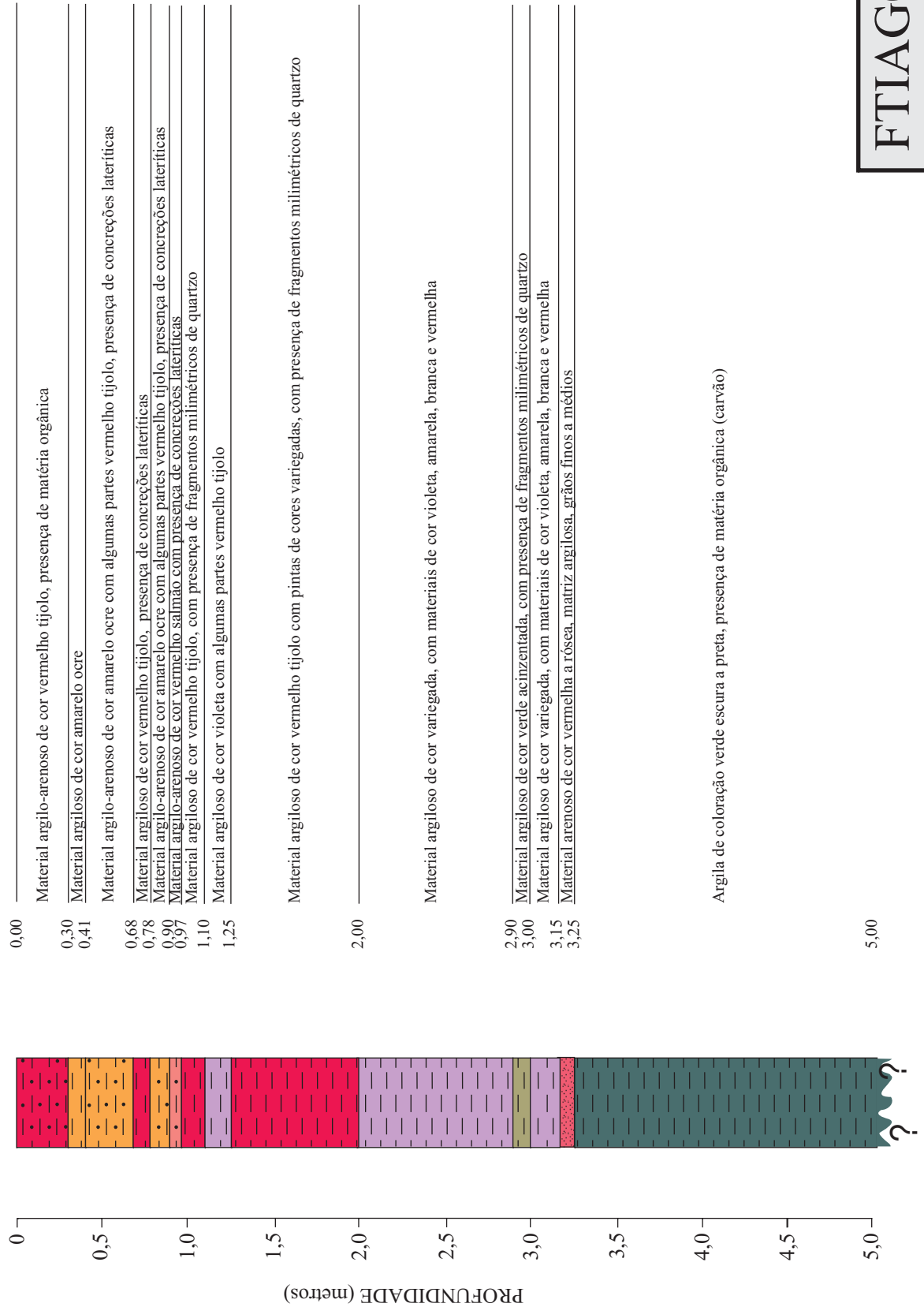


ANEXOS

FTIAG01

Descrição Litológica

Perfil Geológico



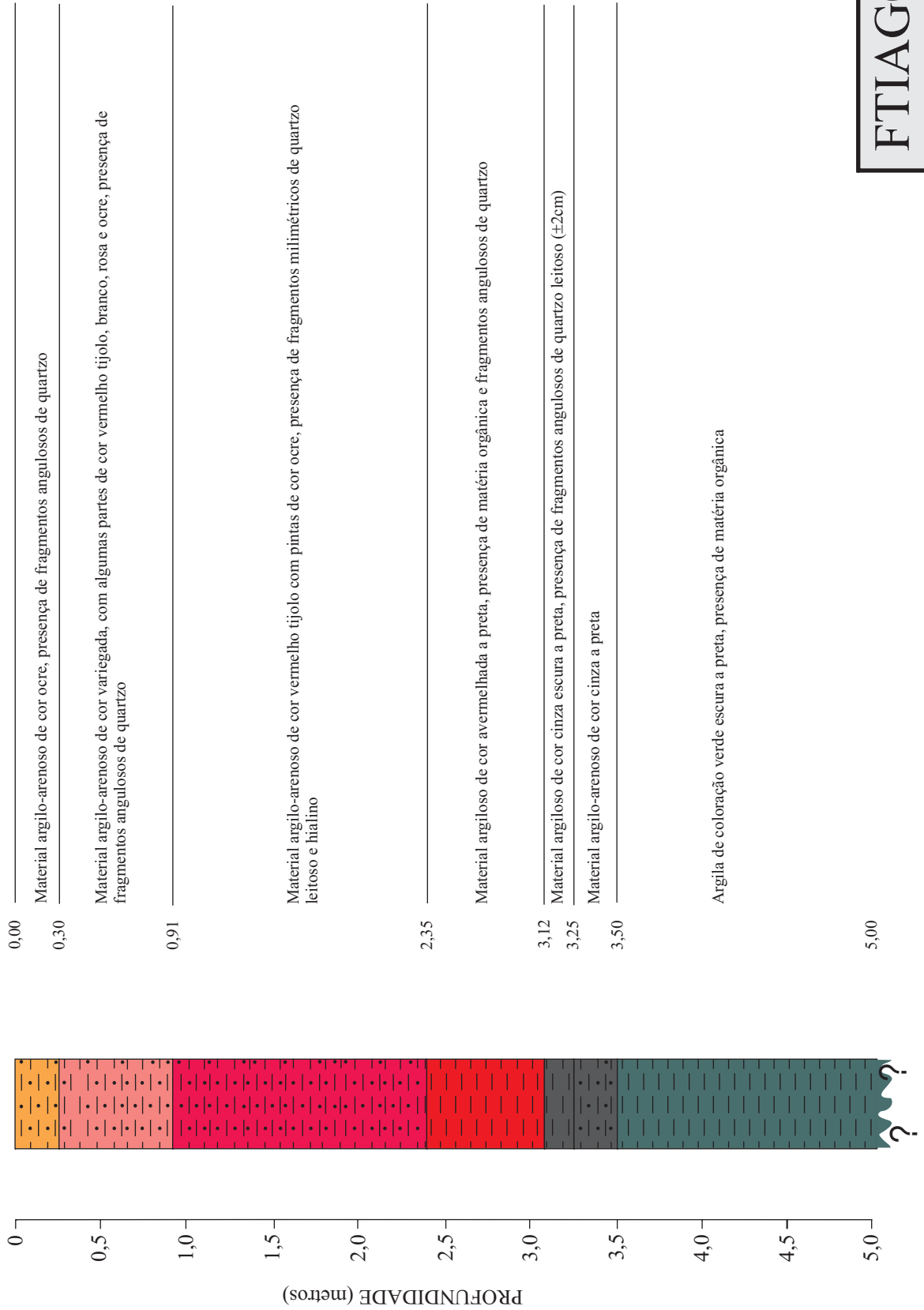
FTIAG01

ANEXO 01 - Perfil geológico do furo de sondagem a trado FTIAG01 executado na posição 165,0m na Linha IAG/Física.

FTIAG02

Descrição Litológica

Perfil Geológico



FTIAG02

FTIAG03

Perfil Geológico



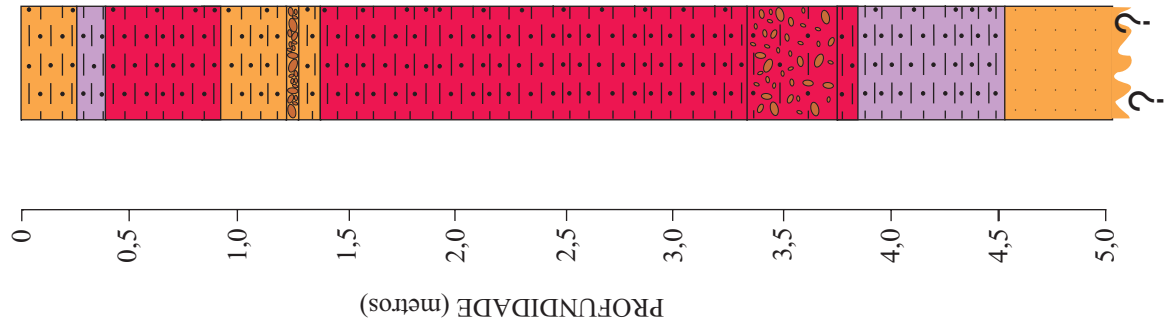
FTIAG03

FTIAG04

Descrição Litológica

Profundidade (metros)	Descrição Litológica
0,00	Material argilo-arenoso de cor ocre, presença de fragmentos milimétricos de quartzo
0,27	Material argilo-arenoso de cor variegada, com algumas partes de cor violeta, vermelho tijolo, branco, rosa e ocre, presença de fragmentos angulosos de quartzo
0,40	Material argilo-arenoso de cor vermelho tijolo, presença de fragmentos milimétricos de quartzo
0,84	Material argilo-arenoso de cor ocre a vermelho com algumas partes pretas, presença de fragmentos centimétricos de quartzo
1,24	Material conglomerático de cor ocre, matriz argilo-arenosa, clastos de quartzo de ≈ 3 cm
1,26	Material argilo-arenoso de cor ocre, presença de fragmentos angulosos de quartzo
1,39	Material argilo-arenoso de cor vermelho tijolo, presença de fragmentos milimétricos de quartzo
3,35	Material argilo-arenoso de cor ocre a vermelho tijolo, presença de fragmentos milimétricos de quartzo
3,75	Material conglomerático com matriz argilo-arenosa de cor vermelho tijolo a ocre, clastos centimétricos de quartzo leitoso
3,85	Material argilo-arenoso de cor vermelho tijolo, presença de fragmentos milimétricos de quartzo
4,53	Material argilo-arenoso de cor variegada, com algumas partes de cor violeta, vermelho tijolo, branco, rosa e ocre, presença de fragmentos angulosos de quartzo com tamanho de ≈ 4 cm
5,00	Material arenoso de cor ocre a amarelo claro, grãos médios e matriz argilo-arenosa

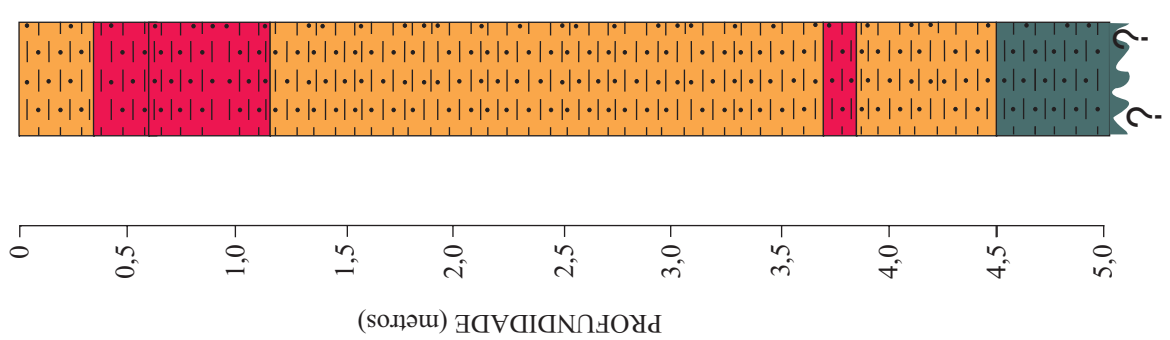
Perfil Geológico



FTIAG04

FTIAG05

Perfil Geológico



Descrição Litológica

0,00	
0,35	Material argilo-arenoso de cor vermelha a ocre, presença de fragmentos angulosos de quartzo e matéria orgânica
0,60	Material areno-argiloso de cor vermelha a ocre, granulometria média, presença de fragmentos angulosos de quartzo
1,15	Material argilo-arenoso de cor vermelho tijolo, presença de fragmentos milimétricos de quartzo
3,70	Material argilo-arenoso de cor variegado, predominando a cor ocre e algumas partes de cor cinza esverdeado, , presença de fragmentos milimétricos de quartzo
3,85	Material argilo-arenoso de cor variegado, predominando a cor vermelho tijolo e algumas partes de cor cinza esverdeado, presença de fragmentos milimétricos de quartzo
4,50	Material argilo-arenoso de cor ocre, presença de fragmentos milimétricos de quartzo
5,00	Material argilo-arenoso de cor cinza esverdeado com algumas partes avermelhadas, , presença de fragmentos milimétricos de quartzo

FTIAG05

FTIAG06

Descrição Litológica

Perfil Geológico



FTIAG06

FTIAG07

Descrição Litológica

Perfil Geológico



FTIAG07

FTIAG08

Descrição Litológica

Perfil Geológico

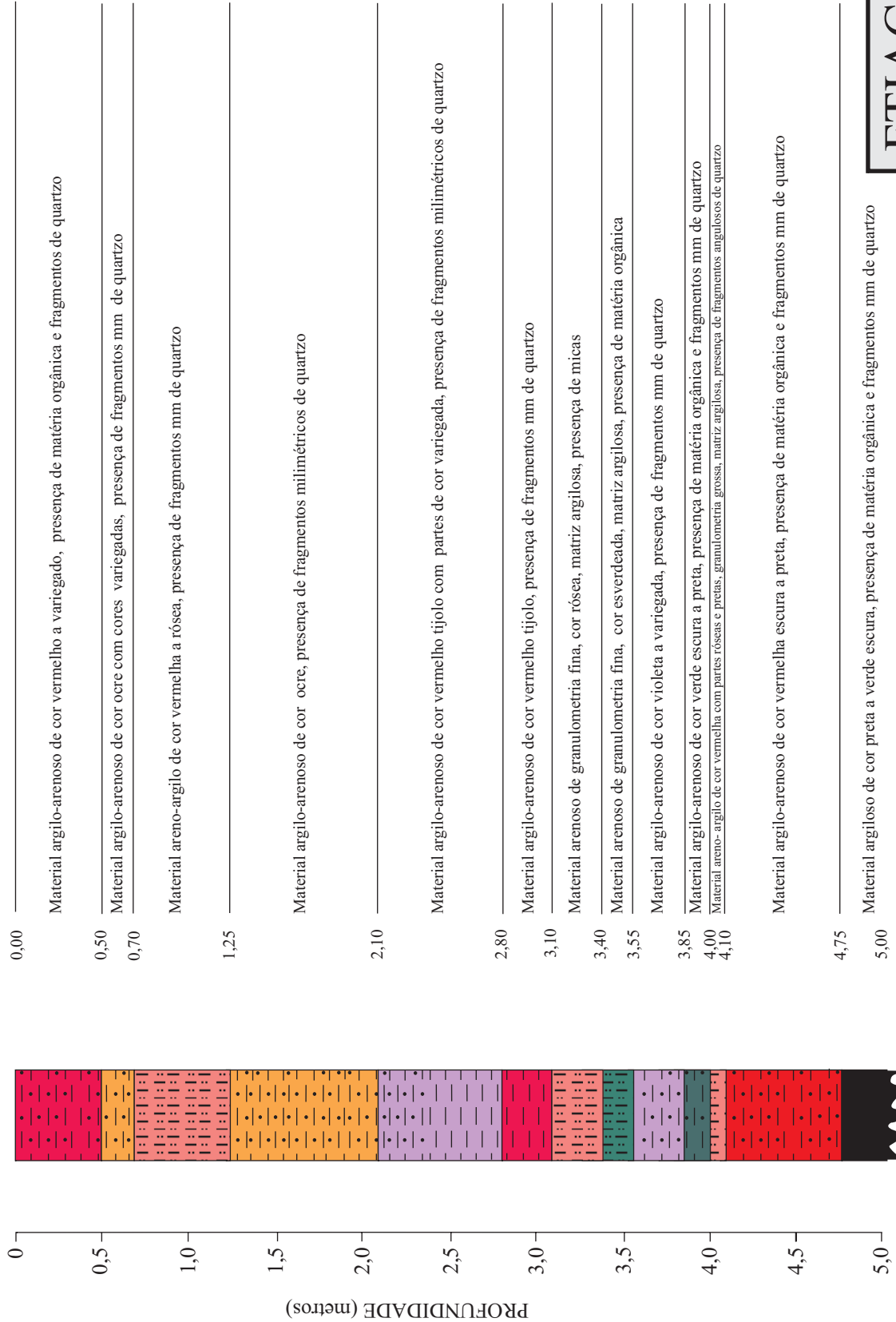


FTIAG08

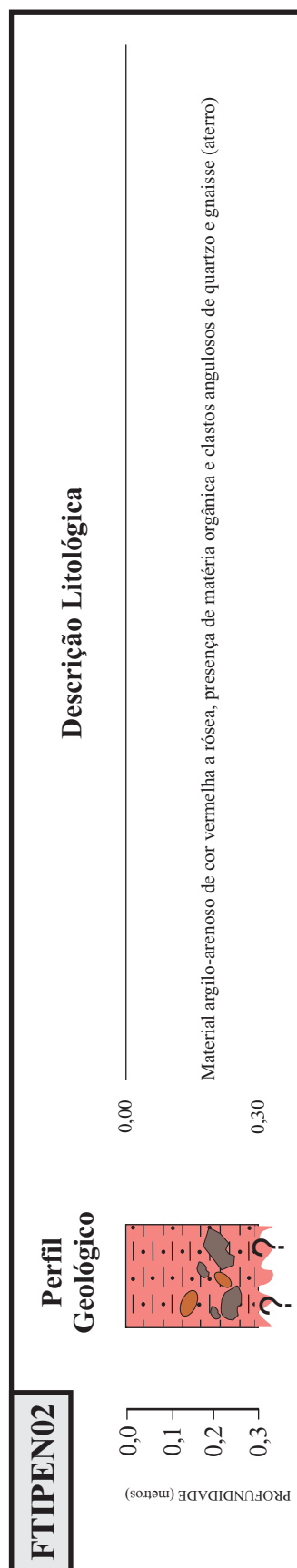
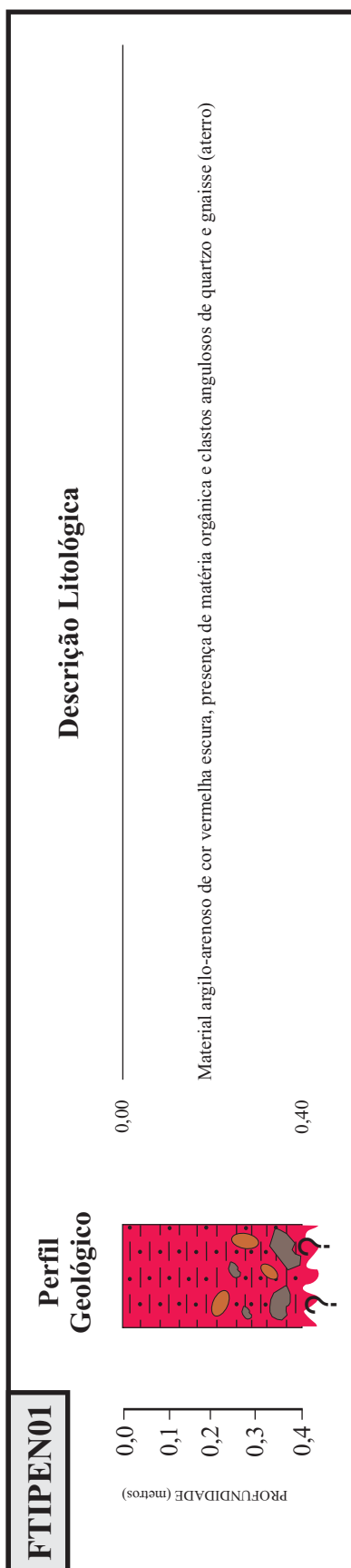
ANEXO 08 - Perfil geológico do furo de sondagem a trado FTIAG08 executado na posição 180,0m na Linha IAG/Física.

FTIAG09

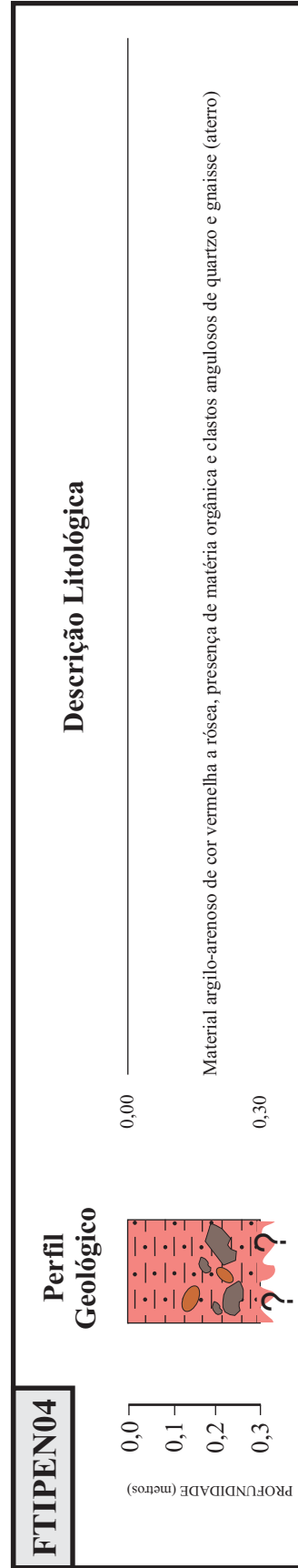
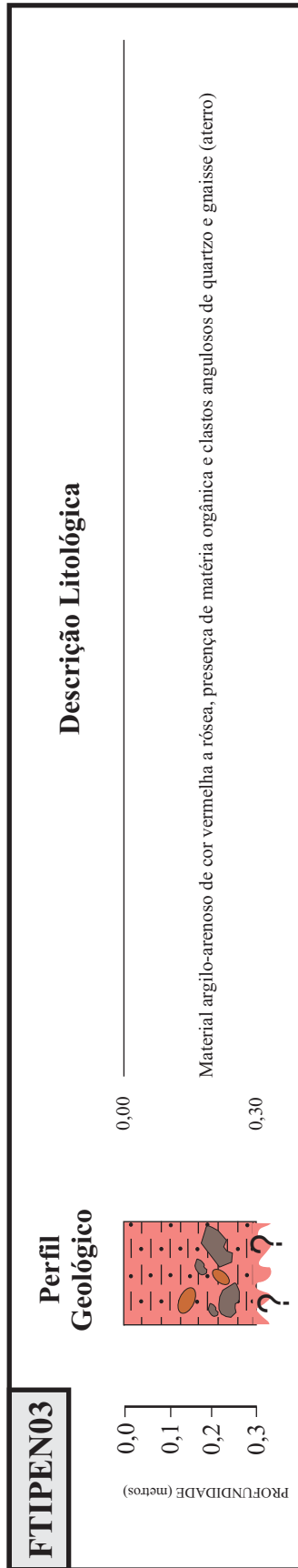
Descrição Litológica



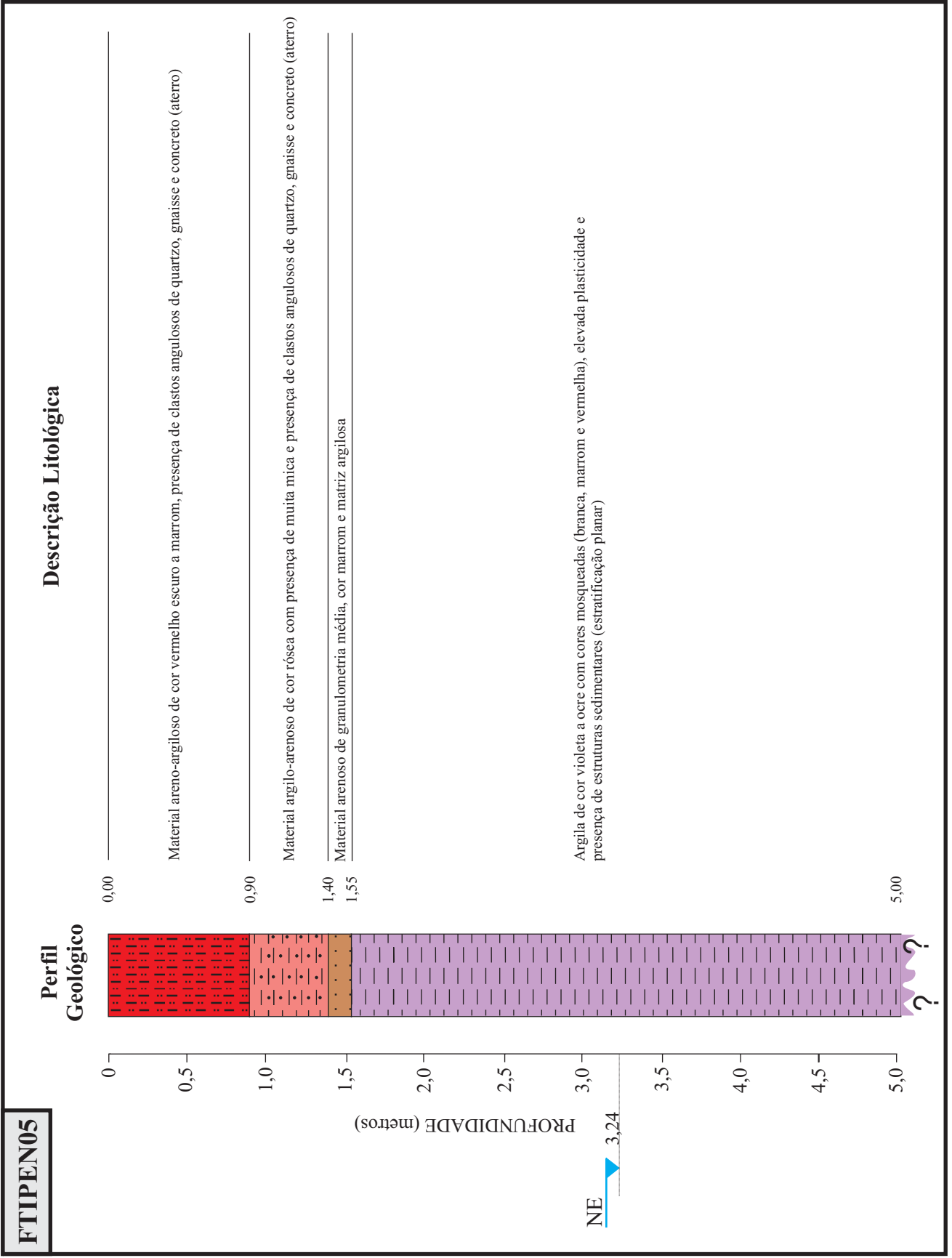
FTIAG09



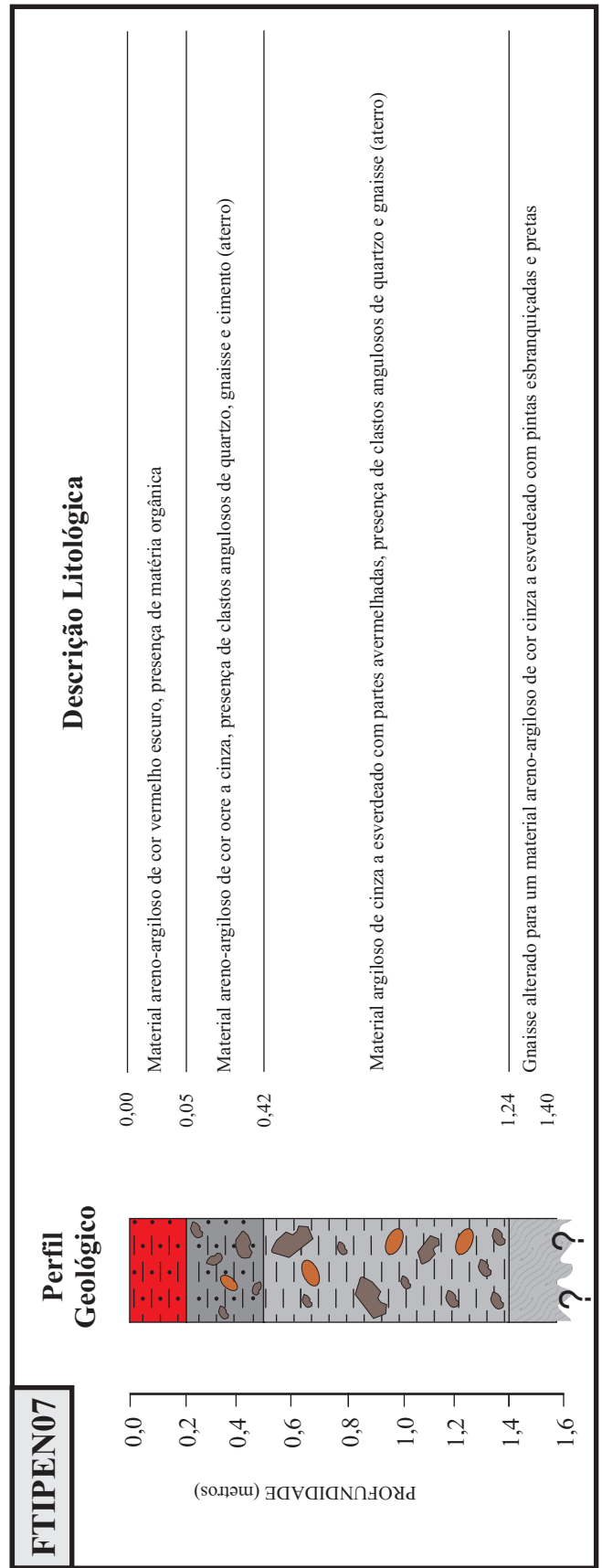
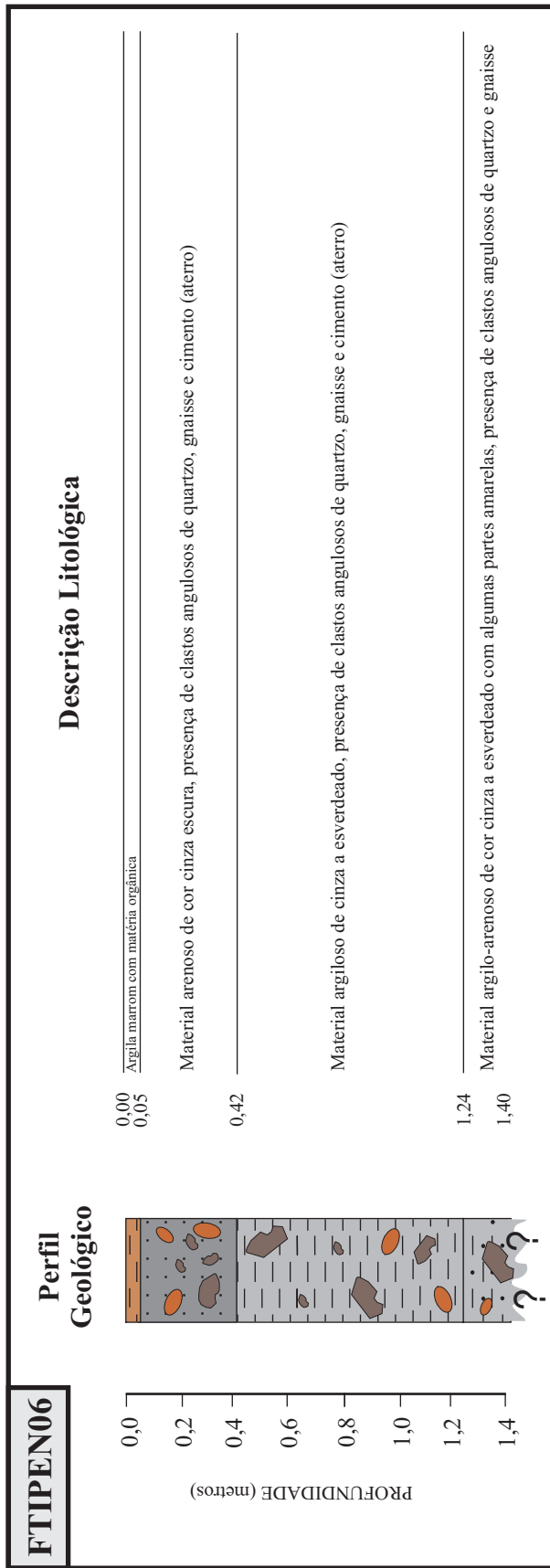
ANEXO 10 - Perfis geológicos dos furos de sondagem a trado FTIPEN01 e FTIPEN02, ambos executado na posição 0,0m do Perfil GPRHU (50MHz).



ANEXO 11 - Perfis geológicos dos furos de sondagem a trado FTIPEN03 e FTIPEN04, ambos executado ao longo do Perfil GPRHU (50MHz), o primeiro a 5,0m e o segundo a 50,0m.



ANEXO 12 - Perfil geológico do furo de sondagem a trado FTIPEN05 executado ao longo do Perfil GPRHU (50MHz) na posição de 100 metros.



ANEXO 13 - Perfis geológicos dos furos de sondagem a trado FTIPEN06 e FTIPEN07, ambos executados ao longo do Perfil GPRHU (50MHz), o primeiro a 199,0m e o segundo a 189,0m.

Anexos

[Tree]
00 IMPORT
01 DE-WOW
02 DRIFT REMOVAL
03 SET TIME ZERO
04 TRACE WINDOWING
05 FILTER
06 GAIN
07 TRACE MIX
08 ELEVATION STATICS
09 DEPTH CONVERSION

[History]
Import Field Records
Remove Wow Below 5.50 MHz
 Highpass Filter
 37 Points
Drift Removal
 Method: Crosscorrelation
 Search Window 47.78 ns
 Operator Window 47.78 ns
 Time Zero: 57.74 ns
 Trace Preconditioning:
 Square Amplitudes
 Smooth Samples
 Zero Small Samples
Set Time Zero to Sample 27
Window Traces
 Traces 1 to 218
 Time 108 ns to 609 ns
Trapezoidal Bandpass Filter
 0-15-35-60 MHz
 Zero Phase
 150 Points; Parzen Taper
Gain
 Programmed
 Spherical/Exponential:
 $g(t) = 80.000 * t * \exp(80.000*0.010*t)$
Trace Mix
 3 Traces / Mean
 Even Weighting
Apply Elevation Statics
 Constant Velocity 80.00 m/ μ s
Depth Conversion

ANEXO 14 – Etapas do processamento utilizado na elaboração da seção GPR de PERF00-IAG (25 MHz).

```
[Tree]
00 IMPORT
01 SET TIME ZERO
02 TRACE WINDOWING
03 FILTER
04 GAIN
05 GAIN
06 FILTER
07 GAIN
08 GAIN
09 GAIN
10 TRACE MIX
11 ELEVATION STATICS
12 DEPTH CONVERSION
[History]
Import Field Records
Set Time Zero to Sample 32
Window Traces
  Traces 1 to 432
  Time 191 ns to 758 ns
Trapezoidal Bandpass Filter
  0-30-70-110 MHz
  Zero Phase
  150 Points; Parzen Taper
Gain
  Programmed
  Spherical/Exponential:
   $g(t) = 80.000 * t * \exp(80.000*0.010*t)$ 
Gain
  Programmed
Gaussian Filter
  Center Frequency: 50.0 MHz
  Width 1.0 Octaves
  Zero Phase
  150 Points; Parzen Taper
Gain
  Programmed
Gain
  Programmed
  Power:  $g(t) = 2.000 * \text{pow}(t,0.200)$ 
Gain
  Programmed
  Power:  $g(t) = 2.000 * \text{pow}(t,0.500)$ 
Trace Mix
  3 Traces / Mean
  Even Weighting
Apply Elevation Statics
  Constant Velocity 80.00 m/ $\mu$ s
Depth Conversion
```

ANEXO 15 – Etapas do processamento utilizado na elaboração da seção GPR de PERF01-IAG (50 MHz).

[Tree]
00 IMPORT
01 SET TIME ZERO
02 TRACE WINDOWING
03 FILTER
04 GAIN
05 GAIN
06 GAIN
07 TRACE MIX
08 BACKGROUND
09 FILTER
10 BACKGROUND
11 GAIN
12 GAIN
13 DEPTH CONVERSION
14 ELEVATION STATICS

[History]
Import Field Records
Set Time Zero to Sample 28
Window Traces
Traces 1 to 401
Time 54 ns to 415 ns
Gaussian Filter
Center Frequency: 70.0 MHz
Width 1.0 Octaves
Zero Phase
150 Points; Parzen Taper
Gain
Programmed
Spherical/Exponential:
 $g(t) = 80.000 * t * \exp(80.000*0.010*t)$
Power: $g(t) = 2.000 * \text{pow}(t,0.500)$
Gain
Programmed
Power: $g(t) = 2.000 * \text{pow}(t,0.500)$
Gain
Programmed
Trace Mix
3 Traces / Mean
Even Weighting
Remove Background
Moving Operator 167 points
Match Filter Used Prior to Subtraction
Gaussian Filter
Center Frequency: 75.0 MHz
Width 1.0 Octaves
Zero Phase
150 Points; Parzen Taper

Remove Background
Moving Operator 167 points
Match Filter Used Prior to Subtraction
Gain
Programmed
Power: $g(t) = 2.000 * \text{pow}(t,0.500)$
Gain
Programmed
Power: $g(t) = 2.000 * \text{pow}(t,0.500)$
Depth Conversion
Apply Elevation Statics

[Tree]
00 IMPORT
01 DRIFT REMOVAL
02 SET TIME ZERO
03 TRACE WINDOWING
04 DE-WOW
05 FILTER
06 BACKGROUND
07 GAIN
08 DE-WOW
09 TRACE WINDOWING
10 TRACE MIX
11 ELEVATION STATICS
12 DEPTH CONVERSION
13 GAIN
[History]
Import Field Records
Drift Removal
 Method: Crosscorrelation
 Search Window 14.11 ns
 Operator Window 14.11 ns
 Time Zero: 17.64 ns
 Trace Preconditioning:
 Square Amplitudes
 Smooth Samples
 Zero Small Samples
Set Time Zero to Sample 30
Window Traces
 Traces 1 to 401
 Time 35 ns to 319 ns
Remove Wow Below 15.29 MHz
 Highpass Filter
 37 Points
Trapezoidal Bandpass Filter
 0-30-230-350 MHz
 Zero Phase
 150 Points; Parzen Taper
Remove Background
 Moving Operator 77 points
 Match Filter Used Prior to Subtraction
Gain
 Programmed
 Spherical/Exponential:
 $g(t) = 80.000 * t * \exp(80.000*0.010*t)$
 Power: $g(t) = 2.000 * \text{pow}(t,0.500)$
Remove Wow Below 42.04 MHz
 Highpass Filter
 37 Points

Window Traces
 Traces 1 to 401
 Time 0 ns to 133 ns
Trace Mix
 3 Traces / Mean
 Even Weighting
Apply Elevation Statics
 Constant Velocity 80.00 m/ μ s
Depth Conversion
Gain
 Programmed

[Tree]
00 IMPORT
01 DRIFT REMOVAL
02 SET TIME ZERO
03 TRACE WINDOWING
04 FILTER
05 GAIN
06 GAIN
07 TRACE MIX
[History]
Import Field Records
Drift Removal
 Method: Crosscorrelation
 Search Window 42.96 ns
 Operator Window 44.75 ns
 Time Zero: 51.91 ns
 Trace Preconditioning:
 Square Amplitudes
 Smooth Samples
 Zero Small Samples
Set Time Zero to Sample 28
Window Traces
 Traces 1 to 36
 Time 100 ns to 401 ns
Trapezoidal Bandpass Filter
 0-40-60-100 MHz
 Zero Phase
 168 Points; Hamming Taper
Gain
 Programmed
 Spherical/Exponential:
 $g(t) = 80.000 * t * \exp(80.000*0.010*t)$
Gain
 Programmed
Trace Mix
 3 Traces / Mean
 Even Weighting

[Tree]
00 IMPORT
01 SET TIME ZERO
02 TRACE WINDOWING
03 FILTER
04 GAIN
05 GAIN
06 BACKGROUND
07 GAIN
08 BACKGROUND
09 TRACE MIX
[History]
Import Field Records
Set Time Zero to Sample 28
Window Traces
 Traces 1 to 38
 Time 93 ns to 493 ns
Trapezoidal Bandpass Filter
 0-52-100-150 MHz
 Zero Phase
 175 Points; Hamming Taper
Gain
 Programmed
 Spherical/Exponential:
 $g(t) = 80.000 * t * \exp(80.000*0.100*t)$
Gain
 Programmed
Remove Background
 Moving Operator 5 points
 Match Filter Used Prior to Subtraction
Gain
 Programmed
Remove Background
 Moving Operator 5 points
 Match Filter Used Prior to Subtraction
Trace Mix
 3 Traces / Mean
 Even Weighting

	CMP00
[Tree]	
00 IMPORT	
01 DE-WOW	
02 SET TIME ZERO	
03 TRACE WINDOWING	
04 FILTER	
05 BACKGROUND	
06 GAIN	
07 FK MIGRATION	
[History]	
Import Field Records	
Remove Wow Below 10.95 MHz	
Highpass Filter	
37 Points	
Set Time Zero to Sample 18	
Window Traces	
Traces 1 to 51	
Time 13 ns to 125 ns	
Trapezoidal Bandpass Filter	
0-70-245-350 MHz	
Zero Phase	
150 Points; Hamming Taper	
Remove Background	
Moving Operator 7 points	
Gain	
Programmed	
Spherical/Exponential:	
$g(t) = 80.000 * t * \exp(80.000*0.010*t)$	

	CMP40
[Tree]	
00 IMPORT	
01 DE-WOW	
02 SET TIME ZERO	
03 TRACE WINDOWING	
04 FILTER	
05 BACKGROUND	
06 GAIN	
07 GAIN	
[History]	
Import Field Records	
Remove Wow Below 68.86 MHz	
Highpass Filter	
14 Points	
Set Time Zero to Sample 31	
Window Traces	
Traces 1 to 51	
Time 22 ns to 118 ns	
Gaussian Filter	
Center Frequency: 150.0 MHz	
Width 1.0 Octaves	
Zero Phase	
150 Points; Hamming Taper	
Remove Background	
Moving Operator 5 points	
Match Filter Used Prior to Subtraction	
Gain	
AGC - Window: 69.6 ns	
Programmed	
Gain	
Programmed	

	CMP60
[Tree]	
00 IMPORT	
01 DE-WOW	
02 SET TIME ZERO	
03 TRACE WINDOWING	
04 FILTER	
05 BACKGROUND	
06 GAIN	
[History]	
Import Field Records	
Set Time Zero to Sample 30	
Window Traces	
Traces 1 to 47	
Time 22 ns to 122 ns	
Trapezoidal Bandpass Filter	
0-70-240-320 MHz	
Zero Phase	
150 Points; Parzen Taper	
Remove Background	
Moving Operator 9 points	
Gain	
Programmed	
Spherical/Exponential:	
$g(t) = 80.000 * t * \exp(80.000*0.010*t)$	

	CMP90
[Tree]	
00 IMPORT	
01 SET TIME ZERO	
02 TRACE WINDOWING	
03 DE-WOW	
04 FILTER	
05 GAIN	
06 DE-WOW	
07 BACKGROUND	
[History]	
Import Field Records	
Set Time Zero to Sample 31	
Window Traces	
Traces 1 to 51	
Time 22 ns to 172 ns	
Remove Wow Below 31.30 MHz	
Highpass Filter	
4 Points	
Trapezoidal Bandpass Filter	
0-50-180-240 MHz	
Zero Phase	
166 Points; Hamming Taper	
Gain	
AGC - Window: 99.8 ns	
Programmed	
Remove Wow Below 20.73 MHz	
Highpass Filter	
4 Points	
Remove Background	
Moving Operator 7 points	
Match Filter Used Prior to Subtraction	

	WARR20
[Tree]	
00 IMPORT	
01 DE-WOW	
02 SET TIME ZERO	
03 TRACE WINDOWING	
04 FILTER	
05 BACKGROUND	
06 GAIN	
[History]	
Import Field Records	
Remove Wow Below 13.54 MHz	
Highpass Filter	
37 Points	
Set Time Zero to Sample 29	
Window Traces	
Traces 1 to 76	
Time 115 ns to 460 ns	
Trapezoidal Bandpass Filter	
0-25-75-100 MHz	
Zero Phase	
150 Points; Hamming Taper	
Remove Background	
Moving Operator 17 points	
Gain	
Programmed	
Spherical/Exponential:	
$g(t) = 80.000 * t * \exp(80.000*0.010*t)$	

	WARR110
[Tree]	
00 IMPORT	
01 DE-WOW	
02 SET TIME ZERO	
03 TRACE WINDOWING	
04 FILTER	
05 BACKGROUND	
06 GAIN	
07 FILTER	
08 GAIN	
09 GAIN	
[History]	
Import Field Records	
Remove Wow Below 15.24 MHz	
Highpass Filter	
37 Points	
Set Time Zero to Sample 28	
Window Traces	
Traces 1 to 76	
Time 111 ns to 422 ns	
Trapezoidal Bandpass Filter	
0-25-75-100 MHz	
Zero Phase	
150 Points; Hamming Taper	
Remove Background	
Moving Operator 5 points	
Match Filter Used Prior to Subtraction	
Gain	
AGC - Window: 69.7 ns	
Programmed	
Gaussian Filter	
Center Frequency: 50.0 MHz	
Width 1.0 Octaves	
Zero Phase	
150 Points; Hamming Taper	
Gain	
Programmed	
Gain	
Programmed	

	WARR140
[Tree]	
00 IMPORT	
01 DE-WOW	
02 SET TIME ZERO	
03 TRACE WINDOWING	
04 FILTER	
05 BACKGROUND	
[History]	
Import Field Records	
Remove Wow Below 13.54 MHz	
Highpass Filter	
37 Points	
Set Time Zero to Sample 25	
Window Traces	
Traces 1 to 77	
Time 100 ns to 450 ns	
Trapezoidal Bandpass Filter	
0-35-65-100 MHz	
Zero Phase	
176 Points; Parzen Taper	
Remove Background	
Moving Operator 17 points	

	WARR170
[Tree]	
00 IMPORT	
01 DE-WOW	
02 SET TIME ZERO	
03 TRACE WINDOWING	
04 FILTER	
05 BACKGROUND	
[History]	
Import Field Records	
Remove Wow Below 11.29 MHz	
Highpass Filter	
37 Points	
Set Time Zero to Sample 30	
Window Traces	
Traces 1 to 76	
Time 119 ns to 470 ns	
Gaussian Filter	
Center Frequency: 50.0 MHz	
Width 1.0 Octaves	
Zero Phase	
150 Points; Parzen Taper	
Remove Background	
Moving Operator 17 points	


```
[Tree]
00 IMPORT
01 DE-WOW
02 SET TIME ZERO
03 FILTER
04 GAIN
05 GAIN
06 TRACE WINDOWING
07 GAIN
08 TRACE MIX
09 GAIN
10 BACKGROUND
11 ELEVATION STATICS
12 DEPTH CONVERSION
[History]
Import Field Records
Remove Wow Below 9.12 MHz
  Highpass Filter
  14 Points
Set Time Zero to Sample 25
Gaussian Filter
  Center Frequency: 47.0 MHz
  Width 2.0 Octaves
  Zero Phase
  150 Points; Hamming Taper
Gain
  Programmed
  Spherical/Exponential:
   $g(t) = 80.000 * t * \exp(80.000*0.010*t)$ 
  Power:  $g(t) = 5.000 * \text{pow}(t,1.000)$ 
Gain
  Programmed
Window Traces
  Traces 1 to 393
  Time 99 ns to 599 ns
Gain
  Programmed
Trace Mix
  3 Traces / Mean
  Even Weighting
Gain
  Programmed
  Spherical/Exponential:
   $g(t) = 80.000 * t * \exp(80.000*0.010*t)$ 
Remove Background
  Moving Operator 31 points
  Match Filter Used Prior to Subtraction
Apply Elevation Statics
  Constant Velocity 80.00 m/æ
Depth Conversion
```

[Tree]
00 IMPORT
01 DRIFT REMOVAL
02 SET TIME ZERO
03 TRACE WINDOWING
04 FILTER
05 GAIN
06 DE-WOW
07 GAIN
08 TRACE MIX
09 BACKGROUND
10 GAIN
11 TRACE MIX
12 ELEVATION STATICS

[History]

Import Field Records

Drift Removal

Method: Crosscorrelation

Search Window 23.90 ns

Operator Window 11.95 ns

Time Zero: 16.93 ns

Trace Preconditioning:

Square Amplitudes

Smooth Samples

Zero Small Samples

Set Time Zero to Sample 38

Window Traces

Traces 1 to 41

Time 38 ns to 180 ns

Gaussian Filter

Center Frequency: 73.0 MHz

Width 2.0 Octaves

Zero Phase

150 Points; Hamming Taper

Gain

Programmed

Spherical/Exponential:

$g(t) = 80.000 * t * \exp(80.000*0.010*t)$

Power: $g(t) = 2.000 * \text{pow}(t,2.000)$

Remove Wow Below 22.56 MHz

Residual Mean Filter

44 Points

Gain

Programmed

Trace Mix

3 Traces / Mean

Even Weighting

Remove Background

Moving Operator 5 points

Match Filter Used Prior to Subtraction

Gain

Programmed

Trace Mix

3 Traces / Mean

Even Weighting

Apply Elevation Statics

Constant Velocity 80.00 m/æs

Depth Conversion

<pre> [Tree] 00 IMPORT 01 DE-WOW 02 SET TIME ZERO 03 TRACE WINDOWING 04 FILTER 05 GAIN 06 TRACE MIX 07 GAIN [History] Import Field Records Remove Wow Below 7.52 MHz Highpass Filter 14 Points Set Time Zero to Sample 24 Window Traces Traces 1 to 30 Time 43 ns to 240 ns Gaussian Filter Center Frequency: 65.0 MHz Width 2.0 Octaves Zero Phase 150 Points; Hamming Taper Gain Programmed Spherical/Exponential: g(t) = 80.000 * t * exp(80.000*0.010*t) Power: g(t) = 5.000 * pow(t,1.000) Trace Mix 3 Traces / Mean Even Weighting Gain Programmed </pre>	<div style="background-color: #cccccc; padding: 2px; border: 1px solid black; font-weight: bold;">CMP100P</div>
---	---

<pre> [Tree] 00 IMPORT 01 DE-WOW 02 SET TIME ZERO 03 TRACE WINDOWING 04 FILTER 05 GAIN 06 GAIN 07 TRACE MIX 08 GAIN 09 GAIN [History] Import Field Records Remove Wow Below 7.52 MHz Highpass Filter 14 Points Set Time Zero to Sample 23 Window Traces Traces 1 to 30 Time 41 ns to 252 ns Gaussian Filter Center Frequency: 70.0 MHz Width 2.0 Octaves Zero Phase 150 Points; Hamming Taper Gain Programmed Spherical/Exponential: g(t) = 80.000 * t * exp(80.000*0.010*t) Power: g(t) = 5.000 * pow(t,1.000) Gain Programmed Power: g(t) = 5.000 * pow(t,1.000) Trace Mix 3 Traces / Mean Even Weighting Gain Programmed Power: g(t) = 5.000 * pow(t,1.000) Gain AGC - Window: 69.9 ns Programmed </pre>	<div style="background-color: #cccccc; padding: 2px; border: 1px solid black; font-weight: bold;">CMP100T</div>
---	---