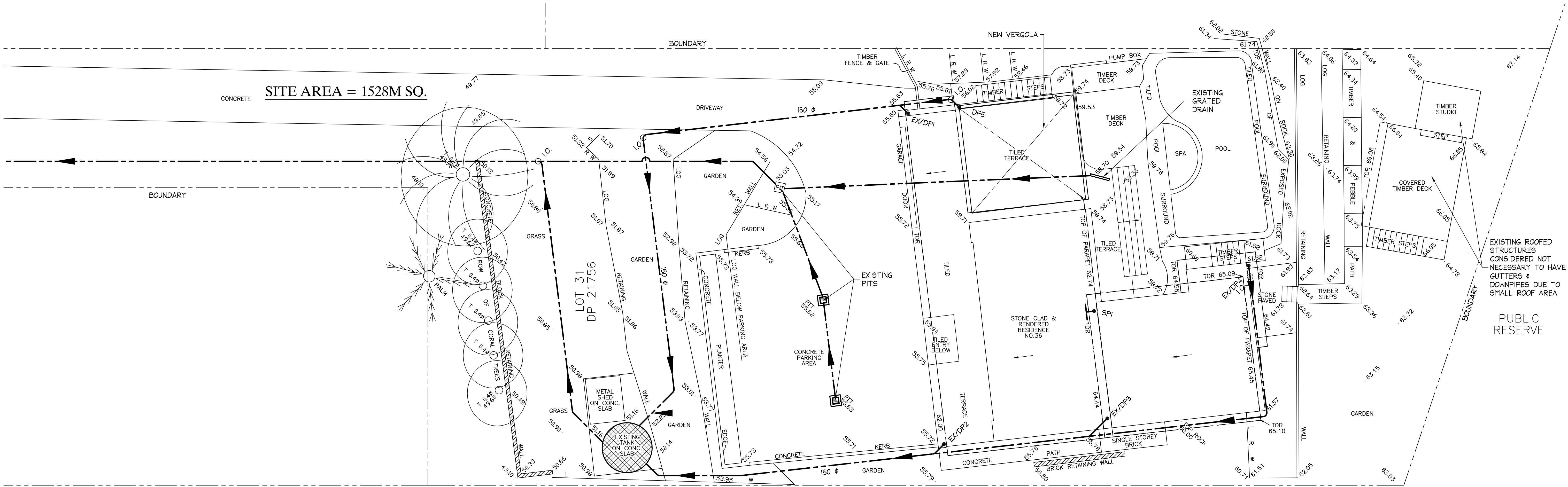
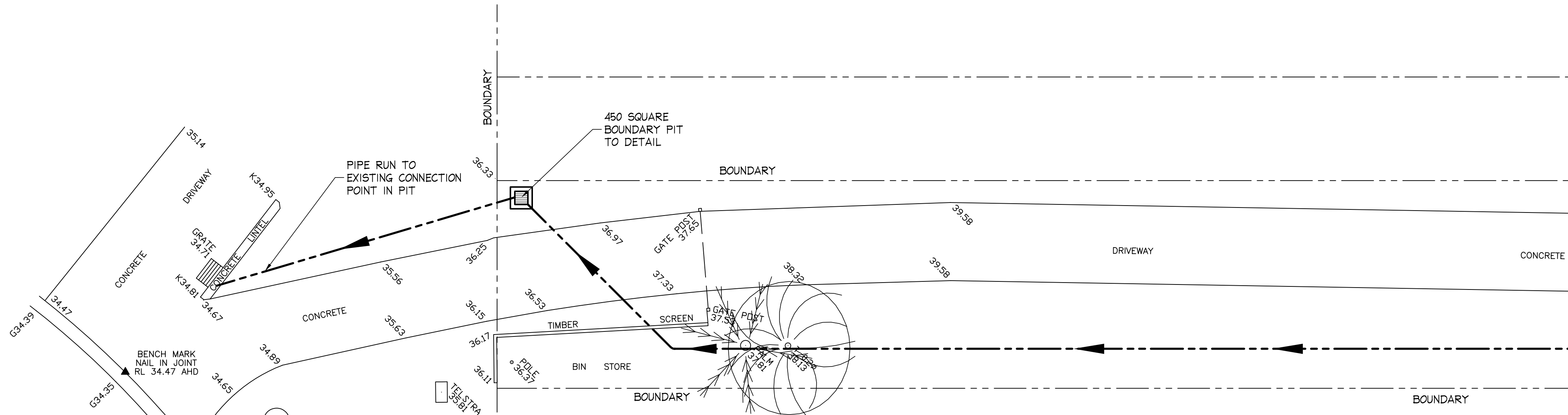




CONCEPT STORMWATER MANAGEMENT PLAN

LEVELS TAKEN FROM SURVEY BY DP SURVEYING P/L, REF:1832, DATED 30-07-2018
ALL DRAINAGE LOCATIONS ARE INDICATIVE ONLY. LOCATION MAY VARY TO SUIT SITE CONSTRAINTS.
ALL PIPEWORK SHOWN AS NEW. SHOULD EXISTING PIPEWORK BE OF SIZE & QUALITY SPECIFIED, IT MAY BE USED
ENSURE ALL EXISTING & NEW DOWNPIPES ARE CONNECTED TO EXISTING RAINWATER TANK
ENSURE RWT & ALL PITS ARE CONNECTED TO NEW BOUNDARY PIT

KEY:
DP - DOWNPIPE
SP - SPREADER DOWNPIPE
DP/RWH - DOWNPIPE RAINWATER HEAD
SPT - SPITTER OVERFLOW



CONCEPT STORMWATER MANAGEMENT PLAN

SCALE = 1 : 100

CONTINUED

WATKINS ROAD

- NOTES:**
- ALL DIMENSIONS TO BE VERIFIED ON SITE BEFORE COMMENCING WITH WORK.
 - FOR GENERAL NOTES AND DRAWING SCHEDULE REFER TO DRAWING NUMBER: SOI.

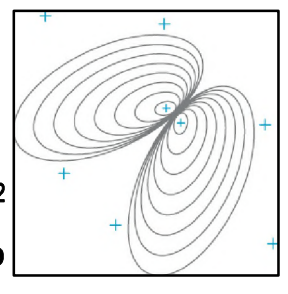
DOCUMENT CERTIFICATION

Date : DEC 2019
Bruce Lewis
(Principal : Peninsula Consulting Engineers)
BE(Civil), CPEng, MIEAust., NPER.
Institute of Engineers Membership No. 879131

18-12-2019	A	FOR COUNCIL SUBMISSION
17-12-2019	PI	DRAFT
Date:	Rev:	Amendment:

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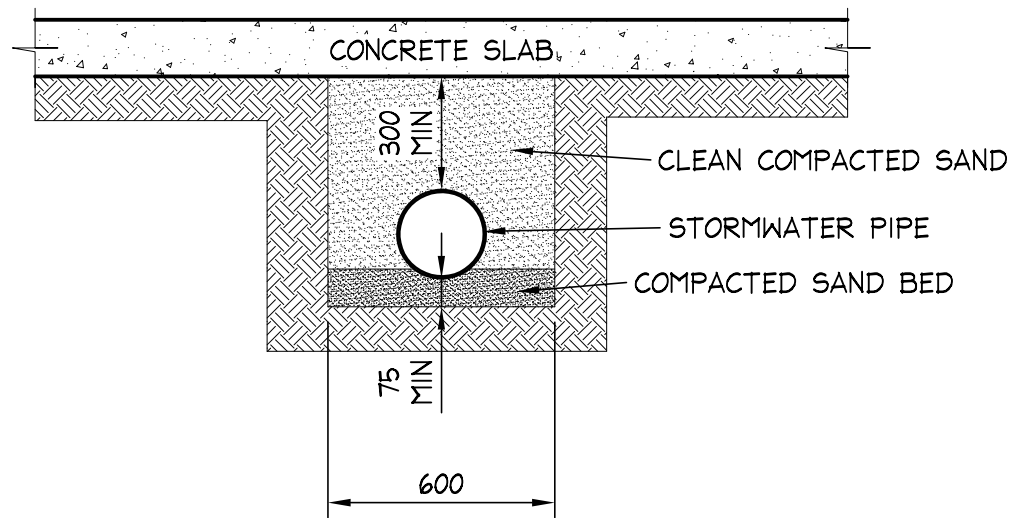
Project:
PROPOSED WORKS
at: 36 WATKINS ROAD
AVALON
for: MR & MRS LEWTHWAITE

Drawing Title:
CONCEPT STORMWATER
MANAGEMENT PLAN & DETAILS

Job No: 19-1202	Drawing No: H01	Rev: A
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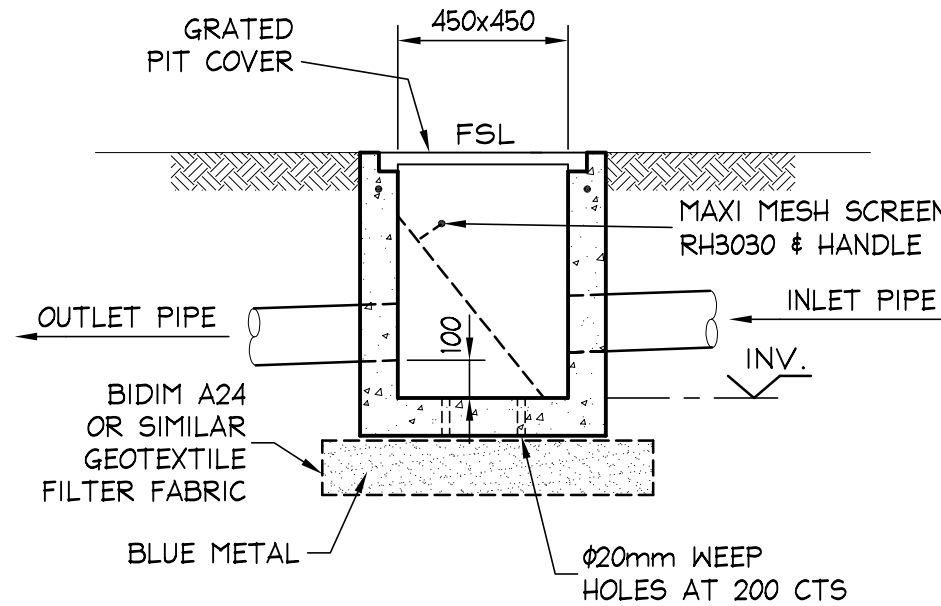
ONSITE DETENTION CALCULATIONS
ACCORDING TO PITTWATER 21 DCP

TOTAL SITE AREA	=	1528 m ²
PROPOSED IMPERVIOUS AREA	=	661.7 m ² (43.3 %)
PRE DEVELOPED IMPERVIOUS AREA	=	666.4 m ² (43.6 %)
FROM "PITTWATER 21 DCP" B5.7		
REQUIRED OSD TANK - NIL AS DECREASE IN IMPERVIOUS AREA		
DESIGN OF STORMWATER MANAGEMENT SYSTEM COMPLIES WITH		
B5.5 & B5.7 OF PITTWATER 21 DCP. REFER SIGNATURE BELOW.		



TYPICAL TRENCHING DETAIL

SCALE = 1 : 20



PRECAST OR HDPE PIT
REFER STORMWATER NOTES
450x450 PIT DETAIL

SCALE = 1 : 20

STORMWATER NOTES:

- 1 - ALL PIPES TO BE 100mm ϕ SEWER GRADE uPVC UNLESS NOTED OTHERWISE.
- 2 - ALL PIPES TO BE uPVC TO AS 1254-2002 UNLESS NOTED OTHERWISE.
- 3 - ALL PIPES TO BE LAID AT 1 % MINIMUM GRADE UNLESS NOTED OTHERWISE.
- 4 - ALL PIPES SHALL BE LAID ON A 75mm SAND BED, COMPACTED TO 100% S.M.D.D. BELOW PAVEMENTS.
(NO COMPACTION REQUIRED BELOW LANDSCAPING)
COVER TO SURFACE FROM TOP OF PIPE TO BE AS PER AS3500.
BACKFILL TO BE ADEQUATELY CONSOLIDATED AROUND PIPES BY METHOD OF RAMMING AND WATERING IN. TRENCHES TO BE FILLED WITH GRANULAR MATERIAL AS SPECIFIED.
- 5 - DOWN PIPE LOCATIONS ARE INDICATIVE ONLY. LOCATIONS TO BE CONFIRMED WITH ARCHITECT PRIOR TO COMMENCEMENT WITH WORK.
- 6 - PROVIDE CLEANING EYES AT ALL DOWNPIPES.
- 7 - ALL PITS TO BE PRECAST, PREFORMED OR HDPE, IN ACCORDANCE WITH LOCAL COUNCIL SPECIFICATIONS.
- 8 - ALL PITS GREATER THAN 1000mm DEEP SHALL HAVE STEP IRONS AS PER COUNCIL STANDARDS.
- 9 - ALL WORK TO BE IN ACCORDANCE WITH LOCAL COUNCIL STANDARDS AND SPECIFICATIONS.
- 10 - PRIOR TO COMMENCING ANY SITE WORKS THE CONTRACTOR SHALL IMPLEMENT EROSION CONTROL MEASURES TO EPA GUIDELINES AND COUNCIL SPECIFICATIONS. ALL MEASURES TO REMAIN IN PLACE UNTIL COMPLETION AND STABILIZATION OF THE SITE TO COUNCIL SATISFACTION.
- 11 - ALL LEVELS SHOWN ARE TO AHD
- 12 - ENSURE THAT ALL PITS AND STORMWATER PIPES ARE LOCATED CLEAR FROM TREE ROOT SYSTEMS.
- 13 - ALL EXISTING EARTHENWARE PIPES TO BE UPGRADED TO uPVC.
- 14 - ALL WORKS TO BE IN ACCORDANCE WITH AS 3500-2015 NATIONAL PLUMBING DRAINAGE CODE PART 3 - STORMWATER DRAINAGE.
AND ALL WORKS TO BE IN ACCORDANCE WITH AS 3500-2012 NATIONAL PLUMBING DRAINAGE CODE PART 5 - HOUSING INSTALLATIONS.

Northern Beaches [Pittwater] Council

36 Watkins Road, Avalon

Alterations & Additions

On Site Drainage Calculations

Area Calculation - Existing	m ²	Area Calculation -Proposed	m ²
Block	1528		
Main Roof	180.3	Main Roof	214.9
Front Slab	15.3	Front Slab	15.3
Side Paving & Steps	11.6	Side Paving & Steps	11.6
Concrete Driveway	328.1	Concrete Driveway	328.1
Stone Paving	6.0	Stone Paving	6.0
Tiled Terrace	57.2	Tiled Terrace	13.0
Pool Surround	15.6	Pool Surround	15.6
Studio & Deck	35.2	Studio & Deck	35.2
Timber Decks & Steps 50% Impervious	17.1	Timber Decks & Steps 50% Impervious	22.0
All Impervious	666.4	All Impervious	661.7
Pervious	861.6	Pervious	866.3
Percent Impervious Existing	43.6	Percent Impervious Proposed	43.3
Impervious Area Increase	-4.7		

Technical Requirements from Council - P21 DCP Part B

B 5.7 Stormwater Management - OSD

All development creating additional hard [impervious] area of more than 50m²

must provide an onsite detention system [for additions only]

NOT Applicable - extensions will DECREASE hard surface area by 4.7m²

DRAINAGE CALCULATIONS

Northern Beaches [Pittwater] Council

Gutter Calculations -20 yr ARI Storm

Alterations & Additions

36 Watkins Road, Avalon

to AS 3500 - 2015 & AS 3500.5 2012 & BCA2016

Eaves	Horizontal	Slope	Area A _c		From	Downpipe
	Area A _n	Factor			Figure	From
Gutters		from		²⁰ I _s	5.6.4.1.b	Table
		Table		from		
				Appendix		5.6.4.7.1
				11	gutter	
		5.6.3.2		Page 9	size reqd	size reqd
	m ²		m ²	mm/hr	mm ²	mm
EX/DP1	71.4	1.08	77.1	201	10200	150 dia
EX/DP2	71.4	1.08	77.1	207	10200	150 dia
EX/DP3	29.7	1.08	32.1	207	9000	satisfactory
EX/DP4	7.8	1.08	8.4	207	3000	satisfactory
NEW DP5	34.6	1.08	37.4	207	9500	100dia
	214.9					

New Eaves Gutters required - to be supplied with Vergola

Existing Gutters are custom made & large & satisfactory

All New Downpipes to match existing, except from Vergola

All underground Pipes to be 100 Dia Sewer Grade PVC UNO

SP1 to be 100 dia

GUTTER CALCULATIONS

NOTES:

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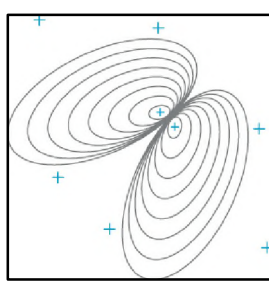
18-12-2019 A FOR COUNCIL SUBMISSION

17-12-2019 PI DRAFT

Date: Rev: Amendment:

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Engineers

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at: 36 WATKINS ROAD
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for: MR & MRS LEWTHWAITE

Drawing Title:

**CONCEPT STORMWATER
CALCULATIONS & DETAILS**

Job No:

19-1202

Drawing No:

H02

Rev:

A