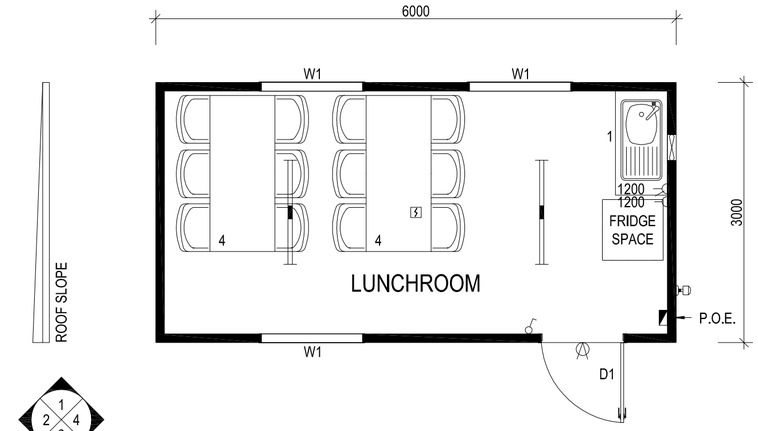
ELECTRICAL LEGEND		
	DESCRIPTION	QTY
	CIRCUIT BREAKER BOARD : (POINT of ENTRY)	1
	SWITCH : LIGHT : SINGLE	1
	SWITCH : PHOTO-ELECTRIC : (PE CELL)	1
	LIGHT : 2x36W FLUORESCENT : DIFFUSED	2
	LIGHT : EXTERNAL BULKHEAD : W/PROOF	1
	GPO : 10 AMP DOUBLE : HEIGHT SHOWN	1
	GPO : 10 AMP SINGLE : HEIGHT SHOWN	1
	FAN : EXHAUST : WALL MOUNTED	1
FIRE LEGEND		
	DESCRIPTION	QTY
	SMOKE DETECTOR : HARD WIRED :INTERCONNECTED	1

BUILDING DESIGN CRITERIA Wind Load - in accordance with AS.1170.2-2011

THE ENTIRE ROOF AND WALL ASSEMBLIES, THEIR CONNECTIONS & IMMEDIATE SUPPORTING MEMBERS HAVE BEEN DESIGNED SO AS TO BE CAPABLE OF REMAINING IN POSITION NOTWITHSTANDING ANY PERMANENT DISTORTION, FRACTURE OR DAMAGE THAT MIGHT OCCUR IN ACCORDANCE WITH NCC VOLUME 1, SPECIFICATION B1.2 OR VOLUME 2, PART 2.1.1(b) AND 3.10.1 HIGH WIND AREAS (IF APPLICABLE)

ALL REFERENCED STANDARDS TO BE THE CURRENT VERSION AT THE TIME OF CONSTRUCTION

Built To: NCC CLASS 6 BUILDING



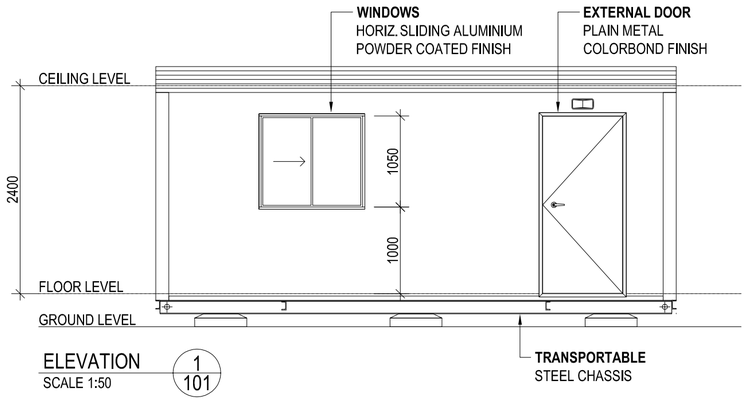
1
2 4
3

ELEVATION GUIDE
SHEET 201

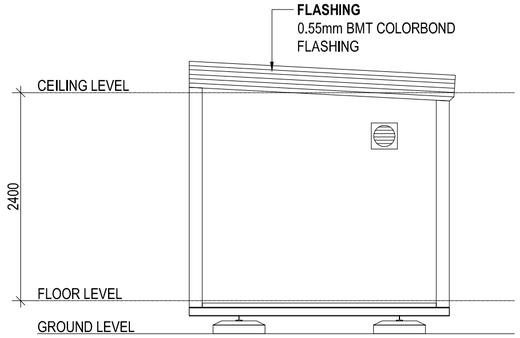
FLOOR PLAN
SCALE 1:50

EXTERNAL DIMENSIONS	- 6.0m x 3.0m = 18.00m²
CEILING HEIGHT	-2.400m

BUILDING SHORT SPECIFICATION - 2014 NCC	
•	CHASSIS - STEEL BEAMS c/w GALV. JOISTS 75 x 40 CEE SECTIONS @ MAX 400 CTRS
•	CHASSIS PAINT SPEC. - 425 ZINC PHOSPHATE PRIMER, 2 COATS ALKYD PRIMER WET ON WET - BLACK - FOR CORROSION INHIBITION
•	FLOORING - 22mm T&G AQUATITE TERMITE TREATED PARTICLE BOARD
•	FLOOR COVERING - 1.5mm VINYL FLOOR FINISH
•	FLOOR INSULATION - R2.0 IST80 between floor joists supported by BUILDER MESH below
•	ROOF INSULATION - R2.5 POLYESTER INSULATION between ceiling joists with IST60 ANTICON under roof sheets
•	ROOF & CEILING FRAME - GALV. STEEL FRAMEWORK
•	ROOF CLADDING - SHEETING
•	CEILING - PRE-FINISHED PLYWOOD c/w ALUMINIUM CORNICE
•	ROOF FLASHINGS & CORNER TRIMS - COLORBOND
•	DOOR FRAMES - METAL POWDERCOATED FINISH



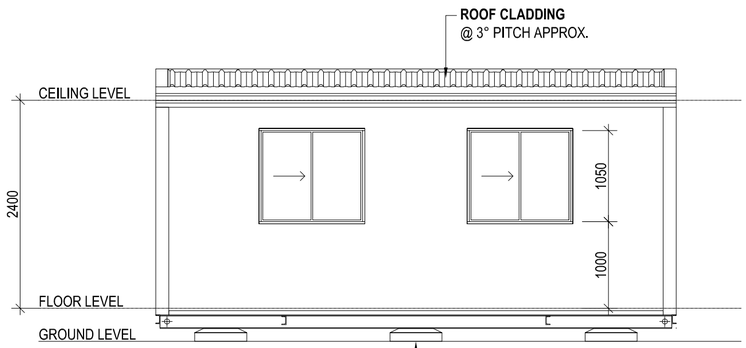
ELEVATION 1/101
SCALE 1:50



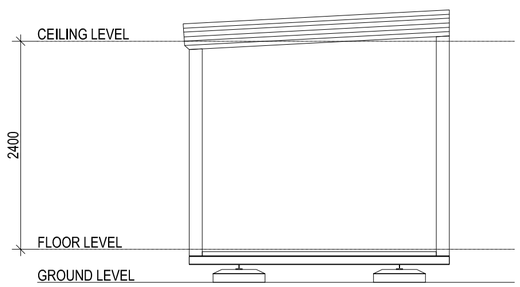
ELEVATION 2/101
SCALE 1:50

DOOR & WINDOW SCHEDULE		
No.	DESCRIPTION	QTY
D1	2040h x 920w PLAIN METAL CLAD EXTERNAL DOOR c/w LEVER HANDLE ENTRANCE LOCKSET	1
W1	1050h x 1170w HORIZ. SLIDING WINDOW c/w FLYSCREEN	3

EQUIPMENT LIST		
No.	DESCRIPTION	QTY
1	1200 LONG x 600 WIDE LAM. BENCH TOP c/w S.S SINGLE BOWL SINGLE DRAINER SINK INSET & C'BRDS UNDER	1
4	1800 x 750 DINING TABLE c/w 6 PVC STACKABLE CHAIRS - OPTIONAL	2



ELEVATION 3/101
SCALE 1:50



ELEVATION 4/101
SCALE 1:50

COLOUR SCHEDULE	
ROOF DECKING	-
ROOF FLASHING	-
EXTERNAL WALLS	-
EXTERNAL WALL FLASHINGS	-
EXTERNAL DOORS	-
EXTERNAL DOOR FRAMES	-
INTERNAL WALLS	-
INTERNAL DOORS	-
INTERNAL DOOR FRAMES	-
CEILING	-
WINDOW FRAMES	-
WINDOW TREATMENT	-
EXTERNAL DOOR FRAME	-
VINYL	-
VINYL TO BATHROOM	-
LOGOS	-
CUPBOARD DOOR & SIDE	-
CUPBOARD TOP & SHELVES	-
CURTAINS	-
SKIRTING	-
PERIMETER / BASE CHANNEL	-

REV	DESCRIPTION	DRWN	CHKD	DATE
A	ISSUED FOR REVIEW	AP	-	07.07.15

PAGE SIZE	SCALE
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DRAWN BY	DATE
AP	07.07.15

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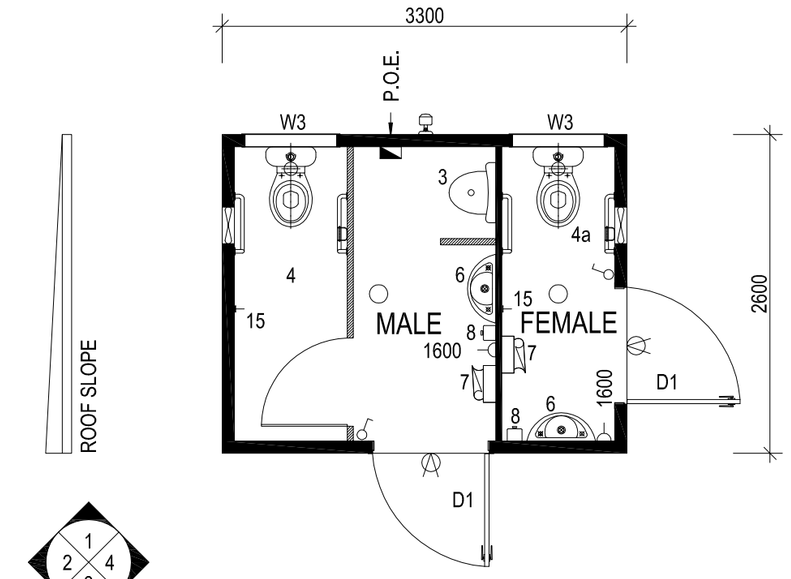
58 McKINNON RD, BERRIMAH, NT 0820 PH: 8932 4900 FAX: 8932 4888

CLIENT: FLEETWOOD STANDARD
LOCATION: TBA
BUILDING: LUNCH ROOM 6x3m
TITLE: GENERAL ARRANGEMENT

QUOTE NUMBER	DRWG NUMBER	JOB NUMBER	REVISION
LR-01	A-100		A



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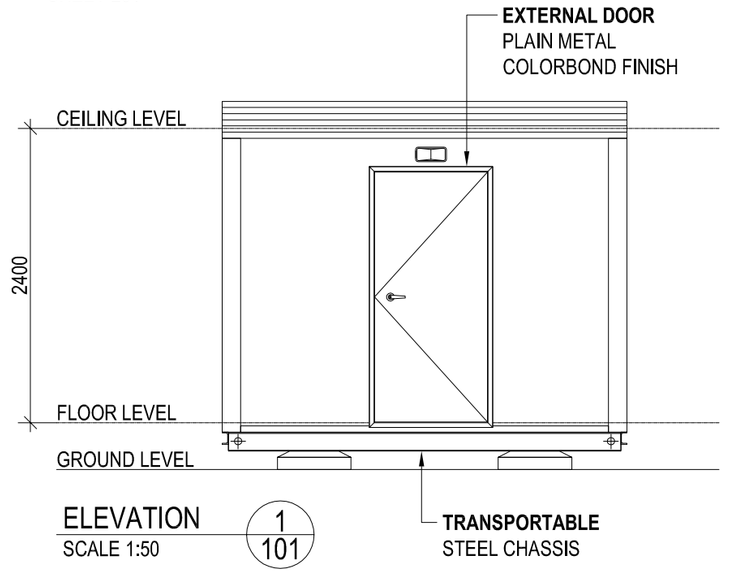
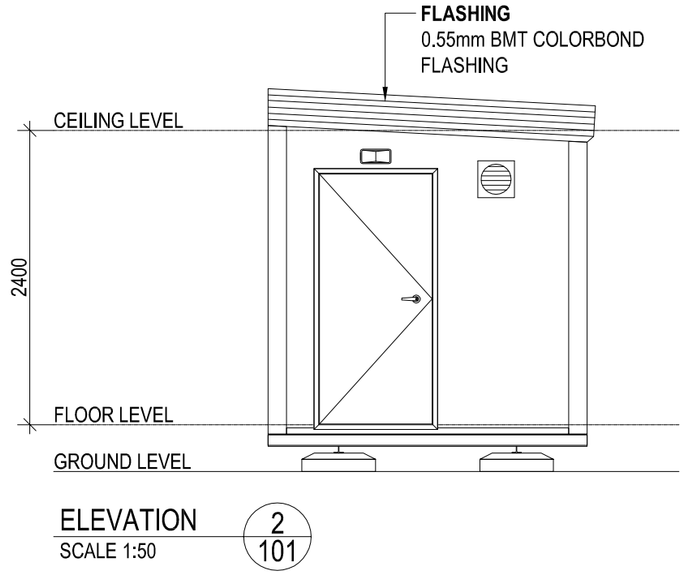
ELEVATION GUIDE
SHEET 201

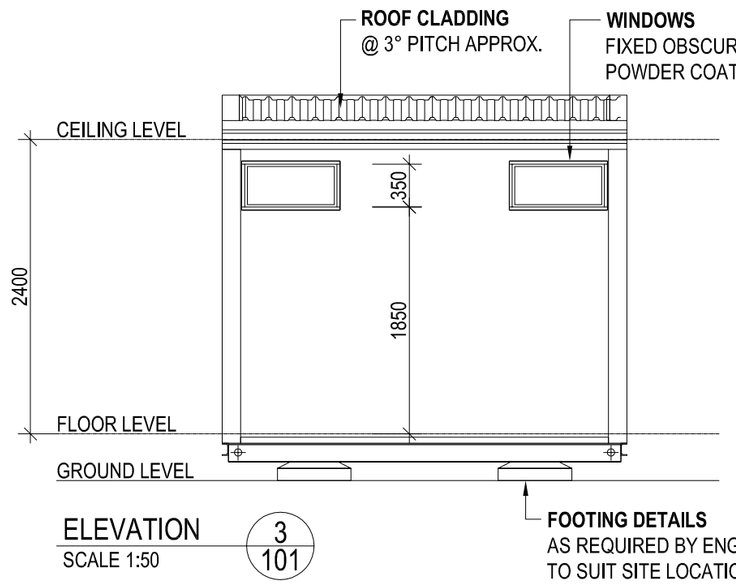
FLOOR PLAN
SCALE 1:50



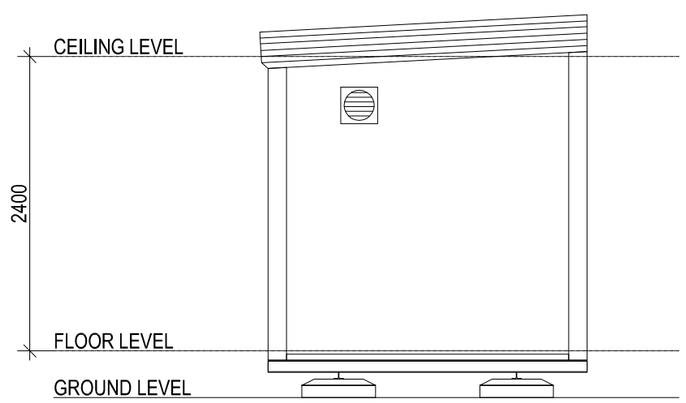
ELEVATION 1 / 101
SCALE 1:50



ELEVATION 2 / 101
SCALE 1:50



ELEVATION 3 / 101
SCALE 1:50



ELEVATION 4 / 101
SCALE 1:50

ELECTRICAL LEGEND		
	DESCRIPTION	QTY
	CIRCUIT BREAKER BOARD : (POINT of ENTRY)	1
	SWITCH : LIGHT : SINGLE	2
	SWITCH : PHOTO-ELECTRIC : (PE CELL)	1
	LIGHT : OYSTER FITTING	2
	LIGHT : EXTERNAL BULKHEAD : W/PROOF	2
	GPO : 10 AMP SINGLE : HEIGHT SHOWN	2
	FAN : EXHAUST : WALL MOUNTED	2
FIRE LEGEND		
	DESCRIPTION	QTY

EXTERNAL DIMENSIONS	- 3.3m x 2.6m = 8.58m²
CEILING HEIGHT	-2.400m

BUILDING DESIGN CRITERIA Wind Load - in accordance with AS.1170.2-2011

THE ENTIRE ROOF AND WALL ASSEMBLIES, THEIR CONNECTIONS & IMMEDIATE SUPPORTING MEMBERS HAVE BEEN DESIGNED SO AS TO BE CAPABLE OF REMAINING IN POSITION NOTWITHSTANDING ANY PERMANENT DISTORTION, FRACTURE OR DAMAGE THAT MIGHT OCCUR IN ACCORDANCE WITH NCC VOLUME 1, SPECIFICATION B1.2 OR VOLUME 2, PART 2.1.1(b) AND 3.10.1 HIGH WIND AREAS (IF APPLICABLE)

ALL REFERENCED STANDARDS TO BE THE CURRENT VERSION AT THE TIME OF CONSTRUCTION

Built To: NCC CLASS 10a BUILDING

BUILDING SHORT SPECIFICATION - 2014 NCC

- CHASSIS - STEEL BEAMS c/w GALV. JOISTS 75 x 40 CEE SECTIONS @ MAX 400 CTRS
- CHASSIS PAINT SPEC. - 425 ZINC PHOSPHATE PRIMER, 2 COATS ALKYD PRIMER WET ON WET - BLACK - FOR CORROSION INHIBITION
- FLOORING - 22mm T&G AQUATITE TERMITE TREATED PARTICLE BOARD
- FLOOR COVERING - 2.0mm SLIP RESISTANT VINYL FLOOR FINISH c/w 100mm HIGH COVING
- FLOOR INSULATION - R2.0 IST80 between floor joists supported by BUILDER MESH below
- ROOF INSULATION - R2.5 POLYESTER INSULATION between ceiling joists with IST60 ANTICON under roof sheets
- ROOF & CEILING FRAME - GALV. STEEL FRAMEWORK
- ROOF CLADDING - SHEETING
- CEILING - PRE-FINISHED PLYWOOD c/w ALUMINIUM CORNICE
- ROOF FLASHINGS & CORNER TRIMS - COLORBOND
- DOOR FRAMES - METAL POWDERCOATED FINISH

DOOR & WINDOW SCHEDULE

No.	DESCRIPTION	QTY
D1	2040h x 920w PLAIN METAL CLAD EXTERNAL DOOR c/w LEVER HANDLE ENTRANCE LOCKSET	2
W3	350h x 750w FIXED OBSCURED WINDOW	2

EQUIPMENT LIST

No.	DESCRIPTION	QTY
3	SINGLE S.S. WALL MOUNTED URINAL c/w CISTERN	1
4	920 WIDE AMBULANT TOILET CUBICLE c/w TOILET PAN WITH DUAL FLUSH CISTERN, TOILET ROLL HOLDER, 2x 450x450 S.S GRAB RAILS & 720 WIDE DOOR WITH INDICATOR BOLT. INSTALLED TO AS1428.1-2009.	1
4a	AMBULANT TOILET PAN c/w DUAL FLUSH CISTERN, TOILET ROLL HOLDER & 2x 450x450 S.S GRAB RAILS. INSTALLED TO AS1428.1-2009.	1
6	CAROMA COMPACT WALL MOUNTED HAND BASIN c/w MIRROR OVER	2
7	WALL MOUNTED PAPER TOWEL DISPENSR	2
8	WALL MOUNTED LIQUID SOAP DISPENSER	2
15	COAT HOOK	2

COLOUR SCHEDULE

ROOF DECKING	-
ROOF FLASHING	-
EXTERNAL WALLS	-
EXTERNAL WALL FLASHINGS	-
EXTERNAL DOORS	-
EXTERNAL DOOR FRAMES	-
INTERNAL WALLS	-
INTERNAL DOORS	-
INTERNAL DOOR FRAMES	-
CEILING	-
WINDOW FRAMES	-
WINDOW TREATMENT	-
EXTERNAL DOOR FRAME	-
VINYL	-
LOGOS	-
PERIMETER / BASE CHANNEL	-

REV	DESCRIPTION	DRWN	CHKD	DATE
A	ISSUED FOR REVIEW	AP	-	14.07.15

PAGE SIZE: A2 | SCALE: 1:50
DRAWN BY: AP | DATE: 14.07.15

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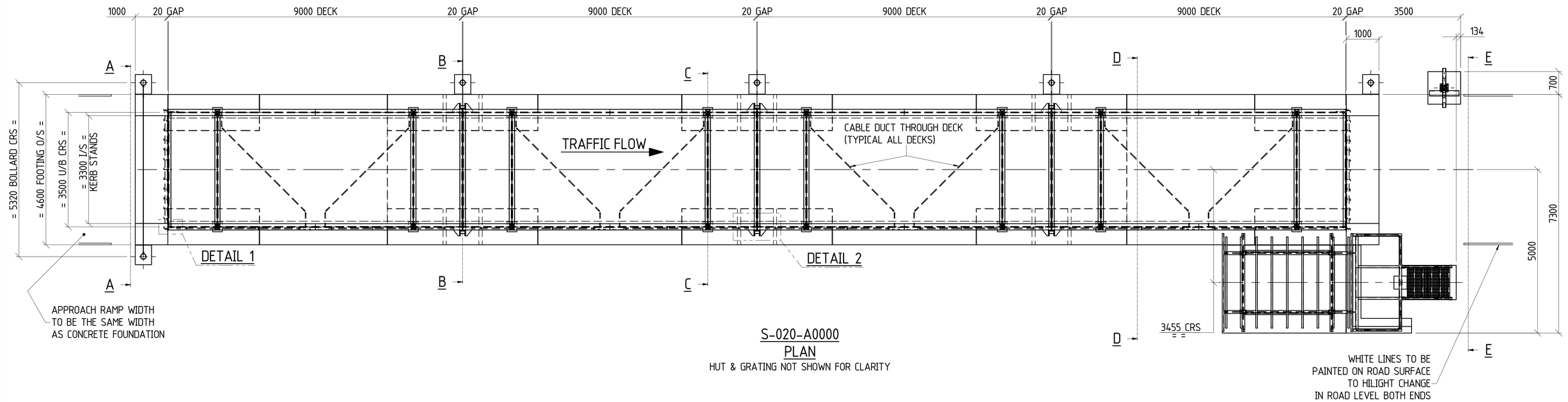
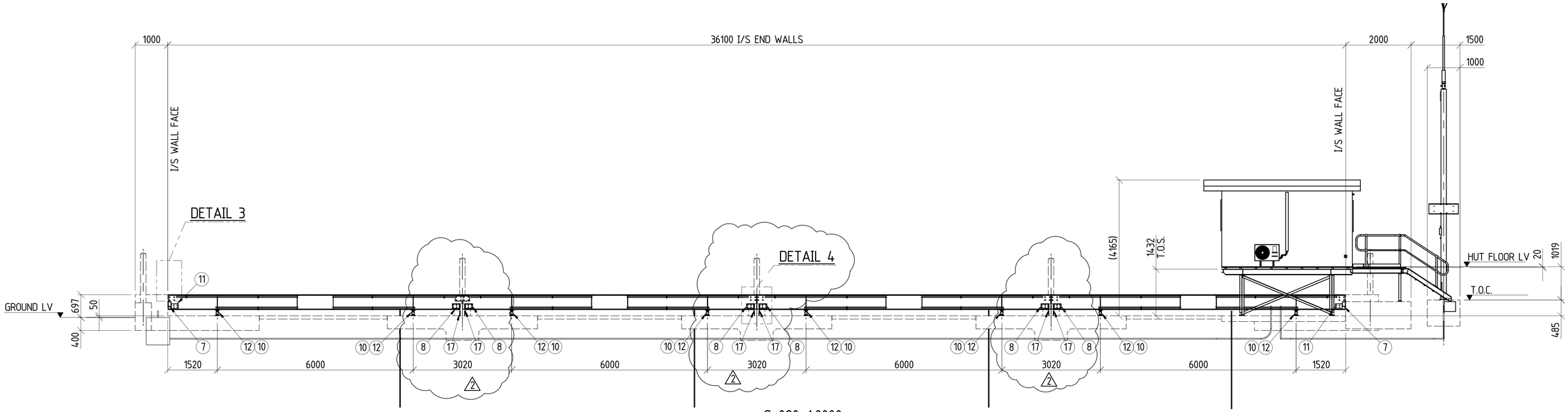
CLIENT: FLEETWOOD STANDARD
LOCATION: TBA
BUILDING: MALE / FEMALE TOILET 3.3x2.6m
TITLE: GENERAL ARRANGEMENT

QUOTE NUMBER	DRWG NUMBER	JOB NUMBER	REVISION
MFT-02	A-100		A



S-020-A0000
PLAN
HUT & GRATING NOT SHOWN FOR CLARITY



S-020-A0000
ELEVATION
36m ASSEMBLED WEIGHBRIDGE
1 : 60

REFER TO SHEET 1
FOR PARTS LIST

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REF DRG No.	REFERENCE DRAWING TITLE

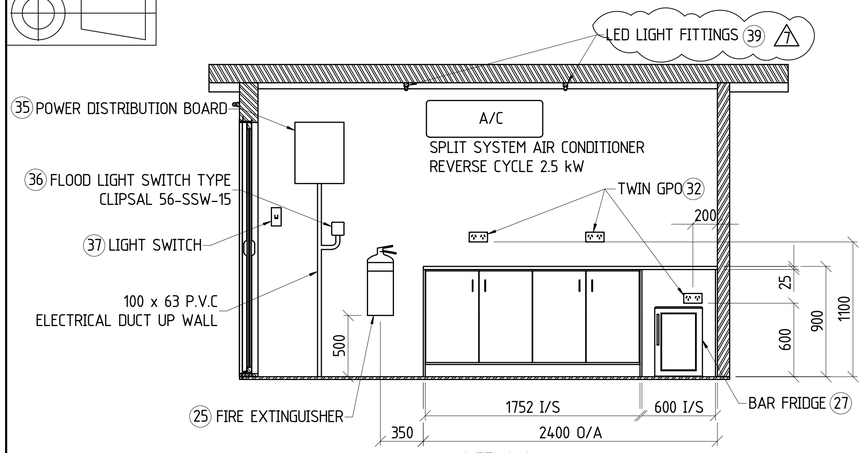
REV	DATE	REVISIONS	BY	CHK	APP
2	15.09.2017	SHIM PACK ITEM 17 ADDED	VP	JW	PC
1	11.04.2017	ADD-SHIMS, LIGHT POLE. MOD-NOTES & LOAD CELL	TTW	DD	DD
0	2/12/2014	ISSUED FOR CONSTRUCTION	TU	JR	

DESIGNER		
DRAWN	TU	2/12/2014
CHECKED	JR	2/12/2014
APPROVED		

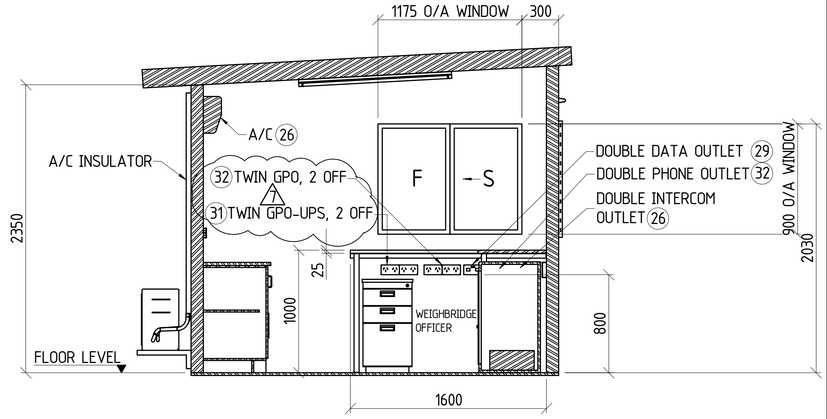
DRAWING TITLE
WEIGHBRIDGE
AUSTRALIAN STEEL
36m ASSEMBLED WEIGHBRIDGE
GENERAL ARRANGEMENT

SITE: VARIOUS
SIZE: A1
PROJECT: STANDARD DRAWING
DRAWING No: S-020-A0000
SHEET: 2 OF 5
REV.: 2

ISSUED FOR PLANNING APPROVAL - 17/10/2017



VIEW A
1 : 25



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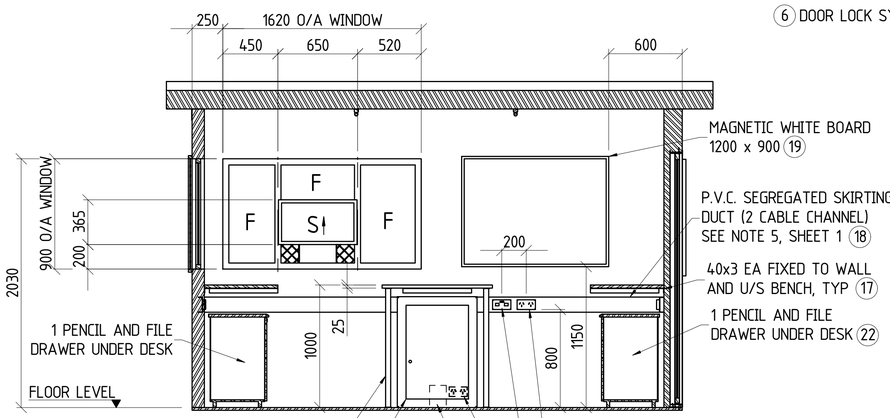

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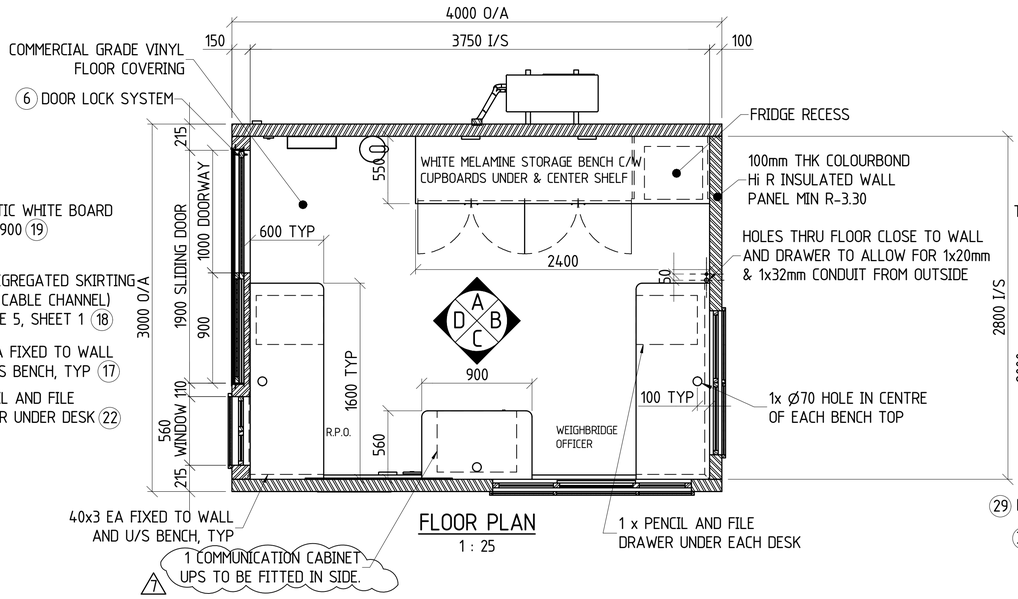
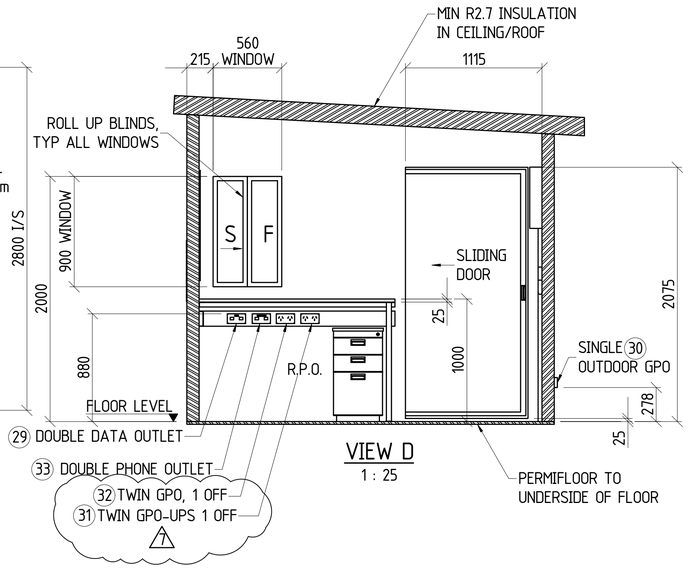


FLOOR PLAN
1 : 25



VIEW D
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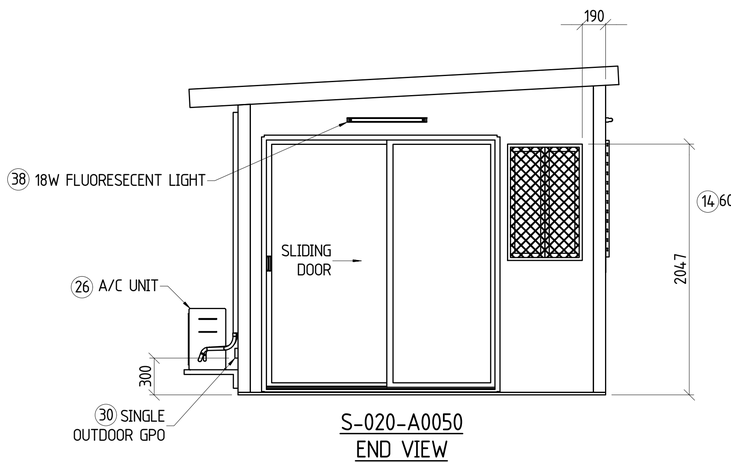
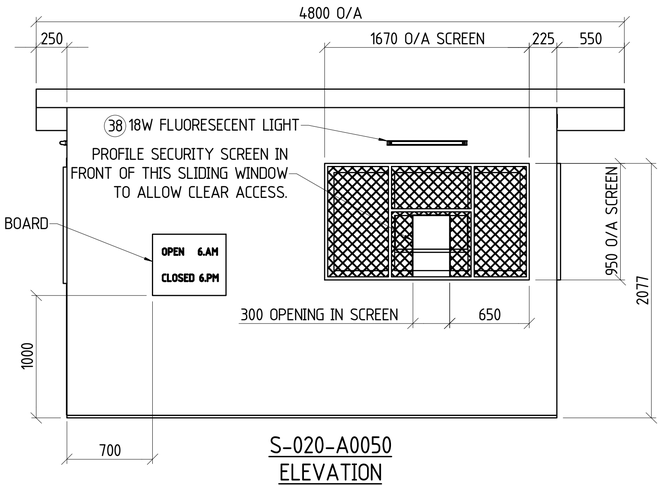
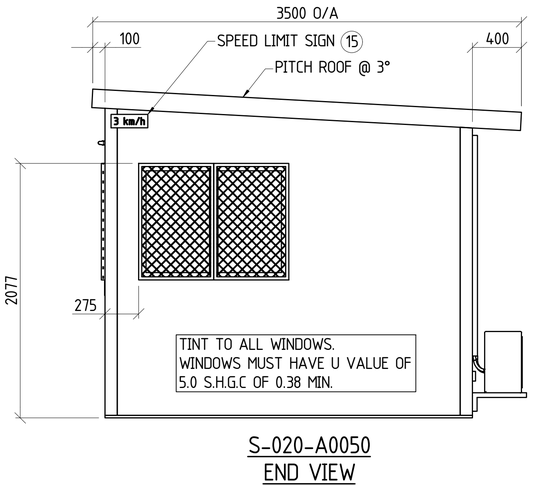


S-020-A0050
END VIEW



S-020-A0050
ELEVATION
HUT LAYOUT
1 : 25



S-020-A0050
END VIEW

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REF DRG No.	REFERENCE DRAWING TITLE

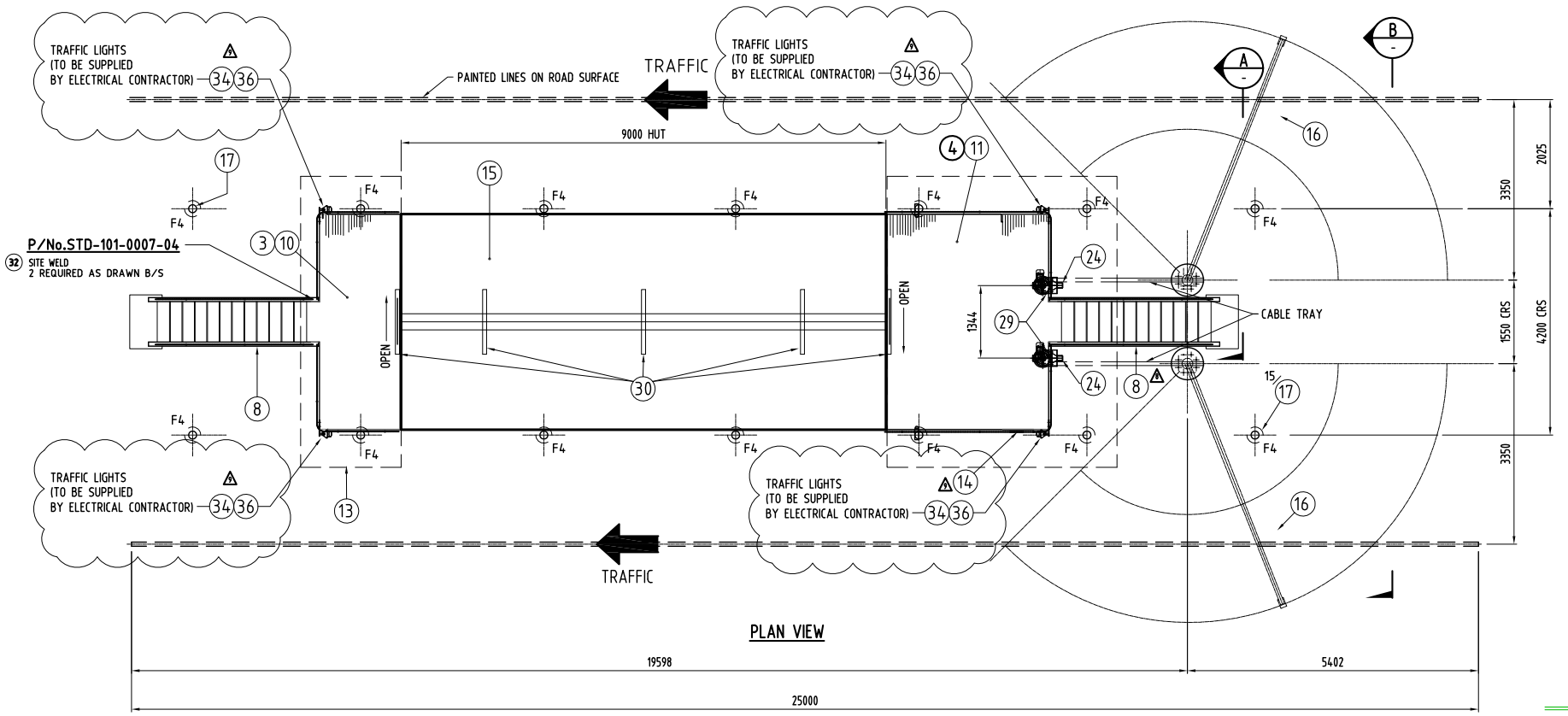
REV	DATE	REVISIONS	BY	CHK	APP
7	15.09.2017	ITEM 39, GPO-UPS ADDED	VP	SM	DF
6	06.09.2017	COMMS CABINET PART NUM ADDED	TTW	JH	CBH
5	11.04.2017	FIRE EXTINGUISHER ADDED	TTW	DD	DD
4	18.01.2017	HOLE IN FLOOR ADDED FOR LOAD CELL CABLE	AME	JW	
3	18.03.2016	NEW SLIDE DOOR ADDED	TTW	VP	MD
2	30.07.2015	REFERENCE DRAWINGS REMOVED	TTW	JB	CBH
1	18.11.2014	NOTES ADDED, WINDOW CHANGED	TTW	VP	CBH
0	2/12/2014	ISSUED FOR CONSTRUCTION	TU	JR	CBH

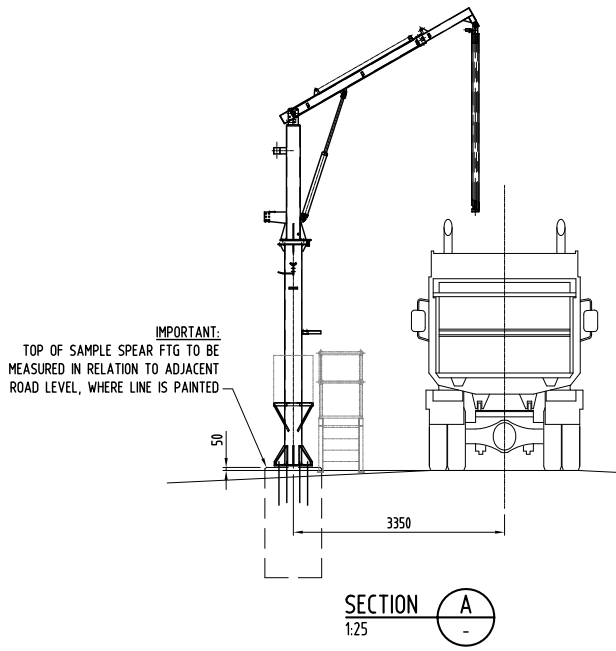
DESIGNER	CBH	14/02/2014
DRAWN	TU	2/12/2014
CHECKED	JR	13/02/2014
APPROVED	CBH	14/02/2014

DRAWING TITLE
WEIGHBRIDGE
AUSTRALIAN STEEL
HUT LAYOUT
GENERAL ARRANGEMENT

SITE: VARIOUS — SIZE: A1
PROJECT: STANDARD DRAWING
DRAWING No: S-020-A0050 — SHEET: 2 OF 2 — REV.: 7

ISSUED FOR COUNCIL APPROVAL - 18/10/2017



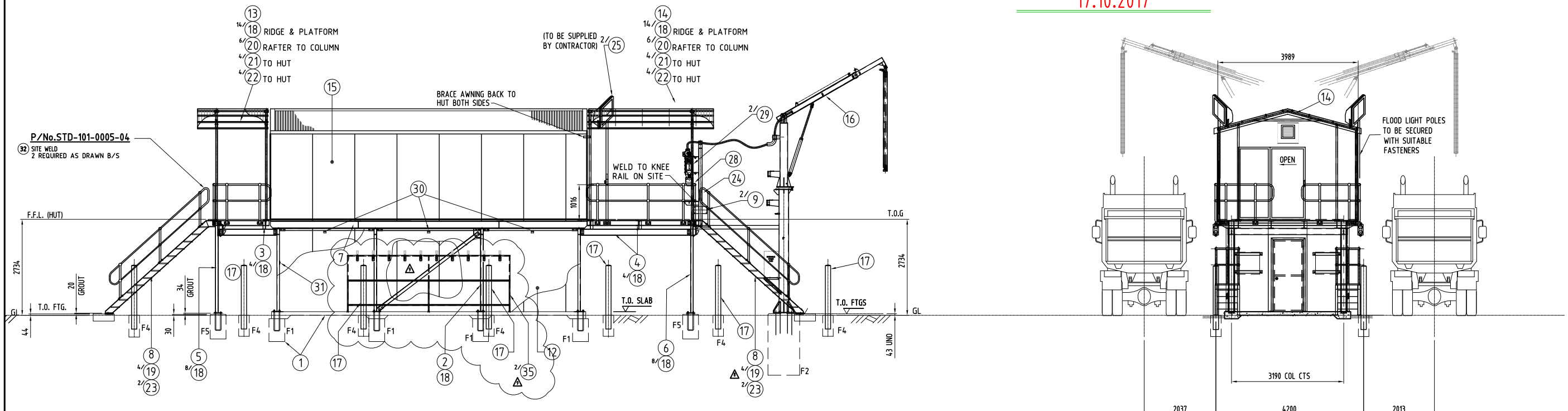


PART NO	DESCRIPTION	NO REQD	MASS (kg)	SUPPLIER OR C.B.H. PART NO
1	FOOTING LAYOUT AND DETAILS	1		STD-101-0001
2	SAMPLE HUT SUPPORT STRUCTURE	1		STD-101-0002-01
3	ACCESS PLATFORM	1		STD-101-0003-01
4	SAMPLING PLATFORM	1		STD-101-0003-02
5	ACCESS PLATFORM SUPPORT	1		STD-101-0004-01
6	SAMPLING PLATFORM SUPPORT	1		STD-101-0004-02
7	SAMPLE HUT FLOOR FRAME	1		STD-101-0011-01
8	ACCESS STAIR	2		STD-101-0005-01
9	VACUUM BOX	2		STD-008-0057-1
10	ACCESS PLATFORM GRATING	1		STD-101-0005-02
11	SAMPLING PLATFORM GRATING	1		STD-101-0005-03
12	UNDER SAMPLE HUT STORE			STD-101-0007
13	ACCESS PLATFORM AWNING	1		STD-101-0009-01
14	SAMPLING PLATFORM AWNING	1		STD-101-0008-01
15	SAMPLE SHED 9m x 4m (BY OTHERS)	1		STD-101-0006
16	HYDRAULIC SAMPLER	2		STD-008-0050
17	BOLLARD	14		STD-101-0001
18	M16 x 45 BOLT C/W NUT & WASHER	60		GRADE 8.8
19	M16 x 40 BOLT C/W NUT & WASHER	8		GRADE 8.8
20	M16 x 90 BOLT C/W NUT & WASHER	12		GRADE 8.8
21	M12 x 110 BOLT C/W NUT & WASHER	8		GRADE 8.8
22	M12 x 40 BOLT C/W NUT & WASHER	8		GRADE 8.8
23	M16 EPOXY SET CHEMICAL ANCHORS	4		100 MIN. EMBEDMENT
24	SAMPLING BLENDER SUPPORT POST	2		STD-101-0010-01
25	FLOODLIGHT & POST DETAILS	2		STD-101-0012
26	NOT USED			
27	NOT USED			
28	PENDENT HOLDER	2		STD-008-058
29	SAMPLE BLENDER	2		STD-069-0000
30	1200mm x TWIN 36 WATT WEATHERPROOF FLUORESCENT LIGHT C/W MESH	5		
31	LIGHT SWITCH	1		
32	32 NB MED. ANGLE CLOSURE BEND (ACB)	2 B/S		STD-101-0005-04
33	*** NOT USED *** - -	-		-
34	TRAFFIC LIGHT BRACKET	4		STD-TRL-0017-01
35	GSS BENCH	2		S-081-0060
36	100mm R&G LED TRAFFIC LIGHTS	4		REFER TO TS6

GENERAL NOTES

1. ALL STEELWORKS, WELDING & FABRICATION TO CONFORM WITH CURRENT S.A.A. CODES AS1554 CAT SP
2. ALL WELDS TO BE 6 FILLET UNLESS NOTED AND 3 FILLET ON 3 PL.
3. REMOVE ALL BURRS & SHARP EDGES.
4. SURFACE TREATMENT: AS PER BULKWEST SPEC. NO TREATMENT TO INSIDE REQ'D.
5. ALL HOLES Ø14 TO SUIT M12 HEX. HEAD BOLT GR. 4.6 U.N.O.

PLANNING APPROVAL
17.10.2017



TYPE 11 SAMPLE HUT-ELEVATION

VIEW B
(HYDRAULIC SAMPLER NOT SHOWN FOR CLARITY)

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Bulkwest ENGINEERING CBH GROUP

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40 MIGUEL ROAD BIBRA LAKE, WA 6163
TEL (08) 9236 5350 FAX (08) 9236 5370

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REF DRG No.	REFERENCE DRAWING TITLE	REF DRG No.	REFERENCE DRAWING TITLE
-	-	-	-

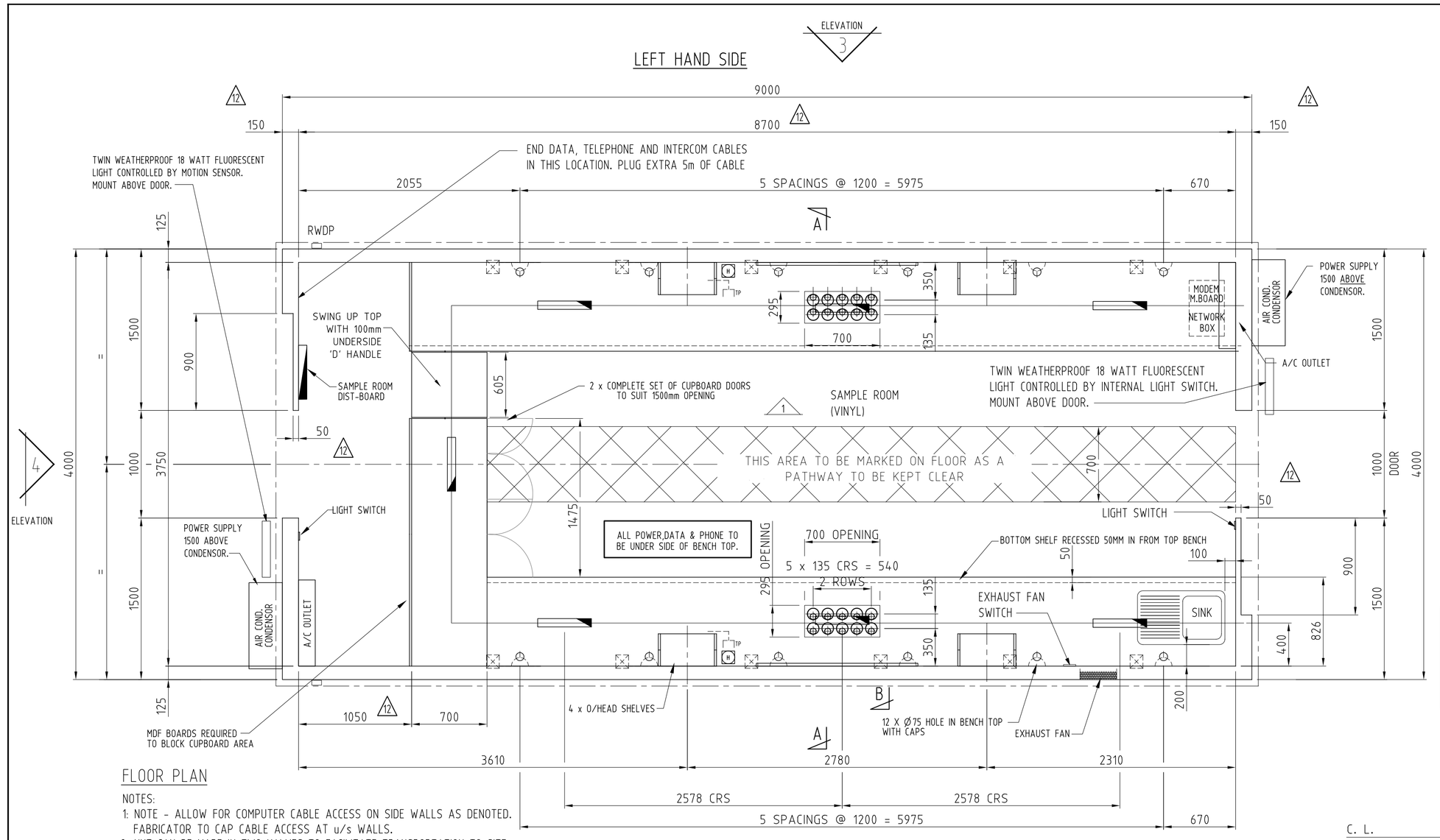
REV	DATE	REVISIONS	BY	CHK	APP
5	20.12.10	2x GATES REMOVED	AME	VP	NG
9	07.09.17	GSS BENCH ADDED & ITEM 36 TRAFIC LIGHT	VP	AME	PC
8	03.05.2017	SECOND STAIRWAY ADDED	TTW	DD	DD
7	30.03.2016	SLIDING DOORS CHANGED, END WALLS THICKENED	TTW	AME	CBH
6	02.09.09	REPLACED STEEL CLADDING WITH INSULATED WALL PANELS, ADDED DOOR	DRH	AME	MD
0	30.08.09	ISSUED FOR CONSTRUCTION	J.D.	P.B.	E.M.

SCALE NTS
NORTH POINT

DESIGNED	BULKWEST	2009
DRAWN	J.D'cruze	02.08.09
CHECKED	E.Martin	27.08.09
APPROVED	B.W.E.	2009

DRAWING TITLE
HYDRAULIC SAMPLE PLATFORM
TYPE 11 - SAMPLE HUT
GENERAL ARRANGEMENT

SITE: VARIOUS
SHEET: B1
PROJECT: TYPE 11 SAMPLE HUT
DRAWING NO: STD-101-0000
REV.: 9



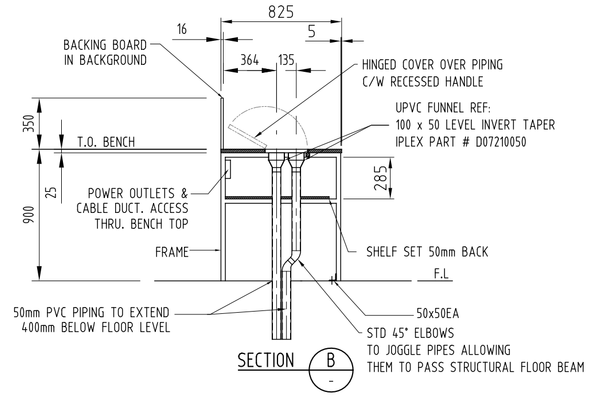
FLOOR PLAN

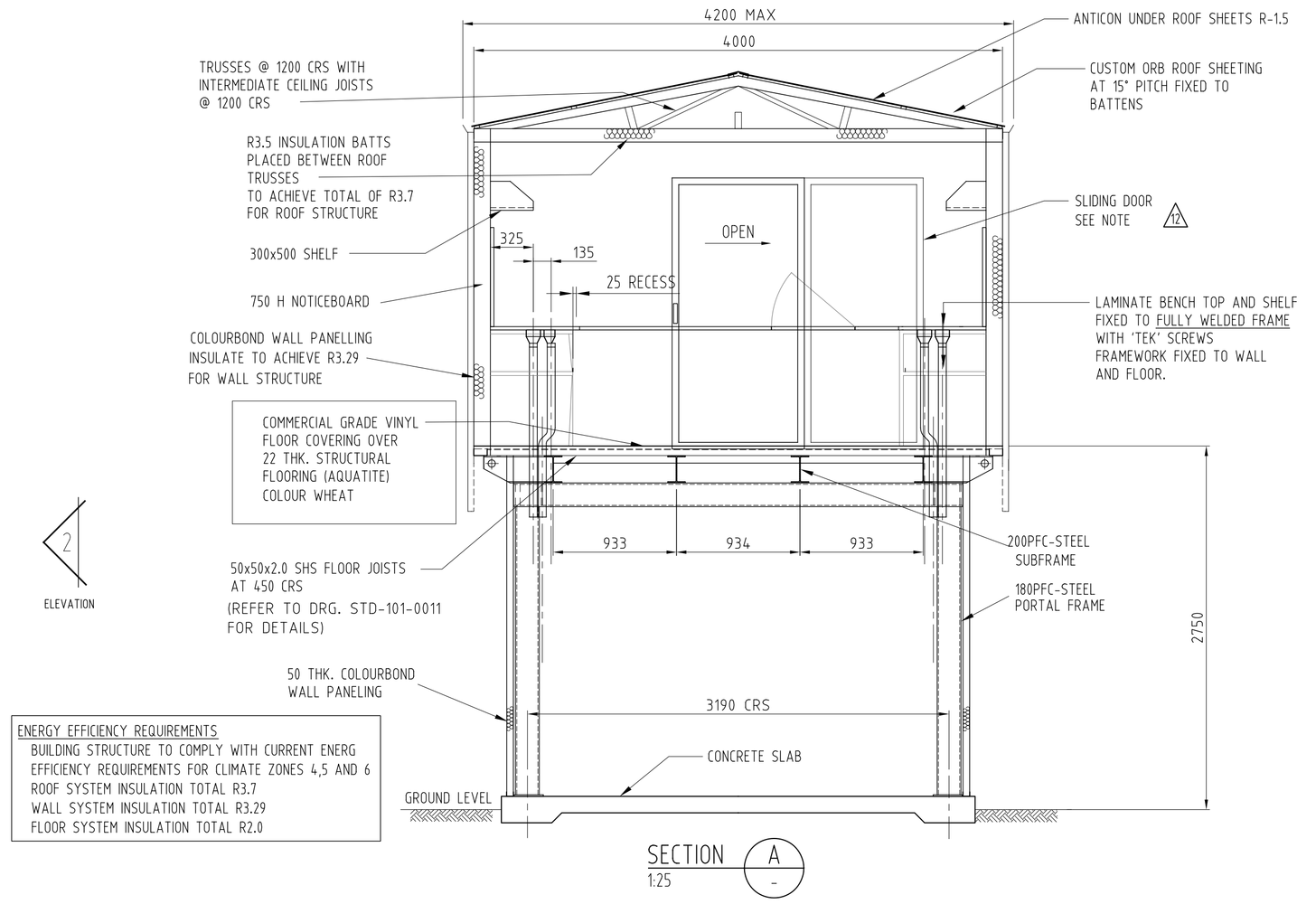
NOTES:
1. NOTE - ALLOW FOR COMPUTER CABLE ACCESS ON SIDE WALLS AS DENOTED. FABRICATOR TO CAP CABLE ACCESS AT u/s WALLS.
2. HUT CAN BE MADE IN TWO HALVES TO FACILITATE TRANSPORTATION TO SITE.
3. LABORATORY TAP DETAILS: TL07FJ1/16C - CP LAB SET 3 WAY TYPE 7 (FIXED, J/V AERATED NOZZLE, XT TUBE NOZZLES).
4. FLOOR TO BE SEALED TO WALL WITH ALUMINIUM COVEING OR EQUIVLANT.
5. READ IN CONJUNCTION WITH DRAWING STD-101-0013 (ELECTRICAL LAYOUT)
6. REFER DRG. No. STD-101-0100 FOR ELECTRICAL DISTRIBUTION BOARD CIRCUIT DETAILS.

NOTE
AIR CONDITIONER TO BE 1.5kW REVERSE CYCLE SPLIT INVERTER SYSTEM. TWO REQUIRED PER SAMPLE HUT.
IMPORTANT
AIR CONDITIONER TO BE MOUNTED TO SMPLE HUT. PRE-WIRED AND COMMISSIONED BEFORE SENDING TO SITE.

SLIDING DOOR NOTE:
'FRONTLINE WINDOWS' DOOR: +J1 2090-1900 1S1F SECURITY SLIDING DOOR OBSCURED WITH ULTRA-VISION ES 0.38 FILM

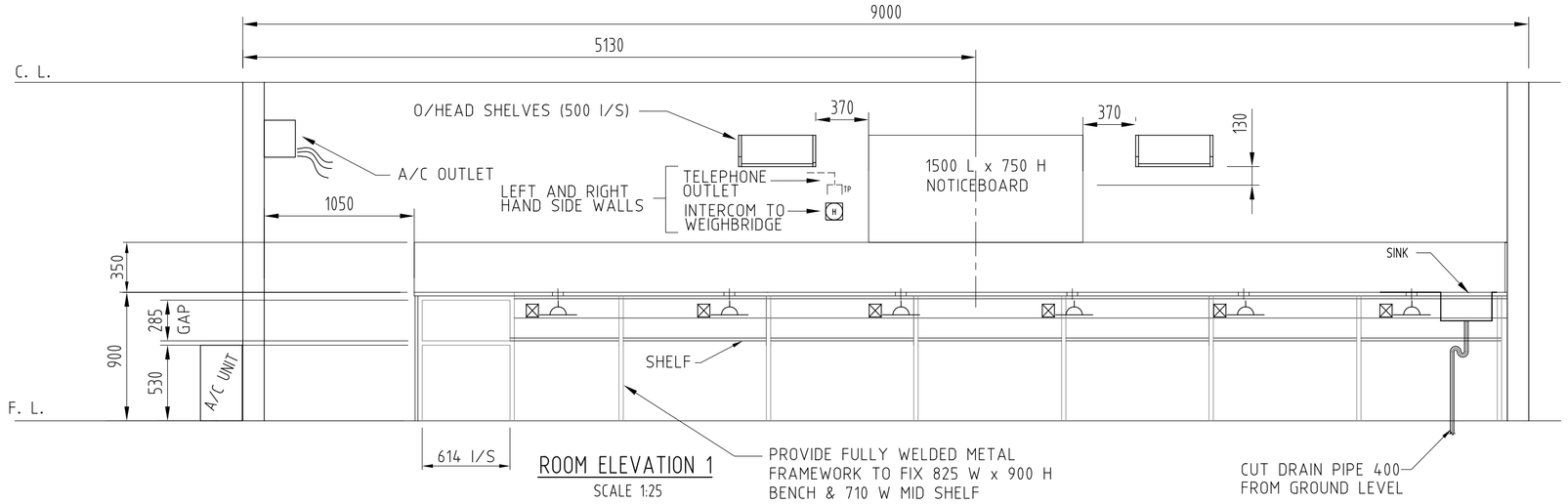
RIGHT HAND SIDE



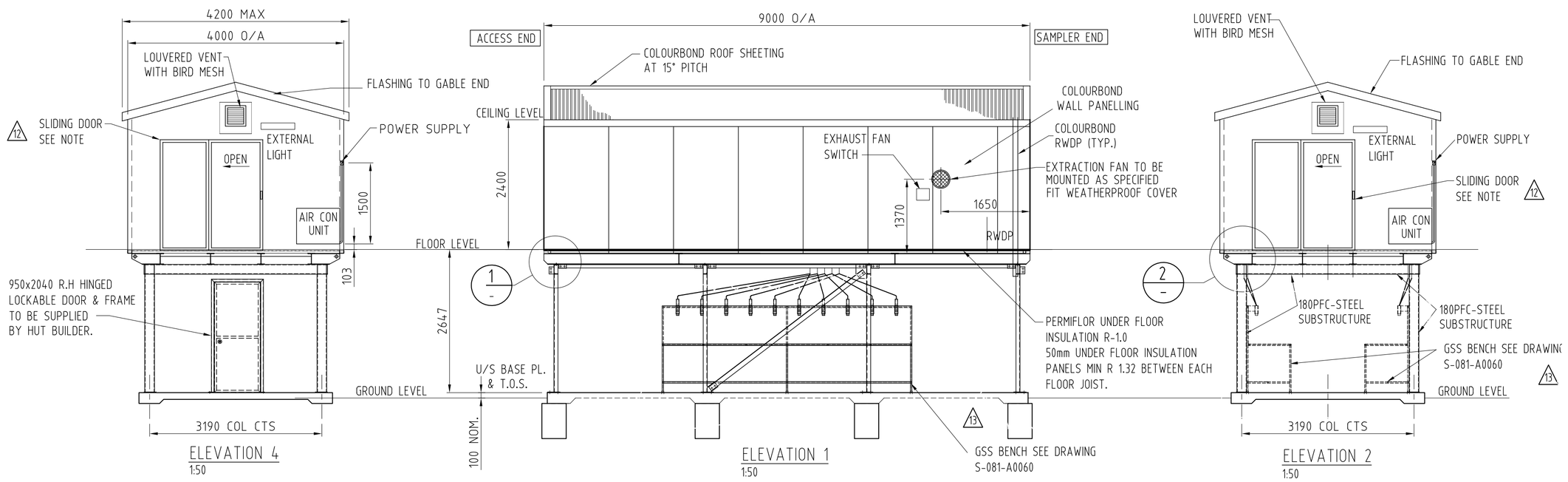


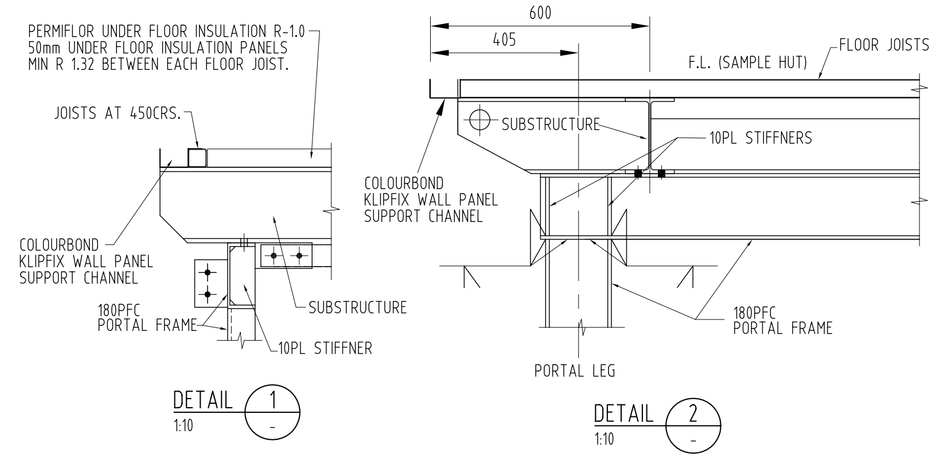
ENERGY EFFICIENCY REQUIREMENTS
BUILDING STRUCTURE TO COMPLY WITH CURRENT ENERG EFFICIENCY REQUIREMENTS FOR CLIMATE ZONES 4,5 AND 6
ROOF SYSTEM INSULATION TOTAL R3.7
WALL SYSTEM INSULATION TOTAL R3.29
FLOOR SYSTEM INSULATION TOTAL R2.0

SECTION A
1:25



PLANNING APPROVAL
17.10.2017





BUILDING
SUPPLIER TO INSTALL ON SITE INCLUDING COMPLEXING MATERIALS.
NOTE:
TRANSPORT & LIFTING ONTO PLATFORM BY OTHERS

ELECTRICAL LEGEND
- VDSL DATA OUTLET
- DUAL POWER OUTLET
- 1.5m 3 TROFFER F40/C50 DAY LIGHT FLUORESCENT FITTINGS
- INTERCOM
- TELEPHONE OUTLET
- DISTRIBUTION BOARD

REFER DRG. STD-101-0013 FOR DETAILS OF ELECTRICAL EXTERNAL EQUIPMENT

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-		-	
-		-	
-		-	
-		-	
-		-	
STD-101-0000	GENERAL ARRANGEMENT	-	

REV	DATE	REVISIONS	BY	CHK	APP
10	30-01-13	SINGLE LINE DIAGRAM REMOVED. NOTE 6 ADDED.	WSC	JH	JH
9	23-04-12	ELECTRICAL MODIFICATIONS AND ADDITIONS AS NOTED. TITLE CHANGE.	WSC	JH	JH
13	07.09.17	GSS BENCH ADDED	VP	AME	PC
12	30.03.2016	SLIDING DOORS CHANGED, END WALLS THICKENED	TTW	AME	CBH
11	19.02.14	REPLACED STEEL CLADDING WITH INSULATED WALL PANELS	DRH	AME	MD
0	24.07.09	ISSUED FOR CONSTRUCTION	J.D.	PB	EM

SCALE NTS
NORTH POINT

DESIGNED	BULKWEST	2009
DRAWN	J.D'cruze	24.07.09
CHECKED	PB	27.08.09
APPROVED	EM	29.08.09

DRAWING TITLE
TYPE 11 SAMPLE PLATFORM
SAMPLE HUT- SAMPLE HUT
INTERNAL HUT DETAILS INCLUDING ELECTRICAL
FLOOR LAYOUT ELEVATION & DETAILS

SITE: VARIOUS
SHEET: B1
PROJECT: TYPE 11 SAMPLE HUT
DRAWING NO: STD-101-0006
REV.: 13

COOPERATIVE BULK HANDLING LTD
ABN 29 256 604 947

Gayfer House, 30 Delhi Street
West Perth, Western Australia 6005
GPO Box L886
Perth, Western Australia 6842
Grower Service Centre
1800 199 083
T + 61 8 9237 9600
F + 61 8 9322 3942
info@cbh.com.au
cbh.com.au

OUR REF:
YOUR REF: MDPA012(2018)
ENQ: Tim Dolling
DIRECT LINE: 08 9216 6094

15 April 2018

Mr Peter Zenni
Executive Manager Development Services
Shire of Merredin
PO Box 42
Merredin WA 6415

Dear Peter

REQUEST TO EXTEND TEMPORARY PLANNING APPROVAL

I refer to temporary planning approval dated 18 July 2018 for access, truck marshalling and weighing, grain sampling and staff facilities at CBH's western open bulkheads site on lot 503 Gabo Avenue Merredin.

The approval will lapse on 18 July 2019 and request an extension of 12 months to 18 July 2020.

Please find attached application for development approval form and confirm proposed development includes the following:

- Access from Goldfields Road
- Truck marshalling area for 15 trucks
- Grain sampling platform/hut and two spears
- Staff lunchroom, toilets, septic system and carpark
- Weighbridge and hut
- Internal roads and stormwater drainage.

I also confirm the following drawings enclosed with the application for planning approval dated 6 April 2018 are valid:

- CBH overall general arrangement (site) plan 2018-438-1101_A
- CBH general arrangement drawings STD-101-0000_9 and 0006_13 for the sample platform/hut
- CBH general arrangement drawings S-020-A0000_2 sheet 2 of 5 and S-020-A0050_7 sheet 2 of 2 for the weighbridge and hut
- Fleetwood floor plans and elevations for the lunchroom LR-01-A-100_A and toilets MTF-02-A-100_A
- CBH overall site drainage plan 2018-438-1301_A.

If you have any enquiries or require further information, please contact me on 9216 6094, 0439 969 835 or by email at tim.dolling@cbh.com.au.

Yours sincerely
For: Co-operative Bulk Handling Limited

Tim Dolling
Planning &
Approvals Coordinator

Enc

SHIRE OF MERREDIN
HEART OF THE WHEATBELT

APPLICATION FOR PLANNING APPROVAL

LOCAL PLANNING SCHEME No. 6 - SCHEDULE 6 - (CLAUSE. 9.1.1)

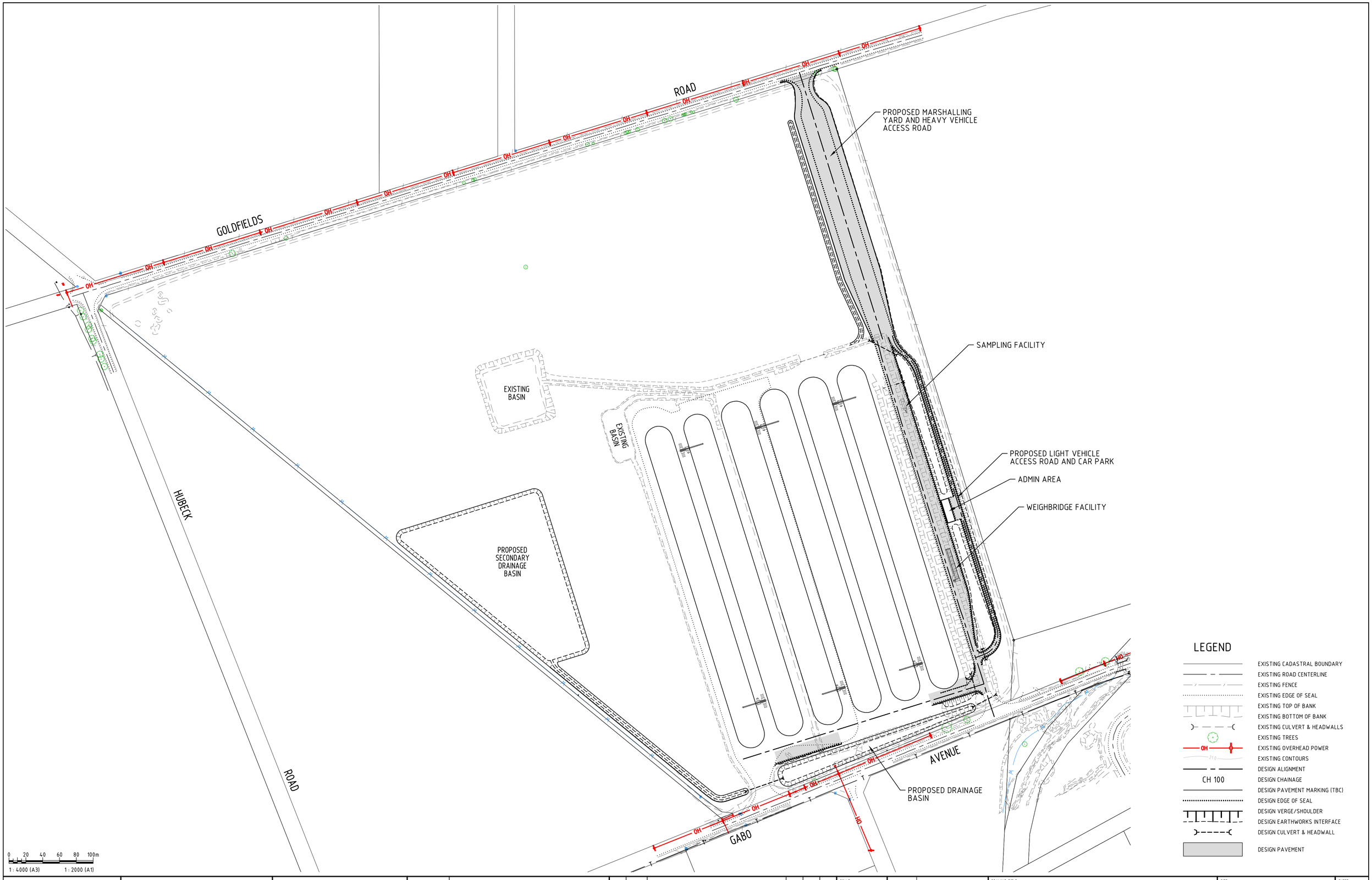
OWNERS DETAILS				
Name/s:	Cooperative Bulk Handling			
Address:	GPO Box L886 Perth WA			
				Post Code: 6842
Phone work:	9216 6094	Phone home:		Fax:
Mobile:	0439 969 835	Email: tim.dolling@cbh.com.au		
Signature:	T Dolling		Date:	15 April 2019
Signature:			Date:	
NB: The owner/s signature/s are required for your application to be processed.				

APPLICANTS DETAILS			
Name: As above			
Address:			
			Post Code:
Contact person for correspondence:			
Phone work:		Phone home:	Fax:
Mobile:		Email:	
Signature:	T Dolling	Date: 15 April 2019	

PROPERTY DETAILS					
Lot No:	503	House/Street No:		Location No:	
Street name:	Gabo Avenue				
Suburb:	Merredin			Post Code:	6415
Nearest street intersection:					
Diagram or plan:	Plan 53957	Certificate of title:	2667	Folio: 179	
Title encumbrances (e.g. easements, restrictive covenants)					

PROPOSED OR EXISTING BUILDING/LAND USE	
Description of proposed development and/or land use:	Access, truck marshalling and weighing, grain sampling and staff facilities.
Nature of any existing buildings and/or land use:	Grain storage.
Approximate cost of proposed development:	$ 3,391,707.00
Estimated time of completion:	Seven months.

OFFICE USE ONLY	
Acceptance Officer's initials :	*Date received:*
Local government reference no:	



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WEST PERTH
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PH (08) 9237 9600
FAX (08) 9322 3942

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REF DRG No.	REFERENCE DRAWING TITLE	REV	DATE	REVISIONS	BY	CHK'D	APP'D
-	-	A	22.03.18	50% DESIGN REVIEW	CRF	LD	

SCALE 1:2000

NORTH POINT

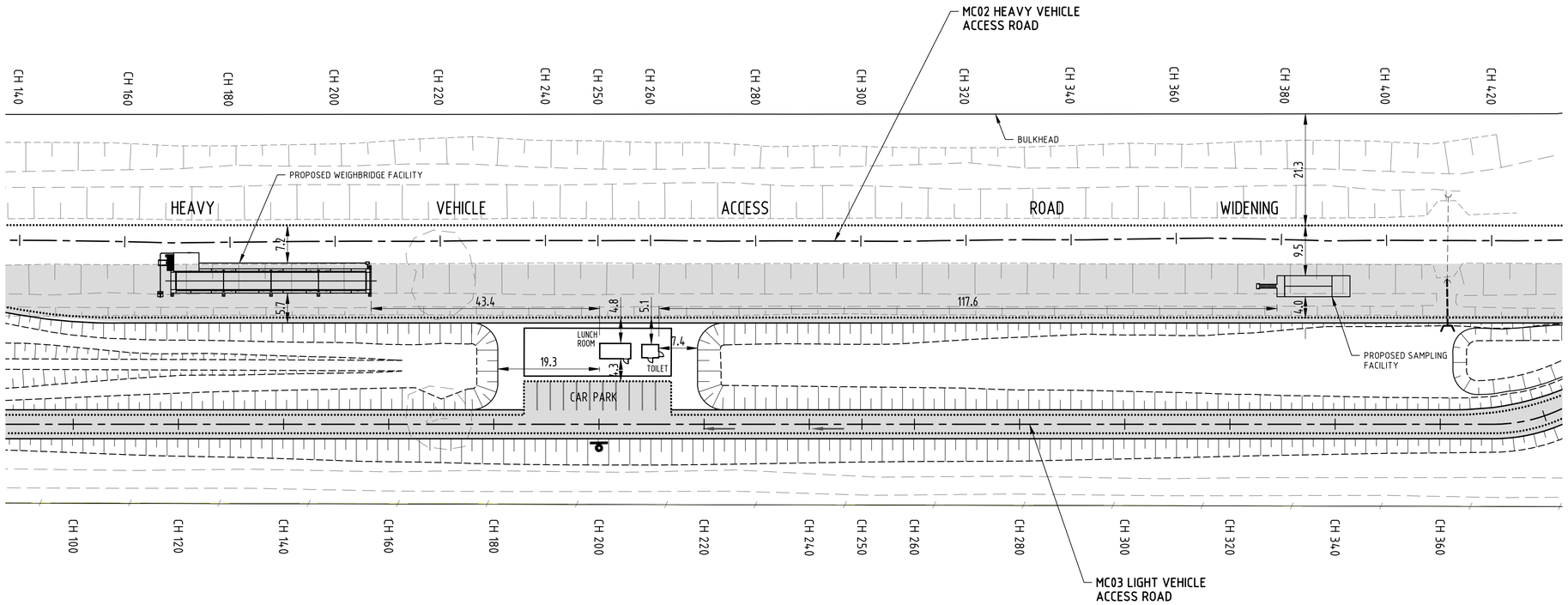
DESIGNED	JC	28.02.18
DES. CHECK	LD	29.02.18
DRAWN	CRF	22.03.18
CHECKED	LD	22.03.18
APPROVED		

DRAWING TITLE
2017 MERREDIN
MARSHALLING, SAMPLING & WEIGHBRIDGE FACILITIES
OVERALL GENERAL ARRANGEMENT

SITE 438
SHEET SIZE A1
PROJECT SITE UPGRADE
DRAWING NO 2018-438-1101
REV. A

NOTES:

1. ALL SIGNAGE TO BE INSTALLED IN ACCORDANCE WITH MRWA STANDARD DRAWING 9548-106
2. HAZARD MARKERS SIGNS TO BE IN ACCORDANCE WITH MRWA STANDARD DRAWING 9648-17
3. ALL SIGNAGE TO BE INSTALL ON 76X38X2.0RHS SIGN POSTS
4. ALL SIGNAGE TO MEET AS 1906.1 CLASS 2 RETROREFLECTIVE SIGNAGE MATERIAL
5. LINEMARKING IN ACCORDANCE WITH MRWA STANDARD DRAWING 9331-0198
6. LINEMARKING SHALL BE WATER BORNE ROAD MARKING PAINT AND SHALL BE AN APAS APPROVED PRODUCT WHICH COMPLIES WITH APAS SPECIFICATION GPC-P-41/5



PLAN
1:500

LEGEND

- EXISTING CADASTRAL BOUNDARY
- EXISTING ROAD CENTERLINE
- EXISTING FENCE
- EXISTING EDGE OF SEAL
- EXISTING TOP OF BANK
- EXISTING BOTTOM OF BANK
- EXISTING CULVERT & HEADWALLS
- EXISTING TREES
- EXISTING OVERHEAD POWER
- EXISTING CONTOURS
- DESIGN ALIGNMENT
- CH 100 DESIGN CHAINAGE
- DESIGN PAVEMENT MARKING (TBC)
- DESIGN EDGE OF SEAL
- DESIGN VERGE/SHOULDER
- DESIGN EARTHWORKS INTERFACE
- DESIGN CULVERT & HEADWALL
- DESIGN SINGLE POLE SIGN
- DESIGN PAVEMENT

0 10 20 25m
1 : 1000 (A3) 1 : 500 (A1)

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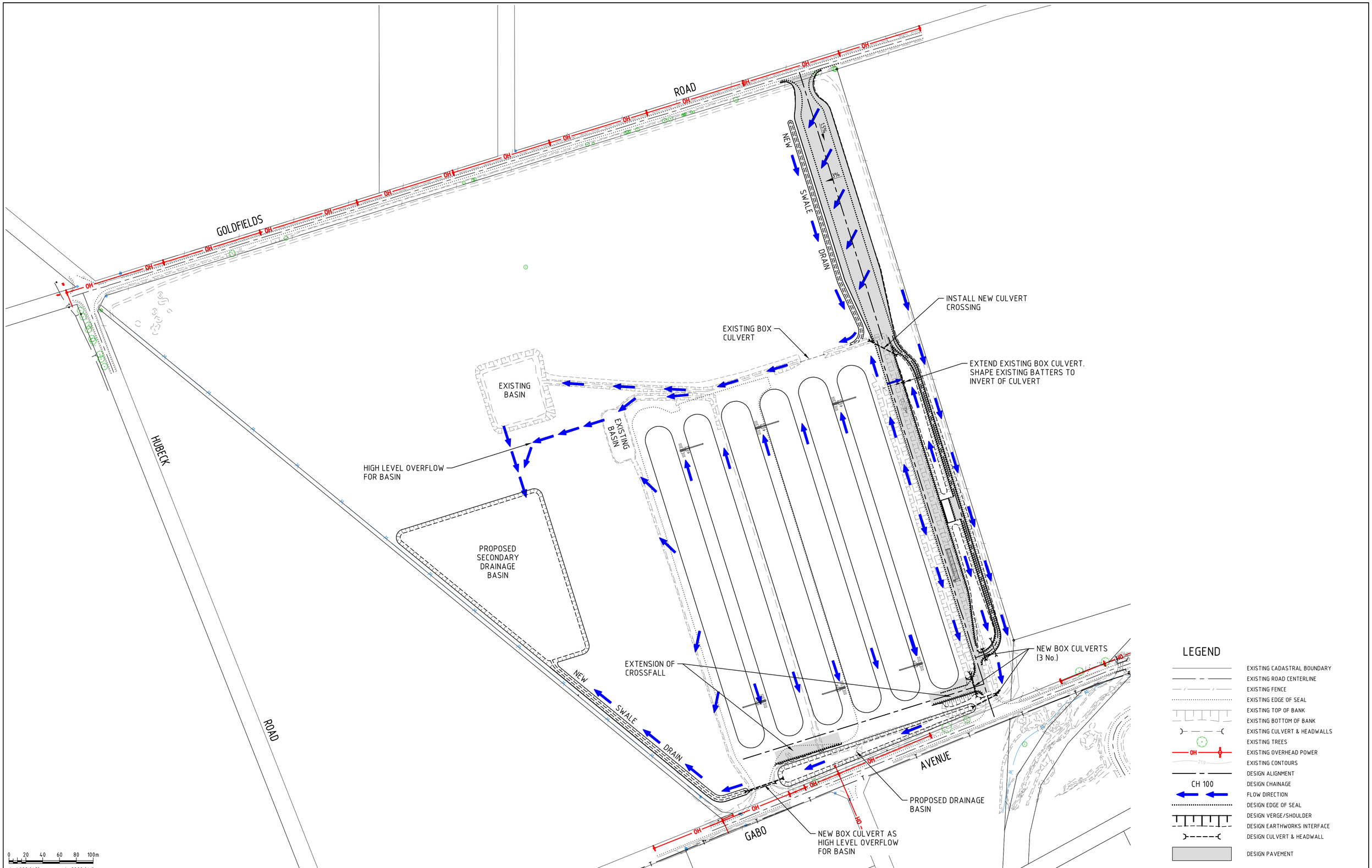
		A	10.05.18	ISSUED FOR INFORMATIO	CRF	LD	

SCALE 1:500
NORTH POINT

DESIGNED	JC	28.02.18
DES. CHECK	LD	29.02.18
DRAWN	CRF	10.05.18
CHECKED	LD	10.05.18
APPROVED		

DRAWING TITLE
2017 MERREDIN
MARSHALLING, SAMPLING & WEIGHBRIDGE FACILITIES
SITE BUILDING SETOUT

SITE 438
SHEET SIZE A1
PROJECT SITE UPGRADE
DRAWING NO 2018-438-1205
REV. A



LEGEND

- EXISTING CADASTRAL BOUNDARY
- EXISTING ROAD CENTERLINE
- EXISTING FENCE
- EXISTING EDGE OF SEAL
- EXISTING TOP OF BANK
- EXISTING BOTTOM OF BANK
- EXISTING CULVERT & HEADWALLS
- EXISTING TREES
- EXISTING OVERHEAD POWER
- EXISTING CONTOURS
- DESIGN ALIGNMENT
- CH 100 DESIGN CHAINAGE
- FLOW DIRECTION
- DESIGN EDGE OF SEAL
- DESIGN VERGE/SHOULDER
- DESIGN EARTHWORKS INTERFACE
- DESIGN CULVERT & HEADWALL
- DESIGN PAVEMENT

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REF DRG No.	REFERENCE DRAWING TITLE	REV	DATE	REVISIONS	BY	CHK'D	APP'D
-	-	A	22.03.18	50% DESIGN REVIEW	CRF	LD	

SCALE 1:2000

NORTH POINT

DESIGNED	JC	28.02.18
DES. CHECK	LD	29.02.18
DRAWN	CRF	22.03.18
CHECKED	LD	22.03.18
APPROVED		

DRAWING TITLE
2017 MERREDIN
MARSHALLING, SAMPLING & WEIGHBRIDGE FACILITIES
OVERALL SITE DRAINAGE PLAN

SITE 438
SHEET SIZE A1
PROJECT SITE UPGRADE
DRAWING NO 2018-438-1301
REV. A

DRAINAGE STRATEGY
Proposed Development

Runoff Volume = Catchment Area x Rainfall Depth

Catchment Area Paved	191567	m2			
Infiltration Coefficient	0.9				
IFD Duration	1 in 100 Year ARI Rainfall Depth				Runoff Volume
1 min	4.87	mm	=	0.00487 m	839.64 m3
2 min	7.47	mm	=	0.00747 m	1287.90 m3
3 min	10.3	mm	=	0.0103 m	1775.83 m3
4 min	13	mm	=	0.013 m	2241.33 m3
5 min	15.4	mm	=	0.0154 m	2655.12 m3
10 min	23.9	mm	=	0.0239 m	4120.61 m3
15 min	28.9	mm	=	0.0289 m	4982.66 m3
30 min	36.8	mm	=	0.0368 m	6344.70 m3
1 hr	43.7	mm	=	0.0437 m	7534.33 m3
2 hr	51.6	mm	=	0.0516 m	8896.37 m3
3 hr	57.6	mm	=	0.0576 m	9930.83 m3
6 hr	71.4	mm	=	0.0714 m	12310.10 m3
12 hr	90.3	mm	=	0.0903 m	15568.65 m3
24 hr	112	mm	=	0.112 m	19309.95 m3
48 hr	129	mm	=	0.129 m	22240.93 m3
72 hr	135	mm	=	0.135 m	23275.39 m3
96 hr	136	mm	=	0.136 m	23447.80 m3
120 hr	137	mm	=	0.137 m	23620.21 m3
144 hr	137	mm	=	0.137 m	23620.21 m3
168 hr	137	mm	=	0.137 m	23620.21 m3

Runoff Volume Combined
1808
2773
3823
4825
5716
8871
10727
13660
16221
19153
21381
26503
33518
41573
47883
50111
50482
50853
50853
50853

Infiltration Volume = Basin Area (Base) x Infiltration Rate x Design Storm Duration

Sandy Clay

Infiltration Rate	Storm Duration	Basin Area (Mid Level)	Infiltration Volume
0.00001 m/s	60 s	20600 m2	12 m3
0.00001 m/s	120 s	20600 m2	25 m3
0.00001 m/s	180 s	20600 m2	37 m3
0.00001 m/s	240 s	20600 m2	49 m3
0.00001 m/s	300 s	20600 m2	62 m3
0.00001 m/s	600 s	20600 m2	124 m3
0.00001 m/s	900 s	20600 m2	185 m3
0.00001 m/s	1800 s	20600 m2	371 m3
0.00001 m/s	3600 s	20600 m2	742 m3
0.00001 m/s	7200 s	20600 m2	1483 m3
0.00001 m/s	10800 s	20600 m2	2225 m3
0.00001 m/s	21600 s	20600 m2	4450 m3
0.00001 m/s	43200 s	20600 m2	8899 m3
0.00001 m/s	86400 s	20600 m2	17798 m3
0.00001 m/s	172800 s	20600 m2	35597 m3
0.00001 m/s	259200 s	20600 m2	53395 m3
0.00001 m/s	345600 s	20600 m2	71194 m3
0.00001 m/s	432000 s	20600 m2	88992 m3
0.00001 m/s	518400 s	20600 m2	106790 m3
0.00001 m/s	604800 s	20600 m2	124589 m3

Required Basin Volume > Runoff Volume - Infiltration Volume

Required Basin Volume
1795 m3
2748 m3
3786 m3
4776 m3
5655 m3
8748 m3
10542 m3
13289 m3
15479 m3
17670 m3
19156 m3
22053 m3
24619 m3
23775 m3
12287 m3
-3285 m3
-20712 m3
-38139 m3
-55937 m3
-73736 m3

Runoff Volume = Catchment Area x Rainfall Depth

Catchment Area Unpaved	331299	m2			
Infiltration Coefficient	0.6				
IFD Duration	1 in 100 Year ARI Rainfall Depth				Runoff Volume
1 min	4.87	mm	=	0.00487 m	968.06 m3
2 min	7.47	mm	=	0.00747 m	1484.88 m3
3 min	10.3	mm	=	0.0103 m	2047.43 m3
4 min	13	mm	=	0.013 m	2584.13 m3
5 min	15.4	mm	=	0.0154 m	3061.20 m3
10 min	23.9	mm	=	0.0239 m	4750.83 m3
15 min	28.9	mm	=	0.0289 m	5744.72 m3
30 min	36.8	mm	=	0.0368 m	7315.08 m3
1 hr	43.7	mm	=	0.0437 m	8686.66 m3
2 hr	51.6	mm	=	0.0516 m	10257.02 m3
3 hr	57.6	mm	=	0.0576 m	11449.69 m3
6 hr	71.4	mm	=	0.0714 m	14192.85 m3
12 hr	90.3	mm	=	0.0903 m	17949.78 m3
24 hr	112	mm	=	0.112 m	22263.29 m3
48 hr	129	mm	=	0.129 m	25642.54 m3
72 hr	135	mm	=	0.135 m	26835.22 m3
96 hr	136	mm	=	0.136 m	27034.00 m3
120 hr	137	mm	=	0.137 m	27232.78 m3
144 hr	137	mm	=	0.137 m	27232.78 m3
168 hr	137	mm	=	0.137 m	27232.78 m3

Basin Details

Depth	1.2	m	Average Area	Basin Volume	
L	150	m	20600 m2	24720 m3	
B	56	m			
H	200	m			

DRAINAGE STRATEGY
Ultimate Development Option 1

BASIN 1

Runoff Volume = Catchment Area x Rainfall Depth

Catchment Area Paved	167642	m2				
Infiltration Coefficient	0.9					
IFD Duration	1 in 100 Year ARI Rainfall Depth					Runoff Volume
1	min	4.87	mm	=	0.00487 m	734.77 m3
2	min	7.47	mm	=	0.00747 m	1127.06 m3
3	min	10.3	mm	=	0.0103 m	1554.04 m3
4	min	13	mm	=	0.013 m	1961.41 m3
5	min	15.4	mm	=	0.0154 m	2323.52 m3
10	min	23.9	mm	=	0.0239 m	3605.98 m3
15	min	28.9	mm	=	0.0289 m	4360.37 m3
30	min	36.8	mm	=	0.0368 m	5552.30 m3
1	hr	43.7	mm	=	0.0437 m	6593.36 m3
2	hr	51.6	mm	=	0.0516 m	7785.29 m3
3	hr	57.6	mm	=	0.0576 m	8690.56 m3
6	hr	71.4	mm	=	0.0714 m	10772.67 m3
12	hr	90.3	mm	=	0.0903 m	13624.27 m3
24	hr	112	mm	=	0.112 m	16898.31 m3
48	hr	129	mm	=	0.129 m	19463.24 m3
72	hr	135	mm	=	0.135 m	20368.50 m3
96	hr	136	mm	=	0.136 m	20519.38 m3
120	hr	137	mm	=	0.137 m	20670.26 m3
144	hr	137	mm	=	0.137 m	20670.26 m3
168	hr	137	mm	=	0.137 m	20670.26 m3

Runoff Volume Combined
1013
1554
2143
2705
3204
4973
6013
7657
9093
10737
11985
14856
18789
23304
26841
28090
28298
28506
28506
28506

Infiltration Volume = Basin Area (Base) x Infiltration Rate x Design Storm Duration

Sandy Clay

Infiltration Rate	Storm Duration	Basin Area (Mid Level)	Infiltration Volume
0.00001 m/s	60 s	20600 m2	12 m3
0.00001 m/s	120 s	20600 m2	25 m3
0.00001 m/s	180 s	20600 m2	37 m3
0.00001 m/s	240 s	20600 m2	49 m3
0.00001 m/s	300 s	20600 m2	62 m3
0.00001 m/s	600 s	20600 m2	124 m3
0.00001 m/s	900 s	20600 m2	185 m3
0.00001 m/s	1800 s	20600 m2	371 m3
0.00001 m/s	3600 s	20600 m2	742 m3
0.00001 m/s	7200 s	20600 m2	1483 m3
0.00001 m/s	10800 s	20600 m2	2225 m3
0.00001 m/s	21600 s	20600 m2	4450 m3
0.00001 m/s	43200 s	20600 m2	8899 m3
0.00001 m/s	86400 s	20600 m2	17798 m3
0.00001 m/s	172800 s	20600 m2	35597 m3
0.00001 m/s	259200 s	20600 m2	53395 m3
0.00001 m/s	345600 s	20600 m2	71194 m3
0.00001 m/s	432000 s	20600 m2	88992 m3
0.00001 m/s	518400 s	20600 m2	106790 m3
0.00001 m/s	604800 s	20600 m2	124589 m3

Required Basin Volume > Runoff Volume - Infiltration Volume

Required Basin Volume
1001 m3
1530 m3
2106 m3
2655 m3
3143 m3
4849 m3
5828 m3
7286 m3
8351 m3
9253 m3
9760 m3
10407 m3
9890 m3
5506 m3
-8755 m3
-25305 m3
-42896 m3
-60486 m3
-78285 m3
-96083 m3

Runoff Volume = Catchment Area x Rainfall Depth

Catchment Area Unpaved	95324	m2				
Infiltration Coefficient	0.6					
IFD Duration	1 in 100 Year ARI Rainfall Depth					Runoff Volume
1	min	4.87	mm	=	0.00487 m	278.54 m3
2	min	7.47	mm	=	0.00747 m	427.24 m3
3	min	10.3	mm	=	0.0103 m	589.10 m3
4	min	13	mm	=	0.013 m	743.53 m3
5	min	15.4	mm	=	0.0154 m	880.79 m3
10	min	23.9	mm	=	0.0239 m	1366.95 m3
15	min	28.9	mm	=	0.0289 m	1652.92 m3
30	min	36.8	mm	=	0.0368 m	2104.75 m3
1	hr	43.7	mm	=	0.0437 m	2499.40 m3
2	hr	51.6	mm	=	0.0516 m	2951.23 m3
3	hr	57.6	mm	=	0.0576 m	3294.40 m3
6	hr	71.4	mm	=	0.0714 m	4083.68 m3
12	hr	90.3	mm	=	0.0903 m	5164.65 m3
24	hr	112	mm	=	0.112 m	6405.77 m3
48	hr	129	mm	=	0.129 m	7378.08 m3
72	hr	135	mm	=	0.135 m	7721.24 m3
96	hr	136	mm	=	0.136 m	7778.44 m3
120	hr	137	mm	=	0.137 m	7835.63 m3
144	hr	137	mm	=	0.137 m	7835.63 m3
168	hr	137	mm	=	0.137 m	7835.63 m3

Basin 1 Details (from proposed development)

Depth	1.2 m	Average Area	Basin Volume
L	150 m	20600 m2	24720 m3
B	56 m		
H	200 m		

BASIN 2

Runoff Volume = Catchment Area x Rainfall Depth

Catchment Area Paved	217525	m2				
Infiltration Coefficient	0.9					
IFD Duration	1 in 100 Year ARI Rainfall Depth					Runoff Volume
1	min	4.87	mm	=	0.00487 m	953.41 m3
2	min	7.47	mm	=	0.00747 m	1462.42 m3
3	min	10.3	mm	=	0.0103 m	2016.46 m3
4	min	13	mm	=	0.013 m	2545.04 m3
5	min	15.4	mm	=	0.0154 m	3014.90 m3
10	min	23.9	mm	=	0.0239 m	4678.96 m3
15	min	28.9	mm	=	0.0289 m	5657.83 m3
30	min	36.8	mm	=	0.0368 m	7204.43 m3
1	hr	43.7	mm	=	0.0437 m	8555.26 m3
2	hr	51.6	mm	=	0.0516 m	10101.86 m3
3	hr	57.6	mm	=	0.0576 m	11276.50 m3
6	hr	71.4	mm	=	0.0714 m	13978.16 m3
12	hr	90.3	mm	=	0.0903 m	17678.26 m3
24	hr	112	mm	=	0.112 m	21926.52 m3
48	hr	129	mm	=	0.129 m	25254.65 m3
72	hr	135	mm	=	0.135 m	26429.29 m3
96	hr	136	mm	=	0.136 m	26625.06 m3
120	hr	137	mm	=	0.137 m	26820.83 m3
144	hr	137	mm	=	0.137 m	26820.83 m3
168	hr	137	mm	=	0.137 m	26820.83 m3

Runoff Volume Combined
1077
1652
2278
2876
3406
5287
6393
8140
9666
11414
12741
15794
19974
24774
28534
29862
30083
30304
30304
30304

Infiltration Volume = Basin Area (Base) x Infiltration Rate x Design Storm Duration

Sandy Clay

Infiltration Rate	Storm Duration	Basin Area (Mid Level)	Infiltration Volume
0.00001 m/s	60 s	12265 m2	7 m3
0.00001 m/s	120 s	12265 m2	15 m3
0.00001 m/s	180 s	12265 m2	22 m3
0.00001 m/s	240 s	12265 m2	29 m3
0.00001 m/s	300 s	12265 m2	37 m3
0.00001 m/s	600 s	12265 m2	74 m3
0.00001 m/s	900 s	12265 m2	110 m3
0.00001 m/s	1800 s	12265 m2	221 m3
0.00001 m/s	3600 s	12265 m2	442 m3
0.00001 m/s	7200 s	12265 m2	883 m3
0.00001 m/s	10800 s	12265 m2	1325 m3
0.00001 m/s	21600 s	12265 m2	2649 m3
0.00001 m/s	43200 s	12265 m2	5298 m3
0.00001 m/s	86400 s	12265 m2	10597 m3
0.00001 m/s	172800 s	12265 m2	21194 m3
0.00001 m/s	259200 s	12265 m2	31791 m3
0.00001 m/s	345600 s	12265 m2	42388 m3
0.00001 m/s	432000 s	12265 m2	52985 m3
0.00001 m/s	518400 s	12265 m2	63582 m3
0.00001 m/s	604800 s	12265 m2	74179 m3

Required Basin Volume > Runoff Volume - Infiltration Volume

Required Basin Volume
1070 m3
1638 m3
2256 m3
2846 m3
3370 m3
5213 m3
6282 m3
7919 m3
9225 m3
10531 m3
11416 m3
13144 m3
14676 m3
14177 m3
7341 m3
-1929 m3
-12305 m3
-22681 m3
-33278 m3
-43875 m3

Runoff Volume = Catchment Area x Rainfall Depth

Catchment Area Unpaved	42375	m2				
Infiltration Coefficient	0.6					
IFD Duration	1 in 100 Year ARI Rainfall Depth					Runoff Volume
1	min	4.87	mm	=	0.00487 m	123.82 m3
2	min	7.47	mm	=	0.00747 m	189.92 m3
3	min	10.3	mm	=	0.0103 m	261.88 m3
4	min	13	mm	=	0.013 m	330.53 m3
5	min	15.4	mm	=	0.0154 m	391.55 m3
10	min	23.9	mm	=	0.0239 m	607.66 m3
15	min	28.9	mm	=	0.0289 m	734.78 m3
30	min	36.8	mm	=	0.0368 m	935.64 m3
1	hr	43.7	mm	=	0.0437 m	1111.07 m3
2	hr	51.6	mm	=	0.0516 m	1311.93 m3
3	hr	57.6	mm	=	0.0576 m	1464.48 m3
6	hr	71.4	mm	=	0.0714 m	1815.35 m3
12	hr	90.3	mm	=	0.0903 m	2295.88 m3
24	hr	112	mm	=	0.112 m	2847.60 m3
48	hr	129	mm	=	0.129 m	3279.83 m3
72	hr	135	mm	=	0.135 m	3432.38 m3
96	hr	136	mm	=	0.136 m	3457.80 m3
120	hr	137	mm	=	0.137 m	3483.23 m3
144	hr	137	mm	=	0.137 m	3483.23 m3
168	hr	137	mm	=	0.137 m	3483.23 m3

Basin 2 Details

Depth	1.2 m	Average Area	Basin Volume
L	180 m	12265 m2	14718 m3
B	43 m		
H	110 m		

DRAINAGE STRATEGY
Ultimate Development Option 2

BASIN 1

Runoff Volume = Catchment Area x Rainfall Depth

Catchment Area Paved	349642	m2			
Infiltration Coefficient	0.9				
IFD Duration	1 in 100 Year ARI Rainfall Depth				Runoff Volume
1 min	4.87	mm	=	0.00487 m	1532.48 m3
2 min	7.47	mm	=	0.00747 m	2350.64 m3
3 min	10.3	mm	=	0.0103 m	3241.18 m3
4 min	13	mm	=	0.013 m	4090.81 m3
5 min	15.4	mm	=	0.0154 m	4846.04 m3
10 min	23.9	mm	=	0.0239 m	7520.80 m3
15 min	28.9	mm	=	0.0289 m	9094.19 m3
30 min	36.8	mm	=	0.0368 m	11580.14 m3
1 hr	43.7	mm	=	0.0437 m	13751.42 m3
2 hr	51.6	mm	=	0.0516 m	16237.37 m3
3 hr	57.6	mm	=	0.0576 m	18125.44 m3
6 hr	71.4	mm	=	0.0714 m	22467.99 m3
12 hr	90.3	mm	=	0.0903 m	28415.41 m3
24 hr	112	mm	=	0.112 m	35243.91 m3
48 hr	129	mm	=	0.129 m	40593.44 m3
72 hr	135	mm	=	0.135 m	42481.50 m3
96 hr	136	mm	=	0.136 m	42796.18 m3
120 hr	137	mm	=	0.137 m	43110.86 m3
144 hr	137	mm	=	0.137 m	43110.86 m3
168 hr	137	mm	=	0.137 m	43110.86 m3

Runoff Volume Combined
1811
2778
3830
4834
5727
8888
10747
13685
16251
19189
21420
26552
33580
41650
47972
50203
50575
50946
50946
50946

Infiltration Volume = Basin Area (Base) x Infiltration Rate x Design Storm Duration

Sandy Clay

Infiltration Rate	Storm Duration	Basin Area (Mid Level)	Infiltration Volume
0.00001 m/s	60 s	20600 m2	12 m3
0.00001 m/s	120 s	20600 m2	25 m3
0.00001 m/s	180 s	20600 m2	37 m3
0.00001 m/s	240 s	20600 m2	49 m3
0.00001 m/s	300 s	20600 m2	62 m3
0.00001 m/s	600 s	20600 m2	124 m3
0.00001 m/s	900 s	20600 m2	185 m3
0.00001 m/s	1800 s	20600 m2	371 m3
0.00001 m/s	3600 s	20600 m2	742 m3
0.00001 m/s	7200 s	20600 m2	1483 m3
0.00001 m/s	10800 s	20600 m2	2225 m3
0.00001 m/s	21600 s	20600 m2	4450 m3
0.00001 m/s	43200 s	20600 m2	8899 m3
0.00001 m/s	86400 s	20600 m2	17798 m3
0.00001 m/s	172800 s	20600 m2	35597 m3
0.00001 m/s	259200 s	20600 m2	53395 m3
0.00001 m/s	345600 s	20600 m2	71194 m3
0.00001 m/s	432000 s	20600 m2	88992 m3
0.00001 m/s	518400 s	20600 m2	106790 m3
0.00001 m/s	604800 s	20600 m2	124589 m3

Required Basin Volume > Runoff Volume - Infiltration Volume

Required Basin Volume
1799 m3
2753 m3
3793 m3
4785 m3
5665 m3
8764 m3
10562 m3
13314 m3
15509 m3
17705 m3
19195 m3
22102 m3
24681 m3
23851 m3
12375 m3
-3192 m3
-20619 m3
-38046 m3
-55844 m3
-73642 m3

Runoff Volume = Catchment Area x Rainfall Depth

Catchment Area Unpaved	95324	m2			
Infiltration Coefficient	0.6				
IFD Duration	1 in 100 Year ARI Rainfall Depth				Runoff Volume
1 min	4.87	mm	=	0.00487 m	278.54 m3
2 min	7.47	mm	=	0.00747 m	427.24 m3
3 min	10.3	mm	=	0.0103 m	589.10 m3
4 min	13	mm	=	0.013 m	743.53 m3
5 min	15.4	mm	=	0.0154 m	880.79 m3
10 min	23.9	mm	=	0.0239 m	1366.95 m3
15 min	28.9	mm	=	0.0289 m	1652.92 m3
30 min	36.8	mm	=	0.0368 m	2104.75 m3
1 hr	43.7	mm	=	0.0437 m	2499.40 m3
2 hr	51.6	mm	=	0.0516 m	2951.23 m3
3 hr	57.6	mm	=	0.0576 m	3294.40 m3
6 hr	71.4	mm	=	0.0714 m	4083.68 m3
12 hr	90.3	mm	=	0.0903 m	5164.65 m3
24 hr	112	mm	=	0.112 m	6405.77 m3
48 hr	129	mm	=	0.129 m	7378.08 m3
72 hr	135	mm	=	0.135 m	7721.24 m3
96 hr	136	mm	=	0.136 m	7778.44 m3
120 hr	137	mm	=	0.137 m	7835.63 m3
144 hr	137	mm	=	0.137 m	7835.63 m3
168 hr	137	mm	=	0.137 m	7835.63 m3

Basin 1 Details (from proposed development)

Depth	1.2	m	Average Area	Basin Volume	
L	150	m	20600 m2	24720 m3	
B	56	m			
H	200	m			

BASIN 2

Runoff Volume = Catchment Area x Rainfall Depth

Catchment Area Paved	35525	m2			
Infiltration Coefficient	0.9				
IFD Duration	1 in 100 Year ARI Rainfall Depth				Runoff Volume
1 min	4.87	mm	=	0.00487 m	155.71 m3
2 min	7.47	mm	=	0.00747 m	238.83 m3
3 min	10.3	mm	=	0.0103 m	329.32 m3
4 min	13	mm	=	0.013 m	415.64 m3
5 min	15.4	mm	=	0.0154 m	492.38 m3
10 min	23.9	mm	=	0.0239 m	764.14 m3
15 min	28.9	mm	=	0.0289 m	924.01 m3
30 min	36.8	mm	=	0.0368 m	1176.59 m3
1 hr	43.7	mm	=	0.0437 m	1397.20 m3
2 hr	51.6	mm	=	0.0516 m	1649.78 m3
3 hr	57.6	mm	=	0.0576 m	1841.62 m3
6 hr	71.4	mm	=	0.0714 m	2282.84 m3
12 hr	90.3	mm	=	0.0903 m	2887.12 m3
24 hr	112	mm	=	0.112 m	3580.92 m3
48 hr	129	mm	=	0.129 m	4124.45 m3
72 hr	135	mm	=	0.135 m	4316.29 m3
96 hr	136	mm	=	0.136 m	4348.26 m3
120 hr	137	mm	=	0.137 m	4380.23 m3
144 hr	137	mm	=	0.137 m	4380.23 m3
168 hr	137	mm	=	0.137 m	4380.23 m3

Runoff Volume Combined
280
429
591
746
884
1372
1659
2112
2508
2962
3306
4098
5183
6429
7404
7749
7806
7863
7863
7863

Infiltration Volume = Basin Area (Base) x Infiltration Rate x Design Storm Duration

Sandy Clay

Infiltration Rate	Storm Duration	Basin Area (Mid Level)	Infiltration Volume
0.00001 m/s	60 s	3180 m2	2 m3
0.00001 m/s	120 s	3180 m2	4 m3
0.00001 m/s	180 s	3180 m2	6 m3
0.00001 m/s	240 s	3180 m2	8 m3
0.00001 m/s	300 s	3180 m2	10 m3
0.00001 m/s	600 s	3180 m2	19 m3
0.00001 m/s	900 s	3180 m2	29 m3
0.00001 m/s	1800 s	3180 m2	57 m3
0.00001 m/s	3600 s	3180 m2	114 m3
0.00001 m/s	7200 s	3180 m2	229 m3
0.00001 m/s	10800 s	3180 m2	343 m3
0.00001 m/s	21600 s	3180 m2	687 m3
0.00001 m/s	43200 s	3180 m2	1374 m3
0.00001 m/s	86400 s	3180 m2	2748 m3
0.00001 m/s	172800 s	3180 m2	5495 m3
0.00001 m/s	259200 s	3180 m2	8243 m3
0.00001 m/s	345600 s	3180 m2	10990 m3
0.00001 m/s	432000 s	3180 m2	13738 m3
0.00001 m/s	518400 s	3180 m2	16485 m3
0.00001 m/s	604800 s	3180 m2	19233 m3

Required Basin Volume > Runoff Volume - Infiltration Volume

Required Basin Volume
278 m3
425 m3
585 m3
739 m3
874 m3
1353 m3
1630 m3
2055 m3
2394 m3
2733 m3
2963 m3
3411 m3
3809 m3
3681 m3
1909 m3
-494 m3
-3184 m3
-5874 m3
-8622 m3
-11369 m3

Runoff Volume = Catchment Area x Rainfall Depth

Catchment Area Unpaved	42375	m2			
Infiltration Coefficient	0.6				
IFD Duration	1 in 100 Year ARI Rainfall Depth				Runoff Volume
1 min	4.87	mm	=	0.00487 m	123.82 m3
2 min	7.47	mm	=	0.00747 m	189.92 m3
3 min	10.3	mm	=	0.0103 m	261.88 m3
4 min	13	mm	=	0.013 m	330.53 m3
5 min	15.4	mm	=	0.0154 m	391.55 m3
10 min	23.9	mm	=	0.0239 m	607.66 m3
15 min	28.9	mm	=	0.0289 m	734.78 m3
30 min	36.8	mm	=	0.0368 m	935.64 m3
1 hr	43.7	mm	=	0.0437 m	1111.07 m3
2 hr	51.6	mm	=	0.0516 m	1311.93 m3
3 hr	57.6	mm	=	0.0576 m	1464.48 m3
6 hr	71.4	mm	=	0.0714 m	1815.35 m3
12 hr	90.3	mm	=	0.0903 m	2295.88 m3
24 hr	112	mm	=	0.112 m	2847.60 m3
48 hr	129	mm	=	0.129 m	3279.83 m3
72 hr	135	mm	=	0.135 m	3432.38 m3
96 hr	136	mm	=	0.136 m	3457.80 m3
120 hr	137	mm	=	0.137 m	3483.23 m3
144 hr	137	mm	=	0.137 m	3483.23 m3
168 hr	137	mm	=	0.137 m	3483.23 m3

Basin 2 Details

Depth	1.2	m	Average Area	Basin Volume	
L	80	m	3180 m2	3816 m3	
B	26	m			
H	60	m			

Location

Label: Not provided

Latitude: -31.482672 [Nearest grid cell: 31.4875 (S)]

Longitude: 118.237135 [Nearest grid cell: 118.2375 (E)]

IFD Design Rainfall Depth (mm)

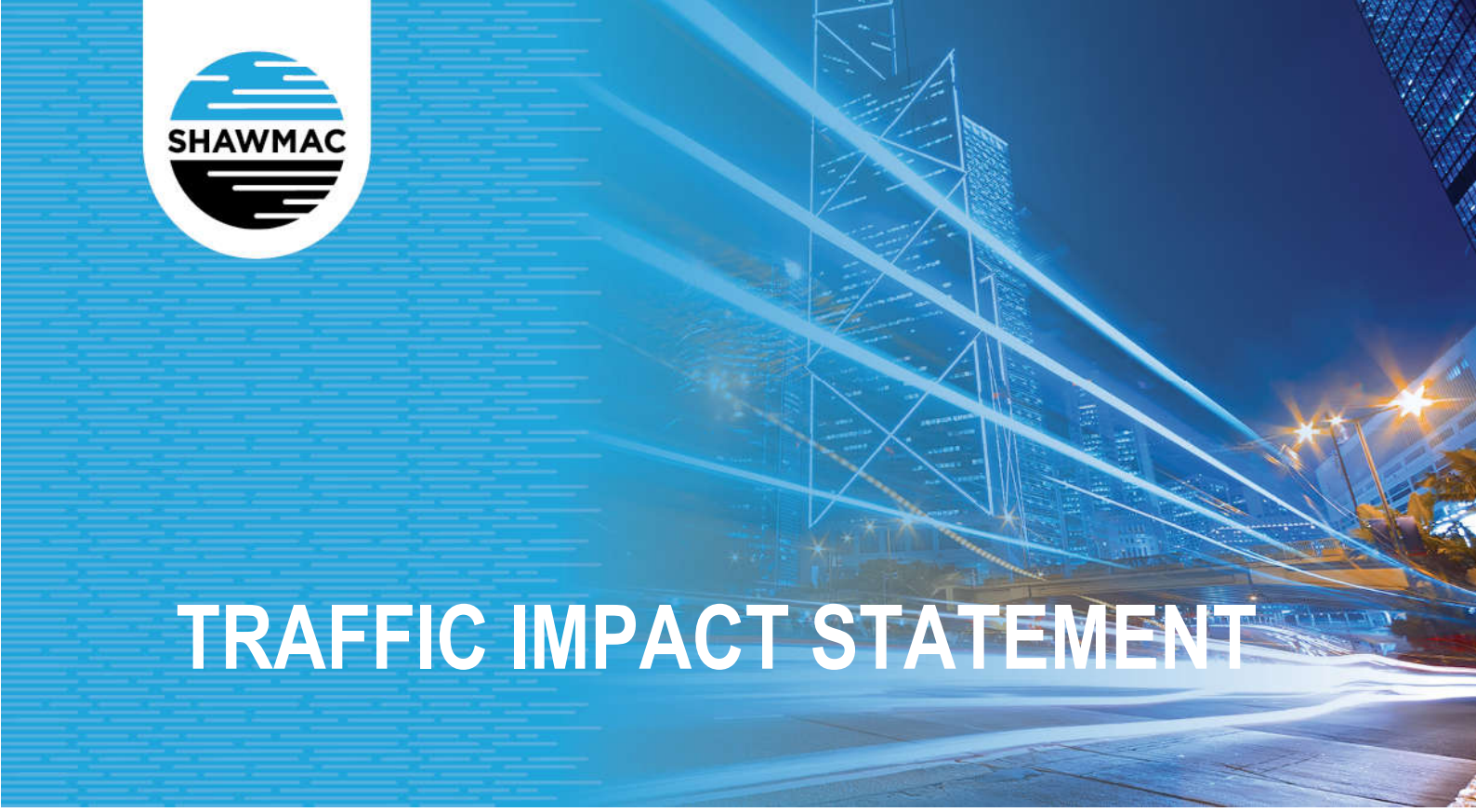
Issued: 07 March 201

Rainfall depth for Durations, Exceedance per Year (EY), and Annual Exceedance Probabilities (AEP).
FAQ for New ARR probability terminology

Table | Chart

Unit: mm

	Annual Exceedance Probability (AEP)						
Duration	**63.2%**	**50%#**	**20%***	**10%**	**5%**	**2%**	**1%**
1 min	1.26	1.48	2.21	2.76	3.34	4.17	4.87
2 min	2.16	2.48	3.57	4.38	5.24	6.45	7.47
3 min	2.92	3.37	4.88	6.02	7.22	8.91	10.3
4 min	3.56	4.13	6.04	7.48	9.01	11.2	13.0
5 min	4.11	4.78	7.06	8.78	10.6	13.2	15.4
10 min	6.04	7.09	10.7	13.4	16.2	20.4	23.9
15 min	7.29	8.57	12.9	16.2	19.7	24.7	28.9
30 min	9.61	11.2	16.7	20.9	25.2	31.5	36.8
1 hour	12.3	14.2	20.6	25.4	30.5	37.7	43.7
2 hour	15.5	17.7	25.0	30.6	36.4	44.7	51.6
3 hour	17.7	20.1	28.2	34.3	40.7	49.9	57.6
6 hour	22.2	25.1	34.9	42.3	50.2	61.7	71.4
12 hour	27.3	30.9	43.3	52.6	62.6	77.7	90.3
24 hour	32.2	36.7	52.1	63.8	76.3	95.5	112
48 hour	36.4	41.6	59.5	73.0	87.5	110	129
72 hour	38.5	44.0	62.7	76.7	91.6	115	135
96 hour	40.2	45.8	64.7	78.7	93.4	116	136
120 hour	41.8	47.4	66.3	80.2	94.6	116	137
144 hour	43.5	49.1	67.9	81.5	95.7	117	137
168 hour	45.3	51.0	69.6	83.0	96.8	117	137



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1. Introduction

1.1. Background

Co-operative Bulk Handling Limited (CBH) is proposing to upgrade and expand the existing grain receiving and storage facility in Merredin. The development proposes a new marshalling area, sampling point, weighing facility and ancillary works to rationalise the handling of the current annual receipt of 750,000 tonnes of grain. The internal layout and traffic flow of the site is also being modified to alleviate throughput issues.

The site is located between Goldfields Road and Gabo Avenue and is adjacent to the existing Open Bulkhead (OBH) numbers 9 to 14. The site is west of the Merredin town site as shown in **Figure 1**.

Figure 1: CBH Merredin Site

1.2. Scope and Purpose

The purpose of this assessment is to determine the traffic impact of the proposed expansion on the surrounding road network.

The facility has been designed to support the following capacities.

- Incoming capacity of 705,800 tonnes per annum (tpa) including 240,000 tpa for years 1 to 10 (4,800 movements per annum) to OBH 9 to 14 plus about 465,800 tpa to the other site storage areas (estimated at 9,316 movements per annum); and
- Outgoing capacity of 240,000 tpa for years 1 to 10 (7,000 movements per annum) from OBH 9 to 14 to the balance of the site (smaller payload assumed);

The total number of truck movements to and from the site is not expected to vary significantly from that currently being experienced; however, the access and egress pattern will change in the immediate vicinity of the site. Incoming movements will be via Goldfields Road with trucks exiting onto Gabo Avenue. Outgoing movement of grain will largely be via Gabo Avenue with grain being moved from OBH 9 to 14 to the rail head. The site is being designed for access by Restricted Access Vehicle (RAV) Category 7 trucks with a maximum permitted length of 36.5m. An example vehicle is shown in **Figure 2**.

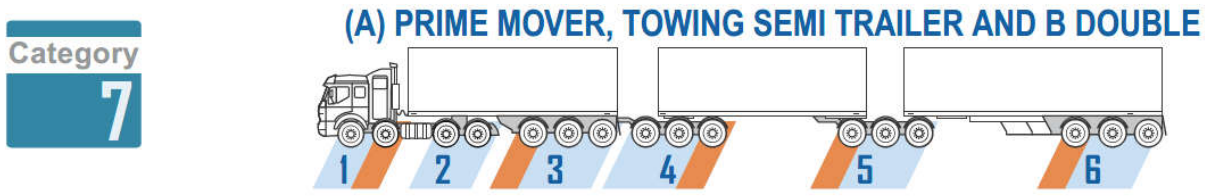


Figure 2: Example RAV Category 7 Vehicle

This assessment has been undertaken in accordance with the Western Australian Planning Commission (WAPC) *Transport Impact Assessment Guidelines Volume 4 – Individual Developments* (TIA Guidelines). Based on the type and scale of development, the appropriate standard of assessment is a Traffic Impact Statement (TIS) with additional consideration given to the higher proportion of heavy vehicle movements to the site.

According to the TIA Guidelines, the key objectives of a TIS are to:

- Assess the proposed access arrangements for all modes of transport;
- Assess the level of transport integration between the development and the surrounding land uses;
- Determine the impacts of the traffic generated by the development on the surrounding land uses; and
- Determine the impacts of the traffic generated by the development on the surrounding transport networks.

2. Proposed Development

The proposed development includes the following upgrades and new facilities:

- New truck marshalling area;
- New sampling hut and weighbridge areas;
- Additional installation of fixed equipment; and
- New road layout to existing and proposed infrastructure.

The concept site plan is shown in **Figure 3** and attached as **Appendix A**.

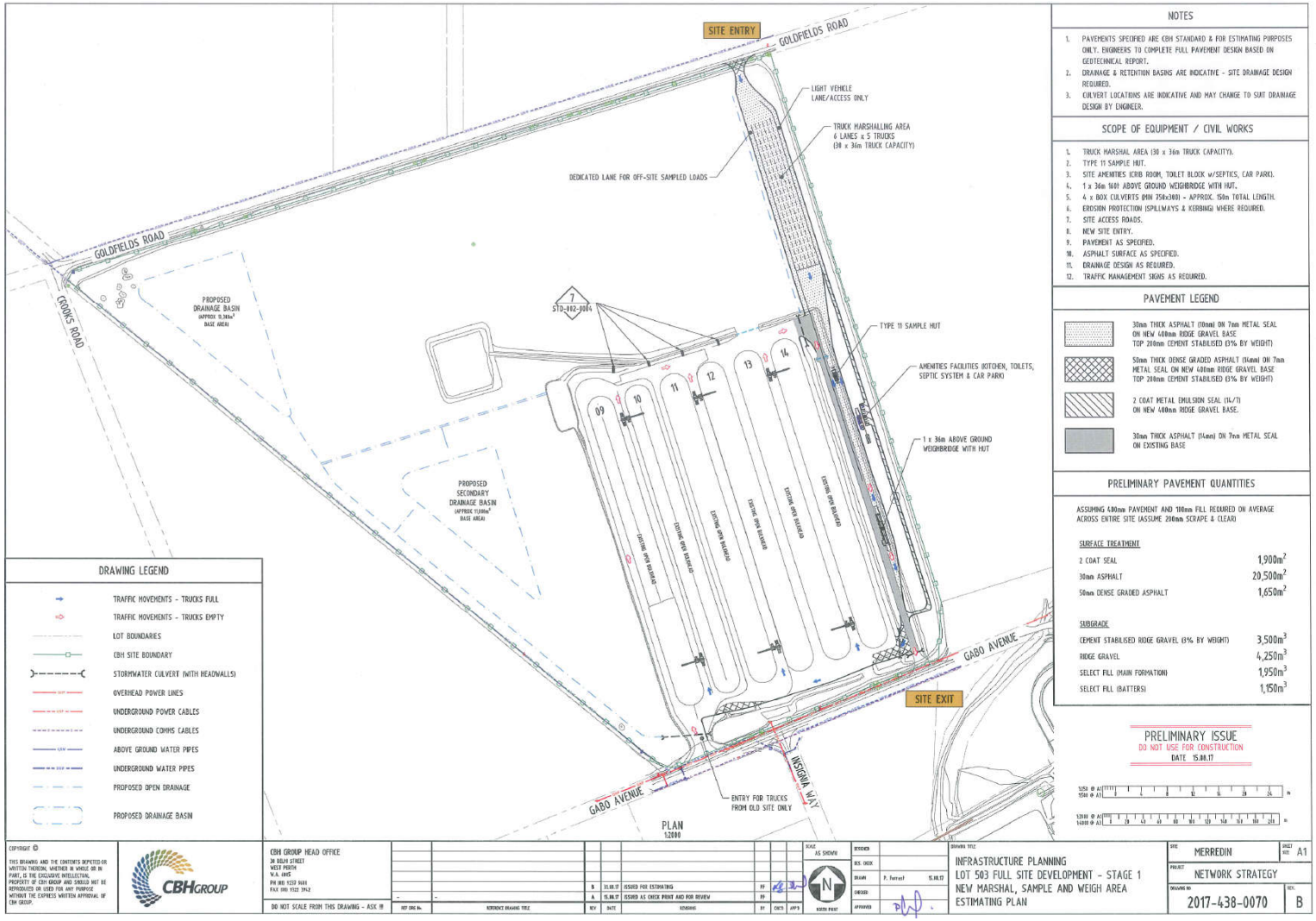


Figure 3: CBH Merredin Site – Concept Plan

3. Vehicle Access and Parking

3.1. Vehicle Access

Vehicle access to the site will primarily be via Goldfields Road with egress onto Gabo Avenue. Secondary access is to be provided off Gabo Avenue for trucks originating from the existing site. Access to Goldfields Road from the east is via a connection to Chandler – Merredin Road; access to and egress from Gabo Avenue is primarily via Crooks Road to the west which in turn provides connection to Goldfields Road and Great Eastern Highway.

3.2. Parking

While passenger car movements to the site are likely to be low provision has been made for parking in formal parking areas located on the eastern side and on the southwest corner of the development site.

A new truck marshalling area with capacity for 30 RAV 7 trucks will be constructed along the eastern boundary of the site off Goldfields Road. Dedicated access lanes are to be provided past the marshalling area for offsite sampled loads and light vehicles. The layout of the proposed truck marshalling area is shown in **Figure 4**. With a capacity to store up to 30 RAV 7 (Road Trains) together with the number of trucks accommodated at the sampling shed, weighbridge and onsite at the OBH, queuing back onto Goldfields Road is unlikely to occur.

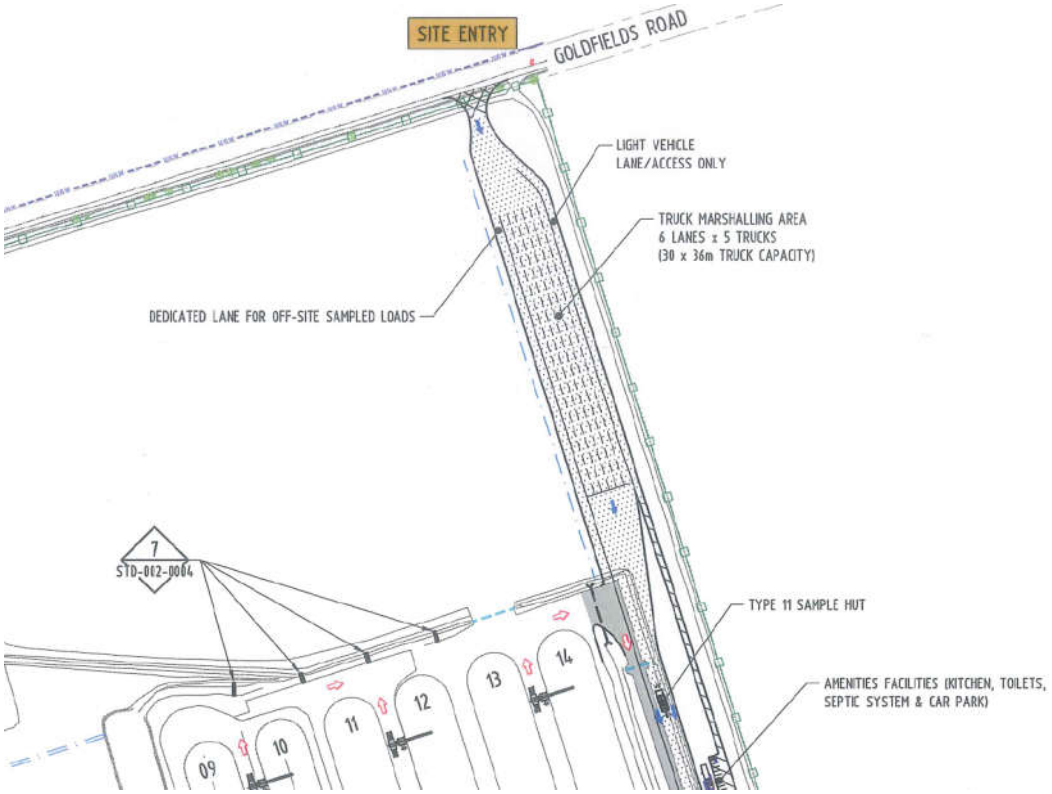


Figure 4: Proposed Truck Marshalling Area

3.3. Operational Details

The operational lifetime of the site is expected to be 10 years after which an expansion of OBH's (OBH 15 to OBH 28) may occur.

The site operates on a seasonal basis for 2 to 3 months from October to mid-January each year and it is expected that based on a receival of 705,800 tonnes activities will generate approximately 180 movements into the site and 180 movements out of the site each day. This assumes an average truck payload of 50 tonnes. During the remainder of the year, the site would generate minimal traffic estimated to be in the order of 10 movements in and out of the site daily. Transfer of grain from OBH 9 to 14 may generate approximately 27 movements daily with these affecting Gabo Avenue only. This will occur outside of the peak season.

4. Traffic Volumes and Vehicle Types

4.1. Daily Traffic Generation

The proposed site will initially see approximately 240,000 tonnes received into OBH 9 to OBH 14 with the another 465,800 tonnes received in the balance of the site's facilities. It is assumed that under the worst case scenario, all incoming trucks will use the new sampling hut and weighbridge facilities and will enter from Goldfields Road and exit via Gabo Avenue. Assuming an average truck payload of 50 tonnes and a 12 week operating period this will equate to approximately 180 movements into the site and 180 movements out of the site daily.

4.2. Peak Hour Traffic Generation

The number of trips generated during the peak hour of operation has been estimated by CBH for the Merredin site based on an inverted bell curve distribution and this estimates that during the AM and PM peak hours, the site generates on average 25% of daily truck trips. Applying this basis to estimate the peak for the Merredin site suggests that the site would generate in the order of 44 trips into the site and 44 trips out of the site in a peak hour period. It is assumed that the peak hour of operation on the site coincides with the peak hour on the road network. Given the layout of the site, the distribution of traffic onto the adjacent road network is expected to be as shown on **Figure 5**.

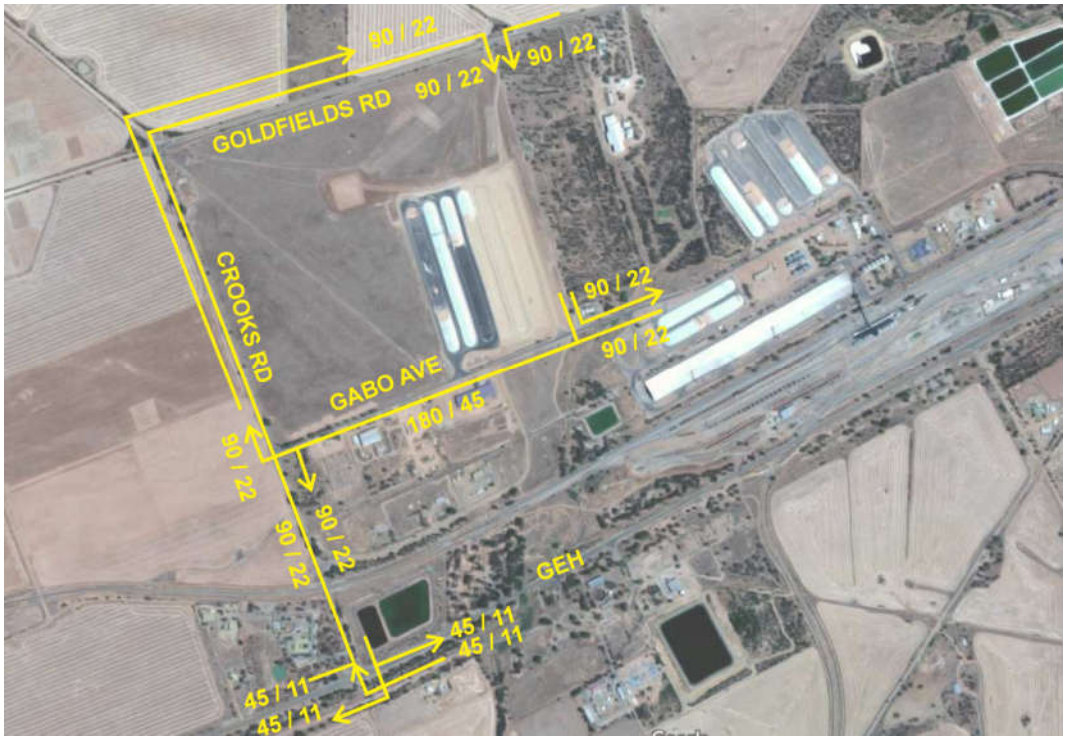


Figure 5 - Predicted Flows (Daily / Peak Hour)

4.3. Traffic Management on Frontage Streets

Gabo Avenue and Crooks Road between Gabo Avenue and Great Eastern Highway are classified as Local Distributor roads and are under the jurisdiction of the Shire of Merredin. In the vicinity of the site, they are constructed as two-lane single carriageway roads and have a derestricted speed limit. Goldfields Road and Crooks Road north of Gabo Avenue are access roads and are also under the jurisdiction of the Shire of Merredin. They are also constructed as two lane single carriageways and have derestricted speed limits.

The intersection of Gabo Avenue and Crooks Road forms an unchannelised T junction while the intersection of Goldfields Road and Crooks Road forms a priority controlled four way intersection. Crooks Road intersects with Great Eastern Highway as a priority controlled T-junction and has dedicated left and right turning lanes provided.

Goldfields Road, Gabo Road, Crooks Road and Great Eastern Highway are all on the RAV 7 Network.

4.4. Existing Traffic Volumes

Count data for Goldfields Road, Gabo Avenue and Crooks Road was not available; however outside of harvest season the flows on these roads is expected to be no more than 100 vehicles daily and 10 vehicles in the peak hour with the exception of Gabo Avenue where flows are expected to be double that. The latest traffic count data for Great Eastern Highway was obtained from the Main Roads WA Reporting Centre as summarised in **Table 1**.

Table 1: Great Eastern Highway Average Weekday Traffic Counts (August 2014)

Time Period	Eastbound	Westbound	% Heavy Vehicles
Daily	793 vpd	752 vpd	23%
AM Peak Hour (9 – 10 am)	57 vph	70 vph	
PM Peak Hour (3 – 4 pm)	67 vph	65 vph	

As the counts were taken in early September, they are assumed to represent background counts and do not include traffic generated by the CBH facility.

4.5. Predicted Maximum Traffic Flows

Based on the generation rates indicated in Sections 4.1 and 4.2, the expected maximum movements are shown on **Table 2**. This assumes an even directional split in traffic along Goldfields Road, Crooks Road and Great Eastern Highway. Base flows on Goldfields Road and Crooks Road in the vicinity of Gabo Avenue are assumed to be 100 vpd and 10 vph. Base flow on Gabo Avenue is assumed to be higher at 200 vpd and 20 vph. Base flow on Crooks Road immediately north of Great Eastern Highway is assumed to carry an increased volume of traffic on account of the access and egress from the Department of Agriculture site and base flows of 1,000 vpd and 100 vph are assumed.

Table 2 - Predicted Maximum Flows

Location	Daily NB/EB	Daily SB/WB	AM Peak Hr NB/EB	AM Peak Hr SB/WB	PM Peak Hr NB/EB	PM Peak Hr SB/WB
Goldfields Rd (Existing)	50 vpd	50 vpd	5 vph	5 vph	5 vph	5 vph
Goldfields Rd (Predicted)	230 vpd	140 vpd	50 vph	27 vph	50 vph	27 vph
Crooks Rd nr Gabo (Existing)	50 vpd	50 vpd	5 vph	5 vph	5 vph	5 vph
Crooks Rd nr Gabo (Predicted)	140 vpd	140 vpd	27 vph	27 vph	27 vph	27 vph
Gabo Ave (Existing)	100 vpd	100 vpd	10 vph	10 vph	10 vph	10 vph
Gabo Ave (Predicted)	190 vpd	280 vpd	32 vph	32 vph	32 vph	55 vph
GEH (Existing)	793 vpd	752 vpd	57 vph	70 vph	67 vph	65 vph
GEH (Predicted)	883 vpd	842 vpd	68 vph	81 vph	78 vph	76 vph

Given the low numbers of vehicles entering the intersections of Crooks Road and Gabo Avenue and Crooks Road and Goldfields Road, operational performance is predicted to be satisfactory and modelling is not considered necessary. For the higher flows entering the Crooks Road and Great Eastern Highway intersection, expected peak hour movements were estimated and are shown on **Figure 6**.

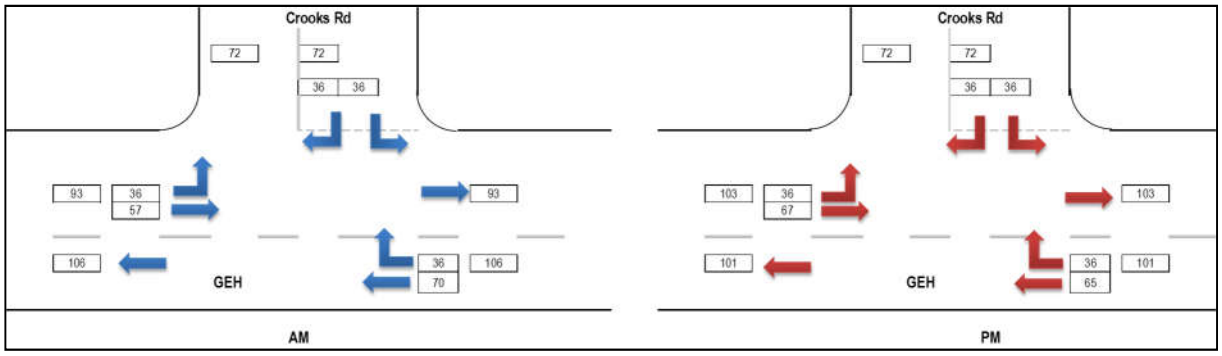


Figure 6 - Predicted Turning Movements

5. Site Specific Issues

5.1. Intersection Capacity

The capacity of the Crooks Road / Great Eastern Highway intersection to accommodate the increased traffic movements from the site has been assessed using SIDRA Intersection 7.0 and the assessment output is shown on **Figure 7**. This indicates that the intersection is expected to operate at a satisfactory Level of Service, with minimal delays and negligible queues.

Movement Performance - Vehicles											
Mov ID	ODMov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: GEH											
5	T1	68	23.0	0.040	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
6	R2	38	23.0	0.033	6.3	LOS A	0.1	1.1	0.24	0.57	51.5
Approach		106	23.0	0.040	2.2	NA	0.1	1.1	0.08	0.20	56.7
North: Crooks Rd											
7	L2	38	50.0	0.112	11.9	LOS B	0.4	4.3	0.28	0.95	49.1
9	R2	38	50.0	0.112	11.6	LOS B	0.4	4.3	0.28	0.95	48.8
Approach		76	50.0	0.112	11.8	LOS B	0.4	4.3	0.28	0.95	48.9
West: GEH											
10	L2	38	23.0	0.024	5.8	LOS A	0.0	0.0	0.00	0.57	52.7
11	T1	71	23.0	0.042	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
Approach		108	23.0	0.042	2.0	NA	0.0	0.0	0.00	0.20	57.2
All Vehicles		291	30.0	0.112	4.6	NA	0.4	4.3	0.10	0.40	54.6

Figure 7 - Sidra Output

5.2. Turn Treatments

Warrants for turn treatments as determined in accordance with Austroads Guide to Road Design – Part 4A: Unsignalised and Signalised Intersections, indicated that the intersection treatment as currently exists at the intersection of Crooks Road and Great Eastern Highway defines appropriate geometry - refer **Figure 8**. The low entry volumes on the other intersections preclude the need for turn treatments.

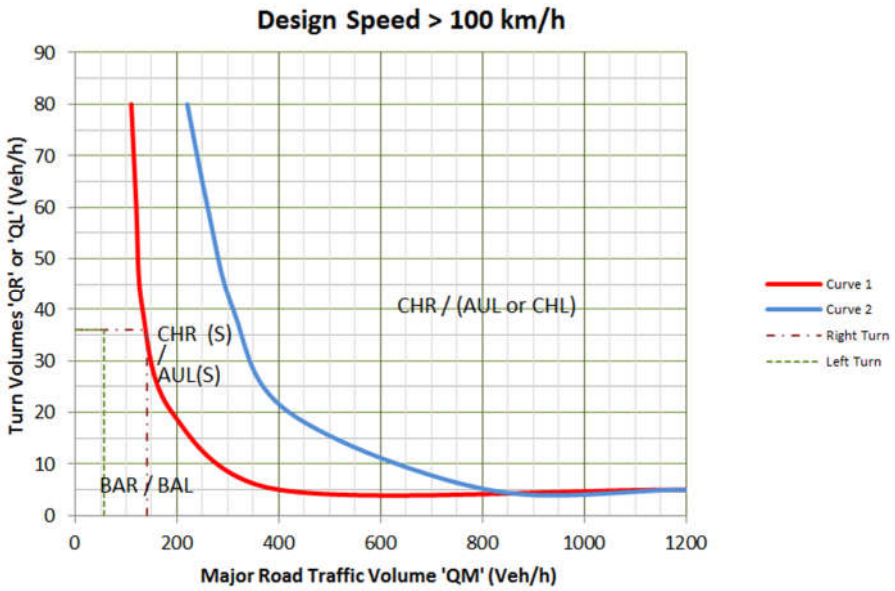


Figure 8 - Intersection Turn Treatment Warrants

5.3. Sight Distance Requirement

5.3.1. Approach Sight Distance

The Approach Sight Distance (ASD) for road trains is required to ensure that trucks approaching an intersection at the 85th percentile operating speed, are able to observe intersection configurations and stop safely. The ASD for trucks is measured from truck driver eye height (2.4m) to the pavement level at the stop or holding line. The operating speed on Crooks Road, Goldfields Road and Gabo Avenue has been assumed as 50km/h taking into consideration the operating road environment and proximity of the CBH site and facilities to the intersections minimising the ability for trucks to accelerate.

The ASD as required for approach to all intersections is calculated from Equation 1 of Austroads Part 4A and is summarised in **Table 3**.

Table 3 - Approach Sight Distance

Operating Speed	Reaction Time	Coefficient of Deceleration	ASD
50 km/h	3.5 s	0.2	98m

5.3.2. Safe Intersection Sight Distance

The Safe Intersection Sight Distance (SISD) is the minimum distance which should be provided on the major road at any intersection to allow for a vehicle on the major road to observe a vehicle on a minor road and moving into a collision situation to stop safely before the collision point.

The SISD is calculated for both Crooks Road / Gabo Avenue, Crooks Road / Goldfields Road and the Crooks Road – Great Eastern Highway intersection from Equation 2 of Austroads Part 4A and results are summarised in **Table 4**.

Table 4 - Safe Intersection Sight Distance

Road	Operating Speed	Decision Time	Coefficient of Deceleration	Longitudinal Grade	SISD
Crooks Road and Gabo Avenue	100 km/h	5.5 s	0.24	0%	270 m
GEH	110 km/h	5.5 s	0.24	0%	309 m

5.3.3. Entering Sight Distance

The Entering Sight Distance (ESD) is the minimum distance which should be provided from the minor road so that the driver of a RAV, entering a through road, can identify a sufficient gap in oncoming traffic that will allow a RAV, with greater length and a lower accelerating capacity, to clear the intersection safely.

Using Appendix F of the MRWA RAV Guidelines, shown in **Figure 9**, the required ESD (assuming level terrain)

can be extrapolated.

Operating Speed km/h	Downhill (approaching traffic)				Level	Uphill (approaching traffic)			
	-8%	-6%	-4%	-2%		2%	4%	6%	8%
RAVs Categories 5-8									
40	102	100	97	96	94	93	91	90	89
50	137	133	130	127	124	122	120	118	117
60	176	170	165	161	157	154	151	149	147
70	218	210	204	198	193	189	185	182	179
80	264	254	245	238	231	226	221	216	213
90	314	301	290	281	272	265	259	254	249
100	377	360	345	332	321	312	304	296	290
110	463	437	415	397	382	369	357	347	339

Figure 9 - Entering Sight Distances MRWA RAV Guidelines

Table 5 - Entering Sight Distance

Road	Operating Speed	Longitudinal Grade	ESD
Entering Crooks Road	100 km/h	Assume 0%	321m
Entering GEH	110 km/h	Assume 0%	382m

5.3.4. Sight Distance Assessment

The available sight distance from the intersections of Crooks Road – Gabo Avenue and Crooks Road – Goldfields Road is estimated as being in excess of 350 metres on all legs and as such the available sight distance exceeds the requirements.

Determination of the sight distance available at the Crooks Road – Great Eastern Highway intersection suggests that in excess of 450 metres is available and this is likely to meet guideline requirements.

5.4. Acceleration Lanes

In accordance with MRWA RAV guidelines, acceleration lanes are warranted when:

- The speed limit is at least 80km/h; and
- The AADT is greater than 1,000 Passenger Car Equivalence (PCE); and
- There is no overtaking lane on the RAV road at or near the point of entry from a side road.

The length of acceleration lane shall be sufficient for a RAV vehicle to reach a speed of at least 70% of the

operating traffic speed at the point of merge with the through road.

There are a high number of heavy vehicles travelling along Great Eastern Highway including Category 7 RAV's.

Given the status if Great Eastern Highway and Crooks Road as RAV Network 7 roads it is assumed that the assessment of warrants for acceleration lanes has been previously reviewed and the current configuration found to be acceptable. Also, while works planned for the CBH site will result in changes on traffic flow patterns on the immediate road network, it is not expected that current patterns will change at the Crooks Road – Great Eastern Highway intersection.

6. Safety Issues

The crash history of the adjacent road network for the five year period ending December 2016 was obtained from the Main Roads WA Reporting Centre. Only two incidents have been recorded as detailed in **Table 6.**

Table 6: Crash History Summary

Road and Location	Crash Type	Severity
Intersection of GEH – Crooks Road	Hit Object	Medical
Intersection of Crooks Road and Insignia Way	No crashes recorded	N/A
Intersection of Crooks Road and Gabo Avenue	No crashes recorded	N/A
Intersection of Crooks Road and Goldfields Road	No crashes recorded	N/A

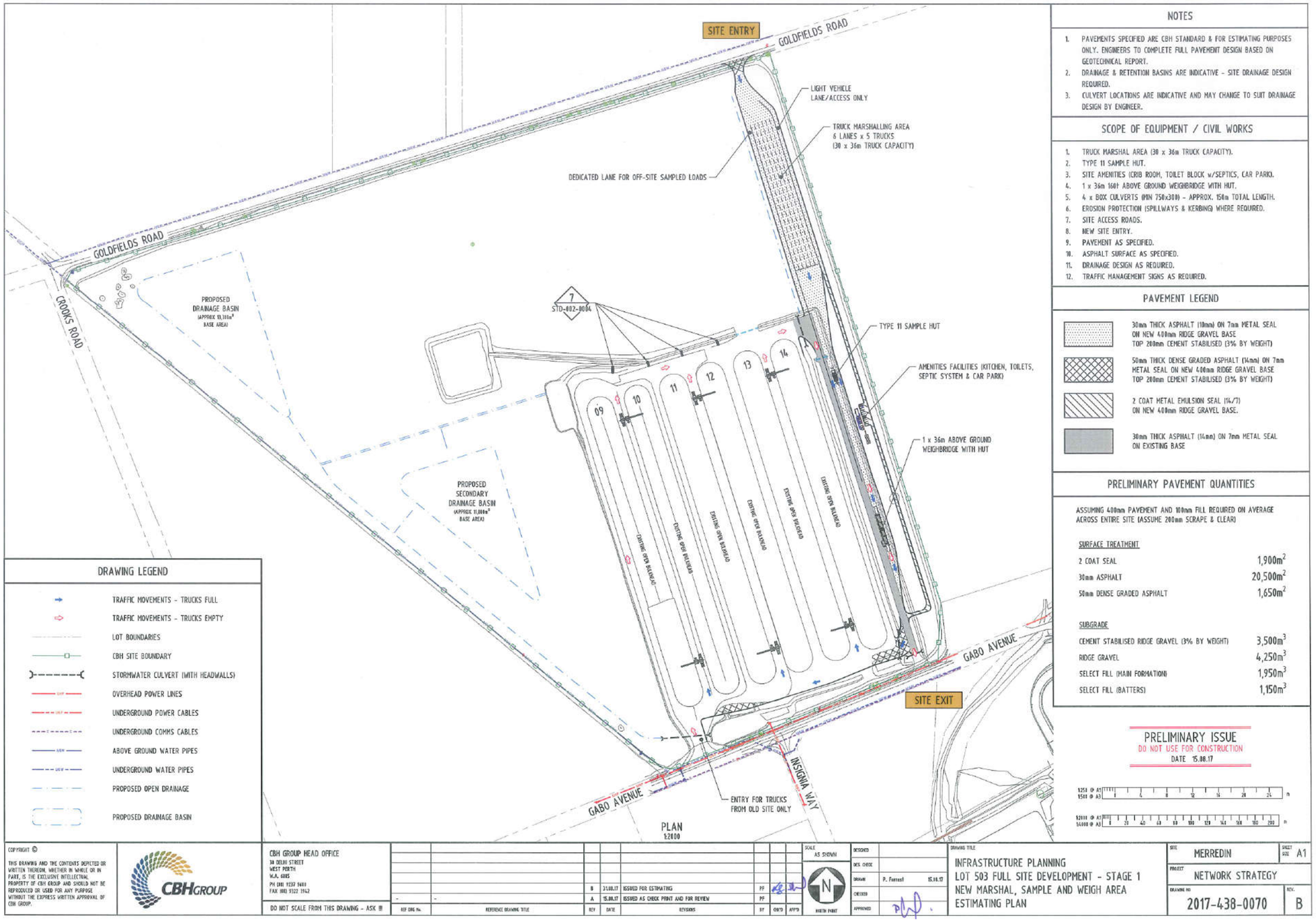
The crash history of the immediate road network does not indicate any particular safety issue and while the proposed development may affect the pattern of traffic on the road network, this is not expected to increase the likelihood of crashes above acceptable levels.

7. Conclusion

A review of the proposed improvement works at the CBH Merredin site was carried out to determine if any adverse traffic impacts were associated with the proposal. The assessment concluded that:

- The traffic generated by the site during harvest periods is expected to be in the order of 180 movements in and 180 movements out daily with about 44 movements in and out during peak hours;
- The proposed marshalling yard allows for storage of 30 RAV 7 vehicles and with the internal operation will have adequate storage for the peak hour allowing trucks to queue on site and clear of Goldfields Road;
- Over the foreseeable future the traffic generated is likely to be consistent in magnitude to that currently generated and rather than increasing flows, the proposed development is more likely to result in a change in traffic patterns;
- While the modified traffic flows are likely to affect the immediate intersections, the operational performance of the intersections and safety for road users is not predicted to be compromised;
- The operation of the intersection of Crooks Road and Great Eastern Highway is not expected to change; and
- No warrants for improvements to the existing road network infrastructure were identified.

Appendix A – Concept Site Plan



Peter Zenni

From: Dickie, Rob <Rob.Dickie@cbh.com.au>
Sent: Friday, 8 June 2018 10:30 AM
To: Peter Zenni; Greg Powell
Cc: Walker, Allan; Dolling, Tim; Gliddon, Sam; Anderson, Peter
Subject: Information requested from CBH on Merredin receival site

Dear Peter and Greg
Following my conversation with Peter, I have provided some supporting information with regards to our receival site storage capacity, average receivals, and the impact of additional tonnage being received at the site under CBH's Network Strategy change.

Merredin receival site:

- Has 500,000 tonnes of storage capacity with average receivals of 350,000 tonnes
- Receivals (in the catchment zone) are forecast to grow to an average 410,000 over the next 5 years (forecast subject to assumed yield growth)
- As a result of closing non Network Strategy sites (ie Burracoppin, Hines Hill and Nungarin) an additional 55,000 tonnes are expected to flow into Merredin.
- Merredin will have the sufficient storage capacity to handle forecast receivals of 465,000 tonnes of receivals at harvest.
- In addition, and as we do now, an approximate 240,000 tonnes will be hubbed into the site, from surrounding Network Strategy sites, outside of harvest, resulting in approximately ~ 700,000 tonnes being railed from Merredin.

I have copied Alan Walker to this message and appreciate if you could send him an invite to attend the Council meeting, as per your request.

Kind Regards

Rob Dickie

Sent from my iPad

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Any views expressed in this message are those of the individual sender, except where the sender specifies and with authority, states them to be the views of the CBH Group.