TIMBER
QUEENSLAND
We build Queensland

Watercourse Protection Zone
WPZ Calculations
Ready Reckoner

Developed based on the **Code of practice for native forest timber production on Queensland's State forest estate** 2020

Key Definitions

- A **Water Protection Zone (WPZ)** is an area that surrounds drainage or a watercourse where harvesting or forest activities are restricted, and/or soil disturbance is minimised through excluding harvest machinery.
  - The WPZ is the buffer + filter.
- A **slump face** is a near vertical active erosion face in a stream or gully - protection is 3 times the size. Referred to as **SF** in the tables below.
- A **head scarp** is the head of a gully or nick point in a gully erosion face. Referred to as **HS** in the tables below.
- An **active zone** is an erosion face (greater than 10cm) or scouring area greater than 1m wide.
- The **erosion face** is referred to as the EF in the tables below.
- A **buffer** is essentially an exclusion zone, aimed at fully protecting vegetation and beds and banks of the watercourse.
- A **filter** allows limited harvest operation opportunities by rubber tyre machines.
- A **defining bank** is a terrace or bank that confines the average annual peak flow.
- **Average annual peak flow** is the long term average or high annual watercourse flow level.
- **Harvest area** is the area that does not include exclusion zones, and available for harvesting.

How to use this document

1. Determine the type of watercourse.

2. Go to the watercourse page.

3. Does the watercourse have a slump face (SF) or head scarp (HS)?

   a. If yes, find the metres in the table (1m- 6m, and 10m found in below tables).

   b. If no, use '0'.

4. Look at the buffer and filter, and total watercourse protection zone.

   a. **The buffer** is in **red.**

   b. **The filter** is in **orange.**

5. Apply the watercourse protection zone (WPZ) (**red + orange**).

6. Remainder of area (**harvest area**) can be harvested as per remainder of the QWPS Code.

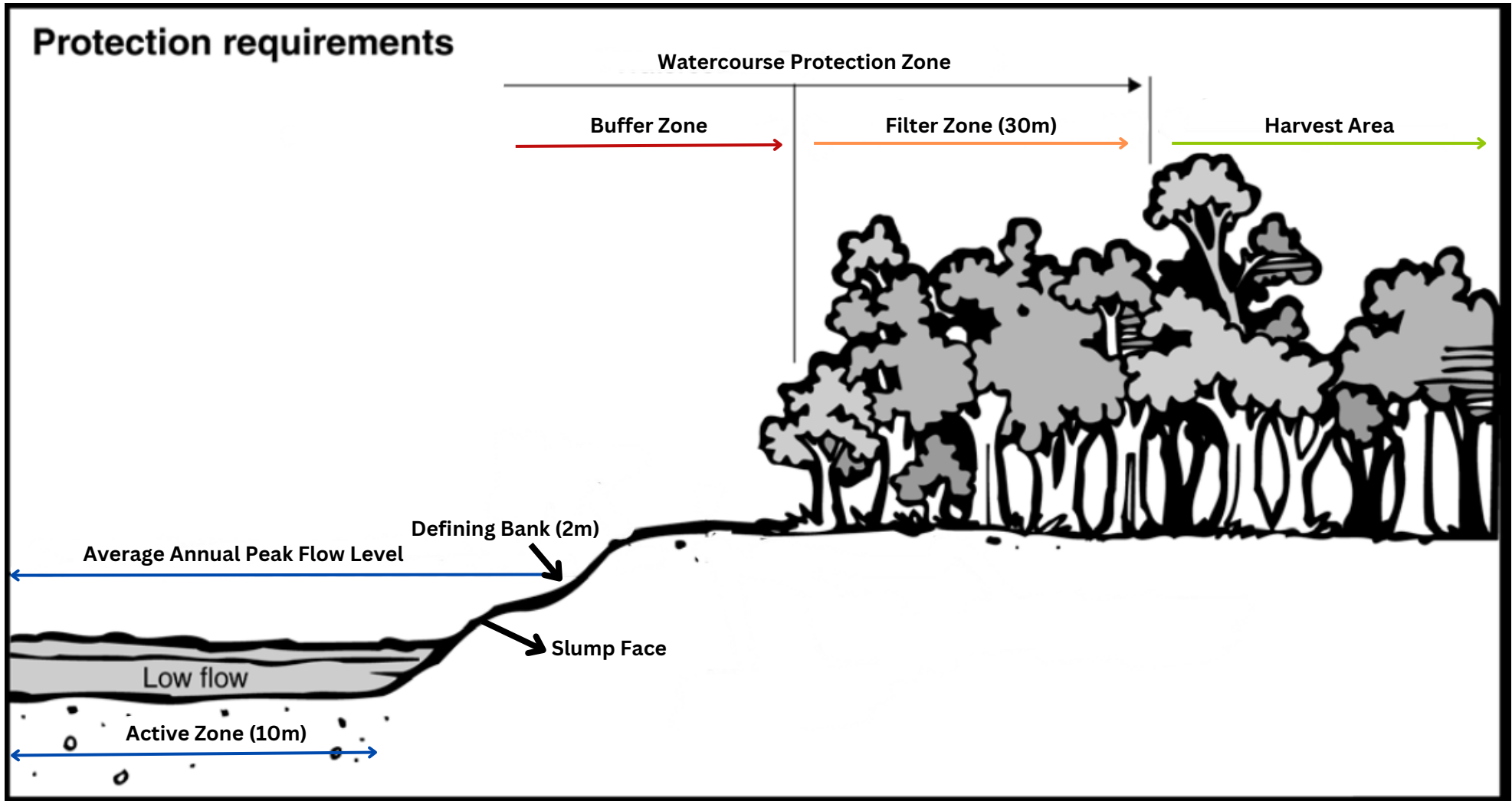7. For further information, refer to **Timber Queensland's Watercourse Protection Guide Content.**

TIMBER QUEENSLAND
We build Queensland

Stream 1

Protection requirements

Watercourse Protection Zone

Buffer Zone

Filter Zone (30m)

Harvest Area

Defining Bank (2m)

Average Annual Peak Flow Level

Slump Face

Low flow

Active Zone (10m)

Rivers and creeks with distinct bed and banks, a channel or braided channel. Terraces, flood plains and chains of waterholes may also be present.

- Vegetation characteristics present.
- Flow may be permanent, semi-permanent, intermittent, or limited to periods after heavy rain.

Stream 1: greater than 10m active zone.
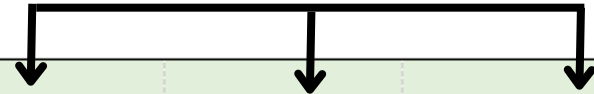
| | Determine | | | Apply | | |
Watercourse	Slump Face	Defining Bank	Slump Buffer	Buffer	Filter	B+F
Stream 1	0	2	0	2	30	32
Stream 1	1	2	3	5	30	35
Stream 1	2	2	6	8	30	38
Stream 1	3	2	9	11	30	41
Stream 1	4	2	12	14	30	44
Stream 1	5	2	15	17	30	47
Stream 1	6	2	18	20	30	50
Stream 1	10	2	30	32	30	62

Stream 2

Protection requirements

Watercourse Protection Zone

Buffer Zone

Filter Zone (20m)

Harvest Area

Defining Bank (2m)

Average Annual Peak Flow Level

Slump Face

Low flow

Active Zone (5m)

Rivers and creeks with distinct bed and banks, a channel or braided channel. Terraces, flood plains and chains of waterholes may also be present.

- Vegetation characteristics present.
- Flow may be permanent, semi-permanent, intermittent, or limited to periods after heavy rain.

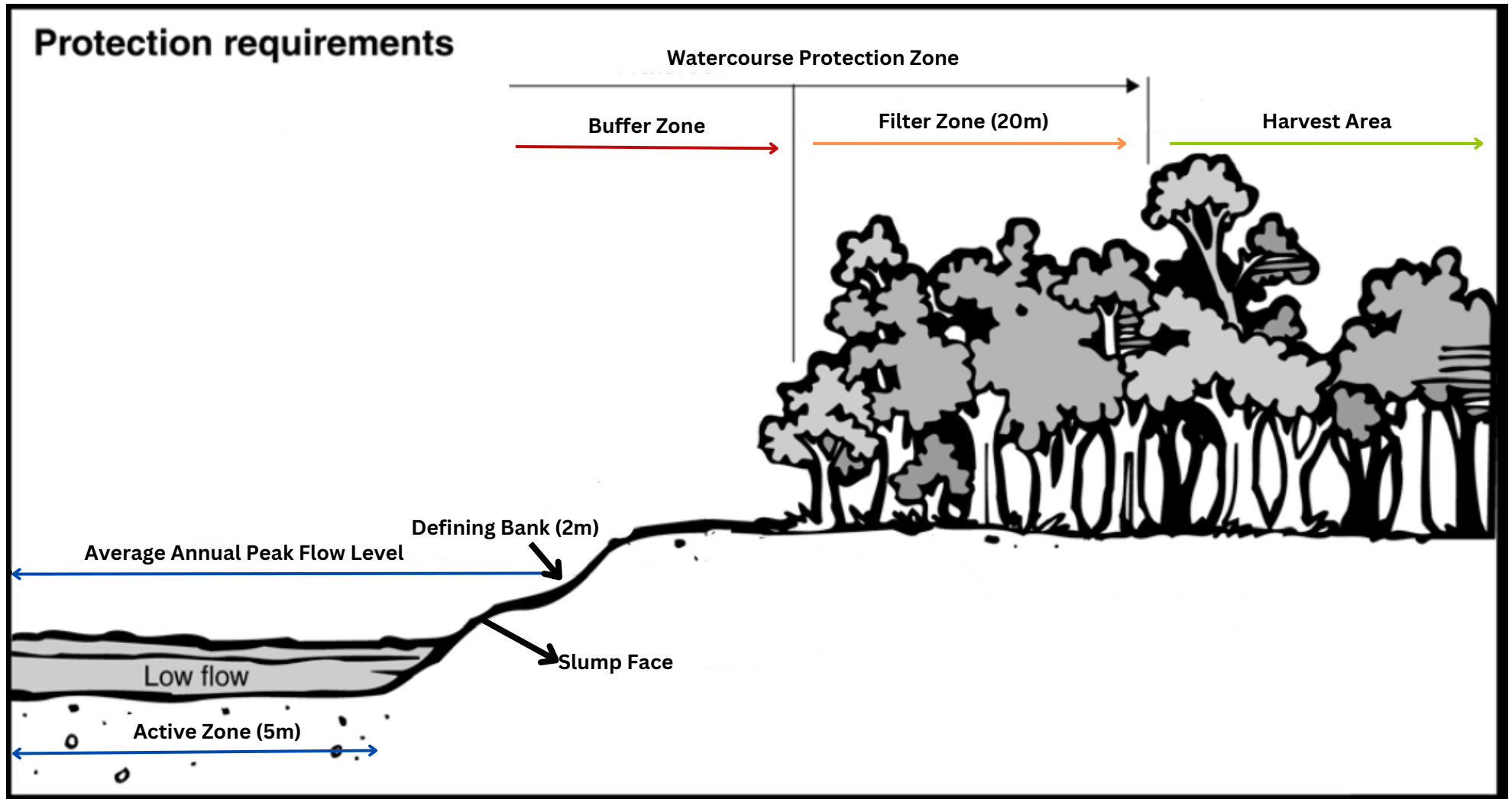**Stream 2**: less than 10m active zone.

	Determine			Apply		
Watercourse	Slump Face	Defining Bank	Slump Buffer	Buffer	Filter	B+F
Stream 2	0	2	0	2	20	22
Stream 2	1	2	3	5	20	25
Stream 2	2	2	6	8	20	28
Stream 2	3	2	9	11	20	31
Stream 2	4	2	12	14	20	34
Stream 2	5	2	15	17	20	37
Stream 2	6	2	18	20	20	40
Stream 2	10	2	30	32	20	52

U- Shaped Gully

Protection requirements

Watercourse Protection Zone

Buffer Zone

Filter Zone (10m)

Harvest Area

Head Scarp

Slump Face

Average Annual Peak Flow Level

Defining Bank (2m)
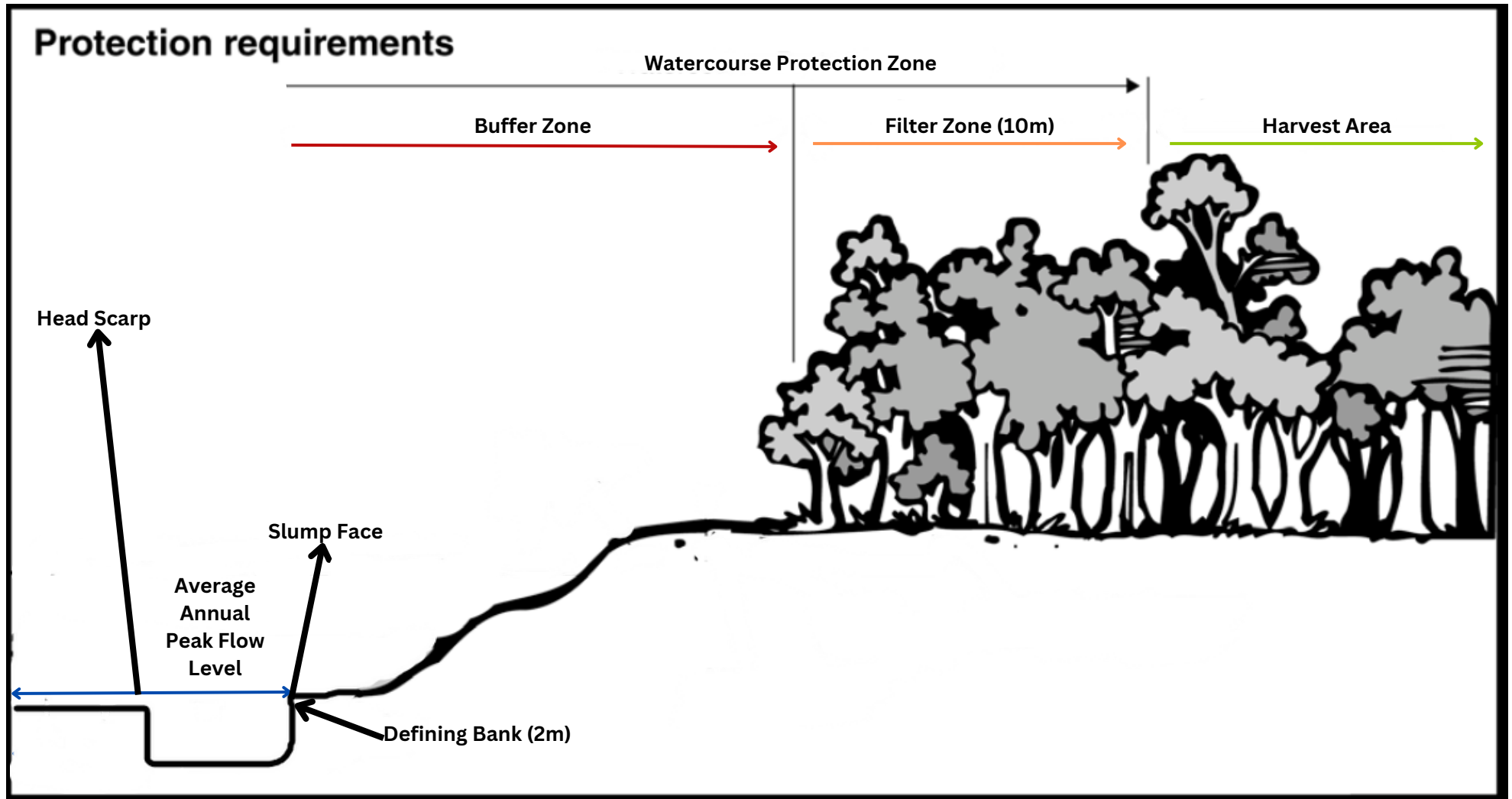
U-shape gullies typically have well defined bed and banks, with at least one steep bank and clear evidence of soil erosion. Gullies can be ongoing or broken.
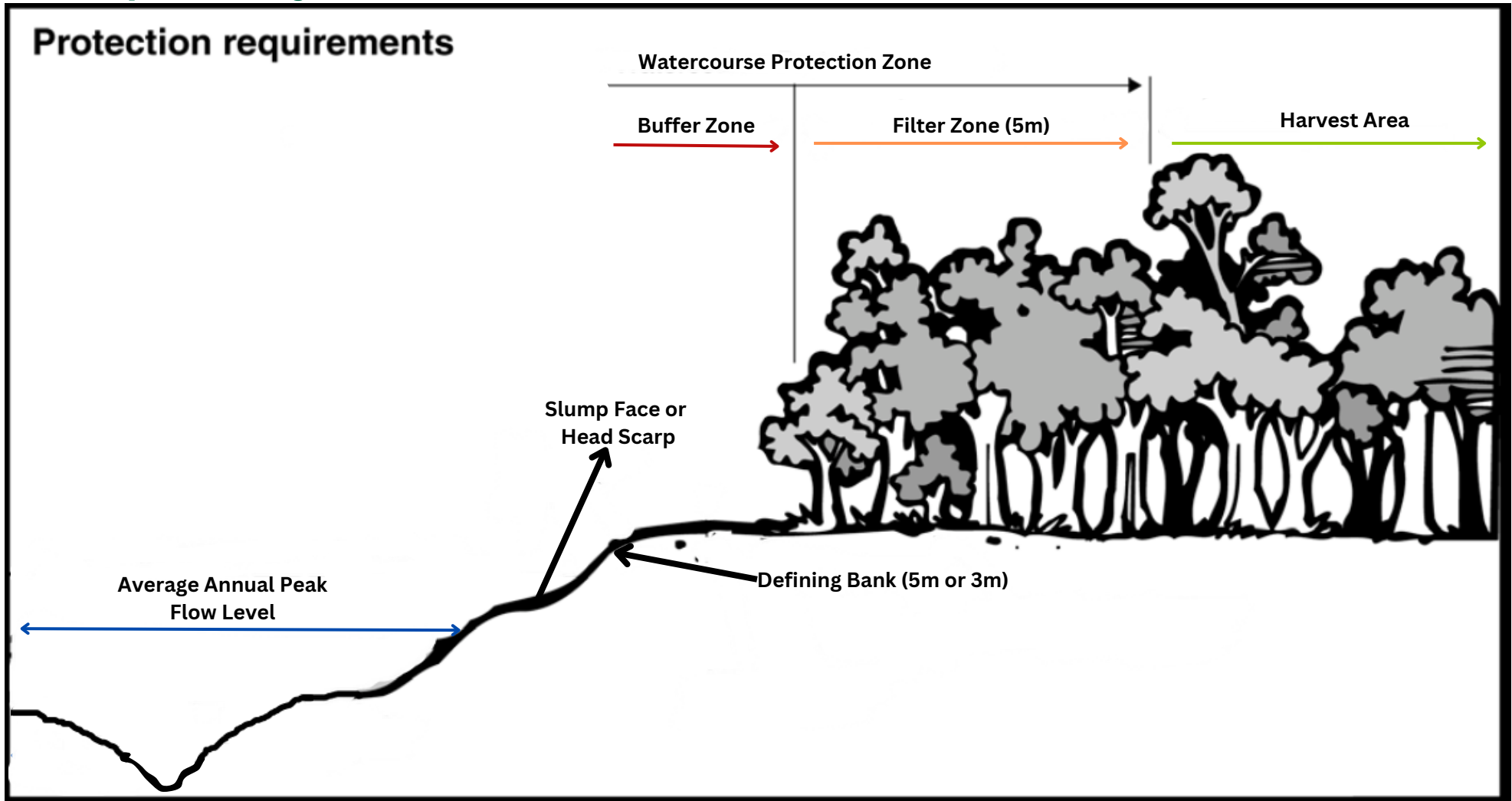
- Typically more trench like.
- Undercutting may be visible.
- Often unstable.
- Topsoil and subsoil equally prone to erosion.
- Effects greater area.
- Vegetation less likely on banks.
- Greater restrictions on forest operations.

Determine

Apply

Watercourse	SF or HS	Defining Bank	SF or HS Buffer	Buffer	Filter	B+F
Gully U-Shape	0	2	0	2	10	12
Gully U-Shape	1	2	3	5	10	15
Gully U-Shape	2	2	6	8	10	18
Gully U-Shape	3	2	9	11	10	21
Gully U-Shape	4	2	12	14	10	24
Gully U-Shape	5	2	15	17	10	27
Gully U-Shape	6	2	18	20	10	30
Gully U-Shape	10	2	30	32	10	42

V-Shaped Gully

Protection requirements

Watercourse Protection Zone

Buffer Zone

Filter Zone (5m)

Harvest Area

Slump Face or Head Scarp

Average Annual Peak Flow Level

Defining Bank (5m or 3m)

V-shaped gullies typically have defined bed and banks, with at least one steep bank and clear evidence of soil erosion. Gullies can be ongoing or broken.

- Typically more stable and not undercut.
- Topsoil more prone to erosion than subsoil.
- Slumping can be present.
- Higher water velocity in 'v'.
- More likely to have vegetation.
- More forest operations allowed.
- Likely to have smaller buffer.
- Different buffer measurements for slump faces and head scarps.

Determine (arrow over SF or HS column) | **Apply** (arrows over Buffer, Filter, B+F)

Watercourse	SF or HS	Defining Bank	SF or HS Buffer	Buffer	Filter	B+F
Gully V-Shape >0.5 EF	0	5	0	5	5	10
Gully V-Shape >0.5 EF	1	5	3	8	5	13
Gully V-Shape >0.5 EF	2	5	6	11	5	16
Gully V-Shape >0.5 EF	3	5	9	14	5	19
Gully V-Shape >0.5 EF	4	5	12	17	5	22
Gully V-Shape >0.5 EF	5	5	15	20	5	25
Gully V-Shape >0.5 EF	6	5	18	23	5	28
Gully V-Shape >0.5 EF	10	5	30	35	5	40

Watercourse	SF or HS	Defining Bank	SF or HS Buffer	Buffer	Filter	B+F
Gully V-Shape	0	3	0	3	5	8
Gully V-Shape (SF)	1	3	3	6	5	11
Gully V-Shape (HS)	1	3	5	8	5	13
Gully V-Shape	2	3	6	9	5	14
Gully V-Shape	3	3	9	12	5	17
Gully V-Shape	4	3	12	15	5	20
Gully V-Shape	5	3	15	18	5	23
Gully V-Shape	6	3	18	21	5	26
Gully V-Shape	10	3	30	33	5	38

Waterway

Protection requirements

Watercourse Protection Zone

Buffer Zone

Filter Zone (5m)

Harvest Area

Slump Face or Head Scarp

Average Annual Peak Flow Level

Defining Bank (1m)
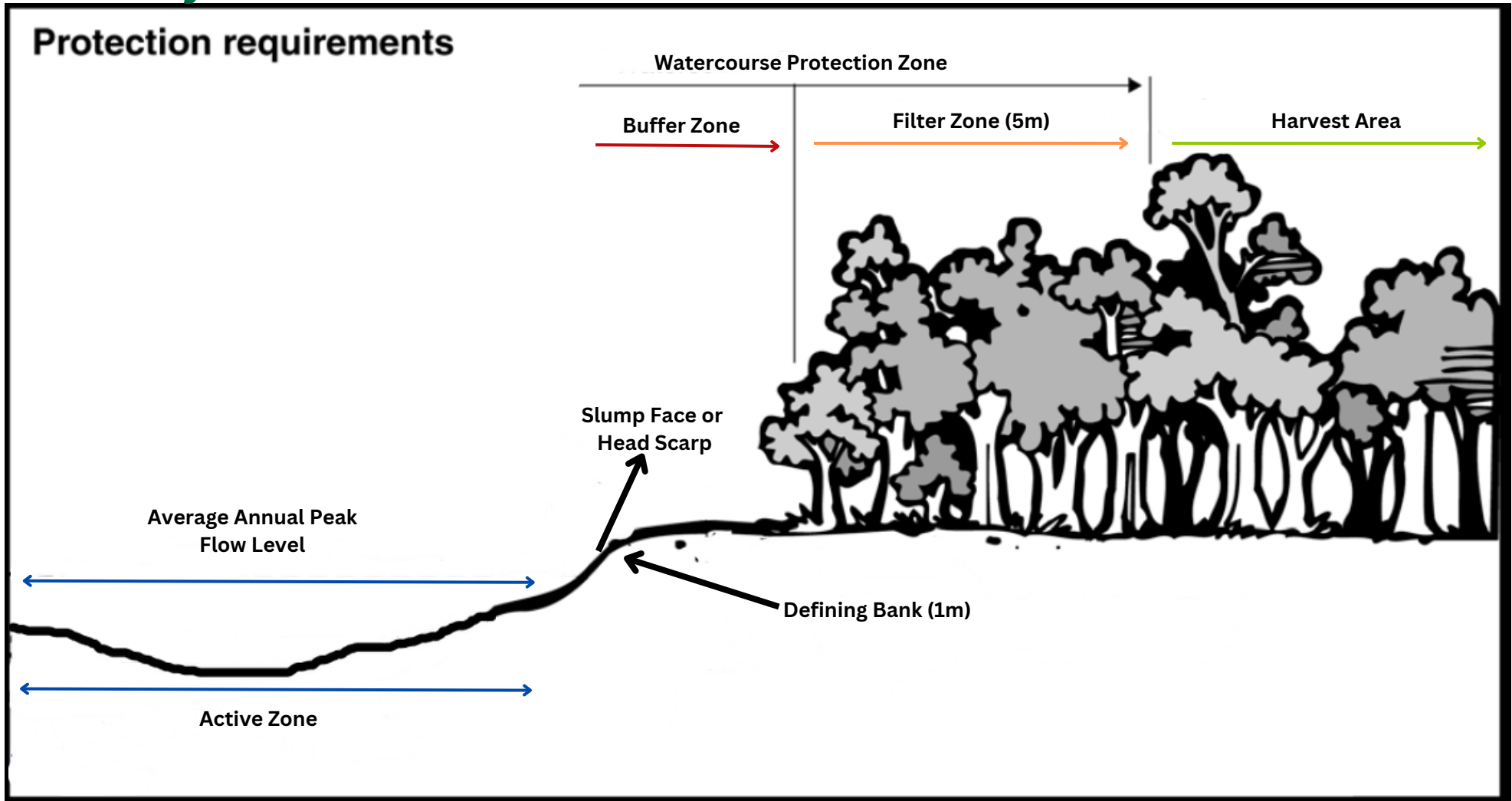
Active Zone
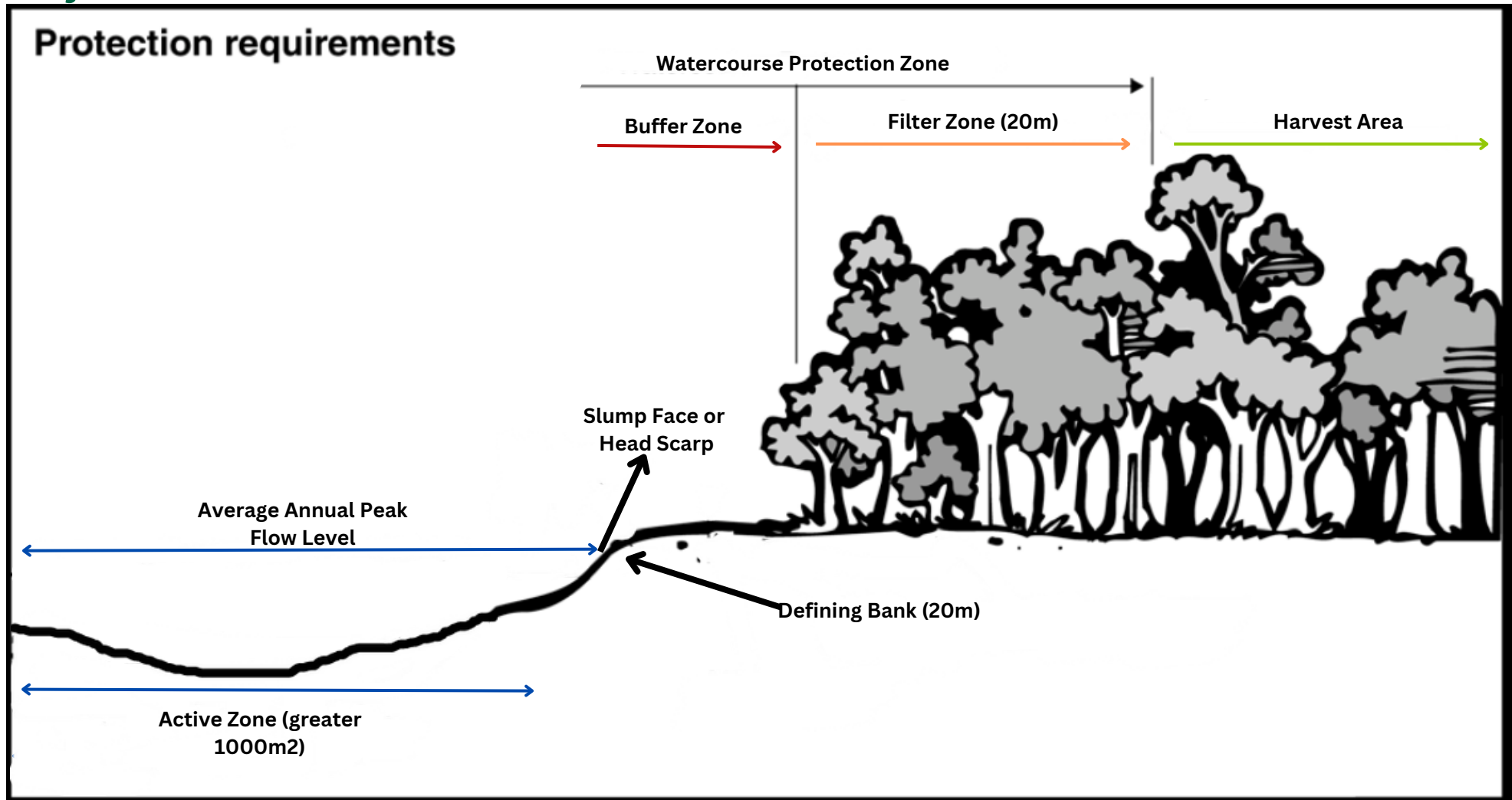
Dish shaped, gently inclined, shallow, and open depressions.

- Active zone vegetated.
- Seasonally waterlogged.
- Hold water after rain.

Watercourse	SF or HS	Defining Bank	SF or HS Buffer	Buffer	Filter	B+F
Waterway	0	1	0	1	5	6
Waterway	1	1	3	4	5	9
Waterway	2	1	6	7	5	12
Waterway	3	1	9	10	5	15
Waterway	4	1	12	13	5	18
Waterway	5	1	15	16	5	21
Waterway	6	1	18	19	5	24
Waterway	10	1	30	31	5	36

Determine → SF or HS

Apply → Buffer, Filter, B+F

Major Feature

Protection requirements

- Watercourse Protection Zone
  - Buffer Zone
  - Filter Zone (20m)
- Harvest Area
- Slump Face or Head Scarp
- Average Annual Peak Flow Level
- Defining Bank (20m)
- Active Zone (greater 1000m2)

Natural or artificial waterholes, impoundments, wetlands or springs and soaks. There are two water feature classes: major and minor.

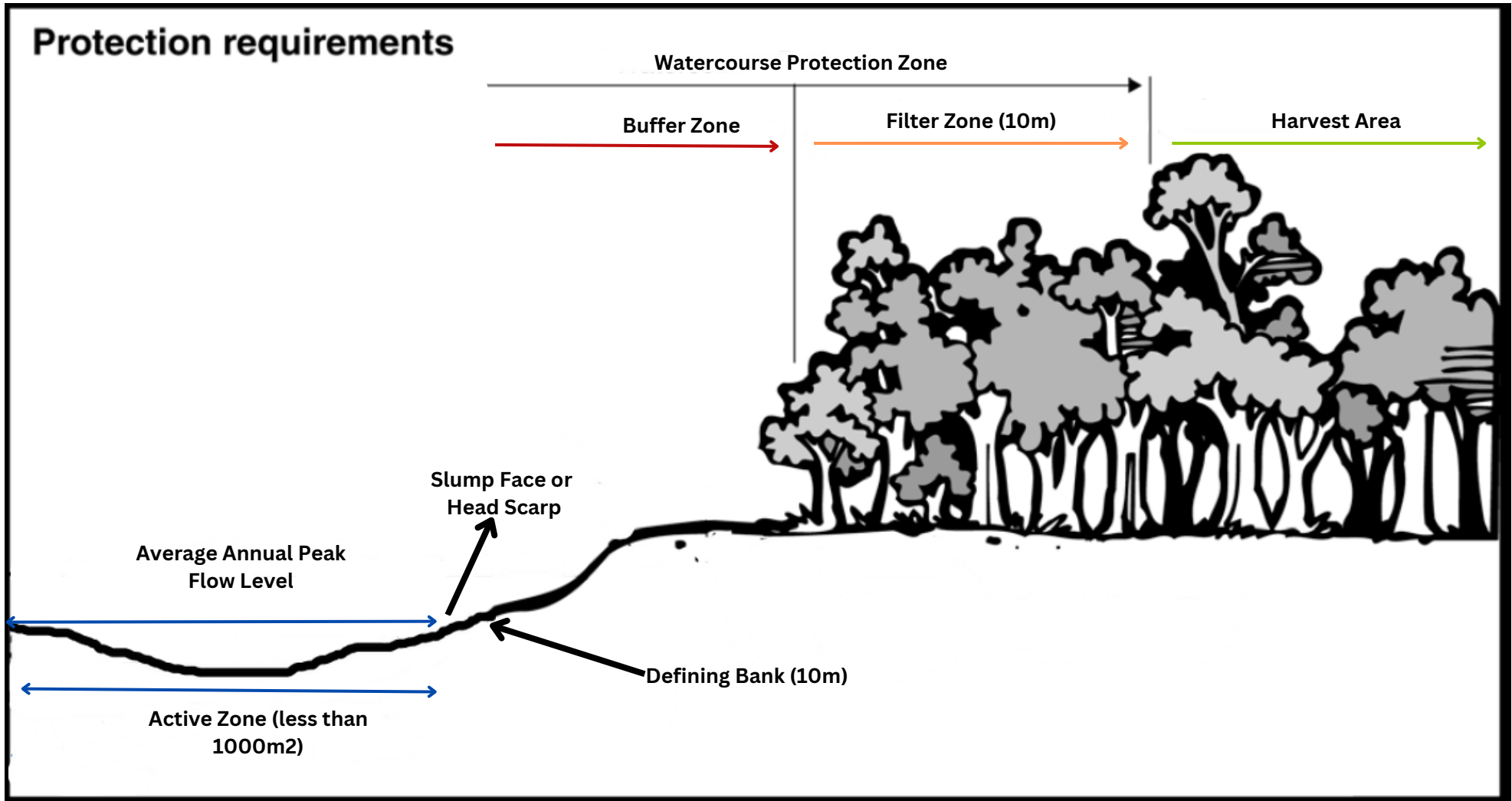**Major Water Feature** area greater than 1,000m2.

- Water feature is measured from the beds and banks or the full storage level.
- Vegetation and flora and fauna debris present in absence of surface water.
- Seepage, soaks and springs evident.
- Soil conditions show prolonged water saturation.

	Determine			Apply		
Watercourse	SF or HS	Defining Bank	SF or HS Buffer	Buffer	Filter	B+F
Major water feature	0	20	0	20	20	40
Major water feature	1	20	3	23	20	43
Major water feature	2	20	6	26	20	46
Major water feature	3	20	9	29	20	49
Major water feature	4	20	12	32	20	52
Major water feature	5	20	15	35	20	55
Major water feature	6	20	18	38	20	58
Major water feature	10	20	30	30	50	80

Minor Feature

Protection requirements

Watercourse Protection Zone

Buffer Zone

Filter Zone (10m)

Harvest Area

Slump Face or Head Scarp

Average Annual Peak Flow Level

Defining Bank (10m)

Active Zone (less than 1000m2)

Natural or artificial waterholes, impoundments, wetlands or springs and soaks. There are two water feature classes.

Minor Water Feature area less than 1,000m2

- Water feature is measured from the beds and banks or the full storage level.
- Vegetation and flora and fauna debris present in absence of surface water.
- Seepage, soaks and springs evident.
- Soil conditions show prolonged water saturation.

Determine → (SF or HS)

Apply → (Buffer, Filter, B+F)

Watercourse	SF or HS	Defining Bank	SF or HS Buffer	Buffer	Filter	B+F
Minor water feature	0	10	0	10	10	20
Minor water feature	1	10	3	13	10	23
Minor water feature	2	10	6	16	10	26
Minor water feature	3	10	9	19	10	29
Minor water feature	4	10	12	22	10	32
Minor water feature	5	10	15	25	10	35
Minor water feature	6	10	18	28	10	38
Minor water feature	10	10	30	40	10	50