REGULATED DESIGN RECORD		REV	DATE	DESCRIPTION	DP FULL NAME	REG NO		CHITE 200 (EO CDEAT BUCKINGHAM CT DEDEEDN 2004)		ISSUE:	
PROJECT ADDRESS: 30 DIGGINGS TERRACE, THREDBO PROJECT TITLE: BLACK BEAR INN		1	29.11.2021	ISSUED FOR CC2	THOMAS WILLIAMS	PRE0001122	SUITE 302/59 GREAT BUCKINGHAM ST REDFERN 2016 +61 9332 4084				
							ADMIN@PMIENGINEERS.COM				
CONSENT NUMBER:								WWW.PMIENGINEERS.COM			
							pmiengineers	ABN: 90 651 637 955			
DRAWING TITLE	JOB NUMBER						CLIENT:	ARCHITECT	<b>Popov</b> Bass		
STRUCTURAL NOTES	PMI-2021-053						HIDALI PTY LTD	ALL SETOUT TO ARCHITECT'S DRAWINGS.  DIMENSIONS TO BE VERIFIED WITH ARCHITECT AN			
							THE COPYRIGHT OF THIS		PO Box 334		BEFORE COMMENCING SHOP DRAWINGS OR SITE WORK.
	DRAWING NUMBER REVISION						DRAWING REMAINS WITH		PO Box 334 Surry Hills NSW 2010		ENGINEER ACCEPTS NO RESPONSIBILITY FOR THE USABILITY, COMPLETENESS OR SCALE OF DRAWINGS TRANSFERRED
SCALE AT B1: 1:10	S02-A 1						- PMI ENGINEERS		T 02 9955 5604 E info@popovbass.com.au W popovbass.com.au		ELECTRONICALLY.

# STRUCTURAL NOTES BLACK BEAR INN

G1. THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH SPECIFICATIONS AND OTHER CONSULTANT'S DRAWINGS.

- THE WEATHER PROOFING OF THE BUILDING IS THE ARCHITECT'S/BUILDER'S RESPONSIBILITY. THIS INCLUDES (BUT IS NOT LIMITED TO) THE SPECIFICATION AND FIXING DETAILS OF CLADDINGS, SHEETING, FLASHING, MEMBRANES, STEPS, SETDOWNS & RECESSES. ALL DISCREPANCIES SHALL BE REFERRED TO THE (PROJECT
- MANAGER) AND RESOLVED BEFORE PROCEEDING WITH THE WORK. ALL DIMENSIONS SHOWN SHALL BE VERIFIED BY THE BUILDER ON SITE. THESE STRUCTURAL DRAWINGS SHALL NOT BE SCALED FOR DIMENSIONS. THE RL'S SHOWN ON THESE DRAWINGS ARE APPROXIMATE AND ARE FOR THE SOLE PURPOSE OF ASSISTING THE STRUCTURAL DOCUMENTATION. THEY ARE NOT TO BE USED FOR CONSTRUCTION PURPOSES. REFER TO ARCHITECTURAL DRAWINGS FOR CONFIRMATION OF ALL RL's, ALL LEVELS ARE IN METRES (m) AND
- DIMENSIONS ARE IN MILLIMETRES (mm) ALL WORKMANSHIP, TESTING, MATERIALS AND SUPERVISION ARE TO BE IN ACCORDANCE WITH THESE SPECIFICATIONS, THE WORK HEALTH AND SAFETY ACT 2011. ENFORCED BY THE WORKCOVER AUTHORITY AND CURRENT RELEVANT AUSTRALIAN STANDARDS.
- PROPRIETARY ITEMS SPECIFIED SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN RECOMMENDATIONS. DO NOT VARY SPECIFIED PROPRIETARY PRODUCTS WITHOUT WRITTEN APPROVAL FROM THE ENGINEER.
- THESE DRAWINGS AND ISSUED WRITTEN INSTRUCTIONS DURING THE COURSE OF THE CONTRACT DEPICT THE COMPLETE STRUCTURE. THEY DO NOT DESCRIBE A WORK METHOD. THE ARRANGEMENT, DESIGN AND INSTALLATION OF TEMPORARY WORKS REMAINS THE RESPONSIBILITY OF THE CONTRACTOR.
- G8. THE DETERMINATION OF A SAFE WORK METHOD REMAINS THE RESPONSIBILITY OF THE CONTRACTOR. ANY ELEMENT WHICH POSES AN UNACCEPTABLE LEVEL OF SAFETY RISK TO CONSTRUCT SHALL BE REFERRED TO THE STRUCTURAL ENGINEER. TEMPORARY BRACING AND SUPPORT OF STRUCTURE IS THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE MAINTAINED DURING ALL STAGES OF
- NOTES ON ANY DRAWING APPLY TO ALL DRAWINGS IN THE SET

CONSTRUCTION.

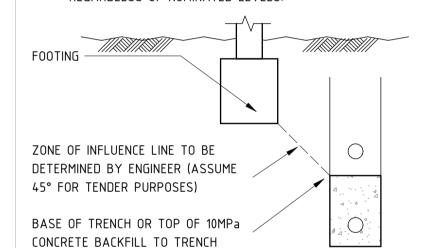
- UNLESS NOTED OTHERWISE G10. ALL ARCHITECTURAL FITMENTS SUCH AS GLAZING, PARTITIONS, CEILINGS ETC. SHOULD ALLOW FOR THE SHORT AND LONG TERM MOVEMENT OF STRUCTURAL ELEMENTS. FOR BEAMS AND SLABS SPANNING LESS THAN 8m AN ALLOWANCE OF AT LEAST 20mm
- SHOULD BE MADE (CONSULT ENGINEER WHERE SPANS EXCEED 8m). G11. THE BUILDER SHALL PROVIDE CERTIFICATION ON ANY DESIGN AND CONSTRUCT COMPONENT BY A CHARTERED PROFESSIONAL ENGINEER
- G12. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LOCATION OF ALL SERVICES IN THE VICINITY OF THE WORKS. ANY SERVICES SHOWN ARE PROVIDED FOR INFORMATION ONLY. THE CONTRACTOR SHALL CONFIRM THE LOCATION OF ALL SERVICES PRIOR TO COMMENCING AND SHALL BE RESPONSIBLE FOR THE REPAIR OF ANY DAMAGE CAUSED TO SERVICES, AS WELL AS ANY LOSS INCURRED AS A RESULT OF THE DAMAGE TO ANY SERVICE.
- G13. THE STRUCTURAL COMPONENTS DETAILED ON THESE STRUCTURAL DRAWINGS ARE JOB SPECIFIC AND HAVE BEEN DESIGNED IN ACCORDANCE WITH THE RELEVANT AUSTRALIAN STANDARDS AND BUILDING CODE OF AUSTRALIA FOR THE FOLLOWING FIRE RATINGS, WIND LOADS. FLOOR USAGE AND EARTHQUAKE LOADS. WIND LOADS:

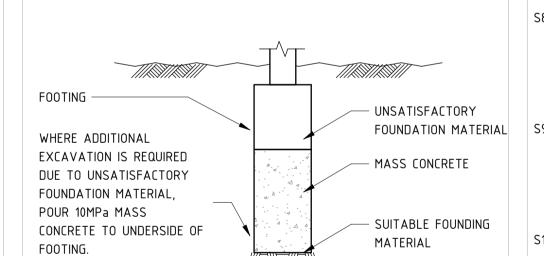
REGION	=		Α
ANNUAL PROBABILITY	OF EXCEEDANCE =		0.02
TERRAIN CATEGORY	=		2.5
SITE WIND SPEED	=		45 m/s
FLOOR LIVE LOADS:			
GENERAL	=		1.5 kPa
STORES	=		5.0 kPa
GARAGE	=		2.5 kPa
STAIRS	=		2.0 kPa
BALCONY	=		2.0 kPa
OF LIVE LOADS:			
ROOF	=		0.25 kPa
<b>SNOW LOADS</b> :			
ROOF	=		[4.40] kPa
GROUND	=		[2.30] kPa
PROBABILITY FACTOR	=		1 (SERV) 1.5 (STR)
BUSHFIRES : =	DESIGN STRUCTUR	RE TO	COMPLY WITH THE

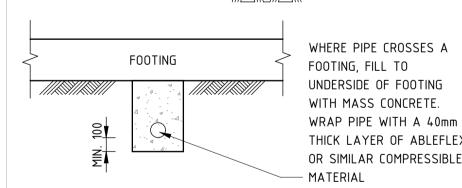
- REQUIREMENTS OF AS3959-2009. G14. THE METHOD OF CONSTRUCTION AND THE MAINTENANCE OF SAFETY DURING CONSTRUCTION IS THE RESPONSIBILITY OF THE BUILDER. IF ANY STRUCTURAL ELEMENT PRESENTS DIFFICULTY IN RESPECT TO SAFETY THE MATTER SHALL BE REFERRED TO PMI ENGINEERS FOR
- RESOLUTION BEFORE PROCEEDING WITH THE WORK. NO CHANGES IN ANY STRUCTURAL ELEMENT SHALL BE MADE WITHOUT WRITTEN APPROVAL FROM PMI ENGINEERS. IF THERE IS A DISCREPANCY THEN FOR TENDER PURPOSES ALLOW FOR THE MOST EXPENSIVE OPTION. PMI ENGINEERS SHALL BE CONTACTED TO CONFIRM PRIOR TO CONSTRUCTION.
- G16. CONSTRUCTION USING THESE DRAWINGS SHALL NOT COMMENCE UNTIL A CONSTRUCTION CERTIFICATE HAS BEEN ISSUED AND ONLY IF THE
- DRAWINGS ARE DESIGNATED "ISSUED FOR CONSTRUCTION". G17. PMI ENGINEERS ACCEPTS NO RESPONSIBILITY FOR ANY WORK NOT INSPECTED OR NOT APPROVED BY PMI ENGINEERS DURING CONSTRUCTION.

## F1. ASSUMED ALLOWABLE BEARING CAPACITY:

- PAD FOOTINGS = [500] kPa - STRIP FOOTINGS = [500] kPa - SLABS ON GROUND - BORED PIERS
  - = [500] kPa = [1500]kPa END BEARING [150] kPa SKIN FRICTION
- F2. A GEOTECHNICAL REPORT HAS BEEN CARRIED OUT REFER TO
- ALLIANCE REPORT 13526-GR-1-1 REV A DATED 15th SEPTEMBER, F3. THE SLAB AND FOOTINGS HAVE BEEN DESIGNED IN ACCORDANCE WITH AS2870-2011 FOR CLASS [A] SITE. A SUITABLY QUALIFIED GEOTECHNICAL ENGINEER TO BE CONTACTED DURING EXCAVATION TO CONFIRM THE SITE CLASSIFICATION.
- THE CONTRACTOR SHALL ALLOW TO ENGAGE A QUALIFIED (NPER) GEOTECHNICAL ENGINEER TO APPROVE THE FOUNDATION MATERIAL. OBTAIN GEOTECHNICAL ENGINEERS APPROVAL AND SUBMIT CERTIFICATE IN WRITING TO PMI ENGINEERS PRIOR TO CONCRETING FOUNDATIONS.
- ENSURE STABILITY OF ADJACENT BUILDINGS AND PATHS IS MAINTAINED DURING ALL STAGES OF CONSTRUCTION.
- DO NOT ALLOW EXCAVATED MATERIAL TO BE STOCKPILED WITHIN 1500mm OF FOOTING TRENCHES OR PITS. NO EARTH OR DETRITUS IS TO FALL INTO THE FOOTING TRENCHES BEFORE OR DURING CONCRETE PLACEMENT.
- THE UNDERSIDE OF FOUNDATIONS SHALL CONFORM TO THE FOLLOWING REGARDLESS OF NOMINATED LEVELS:







- THICK LAYER OF ABLEFLEX OR SIMILAR COMPRESSIBLE
- F8. FOOTINGS SHALL BE CENTRALLY LOCATED UNDER WALLS AND COLUMNS UNLESS NOTED OTHERWISE ON THE STRUCTURAL DRAWINGS. F9. FOOTINGS SHALL BE EXCAVATED TO THE DETAILED DEPTH AND WIDTH. FOOTINGS SHALL BE INSPECTED AND FILLED WITH CONCRETE AS SOON AS POSSIBLE TO AVOID EITHER SOFTENING OF THE FOUNDATION MATERIAL OR DRYING OUT BY EXPOSURE
- F10. THE BASE OF ALL PIER HOLES SHALL BE FREE OF WATER AND CLEANED OF LOOSE MATERIAL OR DEBRIS PRIOR TO PLACEMENT OF CONCRETE. ALLOW TO PROVIDE TEMPORARY LINERS AS DEEMED NECESSARY
- CONSTRUCTION PHASE SERVICES WITNESS POINTS WP1. OBTAIN PMI ENGINEERS WRITTEN INSTRUCTION AT THE FOLLOWING
  - HOLD POINTS: - PREPARATION OF FOUNDING MATERIAL, INCLUDING PIER BORE HOLES. - REINFORCEMENT PRIOR TO PLACEMENT OF CONCRETE or COREFILLING OF BLOCKWORK.
- STEEL AND TIMBER FRAME INSPECTION PRIOR TO SHEETING. WP2. PROVIDE MINIMUM 48 HOURS NOTICE FOR ANY REQUIRED INSPECTIONS.

## TEMPORARY WORKS

- TW1. THESE DRAWINGS DEPICT THE "PERMANENT" STRUCTURE, TEMPORARY WORKS REMAIN THE RESPONSIBILITY OF THE CONTRACTOR.
- TW2. BUILDER MUST ENGAGE (NPER) QUALIFIED STRUCTURAL ENGINEER FOR THE DESIGN OF ALL TEMPORARY WORKS NECESSARY TO SAFELY ERECT THIS STRUCTURE. AS A MINIMUM THE FOLLOWING WORKS REQUIRE ATTENTION;
- FORMWORK / TEMPORARY PROPPING / NEEDLE BEAMS / SCAFFOLDING / UNDERPINNING
- TW3. BUILDER SHALL CONTACT PMI ENGINEERS IF THEY CONSIDER ANY PART OF THIS STRUCTURE IS UNSAFE TO ERECT

S1. FABRICATE AND ERECT STRUCTURAL STEELWORK IN ACCORDANCE WITH AS4100-1998.

- PROVIDE HOLES, CLEATS AND FIXING FOR LIGHT STEEL/TIMBER FRAMING. FINISHES, ETC. SHOWN ON ARCHITECTURAL DRAWINGS. THESE DRAWINGS HAVE BEEN PREPARED TO INDICATE THE STRUCTURAL INTENT. THE SHOP DETAILER IS TO USE THESE DRAWINGS AS A BASIS FOR DIMENSIONAL COORDINATION WITH OTHER CONSULTANT'S DRAWINGS AND IS TO PREPARE DETAILED SHOP DRAWINGS. WHERE NECESSARY, THE SHOP DETAILER IS TO MAKE ASSUMPTIONS AND SUBMIT TO PMI ENGINEERS FOR RESOLUTION. SHOP DETAILER IS TO ALLOW TO RE- WORK SHOP DRAWINGS AS NECESSARY. FABRICATOR SHALL PREPARE SHOP DRAWINGS AND SUBMIT THEM TO THE BUILDER FOR THEIR APPROVAL. BUILDER SHALL LODGE TWO HARD COPIES OF APPROVED DRAWINGS TO PMI ENGINEERS
- REVIEW). TYPICAL STEELWORK CONNECTIONS (UNLESS NOTED OTHERWISE) COLUMN BASE PLATES: 10 BASE PLATE, 4/M16 HILTI

FOR REVIEW PRIOR TO FABRICATION, (ALLOW 5 WORKING DAYS FOR

- HIT-HY 150 MAX CHEMICAL INJECTION ANCHORS BEAM TO TOP OF COLUMN: CAP PLATE, 2 BOLTS TO CHANNELS, 4 BOLTS TO RHS/CHS/SHS/UB/UC
- BEAM TO SIDE OF COLUMN: FIN PLATE, 2 BOLTS BEAM TO SIDE OF BEAM: END OR FIN PLATE, 2 BOLTS COLUMNS TO TOP OF BEAM: BASE PLATE, 2 BOLTS TO
- CHANNELS, 4 BOLTS TO UB/UC SECTIONS ALL ROOF & WALL BRACING: CLEAT PLATES, 2 BOLTS PURLINS/WALL GIRTS: 8 CLEAT PLATES, 2 PURLIN BOLTS
- UNLESS NOTED OTHERWISE, USE: 10mm BASE, CAP, GUSSET, FIN AND END PLATES. M20 8.8/S BOLTS. (4.6/S GRADE TO BE USED FOR HOLD DOWN
- 6mm CONTINUOUS FILLET WELDS MADE WITH E4818 MILD STEEL ELECTRODES.
- ALL WELDS SP CATEGORY S5. NO PAINT ON MATING SURFACES WITH TF OR TB BOLTING UNLESS APPROVED BY PMI ENGINEERS.
- S6. TF or TB BOLTS TO BE INSTALLED WITH ONE HARDENED WASHER UNDER THE TURNED PART. TF AND TB BOLTING BY "PART TURN" METHOD WITH LOAD INDICATING
- S8. ALL BOLTS, SCREWS, HOLD DOWN BOLTS, MASONRY ANCHORS SHALL BE HOT DIP GALVANISED TO AS1214-2016, AS/NZS 4534-2006. AS/NZS 4680-2006 & AS/NZS 4792-2006. NO CONNECTION SHALI HAVE LESS THAN 2 BOLTS. ALL BOLTS AND WASHERS SHALL BE GALVANISED. ALL HOLES SHALL BE 2mm LARGER THAN THE BOLT

	DIAME	TER UNLESS NOTED OTHERWISE.		
).	MINIMU	JM YIELD STRESS:		
	-	HOT ROLLED SECTIONS	=	300MPa
	-	SQUARE HOLLOW SECTIONS	=	350MPa
	-	RECTANGULAR HOLLOW SECTIONS	=	350MPa
	-	CIRCULAR HOLLOW SECTION	=	250MPa
	-	HOT ROLLED PLATE	=	250MPa
^	COLD	FORMER CECTIONS TO CONFORM WITH		

- S10. COLD FORMED SECTIONS TO CONFORM WITH: AS/NZS 1594-2002, AS/NZS 1595-1998, AS/NZS 4600-2018 AND AS 1397-2011, AS1397, AS/NZS1594 AND AS/NZS1595. MINIMUM YIELD STRESSES SECTIONS 450MPa.
- S11. SURFACE TREATMENT UNLESS NOTED OTHERWISE: PROTECTED FROM WEATHER = AS/NZS 2312-IZS2 EXPOSED TO WEATHER AS/NZS 2312-
  - HDG600P3 BUILT INTO THE INTERNAL SKIN OF EXTERNAL WALLS AS/NZS 2312-HDG600P3
- \*\*REFER TO PURLIN & GIRTS NOTES FOR SURFACE TREATMENT OF S12. FIX CROSS BRACING TO PURLINS AT 3000 MAXIMUM CTS WITH M10
- BOLTS OR M6 HOOKS. S13. STEELWORK TO BE CONCRETE ENCASED SHALL BE FREE FROM ALL LOOSE RUST, LOOSE MILL SCALE, DIRT, OIL, GREASE, ETC. AND REINFORCED WITH SL41 FABRIC OR EQUIVALENT BLACK IRON WIRE, 3mm
- S13.a ALL BURIED STEELWORK TO BE PAINTED FIRST USING 'EXPOSED TO WEATHER' TREATMENT SYSTEM FOLLOWED BY THE APPLICATION OF A TWO PART EPOXY SUCH AS 'SIKAGUARD-63N' OR APPROVED EQUIVALENT. ALTERNATIVELY, ENCASE BURIED STEELWORK IN CONCRETE WITH A MINIMUM COVER OF 75mm TO STEELWORK.
- 4.6/S = GRADE 4.6 BOLT / SNUG TIGHTENED. - 8.8/S = GRADE 8.8 BOLT / SNUG TIGHTENED. - 8.8/TF = GRADE 8.8 BOLT / FULLY TENSIONED FRICTION TYPE (USE LOAD INDICATOR WASHERS)
- 8.8/TB GRADE 8.8 BOLT / FULLY TENSIONED BEARING TYPE (USE LOAD INDICATOR WASHERS) S15. THE CONTRACTOR SHALL SUPPLY WRITTEN CERTIFICATION TO THE STRUCTURAL ENGINEER PRIOR TO THE ERECTION OF ANY STRUCTURAL STEEL STATING THAT THE BOLTS PROPOSED TO BE USED COMPLY WITH AS/NZS 1252.1-1996. HIGH STRENGTH BOLTS (8.8) ARE NOT TO
- BE WELDED. S16. THE FABRICATION AND ERECTION OF THE STRUCTURAL STEEL WORK SHALL BE SUPERVISED BY A QUALIFIED PERSON EXPERIENCED IN SUCH SUPERVISION, IN ORDER TO ENSURE THAT ALL REQUIREMENTS OF THE DESIGN ARE MET
- S17. ALL MEMBERS SHALL BE SUPPLIED IN SINGLE LENGTHS. SPLICES SHALL ONLY BE PERMITTED IN LOCATIONS SHOWN ON THE STRUCTURAL DRAWINGS.

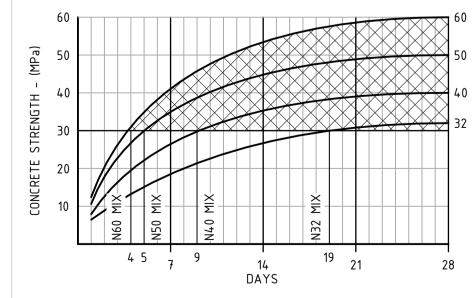
- S18. ALL BUTT WELDS SHALL BE COMPLETE PENETRATION BUTT WELDS CATEGORY SP TO AS1554.1-2004 U.N.O THE EXTENT ON NON-DESTRUCTIVE WELD EXAMINATION SHALL BE AS NOTED BELOW: - RADIOGRAPHIC OR ULTRASONIC EXAMINATION SHALL BE TO AS/NZS 1554.1-2014. AS 2177-2006 AND AS2207-2007 AS APPROPRIATE.
- S19. GROUT ALL STEEL BASES BY DRY PACKING USING GROUT WHICH IS NON-SHRINK AND HAS A MINIMUM COMPRESSIVE STRENGTH AT 7 DAYS OF 40MPa S20. PROVIDE SEAL PLATES TO THE ENDS OF ALL HOLLOW SECTIONS, WITH
- 'BREATHER' HOLES IF MEMBERS ARE TO BE HOT DIP GALVANISED. S21. THESE DRAWINGS MAY NOT IDENTIFY ALL SECONDARY STEELWORK ELEMENTS THAT ARE REQUIRED FOR SUPPORT, FIXING AND FINISHING OF GLAZING, CLADDING AND LINING. THE TENDERER IS RESPONSIBLE FOR THE INCLUSION OF SUCH STEELWORK ELEMENTS TO THE EXTENT REQUIRED ON THE ARCHITECT'S DRAWINGS.
  - IMPORTED STRUCTURAL STEEL MATERIAL ALL STRUCTURAL STEELWORK USED ON THIS PROJECT SHALL BE
  - COMPLIANT WITH AS4100, AND IN PARTICULAR: CERTIFIED MILL TEST REPORTS, OR TEST CERTIFICATES SHALL BE PROVIDED AS EVIDENCE OF COMPLIANCE WITH THE STANDARDS REFERRED TO IN AS4100. THESE CERTIFICATES SHALL BE SUBMITTED TO PMI ENGINEERS FOR APPROVAL
  - PRIOR TO COMMENCEMENT OF FABRICATION. PROVIDE TEST CERTIFICATED FOR COMPLIANCE FOR ALL FASTENERS. THESE CERTIFICATES SHALL BE SUBMITTED TO
  - PMI ENGINEERS FOR APPROVAL PRIOR TO FABRICATION. FOR COLD FORMED SECTIONS A "CERTIFICATE OF CONFORMITY TO AS1163-1991" SHALL BE SUBMITTED TO PMI ENGINEERS FOR APPROVAL PRIOR TO FABRICATION.
  - CERTIFICATES SHALL ONLY BE ACCEPTED FROM TESTING COMPANIES ACCREDITED BY A TESTING AUTHORITY RECOGNISED IN AUSTRALIA, EG NATA or JAS-ANZ CERTIFIED. UNIDENTIFIED STEEL ie. ANY STEEL THAT IS NOT
  - ACCOMPANIED WITH EVIDENCE STATING COMPLIANCE WITH THE REQUIREMENT OF AS4100 SHALL ONLY BE USED STRICTLY IN ACCORDANCE WITH CLAUSE 2.2.3 OF AS4100. IF MATERIALS SUPPLIED AND INSTALLED ARE SUBSEQUENTLY PROVEN

TO BE NON COMPLIANT WITH THE SPECIFIED AUSTRALIAN STANDARDS IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY AND COST TO UNDERTAKE NATA OR EQUIVALENT CERTIFIED TESTING TO PROVE CONFORMANCE TO THE AUSTRALIAN STANDARDS AND DESIGN SPECIFICATIONS. SIMILARLY ANY RECTIFICATION WORKS THAT MAY SUBSEQUENTLY BE REQUIRED TO SATISFY AUSTRALIAN CODE REQUIREMENT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR..

- FP1. PROVIDE 120/120/120 FIRE PROTECTION TO ALL PERMANENT STRUCTURAL STEEL MEMBERS AND CONNECTIONS.
- FP2. REINSTATE ANY FIRE PROTECTION REMOVED FROM EXISTING STRUCTURAL STEELWORK. FP3. INSTALL FIRE PROTECTION MATERIALS IN ACCORDANCE WITH THE
- MANUFACTURER'S WRITTEN SPECIFICATIONS.

## FP4. PROVIDE CERTIFICATION OF FIRE PROTECTION ON COMPLETION.

## CONCRETE STRENGTH V AGE - TYPE A PORTLAND CEMENT



- CS1. CONCRETE TO BE SAMPLED AND TESTED IN ACCORDANCE WITH
- CS3. BUILDER TO OBTAIN WRITTEN CONFIRMATION OF CONCRETE STRENGTH

CS2. CHART TO BE USED AS A GUIDE ONLY AND SHOULD BE CONFIRMED

C1. CARRY OUT ALL CONCRETE WORK IN ACCORDANCE WITH AS3600-2018 AND NATSPEC CONCRETE STANDARDS.

	COVER	TO REINF	ORCEMENT				
		CONCRETE	MAXIMUM 56				
ELEME	NT	STRENGTH	DAY DRY	COVER	(mm)		
		f'c (MPa)	SHRINKAGE				
ORED PIERS		40	650 um	45			
LABS ON	EXPOSED	40	650 um	TOP 30 BTM 2			
ROUND	COVERED	40	וווט טכט	TOP 20	BTM 20		
TRIP FOOTING		40	650 um	45			
AD FOOTING		40	650 um	45			
USPENDED	EXPOSED	40	650	TOP 30	BTM 30		
LABS	COVERED	40	650 um	2	:0		
EAMC	EXPOSED	40	650	TOP 30	BTM 30		
EAMS	COVERED	40	650 um	20			
OLLIMNIC	EXPOSED	40	650	3	0		
OLUMNS	COVERED	40	650 um	20			
IALLS	EXPOSED	40	650 um	3	0		
'ALLS	501/5050		650 um				

MAXIMUM AGGREGATE SIZE SLUMP DURING PLACING EXPOSURE CLASSIFICATION

ELEMENTS) = A2 (EXTERNAL CONCRETE

APPROVED BY PMI ENGINEERS IN WRITING. C3. CONCRETE PROPERTIES FOR SLABS AND BEAMS SHALL BE VARIED

- FROM NORMAL CLASS AS FOLLOWS
- MINIMUM CEMENT CONTENT 250kg/m3/
- PRIOR TO COMMENCEMENT CONCRETE SUPPLIER TO PROVIDE DRYING SHRINKAGE TEST RESULTS FROM PRODUCTION
- CURING PROCEDURE (PVA MEMBRANES NOT PERMITTED)
- CONSTRUCTION JOINT LOCATIONS C5. FOR TENDER PURPOSES ASSUME MINIMUM STRIPPING TIMES AND
- AND AS PER GENERAL NOTES FOR FORMWORK AND PROPPING. FORMWORK FINISH CLASSIFICATION TO AS3610.1-2010

	<u>ELEMENT</u>	<u>CLASS</u>	
-	INGROUND FOOTINGS		5
-	RETAINING WALLS		5 EARTH FACE
-	RETAINING WALLS		2 EXPOSED FACE
-	COLUMNS		2
-	LIFT WALLS		2
-	BEAMS & SLABS		2
_	STAIRS		2

- GRANO TREATED SURFACES
- FLOOR SLABS (U.N.O.) MACHINE FLOAT SLABS TO BE TILED WOOD FLOAT
- MECHANICAL VIBRATORS.
- C9. PLACE CONCRETE CONTINUOUSLY BETWEEN CONSTRUCTION JOINTS PMI ENGINEERS C10. CONCRETE PROFILES
- SIZES OF CONCRETE ELEMENTS DO NOT INCLUDE THICKNESS OF APPLIED FINISHES. NO HOLES, CHASES OR EMBEDMENT OF PIPES OTHER THAN
- DRIP GROOVES, REGLETS ETC TO ARCHITECT'S DETAILS. C12. SETDOWNS OR FALLS IN FLOOR SURFACES ARE NOT PERMITTED
- C14. REINFORCEMENT QUALITY AND NOTATION:

C2. CONCRETE PROPERTIES AND COVER TO REINFORCING

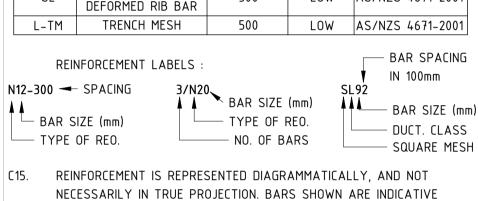
= 20mm U.N.O. ONLY AND LENGTHS MAY VARY. BEAM ELEVATIONS TAKE PRECEDENCE = 75mm ±10mm = A2 (INTERNAL CONCRETE

- ELEMENTS) NO ADMIXTURES SHALL BE USED IN THE CONCRETE MIX UNLESS
- MAXIMUM 56 DAY SHRINKAGE STRAIN = AS NOMINATED ABOVE
- ASSESSMENT AS EVIDENCE THAT SPECIFIED DRYING SHRINKAGE LIMITS CAN BE ACHIEVED USING NORMAL MIX
- C4. SUBMIT FOR APPROVAL THE FOLLOWING TO THE ENGINEER : STRIPPING AND BACK PROPPING PROCEDURE DETAILS AND LOCATION OF CONDUITS AND PENETRATIONS
- EXTENT OF BACK PROPPING AS PER AS3610-1995 SECTION 5.0

	<u>ELEMENT</u>	<u>CLASS</u>
-	INGROUND FOOTINGS	5
-	RETAINING WALLS	5 EARTH FACE
-	RETAINING WALLS	2 EXPOSED FACE
-	COLUMNS	2
-	LIFT WALLS	2
-	BEAMS & SLABS	2
_	STAIRS	2

- (UNLESS NOTED OTHERWISE BY ARCHITECTURAL DOCUMENTATION) C7. SURFACE FINISHES COLUMNS & WALLS OFF FORM
- STAIRS STEEL TROWEL (UNLESS NOTED OTHERWISE BY ARCHITECTURAL DOCUMENTATION) COMPACT ALL CONCRETE, INCLUDING FOOTINGS AND SLABS USING
- SHOWN ON PLAN. DO NOT BREAK OR INTERRUPT SUCCESSIVE POURS SUCH THAT COLD JOINTS OCCUR. ANY REVISIONS OR ADDITIONS TO CONSTRUCTION JOINTS SHOWN ON PLAN REQUIRE APPROVAL FROM
- BEAM DEPTHS ARE WRITTEN FIRST AND INCLUDE THE SLAB
- SHOWN IN THE STRUCTURAL DRAWINGS SHALL BE MADE IN CONCRETE MEMBERS WITHOUT THE PRIOR WRITTEN APPROVAL OF PMI ENGINEERS.
- PROVIDE DRIP GROOVES AT ALL EXPOSED EDGES. CHAMFERS, C11. ALL PENETRATIONS TO HAVE 2/N16 TRIMMER BARS TOP AND BOTTOM TO EACH FACE. U.N.O. EXTEND TRIMMERS 600 BEYOND PENETRATION. UNLESS SHOWN ON DRAWINGS. MAINTAIN MINIMUM SLAB THICKNESS
- SHOWN ON PLAN WHERE FALLS OCCUR. C13. CONCRETE IS INCLINED TO CRACK, AND SURFACE FINISH QUALITY IS LARGELY DEPENDENT UPON FINISHING AND PLACEMENT METHODOLOGY AS SUCH PMI ENGINEERS TAKES NO RESPONSIBILITY FOR THE QUALITY OF CONCRETE FINISH.
- ALL REINFORCING BAR SHALL BE GRADE D500N TO AS/NZS 4671-2001 AND ALL MESH SHALL BE GRADE 500L TO AS/NZS 4671-2001. UNLESS NOTED OTHERWISE CLASS L REINFORCEMENT SHALL NOT BE USED.

## REINFORCEMENT NOTATION TO COMPLY WITH STRENGTH | DUCTILITY | SYMBOL AUSTRALIAN GRADE (MPa) CLASS STANDARD STRUCTURAL GRADE 250 NORMAL | AS/NZS 4671-2001 | DEFORMED RIB BAR STRUCTURAL GRADE NORMAL | AS/NZS 4671-2001 | DEFORMED RIB BAR PLAIN ROUND BAR 250 | NORMAL | AS/NZS 4671-2001 | RECTANGULAR MESH LOW AS/NZS 4671-2001 DEFORMED RIB BAR SQUARE MESH LOW AS/NZS 4671-2001 DEFORMED RIB BAR



- OVER SECTIONS. SLAB PLANS TAKE PRECEDENCE OVER SECTIONS. REFER TO SECTIONS FOR EXTRA BARS THAT MAY BE REQUIRED. USE ONLY PLASTIC OR CONCRETE CHAIRS AT EXTERNAL SURFACES SITE BENDING OF REINFORCEMENT BARS SHALL BE DONE WITHOUT HEATING USING A RE-BENDING TOOL. THE BARS SHALL BE RE-BENT AGAINST A FLAT SURFACE OR A PIN WITH A DIAMETER NOT LESS
- THAN THE MINIMUM PIN SIZE PRESCRIBED IN AS3600-2009. C18. SPLICES IN REINFORCEMENT SHALL BE MADE ONLY IN POSITIONS SHOWN ON THE STRUCTURAL DRAWINGS OR IN POSITIONS OTHERWISE APPROVED IN WRITING BY PMI ENGINEERS. LAPS SHALL NOT BE LESS THAN THE DEVELOPMENT LENGTH FOR EACH BAR AND IN ACCORDANCE WITH AS3600-2018 SECTION 13.
- C19. LAPS IN MESH IN ACCORDANCE WITH AS3600-2018 SECTION 13. C20. WELDING OF REINFORCEMENT SHALL NOT BE PERMITTED UNLESS SHOWN ON THE STRUCTURAL DRAWINGS OR APPROVED BY PMI ENGINEERS
- C21. AT EXTERNALLY EXPOSED SURFACES NO METALLIC ITEMS INCLUDING FORM BOLTS, FORM SPACERS, METALLIC BAR CHAIRS AND TIE-WIRE ARE TO BE PLACED IN THE COVER ZONE. C22. ALL REINFORCEMENT. ANCHOR BOLTS AND OTHER CONCRETE INSERTS
- SHALL BE WELL SECURED IN POSITION AND INSPECTED BY PMI ENGINEERS PRIOR TO PLACING CONCRETE. C23. HOLD DOWN BOLTS SHALL BE HOT DIPPED GALVANISED. C24. U.N.O., ALL MASONRY ANCHORS INTO CONCRETE SHALL BE RAMSET TRUBOLTS (LONGEST VERSION) OR APPROVED EQUIVALENT. BOLTS SHALL BE GALVANISED WHERE THEY ARE ADJOINING NON FERROUS OR
- PREPAINTED MEMBERS. PROVIDE STAINLESS STEEL BOLTS FOR ALL EXTERNAL CONDITIONS, OR WHERE EXPOSED TO THE WEATHER. ALL CONCRETE MIXES SHALL BE DESIGNED BY A RECOGNISED TESTING
- LAB AND SUBMITTED FOR REVIEW BY PMI ENGINEERS. C26. ALL COMPRESSIVE STRENGTH TEST REPORTS SHALL BE SUBMITTED TO PMI ENGINEERS FOR REVIEW. C27. TESTING SHALL BE CARRIED OUT ON ALL CONCRETE IN ACCORDANCE WITH AS1379-2007. TEST CYLINDERS ARE TO BE KEPT ON SITE.
- C28. CURING OF ALL CONCRETE IS TO BE ACHIEVED BY KEEPING SURFACES CONTINUOUSLY WET FOR A PERIOD OF 7 DAYS, UNLESS SPECIFIED OTHERWISE. APPROVED SPRAY ON CURING COMPOUNDS THAT COMPLY WITH AS3799-1998 MAY BE USED WHERE FLOOR FINISHES WILL NOT BE AFFECTED. POLYTHENE SHEETING OR WET HESSIAN MAY BE USED TO RETAIN CONCRETE MOISTURE WHERE PROTECTED FROM WIND AND TRAFFIC. CURING IS TO COMMENCE IMMEDIATELY AFTER CONCRETE
- C29. FOR ELAPSED TIME BETWEEN THE WETTING OF THE MIX AND THE DISCHARGE OF THE MIX. REFER TO CONCRETE - ELAPSED DELIVERY TIMES NOTE.

CONCRETE - ELAPSED DELIVERY TIMES CE1. ELAPSED TIME BETWEEN THE WETTING OF THE MIX AND THE DISCHARGE OF THE MIX AT THE SITE MUST NOT EXCEED THE CRITERIA IN THE ELAPSED DELIVERY TIMETABLE BELOW

## ELAPSED DELIVERLY TIME TABLE

CONC. TEMP. AT DISCHARGE (°C)	MAXIMUM ELAPSED TIME (HOURS)
≤ 24	2.00
24 to 27	1.50
27 to 30	1.00
30 to 32	0.75
32 to 35	0.50

IF THE ELAPSED TIME IS LONGER THAN THE CORRESPONDING TIME IN THE TABLE ABOVE, OR THE TEMPERATURE IS GREATER THAN 35°C, EITHER PMI ENGINEERS OR THE CONCRETE MIX DESIGN ENGINEER ARE TO BE CONTACTED TO CONFIRM WHETHER PLACEMENT IS TO PROCEED OR IF THE POUR IS TO BE STOPPED. IF THE POUR IS STOPPED, PRIOR TO ANY FURTHER CONCRETE PLACEMENT PMI ENGINEERS ARE TO BE CONTACTED TO INSPECT THE WORKS AND DETERMINE WHAT, IF ANY, RECTIFICATION WORKS ARE REQUIRED.

## SLAB ON GROUND - RESIDENTIAL

RSG1. RESIDENTIAL SLABS ON GROUND SHALL BE IN ACCORDANCE WITH

- RSG2. THE SITE OF THE WORKS SHALL BE STRIPPED OF ALL GRASS, ROOTS, VEGETABLE MATTER AND COMPRESSIBLE TOPSOIL.
- RSG3. THE GROUND BELOW SLABS SHALL BE PROOF ROLLED WITH AN APPROVED HEAVY COMPACTOR. ALL "SOFT SPOTS" ENCOUNTERED SHALL BE REMOVED AND REPLACED WITH COMPACTED CRUSHED ROCK OR APPROVED FILL IN ACCORDANCE WITH AS2870-2011 &
- AS3798-2007. RSG4. CLEAN GRANULAR FILLING UP TO 600mm MAY BE PLACED UNDER THE SLAB IN ACCORDANCE WITH THE PROVISIONS OF AS2870-2011 PART 6.4. FILLING SHALL BE COMPACTED IN 150mm THICK LAYERS BY
- MECHANICAL ROLLER. RSG5. TERMITE PROTECTION SHALL BE PROVIDED AS REQUIRED BY
- AS3660.1-2000 AND THE LOCAL STATUTORY AUTHORITY. RSG6. SLABS SHALL BE LAID ON A 0.2mm POLYTHENE MEMBRANE, CONTINUOUS, LAPPED 20mm MINIMUM AND TAPED AT JOINTS,
- PUNCTURES AND SERVICE PIPE PENETRATIONS. RSG7. BEAM AND STRIP FOOTING REINFORCEMENT SHALL ACHIEVE THE
- REQUIRED COVER AS NOTED IN CONCRETE SPECIFICATIONS RSG8. TRENCH MESH SHALL BE LAID CONTINUOUSLY AND SHALL BE SPLICED WHERE NECESSARY WITH A LAP OF 600mm.
- CORNERS AND INTERSECTIONS AND THE ENDS OF TRENCH MESH SHALL TERMINATE WITH A CROSSBAR. RSG10. MESH SHALL BE PLACED NEAR THE TOP OF THE SLAB AND SHALL

RSG9. TRENCH MESH SHALL BE OVERLAPPED BY THE WIDTH OF MESH AT

## ACHIEVE THE REQUIRED COVER. MESH SHALL BE LAPPED A MINIMUM OF TWO WIRES PLUS 25mm AND SHALL BE SET OUT SUCH THAT NO MORE THAN THREE THICKNESSES OF MESH OCCUR AT ANY LOCATION.

- 25mm OVERLAP OF END WIRE RSG11. HOT WATER HEATING PIPES MAY BE EMBEDDED IN THE SLAB IF THE THICKNESS IS INCREASED BY 25mm AND LAID ON SL52 MESH, OR IF THE SLAB THICKNESS IS INCREASED BY 25mm AND THE MESH SIZE IS
- INCREASED BY ONE SIZE (eg FROM SL82 MESH TO SL92 MESH). RSG12. THE GROUND SURROUNDING THE SLAB SHALL HAVE ITS SURFACE AT LEAST 150mm LOWER THAN THE SLAB SURFACE AND BE GRADED
- AWAY FROM THE SLAB EDGE TO THE SITE DRAINAGE SYSTEM. RSG13. ADDITIONAL PLUMBING REQUIREMENTS FOR CLASS M, H & E SITES. CLASS M H or E SITES: THE BASE OF TRENCHES SHALL BE SLOPED AWAY FROM THE BUILDING. TRENCHES SHALL BE BACKFILLED WITH CLAY IN THE TOP 300mm WITHIN 1.5m OF THE BUILDING AND THE CLAY COMPACTED. WHERE PIPES PASS UNDER THE FOOTING SYSTEM THE FULL DEPTH OF THE TRENCH SHALL BE BACKFILLED WITH CLAY or CONCRETE. SUBSURFACE DRAINS TO REMOVE GROUNDWATER SHALL

NOT BE USED WITHIN 1.5m OF THE BUILDING UNLESS NOTED

## ADDITIONAL REQUIREMENTS FOR CLASS H & E SITES: THESE REQUIREMENTS APPLY TO ALL STORMWATER, SANITARY PLUMBING

DRAINS & DISCHARGE PIPES - CLOSED-CELL POLYETHYLENE LAGGING SHALL BE USED AROUND PIPE PENETRATIONS THROUGH FOOTINGS. THE LAGGING SHALL BE A MINIMUM OF 20mm THICK ON CLASS H1 SITES & 40mm THICK ON CLASS H2 & CLASS E SITES. VERTICAL PENETRATIONS DO NOT

 DRAINS ATTACHED TO or EMERGING FROM UNDERNEATH THE BUILDING SHALL INCORPORATE FLEXIBLE JOINTS IMMEDIATELY OUTSIDE THE FOOTING AND COMMENCING WITHIN 1m OF THE BUILDING PERIMETER TO ACCOMMODATE A TOTAL RANGE OF DIFFERENTIAL MOVEMENT IN ANY DIRECTION EQUAL TO THE ESTIMATED CHARACTERISTIC SURFACE MOVEMENT ON THE SITE (ys). ys = ???, (IN THE ABSENCE OF THE SPECIFIC DESIGN GUIDANCE, THE FITTINGS or OTHER DEVICES TO ALLOW FOR THE MOVEMENT SHALL BE SET AT THE MID POSITION OF

THEIR RANGE OF POSSIBLE MOVEMENT AT THE TIME OF PIPES MAY BE ENCASED IN CONCRETE or IN RECESSES IN THE SLAB WHEN PROVIDED WITH FLEXIBLE JOINTS AT THE EXTERIOR OF THE SLAB. METHODS USED SHOULD COMPLY WITH THE AS/NZS 3500

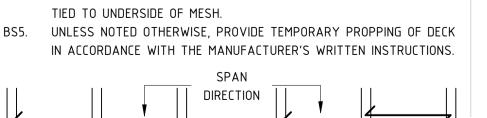
COLD WATER PIPES AND HEATED OF HOT WATER PIPES SHALL NOT BE INSTALLED UNDER A SLAB UNLESS THE PIPES ARE INSTALLED WITHIN A CONDUIT SO THAT IF THE PIPE LEAKS WATER IT WILL BE NOTICED ABOVE THE SLAB or OUTSIDE THE SLAB AND WILL NOT LEAK UNNOTICED UNDER THE SLAB. WATER SERVICE PIPES INSTALL UNDER CONCRETE SLABS SHOULD COMPLY WITH THE RELEVANT REQUIREMENTS OF AS/NZS 3500.1. HEATED WATER SERVICE PIPES INSTALLED UNDER CONCRETE SLABS SHOULD COMPLY WITH THE

RELEVANT REQUIREMENTS OF AS/NZS 3500.4.

STEEL DECK SLABS (BONDEK or CONDECK) BS1. STEEL DECKING TO BE INSTALLED STRICTLY IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS.

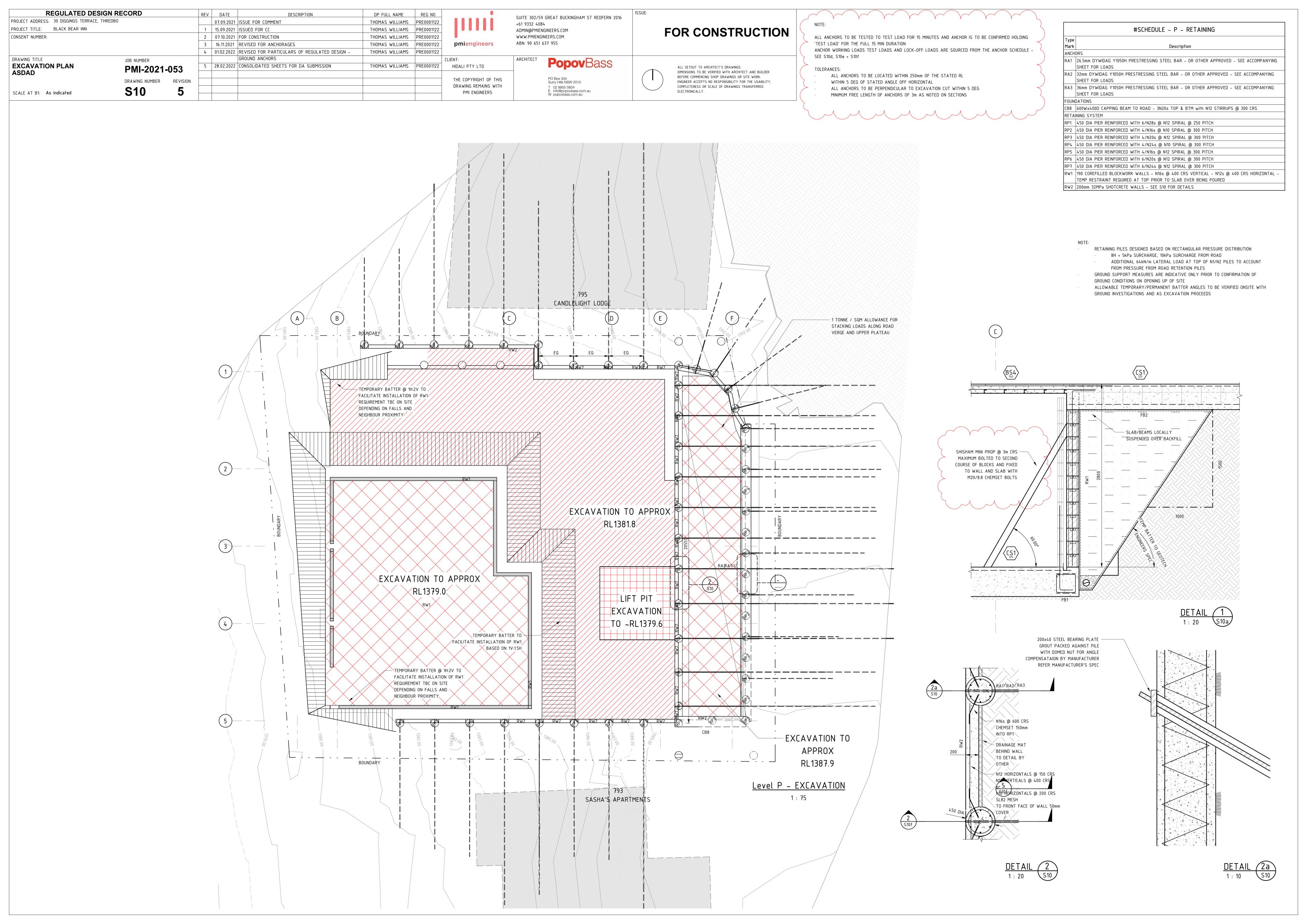
BS2. REFER TO PLAN FOR STEEL DECKING SPECIFICATION. CONTRACTOR MAY

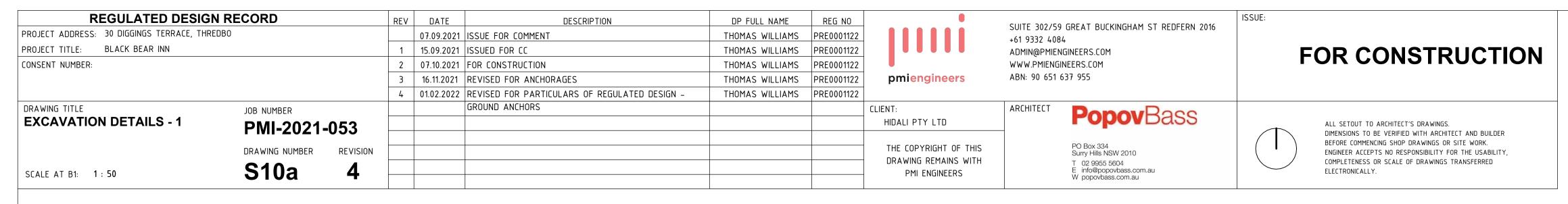
SUBMIT FOR APPROVAL EQUIVALENT DECKING PRODUCTS. BS3. PROVIDE 40mm MINIMUM BEARING AT SUPPORTS. BS4 AT ALL RE-ENTRANT CORNERS PROVIDE 3/N12 TRIMMERS 2000 LONG



CONTINUOUS DECK SLAB

SIMPLY SUPPORTED DECK SLAB





## PROPOSED METHODOLOGY

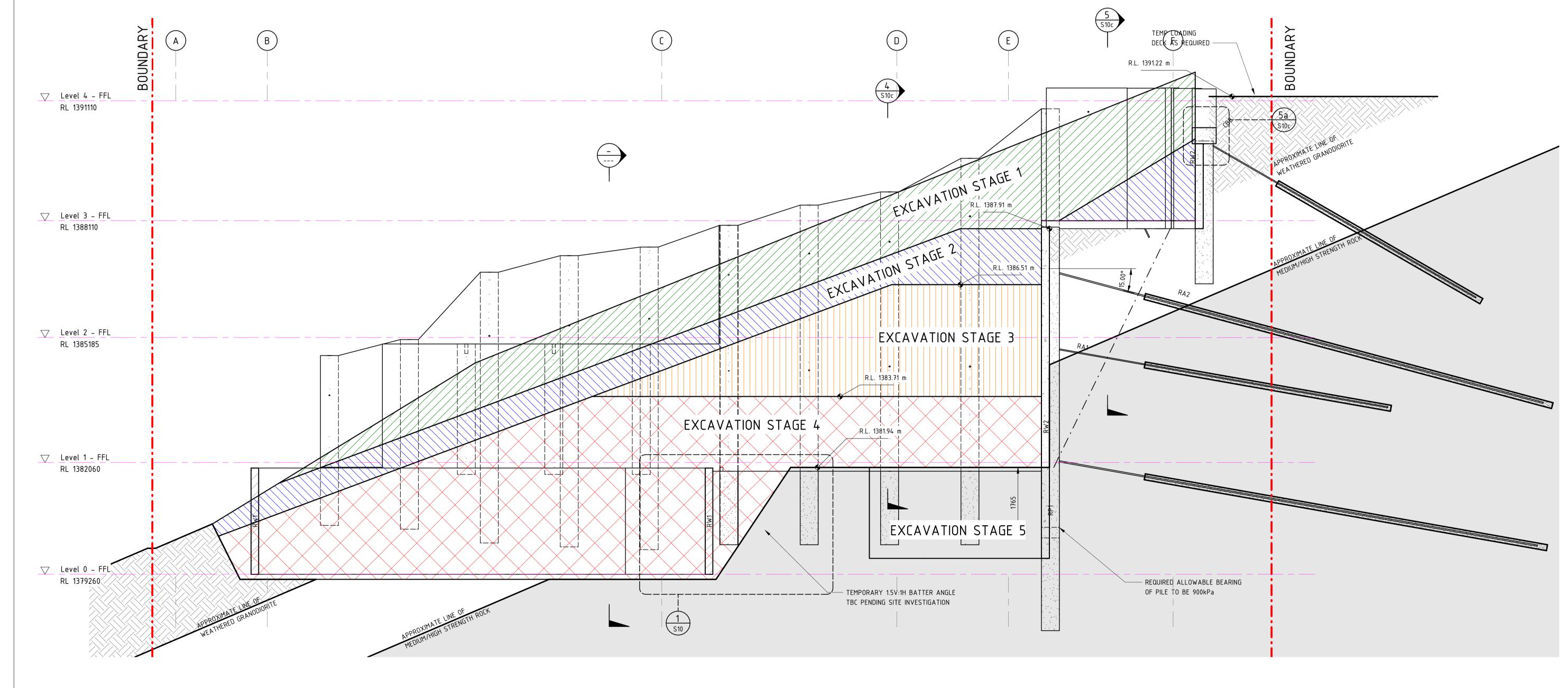
- 1. INSTALL PILES TO LEVEL 4 @ 1.2m AND AROUND EXCAVATION PERIMETER @ ~2m CRS AND INSTALL CAPPING BEAMS AS REQUIRED
- 2. EXCAVATE STAGE 1 AS INDICATED TO SHOTCRETING PILES AS REQUIRED AND TAKING READINGS OF PILES TO CHECK DEFLECTIONS
- 3. INSTALLING ANCHORS TO SOUTHERN PILES AND FIRST ROW OF EAST AND WESTERN PILES
- 4. INSTALL LOWER PILES ALONG GRID E WITH ADDITIONAL EXCAVATION AS REQUIRED
- 5. TEST SELECTED ROCK ANCHORS TO NOMINATED LOAD TO CONFIRM CAPACITY
- 6. EXCAVATE STAGE 2 AS INDICATED SLOPING TO THE NORTH AS NECESSARY TO ENABLE ACCESS TO ANCHORAGES TAKING READINGS OF PILES TO CHECK DEFLECTIONS
- 7. SHOTCRETE BETWEEN PILES
- 8. POUR 200mm CS6 CAPPING SLAB TO CONNECT RP1 AND RP2 PILES AT RL1387.90
- 9. INSTALL TOP STAGE OF ROCK ANCHORS TO PILES ON GRID E AND OTHER PERIMETER PILES AS AVAILABLE
- 10. TEST SELECTED ROCK ANCHORS TO NOMINATED LOAD TO CONFIRM CAPACITY
- 11. EXCAVATE STAGE 3 TAKING READINGS OF PILES TO CHECK DEFLECTIONS
- 12. INSTALL NEXT ROW OF ANCHORS ALONG GRID E AND 2nd ROW OF ANCHORS TO EAST AND WEST WINGS
- 13. SHOTCRETE BETWEEN PILES
- 14. TEST SELECTED ROCK ANCHORS TO 1.3x WORKING LOAD TO CONFIRM CAPACITY
- 15. EXCAVATE STAGE 4. SHOTCRETING WALLS AS NECESSARY
- 16. INSTALL FINAL ROW OF ANCHORS AROUND LIFT PIT AND TEST SELECTED ROCK ANCHORS TO NOMINATED LOAD TO CONFIRM CAPACITY
- 17. EXCAVATE STAGE 5 LIFT PIT
- 18. PROGRESSIVELY CONSTRUCT STRUCTURE TAKING READINGS OF WALLS AT KEY STAGES TO MONITOR DEFLECTIONS
- 19. ONCE LEVEL 3 SLAB HAS REACHED DESIGN STRENGTH (40 MPa), DE-STRESS ROCK ANCHORS

## WITNESS, HOLD AND MONITORING POINTS

- GEOTECHNICAL INVESTIGATION ONSITE POST DEMOLITION OF EXISTING STRUCTURE TO CONFIRM ASSUMPTIONS
  GEOTECHNICAL INVESTIGATION ONSITE EVERY 1.5m DEPTH OF EXCAVATION TO CONFIRM GROUND CONDITIONS
- STRUCTURAL INSPECTION REQUIRED:
  - PRIOR TO POURING CONCRETE PILES/PIERS TO CONFIRM BEARING CAPACITY AND REINFORCING
  - PRIOR TO SHOTCRETING WALLS
- PRIOR TO STRESSING OF ROCK ANCHORS
- PRIOR TO EXCAVATION RESUMING AFTER TEMPORARY BRACING STEEL INSTALLED

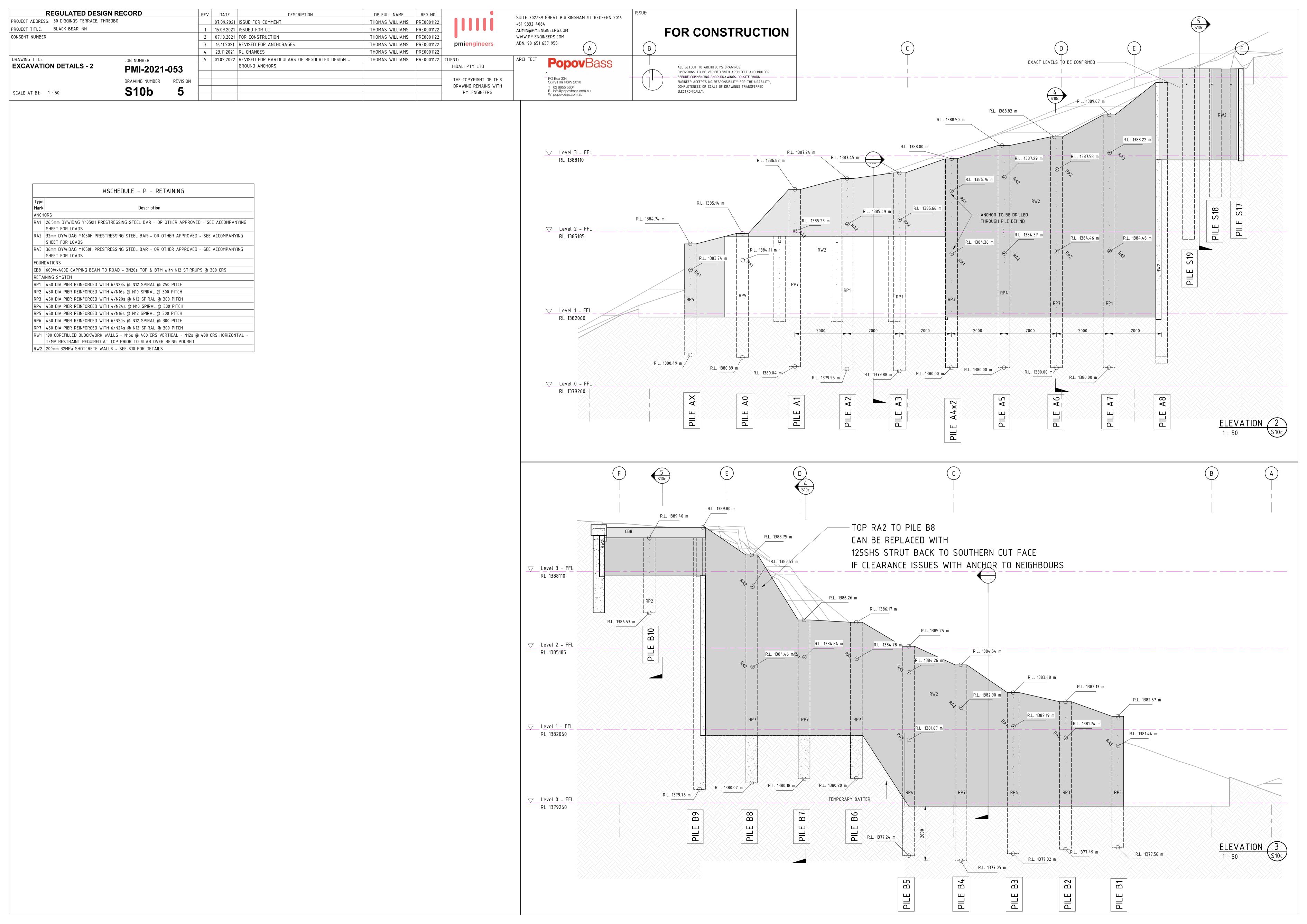
VIBRATION MONITORING TO BE CARRIED OUT ON BOUNDARIES IN ACCORDANCE WITH GEOTECHNICAL RECOMMENDATIONS DURING EXCAVATION SURVEY POINTS TO BE ESTABLISHED AND LOCATIONS SUBMITTED FOR APPROVAL TO ALL RETAINING WALLS. SURVEY TO BE SUBMITTED

- TO GEOTECH AND STRUCTURAL ENGINEER TO MONITOR MOVEMENTS. SURVEY TO BE CARRIED OUT AT FOLLOWING STAGES:
- COMPLETION OF TOP RP2 PILE INSTALLATION
- COMPLETION OF EXCAVATION STAGE 1
- PRIOR TO ROCK ANCHOR STRESSING
- COMPLETION OF ROCK ANCHOR STRESSING AND TEMPORARY PROP INSTALLATION
- ONCE EXCAVATION ACHIEVES ~RL1381.94
- ONCE EXCAVATION IS COMPLETED

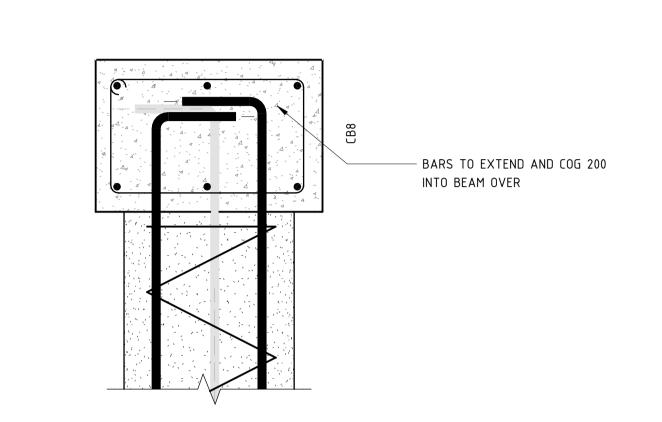


## NOTE:

EXCAVATION TO NOT EXCEED 1.5m IN ONE GO.
 EACH 1.5m EXCAVATION TO BE INSPECTED BY A COMPETENT GETOECHNICAL ENGIEER AND SIGNED OFF PRIOR TO PROGRESSING EXCAVATION TO FURTHER DEPTH

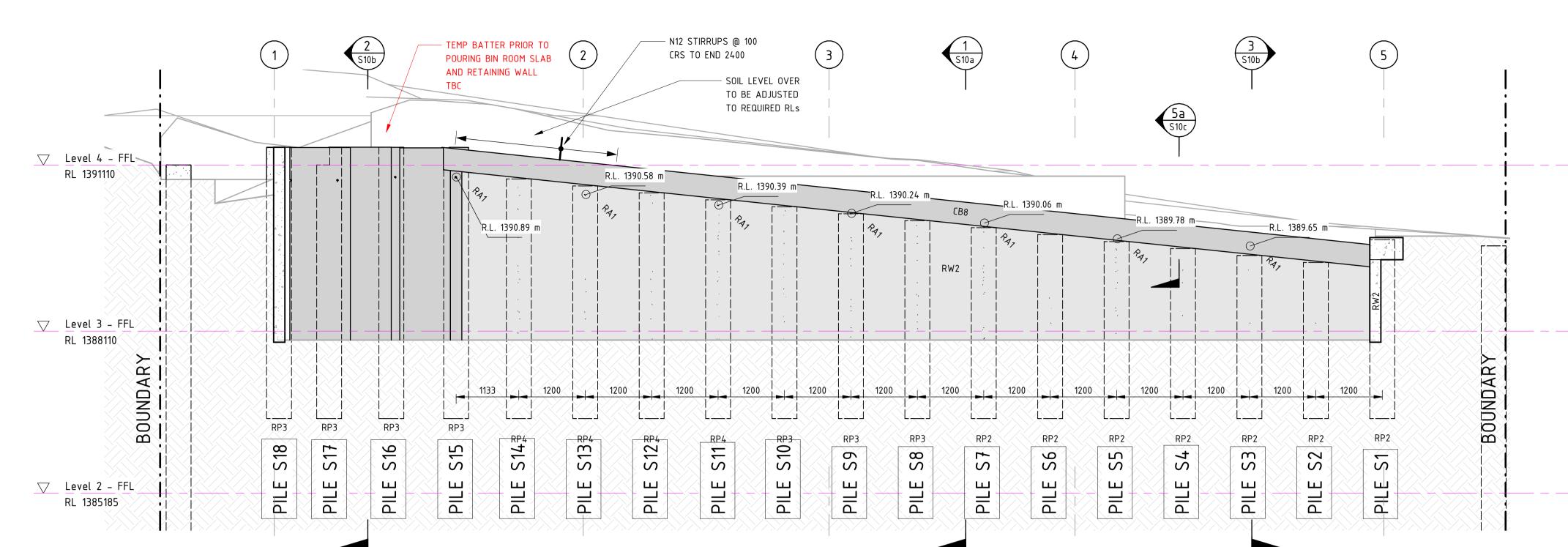


REGULATED DESIGN	I RECORD	REV	DATE	DESCRIPTION	DP FULL NAME	REG NO	•	CUITE 2027	EO CDEAT DUCKINGHAM CT DEDEEDN 2047	ISSUE:	
PROJECT ADDRESS: 30 DIGGINGS TERRACE, THREDBO		07.09.2021 ISSUE FOR COMMENT		THOMAS WILLIAMS	PRE0001122		SUITE 302/59 GREAT BUCKINGHAM ST REDFERN 2016 +61 9332 4084				
PROJECT TITLE: BLACK BEAR INN		1	15.09.2021	ISSUED FOR CC	THOMAS WILLIAMS	PRE0001122				FOR CONSTRUCTION	
CONSENT NUMBER:		2	07.10.2021	FOR CONSTRUCTION	THOMAS WILLIAMS	PRE0001122		WWW.PMIEN	NGINEERS.COM		OK CONSTRUCTION
		3	16.11.2021	REVISED FOR ANCHORAGES	THOMAS WILLIAMS	PRE0001122	pmiengineers	ABN: 90 651	1 637 955		
		4	01.02.2022	REVISED FOR PARTICULARS OF REGULATED DESIGN -	THOMAS WILLIAMS	PRE0001122					
DRAWING TITLE	JOB NUMBER			GROUND ANCHORS			CLIENT:	ARCHITECT	<b>Popov</b> Bass		
<b>EXCAVATION DETAILS - 3</b>	PMI-2021-053						HIDALI PTY LTD		PopovDass		ALL SETOUT TO ARCHITECT'S DRAWINGS.
							THE CORVENEUT OF THE		PO Box 334		DIMENSIONS TO BE VERIFIED WITH ARCHITECT AND BUILDER BEFORE COMMENCING SHOP DRAWINGS OR SITE WORK.
	DRAWING NUMBER REVISION						THE COPYRIGHT OF THIS  DRAWING REMAINS WITH		Surry Hills NSW 2010	( ' )	ENGINEER ACCEPTS NO RESPONSIBILITY FOR THE USABILITY,
SCALE AT B1: As indicated	S10c 4						- PMI ENGINEERS		T 02 9955 5604 E info@popovbass.com.au W popovbass.com.au		COMPLETENESS OR SCALE OF DRAWINGS TRANSFERRED ELECTRONICALLY.

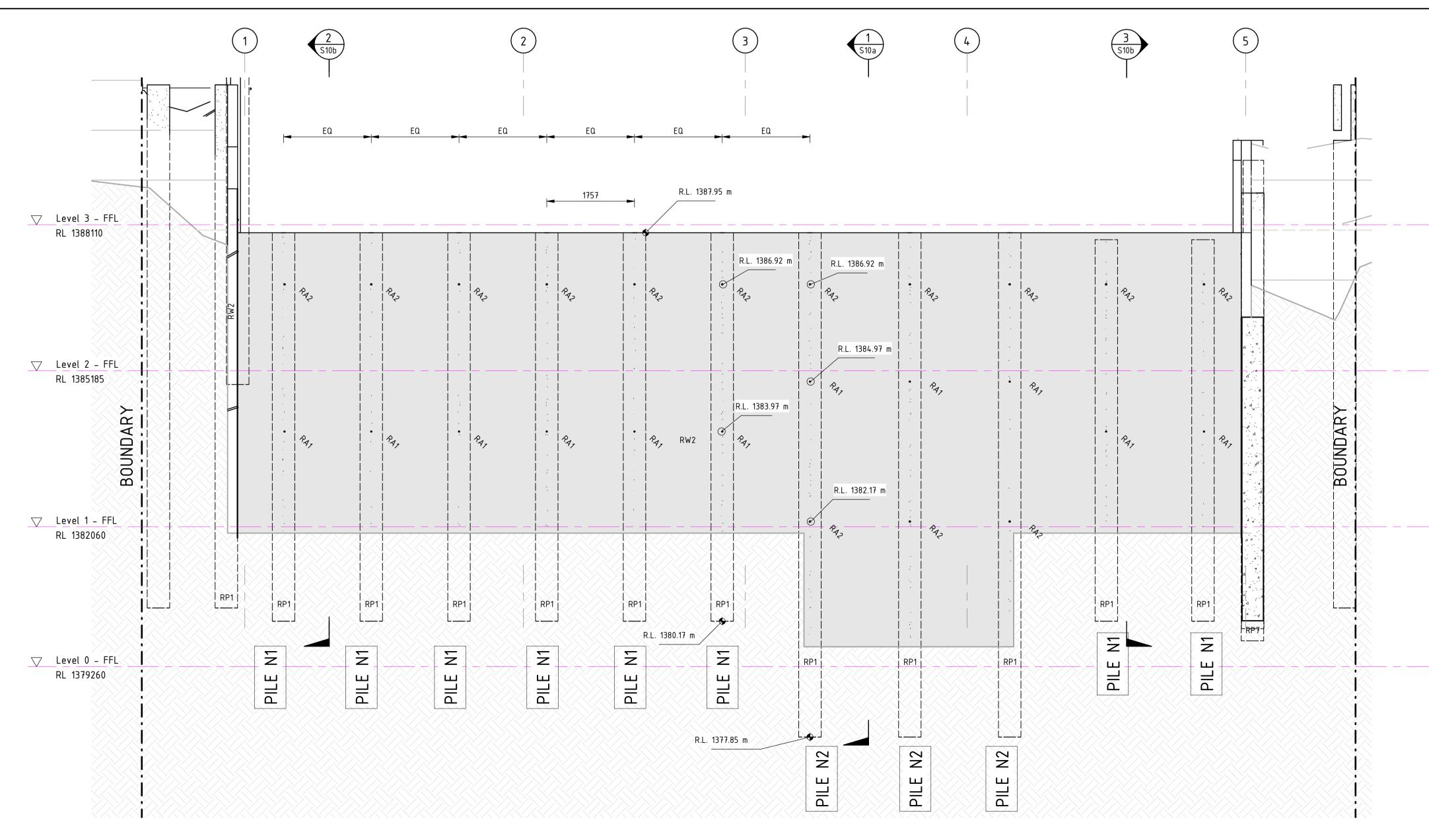


TYPICAL CAPPING BEAM CONNECTION

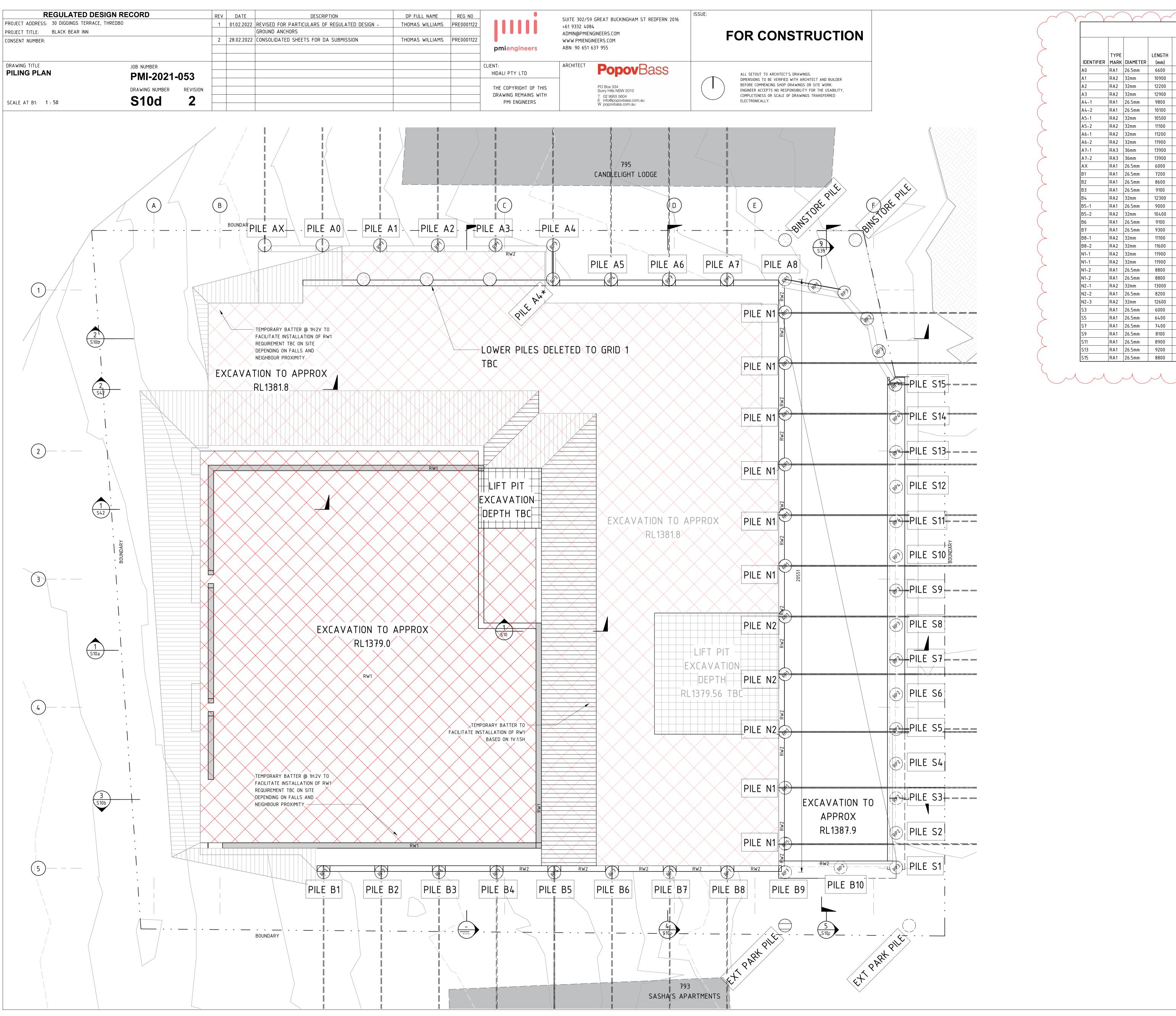




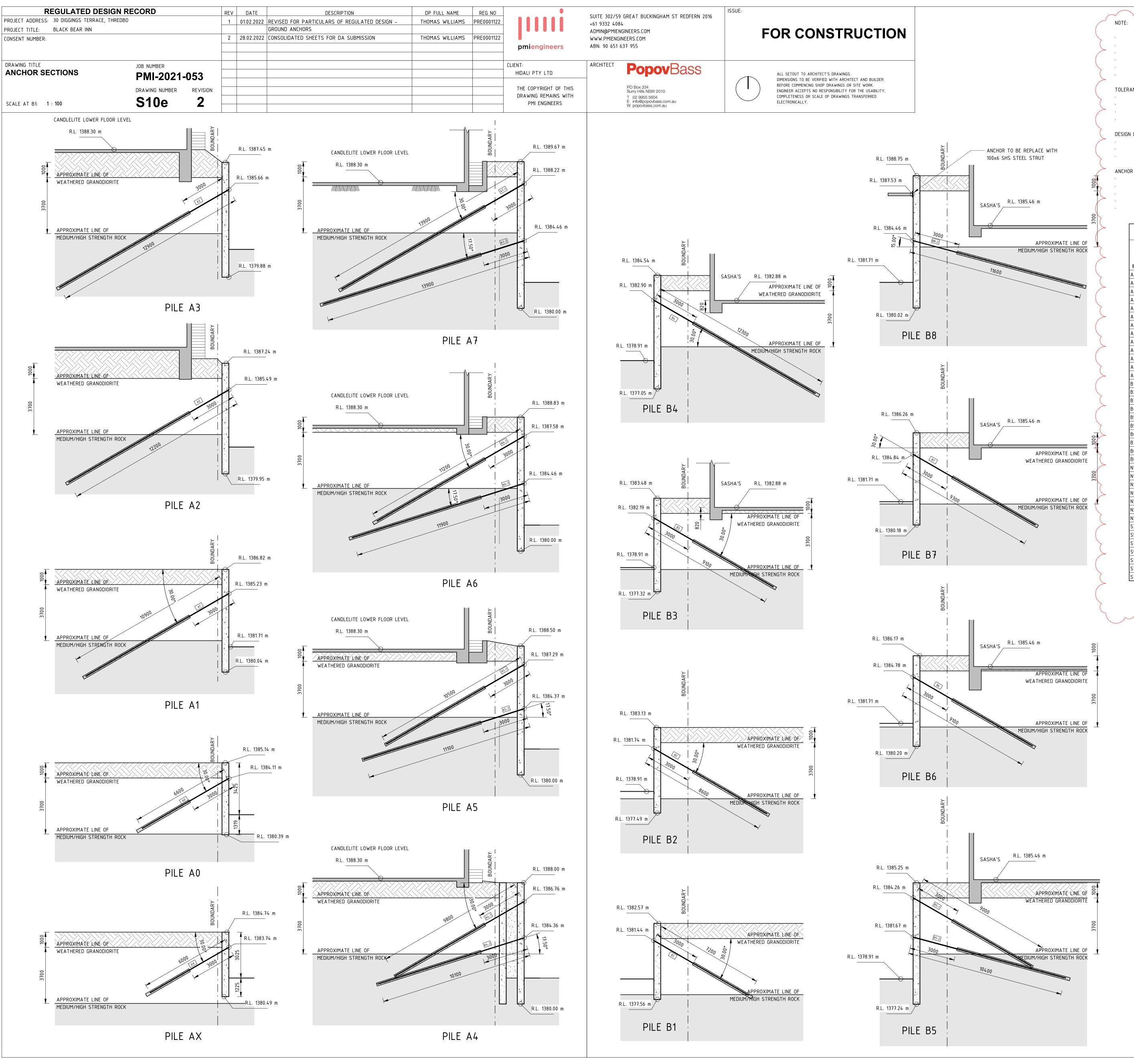








<u> </u>						<u> </u>				
					ΑI	NCHOR SCHE	DULE			
	TYPE		LENGTH			WORKING LOAD	TEST LOAD	LOCK OFF LOAD	MIN EXTENSION - TEST LOAD	MAX EXTENSION - TEST LOAD
IDENTIFIER		DIAMETER	(mm)	ANCHOR RL	ANGLE	(kN)	(kN)	(kN)	(mm)	(mm)
Α0	RA1	26.5mm	6600	1384.12	30°	130	270	130	7.16	11.46
A1	RA2	32mm	10900	1385.24	30°	290	580	290	10.55	24.45
A2	RA2	32mm	12200	1385.50	30°	340	680	340	12.37	31.35
<b>A</b> 3	RA2	32mm	12900	1385.67	30°	360	730	360	13.28	35.20
A4-1	RA1	26.5mm	9800	1386.77	30°	300	500	300	13.27	28.30
A4-2	RA1	26.5mm	10100	1384.37	17.5°	320	520	320	13.80	30.12
A5-1	RA2	32mm	10500	1387.30	30°	330	550	330	10.01	22.52
A5-2	RA2	32mm	11100	1384.38	17.5°	360	590	360	10.74	25.23
A6-1	RA2	32mm	11200	1387.60	30°	360	600	360	10.92	25.84
A6-2	RA2	32mm	11900	1384.48	17.5°	390	650	390	11.83	29.37
A7-1	RA3	36mm	13900	1388.24	30°	480	800	480	11.50	32.40
A7-2	RA3	36mm	13900	1384.48	17.5°	480	800	480	11.50	32.40
AX	RA1	26.5mm	6000	1383.75	30°	110	220	110	5.84	8.76
B1	RA1	26.5mm	7200	1381.45	30°	150	310	150	8.23	13.98
B2	RA1	26.5mm	8600	1381.75	30°	210	410	210	10.88	21.03
В3	RA1	26.5mm	9100	1382.20	30°	220	450	220	11.94	24.08
B4	RA2	32mm	12300	1382.91	30°	340	680	340	12.37	31.55
B5-1	RA1	26.5mm	9000	1384.27	30°	270	440	270	11.67	23.35
B5-2	RA2	32mm	10400	1381.68	15°	330	540	330	9.83	21.94
B6	RA1	26.5mm	9100	1384.79	30°	220	450	220	11.94	24.08
В7	RA1	26.5mm	9300	1384.85	30°	230	470	230	12.47	25.56
B8-1	RA2	32mm	11100	1387.55	30°	360	590	360	10.74	25.23
B8-2	RA2	32mm	11600	1384.48	15°	380	630	380	11.46	27.89
N1–1	RA2	32mm	11900	1386.93	15°	390	650	390	11.83	29.37
N1–1	RA2	32mm	11900	1386.93	15°	390	650	390	11.83	29.37
N1-2	RA1	26.5mm	8800	1383.98	10°	260	420	260	11.14	21.92
N1-2	RA1	26.5mm	8800	1383.98	10°	260	420	260	11.14	21.92
N2-1	RA2	32mm	13000	1386.93	15°	440	730	440	13.28	35.42
N2-2	RA1	26.5mm	8200	1384.98	10°	230	380	230	10.08	18.82
N2-3	RA2	32mm	12600	1382.18	10°	420	700	420	12.74	33.12
S3	RA1	26.5mm	6000	1389.66	30°	140	220	140	5.84	8.76
S5	RA1	26.5mm	6400	1389.79	30°	150	250	150	6.63	10.39
S7	RA1	26.5mm	7400	1390.07	30°	200	320	200	8.49	14.72
S9	RA1	26.5mm	8100	1390.25	30°	230	370	230	9.82	18.16
S11	RA1	26.5mm	8900	1390.40	30°	260	430	260	11.41	22.63
S13	RA1	26.5mm	9200	1390.59	30°	270	450	270	11.94	24.28
S15	RA1	26.5mm	8800	1390.91	30°	260	420	260	11.14	21.92



ALL ANCHORS TO BE TESTED TO TEST LOAD FOR 15 MINUTES AND ANCHOR IS TO BE CONFIRMED HOLDING 'TEST LOAD' FOR THE FULL 15 MIN DURATION ANCHOR WORKING LOADS TEST LOADS AND LOCK-OFF LOADS ARE TO BE IN ACCORDANCE WITH SCHEDULE BELOW.

ANCHORS TO BE DYWIDAG Y1050H PRESTRESSING STEEL BAR OR SIMILAR APPROVED

ALL ANCHORS HOLES TO BE 125mm DIA MINIMUM

ANCHOR BARS ARE TO BE BLACK STEEL WITH NO CORROSION PROTECTION / SHEATHING REQUIRED DUE TO TEMPORARY NATURE NO FIRE TREATMENT IS REQUIRED FOR TEMPORARY ANCHORS

TOLERANCES:

ALL ANCHORS TO BE LOCATED WITHIN 250mm OF THE STATED RL WITHIN 5 DEG OF STATED ANGLE OFF HORIZONTAL

ALL ANCHORS TO BE PERPENDICULAR TO EXCAVATION CUT WITHIN 5 DEG MINIMUM FREE LENGTH OF ANCHORS OF 3m AS NOTED ON SECTIONS

DESIGN LOADS:

ALL ANCHORS DESIGNED FOR 8H + SURCHARGE LOADING FROM LIVE LOAD LIVE LOAD ASSUMED AS 5kPA FOR EAST AND WEST SIDE OF SITE

LIVE LOAD ASSUMED AS 10kPA FOR SOUTHERN SIDE OF SITE

ANCHOR WORKING LOADS:

WORKING LOAD SPECIFIED AS LOAD RESULTING FROM LIVE LOAD + 6H DEAD LOAD
TEST LOAD DEFINED AS LIVE LOAD + 8H DEAD LOAD WITH APPROPRIATE SAFETY FACTORS APPLIED

ANCHOR LENGTH DESIGN BASED ON 150kPa ULTIMATE BOND STRESS MIN EXTENSION BASED ON EXTENSION OVER 3m FREE LENGTH ONLY

MAX EXTENSION BASED ON EXTENSION OVER 3m FREE LENGTH + 1/2 BONDED LENGTH

ΑN	NCHOR	SCHE	DULE

										MAX	
									MIN EXTENSION	EXTENSION -	
	TYPE		LENGTH			WORKING LOAD	TEST LOAD	LOCK OFF LOAD	- TEST LOAD	TEST LOAD	
IDENTIFIER		DIAMETER	(mm)	ANCHOR RL	ANGLE	(kN)	(kN)	(kN)	(mm)	(mm)	_
Α0	RA1	26.5mm	6600	1384.12	30°	130	270	130	7.16	11.46	
A1	RA2	32mm	10900	1385.24	30°	290	580	290	10.55	24.45	
A2	RA2	32mm	12200	1385.50	30°	340	680	340	12.37	31.35	$\perp$
A3	RA2	32mm	12900	1385.67	30°	360	730	360	13.28	35.20	`
A4-1	RA1	26.5mm	9800	1386.77	30°	300	500	300	13.27	28.30	
A4-2	RA1	26.5mm	10100	1384.37	17.5°	320	520	320	13.80	30.12	_<
A5-1	RA2	32mm	10500	1387.30	30°	330	550	330	10.01	22.52	_ \
A5-2	RA2	32mm	11100	1384.38	17.5°	360	590	360	10.74	25.23	
A6-1	RA2	32mm	11200	1387.60	30°	360	600	360	10.92	25.84	
A6-2	RA2	32mm	11900	1384.48	17.5°	390	650	390	11.83	29.37	
A7-1	RA3	36mm	13900	1388.24	30°	480	800	480	11.50	32.40	
A7-2	RA3	36mm	13900	1384.48	17.5°	480	800	480	11.50	32.40	
AX	RA1	26.5mm	6000	1383.75	30°	110	220	110	5.84	8.76	
B1	RA1	26.5mm	7200	1381.45	30°	150	310	150	8.23	13.98	7 )
B2	RA1	26.5mm	8600	1381.75	30°	210	410	210	10.88	21.03	1
В3	RA1	26.5mm	9100	1382.20	30°	220	450	220	11.94	24.08	1.
B4	RA2	32mm	12300	1382.91	30°	340	680	340	12.37	31.55	$1 \le$
B5-1	RA1	26.5mm	9000	1384.27	30°	270	440	270	11.67	23.35	7 /
B5-2	RA2	32mm	10400	1381.68	15°	330	540	330	9.83	21.94	1
B6	RA1	26.5mm	9100	1384.79	30°	220	450	220	11.94	24.08	_
B7	RA1	26.5mm	9300	1384.85	30°	230	470	230	12.47	25.56	1)
B8-1	RA2	32mm	11100	1387.55	30°	360	590	360	10.74	25.23	1 `
B8-2	RA2	32mm	11600	1384.48	15°	380	630	380	11.46	27.89	
N1-1	RA2	32mm	11900	1386.93	15°	390	650	390	11.83	29.37	$\prec$
N1-1	RA2	32mm	11900	1386.93	15°	390	650	390	11.83	29.37	7 /
N1-2	RA1	26.5mm	8800	1383.98	10°	260	420	260	11.14	21.92	1
N1-2	RA1	26.5mm	8800	1383.98	10°	260	420	260	11.14	21.92	
N2-1	RA2	32mm	13000	1386.93	15°	440	730	440	13.28	35.42	
N2-2	RA1	26.5mm	8200	1384.98	10°	230	380	230	10.08	18.82	1
N2-3	RA2	32mm	12600	1382.18	10°	420	700	420	12.74	33.12	1
S3	RA1	26.5mm	6000	1389.66	30°	140	220	140	5.84	8.76	$\dashv$
S5	RA1	26.5mm	6400	1389.79	30°	150	250	150	6.63	10.39	7
S7	RA1	26.5mm	7400	1390.07	30°	200	320	200	8.49	14.72	1
S9	RA1	26.5mm	8100	1390.25	30°	230	370	230	9.82	18.16	۱,
S11	RA1	26.5mm	8900	1390.40	30°	260	430	260	11.41	22.63	$\dashv \leq$
S13	RA1	26.5mm	9200	1390.59	30°	270	450	270	11.94	24.28	7
S15	RA1	26.5mm	8800	1390.91	30°	260	420	260	11.14	21.92	1
<u> </u>	1001	20.511111	0000	1570.71	0.0		420	200	11.14	21.72	$\neg$

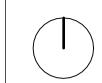
REGULATED DESIGN F	RECORD	REV	DATE DESCRIPTION	DP FULL NAME	REG NO	
PROJECT ADDRESS: 30 DIGGINGS TERRACE, THREDBO	)	1	01.02.2022 REVISED FOR PARTICULARS OF REGULATED DESIGN -	THOMAS WILLIAMS	PRE0001122	
PROJECT TITLE: BLACK BEAR INN			GROUND ANCHORS			
CONSENT NUMBER:		2	28.02.2022 CONSOLIDATED SHEETS FOR DA SUBMISSION	THOMAS WILLIAMS	PRE0001122	
						pmiengineers
DRAWING TITLE	JOB NUMBER					CLIENT:
ANCHOR SECTIONS	PMI-2021-053					HIDALI PTY LTD
	DDAY INC. NUMBER DEVICION					THE COPYRIGHT OF THIS
	DRAWING NUMBER REVISION					DRAWING REMAINS WITH
SCALE AT B1: 1: 100	S10f 2					- PMI ENGINEERS

	:				
þi	mie	ang	JIII	ee	rs

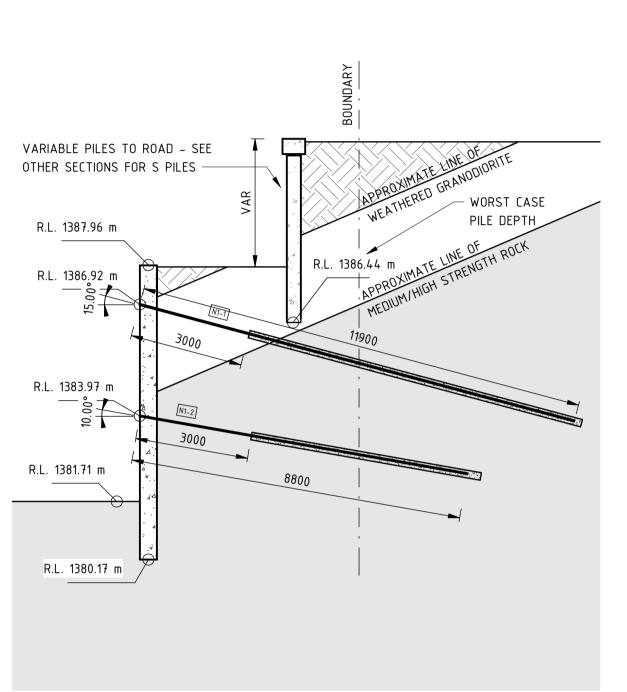
SUITE 302/59 GREAT BUCKINGHAM ST REDFERN 2016 +61 9332 4084 ADMIN@PMIENGINEERS.COM WWW.PMIENGINEERS.COM ABN: 90 651 637 955

**Popov**Bass PO Box 334 Surry Hills NSW 2010

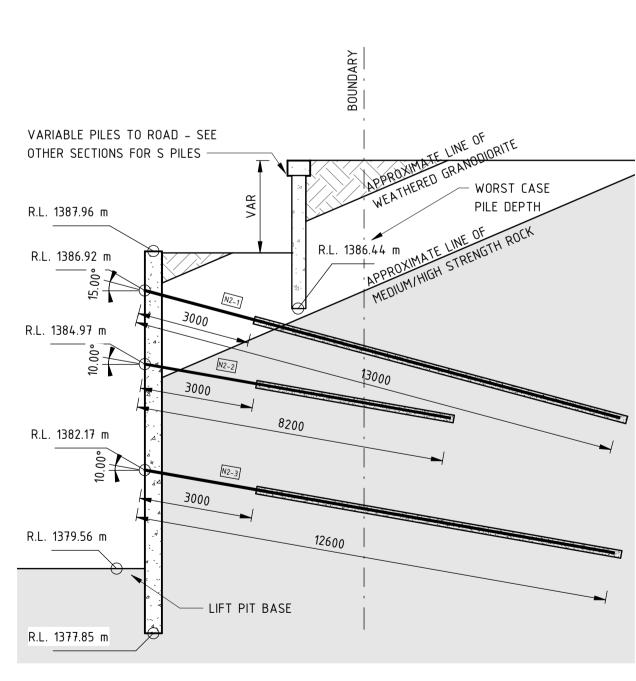
T 02 9955 5604 E info@popovbass.com.au W popovbass.com.au



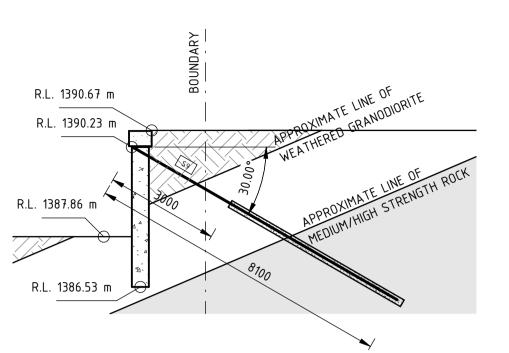
ALL SETOUT TO ARCHITECT'S DRAWINGS.
DIMENSIONS TO BE VERIFIED WITH ARCHITECT AND BUILDER BEFORE COMMENCING SHOP DRAWINGS OR SITE WORK. ENGINEER ACCEPTS NO RESPONSIBILITY FOR THE USABILITY, COMPLETENESS OR SCALE OF DRAWINGS TRANSFERRED ELECTRONICALLY.



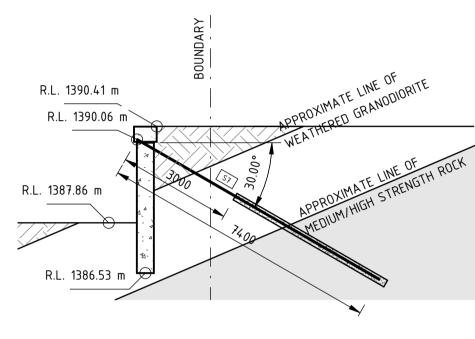
PILES N1



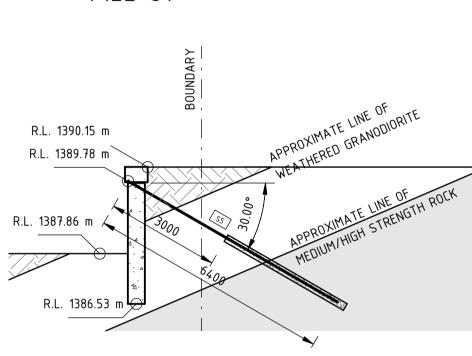
PILES N2



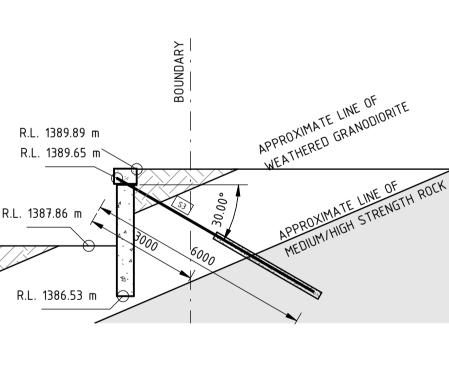
PILE S9



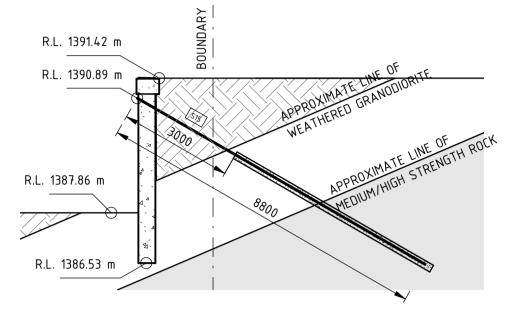
PILE S7



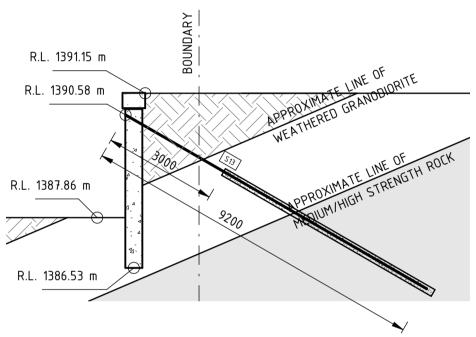
PILE S5



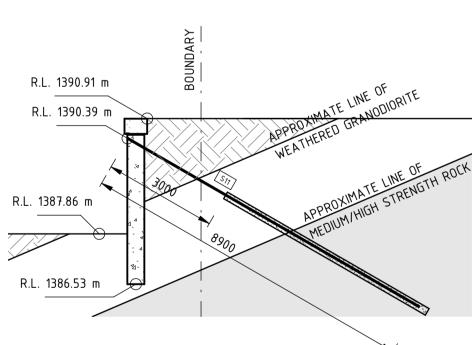
PILE S3



PILE S15



PILE S13



PILE S11

## FOR CONSTRUCTION

- ALL ANCHORS TO BE TESTED TO TEST LOAD FOR 15 MINUTES AND ANCHOR IS TO BE CONFIRMED HOLDING 'TEST LOAD' FOR THE FULL 15 MIN DURATION
- ANCHOR WORKING LOADS TEST LOADS AND LOCK-OFF LOADS ARE TO BE IN ACCORDANCE WITH SCHEDULE BELOW. ANCHORS TO BE DYWIDAG Y1050H PRESTRESSING STEEL BAR OR SIMILAR APPROVED
- ALL ANCHORS HOLES TO BE 125mm DIA MINIMUM
- ANCHOR BARS ARE TO BE BLACK STEEL WITH NO CORROSION PROTECTION / SHEATHING REQUIRED DUE TO TEMPORARY NATURE NO FIRE TREATMENT IS REQUIRED FOR TEMPORARY ANCHORS
- TOLERANCES:

## ALL ANCHORS TO BE LOCATED WITHIN 250mm OF THE STATED RL

- WITHIN 5 DEG OF STATED ANGLE OFF HORIZONTAL ALL ANCHORS TO BE PERPENDICULAR TO EXCAVATION CUT WITHIN 5 DEG
- MINIMUM FREE LENGTH OF ANCHORS OF 3m AS NOTED ON SECTIONS

## DESIGN LOADS:

- ALL ANCHORS DESIGNED FOR 8H + SURCHARGE LOADING FROM LIVE LOAD LIVE LOAD ASSUMED AS 5kPA FOR EAST AND WEST SIDE OF SITE
- LIVE LOAD ASSUMED AS 10kPA FOR SOUTHERN SIDE OF SITE

## ANCHOR WORKING LOADS:

- WORKING LOAD SPECIFIED AS LOAD RESULTING FROM LIVE LOAD + 6H DEAD LOAD
- TEST LOAD DEFINED AS LIVE LOAD + 8H DEAD LOAD WITH APPROPRIATE SAFETY FACTORS APPLIED
- ANCHOR LENGTH DESIGN BASED ON 150kPa ULTIMATE BOND STRESS MIN EXTENSION BASED ON EXTENSION OVER 3m FREE LENGTH ONLY
- MAX EXTENSION BASED ON EXTENSION OVER 3m FREE LENGTH + 1/2 BONDED LENGTH

	ANCHOR SCHEDULE												
IDENTIFIER	TYPE MARK	DIAMETER	LENGTH (mm)	ANCHOR RL	ANGLE	WORKING LOAD (kN)	TEST LOAD (kN)	LOCK OFF LOAD (kN)	MIN EXTENSION - TEST LOAD (mm)	MAX EXTENSION - TEST LOAD (mm)			
Α0	RA1	26.5mm	6600	1384.12	30°	130	270	130	7.16	11.46			
A1	RA2	32mm	10900	1385.24	30°	290	580	290	10.55	24.45			
A2	RA2	32mm	12200	1385.50	30°	340	680	340	12.37	31.35			
A3	RA2	32mm	12900	1385.67	30°	360	730	360	13.28	35.20			
A4-1	RA1	26.5mm	9800	1386.77	30°	300	500	300	13.27	28.30			
A4-2	RA1	26.5mm	10100	1384.37	17.5°	320	520	320	13.80	30.12			
A5-1	RA2	32mm	10500	1387.30	30°	330	550	330	10.01	22.52			
A5-2	RA2	32mm	11100	1384.38	17.5°	360	590	360	10.74	25.23			
A6-1	RA2	32mm	11200	1387.60	30°	360	600	360	10.92	25.84			
A6-2	RA2	32mm	11900	1384.48	17.5°	390	650	390	11.83	29.37			
A7-1	RA3	36mm	13900	1388.24	30°	480	800	480	11.50	32.40			
A7-2	RA3	36mm	13900	1384.48	17.5°	480	800	480	11.50	32.40			
AX	RA1	26.5mm	6000	1383.75	30°	110	220	110	5.84	8.76			
B1	RA1	26.5mm	7200	1381.45	30°	150	310	150	8.23	13.98			
B2	RA1	26.5mm	8600	1381.75	30°	210	410	210	10.88	21.03			
В3	RA1	26.5mm	9100	1382.20	30°	220	450	220	11.94	24.08			
B4	RA2	32mm	12300	1382.91	30°	340	680	340	12.37	31.55			
B5-1	RA1	26.5mm	9000	1384.27	30°	270	440	270	11.67	23.35			
B5-2	RA2	32mm	10400	1381.68	15°	330	540	330	9.83	21.94			
B6	RA1	26.5mm	9100	1384.79	30°	220	450	220	11.94	24.08			
B7	RA1	26.5mm	9300	1384.85	30°	230	470	230	12.47	25.56			
B8-1	RA2	32mm	11100	1387.55	30°	360	590	360	10.74	25.23			
B8-2	RA2	32mm	11600	1384.48	15°	380	630	380	11.46	27.89			
N1-1	RA2	32mm	11900	1386.93	15°	390	650	390	11.83	29.37			
N1-1	RA2	32mm	11900	1386.93	15°	390	650	390	11.83	29.37			
N1-2	RA1	26.5mm	8800	1383.98	10°	260	420	260	11.14	21.92			
N1-2	RA1	26.5mm	8800	1383.98	10°	260	420	260	11.14	21.92			
N2-1	RA2	32mm	13000	1386.93	15°	440	730	440	13.28	35.42			
N2-2	RA1	26.5mm	8200	1384.98	10°	230	380	230	10.08	18.82			
N2-3	RA2	32mm	12600	1382.18	10°	420	700	420	12.74	33.12			
S3	RA1	26.5mm	6000	1389.66	30°	140	220	140	5.84	8.76			
S5	RA1	26.5mm	6400	1389.79	30°	150	250	150	6.63	10.39			
S7	RA1	26.5mm	7400	1390.07	30°	200	320	200	8.49	14.72			
S9	RA1	26.5mm	8100	1390.25	30°	230	370	230	9.82	18.16			
S11	RA1	26.5mm	8900	1390.40	30°	260	430	260	11.41	22.63			
S13	RA1	26.5mm	9200	1390.59	30°	270	450	270	11.94	24.28			
S15 ,	RA1	26.5mm	8800	1390.91	30°	260	420	260	11.14	21.92			