

REV	DESCRIPTION	ISSUED	VER'D	APP'D	DATE	NORTHROP Sydney Level 11, 345 George Street, Sydney, N.S.W. 2000 Ph (02) 9241 4188 Email: sydney@northrop.com.au ABN 81 094 433 100 CLIENT SUN SHADE AUSTRALIA SPECIALISTS Tel: 9974 5019 Fax: 9974 4580 Website: www.sunshade.com.au Email: sales@sunshade.com.au	PROJECT		DRAWING TITLE		JOB NUMBER	
A	CONSTRUCTION ISSUE	J.T	J.B	J.B	22.11.18		SUN SHADE AUSTRALIA		STRUCTURAL DRAWING		180018 - 2206	
B	REVISED FOR CONSTRUCTION	J.T	J.B	J.B	23.11.18		#2206 - O'Connell Street Public School		COVER SHEET AND DRAWING LIST		DRAWING NUMBER	REVISION
							3 Marist Place Parramatta, 2150				S00	B
									ALL SETOUT TO ARCHITECT'S DRAWINGS DIMENSIONS TO BE VERIFIED WITH ARCHITECT AND BUILDER BEFORE COMMENCING SHOP DRAWINGS OR SITE WORK NORTHROP ACCEPTS NO RESPONSIBILITY FOR THE USABILITY, COMPLETENESS OR SCALE OF DRAWINGS TRANSFERRED ELECTRONICALLY DRAWINGS NOT TO BE USED FOR CONSTRUCTION UNLESS VERIFICATION SIGNATURE HAS BEEN ADDED THE COPYRIGHT OF THIS DRAWING REMAINS WITH NORTHROP CONSULTING ENGINEERS PTY LTD		DRAWING SHEET SIZE = A3	

VERIFIER: JOSEPH BONICA
JOB MANAGER: ROBERT STEVENS
DESIGNED: JAYDEN THOMPSON
DRAWN: JAYDEN THOMPSON

GENERAL:

- G1. THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH SPECIFICATIONS AND OTHER CONSULTANTS DRAWINGS.
- G2. ALL DISCREPANCIES SHALL BE REFERRED TO THE ENGINEER BEFORE PROCEEDING WITH THE WORK.
- G3. DO NOT SCALE DRAWINGS.
- G4. ALL WORKMANSHIP, TESTING, MATERIALS AND SUPERVISION ARE TO BE IN ACCORDANCE WITH THESE SPECIFICATIONS, THE OCCUPATIONAL HEALTH AND SAFETY ACT 1983 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. UNLESS OTHERWISE SPECIFIED FOR SPECIFIC INSTANCES IN THE DESIGN DRAWINGS, THE ARRANGEMENT, DESIGN AND INSTALLATION OF TEMPORARY WORKS REMAINS THE RESPONSIBILITY OF THE CONTRACTOR. (THE CONSULTING ENGINEER HAS DESIGNED THE PERMANENT STRUCTURE).
- G7. TEMPORARY BRACING AND SUPPORT OF STRUCTURE IS THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE MAINTAINED DURING ALL STAGES OF CONSTRUCTION.
- G8. THE STRUCTURAL COMPONENTS DETAILED ON THESE DRAWINGS HAVE BEEN DESIGNED IN ACCORDANCE WITH SAA CODES. REFER TO INDIVIDUAL SITE DRAWINGS FOR WIND LOADING DESIGN CRITERIA.
- G9. ALL SHADE STRUCTURES CONSTRUCTED FROM THE NORTHROP DESIGNS REQUIRE SITE SPECIFIC CERTIFICATIONS.

FOUNDATIONS:

- F1. UNLESS NOTED OTHERWISE, THE FOUNDATIONS HAVE BEEN DESIGNED ON THE BASIS OF 300mm MAXIMUM OF TOP SOIL UNDERLAIN BY STIFF CLAY WITH AN ALLOWABLE BEARING PRESSURE OF 100 kPa.
- F2. A RISE OF 1m AND A RUN OF 1.5m SHALL NOT BE EXCEEDED FOR THE LINE OF SLOPE BETWEEN ADJACENT FOOTINGS OR EXCAVATIONS.
- F3. FOOTINGS SHALL BE LOCATED CENTRALLY UNDER POSTS UNLESS NOTED OTHERWISE.
- F4. ENSURE THAT THE STABILITY OF ADJACENT BUILDINGS IS MAINTAINED DURING ALL STAGES OF CONSTRUCTION. FOOTING EXCAVATIONS MUST BE FREE OF LOOSE EARTH, TREE ROOTS, MUD OR DEBRIS IMMEDIATELY BEFORE POURING CONCRETE.
- F5. IN THE EVENT THAT UNUSUAL SOIL CONDITIONS ARE FOUND THE ENGINEER IS TO BE CONTACTED.

CONCRETE:

- C1. CARRY OUT ALL CONCRETE WORK IN ACCORDANCE WITH AS3600 AND NATSPEC CONCRETE STANDARDS.
- C2. CONCRETE SHALL OBTAIN A COMPRESSIVE STRENGTH OF 20 MPa AFTER 28 DAYS.
-MAXIMUM AGGREGATE SIZE = 20mm U.N.O.
-SLUMP = 80mm
- C3. HOLD DOWN BOLTS SHALL BE HOT DIPPED GALVANISED.
- C4. U.N.O., CLEAR CONCRETE COVERS SHALL BE:

	COVER
- MEMBERS IN DIRECT CONTACT WITH THE GROUND	50mm
- MEMBERS SEPARATED FROM GROUND BY MEMBRANE	30mm
- MEMBERS IN EXTERIOR ENVIRONMENTS	40mm
- C5. REINFORCEMENT SYMBOLS:
S = STRUCTURAL GRADE PLAIN ROUND BAR TO AS1302 (250MPa)0MP
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 MILLIMETERS CLASS L REINFORCEMENT SHALL NOT BE USED U.N.O.
- C6. MINIMUM CONCRETE COVER TO STEEL POSTS IN FOOTINGS TO BE 100mm.
- C7. ALLOW CONCRETE TO REACH 10 MPa (10 DAYS FOR 20 MPa CONCRETE) BEFORE INSTALLING FABRIC.

CHEMICAL ANCHORS:

- CA1. UNLESS NOTED OTHERWISE, CHEMSETS SPECIFIED IN THESE DRAWINGS REFER TO RAMSET CHEMSET INJECTION 502 OR 801 (GALVANISED).
- CA2. ALTERNATIVE CHEMICAL ANCHORS MAY BE SUBSTITUTED WITH PRIOR PERMISSION FROM NORTHROP CONSULTING ENGINEERS.
- CA3. MINIMUM EDGE DISTANCE AND SPACING SETOUT OF THE ANCHORS ARE SPECIFIED ON THESE DRAWINGS. IF THE INSTALLED DISTANCES ARE LESS THAN THAT SPECIFIED NOTIFY THE STRUCTURAL ENGINEER FOR INSTRUCTION.
- CA4. CHEMICAL ANCHORS ARE TO BE STRICTLY INSTALLED TO MANUFACTURERS INSTALLATION PROCEDURE.
- CA5. DIAMETER OF HOLES TO MANUFACTURERS SPECIFICATION FOR NOMINATED BOLT/BAR DIAMETER.
- CA6. CLEAN AND DEGREASE BOLTS/BARS BY MEANS OF WIRE BRUSH AND COMPRESSED AIR PRIOR TO INSTALLATION
- CA7. ENSURE CHEMICAL IS ALLOWED TO FULLY CURE IN ACCORDANCE WITH MANUFACTURE'S DETAILS PRIOR TO LOADING BOLTS/BARS.

STEELWORK:

- S1. FABRICATE AND ERECT STRUCTURAL STEELWORK IN ACCORDANCE WITH AS4100.
- S2. PROVIDE HOLES, CLEATS AND FIXING FOR TIMBER FRAMING, FINISHES, ETC. SHOWN ON ARCHITECTURAL DRAWINGS.
- S3. ALL BOLTS, SCREWS, HOLD DOWN BOLTS, MASONRY ANCHORS SHALL BE HOT DIP GALVANISED TO AS1214.
- S4. MINIMUM YIELD STRESS:
- HOT ROLLED SECTIONS = 300MPa
- SQUARE HOLLOW SECTIONS = 350MPa
- RECTANGULAR HOLLOW SECTIONS = 350MPa
- CIRCULAR HOLLOW SECTION = 350MPa
- S5. BOLT SYMBOLS:
- 4.6/S - SNUG FIT
- 8.8/S - SNUG FIT
- 8.8/TF - FULLY TENSIONED BEARING TYPE (USE LOAD INDICATOR WASHERS)
- 8.8/TB - FULLY TENSIONED BEARING TYPE (USE LOAD INDICATOR WASHERS)
S6. HIGH STRENGTH BOLTS (8.8) ARE NOT TO BE WELDED.
- S7. UNLESS NOTED OTHERWISE, USE...
- 10MM GUSSET, FIN AND END PLATES.
- M16 8.8/S BOLTS.
- 6mm CONTINUOUS FILLET WELDS MADE WITH E4818 MILD STEEL ELECTRODES.
- ALL WELDS SP CATEGORY

SHADE CLOTH FABRIC:

- FA1. FABRIC PATTERNING IS THE RESPONSIBILITY OF THE CONTRACTOR. THE FINAL PATTERN IS TO BE DETERMINED ONCE ALL COLUMNS HAVE BEEN INSTALLED.
- FA2. DESIGN EDGE CURVATURE (SCOLLOP) IS BASED ON 10% OF INITIAL LENGTH BETWEEN COLUMNS.
- FA3. STITCHING TYPE AND STRENGTH IS THE RESPONSIBILITY OF THE CONTRACTOR.
- FA4. THE FABRIC SHALL BE HANDLED AND STORED IN A MANNER THAT WILL NOT DAMAGE THE FABRIC AND CAUSE A VISUAL OR STRUCTURAL DEFECT.
- FA5. THE SHADE CLOTH SHALL BE INSTALLED BY AN EXPERIENCED CONTRACTOR.
- FA6. THE SHADE CLOTH SHALL NOT BE NSTALLED WHEN WIND SPEED EXCEEDS 20 KILOMETERS PER HOUR.



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Approved Section 4.55 (.IA..) Modification Application

No. 5 granted on the 05 JUL 2019

in respect to SSD 7372

Signed [Signature]

Sheet No. 2 of 6

JOSEPH BONICA
Northrop Consulting Engineers - Structural Engineer
BE (Civil) Hons MIEAust CPeng NER

CONSTRUCTION

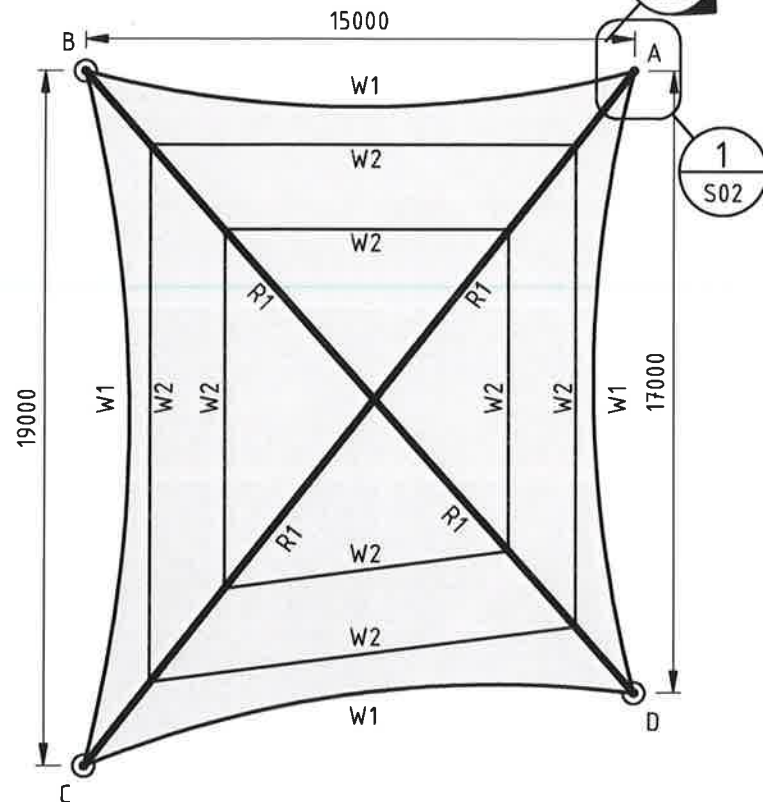
REV	DESCRIPTION	ISSUED	VER'D	APP'D	DATE	 Sydney Level 11, 345 George Street, Sydney, N.S.W. 2000 Ph (02) 9241 4188 Email: sydney@northrop.com.au ABN 81 094 433 100	PROJECT SUN SHADE AUSTRALIA #2206 - O'Connell Street Public School 3 Marist Place Parramatta, 2150	DRAWING TITLE STRUCTURAL DRAWING SPECIFICATION NOTES	JOB NUMBER 180018 - 2206	
A	CONSTRUCTION ISSUE	J.T	J.B	J.B	22.11.18				DRAWING NUMBER S01	REVISION A
						 Tel: (02) 9974 5019 Fax: (02) 9974 4380 Website: www.sunshade.com.au Email: sales@sunshade.com.au	ALL SETOUT TO ARCHITECT'S DRAWINGS. DIMENSIONS TO BE VERIFIED WITH ARCHITECT AND BUILDER BEFORE COMMENCING SHOP DRAWINGS OR SITE WORK. NORTHROP ACCEPTS NO RESPONSIBILITY FOR THE USABILITY, COMPLETENESS OR SCALE OF DRAWINGS TRANSFERRED ELECTRONICALLY. DRAWINGS NOT TO BE USED FOR CONSTRUCTION UNLESS VERIFICATION SIGNATURE HAS BEEN ADDED. THE COPYRIGHT OF THIS DRAWING REMAINS WITH NORTHROP CONSULTING ENGINEERS PTY LTD	DRAWING SHEET SIZE = A3		

VERIFIER: JOSEPH BONICA

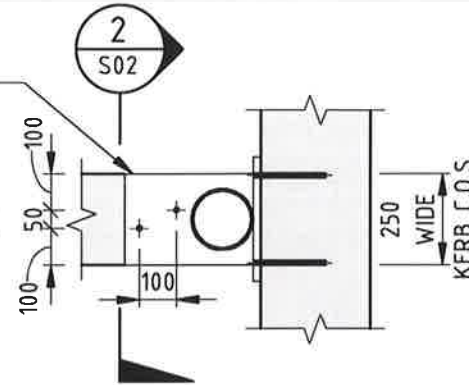
JOB MANAGER: ROBERT STEVENS

DESIGNED: JAYDEN THOMPSON

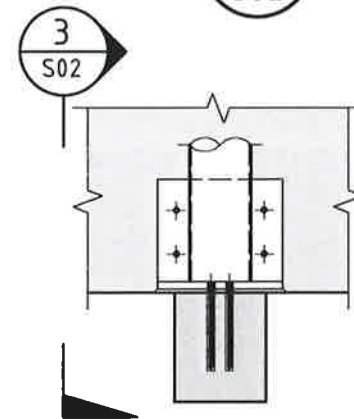
DRAWN: JAYDEN THOMPSON



20 THICK PLATE.
4M20 ANCHOR RODS
200 EMBEDMENT.
RAMSET REO 502
10mm NON-SHRINK GROUT.



DETAIL 1
S02



SECTION 2
S02

EXISTING RETAINING WALL

8mm CFW PLATE TO CHS

4M20 ANCHOR RODS
RAMSET REO 502
200 EMBEDMENT
10MM NON-SHRINK GROUT

FSBW

20 THICK PLATE

EXISTING SLAB

2M20 ANCHOR RODS
RAMSET REO 502
200 EMBEDMENT
10MM NON-SHRINK GROUT

COLUMN 'A' BASE CONNECTION DETAIL

SECTION 3
S02

MEMBER SCHEDULE

MARK	HEIGHT	SIZE	FOOTINGS
POSTS			
A	2100	168.3 x 4.8 CHS GR350	REFER DETAIL 1
B	2100	168.3 x 4.8 CHS GR350	600DIA. x 1600D.
C	3500	168.3 x 4.8 CHS GR350	600DIA. x 1600D.
D	3500	168.3 x 4.8 CHS GR350	600DIA. x 1600D.

RAFTERS			
R1	-	88.9 x 5.5 CHS GR350	TRUSSED

WIRES			
W1	-	9.5mm GR304. STAINLESS STEEL WIRE	-
W2	-	8mm GR2070. GALVANISED WIRE	-

NOTES:

- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH DRAWING 180018-S01.
- BASIC CRITERIA:
 - WIND CLASSIFICATION (AS4055) - N1
 - DESIGN WIND SPEED (ULTIMATE) - 34m/s.(120Km/hr)
 - REGION - A.
 - TERRAIN CATEGORY - TC3.
- ASSUMED FOUNDATION CONDITIONS:
 - STIFF CLAY, 300mm TOPSOIL, 100 kPa ALLOWABLE BEARING CAPACITY.
- SHADE CLOTH USED ON THIS PROJECT:
 - SYNTHESIS COMMERCIAL 95.
 - PERIMETER PRE-TENSIONING 0.2 kN/m ALONG WIRE.
- SHOULD INSPECTIONS OF FOUNDATIONS & STRUCTURE BE REQUIRED BY THE CERTIFYING AUTHORITY, NOTIFY SUN SHADE AUSTRALIA AND NORTHPROP ENGINEERS PRIOR TO COMMENCEMENT OF CONSTRUCTION.



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PLAN

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Approved Section 4.55 (.1A...) Modification Application

No. 5 granted on the 05 JUL 2019

in respect to SSD 7372

Signed [Signature]

Sheet No. 3 of 6



Sydney
Level 11, 345 George Street, Sydney, N.S.W. 2000
Ph (02) 9241 4188 Email: sydney@northrop.com.au
ABN 81 094 433 100

CLIENT



PROJECT
SUN SHADE AUSTRALIA
#2206 - O'Connell Street Public
School
3 Marist Place Parramatta, 2150

1:200 0 2000 4000 6000 8000 10000

DRAWING TITLE
STRUCTURAL DRAWING
FRAMING PLAN

ALL SETOUT TO ARCHITECT'S DRAWINGS. DIMENSIONS TO BE VERIFIED WITH ARCHITECT AND BUILDER BEFORE COMMENCING SHOP DRAWINGS OR SITE WORK. NORTHPROP ACCEPTS NO RESPONSIBILITY FOR THE USABILITY, COMPLETENESS OR SCALE OF DRAWINGS TRANSFERRED ELECTRONICALLY. DRAWINGS NOT TO BE USED FOR CONSTRUCTION UNLESS VERIFICATION SIGNATURE HAS BEEN ADDED. THE COPYRIGHT OF THIS DRAWING REMAINS WITH NORTHPROP CONSULTING ENGINEERS PTY LTD

JOB NUMBER
180018 - 2206

DRAWING NUMBER REVISION

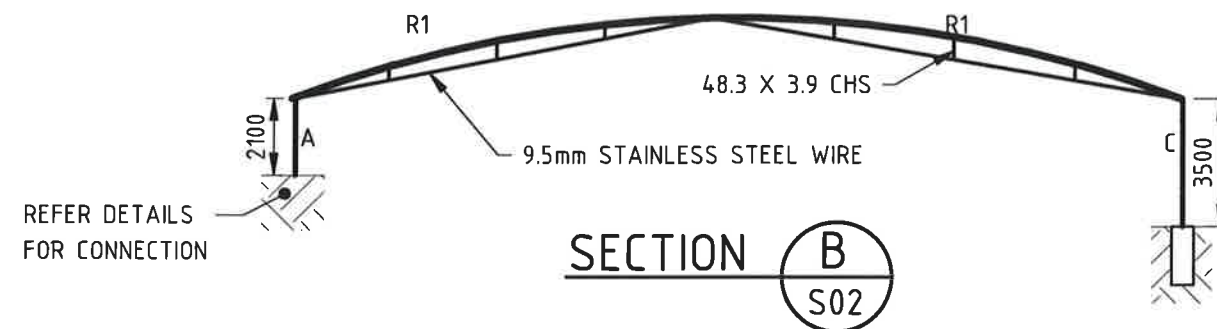
S02 **D**

DRAWING SHEET SIZE = A3

CONSTRUCTION

Joseph Bonica
Northrop Consulting Engineers - Structural Engineer
BE (Civil) Hons MIEAust CPEng NER

DRAWN: JAYDEN THOMPSON
DESIGNED: JAYDEN THOMPSON
JOB MANAGER: ROBERT STEVENS
VERIFIER: JOSEPH BONICA



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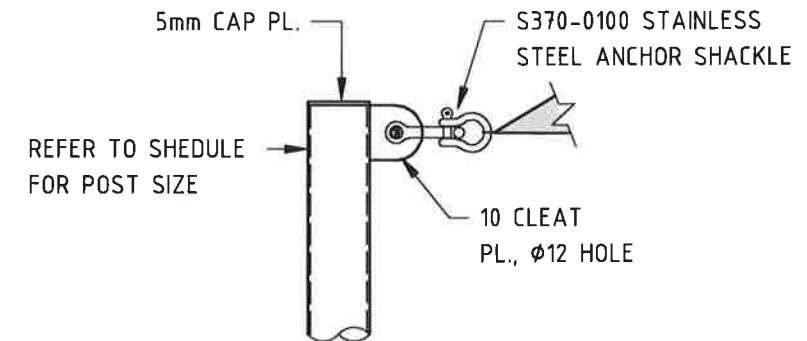
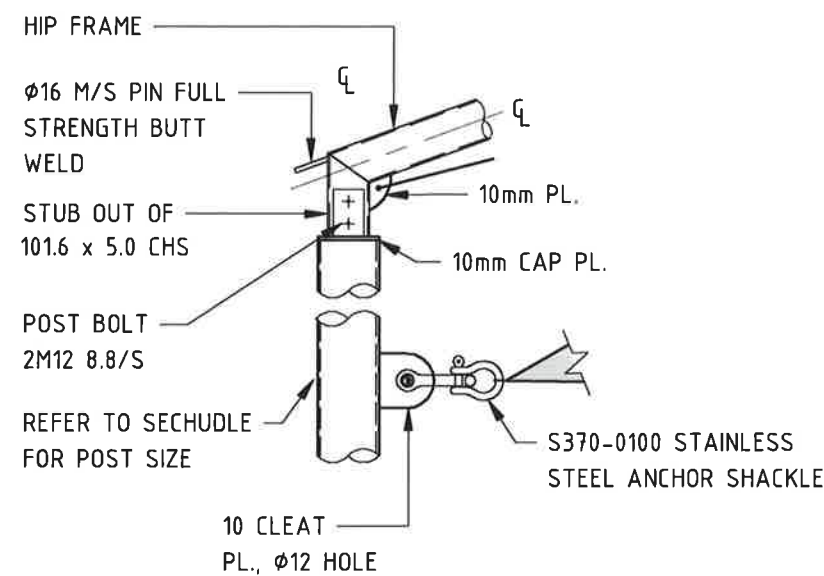
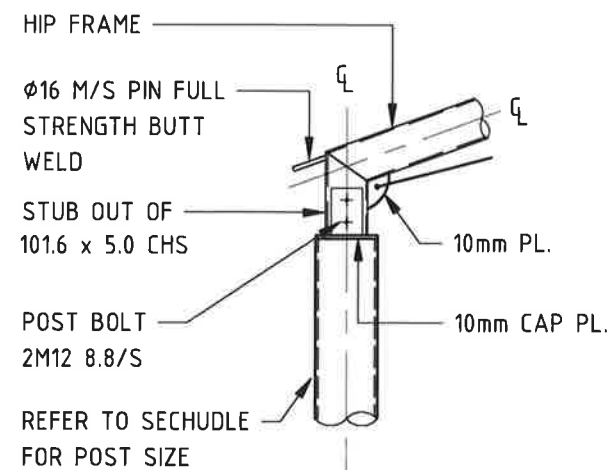
Sheet No. 4 of 6

Joseph Bonica
JOSEPH BONICA
Northrop Consulting Engineers - Structural Engineer
BE (Civil) Hons MIEAust CPEng NER

CONSTRUCTION

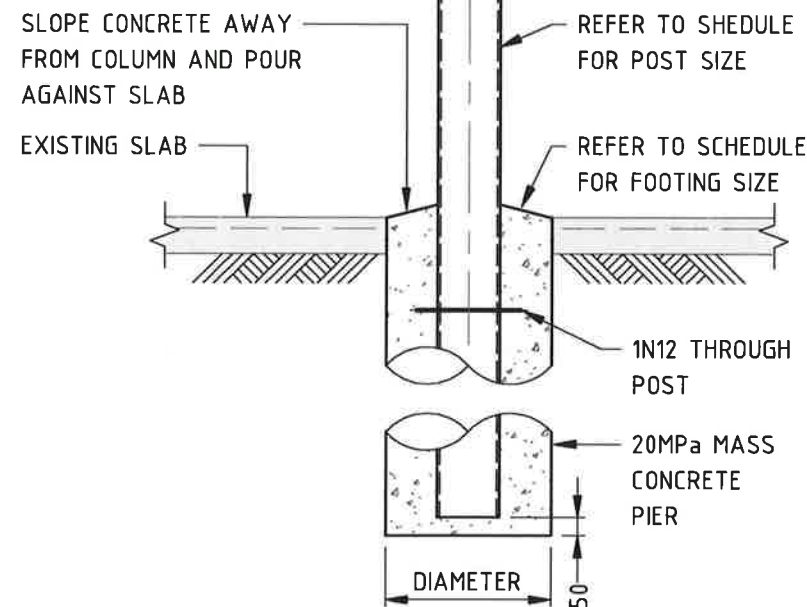
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B	REVISED FOR CONSTRUCTION	J.T	J.B	J.B	23.11.18		#2206 - O'Connell Street Public		FRAMING ELEVATIONS		DRAWING NUMBER	REVISION
C	REVISED FOR CONSTRUCTION	J.T	J.B	J.B	05.12.18		School				S03	D
D	REVISED FOR CONSTRUCTION	J.T	J.B	J.B	15.03.19		3 Marist Place Parramatta, 2150				DRAWING SHEET SIZE = A3	
						0200040006000800010000 		ALL SETOUT TO ARCHITECT'S DRAWINGS. DIMENSIONS TO BE VERIFIED WITH ARCHITECT AND BUILDER BEFORE COMMENCING SHOP DRAWINGS OR SITE WORK. NORTHROP ACCEPTS NO RESPONSIBILITY FOR THE USABILITY, COMPLETENESS OR SCALE OF DRAWINGS TRANSFERRED ELECTRONICALLY. DRAWINGS NOT TO BE USED FOR CONSTRUCTION UNLESS VERIFICATION SIGNATURE HAS BEEN ADDED. THE COPYRIGHT OF THIS DRAWING REMAINS WITH NORTHROP CONSULTING ENGINEERS PTY LTD				

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JOB MANAGER: ROBERT STEVENS
DESIGNED: JAYDEN THOMPSON
DRAWN: JAYDEN THOMPSON



TYPICAL SAIL CLEAT TO
POST DETAIL

SCALE 1:20

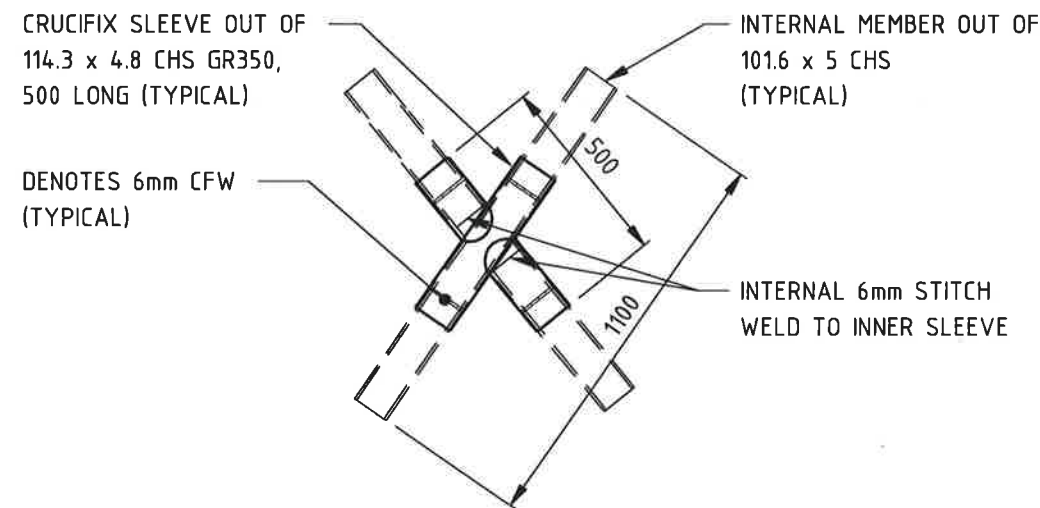


TYPICAL FOOTING AND POST-RAFTER
CONNECTION DETAIL



TYPICAL POST-RAFTER AND
SAIL CLEAT TO POST DETAIL

SCALE 1:20



TYPICAL CRUCIFIX
CONNECTION DETAIL

N.T.S

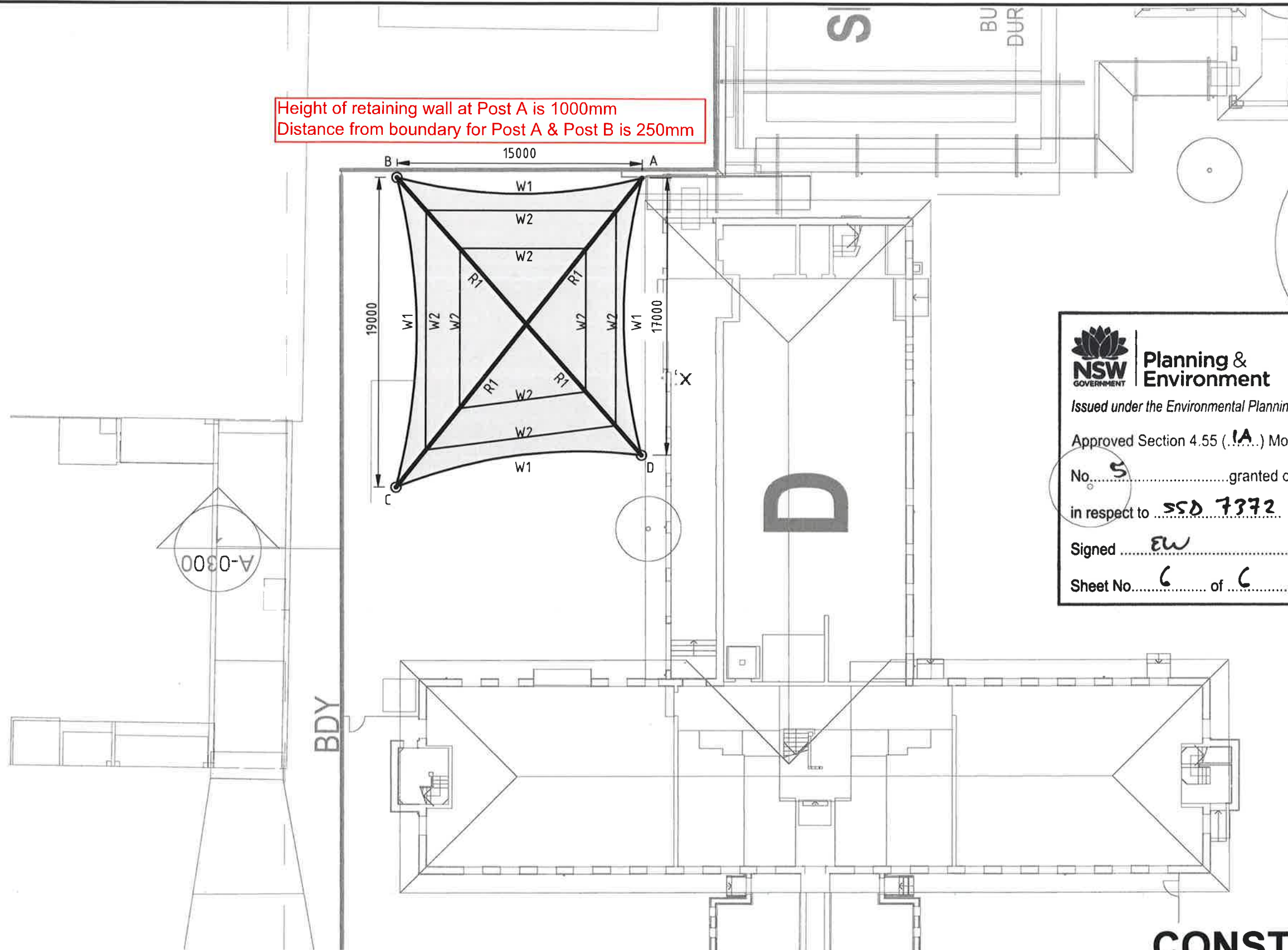
NSW GOVERNMENT Planning & Environment
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No. 5 granted on the 05 JUL 2019
in respect to SSD 7372
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Sheet No. 5 of 6

Joseph Bonica
JOSEPH BONICA
Northrop Consulting Engineers - Structural Engineer
BE (Civil) Hons MIEAust CPEng NER

CONSTRUCTION

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									DRAWING SHEET SIZE = A3	

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Signed EW

Sheet No. 6 of 6

Joseph Bonica

JOSEPH BONICA
Northrop Consulting Engineers - Structural Engineer
BE (Civil) Hons MIEAust CPENG NER

CONSTRUCTION

REV	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
A	ISSUED FOR CONSTRUCTION	J.T	J.B	J.B	05.12.18
B	REVISED FOR CONSTRUCTION	J.T	J.B	J.B	11.12.18
C	REVISED FOR CONSTRUCTION	J.T	J.B	J.B	15.03.19
D	REVISED FOR CONSTRUCTION	J.T	J.B	J.B	22.05.19



Sydney
Level 11, 345 George Street, Sydney, N.S.W. 2000
Ph (02) 9241 4188 Email: sydney@northrop.com.au
ABN 81 094 433 100

CLIENT



SUN SHADE AUSTRALIA
Tel: 9974 5019 Fax: 9974 4580
Website: www.sunshade.com.au
Email: sales@sunshade.com.au

PROJECT
SUN SHADE AUSTRALIA
#2206 - O'Connell Street Public
School
3 Marist Place Parramatta, 2150

1:1250 0 2500 5000 7500 10000 12500

DRAWING TITLE
STRUCTURAL DRAWING
LOCATION PLAN

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JOB NUMBER 180018 - 2206	
DRAWING NUMBER S05	REVISION D
DRAWING SHEET SIZE = A3	