PL	Plasticity Index[3], PI	Liquidity Index[3], LI	Percent Gravel (%)	Percent Sand (%)	Percent Fines (%)	Percent Clay (%)	Coefficient of Uniformity, C_u	Coefficient of Curvature, C_c
A/D-17	0.30	925.70	GRAB	Coarse Tailings	SM	23.34	4.8	1.13	4.840					0.0	69.8	30.2	3.7	3.03	1.09
A/D-18	0.30	925.15	GRAB	Coarse Tailings	SM	25.46	18.5	0.93	4.236					0.0	59.0	41.0	4.9	4.78	1.27
A/D-19	0.30	925.03	GRAB	Coarse Tailings	SM	26.25	23.3	0.86	4.024					0.0	79.3	20.7	3.4	2.93	1.10
A/D-2	0.30	926.82	GRAB	Coarse Tailings	SM	24.03	7.3	1.11	4.760					0.0	62.8	37.2	4.1	3.89	1.09
A/D-20	0.30	925.96	GRAB	Coarse Tailings	SM	22.25	12.3	1.06	4.157					18.9	46.9	34.2	9.7	44.71	2.16
A/D-21	0.30	925.73	GRAB	Coarse Tailings	SM	22.52	6.3	1.14	4.632					0.3	62.9	36.8	4.3	3.97	0.96
A/D-22	0.30	925.27	GRAB	Coarse Tailings	SM	23.18	8.4	1.10	4.569					0.1	77.4	22.5	2.8	4.17	0.92
A/D-23	0.30	926.12	GRAB	Coarse Tailings	SM	23.77	5.8	1.12	4.844					0.1	69.8	30.0	3.9	3.41	1.05
A/D-24	0.30	924.98	GRAB	Coarse Tailings	SM	23.50	14.6	1.22	4.633					0.0	65.1	34.9	6.6	6.50	1.53
A/D-25	0.30	924.83	GRAB	Coarse Tailings	SM	25.45	14.8	1.01	4.526					0.0	72.2	27.8	6.6	6.00	1.82
A/D-3	0.30	926.23	GRAB	Fine Tailings	ML	22.50	7.6	1.03	4.285					0.0	28.3	71.7	6.9	4.10	1.76
A/D-4	0.30	926.01	GRAB	Fine Tailings	ML	22.61	20.7	1.45	4.645					0.0	20.5	79.5	6.9	4.56	1.64
A/D-5	0.30	927.27	GRAB	Coarse Tailings	SM	23.65	5.6	1.26	5.115					0.0	69.1	30.9	3.3	2.59	0.93
A/D-5	0.45	927.12	BLOCK	Coarse Tailings	SM				4.412					1.2	70.5	28.3	9.3	21.76	5.59
A/D-5	0.45	927.12	BLOCK	Coarse Tailings	SM	26.60	13.3	1.07	4.945										
A/D-5	0.45	927.12	BLOCK	Coarse Tailings	SM	25.88	13.0	1.12											
A/D-5	0.45	927.12	BLOCK	Coarse Tailings	SM	27.70	12.4	0.97											
A/D-5	0.45	927.12	BLOCK	Coarse Tailings	SM	27.00	14.4	1.06											
A/D-6	0.30	926.86	GRAB	Coarse Tailings	SM	23.65	22.4	1.41	4.706					0.5	73.4	26.1	4.1	6.27	0.75
A/D-7	0.30	925.16	GRAB	Fine Tailings	ML	22.56	22.4	1.32	4.319					0.0	48.0	52.0	8.1	6.77	1.97
A/D-8	0.30	924.86	GRAB	Coarse Tailings	SM	22.65	18.4	1.20	4.240					0.0	56.7	43.3	7.5	8.69	1.94
A/D-9	0.30	926.79	GRAB	Fine Tailings	ML	26.76	29.6	1.99	4.637					0.0	38.1	61.9	5.7	4.08	1.34
A/D-9	0.75	926.34	BLOCK	Fine Tailings	ML				4.679					0.0	31.6	68.4	6.4	4.14	1.29
A/D-9	0.75	926.34	BLOCK	Fine Tailings	ML	28.19	15.8	1.00	4.974										
A/D-9	0.75	926.34	BLOCK	Fine Tailings	ML	28.05	16.4	1.03											
A/D-9	0.75	926.34	BLOCK	Fine Tailings	ML	28.24	15.9	1.00											
A/D-9	0.75	926.34	BLOCK	Fine Tailings	ML	28.54	16.4	0.99											
CPTU-2005-03	2.50	895.50	OSTERBERG	Fine Tailings	ML									0.0	21.3	78.7	6.9	5.22	1.70
CPTU-2005-03	2.75	895.25	OSTERBERG	Fine Tailings	ML	29.67	17.8	0.84	4.715										
CPTU-2005-03	2.75	895.25	OSTERBERG	Fine Tailings	ML	29.69	18.0	0.84											
CPTU-2005-03	2.75	895.25	OSTERBERG	Fine Tailings	ML	29.69	17.5	0.83											
CPTU-2005-03	2.75	895.25	OSTERBERG	Fine Tailings	ML	29.76	18.1	0.68											
CPTU-2005-04	1.00	925.70	SHELBY	Fine Tailings	ML		21.8		4.461					0.0	26.4	73.6	8.1	4.77	1.07
CPTU-2005-04	1.50	925.20	SHELBY	Coarse Tailings	SM		12.4		4.521					0.0	65.4	34.6	3.9	4.10	1.40
CPTU-2005-04	2.00	924.70	SHELBY	Coarse Tailings	SM		21.0		3.796					0.0	53.8	46.2	4.8	3.42	1.30
CPTU-2005-04	2.50	924.20	SHELBY	Coarse Tailings	SM		16.2		4.540					0.0	68.1	31.9	4.4	3.05	1.06
CPTU-2005-04	4.00	922.70	OSTERBERG	Fine Tailings	ML									0.0	10.2	90.0	28.5		
CPTU-2005-04	4.00	922.70	OSTERBERG	Fine Tailings	ML	23.04	25.9	1.03	3.796										
CPTU-2005-04	4.00	922.70	OSTERBERG	Fine Tailings	ML	23.40	24.8	0.99											

Table 5-1. Summary of Index Test Results - Coarse Tailings, Fine Tailngs, Slimes, Embakment, and Foundation Soils

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Sample Type	Unit[1]	Soil Type[1, 2]	Total Unit Weight, γ_t (kN/m^3)	Water Content, w_o (%)	In Situ Void Ratio, e_o	Specific Gravity, G_s	Liquid Limit[3], LL	Plastic Limit[3], PL	Plasticity Index[3], PI	Liquidity Index[3], LI	Percent Gravel (%)	Percent Sand (%)	Percent Fines (%)	Percent Clay (%)	Coefficient of Uniformity, C_u	Coefficient of Curvature, C_c
CPTU-2005-04	4.00	922.70	OSTERBERG	Fine Tailings	ML	23.10	26.6	1.14											
CPTU-2005-04	4.00	922.70	OSTERBERG	Fine Tailings	ML	23.35	27.0	1.03											
CPTU-2005-05	5.25	920.05	OSTERBERG	Coarse Tailings	SM									0.0	50.3	49.7	4.7	3.23	0.93
CPTU-2005-05	5.25	920.05	OSTERBERG	Fine Tailings	ML	29.64	19.2	0.71	4.322										
CPTU-2005-05	5.25	920.05	OSTERBERG	Fine Tailings	ML	29.67	18.9	0.70											
CPTU-2005-05	5.25	920.05	OSTERBERG	Fine Tailings	ML	29.33	19.1	0.72											
CPTU-2005-05	5.25	920.05	OSTERBERG	Fine Tailings	ML	29.52	19.7	0.72											
CPTU-2005-05	5.50	919.80	OSTERBERG	Fine Tailings	ML		16.7							0.0	49.7	50.3	13.3	40.32	4.06
CPTU-2005-06	1.00	925.60	SHELBY	Coarse Tailings	SM		25.1		4.186					0.0	52.9	47.1	2.7	2.94	0.81
CPTU-2005-06	1.50	925.10	SHELBY	Fine Tailings	ML		24.7		4.059					0.0	22.2	77.8	6.3	3.34	1.33
CPTU-2005-06	2.50	924.10	OSTERBERG	Coarse Tailings	SM		18.5		4.433					0.0	54.5	45.5	2.8	3.15	0.96
CPTU-2005-06	3.00	923.60	OSTERBERG	Fine Tailings	ML		29.4		3.973					2.0	20.7	77.3	23.9		
SPT-15	3.23	923.28	SPT	Fine Tailings	ML					NP	NP	NP							
SPT-15	9.23	917.28	SPT	Fine Tailings	CL-ML					18	14	4							
SPT-15	12.23	914.28	SPT	Fine Tailings	ML					NP	NP	NP							
SPT-18	5.23	920.28	SPT	Fine Tailings	ML					NP	NP	NP							
SPT-18	10.23	915.28	SPT	Fine Tailings	ML					30	23	7							
SPT-18	15.23	910.28	SPT	Fine Tailings	CL-ML					19	14	4							
SPT-4	6.23	919.78	SPT	Fine Tailings	ML					NP	NP	NP							
SPT-4	12.23	913.78	SPT	Fine Tailings	ML					NP	NP	NP							
SPT-4	17.23	908.78	SPT	Fine Tailings	ML					NP	NP	NP							
SPT-6	6.23	897.89	SPT	Slimes	CL					33	24	10							
SPT-6	7.23	896.89	SPT	Fine Tailings	ML					NP	NP	NP							
SPT-6	11.23	892.89	SPT	Fine Tailings	ML					NP	NP	NP							
SPT-6	16.23	887.89	SPT	Fine Tailings	CL-ML					24	19	5							
SPT-7	7.23	890.78	SPT	Fine Tailings	ML					NP	NP	NP							
SPT-7	9.23	888.78	SPT	Fine Tailings	CL-ML					20	14	6							
SPT-7	12.23	885.78	SPT	Fine Tailings	ML					NP	NP	NP							
STG-1	1.00	888.88	GRAB	Embankment	SM		27.2												
STG-2	1.00	898.01	GRAB	Embankment	SM		27.2												
STG-2	2.00	897.01	GRAB	Embankment	SM		26.0												
STG-3	1.00	892.01	GRAB	Embankment	CL		28.6												
STG-3	1.00	892.01	GRAB	Embankment	CL		32.5												
STG-3	2.00	891.01	GRAB	Embankment	CL		29.9												
STG-3	3.00	890.01	GRAB	Embankment	CL		32.1												
STG-3	4.00	889.01	GRAB	Embankment	CL		32.5												
STG-3	5.00	888.01	GRAB	Embankment	CL		32.8												
STG-3	5.15	887.86	GRAB	Embankment	CL				2.781					0.3	24.1	75.9	39.0		
STG-4	1.00	937.19	GRAB	Coarse Tailings	SM		16.1												

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Sample Type	Unit[1]	Soil Type[1, 2]	Total Unit Weight, γ_t (kN/m^3)	Water Content, w_o (%)	In Situ Void Ratio, e_o	Specific Gravity, G_s	Liquid Limit[3], LL	Plastic Limit[3], PL	Plasticity Index[3], PI	Liquidity Index[3], LI	Percent Gravel (%)	Percent Sand (%)	Percent Fines (%)	Percent Clay (%)	Coefficient of Uniformity, C_u	Coefficient of Curvature, C_c
STG-4	2.00	936.19	GRAB	Coarse Tailings	SM		16.1												
STG-5	2.00	935.06	GRAB	Coarse Tailings	SM		27.1												
STG-5	3.00	934.06	GRAB	Coarse Tailings	SM		29.8												
STG-6	1.00	914.83	GRAB	Embankment	SM		26.4												
STG-6	2.00	913.83	GRAB	Embankment	SM		23.1												
STG-6	2.00	913.83	GRAB	Embankment	SM		31.7												
STG-6	3.00	912.83	GRAB	Embankment	SM		25.8												
STG-6	4.00	911.83	GRAB	Embankment	SM		20.4												
PI-01	1.35	896.82	BLOCK	Coarse Tailings	SM	27.86	5.5	0.94											
PI-01	1.35	896.82	BLOCK	Coarse Tailings	SM	27.86	5.5	0.9											
PI-01	1.35	896.82	BLOCK	Coarse Tailings	SM	26.48	22.6	1.2	4.919	NP	NP	NP	NP						
PI-01	1.35	896.82	BLOCK	Coarse Tailings	SM	26.51	22.5	1.23											
PI-01	1.35	896.82	BLOCK	Coarse Tailings	SM	26.73	22.0	1.20											
PI-01	1.35	896.82	BLOCK	Coarse Tailings	SM	27.54	20.2	1.1											
PI-01	1.35	896.82	BLOCK	Coarse Tailings	SM	27.86	5.8	0.9	5.220	NP	NP	NP	NP	0.1	79.9	20.0			
PI-01	1.40	896.77	BLOCK	Coarse Tailings	SM		24.6	1.23	4.920	NP	NP	NP	NP	0.0	69.8	30.2	4.7		
PI-01	1.40	896.77	BLOCK	Coarse Tailings	SM	27.04	24.7	1.23											
PI-01	1.40	896.77	BLOCK	Coarse Tailings	SM	26.93	23.4	1.21											
PI-01	1.40	896.77	BLOCK	Coarse Tailings	SM	27.11	22.9	1.19											
PI-01	1.40	896.77	BLOCK	Coarse Tailings	SM	27.22	24.2	1.20											
PI-01	1.40	896.77	BLOCK	Coarse Tailings	SM	27.70	23.0	1.14											
PI-01	1.40	896.77	BLOCK	Coarse Tailings	SM	27.60	4.7	0.83											
PI-01	1.40	896.77	BLOCK	Coarse Tailings	SM	27.68	23.0	1.14											
PI-02	1.35	896.17	BLOCK	Fine Tailings	ML				4.440	NP	NP	NP		0.8	28.4	70.8			
PI-02	1.35	896.17	BLOCK	Fine Tailings	ML	27.41	19.7	0.90	4.440	NP	NP	NP	NP	0.0	17.6	82.4	6.0		
PI-02	1.35	896.17	BLOCK	Fine Tailings	ML	27.55	19.8	0.89											
PI-02	1.35	896.17	BLOCK	Fine Tailings	ML	27.34	19.3	0.90											
PI-02	1.35	896.17	BLOCK	Fine Tailings	ML	27.79	19.4	0.87											
PI-02	1.35	896.17	BLOCK	Fine Tailings	ML	27.34	20.5	0.92											
PI-02	1.35	896.17	BLOCK	Fine Tailings	ML	27.83	18.8	0.86											
PI-02	1.35	896.17	BLOCK	Fine Tailings	ML	27.82	19.4	0.87											
PI-02	1.35	896.17	BLOCK	Fine Tailings	ML	27.54	20.0	0.90											
PI-03	0.85	897.76	BLOCK	Coarse Tailings	SM	25.60	12.7	1.18											
PI-03	0.85	897.76	BLOCK	Coarse Tailings	SM	25.60	12.3	1.17											
PI-03	0.85	897.76	BLOCK	Coarse Tailings	SM	25.41	13.0	1.18	5.050	NP	NP	NP	NP	0.4	77.6	22.0			
PI-03	1.35	897.26	BLOCK	Coarse Tailings	SM	29.52	15.8	0.74	4.530	NP	NP	NP	NP	0.0	70.2	29.8			
PI-03	1.35	897.26	BLOCK	Coarse Tailings	SM	29.85	15.0	0.71											
PI-03	1.35	897.26	BLOCK	Coarse Tailings	SM	29.28	17.1	0.78											
PI-03	1.35	897.26	BLOCK	Coarse Tailings	SM	28.88	17.7	0.81											

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PI-03	1.35	897.26	BLOCK	Coarse Tailings	SM	29.70	15.8	0.73											
PI-03	1.35	897.26	BLOCK	Coarse Tailings	SM	29.16	16.9	0.78											
PI-03	1.35	897.26	BLOCK	Coarse Tailings	SM	29.98	15.4	0.71											
PI-03	1.35	897.26	BLOCK	Coarse Tailings	SM	29.00	17.2	0.79											
PI-04	0.65	937.69	BLOCK	Coarse Tailings	SM	24.40	6.7	0.92	4.480	NP	NP	NP	NP						
PI-04	0.65	937.69	BLOCK	Coarse Tailings	SM	23.00	10.3	1.11											
PI-04	0.65	937.69	BLOCK	Coarse Tailings	SM	25.00	8.7	0.91											
ST-2016-01	0.25	898.71	GRAB	Coarse Tailings	SM		16.2		4.229					8.9	48.4	42.7	4.6	7.94	1.28
ST-2016-01	0.75	898.21	GRAB	Fine Tailings	ML		25.2		3.421					3.0	39.4	57.7	6.8	13.05	3.72
ST-2016-01	1.25	897.71	GRAB	Fine Tailings	ML		27.1		3.010					9.1	38.0	52.9	17.1	49.29	0.71
ST-2016-01	1.75	897.21	GRAB	Coarse Tailings	SM		26.8		2.712					27.4	26.4	46.2	13.9	183.79	0.21
ST-2016-01	2.10	896.86	GRAB	Fine Tailings	ML		29.7		2.937					6.9	40.5	52.5	18.1	40.84	1.10
ST-2016-02	0.25	898.54	GRAB	Coarse Tailings	SM		6.5		4.727					9.9	50.2	39.9	0.8	3.40	0.91
ST-2016-02	0.75	898.04	GRAB	Coarse Tailings	SM		8.5		4.948					6.3	71.6	22.1	0.2	3.76	0.88
ST-2016-02	1.25	897.54	GRAB	Coarse Tailings	SM		6.4		4.877					0.8	73.3	25.8	0.4	3.11	1.04
ST-2016-02	1.75	897.04	GRAB	Coarse Tailings	SM		6.5		4.914					0.8	70.0	29.2	0.0	2.94	0.95
ST-2016-02	2.25	896.54	GRAB	Fine Tailings	ML		13.4		4.619					0.0	41.0	59.0	0.0	2.59	0.92
ST-2016-02	2.75	896.04	GRAB	Fine Tailings	ML		14.8		4.796					1.5	47.3	51.2	0.6	3.09	1.03
ST-2016-03	0.25	898.18	GRAB	Coarse Tailings	SM		11.4		4.316					28.5	32.2	39.4	2.0	7.15	0.52
ST-2016-03	0.75	897.68	GRAB	Coarse Tailings	SM		11.5		4.906					3.2	50.8	46.0	0.0	3.06	0.87
ST-2016-03	1.15	897.28	GRAB	Coarse Tailings	SM		11.8		4.882					1.3	64.9	33.9	0.2	3.49	0.97
ST-2016-03A	0.25	898.22	GRAB	Fine Tailings	ML		16.0		4.779					4.0	33.5	62.4	4.3	6.28	1.36
ST-2016-03A	0.75	897.72	GRAB	Fine Tailings	ML		11.6		4.644					0.2	46.8	53.0	1.9	2.86	0.51
ST-2016-03A	1.25	897.22	GRAB	Fine Tailings	ML		20.0		4.501					3.7	34.0	62.3	4.4	6.37	1.37
ST-2016-03A	1.75	896.72	GRAB	Coarse Tailings	SM		19.0		4.938					0.5	62.1	37.4	0.0	2.96	0.93
ST-2016-04	0.25	901.11	GRAB	Fine Tailings	ML		11.5		3.727					10.0	39.9	50.0	0.8	3.42	0.85
ST-2016-04	0.75	900.61	GRAB	Fine Tailings	ML		11.6		3.954					2.4	45.7	52.0	5.3	6.98	1.87
ST-2016-04	1.25	900.11	GRAB	Coarse Tailings	SM		14.3		3.298					2.4	51.8	45.7	8.5	20.26	1.60
ST-2016-04	1.75	899.61	GRAB	Fine Tailings	ML		16.5		3.461					4.8	42.1	53.2	10.3	21.61	1.38
ST-2016-04	2.25	899.11	GRAB	Fine Tailings	ML		13.9		3.494					5.3	42.2	52.5	7.0	14.85	2.75
ST-2016-04	2.75	898.61	GRAB	Coarse Tailings	SM		24.6		2.764					3.8	48.5	47.7	18.1	79.66	0.63
ST-2016-05	0.25	898.10	GRAB	Fine Tailings	ML		10.6		4.552					1.4	27.4	71.2	4.3	4.36	0.99
ST-2016-05	0.75	897.60	GRAB	Fine Tailings	ML		12.5		4.389					0.1	39.5	60.4	0.0	3.66	1.59
ST-2016-05	1.25	897.10	GRAB	Fine Tailings	ML		12.0		4.751					0.7	43.9	55.4	1.9	3.85	1.07
ST-2016-05	1.75	896.60	GRAB	Fine Tailings	ML		7.0		5.013					0.5	42.7	56.9	0.4	3.03	1.03
ST-2016-05	2.25	896.10	GRAB	Fine Tailings	ML		8.2		5.135					0.6	39.6	59.7	0.1	3.00	0.60
ST-2016-05	2.75	895.60	GRAB	Coarse Tailings	SM		10.3		4.883					0.2	59.2	40.6	2.4	5.46	0.56
ST-2016-06	0.25	897.79	GRAB	Coarse Tailings	SM		11.6		4.254					2.3	56.6	41.1	2.3	3.76	0.82
ST-2016-06	0.75	897.29	GRAB	Coarse Tailings	SM		13.9		5.064					0.1	61.0	38.8	0.5	4.37	0.98

Table 5-1. Summary of Index Test Results - Coarse Tailings, Fine Tailngs, Slimes, Embakment, and Foundation Soils

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Sample Type	Unit[1]	Soil Type[1, 2]	Total Unit Weight, γ_t (kN/m^3)	Water Content, w_o (%)	In Situ Void Ratio, e_o	Specific Gravity, G_s	Liquid Limit[3], LL	Plastic Limit[3], PL	Plasticity Index[3], PI	Liquidity Index[3], LI	Percent Gravel (%)	Percent Sand (%)	Percent Fines (%)	Percent Clay (%)	Coefficient of Uniformity, C_u	Coefficient of Curvature, C_c
ST-2016-06	1.25	896.79	GRAB	Coarse Tailings	SM		14.1		4.690					0.0	51.1	48.9	0.8	3.90	0.67
ST-2016-06	1.75	896.29	GRAB	Coarse Tailings	SM		13.8		4.699					0.1	60.1	39.8	0.0	2.67	0.94
ST-2016-06	2.25	895.79	GRAB	Fine Tailings	ML		12.9		4.629					0.2	41.4	58.3	0.7	2.63	0.87
ST-2016-06	2.75	895.29	GRAB	Fine Tailings	ML		19.3		4.948					0.0	18.6	81.4	2.4	3.91	1.50
ST-2016-07	0.25	898.61	GRAB	Coarse Tailings	SM		8.4		3.970					22.0	43.9	34.1	6.5	39.15	0.48
ST-2016-07	0.75	898.11	GRAB	Fine Tailings	ML		15.2		3.617					4.6	35.8	59.5	10.5	19.30	1.78
ST-2016-07	1.25	897.61	GRAB	Fine Tailings	ML		25.4		2.677					0.4	29.8	69.7	24.1	13.36	1.08
ST-2016-07	1.75	897.11	GRAB	Fine Tailings	ML		23.9		2.656					15.2	26.8	58.0	23.3	68.06	0.40
ST-2016-07	2.25	896.61	GRAB	Fine Tailings	ML		24.1		2.690					1.4	36.4	62.3	15.1	23.28	0.72
ST-2016-07	2.75	896.11	GRAB	Coarse Tailings	SM		17.0		2.752					4.9	50.4	44.7	12.4	58.21	1.33
ST-2016-08	0.25	897.88	GRAB	Coarse Tailings	SM		12.2		4.569					5.3	60.8	33.9	2.9	4.20	1.14
ST-2016-08	0.75	897.38	GRAB	Coarse Tailings	SM		14.3		4.451					0.2	68.3	31.5	0.2	3.13	0.98
ST-2016-08	1.25	896.88	GRAB	Fine Tailings	ML		12.2		4.893					0.3	48.9	50.8	0.1	3.03	0.66
ST-2016-08	1.75	896.38	GRAB	Coarse Tailings	SM		18.6		4.845					0.0	59.7	40.3	0.0	2.73	0.90
ST-2016-08	2.25	895.88	GRAB	Coarse Tailings	SM		19.0		4.498					0.6	56.1	43.4	0.5	2.79	0.89
ST-2016-09	0.25	898.44	GRAB	Coarse Tailings	SM		12.9		4.433					0.6	51.7	47.6	4.1	4.96	1.42
ST-2016-09	0.75	897.94	GRAB	Coarse Tailings	SM		24.2		4.917					0.3	52.4	47.2	0.8	3.68	0.97
ST-2016-09	1.25	897.44	GRAB	Coarse Tailings	SM		11.3		4.938					0.7	63.9	35.5	0.2	3.17	1.05
ST-2016-09	1.75	896.94	GRAB	Fine Tailings	ML		11.8		4.776					0.2	37.4	62.4	1.6	3.13	1.20

Notes:

[1] Where laboratory test data for classification purposes was unavailable, the soil type was assumed based on the observed general characteristics of the unit or on soil descriptions form available relevant borehole logs

[2] Soil type per ASTM D2487. SM = Silty sand to silty sand with gravel; CL = Lean clay to lean clay with sand/gravel, sandy lean clay to sandy lean clay with gravel, gravely lean clay to gravely lean clay with sand; ML = Silt to silt with sand/gravel, sandy silt to sandy silt with gravel, gravelly silt to gravely silt with sand; CL-ML = Silty clay to silty clay with sand/gravel, sandy silty clay to sandy silty clay with gravel, gravely silt to gravely silt with sand

[3] NP = Non-plastic.

Table 5-2. Summary of Isotropically Consolidated Undrained Triaxial Compression Tests

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Exploration ID	Sample Depth (m)	Sample Elevation, msl (m)	Sample Type	Degree of Compaction [1] (%)	Unit	Total Unit Weight, γ_t (kN/m^3)	Water Content, w_0 (%)	Specific Gravity, G	Initial Void Ratio, e_0	Liquid Limit[2], LL	Plastic Limit[2], PL	Plasticity Index[2], PI	Pre Shear Void Ratio, e	Effective Confining Stress[3], σ'_c (kPa)	Strength Parameters at 10% Axial Strain, $\varepsilon_{a,10\%}$			Strength Parameters at Maximum Obliquity $(\sigma'_1/\sigma'_3)_{max}$				
															Principal Stress, p' (kPa)	Principal Stress, q (kPa)	Effective Friction Angle, ϕ' (degrees)	$(\sigma'_1/\sigma'_3)_{max}$	Axial Strain, ε_a (%)	Principal Stress, p' (kPa)	Principal Stress, q (kPa)	Effective Friction Angle, ϕ' (degrees)
PI-01	1.35	896.82	Intact	NA	Coarse Tailings	26.40	5.8	5.220	0.94	NP	NP	NP	0.90	-40	597	486	54.5	11.9	5.1	648	549	57.8
						27.90	5.5		0.94				0.85	260	1,078	746	43.8	5.4	3.1	1,110	885	52.8
						27.90	5.5		0.94				0.81	660	2,138	1,438	42.3	4.6	8.4	2,132	1,458	43.1
PI-03	0.85	897.76	Intact	NA	Coarse Tailings	25.40	13.0	5.050	1.20	NP	NP	NP	1.19	-89	332	421		9.4	8.7	332	423	
						25.60	12.7		1.18				1.15	112	669	523	51.5	4.8	6.8	711	568	53.0
						25.60	12.3		1.17				1.07	611	989	618	38.7	2.6	5.1	844	642	49.5
PI-04	0.65	937.69	Intact	NA	Coarse Tailings	24.40	6.7	4.480	0.92	NP	NP	NP	0.89	-89	353	334	70.8	7.9	5.0	345	343	82.8
						23.00	10.3		1.11				1.03	210	890	665	48.4	4.5	6.2	913	701	50.1
						25.00	8.7		0.91				0.82	611	1,228	780	39.4	3.0	9.5	1,222	786	40.0
PI-01	1.35	896.82	Reconstituted	79	Coarse Tailings	26.45	24.6	4.919	1.27	NP	NP	NP	1.03	100	-2	-2						
						26.46	24.6		1.27				0.97	300	198	113	34.8	3.9	15.3	118	70	36.1
						26.45	24.6		1.27				0.93	800	366	223	37.6	4.4	19.9	243	154	39.3
PI-01	1.35	896.82	Reconstituted	83	Coarse Tailings	27.31	22.5	4.920	1.16	NP	NP	NP	0.93	100	159	85	32.4	3.3	8.8	164	88	32.6
						27.31	22.5		1.16				0.92	300	335	191	34.7	3.8	17.7	230	134	35.8
						27.31	22.5		1.16				0.80	800	1,290	668	31.2	3.6	22.2	1,067	604	34.5
PI-02A	1.35	896.17	Reconstituted	79	Fine Tailings	23.03	32.1	4.440	1.50	NP	NP	NP	0.81	100	190	110	35.4	3.8	12.7	191	111	35.6
						23.03	32.0		1.50				0.78	300	604	338	34.1	3.7	14.4	609	349	34.9
						23.06	32.3		1.50				0.42	800	1,511	876	35.4	4.1	16.0	1,438	870	37.2
PI-02A	1.35	896.17	Reconstituted	83	Fine Tailings	23.72	29.5	4.440	1.38	NP	NP	NP	0.89	100	142	91	39.9	4.6	10.3	143	92	40.0
						23.73	29.5		1.38				0.85	300	394	226	35.0	4.1	21.4	359	217	37.2
						23.73	29.5		1.38				0.82	800	676	394	35.7	3.9	17.0	697	415	36.6
PI-03	0.85	897.76	Reconstituted	79	Coarse Tailings	23.99	29.2	4.530	1.39	NP	NP	NP	0.81	100	21	22						
						23.99	29.2		1.39				0.78	300	96	56	35.7	3.8	10.3	95	56	35.8
						24.00	29.2		1.39				0.42	800	348	198	34.7	3.7	14.3	347	200	35.2
PI-03	0.85	897.76	Reconstituted	83	Coarse Tailings	24.74	26.8	4.530	1.28	NP	NP	NP	0.89	100	153	80	31.7	3.3	14.6	139	75	32.4
						24.74	26.8		1.28				0.85	300	321	190	36.4	4.2	16.1	244	151	38.1
						24.74	26.8		1.28				0.82	800	1,199	662	33.5	3.7	15.0	1,200	685	34.8
PI-04	0.65	937.69	Reconstituted	79	Coarse Tailings	23.75	30.0	4.500	1.42	NP	NP	NP	0.94	100	-1	-3						
						23.74	29.9		1.42				0.91	300	102	41	24.0	2.4	7.3	109	45	24.4
						23.74	29.9		1.42				0.89	800	406	218	32.5	3.4	12.2	412	223	32.7
PI-04	0.65	937.69	Reconstituted	83	Coarse Tailings	24.55	27.2	4.500	1.29	NP	NP	NP	0.86	100	147	72	29.6	3.1	14.6	146	74	30.5
						24.58	27.1		1.28				0.99	100	115	59	31.2	3.2	13.4	116	61	31.7
						24.62	27.2		1.29				0.91	300	522	266	30.7	3.2	13.9	526	275	31.5
						24.49	27.4		1.30				0.86	800	1,428	743	31.3	3.4	18.4	1,454	800	33.4

Table 5-2. Summary of Isotropically Consolidated Undrained Triaxial Compression Tests

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Exploration ID	Sample Depth (m)	Sample Elevation, msl (m)	Sample Type	Degree of Compaction [1] (%)	Unit	Total Unit Weight, γ_t (kN/m^3)	Water Content, w_0 (%)	Specific Gravity, G	Initial Void Ratio, e_0	Liquid Limit[2], LL	Plastic Limit[2], PL	Plasticity Index[2], PI	Pre Shear Void Ratio, e	Effective Confining Stress[3], σ'_c (kPa)	Strength Parameters at 10% Axial Strain, $\varepsilon_{a,10\%}$			Strength Parameters at Maximum Obliquity $(\sigma'_1/\sigma'_3)_{max}$				
															Principal Stress, p' (kPa)	Principal Stress, q (kPa)	Effective Friction Angle, ϕ' (degrees)	$(\sigma'_1/\sigma'_3)_{max}$	Axial Strain, ε_a (%)	Principal Stress, p' (kPa)	Principal Stress, q (kPa)	Effective Friction Angle, ϕ' (degrees)
PI-01	1.45	896.72	Intact	NA	Coarse Tailings	26.94	27.0	4.920	1.23	NP	NP	NP	0.91	50	71	39	32.9	3.4	19.4	77	42	33.1
						27.04	24.6		1.23				0.93	100	159	79	29.7	3.2	12.9	168	88	31.7
						26.93	24.7		1.21				0.93	200	265	135	30.7	3.1	7.8	277	142	30.9
						27.11	23.4		1.19				0.78	400	540	263	29.1	3.0	15.4	493	248	30.2
PI-02A	1.35	896.17	Intact	NA	Fine Tailings	27.41	22.9	4.440	0.90	NP	NP	NP	0.83	50	297	197	41.6	6.9	2.3	210	157	48.3
						27.55	19.7		0.89				0.82	200	645	408	39.3	4.8	6.4	601	395	41.1
						27.34	19.8		0.90				0.82	400	982	586	36.6	4.6	8.4	1,105	711	40.1
						27.79	19.3		0.87				0.81	800	1,808	1,156	39.8	4.6	9.9	1,804	1,154	39.8
PI-03A	1.35	897.26	Intact	NA	Coarse Tailings	29.52	19.4	4.530	0.74	NP	NP	NP	0.83	50	410	308	48.6	9.7	1.5	306	249	54.4
						29.85	15.8		0.71				0.84	200	667	425	39.6	5.7	4.0	775	544	44.6
						29.28	15.0		0.78				0.83	400	1,221	792	40.4	5.1	5.1	1,162	784	42.4
						28.88	17.1		0.81				0.79	800	2,016	1,290	39.8	4.6	8.9	2,008	1,290	40.0

Notes:
[1] NA = Not applicable
[2] NP = Non-plastic
[3] Negative effective confining stresses are due to pre-shear pore pressures that were larger than the total confining stresses

Table 5-3. Summary of K_0-Consolidated Undrained Triaxial Compression Tests on Intact Samples

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Exploration ID	Sample Depth (m)	Sample Elevation, msl (m)	Unit	Total Unit Weight, γ_t (kN/m^3)	Water Content, w_0 (%)	Specific Gravity, G	Void Ratio, e_0	Liquid Limit[1], LL	Plastic Limit[1], PL	Plasticity Index[1], PI	Pre-Shear Conditions: Maximum Consolidation Stress, σ'_{vmax} (kPa)	Pre-Shear Conditions: Coefficient of Lateral Earth Pressure At-Rest at End of Consolidation, $K_{0,NC}$	Pre-Shear Conditions: Pre-Shear Void Ratio, e	Pre-Shear Conditions: Pre-Shear Vertical Stress, σ'_{vc} (kPa)	Pre-Shear Conditions: Coefficient of Lateral Earth Pressure At-Rest, K_0	Parameters at Maximum Shear Stress, s_u: Axial Strain, ε_a (%)	Parameters at Maximum Shear Stress, s_u: Principal Stress, p' (kPa)	Parameters at Maximum Shear Stress, s_u: Undrained Shear Strength, s_u (kPa)	Parameters at Maximum Shear Stress, s_u: Normalized Shear Strength, s_u/σ'_{vc}	Parameters at Maximum Shear Stress, s_u: Effective Friction Angle, ϕ' (degrees)	Strength Parameters at Maximum Obliquity $(\sigma'_1/\sigma'_3)_{max}$: $(\sigma'_1/\sigma'_3)_{max}$	Strength Parameters at Maximum Obliquity $(\sigma'_1/\sigma'_3)_{max}$: Axial Strain, ε_a (%)	Strength Parameters at Maximum Obliquity $(\sigma'_1/\sigma'_3)_{max}$: Principal Stress, p' (kPa)	Strength Parameters at Maximum Obliquity $(\sigma'_1/\sigma'_3)_{max}$: Principal Stress, q (kPa)	Strength Parameters at Maximum Obliquity $(\sigma'_1/\sigma'_3)_{max}$: Normalized Shear Stress, q/σ'_{vc}	Strength Parameters at Maximum Obliquity $(\sigma'_1/\sigma'_3)_{max}$: Effective Friction Angle, ϕ' (degrees)
PI-01	1.35	896.82	Coarse Tailings	26.48	22.6	4.919	1.23	NP	NP	NP	55	0.46	0.84	55	0.46	2.1	51	29	0.53	34.1	3.5	2.1	51	29	0.53	34.1
				26.51	22.5		1.23				109	0.46	0.84	109	0.46	4.3	122	74	0.68	37.2	4.1	3.7	122	74	0.68	37.2
				26.73	22.0		1.20				181	0.55	0.89	181	0.55	1.6	168	92	0.51	33.1	4.6	10.9	18	12	0.06	40.0
				27.54	20.2		1.11				409	0.49	1.10	409	0.49	5.5	315	173	0.42	33.4	3.5	8.1	304	169	0.41	33.8

Notes:

[1] NP = Non-plastic

Table 5-4. Summary of Anisotropically Consolidated Undrained Triaxial Compression Tests on Intact Samples

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Appendix B - Historical Geotechnical Data

Exploration ID	Sample Depth (m)	Sample Elevation, msl (m)	Unit	Total Unit Weight, γ_t (kN/m^3)	Water Content, w_0 (%)	Specific Gravity, G	Initial Void Ratio, e_0	Liquid Limit[1], LL	Plastic Limit[1], PL	Plasticity Index[1], PI	Pre Shear Void Ratio, e	Effective Confining Stress, σ'_1 (kPa)	Effective Confining Stress, σ'_3 (kPa)	Strength Parameters at 10% Axial Strain, $\varepsilon_{a,10\%}$			Strength Parameters at Maximum Obliquity $(\sigma'_1/\sigma'_3)_{max}$				
														Principal Stress, p' (kPa)	Principal Stress, q (kPa)	Effective Friction Angle, ϕ' (degrees)	$(\sigma'_1/\sigma'_3)_{max}$	Axial Strain, ε_a (%)	Principal Stress, p' (kPa)	Principal Stress, q (kPa)	Effective Friction Angle, ϕ' (degrees)
A/D-5	0.45	927.12	Coarse Tailings	26.60	13.3	4.945	1.07	N/A	N/A	N/A	1.03	196	98	554	351	39.3	4.6	5.0	435	280	40.0
				25.88	13.0		1.12				1.10	392	196	623	492	52.1	8.5	10.0	623	492	52.1
				27.67	12.4		0.97				0.91	589	294	1091	711	40.7	4.8	7.0	1012	664	41.0
				27.00	14.4		1.06				1.00	785	392	1102	680	38.1	4.4	7.0	1027	643	38.8
A/D-10	0.55	926.15	Coarse Tailings	26.81	10.8	4.866	0.97	N/A	N/A	N/A	0.95	196	98	402	230	34.8	4.2	4.5	379	233	37.9
				27.15	12.0		0.97				0.93	392	196	840	535	39.6	4.8	5.0	681	446	41.0
				27.70	12.0		0.93				0.87	589	294	755	357	28.2	3.7	4.5	852	491	35.2
				27.82	11.3		0.91				0.85	785	392	1094	589	32.6	4.1	5.0	1144	693	37.3
A/D-11	0.75	925.75	Coarse Tailings	21.35	17.1	3.868	0.98	N/A	N/A	N/A	0.94	196	98	306	176	35.0	3.7	9.0	300	173	35.1
				22.59	16.5		0.96				0.91	392	196	372	162	25.8	3.1	3.5	423	217	30.8
				22.48	16.9		0.97				0.92	589	294	708	442	38.6	4.3	10.0	708	442	38.6
				23.60	17.2		0.88				0.81	785	392	1009	640	39.3	4.5	8.0	973	619	39.5
CPTU-2005-05	5.25	920.05	Coarse Tailings	29.64	19.2	4.322	0.71	N/A	N/A	N/A	0.69	196	98	569	331	35.5	4.4	3.5	503	317	39.0
				29.67	18.9		0.70				0.66	392	196	839	456	32.9	3.8	5.0	907	527	35.5
				29.33	19.1		0.72				0.66	589	294	1063	579	33.0	4.0	5.0	1208	727	37.0
				29.52	19.7		0.72				0.63	785	392	1221	718	36.0	4.2	5.0	1224	755	38.1
A/D-9	0.75	926.34	Fine Tailings	28.19	15.8	4.974	1.00	N/A	N/A	N/A	0.98	196	98	703	457	40.5	5.4	3.0	506	349	43.6
				28.05	16.4		1.03				0.99	392	196	868	518	36.7	4.9	3.5	746	493	41.4
				28.24	15.9		1.00				0.95	589	294	1168	731	38.8	4.5	6.0	1054	669	39.4
				28.54	16.4		0.99				0.91	785	392	2120	1605	49.2	8.6	5.0	2205	1744	52.3
CPTU-2005-03	2.75	895.25	Fine Tailings	29.67	17.8	4.715	0.84	N/A	N/A	N/A	0.82	196	98	504	291	35.3	4.4	3.0	429	269	38.9
				29.69	18.0		0.84				0.80	392	196	736	448	37.5	4.3	4.5	620	386	38.6
				29.69	17.5		0.83				0.79	589	294	1007	633	38.9	5.0	4.5	882	586	41.6
				29.76	18.1	4.322	0.68				0.58	785	392	1178	688	35.7	4.0	6.0	1113	665	36.7
CPTU-2005-04	4.00	922.70	Fine Tailings	23.04	25.9	3.796	1.03	N/A	N/A	N/A	0.90	196	98	174	121	44.0	5.9	6.0	160	114	45.4
				23.40	24.8		0.99				0.79	392	196	331	225	42.8	5.4	7.0	298	205	43.4
				23.10	26.6		1.14				0.88	589	294	475	319	42.2	5.2	8.0	460	311	42.5
				23.35	27.0		1.03				0.75	785	392	567	381	42.2	5.1	8.0	556	374	42.2

Notes:

[1] N/A = Not available

Table 5-5. Summary of Anisotropically Consolidated Undrained Pore Pressure Increase Triaxial Tests on Intact Samples

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Appendix B - Historical Geotechnical Data

Exploration ID	Sample Depth (m)	Sample Elevation, msl (m)	Unit	Total Unit Weight, γ_t (kN/m^3)	Water Content, w_0 (%)	Specific Gravity, G	Initial Void Ratio, e_0	Liquid Limit[1], LL	Plastic Limit[1], PL	Plasticity Index[1], PI	Pre Shear Void Ratio, e	Effective Confining Stress, σ'_1 (kPa)	Effective Confining Stress, σ'_3 (kPa)	Strength Parameters at 10% Axial Strain, $\varepsilon_{a,10\%}$			Strength Parameters at Maximum Obliquity $(\sigma'_1/\sigma'_3)_{max}$				
														Principal Stress, p' (kPa)	Principal Stress, q (kPa)	Effective Friction Angle, ϕ' (degrees)	$(\sigma'_1/\sigma'_3)_{max}$	Axial Strain, ε_a (%)	Principal Stress, p' (kPa)	Principal Stress, q (kPa)	Effective Friction Angle, ϕ' (degrees)
PI-01	1.45	896.72	Coarse Tailings	27.22	24.2	4.920	1.20	NP	NP	NP	0.98	52	25	8	4	26.7	4.6	3.4	15	10	39.8
				27.70	23.0		1.14				0.94	104	50	623	492	52.1	6.2	60.0	21	15	46.3
				27.60	4.7		0.83				0.88	196	100	1091	711	40.7	4.2	60.0	64	39	38.0
				27.68	23.0		1.14				0.99	400	200	1102	680	38.1	4.6	2.5	134	87	40.2
PI-02A	1.35	896.17	Fine Tailings	27.34	20.5	4.440	0.92	NP	NP	NP	0.97	49	25	402	230	34.8	39.4	0.0	12	12	71.9
				27.83	18.8		0.86				0.96	96	50	840	535	39.6	20.9	1.7	25	23	65.3
				27.82	19.4		0.87				1.00	191	100	755	357	28.2	7.9	2.4	58	45	50.7
				27.54	20.0		0.90				0.87	398	200	1094	589	32.6	7.0	2.1	128	96	48.7
PI-03A	1.35	897.26	Coarse Tailings	29.70	15.8	4.530	0.73	NP	NP	NP	0.88	47	25	306	176	35.0	93.7	0.6	11	10	78.2
				29.16	16.9		0.78				0.95	95	50	372	162	25.8	122.2	0.3	25	24	79.7
				29.98	15.4		0.71				0.95	186	100	708	442	38.6	12.6	60.1	26	22	58.5
				29.00	17.2		0.79				0.98	378	200	1009	640	39.3	10.5	1.5	108	89	55.7

Notes:
[1] NP = Non-plastic

Table 5-6. Summary of One-Dimensional Consolidation Tests

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Exploration ID	Sample Depth (m)	Sample Elevation, msl (m)	Sample Type	Degree of Compaction (%)	Unit	Total Unit Weight, γ_t (kN/m^3)	Initial Moisture Content, w_o (%)	Specific Gravity, G	Initial Void Ratio, e_o	Liquid Limit, LL [1]	Plastic Limit, PL [1]	Plasticity Index, PI [1]	Apparent Pre-consolidation Stress, σ'_p (kPa)	Compression Ratio, CR	Normally Consolidated Coefficient of Consolidation, $c_{v,NC}$ (m^2/s)	Over-consolidated Coefficient of Consolidation, $c_{v,OC}$ (m^2/s)
PI-01	1.35	896.8	Reconstituted	79	Coarse Tailings	22.40	5.5	4.919	1.274	NP	NP	NP	427	0.108	1.9E-08	3.7E-08
PI-02A	1.35	896.2	Reconstituted	79	Fine Tailings	19.86	13.9	4.440	1.497	NP	NP	NP	92	0.135	2.4E-08	3.5E-08
PI-03	0.85	897.8	Reconstituted	79	Coarse Tailings	34.07	9.4	4.527	0.426	NP	NP	NP	51	0.122	2.8E-08	3.2E-08

Notes:

[1] NP = Non-plastic

Appendix B

Annex 3 – Grain Size Distribution Test Data

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Summary of Grain Size Distribution Test Data

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Appendix B - Historical Geotechnical Data

Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
SP-701	0.50	918.38	Coarse Tailings	0.001	4.18
SP-701	0.50	918.38	Coarse Tailings	0.003	4.38
SP-701	0.50	918.38	Coarse Tailings	0.009	5.64
SP-701	0.50	918.38	Coarse Tailings	0.020	5.64
SP-701	0.50	918.38	Coarse Tailings	0.024	5.43
SP-701	0.50	918.38	Coarse Tailings	0.027	5.43
SP-701	0.50	918.38	Coarse Tailings	0.030	5.85
SP-701	0.50	918.38	Coarse Tailings	0.040	7.93
SP-701	0.50	918.38	Coarse Tailings	0.048	10.02
SP-701	0.50	918.38	Coarse Tailings	0.053	11.69
SP-701	0.50	918.38	Coarse Tailings	0.058	20.04
SP-701	0.50	918.38	Coarse Tailings	0.067	30.27
SP-701	0.50	918.38	Coarse Tailings	0.075	40.08
SP-701	0.50	918.38	Coarse Tailings	0.100	52.82
SP-701	0.50	918.38	Coarse Tailings	0.247	92.28
SP-701	0.50	918.38	Coarse Tailings	0.300	95.20
SP-701	0.50	918.38	Coarse Tailings	0.408	98.54
SP-701	0.50	918.38	Coarse Tailings	1.010	100.00

Summary of Grain Size Distribution Test Data

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
SP-702	0.50	915.18	Coarse Tailings	0.001	2.71
SP-702	0.50	915.18	Coarse Tailings	0.002	2.71
SP-702	0.50	915.18	Coarse Tailings	0.002	2.51
SP-702	0.50	915.18	Coarse Tailings	0.004	2.51
SP-702	0.50	915.18	Coarse Tailings	0.005	3.13
SP-702	0.50	915.18	Coarse Tailings	0.007	3.13
SP-702	0.50	915.18	Coarse Tailings	0.007	2.92
SP-702	0.50	915.18	Coarse Tailings	0.010	3.55
SP-702	0.50	915.18	Coarse Tailings	0.010	3.76
SP-702	0.50	915.18	Coarse Tailings	0.017	3.55
SP-702	0.50	915.18	Coarse Tailings	0.017	3.34
SP-702	0.50	915.18	Coarse Tailings	0.029	3.34
SP-702	0.50	915.18	Coarse Tailings	0.039	3.97
SP-702	0.50	915.18	Coarse Tailings	0.045	6.05
SP-702	0.50	915.18	Coarse Tailings	0.054	8.14
SP-702	0.50	915.18	Coarse Tailings	0.055	10.02
SP-702	0.50	915.18	Coarse Tailings	0.058	15.03
SP-702	0.50	915.18	Coarse Tailings	0.063	20.04
SP-702	0.50	915.18	Coarse Tailings	0.072	30.06
SP-702	0.50	915.18	Coarse Tailings	0.084	39.87
SP-702	0.50	915.18	Coarse Tailings	0.101	50.10
SP-702	0.50	915.18	Coarse Tailings	0.149	71.82
SP-702	0.50	915.18	Coarse Tailings	0.245	89.98
SP-702	0.50	915.18	Coarse Tailings	0.303	93.95
SP-702	0.50	915.18	Coarse Tailings	0.421	96.24
SP-702	0.50	915.18	Coarse Tailings	0.500	96.66
SP-702	0.50	915.18	Coarse Tailings	1.000	97.70
SP-702	0.50	915.18	Coarse Tailings	1.999	98.96
SP-702	0.50	915.18	Coarse Tailings	4.153	100.00

Summary of Grain Size Distribution Test Data

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
SP-703	0.50	914.19	Fine Tailings	0.001	4.60
SP-703	0.50	914.19	Fine Tailings	0.003	4.60
SP-703	0.50	914.19	Fine Tailings	0.005	5.65
SP-703	0.50	914.19	Fine Tailings	0.006	5.44
SP-703	0.50	914.19	Fine Tailings	0.006	5.65
SP-703	0.50	914.19	Fine Tailings	0.007	5.44
SP-703	0.50	914.19	Fine Tailings	0.009	6.07
SP-703	0.50	914.19	Fine Tailings	0.014	6.07
SP-703	0.50	914.19	Fine Tailings	0.014	6.28
SP-703	0.50	914.19	Fine Tailings	0.015	6.28
SP-703	0.50	914.19	Fine Tailings	0.017	7.11
SP-703	0.50	914.19	Fine Tailings	0.017	7.11
SP-703	0.50	914.19	Fine Tailings	0.021	8.16
SP-703	0.50	914.19	Fine Tailings	0.021	8.16
SP-703	0.50	914.19	Fine Tailings	0.024	9.00
SP-703	0.50	914.19	Fine Tailings	0.025	9.00
SP-703	0.50	914.19	Fine Tailings	0.026	9.41
SP-703	0.50	914.19	Fine Tailings	0.027	9.41
SP-703	0.50	914.19	Fine Tailings	0.030	10.88
SP-703	0.50	914.19	Fine Tailings	0.036	13.18
SP-703	0.50	914.19	Fine Tailings	0.038	14.23
SP-703	0.50	914.19	Fine Tailings	0.040	15.48
SP-703	0.50	914.19	Fine Tailings	0.042	17.57
SP-703	0.50	914.19	Fine Tailings	0.045	20.08
SP-703	0.50	914.19	Fine Tailings	0.046	21.13
SP-703	0.50	914.19	Fine Tailings	0.052	25.31
SP-703	0.50	914.19	Fine Tailings	0.075	77.41
SP-703	0.50	914.19	Fine Tailings	0.150	98.54
SP-703	0.50	914.19	Fine Tailings	0.225	100.00

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Appendix B - Historical Geotechnical Data

Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
A1	0.50	919.64	Coarse Tailings	0.001	1.88
A1	0.50	919.64	Coarse Tailings	0.001	2.93
A1	0.50	919.64	Coarse Tailings	0.002	2.93
A1	0.50	919.64	Coarse Tailings	0.003	3.97
A1	0.50	919.64	Coarse Tailings	0.004	3.97
A1	0.50	919.64	Coarse Tailings	0.005	5.02
A1	0.50	919.64	Coarse Tailings	0.020	5.02
A1	0.50	919.64	Coarse Tailings	0.027	5.86
A1	0.50	919.64	Coarse Tailings	0.032	7.95
A1	0.50	919.64	Coarse Tailings	0.038	10.25
A1	0.50	919.64	Coarse Tailings	0.053	17.36
A1	0.50	919.64	Coarse Tailings	0.076	50.00
A1	0.50	919.64	Coarse Tailings	0.150	82.85
A1	0.50	919.64	Coarse Tailings	0.159	84.10
A1	0.50	919.64	Coarse Tailings	0.233	89.96
A1	0.50	919.64	Coarse Tailings	0.247	91.00
A1	0.50	919.64	Coarse Tailings	0.306	93.10
A1	0.50	919.64	Coarse Tailings	0.408	93.93
A1	0.50	919.64	Coarse Tailings	0.600	96.03
A1	0.50	919.64	Coarse Tailings	1.010	97.70
A1	0.50	919.64	Coarse Tailings	1.907	100.00

Summary of Grain Size Distribution Test Data

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I
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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
A2	0.50	920.17	Coarse Tailings	0.001	2.93
A2	0.50	920.17	Coarse Tailings	0.002	3.97
A2	0.50	920.17	Coarse Tailings	0.036	3.97
A2	0.50	920.17	Coarse Tailings	0.048	5.65
A2	0.50	920.17	Coarse Tailings	0.051	6.49
A2	0.50	920.17	Coarse Tailings	0.075	19.87
A2	0.50	920.17	Coarse Tailings	0.108	39.96
A2	0.50	920.17	Coarse Tailings	0.153	60.04
A2	0.50	920.17	Coarse Tailings	0.196	70.08
A2	0.50	920.17	Coarse Tailings	0.247	79.92
A2	0.50	920.17	Coarse Tailings	0.294	83.47
A2	0.50	920.17	Coarse Tailings	0.343	85.36
A2	0.50	920.17	Coarse Tailings	1.224	96.03
A2	0.50	920.17	Coarse Tailings	1.982	98.12
A2	0.50	920.17	Coarse Tailings	4.452	100.00

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
A3	0.50	920.48	Coarse Tailings	0.001	2.93
A3	0.50	920.48	Coarse Tailings	0.002	3.97
A3	0.50	920.48	Coarse Tailings	0.027	3.97
A3	0.50	920.48	Coarse Tailings	0.045	7.11
A3	0.50	920.48	Coarse Tailings	0.054	8.79
A3	0.50	920.48	Coarse Tailings	0.060	13.60
A3	0.50	920.48	Coarse Tailings	0.084	29.92
A3	0.50	920.48	Coarse Tailings	0.120	50.21
A3	0.50	920.48	Coarse Tailings	0.177	70.29
A3	0.50	920.48	Coarse Tailings	0.245	85.36
A3	0.50	920.48	Coarse Tailings	0.303	90.38
A3	0.50	920.48	Coarse Tailings	0.421	94.14
A3	0.50	920.48	Coarse Tailings	0.655	96.44
A3	0.50	920.48	Coarse Tailings	1.212	99.16
A3	0.50	920.48	Coarse Tailings	1.851	100.00

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
A4	0.50	920.65	Coarse Tailings	0.001	2.93
A4	0.50	920.65	Coarse Tailings	0.002	2.93
A4	0.50	920.65	Coarse Tailings	0.003	3.97
A4	0.50	920.65	Coarse Tailings	0.007	3.97
A4	0.50	920.65	Coarse Tailings	0.009	5.02
A4	0.50	920.65	Coarse Tailings	0.028	5.02
A4	0.50	920.65	Coarse Tailings	0.034	5.65
A4	0.50	920.65	Coarse Tailings	0.043	7.11
A4	0.50	920.65	Coarse Tailings	0.052	8.58
A4	0.50	920.65	Coarse Tailings	0.054	9.62
A4	0.50	920.65	Coarse Tailings	0.060	13.60
A4	0.50	920.65	Coarse Tailings	0.094	29.71
A4	0.50	920.65	Coarse Tailings	0.161	50.21
A4	0.50	920.65	Coarse Tailings	0.215	60.46
A4	0.50	920.65	Coarse Tailings	0.303	72.18
A4	0.50	920.65	Coarse Tailings	0.421	78.24
A4	0.50	920.65	Coarse Tailings	0.500	82.01
A4	0.50	920.65	Coarse Tailings	0.618	86.61
A4	0.50	920.65	Coarse Tailings	0.825	90.17
A4	0.50	920.65	Coarse Tailings	1.236	95.40
A4	0.50	920.65	Coarse Tailings	2.038	99.16
A5	0.50	920.65	Coarse Tailings	4.234	100.00

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
ST-2016-01	0.25	898.71	Coarse Tailings	0.002	0.82
ST-2016-01	0.25	898.71	Coarse Tailings	0.002	2.37
ST-2016-01	0.25	898.71	Coarse Tailings	0.003	3.19
ST-2016-01	0.25	898.71	Coarse Tailings	0.004	4.58
ST-2016-01	0.25	898.71	Coarse Tailings	0.006	4.66
ST-2016-01	0.25	898.71	Coarse Tailings	0.009	4.74
ST-2016-01	0.25	898.71	Coarse Tailings	0.012	8.17
ST-2016-01	0.25	898.71	Coarse Tailings	0.016	9.23
ST-2016-01	0.25	898.71	Coarse Tailings	0.023	12.42
ST-2016-01	0.25	898.71	Coarse Tailings	0.033	14.62
ST-2016-01	0.25	898.71	Coarse Tailings	0.045	20.51
ST-2016-01	0.25	898.71	Coarse Tailings	0.074	42.40
ST-2016-01	0.25	898.71	Coarse Tailings	0.150	61.68
ST-2016-01	0.25	898.71	Coarse Tailings	0.250	68.79
ST-2016-01	0.25	898.71	Coarse Tailings	0.419	73.37
ST-2016-01	0.25	898.71	Coarse Tailings	0.596	75.98
ST-2016-01	0.25	898.71	Coarse Tailings	1.198	81.86
ST-2016-01	0.25	898.71	Coarse Tailings	1.993	86.19
ST-2016-01	0.25	898.71	Coarse Tailings	4.797	91.26
ST-2016-01	0.25	898.71	Coarse Tailings	9.480	96.98
ST-2016-01	0.25	898.71	Coarse Tailings	12.430	98.69
ST-2016-01	0.25	898.71	Coarse Tailings	18.893	100.00
ST-2016-01	0.25	898.71	Coarse Tailings	24.975	100.00
ST-2016-01	0.25	898.71	Coarse Tailings	37.960	100.00
ST-2016-01	0.25	898.71	Coarse Tailings	49.770	100.00

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
ST-2016-01	1.25	897.71	Fine Tailings	0.001	5.96
ST-2016-01	1.25	897.71	Fine Tailings	0.002	8.58
ST-2016-01	1.25	897.71	Fine Tailings	0.003	12.25
ST-2016-01	1.25	897.71	Fine Tailings	0.004	15.52
ST-2016-01	1.25	897.71	Fine Tailings	0.005	17.08
ST-2016-01	1.25	897.71	Fine Tailings	0.007	20.75
ST-2016-01	1.25	897.71	Fine Tailings	0.010	25.74
ST-2016-01	1.25	897.71	Fine Tailings	0.013	29.09
ST-2016-01	1.25	897.71	Fine Tailings	0.018	34.72
ST-2016-01	1.25	897.71	Fine Tailings	0.026	40.93
ST-2016-01	1.25	897.71	Fine Tailings	0.036	46.00
ST-2016-01	1.25	897.71	Fine Tailings	0.050	48.12
ST-2016-01	1.25	897.71	Fine Tailings	0.074	52.70
ST-2016-01	1.25	897.71	Fine Tailings	0.150	64.46
ST-2016-01	1.25	897.71	Fine Tailings	0.250	71.98
ST-2016-01	1.25	897.71	Fine Tailings	0.419	76.80
ST-2016-01	1.25	897.71	Fine Tailings	0.596	82.84
ST-2016-01	1.25	897.71	Fine Tailings	1.198	86.60
ST-2016-01	1.25	897.71	Fine Tailings	1.993	88.64
ST-2016-01	1.25	897.71	Fine Tailings	4.797	90.93
ST-2016-01	1.25	897.71	Fine Tailings	9.480	94.20
ST-2016-01	1.25	897.71	Fine Tailings	12.430	94.93
ST-2016-01	1.25	897.71	Fine Tailings	18.893	98.28
ST-2016-01	1.25	897.71	Fine Tailings	24.975	100.00
ST-2016-01	1.25	897.71	Fine Tailings	37.960	100.00
ST-2016-01	1.25	897.71	Fine Tailings	49.770	100.00

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
ST-2016-01	1.75	897.21	Coarse Tailings	0.001	3.92
ST-2016-01	1.75	897.21	Coarse Tailings	0.002	6.78
ST-2016-01	1.75	897.21	Coarse Tailings	0.003	10.29
ST-2016-01	1.75	897.21	Coarse Tailings	0.004	11.85
ST-2016-01	1.75	897.21	Coarse Tailings	0.006	15.28
ST-2016-01	1.75	897.21	Coarse Tailings	0.008	18.46
ST-2016-01	1.75	897.21	Coarse Tailings	0.011	23.61
ST-2016-01	1.75	897.21	Coarse Tailings	0.015	27.45
ST-2016-01	1.75	897.21	Coarse Tailings	0.020	31.13
ST-2016-01	1.75	897.21	Coarse Tailings	0.029	35.38
ST-2016-01	1.75	897.21	Coarse Tailings	0.040	40.11
ST-2016-01	1.75	897.21	Coarse Tailings	0.055	42.97
ST-2016-01	1.75	897.21	Coarse Tailings	0.074	46.08
ST-2016-01	1.75	897.21	Coarse Tailings	0.150	50.74
ST-2016-01	1.75	897.21	Coarse Tailings	0.250	56.05
ST-2016-01	1.75	897.21	Coarse Tailings	0.419	58.91
ST-2016-01	1.75	897.21	Coarse Tailings	0.596	60.54
ST-2016-01	1.75	897.21	Coarse Tailings	1.198	63.56
ST-2016-01	1.75	897.21	Coarse Tailings	1.993	70.51
ST-2016-01	1.75	897.21	Coarse Tailings	4.797	72.71
ST-2016-01	1.75	897.21	Coarse Tailings	9.480	75.33
ST-2016-01	1.75	897.21	Coarse Tailings	12.430	77.04
ST-2016-01	1.75	897.21	Coarse Tailings	18.893	79.17
ST-2016-01	1.75	897.21	Coarse Tailings	24.975	82.76
ST-2016-01	1.75	897.21	Coarse Tailings	37.960	91.01
ST-2016-01	1.75	897.21	Coarse Tailings	49.770	100.00

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
ST-2016-01	2.10	896.86	Fine Tailings	0.001	4.82
ST-2016-01	2.10	896.86	Fine Tailings	0.002	8.50
ST-2016-01	2.10	896.86	Fine Tailings	0.003	10.87
ST-2016-01	2.10	896.86	Fine Tailings	0.004	13.81
ST-2016-01	2.10	896.86	Fine Tailings	0.005	18.22
ST-2016-01	2.10	896.86	Fine Tailings	0.007	20.67
ST-2016-01	2.10	896.86	Fine Tailings	0.010	23.53
ST-2016-01	2.10	896.86	Fine Tailings	0.014	26.14
ST-2016-01	2.10	896.86	Fine Tailings	0.019	30.96
ST-2016-01	2.10	896.86	Fine Tailings	0.028	35.46
ST-2016-01	2.10	896.86	Fine Tailings	0.038	39.46
ST-2016-01	2.10	896.86	Fine Tailings	0.052	46.08
ST-2016-01	2.10	896.86	Fine Tailings	0.074	52.37
ST-2016-01	2.10	896.86	Fine Tailings	0.150	67.08
ST-2016-01	2.10	896.86	Fine Tailings	0.250	74.75
ST-2016-01	2.10	896.86	Fine Tailings	0.419	79.41
ST-2016-01	2.10	896.86	Fine Tailings	0.601	82.27
ST-2016-01	2.10	896.86	Fine Tailings	1.198	87.91
ST-2016-01	2.10	896.86	Fine Tailings	1.993	90.85
ST-2016-01	2.10	896.86	Fine Tailings	4.797	93.06
ST-2016-01	2.10	896.86	Fine Tailings	9.480	95.18
ST-2016-01	2.10	896.86	Fine Tailings	12.430	97.55
ST-2016-01	2.10	896.86	Fine Tailings	18.893	100.00

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
ST-2016-02	0.25	898.54	Coarse Tailings	0.002	0.00
ST-2016-02	0.25	898.54	Coarse Tailings	0.003	0.25
ST-2016-02	0.25	898.54	Coarse Tailings	0.004	1.06
ST-2016-02	0.25	898.54	Coarse Tailings	0.006	0.57
ST-2016-02	0.25	898.54	Coarse Tailings	0.008	0.90
ST-2016-02	0.25	898.54	Coarse Tailings	0.012	1.14
ST-2016-02	0.25	898.54	Coarse Tailings	0.016	3.35
ST-2016-02	0.25	898.54	Coarse Tailings	0.023	5.23
ST-2016-02	0.25	898.54	Coarse Tailings	0.032	8.58
ST-2016-02	0.25	898.54	Coarse Tailings	0.044	15.44
ST-2016-02	0.25	898.54	Coarse Tailings	0.074	39.30
ST-2016-02	0.25	898.54	Coarse Tailings	0.150	71.57
ST-2016-02	0.25	898.54	Coarse Tailings	0.250	80.56
ST-2016-02	0.25	898.54	Coarse Tailings	0.419	84.23
ST-2016-02	0.25	898.54	Coarse Tailings	0.596	85.54
ST-2016-02	0.25	898.54	Coarse Tailings	1.198	87.01
ST-2016-02	0.25	898.54	Coarse Tailings	1.993	88.07
ST-2016-02	0.25	898.54	Coarse Tailings	4.797	90.11
ST-2016-02	0.25	898.54	Coarse Tailings	9.480	92.32
ST-2016-02	0.25	898.54	Coarse Tailings	12.430	93.06
ST-2016-02	0.25	898.54	Coarse Tailings	18.893	94.12
ST-2016-02	0.25	898.54	Coarse Tailings	24.975	95.02
ST-2016-02	0.25	898.54	Coarse Tailings	37.960	100.00
ST-2016-02	0.25	898.54	Coarse Tailings	49.770	100.00

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
ST-2016-02	0.75	898.04	Coarse Tailings	0.001	0.00
ST-2016-02	0.75	898.04	Coarse Tailings	0.002	0.00
ST-2016-02	0.75	898.04	Coarse Tailings	0.003	0.00
ST-2016-02	0.75	898.04	Coarse Tailings	0.004	0.08
ST-2016-02	0.75	898.04	Coarse Tailings	0.006	0.33
ST-2016-02	0.75	898.04	Coarse Tailings	0.008	0.82
ST-2016-02	0.75	898.04	Coarse Tailings	0.011	1.06
ST-2016-02	0.75	898.04	Coarse Tailings	0.015	1.06
ST-2016-02	0.75	898.04	Coarse Tailings	0.022	1.80
ST-2016-02	0.75	898.04	Coarse Tailings	0.031	2.78
ST-2016-02	0.75	898.04	Coarse Tailings	0.044	5.31
ST-2016-02	0.75	898.04	Coarse Tailings	0.074	21.65
ST-2016-02	0.75	898.04	Coarse Tailings	0.150	50.00
ST-2016-02	0.75	898.04	Coarse Tailings	0.250	71.57
ST-2016-02	0.75	898.04	Coarse Tailings	0.419	84.48
ST-2016-02	0.75	898.04	Coarse Tailings	0.596	88.48
ST-2016-02	0.75	898.04	Coarse Tailings	1.198	91.34
ST-2016-02	0.75	898.04	Coarse Tailings	1.993	92.32
ST-2016-02	0.75	898.04	Coarse Tailings	4.797	93.71
ST-2016-02	0.75	898.04	Coarse Tailings	9.480	94.12
ST-2016-02	0.75	898.04	Coarse Tailings	12.430	94.44
ST-2016-02	0.75	898.04	Coarse Tailings	18.893	94.36
ST-2016-02	0.75	898.04	Coarse Tailings	24.975	95.59
ST-2016-02	0.75	898.04	Coarse Tailings	37.960	95.59
ST-2016-02	0.75	898.04	Coarse Tailings	49.770	100.00

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
ST-2016-02	1.25	897.54	Coarse Tailings	0.001	0.00
ST-2016-02	1.25	897.54	Coarse Tailings	0.002	0.00
ST-2016-02	1.25	897.54	Coarse Tailings	0.003	0.00
ST-2016-02	1.25	897.54	Coarse Tailings	0.004	0.00
ST-2016-02	1.25	897.54	Coarse Tailings	0.006	0.74
ST-2016-02	1.25	897.54	Coarse Tailings	0.008	0.74
ST-2016-02	1.25	897.54	Coarse Tailings	0.011	1.06
ST-2016-02	1.25	897.54	Coarse Tailings	0.016	2.04
ST-2016-02	1.25	897.54	Coarse Tailings	0.023	3.68
ST-2016-02	1.25	897.54	Coarse Tailings	0.032	4.49
ST-2016-02	1.25	897.54	Coarse Tailings	0.044	8.17
ST-2016-02	1.25	897.54	Coarse Tailings	0.074	25.00
ST-2016-02	1.25	897.54	Coarse Tailings	0.150	63.07
ST-2016-02	1.25	897.54	Coarse Tailings	0.250	80.15
ST-2016-02	1.25	897.54	Coarse Tailings	0.419	90.60
ST-2016-02	1.25	897.54	Coarse Tailings	0.596	93.79
ST-2016-02	1.25	897.54	Coarse Tailings	1.198	96.65
ST-2016-02	1.25	897.54	Coarse Tailings	1.993	98.20
ST-2016-02	1.25	897.54	Coarse Tailings	4.797	99.18
ST-2016-02	1.25	897.54	Coarse Tailings	9.480	100.00
ST-2016-02	1.25	897.54	Coarse Tailings	12.430	100.00
ST-2016-02	1.25	897.54	Coarse Tailings	18.893	100.00
ST-2016-02	1.25	897.54	Coarse Tailings	24.975	100.00
ST-2016-02	1.25	897.54	Coarse Tailings	37.960	100.00
ST-2016-02	1.25	897.54	Coarse Tailings	49.770	100.00

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
ST-2016-02	1.75	897.04	Coarse Tailings	0.001	0.00
ST-2016-02	1.75	897.04	Coarse Tailings	0.002	0.00
ST-2016-02	1.75	897.04	Coarse Tailings	0.003	0.00
ST-2016-02	1.75	897.04	Coarse Tailings	0.004	0.00
ST-2016-02	1.75	897.04	Coarse Tailings	0.006	0.08
ST-2016-02	1.75	897.04	Coarse Tailings	0.008	0.65
ST-2016-02	1.75	897.04	Coarse Tailings	0.011	0.82
ST-2016-02	1.75	897.04	Coarse Tailings	0.016	1.88
ST-2016-02	1.75	897.04	Coarse Tailings	0.023	3.92
ST-2016-02	1.75	897.04	Coarse Tailings	0.032	4.00
ST-2016-02	1.75	897.04	Coarse Tailings	0.044	8.74
ST-2016-02	1.75	897.04	Coarse Tailings	0.074	28.43
ST-2016-02	1.75	897.04	Coarse Tailings	0.150	66.18
ST-2016-02	1.75	897.04	Coarse Tailings	0.250	83.33
ST-2016-02	1.75	897.04	Coarse Tailings	0.419	92.65
ST-2016-02	1.75	897.04	Coarse Tailings	0.596	95.26
ST-2016-02	1.75	897.04	Coarse Tailings	1.198	97.39
ST-2016-02	1.75	897.04	Coarse Tailings	1.993	98.12
ST-2016-02	1.75	897.04	Coarse Tailings	4.797	99.10
ST-2016-02	1.75	897.04	Coarse Tailings	9.403	100.00
ST-2016-02	1.75	897.04	Coarse Tailings	12.430	100.00

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
ST-2016-02	2.25	896.54	Fine Tailings	0.001	0.00
ST-2016-02	2.25	896.54	Fine Tailings	0.002	0.00
ST-2016-02	2.25	896.54	Fine Tailings	0.003	0.00
ST-2016-02	2.25	896.54	Fine Tailings	0.004	0.00
ST-2016-02	2.25	896.54	Fine Tailings	0.006	0.00
ST-2016-02	2.25	896.54	Fine Tailings	0.008	1.06
ST-2016-02	2.25	896.54	Fine Tailings	0.011	1.31
ST-2016-02	2.25	896.54	Fine Tailings	0.016	2.29
ST-2016-02	2.25	896.54	Fine Tailings	0.023	5.64
ST-2016-02	2.25	896.54	Fine Tailings	0.031	10.87
ST-2016-02	2.25	896.54	Fine Tailings	0.041	22.71
ST-2016-02	2.25	896.54	Fine Tailings	0.074	58.50
ST-2016-02	2.25	896.54	Fine Tailings	0.150	89.38
ST-2016-02	2.25	896.54	Fine Tailings	0.250	95.51
ST-2016-02	2.25	896.54	Fine Tailings	0.419	97.88
ST-2016-02	2.25	896.54	Fine Tailings	0.596	98.69
ST-2016-02	2.25	896.54	Fine Tailings	1.198	99.43
ST-2016-02	2.25	896.54	Fine Tailings	1.993	99.75
ST-2016-02	2.25	896.54	Fine Tailings	4.797	100.00
ST-2016-02	2.25	896.54	Fine Tailings	9.480	100.00
ST-2016-02	2.25	896.54	Fine Tailings	12.430	100.00
ST-2016-02	2.25	896.54	Fine Tailings	18.893	100.00
ST-2016-02	2.25	896.54	Fine Tailings	24.975	100.00
ST-2016-02	2.25	896.54	Fine Tailings	37.960	100.00
ST-2016-02	2.25	896.54	Fine Tailings	49.770	100.00

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
ST-2016-02	2.75	896.04	Fine Tailings	0.001	0.00
ST-2016-02	2.75	896.04	Fine Tailings	0.002	0.00
ST-2016-02	2.75	896.04	Fine Tailings	0.003	0.08
ST-2016-02	2.75	896.04	Fine Tailings	0.004	0.33
ST-2016-02	2.75	896.04	Fine Tailings	0.006	0.74
ST-2016-02	2.75	896.04	Fine Tailings	0.008	1.23
ST-2016-02	2.75	896.04	Fine Tailings	0.011	1.47
ST-2016-02	2.75	896.04	Fine Tailings	0.016	1.96
ST-2016-02	2.75	896.04	Fine Tailings	0.022	7.92
ST-2016-02	2.75	896.04	Fine Tailings	0.031	10.38
ST-2016-02	2.75	896.04	Fine Tailings	0.042	16.67
ST-2016-02	2.75	896.04	Fine Tailings	0.074	50.74
ST-2016-02	2.75	896.04	Fine Tailings	0.150	83.99
ST-2016-02	2.75	896.04	Fine Tailings	0.250	90.69
ST-2016-02	2.75	896.04	Fine Tailings	0.419	93.71
ST-2016-02	2.75	896.04	Fine Tailings	0.601	94.85
ST-2016-02	2.75	896.04	Fine Tailings	1.198	96.24
ST-2016-02	2.75	896.04	Fine Tailings	1.993	98.20
ST-2016-02	2.75	896.04	Fine Tailings	4.797	98.69
ST-2016-02	2.75	896.04	Fine Tailings	9.480	98.86
ST-2016-02	2.75	896.04	Fine Tailings	12.430	98.86
ST-2016-02	2.75	896.04	Fine Tailings	18.893	99.10
ST-2016-02	2.75	896.04	Fine Tailings	24.975	100.00
ST-2016-02	2.75	896.04	Fine Tailings	37.960	100.00

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
ST-2016-03	0.25	898.18	Coarse Tailings	0.001	0.08
ST-2016-03	0.25	898.18	Coarse Tailings	0.002	0.00
ST-2016-03	0.25	898.18	Coarse Tailings	0.003	0.82
ST-2016-03	0.25	898.18	Coarse Tailings	0.004	1.23
ST-2016-03	0.25	898.18	Coarse Tailings	0.006	2.61
ST-2016-03	0.25	898.18	Coarse Tailings	0.009	2.70
ST-2016-03	0.25	898.18	Coarse Tailings	0.012	3.84
ST-2016-03	0.25	898.18	Coarse Tailings	0.016	4.49
ST-2016-03	0.25	898.18	Coarse Tailings	0.024	5.96
ST-2016-03	0.25	898.18	Coarse Tailings	0.032	10.70
ST-2016-03	0.25	898.18	Coarse Tailings	0.043	16.26
ST-2016-03	0.25	898.18	Coarse Tailings	0.074	38.97
ST-2016-03	0.25	898.18	Coarse Tailings	0.150	56.05
ST-2016-03	0.25	898.18	Coarse Tailings	0.250	61.36
ST-2016-03	0.25	898.18	Coarse Tailings	0.419	63.97
ST-2016-03	0.25	898.18	Coarse Tailings	0.596	65.03
ST-2016-03	0.25	898.18	Coarse Tailings	1.198	66.75
ST-2016-03	0.25	898.18	Coarse Tailings	1.993	67.89
ST-2016-03	0.25	898.18	Coarse Tailings	4.797	71.57
ST-2016-03	0.25	898.18	Coarse Tailings	9.480	75.41
ST-2016-03	0.25	898.18	Coarse Tailings	12.430	76.80
ST-2016-03	0.25	898.18	Coarse Tailings	18.893	78.10
ST-2016-03	0.25	898.18	Coarse Tailings	24.975	78.02
ST-2016-03	0.25	898.18	Coarse Tailings	37.960	87.75
ST-2016-03	0.25	898.18	Coarse Tailings	49.770	100.00

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
ST-2016-03	0.75	897.68	Coarse Tailings	0.001	0.00
ST-2016-03	0.75	897.68	Coarse Tailings	0.002	0.00
ST-2016-03	0.75	897.68	Coarse Tailings	0.003	0.00
ST-2016-03	0.75	897.68	Coarse Tailings	0.004	0.00
ST-2016-03	0.75	897.68	Coarse Tailings	0.006	0.00
ST-2016-03	0.75	897.68	Coarse Tailings	0.008	1.72
ST-2016-03	0.75	897.68	Coarse Tailings	0.011	2.37
ST-2016-03	0.75	897.68	Coarse Tailings	0.015	4.74
ST-2016-03	0.75	897.68	Coarse Tailings	0.022	6.62
ST-2016-03	0.75	897.68	Coarse Tailings	0.031	8.09
ST-2016-03	0.75	897.68	Coarse Tailings	0.041	17.57
ST-2016-03	0.75	897.68	Coarse Tailings	0.074	45.42
ST-2016-03	0.75	897.68	Coarse Tailings	0.150	78.51
ST-2016-03	0.75	897.68	Coarse Tailings	0.250	88.07
ST-2016-03	0.75	897.68	Coarse Tailings	0.419	92.48
ST-2016-03	0.75	897.68	Coarse Tailings	0.596	94.12
ST-2016-03	0.75	897.68	Coarse Tailings	1.198	95.42
ST-2016-03	0.75	897.68	Coarse Tailings	1.993	96.16
ST-2016-03	0.75	897.68	Coarse Tailings	4.797	96.98
ST-2016-03	0.75	897.68	Coarse Tailings	9.480	97.63
ST-2016-03	0.75	897.68	Coarse Tailings	12.430	97.63
ST-2016-03	0.75	897.68	Coarse Tailings	18.893	97.63
ST-2016-03	0.75	897.68	Coarse Tailings	24.975	97.63
ST-2016-03	0.75	897.68	Coarse Tailings	37.960	97.63
ST-2016-03	0.75	897.68	Coarse Tailings	49.770	100.00

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
ST-2016-03	1.15	897.28	Coarse Tailings	0.001	0.00
ST-2016-03	1.15	897.28	Coarse Tailings	0.002	0.00
ST-2016-03	1.15	897.28	Coarse Tailings	0.003	0.00
ST-2016-03	1.15	897.28	Coarse Tailings	0.004	0.08
ST-2016-03	1.15	897.28	Coarse Tailings	0.006	0.33
ST-2016-03	1.15	897.28	Coarse Tailings	0.008	0.57
ST-2016-03	1.15	897.28	Coarse Tailings	0.011	0.57
ST-2016-03	1.15	897.28	Coarse Tailings	0.015	1.14
ST-2016-03	1.15	897.28	Coarse Tailings	0.022	4.08
ST-2016-03	1.15	897.28	Coarse Tailings	0.031	6.86
ST-2016-03	1.15	897.28	Coarse Tailings	0.042	12.25
ST-2016-03	1.15	897.28	Coarse Tailings	0.074	33.25
ST-2016-03	1.15	897.28	Coarse Tailings	0.150	67.81
ST-2016-03	1.15	897.28	Coarse Tailings	0.250	83.01
ST-2016-03	1.15	897.28	Coarse Tailings	0.419	91.67
ST-2016-03	1.15	897.28	Coarse Tailings	0.596	94.53
ST-2016-03	1.15	897.28	Coarse Tailings	1.198	96.65
ST-2016-03	1.15	897.28	Coarse Tailings	1.993	97.79
ST-2016-03	1.15	897.28	Coarse Tailings	4.797	98.77
ST-2016-03	1.15	897.28	Coarse Tailings	9.480	99.02
ST-2016-03	1.15	897.28	Coarse Tailings	12.430	99.10
ST-2016-03	1.15	897.28	Coarse Tailings	18.893	100.00
ST-2016-03	1.15	897.28	Coarse Tailings	24.975	100.00
ST-2016-03	1.15	897.28	Coarse Tailings	37.960	100.00
ST-2016-03	1.15	897.28	Coarse Tailings	49.770	100.00

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
ST-2016-03A	0.25	898.22	Fine Tailings	0.001	0.90
ST-2016-03A	0.25	898.22	Fine Tailings	0.002	1.96
ST-2016-03A	0.25	898.22	Fine Tailings	0.003	2.78
ST-2016-03A	0.25	898.22	Fine Tailings	0.004	3.84
ST-2016-03A	0.25	898.22	Fine Tailings	0.006	4.66
ST-2016-03A	0.25	898.22	Fine Tailings	0.008	6.78
ST-2016-03A	0.25	898.22	Fine Tailings	0.010	8.42
ST-2016-03A	0.25	898.22	Fine Tailings	0.014	12.75
ST-2016-03A	0.25	898.22	Fine Tailings	0.020	16.91
ST-2016-03A	0.25	898.22	Fine Tailings	0.027	22.55
ST-2016-03A	0.25	898.22	Fine Tailings	0.035	32.60
ST-2016-03A	0.25	898.22	Fine Tailings	0.074	62.09
ST-2016-03A	0.25	898.22	Fine Tailings	0.150	78.19
ST-2016-03A	0.25	898.22	Fine Tailings	0.250	82.27
ST-2016-03A	0.25	898.22	Fine Tailings	0.419	85.46
ST-2016-03A	0.25	898.22	Fine Tailings	0.596	86.60
ST-2016-03A	0.25	898.22	Fine Tailings	1.198	89.38
ST-2016-03A	0.25	898.22	Fine Tailings	1.993	91.50
ST-2016-03A	0.25	898.22	Fine Tailings	4.797	96.16
ST-2016-03A	0.25	898.22	Fine Tailings	9.480	97.71
ST-2016-03A	0.25	898.22	Fine Tailings	12.430	97.88
ST-2016-03A	0.25	898.22	Fine Tailings	18.893	98.94
ST-2016-03A	0.25	898.22	Fine Tailings	24.975	100.00
ST-2016-03A	0.25	898.22	Fine Tailings	37.960	100.00
ST-2016-03A	0.25	898.22	Fine Tailings	49.770	100.00

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
ST-2016-03A	0.75	897.72	Fine Tailings	0.001	0.00
ST-2016-03A	0.75	897.72	Fine Tailings	0.002	0.65
ST-2016-03A	0.75	897.72	Fine Tailings	0.003	0.90
ST-2016-03A	0.75	897.72	Fine Tailings	0.004	1.31
ST-2016-03A	0.75	897.72	Fine Tailings	0.006	2.29
ST-2016-03A	0.75	897.72	Fine Tailings	0.008	2.86
ST-2016-03A	0.75	897.72	Fine Tailings	0.011	3.59
ST-2016-03A	0.75	897.72	Fine Tailings	0.016	4.00
ST-2016-03A	0.75	897.72	Fine Tailings	0.023	5.31
ST-2016-03A	0.75	897.72	Fine Tailings	0.031	10.13
ST-2016-03A	0.75	897.72	Fine Tailings	0.038	32.43
ST-2016-03A	0.75	897.72	Fine Tailings	0.074	52.45
ST-2016-03A	0.75	897.72	Fine Tailings	0.150	83.17
ST-2016-03A	0.75	897.72	Fine Tailings	0.250	92.40
ST-2016-03A	0.75	897.72	Fine Tailings	0.419	96.24
ST-2016-03A	0.75	897.72	Fine Tailings	0.596	97.55
ST-2016-03A	0.75	897.72	Fine Tailings	1.198	99.02
ST-2016-03A	0.75	897.72	Fine Tailings	1.993	99.51
ST-2016-03A	0.75	897.72	Fine Tailings	4.797	99.84
ST-2016-03A	0.75	897.72	Fine Tailings	9.480	100.00
ST-2016-03A	0.75	897.72	Fine Tailings	12.430	100.00
ST-2016-03A	0.75	897.72	Fine Tailings	18.893	100.00
ST-2016-03A	0.75	897.72	Fine Tailings	24.975	100.00
ST-2016-03A	0.75	897.72	Fine Tailings	37.960	100.00
ST-2016-03A	0.75	897.72	Fine Tailings	49.770	100.00

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
ST-2016-03A	1.25	897.22	Fine Tailings	0.001	0.00
ST-2016-03A	1.25	897.22	Fine Tailings	0.002	0.00
ST-2016-03A	1.25	897.22	Fine Tailings	0.003	0.00
ST-2016-03A	1.25	897.22	Fine Tailings	0.004	0.00
ST-2016-03A	1.25	897.22	Fine Tailings	0.006	0.00
ST-2016-03A	1.25	897.22	Fine Tailings	0.008	0.00
ST-2016-03A	1.25	897.22	Fine Tailings	0.011	0.90
ST-2016-03A	1.25	897.22	Fine Tailings	0.015	1.06
ST-2016-03A	1.25	897.22	Fine Tailings	0.022	3.59
ST-2016-03A	1.25	897.22	Fine Tailings	0.031	4.58
ST-2016-03A	1.25	897.22	Fine Tailings	0.043	12.01
ST-2016-03A	1.25	897.22	Fine Tailings	0.074	36.44
ST-2016-03A	1.25	897.22	Fine Tailings	0.150	73.45
ST-2016-03A	1.25	897.22	Fine Tailings	0.250	86.44
ST-2016-03A	1.25	897.22	Fine Tailings	0.419	93.38
ST-2016-03A	1.25	897.22	Fine Tailings	0.596	95.34
ST-2016-03A	1.25	897.22	Fine Tailings	1.198	97.14
ST-2016-03A	1.25	897.22	Fine Tailings	1.993	98.28
ST-2016-03A	1.25	897.22	Fine Tailings	4.797	99.59
ST-2016-03A	1.25	897.22	Fine Tailings	9.480	100.00
ST-2016-03A	1.25	897.22	Fine Tailings	12.430	100.00
ST-2016-03A	1.25	897.22	Fine Tailings	18.893	100.00
ST-2016-03A	1.25	897.22	Fine Tailings	24.975	100.00
ST-2016-03A	1.25	897.22	Fine Tailings	37.960	100.00
ST-2016-03A	1.25	897.22	Fine Tailings	49.770	100.00

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
ST-2016-03A	1.75	896.72	Coarse Tailings	0.001	0.00
ST-2016-03A	1.75	896.72	Coarse Tailings	0.002	0.00
ST-2016-03A	1.75	896.72	Coarse Tailings	0.003	0.00
ST-2016-03A	1.75	896.72	Coarse Tailings	0.004	0.00
ST-2016-03A	1.75	896.72	Coarse Tailings	0.006	0.00
ST-2016-03A	1.75	896.72	Coarse Tailings	0.008	0.00
ST-2016-03A	1.75	896.72	Coarse Tailings	0.011	0.90
ST-2016-03A	1.75	896.72	Coarse Tailings	0.015	1.06
ST-2016-03A	1.75	896.72	Coarse Tailings	0.022	3.59
ST-2016-03A	1.75	896.72	Coarse Tailings	0.031	4.58
ST-2016-03A	1.75	896.72	Coarse Tailings	0.043	12.01
ST-2016-03A	1.75	896.72	Coarse Tailings	0.074	36.44
ST-2016-03A	1.75	896.72	Coarse Tailings	0.150	73.45
ST-2016-03A	1.75	896.72	Coarse Tailings	0.250	86.44
ST-2016-03A	1.75	896.72	Coarse Tailings	0.419	93.38
ST-2016-03A	1.75	896.72	Coarse Tailings	0.596	95.34
ST-2016-03A	1.75	896.72	Coarse Tailings	1.198	97.14
ST-2016-03A	1.75	896.72	Coarse Tailings	1.993	98.28
ST-2016-03A	1.75	896.72	Coarse Tailings	4.797	99.59
ST-2016-03A	1.75	896.72	Coarse Tailings	9.480	100.00
ST-2016-03A	1.75	896.72	Coarse Tailings	12.430	100.00
ST-2016-03A	1.75	896.72	Coarse Tailings	18.893	100.00
ST-2016-03A	1.75	896.72	Coarse Tailings	24.975	100.00
ST-2016-03A	1.75	896.72	Coarse Tailings	37.960	100.00
ST-2016-03A	1.75	896.72	Coarse Tailings	49.770	100.00

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
ST-2016-04	0.25	901.11	Fine Tailings	0.001	0.00
ST-2016-04	0.25	901.11	Fine Tailings	0.002	0.00
ST-2016-04	0.25	901.11	Fine Tailings	0.003	0.00
ST-2016-04	0.25	901.11	Fine Tailings	0.005	0.74
ST-2016-04	0.25	901.11	Fine Tailings	0.007	1.06
ST-2016-04	0.25	901.11	Fine Tailings	0.010	2.12
ST-2016-04	0.25	901.11	Fine Tailings	0.013	3.19
ST-2016-04	0.25	901.11	Fine Tailings	0.018	5.23
ST-2016-04	0.25	901.11	Fine Tailings	0.026	8.33
ST-2016-04	0.25	901.11	Fine Tailings	0.036	12.99
ST-2016-04	0.25	901.11	Fine Tailings	0.047	26.72
ST-2016-04	0.25	901.11	Fine Tailings	0.074	50.16
ST-2016-04	0.25	901.11	Fine Tailings	0.150	73.45
ST-2016-04	0.25	901.11	Fine Tailings	0.250	80.64
ST-2016-04	0.25	901.11	Fine Tailings	0.419	83.74
ST-2016-04	0.25	901.11	Fine Tailings	0.601	84.80
ST-2016-04	0.25	901.11	Fine Tailings	1.198	85.54
ST-2016-04	0.25	901.11	Fine Tailings	1.993	86.11
ST-2016-04	0.25	901.11	Fine Tailings	4.797	90.11
ST-2016-04	0.25	901.11	Fine Tailings	9.480	95.75
ST-2016-04	0.25	901.11	Fine Tailings	12.430	100.00
ST-2016-04	0.25	901.11	Fine Tailings	18.893	100.00
ST-2016-04	0.25	901.11	Fine Tailings	24.975	100.00
ST-2016-04	0.25	901.11	Fine Tailings	37.960	100.00
ST-2016-04	0.25	901.11	Fine Tailings	49.770	100.00

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
ST-2016-04	0.75	900.61	Fine Tailings	0.001	0.49
ST-2016-04	0.75	900.61	Fine Tailings	0.002	1.47
ST-2016-04	0.75	900.61	Fine Tailings	0.002	2.86
ST-2016-04	0.75	900.61	Fine Tailings	0.003	4.17
ST-2016-04	0.75	900.61	Fine Tailings	0.004	4.98
ST-2016-04	0.75	900.61	Fine Tailings	0.006	5.56
ST-2016-04	0.75	900.61	Fine Tailings	0.009	7.19
ST-2016-04	0.75	900.61	Fine Tailings	0.012	8.82
ST-2016-04	0.75	900.61	Fine Tailings	0.017	11.85
ST-2016-04	0.75	900.61	Fine Tailings	0.024	14.79
ST-2016-04	0.75	900.61	Fine Tailings	0.033	18.87
ST-2016-04	0.75	900.61	Fine Tailings	0.045	25.25
ST-2016-04	0.75	900.61	Fine Tailings	0.074	51.39
ST-2016-04	0.75	900.61	Fine Tailings	0.150	75.90
ST-2016-04	0.75	900.61	Fine Tailings	0.250	83.74
ST-2016-04	0.75	900.61	Fine Tailings	0.419	88.07
ST-2016-04	0.75	900.61	Fine Tailings	0.601	90.28
ST-2016-04	0.75	900.61	Fine Tailings	1.198	93.22
ST-2016-04	0.75	900.61	Fine Tailings	1.993	95.83
ST-2016-04	0.75	900.61	Fine Tailings	4.797	97.79
ST-2016-04	0.75	900.61	Fine Tailings	9.480	99.18
ST-2016-04	0.75	900.61	Fine Tailings	12.430	99.59
ST-2016-04	0.75	900.61	Fine Tailings	18.893	100.00
ST-2016-04	0.75	900.61	Fine Tailings	24.975	100.00
ST-2016-04	0.75	900.61	Fine Tailings	37.960	100.00
ST-2016-04	0.75	900.61	Fine Tailings	49.770	100.00

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
ST-2016-04	1.25	900.11	Coarse Tailings	0.001	1.31
ST-2016-04	1.25	900.11	Coarse Tailings	0.002	2.70
ST-2016-04	1.25	900.11	Coarse Tailings	0.003	5.47
ST-2016-04	1.25	900.11	Coarse Tailings	0.004	8.17
ST-2016-04	1.25	900.11	Coarse Tailings	0.005	8.66
ST-2016-04	1.25	900.11	Coarse Tailings	0.007	14.22
ST-2016-04	1.25	900.11	Coarse Tailings	0.010	17.65
ST-2016-04	1.25	900.11	Coarse Tailings	0.013	18.38
ST-2016-04	1.25	900.11	Coarse Tailings	0.018	22.22
ST-2016-04	1.25	900.11	Coarse Tailings	0.026	27.70
ST-2016-04	1.25	900.11	Coarse Tailings	0.036	31.70
ST-2016-04	1.25	900.11	Coarse Tailings	0.049	40.03
ST-2016-04	1.25	900.11	Coarse Tailings	0.074	45.51
ST-2016-04	1.25	900.11	Coarse Tailings	0.150	70.67
ST-2016-04	1.25	900.11	Coarse Tailings	0.250	77.94
ST-2016-04	1.25	900.11	Coarse Tailings	0.419	85.38
ST-2016-04	1.25	900.11	Coarse Tailings	0.596	88.07
ST-2016-04	1.25	900.11	Coarse Tailings	1.198	92.89
ST-2016-04	1.25	900.11	Coarse Tailings	1.993	95.02
ST-2016-04	1.25	900.11	Coarse Tailings	4.797	97.63
ST-2016-04	1.25	900.11	Coarse Tailings	9.480	98.94
ST-2016-04	1.25	900.11	Coarse Tailings	12.430	100.00
ST-2016-04	1.25	900.11	Coarse Tailings	18.893	100.00
ST-2016-04	1.25	900.11	Coarse Tailings	24.975	100.00
ST-2016-04	1.25	900.11	Coarse Tailings	37.960	100.00
ST-2016-04	1.25	900.11	Coarse Tailings	49.770	100.00

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
ST-2016-04	1.75	899.61	Fine Tailings	0.001	3.43
ST-2016-04	1.75	899.61	Fine Tailings	0.002	5.31
ST-2016-04	1.75	899.61	Fine Tailings	0.002	6.54
ST-2016-04	1.75	899.61	Fine Tailings	0.003	7.92
ST-2016-04	1.75	899.61	Fine Tailings	0.005	10.29
ST-2016-04	1.75	899.61	Fine Tailings	0.007	12.58
ST-2016-04	1.75	899.61	Fine Tailings	0.009	17.08
ST-2016-04	1.75	899.61	Fine Tailings	0.012	22.06
ST-2016-04	1.75	899.61	Fine Tailings	0.017	24.92
ST-2016-04	1.75	899.61	Fine Tailings	0.025	29.17
ST-2016-04	1.75	899.61	Fine Tailings	0.034	36.19
ST-2016-04	1.75	899.61	Fine Tailings	0.046	43.79
ST-2016-04	1.75	899.61	Fine Tailings	0.074	53.02
ST-2016-04	1.75	899.61	Fine Tailings	0.150	68.38
ST-2016-04	1.75	899.61	Fine Tailings	0.250	79.41
ST-2016-04	1.75	899.61	Fine Tailings	0.419	83.58
ST-2016-04	1.75	899.61	Fine Tailings	0.601	85.62
ST-2016-04	1.75	899.61	Fine Tailings	1.198	89.22
ST-2016-04	1.75	899.61	Fine Tailings	1.993	91.67
ST-2016-04	1.75	899.61	Fine Tailings	4.797	95.26
ST-2016-04	1.75	899.61	Fine Tailings	9.480	97.55
ST-2016-04	1.75	899.61	Fine Tailings	12.430	99.26
ST-2016-04	1.75	899.61	Fine Tailings	18.893	100.00
ST-2016-04	1.75	899.61	Fine Tailings	24.975	100.00
ST-2016-04	1.75	899.61	Fine Tailings	37.960	100.00
ST-2016-04	1.75	899.61	Fine Tailings	49.770	100.00

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
ST-2016-04	2.25	899.11	Fine Tailings	0.001	1.72
ST-2016-04	2.25	899.11	Fine Tailings	0.002	2.70
ST-2016-04	2.25	899.11	Fine Tailings	0.002	4.49
ST-2016-04	2.25	899.11	Fine Tailings	0.003	5.72
ST-2016-04	2.25	899.11	Fine Tailings	0.005	6.94
ST-2016-04	2.25	899.11	Fine Tailings	0.007	10.62
ST-2016-04	2.25	899.11	Fine Tailings	0.009	12.17
ST-2016-04	2.25	899.11	Fine Tailings	0.013	14.13
ST-2016-04	2.25	899.11	Fine Tailings	0.018	18.22
ST-2016-04	2.25	899.11	Fine Tailings	0.026	23.77
ST-2016-04	2.25	899.11	Fine Tailings	0.036	25.65
ST-2016-04	2.25	899.11	Fine Tailings	0.049	33.01
ST-2016-04	2.25	899.11	Fine Tailings	0.074	52.12
ST-2016-04	2.25	899.11	Fine Tailings	0.150	70.59
ST-2016-04	2.25	899.11	Fine Tailings	0.250	78.59
ST-2016-04	2.25	899.11	Fine Tailings	0.419	82.92
ST-2016-04	2.25	899.11	Fine Tailings	0.596	85.29
ST-2016-04	2.25	899.11	Fine Tailings	1.198	89.38
ST-2016-04	2.25	899.11	Fine Tailings	1.993	91.18
ST-2016-04	2.25	899.11	Fine Tailings	4.836	94.53
ST-2016-04	2.25	899.11	Fine Tailings	9.480	97.14
ST-2016-04	2.25	899.11	Fine Tailings	12.430	99.10
ST-2016-04	2.25	899.11	Fine Tailings	18.893	100.00
ST-2016-04	2.25	899.11	Fine Tailings	24.975	100.00
ST-2016-04	2.25	899.11	Fine Tailings	37.960	100.00

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
ST-2016-04	2.75	898.61	Coarse Tailings	0.001	7.84
ST-2016-04	2.75	898.61	Coarse Tailings	0.002	10.38
ST-2016-04	2.75	898.61	Coarse Tailings	0.003	13.15
ST-2016-04	2.75	898.61	Coarse Tailings	0.004	16.09
ST-2016-04	2.75	898.61	Coarse Tailings	0.006	19.61
ST-2016-04	2.75	898.61	Coarse Tailings	0.008	22.63
ST-2016-04	2.75	898.61	Coarse Tailings	0.011	28.43
ST-2016-04	2.75	898.61	Coarse Tailings	0.014	30.64
ST-2016-04	2.75	898.61	Coarse Tailings	0.020	33.01
ST-2016-04	2.75	898.61	Coarse Tailings	0.030	35.46
ST-2016-04	2.75	898.61	Coarse Tailings	0.041	38.97
ST-2016-04	2.75	898.61	Coarse Tailings	0.056	46.24
ST-2016-04	2.75	898.61	Coarse Tailings	0.074	47.55
ST-2016-04	2.75	898.61	Coarse Tailings	0.150	60.21
ST-2016-04	2.75	898.61	Coarse Tailings	0.250	69.53
ST-2016-04	2.75	898.61	Coarse Tailings	0.419	74.51
ST-2016-04	2.75	898.61	Coarse Tailings	0.601	83.09
ST-2016-04	2.75	898.61	Coarse Tailings	1.198	88.64
ST-2016-04	2.75	898.61	Coarse Tailings	1.993	93.22
ST-2016-04	2.75	898.61	Coarse Tailings	4.797	96.24
ST-2016-04	2.75	898.61	Coarse Tailings	9.480	98.04
ST-2016-04	2.75	898.61	Coarse Tailings	12.430	98.69
ST-2016-04	2.75	898.61	Coarse Tailings	18.893	100.00
ST-2016-04	2.75	898.61	Coarse Tailings	24.975	100.00
ST-2016-04	2.75	898.61	Coarse Tailings	37.960	100.00
ST-2016-04	2.75	898.61	Coarse Tailings	49.770	100.00

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
ST-2016-05	0.25	898.10	Fine Tailings	0.001	1.23
ST-2016-05	0.25	898.10	Fine Tailings	0.001	0.00
ST-2016-05	0.25	898.10	Fine Tailings	0.002	1.31
ST-2016-05	0.25	898.10	Fine Tailings	0.003	2.61
ST-2016-05	0.25	898.10	Fine Tailings	0.004	3.43
ST-2016-05	0.25	898.10	Fine Tailings	0.006	5.07
ST-2016-05	0.25	898.10	Fine Tailings	0.008	6.45
ST-2016-05	0.25	898.10	Fine Tailings	0.011	8.58
ST-2016-05	0.25	898.10	Fine Tailings	0.015	10.78
ST-2016-05	0.25	898.10	Fine Tailings	0.022	16.34
ST-2016-05	0.25	898.10	Fine Tailings	0.028	30.80
ST-2016-05	0.25	898.10	Fine Tailings	0.037	38.40
ST-2016-05	0.25	898.10	Fine Tailings	0.074	70.75
ST-2016-05	0.25	898.10	Fine Tailings	0.150	88.81
ST-2016-05	0.25	898.10	Fine Tailings	0.250	92.48
ST-2016-05	0.25	898.10	Fine Tailings	0.419	94.28
ST-2016-05	0.25	898.10	Fine Tailings	0.596	95.10
ST-2016-05	0.25	898.10	Fine Tailings	1.198	96.90
ST-2016-05	0.25	898.10	Fine Tailings	1.993	98.20
ST-2016-05	0.25	898.10	Fine Tailings	4.797	98.61
ST-2016-05	0.25	898.10	Fine Tailings	9.480	99.18
ST-2016-05	0.25	898.10	Fine Tailings	12.430	99.18
ST-2016-05	0.25	898.10	Fine Tailings	18.893	100.00
ST-2016-05	0.25	898.10	Fine Tailings	24.975	100.00
ST-2016-05	0.25	898.10	Fine Tailings	37.960	100.00
ST-2016-05	0.25	898.10	Fine Tailings	49.770	100.00

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
ST-2016-05	0.75	897.60	Fine Tailings	0.001	0.00
ST-2016-05	0.75	897.60	Fine Tailings	0.002	0.00
ST-2016-05	0.75	897.60	Fine Tailings	0.003	0.00
ST-2016-05	0.75	897.60	Fine Tailings	0.004	0.00
ST-2016-05	0.75	897.60	Fine Tailings	0.006	0.00
ST-2016-05	0.75	897.60	Fine Tailings	0.009	0.65
ST-2016-05	0.75	897.60	Fine Tailings	0.012	0.98
ST-2016-05	0.75	897.60	Fine Tailings	0.016	2.86
ST-2016-05	0.75	897.60	Fine Tailings	0.024	14.95
ST-2016-05	0.75	897.60	Fine Tailings	0.033	17.65
ST-2016-05	0.75	897.60	Fine Tailings	0.044	23.12
ST-2016-05	0.75	897.60	Fine Tailings	0.074	59.89
ST-2016-05	0.75	897.60	Fine Tailings	0.150	94.04
ST-2016-05	0.75	897.60	Fine Tailings	0.250	98.28
ST-2016-05	0.75	897.60	Fine Tailings	0.419	99.43
ST-2016-05	0.75	897.60	Fine Tailings	0.601	99.59
ST-2016-05	0.75	897.60	Fine Tailings	1.198	99.84
ST-2016-05	0.75	897.60	Fine Tailings	1.993	99.92
ST-2016-05	0.75	897.60	Fine Tailings	4.797	100.00
ST-2016-05	0.75	897.60	Fine Tailings	9.480	100.00
ST-2016-05	0.75	897.60	Fine Tailings	12.430	100.00
ST-2016-05	0.75	897.60	Fine Tailings	18.893	100.00
ST-2016-05	0.75	897.60	Fine Tailings	24.975	100.00
ST-2016-05	0.75	897.60	Fine Tailings	37.960	100.00
ST-2016-05	0.75	897.60	Fine Tailings	49.770	100.00

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
ST-2016-05	1.25	897.10	Fine Tailings	0.001	0.00
ST-2016-05	1.25	897.10	Fine Tailings	0.002	0.98
ST-2016-05	1.25	897.10	Fine Tailings	0.003	1.14
ST-2016-05	1.25	897.10	Fine Tailings	0.004	1.23
ST-2016-05	1.25	897.10	Fine Tailings	0.006	2.45
ST-2016-05	1.25	897.10	Fine Tailings	0.008	3.02
ST-2016-05	1.25	897.10	Fine Tailings	0.011	4.08
ST-2016-05	1.25	897.10	Fine Tailings	0.015	5.56
ST-2016-05	1.25	897.10	Fine Tailings	0.022	9.48
ST-2016-05	1.25	897.10	Fine Tailings	0.031	14.05
ST-2016-05	1.25	897.10	Fine Tailings	0.041	21.98
ST-2016-05	1.25	897.10	Fine Tailings	0.074	54.98
ST-2016-05	1.25	897.10	Fine Tailings	0.150	75.00
ST-2016-05	1.25	897.10	Fine Tailings	0.250	81.94
ST-2016-05	1.25	897.10	Fine Tailings	0.419	86.68
ST-2016-05	1.25	897.10	Fine Tailings	0.601	88.97
ST-2016-05	1.25	897.10	Fine Tailings	1.198	93.30
ST-2016-05	1.25	897.10	Fine Tailings	1.993	96.81
ST-2016-05	1.25	897.10	Fine Tailings	4.797	99.43
ST-2016-05	1.25	897.10	Fine Tailings	9.480	100.00
ST-2016-05	1.25	897.10	Fine Tailings	12.430	100.00
ST-2016-05	1.25	897.10	Fine Tailings	18.893	100.00
ST-2016-05	1.25	897.10	Fine Tailings	24.975	100.00
ST-2016-05	1.25	897.10	Fine Tailings	37.960	100.00
ST-2016-05	1.25	897.10	Fine Tailings	49.770	100.00

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
ST-2016-05	1.75	896.60	Fine Tailings	0.001	0.00
ST-2016-05	1.75	896.60	Fine Tailings	0.002	0.00
ST-2016-05	1.75	896.60	Fine Tailings	0.003	0.08
ST-2016-05	1.75	896.60	Fine Tailings	0.004	0.00
ST-2016-05	1.75	896.60	Fine Tailings	0.006	0.65
ST-2016-05	1.75	896.60	Fine Tailings	0.008	1.80
ST-2016-05	1.75	896.60	Fine Tailings	0.011	2.21
ST-2016-05	1.75	896.60	Fine Tailings	0.015	2.86
ST-2016-05	1.75	896.60	Fine Tailings	0.022	4.00
ST-2016-05	1.75	896.60	Fine Tailings	0.030	13.07
ST-2016-05	1.75	896.60	Fine Tailings	0.040	19.85
ST-2016-05	1.75	896.60	Fine Tailings	0.074	56.21
ST-2016-05	1.75	896.60	Fine Tailings	0.150	86.44
ST-2016-05	1.75	896.60	Fine Tailings	0.250	93.14
ST-2016-05	1.75	896.60	Fine Tailings	0.419	96.32
ST-2016-05	1.75	896.60	Fine Tailings	0.596	97.47
ST-2016-05	1.75	896.60	Fine Tailings	1.198	98.37
ST-2016-05	1.75	896.60	Fine Tailings	1.993	99.02
ST-2016-05	1.75	896.60	Fine Tailings	4.797	99.51
ST-2016-05	1.75	896.60	Fine Tailings	9.480	100.00
ST-2016-05	1.75	896.60	Fine Tailings	12.430	100.00
ST-2016-05	1.75	896.60	Fine Tailings	18.893	100.00
ST-2016-05	1.75	896.60	Fine Tailings	24.975	100.00
ST-2016-05	1.75	896.60	Fine Tailings	37.960	100.00
ST-2016-05	1.75	896.60	Fine Tailings	49.770	100.00

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
ST-2016-05	2.25	896.10	Fine Tailings	0.002	0.12
ST-2016-05	2.25	896.10	Fine Tailings	0.003	0.02
ST-2016-05	2.25	896.10	Fine Tailings	0.004	0.01
ST-2016-05	2.25	896.10	Fine Tailings	0.006	0.08
ST-2016-05	2.25	896.10	Fine Tailings	0.008	0.15
ST-2016-05	2.25	896.10	Fine Tailings	0.011	0.21
ST-2016-05	2.25	896.10	Fine Tailings	0.015	1.34
ST-2016-05	2.25	896.10	Fine Tailings	0.022	3.21
ST-2016-05	2.25	896.10	Fine Tailings	0.029	16.76
ST-2016-05	2.25	896.10	Fine Tailings	0.036	34.48
ST-2016-05	2.25	896.10	Fine Tailings	0.074	58.63
ST-2016-05	2.25	896.10	Fine Tailings	0.151	93.90
ST-2016-05	2.25	896.10	Fine Tailings	0.251	97.23
ST-2016-05	2.25	896.10	Fine Tailings	0.421	98.51
ST-2016-05	2.25	896.10	Fine Tailings	0.599	98.90
ST-2016-05	2.25	896.10	Fine Tailings	1.205	99.12
ST-2016-05	2.25	896.10	Fine Tailings	2.005	99.43
ST-2016-05	2.25	896.10	Fine Tailings	4.827	99.47
ST-2016-05	2.25	896.10	Fine Tailings	9.545	99.44
ST-2016-05	2.25	896.10	Fine Tailings	12.517	99.43
ST-2016-05	2.25	896.10	Fine Tailings	19.030	99.42
ST-2016-05	2.25	896.10	Fine Tailings	25.160	99.40
ST-2016-05	2.25	896.10	Fine Tailings	38.251	99.39
ST-2016-05	2.25	896.10	Fine Tailings	50.160	100.00

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
ST-2016-05	2.75	895.60	Coarse Tailings	0.001	0.00
ST-2016-05	2.75	895.60	Coarse Tailings	0.002	0.00
ST-2016-05	2.75	895.60	Coarse Tailings	0.003	1.47
ST-2016-05	2.75	895.60	Coarse Tailings	0.004	2.12
ST-2016-05	2.75	895.60	Coarse Tailings	0.006	2.70
ST-2016-05	2.75	895.60	Coarse Tailings	0.008	3.19
ST-2016-05	2.75	895.60	Coarse Tailings	0.011	4.00
ST-2016-05	2.75	895.60	Coarse Tailings	0.015	6.37
ST-2016-05	2.75	895.60	Coarse Tailings	0.022	11.52
ST-2016-05	2.75	895.60	Coarse Tailings	0.029	20.02
ST-2016-05	2.75	895.60	Coarse Tailings	0.037	33.66
ST-2016-05	2.75	895.60	Coarse Tailings	0.074	40.11
ST-2016-05	2.75	895.60	Coarse Tailings	0.150	78.10
ST-2016-05	2.75	895.60	Coarse Tailings	0.250	88.81
ST-2016-05	2.75	895.60	Coarse Tailings	0.419	93.38
ST-2016-05	2.75	895.60	Coarse Tailings	0.601	94.93
ST-2016-05	2.75	895.60	Coarse Tailings	1.198	96.65
ST-2016-05	2.75	895.60	Coarse Tailings	1.993	97.79
ST-2016-05	2.75	895.60	Coarse Tailings	4.797	99.92
ST-2016-05	2.75	895.60	Coarse Tailings	9.480	100.00
ST-2016-05	2.75	895.60	Coarse Tailings	12.430	100.00
ST-2016-05	2.75	895.60	Coarse Tailings	18.893	100.00
ST-2016-05	2.75	895.60	Coarse Tailings	24.975	100.00
ST-2016-05	2.75	895.60	Coarse Tailings	37.960	100.00
ST-2016-05	2.75	895.60	Coarse Tailings	49.770	100.00

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
ST-2016-06	0.25	897.79	Coarse Tailings	0.001	0.00
ST-2016-06	0.25	897.79	Coarse Tailings	0.002	0.41
ST-2016-06	0.25	897.79	Coarse Tailings	0.002	1.31
ST-2016-06	0.25	897.79	Coarse Tailings	0.003	1.55
ST-2016-06	0.25	897.79	Coarse Tailings	0.004	1.72
ST-2016-06	0.25	897.79	Coarse Tailings	0.006	2.61
ST-2016-06	0.25	897.79	Coarse Tailings	0.009	3.59
ST-2016-06	0.25	897.79	Coarse Tailings	0.012	3.51
ST-2016-06	0.25	897.79	Coarse Tailings	0.016	4.33
ST-2016-06	0.25	897.79	Coarse Tailings	0.024	6.29
ST-2016-06	0.25	897.79	Coarse Tailings	0.033	10.54
ST-2016-06	0.25	897.79	Coarse Tailings	0.044	20.67
ST-2016-06	0.25	897.79	Coarse Tailings	0.074	40.52
ST-2016-06	0.25	897.79	Coarse Tailings	0.150	69.44
ST-2016-06	0.25	897.79	Coarse Tailings	0.250	80.72
ST-2016-06	0.25	897.79	Coarse Tailings	0.419	88.81
ST-2016-06	0.25	897.79	Coarse Tailings	0.601	92.57
ST-2016-06	0.25	897.79	Coarse Tailings	1.198	96.24
ST-2016-06	0.25	897.79	Coarse Tailings	1.993	96.73
ST-2016-06	0.25	897.79	Coarse Tailings	4.797	97.88
ST-2016-06	0.25	897.79	Coarse Tailings	9.480	98.86
ST-2016-06	0.25	897.79	Coarse Tailings	12.430	99.02
ST-2016-06	0.25	897.79	Coarse Tailings	18.893	100.00
ST-2016-06	0.25	897.79	Coarse Tailings	24.975	100.00
ST-2016-06	0.25	897.79	Coarse Tailings	37.960	100.00
ST-2016-06	0.25	897.79	Coarse Tailings	49.770	100.00

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
ST-2016-06	0.75	897.29	Coarse Tailings	0.002	0.00
ST-2016-06	0.75	897.29	Coarse Tailings	0.003	0.00
ST-2016-06	0.75	897.29	Coarse Tailings	0.004	0.33
ST-2016-06	0.75	897.29	Coarse Tailings	0.006	0.65
ST-2016-06	0.75	897.29	Coarse Tailings	0.008	1.39
ST-2016-06	0.75	897.29	Coarse Tailings	0.011	2.37
ST-2016-06	0.75	897.29	Coarse Tailings	0.015	3.76
ST-2016-06	0.75	897.29	Coarse Tailings	0.021	9.48
ST-2016-06	0.75	897.29	Coarse Tailings	0.029	10.62
ST-2016-06	0.75	897.29	Coarse Tailings	0.038	23.04
ST-2016-06	0.75	897.29	Coarse Tailings	0.074	38.24
ST-2016-06	0.75	897.29	Coarse Tailings	0.150	78.35
ST-2016-06	0.75	897.29	Coarse Tailings	0.250	91.01
ST-2016-06	0.75	897.29	Coarse Tailings	0.419	95.59
ST-2016-06	0.75	897.29	Coarse Tailings	0.596	96.73
ST-2016-06	0.75	897.29	Coarse Tailings	1.198	97.47
ST-2016-06	0.75	897.29	Coarse Tailings	1.993	97.63
ST-2016-06	0.75	897.29	Coarse Tailings	4.797	99.92
ST-2016-06	0.75	897.29	Coarse Tailings	9.480	100.00
ST-2016-06	0.75	897.29	Coarse Tailings	12.430	100.00
ST-2016-06	0.75	897.29	Coarse Tailings	18.893	100.00
ST-2016-06	0.75	897.29	Coarse Tailings	24.975	100.00
ST-2016-06	0.75	897.29	Coarse Tailings	37.960	100.00
ST-2016-06	0.75	897.29	Coarse Tailings	50.181	100.00

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
ST-2016-06	1.25	896.79	Coarse Tailings	0.001	0.00
ST-2016-06	1.25	896.79	Coarse Tailings	0.002	0.00
ST-2016-06	1.25	896.79	Coarse Tailings	0.003	0.65
ST-2016-06	1.25	896.79	Coarse Tailings	0.004	0.90
ST-2016-06	1.25	896.79	Coarse Tailings	0.006	0.82
ST-2016-06	1.25	896.79	Coarse Tailings	0.008	0.82
ST-2016-06	1.25	896.79	Coarse Tailings	0.011	2.29
ST-2016-06	1.25	896.79	Coarse Tailings	0.016	2.94
ST-2016-06	1.25	896.79	Coarse Tailings	0.022	6.86
ST-2016-06	1.25	896.79	Coarse Tailings	0.030	16.42
ST-2016-06	1.25	896.79	Coarse Tailings	0.039	30.47
ST-2016-06	1.25	896.79	Coarse Tailings	0.074	48.45
ST-2016-06	1.25	896.79	Coarse Tailings	0.150	84.48
ST-2016-06	1.25	896.79	Coarse Tailings	0.250	94.20
ST-2016-06	1.25	896.79	Coarse Tailings	0.419	98.04
ST-2016-06	1.25	896.79	Coarse Tailings	0.601	99.18
ST-2016-06	1.25	896.79	Coarse Tailings	1.198	99.67
ST-2016-06	1.25	896.79	Coarse Tailings	1.993	99.84
ST-2016-06	1.25	896.79	Coarse Tailings	4.797	100.00
ST-2016-06	1.25	896.79	Coarse Tailings	9.480	100.00
ST-2016-06	1.25	896.79	Coarse Tailings	12.430	100.00
ST-2016-06	1.25	896.79	Coarse Tailings	18.893	100.00
ST-2016-06	1.25	896.79	Coarse Tailings	24.975	100.00
ST-2016-06	1.25	896.79	Coarse Tailings	37.960	100.00
ST-2016-06	1.25	896.79	Coarse Tailings	49.770	100.00

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
ST-2016-06	1.75	896.29	Coarse Tailings	0.001	0.00
ST-2016-06	1.75	896.29	Coarse Tailings	0.002	0.00
ST-2016-06	1.75	896.29	Coarse Tailings	0.003	0.00
ST-2016-06	1.75	896.29	Coarse Tailings	0.004	0.00
ST-2016-06	1.75	896.29	Coarse Tailings	0.006	0.00
ST-2016-06	1.75	896.29	Coarse Tailings	0.008	0.25
ST-2016-06	1.75	896.29	Coarse Tailings	0.011	1.14
ST-2016-06	1.75	896.29	Coarse Tailings	0.016	1.80
ST-2016-06	1.75	896.29	Coarse Tailings	0.023	4.49
ST-2016-06	1.75	896.29	Coarse Tailings	0.032	6.45
ST-2016-06	1.75	896.29	Coarse Tailings	0.044	11.44
ST-2016-06	1.75	896.29	Coarse Tailings	0.074	39.22
ST-2016-06	1.75	896.29	Coarse Tailings	0.150	82.03
ST-2016-06	1.75	896.29	Coarse Tailings	0.250	93.46
ST-2016-06	1.75	896.29	Coarse Tailings	0.419	97.47
ST-2016-06	1.75	896.29	Coarse Tailings	0.601	98.77
ST-2016-06	1.75	896.29	Coarse Tailings	1.198	99.67
ST-2016-06	1.75	896.29	Coarse Tailings	1.993	99.92
ST-2016-06	1.75	896.29	Coarse Tailings	4.797	100.00
ST-2016-06	1.75	896.29	Coarse Tailings	9.480	100.00
ST-2016-06	1.75	896.29	Coarse Tailings	12.430	100.00
ST-2016-06	1.75	896.29	Coarse Tailings	18.893	100.00
ST-2016-06	1.75	896.29	Coarse Tailings	24.975	100.00
ST-2016-06	1.75	896.29	Coarse Tailings	37.960	100.00
ST-2016-06	1.75	896.29	Coarse Tailings	49.770	100.00

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
ST-2016-06	2.25	895.79	Fine Tailings	0.001	0.00
ST-2016-06	2.25	895.79	Fine Tailings	0.002	0.00
ST-2016-06	2.25	895.79	Fine Tailings	0.003	0.00
ST-2016-06	2.25	895.79	Fine Tailings	0.004	0.33
ST-2016-06	2.25	895.79	Fine Tailings	0.006	0.90
ST-2016-06	2.25	895.79	Fine Tailings	0.008	0.98
ST-2016-06	2.25	895.79	Fine Tailings	0.011	1.72
ST-2016-06	2.25	895.79	Fine Tailings	0.016	2.12
ST-2016-06	2.25	895.79	Fine Tailings	0.023	5.72
ST-2016-06	2.25	895.79	Fine Tailings	0.032	11.03
ST-2016-06	2.25	895.79	Fine Tailings	0.041	24.43
ST-2016-06	2.25	895.79	Fine Tailings	0.074	58.09
ST-2016-06	2.25	895.79	Fine Tailings	0.150	87.66
ST-2016-06	2.25	895.79	Fine Tailings	0.250	95.18
ST-2016-06	2.25	895.79	Fine Tailings	0.419	97.96
ST-2016-06	2.25	895.79	Fine Tailings	0.601	98.69
ST-2016-06	2.25	895.79	Fine Tailings	1.198	99.18
ST-2016-06	2.25	895.79	Fine Tailings	1.993	99.51
ST-2016-06	2.25	895.79	Fine Tailings	4.797	100.00
ST-2016-06	2.25	895.79	Fine Tailings	9.480	100.00
ST-2016-06	2.25	895.79	Fine Tailings	12.430	100.00
ST-2016-06	2.25	895.79	Fine Tailings	18.893	100.00
ST-2016-06	2.25	895.79	Fine Tailings	24.975	100.00
ST-2016-06	2.25	895.79	Fine Tailings	37.960	100.00
ST-2016-06	2.25	895.79	Fine Tailings	49.770	100.00

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
ST-2016-06	2.75	895.29	Fine Tailings	0.001	0.00
ST-2016-06	2.75	895.29	Fine Tailings	0.002	0.49
ST-2016-06	2.75	895.29	Fine Tailings	0.003	1.06
ST-2016-06	2.75	895.29	Fine Tailings	0.004	2.04
ST-2016-06	2.75	895.29	Fine Tailings	0.006	2.61
ST-2016-06	2.75	895.29	Fine Tailings	0.008	5.31
ST-2016-06	2.75	895.29	Fine Tailings	0.011	8.17
ST-2016-06	2.75	895.29	Fine Tailings	0.015	10.29
ST-2016-06	2.75	895.29	Fine Tailings	0.021	17.16
ST-2016-06	2.75	895.29	Fine Tailings	0.028	23.69
ST-2016-06	2.75	895.29	Fine Tailings	0.038	32.76
ST-2016-06	2.75	895.29	Fine Tailings	0.074	81.37
ST-2016-06	2.75	895.29	Fine Tailings	0.150	95.67
ST-2016-06	2.75	895.29	Fine Tailings	0.250	97.88
ST-2016-06	2.75	895.29	Fine Tailings	0.419	98.61
ST-2016-06	2.75	895.29	Fine Tailings	0.596	98.94
ST-2016-06	2.75	895.29	Fine Tailings	1.198	99.59
ST-2016-06	2.75	895.29	Fine Tailings	1.993	99.92
ST-2016-06	2.75	895.29	Fine Tailings	4.797	100.00
ST-2016-06	2.75	895.29	Fine Tailings	9.480	100.00
ST-2016-06	2.75	895.29	Fine Tailings	12.430	100.00
ST-2016-06	2.75	895.29	Fine Tailings	18.893	100.00
ST-2016-06	2.75	895.29	Fine Tailings	24.975	100.00
ST-2016-06	2.75	895.29	Fine Tailings	37.960	100.00
ST-2016-06	2.75	895.29	Fine Tailings	49.770	100.00

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
ST-2016-07	0.25	898.61	Coarse Tailings	0.001	1.88
ST-2016-07	0.25	898.61	Coarse Tailings	0.002	2.37
ST-2016-07	0.25	898.61	Coarse Tailings	0.002	3.35
ST-2016-07	0.25	898.61	Coarse Tailings	0.003	4.41
ST-2016-07	0.25	898.61	Coarse Tailings	0.004	6.29
ST-2016-07	0.25	898.61	Coarse Tailings	0.006	6.62
ST-2016-07	0.25	898.61	Coarse Tailings	0.009	7.92
ST-2016-07	0.25	898.61	Coarse Tailings	0.012	9.48
ST-2016-07	0.25	898.61	Coarse Tailings	0.017	10.78
ST-2016-07	0.25	898.61	Coarse Tailings	0.024	14.38
ST-2016-07	0.25	898.61	Coarse Tailings	0.033	17.08
ST-2016-07	0.25	898.61	Coarse Tailings	0.044	22.39
ST-2016-07	0.25	898.61	Coarse Tailings	0.074	33.99
ST-2016-07	0.25	898.61	Coarse Tailings	0.150	48.45
ST-2016-07	0.25	898.61	Coarse Tailings	0.250	53.92
ST-2016-07	0.25	898.61	Coarse Tailings	0.419	58.09
ST-2016-07	0.25	898.61	Coarse Tailings	0.601	60.54
ST-2016-07	0.25	898.61	Coarse Tailings	1.198	66.01
ST-2016-07	0.25	898.61	Coarse Tailings	1.993	69.44
ST-2016-07	0.25	898.61	Coarse Tailings	4.797	78.10
ST-2016-07	0.25	898.61	Coarse Tailings	9.480	89.22
ST-2016-07	0.25	898.61	Coarse Tailings	12.430	94.69
ST-2016-07	0.25	898.61	Coarse Tailings	18.893	95.59
ST-2016-07	0.25	898.61	Coarse Tailings	24.975	98.37
ST-2016-07	0.25	898.61	Coarse Tailings	37.960	100.00
ST-2016-07	0.25	898.61	Coarse Tailings	49.770	100.00

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
ST-2016-07	0.75	898.11	Fine Tailings	0.001	2.61
ST-2016-07	0.75	898.11	Fine Tailings	0.002	5.23
ST-2016-07	0.75	898.11	Fine Tailings	0.002	7.19
ST-2016-07	0.75	898.11	Fine Tailings	0.003	9.40
ST-2016-07	0.75	898.11	Fine Tailings	0.005	10.54
ST-2016-07	0.75	898.11	Fine Tailings	0.006	13.81
ST-2016-07	0.75	898.11	Fine Tailings	0.009	21.73
ST-2016-07	0.75	898.11	Fine Tailings	0.012	25.65
ST-2016-07	0.75	898.11	Fine Tailings	0.017	27.53
ST-2016-07	0.75	898.11	Fine Tailings	0.024	30.15
ST-2016-07	0.75	898.11	Fine Tailings	0.033	35.46
ST-2016-07	0.75	898.11	Fine Tailings	0.046	40.52
ST-2016-07	0.75	898.11	Fine Tailings	0.074	59.31
ST-2016-07	0.75	898.11	Fine Tailings	0.150	74.51
ST-2016-07	0.75	898.11	Fine Tailings	0.250	80.64
ST-2016-07	0.75	898.11	Fine Tailings	0.419	84.80
ST-2016-07	0.75	898.11	Fine Tailings	0.601	86.93
ST-2016-07	0.75	898.11	Fine Tailings	1.198	89.79
ST-2016-07	0.75	898.11	Fine Tailings	1.993	91.75
ST-2016-07	0.75	898.11	Fine Tailings	4.797	95.51
ST-2016-07	0.75	898.11	Fine Tailings	9.480	98.04
ST-2016-07	0.75	898.11	Fine Tailings	12.430	98.53
ST-2016-07	0.75	898.11	Fine Tailings	18.893	100.00
ST-2016-07	0.75	898.11	Fine Tailings	24.975	100.00
ST-2016-07	0.75	898.11	Fine Tailings	37.960	100.00
ST-2016-07	0.75	898.11	Fine Tailings	49.770	100.00

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
ST-2016-07	1.25	897.61	Fine Tailings	0.001	5.07
ST-2016-07	1.25	897.61	Fine Tailings	0.002	9.72
ST-2016-07	1.25	897.61	Fine Tailings	0.003	15.03
ST-2016-07	1.25	897.61	Fine Tailings	0.004	22.06
ST-2016-07	1.25	897.61	Fine Tailings	0.006	25.90
ST-2016-07	1.25	897.61	Fine Tailings	0.008	31.13
ST-2016-07	1.25	897.61	Fine Tailings	0.011	37.34
ST-2016-07	1.25	897.61	Fine Tailings	0.014	43.55
ST-2016-07	1.25	897.61	Fine Tailings	0.019	50.57
ST-2016-07	1.25	897.61	Fine Tailings	0.027	59.97
ST-2016-07	1.25	897.61	Fine Tailings	0.038	62.42
ST-2016-07	1.25	897.61	Fine Tailings	0.052	68.46
ST-2016-07	1.25	897.61	Fine Tailings	0.074	69.85
ST-2016-07	1.25	897.61	Fine Tailings	0.150	83.01
ST-2016-07	1.25	897.61	Fine Tailings	0.250	88.64
ST-2016-07	1.25	897.61	Fine Tailings	0.419	92.32
ST-2016-07	1.25	897.61	Fine Tailings	0.601	94.36
ST-2016-07	1.25	897.61	Fine Tailings	1.198	97.30
ST-2016-07	1.25	897.61	Fine Tailings	1.993	98.69
ST-2016-07	1.25	897.61	Fine Tailings	4.797	99.59
ST-2016-07	1.25	897.61	Fine Tailings	9.480	100.00
ST-2016-07	1.25	897.61	Fine Tailings	12.430	100.00
ST-2016-07	1.25	897.61	Fine Tailings	18.893	100.00
ST-2016-07	1.25	897.61	Fine Tailings	24.975	100.00
ST-2016-07	1.25	897.61	Fine Tailings	37.960	100.00

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
ST-2016-07	1.75	897.11	Fine Tailings	0.001	8.17
ST-2016-07	1.75	897.11	Fine Tailings	0.002	13.40
ST-2016-07	1.75	897.11	Fine Tailings	0.003	17.48
ST-2016-07	1.75	897.11	Fine Tailings	0.004	19.12
ST-2016-07	1.75	897.11	Fine Tailings	0.005	23.94
ST-2016-07	1.75	897.11	Fine Tailings	0.007	31.45
ST-2016-07	1.75	897.11	Fine Tailings	0.010	35.21
ST-2016-07	1.75	897.11	Fine Tailings	0.014	40.52
ST-2016-07	1.75	897.11	Fine Tailings	0.019	46.16
ST-2016-07	1.75	897.11	Fine Tailings	0.027	49.59
ST-2016-07	1.75	897.11	Fine Tailings	0.038	50.65
ST-2016-07	1.75	897.11	Fine Tailings	0.053	54.49
ST-2016-07	1.75	897.11	Fine Tailings	0.074	58.01
ST-2016-07	1.75	897.11	Fine Tailings	0.150	68.06
ST-2016-07	1.75	897.11	Fine Tailings	0.250	72.96
ST-2016-07	1.75	897.11	Fine Tailings	0.419	75.98
ST-2016-07	1.75	897.11	Fine Tailings	0.601	77.61
ST-2016-07	1.75	897.11	Fine Tailings	1.198	80.07
ST-2016-07	1.75	897.11	Fine Tailings	1.993	81.45
ST-2016-07	1.75	897.11	Fine Tailings	4.797	84.89
ST-2016-07	1.75	897.11	Fine Tailings	9.559	89.62
ST-2016-07	1.75	897.11	Fine Tailings	12.430	91.18
ST-2016-07	1.75	897.11	Fine Tailings	18.893	93.71
ST-2016-07	1.75	897.11	Fine Tailings	24.975	94.36
ST-2016-07	1.75	897.11	Fine Tailings	37.960	100.00
ST-2016-07	1.75	897.11	Fine Tailings	49.770	100.00

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
ST-2016-07	2.25	896.61	Fine Tailings	0.001	5.47
ST-2016-07	2.25	896.61	Fine Tailings	0.002	7.52
ST-2016-07	2.25	896.61	Fine Tailings	0.003	9.72
ST-2016-07	2.25	896.61	Fine Tailings	0.004	12.66
ST-2016-07	2.25	896.61	Fine Tailings	0.006	16.99
ST-2016-07	2.25	896.61	Fine Tailings	0.008	25.25
ST-2016-07	2.25	896.61	Fine Tailings	0.011	28.76
ST-2016-07	2.25	896.61	Fine Tailings	0.015	34.56
ST-2016-07	2.25	896.61	Fine Tailings	0.020	42.57
ST-2016-07	2.25	896.61	Fine Tailings	0.028	45.18
ST-2016-07	2.25	896.61	Fine Tailings	0.039	48.53
ST-2016-07	2.25	896.61	Fine Tailings	0.053	51.06
ST-2016-07	2.25	896.61	Fine Tailings	0.074	62.17
ST-2016-07	2.25	896.61	Fine Tailings	0.150	75.65
ST-2016-07	2.25	896.61	Fine Tailings	0.250	82.92
ST-2016-07	2.25	896.61	Fine Tailings	0.419	87.91
ST-2016-07	2.25	896.61	Fine Tailings	0.601	90.93
ST-2016-07	2.25	896.61	Fine Tailings	1.198	95.92
ST-2016-07	2.25	896.61	Fine Tailings	1.993	97.55
ST-2016-07	2.25	896.61	Fine Tailings	4.797	98.69
ST-2016-07	2.25	896.61	Fine Tailings	9.480	100.00
ST-2016-07	2.25	896.61	Fine Tailings	12.430	100.00
ST-2016-07	2.25	896.61	Fine Tailings	18.893	100.00
ST-2016-07	2.25	896.61	Fine Tailings	24.975	100.00
ST-2016-07	2.25	896.61	Fine Tailings	37.960	100.00
ST-2016-07	2.25	896.61	Fine Tailings	49.770	100.00

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
ST-2016-07	2.75	896.11	Coarse Tailings	0.001	5.31
ST-2016-07	2.75	896.11	Coarse Tailings	0.002	8.01
ST-2016-07	2.75	896.11	Coarse Tailings	0.003	10.38
ST-2016-07	2.75	896.11	Coarse Tailings	0.004	11.60
ST-2016-07	2.75	896.11	Coarse Tailings	0.006	13.07
ST-2016-07	2.75	896.11	Coarse Tailings	0.008	16.26
ST-2016-07	2.75	896.11	Coarse Tailings	0.011	21.41
ST-2016-07	2.75	896.11	Coarse Tailings	0.015	23.61
ST-2016-07	2.75	896.11	Coarse Tailings	0.020	26.96
ST-2016-07	2.75	896.11	Coarse Tailings	0.029	32.11
ST-2016-07	2.75	896.11	Coarse Tailings	0.041	35.38
ST-2016-07	2.75	896.11	Coarse Tailings	0.056	41.75
ST-2016-07	2.75	896.11	Coarse Tailings	0.074	44.36
ST-2016-07	2.75	896.11	Coarse Tailings	0.150	58.42
ST-2016-07	2.75	896.11	Coarse Tailings	0.250	68.55
ST-2016-07	2.75	896.11	Coarse Tailings	0.419	75.00
ST-2016-07	2.75	896.11	Coarse Tailings	0.601	78.84
ST-2016-07	2.75	896.11	Coarse Tailings	1.198	87.17
ST-2016-07	2.75	896.11	Coarse Tailings	1.993	90.60
ST-2016-07	2.75	896.11	Coarse Tailings	4.797	95.02
ST-2016-07	2.75	896.11	Coarse Tailings	9.480	98.20
ST-2016-07	2.75	896.11	Coarse Tailings	12.430	98.69
ST-2016-07	2.75	896.11	Coarse Tailings	18.893	98.86
ST-2016-07	2.75	896.11	Coarse Tailings	24.975	100.00
ST-2016-07	2.75	896.11	Coarse Tailings	37.960	100.00
ST-2016-07	2.75	896.11	Coarse Tailings	49.770	100.00

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
ST-2016-08	0.25	897.88	Coarse Tailings	0.001	0.00
ST-2016-08	0.25	897.88	Coarse Tailings	0.001	0.41
ST-2016-08	0.25	897.88	Coarse Tailings	0.002	1.39
ST-2016-08	0.25	897.88	Coarse Tailings	0.003	2.12
ST-2016-08	0.25	897.88	Coarse Tailings	0.004	2.21
ST-2016-08	0.25	897.88	Coarse Tailings	0.006	3.19
ST-2016-08	0.25	897.88	Coarse Tailings	0.008	3.27
ST-2016-08	0.25	897.88	Coarse Tailings	0.011	4.58
ST-2016-08	0.25	897.88	Coarse Tailings	0.016	4.74
ST-2016-08	0.25	897.88	Coarse Tailings	0.023	7.60
ST-2016-08	0.25	897.88	Coarse Tailings	0.032	10.13
ST-2016-08	0.25	897.88	Coarse Tailings	0.043	16.09
ST-2016-08	0.25	897.88	Coarse Tailings	0.074	33.74
ST-2016-08	0.25	897.88	Coarse Tailings	0.150	68.46
ST-2016-08	0.25	897.88	Coarse Tailings	0.250	83.25
ST-2016-08	0.25	897.88	Coarse Tailings	0.419	90.52
ST-2016-08	0.25	897.88	Coarse Tailings	0.601	92.16
ST-2016-08	0.25	897.88	Coarse Tailings	1.198	93.22
ST-2016-08	0.25	897.88	Coarse Tailings	1.993	93.63
ST-2016-08	0.25	897.88	Coarse Tailings	4.797	94.85
ST-2016-08	0.25	897.88	Coarse Tailings	9.480	98.77
ST-2016-08	0.25	897.88	Coarse Tailings	12.430	100.00
ST-2016-08	0.25	897.88	Coarse Tailings	18.893	100.00
ST-2016-08	0.25	897.88	Coarse Tailings	24.975	100.00
ST-2016-08	0.25	897.88	Coarse Tailings	37.960	100.00
ST-2016-08	0.25	897.88	Coarse Tailings	49.770	100.00

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
ST-2016-08	0.75	897.38	Coarse Tailings	0.001	0.00
ST-2016-08	0.75	897.38	Coarse Tailings	0.002	0.00
ST-2016-08	0.75	897.38	Coarse Tailings	0.003	0.00
ST-2016-08	0.75	897.38	Coarse Tailings	0.004	0.00
ST-2016-08	0.75	897.38	Coarse Tailings	0.006	0.25
ST-2016-08	0.75	897.38	Coarse Tailings	0.008	0.98
ST-2016-08	0.75	897.38	Coarse Tailings	0.012	1.31
ST-2016-08	0.75	897.38	Coarse Tailings	0.016	1.48
ST-2016-08	0.75	897.38	Coarse Tailings	0.024	2.79
ST-2016-08	0.75	897.38	Coarse Tailings	0.033	4.26
ST-2016-08	0.75	897.38	Coarse Tailings	0.045	12.21
ST-2016-08	0.75	897.38	Coarse Tailings	0.074	30.98
ST-2016-08	0.75	897.38	Coarse Tailings	0.150	67.70
ST-2016-08	0.75	897.38	Coarse Tailings	0.249	86.48
ST-2016-08	0.75	897.38	Coarse Tailings	0.419	95.66
ST-2016-08	0.75	897.38	Coarse Tailings	0.601	97.95
ST-2016-08	0.75	897.38	Coarse Tailings	1.196	99.26
ST-2016-08	0.75	897.38	Coarse Tailings	1.997	99.67
ST-2016-08	0.75	897.38	Coarse Tailings	4.782	99.92
ST-2016-08	0.75	897.38	Coarse Tailings	9.442	99.92
ST-2016-08	0.75	897.38	Coarse Tailings	12.458	99.92
ST-2016-08	0.75	897.38	Coarse Tailings	18.959	99.92
ST-2016-08	0.75	897.38	Coarse Tailings	24.804	99.92
ST-2016-08	0.75	897.38	Coarse Tailings	37.749	99.92
ST-2016-08	0.75	897.38	Coarse Tailings	49.804	100.00

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
ST-2016-08	1.25	896.88	Fine Tailings	0.001	0.00
ST-2016-08	1.25	896.88	Fine Tailings	0.002	0.00
ST-2016-08	1.25	896.88	Fine Tailings	0.003	0.00
ST-2016-08	1.25	896.88	Fine Tailings	0.006	0.00
ST-2016-08	1.25	896.88	Fine Tailings	0.008	0.74
ST-2016-08	1.25	896.88	Fine Tailings	0.011	1.31
ST-2016-08	1.25	896.88	Fine Tailings	0.016	1.89
ST-2016-08	1.25	896.88	Fine Tailings	0.023	3.85
ST-2016-08	1.25	896.88	Fine Tailings	0.033	4.75
ST-2016-08	1.25	896.88	Fine Tailings	0.044	14.75
ST-2016-08	1.25	896.88	Fine Tailings	0.074	50.57
ST-2016-08	1.25	896.88	Fine Tailings	0.150	65.41
ST-2016-08	1.25	896.88	Fine Tailings	0.250	84.84
ST-2016-08	1.25	896.88	Fine Tailings	0.418	94.92
ST-2016-08	1.25	896.88	Fine Tailings	0.599	97.38
ST-2016-08	1.25	896.88	Fine Tailings	1.204	98.85
ST-2016-08	1.25	896.88	Fine Tailings	2.001	99.34
ST-2016-08	1.25	896.88	Fine Tailings	4.794	100.00
ST-2016-08	1.25	896.88	Fine Tailings	9.487	100.00
ST-2016-08	1.25	896.88	Fine Tailings	12.485	100.00
ST-2016-08	1.25	896.88	Fine Tailings	19.086	100.00
ST-2016-08	1.25	896.88	Fine Tailings	25.119	100.00
ST-2016-08	1.25	896.88	Fine Tailings	38.082	100.00

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
ST-2016-08	1.75	896.38	Coarse Tailings	0.001	0.00
ST-2016-08	1.75	896.38	Coarse Tailings	0.002	0.00
ST-2016-08	1.75	896.38	Coarse Tailings	0.003	0.00
ST-2016-08	1.75	896.38	Coarse Tailings	0.004	0.00
ST-2016-08	1.75	896.38	Coarse Tailings	0.006	0.00
ST-2016-08	1.75	896.38	Coarse Tailings	0.008	0.00
ST-2016-08	1.75	896.38	Coarse Tailings	0.011	1.72
ST-2016-08	1.75	896.38	Coarse Tailings	0.015	2.53
ST-2016-08	1.75	896.38	Coarse Tailings	0.022	4.33
ST-2016-08	1.75	896.38	Coarse Tailings	0.032	5.96
ST-2016-08	1.75	896.38	Coarse Tailings	0.043	11.44
ST-2016-08	1.75	896.38	Coarse Tailings	0.074	39.22
ST-2016-08	1.75	896.38	Coarse Tailings	0.150	77.12
ST-2016-08	1.75	896.38	Coarse Tailings	0.250	90.44
ST-2016-08	1.75	896.38	Coarse Tailings	0.419	95.75
ST-2016-08	1.75	896.38	Coarse Tailings	0.601	97.47
ST-2016-08	1.75	896.38	Coarse Tailings	1.198	98.86
ST-2016-08	1.75	896.38	Coarse Tailings	1.993	99.59
ST-2016-08	1.75	896.38	Coarse Tailings	4.797	100.00
ST-2016-08	1.75	896.38	Coarse Tailings	9.480	100.00
ST-2016-08	1.75	896.38	Coarse Tailings	12.430	100.00
ST-2016-08	1.75	896.38	Coarse Tailings	18.893	100.00
ST-2016-08	1.75	896.38	Coarse Tailings	24.975	100.00
ST-2016-08	1.75	896.38	Coarse Tailings	37.960	100.00
ST-2016-08	1.75	896.38	Coarse Tailings	49.770	100.00

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
ST-2016-08	2.25	895.88	Coarse Tailings	0.001	0.00
ST-2016-08	2.25	895.88	Coarse Tailings	0.002	0.00
ST-2016-08	2.25	895.88	Coarse Tailings	0.003	0.00
ST-2016-08	2.25	895.88	Coarse Tailings	0.004	0.65
ST-2016-08	2.25	895.88	Coarse Tailings	0.006	0.65
ST-2016-08	2.25	895.88	Coarse Tailings	0.008	1.14
ST-2016-08	2.25	895.88	Coarse Tailings	0.012	1.14
ST-2016-08	2.25	895.88	Coarse Tailings	0.016	2.21
ST-2016-08	2.25	895.88	Coarse Tailings	0.024	3.43
ST-2016-08	2.25	895.88	Coarse Tailings	0.033	7.19
ST-2016-08	2.25	895.88	Coarse Tailings	0.045	13.64
ST-2016-08	2.25	895.88	Coarse Tailings	0.074	42.81
ST-2016-08	2.25	895.88	Coarse Tailings	0.150	78.35
ST-2016-08	2.25	895.88	Coarse Tailings	0.250	90.36
ST-2016-08	2.25	895.88	Coarse Tailings	0.419	96.49
ST-2016-08	2.25	895.88	Coarse Tailings	0.601	97.96
ST-2016-08	2.25	895.88	Coarse Tailings	1.198	98.86
ST-2016-08	2.25	895.88	Coarse Tailings	1.993	98.94
ST-2016-08	2.25	895.88	Coarse Tailings	4.797	99.35
ST-2016-08	2.25	895.88	Coarse Tailings	9.480	100.00
ST-2016-08	2.25	895.88	Coarse Tailings	12.430	100.00
ST-2016-08	2.25	895.88	Coarse Tailings	18.893	100.00
ST-2016-08	2.25	895.88	Coarse Tailings	24.975	100.00
ST-2016-08	2.25	895.88	Coarse Tailings	37.960	100.00
ST-2016-08	2.25	895.88	Coarse Tailings	49.770	100.00

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
ST-2016-09	0.25	898.44	Coarse Tailings	0.001	1.23
ST-2016-09	0.25	898.44	Coarse Tailings	0.002	2.61
ST-2016-09	0.25	898.44	Coarse Tailings	0.003	2.53
ST-2016-09	0.25	898.44	Coarse Tailings	0.004	3.92
ST-2016-09	0.25	898.44	Coarse Tailings	0.006	4.25
ST-2016-09	0.25	898.44	Coarse Tailings	0.008	5.96
ST-2016-09	0.25	898.44	Coarse Tailings	0.011	6.62
ST-2016-09	0.25	898.44	Coarse Tailings	0.016	7.43
ST-2016-09	0.25	898.44	Coarse Tailings	0.023	11.36
ST-2016-09	0.25	898.44	Coarse Tailings	0.032	12.17
ST-2016-09	0.25	898.44	Coarse Tailings	0.043	19.85
ST-2016-09	0.25	898.44	Coarse Tailings	0.074	46.98
ST-2016-09	0.25	898.44	Coarse Tailings	0.150	80.80
ST-2016-09	0.25	898.44	Coarse Tailings	0.250	90.85
ST-2016-09	0.25	898.44	Coarse Tailings	0.419	95.02
ST-2016-09	0.25	898.44	Coarse Tailings	0.601	96.57
ST-2016-09	0.25	898.44	Coarse Tailings	1.198	98.04
ST-2016-09	0.25	898.44	Coarse Tailings	1.993	98.61
ST-2016-09	0.25	898.44	Coarse Tailings	4.797	99.26
ST-2016-09	0.25	898.44	Coarse Tailings	9.480	100.00
ST-2016-09	0.25	898.44	Coarse Tailings	12.430	100.00
ST-2016-09	0.25	898.44	Coarse Tailings	18.893	100.00
ST-2016-09	0.25	898.44	Coarse Tailings	24.975	100.00
ST-2016-09	0.25	898.44	Coarse Tailings	37.960	100.00
ST-2016-09	0.25	898.44	Coarse Tailings	49.770	100.00

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
ST-2016-09	0.75	897.94	Coarse Tailings	0.001	0.00
ST-2016-09	0.75	897.94	Coarse Tailings	0.002	0.00
ST-2016-09	0.75	897.94	Coarse Tailings	0.003	0.00
ST-2016-09	0.75	897.94	Coarse Tailings	0.004	0.65
ST-2016-09	0.75	897.94	Coarse Tailings	0.006	0.74
ST-2016-09	0.75	897.94	Coarse Tailings	0.008	1.63
ST-2016-09	0.75	897.94	Coarse Tailings	0.011	2.94
ST-2016-09	0.75	897.94	Coarse Tailings	0.016	3.27
ST-2016-09	0.75	897.94	Coarse Tailings	0.022	6.78
ST-2016-09	0.75	897.94	Coarse Tailings	0.031	10.62
ST-2016-09	0.75	897.94	Coarse Tailings	0.042	17.57
ST-2016-09	0.75	897.94	Coarse Tailings	0.074	46.73
ST-2016-09	0.75	897.94	Coarse Tailings	0.150	74.51
ST-2016-09	0.75	897.94	Coarse Tailings	0.250	87.01
ST-2016-09	0.75	897.94	Coarse Tailings	0.419	94.44
ST-2016-09	0.75	897.94	Coarse Tailings	0.601	96.98
ST-2016-09	0.75	897.94	Coarse Tailings	1.198	98.61
ST-2016-09	0.75	897.94	Coarse Tailings	1.993	99.18
ST-2016-09	0.75	897.94	Coarse Tailings	4.797	99.67
ST-2016-09	0.75	897.94	Coarse Tailings	9.480	100.00
ST-2016-09	0.75	897.94	Coarse Tailings	12.430	100.00
ST-2016-09	0.75	897.94	Coarse Tailings	24.975	100.00
ST-2016-09	0.75	897.94	Coarse Tailings	37.960	100.00
ST-2016-09	0.75	897.94	Coarse Tailings	49.770	100.00

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
ST-2016-09	1.25	897.44	Coarse Tailings	0.001	0.00
ST-2016-09	1.25	897.44	Coarse Tailings	0.002	0.00
ST-2016-09	1.25	897.44	Coarse Tailings	0.003	0.00
ST-2016-09	1.25	897.44	Coarse Tailings	0.004	0.00
ST-2016-09	1.25	897.44	Coarse Tailings	0.006	0.65
ST-2016-09	1.25	897.44	Coarse Tailings	0.008	1.72
ST-2016-09	1.25	897.44	Coarse Tailings	0.011	1.72
ST-2016-09	1.25	897.44	Coarse Tailings	0.016	2.12
ST-2016-09	1.25	897.44	Coarse Tailings	0.023	4.90
ST-2016-09	1.25	897.44	Coarse Tailings	0.031	8.99
ST-2016-09	1.25	897.44	Coarse Tailings	0.044	11.27
ST-2016-09	1.25	897.44	Coarse Tailings	0.074	34.72
ST-2016-09	1.25	897.44	Coarse Tailings	0.150	73.69
ST-2016-09	1.25	897.44	Coarse Tailings	0.250	87.01
ST-2016-09	1.25	897.44	Coarse Tailings	0.419	93.30
ST-2016-09	1.25	897.44	Coarse Tailings	0.601	95.34
ST-2016-09	1.25	897.44	Coarse Tailings	1.198	97.14
ST-2016-09	1.25	897.44	Coarse Tailings	1.993	98.28
ST-2016-09	1.25	897.44	Coarse Tailings	4.797	99.43
ST-2016-09	1.25	897.44	Coarse Tailings	9.480	100.00
ST-2016-09	1.25	897.44	Coarse Tailings	12.430	100.00
ST-2016-09	1.25	897.44	Coarse Tailings	18.893	100.00
ST-2016-09	1.25	897.44	Coarse Tailings	24.975	100.00
ST-2016-09	1.25	897.44	Coarse Tailings	37.960	100.00
ST-2016-09	1.25	897.44	Coarse Tailings	49.770	100.00

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
ST-2016-09	1.75	896.94	Fine Tailings	0.001	0.00
ST-2016-09	1.75	896.94	Fine Tailings	0.002	0.08
ST-2016-09	1.75	896.94	Fine Tailings	0.003	0.41
ST-2016-09	1.75	896.94	Fine Tailings	0.004	0.98
ST-2016-09	1.75	896.94	Fine Tailings	0.006	1.88
ST-2016-09	1.75	896.94	Fine Tailings	0.008	2.37
ST-2016-09	1.75	896.94	Fine Tailings	0.011	3.51
ST-2016-09	1.75	896.94	Fine Tailings	0.015	4.82
ST-2016-09	1.75	896.94	Fine Tailings	0.022	9.72
ST-2016-09	1.75	896.94	Fine Tailings	0.030	15.52
ST-2016-09	1.75	896.94	Fine Tailings	0.040	23.69
ST-2016-09	1.75	896.94	Fine Tailings	0.074	62.01
ST-2016-09	1.75	896.94	Fine Tailings	0.150	86.76
ST-2016-09	1.75	896.94	Fine Tailings	0.250	93.38
ST-2016-09	1.75	896.94	Fine Tailings	0.419	96.98
ST-2016-09	1.75	896.94	Fine Tailings	0.601	98.04
ST-2016-09	1.75	896.94	Fine Tailings	1.198	98.86
ST-2016-09	1.75	896.94	Fine Tailings	1.993	99.59
ST-2016-09	1.75	896.94	Fine Tailings	4.797	100.00
ST-2016-09	1.75	896.94	Fine Tailings	9.480	100.00
ST-2016-09	1.75	896.94	Fine Tailings	12.430	100.00
ST-2016-09	1.75	896.94	Fine Tailings	18.893	100.00
ST-2016-09	1.75	896.94	Fine Tailings	24.975	100.00
ST-2016-09	1.75	896.94	Fine Tailings	37.960	100.00
ST-2016-09	1.75	896.94	Fine Tailings	49.770	100.00

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
ST-2016-01	0.75	898.21	Fine Tailings	0.001	3.61
ST-2016-01	0.75	898.21	Fine Tailings	0.002	5.25
ST-2016-01	0.75	898.21	Fine Tailings	0.002	5.74
ST-2016-01	0.75	898.21	Fine Tailings	0.003	6.15
ST-2016-01	0.75	898.21	Fine Tailings	0.005	6.64
ST-2016-01	0.75	898.21	Fine Tailings	0.007	11.95
ST-2016-01	0.75	898.21	Fine Tailings	0.010	13.02
ST-2016-01	0.75	898.21	Fine Tailings	0.013	15.80
ST-2016-01	0.75	898.21	Fine Tailings	0.018	17.51
ST-2016-01	0.75	898.21	Fine Tailings	0.026	21.03
ST-2016-01	0.75	898.21	Fine Tailings	0.037	22.58
ST-2016-01	0.75	898.21	Fine Tailings	0.049	33.62
ST-2016-01	0.75	898.21	Fine Tailings	0.074	57.31
ST-2016-01	0.75	898.21	Fine Tailings	0.150	76.51
ST-2016-01	0.75	898.21	Fine Tailings	0.250	83.79
ST-2016-01	0.75	898.21	Fine Tailings	0.419	87.71
ST-2016-01	0.75	898.21	Fine Tailings	0.596	89.84
ST-2016-01	0.75	898.21	Fine Tailings	1.198	93.19
ST-2016-01	0.75	898.21	Fine Tailings	1.993	95.16
ST-2016-01	0.75	898.21	Fine Tailings	4.797	97.12
ST-2016-01	0.75	898.21	Fine Tailings	9.480	99.09
ST-2016-01	0.75	898.21	Fine Tailings	12.430	99.66
ST-2016-01	0.75	898.21	Fine Tailings	18.893	100.00

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
A/D-1	0.30	926.81	Coarse Tailings	0.002	4.48
A/D-1	0.30	926.81	Coarse Tailings	0.002	4.27
A/D-1	0.30	926.81	Coarse Tailings	0.003	4.38
A/D-1	0.30	926.81	Coarse Tailings	0.005	4.75
A/D-1	0.30	926.81	Coarse Tailings	0.006	4.94
A/D-1	0.30	926.81	Coarse Tailings	0.009	4.94
A/D-1	0.30	926.81	Coarse Tailings	0.012	4.94
A/D-1	0.30	926.81	Coarse Tailings	0.017	5.12
A/D-1	0.30	926.81	Coarse Tailings	0.024	6.74
A/D-1	0.30	926.81	Coarse Tailings	0.034	8.22
A/D-1	0.30	926.81	Coarse Tailings	0.048	12.82
A/D-1	0.30	926.81	Coarse Tailings	0.066	21.29
A/D-1	0.30	926.81	Coarse Tailings	0.150	53.64
A/D-1	0.30	926.81	Coarse Tailings	0.300	80.80
A/D-1	0.30	926.81	Coarse Tailings	0.420	89.38
A/D-1	0.30	926.81	Coarse Tailings	0.600	95.08
A/D-1	0.30	926.81	Coarse Tailings	1.200	98.72
A/D-1	0.30	926.81	Coarse Tailings	2.000	99.71
A/D-1	0.30	926.81	Coarse Tailings	4.800	100.00
A/D-1	0.30	926.81	Coarse Tailings	9.500	100.00
A/D-1	0.30	926.81	Coarse Tailings	19.000	100.00
A/D-1	0.30	926.81	Coarse Tailings	25.000	100.00
A/D-1	0.30	926.81	Coarse Tailings	38.000	100.00
A/D-1	0.30	926.81	Coarse Tailings	50.000	100.00

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
A/D-2	0.30	926.82	Coarse Tailings	0.002	3.15
A/D-2	0.30	926.82	Coarse Tailings	0.002	3.74
A/D-2	0.30	926.82	Coarse Tailings	0.003	3.67
A/D-2	0.30	926.82	Coarse Tailings	0.005	4.22
A/D-2	0.30	926.82	Coarse Tailings	0.006	4.22
A/D-2	0.30	926.82	Coarse Tailings	0.009	4.41
A/D-2	0.30	926.82	Coarse Tailings	0.012	4.41
A/D-2	0.30	926.82	Coarse Tailings	0.017	5.52
A/D-2	0.30	926.82	Coarse Tailings	0.024	8.26
A/D-2	0.30	926.82	Coarse Tailings	0.034	10.86
A/D-2	0.30	926.82	Coarse Tailings	0.048	15.68
A/D-2	0.30	926.82	Coarse Tailings	0.064	30.50
A/D-2	0.30	926.82	Coarse Tailings	0.150	72.00
A/D-2	0.30	926.82	Coarse Tailings	0.300	86.51
A/D-2	0.30	926.82	Coarse Tailings	0.420	90.87
A/D-2	0.30	926.82	Coarse Tailings	0.600	94.44
A/D-2	0.30	926.82	Coarse Tailings	1.200	98.02
A/D-2	0.30	926.82	Coarse Tailings	2.000	99.34
A/D-2	0.30	926.82	Coarse Tailings	4.800	100.00
A/D-2	0.30	926.82	Coarse Tailings	9.500	100.00
A/D-2	0.30	926.82	Coarse Tailings	19.000	100.00
A/D-2	0.30	926.82	Coarse Tailings	25.000	100.00
A/D-2	0.30	926.82	Coarse Tailings	38.000	100.00
A/D-2	0.30	926.82	Coarse Tailings	50.000	100.00

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
A/D-3	0.30	926.23	Fine Tailings	0.002	5.83
A/D-3	0.30	926.23	Fine Tailings	0.002	6.06
A/D-3	0.30	926.23	Fine Tailings	0.003	6.50
A/D-3	0.30	926.23	Fine Tailings	0.005	6.54
A/D-3	0.30	926.23	Fine Tailings	0.007	7.54
A/D-3	0.30	926.23	Fine Tailings	0.010	7.73
A/D-3	0.30	926.23	Fine Tailings	0.013	8.88
A/D-3	0.30	926.23	Fine Tailings	0.018	11.58
A/D-3	0.30	926.23	Fine Tailings	0.025	16.35
A/D-3	0.30	926.23	Fine Tailings	0.035	25.00
A/D-3	0.30	926.23	Fine Tailings	0.048	40.69
A/D-3	0.30	926.23	Fine Tailings	0.068	68.27
A/D-3	0.30	926.23	Fine Tailings	0.150	98.26
A/D-3	0.30	926.23	Fine Tailings	0.300	99.78
A/D-3	0.30	926.23	Fine Tailings	0.420	99.90
A/D-3	0.30	926.23	Fine Tailings	0.600	99.94
A/D-3	0.30	926.23	Fine Tailings	1.200	100.00
A/D-3	0.30	926.23	Fine Tailings	2.000	100.00
A/D-3	0.30	926.23	Fine Tailings	4.800	100.00
A/D-3	0.30	926.23	Fine Tailings	9.500	100.00
A/D-3	0.30	926.23	Fine Tailings	19.000	100.00
A/D-3	0.30	926.23	Fine Tailings	25.000	100.00
A/D-3	0.30	926.23	Fine Tailings	38.000	100.00
A/D-3	0.30	926.23	Fine Tailings	50.000	100.00

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
A/D-4	0.30	926.01	Fine Tailings	0.002	6.23
A/D-4	0.30	926.01	Fine Tailings	0.002	6.07
A/D-4	0.30	926.01	Fine Tailings	0.003	6.29
A/D-4	0.30	926.01	Fine Tailings	0.005	6.41
A/D-4	0.30	926.01	Fine Tailings	0.006	8.36
A/D-4	0.30	926.01	Fine Tailings	0.009	8.55
A/D-4	0.30	926.01	Fine Tailings	0.012	9.92
A/D-4	0.30	926.01	Fine Tailings	0.017	13.24
A/D-4	0.30	926.01	Fine Tailings	0.024	19.26
A/D-4	0.30	926.01	Fine Tailings	0.033	30.39
A/D-4	0.30	926.01	Fine Tailings	0.046	46.01
A/D-4	0.30	926.01	Fine Tailings	0.065	75.31
A/D-4	0.30	926.01	Fine Tailings	0.150	98.82
A/D-4	0.30	926.01	Fine Tailings	0.300	99.80
A/D-4	0.30	926.01	Fine Tailings	0.420	99.88
A/D-4	0.30	926.01	Fine Tailings	0.600	100.00
A/D-4	0.30	926.01	Fine Tailings	1.200	100.00
A/D-4	0.30	926.01	Fine Tailings	2.000	100.00
A/D-4	0.30	926.01	Fine Tailings	4.800	100.00
A/D-4	0.30	926.01	Fine Tailings	9.500	100.00
A/D-4	0.30	926.01	Fine Tailings	19.000	100.00
A/D-4	0.30	926.01	Fine Tailings	25.000	100.00
A/D-4	0.30	926.01	Fine Tailings	38.000	100.00
A/D-4	0.30	926.01	Fine Tailings	50.000	100.00

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
A/D-5	0.30	927.27	Coarse Tailings	0.002	3.34
A/D-5	0.30	927.27	Coarse Tailings	0.002	3.30
A/D-5	0.30	927.27	Coarse Tailings	0.003	3.27
A/D-5	0.30	927.27	Coarse Tailings	0.004	3.32
A/D-5	0.30	927.27	Coarse Tailings	0.006	3.50
A/D-5	0.30	927.27	Coarse Tailings	0.009	3.68
A/D-5	0.30	927.27	Coarse Tailings	0.012	3.68
A/D-5	0.30	927.27	Coarse Tailings	0.017	3.68
A/D-5	0.30	927.27	Coarse Tailings	0.023	5.26
A/D-5	0.30	927.27	Coarse Tailings	0.033	6.34
A/D-5	0.30	927.27	Coarse Tailings	0.046	8.85
A/D-5	0.30	927.27	Coarse Tailings	0.063	18.91
A/D-5	0.30	927.27	Coarse Tailings	0.150	70.10
A/D-5	0.30	927.27	Coarse Tailings	0.300	94.04
A/D-5	0.30	927.27	Coarse Tailings	0.420	97.31
A/D-5	0.30	927.27	Coarse Tailings	0.600	98.64
A/D-5	0.30	927.27	Coarse Tailings	1.200	99.49
A/D-5	0.30	927.27	Coarse Tailings	2.000	99.88
A/D-5	0.30	927.27	Coarse Tailings	4.800	100.00
A/D-5	0.30	927.27	Coarse Tailings	9.500	100.00
A/D-5	0.30	927.27	Coarse Tailings	19.000	100.00
A/D-5	0.30	927.27	Coarse Tailings	25.000	100.00
A/D-5	0.30	927.27	Coarse Tailings	38.000	100.00
A/D-5	0.30	927.27	Coarse Tailings	50.000	100.00

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
A/D-6	0.30	926.86	Coarse Tailings	0.002	3.05
A/D-6	0.30	926.86	Coarse Tailings	0.002	3.81
A/D-6	0.30	926.86	Coarse Tailings	0.003	3.81
A/D-6	0.30	926.86	Coarse Tailings	0.005	3.70
A/D-6	0.30	926.86	Coarse Tailings	0.006	4.06
A/D-6	0.30	926.86	Coarse Tailings	0.009	4.41
A/D-6	0.30	926.86	Coarse Tailings	0.012	4.85
A/D-6	0.30	926.86	Coarse Tailings	0.017	4.85
A/D-6	0.30	926.86	Coarse Tailings	0.025	6.67
A/D-6	0.30	926.86	Coarse Tailings	0.035	8.43
A/D-6	0.30	926.86	Coarse Tailings	0.048	12.40
A/D-6	0.30	926.86	Coarse Tailings	0.066	22.10
A/D-6	0.30	926.86	Coarse Tailings	0.150	46.43
A/D-6	0.30	926.86	Coarse Tailings	0.300	65.43
A/D-6	0.30	926.86	Coarse Tailings	0.420	74.75
A/D-6	0.30	926.86	Coarse Tailings	0.600	83.57
A/D-6	0.30	926.86	Coarse Tailings	1.200	93.30
A/D-6	0.30	926.86	Coarse Tailings	2.000	96.51
A/D-6	0.30	926.86	Coarse Tailings	4.800	99.68
A/D-6	0.30	926.86	Coarse Tailings	9.500	100.00
A/D-6	0.30	926.86	Coarse Tailings	19.000	100.00
A/D-6	0.30	926.86	Coarse Tailings	25.000	100.00
A/D-6	0.30	926.86	Coarse Tailings	38.000	100.00
A/D-6	0.30	926.86	Coarse Tailings	50.000	100.00

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
A/D-7	0.30	925.16	Fine Tailings	0.002	6.31
A/D-7	0.30	925.16	Fine Tailings	0.002	7.13
A/D-7	0.30	925.16	Fine Tailings	0.003	7.47
A/D-7	0.30	925.16	Fine Tailings	0.005	7.84
A/D-7	0.30	925.16	Fine Tailings	0.007	8.70
A/D-7	0.30	925.16	Fine Tailings	0.009	9.08
A/D-7	0.30	925.16	Fine Tailings	0.013	10.03
A/D-7	0.30	925.16	Fine Tailings	0.018	11.94
A/D-7	0.30	925.16	Fine Tailings	0.025	15.12
A/D-7	0.30	925.16	Fine Tailings	0.035	21.08
A/D-7	0.30	925.16	Fine Tailings	0.048	29.20
A/D-7	0.30	925.16	Fine Tailings	0.068	45.92
A/D-7	0.30	925.16	Fine Tailings	0.150	91.72
A/D-7	0.30	925.16	Fine Tailings	0.300	97.87
A/D-7	0.30	925.16	Fine Tailings	0.420	98.90
A/D-7	0.30	925.16	Fine Tailings	0.600	99.53
A/D-7	0.30	925.16	Fine Tailings	1.200	99.93
A/D-7	0.30	925.16	Fine Tailings	2.000	100.00
A/D-7	0.30	925.16	Fine Tailings	4.800	100.00
A/D-7	0.30	925.16	Fine Tailings	9.500	100.00
A/D-7	0.30	925.16	Fine Tailings	19.000	100.00
A/D-7	0.30	925.16	Fine Tailings	25.000	100.00
A/D-7	0.30	925.16	Fine Tailings	38.000	100.00
A/D-7	0.30	925.16	Fine Tailings	50.000	100.00

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
A/D-8	0.30	924.86	Coarse Tailings	0.002	5.55
A/D-8	0.30	924.86	Coarse Tailings	0.002	6.30
A/D-8	0.30	924.86	Coarse Tailings	0.003	7.63
A/D-8	0.30	924.86	Coarse Tailings	0.005	7.63
A/D-8	0.30	924.86	Coarse Tailings	0.007	7.63
A/D-8	0.30	924.86	Coarse Tailings	0.010	8.11
A/D-8	0.30	924.86	Coarse Tailings	0.013	10.02
A/D-8	0.30	924.86	Coarse Tailings	0.018	10.97
A/D-8	0.30	924.86	Coarse Tailings	0.026	13.66
A/D-8	0.30	924.86	Coarse Tailings	0.036	18.66
A/D-8	0.30	924.86	Coarse Tailings	0.050	25.82
A/D-8	0.30	924.86	Coarse Tailings	0.069	40.13
A/D-8	0.30	924.86	Coarse Tailings	0.150	70.86
A/D-8	0.30	924.86	Coarse Tailings	0.300	84.20
A/D-8	0.30	924.86	Coarse Tailings	0.420	88.67
A/D-8	0.30	924.86	Coarse Tailings	0.600	92.88
A/D-8	0.30	924.86	Coarse Tailings	1.200	97.32
A/D-8	0.30	924.86	Coarse Tailings	2.000	99.08
A/D-8	0.30	924.86	Coarse Tailings	4.800	100.00
A/D-8	0.30	924.86	Coarse Tailings	9.500	100.00
A/D-8	0.30	924.86	Coarse Tailings	19.000	100.00
A/D-8	0.30	924.86	Coarse Tailings	25.000	100.00
A/D-8	0.30	924.86	Coarse Tailings	38.000	100.00
A/D-8	0.30	924.86	Coarse Tailings	50.000	100.00

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
A/D-9	0.30	926.79	Fine Tailings	0.002	5.17
A/D-9	0.30	926.79	Fine Tailings	0.002	5.50
A/D-9	0.30	926.79	Fine Tailings	0.003	5.84
A/D-9	0.30	926.79	Fine Tailings	0.005	5.73
A/D-9	0.30	926.79	Fine Tailings	0.006	6.56
A/D-9	0.30	926.79	Fine Tailings	0.009	6.93
A/D-9	0.30	926.79	Fine Tailings	0.012	7.39
A/D-9	0.30	926.79	Fine Tailings	0.017	9.70
A/D-9	0.30	926.79	Fine Tailings	0.024	13.22
A/D-9	0.30	926.79	Fine Tailings	0.034	20.15
A/D-9	0.30	926.79	Fine Tailings	0.046	33.30
A/D-9	0.30	926.79	Fine Tailings	0.065	53.62
A/D-9	0.30	926.79	Fine Tailings	0.150	98.37
A/D-9	0.30	926.79	Fine Tailings	0.300	99.69
A/D-9	0.30	926.79	Fine Tailings	0.420	99.78
A/D-9	0.30	926.79	Fine Tailings	0.600	99.91
A/D-9	0.30	926.79	Fine Tailings	1.200	99.95
A/D-9	0.30	926.79	Fine Tailings	2.000	99.98
A/D-9	0.30	926.79	Fine Tailings	4.800	100.00
A/D-9	0.30	926.79	Fine Tailings	9.500	100.00
A/D-9	0.30	926.79	Fine Tailings	19.000	100.00
A/D-9	0.30	926.79	Fine Tailings	25.000	100.00
A/D-9	0.30	926.79	Fine Tailings	38.000	100.00
A/D-9	0.30	926.79	Fine Tailings	50.000	100.00

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
A/D-10	0.30	926.40	Coarse Tailings	0.002	4.78
A/D-10	0.30	926.40	Coarse Tailings	0.002	5.58
A/D-10	0.30	926.40	Coarse Tailings	0.003	5.92
A/D-10	0.30	926.40	Coarse Tailings	0.005	5.92
A/D-10	0.30	926.40	Coarse Tailings	0.006	6.74
A/D-10	0.30	926.40	Coarse Tailings	0.009	7.12
A/D-10	0.30	926.40	Coarse Tailings	0.012	7.02
A/D-10	0.30	926.40	Coarse Tailings	0.017	8.43
A/D-10	0.30	926.40	Coarse Tailings	0.024	11.54
A/D-10	0.30	926.40	Coarse Tailings	0.034	17.85
A/D-10	0.30	926.40	Coarse Tailings	0.047	25.34
A/D-10	0.30	926.40	Coarse Tailings	0.065	35.17
A/D-10	0.30	926.40	Coarse Tailings	0.150	80.13
A/D-10	0.30	926.40	Coarse Tailings	0.300	91.53
A/D-10	0.30	926.40	Coarse Tailings	0.420	93.83
A/D-10	0.30	926.40	Coarse Tailings	0.600	95.91
A/D-10	0.30	926.40	Coarse Tailings	1.200	98.42
A/D-10	0.30	926.40	Coarse Tailings	2.000	99.51
A/D-10	0.30	926.40	Coarse Tailings	4.800	99.96
A/D-10	0.30	926.40	Coarse Tailings	9.500	100.00
A/D-10	0.30	926.40	Coarse Tailings	19.000	100.00
A/D-10	0.30	926.40	Coarse Tailings	25.000	100.00
A/D-10	0.30	926.40	Coarse Tailings	38.000	100.00
A/D-10	0.30	926.40	Coarse Tailings	50.000	100.00

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
A/D-11	0.30	926.20	Coarse Tailings	0.002	4.17
A/D-11	0.30	926.20	Coarse Tailings	0.002	4.17
A/D-11	0.30	926.20	Coarse Tailings	0.003	5.10
A/D-11	0.30	926.20	Coarse Tailings	0.004	5.56
A/D-11	0.30	926.20	Coarse Tailings	0.006	5.92
A/D-11	0.30	926.20	Coarse Tailings	0.009	6.36
A/D-11	0.30	926.20	Coarse Tailings	0.012	7.35
A/D-11	0.30	926.20	Coarse Tailings	0.017	8.34
A/D-11	0.30	926.20	Coarse Tailings	0.024	11.64
A/D-11	0.30	926.20	Coarse Tailings	0.033	15.61
A/D-11	0.30	926.20	Coarse Tailings	0.046	24.29
A/D-11	0.30	926.20	Coarse Tailings	0.063	34.22
A/D-11	0.30	926.20	Coarse Tailings	0.150	85.69
A/D-11	0.30	926.20	Coarse Tailings	0.300	94.99
A/D-11	0.30	926.20	Coarse Tailings	0.420	96.69
A/D-11	0.30	926.20	Coarse Tailings	0.600	98.07
A/D-11	0.30	926.20	Coarse Tailings	1.200	99.42
A/D-11	0.30	926.20	Coarse Tailings	2.000	99.88
A/D-11	0.30	926.20	Coarse Tailings	4.800	100.00
A/D-11	0.30	926.20	Coarse Tailings	9.500	100.00
A/D-11	0.30	926.20	Coarse Tailings	19.000	100.00
A/D-11	0.30	926.20	Coarse Tailings	25.000	100.00
A/D-11	0.30	926.20	Coarse Tailings	38.000	100.00
A/D-11	0.30	926.20	Coarse Tailings	50.000	100.00

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
A/D-12	0.30	925.00	Fine Tailings	0.002	4.70
A/D-12	0.30	925.00	Fine Tailings	0.002	5.66
A/D-12	0.30	925.00	Fine Tailings	0.003	4.89
A/D-12	0.30	925.00	Fine Tailings	0.005	4.96
A/D-12	0.30	925.00	Fine Tailings	0.007	5.72
A/D-12	0.30	925.00	Fine Tailings	0.010	5.72
A/D-12	0.30	925.00	Fine Tailings	0.013	6.67
A/D-12	0.30	925.00	Fine Tailings	0.018	7.99
A/D-12	0.30	925.00	Fine Tailings	0.026	13.07
A/D-12	0.30	925.00	Fine Tailings	0.036	20.46
A/D-12	0.30	925.00	Fine Tailings	0.049	33.15
A/D-12	0.30	925.00	Fine Tailings	0.069	53.98
A/D-12	0.30	925.00	Fine Tailings	0.150	96.77
A/D-12	0.30	925.00	Fine Tailings	0.300	99.83
A/D-12	0.30	925.00	Fine Tailings	0.420	99.90
A/D-12	0.30	925.00	Fine Tailings	0.600	99.95
A/D-12	0.30	925.00	Fine Tailings	1.200	99.99
A/D-12	0.30	925.00	Fine Tailings	2.000	99.99
A/D-12	0.30	925.00	Fine Tailings	4.800	100.00
A/D-12	0.30	925.00	Fine Tailings	9.500	100.00
A/D-12	0.30	925.00	Fine Tailings	19.000	100.00
A/D-12	0.30	925.00	Fine Tailings	25.000	100.00
A/D-12	0.30	925.00	Fine Tailings	38.000	100.00
A/D-12	0.30	925.00	Fine Tailings	50.000	100.00

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
A/D-13	0.30	925.47	Coarse Tailings	0.002	3.92
A/D-13	0.30	925.47	Coarse Tailings	0.002	4.27
A/D-13	0.30	925.47	Coarse Tailings	0.003	4.63
A/D-13	0.30	925.47	Coarse Tailings	0.005	5.41
A/D-13	0.30	925.47	Coarse Tailings	0.006	5.81
A/D-13	0.30	925.47	Coarse Tailings	0.009	6.26
A/D-13	0.30	925.47	Coarse Tailings	0.012	7.17
A/D-13	0.30	925.47	Coarse Tailings	0.017	8.53
A/D-13	0.30	925.47	Coarse Tailings	0.024	10.64
A/D-13	0.30	925.47	Coarse Tailings	0.034	14.27
A/D-13	0.30	925.47	Coarse Tailings	0.047	22.20
A/D-13	0.30	925.47	Coarse Tailings	0.065	33.09
A/D-13	0.30	925.47	Coarse Tailings	0.150	81.64
A/D-13	0.30	925.47	Coarse Tailings	0.300	93.01
A/D-13	0.30	925.47	Coarse Tailings	0.420	95.27
A/D-13	0.30	925.47	Coarse Tailings	0.600	96.97
A/D-13	0.30	925.47	Coarse Tailings	1.200	98.59
A/D-13	0.30	925.47	Coarse Tailings	2.000	99.12
A/D-13	0.30	925.47	Coarse Tailings	4.800	99.65
A/D-13	0.30	925.47	Coarse Tailings	9.500	99.87
A/D-13	0.30	925.47	Coarse Tailings	19.000	100.00
A/D-13	0.30	925.47	Coarse Tailings	25.000	100.00
A/D-13	0.30	925.47	Coarse Tailings	38.000	100.00
A/D-13	0.30	925.47	Coarse Tailings	50.000	100.00

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
A/D-17	0.30	925.70	Coarse Tailings	0.002	2.92
A/D-17	0.30	925.70	Coarse Tailings	0.002	3.29
A/D-17	0.30	925.70	Coarse Tailings	0.003	3.62
A/D-17	0.30	925.70	Coarse Tailings	0.004	3.62
A/D-17	0.30	925.70	Coarse Tailings	0.006	4.02
A/D-17	0.30	925.70	Coarse Tailings	0.009	4.02
A/D-17	0.30	925.70	Coarse Tailings	0.012	4.02
A/D-17	0.30	925.70	Coarse Tailings	0.017	4.02
A/D-17	0.30	925.70	Coarse Tailings	0.024	5.45
A/D-17	0.30	925.70	Coarse Tailings	0.034	6.60
A/D-17	0.30	925.70	Coarse Tailings	0.047	12.30
A/D-17	0.30	925.70	Coarse Tailings	0.065	21.44
A/D-17	0.30	925.70	Coarse Tailings	0.150	71.08
A/D-17	0.30	925.70	Coarse Tailings	0.300	92.31
A/D-17	0.30	925.70	Coarse Tailings	0.420	96.14
A/D-17	0.30	925.70	Coarse Tailings	0.600	98.17
A/D-17	0.30	925.70	Coarse Tailings	1.200	99.55
A/D-17	0.30	925.70	Coarse Tailings	2.000	99.85
A/D-17	0.30	925.70	Coarse Tailings	4.800	100.00
A/D-17	0.30	925.70	Coarse Tailings	9.500	100.00
A/D-17	0.30	925.70	Coarse Tailings	19.000	100.00
A/D-17	0.30	925.70	Coarse Tailings	25.000	100.00
A/D-17	0.30	925.70	Coarse Tailings	38.000	100.00
A/D-17	0.30	925.70	Coarse Tailings	50.000	100.00

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
A/D-20	0.30	925.96	Coarse Tailings	0.002	6.62
A/D-20	0.30	925.96	Coarse Tailings	0.002	7.66
A/D-20	0.30	925.96	Coarse Tailings	0.003	8.71
A/D-20	0.30	925.96	Coarse Tailings	0.005	9.35
A/D-20	0.30	925.96	Coarse Tailings	0.007	10.06
A/D-20	0.30	925.96	Coarse Tailings	0.009	10.81
A/D-20	0.30	925.96	Coarse Tailings	0.013	11.18
A/D-20	0.30	925.96	Coarse Tailings	0.018	12.68
A/D-20	0.30	925.96	Coarse Tailings	0.025	15.18
A/D-20	0.30	925.96	Coarse Tailings	0.036	17.98
A/D-20	0.30	925.96	Coarse Tailings	0.049	22.86
A/D-20	0.30	925.96	Coarse Tailings	0.069	31.87
A/D-20	0.30	925.96	Coarse Tailings	0.150	50.82
A/D-20	0.30	925.96	Coarse Tailings	0.300	60.43
A/D-20	0.30	925.96	Coarse Tailings	0.420	63.96
A/D-20	0.30	925.96	Coarse Tailings	0.600	67.29
A/D-20	0.30	925.96	Coarse Tailings	1.200	72.31
A/D-20	0.30	925.96	Coarse Tailings	2.000	75.08
A/D-20	0.30	925.96	Coarse Tailings	4.800	81.10
A/D-20	0.30	925.96	Coarse Tailings	9.500	85.92
A/D-20	0.30	925.96	Coarse Tailings	19.000	94.28
A/D-20	0.30	925.96	Coarse Tailings	25.000	98.09
A/D-20	0.30	925.96	Coarse Tailings	38.000	100.00
A/D-20	0.30	925.96	Coarse Tailings	50.000	100.00

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
A/D-21	0.30	925.73	Coarse Tailings	0.002	2.90
A/D-21	0.30	925.73	Coarse Tailings	0.002	2.90
A/D-21	0.30	925.73	Coarse Tailings	0.003	3.72
A/D-21	0.30	925.73	Coarse Tailings	0.005	4.05
A/D-21	0.30	925.73	Coarse Tailings	0.006	4.44
A/D-21	0.30	925.73	Coarse Tailings	0.009	4.44
A/D-21	0.30	925.73	Coarse Tailings	0.012	4.90
A/D-21	0.30	925.73	Coarse Tailings	0.017	5.35
A/D-21	0.30	925.73	Coarse Tailings	0.025	8.13
A/D-21	0.30	925.73	Coarse Tailings	0.034	10.63
A/D-21	0.30	925.73	Coarse Tailings	0.047	19.46
A/D-21	0.30	925.73	Coarse Tailings	0.064	30.35
A/D-21	0.30	925.73	Coarse Tailings	0.150	66.58
A/D-21	0.30	925.73	Coarse Tailings	0.300	84.06
A/D-21	0.30	925.73	Coarse Tailings	0.420	89.57
A/D-21	0.30	925.73	Coarse Tailings	0.600	93.66
A/D-21	0.30	925.73	Coarse Tailings	1.200	97.67
A/D-21	0.30	925.73	Coarse Tailings	2.000	99.18
A/D-21	0.30	925.73	Coarse Tailings	4.800	99.86
A/D-21	0.30	925.73	Coarse Tailings	9.500	100.00
A/D-21	0.30	925.73	Coarse Tailings	19.000	100.00
A/D-21	0.30	925.73	Coarse Tailings	25.000	100.00
A/D-21	0.30	925.73	Coarse Tailings	38.000	100.00
A/D-21	0.30	925.73	Coarse Tailings	50.000	100.00

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
A/D-22	0.30	925.27	Coarse Tailings	0.002	2.35
A/D-22	0.30	925.27	Coarse Tailings	0.002	2.55
A/D-22	0.30	925.27	Coarse Tailings	0.003	1.80
A/D-22	0.30	925.27	Coarse Tailings	0.005	2.79
A/D-22	0.30	925.27	Coarse Tailings	0.007	3.34
A/D-22	0.30	925.27	Coarse Tailings	0.009	3.34
A/D-22	0.30	925.27	Coarse Tailings	0.013	3.34
A/D-22	0.30	925.27	Coarse Tailings	0.018	3.53
A/D-22	0.30	925.27	Coarse Tailings	0.025	4.59
A/D-22	0.30	925.27	Coarse Tailings	0.036	6.79
A/D-22	0.30	925.27	Coarse Tailings	0.050	11.02
A/D-22	0.30	925.27	Coarse Tailings	0.068	18.36
A/D-22	0.30	925.27	Coarse Tailings	0.150	49.68
A/D-22	0.30	925.27	Coarse Tailings	0.300	76.98
A/D-22	0.30	925.27	Coarse Tailings	0.420	85.63
A/D-22	0.30	925.27	Coarse Tailings	0.600	91.53
A/D-22	0.30	925.27	Coarse Tailings	1.200	97.20
A/D-22	0.30	925.27	Coarse Tailings	2.000	98.86
A/D-22	0.30	925.27	Coarse Tailings	4.800	99.94
A/D-22	0.30	925.27	Coarse Tailings	9.500	100.00
A/D-22	0.30	925.27	Coarse Tailings	19.000	100.00
A/D-22	0.30	925.27	Coarse Tailings	25.000	100.00
A/D-22	0.30	925.27	Coarse Tailings	38.000	100.00
A/D-22	0.30	925.27	Coarse Tailings	50.000	100.00

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
A/D-23	0.30	926.12	Coarse Tailings	0.002	2.85
A/D-23	0.30	926.12	Coarse Tailings	0.002	3.58
A/D-23	0.30	926.12	Coarse Tailings	0.003	3.30
A/D-23	0.30	926.12	Coarse Tailings	0.004	3.65
A/D-23	0.30	926.12	Coarse Tailings	0.006	4.19
A/D-23	0.30	926.12	Coarse Tailings	0.009	4.37
A/D-23	0.30	926.12	Coarse Tailings	0.012	4.55
A/D-23	0.30	926.12	Coarse Tailings	0.017	4.91
A/D-23	0.30	926.12	Coarse Tailings	0.024	6.32
A/D-23	0.30	926.12	Coarse Tailings	0.034	8.13
A/D-23	0.30	926.12	Coarse Tailings	0.048	12.10
A/D-23	0.30	926.12	Coarse Tailings	0.065	22.58
A/D-23	0.30	926.12	Coarse Tailings	0.150	64.39
A/D-23	0.30	926.12	Coarse Tailings	0.300	91.16
A/D-23	0.30	926.12	Coarse Tailings	0.420	95.28
A/D-23	0.30	926.12	Coarse Tailings	0.600	97.53
A/D-23	0.30	926.12	Coarse Tailings	1.200	99.20
A/D-23	0.30	926.12	Coarse Tailings	2.000	99.84
A/D-23	0.30	926.12	Coarse Tailings	4.800	99.99
A/D-23	0.30	926.12	Coarse Tailings	9.500	100.00
A/D-23	0.30	926.12	Coarse Tailings	19.000	100.00
A/D-23	0.30	926.12	Coarse Tailings	25.000	100.00
A/D-23	0.30	926.12	Coarse Tailings	38.000	100.00
A/D-23	0.30	926.12	Coarse Tailings	50.000	100.00

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
A/D-24	0.30	924.98	Coarse Tailings	0.002	4.54
A/D-24	0.30	924.98	Coarse Tailings	0.002	4.95
A/D-24	0.30	924.98	Coarse Tailings	0.003	5.64
A/D-24	0.30	924.98	Coarse Tailings	0.005	6.27
A/D-24	0.30	924.98	Coarse Tailings	0.006	7.00
A/D-24	0.30	924.98	Coarse Tailings	0.009	7.00
A/D-24	0.30	924.98	Coarse Tailings	0.012	7.73
A/D-24	0.30	924.98	Coarse Tailings	0.017	8.83
A/D-24	0.30	924.98	Coarse Tailings	0.025	11.18
A/D-24	0.30	924.98	Coarse Tailings	0.034	13.74
A/D-24	0.30	924.98	Coarse Tailings	0.048	19.05
A/D-24	0.30	924.98	Coarse Tailings	0.065	28.76
A/D-24	0.30	924.98	Coarse Tailings	0.150	64.72
A/D-24	0.30	924.98	Coarse Tailings	0.300	83.88
A/D-24	0.30	924.98	Coarse Tailings	0.420	91.21
A/D-24	0.30	924.98	Coarse Tailings	0.600	96.34
A/D-24	0.30	924.98	Coarse Tailings	1.200	99.08
A/D-24	0.30	924.98	Coarse Tailings	2.000	99.80
A/D-24	0.30	924.98	Coarse Tailings	4.800	99.98
A/D-24	0.30	924.98	Coarse Tailings	9.500	100.00
A/D-24	0.30	924.98	Coarse Tailings	19.000	100.00
A/D-24	0.30	924.98	Coarse Tailings	25.000	100.00
A/D-24	0.30	924.98	Coarse Tailings	38.000	100.00
A/D-24	0.30	924.98	Coarse Tailings	50.000	100.00

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
A/D-25	0.30	924.83	Coarse Tailings	0.002	5.85
A/D-25	0.30	924.83	Coarse Tailings	0.002	5.89
A/D-25	0.30	924.83	Coarse Tailings	0.003	6.32
A/D-25	0.30	924.83	Coarse Tailings	0.005	6.72
A/D-25	0.30	924.83	Coarse Tailings	0.007	6.72
A/D-25	0.30	924.83	Coarse Tailings	0.009	6.72
A/D-25	0.30	924.83	Coarse Tailings	0.013	7.31
A/D-25	0.30	924.83	Coarse Tailings	0.018	8.48
A/D-25	0.30	924.83	Coarse Tailings	0.025	10.41
A/D-25	0.30	924.83	Coarse Tailings	0.035	12.37
A/D-25	0.30	924.83	Coarse Tailings	0.049	16.69
A/D-25	0.30	924.83	Coarse Tailings	0.068	22.59
A/D-25	0.30	924.83	Coarse Tailings	0.150	62.43
A/D-25	0.30	924.83	Coarse Tailings	0.300	89.43
A/D-25	0.30	924.83	Coarse Tailings	0.420	95.07
A/D-25	0.30	924.83	Coarse Tailings	0.600	98.15
A/D-25	0.30	924.83	Coarse Tailings	1.200	99.59
A/D-25	0.30	924.83	Coarse Tailings	2.000	99.88
A/D-25	0.30	924.83	Coarse Tailings	4.800	99.97
A/D-25	0.30	924.83	Coarse Tailings	9.500	100.00
A/D-25	0.30	924.83	Coarse Tailings	19.000	100.00
A/D-25	0.30	924.83	Coarse Tailings	25.000	100.00
A/D-25	0.30	924.83	Coarse Tailings	38.000	100.00
A/D-25	0.30	924.83	Coarse Tailings	50.000	100.00

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
F-01	1.00	870.12	Coarse Tailings	0.074	33.00
F-01	1.00	870.12	Coarse Tailings	0.149	80.80
F-01	1.00	870.12	Coarse Tailings	0.297	98.50
F-01	1.00	870.12	Coarse Tailings	0.420	99.20
F-01	1.00	870.12	Coarse Tailings	0.590	100.00
F-01	1.00	870.12	Coarse Tailings	2.000	100.00

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
F-02	1.00	869.24	Coarse Tailings	0.074	30.90
F-02	1.00	869.24	Coarse Tailings	0.149	94.60
F-02	1.00	869.24	Coarse Tailings	0.297	98.20
F-02	1.00	869.24	Coarse Tailings	0.420	98.40
F-02	1.00	869.24	Coarse Tailings	0.590	98.60
F-02	1.00	869.24	Coarse Tailings	2.000	100.00

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
F-03	1.00	871.38	Coarse Tailings	0.074	27.20
F-03	1.00	871.38	Coarse Tailings	0.149	73.90
F-03	1.00	871.38	Coarse Tailings	0.297	98.30
F-03	1.00	871.38	Coarse Tailings	0.420	99.40
F-03	1.00	871.38	Coarse Tailings	1.190	100.00

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
F-04	1.00	867.30	Coarse Tailings	0.074	16.20
F-04	1.00	867.30	Coarse Tailings	0.149	87.20
F-04	1.00	867.30	Coarse Tailings	0.297	99.60
F-04	1.00	867.30	Coarse Tailings	0.420	100.00
F-04	1.00	867.30	Coarse Tailings	2.000	100.00

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
F-05	1.00	864.29	Coarse Tailings	0.074	27.50
F-05	1.00	864.29	Coarse Tailings	0.149	76.30
F-05	1.00	864.29	Coarse Tailings	0.297	88.40
F-05	1.00	864.29	Coarse Tailings	0.420	88.90
F-05	1.00	864.29	Coarse Tailings	0.590	89.30
F-05	1.00	864.29	Coarse Tailings	2.000	91.10
F-05	1.00	864.29	Coarse Tailings	4.760	94.00
F-05	1.00	864.29	Coarse Tailings	9.500	98.60
F-05	1.00	864.29	Coarse Tailings	12.700	100.00

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
F-06	1.00	889.70	Coarse Tailings	0.074	38.50
F-06	1.00	889.70	Coarse Tailings	0.149	90.90
F-06	1.00	889.70	Coarse Tailings	0.297	100.00
F-06	1.00	889.70	Coarse Tailings	2.000	100.00

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
F-07	1.00	887.40	Coarse Tailings	0.074	25.90
F-07	1.00	887.40	Coarse Tailings	0.149	85.10
F-07	1.00	887.40	Coarse Tailings	0.297	100.00
F-07	1.00	887.40	Coarse Tailings	2.000	100.00

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
A/D-14	0.30	925.55	Coarse Tailings	0.002	2.70
A/D-14	0.30	925.55	Coarse Tailings	0.002	3.56
A/D-14	0.30	925.55	Coarse Tailings	0.003	3.07
A/D-14	0.30	925.55	Coarse Tailings	0.005	4.15
A/D-14	0.30	925.55	Coarse Tailings	0.007	4.16
A/D-14	0.30	925.55	Coarse Tailings	0.009	4.16
A/D-14	0.30	925.55	Coarse Tailings	0.013	4.35
A/D-14	0.30	925.55	Coarse Tailings	0.018	5.26
A/D-14	0.30	925.55	Coarse Tailings	0.026	8.51
A/D-14	0.30	925.55	Coarse Tailings	0.036	9.79
A/D-14	0.30	925.55	Coarse Tailings	0.051	13.07
A/D-14	0.30	925.55	Coarse Tailings	0.070	18.55
A/D-14	0.30	925.55	Coarse Tailings	0.150	37.75
A/D-14	0.30	925.55	Coarse Tailings	0.300	64.83
A/D-14	0.30	925.55	Coarse Tailings	0.420	76.54
A/D-14	0.30	925.55	Coarse Tailings	0.600	86.24
A/D-14	0.30	925.55	Coarse Tailings	1.200	94.78
A/D-14	0.30	925.55	Coarse Tailings	2.000	97.79
A/D-14	0.30	925.55	Coarse Tailings	4.800	99.66
A/D-14	0.30	925.55	Coarse Tailings	9.500	100.00
A/D-14	0.30	925.55	Coarse Tailings	19.000	100.00
A/D-14	0.30	925.55	Coarse Tailings	25.000	100.00
A/D-14	0.30	925.55	Coarse Tailings	38.000	100.00
A/D-14	0.30	925.55	Coarse Tailings	50.000	100.00

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
A/D-15	0.30	925.42	Coarse Tailings	0.002	3.67
A/D-15	0.30	925.42	Coarse Tailings	0.002	3.80
A/D-15	0.30	925.42	Coarse Tailings	0.004	3.30
A/D-15	0.30	925.42	Coarse Tailings	0.005	4.73
A/D-15	0.30	925.42	Coarse Tailings	0.007	5.21
A/D-15	0.30	925.42	Coarse Tailings	0.010	5.95
A/D-15	0.30	925.42	Coarse Tailings	0.013	6.51
A/D-15	0.30	925.42	Coarse Tailings	0.019	8.73
A/D-15	0.30	925.42	Coarse Tailings	0.027	10.92
A/D-15	0.30	925.42	Coarse Tailings	0.037	12.59
A/D-15	0.30	925.42	Coarse Tailings	0.052	17.04
A/D-15	0.30	925.42	Coarse Tailings	0.072	25.38
A/D-15	0.30	925.42	Coarse Tailings	0.150	54.60
A/D-15	0.30	925.42	Coarse Tailings	0.300	76.31
A/D-15	0.30	925.42	Coarse Tailings	0.420	83.71
A/D-15	0.30	925.42	Coarse Tailings	0.600	89.34
A/D-15	0.30	925.42	Coarse Tailings	1.200	94.67
A/D-15	0.30	925.42	Coarse Tailings	2.000	97.75
A/D-15	0.30	925.42	Coarse Tailings	4.800	99.95
A/D-15	0.30	925.42	Coarse Tailings	9.500	100.00
A/D-15	0.30	925.42	Coarse Tailings	19.000	100.00
A/D-15	0.30	925.42	Coarse Tailings	25.000	100.00
A/D-15	0.30	925.42	Coarse Tailings	38.000	100.00
A/D-15	0.30	925.42	Coarse Tailings	50.000	100.00

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
A/D-16	0.30	925.07	Coarse Tailings	0.002	2.64
A/D-16	0.30	925.07	Coarse Tailings	0.002	3.42
A/D-16	0.30	925.07	Coarse Tailings	0.003	2.88
A/D-16	0.30	925.07	Coarse Tailings	0.005	3.19
A/D-16	0.30	925.07	Coarse Tailings	0.006	4.51
A/D-16	0.30	925.07	Coarse Tailings	0.009	4.51
A/D-16	0.30	925.07	Coarse Tailings	0.012	4.88
A/D-16	0.30	925.07	Coarse Tailings	0.017	6.15
A/D-16	0.30	925.07	Coarse Tailings	0.024	8.12
A/D-16	0.30	925.07	Coarse Tailings	0.034	11.21
A/D-16	0.30	925.07	Coarse Tailings	0.048	12.67
A/D-16	0.30	925.07	Coarse Tailings	0.067	16.13
A/D-16	0.30	925.07	Coarse Tailings	0.150	36.96
A/D-16	0.30	925.07	Coarse Tailings	0.300	61.88
A/D-16	0.30	925.07	Coarse Tailings	0.420	71.49
A/D-16	0.30	925.07	Coarse Tailings	0.600	81.40
A/D-16	0.30	925.07	Coarse Tailings	1.200	91.72
A/D-16	0.30	925.07	Coarse Tailings	2.000	95.59
A/D-16	0.30	925.07	Coarse Tailings	4.800	99.14
A/D-16	0.30	925.07	Coarse Tailings	9.500	100.00
A/D-16	0.30	925.07	Coarse Tailings	19.000	100.00
A/D-16	0.30	925.07	Coarse Tailings	25.000	100.00
A/D-16	0.30	925.07	Coarse Tailings	38.000	100.00
A/D-16	0.30	925.07	Coarse Tailings	50.000	100.00

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
A/D-18	0.30	925.15	Coarse Tailings	0.002	3.46
A/D-18	0.30	925.15	Coarse Tailings	0.002	3.88
A/D-18	0.30	925.15	Coarse Tailings	0.003	3.65
A/D-18	0.30	925.15	Coarse Tailings	0.005	5.09
A/D-18	0.30	925.15	Coarse Tailings	0.007	5.28
A/D-18	0.30	925.15	Coarse Tailings	0.010	6.45
A/D-18	0.30	925.15	Coarse Tailings	0.013	7.42
A/D-18	0.30	925.15	Coarse Tailings	0.019	8.00
A/D-18	0.30	925.15	Coarse Tailings	0.026	11.07
A/D-18	0.30	925.15	Coarse Tailings	0.037	13.98
A/D-18	0.30	925.15	Coarse Tailings	0.050	24.28
A/D-18	0.30	925.15	Coarse Tailings	0.069	36.90
A/D-18	0.30	925.15	Coarse Tailings	0.150	74.70
A/D-18	0.30	925.15	Coarse Tailings	0.300	89.77
A/D-18	0.30	925.15	Coarse Tailings	0.420	93.30
A/D-18	0.30	925.15	Coarse Tailings	0.600	96.11
A/D-18	0.30	925.15	Coarse Tailings	1.200	98.88
A/D-18	0.30	925.15	Coarse Tailings	2.000	99.68
A/D-18	0.30	925.15	Coarse Tailings	4.800	99.98
A/D-18	0.30	925.15	Coarse Tailings	9.500	100.00
A/D-18	0.30	925.15	Coarse Tailings	19.000	100.00
A/D-18	0.30	925.15	Coarse Tailings	25.000	100.00
A/D-18	0.30	925.15	Coarse Tailings	38.000	100.00
A/D-18	0.30	925.15	Coarse Tailings	50.000	100.00

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
A/D-19	0.30	925.03	Coarse Tailings	0.002	1.86
A/D-19	0.30	925.03	Coarse Tailings	0.002	2.81
A/D-19	0.30	925.03	Coarse Tailings	0.003	3.27
A/D-19	0.30	925.03	Coarse Tailings	0.005	3.48
A/D-19	0.30	925.03	Coarse Tailings	0.007	3.63
A/D-19	0.30	925.03	Coarse Tailings	0.010	4.20
A/D-19	0.30	925.03	Coarse Tailings	0.013	4.96
A/D-19	0.30	925.03	Coarse Tailings	0.019	5.34
A/D-19	0.30	925.03	Coarse Tailings	0.027	6.84
A/D-19	0.30	925.03	Coarse Tailings	0.038	7.96
A/D-19	0.30	925.03	Coarse Tailings	0.053	10.81
A/D-19	0.30	925.03	Coarse Tailings	0.073	19.36
A/D-19	0.30	925.03	Coarse Tailings	0.150	62.93
A/D-19	0.30	925.03	Coarse Tailings	0.300	89.98
A/D-19	0.30	925.03	Coarse Tailings	0.420	94.15
A/D-19	0.30	925.03	Coarse Tailings	0.600	96.42
A/D-19	0.30	925.03	Coarse Tailings	1.200	98.10
A/D-19	0.30	925.03	Coarse Tailings	2.000	98.75
A/D-19	0.30	925.03	Coarse Tailings	4.800	99.91
A/D-19	0.30	925.03	Coarse Tailings	9.500	100.00
A/D-19	0.30	925.03	Coarse Tailings	19.000	100.00
A/D-19	0.30	925.03	Coarse Tailings	25.000	100.00
A/D-19	0.30	925.03	Coarse Tailings	38.000	100.00
A/D-19	0.30	925.03	Coarse Tailings	50.000	100.00

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
A/D-5	0.45	927.12	Coarse Tailings	0.002	7.47
A/D-5	0.45	927.12	Coarse Tailings	0.002	8.36
A/D-5	0.45	927.12	Coarse Tailings	0.003	8.61
A/D-5	0.45	927.12	Coarse Tailings	0.005	9.33
A/D-5	0.45	927.12	Coarse Tailings	0.007	10.06
A/D-5	0.45	927.12	Coarse Tailings	0.010	10.87
A/D-5	0.45	927.12	Coarse Tailings	0.013	10.87
A/D-5	0.45	927.12	Coarse Tailings	0.019	11.26
A/D-5	0.45	927.12	Coarse Tailings	0.027	14.69
A/D-5	0.45	927.12	Coarse Tailings	0.038	16.24
A/D-5	0.45	927.12	Coarse Tailings	0.053	18.17
A/D-5	0.45	927.12	Coarse Tailings	0.073	26.86
A/D-5	0.45	927.12	Coarse Tailings	0.150	58.11
A/D-5	0.45	927.12	Coarse Tailings	0.300	83.13
A/D-5	0.45	927.12	Coarse Tailings	0.420	89.85
A/D-5	0.45	927.12	Coarse Tailings	0.600	94.58
A/D-5	0.45	927.12	Coarse Tailings	1.200	98.69
A/D-5	0.45	927.12	Coarse Tailings	2.000	99.57
A/D-5	0.45	927.12	Coarse Tailings	4.800	98.75
A/D-5	0.45	927.12	Coarse Tailings	9.500	100.00
A/D-5	0.45	927.12	Coarse Tailings	19.000	100.00
A/D-5	0.45	927.12	Coarse Tailings	25.000	100.00
A/D-5	0.45	927.12	Coarse Tailings	38.000	100.00
A/D-5	0.45	927.12	Coarse Tailings	50.000	100.00

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
A/D-9	0.75	926.34	Fine Tailings	0.002	5.44
A/D-9	0.75	926.34	Fine Tailings	0.002	5.84
A/D-9	0.75	926.34	Fine Tailings	0.003	5.94
A/D-9	0.75	926.34	Fine Tailings	0.005	6.45
A/D-9	0.75	926.34	Fine Tailings	0.006	6.83
A/D-9	0.75	926.34	Fine Tailings	0.009	6.98
A/D-9	0.75	926.34	Fine Tailings	0.012	7.93
A/D-9	0.75	926.34	Fine Tailings	0.017	10.77
A/D-9	0.75	926.34	Fine Tailings	0.024	17.95
A/D-9	0.75	926.34	Fine Tailings	0.033	27.43
A/D-9	0.75	926.34	Fine Tailings	0.046	42.61
A/D-9	0.75	926.34	Fine Tailings	0.065	61.58
A/D-9	0.75	926.34	Fine Tailings	0.150	97.18
A/D-9	0.75	926.34	Fine Tailings	0.300	98.88
A/D-9	0.75	926.34	Fine Tailings	0.420	98.63
A/D-9	0.75	926.34	Fine Tailings	0.600	99.85
A/D-9	0.75	926.34	Fine Tailings	1.200	99.97
A/D-9	0.75	926.34	Fine Tailings	2.000	100.00
A/D-9	0.75	926.34	Fine Tailings	4.800	100.00
A/D-9	0.75	926.34	Fine Tailings	9.500	100.00
A/D-9	0.75	926.34	Fine Tailings	19.000	100.00
A/D-9	0.75	926.34	Fine Tailings	25.000	100.00
A/D-9	0.75	926.34	Fine Tailings	38.000	100.00
A/D-9	0.75	926.34	Fine Tailings	50.000	100.00

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
A/D-10	0.55	926.15	Coarse Tailings	0.002	4.06
A/D-10	0.55	926.15	Coarse Tailings	0.002	5.15
A/D-10	0.55	926.15	Coarse Tailings	0.003	4.94
A/D-10	0.55	926.15	Coarse Tailings	0.004	4.81
A/D-10	0.55	926.15	Coarse Tailings	0.006	4.77
A/D-10	0.55	926.15	Coarse Tailings	0.009	4.72
A/D-10	0.55	926.15	Coarse Tailings	0.012	4.72
A/D-10	0.55	926.15	Coarse Tailings	0.017	4.72
A/D-10	0.55	926.15	Coarse Tailings	0.024	7.56
A/D-10	0.55	926.15	Coarse Tailings	0.034	7.02
A/D-10	0.55	926.15	Coarse Tailings	0.048	8.81
A/D-10	0.55	926.15	Coarse Tailings	0.066	15.99
A/D-10	0.55	926.15	Coarse Tailings	0.150	76.53
A/D-10	0.55	926.15	Coarse Tailings	0.300	94.40
A/D-10	0.55	926.15	Coarse Tailings	0.420	96.87
A/D-10	0.55	926.15	Coarse Tailings	0.600	98.43
A/D-10	0.55	926.15	Coarse Tailings	1.200	99.59
A/D-10	0.55	926.15	Coarse Tailings	2.000	99.96
A/D-10	0.55	926.15	Coarse Tailings	4.800	100.00
A/D-10	0.55	926.15	Coarse Tailings	9.500	100.00
A/D-10	0.55	926.15	Coarse Tailings	19.000	100.00
A/D-10	0.55	926.15	Coarse Tailings	25.000	100.00
A/D-10	0.55	926.15	Coarse Tailings	38.000	100.00
A/D-10	0.55	926.15	Coarse Tailings	50.000	100.00

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
A/D-11	0.75	925.75	Coarse Tailings	0.002	5.67
A/D-11	0.75	925.75	Coarse Tailings	0.002	5.88
A/D-11	0.75	925.75	Coarse Tailings	0.003	5.65
A/D-11	0.75	925.75	Coarse Tailings	0.005	6.09
A/D-11	0.75	925.75	Coarse Tailings	0.007	7.01
A/D-11	0.75	925.75	Coarse Tailings	0.009	6.95
A/D-11	0.75	925.75	Coarse Tailings	0.013	6.95
A/D-11	0.75	925.75	Coarse Tailings	0.018	7.33
A/D-11	0.75	925.75	Coarse Tailings	0.025	10.36
A/D-11	0.75	925.75	Coarse Tailings	0.035	11.32
A/D-11	0.75	925.75	Coarse Tailings	0.049	14.19
A/D-11	0.75	925.75	Coarse Tailings	0.068	20.89
A/D-11	0.75	925.75	Coarse Tailings	0.150	58.59
A/D-11	0.75	925.75	Coarse Tailings	0.300	84.98
A/D-11	0.75	925.75	Coarse Tailings	0.420	92.78
A/D-11	0.75	925.75	Coarse Tailings	0.600	97.24
A/D-11	0.75	925.75	Coarse Tailings	1.200	99.54
A/D-11	0.75	925.75	Coarse Tailings	2.000	99.90
A/D-11	0.75	925.75	Coarse Tailings	4.800	100.00
A/D-11	0.75	925.75	Coarse Tailings	9.500	100.00
A/D-11	0.75	925.75	Coarse Tailings	19.000	100.00
A/D-11	0.75	925.75	Coarse Tailings	25.000	100.00
A/D-11	0.75	925.75	Coarse Tailings	38.000	100.00
A/D-11	0.75	925.75	Coarse Tailings	50.000	100.00

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
CPTU-2005-04	4.00	922.70	Fine Tailings	0.002	18.91
CPTU-2005-04	4.00	922.70	Fine Tailings	0.003	21.42
CPTU-2005-04	4.00	922.70	Fine Tailings	0.004	25.49
CPTU-2005-04	4.00	922.70	Fine Tailings	0.005	28.22
CPTU-2005-04	4.00	922.70	Fine Tailings	0.007	33.24
CPTU-2005-04	4.00	922.70	Fine Tailings	0.010	36.17
CPTU-2005-04	4.00	922.70	Fine Tailings	0.014	39.29
CPTU-2005-04	4.00	922.70	Fine Tailings	0.019	43.59
CPTU-2005-04	4.00	922.70	Fine Tailings	0.027	68.90
CPTU-2005-04	4.00	922.70	Fine Tailings	0.038	75.68
CPTU-2005-04	4.00	922.70	Fine Tailings	0.054	85.44
CPTU-2005-04	4.00	922.70	Fine Tailings	0.077	90.52
CPTU-2005-04	4.00	922.70	Fine Tailings	0.150	97.50
CPTU-2005-04	4.00	922.70	Fine Tailings	0.300	97.71
CPTU-2005-04	4.00	922.70	Fine Tailings	0.420	97.84
CPTU-2005-04	4.00	922.70	Fine Tailings	0.600	98.17
CPTU-2005-04	4.00	922.70	Fine Tailings	1.200	99.37
CPTU-2005-04	4.00	922.70	Fine Tailings	2.000	100.00
CPTU-2005-04	4.00	922.70	Fine Tailings	4.800	100.00
CPTU-2005-04	4.00	922.70	Fine Tailings	9.500	100.00
CPTU-2005-04	4.00	922.70	Fine Tailings	19.000	100.00
CPTU-2005-04	4.00	922.70	Fine Tailings	25.000	100.00
CPTU-2005-04	4.00	922.70	Fine Tailings	38.000	100.00
CPTU-2005-04	4.00	922.70	Fine Tailings	50.000	100.00

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
STG-3	5.15	887.86	Embankment	0.000	0.00
STG-3	5.15	887.86	Embankment	0.003	33.24
STG-3	5.15	887.86	Embankment	0.005	37.13
STG-3	5.15	887.86	Embankment	0.006	44.84
STG-3	5.15	887.86	Embankment	0.009	50.31
STG-3	5.15	887.86	Embankment	0.013	55.66
STG-3	5.15	887.86	Embankment	0.018	59.73
STG-3	5.15	887.86	Embankment	0.025	64.06
STG-3	5.15	887.86	Embankment	0.035	69.86
STG-3	5.15	887.86	Embankment	0.050	72.66
STG-3	5.15	887.86	Embankment	0.070	75.46
STG-3	5.15	887.86	Embankment	0.099	79.02
STG-3	5.15	887.86	Embankment	0.150	85.06
STG-3	5.15	887.86	Embankment	0.300	92.35
STG-3	5.15	887.86	Embankment	0.420	94.73
STG-3	5.15	887.86	Embankment	0.600	96.47
STG-3	5.15	887.86	Embankment	1.200	98.10
STG-3	5.15	887.86	Embankment	2.000	98.80
STG-3	5.15	887.86	Embankment	4.800	100.00
STG-3	5.15	887.86	Embankment	9.500	100.00
STG-3	5.15	887.86	Embankment	19.000	100.00
STG-3	5.15	887.86	Embankment	25.000	100.00
STG-3	5.15	887.86	Embankment	38.000	100.00
STG-3	5.15	887.86	Embankment	50.000	100.00

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
CPTU-2005-05	5.25	920.05	Coarse Tailings	0.002	3.04
CPTU-2005-05	5.25	920.05	Coarse Tailings	0.003	3.39
CPTU-2005-05	5.25	920.05	Coarse Tailings	0.004	3.86
CPTU-2005-05	5.25	920.05	Coarse Tailings	0.005	4.84
CPTU-2005-05	5.25	920.05	Coarse Tailings	0.007	4.94
CPTU-2005-05	5.25	920.05	Coarse Tailings	0.010	4.94
CPTU-2005-05	5.25	920.05	Coarse Tailings	0.014	5.12
CPTU-2005-05	5.25	920.05	Coarse Tailings	0.020	6.80
CPTU-2005-05	5.25	920.05	Coarse Tailings	0.028	9.74
CPTU-2005-05	5.25	920.05	Coarse Tailings	0.038	19.24
CPTU-2005-05	5.25	920.05	Coarse Tailings	0.052	32.66
CPTU-2005-05	5.25	920.05	Coarse Tailings	0.073	47.93
CPTU-2005-05	5.25	920.05	Coarse Tailings	0.150	89.36
CPTU-2005-05	5.25	920.05	Coarse Tailings	0.300	97.47
CPTU-2005-05	5.25	920.05	Coarse Tailings	0.420	98.74
CPTU-2005-05	5.25	920.05	Coarse Tailings	0.600	99.40
CPTU-2005-05	5.25	920.05	Coarse Tailings	1.200	99.90
CPTU-2005-05	5.25	920.05	Coarse Tailings	2.000	100.00
CPTU-2005-05	5.25	920.05	Coarse Tailings	4.800	100.00
CPTU-2005-05	5.25	920.05	Coarse Tailings	9.500	100.00
CPTU-2005-05	5.25	920.05	Coarse Tailings	19.000	100.00
CPTU-2005-05	5.25	920.05	Coarse Tailings	25.000	100.00
CPTU-2005-05	5.25	920.05	Coarse Tailings	38.000	100.00
CPTU-2005-05	5.25	920.05	Coarse Tailings	50.000	100.00

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
CPTU-2005-04	1.00	925.70	Fine Tailings	0.002	4.83
CPTU-2005-04	1.00	925.70	Fine Tailings	0.002	5.06
CPTU-2005-04	1.00	925.70	Fine Tailings	0.004	6.59
CPTU-2005-04	1.00	925.70	Fine Tailings	0.005	8.21
CPTU-2005-04	1.00	925.70	Fine Tailings	0.007	8.58
CPTU-2005-04	1.00	925.70	Fine Tailings	0.010	9.72
CPTU-2005-04	1.00	925.70	Fine Tailings	0.013	11.75
CPTU-2005-04	1.00	925.70	Fine Tailings	0.019	15.63
CPTU-2005-04	1.00	925.70	Fine Tailings	0.025	35.70
CPTU-2005-04	1.00	925.70	Fine Tailings	0.036	46.22
CPTU-2005-04	1.00	925.70	Fine Tailings	0.051	60.98
CPTU-2005-04	1.00	925.70	Fine Tailings	0.072	72.05
CPTU-2005-04	1.00	925.70	Fine Tailings	0.150	98.40
CPTU-2005-04	1.00	925.70	Fine Tailings	0.300	99.74
CPTU-2005-04	1.00	925.70	Fine Tailings	0.420	99.86
CPTU-2005-04	1.00	925.70	Fine Tailings	0.600	99.94
CPTU-2005-04	1.00	925.70	Fine Tailings	1.200	99.99
CPTU-2005-04	1.00	925.70	Fine Tailings	2.000	100.00
CPTU-2005-04	1.00	925.70	Fine Tailings	4.800	100.00
CPTU-2005-04	1.00	925.70	Fine Tailings	9.500	100.00
CPTU-2005-04	1.00	925.70	Fine Tailings	19.000	100.00
CPTU-2005-04	1.00	925.70	Fine Tailings	25.000	100.00
CPTU-2005-04	1.00	925.70	Fine Tailings	38.000	100.00
CPTU-2005-04	1.00	925.70	Fine Tailings	50.000	100.00

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
CPTU-2005-04	1.50	925.20	Coarse Tailings	0.002	2.68
CPTU-2005-04	1.50	925.20	Coarse Tailings	0.002	3.08
CPTU-2005-04	1.50	925.20	Coarse Tailings	0.004	3.41
CPTU-2005-04	1.50	925.20	Coarse Tailings	0.005	3.59
CPTU-2005-04	1.50	925.20	Coarse Tailings	0.007	3.78
CPTU-2005-04	1.50	925.20	Coarse Tailings	0.010	4.14
CPTU-2005-04	1.50	925.20	Coarse Tailings	0.013	4.51
CPTU-2005-04	1.50	925.20	Coarse Tailings	0.019	4.88
CPTU-2005-04	1.50	925.20	Coarse Tailings	0.025	8.51
CPTU-2005-04	1.50	925.20	Coarse Tailings	0.036	11.80
CPTU-2005-04	1.50	925.20	Coarse Tailings	0.051	20.79
CPTU-2005-04	1.50	925.20	Coarse Tailings	0.072	32.15
CPTU-2005-04	1.50	925.20	Coarse Tailings	0.150	76.63
CPTU-2005-04	1.50	925.20	Coarse Tailings	0.300	91.67
CPTU-2005-04	1.50	925.20	Coarse Tailings	0.420	95.05
CPTU-2005-04	1.50	925.20	Coarse Tailings	0.600	97.05
CPTU-2005-04	1.50	925.20	Coarse Tailings	1.200	99.11
CPTU-2005-04	1.50	925.20	Coarse Tailings	2.000	99.82
CPTU-2005-04	1.50	925.20	Coarse Tailings	4.800	100.00
CPTU-2005-04	1.50	925.20	Coarse Tailings	9.500	100.00
CPTU-2005-04	1.50	925.20	Coarse Tailings	19.000	100.00
CPTU-2005-04	1.50	925.20	Coarse Tailings	25.000	100.00
CPTU-2005-04	1.50	925.20	Coarse Tailings	38.000	100.00
CPTU-2005-04	1.50	925.20	Coarse Tailings	50.000	100.00

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
CPTU-2005-04	2.00	924.70	Coarse Tailings	0.002	2.06
CPTU-2005-04	2.00	924.70	Coarse Tailings	0.003	3.26
CPTU-2005-04	2.00	924.70	Coarse Tailings	0.004	4.19
CPTU-2005-04	2.00	924.70	Coarse Tailings	0.005	4.97
CPTU-2005-04	2.00	924.70	Coarse Tailings	0.008	5.20
CPTU-2005-04	2.00	924.70	Coarse Tailings	0.011	6.76
CPTU-2005-04	2.00	924.70	Coarse Tailings	0.015	7.15
CPTU-2005-04	2.00	924.70	Coarse Tailings	0.021	7.53
CPTU-2005-04	2.00	924.70	Coarse Tailings	0.029	10.80
CPTU-2005-04	2.00	924.70	Coarse Tailings	0.040	18.37
CPTU-2005-04	2.00	924.70	Coarse Tailings	0.055	28.28
CPTU-2005-04	2.00	924.70	Coarse Tailings	0.078	49.05
CPTU-2005-04	2.00	924.70	Coarse Tailings	0.150	92.95
CPTU-2005-04	2.00	924.70	Coarse Tailings	0.300	99.08
CPTU-2005-04	2.00	924.70	Coarse Tailings	0.420	99.64
CPTU-2005-04	2.00	924.70	Coarse Tailings	0.600	99.87
CPTU-2005-04	2.00	924.70	Coarse Tailings	1.200	100.00
CPTU-2005-04	2.00	924.70	Coarse Tailings	2.000	100.00
CPTU-2005-04	2.00	924.70	Coarse Tailings	4.800	100.00
CPTU-2005-04	2.00	924.70	Coarse Tailings	9.500	100.00
CPTU-2005-04	2.00	924.70	Coarse Tailings	19.000	100.00
CPTU-2005-04	2.00	924.70	Coarse Tailings	25.000	100.00
CPTU-2005-04	2.00	924.70	Coarse Tailings	38.000	100.00
CPTU-2005-04	2.00	924.70	Coarse Tailings	50.000	100.00

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
CPTU-2005-04	2.50	924.20	Coarse Tailings	0.002	3.39
CPTU-2005-04	2.50	924.20	Coarse Tailings	0.002	3.15
CPTU-2005-04	2.50	924.20	Coarse Tailings	0.004	3.61
CPTU-2005-04	2.50	924.20	Coarse Tailings	0.005	4.25
CPTU-2005-04	2.50	924.20	Coarse Tailings	0.007	4.31
CPTU-2005-04	2.50	924.20	Coarse Tailings	0.010	4.53
CPTU-2005-04	2.50	924.20	Coarse Tailings	0.013	4.90
CPTU-2005-04	2.50	924.20	Coarse Tailings	0.019	5.63
CPTU-2005-04	2.50	924.20	Coarse Tailings	0.027	7.61
CPTU-2005-04	2.50	924.20	Coarse Tailings	0.038	9.63
CPTU-2005-04	2.50	924.20	Coarse Tailings	0.052	14.95
CPTU-2005-04	2.50	924.20	Coarse Tailings	0.071	28.89
CPTU-2005-04	2.50	924.20	Coarse Tailings	0.150	74.45
CPTU-2005-04	2.50	924.20	Coarse Tailings	0.300	93.67
CPTU-2005-04	2.50	924.20	Coarse Tailings	0.420	97.42
CPTU-2005-04	2.50	924.20	Coarse Tailings	0.600	99.18
CPTU-2005-04	2.50	924.20	Coarse Tailings	1.200	99.88
CPTU-2005-04	2.50	924.20	Coarse Tailings	2.000	99.94
CPTU-2005-04	2.50	924.20	Coarse Tailings	4.800	100.00
CPTU-2005-04	2.50	924.20	Coarse Tailings	9.500	100.00
CPTU-2005-04	2.50	924.20	Coarse Tailings	19.000	100.00
CPTU-2005-04	2.50	924.20	Coarse Tailings	25.000	100.00
CPTU-2005-04	2.50	924.20	Coarse Tailings	38.000	100.00
CPTU-2005-04	2.50	924.20	Coarse Tailings	50.000	100.00

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
CPTU-2005-05	5.50	919.80	Fine Tailings	0.002	6.74
CPTU-2005-05	5.50	919.80	Fine Tailings	0.002	10.68
CPTU-2005-05	5.50	919.80	Fine Tailings	0.003	11.60
CPTU-2005-05	5.50	919.80	Fine Tailings	0.005	13.04
CPTU-2005-05	5.50	919.80	Fine Tailings	0.007	14.52
CPTU-2005-05	5.50	919.80	Fine Tailings	0.010	16.22
CPTU-2005-05	5.50	919.80	Fine Tailings	0.013	18.25
CPTU-2005-05	5.50	919.80	Fine Tailings	0.018	21.20
CPTU-2005-05	5.50	919.80	Fine Tailings	0.025	27.26
CPTU-2005-05	5.50	919.80	Fine Tailings	0.035	34.10
CPTU-2005-05	5.50	919.80	Fine Tailings	0.050	40.01
CPTU-2005-05	5.50	919.80	Fine Tailings	0.071	48.32
CPTU-2005-05	5.50	919.80	Fine Tailings	0.150	81.88
CPTU-2005-05	5.50	919.80	Fine Tailings	0.300	94.84
CPTU-2005-05	5.50	919.80	Fine Tailings	0.420	97.18
CPTU-2005-05	5.50	919.80	Fine Tailings	0.600	98.36
CPTU-2005-05	5.50	919.80	Fine Tailings	1.200	99.27
CPTU-2005-05	5.50	919.80	Fine Tailings	2.000	99.57
CPTU-2005-05	5.50	919.80	Fine Tailings	4.800	99.67
CPTU-2005-05	5.50	919.80	Fine Tailings	9.500	99.67
CPTU-2005-05	5.50	919.80	Fine Tailings	19.000	100.00
CPTU-2005-05	5.50	919.80	Fine Tailings	25.000	100.00
CPTU-2005-05	5.50	919.80	Fine Tailings	38.000	100.00
CPTU-2005-05	5.50	919.80	Fine Tailings	50.000	100.00

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
CPTU-2005-06	1.00	925.60	Coarse Tailings	0.002	0.47
CPTU-2005-06	1.00	925.60	Coarse Tailings	0.003	1.54
CPTU-2005-06	1.00	925.60	Coarse Tailings	0.004	2.35
CPTU-2005-06	1.00	925.60	Coarse Tailings	0.005	2.44
CPTU-2005-06	1.00	925.60	Coarse Tailings	0.007	2.31
CPTU-2005-06	1.00	925.60	Coarse Tailings	0.010	2.39
CPTU-2005-06	1.00	925.60	Coarse Tailings	0.014	2.39
CPTU-2005-06	1.00	925.60	Coarse Tailings	0.020	2.39
CPTU-2005-06	1.00	925.60	Coarse Tailings	0.028	5.73
CPTU-2005-06	1.00	925.60	Coarse Tailings	0.038	20.77
CPTU-2005-06	1.00	925.60	Coarse Tailings	0.053	33.93
CPTU-2005-06	1.00	925.60	Coarse Tailings	0.075	47.09
CPTU-2005-06	1.00	925.60	Coarse Tailings	0.150	94.19
CPTU-2005-06	1.00	925.60	Coarse Tailings	0.300	99.66
CPTU-2005-06	1.00	925.60	Coarse Tailings	0.420	99.87
CPTU-2005-06	1.00	925.60	Coarse Tailings	0.600	99.94
CPTU-2005-06	1.00	925.60	Coarse Tailings	1.200	100.00
CPTU-2005-06	1.00	925.60	Coarse Tailings	2.000	100.00
CPTU-2005-06	1.00	925.60	Coarse Tailings	4.800	100.00
CPTU-2005-06	1.00	925.60	Coarse Tailings	9.500	100.00
CPTU-2005-06	1.00	925.60	Coarse Tailings	19.000	100.00
CPTU-2005-06	1.00	925.60	Coarse Tailings	25.000	100.00
CPTU-2005-06	1.00	925.60	Coarse Tailings	38.000	100.00
CPTU-2005-06	1.00	925.60	Coarse Tailings	50.000	100.00

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
CPTU-2005-06	1.50	925.10	Fine Tailings	0.002	3.84
CPTU-2005-06	1.50	925.10	Fine Tailings	0.003	3.65
CPTU-2005-06	1.50	925.10	Fine Tailings	0.004	4.69
CPTU-2005-06	1.50	925.10	Fine Tailings	0.005	6.08
CPTU-2005-06	1.50	925.10	Fine Tailings	0.007	6.14
CPTU-2005-06	1.50	925.10	Fine Tailings	0.011	6.37
CPTU-2005-06	1.50	925.10	Fine Tailings	0.014	8.27
CPTU-2005-06	1.50	925.10	Fine Tailings	0.020	11.88
CPTU-2005-06	1.50	925.10	Fine Tailings	0.028	19.06
CPTU-2005-06	1.50	925.10	Fine Tailings	0.038	34.45
CPTU-2005-06	1.50	925.10	Fine Tailings	0.054	60.86
CPTU-2005-06	1.50	925.10	Fine Tailings	0.076	77.96
CPTU-2005-06	1.50	925.10	Fine Tailings	0.150	99.08
CPTU-2005-06	1.50	925.10	Fine Tailings	0.300	99.94
CPTU-2005-06	1.50	925.10	Fine Tailings	0.420	99.97
CPTU-2005-06	1.50	925.10	Fine Tailings	0.600	99.99
CPTU-2005-06	1.50	925.10	Fine Tailings	1.200	100.00
CPTU-2005-06	1.50	925.10	Fine Tailings	2.000	100.00
CPTU-2005-06	1.50	925.10	Fine Tailings	4.800	100.00
CPTU-2005-06	1.50	925.10	Fine Tailings	9.500	100.00
CPTU-2005-06	1.50	925.10	Fine Tailings	19.000	100.00
CPTU-2005-06	1.50	925.10	Fine Tailings	25.000	100.00
CPTU-2005-06	1.50	925.10	Fine Tailings	38.000	100.00
CPTU-2005-06	1.50	925.10	Fine Tailings	50.000	100.00

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
CPTU-2005-06	2.50	924.10	Coarse Tailings	0.002	0.85
CPTU-2005-06	2.50	924.10	Coarse Tailings	0.003	2.18
CPTU-2005-06	2.50	924.10	Coarse Tailings	0.004	2.32
CPTU-2005-06	2.50	924.10	Coarse Tailings	0.005	2.88
CPTU-2005-06	2.50	924.10	Coarse Tailings	0.007	2.88
CPTU-2005-06	2.50	924.10	Coarse Tailings	0.010	2.88
CPTU-2005-06	2.50	924.10	Coarse Tailings	0.013	3.06
CPTU-2005-06	2.50	924.10	Coarse Tailings	0.019	3.06
CPTU-2005-06	2.50	924.10	Coarse Tailings	0.027	5.79
CPTU-2005-06	2.50	924.10	Coarse Tailings	0.037	15.57
CPTU-2005-06	2.50	924.10	Coarse Tailings	0.050	28.49
CPTU-2005-06	2.50	924.10	Coarse Tailings	0.070	41.40
CPTU-2005-06	2.50	924.10	Coarse Tailings	0.150	90.47
CPTU-2005-06	2.50	924.10	Coarse Tailings	0.300	97.37
CPTU-2005-06	2.50	924.10	Coarse Tailings	0.420	98.67
CPTU-2005-06	2.50	924.10	Coarse Tailings	0.600	99.33
CPTU-2005-06	2.50	924.10	Coarse Tailings	1.200	99.83
CPTU-2005-06	2.50	924.10	Coarse Tailings	2.000	99.93
CPTU-2005-06	2.50	924.10	Coarse Tailings	4.800	99.99
CPTU-2005-06	2.50	924.10	Coarse Tailings	9.500	100.00
CPTU-2005-06	2.50	924.10	Coarse Tailings	19.000	100.00
CPTU-2005-06	2.50	924.10	Coarse Tailings	25.000	100.00
CPTU-2005-06	2.50	924.10	Coarse Tailings	38.000	100.00
CPTU-2005-06	2.50	924.10	Coarse Tailings	50.000	100.00

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
CPTU-2005-06	3.00	923.60	Fine Tailings	0.002	14.61
CPTU-2005-06	3.00	923.60	Fine Tailings	0.003	20.43
CPTU-2005-06	3.00	923.60	Fine Tailings	0.004	22.07
CPTU-2005-06	3.00	923.60	Fine Tailings	0.005	23.78
CPTU-2005-06	3.00	923.60	Fine Tailings	0.007	28.85
CPTU-2005-06	3.00	923.60	Fine Tailings	0.010	31.45
CPTU-2005-06	3.00	923.60	Fine Tailings	0.013	33.50
CPTU-2005-06	3.00	923.60	Fine Tailings	0.019	40.38
CPTU-2005-06	3.00	923.60	Fine Tailings	0.027	47.05
CPTU-2005-06	3.00	923.60	Fine Tailings	0.037	56.72
CPTU-2005-06	3.00	923.60	Fine Tailings	0.053	66.03
CPTU-2005-06	3.00	923.60	Fine Tailings	0.075	77.19
CPTU-2005-06	3.00	923.60	Fine Tailings	0.150	95.31
CPTU-2005-06	3.00	923.60	Fine Tailings	0.300	96.10
CPTU-2005-06	3.00	923.60	Fine Tailings	0.420	96.31
CPTU-2005-06	3.00	923.60	Fine Tailings	0.600	96.52
CPTU-2005-06	3.00	923.60	Fine Tailings	1.200	96.89
CPTU-2005-06	3.00	923.60	Fine Tailings	2.000	97.20
CPTU-2005-06	3.00	923.60	Fine Tailings	4.800	98.14
CPTU-2005-06	3.00	923.60	Fine Tailings	9.500	99.05
CPTU-2005-06	3.00	923.60	Fine Tailings	19.000	100.00
CPTU-2005-06	3.00	923.60	Fine Tailings	25.000	100.00
CPTU-2005-06	3.00	923.60	Fine Tailings	38.000	100.00
CPTU-2005-06	3.00	923.60	Fine Tailings	50.000	100.00

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Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
CPTU-2005-03	2.50	895.50	Fine Tailings	0.002	5.03
CPTU-2005-03	2.50	895.50	Fine Tailings	0.002	6.61
CPTU-2005-03	2.50	895.50	Fine Tailings	0.003	6.48
CPTU-2005-03	2.50	895.50	Fine Tailings	0.005	6.99
CPTU-2005-03	2.50	895.50	Fine Tailings	0.007	8.63
CPTU-2005-03	2.50	895.50	Fine Tailings	0.009	9.84
CPTU-2005-03	2.50	895.50	Fine Tailings	0.013	12.75
CPTU-2005-03	2.50	895.50	Fine Tailings	0.018	19.38
CPTU-2005-03	2.50	895.50	Fine Tailings	0.024	24.88
CPTU-2005-03	2.50	895.50	Fine Tailings	0.034	40.32
CPTU-2005-03	2.50	895.50	Fine Tailings	0.048	60.29
CPTU-2005-03	2.50	895.50	Fine Tailings	0.069	76.64
CPTU-2005-03	2.50	895.50	Fine Tailings	0.150	98.26
CPTU-2005-03	2.50	895.50	Fine Tailings	0.300	99.46
CPTU-2005-03	2.50	895.50	Fine Tailings	0.420	99.68
CPTU-2005-03	2.50	895.50	Fine Tailings	0.600	99.82
CPTU-2005-03	2.50	895.50	Fine Tailings	1.200	99.91
CPTU-2005-03	2.50	895.50	Fine Tailings	2.000	99.92
CPTU-2005-03	2.50	895.50	Fine Tailings	4.800	99.97
CPTU-2005-03	2.50	895.50	Fine Tailings	9.500	100.00
CPTU-2005-03	2.50	895.50	Fine Tailings	19.000	100.00
CPTU-2005-03	2.50	895.50	Fine Tailings	25.000	100.00
CPTU-2005-03	2.50	895.50	Fine Tailings	38.000	100.00
CPTU-2005-03	2.50	895.50	Fine Tailings	50.000	100.00

Summary of Grain Size Distribution Test Data

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I
Appendix B - Historical Geotechnical Data

Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
PI-01	1.40	896.77	Coarse Tailings	0.001	2.40
PI-01	1.40	896.77	Coarse Tailings	0.001	2.60
PI-01	1.40	896.77	Coarse Tailings	0.002	3.70
PI-01	1.40	896.77	Coarse Tailings	0.004	3.70
PI-01	1.40	896.77	Coarse Tailings	0.005	4.70
PI-01	1.40	896.77	Coarse Tailings	0.007	4.70
PI-01	1.40	896.77	Coarse Tailings	0.010	4.70
PI-01	1.40	896.77	Coarse Tailings	0.015	5.80
PI-01	1.40	896.77	Coarse Tailings	0.023	5.80
PI-01	1.40	896.77	Coarse Tailings	0.032	7.90
PI-01	1.40	896.77	Coarse Tailings	0.045	10.00
PI-01	1.40	896.77	Coarse Tailings	0.075	30.20
PI-01	1.40	896.77	Coarse Tailings	0.150	67.60
PI-01	1.40	896.77	Coarse Tailings	0.250	86.50
PI-01	1.40	896.77	Coarse Tailings	0.420	97.00
PI-01	1.40	896.77	Coarse Tailings	0.600	98.80
PI-01	1.40	896.77	Coarse Tailings	1.200	99.60
PI-01	1.40	896.77	Coarse Tailings	2.000	99.90

Summary of Grain Size Distribution Test Data

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I
Appendix B - Historical Geotechnical Data

Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
PI-02	1.35	896.17	Fine Tailings	0.001	4.50
PI-02	1.35	896.17	Fine Tailings	0.002	4.60
PI-02	1.35	896.17	Fine Tailings	0.002	4.60
PI-02	1.35	896.17	Fine Tailings	0.004	5.50
PI-02	1.35	896.17	Fine Tailings	0.006	6.60
PI-02	1.35	896.17	Fine Tailings	0.008	6.60
PI-02	1.35	896.17	Fine Tailings	0.011	7.70
PI-02	1.35	896.17	Fine Tailings	0.015	10.90
PI-02	1.35	896.17	Fine Tailings	0.024	15.20
PI-02	1.35	896.17	Fine Tailings	0.030	30.30
PI-02	1.35	896.17	Fine Tailings	0.035	51.80
PI-02	1.35	896.17	Fine Tailings	0.075	82.40
PI-02	1.35	896.17	Fine Tailings	0.150	98.60
PI-02	1.35	896.17	Fine Tailings	0.250	99.80
PI-02	1.35	896.17	Fine Tailings	0.420	100.00
PI-02	1.35	896.17	Fine Tailings	0.600	100.00
PI-02	1.35	896.17	Fine Tailings	1.200	100.00
PI-02	1.35	896.17	Fine Tailings	2.000	100.00

Summary of Grain Size Distribution Test Data

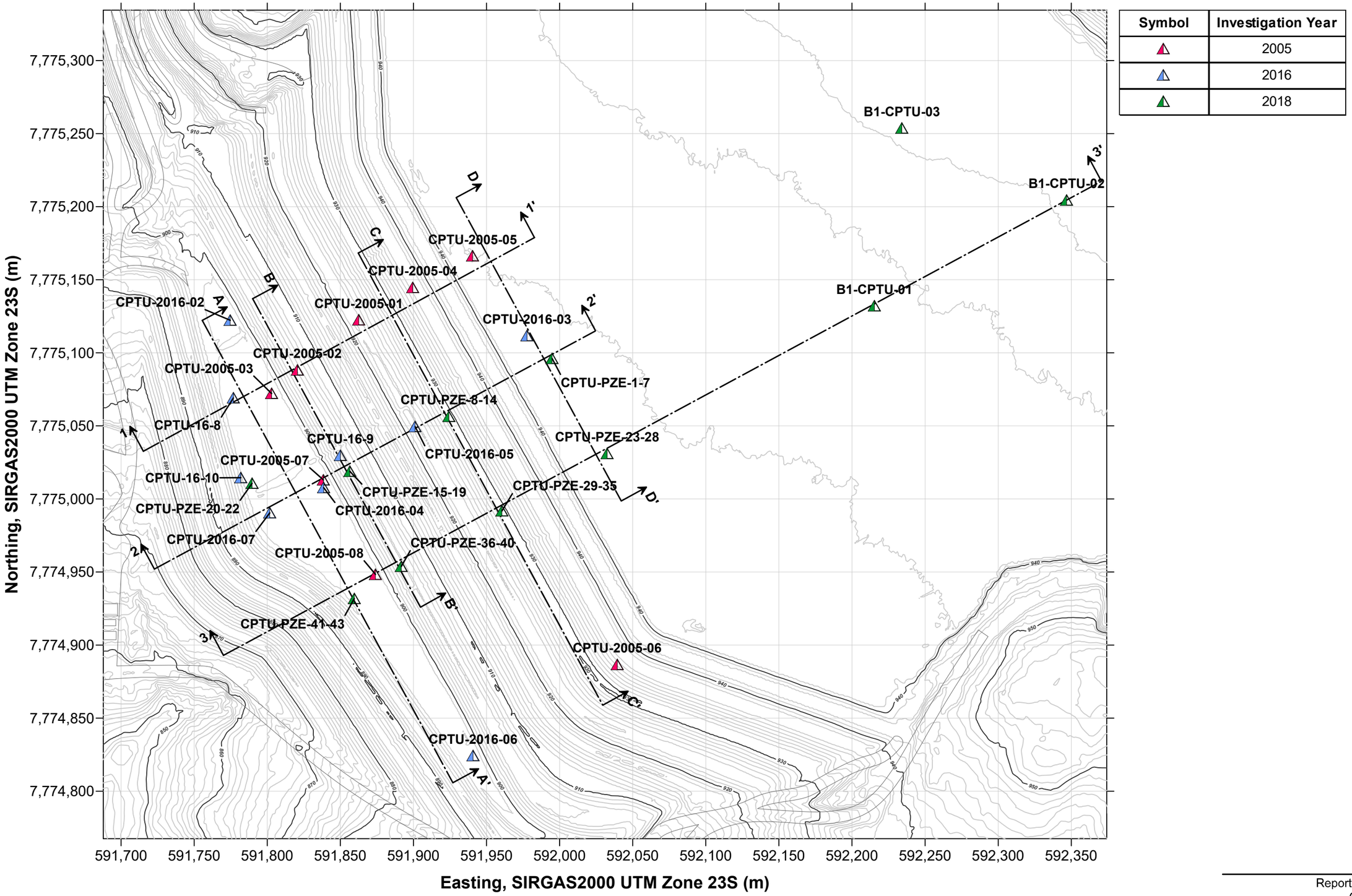
Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I
Appendix B - Historical Geotechnical Data

Exploration ID	Sample Average Depth (m)	Sample Elevation, msl (m)	Unit	Particle Size (mm)	Percent Passing (%)
PI-03	1.35	896.17	Fine Tailings	0.075	29.80
PI-03	1.35	896.17	Fine Tailings	0.420	94.10
PI-03	1.35	896.17	Fine Tailings	4.800	99.60
PI-03	1.35	896.17	Fine Tailings	2.000	100.00
PI-03	1.35	896.17	Fine Tailings	9.500	100.00
PI-03	1.35	896.17	Fine Tailings	25.400	100.00

Appendix B

Annex 4 – CPTu Raw Data Plots

December 2019

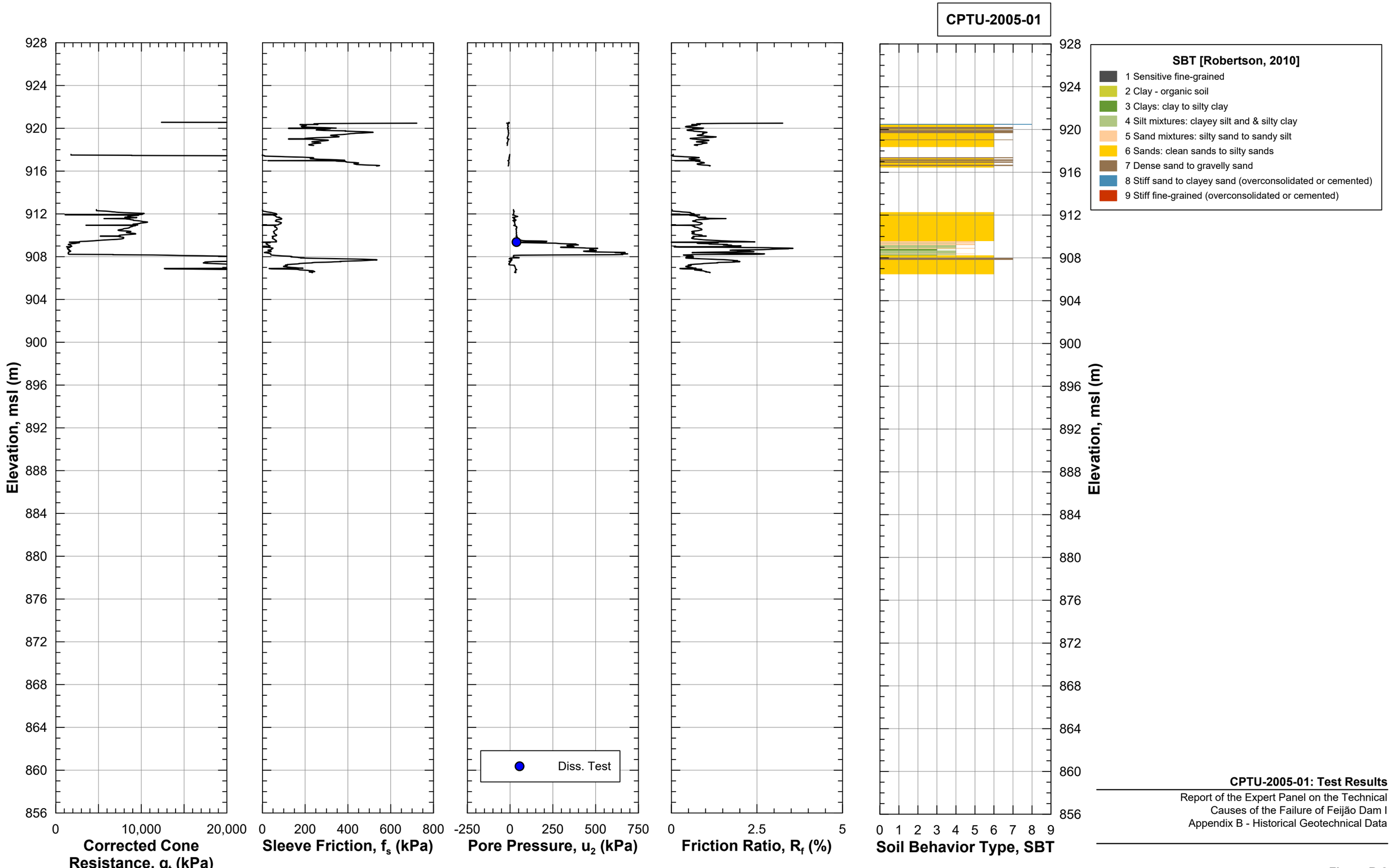


Notes:
1. Contour lines are from 2018 topographic information. Contour interval 1 meter.
2. Horizontal datum is UTM Zone 23S in meters, Vertical datum is Mean Sea Level in meters.
3. Locations are approximate and digitized from 2018 topographic information.

Location Plan of CPTu Tests

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I
Appendix B - Historical Geotechnical Data

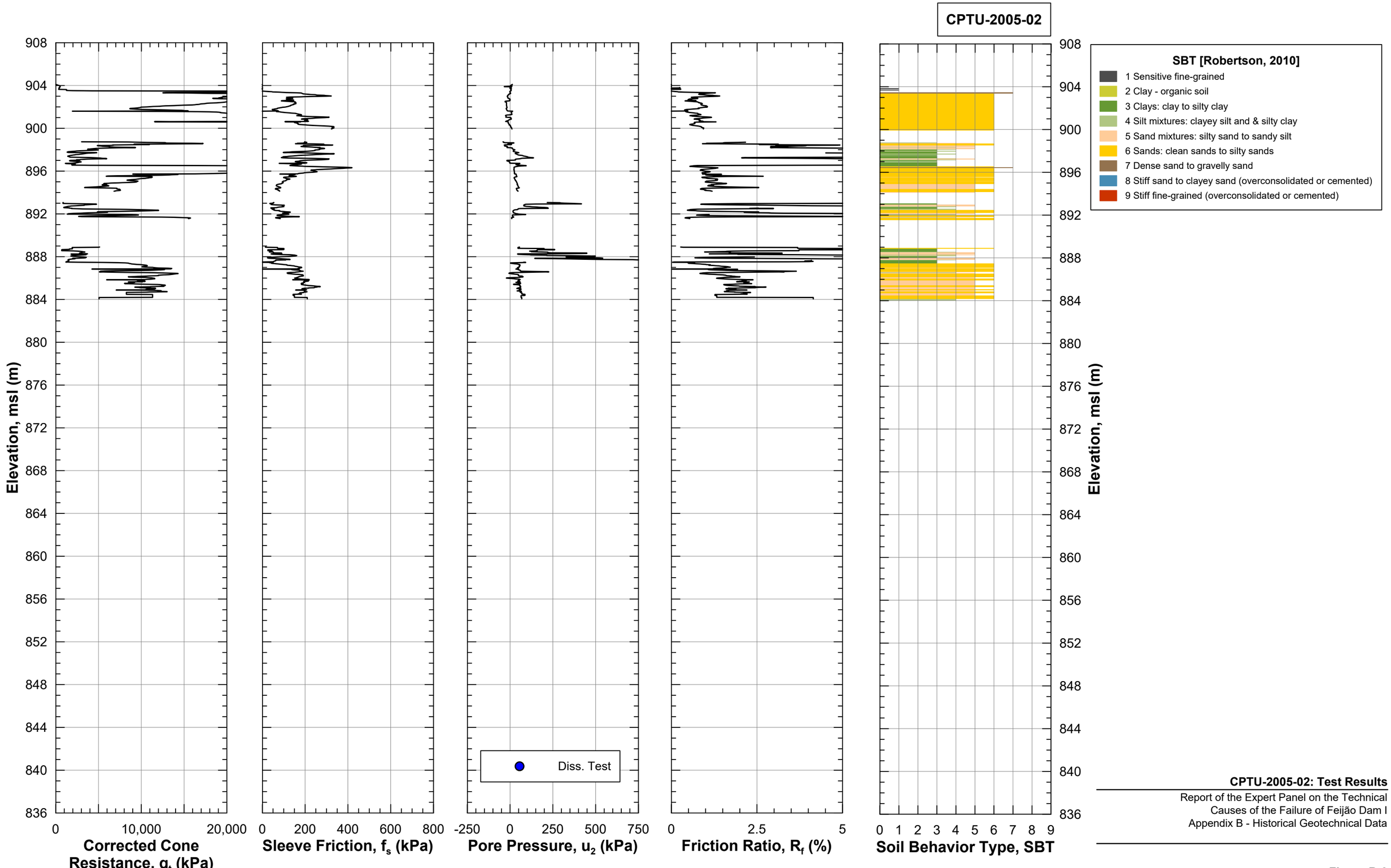
FIGURE B-1



CPTU-2005-01: Test Results

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I
Appendix B - Historical Geotechnical Data

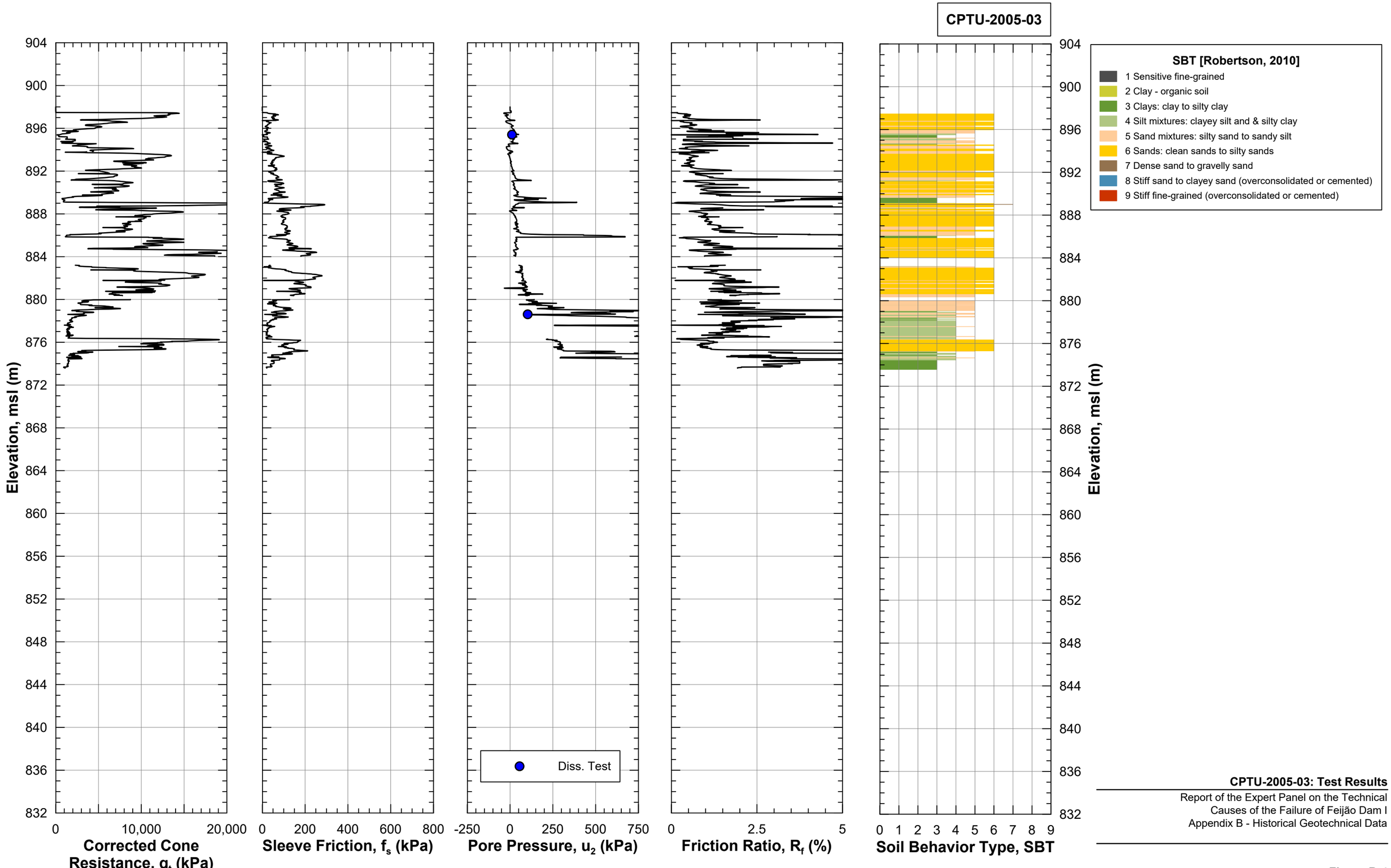
Figure B-2



CPTU-2005-02: Test Results

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I
Appendix B - Historical Geotechnical Data

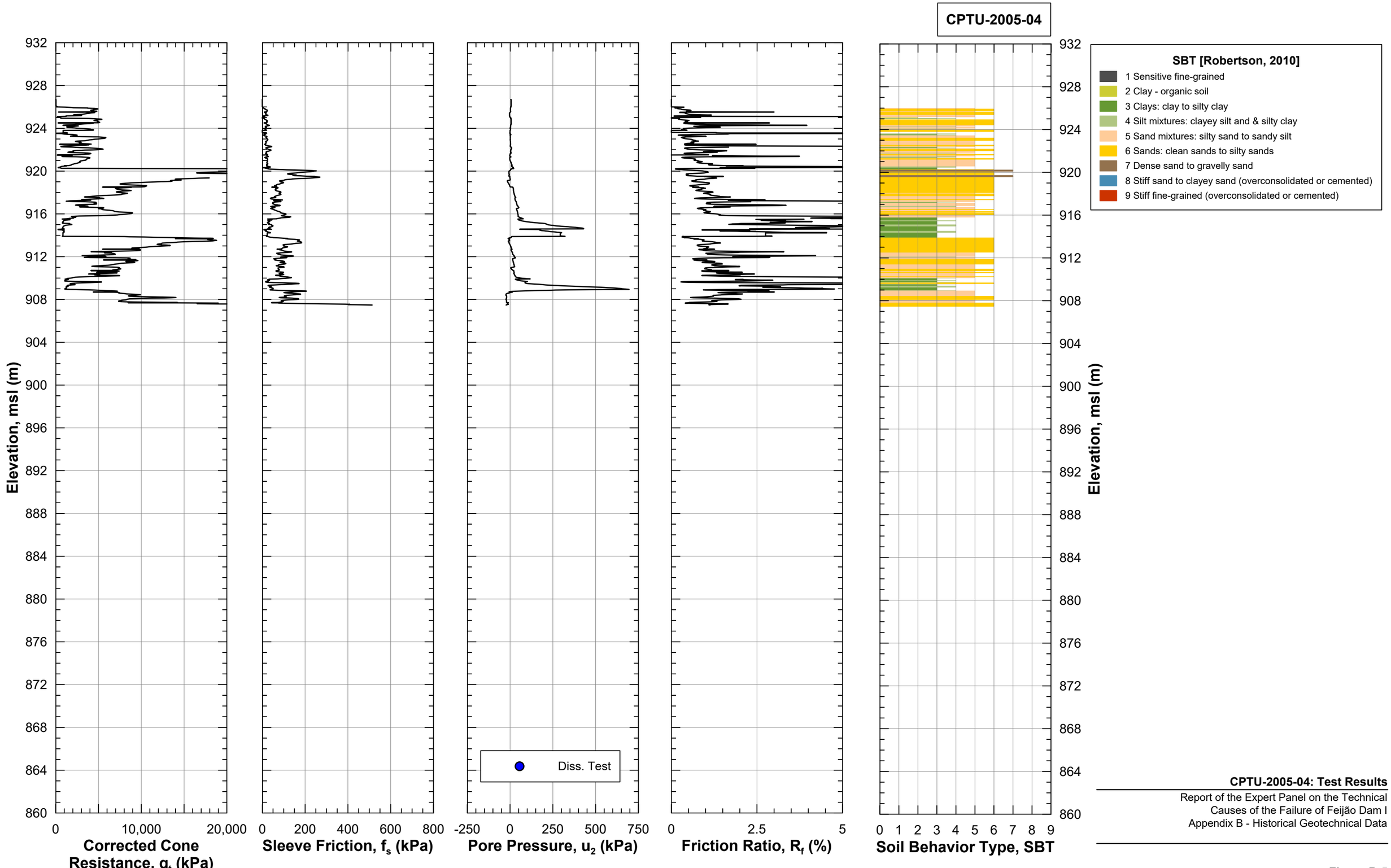
Figure B-3



CPTU-2005-03: Test Results

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I
Appendix B - Historical Geotechnical Data

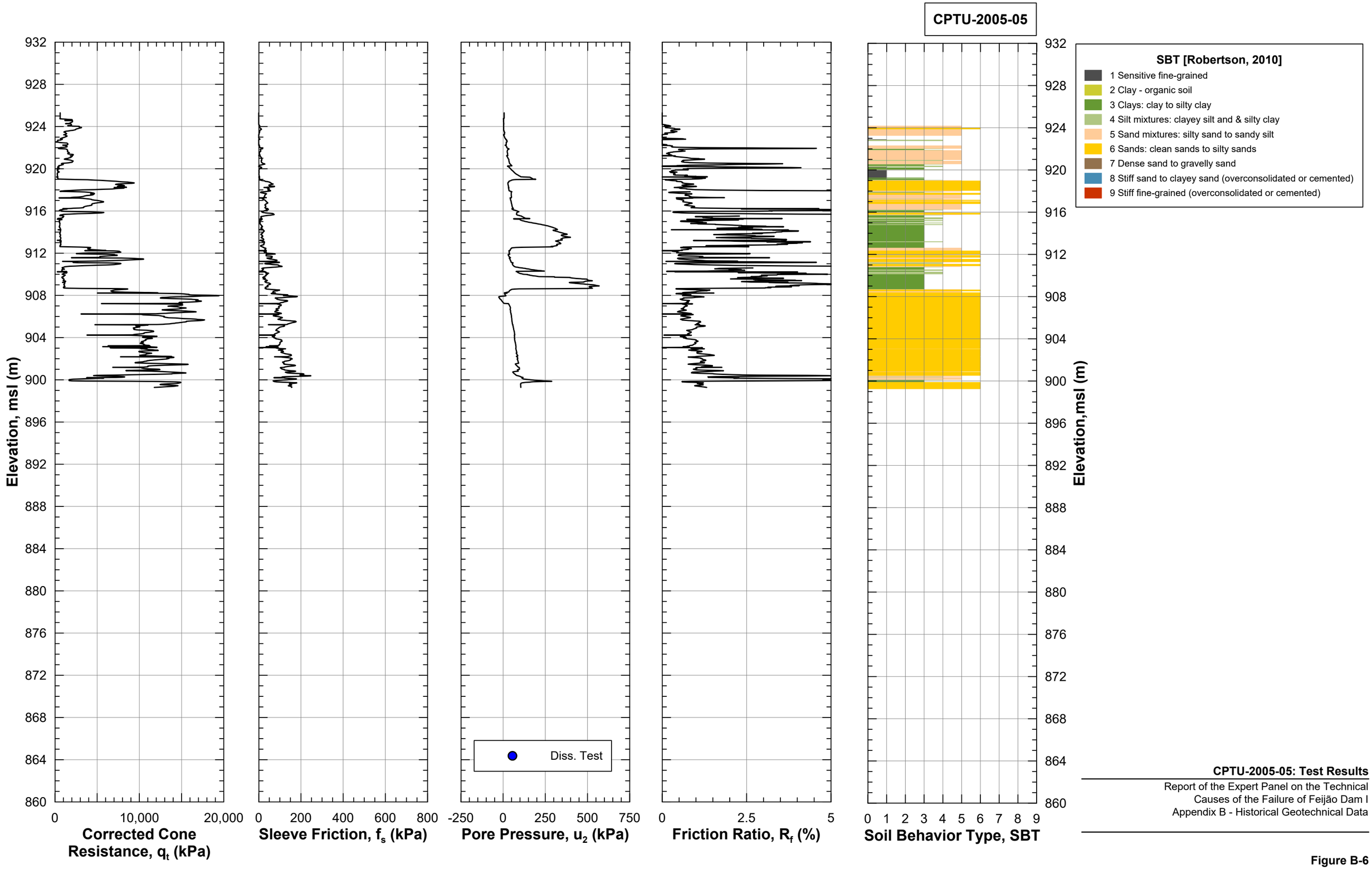
Figure B-4



CPTU-2005-04: Test Results

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I
Appendix B - Historical Geotechnical Data

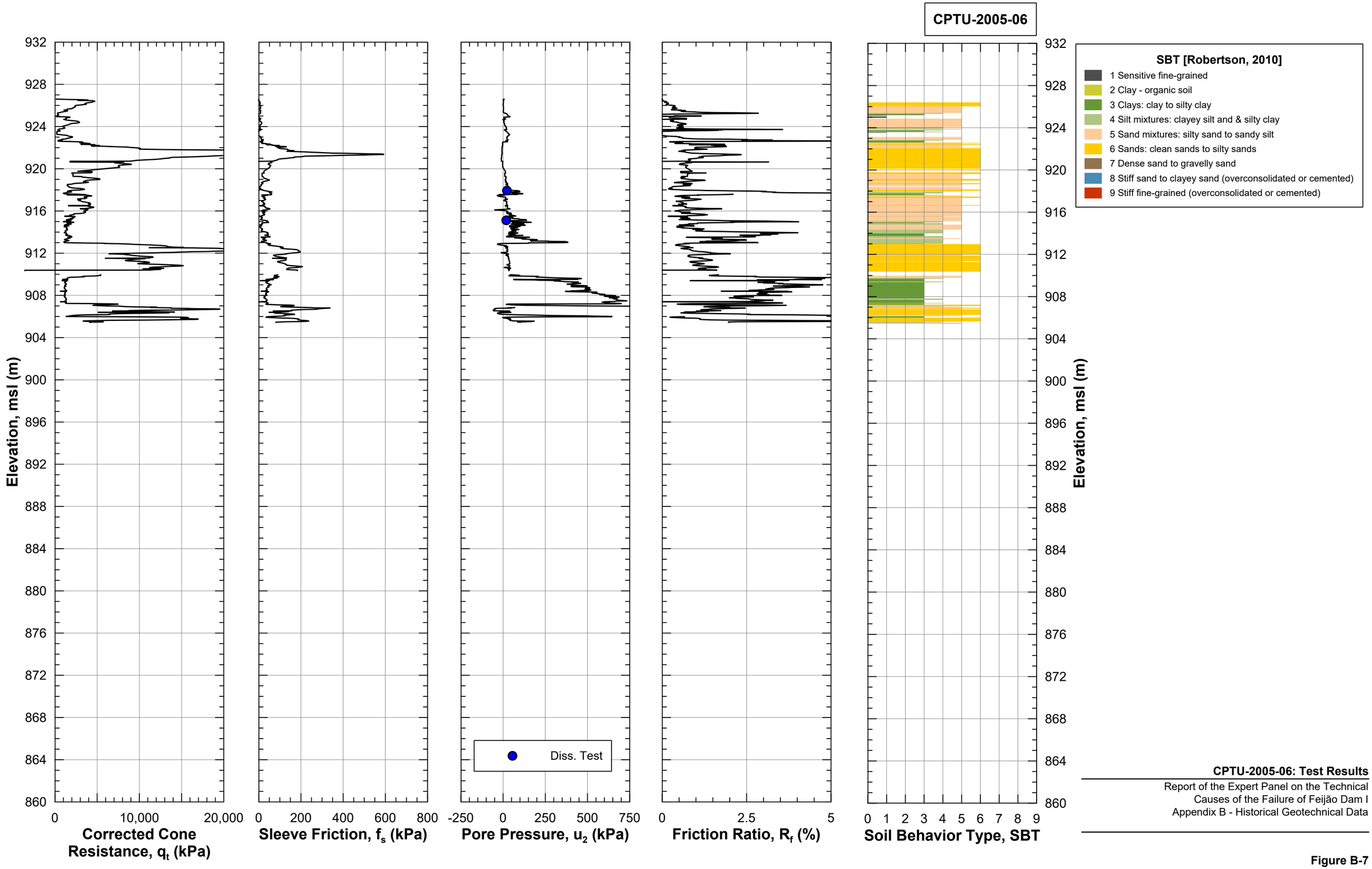
Figure B-5



CPTU-2005-05: Test Results

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I
Appendix B - Historical Geotechnical Data

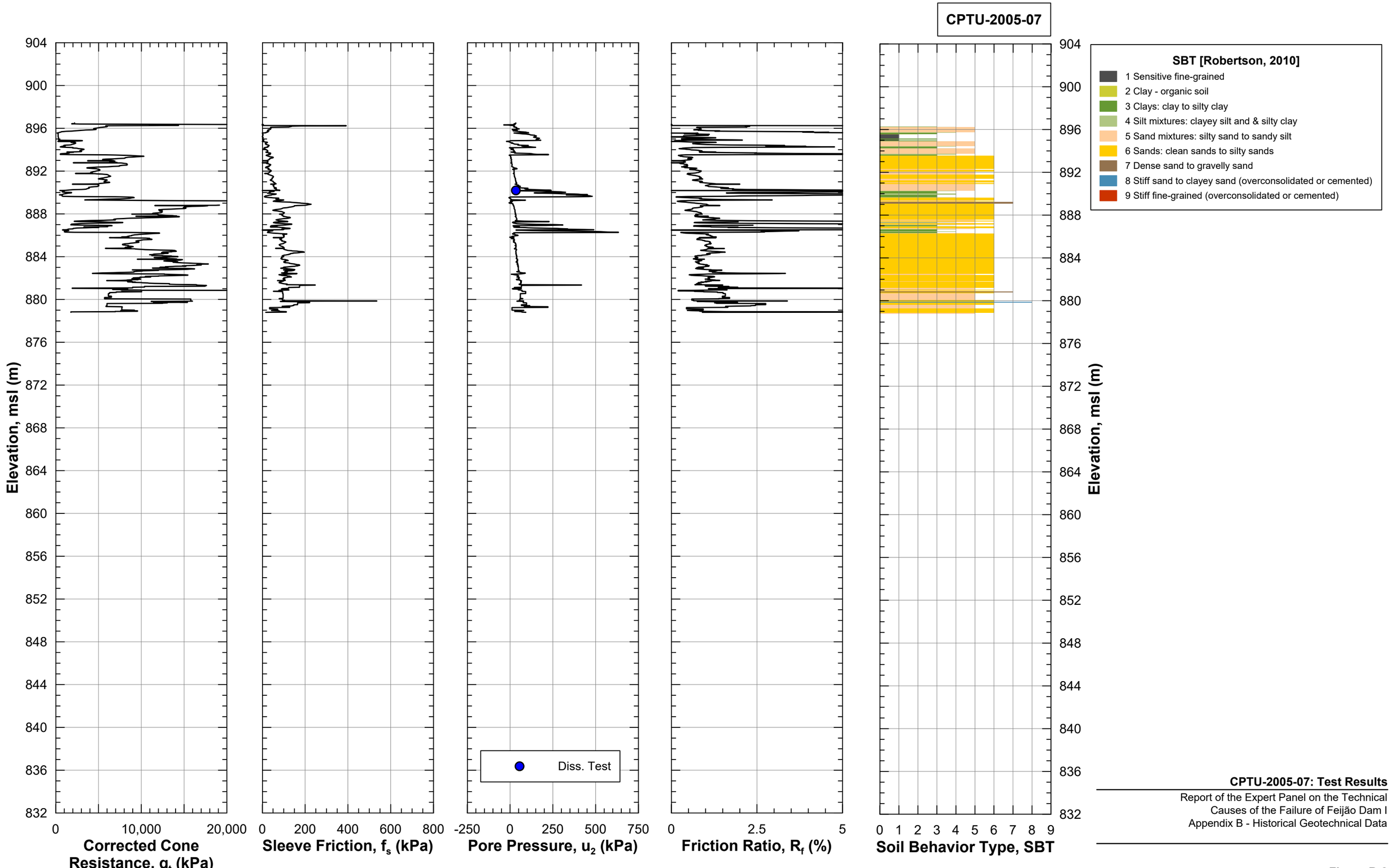
Figure B-6



CPTU-2005-06: Test Results

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I
Appendix B - Historical Geotechnical Data

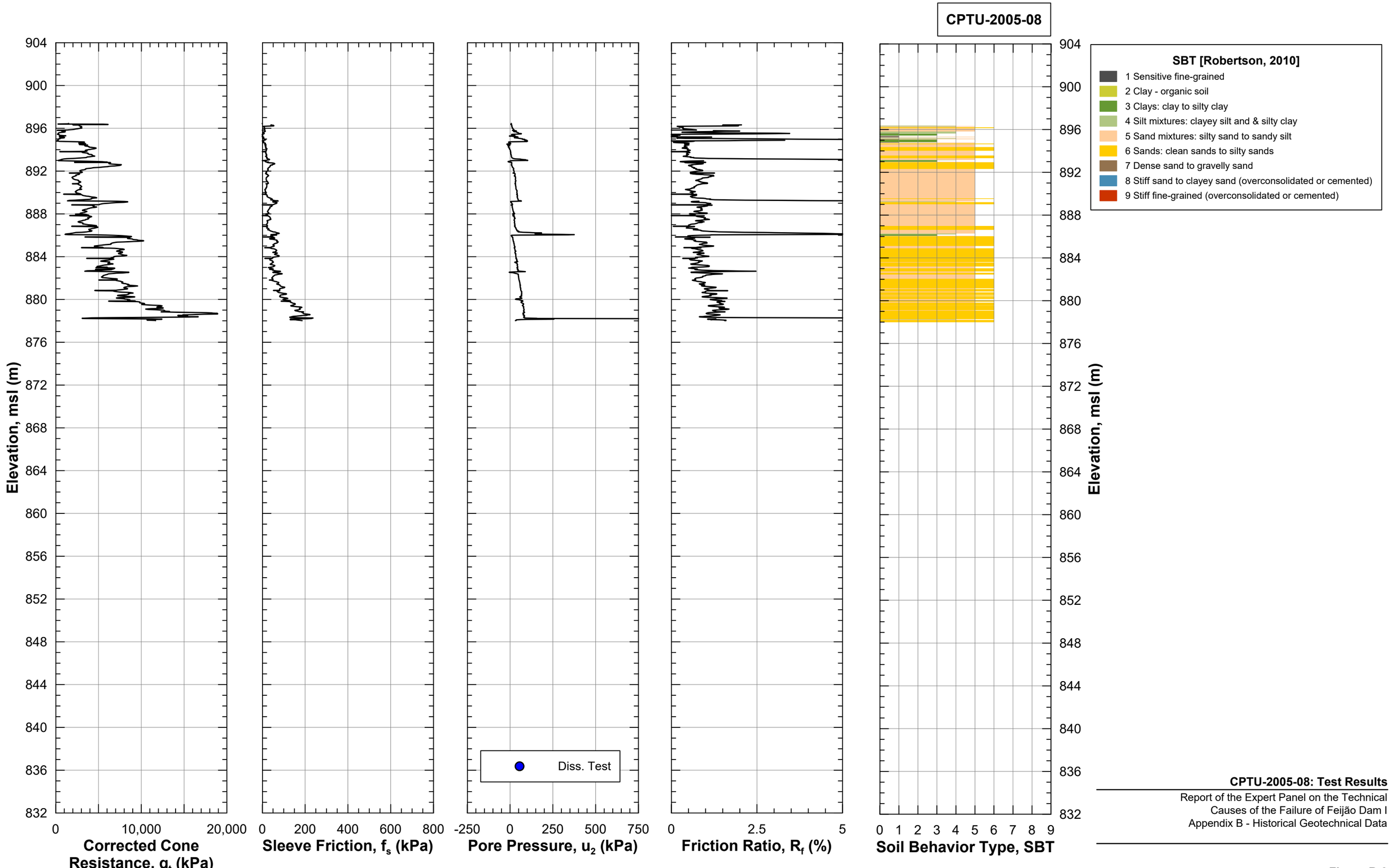
Figure B-7



CPTU-2005-07: Test Results

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I
Appendix B - Historical Geotechnical Data

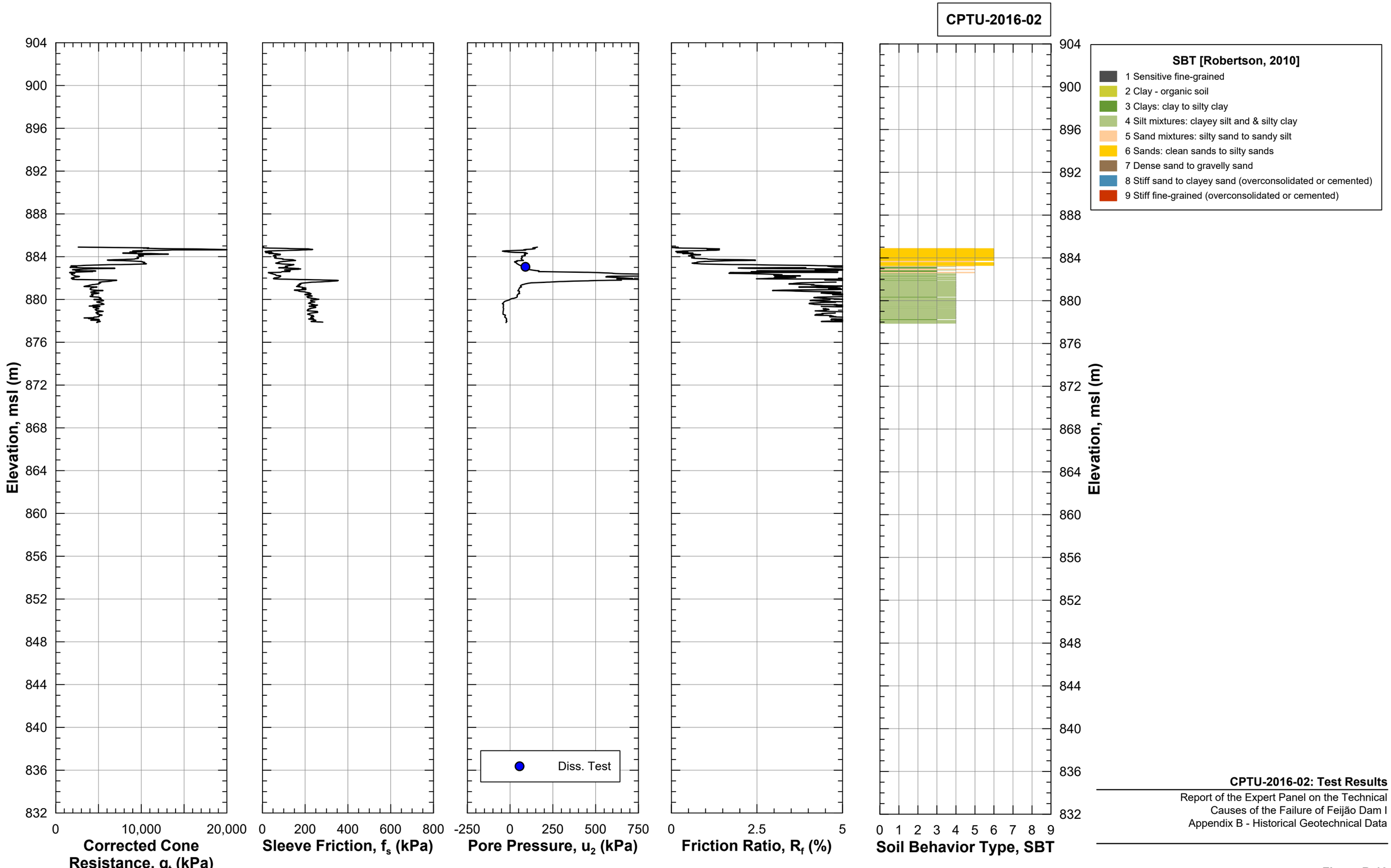
Figure B-8



CPTU-2005-08: Test Results

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I
Appendix B - Historical Geotechnical Data

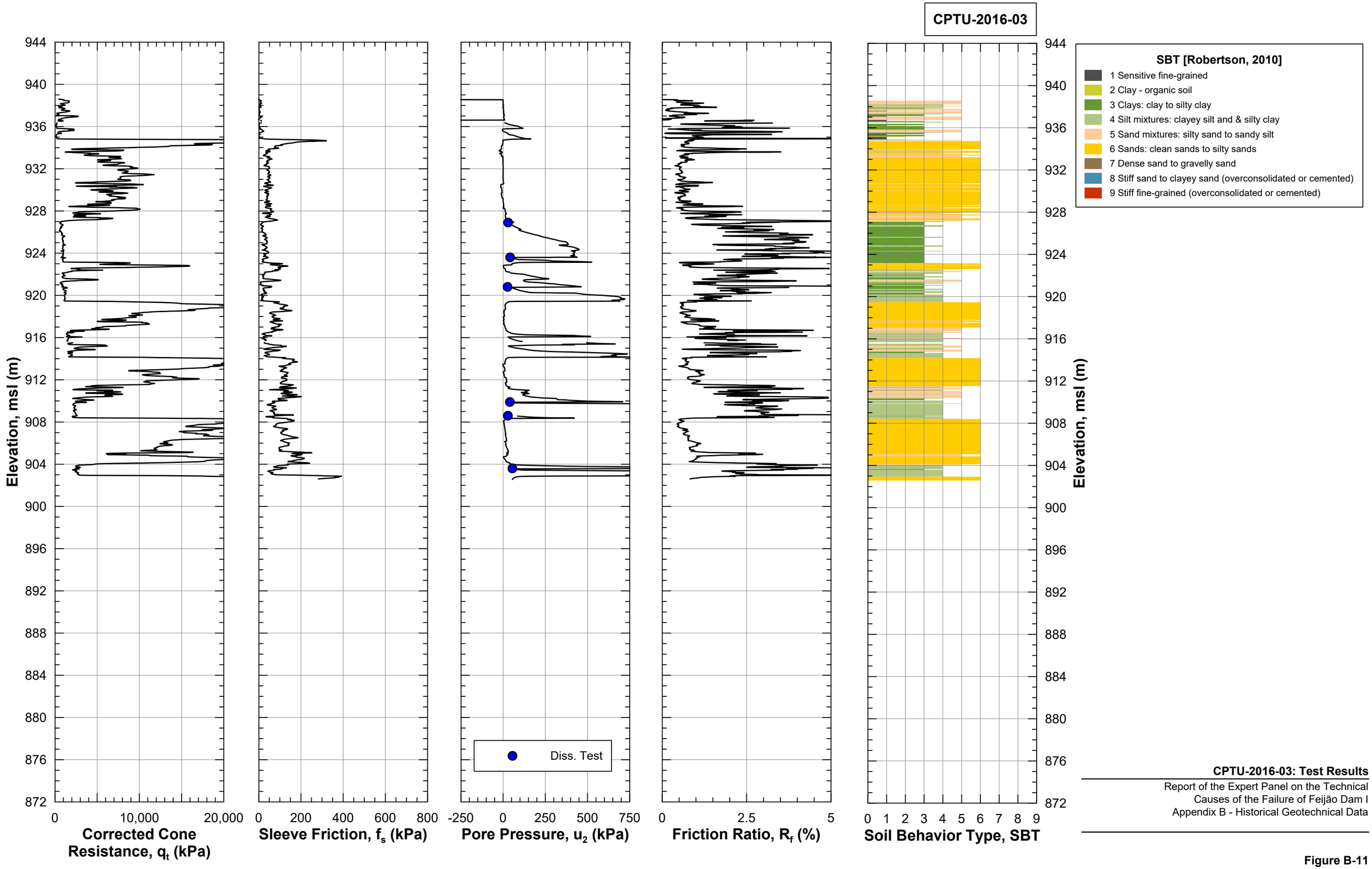
Figure B-9



CPTU-2016-02: Test Results

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I
Appendix B - Historical Geotechnical Data

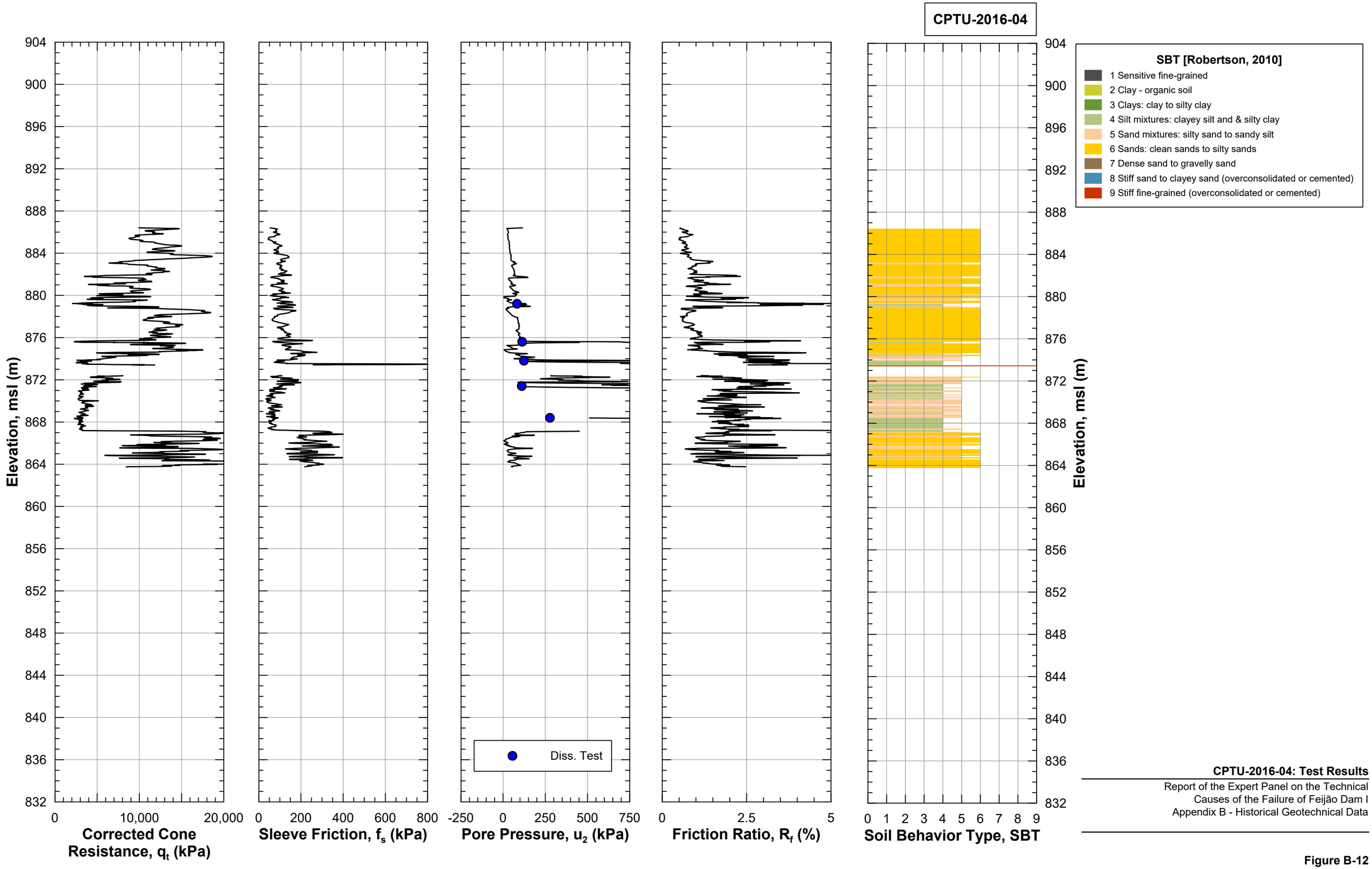
Figure B-10



CPTU-2016-03: Test Results

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I
Appendix B - Historical Geotechnical Data

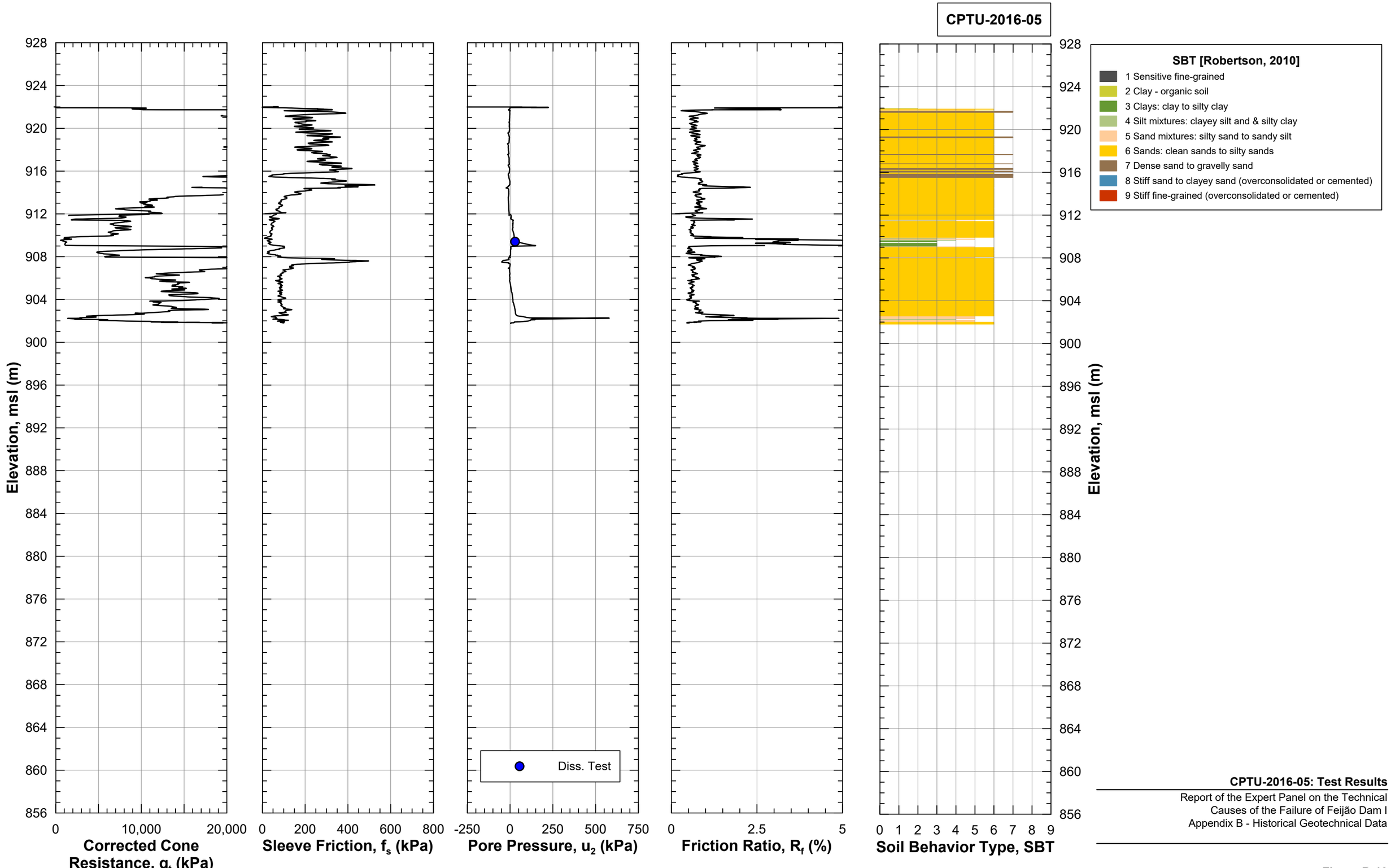
Figure B-11



CPTU-2016-04: Test Results

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I
Appendix B - Historical Geotechnical Data

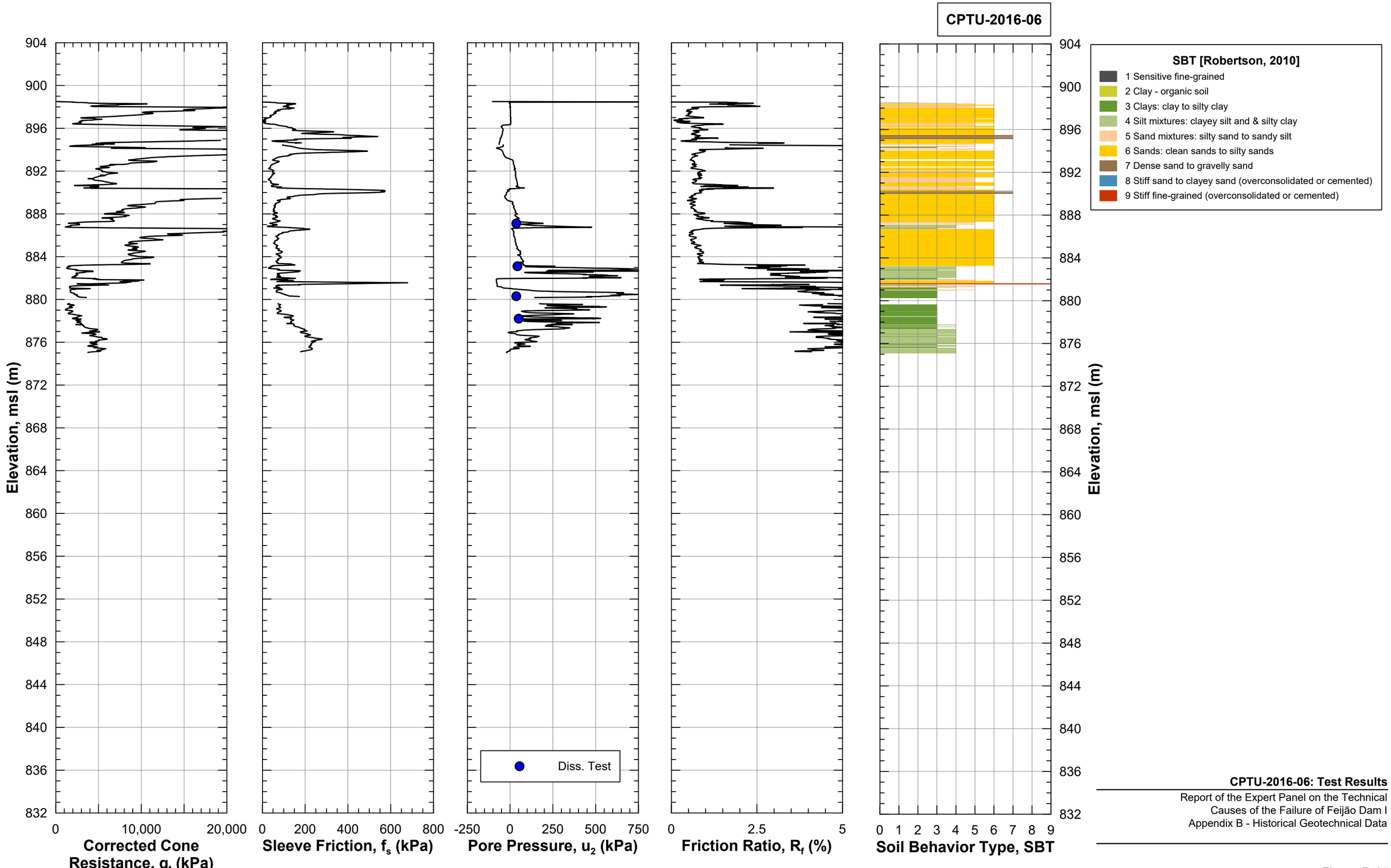
Figure B-12



CPTU-2016-05: Test Results

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I
Appendix B - Historical Geotechnical Data

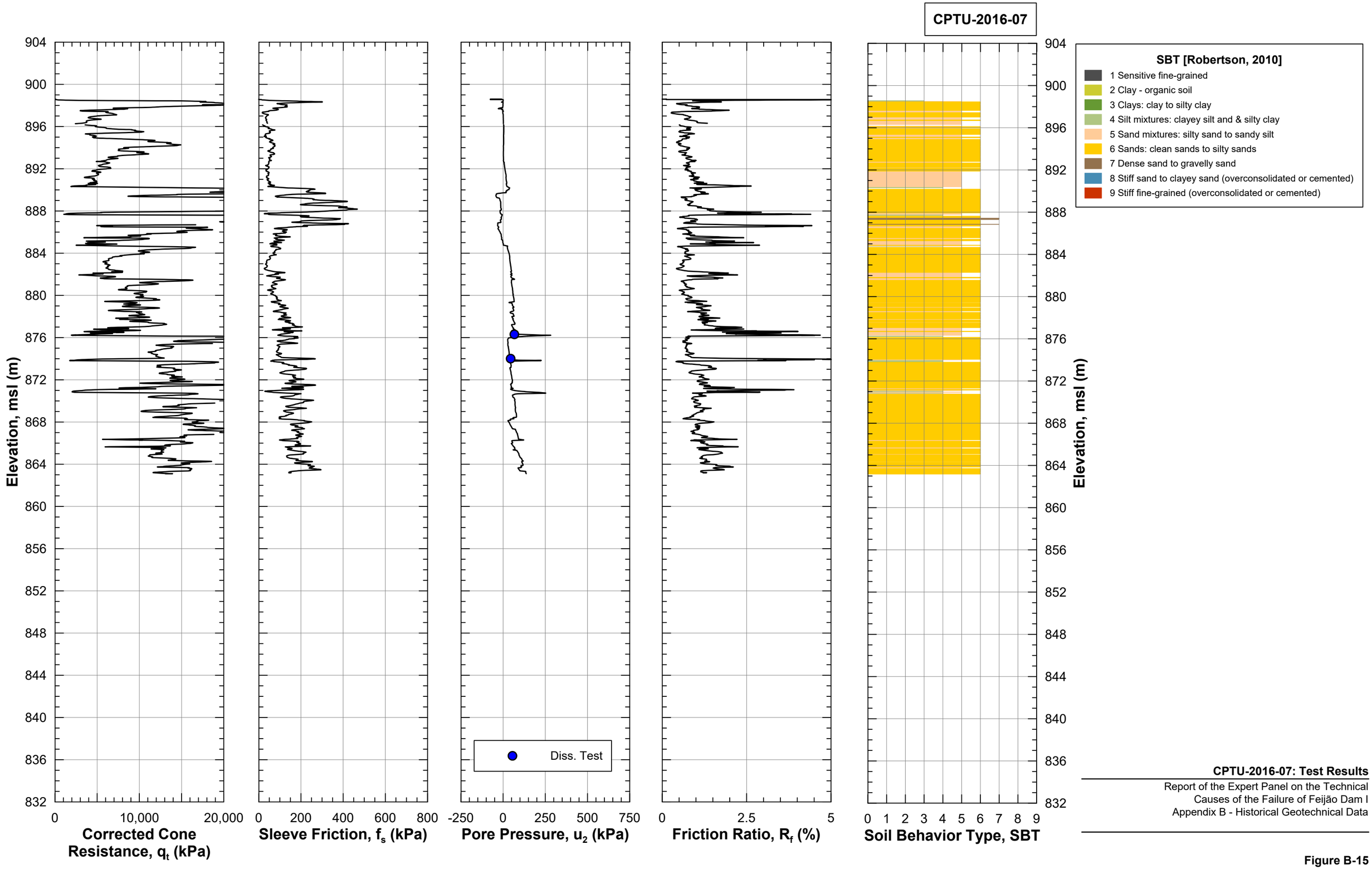
Figure B-13



CPTU-2016-06: Test Results

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I
Appendix B - Historical Geotechnical Data

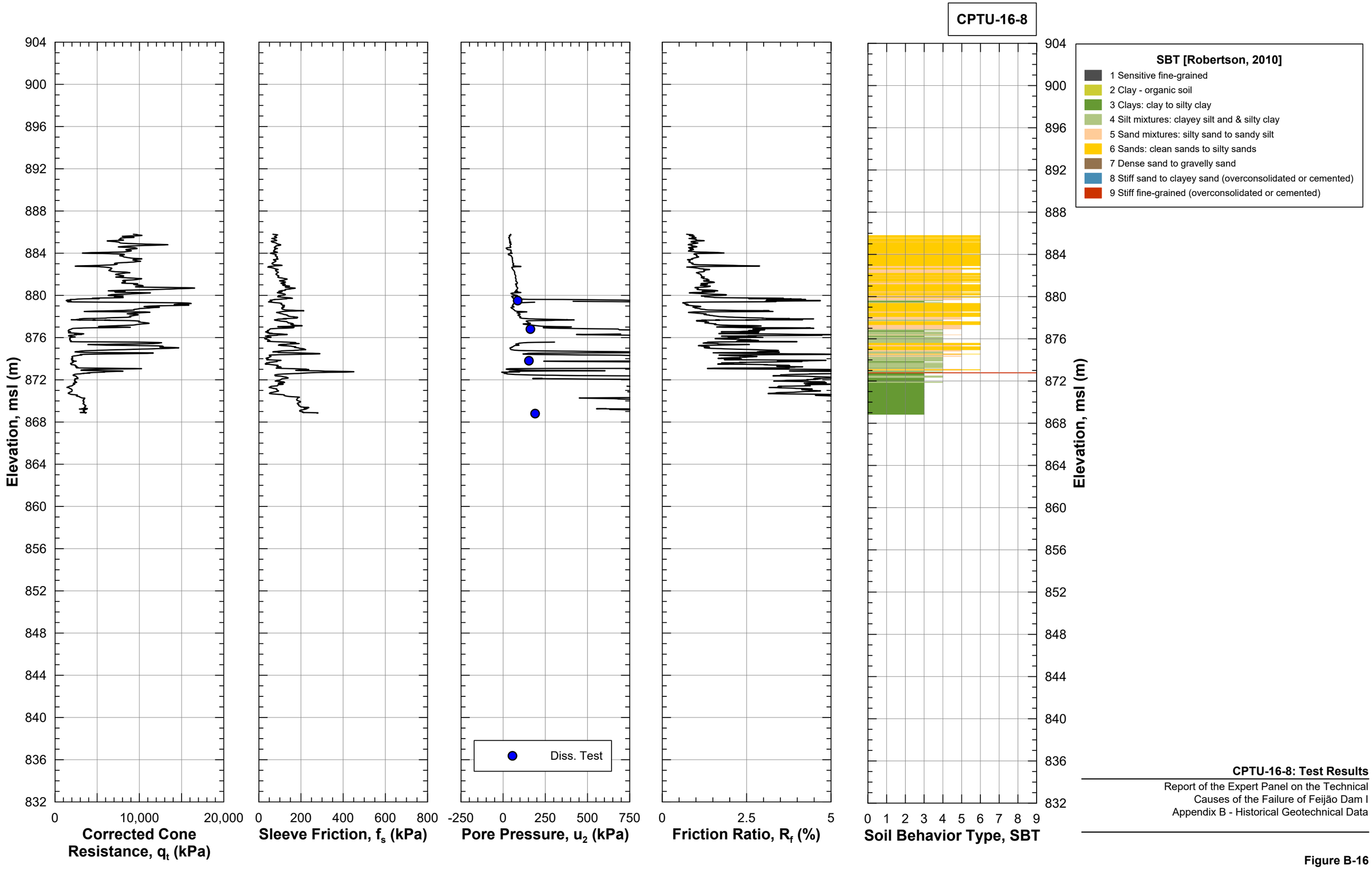
Figure B-14



CPTU-2016-07: Test Results

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I
Appendix B - Historical Geotechnical Data

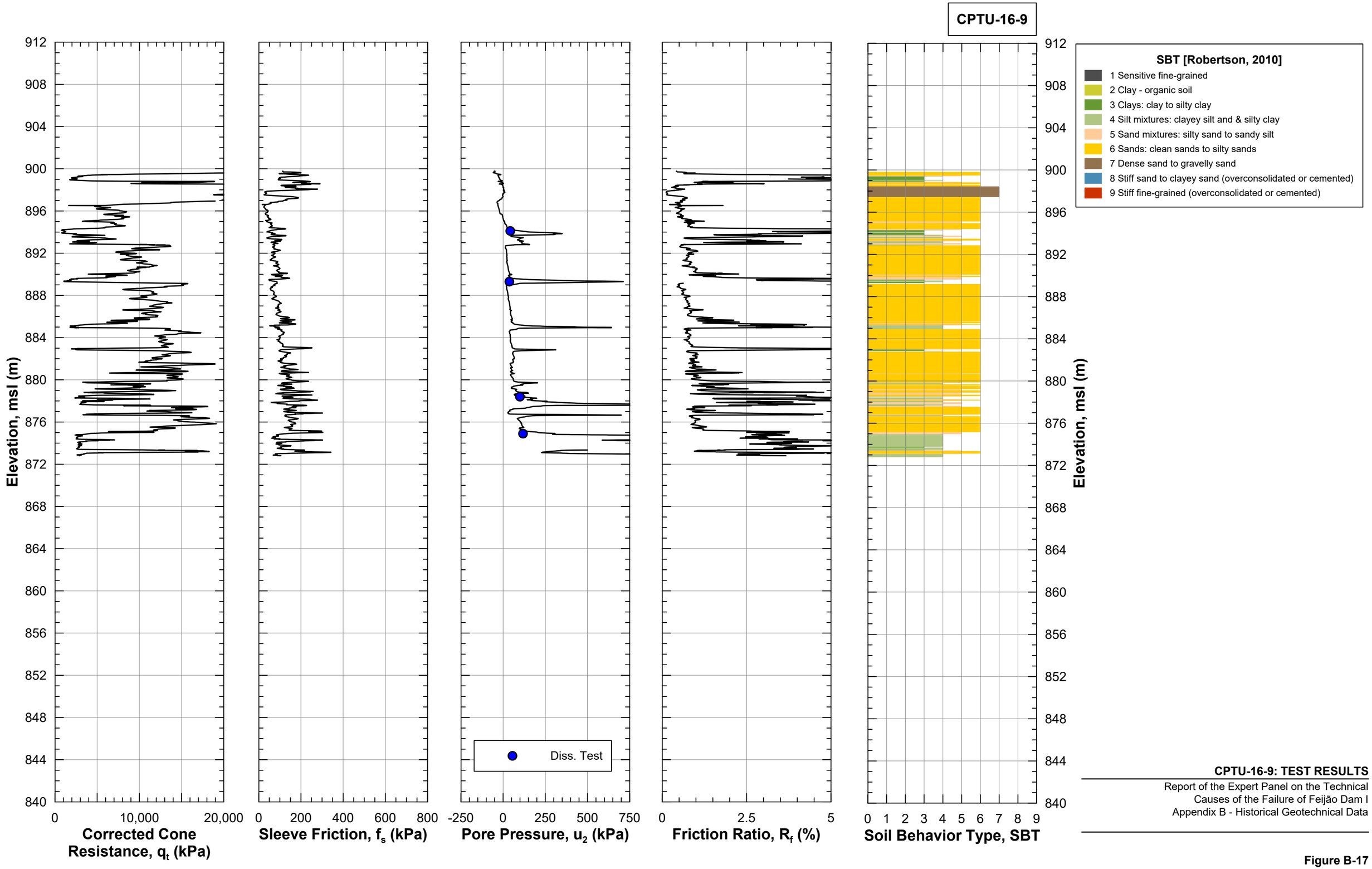
Figure B-15



CPTU-16-8: Test Results

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I
Appendix B - Historical Geotechnical Data

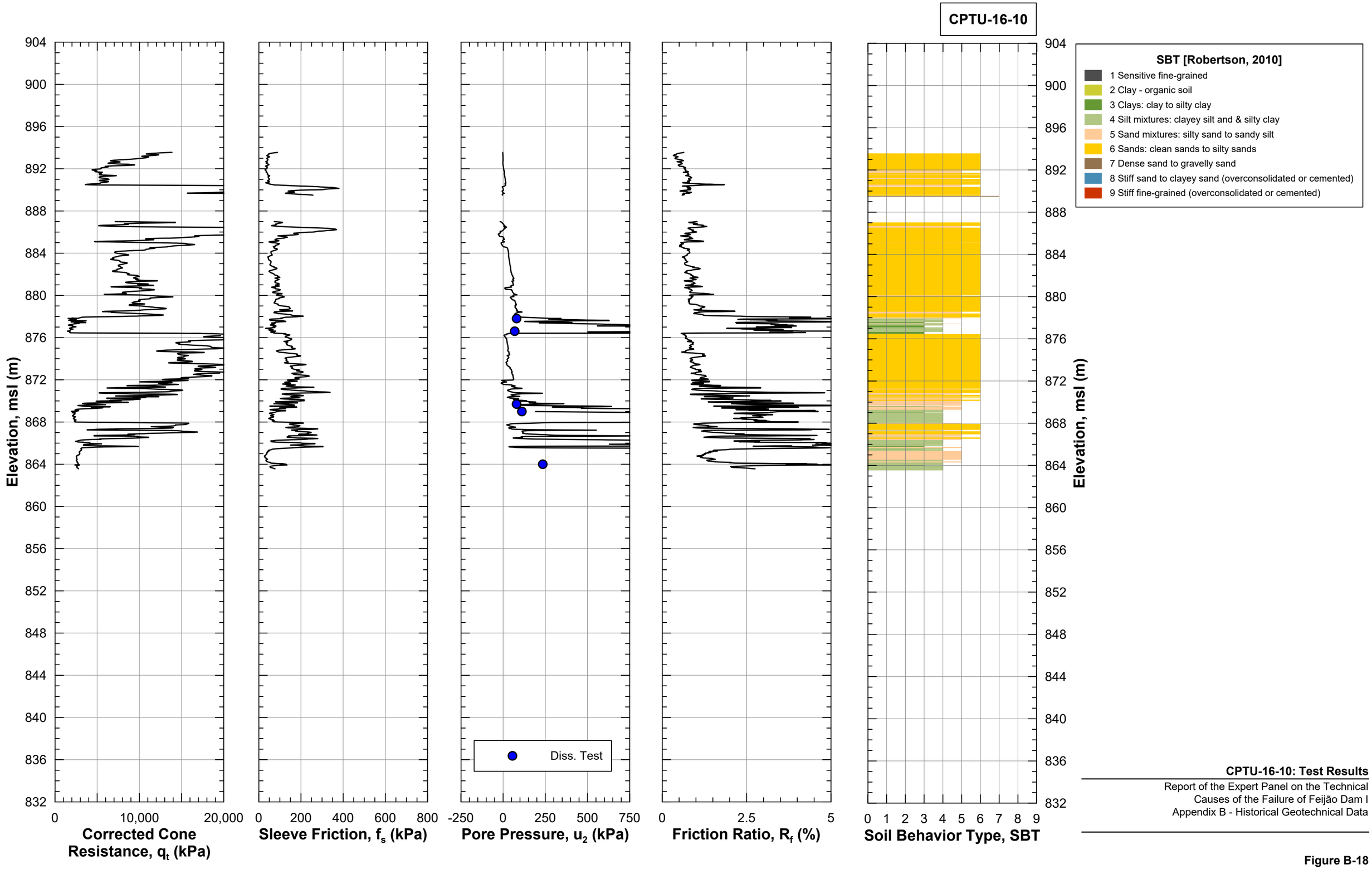
Figure B-16



CPTU-16-9: TEST RESULTS

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I
Appendix B - Historical Geotechnical Data

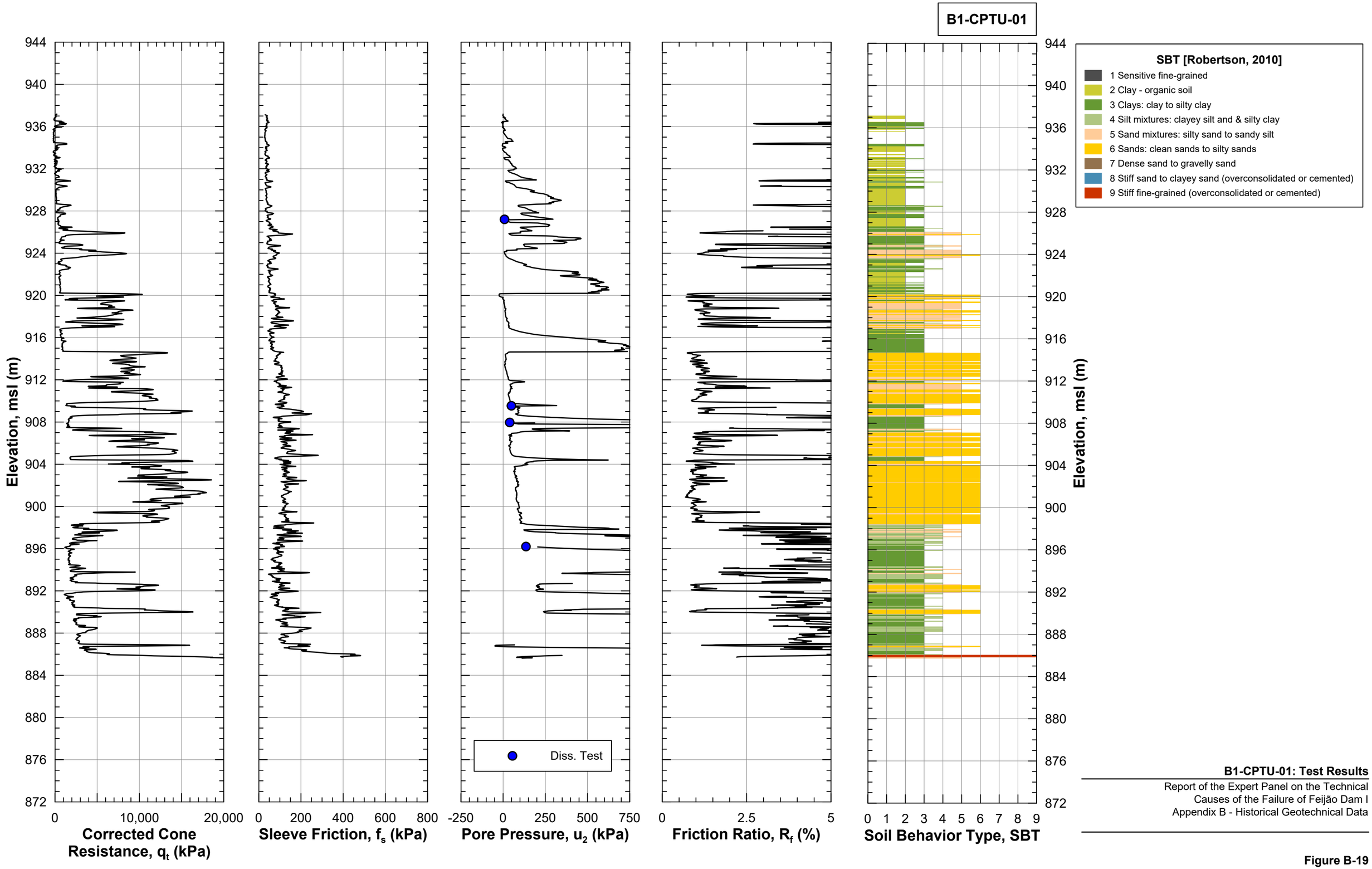
Figure B-17



CPTU-16-10: Test Results

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I
Appendix B - Historical Geotechnical Data

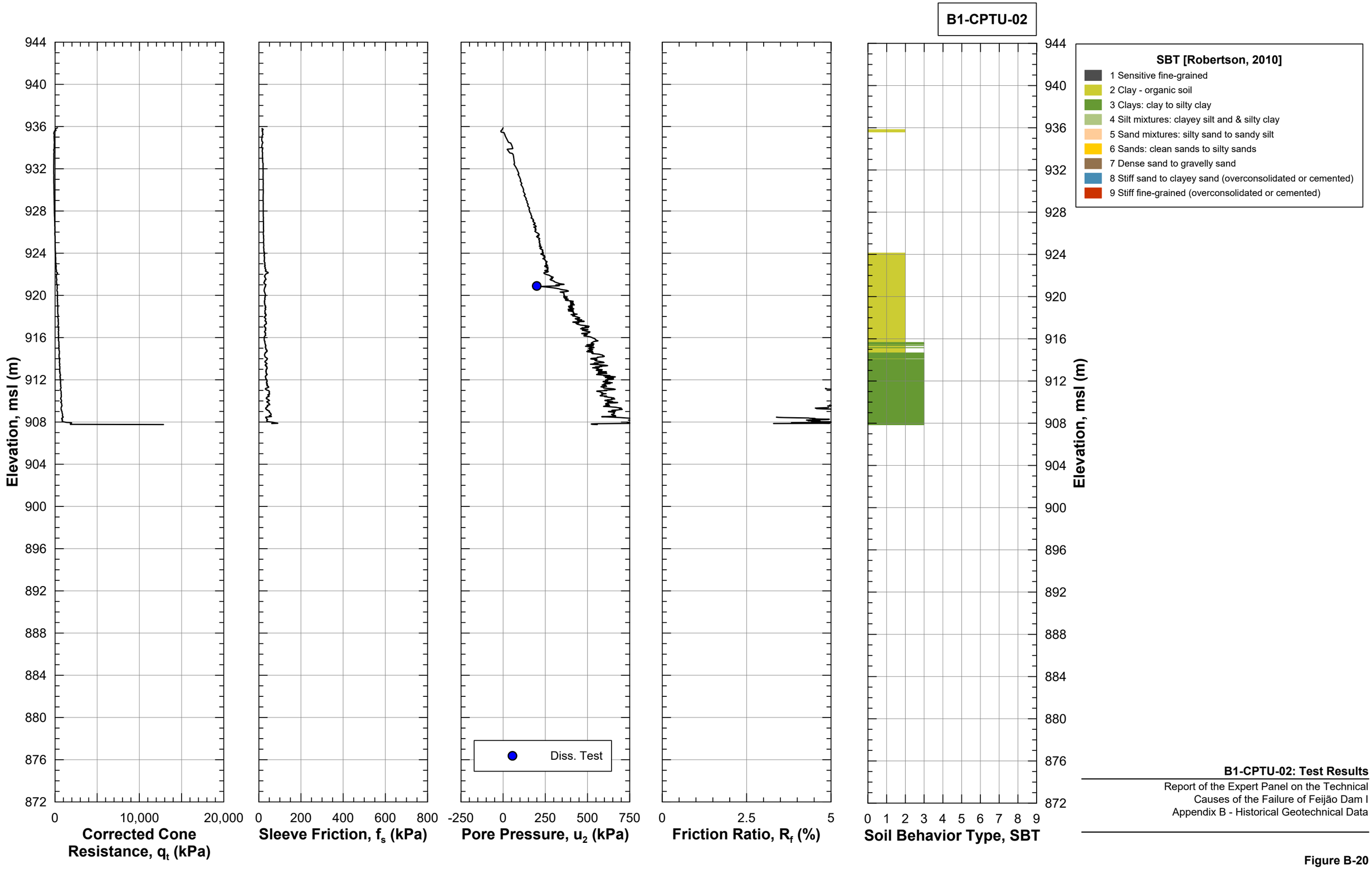
Figure B-18



B1-CPTU-01: Test Results

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I
Appendix B - Historical Geotechnical Data

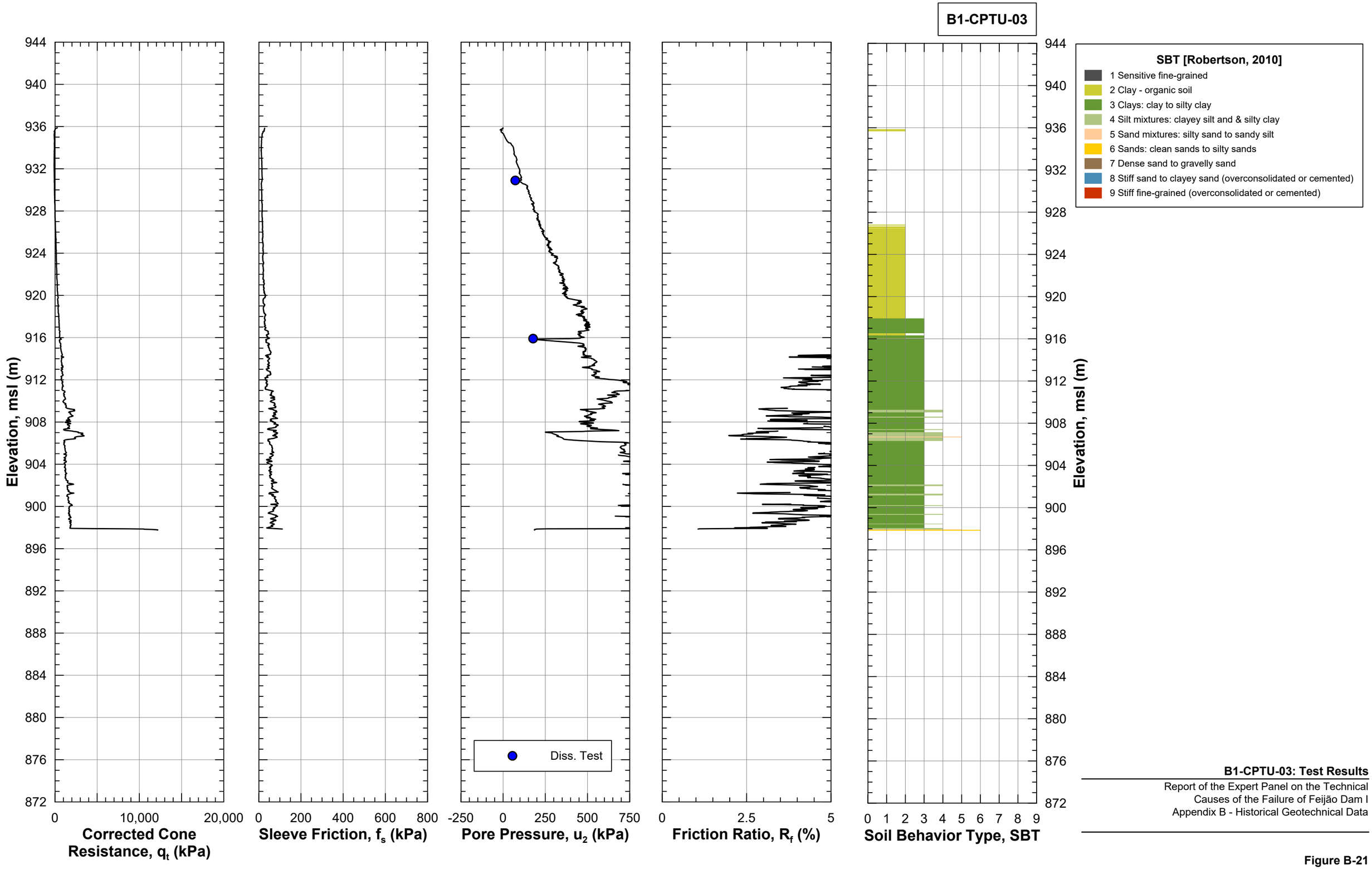
Figure B-19



B1-CPTU-02: Test Results

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I
Appendix B - Historical Geotechnical Data

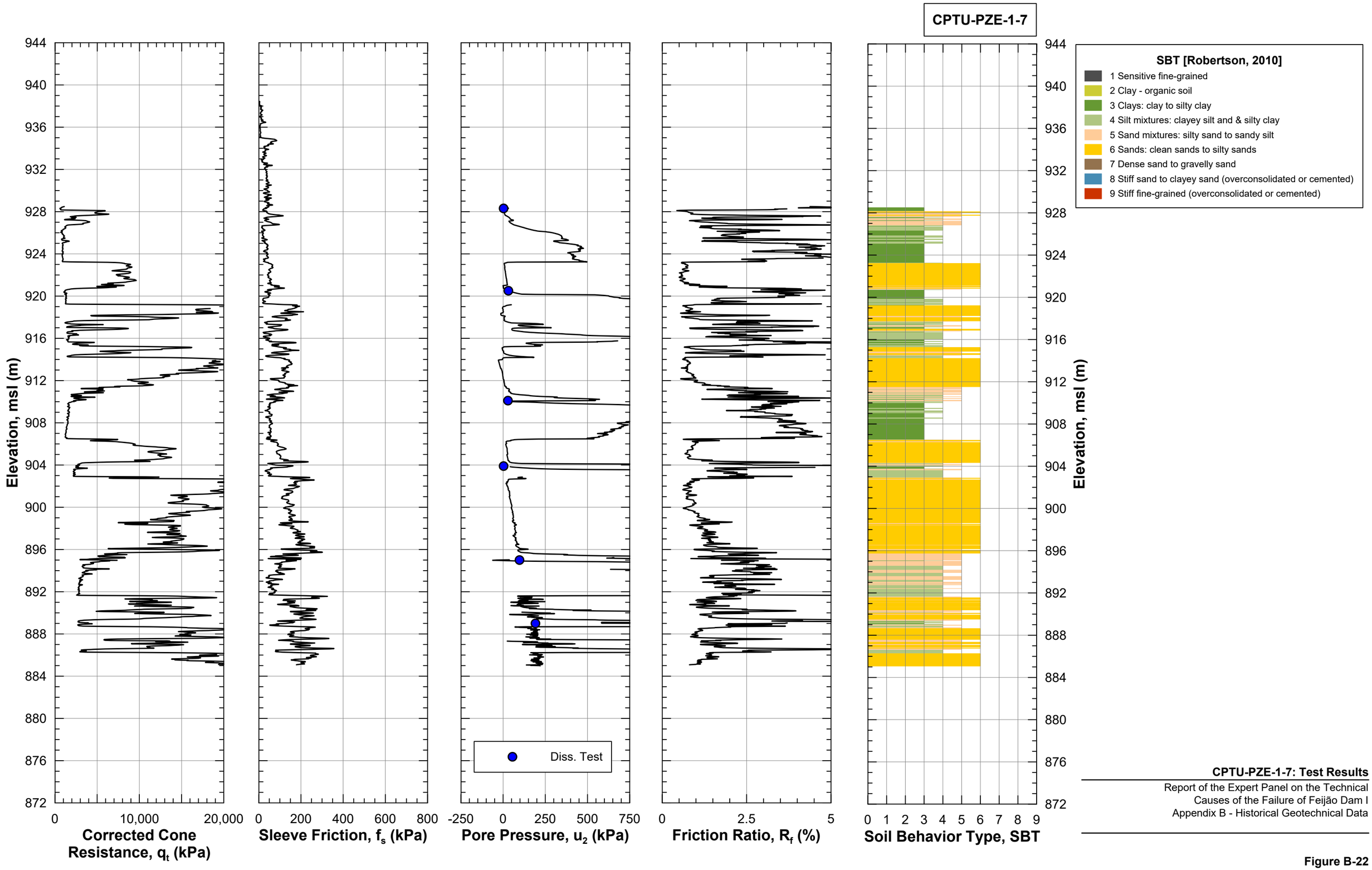
Figure B-20



B1-CPTU-03: Test Results

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I
Appendix B - Historical Geotechnical Data

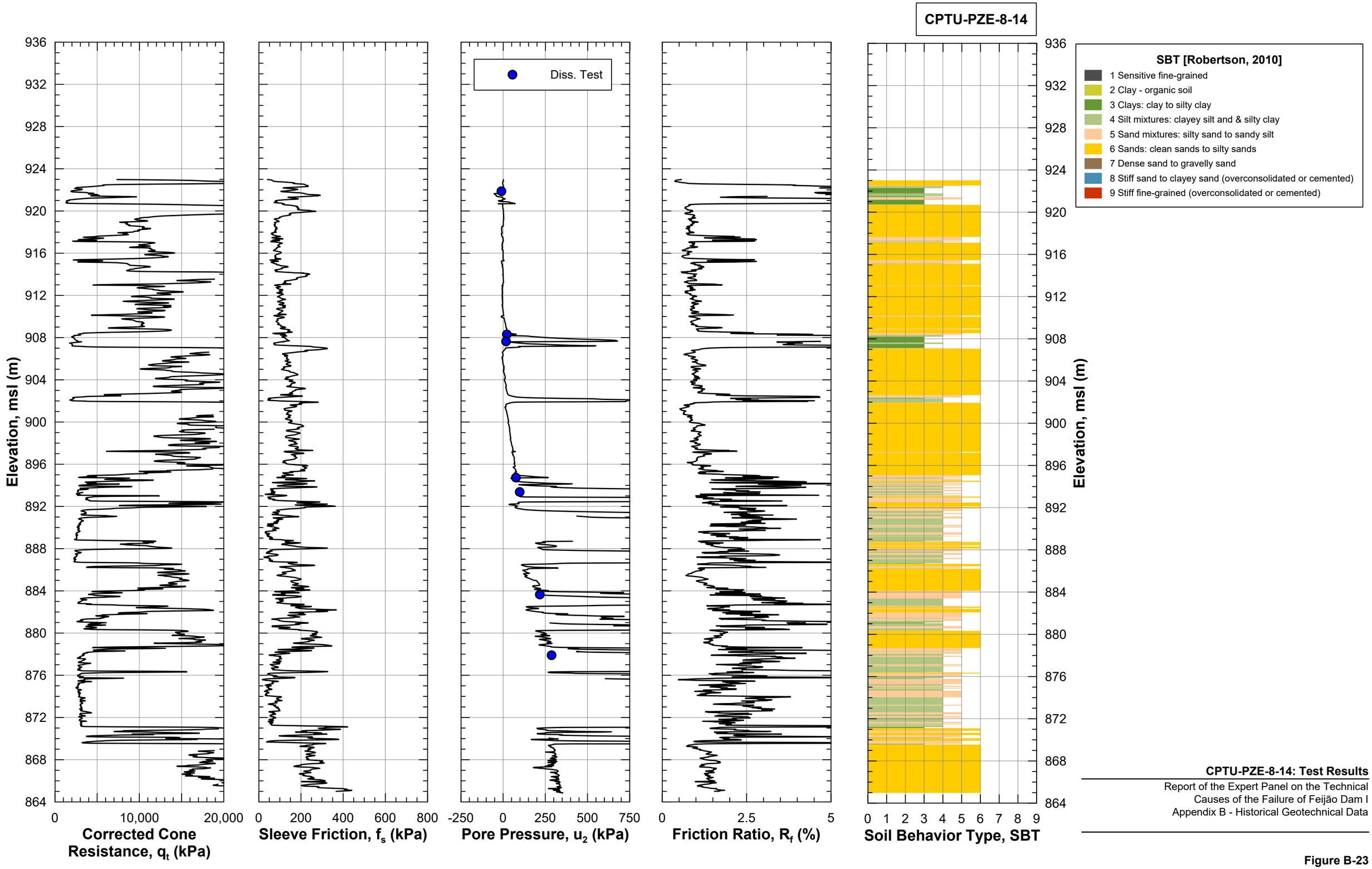
Figure B-21



CPTU-PZE-1-7: Test Results

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I
Appendix B - Historical Geotechnical Data

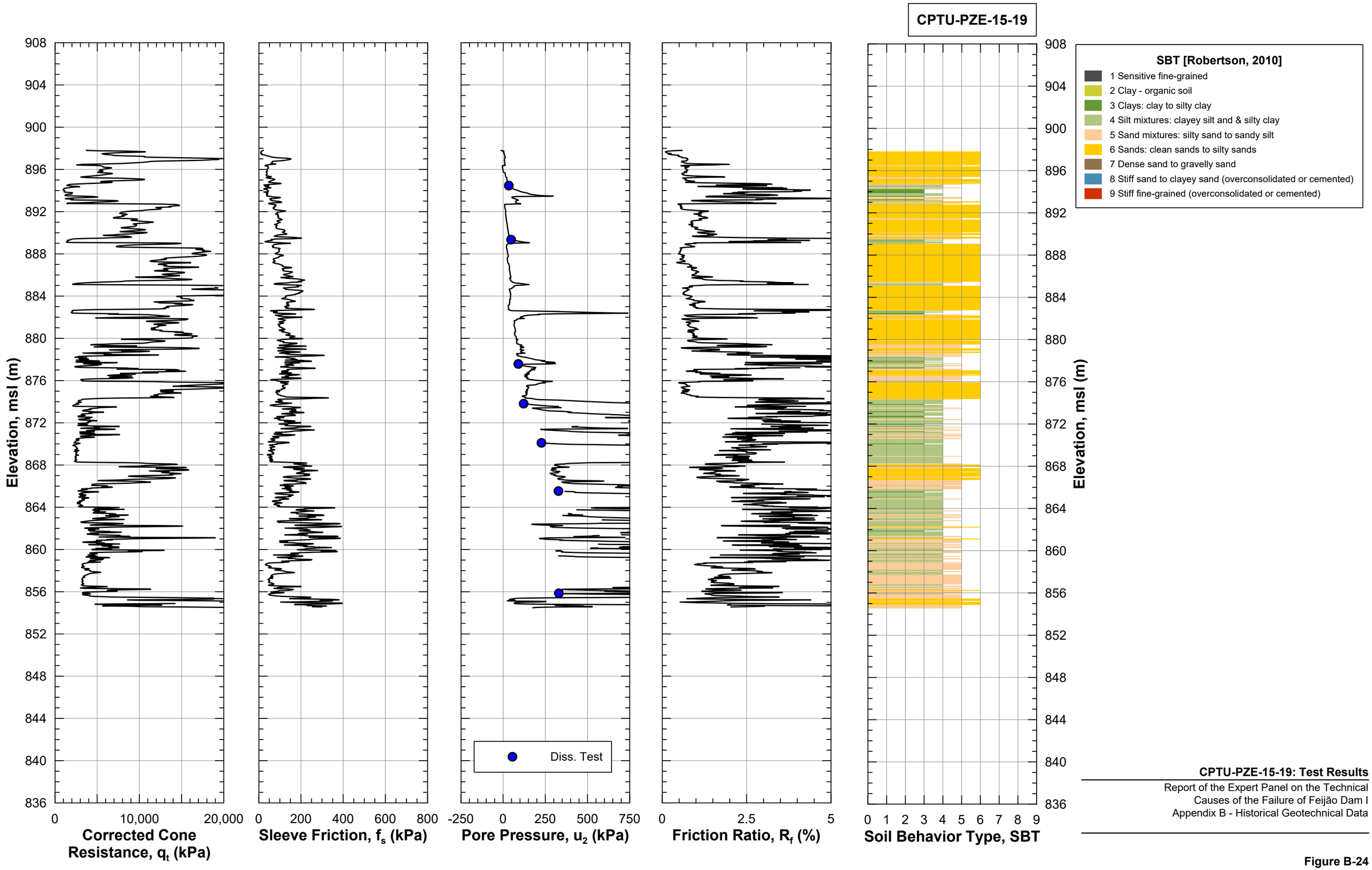
Figure B-22



CPTU-PZE-8-14: Test Results

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I
Appendix B - Historical Geotechnical Data

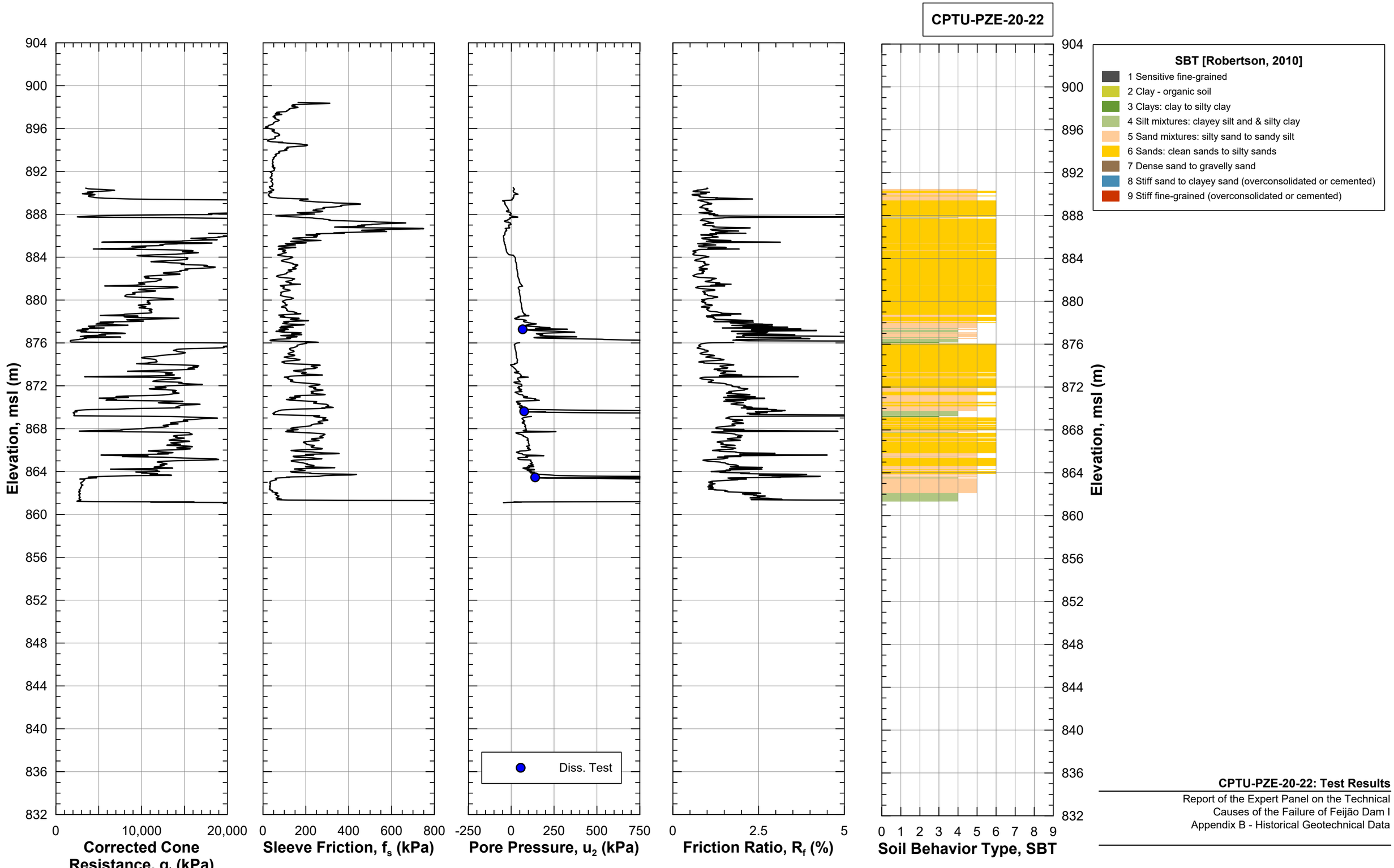
Figure B-23



CPTU-PZE-15-19: Test Results

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I
Appendix B - Historical Geotechnical Data

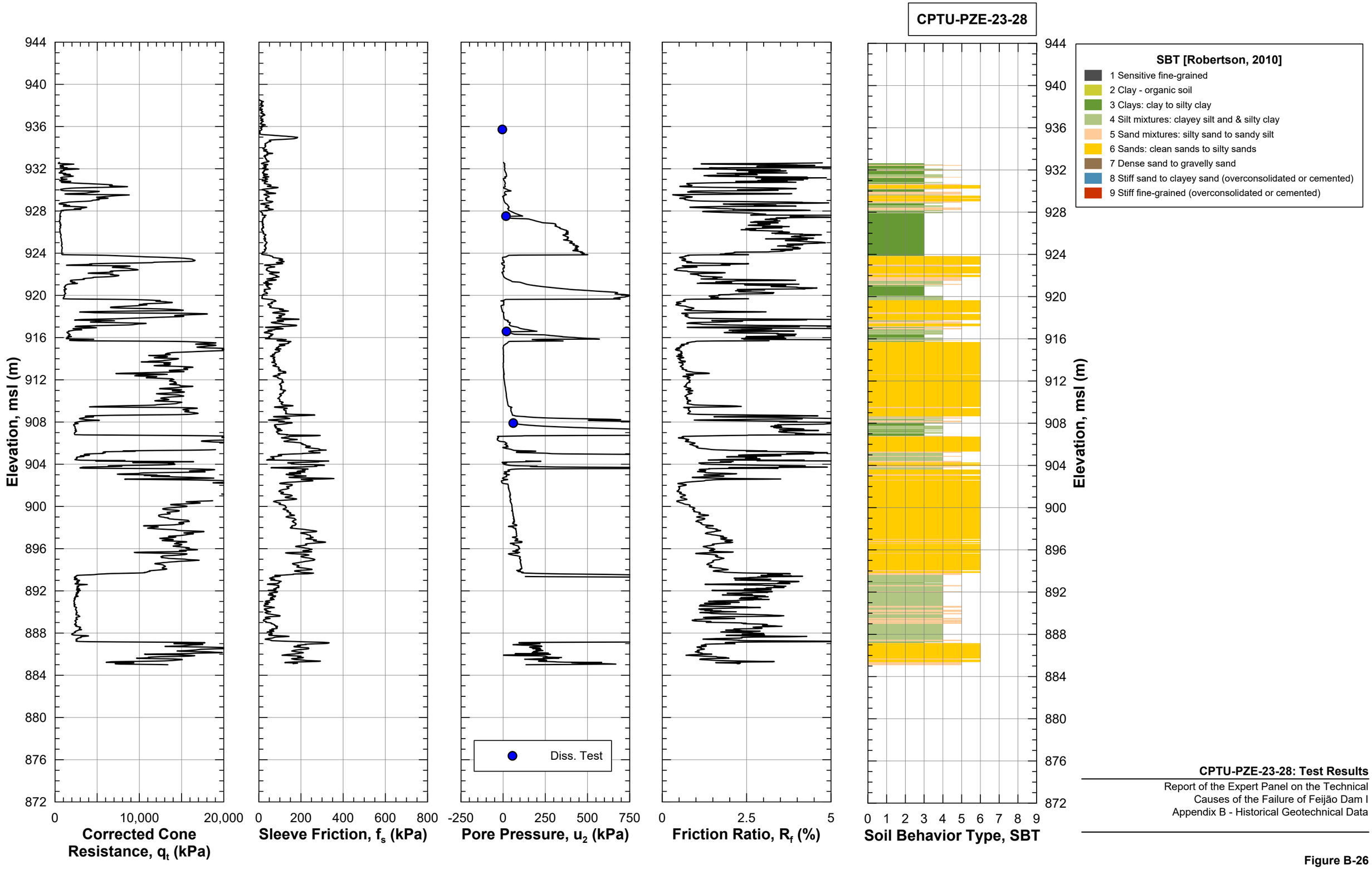
Figure B-24



CPTU-PZE-20-22: Test Results

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I
Appendix B - Historical Geotechnical Data

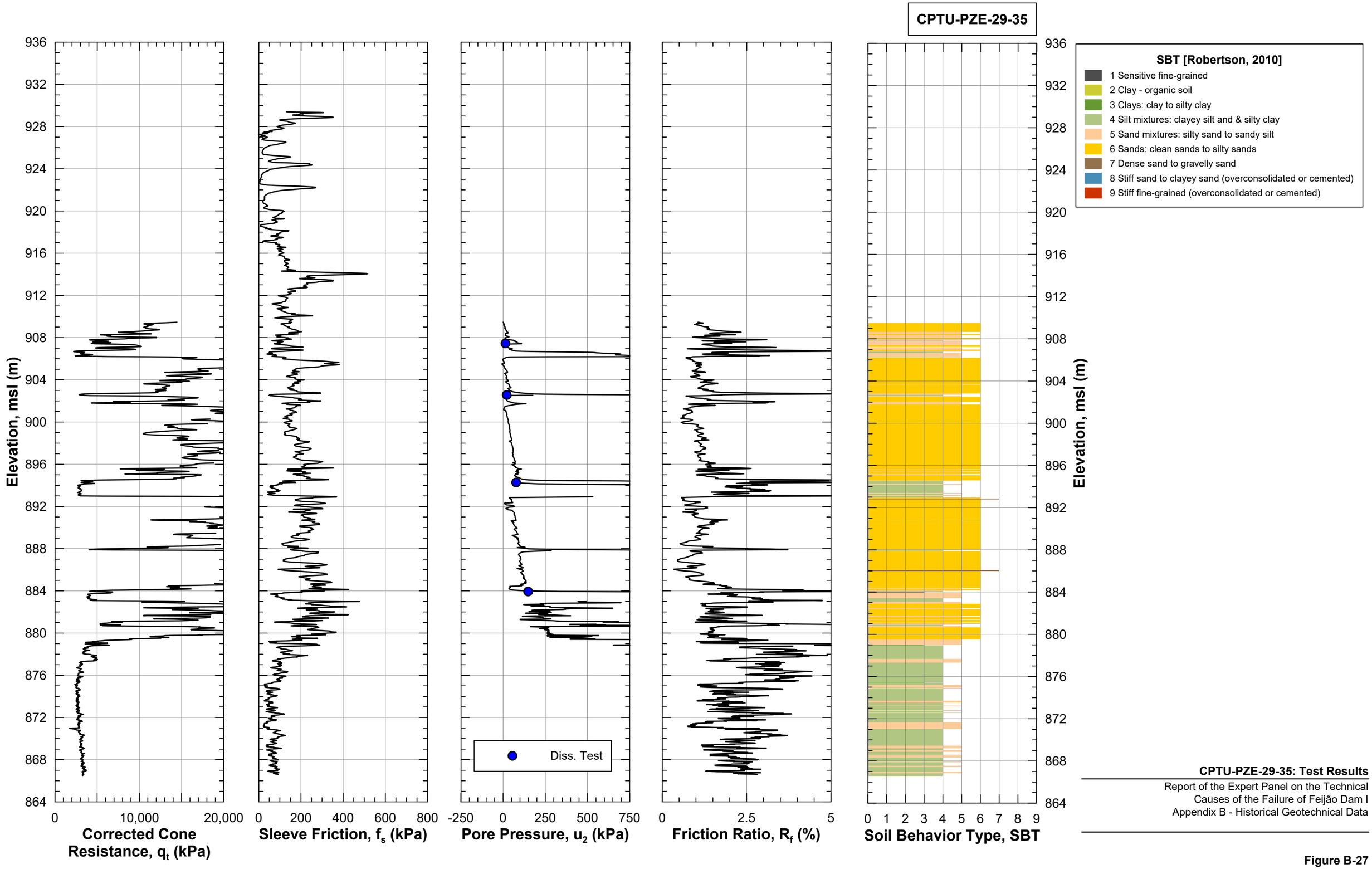
Figure B-25



CPTU-PZE-23-28: Test Results

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I
Appendix B - Historical Geotechnical Data

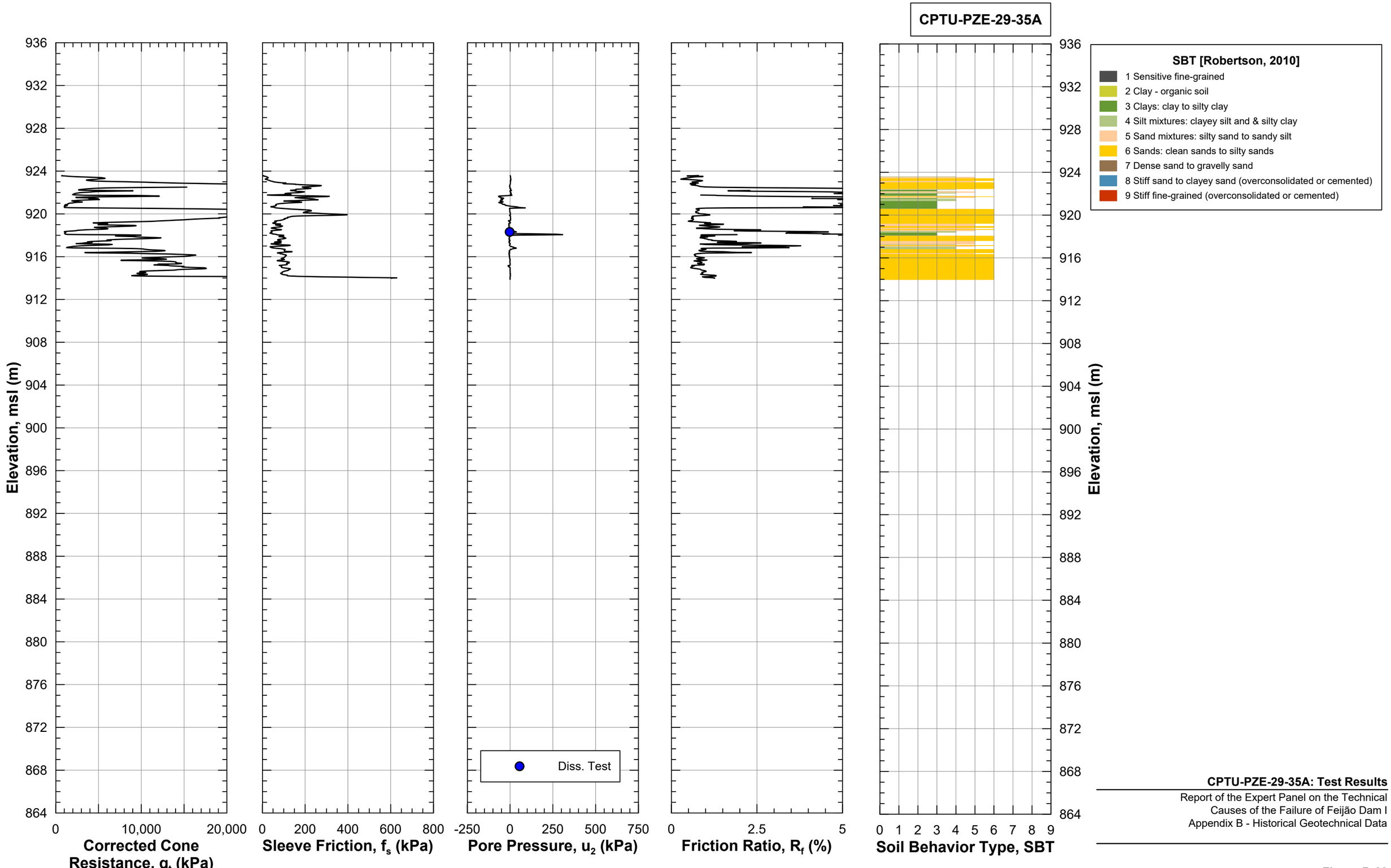
Figure B-26



CPTU-PZE-29-35: Test Results

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I
Appendix B - Historical Geotechnical Data

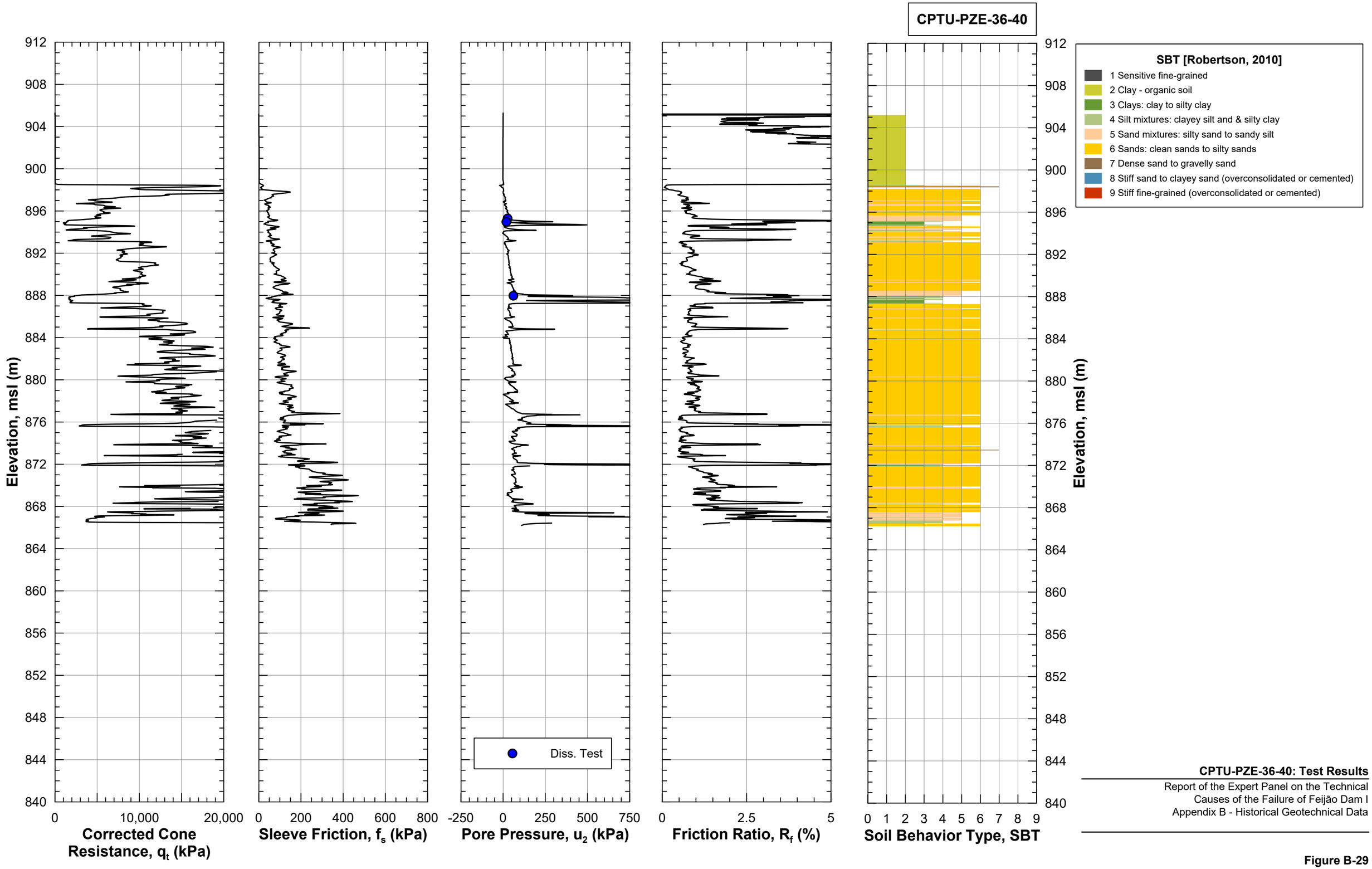
Figure B-27



CPTU-PZE-29-35A: Test Results

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I
Appendix B - Historical Geotechnical Data

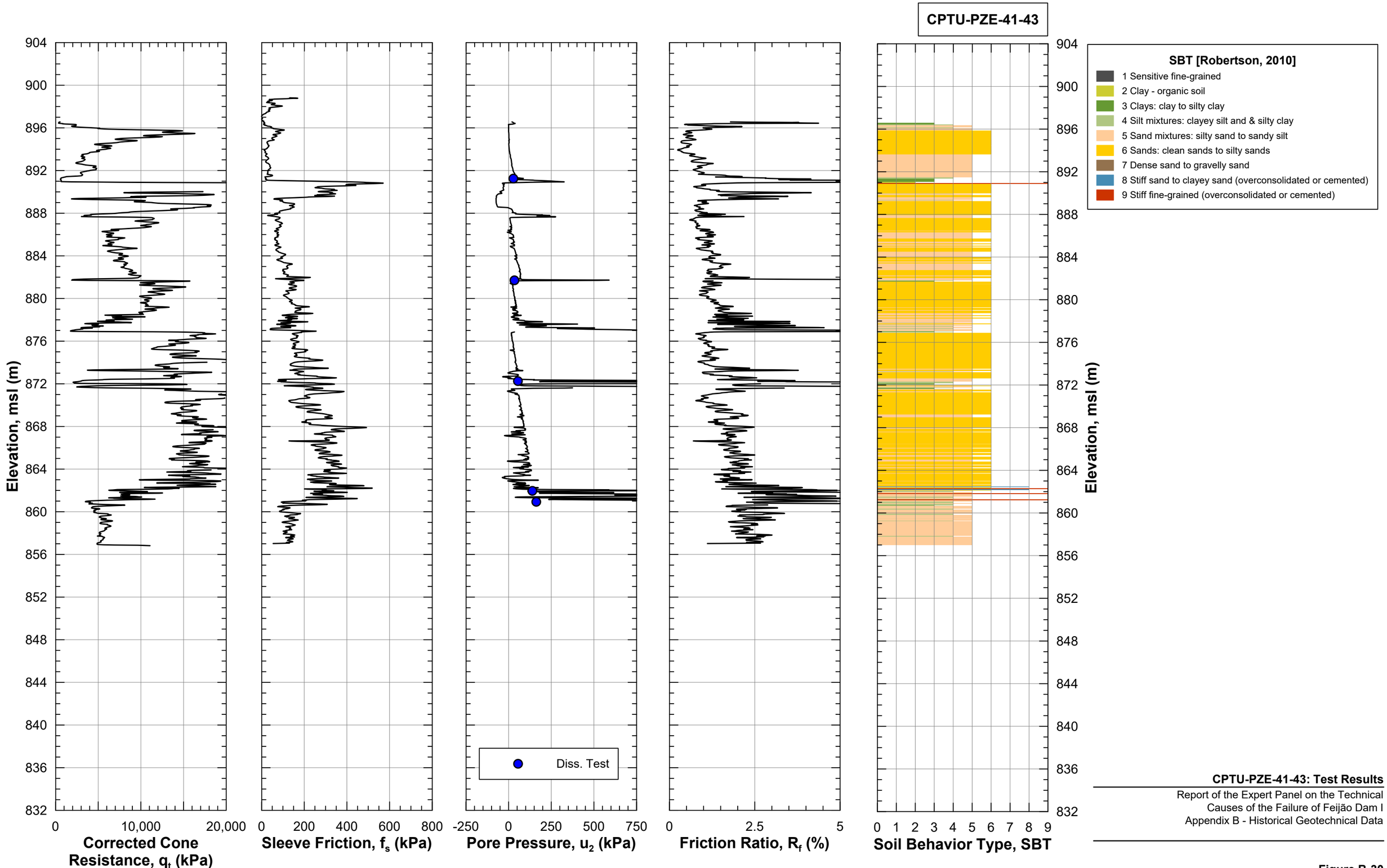
Figure B-28



CPTU-PZE-36-40: Test Results

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I
Appendix B - Historical Geotechnical Data

Figure B-29



CPTU-PZE-41-43: Test Results

Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I
Appendix B - Historical Geotechnical Data

Figure B-30