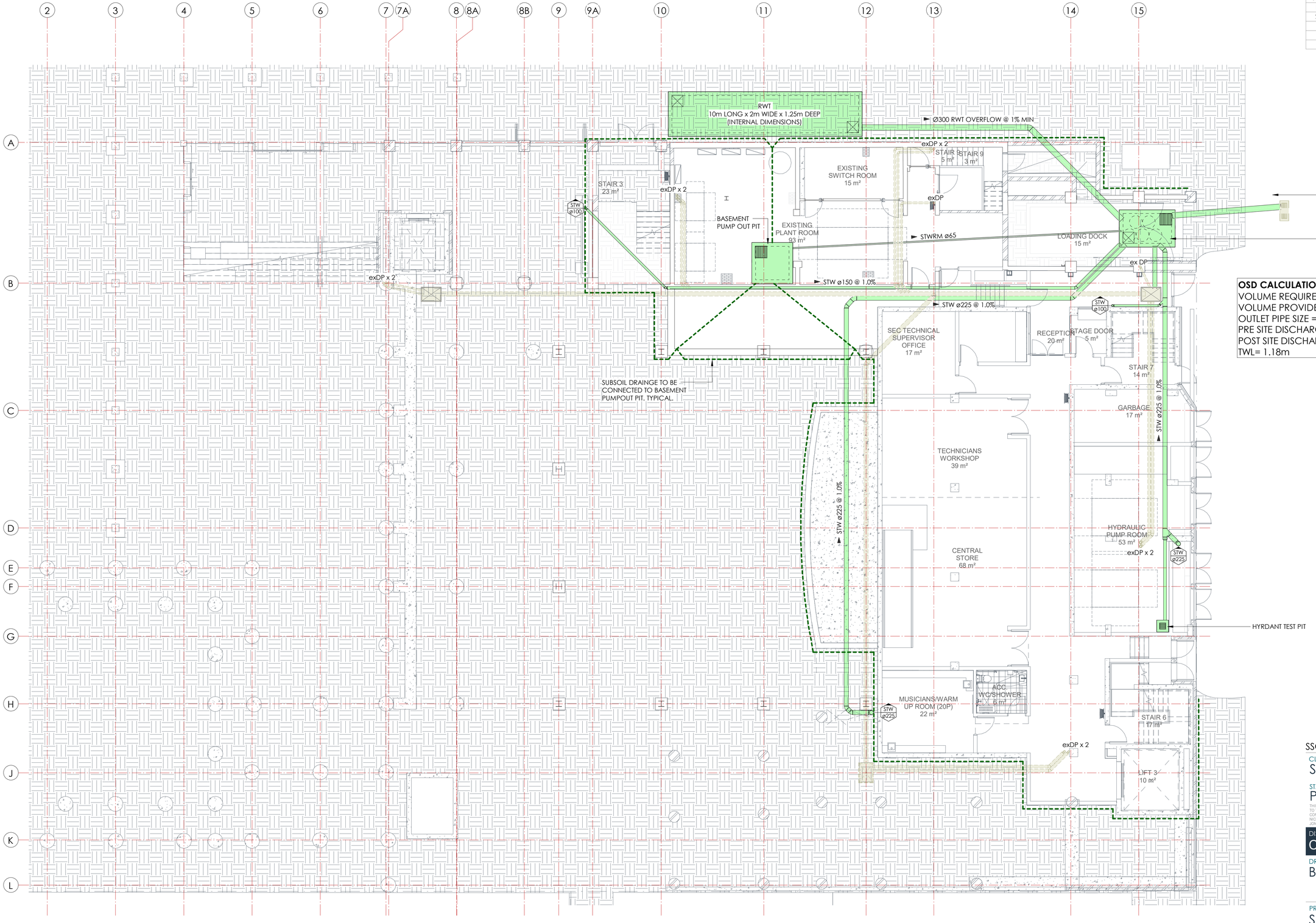
No	DATE	DESCRIPTION	BY
1	27.11.19	SCHEMATIC ISSUE	ELR
2	17.01.20	ISSUED FOR DA	ELR



OSD CALCULATIONS
VOLUME REQUIRED = 4.5m³
VOLUME PROVIDED = 5.8m³
OUTLET PIPE SIZE = 300mm RCP @ 1% MIN
PRE SITE DISCHARGE = 190 L/s
POST SITE DISCHARGE = 189 L/s
TWL= 1.18m

BASEMENT LEVEL STORMWATER PLAN
SCALE 1 : 100

JN
SSC Ref. No 17700 *Responsive Engineering*

CLIENT
SUTHERLAND SHIRE COUNCIL

STATUS
PRELIMINARY

DISCIPLINE
CIVIL DESIGN 19

DRAWING TITLE
BASEMENT STORMWATER PLAN

PROJECT
SUTHERLAND SHIRE
ENTERTAINMENT CENTRE

ADDRESS
30 ETON ST, SUTHERLAND NSW 2232

PROJECT DETAILS		
DESIGN	SD	19010144
DRAWN	ER	
DATE	OCT'19	
DRG SIZE	A1	
SCALE	1 : 100	C100 2
PROJECT MGR		
WWW.JN.COM.AU		

No	DATE	DESCRIPTION	BY
1	27.11.19	SCHEMATIC ISSUE	ELR
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PRE SITE DISCHARGE = 190 L/s
POST SITE DISCHARGE = 189 L/s
TWL= 1.18m

UNDERGROUND RWT, 25m³. REFER TYPICAL DETAILS. GL. 109.670 IL. 108.220

RWT 10m LONG x 2m WIDE x 1.25m DEEP (INTERNAL DIMENSIONS)

Ø300 RWT OVERFLOW @ 1% MIN

EXISTING KERB GULLY PIT ON MERITON STREET. APPROXIMATE LOCATION. GL. 108.92 IL. 1073.3

OSD. 5.8m³. REFER TYPICAL DETAILS GL. 109.500 IL. 107.800

FOYER TERRACE 108 m²
CAFE TERRACE 5 m²
ENTRY LOBBY 72 m²
FOYER STAIR 20 m²
LIFT 1 7 m²
STAIR 3 23 m²
KITCHEN 42 m²
COOL ROOM
FREEZER
PLATE UP 18 m²
STAIR 9 3 m²
CLNR
WC
LOADING DOCK 15 m²
STORE
SOUND LOCK 48 m²
SOUND LOCK 13 m²
STAIR 7
COMPANY/STAGE MANAGER OFFICE 10 m²
DRESSING ROOM 2 ACC. (3P) 11 m²
WC 3 m²
ACC. WC/SHOWER 6 m²
CLNR 2 m²
ENSUITE 4 m²
DRESSING ROOM 1 (3P) 12 m²
RELIEF SPACE
STAIR 6
LIFT 3 10 m²
FOYER 219 m²
FOYER 236 m²
BAR 31 m²
MALE TOILETS 32 m²
BOX OFFICE 10 m²
FOH OFFICE 20 m²
FEMALE TOILETS 37 m²
SEATING STALLS (UPPER) 69 m²
SEATING STALLS (LOWER) 204 m²
FORESTAGE 24 m²
STAGE 238 m²
ST 1 m²
PLANT 7 m²
FOYER/MEETING ROOM 81 m²
ST 1 m²
STAIR 1 23 m²
LIFT 2 7 m²
SCOOTERS/FRAMES 15 m²
FAMILY TOILETS 7 m²
FOH STORE 8 m²
RISER 3 m²
ST 1 m²
ACC. WC 5 m²
STAIR 2 10 m²
STORE 6 m²
CLEANERS 6 m²
PIANO STORE 6 m²
SEC WORKSHOP / STORE 6 m²
SCENERY ASSEMBLY / RECEIVING 55 m²
SOUND LOCK 15 m²
SOUND LOCK 13 m²
SOUND LOCK 3 m²
RISER
P/LIFT 2 m²
SCISSOR LIFT 3 m²
SOUND LOCK 21 m²
SOUND LOCK 13 m²

RW ø300 @ 1.0%
RW ø225 @ 1.0%
RW ø150
STW ø100
STW ø225
exDP x 2
ex DP

EXISTING BLACK BOX DOWNPIPES TO BE SURVEYED AND RECONNECTED TO EXISTING BLACK BOX DRAINAGE SYSTEM IF REQUIRED.

EXISTING DOWNPIPES TO BE SURVEYED AND RECONNECTED TO NEW IN-GROUND STORMWATER PIT AND PIPE NETWORK

GROUND FLOOR STORMWATER PLAN
SCALE 1 : 100

JN
SSC Ref. No 17700 *Responsive Engineering*

CLIENT
SUTHERLAND SHIRE COUNCIL

STATUS
PRELIMINARY

DISCIPLINE
CIVIL DESIGN 19

DRAWING TITLE
GROUND STORMWATER PLAN

PROJECT
SUTHERLAND SHIRE ENTERTAINMENT CENTRE

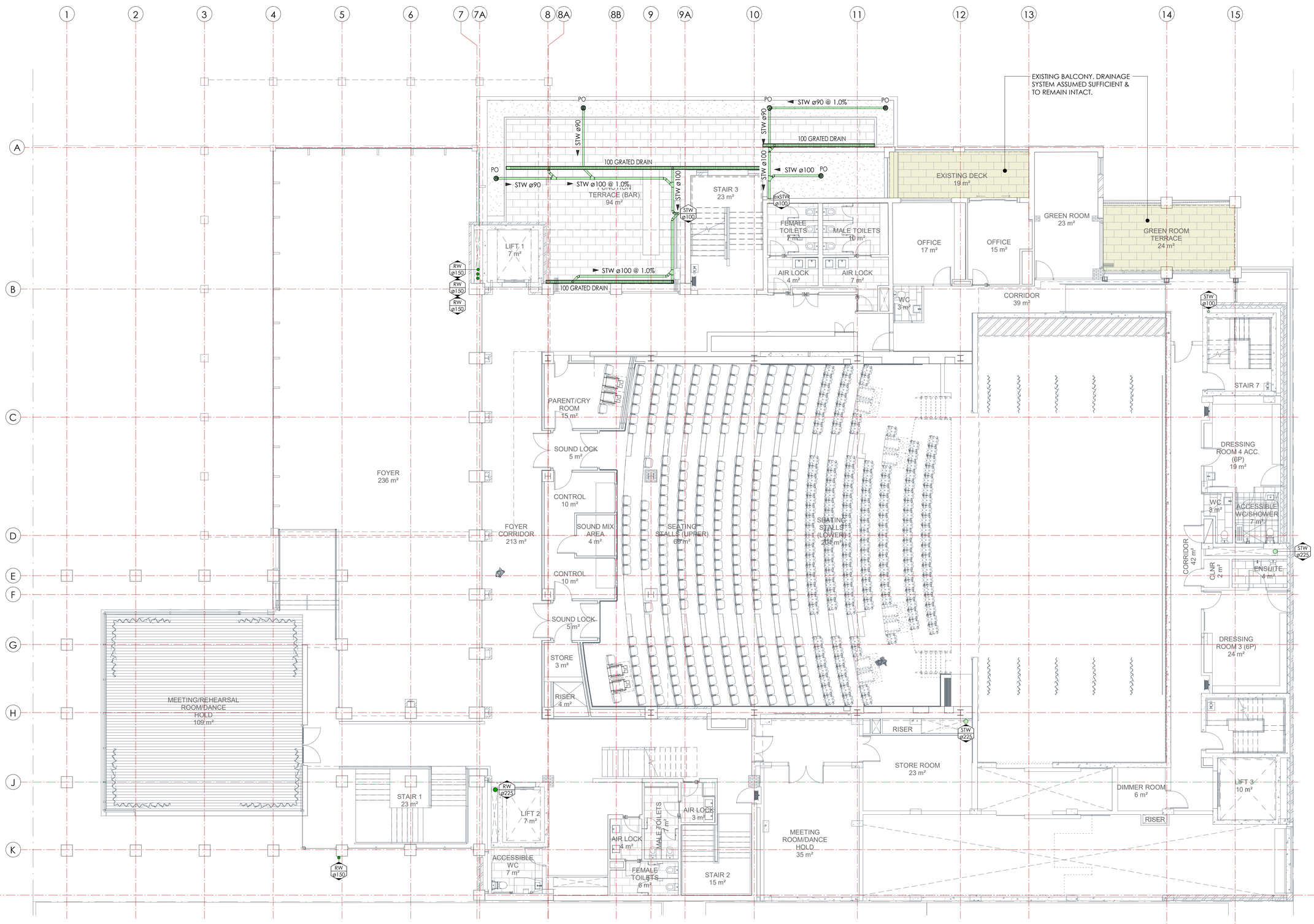
ADDRESS
30 ETON ST, SUTHERLAND NSW 2232

PROJECT DETAILS

DESIGN	SD	19010144
DRAWN	ER	
DATE	OCT'19	
DRG SIZE	A1	
SCALE	1 : 100	C200 2
PROJECT MGR		

WWW.JN.COM.AU

No	DATE	DESCRIPTION	BY
1	27.11.19	SCHEMATIC ISSUE	ELR
2	17.01.20	ISSUED FOR DA	ELR



LEVEL 1 STORMWATER PLAN

SCALE 1 : 100

JN

SSC Ref. No 17700 *Responsive Engineering*

CLIENT
SUTHERLAND SHIRE COUNCIL

STATUS
PRELIMINARY

DISCIPLINE
CIVIL DESIGN 19

DRAWING TITLE
LEVEL 1 STORMWATER PLAN

PROJECT
SUTHERLAND SHIRE ENTERTAINMENT CENTRE

ADDRESS
30 ETON ST, SUTHERLAND NSW 2232

PROJECT DETAILS

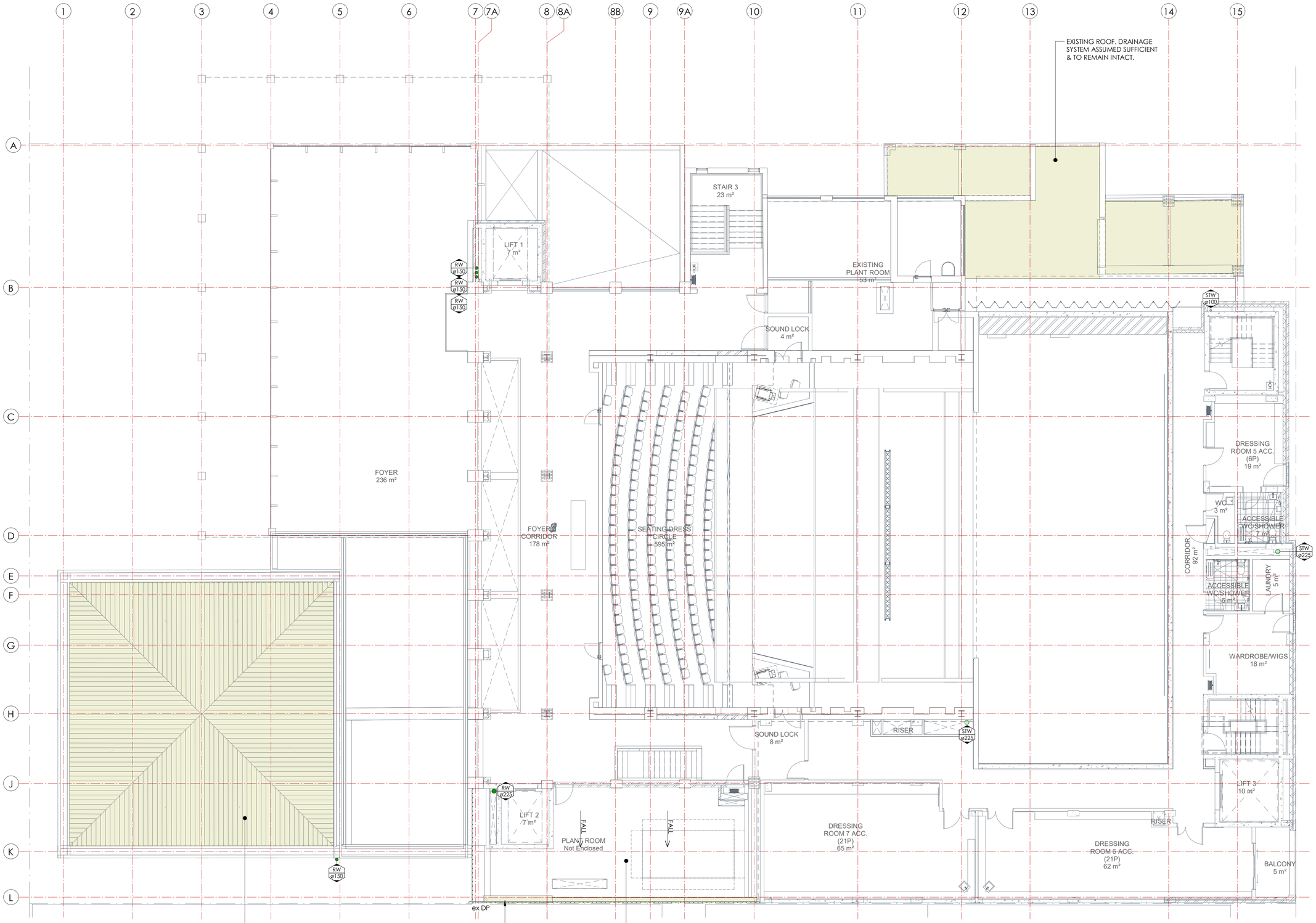
DESIGN	SD
DRAWN	ER
DATE	OCT'19
DRG SIZE	A1
SCALE	1 : 100
PROJECT MGR	

WWW.JN.COM.AU

19010144

C210 2

No	DATE	DESCRIPTION	BY
1	27.11.19	SCHEMATIC ISSUE	ELR
2	17.01.20	ISSUED FOR DA	ELR



LEVEL 2 STORMWATER PLAN

SCALE 1 : 100

JN

SSC Ref. No 17700 *Responsive Engineering*

CLIENT
SUTHERLAND SHIRE COUNCIL

STATUS
PRELIMINARY

DISCIPLINE
CIVIL DESIGN 19

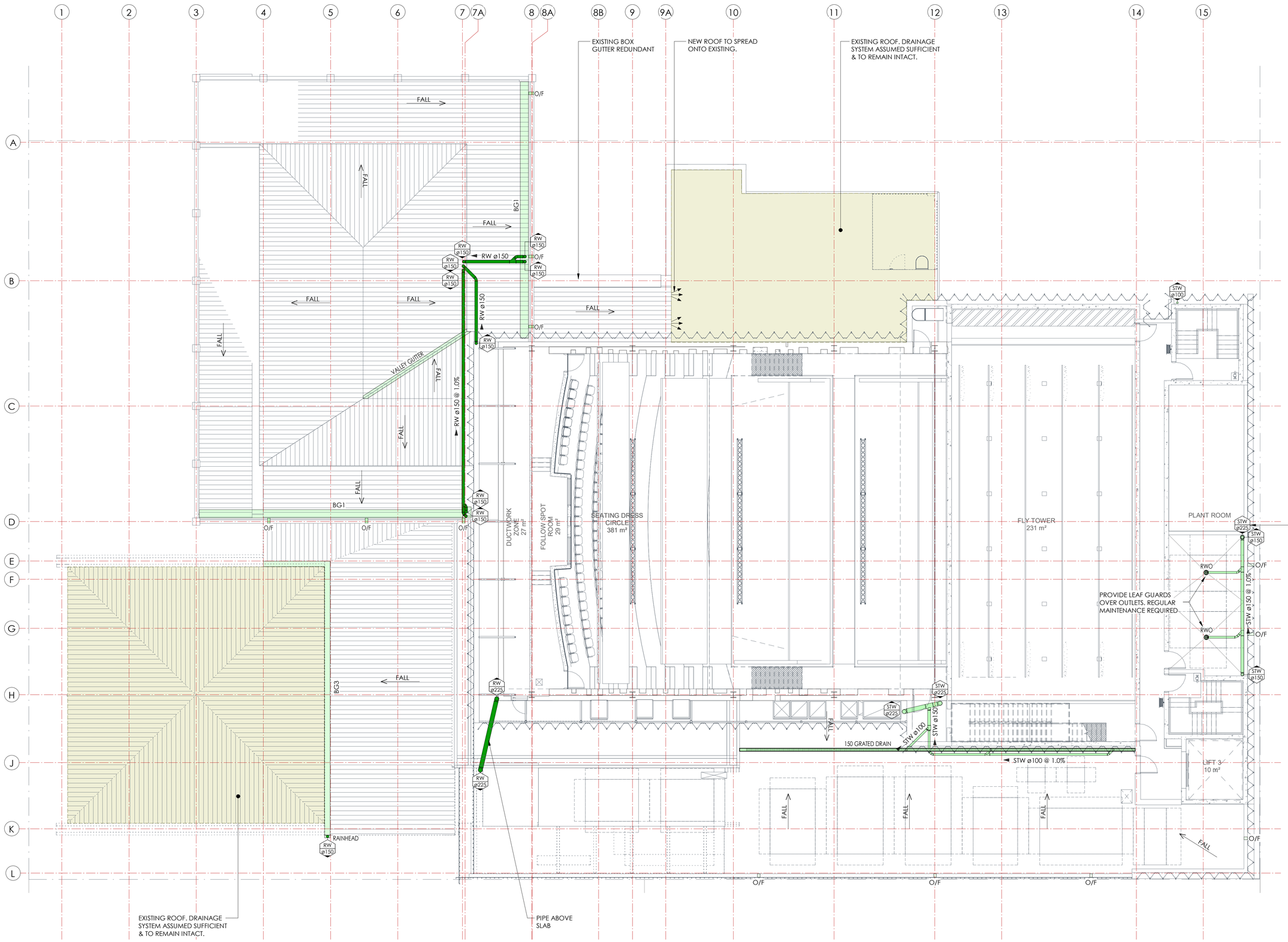
DRAWING TITLE
LEVEL 2 STORMWATER PLAN

PROJECT
SUTHERLAND SHIRE ENTERTAINMENT CENTRE

ADDRESS
30 ETON ST, SUTHERLAND NSW 2232

PROJECT DETAILS		
DESIGN	SD	19010144
DRAWN	ER	
DATE	OCT'19	
DRG SIZE	A1	
SCALE	1 : 100	C220 2
PROJECT MGR		
WWW.JN.COM.AU		

No	DATE	DESCRIPTION	BY
1	27.11.19	SCHEMATIC ISSUE	ELR
2	17.01.20	ISSUED FOR DA	ELR



JN

SSC Ref. No 17700 *Responsive Engineering*

CLIENT
SUTHERLAND SHIRE COUNCIL

STATUS
PRELIMINARY

DISCIPLINE
CIVIL DESIGN 19

DRAWING TITLE
LEVEL 3 STORMWATER PLAN

PROJECT
SUTHERLAND SHIRE ENTERTAINMENT CENTRE

ADDRESS
30 ETON ST, SUTHERLAND NSW 2232

PROJECT DETAILS

DESIGN	SD
DRAWN	ER
DATE	OCT'19
DRG SIZE	A1
SCALE	1 : 100
PROJECT MGR	
WWW.JN.COM.AU	

19010144

C230 2

SUTHERLAND SHIRE ENTERTAINMENT CENTRE

30 ETON ST, SUTHERLAND NSW 2232

Job No. 19010144

No	DATE	DESCRIPTION	BY
1	27.11.19	SCHEMATIC ISSUE	ELR
2	17.01.20	ISSUED FOR DA	ELR

CIVIL DRAWING LIST

No.	SHEET NAME
C001	NOTES & LEGEND
C050	TYPICAL STORMWATER DETAILS SHEET 1
C051	TYPICAL STORMWATER DETAILS SHEET 2
C052	WSUD DETAILS
C100	BASEMENT STORMWATER PLAN
C200	GROUND STORMWATER PLAN
C210	LEVEL 1 STORMWATER PLAN
C220	LEVEL 2 STORMWATER PLAN
C230	LEVEL 3 STORMWATER PLAN
C300	ROOF STORMWATER PLAN

STORMWATER SERVICES

- STORMWATER PIPE
- STORMWATER RISING MAIN PIPE
- EXISTING STORMWATER PIPE
- RAINWATER PIPE
- SUB-SOIL DRAINAGE LINE
- CAST IN SLAB PIPE

STORMWATER LEGEND

- PROPOSED SEALED JUNCTION PIT
- PROPOSED GRATED SUFACE INLET PIT. PIT DIMENSIONS ARE GOVERNED BY DEPTH REFER TO DETAIL.
- EXISTING PIT
- PIT TO BE REMOVED
- PROPOSED KERB INLET PIT
- PROPOSED GRATED DRAIN
- PROPOSED RAINWATER TANK
- DOWNPIPE, RISER OR VERTICAL DROP
- RO1 - RAINWATER OUTLET FOR BALCONIES, ROOF, CARPARK ETC
- GS1 - DOWNPIPE WITH RAIN HEAD OVERFLOW
- GS2 - DOWNPIPE WITH SUMP SIDE OVERFLOW
- GS3 - DOWNPIPE WITH SUMP HIGH CAPACITY OVERFLOW
- SWALE DRAIN
- OVERLAND FLOW PATH
- ROOF FALL DIRECTION
- P 35.05 — PROPOSED PAVEMENT SURFACE LEVEL
- GL 35.05 — PROPOSED PIT SURFACE LEVEL
- IL 34.75 — PROPOSED PIT INVERT LEVEL
- FFL 23.56 — PROPOSED FINISHED FLOOR LEVEL
- +35.11 — EXISTING SURFACE LEVEL
- 36.00 — EXISTING SURVEY CONTOUR

GENERAL PIPEWORK LEGEND

- FLOW DIRECTION
- SERVICE SIZE — PIPE TO ABOVE
- SERVICE SIZE — PIPE TO BELOW
- FALL DIRECTION
- STW Ø225 @ 1.0%min — PIPE TYPE, SIZE AND GRADE
- CONNECTION
- CONTINUATION
- END CAP
- ? — KEYNOTE TAG

GENERAL ABREVIATIONS

AB	ABOVE BENCH
AFFL	ABOVE FINISHED FLOOR LEVEL
CIS	CAST IN SLAB
CL	CENTRELINE
CS	CEILING SPACE
Cu	COPPER
DIA	DIAMETER
DP	DOWNPIPE
Ex.	EXISTING
FC	FALSE CEILING
FFL	FINISHED FLOOR LEVEL
GL	GROUND LEVEL
HBS	PIPES HUNG BELOW SLAB
HL	HIGH LEVEL
IG	IN-GROUND
IL	INVERT LEVEL
LL	LOW LEVEL
O/F	OVERFLOW
PVC	POLYVINYLCHLORIDE
RL	REDUCED LEVEL
SL	SURFACE LEVEL
S/S	STAINLESS STEEL
UB	UNDER BENCH
uPVC	UNPLASTICISED POLYVINYLCHLORIDE
U/S	UNDER SIDE
VD	VERTICAL DROP

PROJECT INFORMATION TABLE

THE TABLES BELOW ARE TO BE READ IN CONJUNCTION WITH THE ADJACENT NOTES

GEOTECHNICAL INFORMATION

COMPANY	REPORT No.	DATED

SURVEY INFORMATION

THE SURVEY INFORMATION ON THESE DRAWINGS HAS BEEN PROVIDED BY

COMPANY	DATED

PROOF ROLLING

PROOF ROLLING SPECIFICATIONS

(min) ROLLER WEIGHT	(min) NUMBER OF PASSES
5 TONNE	10

COMPACTION TESTING

RATE OF TESTS	TEST AREA PER LAYER
2	1000m²

-TESTING SHALL BE CARRIED OUT BY A REGISTERED NATA LABORATORY.

RIGID PAVEMENT DESIGN

- DESIGN LIFE 40YEARS
- DESIGN CBR 5%

DESIGN	LOAD	REPETITION
AXLE	....	..... HVAG

FLEXIBLE PAVEMENT DESIGN

- DESIGN LIFE 40YEARS
- DESIGN CBR 5%

DESIGN VEHICLE	MAX LOAD	DESIGN TRAFFIC
MRV	2.5T	..... ESA

SAFETY IN DESIGN

THERE ARE INHERENT RISKS WITH CONSTRUCTING, MAINTAINING, OPERATING, DEMOLISHING, DISMANTLING AND DISPOSING THIS DESIGN THAT ARE TYPICAL OF SIMILAR DESIGNS. AS FAR AS IS REASONABLY PRACTICABLE RISKS HAVE BEEN ELIMINATED OR MINIMISED THROUGH THE DESIGN PROCESS. HAZARD CONTROLS MUST STILL BE IMPLEMENTED BY THE CONTRACTOR, OWNER OR OPERATOR TO ENSURE THE SAFETY OF WORKERS.

- JN DO NOT CONSIDER THAT THERE ARE ANY UNIQUE RISKS ASSOCIATED WITH THE DESIGN OF THIS PROJECT.

DRAWING STATUS

PRELIMINARY

PRELIMINARY DRAWINGS ARE NOT TO BE USED FOR TENDER OR CONSTRUCTION PURPOSES.

TENDER

TENDER DRAWINGS ARE NOT TO BE USED FOR CONSTRUCTION PURPOSES AND ARE INTENDED FOR AN EXTENT OF WORKS. ALL OTHER CONSULTANT DRAWINGS AND CONTRACT DOCUMENTS SHOULD BE READ IN CONJUNCTION WITH THESE DOCUMENTS TO DETERMINE THE FULL EXTENT OF WORKS.

CONSTRUCTION CERTIFICATE

CONSTRUCTION CERTIFICATE DRAWINGS ARE NOT TO BE USED FOR CONSTRUCTION UNLESS APPROVED & STAMPED BY THE PCA.

CONSTRUCTION

CONSTRUCTION DRAWINGS CAN BE USED FOR CONSTRUCTION PURPOSES AND/OR FOR THE CREATION OF FABRICATION DRAWINGS.

GENERAL

1. ALL EXISTING LEVELS TO BE CONFIRMED ON SITE PRIOR TO COMMENCEMENT OF WORKS
2. ALL WORKS SHALL BE CARRIED OUT IN ACCORDANCE WITH THE NOMINATED OR APPLICABLE COUNCIL SPECIFICATION. WHERE A SPECIFICATION HAS NOT BEEN NOMINATED THEN THE CURRENT NSW DEPARTMENT OF HOUSING CONSTRUCTION SPECIFICATION IS TO BE USED. THE NOMINATED SPECIFICATION SHALL TAKE PRECEDENCE TO THESE NOTES.
3. THESE DRAWINGS ARE DIAGRAMMATIC AND SHOW THE GENERAL ARRANGEMENT, ALL DIMENSIONS SHOWN SHALL BE VERIFIED BY THE CONTRACTOR ON SITE. ENGINEERS DRAWINGS SHALL NOT BE SCALED FOR DIMENSIONS.
4. ALL DRAWINGS SHOULD BE READ IN CONJUNCTION WITH THE RELEVANT ARCHITECTURAL DRAWINGS & DRAWINGS FROM OTHER CONSULTANTS.
5. THE CONTRACTOR SHOULD REPORT ANY DISCREPANCIES ON THE DRAWINGS TO THE ENGINEER RESPONSIBLE FOR THE DESIGN.
6. THE CONTRACTOR SHOULD LOCATE AND LEVEL ALL EXISTING SERVICES PRIOR TO COMMENCING CONSTRUCTION AND PROTECT AND MAKE ARRANGEMENTS WITH THE RELEVANT AUTHORITY TO RELOCATE AND/OR ADJUST IF NECESSARY. INFORMATION GIVEN ON THE DRAWINGS IN RESPECT TO SERVICES IS FOR GUIDANCE ONLY AND IS NOT GUARANTEED COMPLETE NOR CORRECT.
7. CONTRACTOR IS NOT TO ENTER UPON NOR DO ANY WORK WITHIN ADJACENT LANDS WITHOUT THE PERMISSION OF THE OWNER.
8. SURPLUS EXCAVATED MATERIAL SHALL BE PLACED WHERE DIRECTED OR REMOVED FROM SITE.
9. ALL NEW WORKS SHALL MAKE A SMOOTH JUNCTION WITH EXISTING.
10. ALL DRAINAGE LINES THROUGH ADJACENT LOTS SHALL BE CONTAINED WITHIN EASEMENTS CONFORMING TO COUNCIL'S STANDARDS.
11. THE CONTRACTOR SHALL CLEAR THE SITE BY REMOVING ALL RUBBISH, FENCES AND DEBRIS ETC. TO THE EXTENT SPECIFIED.
12. PRIOR TO COMMENCEMENT OF WORK, THE CONTRACTOR SHALL PROVIDE A TRAFFIC MANAGEMENT PLAN PREPARED BY AN ACCREDITED PERSON IN ACCORDANCE WITH RMS REQUIREMENTS, FOR ANY WORK ON OR ADJACENT TO PUBLIC ROADS, PLAN TO BE SUBMITTED TO COUNCIL & RMS.

SURVEY

1. JONES NICHOLSON IS NOT RESPONSIBLE FOR THE ACCURACY OF ANY 3RD PARTY INFORMATION PROVIDED ON THIS DRAWING.
2. ALL LEVELS ARE TO A.H.D.
3. ALL CHAINAGES AND LEVELS ARE IN METRES, AND DIMENSIONS IN MILLIMETRES.
4. SET OUT COORDINATES ARE BASED ON SURVEY DRAWINGS PROVIDED FOR THE PURPOSE OF CARRYING OUT THE ENGINEERING DESIGN.
5. CONTRACTOR SHALL VERIFY ALL SET OUT COORDINATES SHOWN ON THE PLANS BY A REGISTERED SURVEYOR
6. CONTRACTORS SHALL ARRANGE FOR THE WORKS TO BE SET OUT BY A REGISTERED SURVEYOR.
7. ANY DISCREPANCIES SHOULD BE CLARIFIED IN WRITING WITH THE ENGINEER PRIOR TO COMMENCEMENT OF THE WORK FOR CONFIRMATION OF THE SURVEY.

COMPANY	DATED
..	../../....

EARTHWORKS

1. PROVIDE PROTECTION BARRIERS TO PROTECTED/SENSITIVE AREAS PRIOR TO ANY BULK EXCAVATION.
2. OVER FULL AREA OF EARTHWORKS, CLEAR VEGETATION, RUBBISH, SLABS ETC. AND STRIP TOP SOIL. AVERAGE 200mm THICK. REMOVE FROM SITE, EXCEPT TOP SOIL FOR RE-USE.
3. CUT AND FILL OVER THE SITE TO LEVELS REQUIRED.
4. PRIOR TO ANY FILLING IN AREAS OF CUT OR IN EXISTING GROUND, PROOF ROLL THE EXPOSED SURFACE. REFER TO PROJECT INFORMATION TABLES FOR MINIMUM ROLLER WEIGHT AND THE MINIMUM NUMBER OF PASSES.
5. EXCAVATE AND REMOVE ANY SOFT SPOTS ENCOUNTERED DURING PROOF ROLLING AND REPLACE WITH APPROVED FILL COMPACTED IN LAYERS. THE WHOLE OF THE EXPOSED SUBGRADE AND FILL SHALL BE COMPACTED TO 98% STANDARD MAXIMUM DRY DENSITY AT OPTIMUM MOISTURE CONTENT ± 2%.
6. FOR ON SITE FILLING AREAS, THE CONTRACTOR SHALL TAKE LEVELS OF EXISTING SURFACE AFTER STRIPPING TOPSOIL AND PRIOR TO COMMENCING FILL OPERATIONS.
7. WHERE HARD ROCK IS EXPOSED IN THE EXCAVATED SUB-GRADE, THIS WILL BE INSPECTED AND A DECISION MADE ON THE LEVEL TO WHICH EXCAVATION IS TAKEN.
8. FILL IN 200mm MAXIMUM (LOOSE THICKNESS) LAYERS TO UNDERSIDE OF BASECOURSE USING THE EXCAVATED MATERIAL AND COMPACTED TO 98% STANDARD (AS 1289 5.1.1). MAXIMUM DRY DENSITY AT OPTIMUM MOISTURE CONTENT ± 2% SHOULD THERE BE INSUFFICIENT MATERIAL FROM SITE EXCAVATIONS, IMPORT AS NECESSARY CLEAN GRANULAR FILL TO THE DESIGN ENGINEERS APPROVAL.
9. COMPACTION TESTING TO BE CARRIED OUT IN ACCORDANCE WITH THE PROJECT INFORMATION TABLE. THE COSTS OF TESTING AND RE-TESTING ARE TO BE ALLOWED FOR BY THE BUILDER.
10. BATTERS TO BE AS SHOWN, OR MAXIMUM 1 VERT : 4 HORIZ. ALL CONDUITS AND MAINS SHALL BE LAID PRIOR TO LAYING FINAL PAVEMENT.
11. ALL BATTERS AND FOOTPATHS ADJACENT TO ROADS SHALL BE TOP SOILED WITH 150mm APPROVED LOAM AND SEEDED UNLESS OTHERWISE SPECIFIED.

STORMWATER DRAINAGE INSTALLATION

1. SUPPLY & INSTALLATION OF DRAINAGE WORKS TO BE IN ACCORDANCEWITH THESE DRAWINGS, THE COUNCIL SPECIFICATION AND THE CURRENT APPLICABLE AUSTRALIAN STANDARDS.
2. BEDDING OF THE PIPELINES IS TO BE TYPE 'HS2' IN ACCORDANCE WITH THE STANDARDS AND AS FOLLOWS;
   a. COMPACTED GRANULAR MATERIAL IS TO COMPLY WITH THE FOLLOWING GRADINGS:

SIEVE SIZE (mm)	19	2.36	0.60	0.30	0.15	0.075
% MASS PASSING	100	50-100	20-90	10-60	0-25	0-10

   - AND THE MATERIAL PASSING THE 0.075 SIEVE HAVING LOW PLASTICITY AS DESCRIBED IN APPENDIX D OF AS1726.
   b. BEDDING DEPTH UNDER THE PIPE TO BE 100mm.
   c. BEDDING MATERIAL TO BE EXTENDED FROM THE TOP OF THE BEDDING ZONE UP TO 0.3 TIMES PIPE OUTSIDE DIAMETER. THIS REPRESENTS THE 'HAUNCH ZONE'.
   d. THE BEDDING & HAUNCH ZONE MATERIAL IS TO BE COMPACTED TO A MINIMUM RELATIVE COMPACTION OF 98% WITHIN ROAD RESERVES AND TRAFFICABLE AREAS AND 95% ELSEWHERE FOR COHESIVE MATERIAL OR A MINIMUM DENSITY INDEX OF 70% IN ACCORDANCE WITH THE STANDARDS FOR COHESIONLESS MATERIAL.
   e. COMPACTION TESTING SHALL BE CARRIED OUT BY AN APPROVED ORGANISATION WITH A NATA CERTIFIED LABORATORY FOR ALL DRAINAGE LINES LAID WHOLLY OR IN PART UNDER THE KERB & GUTTER OR PAVEMENT.
3. BACKFILL SHALL BE PLACED & COMPACTED IN ACCORDANCE WITH THE SPECIFICATION. A GRANULAR GRAVEL AGGREGATE MATERIAL (<10mm) BACKFILL IS RECOMMENDED FOR THE BEDDING, HAUNCH SUPPORT AND SIDE ZONE DUE TO IT'S SELF COMPACTING ABILITY.
4. A MINIMUM OF 150mm CLEARANCE IS TO BE PROVIDED BETWEEN THE OUTSIDE OF THE PIPE BARREL AND THE TRENCH WALL FOR PIPES < 600 DIA. 200mm CLEARANCE FOR PIPES 600 TO 1200 DIA AND D/6 CLEARANCE FOR PIPES > 1200 DIA.

STORMWATER DRAINAGE

1. STORMWATER DRAINAGE SHALL BE GENERALLY IN ACCORDANCE WITH CURRENT AUSTRALIAN STANDARDS AND COUNCIL'S SPECIFICATION.
2. PIPES OF 225mm DIA. AND UNDER SHALL BE UPVC.
3. PIPES OF 300mm DIA. AND LARGER SHALL BE FRC OR CONCRETE CLASS 2 RUBBER RING JOINTED UNO.
4. ALL FRC OR RCP STORMWATER PIPES WITHIN ROAD RESERVE AREAS TO BE CLASS 3 U.N.O.
5. MINIMUM COVER TO PIPES 300mm DIA. AND OVER GENERALLY SHALL BE 600mm IN CARPARK & ROADWAY AREAS UNO.
6. PIPES SHALL GENERALLY BE LAID AT THE GRADES INDICATED ON THE DRAWINGS.
7. PIPES UP TO 150mm DIA SHALL BE LAID AT 1.0% MIN. GRADE U.N.O.
8. PIPES 225mm DIA AND OVER SHALL BE LAID AT 0.5% MIN. GRADE U.N.O.
9. BACKFILL TRENCHES WITH APPROVED FILL COMPACTED IN 200mm LAYERS TO 98% OF STANDARD DENSITY.
10. ANY PIPES OVER 16% GRADE SHALL HAVE CONCRETE BULKHEADS AT ALL JOINTS.
11. PITS SHALL BE AS DETAILED WITH METAL GRATES AT LEVELS INDICATED. ALL PITS DEEPER THAN 1200mm TO HAVE CLIMB IRONS.
12. BUILD INTO UPSTREAM FACE OF ALL PITS A 3.0m SUBSOIL LINE FALLING TO PITS TO MATCH PIT INVERTS.
13. ALL COURTYARD & LANDSCAPED PITS TO BE 450 SQUARE LOAD CLASS A UNLESS NOTED OTHERWISE.
14. ALL DRIVEWAY & OSD PITS TO BE 600 SQUARE LOAD CLASS D UNLESS NOTED OTHERWISE.
15. INSTALL TEMPORARY SEDIMENT BARRIERS TO INLET PITS, TO COUNCIL'S STANDARDS UNTIL SURROUNDING AREAS ARE PAVED OR GRASSED.
16. PITS & DOWNPIPE LOCATIONS AND LEVELS MAY BE VARIED TO SUIT SITE CONDITIONS AFTER CONSULTING THE ENGINEER.
17. DOWNPIPES SHOWN ARE INDICATIVE ONLY, ALL ROOF GUTTERING AND DOWNPIPES TO THE CURRENT AUSTRALIAN STANDARDS.
18. ALL PLANTER BOXES AND BALCONIES TO BE CONNECTED TO THE PROPOSED STORMWATER DRAINAGE LINE.
19. HAND-EXCAVATE STORMWATER PIPES IN VICINITY OF TREE ROOTS.
20. FOOTPATH CROSSING LEVELS SHOWN ARE TO BE ADJUSTED TO FINAL COUNCIL'S ISSUED LEVELS.
21. GEOTEXTILE FABRIC TO BE PLACED UNDER RIP RAP SCOUR PROTECTION.
22. ALL BASES OF PITS TO BE BENCHED TO HALF PIPE DEPTH AND PROVIDE GALVANISED ANGLE SURROUNDINGS TO GRATE.
23. SUBSOIL LINE PIPES AND FITTINGS SHALL BE PERFORATED PLASTIC TO CURRENT AUSTRALIAN STANDARDS. LAY PIPES ON FLOOR OF TRENCH GRADED AT 1% MIN. AND OVERLAY WITH FILTER MATERIAL EXTENDING TO WITHIN 200mm OF SURFACE. PROVIDE FILTER FABRIC OF PERMEABLE POLYPROPYLENE BETWEEN FILTER MATERIAL AND TOPSOIL
24. SHOULD THE CONTRACTOR ELECT TO INSTALL PRECAST STORMWATER PITS AND THEY ARE PERMITTED BY COUNCIL AND THE CLIENT, THE PRECAST PITS ARE TO BE CONSTRUCTED IN ACCORDANCE WITH RMS STANDARDS INCLUDING;
    1. SEAL THE SEGMENTS TOGETHER USING A SITE-APPROVED NON-SHRINK GROUT OR MASTIC-TYPE PRODUCT. APPLY THE SEALANT IN ACCORDANCE WITH THE PRODUCT MANUFACTURER'S REQUIREMENTS.
    2. ENSURE THAT NO GAPS REMAIN AND THAT A SMOOTH FACE EXISTS BETWEEN MULTIPLE UNITS.
    3. LEAVE THE SEGMENTS UNDISTURBED UNTIL THE PERIOD OF CURING IS COMPLETED IN ACCORDANCE WITH THE GROUT OR SEALANT PRODUCT MANUFACTURER'S REQUIREMENTS.

PAVEMENT LEGEND

- DJ — EXTENT OF CONCRETE PAVEMENT
- DOWELLED JOINT
- KJ — KEYED JOINT
- SC — SAW CUT JOINT
- BJ — BUTT JOINT
- 2N12 TRIMMERS x 1200 LONG (TIED UNDER TOP MESH)
- 150 K&G — 150mm HIGH KERB & GUTTER
- 150 KO — 150mm HIGH KERB ONLY
- EXTENT OF BITUMEN PAVEMENT
- PAVEMENT TYPE 1 - CONCRETE
- PAVEMENT TYPE 2 - BITUMEN
- PAVEMENT TYPE 3 - CONCRETE FOOTPATH
- PAVEMENT TYPE 4 - GRAVEL
- PAVEMENT TYPE 5 - PAVERS
- LANDSCAPE PLANTING AREA
- LANDSCAPE TILED AREA
- LANDSCAPE WATER AREA
- FALL — FALL DIRECTION

PAVEMENT - RIGID

1. THE PAVEMENT DESIGN AS DETAILED ASSUMES A PROPERLY PREPARED UNIFORM AND STABLE SUBGRADE. CONFIRMATION OF DESIGN CBR RATIO IS REQUIRED BY A GEOTECHNICAL ENGINEER PRIOR TO WORKS COMMENCING.
2. PREPARATION FOR PAVEMENT; CLEAR SITE, STRIP TOPSOIL, CUT AND FILL AND PREPARATION OF SUBGRADE SHALL BE AS DESCRIBED IN 'EARTHWORKS' NOTES.
3. SUBGRADE SHALL BE COMPACTED TO 98% STANDARD MAXIMUM DRY DENSITY AT OPTIMUM MOISTURE CONTENT ± 2% IN ACCORDANCE WITH AS 1289 5.1.1.
4. BASE COURSE SHALL BE CONSTRUCTED FROM FINE CRUSHED ROCK DGB20
   COMPACTED TO 100% STANDARD MAXIMUM DRY DENSITY AT OPTIMUM MOISTURE CONTENT ± 2% IN ACCORDANCE WITH AS 1289 5.1.11
5. CONCRETE PAVEMENT SLABS SHALL BE AS DETAILED ON THE DRAWINGS.
6. ALL WORKMANSHIP AND MATERIALS FOR CONCRETE WORK SHALL BE IN ACCORDANCE WITH AS 3600 AND AS 3610 CURRENT EDITIONS WITH AMENDMENTS, EXCEPT WHERE VARIED BY THE CONTRACT DOCUMENTS.
7. CONCRETE QUALITY ALL CEMENT SHALL BE TYPE SL SHRINKAGE LIMITED CEMENT IN ACCORDANCE WITH AS3972

ELEMENT	STRENGTH GRADE (MPa)	SLUMP	MAXIMUM AGGREG. SIZE (mm)
PAVEMENT	32	80	20

8. PROJECT CONTROL TESTING SHALL BE CARRIED OUT IN ACCORDANCE WITH AS 3600.
9. NO ADMIXTURES SHALL BE USED IN CONCRETE UNLESS APPROVED IN WRITING.
10. CLEAR CONCRETE COVER TO ALL REINFORCEMENT FOR DURABILITY SHALL BE 40mm.
11. CONSTRUCTION JOINTS WHERE NOT SHOWN SHALL BE LOCATED TO THE APPROVAL OF THE ENGINEER.
12. THE FINISHED CONCRETE SHALL BE MECHANICALLY VIBRATED TO ACHIEVE A DENSE HOMOGENEOUS MASS. COMPLETELY FILLING THE FORMWORK THOROUGHLY EMBEDDING THE REINFORCEMENT AND FREE OF STONE POCKETS. CONCRETE SHALL BE COMPACTED WITH MECHANICAL VIBRATORS.
13. CURING OF ALL CONCRETE IS TO BE ACHIEVED BY KEEPING SURFACES CONTINUOUSLY WET FOR A PERIOD OF THREE DAYS, AND THE PREVENTION OF LOSS OF MOISTURE FOR A TOTAL OF 7 DAYS FOLLOWED BY A GRADUAL DRYING OUT.
14. REPAIRS TO CONCRETE SHALL NOT BE ATTEMPTED WITHOUT THE PERMISSION OF THE ENGINEER.

PAVEMENT - FLEXIBLE

1. THE PAVEMENT DESIGN AS DETAILED ASSUMES A PROPERLY PREPARED UNIFORM AND STABLE SUBGRADE. CONFIRMATION OF DESIGN CBR RATIO IS REQUIRED BY A GEOTECHNICAL ENGINEER PRIOR TO WORKS COMMENCING.
2. ASSUMED DESIGN CBR TO BE CONFIRMED ONSITE DURING CONSTRUCTION PRIOR TO PLACEMENT OF PAVEMENT MATERIALS. THE CONTRACTOR IS TO UNDERTAKE SUFFICIENT CBR TESTING TO CONFIRM THE ASSUMED VALUE. WHERE A LESSER VALUE HAS BEEN DETERMINED, THE SUPERVISING ENGINEER IS TO BE NOTIFIED TO DETERMINE A REVISED PAVEMENT DESIGN.
3. PAVEMENT TO BE CONSTRUCTED AS FOLLOWS:
   SURFACE COURSE - DENSE GRADED ASPHALT
   PRIMERSEAL - EMULSION BASED HOT BITUMEN
   BASE COURSE - DGB 20
   SUB BASE - DGS 40
4. SUBGRADE SHALL BE COMPACTED TO 100% STANDARD MAXIMUM DRY DENSITY RATIO AT OPTIMUM MOISTURE CONTENT ±2% IN ACCORDANCE WITH CURRENT AUSTRALIAN STANDARDS.
5. SUBBASE COURSE SHALL BE COMPACTED TO 95% MODIFIED MAXIMUM DRY DENSITY.
6. BASECOURSE SHALL BE COMPACTED TO 98% MODIFIED MAXIMUM DRY DENSITY.
7. PRIOR TO THE PLACEMENT OF THE PRIMERSEAL AND AFTER THE REQUIRED DENSITY IS ACHIEVED, THE PAVEMENT IS TO BE ALLOWED TO DRY BACK TO APPROXIMATELY 60% TO 70% OPTIMUM MOISTURE CONTENT.
8. ALL SUBGRADES TO BE ROOF ROLLED & APPROVED BY SUPERVISING ENGINEER.
9. COMPACTION TESTS ARE TO BE UNDERTAKEN FOR ALL PAVEMENT LAYERS INCLUDING SUBGRADE AT A RATE TO BE DETERMINED BY THE SUPERVISING ENGINEER & THE RESULTS TO BE SUPPLIED TO THE ENGINEER PRIOR TO PLACEMENT OF THE NEXT PAVEMENT LAYER.

PAVEMENT - SEGMENTAL

1. THE PAVEMENT DESIGN AS DETAILED ASSUMES A PROPERLY PREPARED UNIFORM AND STABLE SUBGRADE. CONFIRMATION OF DESIGN CBR RATIO IS REQUIRED BY A GEOTECHNICAL ENGINEER PRIOR TO WORKS COMMENCING.
2. PREPARATION FOR PAVEMENT; CLEAR SITE, STRIP TOPSOIL, CUT AND FILL AND PREPARATION OF SUBGRADE SHALL BE AS DESCRIBED IN 'EARTHWORKS'.
3. SUBGRADE SHALL BE COMPACTED TO 98% STANDARD MAXIMUM DRY DENSITY AT OPTIMUM MOISTURE CONTENT ±2% IN ACCORDANCE WITH AS 1289.5.1.1.
4. BASECOURSE SHALL BE CONSTRUCTED FROM FINE CRUSHED ROCK DGB20 COMPACTED TO 100% STANDARD MAXIMUM DRY DENSITY AT OPTIMUM MOISTURE CONTENT ±2% IN ACCORDANCE WITH AS 1289.5.1.1.
5. PROVIDE CONCRETE WORKING SLAB 20MPa MIN 100mm THICK AS DETAILED ON DRAWING.
6. SEGMENTAL PAVING SHALL BE AS DETAILED ON THE DRAWINGS, AND ARE TO BE SUPPLIED WITH UNITS OF MAXIMUM GROSS PLAN AREA <0.1m². WHERE THIS AREA IS EXCEEDED REFER CONCRETE FLAG PAVEMENT SPECIFICATION.
7. ALL WORKMANSHIP AND MATERIALS FOR PAVER WORK SHALL BE IN ACCORDANCE WITH ALL AS 4455, AS4456, AS4459, T44, T45, T46.
   CURRENT EDITIONS WITH AMENDMENTS, EXCEPT WHERE VARIED BY THE CONTRACT DOCUMENT.
8. PAVER QUALITY:

APPLICATION	CHARACTERISTIC BREAKING LOAD (KN)	CHARACTERISTIC FLEXURAL STRENGTH (MPa)
RESIDENTIAL PEDESTRIAN	2	2
RESIDENTIAL DRIVEWAYS	5	3
PUBLIC FOOTPATHS ROADS	5	3
INDUSTRIAL PAVEMENTS	10	4

   PROJECT CONTROL TESTING SHALL BE CARRIED OUT IN ACCORDANCE WITH AS 4456.4 AND AS 4456.5.
9. PAVERS TO BE BEDDED AND SOUND EDGE RESTRAINTS ARE TO BE PROVIDED. JOINTS TO BE FULLY GROUTED.

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SSC Ref. No 17700 *Responsive Engineering*

CLIENT
SUTHERLAND SHIRE COUNCIL

STATUS
PRELIMINARY

DISCIPLINE
CIVIL DESIGN 19

DRAWING TITLE
NOTES & LEGEND

PROJECT
SUTHERLAND SHIRE ENTERTAINMENT CENTRE

ADDRESS
30 ETON ST, SUTHERLAND NSW 2232

PROJECT DETAILS

DESIGN	SD
DRAWN	ER
DATE	OCT'19
DRG SIZE	A1
SCALE	1 : 1
PROJECT MGR	
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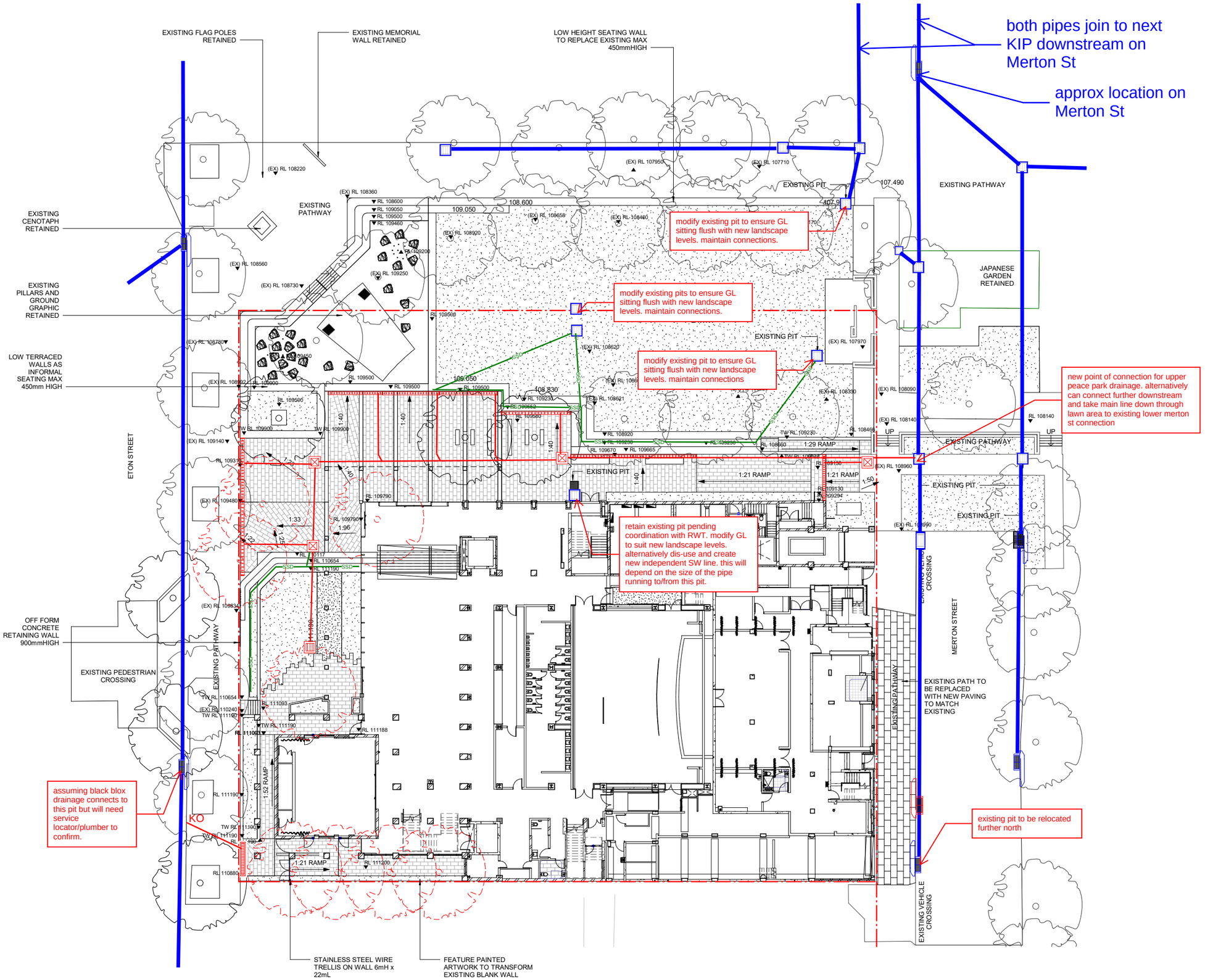
19010144

C001 2



Issue

No.	Date	Description	Chkd
2	27/08/2019	Concept Plan for Council Presentation	
3	15/10/2019	Schematic Design for QS	
4	16/10/2019	Schematic Design for PWG	
5	30/10/2019	Updated Schematic	
6	04/11/2019	Updated Schematic	
7	11/11/2019	For Exhibition	
8	22/11/2019	Updated Schematic for QS	
9	29/11/2019	Schematic Design Issue	

Architect
NBRSARCHITECTURE. LANDSCAPE
Sydney
61 2 9922 2344 nbrsarchitecture.com

Project
Sutherland Shire Entertainment Centre (SEC)
at
30 Eaton Street, Sutherland NSW
for
Sutherland Shire Council (SSC REF. 17700)

Drawing Title
LANDSCAPE SITE PLAN
OPTION 1

SCC Ref. No 17700

Date 1/14/2020 5:05:22 PM
Scale 1:200 @ A1 or 1:400 @ A3

Drawing Reference 18465-NBRS-L-100
Revision 9

0 2m 4m 6m 8m 10m 12m 14m 16m 1:200

JN Responsive Engineering
This document is issued by Jones Nicholson Pty Ltd (ABN 51 003 316 032)

DESIGN	SD
DATE	17/01/2020
SIZE	As Indicated
SCALE	As Indicated
PROJECT MGR	SM

CIVIL SKETCH

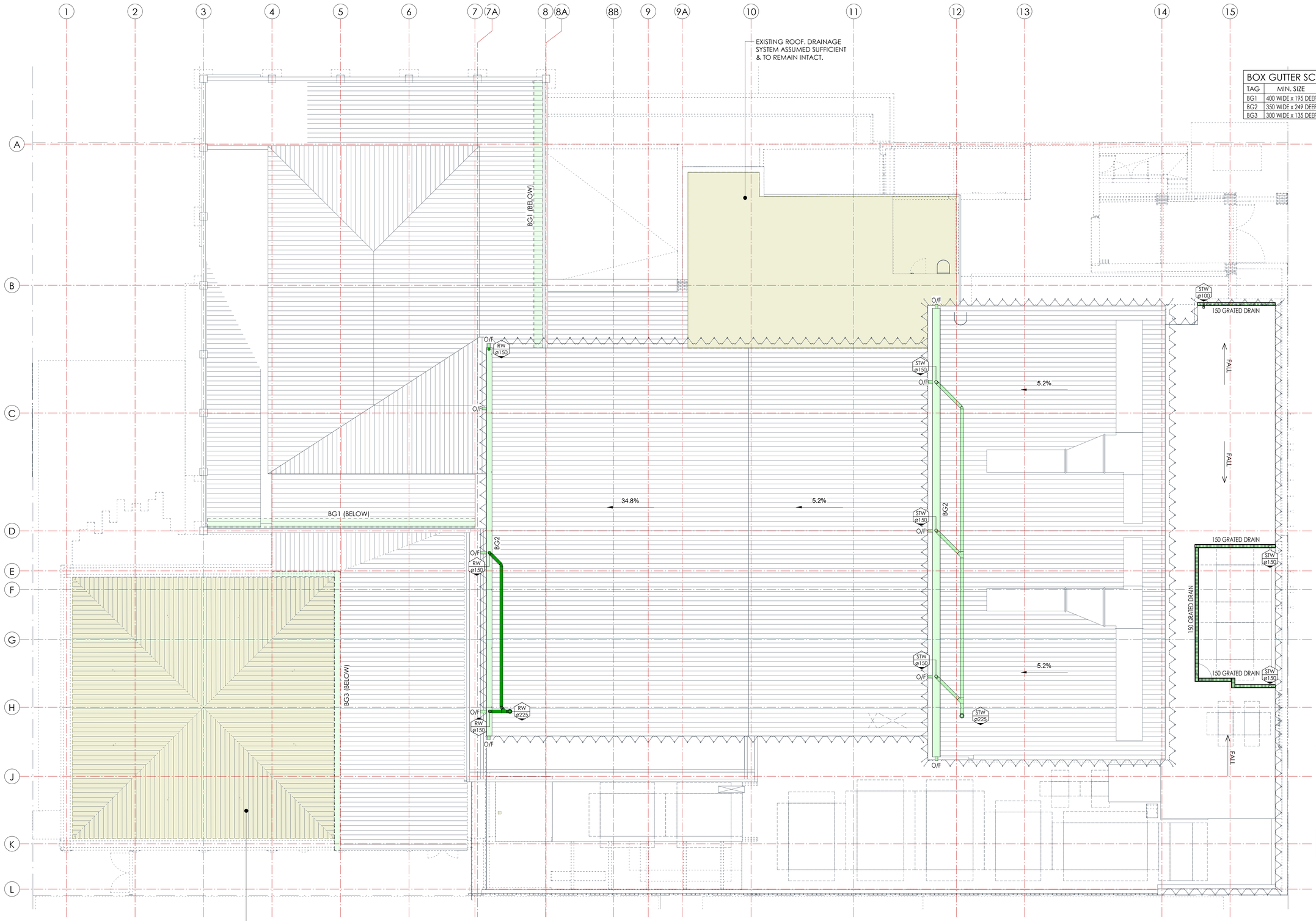
Peace Park SW Concept

Sutherland Entertainment Centre
30 Eton St
Sutherland NSW
NBRS Architecture

190144
CSK03 A

No	DATE	DESCRIPTION	BY
1	27.11.19	SCHEMATIC ISSUE	ELR
2	17.01.20	ISSUED FOR DA	ELR

BOX GUTTER SCHEDULE (1% AEP)				
TAG	MIN. SIZE	ADOPTED SIZE	SUMP/RAINHEAD	OVERFLOW
BG1	400 WIDE x 195 DEEP	450 WIDE x 225 DEEP	600 x 80 SUMP	200 x 130
BG2	350 WIDE x 249 DEEP	400 WIDE x 275 DEEP	400 x 165 SUMP	200 x 165
BG3	300 WIDE x 135 DEEP	350 WIDE x 150 DEEP	200 x 75 RAINHEAD	



ROOF STORMWATER PLAN
SCALE 1 : 100

SSC Ref. No 17700 *Responsive Engineering*

CLIENT
SUTHERLAND SHIRE COUNCIL

STATUS
PRELIMINARY

DISCIPLINE
CIVIL DESIGN

DRAWING TITLE
ROOF STORMWATER PLAN

PROJECT
SUTHERLAND SHIRE ENTERTAINMENT CENTRE

ADDRESS
30 ETON ST, SUTHERLAND NSW 2232

PROJECT DETAILS		
DESIGN	SD	19010144
DRAWN	ER	
DATE	OCT'19	
DRG SIZE	A1	
SCALE	As indicated	C300 2
PROJECT MGR		

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No	DATE	DESCRIPTION	BY
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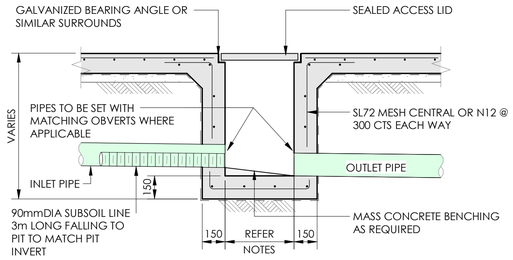
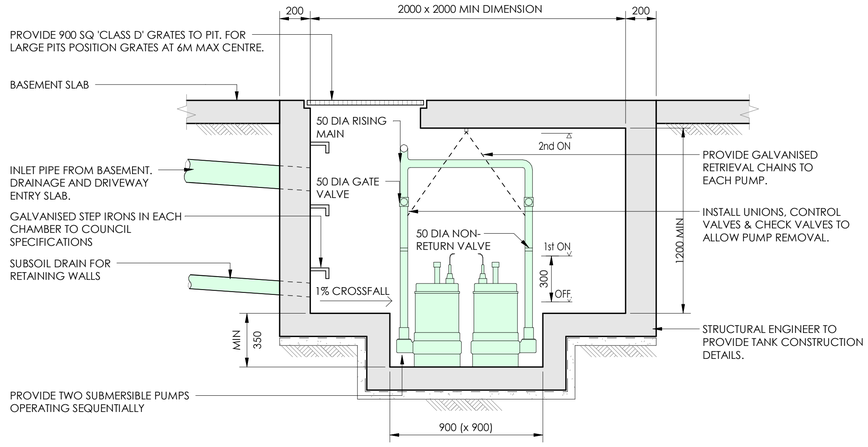
2	17.01.20	ISSUED FOR DA	ELR



MINIMUM INTERNAL DIMENSIONS FOR STORMWATER PITS			
DEPTH OF INVERT OF OUTLET		DEPTH OF INVERT OF OUTLET	
		WIDTH	LENGTH
	< 600	450	450
> 600		600	600
> 900		600	900
> 1200		900	900
*STEP IRONS SHALL BE PROVIDED FOR PITS WITH DEPTHS EXCEEDING 1000mm			

NOTE:
1. CLIMB IRONS SHALL BE PROVIDED UNDER LID AT 300 CTS TO COUNCIL STANDARDS WHERE PIT DEPTH IS DEEPER THAN 1000.
2. REINFORCEMENT NOTED IS ONLY REQUIRED FOR PITS EXCEEDING 900 DEEP, SUBJECT TO COUNCIL REQUIREMENTS. PITS GREATER THAN 3000 DEEP WILL REQUIRE STRUCTURAL ENGINEERS DESIGN.
3. PROVIDE 90Dia x 3000 LONG SUBSOIL DRAINAGE STUB PIPE SURROUNDED WITH 100mm THICKNESS OF NOMINAL 20mm COARSE FILTER MATERIAL WRAPPED IN GEOTEXTILE FILTER FABRIC.(BIDUM A24 OR APPROVED SIMILAR). TO BE PARALLEL TO UPSTREAM SIDE OF EACH INLET PIPE.
4. ALTERNATIVE PIT CONSTRUCTION MAY BE USED SUBJECT TO THE ENGINEERS APPROVAL.
5. CONCRETE STRENGTH F'c = 32 MPa

TYPICAL CONCRETE INLET PIT - CONCRETE SURFACE



NOTE:
THE PUMP OUT SYSTEM SHALL BE DESIGNED TO BE OPERATED IN THE FOLLOWING MANNER:

- THE PUMPS SHALL BE PROGRAMMED TO WORK ALTERNATELY SO AS TO ALLOW BOTH PUMPS TO HAVE AN EQUAL OPERATION LOAD AND PUMP LIFE.
- A LOW LEVEL FLOAT SHALL BE PROVIDED TO ENSURE THAT THE MINIMUM REQUIRED WATER LEVEL IS MAINTAINED WITHIN THE SUMP AREA OF THE BELOW GROUND TANK. IN THIS REGARD THIS FLOAT WILL FUNCTION AS AN OFF SWITCH FOR THE PUMPS.
- A SECOND FLOAT SHALL BE PROVIDED AT A HIGHER LEVEL, APPROXIMATELY 300mm ABOVE THE MINIMUM WATER LEVEL, WHEREBY ONE OF THE PUMPS WILL OPERATE AND DRAIN THE TANK TO THE LEVEL OF THE LOW LEVEL FLOAT.
- A THIRD FLOAT SHALL BE PROVIDED AT A HIGH LEVEL, WHICH IS APPROXIMATELY THE ROOF LEVEL OF THE BELOW GROUND TANK. THIS FLOAT SHOULD START THE OTHER PUMP THAT IS NOT OPERATING AND ACTIVATE THE ALARM
- AN ALARM SYSTEM SHALL BE PROVIDED WITH A FLASHING STROBE LIGHT AND A PUMP FAILURE WARNING SIGN WHICH ARE TO BE LOCATED AT THE DRIVEWAY ENTRANCE TO THE BASEMENT LEVEL. THE ALARM SYSTEM SHALL BE PROVIDED WITH A BATTERY BACK-UP IN CASE OF POWER FAILURE.
- CONTRACTOR IS TO CONFIRM PUMP ELECTRICAL LOAD AND CONNECTION WITH ELECTRICAL CONTRACTOR AT THE BEGINNING OF THE PROJECT.

PUMP OUT CALCULATIONS

DRIVEWAY
AREA OF EXPOSED DRIVEWAY = 10,m² (ALLOWANCE)
MINIMUM VOLUME: 50 YR, 2HR=1.1m³
SUGGESTED ADOPTED V= 1.1m³ (AS3500 SUGGEST MIN 3.0m³)
QPEAK: 100 YR, 6 MIN = 0.7 L/s

SUBSOIL CALCULATIONS

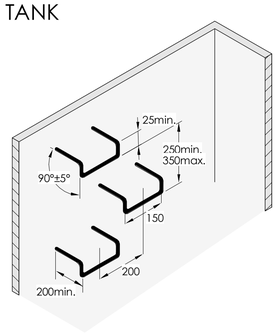
ASSUME SOIL IS SATURATED TO GROUND LEVEL AND INFLOWS CAN BE APPROXIMATED BY SUB-SOIL FLOW NET;
Q= 2/3 x K x H (m3/s PER M OF SUBSOIL LINE)
ASSUMED SUBSOIL INFILTRATION, K = 1x10^ -5 (CLAYEY SAND)
H= HEIGHT = 2m LENGTH OF SUBSOIL = 220m
Q= 2/3 x 1x10^ -5 x 2.0x220 =2.93 L/s

COMBINED

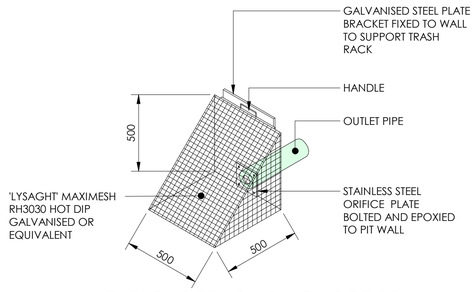
THEREFORE SUGGESTED PUMP CAPACITY
=1.1 x (0.7 + 2.93) = 4 L/s (AS3500 SUGGEST MIN 10 L/s)

NOTE: CONTRACTOR TO VERIFY SUBSOIL INFILTRATION RATES VIA GEOTECHNICAL ENGINEERS TESTING, PRIOR TO CONSTRUCTION. SUPERVISING ENGINEER TO VERIFY CHANGES IF INFILTRATION RATES DIFFER SIGNIFICANTLY FROM ASSUMED VALUES.

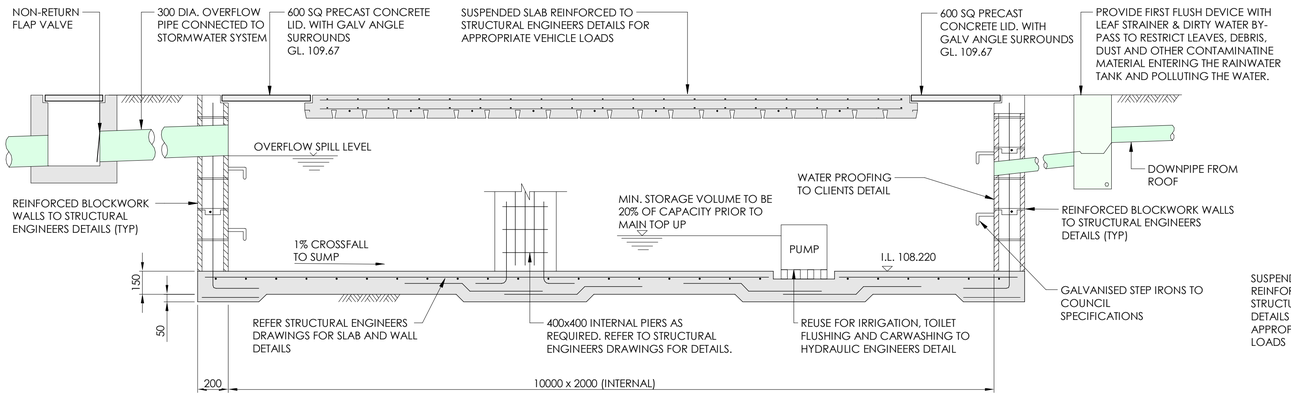
BASEMENT PUMPOUT TANK DETAIL



STEP IRON DETAIL



TYPICAL TRASH RACK SCREEN DETAIL

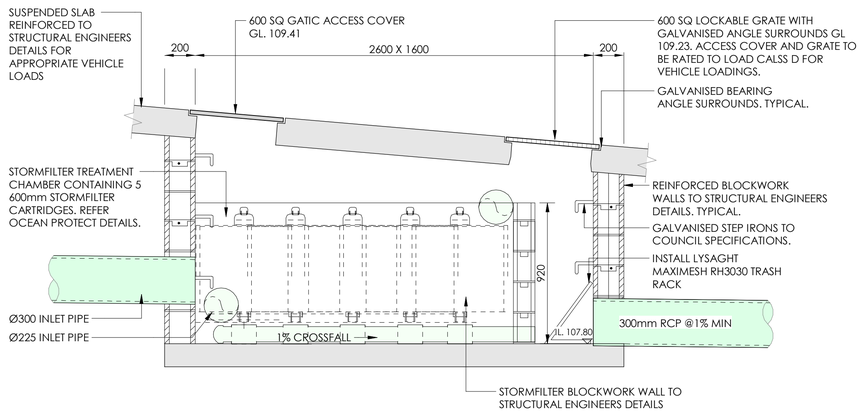


NOTE:
RAINWATER TANK TO BE 25,000 LITRE CAPACITY USED FOR OUTDOOR IRRIGATION.
SYDNEY WATER TOP-UP SYSTEM INSTALLED TO AS/NZS 3500.1 (2003) IS TO BE PROVIDED FOR TRICKLE TOP-UP OF RAINWATER TANK IF THE STORED WATER BECOMES LESS THAN SET MINIMUM WATER LEVEL.

ALTERNATE PUMP WITH 3 WAY SWITCHING DEVICE, (RAINBANK OR EQUIVALENT) CONNECTED TO WATER SUPPLY TO HYDRAULIC CONSULTANTS DETAIL.

INSTALL FIRST FLUSH DEVICE TO RESTRICT LEAVES, DEBRIS, DUST AND OTHER CONTAMINATING MATERIAL ENTERING THE RAINWATER TANK AND POLLUTING THE WATER. VOLUME OF INITIAL STORAGE TO BE APPROXIMATELY 0.1m2 WITH A 5mm DIAMETER LEAKAGE HOLE.

RAINWATER TANK (RWT) - UNDERGROUND BLOCKWORK



- CONTRACTOR IS TO VERIFY THE LEVEL OF ALL EXISTING SERVICES PRIOR TO COMMENCEMENT OF EXCAVATION FOR DRAINAGE.

OSD DETAIL

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CLIENT
SUTHERLAND SHIRE COUNCIL

STATUS
PRELIMINARY

DISCIPLINE
CIVIL DESIGN 19

DRAWING TITLE
TYPICAL STORMWATER DETAILS SHEET 1

PROJECT
SUTHERLAND SHIRE ENTERTAINMENT CENTRE

ADDRESS
30 ETON ST, SUTHERLAND NSW 2232

PROJECT DETAILS

DESIGN	SD
DRAWN	ER
DATE	OCT'19
DRG SIZE	A1
SCALE	1 : 20
PROJECT MGR	

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No	DATE	DESCRIPTION	BY
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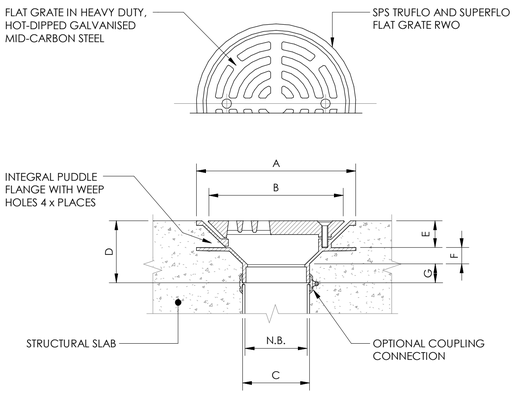
2	17.01.20	ISSUED FOR DA	ELR



N.B.	A	B	C	D	E	F	G	FLOW RATE * L/S
100	260	200	110	95	44	26	25	8.2
150	260	200	160	80	48	29	28	10.2
SUPERFLO**	400	290	160	143	66	39	38	17

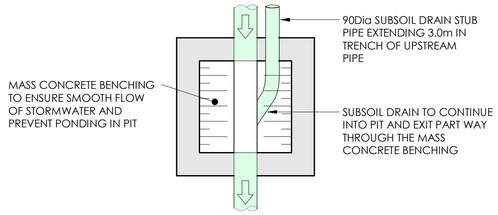
* BASED ON 50mm HEAD OF WATER ABOVE SURFACE LEVEL. FOR FURTHER DATA REFER TO FLOW CHARTS.

** SUPERFLO AVAILABLE IN 150mm OUTLET ONLY.

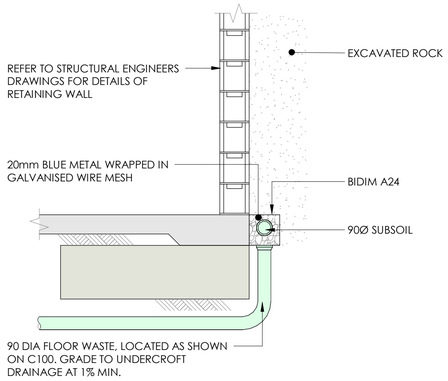
SPECIFICATION CODE:
- TIA100F (100mm TRUFLO CI BODY, GALVANISED FLAT GRATE).
- TIA150F (150mm TRUFLO CI BODY, GALVANISED FLAT GRATE).
- TIA100/90F2 (150mm SUPERFLO CI BODY, GALVANISED FLAT GRATE).

SUGGESTED APPLICATIONS:
- CAR PARK DECKS.
- PLANT ROOMS.
- PEDESTRIAN PRECINCTS.

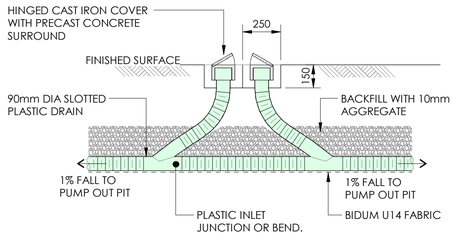
SPS TRUFLO & SUPERFLO FLAT GRATE RWO

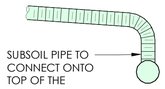


TYPICAL SUBSOIL PIPE/PIT BENCHING



TYPICAL GROUNDWATER DRAINAGE DETAIL

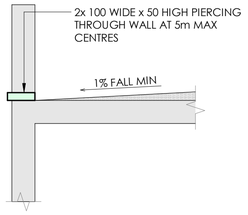




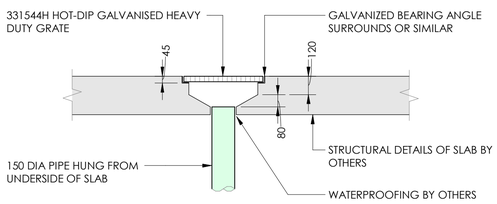
SUBSOIL PIPE CONNECTION

NOTES :
- MINIMUM GRADE OF SUBSOIL DRAINAGE PIPES IS TO BE 1.0%. JOINTS IN FILTER FABRIC TO BE LAPPED A MINIMUM 300mm.

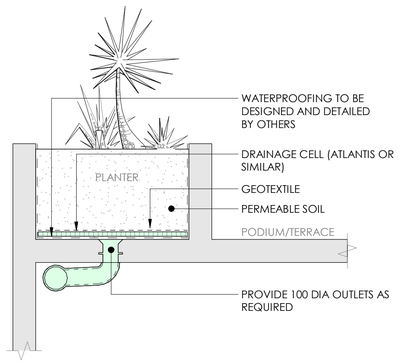
SUBSOIL PIPE FLUSHING POINT



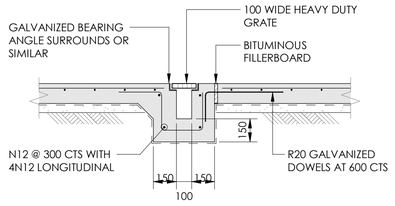
TYPICAL BALCONY SPITTIER DETAIL



TYPICAL GRATED INLET PIPE THROUGH SLAB DETAIL



TYPICAL PLANTER DRAINAGE DETAIL



TYPICAL 100mm GRATED DRAIN DETAIL

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SSC Ref. No 17700 *Responsive Engineering*

CLIENT
SUTHERLAND SHIRE COUNCIL

STATUS
PRELIMINARY

DISCIPLINE
CIVIL DESIGN 19

DRAWING TITLE
TYPICAL STORMWATER DETAILS SHEET 2

PROJECT
SUTHERLAND SHIRE ENTERTAINMENT CENTRE

ADDRESS
30 ETON ST, SUTHERLAND NSW 2232

PROJECT DETAILS

DESIGN	SD
DRAWN	ER
DATE	OCT'19
DRG SIZE	A1
SCALE	As indicated
PROJECT MGR	

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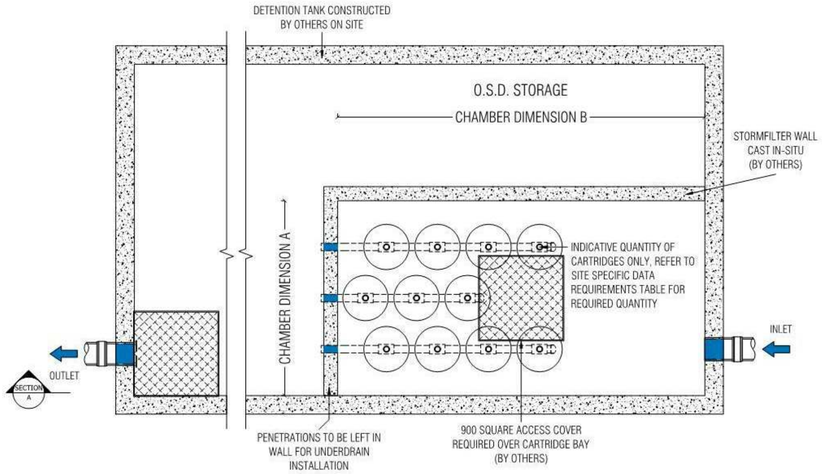
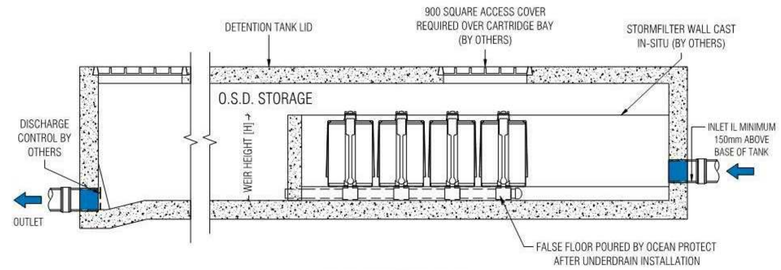
C051 2

No	DATE	DESCRIPTION	BY
1	17.01.20	ISSUED FOR DA	ELR

NOT FOR CONSTRUCTION



PLAN LAYOUT



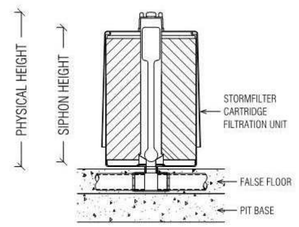
SECTION A

LAST MODIFIED: 07-03-19

STORMFILTER DESIGN TABLE

- STORMFILTER TREATMENT CAPACITY VARIES BY NUMBER OF FILTER CARTRIDGES INSTALLED.
- THE STANDARD CONFIGURATION IS SHOWN. ACTUAL CONFIGURATION OF THE SPECIFIED STRUCTURE(S) PER CERTIFYING ENGINEER WILL BE SHOWN ON SUBMITTAL DRAWING(S).
- FILTER CARTRIDGES SHALL BE MEDIA-FILLED, PASSIVE, SIPHON ACTUATED, RADIAL FLOW, AND SELF-CLEANING. RADIAL MEDIA DEPTH SHALL BE 178mm.

CARTRIDGE NAME / SIPHON HEIGHT (mm)	690	460	310
CARTRIDGE PHYSICAL HEIGHT (mm)	840	600	600
TYPICAL WEIR HEIGHT **[H]** (mm)	920	690	540
CARTRIDGE FLOW RATE FOR ZPG MEDIA (L/s)	1.6	1.1	0.7
CARTRIDGE FLOW RATE FOR PSORB MEDIA (L/s)	0.9	0.46	0.39



STORMFILTER CARTRIDGE DETAIL

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID	[ ]
NUMBER OF CARTRIDGES REQ'D	[ ]
SIPHON HEIGHT (310 / 460 / 690)	[ ]
MEDIA TYPE (ZPG / PSORB)	[ ]
WATER QUALITY FLOW RATE (L/S)	[ ]
DIMENSION A	[ ]
DIMENSION B	[ ]

TOTAL CARTRIDGE BAY AREA (A x B) TO MATCH AREA REQUIRED BY MUSIC MODELLING OR COUNCIL SPECIFIC REQUIREMENTS

GENERAL NOTES

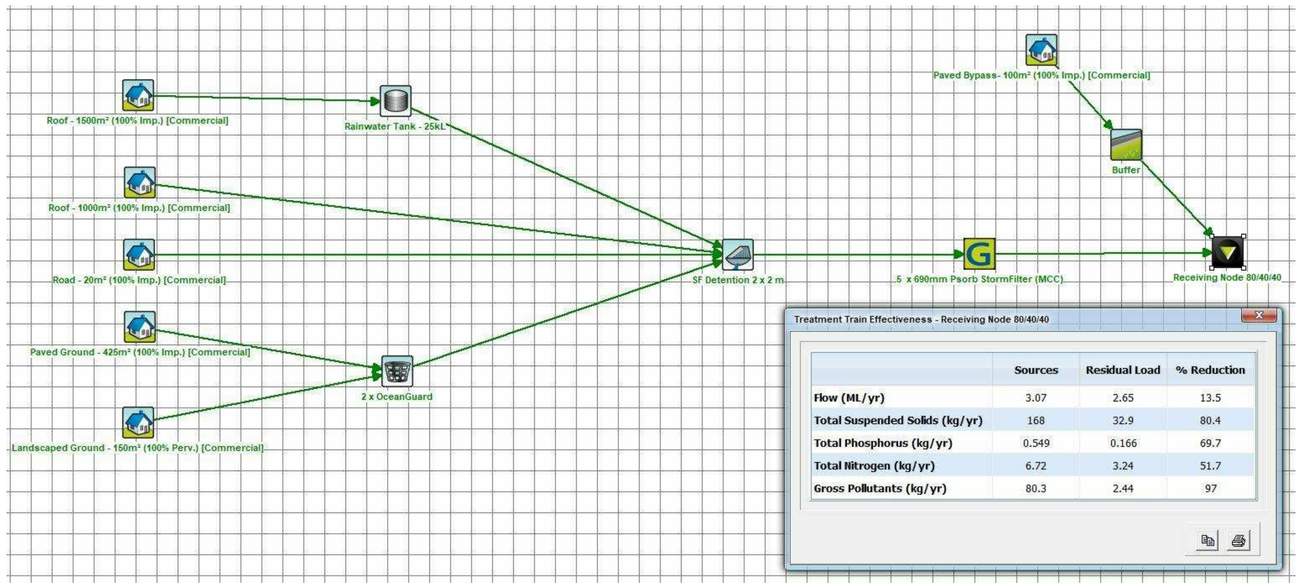
1. INLET AND OUTLET PIPES TO BE IN ACCORDANCE WITH APPROVED PLANS.
2. A HIGH FLOW BYPASS ARRANGEMENT OR DISSIPATION STRUCTURE MAY BE REQUIRED TO MINIMISE RE-SUSPENSION OF SOLIDS OR ANY SIGNIFICANT INERTIAL FORCES ON THE CARTRIDGES.
3. ALL WATER QUALITY TREATMENT DEVICES REQUIRE PERIODIC MAINTENANCE. REFER TO OPERATION AND MAINTENANCE MANUAL FOR GUIDELINES AND ACCESS REQUIREMENTS.
4. SITE SPECIFIC PRODUCTION DRAWING WILL BE PROVIDED ON PLACEMENT OF ORDER.
5. THE INVERT LEVEL OF THE INLET PIPE MUST BE GREATER THAN THE RL OF THE FALSE FLOOR WITHIN THE CARTRIDGE CHAMBER.
6. CONCRETE STRUCTURE AND ACCESS COVERS DESIGNED AND PROVIDED BY OTHERS. ACCESS COVERS TO BE A MINIMUM 900 X 900 ABOVE CARTRIDGES. OH&S REGARDING ACCESS COVERS AND TANK ACCESS TO BE ASSESSED BY OTHERS ON SITE.
7. THE STRUCTURE THICKNESSES SHOWN ARE FOR REPRESENTATIONAL PURPOSES.
8. DRAWINGS NOT TO SCALE.

INSTALLATION NOTES

1. UNDERDRAIN AND FALSE FLOOR INSTALLED BY OCEAN PROTECT.

OCEAN PROTECT
PHONE: 1300 354 722 www.oceanprotect.com.au

OCEAN PROTECT
STORMFILTER SYSTEM
DETENTION TANK ARRANGEMENT
SPECIFICATION DRAWING



Treatment Train Effectiveness - Receiving Node 80/40/40

	Sources	Residual Load	% Reduction
Flow (ML/yr)	3.07	2.65	13.5
Total Suspended Solids (kg/yr)	168	32.9	80.4
Total Phosphorus (kg/yr)	0.549	0.166	69.7
Total Nitrogen (kg/yr)	6.72	3.24	51.7
Gross Pollutants (kg/yr)	80.3	2.44	97

JN
SSC Ref. No 17700 *Responsive Engineering*

CLIENT
SUTHERLAND SHIRE COUNCIL

STATUS
PRELIMINARY

DISCIPLINE
CIVIL DESIGN 19

DRAWING TITLE
WSUD DETAILS

PROJECT
SUTHERLAND SHIRE ENTERTAINMENT CENTRE

ADDRESS
30 ETON ST, SUTHERLAND NSW 2232

PROJECT DETAILS		
DESIGN	SD	19010144
DRAWN	ER	
DATE	OCT'19	
DRG SIZE	A1	
SCALE		C052 1
PROJECT MGR		

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