

Irrigation Designer interview questions

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What to expect

Irrigation designer interviews mix technical hydraulics with client and compliance judgement. Expect to talk through a real design from site assessment to sign-off, and to show how you explain trade-offs to a grower who is watching both water and cost.

- **Technical design:** Friction loss, pump duty, emitter selection, filtration and control. Interviewers want to hear you reason from soil, crop and water quality rather than quote a rule of thumb.
- **Design process walk-through:** A staged description of how you take a block from first site visit to issued drawings and cost estimate.
- **Behavioural:** How you have handled a client who disagreed with your advice, a design change late in a project, or a mistake you caught before installation.
- **Scenario or problem solving:** A live problem on a property, such as a pump tripping at peak demand, a leaking main, or a water restriction that lands mid-season.
- **Client-facing communication:** Translating hydraulics and licence conditions into plain language for a grower, a landscaper or a project manager.
- **Compliance and safety:** Water licensing, environmental overlays, works approvals, and knowing where your scope ends and a licensed plumber or electrician takes over.

Usually two conversations. The first is with an engineer or design lead and covers your background plus a walk-through of a design you have delivered. The second is with a project manager or a grower client and leans on scenarios, compliance and how you handle site pressure. Some employers ask for a short portfolio or a take-home layout exercise, and site-based roles often include a property visit.

1. Walk me through how you would design an irrigation system for a 60-hectare block of young macadamias with a limited water allocation.

Why they ask

This is the core of the job. The interviewer wants to see a logical design sequence and evidence that a tight allocation shapes the whole system, not just the pipe sizes.

How to structure your answer

A staged walk-through: site and resource assessment, crop water demand, system concept, hydraulic sizing, then documentation and compliance.

Example answer

"I'd start on site, checking the water source and how reliable it is, then soil type and infiltration, then the block layout and access. Young macadamias need consistent moisture, so I'd set a peak demand figure from local evapotranspiration data and the tree spacing, and check that against the allocation. If the allocation is tight, that shapes everything. I'd look at splitting the block into zones and running them in sequence rather than all at once, which lowers the pump duty and lets a smaller main do the work. Then I'd lay out laterals and mainline, size pipes for friction loss at the target pressure, and pick emitters so the last tree gets close to the same flow as the first. From there I'd select the pump, filtration and controls, write the specification with a schedule of emitters, valves and filters, and put a cost estimate together. Before it goes out I'd check the design against the licence conditions and any local rules, and note the assumptions so the grower knows what the design depends on."

2. Tell me about a time you had to tell a client their design idea wouldn't work.

Why they ask

Growers and landscapers often arrive with a fixed idea. The interviewer is testing whether you can push back with evidence and keep the relationship intact.

How to structure your answer

STAR, with the emphasis on the evidence you used and how the client responded.

Example answer

"A grower I was working with wanted to run one large zone across two soil types because it was cheaper on pipe. I could see the sandier end would be underwatered and the heavier end waterlogged, so I didn't just say no. I pulled the soil test results and the crop water demand figures and showed him what each end of the block would actually get under his layout. Then I ran a two-zone option with a slightly larger main and put the two cost estimates side by side. He went with the two-zone design, and the install ran without the rework he would have hit otherwise. What I took from it is that growers will change their mind when they can see the numbers on their own block rather than a general rule."

3. A grower calls on a Friday afternoon: their pump is tripping at peak demand and they need water over the weekend. What do you do?

Why they ask

Site emergencies are common. This tests your judgement under pressure, your safety boundaries, and whether you can give a useful interim answer without guessing.

How to structure your answer

Judgement under pressure: clarify the facts, triage the likely causes, give a safe interim measure, then commit to a proper follow-up.

Example answer

"First I'd get the facts without making him panic: which breaker is tripping, whether it happens at startup or after an hour, and whether any zones or valves were changed recently. A pump tripping at peak demand often points to a blocked filter, a partly closed valve, or a zone running beyond what the pump was sized for. I'd talk him through a safe check of the suction and the filter, and if the crop is at risk I'd suggest running zones in sequence at a lower duty as a short-term measure rather than forcing the breaker. I'd log the details, follow up first thing Monday with a proper check of the pump curve against the system, and put the fix in writing. If it looked like an electrical fault I'd be clear that it needs a licensed electrician, not me."

4. How do you work out friction loss in a mainline, and what drives your emitter selection?

Why they ask

A straight technical check. The interviewer wants to know you understand the calculation rather than relying on software output you cannot explain.

How to structure your answer

A direct technical explanation, naming the inputs, the tools you check with, and the worst-case condition you design to.

Example answer

"For friction loss I use the pipe material, internal diameter, flow rate and length, work through the head loss per metre for each section of mainline, then add fittings and the elevation difference. I usually do the first pass in HydroCAD or a spreadsheet so I can test a few diameters quickly, then check the pump curve against the duty point at the worst case, which is the last zone on the longest run. Emitter selection comes back to soil and crop. Infiltration rate sets the maximum application rate before you get runoff, the crop sets the wetted area and depth you need, and water quality affects whether you go with drip or micro sprays and what filtration you specify. I also check manufacturer flow variation across the pressure range so the first and last emitters stay close enough."

5. What do you check before a design goes out, against water licensing and environmental rules?

Why they ask

Compliance mistakes are expensive and can stop a project. The interviewer is checking you treat licensing as part of the design, not paperwork at the end.

How to structure your answer

A checklist walk-through, covering the licence, the site overlays, the documentation trail, and the point where another licensed trade signs off.

Example answer

"I check the water source and its licence conditions first: the volume the client can take, any extraction limits, and whether the entitlement is tied to the property or tradable. Then I look at the site for environmental overlays, drainage paths and buffer distances near waterways, and whether the design needs a works approval or a development application. I make sure the design doesn't exceed the licensed take at peak demand, and that the pump and controls can be metered or monitored if the licence requires it. On documentation I keep the assumptions and calculations in the file so the client can hand them to the water authority if they're asked. If something sits outside my scope, like plumbing or electrical sign-off, I flag it and bring in the right licensed trade."

6. How do you use CAD and design software in your process, and how has it changed the way you iterate?

Why they ask

Most employers expect fluency in AutoCAD and irrigation-specific tools, and they want to see you use them to move a design forward, not just to draw it up.

How to structure your answer

A tool workflow answer with one concrete example of a design change you turned around quickly.

Example answer

"I draft in AutoCAD and use IrriCAD for the pipe layout and hydraulic checks, with QGIS for site mapping and overlays. What I rely on most is a block library I've built for standard emitters, valves and fittings, so a farm layout starts from a working base instead of a blank drawing. When a client wants to see options, that lets me change a zone or a main diameter and reissue in a day rather than a week, which keeps the conversation moving while the design is still open. I still check the hydraulics by hand or in a spreadsheet for critical runs, because a drawing that looks right can still hide a pressure problem at the end of the line."