

02/06/2020

Project Number: 200350

STORMWATER STRATEGY REPORT

at

47 DARRELL ROAD CALALA

for

PERCEPTION PLANNING Pty Ltd

Project No. 200350

Revision: B / SCC Submission

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1. INTRODUCTION

DRB Consulting Engineers (DRB) were engaged by Perception Planning Pty Ltd to undertake a Stormwater Strategy Report to support the Site Compatibility Certificate for the proposed seniors living development at 47 Darrell Road, Calala.

The purpose of this report is to investigate the existing catchments draining through the site and to develop a stormwater drainage strategy for the proposed development.

It should be noted that this report is considered 'high-level' only. It has been developed to show the feasibility of the proposed development with regard to stormwater on a macro level. This report has not looked at the internal stormwater drainage network for the proposed development, as it is assumed that conventional drainage design will be easily developed, and this design will be incorporated into future Development Application documentation.

2. SITE DESCRIPTION AND PROPOSED DEVELOPMENT

The site is located at the end of Darrell Road, Calala and is approximately 45 Ha. The site is an existing rural residential property, bordered by rural residential developments to the north, south and west with residentially zoned house lots bordering the northeastern / eastern boundary.

The site supported an existing brick and tile roofed residential dwelling in the northern portion of the site. The site also supported several existing earthen dam, the most notable of these dams are referred to as Dam 1 and Dam 2 in Figure 1 below.



A site inspection was undertaken on 26th March 2020 to assess the existing topography. Following the site inspection LiDAR survey was obtained and combined, the following was confirmed:

- (i) The site had a gradual linear fall from the east to the west
- (ii) The residential development and Council street drainage to the upslope northeast conveys via subsurface pipe to the end of Darrell Road, where it discharges directly into Dam 1.
- (iii) There was no obvious easement over Dam 1 or downstream from Dam 1 with overflow discharging through the site via overland flow.
- (iv) The upstream catchment to the southeast was cut off by an aboveground swale and diverted to Dam 2.
- (v) Overflow from Dam 2 discharged towards the west via overland sheet flow.
- (vi) All runoff from the site discharges as sheet flow over the western boundary a short distance to a Tributary of Goonoo Goonoo Creek.

It is proposed that a new seniors living development be constructed in the southeastern portion of the site, upslope of Dam 2 and the existing swale that directs the surface flows in to Dam 2.

Drawings 200350.CIV01 and 200350.CIV02, attached to this report, show the existing topography of the site, specifically relating to the pre-development condition of the proposed development area.

3. COUNCIL CORRESPONDANCE

This investigation has been undertaken to address Council's concerns regarding stormwater discharge from the proposed development. Specifically, Council has requested the following information with regard to stormwater drainage:

Stormwater

The matter of stormwater and approved points of discharge remains an outstanding issue as no additional design information has been supplied to Council. The subject site does not adjoin a natural waterway or suitable stormwater infrastructure; therefore the developer would need to investigate and prepare a stormwater strategy which will need to consider all options, including potentially obtaining easements over downstream properties to suitably discharge minor and major stormwater overland flows.

This strategy will need to address at least, but not limited to, the management of all stormwater from upslope, through the proposed development and downslope to an approved point of discharge. The proponent has acknowledged that further work is required in relation to this issue, but has requested Council to accept that the stormwater investigations should be undertaken prior to lodgement of a DA after a SCC has been obtained.

4. PROPOSED DEVELOPMENT AND STORMWATER DRAINAGE STRATEGY

The proposed development will consist of a new seniors living development in the southeastern corner of the site. This portion of the site was at the higher topographical levels of the site and has only a small upstream catchment contributing to runoff.

The development itself will consist of several independent living units spread across the area, with separate admin building, function centre etc. An internal road network provides access to each of the units. With maximum site slopes of 5-6% across the development area, it is anticipated that earthworks will be kept to a minimum and DDA compliance will still be achievable.

A conventional internal stormwater drainage strategy will be developed involving:

- (i) Aboveground grass lined swales to convey upstream catchments safely through the site.
- (ii) Rainwater tanks collecting runoff from proposed roofs.
- (iii) Yard pits and subsoil drainage collecting runoff from landscaped areas.
- (iv) Stormwater pits and subsurface pipes collecting runoff from all hardstand areas.
- (v) An end of line above ground onsite stormwater detention (OSD) basin limiting discharge to pre-development flow rates for both the minor and major rainfall events.

It is proposed that the end of line OSD basin will discharge the detained flows directly into the existing Dam 2 where the existing overland flow regime will be maintained.

The proposed development area and conceptual OSD basin location can be seen in the attached drawings 200350.CIV03.

5. DISCUSSION

The proposed development location has been chosen to ensure that there is no impact on upstream or downstream developments with regard to stormwater drainage.

The existing topography across the proposed development area falls at a linear grade of approximately 5% from the south east towards the west. An existing berm/swale captures these flows and concentrates them towards the existing Dam 2. Overflow from Dam 2 then heads towards the west via overland flow.

The proposed development will be designed to capture the flows from the entire development area, upstream of the existing swale (which will be maintained) and detain the flows to ensure the peak discharge will be limited to the predevelopment flows, before discharging to the existing Dam 2. Because the existing swale already concentrates the sheet flow towards Dam 2, the proposed development will have no impact on the existing flow regime.

At the point immediately upstream of Dam 2, the post-development peak flow will be less than the pre-development peak flow for all storm events. As Dam 2 will not be modified and the existing overland flow path downstream of Dam 2 remaining unchanged, there will be no effect on existing runoff, scour or erosion through the site or any neighbouring sites downstream.

It should be noted that, whilst an easement is not proposed for the minor and major stormwater flows leaving the existing Dam 2, the drainage discharge strategy is commensurate with Council's approach for discharging the stormwater infrastructure from Darrell Road, through Dam 1.

Should you require any further advice or clarification of any of the above, please do not hesitate to contact us.

Yours faithfully

DRB CONSULTING ENGINEERS PTY LIMITED

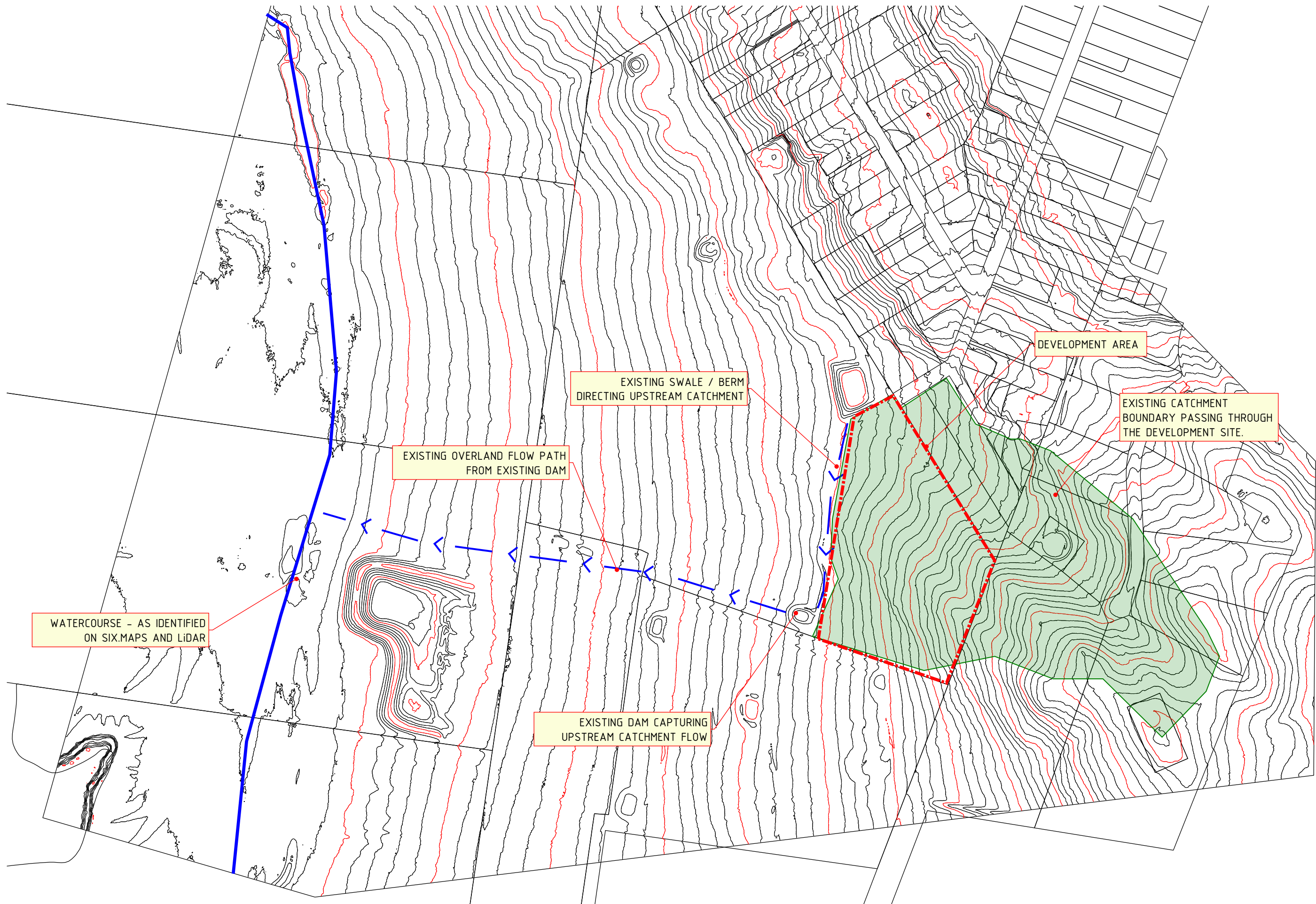
A handwritten signature in blue ink, appearing to read 'Mathew McNamara', with a long horizontal flourish extending to the right.

Mathew McNamara

BEng (Civil) Hons MIE Aust

Attachments

- (i) Drawings 200350/CIV01-CIV03



REVISIONS						
	A	26.05.20	R.F.	M.M.	M.M.	STORMWATER STRATEGY ASSESSMENT
REV	DATE	DRN	CHK	APP	DRAWING STATUS	

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EXISTING CATCHMENT PLAN
47 DARRELL ROAD
CALALA
PERCEPTION PLANNING

DRAWING STATUS		SHEET SIZE
NOT FOR CONSTRUCTION		A3
		SCALE
		-
PROJECT REF No.	DRAWING No.	REVISION
200350	CIV01	A



EXISTING OVERLAND FLOW
PATH FROM EXISTING DAM
TO BE MAINTAINED

NEW ABOVE GROUND OSD BASIN. APPROX
VOLUME 450m³ (1m TOTAL DEPTH) WITH A
375mm DIAM LOW FLOW PIPE TO THE
EXISTING BASIN AND A 10m WIDE WEIR
750mm FROM THE INVERT.

REVISIONS					
REV	DATE	DRN	CHK	APP	DRAWING STATUS
A	26.05.20	R.F.	M.M.	M.M.	STORMWATER STRATEGY ASSESSMENT

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POST-DEVELOPMENT STORMWATER STRATEGY PLAN
47 DARRELL ROAD
CALALA
PERCEPTION PLANNING

DRAWING STATUS		SHEET SIZE
NOT FOR CONSTRUCTION		A3
PROJECT REF No.		SCALE
200350	DRAWING No.	-
CIV03	REVISION	A