ABN 33 118 549 910

20 Walters Dr, Osborne Park, WA 6017
Locked Bag 13, Osborne Park, WA 6017
P +61 8 9329 3600 **F** +61 8 9329 3601

Wednesday, May 8, 2024

Shire of Mingenew
21 Victoria Street,
Mingenew, Western Australia 6522

Attention: Matt Fanning

Dear Matt,

RE: PLANNING APPLICATION FOR THE RIG SITE CAMP ASSOCIATED WITH THE MINERAL RESOURCES LIMITED LOCKYER-6 EXPLORATION DRILLING PROGRAM

Please find attached a planning application for the installation and operation of a rig camp site that will be utilized to support the upcoming Lockyer-6 exploration drilling program for Mineral Resources Limited within Petroleum Licence EP368 and EP426 managed under the *Petroleum and Geothermal Energy Resources Act 1967.* The drilling activities are expected to commence in December 2024 based on the current rig schedule.

Once drilling activities have commenced, they will be conducted continuously on a 24-hour basis with two crews working back-to-back on 12-hour shifts. The rig site camp is planned to accommodate up to six (6) persons that are required on-site at the drilling rig for the duration of the drilling activity. There will be up to 22 additional non-accommodated personnel on site during each 12-hour shift.

The drilling program is temporary in nature and planned to be completed within 60 days for this well, however there may be a requirement (over a period of up to 2 years) for various short-term maintenance or well testing activities to be completed. These activities may require accommodation on site but would also be temporary in nature.

The rig site location map is provided as Attachment 1 and will be accessed via Midlands Road and Mooriary Road. The rig site camp will be installed within the first five days of the drilling activity and will be conducted in conjunction with the installation of the drilling rig. The rig site equipment layout is provided as Attachment 2. The modular camp units will be transported to the site utilizing semi-trailers or winch trucks. There will be a total of eighty trailer loads (two of which will be the modular sleeper units) required to transport the drilling rig, rig camp units and associated equipment to the site. The rig site camps are plug-and-play oilfield camp units that have depreciated in value. The $10,000 installation cost covers the transportation, loading/unloading of the units utilizing side-loaders or winch trucks. Minimal plumbing and cabling are required to commission the camp units as they are designed to be highly mobile, to be readily moved from site to site with the drilling rig.

The cost breakdown of the two sleeper units are as follows:

Rig up:

- 3 hours x Unloading/spotting/rig up of sleeper units with side loader: $750 (based on a $250/hour side loader cost)
- 1 x Electrician and 2 x assisting personnel: $3,062.

Rig down:

- 3 hours x Rig down/spotting/rig up of sleeper units with side loader: $750 (based on a $250/hour side loader cost)
- 1 x Electrician and 2 x assisting personnel: $3,062.

The rig camp location is not within close proximity to any residential dwellings with the distance to the nearest residential dwelling being greater than 3 kms. At the rig site camp, there will be no food preparation facilities (this will be conducted off site at the main camp).

The following information has been provided as attachments to the completed Development Application Form:

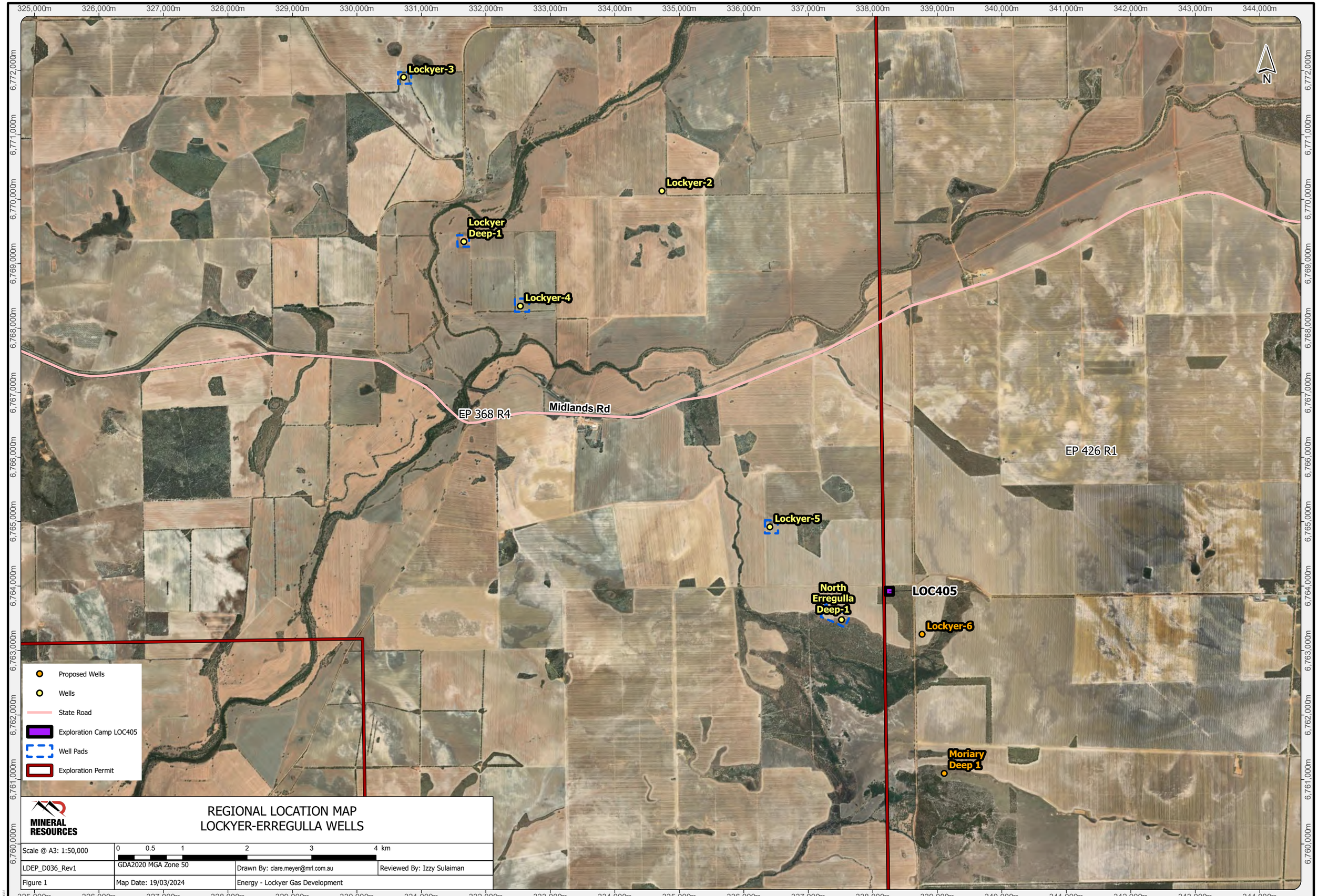
- Attachment 1: Site location showing the exploration well location with regards to the lot boundaries and lot area.
- Attachment 2: A site layout schematic that provides an indication of where the accommodation units will be situated with regards to additional key drilling rig infrastructure and wellsite boundaries.
- Attachment 3: A compilation of information regarding the rig site camp with plan views, dimensions and images associated with the temporary building structures.
- Attachment 4: The information and manual associated with the ATU system. The ATU application form has been submitted to the Shire of Mingenew EHO together with its supporting documentation.

This information has been collated and submitted for and on behalf of Mineral Resources Limited.

Yours sincerely,

Darrell Girgenti
Project Manager

Mineral Resources Limited

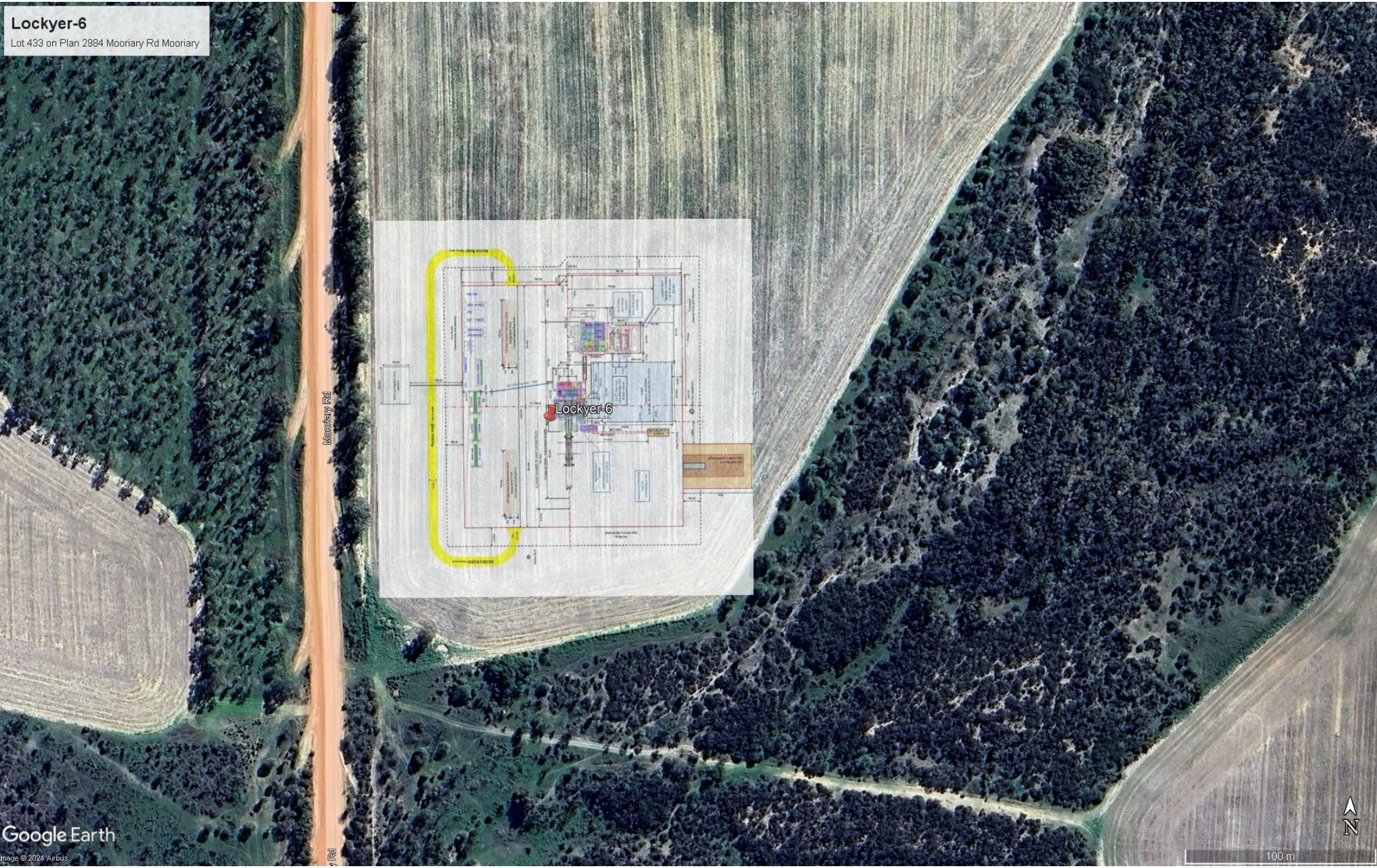


MINERAL RESOURCES

REGIONAL LOCATION MAP
LOCKYER-ERREGULLA WELLS

Scale @ A3: 1:50,000	0 0.5 1 2 3 4 km		
LDEP_D036_Rev1	GDA2020 MGA Zone 50	Drawn By: clare.meyer@mrl.com.au	Reviewed By: Izzy Sulaiman
Figure 1	Map Date: 19/03/2024	Energy - Lockyer Gas Development	

Path: P:\02_GIS_Jobs\P0501-P1000\P0596\Projects\ProjectData\Environment\Well Environmental Plan\L-6 & MD-1\P0596_LockyerWells.aprx

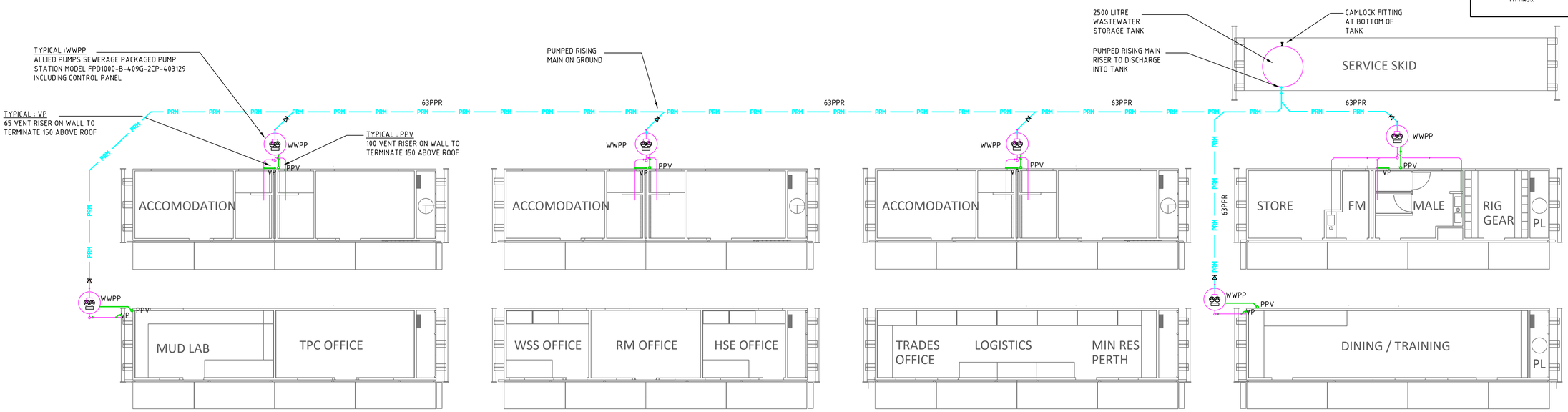

Lockyer-6
Lot 433 on Plan 2984 Mooriary Rd Mooriary
Mooriary Rd
Lockyer-6
Google Earth
Image © 2024 Airbus
N
100 m


Bushfire Prone Areas
Lot 433 on DP 2984
Lockyer-6
Moorlaty Rd
Lockyer-6
Moorlaty Rd
Google Earth
Image © 2024 Airbus
N
300 m

20.0m
Surface Irrigation Area
(330m²)
16.5m
~5.0m
Access road *Not to scale
30.0m
ACCESS ROAD *Not to scale
Access Road *Not to scale
10.0m
Fire Break
Cleared Area, Not Sheeted
10.0m
ATU
GENERATOR
WATER BLADDERS
WHITEHOUSE 1
WHITEHOUSE 2
ELEC / MECH
HYD
WELD / R-NECK
STEEL SKID
MUD LAB
SLEEPER
SLEEPER
TP OFFICE
OFFICE
OFFICE
SMOKO / HSEA
8m
~6m
10.0m
10.0m
35.0m
3m
Off Side General Exclusion Zone
5m
Designated Truck
Unloading/Loading Area
35.0m
3m
Off Side General Exclusion Zone
5m
Designated Truck
Unloading/Loading Area
Site Access
PVC Cable Conduit ~38m
Site Access
130.0m
65.0m
65.0m
Water Bore
TO FRONT BUMBER OF MAST CROWN TRUCK
9.97m
55.03m
WELL C/L
TO END OF MAST - SUB & MAST DOWN
49.4m
13.5m
13.5m
45.3m
19.7m
60.0m
5.0m
5.0m
8.6m
5.0m
~6.0m
5.0m
15.7m
WELL C/L
3.0m
~19m
125.0m
13.1m
40' Mud Case
Rig Hard Stand
27x10m
200kPA/29psi min Ground
Bearing Capacity
9.0m
3.2m
16.0m
10.8m
19.2m
2.0m
30.0m
6.5m
22.8m
2.2m
45.0m
CHOKE LINE
VENT LINE
46.0m
3 x 7" ~5m mud
tank drainage lines
& 11m trench
4.3m
4.3m
Fire Break
Cleared Area, Not Sheeted
Lease Ground Bearing
Capacity
120kPA/18psi min
14.5m
SUMP
Capacity: 26,750bbls
(L:46.0m, W:32.0m/30.0m, D:3.5m)
Centrifuge
WATER TANK
19.0m
Mud Tanks
Hard Stand
19x15m
200kPA/29psi min
Ground Bearing
Capacity
49.0m
65.0m
10.0m
4.5m
15.0m
12.0m x 7" Conduit
18.2m
FLARE PIT
(L:12.0m, W:3.0m)
8.5m
TURKEY NEST
Capacity: 3,240bbls
L:16.0, W:16.0m
D:3.0m
Flare Pit C/L
32.0m
5.9m
30.5m
10.0m
~12m
VSP Pit
Diam: 3m, Depth:4m
70.0m
Fire Break
Cleared Area, Not Sheeted
40m
Well Test Flare Pit
24m x 40m x 2m wall height
24m

PROJECT NOTES:

- REFER TO DRAWING DWG-001 FOR LEGEND OF SYMBOLS AND GENERAL NOTES.
- THIS DRAWING SHALL BE READ IN CONJUNCTION WITH ALL OTHER DRAWINGS IN THE SET.
- REFER TO ARCHITECTURAL LAYOUTS FOR ALL SET-OUTS.
- COORDINATE ON SITE WITH ALL OTHER TRADES PRIOR TO INSTALLATION OF FITTINGS.

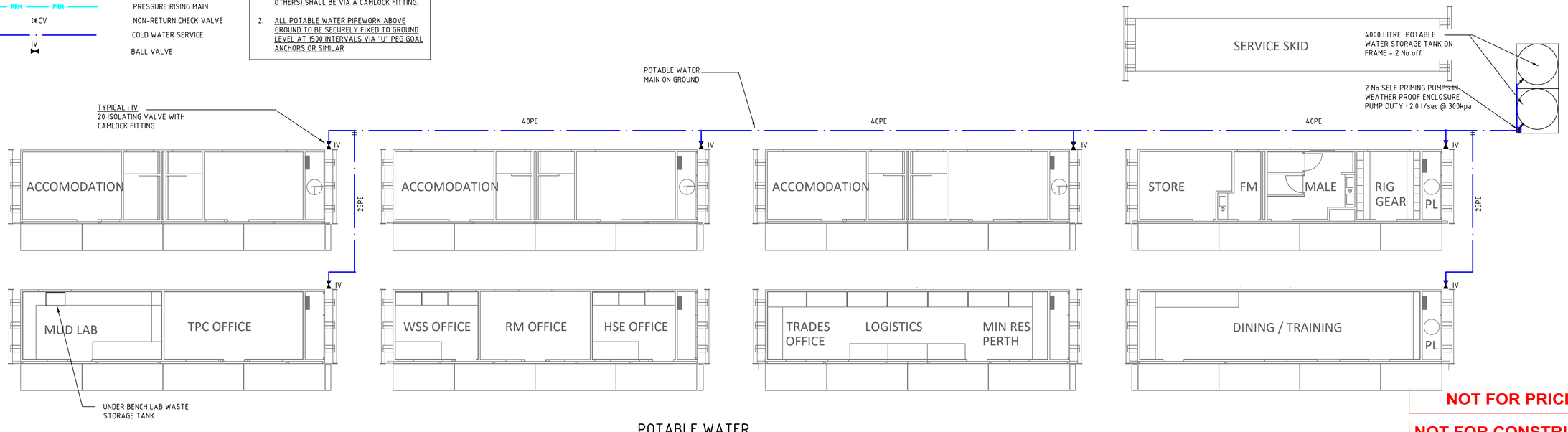


WASTEWATER DRAINAGE

TYPICAL LINETYPES

- SEWER DRAINAGE
- VP — VP — VENT PIPE
- PRM — PRM — PRESSURE RISING MAIN
- CV — NON-RETURN CHECK VALVE
- IV — COLD WATER SERVICE
- BALL VALVE

GENERAL NOTE:1.
1. ALL POTABLE WATER SUPPLY CONNECTIONS TO MODULES AND EQUIPMENT (SUPPLIED BY OTHERS) SHALL BE VIA A CAMLOCK FITTING.
2. ALL POTABLE WATER PIPEWORK ABOVE GROUND TO BE SECURELY FIXED TO GROUND LEVEL AT 1500 INTERVALS VIA "U" PEG GOAL ANCHORS OR SIMILAR



POTABLE WATER

NOT FOR PRICING

NOT FOR CONSTRUCTION

CONSULTANT:
Decobu
Level 4, 507 Murray St
Perth, WA, 6000
T: 1300 083 238
ABN: 43 608 399 971
www.decobu.com.au

CLIENT:
COMPLETE GROUP
82 Power Avenue,
Wattleup, WA 6166
T: (08) 9410 7100
www.thecomplete.group

REV	DATE	REVISION	DRN	CKD
C	17.04.24	ISSUED FOR CLIENT REVIEW	AC	AC
B	11.04.24	ISSUED FOR CLIENT REVIEW	AC	AC
A	22.03.24	ISSUED FOR CLIENT REVIEW	AC	AC

PROJECT:
MOBILE GAS RIG VILLAGE
DONGARA, WA

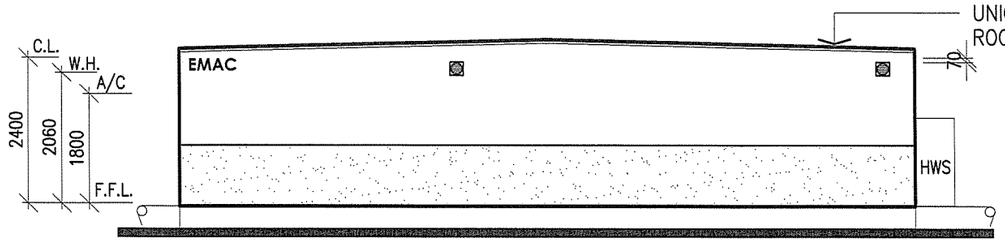
DRAWING TITLE:
HYDRAULIC SERVICES
WASTEWATER & POTABLE WATER LAYOUT
MINOR CAMP SITE

ISSUED FOR CLIENT REVIEW

DRAWN:	AC	DATE:	Mar 2024
DESIGN:	AC	SCALE:	1:100
APPROVED:	KR	SHT. SIZE:	A1

DRAWING NO. 24-127-HY-DWG-103
REV. C

575
820



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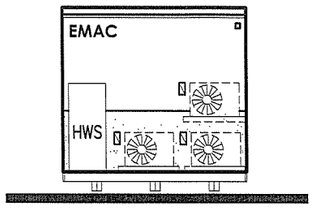
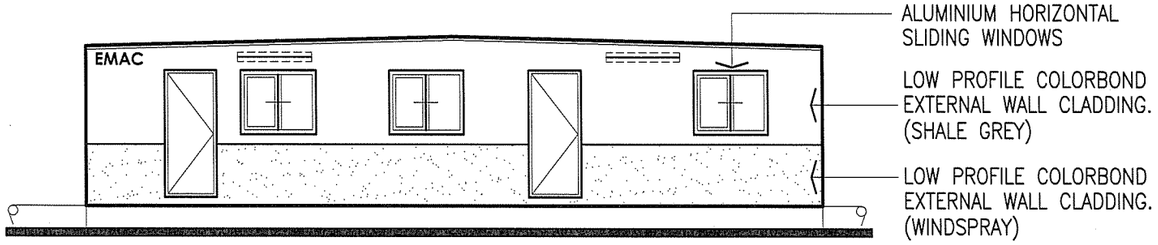


ELEVATION 2



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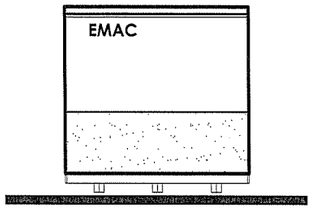
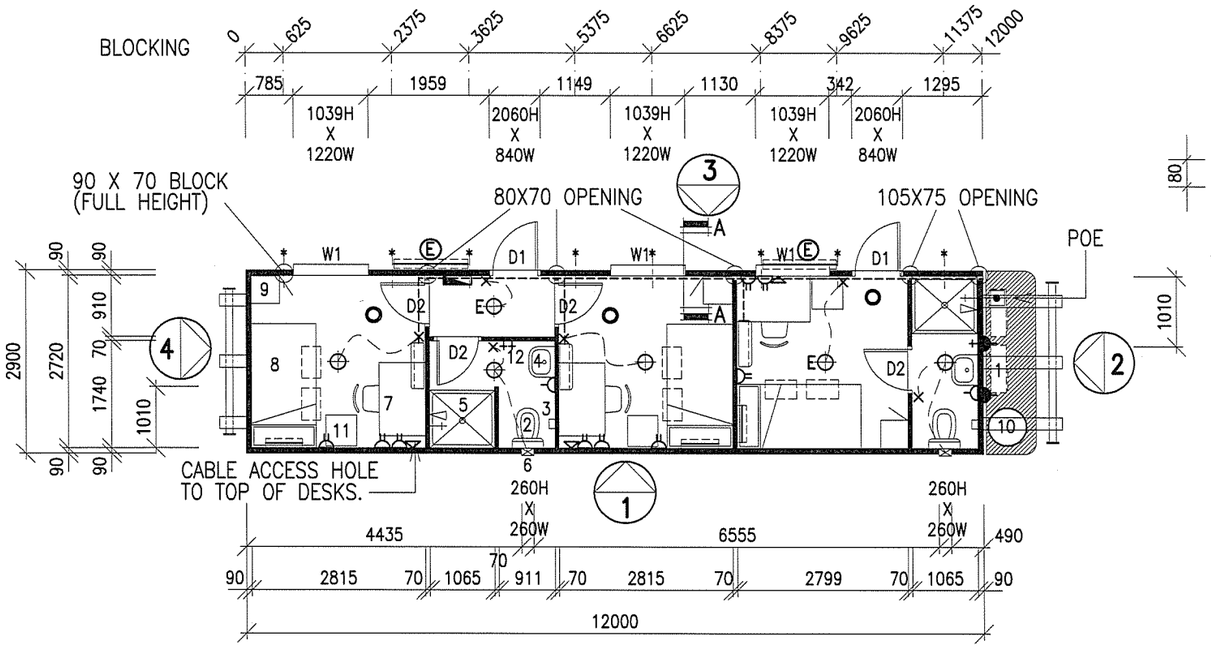
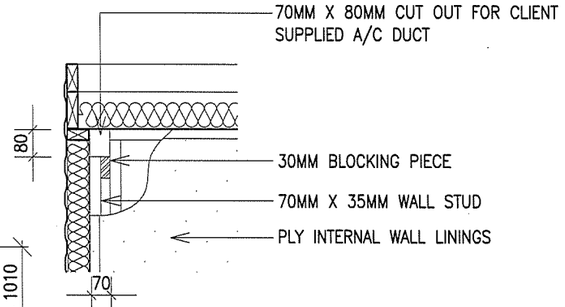


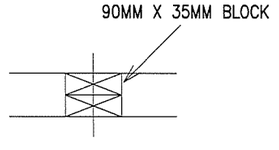
ELEVATION 4



FLOOR PLAN



SECTION A–A
SCALE 1:20



90 X 70 BLOCK
SCALE 1:10

ITEM:	DESCRIPTION:	QTY:
W1.	1029H. X 1210W. HORIZONTAL SLIDING WINDOW (6.38 LAMINATED – GREY)	3.
D1.	2040H. X 820W. METAL CLAD REBATE EDGE EXTERNAL DOOR C/W SPRING RESTRAINER & EXIT SIGN.	2.
D2.	2040H. X 720W. S.P.M. HOLLOW CORE INTERNAL DOOR C/W EXIT SIGN AND DOOR CATCHES TOP AND BOTTOM.	4.
1.	SPLIT R/CYCLE A/C.	3.
2.	TOILET SUITE.	2.
3.	TOILET ROLL HOLDER.	2.
4.	500MM X 400MM HAND BASIN C/W MIRROR OVER.	2.
5.	1055MM X 945MM F/GLASS SHOWER CUBICLE C/W SHOWER CURTAIN.	2.
6.	WALL MOUNTED EXHAUST FAN.	2.
7.	1200MM X 750MM DESK C/W PLASTIC STACK CHAIR.	3.
8.	KING SINGLE BED C/W STORAGE DRAWERS.	3.
9.	LOCKER.	3.
10.	250L ELECTRIC HOT WATER SERVICE.	1.
11.	BAR FRIDGE	3.
12.	COAT HOOKS.	3.
▲	15 AMP ISOLATOR.	3.
△	SINGLE GPO.	2.
⏃	DOUBLE GPO (100 A.F.F.L.)	9.
×	LIGHT SWITCH.	6.
▭	FLUORESCENT BED LIGHT.	3.
▽	DATA POINT.	3.
⊕	BATTEN CEILING LIGHT	4.
E⊕	BATTEN CEILING LIGHT C/W BATTERY BACKUP.	2.
Ⓔ	1 X 36W FLOURO. VANDALITE @ 2400 HEIGHT C/W BATTERY BACKUP & PE CELL.	2.
○	SMOKE DETECTOR.	3.
⊡	WILCO 5 PIN MALE PLUG FOR GENERATOR CONNECTION.	1.
▬	CIRCUIT BREAKER BOARD (3 PHASE).	1.

NOTE:

1. ALL DOORS TO HAVE STICK ON REFLECTIVE EXIT SIGNS ON INSIDE FACE OF DOOR.
2. ALL EXTERNAL LIGHTS TO BE ON SAME P.E. CELL.

SUBMITTAL STATUS		INITIAL	DATE
A	CONTRACT DRAWINGS		
B	BILL OF MATERIALS		
C	ISSUE FOR PURCHASING		
D	ISSUE FOR PRODUCTION		
E	RELEASE FOR DELIVERY		
F	APPROVED BY MANAGER		

CLIENT: **ENSIGN INTERNATIONAL**

PROJECT: **12.0M X 2.9M 3 PERSON LIVING QUARTERS**

SITE: **EX PLANT**

SALES ORDER NO: –

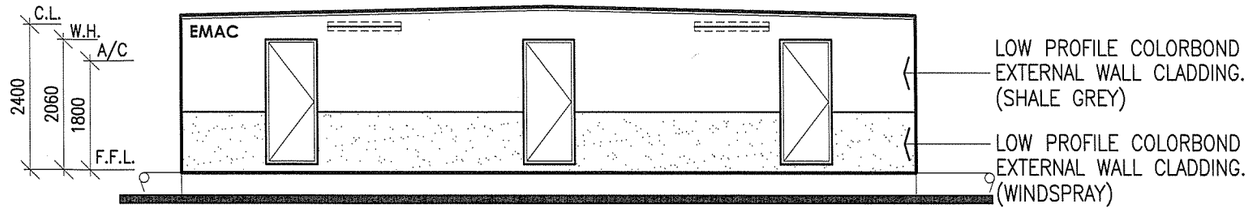
SERIAL NO: –

EMAC SYSTEMS

KARYDAV PTY. LTD. A.C.N. 061 115 133
1253 MAIN NORTH ROAD, PARA HILLS WEST,
SOUTH AUSTRALIA 5096
P.O. BOX 46, PARA HILLS
PH: (08) 8260 4866 FAX: (08) 8349 6273

BUILDERS LICENCE NO. GL 102757

DWG NO: 3 PERS LQ		SHEET: 1 OF 1	
SCALE: 1:100		DATE: 5/03/10	
DRAWN: JR	CHECK: TS	REV	6



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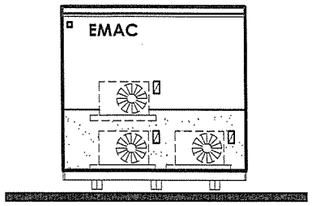
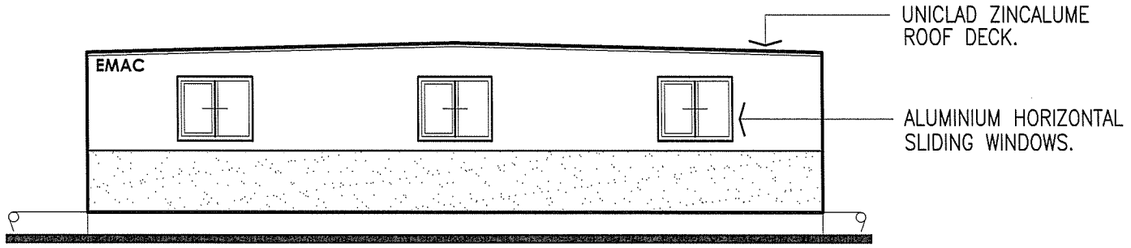


ELEVATION 2



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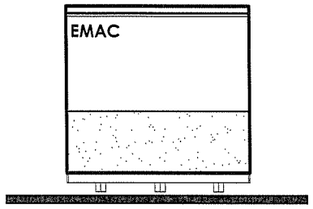
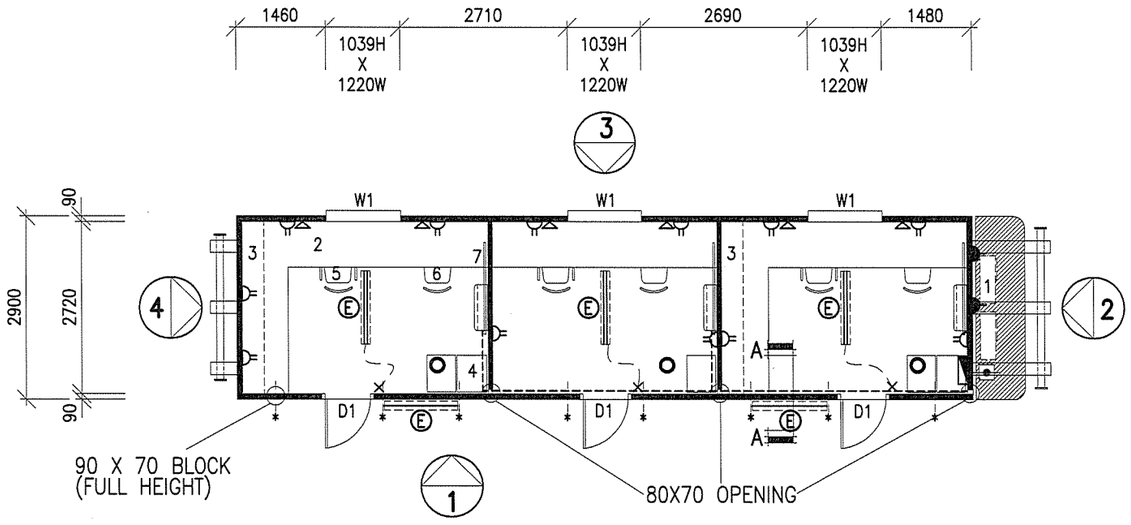


ELEVATION 4

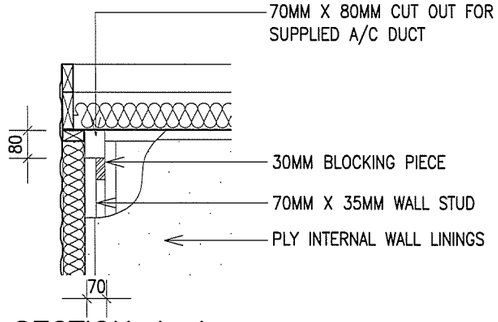
ITEM:	DESCRIPTION:	QTY:
W1.	1029H. X 1210W. HORIZONTAL SLIDING WINDOW (6.38MM LAMINATE – GREY)	3.
D1.	2040H. X 820W. METAL CLAD REBATE EDGE EXTERNAL DOOR C/W SPRING RESTRAINER & EXIT SIGN.	3.
1.	SPLIT R/CYCLE A/C.	3.
2.	FULL WALL 750MM DEEP DESK.	5.
3.	BOOK SHELF OVER DESK C/W BRACKETS UNDER.	2.
4.	4 DRAW FILING CABINET.	5.
5.	TYPIST CHAIR WITH ARMS.	3.
6.	TYPIST CHAIR NO ARMS.	3.
7.	1000H X 1500W WHITEBOARD	3.
	15 AMP ISOLATOR.	3.
	DOUBLE GPO.	12.
	LIGHT SWITCH.	3.
	DATA POINT.	6.
E	2 X 36W. DIFFUSED FLUORO C/W BATTERY BACKUP.	3.
E	1 X 36W FLOURO. VANDALITE @ 2400 HEIGHT C/W BATTERY BACKUP & PE CELL.	2.
	SMOKE DETECTOR.	3.
	WILCO 5 PIN MALE PLUG FOR GENERATOR CONNECTION.	1.
	CIRCUIT BREAKER BOARD (3 PHASE).	1.

NOTE:

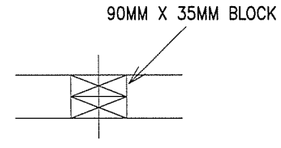
1. ALL DOORS TO HAVE STICK ON REFLECTIVE EXIT SIGNS ON INSIDE FACE OF DOOR.
2. ALL EXTERNAL LIGHTS TO BE ON SAME P.E. CELL.



FLOOR PLAN



SECTION A–A
SCALE 1:20



90 X 70 BLOCK
SCALE 1:10

SUBMITTAL STATUS		INITIAL	DATE
A	CONTRACT DRAWINGS		
B	BILL OF MATERIALS		
C	ISSUE FOR PURCHASING		
D	ISSUE FOR PRODUCTION		
E	RELEASE FOR DELIVERY		
F	APPROVED BY MANAGER		

CLIENT: ENSIGN INTERNATIONAL
SALES ORDER NO: –

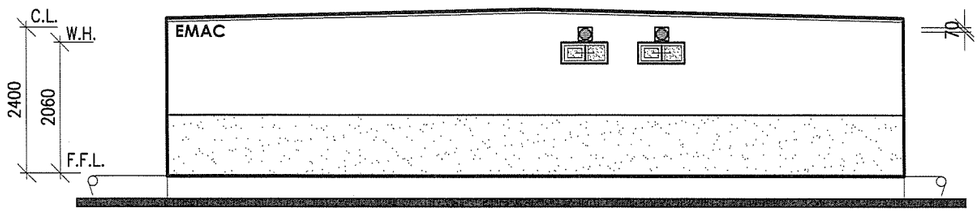
PROJECT: 12.0M X 2.9M 3 ROOM OFFICE
SERIAL NO: –

SITE: EX PLANT

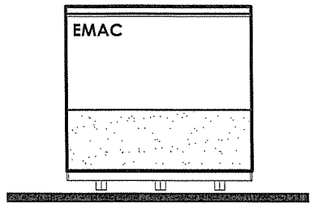
EMAC SYSTEMS

KARYDAV PTY. LTD. A.C.N. 061 115 133
1253 MAIN NORTH ROAD, PARA HILLS WEST,
SOUTH AUSTRALIA 5096
P.O. BOX 46, PARA HILLS
PH: (08) 8260 4866 FAX: (08) 8349 6273
BUILDERS LICENCE NO. GL 102757

DWG NO: 3 RM OFF		SHEET: 1 OF 1	
SCALE: 1:100		DATE: 5/03/10	
DRAWN: JR	CHECK: TS	REV	0



ELEVATION 1



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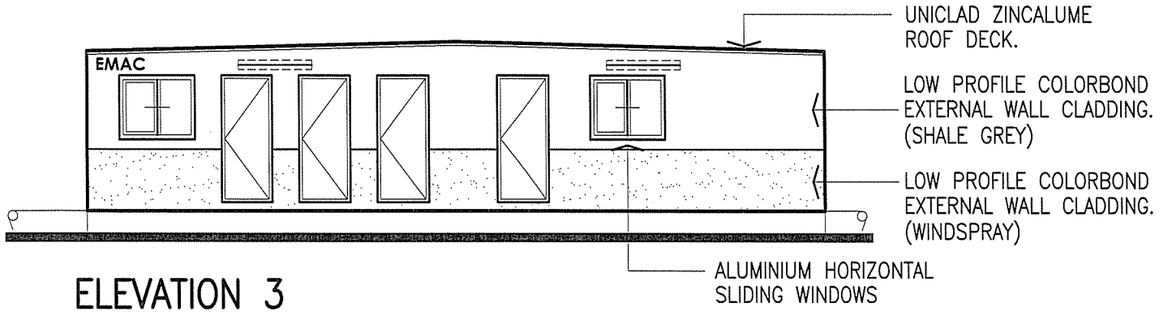

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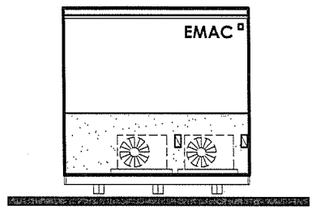
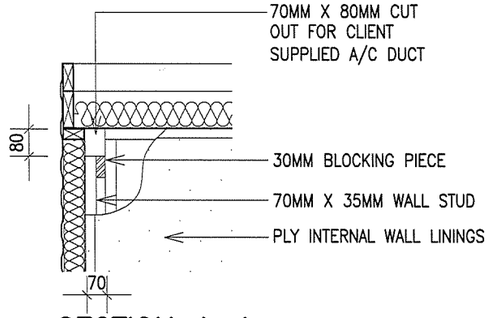


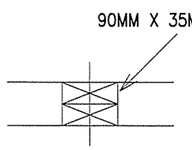
ELEVATION 4

NOTE:

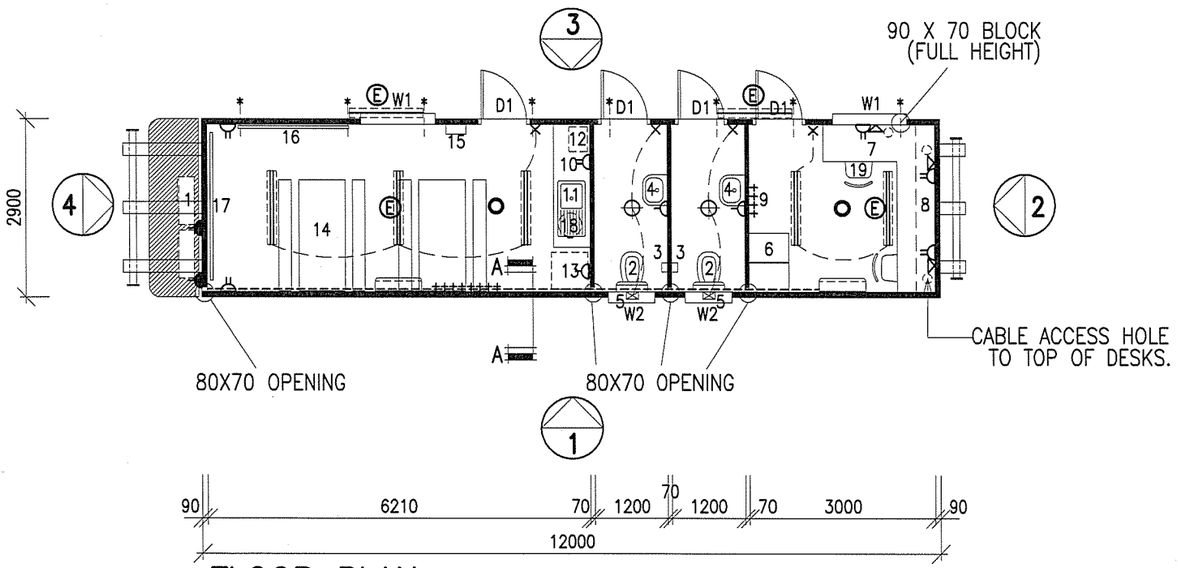
1. ALL EXTERNAL DOORS TO HAVE STICK ON REFLECTIVE EXIT SIGNS ON INSIDE FACE OF DOOR.
2. ALL EXTERNAL LIGHTS TO BE ON SAME P.E. CELL.



SECTION A–A
SCALE 1:20



90 X 70 BLOCK
SCALE 1:10



FLOOR PLAN

ITEM:	DESCRIPTION:	QTY:
W1.	1029H. X 1210W. HORIZONTAL SLIDING WINDOW (6.38 LAMINATED – GREY)	2.
W2.	350H. X 750W. ALUMINIUM SLIDING WINDOW. (OBSCURE GLAZING)	2.
D1.	2040H. X 820W. METAL CLAD REBATE EDGE EXTERNAL DOOR C/W SPRING RESTRAINER & EXIT SIGN.	4.
1.	SPLIT R/CYCLE A/C.	2.
2.	TOILET SUITE.	2.
3.	TOILET ROLL HOLDER.	2.
4.	500MM X 400MM HAND BASIN C/W MIRROR OVER.	2.
5.	WALL MOUNTED EXHAUST FAN.	2.
6.	4 DRAW FILING CABINET.	2.
7.	750MM DEEP DESK UNIT C/W CABLE ACCESS HOLES.	1.
8.	SHELVING OVER DESK (AS PER DETAIL).	1.
9.	COAT HOOKS.	12.
10.	LAMINATED CUPBOARD UNIT.	1.
11.	900MM S/STEEL INSET SINGLE BOWL SINK.	1.
12.	CHILLER/BOILER UNIT.	1.
13.	380L FRIDGE.	1.
14.	TABLE AND BENCHES (SCREWED TO FLOOR).	2.
15.	FIRST AID BOX.	1.
16.	1000 X 1800 WHITE BOARD.	1.
17.	1000 X 2400 WHITE BOARD.	1.
18.	50L UNDERBENCH HOT WATER UNIT.	1.
19.	CLERICAL CHAIR.	2.
	15 AMP ISOLATOR.	2
	SINGLE GPO.	3.
	DOUBLE GPO (100 A.F.F.L.)	6.
×	LIGHT SWITCH.	4.
	BATTEN CEILING LIGHT	2.
	2 X 36W. DIFFUSED FLUORO.	3.
E	2 X 36W. DIFFUSED FLUORO C/W BATTERY BACKUP.	2.
E	1 X 36W FLOURO. VANDALITE @ 2400 HEIGHT C/W BATTERY BACKUP & PE CELL.	2.
	SMOKE DETECTOR.	2.
	ELECTRICAL POINT OF ENTRY (TBA).	1.
	CIRCUIT BREAKER BOARD (3 PHASE).	1.

SUBMITTAL STATUS		INITIAL	DATE
A	CONTRACT DRAWINGS		
B	BILL OF MATERIALS		
C	ISSUE FOR PURCHASING		
D	ISSUE FOR PRODUCTION		
E	RELEASE FOR DELIVERY		
F	APPROVED BY MANAGER		

CLIENT: **ENSIGN INTERNATIONAL**

PROJECT: **12.0M X 2.9M OFFICE/TOILET/LUNCHROOM**

SITE: –

SALES ORDER NO: –

SERIAL NO: –

EMAC SYSTEMS

KARYDAV PTY. LTD. A.C.N. 061 115 133
1253 MAIN NORTH ROAD, PARA HILLS WEST,
SOUTH AUSTRALIA 5096
P.O. BOX 46, PARA HILLS
PH: (08) 8260 4866 FAX: (08) 8349 6273
BUILDERS LICENCE NO. GL 102757

DWG NO: OFF/TOI/LNCH		SHEET: 1 OF 1	
SCALE: 1:100		DATE: 5/03/10	
DRAWN: JR	CHECK: TS	REV	0

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REF: 1235

OZZI KLEEN
Waste Water Systems

Proudly owned, designed and manufactured
by Suncoast Waste Water Management

Technical Specifications

OZZI KLEEN Sewage Treatment Systems

SK20A-G

1. DESIGN CAPACITY

The design capacity of the SK20A-G treatment plant is 4,000L per day, producing advanced secondary effluent quality as specified below.

2. DESIGN PARAMETERS

The performance of the OZZI KLEEN SK20A-G Sewage Treatment Plant will achieve advanced effluent quality provided the incoming wastewater parameters meet the following characteristics:

Sewage Inlet

Parameter	Unit	Influent	Advanced
Biological Oxygen Demand (BOD_5)	mg/L	≤ 350	≤ 10
Total Suspended Solids (TSS)	mg/L	≤ 350	≤ 10
Total Nitrogen	mg/L	≤ 75	≤ 10
Total Phosphorus	mg/L	≤ 15	≤ 5
Faecal Coliforms, FC	cfu/100 mL	-	≤ 10
Chlorine Residual	mg/L	-	0.5 ≤ 2.0
pH		6.0 ≤ 8.5	6.0 ≤ 8.5

3. SERVICE LIFE

The Ozzi Kleen SK20A-G was designed for a minimum service life of 15 years

4. ENGINEERING CALCULATION AND POE

Description	Document No.	Revision
SK20A-G Design Calculation Sheet	OK-SK20A-G-CS	12/11/2020
SK20A-G Power & Operating Cost Estimate	OK-SK20A-G-POE	12/11/2020
SK20A-G Elevation View Drawing	GD-SK20A-G-H06	17/11/2020
SK20A-G Plan View Drawing	GD-SK20A-G-H05	17/11/2020

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Plant Engineering Calculation

Project: Ozzi Kleen SK20A-G

Model	Unit	SK20A-G	Notes
1. Process Design Parameters			
Plant Capacity	EP	20	
Hydraulic flow	l/day	4000	
BOD_5 loading	mg/l	350	
BOD_5 loading	kg/day	1.4	
Suspended solids loading	mg/l	350	
Suspended solids loading	kg/day	1.4	
Mixed Liquor Suspended Solids (MLSS)	mg/l	5000	Typical extended aeration: 2500 to 6000 mg/l
Sludge Age	days	40	Typical extended aeration: > 30 days
Flow hours per day - Hydraulic sizing	hr/day	24	
Blower on time per cycle	min	60	
Settling time per cycle	min	30	
Decant time per cycle	min	30	
Total cycle time	min	120	
Number of cycles per day	cycles	12	
Total decanting time per day	min	360	
Total decanting time per day	hr	6	
Total aeration time per day	min	720	
Total aeration time per day	hr	12	
2. Aeration Tank			
Number of Aeration Tanks		2	Two RP Tanks, SBR operation
Aeration Tank outside diameter	mm	1900	
Shell Thickness	mm	18	
Aeration Tank inside diameter	mm	1864	
Aeration Tank top water level	mm	1745	
Aeration Tank volume - actual, calculated	litre	8,414	Excluding 4 x ø450 OD tubes volume
Aeration Tank volume per EP actual		421	
Maximum decant depth	mm	150	
Aeration Tank max. decant volume	litre	723	
Max. decant volume to daily flow	%	18%	Two cells on same cycling
Aeration Tank minimum working volume	litre	7690	
Max. decant ratio	%	8.6%	
Hydraulic Residence Time based on TWL	hr	50	24 hours mimimum: Ref: SA Dept. of Health
Hydraulic Residence Time based on BWL	hr	46	
Food to Microbial Mass ratio (F:M Ratio)	g/g.day	0.033	Typical for extended aeration, F:M 0.04 to 0.15
3. Air Flow			
Oxygen demand (kg O_2 / kg BOD_5)	kg/kg	2.4	Ref: SA Dept. of Health
BOD_5 loading	kg/day	1.40	
Actual Oxygen demand required	kg O_2/day	3.4	Ref: SA Dept. of Health
1 kmol of air at STP occupies:	m^3/kmol	22.41	
1 kmol of dry air has mass of:	kg/kmol	28.96	
Gravimetric fraction of Oxygen in dry air	kg/kg	0.2314	
Mass of Oxygen per kmol of air	kg/kmol	6.701	
Mass of Oxygen per m^3 of air at STP (dry basis)	kg/m^3	0.299	
Inlet air temperature	°C	25	25°C default
Inlet air relative humidity	%	70	
Inlet air temperature	K	298.15	
Standard air temperature	°C	0	
Standard air temperature	K	273.15	
Inlet air pressure	bara	1.013	
Saturated vapour pressure at inlet conditions	bara	0.032	0.03166 for 25°C. 0.04242 for 30°C

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Blower discharge pressure at TWL	mbar	207	
Blower air flow (FAD) - actual	m^3/hr	18	2 Blowers
Blower model	LP150HN		
Number of Elastox-T type B diffusers		4	
Air flow per diffuser (FAD at suction temperature)	m^3/hr	4.50	
Ratio : Actual m^3 (wet basis) per Nm^3 (dry basis)		1.116	
Air flow per diffuser (at STP)	Nm^3/hr	4.03	Recommended for Elastox-T: 2 to 6 Nm^3/h
Elastox-T diffuser Oxygen transfer (from	g O_2/m Nm^3	22	
Diffuser immersion depth at TWL	m	1.545	
Diffuser Oxygen transfer at immersion depth	g O_2/Nm^3	33.99	
Oxygen transfer per diffuser	g O_2/hr	137.06	
Oxygen transfer, all diffusers	kg O_2/hr	0.55	
Oxygen transfer, all diffusers - daily basis at TWL	kg O_2/day	6.6	
Standard Oxygen transfer efficiency (wet basis)	%	12.7	
4. Chlorine Contact Tank			
Decanting flow rate	l/min	16	Based on average flow plus 40% margin
Decanting flow rate	m^3/hr	0.9	
Minimum Cl contact time	min	30	
Minimum Cl contact tank volume required	litre	467	
Number of Contact Tanks		2	
Contact Tank outside diameter	mm	450	
Shell Thickness	mm	10	
Contact Tank inside diameter	mm	430	
Contact Tank top water level	mm	1745	
Contact Tank volume - calculated	litre	507	
Cl contact time - actual	min	33	
Chlorine tablet comsuption			
dosage rate	mg/L	10	
daily tablet consumption	kg/d	0.04	
min. storage - 3 months	kg	3.64	
number of tablets (200 g/ea) - 3 months	no.	18	
5. Waste Sludge Tank			
Sludge oxidation ratio	40 1	40	
Sludge D.S. wastage based on SS loading	kg/day	0.035	
Wet sludge solids content in sludge tank	% D S	1	
Wet sludge mass to be wasted	kg/day	3.5	
Wet sludge volume wasted where SG = 1	l/day	3.5	
Period between tank de-sludging	day	90	
Minimum sludge tank volume required	litre	315	
Number of Sludge Tanks		2	
Sludge Tank outside diameter	mm	450	
Shell Thickness	mm	10	
Sludge Tank inside diameter	mm	430	
Sludge Tank top water level	mm	1900	
Sludge Tank volume - calculated	litre	552	
Period between de-sludging - actual	day	158	
6. Alum Dosing System *(SK20A / A-G ONLY)*			
Dosage rate	mg/L	30	
Daily alum consumption	kg/d	0.12	
Percentage of alum solution	%	20	
Daily alum consumption at 20% solution:	kg/d	0.6	
Daily alum consumption at 20% solution:	L/d	0.53	
Dosing rate per inflow at 20% solution	ml/m^3	133	
Chemical tank volume	litre	80	
Minimum refill period of Alum	days	150	

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AWTS Process Design Parameters for Power Utilisation

Project: Ozzi Kleen SK20A-G

Design Parameter	EP	20
Hydraulic Flow	l/day	4000
Flow Hours per Day - Hydraulic Sizing	hr/day	24
Blower ON Time per Cycle	min	60
Settling Time per Cycle	min	30
Decant Time per Cycle	min	30
Total Cycle Time	min	120
Number of Cycles per Day	cycles	12
Transfer Pump Flow Rate	l/min	200
Effluent Pump Flow Rate	l/min	100
Grease Trap Pump Flow Rate *(SK20G / A-G ONLY)*	l/min	200
Dosing Pump Flow Rate *(SK20A / A-G ONLY)*	l/hr	3
Air Blower	m^3/hr	18

Model
Showfou STA-112
Reefe RVS300
Reefe RVS300
Iwaki EJ B16
Thomas LP150HN

Power Utilisation Based on Rated Power	Installed Power		Unit	Hrs/day	Energy Used
	3 phase	1 phase		hr	kWh
Transfer Pump		0.75	kW	0.33	0.25
Effluent Pump 1		0.40	kW	0.33	0.13
Effluent Pump 2		0.40	kW	0.33	0.13
Grease Trap Pump *(SK20G / A-G ONLY)*		0.18	kW	0.11	0.02
Dosing Pump *(SK20A / A-G ONLY)*		0.10	kW	0.37	0.04
Blower 1		0.13	kW	12.00	1.56
Blower 2		0.13	kW	12.00	1.56
Control System		0.10	kW	24.00	2.40
Total Installed Power	*0.00*	*2.19*	kW		6.1
Average Power			kW		*0.25*

Current Draw Based on Full Load Current	Full Load Current		Unit	Hrs/day	Amp-hr Used	
	3 phase	1 phase			3 phase	1 phase
Transfer Pump		6.00	A	0.33		2.00
Effluent Pump 1		4.00	A	0.33		1.33
Effluent Pump 2		4.00	A	0.33		1.33
Grease Trap Pump *(SK20G / A-G ONLY)*		4.00	A	0.11		0.44
Dosing Pump *(SK20A / A-G ONLY)*		0.50	A	0.37		0.19
Blower 1		0.85	A	12.00		10.20
Blower 2		0.85	A	12.00		10.20
Control System		1.00	A	24.00		24.00
Total Installed Current	*0.00*	*21.20*	A		0.00	49.69
Average Current			A		*0.00*	*2.07*

Operating Cost Estimating	unit	unit price	qty/d	qty/yr	$/yr
Power	kW	0.20	6.1	2224	445
Chlorine	kg	12.50	0.04	15	183
Alum	kg	1.50	0.12	44	66
Waste Sludge Disposal	L	0.20	3.50	1278	256
total:	$/year				949

*Note: All costs are estimated based on the SK20A-G operating for 365 days at full design capacity (**4 kL/day**), an adjustment should be made when less sewage is treated per year.*

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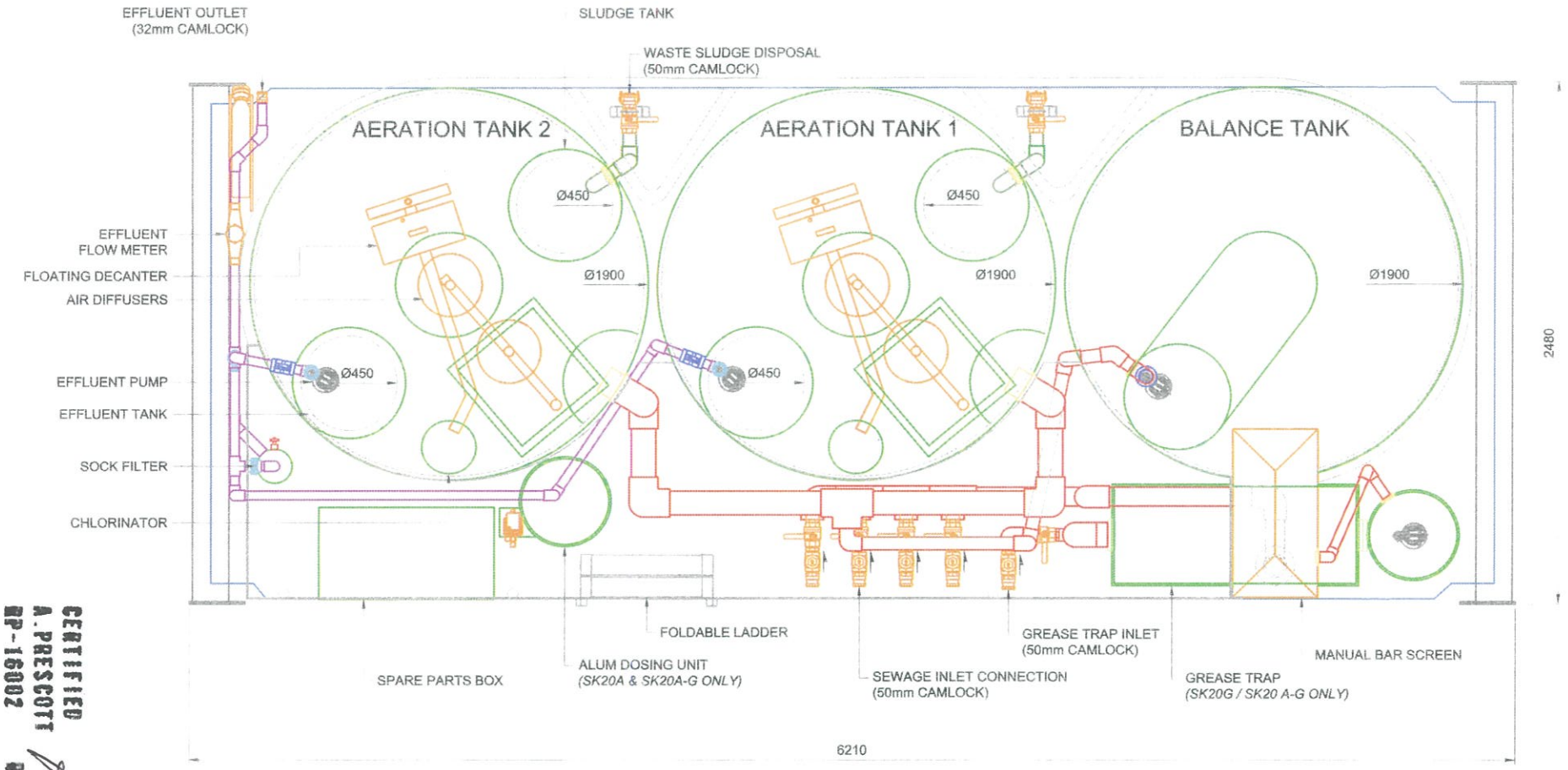

PLAN VIEW

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Ref: 1255

DATE	DESCRIPTION	REV.	BY
17/11/20	TANK DIMENSIONS ADDED	2	YH
26/10/16	GENERAL REVISION	1	YH

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Suncoast Waste Water Management

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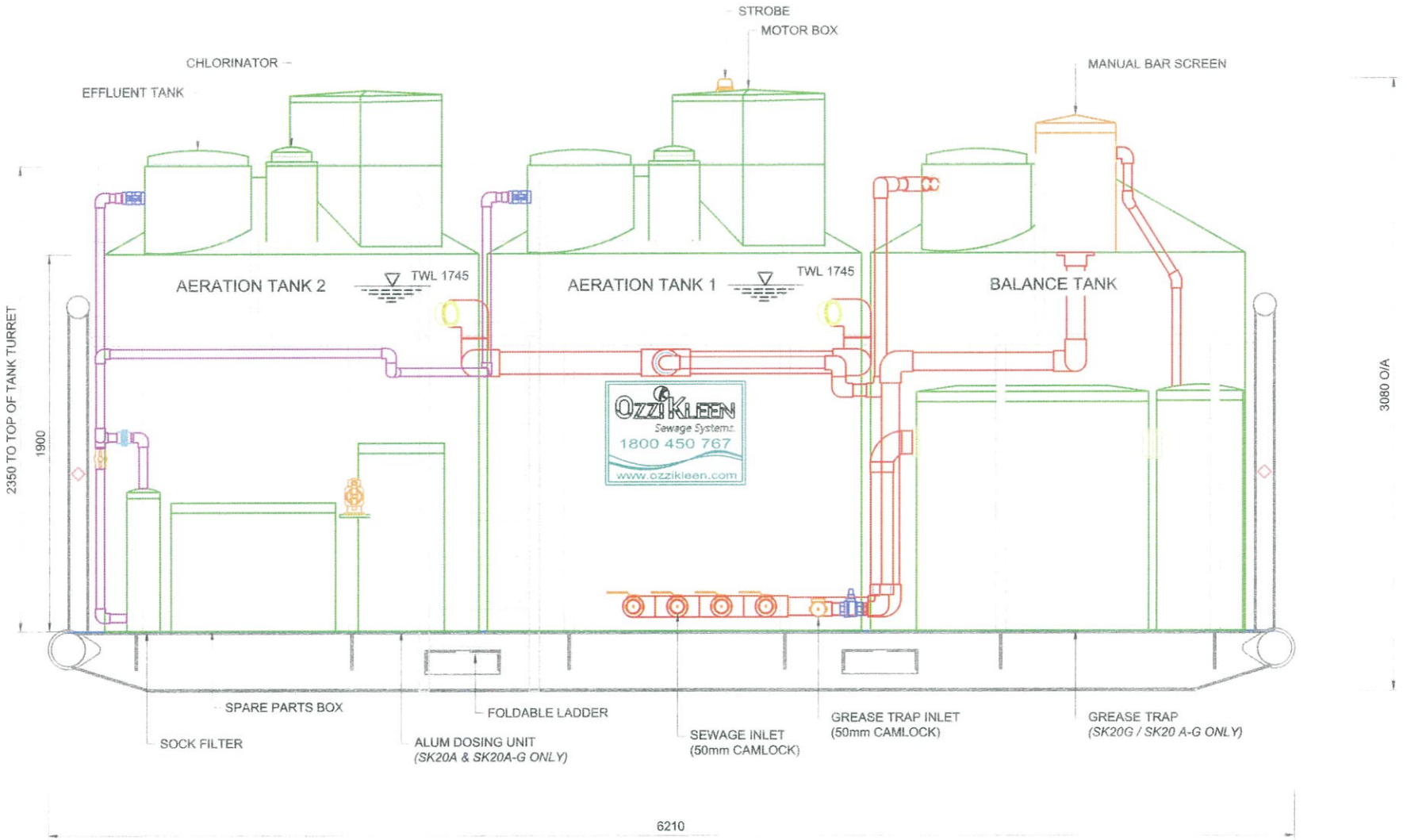
CLIENT	GENERAL	DESIGN	AP
		DRAWN	YH
PROJECT	OZZI KLEEN SK20A-G AWTS	CHKD	SB
TITLE	PLAN VIEW	DATE	17/11/20
DWG NO.	GD-SK20A-G-H05	SCALE	NTS



ELEVATION

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DATE	DESCRIPTION	REV.	BY
17/11/20	TANK WATER LEVEL INDICATED	2	YH
26/10/16	GENERAL REVISION	1	YH

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CLIENT	GENERAL DRAWING	DESIGN	AP
		DRAWN	YH
PROJECT	OZZI KLEEN SK20A-G AWTS	CHKD	SB
TITLE	ELEVATION VIEW	DATE	17/11/20
DWG NO.	GD-SK20A-G-H06	SCALE	NTS