D. F. Herbert Pty Ltd
Gundamain Feedlot
Paytens Bridge Rd, Eugowra NSW 2806
EPL 11515
Livestock Intensive Activities

Point 1 (Effluent Holding Pond)

Sampling Frequency (during discharge)		Monthly	Monthly	Monthly	Monthly	Monthly	Monthly
Date Sampled	**Date Obtained**	**pH (pH units)**	**Electrical Conductivity (µS/cm)**	**Biochemical Oxygen Demand (mg/L)**	**Total Nitrogen (mg/L)**	**Total Phosphorus (mg/L)**	**Total Suspended Solids (mg/L)**
27-Sep-12	27-May-13	8.26	7230	<2	150	59	264
16-Sep-13	26-Nov-13	7.56	7520	812	290	61	426
31-Mar-14	16-May-14	8.1	10500	923	204	64.1	489
16-Sep-14	30-Oct-14	8.3	9450	157	210	47	694
18-Mar-15	1-Apr-15	8.69	16600	232	203	94.5	1050
16-Sep-15	23-Oct-15	7.88	8920	777	269	69.3	575
16-Mar-16	13-May-16	8.52	12400	138	161	61.5	637
4-Jul-16	2-Aug-16	7.25	11200	1900	451	116	1410
19-Sep-16	4-Nov-16	7.45	7930	764	468	89.9	3080
11-Oct-16	4-Nov-16	7.39	8130	246	520	112	775
23-Mar-17	26-Apr-17	7.78	6800	485	286	83.8	1190
28-Mar-17	26-Apr-17	7.12	7340	665	276	104	759
26-Sep-17	1-Nov-17	8.06	8240	99	157	40.6	682
5-Dec-17	19-Dec-17	7.87	5880	361	176	50.8	643
6-Mar-18	12-Apr-18	8.29	8250	34	120	47.6	861
12-Dec-18	19-Dec-18	8.41	11500	13	108	37.5	326
27-Mar-19	1-May-19	9.5	37400	401	195	27.1	2130
20-May-20	20-Aug-20	7.66	9960	232	286	63	192
24-Aug-20	13-Nov-20	7.52	7000	930	459	91.5	2490
18-Nov-20	4-Dec-20	8.16	7850	400	258	52.7	247
10-Mar-21	4-Jun-21	8.18	8920	157	138	37.8	330
28-Sep-21	17-Dec-21	8.09	8370	331	233	49.9	145
16-Mar-22	16-Mar-22	8.2	6840	61	< 0.1	< 0.01	560
8-Feb-23	18-Jul-23	8.11	7280	44	344	82.3	323
14-Jun-23	18-Jul-23	8.33	6690	159	177	49.5	347

Point 2 (Manure)

Sampling Frequency (prior to the application of solids)				
Date Sampled	**Date Obtained**	**Electrical Conductivity (µS/cm)**	**Total Nitrogen (mg/kg)**	**Total Phosphorus (mg/kg)**
13-Mar-13	27-May-13	10600	9970	2860
16-Sep-13	26-Nov-13	7940	12500	4380
31-Mar-14	16-May-14	8640	25500	9730
16-Sep-14	30-Oct-14	7550	14700	5780
18-Mar-15	1-Apr-15	7130	11000	4720
16-Sep-15	23-Oct-15	5000	13500	4900
16-Mar-16	13-May-16	6900	14500	7620
11-Oct-16	4-Nov-16	1340	9820	3590
28-Mar-17	26-Apr-17	3840	14100	7680
26-Sep-17	1-Nov-17	10600	13000	8020
6-Mar-18	12-Apr-18	8850	170	94
12-Dec-18	19-Dec-18	5020	17400	7860
27-Mar-19	1-May-19	7620	16900	7450
15-Oct-19	4-Dec-09	10600	17500	7100
20-May-20	20-Aug-20	8730	16900	7950
18-Nov-20	4-Dec-20	6720	13900	7490
10-Mar-21	4-Jun-21	7760	14200	9000
28-Sep-21	17-Dec-21	3870	11700	7160
16-Mar-22	12-Apr-18	5880	15900	10200
8-Feb-23	18-Jul-23	3520	7200	4310
14-Jun-23	18-Jul-23	4550	9120	5800

Point 3 (Soils- Main Effluent Irrigation Area)

Sampling Frequency (annually where irrigation has occured)																	
Date Sampled	**Date Obtained**	**pH (pH units)**	**Electrical Conductivity (µS/cm)**	**Cation Exchange Capacity (meq/100g)**	**Exchangeable Sodium Percentage (%)**	**Chloride (mg/kg)**	**Calcium (mg/kg)**	**Magnesium (mg/kg)**	**Sodium (mg/kg)**	**Potassium (mg/kg)**	**Oxidised Nitrogen (Nox mg/kg)**	**Total Nitrogen (mg/kg)**	**Total Phosphorus (mg/kg)**	**Phosphorus Sorption Capacity (mg/kg)**	**Available Phosphorus (Fluoride Extractable Bray) (mg/kg)**	**Total Organic Carbon (mg/kg)**	**Aggregate Stability (Emerson Class)**
31-Mar-14 (SG4)	16-May-14	6.1	327	8.6	3.2	220	20.00	20	60	490	80.6	850	289	<250	26.2	8100	3.1
18-Mar-15	1-Apr-15	7	416	8.2	3.8	170	20.00	20	70	750	89.5	830	350	<250	68.2	5100	3.1
16-Sep-15	23-Oct-15	6.4	180	6.3	0.1	130	60.00	110	50	510	26.4	410	181	777	22.1	-	3.0
11-Oct-16	4-Nov-16	8	222	27.4	9.3	140	70.00	140	160	660	38.6	560	324	673	77.9	4800	2.0
6-Mar-18	12-Apr-18	5.2	98	6.4	0.5	40	30.00	20	< 10	180	38.6	1340	417	1200	58.5	10300	5.0
28-Sep-21	17-Dec-21	7.6	203	5.3	< 0.2	50	20.00	40	3	340	27.9	720	573	683	126.0	7000	2.0

Point 4 (Soils- Backup Irrigation Area)

Sampling Frequency (annually where irrigation has occured)																	
Date Sampled	**Date Obtained**	**pH (pH units)**	**Electrical Conductivity (µS/cm)**	**Cation Exchange Capacity (meq/100g)**	**Exchangeable Sodium Percentage (%)**	**Chloride (mg/kg)**	**Calcium (mg/kg)**	**Magnesium (mg/kg)**	**Sodium (mg/kg)**	**Potassium (mg/kg)**	**Oxidised Nitrogen (Nox mg/kg)**	**Total Nitrogen (mg/kg)**	**Total Phosphorus (mg/kg)**	**Phosphorus Sorption Capacity (mg/kg)**	**Available Phosphorus (Fluoride Extractable Bray) (mg/kg)**	**Total Organic Carbon (mg/kg)**	**Aggregate Stability (Emerson Class)**
28-Sep-21	17-Dec-21	5.7	47	4.6	1.3	20	< 10	20	1	110	2.8	1240	493	700	72.5	12000	3.0

Point 5 (Soils- Additonal Irrigation Area)

Sampling Frequency (annually where irrigation has occured)																	
Date Sampled	**Date Obtained**	**pH (pH units)**	**Electrical Conductivity (µS/cm)**	**Cation Exchange Capacity (meq/100g)**	**Exchangeable Sodium Percentage (%)**	**Chloride (mg/kg)**	**Calcium (mg/kg)**	**Magnesium (mg/kg)**	**Sodium (mg/kg)**	**Potassium (mg/kg)**	**Oxidised Nitrogen (Nox mg/kg)**	**Total Nitrogen (mg/kg)**	**Total Phosphorus (mg/kg)**	**Phosphorus Sorption Capacity (mg/kg)**	**Available Phosphorus (Fluoride Extractable Bray) (mg/kg)**	**Total Organic Carbon (mg/kg)**	**Aggregate Stability (Emerson Class)**
28-Sep-21	17-Dec-21	6.6	146	13.1	1.2	50	50.00	60	1	310	27.6	1970	778	820	115.0	21000	3.0

Point 6 (Soils- Solids Application Area)

Sampling Frequency (annually where irrigation has occured)																	
Date Sampled	**Date Obtained**	**pH (pH units)**	**Electrical Conductivity (µS/cm)**	**Cation Exchange Capacity (meq/100g)**	**Exchangeable Sodium Percentage (%)**	**Chloride (mg/kg)**	**Calcium (mg/kg)**	**Magnesium (mg/kg)**	**Sodium (mg/kg)**	**Potassium (mg/kg)**	**Oxidised Nitrogen (Nox mg/kg)**	**Total Nitrogen (mg/kg)**	**Total Phosphorus (mg/kg)**	**Phosphorus Sorption Capacity (mg/kg)**	**Available Phosphorus (Fluoride Extractable Bray) (mg/kg)**	**Total Organic Carbon (mg/kg)**	**Aggregate Stability (Emerson Class)**
13-Mar-13 (SG7)	27-May-13	7.4	120	8.4	0.3	60	40.00	20	40	120	31.8	710	220	303	30.9	6000	3.2
28-Sep-21	17-Dec-21	6.8	237	6.1	0.2	90	60.00	10	1	200	37.7	1080	497	412	94.5	12000	3.0
14-Jun-23	18-Jul-23	6.45	106.5	10	1.125	95	35.00	20	13	115	31.8	1315	422	387	7.7	23500	

Point 7 (Groundwater- P1s)

Sampling Frequency (where liquid is present)		Biannually	Biannually	Biannually	Biannually	Biannually	Biannually
Date Sampled	**Date Obtained**	**pH (pH units)**	**Electrical Conductivity (µS/cm)**	**Ammonia as N (mgN/L)**	**Nitrite as N (mgN/L)**	**Nitrate as N (mgN/L)**	**Standing Water Level (mAHD)**
27-Sep-12	27-May-13	7.64	1020	0.02	<0.01	1.11	185.50
13-Mar-13	27-May-13	7.60	1010	0.01	<0.01	1.2	190.00
16-Sep-13	26-Nov-13	7.39	1010	0.01	<0.01	1.18	185.07
31-Mar-14	16-May-14	7.22	944	0.02	<0.01	1.27	185.45
Removed from EPL under 1 May 2014 Variation							
11-Oct-16	4-Nov-16	7.96	1280	0.04	< 0.01	4.76	183.92
28-Mar-17	26-Apr-17	7.37	988	0.05	< 0.01	1.96	185.98
26-Sep-17	1-Nov-17	7.41	1080	0.02	< 0.01	2.21	185.41
6-Mar-18	12-Apr-18	7.04	1080	< 0.01	< 0.01	3.14	185.95
12-Dec-18	19-Dec-18	7.52	1000	0.06	< 0.01	1.9	185.54
27-Mar-19	1-May-19	8.21	1040	0.97	0.06	0.48	184.40
15-Oct-19	4-Dec-09	7.82	1740	< 0.01	0.03	1.93	184.60
20-May-20	20-Aug-20	7.57	1020	0.04	< 0.01	2.44	184.97
18-Nov-20	4-Dec-20	7.17	1150	0.04	< 0.01	2.66	190.12
10-Mar-21	4-Jun-21	7.51	1010	0.02	0.04	1.34	190.46
28-Sep-21	17-Dec-21	7.5	1020	< 0.01	< 0.01	0.76	185.45
16-Mar-22	9-Aug-22	7.65	1010	0.05	< 0.01	1.47	185.52
8-Feb-23	18-Jul-23	8.09	1190	0.16	0.04	0.46	189.05
14-Jun-23	18-Jul-23	7.24	1040	0.04	< 0.01	2.51	188.88

Point 8 (Groundwater- P1d)

Sampling Frequency (where liquid is present)		Biannually	Biannually	Biannually	Biannually	Biannually	Biannually
Date Sampled	**Date Obtained**	**pH (pH units)**	**Electrical Conductivity (µS/cm)**	**Ammonia as N (mgN/L)**	**Nitrite as N (mgN/L)**	**Nitrate as N (mgN/L)**	**Standing Water Level (mAHD)**
27-Sep-12	Insufficient recharge						191.98
13-Mar-13	Insufficient recharge						191.93
16-Sep-13	Insufficient recharge						191.68
31-Mar-14	Insufficient recharge						191.91
Removed from EPL under 1 May 2014 Variation							
11-Oct-16	Insufficient recharge						192.08
28-Mar-17	Insufficient recharge						191.98
26-Sep-17	1-Nov-17	7.89	1080	0.26	0.03	1.64	191.62
6-Mar-18	Insufficient recharge						191.71
12-Dec-18	Insufficient recharge						192.26
27-Mar-19	Insufficient recharge						191.09
15-Oct-19	Insufficient recharge						190.68
20-May-20	Insufficient recharge						190.53

18-Nov-20	4-Dec-20	7.99	1720	0.14	0.05	51	191.47
10-Mar-21	4-Jun-21	8.03	1600	0.08	0.04	60.9	191.03
28-Sep-21	17-Dec-21	7.99	1550	0.05	0.01	53	191.94
16-Mar-22	9-Aug-22	8.12	1540	0.08	< 0.01	57.2	191.78
8-Feb-23	18-Jul-23	8.08	1710	0.01	< 0.01	48.8	192.39
14-Jun-23	18-Jul-23	7.84	1670	0.1	< 0.01	45.9	192.37

Point 9 (Groundwater- P2s)

Sampling Frequency (where liquid is present)		Biannually	Biannually	Biannually	Biannually	Biannually	Biannually
Date Sampled	**Date Obtained**	**pH (pH units)**	**Electrical Conductivity (uS/cm)**	**Ammonia as N (mgN/L)**	**Nitrite as N (mgN/L)**	**Nitrate as N (mgN/L)**	**Standing Water Level (mAHD)**
27-Sep-12	27-May-13	7.81	5160	0.01	<0.01	13.2	187.40
13-Mar-13	27-May-13	7.85	5680	0.02	0.01	13.7	187.16
16-Sep-13	26-Nov-13	7.66	5550	0.04	<0.01	13.4	187.33
31-Mar-14	16-May-14	7.66	4770	0.04	<0.01	12.9	186.96
16-Sep-14	30-Oct-14	7.64	4990	0.01	<0.01	15.4	187.11
18-Mar-15	1-Apr-15	7.55	4720	0.08	<0.01	14.9	186.80
16-Sep-15	23-Oct-15	7.73	4650	0.03	<0.01	14.8	187.09
16-Mar-16	13-May-16	7.89	4680	< 0.01	< 0.01	15.3	186.72
11-Oct-16	4-Nov-16	8.14	5260	0.03	< 0.01	17.2	187.97
28-Mar-17	26-Apr-17	7.56	6050	0.02	< 0.01	18.7	187.97
26-Sep-17	1-Nov-17	7.59	5820	< 0.01	< 0.01	23.0	188.02
6-Mar-18	12-Apr-18	7.47	5210	< 0.01	< 0.01	18.5	187.94
12-Dec-18	19-Dec-18	7.69	5310	0.03	< 0.01	20.3	187.49
27-Mar-19	1-May-19	8.07	6120	0.02	< 0.01	18.4	187.19
15-Oct-19	4-Dec-09	7.88	5550	< 0.01	0.02	21.7	186.93
20-May-20	20-Aug-20	7.86	5470	0.02	< 0.01	19.4	186.26
18-Nov-20	4-Dec-20	8.06	4970	0.04	< 0.01	18.3	186.79
10-Mar-21	4-Jun-21	7.84	4450	< 0.01	< 0.01	19.6	187.13
28-Sep-21	17-Dec-21	7.93	5690	0.08	0.11	14	187.52
16-Mar-22	9-Aug-22	7.98	6080	0.06	0.02	17	188.19
8-Feb-23	18-Jul-23	8.1	5080	0.05	0.01	21.7	191.11
14-Jun-23	18-Jul-23	7.68	7000	0.02	0.01	16	191.26

Point 10 (Groundwater- P2d)

Sampling Frequency (where liquid is present)		Biannually	Biannually	Biannually	Biannually	Biannually	Biannually
Date Sampled	**Date Obtained**	**pH (pH units)**	**Electrical Conductivity (uS/cm)**	**Ammonia as N (mgN/L)**	**Nitrite as N (mgN/L)**	**Nitrate as N (mgN/L)**	**Standing Water Level (mAHD)**
27-Sep-12	27-May-13	8.22	973	1.52	<0.01	0.03	187.07
13-Mar-13	27-May-13	7.39	984	1.17	<0.01	0.06	187.04
16-Sep-13	26-Nov-13	7.59	1040	1.18	<0.01	0.04	187.10
31-Mar-14	16-May-14	6.91	942	1.39	<0.01	0.02	186.82
16-Sep-14	30-Oct-14	6.83	1030	0.91	<0.01	0.02	186.89
18-Mar-15	1-Apr-15	6.59	1010	0.87	<0.01	0.01	186.52
16-Sep-15	23-Oct-15	6.67	982	1.04	<0.01	<0.01	186.67
16-Mar-16	13-May-16	6.55	900	1.08	< 0.01	0.02	186.32
11-Oct-16	4-Nov-16	6.87	845	0.89	< 0.01	0.02	187.63
28-Mar-17	26-Apr-17	6.23	814	0.8	< 0.01	< 0.01	187.97
26-Sep-17	1-Nov-17	6.34	937	0.91	< 0.01	< 0.01	188.07
6-Mar-18	12-Apr-18	6.68	829	0.84	< 0.01	0.01	187.39
12-Dec-18	19-Dec-18	6.8	690	0.74	< 0.01	0.02	187.37
27-Mar-19	1-May-19	7.25	748	0.63	< 0.01	< 0.01	187.07
15-Oct-19	4-Dec-09	7.41	833	0.73	< 0.01	< 0.01	186.78
20-May-20	20-Aug-20	7.24	826	0.8	< 0.01	0.03	185.80
18-Nov-20	4-Dec-20	7.53	979	1.06	< 0.01	0.11	186.46
10-Mar-21	4-Jun-21	7.54	895	1.1	< 0.01	< 0.01	189.84
28-Sep-21	17-Dec-21	7.72	960	1.39	< 0.01	< 0.01	187.32
16-Mar-22	9-Aug-22	7.48	999	1.41	< 0.01	< 0.01	187.32
8-Feb-23	18-Jul-23	8.06	1520	10.4	< 0.01	0.04	192.10
14-Jun-23	18-Jul-23	7.62	1460	11.2	0.01	0.09	191.49

Point 11 (Groundwater- P3s)

Sampling Frequency (where liquid is present)		Biannually	Biannually	Biannually	Biannually	Biannually	Biannually
Date Sampled	**Date Obtained**	**pH (pH units)**	**Electrical Conductivity (uS/cm)**	**Ammonia as N (mgN/L)**	**Nitrite as N (mgN/L)**	**Nitrate as N (mgN/L)**	**Standing Water Level (mAHD)**
27-Sep-12	Insufficient recharge						186.56
13-Mar-13	Insufficient recharge						185.97
16-Sep-13	Insufficient recharge						186.78
31-Mar-14	Insufficient recharge						186.58
16-Sep-14	30-Oct-14	7.5	2560	4.54	1.19	5.67	187.16
18-Mar-15	1-Apr-15	7.27	2550	0.06	<0.01	7.66	186.64
16-Sep-15	23-Oct-15	7.63	2550	0.05	<0.01	7.32	186.91
16-Mar-16	13-May-16	7.69	2600	0.52	0.07	8.30	186.41
11-Oct-16	Insufficient recharge						187.48
28-Mar-17	26-Apr-17	7.18	2700	0.09	< 0.01	8.25	187.96
26-Sep-17	Insufficient recharge						186.74
6-Mar-18	12-Apr-18	7.18	2990	0.07	< 0.01	6.96	187.66
12-Dec-18	19-Dec-18	7.32	3400	0.05	< 0.01	6.73	187.36
27-Mar-19	Insufficient recharge						187.10
15-Oct-19	4-Dec-09	7.75	3700	0.06	< 0.01	6.33	186.87
20-May-20	20-Aug-20	7.51	3610	0.02	< 0.01	6.38	185.06
18-Nov-20	4-Dec-20	7.88	3760	0.03	< 0.1	< 0.1	187.02
10-Mar-21	4-Jun-21	7.44	3600	< 0.01	< 0.01	6.3	186.95
28-Sep-21	17-Dec-21	7.54	3940	< 0.01	< 0.01	5.77	187.35
16-Mar-22	9-Aug-22	7.57	4610	0.9	0.1	4.32	187.91
8-Feb-23	18-Jul-23	7.86	3960	0.02	< 0.01	10.8	191.95
14-Jun-23	Insufficient recharge						191.74

Point 12 (Groundwater- P4s)

Sampling Frequency (where liquid is present)		Biannually	Biannually	Biannually	Biannually	Biannually	Biannually
Date Sampled	**Date Obtained**	**pH (pH units)**	**Electrical Conductivity (uS/cm)**	**Ammonia as N (mgN/L)**	**Nitrite as N (mgN/L)**	**Nitrate as N (mgN/L)**	**Standing Water Level (mAHD)**
27-Sep-12	Dry						
13-Mar-13	Dry						
16-Sep-13	Dry						
31-Mar-14	Dry						
16-Sep-14	Dry						
18-Mar-15	Dry						
16-Sep-15	Dry						
16-Mar-16	Dry						
11-Oct-16	Dry						
28-Mar-17	Dry						
26-Sep-17	Dry						
6-Mar-18	Dry						
12-Dec-18	Dry						
27-Mar-19	Dry						
15-Oct-19	Dry						
20-May-20	Dry						
18-Nov-20	Dry						
10-Mar-21	Dry						
28-Sep-21	Dry						
16-Mar-22	Dry						
8-Feb-23	Dry						
14-Jun-23	Dry						

Point 13 (Groundwater- P5d)

Sampling Frequency (where liquid is present)		Biannually	Biannually	Biannually	Biannually	Biannually	Biannually
Date Sampled	**Date Obtained**	**pH (pH units)**	**Electrical Conductivity (uS/cm)**	**Ammonia as N (mgN/L)**	**Nitrite as N (mgN/L)**	**Nitrate as N (mgN/L)**	**Standing Water Level (mAHD)**
27-Sep-12	27-May-13	7.45	3310	2.69	0.01	0.16	186.65
13-Mar-13	27-May-13	7.28	2660	1.56	0.02	0.35	186.55
16-Sep-13	26-Nov-13	7.27	2690	0.02	<0.01	8.75	186.71
31-Mar-14	16-May-14	7.08	2140	0.44	<0.01	2.60	186.45
16-Sep-14	30-Oct-14	7.17	1850	0.03	<0.01	3.55	187.20
18-Mar-15	1-Apr-15	6.85	2000	0.16	<0.01	2.68	186.35
16-Sep-15	23-Oct-15	7.26	2320	0.27	0.07	1.97	186.32
16-Mar-16	13-May-16	7.27	1810	0.07	< 0.01	2.52	186.04
11-Oct-16	4-Nov-16	7.76	2190	0.65	< 0.01	2.15	187.05
28-Mar-17	26-Apr-17	7.16	2220	1.15	0.02	1.70	187.42
26-Sep-17	1-Nov-17	7.10	2110	0.50	< 0.01	1.38	187.35
6-Mar-18	12-Apr-18	7.00	1900	8.18	< 0.01	< 0.01	187.20
12-Dec-18	19-Dec-18	7.00	1600	0.09	< 0.01	2.23	186.91
27-Mar-19	1-May-19	7.56	2210	0.42	0.01	0.38	184.95
15-Oct-19	4-Dec-09	7.5	1720	0.04	< 0.01	2.04	186.44
20-May-20	20-Aug-20	7.58	1860	0.1	< 0.01	1.16	185.91
18-Nov-20	4-Dec-20	7.77	1950	0.09	< 0.01	0.4	186.46
10-Mar-21	4-Jun-21	7.13	1510	0.01	< 0.01	1.92	186.40
28-Sep-21	17-Dec-21	7.11	1620	0.04	0.01	1.36	186.72
16-Mar-22	9-Aug-22	7.35	1740	0.73	0.02	1.33	187.40
8-Feb-23	18-Jul-23	8.01	2010	0.28	< 0.01	0.63	192.08
14-Jun-23	18-Jul-23	7.31	1880	1.07	0.02	0.48	191.72

Point 17 (Groundwater- P6, replaced P1s and P1D)

Sampling Frequency (where liquid is present)		Biannually	Biannually	Biannually	Biannually	Biannually	Biannually
Date Sampled	**Date Obtained**	**pH (pH units)**	**Electrical Conductivity (uS/cm)**	**Ammonia as N (mgN/L)**	**Nitrite as N (mgN/L)**	**Nitrate as N (mgN/L)**	**Standing Water Level (mAHD)**
13-Mar-13	27-May-13	7.24	824	<0.01	<0.01	4.22	189.51