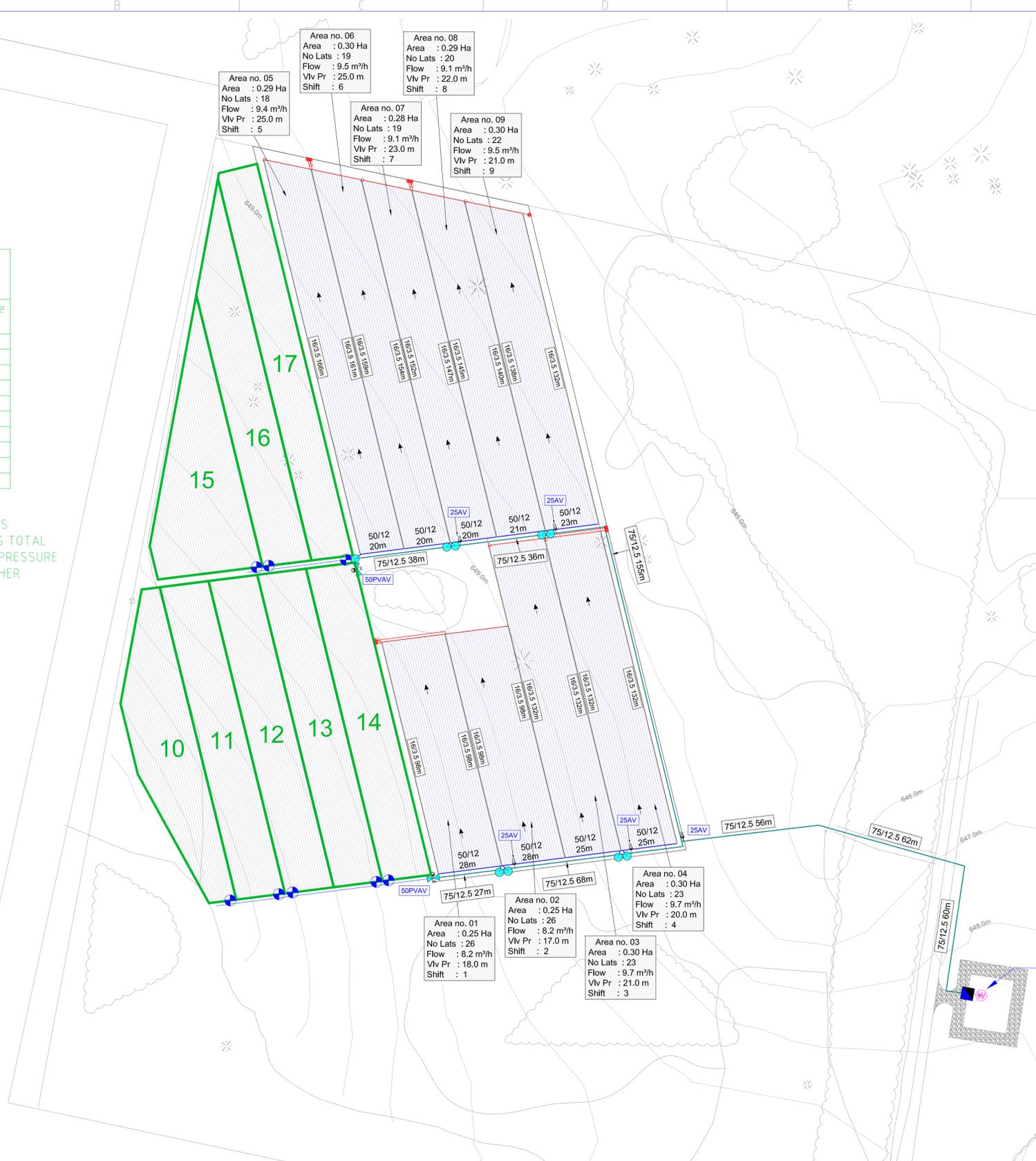


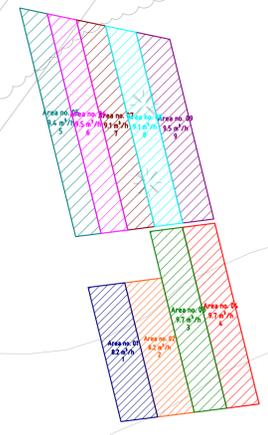


Proposed New Area Layout			
Valve Number	Area (ha)	Flow (m <sup>3</sup> /hr)	Vlv Size (mm)
10	0.27	8.64	50
11	0.26	8.32	50
12	0.26	8.32	50
13	0.26	8.32	50
14	0.26	8.32	50
15	0.28	8.96	50
16	0.28	8.96	50
17	0.28	8.96	50
TOTALS:	2.15	68.80	8 Valves

- SYSTEM TO OPERATE IN 17 SHIFTS
- TO APPLY 3MM PEAK IN 16 HOURS TOTAL
- PUMP FLOW WILL REMAIN SAME, PRESSURE HEAD WILL INCREASE DUE TO HIGHER ELEVATIONS



### GRAPHICAL SHIFT LAYOUT



ZONE CONTROL VALVE TABLE									
Zone Name	Zone Area (ha)	Valve Size	Zone Flow (m <sup>3</sup> /h)	Irrigation Pressure (m)	Flush Pressure (m)	Min Zone Pressure (m)	Max Zone Pressure (m)	Mean Flow (lph)	Flow Variation (%)
Area no. 01	0.25	50mm	8.2	18.0	23.0	14.2	17.9	1.6	0.0
Area no. 02	0.25	50mm	8.2	17.0	22.0	14.4	17.6	1.6	0.0
Area no. 03	0.30	50mm	9.7	21.0	26.0	14.1	20.9	1.6	0.0
Area no. 04	0.30	50mm	9.7	20.0	25.0	14.1	20.5	1.6	0.0
Area no. 05	0.29	50mm	9.4	25.0	28.0	14.5	25.5	1.6	0.0
Area no. 06	0.30	50mm	9.5	25.0	28.0	14.7	25.0	1.6	0.0
Area no. 07	0.29	50mm	9.1	23.0	28.0	14.7	23.3	1.6	0.0
Area no. 08	0.29	50mm	9.1	22.0	27.0	14.1	21.9	1.6	0.0
Area no. 09	0.30	50mm	9.5	21.0	26.0	14.8	21.4	1.6	0.0
<b>Total Area:</b>	<b>2.57</b>	<b>(ha)</b>							

DISPERSAL DATA TABLE		
Description	Units	Effluent Dispersal
Application	-	2.57
Dispersal Area (Net)	ha	2.57
Rows/Beds Spacing	m	1.00
Plants Spacing	m	-
Irrigation/Dispersal System	-	Sub-Surface Drip
Emitter Type	-	Bioline 16010 AS XR
Minimum Emitter Pressure	mhd	14.00
Emitter Discharge	Lph	1.60
Emitter Spacing	m	0.50
Laterals Average Spacing	m	1.00
No. of Laterals per Row/Bed	No.	1
Application Rate	mm/hr	3.20
Max. Daily Consumption	mm/day	3.00
Irrigation Cycle	days	1
Duration of one Operation	hrs	0.94
Number of Operations	No.	9
Max. Daily Operation Duration	hrs	8.44
Available Daily Duration	hrs	9
Mainline Flexibility	-	Maximum
Max Number of Laterals per Flush Tap	No.	26
Pump Duty (Excludes Backflush Requirements)		
Maximum Discharge Required	m <sup>3</sup> /hr	10.0
Maximum Discharge Required	Lps	2.8
Required Pressure at Water Source	mhd	50.0
Required Pressure After Filtration	mhd	40.0
Assumed Filter Station RL:	m	648.5
Assumed Lowest Water RL:	m	648.5
Allowances For Calculation of Total Dynamic Head:		
Suction Line	mhd	3.0
Filtration (Disc Filter)	mhd	7.0
Miscellaneous/Headworks	mhd	2.0
Field Valve Assembly	mhd	4.0

**PUMP DUTY REQUIREMENT:**  
10 M3/HR @ 50 MHD

**FLUSH DUTY REQUIREMENT:**  
15 M3/HR @ 56 MHD

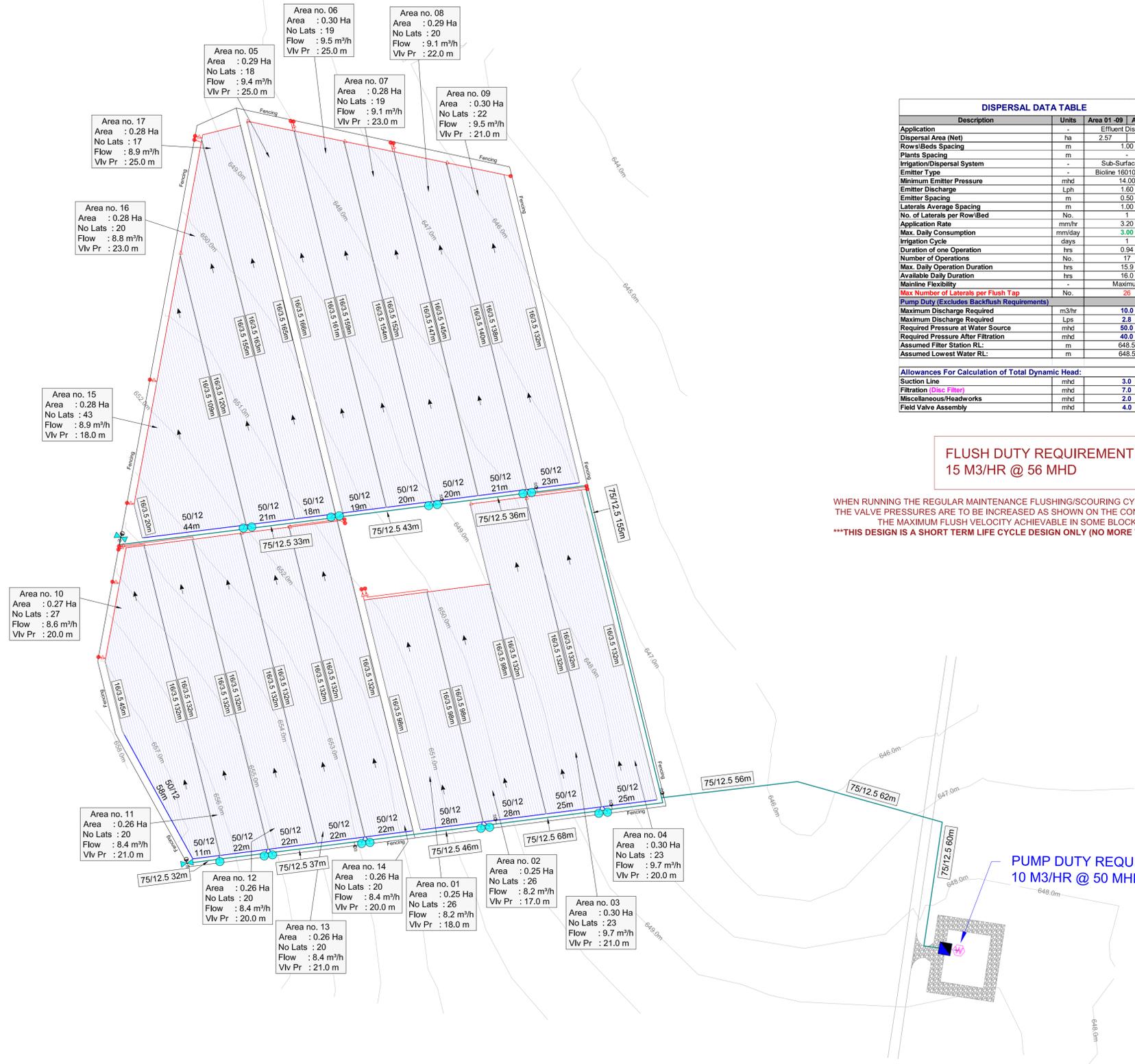
WHEN RUNNING THE REGULAR MAINTENANCE FLUSHING/SCOURING CYCLE FOR LATERALS/BLOCKS, THE VALVE PRESSURES ARE TO BE INCREASED AS SHOWN ON THE CONTROL VALVE TABLE ABOVE. THE MAXIMUM FLUSH VELOCITY ACHIEVABLE IN SOME BLOCKS IS ONLY 0.3 M/S. **\*\*\*THIS DESIGN IS A SHORT TERM LIFE CYCLE DESIGN ONLY (NO MORE THAN 3 YEAR LIFE CYCLE)\*\*\***

**CONCEPT ONLY**

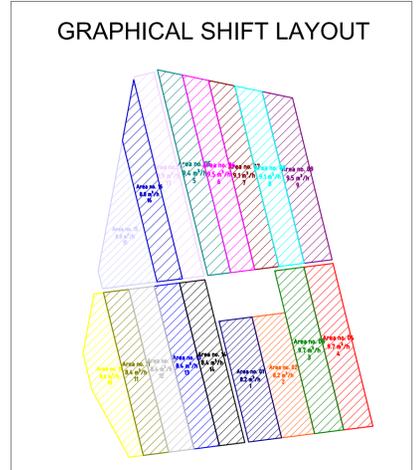
**FOR INFORMATION ONLY**  
12 October 2023

- NOTES:
- ALL NOTES SHALL BE READ IN CONJUNCTION WITH THE CONTRACT SPECIFIC AT OTHER RELEVANT STANDARDS. PRECEDENCE IS GIVEN TO SPECIFICATIONS AND S
  - THE PLANS ARE A SCHEMATIC REPRESENTATION OF THE DESIGNED IRRIGATION S
  - RETAIN AND PROTECT ALL EXISTING SERVICES. IT IS THE RESPONSIBILITY OF T
  - PRIOR TO COMMENCEMENT OF WORK AND PROTECT ALL DURING WORK. PRIOR
  - PERFORM A 'DIAL BEFORE YOU DIG' ENQUIRY. IT IS NOT GUARANTEED THAT ALL
  - ALL CONTROL CABLE CROSSING HARDSTAND AREAS TO BE INSTALLED WITHIN CI
  - APPURTENANCES ARE SHOWN ON THIS PLAN AS NOMINAL LOCATIONS AND THEY
  - AIR VALVES ON HIGH POINTS OF MAINLINE AND SCOUR VALVES ON LOW POI
  - VACUUM BREAKERS ON HIGH END OF FLUSH MANIFOLD AND FLUSH VALVES
  - ALL DIMENSIONS IN METRES (M) UNLESS SPECIFIED OTHERWISE.





DISPERSAL DATA TABLE			
Description	Units	Area 01-09	Area 10-17
Application	-	Ethient Dispersal	-
Dispersal Area (Net)	ha	2.57	2.15
Rows/Beds Spacing	m	1.00	-
Plants Spacing	m	-	-
Irrigation/Dispersal System	-	Sub-Surface Drip	-
Emitter Type	-	Bioline 16010 AS XR	-
Minimum Emitter Pressure	mhd	14.00	-
Emitter Discharge	Lph	1.60	-
Emitter Spacing	m	0.50	-
Laterals Average Spacing	m	1.00	-
No. of Laterals per Row/Bed	No	1	-
Application Rate	mm/hr	3.20	-
Max. Daily Consumption	mm/day	3.00	-
Irrigation Cycle	days	1	-
Duration of one Operation	hrs	0.94	-
Number of Operations	No.	17	-
Max. Daily Operation Duration	hrs	15.9	-
Available Daily Duration	hrs	16.0	-
Mainline Flexibility	-	Maximum	-
Max Number of Laterals per Flush Tap	No.	26	-
<b>Pump Duty (Excludes Backflush Requirements)</b>			
Maximum Discharge Required	m <sup>3</sup> /hr	10.0	-
Maximum Discharge Required	Lps	2.8	-
Required Pressure at Water Source	mhd	50.0	-
Required Pressure After Filtration	mhd	40.0	-
Assumed Filter Station RL	m	648.5	-
Assumed Lowest Water RL	m	648.5	-
<b>Allowances For Calculation of Total Dynamic Head:</b>			
Suction Line	mhd	3.0	-
Filtration (Disc Filter)	mhd	7.0	-
Miscellaneous/Headworks	mhd	2.0	-
Field Valve Assembly	mhd	4.0	-



**FLUSH DUTY REQUIREMENT:  
15 M3/HR @ 56 MHD**

WHEN RUNNING THE REGULAR MAINTENANCE FLUSHING/SCOURING CYCLE FOR LATERALS/BLOCKS, THE VALVE PRESSURES ARE TO BE INCREASED AS SHOWN ON THE CONTROL VALVE TABLE ABOVE. THE MAXIMUM FLUSH VELOCITY ACHIEVABLE IN SOME BLOCKS IS ONLY 0.3 M/S. **\*\*\*THIS DESIGN IS A SHORT TERM LIFE CYCLE DESIGN ONLY (NO MORE THAN 3 YEAR LIFE CYCLE)\*\*\***

ZONE CONTROL VALVE TABLE									
Zone Name	Zone Area (ha)	Valve Size	Zone Flow (m <sup>3</sup> /h)	Irrigation Pressure (m)	Flush Pressure (m)	Min Zone Pressure (m)	Max Zone Pressure (m)	Mean Flow (lph)	Flow Variation (%)
Area no. 01	0.25	50mm	8.2	18.0	23.0	14.2	17.9	1.6	0.0
Area no. 02	0.25	50mm	8.2	17.0	22.0	14.4	17.6	1.6	0.0
Area no. 03	0.30	50mm	9.7	21.0	26.0	14.1	20.9	1.6	0.0
Area no. 04	0.30	50mm	9.7	20.0	25.0	14.1	20.5	1.6	0.0
Area no. 05	0.29	50mm	9.4	25.0	28.0	14.5	25.5	1.6	0.0
Area no. 06	0.30	50mm	9.5	25.0	28.0	14.7	25.0	1.6	0.0
Area no. 07	0.29	50mm	9.1	23.0	28.0	14.7	23.3	1.6	0.0
Area no. 08	0.29	50mm	9.1	22.0	27.0	14.1	21.9	1.6	0.0
Area no. 09	0.30	50mm	9.5	21.0	26.0	14.8	21.4	1.6	0.0
Area no. 10	0.27	50mm	8.6	20.0	25.0	14.4	19.9	1.6	0.0
Area no. 11	0.26	50mm	8.5	21.0	26.0	14.8	21.0	1.6	0.0
Area no. 12	0.26	50mm	8.5	20.0	25.0	14.8	20.8	1.6	0.0
Area no. 13	0.26	50mm	8.5	21.0	26.0	14.4	21.0	1.6	0.0
Area no. 14	0.26	50mm	9.5	20.0	25.0	14.3	20.7	1.6	0.0
Area no. 15	0.28	50mm	8.9	18.0	23.0	15.0	18.0	1.6	0.0
Area no. 16	0.28	50mm	8.8	23.0	28.0	14.1	23.4	1.6	0.0
Area no. 17	0.28	50mm	8.9	25.0	28.0	14.3	25.0	1.6	0.0
<b>Total Area:</b>	<b>4.72</b>	<b>(ha)</b>							

**PUMP DUTY REQUIREMENT:  
10 M3/HR @ 50 MHD**

- Bioline AS XR 16010 1.6 lph @ 0.50m
- 50mm PVC PN12
- Collect Manif - 50mm PVC PN12
- 75 PE100 PN12.5 (SDR13.6)
- Suction/Delivery Manifold

- 50mm Valve Assy
- 25mm Air Valve Assy
- 50 Vac Breaker Assy
- 50 Submain Flush Assy
- Purge Valve 50 c/w AV
- Pump / Disc Filter Station
- Water Supply

**NOTES**

- ALL NOTES SHALL BE READ IN CONJUNCTION WITH THE CONTRACT SPECIFICATIONS, DESIGN DRAWINGS, TECHNICAL SPECIFICATIONS AND OTHER RELEVANT STANDARDS. PRECEDENCE IS GIVEN TO SPECIFICATIONS AND STANDARDS, THEN DRAWINGS, THEN NOTES.
- THE PLANS ARE A SCHEMATIC REPRESENTATION OF THE DESIGNED IRRIGATION SYSTEM.
- RETAIN AND PROTECT ALL EXISTING SERVICES. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE AND IDENTIFY ALL SERVICES PRIOR TO COMMENCEMENT OF WORK AND PROTECT ALL DURING WORK. PRIOR TO COMMENCEMENT OF WORK THE CONTRACTOR SHALL PERFORM A 'DIAL BEFORE YOU DIG' ENQUIRY. IT IS NOT GUARANTEED THAT ALL SERVICES HAVE BEEN SHOWN ON THE DRAWING.
- ALL CONTROL CABLE CROSSING HARDSTAND AREAS TO BE INSTALLED WITHIN CONDUIT.
- APPURTENANCES ARE SHOWN ON THIS PLAN AS NOMINAL LOCATIONS AND THEY SHOULD BE ALWAYS INSTALLED AS PER THE FOLLOWING:
  - AIR VALVES ON HIGH POINTS OF MAINLINE AND SCOUR VALVES ON LOW POINTS OF MAINLINE - UNLESS AT THE END OF THE MAINLINE.
  - VACUUM BREAKERS ON HIGH END OF FLUSH MAINFOLD AND FLUSH VALVES ON LOW END OF FLUSH MAINFOLD.
- ALL DIMENSIONS IN METRES (M) UNLESS SPECIFIED OTHERWISE.



**ISSUED FOR CONSTRUCTION**

REVISION	DATE	REVISION DESCRIPTION	BY
D	31/10/2023	AREA 10 TO 17 ADDED	GV
C	01/09/2023	APPROVED ISSUE FOR CONSTRUCTION	GV
B	24/08/2023	PRELIMINARY REVISED BLOCK LAYOUT REISSUED FOR REVIEW	GV
A	11/08/2023	PRELIMINARY ISSUE FOR REVIEW	GV

Project: Equinox Marulan	
Client: Aquamann Irrigation	
Description: Overall - Option 1 (Short Term)	
System: Dispersal Irrigation	Location: Marulan NSW
This document has been prepared in accordance with generally accepted engineering and industry best practice. It is based on data which was provided to Netafim Services by the client. The accuracy and/or veracity of which were not verified by Netafim Services and for which Netafim Services is not responsible. All rights reserved to Netafim. © www.netafim.com	
Designed: GV	Checked: KK
Approved: KK	Paper Size: A1
Dwg Scale: 1:1000	Date: 10/08/2023
Rev: D	Job No: 0823002p1
Dwg No: 01 of 01	

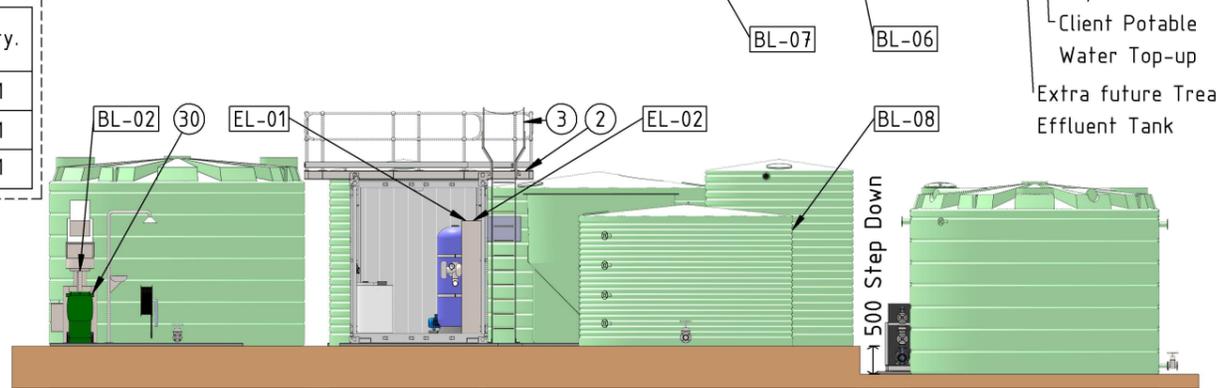
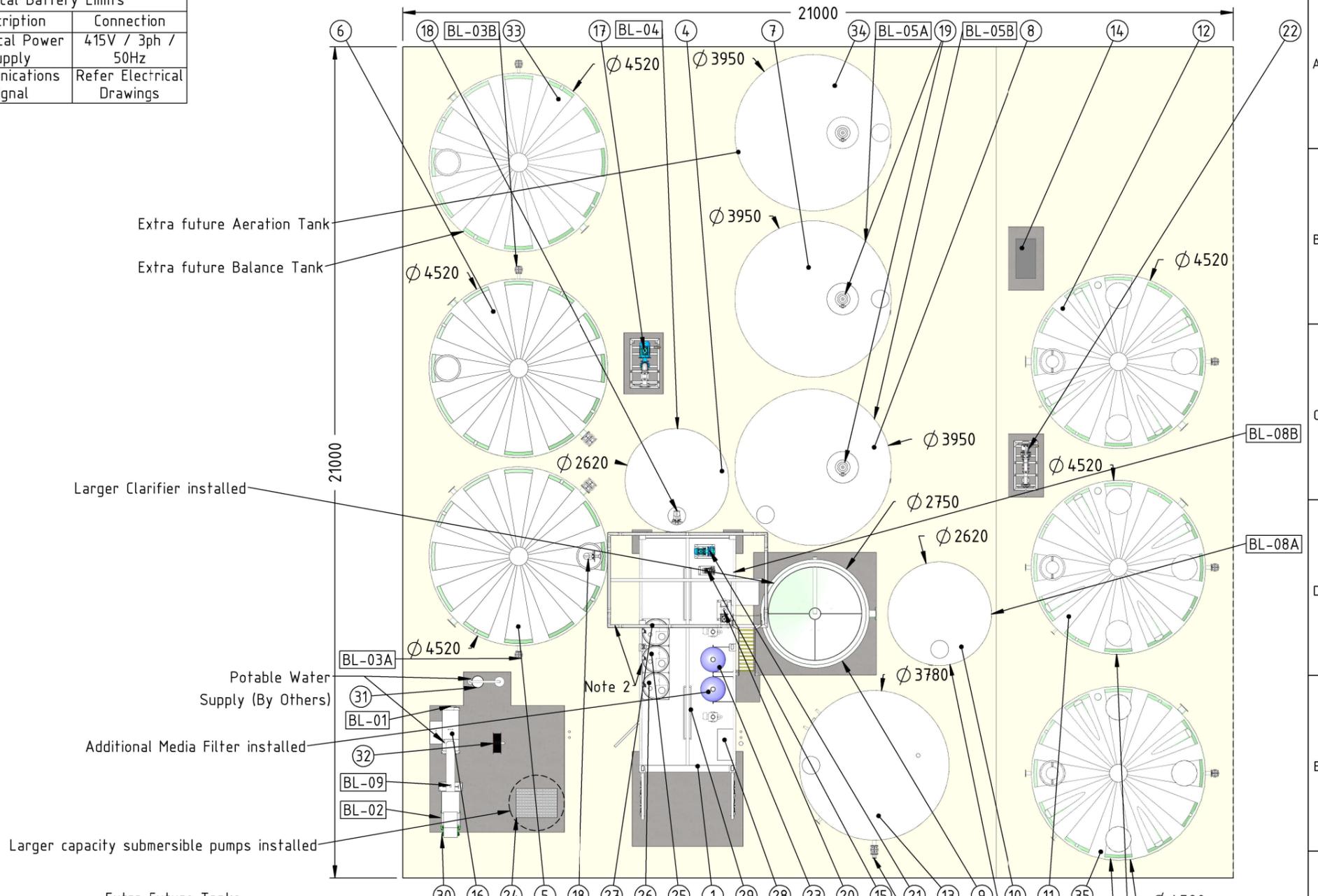
Item No.	Description	Qty.
1	20' ISO HC Shipping Container	1
2	10' Container Standard Platform Frame (MAKSTP-VM-059)	1
3	HC Container Height Removal Ladder (MAKSTP-VM-061)	1
4	16.5kL Pre-Anoxic Tank	1
5	46kL Balance Tank A	1
6	46kL Balance Tank B	1
7	30kL Aerobic Tank A	1
8	30kL Aerobic Tank B	1
9	Clarifier	1
10	16kL Clarified Water Tank	1
11	46kL Treated Effluent Tank A (By Others)	1
12	46kL Treated Effluent Tank B (By Others)	1
13	22.5kL Sludge Tank	1
14	Irrigation Pump Skid (By Others)	1
15	MMF Feed/Backwash Pump	1
16	Influent Screen	1
17	Balance Tank Mixing Pump	1
18	Pre-Anoxic Tank Mixing Pump	2
19	Submersible Aerator	3
20	RAS/WAS Pump	1
21	MLR Pump	1
22	Treated Effluent Recirc. Pump	1
23	24" Media Filter w/ 2x24" Vessel Clamps each	3
24	3kL Pump Station	1
25	200L Coagulant Bunded Dosing Tank & Pump	1
26	200L pH Correction High Bunded Dosing Tank & Pump	1
27	200L Chlorinating Agent Bunded Dosing Tank & Pump	1
28	MCC/Control Panel (800x2000x400)	1
29	LED Light	2
30	Solids Waste Bin	1
31	Safety Shower & Eyewash Station (By Client)	1
32	Wash Down Hose Reel (By Others)	1

Electrical Battery Limits		
EL No.	Description	Connection
EL-01	Electrical Power Supply	415V / 3ph / 50Hz
EL-02	Communications Signal	Refer Electrical Drawings

Piping Battery Limits		
BL No.	Description	Connection
BL-01	Raw Effluent to Inlet Screen	DN150 Table 'E' Flange
BL-02	Screen Solids Discharge	Longopac Bag
BL-03A	Balance Tank A Drain	DN50 Table 'E' Flange
BL-03B	Balance Tank B Drain	DN50 Table 'E' Flange
BL-04	Pre-Anoxic Tank Drain	DN50 Table 'E' Flange
BL-05A	Aerobic Tank A Drain	DN50 Table 'E' Flange
BL-05B	Aerobic Tank B Drain	DN50 Table 'E' Flange
BL-06	Clarified Water Tank Drain	DN50 Table 'E' Flange
BL-07	Sludge Tank Trucked Pump Outlet	DN80 Male Camlock
BL-08A	Clarified Water Tank Overflow To T.E. Tanks	DN80 Table 'E' Flange
BL-08B	Treated Effluent Outlet to T.E. Tanks	1 1/4" BSP(F) Connection
BL-09	Potable Water to Screen & Instruments	1 1/4" BSP(F) Connection

Item No.	Description	Qty.
33	46kL Balance Tank C	1
34	30kL Aerobic Tank C	1
35	46kL Treated Effluent Tank C (By Others)	1

Notes:  
1. Dimensions & pipe runs are indicative only, to be confirmed during fabrication.  
2. Platform and container roof hidden for clarity.



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<p>MAK6010-VA-003 GA Drawing - Site Isometric View  MAK6010-VA-002 GA Drawing - Container Plan View  MAK6010-VA-001 GA Drawing - Site Plan View &amp; Elevation View  MAK6010-VJ-001/002/003 Piping and Instrumentation Diagram (P&amp;ID)</p>		<p>Rev: A Date: 20/10/2023 Description: Issued for Information</p>		<p>RD: RG NJ PF  DRN CHK APP</p>		<p>All dimensions in mm Scale: 1:125  Commercial in Confidence  Paper Size: A3</p>		<p>Sheet 1 of 1  Client Document No.: -  MAK Document No.: MAK6010-VA-004</p>		<p>Rev: A</p>	