

**DAM
EVALUATION
FORM**

November 1991

THIS DAM FITS WITHIN THE PERMITTED USE CRITERIA YES/NO

Completed by: _____

Date: _____

Other Officers Present: _____

File Number: _____

Note

**For Proposed Dams complete Parts A and B.
For Existing Dams complete Parts B and C.**

PART A

Observation of Proposed Dam Sites

1. Sketch proposed dam location showing springs, roads, etc.
2. Foundation conditions:
swampy rock clay other _____ OK?
3. Abutment conditions:
soft material rock clay other _____ OK?
4. Available Fill
where will it come from? _____ OK?
5. Spillway location - show on sketch - including overflow pipes, service and emergency spillways
will it fit? Yes No OK?
In natural ground Yes No
6. Low Flow Bypass - if required, is it possible
to collect inflow above dam and divert downstream Yes No
7. Where will pond extend to? - Will it cause flooding,
loss of access or other problems Yes No
8. Downstream, in the event of failure what might be
affected? (e.g. house, road, crops) _____
9. Take photos of dam site, up and down valley etc.

PART B

General Information - Existing or Proposed Dams

1. Dam Height (m) _____
2. Catchment Area (ha) _____
3. Surface Area (m²) _____
4. Volume (m³) _____
5. Estimated flow in stream at time of visit _____ l/s
6. Estimated 1 in 5 year low flow at dam site _____ l/s
7. Does the stream flow all year? Yes No
8. Are there springs that would be flooded by impoundment? Yes No
If yes do these normally dry up in summer? Yes No
9. Does it flood other upstream properties? Yes No
If yes who owns the property? _____
Do they agree? Yes No
10. What is the purpose of the dam? (e.g. irrigation/wildlife) _____
11. If to be used for irrigation, is the storage volume greater than 2000m³/ha to be irrigated? Yes No
12. If to be used for irrigation, is the dam capable of being filled hydrologically each year? Yes No
13. Water Quality Assessment
This is only applicable if the dam is on-stream.
Further water quality advice is required if, within a reasonable distance up or downstream, or at the dam site, there are:
 - i. Waste discharges (e.g. cowshed, piggery, sewage treatment plant) Yes NoComments: _____

- ii. If water quality at the dam site is low (e.g. smells, algae growths, discolouration) Yes No

Comments: _____

14. Biological Assessment

This is only applicable if the dam is on-stream.

Further biological investigation is required if one or more of the following are present within a reasonable distance up or downstream, or at the dam site:

- i. Obvious signs of biota (e.g. fish, eels, bullies, insect life, crayfish) Yes No

Comments: _____

- ii. Gravelly or cobble/sand stream bed Yes No

Comments: _____

- iii. Riparian cover such as native bush and scrub (including Manuka) Yes No

Comments: _____

- iv. Significant wetland above or below the site (e.g. flax swamp), even if it is on a tributary Yes No

Comments: _____

If yes, briefly discuss with Water Board biologist.

15. Recreational Assessment

- Does the stream flow all year round? Yes No

- i. If YES then:

a. Does the public have access to the stream at any point below the dam site: Yes/No (if NO, then there is no recreational impact).

b. Are there Recreational Activities (e.g. swimming, fishing, canoeing) or Scenic Areas (e.g. waterfalls, walkways, public reserves) which are likely to be affected below the dam? Yes/No (if NO then there is no recreational impact).

c. If YES, can these be compensated for by bypass conditions? Yes/No

d. If YES, calculate bypass requirements.

ii. If NO then:

- a. Is there any recreational activity (e.g. canoeing) that could be affected by loss of high flows? Yes/No (if NO then there is no recreational impact).
- b. If YES, can these be compensated for by bypass conditions? Yes/No
- c. If YES, calculate bypass requirements.

Comments:

PART C

Observation of Existing Dams

1. Take photos of dams.
2. Check foundations:
 - i. Is there swamp material in valley downstream? Yes No
 - ii. Is there swampy material etc beneath toe of dam? Yes No
 - iii. Is there evidence of piping or seepage through dam? Yes No
3. Construction Details:
 - i. What material was used for dam construction? _____
 - ii. How old or when was the dam built? _____
 - iii. Does dam appear to be solidly constructed and carefully finished? Yes No
 - iv. Does dam feel firm underfoot and beneath heel when dug in? Yes No
 - v. Are there any cracks, slumping, wave lap or stock damage? Yes No
 - vi. If yes give details: _____

 - vii. What vegetation is on dam? _____
4. Spillways:
 - i. Is there an overflow pipe? Yes No
If yes,
Is it located in natural ground? Yes No
Is there any leakage around pipe? Yes No
 - ii. Is there a service spillway? Yes No
If Yes, is it located in natural ground Yes No
What size is it? (sketch over page) _____
What material is it lined with? (e.g. concrete, grass) _____
Is there any erosion of spillway? Yes No
 - iii. Is there an emergency spillway? Yes No
If yes is it located in natural ground? Yes No
What size is it? (sketch over page) _____
What material is it lined with? (e.g. concrete, grass) _____
Is there any erosion of spillway? Yes No

iv. Is a low flow bypass installed? Yes No
If yes give details.

5. Sketch dam on reverse showing all dimensions including:
height, batter slopes, impoundment size, freeboard, spillway
locations etc.

Questions arising from dam inspection

a Does the dam need improvements to reach minimum standards? Yes No
If yes give details _____

b Does the dam flood upstream properties? Yes No

CATEGORIES FOR DECIDING WHAT LEVEL OF ENGINEERING INPUT IS REQUIRED FOR THIS DAM

A. Low Input: Minimum standards apply

to fall in this category, the following conditions must all be fulfilled.

- i. Dam less than 4 metres high
- ii. Surface area less than 3000 square metres
- iii. Contributing catchment less than 40 hectares
- iv. No roads, houses, railway or other valuable features immediately downstream
- v. No problems identified by previous questions.

B. Medium Input Minimum standards apply plus special conditions on the water permit to allow for minor problems

To fall into this category, the above five conditions in category A must be mostly fulfilled and any degree of nonfulfillment must be compensated for by obvious and appropriate special conditions.

C. High Input: Professional Engineering check required.

A dam can fall into this category if any of the following are true.

- i. Dam greater than 5 metres high
- ii. Surface area greater than 3000 square metres
- iii. Contributing catchment greater than 40 hectares
- iv. Road, railway, houses or other valuable feature immediately downstream
- v. Bypass or spillway to pass through dam structure
- vi. Poor foundation conditions
- vii. Apparently poor choice of materials for dam fill
- viii. Other serious problem identified by previous questions

D. Unsure Engineering input decided after Further enquiry

A dam will fall into this category if the officer cannot fit it into one of the above three categories.