

WWAA KNOWLEDGE | FLOODING · NSW

Design for Floods

Flood-affected land: can you still buy?

A design guide for homes on flood-affected land

WHY THIS GUIDE

Section 10.7 flags ‘Flood’. What should you check next before buying?

No simple yes or no. It depends on how much of the site is affected, how you can build, and the cost. A flood notation can affect four things:



Safety

Personal safety and evacuation in a flood are where every assessment starts, and what council cares about most.



Approvals

Flood-related controls may apply, affecting what you can build, how big and how.



Insurance and finance

Premiums, excesses and bank valuations can all change with flood risk.



Cost and value

Raised floors and structure cost more, and there may be fewer buyers later.

Weigh all four before judging what the land can offer and what it’s really worth.



KEY IDEA

This guide won’t decide for you. But before you first see an architect or council, you’ll understand the issues, what to ask and which documents to bring.

WWAA DESIGN NOTE

When we assess flood-affected land, we look past the flood level to what it means for daily life, the budget and future options.

HOW WATER ARRIVES

Four common types of flooding in NSW

One block can be exposed to more than one type of flooding.

Each differs in depth, speed, duration and warning time, and needs its own response.



01

River

rivers and creeks



02

Overland

stormwater runoff



03

Flash

short, intense rain



04

Coastal

tides and storm surge

	Depth	Speed	Duration	Warning time
River flooding	Deep	Slow	Long	Hours to days
Overland flow	Shallow	Moderate	Short	Minutes to hours
Flash flooding	Moderate to deep	Fast	Short	Under an hour
Coastal flooding	Moderate	Moderate	Follows the tide	Hours (forecast)

Relative characteristics · vary with catchment, terrain and event size · refer to the council flood study

Work out which type of flooding you're dealing with before deciding how to respond.

WWAA DESIGN NOTE

No blue on the map doesn't mean no flooding. Overland flow isn't always shown on flood maps.

READ THE MAP

How to read a flood map

Each council presents maps differently. Read the legend and the colours.



Flood Planning Area
Where flood planning controls apply

Flood Extent / Level
Each event has its own line

Flood Hazard
Depth and velocity combined

Overland Flow Path
Often crosses land that looks dry

Indicative only · Illustration © WWAA

Which event?

1% AEP? Or a more frequent or more extreme event?

Which datum?

Is the figure a flood level in m AHD (Australian Height Datum), or a depth above the ground? If it is a level, which datum is used?

Which version?

Is it the currently adopted map, not an older one that no longer reflects conditions?

Reading the legend to understand the hazard.

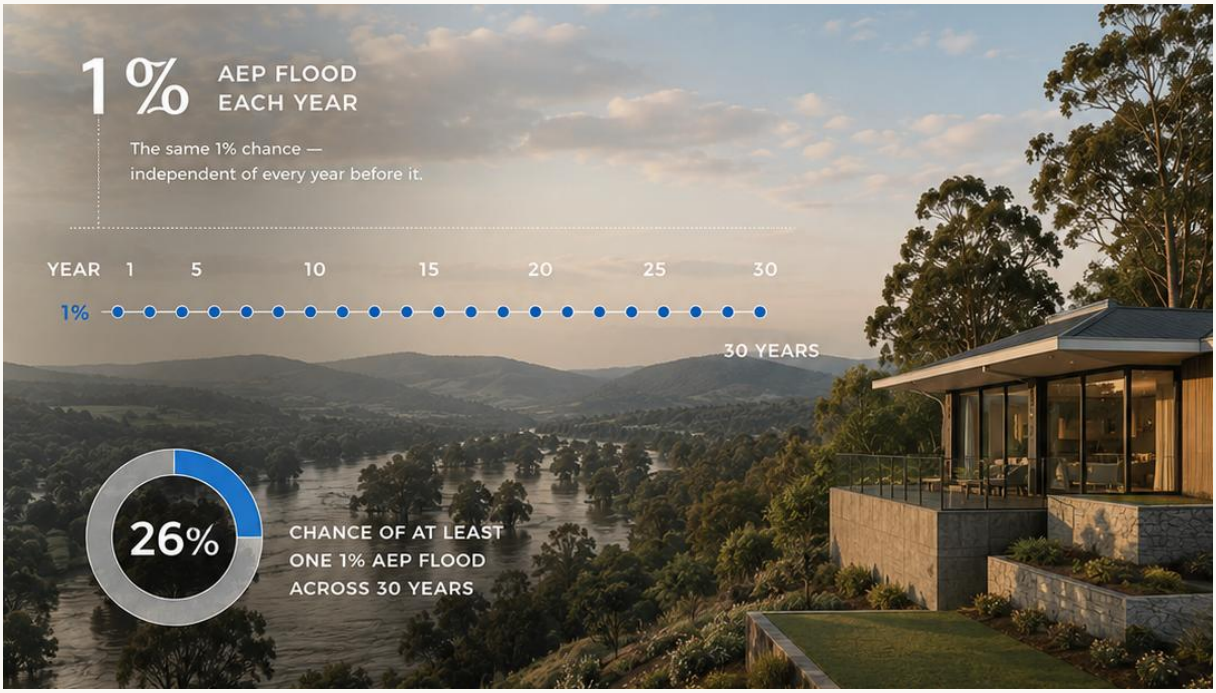
WWAA DESIGN NOTE

We ask three things before reading a flood map: which event, which datum, which version? Once those are clear, the map makes sense.

THE PROBABILITY

1% AEP: not once every 100 years

A 1% AEP flood was often called a ‘one-in-100-year flood’. It has a 1% chance of being equalled or exceeded in any given year.



KEY IDEA

Over 30 years of ownership, the chance of at least one 1% AEP flood is about 26%. Over 80 years, it’s about 55%.

For a buyer, it’s a risk that comes around every year.

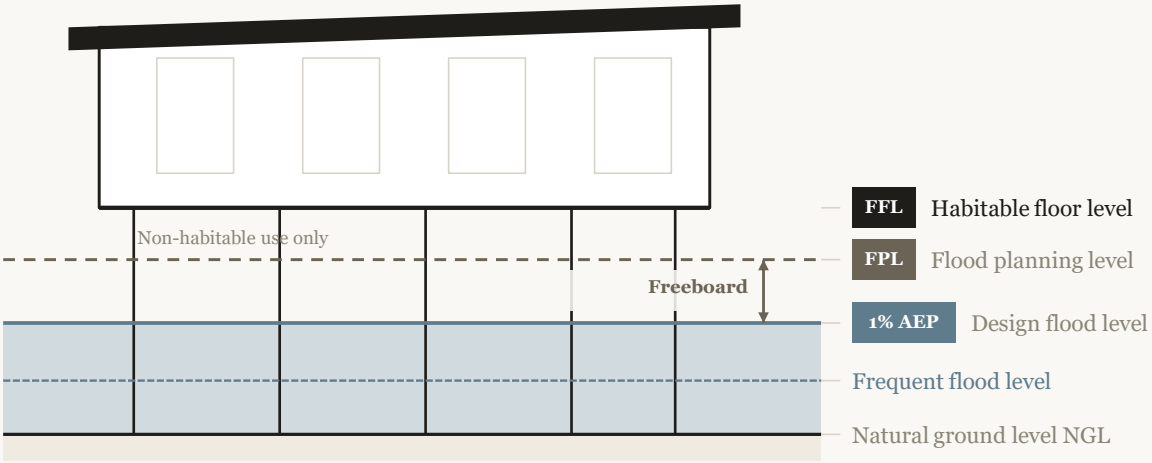
WWAA DESIGN NOTE

Source: NSW Flood Risk Management Manual (2023). The planning standard varies between councils; the adopted controls apply.

THE LEVELS THAT MATTER

Three lines set how high the house sits

On flood-affected land, the first design decision is the floor level, not the look. Once these three lines are set, the plan, section and budget follow.



Indicative section · not to scale · Illustration © WWAA

1% AEP flood level

Set by the council flood study, usually as a level in AHD.

Freeboard

A safety margin above the design flood level, often 0.5 m.

FPL

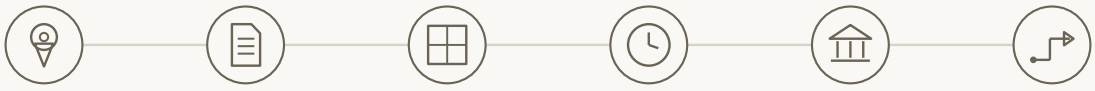
Flood planning level = the adopted design flood level (often the 1% AEP) + applicable freeboard. Habitable floors usually sit at or above it.

Find these three lines before drawing a plan.

WWAA DESIGN NOTE

On paper, freeboard is a small margin above the flood level. In real life, it's peace of mind when the water rises. Figures depend on council's adopted controls.

Six checks before you buy



Council flood maps

Find the currently adopted flood mapping and check the legend and events.

10.7 planning certificate

Read the flood items on the Section 10.7 Planning Certificate word for word.

Flood planning area

Is the land in a Flood Planning Area or under other flood controls?

History and neighbours

Past flood records and neighbours' experience: useful context, not a conclusion.

Insurance quote

Cover and premiums are the honest market signal. Get written quotes and check cover, exclusions and excesses.

Future options

Will today's controls limit a future addition or rebuild?

Do all six before you pay a deposit or bid at auction. None is hard, and each one adds peace of mind.

WWAA DESIGN NOTE

This page isn't meant to have you draw your own conclusions. It makes your first professional consultation more productive.

THE FIVE PRINCIPLES

How flooding shapes design: five moves

These aren't add-ons. They shape the design from the first line of the site plan.

Raise

Lifting living spaces and key services above the FPL is the most effective way to reduce risk.



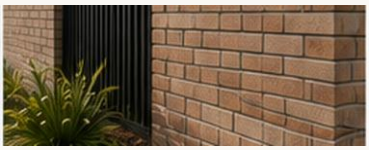
Let water through

Keep the lower level and pathways open so water can pass instead of pushing against footings and walls.



Durable materials

Choose materials and construction that can get wet, dry quickly and last.



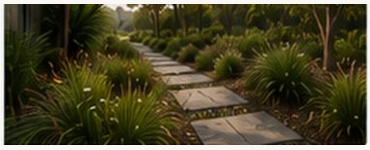
Design for recovery

Design that's easy to clean, dry and repair decides how soon you can move back in.



Work with the land

Permeable paving helps manage everyday stormwater runoff on site.



THE JOURNEY OF RESILIENCE

Raise → Let water through → Durable materials → Design for recovery → Work with the land → A lasting home

WWAA DESIGN NOTE

In good design, a flood control becomes part of the character of the place.

Three zones around the flood line

What matters is how soon the house is liveable once the water drops.

Above the FPL	Protected zone: everyday materials; good detailing still matters.
Between the FPL and 1% AEP	Transition zone: seal slabs, thresholds and flashings well.
Below the 1% AEP	Resilient zone: fast to dry, affordable to repair.



Concrete
SLABS · WALLS

Strong, water-resistant; dense finishes clean easily.



Brick and block
WALLS

Durable and breathable; use dense bricks and good mortar.



Steel and aluminium
CLADDING · FRAMES

Light, corrosion-resistant; walls, roofs, windows.



Stone and porcelain
FLOORS · TERRACES

Low porosity and hard-wearing; for floors, terraces and wet areas.



Marine plywood
JOINERY

Made for damp conditions; for cabinets and bathroom joinery.



Resilient finishes
PAINTS · SEALANTS

Moisture-resistant paints and sealants.

Indicative materials · concept images · details subject to engineering and council requirements

WWAA DESIGN NOTE

Our test for materials is simple: after a flood, can it dry quickly, be cleaned and be replaced?

Let water through, don’t block it



Read the land
Water follows landform, soil and plants.

Let water through
Fences and paving shouldn’t trap water.

Soak and slow
Rain gardens and swales slow water down.

Resilient planting
Flood-tolerant plants, washable surfaces.

Safe access
Plan driveway and exit route levels early.



Permeable paving, swales and flood-tolerant planting keep the garden usable after a flood.

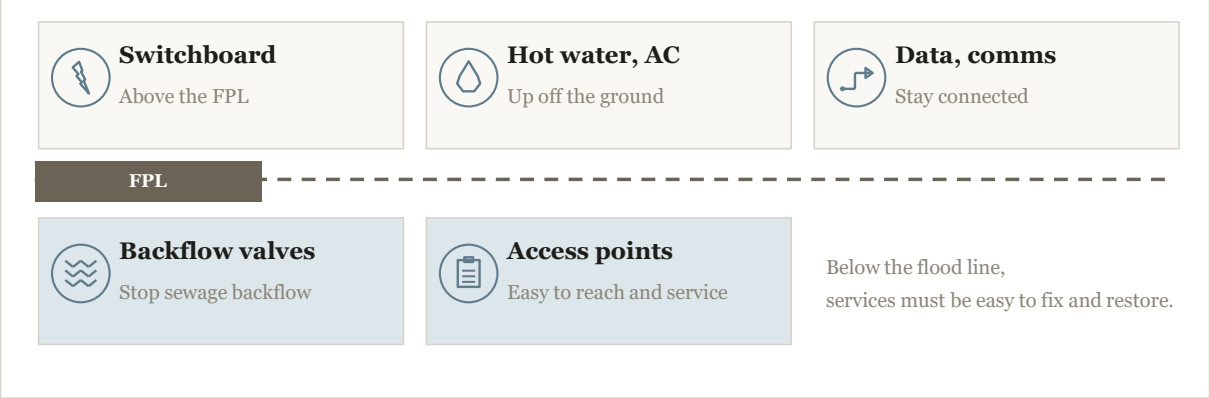
A wall that blocks water often just moves the problem next door.

WWAA DESIGN NOTE

Good landscape on flood-affected land plans for water instead of fighting it: where it comes from, where it goes, what soaks in and how long it stays.

Keeping the house running after a flood

Flood disruption is often less about structure than about losing power, water and communications. Where services sit decides how fast you recover.



Indicative services layout · subject to engineering and council requirements · Illustration © WWAA

Raise key services

Moving switchboards, power points and units up off the ground is the best-value step.

Prevent backflow

Backflow valves and similar measures reduce the risk of sewage backing up at the flood peak.

Maintenance first

Below the flood line, everything should be easy to reach, service and replace.

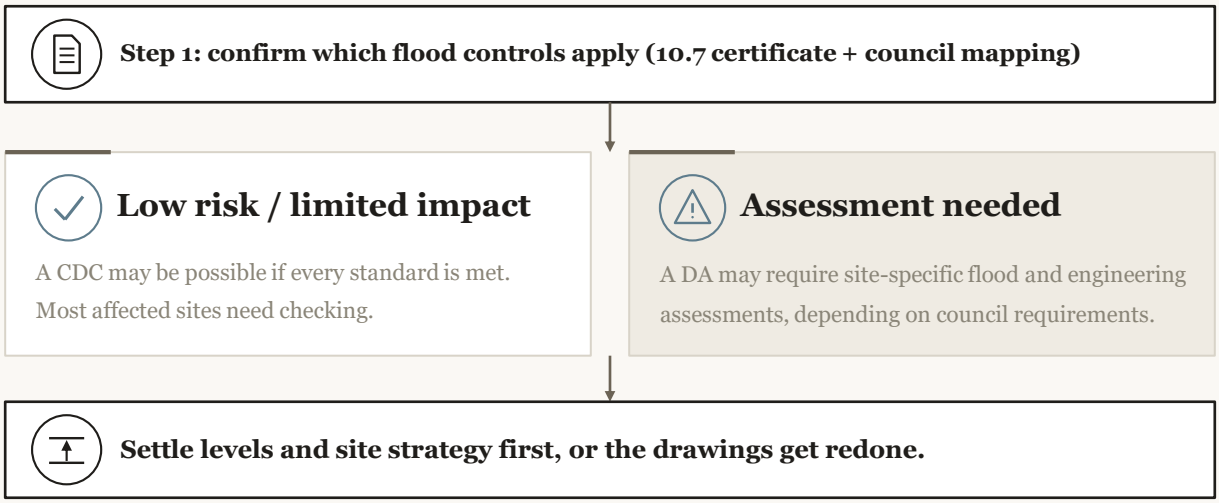
Fast recovery is the most practical test of a flood-affected house.

WWAA DESIGN NOTE

We draw service heights at concept stage. They'll affect the next ten years of living more than the finishes schedule will.

DA or CDC?

A flood notation alone doesn't decide DA (development application) or CDC (complying development certificate). Affected sites often have extra requirements.



Indicative pathway · a flood notation doesn't decide DA or CDC on its own · Illustration © WWAA

Flood impact assessment — How the proposal affects flood behaviour and neighbouring land.

Hydraulic assessment — An engineer's analysis of flood levels, velocities and flow paths.

Conditions — Council may set conditions on floor levels, materials and evacuation.

Confirm the approval path first, then set the design and budget. The other way round adds cost and avoidable risk.

WWAA DESIGN NOTE

A flood notation doesn't automatically decide DA or CDC. The pathway is confirmed case by case, with council and against the relevant standards.

Ask about insurance and finance first

A few phone calls before you buy are the cheapest risk check you can do.

Cover

High-risk sites may have limited or no flood cover.

Premium

Can vary several-fold in one street. Get quotes.

Excess

Flood-related excesses can be much higher.

Bank valuation

Valuers factor in flood risk, which affects how much you can borrow.

Loan conditions

In some cases, lenders may add insurance or engineering requirements.

Time

Quotes and underwriting take time. Leave them too close to contract deadlines and you're under pressure.

Get written quotes and check cover, exclusions and excesses. These tell you more than ten pages of marketing.

KEY IDEA

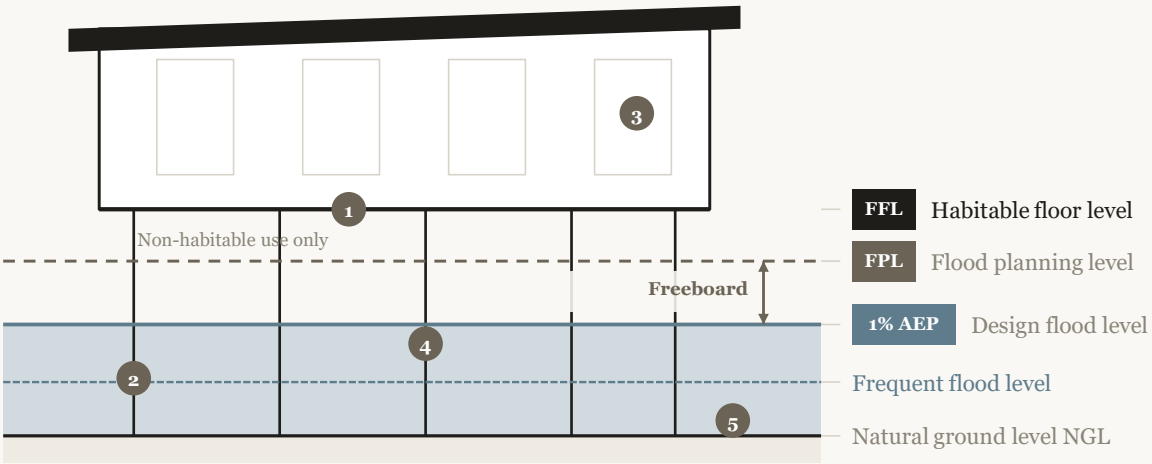
Insurers price the risk. Architects and engineers handle design and compliance. You need both. Neither replaces the other.

WWAA DESIGN NOTE

We suggest getting insurance quotes before you pay a deposit, not to buy a policy yet, but to see how the market prices this land.

Where the extra money goes

Extra costs on flood-affected land sit in a few places you can identify early.



Indicative section · not to scale · Illustration © WWAA

1 Raised structure A raised slab or suspended floor costs more than a standard build.

2 Piles and footings Piles, pile caps and ground conditions are often the biggest variable.

3 Stronger structure Built to resist water pressure, buoyancy and debris impact.

4 Materials Water-resistant materials and construction below the flood line.

5 Site and drainage Retaining walls, cut and fill, pipe sizes and detention tanks.

Ask a builder or quantity surveyor (QS) about these costs before you buy, not after the drawings are priced.

WWAA DESIGN NOTE

Land price plus the cost of dealing with flooding is the real price of the site.

Why flooding affects property value



Buyers who understand water often find value in sites others pass over.

Costs more	Raised floors, stronger structure and better drainage all add to construction cost.
More controls	Flood-related planning controls may limit size, use and form.
Fewer buyers	Some buyers skip flood-affected sites altogether, so the resale market is smaller.
Dearer cover	The higher the flood risk, the higher insurance costs and uncertainty tend to be.
Less potential	Controls may limit future additions, alterations or a rebuild.

Not all of these will apply, but weigh each before you offer.

WWAA DESIGN NOTE

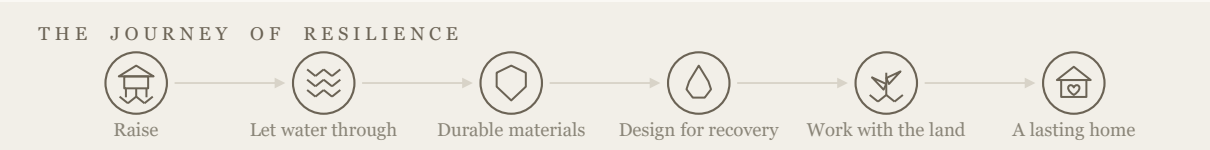
Risk itself isn't the problem. Paying an uninformed price is.

MYTHS VS FACTS

Four myths, four facts

MYTH	FACT
‘My land has never flooded’	Past floods aren’t a guarantee; climate and upstream land change.
‘Flood maps don’t change’	Councils update flood studies. Today’s map isn’t forever.
‘Insurance always covers flood’	Cover varies between insurers and policies. Check the flood clauses one by one.
‘Flood-affected land can’t be developed’	Many flood-affected sites can be developed with good design. It’s about how.

‘Fine for now’ isn’t ‘fine forever’, and a flood notation isn’t a no.



WWAA DESIGN NOTE

A flood map isn’t permanent, and a flood notation isn’t a verdict.
Either mistake leads to poor decisions, and both can be costly.

Before you buy

- [ ] **Check council flood maps**
  Confirm the adopted version and legend.
- [ ] **Get insurance quotes**
  Cover, premium and excess.
- [ ] **Get a current 10.7 certificate**
  Read the flood items word for word.
- [ ] **Estimate extra costs**
  Rough cost of raising, structure and drainage.
- [ ] **Know the controls**
  Flood clauses in the council's LEP and DCP.
- [ ] **Book a professional consult**
  Planning to renovate or rebuild? Bring in an architect and engineer early.

Five questions before design

01 Where will the water come from: a river, overland flow, flash flooding or the sea?

02 What's the design flood level, and which event and datum is it based on?

03 What's the FPL, and how high must the habitable floors be?

04 DA or CDC? Which assessments and reports are needed?

05 What's the real cost? Once flood costs are added to the land price, does the price still stack up?

Useful resources: NSW SES (flood emergency information) · NSW Planning Portal (10.7 certificates and planning information) · your council's flood mapping and flood information service.

Understand the water first, then decide.

General guidance only · for a specific site, rely on council and qualified consultants.



Understand the water, then design the home.

Understanding Before Design.

Architecture for Life and Time.

William Wang Architect & Associates
Nominated Architect William Yen-Wen Wang · NSW 9897
MPhil in Environmental Design in Architecture, University of Cambridge
BArch (Hons 1) UNSW · PMP · LEED Green Associate
Level 25, 100 Mount Street, North Sydney NSW 2060

Read the full article online: wwaa.au/post/flood-design-guide