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SECRETARIA DOS RECURSOS HÍDRICOS – ENGESOFT

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SUBTÍTULO:

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Rio / Riacho Barrado: <u>Riacho Gargema</u>		Fonte Hídrica: _____		

Bacia: Cariri

Sub-bacia: _____

Municípios: Granja

Distrito: _____

Microregião: Interior de Bommeim e Cariri

Estado: Ceará

GOVERNO DO ESTADO



GOVERNO DO ESTADO DO CEARÁ
SECRETARIA DOS RECURSOS HÍDRICOS
COMPANHIA DE GESTÃO DOS RECURSOS HÍDRICOS - COGERH
PROJETO DE DESENVOLVIMENTO URBANO E GESTÃO DOS RECURSOS HÍDRICOS
PROURB/CE

PROJETO EXECUTIVO DA BARRAGEM GANGORRA

VOLUME II - RELATÓRIO DOS ESTUDOS BÁSICOS

TOMO 1 - ESTUDOS TOPOGRÁFICOS



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GOVERNO DO ESTADO



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VOLUME II - RELATÓRIO DOS ESTUDOS BÁSICOS

TOMO 1 - ESTUDOS TOPOGRÁFICOS



FORTALEZA
NOVEMBRO '86

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PROJETO EXECUTIVO DA BARRAGEM GANGORRA

ESTUDOS BÁSICOS: LEVANTAMENTOS TOPOGRÁFICOS



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APRESENTAÇÃO

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APRESENTAÇÃO

Os estudos básicos referentes a elaboração do Projeto Executivo da Barragem Gangorra, objeto do Contrato 05/96 - PROURB/COGERH firmado com a ENGESOFT - Engenharia e Consultoria Ltda, envolvem em um dos seus segmentos, o levantamento planialtimétrico do eixo Barrável, da bacia hidráulica, do sangradouro e demais estudos topográficos complementares

Os estudos supra mencionados, são apresentados neste relatório obedecendo a seguinte itemização.

- 1 - Resumo dos Levantamentos Executados
- 2 - Transferência de Coordenadas e Cotas
- 3 - Curva Cota x Área x Volume
- 4 - Cadernetas de Campo
- 5 - Plantas



1 - RESUMO DOS LEVANTAMENTOS EXECUTADOS

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1 - RESUMO DOS LEVANTAMENTOS EXECUTADOS

SERVIÇOS	UND	QUANTIDADE	
		PREVISTA	EXECUTADA
1 - Levantamento da bacia hidráulica	ha	800,00	1 032,00
2 - levantamento do local do Sangradouro	ha	00,00	54,00
Locação e nivelamento do eixo barrável e sangradouro	Km	1,30	1,76
3 - Transporte e cotas e coordenadas	Km	8,00	28,00
4 - Levantamento de jazidas	ha	65,00	31,60
5 - Seccionamento do eixo e do Sangradouro	km	6,50	15,00

000010

2 - TRANSPORTE DE COTAS E COORDENADAS DE REFERÊNCIAS

000011

1 - TRANSPORTE DE COTAS E COORDENADAS DE REFERÊNCIAS

1.1 - COTAS ALTIMÉTRICAS

O levantamento altimétrico da bacia hidráulica e demais locais de interesse da *barragem teve como dado de referência a cota altimétrica do marco do IBGE 526H localizado na igreja matriz da cidade de Granja*. O referido marco, dista cerca de 6,00 Km do eixo da barragem e sua cota é 10,44775 m

1.2 - COORDENADAS

As Coordenadas geográficas UTM foram transportadas para a área da barragem a partir do marco geodésico SA 24-1007 implantado pelo IBGE na localidade de Angicos, no município de Granja. Suas coordenadas são 319.953,653 S e 9 655 490,823 W

A transferência das coordenadas para o eixo da Barragem foi realizado através de GPS. A metodologia utilizada no processo de transferência é apresentada no relatório a seguir

A partir da referência SA 24-1007 fez-se o transporte das respectivas coordenadas para o marco M1 (implantado no início da adutora projetada que abastecerá Camocim, localizado nas proximidades do escritório do DERT na cidade de Granja) e para o eixo da barragem. No referido eixo foi implantado as coordenada no marco SRH-M3 e na estaca 05+00



DADOS DO MARCO ALTIMÉTRICO 526 H DO IBGE

000013

DIRETORIA DE GEOCIÊNCIAS
 DIGEO2/NE3 - SEGUNDA DIVISÃO DE GEOCIÊNCIAS DO NORDESTE

RELAÇÃO DE ALTITUDES

KM	DESCRIÇÃO	ALTITUDE (m)		SEGURANÇA
		PRINCIPAL		
64.0	GRANJA	Nivelado: 1965 Visitado: 11/95		
<u>526 H</u>	Chapa cravada no lado direito da porta principal da igreja de São José, matriz da cidade. N = 9.565,03 km E = 296,01 km (GPS)	10,4775	-	BOM
TRILHO	Junto à plataforma da estação ferroviária.	8,4185	-	
1859 N	Chapa cravada junto à entrada do prédio da Agência da Secretária da Fazenda, na Rua Pessoa Anísio, 620. Obs. Calçada reformada. N = 9.655,31 km E = 296,76 km (GPS)	11,6985	-	DESTRUIDO
1859 P	Chapa cravada junto à entrada do prédio da Delegacia de Polícia, na Rua 14 de Julho. N = 9.655,34 km E = 296,53 km (GPS)	11,4189	-	BOM
PISTA	Extremidade leste da pista de aterrissagem do aeródromo da cidade.	10,5971	-	
64.1	Estrada CE-364: GRANJA - MORAÚJO	Nivelado: 1965 Visitado: 09/95		
526 J	18 m da MD; defronte do cemitério velho da cidade de Granja; 1,2 km além da igreja matriz da cidade de Granja. Obs. Área urbana. N = 9.654,4 km E = 296,6 km	14,9240	14,3328	DESTRUIDO
526 I	10 m da MD; 4,3 km além da matriz de Granja. Obs. Marco tombado. N = 9.652,6 km E = 295,1 km	48,9314	48,4376	DESTRUIDO
526 M	17 m da MD; 300 m além da ponte sobre o riacho Banorra; 7,4 km além da matriz de Granja. Obs. Marco tombado (10/95). N = 9.649,1 km E = 293,6 km	30,9263	30,5190	DESTRUIDO
526 N	15 m da ME; 25 m além de um buéiro; 10,9 km além da matriz de Granja. N = 9.645,8 km E = 293,3 km	53,5120	53,0425	NÃO LNC.
526 F	18 m da MD; 400 m além da casa do Sr. Francisco da Chaga Faria, na localidade de Japara; 14 km além da igreja matriz de Granja. Obs. Construída a plataforma adicional (10/95). N = 9.642,50 km E = 292,45 km (GPS)	58,2443	57,7943	BOM

MD = Margem direita. ME = Margem esquerda. SEGURANÇA: 30 cm de profundidade

000014



DADOS GEODÉSICOS DA ESTAÇÃO SA. 24-1007 DO IBGE



ESTAÇÃO SA.24.1007		nº	cad.	foto	quadric.	projeto	ordem	estab.	rec.
			106/21			ITERCE	la.	1986	
estado	município		lugar		torre	datum	feito	conf.	
CE	Granja		Angicos			SAD 69			
latitude		longitude		altitude		N (UTM)		E (UTM)	
39 06' 56,102"		409 37' 24,337"		280,82 m		9.655.490,823		319.593,653	

PONTO VISADO	DIREÇÃO	AZIMUTE		DISTÂNCIA
		MAG.	VERDADEIRO	
EP SA-24.1006	009 00' 00"		999 02' 46,65"	17.211,56 m.
Ref. "A"	44 53 11	3489.		15,35 m
Marco de Azimute	75 06 48,0	179.	174 09 34,6	± 3,4 km.
Ref. "B"	330 47 50	2739.		15,50 m
EP SA-24.1010	134 46 23,52		233 49 10,10	19.698,39 m

LOCALIZAÇÃO: Na parte mais alta de uma elevação conhecida na região por Serra do Tiaia, aproximadamente 10 km a Sudeste da localidade de Parazinho.

DESCRIÇÃO: O Marco de Centro é uma chapa padrão do IBGE, estampada SA.24.1007 - ITERCE - 1986, cravada em uma pedra que fica a 15,5 m a sudeste de uma base de concreto medindo 1,28 x 0,47 m e 30 cm de altura, onde está cravada o Marco de Referência B.

O Marco de Referência A (MR A) é também uma chapa cravada em uma pedra.

O Marco de Azimute é uma chapa incrustada em um marco quadrangular de concreto com 25 cm de lado e saliente 10 cm acima do nível do solo.

ITINERÁRIO: Parte-se com zero km da Sub Estação da COELCE na cidade de Granja, e toma-se a estrada CE 071 para Martinópolis. Com 2,8 km deixa-se essa estrada e entra-se à esquerda para a localidade de Parazinho. Com 25,0 chega-se na Igreja dessa localidade e prossegue-se para Gijoca por uma carroçável. Com 26,4 km deixa-se essa carroçável e entra-se à direita. Com 35,0 km passa-se pelo Marco de Azimute, junto da casa do Sr. Edvaldo da Silva Pereira. Com 41,2 km chega-se ao local onde deve ficar o veículo.

A pé: Segue-se por um caminho até a parte mais alta do serrote e com 1 hora e 15 minutos de caminhada chega-se ao local dos Marcos da Estação.

9:40
480.1 → 505.1



RELATÓRIO DE TRANSFERÊNCIA DE COORDENADAS

000017

AÇUDE GANGORRA

GRANJA - CE

RESULTADO FINAL

Unit:	m	
Coordinate type:	Grid	
Reference ellipsoid:	South American 1969	
Projection set:	g2b	
M1	297488.0690	9654092.6492
→ <u>srh-m3</u>	<u>293125.4751</u>	<u>9650010.6348</u>
→ <u>est05</u>	<u>293120.6533</u>	<u>9649911.2226</u>

000018

AÇUDE GANGORRA

GRANJA - CE

TRANSFERÊNCIA DE COORDENADAS DO MARCO SA 24-1007

PARA O PONTO M1 - ADUTORA

```
#####
# GE_PS PROJECT SETTINGS #
#####
```

```
Processing software  Leica SKI / Data processing version 1 09
General header      LEICA AG, CH-9435 Heerbrugg
Project name        granja1
Coordinate system    WGS84
Time                All results in local time (GPS -3 00 hrs)
```

```
#####
# GE_PP PROCESSING PARAMETERS #
#####
```

```
Cut-off angle (deg)      15
Tropospheric model      Hopfield
Ionospheric model       Standard
Ephemeris               Broadcast
Data used               Use Code and Phase
Frequency               L1
Limit to resolve ambiguities (km)  40
a priori rms (mm)       50
Sampling rate for static (sec)  Use all
Receiver clock offset (microsec)  1
Clock synchronization (microsec)  1
Phase processing        Automatic
Code processing         L1
Cycle slip detection    Phase check only
No of epochs for initialization (epoch)  25
Update rate for static (epoch)  25
Update rate for kinematic (epoch)  1
Initialize SGS/KIS with known coord  No
Minimum time to fix amb - AROF (sec)  200
```

```
#####
# GE_SS SATELLITE SELECTION #
#####
```

Manually disabled satellites None

```
#####
# GE_BO BASELINE OVERVIEW #
#####
```

Total no of baselines computed 1

BL id	CH id	Rover	Reference	First common epoch	Mod	Amb Frq	Obs
1	1	m-01	sa241007	14/07/96 13 11 45	Y	1	STS

```
#####
# GE_IC INITIAL COORDINATES #
#####
```

Reference

Point id sa241007
 X 4834094.6412 m Y -4146802 9883 m Z -344392 0545 m
 Lat 3 06 57 44691 S Lon 40 37 25 63959 W h 252 3910 m

Rover

Point id m-01
 X 4819413 2740 m Y -4163334 7535 m Z -345737 3990 m
 Lat 3 07 41 78546 S Lon 40 49 21 61264 W h -14 9780 m

CH 1 ===== NEW STATIC CHAIN =====

```
#####
# BL 1 m-01 sa241007 14/07/96 13 11 45 #
#####
```

BL_SE 1 START / END (COMMON) EPOCHS

14/07/96 13 11 45 to 14/07/96 14 24 30

BL_OI 1 OPERATION INFORMATION

Point id	Rover	Reference
	m-01	sa241007
Sensor/Controller id	095009/097063	-----/091129
Operation mode	STS	STS
Observation rate (s)	15 0	15 0
Ht reading/Ant offset (m)	1 900 /0 039	1 030 /0 389
Eccentricity E/N/H (m)	0 000 /0 000	/0 000 0 000 /0 000 /0 000

BL_PI 1 PROCESSING INFORMATION

Number of observations rejected	0
Number of observations used	3358
Total number of parameters	587
Epoch independent parameters	3
Rms of weight unit	0047 m

000020

BL_FS 1 FARA STATISTICS

Ambiguities to be resolved

SVid	Ref SVid	Carrier	Wavelength factor
7	2	1	1
19	2	1	1
18	2	1	1
29	2	1	1
27	2	1	1
16	2	1	1

----- FARA ----- Iteration 1 -----

NUMBER OF AMBIGUITY SETS= 46656
RMS ACTUALLY COMPUTED = 4487

RMS RMS/RMS1 AMBIGUITIES

#	RMS	RMS/RMS1	AMBIGUITIES
1	005	1 000	0 3 1 2 3 0
2	007	1 571	0 3 1 2 3 1
3	009	1 923	1 5 3 5 4 0
4	009	1 932	1 4 3 4 3 -1
5	009	1 983	1 3 2 3 3 0
6	010	2 135	1 5 3 5 4 -1
7	011	2 293	1 4 3 4 3 -2
8	011	2 356	0 3 1 1 3 0
9	011	2 426	0 1 0 0 2 0
10	011	2 428	0 2 1 1 2 -1

* FARA Summary Iteration 1 *

rms a priori 50 0 [mm] rms float 3 3 [mm]
Error prob alpha 5 000 [%]
Probability that (rms float < rms a priori) 100 000 [%]

rms fix 1 4 7 [mm]
Error prob alpha 5 000 [%]
Probability that (rms fix 1 < rms a priori) 100 000 [%]

Error prob alpha 001 [%]
Probability that (rms fix 1 < rms fix 2) 100 000 [%]

* Ambiguity Resolution successful *

Number of epochs with GDOP \leq 8 292
Total number of common epochs 292

Observation time (GDOP \leq 8) 4365 sec
Recommendation --- sec

BL_FC 1 FINAL COORDINATES

Rov m-01 Ref sa241007 Amb Y 14/07/96 13 11 45

Cartesian

X 4819413.2740 m Y -4163334 7535 m Z -345737 3990 m
dX -14681 3672 m dY -16531 7652 m dZ -1345 3445 m
sX 0 0010 m sY 0 0008 m sZ 0 0004 m

Geodetic

Lat 3 07 41 78546 S Lon 40 49 21 61264 W h -14 9780 m
dLat 44 33855 dLon 11 55 97305 dh -267 3690 m
sLat 0 0004 m sLon 0 0005 m sh 0 0012 m

Distance

Slope 22150 6604 m sSlope 0 0005 m

AÇUDE GANGORRA

GRANJA -CE

RESULTADO FINAL

Unit: m
Coordinate type: Geodetic
Reference ellipsoid: South American 1969
Projection set: gl
M1 3° 7' 40.440391" S 40° 49' 20.303960" W
sa24-1007 3° 6' 56.102" S 40° 37' 24.337" W

AÇUDE GANGORRA

GRANJA - CE

RESULTADO FINAL

Unit: m
Coordinate type: Grid
Reference ellipsoid: South American 1969
Projection set: g1

→ <u>M1</u>	<u>297488.0690</u>	<u>9654092.6492</u>
sa24-1007	319593.653	9655490.823

AÇUDE GANGORRA

GRANJA - CE

**TRANSFERÊNCIA DE COORDENADAS DO MARCO M1 (adutora)
PARA A ESTACA 05 E O MARCO SRH-M3 (ombreira esquerda)**

GE_PS PROJECT SETTINGS #
#####

Processing software Leica SKI / Data processing version 1 09
General header LEICA AG, CH-9435 Heerbrugg
Project name granja2
Coordinate system WGS84
Time All results in local time (GPS -3 00 hrs)

GE_PP PROCESSING PARAMETERS #
#####

Cut-off angle (deg) 15
Tropospheric model Hopfield
Ionospheric model Standard
Ephemeris Broadcast
Data used Use Code and Phase
Frequency L1
Limit to resolve ambiguities (km) 20
a priori rms (mm) 10
Sampling rate for static (sec) Use all
Receiver clock offset (microsec) 1
Clock synchronization (microsec) 1
Phase processing Automatic
Code processing L1
Cycle slip detection Loss lock flag only
No of epochs for initialization (epoch) 25
Update rate for static (epoch) 25
Update rate for kinematic (epoch) 1
Initialize SGS/KIS with known coord No
Minimum time to fix amb - AROF (sec) 200

GE_SS SATELLITE SELECTION #
#####

Manually disabled satellites None

GE_BO BASELINE OVERVIEW

#####

Total no of baselines computed 1

BL id	CH id	Rover	Reference	First common ep Mod	Amb Frq	Obs
1	1	est05	M1	14/07/96 17 32 00	Y 1	STS

 # GE_IC INITIAL COORDINATES #
 #####

Reference

Point id M1
 X 4819413 2941 m Y -4163334 7303 m Z -345737 3990 m
 Lat 3 07 41 78546 S Lon 40 49 21 61164 W h -14 9780 m

Rover

Point id est05
 X 4816377 4137 m Y -4166527 5175 m Z -349900 8941 m
 Lat 3 09 57 50213 S Lon 40 51 44 14387 W h 5 2610 m

CH 1 ===== NEW STATIC CHAIN =====

 # BL 1 est05 M1 14/07/96 17 32.00 #
 #####

BL_SE 1 START / END (COMMON) EPOCHS

14/07/96 17 32 00 to 14/07/96 17 50 00

BL_OI 1 OPERATION INFORMATION

Point id	Rover	Reference
	est05	M1
Sensor/Controller id	095009/097063	-----/091129
Operation mode	STS	STS
Observation rate (s)	10 0	15 0
Ht reading/Ant offset (m)	1 900 /0 039	0 983 /0 389
Eccentricity E/N/H (m)	0 000 /0 000	/0 000 0 000 /0 000 /0 000

BL_PI 1 PROCESSING INFORMATION

```

-----
Number of observations rejected      0
Number of observations used         432
Total number of parameters          77
Epoch independent parameters       3
Rms of weight unit                  0020 m

```

BL_FS 1 FARA STATISTICS

Ambiguities to be resolved

```

-----SVid-----Ref SVid-----Carrier-----Wavelength factor-----
  7      24      1      1
 16      24      1      1
 26      24      1      1
 27      24      1      1
  4      24      1      1
  9      24      1      1

```

```

----- FARA ----- Iteration 1 -----

```

```

NUMBER OF AMBIGUITY SETS=          46656
RMS ACTUALLY COMPUTED =           31872

```

```

# RMS RMS/RMS1  AMBIGUITIES
-----

```

```

 1 002 1 000  -6  2  2  1 -3 -6
 2 005 2 519  -5  3  3  1 -3 -4
 3 005 2 534  -9  2  2  0 -4 -8
 4 005 2 688  -8  4  5 -1 -5 -5
 5 005 2 705  -7  1  1  1 -3 -8
 6 006 2 864  -6  3  1  2 -3 -7
 7 006 2 876  -8  2  4 -1 -4 -6
 8 006 2 884  -5  1  1  2 -2 -6
 9 006 2 999  -5  2  0  3 -2 -7
10 006 3 020  -7  3  3  0 -4 -6

```

```

-----
* FARA Summary                               Iteration 1 *
-----

```

```

rms a priori      10 0 [mm]  rms float      2 2 [mm]
Error prob alpha   5 000 [%]
Probability that (rms float < rms a priori) 100 000 [%]
rms fix 1         2 0 [mm]
Error prob alpha   5 000 [%]
Probability that (rms fix 1 < rms a priori) 100 000 [%]
Error prob alpha   0 01 [%]
Probability that (rms fix 1 < rms fix 2)   100 000 [%]

```

```

-----
* Ambiguity Resolution successful *
-----

```

Number of epochs with GDOP \leq 8 37
Total number of common epochs 37

Observation time (GDOP \leq 8) 540 sec
Recommendation --- sec

BL_FC 1 FINAL COORDINATES

Rov est05 Ref M1 Amb Y 14/07/96 17 32 00

Cartesian

X 4816390 9191 m Y -4166504 2049 m Z -349905 1795 m
dX -3022 3750 m dY -3169 4746 m dZ -4167 7805 m
sX 0 0012 m sY 0 0011 m sZ 0 0007 m

Geodetic

Lat 3 09 57 65050 S Lon 40 51 43 28665 W h 0 4672 m
dLat 2 15 86504 dLon 2 21 67501 dh 15 4452 m
sLat 0 0006 m sLon 0 0004 m sh 0 0015 m

Distance

Slope 6045 7187 m sSlope 0 0005 m

AÇUDE GANGORRA

GRANJA - CE

TRANSFERÊNCIA DE COORDENADAS DA MARCO M1 PARA

○ PONTO SRH-M3 - OMBREIRA ESQUERDA

#####
GE_PS PROJECT SETTINGS
#####

Processing software Leica SKI / Data processing version 1 09
General header LEICA AG, CH-9435 Heerbrugg
Project name granja2
Coordinate system WGS84
Time All results in local time (GPS -3 00 hrs)

#####
GE_PP PROCESSING PARAMETERS
#####

Cut-off angle (deg) 15
Tropospheric model Hopfield
Ionospheric model Standard
Ephemeris Broadcast
Data used Use Code and Phase
Frequency L1
Limit to resolve ambiguities (km) 20
a priori rms (mm) 10
Sampling rate for static (sec) Use all
Receiver clock offset (microsec) 1
Clock synchronization (microsec) 1
Phase processing Automatic
Code processing L1
Cycle slip detection Loss lock flag only
No of epochs for initialization (epoch) 25
Update rate for static (epoch) 25
Update rate for kinematic (epoch) 1
Initialize SGS/KIS with known coord No
Minimum time to fix amb - AROF (sec) 200

#####
GE_SS SATELLITE SELECTION
#####

Manually disabled satellites Nonc

```
#####
# GE_BO BASELINE OVERVIEW #
#####
```

Total no of baselines computed 1

BL id	CH id	Rover	Reference	First common ep Mod	Amb Frq	Obs
1	1	srh-m3	M1	14/07/96 18 01 00	Y	1 STS

```
#####
# GE_IC INITIAL COORDINATES #
#####
```

Reference

Point id M1
 X 4819413 2739 m Y -4163334 7536 m Z -345737 3990 m
 Lat 3 07 41 78546 S Lon 40 49 21 61264 W h -14 9780 m

Rover

Point id srh-m3
 X 4816443 7180 m Y -4166553 5028 m Z -349802 3222 m
 Lat 3 09 54 17720 S Lon 40 51 43 37540 W h 66 8610 m

CH 1 ===== NEW STATIC CHAIN =====

```
#####
# BL 1 srh-m3 M1 14/07/96 18 01 00 #
#####
```

BL_SE 1 START / END (COMMON) EPOCHS

14/07/96 18 01 00 to 14/07/96 18 20 30

BL_OI.1 OPERATION INFORMATION

Point id	Rover	Reference
	srh-m3	M1
Sensor/Controller id	095009/097063	-----/091129
Operation mode	STS	STS
Observation rate (s)	10 0	15 0
Ht reading/Ant offset (m)	1 900 /0 039	0 983 /0 389
Eccentricity E/N/H (m)	0 000 /0 000	/0 000 0 000 /0 000 /0 000

BL_PI 1 PROCESSING INFORMATION

Number of observations rejected	0
Number of observations used	472
Total number of parameters	83

Epoch independent parameters 3
 Rms of weight unit 0036 m

BL_FS 1 FARA STATISTICS

Ambiguities to be resolved

SVid	Ref SVid	Carrier	Wavelength factor
16	24	1	1
9	24	1	1
26	24	1	1
27	24	1	1
4	24	1	1

----- FARA ----- Iteration 1 -----

NUMBER OF AMBIGUITY SETS= 7776
 RMS ACTUALLY COMPUTED = 3956

RMS RMS/RMS1 AMBIGUITIES

1	004	1 000	-3	-6	2	-6	-5
2	004	1 193	-3	-7	-1	-3	-3
3	005	1 265	-4	-7	0	-5	-4
4	005	1 275	-2	-6	1	-4	-4
5	005	1 428	-2	-6	2	-5	-5
6	005	1 465	-3	-6	1	-5	-4
7	005	1 481	-4	-7	-1	-4	-3
8	005	1 485	-3	-6	3	-7	-6
9	006	1 547	-3	-7	0	-4	-4
10	006	1 675	-3	-7	-2	-2	-2

----- * FARA Summary ----- Iteration 1 *

rms a priori 10 0 [mm] rms float 3 2 [mm]
 Error prob alpha 5 000 [%]
 Probability that (rms float < rms a priori) 100 000 [%]

 rms fix 1 3 6 [mm]
 Error prob alpha 5 000 [%]
 Probability that (rms fix 1 < rms a priori) 100 000 [%]

 Error prob alpha 001 [%]
 Probability that (rms fix 1 < rms fix 2) 100 000 [%]

----- * Ambiguity Resolution successful * -----

Number of epochs with GDOP =< 8 40
Total number of common epochs 40

Observation time (GDOP =< 8) 585 sec
Recommendation --- sec

BL_FC 1 FINAL COORDINATES

Rov srh-m3 Ref M1 Amb Y 14/07/96 18 01 00

Cartesian

X 4816406 5681 m Y -4166511 1315 m Z -349806 5417 m
dX -3006 7058 m dY -3176 3779 m dZ -4069 1427 m
sX 0 0015 m sY 0 0017 m sZ 0 0009 m

Geodetic

Lat 3 09 54 41469 S Lon 40 51 43 12472 W h 11 3621 m
dLat 2 12 62923 dLon 2 21 51208 dh 26 3401 m
sLat 0 0008 m sLon 0 0008 m sh 0 0021 m

Distance

Slope 5973 9082 m sSlope 0 0009 m

AÇUDE GANGORRA

GRANJA - CE

RESULTADO FINAL

Unit:	m
Coordinate type:	Geodetic
Reference ellipsoid:	South American 1969
Projection set:	g2b
M1	3° 7' 40.440391" S 40° 49' 20.303960" W
→ <u>srh-m3</u>	<u>3° 9' 53.068633" S 40° 51' 41.814815" W</u>
→ <u>est05</u>	<u>3° 9' 56.304409" S 40° 51' 41.976741" W</u>

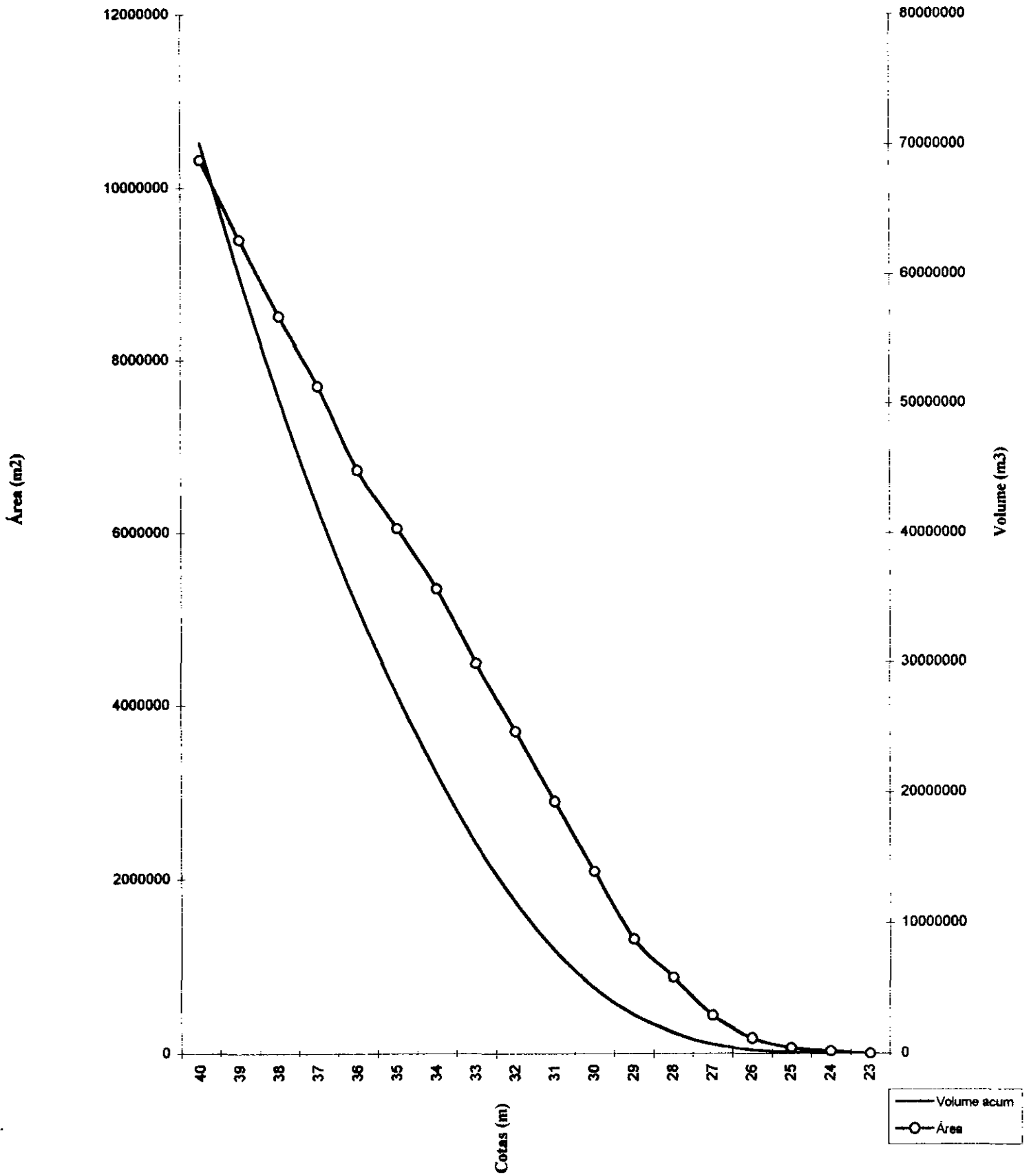


3 - CURVA COTA X ÁREA X VOLUME

PROJETO EXECUTIVO BARRAGEM GANGORRA**Dados do gráfico COTA x ÁREA x VOLUME**

COTA	ÁREA (m²)	VOLUME ACUM. (m³)
23	0,00	
24	31 028,86	15.514,43
25	67.465,81	64.761,77
26	178.874,99	187.932,17
27	423 218,48	488.978,90
28	865.562,69	1.133.369,49
29	1.313 899,00	2.223 100,33
30	2 097.493,90	3 928 796,78
31	2 892.553,33	6 423 820,40
32	3.695.398,69	9.717.796,41
33	4 485.979,99	13.808.485,75
34	5 353.415,57	18.728 183,53
35	6.055.332,23	24 432.557,43
36	6 731 930,91	30.826 189,00
37	7.697 512,71	38.040.910,81
38	8.512 221,08	46 145.777,70
39	9 399.333,83	55 101 555,16
40	10.325 353,55	64.963 898,85

Gráfico Cota x Área x Volume





4 - CADERNETAS DE CAMPO

Imovel BARRAGEM

Local GANGORRA

Interessado ENGESOFT

Proprietario GOV ESTADO

Data 18/07/96

IN ALINHAMEN	ANGULO	AZIMUTE	DISTANCIA		LONG	PARC	LAT	PARC	COORD E (X)	COORD N (Y)	COORD (Z)
DICE EST P V	HORIZONTAL	CALCULADO	R U M O	QD	HORIZONT	X (E+,W-)	Y (N+,S-)	TOT COMPENS	TOT COMPENS	DO PONTO	
1	-R27	147 55'06"D	147 55'06"	32 04'54" SE	0,000	0,000	0,000	291 125,767	9 648 931 772	32,723	
2	R27-R31	170 22'40"D	138 17'46"	41 42'14" SE	395,179	262,905	-295,038	291 388,672	9 648 636,734	28,129	
6	R31-	0 00'00"D	318 17'46"	41 42'14" NW	0,000	0,000	0,000	291 388,672	9 648 636 734	29,597	

Numero de vertices da poligonal-base	3	Erro linear absoluto de fechamento	0,0000
Erro angular de fechamento	+ 0 00'00"	Erro linear relativo	1/0,0000
Raiz quadrada do numero de vertices	0 00'00"	Erro linear/mil	0,0000
Soma das distancias da poligonal-base	395 179 m	Erro altimetrico	0,0000
Total E	0,0000	Total N	0,0000
Total W	0,0000	Total S	0,0000
Delta X	0,0000	Delta Y	0,0000

Area da poligonal-base 0,000 m2 ou 0,0000 hectares

TopoEVM 3 0 - Sistema para processamento de Levantamentos Topograficos Arquivo NOV05 24/07/96 10 36 55

000038

Relatório das coordenadas de todos os pontos.

Imóvel BARRAGEM

Local GANGORRA

Interessado ENGESOFT

Proprietário GOV ESTADO

Data 10/07/96

IN	ALINHAMEN		AZIMUTE		DISTÂNCIA		LONG	PARC	LAT	PARC	COORD E (X)		COORD N (Y)		COORD (Z)	
DICE	EST	P V	COMPENSADO	R U M O	QD	HORIZONTAL	X	(E+,W-)	Y	(N+,S-)	P V	TOT	COMPENS	TOT	COMPENS	DO PONTO
101	8A	- 94	342 20'30"	17 39'30"	NW	225,380	-68,367		214,761		94	292 688,389	9 649 171,550			43,667
102	8A	- 95	345 03'20"	14 56'40"	NW	246,200	-63,491		237,873		95	292 693,265	9 649 194,662			44,431

Maior Coord (X) 293 102,638 Menor Coord (X) 292 542,874 Maior Coord (Y) 9 649 395,305 Menor Coord (Y) 9 648 779,751

TopoEVN 3 0 - Sistema para processamento de Levantamentos Topográficos Arquivo BAC 03/09/96 10 41 45

Relatório das coordenadas de todos os pontos.

Pg: 1/5

Imóvel BARRAGEM

Local GANGORRA

Interessado ENGRSOFT

Proprietário GOV ESTADO

Data 16/07/96

IN DICH	ALINHAMEN EST P V		AZINUTE COMPENSADO R U M O QD		DISTÂNCIA HORIZONTAL	LONG PARC X (E+,W-)	LAT PARC Y (N+,S-)	COORD E (X) TOT	COORD N (Y) TOT	COORD (Z) DO PONTO
	EST	P V	COMPENSADO	R U M O QD						
1	- E25		204.56'51"	75.03'09" NW	0,000	0,000	0,000	E25 289.532,011	9 650.720,832	39,275
2	E25 - 25A		264.37'51"	04.37'51" SW	253,089	-251,979	-23,682	25A 289.280,032	9.650.697,150	41,107
3	25A - 25B		250.30'46"	70.30'46" SW	325,069	-310,550	-64,737	25B 288.961,474	9.650 632,413	42,095
4	25A - 1		58 03'01"	58 03'01" NE	126,610	107,430	66,999	1 289 387,462	9 650 764,149	36,086
5	25A - 2		49 43'56"	49 43'56" NE	203,820	155,521	131,741	2 289 435,553	9 650 828,891	35,987
6	25A - CBRC		39 07'36"	39 07'36" NE	282,340	178,167	219,026	CBRC 289 458,199	9 650 916,176	35,892
7	25A - 1		101 37'41"	78 22'19" SE	170,410	166,913	-34,347	1 289 446,945	9 650 662,803	37,295
8	25A - 2		101 37'41"	78 22'19" SE	105,080	102,923	-21,180	2 289 382,955	9 650 675,970	39,426
9	25A - 3		126 17'01"	53 42'59" SE	300,810	242,482	-178,014	3 289 522,514	9 650 519,136	38,187
10	25A - 4		126 17'01"	53 42'59" SE	201,430	162,372	-119,203	4 289 442,404	9 650 577,947	38,226
11	25A - 5		126 17'01"	53 42'59" SE	136,180	109,774	-80,589	5 289 389,806	9 650 616,561	37,485
12	25A - 6		154 36'21"	25 23'39" SE	329,120	141,141	-297,320	6 289 421,173	9 650 399,830	37,685
13	25A - 7		154 36'21"	25 23'39" SE	265,180	113,721	-239,558	7 289 393,753	9 650 457,592	37,694
14	25A - 8		154 36'21"	25 23'39" SE	189,900	81,437	-171,552	8 289 361,469	9 650 525,598	38,534
15	25A - 9		154 36'21"	25 23'39" SE	104,180	44,677	-94,114	9 289 324,709	9 650 603,036	39,324
16	25A - 10		179 29'06"	0 30'54" SE	346,200	3,112	-346,186	10 289 283,144	9 650 350,964	36,225
17	25A - 11		179 29'06"	0 30'54" SE	273,150	2,455	-273,139	11 289 282,487	9 650 424,011	36,794
18	25A - 12		179 29'06"	0 30'54" SE	183,250	1,647	-183,243	12 289 281,679	9 650 513,907	38,383
19	25A - 13		179 29'06"	0 30'54" SE	111,210	1,000	-111,206	13 289 281,032	9 650 585,944	39,635
20	25A - 14		199 08'11"	19 08'11" SW	409,810	-134,343	-387,164	14 289 145,689	9 650 309,986	36,231
21	25A - 15		199 08'11"	19 08'11" SW	351,820	-115,333	-332,379	15 289 164,699	9 650 364,771	36,289
22	25A - 16		199 08'11"	19 08'11" SW	250,420	-82,092	-236,582	16 289 197,940	9 650 460,568	37,155
23	25A - 17		199 08'11"	19 08'11" SW	169,820	-55,670	-160,436	17 289 224,362	9 650 536,714	39,085
24	25A - 18		199 08'11"	19 08'11" SW	91,180	-29,890	-86,141	18 289 250,142	9 650 611,009	40,168
25	25A - 4		37 02'06"	37 02'06" NE	379,080	228,321	302,607	4 289 508,353	9 650 999,757	36,468
26	25A - 5		36 33'01"	36 33'01" NE	471,580	280,839	378,837	5 289 560,871	9 651 075,987	37,129
27	25A - 6		37 16'26"	37 16'26" NE	575,350	348,447	457,835	6 289 628,479	9 651 154,985	38,605
28	25A - 7		26 00'16"	26 00'16" NE	552,690	242,322	496,736	7 289 522,354	9 651 193,886	39,759
29	25A - CBRC		24 41'26"	24 41'26" NE	424,850	177,467	386,009	CBRC 289 457,499	9 651 083,159	38,130
30	25A - 9		24 54'41"	24 54'41" NE	350,550	147,657	317,935	9 289 427,689	9 651 015,085	37,303
31	25A - CBRC		23 34'26"	23 34'26" NE	307,860	123,123	282,168	CBRC 289 403,155	9 650 979,318	37,185
32	25A - 11		22 09'36"	22 09'36" NE	237,170	89,459	219,651	11 289 369,491	9 650 916,801	36,808
33	25A - RIAC		17 10'51"	17 10'51" NE	150,680	44,509	143,956	RIAC 289 324,541	9 650 841,106	36,215
34	25A - 13		12 40'26"	12 40'26" NE	87,990	19,305	85,846	13 289 299,337	9 650 782,996	36,858
35	25A - 14		354 50'26"	5 09'34" NW	89,000	-8,004	88,639	14 289 272,028	9 650 785,789	36,579
36	25A - 15		359 06'51"	0 53 09" NW	156,880	-2,425	156,861	15 289 277,607	9 650 854,011	37,147
37	25A - 16		359 23'01"	0 36'59" NW	234,830	-2,526	234,816	16 289 277,506	9 650 931,966	37,754
38	25A - 17		0 01'56"	0 01'56" NE	291,750	0,164	291,750	17 289 280,196	9 650 988,900	38,572
39	25A - 18		5 29'01"	5 29'01" NE	383,540	36,651	381,785	18 289 316,683	9 651 078,935	39,261
40	25A - 19		9 07'41"	9 07'41" NE	505,080	80,127	498,684	19 289 360,159	9 651 195,834	40,766
41	25A - CBRC		11 02'21"	11 02'21" NE	577,070	110,497	566,392	CBRC 289 390,529	9 651 263,542	42,080
42	25A - 21		355 51'56"	4 08'04" NW	527,200	-38,010	525,828	21 289 242,022	9 651 222,978	42,019
43	25A - 22		355 38'11"	4 21'49" NW	427,570	-32,532	426,331	22 289 247,500	9 651 123,481	40,418
44	25A - 23		353 38'16"	6 21'44" NW	232,500	-25,764	231,068	23 289 254,268	9 650 928,218	38,467
45	25A - 24		351 07'56"	8 52'04" NW	228,920	-35,289	226,184	24 289 244,743	9 650 923,334	37,972
46	25A - 25		347 18'46"	12 41'14" NW	149,910	-32,925	146,250	25 289 247,107	9 650 843,400	37,291
47	25A - RIAC		347 25'46"	12 34'14" NW	87,060	-18,948	84,973	RIAC 289 261,084	9 650 782,123	36,239
48	25A - RIAC		328 22'21"	31 37'39" NW	90,710	-47,568	77,237	RIAC 289 232,464	9 650 774,387	36,541
49	25A - 28		339 20'56"	20 39'04" NW	118,120	-41,658	110,530	28 289 238,374	9 650 807,680	37,138
50	25A - 29		338 36'36"	21 23'24" NW	191,480	-69,835	178,291	29 289 210,197	9 650 875,441	37,851

Relatório das coordenadas de todos os pontos.

Pg: 3/5

Imóvel BARRAGEM

Local GANGORRA

Interessado ENGESOFT

Proprietário GOV ESTADO

Data 16/07/96

IN DICE	ALINHAMENTO		AZIMUTE			DISTÂNCIA		LONG PARC X	LAT PARC Y	COORD E (X) TOT	COORD N (Y) TOT	COORD (Z) DO PONTO
	EST	P V	COMPENSADO	R	U	M	O					
101	25B	- 79	169 29'06"	10 30'54"	SR	290,690	53,049	-285,808	79	289 014,523	9 650 346,605	35,947
102	25B	- 80	172 53'41"	7 06'19"	SR	424,900	52,557	-421,637	80	289 014,031	9 650 210,776	35,119
103	25B	- 81	182 54'01"	2 54'01"	SW	407,840	-20,636	-407,318	81	288 940,838	9 650 225,095	34,085
104	25B	- 82	162 09'26"	17 50'34"	SR	360,420	110,435	-343,084	82	289 071,909	9 650 289,329	36,281
105	25B	- 83	166 07'06"	13 52'54"	SR	187,340	44,946	-181,868	83	289 006,420	9 650 450,545	37,619
106	25B	- 84	141 37'01"	38 22'59"	SR	114,490	71,089	-89,746	84	289 032,563	9 650 542,667	38,918
107	25B	- 85	135 51'51"	44 08'09"	SR	41,690	29,031	-29,921	85	288 990,505	9 650 602,492	36,681
108	25B	- 86	77 52'56"	77 52'56"	NE	56,780	55,515	11,919	86	289 016,989	9 650 644,332	38,530
109	25B	- 87	75 01'56"	75 01'56"	NR	113,940	110,074	29,428	87	289 071,548	9 650 661,841	38,673
110	25B	- 88	77 17'36"	77 17'36"	NE	155,900	152,082	34,292	88	289 113,556	9 650 666,705	38,353
111	25B	- 89	76 27'31"	76 27'31"	NR	211,470	205,591	49,515	89	289 167,065	9 650 681,928	36,839
112	25B	- 90	108 47'26"	71 12'34"	SR	221,230	209,439	-71,260	90	289 170,913	9 650 561,153	39,657
113	25C	- 25D	268.36'31"	88.36'31"	SW	538,861	-538,702	-13,085	25D	288.096,452	9.650.403,469	46,323
114	25C	- 91	44 33'11"	44 33'11"	NR	183,980	129,075	131,104	91	288 764,229	9 650 547,658	36,483
115	25C	- 1	133 30'16"	46 29'44"	SR	551,180	399,782	-379,438	1	289 034,936	9 650 037,116	35,860
116	25C	- 2	133 30'16"	46 29'44"	SR	441,200	320,012	-303,727	2	288 955,166	9 650 112,827	36,329
117	25C	- 3	133 30'16"	46 29'44"	SR	338,420	245,463	-232,972	3	288 880,617	9 650 183,582	35,770
118	25C	- 4	133 30'16"	46 29'44"	SR	578,190	419,373	-398,032	4	289 054,527	9 650 018,522	35,303
119	25C	- 5	145 30'51"	34 29'09"	SR	681,150	385,669	-561,449	5	289 020,823	9 649 855,105	35,004
120	25C	- 6	145 30'51"	34 29'09"	SR	586,190	331,902	-483,177	6	288 967,056	9 649 933,377	35,258
121	25C	- 7	145 30'51"	34 29'09"	SR	452,200	256,037	-372,733	7	288 891,191	9 650 043,821	37,087
122	25C	- 8	145 30'51"	34 29'09"	SR	321,190	181,859	-264,746	8	288 817,013	9 650 151,808	35,227
123	25C	- 9	145 30'51"	34 29'09"	SR	201,160	113,897	-165,809	9	288 749,051	9 650 250,745	35,094
124	25C	- 10	159 41'01"	20 18'59"	SR	698,210	242,421	-654,774	10	288 877,575	9 649 761,780	39,984
125	25C	- 11	171 41'06"	8 18'54"	SR	535,100	77,384	-529,475	11	288 712,538	9 649 887,079	43,243
126	25C	- 12	171 41'06"	8 18'54"	SR	442,110	63,936	-437,463	12	288 699,090	9 649 979,091	40,391
127	25C	- 13	171 41'06"	8 18'54"	SR	348,180	50,352	-344,520	13	288 685,506	9 650 072,034	38,588
128	25C	- 14	171 41'06"	8 18'54"	SR	268,210	38,787	-265,391	14	288 673,941	9 650 151,163	35,421
129	25C	- 15	190 49'16"	10 49'16"	SW	550,180	-103,293	-540,397	15	288 531,861	9 649 876,157	44,916
130	25C	- 16	190 49'16"	10 49'16"	SW	471,200	-88,465	-462,821	16	288 546,689	9 649 953,733	41,325
131	25C	- 17	190 49'16"	10 49'16"	SW	407,190	-76,447	-399,949	17	288 558,707	9 650 016,605	38,796
132	25C	- 18	190 49'16"	10 49'16"	SW	346,200	-64,997	-340,044	18	288 570,157	9 650 076,510	37,547
133	25C	- 19	203 51'21"	23 51'21"	SW	582,310	-235,508	-532,561	19	288 399,646	9 649 883,993	44,322
134	25C	- 20	203 51'21"	23 51'21"	SW	496,400	-200,762	-453,991	20	288 434,392	9 649 962,563	41,396
135	25C	- 21	203 51'21"	23 51'21"	SW	426,810	-172,618	-390,346	21	288 462,536	9 650 026,208	38,582
136	25A	- 22	221 12'16"	41 12'16"	SW	271,200	-178,652	-204,041	22	288 456,502	9 650 212,513	31,081
137	25A	- 23	221 12'16"	41 12'16"	SW	186,290	-122,718	-140,158	23	288 512,436	9 650 276,396	35,960
138	25C	- 24	221 12'16"	41 12'16"	SW	101,400	-66,797	-76,290	24	288 568,357	9 650 340,264	34,450
139	25C	- 25	239 19'01"	59 19'01"	SW	448,190	-385,448	-228,706	25	288 249,709	9 650 187,848	17,085
140	25C	- 26	239 19'01"	59 19'01"	SW	359,310	-309,008	-183,352	26	288 326,146	9 650 233,202	35,821
141	25C	- 27	239 19'01"	59 19'01"	SW	262,400	-225,665	-133,900	27	288 409,489	9 650 282,654	35,270
142	25C	- 28	239 19'01"	59 19'01"	SW	149,480	-128,553	-76,278	28	288 506,601	9 650 340,276	34,249
143	25C	- 29	252 41'26"	72 41'26"	SW	389,100	-371,478	-115,770	29	288 263,676	9 650 300,784	37,112
144	25C	- 30	252 41'06"	72 41'06"	SW	304,200	-290,415	-90,537	30	288 344,739	9 650 326,017	35,271
145	25C	- 31	252 41'26"	72 41'26"	SW	189,180	-180,612	-56,287	31	288 454,542	9 650 360,267	34,421
146	25C	- 92	37 27'56"	37 27'56"	NE	97,690	59,423	77,538	92	288 694,577	9 650 494,092	35,254
147	25C	- 93	36 24'41"	36 24'41"	NE	36,480	21,654	29,358	93	288 656,808	9 650 445,912	36,416
148	25C	- RIAC	357 36'11"	2 23'49"	NW	73,130	-3,058	73,066	RIAC	288 632,096	9 650 489,620	35,432
149	25C	- 95	357 58'46"	2 01'14"	NW	154,920	-5,462	154,824	95	288 629,692	9 650 571,378	35,796
150	25C	- RIAC	341 46'26"	18 13'34"	NW	147,220	-46,046	139,834	RIAC	288 589,108	9 650 556,388	31,428

Relatório das coordenadas de todos os pontos.

Pg: 5/5

Imóvel BARRAGEM

Local - GANGORRA

Interessado ENGESOFT

Proprietário GOV ESTADO

Data 16/07/96

IN DICE	ALINHAMEN EST P V	AZIMUTE COMPENSADO	R U M O QD	DISTÂNCIA HORIZONTAL	LONG PARC X (E+,W-)	LAT PARC Y (N+,S-)	COORD E (X) TOT	COORD N (Y) TOT	COORD (Z) DO PONTO
201	25G - 143	292.30'21"	67 29'39" NW	214,520	-198,182	82,113	143 287 628,912	9 650 090,286	41,834
202	25G - 144	296 39'56"	63 20'04" NW	264,550	-236,413	118,725	144 287 590,681	9 650 126,898	46,913
203	25G - 145	95 25'01"	84 34'59" SE	83,820	83,446	-7,913	145 287 910,540	9 650 000,260	39,096
204	25G - 146	73 57'51"	73 57'51" NE	162,840	156,504	44,983	146 287 983,598	9 650 053,156	38,072
205	25G - 147	84 36'01"	84 36'01" NE	191,530	190,680	18,024	147 288 017,774	9 650 026,197	38,405
206	25G - 148	84 15'41"	84 15'41" NE	286,160	284,726	28,613	148 288 111,820	9 650 036,786	38,051
207	25G - 149	73 16'36"	73 16'36" NE	267,250	255,947	76,901	149 288 083,041	9 650 085,074	37,393
208	25G - 150	84 18'46"	84 18'46" NE	346,310	344,605	34,319	150 288 171,699	9 650 042,492	37,808
209	25G - 151	75 15'41"	75 15'41" NE	399,440	386,297	101,621	151 288 213,391	9 650 109,794	37,016
210	25G - 152	82 20'06"	82 20'06" NE	444,780	440,806	59,325	152 288 267,900	9 650 067,498	38,263
211	25G - 153	76 26'26"	76 26'26" NE	480,600	467,204	112,679	153 288 294,298	9 650 120,852	37,178
212	25G - 154	81 46'51"	81 46'51" NE	571,520	565,650	81,705	154 288 392,744	9 650 089,878	37,820
213	25G - 155	75 50'51"	75 50'51" NE	598,340	580,179	146,296	155 288 407,273	9 650 154,469	37,075
214	25G - 156	80 59'31"	80 59'31" NE	692,090	683,554	108,363	156 288 510,648	9 650 116,536	37,248
215	25G - 157	75 21'06"	75 21'06" NE	689,270	666,866	174,306	157 288 493,960	9 650 182,479	36,714
216	25G - 158	81 25'31"	81 25'31" NE	778,750	770,045	116,111	158 288 597,139	9 650 124,284	36,436
217	25G - 159	76 14'36"	76 14'36" NE	766,240	744,260	182,211	159 288 571,354	9 650 190,384	36,254
218	25G - 160	76 43'46"	76 43'46" NE	865,910	842,788	198,769	160 288 669,882	9 650 206,942	34,755
219	25G - 161	91 33'36"	88 26'24" SE	485,720	485,540	-13,223	161 288 312,634	9 649 994,950	39,936
220	25G - 162	95 10'56"	84 49'04" SE	433,420	431,648	-39,148	162 288 258,742	9 649 969,025	40,737
221	25G - 163	96 52'36"	83 07'24" SE	374,600	371,905	-44,852	163 288 198,999	9 649 963,321	40,326
222	25G - 164	93 47'36"	86 12'24" SE	279,650	279,037	-18,501	164 288 106,131	9 649 989,672	39,644
223	25G - 165	113 59'21"	66 00'39" SE	202,710	185,200	-82,415	165 288 012,294	9 649 925,758	42,072
224	25G - 166	120 17'26"	59 42'34" SE	152,700	131,853	-77,020	166 287 958,947	9 649 931,153	42,391
225	25G - 167	140 40'21"	39 19'39" SE	130,480	82,692	-100,931	167 287 909,786	9 649 907,242	40,028
226	25G - 168	196 26'21"	16 26'21" SW	120,930	-34,223	-115,986	168 287 792,871	9 649 892,187	40,032
227	25G - 169	210 51'26"	30 51'26" SW	169,830	-87,106	-145,790	169 287 739,988	9 649 862,383	41,004
228	25H - PF	138.44'46"	41.15'14" SE	215,790	142,291	-162,230	PF 287.444,577	9.650.053,909	40,418
229	25H - 170	171 59'01"	8 00'59" SE	50,370	7,024	-49,878	170 287 309,310	9 650 166,261	41,703
230	25H - RIAC	178 55'56"	1 04'04" SE	127,030	2,367	-127,008	RIAC 287 304,653	9 650 089,131	39,610
231	25H - RIAC	217 09'46"	37 09'46" SW	174,230	-105,249	-138,848	RIAC 287 197,037	9 650 077,291	40,195
232	25H - RIAC	228 22'51"	48 22'51" SW	293,150	-219,152	-194,703	RIAC 287 083,134	9 650 021,436	41,470
233	25H - 174	234 16'31"	54 16'31" SW	252,650	-205,109	-147,520	174 287 097,177	9 650 068,619	41,580
234	25H - 175	277 19'16"	82 40'44" NW	280,800	-278,511	35,782	175 287 023,775	9 650 251,921	43,458
235	25H - 176	236 57'51"	56 57'51" SW	211,890	-177,634	-115,515	176 287 124,652	9 650 100,624	41,857
236	25H - 177	234 54'26"	54 54'26" SW	149,400	-122,242	-85,890	177 287 180,044	9 650 130,249	41,632
237	25H - 178	201 10'31"	21 10'31" SW	212,780	-76,861	-198,413	178 287 225,425	9 650 017,726	41,590
238	25H - 179	181 42'36"	1 42'36" SW	186,100	-5,553	-186,017	179 287 296,733	9 650 030,122	42,137
239	25H - 180	127 13'26"	52 46'34" SE	69,170	55,079	-41,843	180 287 357,365	9 650 174,296	41,748
240	25H - 181	150 37'41"	29 22'19" SE	237,900	116,685	-207,319	181 287 418,971	9 650 008,820	40,349
241	25H - 182	127 18'26"	52 41'34" SE	127,260	101,222	-77,131	182 287 403,508	9 650 139,008	40,108
242	25H - 183	103 35'21"	76 24'39" SE	131,040	127,372	-30,789	183 287 429,658	9 650 185,350	41,423
243	25H - 184	138 44'46"	41 15'14" SE	215,790	142,291	-162,230	184 287 444,577	9 650 053,909	40,418

Maior Coord (X) 289 628,479 Menor Coord (X) 287 023,775 Maior Coord (Y) 9 651 263,542 Menor Coord (Y) 9 649 761,780

Relatório das coordenadas de todos os pontos.

Pg: 4/16

Imóvel BARRAGEM

Local GANGORRA

Interessado ENGESOFT

Proprietário GOV ESTADO

Data 17/07/96

IN DICE	ALINHAMENTO		AZINUTE		DISTÂNCIA HORIZONTAL	LONG X	PARC (E+,W-)	LAT Y	PARC (N+,S-)	P V	COORD E (X)		COORD N (Y)		COORD (Z) DO PONTO
	EST	P V	COMPENSADO	R U M O							TOT	COMPENS	TOT	COMPENS	
151	E1	- 147	355 50'56"	4 09'04" NW	55,330	-4,005	55,185	147	292 510,485	9 649 910,330	45,298				
152	E1	- GROT	46 55'06"	46 55'06" NE	127,480	93,109	87,074	GROT	292 607,599	9 649 942,219	39,421				
153	E1	- 149	357 59'16"	2 00'44" NW	96,560	-3,390	96,500	149	292 511,100	9 649 951,645	41,891				
154	E1	- 150	68 58'41"	68 58'41" NE	201,600	188,182	72,319	150	292 702,672	9 649 927,464	38,383				
155	E1	- 151	0 21'31"	0 21'31" NE	169,040	1,058	169,037	151	292 515,548	9 650 024,182	45,311				
156	E1	- 152	90 08'31"	89 51'29" SE	198,640	198,639	-0,492	152	292 713,129	9 649 854,653	29,993				
157	E1	- 153	99 37'41"	80 22'19" SE	246,670	243,195	-41,256	153	292 757,685	9 649 813,889	27,596				
158	E1	- 154	36 59'46"	36 59'46" NE	213,120	128,247	170,214	154	292 642,737	9 650 025,359	45,684				
159	E1	- 155	46 50'26"	46 50'26" NE	205,270	149,735	140,411	155	292 664,225	9 649 995,556	44,345				
160	E1	- CERC	103 37'31"	76 22'29" SE	333,960	324,561	-78,671	CERC	292 839,051	9 649 776,474	27,305				
161	E1	- 157	63 51'01"	63 51'01" NE	214,180	192,258	94,393	157	292 706,748	9 649 949,538	40,101				
162	E1	- 158	103 00'11"	76 59'49" SE	373,330	363,757	-84,000	158	292 878,247	9 649 771,145	26,857				
163	E1	- 159	82 59'06"	82 59'06" NE	239,290	237,499	29,224	159	292 751,989	9 649 884,369	31,027				
164	E1	- 160	96 31'36"	83 28'24" SE	130,830	129,982	-14,871	160	292 644,472	9 649 840,274	30,667				
165	E1	- 161	122 52'11"	57 07'49" SE	120,340	101,074	-65,312	161	292 615,564	9 649 789,833	30,852				
166	E2	- E3	150 26'16"	29.33'44" SE	267,384	131,919	-232,576	E3	293 142,082	9 649.572,473	26,828				
167	E2	- 162	287 21'46"	72 38'14" NW	53,600	-51,158	15,995	162	292 959,005	9 649 821,044	26,347				
168	E2	- 163	324 28'21"	35 31'39" NW	50,350	-29,258	40,977	163	292 980,905	9 649 846,026	26,530				
169	E2	- 164	285 18'31"	74 41'29" NW	99,630	-96,095	26,304	164	292 914,068	9 649 831,353	28,103				
170	E2	- 165	301 39'41"	58 20'19" NW	142,020	-120,882	74,546	165	292 889,281	9 649 879,595	29,915				
171	E2	- 166	317 32'36"	42 27'24" NW	122,050	-82,388	90,047	166	292 927,775	9 649 895,096	30,147				
172	E2	- CERC	299 13'16"	60 46'44" NW	171,720	-149,867	83,830	CERC	292 860,296	9 649 888,879	31,237				
173	E2	- 168	299 33'51"	60 26'09" NW	215,680	-187,599	106,416	168	292 822,564	9 649 911,465	31,946				
174	E2	- 169	316 12'36"	43 47'24" NW	200,930	-139,047	145,048	169	292 871,116	9 649 950,097	35,588				
175	E2	- 170	319 53'01"	40 06'59" NW	233,750	-150,615	178,757	170	292 859,548	9 649 983,806	39,555				
176	E2	- 171	299 39'06"	60 20'54" NW	235,000	-204,227	116,261	171	292 805,936	9 649 921,310	35,535				
177	E2	- 172	326 17'21"	33 42'39" NW	306,340	-170,019	254,829	172	292 840,144	9 650 059,878	45,503				
178	E2	- 173	326 16'30"	33 43'30" NW	375,420	-208,436	312,241	173	292 801,727	9 650 117,290	53,426				
179	E2	- 174	334 16'26"	25 43'34" NW	337,090	-146,321	303,677	174	292 863,842	9 650 108,726	43,800				
180	E2	- 175	337 35'51"	22 24'09" NW	352,260	-134,250	325,675	175	292 875,913	9 650 130,724	44,115				
181	E2	- 176	346 02'36"	13 57'24" NW	326,060	-78,642	316,434	176	292 931,521	9 650 121,483	45,135				
182	E2	- CERC	342 57'01"	17 02'59" NW	287,740	-84,366	275,094	CERC	292 925,797	9 650 080,143	37,557				
183	E2	- 178	351 20'26"	8 39'34" NW	282,030	-42,463	278,815	178	292 967,700	9 650 083,864	38,884				
184	E2	- 179	357 30'46"	2 29'14" NW	329,900	-14,317	329,589	179	292 995,846	9 650 134,638	37,643				
185	E2	- ES1	27 26'19"	27 26'19" NE	255,850	117,895	227,068	ES1	293 128,058	9 650 032,117	46,182				
186	E2	- 181	24 52'26"	24 52'26" NE	205,410	86,400	186,355	181	293 096,563	9 649 991,404	38,766				
187	E2	- 182	29 23'06"	29 23'06" NE	171,260	84,033	149,226	182	293 094,196	9 649 954,275	36,665				
188	E2	- ES8	66 33'06"	66 33'06" NE	118,390	108,613	47,110	ES8	293 118,776	9 649 852,159	28,825				
189	E2	- ES11	96 32'06"	83 27'54" SE	106,270	105,580	-12,095	ES11	293 115,743	9 649 792,954	27,398				
190	E2	- ES15	131 59'36"	48 00'24" SE	136,900	101,747	-91,592	ES15	293 111,910	9 649 713,457	25,997				
191	E2	- 186	70 09'21"	70 09'21" NE	35,710	33,590	12,122	186	293 043,753	9 649 817,171	25,103				
192	E2	- CERC	135 27'21"	44 32'39" SE	145,920	102,357	-103,999	CERC	293 112,520	9 649 701,050	25,304				
193	E2	- ES18	146 53'06"	33 06'54" SE	179,810	98,234	-150,604	ES18	293 108,397	9 649 654,445	24,234				
194	E3	- E4	270.17'51"	89.42'09" NW	37,432	-37,431	0,194	E4	293.104,651	9 649.572,667	23,479				
195	E4	- E5	182.53'16"	2.53'16" SW	39,962	-2,013	-39,911	E5	293.102,638	9.649 532,756	23,994				
196	E5	- E6	183.56'41"	3.56'41" SW	79,869	-5,495	-79,680	E6	293 097,143	9 649.453,076	24,417				
197	E6	- E7	182.40'36"	2.40'36" SW	540,821	-25,256	-540,231	E7	293 071,887	9 648.912,845	43,737				
198	E7	- E8	272.07'26"	87.52'34" NW	28,812	-28,792	1,068	E8	293.043,095	9.648 913,913	49,254				
199	E8	- E9	271.01'06"	88.58'54" NW	28,713	-28,708	0,510	E9	293.014,387	9.648.914,423	49,353				
200	E9	- E10	264.41'41"	84.41'41" SW	261,858	-260,736	-24,212	E10	292.783,651	9.648.890,211	45,915				

Relatório das coordenadas de todos os pontos.

Imovel BARRAGEM			Local GANGORRA												
Interessado ENGEESOFT			Proprietario GOV ESTADO										Data 17/07/96		
IN DICE	ALINHAMENTO		AZIMUTE		DISTANCIA		LONG PARC X (E+,W-)	LAT PARC Y (N+,S-)	COORD E (X)		COORD N (Y)		COORD (Z) DO PONTO		
	EST	P V	COMPENSADO	R U M O QD	HORIZONTAL				TOT	COMPENS	TOT	COMPENS			
251	E15 -	226	220 46'36"	40 46'36" SW	137,910	-90,071	-104,434	226	291 879,464	9 649 786,277	40,501				
252	E15 -	227	276 47'41"	83 12'19" NW	37,360	-37,098	4,420	227	291 932,437	9 649 895,131	35,338				
253	E15 -	228	198 17'01"	18 17'01" SW	161,700	-50,729	-153,537	228	291 918,806	9 649 737,174	36,854				
254	E15 -	229	274 52'56"	85 07'04" NW	65,630	-65,392	5,586	229	291 904,143	9 649 896,297	37,814				
255	E15 -	230	195 25'06"	15 25'06" SW	190,630	-50,682	-183,769	230	291 918,853	9 649 706,942	36,160				
256	E15 -	231	213 56'11"	33 56'11" SW	89,360	-49,887	-74,138	231	291 919,648	9 649 816,573	34,931				
257	E15 -	232	178 03'36"	1 56'24" SE	196,140	6,640	-196,028	232	291 976,175	9 649 694,683	34,476				
258	E15 -	233	193 34'06"	13 34'06" SW	92,300	-21,654	-89,724	233	291 947,881	9 649 800,987	34,576				
259	E15 -	234	164 47'41"	15 12'19" SE	236,050	61,911	-227,786	234	292 031,446	9 649 662,925	33,501				
260	E15 -	235	174 08'01"	5 51'59" SE	89,160	9,113	-88,693	235	291 978,648	9 649 802,018	32,610				
261	E15 -	236	159 49'41"	20 10'19" SE	273,600	94,348	-256,818	236	292 063,883	9 649 633,893	32,931				
262	E15 -	CEERC	173 44'11"	6 15'49" SE	151,380	16,516	-150,476	CEERC	291 986,051	9 649 740,235	33,389				
263	E15 -	238	173 27'21"	6 32'39" SE	250,560	28,556	-248,927	238	291 998,091	9 649 641,784	35,229				
264	E15 -	239	151 53'51"	28 06'09" SE	267,410	125,964	-235,884	239	292 095,499	9 649 654,827	31,096				
265	E15 -	240	161 22'51"	18 37'09" SE	339,260	108,318	-321,504	240	292 077,853	9 649 569,207	41,688				
266	E15 -	241	157 29'36"	22 30'24" SE	345,480	132,247	-319,167	241	292 101,782	9 649 571,544	40,136				
267	E15 -	242	153 41'06"	26 18'54" SE	360,620	159,865	-323,249	242	292 129,400	9 649 567,462	40,211				
268	E15 -	243	92 20'46"	87 39'14" SE	146,330	146,207	-5,990	243	292 115,742	9 649 884,721	36,884				
269	E15 -	244	81 31'21"	81 31'21" NE	177,640	175,699	26,188	244	292 145,234	9 649 916,899	41,264				
270	E15 -	245	72 19'46"	72 19'46" NE	218,690	208,372	66,382	245	292 177,907	9 649 957,093	44,719				
271	E15 -	246	66 18'46"	66 18'46" NE	237,240	217,253	95,310	246	292 186,788	9 649 986,021	45,423				
272	E15 -	247	56 26'01"	56 26'01" NE	257,500	214,561	142,372	247	292 184,096	9 650 033,083	45,319				
273	E15 -	248	125 24'06"	54 35'54" SE	90,090	73,433	-52,190	248	292 042,968	9 649 838,521	30,672				
274	E15 -	249	57 20'06"	57 20'06" NE	215,160	181,130	116,127	249	292 150,665	9 650 006,838	39,960				
275	E15 -	250	53 22'36"	53 22'36" NE	37,680	30,241	22,478	250	291 999,776	9 649 913,189	33,185				
276	E15 -	251	57 46'41"	57 46'41" NE	165,790	140,257	88,399	251	292 109,792	9 649 979,110	34,967				
277	E15 -	RIAC	58 21'26"	58 21'26" NE	119,760	101,956	62,829	RIAC	292 071,491	9 649 953,540	32,399				
278	E15 -	E18	22 09'31"	22 09'31" NE	53,387	20,136	49,444	E18	291 989,671	9 649 940,155	39,679				
279	E15 -	253	343 35'16"	16 24'44" NW	112,770	-31,863	108,175	253	291 937,672	9 649 998,886	35,471				
280	E15 -	254	58 21'36"	58 21'36" NE	78,860	67,138	41,368	254	292 036,673	9 649 932,079	33,427				
281	E16 -	E17	257.28'21"	77 28'21" SW	363,805	-355,144	-78,912	E17	291.531,988	9 649 833,193	42,845				
282	E16 -	255	342 21'01"	17 38'59" NW	40,460	-12,267	38,555	255	291 874,865	9 649 950,660	32,493				
283	E16 -	RIAC	343 47'16"	16 12'44" NW	103,690	-28,950	99,567	RIAC	291 858,182	9 650 011,672	33,315				
284	E16 -	257	18 13'46"	18 13'46" NE	105,670	33,056	100,367	257	291 920,188	9 650 012,472	35,026				
285	E16 -	RIAC	341 10'46"	18 49'14" NW	149,490	-48,226	141,497	RIAC	291 838,906	9 650 053,602	33,999				
286	E16 -	259	335 10'21"	24 49'39" NW	211,310	-88,726	191,780	259	291 798,406	9 650 103,885	35,650				
287	E16 -	260	6 38'21"	6 38'21" NE	160,570	18,564	159,493	260	291 905,696	9 650 071,598	35,597				
288	E16 -	261	3 01'31"	3 01'31" NE	215,580	11,378	215,280	261	291 898,510	9 650 127,385	37,090				
289	E16 -	262	334 24'46"	25 35'14" NW	267,500	-115,529	241,266	262	291 771,603	9 650 153,371	36,915				
290	E16 -	263	1 55'41"	1 55'41" NE	302,920	10,192	302,749	263	291 897,324	9 650 214,854	39,052				
291	E16 -	264	2 46'16"	2 46'16" NE	377,820	18,266	377,378	264	291 905,398	9 650 289,483	41,463				
292	E16 -	265	348 22'01"	11 37'59" NW	354,420	-71,466	347,140	265	291 815,666	9 650 259,245	38,753				
293	E16 -	266	5 23'56"	5 23'56" NE	462,570	43,523	460,518	266	291 930,655	9 650 372,623	42,745				
294	E16 -	268	5 19'36"	5 19'36" NE	489,530	45,445	487,416	268	291 932,577	9 650 399,521	47,237				
295	E16 -	269	4 33'31"	4 33'31" NE	556,370	44,220	554,610	269	291 931,352	9 650 466,715	45,946				
296	E16 -	270	1 55'56"	1 55'56" NE	537,980	18,139	537,674	270	291 905,271	9 650 449,779	45,184				
297	E16 -	271	4 12'36"	4 12'36" NE	632,110	46,405	630,404	271	291 933,537	9 650 542,509	48,685				
298	E16 -	272	357 45'06"	2 14'54" NW	637,720	-25,018	637,229	272	291 862,114	9 650 549,334	47,943				
299	E16 -	273	353 30'41"	6 29'19" NW	610,200	-68,956	606,291	273	291 818,176	9 650 518,196	46,544				
300	E16 -	274	352 16'01"	7 43'59" NW	542,070	-72,940	537,140	274	291 814,192	9 650 449,245	44,199				

Relatório das coordenadas de todos os pontos.

Pg: 9/16

Imóvel BARRAGEM

Local GANGORRA

Interessado. ENGESOFT

Proprietário GOV ESTADO

Data 17/07/96

IN	ALINHAMENTO	AZIMUTE	DISTÂNCIA			LONG PARC	LAT PARC	COORD E (X)		COORD N (Y)		COORD (Z)
DICE	EST P V	COMPENSADO	R U M O	QD	HORIZONTAL	X (E+,W-)	Y (N+,S-)	TOT	COMPENS	TOT	COMPENS	DO PONTO
401	E19 - 370	98 56'06"	81 03'54"	SE	236,680	233,808	-36,760	370	291 090,272	9 649 325,648	27,595	
402	E19 - RIAC	87 11'51"	87 11'51"	NE	215,750	215,492	10,549	RIAC	291 071,956	9 649 372,957	27,062	
403	E19 - 372	101 03'21"	78 56'39"	SE	281,320	276,099	-53,947	372	291 132,563	9 649 308,461	27,970	
404	E19 - 373	90 56'01"	89 03'59"	SE	280,690	280,653	-4,574	373	291 137,117	9 649 357,834	29,402	
405	E19 - 374	101 13'31"	78 46'29"	SE	352,960	346,208	-68,710	374	291 202,672	9 649 293,698	28,770	
406	E19 - 375	77 51'56"	77 51'56"	NE	301,970	295,223	63,476	375	291 151,687	9 649 425,884	29,168	
407	E19 - 376	74 31'56"	74 31'56"	NE	370,510	357,090	98,814	376	291 213,554	9 649 461,222	30,803	
408	E19 - 377	78 43'06"	78 43'06"	NE	404,420	396,606	79,118	377	291 253,070	9 649 441,526	31,092	
409	E19 - 378	73 04'21"	73 04'21"	NE	431,530	412,834	125,645	378	291 269,298	9 649 488,053	33,025	
410	E19 - 379	76 57'16"	76 57'16"	NE	461,690	449,774	104,215	379	291 306,238	9 649 466,623	30,666	
411	E19 - 380	77 47'31"	77 47'31"	NE	519,510	507,762	109,857	380	291 364,226	9 649 472,265	33,037	
412	E19 - DIVI	70 42'31"	70 42'31"	NE	479,080	452,180	158,275	DIVI	291 308,644	9 649 520,683	34,141	
413	E19 - BSTR	78 33'56"	78 33'56"	NE	556,840	545,788	110,392	BSTR	291 402,252	9 649 472,800	28,287	
414	E19 - 383	62 37'31"	62 37'31"	NE	672,250	596,970	309,106	383	291 453,434	9 649 671,514	32,699	
415	E19 - 384	60 30'31"	60 30'31"	NE	686,200	597,289	337,811	384	291 453,753	9 649 700,219	34,117	
416	E19 - 385	62 40'56"	62 40'56"	NE	720,920	640,519	330,848	385	291 496,983	9 649 693,256	32,990	
417	E19 - 386	61 38'31"	61 38'31"	NE	746,290	656,733	354,473	386	291 513,197	9 649 716,881	33,250	
418	E19 - 387	62 19'01"	62 19'01"	NE	820,930	726,959	381,388	387	291 583,423	9 649 743,796	33,699	
419	E19 - 388	65 30'46"	65 30'46"	NE	793,750	722,355	329,002	388	291 578,819	9 649 691,410	31,538	
420	E19 - 389	65 00'26"	65 00'26"	NE	861,910	781,202	364,160	389	291 637,666	9 649 726,568	32,800	
421	E19 - 390	71 12'16"	71 12'16"	NE	873,040	826,484	281,287	390	291 682,948	9 649 643,695	35,301	
422	E19 - 391	66 55'41"	66 55'41"	NE	889,820	818,646	348,709	391	291 675,110	9 649 711,117	37,592	
423	E19 - 392	73 58'51"	73 58'51"	NE	876,070	842,052	241,759	392	291 698,516	9 649 604,167	33,456	
424	E19 - 393	79 35'51"	79 35'51"	NE	750,560	738,223	135,523	393	291 594,687	9 649 497,931	29,326	
425	E19 - 394	80 44'11"	80 44'11"	NE	783,600	773,380	126,142	394	291 629,844	9 649 488,550	31,447	
426	E19 - 395	80 32'11"	80 32'11"	NE	693,080	683,647	113,957	395	291 540,111	9 649 476,365	27,710	
427	E19 - 396	83 51'21"	83 51'21"	NE	679,410	675,507	72,718	396	291 531,971	9 649 435,126	29,646	
428	E19 - RIAC	81 45'26"	81 45'26"	NE	610,780	604,470	87,566	RIAC	291 460,934	9 649 449,974	27,326	
429	E19 - BSTR	86 36'56"	86 36'56"	NE	612,200	611,132	36,141	BSTR	291 467,596	9 649 398,549	27,666	
430	E19 - 399	85 38'36"	85 38'36"	NE	500,760	499,313	38,040	399	291 355,777	9 649 400,448	28,010	
431	E19 - DIVI	98 52'41"	81 07'19"	SE	497,880	491,915	-76,839	DIVI	291 348,379	9 649 285,569	29,955	
432	E19 - RIO	94 10'06"	85 49'54"	SE	444,960	443,783	-32,343	RIO	291 300,247	9 649 330,065	27,827	
433	E19 - 402	98 02'56"	81 57'04"	SE	406,850	402,842	-56,966	402	291 259,306	9 649 305,442	31,209	
434	E19 - 403	105 21'21"	74 38'39"	SE	394,870	380,773	-104,567	403	291 237,237	9 649 257,841	27,992	
435	E19 - 404	103 26'06"	76 33'54"	SE	338,580	329,314	-78,666	404	291 185,778	9 649 283,742	28,686	
436	E19 - 405	112 41'11"	67 18'49"	SE	334,180	308,324	-128,889	405	291 164,788	9 649 233,519	33,252	
437	E19 - 406	116 39'16"	63 20'44"	SE	277,240	247,777	-124,372	406	291 104,241	9 649 238,036	27,543	
438	E19 - 407	122 23'51"	57 36'09"	SE	251,140	212,050	-134,558	407	291 068,514	9 649 227,850	26,602	
439	E19 - 408	127 09'11"	52 50'49"	SE	213,920	170,500	-129,196	408	291 026,964	9 649 233,212	27,500	
440	E19 - 409	116 18'46"	63 41'14"	SE	206,520	185,122	-91,544	409	291 041,586	9 649 270,864	27,730	
441	E19 - 410	130 49'26"	49 10'34"	SE	155,310	117,527	-101,532	410	290 973,991	9 649 260,876	27,395	
442	E19 - 411	118 29'01"	61 30'59"	SE	129,380	113,719	-61,702	411	290 970,183	9 649 300,706	27,543	
443	E19 - 412	135 07'11"	44 52'49"	SE	90,570	63,909	-64,176	412	290 920,373	9 649 298,232	27,665	
444	E19 - 413	124 46'36"	55 13'24"	SE	82,710	67,936	-47,176	413	290 924,400	9 649 315,232	29,170	
445	E19 - RIO	118 41'26"	61 18'34"	SE	439,130	385,216	-210,817	RIO	291 241,680	9 649 151,591	28,049	
446	E19 - BSTR	112 39'01"	67 20'59"	SE	631,870	583,136	-243,336	BSTR	291 439,600	9 649 119,072	30,894	
447	E19 - 416	110 15'01"	69 44'59"	SE	570,030	534,796	-197,300	416	291 391,260	9 649 165,108	28,343	
448	E19 - BSTR	102 43'56"	77 16'04"	SE	645,630	629,754	-142,293	BSTR	291 486,218	9 649 220,115	28,646	
449	E19 - 418	109 53'06"	70 06'54"	SE	663,300	623,752	-225,610	418	291 480,216	9 649 136,798	30,889	
450	E19 - 419	99 52'56"	80 07'04"	SE	672,660	662,679	-115,444	419	291 519,143	9 649 246,964	29,658	

Relatório das coordenadas de todos os pontos.

Imóvel BARRAGEM

Local GANGORRA

Interessado ENGESOFT

Proprietário GOV ESTADO

Data 17/07/96

IN	ALINHAMENTO	AZIMUTE	DISTANCIA			LONG	PARC	LAT	PARC	COORD E (X)		COORD N (Y)		COORD (Z)	
DICE	EST P V	COMPENSADO	R	U	M O QD	HORIZONTAL	X	Y	(N+,S-)	P V	TOT	COMPENS	TOT	COMPENS	DO PONTO
751	E24 - 713	290 40'11"	69	19'	49" NW	129,110	-120,799	45,573	713	290 064,244	9 650 591,700	32,183			
752	E24 - RIAC	290 37'51"	69	22'	09" NW	164,080	-153,558	57,813	RIAC	290 031,485	9 650 603,940	31,786			
753	E24 - 715	291 33'16"	68	26'	44" NW	217,630	-202,411	79,954	715	289 982,632	9 650 626,081	32,535			
754	E24 - RIAC	290 51'26"	69	08'	34" NW	269,020	-251,391	95,782	RIAC	289 933,652	9 650 641,909	32,441			
755	E24 - 717	289 18'26"	70	41'	34" NW	341,140	-321,954	112,792	717	289 863,089	9 650 658,919	33,426			
756	E24 - 718	289 02'26"	70	57'	34" NW	409,520	-387,114	133,601	718	289 797,929	9 650 679,728	34,240			
757	E24 - 719	309 14'11"	50	45'	49" NW	490,150	-379,642	310,030	719	289 805,401	9 650 856,157	34,828			
758	E24 - 720	288 24'51"	71	35'	09" NW	576,630	-547,105	182,148	720	289 637,938	9 650 728,275	36,184			
759	E25 - PF	167.15'21"	12.44'	39" SE	229,297	50,582	-223,648	PF	289 582,557	9 650.496,827	38,468				
760	E25 - 721	124 33'26"	55	26'	34" SE	10,780	8,878	-6,115	721	289 540,853	9 650 714,360	36,938			
761	E25 - 722	115 00'06"	64	59'	54" SE	79,000	71,597	-33,389	722	289 603,572	9 650 687,086	36,982			
762	E25 - 723	105 24'16"	74	35'	44" SE	323,950	312,312	-86,051	723	289 844,287	9 650 634,424	33,899			
763	E25 - 724	105 35'36"	74	24'	24" SE	261,450	251,827	-70,280	724	289 783,802	9 650 650,195	34,587			
764	E25 - 725	120 57'36"	59	02'	24" SE	155,050	132,960	-79,764	725	289 664,935	9 650 640,711	36,357			
765	E25 - 726	105 18'36"	74	41'	24" SE	191,260	184,472	-50,501	726	289 716,447	9 650 669,974	35,413			
766	E25 - 727	119 58'41"	60	01'	19" SE	220,370	190,888	-110,112	727	289.722,863	9 650 610,363	35 756			
767	E25 - 728	121 40'51"	58	19'	09" SE	279,810	238,115	-146,953	728	289 770,090	9 650 573,522	35,270			
768	E25 - 729	121 51'06"	58	08'	54" SE	337,590	286,755	-178,154	729	289 818,730	9 650 542,321	34,491			
769	E25 - 730	105 15'51"	74	44'	09" SE	359,810	347,117	-94,727	730	289 879,092	9 650 625,748	33,494			
770	E25 - 731	105 18'56"	74	41'	04" SE	418,610	403,743	-110,570	731	289 935,718	9 650 609,905	32,831			
771	E25 - 732	121 39'36"	58	20'	24" SE	412,490	351,102	-216,507	732	289 883,077	9 650 503,968	33 855			
772	E25 - RIAC	105 32'36"	74	27'	24" SE	457,360	440,633	-122,557	RIAC	289 972,608	9 650 597,918	32,202			
773	E25 - 734	124 43'36"	55	16'	24" SE	462,690	380,275	-263,577	734	289 912,250	9 650 456,898	34 074			
774	E25 - 735	110 51'31"	69	08'	29" SE	493,660	461,306	-178,774	735	289 993,281	9 650 544,701	32,562			
775	E25 - 736	132 20'36"	47	39'	24" SE	403,350	298,125	-271,685	736	289 830,100	9 650 448,790	34,579			
776	E25 - 737	138 17'11"	41	42'	49" SE	420,390	279,731	-313,813	737	289 811,706	9 650 406,662	35,368			
777	E25 - 738	132 13'46"	47	46'	14" SE	343,370	254,252	-230,779	738	289 786,227	9 650 489,696	34,954			
778	E25 - 739	138 33'21"	41	26'	39" SE	353,680	234,097	-265,119	739	289 766,072	9 650 455,356	35,101			
779	E25 - 740	128 37'51"	51	22'	09" SE	277,730	216,958	-173,387	740	289 748,933	9 650 547,088	35,660			
780	E25 - 741	138 32'46"	41	27'	14" SE	286,040	189,363	-214,384	741	289 721,338	9 650 506,091	36,270			
781	E25 - 742	128 05'16"	51	54'	44" SE	212,750	167,448	-131,239	742	289 699,423	9 650 589,236	36,330			
782	E25 - 743	138 36'26"	41	23'	34" SE	206,820	136,753	-155,155	743	289 668,728	9 650 565,320	37,085			
783	E25 - 744	127 32'56"	52	27'	04" SE	151,610	120,202	-92,397	744	289 652,177	9 650 628,078	36,603			
784	E25 - 745	139 45'41"	40	14'	19" SE	152,610	98,582	-116,497	745	289 630,557	9 650 603,978	37,071			
785	E25 - 746	122 23'31"	57	36'	29" SE	88,930	75,093	-47,641	746	289 607,068	9 650 672,834	36,967			
786	E25 - 747	140 12'01"	39	47'	59" SE	103,590	66,309	-79,587	747	289 598,284	9 650 640,888	37,152			
787	E25 - 748	140 47'16"	39	12'	44" SE	48,360	30,573	-37,470	748	289 562,548	9 650 683,005	37,074			
788	E25 - 749	167 09'21"	12	50'	39" SE	46,410	10,317	-45,249	749	289 542,292	9 650 675,226	37,054			
789	E25 - 750	164 05'51"	15	54'	09" SE	104,220	28,556	-100,231	750	289 560,531	9 650 620,244	37,904			
790	E25 - 751	165 49'36"	14	10'	24" SE	167,130	40,923	-162,042	751	289 572,898	9 650 558,433	38,562			
791	E25 - 752	104 56'51"	75	03'	09" SE	0,000	0,000	0,000	752	289 531,975	9 650 720,475	40,855			

Maior Coord (X) 293 142,082 Menor Coord (X) 289 531,975 Maior Coord (Y) 9 651 157,730 Menor Coord (Y) 9 648 448,730

Relatório das coordenadas de todos os pontos.

Pg: 6/6

Imóvel BARRAGEM

Local GANÇORRA

Interessado BNGESOFT

Proprietário GOV ESTADO

Data 18/07/96

IN DICE	ALINHAMENTO		AZIMUTE		DISTÂNCIA		LONG	PARC	LAT	PARC	COORD E (X)		COORD N (Y)		COORD (Z)
	EST	P V	COMPENSADO	R U M O	QD	HORIZONTAL	X	(E+,W-)	Y	(N+,S-)	P V	TOT	COMPENS	TOT	COMPENS
251	E26	-	995	211 56'31"	31 56'31"	SW	84,620	-44,769	-71,807	995	289 742,088	9 649 695,635	35,558		
252	E26	-	RIAC	200 59'11"	20 59'11"	SW	162,760	-58,292	-151,963	RIAC	289 728,565	9 649 615,479	33,945		
253	E26	-	997	198 03'56"	18 03'56"	SW	187,890	-58,266	-178,627	997	289 728,591	9 649 588,815	34,540		
254	E26	-	998	205 57'51"	25 57'51"	SW	236,960	-103,743	-213,043	998	289 683,114	9 649 554,399	34,370		
255	E26	-	999	208 36'21"	28 36'21"	SW	271,350	-129,917	-238,227	999	289 656,940	9 649 529,215	34,925		
256	E26	-	1000	211 38'51"	31 38'51"	SW	323,920	-169,958	-275,751	1000	289 616,899	9 649 491,691	36,607		
257	E26	-	1001	212 07'31"	32 07'31"	SW	388,540	-206,615	-329,050	1001	289 580,242	9 649 438,392	39,235		
258	E26	-	1002	215 25'36"	35 25'36"	SW	447,760	-259,549	-364,861	1002	289 527,308	9 649 402,581	40,366		
259	E26	-	1003	217 07'46"	37 07'46"	SW	561,020	-338,642	-447,287	1003	289 448,215	9 649 320,155	41,166		
260	E26	-	1004	227 10'41"	47 10'41"	SW	567,810	-416,471	-385,953	1004	289 370,386	9 649 381,489	40,707		
261	E26	-	1005	227 28'41"	47 28'41"	SW	498,250	-367,219	-336,753	1005	289 419,638	9 649 430,689	38,124		
262	E26	-	1006	227 28'41"	47 28'41"	SW	429,690	-316,689	-290,416	1006	289 470,168	9 649 477,026	38,421		
263	E26	-	GROT	225 41'21"	45 41'21"	SW	352,140	-251,978	-245,988	GROT	289 534,879	9 649 521,454	35,472		
264	E26	-	1008	231 24'36"	51 24'36"	SW	261,580	-204,459	-163,159	1008	289 582,398	9 649 604,283	41,845		
265	E26	-	1009	229 14'41"	49 14'41"	SW	185,910	-140,828	-121,368	1009	289 646,029	9 649 646,074	37,227		
266	E26	-	28A	213.33'06"	33.33'06"	SW	474,210	-262,091	-395,201	28A	289.446,891	9 648.832,311	40,311		

 Maior Coord (X) 290 358,536 Menor Coord (X) 288 943,809 Maior Coord (Y) 9 650 471,249 Menor Coord (Y) 9 648 832,311

TopoEVN 3 0 - Sistema para processamento de Levantamentos Topográficos

Arquivo NOVO2

23/08/96 13 41 50

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Relatório das coordenadas de todos os pontos.

Pg: 3/3

Imóvel BARRAGEM

Local GANGORRA

Interessado ENGHSOFT

Proprietário GOV ESTADO

Data 18/07/96

IN DICE	ALINHAMEN EST. P V	AZIMUTE		DISTÂNCIA HORIZONTAL	LONG PARC X - (E+,W-)	LAT PARC Y (N+,S-)	PARC P V	COORD E (X)		COORD N (Y)		COORD (Z) DO PONTO
		COMPENSADO	R U M O QD					TOT	COMPENS	TOT	COMPENS	
101	E27 - 1107	231 16'16"	51 16'16" SW	148,420	-115,785	-92,857	1107	291 011,150	9 648 838,491		28,782	
102	E27 - 1108	236 58'36"	56 58'36" SW	96,340	-80,776	-52,503	1108	291 046,159	9 648 878,845		27,925	
103	E27 - 1109	261 49'06"	81 49'06" SW	45,450	-44,987	-6,468	1109	291 081,948	9 648 924,880		27,721	
104	E27 - 1110	321 37'41"	38 22'19" NW	31,640	-19,641	24,806	1110	291 107,294	9 648 956,154		29,437	
105	E27 - RIO	339 57'21"	20 02'39" NW	55,200	-18,919	51,856	RIO	291 108,016	9 648 983,204		27,376	
106	E27 - RIAC	291 28'11"	68 31'49" NW	67,850	-63,142	24,834	RIAC	291 063,793	9 648 956,182		27,133	
107	E27 - 1113	262 27'51"	82 27'51" SW	93,550	-92,742	-12,269	1113	291 034,193	9 648 919,079		26,653	
108	E27 - 1114	265 42'11"	85 42'11" SW	152,310	-151,882	-11,412	1114	290 975,053	9 648 919,936		28,054	
109	E27 - 1115	261 56'26"	81 56'26" SW	189,450	-187,579	-26,561	1115	290 939,356	9 648 904,787		27,497	
110	E27 - 1116	255 36'01"	75 36'01" SW	245,100	-237,400	-60,953	1116	290 889,535	9 648 870,395		27,318	
111	E27 - 1117	249 55'01"	69 55'01" SW	273,800	-257,152	-94,018	1117	290 869,783	9 648 837,330		27,918	
112	E27 - 1118	248 06'21"	68 06'21" SW	316,140	-293,338	-117,886	1118	290 833,597	9 648 813,462		28,952	
113	E27 - RIO	238 49'46"	58 49'46" SW	385,740	-330,051	-199,654	RIO	290 796,884	9 648 731,694		28,410	
114	E27 - 1120	235 26'06"	55 26'06" SW	428,190	-352,607	-242,930	1120	290 774,328	9 648 688,418		29,140	
115	E27 - RIO	233 36'51"	53 36'51" SW	471,270	-379,391	-279,567	RIO	290 747,544	9 648 651,781		28,172	
116	E27 - RIO	228 06'11"	48 06'11" SW	461,380	-343,427	-308,106	RIO	290 783,508	9 648 623,242		28,638	
117	E27 - RIO	224 18'01"	44 18'01" SW	460,950	-321,936	-329,897	RIO	290 804,999	9 648 601,451		28,505	
118	E27 - 1124	219 37'51"	39 37'51" SW	526,500	-335,822	-405,495	1124	290 791,113	9 648 525,853		28,733	
119	E27 - 1125	222 45'56"	42 45'56" SW	450,360	-305,794	-330,626	1125	290 821,141	9 648 600,722		29,142	
120	E27 - 1126	228 40'36"	48 40'36" SW	342,000	-256,840	-225,825	1126	290 870,095	9 648 705,523		29,417	
121	E27 - 1127	234 41'11"	54 41'11" SW	330,550	-269,729	-191,075	1127	290 857,206	9 648 740,273		29,617	
122	E27 - 1128	234 13'51"	54 13'51" SW	262,780	-213,214	-153,600	1128	290 913,721	9 648 777,748		29,392	
123	E27 - 1129	237 34'06"	57 34'06" SW	195,510	-165,017	-104,851	1129	290 961,918	9 648 826,497		28,899	
124	E27 - 1130	240 44'31"	60 44'31" SW	133,450	-116,425	-65,223	1130	291 010,510	9 648 866,125		28,216	

 Maior Coord (X) 291 414,213 Menor Coord (X) 290 747,544 Maior Coord (Y) 9 649 362,765 Menor Coord (Y) 9 648 457,579

TopoEVN 3 0 - Sistema para processamento de Levantamentos Topográficos

Arquivo NOVO3

23/08/96

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Relatório das coordenadas de todos os pontos.

Imóvel BARRAGEM

Local GANGORRA

Interessado. ENGHOSOFT

Proprietário GOV ESTADO

Data 19/07/96

IN DICE	ALINHAMENTO EST. P V	AZIMUTE COMPENSADO		R U M O QD	DISTÂNCIA LONG PARC HORIZONTAL X (E+,W-)		LAT PARC Y (N+,S-)		P V	COORD E (X)		COORD N (Y)		COORD (Z) DO PONTO
										TOT	COMPENS	TOT	COMPENS	
1	EM - E21	326.27'36"	33.32'24"	NW	0,000	0,000	0,000	E21	290.439,010	9.649.991,226	37,408			
2	E21 - E23	7.33'31"	7.33'31"	NE	372,275	48,969	369,040	E23	290.487,979	9.650.360,266	39,677			
3	E23 - PF	187.33'31"	7.33'31"	SW	0,000	0,000	0,000	PF	290.487,979	9.650.360,266	41,212			
4	E23 - 1	80 29'26"	80 29'26"	NE	28,590	28,197	4,723	1	290 516,176	9 650 364,989	36,367			
5	E23 - 2	83 22'11"	83 22'11"	NE	88,480	87,888	10,216	2	290 575,867	9 650 370,482	35,483			
6	E23 - 3	34 51'16"	34 51'16"	NE	22,980	13,133	18,858	3	290 501,112	9 650 379,124	36,425			
7	E23 - BSTR	31 21'06"	31 21'06"	NE	86,160	44,828	73,580	BSTR	290 532,807	9 650 433,846	35,515			
8	E23 - 5	30 14'31"	30 14'31"	NE	110,810	55,810	95,729	5	290 543,789	9 650 455,995	34,957			
9	E23 - 6	29 59'51"	29 59'51"	NE	171,000	85,494	148,094	6	290 573,473	9 650 508,360	34,607			
10	E23 - 1	63 14'51"	63 14'51"	NE	310,410	277,183	139,727	1	290 765,162	9 650 499,993	43,764			
11	E23 - 2	63 14'51"	63 14'51"	NE	213,120	190,307	95,933	2	290 678,286	9 650 456,199	37,499			
12	E23 - 3	63 14'51"	63 14'51"	NE	142,180	126,961	64,001	3	290 614,940	9 650 424,267	35,948			
13	E23 - 4	78 33'21"	78 33'21"	NE	308,070	301,945	61,125	4	290 789,924	9 650 421,391	41,042			
14	E23 - 5	78 33'21"	78 33'21"	NE	232,180	227,564	46,068	5	290 715,543	9 650 406,334	38,359			
15	E23 - 6	78 33'21"	78 33'21"	NE	177,150	173,628	35,149	6	290 661,607	9 650 395,415	36,810			
16	E23 - 7	100 24'21"	79 35'39"	SE	391,100	384,668	-70,640	7	290 872,647	9 650 289,626	43,076			
17	E23 - 8	100 24'21"	79 35'39"	SE	321,180	315,898	-58,011	8	290 803,877	9 650 302,255	37,096			
18	E23 - 9	100 24'21"	79 35'39"	SE	249,200	245,101	-45,010	9	290 733,080	9 650 315,256	37,077			
19	E23 - 10	108 53'41"	71 06'19"	SE	423,180	400,377	-137,038	10	290 888,356	9 650 223,228	42,743			
20	E23 - 11	108 53'41"	71 06'19"	SE	349,200	330,383	-113,082	11	290 818,362	9 650 247,184	38,183			
21	E23 - 12	108 53'41"	71 06'19"	SE	223,300	211,268	-72,311	12	290 699,247	9 650 287,955	36,236			
22	E23 - 7	30 23'06"	30 23'06"	NE	252,260	127,595	217,611	7	290 615,574	9 650 577,877	34,822			
23	E23 - 8	31 49'36"	31 49'36"	NE	328,420	173,193	279,041	8	290 661,172	9 650 639,307	35,774			
24	E23 - 9	30 11'21"	30 11'21"	NE	357,850	179,947	309,315	9	290 667,926	9 650 669,581	37,661			
25	E23 - 10	17 09'36"	17 09'36"	NE	272,030	80,260	259,920	10	290 568,239	9 650 620,186	35,084			
26	E23 - 11	14 48'01"	14 48'01"	NE	204,440	52,224	197,657	11	290 540,203	9 650 557,923	34,786			
27	E23 - 12	13 33'31"	13 33'31"	NE	143,690	33,687	139,685	12	290 521,666	9 650 499,951	34,618			
28	E23 - BSTR	355 36'21"	4 23'39"	NW	68,050	-5,214	67,850	BSTR	290 482,765	9 650 428,116	35,112			
29	E23 - 14	350 38'31"	9 21'29"	NW	91,410	-14,864	90,193	14	290 473,115	9 650 450,459	34,970			
30	E23 - 15	354 34'51"	5 25'09"	NW	153,770	-14,522	153,083	15	290 473,457	9 650 513,349	34,568			
31	E23 - 16	356 14'26"	3 45'34"	NW	215,840	-14,152	215,376	16	290 473,827	9 650 575,642	34,483			
32	E23 - 17	358 34'26"	1 25'34"	NW	284,890	-7,090	284,802	17	290 480,889	9 650 645,068	34,522			
33	E23 - 18	359 57'21"	0 02'39"	NW	346,140	-0,267	346,140	18	290 487,712	9 650 706,406	35,381			
34	E23 - 19	351 34'46"	8 25'14"	NW	516,230	-75,596	510,665	19	290 412,383	9 650 870,931	36,566			
35	E23 - 20	352 06'11"	7 53'49"	NW	575,100	-79,014	569,646	20	290 408,965	9 650 929,912	37,949			
36	E23 - 21	352 56'36"	7 03'24"	NW	642,820	-78,971	637,951	21	290 409,008	9 650 998,217	39,819			
37	E23 - 22	345 55'06"	14 04'54"	NW	664,660	-161,715	644,687	22	290 326,264	9 651 004,953	39,839			
38	E23 - 23	344 19'16"	15 40'44"	NW	595,980	-161,061	573,804	23	290 326,918	9 650 934,070	37,752			
39	E23 - 24	344 41'36"	15 18'24"	NW	512,670	-135,337	494,484	24	290 352,642	9 650 854,750	36,012			
40	E23 - 25	344 55'41"	15 04'19"	NW	436,090	-113,397	421,089	25	290 374,582	9 650 781,355	35,102			
41	E23 - 26	345 23'11"	14 36'49"	NW	355,210	-89,619	343,719	26	290.398,360	9 650 703,985	34,433			
42	E23 - 27	346 14'01"	13 45'59"	NW	291,220	-69,300	282,854	27	290 418,679	9 650 643,120	34,176			
43	E23 - RIAC	346 55'11"	13 04'49"	NW	256,630	-58,079	249,971	RIAC	290 429,900	9 650 610,237	33,605			
44	E23 - 29	340 30'51"	19 29'09"	NW	174,940	-58,355	164,920	29	290 429,624	9 650 525,186	34,494			
45	E23 - 30	337 34'51"	22 25'09"	NW	119,990	-45,762	110,921	30	290 442,217	9 650 471,187	34,762			
46	E23 - 31	337 54'06"	22 05'54"	NW	90,990	-34,230	84,306	31	290 453,749	9 650 444,572	34,981			
47	E23 - 32	319 23'01"	40 36'59"	NW	42,020	-27,355	31,897	32	290 460,624	9 650 392,163	35,150			

Maior Coord (X) 290 888,356 Menor Coord (X) 290 326,264 Maior Coord (Y) 9 651 004,953 Menor Coord (Y) 9 649 991,226

Relatório das coordenadas de todos os pontos.

Pg: 1/1

Imóvel BARRAGEM

Local GANGORRA

Interessado.. ENGESOFT

Proprietário.. GOV ESTADO

Data 19/07/96

IN DICE	ALINHAMENTO		AZIMUTE		DISTÂNCIA		LONG	PARC	LAT	PARC	COORD E (X)		COORD N (Y)		COORD (Z)
	EST	P V	COMPENSADO	R U M O	QD	HORIZONTAL	X	(E+,W-)	Y	(N+,S-)	P V	TOT	COMPENS	TOT	COMPENS
1	MM	-	E27	147.55'06"	32.04'54"	SE	0,000	0,000	0,000	E27	291.126,935	9.648	931,348	34,457	
2	E27	-	E31	138.17'46"	41.42'14"	SE	395,179	262,905	-295,038	E31	291.389,840	9.648	636,310	29,863	
3	E31	-	PF	318.17'46"	41.42'14"	NW	0,000	0,000	0,000	PF	291.389,840	9.648	636,310	31,186	
4	E31	-	1	38.02'21"	38.02'21"	NE	70,320	43,331	55,383	1	291.433,171	9.648	691,693	28,624	
5	E31	-	2	38.20'01"	38.20'01"	NE	180,040	111,668	141,226	2	291.501,508	9.648	777,536	28,581	
6	E31	-	3	38.31'31"	38.31'31"	NE	292,130	181,956	228,543	3	291.571,796	9.648	864,853	29,903	
7	E31	-	4	39.15'36"	39.15'36"	NE	407,990	258,193	315,899	4	291.648,033	9.648	952,209	31,114	
8	E31	-	5	40.53'31"	40.53'31"	NE	457,040	299,194	345,497	5	291.689,034	9.648	981,807	31,088	
9	E31	-	6	72.39'11"	72.39'11"	NE	105,830	101,017	31,554	6	291.490,857	9.648	667,864	27,692	
10	E31	-	7	72.21'06"	72.21'06"	NE	185,140	176,426	56,130	7	291.566,266	9.648	692,440	26,469	
11	E31	-	8	72.41'31"	72.41'31"	NE	267,600	255,483	79,613	8	291.645,323	9.648	715,923	26,960	
12	E31	-	9	71.49'21"	71.49'21"	NE	371,650	353,103	115,941	9	291.742,943	9.648	752,251	26,607	
13	E31	-	10	72.49'01"	72.49'01"	NE	451,980	431,806	133,526	10	291.821,646	9.648	769,836	26,687	
14	E31	-	11	120.49'46"	59.10'14"	SE	81,140	69,675	-41,583	11	291.459,515	9.648	594,727	26,545	
15	E31	-	12	122.13'11"	57.46'49"	SE	158,880	134,414	-84,710	12	291.524,254	9.648	551,600	26,705	
16	E31	-	13	123.23'46"	56.36'14"	SE	199,850	166,852	-110,002	13	291.556,692	9.648	526,308	27,309	
17	E31	-	RIAC	123.29'56"	56.30'04"	SE	241,330	201,244	-133,195	RIAC	291.591,084	9.648	503,115	26,614	
18	E31	-	15	123.51'56"	56.08'04"	SE	305,540	253,704	-170,261	15	291.643,544	9.648	466,049	27,844	
19	E31	-	16	126.52'11"	53.07'49"	SE	397,520	318,017	-238,511	16	291.707,857	9.648	397,799	27,636	
20	E31	-	RIO	127.34'01"	52.25'59"	SE	437,750	346,979	-266,891	RIO	291.736,819	9.648	369,419	28,540	
21	E31	-	18	122.37'56"	57.22'04"	SE	619,330	521,568	-333,970	18	291.911,408	9.648	302,340	35,330	
22	E31	-	19	122.42'36"	57.17'24"	SE	664,470	559,096	-359,071	19	291.948,936	9.648	277,239	46,827	
23	E31	-	20	128.36'46"	51.23'14"	SE	631,900	493,755	-394,340	20	291.883,595	9.648	241,970	33,400	
24	E31	-	21	134.10'51"	45.49'09"	SE	543,640	389,868	-378,876	21	291.779,708	9.648	257,434	29,229	
25	E31	-	RIO	131.58'26"	48.01'34"	SE	458,510	340,879	-306,648	RIO	291.730,719	9.648	329,662	28,082	
26	E31	-	23	130.20'36"	49.39'24"	SE	380,630	290,108	-246,407	23	291.679,948	9.648	389,903	27,104	
27	E31	-	24	131.01'31"	48.58'29"	SE	335,660	253,229	-220,325	24	291.643,069	9.648	415,985	27,878	
28	E31	-	25	128.34'01"	51.25'59"	SE	253,010	197,824	-157,734	25	291.587,664	9.648	478,576	26,881	
29	E31	-	26	137.22'11"	42.37'49"	SE	216,440	146,587	-159,243	26	291.536,427	9.648	477,067	27,588	
30	E31	-	27	165.00'06"	14.59'54"	SE	120,210	31,109	-116,115	27	291.420,949	9.648	520,195	28,983	

 Maior Coord (X) 291 948,936 Menor Coord (X) 291 126,935 Maior Coord (Y) 9 648 981,807 Menor Coord (Y) 9 648 241,970

Relatório das coordenadas de todos os pontos.

Pg: 2/2

Imóvel BARRAGEM

Local GANGORRA

Interessado : ENGESOFT

Proprietario GOV ESTADO

Data 18/07/96

IN DICE	ALINHAMEN EST P V	AZIMUTE COMPENSADO	R U M O QD	DISTÂNCIA HORIZONTAL	LONG PARC X (E+,W-)	LAT PARC Y (N+,S-)	COORD E (X) P V TOT COMPENS	COORD N (Y) TOT COMPENS	COORD (Z) DO PONTO
51	E31 - 1248	128 34'01"	51 25'59" SE	253,010	197,824	-157,734	1248 291 587,664	9 648 478,576	26,911
52	E31 - 1249	137 22'11"	42 37'49" SE	216,440	146,587	-159,243	1249 291 536,427	9 648 477,067	27,618
53	E31 - 1250	165 00'06"	14 59'54" SE	120,210	31,109	-116,115	1250 291 420,949	9 648.520,195	29,013

Maior Coord (X) 291 948,936 Menor Coord (X) 290 999,677 Maior Coord (Y) 9 648 981,807 Menor Coord (Y) 9 648 158,551

TopoBVN 3 0 - Sistema para processamento de Levantamentos Topográficos

Arquivo NOV05

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Relatório das coordenadas de todos os pontos.

Pg: 3/4

Imóvel BARRAGEM

Local GANGORRA

Interessado ENGESOFT

Proprietário GOV ESTADO

Data 18/07/96

IN DICE	ALINHAMENT		AZINUTE		DISTÂNCIA HORIZONTAL	LONG PARC X	LAT PARC Y	COORD E (X) TOT COMPENS	COORD N (Y) TOT COMPENS	COORD (Z) DO PONTO
	EST	P V	COMPENSADO	R U M O QD						
101	B36	- 51	35 09'31"	35 09'31" NE	242,310	139,532	198,103	51 290 411,215	9 648 216,248	30,182
102	B36	- 52	63 06'51"	63 06'51" NE	502,420	448,113	227,201	52 290 719,796	9 648 245,346	30,257
103	B36	- 53	63 06'51"	63 06'51" NE	421,230	375,699	190,486	53 290 647,382	9 648 208,631	31,108
104	B36	- 54	63 06'51"	63 06'51" NE	332,460	296,524	150,343	54 290 568,207	9 648 168,488	30,173
105	B36	- 55	79 00'56"	79 00'56" NE	381,200	374,216	72,635	55 290 645,899	9 648 090,780	31,138
106	B36	- 56	79 00'56"	79 00'56" NE	280,310	275,174	53,411	56 290 546,857	9 648 071,556	30,280
107	B36	- 1269	76 29'41"	76 29'41" NE	181,450	176,433	42,375	1269 290 448,116	9 648 060,520	29,755
108	B36	- 1270	259 48'36"	79 48'36" SW	32,510	-31,997	-5,751	1270 290 239,686	9 648 012,394	32,757
109	B36	- 1271	201 49'21"	21 49'21" SW	128,590	-47,801	-119,375	1271 290 223,882	9 647 898,770	32,678
110	B36	- 1272	199 34'16"	19 34'16" SW	196,250	-65,739	-184,912	1272 290 205,944	9 647 833,233	36,525
111	B37	-	7.54'56"	7.54'56" NE	0,000	0,000	0,000	290.240,908	9 647.796,804	34,417
112	B37	- 1273	82 17'41"	82 17'41" NE	86,190	85,412	11,556	1273 290 326,320	9 647 808,360	32,166
113	B37	- 1274	91 03'46"	88 56'14" SE	167,540	167,511	-3,108	1274 290 408,419	9 647 793,696	30,776
114	B37	- 1275	93 19'41"	86 40'19" SE	257,790	257,355	-14,965	1275 290 498,263	9 647 781,839	30,360
115	B37	- RIO	93 25'11"	86 34'49" SE	289,790	289,274	-17,286	RIO 290 530,182	9 647 779,518	30,499
116	B37	- 1277	162 03'16"	17 56'44" SE	274,270	84,506	-260,927	1277 290 325,414	9 647 535,877	32,299
117	B37	- 1	123 54'31"	56 05'29" SE	708,410	587,930	-395,201	1 290 828,838	9 647 401,603	38,819
118	B37	- 2	123 54'31"	56 05'29" SE	576,820	478,719	-321,790	2 290 719,627	9 647 475,014	35,442
119	B37	- 3	123 54'31"	56 05'29" SE	450,920	374,231	-251,555	3 290 615,139	9 647 545,249	32,609
120	B37	- 4	123 54'31"	56 05'29" SE	345,820	287,006	-192,923	4 290 527,914	9 647 603,881	31,337
121	B37	- 5	123 54'31"	56 05'29" SE	234,920	194,967	-131,055	5 290 435,875	9 647 665,749	31,881
122	B37	- 6	123 54'31"	56 05'29" SE	142,620	118,364	-79,563	6 290 359,272	9 647 717,241	32,766
123	B37	- 7	137 43'16"	42 16'44" SE	733,720	493,603	-542,864	7 290 734,511	9 647 253,940	39,765
124	B37	- 8	137 43'16"	42 16'44" SE	619,410	416,702	-458,288	8 290 657,610	9 647 338,516	36,430
125	B37	- 9	137 43'16"	42 16'44" SE	518,540	348,843	-383,657	9 290 589,751	9 647 413,147	34,290
126	B37	- 10	152 51'16"	27 08'44" SE	668,430	304,973	-594,803	10 290 545,881	9 647 202,001	41,425
127	B37	- 11	152 51'16"	27 08'44" SE	567,510	258,928	-504,999	11 290 499,836	9 647 291,805	38,898
128	B37	- 12	152 51'16"	27 08'44" SE	465,230	212,262	-413,985	12 290 453,170	9 647 382,819	34,219
129	B37	- 13	152 51'16"	27 08'44" SE	356,890	162,832	-317,579	13 290 403,740	9 647 479,225	31,454
130	B37	- 14	171 43'11"	8 16'49" SE	548,920	79,053	-543,198	14 290 319,961	9 647 253,606	41,242
131	B37	- 15	171 43'11"	8 16'49" SE	489,510	70,497	-484,407	15 290 311,405	9 647 312,397	39,876
132	B37	- 16	171 43'11"	8 16'49" SE	381,190	54,897	-377,216	16 290 295,805	9 647 419,588	32,117
133	B37	- 17	186 28'21"	6 28'21" SW	612,410	-69,035	-608,507	17 290 171,873	9 647 188,297	41,666
134	B37	- 18	186 28'21"	6 28'21" SW	504,820	-56,907	-501,602	18 290 184,001	9 647 295,202	38,355
135	B37	- 19	186 28'21"	6 28'21" SW	407,620	-45,950	-405,022	19 290 194,958	9 647 391,782	36,836
136	B37	- 20	204 15'06"	24 15'06" SW	707,430	-290,574	-644,999	20 289 950,334	9 647 151,805	41,189
137	B37	- 21	204 15'06"	24 15'06" SW	543,810	-223,367	-495,819	21 290 017,541	9 647 300,985	37,183
138	B37	- 22	204 15'06"	24 15'06" SW	418,210	-171,778	-381,303	22 290 069,130	9 647 415,501	35,415
139	B37	- 23	214 27'41"	34 27'41" SW	891,330	-504,360	-734,908	23 289 736,548	9 647 061,896	40,635
140	B37	- 24	214 27'41"	34 27'41" SW	761,290	-430,777	-627,689	24 289 810,131	9 647 169,115	39,107
141	B37	- 25	214 27'41"	34 27'41" SW	678,530	-383,947	-559,453	25 289 856,961	9 647 237,351	38,773
142	B37	- 26	214 27'41"	34 27'41" SW	564,260	-319,287	-465,237	26 289 921,621	9 647 331,567	37,226
143	B37	- 27	214 27'41"	34 27'41" SW	454,270	-257,049	-374,549	27 289 983,859	9 647 422,255	35,886
144	B37	- 28	214 27'41"	34 27'41" SW	325,590	-184,235	-268,451	28 290 056,673	9 647 528,353	34,234
145	B37	- 29	219 47'26"	39 47'26" SW	767,510	-491,193	-589,746	29 289 749,715	9 647 207,058	39,880
146	B37	- 30	219 47'26"	39 47'26" SW	649,370	-415,586	-498,969	30 289 825,322	9 647 297,815	14,666
147	B37	- 31	219 47'26"	39 47'26" SW	467,810	-299,390	-359,460	31 289 941,518	9 647 437,344	38,946
148	B37	- 32	219 47'26"	39 47'26" SW	330,180	-211,310	-253,707	32 290 029,598	9 647 543,097	35,192
149	B37	- 33	219 47'26"	39 47'26" SW	226,910	-145,219	-174,355	33 290 095,689	9 647 622,449	34,125
150	B37	- 34	236 07'11"	56 07'11" SW	424,530	-352,447	-236,658	34 289 888,461	9 647 560,146	42,855

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Relatório das coordenadas de todos os pontos.

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Imóvel BARRAGEM

Local GANGORRA

Interessado.. ENGESOFT

Proprietário . GOV ESTADO

Data 18/07/96

IN	ALINHAMENT		AZINUTE		DISTÂNCIA		LONG	PARC	LAT	PARC	COORD E (X)		COORD N (Y)		COORD (Z)	
DICE	EST	P V	COMPENSADO	R U M O	QD	HORIZONTAL	X	(E+,W-)	Y	(N+,S-)	P V	TOT	COMPENS	TOT	COMPENS	DO PONTO
151	E37	- 35	236 07'11"	56 07'11"	SW	260,020	-215,870		-144,951		35	290 025,038	9 647 651,853		38,628	
152	E37	- 36	236 07'11"	56 07'11"	SW	143,290	-118,960		-79,878		36	290 121,948	9 647 716,926		33,411	
153	E37	- 37	300 55'01"	59 04'59"	NW	237,400	-203,669		121,975		37	290 037,239	9 647 918,779		40,689	
154	E37	- 38	300 55'01"	59 04'59"	NW	140,080	-120,176		71,972		38	290 120,732	9 647 868,776		38,970	
155	E37	- 1278	162 31'16"	17 28'44"	SE	196,590	59,047		-187,513	1278	290 299,955	9 647 609,291		32,494		
156	E37	- 1279	162 09'06"	17 50'54"	SE	113,110	34,668		-107,666	1279	290 275,576	9 647 689,138		32,418		
157	E37	- 1280	189 38'36"	9 38'36"	SW	103,800	-17,388		-102,333	1280	290 223,520	9 647 694,471		33,006		
158	E37	- 1281	195 38'21"	15 38'21"	SW	170,620	-45,995		-164,303	1281	290 194,913	9 647 632,501		33,491		
159	E37	- 1282	190 22'51"	10 22'51"	SW	233,660	-42,103		-229,835	1282	290 198,805	9 647 566,969		33,958		
160	E37	- 1283	188 06'51"	8 06'51"	SW	328,030	-46,300		-324,746	1283	290 194,608	9 647 472,058		33,262		
161	E37	- 1284	201 51'01"	21 51'01"	SW	323,490	-120,397		-300,250	1284	290 120,511	9 647 496,554		34,470		
162	E37	- 1285	209 33'46"	29 33'46"	SW	249,850	-123,270		-217,323	1285	290 117,638	9 647 579,481		34,581		
163	E37	- 1286	209 33'51"	29 33'51"	SW	165,650	-81,731		-144,083	1286	290 159,177	9 647 652,721		33,742		
164	E37	- 1287	212 12'16"	32 12'16"	SW	77,720	-41,420		-65,763	1287	290 199,488	9 647 731,041		33,246		

 Maior Coord (X) 291 383,923 Menor Coord (X) 289 573,625 Maior Coord (Y) 9 648 786,805 Menor Coord (Y) 9 647 061,896

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Relatório das coordenadas de todos os pontos.

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Imóvel BARRAGEM

Local GANGORRA

Interessado ENGESOFT

Proprietário GOV ESTADO

Data 18/07/96

IN	ALINHAMENTO		AZIMUTE		DISTÂNCIA		LONG	PARC	LAT	PARC	COORD E (X)		COORD N (Y)		COORD (Z)	
DICE	EST	P V	COMPENSADO	R U M O	QD	HORIZONTAL	X	(E+,W-)	Y	(N+,S-)	P V	TOT	COMPENS	TOT	COMPENS	DO PONTO
1	-	E20	91 18'06"	88.41'54"	SE	0,000	0,000	0,000	E20	291.711,037	9 649.343,667	33,230				
2	E20	-	271 18'06"	88.41'54"	NW	0,000	0,000	0,000		291 711,037	9.649.343,667	34,696				
3	E20	- 1288	188 34'41"	8 34'41"	SW	33,840	-5,047	-33,461	1288	291 705,990	9 649 310,206	26,647				
4	E20	- 1289	245 14'01"	65 14'01"	SW	83,810	-76,101	-35,110	1289	291 634,936	9 649 308,557	26,823				
5	E20	- 1290	178 42'36"	1 17'24"	SE	92,450	2,081	-92,427	1290	291 713,118	9 649 251,240	25,886				
6	E20	- 1291	224 23'51"	44 23'51"	SW	138,750	-97,074	-99,137	1291	291 613,963	9 649 244,530	27,031				
7	E20	- 1292	241 13'16"	61 13'16"	SW	163,860	-143,621	-78,887	1292	291 567,416	9 649 264,780	24,964				
8	E20	- 1293	250 27'41"	70 27'41"	SW	112,420	-105,946	-37,598	1293	291 605,091	9 649 306,069	27,488				
9	E20	- 1294	279 52'41"	80 07'19"	NW	170,530	-168,002	29,255	1294	291 543,035	9 649 372,922	27,192				
10	E20	- 1295	293 00'11"	66 59'49"	NW	115,330	-106,159	45,069	1295	291 604,878	9 649 388,736	27,683				
11	E20	- 1296	301 08'46"	58 51'14"	NW	185,830	-159,043	96,115	1296	291 551,994	9 649 439,782	29,392				
12	E20	- 1297	309 09'31"	50 50'29"	NW	149,310	-115,775	94,285	1297	291 595,262	9 649 437,952	28,917				
13	E20	- 1298	323 24'46"	36 35'14"	NW	158,580	-94,521	127,332	1298	291 616,516	9 649 470,999	29,321				
14	E20	- 1299	310 12'41"	49 47'19"	NW	61,790	-47,187	39,892	1299	291 663,850	9 649 383,559	27,402				
15	E20	- 1300	12 29'31"	12 29'31"	NE	54,480	11,784	53,190	1300	291 722,821	9 649 396,857	27,055				
16	E20	- 1301	1 23'46"	1 23'46"	NE	104,020	2,534	103,989	1301	291 713,571	9 649 447,656	29,129				
17	E20	- 1302	40 28'16"	40 28'16"	NE	76,960	49,952	58,546	1302	291 760,989	9 649 402,213	26,184				
18	E20	- 1303	347 39'21"	12 20'39"	NW	78,260	-16,731	76,451	1303	291 694,306	9 649 420,118	30,580				
19	E20	- 1304	45 28'21"	45 28'21"	NE	129,910	92,615	91,100	1304	291 803,652	9 649 434,767	27,701				
20	E20	- 1305	26 12'11"	26 12'11"	NE	139,470	61,583	125,137	1305	291 772,620	9 649 468,804	29,574				
21	E20	- 1306	58 47'36"	58 47'36"	NE	197,350	168,794	102,252	1306	291 879,831	9 649 445,919	29,409				
22	E20	- 1307	46 13'51"	46 13'51"	NE	200,560	144,831	138,738	1307	291 855,868	9 649 482,405	29,221				
23	E20	- 1308	61 48'31"	61 48'31"	NE	260,890	229,942	123,249	1308	291 940,979	9 649 466,916	31,382				
24	E20	- 1309	55 09'51"	55 09'51"	NE	259,540	213,028	148,256	1309	291 924,065	9 649 491,923	31,590				
25	E20	- 1310	54 36'36"	54 36'36"	NE	287,630	234,484	166,578	1310	291 945,521	9 649 510,245	32,836				
26	E20	- 1311	62 55'36"	62 55'36"	NE	306,100	272,559	139,315	1311	291 983,596	9 649 482,982	34,201				
27	E20	- 1312	55 59'51"	55 59'51"	NE	318,070	263,684	177,874	1312	291 974,721	9 649 521,541	35,799				
28	E20	- 1313	72 39'56"	72 39'56"	NE	282,160	269,345	84,069	1313	291 980,382	9 649 427,736	31,628				
29	E20	- 1314	76 55'11"	76 55'11"	NE	245,890	239,510	55,649	1314	291 950,547	9 649 399,316	31,122				
30	E20	- 1315	77 08'26"	77 08'26"	NE	192,960	188,120	42,945	1315	291 899,157	9 649 386,612	31,515				
31	E20	- 1316	91 20'26"	88 39'34"	SE	270,580	270,506	-6,330	1316	291 981,543	9 649 337,337	29,672				
32	E20	- 1317	78 46'11"	78 46'11"	NE	154,070	151,120	30,006	1317	291 862,157	9 649 373,673	29 159				
33	E20	- 1318	79 09'56"	79 09'56"	NE	113,440	111,418	21,324	1318	291 822,455	9 649 364,991	27,392				
34	E20	- RIO	108 52'36"	71 07'24"	SE	149,850	141,791	-48,481	RIO	291 852,828	9 649 295,186	26,184				
35	E20	- 1320	78 00'16"	78 00'16"	NE	56,770	55,530	11,799	1320	291 766,567	9 649 355,466	26,206				
36	E20	- RIO	141 43'41"	38 16'19"	SE	87,310	54,079	-68,545	RIO	291 765,116	9 649 275,122	26,246				
37	E20	- 1322	106 39'11"	73 20'49"	SE	29,560	28,320	-8,471	1322	291 739,357	9 649 335,196	24,978				
38	E20	- 1323	225 42'11"	45 42'11"	SW	196,430	-140,591	-137,182	1323	291 570,446	9 649 206,485	27,846				
39	E20	- 1324	226 06'41"	46 06'41"	SW	244,130	-175,942	-169,245	1324	291 535,095	9 649 174,422	28,977				
40	E20	- 1325	202 13'16"	22 13'16"	SW	291,530	-110,251	-269,878	1325	291 600,786	9 649 073,789	30,237				
41	E20	- 1326	175 05'56"	4 54'04"	SE	286,680	24,493	-285,632	1326	291 735,530	9 649 058,035	27,674				
42	E20	- 1327	174 56'16"	5 03'44"	SE	207,340	18,295	-206,531	1327	291 729,332	9 649 137,136	26,468				
43	E20	- 1328	167 11'21"	12 48'39"	SE	313,340	69,478	-305,540	1328	291 780,515	9 649 038,127	27,008				
44	E20	- 1329	167 19'46"	12 40'14"	SE	363,100	79,644	-354,258	1329	291 790,681	9 648 989,409	28,121				

Maior Coord (X) 291 983,596 Menor Coord (X) 291 535,095 Maior Coord (Y) 9 649 521,541 Menor Coord (Y) 9 648 989,409

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Relatório das coordenadas de todos os pontos.

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Imóvel BARRAGEM

Local GANGORRA

Interessado ENGESOFT

Proprietário GOV ESTADO

Data 19/07/96

IN DICE	ALINHAMENTO		AZIMUTE		DISTÂNCIA		LONG	PARC	LAT	PARC	COORD E (X)		COORD N (Y)		COORD (Z)
	EST	P V	COMPENSADO	R U M O	QD	HORIZONTAL	X	(E+,W-)	Y	(N+,S-)	P V	TOT	COMPENS	TOT	COMPENS
1	MM	- E10	264 41'41"	84 41'41"	SW	0,000	0,000	0,000	E10	292.753,687		9.648.890,568		45,908	
2	E10	- X1	83.30'11"	83.30'11"	NE	73,531	73,059	8,320	X1	292 826,746		9.648 898,888		39,513	
3	1X	- PF	263.30'11"	83.30'11"	SW	0,000	0,000	0,000	PF	292 826,746		9.648 898,888		40,980	
4	X1	- 1	92 25'26"	87 34'34"	SE	30,060	30,033	-1,271	1	292 856,779		9 648 897,617		29,402	
5	X1	- 2	229 57'41"	49 57'41"	SW	60,390	-46,235	-38,849	2	292 780,511		9 648 860,039		46 902	
6	X1	- 3	133 12'51"	46.47'09"	SE	53,970	39,333	-36,955	3	292 866,079		9 648 861,933		37,226	
7	X1	- 4	188 29'11"	8 29'11"	SW	142,480	-21,026	-140,920	4	292 805,720		9 648 757,968		37,078	
8	X1	- 5	150 20'51"	29 39'09"	SE	102,090	50,508	-88,720	5	292 877,254		9 648 810,168		47,732	

Maiores Coord (X) 292 877,254 Menor Coord (X) 292 753,687 Maiores Coord (Y) 9 648 898,888 Menor Coord (Y) 9 648 757,968

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Relatório das coordenadas de todos os pontos.

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Imóvel BARRAGEM

Local GANGORRA

Interessado ENGESOFT

Proprietário GGV ESTADO

Data 19/07/96

IN	ALINHAMENTO		AZIMUTE		DISTÂNCIA		LONG	PARC	LAT	PARC	COORD E (X)		COORD N (Y)		COORD (Z)							
	DICE	EST	P	V	COMPENSADO	R	U	M	O	QD	HORIZONTAL	X	(N+,S-)	Y	(N+,S-)	P	V	TOT	COMPENS	TOT	COMPENS	DO PONTO
1	ME	-	E15		331.49'31"	28.10'29"	NW				0,000	0,000	0,000	E15	291.969,571			9.649.891,068				39,202
2	E15	-	E10		22.09'31"	22.09'31"	NE				53,387	20,136	49,444	E10	291.989,707			9.649.940,512				39,672
3	E10	-	PF		202.09'31"	22.09'31"	SW				0,000	0,000	0,000	PF	291.989,707			9.649.940,512				41,142
4	E10	-	1		45.07'51"	45.07'51"	NE				14,560	10,319	10,272	1	292.000,026			9.649.950,784				34,708
5	E10	-	2		31.33'36"	31.33'36"	NE				67,500	35,329	57,516	2	292.025,036			9.649.998,028				35,655
6	E10	-	3		38.13'46"	38.13'46"	NE				112,130	69,387	88,082	3	292.059,094			9.650.028,594				38,779
7	E10	-	4		37.46'21"	37.46'21"	NE				191,870	117,526	151,663	4	292.107,233			9.650.092,175				41,954
8	E10	-	5		34.46'41"	34.46'41"	NE				229,960	131,169	188,882	5	292.120,876			9.650.129,394				45,651
9	E10	-	6		40.57'41"	40.57'41"	NE				252,340	165,422	190,555	6	292.155,129			9.650.131,067				46,500
10	E10	-	7		27.32'06"	27.32'06"	NE				273,690	126,524	242,689	7	292.116,231			9.650.183,201				46,493
11	E10	-	8		22.18'56"	22.18'56"	NE				303,640	115,294	280,899	8	292.105,001			9.650.221,411				45,634
12	E10	-	9		4.46'51"	4.46'51"	NE				224,630	18,722	223,848	9	292.008,429			9.650.164,360				42,238
13	E10	-	10		2.29'26"	2.29'26"	NE				199,890	8,686	199,701	10	291.998,393			9.650.140,213				41,344
14	E10	-	11		324.00'31"	35.59'29"	NW				54,260	-31,887	43,902	11	291.957,820			9.649.984,414				36.068

Maior Coord (X) 292 155,129 Menor Coord (X) 291 957,820 Maior Coord (Y) 9 650 221,411 Menor Coord (Y) 9 649 891,068

TopoEVN 3 0 - Sistema para processamento de Levantamentos Topográficos

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Relatório das coordenadas de todos os pontos.

Imóvel BAARAGEN

Local GANGORRA

Interessado ENGESOFT

Proprietário GOV ESTADO

Data 24/07/96

IN DICE	ALINHAMENTO EST. P V	AZIMUTE COMPENSADO	R U M O QD	DISTÂNCIA HORIZONTAL	LONG PARC X (E+, W-)	LAT PARC Y (N+, S-)	COORD E (X) TOT COMPENS	COORD N (Y) TOT COMPENS	COORD (Z) DO PONTO
151	31C - 108	140 24' 26"	39 35' 34" SE	208,920	133,150	-160,992	108 291 888,540	9 647 284,014	32,017
152	31C - 109	150 34' 51"	29 25' 09" SE	114,540	56,261	-99,770	109 291 811,651	9 647 345,236	35,709
153	31C - 110	152 19' 01"	27 40' 59" SE	28,150	13,078	-24,928	110 291 768,468	9 647 420,078	42,331
154	31C - 111	159 55' 56"	20 04' 04" SE	283,860	97,401	-266,626	111 291 852,791	9 647 178,380	34,034
155	31C - 112	153 15' 31"	26 44' 29" SE	370,610	166,761	-330,972	112 291 922,151	9 647 114,034	30,788
156	31C - 114	147 56' 06"	32 03' 54" SE	654,870	347,658	-554,967	114 292 103,048	9 646 890,039	35,543
157	31C - 113	144 32' 06"	35 27' 54" SE	535,600	310,758	-436,230	113 292 066,148	9 647 008,776	36,152
158	31C - 115	147 41' 41"	32 18' 19" SE	715,280	382,267	-604,564	115 292 137,657	9 646 840,442	42,802
159	31C - RIAC	150 26' 16"	29 33' 44" SE	412,770	203,648	-359,036	RIAC 291 959,038	9 647 085,970	29,446
160	31D - 31E	161.08' 16"	18.51' 44" SE	414,231	133,918	-391,986	31E 291.552,058	9.646.675,701	49,259
161	31D - 1	60 17' 51"	60 17' 51" NE	459,810	399,396	227,834	1 291 817,536	9 647 295,521	34,312
162	31D - 2	60 17' 51"	60 17' 51" NE	379,700	329,811	188,140	2 291 747,951	9 647 255,827	40,228
163	31D - 3	60 17' 51"	60 17' 51" NE	283,560	246,303	140,503	3 291 664,443	9 647 208,190	42,764
164	31D - 4	60 17' 51"	60 17' 51" NE	183,400	159,303	90,874	4 291 577,443	9 647 158,561	44,193
165	31D - 5	85 46' 16"	85 46' 16" NE	364,610	363,617	26,887	5 291 781,757	9 647 094,574	33,325
166	31D - 6	85 46' 16"	85 46' 16" NE	203,800	203,245	15,028	6 291 621,385	9 647 082,715	38,870
167	31D - 7	85 46' 16"	85 46' 16" NE	139,610	139,230	10,295	7 291 557,370	9 647 077,982	43,682
168	31D - 8	101 36' 16"	78 23' 44" SE	481,700	471,854	-96,896	8 291 889,994	9 646 970,791	30,370
169	31D - 9	101 36' 16"	78 23' 44" SE	363,500	356,070	-73,119	9 291 774,210	9 646 994,568	32,621
170	31D - 10	101 36' 16"	78 23' 44" SE	273,400	267,812	-54,995	10 291 685,952	9 647 012,692	37,636
171	31D - 11	101 36' 16"	78 23' 44" SE	168,810	165,359	-33,957	11 291 583,499	9 647 033,730	39,756
172	31D - 12	111 35' 56"	68 24' 04" SE	521,460	484,845	-191,953	12 291 902,985	9 646 875,734	33,111
173	31D - 13	111 35' 56"	68 24' 04" SE	435,800	405,200	-160,421	13 291 823,340	9 646 907,266	31,066
174	31D - 14	111 35' 56"	68 24' 04" SE	331,190	307,935	-121,913	14 291 726,075	9 646 945,774	33,624
175	31D - 15	111 35' 56"	68 24' 04" SE	273,400	254,203	-100,640	15 291 672,343	9 646 967,047	38,109
176	31D - 16	123 47' 11"	56 12' 49" SE	517,300	429,937	-287,670	16 291 848,077	9 646 780,017	32,246
177	31D - 17	123 47' 11"	56 12' 49" SE	404,200	335,937	-224,775	17 291 754,077	9 646 842,912	34,285
178	31D - 18	123 47' 11"	56 12' 49" SE	311,810	259,150	-173,397	18 291 677,290	9 646 894,290	37,606
179	31D - 19	123 47' 11"	56 12' 49" SE	199,890	166,132	-111,158	19 291 584,272	9 646 956,529	38,278
180	31D - 20	136 28' 21"	43 31' 39" SE	486,810	335,267	-352,959	20 291 753,407	9 646 714,728	32,809
181	31D - 21	136 28' 21"	43 31' 39" SE	418,910	288,504	-303,728	21 291 706,644	9 646 763,959	34,753
182	31D - 22	136 28' 21"	43 31' 39" SE	283,900	195,523	-205,840	22 291 613,663	9 646 861,847	38,658
183	31D - 23	136 28' 21"	43 31' 39" SE	197,800	136,225	-143,414	23 291 554,365	9 646 924,273	39,150
184	31D - 114	43 18' 36"	43 18' 36" NE	102,340	70,200	74,468	114 291 488,340	9 647 142,155	42,001
185	31D - 115	41 49' 31"	41 49' 31" NE	203,070	135,420	151,324	115 291 553,560	9 647 219,011	45,299
186	31D - 116	41 51' 41"	41 51' 41" NE	477,650	318,751	355,735	116 291 736,891	9 647 423,422	46,907
187	31E - 31F	184.11' 31"	4 11' 31" SW	188,493	-7,931	-108,203	31F 291.544,127	9 646.567,498	50,617
188	31E - 1	88 49' 36"	88 49' 36" NE	441,810	441,717	9,047	1 291 993,775	9 646 684,748	41,705
189	31E - 2	88 49' 36"	88 49' 36" NE	342,890	342,818	7,021	2 291 894,878	9 646 682,722	38,513
190	31E - 3	88 49' 36"	88 49' 36" NE	153,810	153,778	3,150	3 291 705,836	9 646 678,851	38,630
191	31E - 4	102 39' 01"	77 20' 59" SE	403,900	394,095	-88,454	4 291 946,153	9 646 587,247	43,020
192	31E - 5	102 39' 01"	77 20' 59" SE	307,810	300,338	-67,410	5 291 852,396	9 646 608,291	38,144
193	31E - 6	102 39' 01"	77 20' 59" SE	223,710	218,279	-48,992	6 291 770,337	9 646 626,709	31,892
194	31E - 7	102 39' 01"	77 20' 59" SE	132,490	129,274	-29,015	7 291 681,332	9 646 646,686	38,467
195	31E - 8	124 33' 56"	55 26' 04" SE	467,500	384,976	-265,236	8 291 937,034	9 646 410,465	47,030
196	31E - 9	124 33' 56"	55 26' 04" SE	379,810	312,765	-215,485	9 291 864,823	9 646 460,216	41,567
197	31E - 10	124 33' 56"	55 26' 04" SE	281,700	231,974	-159,822	10 291 784,032	9 646 515,879	37,103
198	31E - 11	124 33' 56"	55 26' 04" SE	186,900	153,908	-106,037	11 291 705,966	9 646 569,664	33,102
199	31E - 12	142 57' 06"	37 02' 54" SE	436,810	263,173	-348,630	12 291 815,231	9 646 327,071	42,993
200	31E - 13	142 57' 06"	37 02' 54" SE	389,180	234,476	-310,615	13 291 786,534	9 646 365,086	39,735

Relatório das coordenadas de todos os pontos.

Imóvel BAARAGEN

Local GANGORRA

Interessado ENGESOFT

Proprietário GOV ESTADO

Data :24/07/96

IN DICE	ALINHAMENTO		AZIMUTE			DISTÂNCIA		LONG PARC X (E+,W-)	LAT PARC Y (N+,S-)	P V	COORD E (X)		COORD N (Y)		COORD (Z) DO PONTO
	EST	P V	COMPENSADO	R U M O	Q D	HORIZONTAL	TOT				COMPENS	TOT	COMPENS		
201	31E	- 14	142 57'06"	37 02'54"	SE	287,150	173,005	-229,182	14	291 725,063	9 646 446,519	34,058			
202	31E	- 15	142 57'06"	37 02'54"	SE	189,710	114,298	-151,413	15	291 666,356	9 646 524,288	33,291			
203	31E	- 117	340 07'36"	19 52'24"	NW	327,050	-111,178	307,573	117	291 440,880	9 646 983,274	43,235			
204	31E	- 118	341 04'21"	18 55'39"	NW	152,780	-49,557	144,519	118	291 502,501	9 646 820,220	38,852			
205	31E	- 119	319 39'31"	40 20'29"	NW	160,350	-103,801	122,219	119	291 448,257	9 646 797,920	40,749			
206	31F	- 31G	182.26'06"	2.26'06"	SW	48,548	-2,063	-48,504	31G	291.542,064	9.646.518,994	49,279			
207	31G	-	2 26'06"	2.26'06"	NE	0,000	0,000	0,000		291 542,064	9 646.518,994	50,724			
208	31G	- 120	296 55'26"	63 04'34"	NW	52,100	-46,453	23,591	120	291 495,611	9 646 542,585	41,291			
209	31G	- 121	316 49'31"	43 10'29"	NW	96,230	-65,843	70,178	121	291 476,221	9 646 589,172	45,053			
210	31G	- 122	288 19'46"	71 40'14"	NW	137,370	-130,400	43,200	122	291 411,664	9 646 562,194	38,148			
211	31G	- 123	301 01'41"	58 58'19"	NW	183,540	-157,278	94,607	123	291 384,786	9 646 613,601	41,279			
212	31G	- 124	286 19'26"	73 40'34"	NW	225,650	-216,554	63,423	124	291 325,510	9 646 582,417	39,894			
213	31G	- 125	293 25'36"	66 34'24"	NW	246,710	-226,374	98,086	125	291 315,690	9 646 617,080	42,155			
214	31G	- 126	277 22'11"	82 37'49"	NW	261,700	-259,538	33,569	126	291 282,526	9 646 552,563	41,976			
215	31G	- 127	256 10'11"	76 10'11"	SW	267,510	-259,754	-63,947	127	291 282,310	9 646 455,047	35,924			
216	31G	- 128	259 13'01"	79 13'01"	SW	359,710	-353,358	-67,298	128	291 188,706	9 646 451,696	36,934			
217	31G	- GROT	264 24'46"	84 24'46"	SW	436,370	-434,297	-42,485	GROT	291 107,767	9 646 476,509	37,379			
218	31G	- GROT	264 57'01"	84 57'01"	SW	559,670	-557,498	-49,262	GROT	290 984,566	9 646 469,732	39,331			
219	31G	- 131	265 21'16"	85 21'16"	SW	666,870	-664,679	-54,011	131	290 877,385	9 646 464,983	40,684			
220	31G	- 132	260 57'21"	80 57'21"	SW	693,690	-685,066	-109,045	132	290 856,998	9 646 409,949	42,238			
221	31G	- 133	271 55'06"	88 04'54"	NW	682,820	-682,437	22,857	133	290 859,627	9 646 541,851	41,985			
222	31G	- 134	261 08'56"	81 08'56"	SW	486,760	-480,963	-74,896	134	291 061,101	9 646 444,098	41,534			
223	31G	- 135	250 53'46"	70 53'46"	SW	398,970	-376,997	-130,576	135	291 165,067	9 646 388,418	37,775			
224	31G	- 136	250 27'06"	70 27'06"	SW	450,700	-424,721	-150,805	136	291 117,343	9 646 368,189	39,514			
225	31G	- 137	276 24'46"	83 35'14"	NW	306,980	-305,059	34,287	137	291 237,005	9 646 553,281	42,440			
226	31G	- 138	251 03'01"	71 03'01"	SW	474,070	-448,377	-153,949	138	291 093,687	9 646 365,045	41,029			
227	31G	- 139	237 30'16"	57 30'16"	SW	310,190	-261,625	-166,645	139	291 280,439	9 646 352,349	38,682			
228	31G	- 140	238 57'06"	58 57'06"	SW	322,210	-276,048	-166,183	140	291 266,016	9 646 352,811	40,816			
229	31G	- 141	249 50'51"	69 50'51"	SW	72,340	-67,911	-24,923	141	291 474,153	9 646 494,071	37,031			
230	31G	- 142	225 56'51"	45 56'51"	SW	341,080	-245,135	-237,159	142	291 296,929	9 646 281,835	44,226			
231	31G	- 143	221 14'46"	41 14'46"	SW	239,220	-157,716	-179,866	143	291 384,348	9 646 339,128	40,826			
232	31G	- 144	198 20'16"	18 20'16"	SW	155,210	-48,832	-147,328	144	291 493,232	9 646 371,666	38,746			
233	31G	- 145	195 41'06"	15 41'06"	SW	177,510	-47,990	-170,900	145	291 494,074	9 646 348,094	43,122			
234	31G	- GROT	190 03'51"	10 03'51"	SW	123,460	-21,575	-121,560	GROT	291 520,489	9 646 397,434	32,696			
235	31G	- RIAC	175 43'46"	4 16'14"	SE	255,600	19,034	-254,890	RIAC	291 561,098	9 646 264,104	34,716			
236	31G	- RIAC	170 31'31"	9 28'29"	SE	420,120	69,157	-414,389	RIAC	291 611,221	9 646 104,605	32,164			
237	31G	- RIAC	164 23'31"	15 36'29"	SE	625,750	168,361	-602,675	RIAC	291 710,425	9 645 916,319	34,872			
238	31G	- 150	187 22'11"	7 22'11"	SW	165,960	-21,288	-164,589	150	291 520,776	9 646 354,405	40,204			
239	31G	- 151	174 34'01"	5 25'59"	SE	186,720	17,679	-185,881	151	291 559,743	9 646 333,113	38,146			
240	31G	- 152	159 48'51"	20 11'09"	SE	198,680	68,558	-186,477	152	291 610,622	9 646 332,517	33,172			
241	31G	- 153	146 44'51"	33 15'09"	SE	350,340	192,102	-292,976	153	291 734,166	9 646 226,018	37,315			
242	31G	- 154	132 05'46"	47 54'14"	SE	414,740	307,746	-278,032	154	291 849,810	9 646 240,962	44,599			

 Maior Coord (X) 292 572,419 Menor Coord (X) 290 856,998 Maior Coord (Y) 9 648 931,348 Menor Coord (Y) 9 645 916,319

 - TopoEVN 3 0 - Sistema para processamento de Levantamentos Topográficos Arquivo NOVO12 23/08/96 13 38 06

000090

Relatório das coordenadas de todos os pontos.

Pg: 1/6

Imóvel GRANJA

Local GRANJA

Interessado.. ENGESOFT

Proprietário.. GOVERNO DO ESTADO

Data 22/07/96

IN DICE	ALINHAMENTO EST P V	AZIMUTE COMPENSADO	R U M O QD	DISTÂNCIA HORIZONTAL	LONG X	PARC (E+,W-)	LAT Y	PARC (N+,S-)	P V	COORD E (X) TOT COMPENS	COORD N (Y) TOT COMPENS	COORD (Z) DO PONTO
1	- E28	188.12'26"	8.12'26" SW	0,000	0,000		0,000	E28	289.708,982	9.649.227,512	45,931	
2	E28 - 28-A	213.33'06"	33.33'06" SW	474,210	-262,091		-395,201	28-A	289.446,891	9.648.832,311	40,313	
3	E28A - 28-B	240.22'16"	60.22'16" SW	374,838	-325,826		-185,312	28-B	289.121,065	9.648.646,999	40,169	
4	E28B - 28-C	283.27'26"	76.32'34" NW	490,826	-477,350		114,225	28-C	288.643,715	9.648.761,224	48,309	
5	28B - 25	208 57'21"	28 57'21" SW	125,130	-60,580		-109,488	25	289 060,485	9 648 537,511	37,141	
6	28B - 24	208 57'21"	28 57'21" SW	246,330	-119,257		-215,537	24	289 001,808	9 648 431,462	34,076	
7	28B - 23	208 57'21"	28 57'21" SW	364,240	-176,341		-318,708	23	288 944,724	9 648 328,291	32,924	
8	28B - 22	208 57'21"	28 57'21" SW	493,710	-239,022		-431,993	22	288 882,043	9 648 215,006	35,017	
9	28B - 21	208 57'21"	28 57'21" SW	37,420	-18,116		-32,742	21	289 102,949	9 648 614,257	36,169	
10	28B - 20	208 57'21"	28 57'21" SW	731,820	-354,300		-640,337	20	288 766,765	9 648 006,662	42 747	
11	28B - 19	197 20'41"	17 20'41" SW	385,410	-114,898		-367,885	19	289 006,167	9 648 279,114	32,123	
12	28B - 18	197 20'41"	17 20'41" SW	555,820	-165,701		-530,546	18	288 955,364	9 648 116,453	38,479	
13	28B - 17	197 20'41"	17 20'41" SW	657,230	-195,933		-627,345	17	288 925,132	9 648 019,654	41,161	
14	28B - 16	182 13'26"	2 13'26" SW	132,290	-5,133		-132,190	16	289 115,932	9 648 514,809	37,146	
15	28B - 15	182 13'26"	2 13'26" SW	241,180	-9,359		-240,998	15	289 111,706	9 648 406,001	35,141	
16	28B - 14	182 13'26"	2 13'26" SW	369,520	-14,339		-369,242	14	289 106,726	9 648 277,757	31,956	
17	28B - 13	182 07'26"	2 07'26" SW	493,120	-18,275		-492,781	13	289 102,790	9 648 154,218	37,074	
18	28B - 12	182 13'26"	2 13'26" SW	628,150	-24,375		-627,677	12	289 096,690	9 648 019,322	41,941	
19	28B - 11	162 07'31"	17 52'29" SE	147,130	45,160		-140,028	11	289 166,225	9 648 506,971	36,711	
20	28B - 10	162 07'31"	17 52'29" SE	246,010	75,510		-234,135	10	289 196,575	9 648 412,864	33,554	
21	28B - 9	162 07'31"	17 52'29" SE	381,000	116,943		-362,609	9	289 238,008	9 648 284,390	32,686	
22	28B - 8	162 07'31"	17 52'29" SE	493,020	151,326		-469,222	8	289 272,391	9 648 177,777	37,361	
23	28B - 7	162 07'31"	17 52'29" SE	680,030	208,726		-647,205	7	289 329,791	9 647 999,794	43,611	
24	28B - 6	142 47'46"	37 12'14" SE	225,000	136,047		-179,210	6	289 257,112	9 648 467,789	33,389	
25	28B - 5	142 47'46"	37 12'14" SE	315,080	190,514		-250,958	5	289 311,579	9 648 396,041	32,649	
26	28B - 4	142 47'46"	37 12'14" SE	420,100	254,015		-334,605	4	289 375,080	9 648 312,394	34,862	
27	28B - 3	142 47'46"	37 12'14" SE	550,050	332,589		-438,109	3	289 453,654	9 648 208,890	35,574	
28	28B - 2	142 47'46"	37 12'14" SE	625,000	377,908		-497,806	2	289 498,973	9 648 149,193	38,776	
29	28B - 1	142 47'46"	37 12'14" SE	825,000	498,839		-657,103	1	289 619,904	9 647 989,896	41,594	
30	E28C - 28D	253 17'26"	73.17'26" SW	944,884	-904,986		-271,672	28D	287.738,729	9.648.489,552	45,982	
31	E28C - 1	115 52'11"	64 07'49" SE	65,690	59,107		-28,662	1	288 702,822	9 648 732,562	41,634	
32	E28C - 2	126 28'21"	53 31'39" SE	112,510	90,474		-66,880	2	288 734,189	9 648 694,344	39,787	
33	E28C - 3	93 39'26"	86 20'34" SE	145,210	144,914		-9,263	3	288 788,629	9 648 751,961	39,924	
34	E28C - 4	116 04'01"	63 55'59" SE	192,170	172,623		-84,444	4	288 816,338	9 648 676,780	37,671	
35	E28C - 5	93 31'36"	86 28'24" SE	251,210	250,734		-15,453	5	288 894,449	9 648 745,771	39,441	
36	E28C - 6	120 20'46"	59 39'14" SE	320,690	276,752		-162,020	6	288 920,467	9 648 599,204	36,827	
37	E28C - 7	91 11'36"	88 48'24" SE	375,710	375,629		-7,825	7	289 019,344	9 648 753,399	38,875	
38	E28C - CER	89 47'36"	89 47'36" NE	438,730	438,727		1,583	CER	289 082,442	9 648 762,807	38,987	
39	E28C - CER	87 10'11"	87 10'11" NE	527,820	527,176		26,062	CER	289 170,891	9 648 787,286	40,456	
40	E28C - CER	105 20'26"	74 39'34" SE	540,110	520,866		-142,889	CER	289 164,581	9 648 618,335	38,982	
41	E28C - 11	110 21'21"	69 38'39" SE	587,510	550,820		-204,365	11	289 194,535	9 648 556,859	37,601	
42	E28C - 12	125 47'01"	54 12'59" SE	543,790	441,139		-317,968	12	289 084,854	9 648 443,256	36,231	
43	28C - 1	213 38'41"	33 38'41" SW	864,330	-478,875		-719,545	1	288 164,840	9 648 041,679	41,121	
44	28C - 2	213 38'41"	33 38'41" SW	709,210	-392,932		-590,410	2	288 250,783	9 648 170,814	37,813	
45	28C - 3	213 38'41"	33 38'41" SW	863,430	-478,376		-718,796	3	288 165,339	9 648 042,428	42,589	
46	28C - 4	181 40'36"	1 40'36" SW	769,540	-22,516		-769,211	4	288 621,199	9 647 992,013	43,012	
47	28C - 5	181 40'36"	1 40'36" SW	654,290	-19,144		-654,010	5	288 624,571	9 648 107,214	37,169	
48	E28C - 13	143 44'21"	36 15'39" SE	645,280	381,659		-520,310	13	289 025,374	9 648 240,914	31,965	
49	E28C - 14	136 40'01"	43 19'59" SE	427,780	293,559		-311,157	14	288 937,274	9 648 450,067	33,785	
50	E28C - 15	139 20'36"	40 39'24" SE	392,560	255,763		-297,807	15	288 899,478	9 648 463,417	34,649	

Relatório das coordenadas de todos os pontos.

Pg: 2/6

Imóvel **GRANJA**

Local **GRANJA**

Interessado **ENGESOFT**

Proprietário **GOVERNO DO ESTADO**

Data **22/07/96**

IN DICE	ALINHAMENTO		AZIMUTE		DISTÂNCIA		LONG PARC X (E+,W-)	LAT PARC Y (N+,S-)	COORD E (X)		COORD N (Y)		COORD (Z) DO PONTO
	EST	P V	COMPENSADO	R U M O	HORIZONTAL	QD			TOT	COMPENS	TOT	COMPENS	
51	E28C	- 16	133 09'36"	46 50'24" SE	319,040		232,723	-218,235	16	288 876,438	9 648 542,989	36,795	
52	E28C	- 17	142 10'56"	37 49'04" SE	295,940		181,456	-233,782	17	288 825,171	9 648 527,442	37,745	
53	E28C	- 18	133 00'16"	46 59'44" SE	214,210		156,652	-146,103	18	288 800,367	9 648 615,121	36,244	
54	E28C	- 19	120 08'11"	59 51'49" SE	136,120		117,721	-68,340	19	288 761,436	9 648 692,884	39,654	
55	E28C	- 20	152 13'56"	27 46'04" SE	116,500		54,276	-103,084	20	288 697,991	9 648 658,140	38,718	
56	E28C	- 21	131 01'51"	48 58'09" SE	65,910		49,720	-43,268	21	288 693,435	9 648 717,956	41,380	
57	E28C	- 22	169 11'31"	10 48'29" SE	60,300		11,307	-59,230	22	288 655,022	9 648 701,994	41,229	
58	E28C	- 23	178 24'56"	1 35'04" SE	72,890		2,015	-72,862	23	288 645,730	9 648 688,362	40,575	
59	E28C	- 24	195 22'06"	15 22'06" SW	83,460		-22,119	-80,476	24	288 621,596	9 648 680,748	40,211	
60	E28C	- 25	172 15'16"	7 44'44" SE	152,150		20,506	-150,762	25	288 664,221	9 648 610,462	37,657	
61	E28C	- 26	193 01'51"	13 01'51" SW	149,530		-33,715	-145,679	26	288 610,000	9 648 615,545	38,480	
62	E28C	- CAS	199 25'01"	19 25'01" SW	251,680		-83,669	-237,366	CAS	288 560,046	9 648 523,858	37,265	
63	E28C	- 28	182 19'41"	2 19'41" SW	300,510		-12,207	-300,262	28	288 631,508	9 648 460,962	34,905	
64	E28C	- 29	197 22'36"	17 22'36" SW	349,150		-104,274	-333,216	29	288 539,441	9 648 428,008	35,752	
65	E28C	- 30	196 35'51"	16 35'51" SW	466,460		-133,243	-447,025	30	288 510,472	9 648 314,199	32,846	
66	E28C	- 31	182 30'56"	2 30'56" SW	410,990		-18,039	-410,594	31	288 625,676	9 648 350,630	32,776	
67	E28C	- BR	182 04'26"	2 04'26" SW	401,310		-17,418	-480,995	BR	288 626,297	9 648 280,229	33,163	
68	E28C	- 33	181 52'26"	1 52'26" SW	573,150		-18,742	-572,843	33	288 624,973	9 648 188,381	33,982	
69	E28C	- 34	215 56'56"	35 56'56" SW	637,530		-374,270	-516,107	34	288 269,445	9 648 245,117	34,569	
70	E28C	- 35	213 52'06"	33 52'06" SW	448,300		-249,831	-372,233	35	288 393,884	9 648 388,991	34,363	
71	E28C	- 35	213 43'31"	33 43'31" SW	553,980		-307,576	-460,750	35	288 336,139	9 648 300,474	34,390	
72	E28C	- 36	214 13'41"	34 13'41" SW	314,050		-176,649	-259,658	36	288 467,066	9 648 501,566	36,149	
73	E28C	- 37	216 15'46"	36 15'46" SW	248,480		-146,973	-200,353	37	288 496,742	9 648 560,871	37,678	
74	E28C	- 38	223 32'56"	43 32'56" SW	270,710		-186,512	-196,207	38	288 457,203	9 648 565,017	38 857	
75	E28C	- 39	216 24'51"	36 24'51" SW	185,920		-110,365	-149,619	39	288 533,350	9 648 611,605	37,498	
76	E28C	- 40	229 34'31"	49 34'31" SW	200,880		-152,922	-130,260	40	288 490,793	9 648 630,964	37,971	
77	E28C	- 41	218 46'26"	38 46'26" SW	105,240		-65,906	-82,048	41	288 577,809	9 648 679,176	39,817	
78	E28C	- 42	225 11'36"	45 11'36" SW	50,140		-35,574	-35,334	42	288 608,141	9 648 725,890	42,163	
79	E28C	- 43	254 24'21"	74 24'21" SW	129,950		-125,167	-34,933	43	288 518,548	9 648 726,291	39,729	
80	E28D	- 28E	246.42'11"	66.42'11" SW	695,503		-638,797	-275,069	28E	287.099,932	9.648.214,483	53,814	
81	E28D	- 1	80 09'41"	80 09'41" NR	76,240		75,119	13,027	1	287 813,848	9 648 502,579	37,106	
82	E28D	- 2	119 58'01"	60 01'59" SE	87,290		75,621	-43,601	2	287 814,350	9 648 445,951	36,732	
83	E28D	- 3	93 36'01"	86 23'59" SE	156,990		156,680	-9,858	3	287 895,409	9 648 479,694	36,336	
84	E28D	- 4	117 31'16"	62 28'44" SE	205,190		181,971	-94,813	4	287 920,700	9 648 394,739	35,135	
85	E28D	- 5	97 18'56"	82 41'04" SE	260,220		258,102	-33,135	5	287 996,831	9 648 456,417	35,902	
86	E28D	- 6	113 51'51"	66 08'09" SE	280,720		256,720	-113,571	6	287 995,449	9 648 375,981	34,986	
87	E28D	- 7	98 14'21"	81 45'39" SE	351,240		347,615	-50,335	7	288 086,344	9 648 439,217	34,278	
88	E28D	- 8	114 25'21"	65 34'39" SE	368,630		335,645	-152,415	8	288 074,374	9 648 337,137	34,195	
89	E28D	- RIO	100 03'56"	79 56'04" SE	357,360		351,860	-62,458	RIO	288 090,589	9 648 427,094	33,862	
90	E28D	- 10	99 09'26"	80 50'34" SE	444,340		438,677	-70,714	10	288 177,406	9 648 418,838	37,612	
91	E28D	- 11	107 48'46"	72 11'14" SE	433,400		412,623	-132,580	11	288 151,352	9 648 356,972	35,266	
92	E28D	- 12	97 45'11"	82 14'49" SE	505,370		500,750	-68,176	12	288 239,479	9 648 421,376	37,131	
93	E28D	- 13	103 26'56"	76 33'04" SE	499,590		485,890	-116,194	13	288 224,619	9 648 373,358	36,712	
94	E28D	- 14	116 23'36"	63 36'24" SE	479,190		429,241	-213,015	14	288 167,970	9 648 276,537	36,290	
95	E28D	- BRIO	117 53'11"	62 06'49" SE	415,710		367,436	-194,436	BRIO	288 106,165	9 648 295,116	34,048	
96	E28D	- 16	125 42'41"	54 17'19" SE	430,750		349,755	-251,430	16	288 088,484	9 648 238,122	33,509	
97	E28D	- 17	121 44'21"	58 15'39" SE	340,100		289,239	-178,911	17	288 027,968	9 648 310,641	34,333	
98	28D	- 1	186 27'31"	6 27'31" SW	369,270		-41,538	-366,926	1	287 697,191	9 648 122,626	33,155	
99	28D	- 2	186 27'31"	6 27'31" SW	238,820		-26,864	-237,304	2	287 711,865	9 648 252,248	31,126	
100	28D	- 3	186 27'31"	6 27'31" SW	147,630		-16,606	-146,693	3	287 722,123	9 648 342,859	32,293	

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Relatório das coordenadas de todos os pontos.

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Proprietário GOVERNO DO ESTADO

Data 22/07/96

IN DICE	ALINHAMENTO EST. P V	AZIMUTE		DISTÂNCIA HORIZONTAL	LONG PARC X (E+,W-)	LAT PARC Y (N+.,S-)	COORD E (X) TOT	COORD N (Y) TOT	COORD (Z) DO PONTO
		COMPENSADO	R U M O QD						
101	28D - 4	227 00'41"	47 00'41" SW	272,230	-199,133	-185,621	4 287 539,596	9 648 303,931	34,943
102	28D - 5	227 00'41"	47 00'41" SW	194,430	-142,223	-132,573	5 287 596,506	9 648 356,979	33,538
103	28D - 6	227 00'41"	47 00'41" SW	115,460	-84,458	-78,727	6 287 654,271	9 648 410,825	34,105
104	28D - 7	264 42'41"	84 42'41" SW	297,180	-295,915	-27,392	7 287 442,814	9 648 462,160	37,798
105	28D - 8	264 42'41"	84 42'41" SW	173,420	-172,682	-15,985	8 287 566,047	9 648 473,567	34,946
106	28D - 9	264 42'41"	84 42'41" SW	82,560	-82,209	-7,610	9 287 656,520	9 648 481,942	34,414
107	E28D - 18	128 50'41"	51 09'19" SE	357,800	278,672	-224,416	18 288 017,401	9 648 265,136	33,861
108	E28D - 19	122 00'26"	57 59'34" SE	255,820	216,931	-135,591	19 287 955,660	9 648 353,961	34,698
109	E28D - 20	133 59'01"	46 00'59" SE	254,110	182,842	-176,467	20 287 921,571	9 648 313,085	34,227
110	E28D - 21	124 51'31"	55 08'29" SE	143,670	117,891	-82,115	21 287 856,620	9 648 407,437	35,953
111	E28D - 22	143 20'41"	36 39'19" SE	192,160	114,719	-154,159	22 287 853,448	9 648 335,393	35,200
112	E28D - 23	127 26'36"	52 33'24" SE	76,420	60,674	-46,462	23 287 799,403	9 648 443,090	36,861
113	E28D - 24	157 26'41"	22 33'19" SE	110,770	42,489	-102,297	24 287 781,218	9 648 387,255	36,576
114	E28D - 25	158 52'51"	21 07'09" SE	61,840	22,282	-57,686	25 287 761,011	9 648 431,866	37,328
115	E28D - 26	157 42'46"	22 17'14" SE	193,370	73,336	-178,924	26 287 812,065	9 648 310,628	35,257
116	E28D - 27	171 57'21"	8 02'39" SE	157,690	22,067	-156,138	27 287 760,796	9 648 333,414	36,120
117	E28D - RIO	159 26'21"	20 33'39" SE	237,750	83,498	-222,605	RIO 287 822,227	9 648 266,947	33,428
118	E28D - 29	172 24'31"	7 35'29" SE	213,410	28,193	-211,540	29 287 766,922	9 648 278,012	34,311
119	E28D - 30	167 19'01"	12 40'59" SE	342,890	75,284	-334,523	30 287 814,013	9 648 155,029	34,788
120	E28D - 31	170 51'26"	9 08'34" SE	405,710	64,465	-400,556	31 287 803,194	9 648 088,996	37,046
121	E28D - 32	176 12'11"	3 47'49" SE	392,240	25,974	-391,379	32 287 764,703	9 648 098,173	36,156
122	E28D - 33	170 11'56"	9 48'04" SE	485,530	82,651	-478,443	33 287 821,380	9 648 011,109	41,196
123	E28D - 34	180 40'31"	0 40'31" SE	443,840	-5,231	-443,809	34 287 733,498	9 648 045,743	36,853
124	E28D - 35	181 48'56"	1 48'56" SW	591,290	-18,733	-590,993	35 287 719,996	9 647 898,559	41,465
125	E28D - 36	195 11'51"	15 11'51" SW	599,330	-157,113	-578,370	36 287 581,616	9 647 911,182	41,258
126	E28D - 37	196 51'26"	16 51'26" SW	573,640	-166,349	-548,991	37 287 572,380	9 647 940,561	40,417
127	E28D - 38	200 06'11"	20 06'11" SW	472,170	-162,289	-443,403	38 287 576,440	9 648 046,149	38,521
128	E28D - 39	192 53'06"	12 53'06" SW	468,960	-104,576	-457,151	39 287 634,153	9 648 032,401	37,952
129	E28D - 40	199 19'21"	19 19'21" SW	328,230	-108,606	-309,741	40 287 630,123	9 648 179,811	39,319
130	E28D - 41	212 39'46"	32 39'46" SW	88,350	-47,682	-74,378	41 287 691,047	9 648 415,174	38,317
131	E28D - 42	192 45'16"	12 45'16" SW	88,800	-19,605	-86,609	42 287 719,124	9 648 402,943	37,649
132	E28D - 43	214 28'26"	34 28'26" SW	39,310	-22,251	-32,407	43 287 716,478	9 648 457,145	39,272
133	E28D - 44	169 05'06"	10 54'54" SE	27,810	5,266	-27,307	44 287 743,995	9 648 462,245	37,901
134	E28D - 45	315 22'01"	44 37'59" NW	74,930	-52,643	53,322	45 287 686,086	9 648 542,874	38,826
135	E28D - 46	313 12'21"	46 47'39" NW	170,760	-124,467	116,906	46 287 614,262	9 648 606,458	40,185
136	E28D - est	308 14'11"	51 45'49" NW	276,440	-217,134	171,091	est 287 521,595	9 648 660,643	41,979
137	E28D - 48	326 43'06"	33 16'54" NW	299,130	-164,149	250,068	48 287 574,580	9 648 739,620	41,839
138	E28D - 49	328 25'06"	31 34'54" NW	209,940	-109,948	178,847	49 287 628,781	9 648 668,399	40,532
139	E28D - 50	332 22'36"	27 37'24" NW	133,090	-61,708	117,920	50 287 677,021	9 648 607,472	39,457
140	E28D - 51	338 29'11"	21 30'49" NW	14,060	-5,156	13,080	51 287 733,573	9 648 502,632	38,005
141	E28D - 52	3 08'51"	3 08'51" NE	88,340	4,850	88,207	52 287 743,579	9 648 577,759	38,506
142	E28D - 53	343 33'16"	16 26'44" NW	82,260	-23,288	78,895	53 287 715,441	9 648 568,447	38,669
143	E28D - 54	4 10'21"	4 10'21" NE	166,530	12,117	166,089	54 287 750,846	9 648 655,641	38,851
144	E28D - 55	348 58'46"	11 01'14" NW	171,280	-32,742	168,121	55 287 705,987	9 648 657,673	39,338
145	E28D - 56	0 00'46"	0 00'46" NE	267,180	0,060	267,180	56 287 738,789	9 648 756,732	39,475
146	E28D - 57	349 15'36"	10 44'24" NW	274,820	-51,213	270,006	57 287 687,516	9 648 759,558	40,267
147	E28D - 58	356 10'51"	3 49'09" NW	351,940	-23,442	351,158	58 287 715,287	9 648 840,710	41,142
148	E28D - 59	347 10'01"	12 49'59" NW	376,780	-83,687	367,369	59 287 655,042	9 648 856,921	41,640
149	E28D - est	8 45'56"	8 45'56" NE	486,690	74,168	481,006	est 287 812,897	9 648 970,558	39,440
150	E28D - 61	14 25'11"	14 25'11" NE	490,140	122,056	474,699	61 287 860,785	9 648 964,251	40,053

Relatório das coordenadas de todos os pontos.

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Data 22/07/96

IN DICE	ALINHAMEN		AZIMUTE		DISTÂNCIA HORIZONTAL	LONG X	PARC (E+,W-)	LAT Y	PARC (N+,S-)	P V	COORD B (X)		COORD N (Y)		COORD (Z) DO PONTO
	EST	P V	COMPENSADO	R U M O							TOT	COMPENS	TOT	COMPENS	
151	E28D	- 62	10 06' 21"	10 06' 21" NE	595,690	104,524	586,448	62	287 843,253		9 649 076,000		41,440		
152	E28D	- est	15 36' 11"	15 36' 11" NE	567,360	152,603	546,452	est	287 891,332		9 649 036,004		41,460		
153	E28D	- brio	8 08' 36"	8 08' 36" NE	394,350	55,860	390,374	brio	287 794,589		9 648 879,926		38,236		
154	E28D	- 65	6 49' 26"	6 49' 26" NE	290,710	34,542	288,651	65	287 773,271		9 648 778,203		38,716		
155	E28D	- 66	13 18' 06"	13 18' 06" NE	205,970	47,389	200,444	66	287 786,118		9 648 689,996		39,013		
156	E28D	- 67	25 51' 46"	25 51' 46" NE	259,120	113,033	233,167	67	287 851,762		9 648 722,719		38,322		
157	E28D	- 68	10 12' 11"	10 12' 11" NE	148,910	26,378	146,555	68	287 765,107		9 648 636,107		38,545		
158	E28D	- 69	34 09' 11"	34 09' 11" NE	183,170	102,833	151,581	69	287 841,562		9 648 641,133		38,257		
159	E28D	- 70	19 19' 56"	19 19' 56" NE	60,400	19,995	56,994	70	287 758,724		9 648 546,546		38,012		
160	E28D	- 71	53 46' 11"	53 46' 11" NE	86,330	69,638	51,024	71	287 808,367		9 648 540,576		37,767		
161	E28D	- 72	57 31' 16"	57 31' 16" NE	221,750	187,066	119,077	72	287 925,795		9 648 608,629		37,746		
162	E28D	- 73	57 33' 56"	57 33' 56" NE	281,650	237,714	151,059	73	287 976,443		9 648 640,611		36,943		
163	E28D	- 74	70 33' 56"	70 33' 56" NE	265,470	250,344	88,329	74	287 989,073		9 648 577,881		36,864		
164	E28D	- 75	69 07' 51"	69 07' 51" NE	339,180	316,929	120,828	75	288 055,658		9 648 610,380		35,856		
165	E28D	- 76	67 45' 31"	67 45' 31" NE	389,240	360,280	147,331	76	288 099,009		9 648 636,883		35,659		
166	E28D	- 77	351 36' 36"	8 23' 24" NW	489,240	-71,385	484,004	77	287 667,344		9 648 973,556		38,914		
167	E28D	- l-ri	343 28' 41"	16 31' 19" NW	555,910	-158,091	532,957	l-ri	287 580,638		9 649 022,509		39,872		
168	E28D	- 79	348 22' 51"	11 37' 09" NW	643,490	-129,602	630,304	79	287 609,127		9 649 119,856		42,873		
169	E28D	- 80	354 36' 06"	5 23' 54" NW	632,890	-59,542	630,083	80	287 679,187		9 649 119,635		41,521		
170	E28D	- 81	10 04' 31"	10 04' 31" NE	691,320	120,941	680,659	81	287 859,670		9 649 170,211		42,982		
171	E28D	- 82	20 15' 51"	20 15' 51" NE	632,770	219,159	593,605	82	287 957,888		9 649 083,157		43,623		
172	E28D	- 83	25 51' 46"	25 51' 46" NE	555,700	242,406	500,042	83	287 981,135		9 648 989,594		43,664		
173	E28D	- 84	36 34' 31"	36 34' 31" NE	494,240	294,507	396,912	84	288 033,236		9 648 886,464		43,189		
174	E28D	- 85	48 50' 31"	48 50' 31" NE	450,490	339,173	296,485	85	288 077,902		9 648 786,037		38,266		
175	E28D	- 86	61 05' 31"	61 05' 31" NE	656,490	574,689	317,351	86	288 313,418		9 648 806,903		39,344		
176	E28D	- 87	71 10' 26"	71 10' 26" NE	600,040	567,939	193,631	87	288 306,668		9 648 683,183		39,779		
177	E28E	- 28F	244 09' 41"	64 09' 41" SW	767,650	-690,904	-334,571	28F	286 409,028		9 647 879,912		57,152		
178	E28E	- 1	135 28' 16"	44 31' 44" SE	48,170	33,780	-34,340	1	287 133,712		9 648 180,143		38,988		
179	E28E	- 2	138 15' 06"	41 44' 54" SE	148,550	98,913	-110,830	2	287 198,845		9 648 103 653		37,529		
180	E28E	- 3	150 23' 16"	29 36' 44" SE	230,900	114,094	-200,742	3	287 214,026		9 648 013,741		34,705		
181	E28E	- 4	151 52' 11"	28 07' 49" SE	449,630	211,991	-396,519	4	287 311,923		9 647 817,964		38,783		
182	E28E	- 5	157 31' 46"	22 28' 14" SE	480,450	183,632	-443,972	5	287 283,564		9 647 770,511		42,948		
183	E28E	- 6	172 43' 41"	7 16' 19" SE	538,300	68,137	-533,970	6	287 168,069		9 647 680,513		43,455		
184	28E	- 1	87 39' 31"	87 39' 31" NE	527,480	527,040	21,549	1	287 626,972		9 648 236,032		38,763		
185	28E	- 2	87 39' 31"	87 39' 31" NE	439,520	439,153	17,956	2	287 539,085		9 648 232,439		39,857		
186	28E	- 3	87 39' 31"	87 39' 31" NE	343,340	343,053	14,027	3	287 442,985		9 648 228,510		41,422		
187	28E	- 5	87 39' 31"	87 39' 31" NE	164,150	164,013	6,706	5	287 263,945		9 648 221,189		40,773		
188	28E	- 6	102 13' 36"	77 46' 24" SE	497,290	486,010	-105,316	6	287 585,942		9 648 109,167		34,695		
189	28E	- 7	102 13' 36"	77 46' 24" SE	429,210	419,474	-90,898	7	287 519,406		9 648 123,585		34,818		
190	28E	- 8	102 13' 36"	77 46' 24" SE	334,420	326,834	-70,823	8	287 426,766		9 648 143,660		37,636		
191	28E	- 9	102 13' 36"	77 46' 24" SE	233,920	228,614	-49,540	9	287 328,546		9 648 164,943		38,282		
192	28E	- 10	102 13' 36"	77 46' 24" SE	152,420	148,963	-32,279	10	287 248,895		9 648 182,204		39,139		
193	28E	- 11	127 25' 46"	52 34' 14" SE	498,390	395,773	-302,913	11	287 495,705		9 647 911,570		41,092		
194	28E	- 12	127 25' 46"	52 34' 14" SE	418,820	332,586	-254,552	12	287 432,518		9 647 959,931		37,983		
195	28E	- 13	127 25' 46"	52 34' 14" SE	332,610	264,126	-202,155	13	287 364,058		9 648 012,328		35,092		
196	28E	- 14	160 09' 26"	19 50' 34" SE	240,920	81,778	-226,616	14	287 181,710		9 647 987,867		35,129		
197	28E	- 15	127 25' 46"	52 34' 14" SE	162,430	128,986	-98,722	15	287 228,918		9 648 115,761		36,884		
198	28E	- 16	193 22' 46"	13 22' 46" SW	137,810	-31,889	-134,070	16	287 068,043		9 648 080,413		36,870		
199	28E	- 17	193 22' 46"	13 22' 46" SW	243,520	-56,350	-236,911	17	287 043,582		9 647 977,572		36,607		
200	28E	- 18	193 22' 46"	13 22' 46" SW	338,290	-78,280	-329,108	18	287 021,652		9 647 885,375		38,188		

Relatório das coordenadas de todos os pontos.

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Local GRANJA

Interessado : HNGEISOFT

Proprietário GOVERNO DO ESTADO

Data 22/07/96

IN DICE	ALINHAMENTO		AZIMUTE		DISTÂNCIA HORIZONTAL	LONG X	PARC (E+,W-)	LAT Y	PARC (N+,S-)	COORD E (X) TOT	COORD N (Y) TOT	COORD (Z) DO PONTO
	BST	P V	COMPENSADO	R U M O QD								
201	28E	- 19	193 22'46"	13 22'46" SW	443,740	-102,681	-431,696	19	286 997,251	9 647 782,787	39,838	
202	28E	- 20	215 32'31"	35 32'31" SW	418,310	-243,163	-340,375	20	286 856,769	9 647 874,108	39,265	
203	28E	- 21	215 32'31"	35 32'31" SW	344,920	-200,502	-280,658	21	286 899,430	9 647 933,825	38,246	
204	28E	- 22	215 32'31"	35 32'31" SW	257,380	-149,615	-209,428	22	286 950,317	9 648 005,055	37,208	
205	28E	- 23	215 32'31"	35 32'31" SW	37,150	-21,595	-30,229	23	287 078,337	9 648 184,254	47,276	
206	28E	- 24	215 32'31"	35 32'31" SW	120,190	-69,866	-97,797	24	287 030,066	9 648 116,686	37,077	
207	E28E	- 7	172 52'36"	7 07'24" SE	467,890	58,021	-464,279	7	287 157,953	9 647 750,204	41,329	
208	E28E	- 8	172 12'46"	7 47'14" SE	352,550	47,769	-349,299	8	287 147,701	9 647 865,184	38,761	
209	E28E	- L-RI	177 12'16"	2 47'44" SE	242,840	11,844	-242,551	L-RI	287 111,776	9 647 971,932	41,448	
210	E28E	- 10	169 39'51"	10 20'09" SE	166,130	29,807	-163,434	10	287 129,739	9 648 051,049	36,816	
211	E28E	- 11	177 10'51"	2 49'09" SE	69,560	3,421	-69,476	11	287 103,353	9 648 145,007	37,478	
212	E28E	- PF	102.21'41"	77.38'19" SE	199,390	194,767	-42,685	PF	286.603,795	9.647.837,227	38,724	
213	E28E	- 1	143 38'56"	36 21'04" SE	35,680	21,149	-28,737	1	286 430,177	9 647 851,175	46,234	
214	E28E	- 2	130 36'16"	49 23'44" SE	59,290	45,014	-38,588	2	286 454,042	9 647 841,324	45,037	
215	E28E	- 3	156 00'06"	23 59'54" SE	119,890	48,760	-109,526	3	286 457,788	9 647 770,386	40,558	
216	E28E	- 4	133 49'36"	46 10'24" SE	122,360	88,275	-84,732	4	286 497,303	9 647 795,180	39,853	
217	E28E	- GROT	161 53'36"	18 06'24" SE	290,870	90,399	-276,466	GROT	286 499,427	9 647 603,446	42,328	
218	E28E	- 6	153 56'26"	26 03'34" SE	300,840	132,160	-270,256	6	286 541,188	9 647 609,656	42,358	
219	E28E	- 7	133 12'06"	46 47'54" SE	285,610	208,195	-195,520	7	286 617,223	9 647 684,392	42,867	
220	E28E	- 8	122 37'51"	57 22'09" SE	325,210	273,880	-175,361	8	286 682,908	9 647 704,551	41,467	
221	E28E	- 9	118 37'21"	61 22'39" SE	349,810	307,061	-167,572	9	286 716,089	9 647 712,340	40,402	
222	E28E	- GROT	133 33'36"	46 26'24" SE	492,600	356,964	-339,457	GROT	286 765,992	9 647 540,455	48,481	
223	E28E	- 11	123 26'16"	56 33'44" SE	533,050	444,822	-293,727	11	286 853,850	9 647 586,185	43,338	
224	E28E	- 12	120 20'51"	59 39'09" SE	558,030	481,567	-281,941	12	286 890,595	9 647 597,971	44,795	
225	E28E	- 13	114 53'21"	65 06'39" SE	587,420	532,863	-247,224	13	286 941,891	9 647 632,688	44,820	
226	E28E	- 14	71 20'51"	71 20'51" NE	450,150	426,506	143,970	14	286 835,534	9 648 023 882	37,377	
227	E28E	- 15	86 26'01"	86 26'01" NE	372,400	371,679	23,165	15	286 780,707	9 647 903,077	41,371	
228	E28E	- 16	71 35'51"	71 35'51" NE	364,680	346,031	115,126	16	286 755,059	9 647 995,038	37,442	
229	E28E	- 17	73 50'36"	73 50'36" NE	247,450	237,677	68,857	17	286 646,705	9 647 948,769	39,534	
230	E28E	- 18	96 17'46"	83 42'14" SE	163,530	162,544	-17,934	18	286 571,572	9 647 861,978	38,455	
231	E28E	- div	103 40'41"	76 19'19" SE	147,370	143,191	-34,848	div	286 552,219	9 647 845,064	38,775	
232	E28E	- DIV	109 22'16"	70 37'44" SE	187,230	176,631	-62,101	DIV	286 585,659	9 647 817,811	38,472	
233	E28E	- DIV	9 34'06"	9 34'06" NE	84,070	13,974	82,900	DIV	286 423,002	9 647 962,812	41,184	
234	E28E	- 22	356 58'21"	3 01'39" NW	162,640	-8,590	162,413	22	286 400,438	9 648 042,325	42,210	
235	E28E	- est	338 26'11"	21 33'49" NW	155,530	-57,163	144,644	est	286 351,865	9 648 024,556	42,504	
236	E28E	- EST	14 24'51"	14 24'51" NE	227,760	56,696	220,590	EST	286 465,724	9 648 100,502	41,578	
237	E28E	- 25	20 48'21"	20 48'21" NE	315,040	111,903	294,496	25	286 520,931	9 648 174,408	41,663	
238	E28E	- EST	29 22'26"	29 22'26" NE	369,140	181,066	321,682	EST	286 590,094	9 648 201,594	40 843	
239	E28E	- 27	29 41'51"	29 41'51" NE	483,880	224,862	394,264	27	286 633,890	9 648 274 1/6	40,162	
240	E28E	- PONT	38 07'31"	38 07'31" NE	588,170	363,126	462,691	PONT	286 772,154	9 648 342,603	39,455	
241	E28E	- LRIO	37 50'41"	37 50'41" NE	588,270	360,918	464,543	LRIO	286 769,946	9 648 344,455	37,298	
242	E28E	- 30	27 12'31"	27 12'31" NE	531,520	243,028	472,706	30	286 652,056	9 648 352,618	37,139	
243	E28E	- 31	13 47'21"	13 47'21" NE	700,820	167,040	680,622	31	286 576,068	9 648 560,534	42,313	
244	E28E	- 32	1 54'01"	1 54'01" NE	618,680	20,515	618,340	32	286 429,543	9 648 498,252	40,272	
245	E28E	- 33	349 22'51"	10 37'09" NW	666,710	-122,861	655,292	33	286 286,167	9 648 535,204	41,379	
246	E28E	- lrrio	348 42'06"	11 17'54" NW	613,960	-120,286	602,062	lrrio	286 288,742	9 648 481,974	39,404	
247	E28E	- lrrio	348 07'11"	11 52'49" NW	619,720	-127,580	606,446	lrrio	286 281,448	9 648 486,358	39,950	
248	E28E	- 36	350 01'21"	9 58'39" NW	470,260	-81,478	463,148	36	286 327,550	9 648 343,060	39,756	
249	E28E	- 37	350 34'41"	9 25'19" NW	374,450	-61,299	369,398	37	286 347,729	9 648 249,310	41,631	
250	E28E	- 38	0 32'21"	0 32'21" NE	379,860	3,575	379,843	38	286 412,603	9 648 259,755	41,964	

Relatório das coordenadas de todos os pontos.

Pg: 6/6

Imóvel GRANJA

Local GRANJA

Interessado ENGESOFT

Proprietário GOVERNO DO ESTADO

Data 22/07/96

IN DICE	ALINHAMENTO		AZIMUTE		DISTÂNCIA		LONG	PARC	LAT	PARC	COORD E (X)		COORD N (Y)		COORD (Z)
	EST	P V	COMPENSADO	R U M O	QD	HORIZONTAL	X	(E+,W-)	Y	(N+,S-)	P V	TOT	COMPENS	TOT	COMPENS
251	E28F	- 39	352 39'31"	7 20'29"	NW	239,080	-30,550	237,120	39	286 378,478	9 648 117,032	42,555			
252	E28F	- 40	2 31'46"	2 31'46"	NE	306,440	13,524	306,141	40	286 422,552	9 648 186,053	42,382			
253	E28F	- 41	41 17'01"	41 17'01"	NE	804,090	530,528	604,236	41	286 939,556	9 648 484,148	40,931			
254	E28F	- 42	45 29'56"	45 29'56"	NE	767,640	547,509	538,057	42	286 956,537	9 648 417,969	42,875			
255	E28F	- 43	50 04'41"	50 04'41"	NE	757,980	581,310	486,429	43	286 990,338	9 648 366,341	44,840			
256	E28F	- 44	41 57'46"	41 57'46"	NE	328,350	219,550	244,154	44	286 628,578	9 648 124,066	40,116			
257	E28F	- 45	129 44'21"	50 15'39"	SE	147,360	113,314	-94,206	45	286 522,342	9 647 785,706	39,771			
258	E28F	- 46	121 17'26"	58 42'34"	SE	176,340	150,690	-91,587	46	286 559,718	9 647 788,325	39,800			

Maior Coord (X) 289 708,982 Menor Coord (X) 286 281,448 Maior Coord (Y) 9 649 227,512 Menor Coord (Y) 9 647 540,455

TopoEVN 3 0 - Sistema para processamento de Levantamentos Topográficos Arquivo NOVOHO 23/08/96 13 52 47

000096

**BARRAGEM GANGORRA
VOLUME II - RELATÓRIO DOS ESTUDOS BÁSICOS
TOMO I ESTUDOS TOPOGRÁFICOS
RELAÇÃO DAS PLANTAS**

01/08 - LEVANTAMENTO DA BACIA HIDRÁULICA

02/08 - LEVANTAMENTO DA BACIA HIDRÁULICA

03/08 - LEVANTAMENTO DA BACIA HIDRÁULICA

04/08 - LEVANTAMENTO DA BACIA HIDRÁULICA

05/08 - LEVANTAMENTO DA BACIA HIDRÁULICA

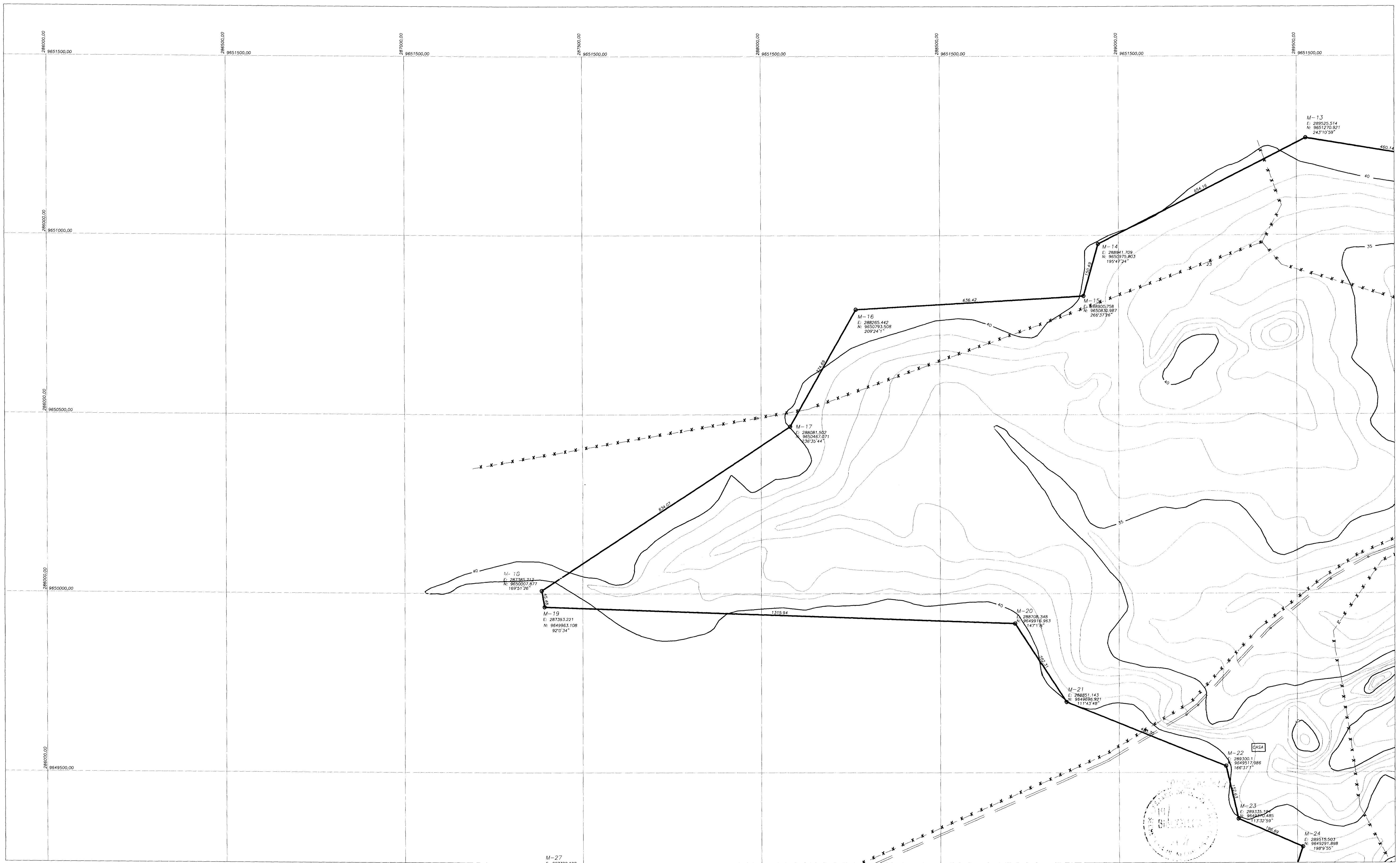
06/08 - PERFIL LONGITUDINAL DO BOQUEIRÃO

07/08 - LEVANTAMENTO E PERFIL DO SANGRADOURO

08/08 - LOCALIZAÇÃO DAS ÁREAS DOS EMPRÉSTIMOS



5 - PLANTAS



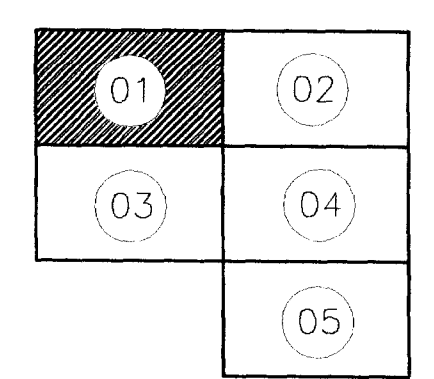
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-  CURVAS
-  CERCA
-  RIACHO
-  ESTRADA
-  BARRAGEM

NOTAS :

ARTICULACAO



DESENHOS DE REFERENCIA :

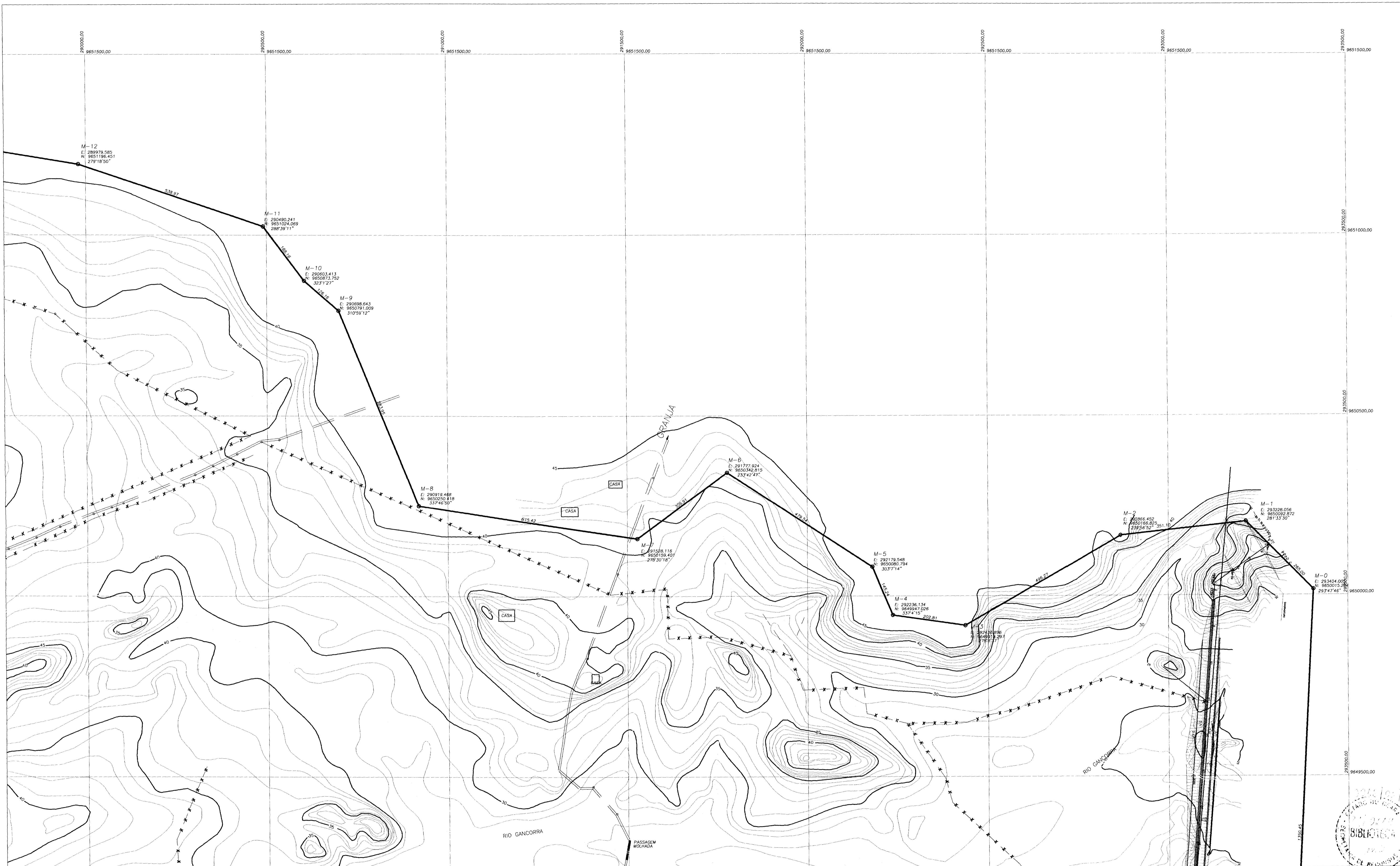
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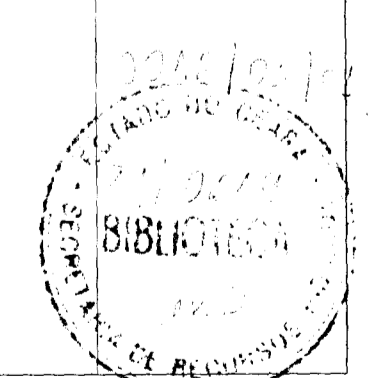
GOVERNO DO ESTADO DO CEARA
SECRETARIA DOS RECURSOS HIDRICOS - SRH
COMPANHIA DE GESTAO DOS RECURSOS HIDRICOS - COGERH
PROJETO DE DESENVOLVIMENTO URBANO E GESTAO DOS RECURSOS HIDRICOS DO ESTADO DO CEARA - PROURB/CE
PROJETO EXECUTIVO DA BARRAGEM GANGORRA

Projeto : BACIAHID.DWG
Vista :
Verificado :
Aprova :
Desenho :
Data de Emissao : SET/96
Escala : 1:5000
Rev :
Nº do Desenho : 01/08

BACIA HIDRAULICA
ENGESOFT - Engenharia e Consultoria Ltda.



000100



CURVAS
 CERCA
 RIACHO
 ESTRADA
 BARRAGEM

NOTAS :

ARTICULACAO

01	02
03	04
	05

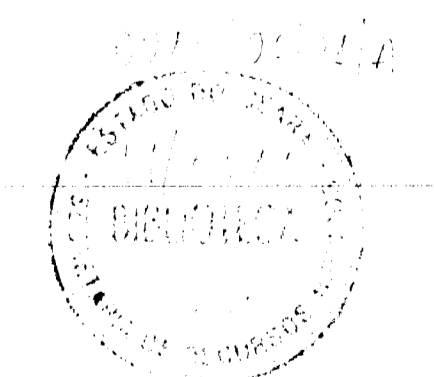
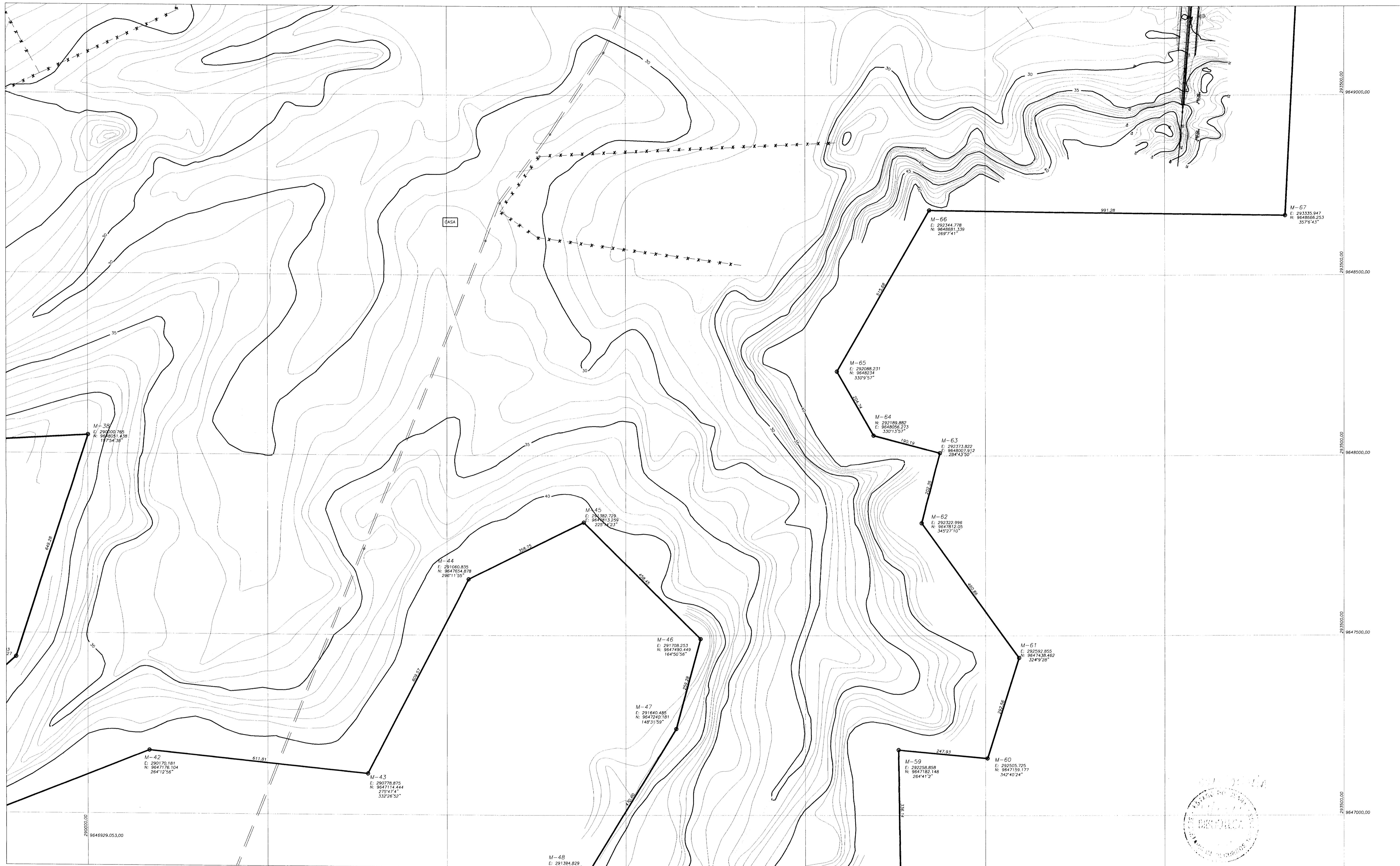
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 COMPANHIA DE GESTAO DOS RECURSOS HIDRICOS - COGERH
 PROJETO DE DESENVOLVIMENTO URBANO E GESTAO DOS RECURSOS HIDRICOS DO ESTADO DO CEARA - PROURB/CE
 PROJETO EXECUTIVO DA BARRAGEM GANGORRA

Projeto : BACIA HIDRAULICA
 Visto :
 Verificado :
 Aprove :

Data de Entrega : SET/96
 Escala : 1:5000
 Rev. :



000101

	CURVAS
	CERCA
	RIACHO
	ESTRADA
	BARRAGEM

NOTAS :

ARTICULACAO

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03	04
	05

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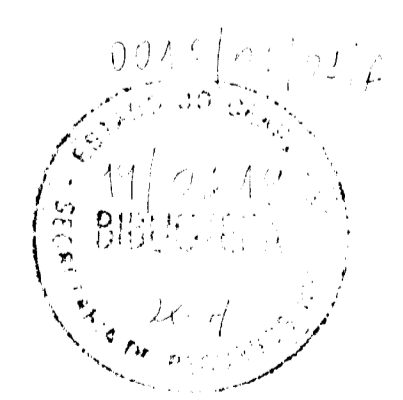
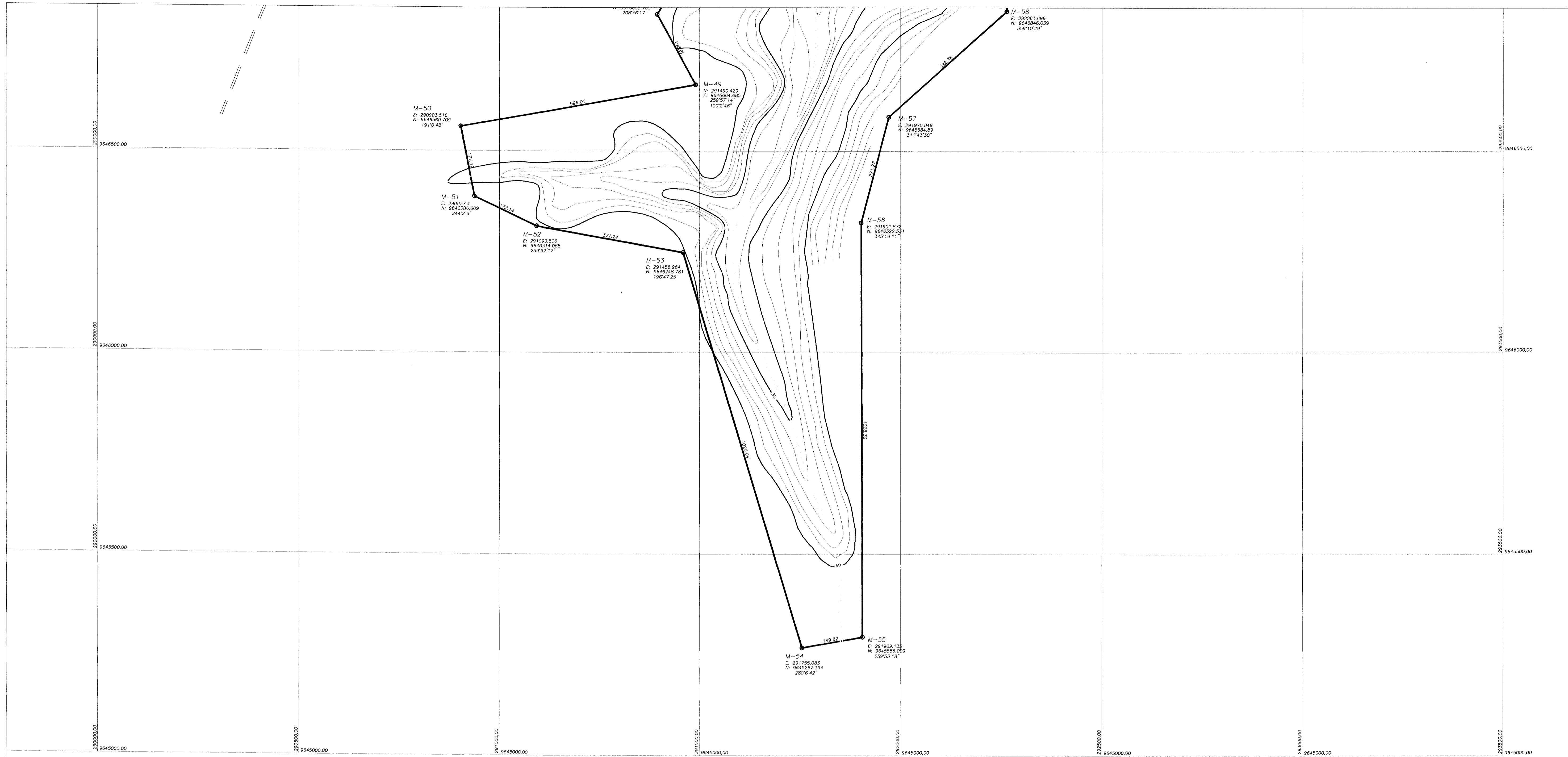
GOVERNO DO ESTADO DO CEARA
SECRETARIA DOS RECURSOS HÍDRICOS - SRH
COMPANHIA DE GESTAO DOS RECURSOS HÍDRICOS - COGERH

PROJETO DE DESENVOLVIMENTO URBANO E GESTAO DOS RECURSOS HÍDRICOS DO ESTADO DO CEARA - PROURB/CE

PROJETO EXECUTIVO DA BARRAGEM GANGORRA

Projeto : BACIAHID.DWG
Visto : SET/96
Verificado : 1:5000
Aprova : ENGESOFT - Engenharia e Consultoria Ltda. 04/98

BACIA HIDRAULICA



000102

	CURVAS
	CERCA
	RIACHO
	ESTRADA
	BARRAGEM

NOTAS :

ARTICULACAO

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03	04
	05

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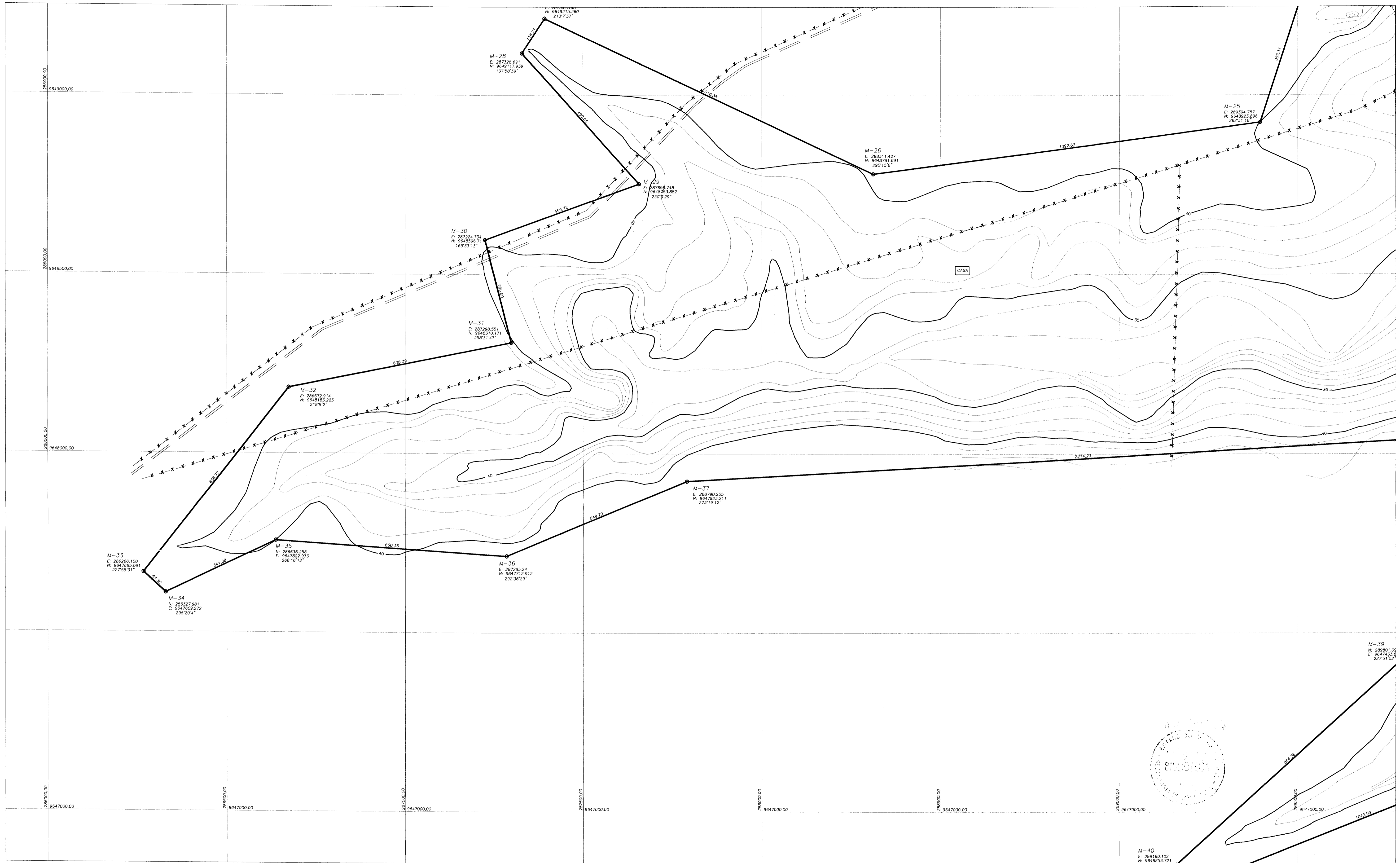
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	NATUREZA DA REVISAO	DATA	APROVO

GOVERNO DO ESTADO DO CEARA
SECRETARIA DOS RECURSOS HIDRICOS - SRH
COMPANHIA DE GESTAO DOS RECURSOS HIDRICOS - COGERH

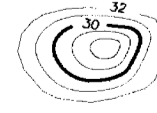
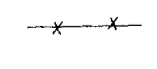

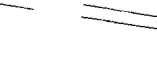
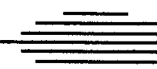
PROJETO DE DESENVOLVIMENTO URBANO E GESTAO DOS RECURSOS HIDRICOS DO ESTADO DO CEARA - PROURB/CE

PROJETO EXECUTIVO DA BARRAGEM GANGORRA

Desenho : BACIAHID.DWG
Data de Emissao : SET/96
Escala : 1:5000
Rev :
Aprova : ENGESOFT - Engenharia e Consultoria Ltda. N° do Desenho : 05/08



000103

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 CERCA
 RIACHO
 ESTRADA
 BARRAGEM

NOTAS :

ARTICULACAO

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03	04
	05

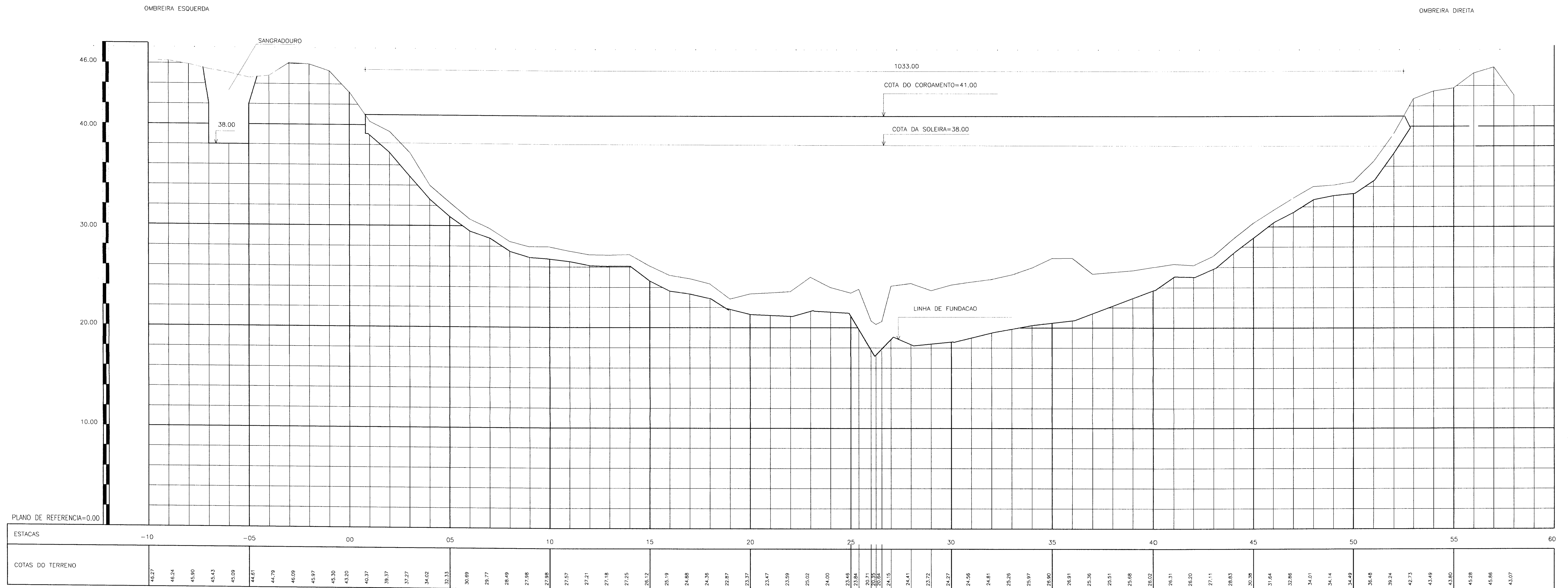
DESENHOS DE REFERENCIA :

REVISOES			
N°	NATUREZA DA REVISAO	DATA	APROVO

GOVERNO DO ESTADO DO CEARA
 SECRETARIA DOS RECURSOS HIDRICOS - SRH
 COMPANHIA DE GESTAO DOS RECURSOS HIDRICOS - COGERH
 PROJETO DE DESENVOLVIMENTO URBANO E GESTAO DOS RECURSOS HIDRICOS DO ESTADO DO CEARA - PROURB/CE
 PROJETO EXECUTIVO DA BARRAGEM GANGORRA

Projeto : BACIAHD.DWG
 Visto : SET/96
 Verificado :
 Aprove : ENGESOFT - Engenharia e Consultoria Ltda.

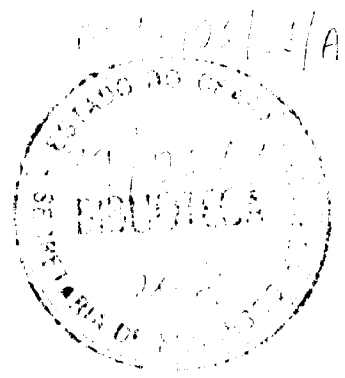
Escala : 1:5000
 N° do Desenho : 03/08



PERFIL LONGITUDINAL DO BOQUEIRAO

ESCALAS H=1/2.000 V=1/200

000104



LEGENDA :

NOTAS :

DESENHOS DE REFERENCIA :

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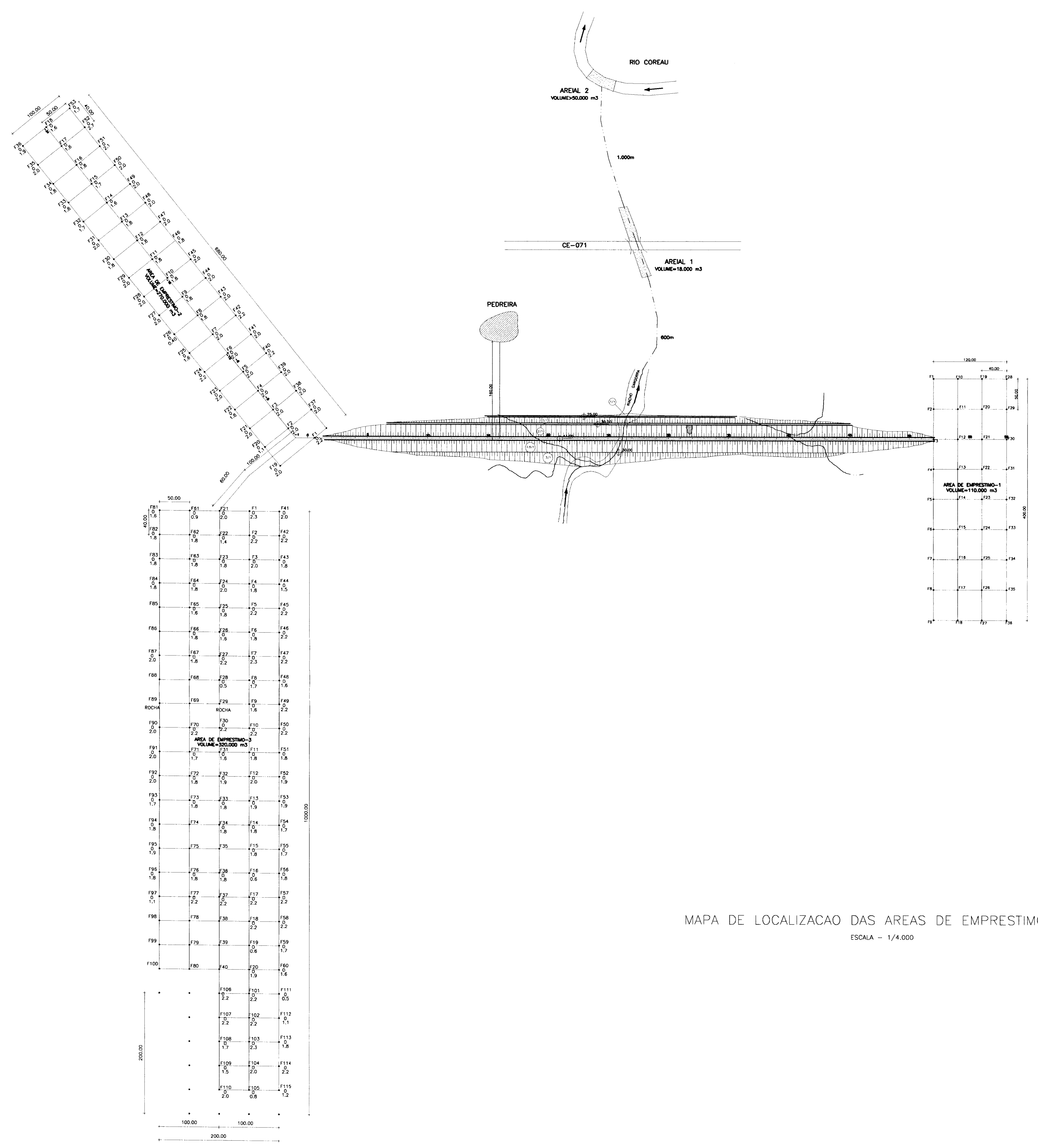
GOVERNO DO ESTADO DO CEARA
SECRETARIA DOS RECURSOS HIDRICOS - SRH
COMPANHIA DE GESTAO DOS RECURSOS HIDRICOS - COGERH

PROJETO DE DESENVOLVIMENTO URBANO E GESTAO DOS RECURSOS HIDRICOS DO ESTADO DO CEARA - PROURB/CE

PROJETO EXECUTIVO DA BARRAGEM GANGORRA

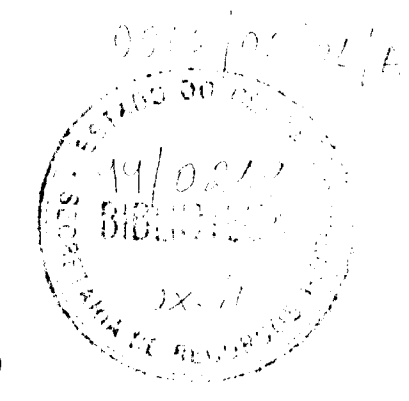
Projeto : MACICO
Vista : PERFIL LONGITUDINAL DO BOQUEIRAO
Verificado :
Aprova : ENGESOFT - Engenharia e Consultoria Ltda.

Desenho : TOPOGRAFIA
Data de Emissao : AGOSTO/96
Escala : INDICADA
Rev. : 06/08



MAPA DE LOCALIZACAO DAS AREAS DE EMPRESTIMO
ESCALA - 1/4.000

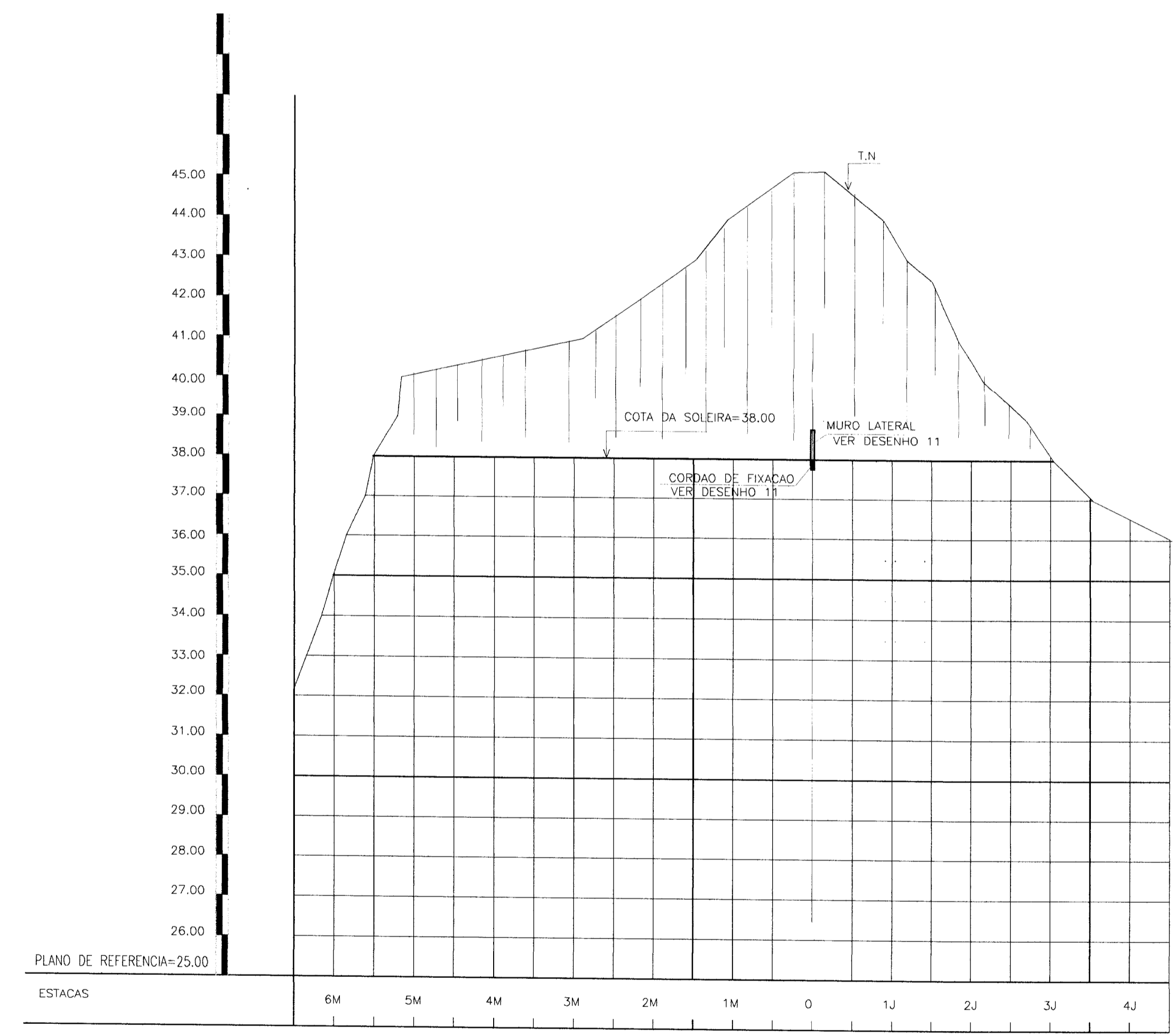
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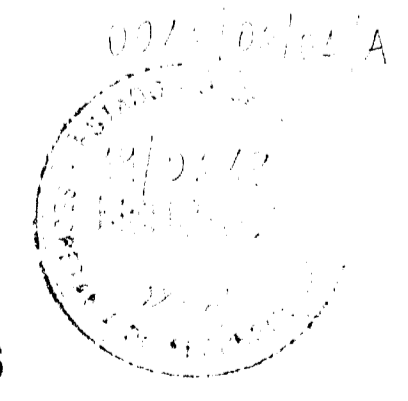
LEGENDA :	NOTAS :	DESENHOS DE REFERENCIA :	REVISOES				GOVERNO DO ESTADO DO CEARA SECRETARIA DOS RECURSOS HIDRICOS - SRH COMPANHIA DE GESTAO DOS RECURSOS HIDRICOS - COGERH	
			Nº	NATUREZA DA REVISAO	DATA	APROVO	PROJETO DE DESENVOLVIMENTO URBANO E GESTAO DOS RECURSOS HIDRICOS DO ESTADO DO CEARA - PROURB/CE PROJETO EXECUTIVO DA BARRAGEM GANGORRA	
							Projeto : Visto : Verificado : Aprova :	
							LOCALIZACAO DAS AREAS DOS EMPRESTIMOS Desenho : MAPLOCZ.DWG Data de Emissao : AGOSTO/96 Escala : 1/4000 Nº do Desenho : 08/08	
							ENGESOFT - Engenharia e Consultoria Ltda.	



PLANTA BAIXA DO LOCAL DO SANGRADOURO
ESCALA 1:2000



PERFIL LONGITUDINAL DO LOCAL DO SANGRADOURO
ESCALAS - H=1/1.000



000106

LEGENDA :	NOTAS :	DESENHOS DE REFERENCIA :	REVISOES				GOVERNO DO ESTADO DO CEARA SECRETARIA DOS RECURSOS HIDRICOS - SRH COMPANHIA DE GESTAO DOS RECURSOS HIDRICOS - COGERH	
			Nº	NATUREZA DA REVISAO	DATA	APROVO	PROJETO DE DESENVOLVIMENTO URBANO E GESTAO DOS RECURSOS HIDRICOS DO ESTADO DO CEARA - PROURB/CE	
							PROJETO EXECUTIVO DA BARRAGEM GANGORRA	
							Projeto : Visto : Verificado : Aprova :	LEVANTAMENTO E PERFIL DO SANGRADOURO
			ENGEISOFT - Engenharia e Consultoria Ltda.					