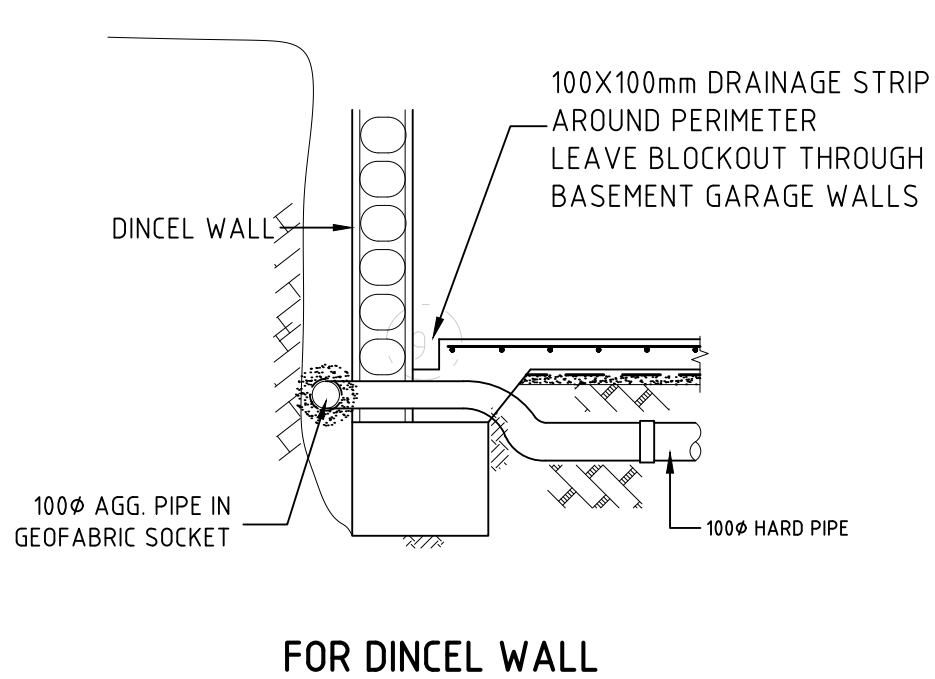
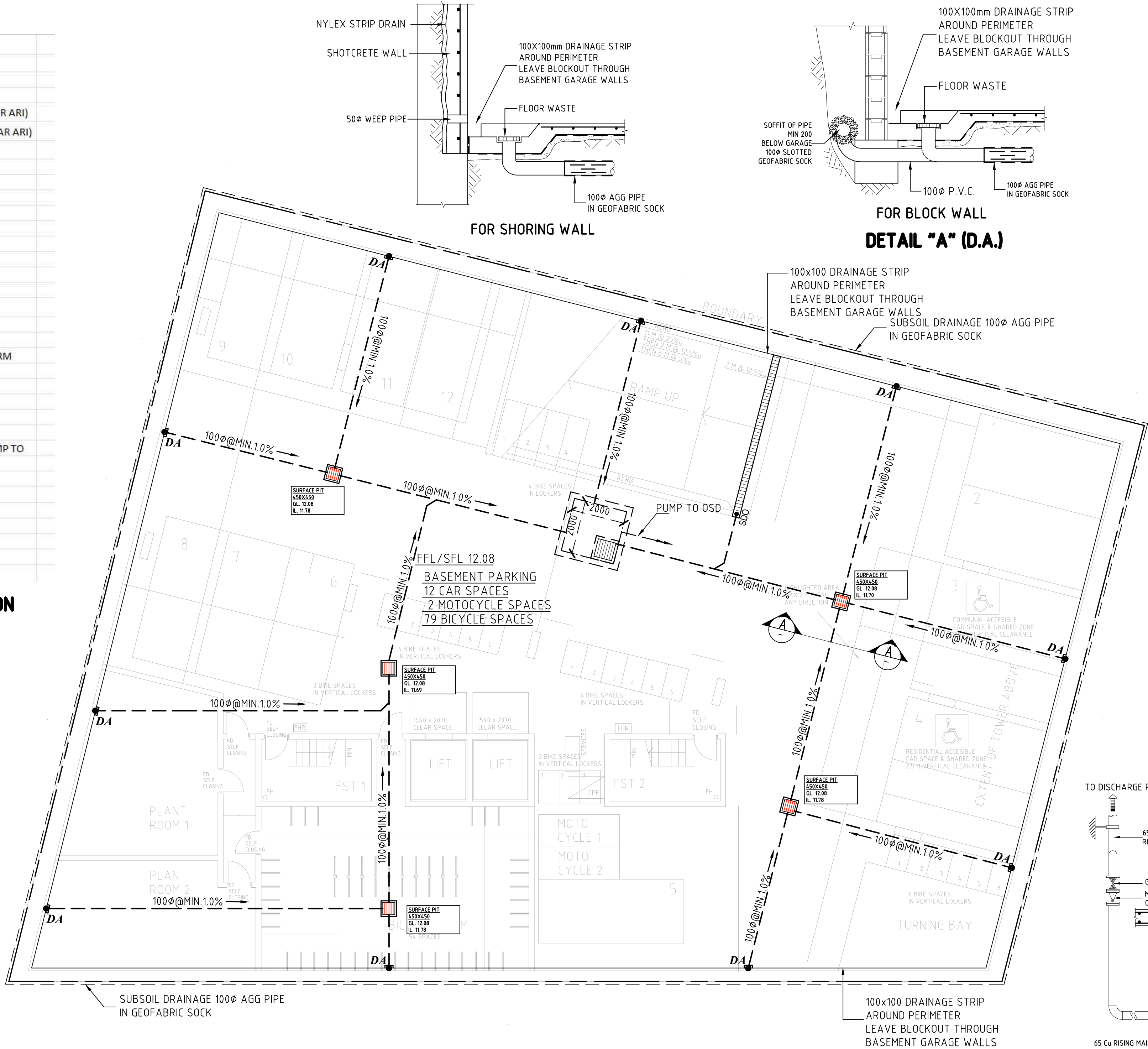
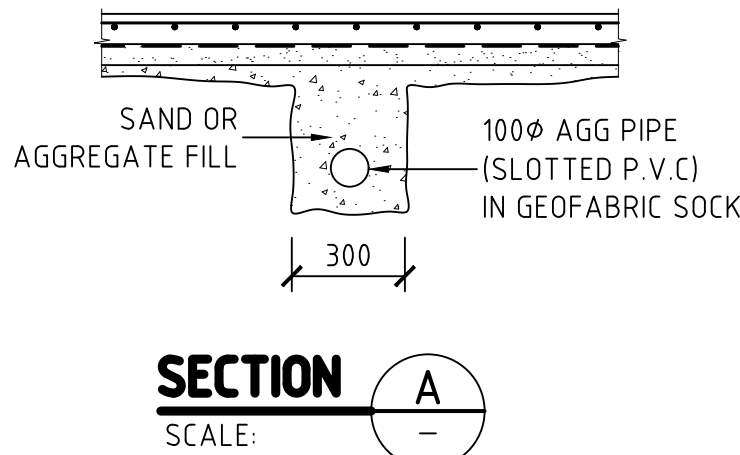
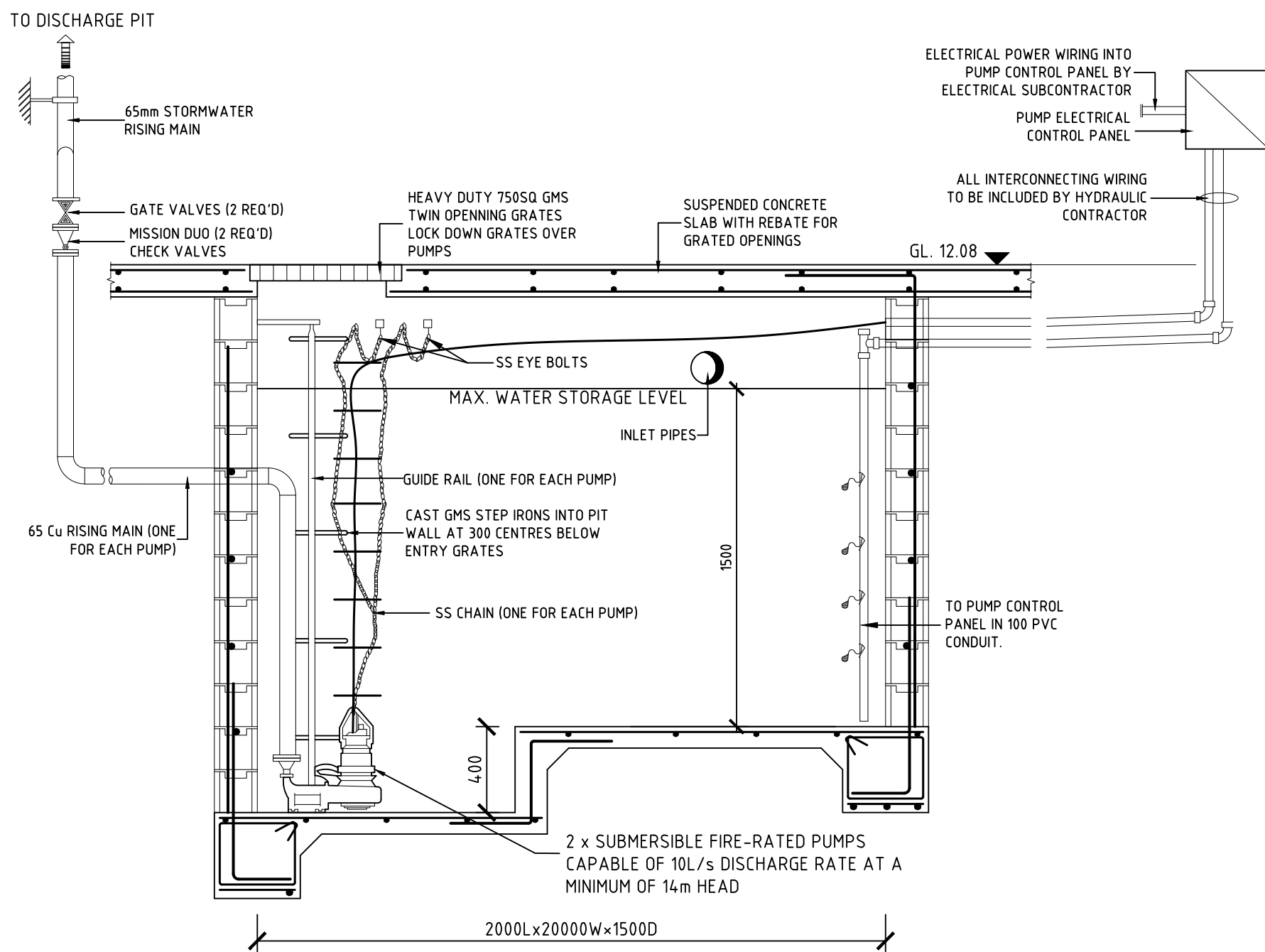


STORMWATER PUMPOUT SYSTEM DESIGN REQUIREMENTS				
ADDRESS: 465-469 PRINCES HWY & 5-7 GEEVES AVE ROCKDALE				
1. ARI	I ₅₀ =	38.9	mm	(2 Hour 50 YEAR ARI)
	I ₁₀₀ =	215	mm	(6 Min. 100 YEAR ARI)
2. AREA DRAINING TO BASEMENT SUMP(A)		120	m ²	
3. STORAGE REQUIREMENTS				
MINIMUM BLOCKOUT STORAGE: 1 HOURS, 50 YEARS ARI STORM				
Q	=	FxCxAxI		
	=	1/3600x1xAxI		
	=	1.30	L/Sec	
V	=	Qxt		
	=	Qx1x3600 L		
	=	4.67	m ³	
4. PUMP REQUIREMENTS				
PUMP DISCHARGE REQUIREMENTS: 6 MINUTES, 100 YEAR ARI STORM				
Q	=	FxCxAxI		
	=	1/3600x1xAxI		
	=	7.17	L/Sec	
5. ADOPT	10	L/Sec		
FOR EACH PUMP WITH HIGH LEVEL ON SWITCH FOR STANDBY PUMP TO PROVIDE A TOTAL DISCHARGE OF				
	20	L/Sec		
6. PUMPOUT TANK SIZES				
LENGTH (L)	2	m		
WIDTH(B)	2	m		
DEPTH (D)	1.5	m		
VOLUME(V)	6	m ³		

BASEMENT STORMWATER PUMP CALCULATION



FOR DINCEL WALL



BASEMENT STORMWATER SUMP

ABBREVIATIONS

AH----	ACCESS HATCH
DDO----	DISH DRAIN OUTLET
CO----	CLEAR OUT
DCP----	DISCHARGE CONTROL PIT
DP----	DOWNPIPE
FFL----	FINISH FLOOR LEVEL
FW----	FLOOR WASTE
GL----	GROUND FLOOR LEVEL
IL----	INVERT LEVEL
OSD----	ON SITE DETENTION
PD----	PLANTERS DRAIN
PF0----	PLANTER FLOOR OUTLET
PP----	PLANTER PIT
RH----	RAINWATER HEAD
RP----	RELN PIT
RO----	ROOF OUTLET
SDO----	STRIP DRAIN OUTLET
SIP----	SURFACE INLET PIT
STP----	SILT TRAP PIT
SP----	SPREADER
TD----	TUN DISH

REV.	DATE	BY	CHECKED	AMENDMENTS
C	28 AUG 24	L.Z.	S.W.W.	UPDATE FOR DA SUBMISSION
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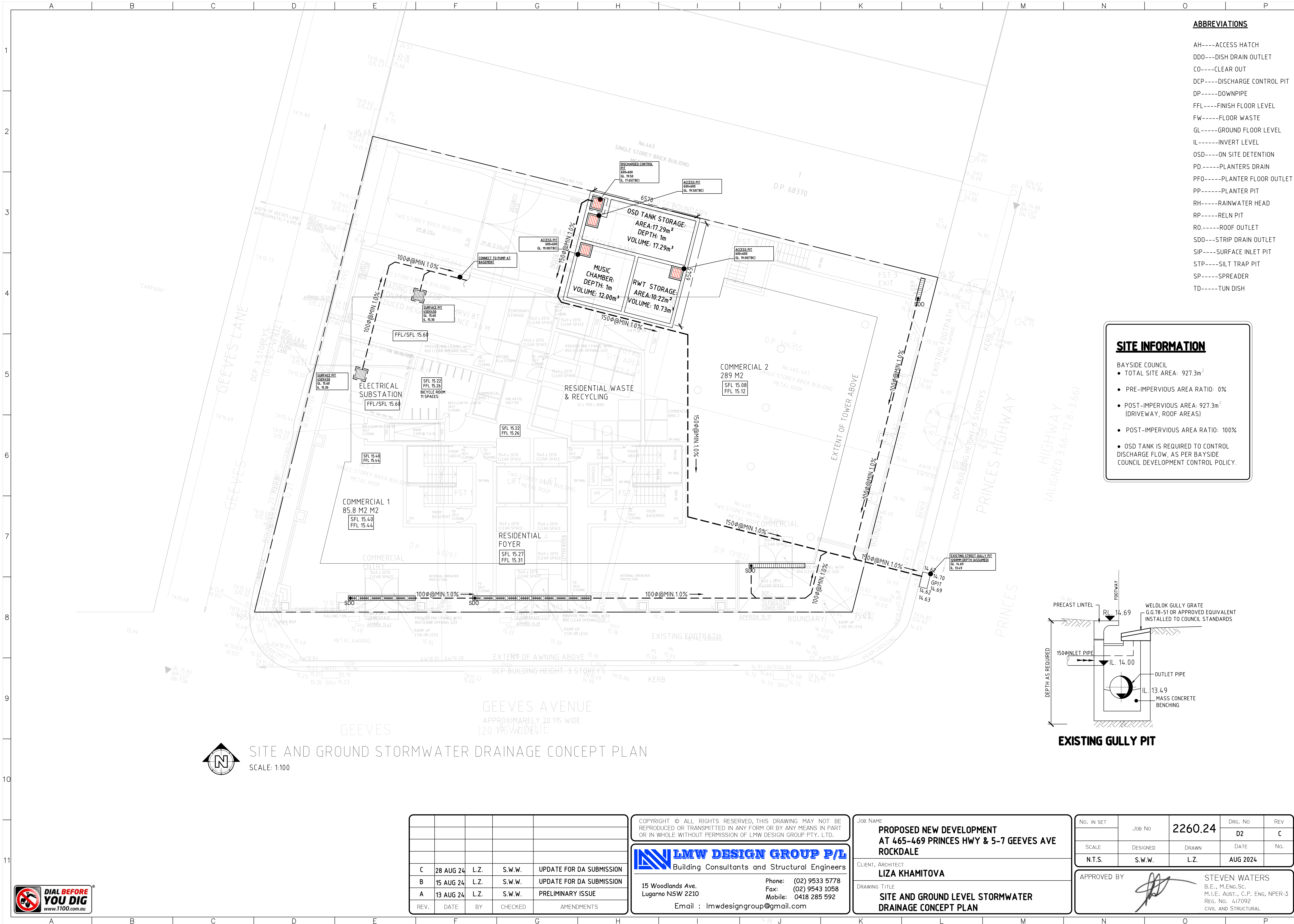
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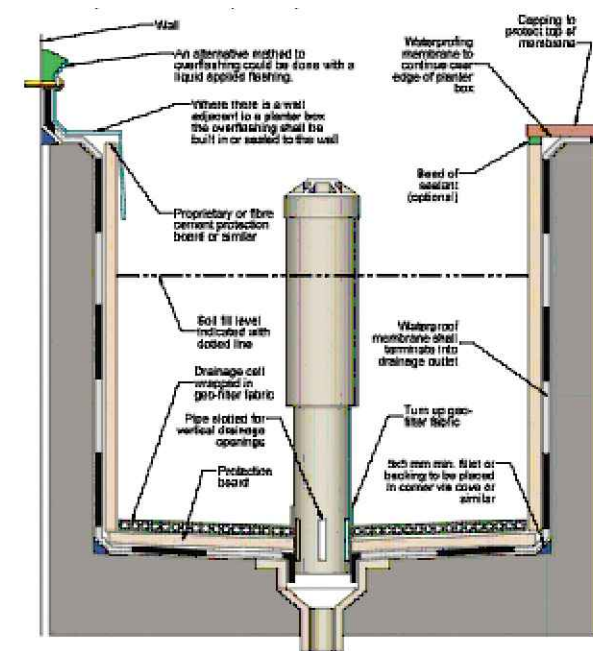
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**BASEMENT LEVEL STORMWATER DRAINAGE
CONCEPT PLAN**

No. IN SET	JOB No	2260.24	DRG. No	REV
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SCALE	DESIGNED	DRAWN	DATE	No.
N.T.S.	S.W.W.	L.Z.	AUG 2024	

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CIVIL AND STRUCTURAL



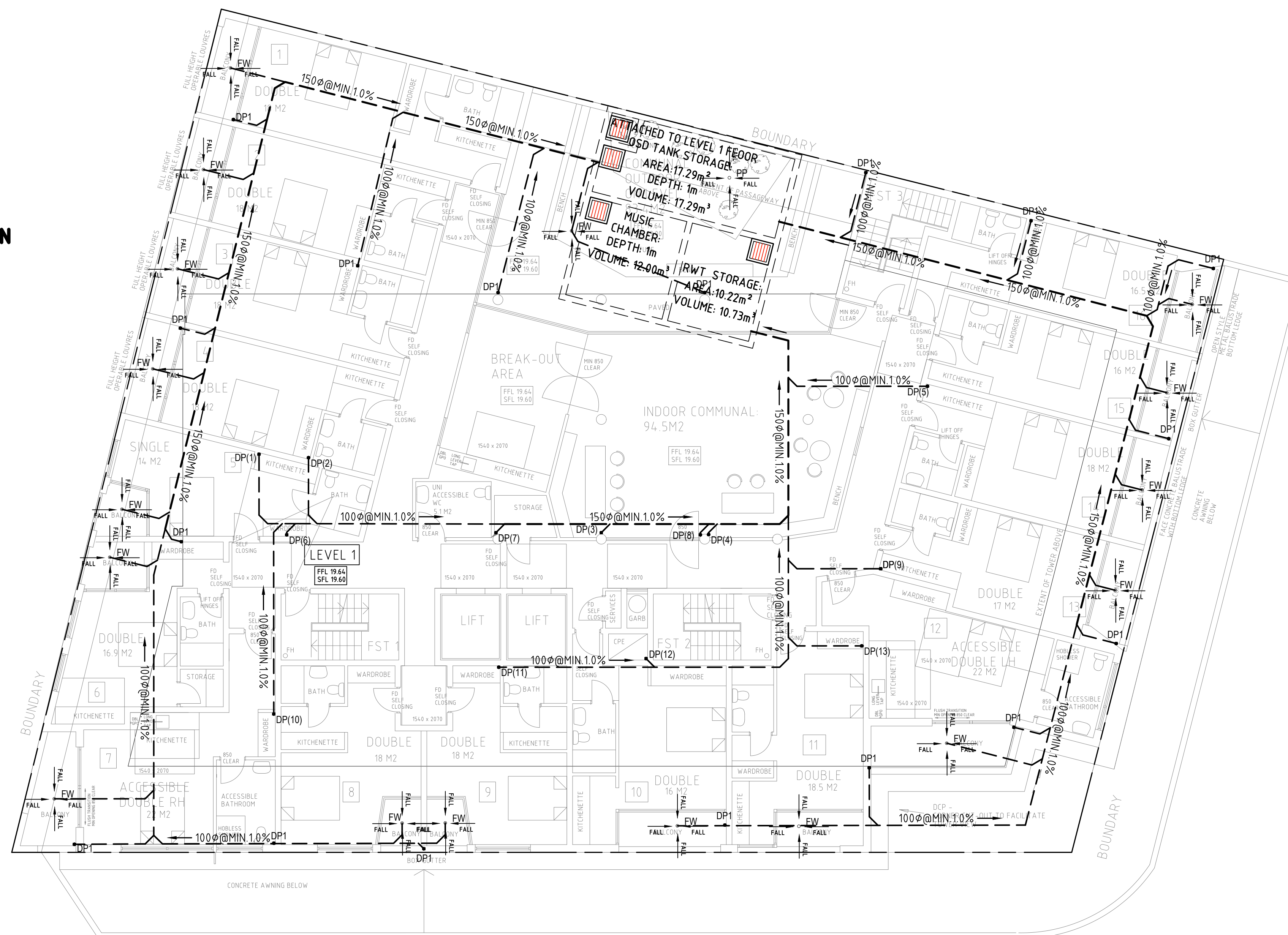




PLANTER BOX DRAINAGE SECTION

ABBREVIATIONS

- AH----ACCESS HATCH
- DDO---DISH DRAIN OUTLET
- CO----CLEAR OUT
- DCP----DISCHARGE CONTROL PIT
- DP-----DOWNPIPE
- FFL----FINISH FLOOR LEVEL
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- GL-----GROUND FLOOR LEVEL
- IL-----INVERT LEVEL
- OSD----ON SITE DETENTION
- PD-----PLANTERS DRAIN
- PF0-----PLANTER FLOOR OUTLET
- PP-----PLANTER PIT
- RH-----RAINWATER HEAD
- RP-----RELN PIT
- RO-----ROOF OUTLET
- SDO---STRIP DRAIN OUTLET
- SIP----SURFACE INLET PIT
- STP----SILT TRAP PIT
- SP-----SPREADER
- TD-----TUN DISH



LEVEL 1 STORMWATER DRAINAGE CONCEPT PLAN

SCALE: 1:100

REV.	DATE	BY	CHECKED	AMENDMENTS
C	28 AUG 24	L.Z.	S.W.W.	UPDATE FOR DA SUBMISSION
B	15 AUG 24	L.Z.	S.W.W.	UPDATE FOR DA SUBMISSION
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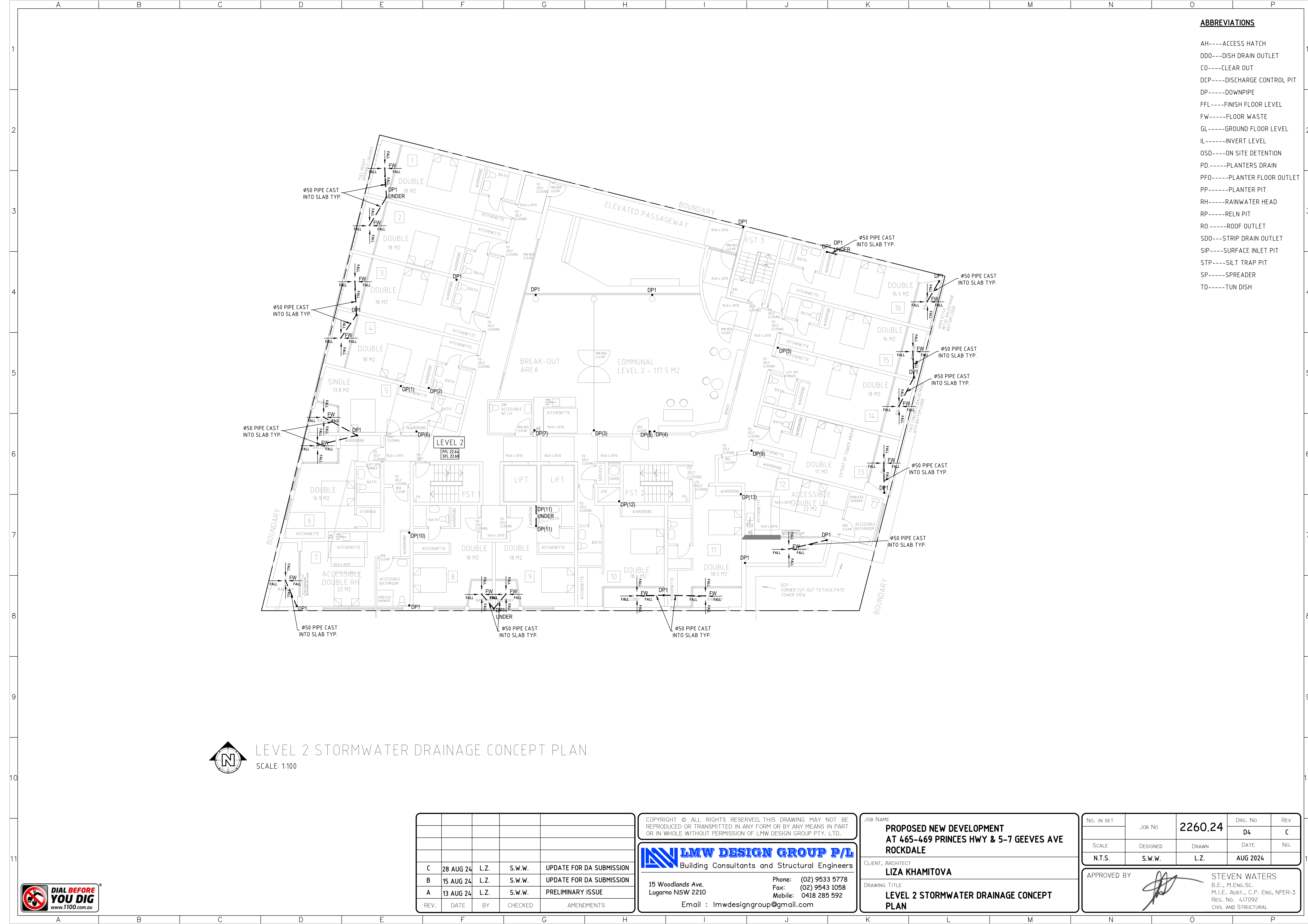
CLIENT, ARCHITECT:
LIZA KHAMITOVA

DRAWING TITLE:
**LEVEL 1 STORMWATER DRAINAGE CONCEPT
PLAN**

No. IN SET	JOB No	2260.24	DRG. No	REV
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LEVEL 2 STORMWATER DRAINAGE CONCEPT PLAN

SCALE: 1:100

REV.	DATE	BY	CHECKED	AMENDMENTS
C	28 AUG 24	L.Z.	S.W.W.	UPDATE FOR DA SUBMISSION
B	15 AUG 24	L.Z.	S.W.W.	UPDATE FOR DA SUBMISSION
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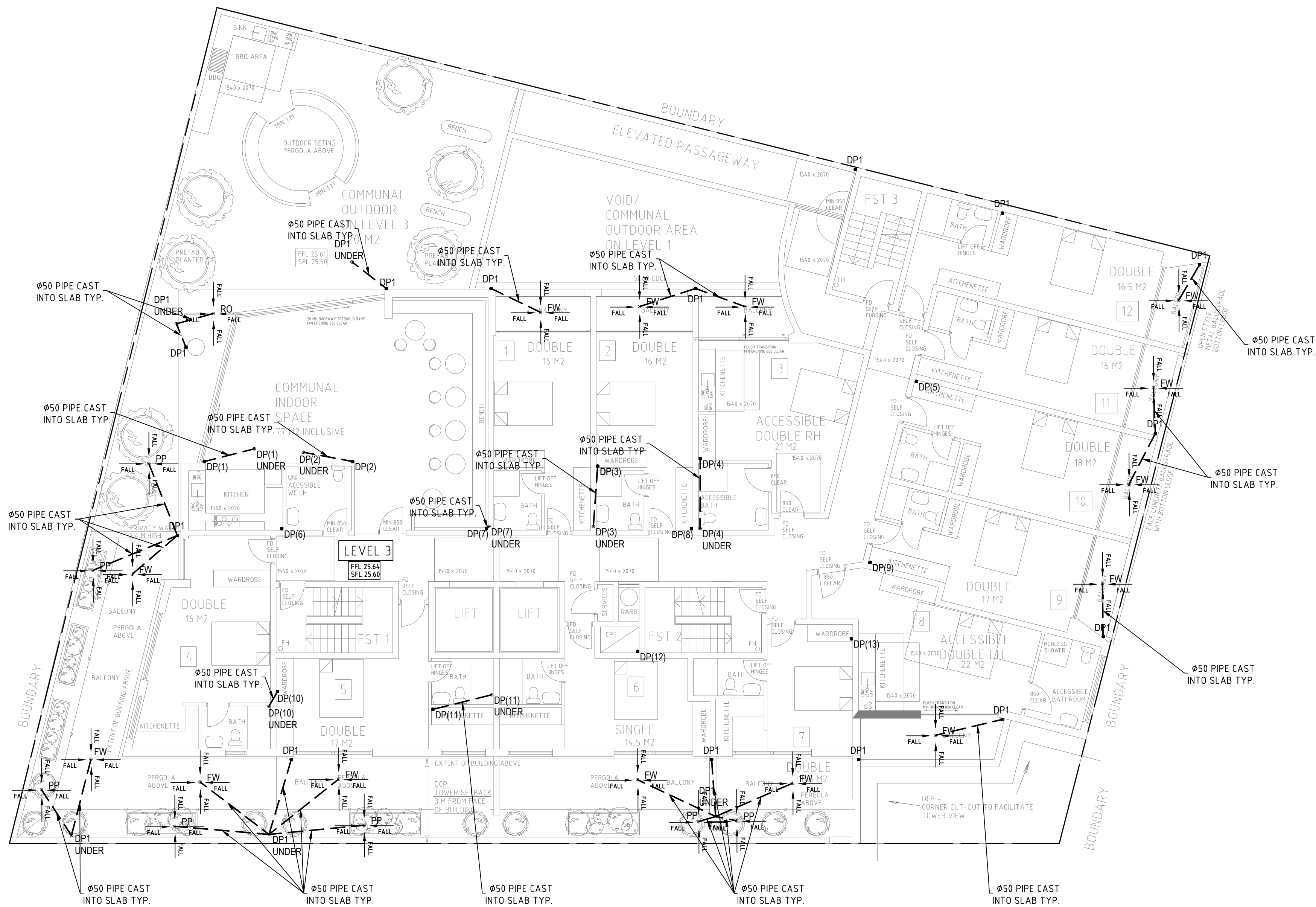
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LIZA KHAMITOVA

DRAWING TITLE
**LEVEL 2 STORMWATER DRAINAGE CONCEPT
PLAN**

No. IN SET	JOB No	2260.24	DRG. No	REV
			D4	C
SCALE	DESIGNED	DRAWN	DATE	No.
N.T.S.	S.W.W.	L.Z.	AUG 2024	

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- SP-----SPREADER
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LEVEL 3 STORMWATER DRAINAGE CONCEPT PLAN

SCALE: 1:100

REV.	DATE	BY	CHECKED	AMENDMENTS
C	28 AUG 24	L.Z.	S.W.W.	UPDATE FOR DA SUBMISSION
B	15 AUG 24	L.Z.	S.W.W.	UPDATE FOR DA SUBMISSION
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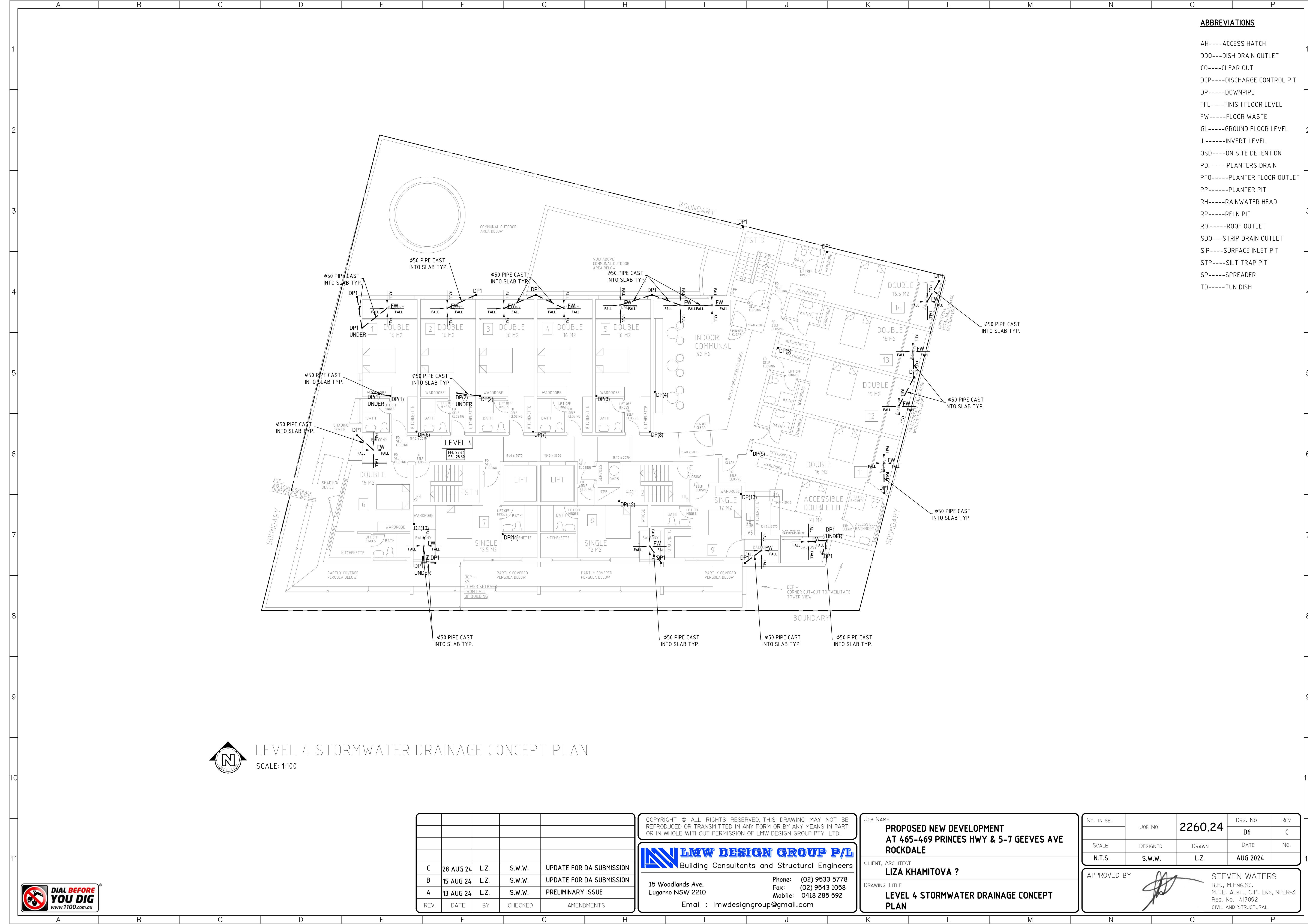
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DRAWING TITLE:
**LEVEL 3 STORMWATER DRAINAGE CONCEPT
PLAN**

No. IN SET	JOB No	2260.24	DRG. No	REV
			D5	C
SCALE	DESIGNED	DRAWN	DATE	No.
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ABBREVIATIONS

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- RO-----ROOF OUTLET
- SDO---STRIP DRAIN OUTLET
- SIP----SURFACE INLET PIT
- STP----SILT TRAP PIT
- SP-----SPREADER
- TD-----TUN DISH



LEVEL 4 STORMWATER DRAINAGE CONCEPT PLAN
SCALE: 1:100

C	28 AUG 24	L.Z.	S.W.W.	UPDATE FOR DA SUBMISSION
B	15 AUG 24	L.Z.	S.W.W.	UPDATE FOR DA SUBMISSION
A	13 AUG 24	L.Z.	S.W.W.	PRELIMINARY ISSUE
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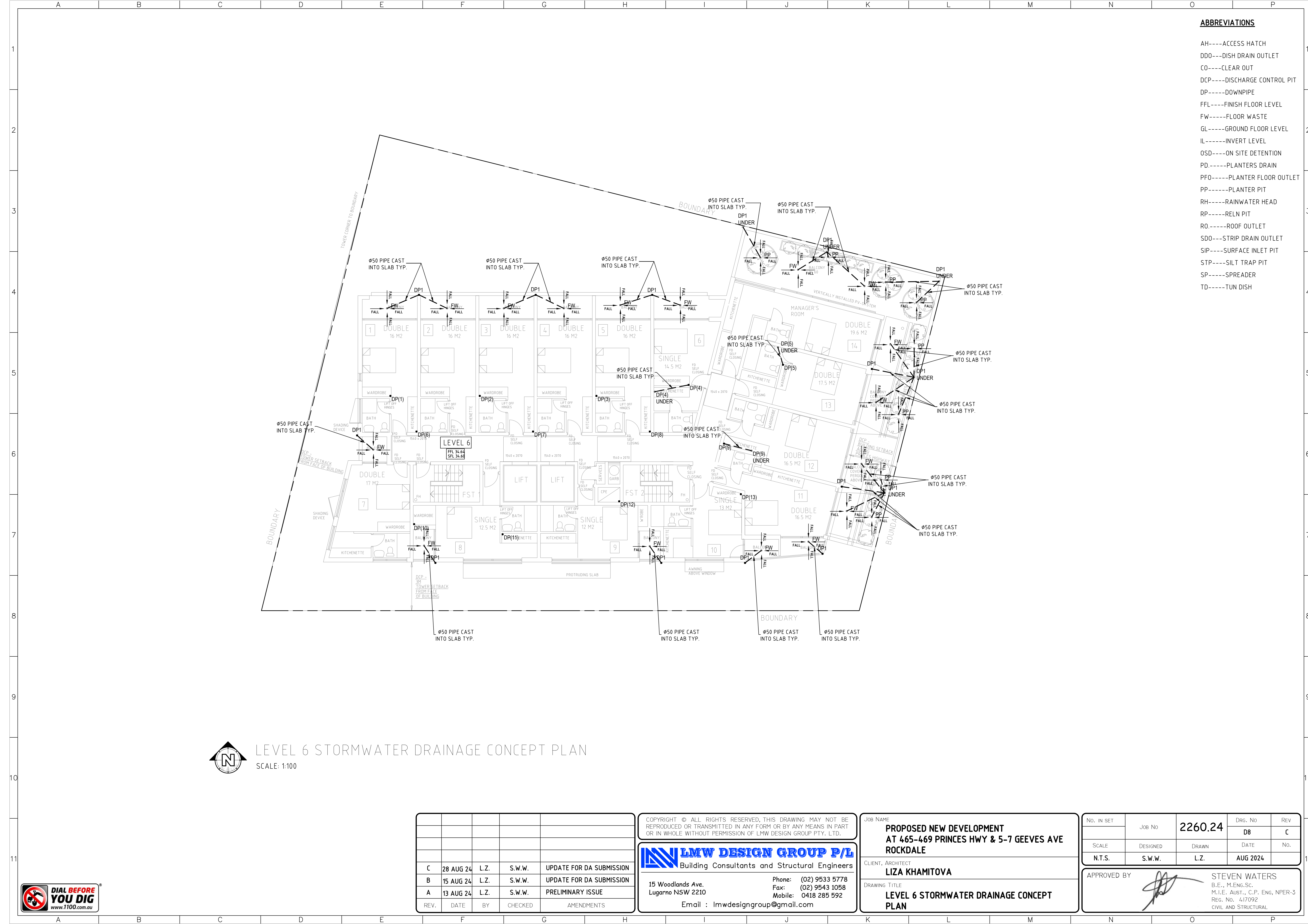
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ROCKDALE**

CLIENT, ARCHITECT
LIZA KHAMITOVA ?

DRAWING TITLE
**LEVEL 4 STORMWATER DRAINAGE CONCEPT
PLAN**

No. IN SET	JOB No	2260.24	DRG. No	REV
			D6	C
SCALE	DESIGNED	DRAWN	DATE	No.
N.T.S.	S.W.W.	L.Z.	AUG 2024	
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ABBREVIATIONS

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- SIP----SURFACE INLET PIT
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- SP-----SPREADER
- TD-----TUN DISH



LEVEL 6 STORMWATER DRAINAGE CONCEPT PLAN

SCALE: 1:100

C	28 AUG 24	L.Z.	S.W.W.	UPDATE FOR DA SUBMISSION
B	15 AUG 24	L.Z.	S.W.W.	UPDATE FOR DA SUBMISSION
A	13 AUG 24	L.Z.	S.W.W.	PRELIMINARY ISSUE
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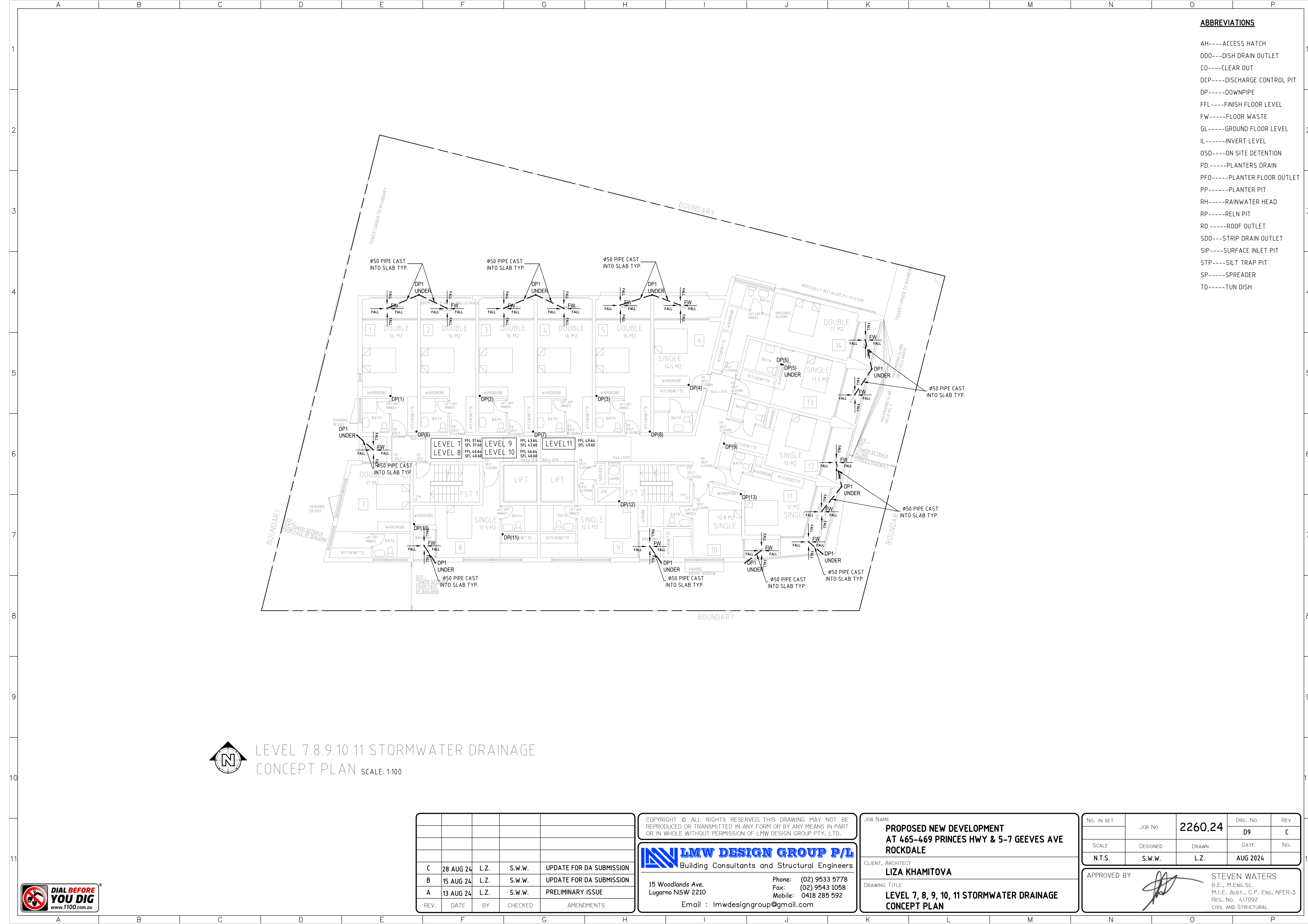
JOB NAME:
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AT 465-469 PRINCES HWY & 5-7 GEEVES AVE
ROCKDALE**

CLIENT, ARCHITECT
LIZA KHAMITOVA

DRAWING TITLE
**LEVEL 6 STORMWATER DRAINAGE CONCEPT
PLAN**

No. IN SET	JOB No	2260.24	DRG. No	REV
			D8	C
SCALE	DESIGNED	DRAWN	DATE	No.
N.T.S.	S.W.W.	L.Z.	AUG 2024	
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ABBREVIATIONS

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- DCP----DISCHARGE CONTROL PIT
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- IL-----INVERT LEVEL
- OSD-----ON SITE DETENTION
- PD-----PLANTERS DRAIN
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- PP-----PLANTER PIT
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- RP-----RELN PIT
- RO-----ROOF OUTLET
- SDO---STRIP DRAIN OUTLET
- SIP----SURFACE INLET PIT
- STP----SILT TRAP PIT
- SP-----SPREADER
- TD-----TUN DISH



LEVEL 7,8,9,10,11 STORMWATER DRAINAGE
CONCEPT PLAN SCALE: 1:100

C	28 AUG 24	L.Z.	S.W.W.	UPDATE FOR DA SUBMISSION
B	15 AUG 24	L.Z.	S.W.W.	UPDATE FOR DA SUBMISSION
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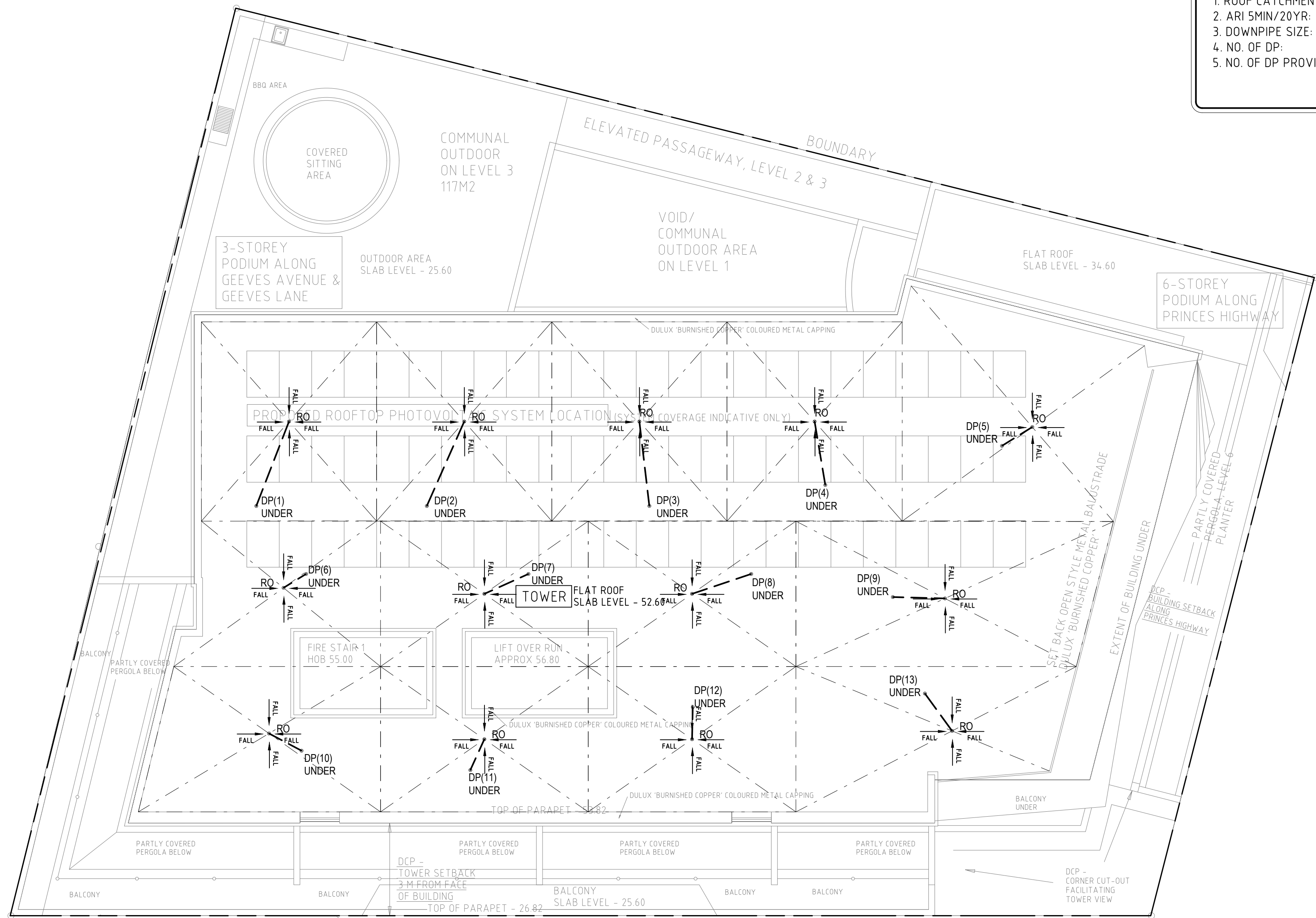
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CLIENT, ARCHITECT
LIZA KHAMITOVA

DRAWING TITLE
**LEVEL 7, 8, 9, 10, 11 STORMWATER DRAINAGE
CONCEPT PLAN**

No. IN SET	JOB No	2260.24	DRG. No	REV
			D9	C
SCALE	DESIGNED	DRAWN	DATE	No.
N.T.S.	S.W.W.	L.Z.	AUG 2024	
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DOWNPIPE SIZING:

ALL THE DOWNPIPES ARE DESIGNED FOR A 1:20 ARI, 179mm/h.

- | | |
|-------------------------|----------------------|
| 1. ROOF CATCHMENT AREA: | 523m ² |
| 2. ARI 5MIN/20YR: | 179mm/h |
| 3. DOWNPIPE SIZE: | Ø100mm or 100 x 75mm |
| 4. NO. OF DP: | 12.6 = 13 DP |
| 5. NO. OF DP PROVIDED: | 13DP |

ABBREVIATIONS

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RH-----RAINWATER HEAD
RP-----RELN PIT
RO-----ROOF OUTLET
SDO---STRIP DRAIN OUTLET
SIP----SURFACE INLET PIT
STP----SILT TRAP PIT
SP-----SPREADER
TD-----TUN DISH



ROOF STORMWATER DRAINAGE CONCEPT PLAN

SCALE: 1:100

C	28 AUG 24	L.Z.	S.W.W.	UPDATE FOR DA SUBMISSION
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LIZA KHAMITOVA

DRAWING TITLE
**ROOF LEVEL STORMWATER DRAINAGE CONCEPT
PLAN**

No. IN SET	JOB No	2260.24	DRG. No	REV
			D10	C
SCALE	DESIGNED	DRAWN	DATE	No.
N.T.S.	S.W.W.	L.Z.	AUG 2024	

APPROVED BY

STEVEN WATERS
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REG. No. 447092
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PRE & POST-DEVELOPMENT OSD REQUIREMENTS:

LOT AREA (m2)	PRE-DEV IMPERVIOUS (%)	POST-DEV IMPERVIOUS (%)	STORM (YR)	PRE-DEV FLOW (m3/s)	POST-DEV FLOW (m3/s)	PIPE OUTFLOW (m3/s)	BYPASS FLOW (m3/s)	TOTAL PSD (m3/s)	OSD VOLUME (m3) FOR 100 YR STORM STORAGE
927.3	0	100	5	0.017	0.031	0.018	0	0.018	15.1
			10	0.021	0.027	0.02	0	0.02	
			20	0.025	0.041	0.022	0	0.022	
			50	0.029	0.049	0.024	0	0.024	
			100	0.033	0.053	0.026	0	0.026	

NOTE 1: PSD IS TO BE CALCULATED ON THE MAXIMUM ALLOWABLE IMPERVIOUS FRACTION OF 0%

DRAINS MODEL RESULTS

Detention Basin

Data

Initial Water Level

Infiltration Data

Name

Basin2

Low Level Outlet Type (connecting to a pipe)

☒ Orifice

☐ Pit/Sump

☐ Circular culvert

☐ Rectangular culvert

☐ Other or None

Dia. (mm)

120

Centre Elev. (m)

13.94

Orifice Sizing Wizard

Elev. (m)

Surf. Area (sq. m)

1

13.879

2

2

13.88

21

3

14.78

21

4

5

6

7

8

Paste Table

☐ High Early Discharge

Notes

Note: The prismatic formula is used to calculate volumes from surface areas. Click Help for more details.

OSD CALCULATION FOR 1-100 YRS:

REQUIRED OSD VOLUME BY DRAINS: 18.89m³
RAINWATER TANK: 10 M³
REQUIRED OSD VOLUME AFTER RWT OFFSET(4): 15.56 M³
REQUIRED UNDER GROUND OSD TANK AREA:15.56 m²
POSED UNDER GROUND OSD TANK AREA:17.29 m²
DESIGNED WATER DEPTH:1m
PROPOSED OSD TANK VOLUME: 17.29 m³

DRAINS LAYOUT

MAINTENANCE ACTION	FREQUENCY	RESPONSIBILITY	PROCEDURE
Outlets			
Inspect & remove any blockage of orifices	Six monthly	Owner	Remove grate & screen to inspect orifice. See plan for location of outlets
Check attachment of orifice plates to wall of chamber and/or pit (gaps less than 5 mm)	Annually	Maintenance Contractor	Remove grate and screen. Ensure plates are mounted securely, tighten fixings if required. Seal gaps as required.
Check orifice diameters are correct and retain sharp edges	Five yearly	Maintenance Contractor	Compare diameter to design (see Work-as-Executed) and ensure edge is not pitted or damaged.
Inspect screen and clean	Six monthly	Owner	Remove grate(s) and screens if required to clean them.
Check attachment of screens to wall of chamber or pit	Annually	Maintenance Contractor	Remove grate(s) and screen(s). Ensure screen fixings are secure. Repair as required.
Check screen(s) for corrosion	Annually	Maintenance Contractor	Remove grate(s) and examine screen(s) for rust or corrosion, especially at corners or welds.
Inspect walls (internal and external, if appropriate) for cracks or spalling	Annually	Maintenance Contractor	Remove grate(s) to inspect internal walls. Repair as required. Clear vegetation from external walls if necessary and repair as required.
Inspect outlet sumps & remove any sediment/sludge	Six monthly	Owner	Remove grate(s) and screen(s). Remove sediment/sludge build-up and check orifices are clear.
Inspect grate(s) for damage or blockage	Six monthly	Owner	Check both sides of a grate for corrosion, (especially corners and welds) damage or blockage.
Inspect outlet pipe & remove any blockage	Six monthly	Maintenance Contractor	Remove grate(s) and screen(s). Ventilate underground storage if present. Check orifices and remove any blockages in outlet pipe. Flush outlet pipe to confirm it drains freely. Check for sludge/debris on upstream side of return line.
Check step irons for corrosion	Annually	Maintenance Contractor	Remove grate. Examine step irons and repair any corrosion or damage.
Check fixing of step irons is secure	Six monthly	Maintenance Contractor	Remove grate(s) and ensure fixings are secure prior to placing weight on step iron.
Storage			
Inspect storage & remove any sediment/sludge in pit	Six monthly	Owner	Remove grate(s) and screen(s). Remove sediment/sludge build-up.
Inspect internal walls of storage (and external, if appropriate) for cracks or spalling	Annually	Maintenance Contractor	Remove grate(s) to inspect internal walls. Repair as required. Clear vegetation from external walls if necessary and repair as required.
Inspect & remove any debris/litter/mulch etc blocking grates	Six monthly	Owner	Remove blockages from grate(s) and check if storage is blocked.
Inspect areas draining to the storage(s) & remove debris/mulch/litter etc likely to block screens/grates	Six monthly	Owner	Remove debris and floatable material likely to be carried to grates.
Compare storage volume to volume approved. (Rectify if loss > 5%)	Annually	Maintenance Contractor	Compare actual storage available with Work-as Executed plans. If volume loss is greater than 5%, arrange for reconstruction to replace the volume lost. Council to be notified of the proposal.
Inspect storages for subsidence near pits	Annually	Maintenance Contractor	Check along drainage lines and at pits for subsidence likely to indicate leakages.

OSD MAINTENANCE SCHEDULE

A	13 AUG 24	L.Z.	S.W.W.	PRELIMINARY ISSUE
REV.	DATE	BY	CHECKED	AMENDMENTS

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JOB NAME

PROPOSED NEW DEVELOPMENT
AT 465-469 PRINCES HWY & 5-7 GEEVES AVE
ROCKDALE

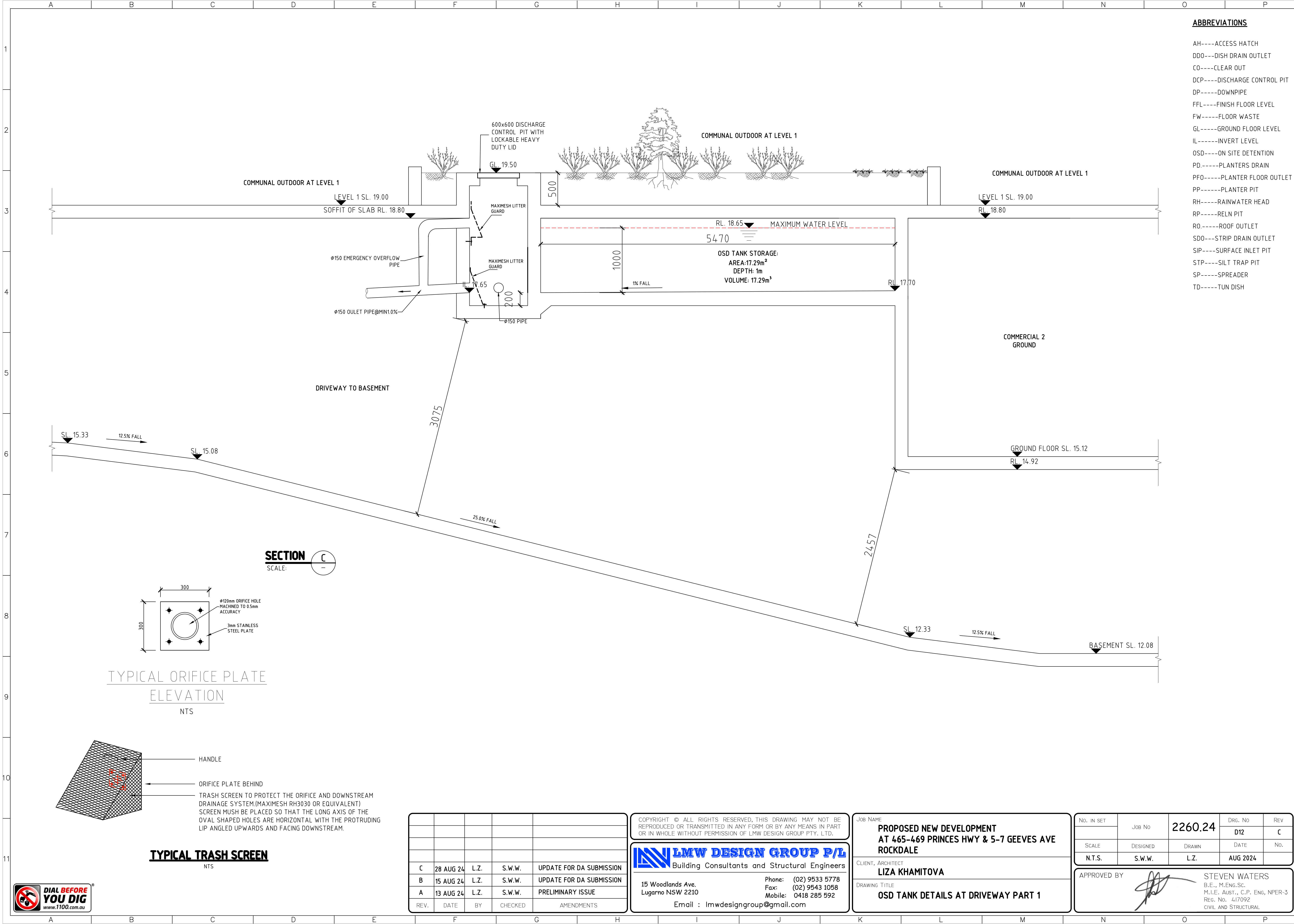
CLIENT, ARCHITECT

LIZA KHAMITOVA

DRAWING TITLE

OSD CALCULATION AND DRAINS RESULTS

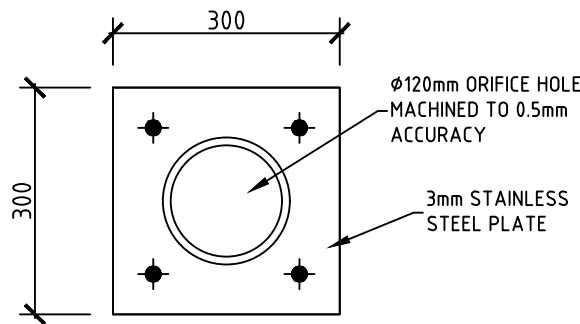
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SCALE	DESIGNED	DRAWN	DATE	No.
N.T.S.	S.W.W.	L.Z.	AUG 2024	
APPROVED BY		STEVEN WATERS B.E., M.Eng.Sc. M.I.E., AUST., C.P. Eng, NPER-3 REG. No. 447092 CIVIL AND STRUCTURAL		



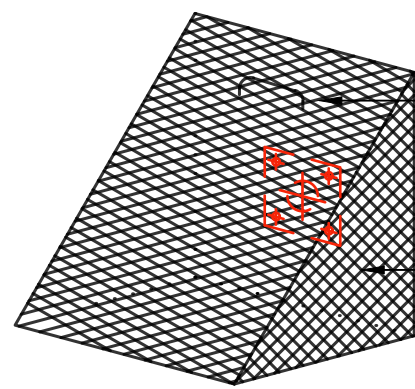
ABBREVIATIONS

- AH----ACCESS HATCH
- DDO---DISH DRAIN OUTLET
- CO----CLEAR OUT
- DCP----DISCHARGE CONTROL PIT
- DP-----DOWNPIPE
- FFL----FINISH FLOOR LEVEL
- FW-----FLOOR WASTE
- GL-----GROUND FLOOR LEVEL
- IL-----INVERT LEVEL
- OSD----ON SITE DETENTION
- PD-----PLANTERS DRAIN
- PFO----PLANTER FLOOR OUTLET
- PP-----PLANTER PIT
- RH-----RAINWATER HEAD
- RP-----RELN PIT
- RO-----ROOF OUTLET
- SDO---STRIP DRAIN OUTLET
- SIP----SURFACE INLET PIT
- STP----SILT TRAP PIT
- SP-----SPREADER
- TD-----TUN DISH

SECTION C
SCALE:



TYPICAL ORIFICE PLATE
ELEVATION
NTS



- HANDLE
- ORIFICE PLATE BEHIND
- TRASH SCREEN TO PROTECT THE ORIFICE AND DOWNSTREAM DRAINAGE SYSTEM.(MAXIMESH RH3030 OR EQUIVALENT) SCREEN MUST BE PLACED SO THAT THE LONG AXIS OF THE OVAL SHAPED HOLES ARE HORIZONTAL WITH THE PROTRUDING LIP ANGLED UPWARDS AND FACING DOWNSTREAM.

TYPICAL TRASH SCREEN
NTS

REV.	DATE	BY	CHECKED	AMENDMENTS
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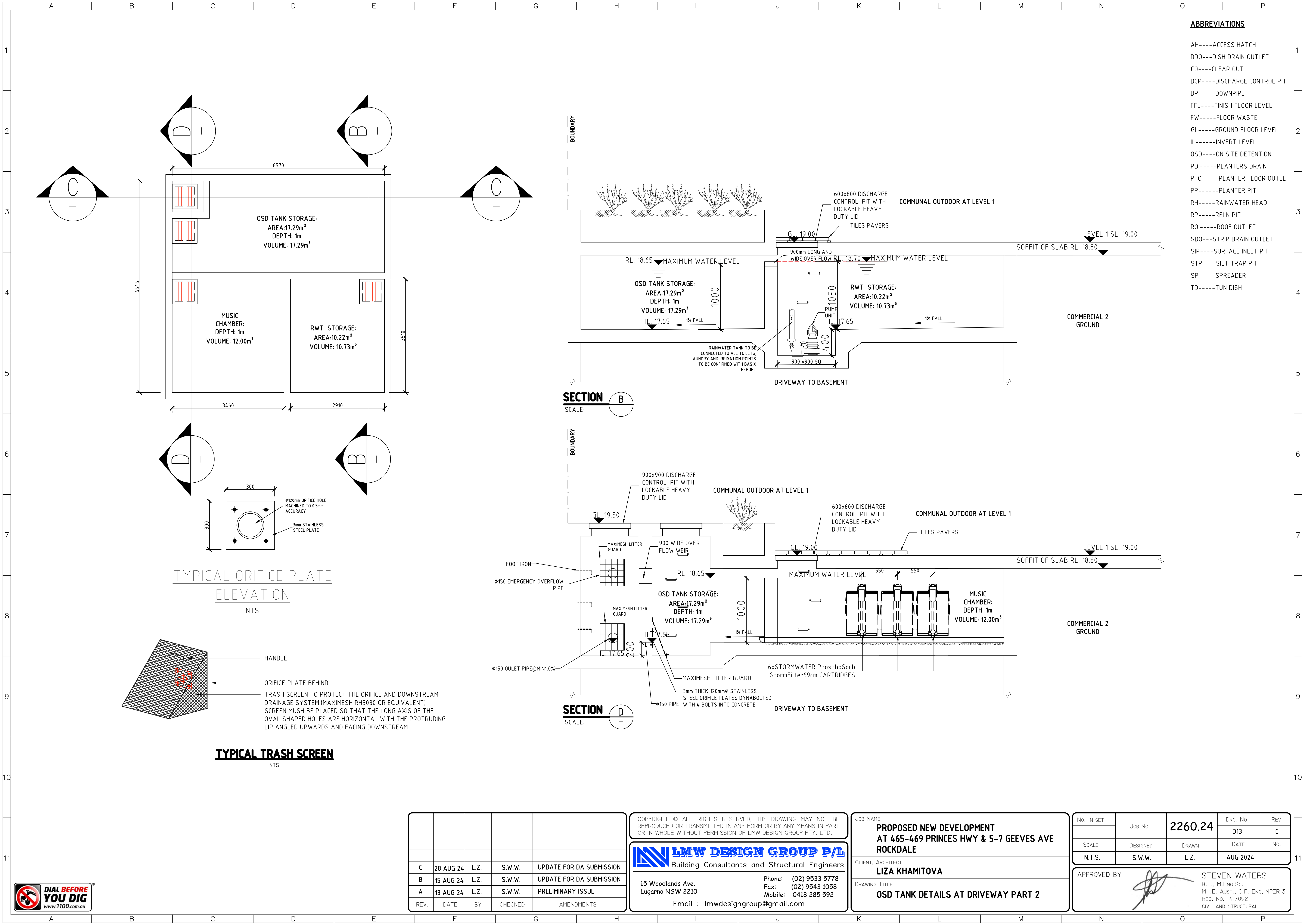
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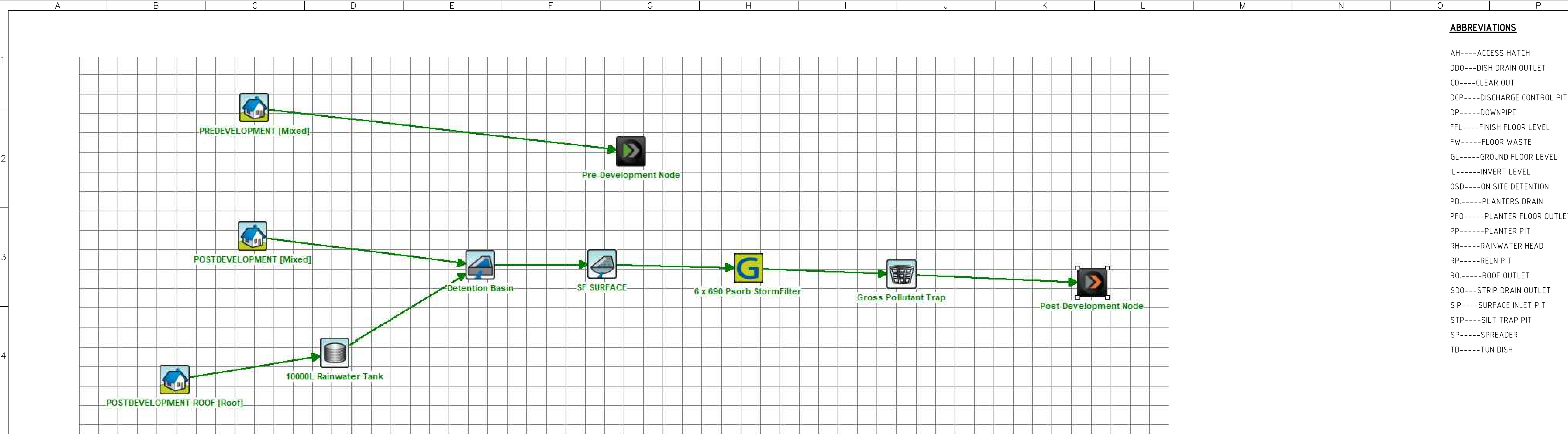
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B.E., M.Eng.Sc.
M.I.E. AUSTR., C.P. ENG, NPER-3
REG. NO. 417092
CIVIL AND STRUCTURAL







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MUSIC MODELING

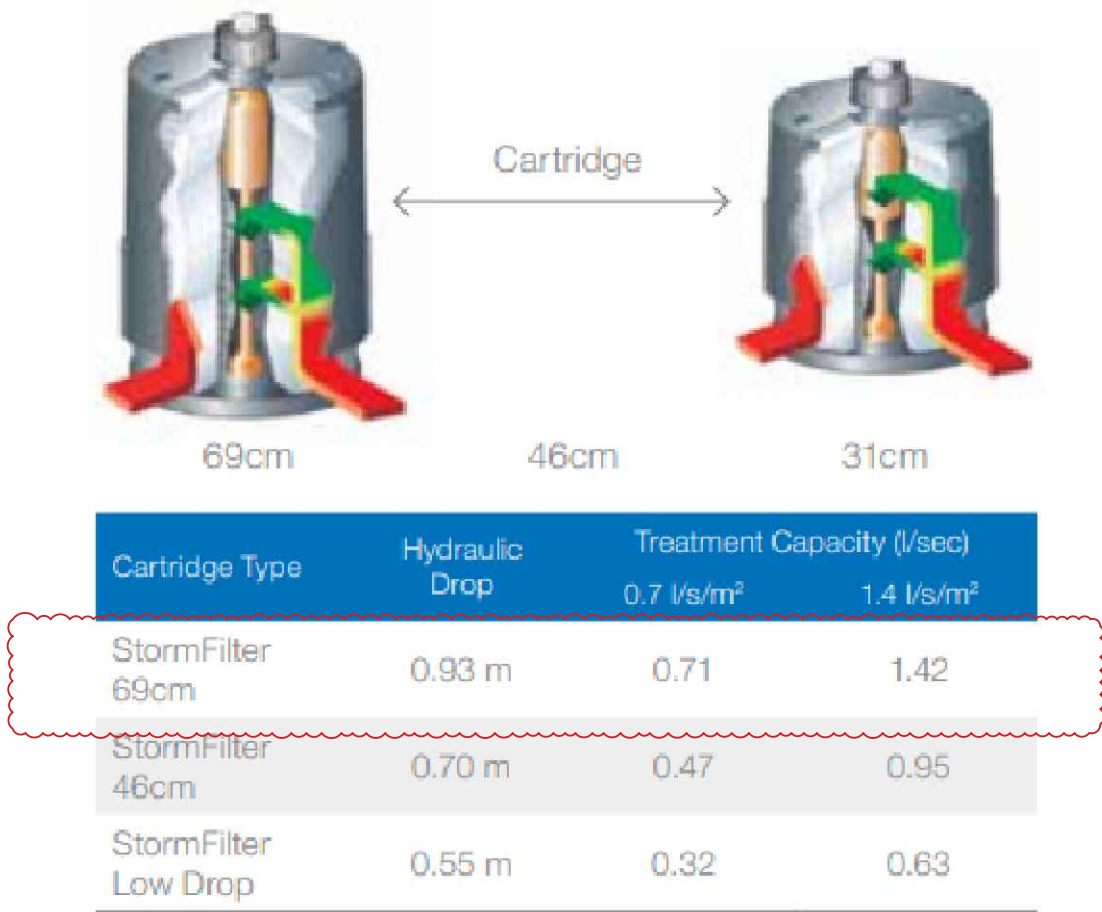
Stormwater Pollutant	Pollutant Reduction
Gross pollutants	90%
Total suspended solids (TSS)	85%
Total phosphorous (TP)	60%
Total nitrogen (TN)	45%

Table 5 - Stormwater Pollution Reduction Targets

MUSIC TARGET - BAYSIDE COUNCIL

	Sources	Residual Load	% Reduction
Flow (ML/yr)	0.861	0.84	2.44
Total Suspended Solids (kg/yr)	87	2.23	97.4
Total Phosphorus (kg/yr)	0.226	0.0179	92.1
Total Nitrogen (kg/yr)	2.14	0.678	68.3
Gross Pollutants (kg/yr)	22.5	0	100

TREATMENT TRAIN EFFECTIVENESS - POST DEVELOPMENT



CARTRIDGE EXAMPLES

The Stormwater360 Maintenance Service
To achieve a cost-effective turnkey solution for maintaining your stormwater system while also ensuring ongoing regulatory compliance.
Stormwater360 has developed a systematic maintenance approach to inspecting, cleaning and repairing different types of stormwater systems. We utilise fully trained experts who are familiar with the characteristics of each type of system, and the processes required to optimise its efficiency and performance. Regular maintenance of these devices includes inspection, recording and reporting, and is accompanied by periodic cleaning to remove accumulated debris and ensure optimal performance. Depending on the size of the system, it may be cleaned from the surface by hand, or may need to be accessed via a manhole and the debris removed using a large vacuum hose attached to an inductor truck.

Online maintenance tracker
With many local authorities implementing complex and onerous stormwater regulations and water quality standards, compliance is an increasingly important issue for asset owners. The Stormwater360 Maintenance Service designs a sitespecific maintenance plan for each facility and through proper documentation and reporting provides evidence that all relevant procedures have been adhered to. In addition, Stormwater360 offers the unique service of online tracking for your maintenance and reporting, which enables you to access up-to-date images and reports of your system's maintenance.



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DRAWING TITLE:
MUSIC MODEL CALCULATION

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