GENERAL NOTES

1. THESE ENGINEERING DRAWINGS ARE TO BE READ IN CONJUNCTION WITH PROJECT SPECIFICATIONS AND OTHER CONSULTANTS DRAWINGS ON THE PROJECT.
2. THESE ENGINEERING DRAWINGS HAVE BEEN PREPARED FROM INFORMATION AVAILABLE AT THE TIME OF ISSUE. AS THIS INFORMATION MAY BE THE SUBJECT OF CHANGE PRIOR TO OR DURING CONSTRUCTION THE CONTRACTOR IS TO ADVISE THE ENGINEER WHERE DISCREPANCIES OCCUR.
3. THE STRUCTURE HAS BEEN DESIGNED FOR THE IN-SERVICE LOADS ACTING WHEN THE STRUCTURE IS COMPLETE ONLY. LOADS OR ACTIONS DUE TO CONSTRUCTION AND INSTALLATION METHODOLOGIES AND/OR EQUIPMENT HAVE NOT BEEN CONSIDERED UNLESS CLEARLY STATED OTHERWISE.
4. THESE DRAWINGS SHALL NOT BE USED FOR FINAL SETOUT OF THE PROJECT UNLESS SPECIFICALLY STATED.
5. WHERE STRUCTURAL CERTIFICATION IS REQUIRED, INSPECTIONS ARE TO BE PERFORMED BY A DULY APPOINTED INSPECTOR FROM 'ROBERT BIRD GROUP'. THESE INSPECTIONS ARE TO BE PERFORMED IN ACCORDANCE WITH THE INSPECTION & TEST PLANS PREPARED BY 'ROBERT BIRD GROUP'. THE INSPECTOR IS TO BE GIVEN A MINIMUM OF 48 HOURS NOTICE THAT AN INSPECTION IS REQUIRED.
6. PRIOR TO THE COMMENCEMENT OF WORKS THE CONTRACTOR IS TO IDENTIFY ALL EXISTING SERVICES. ANY SERVICES SHOWN ON 'ROBERT BIRD GROUP' DRAWINGS ARE INDICATIVE ONLY.
7. THE CONTRACTOR SHALL CHECK OR OBTAIN ALL DIMENSIONS RELEVANT TO SETTING OUT OF SITE WORKS, AND THE PROVISION OF ANY TEMPORARY BRACING, INCLUDING DESIGN, IN ACCORDANCE WITH THE SPECIFICATION.
8. DURING CONSTRUCTION THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING THE STABILITY OF THE WORKS AND ENSURE NO PART IS OVERSTRESSED. THE DESIGN AND CERTIFICATION OF ALL FORMWORK AND BACKPROPPING IS TO BE THE RESPONSIBILITY OF THE CONTRACTOR. (REFER TO CONCRETE NOTES FOR STRIPPING PROCEDURES FOR IN-SITU CONCRETE).
9. THE CONTRACTOR IS TO ENGAGE AND OBTAIN DESIGN ADVICE FROM A SUITABLY QUALIFIED ENGINEER REGARDING DEMOLITION, RETROFITTING, TEMPORARY WORKS, HEALTH & SAFETY AND NUISANCE. THIS HAS BEEN REFERRED TO AS THE "CONTRACTORS ENGINEER" THROUGHOUT THE REMAINING NOTES.
10. WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH THE CURRENT AUSTRALIAN STANDARDS AND NCC STATUTORY REQUIREMENTS, EXCEPT WHERE VARIED BY THE CONTRACT DOCUMENTS.
11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING THAT SUFFICIENT TOLERANCES ARE PROVIDED AND INTEGRATED THROUGHOUT ALL ELEMENTS OF THE WORKS.
12. ALL NON-LOAD BEARING ELEMENTS SHALL BE KEPT CLEAR OF THE STRUCTURE SOFFIT BY AN ALLOWANCE DETERMINED FROM SPAN/250 OR CANTILEVER/125 BUT NOT LESS THAN 20mm, UNLESS NOTED OTHERWISE ON THE DRAWINGS.
13. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS STATED OTHERWISE.
14. SUPERIMPOSED DEAD LOADS AND LIVE LOADS HAVE BEEN DETERMINED IN ACCORDANCE WITH AS1170 AND ARE SHOWN ON THE LOADING PLAN DRAWINGS. C3
15. WIND AND EARTHQUAKE LOADS HAVE BEEN DETERMINED IN ACCORDANCE WITH AS1170 BASED ON THE FOLLOWING DESIGN CRITERIA :-

NCC STRUCTURAL IMPORTANCE LEVEL: 3

WIND LOADS:		EARTH QUAKE LOADS:	
ANNUAL PROBABILITY OF EXCEEDANCE	1/1000	ANNUAL PROBABILITY OF EXCEEDANCE	1/1000
REGION	C	PROBABILITY FACTOR Kp	1.3
TERRAIN CATEGORY	2.5	HAZARD FACTOR	0.10
REGIONAL WIND SPEED V_R (m/s)	73.5	SITE SUB-SOIL CLASS	Ce
SHIELDING M_s	1.0	STRUCTURAL DUCTILITY FACTOR μ	2
TOPOGRAPHIC Mt	1.0	STRUCTURAL PERFORMANCE FACTOR Sp	0.77
		EARTHQUAKE DESIGN CATEGORY	EDC II

A WIND LOADING REPORT HAS BEEN PERFORMED BY:
JCU CYCLONE TESTING STATION
REPORT NO : TS1185 DATE : 12.08.2020
+ DRAFT ADDENDUM TO TS1185, DATED 14.08.20

16. ALL LOCATIONS OF THE FACADE STRUCTURE & CLADDING (EXCLUDING THE STRUCTURES LAB) AND ROOF SHEETING ARE TO BE DESIGNED BY THE FACADE ENGINEER SUCH THAT THE RATIO OF DOMINANT OPENINGS ON ALL SIDES IS LESS THAN 1 IN ACCORDANCE WITH AS1170.2-2011 CLS.3.1.3 AND TABLES.1(B).

   FACADE STRUCTURE & CLADDING AND ROOF SHEETING (INCLUDING ALL FIXINGS) MUST BE DESIGNED BY THE FACADE ENGINEER TO DEMONSTRATE THAT AN OPENING WILL NOT BE CREATED IN THE BUILDING ENVELOPE AS A RESULT OF IMPACT LOADING FROM WINDBORNE DEBRIS DEFINED IN CLAUSE 2.5.8. C3
17. THE GEOTECHNICAL ENGINEERING INVESTIGATION HAS BEEN PERFORMED BY
SMEC GEOTECHNICAL REPORT NO : 30033370 DATE : 17.03.2020

EARTHWORKS NOTES

1. REFER TO THE GEOTECHNICAL ENGINEERING REPORT SPECIFIED IN THE GENERAL NOTES AND THE CIVIL ENGINEERING DRAWINGS. C3
2. STRIP SITE OF ALL TOPSOIL, VEGETATION AND DELETERIOUS MATTER TO A MINIMUM DEPTH OF 150mm.
3. PROOF ROLL SUBGRADE TO REVEAL SOFT SPOTS. SOFT SPOTS TO BE REMOVED AND BACKFILLED. ALL NATURAL SUBGRADE IS TO BE COMPACTED TO 98% STANDARD COMPACTION IN ACCORDANCE WITH AS1289 PRIOR TO PLACEMENT OF FILL MATERIAL.
4. MATERIAL WON FROM THE SITE TO BE INSPECTED BY THE GEOTECHNICAL ENGINEER FOR APPROVAL PRIOR TO USE AS FILL. ANY IMPORTED FILL TO HAVE A MINIMUM CBR VALUE OF 15%. ALL FILL TO BE COMPACTED TO 98% STANDARD COMPACTION IN 200mm MAXIMUM THICK LAYERS IN ACCORDANCE WITH AS1289.
5. TEST CERTIFICATES ON THE FILL MATERIAL SHALL BE SUPPLIED TO THE SUPERINTENDENT FOR APPROVAL PRIOR TO THE USE OF THE FILL MATERIAL.

HEALTH & SAFETY

1. THE CONTRACTOR SHALL DEVELOP, IMPLEMENT AND ADMINISTER A WORKPLACE HEALTH AND SAFETY PROGRAM THAT WILL ENSURE THAT ALL CONSTRUCTION ACTIVITIES ARE PERFORMED TO THE RELEVANT WORKPLACE HEALTH AND SAFETY REQUIREMENTS AND ANY OTHER RELEVANT STATUTORY REQUIREMENTS.
2. THE WORKPLACE HEALTH AND SAFETY PROGRAM MUST BE CO-ORDINATED WITH ADJOINING PROPERTY OWNERS AND ALL RELEVANT PARTIES AS NECESSARY TO ENSURE A SAFE BUILDING ENVIRONMENT AT ALL TIMES.

NUISANCE

1. THE CONTRACTOR SHALL DEVELOP, IMPLEMENT, AND ADMINISTER A PLAN THAT WILL ENSURE THE MANAGEMENT OF NOISE AND VIBRATION RESULTING FROM CONSTRUCTION WORKS. REFER TO SPECIFICATIONS FOR REQUIRED LIMITS, OTHERWISE, CONTACT ENGINEER FOR GUIDANCE.
2. THE CONTRACTOR WILL NEED TO ENSURE ALL ADJOINING PROPERTY REQUIREMENTS RELATING TO NOISE AND VIBRATION ARE MET.
3. IF IT IS ESTABLISHED THAT THERE ARE NO SITE SPECIFIC REQUIREMENTS, THEN THE CONTRACTOR SHALL REFER TO MINIMUM REQUIREMENTS FOR ABATEMENT OF NOISE AND VIBRATION NOMINATED BY RELEVANT STATUTORY REQUIREMENTS
4. THE CONTRACTOR WILL NEED TO PREPARE AND ADVISE ON MONITORING AND MANAGEMENT OF NOISE AND VIBRATION BASED ON PROFESSIONAL ADVICE FROM SUITABLY QUALIFIED PERSON OR PERSONS.

TEMPORARY WORKS

1. THE CONTRACTOR SHALL ALLOW FOR IN THEIR PRICE ALL COSTS ASSOCIATED WITH THE DESIGN, SUPPLY, INSTALLATION AND REMOVAL OF ALL TEMPORARY BACK PROPPING, SAFETY SCREENS, SCAFFOLDING AND OTHER REQUIREMENTS OF THE CONSTRUCTION PROCESS. THE CONTRACTOR SHALL ENGAGE SUITABLY QUALIFIED ENGINEER REFERRED TO AS "CONTRACTORS ENGINEER". TO DESIGN INSPECT AND CERTIFY ALL TEMPORARY WORKS, AND DEMOLITION WORKS.
2. THE CONTRACTOR IS TO PROVIDE ALL TEMPORARY WORKS CONTRACTOR ENGINEERING DRAWINGS TO THE STRUCTURAL ENGINEER FOR INFORMATION.
3. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THE OVERALL STABILITY OF THE STRUCTURE AND NO PART IS OVERSTRESSED DUE TO CONSTRUCTION & INSTALLATION METHODOLOGIES AND/OR EQUIPMENT DURING CONSTRUCTION. THE CONTRACTOR SHALL OBTAIN ADVICE FROM THE CONTRACTORS ENGINEER.
4. THE CONTRACTOR IS TO HAVE CONSTRUCTION METHODOLOGY STATEMENTS PREPARED AND SUBMITTED FOR GENERAL REVIEW TO ENSURE IT IS IN ACCORDANCE WITH THE DESIGN INTENT.
5. ALL VERTICAL DISPLACEMENTS AND MOVEMENTS ARE TO BE LIMITED TO ENSURE THE STRUCTURE IS NOT SUBJECTED TO LOADS OR MOVEMENTS CAUSING STRUCTURAL DISTRESS TO ANY ELEMENT WHILE THE STRUCTURE IS BEING TEMPORARILY SUPPORTED.
6. DEPENDING ON THE CONTRACTORS PREFERRED CONSTRUCTION SEQUENCE, PRE-LOADING OF STRUCTURAL ELEMENTS MAY BE REQUIRED TO LIMIT TOTAL VERTICAL DISPLACEMENTS.
7. STRUCTURE TO BE ADEQUATELY BRACED TO PREVENT ANY HORIZONTAL MOVEMENT OR DEFLECTIONS.

LEGEND/ABBREVIATIONS

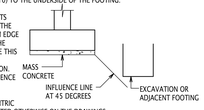
ABBREVIATION	DESCRIPTION	ABBREVIATION	DESCRIPTION
HORIZ	HORIZONTAL	N/S	NEAR SIDE
VERT	VERTICAL	F/S	FAR SIDE
CENT	CENTRALLY PLACED	B/S	BOTH SIDES
CRS	CENTRES	U/S	UNDER SIDE
B or BTM	BOTTOM FACE	LG	LENGTH/LONG
T	TOP FACE	W	WIDTH/WIDE
T&B	TOP & BOTTOM	h	HEIGHT/HIGH
NF	NEAR FACE	d	DEPTH/DEEP
FF	FAR FACE	NOM	NOMINAL
EF	EACH FACE	REQD	REQUIRED
EW	EACH WAY	REINF	REINFORCEMENT
EQ	EQUAL	OPP	OPPOSITE
NSOP	NOT SHOWN ON PLAN	SIM	SIMILAR
NSOE	NOT SHOWN ON ELEVATION	GA	GENERAL ARRANGEMENT
UNO	UNLESS NOTED OTHERWISE	PT	POST TENSION
TYP	TYPICAL	DWG	DRAWINGS
CL	CENTRE LINE	NTS	NOT TO SCALE
PL	PLATE	LL	LIVE LOAD
CFW	CONTINUOUS FILLET WELD	SIDL	SUPERIMPOSED DEAD LOAD
FSBW	FULL STRENGTH BUTT WELD	THRU	THROUGH
FPBW	FULL PENETRATION BUTT WELD	NLB	NON LOAD BEARING

AA X1.0000 — DENOTES DRAWING NUMBER; DENOTES LEVEL ASSOCIATION

AA X1.0000 — DENOTES DRAWING NUMBER; DENOTES LEVEL ASSOCIATION

FOUNDATION NOTES

1. REFER TO THE GEOTECHNICAL ENGINEERING REPORT SPECIFIED IN THE GENERAL NOTES FOR SITE SPECIFIC GEOTECHNICAL INFORMATION. C3
2. FOOTINGS AND EDGE THICKENINGS TO BE FOUNDED ON NATURAL MATERIAL HAVING AN ALLOWABLE BEARING CAPACITY OF A MINIMUM 200 kPa. WHERE DIFFICULTY IN REACHING THE REQUIRED CAPACITY IS EXPERIENCED, 'ROBERT BIRD GROUP' IS TO BE CONTACTED TO REASSESS THE FOOTING DESIGN.
3. THE CONTRACTOR IS TO ENGAGE AND PAY A GEOTECHNICAL ENGINEER TO VERIFY THE BEARING CAPACITY OF THE FOUNDATIONS PRIOR TO PLACEMENT OF THE BLINDING LAYER.
4. ALL LOOSE MATERIAL AND WATER TO BE CLEANED OUT OF THE FOUNDATION. FORM WORK TO BE USED WHERE THE SIDES OF THE FOUNDATION ARE NOT STABLE.
5. A 50mm MINIMUM BLINDING LAYER SHOULD BE APPLIED TO THE BASE OF ALL FOUNDATIONS IMMEDIATELY AFTER VERIFICATION OF THE BEARING CAPACITY BY THE GEOTECHNICAL ENGINEER. WHERE THE FOUNDING MATERIAL IS DEEPER THAN REQUIRED FOR THE FOOTING THE EXCAVATION IS TO BE BACKFILLED WITH A WEAK MIX CONCRETE (N10) TO THE UNDERSIDE OF THE FOOTING.
6. WHERE AN EXCAVATION IS REQUIRED OR EXISTS BELOW THE BASE OF A FOOTING THE SIDE OF THE EXCAVATION SHALL BE LOCATED AWAY FROM EDGE OF FOOTING BY THE SAME DISTANCE THAT THE EXCAVATION IS BELOW FOOTING BASE. WHERE THIS CANNOT BE ACHIEVED, 'ROBERT BIRD GROUP' SHALL BE CONTACTED FOR FURTHER DIRECTION. MASS CONCRETE IS TO EXTEND TO THE INFLUENCE LINE AS REQUIRED.



7. ALL WALLS AND COLUMNS SHALL BE CONCENTRIC WITH THE SUPPORTING FOOTINGS UNLESS NOTED OTHERWISE ON THE DRAWINGS.

BORED PIER NOTES

1. BORED PIERS SHALL BE IN ACCORDANCE WITH AS2159 AND WITH THE PROJECT SPECIFICATIONS.
2. REFER TO THE GEOTECHNICAL ENGINEERING REPORT SPECIFIED IN THE GENERAL NOTES FOR SITE SPECIFIC GEOTECHNICAL INFORMATION.
3. ALL BORED PIERS SHALL FOUND IN GRANITE MATERIAL HAVING AN ULTIMATE BEARING CAPACITY OF A MINIMUM 5000 kPa.
4. THE CONTRACTOR SHALL ENGAGE AND PAY FOR A GEOTECHNICAL ENGINEER TO VERIFY THE BEARING CAPACITY OF THE FOUNDING MATERIAL AND BORED PIER CAPACITY PRIOR TO THE PLACEMENT OF REINFORCEMENT OR POURING OF CONCRETE.
5. REFER TO THE FOOTING DRAWING FOR BORED PIER DIAMETERS AND DESIGN LOADS.
6. BORED PIERS SHALL BE DESIGNED TO CARRY THE DESIGN LOADS AT 75mm ECCENTRICITY TO MAKE ALLOWANCE FOR CONSTRUCTION TOLERANCE. ALL PIER CENTRELINES ARE TO BE CHECKED BEFORE ANY CONCRETE IS POURED. IF A VECTOR ECCENTRICITY GREATER THAN 75mm IS MEASURED 'ROBERT BIRD GROUP' ARE TO BE CONTACTED IMMEDIATELY.
7. UNLESS NOTED OTHERWISE THE CENTRELINE OF THE BORED PIER IS TO COINCIDE WITH CENTRELINE OF COLUMN ABOVE. REFER TO THE ARCHITECTURAL DRAWINGS FOR COLUMN SETOUT DETAILS.
8. BORED PIERS SHALL BE DRILLED USING A RIG CAPABLE OF BORING A HOLE WITH A VERTICAL TOLERANCE OF 1:100 INCLINATION.
9. NOTIFY 'ROBERT BIRD GROUP' IMMEDIATELY OF ANY OBSTRUCTIONS ENCOUNTERED DURING BORING, OTHER THAN THOSE INDICATED IN THE SITE INVESTIGATION.
10. THE BORED PIERS MAY HAVE TO BE LINED TO RETAIN LOOSE FILL.
11. REMOVE ALL LOOSE OR DISTURBED MATERIAL FROM THE SHAFT AND BASE OF THE BORED PIER.
12. BORED PIERS NOT CONCRETE FILLED BY THE END OF THE DAY WILL REQUIRE RE-DRILLING TO REMOVE ANY LOOSE MATERIAL.
13. PLACE CONCRETE TO ENSURE A SOUND MONOLITHIC COMPACTED CONCRETE SHAFT OF THE FULL DIAMETER REQUIRED TO CUT-OFF LEVEL. TAKE ADEQUATE MEASURES TO AVOID SEGREGATION, BLEEDING AND GROUT DEFICIENCY OF THE PIER.
14. EACH PIER SHALL BE TRIMMED TO ±25mm OF THE CUT-OFF LEVEL. ANY DAMAGE CAUSED TO THE BORED PIER DURING TRIMMING AND CAPPING IS TO BE REMOVED AND ADEQUATELY REPAIRED.
15. BUILDING PADS DO NOT INCLUDE ANY ALLOWANCE FOR PILING RIG LOADS. CONTRACTOR TO ENGAGE RPEQ ENGINEER TO DESIGN SUITABLE PILING MAT AND CONTRACTOR IS RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH PROVISION OF PILING MAT.

CONCRETE NOTES

GENERAL

1. CONCRETE WORK & MATERIALS SHALL BE IN ACCORDANCE WITH AS3600, AS3610 AND WITH THE PROJECT SPECIFICATIONS.
2. CONSTRUCTION JOINTS SHALL BE PROPERLY FORMED, SCABBLED, CLEANED AND USED ONLY WHERE SHOWN ON 'ROBERT BIRD GROUP' DRAWINGS OR SPECIFICALLY APPROVED BY 'ROBERT BIRD GROUP'.
3. ALL THICKNESSES SHOWN ARE MINIMUM STRUCTURAL REQUIREMENTS, NO REDUCTION IN THICKNESS DUE TO FALLS OR TOPPING IS PERMITTED. REFER ARCHITECT DRAWINGS FOR ALL SLAB FALLS AND CONFIRMATION OF SLAB STEPS.
4. UNLESS A GROOVE LINE ALLOWANCE HAS BEEN NOTED ON THE DRAWINGS, NO GROOVE LINES ARE PERMITTED, EXCEPT AT SLAB LINES. ALL GROOVE LINES ARE TO BE SUBMITTED TO 'ROBERT BIRD GROUP' FOR APPROVAL.
5. THE FACE OF ALL CONCRETE AGAINST WHICH NEW CONCRETE IS TO BE CAST IS TO BE THOROUGHLY ROUGHENED TO PROVIDE A SURFACE ROUGHNESS OF APPROXIMATELY 6mm FULLY EXPOSING THE AGGREGATE MIX. ALL LOOSE AGGREGATE PARTICLES AND LAITANCE SHALL BE REMOVED:
   THE ROUGHENING OF THE SURFACE CAN BE ACHIEVED BY:
   5.a. SAND BLASTING,
   5.b. WIRE BRUSHING, PNEUMATIC OR HAND HELD TOOLS
   5.c. GREEN CUTTING OF THE PARTIALLY HARDENED CONCRETE
   - SURFACE RETARDING AGENTS, IF USED, SHALL BE FOLLOWED BY ANY OF 5a. TO 5c. ABOVE
   - MEMBRANE CURING AGENTS SHALL NOT BE USED
   - PRIOR TO PLACING THE ADJOINING CONCRETE THE FACE OF THE CONSTRUCTION JOINT AND THE PROJECTING REINFORCEMENT SHALL BE CLEANED AND THE CONCRETE SURFACE SHALL BE DAMPENED WITH WATER.
   - ALL EXCESS WATER AND LOOSE MATERIAL SHALL BE REMOVED PRIOR TO PLACING THE ADJOINING CONCRETE.
6. NO PENETRATIONS GREATER THAN 150mm DIAMETER, OR EMBEDMENT OF PIPES GREATER THAN 40mm DIAMETER OTHER THAN THOSE SHOWN ON THE STRUCTURAL DRAWINGS SHALL BE MADE IN CONCRETE SLABS. FOR ALL OTHER CONCRETE MEMBERS NO PENETRATIONS, CHASES OR EMBEDMENTS SHALL BE MADE WITHOUT PRIOR APPROVAL BY 'ROBERT BIRD GROUP'.
7. CONDUITS GREATER THAN 25mm DIAMETER CAST INTO CONCRETE MEMBERS SHALL BE SPACED AT A MAXIMUM DISTANCE POSSIBLE AND UNDER NO CIRCUMSTANCES CLOSER THAN A CLEAR SPACING OF TWICE THE LARGER CONDUIT DIAMETER FROM PARALLEL REINFORCEMENT OR ANY OTHER CONDUIT.
8. CONCRETE SURFACE FINISHES TO BE IN ACCORDANCE WITH THE ARCHITECTURAL OR OTHER PROJECT DRAWINGS OR SPECIFICATIONS

CONCRETE

1. THE CHARACTERISTIC COMPRESSIVE STRENGTH (f'c) AT 28 DAYS OF IN PLACE CONCRETE SHALL BE AS NOTED ON THE DRAWINGS.
2. MAXIMUM AGGREGATE SIZE....20mm
3. SLUMP.....80mm
4. ALL CONCRETE SHALL BE VIBRATED.
5. ALL CONCRETE SHALL BE CURED IN ACCORDANCE WITH THE SPECIFICATION
6. ALL CONCRETE SHALL BE SAMPLED AND TESTED IN ACCORDANCE WITH AS1012 AND THE PROJECT SPECIFICATION.
7. ALL FORM WORK SHALL COMPLY WITH SECTION 17.6 OF AS3600 AND AS3610
8. FORMWORK STRIPPING:
   UNLESS SPECIFIED OTHERWISE IN THE PROJECT DOCUMENTATION, MINIMUM STRIPPING TIMES FOR IN-SITU CONCRETE FORMWORK SHALL COMPLY WITH THE MORE STRINGENT REQUIREMENTS OF SECTION 17.6 OF AS3600 & SECTION 5.4.3 (TABLE 5.1.1) OF AS3610.
9. REMOVAL OF FORMWORK SUPPORTS FROM SLABS AND BEAMS NOT SUPPORTING STRUCTURES ABOVE:
   UNLESS SPECIFIED OTHERWISE IN THE PROJECT DOCUMENTATION AND FORMWORK DOCUMENTATION APPROVED BY 'ROBERT BIRD GROUP', THE REMOVAL OF FORMWORK SUPPORTS FOR SLABS AND BEAMS NOT SUPPORTING STRUCTURES ABOVE SHALL COMPLY WITH SECTION 17.6 OF AS 3600
10. MULTISTOREY FORMWORK:
   UNLESS SPECIFIED OTHERWISE IN THE PROJECT DOCUMENTATION AND FORMWORK DOCUMENTATION APPROVED BY 'ROBERT BIRD GROUP', THE MINIMUM NUMBER OF LEVELS OF SUPPORT TO BE IN PLACE DURING THE TIME OF EACH POUR ON A FLOOR SHALL BE IN ACCORDANCE WITH SECTION 5.4.4 (TABLE 5.4.3) OF AS3610.

POST TENSIONING NOTES

GENERAL

1. POST TENSIONING IS DESIGN & CONSTRUCT (D&C) BY THE PT CONTRACTOR. REFER TO ROBERT BIRD GROUP STRUCTURAL SPECIFICATION "CONCRETE POST-TENSIONED - DESIGN BY OTHERS (D&C)" FOR ALL RELEVANT DESIGN CRITERIA.
2. ALL STRESSING WORKMANSHIP AND MATERIALS SHALL COMPLY WITH AS3600 AND THE PROJECT SPECIFICATION.
3. ALL DIMENSIONS RELEVANT TO SETTING OUT SHALL BE VERIFIED BY THE CONTRACTOR BEFORE CONSTRUCTION IS COMMENCED.
4. FORM WORK AND SCAFFOLDING SHALL BE EXTENDED BEYOND THE TENDON ANCHORAGE POINT TO PROVIDE SPACE FOR STRESSING OPERATIONS, SAFETY HOARDING FOR STRESSING SHALL BE PROVIDED. REFER TO THE PROJECT SPECIFICATION FOR STRIPPING OF FORM WORK AND BACK PROPPING DETAILS.
5. CONCRETE MIX DESIGN AND CURING SHALL BE TO THE PROJECT SPECIFICATION.
6. THE STRESSING CONTRACTOR SHALL SUBMIT TWO COPIES OF THE SHOP DRAWINGS TO 'ROBERT BIRD GROUP' FOR APPROVAL 14 DAYS PRIOR TO CONSTRUCTION, SETTING OUT THE:-
   -PROPOSED ORDER OF STRESSING,
   -DETAILS OF TENDON DUCT AND PROFILE OF ALL TENDON SETTING OUT. RELEVANT DIMENSIONS FROM THE FORM WORK TO OUTSIDE OF TENDON DUCT. CHAIR SPACING AND HEIGHTS IN ORDER TO PROVIDE SUITABLE APPROVED PARABOLIC PROFILES BETWEEN THE HIGH AND LOW POINTS SHOWN.
   -DETAILS OF ALL ANCHORAGES.

ANCHORAGE AND TENDON DESIGNATION

ALL STRANDS SHALL BE 12.7mm OR 15.2mm NOMINAL DIAMETER SEVEN WIRE SUPER GRADE, STRESS RELIEVED, LOW RELAXATION TO AS4672.

MINIMUM BREAKING LOADS:-
184kN FOR 12.7mm TENDONS
250kN FOR 15.2mm TENDONS

PLACING

1. DIMENSIONS INDICATED ARE TO THE UNDERSIDE OF THE DUCT FROM THE SOFFIT OF THE SLAB EXCEPT AT THE ANCHORAGE, WHERE DIMENSIONS ARE TO THE CENTRELINE OF THE DUCT. DUCTS SHALL BE SUPPORTED AT 1000mm MAXIMUM CENTRES TO A VERTICAL TOLERANCE OF ± 5mm.
2. THE DUCTS ARE TO BE GALVANIZED AND RIGID ENOUGH TO RETAIN THEIR SHAPE. JOINTS SHALL BE SECURELY TAPED TO PREVENT ENTRY OF SLURRY INTO DUCTS.
3. WHEREVER THERE IS A CONFLICT BETWEEN A TENDON AND ANY KIND OF CONDUIT OR REINFORCEMENT, THE TENDON PROFILE SHALL COVERN. THE STATED TENDON SPACING IS INDICATIVE ONLY, IN THE EVENT OF ANY CONSTRAINT TO THE POST-TENSIONING WORK, THE SPACING MAY BE ADJUSTED ACCORDINGLY TO SUIT THE SITE CONDITION. SUBJECT TO THE APPROVAL OF THE ENGINEER.
4. THE PRESTRESS CONTRACTOR SHALL BE RESPONSIBLE FOR THE PERFORMANCE OF THE ANCHORAGES AND SHALL SUPPLY ANY ADDITIONAL REINFORCEMENT CONSIDERED NECESSARY.
5. FOLLOWING COMPLETED INSTALLATION OF ANCHORAGES AND TENDONS, CARE MUST BE TAKEN TO PREVENT DAMAGE OR MOVEMENT OF ANY OF THE COMPONENTS. PARTICULAR CARE SHALL BE TAKEN DURING PLACING AND COMPACTING OF CONCRETE AROUND ANCHORAGES TO ENSURE THAT FULL COMPACTION IS ACHIEVED AND THAT NO PART OF THE ANCHORAGE OR TENDON OR THEIR ANCILLARIES ARE MOVED FROM ITS CORRECT POSITION.

STRESSING

1. THE END OF ALL STRANDS SHALL BE SPRAY-PAINTED (OR SIMILAR) 100mm FROM THE ANCHORAGE SO THAT THE EXTENSION CAN BE CLEARLY SEEN BY THE ENGINEER.
2. JACKING LOADS:-
   ALL 12.7mm STRANDS = 156kN (62% BREAKING LOAD)
   ALL 15.2mm STRANDS = 212kN (62% BREAKING LOAD)
3. STRESSING CYCLE AND CONCRETE STRENGTHS UNO:

CYCLE NUMBER	AGE OF CONCRETE	CONCRETE STRENGTH (MPa)	STRESS PER STRAND
1	24 HOURS	f'cp = 7	25% TOTAL
2	AT STRESSING (MIN 5 DAYS)	f'cp = 22	REMAINDER
3	28 DAYS	REFER GENERAL ARRANGEMENT	

4. STRANDS SHALL NOT BE CUT OFF OR TENDONS GROUTED UNTIL 'ROBERT BIRD GROUP' APPROVES TENDON ELONGATIONS.

GROUTING

1. ANCHORAGE RECESSES ARE TO BE FILLED WITH APPROVED SAND EPOXY MORTAR AND FINISHED TO ARCHITECTS SPECIFICATION.
2. TENDONS THAT ARE COUPLED TO ARE NOT TO BE GROUTED UNTIL THE SECOND TENDON HAS HAD ITS FINAL STRESS APPLIED
3. ALL STRESSING DUCTS TO BE GROUTED. REFER PROJECT SPECIFICATION FOR GROUTING REQUIREMENTS.

SLAB ON GROUND NOTES

1. SLAB ON GROUND TO BE POURED ON A LAYER OF POLYETHYLENE SHEETING 200µm THICK ON TOP OF 50mm OF BEDDING SAND. JOINTS TO BE TAPED
2. REFER ARCHITECT FOR WATERPROOFING DETAILS.
3. REFER ARCHITECT FOR TERMITE PROTECTION.
4. REFER ARCHITECT FOR STEP AND FALLS IN SLABS.
5. FABRIC TO BE PLACED ON CHAIRS AT 800 x 800 CENTRES AND CHAIRS TO BE PLACED ON STEEL PANS. ALL REINFORCEMENT BAR CHAIRS TO CONFORM TO THE REQUIREMENTS OF AS/NZS2425 AND TO BE STRENGTH GRADE 120 MINIMUM.
6. LAP FABRIC REINFORCEMENT THUS:

7. WHERE BEDDING SAND IS REQUIRED UNDER SLAB, THIS SHALL BE COMPACTED SUFFICIENTLY TO SUPPORT REINFORCEMENT PLUS 100kg/CHAIR WITHOUT VERTICAL DISPLACEMENT EXCEEDING 5mm.

CONCRETE NOTES CONTINUED

REINFORCEMENT

1. REINFORCEMENT IS TO BE MANUFACTURED IN ACCORDANCE WITH AS4671 AND SHALL BE FIXED AS SHOWN ON DRAWINGS.
2. MATERIAL IS INDICATED BY THE FOLLOWING SYMBOLS:-
   Y DEFORMED BAR GRADE 400
   N DEFORMED BAR GRADE 500 (NORMAL DUCTILITY)
   R PLAIN ROUND BAR GRADE 250
   W PLAIN WIRE GRADE 450
   SL SQUARE FABRIC GRADE 500
   RL RECTANGULAR FABRIC GRADE 500
3. THE BAR SIZE IS INDICATED BY A NUMBER AFTER THE SYMBOL, WHICH INDICATES THE BAR DIAMETER IN MILLIMETRES.
4. REINFORCEMENT SPACING NOMINATED ON DRAWINGS IS TO ASSIST SCHEDULER AND STEEL FIXER TO ASSESS TOTAL NUMBER OF BARS REQUIRED. WHERE BARS PLACED IN ACCORDANCE WITH SPACING NOMINATED FOULL WITH OTHER STRUCTURAL REQUIREMENTS, PREFERENCE IS TO BE GIVEN TO RELOCATING BARS BY LOCALLY ADJUSTING SPACING TO ENABLE ASSEMBLY OF REINFORCEMENT TO BE COMPLETED. ENGINEER IS TO BE CONTACTED IN THE EVENT THAT REINFORCEMENT IS NEEDED TO BE CUT ON SITE PRIOR TO CONTINUING.
5. SPLICING OF REINFORCEMENT SHALL BE MADE ONLY WHERE SHOWN ON THE DRAWINGS OR OTHERWISE APPROVED BY THE ENGINEER. LAP LENGTHS AND DEVELOPMENT LENGTHS FOR REINFORCEMENT BARS TO BE AS NOTED ON THE RELEVANT DRAWINGS.
6. LAP FABRIC REINFORCEMENT THUS:

7. COVER SHALL BE AS NOTED ON THE RELEVANT DRAWINGS.
8. CONCRETE COVERS NOTED ARE MEASURED FROM THE FORM WORK OR GROUND FACE TO THE OUTERMOST REINFORCEMENT COMPONENT. i.e.. IN COLUMNS AND BEAMS TO THE OUTSIDE OF TIES OR LIGATURES.
9. COVER TO BE MAINTAINED DURING POURING BY THE USE OF PLASTIC CHAIRS OR PLASTIC TIPPED METAL CHAIRS WHICH ARE TO BE LOCATED AT 800mm MAX C/S BOTH WAYS. BARS TO BE TIED WITH TIE WIRE AT ALTERNATIVE INTERSECTIONS. ALL REINFORCEMENT BAR CHAIRS TO CONFORM TO THE REQUIREMENTS OF AS/NZS2425 AND TO BE STRENGTH GRADE 120 MINIMUM. NO TIE WIRE REINFORCEMENT TO PROTRUDE INTO THE CONCRETE COVER.
10. WHERE NO REINFORCEMENT IS SHOWN ON THE DRAWING AT RIGHT ANGLES TO THE MAIN REINFORCEMENT DISTRIBUTION REINFORCEMENT IS TO BE PROVIDED.
11. UNLESS NOTED OTHERWISE ON THE DRAWINGS, DISTRIBUTION REINFORCEMENT SHALL NOT BE LESS THAN:
   a) DISTRIBUTION REINFORCEMENT IN ONE LAYER FOR SLABS NOT EXCEEDING 150mm THICKNESS
   b) DISTRIBUTION REINFORCEMENT IN TOP & BOTTOM LAYER FOR SLABS LARGER THAN 150mm THICKNESS
   DISTRIBUTION REINFORCEMENT SHALL BE FULLY ANCHORED BY THE DEVELOPMENT LENGTH EXTENDING PAST THE POINT WHERE IT IS NO LONGER REQUIRED.
   WHERE DISTRIBUTION REINFORCEMENT IS TO BE LAPPED, THE LAP LENGTHS SHALL BE IN ACCORDANCE WITH THE LAP TABLES
12. BENDING & STRAIGHTENING
   COLD BENDING: BARS CANNOT BE COLD BENT WITHOUT PRIOR APPROVAL FROM THE PROJECT STRUCTURAL ENGINEER. CORRECT MINIMU