AEF002

MACROINVERTEBRATE SAMPLING FIELD SHEET

Queensland Government
Natural Resources and Mines

Site Number [| | | | | |] **Sample Number** [| | | | | | | | | | | | |]
Site Name _____
Project Code [| | | | | |] **Date** [| / | / | | | |] **Time** (24 hrs) [| : |]
Run Code [| | | | | |] **Project Name** _____

EDGE/BACKWATER: Y [ ] N [ ] Collected by: [| |] Picked By: [| |] No. vials: [ ] QAQC Residue: Y [ ] N [ ]
(average over 10 m sampled)

Velocity (m/sec): max [| • | |] min [| • | |]
Mean Sample Depth: [| • | |] m
Mean Wetted Width: [| | | • |] m

Method: 10 m sweep [ ]
____ minutes random live-pick [ ]
Other _____ [ ]

Canopy Cover: [| |] % **Densiometer:** [| |] %
Shading: [| |] %

Snags and LWD:

Detritus (leaves, twigs)	N	L	S	M	E
Sticks (<2cm diam)	N	L	S	M	E
Branches (<15cm diam)	N	L	S	M	E
Logs (>15cm diam)	N	L	S	M	E

Substrate Description:

Bedrock	[		] %
Boulder (> 256 mm)	[		] %
Cobble (64 - 256 mm)	[		] %
Pebble (4 - 64 mm)	[		] %
Gravel (2 - 4 mm)	[		] %
Sand (0.05 - 2 mm)	[		] %
Silt/Clay (< 0.05 mm)	[		] %

Habitat Attributes:

Periphyton	N	L	S	M	E
Moss	N	L	S	M	E
Filamentous algae	N	L	S	M	E
Macrophytes	N	L	S	M	E
Bank overhang vegetation	N	L	S	M	E
Trailing bank vegetation (tree roots, vegetation, grasses, etc)	N	L	S	M	E
Blanketing silt	N	L	S	M	E
Substrate anoxia	N	L	S	M	E

N = none L = 1-10% (little) S = 10-50% (some) M = 50-75% (moderate) E = >75% (extensive)

BED: Y [ ] N [ ] Collected by: [| |] Picked By: [| |] No. vials: [ ] QAQC Residue: Y [ ] N [ ]
TYPE: Riffle [ ] Run [ ] Pool (rocky/gravel) [ ] Pool (sandy/silty) [ ]
(average over 10 m sampled)

Velocity (m/sec): max [| • | |] min [| • | |]
Mean Sample Depth: [| • | |] m
Mean Wetted Width: [| | | • |] m

Method: 10 m kick only [ ]
10 m kick & gleaning rocks of different sizes (5) [ ]
____ minutes random live-pick [ ]
Other _____ [ ]

Canopy Cover: [| |] % **Densiometer:** [| |] %
Shading: [| |] %

Snags and LWD:

Detritus (leaves, twigs)	N	L	S	M	E
Sticks (<2cm diam)	N	L	S	M	E
Branches (<15cm diam)	N	L	S	M	E
Logs (>15cm diam)	N	L	S	M	E

Substrate Description:

Bedrock	[		] %
Boulder (> 256 mm)	[		] %
Cobble (64 - 256 mm)	[		] %
Pebble (4 - 64 mm)	[		] %
Gravel (2 - 4 mm)	[		] %
Sand (0.05 - 2 mm)	[		] %
Silt/Clay (< 0.05 mm)	[		] %

Habitat Attributes:

Periphyton	N	L	S	M	E
Moss	N	L	S	M	E
Filamentous algae	N	L	S	M	E
Macrophytes	N	L	S	M	E
Bank overhang vegetation	N	L	S	M	E
Trailing bank vegetation (tree roots, vegetation, grasses, etc)	N	L	S	M	E
Blanketing silt	N	L	S	M	E
Substrate anoxia	N	L	S	M	E

N = none L = 1-10% (little) S = 10-50% (some) M = 50-75% (moderate) E = >75% (extensive)

Comments . . . . . .

TOTAL NO. VIALS: **OTHERS:**

DU506400.ai
(nr17621) 2/9/2002

1. LONGITUDINAL PROFILE SKETCH OF STREAM REACH

Scale: _____

Please indicate on sketch and tick off each item when completed.

- ☐ Biological sampling sites for each habitat type.
- ☐ Water quality measurement and water sample collection sites.
- ☐ Location from where photograph(s) taken.
- ☐ Flow direction
- ☐ Location of cross-sectional profile sketch.
- ☐ Riparian vegetation (include approx. heights).
- ☐ Riparian zone width.

2. CROSS-SECTIONAL PROFILE SKETCH OF STREAM REACH

Scale: _____

Please indicate on sketch and tick off each item when completed.

- ☐ Bankfull bank height
- ☐ Bankfull stream width
- ☐ Stream wetted width
- ☐ "Normal" wetted width
- ☐ Riparian vegetation height
- ☐ Riparian zone width
- ☐ Water depth

3. COMMENTS

_____

_____

_____

_____

_____

_____

_____

(*Office use only*) Entered into AQEIS ___/___/___ by _____ Checked on ___/___/___ by _____

AEF003

WATER QUALITY SAMPLING FIELD SHEET

Queensland Government
Natural Resources and Mines

Site Number [| | | | | |] **Sample Number** [| | | | | | | | | | | |]
Site Name _____
Date [| / | / | | | |] **Project Name** _____
Time (24 hrs) [| : |]
QHSS Analysis No. [| | | | |]
Project Code [| | | | | |]
Run Code [| | | | | |] **Submitted**

A	B	C	D	E	F	G	H	I	J	K	L	M	N

Party [| |] [| |] [| |] **Received**

SAMPLING LOCATION: Latitude _____ **Longitude** _____
Reach orientation (looking downstream): N NE E SE S SW W NW Datum: _____

WATER QUALITY

Parameter	Value	Quality	Variable
Conductivity µS/cm@25^{0}C	[				]	[		]	2010.5
Water Temperature ^{0}C	[		•	]	[		]	2080.5
pH	[		•	]	[		]	2100.5
Dissolved 0_2 mg/l	[		•	]	[		]	2351.5
Turbidity NTU	[				]	[		]	2030.5
Air Temperature ^{0}C	[		•	]	[		]	2065.5
Total Alkalinity mg/l $CaCO_3$	[			•	]	[		]	2113.5
Phenol Alkalinity mg/l $CaCO_3$	[			•	]	[		]	2114.5
Transparency (secchi) m	[		•		]	[		]	2046.5
Velocity m/s	[	•		]	[		]	240.0
Gauge Height m	[			•		]	[		]	100.0
Discharge m^3/s	[				•				]	[		]	140.0

Discharge Method: measured (gauged) ☐ obtained from rating curve ☐ estimated: ☐ no flow ☐ trickle ☐ >0.01 cumecs

WEATHER: ***Rain in past week:*** Yes [ ] No [ ] Comments: . . . . . .
Today: Rain . . . . . Cloud cover . . . . . Wind . . . . . .
Comments: . . . . . .

OBSERVATIONS AT WATER SAMPLING SITE (within 2 metres of sampling point or on closest bank)

Shading: . . . . . % **Water Odour:** . . . . . .
Water Surface Condition: Normal Slick Scum Foaming Other . . . . . .
Algae: On substrate: N L S M E In water column: N L S M E
Macrophytes: Emergent: N L S M E Submerged: N L S M E
Floating: N L S M E
Impacts: Human N L S M E Pastoral animals N L S M E Non-pastoral animals N L S M E

N = none L = 1-10% (little) S = 10-50% (some) M = 50-75% (moderate) E = >75% (extensive)

PERCENT OF HABITAT TYPES IN 100 m REACH:

Riffle (R) [| |] % Run [| |] %
Pool (rocky-K) [| |] % Pool (sandy-S) [| |] %
Dry [| |] % Riffle + Run + Pool + Dry = 100%

Edge [| |] %
Edge is % of habitat available to sample from L and R banks

Macrophytes [| |] % in: R . . . . % E . . . . %
K . . . . % S . . . . % Run . . . . %
Algae [| |] % in: R . . . . % E . . . . %
K . . . . % S . . . . % Run . . . . %
Blanketing silt [| |] %

COMMENTS: . . . . . .
. . . . . .

(*Office use only*) Entered into Hydsys ___/___/___ by _____ Checked on ___/___/___ by _____
Entered into AQEIS ___/___/___ by _____ Checked on ___/___/___ by _____

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(mr17621) 2/9/2002

REACH OBSERVATIONS (of 100 m stream length)

Upstream landuse: . . . . . .

Adjacent landuse: Left bank: Score . . . . . Type . . . . . Right bank: Score . . . . . Type . . . . . .

0. Urban/semi-urban, industrial
1. Irrigated cropping, intensive forestry or heavy grazing
2. Non-irrigated cropping, moderate grazing
3. Light grazing, vegetation clearing
4. Natural

Local catchment erosion:	None	Little	Some	Moderate	Extensive
Water colour:	Clear	Green	Opaque	Tannin	Other . . . . .
Sediment deposits:	None	Sand	Silt	Other	
Algae: On substrate:	None	Little	Some	Moderate	Extensive
In water column:	None	Little	Some	Moderate	Extensive
Water odour:	No	Yes	Specify		
Substrate odour:	No	Yes	Specify		
Water surface:	Normal	Slick	Scum	Foaming	Other . . . . .
Variety of habitat: (circle all types)	Shallow	Deep	Pool	Run	Riffle
	Undercut bank		LWD	Macrophytes	Other . . . . .

Bars: (bed surface protruding from normal water level and forming a bar) . . . . . %

Flow level: (relative to 'watermark' i.e. normal inundation level shown by limit of terrestrial grasses, or by eroded area, or boundary in bank sediment types).

No flow	Low	Moderate	High	Flood
(dry/isolated)	(<watermark)	(=watermark)	(>watermark)	

RIPARIAN ZONE (to maximum 100 m width)

Width of riparian zone:		Left bank . . . . . m		Right bank . . . . . m	
*** Bare ground**	None	Little	Some	Moderate	Extensive
*** Grass**	None	Little	Some	Moderate	Extensive
*** Shrubs**	None	Little	Some	Moderate	Extensive
*** Trees <10 m high**	None	Little	Some	Moderate	Extensive
*** Trees >10 m high**	None	Little	Some	Moderate	Extensive
Presence of exotic riparian species	None	Little	Some	Moderate	Extensive
Width of continuous tree zone from bank:		Left bank . . . . . m		Right bank . . . . . m	

None = 0% Little = 1–10% Some = 10–50% Moderate = 50–75% Extensive >75% * Can add to >100%

MACROPHYTES Indicate the presence and abundance of the following common taxa in the 100 m reach:

Native

Azolla	N	L	S	M	E	Water Ribbon (*Triglochin*)	N	L	S	M	E
Duckweed	N	L	S	M	E	Water Lettuce (*Pistia stratiotes*)	N	L	S	M	E
Hornwort (*Ceratophyllum*)	N	L	S	M	E	Water Primrose (*Ludwigia*)	N	L	S	M	E
Stoneworts (*Chara* or *Nitella*)	N	L	S	M	E	Sedge (*Cyperus*)	N	L	S	M	E
Hydrilla	N	L	S	M	E	Common Rush (*Juncus*)	N	L	S	M	E
Water Milfoil (*Myriophyllum*)	N	L	S	M	E	Cumbungi (*Typha*)	N	L	S	M	E
Pondweeds (*Potamogeton*)	N	L	S	M	E	Slender Knotweed (*Persicaria*)	N	L	S	M	E
Ribbonweed (*Vallisneria*)	N	L	S	M	E	. . . . .	N	L	S	M	E
. . . . .	N	L	S	M	E	. . . . .	N	L	S	M	E

Exotic

Water Hyacinth (*Eichhornia*)	N	L	S	M	E	Alligator Weed (*Alternanthera*)	N	L	S	M	E
Salvinia	N	L	S	M	E	Elodea	N	L	S	M	E
Para Grass (*Urochloa*)	N	L	S	M	E	*Egeria*	N	L	S	M	E
. . . . .	N	L	S	M	E	. . . . .	N	L	S	M	E

Comments: . . . . . .

. . . . . .

N = none L = 1-10% (little) S = 10-50% (some) M = 50-75% (moderate) E = >75% (extensive)

AEF005

WATER PLANTS and DIATOMS SAMPLING FIELD SHEET

Queensland Government Natural Resources and Mines

Site Number [| | | | | | |] **Sample Number** [| | | | | | | | | | | | | |]

Site Name ______________________________

Project Code [| | | | | | |] **Date** [| / | / | | |]

Run Code [| | | | | | |] **Time** (24 hrs) [| : |]

MACROPHYTES and MACROALGAE

Includes all stream-dependent species, whether growing in water or not

I = isolated; S = scattered; B = beds/stands; O = overgrowing/filling channel

(List and circle abundance category per section - two if intermediate)

Species	Specimen retained	1 (d/s)	2	3	4 (u/s)
		I S B O	I S B O	I S B O	I S B O
		I S B O	I S B O	I S B O	I S B O
		I S B O	I S B O	I S B O	I S B O
		I S B O	I S B O	I S B O	I S B O
		I S B O	I S B O	I S B O	I S B O
		I S B O	I S B O	I S B O	I S B O
		I S B O	I S B O	I S B O	I S B O
		I S B O	I S B O	I S B O	I S B O
		I S B O	I S B O	I S B O	I S B O
		I S B O	I S B O	I S B O	I S B O
		I S B O	I S B O	I S B O	I S B O
		I S B O	I S B O	I S B O	I S B O
		I S B O	I S B O	I S B O	I S B O
		I S B O	I S B O	I S B O	I S B O
		I S B O	I S B O	I S B O	I S B O
		I S B O	I S B O	I S B O	I S B O
		I S B O	I S B O	I S B O	I S B O
		I S B O	I S B O	I S B O	I S B O
		I S B O	I S B O	I S B O	I S B O
		I S B O	I S B O	I S B O	I S B O
		I S B O	I S B O	I S B O	I S B O
		I S B O	I S B O	I S B O	I S B O
		I S B O	I S B O	I S B O	I S B O
		I S B O	I S B O	I S B O	I S B O
		I S B O	I S B O	I S B O	I S B O
		I S B O	I S B O	I S B O	I S B O

DIATOMS

(Tick flow type and substratum sampled)

VIAL 1

Riffle (standing waves - unbroken)	[ ]	Rock	[ ]
Run (visible current - rippled surface)	[ ]	Wood	[ ]
Glide (visible current - smooth surface)	[ ]	Emergent macrophyte	[ ]
Pool (no visible current)	[ ]	Floating/submerged macrophyte	[ ]
		Fine particle (sand/silt/clay)	[ ]

VIAL **2**

Riffle (standing waves - unbroken)	[ ]	Rock	[ ]
Run (visible current - rippled surface)	[ ]	Wood	[ ]
Glide (visible current - smooth surface)	[ ]	Emergent macrophyte	[ ]
Pool (no visible current)	[ ]	Floating/submerged macrophyte	[ ]
		Fine particle (sand/silt/clay)	[ ]

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A4506401.ai (nr17621) 2/9/2002

AEF006

MACROINVERTEBRATE FIELD IDENTIFICATION SHEET

Queensland Government
Natural Resources and Mines

Site Number: [| | | | | |] **Habitat:** _____ **Collector:** _____

Site Name: _____ **Picker:** _____

Run Code: _____ **Collection date:** [| / | / | | | |] **No. vials** _____ **Time taken:** _____

Porifera			**Odonata**			**Diptera**		
Hydridae			Aeshnidae			Chironomidae		
Dugesiidae			Gomphidae					
Oligochaeta			Corduliidae			Simuliidae		
			Libellulidae			Ceratopogonidae		
			Coenagrionidae			Culicidae		
Hirudinea			Isostictidae			Tipulidae		
Glossiphoniidae			Protoneuridae			Tabanidae		
Erpobdellidae			Diphlebidae			Stratiomyidae		
Gastropoda						Dolichopodidae		
Physidae			**Plecoptera**					
Planorbidae			Eustheniidae					
Lymnaeidae			Gripopterygidae					
Hydrobiidae			**Hemiptera**			**Trichoptera**		
Thiaridae			Corixidae			Leptoceridae		
Ancylidae			Nepidae			Hydropsychidae		
Viviparidae			Notonectidae			Ecnomidae		
Bivalvia			Pleidae			Hydroptilidae		
Sphaeriidae			Hydrometridae			Calamoceratidae		
Corbiculidae			Gerridae			Helicopsychidae		
Hyriidae			Veliidae			Philopotamidae		
Acarina								
Microcrustacea								
Copepoda								
Ostracoda			Corydalidae					
Cladocera			Sialidae					
Isopoda			**Coleoptera**			**Lepidoptera**		
Cirolanidae			Gyrinidae			Pyralidae		
Sphaeromatidae			Dytiscidae					
Amphipoda			Elmidae					
Atyidae			Psephenidae					
Palaemonidae			Hydrophilidae					
Parasticidae			Scirtidae					
Ephemeroptera			Staphylinidae					
Leptophlebiidae			Ptilodactylidae					
Baetidae			Hydraenidae			Entered – date		
Caenidae						– initials		
						Checked – date		
						– initials		

DU506406.ai
(nr17621) 2/9/2002

AEF001

BIOLOGICAL MONITORING FIELD SAMPLING AUDIT

Queensland Government
Natural Resources and Mines

Site Number [| | | | | |] **Site Name** _____

Project Code [| | | | | |] **Project Name** _____

Run Code [| | | | | |]

Please check off each item before leaving a sampling site.

[ ] **Plan sketch of 100 m stream reach to be sampled**
to include location of different habitats, macrophytes and other vegetation, biological sampling areas, water quality measurement sites, water collection site, cross-sectional profile site, photographic points, and scale.

[ ] **Cross-sectional profile sketch**
to include stream width, bank heights, riparian vegetation heights and riparian zone width.

[ ] **Photograph(s)/video of sampling site;** photo numbers . . . . . .

[ ] **Biological sampling of appropriate indicator(s)** e.g. macroinvertebrates, fish, diatoms

[ ] **Biological samples preserved and appropriately stored**

[ ] **Biological residue samples preserved, labelled and stored in sealed container**

[ ] **Water quality measurements taken**

[ ] **Water quality samples for laboratory analysis collected, labelled and stored appropriately**

[ ] **Laboratory analysis input sheet filled out correctly and analysis number recorded on Water Quality Sampling Field Sheet**

[ ] **Macroinvertebrate Sampling Field Sheet completed and checked**

[ ] **Water Quality Sampling Field Sheet completed and checked**

[ ] **Macroinvertebrate Composite Habitat Sampling Field Sheet completed and checked**

[ ] **Macrophyte and Diatom Sampling Field Sheet completed and checked**

[ ] **Reference Condition Selection Criteria Sheet completed and checked**

[ ] **Gauge height/flow recorded**

[ ] **GPS latitude and longitude recorded**

[ ] **Other Sampling Field sheets completed** **Specify:** _____

Date ___/___/___

Signed _____

DU506407.ai
(nr17621) 2/9/2002

The Velocity:Depth Table to Identify Stream Habitat Types

(V:D>0.032 = riffle, <0.0124 = pool, in between = run)

(P = Pool, R = Riffle)

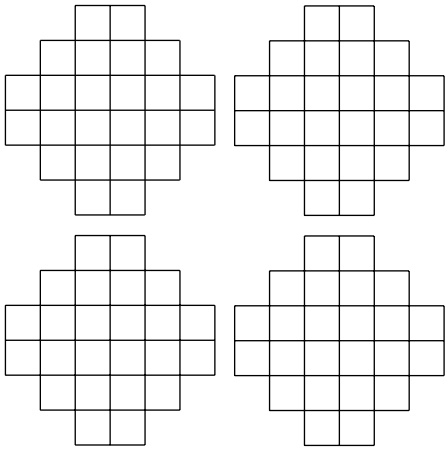
Try to avoid sampling "marginal" habitats

VELOCITY (m sec^{-1})

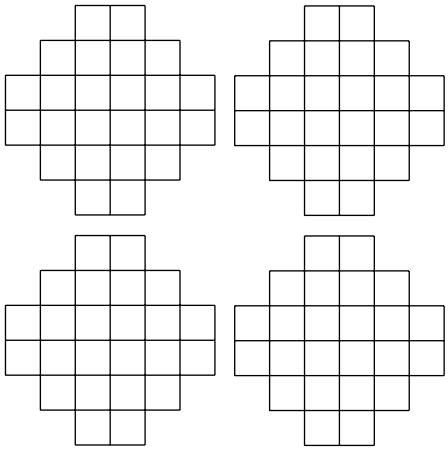
DEPTH (cm)	0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.1	2.2	2.3	2.4	2.5
5	P	**run**	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
10	P	P	**run**	**run**	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
15	P	P	**run**	**run**	**run**	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
20	P	P	P	**run**	**run**	**run**	**run**	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
25	P	P	P	P	**run**	**run**	**run**	**run**	**run**	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
30	P	P	P	P	**run**	**run**	**run**	**run**	**run**	**run**	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
35	P	P	P	P	P	**run**	**run**	**run**	**run**	**run**	**run**	**run**	R	R	R	R	R	R	R	R	R	R	R	R	R	R
40	P	P	P	P	P	**run**	**run**	**run**	**run**	**run**	**run**	**run**	**run**	R	R	R	R	R	R	R	R	R	R	R	R	R
45	P	P	P	P	P	P	**run**	**run**	**run**	**run**	**run**	**run**	**run**	**run**	**run**	R	R	R	R	R	R	R	R	R	R	R
50	P	P	P	P	P	P	P	**run**	**run**	**run**	**run**	**run**	**run**	**run**	**run**	**run**	**run**	R	R	R	R	R	R	R	R	R
55	P	P	P	P	P	P	P	**run**	**run**	**run**	**run**	**run**	**run**	**run**	**run**	**run**	**run**	**run**	R	R	R	R	R	R	R	R
60	P	P	P	P	P	P	P	P	**run**	**run**	**run**	**run**	**run**	**run**	**run**	**run**	**run**	**run**	**run**	**run**	R	R	R	R	R	R
65	P	P	P	P	P	P	P	P	P	**run**	**run**	**run**	**run**	**run**	**run**	**run**	**run**	**run**	**run**	**run**	**run**	R	R	R	R	R
70	P	P	P	P	P	P	P	P	P	**run**	**run**	**run**	**run**	**run**	**run**	**run**	**run**	**run**	**run**	**run**	**run**	**run**	**run**	R	R	R
75	P	P	P	P	P	P	P	P	P	P	**run**	**run**	**run**	**run**	**run**	**run**	**run**	**run**	**run**	**run**	**run**	**run**	**run**	**run**	**run**	R
80	P	P	P	P	P	P	P	P	P	P	**run**	**run**	**run**	**run**	**run**	**run**	**run**	**run**	**run**	**run**	**run**	**run**	**run**	**run**	**run**	**run**
85	P	P	P	P	P	P	P	P	P	P	P	**run**	**run**	**run**	**run**	**run**	**run**	**run**	**run**	**run**	**run**	**run**	**run**	**run**	**run**	**run**
90	P	P	P	P	P	P	P	P	P	P	P	P	**run**	**run**	**run**	**run**	**run**	**run**	**run**	**run**	**run**	**run**	**run**	**run**	**run**	**run**
95	P	P	P	P	P	P	P	P	P	P	P	P	**run**	**run**	**run**	**run**	**run**	**run**	**run**	**run**	**run**	**run**	**run**	**run**	**run**	**run**
100	P	P	P	P	P	P	P	P	P	P	P	P	P	**run**	**run**	**run**	**run**	**run**	**run**	**run**	**run**	**run**	**run**	**run**	**run**	**run**

DENSIOMETER GRIDS

Habitat _____



Habitat _____



DEFINITIONS

Edge: the stream area along the banks, out to a distance of 0.5 m

Riparian zone: any land which adjoins, directly influences, or is influenced by a body of water

Periphyton: carpet-like growth of algae, small plants and animals that cover submerged surfaces e.g. rocks, plant stems, sand beds etc.

Bank overhang vegetation: vegetation (tree branches, grasses) that overhang (to a height of ~3 m) the sampling area, but are not in the water

Trailing bank vegetation: tree roots, vegetation, grasses etc. that trails into the water

Collecting Authority

DH Departmental Hydrographers

DS Departmental Scientists

Sample Source (Surfacewater)

SS	Stream	**SD**	Offstream storage
SL	Lake	**SW**	Wetland
ST	Storage (dam/weir)	**SB**	Billabong

AEF007

River Bioassessment Program

Queensland Government
Natural Resources and Mines

HABITAT ASSESSMENT FIELD SHEET

SITE NUMBER: [| | | | | |] **SITE NAME:** _____

Date: ____/____/_____ **Time (24 hrs): [| | |]** **GPS:** _____ **Project Name:** _____

Habitat Variable	CATEGORY			
	Excellent	**Good**	**Fair**	**Poor**
1. Bottom substrate/available cover	Greater than 50% rubble, gravel, submerged logs, undercut banks or other stable habitat. 20, 19, 18, 17, 16	30-50% rubble, gravel or other stable habitat. Adequate habitat. 15, 14, 13, 12, 11	10-30% rubble, gravel or other stable habitat. Habitat availability less than desirable. 10, 9, 8, 7, 6	Less than 10% rubble, gravel or stable habitat. Lack of habitat is obvious. 5, 4, 3, 2, 1, 0
2. Embeddedness	Gravel, cobble and boulder particles are between 0 & 25% surrounded by fine sediment. 20, 19, 18, 17, 16	Gravel, cobble and boulder particles are between 25% & 50% surrounded by fine sediment. 15, 14, 13, 12, 11	Gravel, cobble and boulder particles are between 50 & 75% surrounded by fine sediment. 10, 9, 8, 7, 6	Gravel, cobble and boulder particles are over 75% surrounded by fine sediment. 5, 4, 3, 2, 1, 0
3. Velocity/depth category	Slow deep (<0.3 m/s & >0.5 m); slow shallow; fast deep; fast shallow; habitats all present. 20, 19, 18, 17, 16	Only 3 of the four habitat categories present (missing riffles or runs receive lower score than missing pools). 15, 14, 13, 12, 11	Only two of the four habitat categories present (missing riffles/runs receive lower score). 10, 9, 8, 7, 6	Dominating by one velocity/depth category (usually pool). 5, 4, 3, 2, 1, 0
4. Channel alteration	Little or no enlargement of islands or point bars and/or no channelisation. 15, 14, 13, 12	Some new increase in bar formation, mostly from coarse gravel; and/or some channelisation present. 11, 10, 9, 8	Moderate deposition of new gravel, coarse sand, on old and new bars; pools partly filled with silt; and/or embankments on both banks. 7, 6, 5, 4	Heavy deposits of fine materials, increased bar development; most pools filled with silt; and/or extensive channelisation. 3, 2, 1, 0
5. Bottom scouring and deposition	Less than 5% of the bottom affected by scouring and deposition. 15, 14, 13, 12	5-30% affected. Scours at constrictions and where grades steepen, some deposition in pools. 11, 10, 9, 8	30-50% affected. Deposits and scours at obstructions and bends. Some deposition in pools. 7, 6, 5, 4	More than 50% of the bottom changing nearly year long. Pools almost absent due to deposition. Only large rocks in riffle exposed. 3, 2, 1, 0

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River Bioassessment Program

HABITAT ASSESSMENT FIELD SHEET cont.

Habitat Variable	CATEGORY			
	Excellent	**Good**	**Fair**	**Poor**
6. Pool/riffle, run/bend ratio. *(Distance between riffles divided by stream width)*	0-7 Variety of habitat. Deep riffles and pools. 15, 14, 13, 12	7-15 Adequate depth in pools and riffles. Bends provide habitat. 11, 10, 9, 8	15-25 Occasional riffle or bend. Bottom contours provide some habitat. 7, 6, 5, 4	>25 Essentially a straight stream. Generally all flat water or shallow riffle. Poor habitat. 3, 2, 1, 0
7. Bank stability	Stable. No evidence of erosion or bank failure. Side slopes generally <30%. Little potential for future problem. 10, 9	Moderately stable. Infrequent, small areas of erosion mostly healed over. Side slopes up to 40% on one bank. Slight potential in extreme floods. 8, 7, 6	Moderately unstable. Moderate frequency and size of erosional areas. Side slopes up to 60% on some banks. High erosion potential during extreme/high flows. 5, 4, 3	Unstable. Many eroded areas. Side slopes > 60% common. 'Raw' areas frequent along straight sections and bends. 2, 1, 0
8. Bank vegetative stability	Over 80% of the streambank surfaces covered by vegetation or boulders and cobble. 10, 9	50-79% of the streambank surfaces covered by vegetation, gravel or larger material. 8, 7, 6	25-49% of the streambank covered by vegetation, gravel or larger material. 5, 4, 3	Less than 25% of the streambank surfaces covered by vegetation, gravel or larger material. 2, 1, 0
9. Streamside cover	Dominant vegetation is of tree form. 10, 9	Dominant vegetation shrub. 8, 7, 6	Dominant vegetation is grass, sedge, ferns. 5, 4, 3	Over 50% of the streambank has no vegetation and dominant material is soil, rock, bridge materials, culverts, or mine tailings. 2, 1, 0

Column Totals				

Score

○ ○ ○ ○