GENERAL

DRAWINGS.

- G1. THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH SPECIFICATIONS AND OTHER CONSULTANT'S
- G2. 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.
- **G3.** ALL DISCREPANCIES SHALL BE REFERRED TO THE (PROJECT MANAGER) AND RESOLVED BEFORE PROCEEDING WITH THE WORK.
- G4. 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) **G5.** ALL WORKMANSHIP, TESTING, MATERIALS AND SUPERVISION ARE TO BE IN ACCORDANCE WITH THESE
- CURRENT RELEVANT AUSTRALIAN STANDARDS. **G6.** 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

SPECIFICATIONS, THE WORK HEALTH AND SAFETY ACT 2011. ENFORCED BY THE WORKCOVER AUTHORITY AND

- **G7.** 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 CONSTRUCTION.
- **G9.** NOTES ON ANY DRAWING APPLY TO ALL DRAWINGS IN THE SET 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 (NER).
- 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. FIRE RATING LEVELS:

| ELEMENT | LEVEL | FIRE RESISTANCE LEVEL | MIN AXIS DISTANCE (mm) | |
|----------------------|-----------------|-----------------------------|------------------------------|--|
| | BASEMENT 1 | 240/240/240 | 60 | |
| | LEVEL 1 | 120/120/120 | 35 | |
| | LEVEL 2 | 180/180/180 | 50 | |
| WALLS (LOAD BEARING) | LEVEL 3 | 120/120/120 | 35 | |
| | LEVEL 4 | 120/120/120 | 35 | |
| | LEVEL 5 (PLANT) | 120/120/120 | 35 | |
| | ROOF LEVEL | N/A | - | |
| | BASEMENT 1 | N/A | - | |
| | LEVEL 1 | 240/240/240 | 50 TO PT; 40 TO R | |
| | LEVEL 2 | 120/120/120 | 40 TO PT; 30 TO R | |
| SLABS | LEVEL 3 | 180/180/180 | 40 TO PT; 30 TO R | |
| | LEVEL 4 | 120/120/120 | 45 TO PT; 35 TO F | |
| | LEVEL 5 (PLANT) | 120/120/120 | 45 TO PT; 35 TO R | |
| | ROOF LEVEL | 120/120/120 | 45 TO PT; 35 TO R | |
| | BASEMENT 1 | 240/-/- | 75 | |
| | LEVEL 1 | 120/-/- | 50 | |
| | LEVEL 2 | 180/-/- | 65 | |
| COLUMNS | LEVEL 3 | 120/-/- | 50 | |
| | LEVEL 4 | 120/-/- | 50 | |
| | LEVEL 5 (PLANT) | 120/-/- | 50 | |
| | ROOF LEVEL | N/A | - | |
| | BASEMENT 1 | N/A | - | |
| | LEVEL 1 | 240/240/240 | 60 TO PT; 50 TO R | |
| | LEVEL 2 | 120/120/120 | 60 TO PT; 50 TO R | |
| BEAMS | LEVEL 3 | 180/180/180 | 60 TO PT; 50 TO R | |
| | LEVEL 4 | 120/120/120 | 60 TO PT; 50 TO R | |
| | LEVEL 5 (PLANT) | 120/120/120 | 60 TO PT; 50 TO R | |
| | ROOF LEVEL | 120/120/120 | 60 TO PT; 50 TO R | |

= 2

= A2

= 3 = 0.9

= 1.0

= 1.0

= 1.0

= 42 m/s

= 1:1000

= 46 m/s

WIND LOADS:

REGION

IMPORTANCE LEVEL

TERRAIN CATEGORY

SITE WIND SPEED

- REGIONAL WIND SPEED V

SHIELDING MULTIPLIER Ms

TOPOGRAPHIC MULTIPLIER Mt

ISSUED FOR CONSTRUCTION CERTIFICATE

 TERRAIN MULTIPLIER Mz ,cat WIND DIRECTION MULTIPLIER Md

ANNUAL PROBABILITY OF EXCEDENCE

DESCRIPTION

GENERAL CONTINUED

EARTHQUAKE LOADS:

FLOOR LIVE LOADS: REFER TO DRAWING TE-ST-NRP-00.31

ROOF LIVE LOADS: REFER TO DRAWING TE-ST-NRP-00.31

- IMPORTANCE LEVEL = 2 ANNUAL PROBABILITY OF EXCEDENCE (P) = 1:1000 PROBABILITY FACTOR (kp) = 1.3 HAZARD FACTOR (Z) = 0.08
- SITE SUB-SOIL CLASS = Be EARTHQUAKE DESIGN CATEGORY (EDC) = 11 DESIGN REQUIRED = STATIC ANALYSIS
- 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 NORTHROP CONSULTING ENGINEERS FOR RESOLUTION BEFORE PROCEEDING
- G15. NO CHANGES IN ANY STRUCTURAL ELEMENT SHALL BE MADE WITHOUT WRITTEN APPROVAL FROM NORTHROP CONSULTING ENGINEERS. IF THERE IS A DISCREPANCY THEN FOR TENDER PURPOSES ALLOW FOR THE MOST EXPENSIVE OPTION. NORTHROP CONSULTING 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. NORTHROP CONSULTING ENGINEERS ACCEPTS NO RESPONSIBILITY FOR ANY WORK NOT INSPECTED OR NOT

CONSTRUCTION PHASE SERVICES (WITNESS POINTS)

APPROVED BY NORTHROP CONSULTING ENGINEERS DURING CONSTRUCTION.

- WP1. OBTAIN NORTHROP CONSULTING 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.

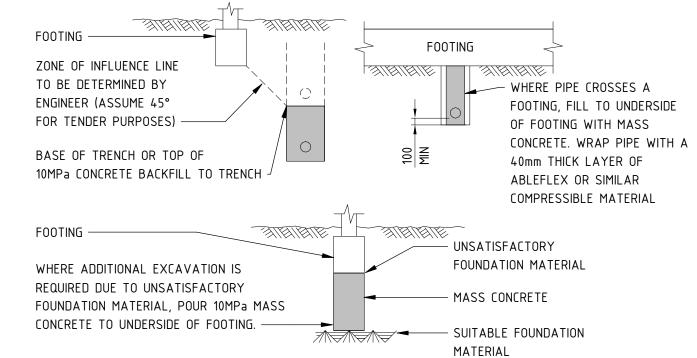
WORKPLACE HEALTH AND SAFETY

- WHS1. THE CONTRACTOR AND ALL SUBCONTRACTORS ARE RESPONSIBLE FOR CONSTRUCTING THE WORK IN ACCORDANCE WITH THE WORK HEALTH AND SAFETY (WHS) ACT 2011; WHS REGULATIONS 2011; RELEVANT CODES OF PRACTICE, AUSTRALIAN STANDARDS AND OTHER REGULATORY REQUIREMENTS. THE PRINCIPLE CONTRACTOR MUST INFORM ALL STAKEHOLDERS, INCLUDING NORTHROP, OF NEW HAZARDS IDENTIFIED IN THE COURSE OF PLANNING AND UNDERTAKING THE WORKS.
- WHS2. DURING THE DESIGN OF THE STRUCTURE NORTHROP HAS IDENTIFIED RESIDUAL HAZARDS RELATING TO THE DESIGN OF THE STRUCTURAL WORKS THAT WE CONSIDER TO BE UNUSUAL OR NON-TYPICAL. HAZARDS WHICH ARE NORMAL WORKPLACE HAZARDS, ARE TO BE MANAGED BY PERSONS IN CONTROL OF THE WORKPLACE THROUGH A WHS SYSTEM TO MANAGE THE NORMAL HAZARDS ASSOCIATED WITH CONSTRUCTION, USE AND MAINTENANCE OF THE STRUCTURE. THE RESIDUAL HAZARDS IDENTIFIED ON THE NORTHROP DRAWINGS ARE NOT AN ENTIRE ASSESSMENT OF HAZARDS, AND DO NOT RELIEVE OTHER PARTIES OR STAKEHOLDERS OF THE THEIR RESPONSIBILITY UNDER THE WHS ACT 2011. WHS REGULATIONS 2011. AND THE CODE OF PRACTICE FOR SAFE DESIGN OF STRUCTURES.
- WHS3. TEMPORARY BRACING AND SUPPORT OF STRUCTURE IS THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE MAINTAINED DURING ALL STAGES OF CONSTRUCTION.

WHS4. RESIDUAL HAZARDS ARE SHOWN ON THE NORTHROP DRAWINGS IDENTIFIED BY: \square S1

FOUNDATIONS

- F1. ASSUMED ALLOWABLE BEARING CAPACITY:
- PAD FOOTINGS = 3500 kPa - STRIP FOOTINGS = 3500 kPa
- F2. A GEOTECHNICAL REPORT HAS BEEN CARRIED OUT, REFER TO REPORT No. 85385.02 PREPARED BY DOUGLAS PARTNERS. THIS REPORT IS FOR INFORMATION ONLY, IT IS NOT A COMPLETE DESCRIPTION OF CONDITIONS AT OR BELOW GROUND LEVEL. CORE TESTING IS REQUIREDTO CONFIRM THE NOMINATED BEARING CAPACITIES
- F3. THE SLAB AND FOOTINGS HAVE BEEN DESIGNED IN ACCORDANCE WITH AS2870-2011 FOR CLASS [....] SITE. A SUITABLY QUALIFIED GEOTECHNICAL ENGINEER TO BE CONTACTED DURING EXCAVATION TO CONFIRM THE SITE CLASSIFICATION.
- F4. THE CONTRACTOR SHALL ALLOW TO ENGAGE A QUALIFIED (NER) GEOTECHNICAL ENGINEER TO APPROVE THE FOUNDATION MATERIAL. OBTAIN GEOTECHNICAL ENGINEERS APPROVAL AND SUBMIT CERTIFICATE IN WRITING TO NORTHROP CONSULTING ENGINEERS PRIOR TO CONCRETING FOUNDATIONS.
- F5. ENSURE STABILITY OF ADJACENT BUILDINGS AND PATHS IS MAINTAINED DURING ALL STAGES OF CONSTRUCTION.
- F6. 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.
- F7. THE UNDERSIDE OF FOUNDATIONS SHALL CONFORM TO THE FOLLOWING REGARDLESS OF NOMINATED LEVELS:



- 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.

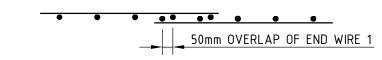
SHORING

- GS1. THE DESIGN, CERTIFICATION, CONSTRUCTION AND INSPECTION OF THE SHORING SYSTEM SHALL BE THE
- RESPONSIBILITIES OF THE SHORING SUB-CONTRACTOR. GS2. ALL WORK ON SITE IS TO BE UNDERTAKEN IN ACCORDANCE WITH THE RELEVANT CONDITIONS OF
- DEVELOPMENT CONSENT. GS3. ALL WORK ON SITE TO BE UNDERTAKEN IN ACCORDANCE WITH THE NSW OH&S ACT AND REGULATION,
- AND NSW WORKCOVER SAFE WORK CODES AND GUIDELINES. THE DETERMINATION OF A SAFE WORK METHOD IS THE RESPONSIBILITY OF THE CONTRACTOR.
- **GS4.** CONTRACTOR IS RESPONSIBLE FOR LOCATING ALL IN GROUND SERVICES. GS5. PROVIDE EROSION AND SEDIMENTATION CONTROL IN ACCORDANCE WITH THE APPROVED DRAWINGS AND
- GS7. THE PLAN LAYOUT AND CAPPING BEAMS RL'S OF THE SHORING IS TO BE DETERMINED FROM THE ARCHITECT'S DRAWINGS.
- GS8. DO NOT COMMENCE CONSTRUCTION OF THE SHORING WALL WITHOUT ALL NECESSARY APPROVALS INCLUDING A CONSTRUCTION CERTIFICATE FOR THE WORK.
- **GS9**. DO NOT COMMENCE SITE WORK WITHOUT THE FOLLOWING IN PLACE:
- APPROVAL OF ANCHORS ACROSS SITE BOUNDARIES. 2. RTA APPROVAL FOR ANCHORS BELOW STATE ROADS.
- 3. DILAPIDATION SURVEYS OF ADJACENT STRUCTURES AND PUBLIC DOMAIN
- INFRASTRUCTURE.
- 4. A VIBRATION MONITORING PLAN IN PLACE. 5. A DEWATERING LICENCE ISSUED BY THE NSW DWE.
- 6. MONITORING PLAN OF GROUND MOVEMENTS. 7. A SAFE WORK METHOD PLAN
- 8. TREE PROTECTION PLAN
- GS11. THE DETAILED DESIGN OF THE FOLLOWING COMPONENTS IS TO BE UNDERTAKEN BY
- SPECIALIST CONTRACTORS:
- SHORING WALL.
- GROUND ANCHORS. DE-WATERING.
- 4. SUSPENDED POST-TENSIONED SLABS
- GS12. ENGINEERING DESIGN CALCULATIONS, DRAWINGS AND CONSTRUCTION PROCEDURES ARE TO BE
- GS13. THE TESTING AND DISPOSAL OF THE EXCAVATED MATERIAL TO BE ACCORDANCE WITH THE

SUBMITTED FOR REVIEW 14 DAYS PRIOR TO THE COMMENCEMENT OF WORK.

RECOMMENDATION OF THE GEOTECHNICAL REPORT.

- SLAB ON GROUND SG1. UNLESS NOTED OTHERWISE SLABS TO BE 150mm THICK WITH SL102 FABRIC THROUGHOUT TOP. CAST SLABS ON 0.2mm POLYTHENE MEMBRANE LAID OVER A NOMINAL SAND LEVELING LAYER ON FIRM CUT ORIGINAL GROUND OR COMPACTED FILL AS SPECIFIED.
- SG2. MESH LAPS: THE TWO OUTERMOST TRANSVERSE WIRES OF ONE SHEET OF MESH MUST OVERLAP THE TWO OUTERMOST TRANSVERSE WIRES OF SHEET BEING LAPPED, AS SHOWN BELOW.



SG3. PROVIDE 3-N12 TRIMMER BARS 2000mm LONG TIED TO UNDERSIDE OF FABRIC AT ALL RE-ENTRANT CORNERS. SG4. ALL CONCRETE IS TO BE PLACED USING A VIBRATOR. CURING METHODOLOGY TO BE APPROVED IN WRITING BY THE STRUCTURAL ENGINEER PRIOR TO CONCRETE BEING PLACED.

FORMWORK

- FW1. THE DESIGN. CERTIFICATION. CONSTRUCTION. INSPECTION AND PERFORMANCE OF THE FORMWORK AND FALSE WORK SHALL BE THE RESPONSIBILITY OF THE FORMWORK SUB-CONTRACTOR, EXCEPT TO THE EXTENT THAT FORMWORK DESIGN IS SHOWN ON THE STRUCTURAL DRAWINGS.
- FW2. FORMWORK SHALL BE CERTIFIED BY A STRUCTURAL ENGINEER EXPERIENCED IN FORMWORK DESIGN IN ACCORDANCE WITH WORKCOVER REGULATIONS AND THE WORKCOVER CODE OF PRACTICE.
- FW3. FORMWORK SHALL BE DESIGNED IN ACCORDANCE WITH AS3610-1995. THE DESIGN SHALL ACCOMMODATE MOVEMENTS AND LOAD RE-DISTRIBUTION DUE TO ANY POST TENSIONING.
- FW4 PROVIDE RESTRAINT OR SUPPORT TO ENSURE STABILITY OF FORMWORK THAT IS INDEPENDENT OF THE PERMANENT STRUCTURE. APPROVAL FROM NORTHROP CONSULTING ENGINEERS IS REQUIRED IF FORMWORK SUPPORT IS REQUIRED FROM THE PERMANENT STRUCTURE. FW5. FOUNDATIONS SUPPORTING THE FORMWORK SHALL BE DETERMINED BY THE FORMWORK SUB-
- CONTRACTOR FROM THE CONDITIONS EXISTING ON SITE AT THE TIME OF CONSTRUCTION. REFER TO THE GEOTECHNICAL REPORT FOR THE SITE. FW6. FORMWORK CONSTRUCTION DIMENSIONAL TOLERANCES AND STRIPPING TIMES SHALL COMPLY WITH
- AS3610-1995 AND AS3600-2009 UNLESS OTHERWISE APPROVED BY NORTHROP CONSULTING ENGINEERS. FW7. DURING CONSTRUCTION, SUPPORT PROPPING WILL BE REQUIRED WHERE LOADS FROM STACKED
- MATERIALS, FORMWORK AND OTHER SUPPORTED SLABS INDUCE LOADS IN A SLAB OR BEAM WHICH EXCEED THE DESIGN CAPACITY FOR STRENGTH OR SERVICEABILITY LIMIT STATES AT THAT AGE. ONCE THE NOMINATED 28 DAY STRENGTH HAS BEEN ATTAINED, THESE LOADS SHALL NOT EXCEED THE DESIGN SUPERIMPOSED LOADS SET OUT IN THESE GENERAL NOTES AT ITEM G13. FW8. IT IS TO BE ANTICIPATED IN MULTI-STOREY CONSTRUCTION THAT BACK-PROPPING MAY BE REQUIRED TO
- EXTEND A NUMBER OF LEVELS BELOW THE FLOOR BEING CAST. PROP REMOVAL IS TO BE PROGRAMMED TO AVOID DISTRESS TO PREVIOUSLY CAST FLOORS. RE-SHORING OR BACKPROPPING PROPOSALS SHALL BE SUBJECT TO THE APPROVAL OF NORTHROP CONSULTING ENGINEER'S.
- FW9. FORMED CONCRETE SURFACES SHALL HAVE FORMWORK CLASS AND SURFACE FINISHES IN ACCORDANCE WITH AS3610-1995, AS SPECIFIED BY THE PROJECT ARCHITECT, AND THE CONCRETE SECTION OF NORTHROP CONSULTING ENGINEERS STRUCTURAL NOTES.
- FW10. DO NOT PLACE PERMANENT LOADS ON THE CONCRETE STRUCTURE UNTIL AFTER FORMWORK AND PROPPING IS REMOVED.
- FW11. REFER TO PROJECT ARCHITECT'S DRAWINGS FOR TEST PANEL REQUIREMENTS. REINFORCEMENT FOR TEST PANELS SHALL BE SIMILAR TO THAT IN THE PERMANENT STRUCTURE REPRESENTED BY THE TEST PANEL. FW12. BEFORE PLACING REINFORCEMENT IN THE FORMWORK, APPLY A RELEASE AGENT TO THE FACE OF THE FORMWORK IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- FW13. DO NOT APPLY A RELEASE AGENT TO THE FACE OF CONCRETE WHERE CONCRETE SURFACE FINISH OR APPLIED COVERINGS ARE INCOMPATIBLE WITH RELEASE AGENT.
- FW14. CHAMFER RE-ENTRANT ANGLES AND FILLET ALL CORNERS BY 25mm U.N.O. PROVIDE DRIP GROOVES TO UNDERSIDE OF ALL EXPOSED EDGES.
- FW15. BEFORE PLACING CONCRETE, REMOVE ALL WATER, DUST AND DEBRIS FROM THE FORMWORK.
- FW16. FILL ALL HOLES LEFT BY FORMWORK TIE BOLTS WITH MORTAR MATCHING THE COLOUR OF THE FINISHED SURFACE.

CONCRETE

- C1. CARRY OUT ALL CONCRETE WORK IN ACCORDANCE WITH AS3600-2009 AND NATSPEC CONCRETE STANDARDS. C2. CONCRETE PROPERTIES AND COVER TO REINFORCING

| COVER TO REINFORCEMENT | | | | | | | | |
|------------------------|------------------------|-----------------------------------|------------------------------------|------------|--------|--|--|--|
| ELEMENT | | CONCRETE STRENGTH f'c (MPa) | MAXIMUM 56 DAY DRY SHRINKAGE | COVER (mm) | | | | |
| SLABS ON GROUND | EXTERNAL (NO MEMBRANE) | 32 | 650 um | TOP 50 | BTM 50 | | | |
| PAD FOOTINGS | | 40/50 | 650 um | 50 | | | | |
| SUSPENDED | EXTERNAL | 40 | (50 | TOP 45 | BTM 45 | | | |
| SLABS | INTERNAL | 40 | 650 um | 30 | | | | |
| DEAMC | EXTERNAL | 40 | (50 | TOP 45 | BTM 45 | | | |
| BEAMS | INTERNAL | 40 | 650 um | 30 | | | | |
| COLUMNS | INTERNAL | 40/50/65 | 650 um | 30 | | | | |
| \./ A C | EXTERNAL FACE | 50 | 650 um | 40 | | | | |
| WALLS | INTERNAL FACE | 40 | ווום טכט | 30 | | | | |

MAXIMUM AGGREGATE SIZE = 20mm U.N.O. SLUMP DURING PLACING = 80mm ±10mm

NO ADMIXTURES SHALL BE USED IN THE CONCRETE MIX UNLESS APPROVED BY NORTHROP CONSULTING

ENGINEERS IN WRITING. C3. CONCRETE PROPERTIES FOR SLABS AND BEAMS SHALL BE VARIED FROM NORMAL CLASS AS FOLLOWS:

- MINIMUM CEMENT CONTENT 250kg/m³
- MAXIMUM 56 DAY SHRINKAGE STRAIN = AS NOMINATED ABOVE - PRIOR TO COMMENCEMENT CONCRETE SUPPLIER TO PROVIDE DRYING SHRINKAGE TEST RESULTS FROM PRODUCTION ASSESSMENT AS EVIDENCE THAT SPECIFIED DRYING SHRINKAGE LIMITS CAN
- BE ACHIEVED USING NORMAL MIX DESIGN.
- PERCENTAGE OF ENTRAPPED AIR TO BE AS FOLLOWS: FOR AGGREGATE 10mm-20mm NORMAL SIZE 8-4% IN ACCORDANCE WITH AS3600 AND AS1012.4
- (SUBMIT TEST RESULTS) FOR ALPINE OR SUB-ALPINE AREAS.
- C4. SUBMIT FOR APPROVAL THE FOLLOWING TO THE ENGINEER
 - CURING PROCEDURE (PVA MEMBRANES NOT PERMITTED) - STRIPPING AND BACK PROPPING PROCEDURE
 - DETAILS AND LOCATION OF CONDUITS AND PENETRATIONS
- CONSTRUCTION JOINT LOCATIONS
- C5. FOR TENDER PURPOSES ASSUME MINIMUM STRIPPING TIMES AND EXTENT OF BACK PROPPING AS PER AS3610-1995 SECTION 5.0 AND AS PER GENERAL NOTES FOR FORMWORK AND PROPPING.
- **C6.** FORMWORK FINISH CLASSIFICATION TO AS3610.1-2010

ELEMENT INGROUND FOOTINGS RETAINING WALLS 5 EARTH FACE RETAINING WALLS 2 EXPOSED FACE COLUMNS LIFT WALLS BEAMS & SLABS

- GRANO TREATED SURFACES 2

STAIRS

- **C7**. SURFACE FINISHES - COLUMNS & WALLS OFF FORM
 - FLOOR SLABS (U.N.O.) MACHINE FLOAT
 - SLABS TO BE TILED WOOD FLOAT

NORTHROP CONSULTING ENGINEERS.

- STEEL TROWEL C8. COMPACT ALL CONCRETE, INCLUDING FOOTINGS AND SLABS USING MECHANICAL VIBRATORS.
- C9. PLACE CONCRETE CONTINUOUSLY BETWEEN CONSTRUCTION JOINTS 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 THE NORTHROP CONSULTING
- ENGINEERS. C10. CONCRETE PROFILES :
 - BEAM DEPTHS ARE WRITTEN FIRST AND INCLUDE THE SLAB THICKNESS.
 - SIZES OF CONCRETE ELEMENTS DO NOT INCLUDE THICKNESS OF APPLIED FINISHES. - NO HOLES, CHASES OR EMBEDMENT OF PIPES OTHER THAN SHOWN IN THE STRUCTURAL DRAWINGS SHALL BE MADE IN CONCRETE MEMBERS WITHOUT THE PRIOR WRITTEN APPROVAL OF
- PROVIDE DRIP GROOVES AT ALL EXPOSED EDGES. CHAMFERS, DRIP GROOVES, REGLETS ETC TO ARCHITECT'SDETAILS. C11. ALL PENETRATIONS TO HAVE 2/N16 TRIMMER BARS TOP AND BOTTOM TO EACH FACE. U.N.O. EXTEND
- TRIMMERS 600 BEYOND PENETRATION. C12. SETDOWNS OR FALLS IN FLOOR SURFACES ARE NOT PERMITTED UNLESS SHOWN ON DRAWINGS. MAINTAIN
- MINIMUM SLAB THICKNESS SHOWN ON PLAN WHERE FALLS OCCUR. C13.

| | 111111111011 31 | AD THICKINESS SHOWN ON | I LAN WILKE I ALLS | occort. | | | | | |
|-----|-------------------------------------|---|----------------------------|--------------------|--|--|--|--|--|
| 13. | REINFORCEMENT QUALITY AND NOTATION: | | | | | | | | |
| | REINFORCEMENT NOTATION | | | | | | | | |
| | SYMBOL | BAR TYPE | STRENGTH GRADE (MPa) | DUCTILITY CLASS | TO COMPLY WITH AUSTRALIAN STANDARD | | | | |
| | S | STRUCTURAL GRADE DEFORMED RIB BAR | 250 | NORMAL | AS/NZS 4671-2001 | | | | |
| | N | HOT ROLLED DEFORMED RIB BAR | 500 | NORMAL | AS/NZS 4671-2001 | | | | |
| | R | PLAIN ROUND BAR | 250 | NORMAL | AS/NZS 4671-2001 | | | | |
| | RL | RECTANGULAR MESH OF DEFORMED RIB BAR | 500 | LOW | AS/NZS 4671-2001 | | | | |
| | SL | SQUARE MESH OF DEFORMED RIB BAR | 500 | LOW | AS/NZS 4671-2001 | | | | |
| | L-TM | TRENCH MESH | 500 | LOW | AS/NZS 4671-2001 | | | | |

ALL REINFORCING BARS 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 LABELS: N12-300—— SPACING (mm) BAR SIZE (mm) TYPE OF REINFORCEMENT NUMBER OF BARS | SL92 — BAR SPACING IN 100m BAR SIZE (mm) DUCTILITY CLASS SQUARE MESH |
|---|---|
|---|---|

- C14. REINFORCEMENT IS REPRESENTED DIAGRAMMATICALLY, AND NOT NECESSARILY IN TRUE PROJECTION. BARS SHOWN ARE INDICATIVE ONLY AND LENGTHS MAY VARY. BEAM ELEVATIONS TAKE PRECEDENCE OVER SECTIONS. SLAB PLANS TAKE PRECEDENCE OVER SECTIONS. REFER TO SECTIONS FOR EXTRA BARS THAT
- MAY BE REQUIRED. **C15.** USE ONLY PLASTIC OR CONCRETE CHAIRS AT EXTERNAL SURFACES.
- C16. 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
- C17. SPLICES IN REINFORCEMENT SHALL BE MADE ONLY IN POSITIONS SHOWN ON THE STRUCTURAL DRAWINGS OR IN POSITIONS OTHERWISE APPROVED IN WRITING BY NORTHROP CONSULTING ENGINEERS. LAPS SHALL NOT BE LESS THAN THE DEVELOPMENT LENGTH FOR EACH BAR AND IN ACCORDANCE WITH AS3600-2009

C18. LAPS IN MESH SHALL BE IN ACCORDANCE WITH AS3600-2009 SECTION 13. C19. WELDING OF REINFORCEMENT SHALL NOT BE PERMITTED UNLESS SHOWN ON THE

CONCRETE CONTINUED

- STRUCTURAL DRAWINGS OR APPROVED BY NORTHROP CONSULTING ENGINEERS. C20. AT EXTERNALLY EXPOSED SURFACES NO METALLIC ITEMS INCLUDING FORM BOLTS,
- FORM SPACERS, METALLIC BAR CHAIRS AND TIE-WIRE ARE TO BE PLACED IN THE
- C21. ALL REINFORCEMENT, ANCHOR BOLTS AND OTHER CONCRETE INSERTS SHALL BE WELL SECURED IN POSITION AND INSPECTED BY NORTHROP CONSULTING ENGINEERS PRIOR TO PLACING CONCRETE.
- C22. HOLD DOWN BOLTS SHALL BE HOT DIPPED GALVANISED.
- C23. 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.
- C24. ALL CONCRETE MIXES SHALL BE DESIGNED BY A RECOGNISED TESTING LAB AND SUBMITTED FOR REVIEW BY NORTHROP CONSULTING ENGINEERS.
- C25. ALL COMPRESSIVE STRENGTH TEST REPORTS SHALL BE SUBMITTED TO NORTHROP
- CONSULTING ENGINEERS FOR REVIEW. C26. PROJECT CONTROL TESTING SHALL BE CARRIED OUT ON ALL CONCRETE IN
- ACCORDANCE WITH AS1379-2007. TEST CYLINDERS ARE TO BE KEPT ON SITE. C27. 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 PLACEMENT. C28. FOR ELAPSED TIME BETWEEN THE WETTING OF THE MIX AND THE DISCHARGE OF THE MIX, REFER TO CONCRETE - ELAPSED DELIVERY TIMES NOTE.

M.L.D. 22.05.18





JOHNSON PILTON WALKER

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CONSULTING ENGINEERS PTY LTD







Level 11, 345 George Street, Sydney, N.S.W. 2000

Ph (02) 9241 4188 Email: sydney@northrop.com.au ABN 81 094 433 100

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DRAWING TITLE

STRUCTURAL DRAWING **SPECIFICATION NOTES -**SHEET 1

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