RTW DETAILS – OAKDEN RISE, OAKDEN (STAGE 2)
GENERAL STRUCTURAL NOTES

GENERAL

1. THE STRUCTURAL DRAWINGS SHALL BE READ IN CONJUNCTION WITH ALL ARCHITECTURAL AND OTHER CONSULTANT'S DRAWINGS AND SPECIFICATIONS, AND WITH SUCH OTHER WRITTEN INSTRUCTIONS AS MAY BE ISSUED.
2. "U.N.O." DENOTES UNLESS NOTED OTHERWISE.
3. THE WORD "ENGINEER" IN THESE NOTES REFERS TO AN EMPLOYEE OR NOMINATED REPRESENTATIVE OF "DREW RUDD" ENGINEERS.
4. THE WORD "BUILDER" IN THESE NOTES REFERS TO HEAD CONTRACTOR FOR THE BUILDING WORKS.
5. ANY DISCREPANCIES OR OMISSIONS SHALL BE REFERRED TO THE "ENGINEER" FOR A DECISION BEFORE PROCEEDING WITH THE WORK.
6. ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE "BUILDING CODE OF AUSTRALIA" AND THE APPROPRIATE AUSTRALIAN STANDARDS.
7. ALL DIMENSIONS ARE IN MILLIMETRES (mm) U.N.O.
8. DIMENSIONS SHALL NOT BE OBTAINED BY SCALING THE STRUCTURAL DRAWINGS.
9. ALL DIMENSIONS SHOWN ON THE DRAWINGS SHALL BE VERIFIED ON SITE BY THE "BUILDER" PRIOR TO CONSTRUCTION OR FABRICATION.
10. DURING CONSTRUCTION, THE STRUCTURE SHALL BE MAINTAINED IN A STABLE CONDITION AND NO PART SHALL BE OVER-STRESSED. THE METHOD OF CONSTRUCTION AND THE MAINTENANCE OF SAFETY OF CONSTRUCTION DURING CONSTRUCTION IS THE RESPONSIBILITY OF THE "BUILDER". IF ANY STRUCTURAL ELEMENT PRESENTS AN ISSUE IN RESPECT TO CONSTRUCTABILITY OR SAFETY, THE MATTER SHOULD BE REFERRED TO THE "ENGINEER". THE DETERMINATION OF A SAFE WORK METHOD REMAINS THE RESPONSIBILITY OF THE "BUILDER".
11. ALL CODES REFERRED TO IN THESE NOTES ARE THE LATEST EDITION WITH AMENDMENTS.
12. THE "BUILDER" SHALL BE RESPONSIBLE TO ENSURE THAT NO EXCAVATION, PILE OR ANCHOR HAS ANY ADVERSE EFFECT ON EXISTING SERVICES OR STRUCTURES.
13. NO CHANGES OR SUBSTITUTIONS IN ANY STRUCTURAL ELEMENT DOCUMENTED IN THE STRUCTURAL DRAWINGS SHALL BE MADE WITHOUT REFERENCE TO THE "ENGINEER".
14. PROPRIETARY ITEMS SPECIFIED ON THE STRUCTURAL DRAWINGS SHALL BE INSTALLED STRICTLY IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN RECOMMENDATIONS.
15. THE "BUILDER" SHALL ARRANGE SEPARATE "REGULATION 1507" CERTIFICATION OF ANY DESIGN AND CONSTRUCT COMPONENT OF THE STRUCTURE BY AN ENGINEER REGISTERED IN SOUTH AUSTRALIA UNDER THE CATEGORY "ENGINEER, CIVIL".
16. ALL ARCHITECTURAL FITMENTS (GLAZING, PARTITIONS, CEILINGS AND THE LIKE) SHALL ALLOW FOR SHORT AND LONG TERM MOVEMENTS OF THE STRUCTURE. THE "BUILDER" SHALL CONSULT THE "ENGINEER" FOR THE EXTENT OF ALLOWANCE TO BE MADE.
17. THE "ENGINEER" ACCEPTS NO RESPONSIBILITY FOR ANY WORKS NOT INSPECTED OR NOT APPROVED BY THE "ENGINEER" DURING CONSTRUCTION.
18. A MINIMUM OF 48 HOURS NOTICE IS REQUIRED FOR ALL ENGINEERING INSPECTIONS.
19. THE MEANS, METHODS, SEQUENCES, TECHNIQUES, SAFETY MEASURES AND ALL THE TEMPORARY WORKS REMAIN THE RESPONSIBILITY OF THE CONTRACTOR. THE ENGINEER IS NOT PARTY TO THE CONTRACT BETWEEN THE "CONTRACTOR" AND THE "PRINCIPAL".

DESIGN DATA

1. THIS DESIGN WAS BASED ON THE RELEVANT AUSTRALIAN STRUCTURAL DESIGN STANDARD REFERENCED IN THE "NATIONAL CONSTRUCTION CODE" (NCC).
2. THE STRUCTURAL ELEMENTS HAVE BEEN DESIGNED FOR PERMANENT AND SUPERIMPOSED LOADS IN ACCORDANCE WITH AS1170.
3. THE CONCRETE ELEMENTS HAVE BEEN DESIGNED FOR EXPOSURE CLASSIFICATION IN ACCORDANCE WITH AS3600 TABLE 4.3.
4. THE STRUCTURE CONFORMS TO THE REQUIREMENTS OF AS1170–4 FOR SEISMIC EFFECTS, EARTHQUAKE DESIGN CATEGORY Z = 0.10
5. THE CONCRETE ELEMENTS HAVE BEEN DESIGNED FOR THE FOLLOWING EXPOSURE CLASSIFICATION IN ACCORDANCE WITH AS3600 TABLE 4.3.

ELEMENT	CLASSIFICATION
FOOTINGS	TO MATCH EXISTING
INTERIOR WALLS, COLUMNS, STAIRS, SLAB & BEAMS	A1
EXTERIOR COLUMNS, WALLS & BEAMS	B2

6. THE STRUCTURAL WORK SHOWN ON THESE DRAWING HAS BEEN DESIGNED FOR THE FOLLOWING LIVE LOADS:

AREA	LIVE LOAD (kPa)
GENERAL SPACE	2.00
ROOF	0.25
ROOF TERRACE	4.00
BALCONIES	2.00
COMMON SPACES	4.00

7. THE EARTHQUAKE DESIGN CATEGORY IS 'EDC II' AS PER AS 1170.4

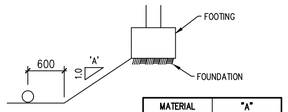
IMPORTANCE LEVEL	: 3
HAZARD FACTOR	: 0.1
PROBABILITY FACTOR (Kp)	: 1.3
SITE CLASSIFICATION	: D

8. THE WIND LOADS DESIGN CRITERIA AS PER 1170.2

REGION	: A5
WIND CATEGORY	: TC 2.5
REGIONAL WIND SPEED(ULTIMATE) V_u(m/sec)	: 46.0
REGIONAL WIND SPEED (SERVICEABILITY) Vrs(m/sect)	: 37.0
SHIELDING MULTIPLIER	: 1.0

FOOTINGS

1. FOOTING EXCAVATIONS SHALL BE CARRIED DOWN TO CLEAN, UNDISTURBED UNIFORM MATERIAL U.N.O. REFER TO DRAWINGS FOR ALLOWABLE BEARING CAPACITIES FOR INDIVIDUAL FOOTINGS.
2. REFER TO GEOTECHNICAL REPORT FOR DETAILS OF SOIL CONDITIONS. THE GEOTECHNICAL REPORT IS FOR INFORMATION ONLY AND MAY NOT BE A COMPLETE DESCRIPTION OF THE CONDITIONS BELOW GROUND LEVEL. THE 'BUILDER' SHALL MAKE THEIR OWN INVESTIGATIONS IF NECESSARY.
3. ANY OVER–EXCAVATION SHALL BE BACKFILLED WITH CONCRETE GRADE N15.
4. EXCAVATION NEAR FOOTINGS SHALL NOT EXTEND BELOW FOUNDATION LEVEL WITHOUT THE 'ENGINEER'S' APPROVAL. FOOTINGS ADJACENT TO SERVICES ETC SHALL BE EXTENDED DOWN SUCH THAT THE INFLUENCE LINE OF THE FOOTING IS CLEAR OF THE ADJACENT SERVICE EXCAVATION, U.N.O.



MATERIAL	"A"
SAND	2.00
ROCK	1.00
CLAY	0.10

5. ALL FOOTINGS SHALL BE LOCATED CENTRALLY UNDER WALLS AND COLUMNS, U.N.O.
6. DO NOT BACKFILL RETAINING WALLS (OTHER THAN CANTILEVER WALLS) UNTIL FLOOR CONSTRUCTION AT TOP AND BOTTOM IS COMPLETED. FREE DRAINING BACKFILL DRAINAGE AND WATERPROOF MEMBRANES SHALL BE PLACED BEHIND ALL RETAINING WALLS, U.N.O.
7. THE 'BUILDER' SHALL BE RESPONSIBLE FOR MAINTAINING ANY EXCAVATION IN A STABLE CONDITION WITHOUT ADVERSELY AFFECTING SURROUNDING PROPERTY INCLUDING SERVICES. THIS INCLUDES OBTAINING ALL NECESSARY APPROVALS FOR SHORING AND ANCHORING SYSTEMS.
8. VERTICAL EXCAVATIONS IN ROCK AND BATTERS IN SOIL TO BE INSPECTED BY THE 'GEOTECHNICAL ENGINEER' TO DETERMINE FACE STABILITY. THE 'CONTRACTOR' SHALL ALLOW TO ENGAGE A REGISTERED GEOTECHNICAL ENGINEER FOR THIS PURPOSE.
9. IMPORTED STRUCTURAL FILL MAY COMPRISE OF ONE OF THE FOLLOWING MATERIALS:
   - RIPPED WEATHERED SILTSTONE OR SANDSTONE (LOW–MEDIUM STRENGTH SEDIMENTARY ROCK)
   - TYPE A FILL AS DEFINED BY VICROADS
   - CLASS 4 CRUSHED ROCK
11. ALL IMPORTED STRUCTURAL FILL SHOULD SATISFY THE FOLLOWING CRITERIA
   - MAXIMUM % OF MATERIAL RETAINED ON 40mm SIEVE AFTER COMPACTION – 20%
   - PERCENTAGE PASSING THROUGH 4.75mm AFTER COMPACTION – 40–80%
   - PERCENTAGE PASSING THROUGH 0.075mm AFTER COMPACTION – 5–30%
   - MAXIMUM LIQUID LIMIT AFTER COMPACTION – 50% PLASTICITY INDEX AFTER COMPACTION – 25%
   - PLASTICITY INDEX X% PASSING 0.425mm SIEVE AFTER COMPACTION – <650
   - MINIMUM 4–DAY SOAKED CBR VALUE – 8%
   - MAXIMUM COEFFICIENT OF PERMEABILITY – 1x10–6m/sec
12. STRUCTURAL FILL SHOULD BE PLACED ON A PROVEN STABLE BASE
13. STRUCTURAL FILL SHOULD BE PLACED IN UNIFORM LAYERS NOT EXCEEDING LOOSE THICKNESS OF 200mm AND NOT COMPACTED TO AT LEAST 98% OF THE STANDARD MAXIMUM DRY DENSITY VALUES DETERMINED IN ACCORDANCE WITH AS1289 5.1.1.
14. THE STRUCTURAL FILL SHOULD BE PLACED AT 85–115% OF THE STANDARD OPTIMUM MOISTURE CONTENT VALUE AS DETERMINED IN ACCORDANCE WITH AS1289 5.1.1.

BORED PILES

1. REFER TO THE GEOTECHNICAL REPORT FOR A DESCRIPTION OF THE ANTICIPATED SITE CONDITIONS. THE PILING CONTRACTOR IS TO STUDY THE REPORT AND MAKE HIS OWN EVALUATION OF THE SITE CONDITIONS. ANY ADDITIONAL COSTS INCURRED SHALL BE BORNE BY THE PILING CONTRACTOR.
2. THE BORED PILES ARE PROPORTIONED FOR THE SCHEDULED LOADS WITH ALLOWABLE SOCKET SKIN FRICTION AND END BEARING CAPACITY AS INDICATED IN THE REPORT. THE DEPTHS AND LENGTHS NOMINATED IN THE SCHEDULE ARE INDICATIVE ONLY. THEY MAY NEED TO BE VARIED DEPENDING INCORPORATE ANY DESIGN CHANGES REQUIRED.
3. THE BORED PILES SHALL BE INSTALLED TO A MAXIMUM TOLERANCE OF ±25MM FROM THAT REQUIRED IN PLAN AND INCLINED AT NOT MORE THAN 1 IN75 FROM THE VERTICAL OR SPECIFIED RAKE.
4. ALL WORKMANSHIP AND MATERIAL SHALL BE IN ACCORDANCE WITH AS 2159.
5. THE BORED PILES SHALL BE LOCATED CONCENTRIC WITH THE COLUMNS AND WALLS UNLESS NOTED OTHERWISE.
6. DRILL AND INSTALL THE BORED PILES IN THE LOCATIONS SHOWN ON THE DRAWINGS AND THE ABOVE REQUIREMENTS.
7. BEFORE ANY CONCRETE IS POURED, ALL ROCK SOCKETS SHALL BE DEWATERED AND INSPECTED BY THE GEOTECHNICAL ENGINEER , WHO SHALL BE EMPLOYED BY THE BUILDER, TO VERIFY THE SOIL PARAMETERS. THE SOCKET BASE AND WALLS MUST BE CLEAN AND FREE FROM CLAY.
8. IF THE CONCRETE NEEDS TO BE TERMED, SUPER PLASTICIZER MUST BE ADDED TO THE MIX AND THE CONCRETE GRADE INCREASED BY 30% , REFER TO THE SPECIFICATIONS FOR THE INSPECTION OF THE HOLE PRIOR TO CONCRETING
9. THE PILING CONTRACTOR SHALL ALLOW FOR THE COST INTEGRITY TESTING OF ALL BORED PILES SCHEDULED LOADS. THE PILING CONTRACTOR SHALL OBTAIN INDEPENDENT CERTIFICATION FOR THE CALCULATIONS OF THE ALTERNATIVE SYSTEM. THE DETAILS ANY ALTERNATIVE DESIGN SHALL MEET THE ABOVE REQUIREMENTS AND THE AND CALCULATIONS SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR THE PERFORMANCE OF THE ALTERNATIVE BORED PILES.

CONCRETE

1. ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH AS3600 AND OTHER RELEVANT AUSTRALIAN STANDARDS.
2. CONCRETE SHALL HAVE A SLUMP OF 80mm, A MAXIMUM AGGREGATE SIZE OF 20mm, AND A STRENGTH GRADE AS TABULATED BELOW, U.N.O.

ELEMENT	STRENGTH GRADE (AS 3600)
ALL ELEMENTS	40 MPa OR AS SPECIFICALLY NOTED

3. PROJECT ASSESSMENT OF CONCRETE STRENGTH IS REQUIRED IN ACCORDANCE WITH THE SPECIFICATION.
4. ALL CONCRETE SHALL BE MECHANICALLY VIBRATED IN THE FORM TO GIVE MAXIMUM COMPACTION WITHOUT SEGREGATION OF THE CONCRETE.
5. SIZE OF CONCRETE ELEMENTS DOES NOT INCLUDE THICKNESS OF APPLIED FINISHES.
6. LOCATION AND DETAILS OF CONSTRUCTION JOINTS SHALL BE AS SHOWN ON THE STRUCTURAL DRAWINGS, OR 'BUILDER' TO SUBMIT DETAILS FOR THE 'ENGINEER'S' WRITTEN APPROVAL PRIOR TO CONCRETE POUR.
7. HOLES, CHASES OR PIPES OTHER THAN THOSE SHOWN ON THE STRUCTURAL DRAWINGS SHALL NOT BE PLACED IN CONCRETE MEMBERS WITHOUT PRIOR APPROVAL OF THE 'ENGINEER'.
8. CONDUITS, PIPES AND THE LIKE SHALL NOT BE PLACED WITHIN THE CONCRETE COVER.
9. FORMWORK SHALL BE DESIGNED BY THE 'CONTRACTOR', CONSTRUCTED AND STRIPPED IN ACCORDANCE WITH AS3610 AND AS3600.
10. MAXIMUM LIFT OF POUR FOR CONCRETE ELEMENTS TO BE 3000MM UNLESS METHOD OF PLACEMENT HAS BEEN APPROVED BY THE 'ENGINEER'.
11. ALL CONCRETE SHALL BE PROPERLY CURED, THE 'BUILDER' SHALL SUBMIT PROPOSED CURING METHOD FOR THE 'ENGINEER'S' WRITTEN APPROVAL PRIOR TO CONCRETE POUR. ALL EXPOSED FLOORS TO BE POND CURED FOR 3 DAYS MINIMUM.
12. ALL EPOXIED BARS TO HILTI "HIT–RE500" ADHESIVE OR EQUIVALENT
13. ALL EXPOSED CONCRETE TO BE CLASS 2 FORM FINISH

CONCRETE CURING

1. GENERAL
   1.1. STANDARD TO AS 3600.
   1.2. PROTECTION:
   PROTECT FRESH CONCRETE, DURING THE CURING PERIOD, FROM PREMATURE DRYING AND FROM EXCESSIVELY HOT OR COLD TEMPERATURES. PROTECT FRESH CONCRETE FROM PHYSICAL AND THERMAL SHOCK, FROM TRAFFIC LIKELY TO DAMAGE THE SURFACE, AND FROM RAIN. IF TEMPERATURE OF SURROUNDING AIR IS > 35°C, PROTECT FROM WIND AND SUN UNTIL THE CONCRETE CAN BE COVERED. MAINTAIN AT A REASONABLY CONSTANT TEMPERATURE WITH MINIMUM MOISTURE LOSS, DURING THE CURING PERIOD. PREVENT RAPID DRYING OUT AT THE END OF THE CURING PERIOD.
   1.3. CURING PERIOD:
   CURE CONTINUOUSLY FROM INITIAL SET UNTIL THE TOTAL CUMULATIVE NUMBER OF DAYS OR FRACTIONS OF DAYS, DURING WHICH THE AIR TEMPERATURE IN CONTACT WITH THE CONCRETE IS ABOVE 10OC, IS AT LEAST THE FOLLOWING:
   - FULLY ENCLOSED INTERNAL SURFACES/EARLY HIGH–STRENGTH CEMENT CONCRETE: 7 DAYS.
   - OTHER SURFACES/ORDINARY PORTLAND CEMENT CONCRETE: 7 DAYS.
2. CURING COMPOUNDS
   2.1. STANDARD TO AS 3799.
   2.2. SUBSTRATES: DO NOT USE WAX–BASED OR CHLORINATED RUBBER–BASED CURING COMPOUNDS ON SURFACES FORMING SUBSTRATES TO CONCRETE TOPPINGS AND CEMENT–BASED RENDER. DO NOT USE PVA COMPOUNDS.
   2.3. APPLICATION: PROVIDE A UNIFORM CONTINUOUS FLEXIBLE COATING WITHOUT VISIBLE BREAKS OR PINHOLES, WHICH REMAINS UNBROKEN AT LEAST SEVEN DAYS AFTER APPLICATION.
   2.4. CURING IN DIFFERENT WEATHER TYPES
   2.4.1. HOT WEATHER CURING
   DO NOT USE CURING COMPOUNDS. AFTER PLACEMENT, EITHER
   a) POND OR CONTINUOUSLY SPRINKLE WITH WATER
   b) IMMEDIATELY COVER THE CONCRETE USING AN IMPERVIOUS MEMBRANE, OR HESSIAN KEPT WET, UNTIL CURING BEGINS; OR
   c) IF THE TEMPERATURE EXCEEDS 25°C OR IF NOT PROTECTED AGAINST DRYING WINDS, PROTECT THE CONCRETE USING A FOG SPRAY APPLICATION OF ALIPHATIC ALCOHOL EVAPORATION RETARDANT.
   COLD WEATHER CURING
   a) PREVENT PLASTIC CONCRETE FROM FREEZING, BUT DO NOT USE SALT OR CHEMICALS. MAINTAIN CONCRETE TEMPERATURE BETWEEN 10 – 20°C FOR CURING PERIOD.
   b) VISUALLY IMPORTANT SURFACES
   c) PRODUCE UNIFORM COLOUR ON ADJACENT SURFACES.

FORMWORK

1. THE DESIGN CERTIFICATION, CONSTRUCTION AND PERFORMANCE OF THE FORMWORK AND FALSEWORK SHALL BE THE RESPONSIBILITY OF THE 'BUILDER'.
2. CONCRETE FORMED SURFACES TO HAVE THE FOLLOWING FINISHES IN ACCORDANCE WITH AS3610 AND AS3600.

ELEMENT	SURFACE FINISH	CRITICAL FACE
SUPERSTRUCTURE SLABS & BEAMS	REFER TO ARCH. SPECIFICATION	

3. DESIGN INFORMATION CONCERNING THE FOUNDATION FORMWORK SHALL BE DETERMINED FROM THE CONDITIONS EXISTING ON SITE AT THE TIME OF CONSTRUCTION.
4. REFER ALSO TO THE GEOTECHNICAL REPORT WHERE REQUIRED.
5. WHERE APPLICABLE, THE FORMWORK SHALL BE DESIGNED TO ACCOMMODATE MOVEMENT AND LOAD RE–DISTRIBUTION DUE TO POST–TENSIONING. THE FORMWORK DESIGNER MAY NEED TO CONSULT THE POST–TENSIONING SUBCONTRACTOR TO ACHIEVE THIS.

REINFORCEMENT

1. ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH AS3600 AND ANY OTHER RELEVANT CODES.
2. REINFORCEMENT TYPE AND GRADE:

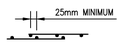
REINF. NOTATION TYPE	DESCRIPTION & TYPE	CLASSIFICATION & DESIGNATION TO AS4671
N	HOT ROLLED DEFORMED BAR, MICROALLOY TEMPCORE	D500N
R	HOT ROLLED PLAIN ROUND BAR, MILD STEEL	R250N
W	COLD DRAWN PLAIN ROUND WIRE, MILD STEEL COIL	R500L
S	HOT ROLLED DEFORMED BAR, MILD STEEL	D250N
SL	SQUARE MESH OF COLD DRAWN DEFORMED WIRE, MILD STEEL SHEETS	D500SL
RL	RECTANGULAR MESH OF COLD DRAWN DEFORMED WIRE, MILD STEEL SHEETS	D500RL
L TM	RECTANGULAR MESH OF COLD DRAWN DEFORMED WIRE, MILD STEEL SHEETS	D500RL

3. BAR NOTATION GIVES THE FOLLOWING INFORMATION IN THIS ORDER: No. OF BARS, TYPE, BAR SIZE (mm), SPACING (mm), LAYER eg. 20N16–200 1st.
4. FABRIC NOTATION GIVES THE FOLLOWING INFORMATION IN THIS ORDER: "S" OR "R" (SQUARE OR RECTANGULAR) "L" SYMBOL, MESH REFERENCE NUMBER, LOCATION eg. RL918 TOP, SL82 TOP.
5. REINFORCEMENT IS REPRESENTED DIAGRAMMATICALLY AND NOT NECESSARILY IN TRUE PROJECTION.
6. CLEAR COVER TO FACE OF ALL REINFORCEMENT SHALL CONFORM TO THE FOLLOWING TABLE U.N.O. ON THE DRAWINGS.

SURFACE & EXPOSURE ENVIRONMENT		ELEMENT	EXPOSURE CLASS. TO AS3600	FIRE RATING FRP	MIN. CONC. GRADE (MPa)	MIN. COVER (mm)
SURFACES IN CONTACT WITH THE GROUND	PROTECTED BY DPM*	ALL	A1	N/A	32	40
	UNPROTECTED BY DPM*	ALL	A2	N/A	32	75
SURFACES IN INTERIOR ENVIRONMENTS (STANDARD FORMWORK & COMPACTION)		BEAMS	A1	120/–/–	32	35
		SLABS	A1	120/120/120	32	30 B, 20 T
		COLUMNS	A1	120/–/–	32	40
		WALLS	A1	120/120/120	32	35
SURFACES IN EXTERIOR ENVIRONMENTS		ALL	B1	120/120/120 OR 120/–/–	32	40
		SLABS, WALLS	B1	120/120/120	40	30
SURFACES IN EXTERIOR ENVIRONMENTS (COASTAL)		ALL	B2	120/120/120 OR 120/–/–	40	45
		SLABS, WALLS	B2	120/120/120	40	45

* DAMP–PROOF MEMBRANE.

7. FABRIC SHALL BE LAPPED SUCH THAT THE TWO OUTERMOST WIRES OF ONE SHEET OVERLAP THE TWO OUTERMOST WIRES OF THE OTHER SHEET BY 25mm MINIMUM.



8. A MAXIMUM OF THREE SHEETS OF FABRIC SHALL BE LAPPED AT ANY POINT.
9. REINFORCEMENT SHALL NOT BE BENT OR HEATED ON SITE WITHOUT THE 'ENGINEERS' WRITTEN APPROVAL.
10. SLAB REINFORCEMENT SHALL EXTEND AT LEAST 65mm ONTO THE SUPPORTING STRUCTURE. AT SLAB EDGES AND ENDS, 50% OF BOTTOM REINFORCEMENT SHALL BE COGGED TO ACHIEVE ANCHORAGE AT BARS.
11. REINFORCEMENT BAR JOGGLES SHALL BE 1 BAR DIAMETER OVER A LENGTH OF 12 BAR DIAMETERS.
12. ALL PENETRATIONS TO HAVE 2N16 BARS EXTENDING 600mm PAST PENETRATION ALL ROUND.
13. DRILL–IN BARS AND FERRULES:
EXTEND BARS 40 x dia BAR INTO IN–SITU CONCRETE U.N.O.
USE HILTI HIT RE 500 SYSTEM U.N.O

DRILL–IN BARS & FERRULES REINFORCEMENT	
BAR SIZE	EMBEDMENT (mm)
N12	150
N16	200
N20	250

REINFORCEMENT Cont...

14. COVER SPECIFIED ALSO APPLIES LOCALLY AT RECESSES, DRIP GROOVES, FILLETS ETC.
15. LAP REINFORCEMENT ONLY AT LOCATIONS SHOWN ON THE DRAWINGS OR AS APPROVED BY THE 'ENGINEER' IN WRITING, U.N.O. LAP ALL BARS AS TABULATED BELOW.

SLAB REINFORCEMENT	
BAR SIZE	MIN. LAP LENGTH (mm)
N12	600
N16	800
N20	1000

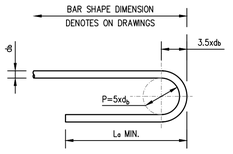
BEAM REINFORCEMENT		
BAR SIZE	MIN. LAP LENGTH (mm)	
	< 300mm CONC. CAST BELOW THE BAR	> 300mm CONC. CAST BELOW THE BAR
N12	450	600
N16	600	800
N20	850	1100
N24	1100	1400
N28	1300	1800
N32	1600	2100
N36	NO LAPS ALLOWED	
N40	NO LAPS ALLOWED	

WALL REINFORCEMENT	
BAR SIZE	MIN. LAP LENGTH (mm)
N12	600
N16	800
N20	1000
N24	1200
N28	1400

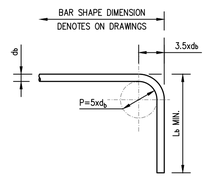
16. FOR HOOK, COG AND BENDS FOR REINFORCING BAR REFER TO SCHEDULE AND DETAILS. HOOK, COG AND BEND DETAILS SHOWN BELOW DO NOT APPLY TO THE FOLLOWING:
   a) STRUCTURAL ELEMENTS BUILT WITH SLIP FROM CONSTRUCTION
   b) EPOXY COATED OR GALVANISED BARS, EITHER BEFORE OR AFTER BENDING
   c) BENDS THAT ARE SUBSEQUENTLY STRAIGHTENED OR RE–BENT
   d) BUNDLED BARS
   e) STAINLESS STEEL REINFORCEMENT
   f) HOOK, COGS AND BENDS FOR ANY OF THE ABOVE SHALL BE PROJECT SPECIFIC DESIGN IN ACCORDANCE WITH AS5100.5

EXCEPT STIRRUP & LIGATURES

STANDARD HOOK & COG DIMENSION FOR REINFORCING BARS (mm)			
BAR SIZE(d_b)	P($5xd_b$)	L_e	L_h
10	50	105	155
12	60	115	170
16	80	130	205
20	100	150	245
24	120	180	295
28	140	210	345
32	160	240	395



STANDARD HOOK



STANDARD COG

HEALTH AND SAFETY

1. THE OBLIGATION OF DREW RUDD ENGINEERS AS THE DESIGN ENGINEER IS LIMITED TO ENSURING THAT THOSE PARTS OF THE STRUCTURE THAT ARE TO BE USED AS A WORKPLACE ARE, AS FAR AS REASONABLY PRACTICABLE, DESIGNED TO BE SAFE AND WITHOUT RISKS TO THE HEALTH OF THOSE PERSONS USING THE STRUCTURE AS A WORKPLACE FOR THE PURPOSE FOR WHICH IT WAS DESIGNED IN ACCORDANCE
2. DREW RUDD ENGINEERS IS NOT RESPONSIBLE FOR THE OCCUPATIONAL HEALTH AND SAFETY OF PERSONS AT THE SITE AS THOSE OBLIGATIONS RESIDE WITH THE CONTRACTORS AND/OR SUBCONTRACTORS WHO OCCUPY OR HAVE CONTROL OF THE SITE IN ACCORDANCE WITH APPLICABLE OCCUPATIONAL HEALTH AND SAFETY LEGISLATION, CODES OR PRACTICE, GUIDANCE NOTES, AUSTRALIAN STANDARDS AND OTHER RELEVANT DOCUMENTATION.
3. ANY ADVICE OR GUIDANCE CONCERNING OCCUPATIONAL HEALTH AND SAFETY ISSUES ARISING AT THE SITE SHOULD BE DIRECTED TO THE HEALTH AND SAFETY EXECUTIVE OR OFFICER NOMINATED FOR THE PROJECT.

INSPECTION HOLD POINTS

1. BUILDER TO ALLOW INSPECTION/TEST HOLD POINTS FOR SITE REVIEW BY THE ENGINEER:
   a) PRECAST/STEEL STRUCTURES IN PLACE – PRIOR TO REMOVAL OF PROPPING.
   b) FOUNDATION MATERIALS – PRIOR TO FIXING REINFORCEMENT
   c) REINFORCEMENT IN PLACE – PRIOR TO POURING CONCRETE
   d) STEEL DECK STUD WELDING IN PLACE, INCLUDING ADDITIONAL REINFORCEMENT

TEMPORARY PROPPING

1. THE DESIGN CERTIFICATION, CONSTRUCTION AND PERFORMANCE OF THE TEMPORARY PROPPING SHALL BE THE RESPONSIBILITY OF THE 'BUILDER'.
2. TEMPORARY PROPPING IS TO BE IN PLACE PRIOR TO INSTALLATION OF "NEW" FLOOR.
3. 'BUILDER' IS TO ENSURE A SUITABLY QUALIFIED PERSON INSPECTS THE PROPPING FOR CORRECT INSTALLATION, AND IS CAPABLE OF SUPPORTING SLAB LOADS.
4. PROPPING TO REMAIN IN PLACE UNTIL SLAB HAS ACHIEVED DESIGN STRENGTH.
5. ALL TEMPORARY WORKS TO BE DESIGNED AND CERTIFIED BY THE CONTRACTOR
6. THESE DRAWING REFLECT THE STRUCTURE IN ITS COMPLETED CONDITION. DESIGN OF ALL CONSTRUCTION SEQUENCING, ERECTION SEATING AND PROPPING TEMPORARY WORKS, PROPPING PADS, HOARDINGS, GANTRIES, SHORING, EVALUATION OF CRANE LOADS ETC. NECESSARY TO COMPLETE THE CIVIL AND STRUCTURAL WORKS ARE BY THE BUILDER.

0mm 10 20 30 40 50mm 100mm

REV	DESCRIPTION	DATE	BY	APP.
B	REVISED APPROVAL	13.02.25	M.C.	D.G.
A	FOR APPROVAL	31.01.25	M.C.	D.G.

1. DO NOT SCALE DRAWING – USE FIGURED DIMENSIONS ONLY
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North Adelaide, SA 5006
(ph) 0418 899 363

CLIENT DETAILS
OAKDEN DEVELOPMENTS PTY. LTD.

DRAWING TITLE
STRUCTURAL NOTES

PROJECT NAME
RETAINING WALL DETAILS
OAKDEN RISE (STAGE 2)

DRAWN	DESIGNED	PROJECT REF.
M.C.	D.G.	241024–01
CHECKED	APPROVED	
D.G.	D.G.	
DATE	SCALE	DRAWING NUMBER / REVISION
JAN '25	AS SHOWN	N01 / B

RTW DETAILS – OAKDEN RISE, OAKDEN (STAGE 2)

GENERAL CIVIL NOTES

GENERAL NOTES

1. THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH; ALL ARCHITECTURAL & OTHER CONSULTANTS DRAWINGS & THE SPECIFICATIONS & ANY WRITTEN INSTRUCTIONS THAT MAY BE ISSUED DURING THE COURSE OF THE CONTRACT AND, BEFORE THE COMMENCEMENT OF ANY WORK. ANY DISCREPANCY FOUND SHALL BE REFERRED TO THE ENGINEER BEFORE PROCEEDING WITH THE WORK.
2. MATERIALS AND WORKMANSHIP SHALL COMPLY WITH ALL THE RELEVANT STANDARDS AUSTRALIA CODES AND GUIDELINES.
3. THE CONTRACTOR SHALL COMPLY WITH ALL REGULATIONS AND REQUIREMENTS OF AUTHORITIES HAVING JURISDICTION OVER THE WORKS.
4. THESE DRAWINGS MAY BE SCALED FOR REFERENCE ONLY AND SHALL NOT FORM PART OF ANY CRITICAL SETOUT. ALL DIMENSIONS SHALL BE VERIFIED ON SITE BEFORE CONSTRUCTION.
5. ALL DIMENSIONS AND REDUCED LEVELS MUST BE VERIFIED ON SITE BEFORE THE COMMENCEMENT OF WORK.
6. SUBSTITUTIONS MUST BE APPROVED BY THE ENGINEER.
7. ALL LEVELS ARE EXPRESSED IN METRES UNLESS NOTED OTHERWISE.
8. CONSULT WITH THE SURVEYOR TO OBTAIN LOCATIONS OF TEMPORARY BENCH MARKS. VERIFY THE LOCATION AND LEVELS OF BENCH MARKS PRIOR TO THE COMMENCEMENT OF SETTING OUT WORK.
9. SERVICE INFORMATION SHOWN IS BASED ON INFORMATION SUPPLIED BY RELEVANT AUTHORITIES AND IS APPROXIMATE ONLY. NO GUARANTEE IS GIVEN THAT ALL EXISTING SERVICES ARE SHOWN. PRIOR TO COMMENCEMENT OF ANY WORKS THE CONTRACTOR SHALL LOCATE ALL UNDERGROUND SERVICES AND COMPLY WITH ANY REQUIREMENTS OF THOSE AUTHORITIES. NONE OF THESE AUTHORITIES SHALL BE LIABLE FOR ANY LOSS OR DAMAGE CAUSED OR IN OCCASION CREATED BY THE USE OF THE SERVICE INFORMATION SHOWN. ANY REPAIRS TO DAMAGED SERVICES WILL BE DONE AT THE CONTRACTOR'S COST.
10. WHERE ADDITIONAL UNDOCUMENTED SERVICES MAY BE PRESENT AND SHOULD THE CONTRACTOR BELIEVE THAT THE SERVICES ARE AT RISK OF DAMAGE DURING CONSTRUCTION, THE CONTRACTOR SHOULD NOTIFY THE RELEVANT AUTHORITIES AND ESTABLISH THE EXACT LOCATION OF THE SERVICES.
11. THE CONTRACTOR IS TO LIAISE AND COORDINATE WITH ALL RELEVANT AUTHORITIES PRIOR TO AND THROUGHOUT THE DURATION OF THE WORK TO THE; FINDING OF, REMOVAL OF, ABANDONING OF AND, CONNECTION OF EXISTING AND NEW SERVICES.
12. UNLESS NOTED OTHERWISE ALL VEGETATION SHALL BE STRIPPED TO A MINIMUM DEPTH OF 50MM UNDER ALL AREAS.
13. GRADE EVENLY BETWEEN FINISHED SURFACE SPOT LEVELS. FINISHED SURFACE CONTOURS ARE SHOWN FOR CLARITY. WHERE FINISHED SURFACE LEVELS ARE NOT SHOWN, THE SURFACE SHALL BE GRADED SMOOTHLY SO THAT IT WILL DRAIN AND MATCH ADJACENT SURFACES OR STRUCTURES.
14. EXISTING SURFACE CONTOURS WHERE SHOWN ARE INTERPOLATED AND MAY NOT BE ACCURATE.
15. ANY STRUCTURES, PAVEMENTS OR SURFACES DAMAGED, DIRTIED OR MADE UNSERVICEABLE DUE TO CONSTRUCTION WORK SHALL BE REINSTATED TO THE SATISFACTION OF THE ENGINEER.
16. REFER ARCHITECT'S DRAWINGS FOR SETOUT.
17. ALL MAIN STORMWATER DRAINS SHALL BE CONSTRUCTED USING ONE OF THE FOLLOWING TYPES OF PIPES WITH RUBBER RING JOINTS:
    a) CLASS 3 RCP IN ACCORDANCE WITH A.S. 4058
    b) SEWER CLASS SEH U.P.V.C. IN ACCORDANCE WITH A.S. 1260
    c) CLASS 3 F.R.C. TO A.S. 4139

ANY OTHER TYPES OF PIPE MUST BE REFERRED TO THE ENGINEER FOR APPROVAL PRIOR TO USE. IF U.P.V.C, OR OTHER PIPES ARE TO BE USED APPROVAL MUST BE GIVEN BY THE ENGINEER FOR CLASS, BEDDING AND BACKFILL REQUIREMENTS. ALL CONCRETE TO BE MARINE CONCRETE.

SITE PREPARATION

1. EARTHWORKS SHALL BE COMPLETED IN ACCORDANCE WITH THE "GREENHILL ENGINEERS" TECHNICAL SPECIFICATION
2. REFER "FMG" PRELIMINARY GEOTECHNICAL INVESTIGATION REPORT [JOB NO. 281764 (DATED 26/07/25) – REV. 0]
3. REMOVE ALL TOP SOIL, UNCOMPACTED FILL, ROOT ZONE NATURAL, TREES, STUMPS, PIPELINES, PREVIOUS CONSTRUCTION AND OTHER MATERIALS UNSUITABLE FOR INCORPORATION IN THE WORKS. TOP SOIL MAY BE STOCKPILED FOR LATER USE. ALL OTHER MATERIAL TO BE REMOVED FROM SITE OTHER THAN BEST OF FILL, SUFFICIENT OF WHICH SHALL BE RETAINED TO BALANCE FILLING.
4. PRIOR TO PLACEMENT OF ANY FILL MATERIAL, THE EXPOSED SURFACE IS TO BE PROOF ROLLED WITH FULLY LOADED TANDEM TRIPPER WITH TYRES INFLATED TO 550 KPA. THIS MUST BE CARRIED OUT IMMEDIATELY AFTER COMPLETION OF COMPACTION. ANY MATERIAL SHOWING MOVEMENT TO BE REMOVED AND REPLACED FOR RETESTING.
5. MINIMUM RELATIVE COMPACTION OF COMPLETED WORKS SHALL BE AS FOLLOWS:
   BUILDING AREAS – 98 % STANDARD COMPACTION
   ROAD, DRIVEWAY AND CARPARK AREAS –
   > 0.3 M BELOW PAVEMENT
   : SUBGRADE 95 % STANDARD COMPACTION
   < 0.3 BELOW PAVEMENT
   : SURFACE 100 % STANDARD COMPACTION
6. FILL MATERIAL SHALL BE IMPORTED GRANULAR MATERIAL, SANDSTONE, MUDSTONE OR STABLE SILURIAN CLAY. SAMPLES AND SOURCE SHALL BE PROVIDED FOR APPROVAL OF CONSULTING ENGINEER. MATERIAL IN STOCKPILES MAY BE USED.
7. ALLOW FOR THREE COMPACTION TESTS ON COMPLETED WORKS.
8. COMPLETED SURFACE LEVEL TOLERANCE TO BE +/–20 MM OF DESIGN LEVELS.
9. ENSURE THAT WORKS ARE KEPT FREE DRAINING ALL TIMES. CONSTRUCT TEMPORARY SURFACE DRAINS AS REQUIRED.
10. UNLESS NOTED ON PLAN, NO TREES TO BE REMOVED WITHOUT THE CONSENT OF THE LOCAL COUNCIL AND THE ARCHITECT.

STORMWATER NOTES

1. FOR ALL DIMENSIONS AND SETTING OUT DETAILS OF BUILDINGS AND ROAD. REFER TO ARCHITECTURAL DRAWINGS.
2. ALL EXISTING UNDERGROUND SERVICES ARE TO BE LOCATED AND DEPTHED BY THE CONTRACTOR PRIOR TO EXCAVATION.
3. ALL UPVC STORMWATER PIPES TO BE CLASS DWV (UNLESS NOTED OTHERWISE).
4. INSPECTION POINTS SHALL BE A #150 PVC RISER BROUGHT TO JUST BELOW FINISHED SURFACE LEVEL. PROVIDE A SCREW CAP AND PROTECT WITH A CONCRETE COVER AND SURROUND FLUSH WITH FINISH LEVEL.
5. ALL PAVING TO HAVE A MINIMUM SLOPE OF 1:100 AWAY FROM BUILDINGS. MAX GRADES TO COMPLY WITH THE CURRENT EDITION OF AS 1428.

COMPACTION AND EARTHWORKS

1. THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH THE GEOTECHNICAL INVESTIGATION REPORT. REFER TO GEOTECHNICAL INVESTIGATION REPORT. NOTIFY THE SUPERINTENDENT IF THE CONDITIONS ENCOUNTERED ON SITE DIFFER FROM THOSE DESCRIBED IN THE REPORT AND SEEK DIRECTION FROM THE ENGINEER. THE PROVISIONS AND RECOMMENDATIONS CONTAINED WITHIN THE REPORT ARE TO BE STRICTLY COMPLIED WITH. ALL COMPACTION REQUIREMENT RESULTS SHALL BE CARRIED OUT IN ACCORDANCE WITH GEOTECHNICAL REPORT RECOMMENDATIONS.
2. DESIGN IS BASED ON DATA FROM DISCRETE LOCATIONS AS RECORDED IN THE GEOTECHNICAL INVESTIGATION SUBSURFACE CONDITIONS SHOWN ON DRAWINGS IS INFERRED FROM DATA IN THE REPORT AND IS GIVEN AS A GUIDE ONLY.
3. ALL EARTHWORKS FOR THE SITE SHALL BE CARRIED OUT TO SATISFY THE REQUIREMENTS OF A.S.3798 – LEVEL 2 OVERVIEW.
4. ANY TESTING OF MATERIALS AND COMPACTION TESTING SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE IN ACCORDANCE WITH A.S.3798. THE CONTRACTOR IS TO ALLOW FOR ALL TESTING TO ACHIEVE LEVEL 2 STATUS. ALL GEOTECHNICAL SUPERVISION/TESTING SHALL BE CARRIED OUT BY A NATA CERTIFIED GEOTECHNICAL ENGINEER.
5. ANY TESTING SHALL BE EVENLY SPACED AT RANDOM LOCATIONS, IN ACCORDANCE WITH THE TESTING RATES SPECIFIED IN THE SPECIFICATION.
6. ANY TEST RESULTS SHALL BE APPROVED BY THE GEOTECHNICAL ENGINEER PRIOR TO COMMENCEMENT OF ANY FILLING OPERATIONS.
7. PRIOR TO THE PLACEMENT OF ANY FILL, THE EXPOSED SUBGRADE SHALL BE PROOF ROLLED & COMPACTED IN ACCORDANCE WITH THE GEOTECHNICAL REPORT.
8. ANY IMPORTED FILL SHALL BE APPROVED BY THE ENGINEER.
9. ANY ENGINEERED FILL REQUIRED TO ACHIEVE THE DESIGN SITE LEVELS SHOULD BE IN ACCORDANCE WITH THE GEOTECHNICAL REPORT.
10. PRIOR TO THE PLACEMENT OF ANY PAVEMENTS, BUILDINGS OR DRAINS, THE EXPOSED SUBGRADE SHALL BE COMPACTED TO A MINIMUM OF 100% STANDARD COMPACTION IN ACCORDANCE WITH TEST 'E1.1' OF A.S.1289 FOR THE TOP 300MM. ANY SOFT SPOTS SHALL BE REMOVED AND REPLACED WITH GRANULAR FILL TO THE ENGINEER'S APPROVAL AND COMPACTED IN ACCORDANCE WITH THE COMPACTION REQUIREMENTS SET OUT BELOW. ON HIGHLY REACTIVE CLAY AREAS SITE EXCAVATED MATERIAL MAY BE USED WITH THE PRIOR AUTHORISATION OF THE ENGINEER.
11. CO-ORDINATE ANY NECESSARY CONNECTION OF CIVIL STRUCTURE AND BUILDING STRUCTURE.
12. ALL SUBGRADE, FOUNDATION AND PAVEMENT EARTHWORKS SHALL BE APPROVED IN WRITING BY A QUALIFIED GEOTECHNICAL ENGINEER (CP ENG/NER) ENGAGED BY THE CONTRACTOR PRIOR TO PLACEMENT OF STRUCTURAL REINFORCEMENT & CONCRETE.
13. ANY FILL REQUIRED SHALL BE APPROVED BY THE ENGINEER
14. ANY STRUCTURES, PAVEMENTS OR SURFACES DAMAGED, DIRTIED OR MADE UNSERVICEABLE DUE TO CONSTRUCTION WORK SHALL BE REINSTATED TO THE SATISFACTION OF THE ENGINEER.
15. REFER TO STRUCTURAL DRAWINGS FOR FOOTING AND FOUNDATION DETAILS.
16. COMPACTION REQUIREMENTS (REFER TO PAVEMENT DETAILS FOR MATERIAL COMPOSITION). UNLESS NOTED OTHERWISE, ALL FILL AND PAVEMENT MATERIALS SHALL BE COMPACTED IN 200MM MAXIMUM LOOSE THICKNESS LAYERS TO THE DENSITIES SPECIFIED BELOW FOR:

LANDSCAPED AREAS:	90% M.D.D. (STD.)
FILL UNDER ANY FOOTINGS AND FLOOR SLABS FOR ANY STRUCTURE:	
– FINE CRUSHED ROCK (CLASS 2):	98% MOD
– OTHER FILL :	98% SMDD
FILL UNDER ROAD PAVEMENTS:	
– FINE CRUSHED ROCK:	98% MOD
– OTHER FILL:	100% SMDD

THE FINAL FILL LAYER COMPACTED TO THE DENSITIES SPECIFIED ABOVE SHALL BE TESTED IN ACCORDANCE WITH A.S.1289.5.1.1 OR A.S.1289.5.2.1, WHICHEVER IS REQUIRED. TESTING CARRIED OUT AT A RATE TO SATISFY THE REQUIREMENTS OF A.S.3798 – LEVEL 2 OVERVIEW.

15. PAVEMENTS MUST NOT BE FOUNDED ON; ORGANIC TOPSOIL, NON ENGINEERED FILL OR, SOFTENED/DISTURBED NATURAL SOILS. IT IS RECOMMENDED THAT SUCH MATERIAL BE STRIPPED FROM ANY PROPOSED PAVEMENT AREAS.
16. ALL DIMENSIONS GIVEN ARE TO FACE OF KERB, CENTRE OF PIPE OR EXTERIOR FACE OF BUILDING UNLESS NOTED OTHERWISE.

EXCAVATION NOTES

1. WHERE A TRENCH HAS BEEN EXCAVATED DEEPER THAN NECESSARY, THE EXCESS DEPTH SHALL BE FILLED WITH BEDDING MATERIAL COMPACTED TO ACHIEVE A DENSITY AS NEAR TO THE ORIGINAL SOIL DENSITY AS POSSIBLE.
2. WHERE NON-ENGINEERED FILL OR DRY FRIABLE CALCAREOUS SOILS ARE EXPOSED IN EXCAVATIONS, AN ALLOWANCE SHOULD BE MADE TO BATTER OR CONTINUOUSLY SUPPORT SUCH EXCAVATIONS.
3. WHERE THE BOTTOM OF THE TRENCH IS ADJACENT TO OR BELOW THE FOOTING AND WALLS OF ANY ADJOINING BUILDING OR STRUCTURE, THE FOOTING SHALL BE ADEQUATELY SUPPORTED WHILE THE TRENCH IS OPEN.
4. GENERALLY FOR ALL EXCAVATION WORKS THE CONTRACTOR MUST:
   - COMPLY WITH THE GENERAL PROVISIONS OF SECTION 21 OF THE 'OCCUPATIONAL HEALTH AND SAFETY ACT'
   - COMPLY WITH WITH THE 'OCCUPATIONAL HEALTH AND SAFETY CODE OF PRACTICE FOR SAFETY PRECAUTIONS IN TRENCHING OPERATIONS'
5. FOR ANY EXCAVATION DEEPER THAN 1.5 METRES THE CONTRACTOR MUST:
   - ENGAGE AN EXPERIENCED CIVIL ENGINEER (C.P. / NER) TO DETERMINE AN APPROPRIATE GROUND SUPPORT OR RETENTION SYSTEM.
   - WORK WITH THE ENGINEER TO DEVELOP A SAFE SYSTEM OF WORK FOR THE INSTALLATION OF THE GROUND SUPPORT SYSTEM.
   - DEVELOP AN EMERGENCY RESPONSE PLAN (ERP) TO DEAL WITH UNEXPECTED INCIDENTS, E.G. WORKER RESCUE, GROUND SLIP OR FLOOD.
   - SUBMIT TEMPORARY WORKS DESIGN TO THE ENGINEER OF RECORD FOR REVIEW.
6. WHEN EXCAVATING, THE PRINCIPLE CONTRACTOR SHOULD ENSURE:
   - A COMPETENT PERSON EXPERIENCED IN EXCAVATION WORK IS SUPERVISING THE WORK.
   - THE CONTRACTOR'S ENGINEER'S SUPPORT DESIGN IS FOLLOWED.
   - SAFE WORK METHOD STATEMENTS (SWMS) ARE DEVELOPED AND FOLLOWED FOR THE EXCAVATION WORKS AND OTHER OTHER WORKS IN THE EXCAVATION.
   - IF GROUND SUPPORT IS TO BE PROGRESSIVELY INSTALLED, WORKERS MUST NEVER WORK AHEAD OF THE SUPPORT OR REMOVE IT PREMATURELY.
   - WORKERS ARE TRAINED AND AWARE OF THE SWMS AND ERP.
   - THE PUBLIC IS PREVENTED FROM ACCESSING THE SITE AND, ALL NEIGHBOURING FENCING IS SECURED TO PREVENT COLLAPSE.
7. EXCAVATION IN WATER-CHARGED GROUND SHALL BE IN ACCORDANCE WITH THE FOLLOWING:
   - THE WATER LEVEL SHALL BE LOWERED BELOW THE BOTTOM OF THE PROPOSED TRENCH AND MAINTAINED AT THAT LEVEL DURING CONSTRUCTION, INCLUDING AFTER THE PLACING OF THE TRENCH FILL.
   - TRENCH FILL SHALL BE PLACED IN LOOSE LAYERS NOT MORE THAN 200MM THICK AND COMPACTED TO NOT LESS THAN 90% OR 95% UNDER PAVEMENTS OF THE STANDARD MAXIMUM DRY DENSITY SPECIFIED IN A.S.1289.5.4.1, IN SUCH A WAY THAT PIPES ARE NEITHER DISLODGED OR DAMAGED.
8. WHILE THE EXCAVATION REMAINS OPEN, THE PRINCIPAL CONTRACTOR SHOULD ENSURE THE EXCAVATION AND SITE SECURITY IS INSPECTED REGULARLY AND AS SOON AS POSSIBLE AFTER ANY EVENT THAT COULD AFFECT THE SAFETY OF THE EXCAVATION, E.G. A STORM OR GROUND SLIP.
9. CONTRACTOR IS TO ENSURE THAT ALL EXCAVATIONS ARE MAINTAINED IN A DRY CONDITION WITH NO WATER ALLOWED TO REMAIN IN THE EXCAVATIONS.
10. REFER AND COMPLY WITH EPA REQUIREMENTS FOR DEEP EXCAVATIONS AND DEWATERING

DRAINAGE NOTES

1. ALL DRAINAGE SHOULD COMPLY TO AS3500
2. MINIMUM INTERNAL DIMENSIONS FOR STORMWATER AND INLET PITS (REFER TO AS3500 TABLE 8.2)

DEPTH AND INVERT OF CULVERT	MIN. INTERNAL DIM. (mm)	
	RECTANGULAR	CIRCULAR (DIA.)
x ≤ 600	450 (W) x 450 (L)	600
600 > x ≤ 900	600 (W) x 600 (L)	900
900 > x ≤1200	600 (W) x 900 (L)	1000
x > 1200	900 (W) x 900 (L)	1000

3. TYPICAL GRADIENT LIMITS FOR PAVED AREA (REFER TO AS3500 TABLE 8.1)
   - LONGITUDINAL GRADIENT OR FALL
     – 1:10 MAX FOR ACCESS ROAD
   - ROAD CROSSFALL OR AVERAGE CAMBER
     – 1:40 NORMAL FOR ACCESS ROAD
     – 1:60 MIN. FOR PAVED AREA
     – 1:30 MAX / 1:40 MIN. FOR FOOTPATHS
   - KERB CHANNELS (WITHOUT CONCRETE GUTTER)
     – 1:150 MIN. FOR ACCESS ROAD
     – 1:150 MIN. FOR PAVED AREA
   - KERB CHANNELS (WITH CONCRETE GUTTER OR HIGH-CLASS SURFACING)
     – 1:200 MIN. FOR ACCESS ROAD
     – 1:200 MIN. FOR PAVED AREA
   - SUPERELEVATION FOR ROAD CURVES NOT EXCEEDING 100m RADIUS
     – 1:25 MAX FOR ACCESS ROAD
4. MINIMUM GRADIENT OF SITE STORMWATER DRAINS (REFER TO AS3500 TABLE 8.1)

NOMINAL DRAIN SIZE (DN)	MIN. GRADIENT
90	1:100
100	1:100
150	1:100
225	1:200
300	1:250
375	1:300

IMPORTANT NOTES

1. THE ENGINEER OF RECORD HAS DESIGNED THE PERMANENT CIVIL WORKS & ASSOCIATED STRUCTURES. THE MEANS, METHODS, TECHNIQUES, SEQUENCES, TEMPORARY WORKS AND SAFETY MEASURES DURING CONSTRUCTION REMAIN THE RESPONSIBILITY OF THE MAIN CONTRACTOR.
2. THIS PROJECT SHOULD BE READ IN CONJUNCTION WITH ALL OTHER CONSULTANTS ASSOCIATED WITH THIS PROJECT BEFORE COMMENCEMENT OF ANY WORKS.
3. PRIOR THE COMMENCEMENT OF BUILDING WORK ON SITE, THE CONTRACTOR MUST VERIFY THE FEASIBILITY OF THE OUTFALL STORMWATER DRAINAGE SYSTEM/S TO THE LEGAL POINT OF DISCHARGE AS DOCUMENTED BY:
   – VERIFICATION OF THE INVERT LEVEL OF THE DRAIN FORMING THE LEGAL POINT OF DISCHARGE
   – VERIFICATION THAT THE ROUTE FROM THE SITE TO THE LEGAL POINT/S OF DISCHARGE IS CLEAR OF ALL OTHER AUTHORITY SERVICES.

   IF EITHER OF THE ABOVE CANNOT BE VERIFIED, THE CONTRACTOR MUST IMMEDIATELY NOTIFY THE PROJECT MANAGER OR CONSULTING CIVIL ENGINEER
4. CONTRACTOR MUST INSPECT AND VERIFY SITE LEVELS PRIOR TO CONSTRUCTION COMMENCING. CIVIL ENGINEERS TO BE CONTACTED IF DISCREPANCY IN LEVELS IS FOUND PRIOR OR DURING CONSTRUCTION.

FOR THE ATTENTION OF THE CONTRACTOR

1. IN ACCORDANCE WITH CLAUSE 15 OF A.S. 2124–1992, THE CONTRACTOR MUST ENSURE THE SAFETY OF THE CONTRACTOR'S EMPLOYEES AND ALL OTHER PEOPLE WHO ARE ON OR ADJACENT TO THE SITE. THE CONTRACTOR MUST COMPLY WITH THE VICTORIAN OCCUPATIONAL HEALTH AND SAFETY ACT.
2. THE CONTRACTOR MUST ENSURE THAT ALL PEOPLE EMPLOYED ON THE SITE WEAR APPROVED SAFETY APPAREL. THIS INCLUDES SAFETY HELMETS, SAFETY BOOTS, EAR AND EYE PROTECTION, WHERE APPROPRIATE.
3. THE CONTRACTOR IS NOT PERMITTED TO BREAK-IN TO AN EXISTING LIVE PIPELINE, ENTER A LIVE ACCESS CHAMBER OR REMOVE THE COVER TO A LIVE ACCESS CHAMBER.
4. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING ALL EXISTING SERVICES IN WORKS AFFECTED AREAS PRIOR TO COMMENCING ANY WORKS.

ENVIRONMENTAL MANAGEMENT PLAN

PRIOR TO THE COMMENCEMENT OF ANY WORKS, THE CONTRACTOR SHALL PREPARE A SITE MANAGEMENT PLAN FOR APPROVAL BY THE ENGINEER. ITEMS TO BE ADDRESSED SHALL INCLUDE:

- EROSION AND SEDIMENT CONTROL
- FLORA AND FAUNA CONSERVATION
- WATER QUALITY MANAGEMENT
- DUST CONTROL
- NOISE CONTROL
- ACCESS MANAGEMENT
- POLLUTION CONTROL
- MONITORING AND REPORTING
- CORRECTIVE ACTION

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THE CONTRACTOR SHALL BE TOTALLY RESPONSIBLE FOR AND AT ALL TIMES PROVIDE A SAFE WORKING ENVIRONMENT IN THE VICINITY OF THE SITE OF WORKS IN FULL COMPLIANCE WITH THE OCCUPATIONAL HEALTH AND SAFETY REGULATIONS.

HEALTH AND SAFETY

1. THE OBLIGATION OF DREW RUDD ENGINEERS AS THE DESIGN ENGINEER IS LIMITED TO ENSURING THAT THOSE PARTS OF THE STRUCTURE THAT ARE TO BE USED AS A WORKPLACE ARE, AS FAR AS REASONABLY PRACTICABLE, DESIGNED TO BE SAFE AND WITHOUT RISKS TO THE HEALTH OF THOSE PERSONS USING THE STRUCTURE AS A WORKPLACE FOR THE PURPOSE FOR WHICH IT WAS DESIGNED IN ACCORDANCE
2. DREW RUDD ENGINEERS IS NOT RESPONSIBLE FOR THE OCCUPATIONAL HEALTH AND SAFETY OF PERSONS AT THE SITE AS THOSE OBLIGATIONS RESIDE WITH THE CONTRACTORS AND/OR SUBCONTRACTORS WHO OCCUPY OR HAVE CONTROL OF THE SITE IN ACCORDANCE WITH APPLICABLE OCCUPATIONAL HEALTH AND SAFETY LEGISLATION, CODES OR PRACTICE, GUIDANCE NOTES, AUSTRALIAN STANDARDS AND OTHER RELEVANT DOCUMENTATION.
3. ANY ADVICE OR GUIDANCE CONCERNING OCCUPATIONAL HEALTH AND SAFETY ISSUES ARISING AT THE SITE SHOULD BE DIRECTED TO THE HEALTH AND SAFETY EXECUTIVE OR OFFICER NOMINATED FOR THE PROJECT.

0mm 10 20 30 40 50mm 100mm

REV	DESCRIPTION	DATE	BY	APP.
B	REVISED APPROVAL	13.02.25	M.C.	D.G.
A	FOR APPROVAL	31.01.25	M.C.	D.G.

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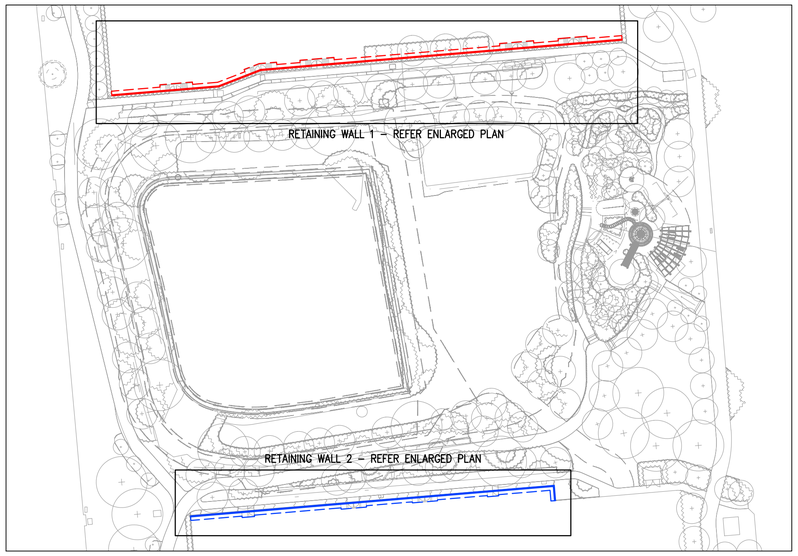
CLIENT DETAILS: OAKDEN DEVELOPMENTS PTY. LTD.

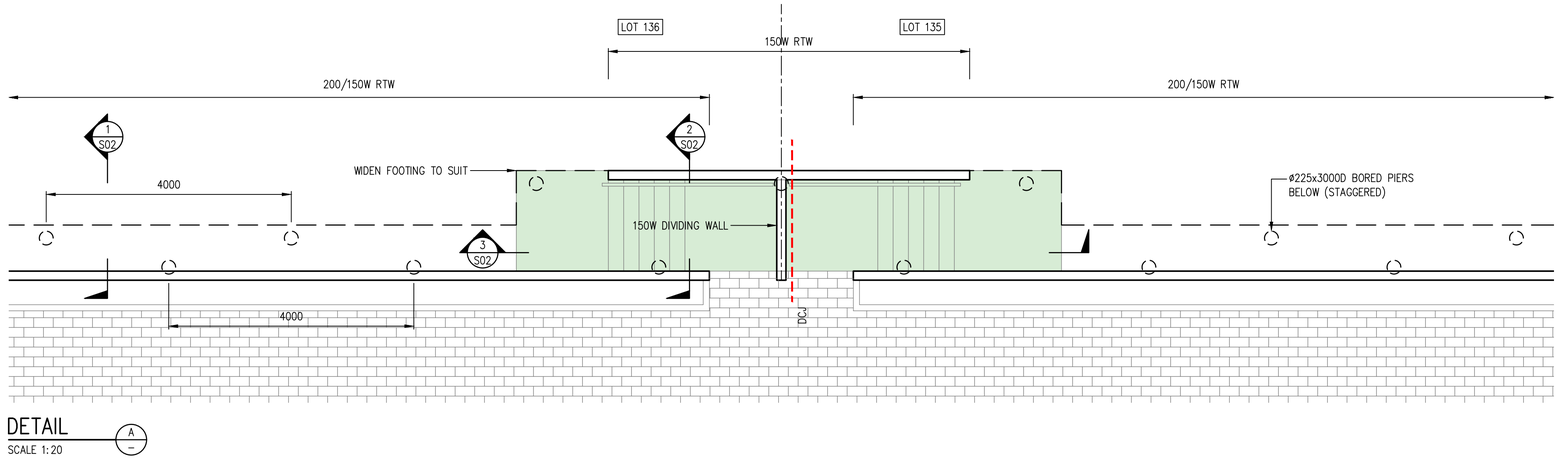
DRAWING TITLE: CIVIL NOTES

PROJECT NAME: RETAINING WALL DETAILS OAKDEN RISE (STAGE 2)

DRAWN	DESIGNED	PROJECT REF.
M.C.	D.G.	241024-01
CHECKED	APPROVED	
D.G.	D.G.	
DATE	SCALE	DRAWING NUMBER / REVISION
JAN '25	AS SHOWN	N02 / B



KEY PLAN
NOT TO SCALE



DETAIL
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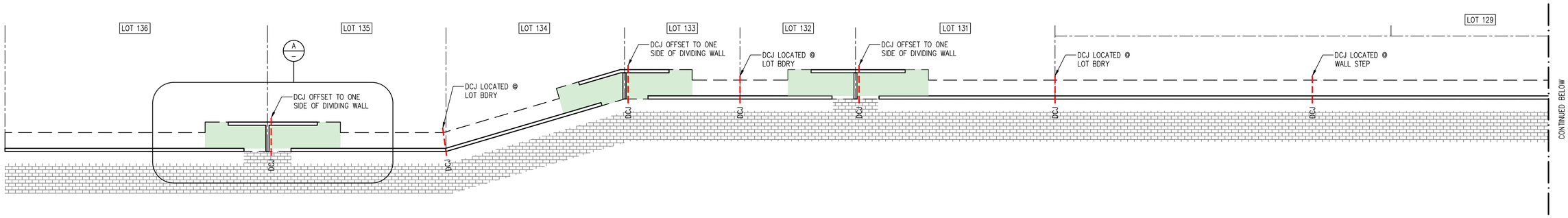
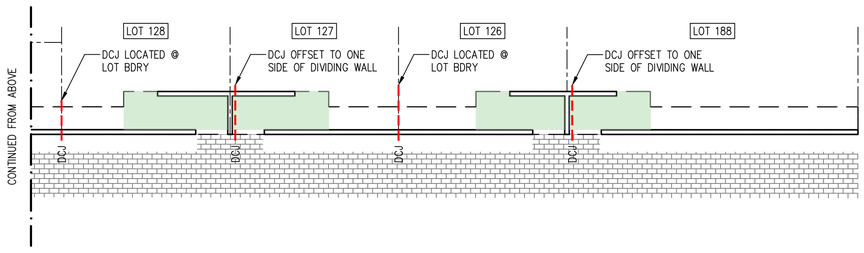
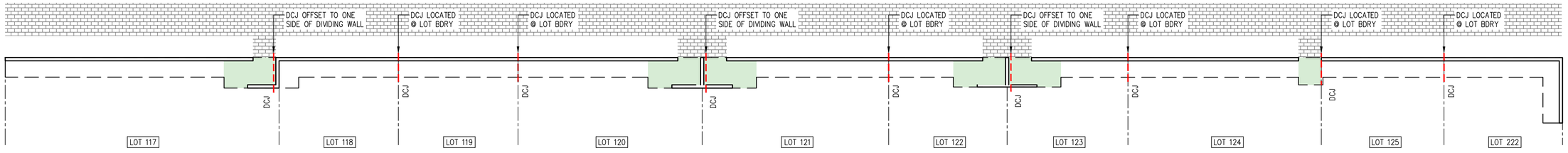




RETAINING WALL 1 (ENLARGED PLAN)
SCALE 1:100



RETAINING WALL 2 (ENLARGED PLAN)
SCALE 1:100

0mm 10 20 30 40 50mm 100mm

REV	DESCRIPTION	DATE	BY	APP.
C	REVISED APPROVAL	18.02.25	M.C.	D.G.
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RETAINING WALL DETAILS
OAKDEN RISE (STAGE 2)

DRAWING TITLE
RETAINING WALL PLANS

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D.G.	D.G.	
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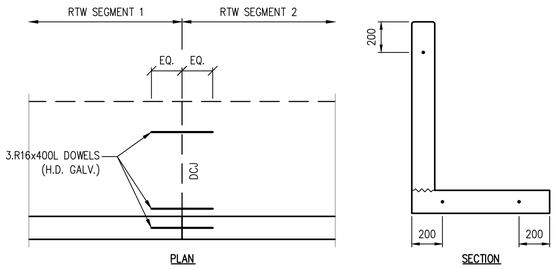
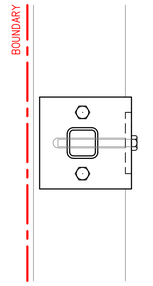


TYPICAL DOWELLED CONSTRUCTION JOINT (DCJ) DETAIL

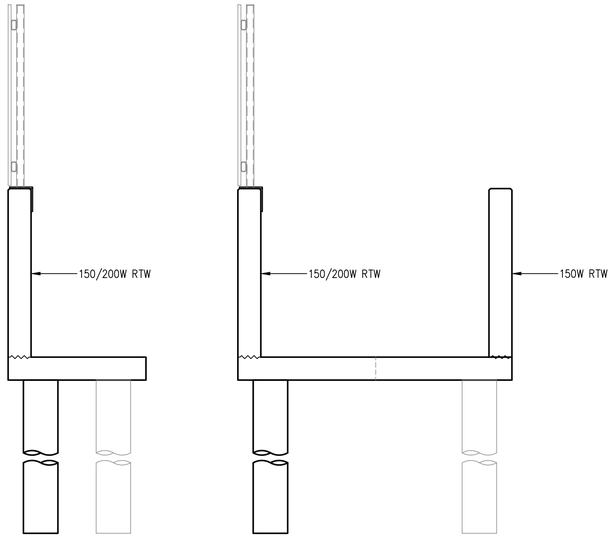
LOCATIONS SHOWN ON ENLARGED PLANS

NOT TO SCALE



VIEW X

SCALE 1:5

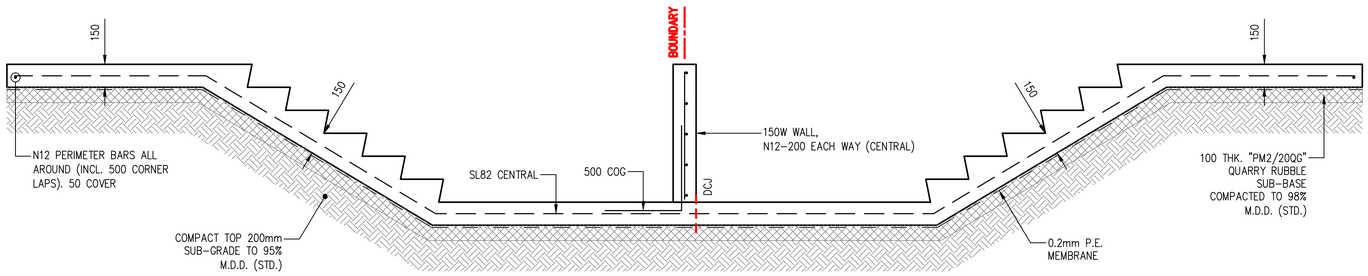


SECTION 1 S01

SCALE 1:20

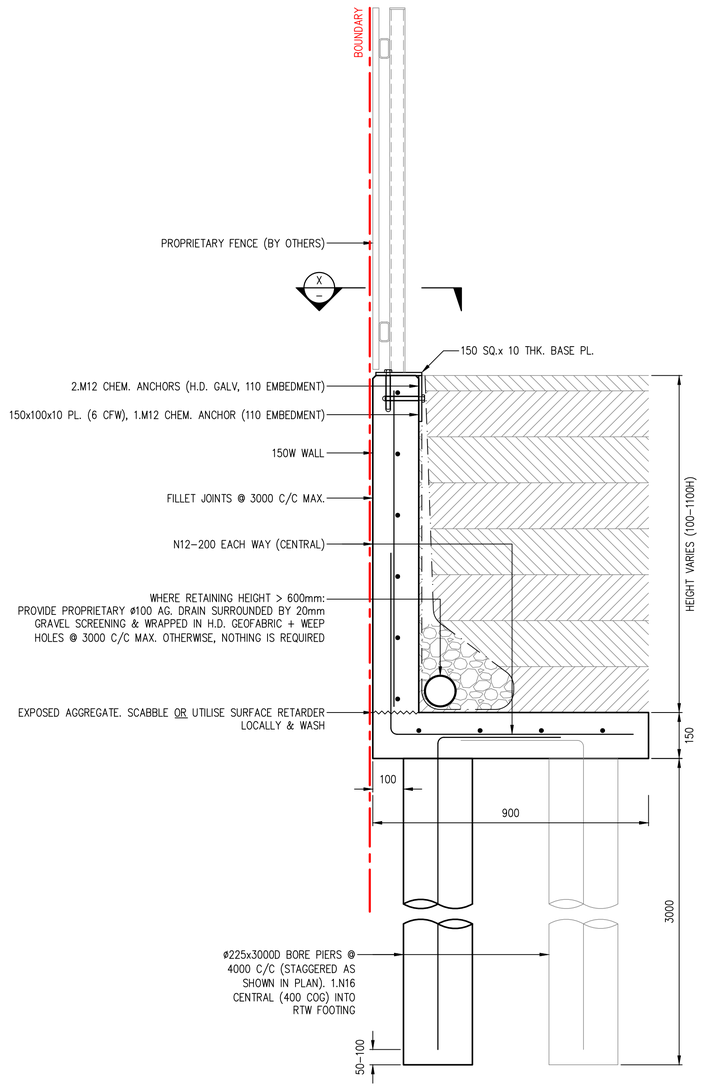
SECTION 2 S01

SCALE 1:20



SECTION 3 S01

SCALE 1:20



TYPICAL RETAINING WALL SECTION

SCALE 1:10

0mm 10 20 30 40 50mm 100mm

REV	DESCRIPTION	DATE	BY	APP.
B	REVISED APPROVAL	13.02.25	M.C.	D.G.
A	FOR APPROVAL	31.01.25	M.C.	D.G.

1. DO NOT SCALE DRAWING – USE FIGURED DIMENSIONS ONLY
2. THIS DRAWING TO BE READ/PRINTED IN COLOUR

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CLIENT DETAILS
OAKDEN DEVELOPMENTS
PTY. LTD.

PROJECT NAME
RETAINING WALL DETAILS
OAKDEN RISE (STAGE 2)

DRAWING TITLE
RETAINING WALL DETAILS

DRAWN	DESIGNED	PROJECT REF.
M.C.	D.G.	241024–01
CHECKED	APPROVED	
D.G.	D.G.	
DATE	SCALE	DRAWING NUMBER / REVISION
JAN '25	AS SHOWN	S02 / B