BCA certifiers Appoiment of PCA- Notice of Intention to commence work

NOTICE TO (the council shall be inserted)

Name: QUEANBEYAN CITY COUNCIL KEITH DAVIES.

Address: 257 CRAWFORD ST

QUEANBEYAN ACT

NOTICE TO (the PCA shall be inserted)

Name: BCA Certifiers Annette Owen

Address: 13 A Altree Court

Phillip ACT 2606

SECTION A Development details

Address: LOT 4 GOOGONG ROAD

GOOGONG NSW 2620

Description of the building work: WATER RECYCLING PLANT

SECTION B Development consent (DA) Not applicable to CDC

Name of council	Date DC issued	DC number/identifier
Director Infrastructure (NSW government) Planning & Environment		MP08-0236 modified 9/7/14

SECTION C Construction certificate (CC) or Complying Development certificate (CDC)

Name of certifying authority	Date of approval	CC number/identifier
BCA Certifiers Annette Owen	26/9/14	CC140503-1

SECTION D Details of principal contractor/owner builder

☑ Principal contractor ☐ Owner/ builder Licence number

Name: JOHN HOLLAND PTY

Address: LEVEL 3, 65 PIRRAMA ROAD PYRMONT NSW 2009

Phone: 02 95524288 Fax: 02 9660 0410 Email: steve.merange@jhg.com.au

SECTION E Compliance with conditions (Not applicable to CDC)

I, Annette Owen (Insert name of PCA) confirm that all conditions of the above development consent that are required to be satisfied prior to the work commencing have been satisfied.

Signed by the PCA: AOwen Date: 26/9/14

SECTION F Notice of commencement

The building described above is intended to commence on* (*Note: Not less than 2 business days from the date of the notice) 29/09/2014

SECTION G Details of person giving notice of PCA appointment & notice of commencement of work

Name (the person having the benefit of the development consent): STEPHEN MERANGE

Address: 303/1 SYLVAN AVE, BALGOWLAH NSW 2093

Phone: 02 20 395 388 Fax: Email: steve.merange@jhg.com.au

Signature: Date: 22/09/2014

BCA Certifiers Australia Pty Ltd
Capital Centre Unit 3 2-6 Shea St
Phillip ACT 2606
Phone: 02 62851199 Fax: 02 62852795
Email: mail@bcacertifiers.com.au

BCA certifiers

building approvals, certification and compliance

CONSTRUCTION CERTIFICATE

CERTIFICATE NO:	**CC140503-1**
Date of Certificate:	26 September 2014
Description of the Proposed development:	**Bioreactor** Associated with Water Recycling Plant
Classification under the *Building Code of Australia:*	10b

APPLICANT

Name:	Mr S Merange
Address:	John Holland Pty Ltd 303/1 Sylvan Ave BALGOWLAH NSW 2093

PROPERTY (The Land)

Address:	Lot 4 Googong Dam Road GOOGONG
Lot/Sec/DP:	lot 4 DP 1179941

DEVELOPMENT CONSENT

Development Consent Number:	MP 08-0236
Date of Consent:	24/11/2011 modified 09/07/14
Consent authority:	NSW Planning & Environment Director of Infrastructure Projects as a delegate for the Minister for Planning

CERTIFYING AUTHORITY

Name: Annette Owen Signature: 

Accreditation No: **BPB 1771** Accred: **Building Professionals Board**

CC: **CC140503-1**

BCA certifiers

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CERTIFICATION

Annette Owen of BCA Certifiers Australia Pty Ltd certifies

That work completed in accordance with the documentation accompanying the application for this certificate (with such modifications, if any, verified by me as may be shown on that documentation) will comply with the requirements of the *Environmental Planning & Assessment Regulation 2000* as referred to in s.81A(5) of the *Environmental Planning & Assessment Act 1979.*

The documents listed below accompanied the application for this certificate.
Note: The certificate is to be endorsed upon all relevant plans and specifications.

ATTACHMENTS (Tick as appropriate)

- ☑ Schedule of Approved Plans and Specifications
- ☐ The conditions of the certificate
- ☐ Fire Safety Schedule

SCHEDULE OF APPROVED PLANS AND SPECIFICATIONS

	Prepared By
Architectural Plans	Site Plan MWH ref no: 83500349-01-001G102 dated 11/08/14
Structural Plans	MWH ref no: 83502156-01-G003-4 S003-5 100101 103 -107 109 dated 19/09/14

Inspections

The builder is to notify BCA Certifiers upon reaching each inspection stage outlined below by telephoning 62851199. . **The builder is not to proceed beyond an inspection stage until written approval to proceed has been given by BCA Certifiers.**

The stages are:

- After excavation for, and prior to the placement of any footings.
- Prior to the pouring of any in-situ reinforced concrete building element. .
- Prior to the covering of any stormwater drainage connections.
- After the building work has been completed and prior to any occupation certificate being issued in relation to the building.

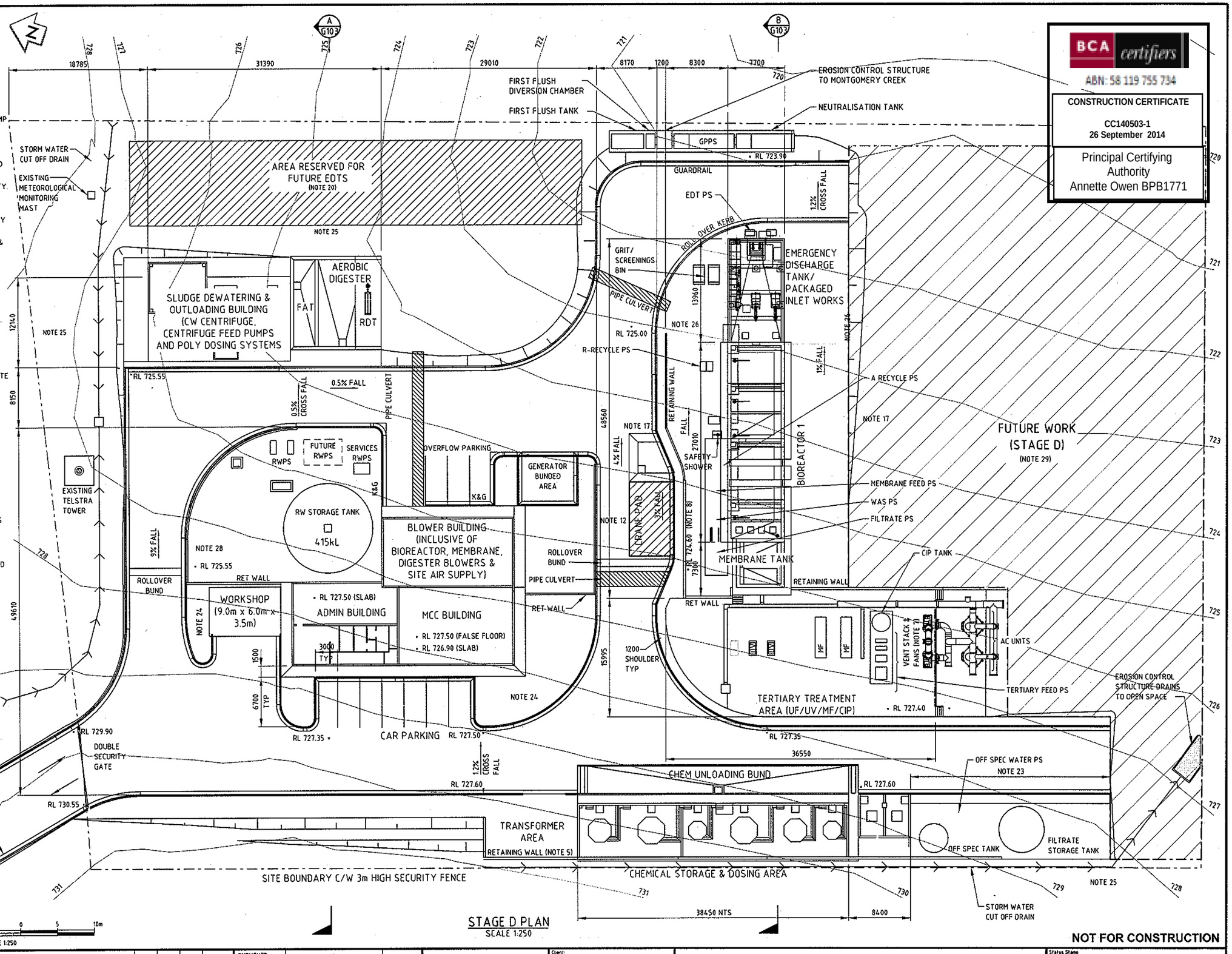
NOTES

1. REFER TO 83500349-01-001-G003 FOR CRITICAL YARD PIPING.
2. CONTOURS SHOWN ARE FOR EXISTING GROUND LEVELS.
3. DIMENSIONS ARE INDICATIVE ONLY
4. NOT USED
5. RETAINING WALL TO VARY IN HEIGHT TO MATCH EXISTING GROUND LEVEL
6. NOT USED
7. LOCATION AND HEIGHT OF VENT STACK TO BE CONFIRMED
8. GL GOVERNED BY PERMEATE PUMP AND MEMBRANE RECIRC PUMP SUCTION HYDRAULICS
9. ALL LEVELS ARE INDICATIVE ONLY
10. AREA & LOCATION LIGHTING TO BE ORIENTATED AWAY FROM SURROUNDING DEVELOPMENT & LOCATED AS CLOSE TO GROUND AS POSSIBLE TO MINIMISE LIGHT POLLUTION.
11. NOT ALL AREA PROCESS UNITS HAVE BEEN SHOWN FOR CLARITY. REFER TO REFERENCE GENERAL ARRANGEMENT DRAWINGS.
12. REFER DRG 83500349-01-001-G003.
13. CRANE PADS DESIGNED FOR TADANO GT-550E 55 TON CAPACITY HYDRAULIC TRUCK CRANE.
14. ALL ROADS ARE SEALED AT STAGE AB C/W STANDARD KERB & GUTTER WITH DRAINAGE TO STORMWATER SYSTEM. AUSTROADS TURNING CIRCLE BASED ON S ARTICULATED 19M SEMITRAILER CB3
15. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE FOLLOWING DRAWINGS: 83500349-01-001-G102 & G103 AND 83500349-01-001-G001 TO G017
16. NOT USED
17. MEMBRANE CASSETTE LAYDOWN AREA WATER RETAINING CONCRETE SLAB DRAINS TO FIRST FLUSH
18. NOT USED
19. NOT USED
20. WASTEWATER MODELLING OF ULTIMATE DEVELOPMENT INDICATE A POTENTIAL NEED FOR A TOTAL OF 2800kL OF STORAGE.
21. NOT USED.
22. EXPOSED FACE TO BE STABILISED BEHIND SHOTCRETE
23. PROVIDE LAYBACK KERB
24. LANDSCAPE WITH NATIVE SHRUBERY
25. LANDSCAPE AS LAWN
26. PROVIDE BUNDED CONCRETE SLAB DRAINING TO FIRST FLUSH TANK
27. NOT USED
28. FINISH OFF WITH CRUSHED AGGREGATE OVER COMPACTED ROADBASE
29. ALL TEMPORARY BATTERS CREATED AS PART OF STAGE AB WORKS SHALL BE STABILISED WITH STABILISATION MEASURES WITH A DESIGN LIFE OF 20 YEARS
30. FOR SITE SECURITY AND CCTV REQUIREMENTS REFER TO SPECIFICATION.
31. ACCESS TO ALL ELEVATED STRUCTURES SHALL BE RESTRICTED BY LOCKABLE SWING GATE COMPLETE WITH SIGNAGE
32. 1200wx600dx1200H SERVICE MAIN PROTECTION KIOSK (LV SIDE)
33. SECURITY LIGHTING TO BE PROVIDED AT AGREED LOCATIONS COMPLETE WITH INFRA RED DETECTION.
34. FOR PERSONNEL ACCESS GATES REFER DRAWING 83500349-01-001-C002

DO NOT SCALE - IF IN DOUBT, ASK

ORIGINAL SIZE A1

BCA certifiers
ABN: 58 119 755 734
CONSTRUCTION CERTIFICATE
CC140503-1
26 September 2014
Principal Certifying Authority
Annette Owen BPB1771



SCALE 1:250

STAGE D PLAN
SCALE 1:250

NOT FOR CONSTRUCTION

REV	REVISIONS	DRN	CHK	APP	DATE
0A	ISSUED FOR DETAILED DESIGN REPORT	AG	SC	SC	11.08.14
0	ISSUED FOR TENDER	TS	RV	TB	17.02.14
C	DRAFT ISSUE FOR TENDER	PS	CS	CS	14.10.13
B	DRAFT ISSUE FOR TENDER	PS	PC	PC	30.09.13
A	ISSUED FOR REVIEW	PS	PC	CS	12.08.13

SURVEYED		
DESIGNED		
DRAWN	Paul Smith	
CAD REVIEW	Alan Gilbert	19.02.14
DESIGN CHECK	John McAndrew	19.02.14
DESIGN REVIEW	Ran Virdi	19.02.14
APPROVED	Stephen Chapman	11.08.14
PROF REGISTRATION:		

MWH

Client: GOOGONG

WATER RECYCLING PLANT
GOOGONG TOWNSHIP

STAGE AB LAYOUT PLAN

Status Stamp: FOR TENDER
Date Stamp: 11.08.14
Scales: AS SHOWN
Drawing No: 83500349-01-001-G102 Rev 0A

pw:\\asiavpwint04.mwhglobal.com:AP_PROJECTS\Documents\Australian Clients\Googong\83500349 - Googong Waste Wate

REPORT ALL INCIDENTS TO THE ENVIRONMENT MANAGER

RELEVANT TOOLBOXES/TRAINING TO BE COMPLETED

1. **Erosion and Sediment Control**
2. **Air Quality**
3. **Cultural Heritage**
4. **Noise and Vibration**
5. **Spill Response**

Have you attended the above toolbox talks?

CONTACTS

Project Environmental Manager:

Sen Keomongkhoun—0459 809 201

Supervisor:

David Penno— 0427 055 016

Project Manager:

Steve Merange— 0420 395 388

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Do not enter any area outside of the project boundary

Overarching Controls

- Place all spill kits in locations as per this SEP map
- Turn off all plant when not in use
- Segregate, recycle and minimise waste
- Keep to designated access roads and speed limits
- Work inside of approved hours
- Minimise use of plant/equipment near residents
- All plant and equipment must be clean on arrival—free of weeds and seeds
- Notify the project manager of any complaints received
- No mud to be tracked outside the site area

Flora and Fauna

- No clearing outside project boundary
- No clearing within No Go areas unless approved
- Minimise disturbance areas
- Report injured fauna to PER
- Progressively revegetate disturbed areas

Concrete Works

- Washout at designated areas only (area to be bunded and lined)

Excavation & Trenching

- Use dust suppression measures
- Repair any damaged erosion and sediment controls
- Segregate and stockpile significantly different material
- Imported material must be verified clean, weed and ASS free
- Clearly sign areas of contamination
- Notify Environment Manager of any unusual finds (odours, discoloured soil, asbestos, remains, suspected artefacts)
- No dewatering or pumping without Environment Manager approval
- No works within No Go areas

Incident Response

- Spills: Control source, contain spill, clean up, dispose of waste, Restock spill kits
- Report all incidents to supervisor

Hazardous Substances

- Place generators in bunds— refuel at designated areas only
- Store all chemicals in bunded storage
- Segregate all contaminated and regulated waste
- Collect all waste dockets/waste transport certificates and forward to Environment Manager
- Obtain approval from PER prior to bringing hazardous substances on site

SITE ENVIRONMENT PLAN

Legend

- Project Boundary
- Sensitive Receiver
- Water Course
- Site Office and Amenities
- Workshop and Storage
- Parking
- Stabilised Site Access
- Hazardous Chemical Store
- Heritage Site
- Spill Kit
- Sediment Basin
- Topsoil-Stockpile
- Fill Stockpile
- Sediment Fence
- Flow Direction
- Weather Station
- Laydown Area
- Googong Foreshores Area
- No Access

N

Not to scale

GOOGONG WRP

John Holland

BCA certifiers
ABN: 58 119 755 734
CONSTRUCTION CERTIFICATE
CC140503-1
26 September 2014
Principal Certifying Authority
Annette Owen BPB1771

Key Environmental Risks & Controls

No works or access is permitted outside [illegible] ary

SURFACE AND GROUND WATER:

- **Hazardous substances must be st[illegible] ills**
- **No water to be pumped without a [illegible]**

SOIL AND LAND:

- **Stockpiles to be stabilised**
- **ERSED controls to be installed as per this SEP**

FLORA AND FAUNA:

- **No vegetation to be cleared without a permit**
- **Any fauna sightings to be reported to the Environment Manager**

HERITAGE:

- **Unexpected finds to be reported immediately and works to cease**

AIR QUALITY:

- **Dust suppression measures must be used to prevent impacting nearby residents**

NOISE AND VIBRATION:

- **Working hours are 7am to 6pm M-F; 8am—1pm Sat**
- **No works Sundays or Public Holidays**
- **No works outside these areas**
- **No idling or parking outside residential properties**

TRAFFIC:

- **Parking only within designated areas**
- **Approved heavy vehicle routes to be used**

WASTE:

- **All waste to be put in bins provided**

Position & Name	Signature	Date
Project Manager Steve Merange		
Supervisor David Penno		
Construction Mgr Sarah McNish		
Environment Mgr Sen Keomongkhoun		

GENERAL

G1. THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH ALL OTHER DRAWINGS AND SPECIFICATIONS AND WITH SUCH OTHER WRITTEN INSTRUCTIONS AS MAY BE ISSUED DURING THE COURSE OF THE CONTRACT. ANY DISCREPANCY SHALL BE REFERRED TO THE SUPERINTENDENT BEFORE PROCEEDING WITH THE WORK.

G2. ALL MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE RELEVANT AND CURRENT SAA CODES, AND WITH THE BY-LAWS AND ORDINANCES OF THE RELEVANT BUILDING AUTHORITIES EXCEPT WHERE VARIED BY THESE DRAWINGS AND THE SPECIFICATION.

G3. ALL SETOUT DIMENSIONS SHOWN SHALL BE VERIFIED BY THE CONTRACTOR ON SITE BEFORE WORK COMMENCES. DRAWINGS SHALL NOT BE SCALED FOR DIMENSIONS.

G4. DURING CONSTRUCTION THE STRUCTURE SHALL BE MAINTAINED IN A STABLE CONDITION AND NO PART SHALL BE OVERSTRESSED. TEMPORARY BRACING , BATTERS AND MEANS OF FLOATATION PREVENTION FOR INGROUND TANKS SHALL BE PROVIDED BY THE CONTRACTOR TO KEEP THE WORKS AND EXCAVATIONS STABLE AT ALL TIMES. THE DESIGN AND INSTALLATION OF TEMPORARY WORKS IS THE RESPONSIBILITY OF THE CONTRACTOR.

G5. ALL DIMENSIONS ARE IN MILLIMETRES. ALL LEVELS ARE IN METRES AND ARE TO AUSTRALIAN HEIGHT DATUM (AHD). CO-ORDINATES ARE TO MGA (MAP GRID OF AUSTRALIA)

G6. ALL IN GROUND STRUCTURES/PITS SUBJECT TO UPLIFT FORCES SHALL BE MAINTAINED IN STABLE CONDITION DURING CONSTRUCTION AND PRIOR TO BACKFILLING AROUND THE STRUCTURES.

G7. NOMINATION OF PROPRIETARY ITMES DOES NOT INDICATE PREFERENCE AND ONLY INDICATES THE REQUIRED PROPERTIES/STANDARD. ALTERNATIVES HAVING SIMILAR PROPERTIES MAY BE OFFERED FOR APPROVAL.

SITE PREPARATION AND FOUNDATIONS

F1. FOR SITE SOIL CONDTIONS AND RECOMMENDATIONS FOR EARTHWORKS, TEMPORARY SLOPES ETC. REFER TO GEOTECHNICAL INVESTIGATION REPORT BY DOUGLAS PARTNERS: PROJECT 46285.05 DATED JULY 2013.

F2. THE FOUNDATION MATERIAL SHALL BE INSPECTED AND APPROVED BY THE GEOTECHNICAL ENGINEER FOR THE ALLOWABLE CAPACITY AND SUITABILITY FOR CONSTRUCTION PRIOR TO PLACING REINFORCEMENT OR CONCRETE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LIASING WITH THE GEOTECHNICAL ENGINEER TO ORGANISE INSPECTIONS AS NECESSARY.

F3. WHERE EXCAVATED SURFACES REQUIRED TO SUPPORT FOUNDATIONS HAVE BECOME SOFTENED OR LOOSENED DUE TO ADVERSE WEATHER, GROUND SEEPAGE OR OTHER CAUSES, ALL SUCH SOFT OR LOOSE MATERIAL SHALL BE REMOVED DOWN TO ACCEPTABLE BEARING AND BE REPLACED IMMEDIATELY WITH A LAYER OF CONCRETE BLINDING.

F4. ALL FOOTING EXCAVATIONS SHALL BE MAINTAINED FREE OF WATER BY PROVISION OF RELIEF DRAINS, OR DRAINAGE TO SUITABLE COLLECTION SUMPS FOR REMOVAL BY PUMPING OR MANUAL MEANS.

F5. THE GEOTECHNICAL ENGINEER SHALL INSPECT BATTERS AND ADJUST SLOPES AS NECESSARY DURING CONSTRUCTION TO ENSURE STABILITY IS MAINTAINED WITH THE DESIRED FACTOR OF SAFETY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LIASING WITH THE GEOTECHNICAL ENGINEER TO ORGANISE INSPECTIONS AS NECESSARY.

F6. FOUNDATION LEVELS AS SHOWN ON THE DRAWINGS SHALL NOT BE VARIED OR CHANGED WITHOUT THE APPROVAL OF THE SUPERINTENDENT.

F7. UNLESS NOTED OTHERWISE, AS SOON AS PRACTICABLE THE COMPACTED FORMATION SHALL BE SEALED WITH A 50mm THICK MIN LAYER OF BLINDING CONCRETE.

F8. UNLESS SHOWN OTHERWISE ON DRAWINGS A 0.2mm THICK POLYTHENE MOISTURE BARRIER FORTICON OR EQUAL APPROVED LAPPED 200mm AND TAPED AT JOINTS SHALL BE PROVIDED BETWEEN THE BLINDING CONCRETE AND THE STRUCTURAL CONCRETE.

F9. WHERE INDICATED ON DRAWING, SLABS MAY BE CAST ON 50mm MINIMUM THICK COMPACTED SAND WITH A MOISTURE BARRIER (DESCRIBED IN F8, ABOVE) BETWEEN THE SAND AND SLAB.

F10. DO NOT USE HEAVY COMPACTION EQUIPMENT (GREATER THAN 1 TONNE STATIC WEIGHT) WITHIN 2 METERS OF ANY BURIED STRUCTURE.

RETAINING WALLS - BACKFILLING

B1. COMPACTION OF FILL WITHIN 2m OF THE BACKFACE OF ALL RETAINING WALLS SHALL BE RESTRICTED TO HAND OPERATED VIBRATING ROLLERS OR TAMPING BY HAND. HEAVY VIBRATING EQUIPMENT SHALL NOT BE USED WITHIN A DISTANCE OF 2m MINIMUM FROM THE BACKFACE OF ALL RETAINING WALLS UNLESS NOTED OTHERWISE.

B2. THE FILTER MATERIAL TO SUB-SOIL DRAINS BEHIND RETAINING WALLS SHALL BE AN APPROVED CLEAN, NON-PLASTIC, FREE DRAINING, GRADED GRANULAR MATERIAL, WITH A D85 SIZE GREATER THAN THE DIAMETER OF THE DRAIN PIPE PERFORATIONS.

B3. THE SUB-SOIL DRAINS BEHIND RETAINING WALLS SHALL BE WRAPPED WITH AN APPROVED GEOTEXTILE MEMBRANE.

B4. ALL SUBSOIL DRAINS ARE TO BE CONNECTED TO DISCHARGE POINTS BEFORE BACKFILLING OF THE RETAINING WALL COMMENCES.

B5. BACKFILL WITHIN A MINIMUM OF 300mm OF THE BACK FACE OF ANY RETAINING WALL SHALL BE AN APPROVED NON-PLASTIC, FREE DRAINING GRAVEL MATERIAL, FREE OF DELETERIOUS AND ORGANIC MATTER UNLESS NOTED OTHERWISE.

CONCRETE

C1. ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH AS 3600 & AS 3600 SUPPLEMENT, AS 3735 & SUPPLEMENT, AS 1379:1997 & SUPPLEMENT, EXCEPT WHERE VARIED BY THE SUB CONTRACT DOCUMENTS.

C2. CONCRETE SHALL BE FROM AN APPROVED SOURCE AND SHALL COMPLY WITH THE REQUIREMENTS OF THE PROJECT SPECIFICATIONS AND STANDARDS REFERRED TO THEREIN.

C3. CONCRETE SHALL BE SUPPLIED ON A PERFORMANCE BASIS TO THE CONCRETE GRADES NOTED ON THE DRAWINGS.

C4. CONCRETE MIX DESIGN, INCLUDING PROPORTIONS OF ADDITIVES AND CEMENTITIOUS REPLACEMENT MATERIALS, SHALL BE SUBMITTED TO THE SUPERINTENDENT FOR APPROVAL 2 WEEKS PRIOR TO THE PLACEMENT.

C5. UNLESS NOTED OTHERWISE CONCRETE GRADES SHALL BE AS FOLLOWS

ELEMENT	GRADE
MASS CONCRETE - FOR OVER-BREAK, BLINDING CONC AND OVER-EXCAVATION.	N15
PIPELINE THRUST (ANCHOR) BLOCK, PIPELINE ENCASEMENT, SCREEDING & BENCHING, KERB, GUTTER & ROAD FOOTPATH PAVEMENT	N25
WATER RETAINING STRUCTURES.	S40
PILE SHAFT (MIN GR)	N40
ALL OTHER REINFORCED CONCRETE STRUCTURES NOT SPECIFIED ABOVE	N32

ALLOWABLE SLUMP 80mm TO 120mm : +/- 20mm

C6. CONCRETE MIX GRADE S40:

MIX	S40
CEMENT TYPE	SR/SL
MINIMUM BINDER CONTENT (kg/m^3)	450
MAXIMUM AGGREGATE SIZE (mm)	20
MAXIMUM WATER BINDER RATIO	0.42
MINIMUM CHARACTERISTIC STRENGTH AT 28 DAYS (MPa)	40
MAXIMUM DRYING SHRINKAGE AT 56 DAYS	$600x10^{-6}$
MAXIMUM FLY ASH CONTENT OF TOTAL BINDER (%)	25%

C7. CONCRETE COVER TO REINFORCEMENT SHALL BE AS SHOWN ON THE DRAWINGS. MAINTAIN COVER TO ALL REINFORCEMENT AT CHAMFERS, DRIP GROOVES, REGLETS, CHASES AND THE LIKE.

C8. SIZES OF CONCRETE ELEMENTS SHOWN ON THE DRAWINGS DO NOT INCLUDE THICKNESSES OF APPLIED FINISHES.

C9. THE FINISHED CONCRETE SHALL BE A DENSE HOMOGENEOUS MASS, COMPLETELY FILLING THE FORMWORK, THOROUGHLY EMBEDDING THE REINFORCEMENT AND FREE OF ANY STONE POCKETS OR VOIDS. CONCRETE SHALL BE VIBRATED BY MECHANICAL VIBRATORS DURING PLACEMENT.

C10. ALL FORMED EXPOSED EDGES AND RE-ENTRANT CORNERS SHALL BE CHAMFERED OR FILLETED 20mm UNLESS NOTED OTHERWISE. DRIP GROOVES SHALL BE PROVIDED IN SOFFITS OF ALL BEAMS AND SLABS TO THE PERIMETER OF THE BUILDING.

C11. NO PENETRATIONS, CHASES OR TEMPORARY FIXTURES OTHER THAN THOSE SHOWN ON THE DRAWINGS ARE PERMITTED IN THE CONCRETE MEMBERS WITHOUT PRIOR APPROVAL OF THE SUPERINTENDENT.

C12. CONDUITS, PIPES, ETC. SHALL ONLY BE LOCATED IN THE MIDDLE ONE THIRD OF SLAB DEPTH AND SPACED AT NOT LESS THAN 3 DIAMETERS.

C13. CONSTRUCTION JOINTS SHALL BE PROPERLY FORMED AND USED ONLY WHERE SHOWN ON THE DRAWINGS OR SPECIFICALLY APPROVED BY THE SUPERINTENDENT. CONCRETE SURFACES AGAINST WHICH NEW CONCRETE IS TO BE PLACED SHALL BE CLEAN, FREE OF ALL LAITANCE, AND BE DAMPENED DOWN PRIOR TO PLACING NEW CONCRETE.

C14. ALL CONCRETE INTERFACES ARE TO BE ROUGHENED TO A MINIMUM AMPLITUDE OF 5mm, TO ENSURE SATISFACTORY BOND BETWEEN INSITU CONCRETE AND PRECAST CONCRETE OR BETWEEN DIFFERENT POURS OF INSITU CONCRETE UNLESS NOTED OTHERWISE.

C15. ALL PROPRIETARY FIXINGS TO CONCRETE MEMBERS (eg CHEMICAL ANCHORS) SHALL BE INSTALLED STRICTLY IN ACCORDANCE WITH THE FIXING MANUFACTURER'S RECOMMENDATIONS.

CONCRETE (CONT)

C16. CHEMICAL ANCHORS FOR FIXINGS TO CONCRETE SHALL BE AS SHOWN ON THE DRAWINGS.

C17. ALL CONCRETE, INCLUDING SLABS ON GROUND & FOOTINGS, SHALL BE COMPACTED USING VIBRATION EQUIPMENT AS FOLLOWS :-
- A - FOR SLABS USE IMMERSION TYPE VIBRATORS VERTICALLY, IN OVERLAPPING SPOT PATTERN AND/OR VIBRATING SCREED.
- B - FOR ALL OTHER ELEMENTS USE IMMERSION TYPE VIBRATOR VERTICALLY.

VIBRATION IN EACH LOCATION SHOULD CONTINUE UNTIL AIR BUBBLES CEASE TO APPEAR (GENERALLY AFTER 20-30 SECONDS).

C18. CURING OF CONCRETE IN WATER RETAINING STRUCTURES SHALL BE BY KEEPING SURFACES CONTINUOUSLY WET FOR A PERIOD OF 10 DAYS OR UNTIL 75% OF CONCRETE 28 DAY STRENGTH IS ATTAINED (WHICHEVER IS LONGER), AND PREVENTION OF LOSS OF MOISTURE FOR A TOTAL OF 14 DAYS FOLLOWED BY GRADUAL DRYING OUT. CURING OF HORIZONTAL SURFACES SHALL BE ACHIEVED BY USING SEALED POLYTHENE SHEETING OVER A WET SURFACE OR BY PONDING. IF ELEMENTS ARE TO BE CURED BY LEAVING FORMWORK IN PLACE, THE FORMWORK SHALL BE KEPT WET CONTINUOUSLY AND EXPOSED SURFACES SHALL BE KEPT COVERED. CURING MUST COMMENCE IMMEDIATELY AFTER PLACING AND FINISHING CONCRETE.

C19. CURING COMPOUNDS SHALL NOT BE USED ON THE BIOREACTOR STRUCTURE. CURING COMPOUNDS MAY BE USED ON OTHER STRUCTURES IN LIEU OF WET CURING PROVIDED THAT CURING IS CARRIED OUT FOR A MINIMUM OF 14 DAYS AND THE REQUIREMENTS OF THE SPECIFICATION ARE STRICTLY OBSERVED.
- A ON FORMED SURFACES, THE CONCRETE SURFACE SHALL BE WETTED IMMEDIATELY AFTER STRIPPING AND THE COMPOUND APPLIED AS SOON AS THE FREE WATER HAD EVAPORATED.
- B THE COMPOUND SHALL BE APPLIED UNIFORMLY IN AT LEAST TWO APPLICATIONS AT RIGHT ANGLES TO EACH OTHER, SO AS TO ACHIEVE A COMPLETE UNIFORM COVER, IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.

C20. CONCRETE SHALL NOT BE PLACED IF THE AMBIENT TEMPERATURE IS BELOW 5°C OR ABOVE 35°C. THE CONCRETE TEMPERATURE AT THE POINT OF DISCHARGE SHALL NOT BE LESS THAN 10°C OR MORE THAN 32°C. WHEN THE AMBIENT TEMPERATURE IS EXPECTED TO FALL BELOW 5°C IN THE 24 HOURS AFTER PLACEMENT, ALL EXPOSED SURFACES SHALL BE PROTECTED AGAINST COLD WITH INSULATION MATS FOR A MINIMUM PERIOD OF 48 HOURS. FOR WALL FACES WITH PLYWOOD FORMWORK, NO PROTECTIVE MEASURES WILL BE REQUIRED.

C21. COMPLIANCE TESTING AND SAMPLING OF CONCRETE SHALL BE IN ACCORDANCE WITH AS 3600, AS 1379, AS 1012, AND THE SPECIFICATION.

C22. FOR PROTECTIVE COATINGS TO INTERNAL CONCRETE SURFACES OF LIQUID RETAINING STRUCTURES REFER TO WORKING DRAWINGS. WHERE INDICATED ON DRAWINGS, THE INTERNAL SURFACES OF STRUCTURES (SURFACES WITH EXPOSURE CLASSIFICATION D; AS PER AS 3735 TABLE 4.2) SHALL BE PROVIDED WITH A PROTECTIVE COATING.

FORMWORK

K1. ALL FORMWORK MATERIALS, WORKMANSHIP AND STRIPPING OF FORMWORK SHALL BE IN ACCORDANCE WITH AS 3600 AND AS 3610 INCLUDING ALL AMENDMENTS AND SUPPLEMENTS.

K2. FORMWORK SHALL NOT BE STRIPPED OR BACKPROPS REMOVED UNTIL THE CONCRETE IS SUFFICIENTLY CURED TO SUPPORT THE DESIGN LOADS WITHOUT DISTORTION OR CRACKING.

K3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN, CERTIFICATION, CONSTRUCTION AND PERFORMANCE OF ALL FORMWORK AND FALSEWORK.

K4. THE FORMWORK SHALL NOT BE DESIGNED TO RELY ON SUPPORT FROM THE PERMANENT STRUCTURES UNLESS PRIOR APPROVAL HAS BEEN GRANTED.

WATERSTOPS

W1. UNLESS OTHERWISE INDICATED ON DRAWINGS ALL CENTRALLY AND EXTERNALLY PLACED WATERSTOPS SHALL BE PVC SUPERCAST WATERSTOPS BY PARCHEM OR APPROVED EQUIVALENT.

W2. HYDROPHILIC WATERSTOPS, WHERE SHOWN ON DRAWINGS SHALL BE HYDROTITE (CJ-0725-3K) SUPPLIED BY PARCHEM OR APPROVED EQUIVALENT

REINFORCEMENT

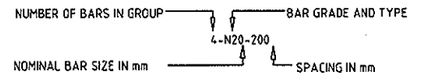
R1 REINFORCEMENT IS REPRESENTED DIAGRAMMATICALLY AND NOT NECESSARILY IN TRUE PROJECTION

R2. THE FOLLOWING ABBREVIATIONS HAVE BEEN USED IN THE STRUCTURAL DRAWINGS

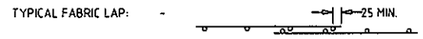
T	DENOTES TOP LAYER
B	DENOTES BOTTOM LAYER
T2	DENOTES TOP LAYER LAID SECOND
T1	DENOTES TOP LAYER LAID FIRST
B2	DENOTES BOTTOM LAYER LAID SECOND
B1	DENOTES BOTTOM LAYER LAID FIRST
EF	DENOTES EACH FACE
EW	DENOTES EACH WAY
NF	DENOTES NEAR FACE
FF	DENOTES FAR FACE
V	DENOTES VERTICAL
H	DENOTES HORIZONTAL
C	DENOTES CENTRALLY PLACED

R3. REINFORCEMENT SYMBOLS:-

N	DENOTES GRADE 500N DEFORMED BARS IN ACCORDANCE WITH AS/NZ4671;
SL	DENOTES GRADE 500L DEFORMED WELDED WIRE MESH TO AS/NZS 4671.
LTM	DENOTES GRADE 500L DEFORMED WIRE TRENCH MESH TO AS/NZS4671.



R4. ALL REINFORCEMENT FABRIC/WELDED WIRE MESH SHALL BE SUPPLIED AS FLAT SHEETS.



R5. FABRIC/WELDED WIRE MESH SHALL BE LAPPED 2 TRANSVERSE WIRES PLUS 25mm.

R6. REINFORCEING MESH SHALL NOT BE PULLED INTO POSITION THROUGH THE WET CONCRETE.

R7. REINFORCEMENT CHAIRS SHALL BE PLASTIC OR APPROVED CONCRETE CHAIRS WHICH ARE COMPATIBLE WITH THE RELEVANT CONCRETE GRADE. SLAB REINFORCEMENT SHALL BE FIRMLY SUPPORTED ON SUCH CHAIRS AT NO GREATER THAN 750mm CENTRES BOTH WAYS. THE USE OF CHAIRS IN THE SUPPORT OF WALL REINFORCEMENT SHALL BE LIMITED TO THAT REQUIRED TO ENSURE THAT THE CONCRETE COVER REQUIREMENTS ARE MET.

R8. WELDING OF REINFORCEMENT IS NOT PERMITTED UNLESS SHOWN ON DRAWINGS OR APPROVED IN WRITING BY THE SUPERINTENDENT. WELDING OF REINFORCEMENT WHERE SHOWN/APPROVED SHALL COMPLY WITH AS1554.3

R9. SPLICES IN THE REINFORCEMENT SHALL BE MADE ONLY IN THE POSITIONS SHOWN. THE WRITTEN APPROVAL OF THE SUPERINTENDENT SHALL BE OBTAINED FOR ANY OTHER SPLICES.

R10. REINFORCEMENT SHALL BE LAPPED ONLY IN THE LOCATIONS SHOWN ON THE DRAWINGS OR AS OTHERWISE APPROVED BY THE SUPERINTENDENT. WHERE THE LAP LENGTH IS NOT SHOWN IT SHALL BE SUFFICIENT TO DEVELOP THE FULL STRENGTH OF THE REINFORCEMENT. BAR LAP LENGTHS SHALL BE AS SHOWN BELOW UNLESS NOTED OTHERWISE :-

BAR Φ	HORIZONTAL BARS WITH MORE THAN 300mm OF CONCRETE CAST BELOW THE BAR		ALL OTHER BARS	
	f'c = 32MPa	f'c = 40MPa	f'c = 32MPa	f'c = 40MPa
10	500	450	375	350
12	600	525	450	450
16	800	725	625	600
20	1050	925	800	750
24	1300	1150	1000	900
28	1550	1400	1200	1075
32	1850	1650	1425	1275

R11. REBENDING OF REINFORCEMENT BY MECHANICAL OR ANY OTHER MEANS IS NOT PERMITTED WITHOUT THE APPROVAL OF THE SUPERINTENDENT.

R12. MECHANICAL SPLICES SHALL ONLY BE USED WHERE APPROVED BY THE SUPERINTENDENT.

BCA certifiers
ABN: 58 119 755 734

CONSTRUCTION CERTIFICATE
CC140503-1
26 September 2014

Principal Certifying Authority
Annette Owen BPB1771

DO NOT SCALE - IF IN DOUBT, ASK
ORIGINAL SIZE A1

REV	REVISIONS	DRN	CHK	APP	DATE
1	APPROVED FOR CONSTRUCTION	MWS	AO	SC	19.09.14

SURVEYED		
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DRAWN	M Schwarze	11.08.14
CAD REVIEW	Alan Gilbert	19.09.14
DESIGN CHECK	Amogh Deshpande	19.09.14
DESIGN REVIEW	Jaya Weerasinghe	19.09.14
APPROVED	Stephen Chapman	19.09.14
PROF REGISTRATION:		

MWH

Client: GOOGONG

GOOGONG WATER RECYCLING PLANT STAGE AB

GENERAL NOTES
SHEET 1 OF 2

Status Stamp: FOR CONSTRUCTION
Date Stamp: 19.09.14
Scales:
Drawing No: 83502156-01-001-G003
Rev: 1

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REINFORCED AND UNREINFORCED MASONRY

M1. REINFORCED MASONRY SHALL COMPLY WITH THE REQUIREMENTS OF THE PROJECT SPECIFICATIONS AND STANDARDS REFERRED TO THEREIN.
M2. UNLESS NOTED OTHERWISE, BLOCKS SHALL HAVE A MINIMUM CHARACTERISTIC STRENGTH f'c OF 15 MPa.
M3. ALL PERPENDS, EXCEPT WHERE REQUIRED FOR WEEPHOLES ARE TO BE FULLY FILLED WITH MORTAR. LAY BOTTOM COURSE OF BLOCKS ON FULL BED OF MORTAR.
M4. PROVIDE TEMPORARY PROPPING TO WALLS WHERE REQUIRED FOR STABILITY DURING CONSTRUCTION.
M5. CONCRETE INFILL GROUT SHALL HAVE A MINIMUM PORTLAND CEMENT CONTENT OF 300kg/m^3 , SUFFICIENT SLUMP TO COMPLETELY FILL THE CORES AND A MINIMUM COMPRESSIVE CYLINDER STRENGTH OF 20 MPa.
M6. INFILL GROUT SHALL BE COMPACTED BY CAREFUL RODDING OF EVERY CORE.
M7. GROUTING LIFTS SHALL BE LIMITED TO A MAXIMUM HEIGHT OF 1.2m. WHERE CORE FILLING IS CARRIED OUT BY PUMPING USING AN APPROVED PUMP MIX, THE MAXIMUM LIFT SHALL BE 3.0m. NO BLOCKWORK SHALL BE FILLED TO A HEIGHT GREATER THAN 1.2m WITHOUT SUITABLE SHORING / TEMPORARY WORKS.
M8. CLEAN-OUT BLOCKS ARE TO BE PROVIDED AT THE BOTTOM OF ALL CORES IN ANY LIFT TO BE GROUTED. PARTICULAR CARE SHALL BE TAKEN TO ENSURE THAT ALL CORES ARE FREE FROM OBSTRUCTIONS AND THE BOTTOMS ARE COMPLETELY CLEANED OF ALL MORTAR FINS, DUST AND DIRT ETC, IMMEDIATELY PRIOR TO COMMENCEMENT OF GROUTING.
M9. FULLY BED FACE SHELLS AND CROSSWEBS.
M10. UNLESS NOTED OTHERWISE, OPENINGS LARGER THAN 400mm IN HEIGHT OR WIDTH SHALL BE REINFORCED AS FOLLOWS :-
  A- FILL ONE CORE EACH SIDE OF OPENING AND REINFORCE WITH 1 BAR OF THE SAME GRADE AND DIAMETER AS THE MAIN VERTICAL REINFORCEMENT IN THE WALL PANEL, AS SHOWN ON THE DRAWINGS.
  B- THE TOP OF THE OPENING SHALL HAVE A REINFORCED LINTEL BEAM, ARCH BEAM OR STEEL ANGLE SUPPORT AS SHOWN ON THE DRAWINGS
M11. NO CHASES OR HOLES SHALL BE MADE WITHOUT THE PRIOR APPROVAL OF THE STRUCTURAL ENGINEER.
M12. UNLESS NOTED OTHERWISE, VERTICAL CONTROL JOINT SPACING SHALL NOT BE GREATER THAN 16m FOR VERTICALLY REINFORCED WALLS, AND NOT GREAT THAN 8m FOR HORIZONTALLY REINFORCED WALLS.
M13. ALL WALLS SHALL BE BONDED OR TIED AT THEIR INTERSECTIONS.
M14. CEMENT MORTAR SHALL BE TYPE GP PORTLAND CEMENT COMPLYING WITH AS 3972 UNO, AND SHALL BE OF THE FOLLOWING PROPORTIONS UNO:

CEMENT	1 PART BY VOLUME
FINE AGGREGATE	4 PARTS BY VOLUME + WATER THICKENER

WATER THICKENER SHALL BE METHYL CELLULOSE BASED.
M15. PROVIDE 50mm MIN. CLEAR COVER TO ALL TIES AND MAIN REINFORCEMENT TO OUTSIDE FACE OF BLOCKWORK UNLESS NOTED OTHERWISE.
M16. MASONRY WALLS TO BE CONSTRUCTED ON SUSPENDED SLABS SHALL NOT BE BUILT UNTIL ALL FORMWORK AND BACKPROPPING HAVE BEEN REMOVED.
M17. WHERE STEEL MEMBERS ARE PROVIDED FOR LATERAL SUPPORT TO MASONRY PANELS, THE CONTRACTOR SHALL ENSURE THE MASONRY IS TIED BACK TO THE STEELWORK, AS SHOWN ON THE DRAWINGS, BEFORE CONSTRUCTING THE LIFT ABOVE THE STEEL RESTRAINT LEVEL.
M18. ALL REINFORCEMENT TO BE LAPPED MIN 40 BAR DIAMETERS UNLESS NOTED OTHERWISE.

PRECAST CONCRETE

T1. PRECAST PANEL MANUFACTURE, FITTINGS, FIXINGS, REINFORCEMENT, LIFTING, HANDLING, ERECTION AND SAFETY MEASURES SHALL COMPLY WITH AS3600, AS3850 AND "WORKCOVER SAFETY GUIDANCE NOTE".
T2. CONCRETE STRESS THROUGH HANDLING SHALL NOT CAUSE CRACKING.
T3. PROVIDE 15x15mm CHAMFER TO ALL EDGES OF PANELS UNLESS NOTED OTHERWISE.
T4. REINFORCEMENT SHOWN ON THE DRAWINGS IS THE MINIMUM REQUIRED FOR STRUCTURAL ACTIONS IN PLACE. THE CONTRACTOR SHALL DESIGN EACH PANEL FOR LIFTING AND SHALL PROVIDE ADDITIONAL REINFORCEMENT REQUIRED FOR EACH PANEL DURING LIFTING, HANDLING AND TRANSPORT.
T5. PANELS MUST NOT BE LIFTED UNTIL A CONCRETE STRENGTH OF 25MPa HAD BEEN ACHIEVED.
T6. THE CONTRACTOR SHALL ENSURE THAT ALL PANELS CAN BE TRANSPORTED IN ACCORDANCE WITH THE LOCAL AUTHORITIES REQUIREMENTS.
T7. ALL GAPS SHALL BE PROPERLY SEALED WHEN PLACED IN FINAL POSITION.
T8. WHEN PLACING INSITU TOPPING, THE PRECAST SURFACE SHALL BE THOROUGHLY CLEANED, ROUGHENED AND PRE WET SO THAT THE SURFACE IS MOIST BUT NOT OVERLY WET PRIOR TO PLACING THE TOPPING.
T9. TOPPING SHALL BE PLACED AND CURED SUCH THAT PLASTIC AND DRYING SHRINKAGE CRACKS ARE CONTROLLED TO ACCEPTABLE WIDTHS.

STEELWORK

S1. ALL STEELWORK SHALL COMPLY WITH THE REQUIREMENTS OF AS 4100 UNLESS NOTED OTHERWISE.
S2. ALL STEELWORK SHALL BE FABRICATED FROM MATERIAL COMPLYING WITH AS 3678 AND AS 3679.
S3. FABRICATION SHALL COMPLY WITH THE SPECIFICATION AND THE REQUIREMENTS OF AS 4100 AND AS 1554 WHERE APPLICABLE.
S4. THE FOLLOWING MINIMUM STEEL GRADES SHALL APPLY :-

STEEL MEMBER	
UB, UC, PFC, BRACING RODS	300 PLUS
PLATES, CLEATS, STIFFENERS	350
SHS, RHS, CHS	350

S5. ALL PLATES, CLEATS, GUSSETS, STIFFENERS ETC SHALL BE 10mm THICK UNLESS NOTED OTHERWISE.
S6. UNLESS NOTED OTHERWISE, ALL BOLTS SHALL BE HOT DIP GALVANISED AND SHALL BE GRADE 8.8/S HIGH STRENGTH BOLTS IN ACCORDANCE WITH AS 1252 SNUG TIGHTENED.
S7. ALL BOLTS SHALL BE IN 2mm CLEARANCE HOLES EXCEPT FOR HOLDING DOWN BOLTS WHICH SHALL BE IN 4mm CLEARANCE HOLES AND SHALL HAVE 4mm MIN THK WASHERS TO AS4100 14.3.5.2
S8. ALL BOLT SPACING AND EDGE DISTANCES SHALL BE AS SPECIFIED IN AS 4100 UNLESS NOTED OTHERWISE.
S9. MINIMUM END CONNECTION SHALL BE WITH 2-M20 8.8/S BOLTS UNLESS NOTED OTHERWISE.
S10. BOLTING PROCEDURES SHALL BE AS FOLLOWS :-

4.6/S	COMMERCIAL	AS 1111 SNUG TIGHTENED
8.8/S	HIGH STRENGTH	AS 1252 SNUG TIGHTENED
8.8/TF	HIGH STRENGTH STRUCTURAL FRICTION TYPE JOINT AS 1252 FULLY TENSIONED	
8.8/TB	HIGH STRENGTH STRUCTURAL BEARING TYPE JOINTAS 1252 FULLY TENSIONED	

S11. ALL MECHANICAL AND CHEMICAL ANCHORS SHALL BE INSTALLED STRICTLY IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
S12. UNLESS NOTED OTHERWISE, ALL HOLDING-DOWN AND ANCHOR BOLTS SHALL BE STAINLESS STEEL GRADE 316 INSTALLED WITH HILTI-HIT RE500 CHEMICAL ADHESIVE AS PER MANUFACTURER'S RECOMMENDATIONS OR APPROVED EQUIVALENT.
S13. ALL WELDS SHALL BE 6mm CONTINUOUS FILLET WELDS UNLESS NOTED OTHERWISE.
S14. ALL WELDS SHALL BE S.P. QUALITY UNLESS NOTED OTHERWISE.
ELECTRODES SHALL BE LOW HYDROGEN GRADE 48xx OR SUBMERGED W50 COMPLYING WITH AS 1553.
S15. FOR WELDING SYMBOLS USED REFER TO AS 1101.
S16. ALL WELDING, BOTH SHOP AND FIELD, SHALL BE UNDERTAKEN BY A QUALIFIED WELDER AND SHALL COMPLY WITH AS 1554.
S17. WHERE NOTED, FSBW SHALL BE TAKEN TO MEAN COMPLETE PENETRATION FULL STRENGTH BUTT WELD.
S18. THE CONTRACTOR/FABRICATOR SHALL PROVIDE ALL CLEATS AND DRILL ALL HOLES FOR FIXING OF TIMBER JOINERY AND ALL OTHER FITTINGS WHETHER OR NOT DETAILED ON THE DRAWINGS.
S19. CONTACT SURFACES BETWEEN DISSIMILAR METALS (eg. ALUMINIUM AND GALVANISED STEEL, ALUMINIUM AND STAINLESS STEEL, STAINLESS STEEL AND GALVANISED STEEL) SHALL BE INSULATED WITH SEPARATOR TAPE OR FIBRE WASHERS UNLESS NOTED OTHERWISE.
S20. UNLESS NOTED OTHERWISE, ALL STRUCTURAL STEELWORK INCLUDING BOLTS SHALL BE HOT DIP GALVANISED TO AS 4680 WITH A MINIMUM AVERAGE COATING MASS OF 600 g/m2 .
S21. ALL STAIRS LADDERS SHALL CONFORM TO AS 1657
S22. ALL GRATING PANELS TO BE SECURED WITH CLIPS
S23. ALL ALUMINIUM WELDS TO BE IN ACCORDANCE WITH AS 1265

ELECTRICAL CONDUITS AND PITS

E1. THE INSTALLATION OF CABLE CONDUITS SHALL COMPLY WITH AS 3000, MEWE101 AND THE AUSTRALIAN COMMUNICATIONS AUTHORITY STANDARDS (PREVIOUSLY KNOWN AS AUSTEL).
E2. BURIED ELECTRICAL CONDUITS SHALL BE HD UPVC ORANGE AND INSTALLED AS PER SECTION 108 OF MEW E101.
E3. POWER CONDUITS TO BE SEGREGATED FROM OTHER SERVICES BY A MINIMUM OF 300mm.
E4. CONDUITS SHALL BE BURIED SUCH THAT THEY HAVE A MINIMUM COVER OF 600mm. WHERE CONCRETE ENCASED, MINIMUM COVER SHALL BE GREATER THAN THE CONDUIT DIAMETER.
E5. CONDUITS SHALL BE INSTALLED ABOVE A 75mm LAYER AND BE COVERED BY A 75mm LAYER OF SEIVED SAND.
E6. THE ELECTRICAL CONDUITS SHALL BE CLEARLY IDENTIFIABLE BY MEANS OF A 150mm WIDE, 3mm THICK POLYMERIC COVER INSTALLED NOT MORE THAN 75mm ABOVE THE CONDUITS AND OVERLAPPING THE CONDUITS AT LEAST 40mm EITHER SIDE.
E7. WHERE A CHANGE IN DIRECTION IN IS REQUIRED FOR A BURIED CONDUIT THIS SHALL BE ACHIEVED USING EITHER A LONG RADIUS BEND OR VIA A PULL PIT.
E8. NYLON OR STAINLESS STEEL DRAW CORDS SHALL BE PROVIDED IN ALL THE CONDUITS TO FACILITATE THE PULLING IN OF CABLES.
E9. CONDUITS SHALL BE PROVIDED TO A MINIMUM LEVEL OF 500mm ABOVE GROUND LEVEL AT THE TRANSITION BETWEEN INSTALLATION IN AIR TO INSTALLATION BELOW GROUND. ADDITIONAL MECHANICAL PROTECTION SHALL BE PROVIDED FROM A DEPTH OF 200mm BELOW GROUND TO 2000mm ABOVE GROUND AROUND CABLES TO REDUCE THE RISK OF DAMAGE.
E10. CONDUIT ROUTES SHALL BE INDICATED USING CONCRETE CABLE MARKERS WITH STAINLESS STEEL MARKER PLATES EVERY 20m OF CONDUIT OR WHERE CONDUITS CHANGE DIRECTION.
E11. HOLD POINTS AT DEFINED STAGES OF CONDUIT TRENCH COMPLETION ARE REQUIRED. AT THESE POINTS, WORK SHALL CEASE UNTIL THE TRENCHES ARE INSPECTED BY THE SITE SUPERVISOR AND AUTHORISATION IS GIVEN TO PROCEED. REFER SECTION 104.1 OF MEW E101 FOR DETAILS.
E12. FOR UNDERGROUND CONDUIT SYSTEMS PROVIDE PITS AT MAXIMUM 50m INTERVALS. PITS SHALL BE PROVIDED AS SPECIFIED IN SECTION 104.3 OF MEW E101.
E13. ELECTRICAL PITS SHALL BE A MINIMUM OF 900 x 900 x 900 WITH HEAVY DUTY GATIC COVERS.
E14. DRAINAGE SHALL BE PROVIDED TO ALLOW ELECTRICAL PITS TO DRAIN INTO THE NEAREST DRAINAGE SYSTEM.

GENERAL PIPING

P1. ALL PIPEWORK DESIGNED TO PN16 PRESSURE RATING UNLESS NOTED OTHERWISE
P2. ALL STEEL PIEWORK TO BE MANUFACTURED & SUPPLIED IN ACCORDANCE WITH WATER SERVICES SPECIFICATION: WS-SPEC
P3. ALL WELDING TO CONFORM TO AUSTRALIAN STANDARDS, IN PARTICULAR TO AS1210, AS1554.1 (CATEGORY SP), AS4041 AND AS4458. ANY DISCREPANCIES BETWEEN THE STANDARDS AND DETAILS SHOWN ON THE CONTRACT DRAWINGS, OR ANY PROPOSED VARIATION TO WELD DETAILS, SHALL BE REFERRED TO THE SUPERINTENDENT BEFORE PROCEEDING WITH THE WORK.
P4. PIPEWORK SHALL BE FINISHED AND COATED IN ACCORDANCE WITH PROJECT SPECIFICATION
P5. ALL PIPE SUPPORT STEELWORK SHALL BE HOT DIP GALVANISED.
P6. MACHINE TOLERANCES TO ALL FLANGES TO COMPLY WITH AS4087 & AS2382.
P7. MACHINED SURFACES TO BE PROTECTED BY AN EASILY REMOVABLE COAT OF APPROVED RUST PREVENTATIVE. SITE WELDS TO BE PAINTED IN ACCORDANCE WITH SPECIFICATION.
P8. ALL STEEL USED IN PIPE FABRICATION TO BE IN ACCORDANCE WITH AS 3678 GRADE 250.
P9. ALL BOLTS, NUTS AND WASHERS FOR PIPE FLANGES TO BE HOT DIPPED GALVANISED CARBON STEEL GRADE 8.8 IN ACCORDANCE TR-13 WS SPEC AND AS 4087 FLANGE JOINTING GUIDELINES, UNLESS NOTED OTHERWISE.
P10. APPROVED CORROSION PROOF ELECTRODES ARE TO BE USED FOR WELDING STAINLESS STEEL.
P11. FLANGES TO BE MACHINED AND DRILLED OFF CENTRE AFTER WELDING TO BRANCH AND STRESS RELIEVED.
P12. ALL WELDS SHALL BE VISUALLY INSPECTED, ALL JOINTS SHALL BE 100% ULTRASONICALLY TESTED.

BCA certifiers
ABN: 58 119 755 734
CONSTRUCTION CERTIFICATE
CC140503-1
26 September 2014
Principal Certifying Authority
Annette Owen BPB1771

DO NOT SCALE - IF IN DOUBT, ASK
ORIGINAL SIZE A1

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APPROVED	Stephen Chapman	19.09.14
PROF REGISTRATION:		

MWH®

Client: GOOGONG

GOOGONG WATER RECYCLING PLANT STAGE AB

GENERAL NOTES
SHEET 2 OF 2

Status Stamp: FOR CONSTRUCTION
Date Stamp: 19.09.14
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Drawing No: 83502156-01-001-G004
Rev: 1

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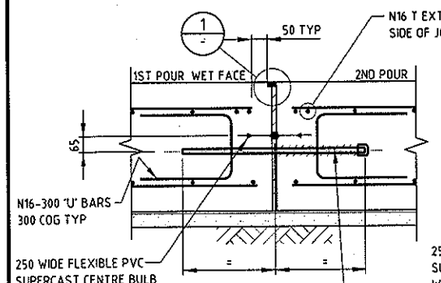
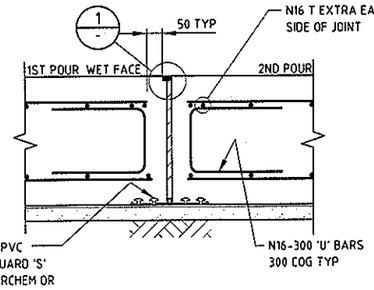


DEJF1 (FLOOR)
1:10



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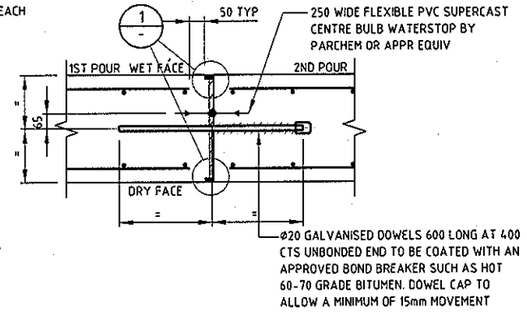
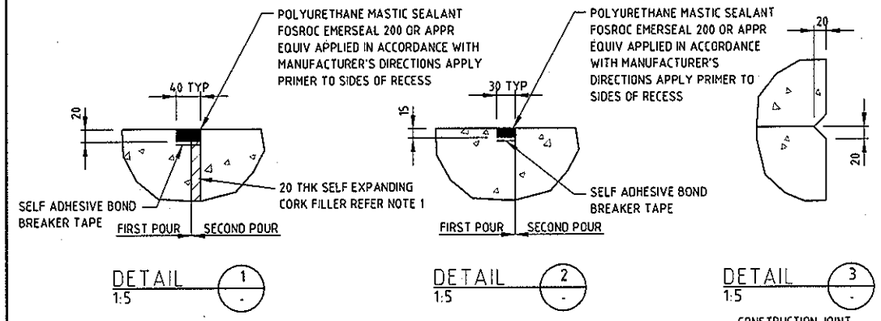


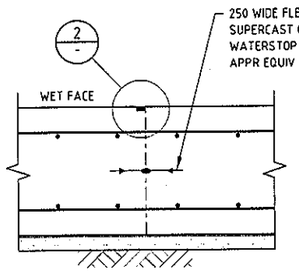
DEJW (EXTERNAL WALL)
1:10

Ø20 GALVANISED DOWELS 600 LONG AT 400 CTS UNBONDED END TO BE COATED WITH AN APPROVED BOND BREAKER SUCH AS HOT 60-70 GRADE BITUMEN. DOWEL CAP TO ALLOW A MINIMUM OF 15mm MOVEMENT

EXPANSION JOINTS



JOINT DETAILS



CJ1 (FLOOR)
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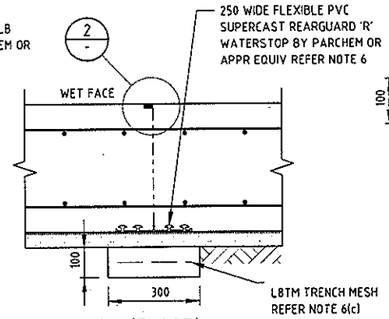

CJ2 (FLOOR)
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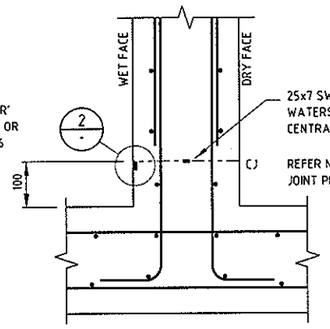
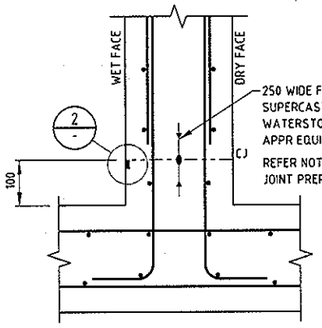


CJ3 (EXTERNAL WALL) HORIZONTAL
1:10



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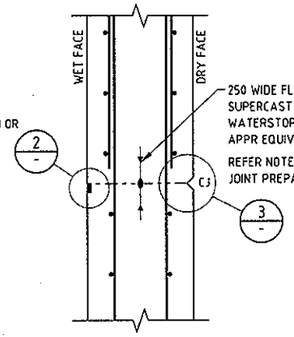

CJ5 (EXTERNAL WALL) VERTICAL
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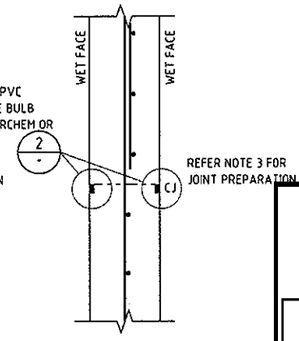
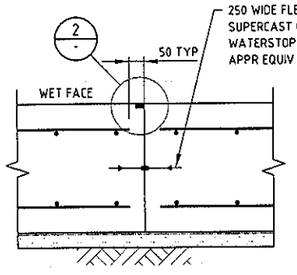


CJ6 (INTERNAL WALL) HORIZONTAL OR VERTICAL
1:10

SIMILAR FOR WALLS WITH 2 MATS OF REINFORCEMENT

CONSTRUCTION JOINTS



CCJ1 (FLOOR)
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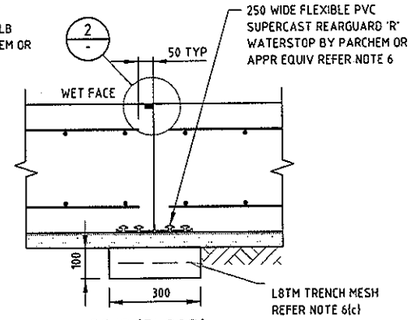

CCJ2 (FLOOR)
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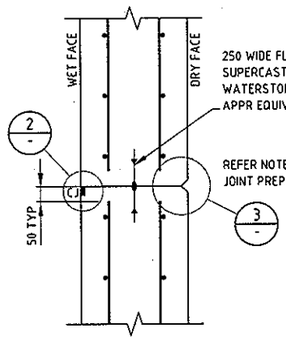

CCJ3 (EXTERNAL WALL) VERTICAL
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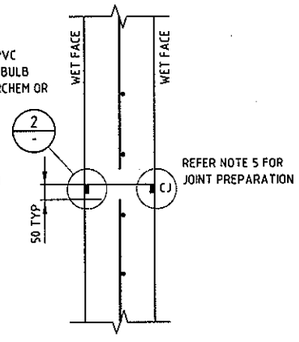

CCJ4 (INTERNAL WALL) HORIZONTAL OR VERTICAL
1:10

SIMILAR FOR WALLS WITH 2 MATS OF REINFORCEMENT

COMPLETE CONTRACTION JOINTS

NOTES

1. CONCRETE SURFACE AT THE EXPANSION JOINT SHALL BE CLEANED THOROUGHLY. DO NOT SCABBLE. GLUE SELF EXPANDING CORK FILLER WITH SUITABLE GLUE IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS TO CLEANED SURFACE IMMEDIATELY PRIOR TO SECOND POUR.
2. SWELLABLE WATERSTOP SHALL BE GLUED TO EXISTING CONCRETE SURFACE NOT NAILED. DETAIL TO BE STRICTLY IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS
3. CONSTRUCTION JOINT PREPARATION IN ACCORDANCE WITH THE PROJECT TECHNICAL SPECIFICATION.
4. ALL WATERSTOPS SHALL BE INSTALLED STRICTLY IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.
5. PAINT CONTRACTION JOINTS WITH TWO COATS OF BITUMEN PAINT PRIOR TO PLACEMENT OF NEW CONCRETE
6. PVC WATERSTOPS:
   (a) REARGUARD WATERSTOPS TO HAVE CONTINUOUS FOUNDATION SUPPORT UNO.
   (b) WATERSTOPS SHALL BE FABRICATED INTO THE LONGEST PRACTICAL UNITS AT THE SUPPLIER'S WORKS AND SHALL BE CONTINUOUS THROUGHOUT THE STRUCTURE TO 200mm ABOVE THE HIGHEST WATER LEVEL. ALL INTERSECTIONS SHALL BE FACTORY MADE.
   (c) THE WATERSTOPS SHALL BE INSTALLED SO THAT THEY ARE SECURELY HELD IN THEIR CORRECT POSITIONS DURING THE PLACING OF CONCRETE WHICH SHALL BE FULLY COMPACTED AROUND THE WATERSTOP SO THAT NO VOID OR POROUS AREAS ARE LEFT. WHERE REINFORCEMENT IS PRESENT, MINIMUM CLEARANCE BETWEEN THE NEAREST REINFORCEMENT AND THE WATERSTOP SHALL BE 30mm.
   (d) JOINTING OTHER THAN WELDING IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDED SYSTEM SHALL NOT BE USED.

100 0 100 200mm
SCALE 1:5

200 0 250 500mm
SCALE 1:10

BCA certifiers
ABN: 58 119 755 734

CONSTRUCTION CERTIFICATE
CC140503-1
26 September 2014

Principal Certifying Authority
Annette Owen BPB1771

DO NOT SCALE - IF IN DOUBT, ASK
ORIGINAL SIZE A1

REV	REVISIONS	DRN	CHK	APP	DATE
1	APPROVED FOR CONSTRUCTION	HWS	AD	SC	19.09.14

SURVEYED		
DESIGNED	A Deshpande	11.08.14
DRAWN	A Gilbert	11.08.14
CAD REVIEW	Alan Gilbert	19.09.14
DESIGN CHECK	Amogh Deshpande	19.09.14
DESIGN REVIEW	Jaya Weerasinghe	19.09.14
APPROVED	Stephen Chapman	19.09.14
PROF REGISTRATION:		

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Client: GOOGONG

GOOGONG WATER RECYCLING PLANT STAGE AB

STANDARD DRAWING
CONCRETE WATER RETAINING STRUCTURES - JOINT DETAILS

Status Stamp: FOR CONSTRUCTION
Date Stamp: 19.09.14
Scales: AS SHOWN
Drawing No: 83502156-01-001-S003
Rev: 1

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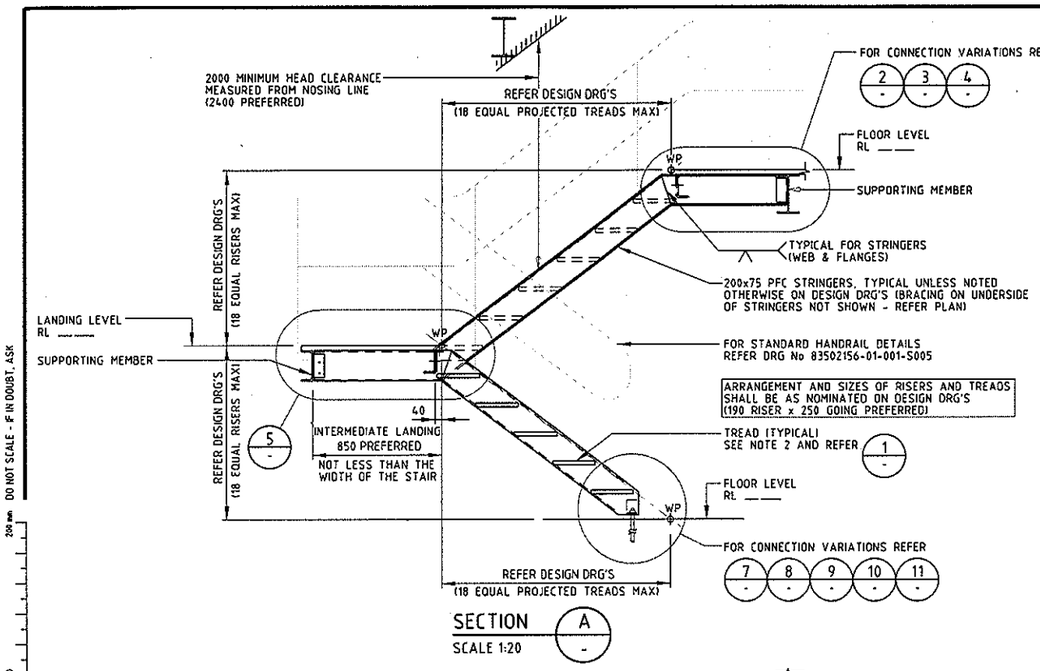
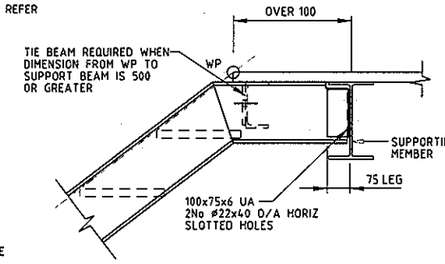


SECTION A
SCALE 1:20



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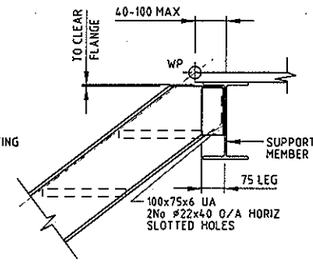

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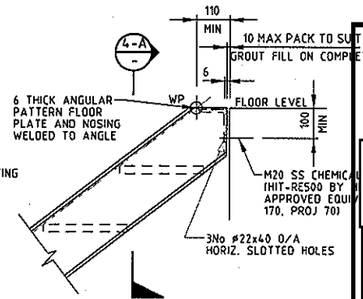
SCALE 1:10



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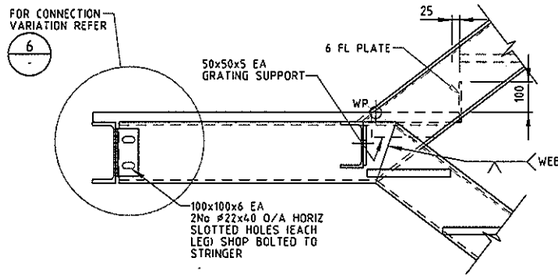

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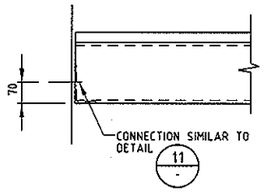
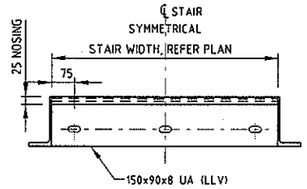
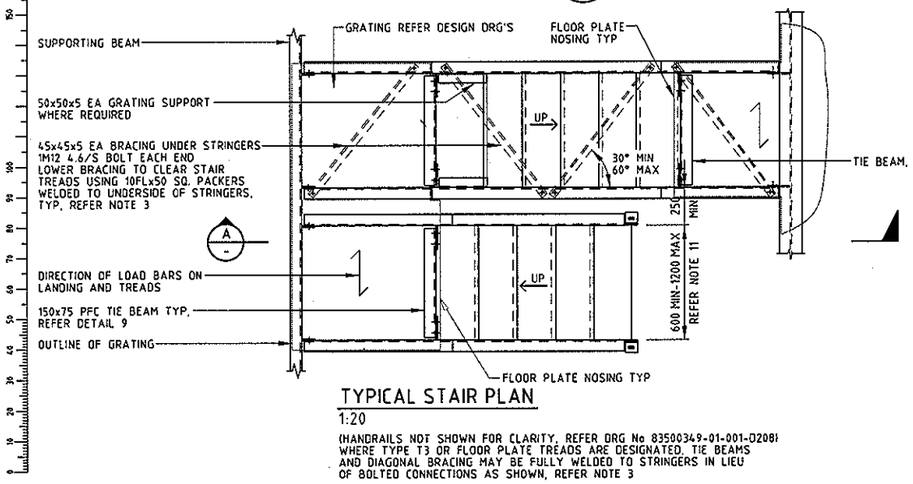
SCALE 1:10



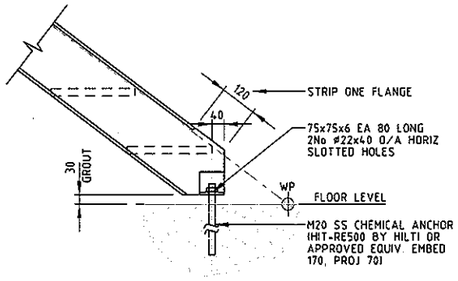
DETAIL 6
SCALE 1:10
LANDING STRINGER TO CONCRETE WALL



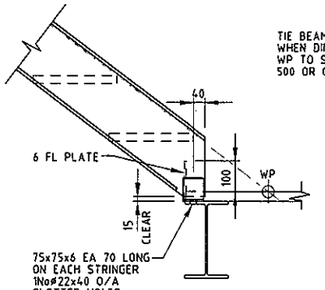
DETAIL 4-A
SCALE 1:10



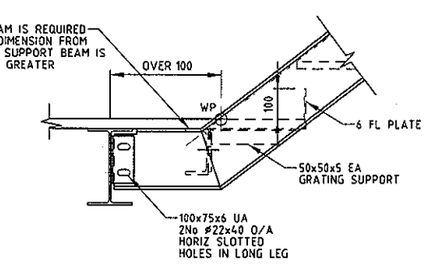
TYPICAL STAIR PLAN
1:20
(HANDRAILS NOT SHOWN FOR CLARITY. REFER DRG No 83500349-01-001-0208) WHERE TYPE T3 OR FLOOR PLATE TREADS ARE DESIGNATED, TIE BEAMS AND DIAGONAL BRACING MAY BE FULLY WELDED TO STRINGERS IN LIEU OF BOLTED CONNECTIONS AS SHOWN, REFER NOTE 3



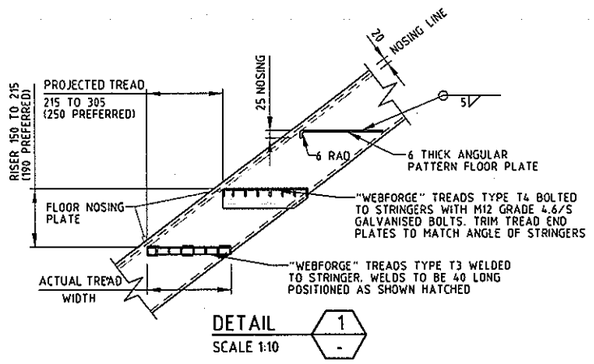
DETAIL 7
SCALE 1:10



DETAIL 8
SCALE 1:10

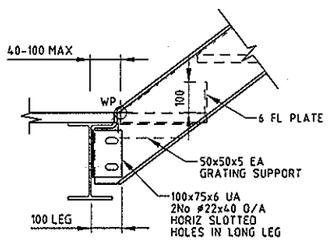


DETAIL 9
SCALE 1:10

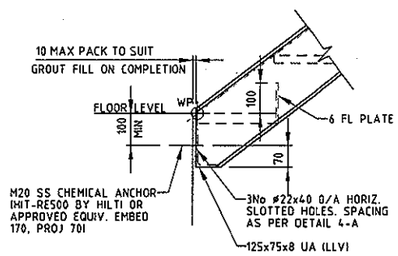


DETAIL 1
SCALE 1:10

TYPICAL TREAD DETAIL



DETAIL 10
SCALE 1:10



DETAIL 11
SCALE 1:10

NOTES

1. ALL ITEMS SHALL COMPLY WITH AS 1657.
2. ALL STAIRS SHALL HAVE TYPE T4 GRATED TREADS UNO AS TYPE T3 GRATED TREADS OR FLOOR PLATE TREADS ON DESIGN DRAWINGS.
3. ALL STAIRS, INCLUDING LANDINGS, SHALL BE BRACED AS SHOWN WHEN THE DISTANCE BETWEEN END SUPPORTS MEASURED ALONG THE NOSING LINE IS 3000 OR GREATER. WHEN STAIRS ARE DESIGNATED AS HAVING FLOOR PLATE TREADS, BRACING IS NOT REQUIRED.
4. THE PRODUCT OF THE PROJECTED TREAD x RISE IN MILLIMETRES SHALL NOT BE LESS THAN 45000 NOR GREATER THAN 48000.
5. THE TYPE AND EXTENT OF STAIRS IS SHOWN ON DESIGN DRAWINGS.
6. STAIR WORK POINT (WP) SHALL BE AT THE INTERSECTION OF THE NOSING LINE AND THE TOP OF FLOORING.
7. BOLTED CONNECTIONS TO STRUCTURAL MEMBERS SHALL BE M20-8.8/TB BOLTS UNO CONNECTIONS TO CONCRETE SHALL BE M20 MASONRY ANCHORS INSTALLED IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.
8. ALL WELDS TO BE 6mm CONTINUOUS FILLET WELD UNO
9. FOR STEEL FINISHES, REFER SPECIFICATION.
10. ALL GRATING PANELS AND TREADS TO BE FIXED TO MANUFACTURERS RECOMMENDATIONS.
11. STRUCTURAL DETAILS NOMINATED ON THIS DRAWING ARE ACCEPTABLE FOR STAIRWAY WIDTHS OF 600mm TO 1200mm. HOWEVER, ALL STAIRS SHALL BE A MINIMUM WIDTH OF 1200mm

200 0 250 500mm
SCALE 1:10

500 0 500mm 1m
SCALE 1:20

BCA certifiers
ABN: 58 119 755 734
CONSTRUCTION CERTIFICATE
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APPROVED	Stephen Chapman	19.09.14
PROF REGISTRATION:		

MWH

Client: GOOGONG

GOOGONG WATER RECYCLING PLANT STAGE AB

STANDARD DRAWING
STAIR DETAILS

Status Stamp: FOR CONSTRUCTION
Date Stamp: 19.09.14
Scales:
Drawing No: 83502156-01-001-S004
Rev: 1

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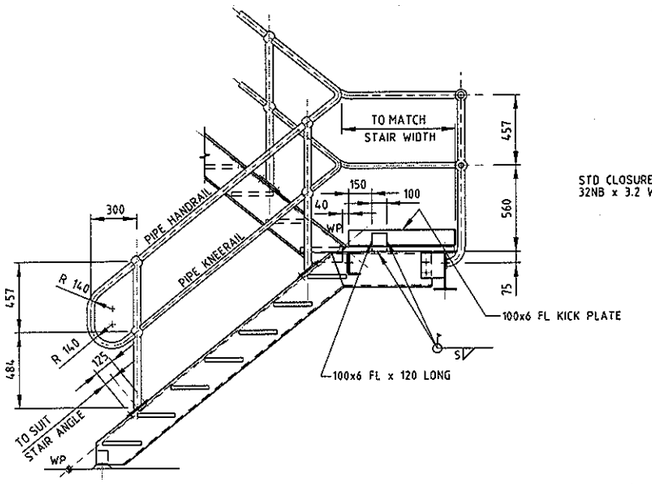
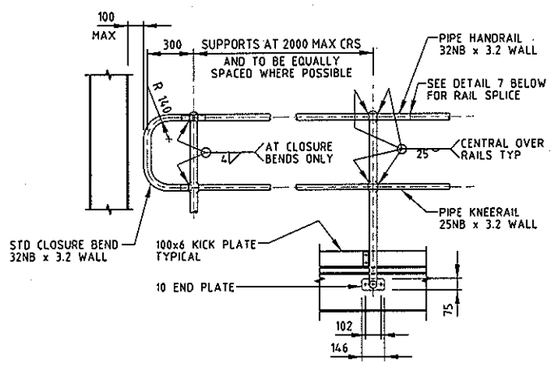
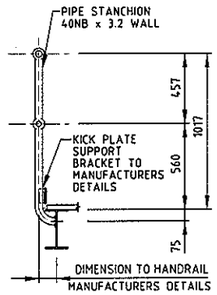
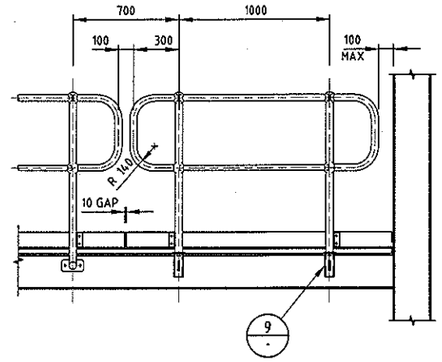
ORIGINAL SIZE A1



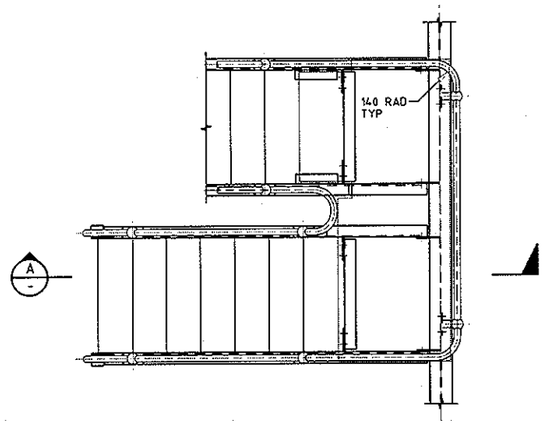




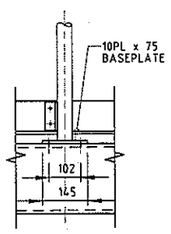
TYPICAL HANDRAIL DETAILS
1:20
(UNLESS NOTED OTHERWISE ON DESIGN DRG'S)

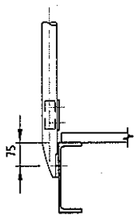


REMOVABLE HANDRAIL PANEL DETAIL
1:20



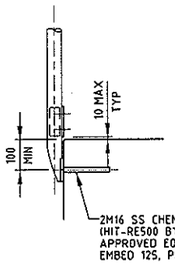
HANDRAIL AT STAIR PLAN
1:20



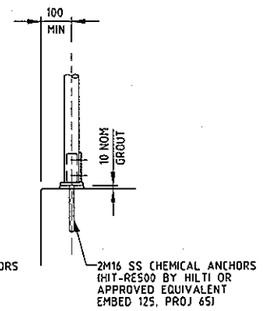


DETAIL 1 SCALE 1:10

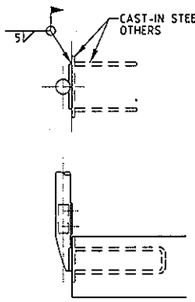
DETAIL 2 SCALE 1:10



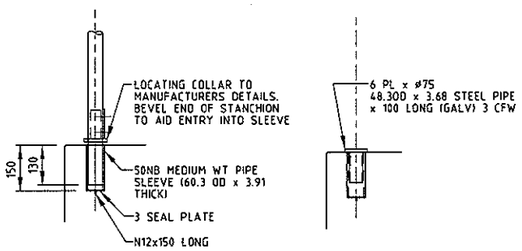
DETAIL 3 SCALE 1:10



DETAIL 4 SCALE 1:10



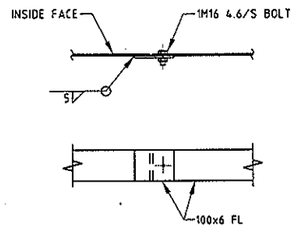
DETAIL 5 SCALE 1:10



SOCKET CONNECTION

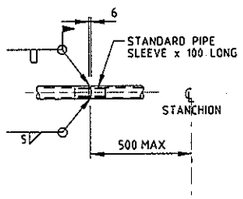
SOCKET COVER

DETAIL 6 SCALE 1:10



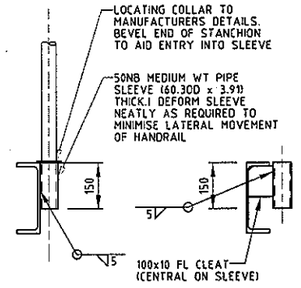
KICK PLATE SPLICE

DETAIL 7 SCALE 1:10



HANDRAIL SPLICE

DETAIL 8 SCALE 1:10



SOCKET CONNECTION

DETAIL 9 SCALE 1:10

NOTES

1. ALL ITEMS SHALL COMPLY WITH AS 1657.
2. ALL HANDRAILING BOLTS SHALL BE GALVANISED M16 GRADE 4.6/S.
3. STANCHIONS SHALL BE BOLTED TO WEB OF SUPPORTING BEAM UNLESS NOTED OTHERWISE ON DESIGN DRAWINGS.
4. CLOSURE BENDS SHALL BE FITTED AT ALL TERMINATION POINTS OF HANDRAILING AT EACH SIDE OF COLUMN AND WHERE INDICATED ON DESIGN DRAWINGS.
5. ALL HANDRAILING SHALL BE FABRICATED FROM GRADE 450 STEEL UNO.
6. STAINLESS STEEL HANDRAILING, WHERE NOMINATED ON THE DESIGN DRAWINGS, SHALL BE GRADE 316.

THIS STANDARD APPLIES TO MONOWILLS OR WELDLOK HANDRAILING OR APPROVED EQUIVALENT

200 0 250 500mm SCALE 1:10

500 0 500mm 1m SCALE 1:20

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PROF REGISTRATION:		

MWH

Client: GOOGONG

GOOGONG WATER RECYCLING PLANT STAGE AB

STANDARD DRAWING
HANDRAIL DETAILS

Status Stamp: FOR CONSTRUCTION
Date Stamp: 19.09.14
Scales:
Drawing No: 83502156-01-001-S005
Rev: 1

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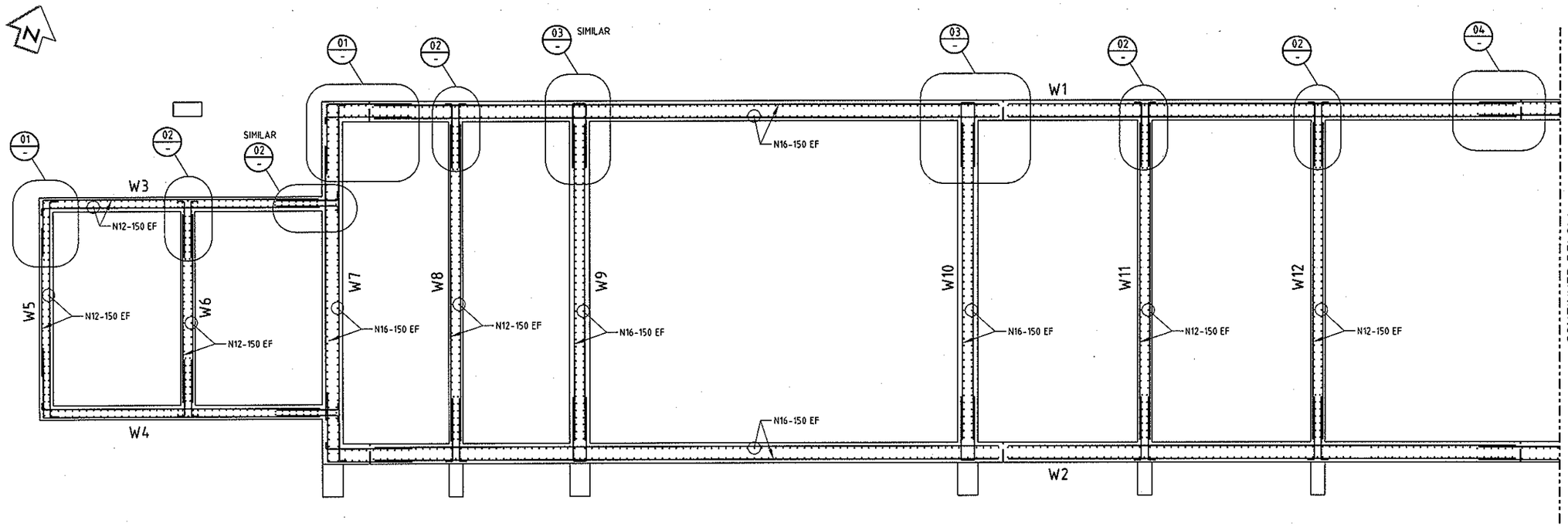
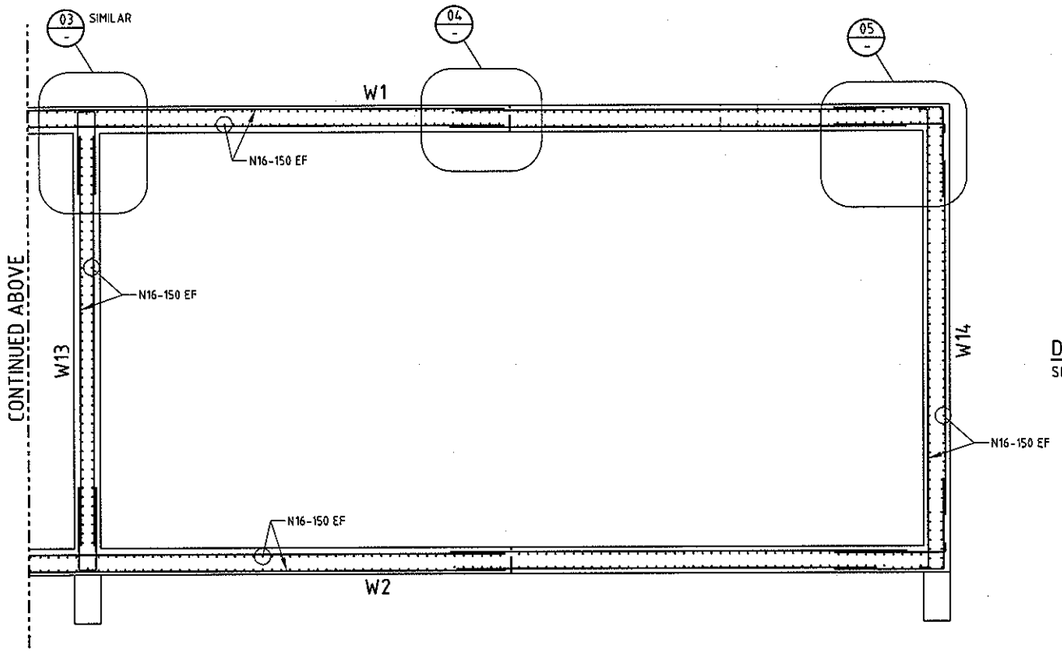
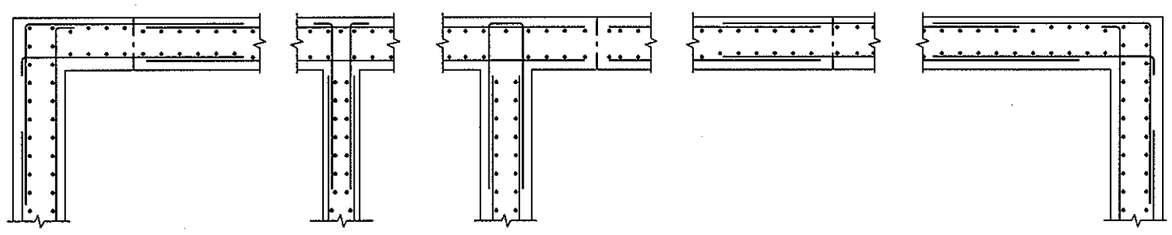


BIOREACTOR SECTIONAL PLAN
SCALE 1:50



EDT SECTIONAL PLAN
SCALE 1:50



DETAIL 01 SCALE 1:25
DETAIL 02 SCALE 1:25
DETAIL 03 SCALE 1:25
DETAIL 04 SCALE 1:25
DETAIL 05 SCALE 1:25

HOLD
THIS DRAWING SHALL BE USED FOR
CONSTRUCTION OF BASE SLABS ONLY
ALL WALLS AND ROOF SLABS ARE ON HOLD

FOR WALL REINFORCEMENT REFER DRAWINGS S017, S108 AND S109

NOTES
1. FOR NOTES AND REFERENCE DRAWINGS REFER ORG 83500000-01-001-S100

NOT FOR CONSTRUCTION

BCA certifiers
ABN: 58 119 755 734

CONSTRUCTION CERTIFICATE
CC140503-1
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Principal Certifying Authority
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PROF REGISTRATION		

MWH

Client: GOOGONG

GOOGONG WATER RECYCLING PLANT STAGE AB

BIOREACTOR
REINFORCEMENT - WALLS SECTIONAL PLAN

Status Stamp: FOR REVIEW
Date Stamp: 19.09.14
Scales: AS SHOWN
Drawing No: 83502156-01-001-S106
Rev: A

ORIGINAL SIZE A1

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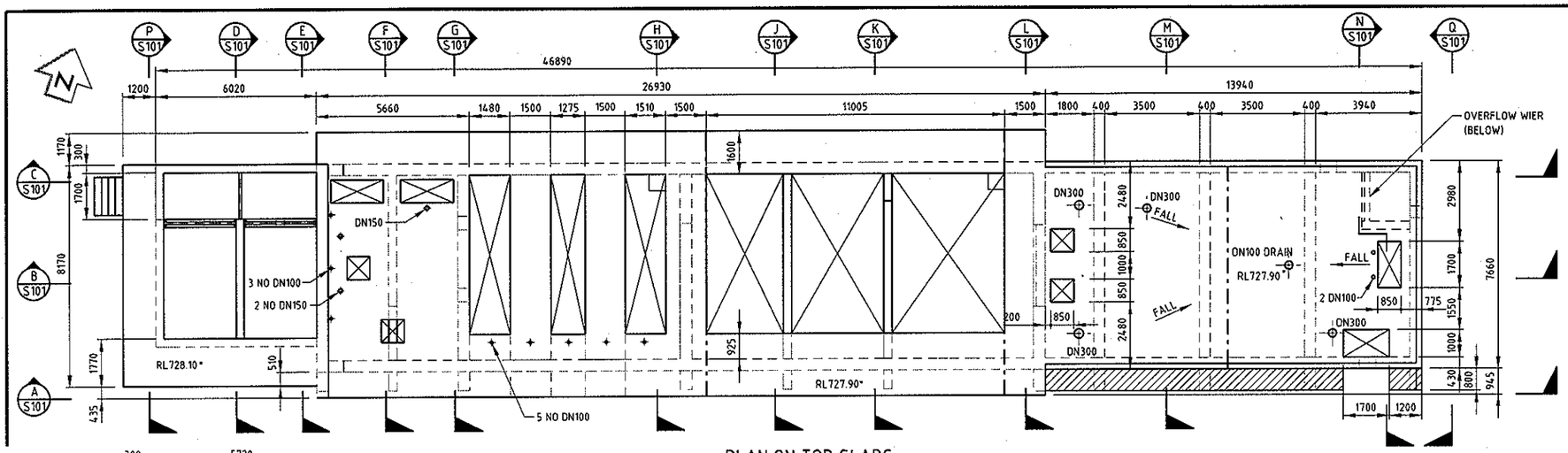
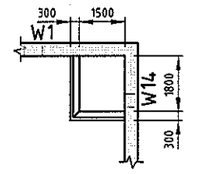
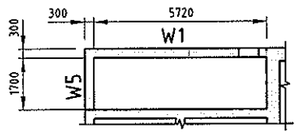


PLAN ON TOP SLABS
SCALE 1:100

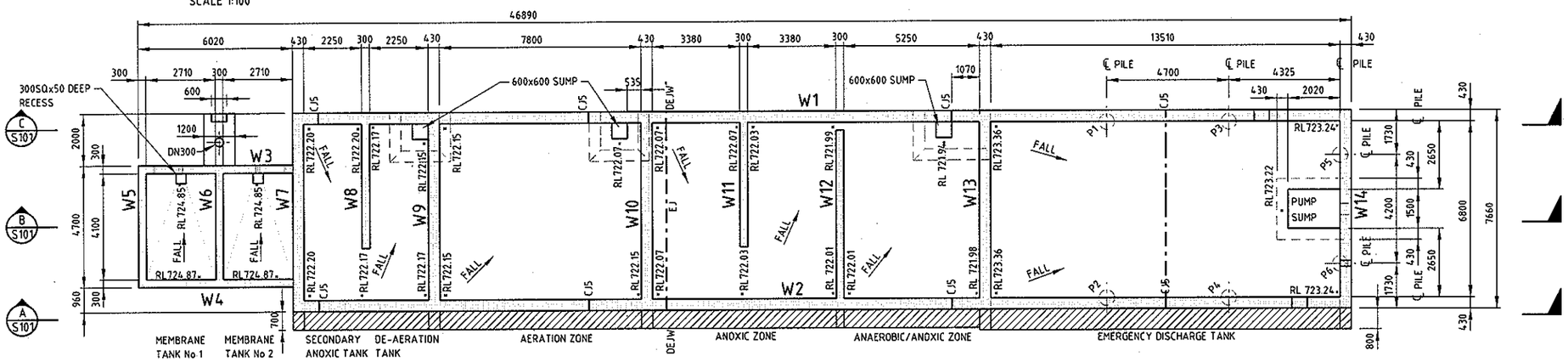


PLAN - OVERFLOW WIER
SCALE 1:100

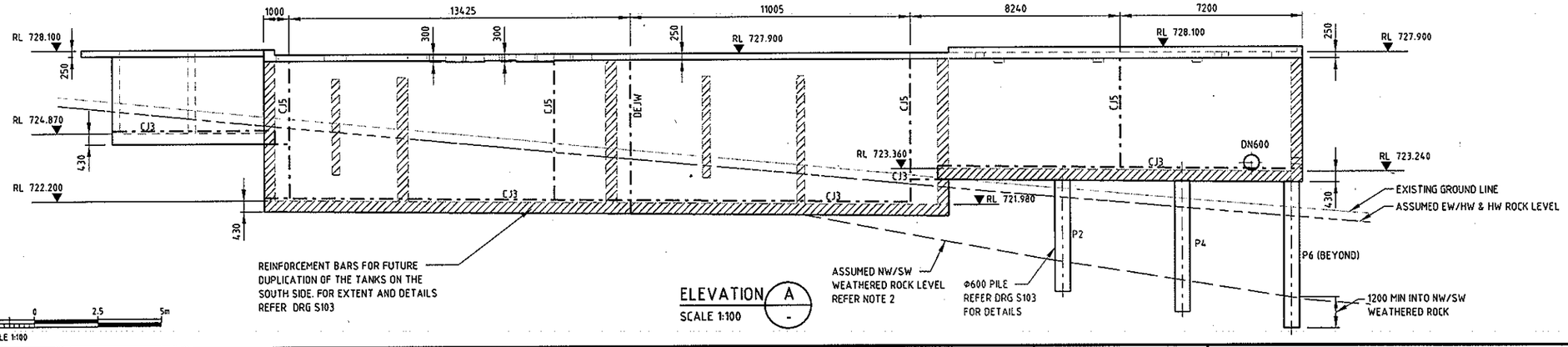


PLAN ON OVERFLOW CHAMBER FLOOR SLAB
SCALE 1:100

HOLD
THIS DRAWING SHALL BE USED FOR CONSTRUCTION OF BASE SLABS ONLY
ALL WALLS AND ROOF SLABS ARE ON HOLD



PLAN ON BASE SLABS
SCALE 1:100



ELEVATION A
SCALE 1:100

CONCRETE COVER TO REINFORCEMENT

CHAMBER	MEMBER	TOP	BOTTOM	SIDE		EXPOSURE CLASSIFICATION
				EXT	INT	
MBR	WALKWAY	50	50	-	-	B1/B1
	WALLS	-	-	50	75	81/D
	BASE	75	50	-	-	D/B1
BIOREACTOR	EXTERNAL WALKWAY	50	50	-	-	B1/B1
	WALKWAY ON WALLS W2/W8/W9/ W10/W13	50	75	-	-	81/D
	WALL 01	-	-	50	75	81/D
	INTERNAL WALLS WALLS W2/ W7/W13	-	-	75	75	D/D
	BASE	75	50	-	-	D/B1
EDT	ROOF	50	75	-	-	81/D
	WALL W14	-	-	50	75	81/D
	BASE	75	50	-	-	D/B1

NOTES

1. FOR GENERAL NOTES REFER DRG G003 AND G004
2. THE NW/SW ROCK PROFILE SHOWN IS BASED ON LINEAR INTERPOLATION BETWEEN AVAILABLE BORELOGS. ACTUAL ROCK PROFILE MAY VARY. ANY VARIATION SHALL BE NOTIFIED TO THE ENGINEER FOR DESIGN VERIFICATION PRIOR TO PILE INSTALLATION/CONSTRUCTION.
3. FINISHED GROUND LEVELS ARE YET TO BE CONFIRMED

LEGEND

N15 GRADE LEAN MIX CONCRETE AROUND STARTER BARS FOR WALLS AND ROOF. CEMENT STABILISED SAND AROUND STARTER BARS MAY BE USED AS AN ALTERNATIVE FOR BASE SLAB.
REFER DRG 83502156-01-001-S104 FOR DETAILS

REFERENCE DRAWINGS

S003	CONCRETE WATER RETAINING STRUCTURES JOINT DETAILS
S005	HANDRAIL DETAILS

BCA certifiers
ABN: 58 119 755 734
CONSTRUCTION CERTIFICATE
CC140503-1
26 September 2014
Principal Certifying Authority
Annette Owen BPB1771

REV	REVISIONS	MWS DRN	AD CHK	SC APP	19.09.14 DATE
1	APPROVED FOR CONSTRUCTION				

SURVEYED		
DESIGNED	Amogh Deshpande	01.08.14
DRAWN	Mark Schwarze	01.08.14
CAD REVIEW	Alan Gilbert	19.09.14
DESIGN CHECK	Amogh Deshpande	19.09.14
DESIGN REVIEW	Jaya Weerasinghe	19.09.14
APPROVED	Stephen Chapman	19.09.14
PROF REGISTRATION:		

MWH

Client: GOOGONG

GOOGONG WATER RECYCLING PLANT STAGE AB

BIOREACTOR
CONCRETE - PLANS AND ELEVATION

Status Stamp: FOR CONSTRUCTION
Date Stamp: 19.09.14
Scales: AS SHOWN
Drawing No: 83502156-01-001-S100
Rev: 1

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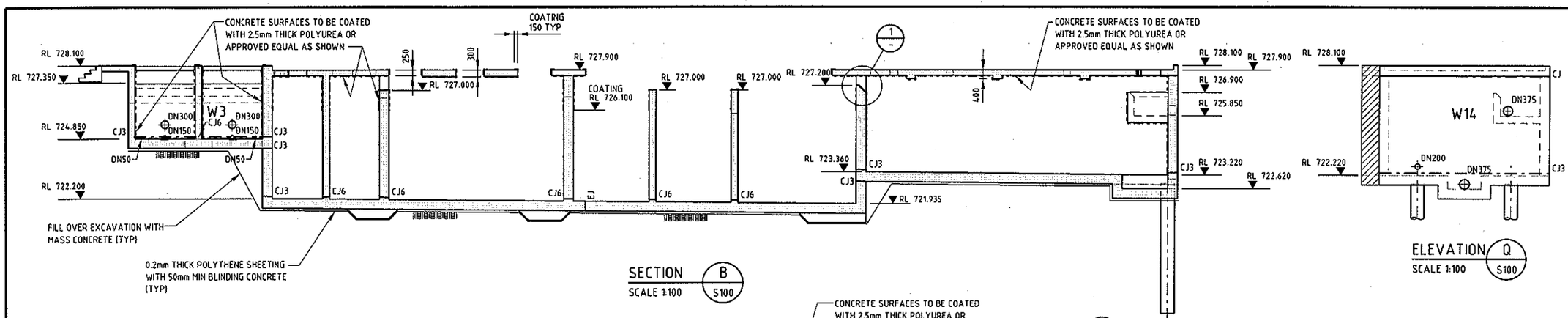
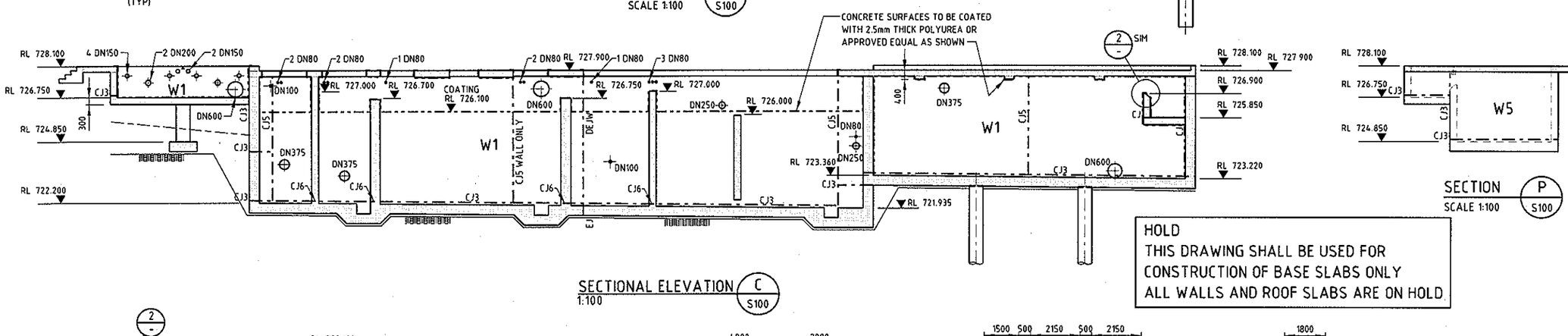
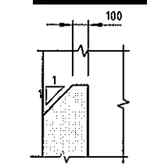
DO NOT SCALE - IF IN DOUBT, ASK

ORIGINAL SIZE A1

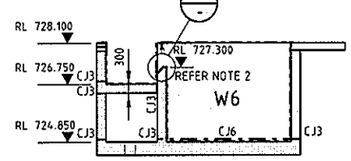




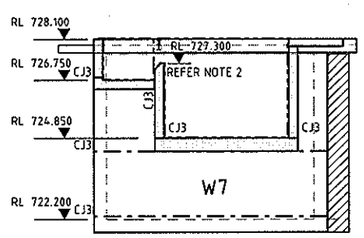
HOLD
THIS DRAWING SHALL BE USED FOR CONSTRUCTION OF BASE SLABS ONLY
ALL WALLS AND ROOF SLABS ARE ON HOLD



DETAIL 2 - SCALE 1:20



SECTION D SCALE 1:100 S100



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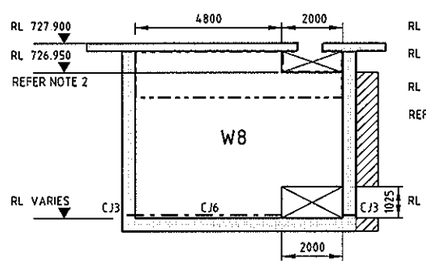

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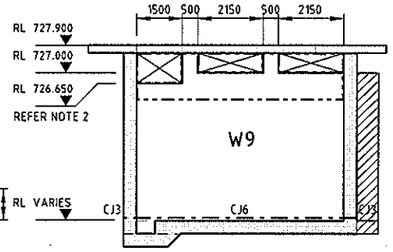

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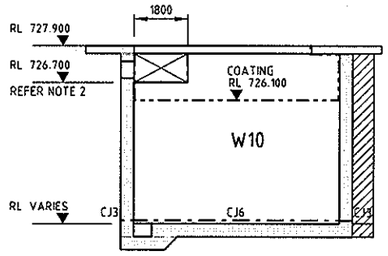

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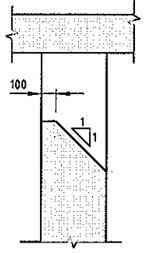

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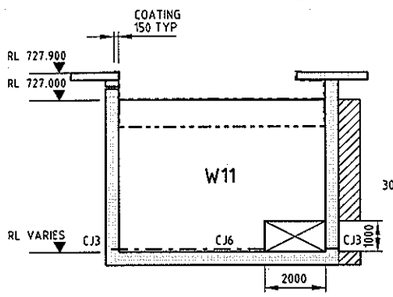
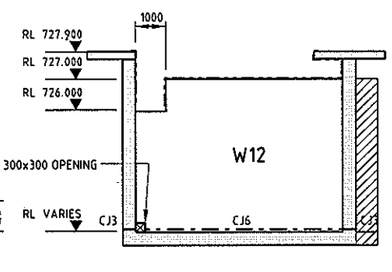


SECTION J SCALE 1:100 S100



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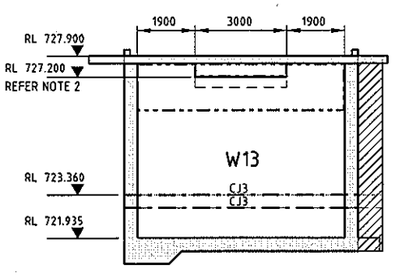

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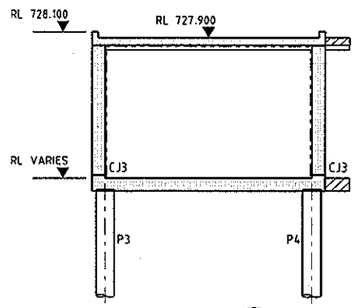

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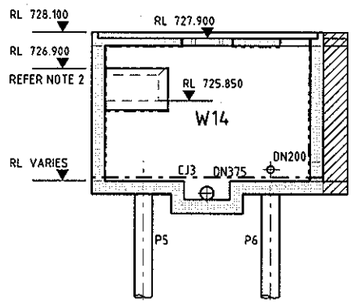

SECTIONAL ELEVATION N 1:100 S100

2 0 2.5 5m
SCALE 1:100

NOTES

1. FOR NOTES REFER DRG S100
2. STAINLESS STEEL WEIR PLATE INSTALLED TO GIVE 50mm MINIMUM LEVEL VARIATION FROM TOP OF CONCRETE.

LEGEND

N15 GRADE LEAN MIX CONCRETE AROUND STARTER BARS FOR WALLS AND ROOF. CEMENT STABILISED SAND AROUND STARTER BARS MAY BE USED AS AN ALTERNATIVE FOR BASE SLAB.
REFER DRG 83502156-01-001-S104 FOR DETAILS

BCA certifiers
ABN: 58 119 755 714

CONSTRUCTION CERTIFICATE
CC140503-1
26 September 2014

Principal Certifying Authority
Annette Owen BPB1771

REV	REVISIONS	DRN	CHK	APP	DATE
1	APPROVED FOR CONSTRUCTION	MWS	AO	SC	19.09.14

SURVEYED		
DESIGNED	Amogh Deshpande	01.08.14
DRAWN	Mark Schwarze	01.08.14
CAD REVIEW	Alan Gilbert	19.09.14
DESIGN CHECK	Amogh Deshpande	19.09.14
DESIGN REVIEW	Jaya Weerasinghe	19.09.14
APPROVED	Stephen Chapman	19.09.14
PROF REGISTRATION		

MWH

Client: GOOGONG

GOOGONG WATER RECYCLING PLANT STAGE AB

BIOREACTOR
CONCRETE - SECTIONS

Status Stamp: FOR CONSTRUCTION
Date Stamp: 19.09.14
Scales: AS SHOWN
Drawing No: 83502156-01-001-S101
Rev: 1

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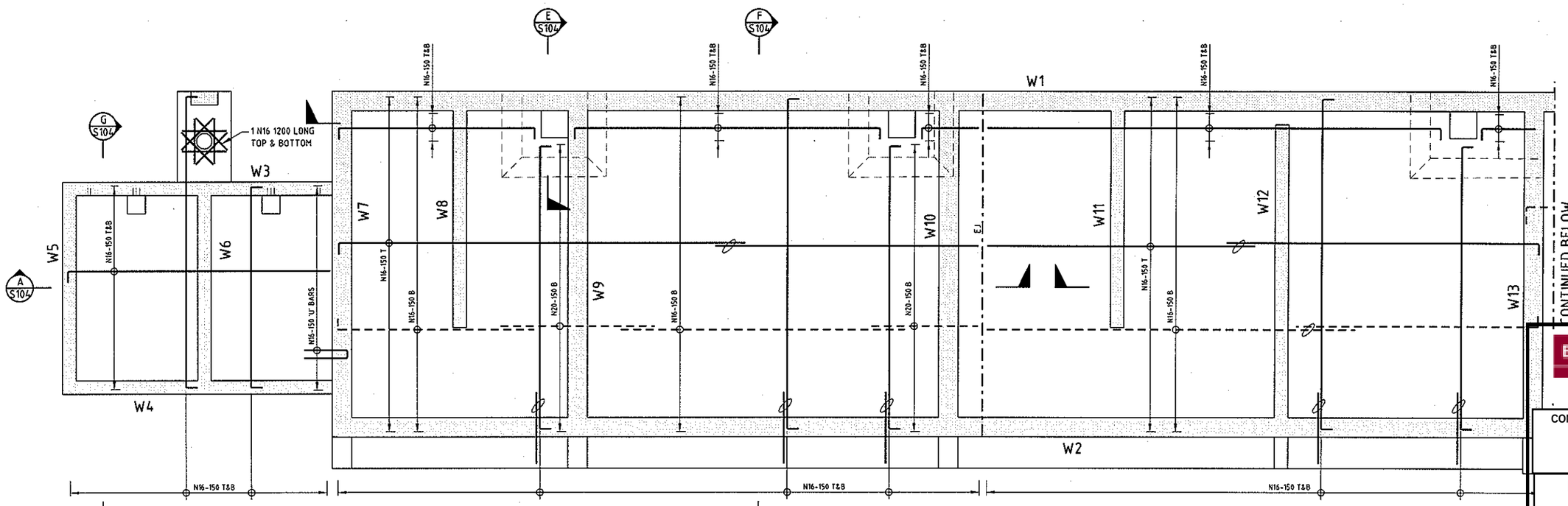
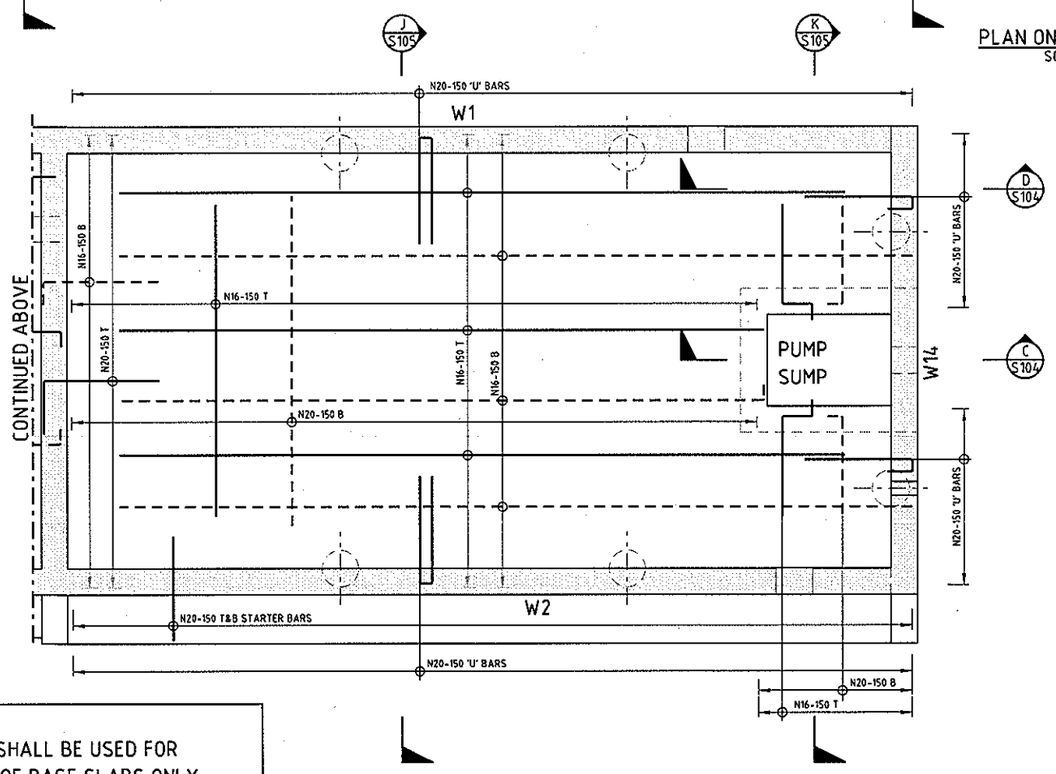
DO NOT SCALE - IF IN DOUBT, ASK
ORIGINAL SIZE A1



PLAN ON BASE SLABS
SCALE 1:50



HOLD
THIS DRAWING SHALL BE USED FOR CONSTRUCTION OF BASE SLABS ONLY
ALL WALLS AND ROOF SLABS ARE ON HOLD

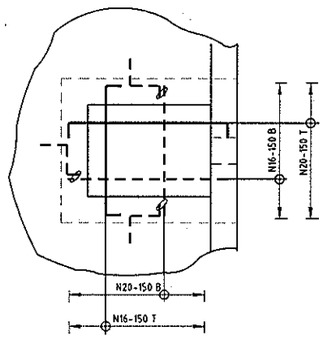
PLAN ON BASE SLABS
SCALE 1:50

1 0 1 2m
SCALE 1:50

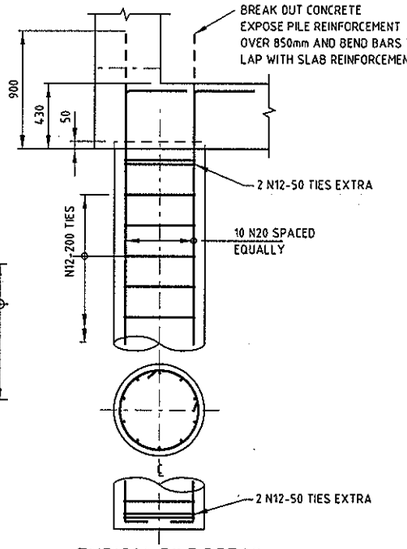
500 0 500mm 1m
SCALE 1:20

PILE TABLE

MARK	ULTIMATE PILE LOADING P× kN	V× kN	DIA (mm)	SLAB SOFFIT LEVEL	PILE CUT OFF LEVEL	ESTIMATED PILE TOE LEVEL
P1	1870	50	600	722.88	722.93	718.51
P2	1870	50	600	722.88	722.93	718.51
P3	1870	50	600	722.84	722.89	717.71
P4	1870	50	600	722.84	722.89	717.71
P5	1065	50	600	722.79	722.84	717.06
P6	1065	50	600	722.79	722.84	717.06



PLAN ON PUMP SUMP SLAB
SCALE 1:50



TYPICAL PILE DETAIL
SCALE 1:20

PILE NOTES

1. PILES SHALL BE INSTALLED BY PILING SUB-CONTRACTOR IN ACCORDANCE WITH AS-2159-2009.
2. PILE DESIGNS ARE BASED ON THE GEOTECHNICAL INVESTIGATION REPORT "PROPOSED WATER RECYCLING PLANT GOOGONG TOWNSHIP, NSW"
3. A FULL DRILLING RECORD SHALL BE KEPT FOR ALL PILES INDICATING DEPTHS, PLAN, LOCATION, BEARING CAPACITY REACHED, GROUND WATER ENCOUNTERED AND ANY PROBLEMS ENCOUNTERED.
4. CLEAR COVER FOR REINFORCEMENT IN PILES IS 60mm UNO.
5. PILES SHALL BE INSTALLED TO WITHIN +/- 75mm OF THE SETOUT AS SHOWN ON THE DRAWING.
6. PILE SHALL BE TRIMMED TO WITHIN +/- 25mm OF THE CUT-OFF LEVEL
7. VERTICALITY TOLERANCE OF PILES SHALL NOT BE MORE THAN 1:100.
8. BORED PIER SIDE FACES AND BASE ARE TO BE CLEAN AND FREE OF ANY LOOSE MATERIAL.
9. THE MINIMUM CHARACTERISTIC STRENGTH OF CONCRETE AT 28 DAYS 40mPa.
10. THE PILES HAVE BEEN DESIGNED BASED ON THE INFORMATION IN THE GEOTECHNICAL REPORT. GENERALISED OR IDEALISED SUBSURFACE CONDITIONS HAVE BEEN ASSUMED OR PREPARED BY INTERPOLATION/EXTRAPOLATION OF THIS DATE. LOCAL VARIATIONS OR ANOMALIES IN THE GENERALISED CONDITIONS CAN OCCUR AND AS SUCH THE PILE EMBEDMENT DEPTH MAY HAVE TO BE VARIED FROM THOSE SHOWN ON THE DRAWINGS.

NOTES

1. FOR NOTES AND REFERENCE DRAWINGS REFER ORG 83500000-01-001-S100

BCA certifiers
ABN: 58 119 755 734
CONSTRUCTION CERTIFICATE
CC140503-1
26 September 2014
Principal Certifying Authority
Annette Owen BPB1771

REV	REVISIONS	MWS DRN	AD CHK	SC APP	19.09.14 DATE
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DESIGN REVIEW	Jaya Weerasinghe	19.09.14
APPROVED	Stephen Chapman	19.09.14
PROF REGISTRATION		

MWH

Client: GOOGONG

GOOGONG WATER RECYCLING PLANT STAGE AB

BIOREACTOR
REINFORCEMENT - BASE SLAB PLAN AND PILE DETAILS

Status Stamp: FOR CONSTRUCTION
Date Stamp: 19.09.14
Scales: AS SHOWN
Drawing No: 83502156-01-001-S103
Rev: 1

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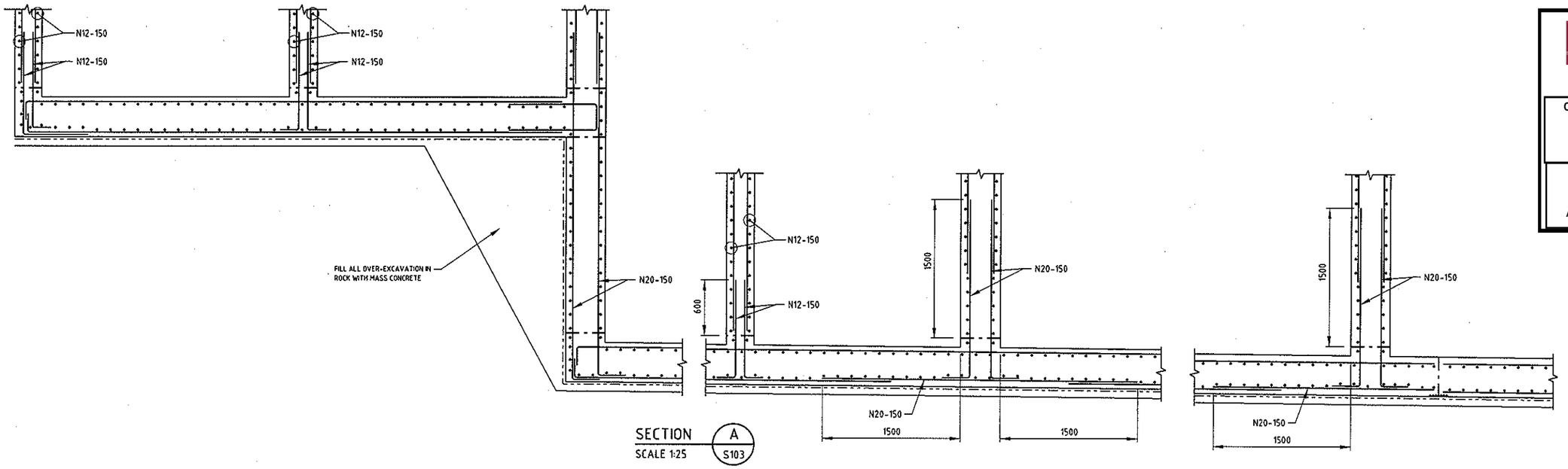
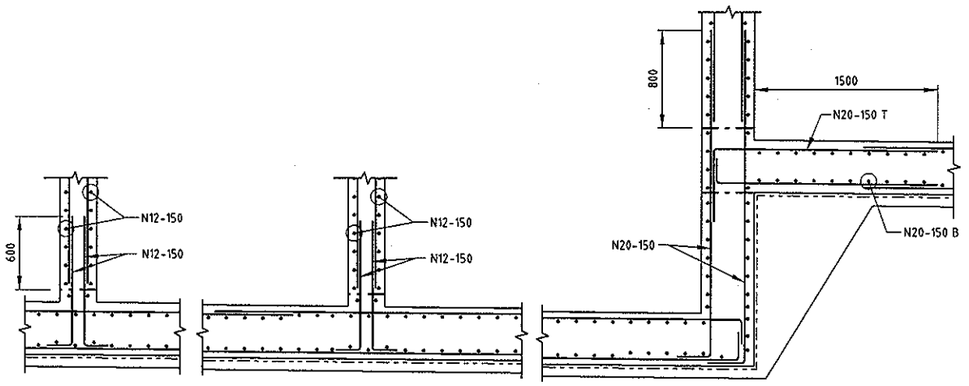


SECTION A
SCALE 1:25 S103



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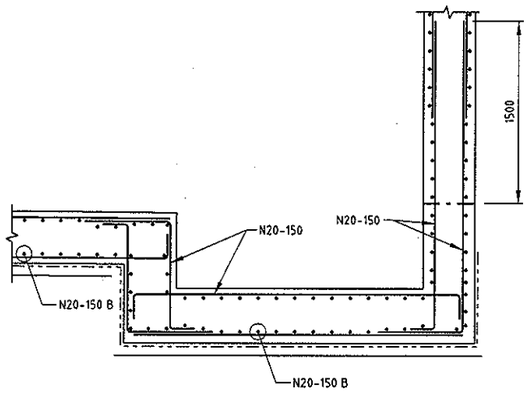

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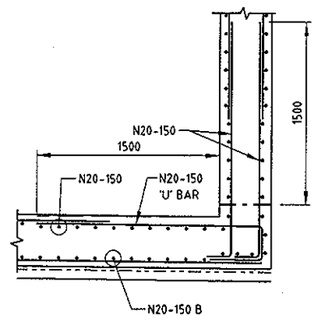
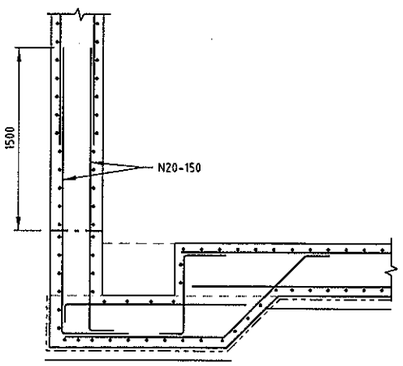


SECTION D
SCALE 1:25 S103



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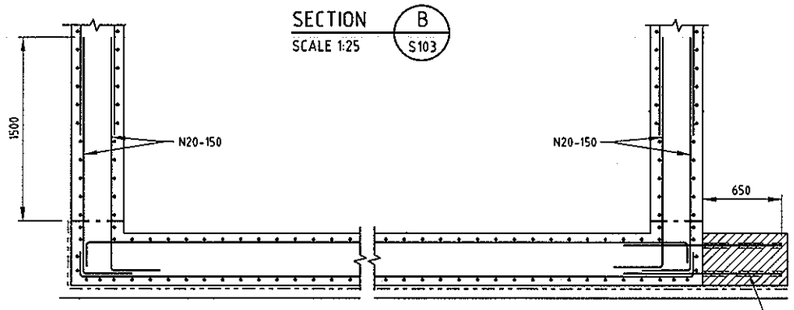
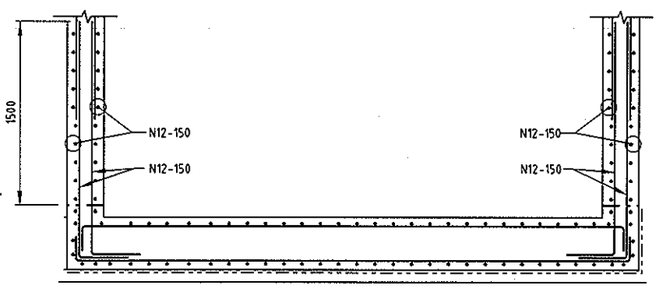


SECTION F
SCALE 1:25 S103



SECTION G
SCALE 1:25 S103

ALL REINFORCEMENT TO BE N16-150 EW EF UNO

HOLD
THIS DRAWING SHALL BE USED FOR CONSTRUCTION OF BASE SLABS ONLY
ALL WALLS AND ROOF SLABS ARE ON HOLD

NOTES
1. FOR NOTES AND REFERENCE ORAWINGS REFER DRG 83500000-01-001-S100

500 0 500mm 1m
SCALE 1:25

REV	REVISIONS	DRN	CHK	APP	DATE
1	APPROVED FOR CONSTRUCTION	HWS	AD	SC	19.09.14

SURVEYED		
DESIGNED	Amogh Deshpande	01.08.14
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APPROVED	Stephen Chapman	19.09.14
PROF REGISTRATION:		

MWH

Client: GOOGONG

GOOGONG WATER RECYCLING PLANT STAGE AB

BIOREACTOR
REINFORCEMENT - BASE SLAB SECTIONS SHEET 1

Status Stamp: FOR CONSTRUCTION
Date Stamp: 19.09.14
Scales: AS SHOWN
Drawing No: 83502156-01-001-S104
Rev: 1

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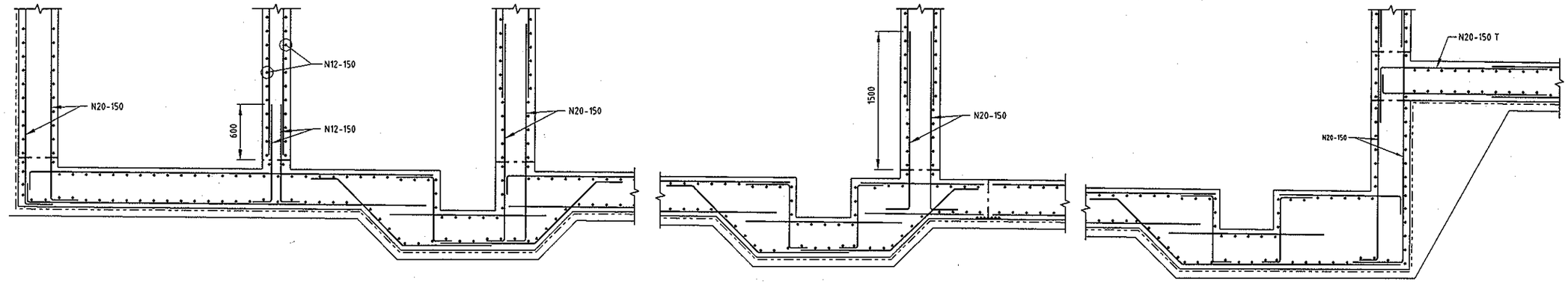
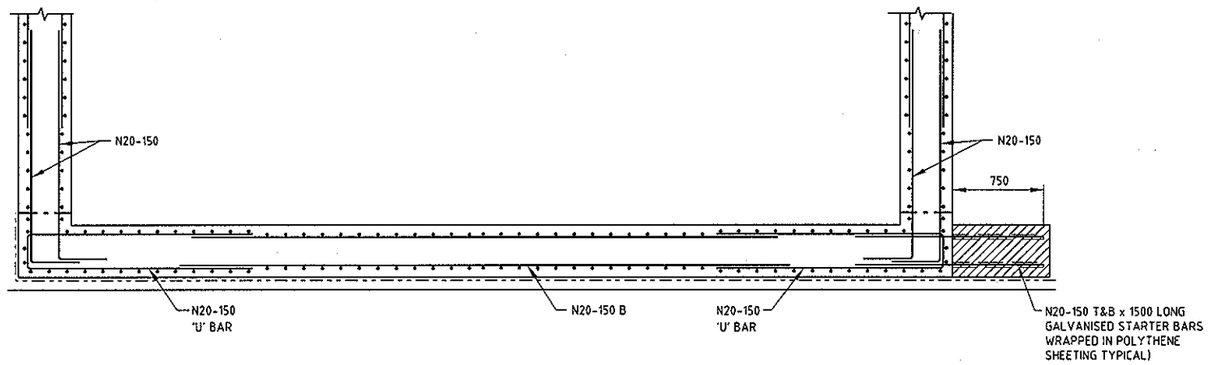


SECTION H
SCALE 1:25 S103



SECTION J
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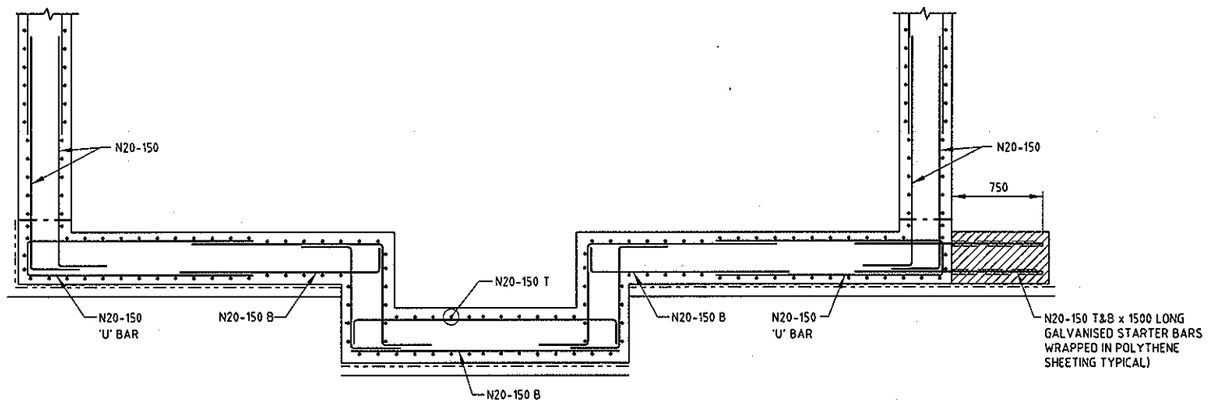

SECTION K
SCALE 1:25 S103

500 0 500mm 1m
SCALE 1:25

BCA certifiers
ABN: 58 119 755 734

CONSTRUCTION CERTIFICATE
CC140503-1
26 September 2014
Principal Certifying Authority
Annette Owen BPB1771

ALL REINFORCEMENT TO BE N16-150 EW EF UNO

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NOTES
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APPROVED	Stephen Chapman	19.09.14
PROF REGISTRATION:		

MWH

Client: GOOGONG

GOOGONG WATER RECYCLING PLANT STAGE AB

BIOREACTOR
REINFORCEMENT - BASE SLAB SECTIONS SHEET 2

Status Stamp: FOR CONSTRUCTION
Date Stamp: 19.09.14
Scales: AS SHOWN
Drawing No: 83502156-01-001-S105
Rev: 1

ORIGINAL SIZE A1

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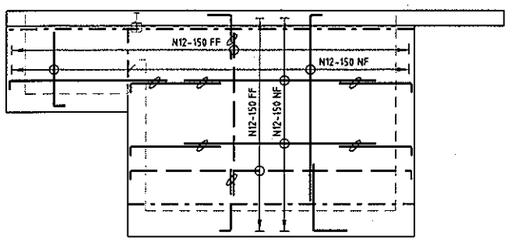
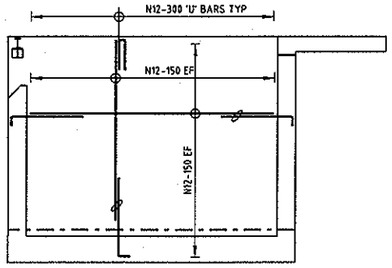
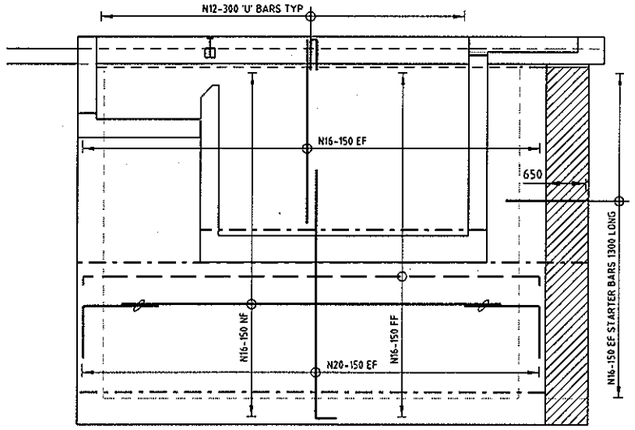


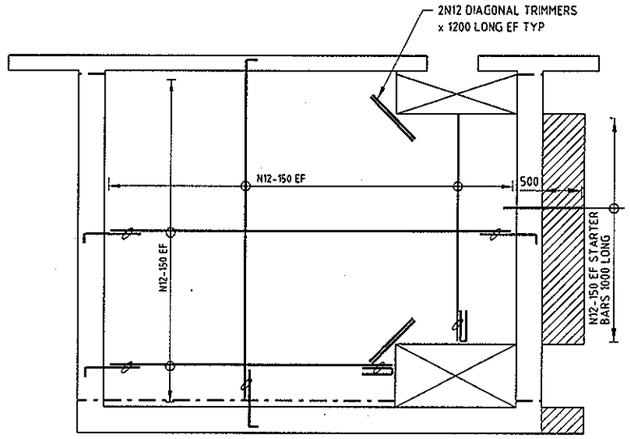
WALL W5 - ELEVATION
SCALE 1:50



WALL W6 - ELEVATION
SCALE 1:50



WALL W7 - ELEVATION
SCALE 1:50



WALL W8 - ELEVATION
SCALE 1:50

WALL W9 - ELEVATION
SCALE 1:50

WALL W10 - ELEVATION
SCALE 1:50

WALL W11 - ELEVATION
SCALE 1:50

HOLD
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CONSTRUCTION OF BASE SLABS ONLY
ALL WALLS AND ROOF SLABS ARE ON HOLD

NOTES

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1 0 1 2m
SCALE 1:50

REV	REVISIONS	DRN	CHK	APP	DATE
1	APPROVED FOR CONSTRUCTION	MWS	AD	SC	19.09.14

SURVEYED		
DESIGNED	Amogh Deshpande	01.08.14
DRAWN	Mark Schwarze	01.08.14
CAD REVIEW	Alan Gilbert	19.09.14
DESIGN CHECK	Amogh Deshpande	19.09.14
DESIGN REVIEW	Jaya Weerasinghe	19.09.14
APPROVED	Stephen Chapman	19.09.14
PROF REGISTRATION:		

MWH

Client: GOOGONG

GOOGONG WATER RECYCLING PLANT STAGE AB

BIOREACTOR
REINFORCEMENT - WALL ELEVATIONS SHEET 1

BCA certifiers
ABN: 58 119 755 734
CONSTRUCTION CERTIFICATE
CC140503-1
26 September 2014
Principal Certifying Authority
Annette Owen BPB1771

Status Stamp: FOR CONSTRUCTION
Date Stamp: 19.09.14
Scales: AS SHOWN
Drawing No: 83502156-01-001-S107
Rev: 1

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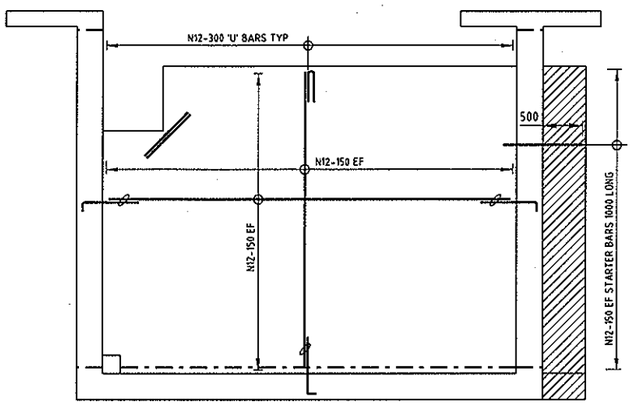
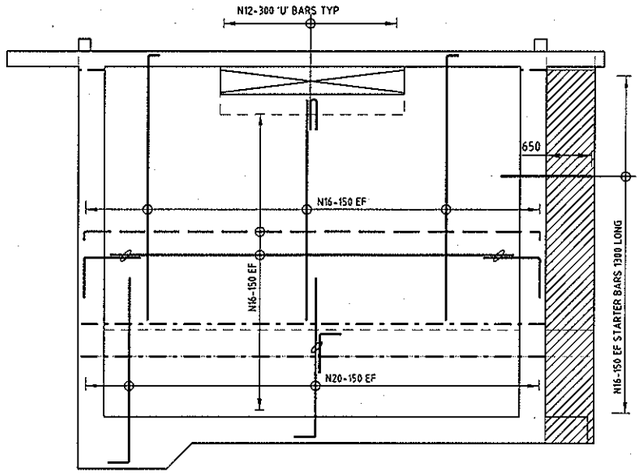
DO NOT SCALE - IF IN DOUBT, ASK
ORIGINAL SIZE A1



WALL W12 - ELEVATION
SCALE 1:50



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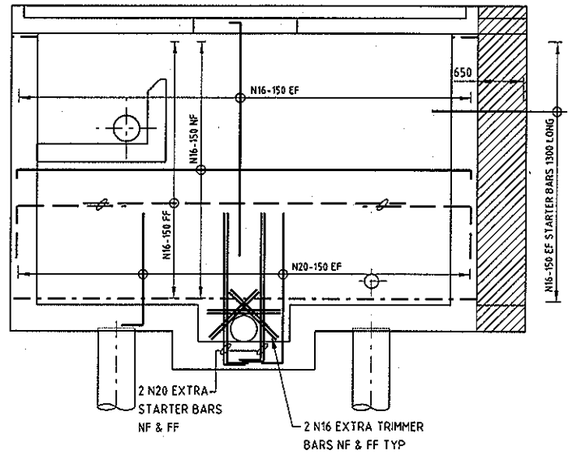

WALL W14 - ELEVATION
SCALE 1:50

BCA certifiers
ABN: 58 119 755 734

CONSTRUCTION CERTIFICATE
CC140503-1
26 September 2014

Principal Certifying Authority
Annette Owen BPB1771

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ORIGINAL SIZE A1

HOLD
THIS DRAWING SHALL BE USED FOR CONSTRUCTION OF BASE SLABS ONLY
ALL WALLS AND ROOF SLABS ARE ON HOLD

NOTES
1. FOR NOTES AND REFERENCE DRAWINGS REFER DRG 83500000-01-001-S100

500 0 500mm 1m
SCALE 1:25

REV	REVISIONS	DRN	CHK	APP	DATE
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APPROVED	Stephen Chapman	19.09.14
PROF REGISTRATION:		

MWH

Client: GOOGONG

GOOGONG WATER RECYCLING PLANT STAGE AB

BIOREACTOR
REINFORCEMENT - WALL ELEVATIONS SHEET 2

Status Stamp: FOR CONSTRUCTION
Date Stamp: 19.09.14
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Drawing No: 83502156-01-001-S108
Rev: 1

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FOR CONTINUATION OF WALL W1 REFER BELOW

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ABN: 58 119 755 734

CONSTRUCTION CERTIFICATE
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26 September 2014
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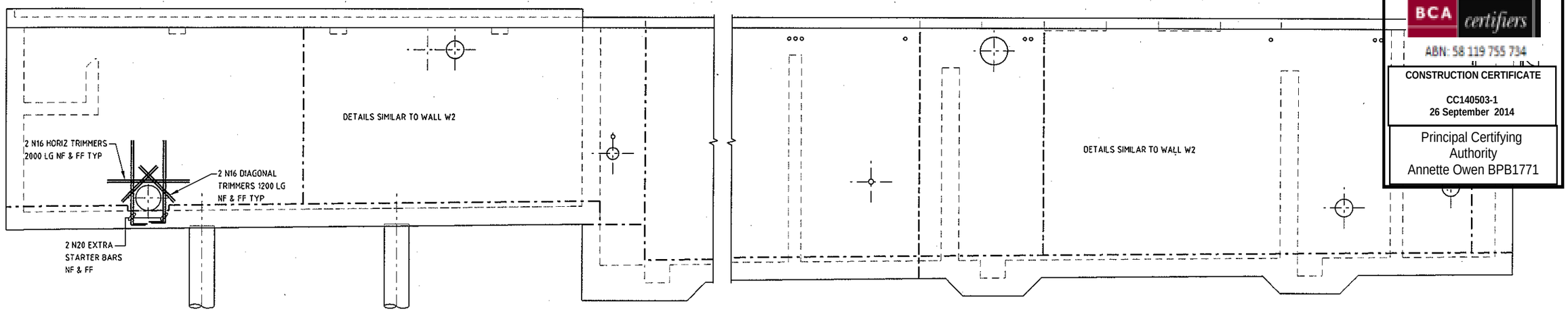
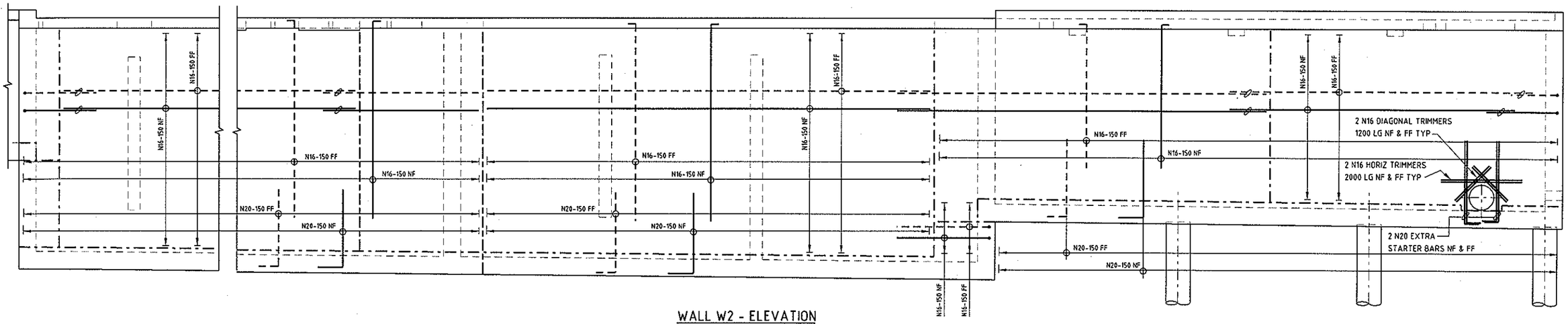
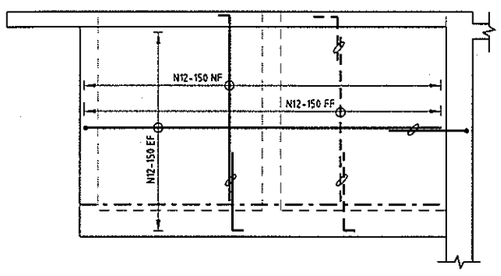
Annette Owen BPB1771



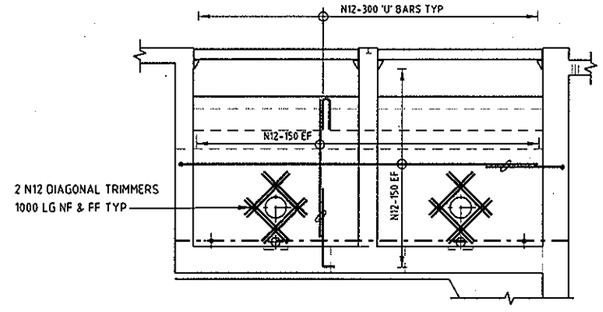
WALL W1 - ELEVATION
SCALE 1:50



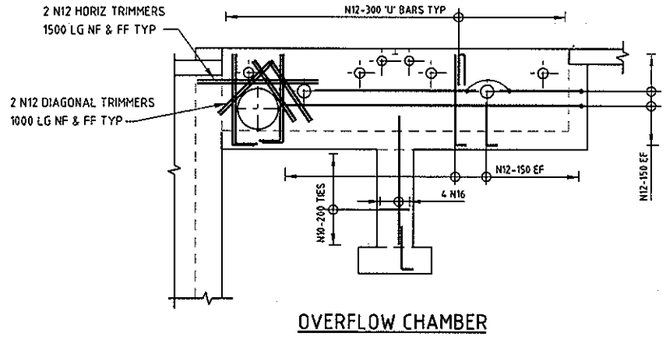
WALL W2 - ELEVATION
SCALE 1:50



WALL W4 - ELEVATION
SCALE 1:50



WALL W3 - ELEVATION
SCALE 1:50



OVERFLOW CHAMBER
WALL W1 - ELEVATION
SCALE 1:50

HOLD
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NOTES
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500 0 500mm 1m
SCALE 1:25

ORIGINAL SIZE A1

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PROF REGISTRATION:		

MWH

Client: GOOGONG

GOOGONG WATER RECYCLING PLANT STAGE AB

BIOREACTOR
REINFORCEMENT - WALL ELEVATIONS SHEET 3

Status Stamp: FOR CONSTRUCTION
Date Stamp: 19.09.14
Scales: AS SHOWN
Drawing No: 83502156-01-001-S109
Rev: 1

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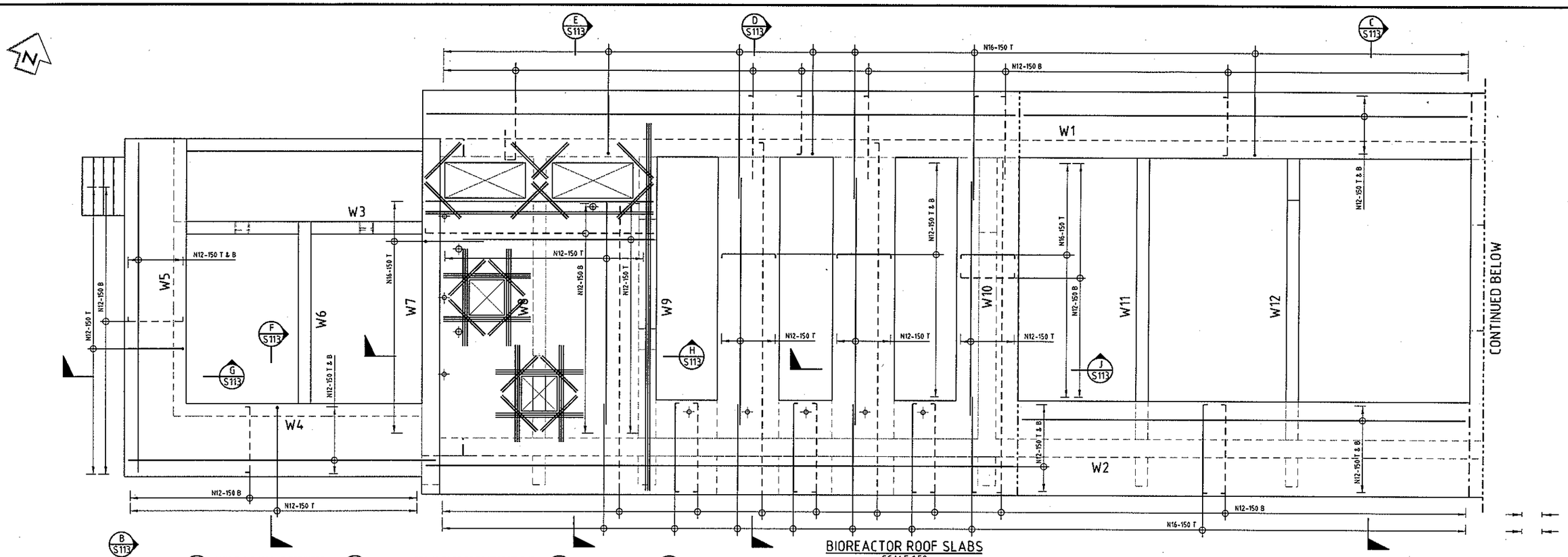
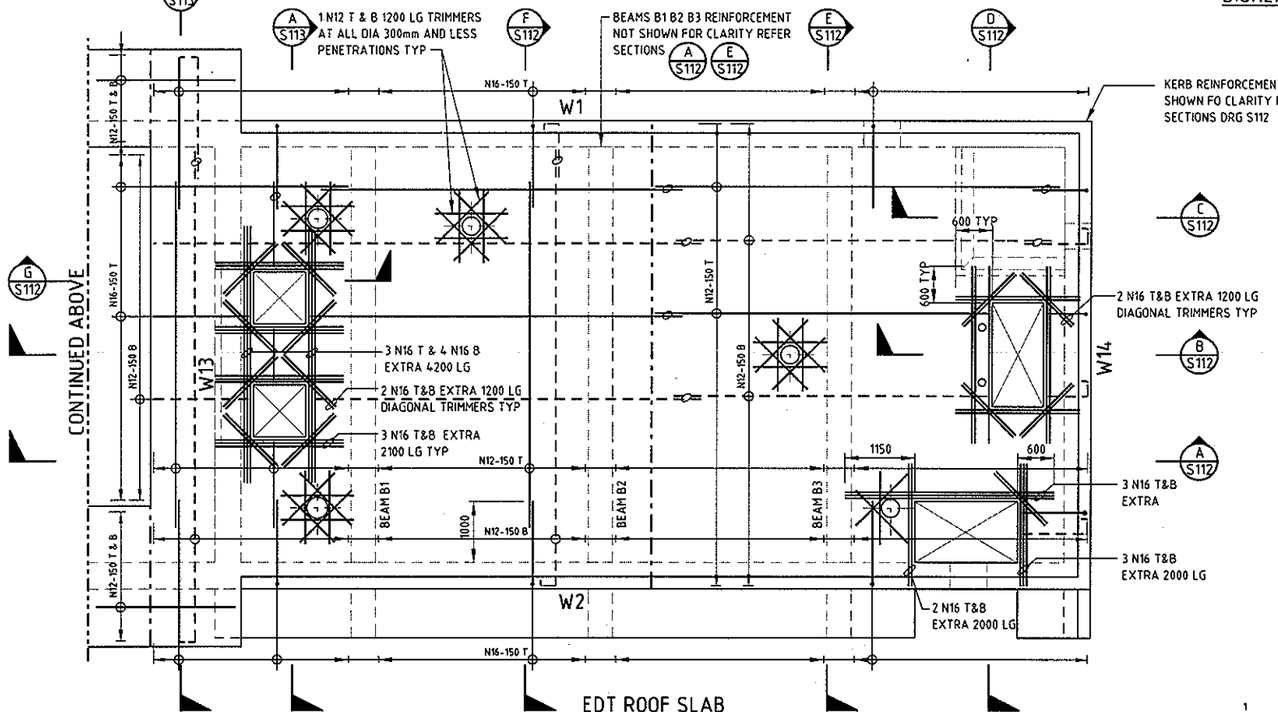


BIOREACTOR ROOF SLABS
SCALE 1:50



EDT ROOF SLAB
SCALE 1:50

HOLD
THIS DRAWING SHALL BE USED FOR CONSTRUCTION OF BASE SLABS ONLY
ALL WALLS AND ROOF SLABS ARE ON HOLD

ALL ROOF SLAB REINFORCEMENT TO BE N12-150 EW EF UNO
FOR WALL REINFORCEMENT REFER DRAWINGS S017, S108 AND S109

1 0 1 2m
SCALE 1:50

BCA certifiers
ABN: 58 119 755 734
CONSTRUCTION CERTIFICATE
CC140503-1
26 September 2014
Principal Certifying Authority
Annette Owen BPB1771

NOT FOR CONSTRUCTION

REV	REVISIONS	AG DRN	AD CHK	SC APP	19.09.14 DATE
A	IFC FOR REVIEW				

SURVEYED		
DESIGNED	Amogh Deshpande	11.09.14
DRAWN	A Gilbert	11.09.14
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DESIGN CHECK	Amogh Deshpande	19.09.14
DESIGN REVIEW	Jaya Weerasinghe	19.09.14
APPROVED	Stephen Chapman	19.09.14
PROF REGISTRATION:		

MWH

Client: GOOGONG

GOOGONG WATER RECYCLING PLANT STAGE AB

BIOREACTOR
REINFORCEMENT - ROOF SLAB PLAN

Status Stamp: FOR REVIEW
Date Stamp: 19.09.14
Scales: AS SHOWN
Drawing No: 83502156-01-001-S111
Rev: A

ORIGINAL SIZE A1
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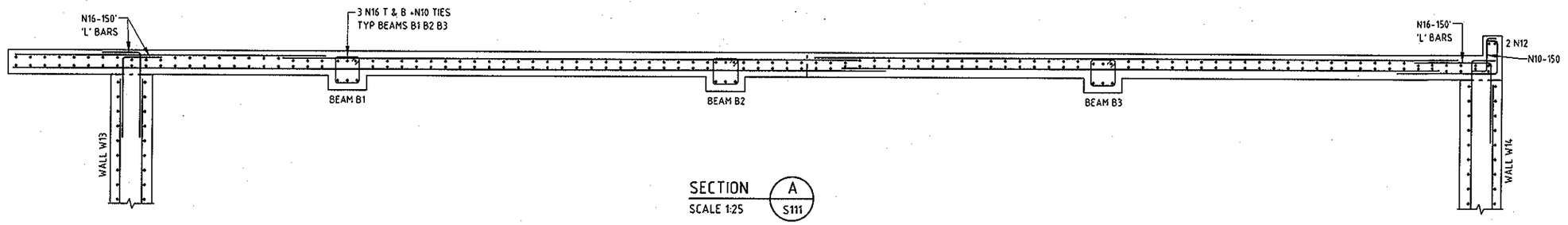
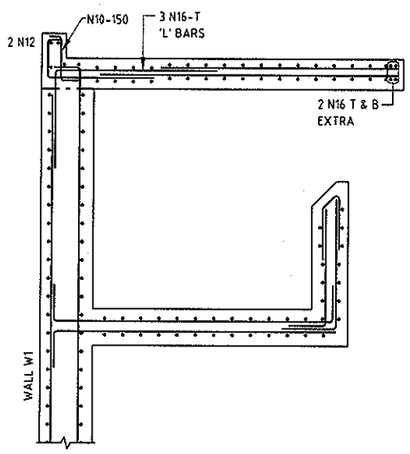
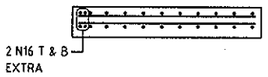
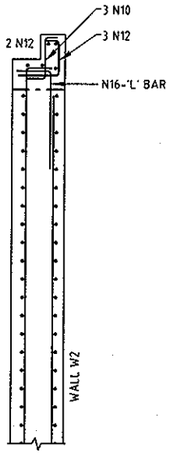


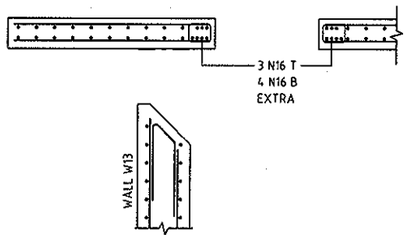
SECTION A
SCALE 1:25 S111



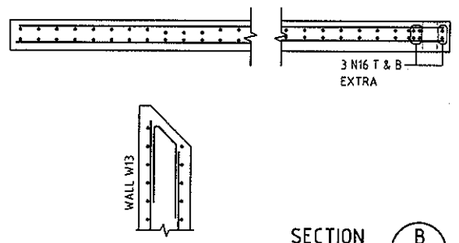
SECTION D
SCALE 1:25 S111



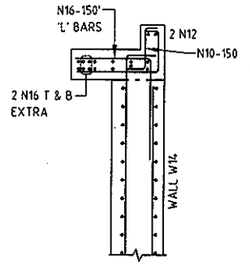


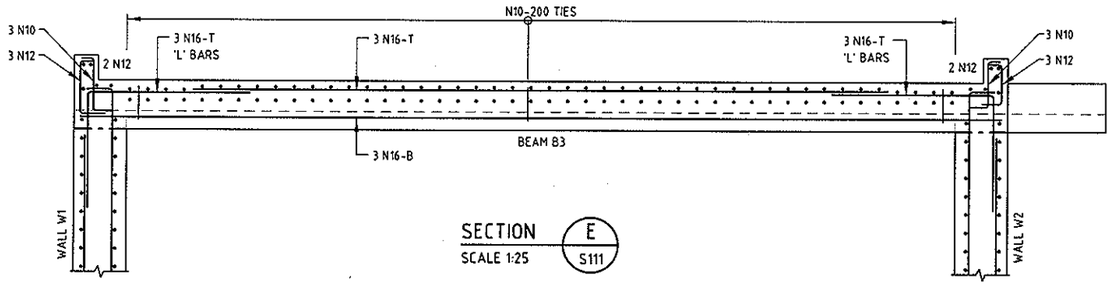


SECTION G
SCALE 1:25 S111

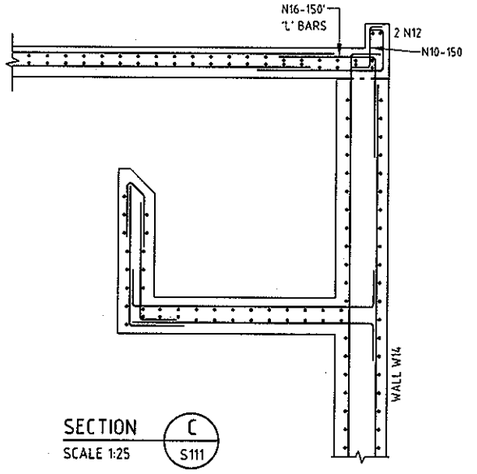


SECTION B
SCALE 1:25 S111

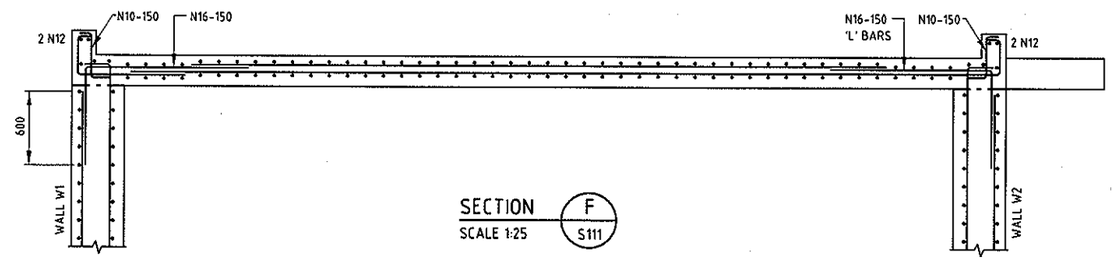




SECTION E
SCALE 1:25 S111



SECTION C
SCALE 1:25 S111



SECTION F
SCALE 1:25 S111

500 0 500mm 1m
SCALE 1:25

BCA certifiers
ABN: 58 119 755 734

CONSTRUCTION CERTIFICATE
CC140503-1
26 September 2014

Principal Certifying Authority
Annette Owen BPB1771

NOTES

1. FOR NOTES AND CONCRETE COVER TO REINFORCEMENT REQUIREMENTS REFER DRG 83500000-01-001-S100

HOLD
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ALL ROOF SLAB REINFORCEMENT TO BE N12-150 EW EF UNO
FOR WALL REINFORCEMENT REFER DRAWINGS S017, S108 AND S109

NOT FOR CONSTRUCTION

REV	REVISIONS	ORN	CHK	APP	DATE
A	IFC FOR REVIEW	AG	AD	SC	19.09.14

SURVEYED		
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DRAWN	A Gilbert	11.09.14
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APPROVED	Stephen Chapman	19.09.14
PROF REGISTRATION:		

MWH®

Client: GOOGONG

GOOGONG WATER RECYCLING PLANT STAGE AB

BIOREACTOR
REINFORCEMENT - ROOF SLAB SECTIONS SHEET 1

Status Stamp: FOR REVIEW
Date Stamp: 19.09.14
Scales: AS SHOWN
Drawing No: 83502156-01-001-S112
Rev: A

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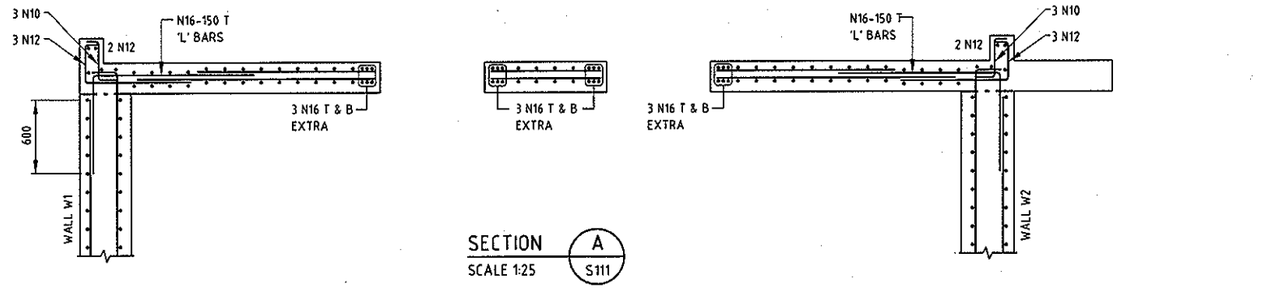
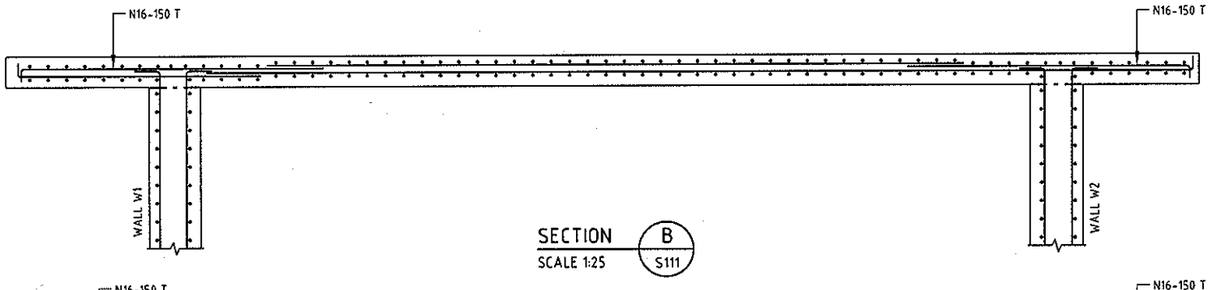
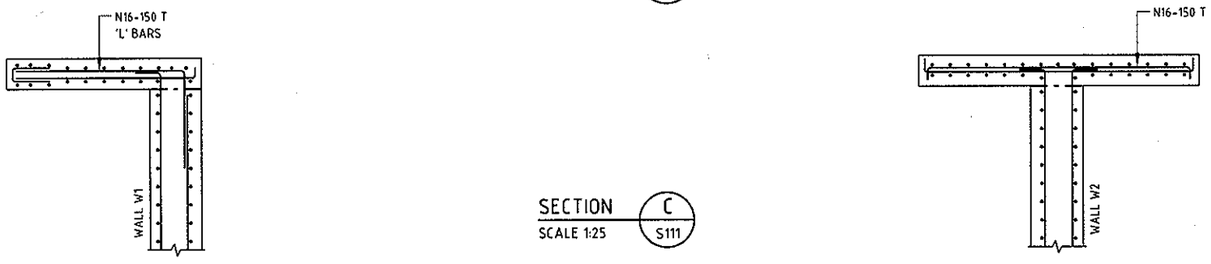
DO NOT SCALE - IF IN DOUBT, ASK
ORIGINAL SIZE A1



SECTION A
SCALE 1:25 S111



SECTION B
SCALE 1:25 S111



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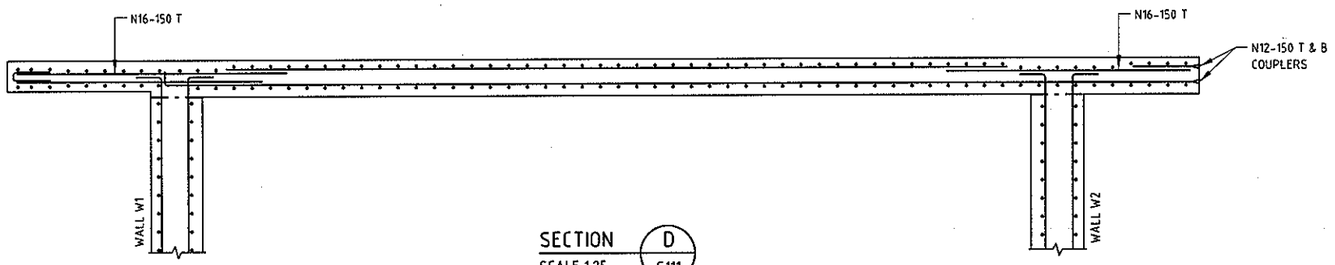

SECTION D
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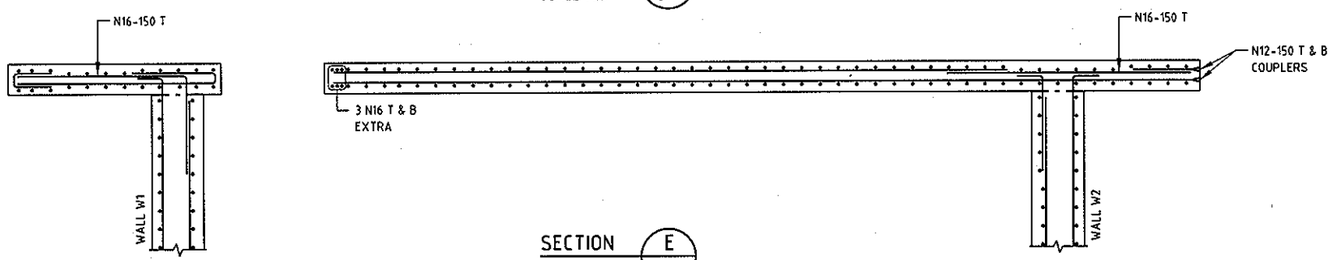

SECTION E
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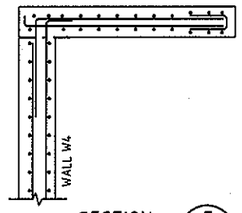

SECTION F
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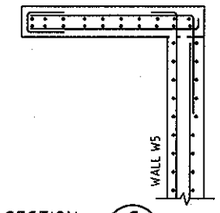
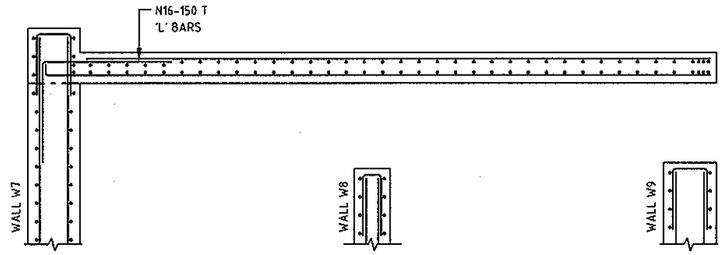
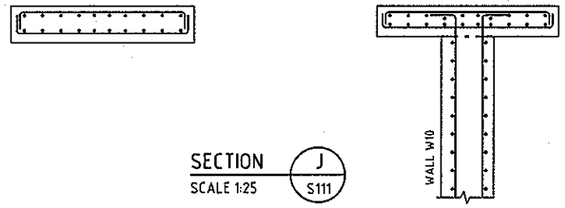


SECTION G
SCALE 1:25 S111



SECTION H
SCALE 1:25 S111



SECTION J
SCALE 1:25 S111

500 0 500mm 1m
SCALE 1:25

HOLD
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BCA certifiers
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MWH

Client: GOOGONG

GOOGONG WATER RECYCLING PLANT STAGE AB

BIOREACTOR
REINFORCEMENT - ROOF SLAB SECTIONS SHEET 2

Status Stamp: FOR REVIEW
Date Stamp: 19.09.14
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Drawing No: 83502156-01-001-S113
Rev: A

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