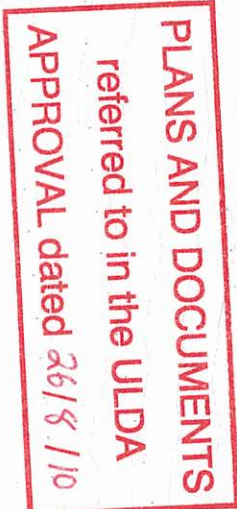




2 SETOUT
A003 SCALE 1 : 20

EXISTING ARTIFICIAL BEACH



1. CONTRACTORS SITE TO BE CONFIRMED BY BRISBANE CITY COUNCIL
2. ALL LEVELS MEASURED TO AHD
3. HORIZONTAL DATUM BCSS02
4. LANDWARD BOUNDARY AND COASTAL MANAGEMENT DISTRICT COINCIDES WITH H

DESIGN PARAMETERS
DL1 DESIGN VESSEL DIMENSIONS

WESSEL TYPE	770m
MAX BEAM	33.5m
LOREN DISPLACEMENT	25.5m
OVERALL LENGTH (LOA)	142m
LOREN DRAFT	7.0m
WINDAGE AREA (PROFILE)	20m ²
WINDAGE AREA (BODY)	1.5m ²
MINIMUM UNDERDECK CLEARANCE	
LIVE LOADS TO MAINS	5.0kPa GENERAL OR 4.5m POINT LOAD

HAIRBALL TO ASINZS 1170.1	
WIND LOCUS TO ASINZS 1170.2	
REGION	B
AVERAGE REQUIREMENT INTERVAL, R	500 years
REQUIREMENT INTERVAL, R (see Q157)	500 yrs
SERVICEABILITY REGIONAL WIND SPEED V, 5.0 mph	500 mph
DIRECTIONAL MULTIPLIER	1.0 FOR CLADDING AND PURLINS, 0.65
TERMINAL CATEGORY	2
TERMINAL HEIGHT, H (ft)	1
TERMINAL HEIGHT, H (m)	1
TOPOGRAPHIC MULTIPLIER (M)	1.0
CURRENT FLOWS TO AS4967	1.8 m/s
VELOCITY	10 ft/min
DEBRIS LOADING TO AS4967	

0.3	BERTHING	1.65
	ADDED MASS COEFFICIENT (cm)	
	CONFIGURATION (Co)	1.0
	NOMIAL VELOCITY	0.5 m/s
	NOMIAL ANGLE	Max 15 degrees
	FACTOR OF SAFETY (FOS)	2.0
	SOFTNESS (Co)	1.0
	ECCENTRICITY (Co)	0.47
	ACCELERATION ENERGY	3.5 kJ/m
	ACCELERATION VELOCITY	3.5 m/s
	ACCELERATION ANGLE	Max 45 degrees
	F. FACTOR OF SAFETY (FOS)	1.0
	SOFTNESS (Co)	0.9
	ECCENTRICITY (Co)	0.88
	ACCELERATION ENERGY	209 kJ/m

DESIGN LIFE 30 years

ROLLED AND HENCE ASSUMPTIONS
PLASTIC MATERIALS SHALL BE MANUFACTURED AND CERTIFIED FOR A 10yr DESIGN LIFE
BY THE SUPPLIER (DOMESTIC OR EQUIVALENT)
PLASTIC SHALL BE UV STABILISED AND RESISTANT TO WEATHERING
ALL FASTENERS SHALL BE TIGHTENED SMOOTH
WASHERS AND NUTS SHALL BE STAINLESS STEEL
2205 DUPLEX SS (S19303) U.N.O.
ALL BOLTER INTERVAL BEARING SLEEVES SHALL BE MADE OF STAINLESS STEEL 2205
(DUPLEX SS S19303)
PONTON DIMENSIONS TO ACCOMMODATE TWO VESSELS AT BERTH (BOW TO BOW) WITH
CLEARANCE

AHD	LAT
1.65	2.89
HAT	
1.06	2.30
MHWS	
0.0	1.24
AHD	
0.85	0.39
MLWS	
-1.24	0.0
LAT	

LEGEND

----- HIGHEST ASTRONOMICAL TIDE

----- MEAN HIGH WATER SPRINGS

----- LOWEST ASTRONOMICAL TIDE

----- CONTOUR LINES

A		Revision		None* indicates signatures on original issues of drawing or last revision of drawing		Drawn		Checked		Approved		Date	
B		FINAL CLIENT ISSUE FOR DESIGN DEVELOPMENT		BL		JK		GR		20.06.10		20.07.10	
C		TOTAL WORKS DA ISSUE		GRK		JK*		GR*		21.07.10		21.07.10	
D		TOTAL WORKS DA ISSUE		GRK		JK*		GR*		20.07.10		20.07.10	
E		CLIENT ISSUE FOR DESIGN DEVELOPMENT		JB		JK		GR		09.06.10		20.07.10	
NOTE ALL LEVELS MEASURED TO KHO													
0 2000 4000 6000 8000 10000mm													
SCALE 1: 200 AT ORIGINAL SIZE													
Client													
CLIENTS PEOPLE PERFORMANCE													
Level 4, 201 Charlotte St Brisbane QLD 4000 Australia GPO Box 668 Brisbane QLD 4001 T 61 7 3316 3000 F 61 7 3316 3333 E brisbane@ghd.com.au W www.ghd.com.au													
DO NOT SCALE													
Conditions of Use This document may only be used by GHD's client (and any other person who GHD's client has authorised) for the purpose for which it was prepared and must not be used by any other person for any other purpose.													
Drawn J.BROWNE													
Designed G.PAYMUKHAR													
Drafting Check													
Design Check													
Approved G.RANGER													
R.WALLIS*													
Date 20.07.10													
RUC No 349													
This drawing must not be signed as approved													
Scale As indicated													
Client URBAN LAND DEVELOPMENT AUTHORITY													
Project NORTHSHORE HAMILTON CityCat TERMINAL													
Title TERMINAL SITE PLAN													
Drawing No: 41-22853-A003													
Rev: D													
Cadd File No: C:\Event Projects\41-22853-NORTHSHORE HAMILTON CITY TERMINAL - SITE & WAITING													
Cadd Date: 21/07/2010 9:49:37 PM													

TERMINAL ROOF PLAN

SCALE 1:100

WATER AREA ALLOCATION BOUNDARY

0 1000 2000 3000 4000 5000mm

SCALE 1:100 AT ORIGINAL SIZE



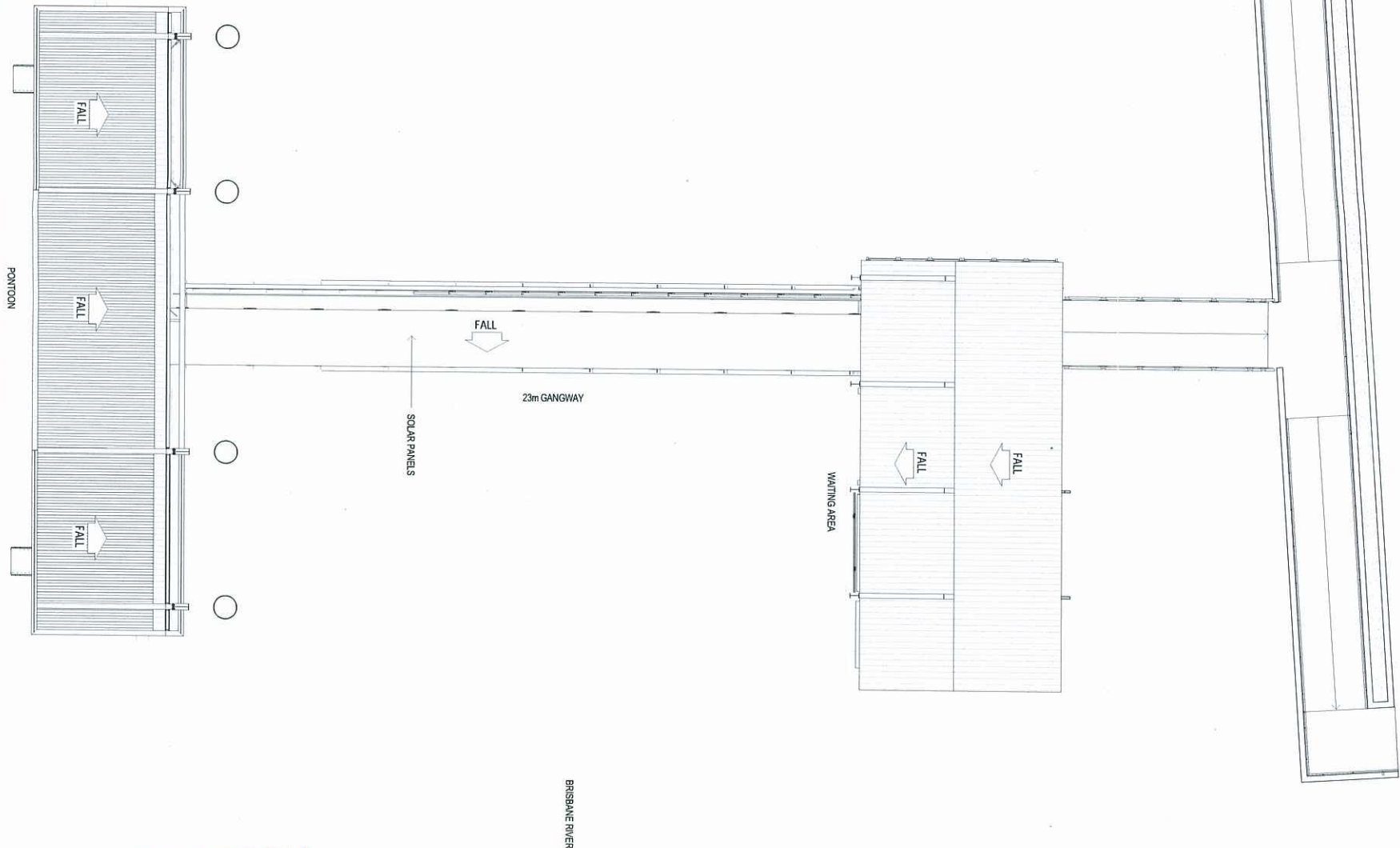
CLIENTS PEOPLE PERFORMANCE

Level 4, 201 Charlotte St Brisbane QLD 4000 Australia
T 61 7 333 3000 F 61 7 333 3000
E brwnm@ghd.com.au W www.ghd.com.au

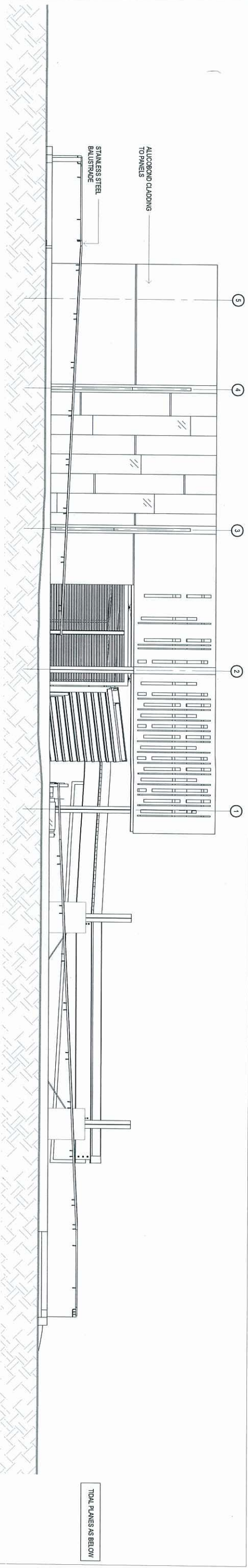
DO NOT SCALE
Conditions of Use:
This document is to be used by GHD's client (and any other person who has agreed to use this document) for the purpose for which it was prepared and for no other purpose.
This document is not to be used for any other purpose.

Drawn	J. BROWNE	Designed	G. RAY/KUMAR
Drafting Check		Design Check	
Approved	G. RANGER		A. WOLSKI
Date	20.07.10	REC'D No	2676
Scale	1:100	This Drawing must not be used for Construction unless signed as Approved	

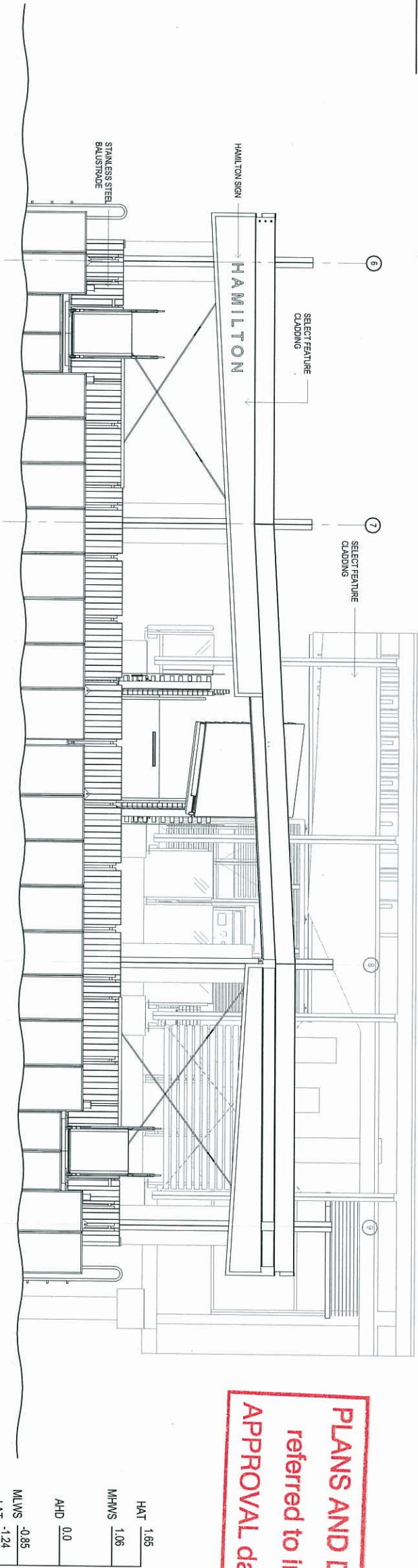
Client	URBAN LAND DEVELOPMENT AUTHORITY
Project	NORTHSHORE HAMILTON CITYCAT TERMINAL
Title	TERMINAL ROOF PLAN
Original Size	A1
Drawing No.	41-22853-A004
Rev.	A



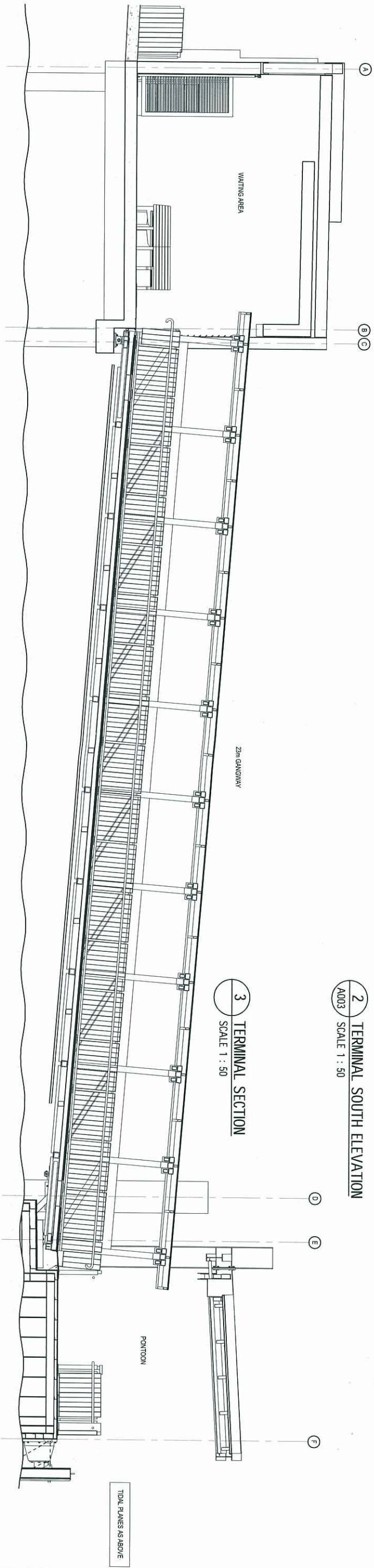
PLANS AND DOCUMENTS
referred to in the ULDA
APPROVAL dated 26/10/10



1 TERMINAL NORTH ELEVATION
A003 SCALE 1 : 50



2 TERMINAL SOUTH ELEVATION
A003 SCALE 1 : 50



3 TERMINAL SECTION
SCALE 1 : 50

PLANS AND DOCUMENTS
referred to in the ULDA
APPROVAL dated 26/8/10

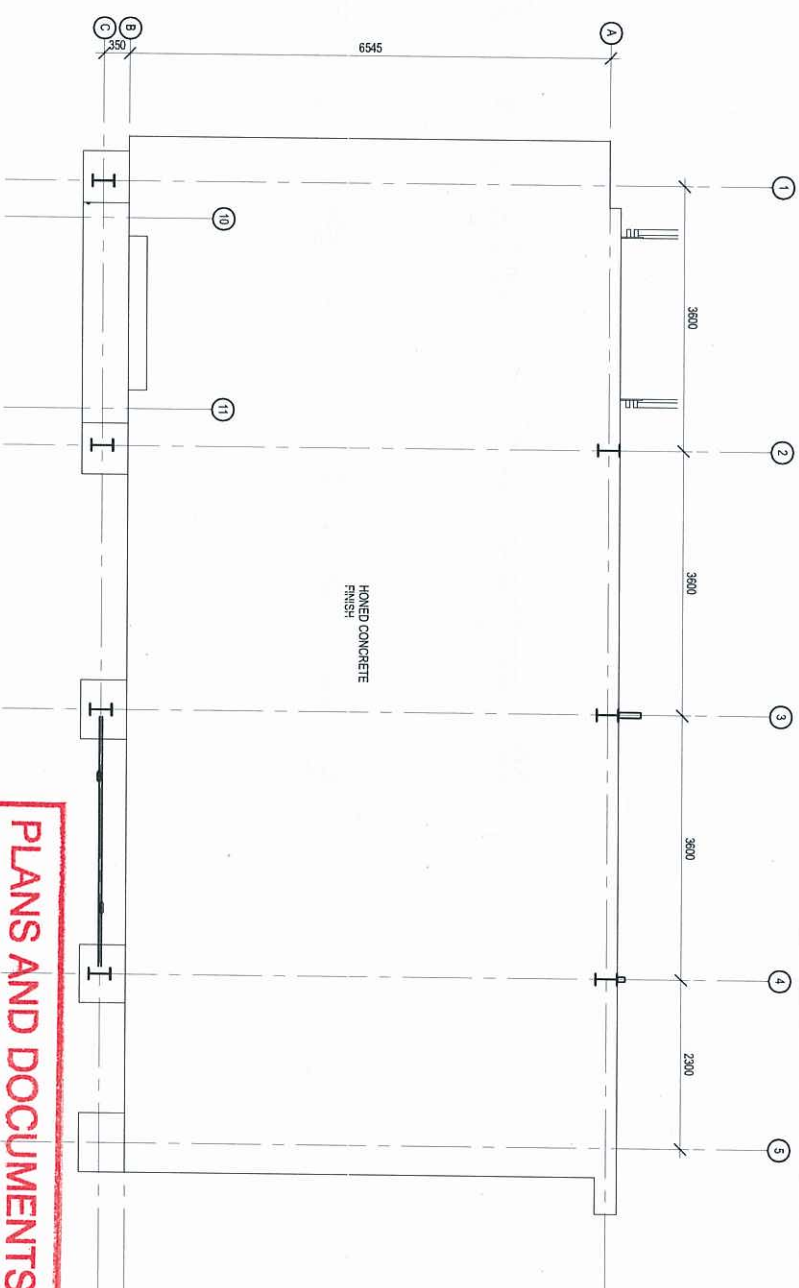
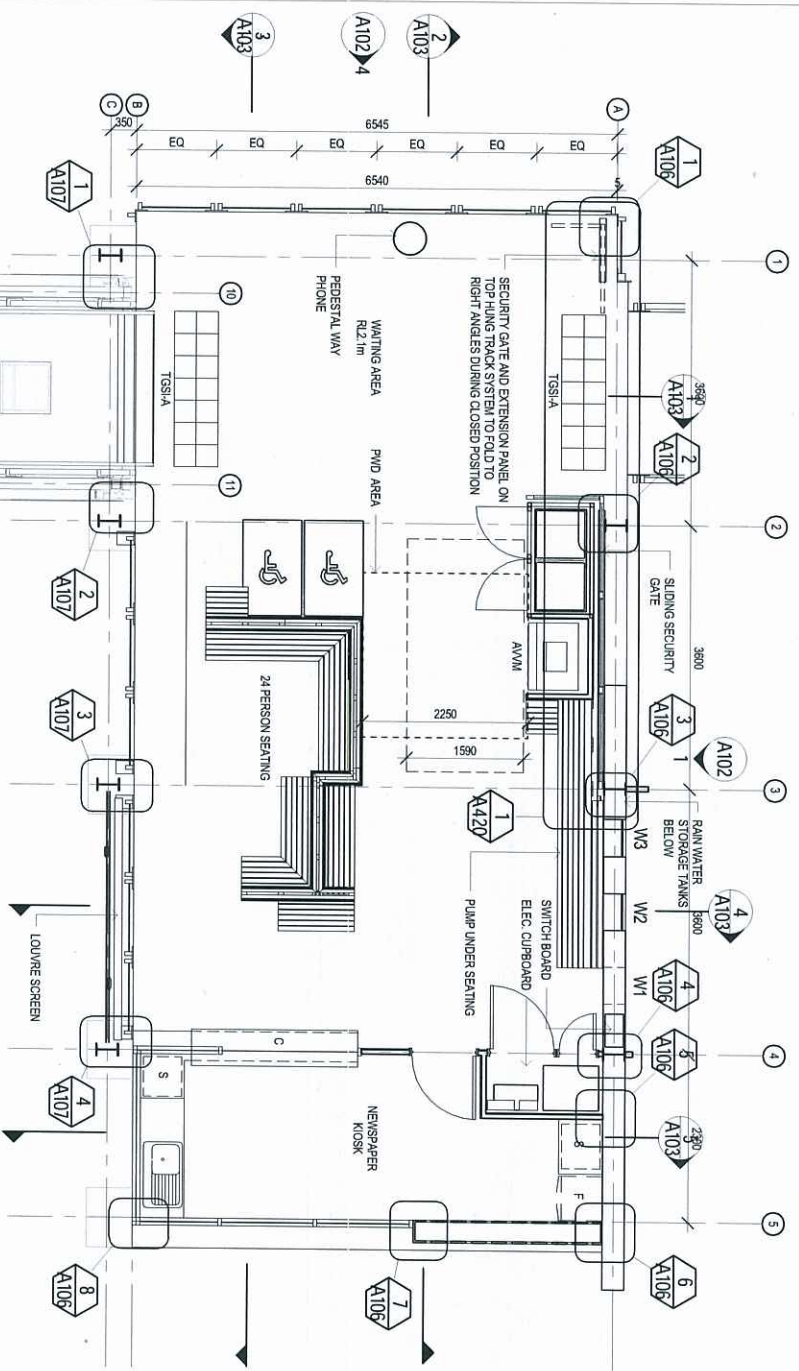
HAT	1.65
MHWMS	1.06
AHD	0.0
MLWS	-0.85
LAT	-1.24

NOTE: ALL LEVELS MEASURED TO A.H.D.

Client: 			
CLIENTS' PEOPLE PERFORMANCE 			
Level 4, 301 Chadwell St Brisbane QLD 4000 Australia GPO Box 666 Brisbane QLD 4000 Australia T 61 7 3316 3000 F 61 7 3316 3333 E brn@ghd.com.au W www.ghd.com.au			
DO NOT SCALE		Drawn J. BROWNE	Designed G. RAY/KUMAR
Conditions of Use: This document may only be used by GHD's client (and any other person who GHD has agreed can use this document) and must not be used by any other person or for any other purpose.		Drafting Check Approved G. RANGER	Design Check R. WALLIS
Scale 1 : 50		Date 20.07.10	RPEQ No. 949
This Drawing must not be used for Construction unless signed as Approved		Original size	
A1		Drawing No: 41-22853-A005	
Rev: A		Title	
URBAN LAND DEVELOPMENT AUTHORITY		Terminal NORTHSHORE HAMILTON CityCat TERMINAL	
TERMINAL ELEVATIONS & SECTION SHEET 1		TERMINAL WORKS DA ISSUE	
No Revision		Drawn BL	JKR
Note: - indicates signature on original issue of drawing or last revision of drawing		Checked GR	20.07.10
Date		Date	

0 500 1000 1500 2000 2500
SCALE 1:50 AT ORIGINAL SIZE

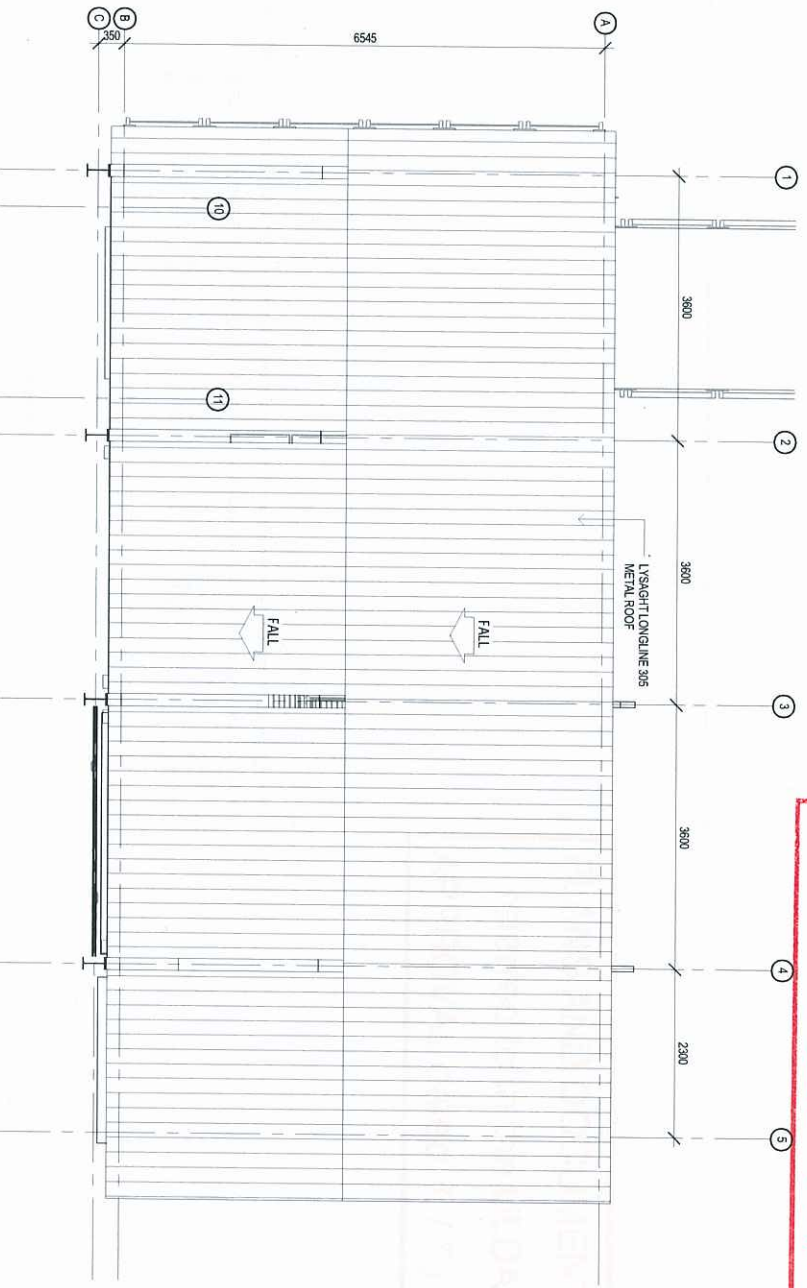
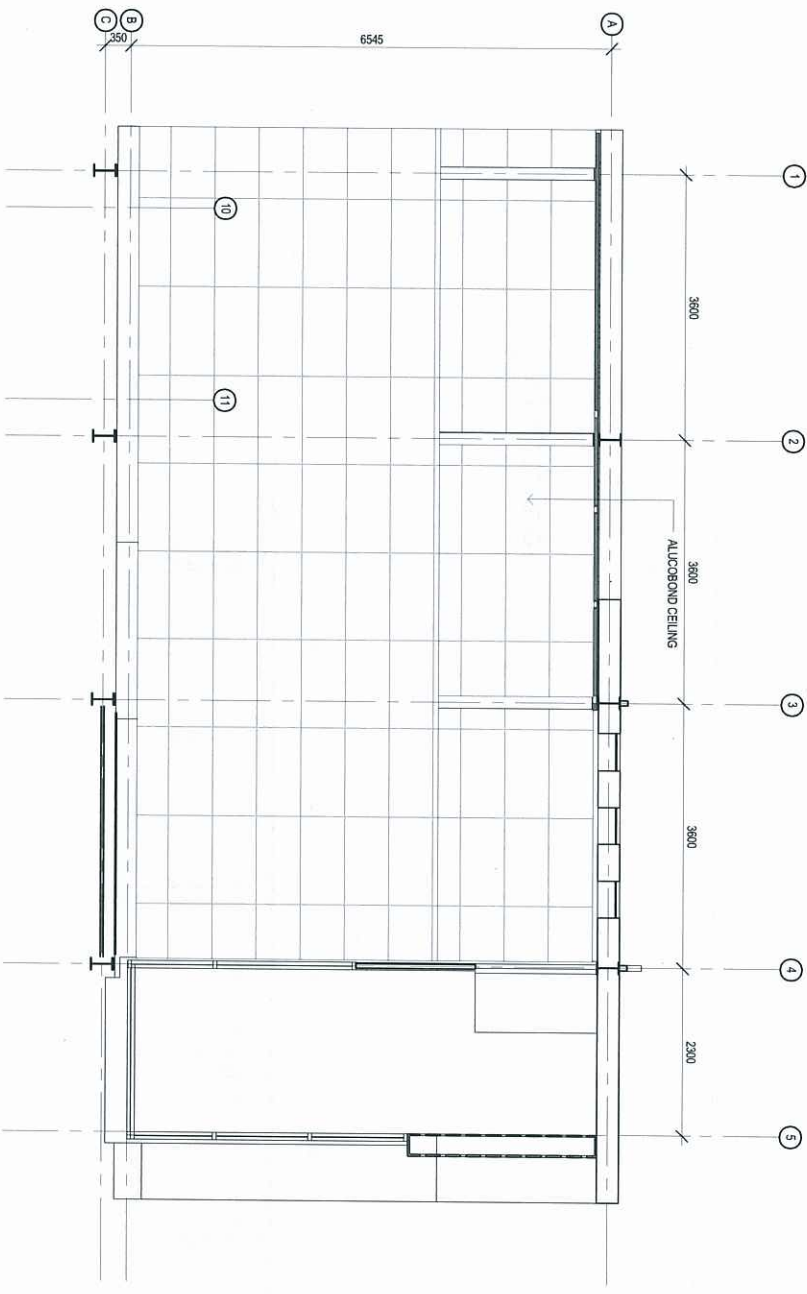
NOTE:
ALL LEVELS MEASURED TO AHD



WAITING AREA
SCALE 1:150

WAITING AREA SLAB PLAN
SCALE 1:30

PLANS AND DOCUMENTS
referred to in the ULDA
APPROVAL dated 26/8/10



WAITING AREA REFLECTED CEILING PLAN
SCALE 1:150

WAITING AREA ROOF PLAN
SCALE 1:150

0		1000		2000		3000		4000		5000mm	
		SCALE 1:500 AT ORIGINAL SIZE									
Client: urban land development authority											
CLIENTS PEOPLE PERFORMANCE											
Level 4, 201 Charlotte StBrisbane QLD 4000 Australia GPO Box 668 Brisbane QLD 4001 T 61 7 3316 3000 F 61 7 3316 3333 E brenna@ghd.com.au W www.ghd.com.au											
DO NOT SCALE											
Drawn J.BROWNE				Designed G.PAVLIKIDIS				Client			
Drafting Check				Design Check				Project			
Approved G.RANGER				R. WALLIS*				Title			
Date 20.07.10				REC'D No. 549				U R B A N L A N D D E V E L O P M E N T A U T H O R I T Y N O R T H S H O R E H A M I L T O N C i t y C a t T E R M I N A L W A I T I N G A R E A P L A N S			
Scale 1: 50				Original size				Drawing No: 41-22853-A101			
								Rev: D			

GENERAL

- G1. READ THESE NOTES IN CONJUNCTION WITH ARCHITECTURAL AND OTHER ENGINEERING DRAWINGS AND SPECIFICATIONS, AND WITH SUCH OTHER WRITTEN INSTRUCTIONS ISSUED. REFER TO ARCHITECTURAL DRAWINGS FOR SETTING OUT AND DETAIL DIMENSIONS.
- G2. CARRY OUT WORK IN A SAFE MANNER IN ACCORDANCE WITH APPLICABLE STATUTORY REGULATIONS, BY-LAWS OR RULES. COMPLY WITH QUEENSLAND OCCUPATIONAL HEALTH AND SAFETY ACT INCLUDING ASSOCIATED REGULATIONS AND CODES OF PRACTICE. CONTRACTOR IS RESPONSIBLE FOR OCCUPATIONAL HEALTH AND SAFETY OF SITE PERSONNEL AND GENERAL PUBLIC IN ACCORDANCE WITH LEGISLATIVE REQUIREMENTS, INDUSTRIAL AGREEMENTS AND ACCEPTED INDUSTRY PRACTICE.
- G3. DO NOT OBTAIN DIMENSIONS BY SCALING FROM DRAWINGS.
- G4. DIMENSIONS ARE IN MILLIMETRES. LEVELS ARE IN METRES UNO TO AND
- G5. NOMINATION OF PROPRIETARY ITEMS DOES NOT INDICATE EXCLUSIVE PREFERENCE BUT INDICATES REQUIRED PROPERTIES OF ITEM. SIMILAR ALTERNATIVES HAVING REQUIRED PROPERTIES MAY BE OFFERED FOR APPROVAL. APPROVAL DOES NOT AUTHORISE A VARIATION TO THE CONTRACT. INSTALL PROPRIETARY ITEMS IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS AND RECOMMENDATIONS.
- G6. ALL DIMENSIONS RELEVANT TO SETTING OUT AND OFF-SITE WORK SHALL BE VERIFIED BY THE CONTRACTOR BEFORE CONSTRUCTION IS COMMENCED.
- G7. ANY AMBIGUITY OR DISCREPANCY SHALL BE REFERRED TO THE SUPERINTENDANT FOR CLARITY BEFORE WORK COMMENCES.
- G8. CONSTRUCTION METHODS AND TEMPORARY WORKS ARE THE RESPONSIBILITY OF THE CONTRACTOR.
- G9. ROOF FALL, ARREST SYSTEM AND CONNECTIONS SHALL BE DESIGNED AND CERTIFIED BY THE CONTRACTOR.

SURVEY CONTROL DATA

- SD1. HORIZONTAL DATUM = BSCG
- SD2. DATUM FOR LEVELS IS AHD (AUSTRALIAN HEIGHT DATUM). ALL LEVELS ARE IN METRES
- SD3. TIDAL PLAINES (AHD) QUEENSLAND TIDE TABLES 2010 - CARINGROSS DOCK TO NEWFARM
- ST100 -2.5m 1 IN 100 Y STORM TIDE LEVEL (BCC)
- ST10 -1.9m 1 IN 10 Y STORM TIDE LEVEL (BCC)
- HAT +1.65m HIGHEST ASTRONOMICAL TIDE
- MHW +1.06m MEAN HIGH WATER SPRINGS
- MHN -0.65m MEAN HIGH WATER NEAPS
- MSL +0.1m MEAN SEA LEVEL
- AHD 0.00m AUSTRALIAN HEIGHT DATUM
- MLWN -0.43m MEAN LOW WATER NEAPS
- MLWS -0.55m MEAN LOW WATER SPRINGS
- LAT -1.24m LOWEST ASTRONOMICAL TIDE

DESIGN PARAMETERS

- D1.1 DESIGN VESSEL DIMENSIONS
- VESSEL TYPE HIGH SPEED FERRY
- FULL LOAD DISP. 35.5t
- OVERALL LENGTH (LOA) 28.5m
- MAXIMUM BEAM 7.70m
- LOADED DRAFT 1.42m
- WINDAGE AREA (PROFILE) 73m²
- WINDAGE AREA (BOW) 22m²
- MINIMUM UNDERKEEL CLEARANCE 1.5m
- D1.2 LIVE LOADS TO AS/NZS 1170.1
- 5 kPa GENERAL OR 4.5 kN POINT LOAD
- 3 kPa STABILITY
- HANDRAIL TO AS/NZS 1170.1 3 kN/m OUTWARDS
- 0.75 kN/m DOWNWARDS
- WIND LOADS TO AS/NZS 1170.2
- REGION B
- AVERAGE RECURRENCE INTERVAL, R 500 years
- ULTIMATE REGIONAL WIND SPEED V_R (3 sec GUST) 57 m/s
- SERVICEABILITY REGIONAL WIND SPEED V_S (3 sec) 39 m/s
- DIRECTIONAL MULTIPLIER 1.0 FOR CLADDING AND PLUINS.
- 0.95 FOR STRUCTURAL MEMBERS
- TERRAIN CATEGORY 2
- TERRAIN HEIGHT MULTIPLIER (K_{Z,cat}) 1
- SHIELDING MULTIPLIER (K_s) 1.0
- TOPOGRAPHIC MULTIPLIER (K_t) 1.0
- CURRENT FLOWS TO AS4497
- VELOCITY 1.5 m/s
- DEBRIS LOADING TO AS4497 10 kN/m
- D1.3 BERTHING
- COEFFICIENT (C_b) 1.65
- CONFIGURATION (C_f) 1.0
- NORMAL VELOCITY 0.5 m/s
- NORMAL ANGLE Max 15 degrees
- FACTOR OF SAFETY (FOS) 2.0
- SOFTNESS (C_s) 1.0
- ECCENTRICITY (C_e) 0.447
- NORMAL ENERGY 7.66 kNm

- ACCIDENTAL VELOCITY 3 m/s
- ACCIDENTAL ANGLE Max 45 degrees
- FACTOR OF SAFETY (FOS) 1.0
- SOFTNESS (C_s) 0.9
- ECCENTRICITY (C_e) 0.88
- ACCIDENTAL ENERGY 209 kNm
- D1.4 DESIGN LIFE 50 years
- D1.5. ROLLER AND HINGE ASSUMPTIONS
- PLASTIC MATERIALS TO BE MANUFACTURED AND CERTIFIED FOR A 10y DESIGN LIFE BY THE SUPPLIER (DOTMAY OR EQUIVALENT)
- PLASTIC SHALL BE UV STABILISED AND RESISTANT TO WEATHERING
- METAL SHAFTS SHALL BE MACHINED SMOOTH
- ALL ROLLER AND HINGE SHAFT BOLTS, WASHERS AND NUTS SHALL BE STAINLESS STEEL
- 2205 DUPLEX S31803 UNO
- ALL ROLLER INTERNAL BEARING SLEEVE SHALL BE MADE OF STAINLESS STEEL 2205 (DUPLEX S31803)
- D1.6. PONTOON DIMENSIONS TO ACCOMMODATE TWO VESSELS AT BERTH (BOW TO BOW) WITH 5M CLEARANCE

STEEL

- S1. WORKMANSHIP AND MATERIALS SHALL COMPLY WITH AS4100 AND AS/NZS1554.
- S2. PROVIDE STEEL IN ACCORDANCE WITH:
- AS1163 GRADE C350 FOR RECTANGULAR AND SQUARE HOLLOW SECTIONS.
- AS1163 GRADE C350 FOR CIRCULAR HOLLOW SECTIONS
- AS/NZS3678 GRADE 250 FOR PLATES
- AS/NZS3679 PART 2, GRADE 300 FOR WELDED BEAMS AND WELDED COLUMNS.
- AS/NZS3679 PART 1 GRADE 300 OR BHP GRADE 300 PLUS FOR UNIVERSAL BEAMS.
- UNIVERSAL COLUMNS, PARALLEL FLANGE CHANNELS AND ANGLES.
- S3. CARRY OUT WELDING TO AS/NZS1554. ALL INTERFACES BETWEEN STEEL SECTIONS TO BE CONNECTED WITH 6mm CONTINUOUS FILLET WELDS ALL ROUND. BOTH SIDES UNO. WELDS TO BE SHOP WELDED UNO. WELDS TO BE CATEGORY SP. BUTT WELDS TO BE FULL (COMPLETE) PENETRATION UNO.
- ELECTRODES SHALL BE LOW CARBON CLASSIFICATION E40XX. PRE-APPROVED TO AS/NZS1554
- S5. WELDING SYMBOLS ARE TO AS1101.3. 'CFW' INDICATES CONTINUOUS FILLET WELD. 'FSBW' INDICATES FULL STRENGTH BUTT WELD WHICH IS EQUIVALENT TO CPBW.
- 'CPBW' INDICATES COMPLETE PENETRATION BUTT WELD
- S6. FOR SITE WELDING ENSURE STEEL IS CLEANED BACK TO WHITE METAL SURFACE AND FREE OF DUST, WATER, GREASE, OIL, CHEMICALS, ETC. WELDING SHALL BE IN ACCORDANCE WITH NOTES ABOVE. TOUCH UP SURFACE TREATMENT TO ORIGINAL OR AS SPECIFIED.
- S7. PREPARE WORKSHOP DRAWINGS, CALCULATIONS etc AND SUBMIT THREE COPIES OF EACH FOR SUPERINTENDENT'S REVIEW OF GENERAL COMPLIANCE WITH DESIGN CONCEPT. SHOP DRAWINGS TO SHOW RELEVANT DETAILS OF EACH ASSEMBLY, COMPONENT AND CONNECTION TOGETHER WITH INFORMATION RELATIVE TO FABRICATION, SURFACE TREATMENT AND ERECTION, INCLUDING IDENTIFICATION, STEEL TYPE AND GRADE, DIMENSIONS OF ITEMS, REQUIRED CAMBER (WHERE APPLICABLE), LOCATION, TYPE AND SIZE OF WELDS OR BOLTS, WELD CATEGORIES AND BOLTING CATEGORIES, WELD PROCEDURES, SURFACE PREPARATION METHODS AND COATING SYSTEM, VENT/DRAIN HOLES FOR HOT DIP GALVANISING, PROPOSED JOINTS IN STEEL MEMBERS, etc.
- S8. DO NOT COMMENCE FABRICATION UNTIL SHOP DRAWINGS AND CALCULATIONS HAVE BEEN REVIEWED. ALLOW 14 DAYS FOR SUPERINTENDENT'S REVIEW.
- SUPERINTENDENT'S REVIEW DOES NOT INCLUDE CHECKING OF DIMENSIONS, AND DOES NOT RELIEVE CONTRACTOR OF RESPONSIBILITY FOR COMPLIANCE WITH DRAWINGS AND SPECIFICATIONS.
- S9. AFTER COMPLETION OF FABRICATION, PREPARATION FOR SURFACE TREATMENT TO BE: GRIND SMOOTH ROUGH WELDS, SHARP EDGES, BURRS, ARISSES, WELD SPLATTER AND SLAG etc. REMOVE GREASE, OIL AND OTHER CONTAMINANTS TO AS1627.1. REMOVE RUST, MILLSCALE, OXIDE DEPOSITS, OLD PAINT FILMS, etc BY ABRASIVE BLAST CLEANING TO AS1627.4 CLASS 2x TO 35 MICRONS PROFILE HEIGHT OR BY POWER TOOL CLEANING TO AS1627.2 CLASS 2. REMOVE ALL DUST BY BRUSHING OR VACUUM CLEANING

CONCRETE

- C1. WORKMANSHIP AND MATERIALS TO COMPLY WITH AS3600 AND AS3610.
- C2. QUALITY OF CONCRETE ELEMENTS TO BE AS FOLLOWS:
- STRUCTURAL ELEMENT ALL INSTU CONCRETE
- EXPOSURE CLASSIFICATION C2
- STRENGTH GRADE (MPa) S50
- MAX AGGREGATE SIZE (mm): 20
- CEMENT TYPE: GP
- MINIMUM CEMENTITIOUS CONTENT (kg/m³): 415
- MAXIMUM CEMENTITIOUS CONTENT (kg/m³): 520
- MAX. 56 DAY DRYING SHRINKAGE 600 x 10-6
- CHLORIDE DIFFUSION COEFFICIENT, MAX LIMIT (m²/s): 2.5 x 10-12
- SUPPLEMENTARY CEMENTITIOUS MATERIAL 20% OF CEMENT CONTENT
- MAXIMUM WATER/CEMENTITIOUS RATIO 0.38

- C3. SUPPLEMENTARY CEMENTITIOUS MATERIALS SHALL BE FLY ASH.
- C4. ALL CONCRETE CORNERS SHALL HAVE A NOMINAL 20mm CHAMFER UNO
- C5. USE CEMENTITIOUS MATERIALS LESS THAN SIX MONTHS OLD. USE BAGGED CEMENT IN

ORDER OF RECEIPT

- C6. CONCRETE DENOTED WITH STRENGTH GRADE PREFIX 'S' IS REQUIRED TO HAVE HIGH DURABILITY.
- DO NOT USE METAL INSERTS WITHIN COVER CONCRETE.
- PLASTIC OR MILD STEEL BAR CHAIRS SHALL NOT BE USED TO SUPPORT REINFORCEMENT WITHIN CONCRETE COVER. ONLY BAR CHAIRS OF STAINLESS STEEL (316) OR PRECAST CONCRETE BLOCKS (650) SHALL BE USED. ALL CONCRETE BLOCKS ARE TO BE ROUGHENED.
- DO NOT ALLOW CONCRETE TO FALL VERTICALLY WHEN PLACING, OR TO ENTRAP AIR IN ANY OTHER WAY.
- PLACE CONCRETE IN LAYERS LESS THAN 300 mm THICK AND VIBRATE EACH LAYER BEFORE PLACING NEXT.
- PREVENT EVAPORATION OF WATER FROM CONCRETE SURFACES IMMEDIATELY AFTER LAYING IN ACCORDANCE WITH THE SPECIFICATION.
- C7. COVER MUST NOT BE LESS THAN SPECIFIED. PROVIDE MINIMUM CLEAR COVER TO REINFORCEMENT AS SHOWN BELOW, EXCEPT WHERE SPECIFIED OTHERWISE.
- LOCATION COVER (mm)
- TOP AND BOTTOM OF SLABS 65
- TOP, BOTTOM AND SIDES OF BEAMS 65

- C8. PARCHEL ZEMBRAN CONTROLLED PERMEABILITY FORMWORK LINERS SHALL BE FIXED TO THE FACE OF ALL VERTICAL FORMWORK. FIXING SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATION.
- C9. CONFIRM WITH ARCHITECT ALL SURFACE FINISHES OF EXPOSED CONCRETE FACES.
- C10. PROVIDE DRIP GROOVES IN SOFFIT OF BEAMS AND SLABS AT EXTERNAL PERIMETER OF STRUCTURES. ENSURE COVER TO REINFORCEMENT IS ACHIEVED.
- C11. BEAM SIZES ARE DESIGNATED DEPTH (INCLUDING SLAB, IF ANY) x WIDTH. PLACE CONCRETE IN SLABS AT SAME TIME AS BEAMS INTEGRAL WITH THEM. SIZES OF CONCRETE ELEMENTS DO NOT INCLUDE THICKNESS OF APPLIED FINISHES.
- C12. MIX DESIGNS AND THE PRODUCTION AND TESTING OF TRIAL MIXES SHALL REQUIRE THE APPROVAL OF THE SUPERINTENDENT PRIOR TO THE USE OF CONCRETE OR GROUT ON SITE.

REINFORCEMENT

- R1. SYMBOLS ON DRAWINGS FOR GRADE AND TYPE OF REINFORCEMENT ARE AS FOLLOWS:
- R- DENOTES STRUCTURAL GRADE 500 PLAIN ROUND BAR TO AS/NZS3671
- N- DENOTES HOT ROLLED GRADE 500 DEFORMED (RIBBED) BAR DUCTILITY CLASS N TO AS/NZS3671
- R2. PROVIDE ACROS AUSTRALIAN CERTIFICATION AUTHORITY FOR REINFORCING STEEL LTD) CERTIFICATION OF COMPLIANCE WITH AS/NZS3671 FOR ALL REINFORCEMENT. PROVIDE CERTIFICATION OF COMPLIANCE WITH AS13111 FOR ALL PRESTRESSING TENDONS.
- R3. DO NOT USE LOW DUCTILITY REINFORCEMENT (GRADE L) UNO.
- R4. REINFORCEMENT TO BE CLEAN, FREE OF LOOSE MILL SCALE, RUST, OIL, GREASE, MUD OR OTHER MATERIAL THAT MIGHT REDUCE BOND BETWEEN REINFORCEMENT AND CONCRETE.
- R5. DESIGNATION OF REINFORCEMENT BARS IS AS SHOWN:
- eg. 17 N20 - 350 EF
- 17- DENOTES NO OF BARS IN GROUP
- N- DENOTES BAR GRADE AND DUCTILITY CLASS
- 20- DENOTES NOMINAL BAR DIAMETER IN mm
- 350- DENOTES SPACING IN mm
- EF- DENOTES LOCATION
- R6. FOLLOWING ABBREVIATIONS APPLY TO LOCATION OF REINFORCEMENT:
- EW: EACH WAY FF: FAR FACE BB: BOTTOM BOTTOM (L/UD FIRST)
- TF: TOP TOP (L/UD LAST) TT: TOP TOP (L/UD LAST)
- NE: NEAR FACE TI: TOP CP: CENTRALLY PLACED
- R7. SECURE REINFORCEMENT IN POSITION AGAINST DISPLACEMENT AND MAINTAIN SPECIFIED CLEAR CONCRETE COVER TO REINFORCEMENT (INCLUDING FITMENTS) BY APPROVED CHAIRS, SPACERS, LIGATURES OR TIES AT 800 mm MAXIMUM CENTRES EACH WAY UNO. PROVIDE ADEQUATE SUPPORT TO PREVENT DISPLACEMENT OF REINFORCEMENT BY WORKMEN OR EQUIPMENT DURING CONCRETE PLACEMENT.
- R8. SECURELY TIE REINFORCEMENT WITH WIRE TIES. TURN ENDS OF THE WIRES INTO CONCRETE. CLEAR OF COVER ZONE. TIE BUNDLED BARS TOGETHER AT 30 BAR DIAMETER CENTRES.
- R9. SUPPORT REINFORCEMENT ON PROPRIETARY CONCRETE OR STAINLESS STEEL. SUPPORTS ADEQUATE TO WITHSTAND CONSTRUCTION AND TRAFFIC LOADS AND MAINTAIN DURABILITY OF FINISHED CONCRETE STRUCTURE.
- R10. ENSURE REINFORCEMENT CAGES ARE ELECTRICALLY CONTINUOUS UNO.
- R11. DO NOT PLACE OR MOVE REINFORCEMENT DURING OR AFTER CONCRETE PLACEMENT.
- R12. ENSURE EMBEDDED ITEMS (INSERTS, THREADED SOCKETS, FERRULES, BOLTS, DISSIMILAR METAL ITEMS etc) IN COVER CONCRETE OR EXPOSED TO AIR ARE NOT IN CONTACT WITH REINFORCEMENT. PROVIDE ISOLATION BETWEEN DISSIMILAR METALS, AND BETWEEN REINFORCEMENT AND EXPOSED ITEMS, EXCEPT FOR DESIGNATED CP TEST POINTS.
- R13. SPLICE REINFORCEMENT ONLY AT LOCATIONS SHOWN ON DRAWINGS OR AS APPROVED BY SUPERINTENDENT. STAGGER LAPS WHERE POSSIBLE. LAPPED SPLICE LENGTHS TO COMPLY WITH AS3600. CLEAR SPACING BETWEEN LAPPED SPLICE BARS TO BE LESS THAN 3 TIMES BAR DIAMETER.
- R14. PERCUSSION ROTARY DRILL HOLES FOR GROUTED BARS AND THREADED RODS (NOTE:

- CORED HOLES MUST BE ROUGHENED). HOLE DIAMETER AND INSTALLATION TO BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. EMBEDMENT LENGTHS AS PER DRAWINGS.

ALUMINIUM

- A1. ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH AS1664.1 AND AS1665.
- A2. ALUMINIUM EXTRUSIONS SHALL BE MARINE GRADE TYPE 6062 OR 6061, TEMPER T6.
- A3. ALL ALUMINIUM MEMBERS SHALL BE SEPARATED FROM CONTACT WITH A DISSIMILAR MATERIAL (STEEL, STAINLESS STEEL, CONCRETE). THE FACE OF CONTACT WITH THE ALUMINIUM SHALL BE SEPARATED WITH A UNIMPE PAD. THE UNIMPE SHALL BE HEAVY DUTY. MARINE GRADE AND UV STABILISED.
- A4. ALL BOLTS, NUTS AND WASHERS THROUGH ALUMINIUM SHALL BE STAINLESS STEEL 316 A4 CLASS TO UNO IN ACCORDANCE WITH AS4673.
- A5. ALL BOLTS THROUGH ALUMINIUM SHALL BE INSULATED WITH A 1mm THICK UNIMPE SLEEVE ON BOLT SHANK AND 3mm THICK UNIMPE WASHERS UNDER HEAD & NUT. THE UNIMPE SHALL BE HEAVY DUTY. MARINE GRADE AND UV STABILISED.
- A6. ALL ALUMINIUM WELDING SHALL BE IN ACCORDANCE WITH AS1665.
- ALL WELDING SHALL BE WELD CATEGORY B.
- ALL FILLER MATERIAL SHALL BE ALLOY 5556 IN ACCORDANCE WITH AS27172.
- ALL ALUMINIUM WELDS SHALL BE 'FSBW' FULL STRENGTH BUTT WELD WHICH IS EQUIVALENT TO A 'CPBW' COMPLETE PENETRATION BUTT WELD.

STAINLESS STEEL

- SS1. ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH AS4673.
- SS2. ALL STRUCTURAL STAINLESS STEEL SHALL BE GRADE 316 STAINLESS STEEL IN ACCORDANCE WITH AS4673 (COLD-FORMED STAINLESS STRUCTURES) AND AS1654.6 (WELDING CODE) UNO. STAINLESS STEEL TO HAVE HRAP SURFACE FINISH OR STAINLESS STEEL TO BE POLISHED TO A SURFACE ROUGHNESS (Ra) OF LESS THAN 0.5 MICRONS. WELDS TO BE POLISHED TO MATCH ADJACENT STAINLESS STEEL ROUGHNESS AND APPEARANCE.
- SS3. FABRICATE STAINLESS STEEL IN WORKSHOP AREAS SEGREGATED FROM CARBON STEEL FABRICATION AREAS. USE TOOLS DEDICATED TO STAINLESS STEEL FABRICATION, WIRE BRUSHES AND WIRE WOOL. USED IN FABRICATION OF STAINLESS STEEL TO BE STAINLESS STEEL OR CLEAN NEXT MATERIALS.
- SS4. ALL WELDS SHALL BE 6mm CATEGORY 1A GRADE 2 SURFACE FINISH CONTINUOUS FILLET WELDS TO AS/NZS 1554.6. SURFACE FINISH TO BE CLEANED BY BUFFING OR POLISHING OF WELD AND ADJACENT AREAS. UNLESS NOTED OTHERWISE, ALL WELDS TO HAVE STAINLESS STEEL ELECTRODES TO SUIT 316 STAINLESS STEEL. WELDED AREAS TO BE PASSIVATED BY ACID PICKLING.
- SS5. ALL STAINLESS STEEL MEMBERS SHALL BE SEPARATED FROM CONTACT WITH A DISSIMILAR MATERIAL (STEEL, ALUMINIUM). THE FACE OF CONTACT WITH THE ALUMINIUM SHALL BE SEPARATED WITH A UNIMPE PAD. THE UNIMPE SHALL BE HEAVY DUTY. MARINE GRADE AND UV STABILISED.
- SS6. ALL BOLTS, NUTS AND WASHERS SHALL BE STAINLESS STEEL 316 A4 CLASS 70 UNO IN ACCORDANCE WITH AS4673.
- SS7. NUTS AND BOLTS SHALL COMPLY WITH ISO 5016 IDENTIFICATIONS OR, IF NOT SO MARKED, SHALL BE PROVIDED WITH MILL OR NATA CERTIFIED TEST RESULTS CONFIRMING GRADE STRENGTH.
- SS8. BOLTS SHALL HAVE ROLLED THREADS. THE NUTS AND WASHERS SHALL BE ELECTROPOISHED OR PASSIVATED IN NITRIC ACID.
- SS9. ALL BOLTS THROUGH DISSIMILAR METALS (STEEL, ALUMINIUM) SHALL BE INSULATED WITH A 1mm THICK UNIMPE SLEEVE ON BOLT SHANK AND 3mm THICK UNIMPE WASHERS UNDER HEAD & NUT. THE UNIMPE SHALL BE HEAVY DUTY. MARINE GRADE AND UV STABILISED.
- SS10. WELDS JOINING STAINLESS STEEL TO CARBON STEEL SHALL USE HIGH ALLOY ELECTRODES TO AVOID WELD POOL DILUTION.
- SS11. THREADS OF SS BOLTS SHALL BE COATED WITH NICKEL BASED GREASE ANTISEIZE LUBRICANT BEFORE ASSEMBLY.

STEEL PILES

- SP1. ALL STEEL TUBE PILES ARE TO BE PROVIDED BY THE CONTRACTOR.
- SP2. BOND BARS SHALL BE WELDED TO THE INSIDE OF PILES USING GRADE E48 ELECTRODES.
- SP3. ALL REINFORCING BOND BARS SHALL BE GRADE D500 IN ACCORDANCE WITH AS/NZS4671.
- SP4. ALL BOND BARS SHALL BE COLD BENT ON A 4400 MANDRREL IN ACCORDANCE WITH AS3600. THE USE OF HEAT TO BEND ANY GRADE D500 BARS WILL NOT BE PERMITTED WITHOUT PRIOR APPROVAL OF THE SUPERINTENDENT.
- SP5. FOR PILE HEAD TREATMENT PROTECTION REFER TO THE SPECIFICATION.
- SP6. ALL PILES SHALL HAVE PROTECTIVE COATINGS APPLIED IN ACCORDANCE WITH THE SPECIFICATION.
- SP7. ALL PILES SHALL BE DRIVEN TO ±100 mm OF THE NOMINATED HORIZONTAL POSITION.
- SP8. ROTATE HORIZONTAL PILES BY ALLOWING BARS TO ROTATE TO ANY COASTS.
- SP9. MAINTAIN SPACING OF BOND BARS AS DETAIL ON DRAWINGS.
- AND BETWEEN REINFORCEMENT AND EXPOSED ITEMS, EXCEPT FOR DESIGNATED CP TEST POINTS.
- R13. SPLICE REINFORCEMENT ONLY AT LOCATIONS SHOWN ON DRAWINGS OR AS APPROVED BY SUPERINTENDENT. STAGGER LAPS WHERE POSSIBLE. LAPPED SPLICE LENGTHS TO COMPLY WITH AS3600. CLEAR SPACING BETWEEN LAPPED SPLICE BARS TO BE LESS THAN 3 TIMES BAR DIAMETER.
- R14. PERCUSSION ROTARY DRILL HOLES FOR GROUTED BARS AND THREADED RODS (NOTE:

referred to in the ULDA

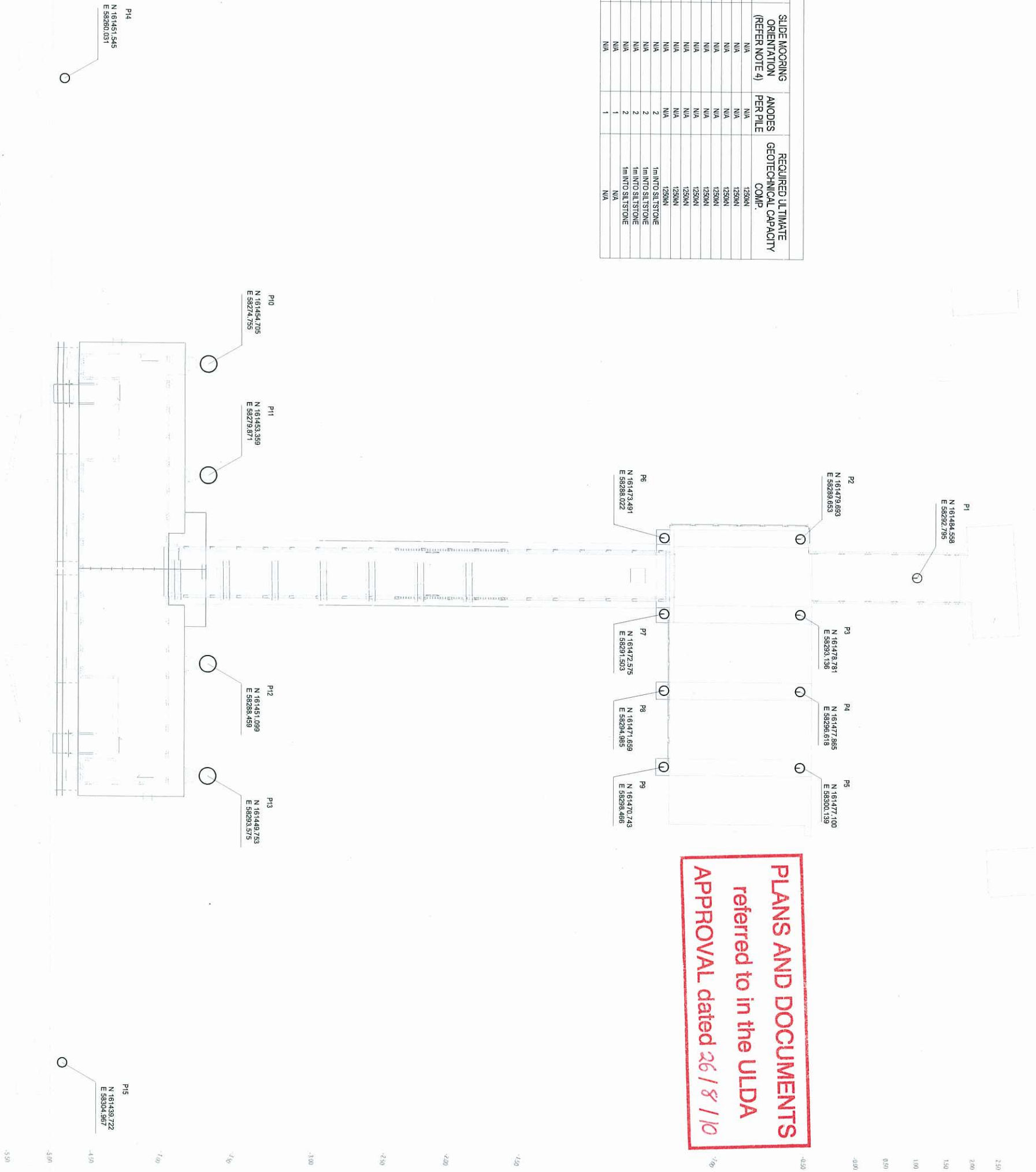
APPROVAL dated 26/8/16

				Client	
					
					
				CLIENTS PEOPLE PERFORMANCE	
				Level 4, 201 Charlotte St Brisbane QLD 4000 Australia GPO Box 668 Brisbane QLD 4001 T 61 7 3316 3000 F 61 7 3316 3333 E brian@ghd.com W www.ghd.com	
DO NOT SCALE		Drawing Check	B. GILES	Designed Check	B. GILES
Conditions of Use: This document may only be used by GHD's client (and any other person who has agreed in writing to be bound by the conditions of use) for the purposes for which it was prepared and must not be used for any other purpose or for any other person or for any other purpose.		Approved Date	G. RANGER 23.07.10	R. WALLIS* RREQ No. 940	
Scale		This Drawing must not be signed or approved unless signed as Approved			
Original size		A1			
Drawing No:		41-22853-M001			
Rev:		A			

NOTES

1. FOR MAJOR NOTES REFER Dwg. 41-2285-M001.
2. ALL LEVELS ARE TO AUSTRALIAN HEIGHT DATUM (AHD). ALL COORDINATES ARE TO 86SG.
3. ALL PILE ORIENTATIONS SHALL BE BASED ON CLOCKWISE ROTATION FROM THE NORTH POINT.
4. ALL PILES SHALL BE GRADE 350 STEEL AND PAINTED TO 1st BELOW BORED LEVEL IN ACCORDANCE WITH SPECIFICATION.
5. ALL PILES SHALL BE VERTICAL.
6. REQUIRED UTMATE GEOTECHNICAL CAPACITIES HAVE BEEN CALCULATED USING $q_c/4$
7. PILE P₁ SHALL BE CUT-OFF TO MATCH WALKWAY SLOPE

PILE No.	PILE TYPE	PILE DIAMETER (mm)	WALL THICKNESS (mm)	PILE SCHEDULE					REQUIRED ULTIMATE GEOTECHNICAL CAPACITY COMP.	
				CUT-OFF LEVEL (m)	EST. TOE LEVEL (m)	EST. BED LEVEL (m)	FENDER ORIENTATION (REFER NOTE 4)	SLIDE MOORING ORIENTATION (REFER NOTE 4)		ANODES PER PILE
P1	TYPE A	457	127	2,886	-23,000	0	N/A	N/A	N/A	125kN
P2	TYPE A	457	127	1,350	-23,000	-0.5	N/A	N/A	N/A	125kN
P3	TYPE A	457	127	1,350	-23,000	-0.5	N/A	N/A	N/A	125kN
P4	TYPE A	457	127	1,350	-23,000	-0.5	N/A	N/A	N/A	125kN
P5	TYPE A	457	127	1,350	-23,000	-0.5	N/A	N/A	N/A	125kN
P6	TYPE A	457	127	1,150	-23,000	-1.5	N/A	N/A	N/A	125kN
P7	TYPE A	457	127	1,150	-23,000	-1.4	N/A	N/A	N/A	125kN
P8	TYPE A	457	127	1,350	-23,000	-1.4	N/A	N/A	N/A	125kN
P9	TYPE A	457	127	1,350	-23,000	-1.3	N/A	N/A	2	1m INTO SILTSTONE
P10	TYPE B	800	16.0	4,000	-20,000	-6.7	N/A	N/A	2	1m INTO SILTSTONE
P11	TYPE B	800	16.0	4,000	-20,000	-6.4	N/A	N/A	2	1m INTO SILTSTONE
P12	TYPE B	800	16.0	4,000	-20,000	-6	N/A	N/A	2	1m INTO SILTSTONE
P13	TYPE B	800	16.0	4,000	-20,000	-5.7	N/A	N/A	2	1m INTO SILTSTONE
P14	TYPE C	457	127	4,000	-18,500	-7.2	195	N/A	1	N/A
P15	TYPE C	457	127	4,000	-18,500	-5.3	195	N/A	1	N/A



PILE SETOUT PLAN

SCALE 1 : 100

A TOTAL WORKS DA ISSUE		DW		JK*	GR*	23.07.10	0 1000 2000 3000 4000 5000mm SCALE 1:100 AT ORIGINAL SIZE		Client:  urban development authority  CLIENTS PEOPLE PERFORMANCE		DO NOT SCALE		Drawn: T. HASENEN		Designed: A. PIETROBON		Client: URBAN LAND DEVELOPMENT AUTHORITY Project: NORTHSHORE HAMILTON CityCat TERMINAL	
No Revision	Note: * indicates signatures on original issue or drawing or last revision of drawing	Drawn	Checked	Approved	Date					Conditions of Use: Documents may only be used by CHD staff or persons to whom CHD has agreed (can use the documents) for the purpose for which it was prepared and must not be used by any other person or for any other purpose.		Approved: G. RANGER		Design Check: R. WALSH		Title: PILE SETOUT PLAN & SCHEDULE		
										Scale: As indicated		This drawing must not be signed as approved		Drawing No: 41-22853-M100		Rev: A		

Print Date: 23/07/2010 3:15:14 PM

Cad File No: C:\Documents and Settings\Watson\My Documents\41-22853-NORTHSHORE HAMILTON CITY TROUWAL CIVIC & UTILITIES DEPT. GENERAL FUND

CITY TERMINAL - SITE & WAITING AREA - CENTRAL_dwaision.rvt