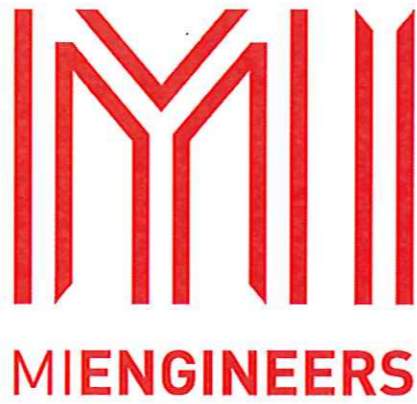


LAKE CONJOLA BOARDWALK  
STRUCTURAL DESIGN

PREPARED BY



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REVISION	AMENDMENTS	DATE	APP'D	City Council		MIENGINEERS	PROJECT	DESIGNED:	DRAWN:	APPROVED:
F	CONTRACT ISSUE	12/08/16	G.S	City Council		SYDNEY OFFICE 83 - 89 Renwick Street, Redfern 2016 Tel (02) 8396 6565 Fax (02) 8396 6564	LAKE CONJOLA BOARDWALK - STRUCTURAL DESIGN	T.S	A.S	G.S
E	ISSUE FOR TENDER - AMENDMENTS	21/03/16	T.S	Ben Stewprt 12/9/16 DATE		SOUTH COAST OFFICE 49 Berry Street, Nowra NSW 2541 Tel (02) 44 230 566 Fax (02) 44 233 228		SHEET SIZE:	SCALE:	DATE:
D	ISSUE FOR TENDER - AMENDMENTS	17/03/16	T.S	PLAN REFERENCE		E : info@miengineers.com W : www.miengineers.com		A1	1:400 @ A1	12/08/16
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B	ISSUE FOR TENDER	04/03/16	T.S	DRAWING NAME:		COVER SHEET				
A	ISSUE FOR REVIEW	05/01/14								



**CIVIL GENERAL NOTES:**

- THE NOTES CONTAINED ON THIS DRAWING ARE TYPICAL STANDARDS ONLY. ANY SPECIFIC DETAILS PROVIDED ELSEWHERE ARE TO TAKE PRECEDENCE.
- THESE DRAWINGS ARE TO BE READ IN CONJUNCTION WITH THE RELATED SOIL EROSION CONTROL NOTES, RELATED ROAD AND DRAINAGE PLANS, SPECIFICATION AND STANDARD DRAWINGS AS APPLICABLE.
- ALL WORK IS SUBJECT TO STATUTORY REQUIREMENTS, INCLUDING BUT NOT LIMITED TO WORK HEALTH AND SAFETY REQUIREMENTS, & APPROPRIATE TRAFFIC CONTROL REQUIREMENTS.
- THE CONTRACTOR IS TO ENSURE THE WORKS TO A MINIMUM OF THE VALUE OF THE CONTRACT SUM UNTIL PRACTICAL COMPLETION.
- THE CONTRACTOR IS TO HAVE A CURRENT \$20 MILLION PUBLIC LIABILITY INSURANCE POLICY.
- THE CONTRACT PERIOD IS (AS PER THE TENDER DOCUMENTATION) WEEKS, LIQUIDATED DAMAGES ARE \$45 PER THE TENDER DOCUMENTATION) DAY.
- THE DEFECTS LIABILITY PERIOD IS (AS PER THE TENDER DOCUMENTATION) MONTHS.
- THE CONTRACTOR IS TO PROVIDE ALL NECESSARY LABOUR, PLANT, MATERIALS AND ANYTHING ELSE REQUIRED TO COMPLETE THE INTENT OF THE DESIGN.
- IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO SET OUT IN BOTH LINE AND LEVEL FOR THE WORKS IN ACCORDANCE WITH THE DESIGN.
- IT IS THE CONTRACTOR'S RESPONSIBILITY TO CHECK THE LOCATION OF EXISTING AND PROPOSED SERVICES AND TO ALLOW IN THE CONTRACT SUM TO ADJUST THESE AS REQUIRED TO PROVIDE FOR THE INTENT OF THE DESIGN.
- THE CONTRACTOR IS TO ADJUST ANY EXISTING AND NEW SERVICE FITS TO DESIGN LEVELS AS REQUIRED.
- THE CONTRACTOR IS TO ALLOW FOR THE COST OF TESTING. ALL TESTING IS TO BE DONE BY A NATA REGISTERED LABORATORY, TEST RESULTS ARE TO BE SUBMITTED TO THE SUPERINTENDENT FOR APPROVAL PRIOR TO WORK PROCEEDING.
- NO SOUND HEALTHY TREES SHALL BE CLEARED WITHOUT OBTAINING THE WRITTEN APPROVAL OF THE COUNCIL.
- THE CONTRACTOR SHALL AVOID UNWARRANTED DAMAGE TO ALL NATURAL FLORA ON SITE AND ON THE ADJACENT LAND.
- THE CONTRACTOR SHALL ENSURE THAT THE PUBLIC ARE NOT DEPRIVED OF ALL WEATHER BEACH ACCESS NOR ARE SUBJECT TO ADDITIONAL STORM WATER RUNOFF.
- THE CONTRACTOR SHALL ENSURE THAT ALL EROSION AND SEDIMENTATION CONTROL STRUCTURES ARE IN PLACE PRIOR TO COMMENCING.
- THE CONTRACTOR SHALL NOT ENTER UPON ADJOINING PROPERTY WITH THE PERMISSION OF THE OWNER/OCCUPIER.
- THE SITE IS TO BE LEFT CLEAN AND TIDY, AND TO THE SATISFACTION OF THE PRINCIPAL.
- THE CONTRACTOR MUST BECOME FAMILIAR WITH THE SPECIFIC REVIEW OF ENVIRONMENTAL FACTORS & ADHERE TO THE RECOMMENDATIONS.

**CLEARING AND GRUBBING:**

- THE CONTRACTOR SHALL GIVE COUNCIL AT LEAST TWO FULL BUSINESS DAYS NOTICE OF INTENTION TO COMMENCE CLEARING OPERATIONS.
- ONLY TREES IDENTIFIED TO BE REMOVED IN THE DEVELOPMENT CONSENT ARE TO BE FELLED OR DAMAGED IN ANY WAY. SURPLUS SOIL IS TO BE KEPT WELL CLEAR OF EXISTING TREE TRUNKS. CARE MUST BE TAKEN TO PROTECT THE ROOTS OF TREES TO BE RETAINED.
- ALL MATERIAL CLEARED OR GRUBBED SHALL BE DISPOSED OF BY THE CONTRACTOR TO AN APPROVED SITE. THE CONTRACTOR SHALL PAY ALL FEES. BURNING IS NOT PERMISSIBLE.
- ANY HOLES OR DEPRESSION CAUSED BY THE CLEARING OR GRUBBING WORK SHALL BE INSPECTED BY THE SUPERINTENDENT. HOLES ARE TO BE BACKFILLED WITH APPROVED MATERIAL, AND COMPACTED TO AT LEAST 98% OF STANDARD MAXIMUM DRY DENSITY.

**SOIL/WATER MANAGEMENT:**

- ALL SOIL EROSION AND SEDIMENT CONTROL MEASURES AND STRUCTURES SHALL BE LOCATED AS SHOWN, AND SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE GUIDELINES AND PRINCIPLES AS OUTLINED IN LANDCARE'S 'SOILS AND CONSTRUCTION' VOLUME 1 (MANAGING URBAN STORMWATER 4TH EDITION, MARCH 2014) (MUS).
- THE CONTRACTOR IS RESPONSIBLE FOR CARRYING OUT ALL EARTHWORKS, ROAD AND DRAINAGE CONSTRUCTION GENERALLY IN ACCORDANCE WITH MUS AND TO THE SATISFACTION OF COUNCIL, THE SOIL CONSERVATION SERVICE AND THE SUPERINTENDENT.
- CONSTRUCTION SEQUENCE SHALL BE PLANNED SO THAT LAND DISTURBANCE IS CONFINED TO AREAS OF MANAGEABLE SIZE. STABILISATION MEASURES SHALL BE APPLIED TO THE FIRST DISTURBED SECTION PRIOR TO COMMENCING ON THE NEXT SECTION.
- BEFORE STRIPPING TOPSOIL ALL AREAS TO BE EXPOSED SHALL BE CLEARED AND GRUBBED OF ALL EXCESSIVE VEGETATION.
- TOPSOIL REQUIRED TO BE RESPREAD ON SITE SHALL BE STOCKPILED CLEAR OF HAZARDS SUCH AS DRAINAGE AREAS, REMAINING TOPSOIL SHALL BE REMOVED AND STOCKPILED WHERE AGREED. STOCKPILED TOPSOIL IS TO BE RESPREAD LATER ON AREAS TO BE REVEGETATED AND STABILISED ONLY (ie. ALL FOOTPATHS, BATTERS, DRAINAGE RESERVE AND CHANNELS). TOPSOIL SHALL NOT BE SPREAD ON ANY OTHER AREAS UNLESS SPECIFICALLY INSTRUCTED BY THE SUPERINTENDENT. STOCKPILES REMAINING LONGER THAN THREE MONTHS SHALL BE PROTECTED FROM EROSION BY COVERING WITH A MULCH AND HYDROSEEDING AND, IF NECESSARY, BY LOCATING BANKS OR DRAINS UP-SLOPE TO DIRECT RUNOFF.
- THE CONTRACTOR SHALL REGULARLY MAINTAIN ALL SEDIMENT AND EROSION CONTROL DEVICES AND REMOVE ACCUMULATED SILT ETC BEFORE NO MORE THAN 60% OF THEIR CAPACITY IS LOST. ALL SILT REMOVED SHALL BE DISPOSED OF AS DIRECTED BY THE SUPERINTENDENT. CONTROL DEVICES SHALL BE MAINTAINED UNTIL ALL DISTURBED AREAS ARE REVEGETATED OR FURTHER AS MAY BE DIRECTED BY THE SUPERINTENDENT IN ACCORDANCE WITH THE CONTRACT.
- CUT AND FILL BATTERS SHALL BE:
  - FORMED AT MAXIMUMS OF 2:1 IN CUT AND 4:1 IN FILL
  - TOPSOILED AS SOON AS PRACTICABLE AFTER FORMATION WITH A:
    - MINIMUM DEPTH OF 150mm AND MAXIMUM OF 250mm.
    - SCARIFIED BEFORE TOPSOILING.
    - SEEDED WITHIN 7 DAYS OF TOPSOILING WITH AN APPROVED MIX.
    - WHERE LENGTH OF CUT BATTER SLOPES EXCEED 3m THE BATTER SHALL BE PROTECTED BY EITHER A CUT-OFF DRAIN 150mm DEEP OR A SOIL CUT-OFF BANK 150mm HIGH LEADING TO A SEDIMENT TRAP SO AS TO CONTROL RUNOFF OVER BATTERS PRIOR TO THEIR REVEGETATION.
- OUTLETS:
  - ALL WATER SHALL BE RELEASED IN A NON-SEDIMENT MANNER, GENERALLY IN ACCORDANCE WITH MUS.
  - ENERGY DISSIPATORS SHALL BE PROVIDED AS DIRECTED BY THE SUPERINTENDENT WHEN DISCHARGE FLOW VELOCITIES ARE NOT IN ACCORDANCE WITH MUS.
  - SHALL HAVE CAPACITY TO DISCHARGE THE 5 YEAR CRITICAL STORM EVENT WITHOUT CAUSING FAILURE OF THE STRUCTURE.
  - AGGREGATE FOR OUTLETS SHALL BE CRUSHED BASALT.
- EARTH OR HAY BALE BANKS:
  - SHALL BE PROVIDED WHERE REQUIRED.
  - TO DIVERT SEDIMENT LADEN RUNOFF TO A SEDIMENT TRAP OR BASIN, OR INCORPORATED AS PART OF A BARRIER OR DAM USED TO INTERCEPT AND RETARD SEDIMENT LADEN RUNOFF.
  - FREEBOARD: BANKS SHALL HAVE FIED 300mm FREEBOARD WHEN USED AS A DIVERSION BANK.

**TOPSOIL:**

- TOPSOIL INCLUDING ALL GRASS COVER SHALL BE STRIPPED FROM THE WHOLE OF THE AFFECTED AREA TO THE DEPTH SPECIFIED IN THE DRAWINGS OR, WHERE NO DEPTH IS SPECIFIED, TO A MINIMUM DEPTH OF 150mm.
- STRIPPED SURFACES WILL NEED TO BE INSPECTED BY THE SUPERINTENDENT OR AN APPROVED GEOTECHNICAL ENGINEER PRIOR TO THE COMMENCEMENT OF EARTHWORKS TO ENSURE THE AREAS HAVE BEEN ADEQUATELY STRIPPED.
- THE STRIPPED TOPSOIL IS THE STOCKPILED IN THE LOCATIONS SHOWN ON THE SOIL AND WATER MANAGEMENT PLAN AND THE SURFACE OF STOCKPILES TREATED ACCORDINGLY.
- THE STOCKPILED TOPSOIL IS TO BE RESPREAD OVER THE FINISHED SURFACE IMMEDIATELY FOLLOWING COMPLETION OF EARTHWORKS. DEPTHS OF TOPSOIL SHALL BE A MINIMUM OF 150mm BUT SHALL NOT EXCEED 300mm.
- SURPLUS TOPSOIL SHALL NOT BE SPREAD OVER THE SITE WITHOUT THE WRITTEN PERMISSION OF THE SUPERINTENDENT.
- NEWLY TOPSOILED AREAS ARE TO BE IMMEDIATELY REVEGETATED IN ACCORDANCE WITH THE APPROVED SOIL AND WATER MANAGEMENT PLAN.

**FILL AND COMPACTION:**

- FILL SHALL BE PLACED IN HORIZONTAL LAYERS NOT EXCEEDING 150mm COMPACTED THICKNESS.
- FILL IS TO BE COMPACTED TO AT LEAST 100% OF STANDARD MAXIMUM DRY DENSITY AS DETERMINED BY AS1289-S.1.1.
- COMPACTION TESTING SHALL OCCUR AT THE RATE OF AT LEAST ONE TEST PER 500mm THICKNESS, 333m2 AREA OR 150m3 VOLUME, WHICHEVER GIVES MAXIMUM NUMBER OF TESTS.
- ALL COMPACTION TESTING IS TO BE PERFORMED BY A NATA REGISTERED LABORATORY UNDER THE CONTROL OF A GEOTECHNICAL ENGINEER WHO SHALL SUPERVISE THE WORKS TO AT LEAST LEVEL 2 CONTROL AS DEFINED BY AS3798 EXCEPT WHERE THE FILL IS TO BE PLACED WITHIN THE BUILDING AREA OF ANY LOT IN WHICH CASE SUPERVISION SHALL BE LEVEL 1 CONTROL.
- ALL COMPACTION TEST RESULTS SHALL BE SUBMITTED TO THE SUPERINTENDENT AS THEY BECOME AVAILABLE, BUT NO LATER THAN 48hrs AFTER TESTING.

**PROTECTION OF THE ENVIRONMENT:**

- ALL WORK SHALL BE CARRIED OUT IN SUCH A MANNER AS TO AVOID NUISANCE AND/OR DAMAGE TO THE ENVIRONMENT. THE CONTRACTOR SHALL COMPLY WITH THE REQUIREMENTS OF THE CONDITIONS OF APPROVAL IMPOSED BY THE MINISTER FOR LAND AND WATER CONSERVATION, THE RELEVANT LOCAL COUNCIL, THE ENVIRONMENTAL PROTECTION AUTHORITY, THE CLEAN WATERS ACT, THE CLEAN AIR ACT AND THE NOISE CONTROL ACT. THE CONTRACTOR IS TO ALLOW FOR THIS IN THEIR TENDER.
- THE CONTRACTOR SHALL PLAN AND CARRY OUT THE WORKS TO AVOID EROSION, CONTAMINATION AND SEDIMENTATION OF THE SITE AND ITS SURROUNDINGS.
- HERBICIDES AND OTHER TOXIC CHEMICALS SHALL NOT BE USED ON THE SITE WITHOUT THE PRIOR WRITTEN APPROVAL OF THE SUPERINTENDENT.
- NO NOISE, SMOKE, OR OTHER NUISANCE WHICH IN THE OPINION OF THE SUPERINTENDENT IS UNNECESSARY OR EXCESSIVE SHALL BE PERMITTED BY THE CONTRACTOR IN THE PERFORMANCE OF THE WORKS UNDER THIS CONTRACT. SHOULD WORK OUTSIDE CUSTOMARY WORKING HOURS BE APPROVED, THE CONTRACTOR SHALL NOT USE, DURING SUCH PERIOD, ANY PLANT, MACHINERY OR EQUIPMENT WHICH IN THE OPINION OF THE SUPERINTENDENT IS CAUSING OR LIKELY TO CAUSE A NUISANCE TO THE PUBLIC. NO HOISY WORKS AND/OR WORKS LIKELY TO DISTURB NEARBY RESIDENTS SHALL BE UNDERTAKEN DURING THE HOURS PRECLUDING SUCH ACTIVITY AS SPECIFIED BY COUNCIL IN ACCORDANCE WITH THE REQUIREMENTS FOR DEVELOPMENT CONSENT AND BUILDING APPROVAL MADE UNDER THE LOCAL GOVERNMENT ACT AND THE NOISE CONTROL ACT.
- THE CONTRACTOR SHALL ENSURE THAT FUGITIVE DUST FROM DISTURBED AREAS IS MINIMISED BY A METHOD APPROVED BY THE SUPERINTENDENT.

**WORKING AREA:**

- THE PRINCIPLE WILL NOT BE RESPONSIBLE FOR THE SAFE KEEPING OF ANY OF THE CONTRACTOR'S PLANT, EQUIPMENT, TOOLS, MATERIALS OR OTHER PROPERTY. THE CONTRACTOR MAY PROVIDE, AT THEIR OWN COST, ANY SECURITY FENCING CONSIDERED NECESSARY AROUND THE SITE OFFICE, WORKSHOPS OR STORAGE AREAS, SUBJECT TO THE SUPERINTENDENT'S PRIOR APPROVAL.
- IF EXISTING FENCING IS CUT OR ALTERED BY THE CONTRACTOR, IT SHALL PROVIDE AND MAINTAIN TEMPORARY FENCING TO THE SATISFACTION OF THE SUPERINTENDENT DURING THE CONTRACT TO PREVENT UNAUTHORISED ENTRY INTO THE PROPERTY, AND SHALL REINSTATE THE FENCING AND REMOVE TEMPORARY FENCING ON COMPLETION OF THE WORK.

**WORK-AS-EXECUTED DRAWINGS:**

- THE CONTRACTOR SHALL SUPPLY THE SUPERINTENDENT WITH FULL MARKED-UP AND CERTIFIED WORK-AS-EXECUTED DRAWINGS FOR THE WHOLE OF THE CONTRACT PRIOR TO THE FINAL CERTIFICATE. PRINTS OR REPRODUCELES OF THE CONTRACT DRAWINGS WILL BE SUPPLIED BY THE PRINCIPAL FREE OF CHARGE FOR THIS PURPOSE.
- WORK-AS-EXECUTED DRAWINGS FOR ROADWORKS OR CARPARKS SHALL SHOW IN RED INK ALL CHANGES TO THE CONTRACT DRAWINGS AND ACTUAL VALUES OF ALL LEVELS SHOWN ON THE DRAWINGS. THE DRAWINGS SHALL BE SIGNED BY A REGISTERED SURVEYOR AND CERTIFIED BY THE CONTRACTOR'S NPER CERTIFIED ENGINEER.
- WORK-AS-EXECUTED DRAWINGS FOR DRAINAGE AND SEWER WORKS WHERE APPLICABLE SHALL SHOW IN RED ALL CHANGES TO THE CONTRACT DRAWINGS, INCLUDING VARIATIONS TO LEVELS, DIMENSIONS, CONCRETE, REINFORCEMENT AND OTHER MATERIALS. THE DRAWINGS SHALL BE CERTIFIED BY THE CONTRACTOR'S NPER CERTIFIED ENGINEER.

**EXISTING SERVICES:**

- THE CONTRACTOR IS TO INFORM THEMSELVES OF ALL EXISTING SERVICES. ATTEND TO EXISTING SERVICES AS FOLLOWS:
  - IF THE SERVICE(S) IS/ARE TO BE CONTINUED, REPAIR, DIRECT OR RELOCATE AS REQUIRED. IF SUCH A SERVICE(S) CROSSES THE LINE OF A TRENCH, OR WILL LOSE SUPPORT WHEN THE TRENCH IS EXCAVATED, PROVIDE PERMANENT SUPPORT FOR THE EXISTING SERVICES.
  - IF THE SERVICE IS TO BE ABANDONED, CUT AND SEAL OR DISCONNECT, AND MAKE SAFE.
- THE CONTRACTOR'S PRICE IS TO ALLOW FOR HAND EXCAVATION AND BACKFILL NEAR ALL EXISTING SERVICES OR IN AREAS WHERE THERE MAY BE EXISTING SERVICES.
- THE COST OF ALL EXISTING SERVICES, AND THE TIME ASSOCIATED WITH THE WORK, IS TO BE INCLUDED IN THE TENDER.
- THE PRINCIPAL AND THE DESIGN CONSULTANT WILL NOT BE RESPONSIBLE FOR DAMAGES TO EXISTING SERVICES. THE CONTRACTOR IS TO TAKE ALL ACTION NECESSARY TO AVOID DAMAGE TO EXISTING SERVICES.
- IT IS THE CONTRACTOR'S RESPONSIBILITY TO LODGE & OBTAIN A DIAL BEFORE YOU DIG ENQUIRY 13 BUSINESS DAYS BEFORE THE COMMENCEMENT OF ANY SITE ACTIVITY.

**STRUCTURAL GENERAL NOTES:**

- THE INFORMATION CONTAINED ON THESE DRAWINGS IS FOR STRUCTURAL PURPOSES ONLY. IN ALL OTHER MATTERS, THE CLIENTS REPRESENTATIVE SHALL TAKE PRECEDENCE. ALL DISCREPANCIES SHALL BE REFERRED TO THE ENGINEER PRIOR TO PROCEEDING WITH CONSTRUCTION.
- ALL WORK SHALL BE PROTECTED FROM TERMITE ATTACK IN ACCORDANCE WITH AS3550.1-1995 AND LOCAL AUTHORITY REQUIREMENTS.
- DURING CONSTRUCTION, THE STRUCTURE SHALL BE MAINTAINED IN A STABLE CONDITION AND NO PART SHALL BE OVERSTRESSED. THE DESIGN INSTALLATION AND MAINTENANCE OF ALL TEMPORARY PROPPING, BRACING AND SHORING SHALL BE PROVIDED BY THE CONTRACTOR TO KEEP THE WORKS AND EXCAVATIONS STABLE AT ALL TIMES. THE COST OF ALL SUCH WORK SHALL BE DEEMED TO BE INCLUDED IN THE CONTRACTORS TENDER.
- ALL WORKS CONDUCTED SHALL BE IN ACCORDANCE WITH THE CURRENT EDITION OF THE RELEVANT AUSTRALIAN STANDARDS (INCLUDING ALL AMENDMENTS) AND THE CURRENT EDITION OF THE BUILDING CODE OF AUSTRALIA.
- PROVIDE FINISHES AND FIXTURES THAT ALLOW FOR RELATIVE MOVEMENT BETWEEN OLD AND NEW STRUCTURES, TYPICAL.
- WHERE ROCK IS ENCOUNTERED THE REMAINDER OF THE FOOTING SYSTEM SHALL BE FOUNDED ON ROCK AS APPROVED BY THE CONTRACTOR'S NPER CERTIFIED ENGINEER & PROVIDED TO THE PRINCIPAL WITHIN TWO BUSINESS DAYS.
- THE CONTRACTOR IS TO ENSURE THAT ALL WORK IS DONE IN A SAFE MANNER AND IN ACCORDANCE WITH ALL APPLICABLE WORKCOVER REGULATIONS AND ANY OTHER APPLICABLE STATUTORY AUTHORITY REGULATIONS.

**TIMBER NOTES:**

- ALL BOLT CONNECTORS AND WASHERS ARE TO BE GIVEN A LIGHT COATING OF GREASE PRIOR TO ERECTION.
- AFTER A SUMMER HAS ELAPSED FROM COMPLETION OF THE BUILDING, IT IS RECOMMENDED THAT THE BOLTS ARE CHECKED FOR TIGHTNESS.
- ALL METAL WORK IS TO BE HOT DIP GALVANISED.
- USE 65 x 65 x 6mm PLATE UNDER NUTS AND HEADS OF ALL BOLTS U.N.O.
- ALL SCARFS, BORED HOLES AND END CUTS OF ROUND OR SQUARE TIMBER SHALL BE TREATED WITH AN APPLICATION OF 'ANALITH RESEAL' PRESERVATIVE OR AN APPROVED EQUIVALENT.

**STEELWORKS NOTES:**

- THERE MAY BE DISCREPANCIES BETWEEN THESE DRAWINGS AND OTHER CONTRACT DOCUMENTS. THE CONTRACTOR IS RESPONSIBLE TO FIND ANY DISCREPANCIES, ERRORS OR OMISSIONS AND ADVISE THE SUPERINTENDENT AND THE CONTRACTOR'S NPER QUALIFIED ENGINEER. AS THE CONTRACTOR'S NPER QUALIFIED ENGINEER IS RESPONSIBLE FOR RECEIVING THE STRUCTURAL DESIGN BY NOVATION, THE CONTRACTOR'S NPER QUALIFIED ENGINEER MUST BE SATISFIED WITH THE STRUCTURAL DESIGN PRIOR TO PROCEEDING WITH CONSTRUCTION.
- ALL WELDING SHALL BE IN ACCORDANCE WITH THE CURRENT EDITION OF AS1554.
- ALL BOLTS SHALL BE 8.8'S UNLESS NOTED OTHERWISE. ALL BOLTS SHALL HAVE 2mm CLEARANCE IN HOLES, TYPICAL.
- ALL CONNECTION DETAILS SHALL BE IN ACCORDANCE WITH A.I.S.C. STANDARDISED STRUCTURAL CONNECTIONS, UNLESS NOTED OTHERWISE.
- ALL EXTERNAL EXPOSED STEELWORK SHALL BE HOT DIP GALVANISED.
- HOT DIP GALVANISING SHALL BE IN ACCORDANCE WITH THE RELEVANT AUSTRALIAN STANDARD.
- FINISH COAT TO THE PRINCIPALS SPECIFICATIONS.
- PROVIDE SEAL PLATES TO ALL HOLLOW SECTIONS. THE SEAL PLATES SHALL HAVE VENT HOLES IF MEMBERS ARE TO BE HOT DIP GALVANISED.
- ALL STEELWORK SHALL BE SECURELY BRACED DURING CONSTRUCTION. IT IS THE BUILDERS RESPONSIBILITY TO PROVIDE TEMPORARY BRACING AS REQUIRED.
- IT IS THE BUILDERS RESPONSIBILITY TO PROVIDE ALL CLEATS AND HOLES AS REQUIRED FOR ALL CONNECTIONS, WHETHER OR NOT THEY ARE DETAILED ON THESE DRAWINGS.
- 35mm MINIMUM EDGE DISTANCES TO THE CENTRE OF ALL BOLTS IN STEEL (U.N.O.)
- WHERE GALVANISED STEELWORK HAS BEEN WELDED:
  - POWER TOOL CLEAN TO AUSTRALIAN STANDARD AS1627.2, REMOVING ALL WELDED SCALE, SLAG AND CORROSION PRODUCTS.
  - DEGREASE AND REMOVE ALL SURFACE CONTAMINANTS.
  - APPLY TWO COATS OF GALVANITE EPOXY RICH PRIMER OR EQUIVALENT TO 125-150um DRY FILM THICKNESS.
- U.N.O. STEELWORK HAS NOT BEEN DESIGNED FOR ANY FIRE RATING REQUIREMENTS. THE SUBCONTRACTOR IS TO ENGAGE A BCA CERTIFIER & PROVIDE THE FIRE RATING REQUIRED IN ACCORDANCE WITH THE BCA.
- THE CONTRACTOR SHALL PREPARE WORKSHOP DRAWINGS AND SHALL SUBMIT TO THE PRINCIPAL THREE COPIES OF EACH DRAWING FOR REVIEW. FABRICATION SHALL NOT COMMENCE UNTIL PERMISSION TO USE THE RELEVANT WORKSHOP DRAWINGS HAS BEEN RECEIVED. THE CONTRACTOR SHALL ALLOW TEN CLEAR BUSINESS DAYS FOR THIS REVIEW OF THE WORKSHOP DRAWINGS.
- U.N.O. ALL STRUCTURAL STEEL CONNECTIONS ARE TO HAVE A MINIMUM OF:
  - 10mm THICK CLEAT PLATE.
  - 6mm FILLET WELD AND
  - 2M20 BOLTS (8.8'S)

**COMPOSITE FIBRE NOTES:**

- ALL MATERIAL AND WORKMANSHIP SHALL COMPLY WITH THE MANUFACTURER'S WORK INSTRUCTIONS AND QUALITY ASSURANCE STANDARDS.
- UNLESS OTHERWISE NOTES OR APPROVED, COMPOSITE MATERIALS FOR USE IN THIS PROJECT SHALL BE MANUFACTURED FROM ECR GLASS AND VINYL ESTER RESIN CONFORMING WITH ISO 9001 STANDARD.
- ALL MEMBERS SHALL BE IN SOUND CONDITION FREE FROM FITTING, DE-LAMINATIONS AND OTHER DEFECTS WHICH ARE LIKELY TO IMPAIR THE STRUCTURAL CAPACITY OF THE MEMBERS.
- ALL COMPOSITE MEMBER PARTS OF THE HANDRAIL SYSTEM SHALL BE PAINTED USING URETHANE COATING TO PROVIDE EXTRA UV-RESISTANCE. COATING PROCEDURE SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S GUIDE APPLICATION OF PROTECTIVE COATINGS.
- AT ALL FACTORY AND AT SITE DRILLED HOLES, AN APPROVED ANTI-CRUSH INSERT SHALL BE PUSHED TO THE CORRECT PLACEMENT. THIS PREVENTS CRUSHING OF THE SECTION AND PROVIDES A LARGE BEARING AREA FOR STRUCTURAL BOLTS.
- AN ALTERNATIVE METHOD FOR ANTI-CRUSHING IS TO BOLT THROUGH ONE SIDE WALL OF THE PROFILE ONLY. TO PROVIDE ACCESS TO THIS BOLT, A LARGE OVERSIZED HOLE IN THE WALL THAT IS NOT BEING BOLTED IS REQUIRED.
- USE OF A WATERPROOFING COMPOUND TO SEAL ANY END CUT FIBRES, AS A RESULT OF DRILLING OR CUTTING THE COMPOSITE FIBRE PROFILES IS REQUIRED.

**CONCRETE NOTES:**

- ALL WORKMANSHIP AND MATERIALS SHALL COMPLY WITH THE CURRENT EDITION OF AS3600.
- CONCRETE STRENGTH SHALL BE AS FOLLOWS U.N.O.:
 

ELEMENT	FOOTINGS
STRENGTH	32MPa
SLUMP	75mm
MAX. AGG. SIZE	20mm
- ALL CONCRETE SHALL BE COMPACTED ADEQUATELY IN ACCORDANCE WITH AS3600 BY THE USE OF A MECHANICAL VIBRATOR.
- ALL CONCRETE SHALL BE CURED IN ACCORDANCE WITH AS3600.

REVISION	AMENDMENTS	DATE	APP'D	SYDNEY OFFICE 83 - 89 Renwick Street, Redfern 2016 Tel (02) 8396 6565 Fax (02) 8396 6564		SOUTH COAST OFFICE 49 Berry Street, Nowra NSW 2541 Tel (02) 44 230 566 Fax (02) 44 233 228		PROJECT: LAKE CONJOLA BOARDWALK - STRUCTURAL DESIGN		DESIGNED: T.S	DRAWN: A.S	APPROVED: G.S	
F	CONTRACT ISSUE	12/08/16	G.S	 E : info@miengineers.com W : www.miengineers.com		THIS DRAWING AND THE CONCEPTS CONTAINED THEREIN ARE THE PROPERTY OF MIENGINEERS. NO UNAUTHORISED COPYING IS PERMITTED. NOTHING IS TO BE CONSTRUCTED BASED ON THIS DRAWING, OR PART OF THIS DRAWING, WITHOUT THE WRITTEN PERMISSION OF MIENGINEERS. DRAWINGS TO BE READ IN CONJUNCTION WITH OTHER RELATED DESIGN DOCUMENTATION.		DRAWING NUMBER: CONSTRUCTION NOTES		DRAWING NUMBER: ND130155/01		DATE: 12/08/16	
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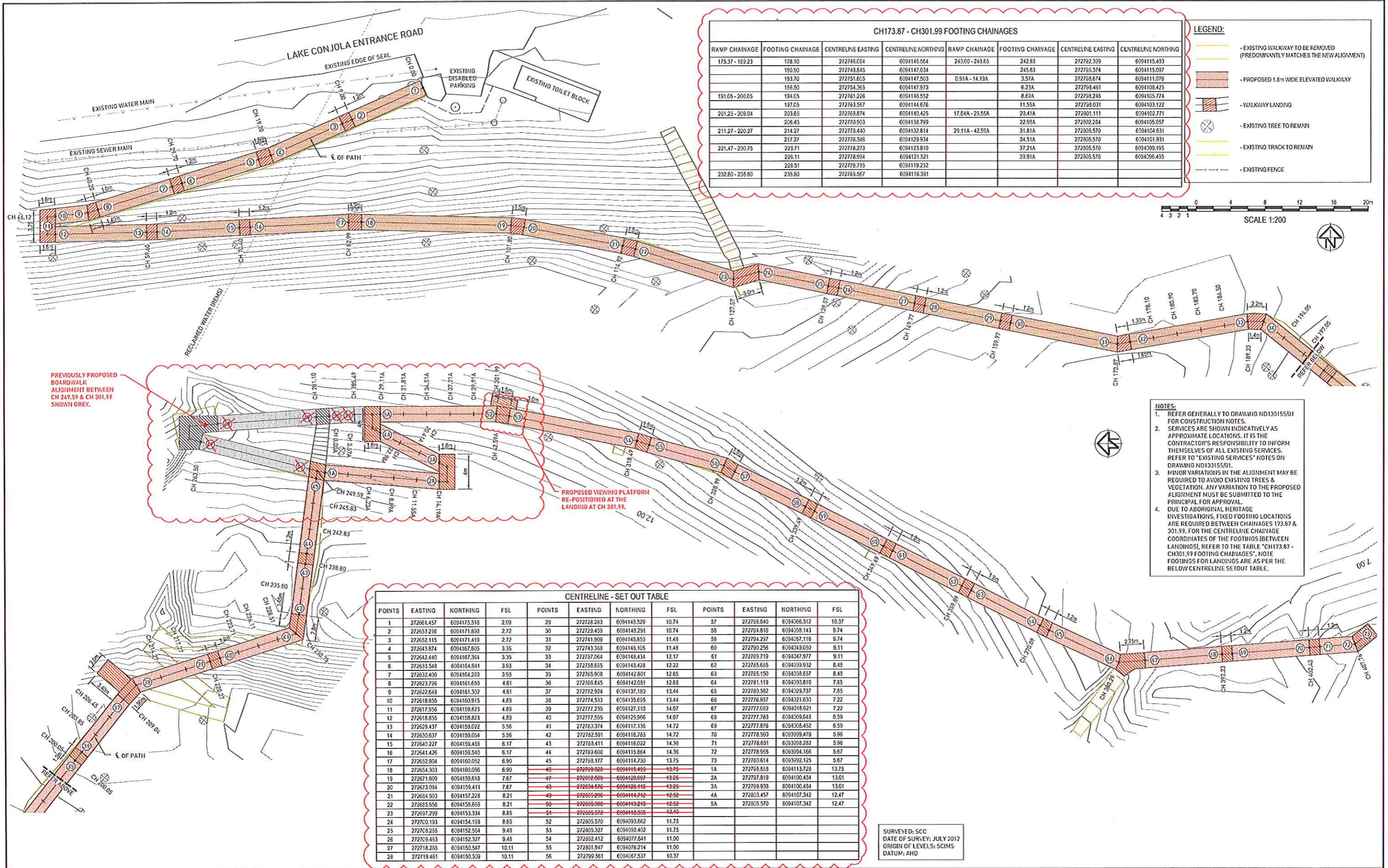








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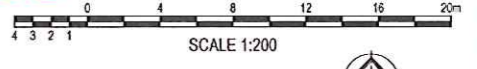


**CH173.87 - CH301.99 FOOTING CHAINAGES**

RAMP CHAINAGE	FOOTING CHAINAGE	CENTRELINE EASTING	CENTRELINE NORTHING	RAMP CHAINAGE	FOOTING CHAINAGE	CENTRELINE EASTING	CENTRELINE NORTHING
175.37 - 189.23	178.10	272748.084	6094145.564	243.00 - 243.65	242.83	272792.339	6094115.483
	180.50	272743.845	6094147.034		245.83	272755.374	6094115.097
	183.70	272751.605	6094147.503	0.91A - 14.19A	3.57A	272758.674	6094115.076
	186.50	272754.365	6094147.973		6.23A	272758.461	6094108.425
191.05 - 200.05	191.05	272761.226	6094145.552		8.89A	272758.248	6094105.774
	197.05	272763.567	6094144.676		11.55A	272758.031	6094103.122
201.25 - 209.04	203.65	272768.874	6094149.425	17.84A - 25.55A	20.41A	272801.111	6094102.771
	206.45	272770.503	6094138.799		22.99A	272802.284	6094105.057
211.27 - 220.27	214.27	272775.440	6094132.814	29.11A - 42.59A	31.81A	272805.570	6094104.631
	217.27	272776.348	6094129.934		34.51A	272805.570	6094101.931
221.47 - 230.75	223.71	272778.273	6094123.810		37.21A	272805.570	6094799.165
	226.11	272778.594	6094121.521		39.91A	272805.570	6094796.495
	228.51	272779.715	6094119.232				
232.80 - 238.80	235.80	272785.567	6094118.391				

**LEGEND:**

- EXISTING WALKWAY TO BE REMOVED (PREDOMINANTLY MATCHES THE NEW ALIGNMENT)
- PROPOSED 1.8m WIDE ELEVATED WALKWAY
- WALKWAY LANDING
- EXISTING TREE TO REMAIN
- EXISTING TRACK TO REMAIN
- EXISTING FENCE



**NOTES:**

- REFER GENERALLY TO DRAWING ND130155/01 FOR CONSTRUCTION NOTES.
- SERVICES ARE SHOWN INDICATIVELY AS APPROXIMATE LOCATIONS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO INFORM THEMSELVES OF ALL EXISTING SERVICES. REFER TO "EXISTING SERVICES" NOTES ON DRAWING ND130155/01.
- MINOR VARIATIONS IN THE ALIGNMENT MAY BE REQUIRED TO AVOID EXISTING TREES & VEGETATION. ANY VARIATION TO THE PROPOSED ALIGNMENT MUST BE SUBMITTED TO THE PRINCIPAL FOR APPROVAL.
- DUE TO ABORIGINAL HERITAGE INVESTIGATIONS, FIXED FOOTING LOCATIONS ARE REQUIRED BETWEEN CHAINAGES 173.87 & 301.99. FOR THE CENTRELINE CHAINAGE COORDINATES OF THE FOOTINGS (BETWEEN LANDINGS), REFER TO THE TABLE "CH173.87 - CH301.99 FOOTING CHAINAGES". NOTE FOOTINGS FOR LANDINGS ARE AS PER THE BELOW CENTRELINE SETOUT TABLE.

**CENTRELINE - SET OUT TABLE**

POINTS	EASTING	NORTHING	FSL	POINTS	EASTING	NORTHING	FSL	POINTS	EASTING	NORTHING	FSL
1	272661.457	6094175.516	2.09	29	272728.283	6094143.529	10.74	57	272768.840	6094266.312	10.37
2	272653.216	6094171.893	2.72	30	272728.459	6094143.291	10.74	58	272784.816	6094268.143	9.74
3	272652.115	6094171.419	2.72	31	272741.909	6094145.653	11.48	59	272794.297	6094267.118	9.74
4	272643.874	6094167.805	3.35	32	272743.358	6094145.105	11.48	60	272790.256	6094264.050	9.11
5	272642.440	6094167.364	3.35	33	272757.064	6094143.434	12.17	61	272789.719	6094267.977	9.11
6	272633.548	6094164.641	3.93	34	272758.635	6094143.428	12.22	62	272785.685	6094269.932	8.43
7	272632.400	6094164.289	3.93	35	272765.908	6094142.801	12.65	63	272785.150	6094268.657	8.43
8	272623.796	6094161.650	4.61	36	272768.845	6094142.051	12.68	64	272781.119	6094268.810	7.65
9	272622.648	6094161.302	4.61	37	272772.924	6094137.180	13.44	65	272780.582	6094269.737	7.65
10	272618.855	6094160.915	4.89	38	272774.533	6094135.665	13.44	66	272776.857	6094261.633	7.22
11	272617.556	6094159.823	4.89	39	272777.235	6094127.110	14.07	67	272777.689	6094261.621	7.22
12	272618.855	6094158.823	4.89	40	272777.556	6094125.566	14.07	68	272777.783	6094269.643	6.59
13	272628.437	6094159.022	5.56	41	272783.374	6094117.136	14.72	69	272777.876	6094268.452	6.59
14	272630.637	6094159.054	5.56	42	272782.591	6094116.783	14.72	70	272778.560	6094269.479	5.96
15	272640.227	6094159.458	6.17	43	272783.411	6094116.022	14.36	71	272778.631	6094268.282	5.96
16	272641.426	6094159.540	6.17	44	272783.600	6094115.564	14.36	72	272778.985	6094269.166	5.67
17	272652.804	6094160.052	6.90	45	272785.177	6094114.730	13.75	73	272780.614	6094269.125	5.67
18	272654.303	6094160.056	6.90	46	272789.920	6094115.499	13.75	74	272783.833	6094113.728	13.75
19	272671.609	6094159.618	7.67	47	272800.569	6094120.697	13.25	2A	272787.819	6094100.484	13.01
20	272673.094	6094159.411	7.67	48	272804.576	6094126.416	13.25	3A	272789.938	6094100.484	13.01
21	272684.503	6094157.233	8.21	49	272805.296	6094114.742	12.50	4A	272803.457	6094107.342	12.47
22	272685.956	6094156.869	8.21	50	272805.360	6094113.215	12.50	5A	272805.570	6094107.342	12.47
23	272697.299	6094153.334	8.65	51	272805.572	6094110.505	12.47				
24	272700.193	6094154.158	8.65	52	272805.570	6094093.862	11.75				
25	272708.295	6094152.564	9.43	53	272805.327	6094092.402	11.75				
26	272709.463	6094152.327	9.43	54	272802.412	6094077.841	11.00				
27	272718.268	6094150.547	10.11	55	272801.947	6094076.214	11.00				
28	272719.461	6094150.309	10.11	56	272799.561	6094067.537	10.37				

SURVEYED: SCC  
DATE OF SURVEY: JULY 2012  
ORIGIN OF LEVELS: SCMS  
DATUM: AHD

<b>REVISION</b>	<b>AMENDMENTS</b>	<b>DATE</b>	<b>APP'D</b>	<b>City Council</b>	<b>DIRECTOR ASSETS &amp; WORKS</b>	<b>SYDNEY OFFICE</b> 83 - 89 Renwick Street, Redfern 2016 Tel [02] 8396 6565 Fax [02] 8396 6564	<b>LAKE CONJOLA BOARDWALK - STRUCTURAL DESIGN</b>	<b>DESIGNED:</b> T.S	<b>DRAWN:</b> A.S	<b>APPROVED:</b> G.S
K	CONTRACT ISSUE	12/03/16	G.S		<i>Ben Stewart</i>					
J	ISSUE FOR TENDER - AMENDED AROUND ABORIGINAL HERITAGE AREA	03/08/16	G.S							
H	ISSUE FOR TENDER - AMENDMENTS	03/04/16	G.S							
G	ISSUE FOR TENDER - AMENDMENTS	19/05/16	G.S							
F	ISSUE FOR TENDER - AMENDMENTS	04/05/16	G.S							
E	ISSUE FOR TENDER - AMENDMENTS	21/03/16	T.S							
D	ISSUE FOR TENDER - AMENDMENTS	17/03/16	T.S							
					<b>MIENGINEERS</b>	<b>SOUTH COAST OFFICE</b> 49 Berry Street, Nowra NSW 2541 Tel [02] 44 230 566 Fax [02] 44 233 228	<b>SETOUT PLAN</b>	<b>SHEET SIZE:</b> A1	<b>SCALE:</b> 1:200 @ A1	<b>DATE:</b> 12/08/16
						<b>E : info@miengineers.com</b> <b>W : www.miengineers.com</b>	<b>DRAWING NUMBER:</b> ND130155/04			<b>REVISION:</b> K



DO NOT SCALE

REFER DRAWING ND130155.07 FOR BOARDWALK DETAILS, TYPICAL

PROVIDE HANDRAIL (MEMBER H2).

RL 0.000				
DEPTHS		0.215		
DESIGN LEVEL		4.596	4.596	4.596
EXISTING LEVEL		4.811	4.308	3.994
OFFSET		-1.025	0.000	1.025

CH 40.000

PROVIDE HANDRAIL (MEMBER H2) & BALUSTER INFILL.

RL 2.000				
DEPTHS			-1.402	-0.394
DESIGN LEVEL		7.590	7.590	7.590
EXISTING LEVEL		6.188	6.686	7.186
OFFSET		-1.025	0.000	1.025

CH 100.000

PROVIDE HANDRAIL (MEMBER H2).

RL 8.000				
DEPTHS			-0.490	-0.417
DESIGN LEVEL		10.740	10.740	10.740
EXISTING LEVEL		10.250	10.256	10.223
OFFSET		-1.025	0.000	1.025

CH 160.000

PROVIDE HANDRAIL (MEMBER H2) & TOP HANDRAIL MEMBER (MEMBER H1)

PROVIDE BALUSTER INFILL ONLY.

RL 9.000				
DEPTHS			-0.708	-1.868
DESIGN LEVEL		14.051	14.051	14.051
EXISTING LEVEL		13.284	12.659	12.183
OFFSET		-1.025	0.000	1.025

CH 220.000

LANDSCAPED RETAINING WALL AS REQUIRED TYPICAL (BY OTHERS), TYPICAL.

PROVIDE HANDRAIL (MEMBER H2).

RL 0.000				
DEPTHS		0.087		
DESIGN LEVEL		3.350	3.350	3.350
EXISTING LEVEL		3.437	3.078	2.750
OFFSET		-1.025	0.000	1.025

CH 20.000

PROVIDE HANDRAIL (MEMBER H2) & BALUSTER INFILL.

RL 2.000				
DEPTHS			-1.283	-0.372
DESIGN LEVEL		6.708	6.708	6.708
EXISTING LEVEL		5.426	5.871	6.337
OFFSET		-1.025	0.000	1.025

CH 80.000

PROVIDE HANDRAIL (MEMBER H2) & BALUSTER INFILL.

RL 6.000				
DEPTHS			-0.831	-0.659
DESIGN LEVEL		9.480	9.480	9.480
EXISTING LEVEL		8.549	8.672	8.821
OFFSET		-1.025	0.000	1.025

CH 140.000

PROVIDE HANDRAIL (MEMBER H2) & BALUSTER INFILL.

PROVIDE BALUSTER INFILL ONLY.

RL 9.000				
DEPTHS			-1.520	-1.505
DESIGN LEVEL		12.840	12.840	12.840
EXISTING LEVEL		11.320	11.347	11.335
OFFSET		-1.025	0.000	1.025

CH 200.000

PROVIDE HANDRAIL (MEMBER H2). REFER TO ND130155.07 FOR MEMBER SCHEDULE, TYPICAL.

RL 0.000				
DEPTHS		0.071		
DESIGN LEVEL		2.087	2.087	2.087
EXISTING LEVEL		2.158	2.087	2.000
OFFSET		-1.025	0.000	1.025

CH 0.000

PROVIDE HANDRAIL (MEMBER H2).

RL 1.000				
DEPTHS			-0.396	-0.387
DESIGN LEVEL		5.580	5.580	5.580
EXISTING LEVEL		5.184	5.520	5.947
OFFSET		-1.025	0.000	1.025

CH 60.000

PROVIDE HANDRAIL (MEMBER H2) & BALUSTER INFILL.

RL 4.000				
DEPTHS			-0.750	-0.252
DESIGN LEVEL		8.415	8.415	8.415
EXISTING LEVEL		7.666	7.978	8.164
OFFSET		-1.025	0.000	1.025

CH 120.000

PROVIDE HANDRAIL (MEMBER H2) & BALUSTER INFILL.

PROVIDE BALUSTER INFILL ONLY.

RL 8.000				
DEPTHS			-1.461	-1.606
DESIGN LEVEL		11.711	11.711	11.711
EXISTING LEVEL		10.250	10.189	10.104
OFFSET		-1.025	0.000	1.025

CH 180.000

SURVEYED: SCC  
DATE OF SURVEY: JULY 2012  
ORIGIN OF LEVELS: SCIMS  
DATUM: AHD

SCALE 1:100 HORIZONTAL & 1:100 VERTICAL @ A1

REVISION	AMENDMENTS	DATE	APP'D
G	CONTRACT ISSUE	12/08/16	G.S
F	ISSUE FOR TENDER - AMENDMENTS	19/05/16	G.S
E	ISSUE FOR TENDER - AMENDMENTS	21/03/16	T.S
D	ISSUE FOR TENDER - AMENDMENTS	17/03/16	T.S
C	ISSUE FOR TENDER - AMENDMENTS	16/03/16	T.S
B	ISSUE FOR TENDER	04/03/16	T.S
A	ISSUE FOR REVIEW	05/01/14	

DIRECTOR ASSETS & WORKS

*Ben Stewart*

Ben Stewart  
12/9/16  
DATE

PLAN REFERENCE

**MIENGINEERS**

SYDNEY OFFICE  
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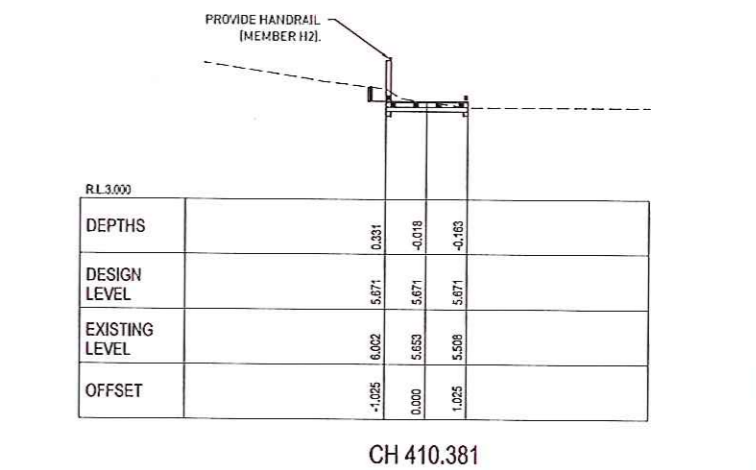
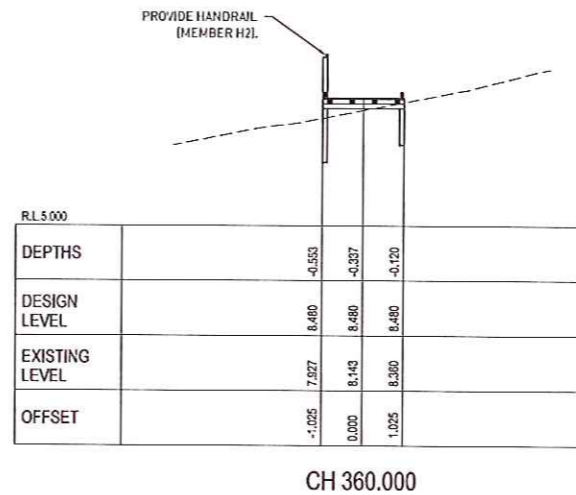
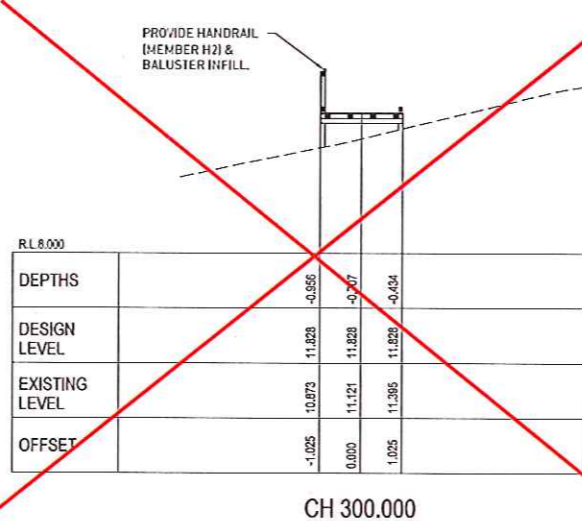
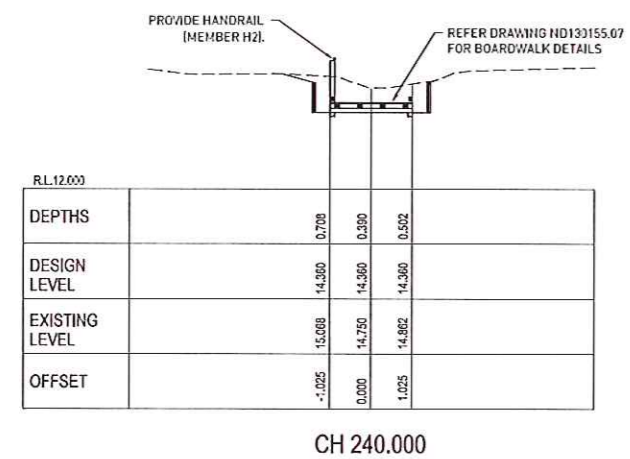
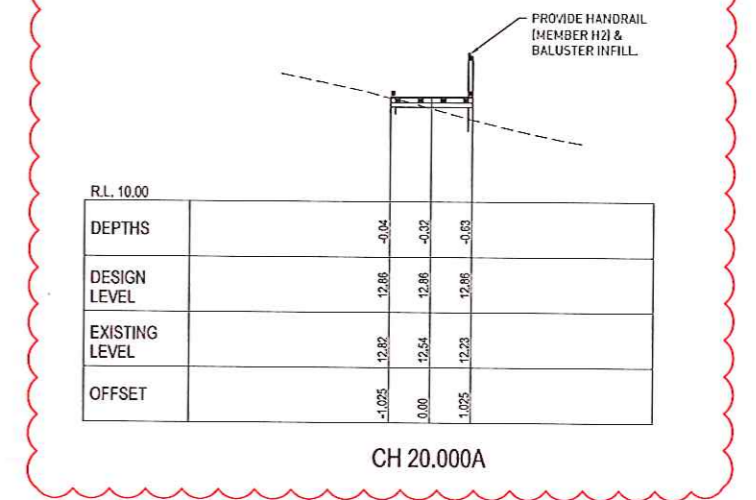
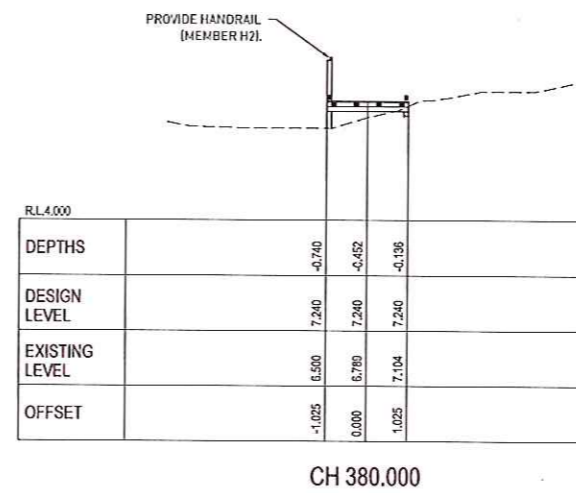
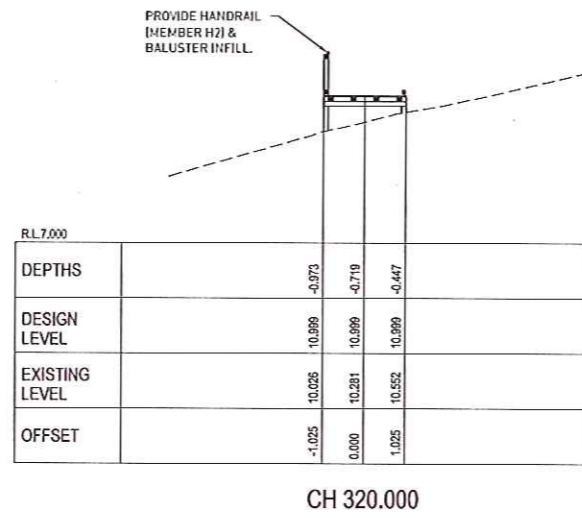
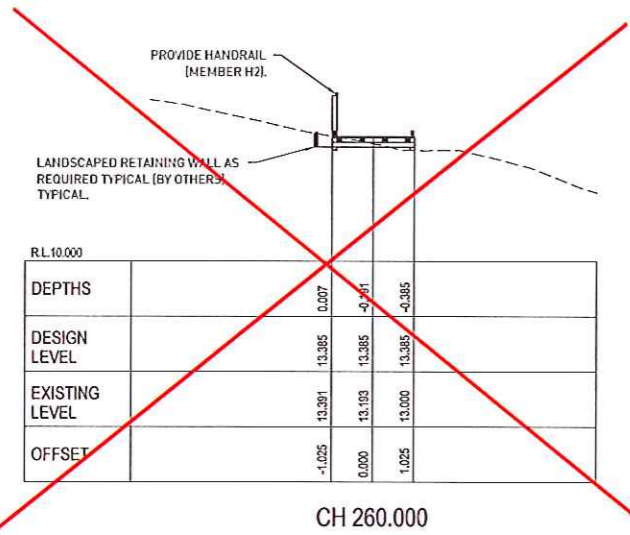
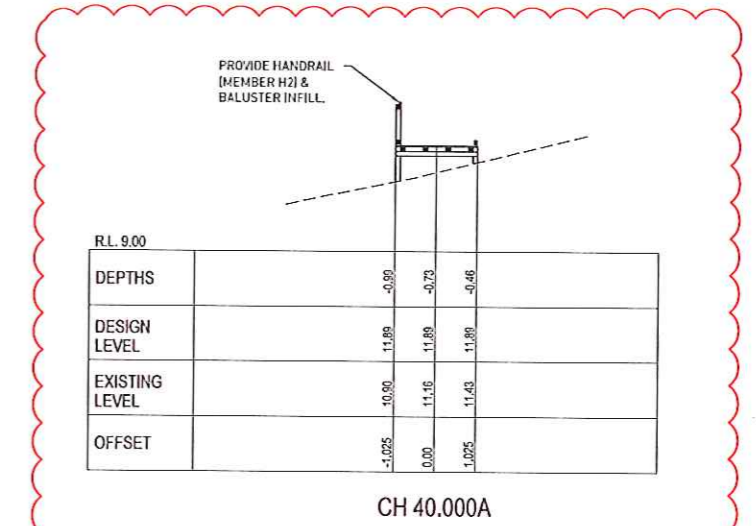
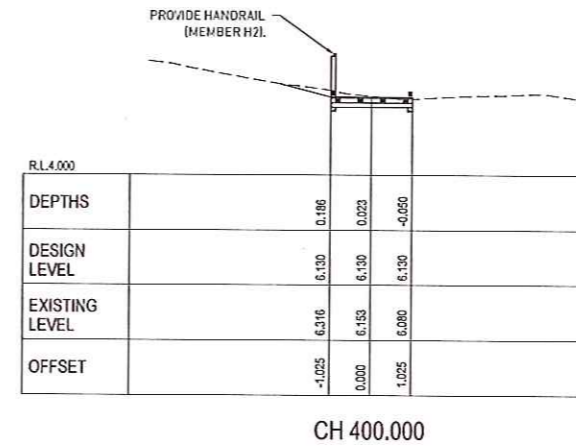
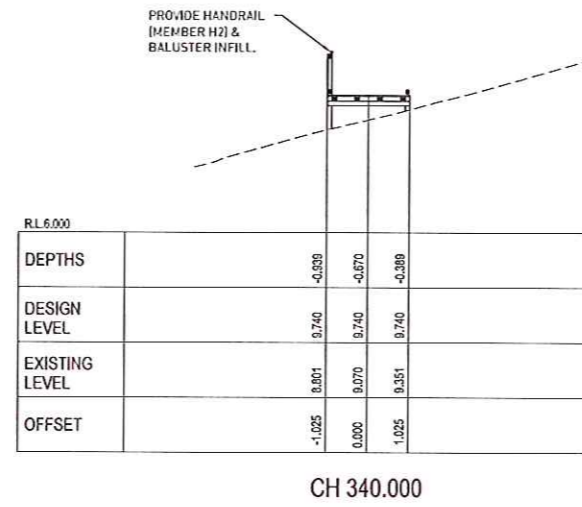
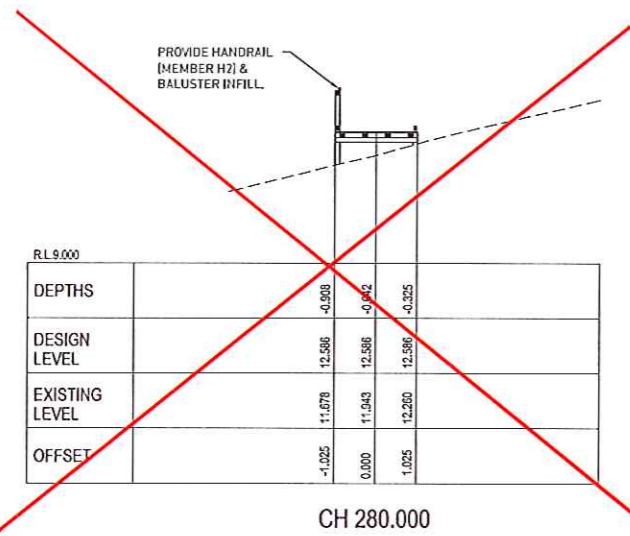
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PROJECT: <b>LAKE CONJOLA BOARDWALK - STRUCTURAL DESIGN</b>	DESIGNED: <b>T.S</b>	DRAWN: <b>A.S</b>	APPROVED: <b>G.S</b>
DRAWING NAME: <b>CROSS SECTIONS (SHEET 1 OF 2)</b>	SHEET SIZE: <b>A1</b>	SCALE: <b>AS SHOWN</b>	DATE: <b>12/08/16</b>
	DRAWING NUMBER: <b>ND130155/05</b>	REVISION: <b>G</b>	





SURVEYED: SCC  
DATE OF SURVEY: JULY 2012  
ORIGIN OF LEVELS: SCIMS  
DATUM: AHD

SCALE 1:100 HORIZONTAL & 1:100 VERTICAL @ A1

REVISION	AMENDMENTS	DATE	APP'D
H	CONTRACT ISSUE	12/08/16	G.S
G	ISSUE FOR TENDER - AMENDED AROUND ABORIGINAL HERITAGE AREA	09/08/16	G.S
F	ISSUE FOR TENDER - AMENDMENTS	19/05/16	G.S
E	ISSUE FOR TENDER - AMENDMENTS	21/03/16	T.S
D	ISSUE FOR TENDER - AMENDMENTS	17/03/16	T.S
C	ISSUE FOR TENDER - AMENDMENTS	16/03/16	T.S
B	ISSUE FOR TENDER	04/03/16	T.S

DIRECTOR ASSETS & WORKS

*Ben Stewart*  
Ben Stewart  
12/9/16  
DATE

PLAN REFERENCE

**MIENGINEERS**

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PROJECT:	DESIGNED:	DRAWN:	APPROVED:
LAKE CONJOLA BOARDWALK - STRUCTURAL DESIGN	T.S	A.S	G.S
DRAWING NAME:	SHEET SIZE:	SCALE:	DATE:
CROSS SECTIONS (SHEET 2 OF 2)	A1	AS SHOWN	12/08/16
DRAWING NUMBER:	REVISION:		
ND130155/06	H		