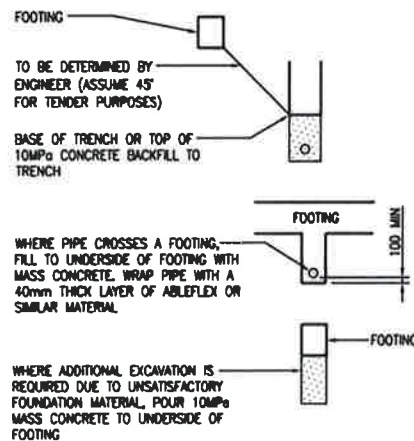


## GENERAL

- G1. THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH SPECIFICATIONS, OTHER CONSULTANT'S DRAWINGS AND WITH WRITTEN INSTRUCTIONS AS MAY BE ISSUED DURING THE COURSE OF THE CONTRACT.
- G2. ALL DISCREPANCIES SHALL BE REFERRED TO HABITATION AND BE RESOLVED BEFORE PROCEEDING WITH THE WORK.
- G3. ALL DIMENSIONS SHOWN SHALL BE VERIFIED BY THE BUILDER ON SITE. ENGINEER'S DRAWINGS SHALL NOT BE SCALED FOR DIMENSIONS.
- G4. ALL WORKMANSHIP, TESTING, MATERIALS AND SUPERVISION ARE TO BE IN ACCORDANCE WITH THESE SPECIFICATIONS, THE OCCUPATIONAL HEALTH AND SAFETY ACT 2000 ENFORCED BY THE WORKCOVER AUTHORITY AND CURRENT RELEVANT AUSTRALIAN STANDARDS.
- G5. PROPRIETARY ITEMS SPECIFIED SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN RECOMMENDATIONS. DO NOT VARY SPECIFIED PROPRIETARY PRODUCTS WITHOUT WRITTEN APPROVAL FROM THE ENGINEER.
- G6. 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 REMAIN THE RESPONSIBILITY OF THE CONTRACTOR.
- G7. THE DETERMINATION OF A SAFE WORK METHOD REMAINS THE RESPONSIBILITY OF THE CONTRACTOR. ANY ELEMENT OF THE PROJECT THAT POSES AN UNACCEPTABLE SAFETY RISK TO CONSTRUCT SHALL BE REFERRED TO THE ENGINEER.
- G8. NOTES ON ANY DRAWING APPLY TO ALL DRAWINGS IN THE SET U.N.O.
- G9. THE BUILDER SHALL PROVIDE CERTIFICATION OF ANY DESIGN AND CONSTRUCT COMPONENT BY A CHARTERED (NPER) ENGINEER.
- G10. 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.
- G11. DESIGN CRITERIA:
- \* IMPORTANCE LEVEL = 1.
  - \* ULTIMATE WIND ACTIONS:
    - REGION = A1.
    - ANNUAL PROBABILITY OF EXCEEDENCE = 1/200.
    - REGIONAL WIND SPEED  $V_r$  = 43m/s.
    - TERRAIN CATEGORY = 2.
    - TERRAIN MULTIPLIER  $M_z, cat$  = 1.10.
    - SHIELDING MULTIPLIER  $M_{sh}$  = 1.0.
    - TOPOGRAPHIC MULTIPLIER  $M_t$  = 1.0.
    - SITE WIND SPEED = 47.30m/s.

## FOUNDATIONS

- F1. TWO GEOTECHNICAL REPORT HAVE BEEN CARRIED OUT, REFER TO REPORT No. 21/13463/AN078 AND No. 248011Bwp.
- F2. WATER HAS BEEN ENCOUNTERED AT 0.5M TO 1.0M DEPTHS. TENDERS TO ALLOW FOR FOR UNTERS TO PIERS OR DEWATERING WHERE POSSIBLE.
- F3. OBTAIN ENGINEER'S WRITTEN APPROVAL OF FOUNDING MATERIAL BEFORE PLACING CONCRETE OR THE CONTRACTOR IS TO ENGAGE A QUALIFIED (NPER) GEOTECHNICAL ENGINEER TO APPROVE THE FOUNDATION MATERIAL. SUBMIT CERTIFICATE IN WRITING TO THE CONSULTING ENGINEER PRIOR TO CONCRETING FOUNDATIONS.
- F4. ENSURE STABILITY OF ADJACENT BUILDINGS IS MAINTAINED DURING ALL STAGES OF CONSTRUCTION.
- F5. DO NOT ALLOW EXCAVATED MATERIAL TO STOCKPILE STAND WITHIN 1500mm OF FOOTING TRENCHES OR PITS. NO EARTH OR DETRITUS IS TO FALL INTO THE FOOTING TRENCHES BEFORE OR DURING CONCRETE PLACEMENT.
- F6. THE UNDERSIDE OF FOUNDATIONS SHALL CONFORM TO THE FOLLOWING REGARDLESS OF NOMINATED LEVELS:



## PERFORMANCE PILE NOTES

**EXTENT:**  
PP1. THE PERFORMANCE PILE PACKAGE COMPRESES THE DESIGN, SUPPLY, INSTALLATION AND COMPLETION OF PILING. IT DOES NOT INCLUDE PILE CAPS.  
PP2. THE DETERMINATION OF THE PILE DEPTHS IS THE RESPONSIBILITY OF THE PILING TENDERER. DUE CONSIDERATION MUST BE GIVEN TO THE GEOTECHNICAL REPORT AND THE NATURE OF THE PROPOSED PILING SYSTEM.

**LIFE:**  
PP3. PILES TO BE DESIGNED FOR A MINIMUM DESIGN LIFE OF 50 YEARS BASED ON THE EXPOSURE CONDITIONS THAT EXIST ON THIS SITE. GENERAL DESIGN REQUIREMENTS SHALL INCLUDE:  
- ULTIMATE STRENGTH.  
- SERVICEABILITY.  
- DURABILITY.

**VARIATIONS:**  
PP4. NO VARIATIONS FOR ADDITIONAL PILING DEPTHS WILL BE CONSIDERED UNLESS IT CAN BE PROVEN THAT THE SUBSURFACE CONDITIONS ENCOUNTERED DIFFER MARKEDLY FROM THE GEOTECHNICAL BOREHOLES.  
PP5. A GEOTECHNICAL INVESTIGATION HAS/HAS NOT BEEN UNDERTAKEN ON THE SITE, REFER TO FOUNDATION NOTES F1 FOR REFERENCES. THIS REPORT IS PROVIDED TO ASSIST IN DESIGN OF THE PILES. IT WILL BE ASSUMED THAT ALL TENDERS HAVE READ THIS REPORT AND DRAWN THEIR OWN CONCLUSIONS AS TO SUB-SURFACE CONDITIONS.

**STANDARDS:**  
PP6. ALL PILES INCLUDING MATERIALS AND INSTALLATION SHALL BE IN ACCORDANCE WITH AS2159-1995 PILING-DESIGN AND INSTALLATION.

**TOLERANCES:**  
PP7.  
- LEVEL OF CUT-OFF: - 25mm.  
- CENTRE OF SHAFT AT CUT-OFF: +/-50mm FROM THE DESIGN CUT-OFF LEVEL.

**APPROVALS:**  
PP8. ALL PROPOSED PILING METHODS WILL BE SUBJECT TO THE ENGINEER'S APPROVAL. SUBMIT THE FOLLOWING FOR APPROVAL:  
- DESIGN CALCULATIONS PREPARED BY A CHARTERED (NPER) ENGINEER.  
- RECENT LOAD TESTS FOR SIMILAR PILES IN SIMILAR SOILS.  
- STATEMENTS IN SUPPORT OF DURABILITY.  
- INSTALLATION METHODOLOGY.  
- TEST SCHEDULE AND METHODOLOGY.  
- STATEMENTS IN SUPPORT OF DURABILITY.

THIS SHALL NOT RELIEVE THE PILING CONTRACTOR FROM ANY OBLIGATIONS, AND THE PILING CONTRACTOR SHALL REMAIN COMPLETELY LIABLE FOR THE PILE WORKS.

**SETTLEMENTS:**  
PP9. PILES TO BE DESIGNED TO LIMIT SETTLEMENTS OVER THE LIFE OF THE STRUCTURE TO:  
- TOTAL SETTLEMENT OF ANY PILE <20mm UNDER FULL IN-SERVICE WORKING LOADS.  
- DIFFERENTIAL SETTLEMENT BETWEEN ANY TWO ADJACENT PILES <20mm.  
PP10. REFER TO DRAWINGS FOR PILE LOADS.

**PILE TESTING AND CERTIFICATION:**  
PP11. PROVIDE ONE STATIC LOAD TEST IN ACCORDANCE WITH AS2159. NORTHROP ENGINEERS ARE TO NOMINATE PILE FOR TESTING.

**CERTIFICATION:**  
PP12. DESIGN - PILING CONTRACTOR TO PROVIDE A STRUCTURAL CERTIFICATE FOR THE PILES FROM A CHARTERED (NPER) ENGINEER ON PILING CONTRACTORS LETTERHEAD CERTIFYING THE STRUCTURAL ADEQUACY OF THE PILES.  
PP13. INSTALLATION - PILING CONTRACTOR TO PROVIDE AN INSTALLATION CERTIFICATE FOR THE PILES CERTIFYING THAT THE PILES HAVE BEEN INSTALLED TO THE DESIGN REQUIREMENTS (SPECIFIED TORQUE, LENGTH ETC.). MAIN CONTRACTOR TO MONITOR INSTALLATION OF PILES (RECORD DEPTHS AND ACHIEVED TORQUE ETC.) AS PART OF THEIR QUALITY CONTROL.  
ALL OTHER PILES TESTING:

**TESTING:**  
PP14. PROVIDE TWO DYNAMIC LOAD TESTS IN ACCORDANCE WITH AS2159. CORDULA CONSULTING ARE TO NOMINATE PILES FOR TESTING.

**CERTIFICATION:**  
PP15. PROVIDE INTEGRITY PILE TESTS TO 20% OF ALL PILES (CONCRETE PILES ONLY) IN ACCORDANCE WITH AS2159.  
PP16. ALLOW FOR ONE SUCCESSFUL LATERAL LOAD TEST IN ACCORDANCE WITH AS 2159.

**CERTIFICATION:**  
PP17. PROVIDE STRUCTURAL AND GEOTECHNICAL CERTIFICATION FROM A CHARTERED (NPER) ENGINEER ON THE PILING CONTRACTORS LETTERHEAD CERTIFYING THE PILES HAVE BEEN DESIGNED IN ACCORDANCE WITH THE APPROPRIATE STANDARDS AND CAN SUPPORT THE DESIGN LOADS WITHIN THE SPECIFIED TOLERANCES.

## CONCRETE

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

C2. CONCRETE PROPERTIES:

ELIMINATE  
- PILE CAPS  
STRENGTH  
GRADE  
S32MPa

MAXIMUM AGGREGATE SIZE = 20mm U.N.O.

SLUMP = 75mm.

C3. CONSOLIDATE BY VIBRATION.

C4. CONSTRUCTION JOINTS NOT SHOWN REQUIRE WRITTEN APPROVAL FROM THE ENGINEER.

C5. SUBMIT FOR APPROVAL THE FOLLOWING TO THE ENGINEER:

- CURING PROCEDURE (PVA MEMBRANES NOT PERMITTED).
- DETAILS AND LOCATION OF CAST IN SERVICES.
- CONDUITS, PENETRATIONS AND CONSTRUCTION JOINT LOCATIONS.

C6. ALL REINFORCEMENT LAPS AS PER SECTION 13, AS3600.

C7. HOLD DOWN BOLTS SHALL BE HOT DIPPED GALVANISED.

C8. U.N.O. CLEAR CONCRETE COVERS SHALL BE 75mm.

C9. REINFORCEMENT SYMBOLS:

S = STRUCTURAL GRADE DEFORMED BAR TO AS1302 (250MPa).

R = STRUCTURAL GRADE ROUND BAR (250MPa).

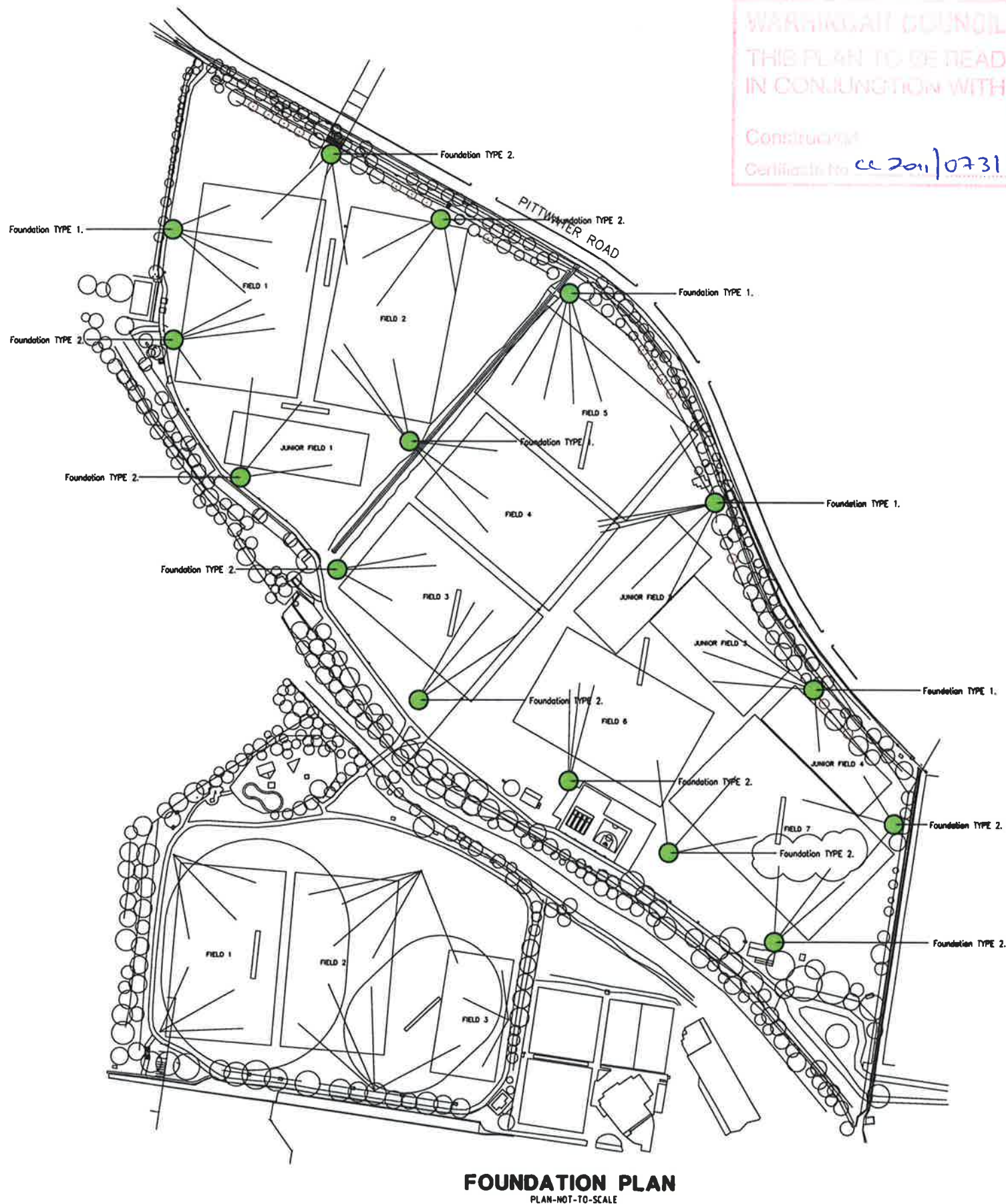
N = HOT ROLLED DEFORMED BAR TO AS/NZS 4671 (500MPa).

SL = LOW DUCTILITY SQUARE MESH (500 MPa).

RL = LOW DUCTILITY RECTANGULAR MESH (500 MPa).

L = LOW DUCTILITY TRENCH MESH (500 MPa).

THE NUMBER FOLLOWING THE SYMBOL IS THE NOMINAL BAR DIAMETER IN MILLIMETRES CLASS L REINFORCEMENT SHALL NOT BE USED U.N.O.



**FOUNDATION PLAN**  
PLAN-NOT-TO-SCALE

Issue	Amendment	Date	Drawn
1	Preliminary Issue	08.10.09	G.H.
A	Construction Issue	07.12.09	G.H.
B	Revised	18.08.10	G.H.
C	REVISED WITH NEW GEOTECH REPORT	27.03.11	G.H.
D	Revised Tender Issue	29.8.11	G.H.

ALL WORKING TO BE VERIFIED BY THE BUILDER ON SITE. ENGINEER'S DRAWINGS SHALL NOT BE SCALED FOR DIMENSIONS.

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Project

**NOLAN RESERVE  
DEE WHY, NSW**

Drawing Title

**LIGHTING POLES  
PLAN VIEW AND  
CONSTRUCTION NOTES**

North

Job Number

**09426**

Drawing Number

**S01**

Rev.

WARRINGAH COUNCIL  
THIS PLAN TO BE READ  
IN CONJUNCTION WITH  
Construction  
Certificate No. **CC 2011/0731**





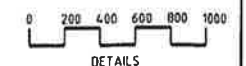
## SINGLE PILE SUPPORT

**NOTES:**

- For Pole Performance notes refer to drawing S01.
- Confirm lighting configuration with electrical engineer prior to setting out foundation types.
- Ensure not to undermine foundations of adjacent buildings.
- All loads are "working loads".
- Total =  $1.0(\text{DEAD}) + 1.0(\text{WIND})$
- For single pier support, loads in table are at base of light pole.
- For 3 pier support, loads in table are at top of pier.

NOTES:

- For Pole Performance notes refer to drawing S01.
- Confirm lighting configuration with electrical engineer prior to setting out foundation types.
- Ensure not to undermine foundations of adjacent buildings.
- All loads are "working loads"
- $Total = 1.0(DEAD) + 1.0(WIND)$
- For single pier support, loads in table are at base of light pole.
- For 3 pier support, loads in table are at top of pier.



Issue	Amendment	Date	Drawn	By
A	Preliminary Issue	08.05.09	G.M.	ALL AMENDMENTS ARE IN ACCORDANCE WITH THE ACTING CHIEF ENGINEER'S ORDER DATED 08.05.09.
A	Construction Issue	7.12.09	G.M.	FOR THE TENDER, SUPPLEMENT AND FOR THE CONSTRUCTION OF THE PROJECT, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE OBTAINING OF ALL NECESSARY APPROVALS AND PERMITS FROM THE RELEVANT AUTHORITIES.
B	Revision	18.08.10	G.M.	THIS DOCUMENT WILL BE VALID FOR THE CONSTRUCTION OF THE PROJECT.
C	Revision with new Geotech Report	21.03.11	G.M.	THIS DOCUMENT WILL BE VALID FOR THE CONSTRUCTION OF THE PROJECT.
D	Revised Tender Issue	29.08.11	G.M.	THIS DOCUMENT WILL BE VALID FOR THE CONSTRUCTION OF THE PROJECT.
E	Dimension corrected	29.08.11	G.M.	THIS DOCUMENT WILL BE VALID FOR THE CONSTRUCTION OF THE PROJECT.

ALL EMPLOYEES ARE TO BE VERIFIED  
ON SITE BEFORE MAKING SUCH  
REMARKS OR COMMENDING ANY  
WORK. THE IDEAS, INFORMATION AND  
CONCEPTS CONTAINED IN THIS  
DOCUMENT ARE THE PROPERTY OF  
CORPACORP. CORPACORP WILL SUE  
INDIVIDUALLY OR REPRODUCING  
THIS DOCUMENT AND PASSING IT  
ONTO OTHERS WITHOUT THE  
EXPRESS PERMISSION OF CORPACORP.  
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PERFORMANCE OF CONTRACTS AND  
IS A BREACH OF CORPACORP'S  
CONSULTING RIGHTS UNDER THE  
CONTRACTUAL ACT OF 1996  
SECTION 40.

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	Project
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NOLAN RESERVE  
DEE WHY, NSW

Drawing Title
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## FOUNDATION DETAILS

Job Number
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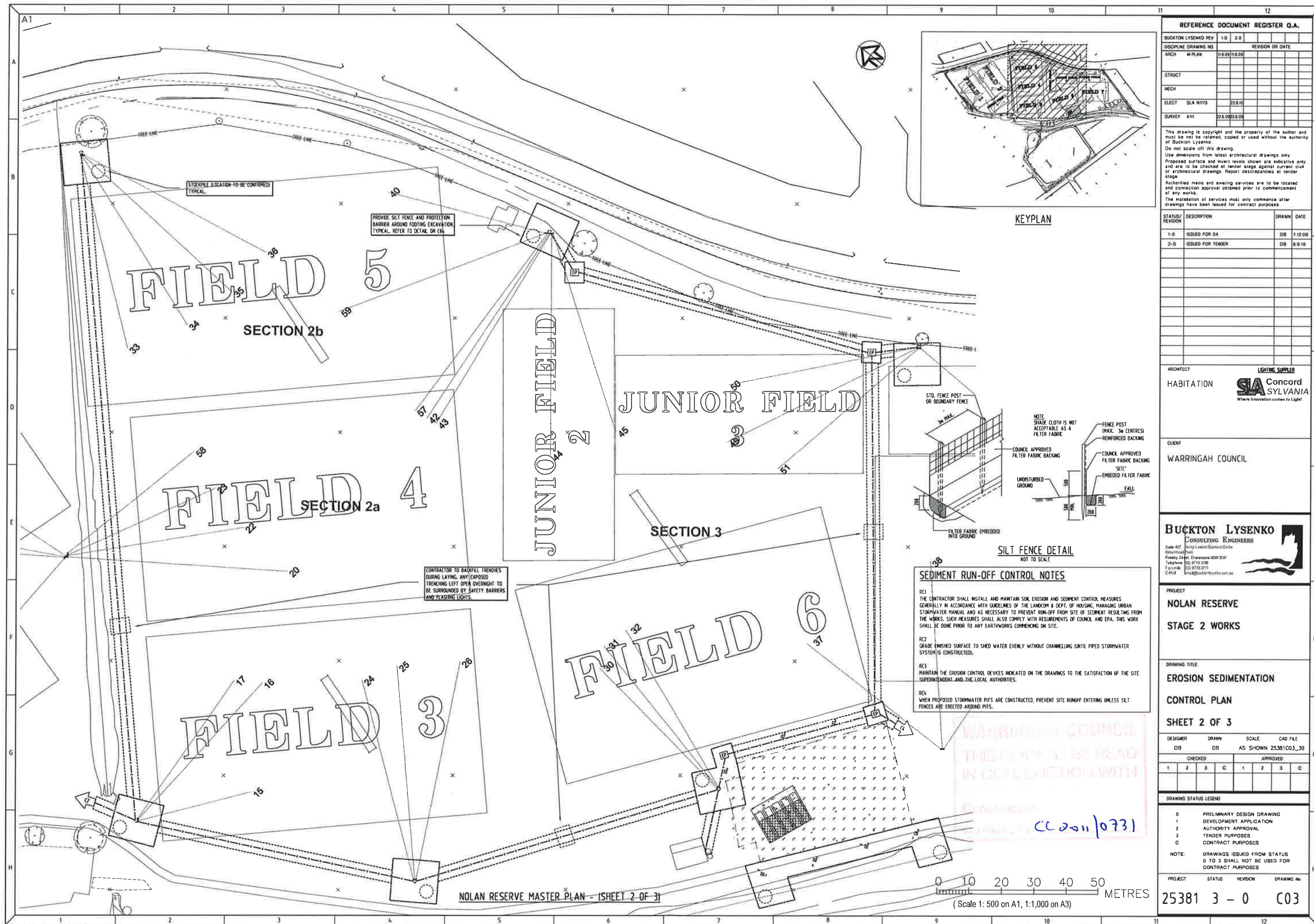
09426

Drawing Number

S02

North





# REFERENCE DOCUMENT REGISTER Q.A.

BUCKTON LYSSENKO REV	1-0	2-0	REVISION OR DATE
DISCIPLINE DRAWING NO	ARCH	M-PLAN	18.09.18.09
STRUCT			
MECH			
ELECT	SLA 11775	23.8.10	
SURVEY	4111	22.6.09/27.8.09	

This drawing is copyright and the property of the author and must not be released, copied or used without the authority of Buckton Lysenko.  
Do not scale off this drawing.  
Use dimensions from latest architectural drawings only.  
Proposed surface and invert levels shown are indicative only and are to be checked at tender stage against current civil or architectural drawings. Report discrepancies at tender stage.  
Authorities mains and existing services are to be located and connection approval obtained prior to commencement of any works.  
The installation of services must only commence after drawings have been issued for contract purposes.

STATUS/REVISION	DESCRIPTION	DRAWN	DATE
1-0	ISSUED FOR DA	DB	7.12.09
2-0	ISSUED FOR TENDER	DB	6.9.10

ARCHITECT  
HABITATION  
LIGHTING SUPPLIER  
SLA Concord SYLVANIA  
Where Innovation comes to Light!

CLIENT  
WARRINGAH COUNCIL

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Rosebery Street, Durrumbidgee NSW 2581  
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E-Mail: bly@bucktonlysenko.com.au

PROJECT  
NOLAN RESERVE  
STAGE 2 WORKS

DRAWING TITLE  
EROSION SEDIMENTATION  
CONTROL PLAN  
SHEET 2 OF 3

DESIGNER	DRAWN	SCALE	CAD FILE
DB	DB	AS SHOWN	25381C03_30
CHECKED	APPROVED		
1	2	3	C

DRAWING STATUS LEGEND	
0	PRELIMINARY DESIGN DRAWING
1	DEVELOPMENT APPLICATION
2	AUTHORITY APPROVAL
3	TENDER PURPOSES
C	CONTRACT PURPOSES

NOTE: DRAWINGS ISSUED FROM STATUS 0 TO 3 SHALL NOT BE USED FOR CONTRACT PURPOSES

PROJECT	STATUS	REVISION	DRAWING No.
25381	3	0	C03







## GENERAL NOTES

G1 ALL WORK SHALL BE CARRIED OUT IN ACCORDANCE WITH COUNCIL'S REQUIREMENTS, NSW CODE OF PRACTICE AND THE TO THE RELEVANT SERVICE CODES.  
G2 LIAISE WITH COUNCIL AND CONFIRM ADEQUACY OF SCHEDULED ITEMS BY BUCKTON LYSENKO CONSULTANTS.  
G3 CONTRACTUAL RELATIONSHIPS: RESPONSIBILITIES AND DUTIES OF THE PRINCIPAL, CONTRACTOR AND CONTRACT ADMINISTRATOR ARE NOT ALTERED BY REQUIREMENTS IN REFERENCED DOCUMENTS.  
G4 INTERPRETATION: UNLESS THE CONTEXT OTHERWISE REQUIRES, THE FOLLOWING DEFINITIONS APPLY:

SUPPLY: "SUPPLY", "FURNISH" AND SIMILAR EXPRESSIONS MEAN "SUPPLY ONLY".  
PROVIDE: "PROVIDE" AND SIMILAR EXPRESSIONS MEAN "SUPPLY AND INSTALL".  
APPROVED: "APPROVED", "REVIEWED", "DIRECTED", "REJECTED", "ENDORSED" AND SIMILAR EXPRESSIONS MEAN "APPROVED (REVIEWED, DIRECTED, REJECTED, ENDORSED) IN WRITING BY THE CONTRACT ADMINISTRATOR".

CONTRACT DOCUMENTS  
G5 DIAGRAMMATIC LAYOUTS: LAYOUTS OF SERVICES LINES AND EQUIPMENT SHOWN ON THE DRAWINGS ARE DIAGRAMMATIC ONLY, EXCEPT WHERE FIGURED DIMENSIONS ARE PROVIDED OR CALCULABLE. BEFORE COMMENCING WORK, OBTAIN MEASUREMENTS AND OTHER NECESSARY INFORMATION. ANY DISCREPANCIES TO BE REPORTED TO COUNCIL. ALL DISTANCES SHOWN IN MM UNLESS NOTED OTHERWISE.  
G6 LEVELS: ALL LEVELS AND DIMENSIONS TO BE CHECKED ON SITE PRIOR TO COMMENCING ANY WORK. SPOT LEVELS TAKE PRECEDENCE OVER CONTOUR LINES AND GROUND PROFILE LINES.

EXISTING SURFACE, CONTOURS AND LEVELS, STRUCTURES, BENCH MARKS AND BOUNDARIES COMPILED FROM DRAWINGS SUPPLIED BY THE SURVEYOR.

INSPECTION  
G7 MINIMUM NOTICE FOR INSPECTIONS TO BE MADE: 4 HOURS FOR ON-SITE INSPECTORS, OTHERWISE 2 WORKING DAYS.

CURRENT EDITIONS  
G8 USE REFERENCED DOCUMENTS WHICH ARE EDITIONS, WITH AMENDMENTS, CURRENT 3 MONTHS BEFORE THE CLOSING DATE FOR TENDERS, EXCEPT WHERE OTHER EDITIONS OR AMENDMENTS ARE REQUIRED BY COUNCIL AUTHORITIES.  
G9 THE LOCATIONS OF UNDERGROUND SERVICES SHOWN ON THE DRAWING HAVE BEEN PLOTTED FROM DIAGRAMS PROVIDED BY SERVICE AUTHORITIES. THIS INFORMATION HAS BEEN PREPARED SOLELY FOR THE AUTHORITIES OWN USE AND MAY NOT NECESSARILY BE UPDATED OR ACCURATE.

THE POSITION OF SERVICES AS RECORDED BY THE AUTHORITY AT THE TIME OF INSTALLATION MAY NOT REFLECT CHANGES IN THE PHYSICAL ENVIRONMENT SUBSEQUENT TO INSTALLATION.

BUCKTON LYSENKO DOES NOT GUARANTEE THAT THE SERVICES INFORMATION SHOWN ON THE DRAWING SHOWS MORE THAN THE PRESENCE OR ABSENCE OF SERVICES, AND WILL ACCEPT NO LIABILITY FOR INACCURACIES IN THE SERVICES INFORMATION SHOWN FROM ANY CAUSE WHATSOEVER.

IT IS THE SUBCONTRACTOR'S RESPONSIBILITY TO OBTAIN FROM COUNCIL A CURRENT COPY OF UNDERGROUND SERVICES SEARCH FOR THE LOCATION OF ALL EXISTING SERVICES PRIOR TO COMMENCEMENT OF ANY WORK AND NOTIFY ANY CONFLICT WITH THE DRAWINGS IMMEDIATELY. CLEARANCE SHALL BE OBTAINED FROM THE RELEVANT REGULATORY AUTHORITY. CONTRACTOR TO KEEP COPY OF UNDERGROUND SERVICES SEARCH ON SITE AT ALL TIMES.

G10 VISIT THE SITE BEFORE SUBMITTING THE FINAL TENDER PRICE TO ASSESS 'ON SITE' CONDITIONS. FAILURE TO DO SO WILL FORFEIT ANY CLAIM FOR NOT BEING AWARE OF CONDITIONS AFFECTING THE TENDER.

G11 ALLOW TO COMPLY WITH THE PROGRAM OF THE MAIN CONTRACT.

G12 THE CONTRACTOR SHALL PREPARE WORK-AS-EXECUTED DRAWINGS FOLLOWING THE COMPLETION OF ALL WORKS. A SET OF REPRODUCIBLE TRANSPARENTS OF RELEVANT DRAWINGS MAY BE PURCHASED BY THE CONTRACTOR FROM BUCKTON LYSENKO TO FACILITATE THIS WORK.

## GENERAL WORKMANSHIP

GW1 ALL WORK SHALL BE DONE BY OR UNDER THE DIRECT SUPERVISION OF APPROPRIATE LICENSED PERSONNEL.  
GW2 WHERE NEW WORK ADJUTS EXISTING THE SUBCONTRACTOR SHALL ENSURE THAT A SMOOTH EVEN PROFILE, FREE FROM DISRUPT CHANGES IS OBTAINED.  
GW3 ALL MANUFACTURED COMPONENTS SHALL BE INSTALLED TO THE MANUFACTURER'S REQUIREMENTS.

GW4 THE CONTRACTOR SHALL SUPPLY AND INSTALL MATERIALS, LABOUR AND APPARATUS AND PAY ALL COSTS NECESSARY TO PROVIDE COMPLETE AND FUNCTIONAL SYSTEMS. ON COMPLETION THE CONTRACTOR SHALL OBTAIN WRITTEN APPROVAL FROM THE RELEVANT AUTHORITIES FOR THE EXECUTED WORKS AND FURTHER WARRANT THE SAME FOR TWELVE MONTHS COMMENCING FROM THE DATE OF PRACTICAL COMPLETION.

## MAINTENANCE

M1 GENERAL: DURING THE MAINTENANCE PERIOD, CARRY OUT PERIODIC INSPECTIONS AND MAINTENANCE WORK AS RECOMMENDED BY MANUFACTURERS OF SUPPLIED EQUIPMENT, AND PROMPTLY RECTIFY FAULTS.

M2 EMERGENCIES: ATTEND EMERGENCY CALLS PROMPTLY.

M3 CERTIFICATES: INCLUDE TEST AND APPROVAL CERTIFICATES TO COUNCIL.

M4 CERTIFICATION: ON SATISFACTORY COMPLETION OF THE INSTALLATION, SUBMIT CERTIFICATES STATING THAT EACH INSTALLATION IS OPERATING CORRECTLY.

## WORK BY OTHER TRADES

B01 REFER TO DRAWINGS WHERE INDICATED "LIMIT OF CONTRACT"; THIS ENSURES THAT THE ELECTRICAL SCOPE OF WORKS ONLY PERTAINS TO THE REQUIRED WORKS. ANY WORKS OUTSIDE OR BEYOND ARE WORKS CARRIED OUT BY OTHER CONTRACTORS.

## TESTING

GENERAL

T1 NOTICE: GIVE SUFFICIENT NOTICE SO THOSE DESIGNATED TESTS MAY BE WITNESSED.

T2 MINIMUM NOTICE FOR TESTS TO BE WITNESSED

- 5 WORKING DAYS FOR SITE TESTS; AND

- 10 WORKING DAYS FOR LOCAL PRE-DELIVERY TESTS.

COMPLETION TESTS

T3 GENERAL: CARRY OUT ACCEPTANCE TESTS AND FINAL TESTS. SUPPLY ALL PLANT AND MATERIAL TO CARRY OUT SUCH TEST AND RETESTING IF REQUIRED.

T4 FUNCTIONAL CHECKS: CARRY OUT FUNCTIONAL AND OPERATIONAL CHECKS ON ENERGIZED EQUIPMENT AND CIRCUITS AND MAKE ADJUSTMENTS FOR THE CORRECT OPERATION OF SAFETY DEVICES.

## SERVICE TRENCHING

ST1 ON COMPLETION OF ELECTRICAL CONDUIT INSTALLATION, ALL DISTURBED AREAS MUST BE RESTORED TO ORIGINAL CONDITION INCLUDING KERBS, FOOTPATHS, CONCRETE AREAS, GRAVEL AREAS, GRASSED AREAS AND ROAD PAVEMENTS.  
ST2 TRENCHES THROUGH EXISTING ROAD AND CONCRETE AREAS SHALL BE SAWCUT TO FULL DEPTH OF CONCRETE AND A MINIMUM OF 50MM IN BITUMINOUS PAVING ON EACH SIDE OF THE TRENCH TO PROVIDE A STRAIGHT EVEN JOINT. REINSTATE WITH ADDITIONAL REINFORCEMENT AND DOWELLING AS REQUIRED BY COUNCIL, LIFT AND STORE ANY UNIT PAVING FOR LATER REINSTATEMENT.

ST3 CARE SHALL BE TAKEN WHEN EXCAVATION NEAR EXISTING SERVICES; NO MECHANICAL EXCAVATION SHALL BE TAKEN OVER EXISTING TELECOM OR ELECTRICAL OR STORMWATER SERVICES. EXCAVATE BY HAND IN THESE AREAS. CONTRACTOR TO CONTACT "DIAL BEFORE YOU DIG" PRIOR TO EXCAVATION WORKS.

ST4 ALLOW FOR ALL TUNNELLING, TIMBER SHORING AND SHUTTERING AS NECESSARY INCLUDING THE REMOVAL OF THE SAME UPON COMPLETION AS REQUIRED.

ST5 EXCAVATION: EXCAVATE FOR UNDERGROUND SERVICES TO REQUIRED LINES, LEVELS AND GRADES. GENERALLY, MAKE THE TRENCHES STRAIGHT BETWEEN ELECTRICAL PITS TO THE SERVICE POINTS.

ST6 SOIL: IF EXCAVATED MATERIAL CANNOT BE USED FOR FILLING OR BACK FILLING, REMOVE IT FROM THE SITE.

ST7 TRENCH WIDTHS: KEEP TRENCH WIDTHS TO THE MINIMUM CONSISTENT WITH THE LAYING AND BEDDING OF THE ELECTRICAL SERVICE. REFER TO TRENCH DETAILS & AUTHORITIES STANDARDS FOR MINIMUM TRENCH WIDTHS. STANDARD TRENCH WIDTHS ARE THE DIMENSIONS OF UNSUPPORTED TRENCHES.  
SUPPORT OF EXCAVATIONS TO THE REQUIREMENTS OF THE CONSTRUCTION SAFETY REGULATIONS 1950 UNDER THE CONSTRUCTION SAFETY ACT 1912 (AS AMENDED), APPLY.

ST8 TRENCH DEPTHS: AS REQUIRED BY THE RELEVANT SERVICE AND ITS BEDDING METHOD. ELECTRICAL CONDUITS ADJACENT TO FOOTINGS AND/OR BUILDING STRUCTURE SHALL BE CHECKED BY THE STRUCTURAL ENGINEER PRIOR TO COMMENCING EXCAVATION, AS REQUIRED.

ST9 NOTICE: IF EXCAVATION IS NECESSARY BELOW THE LEVEL OF ADJACENT FOOTINGS, GIVE NOTICE, AND PROVIDE NECESSARY SUPPORT FOR THE FOOTINGS.

ST10 OBSTRUCTIONS: CLEAR TRENCHES OF SHARP PROJECTIONS, CUT BACK ROOTS ENCOUNTERED IN TRENCHES TO AT LEAST 600MM CLEAR OF SERVICES. REMOVE OTHER OBSTRUCTIONS INCLUDING STUMPS AND BouldERS WHICH MAY INTERFERE WITH SERVICES OR BEDDING.

ST11 DE-WATERING: KEEP TRENCHES FREE OF WATER, PLACE BEDDING MATERIAL, SERVICES AND BACK FILLING ON FIRM GROUND FREE OF SURFACE WATER.

ST12 EXCESS EXCAVATION: IF TRENCH EXCAVATION EXCEEDS THE CORRECT DEPTH, REINSTATE TO THE CORRECT DEPTH AND BEARING VALUE USING COMPACTED BEDDING MATERIAL (REFER ST10) OR GRADE N20 CONCRETE.

ST13 BACKFILLING: WHERE SOIL FROM THE TRENCH EXCAVATION IS REQUIRED FOR TRENCH FILLING, TOPSOIL SHALL BE KEPT SEPARATE FROM OTHER MATERIAL SO IT CAN BE USED IN RESTORATION. EXCAVATION MATERIAL NOT REQUIRED FOR TRENCH FILLING SHALL BE REMOVED FOR DISPOSAL.

WHEN A LENGTH OF TRENCH HAS BEEN EXCAVATED, THE DEVELOPER SHALL PROCEED WITHOUT DELAY TO PLACE BEDDING MATERIAL, LAY AND JOINT THE ELECTRICAL CONDUIT, INSPECT AND TEST AS NECESSARY AND BACKFILL THE TRENCH AS DESCRIBED HEREIN.

PLACEMENT AND COMPACTION OF THE ELECTRICAL CONDUIT EMBEDMENT AND THE TRENCH FILL MATERIAL IS PARTICULARLY IMPORTANT, WHERE IT FORMS PART OF A LOAD SUPPORTING SYSTEM, E.G. UNDER ROADS.

BACKFILLING WITH BouldERS, LARGE ROCKS, LOGS, STUMPS, TREE LOPPINGS, BouldERS REFUSE, BROKEN CONCRETE, AND OTHER UNSUITABLE MATERIAL IS EXPRESSLY FORBIDDEN.

ALL DE-WATERING SYSTEMS SHALL BE OPERATED DURING TRENCH FILLING SO THAT NO FILL MATERIAL IS PLACED UNDERWATER.

ST14 BACKFILL MATERIAL  
A. FOR NORMAL TRENCH CONDITIONS: WHERE THE TRENCH IS NOT SUBJECT TO TRAFFIC LOADING, THE TRENCH SHALL BE REFILLED WITH THE MATERIAL NORMALLY REMOVED FROM THE EXCAVATION OR IMPORTED AND CONTAINING NOT MORE THAN 20 PER CENT OF STONES WITH A SIZE BETWEEN 75MM AND 150MM AND NONE LARGER OR LESS THAN 150MM.

B. FOR TRAFFIC AREAS: BACKFILL MATERIAL SHALL BE:  
1. HIGH GRADE COMPACTION SAND OR  
2. FINE CRUSHED ROCK - "ROADBASE" OR  
3. 75MM CRUSHED SANDSTONE OR  
4. AS DIRECTED BY THE RESPONSIBLE AUTHORITY.

THE APPROVAL TO USE 75MM CRUSHED SANDSTONE OR GRANULAR FILL AS IMPORTED BACKFILL MATERIAL ON ROAD CROSSINGS MUST BE OBTAINED IN WRITING FROM THE AUTHORITY WHICH HAS RESPONSIBILITY FOR THE MAINTENANCE OF THE ROADWAY.

THE BACKFILL MAY BE STARTED AFTER THE ELECTRICAL CONDUIT EMBEDMENT MATERIAL HAS BEEN PLACED AND COMPACTED, AND AFTER ANY CONCRETE OR SURROUND HAS ACHIEVED AN INITIAL CRUSHING STRENGTH.

BACKFILL MATERIAL SHALL BE PLACED IN LAYERS NOT EXCEEDING 300 MM THICK, EACH LAYER BEING THOROUGHLY COMPACTED AS INDICATED IN CLAUSE 4.8, BEFORE FURTHER FILL IS ADDED. THE COMPACTING EQUIPMENT SHOULD BE SUCH AS TO ENSURE THAT THE ELECTRICAL CONDUIT ARE NOT OVERLOADED DURING THE TRENCH FILLING OR COMPACTING PROCESS.

ST15 COMPACTION  
A. DEGREE OF COMPACTION: FOR NORMAL TRENCH CONDITIONS WHERE THE TRENCH IS NOT SUBJECT TO TRAFFIC LOADING, THE FILL MATERIAL SHALL BE COMPACTION TO THE DEGREE INDICATED BELOW.

1. ELECTRICAL CONDUIT EMBEDMENT (OVERLAY AND BEDDING)  
(A) FOR GRANULAR FILL MATERIAL (NON-COHESIVE SOILS) I.E. COARSE AGGREGATE FILL, HIGH GRADE COMPACTION SAND, THE DENSITY INDEX (DI) SHALL BE NOT LESS THAN

- SEVENTY (70) PER CENT FOR LRVF AND HRPVF CONDUIT.

2. BACKFILL  
(A) FOR GRANULAR FILL MATERIAL, THE DENSITY INDEX (DI) SHALL NOT BE LESS THAN SEVENTY (70) PER CENT.

(B) FOR NON-GRANULAR FILL MATERIAL (COHESIVE SOILS), THE DRY DENSITY RATIO (DR) SHALL NOT BE LESS THAN NINETY-FIVE (95) PER CENT.

## ELECTRICAL NOTES

E1 THE ELECTRICAL INSTALLATION SHALL BE COMPLETE IN ALL RESPECTS COMPLYING FULLY WITH AS3000:2007, ENERGY AUSTRALIA SERVICE RULES, NSW SERVICE AND INSTALLATION RULES TO THE SATISFACTION OF THE ENGINEER.

E2 TENDER DRAWINGS SHALL BE TREATED AS PRELIMINARY ONLY, WITH THE FINAL LOCATIONS BEING DETERMINED ON SITE.

E3 PROVIDE SAMPLES OF POWER OUTLETS, FLOOD LIGHTS, & FLOOD LIGHT CONTROL GEAR TO COUNCIL TO OBTAIN APPROVALS PRIOR TO PLACING ORDERS.

E4 SUBMIT SHOP DRAWINGS FOR MAIN SWITCHBOARD & DISTRIBUTION BOARDS FOR APPROVAL PRIOR TO COMMENCING CONSTRUCTION OF PANEL AND A COMPLETE SET OF "AS INSTALLED" DRAWINGS PRIOR TO ISSUING OF PRACTICAL COMPLETION. ALSO PROVIDE TWO SETS OF MAINTENANCE MANUALS TO BE ISSUED PRIOR TO PRACTICAL COMPLETION.

E5 LABEL ALL FLOOD LIGHTS WITH THE FOLLOWING DESIGNATION  
- FITTING NO. - SOURCE DB. - CIRCUIT NO.

E6 ALL EXPOSED WIRING TO BE FIXED IN ACCORDANCE WITH AS3000 REQUIREMENTS, AND WHERE APPLICABLE IN CONDUITS.

E7 THE ELECTRICAL SUBCONTRACTOR SHALL ENSURE THAT ALL CONDUCTORS INSTALLED ARE SIZED IN STRICT ACCORDANCE WITH THE RESPECTIVE VOLTAGE DROP RULES & EARTH-LOOP IMPEDANCE REQUIREMENTS. THE MAXIMUM VOLTAGE DROP ALLOWED FROM THE POINT OF ATTACHMENT TO THE OUTPUT TERMINALS OF THE DISTRIBUTION BOARDS SHALL NOT EXCEED 3.0% OF THE SUPPLY VOLTAGE.

SUBMANS FROM MAINSWITCHBOARD TO THE RESPECTIVE DISTRIBUTION BOARDS SHALL NOT EXCEED 35% OF THE SUPPLY VOLTAGE. CONSUMER MAINS TO THE MAINSWITCHBOARD SHALL NOT EXCEED 5% OF THE SUPPLY VOLTAGE.

E8 LABEL ALL POWER OUTLETS WITH THE FOLLOWING DESIGNATION  
- OUTLET NO. - SOURCE DB. - CIRCUIT NO.

## ELECTRICAL SERVICES REQUIRED STANDARDS SPECIFICATION

THE ELECTRICAL INSTALLATION

TO AS 3000, THE ELECTRICAL SYSTEMS TO AS3000.1 AND SAA HB 301, THE WIRING SYSTEM TO AS 3013.

THE SWITCHBOARD CONSTRUCTION AND COMPONENTS

TO AS 3439.1 & AS 3439.3;  
SWITCH-ISOLATOR AND COMBINATION FUSE SWITCH UNITS TO AS 60947.1 AS 3947.3;  
MODULATED CASE BREAKERS TO AS 60947.1, AS 170 & AS 60947.2;  
MINIATURE CIRCUIT BREAKERS TO AS 60898.1 OR AS3101;  
THE FAULT CAPACITY >= 10KA TO AS 60947.2 AND AS 60947.3;  
FAULT CAPACITY <10 KA, CURRENT RATING 100KA MINIATURE OVERCURRENT CIRCUIT BREAKERS TO AS 60898.1; RESIDUAL CURRENT DEVICES TO AS 6089.1 MAX TRIPPING CURRENT 30mA;  
FUSES WITH ENCLOSED FUSE LINKS TO AS 60269.1, AS 60269.2 & AS6029.2.1; CONTACTORS TO AS 60947.4.1, 11W RATING 16A.

LIGHTING CONSTRUCTION AND COMPONENTS

EXTERIOR LIGHTING STANDARD TO AS 1158 PARTS 0.1,1.1,3 AND 3.1 & AS 1158 PARTS 2 & 4;  
FLOOD LIGHTS TO AS 60598.2.5;  
LUMINAIRES GENERAL REQUIREMENTS AND TEST TO AS 60598.2;  
LUMINAIRES WITH BUILT IN TRANSFORMERS FOR FLUORESCENT LAMPS TO AS 60598.2.6.

CABLE SUPPORT AND DUCT SYSTEMS:

CONDUITS TO AS2053 PARTS 1,2,3,4,5,6,7,8,9;  
NON-METALLIC CONDUITS AND FITTINGS TO AS 2053 PARTS 2,3,4,5 OR 6;  
CABLE DUCT/TRUCKING TO AS 4296;  
CABLE TRAY/LADDER SUPPORT SYSTEMS TO NEMA VE-1;  
CABLE PITS: PROPRIETARY CABLE PITS, PITS < 1200 x 1200mm PROVIDE PROPRIETARY CONCRETE OR POLYMER MOUNTED PITS, IN SITU CONSTRUCTION PITS > 1200 x 1200mm, PIT COVERS TO COMPLY WITH AS 3996, PROVIDE DRAINAGE FROM BOTTOM OF CABLE PITS.  
COLUMNS: PUBLIC LIGHTING POLES TO AS 1798, CONCRETE STRUCTURES TO AS 3680, STEEL STRUCTURES TO AS 4100, STRUCTURAL DESIGN OF COLUMNS TO AS 4676; AND  
CABLES IN TRENCHES - INSTALLATION SAND BED AND SURROUND PROVIDE CLEAN SHARP SAND > 150mm AROUND CABLES AND CONDUITS INSTALLED UNDERGROUND, SEALING DUCTS AND CONDUIT WITH WEATHERPROOF SEALS

LOW VOLTAGE POWER SYSTEM

LOW VOLTAGE POWER SYSTEMS TO SAA HB 301;  
PETERING TO AUTHORITY REQUIREMENTS: SERVICE & INSTALLATION RULES NSW;  
FAULT PROTECTION TO AS 3000 CLAUSE 2.4;  
ELECTRICAL EQUIPMENT TO AS 3000;  
FIRE AND MECHANICAL PERFORMANCE CLASSIFICATION TO AS 3013;  
SELECTION OF CABLES TO AS 3000.1.1;  
DISTRIBUTION CABLES TO AS 4061;  
TESTING TO AS 3012;  
POWER CABLES: POLYMER INSULATED CABLES TO AS 5000.1, PVC & XLPE TO AS 3000.1.2;  
GENERAL PURPOSE SOCKET OUTLETS TO AS 3112, PLUGS 230/240V TO AS 3112, INSULATION COUPLERS TO AS 6155;  
ISOLATING SWITCHES TO AS 3113, EMERGENCY STOP SWITCHES TO IEC 60947-5-5;  
3-PHASE OUTLETS: CONSTRUCTION SURFACE MOUNTED TYPE OF HIGH-IMPACT RESISTANT PLASTIC, WITH FLAP LO ON OUTLET WITH A MIN RATING 20A, 400VAC;  
EARTHING TO AS 3000 CLAUSE 5.6 & AS 1802

LIGHTING CONSTRUCTION AND COMPONENTS

FLOOD LIGHTS TO AS 60598.2.5;  
LUMINAIRES GENERAL REQUIREMENTS AND TEST TO AS 60598.1;  
LUMINAIRES CONTROL GEAR FOR METAL HALIDE TO AS 60598.2.4;  
RECESSED LUMINAIRES TO AS 60598.2.4;  
CONTROL OF OBSTRUCTIVE EFFECTS TO OUTDOOR LIGHTING TO AS4282; AND  
MAXIMUM GLARE RATING TO AS2562.3

## POWER

MAIN SWITCHBOARD

DISTRIBUTION SWITCHBOARD

ELECTRICAL EQUIPMENT

DOUBLE SOCKET OUTLET (10A)

SINGLE SOCKET OUTLET (10A)

PHASE/RATED PERMANENT DIRECT CONNECTION

3N - 3 PHASE PLUS NEUTRAL OR

1N - SINGLE PHASE PLUS NEUTRAL

2N - 2N AMPS RATING

ELECTRICAL PIT 1MM DEPTH 600mm APPLIES.

FIBRO CEMENT CABLE PIT WITH CONCRETE LID AS A MIN

REQUIREMENT. PLEASE NOTE WHERE PITS ARE IN THE

ROADWAY 400KGS WHEEL LOAD APPLIES.

ELECTRICAL CONDUIT RUN

(ORANGE TO AS 2053-21

CONTROLS CONDUIT RUN

(WHITE TO AS1477)

3-PHASE SURGE ARRESTER

## ABBREVIATIONS

POLE # - NUMBER

REFERENCE # - NUMBER

NOTES # - NUMBER

## SWITCHES

CONTACTOR-N/O CONTACT

CONTACTOR-N/C CONTACT

RESIDUAL CURRENT DEVICE (RCD) CIRCUIT BREAKER

MAKE CONTACT

BREAK CONTACT

CHANGE OVER CONTACT

TWO WAY CONTACT WITH CENTRE-OFF POSITION

MAKE CONTACT DELAYED WHEN OPERATING

CIRCUIT BREAKER

ISOLATOR

ON-LOAD ISOLATOR

FUSE

FUSE SWITCH

MANUALLY-OPERATED SWITCH GENERAL SYMBOL

PUSH BUTTON SWITCH (NON-LATCHING)

PUSH-BUTTON SWITCH

KILOWATT-HOUR METER

KILOWATT-HOUR METER WITH CT

WATT-HOUR METER

TRANSFORMER

D.C. CONVERTER

A.C. CONVERTER

FLOOD LIGHTING CONTROL GEAR

## NOLAN RESERVE LIGHTING

A->

FLOOD LIGHT TYPE A  
TYPE: SYLVANIA BRITELINE ELITE  
CAT NO: SLA BLS ELITE 200W TB CWA 415V  
POLE TYPE: TBA BY SYLVANIA,  
POLE CAT NO: TBA BY SYLVANIA  
LAMP TYPE: BRITELINE T8  
LAMP CAT NO: M2000/18/DE  
MOUNTING HEIGHT: 25m AFFL  
CONTROL GEAR: TBA BY SYLVANIA  
CONTROL GEAR CAT NO: TBA BY SYLVANIA  
POLE RAG BOLT TYPE: TBA BY SYLVANIA,  
POLE RAG BOLT CAT NO: TBA BY SYLVANIA

C->

FLOOD LIGHT TYPE C  
TYPE: SYLVANIA BRITELINE ELITE  
CAT NO: SLA BLS ELITE 200W TB CWA 415V  
C/W GS TOP & RIS  
POLE TYPE: TBA BY SYLVANIA,  
POLE CAT NO: TBA BY SYLVANIA  
LAMP TYPE: BRITELINE T8  
LAMP CAT NO: M2000/18/DE  
MOUNTING HEIGHT: 25m AFFL  
CONTROL GEAR: TBA BY SYLVANIA  
CONTROL GEAR CAT NO: TBA BY SYLVANIA  
POLE RAG BOLT TYPE: TBA BY SYLVANIA,  
POLE RAG BOLT CAT NO: TBA BY SYLVANIA

B->

FLOOD LIGHT TYPE B  
TYPE: SYLVANIA BRITELINE ELITE  
CAT NO: SLA BLS ELITE 200W TB CWA 415V  
POLE TYPE: TBA BY SYLVANIA,  
POLE CAT NO: TBA BY SYLVANIA  
LAMP TYPE: BRITELINE T8  
LAMP CAT NO: M2000/18/DE  
MOUNTING HEIGHT: 25m AFFL  
CONTROL GEAR: TBA BY SYLVANIA  
CONTROL GEAR CAT NO: TBA BY SYLVANIA  
POLE RAG BOLT TYPE: TBA BY SYLVANIA,  
POLE RAG BOLT CAT NO: TBA BY SYLVANIA

D->

FLOOD LIGHT TYPE D  
TYPE: SYLVANIA BRITELINE ELITE  
CAT NO: SLA BLS ELITE 200W TB CWA 415V  
C/W GS TOP & RIS  
POLE TYPE: TBA BY SYLVANIA,  
POLE CAT NO: TBA BY SYLVANIA  
LAMP TYPE: BRITELINE T8  
LAMP CAT NO: M2000/18/DE  
MOUNTING HEIGHT: 25m AFFL  
CONTROL GEAR: TBA BY SYLVANIA  
CONTROL GEAR CAT NO: TBA BY SYLVANIA  
POLE RAG BOLT TYPE: TBA BY SYLVANIA,  
POLE RAG BOLT CAT NO: TBA BY SYLVANIA

## REFERENCE DOCUMENT REGISTER Q.A.

BUCKTON LYSENKO REV	2-0	3-0	3-1	3-2		
DISCIPLINE DRAWING NO.						
ARCH						

STRUCT						
MCH						
ELECT						

SURVEY						

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STATUS/REVISION

DESCRIPTION

DRAWN

DATE

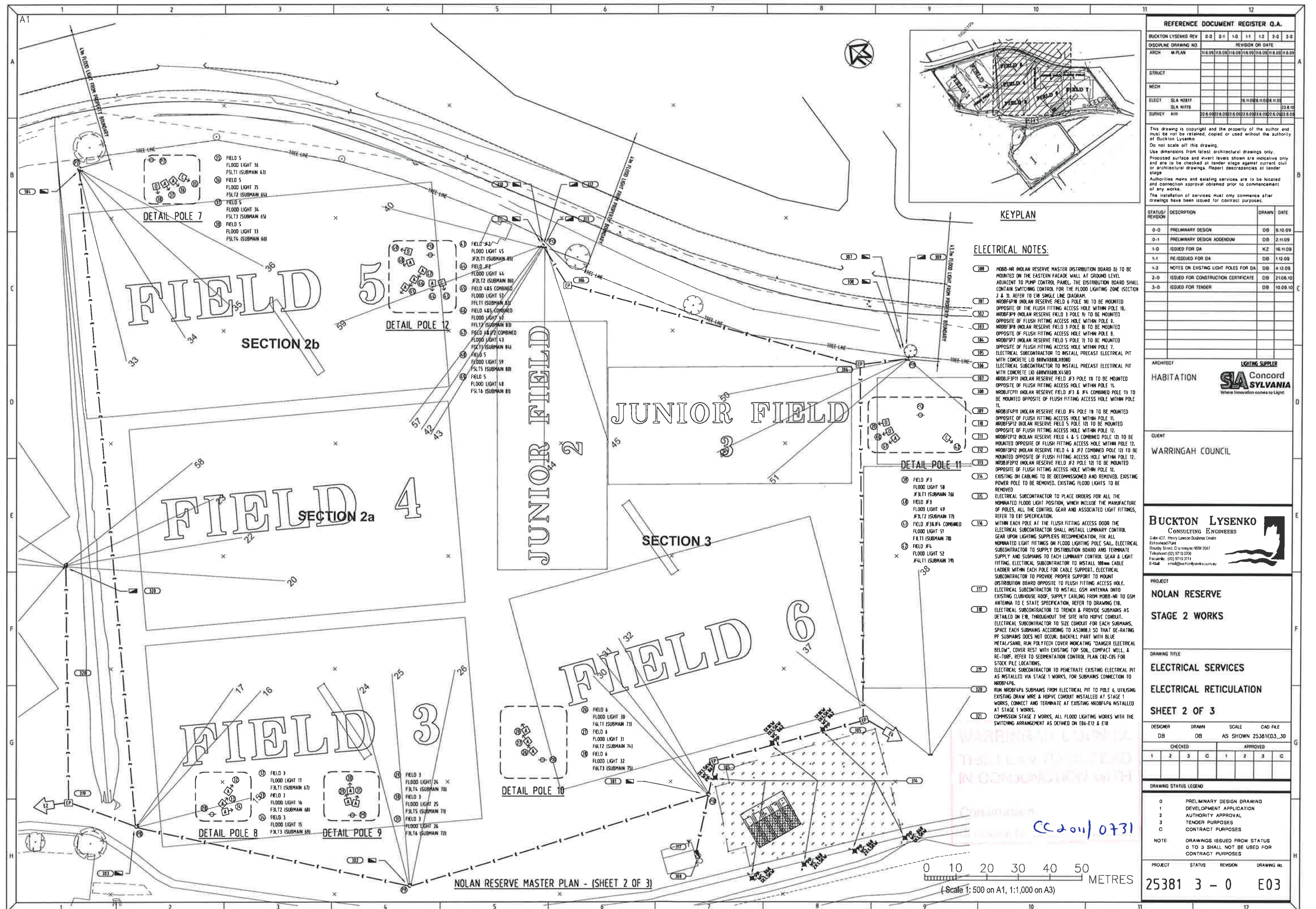
2-0 ISSUED FOR CONSTRUCTION CERTIFICATE DB 21.6.10

3-0 TENDER ISSUE DB 03.9.10

3-1 TENDER ADDENDUM DB 06.9.10

3-2 TENDER ADDENDUM 2 DB 10.09.10





REFERENCE DOCUMENT REGISTER Q.A.									
BUCKTON LYSSENKO REV	0.0	0.1	1.0	1.1	1.2	2.0	2.1	2.2	2.3
DISCIPLINE DRAWING NO	REVISION ON DATE								
ARCH	M-PLAN	15.09.09	15.09.09	15.09.09	15.09.09	15.09.09	15.09.09	15.09.09	15.09.09
STRUCT									
MECH									
ELECT	SLA N2877								
	SLA N1775								
SURVEY	4111	22.08.02	28.08.02	28.08.02	28.08.02	28.08.02	28.08.02	28.08.02	28.08.02

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STATUS/REVISION	DESCRIPTION	DRAWN	DATE
0-0	PRELIMINARY DESIGN	DB	6.10.09
0-1	PRELIMINARY DESIGN ADDENDUM	DB	2.11.09
1-0	ISSUED FOR DA	KZ	16.11.09
1-1	RE-ISSUED FOR DA	DB	1.12.09
1-2	NOTES ON EXISTING LIGHT POLES FOR DA	DB	4.12.09
2-0	ISSUED FOR CONSTRUCTION CERTIFICATE	DB	21.06.10
3-0	ISSUED FOR TENDER	DB	10.09.10

ARCHITECT  
HABITATION

LIGHTING SUPPLIER  
**SA** **Concord**  
**SYLVANIA**  
Where Innovation comes to Light

CLIENT  
WARRINGAH COUNCIL

BUCKTON LYSSENKO  
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E-Mail: email@bucktonlysenko.com.au

PROJECT  
NOLAN RESERVE  
STAGE 2 WORKS

DRAWING TITLE  
ELECTRICAL SERVICES  
ELECTRICAL RETICULATION

SHEET 2 OF 3

DESIGNER	DRAWN	SCALE	CAD FILE
DB	DB	AS SHOWN	25381E03_30
CHECKED			
1	2	3	G
1	2	3	G

DRAWING STATUS LEGEND			
0	PRELIMINARY DESIGN DRAWING		
1	DEVELOPMENT APPLICATION		
2	AUTHORITY APPROVAL		
3	TENDER PURPOSES		
C	CONTRACT PURPOSES		

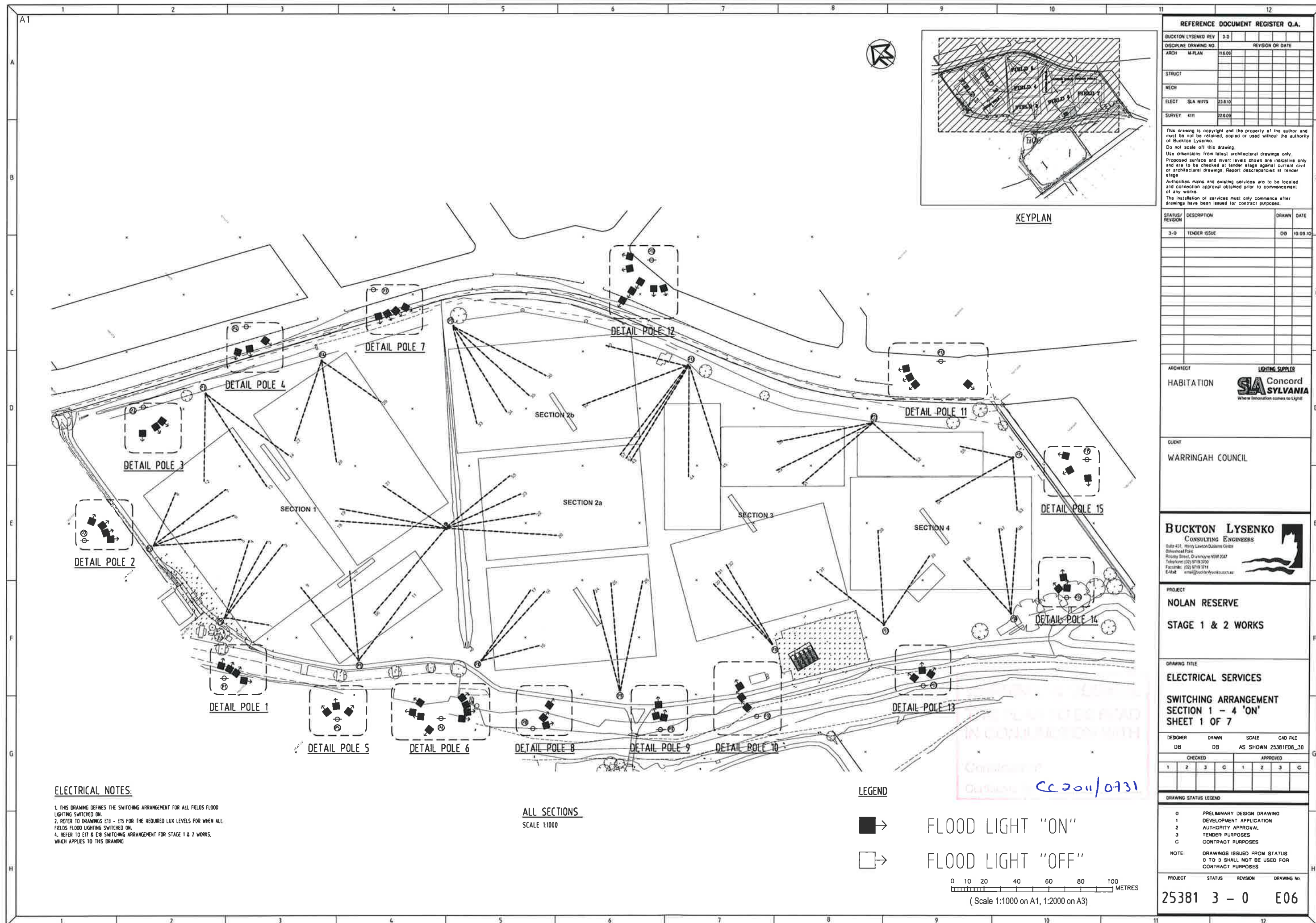
NOTE  
DRAWINGS ISSUED FROM STATUS  
0 TO 3 SHALL NOT BE USED FOR  
CONTRACT PURPOSES

PROJECT	STATUS	REVISION	DRAWING NO.
25381	3	0	E03

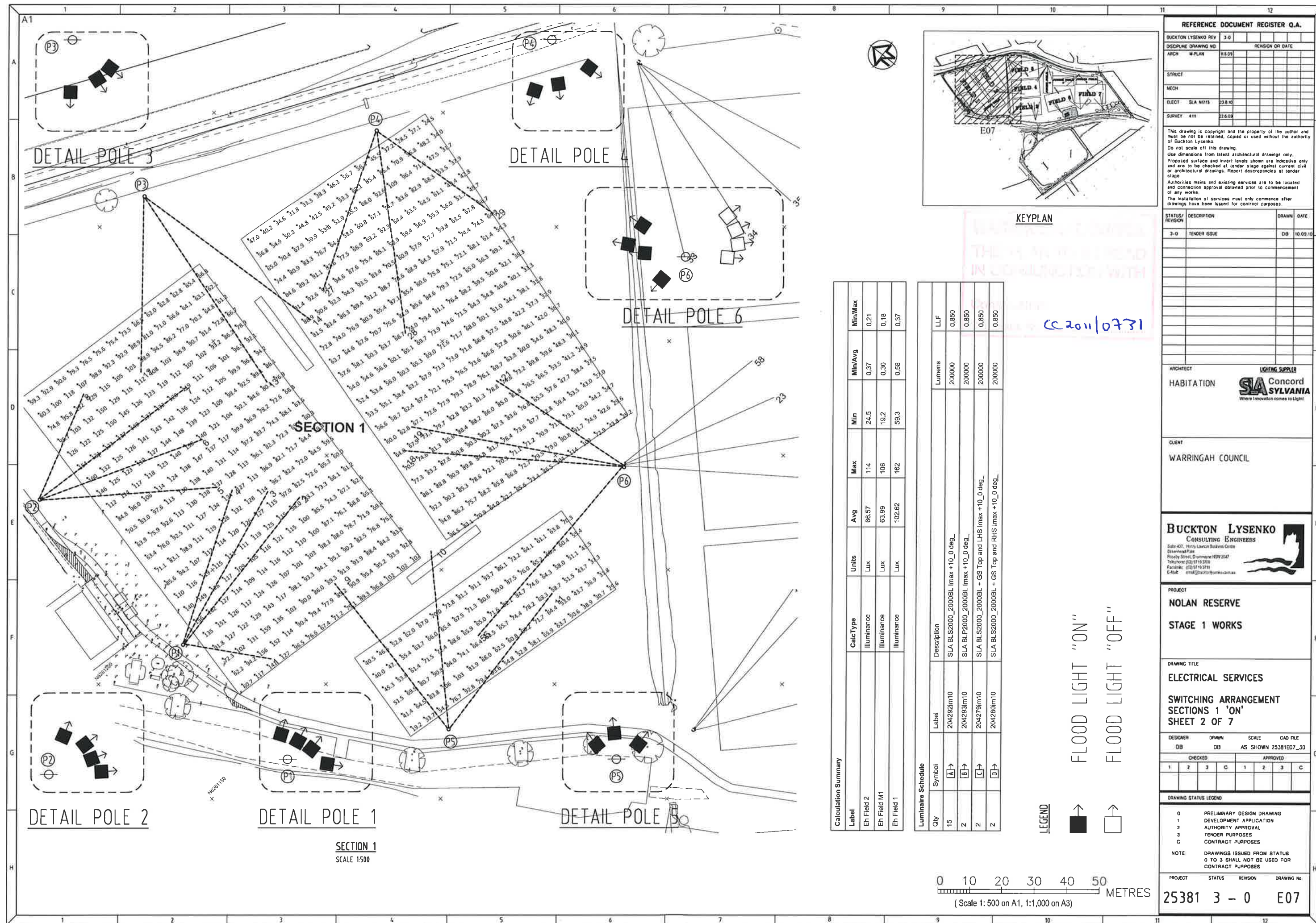




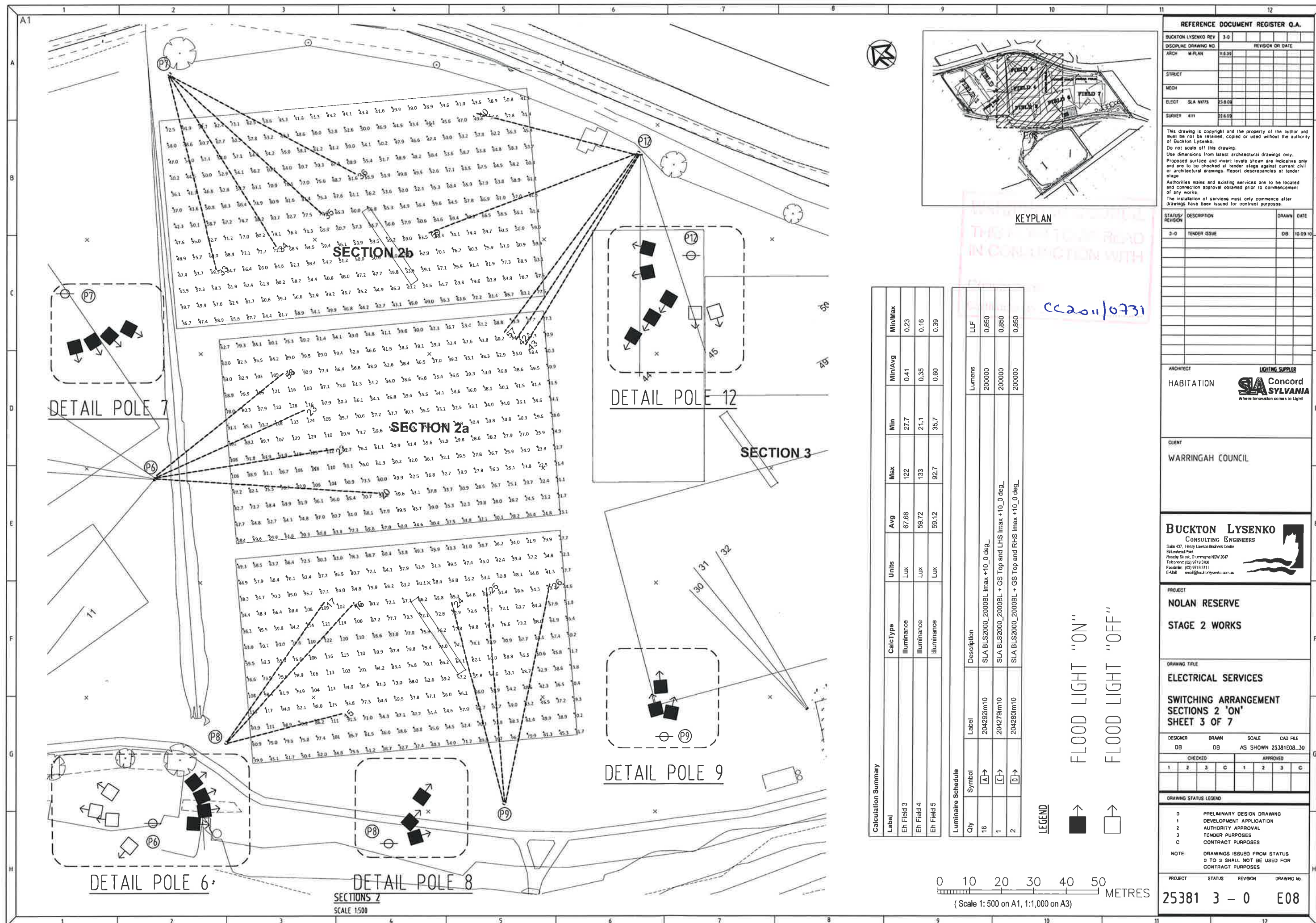




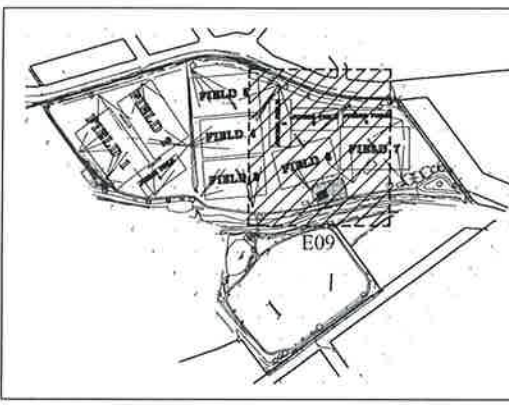
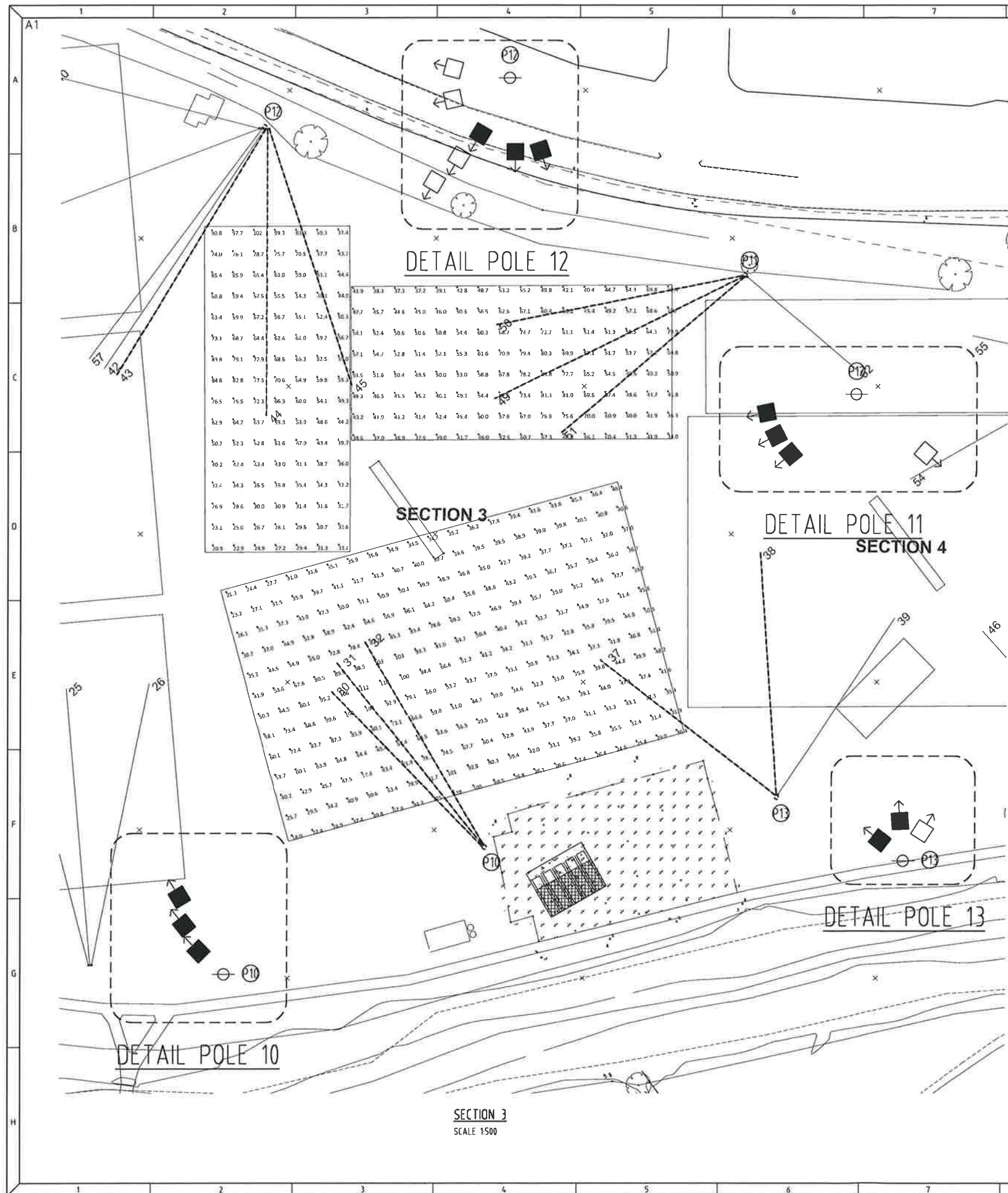








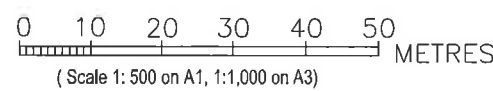
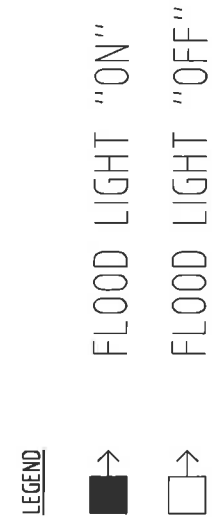




KEYPLAN

Calculation Summary				
Label	CalcType	Units	Avg	Max
Eh Field 6	Illuminance	Lux	51.28	128
Eh Field M2	Illuminance	Lux	53.39	102
Eh Field M3	Illuminance	Lux	55.27	100

Luminaire Schedule		
Qty	Symbol	Description
10	[Symbol]	SLA BLS2000_2000BL Imax +10_0 deg.
1	[Symbol]	SLA BLS2000_2000BL + GS Top and LHS Imax +10_0 deg.
2	[Symbol]	SLA BLS2000_2000BL + GS Top and RHS Imax +10_0 deg.



REFERENCE DOCUMENT REGISTER Q.A.

BUCKTON LYSENKO REV	3-0	REVISION ON DATE
DISCIPLINE DRAWING NO.		
ARCH	M-PLAN	11.09
STRUCT		
MECH		
ELECT	SLA M1775	23.01
SURVEY	4111	22.09

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STATUS/REVISION	DESCRIPTION	DRAWN	DATE
3-0	TENDER ISSUE	DB	10.09.10

ARCHITECT

HABITATION

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E-Mail: email@bucktonlysenko.com.au

PROJECT

NOLAN RESERVE

STAGE 2 WORKS

DRAWING TITLE

ELECTRICAL SERVICES

SWITCHING ARRANGEMENT

SECTION 3 'ON'

SHEET 4 OF 7

DESIGNER	DRAWN	SCALE	CAD FILE
DB	DB	AS SHOWN	25381E09_30

CHECKED	APPROVED
1 2 3 C	1 2 3 C

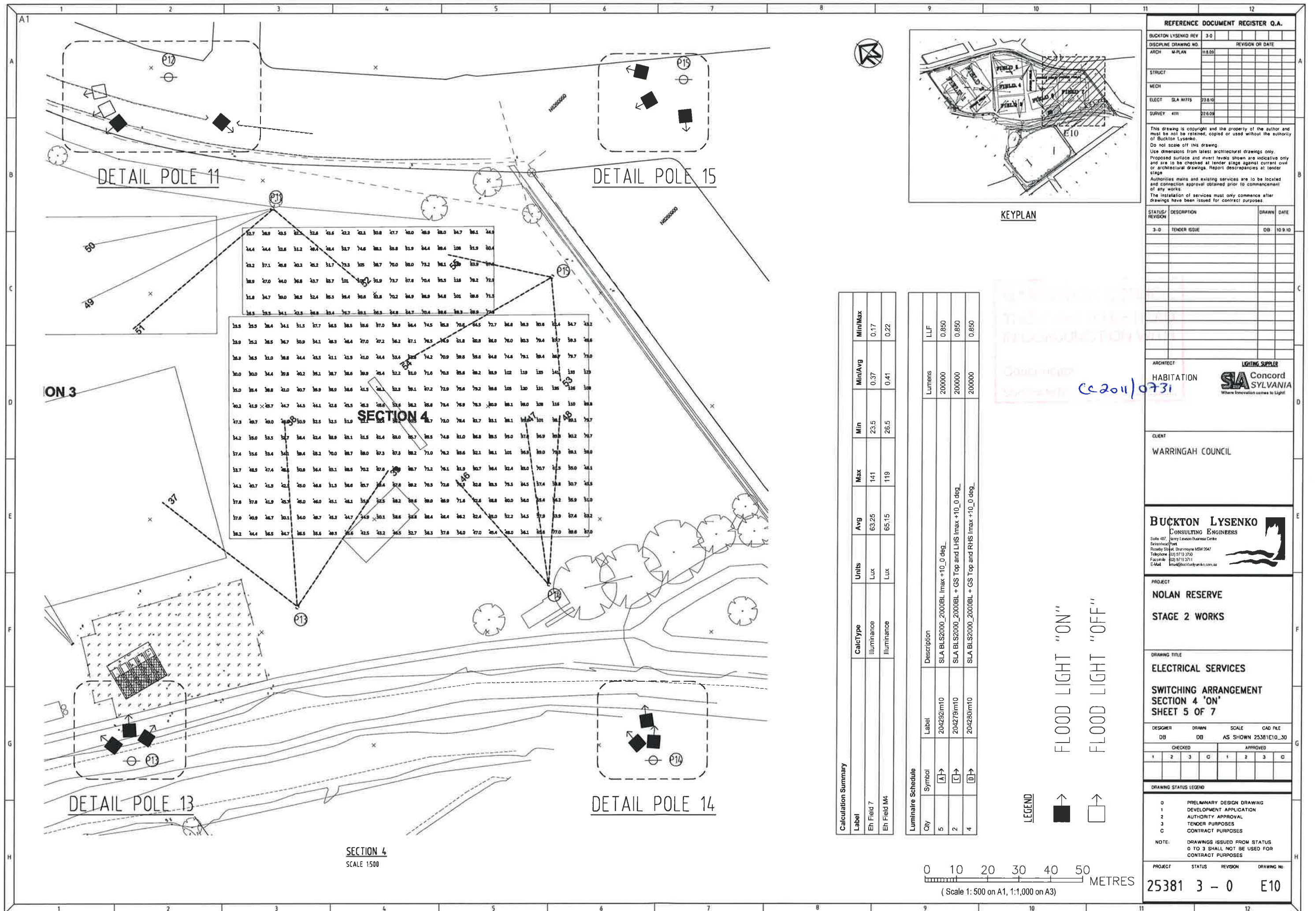
DRAWING STATUS LEGEND

0 PRELIMINARY DESIGN DRAWING  
1 DEVELOPMENT APPLICATION  
2 AUTHORITY APPROVAL  
3 TENDER PURPOSES  
C CONTRACT PURPOSES

NOTE: DRAWINGS ISSUED FROM STATUS 0 TO 3 SHALL NOT BE USED FOR CONTRACT PURPOSES

PROJECT	STATUS	REVISION	DRAWING No.
25381	3	0	E09

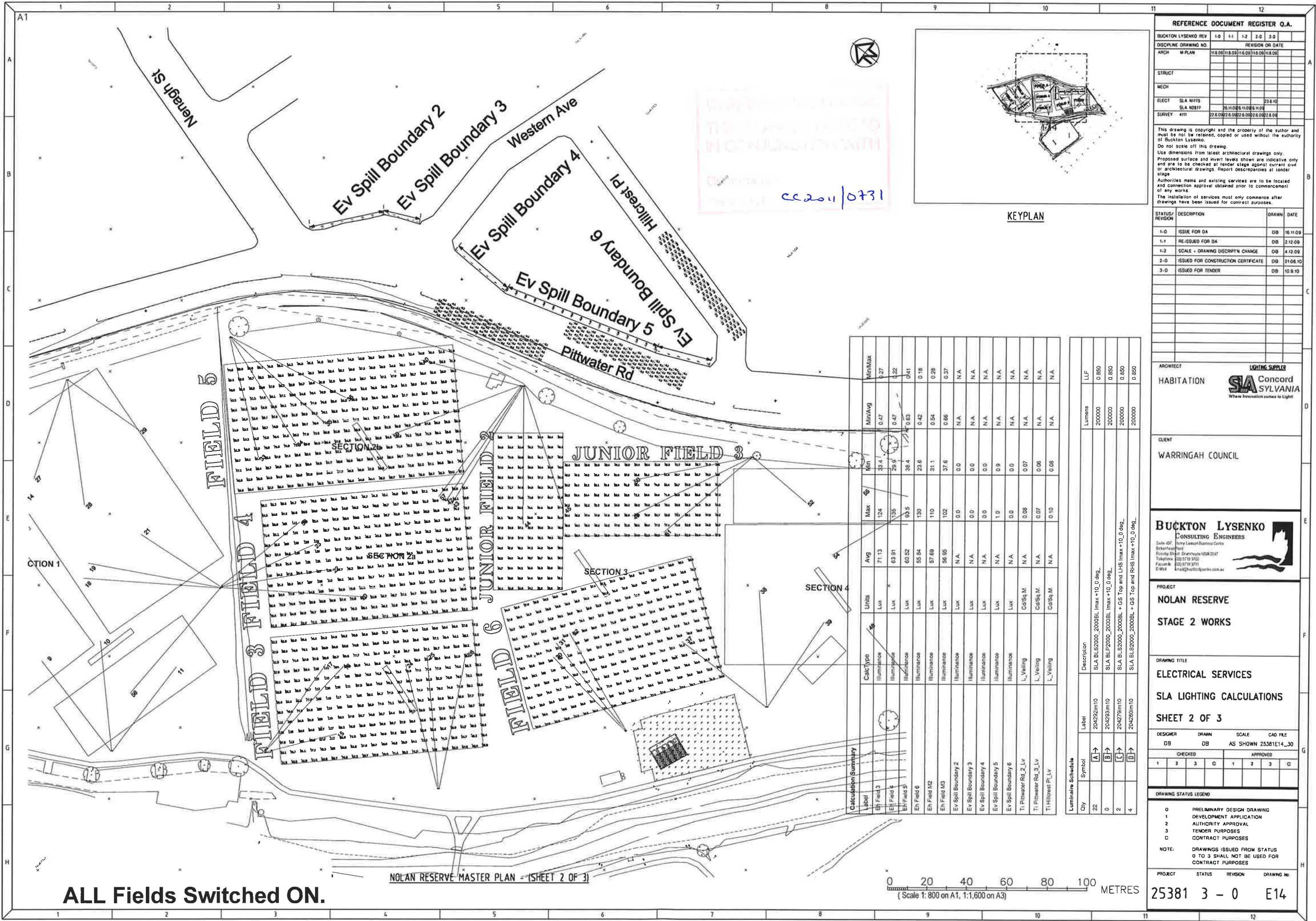












ALL Fields Switched ON.

NOLAN RESERVE MASTER PLAN - (SHEET 2 OF 3)

0 20 40 60 80 100 METRES  
(Scale 1: 800 on A1, 1:1,600 on A3)

Calculation Summary		Units	Avg	Max	Min	Min/Avg	Min/Max
Field 3	Lux	71.13	124	33.4	0.27	0.47	0.27
Field 4	Lux	63.91	135	29.9	0.22	0.47	0.22
Field 5	Lux	60.52	63.5	38.4	0.63	0.41	0.41
Field 6	Lux	55.84	130	23.6	0.42	0.18	0.18
Field M2	Lux	57.68	110	31.1	0.54	0.28	0.28
Field M3	Lux	56.95	102	37.6	0.66	0.37	0.37
Ev Spill Boundary 2	Lux	N.A.	0.0	0.0	0.0	N.A.	N.A.
Ev Spill Boundary 3	Lux	N.A.	0.0	0.0	0.0	N.A.	N.A.
Ev Spill Boundary 4	Lux	N.A.	0.0	0.0	0.0	N.A.	N.A.
Ev Spill Boundary 5	Lux	N.A.	0.0	0.0	0.0	N.A.	N.A.
Ev Spill Boundary 6	Lux	N.A.	0.0	0.0	0.0	N.A.	N.A.
Pittwater Rd 2_Lv	ColSqm	N.A.	0.08	0.07	0.06	N.A.	N.A.
Pittwater Rd 3_Lv	ColSqm	N.A.	0.07	0.07	0.06	N.A.	N.A.
Hillcrest Pl_Lv	ColSqm	N.A.	0.10	0.10	0.08	N.A.	N.A.

Luminaire Schedule		Label	Description	Lumens	LLF
22	A	204292m10	SLA BLS2000_2000BL Imax +10.0 deg.	200000	0.850
0	B	204293m10	SLA BLP2000_2000BL Imax +10.0 deg.	200000	0.850
2	C	204276m10	SLA BLS2000_2000BL + GS Top and LHS Imax +10.0 deg.	200000	0.850
4	D	204280m10	SLA BLS2000_2000BL + GS Top and RHS Imax +10.0 deg.	200000	0.850

KEYPLAN

**REFERENCE DOCUMENT REGISTER Q.A.**

BUCKTON LYSSENKOV REF	1.0	1.1	1.2	2.0	3.0
DISCIPLINE DRAWING NO.					
ARCH	M-PLAN	11.6.09	11.6.09	11.6.09	11.6.09
STRUCT					
MECH					
ELECT	SLA N1775				23.8.10
	SLA N2877	26.11.09	26.11.09	26.11.09	
SURVEY	4111	22.6.09	22.6.09	22.6.09	22.6.09

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STATUS/REVISION	DESCRIPTION	DRAWN	DATE
1-0	ISSUE FOR DA	DB	15.11.09
1-1	RE-ISSUED FOR DA	DB	2.12.09
1-2	SCALE - DRAWING DISCRIPN CHANGE	DB	4.12.09
2-0	ISSUED FOR CONSTRUCTION CERTIFICATE	DB	21.06.10
3-0	ISSUED FOR TENDER	DB	10.9.10

ARCHITECT  
**HABITATION**

CLIENT  
**WARRINGAH COUNCIL**

PROJECT  
**NOLAN RESERVE**

DRAWING TITLE  
**ELECTRICAL SERVICES**  
**SLA LIGHTING CALCULATIONS**  
**SHEET 2 OF 3**

DESIGNER	DRAWN	SCALE	CAD FILE
DB	DB	AS SHOWN	25381E14_30

CHECKED			APPROVED		
1	2	3	1	2	3

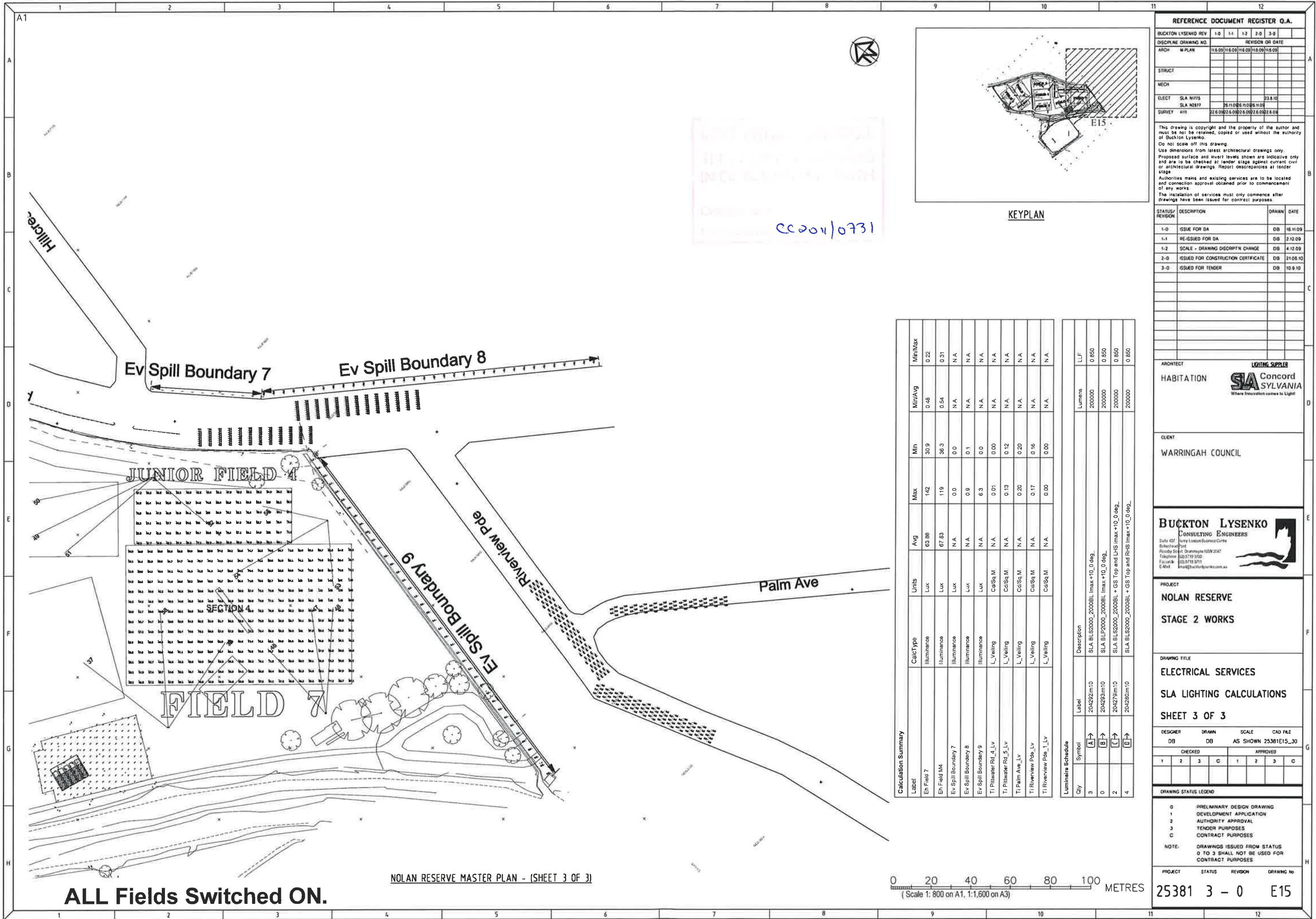
DRAWING STATUS LEGEND

0	PRELIMINARY DESIGN DRAWING
1	DEVELOPMENT APPLICATION
2	AUTHORITY APPROVAL
3	TENDER PURPOSES
C	CONTRACT PURPOSES

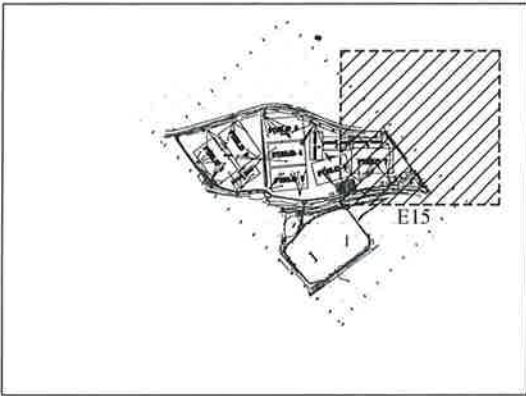
NOTE: DRAWINGS ISSUED FROM STATUS 0 TO 3 SHALL NOT BE USED FOR CONTRACT PURPOSES

PROJECT	STATUS	REVISION	DRAWING NO.
25381	3	0	E14





CC201/0731



KEYPLAN

Calculation Summary					Min/Max	
Label	CalcType	Units	Avg	Max	Min	Min/Avg
Ev Field 7	Illuminance	Lux	63.88	142	30.9	0.22
Ev Field M4	Illuminance	Lux	67.83	119	36.3	0.31
Ev Spill Boundary 7	Illuminance	Lux	N.A.	0.0	0.0	N.A.
Ev Spill Boundary 8	Illuminance	Lux	N.A.	0.9	0.1	N.A.
Ev Spill Boundary 9	Illuminance	Lux	N.A.	6.3	0.0	N.A.
T1 Pitwater Rd_4_Lv	CalcSq M		N.A.	0.01	0.00	N.A.
T1 Pitwater Rd_5_Lv	CalcSq M		N.A.	0.13	0.12	N.A.
T1 Palm Ave_Lv	CalcSq M		N.A.	0.20	0.20	N.A.
T1 Riverview Pde_Lv	CalcSq M		N.A.	0.17	0.16	N.A.
T1 Riverview Pde_1_Lv	CalcSq M		N.A.	0.00	0.00	N.A.

Luminaire Schedule		Lumens	
Qty	Symbol	Label	LLF
3	A	204292m10 SLA BLS2000_2000BL Imax +10.0 deg.	0.850
0	B	204293m10 SLA BLP2000_2000BL Imax +10.0 deg.	0.850
2	C	204279m10 SLA BLS2000_2000BL + GS Top and LHS Imax +10.0 deg.	0.850
4	D	204280m10 SLA BLS2000_2000BL + GS Top and RHS Imax +10.0 deg.	0.850

**REFERENCE DOCUMENT REGISTER Q.A.**

BUCKTON LYSSENKO REV	1:0	1:1	1:2	2:0	3:0
DISCIPLINE DRAWING NO.	REVISION OR DATE				
ARCH	M-PLAN	11.6.09	11.6.09	11.6.09	11.6.09
STRUCT					
MECH					
ELECT	SLA N1775			23.8.10	
	SLA N2877	26.11.09	11.06.10		
SURVEY	4TH	22.6.09	22.6.09	22.6.09	22.6.09

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STATUS/REVISION	DESCRIPTION	DRAWN	DATE
1-0	ISSUE FOR DA	DB	16.11.09
1-1	RE-ISSUED FOR DA	DB	2.12.09
1-2	SCALE + DRAWING DESCRIPTION CHANGE	DB	4.12.09
2-0	ISSUED FOR CONSTRUCTION CERTIFICATE	DB	21.06.10
3-0	ISSUED FOR TENDER	DB	10.9.10

ARCHITECT

HABITATION

CLIENT

WARRINGAH COUNCIL

LOADING SUPPLIER

**SA** Concord SYLVANIA  
Where Innovation comes to Light

PROJECT

NOLAN RESERVE

STAGE 2 WORKS

DRAWING TITLE

ELECTRICAL SERVICES

SLA LIGHTING CALCULATIONS

SHEET 3 OF 3

DESIGNER	DRAWN	SCALE	CAD FILE
DB	DB	AS SHOWN	25381E15_30

CHECKED	APPROVED
1 2 3 C	1 2 3 C

DRAWING STATUS LEGEND

0 PRELIMINARY DESIGN DRAWING  
1 DEVELOPMENT APPLICATION  
2 AUTHORITY APPROVAL  
3 TENDER PURPOSES  
C CONTRACT PURPOSES

NOTE: DRAWINGS ISSUED FROM STATUS 0 TO 3 SHALL NOT BE USED FOR CONTRACT PURPOSES.

PROJECT	STATUS	REVISION	DRAWING No.
25381	3	0	E15