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|-------------|---|-------------------|-------------------------|
| CLIENT | DMR | LOGGED BY | ACS/GWB |
| PROJECT | IPSWICH MOTORWAY UPGRADE - WACOL TO DARRA | CHECKED BY | GWB |
| | | DRILLED DATE | 22-Aug-07 to 10-Sep-07 |
| CONTRACTOR | Terratest | ANGLE | Vertical |
| DRILL MODEL | Edson 3000 | BEARING | - |
| DRILLER | Brent Ormsby | HOLE DIAMETER | 100mm () |
| | | GROUND LEVEL | RL 34.08m |
| | | LOCATION | 31637 E 149945 N |
| | | ELEVATION DATUM | Australian Height Datum |
| | | COORDINATE SYSTEM | Local Grid |

| DRILLING | STRATA | | MATERIAL DESCRIPTION | CONDITION | | | | | | | | OBSERVATION | | | | | | |
|----------|----------------------------------|-------|----------------------|-----------|--------------|--|--|------------------|-------------|-----|---|-------------|--------------|----|----|----|------------------------------|--------|
| | SAMPLE, TEST, BIT, SUPPORT, ETC. | R.L. | | DEPTH | GROUP SYMBOL | LEGEND | SOIL TYPE Plasticity / Grain Size, Colour, Minor Components | WATER / MOISTURE | CONSISTENCY | | | | | | | | | |
| | | | | | | | | | COHESIVE | | | | NON COHESIVE | | | | SOIL ORIGIN, STRUCTURE, ETC. | |
| | m | m | | | | | VS | SL | ST | VST | H | VL | LL | ML | DL | VD | | |
| | | | SP | | | SAND (SP) medium dense to dense, fine to coarse grained, dark brown. 0.20 becoming light yellow to brown/orange 0.50 with ironstone gravel fine grained angular to sub-rounded | | | | | | | | | | | | NONCO |
| | | 32.58 | 1.50 | | | SANDSTONE fine to coarse grained, extremely low strength, with occasional quartz crystals orange-brown mottled orange and yellow. 1.80 becoming white-grey | | | | | | | | | | | | SNDSTN |
| | | 31.58 | 2.50 | | | SILTSTONE low to medium plasticity, extremely low strength, yellow. | | | | | | | | | | | | MUD |
| | | | 3 | | | Borehole continued as a Cored Drillhole | | | | | | | | | | | | |
| | | | 4 | | | | | | | | | | | | | | | |
| | | | 5 | | | | | | | | | | | | | | | |
| | | | 6 | | | | | | | | | | | | | | | |
| | | | 7 | | | | | | | | | | | | | | | |
| | | | 8 | | | | | | | | | | | | | | | |
| | | | 9 | | | | | | | | | | | | | | | |

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| NOTES | Hole Diameter 100mm to 16.63m depth. () | JOB | 86015 |
|-------|--|-----|-------|

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 Library : j:\86000\86015\res\m\geotechnics\gint\library\library_12 (04.10.007).gib
 Log : 1.0.1 AUSTRALIA GENERAL BOREHOLE LOG (rev 12Dec07 checked AB/ACP Feb 2006)
 gINT output page 1 of 1. Made 22Jan08 14:45

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|-------------|---|---------------|-------------------|-------------------------|
| CLIENT | DMR | | LOGGED BY | ACS/GWB |
| PROJECT | IPSWICH MOTORWAY UPGRADE - WACOL TO DARRA | | CHECKED BY | GWB |
| CONTRACTOR | Terratest | ANGLE | DRILLED DATE | 22-Aug-07 to 10-Sep-07 |
| DRILL MODEL | Edson 3000 | BEARING | GROUND LEVEL | RL 34.08m |
| DRILLER | Brent Ormsby | HOLE DIAMETER | LOCATION | 31637 E 149945 N |
| | | | ELEVATION DATUM | Australian Height Datum |
| | | | COORDINATE SYSTEM | Local Grid |

| DRILLING | | | | STRATA | | MATERIAL DESCRIPTION | | | | | | | | | | DISCONTINUITIES | | | | |
|--------------------|-------------|-----------------------|---|--------|-------|----------------------|---|---|-------------------------|----|----|----|----|----|-------------|-------------------|----------|-------|----------------|--|
| TOR % (Drill rate) | SCR / (ROD) | FLUSH RETURN % (TYPE) | SAMPLES (CaCO ₃ , SPT, UCS, etc) | R.L. | DEPTH | GRAPHIC LOG | ROCK TYPE Grain Size, Texture/Fabric, Colour, Minor Components | WEATHERING | ESTIMATED ROCK STRENGTH | | | | | | Is 50 (MPa) | FREQUENCY (per m) | SPECIFIC | | | GENERAL DESCRIPTION Planarity, Roughness, Coating, Infill |
| | | | | m | m | | | | EL | VL | MI | VI | VE | HE | | | TYPE | ANGLE | THICKNESS (mm) | |
| | | | | | 1 | | | | | | | | | | | | | | | |
| | | | | | 2 | | | | | | | | | | | | | | | |
| | | | | | 3 | 30.98 | 3.10 | Continued from Borehole CORE LOSS (likely extremely low strength siltstone/sandstone). | | | | | | | | | | | | |
| | | | | | 4 | 30.13 29.98 | 3.95 4.10 | Sandy CLAY (CL) soft, yellow-brown, sand, fine to coarse grained. SANDSTONE fine to coarse grained, yellow-brown. | | | | | | | | | | | | |
| | | | | | | 29.38 | 4.70 | SANDSTONE coarse grained, white-grey, with some gravel. | | | | | | | | | | | | |
| | | | | | 5 | 29.08 | 5.00 | Conglomerate SANDSTONE fine to coarse grained, yellow-brown, with gravel sub-angular, black, red and yellow. | | | | | | | | | | | | |
| | | | | | | 28.83 | 5.25 | MUDSTONE massive, properties of very stiff to hard clay (CH), white-grey. | | | | | | | | | | | | |
| | | | | | | 28.53 | 5.55 | SILTSTONE grey. | | | | | | | | | | | | |
| | | | | | 6 | 28.23 28.08 | 5.85 6.00 | MUDSTONE massive, with properties of very stiff to hard clay (CH), grey. SANDSTONE fine grained, grey. 6.25 band of quartz crystals 6.30 yellow brown | | | | | | | | | | | | |
| | | | | | | 27.73 | 6.35 | SILTSTONE yellow-brown. | | | | | | | | | | | | |
| | | | | | 7 | 27.28 | 6.80 | SANDSTONE fine grained, yellow-brown and red mottled. | | | | | | | | | | | | |
| | | | | | | 26.93 | 7.15 | SANDSTONE fine grained, yellow-brown and red mottled. | XW | | | | | | | | | | | |
| | | | | | | 26.65 | 7.43 | SILTSTONE grey. | SW | | | | | | | | | | | |
| | | | | | 8 | 26.02 25.97 | 8.06 8.11 | ASH black. | XW | | | | | | | | | | | |
| | | | | | | 25.68 | 8.40 | SANDSTONE fine grained, yellow-brown, red 8.16m - 8.28m medium to coarse grained | XW | | | | | | | | | | | |
| | | | | | | 25.60 | 8.48 | SILTSTONE grey. | SW | | | | | | | | | | | |
| | | | | | | 25.50 | 8.58 | SANDSTONE fine grained, grey. | RS | | | | | | | | | | | |
| | | | | | | 25.43 | 8.65 | SILTSTONE grey. | | | | | | | | | | | | |
| | | | | | | 25.33 | 8.75 | SANDSTONE fine grained, grey. SILTSTONE grey. SILTSTONE/MUDSTONE very fine grained, black. | | | | | | | | | | | | |
| | | | | | 9 | 24.91 | 9.17 | SANDSTONE medium to coarse grained, mottled yellow-brown, grey, quartz rich sandstone. 8.95 becoming coarser grained SANDSTONE medium to coarse grained, mottled yellow-brown, grey, quartz rich sandstone. 9.60 gravel red coarse grained sub-rounded | XW | | | | | | | | | | | |

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| NOTES | Hole Diameter 100mm to 16.63m depth. () | JOB | 86015 |
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 Log: 1.2.1 AUSTRALIA ROTARY CORE LOG (rev.22-Jan-08 checked AB/ACP Feb 2006)
 gINT output page 1 of 2. Made 22-Jan-08 14:46

| | | | |
|-------------|---|---------------|-----------|
| CLIENT | DMR | | |
| PROJECT | IPSWICH MOTORWAY UPGRADE - WACOL TO DARRA | | |
| CONTRACTOR | Terratest | ANGLE | Vertical |
| DRILL MODEL | Edson 3000 | BEARING | - |
| DRILLER | Brent Ormsby | HOLE DIAMETER | 100mm () |

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| LOGGED BY | ACS/GWB |
| CHECKED BY | GWB |
| DRILLED DATE | 22-Aug-07 to 10-Sep-07 |
| GROUND LEVEL | RL 34.08m |
| LOCATION | 31637 E 149945 N |
| ELEVATION DATUM | Australian Height Datum |
| COORDINATE SYSTEM | Local Grid |

| DRILLING | | | | STRATA | | MATERIAL DESCRIPTION | | | | DISCONTINUITIES | | | | | |
|--------------------|-------------|-----------------------|---|--------|-------|----------------------|---|-------------|-------------------------|-----------------|-------------------|----------|-------|---------------------|----------------------------------|
| TOR % (Drill rate) | SCR / (ROD) | FLUSH RETURN % (TYPE) | SAMPLES (CaCO ₃ , SPT, UCS, etc) | R.L. | DEPTH | GRAPHIC LOG | ROCK TYPE Grain Size, Texture/Fabric, Colour, Minor Components | WEATHERING | ESTIMATED ROCK STRENGTH | Is 50 (MPa) | FREQUENCY (per m) | SPECIFIC | | GENERAL DESCRIPTION | |
| | | | | m | m | | | | | | | TYPE | ANGLE | | THICKNESS (mm) |
| 1000 | 1000/(100) | | B | | 11 | [Dotted pattern] | SANDSTONE medium to coarse grained, mottled yellow-brown, grey, quartz rich sandstone. (continued) 10.00m - 10.85m quartz gravel inclusions fine grained 10.85m - 11.00m fine to medium grained | XW | [Strength scale] | A0.77 | [Frequency scale] | Be | 0 | 1 | PL Ro4 S |
| | | | B | 21.58 | 12 | | 11.88 gravels black coarse grained sub-angular 12.00 siltstone bands (generally the lower strength bands) | | | A0.53 | | Be | 0 | 1 | PL Ro3 SC |
| 1000 | 1000/(100) | | B | 20.41 | 13 | [Dotted pattern] | SANDSTONE fine to coarse grained, grey. 12.64m - 13.05m from 12.64m sandstone has black carbon films in core (appears like coal) 13.05m - 13.10m siltstone band dark grey-black 13.30 black coal nodule | DW/EW | [Strength scale] | A0.09 | | Jo | 40 | 2 | PL Ro3 S |
| | | | B | 20.25 | 14 | | SILTSTONE black, coal appearance. SANDSTONE fine to coarse grained, grey, with black siltstone laminae. | XW FR/SW | | A0.83 | | Be | 10 | <1 | PL Ro2 C |
| 1000 | 1000/(100) | | B | 17.45 | 15 | [Dotted pattern] | | | [Strength scale] | A1.09 | | Be | 40 | 1 | PL Ro3 S |
| | | | B | 16.63 | 16 | | | | | | | | Be | 0 | 1 |
| | | | | | 17 | | End of Borehole at 16.63m | | | | | Be | 0 | 1 | PL Ro3 S |
| | | | | | 18 | | | | | | | Be | 0 | 1 | PL Ro3 S |
| | | | | | 19 | | | | | | | Be | 0 | 1 | PL Ro2 S PL Ro3 S PL Ro3 S |

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| NOTES | Hole Diameter 100mm to 16.63m depth. () | JOB | 86015 |
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 Log : 1.2.1 AUSTRALIA ROTARY CORE LOG (rev 22-Jan-08 checked AB/ACP Feb 2006)
 gINT output page 2 of 2. Made 22-Jan-08 14:46

BOREHOLE PHOTOGRAPHS



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|----------|--|---------|--------------------------|-----------------|-------|
| PROJECT: | Ipswich Motorway and Centenary Highway Upgrade | CLIENT: | Department of Main Roads | PROJECT NUMBER: | 86015 |
|----------|--|---------|--------------------------|-----------------|-------|

Hole: BH 239



Depth: 3m - 9m



Depth: 9m - 15m



Depth: 15m - 16.63m