LEGEND:

- Stormwater pipe
- Charged Line
- Flush Line
- Sub Soil / Agricultural Pipe
- Pump Line
- Existing stormwater Pipe (eSW)
- Existing Pipe (e)
- Disused / Redundant Pipe (e x)
- Sediment Fence (X)
- Site Fence (/)
- Conduit by others (C)
- Electrical Wiring by others (E)
- Existing Authority Stormwater Main (SW)
- Existing Authority Sewer Main (S)
- Existing Authority Water Main (W)
- Existing Authority Gas Main (GAS)
- Existing Authority Electrical Cabling (E)
- Existing Telstra Cabling (T)
- Stormwater pit (Grated / Solid Cover)
- Drainage Outlet
- Downpipe / Riser (DP)
- Dropper
- Direction of flow
- Pipe continuation
- Pipe continuation not shown
- Spreader
- Surface Fall (FALL)
- Overland Flow (OLF)

LOCALITY PLAN

Not to scale

ABBREVIATIONS:

AG	Agricultural Line
AP	Aerial Pipe
BG	Box Gutter
BO	Balcony Outlet
CO	Clearout
CL	Charged Line
DP	Downpipe
EG	Eave Gutter
FW	Floor Waste
Galv.	Galvanised
GD	Grated Drain
HD	Heavy Duty
HP	High Point
IL	Invert Level
IO	Inspection Opening
L	Litres
LS	Level Spreader
L/s	Litres Per Second
L/s/m	Litres Per Second Per Metre
LD	Light Duty
m	Meters
m^2	Square Meters
m^3	Cubic Meters
mm/h	Millimetres per Hour
O/F	Overflow
OLF	Overland Flow
OSD	On Site Detention
PDO	Planter Drain Outlet
PL	Pump Line
PVC	Poly Vinyl Chloride
PVC-U	Poly Vinyl Chloride - Unplasticised
RH	Rainwater Head
RHS	Rectangular Hollow Section
RL	Reduced Level
RWT	Rainwater Tank
RWO	Rainwater Outlet
S	Sump
SW	Stormwater Pipe
TB	Thrust Block

GENERAL NOTES:

1. All work is to be performed in accordance with AS3500.3 and council codes where applicable.

2. The Plumber/ Drainer shall inspect the site and confirm the existing site structures, services and conditions prior to proceeding. If any discrepancies found, contact the engineer for further instructions.

3. All underground pipes shall be P.V.C-U. laid at min. 1:100, unless noted otherwise.

4. All connections to P.V.C. pipes are to be solvent welded to manufacturers specification

5. All prefabricated pits, drains etc. are to be of heavy duty concrete construction unless noted other.

6. Precise location of down pipes shall be nominated by others. Locations shown are for hydraulic design purposes only.

7. Precise location of pits shall be nominated by others. Locations shown are for hydraulic design purposes only.

8. All eaves gutters shall be of minimum cross sectional area of 7800mm^2 unless noted otherwise.

9. This design covers the collection and disposal of rainwater from ROOF AREAS ONLY. Any paved areas not noted on the supplied architectural drawings are not included, unless shown.

10. This design does not cover sub surface hydraulic flows.

11. The installer is encouraged to use the 'Dial Before You Dig' service prior to excavation. No underground services have been noted or surveyed in this design. Dig at your own risk.

12. IF IN DOUBT ASK. Consult the design engineer for any changes, omissions and discrepancies.

13. System design has been produced to reflect reduced levels shown on architect supplied drawings.

14. Pipe cover for uPVC pipes:
a. Single dwellings, no vehicular loading - 100mm
b. Single dwellings, vehicular loading without pavement - 450mmm
c. Single dwellings, heavy vehicular loading on concrete - 100mm below underside of concrete
d. Single dwellings, no vehicular loading on un-reinforced concrete/pavers - 50mm below underside of concrete/pavers
e. Single dwellings, light vehicular loading on un-reinforced concrete/pavers - 75mm below underside of concrete/pavers

15. Silt arrestor pit and rain guards must be regularly inspected and cleaned.

16. Location of Stormwater Systems, including downpipes, pipes, pits and rainwater tank are indicative only. Exact locations shall be determined on site to suit site conditions.

17. Sub-soil drains for retaining walls shall be installed by the builder and connected to Stormwater lines. All AG Lines shall be 100mm DIA, unless noted otherwise.

18. Levels are approximate only. The plumber/drainer shall confirm the levels prior to proceeding. If any discrepancies found, contact the engineer for further instructions.

19. Inspection and certification, if required, shall be done prior to backfilling, allow 48 hour notice for the engineer to carry out the inspection.

20. Any damage to services during construction shall be repaired immediately at the plumber/drainers own expense.

21. Areas & Geometry calculated are approximate and dependent on Surveyors & Architects drawings.

22. It is essential that areas calculated are within plus/minus 5% range.

23. Provide adequate access and overland flow routes out of property and not into adjoining properties

24. Provide minimum 75mm clearance under all gates and operable external doors as to not impede overland flow

25. Water entry and backflow into buildings should be prevented at all times

26. All finished ground surfaces should fall away from structures

27. Charged lines are to be flushed regularly and flush/arrestor pits are to be regularly inspected and cleaned

28. All pipes entering a water tank shall have a first flush device installed

29. All water tanks will be insect proofed by others

30. If tanked water is being reused for drinking or sanitary purposes, appropriate disinfecting by others should be considered.

31. Schedule of calculations is based on plan areas

32. Plumber to provide 'leaf guard' or similar over all gutter, rainheads & sumps

33. Atlantis Blockade or similar recommended to be installed in all underground pipes to prevent blockages forming in the pipes during the construction phases

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Rev	Date	Amendment Description	By	App.
01	23.02.2024	Amended as per revised architecturals	CO	BM

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SUITE 63, 59-61 MARLBOROUGH ST. SURRY HILLS 2010
Tel: 9690 2547 Email: admin@harrisonmorris.com.au

Job description: Proposed Additions & Alterations To Residence

Client: Helen Oakman

Architect: SAGO

Stormwater Engineering Drawing Title: Concept Stormwater Drainage Project Information Sheet

Address: 30 George Street, Manly NSW 2095

Original Sheet Size: A3 | Scale: 1:100, 1:20, 1:5 | Drawn: NL | Design: SM

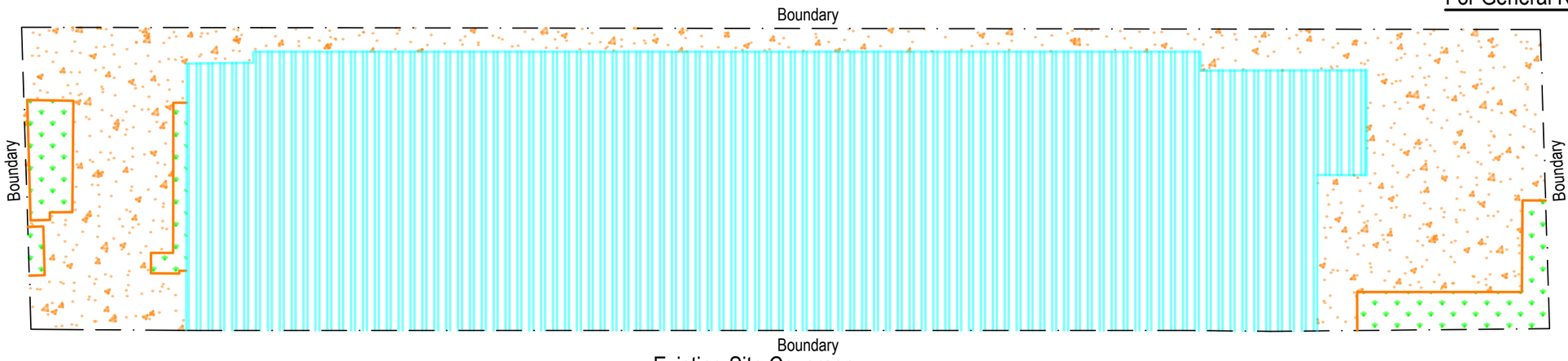
Date: November 2023 | Job No. 2324-040 | Sheet No. 01 of 06 | Rev: 01

Scale @ A3 Original Size Scale: 1:100

0 1 2 4 6 8 10 meters

50mm in original size A3

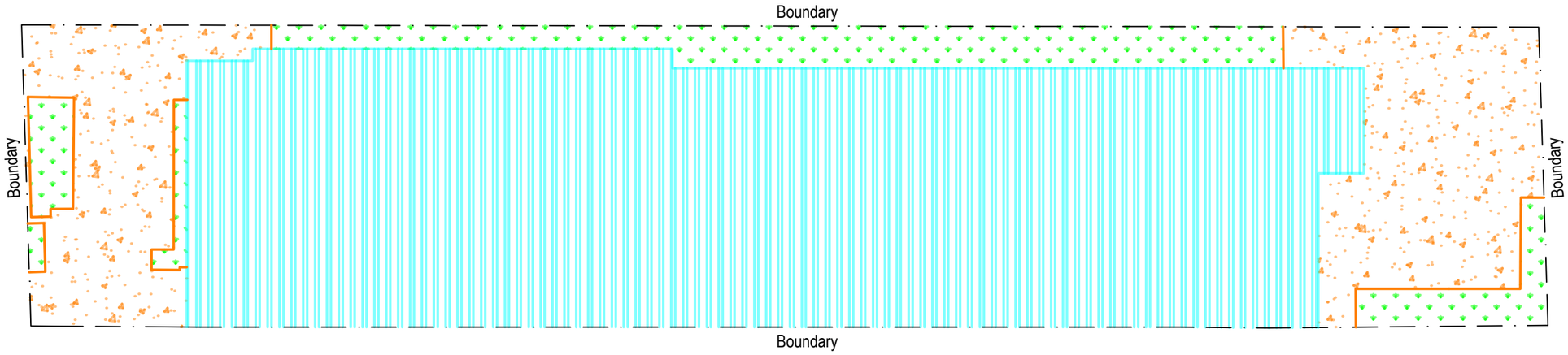
For General Notes, refer to Sheet 1



Existing Site Coverage

Scale 1:100

Roof:	=	127.25
Impervious:	=	49.31
Pervious:	=	7.23
Total:	=	183.79



Proposed Site Coverage

Scale 1:100

Roof:	=	123.33
Impervious:	=	39.16
Pervious:	=	21.30
Total:	=	183.79

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Tel: 9690 2547 Email: admin@harrisonmorris.com.au

Job description: Proposed Additions & Alterations To Residence

Client: Helen Oakman

Architect: SAGO

Stormwater Engineering Drawing Title: Existing & Proposed Site Coverage

Address: 30 George Street, Manly NSW 2095

Original Sheet Size:	Scale:	Drawn:	Design:
A3	1:100, 1:20, 1:5	NL	SM

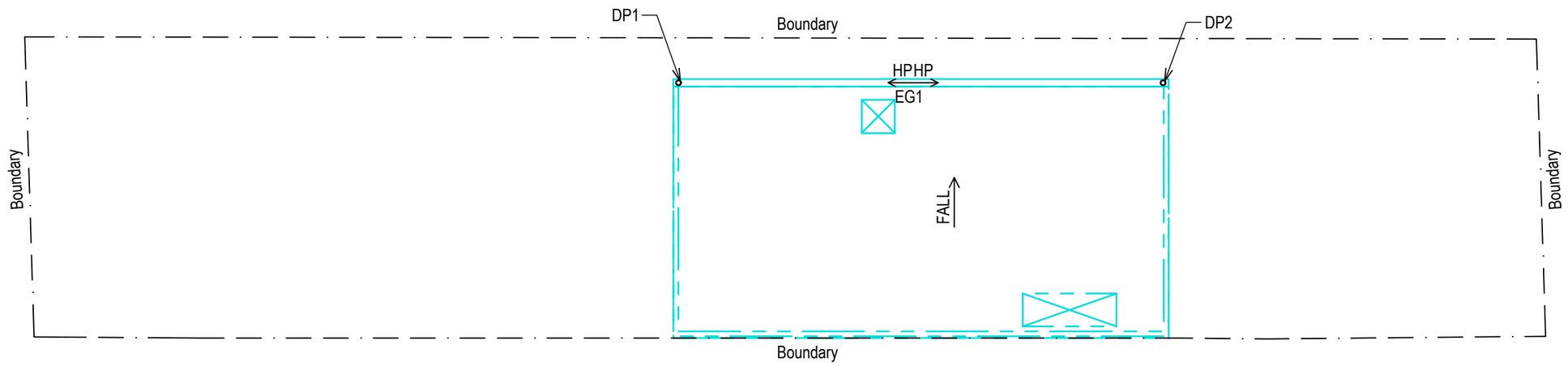
Date:	Job No.	Sheet No.	Rev:
November 2023	2324-040	02 of 06	01

50mm in original size A3

Scale @ A3 Original Size Scale: 1:100

0 1 2 4 6 8 10 meters

For General Notes, refer to Sheet 1



Upper Roof Drainage Plan

Scale 1:100

Downpipes:	DP1 & DP2	= Ø90 P.V.C-U
Eave Gutter:	EG1	= 150 Half - Round or equivalent, min. effective cross-sectional area = 5800mm^2 @ min. 1:500 fall

Note:
HP denotes high point of gutters.
Max. fall of roofs to be determined from architecturals.

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Tel: 9690 2547 Email: admin@harrisonmorris.com.au

Job description: Proposed Additions & Alterations To Residence

Client: Helen Oakman

Architect: SAGO

Stormwater Engineering Drawing Title: Upper Roof Drainage Plan

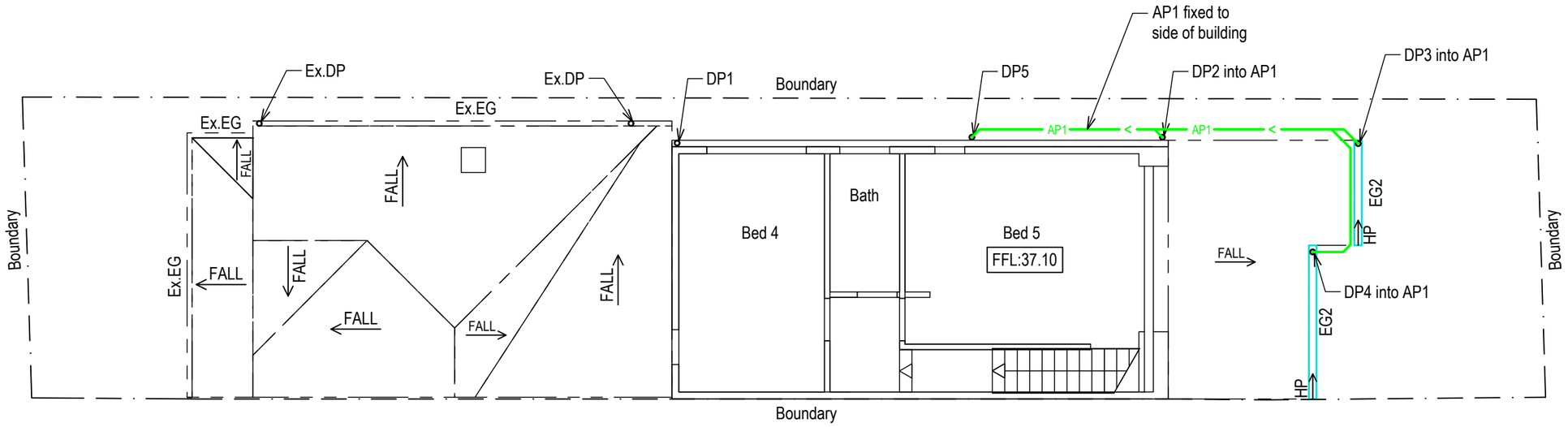
Address: 30 George Street, Manly NSW 2095

Original Sheet Size	Scale	Drawn	Design
A3	1:100, 1:20, 1:5	NL	SM

Date	Job No.	Sheet No.	Rev:
November 2023	2324-040	03 of 06	01

Scale @ A3 Original Size Scale: 1:100
0 1 2 4 6 8 10 meters
50mm in original size A3

For General Notes, refer to Sheet 1



Lower Roof Drainage Plan

Scale 1:100

Downpipes:	DP1 - DP4	= Ø90 P.V.C-U
	DP5	= Ø100 P.V.C-U
	Ex.DP	= Existing downpipe
Eave Gutter:	EG2	= 150 Half - Round or equivalent, min. effective cross-sectional area = 4000mm^2 @ min. 1:500 fall
	Ex.EG	= Existing eave gutter
Aerial Pipe:	AP1	= Ø90 P.V.C-U laid @ 1% fall min.

Note:
HP denotes high point of gutters.
Max. fall of roofs to be determined from architecturals.

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01	23.02.2024	Amended as per revised architecturals	CO	BM

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Tel: 9690 2547 Email: admin@harrisonmorris.com.au

Job description: Proposed Additions & Alterations To Residence

Client: Helen Oakman

Architect: SAGO

Stormwater Engineering Drawing Title: Lower Roof Drainage Plan

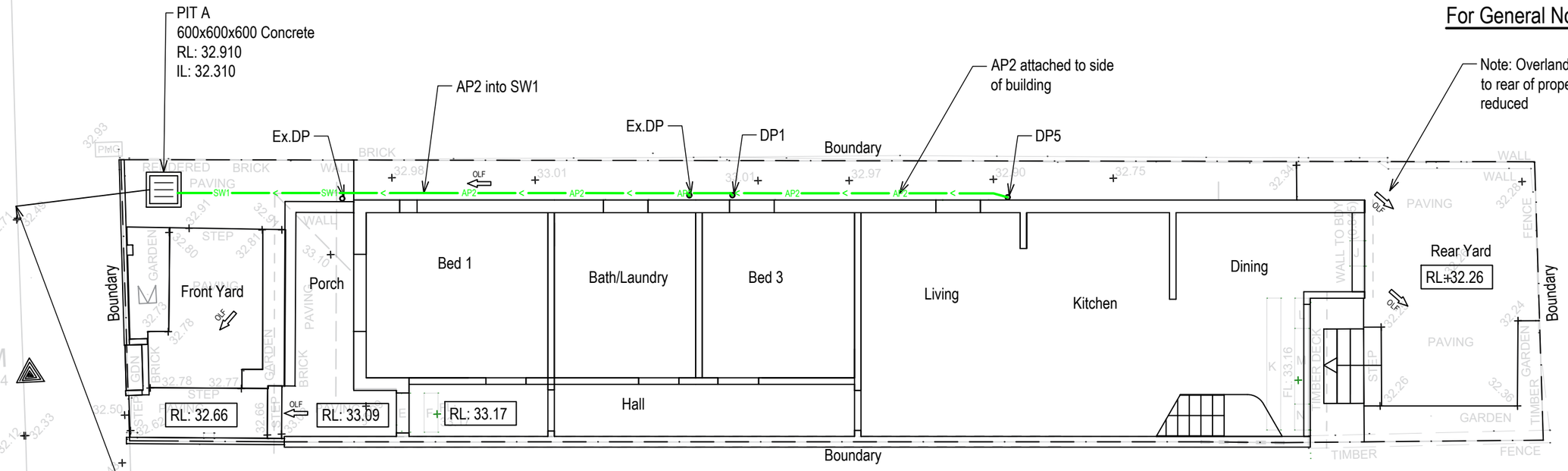
Address: 30 George Street, Manly NSW 2095

Original Sheet Size:	Scale:	Drawn:	Design:
A3	1:100, 1:20, 1:5	NL	SM
Date:	**Job No.**	**Sheet No.**	**Rev:**
November 2023	2324-040	04 of 06	01

Scale @ A3 Original Size Scale: 1:100
0 1 2 4 6 8 10 meters

50mm in original size A3

For General Notes, refer to Sheet 1



Ex.SW to connect to existing kerb connection. Existing kerb connection to be inspected and upgraded/repaired as required by builder/plumber.
IL:32.490

Site Drainage Plan

Scale 1:100

Downpipes:	DP1	= Ø90 P.V.C-U
	DP5	= Ø100 P.V.C-U
	Ex.DP	= Existing downpipe
Stormwater Pipe:	SW1	= Ø100 P.V.C-U laid @ 1% fall min.
Stormwater Pit:	PIT A	= 600 x600 x 600 Concrete
Aerial Pipe:	AP2	= Ø100 P.V.C-U attached to side of building, laid @ 1% fall min.

Note:
HP denotes high point of grated drain.

PIT A DETAIL - 600x600x600 Concrete

Scale 1:20

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Tel: 9690 2547 Email: admin@harrisonmorris.com.au

Job description:	Proposed Additions & Alterations To Residence
Client:	Helen Oakman
Architect:	SAGO
Stormwater Engineering Drawing Title:	Site Drainage Plan
Address:	30 George Street, Manly NSW 2095
Original Sheet Size:	A3
Scale:	1:100, 1:20, 1:5
Drawn:	NL
Design:	SM
Date:	November 2023
Job No.	2324-040
Sheet No.	05 of 06
Rev:	01

Scale @ A3 Original Size Scale: 1:100
0 1 2 4 6 8 10 meters
50mm in original size A3

For General Notes, refer to Sheet 1

SCHEDULE OF CALCULATIONS		
ITEM	**VALUE**	**UNITS**
CATCHMENT DATA		
100I5 Rainfall intensity - BOM 13-11-23	264	mm/h
20I5 Rainfall intensity - BOM 13-11-23	202	mm/h
5I5 Rainfall intensity - BOM 13-11-23	151	mm/h
Site Area	183.79	m²
EXISTING		
Total Roof Area	127.25	m²
Total Additional Impervious Area	49.31	m²
Total Pervious Area	7.23	m²
Total Pool Area	0.00	m²
Total Runoff for Existing Catchment Q100	12.85	L/s
Total Runoff for Existing Catchment Q20	9.83	L/s
Total Runoff for Existing Catchment Q5	7.35	L/s
PROPOSED		
Total Roof Area	124.35	m²
Total Additional Impervious Area	39.30	m²
Total Pervious Area	20.14	m²
Total Pool Area	0.00	m²
Total Runoff for Proposed Catchment Q100	12.45	L/s
Total Runoff for Proposed Catchment Q20	9.53	L/s
Total Runoff for Proposed Catchment Q5	7.12	L/s

Northern Beaches Region 3, Zone 1: OSD not provided as site discharge has been reduced by 0.4L/s for the 1% 5 minute storm.
Surface runoff to rear has been reduced as pervious area has been increased.

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Job description: Proposed Additions & Alterations To Residence

Client: Helen Oakman

Architect: SAGO

Stormwater Engineering Drawing Title: Schedule of Calculations

Address: 30 George Street, Manly NSW 2095

Original Sheet Size	Scale	Drawn	Design
A3	1:100, 1:20, 1:5	NL	SM

Date	Job No.	Sheet No.	Rev
November 2023	2324-040	06 of 06	01

Scale @ A3 Original Size Scale: 1:100
0 1 2 4 6 8 10 meters

50mm in original size A3