PART 3 – FIELD DATA SHEETS

SECTION B. CATCHMENT CONDITION AND LAND-USE (to be checked on each visit to site)

Assessor Name(s)			
Organisation			
Date	/ /	Time	

1. PHOTOGRAPHIC RECORD

		Photograph Number	Comments
Photographs	Upstream		
	Downstream		
	Bank to bank		
	Specific features		

2. CONDITION OF LOCAL CATCHMENT - Rate extent (land-use) or impact on a scale of 0 to 4: 0–none; 1–limited; 2–moderate; 3–extensive; 4-entire. Indicate level of confidence: High (H), medium (M) or low (L).

Land-use	Within riparian zone	Beyond riparian zone	Potential impact on River Health	Level of confidence (H,M,L)	Comments (e.g. distance upstream/downstream, time since disturbance, etc.)
Afforestation - general					
Afforestation - felled area					
Agriculture - crops					
Agriculture - livestock					
Agriculture - irrigation					
Alien vegetation infestation					
Aquaculture					
Construction					
Roads					
Impoundment (weir/dam)					
Industrial Development					
Urban Development					
Rural Development					
Informal settlement					
Recreational					
Sewage Treatment Works					
Nature Conservation				N/A	
Wilderness Area				N/A	
Litter/debris					
Disturbance by wildlife					
Other:					

3. CHANNEL CONDITION (In-channel and bank modifications) - Rate impacts on a scale of 0 to 4: 0–none; 1–limited; 2–moderate; 3–extensive; 4-entire

In-channel and bank modifications	Upstream		Downstream		Comments
	Impact score	Distance	Impact score	Distance	
Bridge – elevated; in channel supports					
Bridge – elevated; side channel supports					
Causeways / low-flow bridges					
Bulldozing					
Canalisation – concrete / gabion					
Canalisation – earth / natural					
Gabions / reinforced bank					
Fences – in channel					
Gravel, cobble and/or sand extraction					
Roads in riparian zone - tar					
Roads in riparian zone - gravel					
Dams (large)					
Dams (small) / weir					
Other:					

4. INDEX OF HABITAT INTEGRITY - Rate impacts on a scale of 0 to 25: 0 - none, 1 to 5 - limited, 6 to 10 - moderate, 11 to 15 - extensive, 16 to 20 - extreme, 21 to 25 - critical (see manual for explanation). Indicate level of confidence: High (H), medium (M) or low (L).

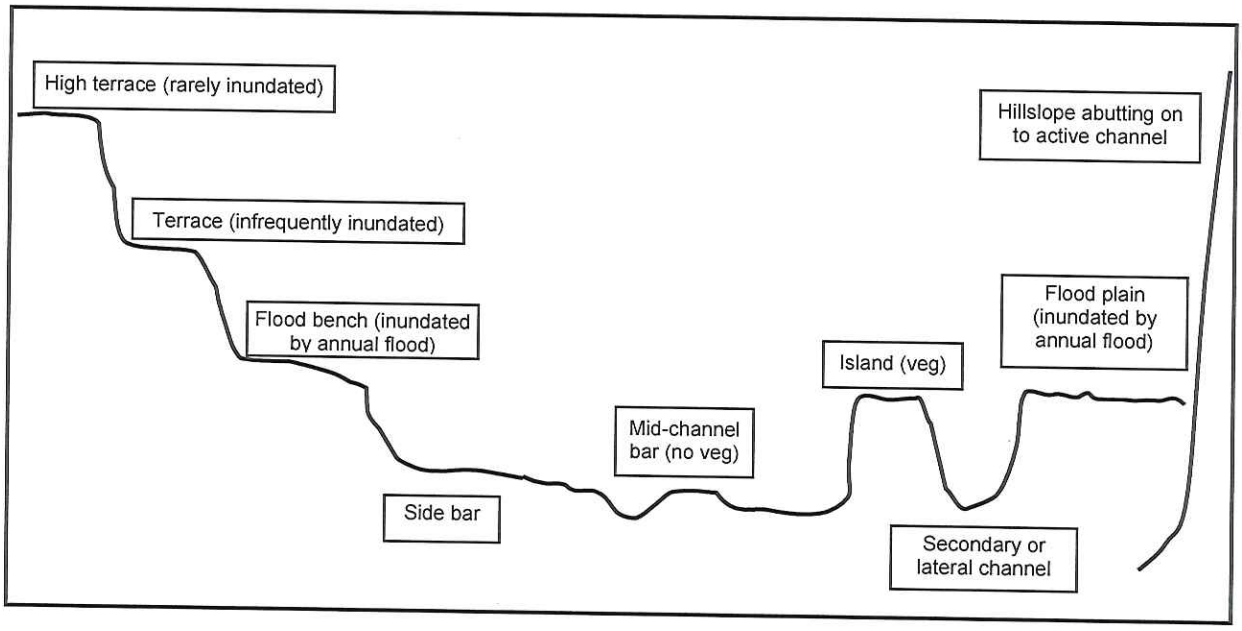
CRITERION	Score	Level of confidence (H,M,L)	Comment
INSTREAM			
Water abstraction (presence of pumps, irrigation etc.)			
Extent of inundation			
Water quality (clarity, odour, presence of macrophytes etc.)			
Flow modifications			
Bed modification (bulldozing of bed)			
Channel modification			
Presence of exotic macrophytes			
Presence of exotic fauna (e.g. fish)			
Presence of solid waste			
RIPARIAN ZONE			
Water abstraction (presence of pumps, irrigation etc.)			
Extent of inundation			
Water quality (clarity, odour, presence of macrophytes etc.)			
Flow modifications			
Channel modification			
Decrease of indigenous vegetation from the riparian zone			
Exotic vegetation encroachment			
Bank erosion			

5. CHANNEL MORPHOLOGY

Channel type: tick channel type indicating dominant type(s)				
Bedrock				
Mixed bedrock and alluvial - dominant type(s)	sand	gravel	cobble	boulder
Alluvial with dominant type(s)	sand	gravel	cobble	boulder

Indicate the cross-sectional features present on the left and/or right banks (see diagram below) – **Note** Left Bank is when looking downstream.

Cross Sectional Feature	Left Bank	Right Bank
High terrace (rarely inundated)		
Terrace (infrequently inundated)		
Flood bench (inundated by annual flood)		
Side bar		
Mid-channel bar (no vegetation)		
Island (vegetation)		
Secondary or lateral channel		
Flood plain (inundated by annual flood)		
Hillslope abutting onto active channel		



SECTION C: FIELD-BASED DATA FOR EACH SITE VISIT

1. GENERAL SITE VISIT INFORMATION

Assessor Name(s)			
Organisation			
Date	/ /	Time	

Water level at time of sampling -tick appropriate category

Dry	Isolated pools	Low flow	Moderate flow	High flow	Flood

Velocity and discharge estimates - optional

Horizontal distance (m)						
Velocity (ms^{-1})						
Depth (m)						

Water surface width (m):		Discharge (m^3s^{-1}):	

Significant rainfall in the last week? - i.e. likely to have raised the water level

Yes	No	Comment:

Canopy Cover -tick appropriate category

Open	Partially Open	Closed	Comment:

Impact on stream habitat - Rate impacts on a scale of 0 to 3: 0 – no impact; 1- limited impact; 2 – extensive impact; 3 – channel blocked

	Score	Source: local / upstream
Coarse woody debris		
Other:		

Water chemistry data – Recording of the *in situ* measurements is also included in the SASS5 data-sheet – please complete here if doing the full RHP assessment. Instruments should be positioned in the clearly-flowing points on the river where possible.

Instruments in fast flow?	Yes	No	If no, where:	
Samples collected?	Yes	No	Date sent for analysis?	
Water filtered?	Yes	No	Volume filtered (mL):	
Samples frozen?	Yes	No	Other preservation?	
Name of institution to which samples were sent:				

Variable	Value	Units
pH		
Conductivity		
Temperature		
Dissolved Oxygen ($mgLl^{-1}$)		
Percentage O_2 Saturation		

Water turbidity - tick appropriate category

Clear	Discoloured	Opaque	Silty	Comment:
Turbidity (if measured (NTUs)				
Secchi Depth (m)				

2. STREAM DIMENSIONS - estimate widths and heights by ticking the appropriate categories; estimate average depth of dominant deep and shallow water biotopes.

(m)	< 1	1-2	2-5	5-10	10-20	20-50	50-100	>100
Macro-channel width								
Active-channel width								
Water surface width								

Bank height – Active channel			
(m)	< 1	1-3	>3
Left Bank			
Right Bank			

Dominant physical biotope	Average Depth (m)	Specify physical biotope type
Deep-water (>0.5m) physical biotope (e.g. pool)		
Shallow-water (<0.5m) physical biotope (e.g. riffle)		

3. SUBSTRATUM COMPOSITION - Estimate abundance of each material using the scale: 0 – absent; 1 – rare; 2 – sparse; 3 – common; 4 - abundant; 5 - entire

Material	Size class (mm)	Bed	Bank
Bedrock			
Boulder	> 256		
Cobble	100 – 256		
Pebble	16 – 100		
Gravel	2 – 16		
Sand	0.06 – 2		
Silt / mud / clay	< 0.06		

Degree of embeddedness of substratum (%)
0-25
26-50
51-75
76-100

4. INVERTEBRATE BIOTOPES (present at a site compared to those actually sampled)

Summarised river make up: ('pool'=pool only; 'run' only; 'riffle/rapid' only; '2mix'=2 types, '3mix'=3 types)				
pool	run	Riffle/rapid	2 mix	3 mix

Rate abundance of each SASS and specific biotope present at a site using the scale: 0 – absent; 1 – rare; 2 – sparse; 3 – common; 4 - abundant; 5 – entire. Add additional specific biotopes if necessary.

		Specific Biotope					
SASS Biotope	Rating		Rating		Rating		Rating
Stones in current		Riffle		Run		Boulder rapid	
		Chute		Cascade		Bedrock	
Stones out of current		Backwater		Slackwater		Pool	
		Bedrock					
Marginal vegetation in current		Grasses		Reeds		Shrubs	
		Sedges					
Marginal vegetation out of current		Grasses		Reeds		Shrubs	
		Sedges					
Aquatic vegetation		Sedges		Moss		Filamentous algae	
Gravel		Backwater		Slackwater		In channel	
Sand		Backwater		Slackwater		In channel	
Silt/mud/clay		Backwater		Slackwater		In channel	

5. SASS Version 5 Score Sheet - Note: do not complete details (shaded area) on SASS sheet if doing a full RHP assessment

Version date: Feb 2005

Date:	/ /	Grid reference (dd mm ss.s) Lat: S	(dd.ddddd)	
RHP Site Code:	-	Long: E		
Collector/Sampler:		Datum (WGS84/Cape):		
River:		Altitude (m):	m	
Level 1 Ecoregion:		Zonation:		
Quaternary Catchment:				
Site Description:	Temp (°C):	Cond (mS/m)		
	pH:	Clarity (cm):		
	DO (mg/L):	Turbidity:		
	Flow:	Colour:		
	Riparian Disturbance:			
	Instream Disturbance:			

Biotopes Sampled	Rating (1 - 5)	Time (min)
Stones In Current (SIC)		
Stones Out Of Current (SOOC)		
Bedrock		
Aquatic Veg		
MargVeg In Current		
MargVeg Out Of Current		
Gravel		
Sand		
Mud		
Hand picking/Visual observation		

Taxon		S	Veg	GSM	TOT
PORIFERA (Sponges)	5				
COELENTERATA (Cnidaria)	1				
TURBELLARIA (Flatworms)	3				
ANNELIDA					
Oligochaeta (Earthworms)	1				
Hirudinea (Leeches)	3				
CRUSTACEA					
Amphipoda	13				
Potamonautidae* (Crabs)	3				
Atyidae (Shrimps)	8				
Palaemonidae (Prawns)	10				
HYDRACARINA (Water mites)	8				
PLECOPTERA (Stoneflies)					
Notonemouridae	14				
Perlidae	12				
EPHEMEROPTERA (Mayflies)					
Baetidae 1sp	4				
Baetidae 2 sp	6				
Baetidae > 2 sp	12				
Caenidae (Squaregills/Cainfles)	6				
Ephemeridae	15				
Heptageniidae (Flatheaded mayflies)	13				
Leptophlebiidae (Prongills)	9				
Oligoneuridae (Brushlegged mayflies)	15				
Polymitarcyidae (Pale Burrowers)	10				
Prosopistomatidae (Water specs)	15				
Teloganodidae SWC	12				
Tricorythidae (Stout Crawlers)	9				
ODONATA (Dragonflies & Damselflies)					
Calopterygidae ST,T	10				
Chlorocyphidae	10				
Synlestidae (Chlorolestidae)(Sylphs)	8				
Coenagrionidae (Sprites and blues)	4				
Lestidae (Emerald Damselflies)	8				
Platycnemidae (Brook Damselflies)	10				
Protoneuridae	8				
Aeshnidae (Hawkers & Emperors)	8				
Corduliidae (Cruisers)	8				
Gomphidae (Clubtails)	6				
Libellulidae (Darters)	4				
LEPIDOPTERA (Aquatic Caterpillars/Moths)					
Crambidae (=Pyralidae)	12				

Taxon		S	Veg	GSM	TOT
HEMIPTERA (Bugs)					
Belostomatidae* (Giant water bugs)	3				
Corixidae* (Water boatmen)	3				
Gerridae* (Pond skaters/Water striders)	5				
Hydrometridae* (Water measurers)	6				
Naucoridae* (Creeping water bugs)	7				
Nepidae* (Water scorpions)	3				
Notonectidae* (Backswimmers)	3				
Pleidae* (Pygmy backswimmers)	4				
Veliidae/M...veliidae* (Ripple bugs)	5				
MEGALOPTERA (Fishflies, Dobsonflies & Alderflies)					
Corydalidae (Fishflies & Dobsonflies)	8				
Sialidae (Alderflies)	6				
TRICHOPTERA (Caddisflies)					
Dipseudopsidae	10				
Ecnomidae	8				
Hydropsychidae 1 sp	4				
Hydropsychidae 2 sp	6				
Hydropsychidae > 2 sp	12				
Philopotamidae	10				
Polycentropodidae	12				
Psychomyiidae/Xiphocentronidae	8				
Cased caddis:					
Barbarochthonidae SWC	13				
Calamoceratidae ST	11				
Glossosomatidae SWC	11				
Hydroptilidae	6				
Hydrosalpingidae SWC	15				
Lepidostomatidae	10				
Leptoceridae	6				
Petrothrincidae SWC	11				
Pisuliidae	10				
Sericostomatidae SWC	13				
COLEOPTERA (Beetles)					
Dytiscidae/Noteridae* (Diving beetles)	5				
Elmidae/Dryopidae* (Riffle beetles)	8				
Gyrinidae* (Whirligig beetles)	5				
Haliplidae* (Crawling water beetles)	5				
Helodidae (Marsh beetles)	12				
Hydraenidae* (Minute moss beetles)	8				
Hydrophilidae* (Water scavenger beetles)	5				
Limnichidae	10				
Psephenidae (Water Pennies)	10				

Taxon		S	Veg	GSM	TOT
DIPTERA (Flies)					
Athericidae	10				
Blephariceridae (Mountain midges)	15				
Ceratopogonidae (Biting midges)	5				
Chironomidae (Midges)	2				
Culicidae* (Mosquitoes)	1				
Dixidae* (Dixid midge)	10				
Empididae (Dance flies)	6				
Ephydridae (Shore flies)	3				
Muscidae (House flies, Stable flies)	1				
Psychodidae (Moth flies)	1				
Simuliidae (Blackflies)	5				
Syrphidae* (Rat tailed maggots)	1				
Tabanidae (Horse flies)	5				
Tipulidae (Crane flies)	5				
GASTROPODA (Snails)					
Ancylidae (Limpets)	6				
Bulininae*	3				
Hydrobiidae*	3				
Lymnaeidae* (Pond snails)	3				
Physidae* (Pouch snails)	3				
Planorbinae* (Orb snails)	3				
Thiaridae* (=Melanidae)	3				
Viviparidae* ST	5				
PELECYPODA (Bivalves)					
Corbiculidae	5				
Sphaeriidae (Pills clams)	3				
Unionidae (Perly mussels)	6				
SASS Score					
No. of Taxa					
ASPT					

Other biota:

Comments/Observations:

Procedure:

Kick SIC & bedrock for 2 mins, max. 5 mins. Kick SOOC & bedrock for 1 min. Sweep marginal vegetation (IC & OOC) for 2m total and aquatic veg 1m². Stir & sweep gravel, sand, mud for 1 min total. * = airbreathers
Hand picking & visual observation for 1 min - record in biotope where found (by circling estimated abundance on score sheet). Score for 15 mins/biotope but stop if no new taxa seen after 5 mins.
Estimate abundances: 1 = 1, A = 2-10, B = 10-100, C = 100-1000, D = >1000 S = Stone, rock & solid objects; Veg = All vegetation; GSM = Gravel, sand, mud SWC = South Western Cape, T = Tropical, ST = Sub-tropica
Rate each biotope sampled: 1=very poor (i.e. limited diversity), 5=highly suitable (i.e. wide diversity)