GRAIN HANDLING & STORAGE. PROJECT No.7549
MOD 26. 11/02/26

Drawing No.	REV.	
MN7549-000	P08	SITE ELEVATION.
MN7549-001	P10	O/A SITE PLAN.
MN7549-002	P21	O/A WESTERN SITE PLAN.
MN7549-003	P14	GRAIN HANDLING SITE PLAN.
MN7549-004	P12	GRAIN HANDLING NORTHERN ELEVATION.
MN7549-005	P12	GRAIN HANDLING SOUTHERN ELEVATION.
MN7549-006	P12	GRAIN HANDLING EASTERN ELEVATION.
MN7549-007	P12	GRAIN HANDLING WESTERN ELEVATION.
MN7549-008	P10	CONVEYOR TO PLANT GA.
MN7549-009	P06	WEST CONVEYOR & SERVICES GANTRY.
MN7549-010	P08	EAST CONVEYOR & SERVICES GANTRY.
MN7549-011	P05	SUBSTATION.
MN7549-012	P04	CONTROL ROOM/WORKSHOP/OFFICE G.A.
MN7549-013	P02	RIVER BANK STABILISATION.
MN7549-014	P01	TRUCK AND TRAIN UNLOADER.
MN7549-015	P02	ETHANOL MAINTENANCE BUILDING SITE.
MN7549-016	P01	ETHANOL MAINTENANCE BUILDING DETAIL.
MN7549-017	P07	CAR PARK EXTENSION AND PEDESTRIAN ACCESS.
MN7549-018	P04	TRAFFIC MOVEMENTS.
MN7549-019	P06	NITRIC ACID STORAGE & BUND.
MN7549-020	P20	RAIL MAINT. BUILDING.O/A SITE PLAN.
MN7549-021	P08	RAIL MAINT. BUILDING.SITE PLAN.
MN7549-022	P01	SILO GRAIN SCREENING BUILDING.
MN7549-023	P01	SILO GRAIN SIEVE BUILDING.
MN7549-024	P02	SECONDARY GRAIN SCREENING BUILDING.
MN7549-025	P03	PRODUCT SILOS SITE PLAN.
MN7549-026	P06	PRODUCT SILOS GA.
MN7549-027	P01	RELOCATED PHOSPHORUS OXYCHLORIDE BUND.
MN8374-002	B	DETAIL PHOSPHORUS OXYCHLORIDE BUND.
7980	P05	RAIL MAINT. BUILDING.LAYOUT PLAN.
8102	P1	SILO GRAIN DETAIL.
8113	P1	RAIL FUEL TANK.

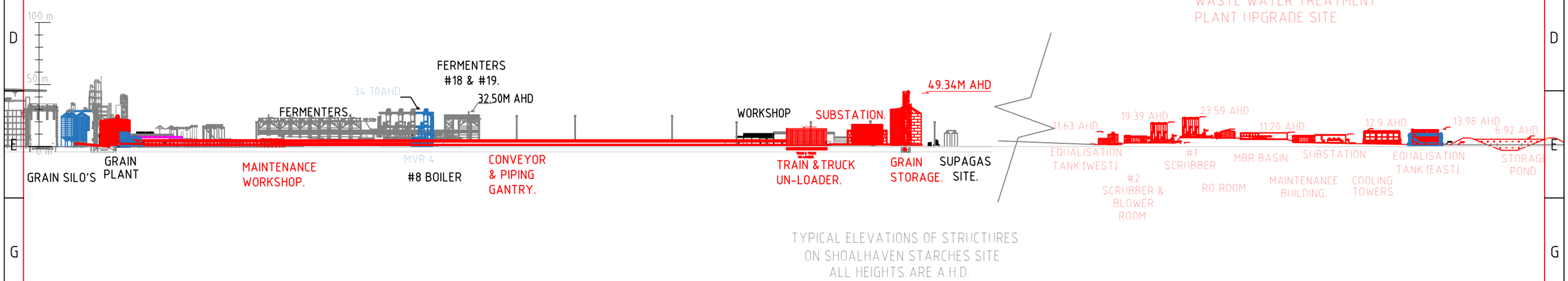
EXISTING APPROVED PLAN.

APPROVED PLANT YET TO BE CONSTRUCTED OR UNDER CONSTRUCTION.

MOD 26.

MOD 31

MOD 33.



TYPICAL ELEVATIONS OF STRUCTURES ON SHOALHAVEN STARCHES SITE. ALL HEIGHTS ARE A.H.D.

SCALE 1:3000

REV	ZONE	DETAILS	DRN	DATE	CHKD	APPD
P09	All	Mod Numbers Amended	B.M.	22-10-25	All	JS
P08	All	Now Mod 26.WWTP added.	P.C.	17-03-25	All	JS
P04	All	Changed to match engineers design.	P.C.	25-11-24	All	JS
P03	All	Starch dryers ect removed.	P.C.	15-11-24	All	JS
P01	All	Latest revision.	P.C.	05-09-24	All	B.H.

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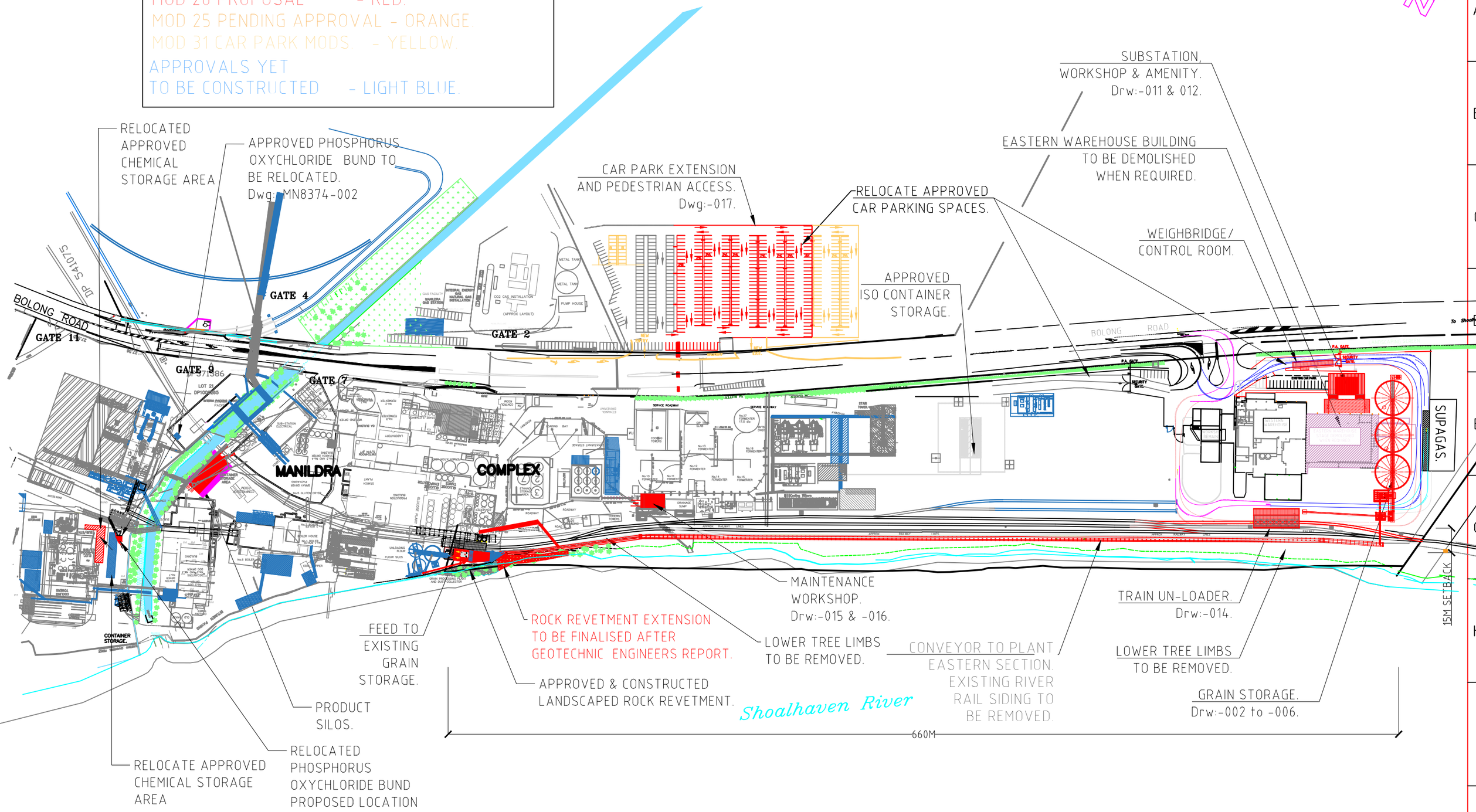
DRAWN P.C.	DATE 05/09/24	JOB TITLE	SHOALHAVEN STARCHES.BOMADERRY. NSW
CHKD JS	DATE	DWG TITLE	PROPOSED GRAIN UN-LOADER.MOD 26. SITE ELEVATIONS GA.
APPD	DATE		
	SCALE 1:3000	PROJECT No. 7549-000	DWG No. MN7549-000

SHT SIZE A3

REV. P09

EXISTING APPROVED PLANT - BLACK.
MOD 26 PROPOSAL - RED.
MOD 25 PENDING APPROVAL - ORANGE.
MOD 31 CAR PARK MODS. - YELLOW.
APPROVALS YET
TO BE CONSTRUCTED - LIGHT BLUE.



REV	ZONE	DETAILS	DRN	DATE	CHKD	APPD
P22	ALL	Site Plan scale amended	B.M.	10-02-26	JS	
P21	ALL	Relocated Phosphorus Oxychloride storage bund	B.M.	21-01-26	JS	
P20	D6	Mod 31 car park added.	P.C.	12-5-25	JS	
P19	G1	Silos layout amended.	P.C.	28-4-25	JS	
P18	E2	Relocated phosphorus oxychloride bund added.	P.C.	08-04-25	JS	
P17	ALL	Mod 22 removed,Mod 29 now approved.	P.C.	30-01-25	JS	
P16	ALL	Was 5 silo layout.Substations relo.	P.C.	08-01-25	AT	

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DRAWN	DATE	JOB TITLE	SHT SIZE
P.C.	11/10/21	SHOALHAVEN STARCHES.BOMADERRY. NSW	A3
CHKD T.J.	DATE	DWG TITLE MOD 26. O/A WESTERN SITE PLAN.	REV.
APPD	DATE		P21
	SCALE 1:2500	PROJECT No. 7549SITE	DWG No. MN7549-002

EXISTING APPROVED PLANT – BLACK.
MOD 26 PROPOSAL – RED.
APPROVALS YET TO BE CONSTRUCTED – BLUE.

BOLONG ROAD

From Bomaderry

To Shoalhaven Heads

LANDSCAPING SCREEN

P.A. GATE.

SECURITY GATE.

WALKWAY.

TRUCK ROUTE.

SECURITY GATES.

TRUCK ROUTE.

WEIGHBRIDGE.

EXISTING CAR PARK.

WALKWAY.

OFFICE/AMENITY.

STAIR TOWER

WALKWAY.

EXTENT OF DEMOLISHING.

SECURITY FENCE.

SUBSTATION

WESTERN WAREHOUSE REMAINS.

EASTERN WAREHOUSE STAGE DEMOLISHED WHEN REQUIRED.

WORKSHOP REMAINS.

Ø23.68M SILOS.

EXTENT OF DEMOLISHING.

TRUCK ROUTE.

TRAIN & TRUCK UN-LOADER.

TRUCK ROUTE.

WEIGHBRIDGE.

7M SETBACK

17M SETBACK

19M SETBACK.

OFFICE/AMENITY.

STAIR TOWER.

SUPAGAS.

29M SETBACK

15M Min. SETBACK

APPROX RAILWAY LINES

RAILWAY LINES

RAILWAY LINE

App. TOP OF BANK.

Shoalhaven River

REV	ZONE	DETAILS	DRN	DATE	CHKD	APPD
P14	ALL	Was 5 silo layout.Substations relo.	P.C.	08-01-25	AT	
P13	ALL	Silo size changed,glucose plant removed.Scale was 1:1000.	P.C.	02-12-24	JS	
P12	E2	Glucose plant added.	P.C.	17-10-24	FT	
P11	ALL	Mod 25 rail lighting amended.	P.C.	05-04-24	JS	
P10	ALL	Car park moved to Mod 22.Sub 0.2 & 0.3 moved to Mod 29.	P.C.	08-02-24	AT	
P09	ALL	Tree canopy added.	P.C.	29-08-23	TJ	
P08	ALL	Substation west added,weighbridge relo.	P.C.	11-08-23	TJ	

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CHKD DATE
APPD DATE
SCALE 1:750

SHOALHAVEN STARCHES.BOMADERRY. NSW

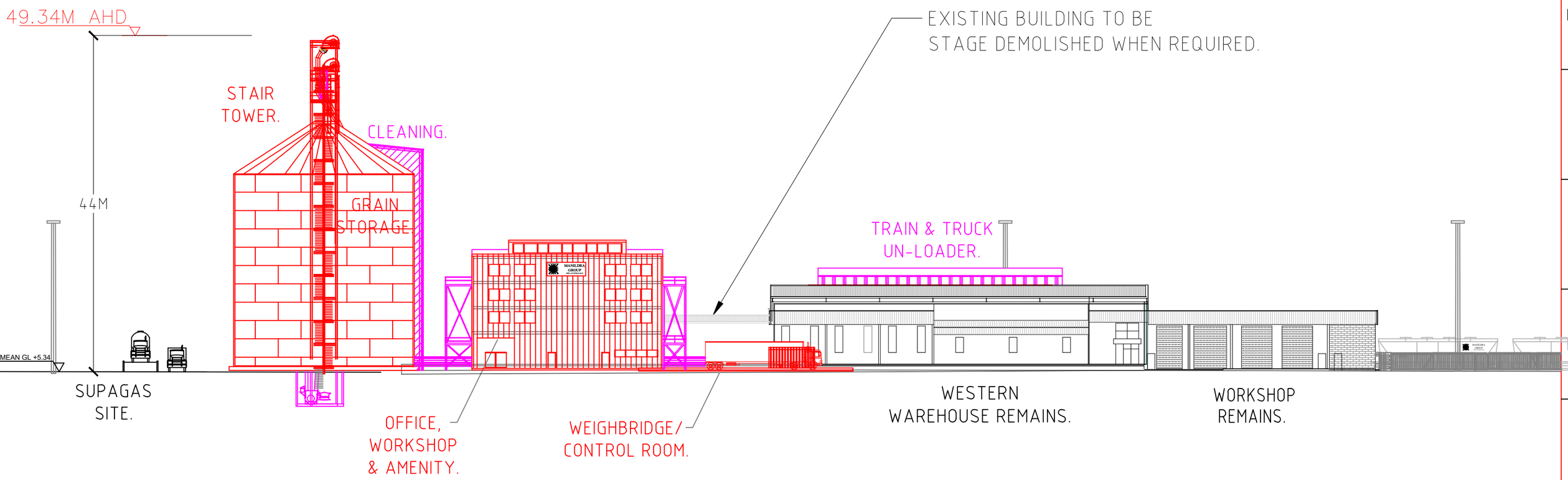
DWG TITLE
MOD 26.
GRAIN HANDLING/GLUCOSE PLANT SITE PLAN.

PROJECT No. 7549SITE
DWG No. MN7549-003

SHT SIZE A3
REV. P14

EXISTING APPROVED PLANT – BLACK.
NEW PROPOSAL – RED.

GRAIN SILO STORAGE.
Model SBHX236821
CAPACITY:9,000 T
Volume: 11577.3 m/3
Diameter: 23.683 m
Eve height: 25.13 m
Overall height: 32 m



GRAIN HANDLING NORTHERN ELEVATION.
VIEWED FROM BOLONG ROAD.

REV	ZONE	DETAILS	DRN	DATE	CHKD	APPD
P12	ALL	Cleaning added.	P.C.	04-03-25	GK	
P11	ALL	2 Silos & 1 substation removed.Office added.	P.C.	13-01-25	JS	
P10	ALL	Silo size changed.	P.C.	02-12-24	JS	
P09	ALL	New rail safety lights mod 25 removed.	P.C.	05-04-23	JS	
P08	ALL	Rail safety lights now mod 25.	P.C.	31-08-23	T.J.	
P07	ALL	Weighbridge relo.	P.C.	14-08-23	T.J.	
P06	ALL	Container storage & western warehouse demo removed.	P.C.	4-08-23	DJ	

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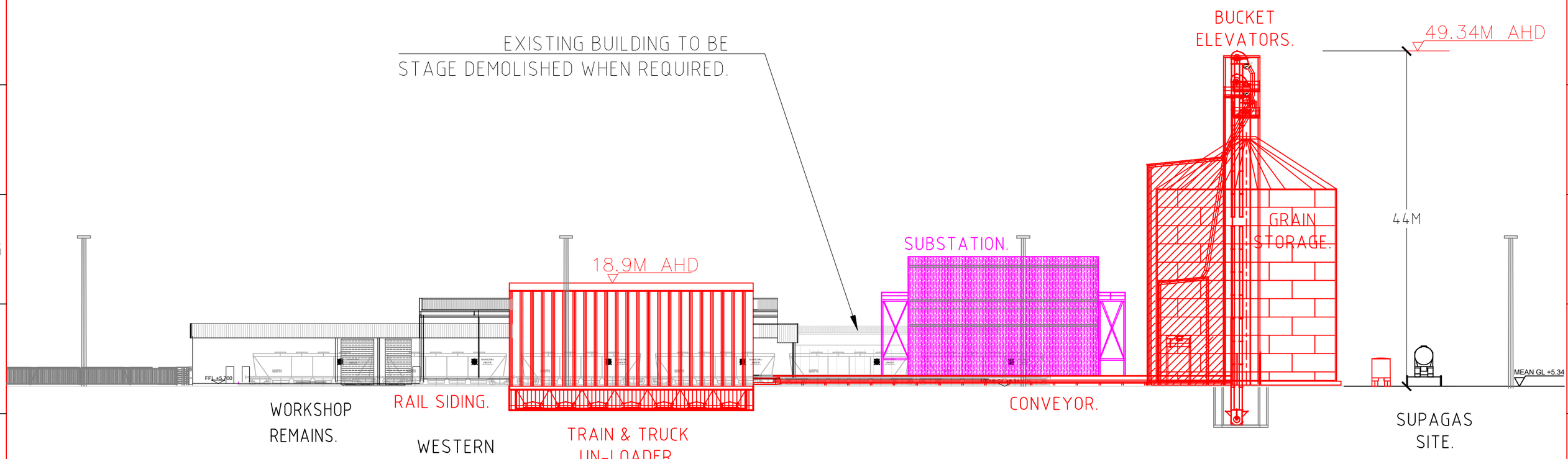
DRAWN	DATE	JOB TITLE	
P.C.		11/10/21	SHOALHAVEN STARCHES.BOMADERRY. NSW
CHKD T.J.	DATE	DWG TITLE	PROPOSED GRAIN UN-LOADER.MOD 26. GRAIN HANDLING NORTHERN ELEVATION.
APPD	DATE		
	SCALE 1:500	PROJECT No. 7549WAE	DWG No. MN7549-004

SHT SIZE A3
REV. P12

EXISTING APPROVED PLANT – BLACK.
NEW PROPOSAL – RED.

GRAIN SILO STORAGE.
Model SBHX236821
CAPACITY:9,000 T
Volume: 11577.3 m/3
Diameter: 23.683 m
Eve height: 25.13 m
Overall height: 32 m



GRAIN HANDLING SOUTHERN ELEVATION.
VIEWED FROM THE RAIL LINE.

REV	ZONE	DETAILS	DRN	DATE	CHKD	APPD
P12	ALL	Cleaning added.	P.C.	04-03-25	GK	
P11	ALL	2 Silos & 1 substation removed.Office added.	P.C.	13-01-25	JS	
P10	ALL	Silo size changed.	P.C.	02-12-24	JS	
P09	ALL	New rail safety lights mod 25 removed.	P.C.	05-04-23	JS	
P08	ALL	Rail safety lights now mod 25.	P.C.	31-08-23	T.J.	
P07	ALL	Weighbridge removed.	P.C.	15-08-23	T.J.	
P06	ALL	Container storage & western warehouse demo removed.	P.C.	4-08-23	DJ	

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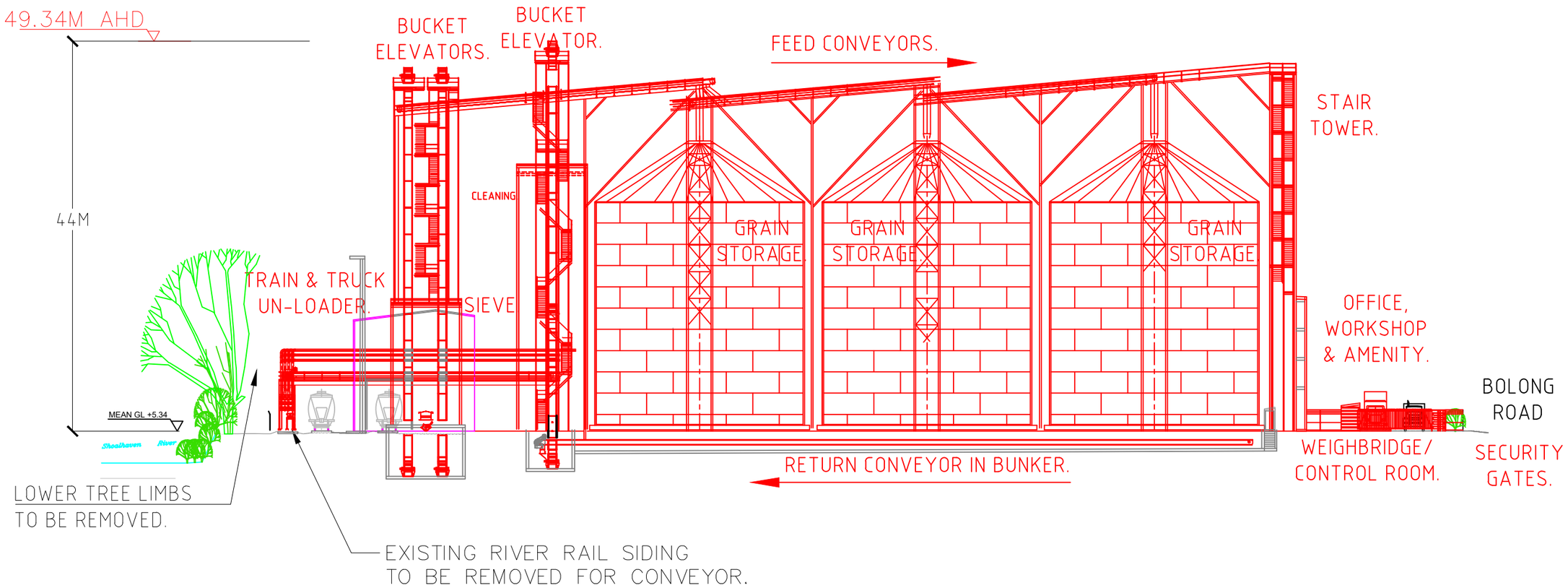
DRAWN	DATE	JOB TITLE		SHT SIZE
P.C.	11/10/21	SHOALHAVEN STARCHES.BOMADERRY. NSW		A3
CHKD T.J.	DATE	DWG TITLE	PROPOSED GRAIN UN-LOADER.MOD 26. GRAIN HANDLING SOUTHERN ELEVATION.	REV.
APPD	DATE			P12
	SCALE 1:500	PROJECT No. 7549WAE	DWG No. MN7549-005	

EXISTING APPROVED PLANT – BLACK.
NEW PROPOSAL – RED.

GRAIN SILO STORAGE.
Model SBHX236821
CAPACITY:9,000 T
Volume: 11577.3 m/3
Diameter: 23.683 m
Eve height: 25.13 m
Overall height: 32 m



GRAIN HANDLING EASTERN ELEVATION.

REV	ZONE	DETAILS	DRN	DATE	CHKD	APPD
P12	ALL	Cleaning added.	P.C.	04-03-25	GK	
P11	ALL	2 Silos & 1 substation removed.Office added.	P.C.	13-01-25	JS	
P10	ALL	Silo size changed.	P.C.	02-12-24	JS	
P09	ALL	New rail safety lights mod 25 removed.	P.C.	05-04-23	JS	
P08	ALL	Rail safety lights now mod 25.	P.C.	31-08-23	T.J.	
P07	ALL	Tree limbs to be removed wording added.	P.C.	29-08-23	T.J.	
P06	ALL	Weighbridge relo.	P.C.	15-08-23	T.J.	

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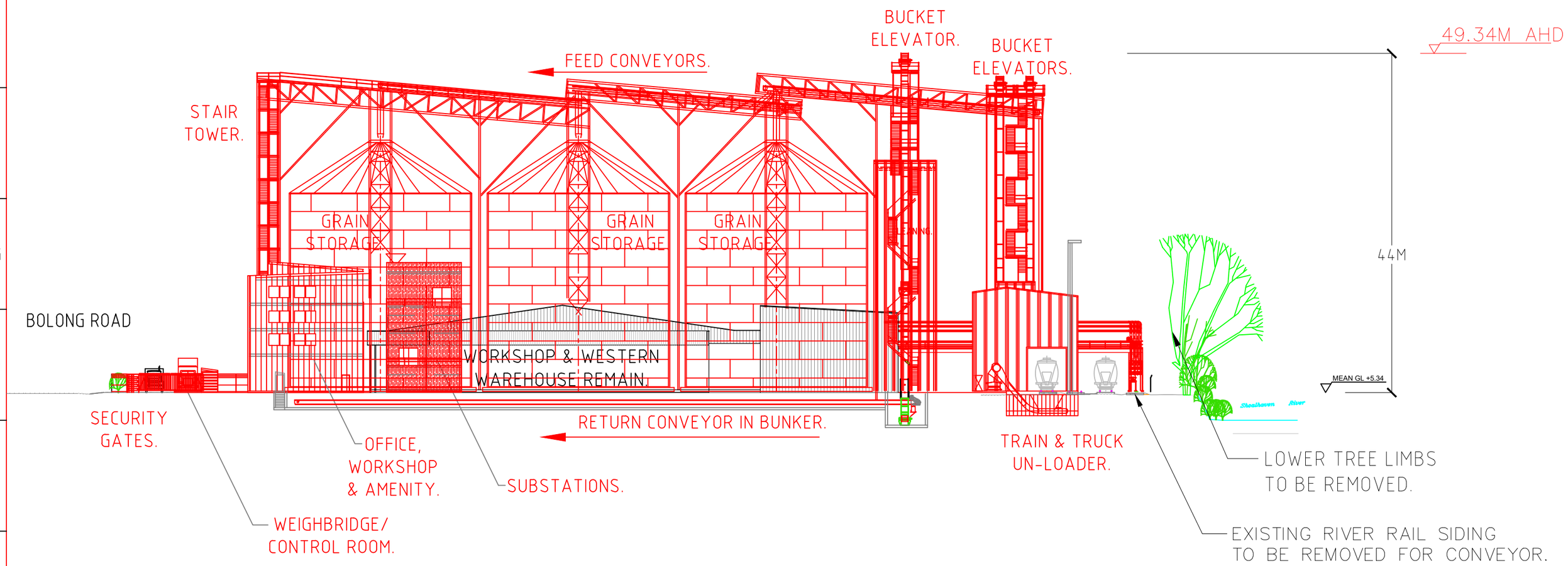
DRAWN	DATE	JOB TITLE	
P.C.		11/10/21	SHOALHAVEN STARCHES.BOMADERRY. NSW
CHKD T.J.	DATE	DWG TITLE	PROPOSED GRAIN UN-LOADER.MOD 26. GRAIN HANDLING EASTERN ELEVATION.
APPD	DATE		
	SCALE 1:500	PROJECT No. 7549WAE	DWG No. MN7549-006

SHT SIZE A3
REV. P12

EXISTING APPROVED PLANT – BLACK.
NEW PROPOSAL – RED.

GRAIN SILO STORAGE.
Model SBHX236821
CAPACITY:9,000 T
Volume: 11577.3 m/3
Diameter: 23.683 m
Eve height: 25.13 m
Overall height: 32 m



GRAIN HANDLING WESTERN ELEVATION.

REV	ZONE	DETAILS	DRN	DATE	CHKD	APPD
P12	ALL	Cleaning added.	P.C.	04-03-25	GK	
P11	ALL	2 Silos & 1 substation removed.Office added.	P.C.	13-01-25	JS	
P10	ALL	Silo size changed.	P.C.	02-12-24	JS	
P09	ALL	New rail safety lights mod 25 removed.	P.C.	05-04-23	JS	

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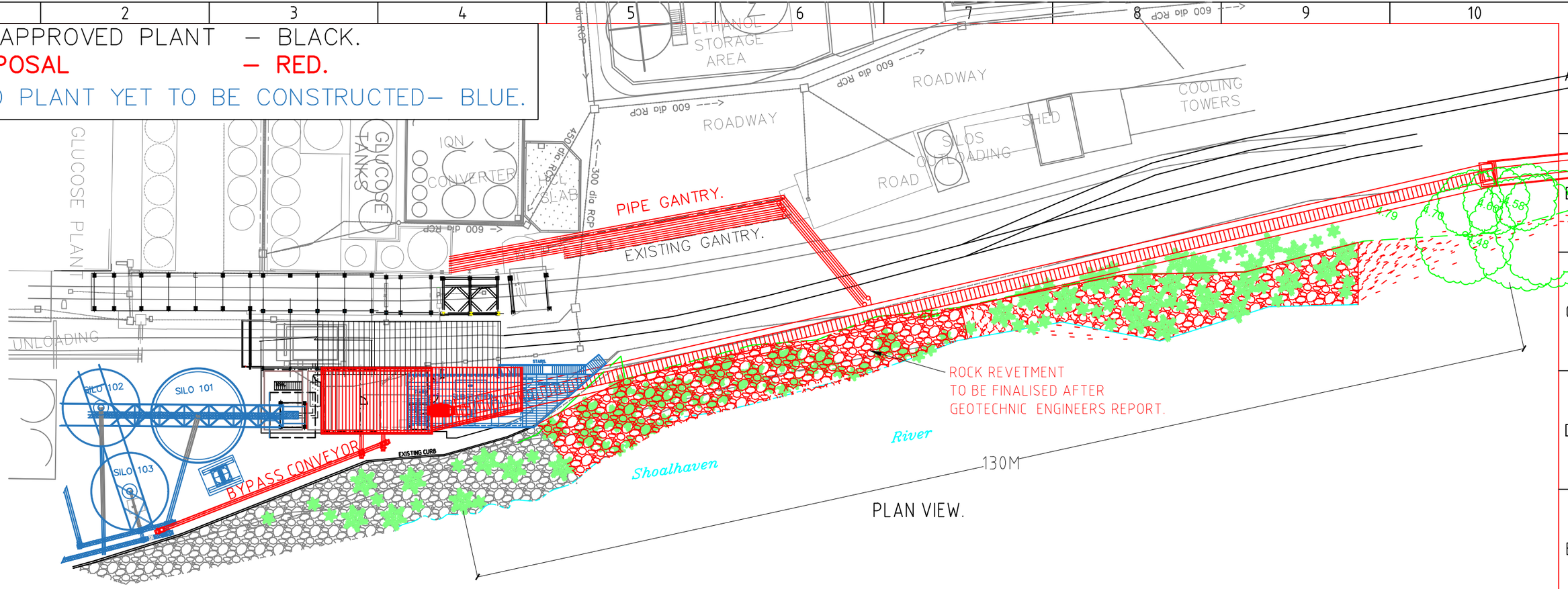
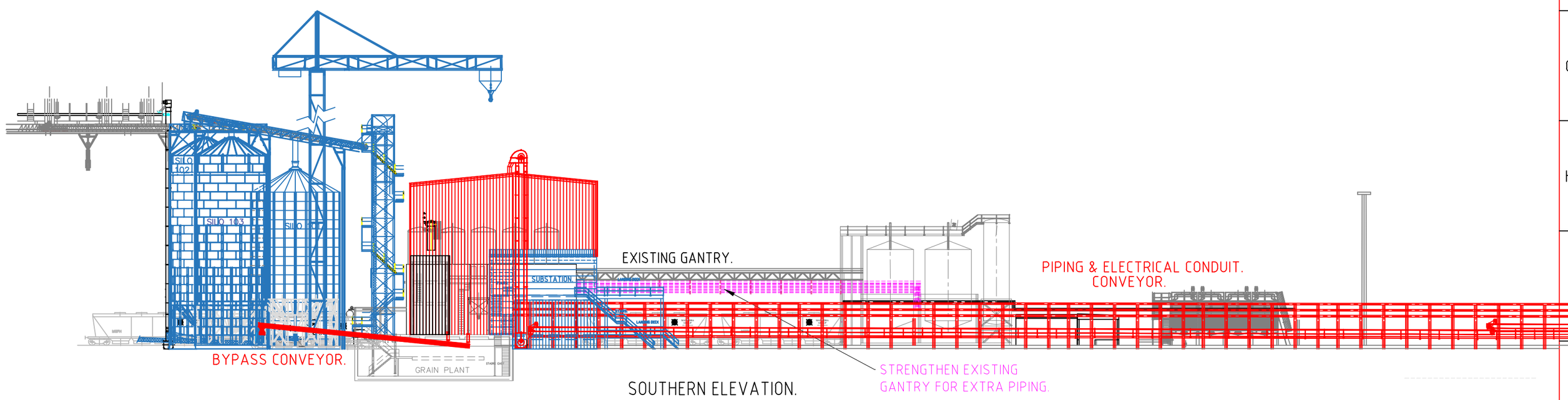
DRAWN	DATE	JOB TITLE	SHOALHAVEN STARCHES.BOMADERRY. NSW	SHT SIZE
P.C.	11/10/21			A3
CHKD T.J.	DATE	DWG TITLE	PROPOSED GRAIN UN-LOADER.MOD 26. GRAIN HANDLING WESTERN ELEVATION.	REV.
APPD	DATE			P12
	SCALE 1:500	PROJECT No. 7549WAE	DWG No. MN7549-007	

EXISTING APPROVED PLANT – BLACK.
NEW PROPOSAL – RED.
APPROVED PLANT YET TO BE CONSTRUCTED– BLUE.



PLAN VIEW.



SOUTHERN ELEVATION.

REV	ZONE	DETAILS	DRN	DATE	CHKD	APPD
P11	ALL	Building extended,bypass conveyor added.	P.C.	01/04/25	GK	
P10	ALL	Route changed back to original.	P.C.	10/03/25	GK	
P09	ALL	New rail safety lights mod 25 removed.	P.C.	05/04/24	B.H.	
P08	ALL	Lighting now Mod 25.Tree limbs to be removed added.	P.C.	31/08/23	B.H.	
P07	ALL	GA drawing now this drawing number.	P.C.	25/06/23	B.H.	

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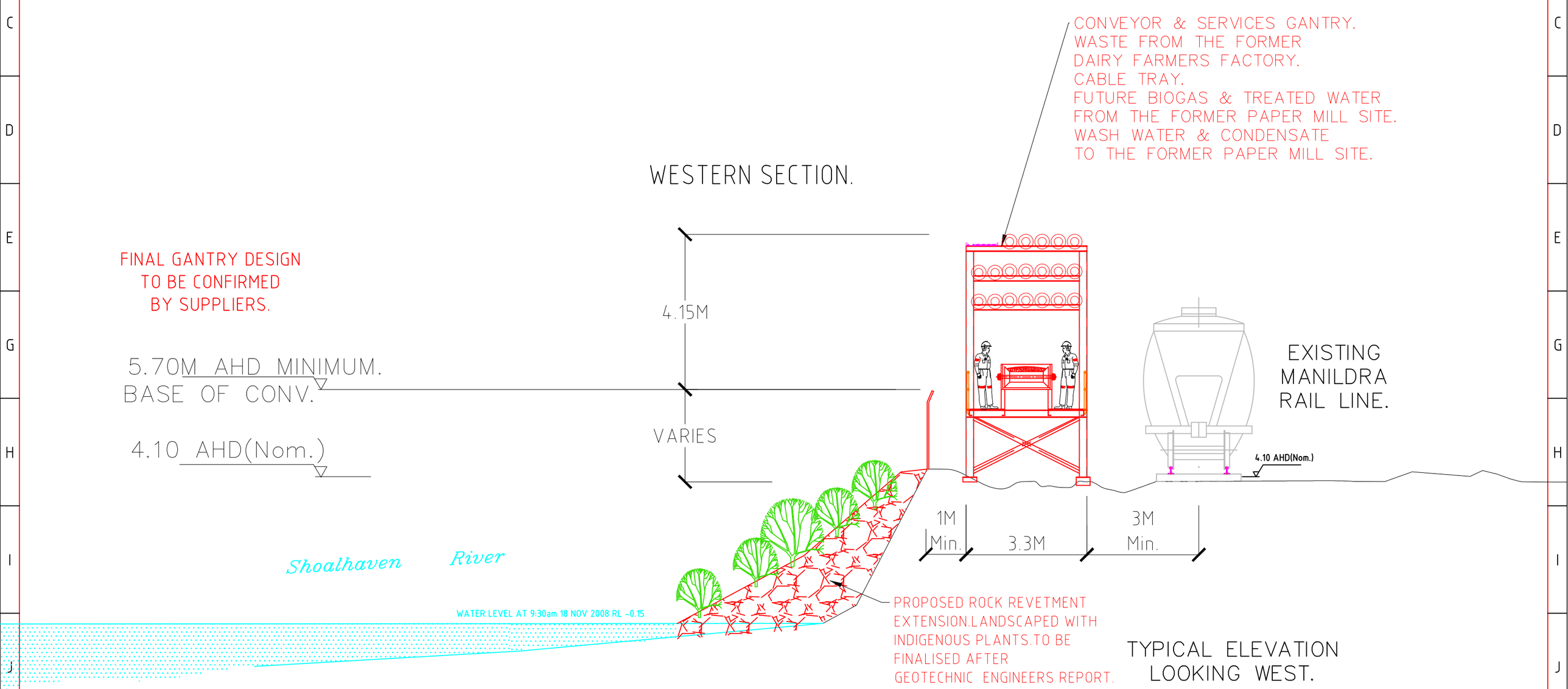
DRAWN P.C.	DATE 11/10/21	JOB TITLE SHOALHAVEN STARCHES.BOMADERRY. NSW	SHT SIZE A3
CHKD T.J.	DATE	DWG TITLE PROPOSED GRAIN UN-LOADER. CONVEYOR TO PLANT GA.	
APPD	DATE		REV. P11
	SCALE 1:500	PROJECT No. 7549D / DWG No. MN7549-008	

EXISTING APPROVED PLANT – BLACK.
NEW PROPOSAL – RED.



REV	ZONE	DETAILS	DRN	DATE	CHKD	APPD
P06	ALL	Conveyor relocated.	P.C.	10/03/25	G.K.	
P05	ALL	New rail safety lights mod 25 removed.	P.C.	05/04/24	JS	
P04	ALL	Lighting now Mod 25.Tree limbs to be removed added.	P.C.	31/08/23		
P03	ALL	Drawing -009 now -015.	P.C.	25-06-23	G.K.	
P01	ALL	New proposal.	P.C.	23-02-23	G.K.	

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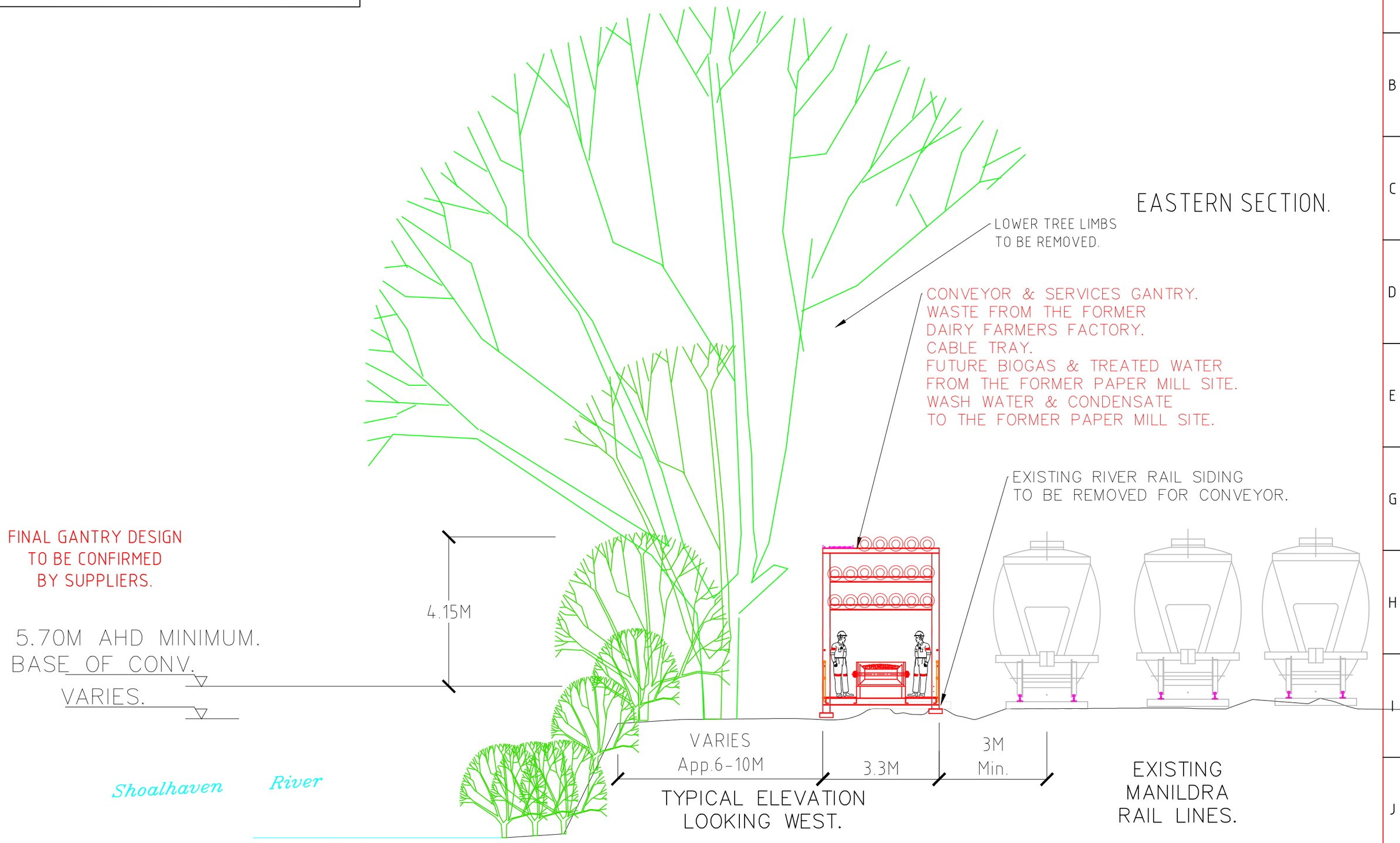
DRAWN P.C.	DATE 11/10/21	JOB TITLE SHOALHAVEN STARCHES.BOMADERRY. NSW	SHT SIZE A3
CHKD T.J.	DATE	DWG TITLE PROPOSED GRAIN UN-LOADER. WESTERN SECTION CONVEYOR & SERVICES GANTRY ELEVATION.	REV. P06
APPD	DATE		
	SCALE 1:100	PROJECT No. 7549D / DWG No. MN7549-009	

EXISTING APPROVED PLANT – BLACK.
NEW PROPOSAL – RED.



REV	ZONE	DETAILS	DRN	DATE	CHKD	APPD
P08	ALL	New rail safety lights mod 25 removed.	P.C.	05/04/24	JS	
P07	ALL	Lighting now Mod 25.Tree limbs to be removed added.	P.C.	31/08/23		
P06	ALL	Lighting reinstated,river rail siding now removed,gantry remodeled.	P.C.	25/06/23		
P05	ALL	Proposed train lighting and earth mound removed.	P.C.	08/08/22	B.H.	
P04	I6	Pipe rack shown skinnier & higher.	P.C.	17/05/22	T.J.	
P03	I6	Earth mound shown.	P.C.	14/04/22	T.J.	

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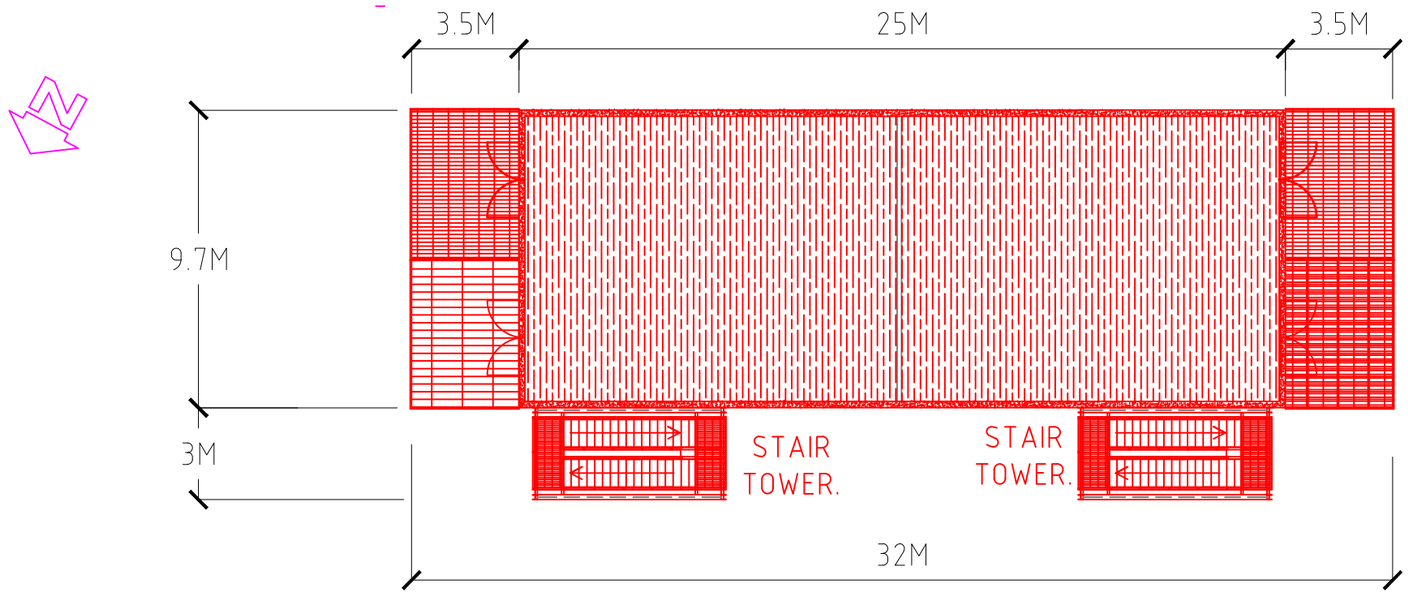
DRAWN P.C.	DATE 11/10/21	JOB TITLE SHOALHAVEN STARCHES.BOMADERRY. NSW	SHT SIZE A3
CHKD T.J.	DATE	DWG TITLE PROPOSED GRAIN UN-LOADER. EASTERN SECTION CONVEYOR & SERVICES GANTRY ELEVATION.	REV. P08
APPD	DATE		
	SCALE 1:100	PROJECT No. 7549D / DWG No. MN7549-010	

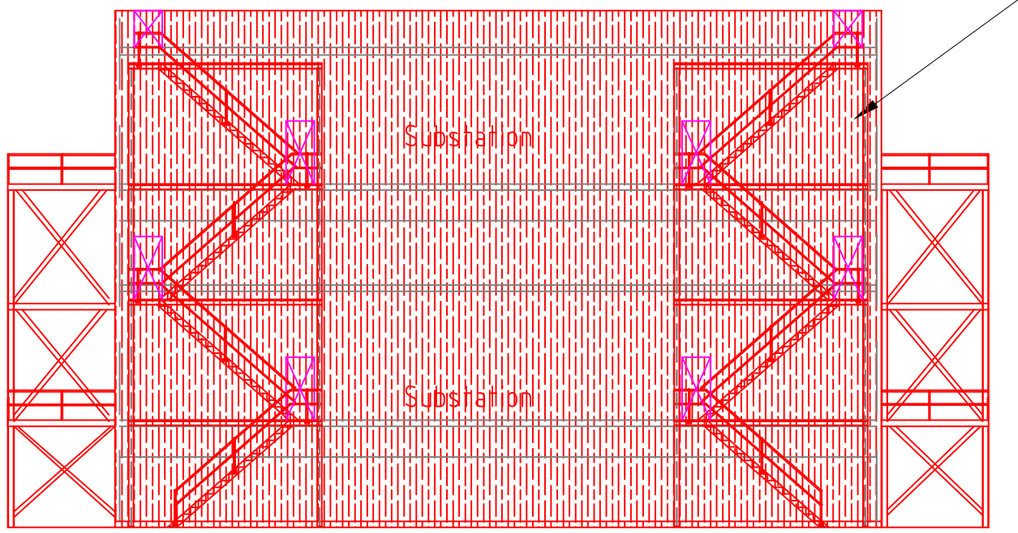
NEW PROPOSAL – RED.



PLAN VIEW.

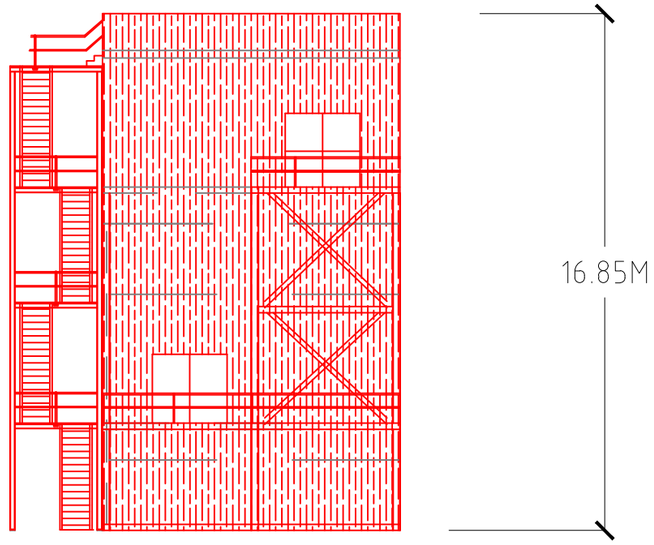
SECOND FLOOR OF SUBSTATION
TO BE CONSTRUCTED AS STAGE 2
WHEN DEMAND REQUIRES CONSTRUCTION.

AC's ON ROOF.



SIDE ELEVATION.

AC's ON ROOF.



END ELEVATION.

REV	ZONE	DETAILS	DRN	DATE	CHKD	APPD
P05	ALL	Workshop & amenity removed.	P.C.	30/01/25	J.C.	
P04	ALL	Wording amended.	P.C.	06/12/24	J.C.	
P03	ALL	Was 7m wide.	P.C.	15/08/23	J.C.	
P02	ALL	New proposal.	P.C.	25/06/23	PW	
P01	ALL	New proposal.	P.C.	1/04/22	T.J.	

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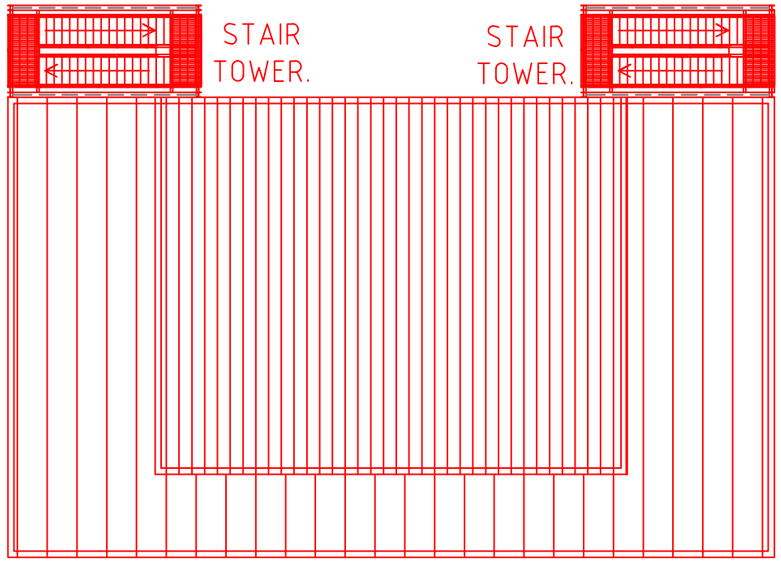
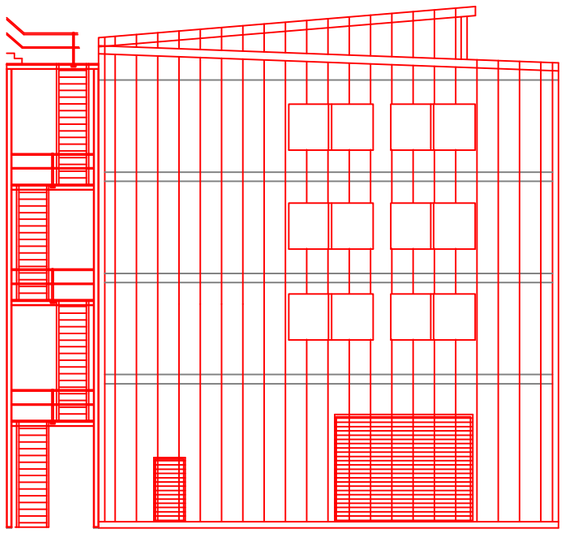
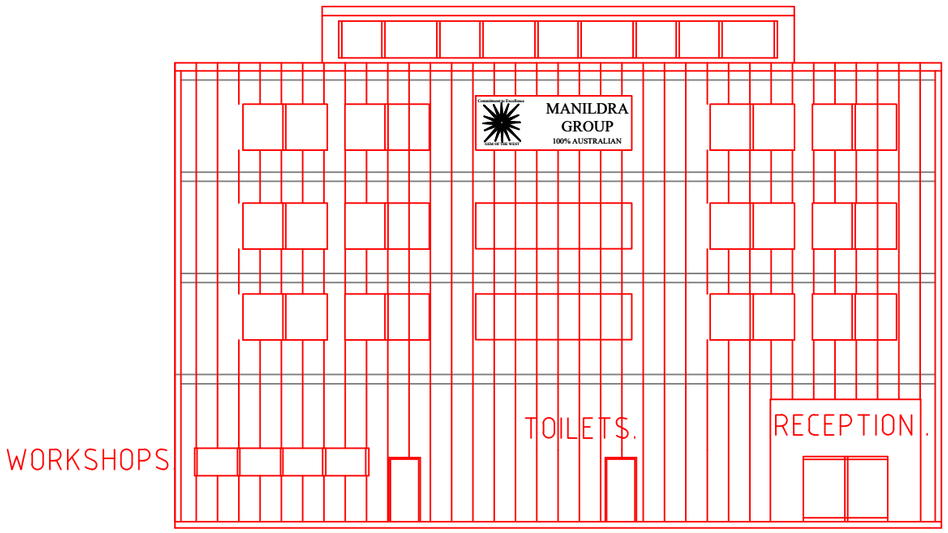
DRAWN P.C.	DATE 25/06/23	JOB TITLE SHOALHAVEN STARCHES.BOMADERRY. NSW	SHT SIZE A3
CHKD T.J.	DATE	DWG TITLE PROPOSED GRAIN UN-LOADER. SUBSTATION.	
APPD	DATE		REV. P05
	SCALE 1:200	PROJECT No. 7549WAE / DWG No. MN7549-011	

NEW PROPOSAL – RED.





15M



25M

OFFICE/KITCHEN.

OFFICE.

CONTROL ROOM .

17M

REV	ZONE		DRN	DATE	CHKD	APPD
P04	ALL	Copied and modified to suit from SD6 proposal.	P.C.	30-1-25	TJ	
P03	ALL	Plan reduced.	P.C.	4-9-24	AT	
P01	ALL	Conceptual plan.	P.C.	15-1-24	AT	

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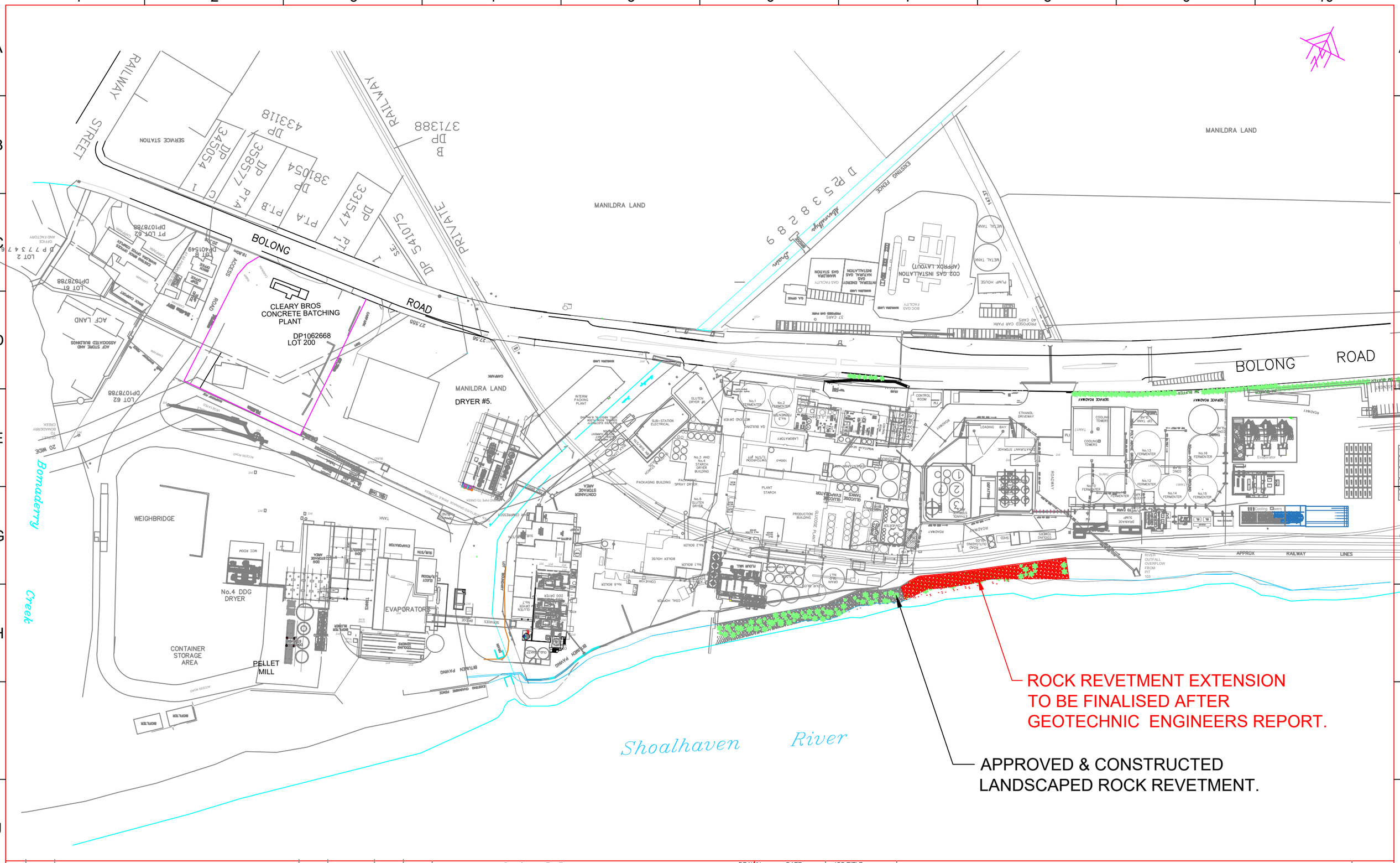
DRAWN P.C.	DATE	JOB TITLE SHOALHAVEN STARCHES.BOMADERRY. NSW	SHT SIZE A3
CHKD T.J.	DATE	DWG TITLE PROPOSED GRAIN UN-LOADER.	
APPD	DATE	CONTROL ROOM/WORKSHOP/OFFICE G.A.	REV. P04
SCALE 1:200		PROJECT No. 7549WAE / DWG No. MN7549-012	



REV	ZONE	DETAILS	DRN	DATE	CHKD	APPD
P02	ALL	Wall was a 60m extension.	P.C.	14/04/22	B.H.	
P01	ALL	New proposal.	P.C.	01-04-22	B.H.	

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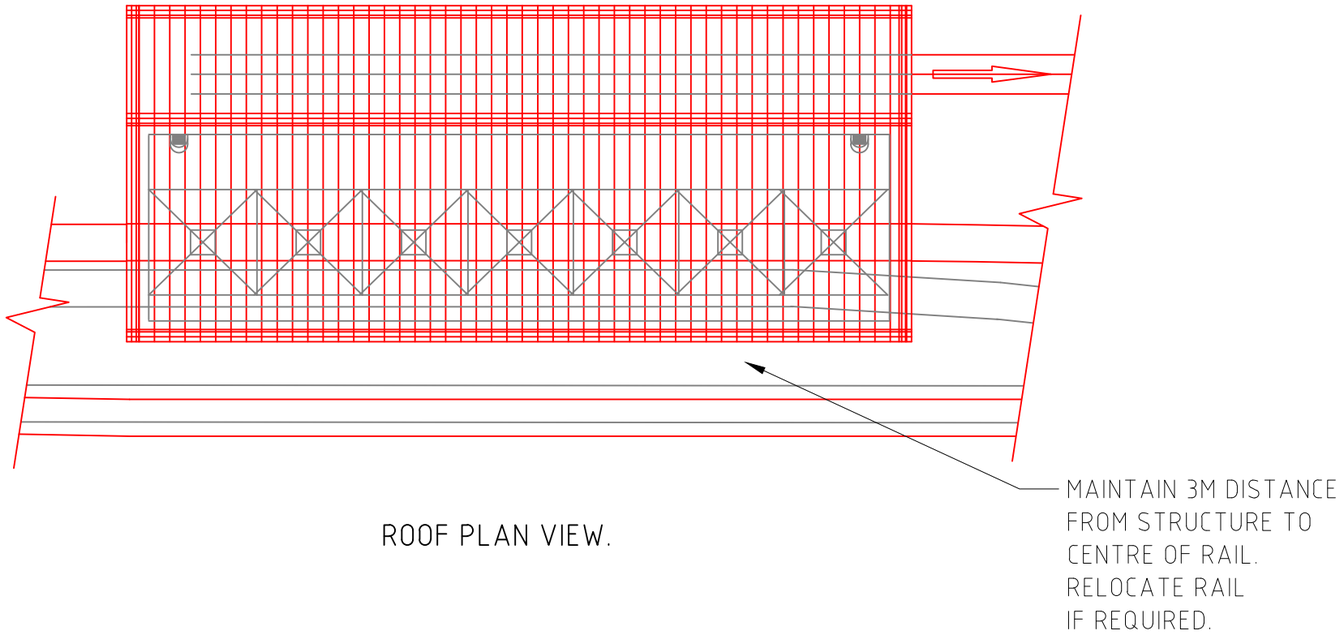
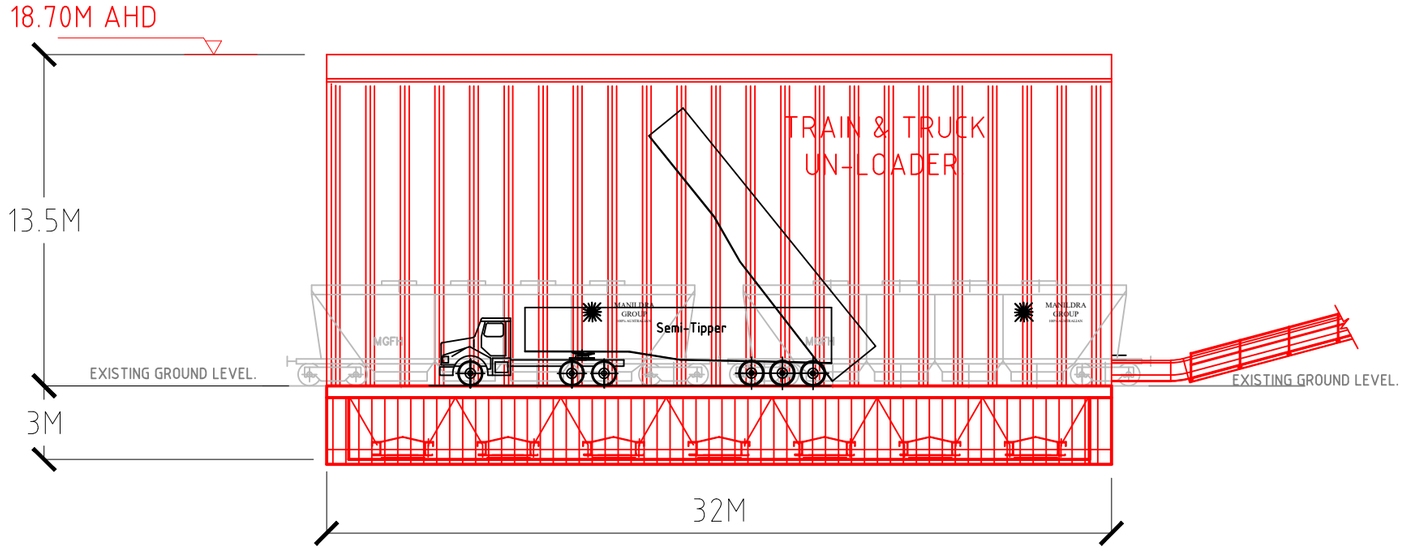
PC Drafting 0439 436508 Est. 2003

DRAWN P.C.	DATE 01/04/22	JOB TITLE SHOALHAVEN STARCHES.BOMADERRY. NSW	SHT SIZE A3
CHKD B.H.	DATE	DWG TITLE PROPOSED RIVERBANK STABILISATION. O/A SITE PLAN.	
APPD	DATE		REV. P02
	SCALE 1:2000	PROJECT No. 7549A / DWG No. MN7549-013	

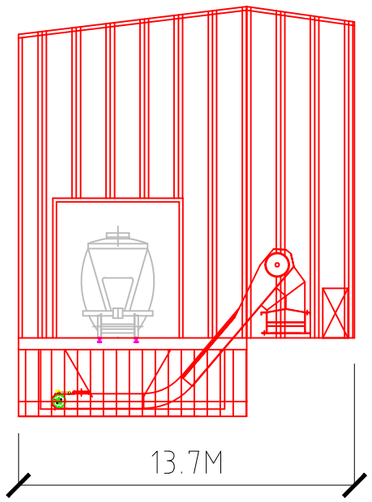
EXISTING APPROVED PLANT – BLACK.
NEW PROPOSAL – RED.



ROOF PLAN VIEW.



SIDE ELEVATION.



END ELEVATION.

REV	ZONE	DETAILS	DRN	DATE	CHKD	APPD
P01	ALL	New proposal.	P.C.	25/06/23		

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DRAWN P.C.	DATE 25/06/23	JOB TITLE SHOALHAVEN STARCHES.BOMADERRY. NSW	SHT SIZE A3
CHKD	DATE	DWG TITLE PROPOSED GRAIN UN-LOADER. TRUCK AND TRAIN UNLOADER.	
APPD	DATE		REV. P01
	SCALE 1:250	PROJECT No. 7549WAE	DWG No. MN7549-014

EXISTING APPROVED PLANT.

NEW PROPOSAL.

Shoalhaven River

16.5M

22M SETBACK

RAIL

RAIL CONTROL ROOM.

STORM WATER PIT.

9M

COOLING TOWERS

150 CI? RING MAIN 900 DEEP PLUS 2x90mm ELECT CONDUITS 1200 DEEP

WALKWAY

DRIVEWAY

REROUTE EXISTING COMPRESSED AIRLINE.

WALKWAY

WALKWAY

FERMENTER

FERMENTER

PLAN VIEW.

REV	ZONE	DETAILS	DRN	DATE	CHKD	APPD
P02	ALL	Proposals pending approval removed.	P.C.	08-08-22	B.H.	
P01	ALL	First issue.	P.C.	2-12-21	B.H.	

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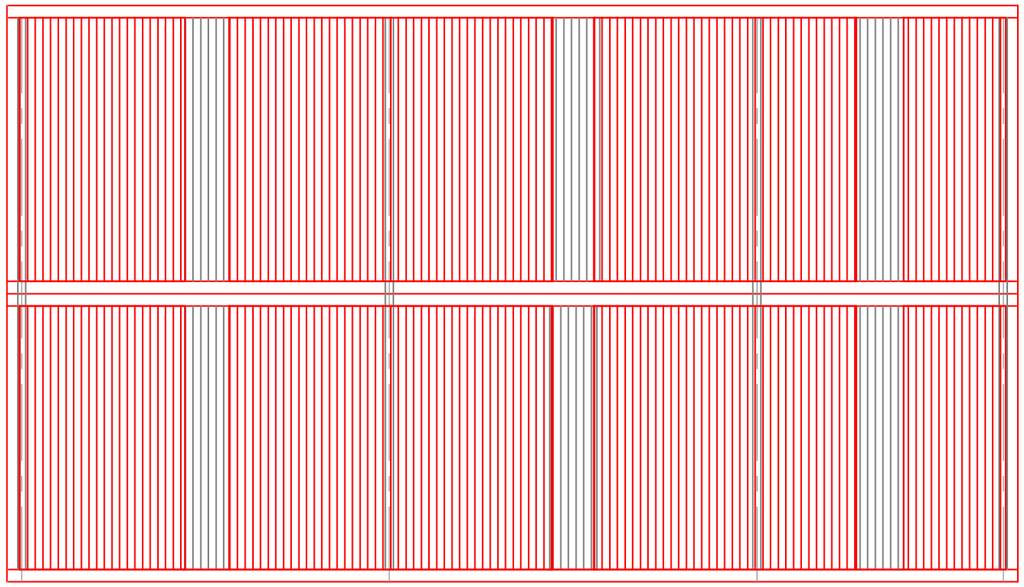
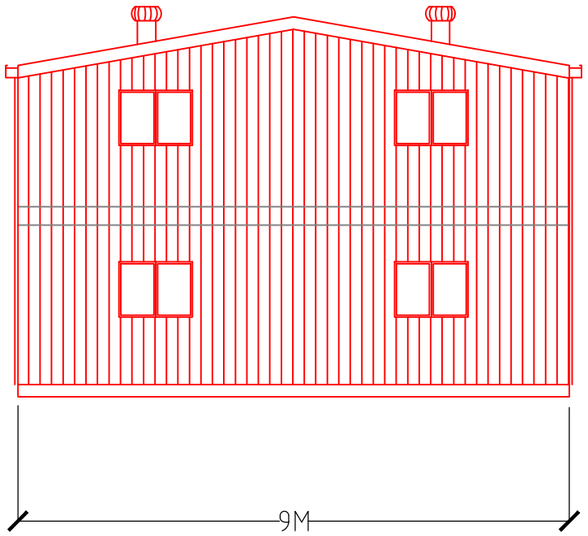
P.C.	02/12/21	SHOALHAVEN STARCHES.BOMADERRY. NSW	A3
CHKD BH	DATE	DWG TITLE ETHANOL MAINTENANCE BUILDING. SITE PLAN.	REV.
APPD	DATE		P02
SCALE 1:200		PROJECT No. 7535	DWG No. MN7549-015

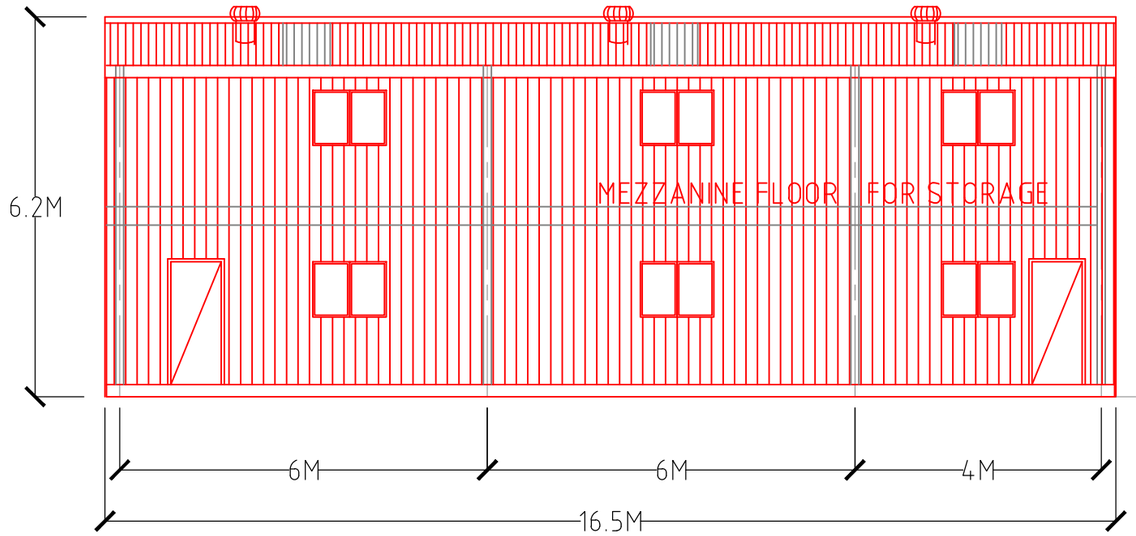
ETHANOL MAINTENANCE SHED.
9M SPAN x 16.5M.
ROLLER DOOR 4M WIDE x 4M HIGH.
ALL WINDOWS 1.2M W x .9M HIGH.
INSULATION TO ROOF.
FULL LENGTH SKYLIGHTS.
WHIRLYBIRD ROOF VENTILATION.
ALL EXTERNAL MATERIAL
COLORBOND JASPER FINISH.



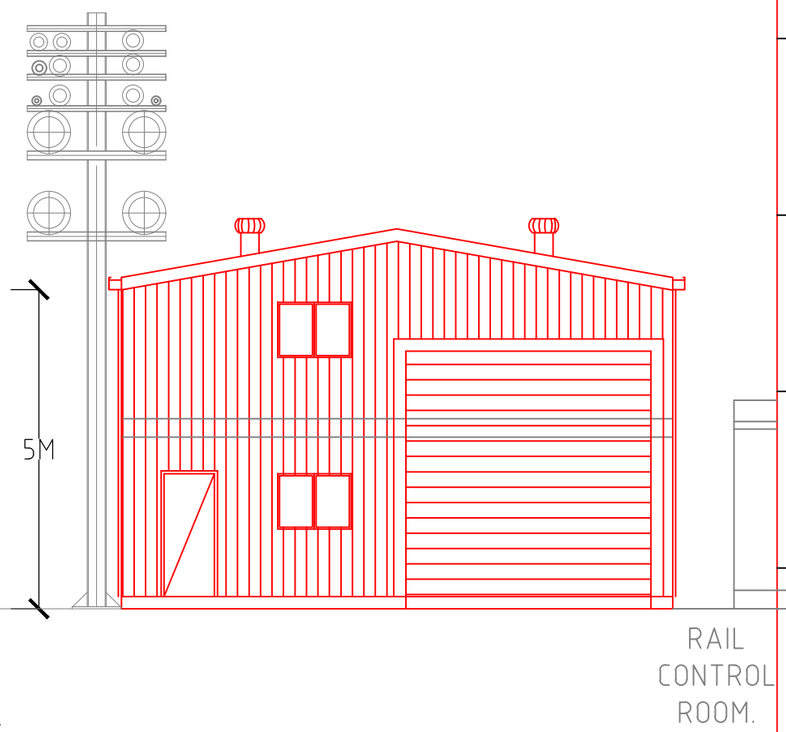
PLAN VIEW.



END ELEVATION.



SIDE ELEVATION.



FRONT ELEVATION.

REV	ZONE	DETAILS	DRN	DATE	CHKD	APPD
P01	ALL	First issue.	P.C.	3-12-21	B.H.	

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P.C.	03/09/21	SHOALHAVEN STARCHES.BOMADERRY. NSW	A3
CHKD BH	DATE	DWG TITLE ETHANOL MAINTENANCE BUILDING. G.A.	REV.
APPD	DATE		P01
	SCALE 1:250	PROJECT No. 7535 / DWG No. MN7549-016	

MOD 26.

MOD 31 CAR PARK.

EXISTING APPROVED PLANT.

TOTAL CAR PARKING SPACES- 428.
Existing- 145.
Mod 26- 283.

283 ADDITIONAL CAR SPACES. MINIMUM WIDTH OF 90° ANGLE PARKING IS 2.4M x 5.4M LONG. MINIMUM WIDTH OF ROAD IS 6.2M. (AS/NZS 2890.1:2004). AREAS USED FOR CAR PARKS.

LIGHT TOWERS(12). AHD 16M.

142M

45M

97M

5.5M 7M 5.5M

APPROVED NORTHERN CAR PARK.

METAL TANK

METAL TANK

PUMP HOUSE

CO2 GAS INSTALLATION

BOC GAS FACILITY

GATE 2

APPROVED CAR PARK

NEW ENTRY.

NEW EXIT.

WALKWAY

EXISTING ENTRY/ EXIT.

BOLONG ROAD

PEDESTRIAN REFUGE ISLAND. OPENING IN CENTRE FENCE.

EXISTING FOOTPATH

EXISTING FOOTPATH

CONTROL ROOM

FM

WATER PIPE

SLAB

WALKWAY

CURB

ROADWAY LOADING BAY

DRIVEWAY

GATE 5

COOLING TOWERS

GATE 3

78M

7M

7M

6M

REV	ZONE		DRN	DATE	CHKD	APPD
P07	ALL	Mod 31 car park added.	P.C.	12-05-25	JS	
P06	ALL	Car park extended.Pedestrian crossing relo.	P.C.	9-11-22	B.H.	A.T.
P05	ALL	Car park extended.Was drawing No. MN7769-013.	P.C.	4-7-22	B.H.	A.T.
P04	12	Control second stair tower added.	P.C.	21-9-21	B.H.	
P03	12	Control room added.	P.C.	14-9-21	B.H.	
P02	ALL	Car park extended.	P.C.	11-8-21	B.H.	
P01	ALL	Draft.	P.C.	6-7-21	B.H.	

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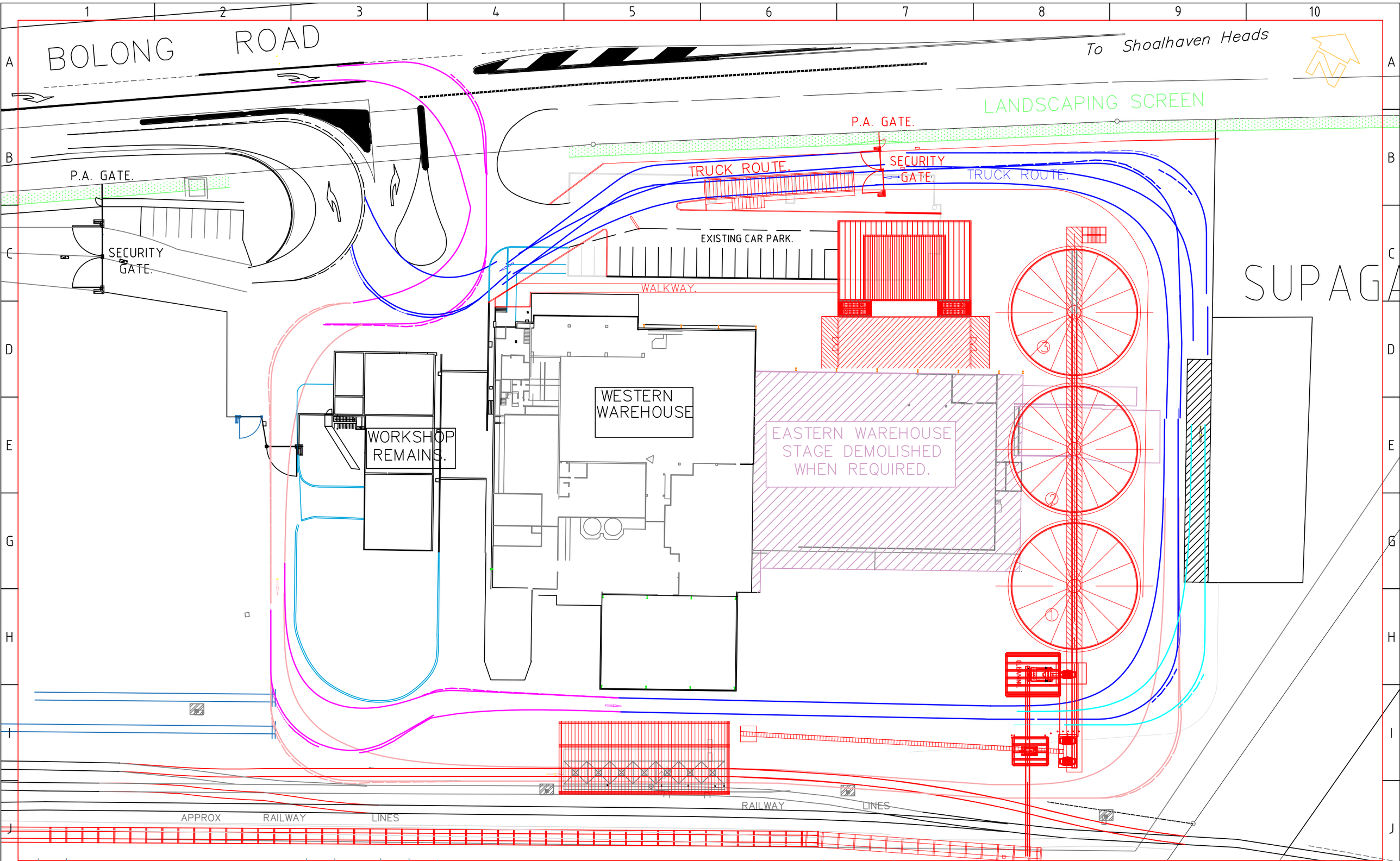
P.C.	12/11/20	SHOALHAVEN STARCHES.BOMADERRY. NSW
CHKD B.H.	DATE	DWG TITLE NORTHERN CAR PARK.MOD 26. EXTENSION AND PEDESTRIAN ACCESS.
APPD	DATE	
	SCALE 1:750	PROJECT No. 7549-017 / DWG No. MN7549-017

A3

REV. P07



REV	ZONE	DETAILS	DRN	DATE	CHKD	APPD
P04	ALL	changed.	P.C.	08-03-25	GK	
P02	ALL	Silo size changed.	P.C.	03-12-24	T.J.	
P01	ALL	Truck route was clockwise.	P.C.	01-09-23	T.J.	

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CHKD
APPD
DATE
SCALE 1:1250

SHOALHAVEN STARCHES.BOMADERRY. NSW

DWG TITLE
PROPOSED GRAIN UN-LOADER.MOD 26.
TRAFFIC MOVEMENTS.SITE PLAN.

PROJECT No. 7549-017

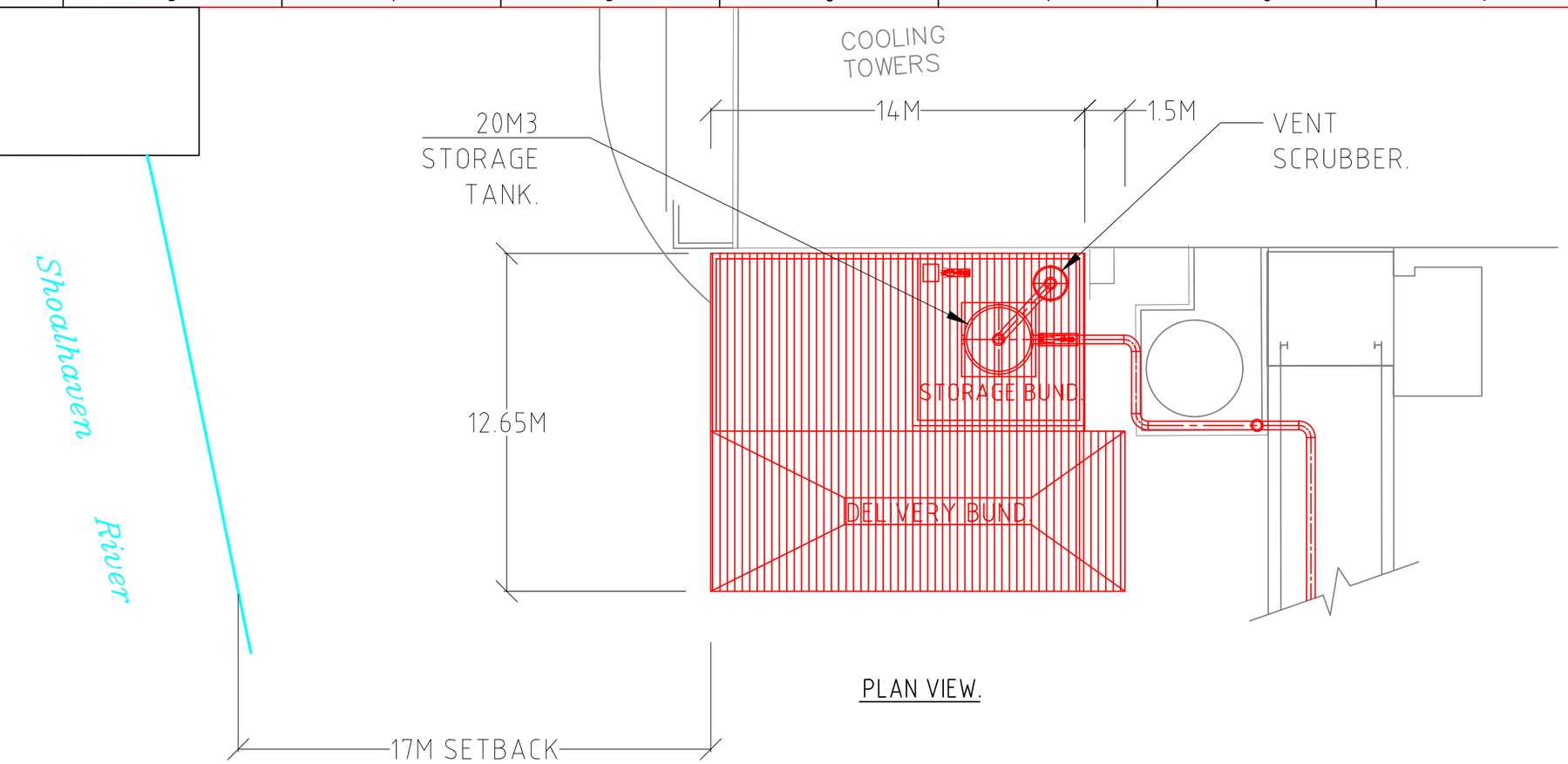
DWG No. MN7549-018

A3

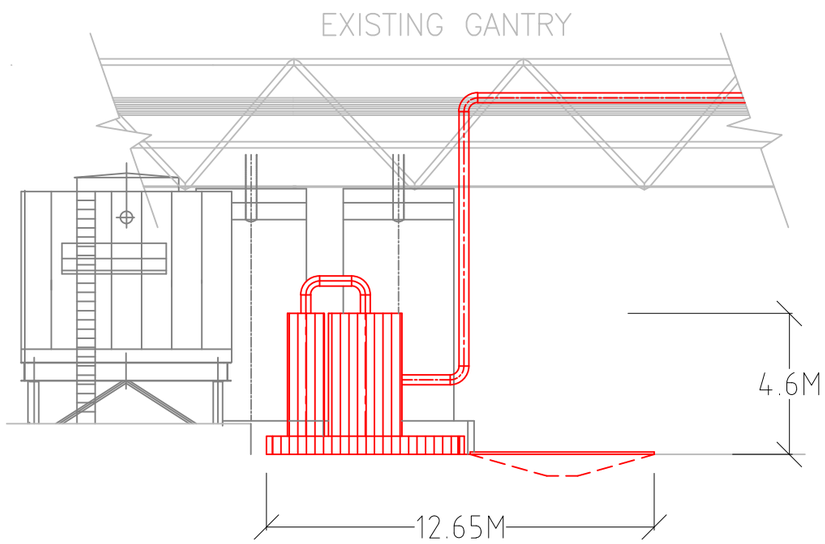
REV. P04

EXISTING APPROVED PLANT.

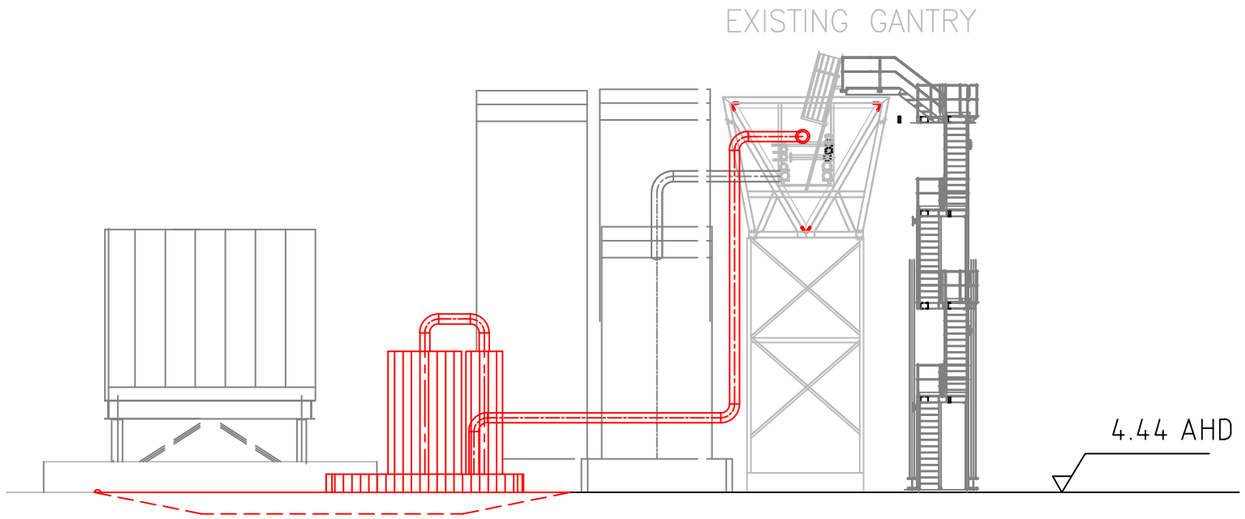
MOD 26.



PLAN VIEW.



ELEVATION LOOKING NORTH.



ELEVATION LOOKING WEST.

REV	ZONE	DETAILS	DRN	DATE	CHKD	APPD
P06	ALL	Bund reshaped.	P.C.	24-11-22	J.S.	
P05	ALL	Was MN-7532-015.	P.C.	16-11-22	B.H.	
P04	ALL	Was MN-7462-025.	P.C.	25-07-22	B.H.	
P03	ALL	Was product feed tanks.	P.C.	17-01-22	B.H.	
P02	ALL	Was MN7079-009.	P.C.	10-11-21	B.H.	
P01	ALL	First issue.	P.C.	20-08-21	B.H.	

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PC Drafting 0439 436508

DRAWN P.C.	DATE 20/08/21	JOB TITLE	SHOALHAVEN STARCHES.BOMADERRY. NSW
CHKD BH	DATE	DWG TITLE	MOD 26.NEW PROPOSALS. NITRIC ACID STORAGE & BUND.
APPD	DATE		
	SCALE 1:200	PROJECT No. 7079WAE	DWG No. MN7549-019

SHT SIZE A3

REV. P06

EXISTING APPROVED PLANT -BLACK.
MOD 25 PENDING APPROVAL -ORANGE.
MOD 26 RAIL MAINTENANCE BUILDING-RED.

RAIL MAINTENANCE BUILDINGS.-021.

BOLONG ROAD

PROPOSED CONCRETE PLANT BY OTHERS.

ACCESS ROAD

MANILDRA OLD PAPER MILL SITE.

DP 384559

DP 544730

DP 531429

LOT BOUNDARY

Wire Mesh Fence

Slope

RAIL FUEL & PROVISIONS.

Shoalhaven River

REV	ZONE		DRN	DATE	CHKD	APPD
P20		Fence line removed.	B.M.	27-11-25	J.S.	
P19	B9	Rail maintenance wagon building extended & relo.	P.C.	19-03-25	M.O.	
P18	C9	Fuel & provisions,2nd building added.	P.C.	11-03-25	M.O.	
P16	E8	Seaweed removed.	P.C.	24-02-23	J.S.	
P15	B9	Rail maintenance building & seaweed added.	P.C.	13-02-23	M.O.	
P14	ALL	Track reworked.	P.C.	9-05-22	B.H.	

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P.C.	12/5/21	
CHKD B.H.	DATE	
APPD	DATE	
	SCALE 1:2500	

SHOALHAVEN STARCHES.BOMADERRY. NSW

DWG TITLE
PAPER MILL RAIL MAINTENANCE BUILDING.MOD 26.
SITE PLAN.

PROJECT No. 7464

DWG No. MN7549-020

A3

REV. P20

EXISTING APPROVED PLANT -BLACK.
MOD 25 PENDING APPROVAL -ORANGE.
MOD 26 RAIL MAINTENANCE BUILDINGS-RED.

N

BOLONG ROAD

LOT BOUNDARY

RAIL LOCO MAINTENANCE BUILDING.

24M SETBACK

10.465M

9.M

21M SETBACK

25M

30M SETBACK

30.507M

33.5M SETBACK

40.507M

12M x 3M AMENITY BUILDING & CAR PARKING.

CLEARY BROS. CONCRETE PLANT.

ACCESS ROAD.

RAIL WAGON MAINTENANCE BUILDING.

LOT BOUNDARY.

GATES

ACCESS ROAD.

3.0

REV	ZONE		DRN	DATE	CHKD	APPD
P08		Fence Line Removed.	B.M.	27-11-25	J.S.	
P07	D8	Rail maintenance wagon building extended & relo.	P.C.	19-03-25	M.O.	
P06	ALL	Wagon maintenance building added,fuel removed.	P.C.	23-02-23	M.O.	
P05	G7	Fuel & provisions added.	P.C.	03-12-24	J.S.	
P04	ALL	Maintenance building added.	P.C.	23-02-23	B.H.	
P03	ALL	Seaweed removed.	P.C.	23-02-23	B.H.	
P02	ALL	Maintenance moved 25m south.	P.C.	17-02-23	B.H.	M.O.

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P.C.	12/5/21	
CHKD B.H.	DATE	
APPD	DATE	
	SCALE 1:750	

SHOALHAVEN STARCHES.BOMADERRY. NSW

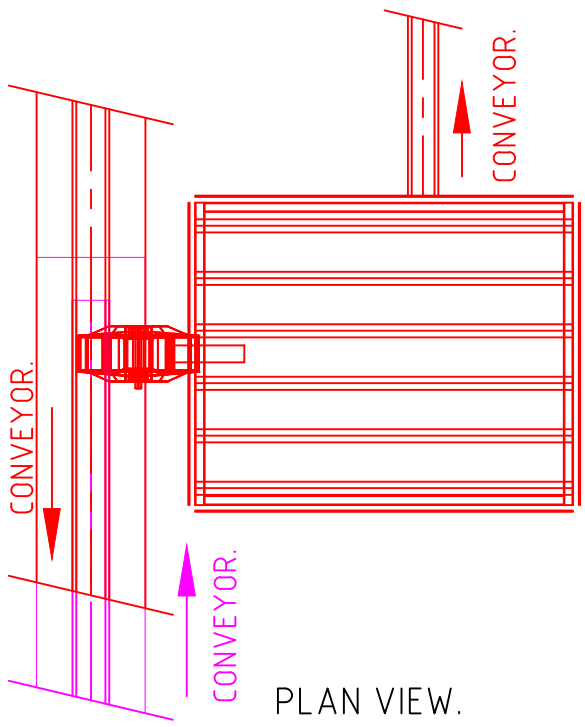
DWG TITLE
PAPER MILL RAIL MAINTENANCE BUILDING.MOD 26. LAYOUT.

PROJECT No. 7464

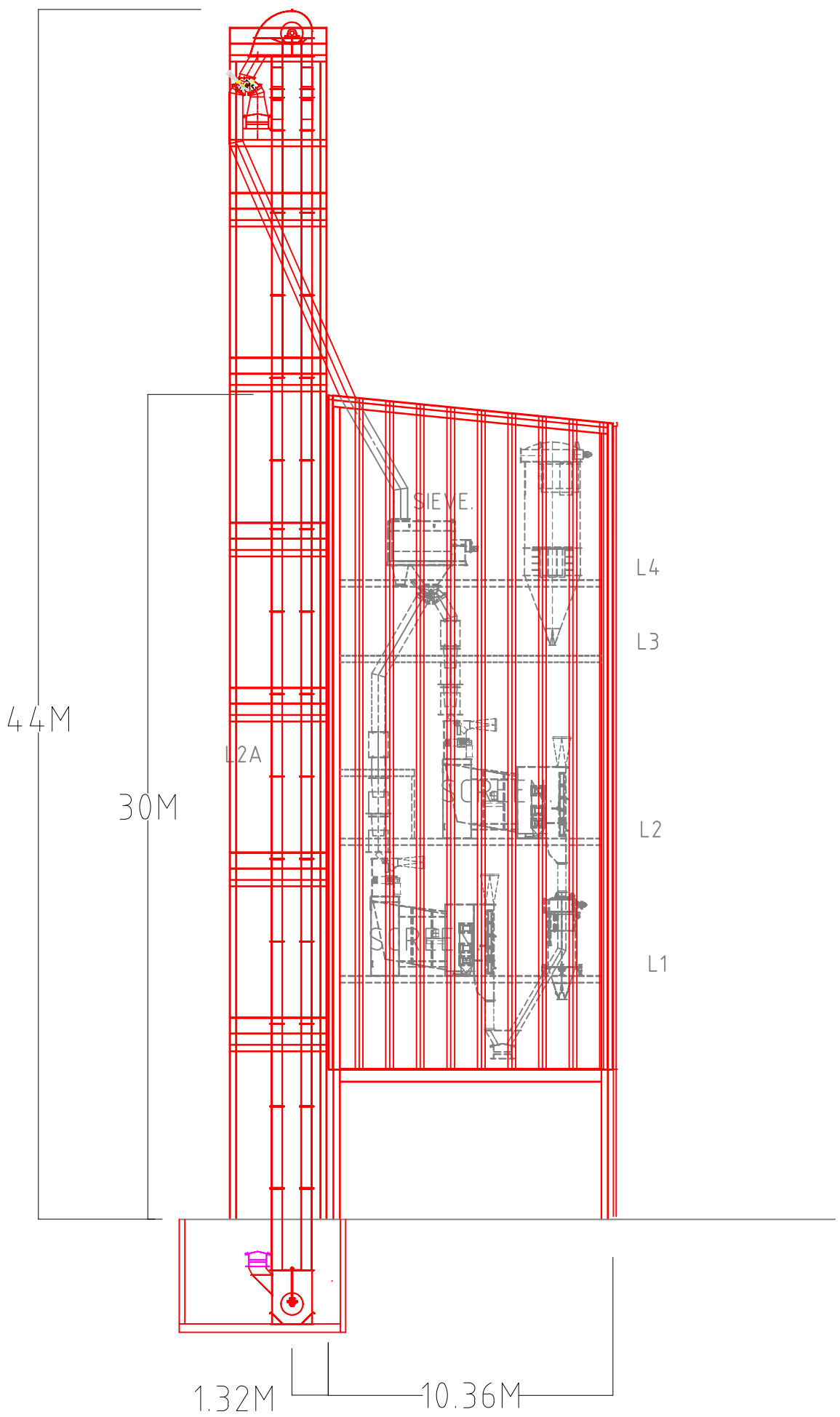
DWG No. MN7549-021

A3

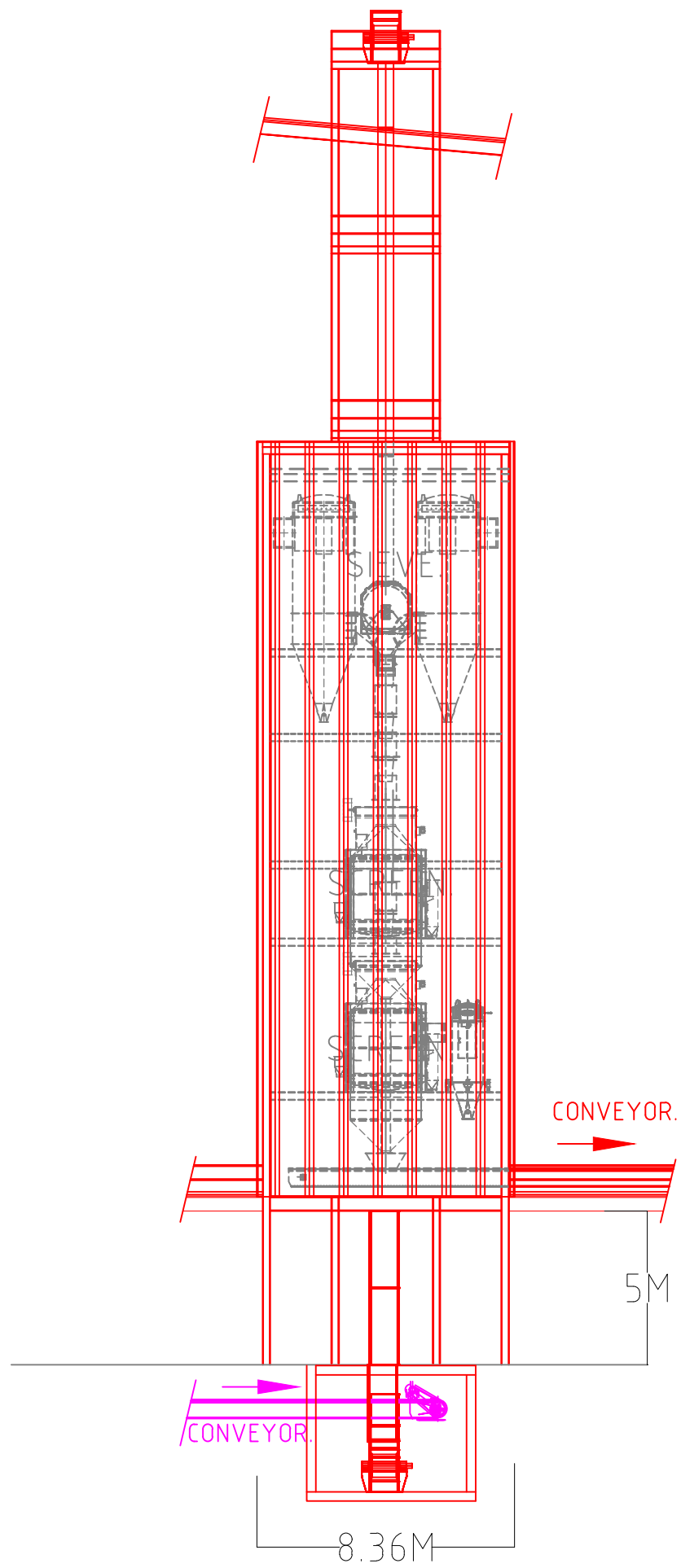
REV. P08



PLAN VIEW.



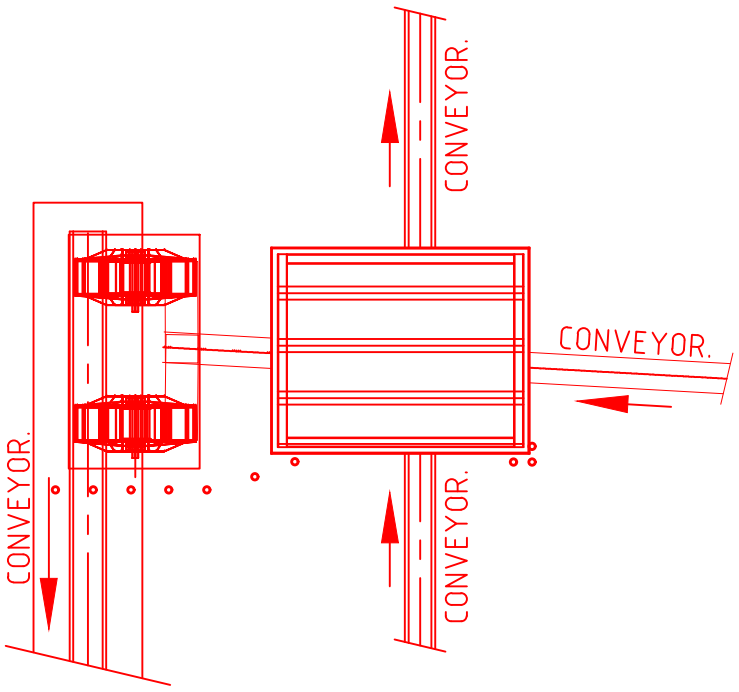
SIDE ELEVATION.



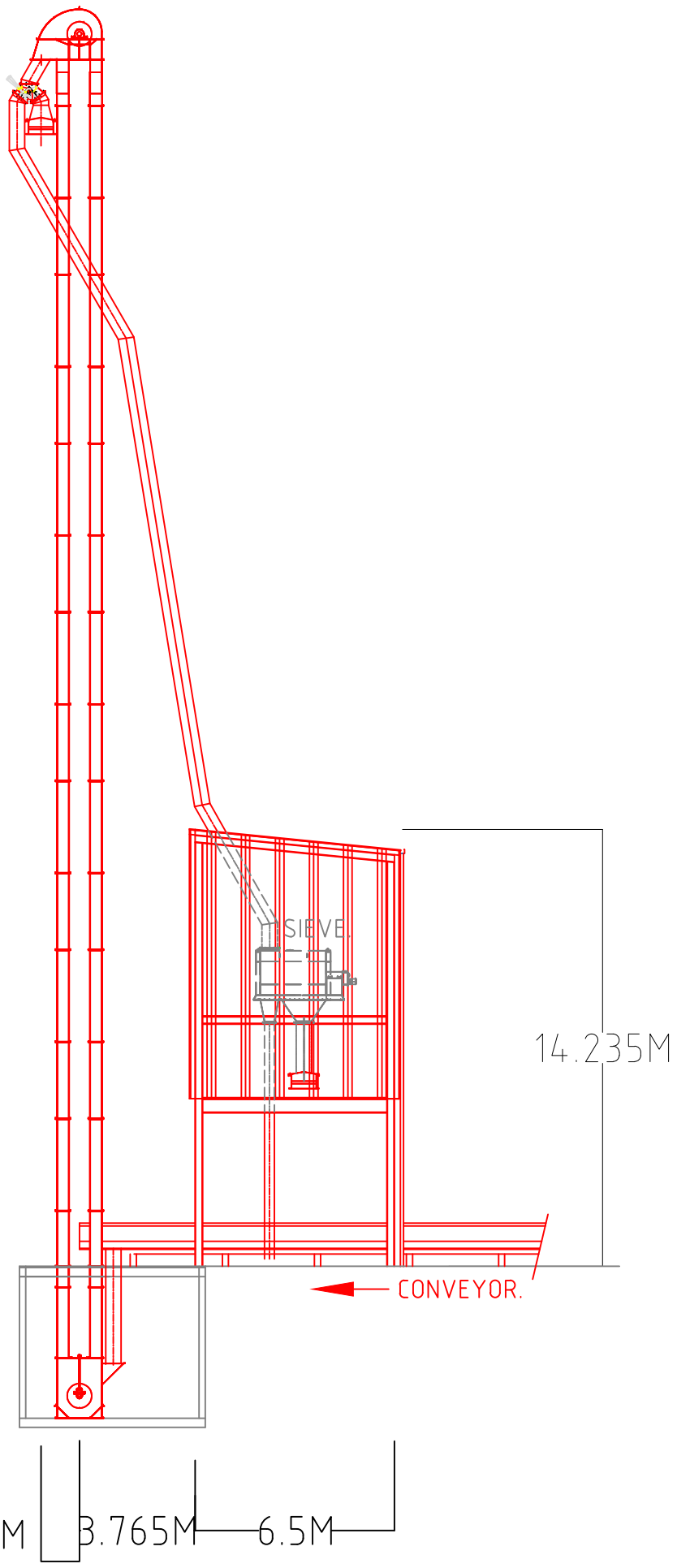
END ELEVATION.

REV	ZONE	DETAILS	DRN	DATE	CHKD	APPD
P01	ALL	For review.	P.C.	08/03/25	G.K.	

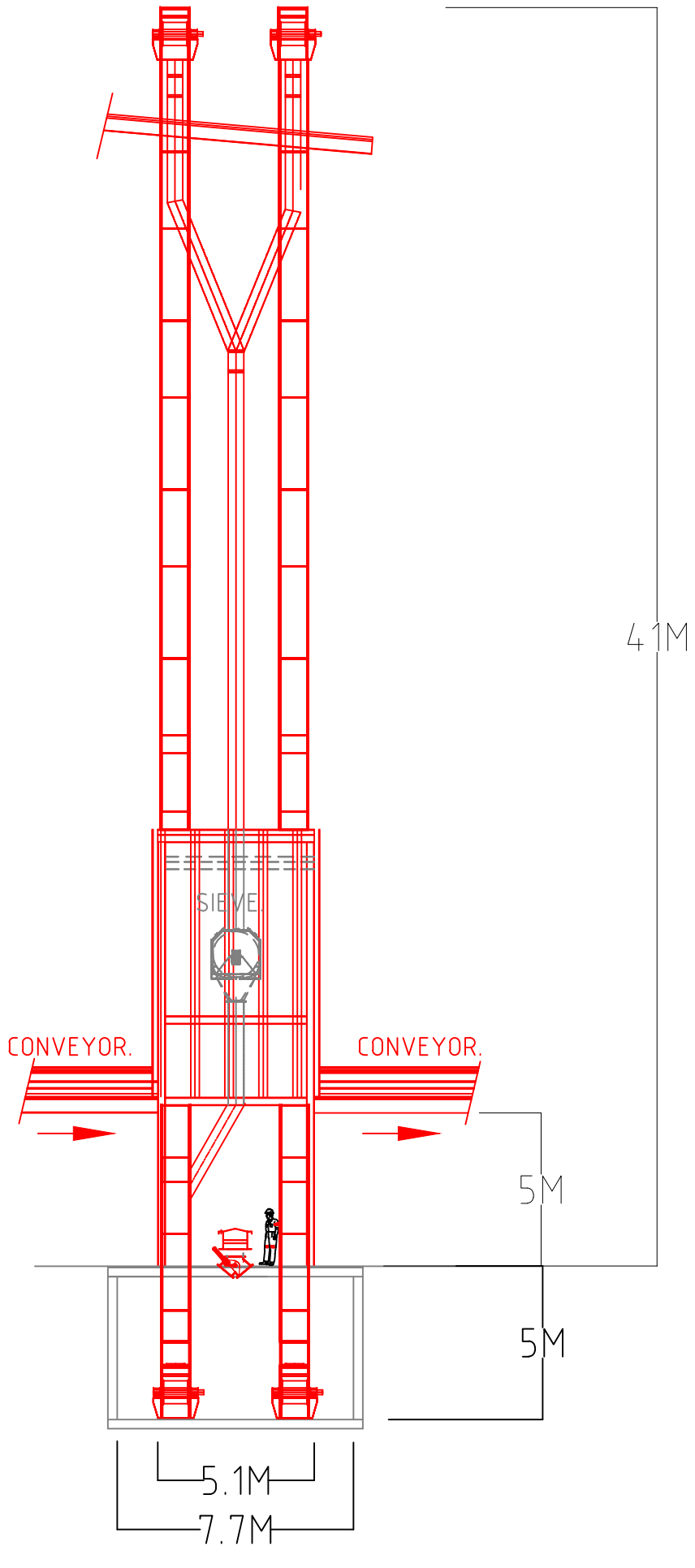
DRAWN P.C.	DATE 08/03/25	JOB TITLE SHOALHAVEN STARCHES.BOMADERRY. NSW	SHT SIZE A3
CHKD	DATE	DWG TITLE PROPOSED GRAIN UN-LOADER. FIRST STAGE SILO GRAIN SCREENING BUILDING.	
APPD	DATE		REV. P01
	SCALE 1:200	PROJECT No. 7549WAE / DWG No. MN7549-022	



PLAN VIEW.



SIDE ELEVATION.

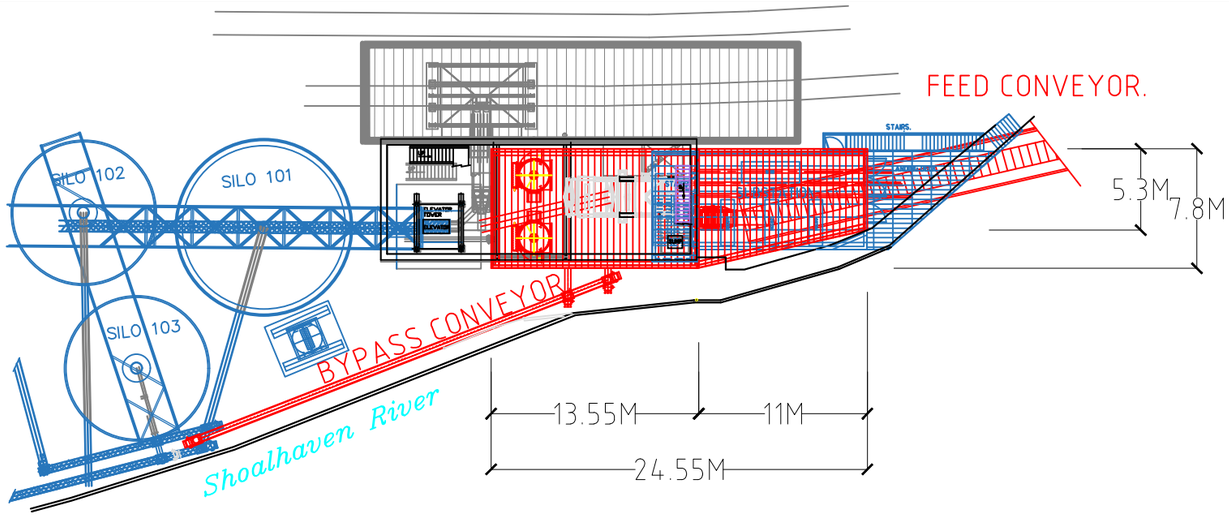


END ELEVATION.

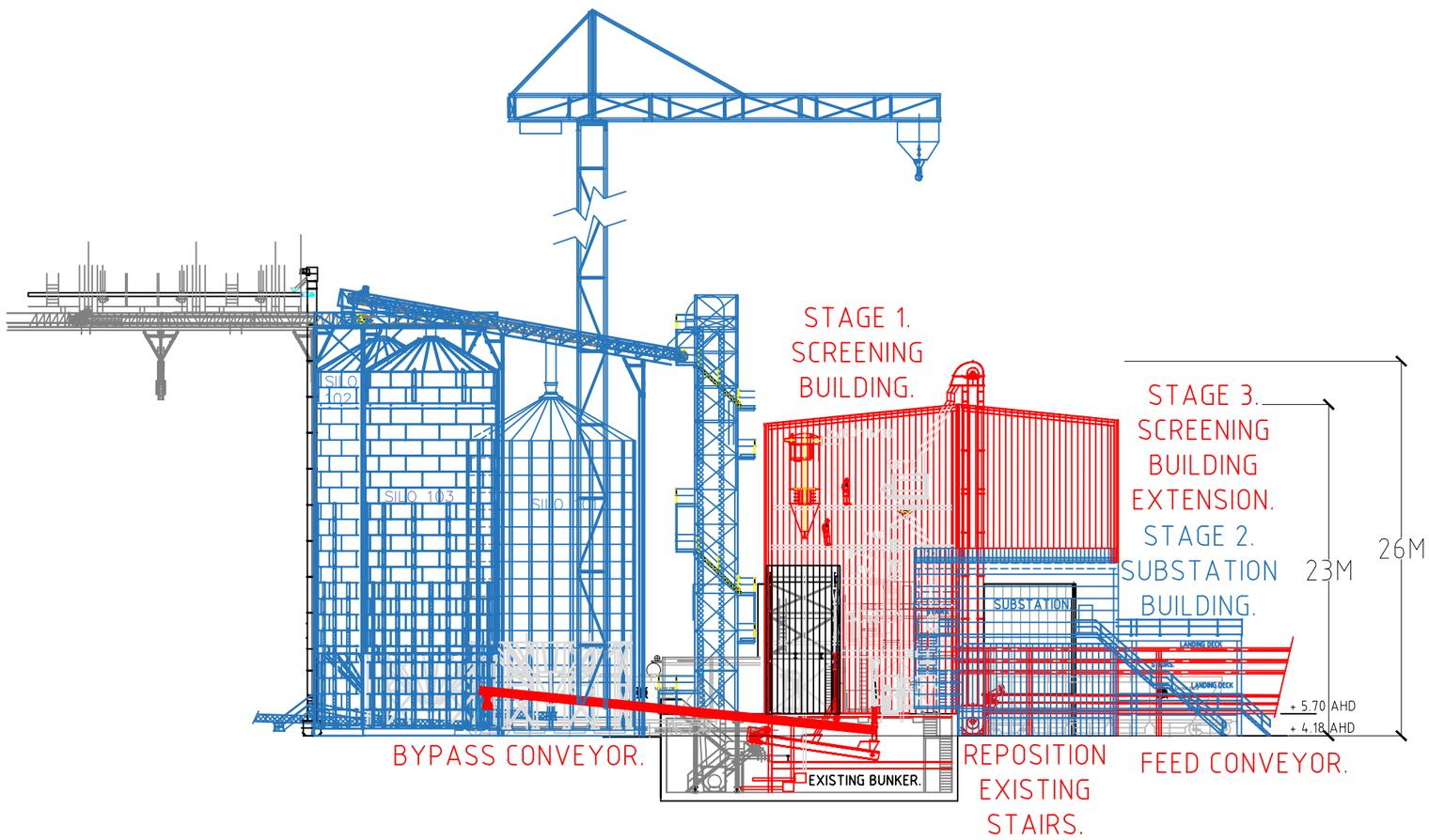
REV	ZONE	DETAILS	DRN	DATE	CHKD	APPD
P01	ALL	For review.	P.C.	08/03/25	G.K.	

DRAWN P.C.	DATE 08/03/25	JOB TITLE SHOALHAVEN STARCHES.BOMADERRY. NSW	SHT SIZE A3
CHKD	DATE	DWG TITLE PROPOSED GRAIN UN-LOADER. SILO GRAIN SIEVE BUILDING.	
APPD	DATE		REV. P01
	SCALE 1:200	PROJECT No. 7549WAE	DWG No. MN7549-023

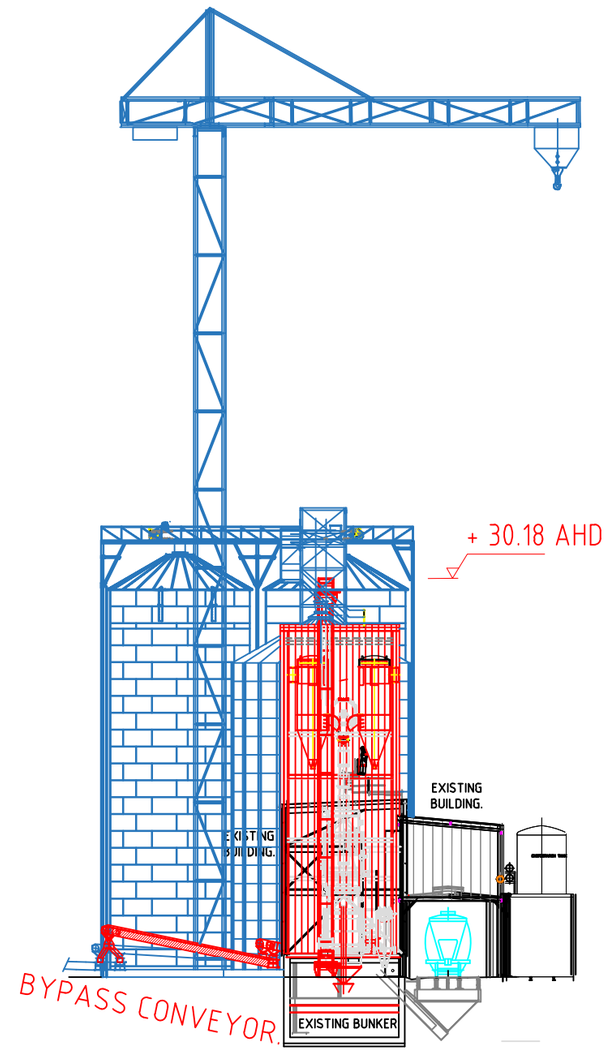
EXISTING APPROVED PLANT - BLACK.
NEW PROPOSAL - RED.
APPROVED PLANT YET TO BE CONSTRUCTED - BLUE.



PLAN VIEW.



SOUTHERN ELEVATION



EASTERN ELEVATION

REV	ZONE	DETAILS	DRN	DATE	CHKD	APPD
P02	ALL	Stage 3 and bypass conveyor added.	P.C.	28/03/25	GK	
P01	ALL	PROPOSAL.	P.C.	10/03/25	GK	

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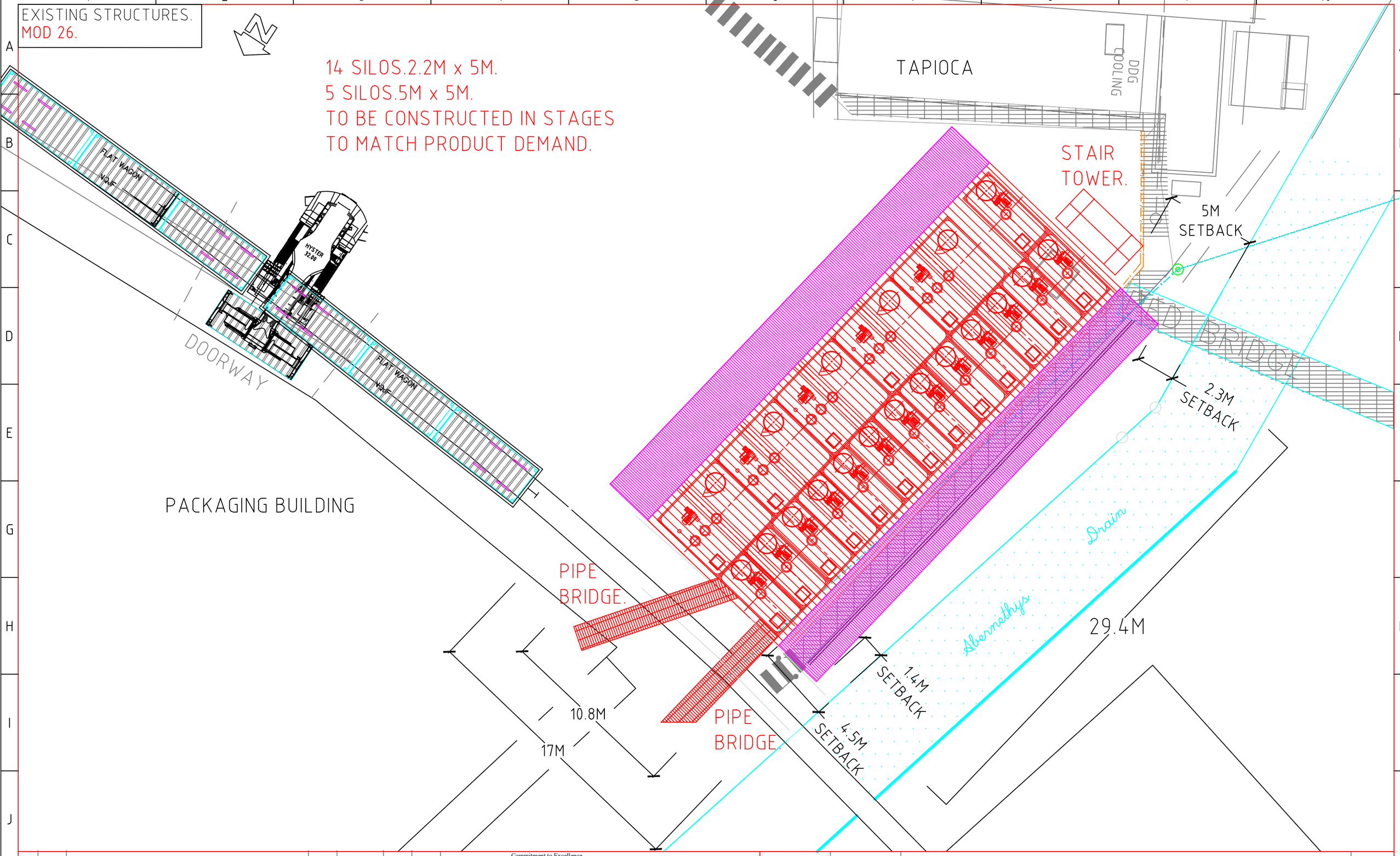
DRAWN P.C.	DATE	JOB TITLE	SHOALHAVEN STARCHES.BOMADERRY. NSW
CHKD	DATE	DWG TITLE	PROPOSED GRAIN UN-LOADER. SECONDARY SCREENING BUILDING.
APPD	DATE		
SCALE 1:400		PROJECT No. 7549-022	DWG No. MN7549-024

SHT SIZE A3
REV. P02

EXISTING STRUCTURES.
MOD 26.

14 SILOS.2.2M x 5M.
5 SILOS.5M x 5M.
TO BE CONSTRUCTED IN STAGES
TO MATCH PRODUCT DEMAND.



REV	ZONE	DETAILS	DRN	DATE	CHKD	APPD
P03	ALL	Silos layout amended.	P.C.	28-4-25	CJ	
P02	ALL	Silos layout amended.	P.C.	22-4-25	CJ	
P01	ALL	First issue.	P.C.	14/3/25	AT	

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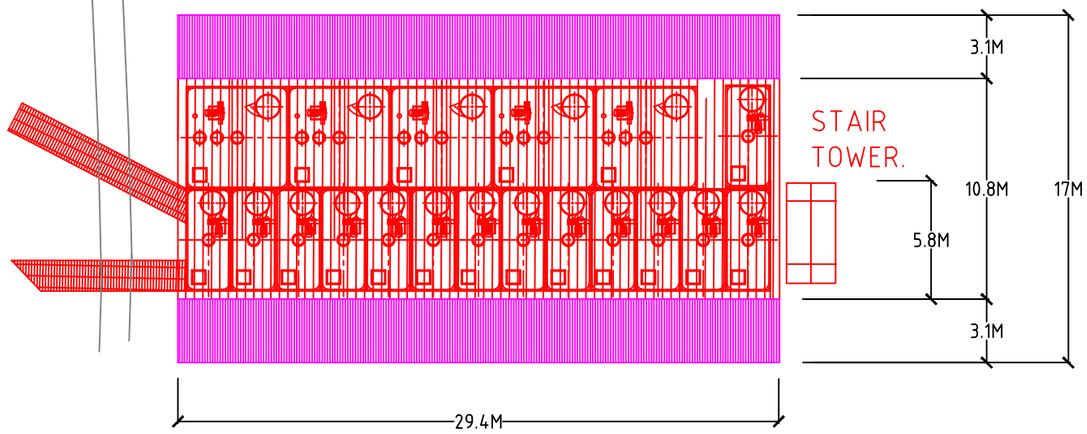
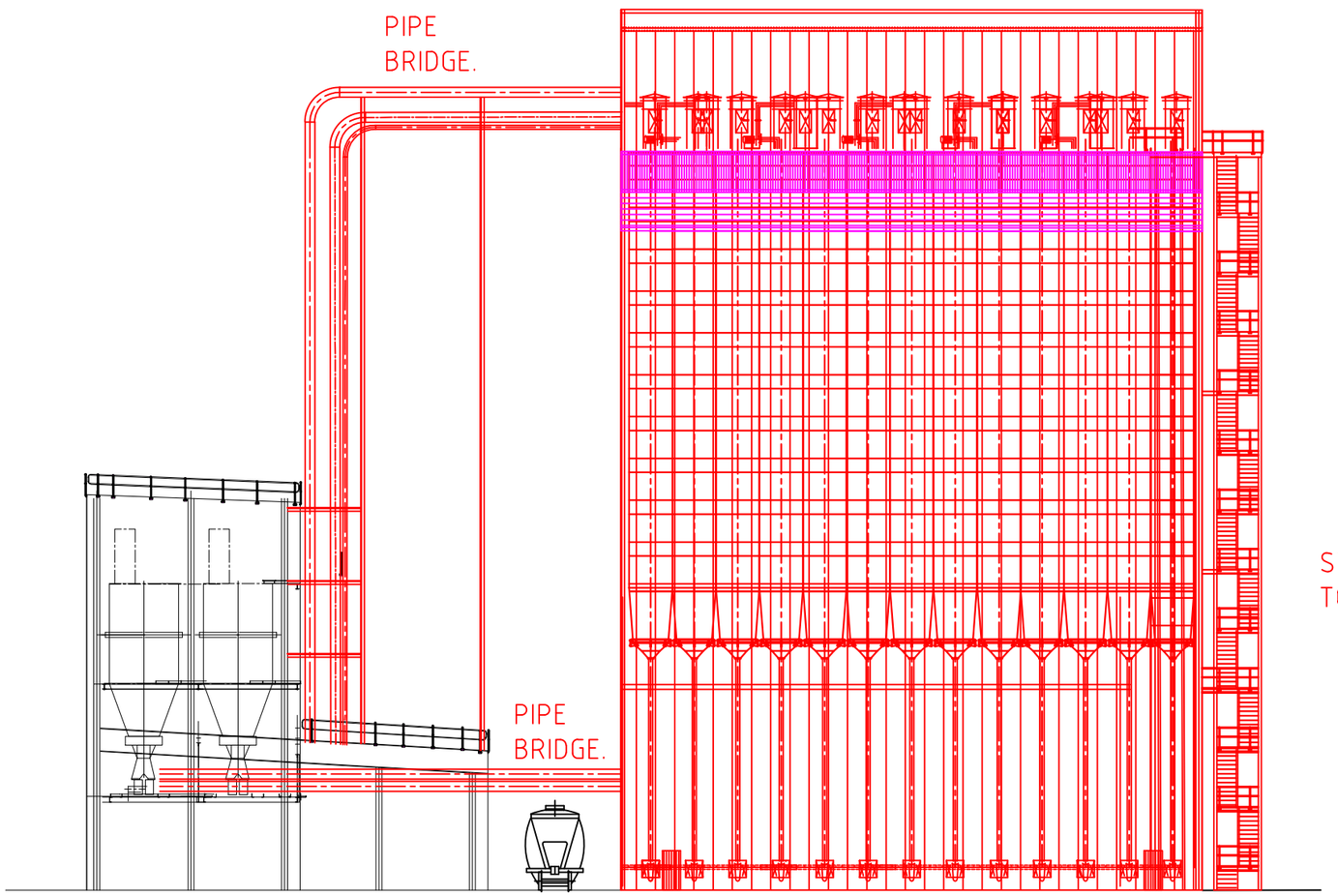
P.C.		SHOALHAVEN STARCHES.	SHT SIZE A3
CHKD M.P.	DATE 14/3/25	DWG TITLE MOD 26. PRODUCT SILOS SITE PLAN.	
APPD	DATE		REV. P03
	SCALE 1:200	PROJECT No. 7462-011 / DWG No. MN7549-025	

EXISTING STRUCTURES.
MOD 26.

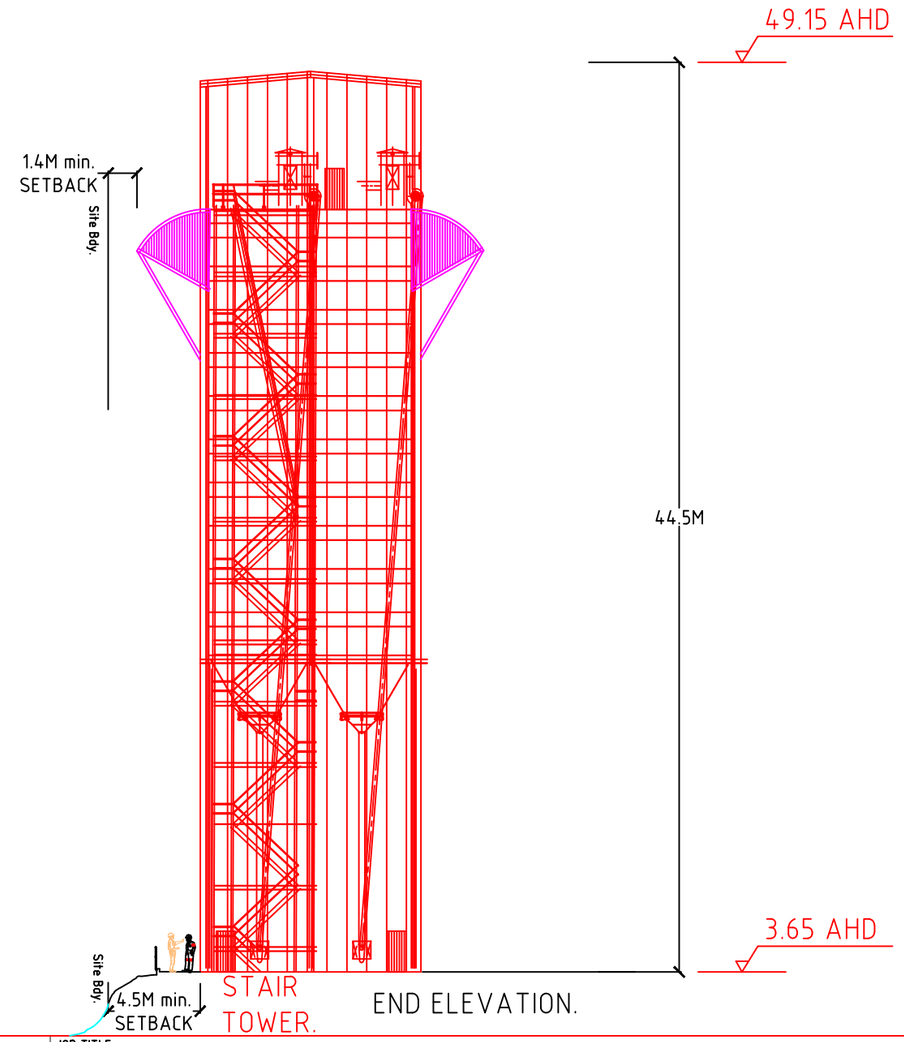


PLAN VIEW.

14 SILOS.2.2M x 5M.
5 SILOS.5M x 5M.
TO BE CONSTRUCTED IN STAGES
TO MATCH PRODUCT DEMAND.



SIDE ELEVATION.



END ELEVATION.

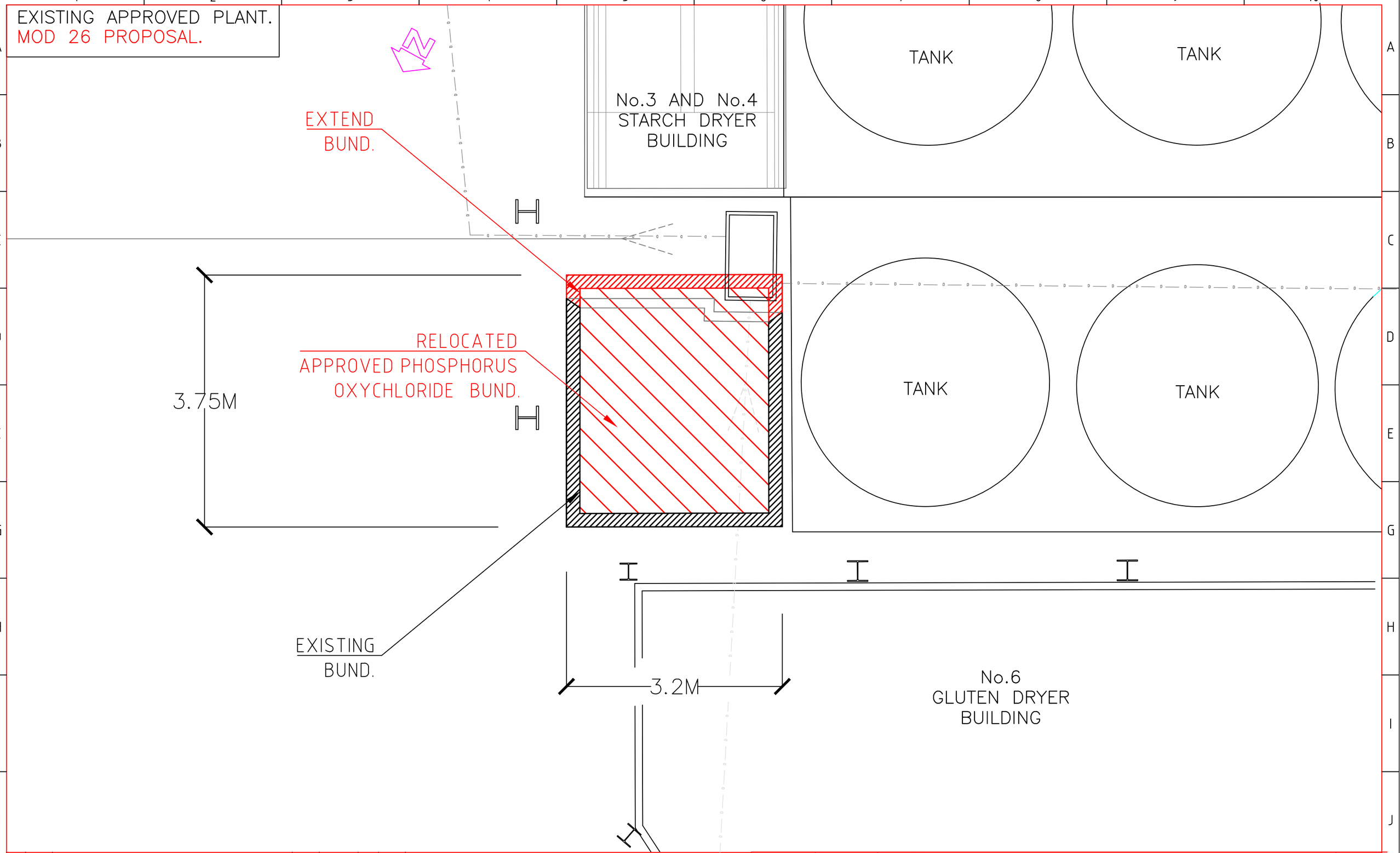
REV	ZONE	DETAILS	DRN	DATE	CHKD	APPD
P06	ALL	Silos layout amended.	P.C.	28-4-25	CJ	
P05	ALL	Silos layout amended.	P.C.	22-4-25	CJ	
P04	ALL	Height increased for 22m silos.	P.C.	17-3-25	DJ	
P03	ALL	Now 16 silos.	P.C.	14-3-25		
P01	ALL	New proposal.	P.C.			

Commitment to Excellence
GEM OF THE WEST

MANILDRA GROUP
100% AUSTRALIAN

DRAWN P.C.	DATE 14/03/25	JOB TITLE SHOALHAVEN STARCHES.BOMADERRY. NSW	SHT SIZE A3
CHKD	DATE	DWG TITLE MOD 26. PRODUCT SILOS GA.	
APPD	DATE		REV. P06
	SCALE 1:300	PROJECT No. 7462-011 / DWG No. MN7549-026	

EXISTING APPROVED PLANT.
MOD 26 PROPOSAL.



REV	ZONE	DETAILS	DRN	DATE	CHKD	APPD
P01	ALL	First issue.	P.C.	08/04/2025	JS	

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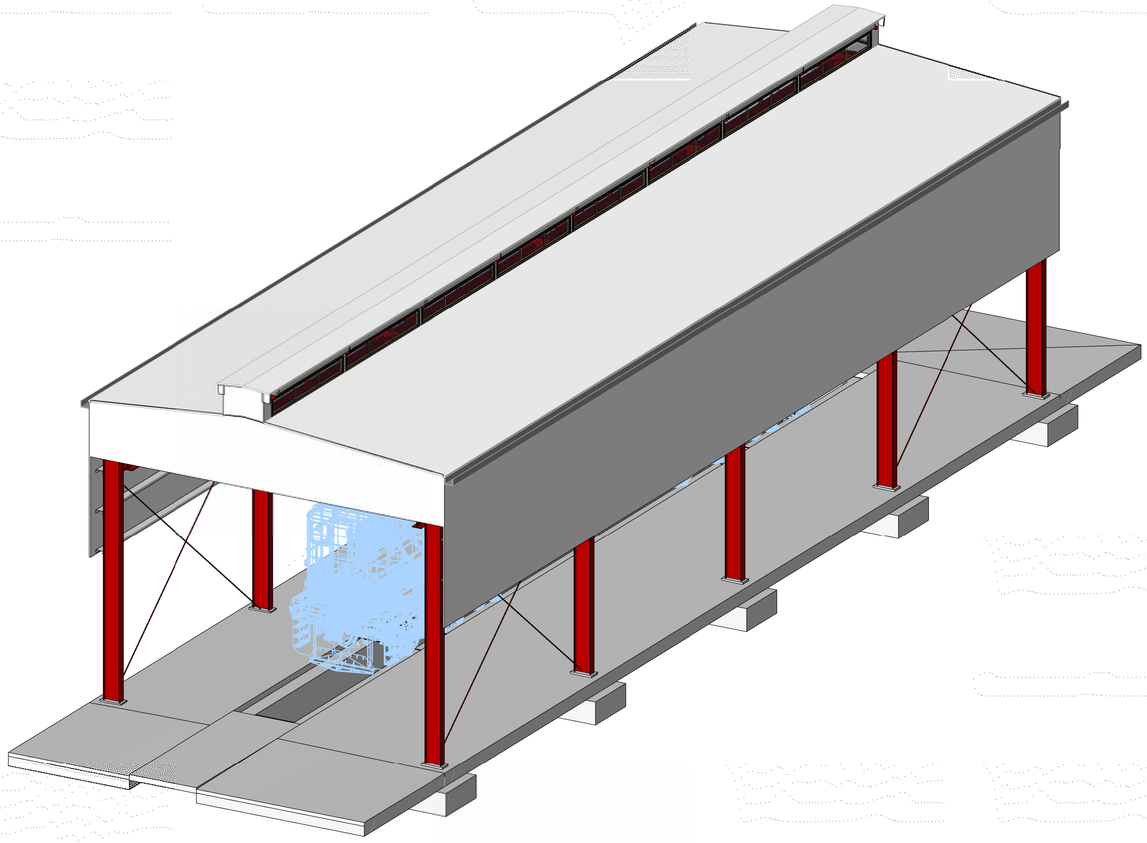
DRAWN 08/04/2025	DATE	JOB TITLE SHOALHAVEN STARCHES.BOMADERRY. NSW	SHT SIZE A3
CHKD	DATE	DWG TITLE NEW PROPOSALS.MOD 26. PHOSPHORUS OXYCHLORIDE SITE PLAN.	
APPD	DATE		REV. P01
	SCALE 1:50	7393	DWG No. MN7549-027

MANILDRA RAIL MAINTENANCE BUILDING

BOLONG ROAD. BOMADERRY, NSW

BUILDING DRAWINGS

BUILDING DRAWING LIST	
SHEET No.	SHEET NAME
A0001	FACE SHEET AND DRAWING INDEX
A0010	SITE PLAN
A0020	GENERAL ARRANGEMENT PLANS - SHEET 1
A0021	GENERAL ARRANGEMENT PLANS - SHEET 2
A0030	BUILDING ELEVATIONS
A0040	SECTIONS AND DETAILS



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Rev	Description	Date	By	App
P1	ISSUED FOR INFORMATION	11.08.23	TF	

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Project Name: MANILDRA RAIL MAINTENANCE BUILDING BOLONG ROAD. BOMADERRY, NSW

Drawing Title: FACE SHEET AND DRAWING INDEX

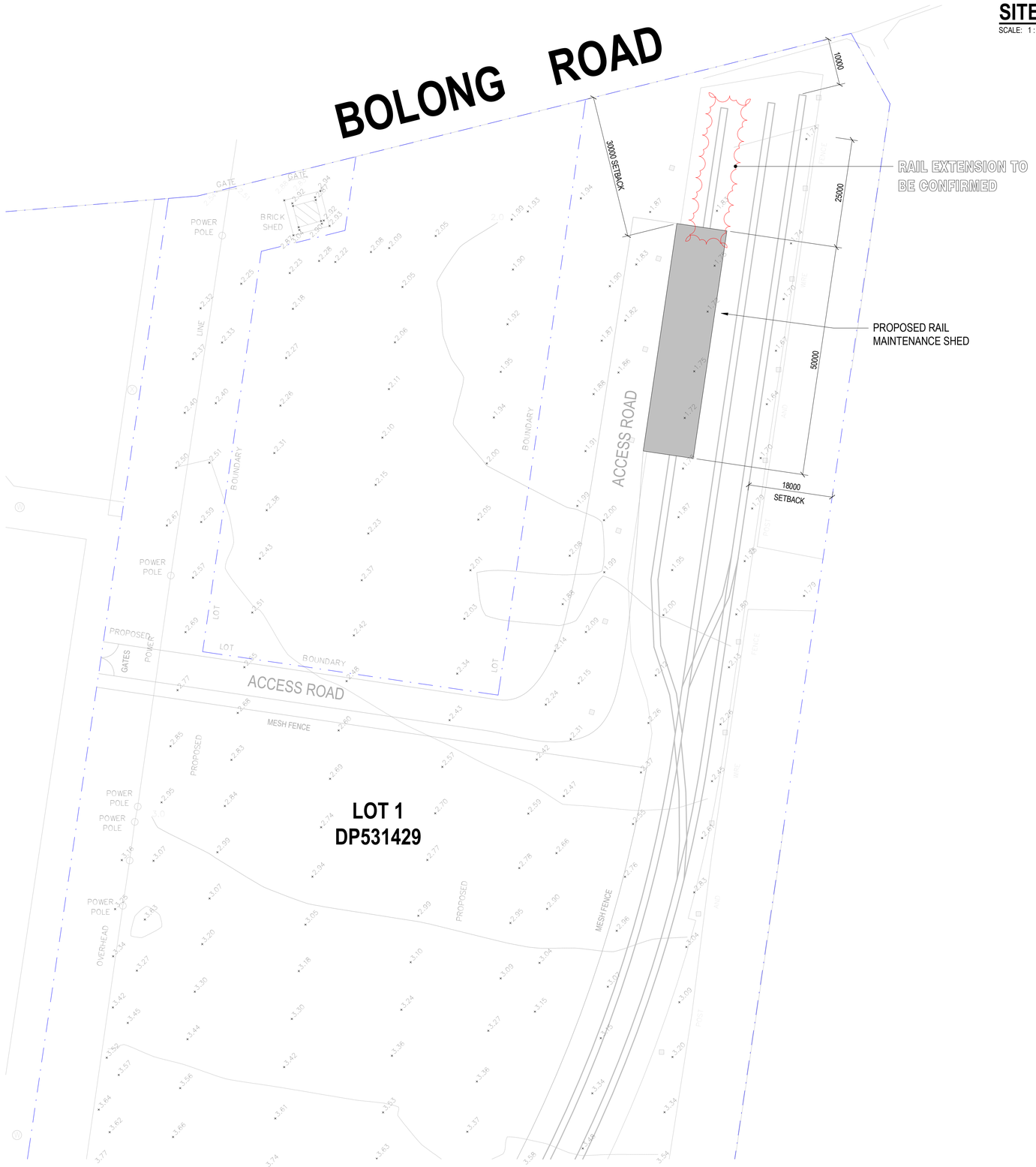
FOR INFORMATION ONLY

Designed	JR	Project Director Approved	Date	North
Drawn	TF			
Scale	1:75	Project Ref.	Drawing No.	Rev.
Date	11/08/23	131012	A0001	P1
Sheet	A1			

A1

SITE PLAN

SCALE: 1 : 500



Rev	Description	Date	By	App
P1	ISSUED FOR INFORMATION	11.08.23	TF	

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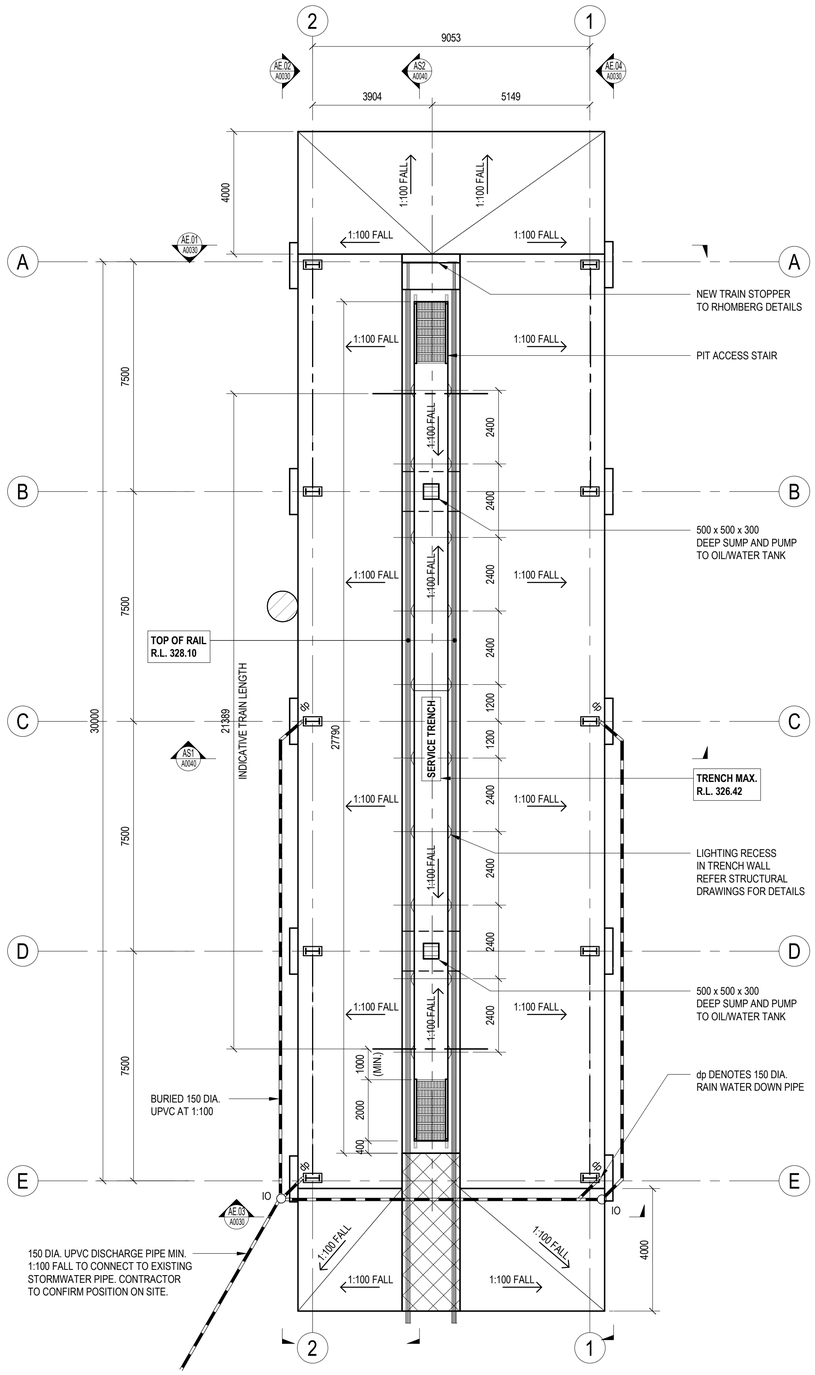
Drawing Title: SITE PLAN

FOR INFORMATION ONLY

Designed	JR	Project Director Approved	Date
Drawn	TF		
Scale	1:500	Project Ref.	Drawing No. / Rev
Date	11/08/23	131012	A0010 P1
Sheet	A1		

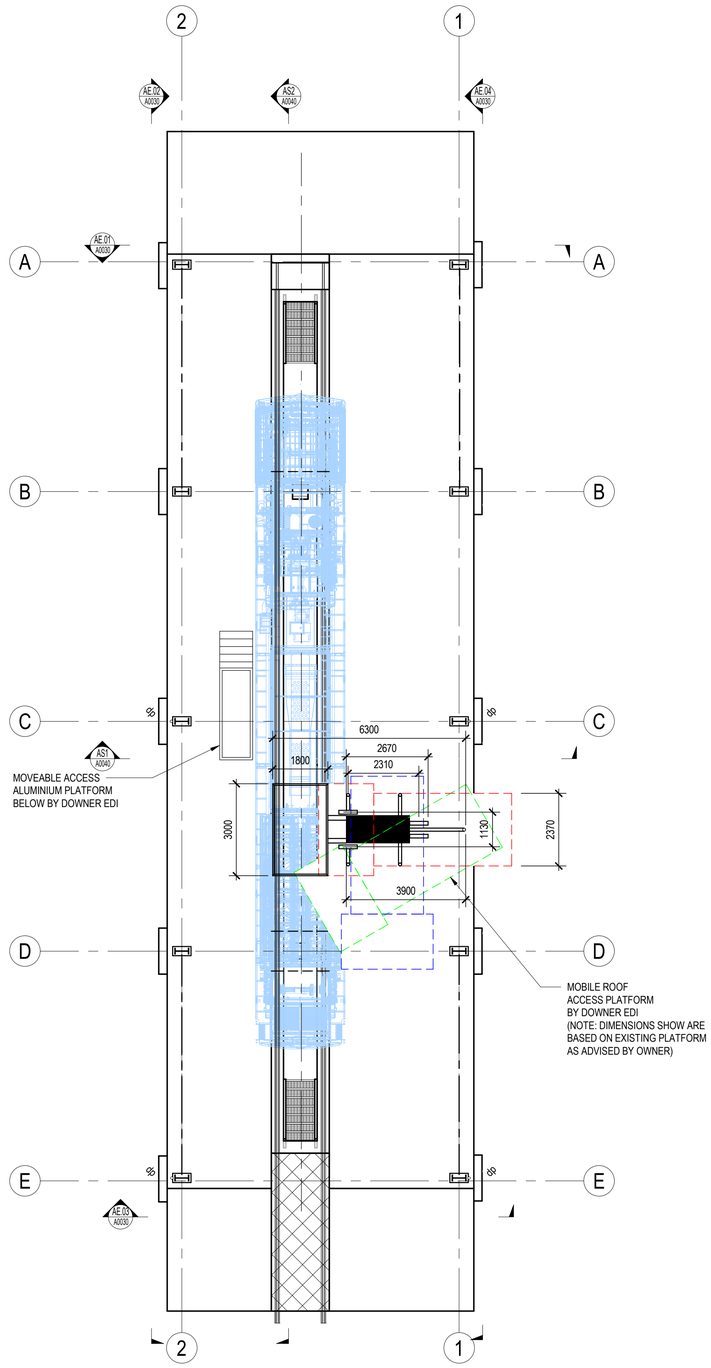
North

A1



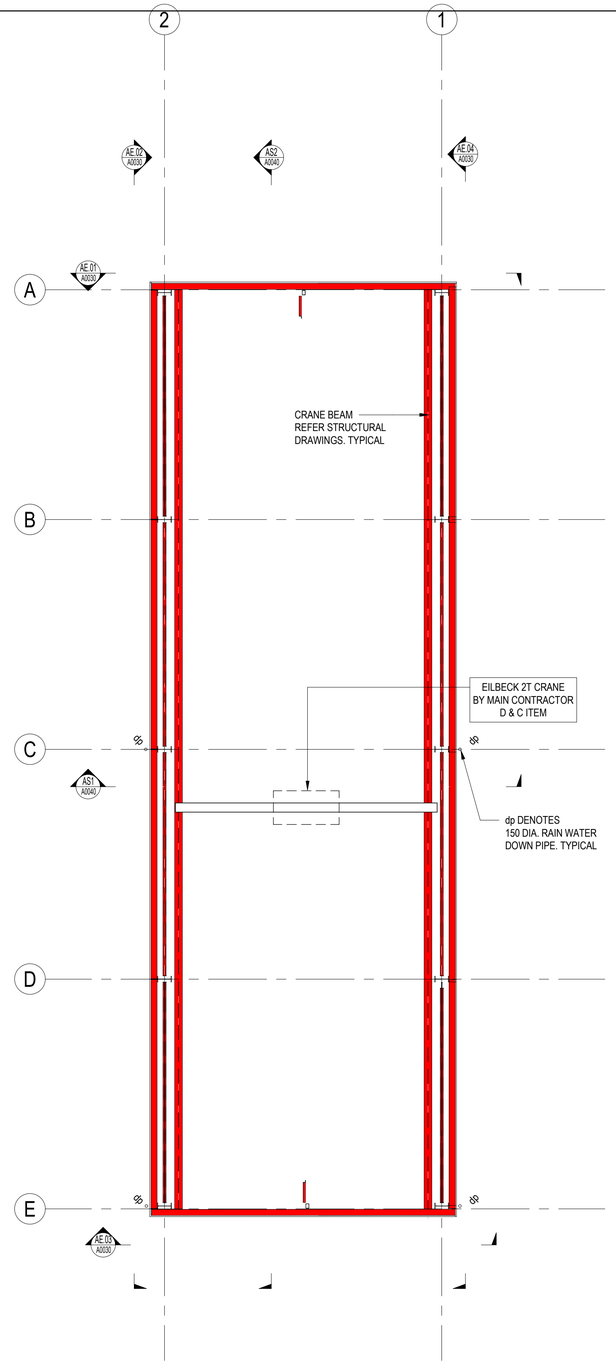
GROUND FLOOR GENERAL ARRANGEMENT PLAN

SCALE: 1 : 100



GROUND FLOOR PLAN WITH MOBILE ROOF ACCESS PLATFORM

SCALE 1 : 100



MONOBEAM CRANE GENERAL ARRANGEMENT PLAN

SCALE: 1 : 100

LEGEND

(UNLESS OTHERWISE NOTED)

IO	DENOTES INSPECTION OUTLET
	DENOTES LIGHTING RECESS IN TRENCH
	DENOTES BITUMEN INFILL

Rev	Description	Date	By	App
P1	ISSUED FOR INFORMATION	11.08.23	TF	

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Drawing Title: GENERAL ARRANGEMENT PLANS SHEET 1

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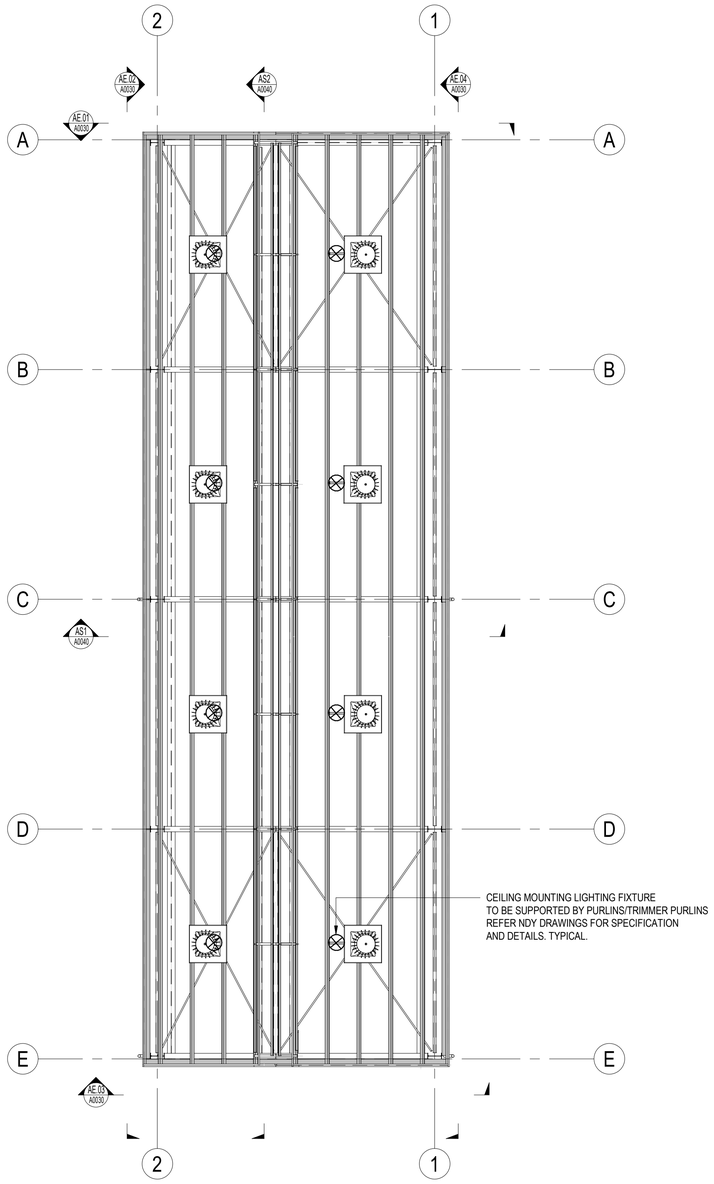
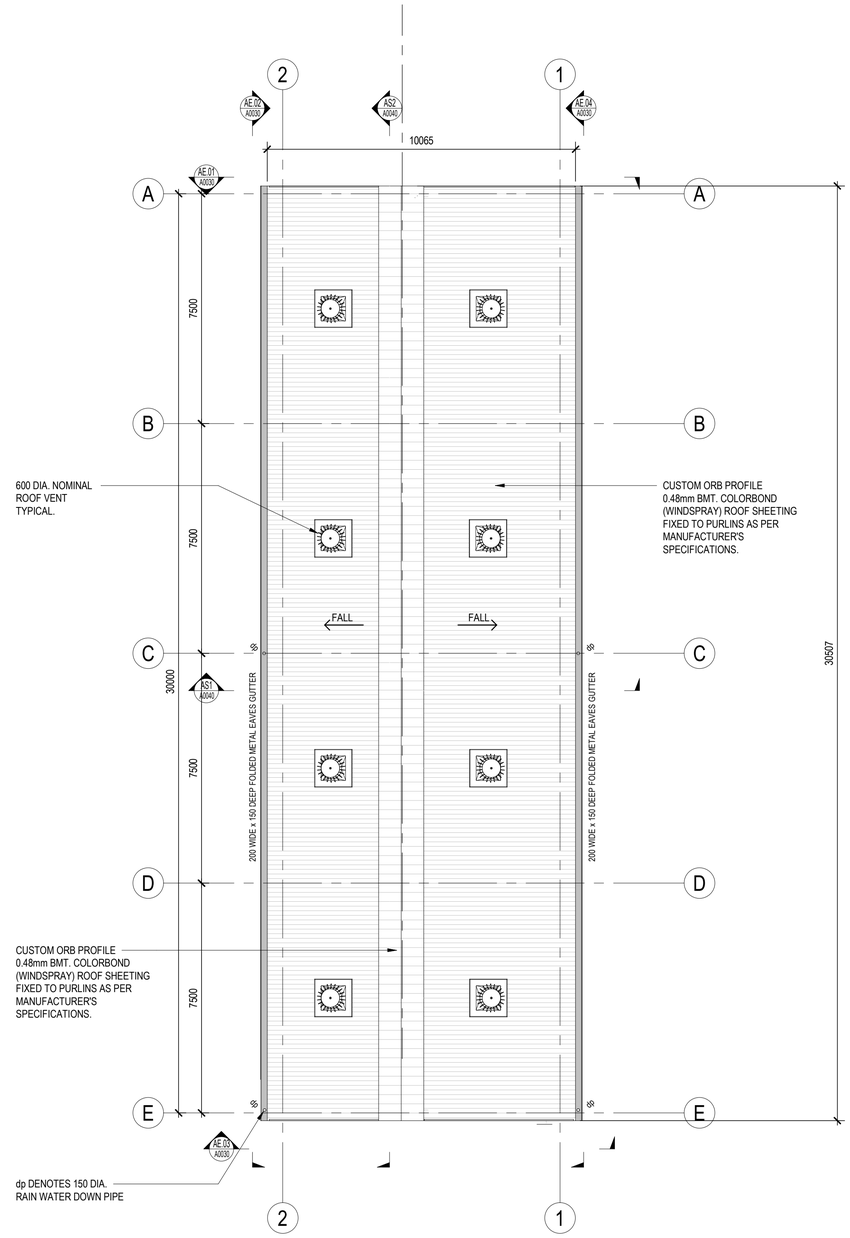
Designed	JR	Project Director Approved	Date
Drawn	TF		
Scale	1:100	Project Ref.	Drawing No. / Rev
Date	11/08/23	131012	A0020 P1
Sheet	A1		

A1



REFLECTED CEILING GENERAL ARRANGEMENT PLAN

SCALE: 1 : 100



ROOF GENERAL ARRANGEMENT PLAN

SCALE: 1 : 100

Rev	Description	Date	By	App
P1	ISSUED FOR INFORMATION	11.08.23	TF	

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Drawing Title: GENERAL ARRANGEMENT PLANS SHEET 2

FOR INFORMATION ONLY

Designed	JR	Project Director Approved	Date
Drawn	TF		
Scale	1:100	Project Ref.	Drawing No. / Rev
Date	11/08/23	131012	A0021 P1
Sheet	A1		

North

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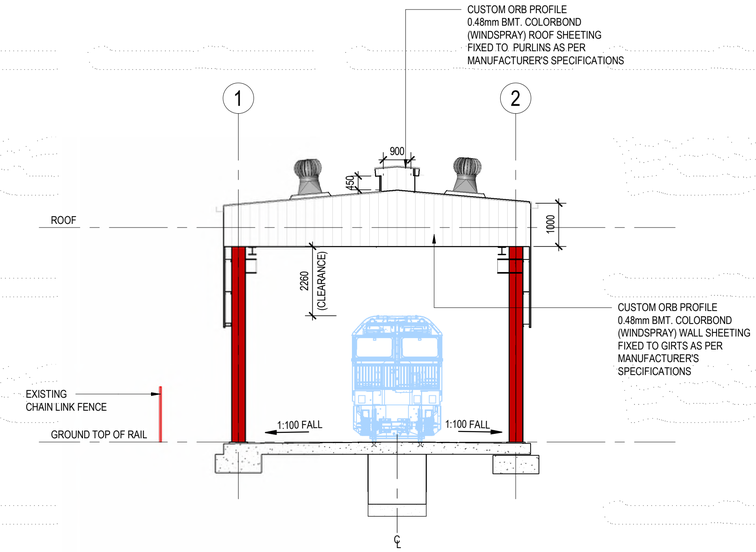
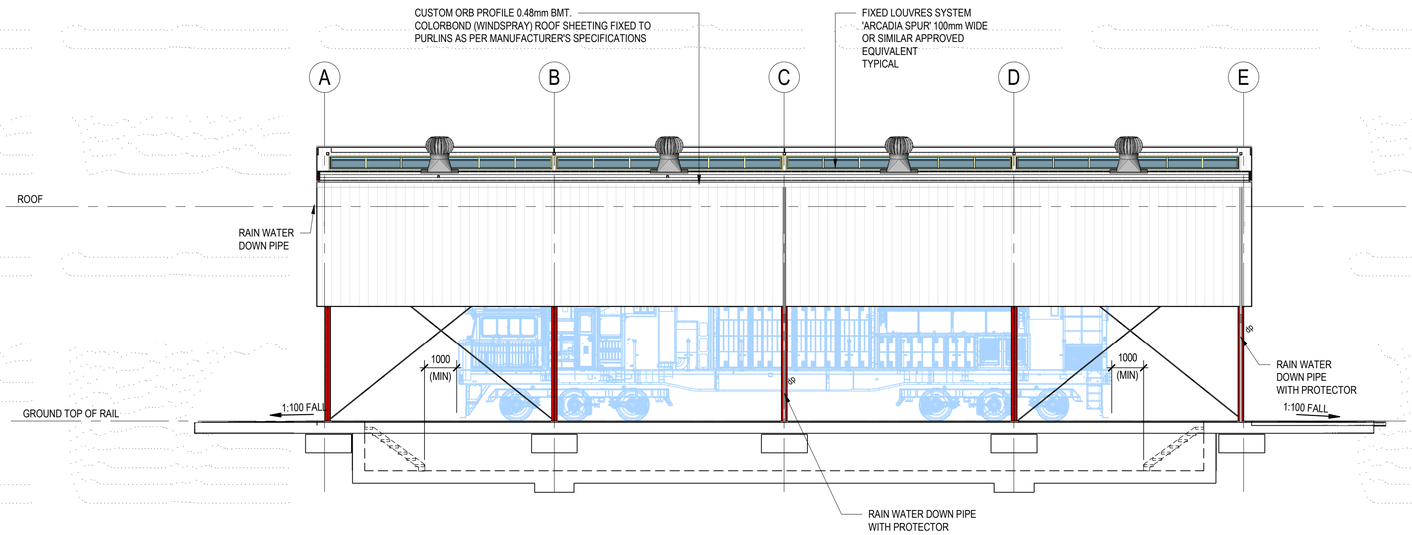
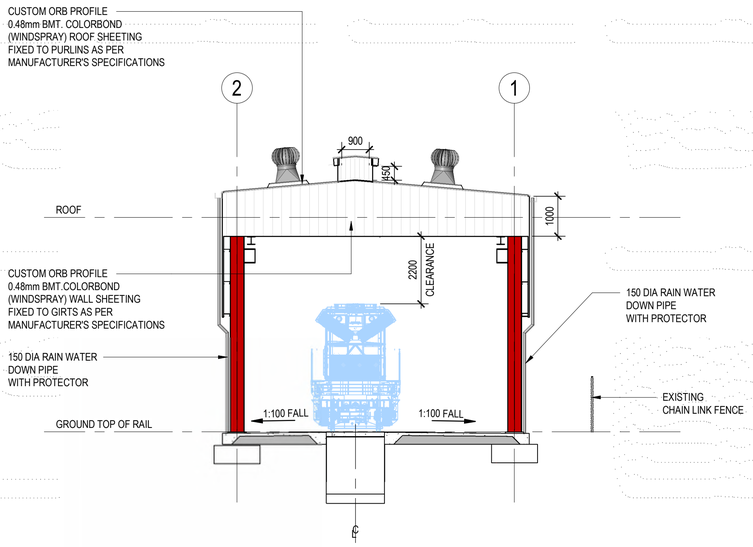
A1



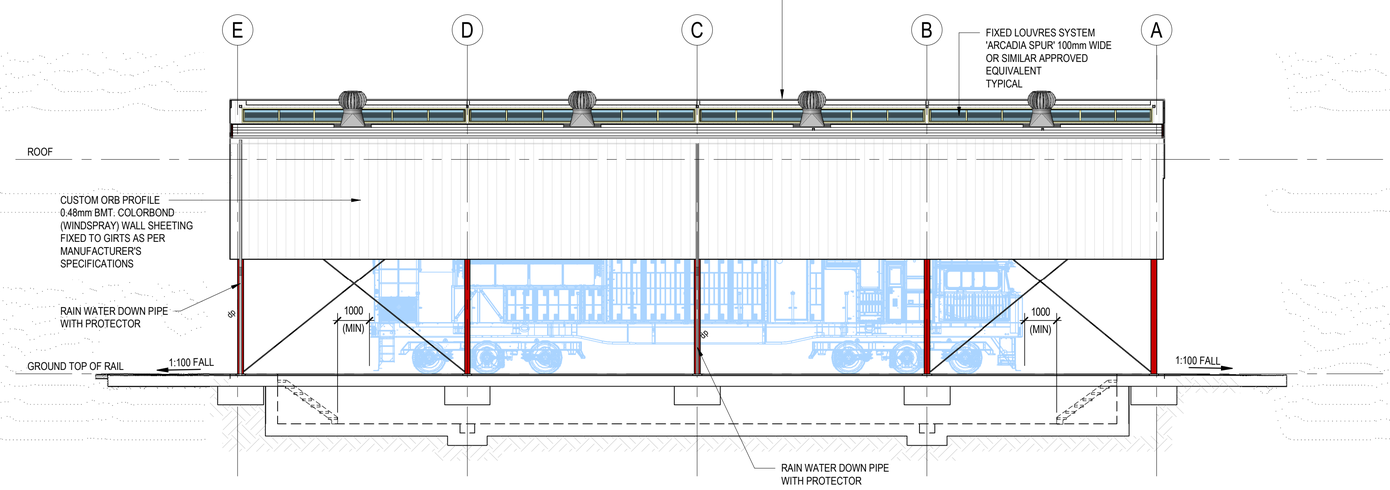
ELEVATION AE.01 A0020
SCALE 1 : 100



ELEVATION AE.02 A0020
SCALE 1 : 100



ELEVATION AE.03 A0020
SCALE 1 : 100



ELEVATION AE.04 A0020
SCALE 1 : 100

Rev	Description	Date	By	App
P1	ISSUED FOR INFORMATION	11.08.23	TF	

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Drawing Title: BUILDING ELEVATIONS

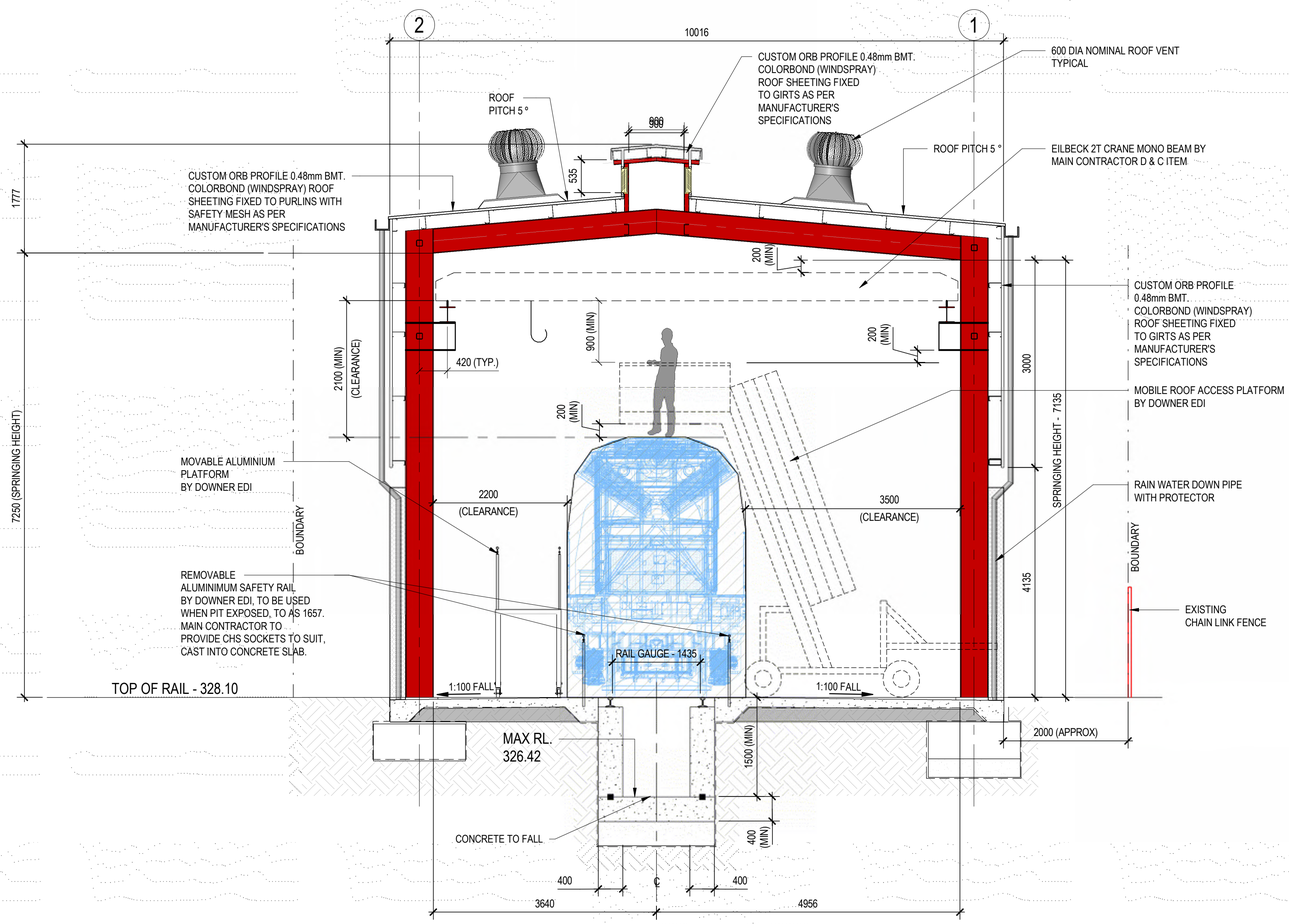
FOR INFORMATION ONLY

Designed	JR	Project Director Approved	Date
Drawn	TF		
Scale	1:100		
Date	11/08/23	Project Ref.	Drawing No. / Rev
Sheet	A1	131012	A0030 P1

North

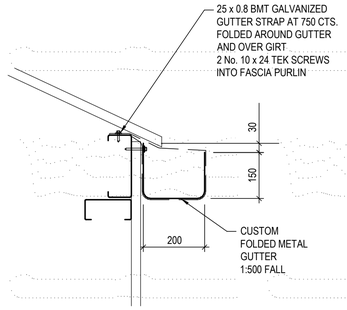
A1

NOTE:
FOR SAFETY PURPOSES PERSONS ARE NOT BE WITHIN ROOF SPACE WHILST LOCOMOTIVE IS OPERATIONAL



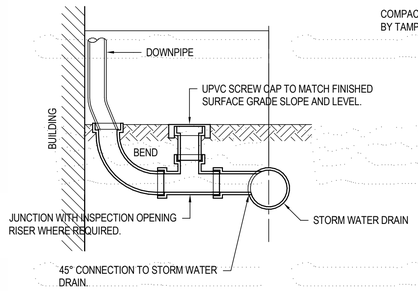
SECTION AS1 / A0020

SCALE 1 : 50



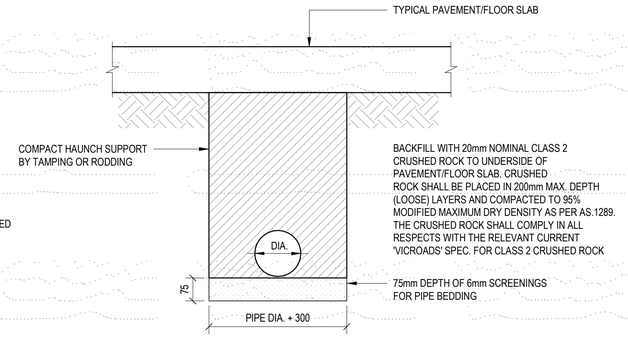
TYPICAL EAVES GUTTER DETAIL

SCALE 1:10



DOWNPIPE CONNECTION AND INSPECTION OPENING DETAIL

N.T.S.

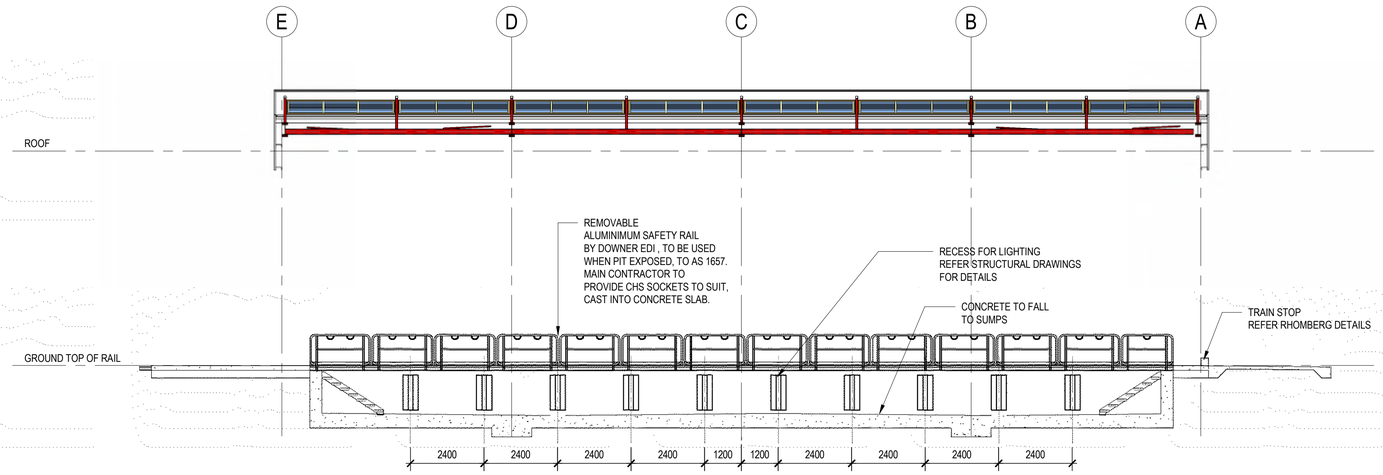


NOTE:
AVOID RUNNING CONSTRUCTION EQUIPMENT OVER THE PIPES UNTIL BACKFILL MATERIAL IS 300mm MIN. ABOVE CROWN OF PIPE.

PIPE LAYING DETAILS

UNDER ALL PAVEMENTS/FLOORS

N.T.S.



SECTION AS2 / A0020

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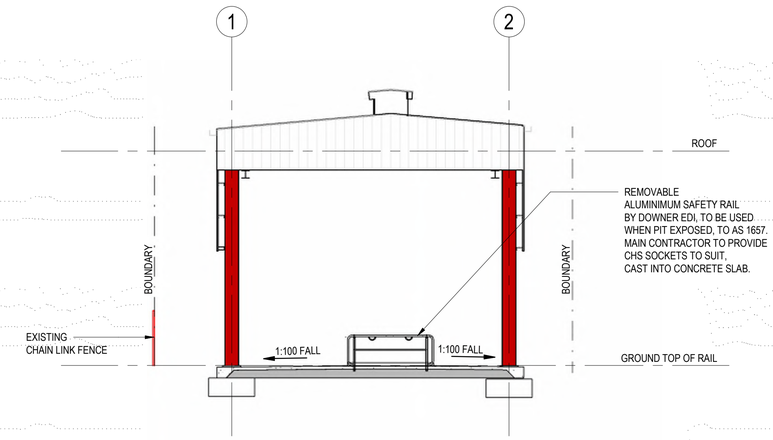

EAST ELEVATION - WHEN THE PIT IS EXPOSED

SCALE: 1 : 100

Rev	Description	Date	By	App
P1	ISSUED FOR INFORMATION	11.08.23	TF	

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Project Name: MANILDRA RAIL MAINTENANCE BUILDING BOLONG ROAD. BOMADERRY, NSW

Drawing Title: SECTIONS AND DETAILS

FOR INFORMATION ONLY

Designed JR	Project Director Approved	Date	North
Drawn TF			
Scale 1:10, 1:50, 1:100			
Date 11/08/23	Project Ref. 131012	Drawing No. A0040	Rev P1
Sheet A1			

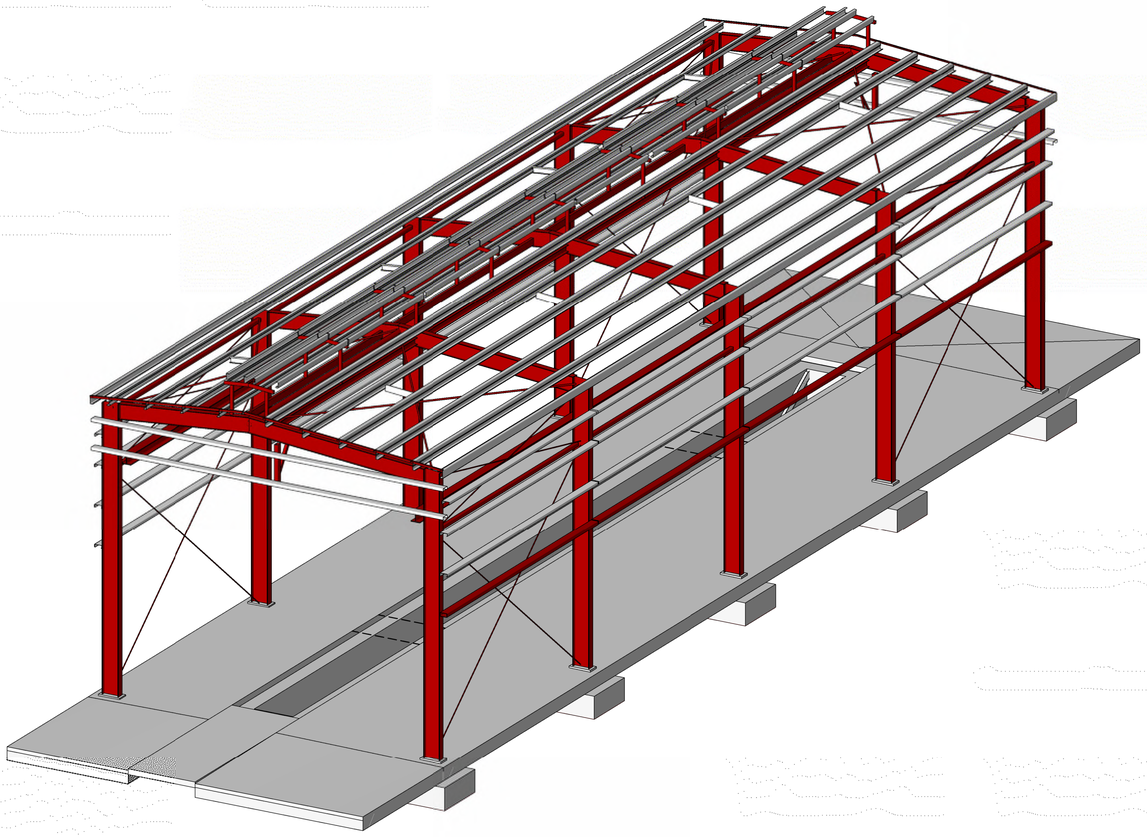
A1

MANILDRA RAIL MAINTENANCE BUILDING

BOLONG ROAD. BOMADERRY, NSW

STRUCTURAL DRAWINGS

STRUCTURAL DRAWING LIST	
SHEET No.	SHEET NAME
S0001	FACE SHEET AND DRAWING INDEX
S0002	GENERAL NOTES
S0020	GROUND FLOOR PROFILE PLAN
S0025	GROUND FLOOR DETAILS - SHEET 1
S0026	GROUND FLOOR DETAILS - SHEET 2
S0030	ROOF FRAMING PLAN
S0040	STEELWORK ELEVATIONS
S0045	STEELWORK DETAILS - SHEET 1
S0046	STEELWORK DETAILS - SHEET 2



Rev	Description	Date	By	App
P1	ISSUED FOR INFORMATION	11.08.23	TF	

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Drawing Title: FACE SHEET AND DRAWING INDEX

FOR INFORMATION ONLY

Designed	JR	Project Director Approved	Date
Drawn	TF		
Scale	1:75	Project Ref.	Drawing No.
Date	11/08/23	131012	S0001
Sheet	A1		

North

Rev: P1

A1

STRUCTURAL NOTES

STANDARD NOTES:

GENERAL

G1 THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH ARCHITECTURAL AND OTHER CONSULTANTS DRAWINGS AND SPECIFICATIONS AND WITH SUCH OTHER WRITTEN INSTRUCTIONS OR SKETCHES AS MAY BE ISSUED DURING THE COURSE OF THE CONTRACT. ANY DISCREPANCY SHALL BE REFERRED TO THE SUPERINTENDENT BEFORE PROCEEDING WITH WORK.

G2 MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE SPECIFICATION, CURRENT SAA CODES, BUILDING REGULATIONS AND THE REQUIREMENTS OF ANY OTHER RELEVANT STATUTORY AUTHORITIES.

G3 THESE DRAWINGS MUST NOT BE SCALED. ALL DIMENSIONS ARE IN mm. ALL SET OUT DIMENSIONS AND LEVELS, INCLUDING THOSE SHOWN ON THESE DRAWINGS SHALL BE IN ACCORDANCE WITH THE ARCHITECT'S DRAWINGS AND VERIFIED ON SITE.

G4 THE CONSULTING ENGINEER HAS DESIGNED THE PERMANENT STRUCTURE. THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGN, IMPLEMENTATION AND CERTIFICATION OF ALL TEMPORARY WORKS, PROPPING, NEEDLING, FALSE WORK, BRACING, BACK-PROPPING, AND SO FORTH, NECESSARY TO COMPLETE THE WORK.

G5 DURING CONSTRUCTION THE STRUCTURE SHALL BE MAINTAINED IN A STABLE CONDITION AND NO PART SHALL BE OVERSTRESSED. THE CONTRACTOR SHALL ALLOW TO ENGAGE A CHARTERED (NPER-3) ENGINEER TO DESIGN, INSPECT THE TEMPORARY WORKS AND VERIFY THE TEMPORARY STABILITY OF THE STRUCTURE.

G6 THE APPROVAL OF A SUBSTITUTION SHALL BE SOUGHT FROM THE SUPERINTENDENT BUT IS NOT AN AUTHORIZATION OF A COST VARIATION. THE SUPERINTENDENT MUST APPROVE ANY COST VARIATION INVOLVED BEFORE ANY

G7 WORK STARTS.
THESE DRAWINGS SHALL NOT BE USED FOR CONSTRUCTION UNTIL ISSUED AS "FOR

G8 CONSTRUCTION" BY THIS OFFICE.
THE CONTRACTOR RETAINS RESPONSIBILITY OF THE WORKS EVEN IF THE

G9 ENGINEER HAS INSPECTED THE WORKS DURING CONSTRUCTION.
WHERE ADDITIONAL CONSTRUCTION LOADS, SUCH AS TEMPORARY SHORING, MOBILE CRANES, ETC. ARE TO BE IMPOSED ON THE STRUCTURE, THE CONTRACTOR SHALL SUBMIT FULL DETAILS OF THE PROPOSED TEMPORARY SUPPORTS TO THE ENGINEER FOR REVIEW. SUCH INFORMATION MUST BE PROVIDED A MINIMUM OF 7

G10 WORKING DAYS PRIOR TO THE PROPOSED WORKS COMMENCING.
IF THE CONTRACTOR INTENDS TO VARY THE SCOPE OR METHOD OF WORKS OR MATERIALS USED, THE CONTRACTOR SHALL SUBMIT FULL DETAILS OF THE

G11 PROPOSAL TO THE DESIGN SUPERINTENDENT FOR DESIGN CHECK.
ALL PROPRIETARY PRODUCTS SHALL BE INSTALLED STRICTLY IN ACCORDANCE

G12 WITH MANUFACTURER'S RECOMMENDATIONS.
ALL REQUIRED TESTS TO COMPLETE THE WORKS SHALL BE AT THE CONTRACTOR'S EXPENSE.

HEALTH AND SAFETY

H1 THE OBLIGATION OF BONACCI GROUP PTY LTD [OR OTHER RELEVANT BONACCI ENTITY] (BONACCI) AS THE DESIGN ENGINEER IS LIMITED TO ENSURING THAT THOSE PARTS OF THE STRUCTURE THAT ARE TO BE USED AS A WORKPLACE ARE, AS FAR AS REASONABLY PRACTICABLE, DESIGNED TO BE SAFE AND WITHOUT RISKS TO THE HEALTH OF THOSE PERSONS USING THE STRUCTURE AS A WORKPLACE FOR THE PURPOSE FOR WHICH IT WAS DESIGNED IN ACCORDANCE WITH SECT. 28 OF THE OCCUPATIONAL HEALTH AND SAFETY ACT 2004 (VIC).

H2 BONACCI IS NOT RESPONSIBLE FOR THE OCCUPATIONAL HEALTH AND SAFETY OF PERSONS AT THE SITE AS THOSE OBLIGATIONS RESIDE WITH THE CONTRACTORS AND/OR SUBCONTRACTORS WHO OCCUPY OR HAVE CONTROL OF THE SITE IN ACCORDANCE WITH APPLICABLE OCCUPATIONAL HEALTH AND SAFETY LEGISLATION, CODES OR PRACTICE, GUIDANCE NOTES, AUSTRALIAN STANDARDS AND OTHER RELEVANT DOCUMENTATION.

H3 ANY ADVICE OR GUIDANCE CONCERNING OCCUPATIONAL HEALTH AND SAFETY ISSUES ARISING AT THE SITE SHOULD BE DIRECTED TO THE HEALTH AND SAFETY EXECUTIVE OR OFFICER NOMINATED FOR THE PROJECT.

FOUNDATIONS

F1 REFER TO THE GEOTECHNICAL REPORT FOR A DESCRIPTION OF THE ANTICIPATED SITE CONDITIONS. THE BUILDER IS TO STUDY THE REPORT AND MAKE HIS OWN EVALUATION ON THE SITE CONDITIONS. ANY ADDITIONAL COSTS INCURRED SHALL BE BORNE BY THE BUILDER.

F2 ALL FOOTINGS SHALL BE FOUNDED AT 600mm MINIMUM DEPTH BELOW NATURAL GROUND LEVEL INTO THE STIFF UNDISTURBED NATURAL CLAY. THE ALLOWABLE BEARING CAPACITY SHALL BE AS STATED BELOW. THE TOPS OF FOOTINGS SHALL BE A MINIMUM OF 300mm BELOW THE LOWEST ADJACENT STRUCTURAL FLOOR LEVEL UNLESS NOTED OTHERWISE.

F3 THE ALLOWABLE BEARING CAPACITY SHALL BE VERIFIED BY GEOTECHNICAL ENGINEER, WHO SHALL BE EMPLOYED BY THE BUILDER, BEFORE ANY CONCRETE IS PLACED. WHEREVER THE BEARING CAPACITY AT THE FOOTING BASE IS INADEQUATE, EXCAVATION SHALL CONTINUE UNTIL SUITABLE MATERIAL IS FOUND OR THE FOOTING IS ENLARGED TO THE ENGINEER DETAILS.

F4 BASES OF ALL FOOTINGS SHALL BE CLEANED OF ALL LOOSE MATERIAL PRIOR TO POURING OF CONCRETE. IN WET CONDITIONS, A 300 x 300 x 300 PIT SHALL BE DUG AT THE CORNER OF THE FOOTING FOR DEWATERING THE EXCAVATION BEFORE CONCRETING. A 50mm MINIMUM BLINDING LAYER OF N15 GRADE CONCRETE SHALL BE USED, UNLESS OTHERWISE APPROVED BY THE ENGINEER.

F5 WHENEVER A FOOTING IS LOCATED CLOSE TO A BATTER , AN EXISTING FOOTING, EXISTING OR NEW SERVICES, A LINE DRAWN AT THE BOTTOM OF THE FOOTING AT 40 DEGREES TO THE HORIZONTAL SHALL FALL BELOW THE BATTER, EXISTING FOOTING OR SERVICES. IF THIS DOES NOT HAPPEN THE FOOTING BASE SHALL BE DEEPENED AS REQUIRED TO ACHIEVE THE FORMER.

F6 THE OVER BREAK BETWEEN THE APPROVED FOUNDING LEVEL AND THE UNDERSIDE OF THE FOOTING SHALL BE FILLED WITH GRADE N15 CONCRETE. ANY OVER BREAK AT THE SIDES OF THE FOOTING SHALL BE FILLED WHEN CONCRETING THE FOOTING.

F7 THE BUILDER SHALL REMOVE ALL SPOIL FROM THE SITE, AND DEWATER THE EXCAVATION AS REQUIRED.

F8 EARTHWORKS TO COMPLY WITH ARTC ENGINEERING STANDARDS (RCP 01 - RIC STANDARD : C1100).

F9 FOR TRACK WORK REFER TO RHOMBERS RAIL DRAWINGS AND SPECIFICATIONS.

CONCRETE GRADE

PAD AND STRIP FOOTINGS: N32

SLAB ON GROUND & TRENCH: N40

FOUNDATION DESIGN CRITERIA

PAD FOOTINGS: 100kPa

STRIP FOOTINGS: 100kPa

FOUNDED INTO STIFF UNDISTURBED NATURAL CLAYS

STRUCTURAL DESIGN BASED ON GEOTECHNICAL REPORT No: GEOTWOLL0258AV-AA

BY: COFFEY GEOTECHNICS PTY LTD
DATED: 7 MAY 2015

SLAB ON GROUND NOTES

SOG1 ALL CONCRETE WORK TO COMPLY WITH AS 3600 CONCRETE CODE, AND BCA SECTIONS 3.1 AND 3.2

SOG2 CONCRETE GRADE N20 MINIMUM (RESIDENTIAL)
CONCRETE GRADE N32 MINIMUM (ALL OTHER STRUCTURES)

SOG3 ALL VEGETATION SHALL BE STRIPPED TO A MINIMUM DEPTH OF 150mm. ANY SOFT SPOTS OR DELETERIOUS MATERIAL SHALL BE REMOVED AND REPLACED WITH APPROVED GRANULAR FILLING COMPACTED TO 100% AS. STANDARD COMPACTION. MINOR FILLING (800 MAXIMUM) SHALL BE PROVIDED WHERE REQUIRED TO BRING SUB GRADE TO REQUIRED LEVEL IN ACCORDANCE WITH LIMITS STATED IN AS 2870 AND BCA. FILLING SHALL BE APPROVED GRANULAR MATERIAL PLACED IN 150mm AND COMPACTED TO 100% AS. STANDARD

SOG4 COMPACTION.
A 0.2mm VAPOUR BARRIER SHALL BE USED, LAPPED A MINIMUM OF 200mm AT JOINTS AND TAPED AROUND SERVICES FITTINGS WITH ADHESIVE TAPE NOT INFERIOR TO DOUBLE SIDED BUTYL ADHESIVE TAPE. THE VAPOUR BARRIER SHALL BE PLACED ON A 50mm MINIMUM SAND BED OR SIMILAR APPROVED

SOG5 MATERIAL. PROTECT MEMBRANE FROM DAMAGE.
TRENCH MESH IN BEAMS SHALL BE OVERLAPPED BY THE WIDTH OF FABRIC AT 'T' AND 'L' INTERSECTIONS AND SPLICED WITH A LAP OF 500mm. RANDOM LAP N12 BARS BY 500mm STAGGERED. THE OUTER BAR AT 'L' INTERSECTION MUST BE

SOG6 BENT AND CONTINUED FOR 500mm AROUND THE CORNER.
SLAB FABRIC TO BE LAPPED SUCH THAT THE TWO OUTERMOST TRANSVERSE WIRE OF ONE SHEET OF MESH OVERLAP THE TWO OUTERMOST TRANSVERSE WIRES OF THE SHEET BEING LAPPED BY A MINIMUM OF 25mm AND BE SUPPORTED

SOG7 ON BAR CHAIRS AT 800mm MAXIMUM CENTERS.
THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE SITE INVESTIGATION

SOG8 REPORT TO DETERMINE FOUNDING DEPTHS.
SITE CLASSIFICATION TO AS 2870 CLASS H ENGINEERING PRINCIPLES TO

SOG9 SECTIONS 4 OF AS 2870.
LOAD BEARING EXTERNAL AND INTERNAL BEAMS AND LOAD SUPPORT THICKENINGS ARE TO BE FOUNDED ON NATURAL SOIL WITH AN ALLOWABLE

SOG10 BEARING PRESSURE OF NOT LESS THAN 100 kPa.
SLAB PANELS ARE TO BE FOUNDED ON NATURAL SOIL WITH AN ALLOWABLE

SOG11 BEARING PRESSURE OF NOT LESS THAN 50 kPa.

SOG12 TOP OF SLAB SHALL BE 150mm MINIMUM ABOVE THE FINAL GROUND LEVEL.
DRAINAGE AND GRADING AWAY FROM SLAB SHALL BE PROVIDED TO PREVENT WATER COLLECTING ADJACENT TO SLAB. TREATMENT OF AREAS SURROUNDING SLAB SHALL ALSO BE IN ACCORDANCE WITH RECOMMENDATIONS BY THE HOUSING GUARANTEE FUND AND THE OWNER/OCCUPIER SHALL BE PROVIDED

SOG13 WITH A COPY OF CSIRO INFORMATION SHEET No. 10-19.
BRICKWORK CONTROL JOINTS ARE TO BE PROVIDED ON SIDES EXCEEDING 6000mm IN LENGTH OR THROUGH LARGE OPENINGS FROM EAVES TO SLAB OR

SOG14 THROUGH FULL HEIGHT WINDOWS AND DOORS.
WHERE REQUIRED BY COUNCIL PROTECT THE STRUCTURE FROM SUBTERRANEAN TERMITES IN ACCORDANCE WITH AS 3660 AND BCA

STRUCTURAL DESIGN BASED ON GEOTECHNICAL REPORT No: GEOTWOLL0258AV-AA

BY: COFFEY GEOTECHNICS PTY LTD
DATED: 7 MAY 2015

CONCRETE SHALL COMPLY TO AS3600 AND AS 3610

C1 CONCRETE SIZES DO NOT INCLUDE FINISHES.

C2 NO HOLES, CHASES OR EMBEDMENTS OTHER THAN THOSE SHOWN ON THE DRAWINGS SHALL BE MADE IN CONCRETE ELEMENTS WITHOUT ENGINEER'S APPROVAL.

C3 DEPTHS OF BEAMS ARE GIVEN FIRST AND INCLUDE SLAB THICKNESS, SLABS AND BEAMS SHALL BE CAST TOGETHER UNLESS OTHERWISE NOTED.

C4 CONCRETE SHALL BE KEPT FREE OF SUPPORTING MASONRY WITH TWO LAYERS OF SUITABLE MEMBRANE (MALTHOID OR EQUAL). VERTICAL FACES SHALL BE SEPARATED BY 12mm BITUMINOUS CANEITE. ALL NON - LOAD BEARING WALLS SHALL BE KEPT 20 mm CLEAR OF THE UNDERSIDE OF SLABS AND BEAMS UNLESS NOTED OTHERWISE.

C5 CONSTRUCTION JOINTS SHALL BE PROPERLY FORMED AND LOCATED TO THE SATISFACTION OF THE ENGINEER. BUILDER SHALL ALLOW FOR ALL NECESSARY CONSTRUCTION JOINTS.

C6 WHERE NOTED ON DRAWINGS CAMBER TO SUSPENDED SLABS AND BEAMS SHALL BE 5 FOR EVERY 2500 OF SPAN UNLESS OTHERWISE NOTED. WHERE THE CONCRETE SOFFITS ARE CAMBERED, THE UPPER SURFACE SHALL BE SIMILARLY CAMBERED. DEPTH GAUGES SHALL BE USED TO VERIFY THE SLAB THICKNESS.

C7 REINFORCEMENT IS SHOWN DIAGRAMATICALLY AND IS NOT NECESSARILY IN TRUE PROJECTION. SPLICES TO REINFORCEMENT SHALL BE MADE ONLY AT THE LOCATION SHOWN OR AS OTHERWISE APPROVED BY THE ENGINEER. WELDING OF REINFORCEMENT SHALL BE CARRIED OUT BY A QUALIFIED WELDER IN ACCORDANCE WITH AS/NZS 1554 AND THE REINFORCEMENT SUPPLIER RECOMMENDATIONS. THE INTERPASS TEMPERATURE SHALL BE LESS THAN 200 DEGREES IN ACCORDANCE WITH AS/NZS 1554 PART 3.

C8 THE REINFORCEMENT SYMBOLS ARE:
N NORMAL DUCTILITY CLASS HOT ROLLED 500N DEFORMED BARS WITH fsy = 500 MPa.
R NORMAL DUCTILITY CLASS 250N PLAIN ROUND BARS WITH fsy = 250 MPa.
L LOW DUCTILITY CLASS HARD DRAWN 500L WIRE REINFORCING MESH WITH fsy = 5OOMPa.
DO NOT USE LOW DUCTILITY CLASS L REINFORCEMENT UNLESS SHOWN ON THE DRAWINGS.
THE NUMBER FOLLOWING THE REINFORCEMENT SYMBOL IS THE NOMINAL BAR DIAMETER IN MILLIMETERS. ALL REINFORCEMENT SHALL COMPLY WITH AS/NZS 4671. STEEL REINFORCING MATERIALS FOR CONCRETE SHALL COMPLY WITH AS/NZS 4671. WHERE APPLICABLE, MATERIALS SHALL BE CUT AND BENT IN ACCORDANCE WITH AS 3600, AS 5100 OR AS 2870.
ACCEPTABLE MANUFACTURERS AND PROCESSORS OF STEEL REINFORCING AND PRESTRESSING MATERIALS MUST ALSO HOLD A VALID CERTIFICATE OF APPROVAL, ISSUED BY THE AUSTRALIAN CERTIFICATION AUTHORITY FOR REINFORCING STEELS LTD (ACRS). MATERIALS CERTIFIED TO AN ALTERNATIVE SYSTEM SHALL NOT BE USED WITHOUT DEMONSTRATED EQUIVALENCE AND SUBSEQUENT WRITTEN APPROVAL FROM THE SPECIFIER. EVIDENCE OF COMPLIANCE WITH THIS CLAUSE MUST BE OBTAINED WHEN

C9 CONTRACT BIDS ARE RECEIVED.
HOOKS AND COGS SHALL COMPLY WITH AS3600 UNLESS NOTED OTHERWISE. ALL PULL OUT BARS SHALL BE TEMPCORE BARS OR APPROVED EQUIVALENT. BENDING AND REBENDING OF BARS SHALL BE CARRIED OUT IN ACCORDANCE WITH AS3600, AS/NZS 4671, THE SPECIFICATIONS AND THE REINFORCEMENT SUPPLIER RECOMMENDATIONS. BARS SHALL NOT BE HEATED ABOVE 400 DEGREES WITHOUT THE ENGINEER'S WRITTEN APPROVAL. THERMAL CRAYONS SHALL BE USED TO

C10 ENSURE COMPLIANCE WITH THIS TEMPERATURE LIMIT.
COVER TO REINFORCEMENT (IN mm) AND CONCRETE GRADES SHALL BE AS FOLLOWS UNLESS NOTED OTHERWISE: THE COVER SHALL NOT BE LESS THAN THE BAR DIAMETER AND:

ELEMENT	FORMED AND INTERNAL	FORMED AND EXPOSED TO WEATHER (1.)	NOT FORMED CAST AGAINST GROUND (2.)
FOOTINGS, PILE CAPS	-	60	75
COLUMNS, PEDESTALS	40	50	75
SLABS, BAND BEAMS	20(3.)	40	60
BEAMS	30	40	60
WALLS			
HORIZONTAL BARS	30	40	60
VERICAL BARS	40	50	60
MINIMUM CONCRETE GRADE	N40	N40	N40 (4.)

(1) FOR EXPOSURE CLASSIFICATION B2 ADD 5mm TO THE COVER AND THE CONCRETE GRADE SHALL BE N40 MINIMUM.
(2) IF THE ELEMENT IS CAST ON A DAMP PROOF MEMBRANE, DECREASE THE COVER BY 20mm.
(3) FOR PRESTRESSING TENDONS THE MINIMUM COVER SHALL BE 25mm.
(4) IN CORROSIVE SOILS AND WATER: N50

NOTES:
(i) COVER IS THE CLEAR DISTANCE BETWEEN ANY REINFORCING (INCLUDING FITMENTS) AND THE FACE OF THE STRUCTURAL ELEMENT.
(ii) FOR ALL EXTERNAL SURFACES, PROVIDE FULLY PLASTIC BAR CHAIRS. TIE WIRE SHALL NOT BE NAILED TO THE FORMS, REINFORCING BARS SHALL NOT BE USED TO KEEP FORMS APART AND A THROUGH TIE SYSTEM SHALL BE USED TO TIE FORMS.
(iii) PROVIDE AN APPROVED VAPOUR BARRIER FOR SLABS, BEAMS AND THICKENING CASTAGAINST THE GROUND.
(iv) THE COVERS SHALL BE MAINTAINED USING APPROVED BAR CHAIRS. BAR CHAIRS SUPPORTING MESH SHALL BE AT 800 x 800mm MAXIMUM CENTRES. BAR CHAIRS SUPPORTING BARS SHALL BE AT 60 BAR DIAMETERS OR 1500 MAXIMUM CENTRES WHICHEVER IS THE LESSER. BAR CHAIRS SHALL BE PROVIDED ALONG THE EDGES OF ALL CONSTRUCTION JOINTS. STOP ENDS SHALL NOT BE USED TO MAINTAIN THE COVERS.
(v) EXTERNAL ELEMENTS ARE THOSE EXPOSED TO WEATHER, RAIN AND WATER PENETRATION AND ARE CLASSIFIED B1 UNLESS NOTED OTHERWISE.

C11 EXTERNAL CONCRETE ELEMENTS SHALL MEET THE FOLLOWING REQUIREMENTS: MINIMUM PORTLAND CEMENT CONTENT 330 kg/m3/, MAXIMUM WATER/CEMENT RATIO 0.5, AND THE CHLORIDE CONTENT RESTRICTED AS PER CLAUSE 4.9 OF AS3600.

C12 ALL CONCRETE SUPPLIED SHALL HAVE A SLUMP OF 80mm AND A MAXIMUM NOMINAL AGGREGATE SIZE OF 20mm. VARIATIONS FROM THESE SHALL BE APPROVED BY THE ENGINEER.

C13 THE MIX DESIGN WITH THE 7 AND 28 DAYS TARGET STRENGTHS AND THE BASIC SHRINKAGE STRAIN AT 56 DAYS SHALL BE SUBMITTED FOR REVIEW PRIOR TO POURING ANY CONCRETE. ALL CONCRETE IN CONTACT WITH AGGRESSIVE SOIL SHALL HAVE SULPHATE RESISTING CEMENT. THE C3A CONTENT OF THE CEMENT SHALL BE LESS THAN 5%.

C14 CONDUITS AND PIPES WHEN CAST IN SLABS OR WALLS ARE TO BE PLACED BETWEEN THE TWO REINFORCEMENT LAYERS. WHERE THERE IS ONLY ONE LAYER OF REINFORCEMENT, PROVIDE 50mm COVER TO CONDUIT. THE CONDUIT LOCATIONS ARE TO BE APPROVED BY THE ENGINEER.

C15 WHERE DISTRIBUTION BARS TO MAIN REINFORCEMENT ARE NOT SHOWN ON DRAWINGS PROVIDE MINIMUM N16 AT 400 CENTRES, LAPPED 500mm AT SPLICES.

C16 FORMWORK SHALL BE DESIGNED, CONSTRUCTED AND SUPPLIED IN ACCORDANCE WITH AS 3610. REFER TO ARCHITECTURAL DRAWINGS AND SPECIFICATIONS FOR CLASSES OF SURFACE FINISHES.

C17 STRIPPING AND BACKPROPPING OF SOFFITS SHALL NOT OCCUR UNTIL CONCRETE HAS REACHED 75% OF SPECIFIED STRENGTH. BACK PROPPING (OR A SECOND SET OF TABLE FORMS) IS TO EXTEND DOWN SO THAT EACH NEW FLOOR IS SUPPORTED BY AT LEAST 3 FINISHED FLOORS OR AS CALCULATED. DO NOT STRIP BAYS ADJACENT CONSTRUCTION JOINTS UNTIL THE ADJACENT BAYS ARE AT LEAST 3 DAYS OLD. CALCULATIONS ON THE BACKPROPPING REQUIREMENTS SHALL BE SUBMITTED FOR APPROVAL.

C18 CURING OF THE CONCRETE ELEMENTS SHALL BE STARTED AS SOON AS THE CONCRETE HAS HARDENED AND SHALL COMPLY WITH THE SPECIFICATIONS.

C19 PROVIDE A 25mm x 25mm CHAMFER TO ALL CORBELS, UNLESS OTHERWISE INDICATED ON THE DRAWING. ENSURE THAT POLYSTYRENE IS PLACED AROUND THE BEARING, SO THAT THE CONCRETE SURFACES ARE NOT IN CONTACT. SUBMIT CONFIRMATION OF THE SPECIFICATIONS OF ALL BEARING MATERIALS TO THE ENGINEER.

C20 ENSURE ALL MOVEMENT JOINTS ARE INSTALLED WITH THE SPECIFIED ARCHITECTURAL FINISH, INCLUDING SEALANT, FILLERS, EXPANSION MATERIALS AND REBATES AS REQUIRED.

STEELWORK SHALL COMPLY T0 AS 4100, AS/NZS 4600 AND AS/NZS 3828

S1 THE FABRICATOR SHALL BE RESPONSIBLE FOR SUBMITTING SHOP DRAWINGS, WHICH SHALL COMPLY WITH THE CONTRACT DRAWINGS AND SPECIFICATIONS, FOR REVIEW BEFORE FABRICATION IS STARTED. REVIEW DOES NOT INCLUDE CHECKING OF DIMENSIONS, NOR TAKE RESPONSIBILITY FOR CONTRACTORS OBLIGATIONS. ALLOW 3 WORKING DAYS MINIMUM FOR REVIEW.

S2 WHERE CONNECTION FORCES (IN KILONEWTONS) ARE SHOWN ON THE DRAWINGS, CONNECTIONS SHALL BE PROVIDED TO TRANSMIT THESE FORCES. CONNECTIONS SHALL PROVIDE FOR A MINIMUM FORCE OF 40kN.

S3 ALL DETAILS, GAUGE LINES, ETC. WHERE NOT SPECIFICALLY SHOWN SHALL BE IN ACCORDANCE WITH AISC DESIGN CAPACITY TABLES FOR STRUCTURAL STEEL AND AISC STANDARDIZED STRUCTURAL CONNECTIONS.

S4 UNLESS OTHERWISE NOTED: WELDS TO BE 6mm CONTINUOUS FILLETS LAID DOWN WITH APPROVED COVERED ELECTRODES. ALL WELDS SHALL BE CATEGORY SP UNLESS OTHERWISE NOTED. WELDS SHALL CONFORM TO AS/NZS 1554 AND ELECTRODES TO AS/NZS 1553. GUSSET PLATES TO BE 10mm THICK. BOLTS TO BE M20-8.8/S IN 22mm DIAMETER HOLES. PROVIDE A MINIMUM OF TWO BOLTS PER CONNECTION.

S5 FABRICATOR SHALL PROVIDE ALL FIXINGS FOR ARCHITECTURAL ELEMENTS ETC. WITHOUT WEAKENING STRUCTURAL MEMBER IN ANY WAY.

S6 CAMBER SHALL BE PROVIDED TO ALL ROOF BEAMS, TRUSSES, AND PORTALS ETC. AT 5 PER 2000 OF SPAN UNLESS OTHERWISE NOTED, FOR ALL MEMBERS SPANNING IN EXCESS OF 6m. NO MEMBER SHALL BE ERECTED WITH NEGATIVE CAMBER, UNLESS SPECIFICALLY NOTED. FOR CONCRETE SLABS ON TOP OF STEELWORK DEPTH GAUGES SHALL BE USED TO VERIFY THE SLAB THICKNESS.

S7 ALL STEELWORK BELOW GROUND SHALL BE ENCASED BY CONCRETE WITH MIN. COVER OF 75mm. CONCRETE ENCASED STRUCTURAL STEEL TO BE WRAPPED WITH PRE-GALVANIZED G444HS MESH PLACED 25mm CLEAR OF STEEL. PROVIDE 50mm MINIMUM COVER.

S8 ALL STEELWORK NOT TO BE ENCASED IN CONCRETE OR GALVANIZED SHALL BE GIVEN ONE SHOP COAT OF AN APPROVED PRIMER UNLESS OTHERWISE NOTED. FACES OF FRICTION GRIP CONNECTIONS SHALL NOT BE PAINTED.

S9 THE BOLTING PROCEDURE IS DESIGNATED AS FOLLOWS:
- 4.6/S REFERS TO COMMERCIAL BOLTS OF STRENGTH GRADE 4.6 TO AS/NZS 1111 TIGHTENED USING A STANDARD WRENCH TO A SNUG-TIGHT CONDITION.
- 8.8/S REFERS TO HIGH STRENGTH BOLTS OF STRENGTH GRADE 8.8 TO AS/NZS 1252 TIGHTENED USING A STANDARD WRENCH TO A SNUG-TIGHT CONDITION.
- 8.8/TF REFERS TO HIGH STRENGTH BOLTS OF STRENGTH GRADE 8.8 TO AS/NZS 1252 FULLY TENSIONED TO AS 1511, DESIGNED AS A FRICTION TYPE JOINT.
- 8.8/TB REFERS TO HIGH STRENGTH BOLTS OF STRENGTH GRADE 8.8 TO AS/NZS 1252 FULLY TENSIONED TO AS 1511, DESIGNED AS A BEARING TYPE JOINT.

S10 LOAD INDICATING WASHERS SHALL BE USED TO VERIFY TIGHTENING OF BOLTS IN TF AND TB CONNECTIONS. A HARDENED WASHER SHALL BE USED UNDER THE BOLT HEAD OR NUT, WHICHEVER IS ROTATED. FULLY TENSIONED BOLTS SHALL NOT BE RE-USED. WELDING OF CAPTIVE NUTS TO STEELWORK SHALL BE GRADE 4.6S, CLASS 5 NUTS. THE ELECTRODES USED SHALL BE COMPATIBLE WITH THE CHEMISTRY OF THE STEEL INVOLVED (MEMBER OR CONNECTION COMPONENT AND NUT). ALL SUCH WELDS SHALL HAVE 100% VISUAL INSPECTION. GRADE 4.6S BOLTS TO BE USED.

S11 ALL BOLTS SHALL BE OF SUCH LENGTH THAT AT LEAST ONE FULL THREAD IS EXPOSED BEYOND THE NUT AFTER THE NUT HAS BEEN TIGHTENED. MINIMUM ONE WASHER SHALL BE USED UNDER THE NUT IN ALL SITUATIONS. IF TIGHTENING IS CARRIED OUT AT THE HEAD, AN ADDITIONAL WASHER SHALL BE USED UNDER THE HEAD. FOR SLOTTED HOLES, SHORTER THAN THE LESSER OF 1.33 TIMES THE BOLT DIAMETER OR (BOLT DIAMETER + 10mm) AND NOT WIDER THAN THE BOLT DIAMETER PLUS 2mm, USE HARDENED WASHER UNDER THE NUT AND BOLT HEAD.

S12 UNLESS NOTED OTHERWISE, ALL MATERIAL TO BE:
- GRADE 250 HOT ROLLED PLATES, FLATS
GRADE 300PLUS UB, UC, PFC,TFB AND ANGLES
- GRADE 300 WB, WC;
- GRADE 350 RHS, CHS.
- STRUCTURAL STEEL SHALL COMPLY WITH AS/NZS 1163, AS/NZS 3678, AS/NZS 3679.1 OR AS/NZS 3679.2. TEST CERTIFICATES RELATING TO THE STRUCTURAL STEEL SUPPLIED, SHALL BE MADE AVAILABLE TO THE SPECIFIER.
ACCEPTABLE MANUFACTURERS OF STRUCTURAL STEEL MUST ALSO HOLD A VALID CERTIFICATE OF APPROVAL, ISSUED BY THE AUSTRALIAN CERTIFICATION AUTHORITY FOR REINFORCING STEELS LTD (ACRS). MATERIALS CERTIFIED TO AN ALTERNATIVE SYSTEM SHALL NOT BE USED WITHOUT DEMONSTRATED EQUIVALENCE AND SUBSEQUENT WRITTEN APPROVAL FROM THE SPECIFIER. EVIDENCE OF COMPLIANCE WITH THIS CLAUSE MUST BE OBTAINED WHEN CONTRACT BIDS ARE RECEIVED.

S13 HOT DIPPED GALVANIZING SHALL BE IN ACCORDANCE WITH AS 4680 MINIMUM COATING THICKNESS OF 85 MICRONS. PROVIDE MEMBERS TO BE GALVANIZED WITH VENT AND DRAINAGE HOLES IN ACCORDANCE TO THE GALVANISER'S RECOMMENDATIONS AND THE ACCEPTANCE OF THE ENGINEER.

S14 THE ENDS OF TUBULAR MEMBERS SHALL BE SEALED WITH NOMINAL THICKNESS PLATES AND CONTINUOUS FILLET WELDED UNLESS NOTED OTHERWISE.

S15 WHERE MEMBERS SHOWN ON THE STRUCTURAL OR ARCHITECTURAL DRAWINGS ARE REQUIRED TO BE CURVED, BENT OR ROLLED, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE METHODS REQUIRED TO ACHIEVE THE REQUIRED SHAPES WITHOUT LOCALIZED DISTORTION OF THE MEMBERS.

S16 THE CONTRACTOR SHALL PROVIDE AND LEAVE IN PLACE, UNTIL PERMANENT BRACING ELEMENTS ARE CONSTRUCTED, SUCH TEMPORARY BRACING AS IS NECESSARY TO STABILIZE THE STRUCTURE DURING ERECTION. REFER TO NOTES G4 AND G5.

S17 SUBMIT DETAILS OF THE MANUFACTURER, MATERIAL AND SECTION PROPERTIES OF THE PURLINS AND GIRTS TO BE USED FOR APPROVAL. PURLIN AND GIRT BOLTS AND BRIDGING SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S DETAILS UNLESS SHOWN OTHERWISE.

S18 TRIMMING MEMBERS FOR MECHANICAL/HYDRAULIC PENETRATIONS, DRAINAGE GUTTERS, SUMPS ETC., ARE NOT NECESSARILY SHOWN. SUPPORT OF HEAVY PIPES AND DUCTS IS TO BE APPROVED BY THE ENGINEER. SERVICES SHALL BE HUNG FROM THE WEB OF PURLINS NOT FLANGES.

S19 THE DESIGN, SUPPLY AND INSTALLATION OF SECONDARY STEELWORK REQUIRED TO SUPPORT/CONNECT THE FACADE TO BASE STRUCTURE IS THE RESPONSIBILITY OF THE CONTRACTOR.
CERTIFICATION OF ARCHITECTURAL FIXINGS/BRACING OF CEILINGS AND NON-STRUCTURAL WALLS TO THE BASE STRUCTURE IS THE RESPONSIBILITY OF THE CONTRACTOR. FORWARD TO THE ENGINEER A CERTIFICATE OF SUFFICIENCY BY THE SUPPLIER FOR THE ARCHITECTURAL FIXTURES/PANELS/DRY-WALL TO RESIST THE PRESSURES DESIGNATED IN THE DESIGN DOCUMENTS.

ALL STEELWORK TO BE H.D. GALVANISED AS GALVANIZERS SPECIFICATIONS.

Rev	Description	Date	By	App
P1	ISSUED FOR INFORMATION	11.08.23	TF	

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Project Name: MANILDRA RAIL MAINTENANCE BUILDING BOLONG ROAD. BOMADERRY, NSW

Drawing Title: GENERAL NOTES

FOR INFORMATION ONLY

Designed	JR	Project Director Approved	Date	North
Drawn	TF			
Scale	1:100	Project Ref.	Drawing No.	Rev
Date	11/08/23	131012	S0002	P1
Sheet	A1			

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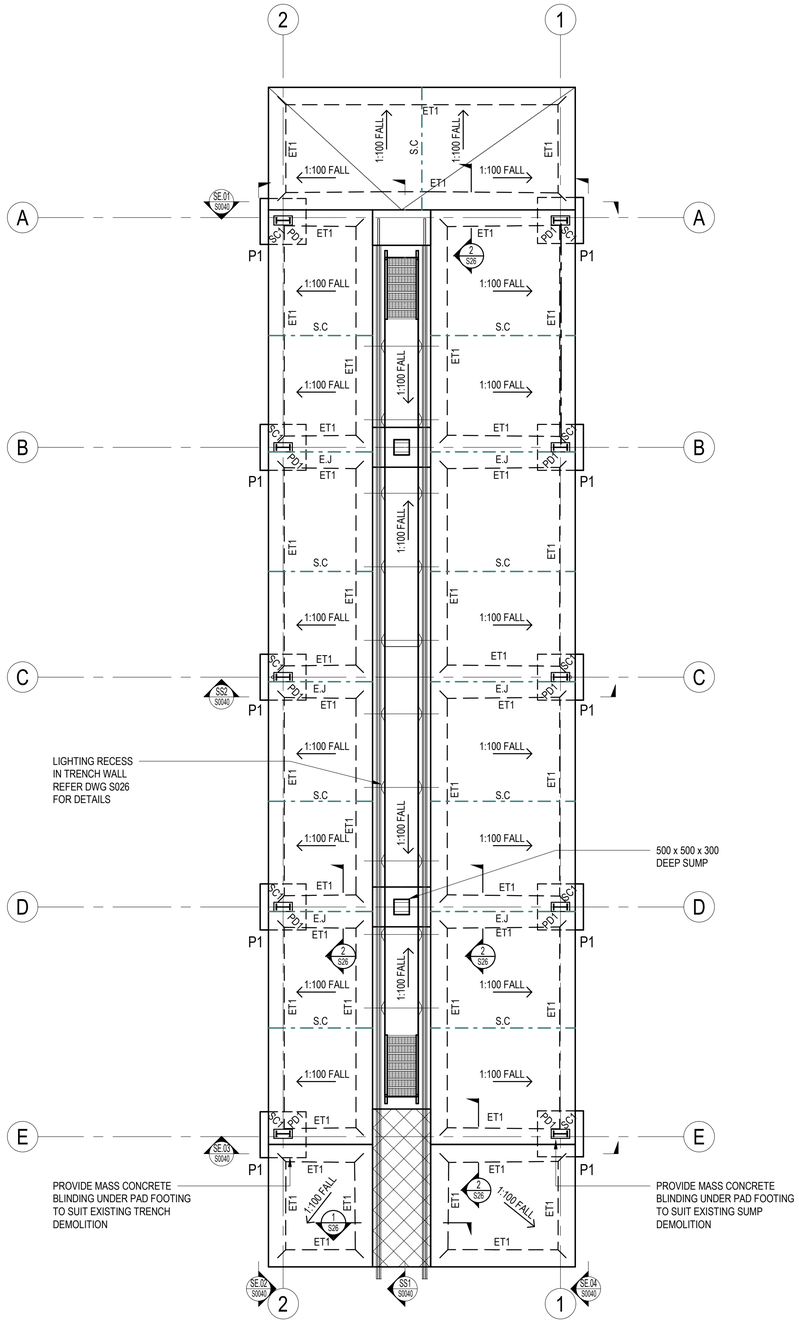

GROUND FLOOR PROFILE PLAN

SCALE: 1 : 100

STRUCTURAL SIZES

(UNLESS OTHERWISE NOTED)

SLAB	GENERALLY 170mm THICK SLAB ON GROUND WITH 1 LAYER SL92 MESH TOP WITH SUBGRADE PREPARATION AND FILLING IN ACCORDANCE WITH GEOTECHNICAL REPORT.

CONCRETE GRADE

FOOTINGS	N32 (DENSEWEIGHT)
SLAB ON GROUND	N40 (DENSEWEIGHT)
PIT WALLS, DRAINS, SUMPS	N40 (DENSEWEIGHT)

LEGEND

(UNLESS OTHERWISE NOTED)

S.C	SAWCUT JOINT
E.J	EXPANSION JOINT
	DENOTES BITUMEN INFILL

FOOTING SCHEDULE

MARK	SIZE	REMARKS
ET1	300 (MIN) WIDE x 400 (MIN) DEEP	EDGE THICKENING
P1	1500 x 1500 x 600 DEEP	PAD FOOTING - REINFORCEMENT AS PER DETAILS
PD1	600 x 300 x 400 DEEP	PEDESTAL - REINFORCEMENT AS PER DETAILS

Rev	Description	Date	By	App
P1	ISSUED FOR INFORMATION	11.08.23	TF	

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Project Name: MANILDRA RAIL MAINTENANCE BUILDING BOLONG ROAD. BOMADERRY, NSW

Drawing Title: GROUND FLOOR PLAN

FOR INFORMATION ONLY

Designed	JR	Project Director Approved	Date
Drawn	TF		
Scale	1:100	Project Ref.	Drawing No. / Rev
Date	11/08/23	131012	S0020 P1
Sheet	A1		

North

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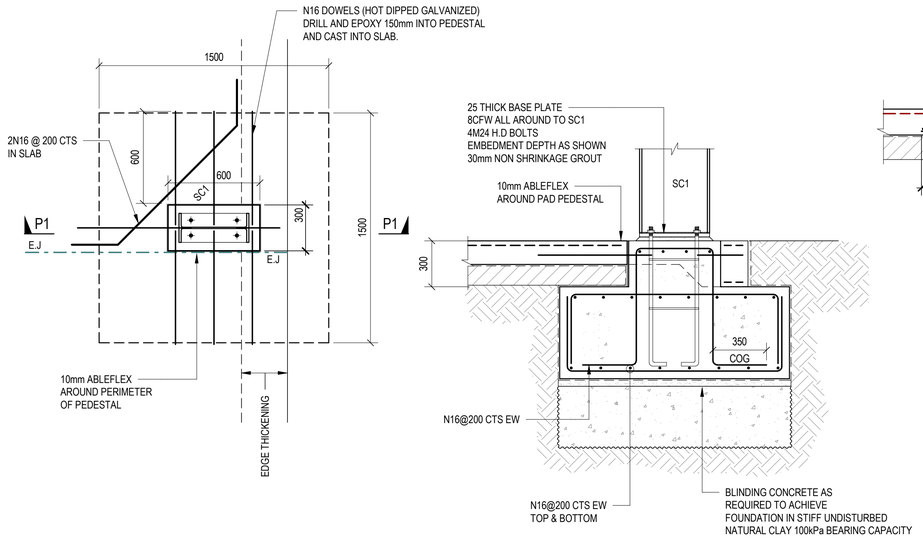
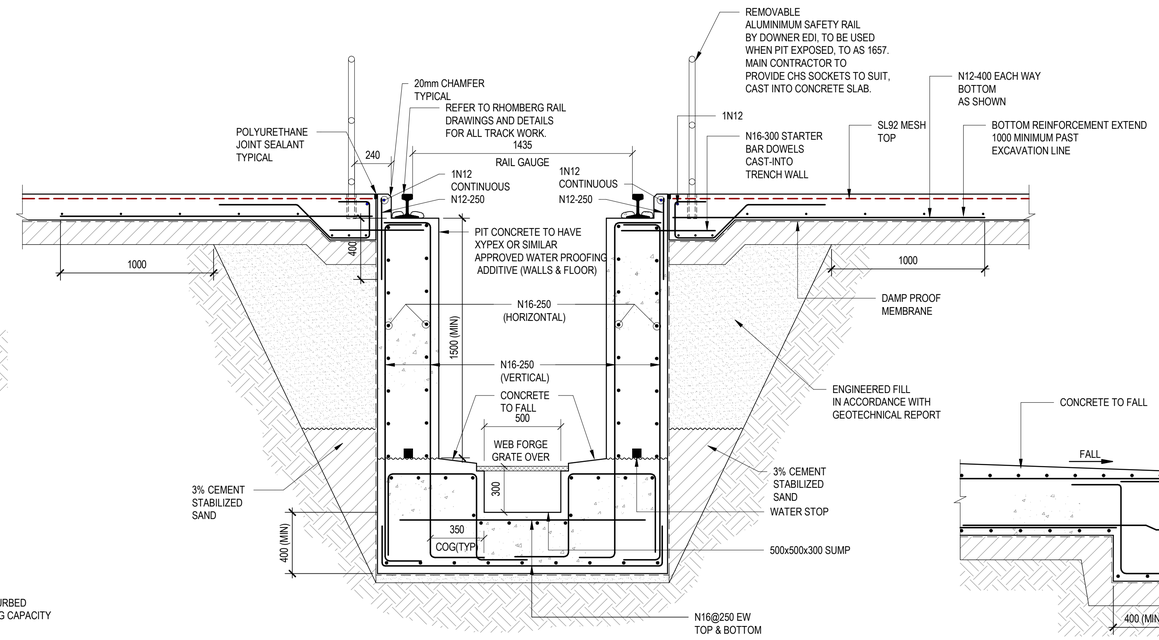


PLAN

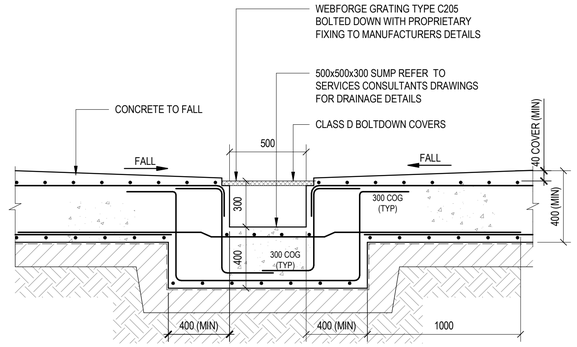
SECTION P1
SCALE 1:20

TYPICAL PAD FOOTING WITH SLAB OVER

SCALE 1:20



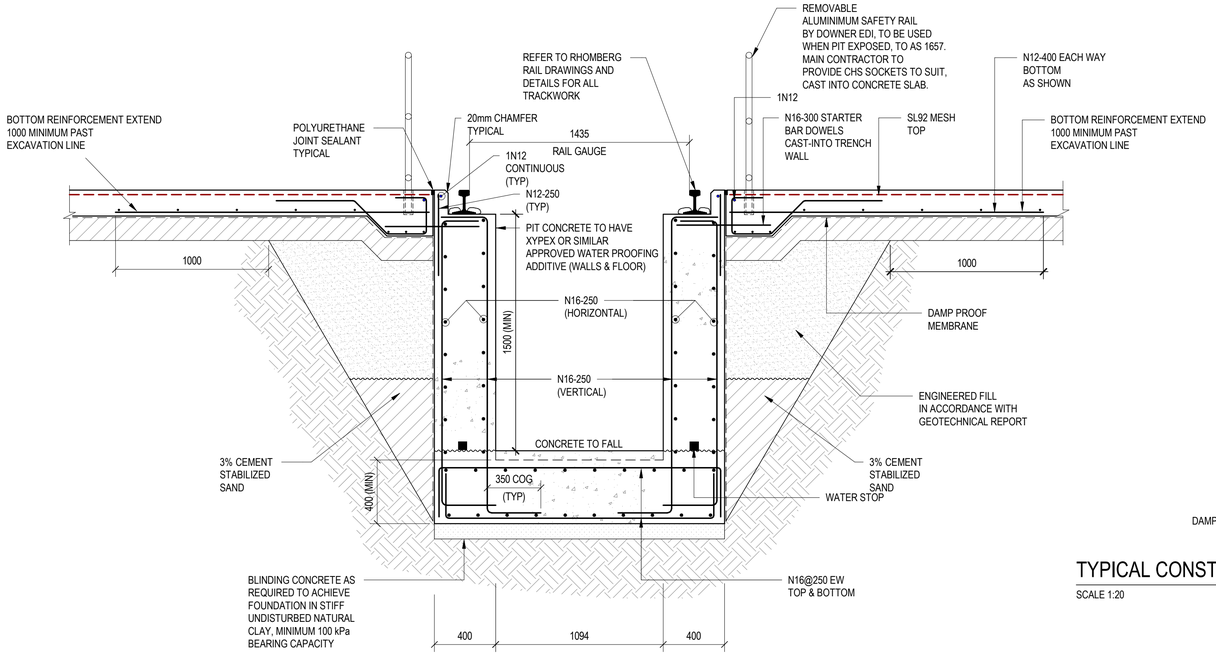
CROSS SECTION



LONG SECTION

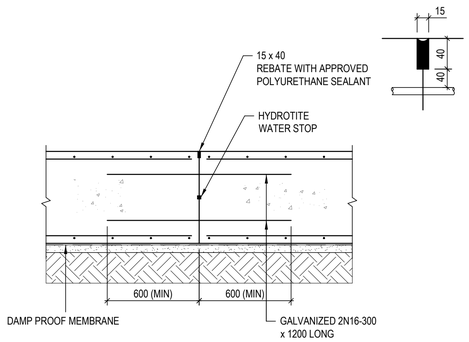
TYPICAL PIT DETAIL AT SUMP

SCALE 1:20



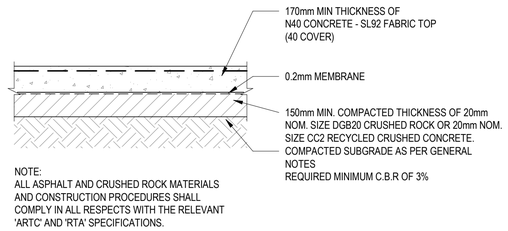
TYPICAL PIT DETAIL

SCALE 1:20



TYPICAL CONSTRUCTION JOINT DETAIL (C.J.) THROUGH TRENCH FLOOR

SCALE 1:20



NOTE:
ALL ASPHALT AND CRUSHED ROCK MATERIALS
AND CONSTRUCTION PROCEDURES SHALL
COMPLY IN ALL RESPECTS WITH THE RELEVANT
'ARTC' AND 'RTA' SPECIFICATIONS.

HEAVY DUTY CONCRETE PAVEMENT

Rev	Description	Date	By	App
P1	ISSUED FOR INFORMATION	11.08.23	TF	

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Project Name: MANILDRA RAIL MAINTENANCE BUILDING BOLONG ROAD. BOMADERRY, NSW

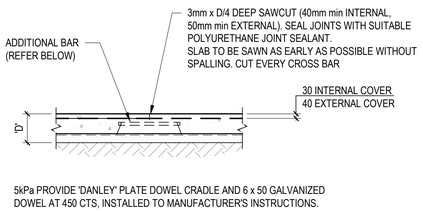
Drawing Title: GROUND FLOOR DETAILS SHEET 1

FOR INFORMATION ONLY

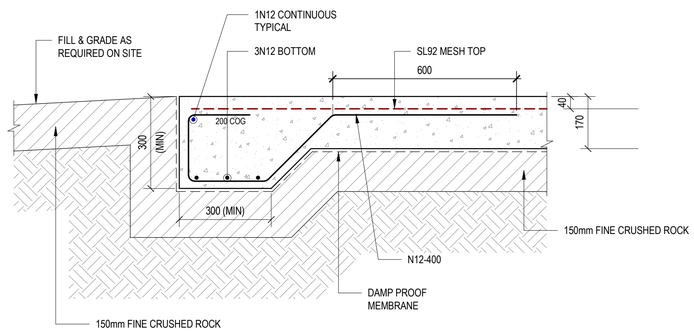
Designed	JR	Project Director Approved	Date
Drawn	TF		
Scale	1:20	Project Ref. 131012	Drawing No. S0025
Date	11/08/23		Rev P1
Sheet	A1		

North

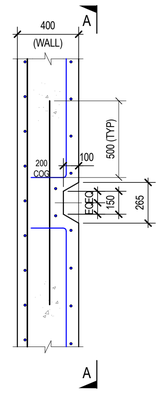
A1



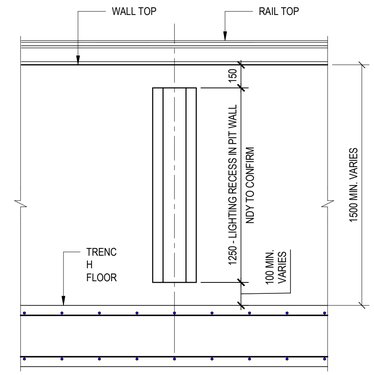
SAWCUT (SC)



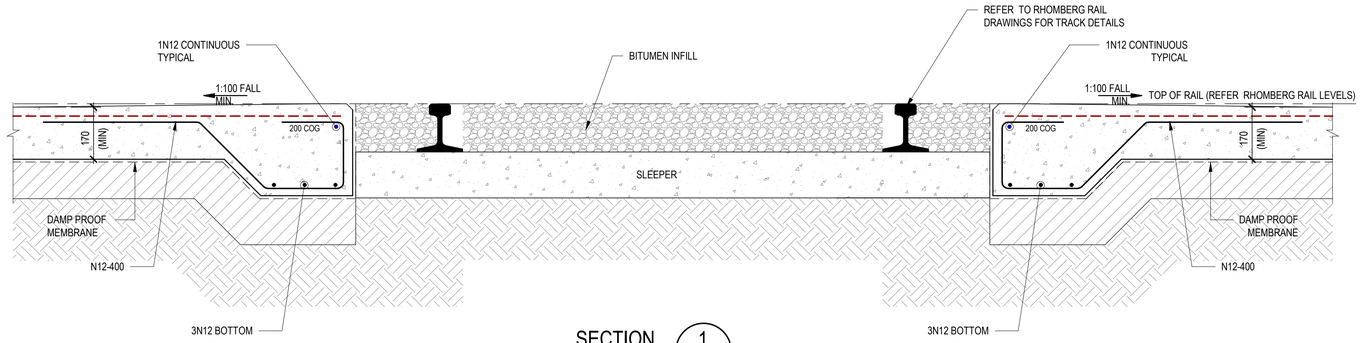
TYPICAL SLAB EDGE THICKENING (NO TRENCH)



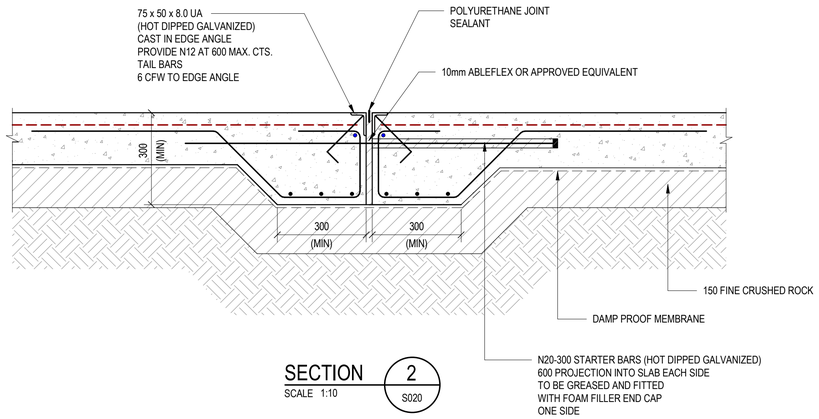
LIGHTING RECESS DETAIL IN PIT WALL



SECTION A-A



SECTION 1 / S020
SCALE 1:10



SECTION 2 / S020
SCALE 1:10

TYPICAL EXPANSION JOINT DETAIL

Rev	Description	Date	By	App
P1	ISSUED FOR INFORMATION	11.08.23	TF	

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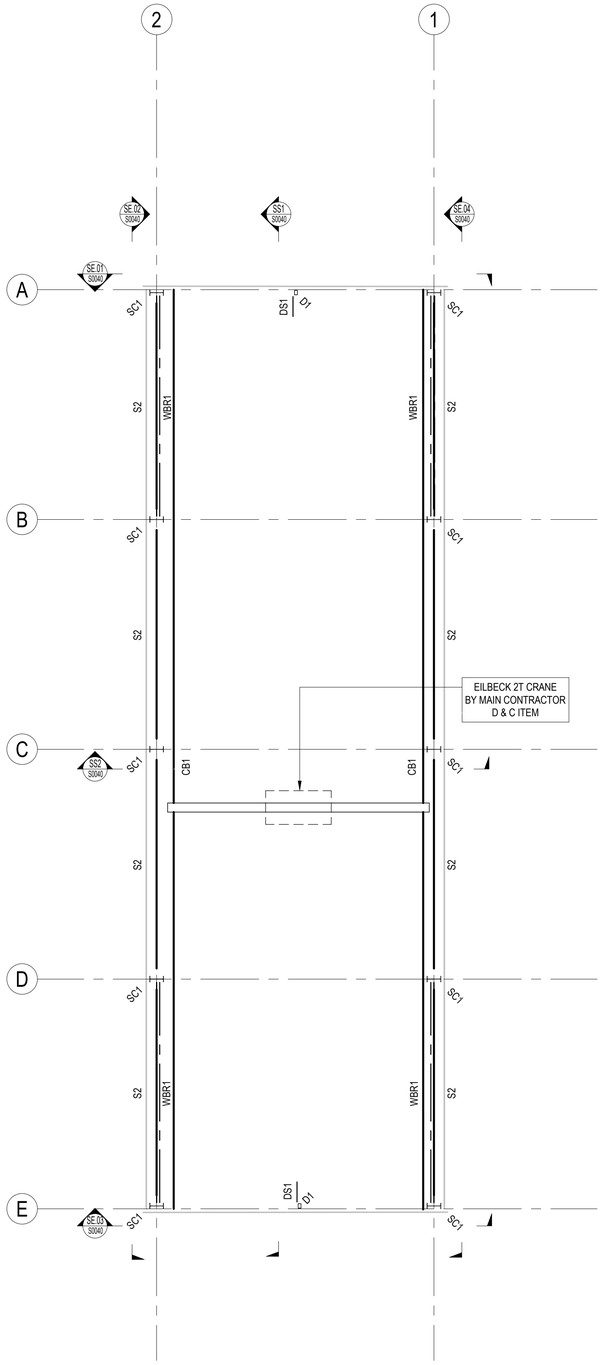
Drawing Title: GROUND FLOOR DETAILS SHEET 2

FOR INFORMATION ONLY

Designed	JR	Project Director Approved	Date
Drawn	TF		North
Scale	1:10, 1:20	Project Ref.	Drawing No. / Rev
Date	11/08/23	131012	S0026 P1
Sheet	A1		

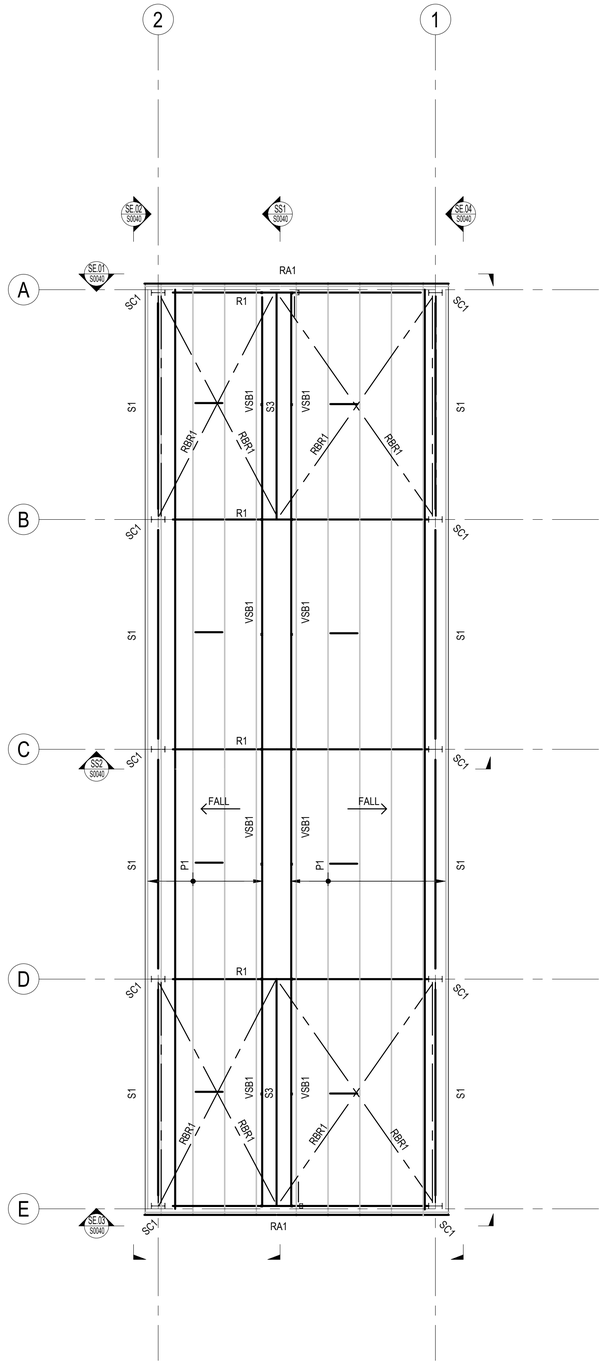
A1

11/08/2023 12:17:02 PM C:\Users\tfreeman\Documents_Revit_2023\131012-BOLONG RD RAIL-R23T23-CENTRAL_tmcdry.freeman@MHI.rvt



CRANE SUPPORT FRAMING PLAN

SCALE: 1 : 100



ROOF FRAMING PLAN

SCALE: 1 : 100

STEEL FRAMING SCHEDULE

MARK	SIZE	REMARKS
CB1	250 UC 73	CRANE RAIL SUPPORT BEAM
D1	150 x 100 x 5 RHS	DROPPER
DS1	75 x 75 x 8 EA	DROPPER STRUT
FB	50 x 50 x 3 EA	FLY BRACE
FP	C20024	FASCIA PURLIN, LAP 1200 AT SUPPORT, 2 ROWS OF BRIDGING
G1	C20015	GIRTS AT 1000 MAX. CTS., LAP 1200 AT SUPPORT, 2 ROWS OF BRIDGING
G2	200 x 100 x 6 RHS	WITH 50 x 50 x 3 EA WELDED TO SOFFIT FOR SHEETING
P1	Z20015	PURLINS AT 1000 MAX. CTS., LAP 1200 AT SUPPORT, 2 ROWS OF BRIDGING
P2	C15015	PURLINS AT 600 MAX. CTS., LAP 1200 AT SUPPORT
R1	410 UB 60	RAFTER
RA1	50 x 50 x 5 EA	RAKING ANGLE, FIXED TO PURLINS
RBR1	M20 DIA. ROD	ROOF BRACING (GRADE 4.6/s)
S1	100 x 100 x 6 SHS	STRUT
S2	100 x 100 x 6 SHS	STRUT
S3	139.7 x 5.0 CHS	STRUT
SC1	460 UB 75	COLUMN
T1	M12 DIA. ROD	TIE - SAG ROD
VF1	75 x 75 x 5 SHS	VENT FRAME - FULLY WELDED FRAME
VSB1	180 PFC	VENT SUPPORT BEAM
WBR1	M20 DIA. ROD	WALL BRACING (GRADE 4.6/s)

Rev	Description	Date	By	App
P1	ISSUED FOR INFORMATION	11.08.23	TF	

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Project Name: MANILDRA RAIL MAINTENANCE BUILDING BOLONG ROAD. BOMADERRY, NSW

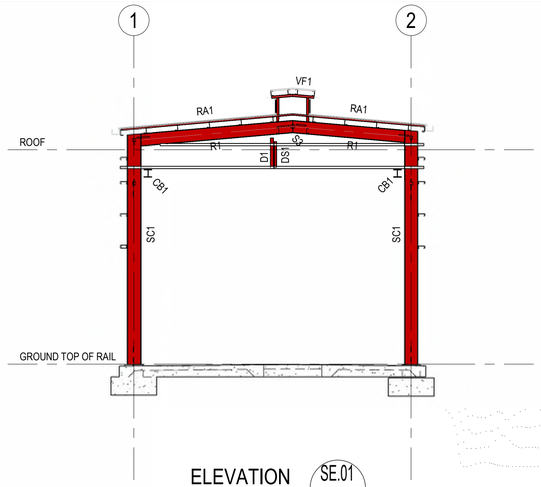
Drawing Title: ROOF FRAMING PLAN

FOR INFORMATION ONLY

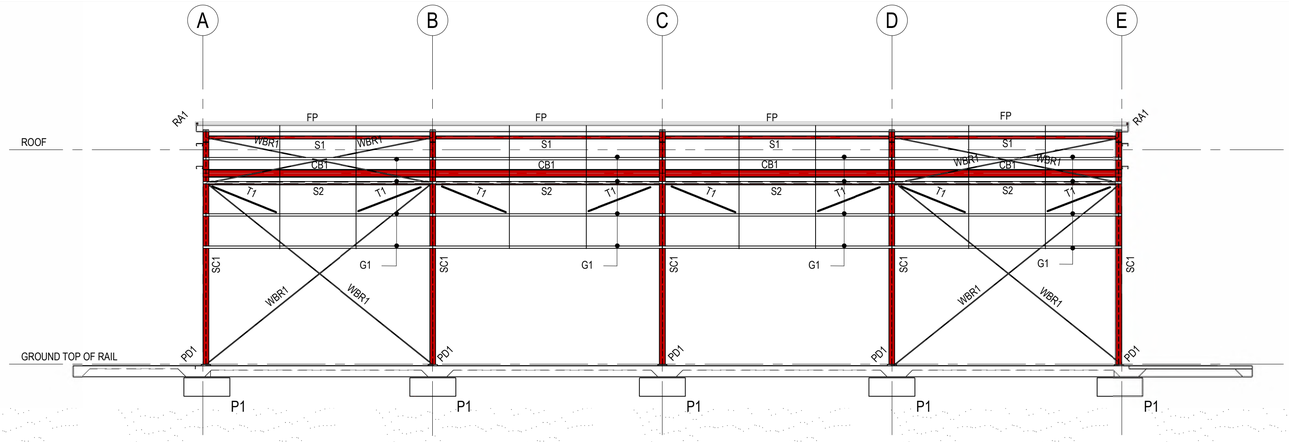
Designed	JR	Project Director Approved	Date
Drawn	TF		
Scale	1:100		
Date	11/08/23	Project Ref. 131012	Drawing No. S0030 Rev P1
Sheet	A1		

North

A1



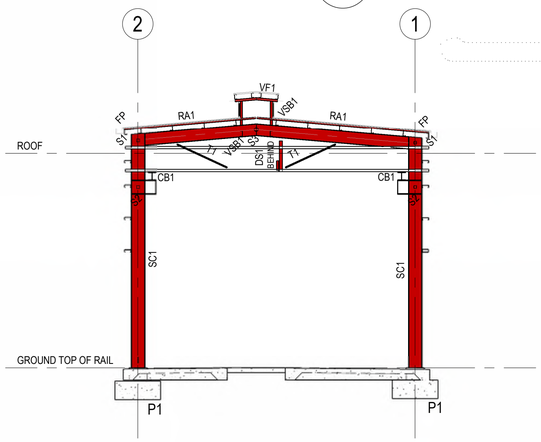
ELEVATION SE.01 S0020
SCALE 1 : 100



ELEVATION SE.02 S0020
SCALE 1 : 100

STEEL FRAMING SCHEDULE

MARK	SIZE	REMARKS
CB1	250 UC 73	CRANE RAIL SUPPORT BEAM
D1	150 x 100 x 5 RHS	DROPPER
DS1	75 x 75 x 8 EA	DROPPER STRUT
FB	50 x 50 x 3 EA	FLY BRACE
FP	C20024	FASCIA PURLIN, LAP 1200 AT SUPPORT, 2 ROWS OF BRIDGING
G1	C20015	GIRTS AT 1000 MAX. CTS., LAP 1200 AT SUPPORT, 2 ROWS OF BRIDGING
G2	200 x 100 x 6 RHS	WITH 50 x 50 x 3 EA WELDED TO SOFFIT FOR SHEETING
P1	Z20015	PURLINS AT 1000 MAX. CTS., LAP 1200 AT SUPPORT, 2 ROWS OF BRIDGING
P2	C15015	PURLINS AT 600 MAX. CTS., LAP 1200 AT SUPPORT
R1	410 UB 60	RAFTER
RA1	50 x 50 x 5 EA	RAKING ANGLE, FIXED TO PURLINS
RBR1	M20 DIA. ROD	ROOF BRACING (GRADE 4.6/s)
S1	100 x 100 x 6 SHS	STRUT
S2	100 x 100 x 6 SHS	STRUT
S3	139.7 x 5.0 CHS	STRUT
SC1	460 UB 75	COLUMN
T1	M12 DIA. ROD	TIE - SAG ROD
VF1	75 x 75 x 5 SHS	VENT FRAME - FULLY WELDED FRAME
VSB1	180 PFC	VENT SUPPORT BEAM
WBR1	M20 DIA. ROD	WALL BRACING (GRADE 4.6/s)



ELEVATION SE.03 S0020
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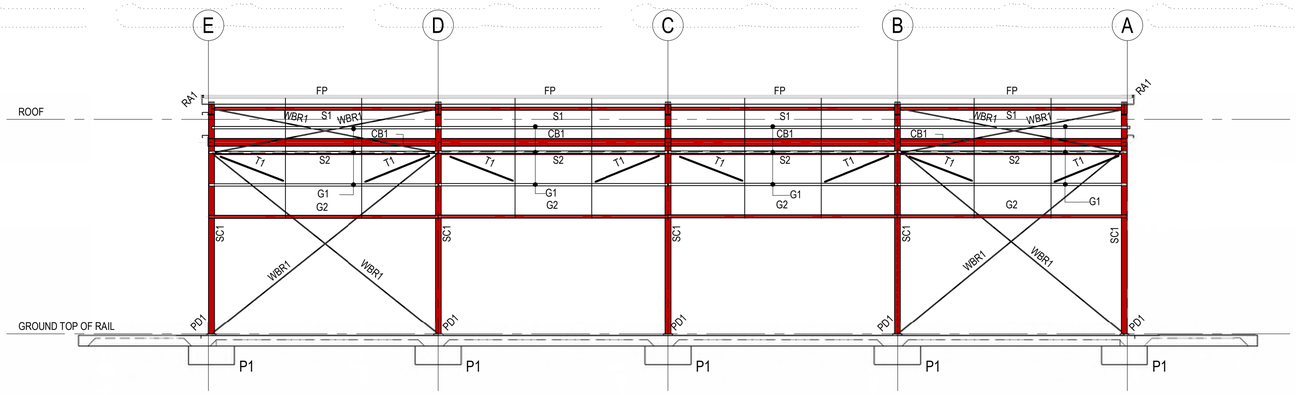
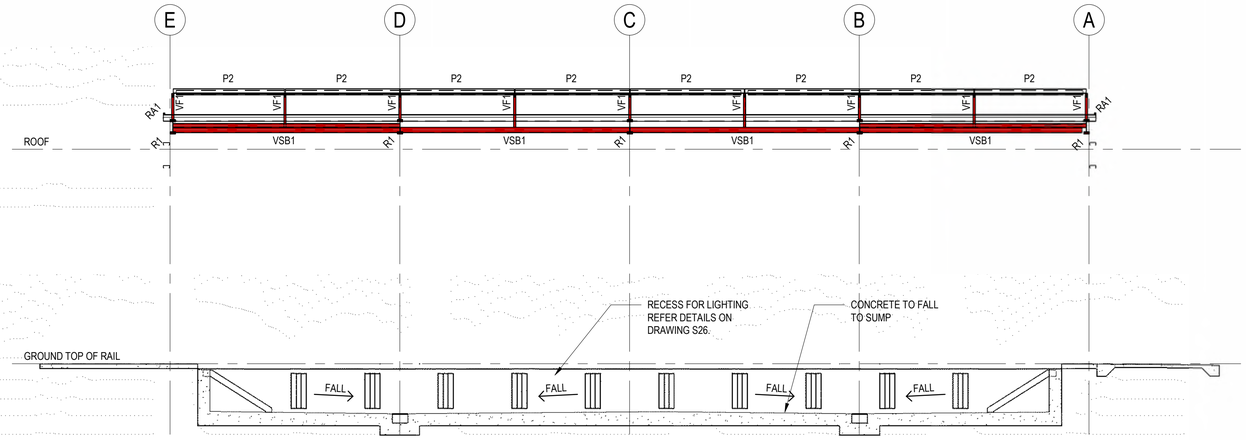
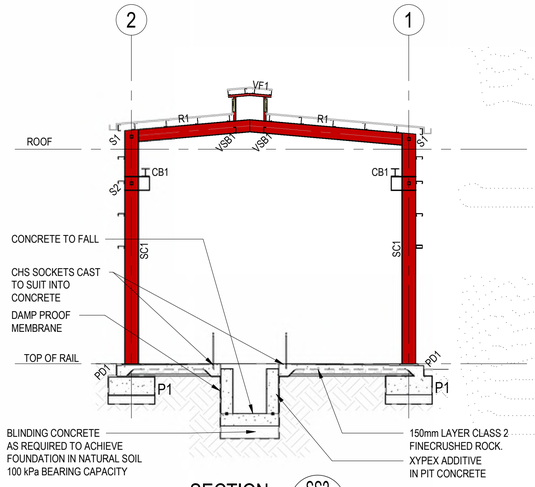


ELEVATION SE.04 S0020
SCALE 1 : 100



SECTION SS1 S0020
SCALE 1 : 100



SECTION SS2 S0020
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Rev	Description	Date	By	App
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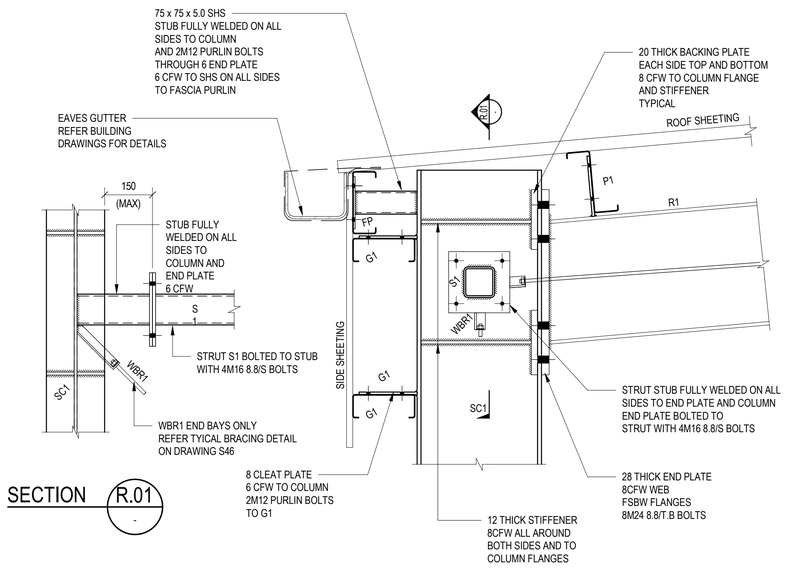
Project Name: MANILDRA RAIL MAINTENANCE BUILDING
BOLONG ROAD. BOMADERRY, NSW

Drawing Title: STEELWORK ELEVATIONS

FOR INFORMATION ONLY

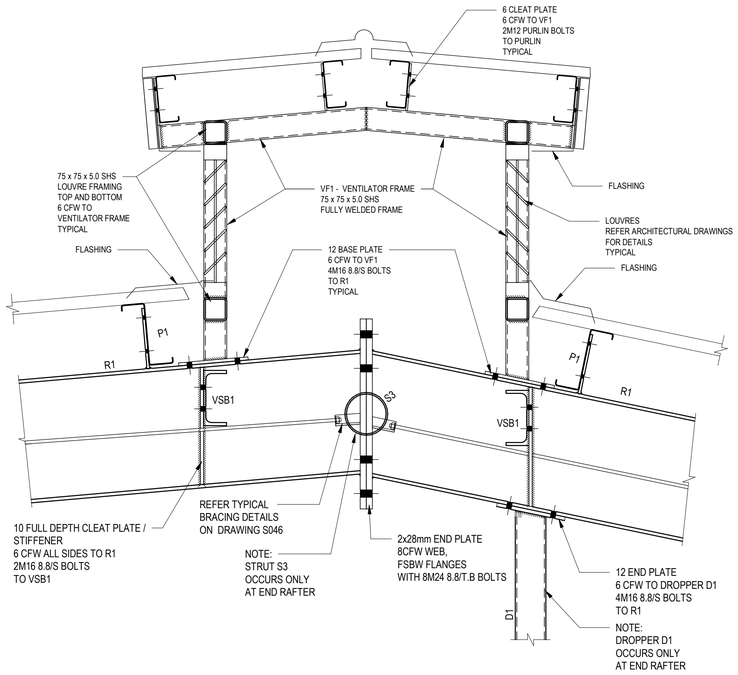
Designed	JR	Project Director Approved	Date	North
Drawn	TF		
Scale	1:100		
Date	11/08/23	Project Ref. 131012	Drawing No. S0040	Rev P1
Sheet	A1		

A1

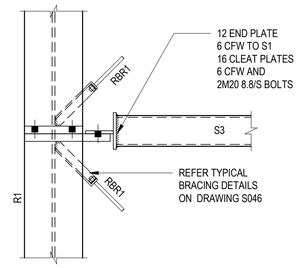


SECTION R.01

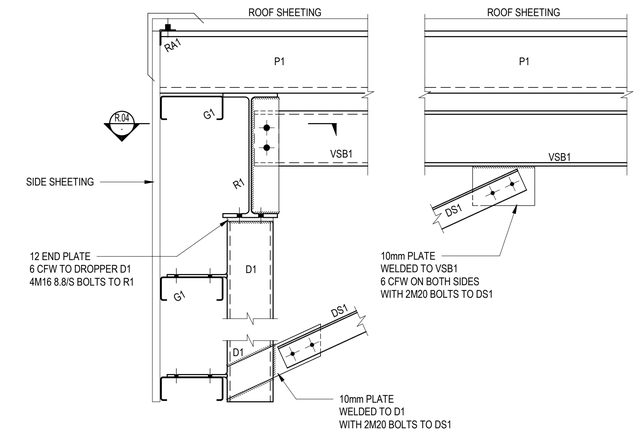
TYPICAL PORTAL KNEE - DETAIL



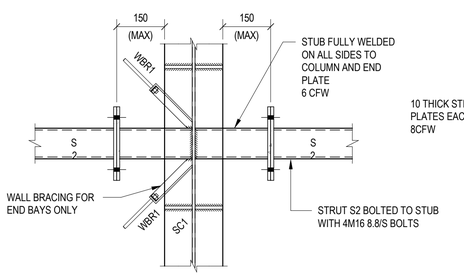
TYPICAL PORTAL APEX - DETAIL



SECTION R.04



TYPICAL GABLE END GIRT BRACE - DETAIL



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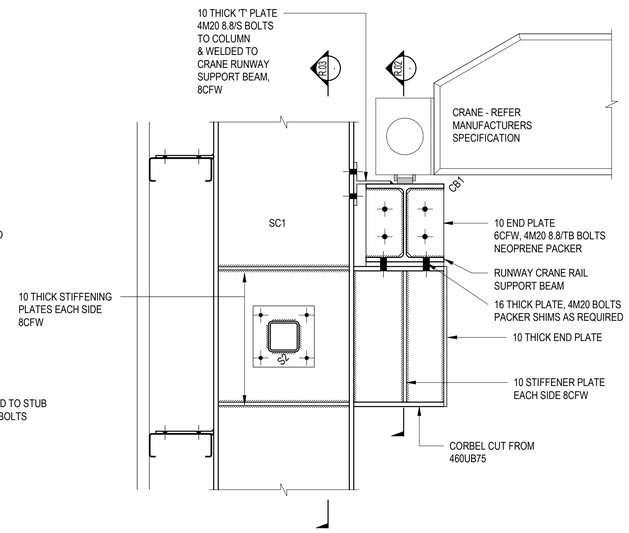
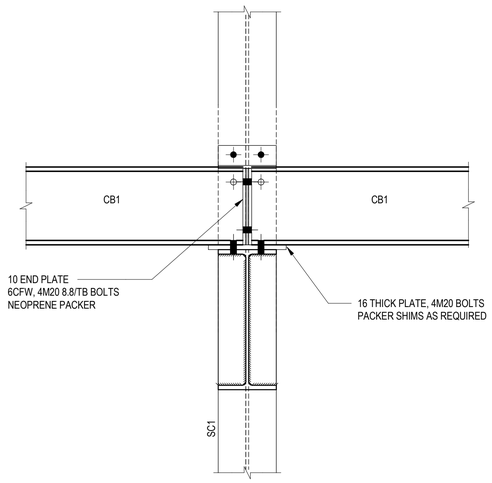
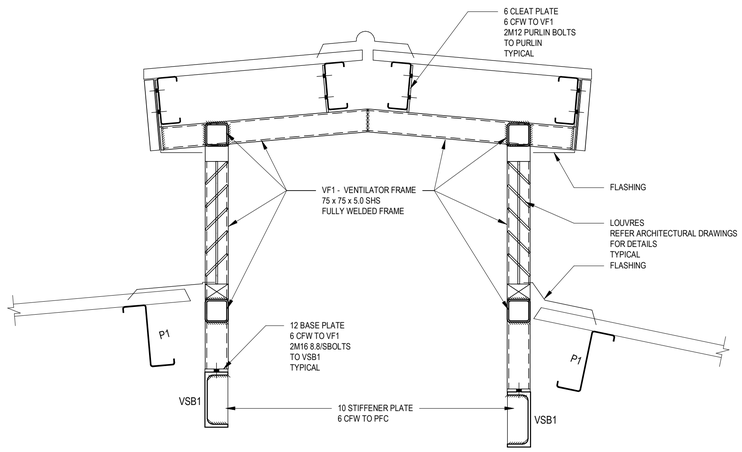


TYPICAL CRANE HAUNCH & RAIL SUPPORT- DETAIL



SECTION R.02



TYPICAL CONNECTION VSB1 TO VF1

Rev	Description	Date	By	App
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Project Name: MANILDRA RAIL MAINTENANCE BUILDING
BOLONG ROAD. BOMADERRY, NSW

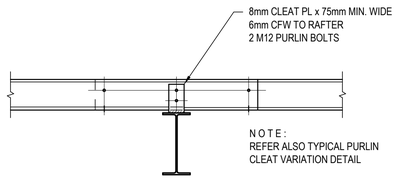
Drawing Title: STEELWORK DETAILS
SHEET 1

FOR INFORMATION ONLY

Designed	JR	Project Director Approved	Date
Drawn	TF		
Scale	1:10	Project Ref.	Drawing No. / Rev
Date	11/08/23	131012	S0045 P1
Sheet	A1		

North

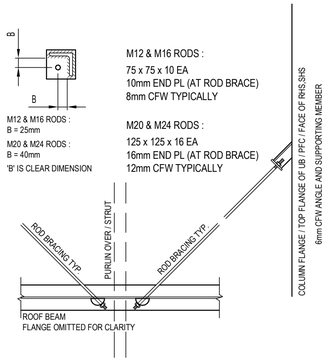
A1



PROVIDE 6M12 BOLTS TOTAL AT ALL SPLICE LOCATIONS
NOTE : '2' BOLTS LOCATED IN BOTTOM FLANGE

TYPICAL PURLIN SPLICE DETAIL

SCALE 1:20

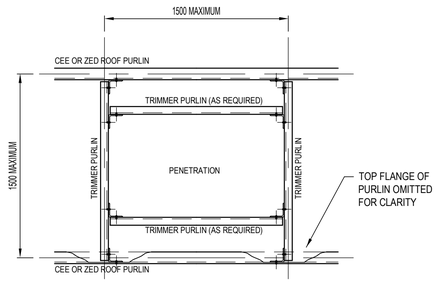


U.M.I WIND BRACING BRACKETS
ALLOW SUFFICIENT THREAD FOR TIGHTENING
NOTE: PLACE AS CLOSE AS POSSIBLE TO TOP OF
BEAM FLANGE & TO LINE OF PURLIN / STRUT OVER

ROOF/WALL DIAGONAL BRACING DETAILS

SCALE 1:20

NOTE:
- ALL RODS TO BE GRADE 4.6/S
- ALL WELDS TO BE E48xx
- ALL CROSS BRACING TO BE TENSIONED

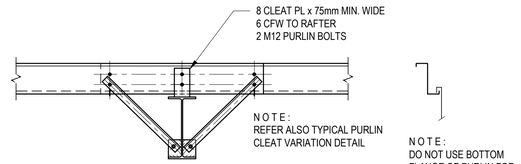


PROVIDE C100 19 TRIMMER PURLINS
TYPICALLY TO PERIMETER OF PENETRATION
PROVIDE 90 x 90 x 6 EA x 75 LONG AT
ALL JUNCTIONS USING 2M12 PURLIN BOLTS
IN 14 DIA. HOLES TYPICALLY

TYPICAL ROOF PENETRATION TRIMMER DETAIL

SCALE 1:20

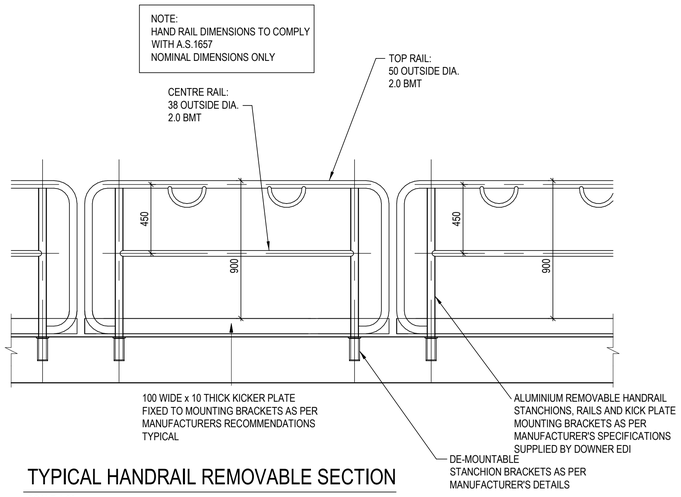
(NOTE: TRIMMERS FOR LIGHT SUPPORT SIMILAR)



PROVIDE 6M12 BOLTS TOTAL AT ALL SPLICE LOCATIONS
NOTE : '2' BOLTS LOCATED IN BOTTOM FLANGE

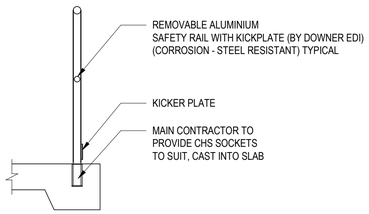
N O T E :
DO NOT USE BOTTOM
FLANGE OF PURLIN FOR
SUPPORT OF SERVICES

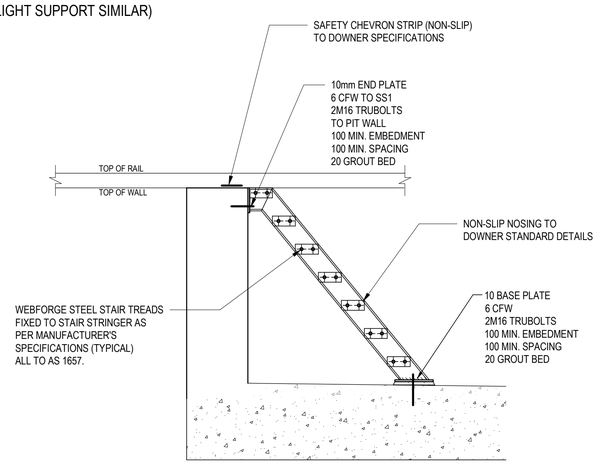
TYPICAL FLY BRACE DETAIL



TYPICAL HANDRAIL REMOVABLE SECTION

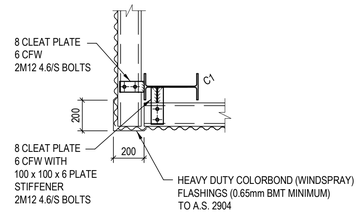
SCALE 1:20





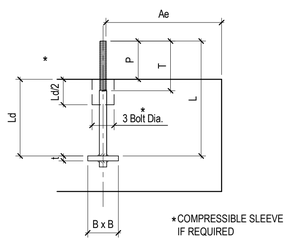
TYPICAL STAIR DETAILS

SCALE 1:20



CORNER PLAN DETAIL

SCALE 1:20



HOLDING DOWN BOLT DETAILS

SCALE 1:10

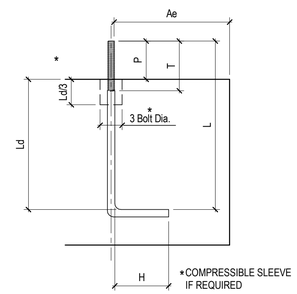
HOLDING DOWN BOLTS U.N.O
Material — Finish
Grade 4.6 AS 1111 — Galvanised AS/NZS 4680 For External Situations

NUTS AND WASHERS
Material — Finish
Grade 4.6 AS 1237 — Galvanised AS 1650 For External Situations

BASE PLATE
Material — Finish
Grade 250 AS3679 — Black

THREAD SIZE	LENGTH L	THREAD T	PROJ. P	EMBED. Ld	EDGE DIST. Ae	B	PLATE THICKNESS t	WELD (E48xx) tw
M30	440	170	140	300	450	125	20	8
M24	375	150	125	250	375	100	16	6
M20	325	150	125	200	300	75	12	6
M16	250	125	100	150	225	65	10	6

NOTES :
- FOR EMBEDMENT LENGTHS OR EDGE DISTANCES LESS THAN THESE VALUES, FULLY DEVELOPED REINFORCEMENT MUST BE PROVIDED TO INTERCEPT POTENTIAL CRACKING PLANES.
- CONCRETE UNREINFORCED, F'c = 25MPa MINIMUM
- TACK WELD 10mm BAR AROUND HOLDING DOWN BOLTS TO FORM A CAGE, TYPICALLY



HOLDING DOWN BOLT DETAILS

SCALE 1:10

HOLDING DOWN BOLTS U.N.O
Material — Finish
Grade 4.6 AS 1111 — Galvanised AS/NZS 4680 For External Situations

NUTS AND WASHERS
Material — Finish
Grade 4.6 AS 1237 — Galvanised AS 1650 For External Situations

BASE PLATE
Material — Finish
Grade 250 AS3679 — Black

THREAD SIZE	LENGTH L	COG H	THREAD T	PROJ. P	EMBED. Le	EDGE DIST. Ae
M30	650		200	170	140	510 450
M24	550	200	150	125	425	375
M20	450		150	150		125 325 300
M16	400		100	125		100 300 225

NOTES :
- FOR EMBEDMENT LENGTHS OR EDGE DISTANCES LESS THAN THESE VALUES, FULLY DEVELOPED REINFORCEMENT MUST BE PROVIDED TO INTERCEPT POTENTIAL CRACKING PLANES.
- CONCRETE UNREINFORCED, F'c = 25MPa MINIMUM
- TACK WELD 10mm BAR AROUND HOLDING DOWN BOLTS TO FORM A CAGE, TYPICALLY

Rev	Description	Date	By	App
P1	ISSUED FOR INFORMATION	11.08.23	TF	

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Project Name: MANILDRA RAIL MAINTENANCE BUILDING BOLONG ROAD. BOMADERRY, NSW

Drawing Title: STEELWORK DETAILS SHEET 2

FOR INFORMATION ONLY

Designed	JR	Project Director Approved	Date
Drawn	TF		
Scale	1:20		
Date	11/08/23	Project Ref. 131012	Drawing No. S0046 Rev P1
Sheet	A1		

North

11/08/2023 12:17:11 PM C:\Users\fitness\Documents_Revit_2023\131012-BOLONG RD RAIL RST23-CENTRAL_jimmy.fitness@JBRM.rvt

A1

Symaga Silos

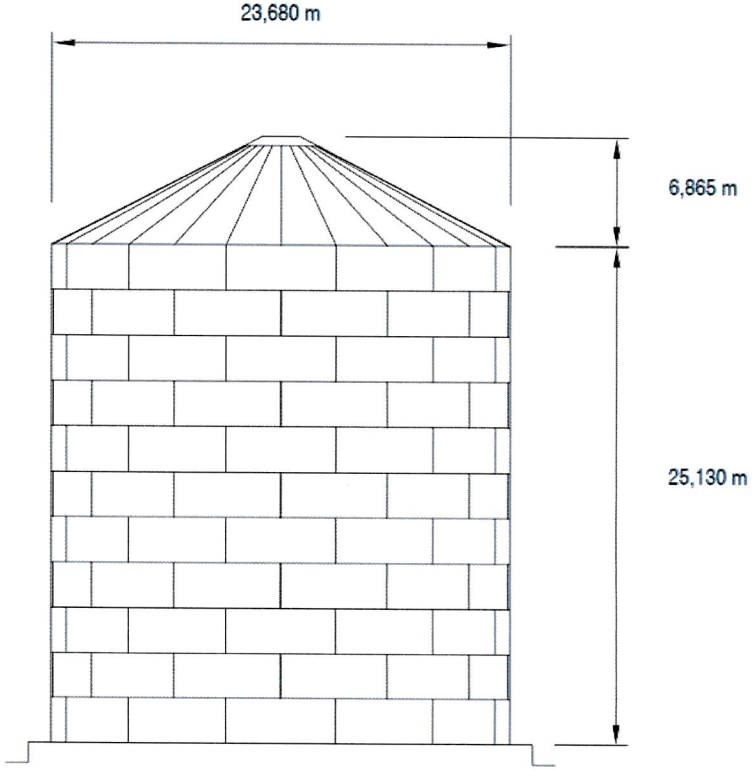
Specifictions:

Capacity for wheat:

8.682,9t

9.204t with copmactation

Flat bottom silos SBHX2368/21
Made in galvanized and corrugated steel sheets, with outside galvanized stiffeners and with the following dimensions:
Model: SBHX2368/21
Diameter (mm): 23683
Cylindrical height (mm): 23990
Total height (mm): 30529
Roof slope: 30º
Total volume (m3): 11577,3
Steel covering:
Roof sheets ZM310, body sheets and stiffeners Z600 - 600 g/m² (42 µm) according the norm UNE-EN-10346:2015
Bolts: quality 8.8 or 10.9 hot dip galvanized.
Silo includes a roof ladder, roof inspection door and a cylinder access door in the second ring, and bolting.
Product to be stored: HÜLSENFRÜCHTE UND ÖLSAAt
Density (Kg/m3): 780,00
Capacity (Tn): 9.030,29
Capacity with 6% due to compactation (Tn): 9.572,11

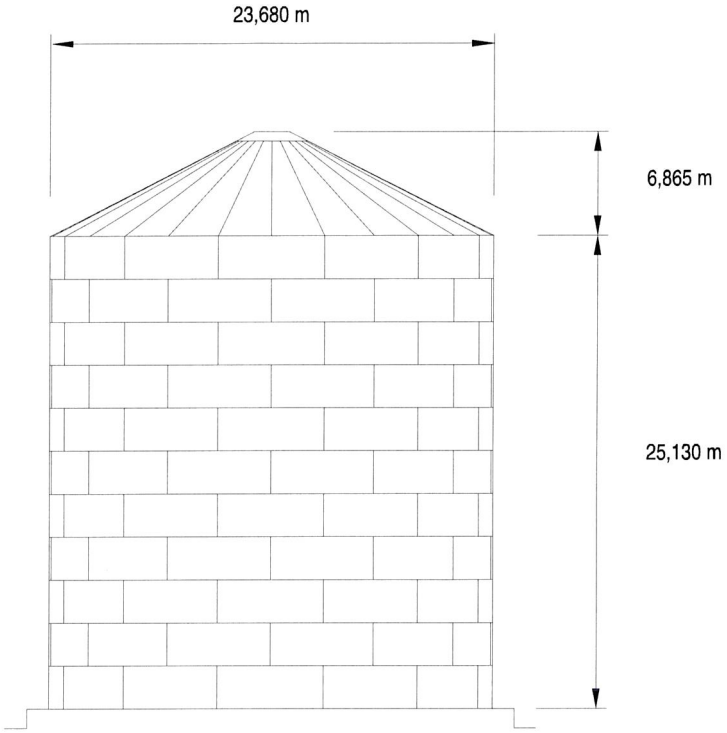


FOUNDATION LOADS

Silo: 23,68/22

(Unfactored Loads)

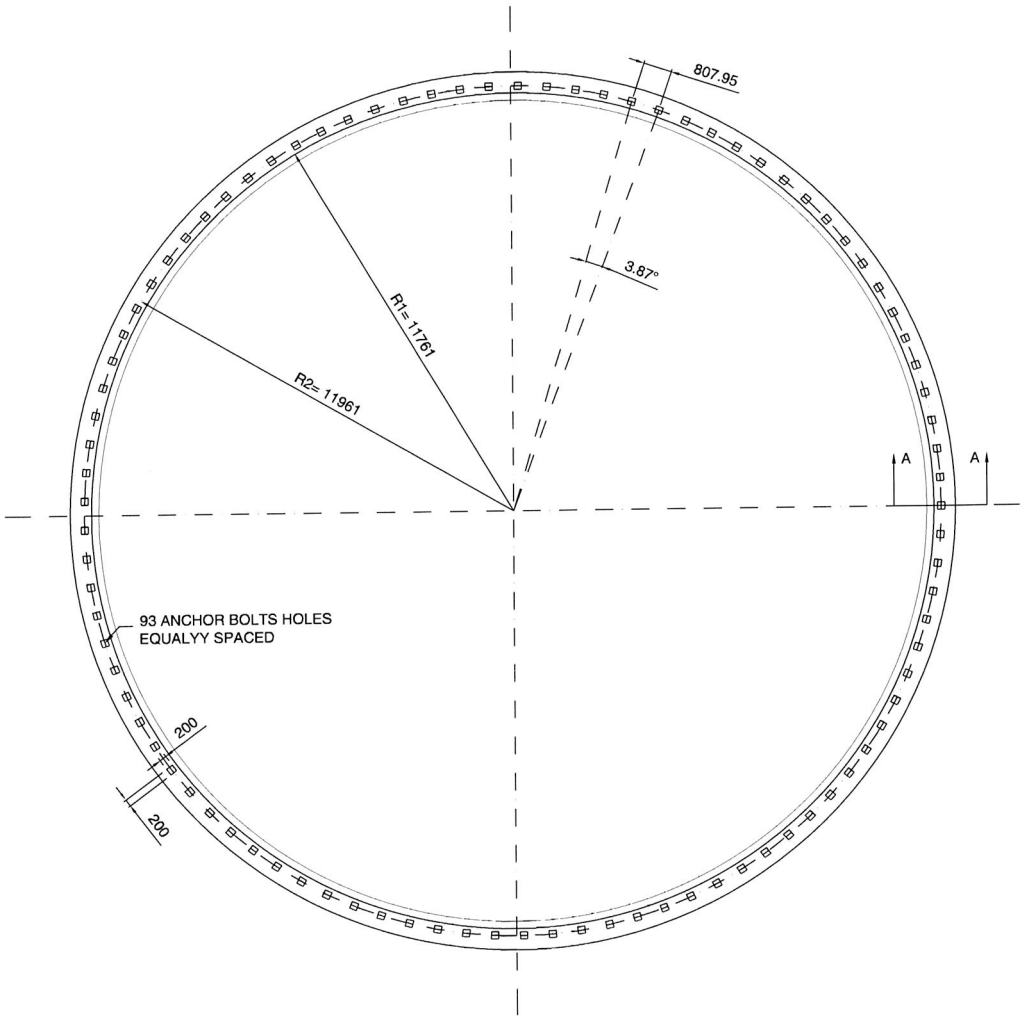
BUHLER AG
PRO-SYM-004800



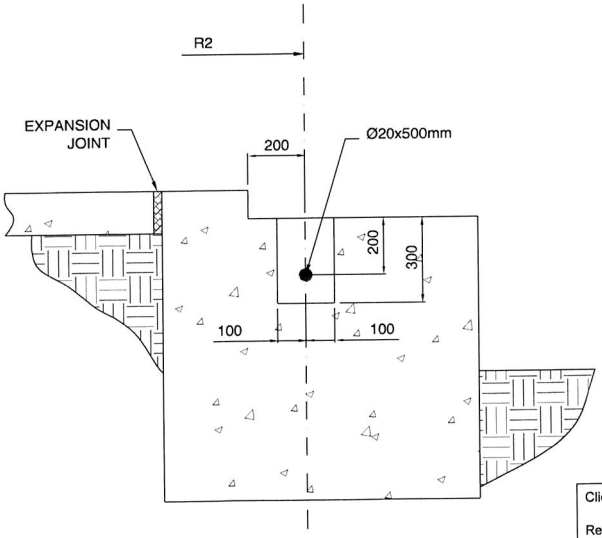
Notice: Loads according our Standard
Please, check with local Code

Code:	ANSI/ASAE EP433
Density:	0,834 Tn/m3
Date:	09/12/2021

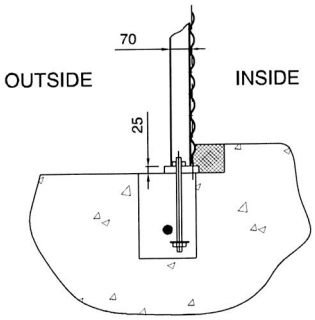
Load Type / Hypothesis	Seismic Cs	Snow	Wind	Total Load
Surface Load at the Bottom of the Silo due to grain.	-	-	-	**14,78 Tn/m²**
Vertical Load per Stiffener due to own weight(silo and conveying system).	-	-	-	**1,06 Tn**
Vertical Load per Stiffener due to grain.	-	-	-	**37,22 Tn**
Vertical Load per Stiffener due to snow weight.	-	200 kg/m2	-	**0,82 Tn**
Vertical Load per Stiffener due to wind.	-	-	176 kg/m2	**2,48 Tn**
Vertical Load per Stiffener due to seismic.	0,056	-	-	**13,88 Tn**
Horizontal Load per Stiffener only due to wind.	-	-	176 kg/m2	**1,02 Tn**
Horizontal Load per Stiffener only due to seismic.	0,056	-	-	**6,06 Tn**
Bending Moment due to wind load	-	-	176 kg/m2	**1365,13 Tn.m**
Bending Moment due to seismic load	0,056	-	-	**7858,18 Tn.m**
Number of Stiffeners evenly distributed around Silo circunference				**93**



DETAILS E: 1/25



SECTION A-A



ANCHOR DETAIL

Cliente/customer: Customer					Oferta/Order Nº: -----
Ref. /project: Reference					
Plano/drawing: FOUNDATION SILO Ø2368					
Dibujado/drawer: R.LP	07/09/2017	Rev:	Escala/scale:	Tamaño/Paper size:	
Aprob. /confirmed: D.T.	07/09/2017	0	1/200	A4	
Categoria/Issued: FOUNDATION					
Nombre/Drawing:					
Observ. /Notes: 3 STIFFENERS/BODYSHEET					

SYMAGA SILOS

C/Azcona 37, Madrid C.P. 28028 Phone: +34 917264304 www.symaga.com
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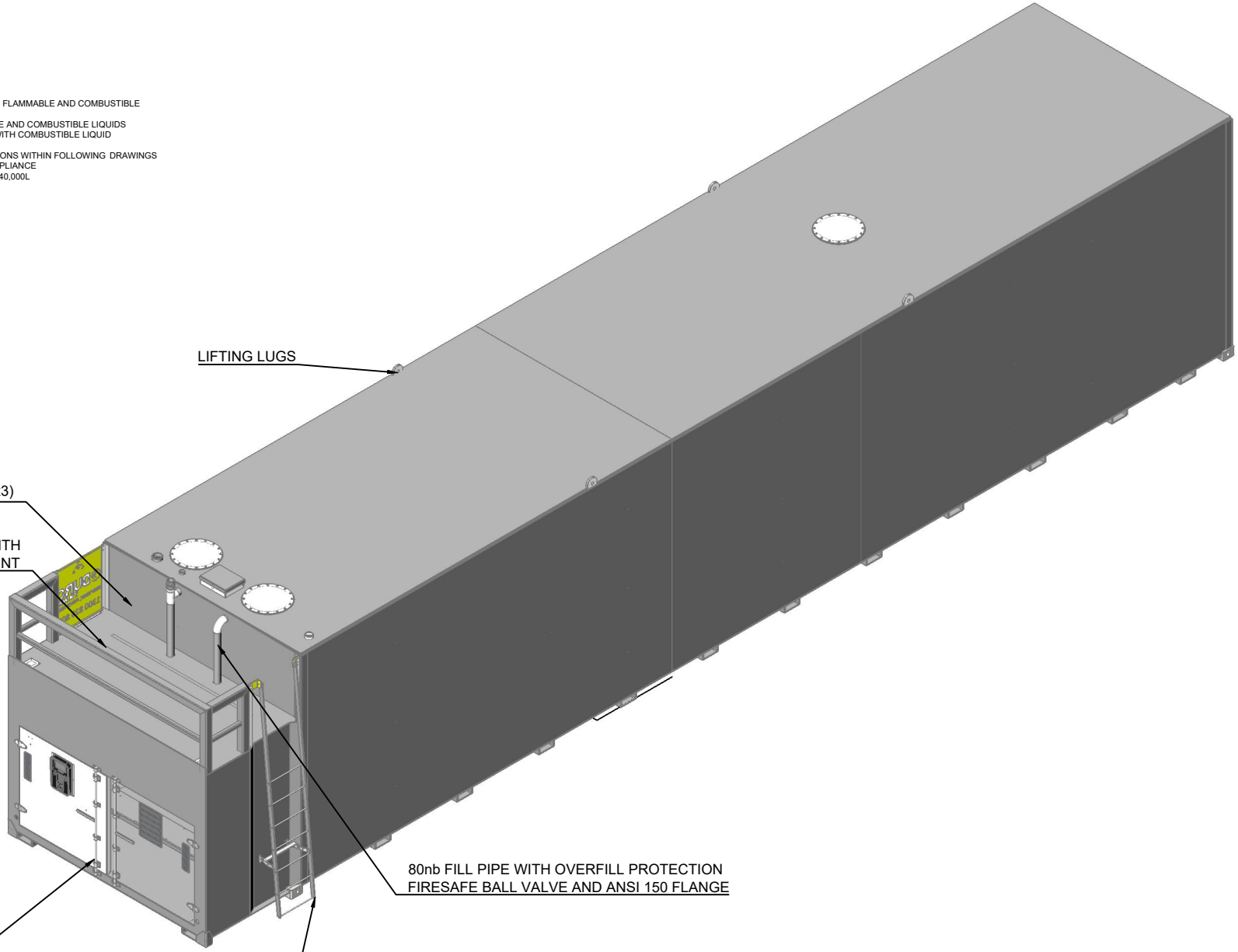
ENGINEERING SPECIFICATIONS:

1. MATERIAL SPECIFICATION
   - FLAT: GRADE 300+ AS/NZS 3679.1
   - PLATE/ SHEET: GRADE 250 AS 3678
   - PFC: GRADE 300+ AS/NZS 3679.1
   - R/BAR: GRADE 300+ AS/NZS 3679.1
   - ALL FLANGES ANSI 150
   - ALL VALVES FIRE SAFE CARBON STEEL
2. DESIGN COMPLIANCE
   - ADG CODE 7th EDITION
   - AS1940-2017: STORAGE AND HANDLING OF FLAMMABLE AND COMBUSTIBLE LIQUIDS
   - AS1692-2006: STEEL TANK FOR FLAMMABLE AND COMBUSTIBLE LIQUIDS
   - FUEL TANK IS DEFINED AS CATEGORY 3, WITH COMBUSTIBLE LIQUID
   - BUNDED 'DOUBLE SKIN' DESIGN
   - DIMENSIONAL AND MATERIAL SPECIFICATIONS WITHIN FOLLOWING DRAWINGS SET NEED TO BE MAINTAINED AND TO MEET COMPLIANCE
   - THE DESIGNED SAFE FILL LEVEL (SFL) IS 140,000L
   - FUEL TANK ASSEMBLY WEIGHT
     - EMPTY: 23,000kg
     - FILLED: 139,200kg



REV	DATE	DETAILS	BY/APPD

REVISION HISTORY

GENERAL NOTES
- ALL DIMENSIONS ARE IN MILLIMETERS (mm) U.N.O
- GENERAL TOLERANCE U.N.O
  - X ± 0.5
  - X.X ± 0.1
  - X.XX ± 0.05
  - Angular ±0.25°
- REMOVE ALL SHARP EDGES AND BURRS
- PAINTING MANUFACTURER IN ACCORDANCE
- MATERIAL GR250

2 West St, Lake Cargelligo NSW 2672
Phone: 1300 829 802
Email: sales@durotank.com.au
Web: www.durotank.com.au

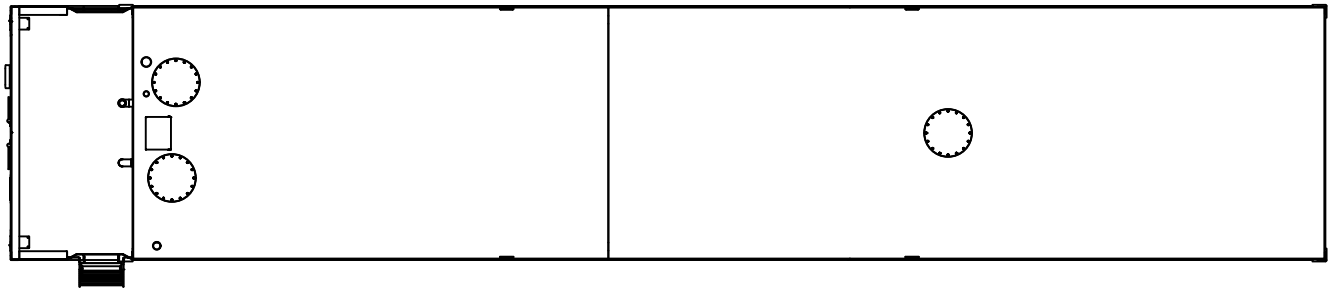
DURO TANK®
'BUILT TOUGH, PROVEN TOUGH'

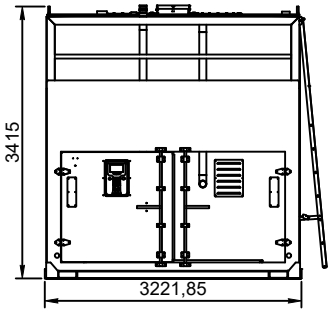
THIRD ANGLE PROJECTION — AS1100
1.6 STANDARD FINISH SURFACE

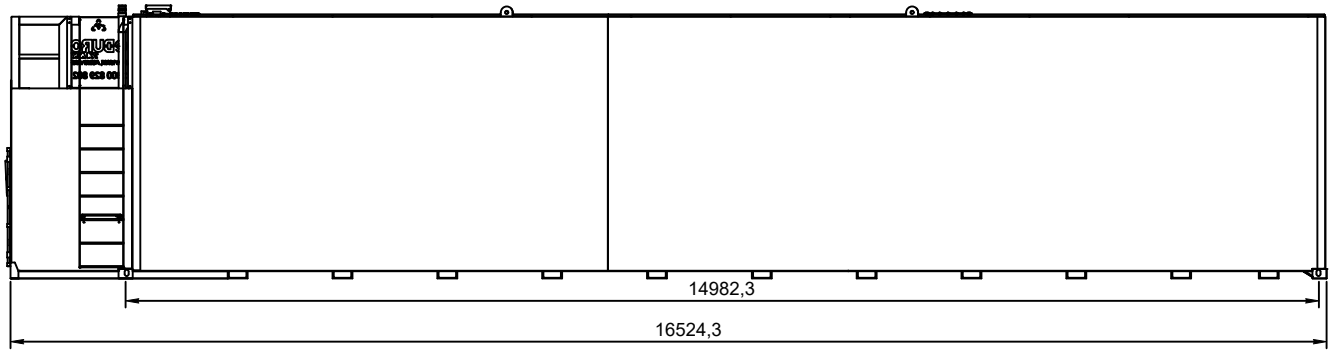
DRN: MWH
DATE: 01.05.2023
CHK:

TITLE: OVERVIEW

SHEET: A3
DWG NO: ST140
DO NOT SCALE U.N.O
PAGE 01 OF 02







REV	DATE	DETAILS	BY/APPD

REVISION HISTORY

GENERAL NOTES

- ALL DIMENSIONS ARE IN MILLIMETERS (mm) U.N.O
- GENERAL TOLERANCE U.N.O

X	± 0.5
X.X	± 0.1
X.XX	± 0.05
Angular	±0.25°

- REMOVE ALL SHARP EDGES AND BURRS
- PAINTING MANUFACTURER IN ACCORDANCE
- MATERIAL GR250

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Web: www.durotank.com.au

DURO TANK®
'BUILT TOUGH, PROVEN TOUGH'

THIRD ANGLE PROJECTION — AS1100

1.6
STANDARD FINISH SURFACE

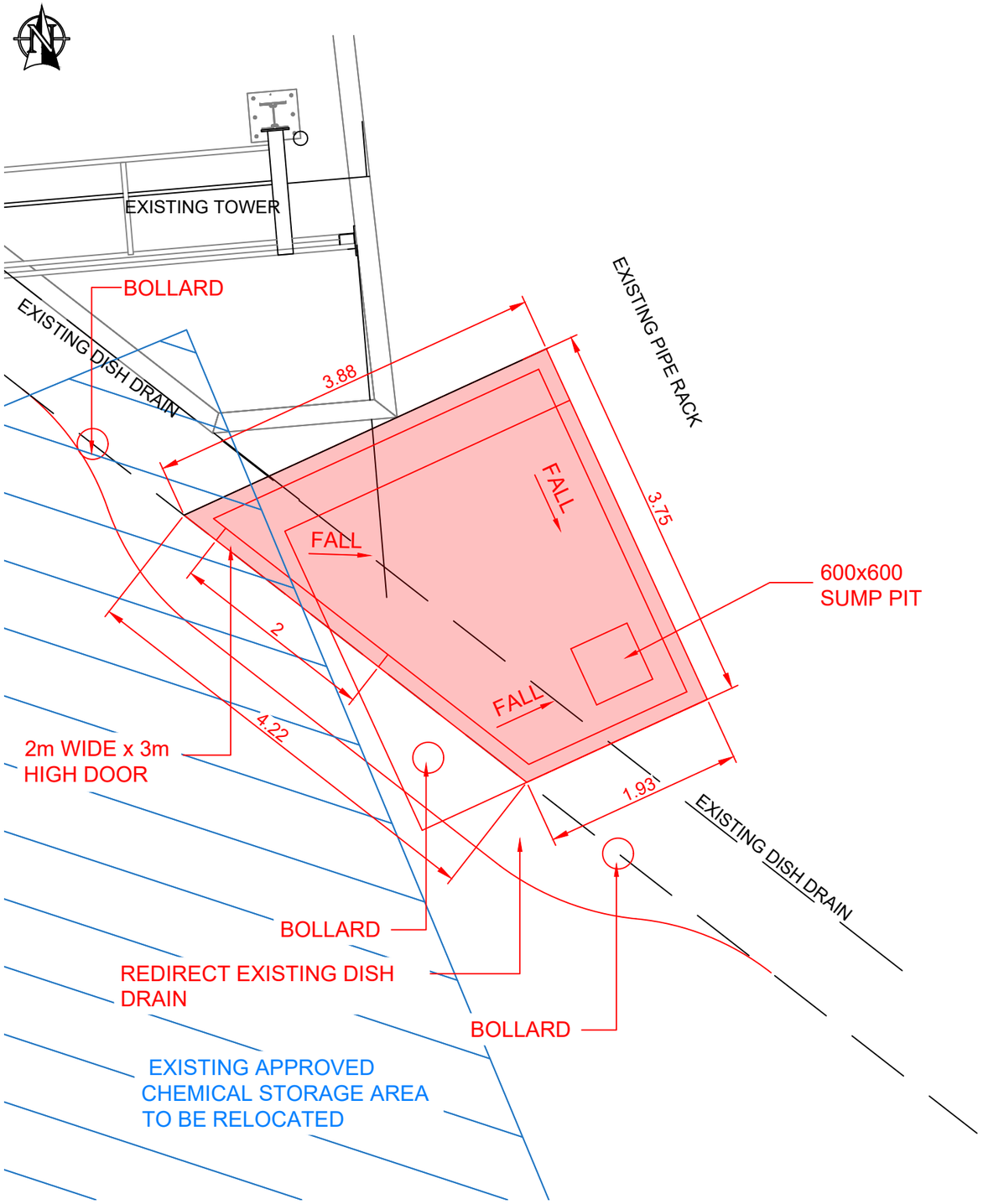
DRN: MWH
DATE: 01.05.2023
CHK:

TITLE
LAYOUTS

SHEET A3

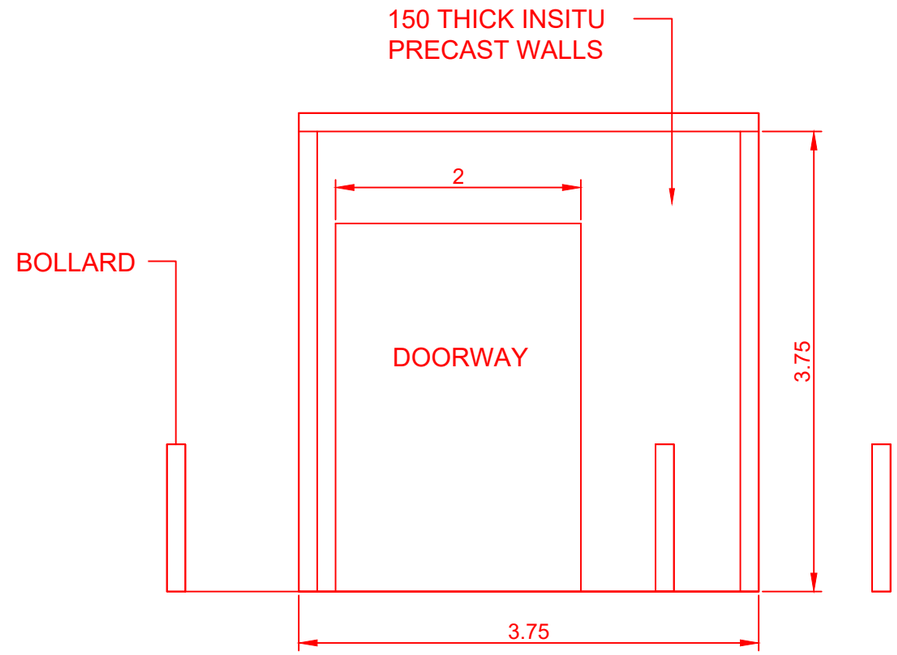
DWG NO: ########

DO NOT SCALE U.N.O



PHOSPHORUS OXYCHLORIDE STORAGE

SCALE 1:50



ELEVATION

SCALE 1:50

REV	ZONE	DETAILS	DRN	DATE	CHKD	APPD
A	ALL	DISH DRAIN AMENDED	B.M.	10.02.26	J.S.	
A	ALL	FOR REVIEW	B.M.	30.01.26	J.S.	

Commitment to Excellence
GEM OF THE WEST

MANILDRA GROUP
100% AUSTRALIAN

DRN B.M.
CHKD
DATE 27/11/25
APPD
DATE
SCALES -

SHOALHAVEN STARCHES.BOMADERRY.NSW.

DWG TITLE
PHOSPHORUS OXYCHLORIDE STORAGE
GENERAL ARRANGEMENT

PROJECT No. 8374
DWG No. MN8374-002

SHT SIZE A3
REV. B