# TROGLOFAUNA RECORDS AND TROGLOBITIC HABITAT AT TROPICANA GOLD PROJECT

## EXECUTIVE SUMMARY (18/02/2010)

The Tropicana JV (TJV) commissioned ecologia Environment (ecologia) to conduct troglofauna surveys in the proposed Tropicana Gold Project (TGP) area as part of the preparation for a Public Environmental Review (PER) and to provide additional information subsequent to the completion of the PER.
The proposed Tropicana Gold Project (TGP) is located approximately 330 km east north-east of Kalgoorlie on the western edge of the Great Victoria Desert (GVD). Since the discovery of the deposit in 2002, gold mineralisation has been identified over a strike length of approximately four kilometres with two areas of significant mineralisation, termed the Tropicana and Havana deposits (the Resource Area), which form the basis of the proposed TGP. It is currently proposed that the TGP would operate for approximately 10 - 15 years to realize the potential of the resource.

A five-phase troglofauna survey was initially undertaken within TGP: Phase 1 during September - November 2007 (40 holes); Phase 2 during April - June 2008 (100 holes); Phase 3 during August – October 2008 (43 holes, 42 recovered); Phase 4 during October – December 2008 (50 holes, 26 recovered); and Phase 5 during April – May 2009 (157 holes and 109 recovered). These five phases totalled a sample size of 317, of which 108 were located within the Operational footprint, thus satisfying the requirement of the EPA Guidance Statement 54a (60 samples).

Three definitive troglobitic species were discovered during these five phases – dipluran (Diplura), centipede (Chilopoda) and slater (Isopoda), of which only the slater was collected both inside and outside the Operational footprint, while the dipluran and the centipede presented singleton records within the Operational footprint.

Two additional survey phases were undertaken from new holes outside the Operational footprint, conducted as follows: Phase 6 during August – September 2009 (50 holes, 29 recovered) and Phase 7 during November 2009 - January 2010 (85 holes, 65 recovered). Phase 6 did not record any troglobitic species while Phase 7 produced one additional troglobitic species (cockroach, Blattodea) and one troglobitic species that was previously sampled during the first five phases (slater, Isopoda). Thus, a total sample size of 411 achieved in the seven phases produced 14 individuals belonging to four definitive troglobitic species, of which two remain to be known only from within the Operational footprint (Table S1). Such trapping results suggested that the troglobitic community at TGP is sparse, or that the current trapping methods for troglofauna sampling have low trapping rates. An assessment of suitable troglobitic habitat was undertaken to gain better understanding of potential troglofauna distribution within the TGP and to compliment the trapping program.

Geological data were compiled for each drill hole with a troglofauna record and common geological strata identified (Table S1). The results showed that all holes contained at least one geological stratum with pores or voids suitable for troglofauna habitation and that this stratum was adjacent to other, sometimes less prominent porous strata, which could act as 'bridges'. The most common strata were: channel-fill sediment (80% of all holes), lower saprolite (80%), upper saprolite (70%), fine gravel (60%), coarse gravel (50%) and calcrete (50%). To put this information into greater perspective, geological profiles were also established for 14 lines (cross sections) across the TGP, utilising data from 327 drill holes (example in Figure S1, Table S2). This contextual data showed that the alluvial deposits associated with historical drainage channels (channel-fill sediments) are the most prospective as troglofauna habitat due to their porosity (Figure S2), depth (approx. 10-30 m bgl) and immediate contact with similar strata such as laterite gravel, laterite, lag and

coarse / fine gravel, or other porous strata such as calcrete. The habitat of channel-fill sediments, along with laterite gravel, laterite, lag and the coarse / fine gravel (unless the latter was located directly at the surface) has been, therefore, classified as 'Prime'. The strata of calcrete (along with ferricrete and silcrete) and some coarse / fine gravel were sometimes located very close to the surface (0-10 m bgl) and thus some parts of these strata would be probably too dry to be inhabited by troglofauna all year round (although they would be utilised after rainfall events due to influx of nutrients through percolation or root matts of surface vegetation). This habitat has been, therefore, classified as 'Likely'. The upper and lower saprolites, on the other hand, were clay dominated with low porosity or void space and were often located close to, or below, the ground water level and thus their use for troglofauna was assessed as limited. This habitat has been, therefore, classified as 'Marginal'. In summary, it is very likely that connectivity exists mainly along the channel-fill sediments, supplemented by gravel and calcrete strata 'bridges' above, and upper and lower saprolites below. The troglobitic community is, therefore, expected to be distributed along these geological units, including the predatory dipluran and centipede. These predatory species are expected to follow their herbivorous prey (slater, cockroach) but – as with all predators - would occur in much lower densities.

An extrapolation of the suitable geological strata resulted in an estimate of 16,670 ha of troglofauna habitat within the TGP (Figure S3). The direct impact, as a result of excavation in the Resource Area, total 400 ha or 2% of the predicted troglofauna habitat within the TGP. Indirect (or secondary) impacts resulting from the clearing of vegetation for mine infrastructure (such as the waste dumps, plant and stockpiles) total 1328 ha or 8% of the predicted available troglofauna habitat. The overall impact of the Operational footprint on the troglofauna community within TGP is, therefore, estimated at 10% (Figure S3).

The habitat is likely to extend beyond the TGP and suitable habitat may be widespread across lateralised weathering environments in Australia. The percentage impacts could therefore be considered as conservative.

The potential for the widespread distribution of trogobitic species within lateritic environments may be a conservation consideration in other areas. A number of recommendations derived from the TJV troglofauna trapping programs are provided in the report.

| TABLE S1 | Line # | | | 1 | 3 | 4 | 5 | 6 | 7 | 7 | n/a | n/a | n/a |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **Drill hole #** | | | TPA 4270 | TPA 3977 | TPA 3981 | TPRC 583 | TPD 057 | TPMB 100 | TPMB 099 | TPRC 420 | RNRC 023 | SBA 104 |
| | **Easting** | | | 648007 | 650460 | 650285 | 650358 | 650535 | 649865 | 650007 | 653363 | 647292 | 652000 |
| | **Northing** | | | 6768083 | 6764932 | 6764846 | 6763253 | 6762860 | 6762470.99 | 6762330.02 | 6765193 | 6756362 | 6756200 |
| | **Troglofauna** | | | Isopoda | Isopoda | Diplura | Isopoda | Isopoda | Isopoda | Chilopoda | Isopoda | Isopoda | Isopoda & Blattodea |
| | **Trap depth** | | | 13 m | 17 m | 20 m | 20 m | 10 & 20 m | stygofauna net | stygofauna net | 18 m | 10 m | 12 m |
| | **Location** | | | outside | inside | inside | inside | inside | inside | inside | outside | outside | outside |
| **Troglobitic Habitat** | **Regolith units and materials:** | | **% of holes with trog.** | | | | | | | | | | |
| **UNSUITABLE (surface)** | Sand Grit | | 10% | | ✓ | | | | | | | | |
| | Sand | | 60% | | | | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ |
| | Soil | | 0% | | | | | | | | | | |
| **LIKELY** | **Fine Gravel** | | **60%** | | ✓ | ✓ | ✓ | ✓ | | | | ✓ | ✓ |
| | **Course Gravel** | | **50%** | ✓ | ✓ | ✓ | | | | | | ✓ | ✓ |
| | Silcrete | | 30% | | ✓ | ✓ | | | | | ✓ | | |
| | **Calcrete** | | **50%** | | ✓ | ✓ | ✓ | ✓ | | | | | ✓ |
| | Calcrete/Silcrete | | 0% | | | | | | | | | | |
| | Ferricrete | | 20% | | ✓ | | | | | | ✓ | | |
| **PRIME** | Lag & Silcrete, Calcrete Fragments | | 0% | | | | | | | | | | |
| | Lag | | 10% | | | | | | ✓ | | | | |
| | Laterite | | 10% | | ✓ | | | | | | | | |
| | Laterite Gravel | | 20% | | | | | | | | | ✓ | ✓ |
| | **Channel fill sediment** | | **80%** | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | | ✓ |
| **MARGINAL** | Basal Clay, Sand & Gravel | | 20% | | | | | | | | ✓ | | ✓ |
| | Mottled clay | | 30% | | ✓ | ✓ | ✓ | | | | | | |
| | **Upper Saprolite** | | **70%** | ✓ | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | **Lower Saprolite** | | **80%** | ✓ | | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | Saprock | | 50% | ✓ | | | | ✓ | | | ✓ | ✓ | ✓ |
| **UNSUITABLE (no voids, under water)** | Fresh Rock | | 60% | ✓ | | ✓ | | ✓ | | | ✓ | ✓ | ✓ |

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FIGURE S1 A -  Cross Section 1 Village Area

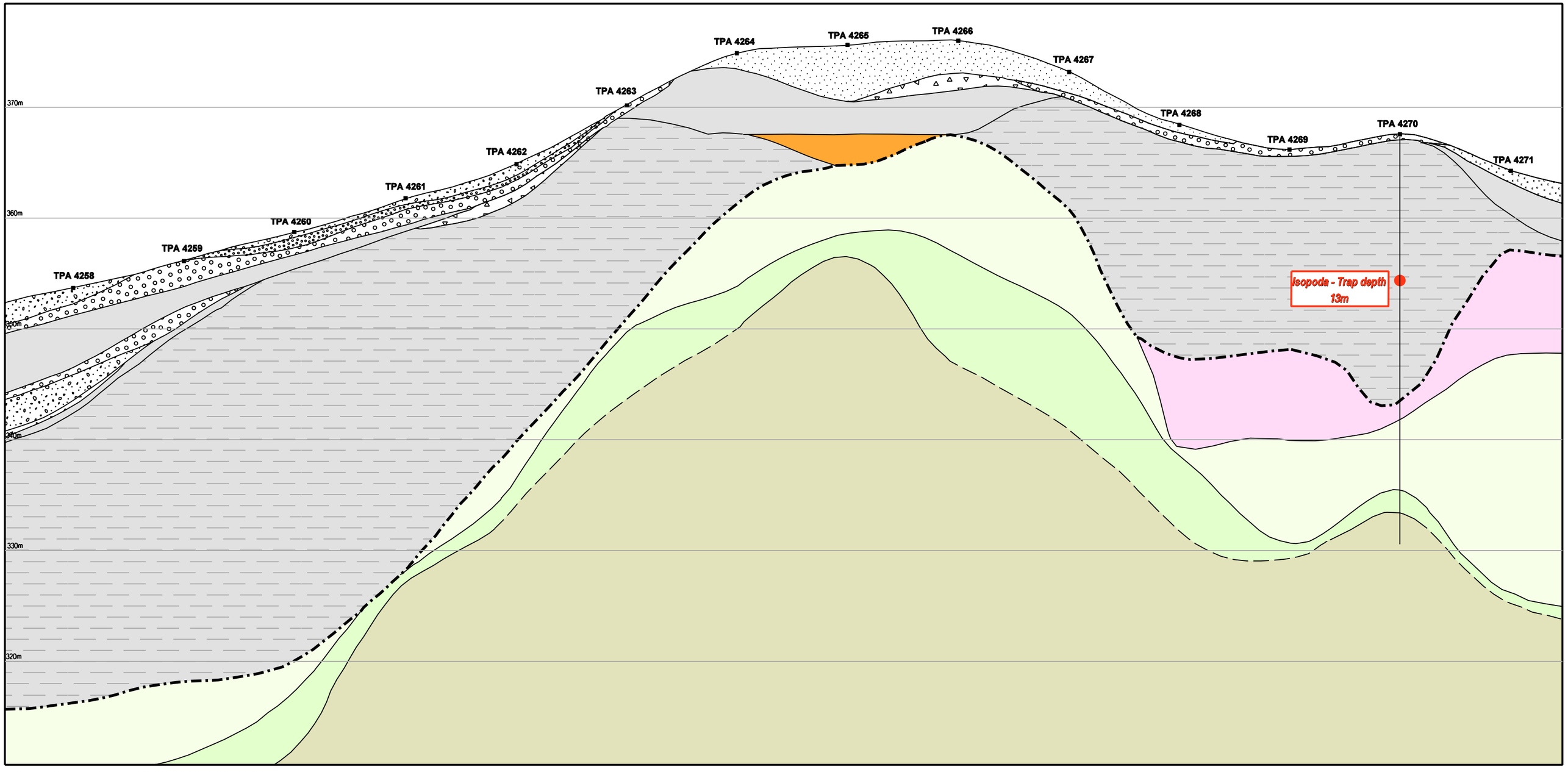


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FIGURE S1 B - Cross Section 7 Havana Area

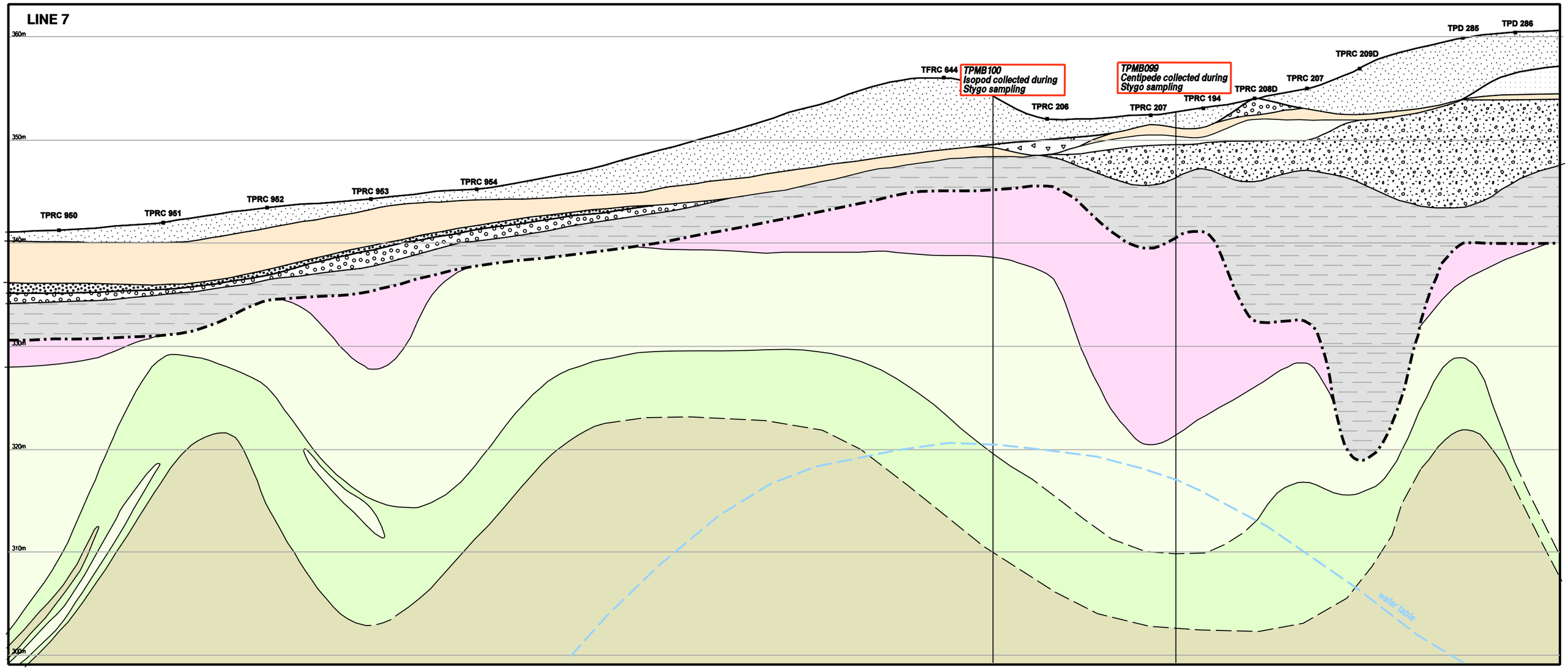


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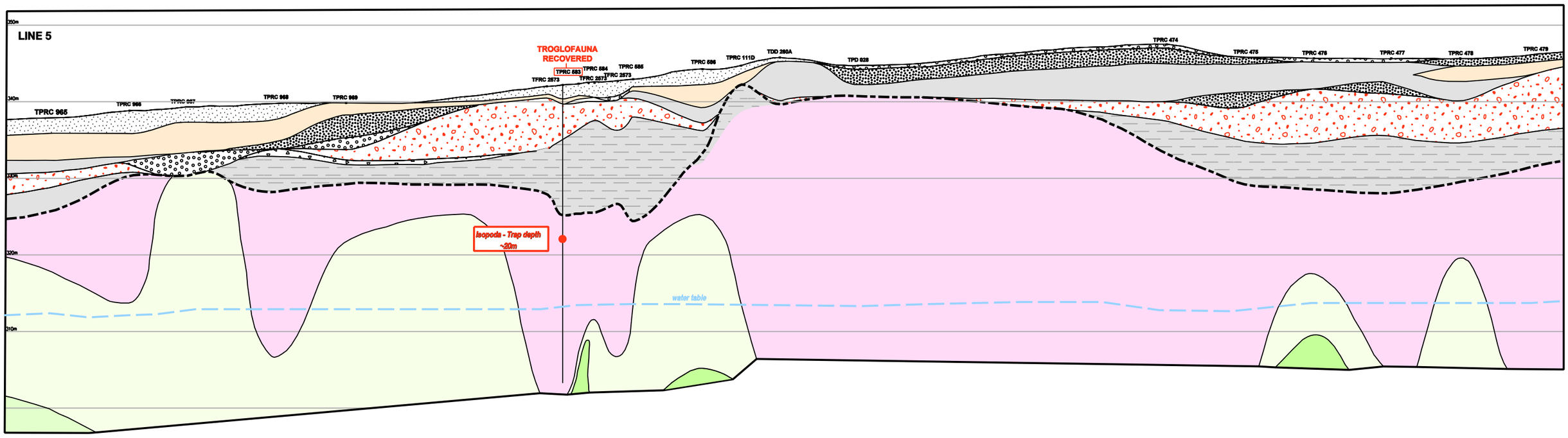
FIGURE S1 C - Cross Section 5 Tropicana Area

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# TABLE S2 A - Village area

## LINE 1

| Potential Troglofauna Habitat | Regolith Units | | Colour and Competency | | Materials | Drill Hole Number | TPA 4258 | TPA 4259 | TPA 4260 | TPA 4261 | TPA 4262 | TPA 4263 | TPA 4264 | TPA 4265 | TPA 4266 | TPA 4267 | TPA 4268 | TPA 4269 | TPA 4270 | TPA 4271 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | RL (m) | 347.4 | 349.5 | 353.4 | 357.8 | 360.3 | 365.7 | 368.3 | 370.7 | 347.0 | 347.9 | 350.2 | 352.3 | 349.7 | 346.4 |
| | | | | | | Easting | 648174 | 648315 | 648457 | 648598 | 648738 | 648881 | 649022 | 649164 | 652552 | 652694 | 652835 | 652977 | 653118 | 653260 |
| | | | | | | Northing | 6761062 | 6760921 | 6760779 | 6760638 | 6760522 | 6760355 | 6760214 | 6760072 | 6763744 | 6763602 | 6763461 | 6763319 | 6763178 | 6763036 |
| | | | | | | | | | | | | | | | | | | | **Troglo** (slaters, 13m, outside) | |
| | TRANSPORTED REGOLITH (Sedimentary Cover Sequences) | Unconsolidated (Loose and Friable) Ferruginous Red Brown Illuvium, Aeolian, Colluvium Cover Sequences | Ferruginous Red Brown | Unconsolidated | Sand Grit | | 0-1.5<br>8-10.5 | | 0-0.5 | 0-0.5 | 0-1 | | | | | | | | | |
| | | | | | Sand | | | | | | | | 0-1 | 0-5 | 0-3 | 0-2 | 0-0.5 | | | 0-1 |
| | | | | | Soil | | | | | | | | | | | | | | | |
| Likely | | | | | Fine Gravel | | | | 0.5-1.5 | 0.5-1 | 1-1.5 | | | | | | | | | |
| | | | | | Coarse Gravel | | 1.5-2.5<br>7.5-8 | 0-2.5<br>4.5-6 | 1.5-2 | 1-2.5 | 1.5-2.5 | 0-0.5 | | | | 2-2.5 | 05-1.5 | 0-05 | 0-0.5 | |
| | | | | | Lag | | 10.5-11 | | | | 2.5-3.5 | | | | 3-4.5 | | | | | |
| Prime | | Cemented laminar and massive multi-generational mixed lenses of Colluvium | Pale Red Brown | Indurated | Calcrete | | | | | | | | | | | | | | | |
| | | | Various | | Silcrete | | 2.5-7.5<br>11-11.5 | 2.5-4.5<br>6-6.5 | 2-3.5 | 2.5-3 | | | 1.0-7 | 5.0-8 | 4.5-8.5 | | | | | 1.0-4 |
| | | | Yellow Brown | | Ferricrete | | | | | | | | | 8.0-11 | | | | | | |
| Marginal | | Sheet Wash Alluvial Deposits | Purple-Red | | Mottled Clay | | | | | | | | | | | | | | | |
| | | | Yellow Brown | Unconsolidated | Fine Gravel | | | | | | | | | | | | | | | |
| | | | | | Coarse Gravel | | | | | | | | | | | | | | | |
| | | | | | Lag | | | | | | | | | | | | | | | |
| | | | | Ind. | Laterite Ferricrete | | | | | | | | | | | | | | | |
| | | Palaeochannel-fill Sediment | Various | Unconsol. | Channel-fill | | 11.5-12.5<br>12.5-37.5 | 6.5-14<br>14-38 | 3.5-12<br>12-39 | 3-11<br>11-34 | 3.5-9<br>9-25.5 | _<br>0.5-19.5 | _<br>7-13.5 | _ | _ | 2.5-12 | 1.5-21 | 05-18 | 0.5-10<br>24? | 1-8 |
| | | | | | Rounded Pebbles | | | | | | | | | | | | | | | |
| Contact | | Unconformity | | | Contact | | 37.5 | 38 | 39 | 34 | 25.5 | 19.5 | 13.5 | 11 | 8.5 | 12 | 21 | 18 | 10 | 8 |
| Marginal | RESIDUAL REGOLITH (Weathered Bedrock) | Upper Saprolite | Unconsolidated | | Pale reddish white | | | | | | | | | | | | 21-28.5 | 18-26 | 24-26 | 8.0-17 |
| | | Lower Saprolite | Increasingly Consolidated | | Light greenish grey | | 37.5-38 | 38-45 | 39-42 | | 25.5-29 | 19.5-20.5 | 13.5-21 | 415-78 | 8.5-19 | 12-21.5 | 28.5-29.5 | 26-35 | 26-32 | 17-38 |
| | | Saprock | Consolidated | | Dark greenish grey | | | 45-46 | 42-47 | 34-35 | 29-31+ | 20.5-21 | 21-24 | 17-19 | 19-29 | 21.5-24 | 29.5-30 | | 32-34 | 38-40 |
| | | Fresh Rock | Consolidated | | Greenish grey | | | | 47-48 | 35-36 | | | | 19-20 | 29-30 | 24-25 | | | 34-35 | |
| | GROUNDWATER MODIFICATION (Overprints) | Surface Water Accumulation & Evaporation | Red | Unc. | Hematitic Stained | | 0-13.5 | 0-17 | 0-30 | 0-10.5 | 0-9 | 0-10.5 | 0-20+ | 0-17 | 0-18 | 0-10 | 0-5 | 0-9.5 | 0-9 | 0-8.5 |
| | | | Various | Indurated | Silicified | | 11.5-12.5 | 6.0-17 | 2.0-15 | 2.5-17 | 3.5-9 | 0.5-4.5 | 1.0-7 | 5.0-11 | 4.5-9 | 11.5 | 1.5-7 | 0.5-11 | 0.5-8.5 | 2-8.5 |
| | | Poor Drainage (Zone of Low Water Flux) | Purple-Red & White | | Mottled | | 11.5-13.5 | 6.5-17 | 3.5-30 | 3-10.5 | 3.5-9 | 0.5-10.5 | 1-20+ | _ | | 2.5-10 | 1.5-5 | 0.5-9.5 | 0.5-9 | |
| | | Water-saturation (Zone of Very Low Water Flux) | White | | Leached (Bacterial Reduction) | | 13.5-32.5 | 17-29.5 | 30-21 | 10.5-36+ | 9.0-28 | 10.5-18.5 | 10.5-11 | _ | | 10.0-12 | 5.0-21 | 9.5-24 | 9.0-24 | |
| | | Good Drainage (Zone of Moderate to High Water Flux) | Yellow | Unconsolidated | Goethite Stained | | 32.5-37.5 | 29.5-38.5 | | | 25-27 | 18.5-20 | 8.5-10 | 5.0-6 | 6.5-9.5 | | 21-29 | | | 1.0-4 |
| | | | | | | | | 24-26 | | | | | 11.17 | | 19-29 | 12.0-17 | | | 9.5-13 | 8.0-14 |
| | | | | | | | | | | | | | | | | | | 17-22.5 | | 17-27 |
| | | | | | | | | | | | | | | | | | | | | 33-40+ |
| | | Preset-Day Drainage | Watertable | | | | | | | | | | | | | | | | | |
| | | Total Depth Logged (m) | | | | | 38 | 46 | 48 | 36 | 31 | 21 | 24 | 19 | 30 | 25 | 30 | 35 | 35 | 40 |
| | | EOH (End of Hole) (m) | | | | | 38 | 46 | 48 | 36 | 31 | 22 | 24 | 20 | 30 | 32 | 30 | 35 | 35 | 63 |

# TABLE S2 B - Havana

## LINE 7

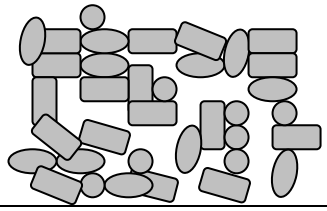
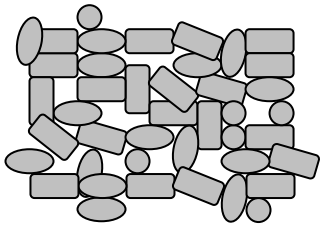
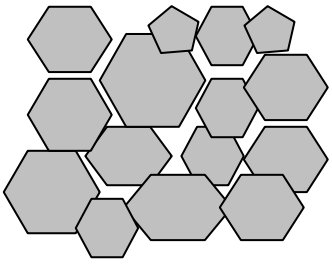
| | | | | | Drill Hole Number | TPRC 950 | TPRC 951 | TPRC 952 | TPRC 953 | TPRC 954 | TFRC 644 | TPMB 100 | TPRC 206 | TPRC 207 | TPMB 099 | TPD 194 | TPRC 208D | TPD 195 | TPRC 209D | TPD 285 | TPD 286 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | RL (m) | 341.4 | 342.5 | 343.2 | 344.4 | 345.0 | 356.1 | 354.7 | 351.8 | 352.6 | 353.4 | 353.6 | 354.3 | 355.6 | 357.2 | 360.2 | 340.0 |
| | | | | | Easting (m) | 649091.5 | 649164.7 | 649232.3 | 649300.6 | 649377.0 | 649689.7 | 649726.0 | 649759.6 | 649829.7 | 649868.0 | 649868.7 | 649902.1 | 649938.4 | 649959.9 | 650042.0 | 650075.1 |
| | | | | | Northing (m) | 6762956.7 | 6762876.6 | 6762795.1 | 6762741.1 | 6762672.8 | 6762349.4 | 6762313.3 | 6762275.6 | 6762204.6 | 6762172.3 | 6762169.3 | 6762131.8 | 6762101.2 | 6762072.5 | 6761991.6 | 6761955.6 |
| **Potential Troglofauna Habitat** | **Regolith Units** | | **Colour and Competency** | | **Materials** | | | | | | | **Troglo** (slaters, stygo net, inside) | | | **Troglo** (centipedes, stygo net, inside) | | | | | | |
| | TRANSPORTED REGOLITH (Sedimentary Cover Sequences) | Unconsolidated (Loose and Friable) Ferruginous Red Brown Illuvium, Aeolian, Colluvium Cover Sequences | Ferruginous Red Brown | Unconsolidated | Sand Grit | | | | | | | | | | | | | | | | |
| | | | | | Sand | 0-1 | 0-2 | 0-2 | 0-1 | 0-1 | 0-7 | | 0-2 | 0-1 | | 0-2 | | 0-2 | 0-4.5 | 0-6 | 0-4 |
| | | | | | Soil | | | | | | | | | | | | | | | | |
| Likely | | | | | Fine Gravel | | | | | | | | | | | | | | | | |
| | | | | | Coarse Gravel | | | | | | | | | | | | 0-1.5 | | | | |
| | | | | | Lag | | | | | | | | 2-3.5 | | | | | | | | |
| Prime | | Cemented laminar and massive multi-generational mixed lenses of Colluvium | Pale Red Brown | Indurated | Calcrete | 1.0-5 | 2.0-6 | 2.0-6 | 1-4.5 | 1-3.5 | (4-) | | | | | | 1.5-4 | 2.0-5 | 4.5-5 | | |
| | | | Various | | Silcrete | | | | | | | | | | | | 4.0-8 | 5.0-7 | 7.5-8 | 6-10 | |
| | | | Yellow Brown | | Ferricrete | | | | | | | | | | | | 21.5-24 | | | | |
| Marginal | | Sheet Wash Alluvial Deposits | Purple-Red | | Mottled Clay | | | | | | | | | | | | 8.0-12 | | 5-7.5 | | |
| | | | Yellow Brown | Unconsolidated | Fine Gravel | 5.0-6 | 6-6.5 | 6-6.5 | 4.5-5 | 3.5-4 | | | | | | | | | | 15.5-16.5 | 11-14.5 |
| | | | | | Coarse Gravel | 6.0-7 | 6.5-7 | 6.5-7 | 5-6.5 | 4.0-5 | | | | | | | | | | | |
| | | | | | Lag | | | | | | | | | | | | | | | | |
| | | | | Ind. | Laterite Ferricrete | | | | | | | | | | | | | 7.0-8 | 8.0-11 | 10-15.5 | 4.0-11 |
| | | Palaeochannel-fill Sediment | Various | Unconsol. | Channel-fill | 7-10.5 | 7.0-11 | 7.0-9 | 6.5-9 | 5-7.5 | 11.0-15 | | 3.5-6.5 | | | | 12-21.5 | 11-22.5 | 14-38 | 20-20.5 | 14.5-20.5 |
| | | | | Unconsol. | Rounded Pebbles | | | | | | | | | | | | | 8.0-11 | 11.0-14 | 16.5-20 | |
| Contact | | Unconformity | | | Contact | 10.5 | 11 | 9 | 9 | 7.5 | 11.5 | | 6.5 | 13 | | 12 | 21.5 | 22.5 | 38 | 20.5 | 20.5 |
| Marginal | RESIDUAL REGOLITH (Weathered Bedrock) | Upper Saprolite | Unconsolidated | | Pale reddish white | 10.5-13 | | | 9-16.5 | | 11.5-15+ | | 6.5-15 | 13-32 | | 12.0-30 | 21.5-28 | 22.5-26.5 | | 20.5-24.5 | 20.5-23 |
| | | Lower Saprolite | Increasingly Consolidated | | Light greenish grey | 13-32 37-38.5 | 11.0-13 | 9-17.5 | 16.5-29 | 7.5-26 | | | 15-40+ | 32-40 | | 30-40 | 21.5-24 28-40 | 26.5-38 | 38-40+ | 24.5-31 32-38 | 23-40+ |
| | | Saprock | Consolidated | | Dark greenish grey | 32-35 36-37 38.5-39 | 13-25 | 17.5-29 | 29-29.5 32-40+ | 26-34 | | | | | | | | 38-40 | | 31-33 | |
| | | Fresh Rock | Consolidated | | Greenish grey | 35-36 39-40 | 25-40 | 29-40+ | 29.5-32 | 34-40 | | | | | | | | | | 38-40 | |
| | GROUNDWATER MODIFICATION (Overprints) | Surface Water Accumulation & Evaporation | Red | Unc. | Hematitic Stained | 0-10 | 0-11 | 0-12 | 0-12 | 0-14 | 0-11.5 | | 6-6.5 | | | | | 0-6 | | 0-16 | 0-17 |
| | | | Various | Indurated | Silicified | 1.0-8 | 2.0-40+ | 2.0-9 | 1.0-8 | 1-7.5 | 7-15+ | | 4-7.5 | 1.0-7 | | 2.0-6 | 1.5-8 | 2.0-8 | 4.5-11 | Jun-16 | 6.0-15 |
| | | Poor Drainage (Zone of Low Water Flux) | Purple-Red & White | | Mottled | 7.0-8 | 7.0-11 | | 7.0-8 | | 11-11.5 | | 3.5-6.5 | | | | | 7.0-8 | | 10-16.5 | 6.0-17 |
| | | | | | | | | | | | | | | | | | | | | | |
| | | Water-saturation (Zone of Very Low Water Flux) | White | | Leached (Bacterial Reduction) | | | | | | 11.5-15 | | | | | | | 8-26.5 | | 20-22.5 | 17-22 |
| | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | |
| | | Good Drainage (Zone of Moderate to High Water Flux) | Yellow | Unconsolidated | Goethite Stained | 12.5-16.5 | 7.0-9 | 7.0-11 | | 7.5-20 | | | 6.5-26 | | | | | 5.5-7 | 15-32.5 | 6.0-8 | |
| | | | | | | 18-24.5 | 11.0-13 | 15-16 | 15.5-17 | | | | | | | | | 20-26.5 | | 17.5-20.5 | 20.5-32 |
| | | | | | | | | | 38-39 | | | | | | | | | 30-38 | 38-40 | 24-27 | 35-38.5 |
| | | | | | | | | | 27-29 | 25-29 | | | | | | | | | | | |
| | | Preset-Day Drainage | Watertable | | | | | | | | | | | | | | | | | | |
| | | Total Depth Logged (m) | | | | 40 | 40 | 40 | 40 | 40 | 15 | | 40 | 40 | | 40 | | 40 | 40 | 40 | 40 |
| | | EOH (End of Hole) (m) | | | | | | | | | | | | | | | | | | | |

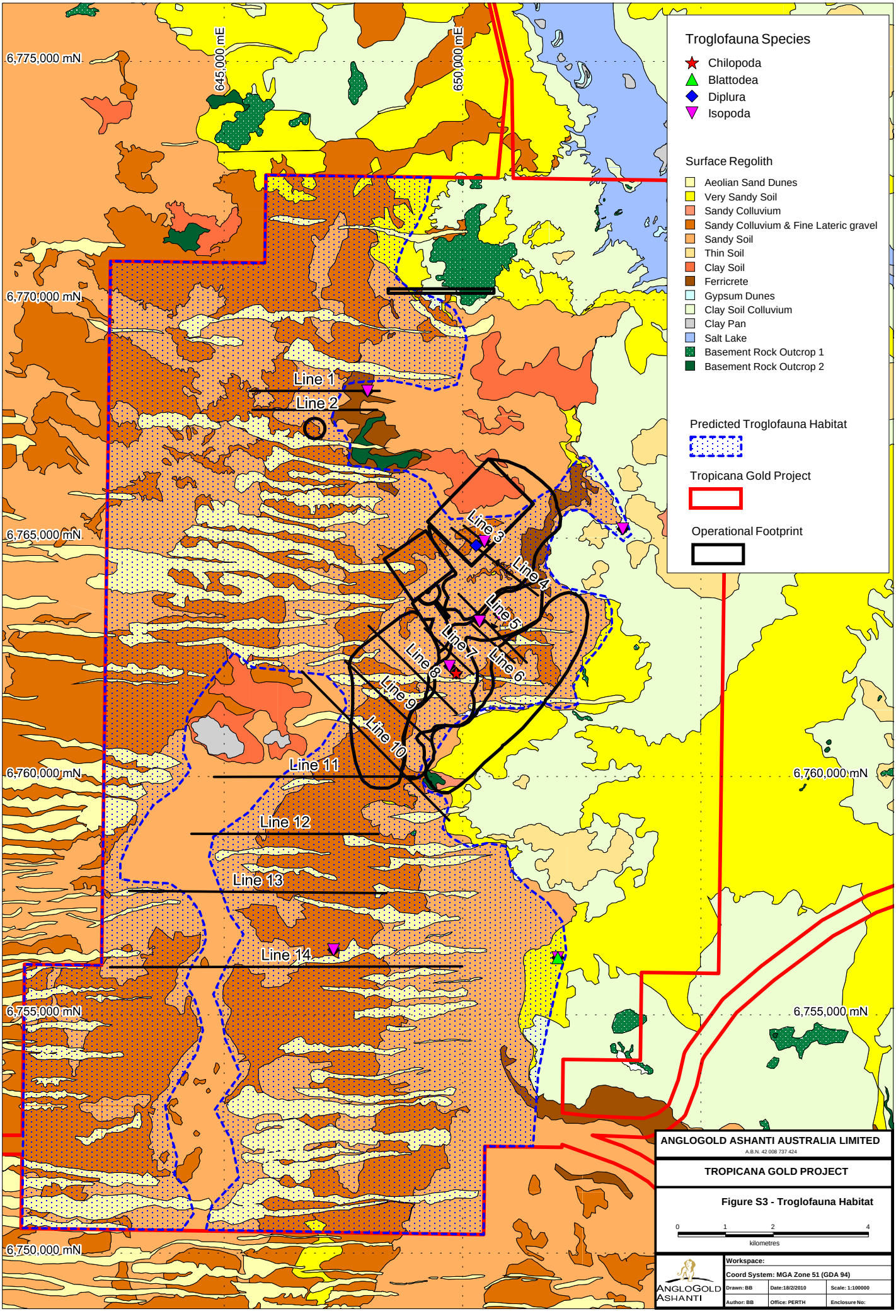
TABLE S1 C - Tropicana

**LINE 5**

| | | | | Drill Hole Number | TPRC 965 | TPRC 966 | TPRC 967 | TPRC 968 | TPRC 969 | TFRC 2573 | TPRC 583 | TFRC 2574 | TPRC 584 | TFRC 2575 | TPRC 585 | TPRC 586 | TPRC 111D | TPD 260A | TPD 028 | TPRC 474 | TPRC 475 | TPRC 476 | TPRC 477 | TPRC 478 | TPRC 479 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | RL (m) | 338.0 | 339.0 | 339.5 | 340.0 | 340.0 | 342.2 | 342.4 | 342.6 | 342.8 | 343.0 | 343.2 | 344.5 | 345.0 | 346.0 | 345.0 | 347.8 | 346.1 | 346.0 | 346.0 | 346.0 | 346.6 |
| | | | | Easting | 649936 | 650008.0 | 650071.0 | 650151.0 | 650212.0 | 650342.0 | 650358.0 | 650370.0 | 650386.0 | 650412.0 | 650427.0 | 650495.0 | 650530.0 | 650565.0 | 650706.0 | 650998.0 | 651065.0 | 651139.0 | 651207.0 | 651281.0 | 651350.0 |
| | | | | Northing | 6763815.0 | 6763738.0 | 6763694.0 | 6763607.0 | 6763528.0 | 6763266.0 | 6763252.0 | 6763238.0 | 6763220.0 | 6763196.0 | 6763181.0 | 6763114.0 | 6763078.0 | 6763042.0 | 6763048.0 | 6762757.0 | 6762678.0 | 6762612.0 | 6762541.0 | 6762472.0 | 6762400.0 |
| **Potential Troglofauna Habitat** | **Regolith Units** | | **Colour and Competency** | **Materials** | | | | | | Troglofauna | | Recovered | | | | | | | | | | | | | |
| | | | | | | | | | | | H | | | | | | | | | | | | | | |
| | TRANSPORTED REGOLITH (Sedimentary Cover Sequences) | Unconsolidated (Loose and Friable) Ferruginous Red Brown Illuvium, Aeolian, Colluvium Cover Sequences | Ferruginous Red Brown / Unconsolidated | Sand Grit | | | | | | | | | | | | | | | | | | | | | |
| | | | | Sand | 0-2 | 0-3 | 0-2 | 0-2 | - | 0-1 | 0-2 | 0-1.5 | 0-2 | 0-2 | 0-1 | 0-2 | 0-1 | 0-0.5 | - | - | - | - | - | - | - |
| | | | | Soil | | | | | | | | | | | | | | | | | | | | | |
| Likely | | | | Fine Gravel | - | - | - | 5 - 6 | 1.5-4.5 | tr | tr | tr | tr | 2-2.5 | tr | - | - | | 0.5-2.5 | 0.5-2.5 | 0-1 | - | - | 0-1 | 0-1 |
| | | | | Coarse Gravel | - | 6.5-7 | 6-9 | | 4.5-6 | - | | | | | | | | | 0-0.5 | 0-0.5 | - | 0-0.5 | 0-0.5 | | |
| | | | | Lag | - | - | | | | | | | | | | | | | | | | | | | |
| Prime | | Cemented laminar and massive multi-generational mixed lenses of Colluvium | Pale Red Brown / Indurated | Calcrete | 2-5.5 | 3-6 | 2-6 | 2-5 | 0-1.5 | 1-1.5 | 2-2.5 | 1.5-2 | - | - | 1-1.5 | 2-5 | 1-2.5 | - | | | | - | - | 1-3 | 1-2.5 |
| | | | Various / Indurated | Silcrete | 5.5-7 | 6-6.5 | - | | - | - | - | 2-2.5 | 2-2.5 | - | 1.5-2.5 | 5-7 | 2.5-3 | 0.5-5.5 | 2.5- | 2.5-7.5 | 1-4.5 | 0.5-4 | 0.5-3 | 3-5.5 | - |
| | | | Yellow Brown / Indurated | Ferricrete | | | | | | | | | | | | | | | | | | | | | |
| Marginal | | Sheet Wash Alluvial Deposits | Purple-Red / Indurated | Mottled Clay | 7-9 | 7-8 | - | - | 6-7.5 | 1.5-8 | 2.5-7 | 2.5-6 | 2.5-5 | 2.5-6.5 | 2.5-5 | 7-8 | - | 5.5-6 | | 7.5-10 | 6.5-11 | 4-11 | 3-10 | 5.5-11 | 2.5-10 |
| | | | Yellow Brown / Unconsolidated | Fine Gravel | | | | | | | | | | | | | | | | | 4.5-6.5 | - | 3-4.5 | 4.5-tr | - |
| | | | | Coarse Gravel | | | | | | | | | | | | | | | | | | | | | |
| | | | | Lag | | | | 6-7 | 7.5-8 | - | - | - | 8.5-10.5 | 6.5-8<br>10-12 | 9-10<br>12-13.5 | | | | | | - | 13-14 | 10-12 | tr | - |
| | | | Unconsol. / Ind. | Laterite Ferricrete | | | | | | | | | | | | | | | | | | | | | |
| | | Palaeochannel-fill Sediment | Various / Unconsol. | Channel-fill | 9-20 | 8-25 | - | 7-11.5 | 8-10.5 | 7-40+ | 7-40+ | 6-32 | 5-30 | 6.5-30 | 5-18.5 | 8-11 | - | | | 10-14.5 | 11-16.5 | 11-16.5 | 10-17.5 | 11-15.5 | 10-14.5 |
| | | | | Rounded Pebbles | 9-12 Silcrete | 8-8.5 Sand | - | | | | | | - | - | - | - | | | | | | 16.5-17 | tr | 15.5-16 | tr |
| Contact | | Unconformity | | Contact | 20 | 25 | 9 | 11.5 | 10.5 | 40+ | 40+ | 32 | 30 | 30 | 18.5 | 11 | 3 | 6 | 4 | 14.5 | 16.5 | 17 | 17.5 | 16 | 14.5 |
| Marginal | RESIDUAL REGOLITH (Weathered Bedrock) | Upper Saprolite | Unconsolidated | Pale white | - | | - | 11.5-33 | 10.5-18 | - | - | 32-35 | 30-31 | 30-36 | 18.5-31 | 11-19 | 3-31 | 6-40+ | | 14.5-31 | 16.5-40+ | 7.0-29 | 17.5-40 | 16-26 | 14.5-40 |
| | | Lower Saprolite | Increasingly Consolidated | Light greenish grey | 20-38 | 25-40 | 33-40 | 33-40 | 18-40 | - | - | 35-37 | 31-40 | 36-40 | 31-40 | 19-39 | 31-40 | | | 31-40 | - | 29-36 | - | 26-40 | - |
| | | Saprock | Consolidated | Dark greenish grey | 38-40 | - | - | - | - | - | - | 37-40 | - | - | - | 39-40 | - | | | - | - | 36-39.5 | - | - | - |
| | | Fresh Rock | Consolidated | Greenish grey | - | - | - | - | - | - | - | - | - | - | - | - | - | | | - | - | 39.5-40 | - | - | - |
| | GROUNDWATER MODIFICATION (Overprints) | Surface Water Accumulation & Evaporation | Red / Unc. | Hematitic Stained | 0-9 | 0-13 | 0-14.5 | 0-6 | 0-6 | 1.5-8 | 2-9 | 1.5-8 | 2-11 | 2.5-10 | 1-9 | 2-12 | 1-6.5 | | | 0-7.5 | 0-7.5 | 0-6 | 0-3 | 0-5.5 | 0-5 |
| | | | Various / Indurated | Silicified | 2-12 | 3-10 | 2-15 | 2-11.5 | 0-13 | 1-8 | 2-9 | 1.5-8 | 2-9.5 | 2.5-10 | 1-6 | 2-12 | 1-6 | 0.5-6 | | 2.5-14.5 | 1-17.5 | 0.5-18.5 | 0.5-17.5 | 1.0-16 | 1-15.5 |
| | | Poor Drainage (Zone of Low Water Flux) | Purple-Red & White / Indurated | Mottled | 7-9 | 7-8 | - | - | 6-7.5 | 1.5-7 | 2.5-7 | 1.5-6 | 2.5-5 | 2.5-6.5 | 2.0-5 | 7-8 | 2.5-6 | | | 7.5-14.5 | 6-17 | 4-17 | 3-17.5 | 5.5-16 | 6.5-17 |
| | | | | | - | - | | | | | | - | - | - | - | - | - | | | | | | | | |
| | | Water-saturation (Zone of Very Low Water Flux) | White / Indurated | Leached (Bacterial Reduction) | - | 9-17.5 | - | 7-11.5 | | | | | | | | | | | | - | - | - | - | 16-17.5 | 10-12 |
| | | | | | | 23-24 | | | 7.5-13.5 | 7-40 | 7-40 | 6-30 | 5-31 | 6.5-29 | 5-16.5 | 10-11 | - | | | | | | | | |
| | | | | | | 37-40 | | | | | | | - | 30-36 | 20-31 | - | | | | | | | | | |
| | | Good Drainage (Zone of Moderate to High Water Flux) | Yellow / Unconsolidated | Goethite Stained | - | 18-20 | 14.5-27 | 11.5-15 | 7.5-11 | - | - | | | | | 2-10 | 5-6 | | | 21-26 | 16.5-37 | 17.5-32.5 | 15-40 | 17.5-40 | 14.5-40 |
| | | | | | - | 24-25 | 29-30.5 | - | 13.5-16 | | | | | | 16.5-22 | 11-17 | | | | 27.5-40 | | | | | |
| | | | | | 20-27 | 27-34 | - | | 27-29 | | - | - | 37-38 | 29-30 | 31-38 | 19-25 | | | | | | | | | |
| | | | | | 36-37.5 | 35.5-38 | | | 34-40 | 38-39 | | | | - | | 30-34 | | | | | | | | | |
| | | Preset-Day Drainage | Watertable | | | | | | | | | | | | | | | | | | | | | | |
| | | Total Depth Logged (m) | | | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 |
| | | EOH (End of Hole) (m) | | | 120 | 150 | 150 | 120 | 146 | 70 | 85 | 80 | 100 | 90 | 114 | 150 | 180.4 | 198.5 | 289.1 | 130 | 190 | 180 | 166 | 180 | 180 |

Figure S2 - Example of Channel-fill sediment porosity

| | |
|---|---|
| Interconnecting cavities in eroded, consolidated sand and gravel  |  |
| Cavities on consolidated gravel at the base of channel  |  |
| Cavities and fractures in reduced channel, weathered basement rock  |  |


6,775,000 mN
645,000 mE
650,000 mE
6,770,000 mN
6,765,000 mN
6,760,000 mN
6,755,000 mN
6,750,000 mN
Line 1
Line 2
Line 3
Line 4
Line 5
Line 6
Line 7
Line 8
Line 9
Line 10
Line 11
Line 12
Line 13
Line 14
Troglofauna Species
Chilopoda
Blattodea
Diplura
Isopoda
Surface Regolith
Aeolian Sand Dunes
Very Sandy Soil
Sandy Colluvium
Sandy Colluvium & Fine Lateric gravel
Sandy Soil
Thin Soil
Clay Soil
Ferricrete
Gypsum Dunes
Clay Soil Colluvium
Clay Pan
Salt Lake
Basement Rock Outcrop 1
Basement Rock Outcrop 2
Predicted Troglofauna Habitat
Tropicana Gold Project
Operational Footprint
ANGLOGOLD ASHANTI AUSTRALIA LIMITED
A.B.N. 42 008 737 424
TROPICANA GOLD PROJECT
Figure S3 - Troglofauna Habitat
0
1
2
4
kilometres
ANGLOGOLD ASHANTI
Workspace:
Coord System: MGA Zone 51 (GDA 94)
Drawn: BB
Date:18/2/2010
Scale: 1:100000
Author: BB
Office: PERTH
Enclosure No: