

Irrigation from Irrigation Catchment Pond

Approved: DG Designation: GM-C Date: 28/5/2020

Standard Work Place Instruction
SWPI-740-020-A

Revision: A

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1.0 PURPOSE

- 1.1 "The purpose of this document is to provide instructions for the safe and compliant irrigation from the leachate/irrigation pond adjacent to Pad 3.

2.0 SCOPE

- 2.1 This instruction covers the spreading of the irrigation liquid onto the irrigation areas.

3.0 RECORDS

- 3.1 Specific records to be kept are-
- 3.1.1 Time and date of irrigation
 - 3.1.2 Area irrigated
 - 3.1.3 Time irrigation applied
 - 3.1.4 Soil Moisture Deficit
 - 3.1.5 Method of irrigation ie travelling irrigator, pods, tractor trailer
 - 3.1.6 Weather at time of irrigation
 - 3.1.7 Irrigation pond level at end of irrigation

4.0 ASSOCIATED DOCUMENTS

- 4.1 Uruti Integrated Management Plan
- 4.2 TRC Consent's
- 4.3 Irrigating High & Low risk Soils
- 4.4 Leachate & Stormwater Management Plan

5.0 DEFINITIONS

- 5.1 L1-L5: Lower irrigation areas
- 5.2 U1-U3: Upper irrigation areas
- 5.3 Irrigation Catchment Pond: Final pond adjacent to Pad 3-collects leachate and stormwater from Pad 1, 3 and washdown.

6.0 RESPONSIBILITY

- 6.1 The Uruti Site Manager is responsible for ensuring this SWPI is followed

7.0 TOOLS, GAUGES, FIXTURES

- 7.1 Fixed diesel driven pump at irrigation pond
- 7.2 Pond aeration manifold
- 7.3 Testing equipment for TKN in irrigation pond

8.0 SAFETY REQUIREMENTS

- 8.1 Hi Vis to be worn on site
- 8.2 Sun protection to be worn
- 8.3 Safety glasses to be worn when starting/stopping pump

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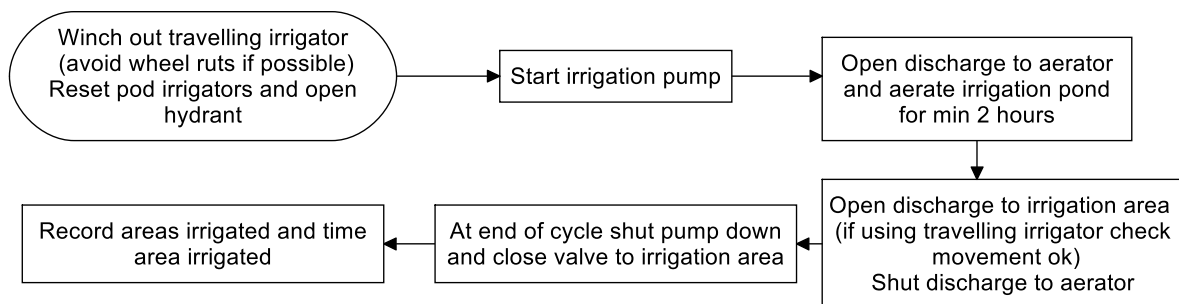
9.0 INSTRUCTIONS (General)

- 9.1 Identify irrigation requirements-this is based on maintaining the irrigation pond with a 1m freeboard
- 9.2 On Monday mornings the two week rain forecast is received from 'WeatherWatch', a professional weather forecasting business.
- 9.3 The irrigation model is updated using this information and emailed to Uruti.
- 9.4 The Uruti Site operator records the level in the irrigation pond Monday morning.
- 9.5 The Site Manager plans the weeks irrigation based on the irrigation pond level, the rain forecast, and the application rate (rates are attached see Irrigation Areas/Rates). This information is posted on the operators planning notice board. Information provided is:
 - 9.5.1 Days to irrigate
 - 9.5.2 Areas to be irrigated
 - 9.5.3 Time of irrigation each area
 - 9.5.4 Hours aeration of irrigation pond (normally a minimum of 2 hours per day).
- 9.6 Irrigation is spread as evenly as possible over all irrigation areas. Depending on the soil tests an area may be spelled for a period.

10.0 INSTRUCTIONS (PUMP AND IRRIGATORS)

- 10.1 Pods are generally used for irrigation of the upper areas
- 10.2 Use soil moisture probe to calculate the soil moisture deficit
- 10.3 Adjust the irrigator time to not exceed the soil moisture deficit
- 10.4 Travelling irrigator & Sprinkler pods can be used for irrigation of lower areas
- 10.5 Irrigation Flow Chart

Irrigation Flow Chart



Note: In wet conditions travelling irrigator set in high gear (1 hr to cycle)
In dry conditions set in low gear(3.5hr to cycle)
Travelling irrigator shuts down automatically when cycle finished
Pods may have to be moved between irrigation areas

Figure 1: Irrigation Flow Chart

10.6 Irrigation maximum application rate

The irrigator is to be operated to match the soil risk and moisture conditions in the irrigation area.

- Low risk soils – Areas L1, L2, L3, L4 & L5
- The maximum application rate is 15 mm/hr
- The maximum application depth is 25 mm
- Use Travelling irrigator and Sprinkler pods

10.7 Irrigation maximum depth

The irrigator is to be operated to match the soil risk and moisture conditions in the irrigation area.

- High risk soils – Areas U1, U2 & U3
- The maximum application rate is 10 mm/hr
- The maximum application depth is 25 mm
- Use Sprinkler pods

10.8 Operating the Travelling Irrigator

The Travelling irrigator is capable of operating at 12 mm/hr with a 40 m diameter cover

- To achieve a 20 mm application depth the minimum speed must exceed 20 m/hour
- Engage Gear 2 to achieve 20 m/hr

10.9 Operating the Uni Sprinkler pods

The Uni Sprinkler with a 9 mm nozzle operating at 2 bar pressure will apply 4 mm/hr

- To apply 24 mm the pods should be operated for a maximum of 6 hours.

Uruti Irrigation Pumping System

Pump Suction Manifold

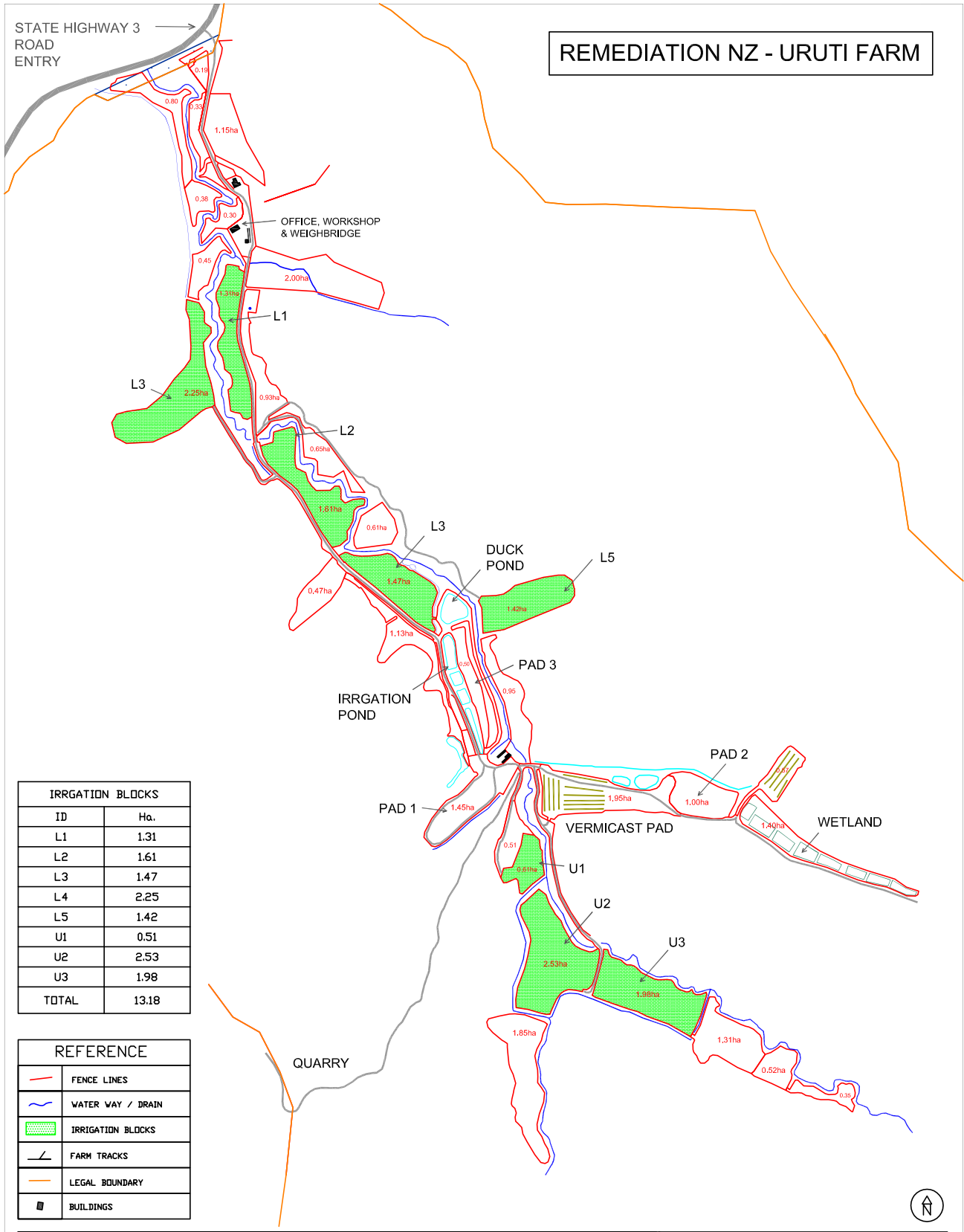


Pump Discharge Manual



Figure 2: Pump Suction and discharge Manifold

REMEDIATION NZ - URUTI FARM



IRRIGATION BLOCKS	
ID	Ha.
L1	1.31
L2	1.61
L3	1.47
L4	2.25
L5	1.42
U1	0.51
U2	2.53
U3	1.98
TOTAL	13.18

REFERENCE	
	FENCE LINES
	WATER WAY / DRAIN
	IRRIGATION BLOCKS
	FARM TRACKS
	LEGAL BOUNDARY
	BUILDINGS

DATE : 25 MAY 2020	SIZE: A4 / SCALE 1:9900	DRONE TECHNOLOGIES NZ LTD	
VERISON : 005	DRAWN BY: B PLUMMER		

