PROPOSED RESIDENTIAL DEVELOPMENT
TYPE: FLAT BUILDING

ADDRESS: No. 22 & 24 ANGLE STREET, BALGOWLAH
TITLE: LOT 6 & 7 DP9585
DRAWING SERIES: STORMWATER MANAGEMENT PLAN

DRAWINGS SERIES TO BE PRINTED IN COLOUR

DEVELOPMENT APPLICATION ISSUE
NOT FOR CONSTRUCTION

GENERAL NOTES

GN1 ALL DIMENSIONS TO BE CONFIRMED ON SITE PRIOR TO CONSTRUCTION.
GN2 THE CONTRACTOR SHALL LOCATE AND DETERMINE LEVELS OF ALL EXISTING SERVICES PRIOR TO COMMENCING EXCAVATION WORK. ALL SERVICES SHOWN ON THIS DRAWING ARE INDICATIVE AND FOR GUIDANCE ONLY.
GN3 THIS DRAWING SERIES IS TO BE READ IN CONCURRENCE WITH RELEVANT DRAWINGS SERIES FROM OTHER CONSULTANTS, COUNCIL OR RELEVANT SPECIFICATIONS. WHERE DISCREPANCIES ARE DETECTED THE DESIGN ENGINEER IS TO BE CONTACTED IMMEDIATELY FOR VALIDATION/ RECTIFICATION.
GN4 BUILDER AND CONTRACTORS IS TO ENSURE THAT ALL COUNCIL DEVELOPMENT CONSENT CONDITIONS, CONSTRUCTION CERTIFICATE AND BASIX REQUIREMENTS ARE MET.
GN5 A STRUCTURAL ENGINEER IS TO DESIGN AND DETAIL SUBSOIL DRAINAGE. UNLESS APPROVED BY OUR OFFICE, SUBSOIL DRAINAGE IS NOT TO CONNECT INTO THE STORMWATER SYSTEM DISPLAYED WITHIN THIS DRAWING SERIES.
GN6 PLANS ISSUED FOR DEVELOPMENT APPLICATION, SHALL NOT BE USED FOR OBTAINING A CONSTRUCTION CERTIFICATE.
GN7 PLANS ISSUED FOR DEVELOPMENT APPLICATION PURPOSES, SHALL NOT BE USED FOR CONSTRUCTION PURPOSES.

RAINWATER RE-USE NOTES

RN1 THE RAINWATER TANK IS TO BE INSTALLED AND EMPLOYED AS PER BASIX, SYDNEY WATER, COUNCIL AND NSW HEALTH REQUIREMENTS FOR NON DRINKING USE ONLY.
RN2 ALL PLUMBING WORKS ARE TO BE CARRIED OUT BY LICENSED PLUMBERS IN ACCORDANCE WITH AS/NZS3500.1 NATIONAL PLUMBING AND DRAINAGE CODE.
RN3 BUILDER AND PLUMBER TO ENSURE THE INSTALLATION OF THE RAINWATER TANK SYSTEM IS IN ACCORDANCE WITH THE RELEVANT AUSTRALIAN STANDARDS AND THE RAINWATER TANK DESIGN AND INSTALLATION HANDBOOK (HB 230- 2008).
RN4 DO NOT DIRECT CONNECT TOWN WATER SUPPLY AND THE RAIN WATER SUPPLY.
RN5 THE RAINWATER TANK AND EVERY RAINWATER SUPPLY OUTLET POINT ARE TO BE LABELLED (RAINWATER) ON A METAL SIGN IN ACCORDANCE WITH AS1319.
RN6 SCREENED DOWNPIPE RAINWATER HEAD OR OTHER SUITABLE LEAF AND DEBRIS DEVICE TO BE INSTALLED ON EACH DOWNPIPE. SCREEN MESH TO BE 4-6mm AND DESIGNED TO BE SELF-CLEANING.
RN7 ROOF RUN-OFF ONLY IS BE DIRECTED TO THE RAINWATER TANK . SURFACE WATER SYSTEMS/INLETS ARE NOT TO BE CONNECTED.
RN8 ALL INLETS AND OUTLETS TO THE RAINWATER TANK ARE TO HAVE SUITABLE DEVICES TO PREVENT MOSQUITO AND VERMIN ENTRY TO THE SATISFACTION OF THE REGULATORY AUTHORITY.
RN9 PROVIDE APPROPRIATE FLOAT VALVES TO CONTROL TOWN WATER SUPPLY INLET TO TANK IN ORDER TO ACHIEVE THE TOP-UP INDICATED ON THE TYPICAL DETAIL
RN10 PRESSURE PUMP ELECTRICAL CONNECTION TO BE CARRIED OUT BY A LICENSED ELECTRICIAN

BEFORE YOU DIG AUSTRALIA

BEFORE YOU DIG www.byda.com.au

THE MOST UP TO DATE BEFORE YOU DIG AUSTRALIA (BYDA) PLANS MUST BE KEPT ON-SITE AT ALL TIMES. ANY PERSON ABOUT TO DIG OR EXCAVATE MUST READ BYDA PLANS PRIOR TO THE COMMENCEMENT OF WORK.

STORMWATER NOTES

SN1 ALL STORMWATER DRAINAGE PIPES AND ASSOCIATED DEVICES, ARE TO BE INSTALLED IN ACCORDANCE WITH THE RELEVANT STANDARDS, THE BUILDING CODE OF AUSTRALIA, MANUFACTURER'S RECOMMENDATIONS, SYDNEY CATCHMENT AUTHORITY RECOMMENDED PRACTICE, AND LOCAL COUNCIL, AS APPLICABLE.
SN2 ALL WORK SHALL BE CARRIED OUT IN ACCORDANCE AS/NZS3500 AND THE REQUIREMENTS OF THE LOCAL GOVERNMENT AREAS POLICIES, CODES AND SPECIFICATIONS. ENSURE INSPECTION OPENINGS ARE INSTALLED TO DRAINAGE LINES AT REQUIRED LOCATIONS.
SN3 STORMWATER PIPES UP TO DN150 SHALL BE LAID AT A MINIMUM 1% GRADE UNLESS OTHERWISE NOTED.
SN4 WHERE NECESSARY PUBLIC UTILITY SERVICES ARE TO BE ALTERED AND AMENDED AT THE CLIENT'S EXPENSE.
SN5 ALL NEW WORK MAKE SMOOTH TRANSITIONS AND CONNECTIONS WITH EXISTING WORK.
SN6 LOCAL GOVERNMENT AREAS TREE PRESERVATION AND MANAGEMENT ORDERS TO BE ABIDED BY. A PERMIT IS REQUIRED BEFORE TREE/S CAN BE REMOVED .
SN7 ALL PITS TO BE STREAMLINED AND BENCHED IN ACCORDANCE WITH LOCAL GOVERNMENTS AREAS SPECIFICATIONS.
SN8 STEP IRONS ARE TO BE PROVIDED FOR ALL PITS OVER 1.2m DEEP IN ACCORDANCE WITH AS/NZS3500 AND LOCAL GOVERNMENT AREAS CODES AND POLICES.
SN9 DOWNPIPES, RAINWATER LINES AND STORMWATER LINES TO BE FULLY SEALED UNLESS OTHERWISE NOTED.
SN10 ALL GRATE AND INVERT LEVELS PROVIDED ON THIS DRAWING ARE EXTRACTED FROM SURVEY AND REDUCED TO AHD. FOLLOWING EARTHWORKS, PIT INSTALLATION AND BENCHING THE LEVELS ARE TO BE VERIFIED OR ADJUSTED TO MEET THE DESIGN INTENT. IF EVER IN DOUBT CONTACT DESIGN ENGINEER.
SN11 ALL SUSPENDED DRAINAGE PIPES ARE TO STRAPPED IN ACCORDANCE WITH AS/NZ 2032.
SN12 LOW POINTS OF CHARGED DRAINAGE SYSTEMS REQUIRE DEVICES FOR FLUSHING AND MAINTENANCE.
SN13 THE NUMBER AND LOCATION OF DOWNPIPES, ON THIS DRAWING SERIES, ARE SHOWN INDICATIVELY AND ARE TO BE CONFIRMED ON-SITE BY BUILDER PRIOR TO CONSTRUCTION. WHERE DISCREPANCIES/VARIATIONS ARE FOUND THE DESIGN ENGINEER IS TO BE CONTACTED IMMEDIATELY FOR VALIDATION/ RECTIFICATION.
SN14 NEW WORKS SHALL NOT CREATE ANY TRAPPED SURFACE AREAS. IN SUCH CASES WHERE TRAPPED AREAS EXIST, A DRAINAGE NETWORK WITH ADEQUATE CAPACITY SHALL BE REQUIRED TO DRAIN STORMWATER TO AN APPROVED DISCHARGE POINT. A PUMP-OUT SYSTEM MAY BE REQUIRED IF THE TRAPPED AREA IS BELOW THE NATURAL SURFACE LEVEL. IN EACH INSTANCE, THE DESIGN ENGINEER MUST BE CONTACTED FOR DESIGN DETAILS (AS REQUIRED) BEFORE CONSTRUCTION.
SN15 WHEN SURFACES FALL TOWARDS A BUILDING, INCLUDING LAND OUTSIDE OF THE SITE, GROUND SURFACE LEVELS ADJACENT TO THE BUILDING ARE TO BE RE-GRADED SUCH THAT THE FIRST METER HAS A MINIMUM 50MM FALL AWAY FROM THE BUILDING AS PER THE NATIONAL CONSTRUCTION CODE.
SN16 IN THE EVENT OF THE PRIMARY OUTLET BLOCKING AND TO REDUCE WATER INGRESS, THE CONTRACTOR IS TO ENSURE A MINIMUM 100MM WIDE X 40MM HIGH OR 50MM DIAMETER OVERFLOW DEVICE FOR EVERY 6M^2 OF THE EXPOSED AREA TRAPPED, SUCH AS HOBS/WALLS/BALUSTRADES/ETC, IS PROVIDED. THE ENTIRE OVERFLOW DEVICE DEPTH MUST BE POSITIONED BELOW ANY ADJACENT INTERNAL FLOOR LEVELS OR OPENINGS TO PROTECT AGAINST WATER INGRESS.

DRAWING LEGEND

INDICATES INDICATIVE EXTENT OF EXISTING DWELLING
INDICATES INDICATIVE EXTENT OF PROPOSED EXTENSION
INDICATES INDICATIVE EXTENT OF PROPOSED DRIVEWAY
INDICATES ON-SITE DETENTION TANK
INDICATES RAINWATER TANK
INDICATES ABSORPTION SYSTEM
DP — INDICATES PROPOSED DOWNPIPE/RISER
e.DP — INDICATES EXISTING DOWNPIPE/RISER
I.O. — INDICATES INSPECTION OPENING WITH SCREW DOWN LID
RWO — INDICATES RAINWATER OUTLET
PBO — INDICATES PLANTER BOX OUTLET
INDICATES EAVE OPENING
INDICATES PIPE DROPPER
BOX GUTTER SUMP/RAINWATER HEAD SUMP
EG1 — INDICATES EAVE TYPE AND DIRECTION
OR — INDICATES DOWNPIPE SPREADER
INDICATES GRATED BOX DRAIN WITH OUTLET
INDICATES DRAINAGE PIT GRATED OPENING
INDICATES DRAINAGE PIT SEALED COVER
SW / SW / IL XX.XXX — INDICATES STORMWATER PIPE INVERT LEVELS. UNLESS OTHERWISE NOTED PIT BASE IS TO EQUAL PIPE BASE
RW — INDICATES DN100 RAINWATER PIPE.
SW — INDICATES DN100 STORMWATER PIPE.
e.SW — INDICATES EXISTING STORMWATER PIPE.
s.SW — INDICATES DN100 SEWER GRADE CHARGED STORMWATER PIPE.
w.RM — INDICATES INDICITIVE LOCATION OF RISING MAIN BY OTHERS.
DN150 RW — INDICATES SIZE AND DIRECTION OF RAINWATER PIPE GREATER THAN DN100.
DN150 SW — INDICATES SIZE AND DIRECTION OF STORMWATER PIPE GREATER THAN DN100.
DN150 e.SW — INDICATES SIZE AND DIRECTION OF EXISTING STORMWATER PIPE GREATER THAN DN100.
DN150 s.SW — INDICATES SIZE AND DIRECTION OF SEWER GRADE CHARGED STORMWATER PIPE.
INDICATES SITE BOUNDARY
INDICATES EASEMENT WITHIN SITE, REFER TO DETAILED SURVEY
INDICATES INDICATIVE ROOF OUTLINE
PAGE S?? — PIPE LINE CONTINUES TO REFERENCED PAGE
PENETRATION DIRECTION
DP-RW / 100 — SERVICE TYPE / SIZE
PENETRATION DIRECTION

SITE SUMMARY OF COUNCIL SPECIFICATION

1. COUNCIL: NORTHERN BEACHES COUNCIL
2. RELEVANT DOCUMENTS:
   2.1. NORTHERN BEACHES COUNCIL WATER MANAGEMENT FOR DEVELOPMENT POLICY (2021)
   2.2. AS/NZS 3500.3
3. NORTHERN BEACHES COUNCIL WATER MANAGEMENT POLICY CONTROLS:
   - DISPOSAL OF STORMWATER (CLAUSE 5.1) - COMPLIES

5.1 A) RESPONSE: THE PROPOSED DEVELOPMENT DISCHARGES TO ANGLE STREET'S KERB AND GUTTER BY GRAVITY.

5.1 B) RESPONSE: THE STORMWATER RUNOFF GENERATED BY THE DEVELOPMENT WILL BE CONTAINED WITHIN THE SAME CATCHMENT AREA. THE UPPERMOST POINT OF THE CATCHMENT, LOCATED AT SYDNEY ROAD, IS ANTICIPATED TO DISCHARGE ITS RUNOFF AT THE LOWERMOST POINT OF THE CATCHMENT, NEAR BALGOWLAH ROAD, WHERE BURNT BRIDGE CREEK IS SITUATED VIA A 900mm DIAMETER TRUNK DRAINAGE OUTLET

5.1 C) RESPONSE: THE PROPOSED DEVELOPMENT (100% IMPERVIOUS AREA) CONNECTS TO COUNCIL DRAINAGE INFRASTRUCTURE (KERB AND GUTTER) BY GRAVITY. AS A RESULT NO EASEMENT RECOMMENDED.

5.1 D) RESPONSE: THE DEVELOPMENT PROPOSED AN UNDERGROUND RAINWATER REUSE TANK (BASIX 10m^3) AND AN UNDERGROUND ON-SITE DETENTION SYSTEM (23m^3) WITH A SILT ARRESTOR PIT. THE DEVELOPMENT IS ALSO LESS THE 1000m^2 AS A RESULT NOT SUBJECT TO STORMWATER QUALITY AND HYDROLOGY CONTROLS AS PER NBC WATER MANAGEMENT POLICY SECTION 1.0 TABLE 1 DEVELOPMENT TYPE CONTROLS.

5.1 E) RESPONSE: THE PROPOSED DEVELOPMENT SUBSTANTIALLY IMPROVES RUNOFF TO DOWNSTREAM ALLOTMENTS WITH THE FOLLOWING EXPECTED FLOW REDUCTIONS.

POST DEV. VS PRE DEV.	POST DEV. VS STATE OF NATURE FLOW
20% AEP - 21L/S REDUCTION	20% AEP - 16L/S REDUCTION
5% AEP - 33L/S REDUCTION	5% AEP - 17L/S REDUCTION
1% AEP - 41L/S REDUCTION	1% AEP - 35L/S REDUCTION

KERB FLOWS TO ANGLE STREET WILL BE A MAXIMUM 11 L/S FOR ALL STORM EVENTS UP TO THE 1% AEP AS A RESULT OF THE HIGH EARLY DISCHARGE CHAMBER IN THE ON-SITE DETENTION SYSTEM.
REFER TO CATCHMENTS AREAS AND EXPECTED SITE FLOWS ON PAGE S10 OR ATTACHED DRAINS MODEL

5.1 F) RESPONSE: THE DEVELOPMENT PROPOSES TO DISCHARGE STORMWATER TO THE KERB AND GUTTER ON ANGLE STREET USING A NEW OUTLET. REFER TO PLAN ON PAGE S3 AND PIPE LONG SECTION ON PAGE S9 FOR DETAILS

5.1 G) RESPONSE: N/A FOR COUNCIL CONSIDERATION

WE RECOMMEND THE PROPOSED STORMWATER DESIGN AS A SAFE AND PRACTICAL SOLUTION TO SUPPORT THE DEVELOPMENT. FURTHERMORE, WE BELIEVE THAT THIS DRAWING SERIES HAS BEEN PREPARED IN GENERAL ACCORDANCE WITH THE ABOVE DOCUMENTS.

PAGE DIRECTORY

AMUNA CIVIL ENGINEERING

Revision	Drawn	Date	Description	Checked	Approved
2	SSD	21.07.23	ISSUED FOR DEVELOPMENT APPLICATION	SC	SSD
1	SSD	12.07.23	ISSUED FOR CLIENT REVIEW	SC	SSD

North

Architect
WOLSKI.COPPIN ARCHITECTURE
Client: GILLESPIE

Project
PROPOSED RESDIENTIAL FLAT BUILDING
No. 22 & 24 ANGLE STREET
BALGOWLAH

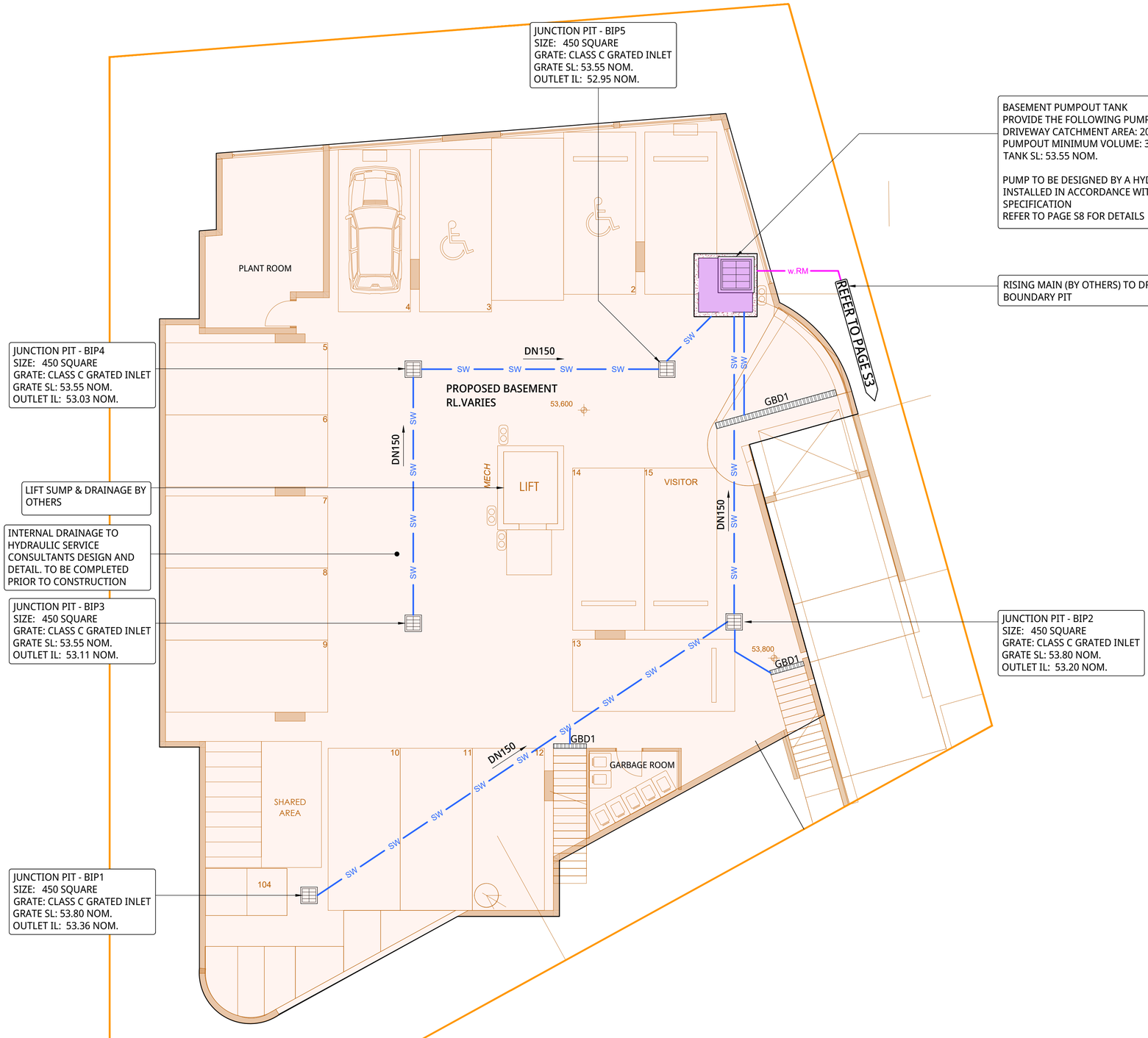
Drawing Title
TITLE PAGE & NOTES

Project No.
ACE23068

Scale: A1
AS NOTED

Page No.
S1

Revision
1



MANAGEMENT OF STORMWATER PLAN - BASEMENT

SCALE - 1:75/A1, 1:150/A3

0 1.5m 3m 4.5m 6m 7.5m

NOTES:

1. ALL GRATED BOX DRAINS (GBD) TO BE 150mm WIDE x 150mm DEEP. ENSURE A MINIMUM 2% GRADE FROM GBD INVERT TO OUTLET PIPE IL. UNLESS OTHERWISE NOTED

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WOLSKI.COPPIN ARCHITECTURE
Client: GILLESPIE

Project
PROPOSED RESDIENTIAL FLAT BUILDING
No. 22 & 24 ANGLE STREET
BALGOWLAH

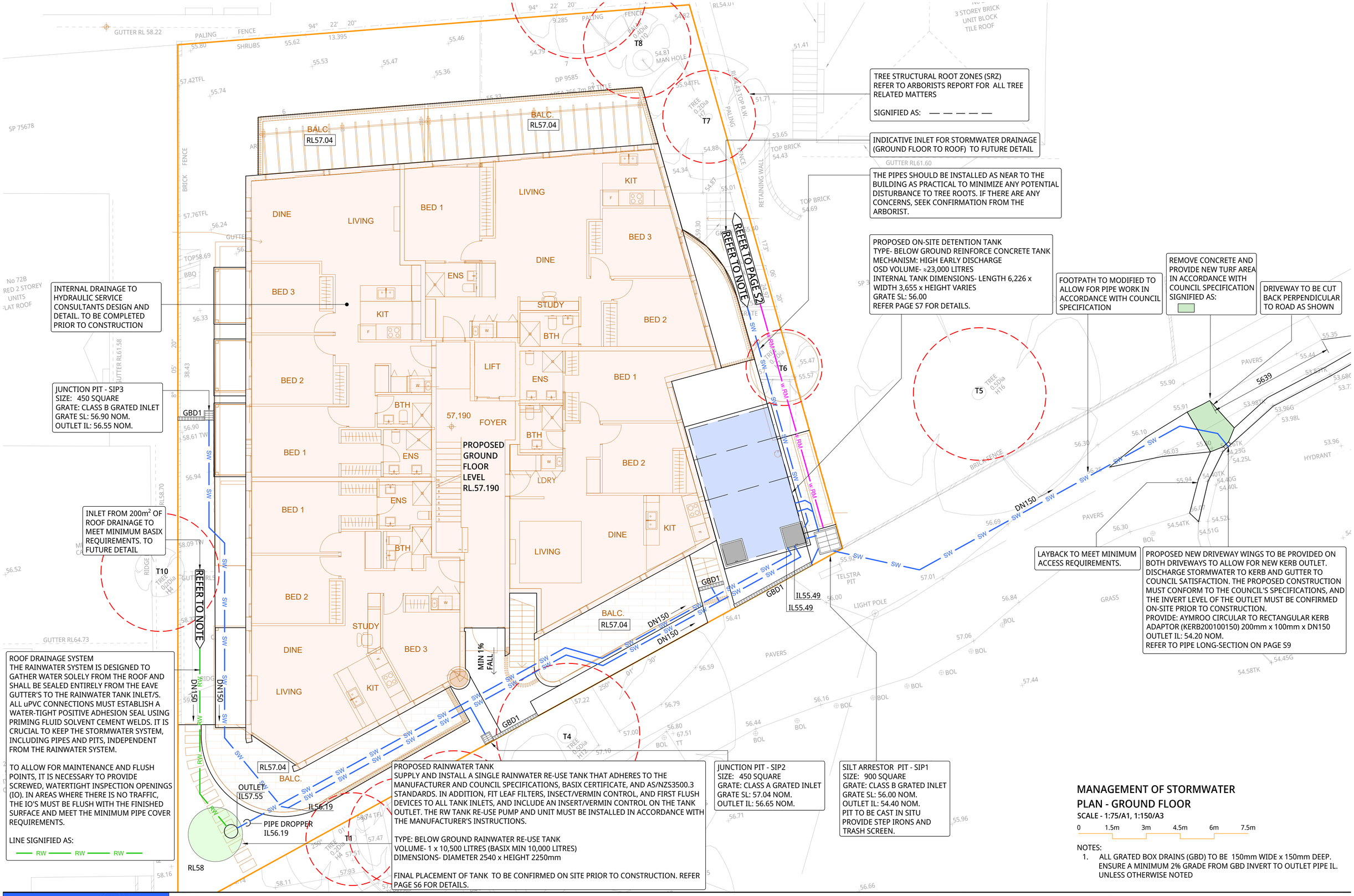
Drawing Title
MANAGEMENT OF STORMWATER PLAN - BASEMENT

Project No. ACE23068

Scale: A1 AS NOTED

Page No. S2

Revision 1



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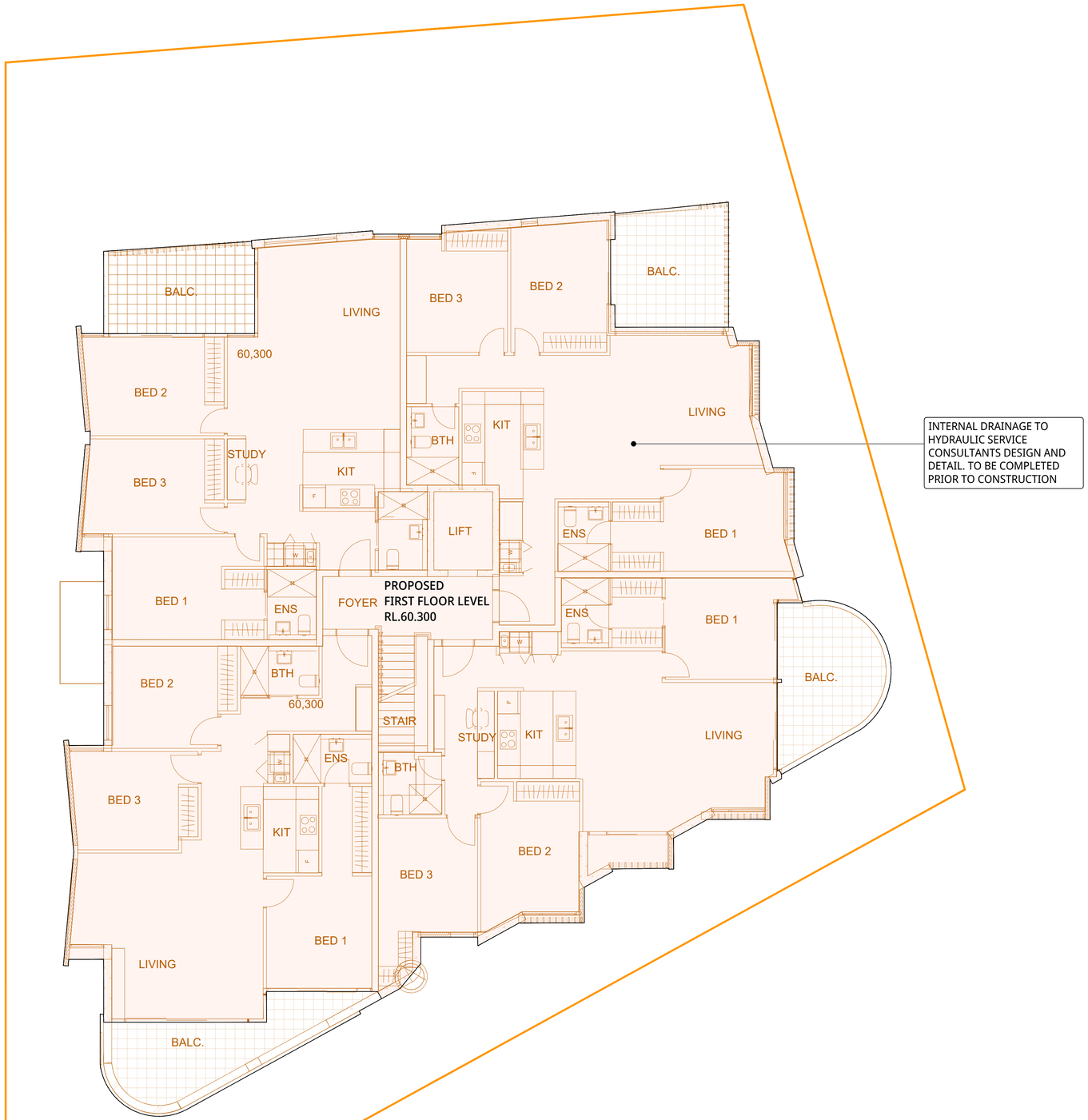
Architect
WOLSKI.COPPIN ARCHITECTURE
Client: GILLESPIE

Project
PROPOSED RESDIENTIAL FLAT BUILDING
No. 22 & 24 ANGLE STREET
BALGOWLAH

Drawing Title
MANAGEMENT OF STORMWATER PLAN - GROUND FLOOR

Project No. ACE23068
Scale: A1 AS NOTED
Page No. S3
Revision 1



INTERNAL DRAINAGE TO HYDRAULIC SERVICE CONSULTANTS DESIGN AND DETAIL. TO BE COMPLETED PRIOR TO CONSTRUCTION

MANAGEMENT OF STORMWATER PLAN - LEVEL 1

SCALE - 1:75/A1, 1:150/A3

0 1.5m 3m 4.5m 6m 7.5m

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Architect
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Client: GILLESPIE

Project
PROPOSED RESDIENTIAL FLAT BUILDING
No. 22 & 24 ANGLE STREET
BALGOWLAH

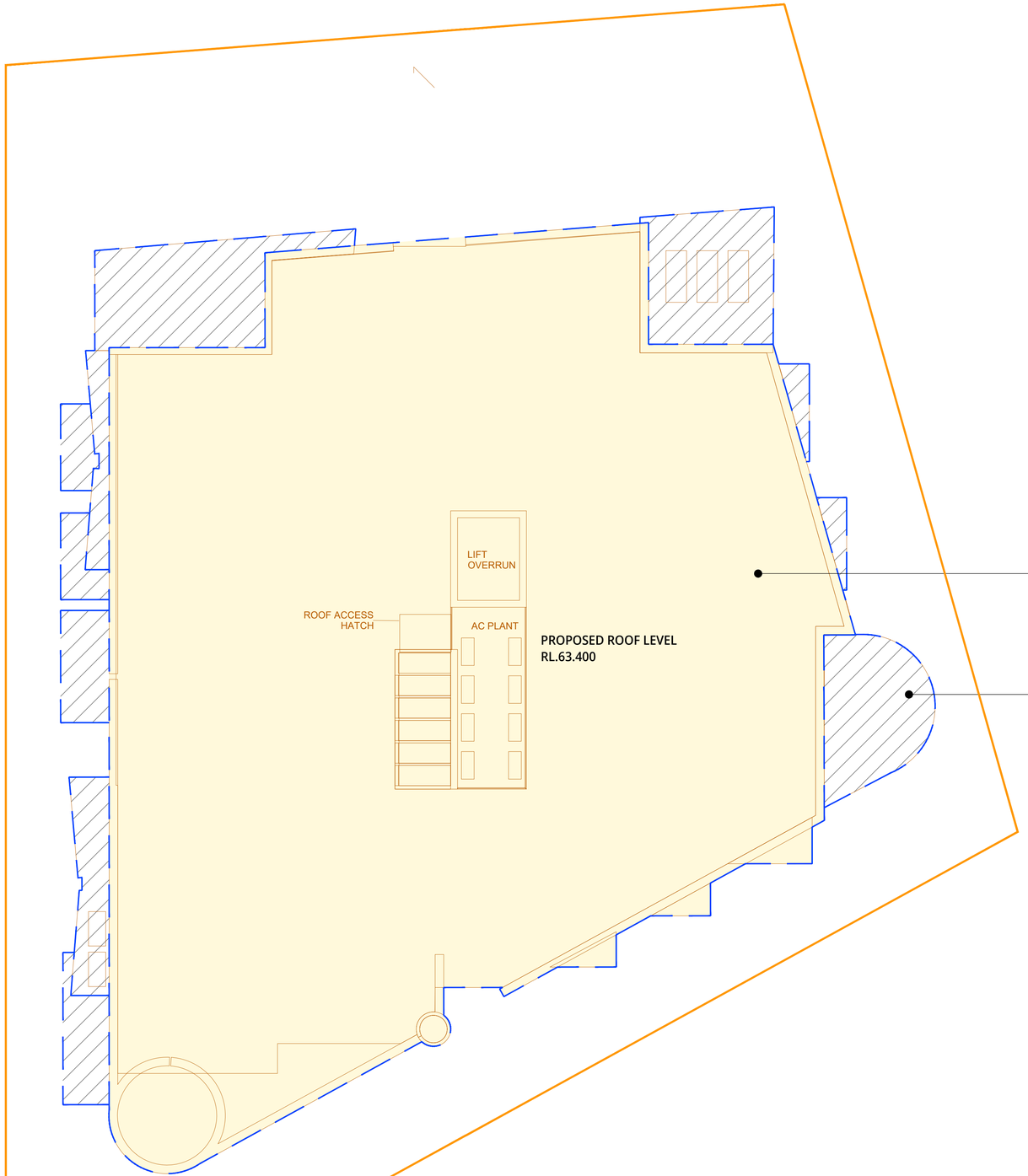
Drawing Title
MANAGEMENT OF STORMWATER PLAN - LEVEL 1

Project No.
ACE23068

Scale: A1
AS NOTED

Page No.
S4

Revision
1



SIGNIFIES PROPOSED ROOF AREA TO COLLECT ROOF RUNOFF. DRAIN PARTS OF THE ROOF TO RAINWATER TANK IN ACCORDANCE WITH MINIMUM BASIX REQUIREMENTS. DRAIN THE REMAINDER OF THE ROOF TO THE ON-SITE DETENTION TANK. ROOF DRAINAGE TO BE DESIGN TO THE 1% AEP STORM EVENT AND DESIGNED TO AS/NZs3500.3

SIGNIFIES PROPOSED LOWER ROOF AREA TO COLLECT ROOF RUNOFF. DRAIN ROOF TO THE ON-SITE DETENTION TANK. ROOF DRAINAGE TO BE DESIGN TO THE 1% AEP STORM EVENT AND DESIGNED TO AS/NZs3500.3. ROOF DRAINAGE AND INTERNAL DRAINAGE RUNS TO HYDRAULIC SERVICES CONSULTANTS DETAIL

MANAGEMENT OF STORMWATER
PLAN - ROOF
SCALE - 1:75/A1, 1:150/A3

0 1.5m 3m 4.5m 6m 7.5m

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BALGOWLAH

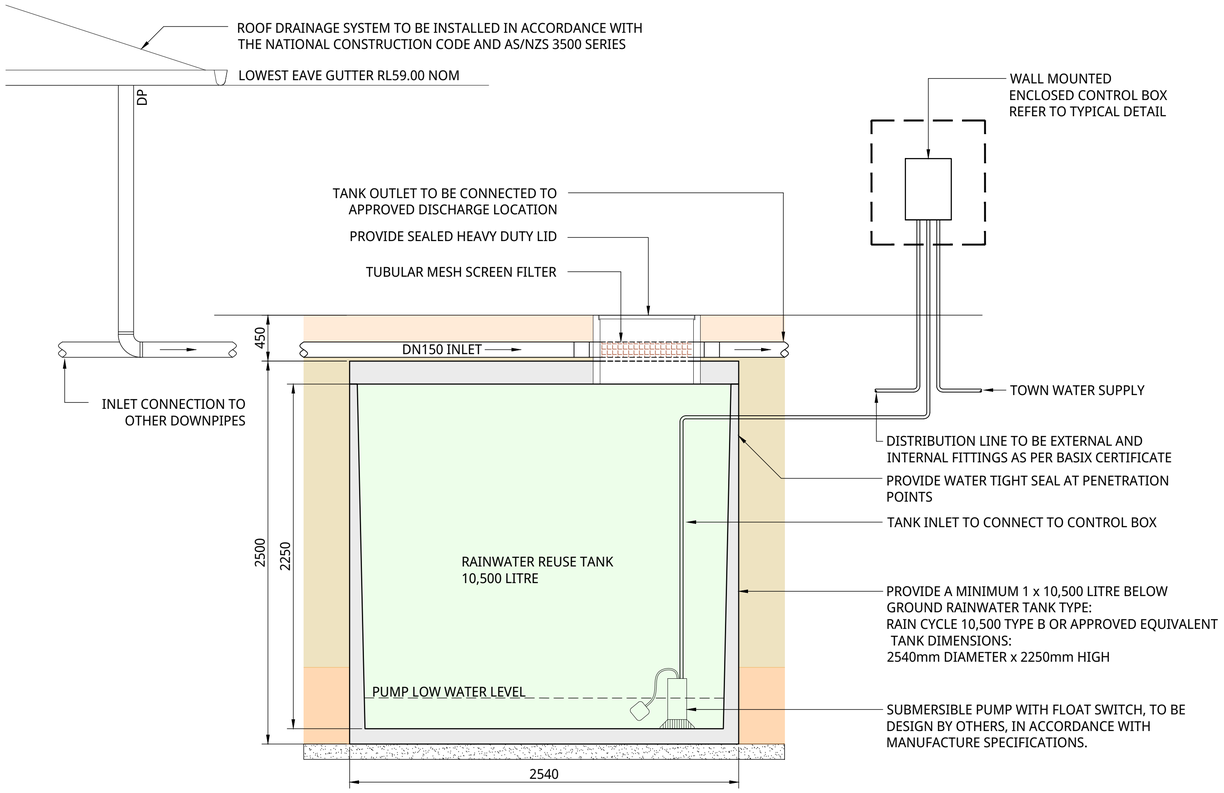
Drawing Title
MANAGEMENT OF STORMWATER PLAN - ROOF

Project No.
ACE23068

Scale: A1
AS NOTED

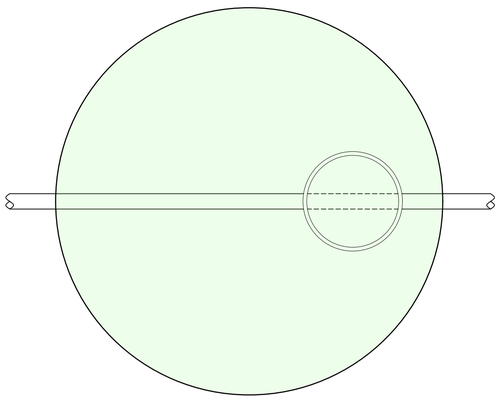
Page No.
S5

Revision
1

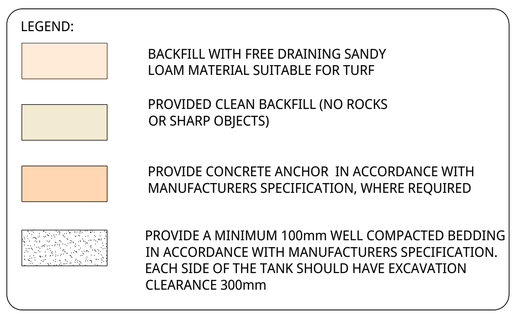


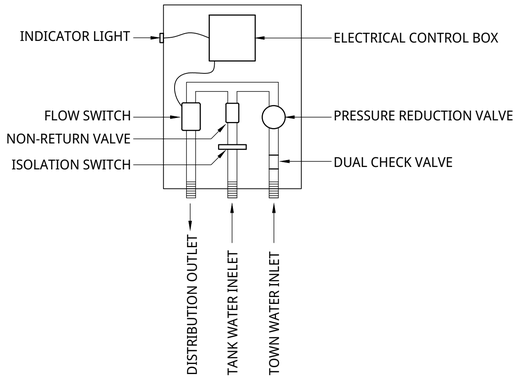
BELOW GROUND RAINWATER REUSE TANK
TYPICAL ELEVATION
NTS

NOTES:
1. RAINWATER TANK TO MEET MINIMUM BASIX REQUIREMENTS.
2. RAINWATER TANK DIMENSIONS TO BE VERIFIED WITH TANK MANUFACTURER, DESIGN ENGINEER TO VALIDATE ANY VARIATIONS PRIOR TO CONSTRUCTION.
3. REFER TO RAINWATER TANK DESIGN AND INSTALLATION HANDBOOK BY MPMSAA (2008) FOR TANK CONNECTION SCHEMATICS.
4. THE RAINWATER TANK AND EVERY RAINWATER SUPPLY OUTLET POINT ARE TO BE LABELLED (RAINWATER) ON A METAL SIGN IN ACCORDANCE WITH AS1319. REFER TO TYPCAL DETAIL



BELOW GROUND RAINWATER REUSE TANK
TYPICAL PLAN
NTS





TYPICAL CONTROL BOX
DETAIL
NTS

TYPICAL WARNING SIGN
DETAIL
NTS

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2	SSD	21.07.23	ISSUED FOR DEVELOPMENT APPLICATION	SC	SSD
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North

Architect
WOLSKI.COPPIN ARCHITECTURE

Client: GILLESPIE

Project
PROPOSED RESDIENTIAL FLAT BUILDING
No. 22 & 24 ANGLE STREET
BALGOWLAH

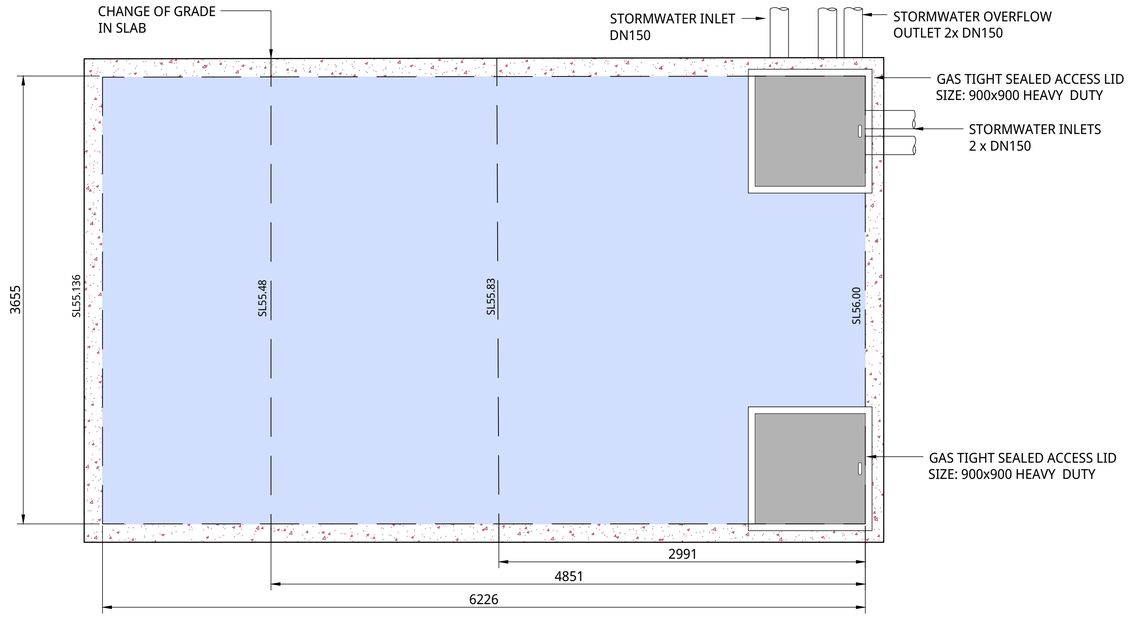
Drawing Title
MANAGEMENT OF STORMWATER DETAILS - PAGE 1 OF 3

Project No.
ACE23068

Scale: A1
AS NOTED

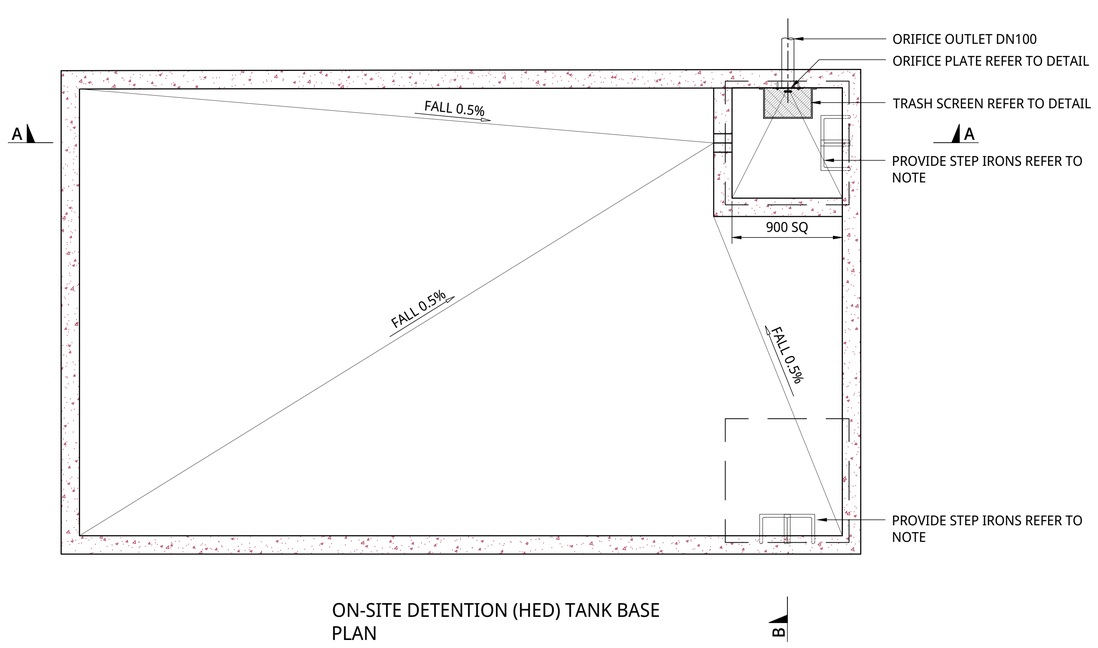
Page No.
S6

Revision
1



ON-SITE DETENTION (HED) TANK CEILING PLAN

SCALE - NTS

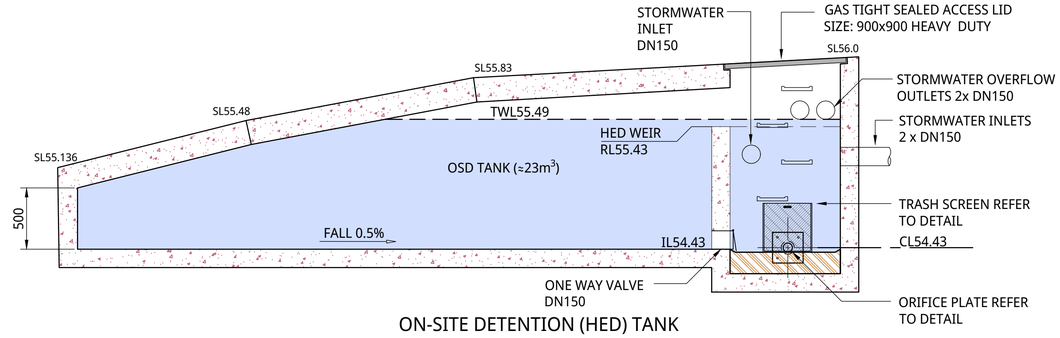


ON-SITE DETENTION (HED) TANK BASE PLAN

SCALE - NTS

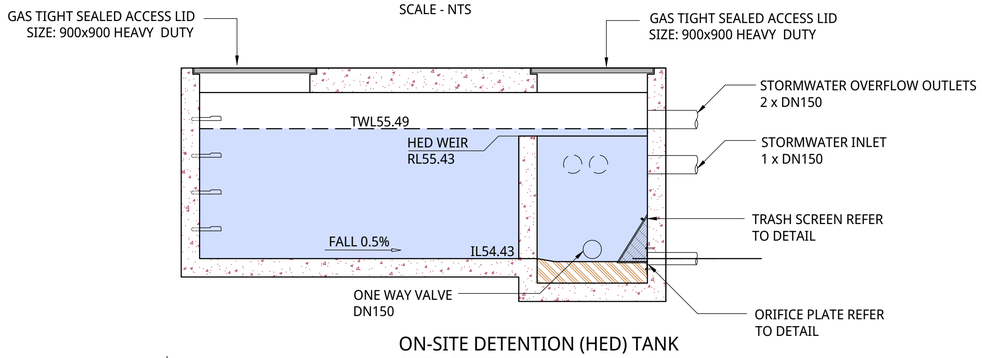
NOTES:

1. TANK TO STRUCTURAL ENGINEERS DETAIL
2. PROVIDE EQUALLY SPACED STEP IRONS AT ALL ACCESS POINTS IN ACCORDANCE WITH THE AUSTRALIAN STANDARDS



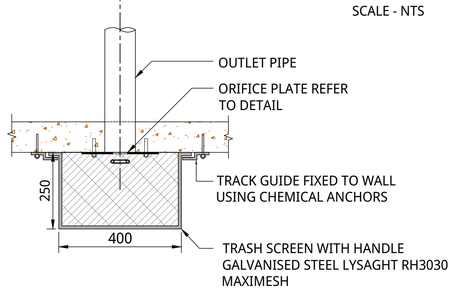
ON-SITE DETENTION (HED) TANK SECTION (A - A)

SCALE - NTS



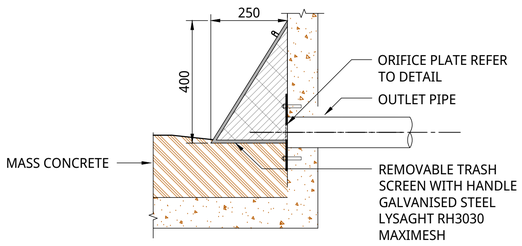
ON-SITE DETENTION (HED) TANK SECTION (B - B)

SCALE - NTS



TYPICAL TRASH SCREEN PLAN

SCALE - NTS



TYPICAL TRASH SCREEN SECTION

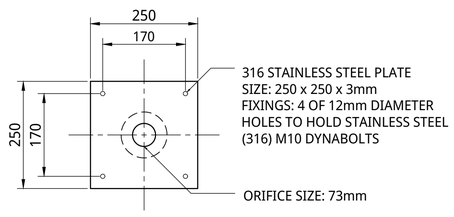
SCALE - NTS

TYPICAL WARNING SIGN DETAIL

NTS

NOTES:

1. PROVIDE CONFINED SPACE WARNING SIGN AT EVERY ENTRY



TYPICAL ORIFICE PLATE DETAIL

SCALE - NTS

AMUNA CIVIL ENGINEERING

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2	SSD	21.07.23	ISSUED FOR DEVELOPMENT APPLICATION	SC	SSD	
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Architect: WOLSKI.COPPIN ARCHITECTURE

Client: GILLESPIE

Project: PROPOSED RESDIENTIAL FLAT BUILDING

No. 22 & 24 ANGLE STREET BALGOWLAH

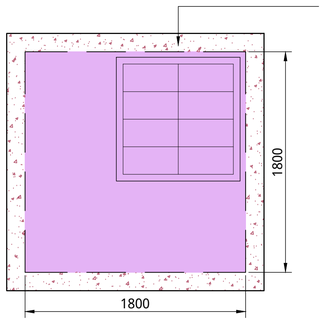
Drawing Title: MANAGEMENT OF STORMWATER DETAILS - PAGE 2 OF 3

Project No.: ACE23068

Scale: AS NOTED

Page No.: S7

Revision: 1



PUMP OUT TANK CEILING PLAN

SCALE - NTS

NOTES:

1. CAST IN SITU PUMP OUT TANK TO STRUCTURAL ENGINEERS DETAIL
2. ALTERNATIVE PROPRIETY PRODUCT TO MANUFACTURES DESIGN PROVIDED IT COMPLIES WITH AS/NZs3500.3 SECTION 8 PUMPED SYSTEM REQUIREMENTS
3. PROVIDE EQUALLY SPACED STEP IRONS AT ALL ACCESS POINTS IN ACCORDANCE WITH THE AUSTRALIAN STANDARDS

STORMWATER BASEMENT PUMP OUT TANK CALCULATIONS

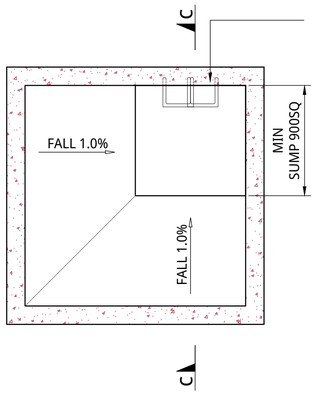
1. WET WELL STORAGE:

CATCHMENTS DRAINING TO PUMP OUT TANK (A)	$20m^2$
STORM EVENT	10% AEP
STORM PERIOD (T)	2 HOUR
RAINFALL INTENSITY (I)	51.1 mm/hr
COEFFICIENT RUNOFF (C)	1
PEAK DISCHARGE Q = (C x I x A) / 3600	0.283 L/S
ACCUMULATED VOLUME V = (Q x T x 3600) / 1000	2.04m3 (2HR, 10% AEP)

2. PUMPED VOLUME:

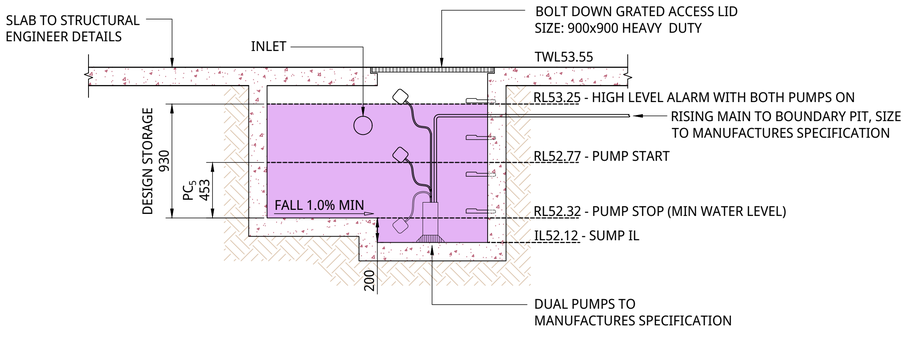
ASSUMED PUMPED CAPACITY (PC)	5L/S
PC_{30} = (PC X (30/60) x 3600) /1000	$9m^3$
PC_5= (PC X (5/60) x 3600) /1000	$1.5m^3$

3. MINIMUM WET WELL STORAGE:
   V - PC_{30} = 2.04 - 9 = - $6.96m^3$ THEREFORE ADOPT $3m^3$ AS PER AS/NZs3500.3 CLAUSE 8.3.6



PUMP OUT TANK BASE PLAN

SCALE - NTS



PUMP OUT TANK SECTION (C - C)

SCALE - NTS

AMUNA CIVIL ENGINEERING

Revision	Drawn	Date	Description	Checked	Approved
2	SSD	21.07.23	ISSUED FOR DEVELOPMENT APPLICATION	SC	SSD
1	SSD	12.07.23	ISSUED FOR CLIENT REVIEW	SC	SSD

North

Architect
WOLSKI.COPPIN ARCHITECTURE
Client: GILLESPIE

Project
PROPOSED RESDIENTIAL FLAT BUILDING
No. 22 & 24 ANGLE STREET
BALGOWLAH

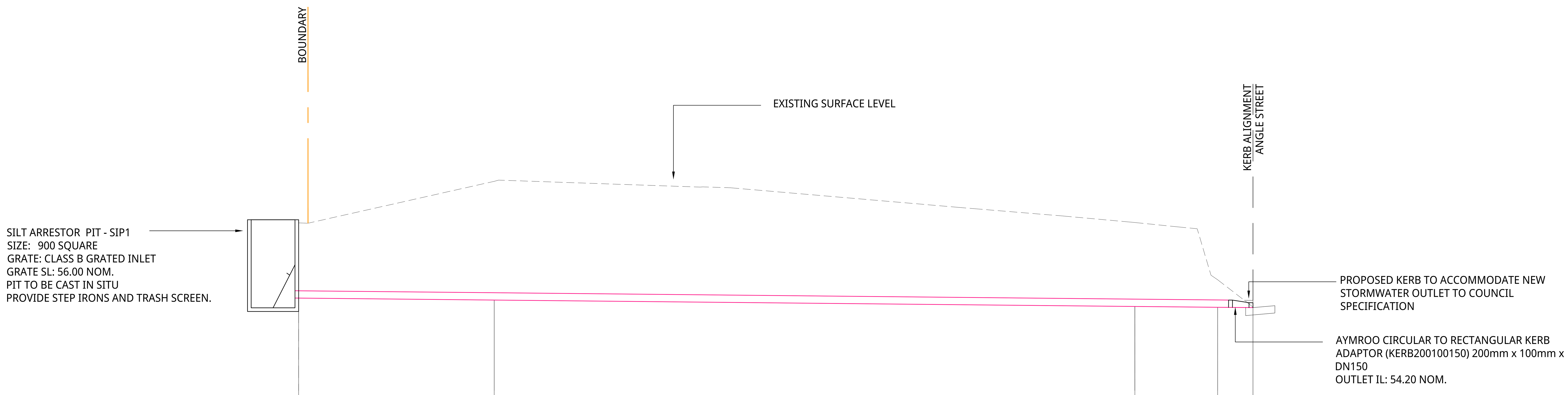
Drawing Title
MANAGEMENT OF STORMWATER DETAILS - PAGE 3 OF 3

Project No.
ACE23068

Scale: A1
AS NOTED

Page No.
S8

Revision
1



DATUM R.L 52.0

EXISTING SURFACE LEVELS	55.937		56.789		55.945		54.771		54.200
GRADE %		-1.00% uPVC DN150		-1.00% uPVC DN150		-1.00% uPVC DN150		-1.00%	
INVERT LEVEL	54.395		54.355 54.355		54.224 54.224		54.207 54.207		54.200
COVER	1.387		2.278 2.278		1.565 1.565		0.408 0.408		-0.153
CHAINAGE	0.000		4.013		17.164		18.862		19.587

PIPE OUTLET LONG SECTION

HORIZONTAL SCALE - 1:50/A1, 1:100/A3
VERTICAL SCALE - 1:50/A1, 1:100/A3

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WOLSKI.COPPIN ARCHITECTURE
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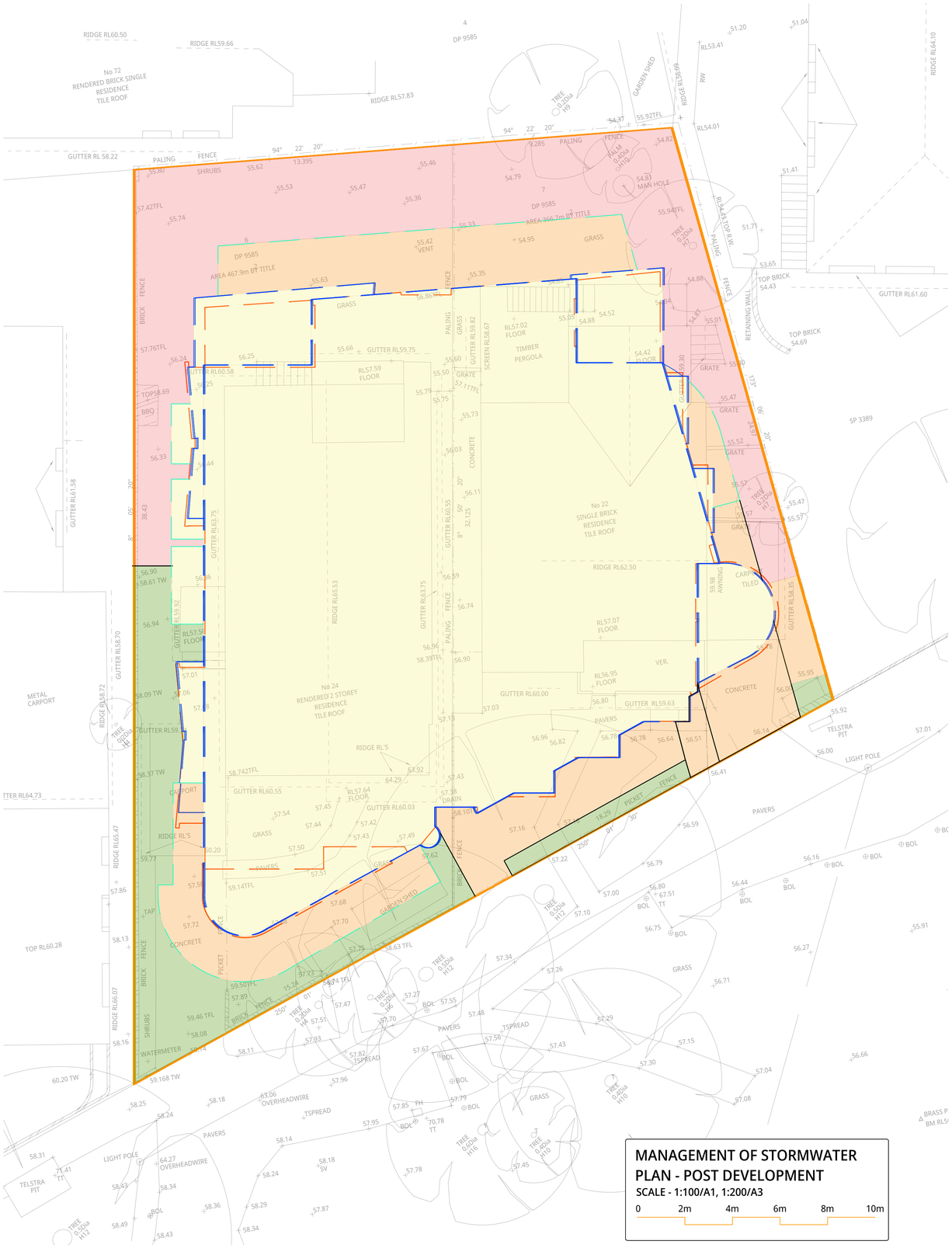
Project
PROPOSED RESDIENTIAL FLAT BUILDING
No. 22 & 24 ANGLE STREET
BALGOWLAH

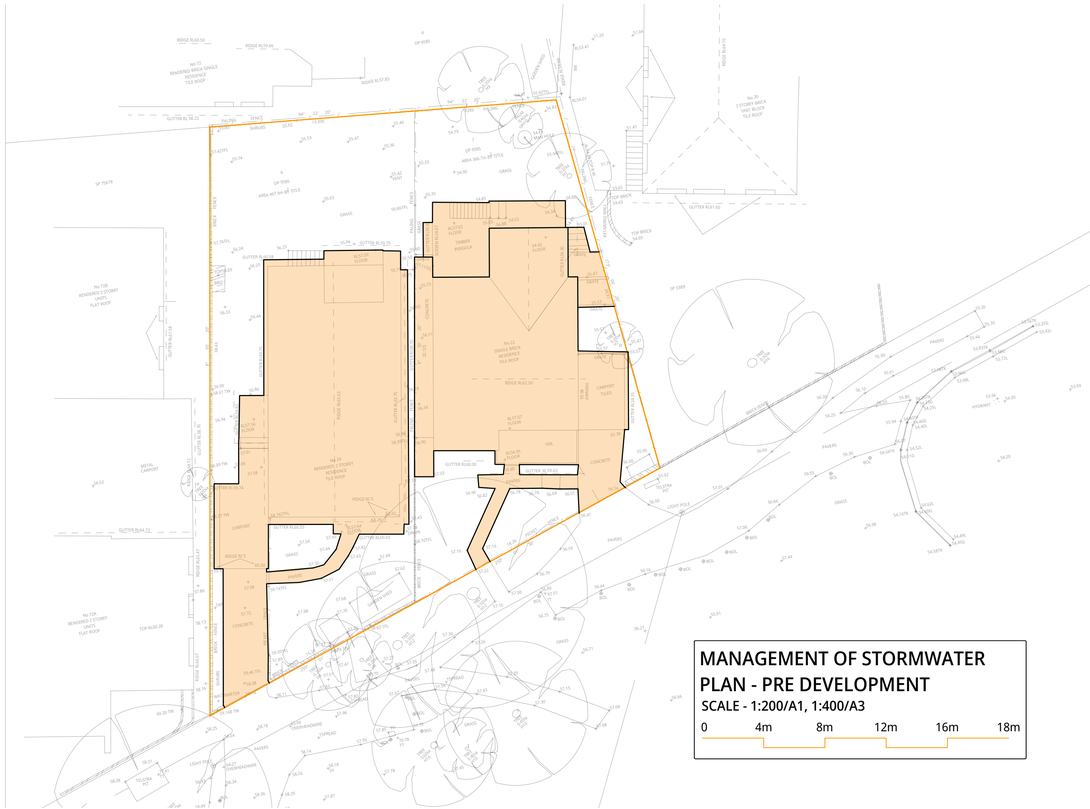
Drawing Title
MANAGEMENT OF STORMWATER PIPE OUTLET LONG SECTION

Project No. ACE23068 | Scale: A1 AS NOTED | Page No. S9 | Revision 1



MANAGEMENT OF STORMWATER
PLAN - POST DEVELOPMENT
SCALE - 1:100/A1, 1:200/A3

0 2m 4m 6m 8m 10m



MANAGEMENT OF STORMWATER
PLAN - PRE DEVELOPMENT
SCALE - 1:200/A1, 1:400/A3

0 4m 8m 12m 16m 18m

POST DEVELOPMENT CATCHMENT LEGEND:

- INDICATES EXTENT ROOF AREA DRAINING TO OSD TANK 499m²
- INDICATES EXTENT LOWER ROOF AREA AND PAVED IMPERVIOUS AREA DRAINING TO OSD TANK 129m²
- INDICATES EXTENT PERVIOUS AREA DRAINING TO OSD TANK 69m²
- INDICATES EXTENT OF PERVIOUS BYPASS 143m²

TABLE 1 - IMPERVIOUS AREA CALCULATION

DEVELOPMENT	AREA (m²)
PRE-DEVELOPMENT	453.0
POST-DEVELOPMENT	629.0
RESULT	176.0

TABLE 2 - SITE DISCHARGE CALCULATIONS

STORMEVENT	PRE-DEVELOPMENT (I/S)	STATE OF NATURE FLOW (I/S)	OSD FLOW TO STREET (I/s)	BYPASS FLOW (I/S)	TOTAL DISCHARGE FLOW (I/S)
CATCHMENT AREA & IMPERVIOUS PERCENTAGE	842m² & 53.8%	842m² & 0.0%	699m² & 90.0%	143m² & 0.0%	-
20% AEP	24.00	19.00	11.00	3.00	14.00
5% AEP	39.00	34.00	11.00	6.00	17.00
1% AEP	51.00	45.00	11.00	8.00	19.00

NOTES:

1. SITE DISCHARGE RESTRICTED TO THE 5 YEAR STATE OF NATURE STORMEVENT IN ACCORDANCE WITH COUNCILS POLICY.
2. ROOF DRAINAGE TO BE DESIGNED TO THE 100YEAR STORM EVENT

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Drawing Title
MANAGEMENT OF STORMWATER AREA AND FLOW CALCULATIONS

Project No. ACE23068
Scale: A1 AS NOTED
Page No. S10
Revision 1