ENVIRONMENTAL WATER RISK ASSESSMENT FORM

RISK ASSESSMENT for: Konayuki / Makaira

KPIN(s): 8000, 3390

STEP 1:Identify Hazards		STEP 2:RISK (High, Medium, Low)	STEP 3: Control Hazards (Eliminate, Isolate Or Minimise)				STEP 4: Continuous Improvement
Source	**Hazard**	**Risk**	**E**	**I**	**M**	**Hazard Control**	**✓**
Contamination Sources							
Damage to water use structures	• *Damage to pipes, bore-head etc. causes water source contamination risk e.g. via run-off infiltration*	L			✓ ✓ ✓ ✓	• Check condition of water use structures regularly • Repair and replace system components when needed • Install and maintain protection around vulnerable pipework and infrastructure • Clearly mark/identify vulnerable structures and regularly brief/ remind orchard workers and contractors to avoid damage	
Water use structure design & maintenance	• *Poor design and/or maintenance of water collection, storage and/ or distribution systems allows stagnation and/or contamination of orchard water source(s)* • *Lack of flow control* • *Poor Targeting of water* • *Leaks*	L			✓ ✓	• Where possible, water storage facilities are covered and have appropriate filter and treatment systems if/where needed • Check and maintain good design of water transport system in the orchard	

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Sediment release from Orchard infrastructure	• *Sediment cleared from tanks/ ponds released to waterways* • *Heavy rain/floodwater washes sediment from orchard slopes, tracks, ponds etc. into waterways*	L			✓ ✓ ✓ ✓	• Contain and safely dispose of material removed through tank/ pond cleaning • Vegetation around open water sources • Control run-off • Reduce erosion risk	
Agrichemical sprays	• *Chemical: Pesticide contamination* • *Chemical: Excess minerals affect soil quality/structure (nutrient leach risk)* • *Biological: Nitrates, phosphates etc. support bacterial growth in water* • *Spray drift*	L			✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓	• Property Spray Plan in place • Trained applicators • Spray in correct weather conditions • No mixing near water sources • Comply with GAP storage requirements / secure input storage • Appropriate time of application • Appropriate volume of application • Control run-off	
Fertilisers	• *Chemical: Nutrient contamination from fertilisers (loss of nutrient control)* • *Chemical: Excess minerals affect soil quality/structure (nutrient leach risk)* • *Biological: Nitrates, phosphates etc. support bacterial growth in water*	L			✓ ✓ ✓	• Follow the Four R's of fertiliser use to avoid excess fertiliser use (right rate, type, place and time) • Avoid fertiliser and compost application ahead of heavy rainfall and/or carefully manage irrigation to avoid drainage • If unable to spread immediately, store compost away from water run-off areas and cover ahead of significant rainfall	

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Fuel/agrichemical storage and handling	• *Leaks or run-off from machinery, storage or handling areas*	L	-		✓ ✓ ✓	• Secure agrichemicals and other potential contaminants away from flood-prone areas, no leaking into the water supply • Develop effective spillage control in chemical/fuel handling areas and transport systems • Equipment maintenance procedure as per GAP requirements	
Overwatering	• *Leaching and/or run off of nutrients into groundwater or surface waterways* • *Water wastage* • *Overuse at times of water shortage* • *Water level too low and damages ecosystem* No water for frost or irrigation	L			✓ ✓ ✓ ✓ ✓ ✓ ✓	• Comply with water consent conditions • Ensure good soil structure to retain water • Match water inputs to crop needs (e.g. using irrigation budget based on estimated canopy cover and rainfall) • Use soil moisture monitoring to inform irrigation on/off decisions • Don't apply irrigation when soil at or above field capacity and significant rainfall imminent • Reconsider irrigation auto-settings daily • Tailor irrigation application rate and frequency to soil type/infiltration rate and target irrigation depth	
Animal contamination	• *Biological: animal excrement (containing nitrogen and E.coli) reaches waterways. (N/A unless grazing stock on orchard property)*	L			✓ ✓	• Restrict animal access • Fence off waterways (if livestock present)	

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Sewerage storage or distribution	• *Entering waterways*	L			✓ ✓	• Monitor condition of sewerage or distribution systems • Ensure toilets comply with regulatory/ council requirements	
Use/spread of contaminated water	• *Poor quality (contaminated) water runs-off or leaches to waterways following spread on orchard e.g., via irrigation, frost protection or spray applications.*	L			✓ ✓ ✓ ✓ ✓	• Secure water supply • Check water supply regularly • Respond to any adverse test results – identify contamination source and record corrective action taken • Be aware of upstream activities • Change water source if/when needed (in accordance with regulatory requirements) • Use only approved suppliers and clean, sealed tanks/trucks for water transport	
Water Source Depletion							
Overuse of one water source Overuse at times of water shortage	• *Low water levels affect ecology, concentrate contaminants*	L			✓ ✓ ✓ ✓	• Store water for use in times of shortage • Use alternative source (in accordance with regulatory requirements) • Know permitted activity or consented use limits; monitor (e.g., with water meter) and manage actual use within limits • Avoid or minimise water use when water availability low	

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Lack of storage	• *Taking of water when levels are low affecting ecosystem*	L			✔ ✔ ✔	• Restrict water use • Build/maintain soil structure to retain water • Install water storage (in accordance with regulatory requirements)	
Wastage from poorly designed water use system	• *Lack of flow control* • *Poor targeting of water*	L			✔ ✔	• Design/install efficient irrigation and/or frost system • Where possible, use covered water storage systems to minimise evaporation losses	
Wastage from damaged or poorly maintained system	• *Leaks* • *Blockages* • *Poor emitter or distribution uniformity* • *Pressure variability*	L			✔ ✔ ✔	• Check system regularly and repair when required • Install and maintain protection around vulnerable pipework and infrastructure • Clearly mark/identify vulnerable structures and regularly brief/ remind orchard workers and contractors to avoid damage	
Wastage due to overwatering	• *Water wastage from applying irrigation or frost water in excess of vine needs* No water for frost or irrigation	NA	✔			• Comply with water consent conditions • Match water inputs to crop needs (eg. using irrigation budget based on ET, canopy cover and rainfall) • Use soil moisture monitoring (verified with orchard observations) to inform irrigation on/off decisions • Train staff and ensure they know how to use the irrigation system effectively	

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Timing	• *Water waste due to water application when not required eg. already sufficient soil moisture or rainfall* No water for frost or irrigation	NA	✔			• Consider soil moisture deficit and rainfall received or expected when making irrigation on/off decisions • Reconsider irrigation auto-settings daily • Ensure frost system thermometer is calibrated and on/off settings adjusted correctly	
Harm To Mahinga Kai (Edible Species) And Wildlife							
Water use structures damaged or poorly designed	• *Fish/eels caught in water intake/ pump* • *Fish/eel passage blocked by water storage or intake structure eg. dam*	L			✔ ✔ ✔	• Ensure intake structures and screens comply with regulatory/council guidelines • Install and maintain protection around water intake screens • Regularly check and maintain intake structures	
Culverts (drain pipes)	• *Fish/eel passage blocked by drainage system/culvert design*	L			✔ ✔	• Ensure culvert and drain design/ install complies with regulatory/ council guidelines • Regularly check and maintain culverts and drains	
Earthworks/ vegetation clearance	• *Works beside waterways removes shade, aquatic habitat and/or releases sediment*	L			✔ ✔	• Plant and protect appropriate riparian vegetation to shade/cool water, support water ecology and prevent soil erosion • Ensure earthworks or other works near waterways (including wetlands), complies with regulatory requirements	
Other							

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***Note**: See Part A; Section 5.4 Risk Assessments for guidelines*

Tick in the CI column any actions that you may plan to do or have identified as an opportunity for improvement. Move only action(s) you intend to act on in the next 1-3 years to your continuous improvement plan form (The continuous Improvement plan is in Part B: Section 1.6 of the Grower Manual).

STEP 5: Review

Date: 30/10/2023	Sign:	Date:	Sign:
Date:	Sign:	Date:	Sign:
Date:	Sign:	Date:	Sign: