

PROPOSED MULTI DWELLING DEVELOPMENT

13 MAIN ARM ROAD, MULLUMBIMBY NSW 2482

FOR
E. TORRESI
DA APPLICATION



SITE LOCALITY PLAN
NTS

sheet #	TITLE
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02	NOTES
03	EXISTING SITE SURVEY
04	CONCEPT STORMWATER PLAN
05	STORMWATER DETAILS
06	STORMWATER CALCULATIONS
07	CONCEPT DRIVEWAY PLAN
08	DRIVEWAY LONG SECTION & CROSS SECTION



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CLIENT:
E. Torresi

SITE ADDRESS:
Lot 112 DP 1259879, 13 Main Arm
Road, Mullumbimby NSW 2482

PROJECT:
CONCEPT STORMWATER & DRIVEWAY
PLANS - PROPOSED MULTI DWELLING
DEVELOPMENT

TITLE:
TITLE PAGE

SIZE:
A3

JOB NUMBER:
23294

NO. IN SET:
01 of 08

DRAWING NUMBER:
23294- CIVIL01

SCALE:

REV	DESCRIPTION	BY	DATE
0	DEVELOPMENT APPLICATION	SN	21/12/23

NOTES

CONCRETE NOTES

- 1. All workmanship and materials shall be in accordance with AS3600.
- 2. No admixtures shall be used in concrete unless approved in writing.
- 3. All reinforcing shall be firmly supported on chairs at no greater than 800 crs both ways. Bars shall be tied at alternate intersections.
- 4. The finished concrete shall be a dense homogeneous mass, completely filling the formwork, thoroughly embedding reinforcing, and free of air pockets. All concrete including slabs on ground and footings shall be compacted with mechanical vibrators by suitably experienced contractors
- 5. Curing of all concrete is to be achieved by keeping surfaces continuously moist for a period of three days and prevention of loss of moisture for a total of 7 days followed by gradual drying.
- 6. Unless noted otherwise all slabs on ground are to be cast on a 200 micron thick polythene sheet lapped and taped at joints laid over a 50mm min sand bed.
- 7. All footings shall be inspected by supervising engineer or relevant certifier prior to pouring of concrete. Concrete shall not be delivered to the site until final approval is obtained.
- 8. Unless noted otherwise all bars shall be lapped by:
 - N12-500mm
 - N16-600mm
- 9. Laps in mesh (fabric) shall comply with AS 3600. The two outermost transverse wires of one sheet shall overlap the two outermost transverse wires of the sheet being lapped.
- 10. Do not cut reinforcement on site to clear penetrations. displace reinforcement slightly as necessary.
- 11. Welding of reinforcement is not permitted.
- 12. Reinforcement shall be bent cold in accordance with AS 3600 except where approved by the structural engineer. No re-bending shall be permitted unless approved by the structural engineer.
- 13. All footing excavations shall be cleaned of loose material and water.
- 14. Sides of footings shall be formed as necessary when excavated face is not stable.
- 15. Concrete strength grade for particular elements shall be as follows unless noted otherwise:

Element	Conc. strength grade
Footings	N25
Internal slabs on ground	N32
External slab on ground	N32

- 16. Reinforcement symbols:
 - R -Plain round bar grade r250n to as 4671
 - S -Deformed bar grade d250n to as 4671
 - N -Deformed bar grade d500n to as 4671
 - SL/RL -Deformed wire reinforcing mesh grade D500L to AS 4671
 - W -Cold drawn round wire grade r500l to AS 4671

The number following the bar symbol is the nominal bar diameter in millimetres.

- 17. Minimum cover to all reinforcement shall be as follows unless noted otherwise:

Item	Formed	Formed	Not-formed
	Not exposed	Exposed	Cast on ground
	To weather	To weather	

Footing		50	65

Slab	45	50	40

GENERAL NOTES

- 1. If any site conditions are encountered that are contrary to the drawings or any details are not understood, please contact this office for clarification.
- 2. Dimensions shall be used in preference to scaling from drawings.
- 3. All works are to be set out and confirmed prior to construction.
- 4. All materials and workmanship shall be in accordance with the relevant and current SA codes and with the NRLG standards and specifications.
- 5. All services are to be located in the field in conjunction with a responsible officer of each relevant authority prior to the commencement of construction.
- 6. All bare soil areas are to be protected from erosion by temporary measures and revegetated at the cessation of construction.
- 7. All excavations, trenching, shoring etc. to be undertaken in accordance with "Excavation Work - Code of practice July 2012" by Safe Work Australia and other relevant codes and standards.
- 8. It is the contractors responsibility to satisfy themselves of the location of all existing services on site, whether indicated on these drawings or not.
- 9. All signs and linemarking to be in accordance with AS1742.

STORMWATER NOTES

- 1. All works to be in accordance with AS3500 and NRLG standards.
- 2. Direct all surface runoff to pits. Direct all pit overflow to Chinbible Creek.
- 3. Discharge lines to Main Arm Road kerb and gutter via kerb adapters.
- 4. All IL's, Surface Levels pipe and pit localities to be confirmed on site with respect to final finished surface levels. Adjust as necessary to ensure conformance with AS3500 and note 2.
- 5. All final pipe covers to be in accordance with Table 6.2.5 of AS3500.3
- 6. Pits to be < 0.6m deep. Deeper connections to utilise 'jump ups' in accordance with S7.8 of AS3500.3
- 7. Where pipes are laid in excess of 20% anchor blocks are to be provided in accordance with S7.9 of AS3500.3
- 8. Contours shown are existing surface.
- 9. Services noted on the drawing may not be exhaustive and the contractor is to satisfy themselves as to the location of all services prior to commencement of work on site. All works are to be undertaken in accordance with the requirements of the relevant service authorities.



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PROJECT:

CONCEPT STORMWATER & DRIVEWAY
PLANS - PROPOSED MULTI DWELLING
DEVELOPMENT

TITLE:

NOTES

SIZE:

A3

NO. IN SET:

02 of 08

SCALE:

JOB NUMBER:

23294

DRAWING NUMBER:

23294- CIVIL02

REV

0

DESCRIPTION

DEVELOPMENT APPLICATION

BY

SN

DATE

21/12/23

Z:\JOBS\23\23294 - ELSA TORRESI - 13 MAIN ARM RD, MULLUMBIMBY\ENVIRONMENTAL\STORMWATER\23294 13 MAIN ARM RD CIVIL.DWG



EXISTING SITE SURVEY PLAN
Scale 1:400 @ A3
Source: Bennett & Bennett



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PLANS - PROPOSED MULTI DWELLING
DEVELOPMENT

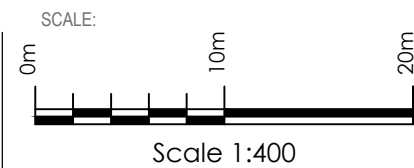
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EXISTING SITE SURVEY PLAN

SIZE:
A3

NO. IN SET:
03 of 08

JOB NUMBER:
23294

DRAWING NUMBER:
23294- CIVIL03



REV	DESCRIPTION	BY	DATE
0	DEVELOPMENT APPLICATION	SN	21/12/23

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KEY:

- EXISTING BOUNDARY
- S/W PROPOSED STORMWATER PIPE
- W EXISTING WATER SERVICE
- CE EXISTING ELECTRICAL SERVICE
- TE EXISTING COMMUNICATION SERVICE
- DRIVEWAY SURFACE FLOW
- +2.50 PROPOSED SPOT ELEVATION
- EXISTING FENCE
- EXTEND OF BATTER (CUT & FILL 1:4)

CONCEPT ONLY
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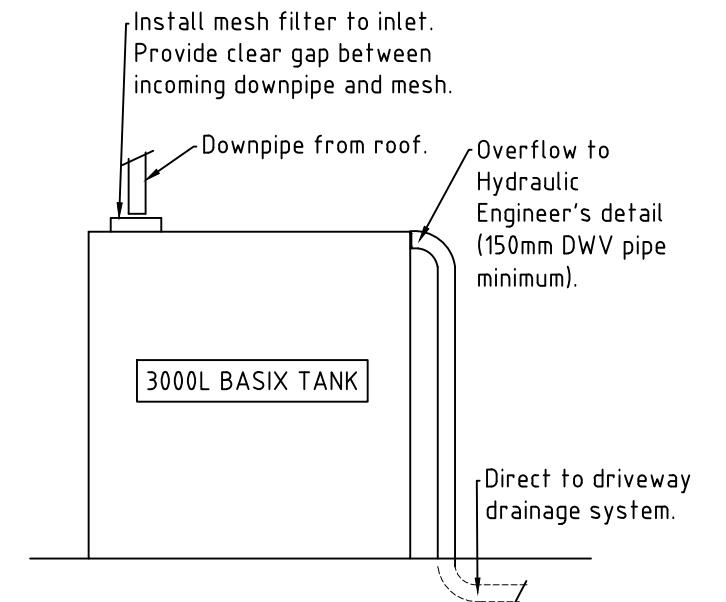
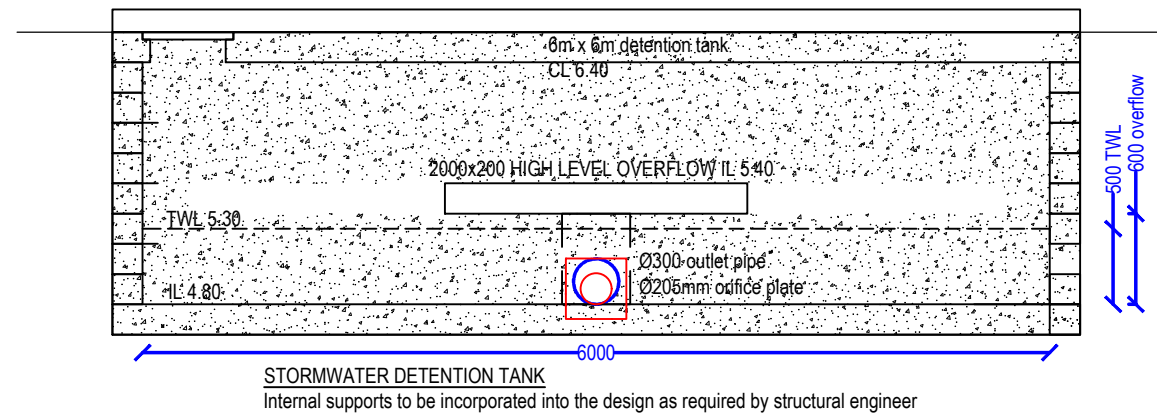
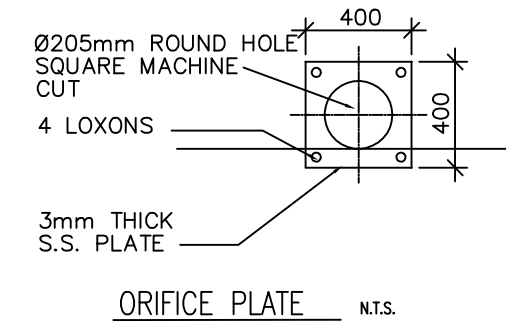
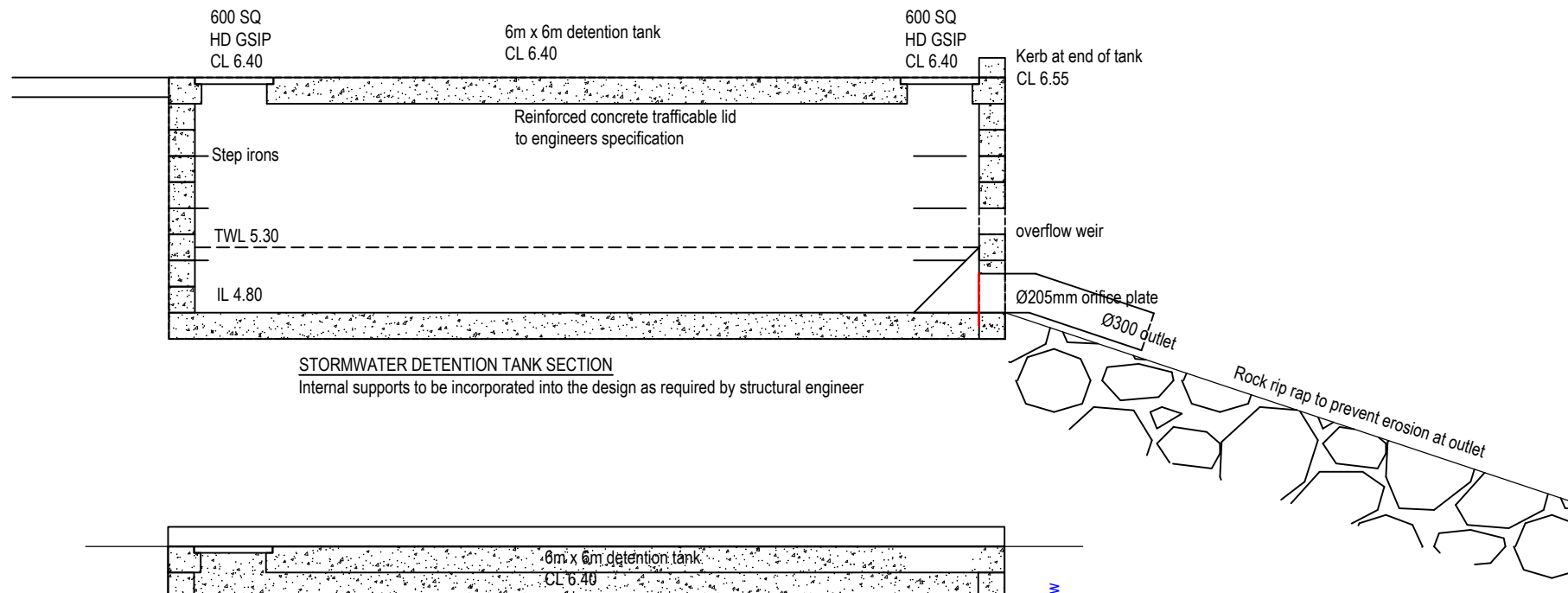
PROJECT:
CONCEPT STORMWATER & DRIVEWAY
PLANS - PROPOSED MULTI DWELLING
DEVELOPMENT
TITLE:
CONCEPT STORMWATER PLAN

SIZE:
A3
NO. IN SET:
04 of 08
JOB NUMBER:
23294
DRAWING NUMBER:
23294- CIVIL04

SCALE:
0m 5m 10m
Scale 1:250

REV	DESCRIPTION	BY	DATE
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House 1-5 BASIX tank - Detail
NTS



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PROJECT:

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PLANS - PROPOSED MULTI DWELLING
DEVELOPMENT

TITLE:

STORMWATER DETAILS

SIZE:

A3

JOB NUMBER:

23294

NO. IN SET:

05 of 08

DRAWING NUMBER:

23294- CIVIL05

SCALE:



Scale 1:100

REV

0

DESCRIPTION

DEVELOPMENT APPLICATION

BY

SN

DATE

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On-site Stormwater Detention Design Summary Sheet				
Developed site area calcs				
Rainfall Region:				
Developed Area	=	1353.85 m ²	(Refer Byron DCP Section 5)	
Pre Development				
Catchment Areas	(Must be shown on engineering drawings)			
Roof Area (A _r)	=	350.7 m ²	(coefficient of runoff, c _r = 1.0)	
Paved Area (A _p)	=	143.5 m ²	(coefficient of runoff, c _p = 0.9)	
Vegetated Area (A _v)	=	859.65 m ²	(coefficient of runoff, c _v = 0.66)	
Total Area	=	1353.85 m ²	(Must equal post development area)	
Site Pre Dev A x C (AC _{EX})	=	A _r x c _r + A _p x c _p + A _v x c _v		
Stormwater Flows				
Duration	=	10 min	(refer AS/NZS 3500.3:2003)	
Rainfall Intensity (°I ₁)	=	220 mm/hr	(select from above rainfall intensity charts)	
Stormwater flow (Q ₅)	=	AC _{EX} x °I ₅ / 3600		
	=	64 l/s		
Post Development				
Catchment Areas				
Roof Area (A _r)	=	897.55 m ²	(coefficient of runoff, c _r = 1.0)	
Paved Area (A _p)	=	456.3 m ²	(coefficient of runoff, c _p = 0.9)	
Vegetated Area (A _v)	=	0 m ²	(coefficient of runoff, c _v = 0.73)	
Total Area	=	1353.85 m ²	(Must equal pre development area)	
Site Post Dev A x C (AC _{PR})	=	A _r x c _r + A _p x c _p + A _v x c _v		
Stormwater Flows				
(For 20 year storm event)				
Duration	=	5 min	(refer AS/NZS 3500.3:2003)	
Rainfall Intensity (°I ₁)	=	245 mm/hr	(select from above rainfall intensity charts)	
Stormwater flow (Q ₂₀)	=	AC _{PR} x °I ₅ / 3600		
	=	89 l/s		
Stormwater Detention Requirements				
Storage Volume	=	(Q ₂₀ - Q ₅) x 5 x 60 / 1000		
	=	15.0 m ³		
PSD	=	64 l/s	(Permissible Site Discharge = Q ₅)	
Orifice Plate Controlled Discharge				
(N/A if using choke pipe)				
Head (H)	=	0.5 m	(max. water level to orifice centre)	
Orifice Diameter	=	1000 x √ [(0.464 x Q ₅ / 1000) / √ H]		
	=	205 mm	use 70mm orifice	
Outlet Pipe Diameter	=	300 mm	(min. 3 x orifice diameter)	
Storage Provided				
Storage Volume	=	18 m ³		
Q100 check (as per NRDC SWD Handbook)				
Pre-development Q100 flow				
Duration	=	5 min	(refer AS/NZS 3500.3:2003)	
Rainfall Intensity (°I ₁₀₀)	=	289 mm/hr	(select from above rainfall intensity charts)	
Stormwater flow (Q ₁₀₀)	=	(A _r c _r + A _p c _p + A _v c _v) x °I ₅ / 3600	(coefficient of runoff, C _r = 1.0, C _p = 1, C _v = 0.83,)	
	=	97 l/s		
Post-development Q100 flow				
Duration	=	5 min	(refer AS/NZS 3500.3:2003)	
Rainfall Intensity (°I ₁₀₀)	=	289 mm/hr	(select from above rainfall intensity charts)	
Stormwater flow (Q ₁₀₀)	=	(A _r c _r + A _p c _p + A _v c _v) x °I ₅ / 3600	(coefficient of runoff, C _r = 1.0, C _p = 1, C _v = 0.83,)	
	=	109 l/s		
check				
Q _{100-dev} - (Q _{20-dev} - Q _{5-undev})	=	84 l/s		
less than predev Q100 - storage sufficient				



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PROJECT:

CONCEPT STORMWATER & DRIVEWAY
PLANS - PROPOSED MULTI DWELLING
DEVELOPMENT

TITLE:

STORMWATER CALCULATIONS

SIZE:

A3

JOB NUMBER:

23294

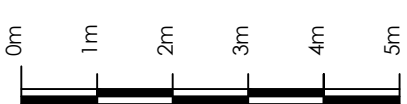
NO. IN SET:

06 of 08

DRAWING NUMBER:

23294- CIVIL06

SCALE:



Scale 1:100

REV	DESCRIPTION	BY	DATE
0	DEVELOPMENT APPLICATION	SN	21/12/23

Z:\JOBS\23\23294 - ELSA TORRESI - 13 MAIN ARM RD, MULLUMBIMBY\ENVIRONMENTAL\STORMWATER\23294 13 MAIN ARM RD CIVIL.DWG



KEY:

- EXISTING BOUNDARY
- S/W PROPOSED STORMWATER PIPE
- W EXISTING WATER SERVICE
- CE EXISTING ELECTRICAL SERVICE
- TE EXISTING COMMUNICATION SERVICE
- DRIVEWAY SURFACE FLOW
- PROPOSED CONCRETE DRIVEWAY
-150mm thick slab with SL72 mesh
- +2.50 PROPOSED SPOT ELEVATION
- EXISTING FENCE
- EXTEND OF BATTER (CUT & FILL 1:4)
- GRAVEL TURNING AREA TYPICALLY
150mm COMPACTED ROADBASE

CONCEPT ONLY
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**CONCEPT STORMWATER & DRIVEWAY
PLANS - PROPOSED MULTI DWELLING
DEVELOPMENT**

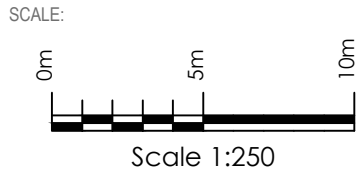
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CONCEPT DRIVEWAY PLAN

SIZE:
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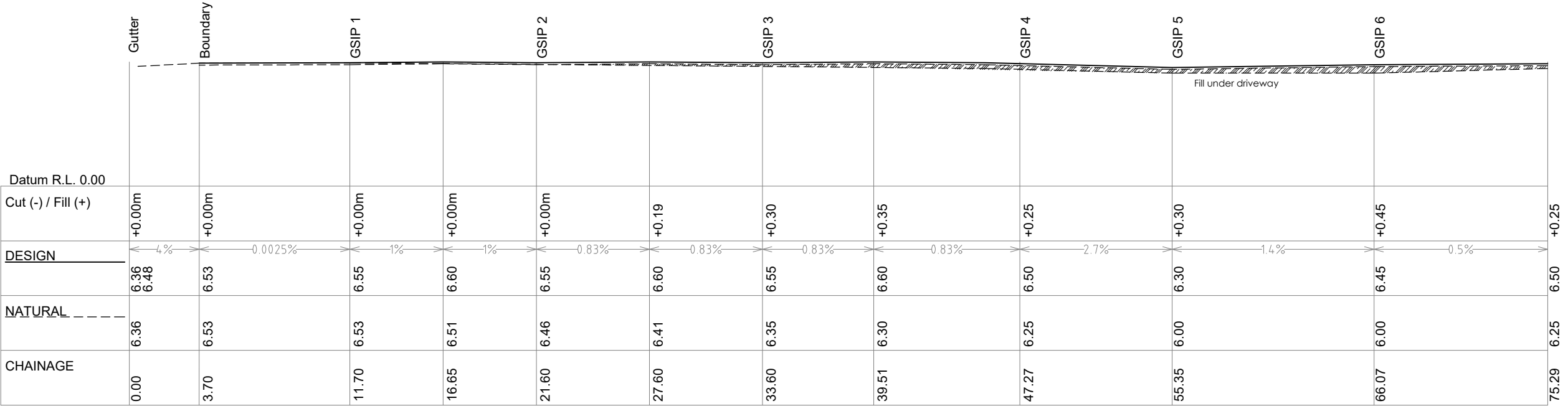
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07 of 08

JOB NUMBER:
23294

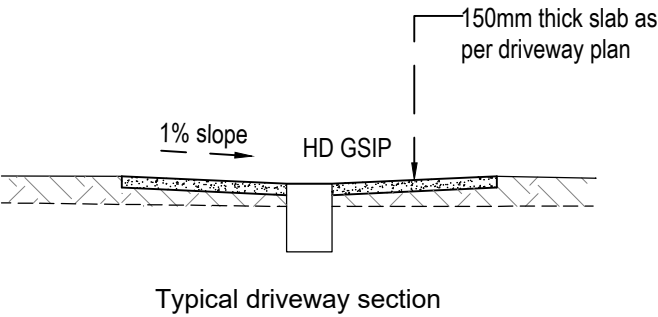
DRAWING NUMBER:
23294- CIVIL07



REV	DESCRIPTION	BY	DATE
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Driveway Long Section Scale 1:250



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PLANS - PROPOSED MULTI DWELLING
DEVELOPMENT

TITLE:
DRIVEWAY LONG SECTION

SIZE:
A3

NO. IN SET:
08 of 08

JOB NUMBER:
23294

DRAWING NUMBER:
23294- CIVIL08

SCALE:
0m 5m 10m

Scale 1:250

REV	DESCRIPTION	BY	DATE
0	DEVELOPMENT APPLICATION	SN	21/12/23