GENERAL NOTES

1. THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH ALL CONTRACT DOCUMENTS, & THE REQUIREMENTS OF THE RELEVANT BUILDING AUTHORITIES.
2. ANY DISCREPANCY SHALL BE REFERRED TO THE ENGINEER BEFORE PROCEEDING WITH THE WORK.
3. ANY RELEVANT DESIGN INFORMATION SHALL BE PROVIDED BY THE CONTRACTOR TO THE ENGINEER THROUGHOUT THE WORKS
4. CONSTRUCTION FROM THESE DRAWINGS, AND THEIR ASSOCIATED CONSULTANTS' DRAWINGS, IS NOT TO COMMENCE UNTIL APPROVED BY THE LOCAL AUTHORITIES.
5. THIS PERFORMANCE SPECIFICATION DETAILS THE MINIMUM WORKMANSHIP STANDARDS & MATERIALS REQUIRED TO COMPLETE THE WORKS. IT IS NOT NECESSARILY PRESCRIPTIVE OF ALL ITEMS REQUIRED. THE CONTRACTOR SHALL COMPLY TO ALL MARITIME INDUSTRY STANDARDS AND DESIGN GUIDELINES AS WELL AS ALL RELEVANT AUSTRALIAN STANDARDS.
6. ALL DIMENSIONS ARE IN MILLIMETRES (MM).
7. ALL LEVELS ARE IN METRES (M) TO 0.0 C.D (CHART DATUM) APPROX -0.925M AUSTRALIAN HEIGHT DATUM (AHD).
8. DO NOT OBTAIN DIMENSIONS BY SCALING FROM THESE DRAWINGS.ALL DIMENSIONS & MEASUREMENTS MUST BE VERIFIED ON SITE BY THE CONTRACTOR PRIOR TO COMMENCING WORK.
9. ANY DISCREPANCY BETWEEN THESE DRAWINGS AND ACTUAL CONDITIONS ON SITE SHALL BE REFERRED TO THE ENGINEER & WRITTEN INSTRUCTION OBTAINED BEFORE PROCEEDING WITH THE WORK.
10. ALL ABBREVIATIONS ARE IN ACCORDANCE WITH AS 1100.
    U.N.O - UNLESS NOMINATED OTHERWISE
    TYP. - TYPICAL MAX. - MAXIMUM MIN. - MINIMUM
    E.S - EACH SIDE E.W - EACH WAY U/S - UNDERSIDE
    CRS. - CENTRES NTS. - NOT TO SCALE
    GAL. - GALVANISED S.S - STAINLESS STEEL AL - ALUMINIUM
    C.D - CHART DATUM (=-0.925M AHD) Ø - DIAMETER
    LOA - LENGTH OVERALL B - BEAM DISPL - DISPLACEMENT
11. THE CONTRACTOR SHALL BE ENGAGED BY THE CLIENT AND SHALL BE THE PRINCIPAL CONTRACTOR
12. THE CONTRACTOR MUST FULLY FAMILIARIZE THEMSELVES WITH THE SITE AND THE SITE CONDITIONS, AND SHALL ALLOW FOR ALL CONSTRAINTS, TEMPORARY WORKS OR OTHER MEASURES REQUIRED ENABLING THE WORKS TO PROCEED SMOOTHLY.
13. THE CONTRACTOR SHALL COMPLY WITH THE WORK HEALTH AND SAFETY ACT 2012. AND SHALL PROTECT ALL WORKERS AGAINST OHS RISK
14. THE CONTRACTOR SHALL COMPLY WITH THE SAFE DESIGN OF STRUCTURES - CODE OF PRACTICE - SAFE WORK AUSTRALIA 2018
15. DURING CONSTRUCTION THE CONTRACTOR SHALL MAINTAIN THE STRUCTURE AND ANY ASSOCIATED EXCAVATIONS IN A STABLE & SAFE CONDITION & NO PART SHALL BE OVERSTRESSED.
16. ALL WORK SHALL BE DONE IN SUCH A WAY THAT ADEQUATELY PREVENTS MATERIAL OR POLLUTANTS FROM ENTERING THE OCEAN.
17. AN INDUSTRY PRODUCT SPECIFIED MAY ONLY BE SUBSTITUTED WITH AN EQUIVALENT PRODUCT IF FIRST APPROVED BY PRINCIPAL.
18. THE CONTRACTOR SHALL KEEP DETAILED RECORDS & RECEIPTS OF ALL ASPECTS AND STAGES OF WORK AND MATERIALS USED & SUBMIT TO PRINCIPAL AS REQUESTED.
19. REMOVE ALL CONSTRUCTION DEBRIS FROM SITE.

STANDARDS

20. ALL MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THIS SPECIFICATION AND THE RELEVANT CURRENT STANDARDS AUSTRALIA CODES, AND THE BY-LAWS AND ORDINANCES OF THE RELEVANT BUILDING AUTHORITIES INCLUDING:
    - THE NSW MARITIME AUTHORITY ENGINEERING STANDARDS & GUIDELINES FOR MARITIME STRUCTURES
    - PWD DESIGN GUIDELINES FOR WHARVES & JETTIES - 1990
    - AS 1170 LOADING CODE
    - AS 3962 DESIGN OF MARINAS
    - AS 4997 GUIDELINES FOR DESIGN MARITIME STRUCTURES

DESIGN PARAMETERS

1. FIXED WHARF LIVE LOAD = 5 KPA OR 4.5 KN PT LOAD
2. VEHICLE LOAD = 10 KPA
    LIGHT MOTOR VEHICLE LOAD = 1.5 T SINGLE AXLE
    3.0T TOTAL VEHICLE LOAD OVER 2 AXLES
3. CONSTRUCTION LOADS TO REVIEWED BASED ON CONTRACTORS SUBMITTED PLANT AND CERTIFIED BY CONTRACTORS ENGINEER
3. HANDRAILS1.5KN/M IN ANY DIRECTION OR 1 KN PT LOAD
4. LIVE LOAD IS ASSUMED NOT TO APPLY THE STRUCTURE UNDER ADVERSE WEATHER CONDITIONS INCLUDING MAXIMUM DESIGN WIND AND WAVE CONDITIONS.
5. DESIGN WIND BASIC WIND VELOCITY TO AS1170.2
    REGION A, CATEGORY 2, R=50
    VR(50) = 41 M/S ULTIMATE, VDES = 37 M/S,
    QZ = 0.57 KPA
6. THE MAXIMUM DESIGN TIDE FOR THIS SITE IS
    HAT = 2.1M C.D
    SURGE TIDE = 2.3M C.D
7. THE MAXIMUM DESIGN WAVE FOR THIS SITE IS
    H 5M T 20S
8. DESIGN WAVE LOAD ON FIXED STRUCTURES IS
    FWAVE = 2 T/M
    (FACTORED FROM 2 KN/M FOR A 0.6M WAVE AS 3962.)
9. DESIGN CURRENT AT SITE IS MAX VC = 2 KNOTS
10. DESIGN VESSEL LOA 18.0M DISPL = 20T
11. VESSELS ARE ASSUMED NOT TO BERTH UNDER ADVERSE WEATHER CONDITIONS INCLUDING MAXIMUM DESIGN WIND AND WAVE CONDITIONS.
12. BERTHING VELOCITY 0.15 M/S SLS / 0.25 M/S ULS

SETOUT AND SURVEYOR

1. THE CONTRACTOR SHALL SET OUT ALL WORKS ACCURATELY.
2. THE CONTRACTOR SHALL RECORD ALL PILE SETS USING A REGISTERED SURVEYOR

DIVING

1. THE CONTRACTOR SHALL EMPLOY A PROFESSIONAL DIVING COMPANY WITH ALL REQUIRED TICKETS AND LICENCES
2. THE CONTRACTOR SHALL COMPLY WITH ALL REQUIREMENTS FROM FISHERIES AND RELEVANT STATUTORY BODIES FOR MARINE ORGANISMS

TEMPORARY WORKS

1. MAINTAIN THE STRUCTURE IN A STABLE CONDITION DURING CONSTRUCTION.
2. DO NOT EXCEED THE DESIGN LOADS SHOWN NOR CAUSE ANY ELEMENT TO BE OVERSTRESSED.
3. ALL TEMPORARY PROPPING OF THE EXISTING STRUCTURE SHALL BE TO THE CONTRACTOR'S RESPONSIBILITY AND DETAILS AND DESIGN.
4. ALL TEMPORARY WORKS, INCLUDING ASSESSMENT OF EXISTING STRUCTURE TO SUPPORT TEMPORARY PROPPING AND / OR DEMOLITION ACTIVITIES AND EQUIPMENT, ARE THE RESPONSIBILITY OF THE CONTRACTOR.

DUNNAGE:

1.0 CONTRACTOR SHALL PROVIDE ADEQUATE DUNNAGE TO DECK TO PREVENT DAMAGE BY PLANT AND EQUIPMENT
2.0 DUNNAGE TO COMPRISE 70T DECKING AT 90 DEGREES TO MAIN DECK OR 20MM STEEL ROAD PLATES

DEMOLITION

1. COUNCIL SHALL DETERMINE DURING THE WORKS ANY ITEMS OR RECOVERED WHARF ELEMENTS THAT THEY WISH TO RETAIN OWNERSHIP OF AND WHAT TO KEEP AND RECYCLE AND WHAT TO DISPOSE OF AND PROVIDE A LIST IN WRITING OF ANY
2. ALL DEMOLITION SHALL BE IN STRICT ACCORDANCE WITH THE AUSTRALIAN STANDARD AS 2601 - THE DEMOLITION OF STRUCTURES, AND ALL RELEVANT WORKCOVER GUIDELINES, CODES OF PRACTICE AND REQUIREMENTS AND ALL RELEVANT STATE AND LOCAL AUTHORITIES' REGULATIONS (EPA, DOL LANDS ETC), SPECIFICATIONS AND REQUIREMENTS.
3. THE CONTRACTOR SHALL CARRY OUT ALL DEMOLITION ACTIVITIES, IN A CAREFUL AND SYSTEMATIC MANNER, INCLUDING BUT NOT LIMITED TO: THE PROTECTION OF THE PUBLIC, THE PROTECTION OF THE ADJOINING PREMISES AND TENANCIES, AND DEMOLITION METHODS.
4. DISPOSE OF DEMOLISHED MATERIAL APPROPRIATELY & LAWFULLY.
5. ALL ITEMS AND COMPONENTS SPECIFIED FOR SALVAGE AND REUSE SHALL BE CAREFULLY REMOVED & STORED BY THE CONTRACTOR AND REMAIN THE PROPERTY OF THE PRINCIPAL AT ALL TIMES.
6. ALL DEMOLISHED STRUCTURES SHALL BE FULLY REMOVED FROM THE SEABED AND FROM THE SITE INCLUDING PILE STUMPS AND NOT CUT OFF UNLESS NOIMINATED BY COUNCIL

EXISTING STRUCTURES & SERVICES

1. THE CONTRACTOR SHALL COMPLETE A DIAL-BEFORE-YOU-DIG INVESTIGATION BEFORE ESTABLISHMENT ON SITE AND SHALL REPORT ANY CONFLICTS TO THE ENGINEER.
2. THE CONTRACTOR MUST ESTABLISH LOCATION AND EXTENT OF ALL EXISTING SERVICES INCLUDING UNDERGROUND SERVICES AND SUBMARINE CABLES AND THE LIKE PRIOR TO COMMENCEMENT ON SITE.
2. THE CONTRACTOR SHALL MAKE GOOD ANY DAMAGE TO EXISTING PROPERTY & SERVICES RESULTING FROM CONSTRUCTION ACTIVITY.
3. PRIOR TO RELYING ON ANY EXISTING STRUCTURES, THE CONTRACTOR SHALL CONFIRM THAT THE EXISTING STRUCTURE IS IN GOOD CONDITION, AND CAN SUPPORT THE REQUIRED LOADS.
4. SHOULD THE EXISTING STRUCTURE REQUIRE STRENGTHENING THEN A QUALIFIED STRUCTURAL ENGINEER SHALL BE ENGAGED TO PROVIDE WRITTEN INSTRUCTIONS ON REPAIRS.

GEOTECHNICAL

1. THE GEOTECHNICAL INFORMATION AVAILABLE AT THE TIME OF DESIGN WAS LIMITED.
2. THE DESIGN ASSUMPTIONS ARE SHOWN ON THE DRAWINGS. CONDITIONS ON SITE MAY VARY.
3. THE CONTRACTOR SHALL MAKE THEIR OWN ASSESSMENT OF THE GEOTECHNICAL CONDITIONS
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ASSESSING THE INFORMATION PROVIDED AND CONDUCTING ANY FURTHER INVESTIGATIONS HE MAY DEEM NECESSARY TO ENSURE PROPER FOUNDING OF THE PILES TO ENSURE THAT THE DESIGN PILE LOADS ARE ACHIEVED.
5. THE CONTRACTOR SHALL PROVIDE PILES WITH ALLOWANCE FOR ADJUSTMENT AS REQUIRED DEPENDING ON GROUND CONDITIONS ENCOUNTERED.
6. CONTRACTOR SHALL PROVIDE DETAILED ADEQUATE PILE DRIVING DATA AND RECORDS EACH DAY DURING PILING TO BE USED TO REFINE SUB-SURFACE GEOTECHNICAL CONDITIONS
7. THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY IF GROUND CONDITIONS VARY FROM THOSE SHOWN ON THE DRAWINGS TO ALLOW EMBEDMENT TO BE DETERMINED.
8. ANY PILE LENGTHS SHOWN ON DRAWINGS ARE NOMINAL ONLY FOR INITIAL ESTIMATE AND FINAL LENGTH SHALL BE DETERMINED BY CONTRACTOR ON SITE.

FOUNDATIONS

1. FOUNDATIONS ARE DESIGNED FOR THE FOLLOWING ALLOWABLE PRESSURES:

ELEMENT	BEARING PRESSURE	SHAFT ADHESION COMPRESION	SHAFT ADHESION TENSION	LATERAL CAPACITY
SLAB ON GROUND	100 KPA	N/A	NA	NA
FOOTINGS ON SAND	100 KPA	NA	NA	NA
FOOTINGS ON CLAY	150 KPA	NA	NA	NA
FOOTINGS ON SHALE	400 KPA	NA	NA	NA
FOOTINGS ON SANDSTONE	650 KPA	NA	NA	NA
PILES ON DENSE SAND	2400 KPA	30 KPA	20 KPA	100 KPA
PILES ON WEAK ROCK	2400 KPA	30 KPA	20 KPA	100 KPA
PILES ON GRADE 3 SANDSTONE	3500 KPA	350 KPA	300 KPA	1000 KPA

2. CLASS 3 SANDSTONE IS DESCRIBED AS MEDIUM STRONG AND SANDSTONE CORES CAN BE BROKEN BY HAND & EASILY SCORABLE BY KNIFE SOUND ROCK TO BE FREE OF DEFECTS OR SEAMS IN THE TOP 600MM AND WITH AGGREGATE THICKNESS OF SEAMS BELOW THIS OF LESS THAN 50MM
3. SAND MUST BE DENSE SAND WITH THE FOLLOWING MINIMUM DESIGN CHARACTERISTICS:
    INTERNAL FRICTION ANGLE - 30 DEG
    DRY DENSITY - 18 KN/M3
    ELASTIC MODULOUS ES - 25 MPA
4. CLAY / COHESIVE MATERIAL MUST BE STIFF TO FIRM WITH THE FOLLOWING MINIMUM DESIGN CHARACTERISTICS:
    UNDRAINED SHEAR STRENGTH CU > 35 KPA
    ELASTIC MODULOUS ES > 6 MPA
5. THE CONTRACTOR MUST PROVIDE SUFFICIENT RECORDS AND TO CERTIFY THAT THE FOUNDATION REQUIREMENTS HAVE BEEN ACHIEVED.

FOOTINGS

1. FOOTINGS SHALL BE LOCATED CENTRALLY UNDER STRUCTURAL LOAD MEMBERS - WALLS AND COLUMNS UNO
2. OBTAIN THE APPROVAL OF THE ENGINEER FOR ALL EXCAVATIONS AND FOOTINGS PRIOR TO CONCRETING.
3. KEEP FOOTINGS CLEAN AND FREE OF LOOSE MATERIAL BEFORE INSPECTION, IMMEDIATELY PRIOR TO POURING OF CONCRETE, AND DURING POURING.
4. FOOTINGS ARE TO BE CONSTRUCTED AND BACKFILLED AS SOON AS POSSIBLE FOLLOWING EXCAVATION TO AVOID SOFTENING OR DRYING OUT BY EXPOSURE.
5. SHOULD THE FOUNDATION CONDITION PROVE TO BE PART ROCK AND PART SOIL (SUCH AS FLOATERS AND THE LIKE) THE CONTRACTOR SHALL OBTAIN STRUCTURAL DETAILS AND APPROVAL IN WRITING FROM THE ENGINEER PRIOR TO CONTINUING.
6. FILLING SHALL BE GRANULAR MATERIAL COMPACTED IN NOT MORE THAN 200 MM LAYERS TO A MINIMUM DRY DENSITY RATIO (AS 1289/E4.2 1982)

PILING & PIERS

1. ALL PILING MATERIALS, SUPPLY & INSTALLATION SHALL BE TO AS 2159 - SAA PILING CODE.
2. PILE SUPPLY TO COMPLY WITH AS 3818.3 AND AS 1163
3. NO GEOTECH HAS BEEN PROVIDED.
4. ANY SITE INFORMATION IS LIMITED AND THE DESCRIPTIONS OF THE POSSIBLE MATERIALS AND CONDITIONS ON SITE ARE BASED ON THE INFORMATION PROVIDED AND MAY VARY. NO GUARANTEE IS GIVEN THAT THOSE MATERIALS ENCOUNTERED WILL NOT VARY THROUGHOUT THE SITE.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ASSESSING THE INFORMATION PROVIDED AND CONDUCTING ANY FURTHER INVESTIGATIONS HE MAY DEEM NECESSARY TO ENSURE PROPER FOUNDING OF THE PILES.
6. PILES TO BE INSTALLED USING APPROPRIATE PLANT & TECHNIQUES USING AN EXPERIENCED AND SKILLED LICENSED CRANE OR EXCAVATOR OPERATOR WITH 10 YEARS EXPERIENCE MINIMUM.
7. ANY PILE TO BE REMOVED SHALL BE FULLY REMOVED FROM THE SEABED IN ACCORDANCE WITH THE RMS SPECIFICATION TO PILE REMOVAL WHICH INCLUDES APPLYING 50T UPLIFT FORCE OVER A 3 HOUR PERIOD
8. PILES SHALL NOT BE CUT OFF AT SEABED UNLESS APPROVED IN WRITING BY THE SUPERINTENDENT
15. SUPPLY PILES IN ONE CONTINUOUS LENGTH.
16. PILES ARE NOT TO BE SPLICED UNLESS APPROVED BY ENGINEER IN WRITING.
17. WHERE APPROVED, NO SPLICE SHALL BE LOCATED WITHIN 1.5M OF SEABED.
18. MONITOR THE GROUND CONDITIONS DURING DRIVING AND NOTIFY THE ENGINEER IMMEDIATELY IF ANY GROUND CONDITIONS DIFFER FROM THOSE EXPECTED BY CONTRACTOR.
19. THE FOUNDING LEVEL AT THE TOE OF THE PILES SHOWN ON THE DRAWINGS ARE INDICATIVE ONLY. THESE LEVELS DO NOT NECESSARILY REPRESENT THE ACTUAL FOUNDING LEVELS.
20. ALL SOCKETING / DRIVING DEPTHS TO BE MINIMUM. THE CONTRACTOR SHALL DETERMINE THE PILE LENGTHS INTO ROCK OR SEDIMENT TO ACHIEVE THE CAPACITIES.
37. DRILLED SOCKET HOLES TO HAVE A DIAMETER LESS THAN THE DIAMETER OF THE PILE TO ENSURE THAT PILE IS HARD UP AGAINST FOUNDATION FOR ITS FULL DEPTH AND CIRCUMFERENCE.
38. THE LENGTHS OF PILES SHALL BE DETERMINED BY THE CONTRACTOR TAKING INTO ACCOUNT ALL PERTINENT FACTORS AND ALLOWANCES FOR WASTAGE.
39. TOLERANCE - PILES SHALL BE SETOUT APPROPRIATELY & ACCURATELY TO ACHIEVE THE FOLLOWING PILE TOLERANCES

PILE	VERTICAL	PLAN	CUTOFF
ALL	1H : 100V	+/-25 MM	+/- 5 MM

40. ANY PILES FOUND TO BE BENT, BUCKLED, SPLIT, OR OTHERWISE DEFECTIVE, DAMAGED OR OUT OF POSITION SHALL BE REMOVED AND REPLACEMENT PILES INSTALLED BY THE CONTRACTOR AT HIS COST.
41. JETTING OF PILES SHALL NOT BE PERMITTED WITHOUT WRITTEN APPROVAL BY THE ENGINEER.

VIBRATING PILES

1. VIBRATING OF PILES SHALL NOT BE PERMITTED WITHOUT WRITTEN APPROVAL BY THE ENGINEER
2. IN ANY CASE VIBRATING OF PILES SHALL NOT BE PERMITTED WITHIN 3M OF THE FINAL TOE LEVEL

PILE CAPACITY

1. THE PILES SHALL BE DRIVEN WITH SUFFICIENT ENERGY TO MOBILISE THE PILE BASED ON LENGTH, WEIGHT AND GROUND CONDITIONS
2. THE TYPE AND WEIGHT OF HAMMER USED FOR DRIVING THE TIMBER PILE SHALL BE SUCH THAT THE DRIVING ENERGY PRODUCED IS SUFFICIENT FOR INSTALLING THE PILE WITHOUT CAUSING DAMAGE TO THE PILE OR TO THE PILE MATERIAL.
3. THE WEIGHT OF THE HAMMER SHALL BE PROVIDED IN ACCORDANCE WITH AS2159 AND THE DROP HEIGHT SELECTED AND RECORDED FOR EACH BLOW.
4. PROVIDE WEIGHT OF THE PILE HELMET UNIT USED.
5. PROVIDE ANY ADDITIONAL LOAD IN T APPLIED TO THE HAMMER UNIT BY THE EXCAVATOR OR THE LIKE
6. THE MINIMUM ENERGY OF THE HAMMER SHALL BE

ENERGY = 10,000 NM (OR JOULES)
OR THE EQUIVALENT OF A 1.0 T DROP HAMMER AT 1.0M DROP

7. ALL PILES SHALL BE DRIVEN TO A SET CALCULATED USING AN APPROPRIATE METHOD SUCH AS THE HILEY FORMULA. THE FINAL PILE SET SHALL BE MINIMUM

SET (AVERAGE OVER 10 BLOWS) = 5MM / BLOW
EQUIVALENT TO SET = 10 BLOWS / 50 MM

8. THE CONTRACTOR SHALL SUBMIT FULL DETAILS OF PROPOSED HAMMER, PILE DRIVING PLANT, TEMPORARY WORKS, METHOD OF PILE DRIVING AND ANY SUPPORTING CALCULATIONS NOT LESS THAN TWO WEEKS PRIOR TO COMMENCEMENT OF PILE DRIVING FOR THE SUPERINTENDENT'S APPROVAL.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SELECTING AND PROVIDING THE MOST SUITABLE TYPE OF HAMMER, OR OTHER EQUIPMENT USED FOR DRIVING .
10. THE CONTRACTOR SHALL BE RESPONSIBLE TO DRIVE THE PILE IN ONE CONTINUOUS DRIVE AND SHALL PROVIDE PILE DRIVING PLANT THAT WILL MAINTAIN A SUFFICIENT RATE OF PILE DRIVING PROGRESS
11. THE NOMINATED PILE DESIGN CAPACITIES AND EMBEDMENTS ARE TO BE ACHIEVED.
12. THE EFFECTS OF PILE TYPE, HAMMER TYPE, MODE OF OPERATION AND GROUND CONDITION SHALL BE TAKEN INTO ACCOUNT.
13. THE GEOTECHNICAL STRENGTH OF SINGLE PILES SHALL BE ASSESSED BY USING THE MEASURED SET (NET PENETRATION OF THE PILE PER HAMMER BLOW) DURING INSTALLATION.
48 THE FINAL SET OF EACH PILE SHALL BE RECORDED AS THE PENETRATION IN MILLIMETRES PER BLOW OVER AN AVERAGE OF TEN (10) BLOWS.
49 DETAILED SET RECORDS FOR THE WHOLE DRIVE SHALL BE MAINTAINED AND PROVIDED FOR EACH PILE. INCLUDING THE PENETRATION UNDER OWN WEIGHT
50 WHEN THE APPROVED SET IS ACHIEVED, TEN (10) MORE BLOWS SHALL BE GIVEN TO THE PILE AND THE SET RECORDED, PROVIDED THAT, WHERE PRACTICAL REFUSAL IS REACHED, THE ADDITIONAL DRIVING SHALL NOT DAMAGE THE PILE.
51 SET PER HAMMER BLOW SHALL MATCH THE DESIGN LOAD; THE EFFECTS OF PILE TYPE, HAMMER TYPE, MODE OF OPERATION AND GROUND CONDITION SHALL BE TAKEN INTO ACCOUNT.
52 IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE THE ENGINEER WITH SUFFICIENT RECORDS TO ESTABLISH THAT THE DESIGN EMBEDMENTS AND CAPACITIES HAVE BEEN MET
53 WHERE THE ENGINEER IS NOT PROVIDED WITH SUFFICIENT PILING RECORDS TO BE SATISFIED WITH THE PILE CAPACITY, THE CONTRACTOR SHALL PROVIDE PILE DYNAMIC TESTING TO ESTABLISH THE PILE CAPACITY AS DIRECTED BY THE ENGINEER.

DRIVEN PILE RECORD

1. THE CONTRACTOR SHALL PROVIDE COMPREHENSIVE PILE RECORDS IN ACCORDANCE WITH NSW MARITIME REQUIREMENTS AND AS 2159 FOR EACH AND EVERY PILE INSTALLED.
2. PILE RECORDS SHALL BE SUFFICIENT TO SATISFY THE ENGINEER THAT THE FOUNDATION REQUIREMENTS HAVE BEEN ACHIEVED; AND PILE EMBEDMENTS HAVE BEEN REACHED AND THAT PILE DESIGN CAPACITY HAS BEEN REACHED
3. ANY SILT / SOFT OVERBURDEN SHALL NOT BE TAKEN INTO ACCOUNT FOR THE DRIVING DEPTH. THIS IS GENERALLY THE PILE PENETRATION UNDER ITS OWN WEIGHT AND SHALL NOT BE CONSIDERED IN THE PILE DRIVING EMBEDMENT.
4. THE PILE RECORD PRO-FORMA SHALL BE ONE PILE RECORD PER PAGE AND SHALL INCLUDE

PILE NAME _____.
DATE OF DRIVE _____.
TIDE HEIGHT TO 0.0 C.D _____M
SEABED TO 0.0 C.D _____M

LENGTH OF PILE PITCHED _____M
LOCATION OF ANY WELD FROM PILE TOE _____M
PILE DIAMETER _____M
PILE CUTOFF HEIGHT _____M
PILE WEIGHT _____T
PILE HELMET WEIGHT _____T
ADDITIONAL LOAD APPLIED
TO PILE HEAD DURING DRIVE _____T
TYPE OF HAMMER _____.
HAMMER WEIGHT _____T
DROP HEIGHT _____M
ENERGY _____N.m

PILE PENETRATION
UNDER OWN WEIGHT _____M
PILE PENETRATION
WORK IN (NO HAMMER) _____M

PILE HAMMER SETS (AVERAGE 10 BLOWS)
10 BLOWS _____M
10 BLOWS _____M
10 BLOWS _____M

DEPTH OF ROCK SOCKET AND TYPE OF ROCK _____M

TIMBER TURPENTINE PILES

1. TIMBER PILES SHALL COMPLY WITH AS 3818.3
2. ALL PILES SHALL BE TURPENTINE TIMBER PILES UNO
    F22 STRESS GRADE UNSEASONED TURPENTINE HARDWOOD
    S2 STRENGTH GROUP
    DURABILITY CLASS 1 (MARINE BORER RESISTANCE)
    JOINT GROUP > J2
3. TAPER ON PILE SHALL NOT BE > 13MM / METRE
4. LEAVE BARK ON ALL EXPOSED TURPENTINE PILES
5. DO NOT SUPPLY PILES WITH LARGE KNOTS, VEINS, TERMITE GALLERIES OR BORER. OR OTHER DEFECTS THAT COULD ALLOW MARINE BORER ENTRY TO HEARTWOOD
6. DO NOT SUPPLY PILES WITH END SPLITS
7. SLEEVED PILES TO BE FULLY PROTECTED FROM BORER
8. PROTECT THE TOPS OF ALL TIMBER PILES BY MAKING SMOOTH AND APPLYING MULTIPLE LAYERS OF EPOXY RESIN / OR BLACKJACK TO SEAL AND FILL ALL CRACKS AND HOLES AND FORM A SMOOTH SURFACE
9. ALL TIMBER PILE HEADS TO BE RINGED WITH SNUG FIT GAL STEEL RING 50*8MM FITTED ANTI SPLIT RING
10. TREAT ALL CUT ENDS OF ALL PILES ON SITE AND MAINTAIN THE INTEGRITY OF THE ENTIRE SURFACE THROUGHOUT THE WORKS. ANY DAMAGE ABOVE THE WATER TO BE PAINTED WITH CCN EMULSION OR PABCO HYDROSEAL TYPE 367 KNIFE GRADE BELOW HIGH WATER
11. EITHER PLUG ALL HOLES OR TREAT THE FULL LENGTH OF THE BORE.
12. MINIMUM PILE LENGTH TO BE CALCULATED ALLOWING FOR 1M MINIMUM OF SILT AT THE SEABED (IE PENETRATION + MINIMUM 1M)

TIMBER D-SAP PILES

1. D-SAP OR MILLED PILES SHALL BE F27 HARDWOOD (NON-ASH) EUCALYPTS FROM NSW OR QLD INCLUDING IRONBARK OR BLACKBUTT
2. D-SAP PILES ARE MACHINED (OR SHAVED DOWN) TO A CONSISTENT DIAMETER INTO AN OCTAGONAL SHAPE HEAD
3. D-SAP PILES AVAILABLE OUT OF COFFS HARBOUR
4. ALL D-SAP PILES SHALL BE 300Ø MINIMUM TOE
5. ALL DSAP PILES SHALL BE 400Ø MAXIMUM HEAD OVER A MINIMUM 4M LENGTH
6. DSAP PILES TO FIT SNUG TO THE HDPE SLEEVE

HDPE SLEEVES

7. ALL D-SAP PILES SHALL BE PROTECTED FROM RL2.5 CD DOWN TO AT LEAST 1.5 M INTO SOFT SEABED USING HDPE SLEEVES
8. IF THE SEABED IS ROCK OR THERE IS NOT SUFFICIENT OVERBURDEN TO ACHIEVE SLEEVE PENETRATION THEN OVER EXCAVATE THE PILE PILOT HOLE TO 600 MM DEEP AND SOCKET THE PILE SLEEVE 600MM INTO SOUND ROCK
9. DIAMETER OF SLEEVE TO SUIT PILE
10. CONTRACTOR SHALL ESTABLISH THE GROUND CONDITIONS AND DETERMINE SLEEVE LENGTHS IN ADVANCE.

STEEL PILES

1. ALL STEEL WORK SHALL BE CARRIED OUT IN ACCORDANCE WITH AS 4100.
2. PILES SHALL BE SUPPLIED, AND MANUFACTURED, IN ACCORDANCE WITH THE REQUIREMENTS OF AS 1163 FOR STRUCTURAL STEEL HOLLOW SECTIONS AND AS 1579.
3. STEEL PILES (AND ATTACHMENTS) SHALL BE MADE FROM STEEL CIRCULAR HOLLOW SECTIONS MINIMUM GRADE 350 A
4. CONTRACTOR SHALL PROVIDE TEST CERTIFICATES FOR THE STEEL GRADE SUPPLIED FOR EACH LENGTH.
5. PILES SHALL NOT BE WELDED UNLESS APPROVED IN WRITING BY THE ENGINEER.
6. NO SPIRALLY WELDED PILE SHALL BE USED
7. PILE SPLICES SHALL NOT BE ALLOWED UNLESS APPROVED BY ENGINEER IN WRITING.
8. SITE SPLICING OF PILES SHALL NOT BE PERMITTED UNLESS APPROVED BY THE SUPERINTENDENT.
9. WHERE ALLOWED IN WRITING ALL WELDS SHALL BE TESTED PER THE STEEL SPECIFICATION BY ULTRASONIC TESTING
10. THE CONTRACTOR SHALL SUPPLY TEST CERTIFICATES AND EVIDENCE SATISFACTORY TO THE SUPERINTENDENT THAT ALL MATERIALS OR PARTS CONFORM WITH THE TESTS REQUIRED BY THE STANDARD SPECIFICATIONS REFERRED TO HEREIN.
11. NO CONSTRUCTION ATTACHMENTS IN THE FORMS OF BRACKETS WELDED OR BOLTED TO THE PILES SHALL BE PERMITTED EXCEPT BY WRITTEN PERMISSION FROM THE SUPERINTENDENT.
12. ANY SUCH CONSTRUCTION ATTACHMENTS SHALL BE REMOVED AND MADE GOOD.
13. INSPECTION DURING MANUFACTURE AND FABRICATION OF THE PILES WILL BE CARRIED OUT BY THE SUPERINTENDENT.
14. THE CONTRACTOR SHALL PROVIDE ACCESS AT ALL REASONABLE TIMES AND ALL FACILITIES NECESSARY FOR INSPECTION DURING MANUFACTURE AND ON COMPLETION.

PAINTING STEEL PILES

1.0 ALL STEEL PILES TO BE PAINTED TO MINIMUM 1M INTO PILE WRAPPING OR MINIMUM RL1.5CD
2.0 ALL SURFACES SHALL BE PREPARED BY DRY ABRASIVE BLAST CLEANING IN ACCORDANCE WITH AS 1627.4 TO ACHIEVE A DEGREE OF SURFACE CLEANLINESS EQUIVALENT TO CLASS SA 3 OF AS 1627.9, AND AN ANGULAR SURFACE PROFILE OF BETWEEN 75 UM AND 125 UM.
2.0 THE SPECIFIED PAINT SYSTEM SHALL CONSIST OF:-
- COAT 1
HIGH BUILD HIGH SOLIDS 2-PACK EPOXY COATING, APPLIED IN AT LEAST TWO COATS, AND MORE COATS IF NECESSARY, TO AN AVERAGE DFT OF 300 UM.
- COAT 2
STRIPE COAT TO ALL WELDS AND SEAMS TO 75 UM
- COAT 3
HIGH BUILD HIGH SOLIDS 2-PACK EPOXY COATING
APPLIED IN AT LEAST TWO COATS, AND MORE COATS IF NECESSARY, TO AN AVERAGE DFT OF 300 UM.
- COAT 4
FINISH COAT FULL-GLOSS,
2-PACK POLYURETHANE FOR ALL SURFACES
APPLIED TO A DFT OF AT LEAST 75 UM.
COLOUR GREY OR BLACK AS DETERMINED BY COUNCIL

3.0 THE COATING SHALL BE A TWO-PACK HIGH BUILD EPOXY COATING, SUITABLE FOR THIS USE AND MEETING THE REQUIREMENTS OF AS 3750.14. COATING SHALL BE RECOMMENDED BY THE MANUFACTURER FOR THIS USE AND WITH THE SELECTED FINISH COAT WHERE APPROPRIATE.
RECOMMENDED PRODUCTS INCLUDE:-
- AMERLOCK 400 FROM AMERON COATINGS
- BAR-RUST 256 FROM ALTEX COATINGS
- INTERZONE 954 FROM INTERNATIONAL COATINGS
- DEVSHIELD 236

4.0 THE HIGH BUILD EPOXY COATING SHALL BE APPLIED IN TWO OR MORE COATS TO AN AVERAGE DRY FILM THICKNESS OF AT LEAST 700 UM, WITH A MINIMUM DRY FILM THICKNESS AT ANY ONE LOCATION OF 600 UM.
5.0 TEST PROTECTIVE COATING TO AS 3894.1 AND MAKE GOOD ANY DEFECTS.
6.0 RECTIFICATION OF DEFECTS -
ON-SITE REPAIR OF SCRATCHED AND SLIGHTLY DAMAGED AREAS OF THE COATING SHALL BE CARRIED OUT USING THE SAME PROCEDURES AS FOR INITIAL APPLICATION,
AFTER FIRST WASHING DOWN WITH FRESH WATER TO REMOVE SALT CONTAMINATION FROM THE SURFACE. ANY EXPOSED STEEL SHALL BE SPOT-BLASTED TO AS 1627.9 CLASS SA 3.

PILE WELDING

1. WELDING DESIGN AND PROCEEDURE SHALL BE DETAILED AND CERTIFIED BY CONTRACTOR AND SUBMITTED FOR APPROVAL BY THE SUPERINTENDENT PRIOR TO FABRICATION.
2. PERMISSION GIVEN BY THE ENGINEER OR SUPERINTENDENT SHALL NOT RELIEVE THE CONTRACTOR OF HIS RESPONSIBILITY FOR THE SUITABILITY OF ANY WELDING PROCEDURE AND FOR THE SATISFACTORY EXECUTION OF THE WORK.
3. ALL WELDING SHALL BE CARRIED OUT BY AN EXPERIENCED PILE PIPE WELDER UNDER THE SUPERVISION OF THE WELDING SUPERVISOR BY SKILLED TRADESMEN
4. ALL WELDING SHALL MEET THE REQUIREMENTS OF AS1554--PART 1 AND AS1554 - PART 5. PART 5 IS MORE STRINGENT THAN PART 1 AND TYPICALLY APPLIES TO FATIGUE MEMBERS.
5. PROVIDE THE NAMES OF THE WELDERS QUALIFIED IN ACCORDANCE WITH AS1554--PART 1
6. A PROTOTYPE SPLICE SHALL BE

DENSO DENSYL MASTIC

1. APPLICATION PER MANUFACTURER SPECIFICATION
2. PREPARE SURFACE BY CLEANING WITH WIRE BRUSH
3. INSTALL MASTIC BY HAND AROUND ENTIRE JOINT A
4. PRESS MASTIC INTO JOIN 50MM ALL SIDES
5. SMOOTH SURFACE FINISH

DENSO 100 WRAPS

1. ALL PILES TO BE DENSO 100 WRAPPED TO RL2.5CD
2. APPLICATION PER MANUFACTURER SPECIFICATION
3. CLEAN PILE THROUROUGHLY
4. APPLY PRIMER
5. APPLY DENSO MASTIC TO ANY IRREGULARITIES
6. WRAP WITH 3 LAYERS DENSO MARINE TAPE
   FIRST LAYER DENSO MARINE TAPE
   SECOND LAYER DENSO ULTRASEAL RT TAPE
   THIRD LAYER ELASTOMERIC TOPCOAT
7. APPLY SEASHIELD 100 JACKET AND SMARTBAND STRAPPING
8. WHERE SHOWN TO WRAP TO SEABED DENSO MUST EITHER PENETRATE THE SEABED BY 300MM MINIMUM OR SUPPLY A HDPE SLEEVE OVER PILE MINIMUM 1.2M LONG AND 600MM INTO SEABED AND GROUTED AND WRAP TO THE SLEEVE TO SEABED

DENSO 400 SLEEVES

1. ALL PILES TO BE DENSO 400 ENCASED TO RL2.5CD
2. SUPPLY AND INSTALL SLEEVES PER MANUFACTURER SPECIFICATIONS
3. MINIMUM SLEEVE LENGTH 3.0M OR LENGTH OF AFFECTED PILE PLUS 500MM TOP AND 1000MM BOTTOM.
2. SLEEVE TO BE SIZED BY CONTRACTOR TO SUIT PILES USE 40MM SPACERS 4 PER ROW - 2 ROWS PER JACKET
3. GENERALLY SLEEVES TO PENETRATE MINIMUM 300MM INTO SEABED UNLESS APPROVED IN WRITING
4. FULLY CLEAN AWAY ANY GROWTH TO AREA TO BE SLEEVED AND WATER JET BLAST CLEAN PILES
5. AIRLIFT OUT 900MM OF SEABED AND LEAVE 100MM REMAINIMG ABOVE SEABED. FULLY GROUT.
6. USE SIKA U/W GROUT >60 MPa TREMMIED FILLING TO SLEEVE
7. THOUROUGHLY CLEAN ALL GROWTH OFF PILE TO CLEAN TIMBER AND OBTAIN APPROVAL BY ENGINEER
8. WRAP PILE IN AT LEAST 2 FULL WRAPS OF CARBON FIBRE MESH OVER ALL OF AFFECTED AREA PLUS 500MM EITHER SIDE TOP AND BOTTOM.
9. SLEEVE TO BE SIZED TO PROVIDE 40MM ANNULOUS AROUND PILE AT LARGES DIA POSITION
10. INSTALL SLLEVE 40MM SPACERS 2 ROWS PER JACKET AND 4 PER ROW
11. INSTALL BOOT / LOWER SEAL TO SLEEVE
12. FILL SLEEVE WITH 65MPA MINIMUM NON-SHRINK EPOXY GROUT SUCH AS SIKAGROUT OR EQUIVALENT APPROVED IN WRITING BY ENGINEER.
13. INSTALL GROUT EITHER BY TREMMIE PIPE OR USE 60MM PUMP PORT AT BOTTOM LEVEL OF SLEEVE.
14. GROUT SHALL NOT BE POURED IN FROM TOP OF PILE IN ANY INSTANCE
15. USE PROPRIEATRY BOOTS TO LOWER SLEEVE AS REQUIRED WHEN GROUTING

DENSO 70 FIBERGLASS WRAPS

1. APPLICATION PER MANUFACTURER SPECIFICATION
2. INSTALL DENSO MARINE TAPE
3. APPLY DENSO 70 FIBERGLASS OUTERWRAP AROUND ENTIRE JOINT AND LAP 500MM ONTO PILE EITHER SIDE OF BEAM SURFACE
4. FINISH SHALL BE SMOOTH AND CONTINUOUS TO JOINT

DENSO ROCKMESH CE1714 WRAPS

1. ALL DENSO 100 WRAPPED PILES AND ALL HDPE SLEEDED PILES SHALL BE OUTERWRAPPED WITH PROTECTIVE MESH CE171 FROM RL2.5CD TO -1.0CD
2. THE AIM OF THIS OUTERWRAP IS TO ENCOURAGE MARINE GROWTH
3. APPLICATION PER MANUFACTURER SPECIFICATION
4. INSTALL DIAMOND MESH WRAP 4MM x 5MM DIAMONDS
5. INSTALL AS A CONTINUOUS SPIRAL WRAP WITH 100MM OVERLAPPING EDGES.
6. INSTALL PLASTIC SMARTBAND STRAPS AT MINIMUM 600MM CRS
7. FINISH SHALL BE SMOOTH AND CONTINUOUS

HDPE

1. HDPE SHALL BE TAKEN TO MEAN HIGH DENSITY POLYETHYLENE
2. USE WEAREX OR SOLIDUR FOR HDPE APPLICATIONS
3. UHDPE SHALL BE TAKEN TO MEAN ULTRA HIGH MOLECTULAR WEIGHT POLYETHYLENE.
4. USE POLYSTONE 7000 SR WHERE SHOWN FOR UHDPE APPLICATIONS

CONCRETE FILLED HDPE PILES

1. REFER TO DETAILS ON DRAWING
2. HDPE SLEEVE MINIMUM WALL THICKNESS 9.0MM HDPE
3. CONTRACTOR SHALL ESTABLISH THE GROUND CONDITIONS AND DETERMINE SLEEVE LENGTHS IN ADVANCE.
4. PREPARE ROCK SURFACE LEVEL
5. DRILL ALL REBAR CHEMSET HOLES AND OBTAIN APPROVAL BY ENGINEER IN WRITING
6. CHEMSET IN BARS AND CURE
7. HOLD DOWN HDPE SLEEVE BY NUT AT TOP OF CENTER BAR AND CLAMP BEAM
8. REMOVE ALL LOOSE SEABED MATERIAL FROM OUT OF THE PILE TO ACHIEVE A FIRM BASE
9. CONCRETE FILL TO PILES SHALL BE INSTALLED BY TREMMIE
10. INSTALL 40 MPA CONCRETE CONTINUOUS POURDO NOT PENETRATE THE HDPE SLEEVE TO INSTALL ANY ATTACHMENTS OR BOLTS.
11. CONCRETE FILL TO PILES SHALL BE INSTALLED BY TREMMIE
12. REMOVE / AIRLIFT ALL LOOSE SEABED MATERIAL FROM OUT OF THE PILE TO ACHIEVE A FIRM BASE TO CONCRETE TO BE APPROVED BY ENGINEER IN WRITING
13. INSTALL 40 MPA CONCRETE CONTINUOUS POUR

STRUCTURAL TIMBER

1. ALL TIMBER SUPPLY AND CONSTRUCTION TO AUSTRALIAN STANDARDS AS1720 TIMBER CODE; AS 2082 - GRADING OF TIMBER;
2. TATHRA WHARF IS TO BE REGARDED BY THE CONTRACTOR AS A SPECIALIST HERIATGE TIMBER STRUCTURE.
3. ALL TIMBERWORK SHALL BE AUTHENTIC WHARF AND BRIDGE CARPENTRY IN KEEPING WITH THE ORIGINAL DETAILING AND QUALITY.
4. DETAILS SUCH AS HALFING JOINTS, CORBELS AND CHECKS (GIRDERS AND HEADSTOCKS) TO BE TIGHT AND WELL FITTED.
5. ALL NEW TIMBER WORK TO BE EVIDENCED UPON CLOSE INSPECTION WITH DISCRETE MARKING TO SHOW ORIGINAL VERSES NEW CONSTRUCTION
6. TIMBERWORK TO BE SUPPLIED, INSTALLED AND FINISHED TO BEST PRACTICE FOR WHARF & BRIDGE CARPENTERY USING SKILLED TRADESMEN
7. USE ONLY QUALIFIED WHARF CARPENTERS WITH GOOD EXPERIENCE IN WHARF AND BRIDGE CONSTRUCTION

MATERIAL

8. TIMBER SHALL BE GRADED BY AN INDEPENDENT NATA APPROVED INSPECTOR AND STAMPED
9. SELECT BEAMS AND DECKING TO BE REASONABLY FREE OF DEFECTS INCLUDING KNOT HOLES, SHRINKAGE SPLITTING, WANES, BOWING OR WARPING AND THE LIKE
10. ALL HARDWOODS TO BE NON-ASH TYPE EUCALYPTS FROM NSW OR QLD.
11. ALL TIMBER TO BE MINIMUM F17 GRADED, JOINT GROUP J2 OR BETTER.
12. ALL TIMBER TO BE DURABILITY CLASS 1
13. ALL TIMBER BEAMS SHALL BE MINIMUM F22 GRADED STAMPED SHOWING GRADE AND TIMBER SPECIES
14. PROVIDE SUPPORTING DOCUMENTATION ON TIMBER MATERIALS USED INCLUDING CERTIFICATE FROM SUPPLIER
15. THE TIMBER SHALL BE INSPECTED BY AN INDEPENDENT EXPERIENCED TIMBER EXPERT AND SHALL PROVIDE A CERTIFICATE THAT TIMBER IS SUITABLE FOR PURPOSE.
16. ALL TIMBER TO BE STRAIGHT & FAIR & TRUE WITH NO DEFECTS THAT MAY AFFECT THE STRENGTH & SERVICABILITY OF THE MEMBER.
17. CONTRACTOR TO PROVIDE ALL TIMBERS AND DETERMINE CORRECT LENGTHS. FULL LENGTHS OF TIMBER SHALL BE USED. SPLICES SHALL ONLY BE MADE WHERE ALLOWED BY ENGINEER
18. JOINTS TO BE WELL FITTING PACKING & SPLICING TO BE SNUG FIT WITHOUT WEDGING OR PACKING FAYING SURFACES TO BE STRAIGHT & PARALLEL.
19. JOINTS SHALL BE NOTCHED MIN 50MM TO PILE & 25MM TO BEAM

KERBS & HANDRAILS

1. ALL KERBS AND HANDRAILS SHALL BE F17 HARDWOOD TIMBER TALLOWWOOD, WHITE MAHOGONY, GREYBOX

TIMBER DECKING

29. ALL DECK TIMBER SSHALL COMPLY WITH AS3818.6 MINIMUM
30. ALL DECKING ABOVE THE TIDAL ZONE SHALL BE F17 HARDWOOD (NON-ASH) TIMBER INCLUDING IRONBARK OR BLACKBUTT, GREY GUM, WHITE MAHOGANY, GREY GUM, YELLOW STRINGYBARK OR BRUSHBOX
31. THE STRUCTURAL GRADING OF THE TIMBER DOES NOT IN ALL CASES INDICATE THAT THE TIMBER IS SUITABLE FOR USE. THE TIMBER MUST ADDITIONALLY MEET REASONABLE SERVICEABILITY REQUIREMENTS .
32. ALL DECKING SHALL BE HAND SELECTED BY A QUALIFIED WHARF CARPENTER WITH OVER 10 YEARS EXPERIENCE AND SHALL BE FIT FOR PURPOSE AS A WALKING SURFACE.
33. THE CARPENTER TO SELECT TO PLANKS SHALL BE NOMINATED AND SHALL SIGN OFF ON ALL PLANKS AS FIT FOR USE.
34. NOTWITHSTANDING THE DECKING GRADE THE DECKING SHALL BE FREE OF KNOTS AND WANES > 10% OF THE DEPTH
35. IF THERE IS A KNOT HOLE THAT MAY CAUSE TRIPPING THEN DO NOT USE THAT PLANK
36. DISCARD ANY PLANKS WITH KNOTS WANES OR GUM POCKETS THAT MAY CAUSE TRIP HAZARDS OR CAUSE ROTTING OF THE PLANK
37. DECKING TO BE ARISED ON ALL CORNERS
38. PAINT ALL CUT ENDS TO PLANKS WITH CN OIL
39. LAY PLANK WITH HEARTWOOD FACE DOWN TO PREVENT ROT
40. THE TOP CORNERS OF PLANKS SHALL BE LIGHTLY CHAMPHERED.
41. MAXIMUM LEVEL DIFFERNCE BETWEEN ADJACENT PLANKS GENERALLY 3.0 MM PER AS1428.1 CL12 TO A MAXIMUM 5MM PER CL 5.1.2
49. 5MM GAP BETWEEN SEASONED PLANKS
50. 2MM GAP BETWEEN UNSEASONED PLANKS

DECK FIXINGS

51. 70MM THICK TIMBER DECKING TO BE FIXED TO TIMBER BEAMS USING 2 OFF M8 Ø GALVANISED COACH SCREWS MINIMUM 70MM INTO THE SUPPORT BEAM
52. HEX DRIVE HEADS MINIMUM @ 140MM LONG COUNTERSINK HEADS
53. AVAILABLE FROM HOBSON ENGINEERING / COVENTRY FASTNERS
54. PRE - DRILL 6Ø HOLE FOR 8Ø COACHSCREW
55. ALL SCREWS SHALL BE DIPPED IN CN OIL PRIOR TO INSTALLATION
56. INSERT COPPER NAPTHENATE (CN) EMULSION INTO EACH HOLE PRIOR TO INSERTING SCREW.
57. 50MM THICK TIMBER DECKING TO BE FIXED TO TIMBER BEAMS USING 2 OFF 10GAUGE / 5MM Ø GALVANISED BUGLE HEADED SCREWS WITH COUNTERSUNK HEADS MINIMUM @ 100MM LONG
58. PRE-DRILL HOLE 1MM Ø LESS THAN SCREW
59. FILL ALL HOLES WITH PITCH

TIMBER BEAMS

60. ALL BEAMS MINIMUM F22 GRADED HARDWOOD (NON ASH)EUCALYPTS FROM NSW OR QLD INCLUDING - RED IRON BARK, GREY GUM, WHITE MAHOGANY, TALLOWWOOD, GREY BOX, YELLOW STRINGYBARK, WOOLYBUTT
61. KNOT HOLES GREATER THAN 30MM ARE NOT ACCEPTABLE
62. LARGE SHRINKAGE CRACKS > 500 MM LONG OR 5MM WIDE ARE NOT ACCEPTABLE
63. PROVIDE STAINLESS STEEL NAILING PLATES TO ENDS OF ALL BEAMS BY PRYDA KNUCKLE NAILPLATES COVERING THE WHOLE CROSS SECTION OF THE MEMBER LESS 25MM EACH SIDEPAINT TOP SURFACE WITH CN OIL
64. PROVIDE 1 LAYER OF CONTINUOUS BITUMINOUS MALTHOID TO BE INSTALLED TOP OF EACH TIMBER BEAM & BENEATH DECKING
65. ALL WATERPROOF LAYER TO PROJECT MINIMUM 20MM PAST EDGE OF GIRDER AND FOLDED DOWN
66. ALTERNATE PROVIDE HDPE SHEET
67. PAINT TOP SURFACE OF ALL BEAMS WITH 1 FLOOD COAT OF CN OIL

TIDAL ZONE

68. ALL TIMBER BEAMS IN THE TIDAL ZONE (ASSUMED TO BE +2.5CD TO -1.0 C.D SHALL BE TURPENTINE AND SHALL BE TREATED WITH CN OIL TO ALL FACES AND CUT ENDS PAINTED TO ALL FACES WITH 2 COATS OF BLACKJACK

BOLTING TIMBER

1. ALL BOLTING IN ACCORDANCE WITH AS 1684 AND AS1720
2. ALL BOLTS ABOVE TIDAL ZONE RL2.5CD TO PILES TO BE GALVANIZED
3. ALL BOLTS IN TIDAL ZONE SHALL BE STAINLESS STEEL 313 A4-70 GRADE
4. ALL BOLTS TO PILES TO BE MINIMUM Ø M24 - 4.6 / S UNO
5. ALL BOLTS TO GIRDERS TO BE Ø M24 - 4.6 / S UNO
6. NO CONNECTION SHALL HAVE LESS THAN 2 BOLTS UNO
7. INSTALL BOLTS IN PRE-DRILLED HOLES SAME Ø AS BOLT DIAMETER.
8. INSTALL MONKEYSPUNK / CN EMULSION TO ALL BOLT HOLES PRIOR TO INSERTING BOLT
9. PROVIDE WASHERS MINIMUM 2.5 x BOLT Ø UNO
10. GENERALLY MINIMUM 60 Ø * 5 PL GAL WASHERS
11. BOLTS SHALL BE GIVEN MIN CLEARANCE OF 8 BOLT Ø TO END OF TIMBERS AND 4 Ø TO EDGES OF TIMBER.
12. LENGTH OF SHANK MINIMUM 2 THREADS OF BOLT PAST NUT
13. THREAD ON BOLT SHALL NOT EXTEND >75MM INTO TIMBER & SHALL NOT PROTRUDE >2 BOLT Ø PAST NUT AND WASHER
14. ALL BOLTS TO BE RECESSED INTO MEMBERS WHERE MAY CAUSE INJURY. ALL RECESSED BOLT HOLES IN TIMBER TO BE FILLED WITH BLACKJACK OR PITCH WITH A DOMED SURFACE.
15. INSTALL COACHBOLTS IN PRE-DRILLED HOLES 80% Ø BOLT
16. ALL BOLTED CONNECTIONS TO BE INSPECTED AND RE-TIGHTENED BY CONTRACTOR AFTER 6 MONTHS OF OPERATION.
17. ANY WEAR TO BE COMMUNICATED TO THE ENGINEER FOR INSPECTION, AND THEN REPAIRED
18. ALL PACKING BETWEEN TIMBERS IS TO BE BLACK UHMW PLASTIC POLYSTONE P300 UNO

TIMBER PAINT

1. ALL TIMBER SHALL BE PAINTED WITH A REPUTABLE EXTERIOR WEATHERPROOF PAINT 2 COATS
2. PREPARE TIMBER PRIOR TO DELIVERY TO SITE
3. FILL ALL MINOR IRREGULARITIES WITH MEGAPOXY
4. REMOVE ALL ROUGH SURFACES AND SAND SMOOTH
5. PAINT WITH 2 COATS OF UNDERCOAT ZINZER COVER STAIN SEALER - PRIMER
6. PAINT WITH 2 COATS OF WHITE OIL ENAMEL
7. PAINT ALL ENDS

BLACKJACK

1. BLACKJACK OR BITUMINOUS COATINGS SHALL BE BY ORMANOID OR EQUIVALENT
2. ALL CUT ENDS TO BEAMS OR PILES AOR PLANKS SHALL BE TREATED WITH 1 COAT OF BLACKJACK

CN OIL

1. USE KOPPERS CN OIL TO TREAT FUNGAL DECAY OR TOPS OF ALL BEAMS
2. ALL CUT ENDS , RECESSES, LAPS AND ENDGRAIN SHALL BE TREATED WITH AT LEAST 1 COAT OF CN OIL
3. ALL TIMBER IN THE TIDAL ZONE SHALL BE PRE-COATED WITH 2 COATS OF CN OIL
4. APPLY PER MANUFACTURER SPECIFICATION

CN EMULSION

1. USE KOPPERS CN ENULSION (MONKEYSPUNK) TO ALL INTERIORS OF BOLT HOLES OR CONNECTIONS
2. APPLY TO ANY SMALL AREAS OF ROT
3. APPLY PER MANUFACTURER SPECIFICATION

EPIREZ NON SLIP SURFACING

1. ALL DECKING IN THE TIDAL ZONE AND ANY OTHER SPECIFIED WET AREA OR NON SLIP AREAS TO BE COATED WITH NON-SLIP
2. USE EPIREZ SAFE STEP 100 H.D PEDESTRIAN GRADE ANTI-SLIP COATING INSTALLED PER MANUFACTURERS SPECIFICATION
4. APPLY COATINGS IN THE DRY NOT IN THE WET. THIS MAY REQUIRE COATING APPLICATION PRIOR TO INSTALLATION OF THE DECKING
5. APPLY BLACKJACK TO ALL PLANK ALL CUT ENDS ALTERNATE
6. APPLY PRIMER COAT - EPIREZ 123 EPOXY SEALER / PRIMER
7. APPLY FIRST COAT: EPIREZ SUPATUFF EPOXY H.D
8. APPLY EPIREZ SIL - CARB AGGREGATE 3.0MM Ø
9. APPLY SECOND COAT: EPIREZ SUPATUFF EPOXY H.D
10. COLOUR OF NON SLIP SURFACING IS TO BE ADVISED.

REPAIR OF EXISTING TIMBER

1. WHERE EXISTING TIMBERS HAVE SUFFERED SURFACE DETERIORATION AND IT IS AGREED TO REPAIR RATHER THAN TO REPLACE THEM, TREAT AS FOLLOWS
2. REMOVE DETERIORATED TIMBER BY SCRAPING AND SANDING
3. APPLY CN EMULSION
4. ALL CAVITIES OR SPLITS SHALL BE CLEANED THEN FILL ALL AREAS WITH PORION EXTERNAL GRADE FILLER FROM TIMBER MATE OR EPIREX 133 MIXED WITH CLEAN SAND IN THE RATION OF 1 EPIREZ : 5 SAND BY VOLUME IN ACCORDANCE WITH MANUFACTURERS SPECIFICATIONS

STRUCTURAL STEELWORK

1.0 ALL MATERIALS AND WORKMANSHIP MUST BE IN ACCORDANCE WITH AS 4100 & ASCE STRUCTURAL STEEL FABRICATION AND ERECTION SPECIFICATION UNO

2.0 ALL SHOP DRAWINGS ARE TO BE SUBMITTED TO THE ENGINEER FOR APPROVAL 7 DAYS BEFORE FABRICATION COMMENCES. FABRICATION MUST NOT COMMENCE WITHOUT ENGINEERS APPROVAL OF WORKSHOP DRAWINGS.

3.0 STEEL GRADE 350 U.N.O

4.0 ALL STEEL MUST BE IN ACCORDANCE WITH
AS 3678 GRADE 250,
AS 3679 GRADE 300 FOR T OR I SECTIONS,
AS 1163 GRADE 350 HOLLOW SECTIONS.

5.0 ALL STEEL TO BE GALVANISED TO 600 G/M2 TO AS1650 UNLESS OTHERWISE PROTECTED BY PAINT COATING OR HDPE SLEEVE FULLY SEALED TO OXYGEN.

6.0 MINIMUM STEEL PLATE THICKNESS SHALL BE 8MM UNO.

7.0 ALL GUSSET PLATES SHALL BE 8MM UNO

8.0 FABRICATION MUST COMPLY TO AS 4100 SECTION 14.

9.0 ERECTION MUST COMPLY TO AS 4100 SECTION 15.

10.0 THE FABRICATION AND ERECTION OF THE STEELWORK MUST BE SUPERVISED BY A QUALIFIED ENGINEER.

11.0 CONTRACTOR TO PROVIDE ALL MATERIALS, CLEATS AND TO DRILL ALL HOLES NECESSARY FOR FIXING THE STEEL IN PLACE WHETHER OR NOT SHOWN IN DRAWINGS

12.0 ALL DIMENSIONS AND SETOUTS TO BE OBTAINED FROM ARCHITECTURAL DRAWINGS WHERE NOT INDICATED ON STRUCTURAL DRAWINGS.

13.0 PROVIDE SEAL PLATES TO ALL HOLLOW SECTIONS, WITH BREATHER HOLES WHERE MEMBER IS TO BE GALVANIZED

14.0 FREE ALL MEMBERS FROM TWISTS AND DISTORTIONS BEFORE AND AFTER WELDING.

15.0 WHERE THE FABRICATOR PROVIDES A SPLICE FOR AN APPROVED REASON (EG. TRANSPORTATION) THE SPLICE SHALL BE COMPLETE PENETRATION BUTT WELDED (CATEGORY SP) AND TESTED AS SPECIFIED.

BOLTING STEELWORK

1.0 ALL BOLTING TO AS 4100

2.0 ALL BOLTS SHALL BE MINIMUM Ø20 GRADE 8.8/S UNO

3.0 ALL BOLTS, NUTS WASHER TO BE HOT DIPPED GALVANIZED UNO

4.0 NO CONNECTION SHALL HAVE LESS THAN 2 BOLTS UNO

5.0 BOLT DESIGNATION
4.6/S - COMMERCIAL BOLTS TO AS 1111 SNUG TIGHT TO AS 4100
8.8/S - HIGH STRENGTH STRUCTURAL BOLTS TO AS 1252 SNUG TIGHT
8.8/TB - HIGH STRENGTH STRUCTURAL BOLTS FULLY TENSIONED TO AS 4100 AS A BEARING JOINT
8.8/TF - HIGH STRENGTH STRUCTURAL BOLTS FULLY TENSIONED TO AS 4100 AS A FRICTION JOINT WITH FACING SURFACES UNCOATED

6.0 /TB AND /TF BOLTS TO BE INSTALLED IN ACCORDANCE WITH AS 4100 SECTION 15. USING APPROPRIATE LOAD INDICATING WASHERS USING EITHER THE PART TURN METHOD OR DIRECT TENSION INDICATOR METHOD.

WELDING

1. ALL WELDING TO BE CARRIED OUT IN ACCORDANCE WITH AS1554 BY SKILLED TRADESMEN.
2. BUTT WELDS MUST BE FULL PENETRATION BUTT WELDS UNO AND DEVELOP THE ULTIMATE TENSILE STRENGTH OF THE MEMBER.
3. FILLET WELDS SHALL BE CONTINUOUS WELDS 6 MM TYPE SP USING E48XX ELECTRODES.
4. SURFACES TO BE WELDED MUST BE SMOOTH, FREE OF ALL SCALE, RUST, GREASE, PAINT, SALT OR ANY OTHER FOREIGN MATERIAL. CONTACT BEARING SURFACES MUST BE FLUSH WITH NO VOIDS UNDER.
5. WELDING IS TO BE EXAMINED BY AN INDEPENDENT NATA TESTING AUTHORITY TO AS2207 AS FOLLOWS.

FILLET SP	VISUAL	100% OF LENGTH
BUTT WELD SHOP	VISUAL	100% OF LENGTH
BUTT WELD SHOP	NDT/ULTRASONIC	10% LENGTH
BUTT WELD SITE	VISUAL	100% OF LENGTH
BUTT WELD SITE	NDT/ULTRASONIC	20% LENGTH

6. WELD TEST RECORDS ARE TO BE MAINTAINED AND SUBMITTED TO THE SUPERINTENDENT.
7. THE SUPERINTENDENT MAY AT HIS DISCRETION MAY REQUIRE THAT THE CONTRACTOR CARRY OUT TESTING OF WELDS BY RADIOGRAPHIC TESTING TO AS 2177.1 OR ADDITIONAL ULTRASONIC TESTING OR OTHER MEANS.
8. ANY FURTHER TESTING REQUIRED AS A RESULT OF THE DISCOVERY OF A DEFECTIVE WELD SHALL BE CARRIED OUT AT THE CONTRACTOR'S EXPENSE. ANY WAITING TIME DUE TO CARRYING OUT THE ABOVE TESTS SHALL BE AT THE CONTRACTOR'S EXPENSE.
9. DEFECTIVE PORTIONS OF WELDS SHALL BE REMOVED, RE-WELDED AND RE-INSPECTED. FULL RECORDS SHALL BE KEPT OF ALL REPAIRS.
10. THE CONTRACTOR SHALL PROVIDE ACCESS AT ALL REASONABLE TIMES AND ALL FACILITIES NECESSARY FOR INSPECTION DURING MANUFACTURE AND ON COMPLETION.
11. THE CONTRACTOR SHALL SUPPLY TEST CERTIFICATES AND EVIDENCE THAT ALL MATERIALS OR PARTS CONFORM WITH THE TESTS REQUIRED .

GALVANISED PROTECTION

1. PROTECT ALL MILD STEEL AGAINST CORROSION USING HOT DIPPED GALVANIZING TO AS 4680 TO 600 G/M2
2. EXCEPT LADDERS GAL TO 900 G/M2 AS BELOW
3. DO NOT DAMAGE PROTECTIVE COATING DURING INSTALLATION.
4. WHERE GAL COATING IS DAMAGED ON SITE MAKE GOOD WITH 3 COATS OF ZINC RICH EPOXY PRIMER EQUIVALENT TO DULUX ZINC ANODE 202 OR HOT METAL SPRAY IN ACCORDANCE WITH AS 4680.
5. PROVIDE A NATA REGISTERED INDEPENDENT TEST FOR THICKNESS OF PROTECTIVE COATING.

LADDERS

1. ALL LADDERS SHALL BE GALVANISED STEEL DOUBLE GALVANISED TO 900 G/M2
2. ALL LADDERS SHALL BE SUPPLIED AND INSTALLED LIKE FOR LIKE WITH REMOVED LADDER
3. PROVIDE A NATA REGISTERED INDEPENDENT TEST FOR THICKNESS OF PROTECTIVE COATING.

CROSS BRACES - HORIZONTAL

1. ALL CROSS BRACING SHALL BE GALVANISED STEEL M24 ROD GRADE 4.6/S
2. CROSS BRACES SHALL BE DRILLED THROUGH THE PILE HEADS BELOW THE HEADSTOCKS
3. USE APPROPRIATE JAW TURNBUCKLES TO TIGHTED BRACES
4. ALL WASHERS TO PILES SHALL BE MINIMUM 75x75x10 PL GALVANISED AND FITTED TO PILE
5. ALLOW TO PROVIDE A HYDRAULIC WRENCH FOR INITIAL TIGHTENING
6. THEN ALLOW TO PROVIDE A TORQUE MULTIPLIER WRENCH BAR WITH A DIGITAL DISPLAY FOR TORQUE TO FULLY TIGHTEN THE CROSS BRACES VERY TIGHT
7. ENGINEER SHALL BE NOTIFIED ON SITE FOR FIRST CROSS BRACE INSTALLATION AND INSPECT AND ESTABLISH WITH CONTRACTOR AN ADEQUATE TORQUE RATING FOR THE REMAINING BRACES BASED ON RESULTS
8. BRACES SHALL NOT BE EXCESSIVELY WOBBLING UNDER LOAD
9. SUBMIT DETAILS OF PROPOSED SYSTEM FOR APPROVAL BY ENGINEER IN WRITING

CONCRETE

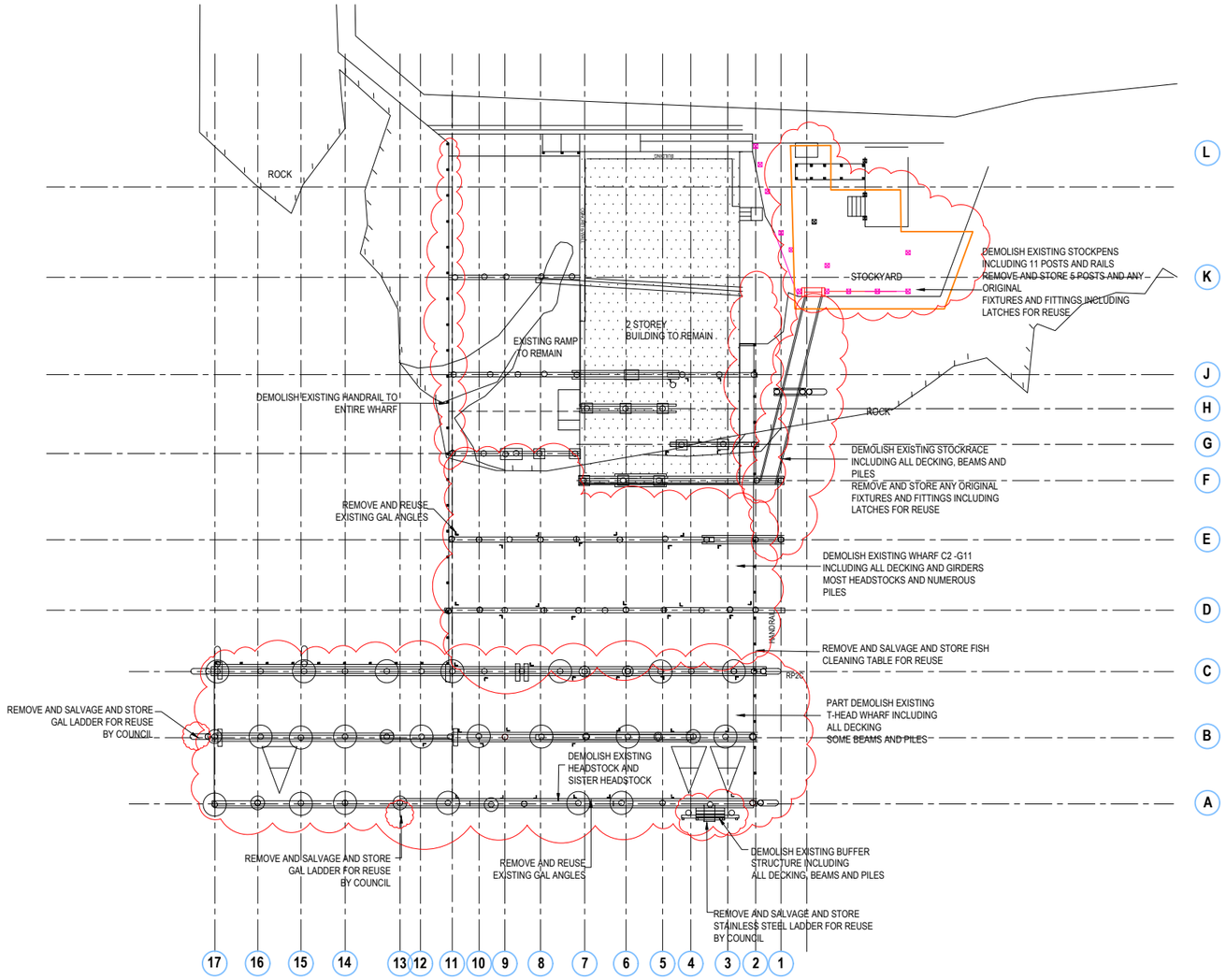
1. ALL MATERIALS & WORKMANSHIP SHALL BE IN ACCORDANCE WITH AS3600 AND AS3610 CURRENT EDITION WITH AMENDMENTS UNO
2. PERFORMANCE CRITERIA
   ALL CONCRETE
   EXPOSURE CLASSIFICATION = C
   GRADE 50 MPA
   F'C = 32 MPA AT 7 DAYS
   50 MPA AT 28 DAYS
   65 MPA AT 56 DAYS
   COVER = 65 MM
   SLUMP = 80 MM
   MAX AGG SIZE = 20 MM
   CEMENT TYPE = BLENDED CEMENTS FOR MARINE USE
   MAX WATER : CEMENT RATIO = 0.4
   MIN CEMENT CONTENT = 470 KG/M3
   DURABILITY AT 28 DAYS = 1000 COLOMBS
   MAX SHRINKAGE STRAIN AT 56 DAYS 600E-6 UM TO AS1012.13
   CURING = 7 DAYS WET CURE
3. PREMIXED OR READYMIX CONCRETE SUPPLY SHALL BE IN ACCORDANCE WITH AS1379.
4. PORTLAND CEMENT SHALL BE TYPE SL AND SHALL BE OBTAINED FROM AN APPROVED SOURCE.
5. ALL THE REQUIREMENTS OF THE ACSE CONCRETE SPECIFICATION DOCUMENT 1 SHALL APPLY TO FORMWORK, REINFORCEMENT AND CONCRETE.
6. PROJECT CONTROL TESTING SHALL BE CARRIED OUT TO AS3600 AND AS1379, CLAUSE B7.
7. CONCRETE MIX DESIGNS TO BE SUBMITTED FOR REVIEW PRIOR TO USE.
8. MARINE CEMENT SHALL BE A BLENDED CEMENT SUITABLE FOR MARINE USE CONFORMING TO AUSTRALIAN STANDARDS
9. RHEOBUILD SUPERPLASTISER BY MASTERBUILDERS TECHNOLOGIES MAY BE USED TO REDUCE THE WATER CONTENT WHILE MAINTAINING ADEQUATE WORKABILITY.
10. WHERE APPROVED, SHRINKAGE REDUCING ADMIXTURES SUCH AS 'ECLIPSE' OR EQUIVALENT, MUST BE ADDED TO MIX PRIOR TO POUR.
11. FLYASH UP TO 40KG / M3 MAY BE ADDED TO INCREASE WORKABILITY
12. NO OTHER ADMIXTURES OR ASH CONTENT SHALL BE USED UNLESS APPROVED BY ENGINEER IN WRITING.
13. FOR THESE CONCRETE MIXES THE REQUIREMENTS SPECIFIED FOR STRENGTH AND SHRINKAGE ARE MANDATORY, OTHER PARAMETERS FOR THESE MIXES HAVE BEEN SUGGESTED BUT MAY BE VARIED.
14. WHERE POSSIBLE ALL CONCRETE IS TO BE PLACED IN THE DRY. WHERE NECESSARY, CONCRETE PLACED UNDER WATER TO BE POURED USING A TREMMIE.
15. ALL CONCRETE INCLUDING SLABS ON GROUND AND FOOTINGS SHALL BE COMPACTED USING MECHANICAL VIBRATORS.
16. FINISHED CONCRETE SHALL BE A DENSE HOMOGENOUS MASS, COMPLETELY FILLING THE FORMWORK & THOUROUGHLY EMBEDDING THE REINFORCEMENT AND FREE OF STONE POCKETS
17. CURING OF CONCRETE IS TO BE ACHIEVED BY KEEPING SURFACES CONTINUOUSLY WET FOR A PERIOD OF 3 DAYS AND BY PREVENTING MOISTURE LOSS FOR A TOTAL OF 7 DAYS FOLLOWED BY A GRADUAL DRYING OUT.
18. POLYTHENE SHEETING OR WET HESSIAN MAY BE USED TO RETAIN CONCRETE MOISTURE WHERE PROTECTED FROM WIND AND TRAFFIC.
19. THE FINISHED CONCRETE SHALL BE FREE OF CRACKS >0.2MM WIDE AT THE TIME OF PRACTICAL COMPLETION. IF CRACKING EXCEEDS THIS LIMIT THEN THE CONTRACTOR SHALL MAKE GOOD AT HIS EXPENSE THE CRACKS TO THE SATISFACTION OF THE SUPERINTENDENT WHICH MAY COMPRISE THE REPLACEMENT OF THAT ELEMENT OR SEALING THE CRACKS WITH A SILANE / SILICA FUME GEL OR OTHER WORKS.
20. FOR CHAMFERS, DRIP GROOVES, FALLS, DRAINS ETC REFER ARCHITECTS DETAILS, MAINTAIN COVER REQUIREMENTS AT THESE DETAILS
21. NO HOLES CHASES OR EMBEDMENTS OF PIPES OTHER THAN THAT SHOWN ON THE STRUCTURAL DRAWINGS SHALL BE MADE WITHOUT THE PRIOR WRITTEN ENGINEERS APPROVAL.
22. CONSTRUCTION JOINTS WHERE NOT SHOWN TO BE LOCATED TO APPROVAL OF ENGINEER
23. CONDUITS PIPES ETC SHALL ONLY BE LOCATED IN THE MIDDLE THIRD OF SLAB DEPTH AND SPACED AT NOT LESS THAN 3 BAR DIAMETERS. PIPES OR CONDUITS SHALL NOT BE PLACED WITHIN THE COVER TO REINFORCEMENT.
24. WHERE VERTICAL SLAB/BEAM SURFACES ARE FORMED AGAINST A MASONRY (OR OTHER) WALL, PROVIDE 10 MM STYRENE SEPARATION MATERIAL.
25. SLABS AND BEAMS SHALL BE CONSTRUCTED TO BEAR ONLY ON THE BEAMS, WALLS, COLUMNS, ETC. SHOWN ON THE DRAWINGS. ALL OTHER BUILDING ELEMENTS SHALL BE KEPT 20MM MINIMUM CLEAR FROM SOFFITS OF STRUCTURE
26. PROVIDE WATERPROOF MEMBRANE WHERE SLAB CONTACTS GROUND
27. PROVIDE ADEQUATE FALLS & GRADES TO ALL SLABS & MAINTAIN COVER
28. THE ENGINEER SHALL BE GIVEN 48 HOURS NOTICE FOR REINFORCEMENT INSPECTION AND CONCRETE SHALL NOT BE DELIVERED UNTIL FINAL APPROVAL OBTAINED.

STEEL REINFORCEMENT

1. ALL REINFORCEMENT SHALL BE TO AS4671 - 2001
2. ALL REINFORCEMENT SHALL BE STRENGTH GRADE 500N UNO
3. SYMBOLS AS PER AS4671
   R GRADE 250 ROUND BAR TO AS3679.1
   N GRADE 500N DEFORMED BAR TO AS4671
   SL GRADE 500 SQUARE
   EXAMPLE 8N20-200-T4 DENOTES 8 GRADE 500N DEFORMED BARS AT 20Ø PLACED AT 200 CRS IN THE TOP 4TH LAYER OF THE ELEMENT REO
4. REINFORCEMENT IS REPRESENTED DIAGRAMATICALLY AND NOT NECESSARILY IN TRUE PROJECTION
5. ALL REINFORCEMENT SHALL BE FIRMLY SUPPORTED ON MILD STEEL PLASTIC TIPPED CHAIRS. PLASTIC CHAIRS OR CONCRETE CHAIRS .
6. IN EXPOSURE CONDITIONS GREATER THAN B1 USE ONLY PLASTIC CHAIRS.
7. SUPPORT BARS AT MAX 1000MM CENTRES BOTH WAYS.
8. LAPS AND SPLICES IN REINFORCEMENT SHALL BE MADE ONLY IN POSITIONS SHOWN OR OTHERWISE APPROVED IN WRITING BY THE ENGINEER.
9. TENSION LAP LENGTHS (MM) SHALL BE:

N12	N16	N20	N24	N28	N32	N36
500	750	1000	1200	1450	1800	2150

   THE LAP LENGTH SHALL BE INCREASED BY 40% FOR SLAB BARS SPACED LESS THAN 150MM.
8. F



EXISTING WHARF PLAN & DEMOLITION PLAN

SCALE 1 : 200

NOTES:

1.0 REFER TO GENERAL NOTES & SPECIFICATION
2.0 ALL LEVELS TO CHART DATUM 0.0 = AHD -0.925

LEGEND

EXISTING TIMBER PILE
WITH 1600Ø CONCRETE BOOT
AT SEABED

EXISTING TIMBER PILE
WITH SMALLER CONCRETE BOOT
AT SEABED

Drawing Status

PRELIMINARY

NOT TO BE USED FOR CONSTRUCTION

SIGNED
STEVE FITZHENRY
MIEAust CPEng NER (CIVIL STRUCTURAL)

REVISION	COMMENTS	DATE
H	HERITAGE REVIEW	211005
F	A1	210728
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CLIENT
BEGA VALLEY SHIRE COUNCIL
MR DAVID BUCKLEY

PROJECT
TATHRA WHARF HERITAGE
REFURBISHMENT

DRAWING TITLE
EXISTING SITE PLAN & DEMOLITION PLAN

DRAWN	DESIGNED	REVIEWED	APPROVED
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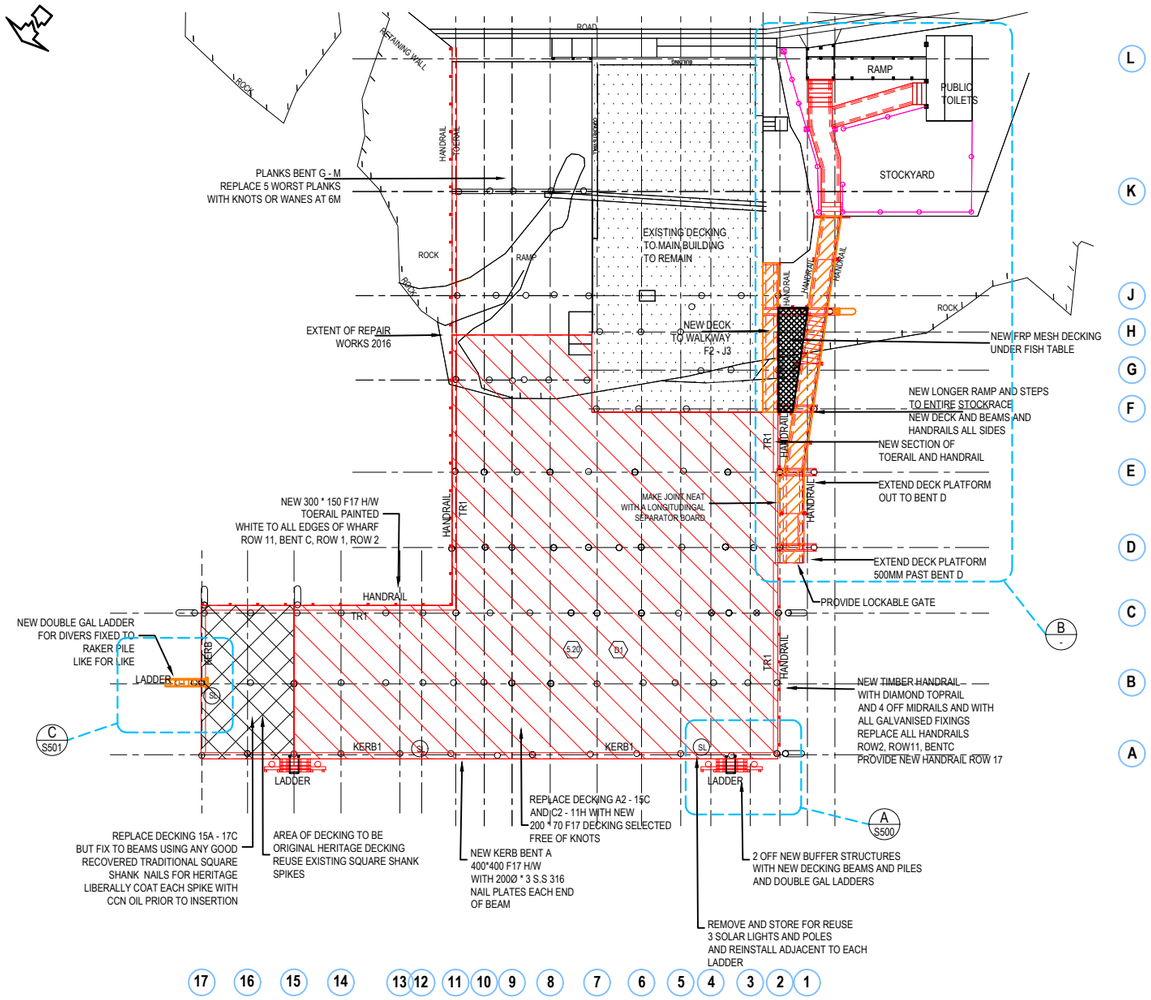
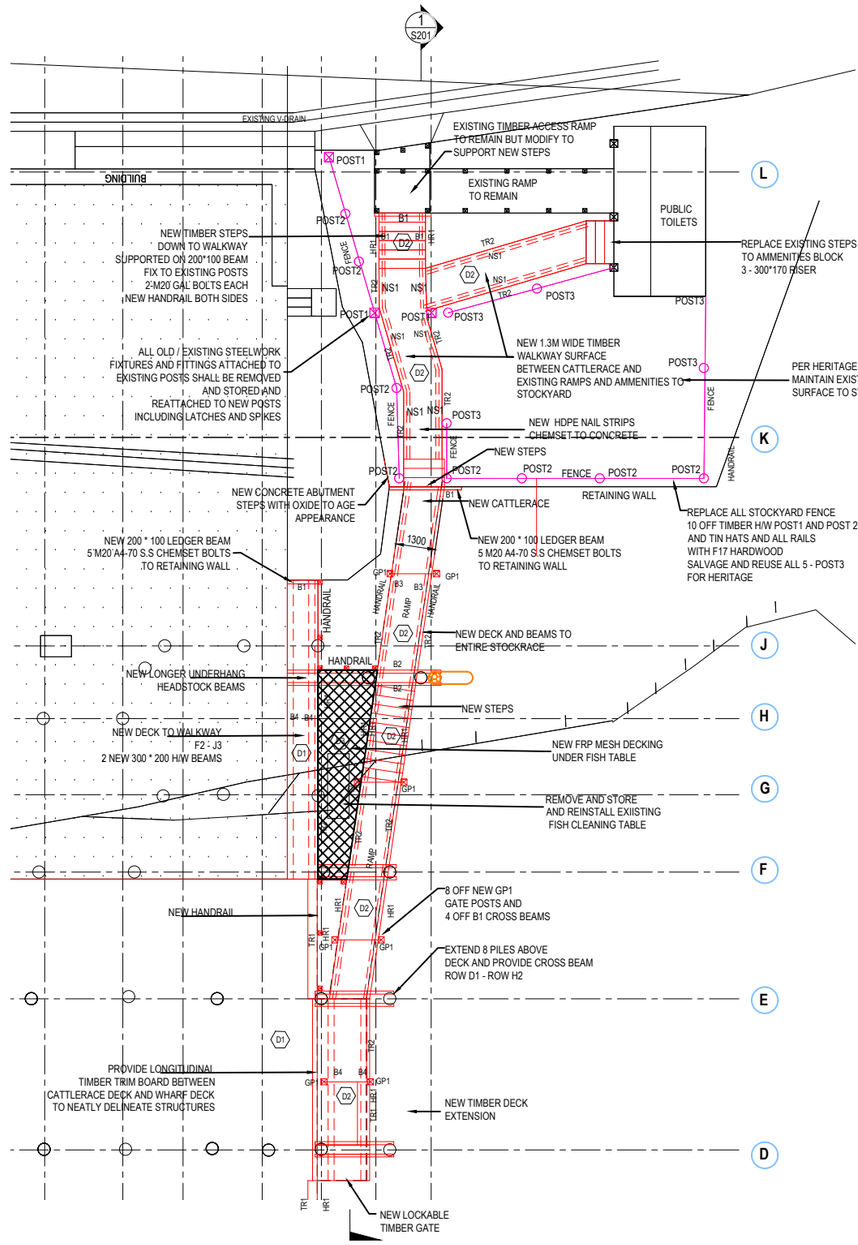
STRUCTURAL ENGINEER
Land & Marine
engineering consulting PTY LTD
STRUCTURAL & MARITIME ENGINEERS
ABN: 63 638 078 823 P: 0411 316 315 E: steve@landmarine.com.au
33 HORDERNS LANE BUNDEENA SYDNEY NSW 2230



DECK PLAN

SCALE 1 : 200



DETAIL B - STOCKYARD & STOCKRACE PLAN

SCALE 1:100

NOTES:

1.00 REFER TO GENERAL NOTES & SPECIFICATION

LEGEND

5.20 APPROX DECK RL MEASURED TO CHART DATUM 0.0

SL SOLAR LIGHT

MEMBER SCHEDULE

KERB1
400*400 H/W F17 KERB
PAINTED WHITE

TR1
NEW TOERAIL 300 * 150 F17 H/W
PAINTED WHITE BEFORE DELIVERY TO SITE
M24Ø GAL CARRIAGE BOLT
FIXED TO PLANKS AT 600 CRS
50*5 GAL WASHER LOWER

TR2
75W *65 D F14 H/W TOERAIL - PAINTED WHITE

D1
200 * 70 TIMBER DECKING F17 H/W DECKING BOARDS
HAND SELECTED SUITABLE FOR BOARDWALKS FREE OF KNOTS AND WANES CHOSEN BY EXPERIENCED WHARF CARPENTERANY IRREGULAR PLANK REJECTED BY ENGINEER OR CLIENT AFTER LAYING DOWN SHALL BE REPLACED FREE OF CHARGE BY THE CONTRACTOR
PLANKS SHALL BE 6M LENGTH OR FULL WIDTH OF DECK
2 OFF M8 Ø - 140 L GAL STEEL 316
COUNTERSUNK COACH SCREWS DIP IN CCA OIL PRIOR TO INSERTION INTO PREDRILLED HOLES

D2
150 * 50 TIMBER DECKING F17 H/W
SELECTED FOR DECKING BOARDS WITH NO KNOTS OR WANES
WITH 20MM GAP BETWEEN BOARDS
2 OFF 10 GAUGE / 5MM Ø GAL STEEL 316
BUGLE HEADED COUNTERSUNK SCREWS
MINIMUM @ 100MM LONG FOR 50MM DECKING

D3
WELDLOCK F 38 MM FRP MICROMESH
USE CUPHEAD WASHERS RECESSED INTO DECKING
5Ø S.S BUGLE HEAD SCREWS

LADDER1
NEW GAL LADDER LADDER
ATTACHED TO BUFFER STRUCTURE

LADDER2
NEW GAL STEEL DIVERS LADDER TO MATCH EXISTING
ATTACHED TO RAKER PILE

B1
200* 100 F22 H/W TIMBER BEAM UNSEASONED

B2
300* 150 F22 H/W TIMBER BEAM UNSEASONED

B3
300* 100 F22 H/W TIMBER BEAM UNSEASONED

NS1
100 * 50 HDPE NAILING STRIP
CHEMSET FIX TO EXISTING CONCRETE SLAB
WITH M8 S.S A4-80 COACH BOLTS RECESSED

POST 1
300 * 300 * 2.4M HIGH SQUARE F17 H/W POST
ROUGH HEWN TO MATCH EXISTING HERITAGE
POSTS (IE NOT REGULAR)

POST 2
300 Ø * 2.4M HIGH F17 H/W POST
ROUGH HEWN TO MATCH EXISTING HERITAGE
POSTS (IE NOT REGULAR)

POST 3
EXISTING POST REUSED

GP1
GATE POST 200 * 200 H/W

Drawing Status

PRELIMINARY

NOT TO BE USED FOR CONSTRUCTION

SIGNED

STEVE FITZHENRY

MIEAust CPEng NER (CIVIL STRUCTURAL)

REVISION	COMMENTS	DATE
H	HERITAGE REVIEW	211005
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CLIENT

BEGA VALLEY SHIRE COUNCIL

MR DAVID BUCKLEY

PROJECT

TATHRA WHARF HERITAGE REFURBISHMENT

DRAWING TITLE

DECK PLAN

DRAWN	DESIGNED	REVIEWED	APPROVED
STEVE FITZHENRY B.E MIEAust CPEng NER			

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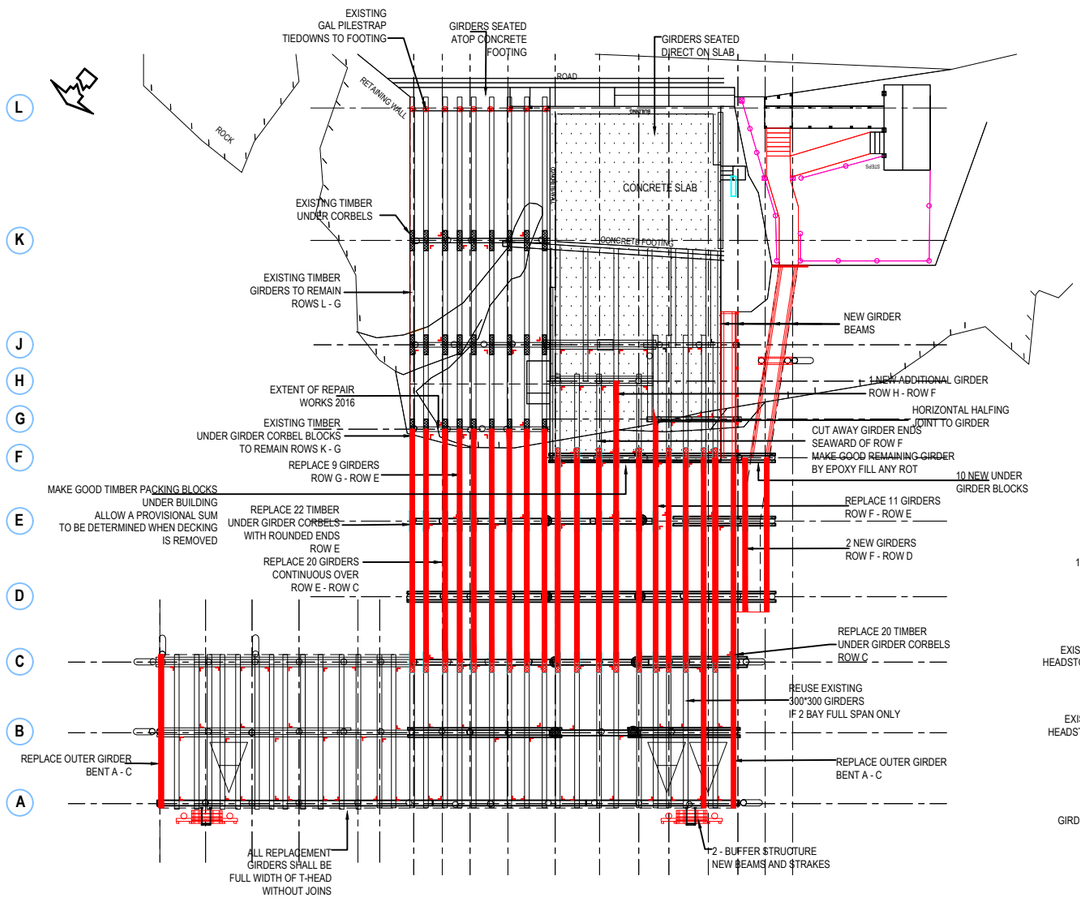
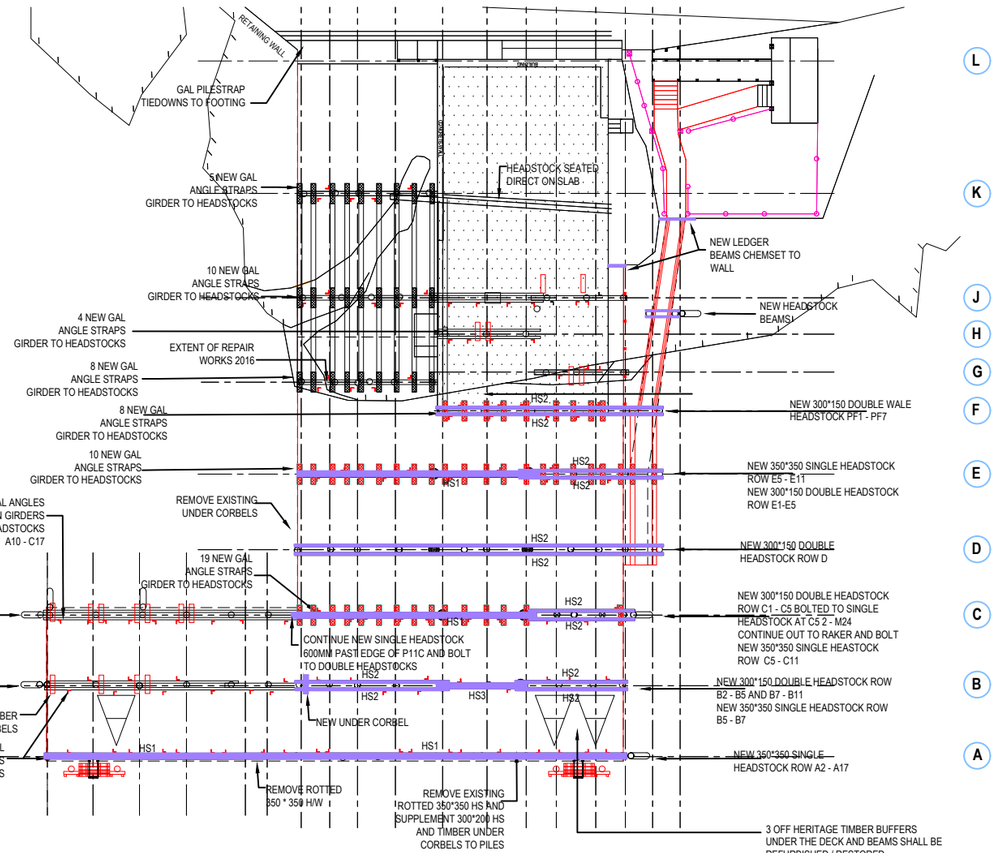
STRUCTURAL ENGINEER

Land & Marine engineering consulting PTY LTD
STRUCTURAL & MARITIME ENGINEERS

ABN: 63 638 078 823 P: 0411 316 315 E: steve@landmarine.com.au
33 HORDERNS LANE BUNDEENA SYDNEY NSW 2230



GIRDER PLAN
SCALE 1 : 200



HEADSTOCK PLAN
SCALE 1 : 200

NOTES:
1.0 REFER TO GENERAL NOTES & SPECIFICATION

LEGEND
- REPLACE BEAM TYP OVER MIN 2 FULL SPANS U.N.O
- REPLACE HEADSTOCK BEAM
- 5.20 APPROX DECK RL MEASURED TO CHART DATUM 0.0
- PILE STRAP
- 150*10 GAL ANGLE GIRDER TO HEADSTOCK

NOTES
1. ALL GIRDERS SHALL BE REPLACED OVER A MINIMUM OF 2 FULL SPANS U.N.O
2. CHECK GIRDER 20 MM OVER HEADSTOCK BEAM
3. CHECK HEADSTOCK BEAM 30 MM OVER PILE HEAD
4. ALL PILE HEADS TO EXISTING HEADSTOCK TO HAVE 1-M24 GAL BOLT EXTRA ADDED OR 1 NEW GAL PILESTRAP

DISCOVERED WORKS
1. ENGINEER TO INSPECT ALL BEAMS TO WHARF WHEN DECK REMOVED TO DETERMINE ANY ADDITIONAL GIRDERS OR HEADSTOCKS TO BE REPLACED
2. CONTRACTOR TO PROVIDE A PRICE TO REPLACE AN ADDITIONAL 100 L.M OF GIRDER BEAMS
3. CONTRACTOR SHALL BE AWARE THAT IT THE NATURE OF THESE TYPE OF REPAIRS THAT IT IS LIKELY THAT ADDITIONAL BEAMS WILL BE REQUIRED TO BE REPLACED AFTER INSPECTION WHEN THE DECK IS REMOVED.
4. CONTRACTOR SHALL ALLOW A CONTINGENCY IN PROGRAMME AND MATERIALS TO ALLOW FOR ADDITIONAL BEAM REPLACEMENTS REQUIRED DISCOVERED.

MEMBER SCHEDULE .

G1
300* 300 GIRDER BEAM
F22 H/W TIMBER BEAM UNSEASONED

G2
300* 200 GIRDER BEAM
F22 H/W TIMBER BEAM UNSEASONED

HS1
350* 350 SINGLE HEADSTOCK BEAM
F22 H/W TIMBER BEAM UNSEASONED

HS2
2 - 300* 150 DOUBLE HEADSTOCK BEAM
F22 H/W TIMBER BEAM UNSEASONED

HS3
300* 300 SINGLE HEADSTOCK BEAM
F22 H/W TIMBER BEAM UNSEASONED

CORBELS AND UNDERGIRDERS
TO BE SIMILAR DIMENSIONS TO BEAMS
OUTER ROW OF ALL CORBELS SHALL BE ROUNDED AT ENDS
INNER ROWS MAY BE MITRED 100*100

ALL BEAMS IN THE TIDAL ZONE TO BE PAINTED WITH 1 COAT CN OIL AND MONKEY SPUNK ALL BOLT HOLES AND BLACKJACK PAINT ALL CUT ENDS

Drawing Status
PRELIMINARY
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STEVE FITZHENRY
MIEAust CPEng NER (CIVIL STRUCTURAL)

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BEGA VALLEY SHIRE COUNCIL
MR DAVID BUCKLEY

PROJECT
TATHRA WHARF HERITAGE REFURBISHMENT

DRAWING TITLE
BEAM PLAN

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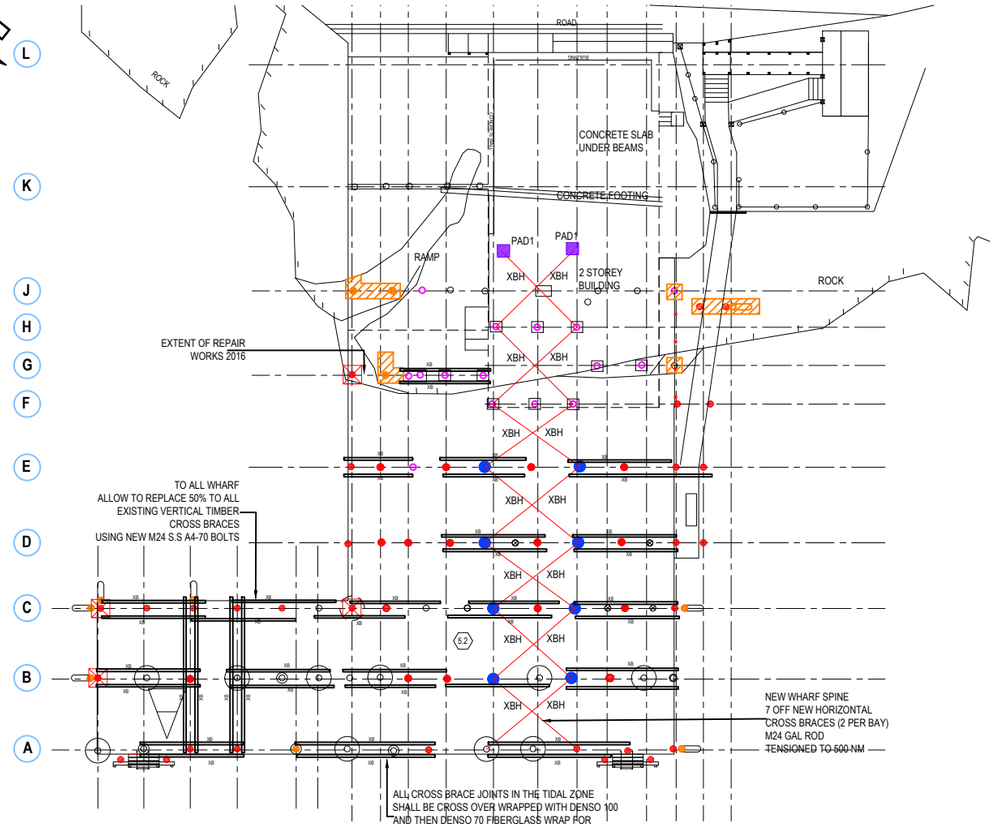
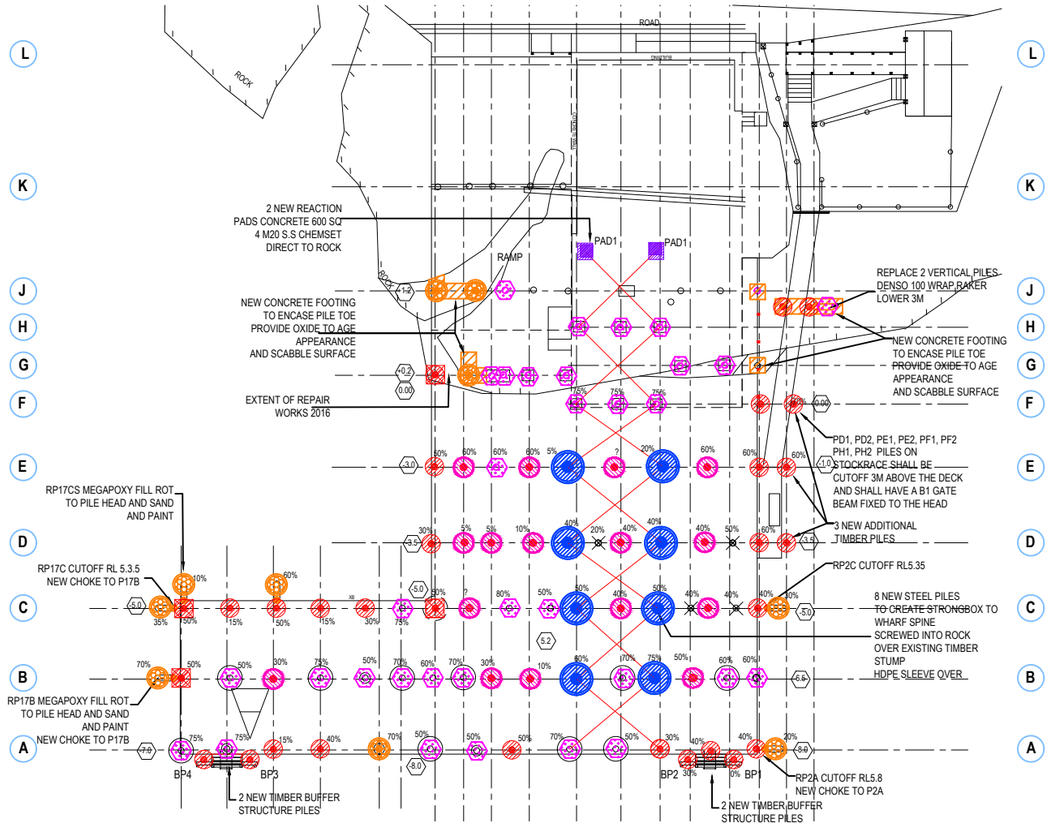
STRUCTURAL ENGINEER
Land & Marine engineering consulting PTY LTD
STRUCTURAL & MARITIME ENGINEERS
ABN: 63 638 078 823 P: 0411 316 315 E: steve@landmarine.com.au
33 HORDERNS LANE BUNDEENA SYDNEY NSW 2230



CROSS BRACE PLAN

SCALE 1 : 200



PILE PLAN

SCALE 1 : 200

NOTES:

1.0 REFER TO GENERAL NOTES & SPECIFICATION

PILE SCHEDULE

TP 1
NEW 300Ø TOE TURPENTINE F22 PILE
CUTOFF 100MM ABOVE BEAM UNDER DECK OR AS EXISTING
MIN 2500 INTO GRADE 3 ROCK
DISREGARD LOOSE MATERIAL / WEATHERED ROCK
GAL STEEL RING TO HEAD
PAINT 3 COATS BLACKJACK TO HEAD TO COMPLETELY SEAL TO WATER
PAINT HEAD WHITE TOP 1M WHERE ABOVE DECK
AND
DENSO 100 WRAP PILE FROM RL2.5 CD
TO SEABED WITH FULL SEAL TO ROCK
USING GROUT FILLED 610Ø * 12 STEEL BOOT
PAINTED BLACK AND CUT TO SUIT SLOPE ON ROCK

TP 2
NEW TIMBER D-SAP PILE
300Ø TOE / 400Ø HEAD HARDWOOD PILE
PROFILED OCTOGON F27 GRADE
SHAPED IN COFFS HARBOUR
CUTOFF UNDER DECK OR BEAM
MIN 2600 INTO GRADE 3 ROCK
DISREGARD LOOSE MATERIAL / WEATHERED ROCK
GAL RING TO HEAD
PAINT 3 COATS BLACKJACK TO HEAD TO COMPLETELY SEAL TO WATER
AND
NEW 450 Ø x 14 HDPE SLEEVE OVER
CUTOFF AT RL 2.5 CD
600MM INTO ROCK SOCKET AUGERED
COMPLETELY SEAL TO WATER WITH DENSO MASTIC
AND DENSO 100 WRAP 300MM ABOVE AND BELOW SLEEVETOP
PROVIDE DENSO ROCKMESH WRAP TO PILE
RL 2.5 TO -1.0
SMARTBANDS EVERY 600MM CRS

SP1
NEW STEEL PILE
610Ø * 12.7 STEEL CHS PILE GRADE 250 MPA
CUTOFF UNDER HEADSTOCK
MIN 2500 INTO GRADE 3 ROCK
DISREGARD LOOSE MATERIAL / WEATHERED ROCK
SIKAGROUT U/W GROUT FILL TOP 1.2M
25 MPA CONCRETE FILL PILE TO SEABED
AND
PAINTED 2 COATS EPOXY TO 700uM
FROM HEAD TO 500MM INTO SEABED
PROVIDE 2 - 5KG ZINC ANODES TO PILE BASE
ATTACH TO BLACK (UNPAINTED) BOLTS WELD TO PILE

EACH AND EVERY PILE SHALL BE PAINTED WITH THE PILE NUMBER NEATLY STENCILLED IN BLACK 1M BELOW THE HEADSTOCK BEAM 200MM HIGH ON BOTH THE LANDWARD FACE

PILE SCHEDULE

PILE TYPE	COMMENT	PILES	PILE TYPE	COMMENT	PILES
	TP1 NEW TIMBER PILE F22 TURPENTINE DENSO 100 WRAPPED	BUFFER PILES BP1, BP2, BP3, BP4 P2A, P3A, P5A, P8A, P14A, P15A P17B P2C, P11C, P13C, P14C, P15C, P16C, P17C P1D, P2D, P11D P1E, P2E, P11E P1F, P2F, P11G P1H, P1HE		WRAP PILE DENSO 100 FROM RL2.5 TO SEABED AND SEAL WITH STEEL BOOT AND GROUTED	P6A, P7A, P9A, P11A, P16A, P17A P2B, P3B, P6B, P10B, P11B, P12B, P13B, P14B, P16B P8C, P9C, P12C P9E P5F, P6F, P7F P3G, P4G, P7G, P8G, P9G, P10G RP1H, P5H, P6H, P7H P9J
	TP2 NEW TIMBER PILE F27 HARDWOOD WITH HDPE SLEEVE	P4B P8B, P9B, P15B P4C(W), P6C, P10C P4D, P6D, P8D, P9D, P10D P4E, P6E, P8E, P10E		DENSO 400 ENCASE PILE U/S BEAM TO 600MM INTO SEABED WITH 2 WRAPS OF CARBON MESH AND GROUT FILLED	RP2A, P13A, RP17B RP2C, RP15C, RP17C, RP17C(S) P10G P10J, P11J
	NEW 711Ø * 9.5 * 2M CONCRETE BOOT AT SEABED CUT TO SUIT SLOPE OF ROCK FOR FLUSH FIT	P17B P11C, P17C P11G		NEW CONCRETE ENCASEMENT ON ROCK 500 WIDE * 1M HIGH OXIDE COLOURED TO MATCH SANDSTONE 50 * 50 ARIS TO ALL CORNERS SCABBLE SURFACE TO PATINATE LIKE SANDSTONE	P2G, P10G, RP1H, P1H, P1H(E) P2J, P10J, P11J
	SP1 NEW STEEL PILE PAINTED	P5B, P7B P5C, P7C P5D, P7D P5E, P7E		EXISTING TIMBER PILE WITH 1600Ø CONCRETE BOOT AT SEABED	P6A, P7A, P9A, P11A, P13A, P14A, P15A, P16A, P17A P3B, P4B, P6B, P8B, P10B, P12B, P13B, P14B, P15B, P16B, P17B P3C, P5C, P8C, P11C, P13C, P15C
	PAD1 NEW CONCRETE PAD TO SUPPORT HEADSTOCK ON SEAWALL WITH 4 - M24 SS A4-70 BOLT CHEMSET 400 TO CONCRETE	P5J, P7J		CUT OFF HEAD OF EXISTING PILE ABOVE RL2.5 DO NOT CLEAN PILE FOR MARINE HABITAT	P3C, P4C P3D, P6DE

Drawing Status

PRELIMINARY

NOT TO BE USED FOR CONSTRUCTION

SIGNED

STEVE FITZHENRY

MIEAust CPEng NER (CIVIL STRUCTURAL)

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CLIENT

BEGA VALLEY SHIRE COUNCIL

MR DAVID BUCKLEY

PROJECT

TATHRA WHARF HERITAGE REFURBISHMENT

DRAWING TITLE

PILE PLAN

DRAWN	DESIGNED	REVIEWED	APPROVED
STEVE FITZHENRY B.E MIEAust CPEng NER			

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STRUCTURAL ENGINEER

Land & Marine engineering consulting PTY LTD
STRUCTURAL & MARITIME ENGINEERS
ABN: 63 638 078 823 P: 0411 316 315 E: steve@landmarine.com.au
33 HORDERNS LANE BUNDEENA SYDNEY NSW 2230

NOTES:

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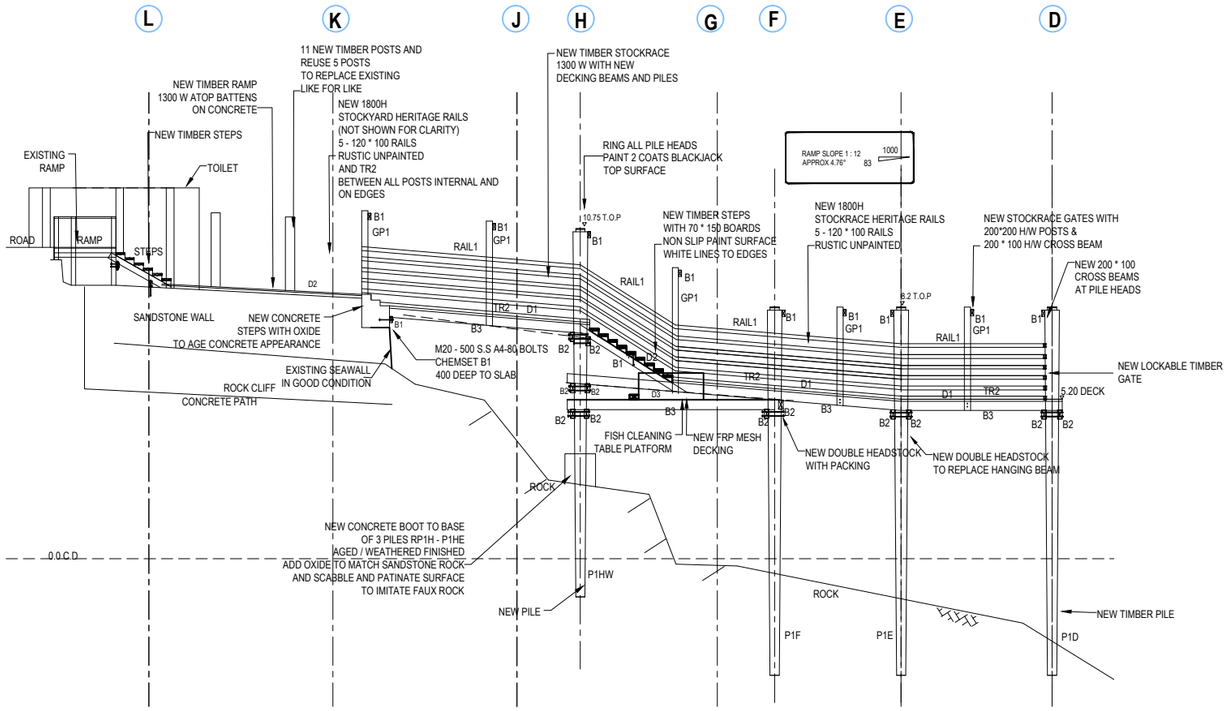
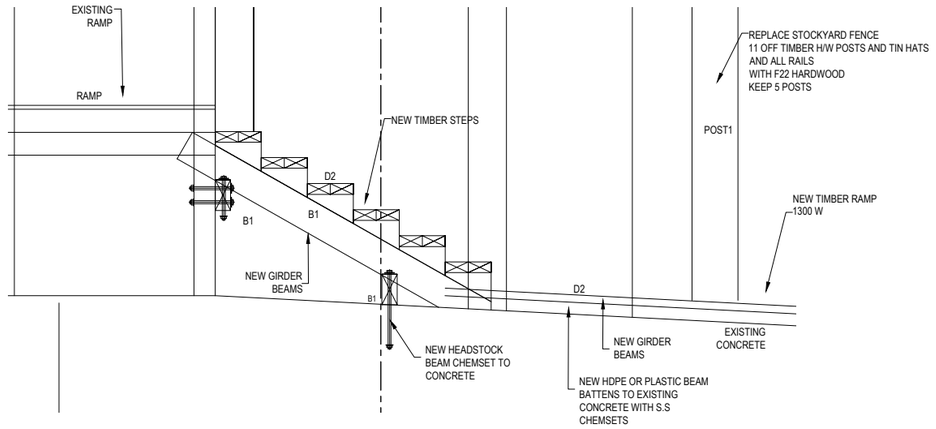


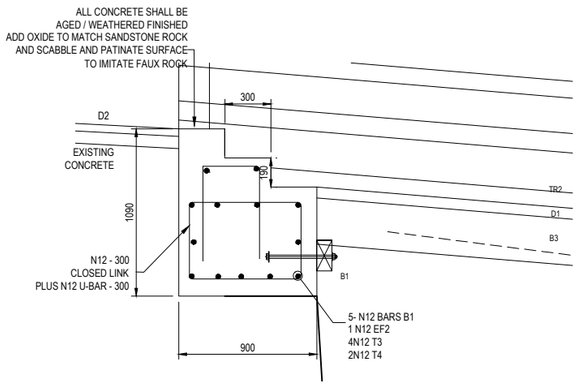
SECTION 1 / S10 AT ROW 1
SCALE 1:100



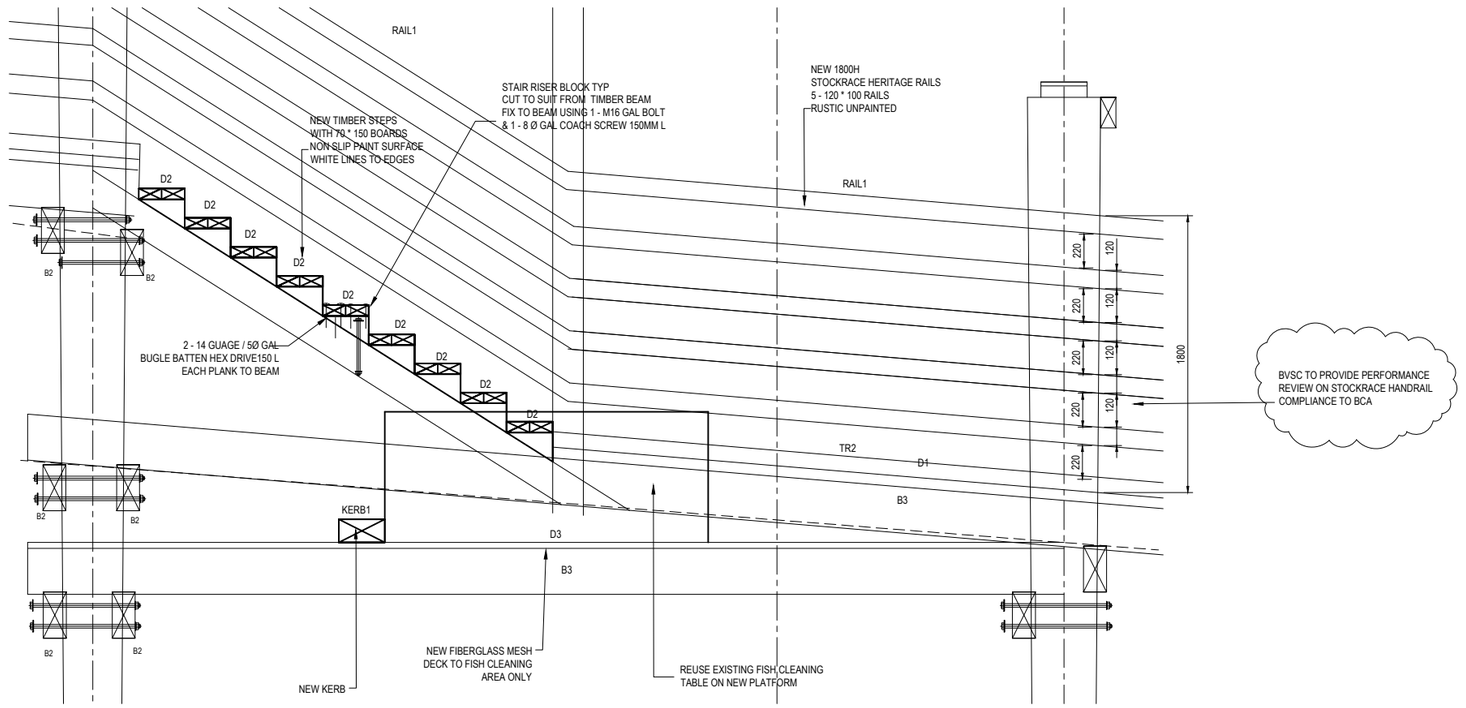
DETAIL A
SCALE 1:20

MEMBER SCHEDULE

D1	200 * 70 F22 H/W TIMBER DECKING UNSEASONED 2 OFF S.S SCREWS PER PLANK
D2	150 * 70 F22 H/W TIMBER DECKING UNSEASONED 2 OFF S.S SCREWS PER PLANK
D3	50 FRP MINIMESH
B1	200* 100 F22 H/W TIMBER BEAM UNSEASONED
B2	250* 125 F22 H/W TIMBER BEAM UNSEASONED
B3	300 * 125 F22 H/W
B4	300 * 300 F22 H/W
TR2	100W *100 D F17 H/W TOERAIL - PAINTED WHITE
GP1	200 * 200 F22 H/W GATE POST
RAIL1	HERITAGE STOCK RACE RAIL



DETAIL B
SCALE 1:20



DETAIL C
SCALE 1:20

Drawing Status

PRELIMINARY

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PROJECT

TATHRA WHARF HERITAGE REFURBISHMENT

DRAWING TITLE

SECTIONS ON ROWS

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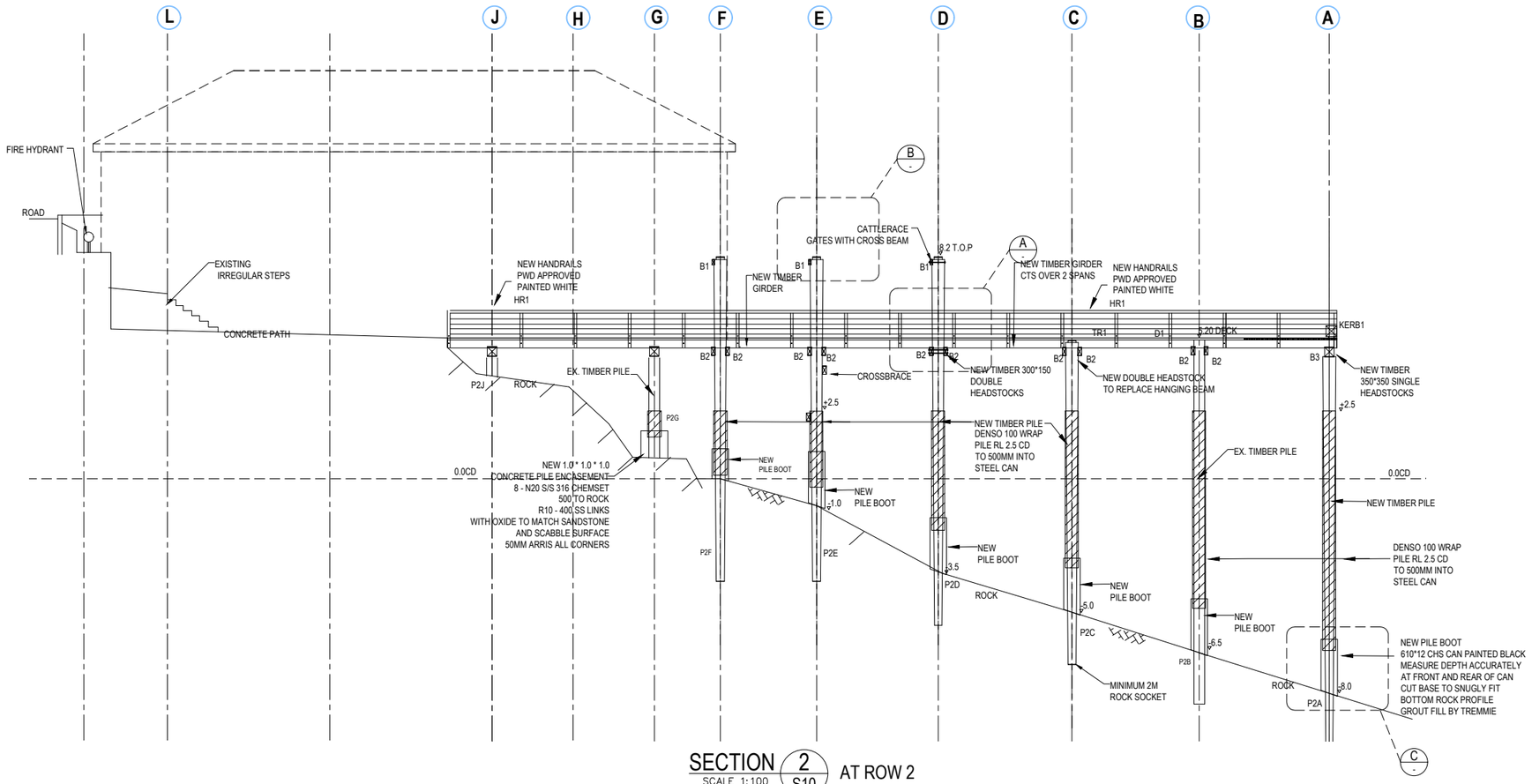
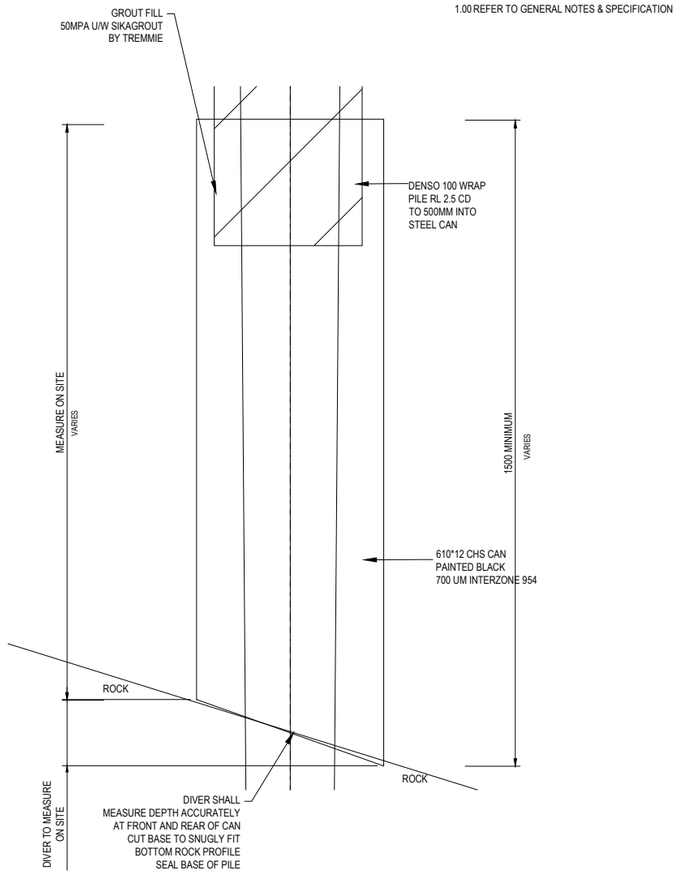
STRUCTURAL ENGINEER

Land & Marine engineering consulting PTY LTD
STRUCTURAL & MARITIME ENGINEERS
ABN: 63 638 078 823 P: 0411 316 315 E: steve@landmarine.com.au
33 HORDERNS LANE BUNDEENA SYDNEY NSW 2230



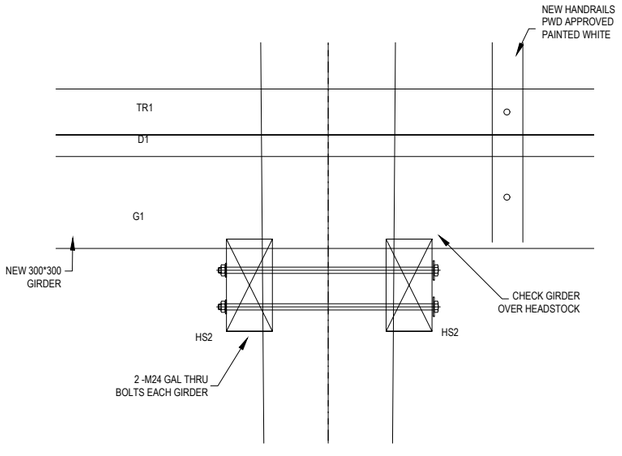
SECTION 2/S10 SCALE 1:100 AT ROW 2



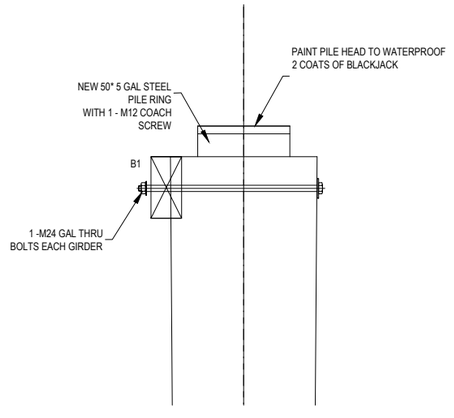
DETAIL C/- SCALE 1:10 TYPICAL DETAIL ON PILE BOOT

NOTES:
1.00 REFER TO GENERAL NOTES & SPECIFICATION

NOTE: DIVER TO ACCURATELY MEASURE SEABED SLOPE TO DETERMINE CUTOFF SLOPE ON CAN BASE
IT IS CRUCIAL TO FORM A FULL SEAL TO THE ROCK WITH NO GAPS
CONTRACTOR SHALL PROVIDE 4 OFF CLEAR PHOTOS OF EACH PILE CAN - ONE FROM EACH COMPASS
DIRECTION - CLEARLY SHOWING THE CAN IS SEALED FLUSH TO ROCK



DETAIL A/- SCALE 1:10 TYPICAL DOUBLE HEADSTOCK JOINT TO PILE



DETAIL B/- SCALE 1:10 TYPICAL CATTLERACE GATE

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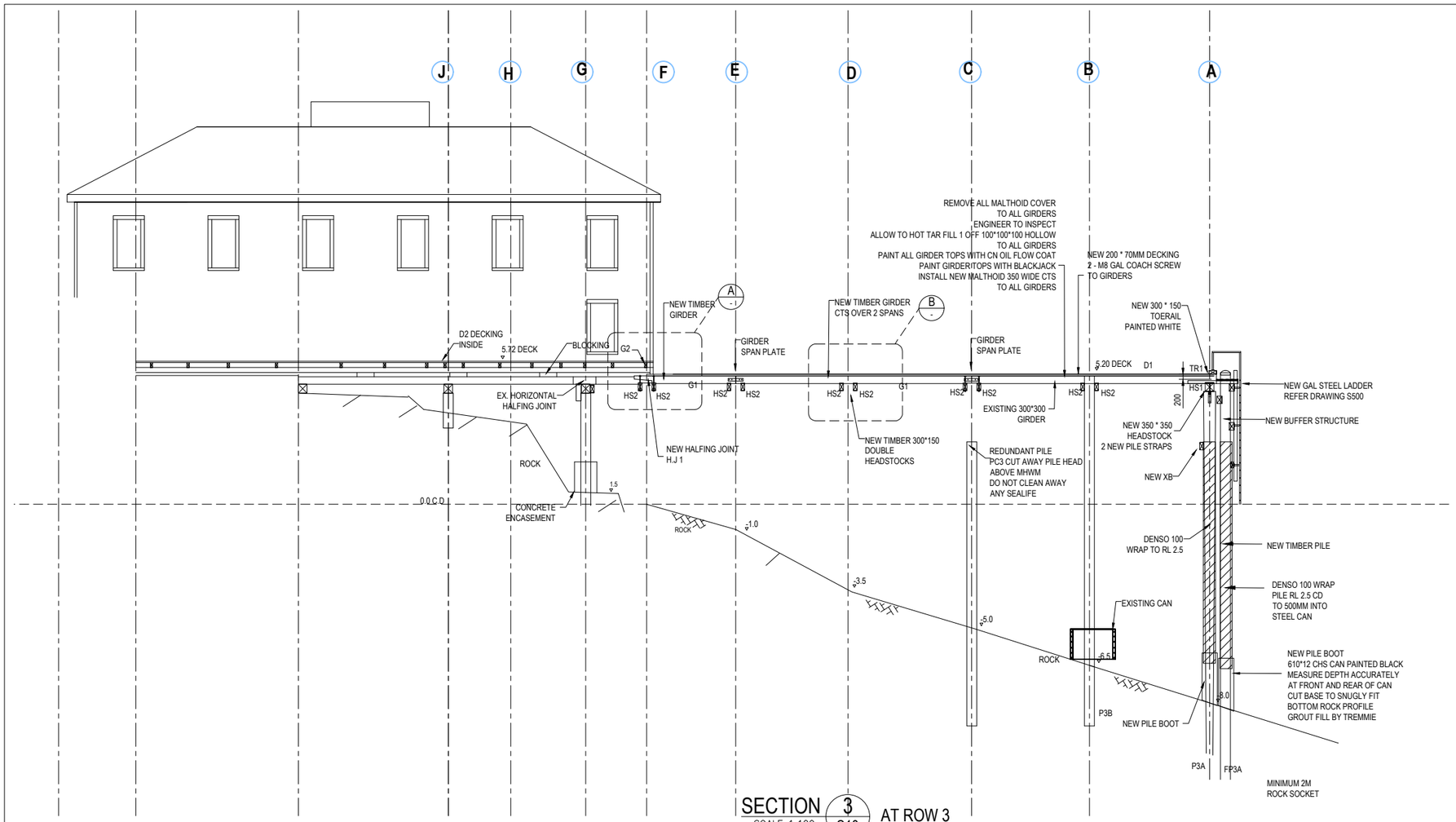
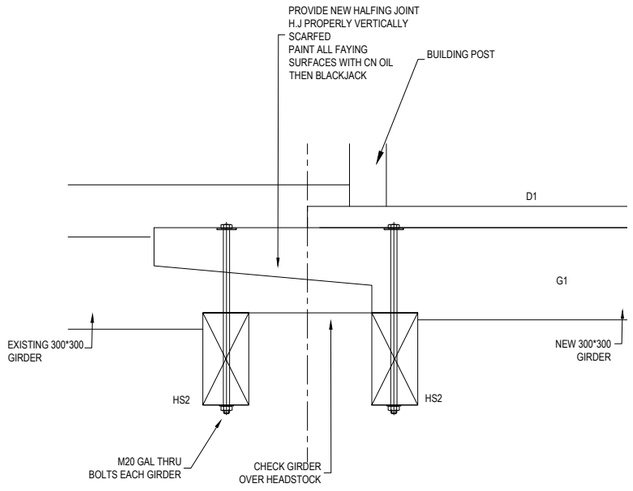
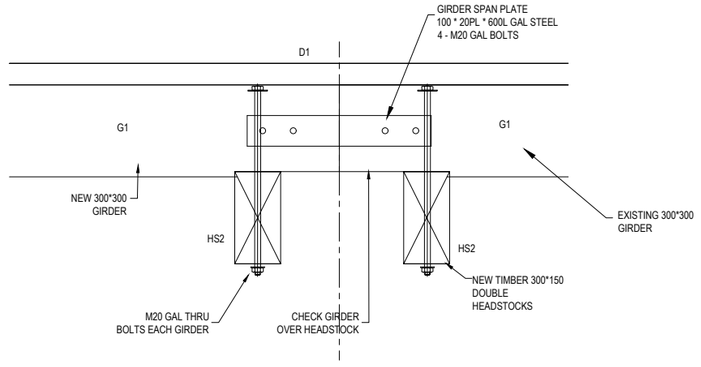
NOTES:
1.00 REFER TO GENERAL NOTES & SPECIFICATION



SECTION 3/S10 SCALE 1:100 AT ROW 3



DETAIL A/- SCALE 1:20 TYPICAL HALFING JOINT



DETAIL B/- SCALE 1:20 TYPICAL GIRDER SPAN PLATE

Drawing Status
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MIEAust CPEng NER (CIVIL STRUCTURAL)

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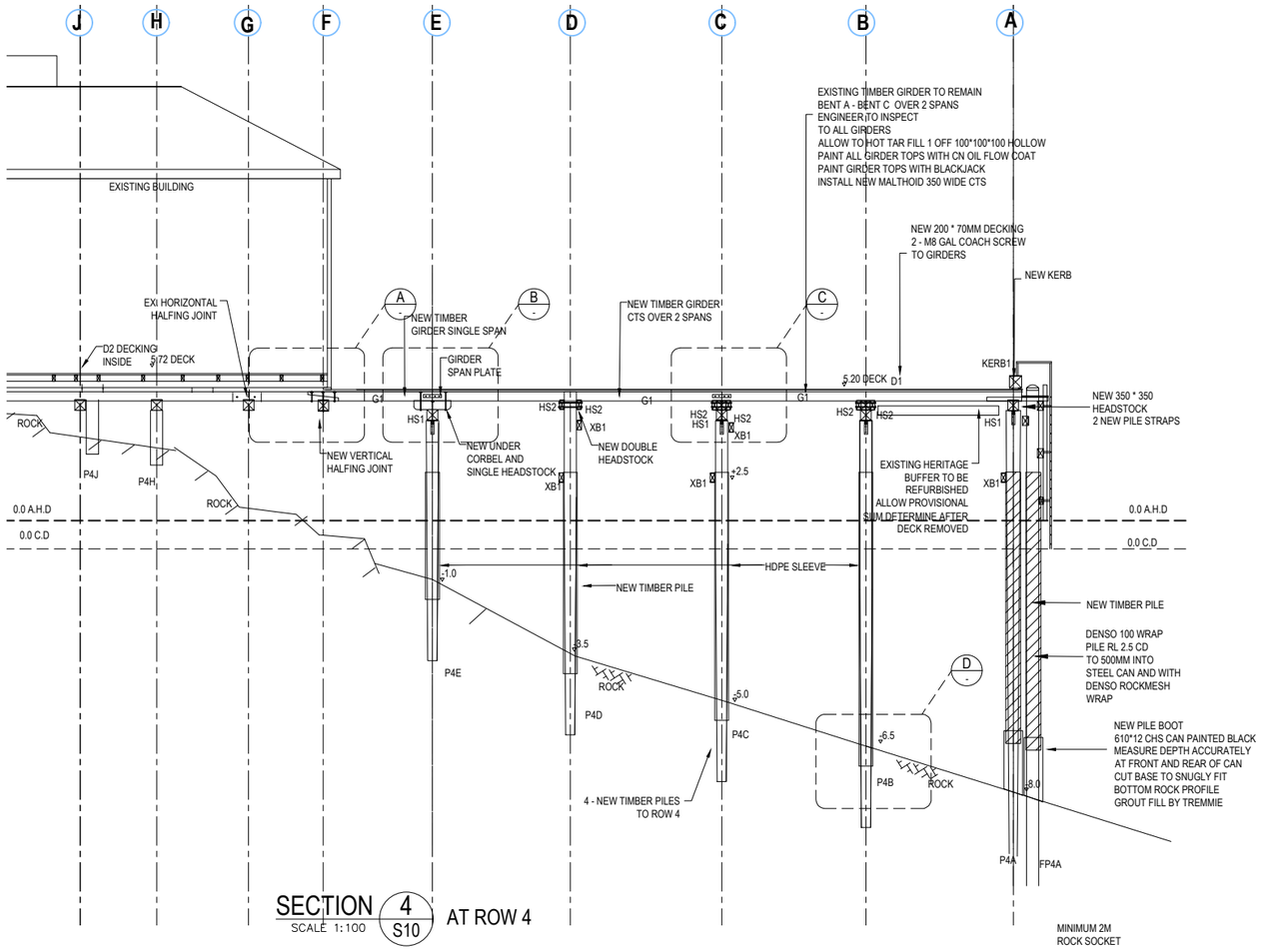

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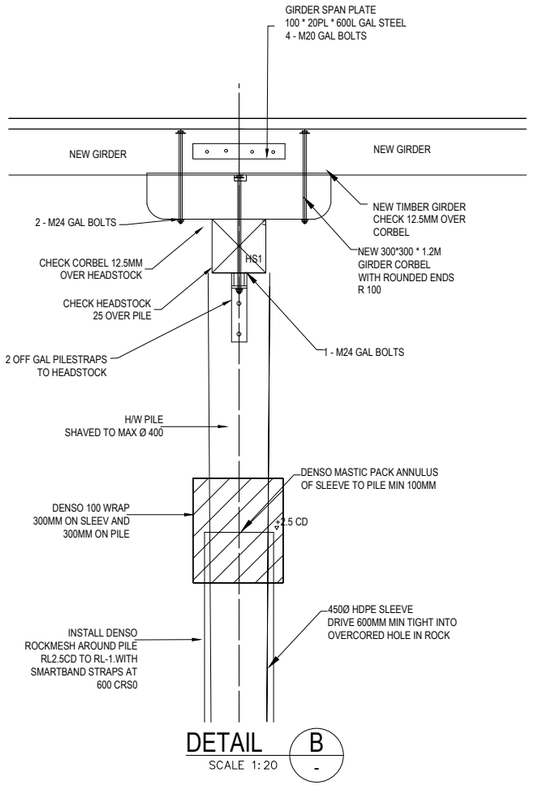
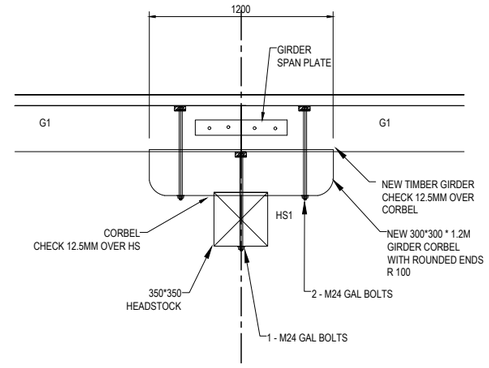
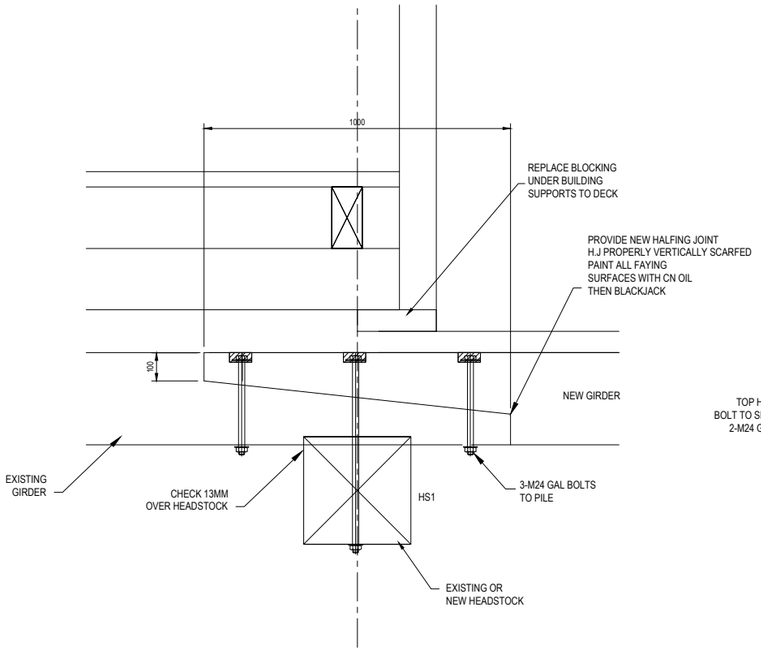


DETAIL B / - — SCALE 1:20

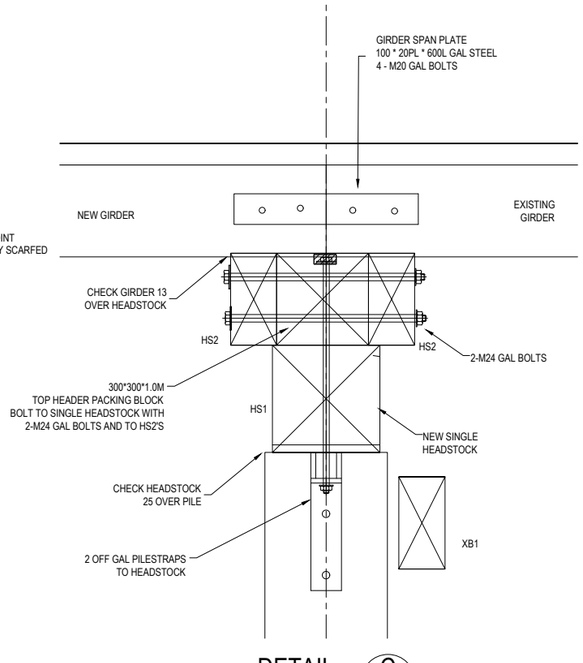


DETAIL E / - — SCALE 1:20 — TYPICAL CORBEL TO HEADSTOCK DETAIL

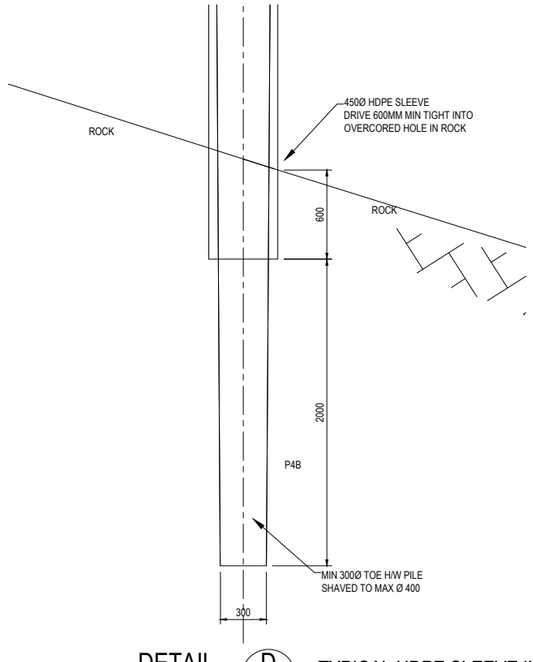
NOTES:
1.00 REFER TO GENERAL NOTES & SPECIFICATION



DETAIL A / - — SCALE 1:10 — VERTICAL HALFING JOINT OVER SINGLE HEADSTOCK TYP



DETAIL C / - — SCALE 1:10



DETAIL D / - — SCALE 1:20 — TYPICAL HDPE SLEEVE IN ROCK

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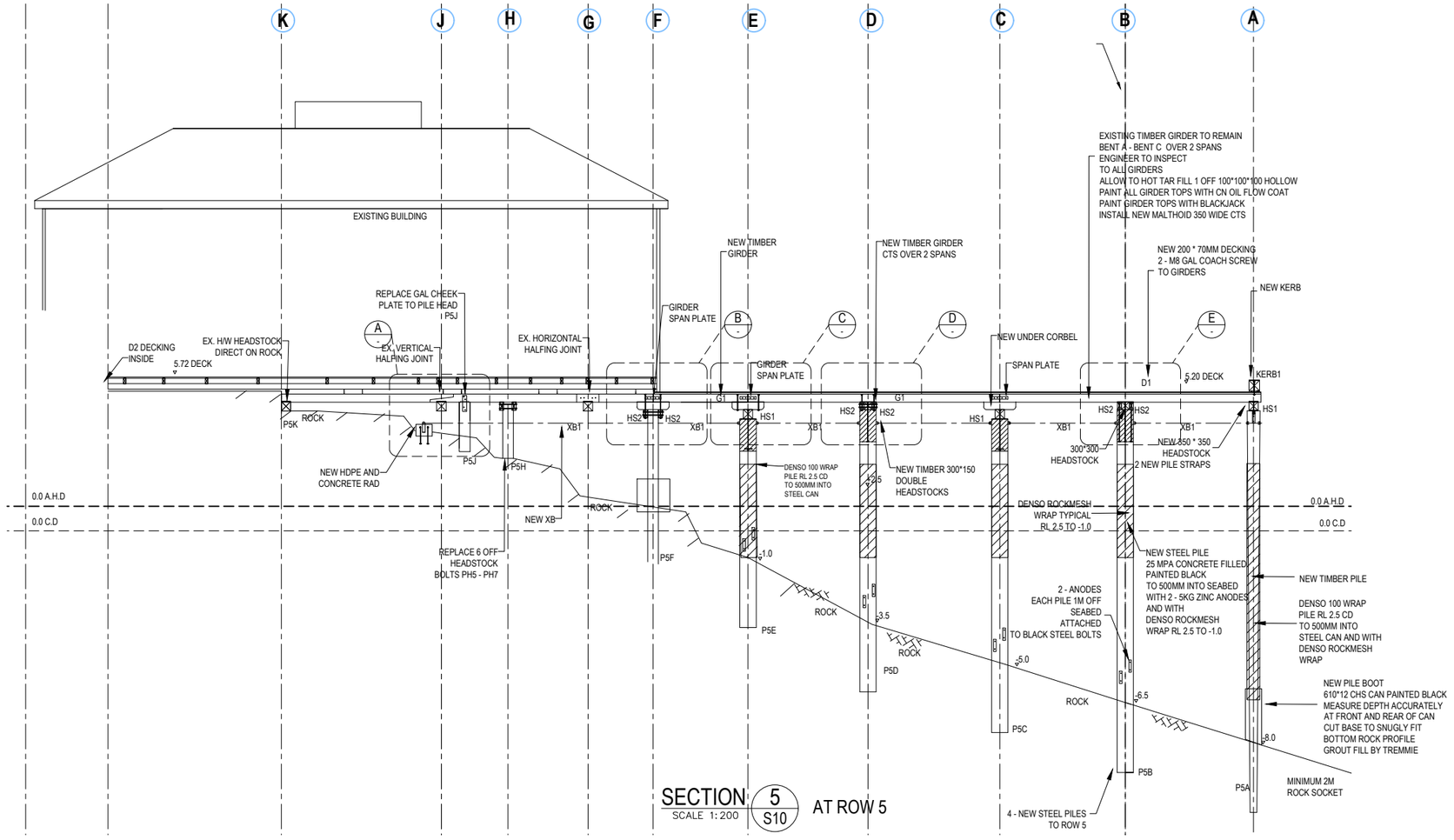
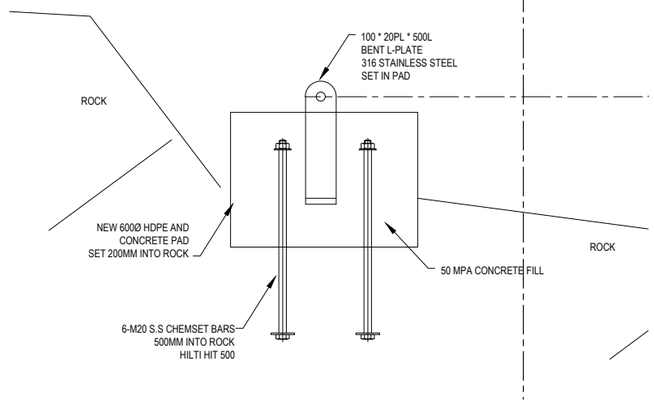
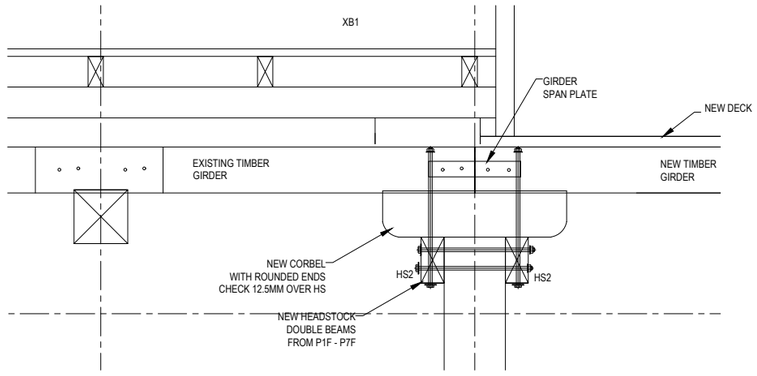


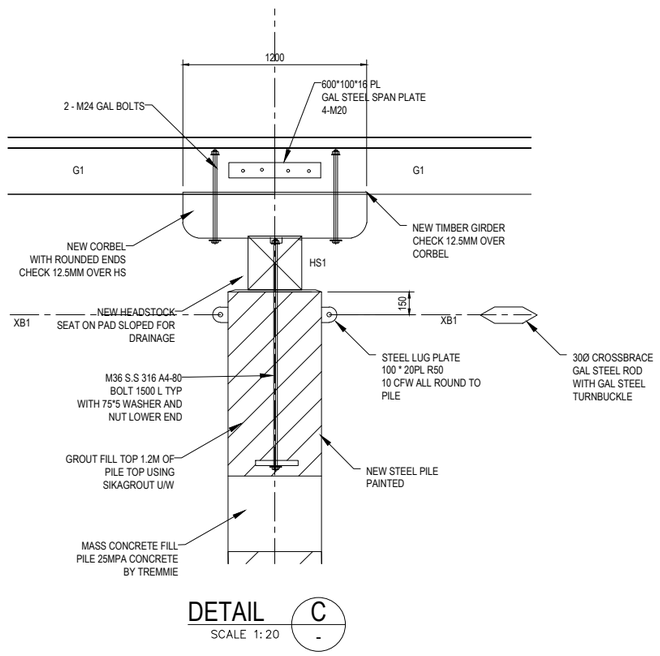
SECTION 5 / S10 AT ROW 5
SCALE 1:200



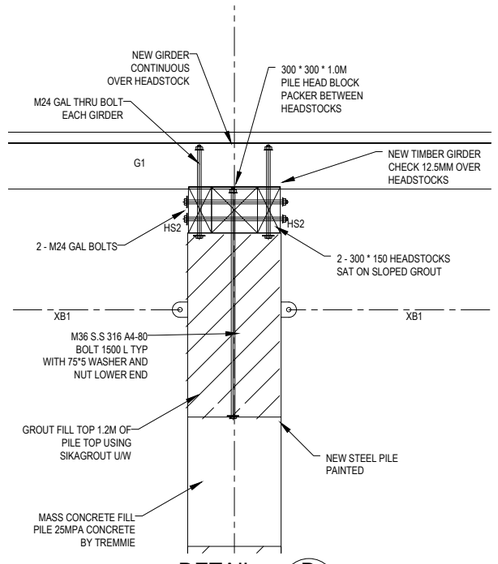
DETAIL A / - SCALE 1:10



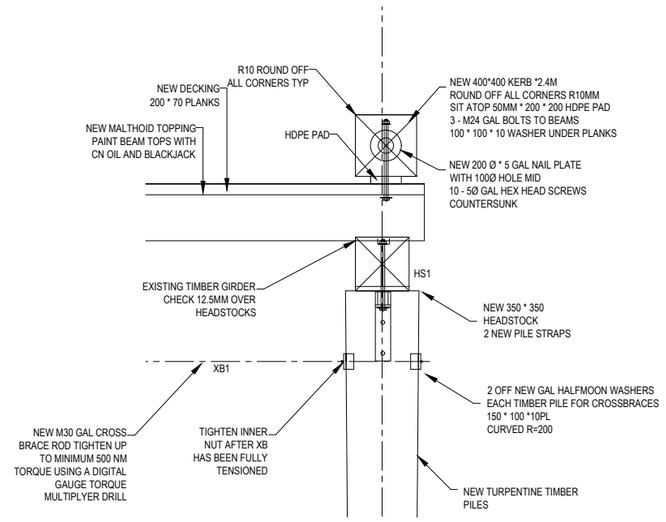
DETAIL B / - SCALE 1:20



DETAIL C / - SCALE 1:20



DETAIL D / - SCALE 1:20



DETAIL E / - SCALE 1:20

TYPICAL KERB DETAIL
TYPICAL CROSS BRACE DETAIL

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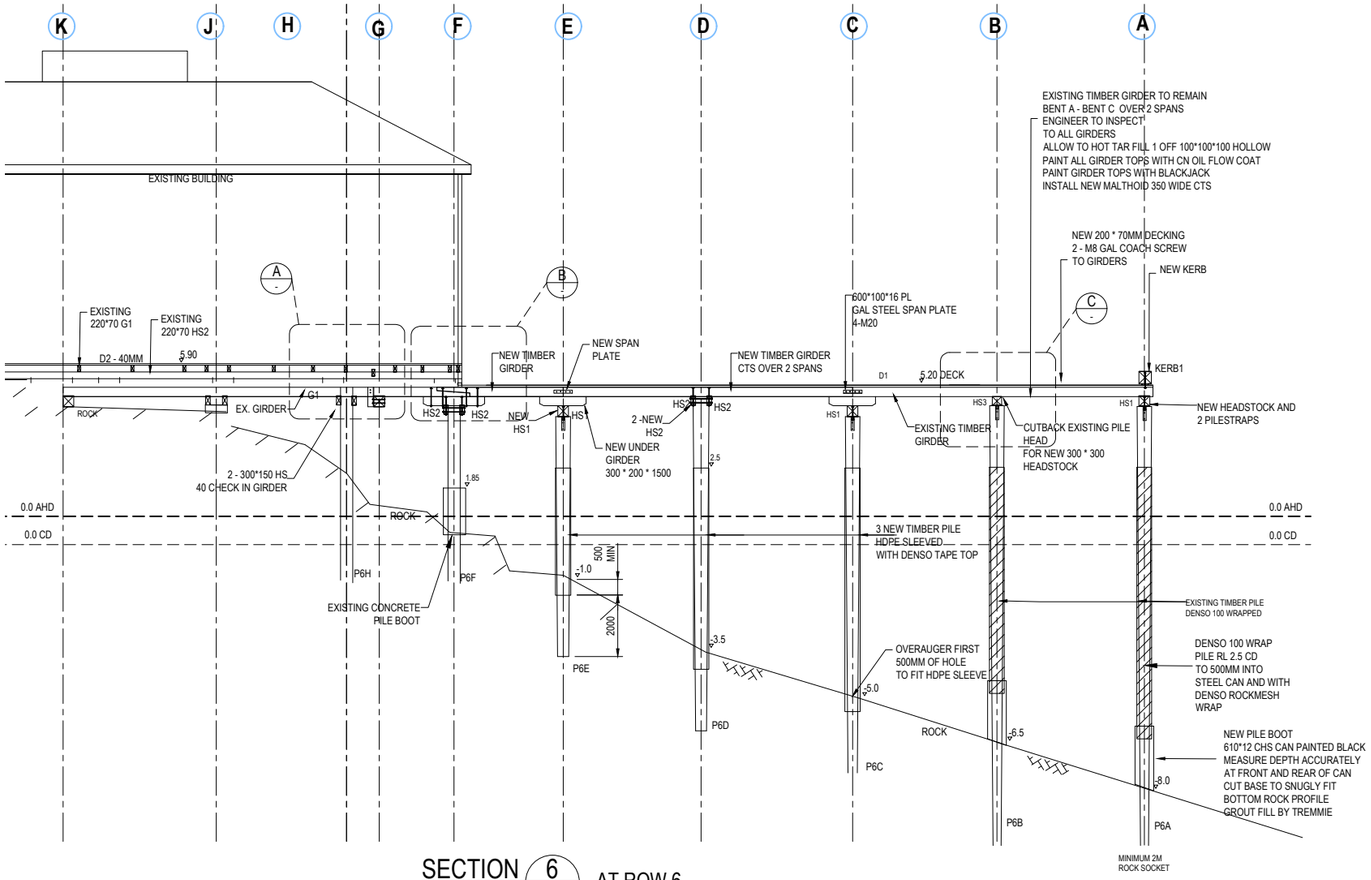
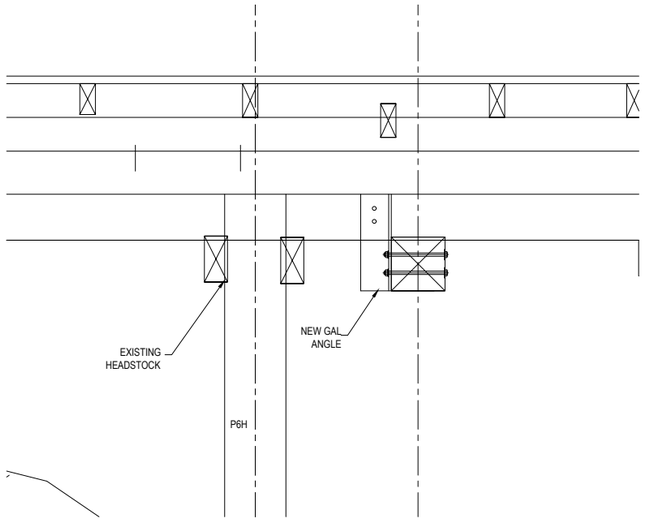
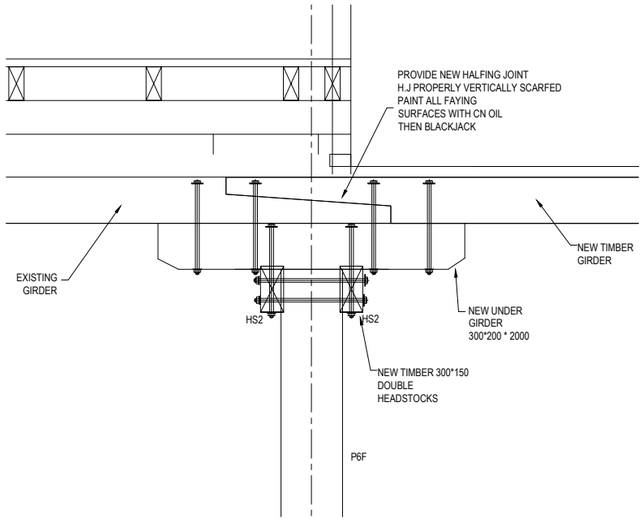


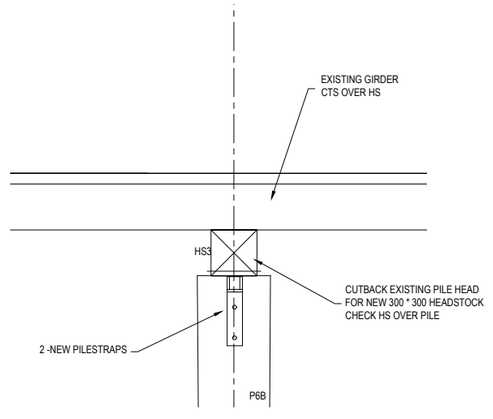
SECTION 6 / S10 — SCALE 1:200 — AT ROW 6



DETAIL A — SCALE 1:20 — -



DETAIL B — SCALE 1:20 — -



DETAIL C — SCALE 1:20 — -

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NOTES:
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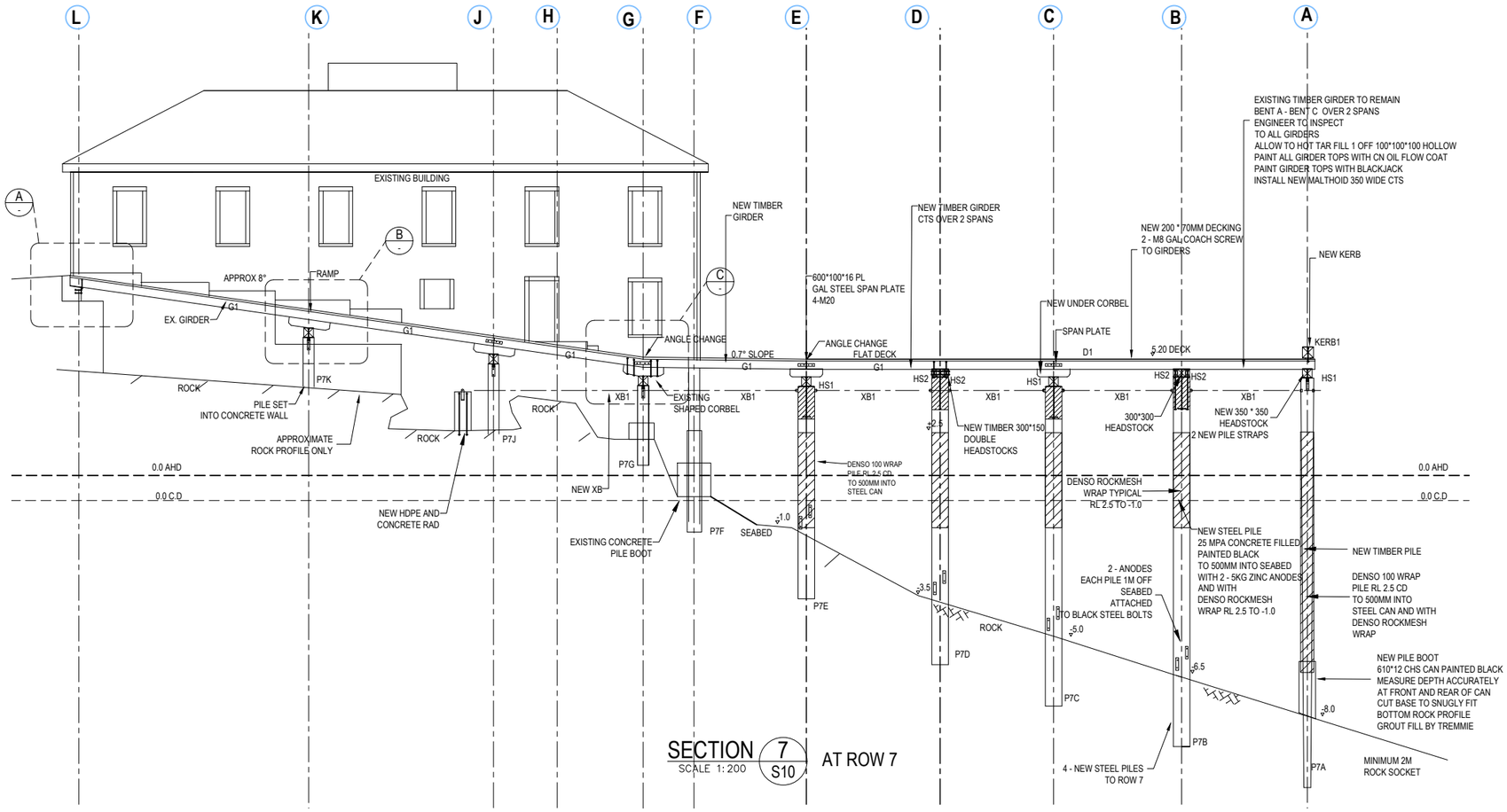
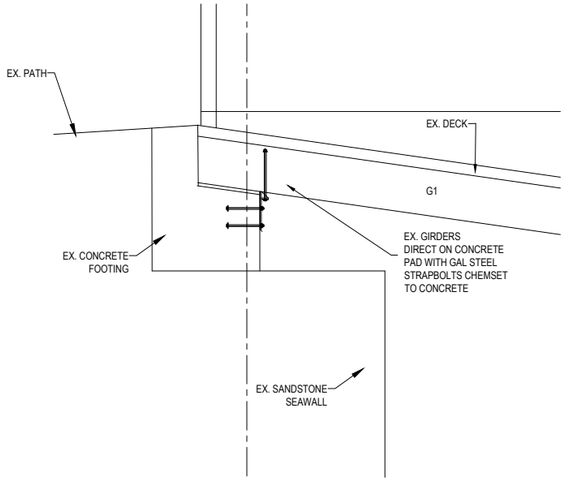
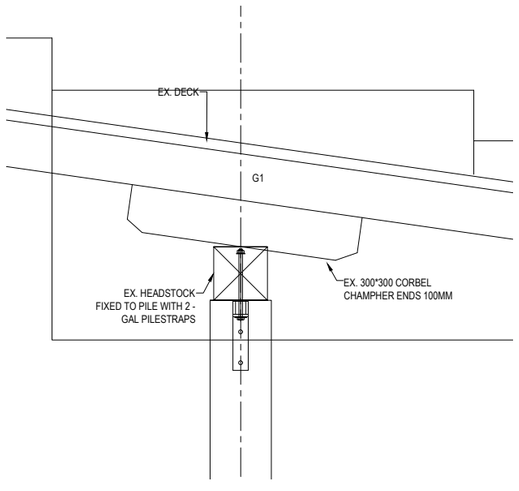


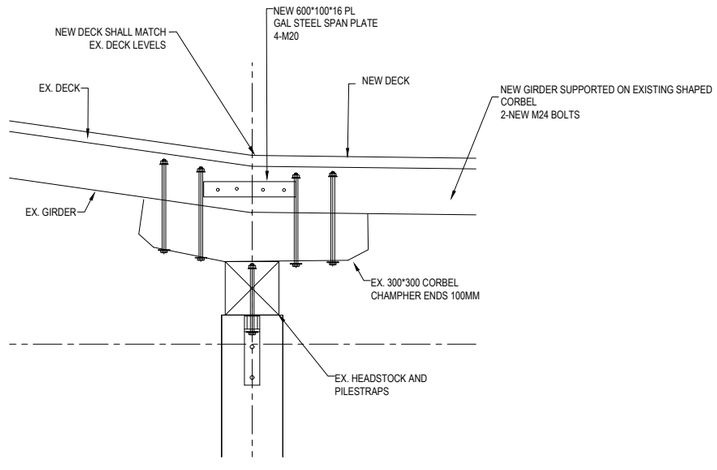
SECTION 7 / S10 AT ROW 7
SCALE 1:200



DETAIL A / - SCALE 1:20



DETAIL B / - SCALE 1:20



DETAIL C / - SCALE 1:20

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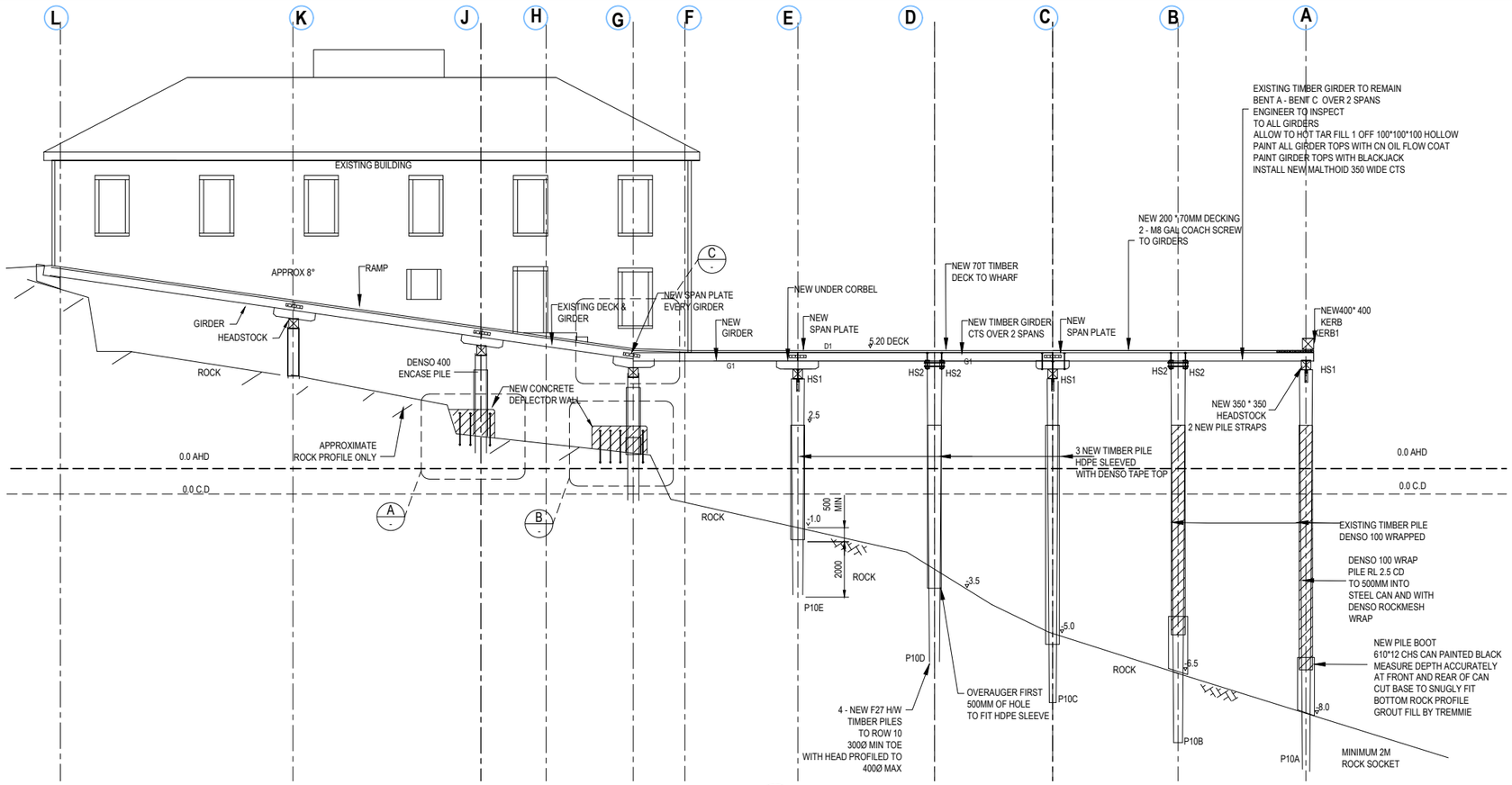
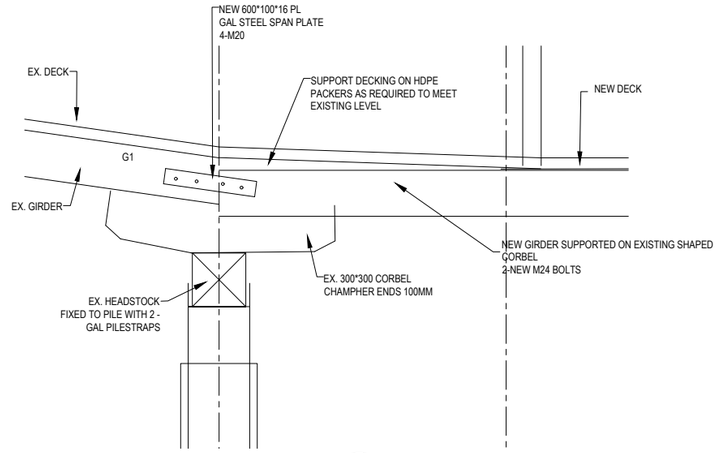
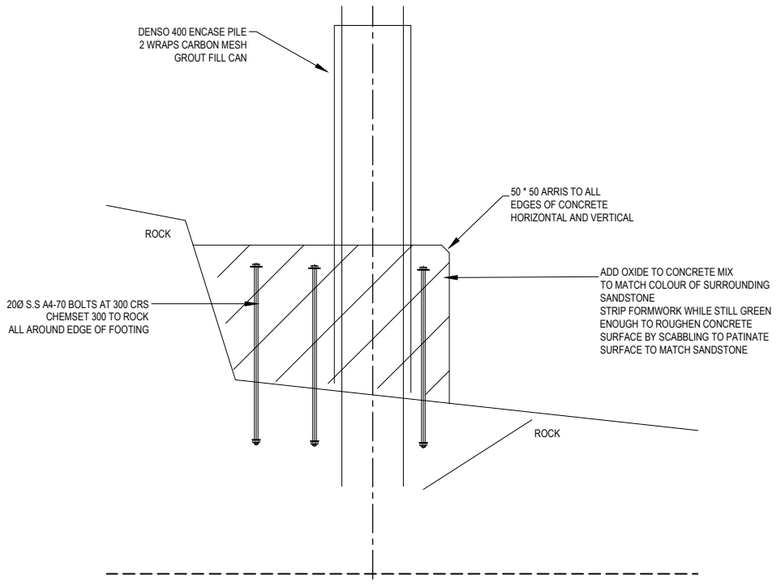


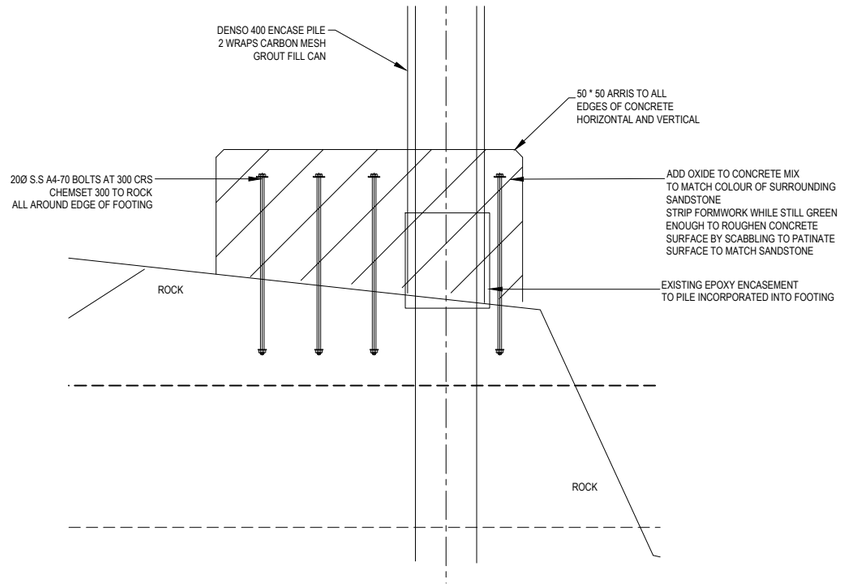
SECTION 10 / S10 — SCALE 1:200 — AT ROW 10



DETAIL C / - — SCALE 1:20



DETAIL A / - — SCALE 1:20



DETAIL B / - — SCALE 1:20

NOTES:
1.00 REFER TO GENERAL NOTES & SPECIFICATION

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MIEAust CPEng NER (CIVIL STRUCTURAL)

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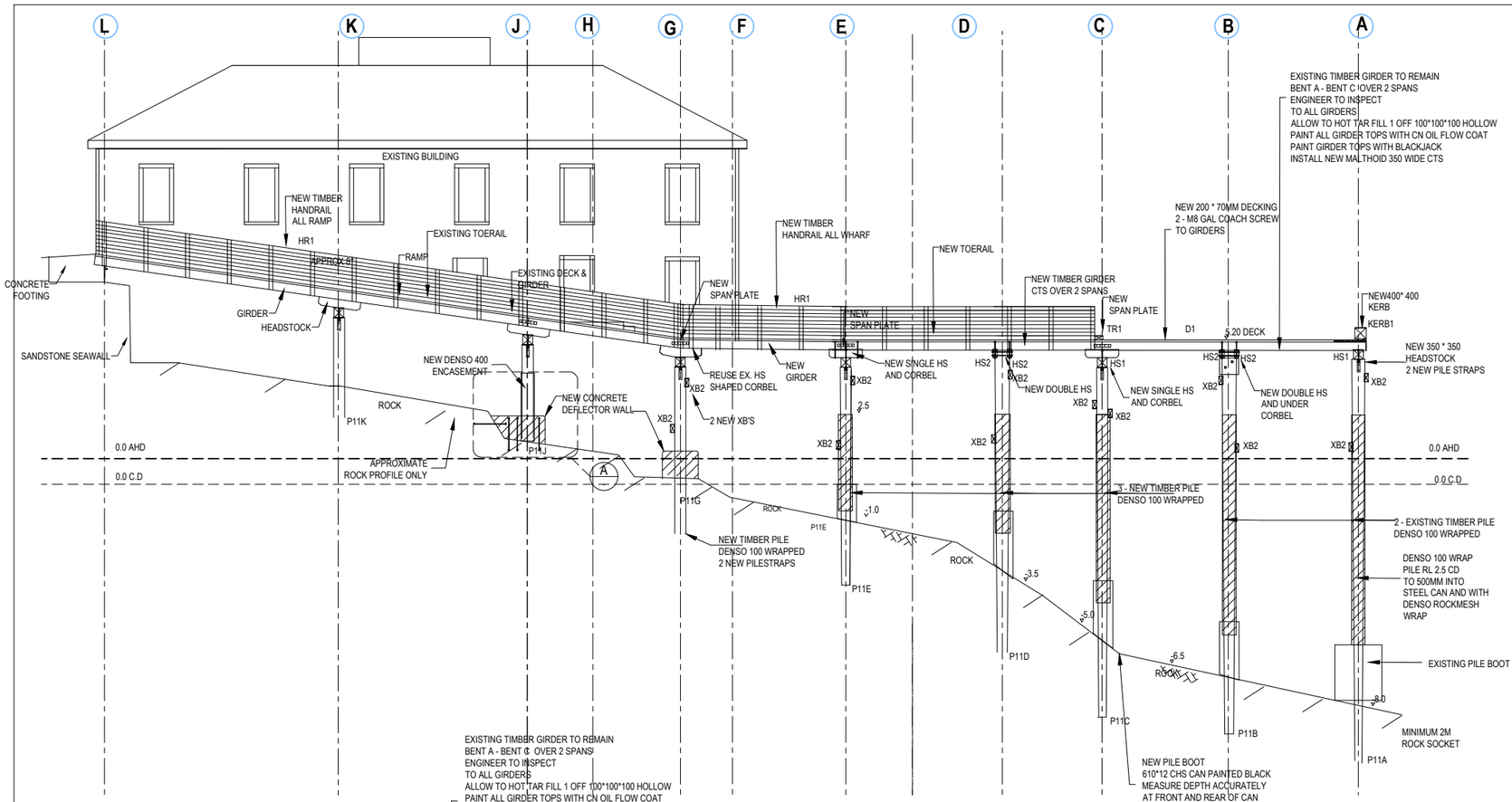
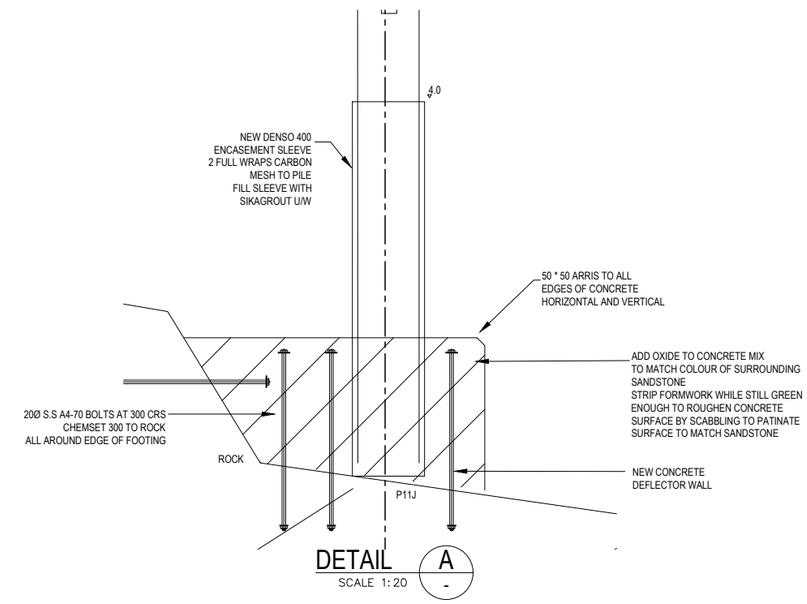
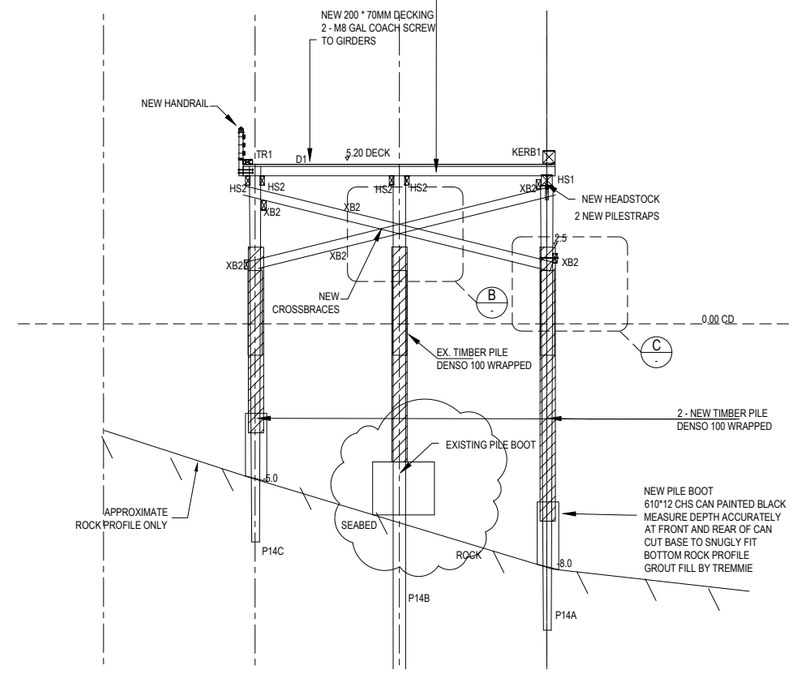


SECTION 11 / S10 — SCALE 1:200 — AT ROW 11

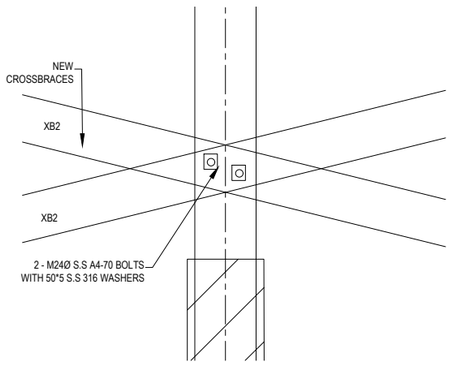
NOTES:
1.00 REFER TO GENERAL NOTES & SPECIFICATION



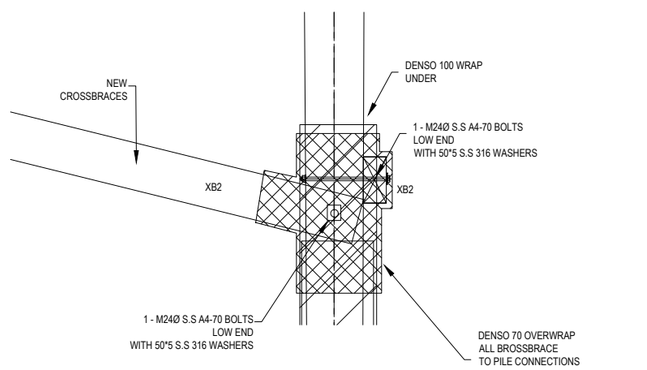
DETAIL A / - — SCALE 1:20



SECTION 14 / S10 — SCALE 1:200 — AT ROW 14



DETAIL B / - — SCALE 1:20



DETAIL C / - — SCALE 1:20

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SIGNED
STEVE FITZHENRY
MIEAust CPEng NER (CIVIL STRUCTURAL)

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SECTIONS ON ROWS

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STEVE FITZHENRY B.E MIEAust CPEng NER			

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21.04040	A3	S211	H

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ABN: 63 638 078 823 P: 0411 316 315 E: steve@landmarine.com.au
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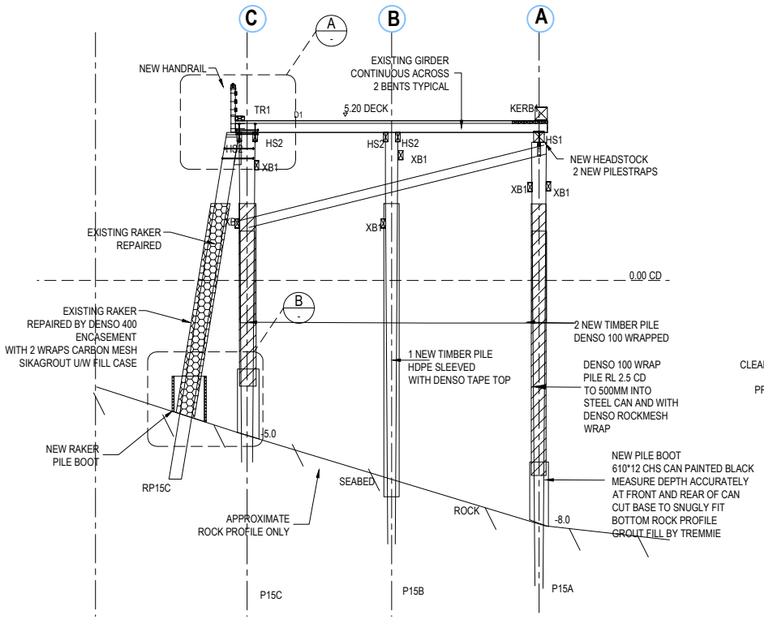
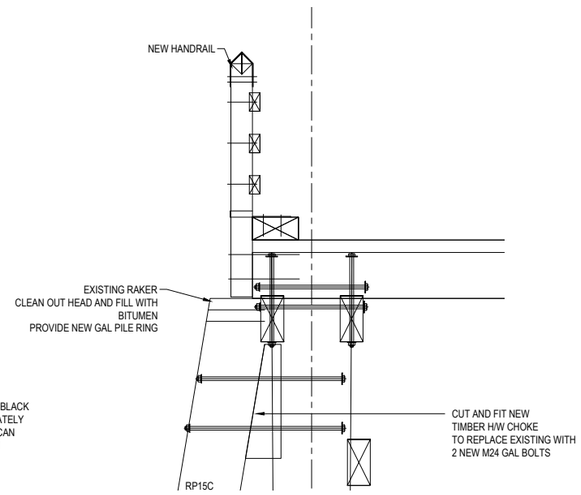
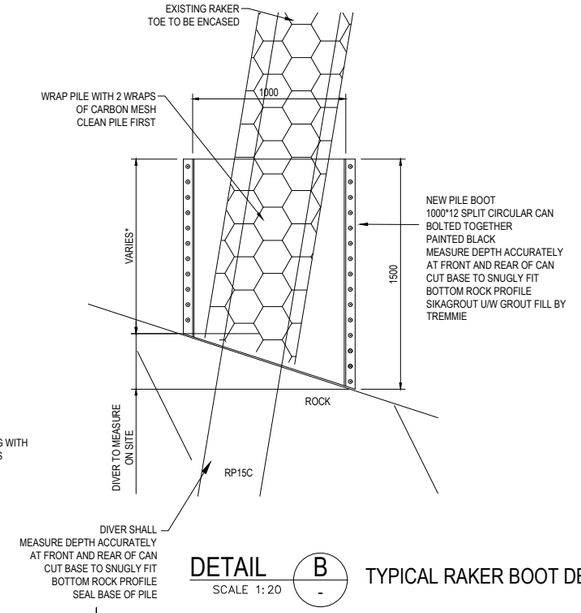
NOTES:
1.00 REFER TO GENERAL NOTES & SPECIFICATION



SECTION 15 / S10 — SCALE 1:200 — AT ROW 15

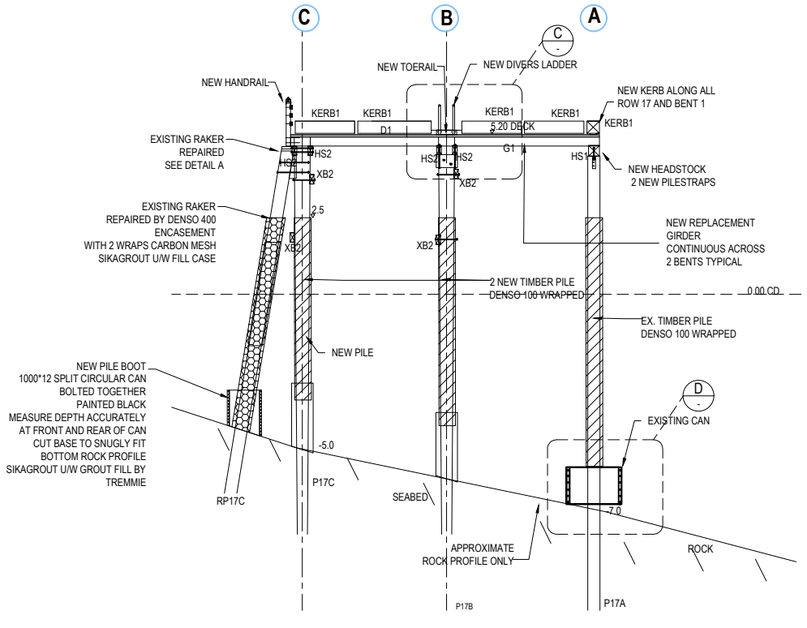


DETAIL A / - — SCALE 1:20

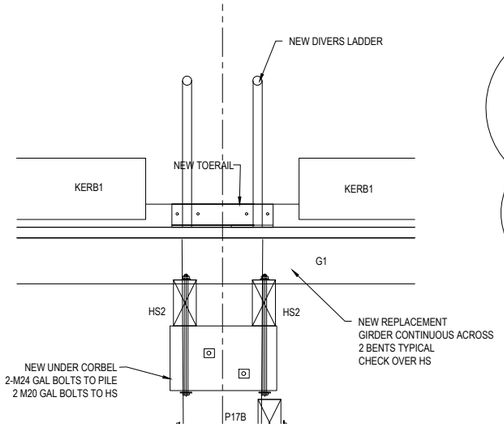


DETAIL B / - — SCALE 1:20 — TYPICAL RAKER BOOT DETAIL

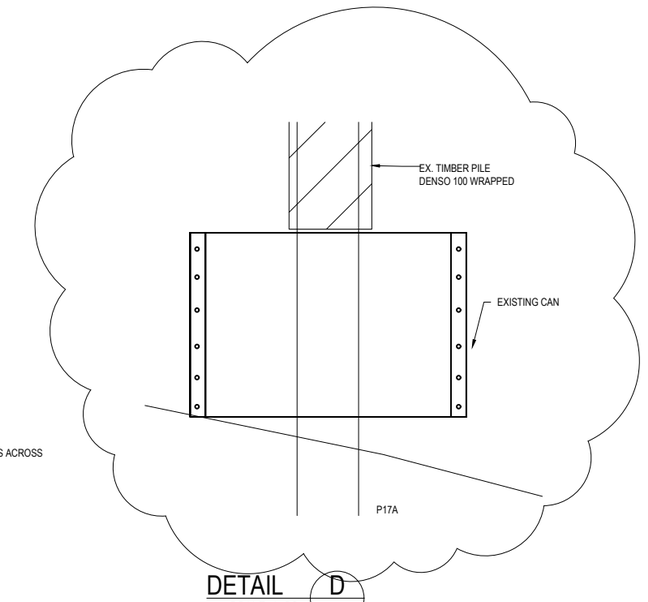
NOTE: DIVER TO ACCURATELY MEASURE SEABED SLOPE TO DETERMINE CUTOFF SLOPE ON CAN BASE
IT IS CRUCIAL TO FORM A FULL SEAL TO THE ROCK WITH NO GAPS
CONTRACTOR SHALL PROVIDE 4 OFF CLEAR PHOTOS OF EACH PILE CAN - ONE FROM EACH COMPASS DIRECTION - CLEARLY SHOWING THE CAN IS SEALED FLUSH TO ROCK



SECTION 17 / S10 — SCALE 1:200 — AT ROW 15



DETAIL C / - — SCALE 1:20



DETAIL D / - — SCALE 1:20

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REVISION	COMMENTS	DATE
H	HERITAGE REVIEW	211005
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A	PRELIMINARY	210325

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MR DAVID BUCKLEY

PROJECT
TATHRA WHARF HERITAGE REFURBISHMENT

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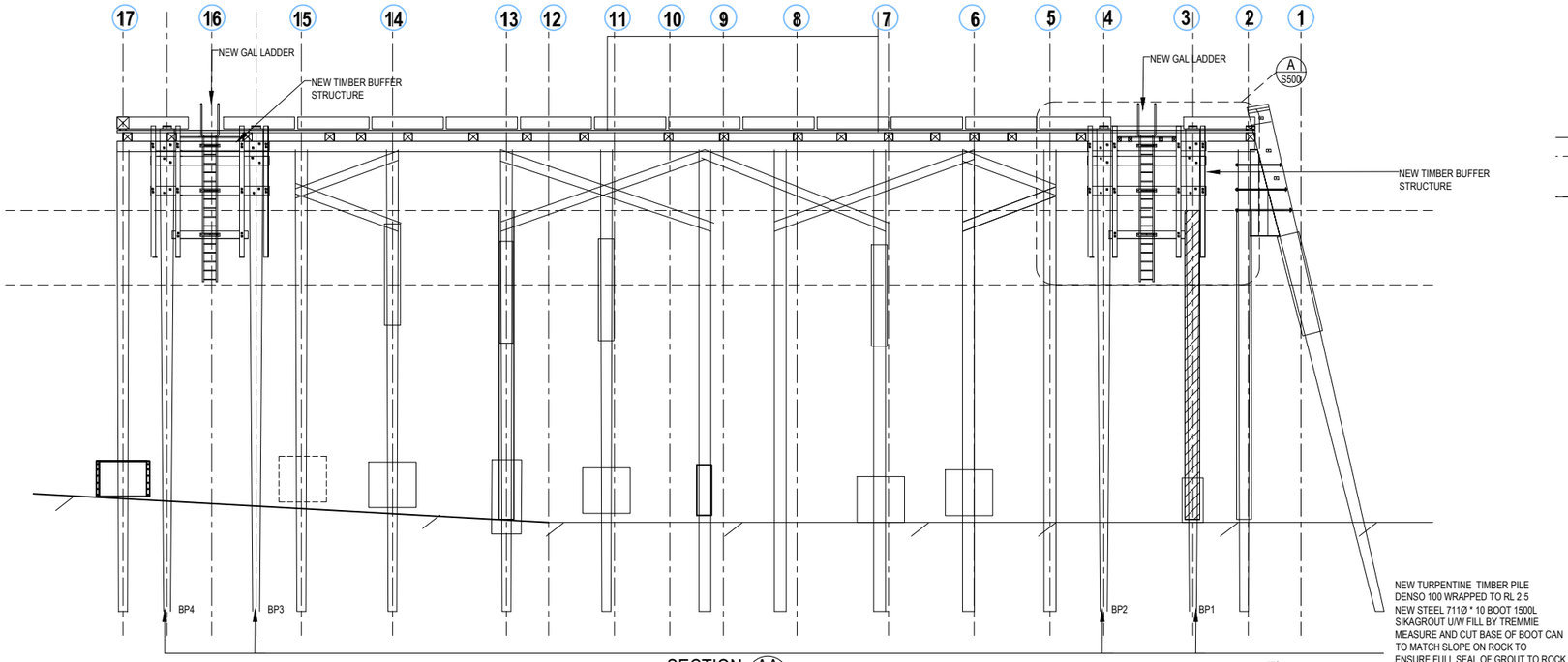
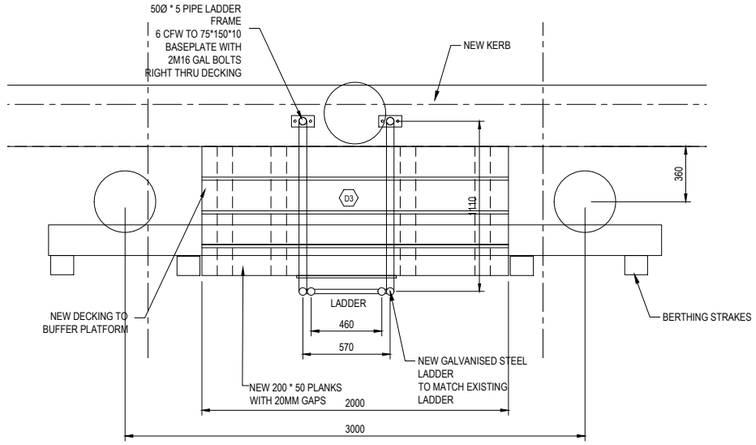
33 HORDERNS LANE BUNDEENA SYDNEY NSW 2230



SECTION AA S10
SCALE 1:100

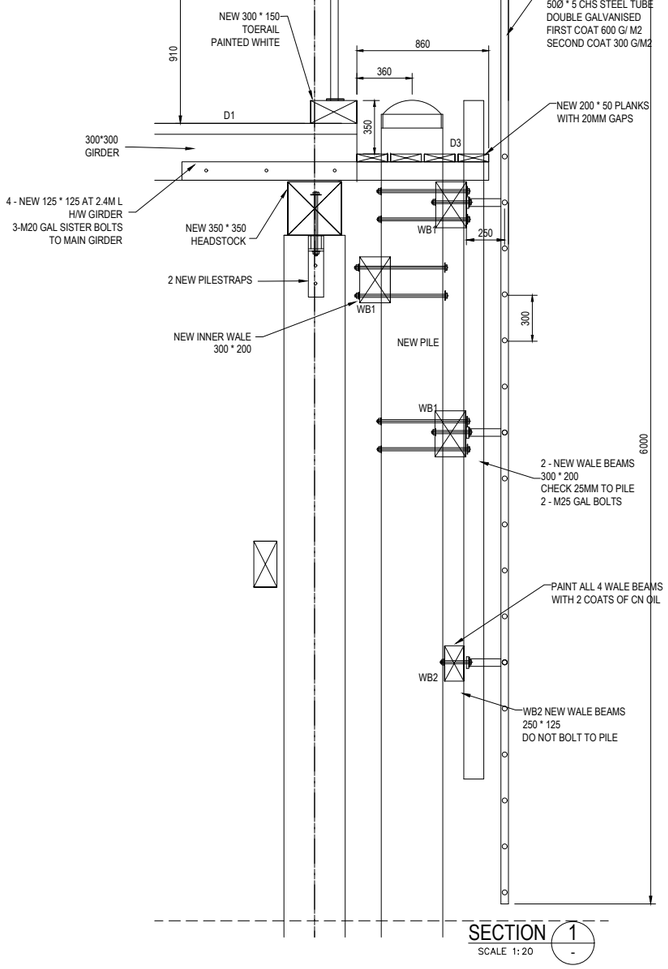
ELEVATION ON BUFFERS AT BENT A

NOTES:
1.00 REFER TO GENERAL NOTES & SPECIFICATION

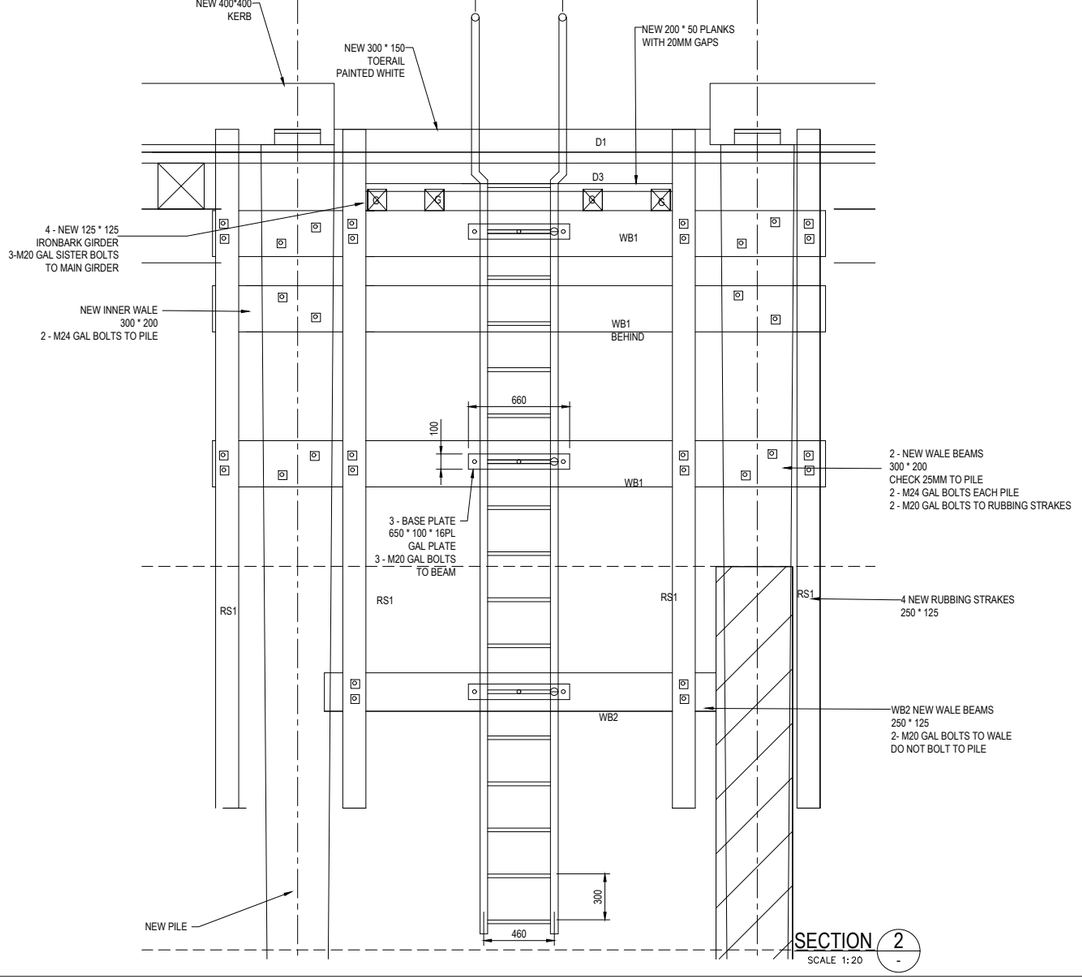


DETAIL A
SCALE 1:20

BUFFER & LADDER PLAN



SECTION 1
SCALE 1:20



SECTION 2
SCALE 1:20

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D	HERITAGE REVIEW	210727
B	SITE	210505
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SECTIONS ON BENTS

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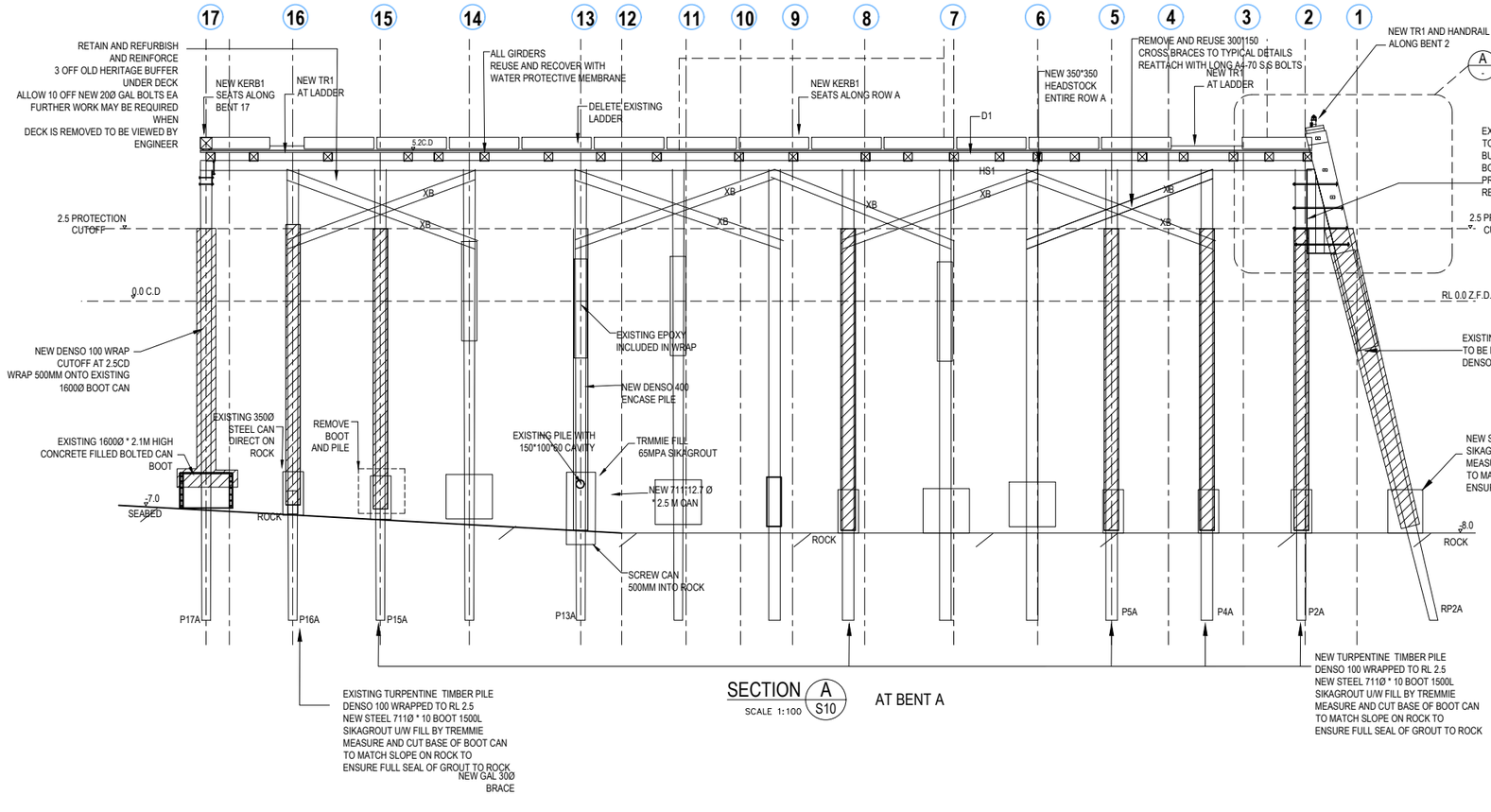
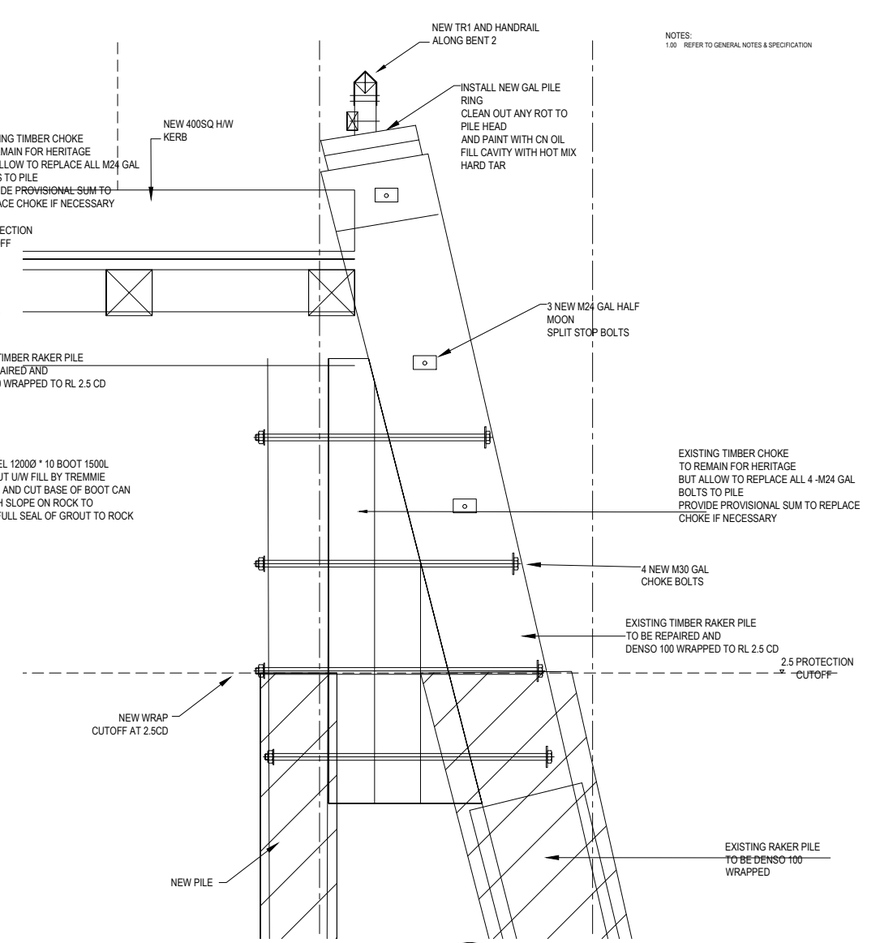
33 HORDERNS LANE BUNDEENA SYDNEY NSW 2230



SECTION A / S10
SCALE 1:100
AT BENT A



DETAIL A / S300
SCALE 1:20

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REVISION	COMMENTS	DATE
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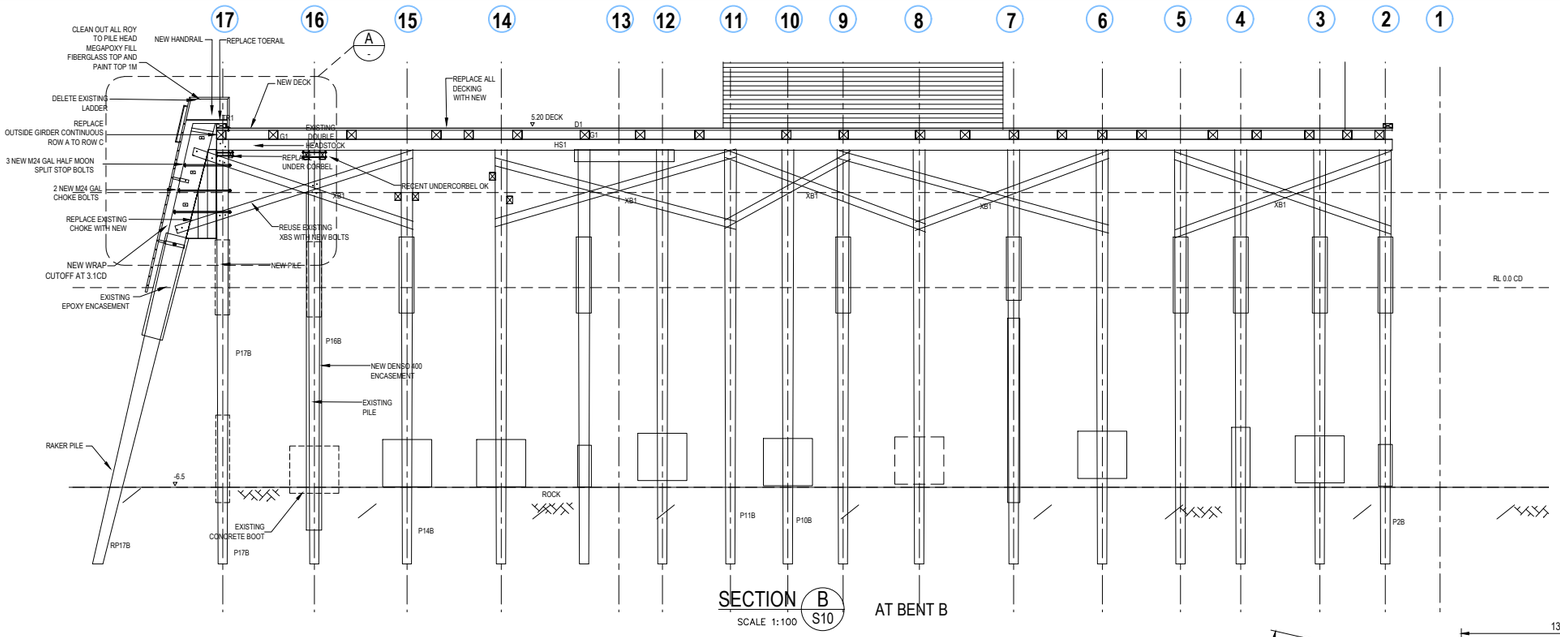
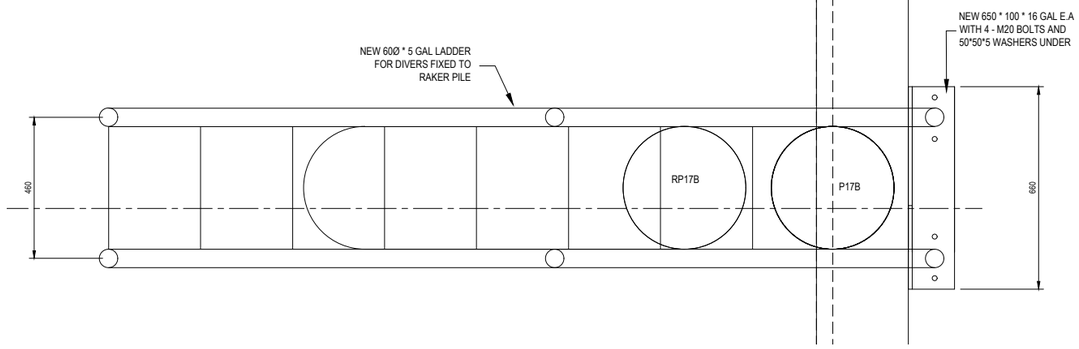
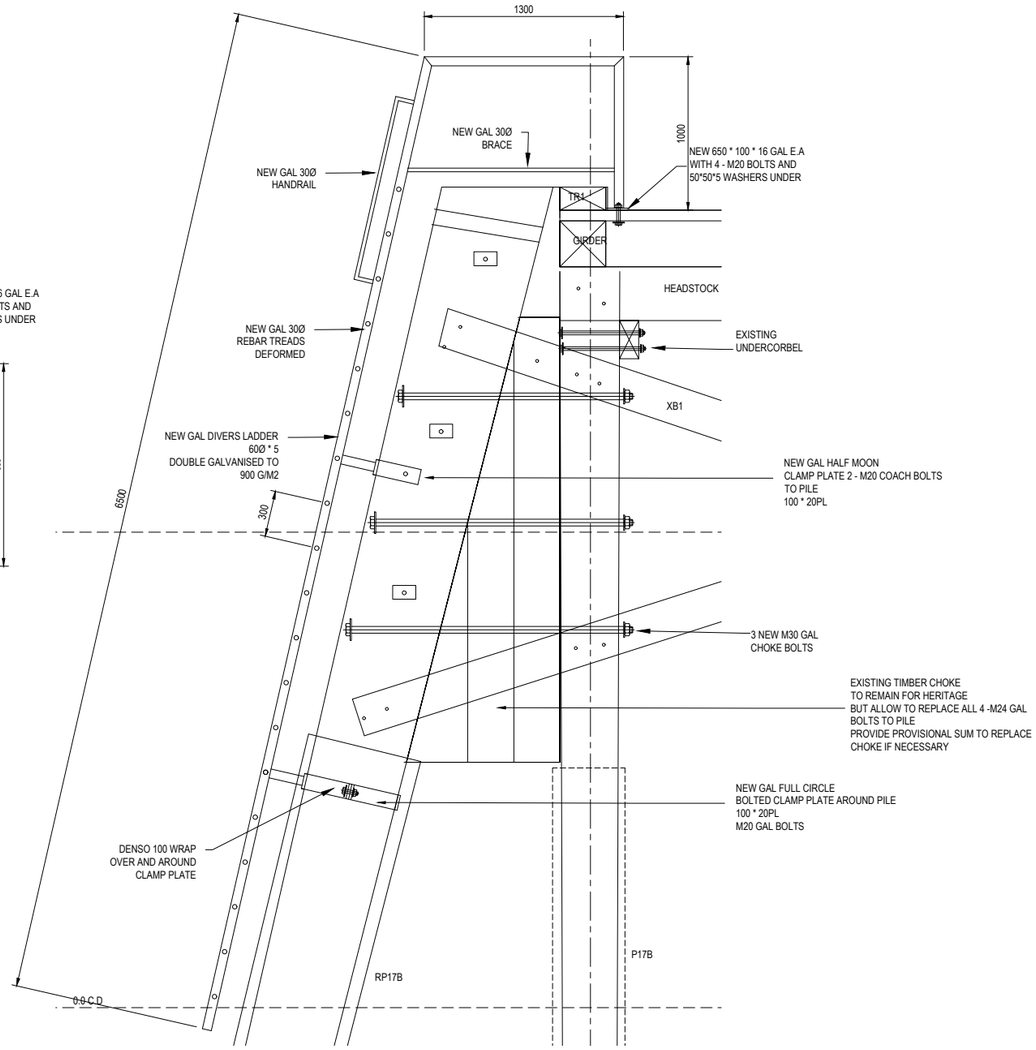


SECTION B
SCALE 1:100
S10

AT BENT B



DIVERS LADDER PLAN
SCALE 1 : 100



DETAIL A
SCALE 1:10
-

NEW TR1 AND HANDRAIL ALONG BENT 2

NOTES:
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MIEAust CPEng NER (CIVIL STRUCTURAL)

REVISION	COMMENTS	DATE
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D	HERITAGE REVIEW	210727
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DRAWING TITLE
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ABN: 63 638 078 823 P: 0411 316 315 E: steve@landmarine.com.au
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