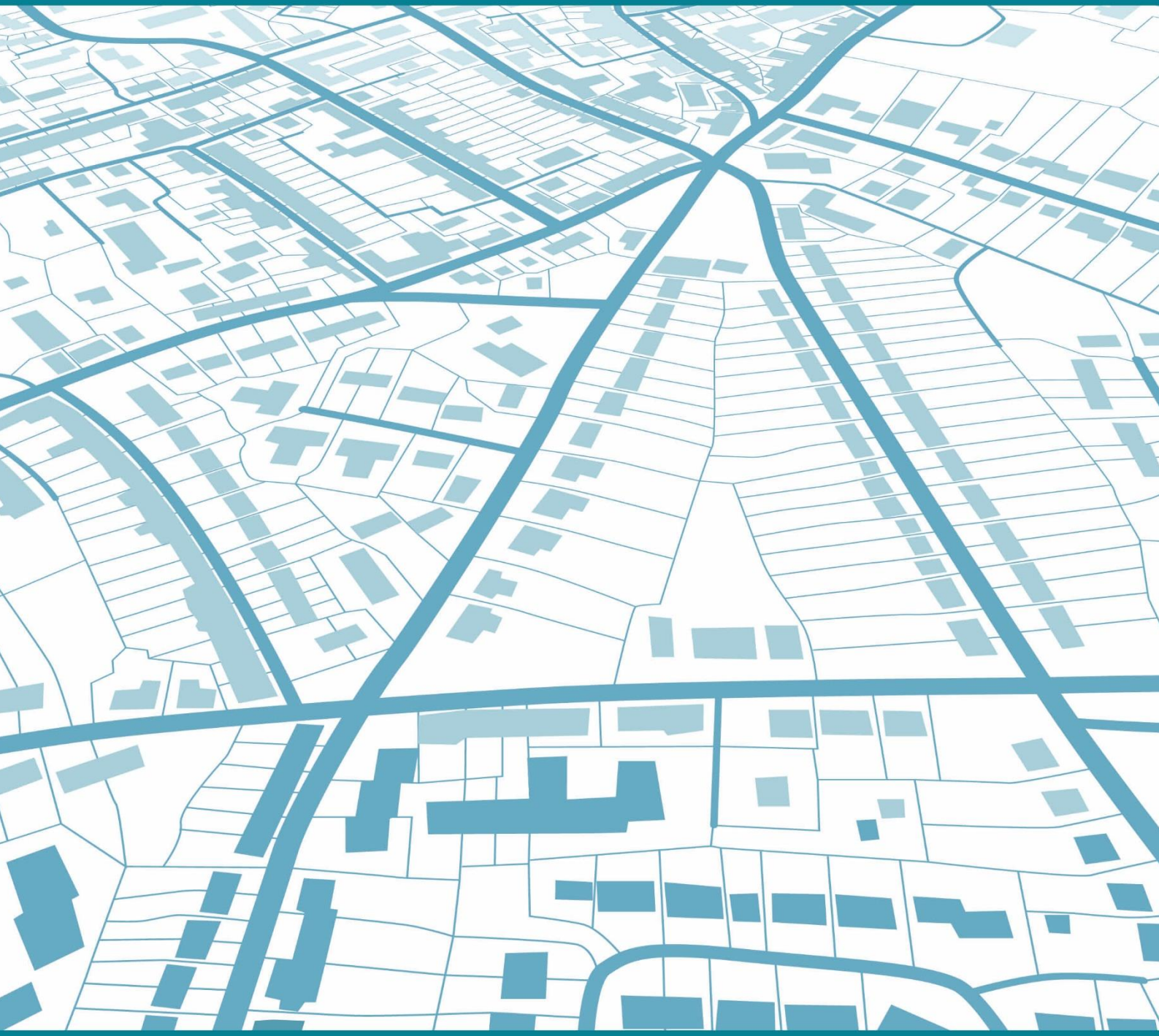
TRANSPORT AND TRAFFIC PLANNING ASSOCIATES
Established 1994

Suite 502, Level 5, 282 Victoria Avenue
Chatswood NSW 2067
T (02) 9411 5660 | F (02) 9904 6622
E info@ttpa.com.au | ttpa.com.au



Anglicare Milperra Village, Bullecourt Avenue, Milperra
Proposed Residential Aged Care Development
Traffic and Parking Assessment

Ref: 17161
Date: September 2019
Issue: B

Table of Contents

List of Figures

List of Appendices

1.0 Introduction

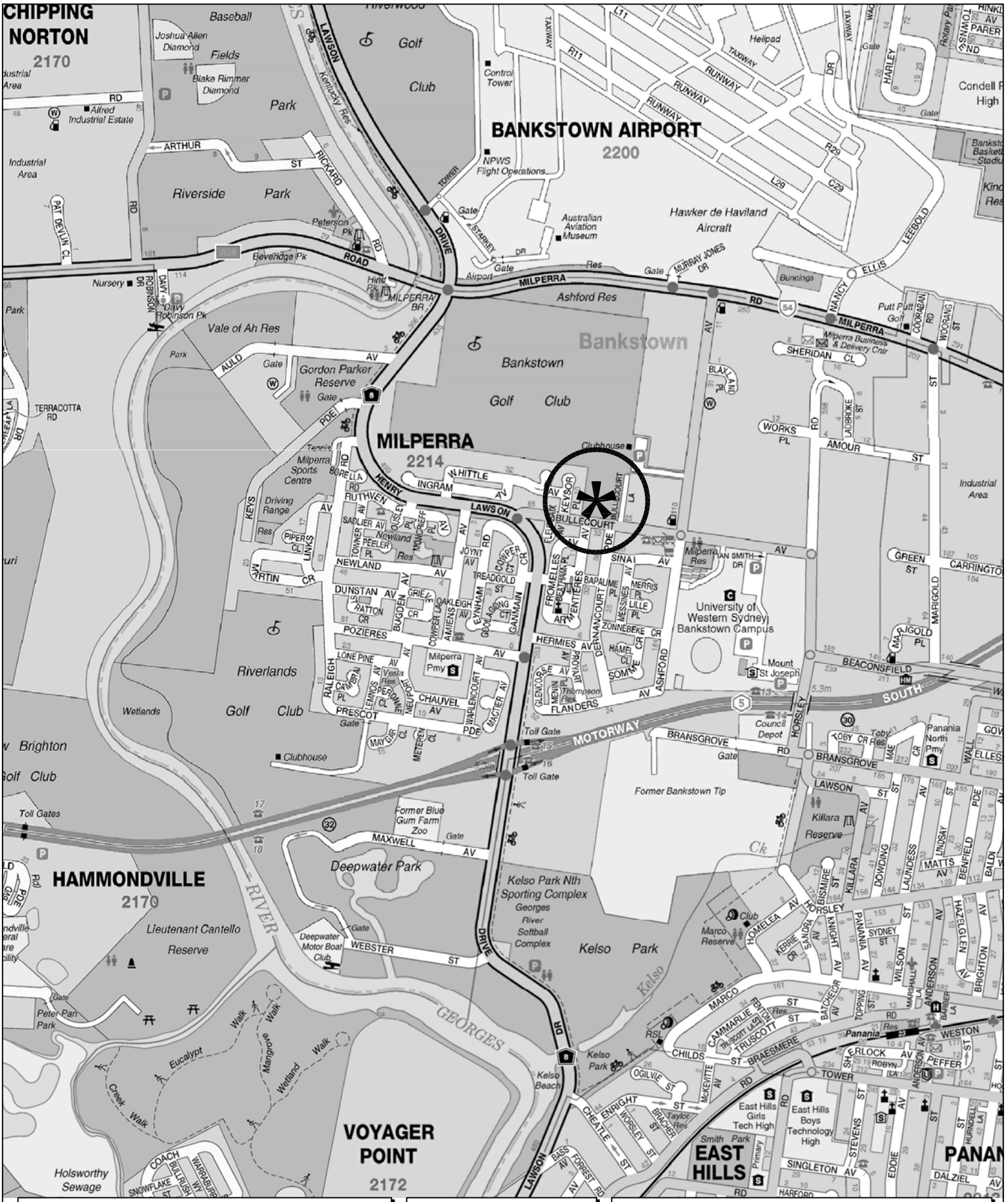
This report has been prepared for Anglicare (a Social Housing Provider) to accompany a Development Application to Canterbury Bankstown Council for a proposed Seniors Living with self-contained dwellings (Independent Living Units (ILUs) and a Residential Aged Care Facility (RACF) on Bullecourt Avenue at Milperra (Figure 1).

The development site is located just to the east of Henry Lawson Drive and to the north of the M5 Motorway being a former southern “appendage” of the large Bankstown Golf Club landholding. The proposed development scheme comprises:

* 81 ILU apartments
* 107 RACF beds (33 for persons with dementia)
* ancillary facilities
* basement and surface parking

The purpose of this report is to:

* describe the site, its context and the proposed development scheme
* describe the road network serving the site and the prevailing traffic conditions
* assess the adequacy of the proposed parking provision
* assess the potential traffic implications
* assess the suitability of the proposed vehicle access, internal circulation and servicing arrangements
* assess the safety and suitability of the proposed pedestrian refuge across Bullecourt Avenue


CHIPPING NORTON
2170
BANKSTOWN AIRPORT
2200
MILPERRA
2214
HAMMONDVILLE
2170
VOYAGER POINT
2172
EAST HILLS
Bankstown
Golf Club
Riverlands
Golf Club
Deepwater Park
Kelso Park
Riverside Park
Peter Pan Park
Lieutenant Cantello Reserve
Gordon Parker Reserve
Milperra Sports Centre
Vale of Ah Res
Ashford Res
Kelso Park Nth Sporting Complex
Georges River Softball Complex
Killara Reserve
Marco Reserve
Former Bankstown Tip
Former Blue Gum Farm Zoo
University of Western Sydney Bankstown Campus
Mount St Joseph
Milperra Pmy
Panania North Pmy
Council Depot
Milperra Business & Delivery Cntr
Bunnings
Hawker de Haviland Aircraft
Australian Aviation Museum
Peterson Pk
Davy Robinson Pk
Beveridge Pk
Baseball Diamond
Joshua Allen Diamond
Blake Rimmer Diamond
Alfred Industrial Estate
Industrial Area
Nursery
Clubhouse
Toll Gate
Toll Gates
Deepwater Motor Boat Club
Holsworthy Sewage
Smith Park
Taylor Res
Thompson Res
Toby CR Res
Kelso Beach
Eucalypt Walk
Mangrove Walk
Wetland Walk
Creek Walk
Milperra Res
Tennis
Driving Range
Helipad
Control Tower
NPWS Flight Operations
Gate
Airport
Res
Ck
RIVER
GEORGES
MOTORWAY
SOUTH
LAWSON
DRIVE
MILPERRA
ROAD
ARTHUR
ST
RICKARD
TOWER
STARKEY
DR
MURRAY JONES DR
ELLIS
LEEBOLD
NANCY
SHERIDAN CL
WORKS PL
AMOUR ST
BULLECOURT
INGRAM
HITTLE
HENRY
LAWSON
NEWLAND
DUNSTAN AV
POZIERES
HERMIES AV
FLANDERS
PRESCOT
MAXWELL AV
WEBSTER ST
BRANSGROVE RD
BEACONSFIELD
GREEN ST
CARRINGTON
MARIGOLD
SINAI AV
ASHFORD
HORSLEY
WESTON
PANANIA
CHILDS ST
BRAESMERE
TRUSCOTT
CAMMARLEIGH
MARCO
HOMELEA AV
SYDNEY ST
KNIGHT
BISMIRE ST
LAWSON ST
BRANSGROVE
TOWER
ROBYN
PEFFER
SINGLETON AV
DALZIEL
HARFORD
East Hills Girls Tech High
East Hills Boys Technology High
RSL
Club
Panania
Res
Primary
Former Bankstown Tip
5.3m
LEGEND
LOCATION
FIG 1

2.0 Proposed Development

2.1 Site, Context and Existing Use

The site (Figure 2) is consolidation of Lots 161 and 272 of DP 752013 which occupies a generally square shaped area of some 27,600m^2 with frontages to Bullecourt Avenue and Bullecourt Lane. The lot, which was formerly part of the Bankstown Golf Course landholding, is largely vacant apart from a shed in the north-east corner was used in the past as a "practice fairway".

The site is adjoined to the west by residential dwellings while other land uses in the vicinity of the property comprise:

* the industrial uses extending to the east of Bullecourt Lane
* the residential dwellings to the south
* the golf course lands extending to the north
* the large Bankstown Airport precinct further to the north
* the UWS Bankstown Campus to the south-east

2.2 Proposed Development

It is proposed to clear the site and excavate parts to provide for basement car parking and level building platforms.

The proposed development will comprise:

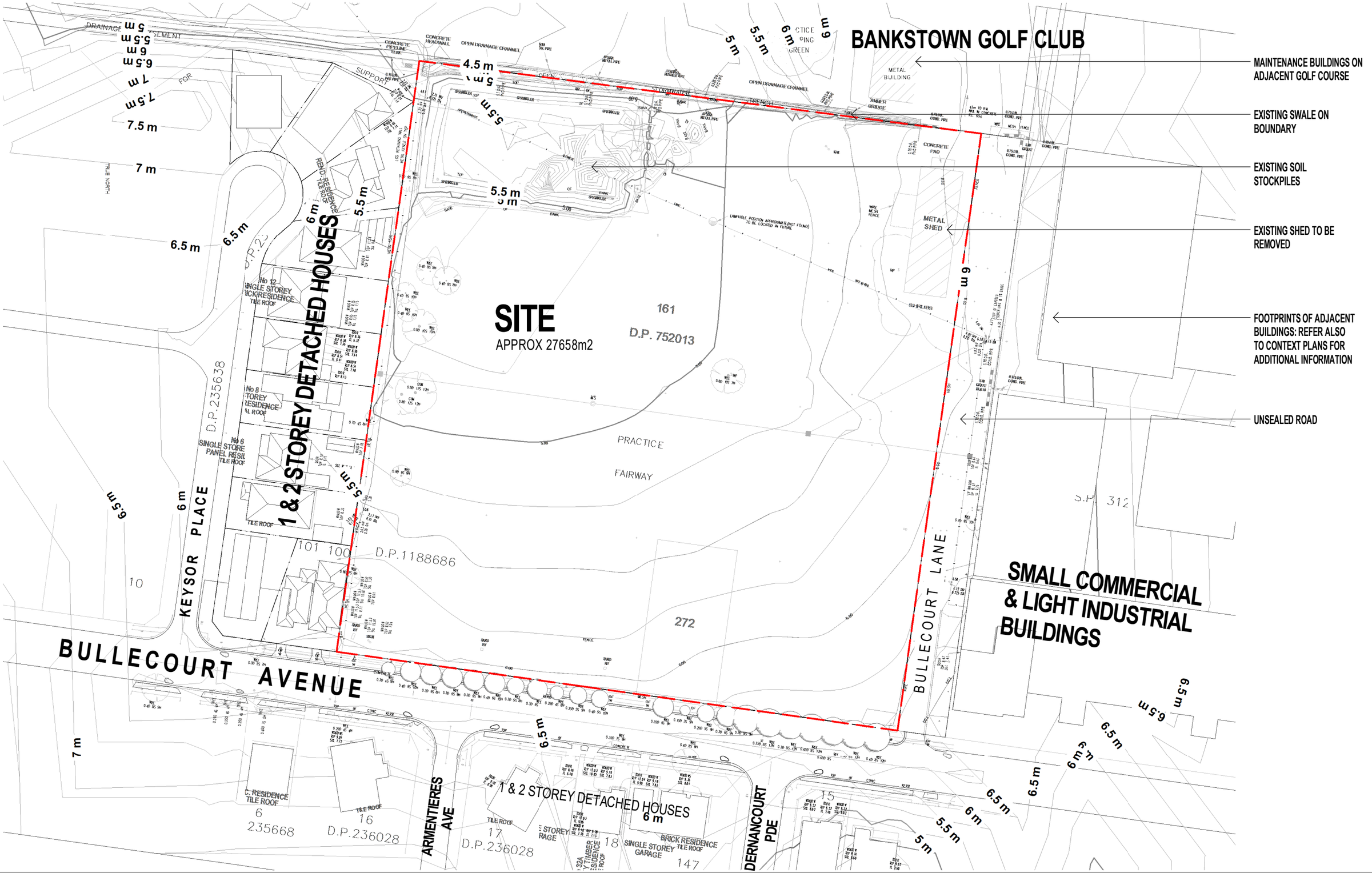
RACF	**ILUs (buildings)**
107 beds (33 dementia)	7 x one-bed
Ancillary facilities	46 x two-bed
36 staff (maximum daytime)	28 x three-bed
	Total 81 apartments

LEGEND

N

SITE

FIG 2



0 5 10 15 20 25m
1:500 @A1; 1:1000 @A3

NORTH

REV	DATE	DETAILS	INITIALS
DA1	29.01.19	DA ISSUE	ML

Anglicare

BICKERTON MASTERS
PH 07 3257 3622 FAX 07 3257 3677
99 BROOKES STREET PO BOX 552
FORTITUDE VALLEY QLD 4006

CLIENT: ANGLICARE (ACS) , SYDNEY

PROJECT: MILPERRA VILLAGE

BULLECOURT AVENUE, MILPERRA

DRAWING TITLE: EXISTING SITE PLAN

DATE: JAN 29, 2019 | DRAWN: | SCALE: 1 : 500@A1

FILE : 973_DA2_SITE_Central.rvt | CHECKED:

PROJ: 973 | DRAWING: DA.S.05 | REVISION: DA1

29/01/2019 6:54:31 PM

A total of 138 parking spaces (including 11 accessible and 1 ambulance spaces) will be provided in basement and at-grade areas with driveways located on the Bullecourt Avenue and Bullecourt Lane frontages as well as a porte cochere access from Bullecourt Lane.

Details of the proposed development scheme are provided on the development plans prepared by SitePlus, which accompany the Development Application and are reproduced in part in Appendix A.

3.0 Road Network and Traffic Conditions

3.1 Road Network

The road network serving the site (Figure 3) comprises:

* *M5 Motorway* – a State Road and arterial route connecting between Mascot and Prestons with access provided at the Henry Lawson Drive interchange

* *Milperra Road* – a State Road and arterial route

* *Henry Lawson Drive* – a State Road and sub-arterial route

* *Bullecourt Avenue, Horsley Drive and Beaconsfield Road* – a Regional Road and important collector route

The M5 Motorway presents a “barrier” to the road network although overbridges are provided on Henry Lawson Drive, Horsley Road and Beaconsfield Road.

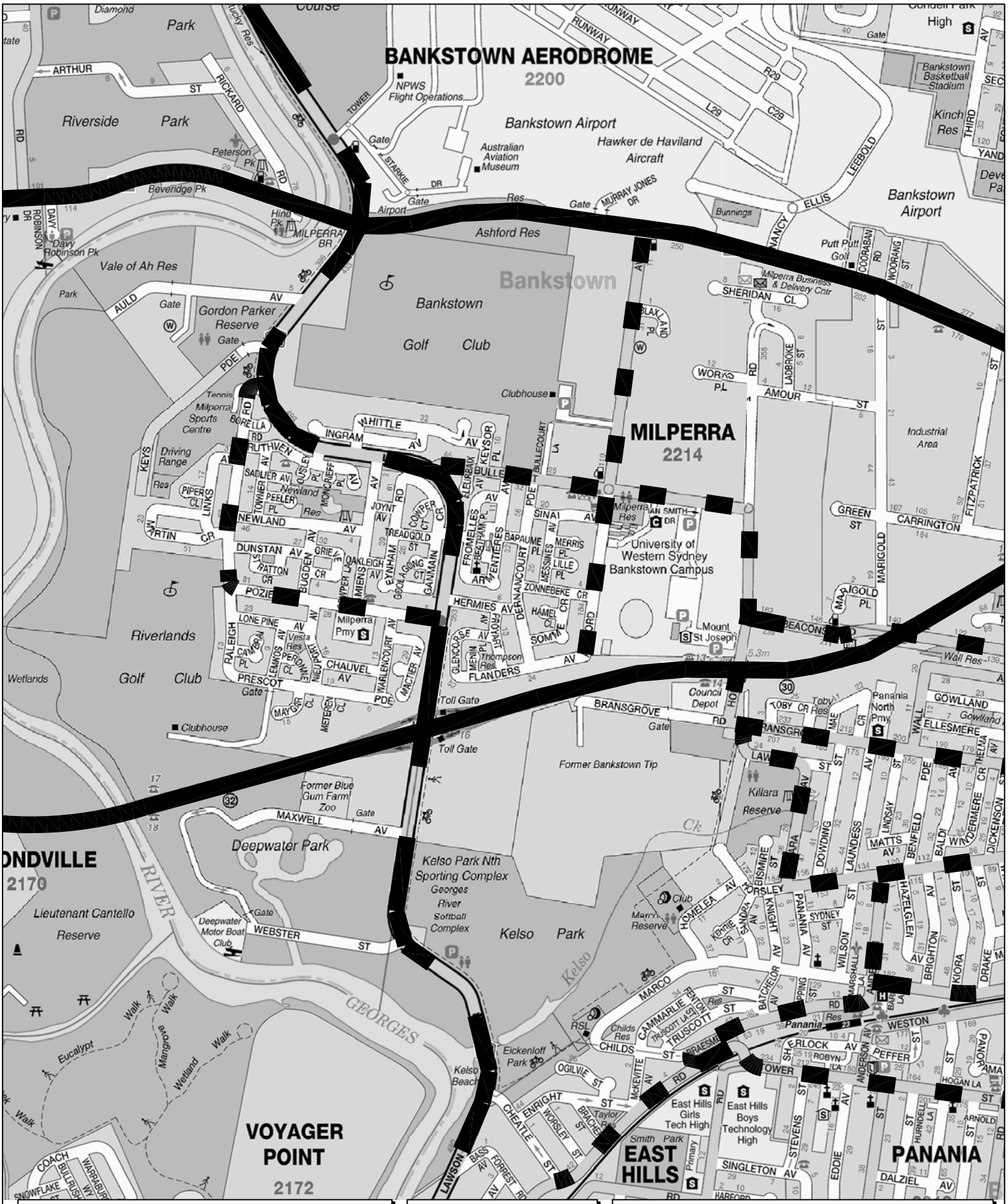
Bullecourt Avenue is relatively straight and level with one traffic lane and kerbside parking in each direction while Bullecourt Lane is an unsealed cul-de-sac.

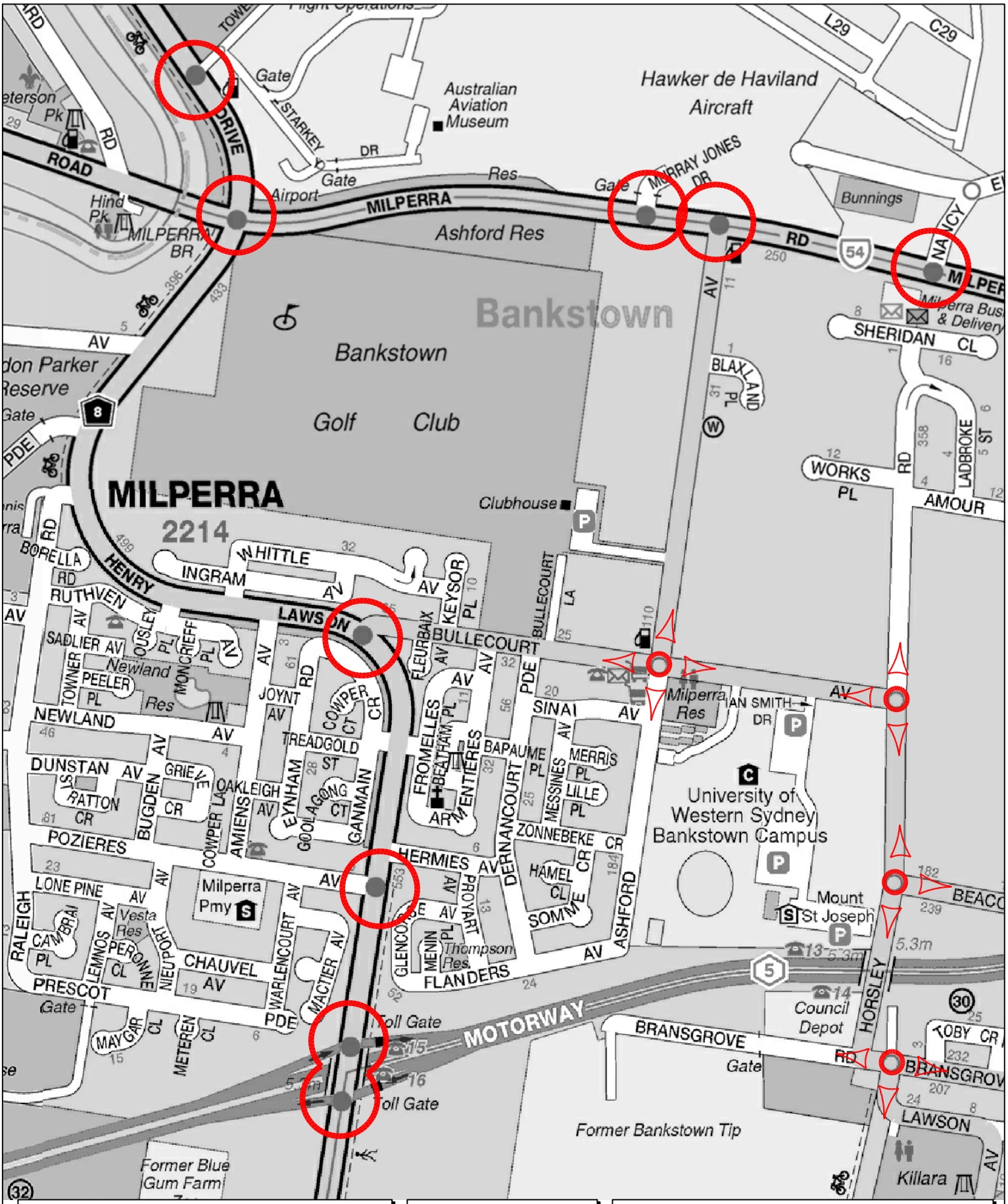
3.2 Traffic Controls

The existing traffic controls (Figure 4) on the road system in the vicinity of the site include:

* the traffic signal controlled intersections along Henry Lawson Drive including the Bullecourt Avenue and the M5 Ramp intersections

* the roundabouts at the Horsley Road /Bullecourt Avenue and Ashford Avenue /Bullecourt Avenue intersections


BANKSTOWN AERODROME
2200
NPWS Flight Operations
Bankstown Airport
Australian Aviation Museum
Hawker de Haviland Aircraft
Bankstown Airport
Bankstown
Golf Club
Ashford Res
Vale of Ah Res
Gordon Parker Reserve
Milperra Sports Centre
Driving Range
MILPERRA
2214
University of Western Sydney Bankstown Campus
Industrial Area
Milperra Business & Delivery Cntr
Milperra Pmy
Riverlands
Golf Club
Wetlands
Clubhouse
Toll Gate
Former Bankstown Tip
Former Blue Gum Farm Zoo
Deepwater Park
Kelso Park Nth Sporting Complex
Georges River Softball Complex
Kelso Park
Killara Reserve
Lieutenant Cantello Reserve
Deepwater Motor Boat Club
RIVER
GEORGES
Kelso Beach
Eickenloff Park
VOYAGER POINT
2172
EAST HILLS
PANANIA
East Hills Girls Tech High
East Hills Boys Technology High
Panania North Pmy
Council Depot
Mount St Joseph
Bankstown Basketball Stadium
Kinch Res
Putt Putt Golf
Bunnings
Milperra Res
Beveridge Pk
Davy Robinson Pk
Peterson Pk
Hind Pk
Thompson Res
Wall Res
Toby Res
Childs Res
Panania Res
Marco Reserve
Smith Park
Taylor Primary
ARTHUR ST
RICKARD RD
TOWER GATE
STARKIE DR
MURRAY JONES DR
ELLIS LEEBOLD
RUNWAY
R29
L29
C29
AULD AV
PDE
INGRAM AV
WHITTLE AV
BULLECOURT PDE
SINAI AV
IAN SMITH DR
SHERIDAN CL
WORKS PL
AMOUR ST
GREEN ST
CARRINGTON
MARIGOLD PL
BEACONSFIELD
BRANSGROVE RD
FLANDERS AV
HERMIES AV
ZONNEBEKE CR
SOMME CL
MENIN PL
GLENCORSE AV
FROMELLES AV
BAPAUME PL
DERNANCOURT AV
MAXWELL AV
WEBSTER ST
HOMELEA AV
MARCO ST
CHILDS ST
OGILVIE ST
ENRIGHT ST
CHEATLE ST
LAWSON ST
BASS AV
FORREST RD
SINGLETON AV
STEVENS ST
WESTON ST
PEFFER ST
HOGAN LA
GOWLAND ST
ELLESMERE
LAWDESS ST
DOWDING
LAUNDESS
MATTS AV
BENFIELD
BALDI
DERMERE CR
DICKENSON
BISMIRE ST
TORSLEY
KNIGHT AV
PANANIA AV
SYDNEY ST
WILSON
BRIGHTON
KIORA
DRAKE
HAZELGLEN
CAMMARLIE
TRUSCOTT
PANORAMA
ARNOLD
DALZIEL AV
HARFORD
EDDIE
HURNDELL
COACH
BULLRUSH
WARRABURI
SNOWFLAKE
Eucalypt
Mangrove
Wetland
Walk
LEGEND
ARTERIAL
SUB-ARTERIAL
COLLECTOR
N
ROAD NETWORK
FIG 3



LEGEND

◯ TRAFFIC SIGNAL CONTROL

◁○▷ ROUNDABOUT

↗ RESTRICTED TURNING MOVEMENT

N

TRAFFIC CONTROLS

FIG 4

* the traffic signal controlled intersections along Milperra Road including the Henry Lawson Drive intersection

* the 50 kmph speed limit on the local road and collector system

* the bus stops along Bullecourt Avenue

3.3 Traffic Conditions

An indication of the traffic conditions in the vicinity of the site is provided by data published by the RMS and traffic surveys undertaken as part of this assessment. The data[1] published by the RMS is expressed in terms of Annual Average Daily Traffic (AADT) and the latest available details are provided in the following:

	AADT
Henry Lawson Drive	23,900

Traffic surveys have been undertaken the AM and PM peak periods at the Bullecourt Avenue /Bullecourt Lane and Dernancourt Parade intersection complex. The results of those surveys are provided in Appendix B and summarised in the following:

		AM	**PM**
Bullecourt Avenue	Eastbound	689	297
	Left Turn	-	1
	Westbound	269	550
	Right Turn	-	-
Bullecourt Lane	Right Turn	-	1
	Left Turn	-	-
Bullecourt Avenue	Eastbound	687	292
	Right Turn	15	17
	Westbound	258	515
	Left Turn	11	35
Dernancourt Parade	Right Turn	2	6
	Left Turn	18	15

1 *Traffic Volumes for Roads and Maritime Services*

An annual 2% compound growth rate has been adopted to adjust the surveyed 2017 traffic volumes to Year 2019 volumes. This considers both traditional background growth and recognises other sites in Milperra and adjacent suburbs that are under construction or in planning.

Assessment of the intersection using Traffic Modelling program SIDRA indicates a satisfactory operation. Details of the model output are provided in Appendix C and summarised as follows while a guide to interpreting SIDRA results is reproduced overleaf:

Intersection	**AM**			**PM**		
	AVD	**LOS**	**DS**	**AVD**	**LOS**	**DS**
Bullecourt Ave/ Dernancourt Pde	14.1s	B	0.01	11.7s	B	0.02
Bullecourt Ave/ Bullecourt Ln	14.0s	B	0.01	11.7s	B	0.01

It is apparent that the operational performance of the Bullecourt Avenue/Dernancourt Parade and Bullecourt Avenue/Bullecourt Lane intersections is quite satisfactory due to the regular lengthy gaps in the Bullecourt Avenue traffic flows.

A review of the traffic survey data shows that the peak hours along Bullecourt Avenue in the vicinity of the site occur between 8.00am and 9.00am and between 3.30pm and 4.30pm during the AM and PM peak periods respectively.

An additional traffic survey was completed on Thursday, 29 November 2018 to determine the vehicle queue along Bullecourt Avenue in the eastbound direction towards Western Sydney University during the AM peak hour and vehicle queue along Bullecourt Avenue in the westbound direction towards Henry Lawson Drive . The longest vehicle queue waiting to enter the roundabout of Bullecourt Avenue/Ashford Avenue occurred at 8.35am and the vehicle queue lasted no more than a minute (see figure below). This queue only extended 140m from the roundabout, 60m (10 vehicles) to the east of the site access at Bullecourt Lane.

Criteria for Interpreting Results of SIDRA Analysis

1. Level of Service (LOS)

LOS	Traffic Signals and Roundabouts	Give Way and Stop Signs
'A'	Good	Good
'B'	Good with acceptable delays and spare capacity	Acceptable delays and spare capacity
'C'	Satisfactory	Satisfactory but accident study required
'D'	Operating near capacity	Near capacity and Accident Study required
'E'	At capacity; at signals incidents will cause excessive delays. Roundabouts require other control mode	At capacity and requires other control mode
'F'	Unsatisfactory and requires additional capacity	Unsatisfactory and requires other control mode

2. Average Vehicle Delay (AVD)

The AVD provides a measure of the operational performance of an intersection as indicated on the table below, which relates AVD to LOS. The AVD's listed in the table should be taken as a guide only as longer delays could be tolerated in some locations (ie inner city conditions) and on some roads (ie minor side street intersecting with a major arterial route).

Level of Service	Average Delay per Vehicle (secs/veh)	Traffic Signals, Roundabouts	Give Way and Stop Signs
A	Less than 14	Good operation	Good operation
B	15 to 28	Good with acceptable delays and spare capacity	Acceptable delays and spare capacity
C	29 to 42	Satisfactory	Satisfactory but accident study required
D	43 to 56	Operating near capacity	Near capacity and accident study required
E	57 to 70	At capacity; at signals incidents will cause excessive delays. Roundabouts require other control mode	At capacity and requires other control mode

3. Degree of Saturation (DS)

The DS is another measure of the operational performance of individual intersections.

For intersections controlled by **traffic signals**[1] both queue length and delay increase rapidly as DS approaches 1, and it is usual to attempt to keep DS to less than 0.9. Values of DS in the order of 0.7 generally represent satisfactory intersection operation. When DS exceeds 0.9 queues can be anticipated.

For intersections controlled by a **roundabout or GIVE WAY or STOP signs**, satisfactory intersection operation is indicated by a DS of 0.8 or less.

[1] *the values of DS for intersections under traffic signal control are only valid for cycle length of 120 secs*

As such, ingressing vehicles from westbound Bullecourt Avenue into the site and egressing vehicles onto westbound Bullecourt Avenue will not be affected by this queue during the AM peak hour.

In the PM peak hour, while the westbound vehicle queue travelling along Bullecourt Avenue extends through the western site access due to the signalized intersection of

Bullecourt Avenue/Henry Lawson Drive, the queue occurs twice an hour and lasted no more than a minute (see figure below), allowing more than sufficient gaps for vehicles to exit via the western access.

3.4 Transport Services

The bus services which operate along Bullecourt Avenue comprise:

- Route M90 which connects between Liverpool and Bankstown railway station
- Route 55 which connects between Milperra and Padstow railway station
- Route 922 which connects between East Hills and Bankstown railway station
- Route 962 which connects between East Hills and Miranda

The site is therefore conveniently located with bus services providing connection to the Metropolitan transport network.

Parramatta, Bankstown and Liverpool bus network map

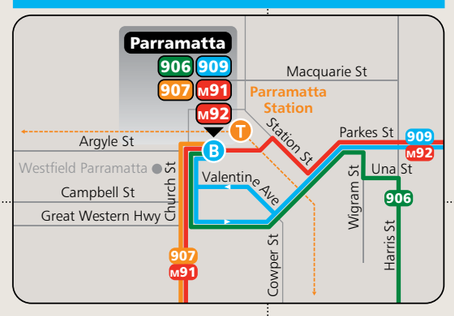
Transport Buses

NORTH

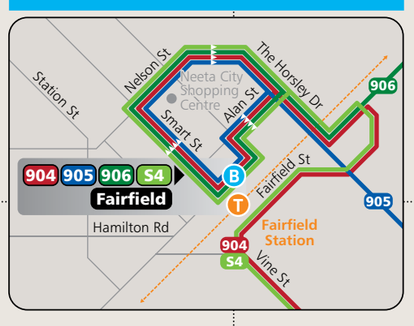
Diagrammatic Map
Not to Scale

Proudly operated by Transdev NSW

Parramatta Inset



Fairfield Inset



Train towards Richmond, Penrith, Lithgow & Bathurst

Parramatta

Parramatta Inset

Hassall St

Train towards Carlingford

Rosehill

Rosehill Gardens Racecourse

Rosehill Station

Harris Park

James Ruse Dr

909

906

Allen St

907 M91

Harris Park Station

Good St

Alfred St

M92

Parramatta Rd

Granville Station

Railway Pde

Milton St

Bold St

Auburn Home Mega Mall

Silverwater

M4 Mwy

Parramatta Rd

Silverwater Rd

Sydney Olympic Park

Train towards Epping, Hornsby, Central Coast & Newcastle

Concord West Station

Olympic Park Station

Pitt St

Merrylands

Granville S2

William St

Clyde Station

Granville

Neil St

Stockland Merrylands

Granville TAFE

The Avenue

Merrylands 908

Merrylands Station

Mombri St

Louis St

M91

Arida Centre Woolworths

Lisgar St

Manchester Rd

Queen St

South Pde

Auburn Station

Station Rd

St Hilliers Rd

Lidcombe Power Centre

John St

Auburn

911 Auburn

S3

Mona St

St Josephs Hospital

Mary St

Boorea St

Olympic Dr

Beatrice St

Queen St

Lidcombe

Lidcombe Station

Church St

Railway St

Oxford St

Woodville Rd

Excelsior St

Blaxcell St

Clyde St

907

908

S2

Guildford

Railway Tce

Talbot Rd

Guildford Shopping Centre

Mountford Ave

Guildford Rd

Guildford 916

Guildford Station

Chisholm Rd S3

Cumberland Rd

Park Rd

Harrow Rd

Auburn Rd

Susan St

Auburn Hospital

Norval St

Water St

Vaughan St

Woodburn Rd

Strathfield

913

914

Strathfield Station

Homebush

Homebush Station

Flemington Station

North Strathfield Station

Burwood

M90

Victoria St E

Westfield Burwood

Train towards Sydney CBD

Burwood Station

Albert Rd

Churchill Ave

Raw Square

Strathfield Plaza

Morwick St

Railway Pde

Bolton St

906

916

Broughton St

North Pde

Woodville Rd

Rawson Rd

Wellington Rd

909

911

908

Chisholm Rd

Graham St

Tilba St

Berala

Berala Station

Brixton Rd

Kerrs Rd

Georges Ave

London Rd

Hyde Park Rd

St Johns Rd

Rookwood

Rookwood Cemetery

Centenary Dr

Strathfield

Redmyre Rd

Burwood

Homebush Rd

Albyn Rd

The Boulevarde

Burwood Rd

Liverpool Rd

Enfield

The Broadway

Coronation Pde

Strathfield South

Yennora

Yennora Station

Barbers Rd

Orchardleigh St

Fairfield St

906

Donald St

Gurney Rd

Miller Rd

916

Curtis Rd

Boundary Rd

Old Guildford

Campbell Hill Rd

Ferndell St

Priam St

Elliston St

Hector St

Chester Hill

Virgil Ave

Leicester St

Waldron Rd

Proctor Pde

Jocelyn St

Batt St

Sefton

Sefton Station

Chester Hill Station

Chester Hill 916 S4

Christina Rd

Villawood Station

Leightonfield Station

Tangerine St

905

907

Villawood

Villawood Shops

Binna Burra St

Alcoomie St

Gundaroo St

Belar Ave

Lowana St

905 S4

Carawatha St

Derribong St

Hume Hwy

907

Miller Rd

Orchard Rd

Chester Hill Rd

Rose St

Kerrinea Rd

Woods Rd

Auburn Rd

Birrong

Birrong Station

Potts Hill

Rookwood Rd

M92

Regents Park

Regents Park Station

Kingsland Rd

Park Rd

Regents Park

Amy St

908

909

Carlingford St

Sefton Station

Wellington Rd

Fairfield East

Fairfield Inset

Crown St

Mandarin St

Woodville Rd

Vine St

Bland St

Mitchell St

Normanby St

905

S4

904

Coorara St

River Ave

Ruby St

The Horsley Dr

Carramar

Carramar Station

Merrylands

Stockland Merrylands

Neil St

Mombri St

Granville

Granville TAFE

The Avenue

Louis St

M91

Arida Centre Woolworths

Lisgar St

Manchester Rd

Queen St

South Pde

Auburn Station

Station Rd

St Hilliers Rd

Lidcombe Power Centre

John St

Auburn

911 Auburn

S3

Mona St

St Josephs Hospital

Mary St

Boorea St

Olympic Dr

Beatrice St

Queen St

Lidcombe

Lidcombe Station

Church St

Railway St

Oxford St

Woodville Rd

Excelsior St

Blaxcell St

Clyde St

907

908

S2

Guildford

Railway Tce

Talbot Rd

Guildford Shopping Centre

Mountford Ave

Guildford Rd

Guildford 916

Guildford Station

Chisholm Rd S3

Cumberland Rd

Park Rd

Harrow Rd

Auburn Rd

Susan St

Auburn Hospital

Norval St

Water St

Vaughan St

Woodburn Rd

Strathfield

913

914

Strathfield Station

Homebush

Homebush Station

Flemington Station

North Strathfield Station

Burwood

M90

Victoria St E

Westfield Burwood

Train towards Sydney CBD

Burwood Station

Albert Rd

Churchill Ave

Raw Square

Strathfield Plaza

Morwick St

Railway Pde

Bolton St

906

916

Broughton St

North Pde

Woodville Rd

Rawson Rd

Wellington Rd

909

911

908

Chisholm Rd

Graham St

Tilba St

Berala

Berala Station

Brixton Rd

Kerrs Rd

Georges Ave

London Rd

Hyde Park Rd

St Johns Rd

Rookwood

Rookwood Cemetery

Centenary Dr

Strathfield

Redmyre Rd

Burwood

Homebush Rd

Albyn Rd

The Boulevarde

Burwood Rd

Liverpool Rd

Enfield

The Broadway

Coronation Pde

Strathfield South

Yennora

Yennora Station

Barbers Rd

Orchardleigh St

Fairfield St

906

Donald St

Gurney Rd

Miller Rd

916

Curtis Rd

Boundary Rd

Old Guildford

Campbell Hill Rd

Ferndell St

Priam St

Elliston St

Hector St

Chester Hill

Virgil Ave

Leicester St

Waldron Rd

Proctor Pde

Jocelyn St

Batt St

Sefton

Sefton Station

Chester Hill Station

Chester Hill 916 S4

Christina Rd

Villawood Station

Leightonfield Station

Tangerine St

905

907

Villawood

Villawood Shops

Binna Burra St

Alcoomie St

Gundaroo St

Belar Ave

Lowana St

905 S4

Carawatha St

Derribong St

Hume Hwy

907

Miller Rd

Orchard Rd

Chester Hill Rd

Rose St

Kerrinea Rd

Woods Rd

Auburn Rd

Birrong

Birrong Station

Potts Hill

Rookwood Rd

M92

Regents Park

Regents Park Station

Kingsland Rd

Park Rd

Regents Park

Amy St

908

909

Carlingford St

Sefton Station

Wellington Rd

Fairfield East

Fairfield Inset

Crown St

Mandarin St

Woodville Rd

Vine St

Bland St

Mitchell St

Normanby St

905

S4

904

Coorara St

River Ave

Ruby St

The Horsley Dr

Carramar

Carramar Station

Chullora

Muir Rd

Chullora TAFE

Chullora Marketplace

Norfolk Rd

Shellcote Rd

Waterloo Rd

Cosgrove Rd

Hume Hwy

Liverpool Rd

Strathfield South

Cardigan Rd

913

M90

914

925

Noble Ave

Rawson Rd

Chiswick Rd

Roberts Rd

Hillcrest Ave

Highview Ave

Greenacre

Boronia Rd

Juno Pde

914 Greenacre

Wangee Rd

Greenacre Shops

Waterloo Rd

Stacey St

Canley Vale Station

Cabramatta

Canley Vale

Chancery St

Chadderton St

Vale St

Ralph St

Lansdale

Lansdowne Rd

Hume Hwy

Lansdowne

Johnston Rd

Arundle Rd

Bass Hill

Bass Hill Plaza

Chester Hill Rd

Hector St

Buist St

M91

Brodie St

Yagoona

McMahon Rd

Church Rd

Yagoona Station

Ferrier Rd

Brunker Rd

908

909

Ashby Ave

Powell St

Avoca St

George St

Woodbine St

Rookwood Rd

M92

Hume Hwy

Highview Ave

Hillcrest Ave

Noble Ave

Roberts Rd

Greenacre

Boronia Rd

Juno Pde

914 Greenacre

Wangee Rd

Greenacre Shops

Waterloo Rd

Stacey St

Cabramatta S1

Railway Pde

Broomfield St

Cumberland St

Cabramatta Rd

Cabramatta Rd W

Cabramatta Station

Longfield St

Lansvale Shopping Centre

Hollywood Dr

Willis St

Day St

Henry Lawson Dr

Flinders Rd

Georges Hall

Denman Rd

Jacaranda Dr

Oak Dr

Athel St

Ash St

Rex Rd

Amaroo Ave

Georges Hall Shopping Centre

Georges River Rd

Bellevue Ave

Georgina St

Warringa St

Waruda St

Bertram St

Saltash St

William St

Glassop St

Melanie St

Chapel Rd

Bankstown Inset

Marion St

905

Owen Rd

Haig Ave

Ashcroft St

Bankstown

Condell Park Shops

Manahan St

Simmat Ave

Edgar St

Lancelot St

Pringle Ave

Oxford Ave

Restwell St

Chertsey Ave

Townsend St

Augusta St

925

926

Fourth Ave

Yanderra St

Bankstown Airport

Gleeson Ave

Gallipoli St

Northam Ave

Condell Park

Eldridge Rd

Ethel St

Artegall St

Bankstown-Lidcombe Hospital

Claribel St

922 923 924 M90

Canterbury Rd

M92

Chapel Rd S

Macauley Ave

Home Central Bankstown

Fairford Rd

M5 Mwy

Stacey St

Punchbowl Station

Train towards Sydney CBD

Canterbury Rd

Liverpool Inset

Liverpool

Newbridge Rd

903

M90

Moorebank Ave

Heathcote Rd

Moorebank Shopping Village

Maddecks Ave

Moorebank

Stockton Ave

Nuwarra Rd

Christiansen Blvd

Brickmakers Dr

Church Rd

902

Junction Rd

901

M5 Mwy

Delvin Dr

ANZAC Rd

Train towards Campbelltown

Moorebank Ave

Hammondville

Hammondville Shopping Village

Keato Ave

Stewart Ave

Judd Ave

Walder Rd

Heathcote Rd

902

Wattle Grove

Wattle Grove Dr

Wattle Grove Shops

Village Way

Bardia Pde

Infantry Pde

Australis Ave

Holsworthy

The Boulevarde

Holsworthy 901 902 902X

Holsworthy Station

Train towards Campbelltown & Southern Highlands

Chatham Ave

Warwick Farm

Warwick Farm Station

Hume Hwy

904

Governor Macquarie Dr

Chipping Norton

Chipping Norton Market Plaza

Barry Rd

Centtal Ave

Chippenham St

Ascot Dr

Bent St

Faversham Cres

Haddenham St

903

Childs Rd

Chipping Norton Shopping Village

Alfred Rd

Epsom Rd

Nuwarra Rd

Governor Macquarie Dr

Milperra

Milperra Rd

M90

Amour St

Ashford Ave

Marigold St

Bullecourt Ave

Milperra S5

Newland Ave

Zonnebeke Cres

UWS Bankstown

Hermies Ave

Horsley Rd

Raleigh Rd

Pozieres Ave

Beaconsfield St

922

Queen St

The River Rd

Bransgrove Rd

962

Lawson St

Henry Lawson Dr

Killara Ave

Anderson Ave

Benfield Pde

Horsley Rd

Revesby

Revesby Station

923 924 926

Marco Ave

962 S5

Sphinx Ave

Doyle Rd

Padstow TAFE

Padstow Station

S5 Padstow

Howard Rd

Padstow Shopping Centre

Ryan Rd

962 M92

Faraday Rd

Davies Rd

Padstow

Riverwood Station

Train towards Sydney CBD

Gibson Ave

Watson Rd

Cahors Rd

Milperra Rd

Edgar St

Ethel St

Bankstown-Lidcombe Hospital

Claribel St

922 923 924 M90

Canterbury Rd

M92

Chapel Rd S

Macauley Ave

Home Central Bankstown

Fairford Rd

M5 Mwy

Stacey St

Punchbowl Station

Train towards Sydney CBD

Canterbury Rd

4.0 Parking

The minimum parking provision relevant to the proposed Social Housing Provider development is specified in the SEPP (Housing for Seniors or People with Disability) as follows:

ILU Apartments	RACF
1 space per 5 ILUs	1 space per 10 beds (or 1 space per 15 beds if the facility provides care only for persons with dementia) 1 space per 2 staff Ambulance space

Given the location of the site and ease of access to convenient public transport services, the Roads and Maritime Guide has also been referenced to better understand the parking requirements for visitors. The parking requirement is provided as follows:

ILU Apartments	RMS Minimum Parking Rate
Self-contained units (subsidised development)	1 visitor space per 10 ILUs

Application of the above criteria would indicate the following provision:

ILU Apartments		RACF	
81 ILUs	- 17 residents/ tenants spaces	74 beds	- 7.4 (8) spaces
	- 8 visitor spaces	33 dementia beds	- 2.2 (3) spaces
		36 staff	- 18 spaces
		1 ambulance space	
Total	**25 spaces**	**Total**	- **30 spaces (including 1 ambulance space)**

It is proposed to provide:

ILU residents/tenants	-	82 spaces (6 accessible)
ILU visitors	-	22 spaces (2 accessible)
Subtotal for ILU	-	**104 spaces (8 accessible)**
RACF staff	-	25 spaces (2 accessible)
RACF visitors	-	8 spaces (1 accessible)
RACF	-	1 ambulance space
Subtotal for RACF	-	**34 spaces (3 accessible and 1 ambulance)**
Total	-	**138 spaces (11 accessible and 1 ambulance)**

This parking provision exceeds the minimum required providing for miscellaneous visitors (doctors, service personnel, etc.) and will act to ensure that the development does not need to rely on on-street parking. There will also be separate provision for delivery/service vehicles (up to a 12.5m heavy rigid vehicle (HRV)), wash bay and mini bus.

5.0 Traffic

ILUs

The Roads and Maritime Guide recommends a rate of 0.4 vehicle trips (residents/tenants/visitors) per occupied dwelling during the weekday peak period. Application of these factors to the proposed development would indicate the following:

	AM	PM
81 ILUs	33 vtph	33 vtph

The proposed ILUs will generate up to 33 vehicle trips during the peak hours.

RACF

It is considered appropriate to adopt a first principles assessment to determine the future number of vehicle trips generated by the proposed RACF use. The proposed staff spaces are anticipated to generate in the order of 0.5 peak hour vehicle trips per space. This rate is reflective of the nature of shift work employment and the varying start times and finish times for staff.

The proposed visitor spaces are not expected to generate vehicle trips during the peak periods. As such, it is recommended that a rate of 0.15 peak hour vehicle trips per visitor space be adopted.

Based on the above, the proposed RACF could potentially generate up to 15 vehicle trips (13 staff trips and 2 visitor trips) in any weekday peak hours.

Summary

Application of these factors to the proposed development would indicate the following:

	AM Peak	PM Peak
81 ILUs	33 vtph	33 vtph
RACF 107 Beds	15 vtph	15 vtph
Total	**48 vtph**	**48 vtph**

The projected access movements are as follows:

	AM Peak	PM Peak
Bullecourt Avenue Access		
RT IN	4	3
LT IN	2	1
RT OUT	1	2
LT OUT	3	4
Bullecourt Lane Access		
RT IN	10	17
LT IN	3	8
RT OUT	7	3
LT OUT	18	10

An assessment of the intersection operation 10 years post development has also been completed to safeguard the intersection layout and operation. The additional traffic resultant from the proposal has been distributed onto the 10 years post development traffic flows and reassessed using SIDRA. The outcome of the assessment is summarised in the following and provided in Appendix C:

Intersection	**AM**			**PM**		
	AVD	**LOS**	**DS**	**AVD**	**LOS**	**DS**
Bullecourt Ave/ Dernancourt Pde	15.0	B	0.02	13.9s	B	0.30
Bullecourt Ave/ Bullecourt Ln	14.8s	B	0.10	13.9s	B	0.03

The results of the assessment indicates that the intersections would continue to operate well with minimal delays and queuing for all approaches. The Level of Service for the intersections will be maintained, noting the very minor increase in average vehicle delay of 2.2s. In the light of the above, the projected development traffic is not expected to have perceptible implications on the intersections' operation with the future intersections' operational performance consistent with the existing condition. As discussed, there are regular lengthy gaps in the Bullecourt Avenue traffic flows. It is

also apparent that there will be no adverse traffic implications at either of the access points on Bullecourt Avenue and there will be sufficient capacity at the nominated intersections well into the future.

.

6.0 Access, Internal Circulation, Servicing and Pedestrian Facilities

6.1 Access

The proposed vehicle access arrangements for the development will comprise:

* a 6m wide combined ingress/egress driveway on the Bullecourt Avenue frontage at the western site boundary for Buildings C and D
* a 6.8m wide combined ingress/egress driveway on the Bullecourt Lane located towards the northern site boundary for Buildings A and B basement parking and at-grade visitor parking
* a 6m wide combined ingress/egress driveway on the Bullecourt Lane located towards the mid-eastern site boundary for the at-grade visitor parking and egress for the adjacent at-grade visitor parking and porte cochere of the RACF
* a separate 6.2m wide access (one-way) on the Bullecourt Lane frontage for the RACF main entrance and at-grade visitor spaces
* a 10m wide combined ingress/egress driveway in the southern part of the Bullecourt Lane frontage for RACF service/delivery vehicles and RACF basement parking

The proposed driveways will be located on straight and relatively level sections of roadway where excellent sight distances will be available. The design of the driveways will comply with the requirements of AS2890.1 & 2 and they will accommodate all vehicles requiring to use the driveways.

6.2 Internal Circulation

The ramps and access aisles provided in the basement and at-grade carparks will comply with the requirements of AS2890.1 & 6. Adequate provision will be available for

cars to manoeuvre into and out of the parking bays, which also comply with Council's design the criteria.

6.3 Servicing

Provision is made for a service, delivery and refuse collection vehicles in the loading area at the RACF Building as illustrated on the swept path diagrams of an HRV provided in Appendix D. Small service vehicles (e.g. service personnel) will be able to utilise the available visitor parking spaces while access and parking provision is made for a 7.73m 25-seater Fuso mini bus for transporting village residents.

6.4 Pedestrian Facilities

Pedestrian access to the site is proposed via a continuous footpaths along the northern side of Bullecourt Avenue and the western side of Bullecourt Lane. The footpaths along the Bullecourt Avenue frontage provides pedestrian linkages from Bullecourt Avenue to the internal footpaths to Buildings A, B, C and D as well as the RACF building within the site and connects to Bullecourt Lane, ensuring good permeability with the on-site facilities.

There are currently limited connection and crossing opportunities along Bullecourt Avenue. As such, it is recommended that a pedestrian refuge island be provided along Bullecourt Avenue between Dernancourt Parade and Bullecourt Avenue. The pedestrian refuge island location has been generally designed in accordance with RMS standard T000962.

The pedestrian refuge island will assist pedestrians to cross Bullecourt Avenue safely by providing a space to wait for a gap in the traffic to complete the crossing in two stages. The proposed crossing facilitate convenient and safe pedestrian access to/ from the site from/to the nearest bus stop to the site located just to the southeast of the intersection of Bullecourt Avenue/Bullecourt Lane, as well as to the retail and commercial areas to the east via the existing footpaths on Bullecourt Avenue. In summary, the location of the pedestrian refuge island is appropriate for the use of seniors crossing Bullecourt Avenue.

7.0 Conclusion

The traffic and parking assessment undertaken for the proposed Anglicare ILU apartment and RACF development on a site in Bullecourt Avenue at Milperra has concluded that:

- the traffic generation of the proposed development will not present any adverse traffic implications

- the proposed parking provision will be adequate of the proposed development and will ensure that no overflow parking will occur within the surrounding road network

- the proposed access, internal circulation and parking arrangements will be appropriate and will accord with AS2890 series.

- the proposed pedestrian refuge for seniors crossing Bullecourt Avenue will be safe and appropriate

Appendix A

Development Plans

PROPOSED SENIORS LIVING DEVELOPMENT
MILPERRA, ANGLICARE
CIVIL ENGINEERING DEVELOPMENT APPROVAL PLANS

GENERAL NOTES

G1. ALL WORK TO BE CARRIED OUT IN ACCORDANCE WITH BANKSTOWN COUNCIL'S STANDARD SPECIFICATIONS AND TO THE REQUIREMENTS OF THE PCA.
G2. INSPECTIONS BY THE PCA OR CIVIL ENGINEER SHALL BE CARRIED OUT AT THE FOLLOWING STAGES:
- (a) PRIOR TO INSTALLATION OF EROSION AND SEDIMENT CONTROL STRUCTURES
- (b) PRIOR TO BACKFILLING PIPELINES, SUBSOIL DRAINS, TRENCH BEDDING AND DAMS
- (c) PRIOR TO CASTING OF PITS AND OTHER CONCRETE STRUCTURES, INCLUDING KERB AND GUTTER
- (d) PROOF ROLLER TEST OF SUBGRADE AND SUB-BASE
- (e) ROLLER TEST OF COMPLETED PAVEMENT PRIOR TO PLACEMENT OF WEARING COURSE
- (f) FORMWORKS PRIOR TO POURING CONCRETE IN PARKING AREA FOR FOOTPATH CROSSING AND OTHER ASSOCIATED WORK
- (g) PRIOR TO BACKFILLING PUBLIC UTILITY CROSSINGS IN ROAD RESERVES
- (h) PRIOR TO PLACEMENT OF ASPHALTIC CONCRETE
- (i) FINAL INSPECTION AFTER ALL WORKS ARE COMPLETED AND 'WORKS AS EXECUTED' PLANS HAVE BEEN SUBMITTED TO COUNCIL

G3. MAKE SMOOTH JUNCTIONS WITH EXISTING WORKS.
G4. NO WORK TO BE CARRIED OUT ON COUNCIL PROPERTY OR ADJOINING PROPERTIES WITHOUT THE WRITTEN PERMISSION FROM THE OWNER.
G5. VEHICULAR ACCESS AND ALL SERVICES TO BE MAINTAINED AT ALL TIMES TO ADJOINING PROPERTIES AFFECTED BY CONSTRUCTION.
G6. ALL RUBBISH, BUILDINGS, SHEDS AND FENCES TO BE REMOVED TO SATISFACTION OF PCA AT COMPLETION OF WORKS.
G7. A TRAFFIC CONTROL PLAN IS TO BE SUBMITTED TO COUNCIL WITH A SECTION 138 APPLICATION PRIOR TO COMMENCEMENT OF WORKS.
G8. ALL FILL AREAS ARE TO BE INSPECTED BY A GEOTECHNICAL ENGINEER PRIOR TO STRIPPING AND ANY RECOMMENDATIONS REGARDING TREATMENT OF SALINE AFFECTATION ARE TO BE IMPLEMENTED.
G9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE VERIFICATION OF THE LOCATION OF ANY EXISTING SERVICES AFFECTING THE WORKS AREA, ANY DAMAGED SERVICES SHALL BE REPAIRED AT THE CONTRACTORS COST.

EARTHWORKS NOTES

E1. EARTHWORKS TO BE CARRIED OUT TO THE SATISFACTION OF THE PCA AND GEOTECHNICAL ENGINEER. UNSOUND MATERIALS ARE TO BE REMOVED FROM ROADS AND BUILDING PADFS PRIOR TO FILLING. THE CONTRACTOR IS TO ARRANGE AND MAKE AVAILABLE COMPACTION. CERTIFICATES WHERE REQUIRED.
E2. WHERE THE SLOPE OF THE NATURAL SURFACE EXCEEDS ONE IN FOUR (1:4), BENCHES ARE TO BE CUT TO PREVENT SLIPPING OF THE PLACED FILL MATERIAL AS REQUIRED BY THE PCA AND GEOTECHNICAL ENGINEER.
E3. ALL BATTERS ARE TO BE SCARIFIED TO ASSIST WITH ADHESION OF TOP SOIL TO BATTER FACE.
E4. PROVIDE MINIMUM 150mm AND MAXIMUM 300mm TOPSOIL WITH GRASS SEEDING ON FOOTPATHS, FILLED AREAS AND ALL OTHER AREAS DISTURBED DURING CONSTRUCTION.
E5. THE CONTROL TESTING OF EARTHWORKS SHALL BE IN ACCORDANCE WITH THE GUIDELINES IN AUSTRALIAN STANDARD 3798 – 1996. WHERE IT IS PROPOSED TO USE TEST METHOD AS1289.E8.1 OR AS1289.E8.2 TO DETERMINE THE FIELD DENSITY, A SAND REPLACEMENT METHOD SHALL BE USED TO CONFIRM THE RESULTS AS DIRECTED BY PCA.
THE GEOTECHNICAL TESTING AUTHORITY SHALL HAVE A LEVEL 1 RESPONSIBILITY FOR ALL FILLING AS DEFINED IN APPENDIX B AS 3798-1996, AND AT THE END OF THE WORKS SHALL CONFIRM THE EARTHWORKS COMPLY WITH THE REQUIREMENTS OF THE SPECIFICATION AND DRAWINGS.
E6. THE CONTRACTOR SHALL CONTROL SEDIMENTATION, EROSION AND POLLUTION DURING CONSTRUCTION IN ACCORDANCE WITH THE REQUIREMENTS OF THE SOIL CONSERVATION SERVICES AND WATER RESOURCES OF NSW.

ROADWORKS NOTES

R1. SUBGRADE, SUB-BASE, AND BASE TO BE COMPACTED IN ACCORDANCE WITH SITEPLUS CIVIL DWG C04 AND GEO-TECHINICAL RECOMMENDATIONS SPECIFICATION.
R2. SUBSOIL DRAINS TO BE PROVIDED ON BOTH SIDES OF ROADS (EXCEPT WHERE THERE IS STORM WATER DRAINAGE).
R3. SERVICE CONDUITS TO BE PLACED AS DIRECTED BY INTEGRAL ENERGY, TELSTRA AND AS REQUIRED BY THE SYDNEY WATER.
R4. PROPOSED SERVICES CROSSING EXISTING ROADS SHALL BE THRUST BORED UNDER THE ROAD SO AS NOT TO DAMAGE EXISTING SURFACE.
R5. ALL ROADS ARE TO BE TEMPORARILY SEALED WITH 20mm GAP GRADED AC14, THE FINAL AC IS TO PLACED FOLLOWING CONSTRUCTION OF ADJOINING BUILDINGS.
R6. SIGNPOSTING AND LINEMARKING TO CONFORM WITH AS1742.2 RAISED RETRO- REFLECTIVE PAVEMENT MARKERS TO CONFORM WITH AS1906. ALL APRONS AND KERB FACE ON CENTRAL ISLANDS OF ROUNDABOUTS AND ALL OTHER ISLANDS SHOULD BE DELINEATED BY REFLECTIVE WHITE MARKING.
R7. ALL LEVELS ARE TO BE SET OUT FROM ESTABLISHED STATE SURVEY MARKS.

STORMWATER NOTES

S1. ALL PIPES TO BE SPIGOT AND SOCKET, RUBBER RING JOINTED. ALL PIPES IN UNDER ROADS (OTHER THAN ROOF WATER AND SUBSOIL) ARE TO BE STEEL REINFORCED CONCRETE PIPES.
S2. ALL LONGITUDINAL PIPELINES IN ROADS MUST BE LOCATED UNDER KERB AND GUTTER AND BE BACKFILLED WITH 7mm AGGREGATE WHERE 10-15% OF FINES IS ALLOWABLE UNLESS OTHERWISE INDICATED ON PLANS.
S3. DRAINAGE LINES MUST BE BACKFILLED WITH CLEAN SHARP SAND IN TRAFFICABLE AREAS.
S4. ALL GULLY PITS TO COUNCIL'S STANDARD AND LINTELS CENTRALLY PLACED AT SAG PITS.
S5. ALL PITS MUST BE BENCHED AND STREAMLINED. PROVIDE RF72 REINFORCEMENT AND STEP IRONS IN ALL PITS OVER 1.2M DEEP.
S6. CONCRETE TO HAVE MINIMUM COMPRESSIVE STRENGTH OF 25 MPA AT 28 DAYS UNLESS SPECIFIED OTHERWISE BY COUNCIL ENGINEER.
S7. ALL DRAINAGE MUST HAVE A MINIMUM COVER OF 300mm TO THE TOP OF PIPE UNLESS OTHERWISE APPROVED BY THE P.C.A.
S8. CATCH DRAINS MUST BE CONSTRUCTED AS PER SWMP.
S9. ONE HUNDRED (100) YEAR OVERLAND FLOW PATHS MUST BE FORMED AND SHOWN ON WORK AS EXECUTED DRAWINGS.
S10. ADEQUATE PROVISION TO BE MADE FOR SCOURING AND SEDIMENTATION TO ALL DRAINAGE WORKS IN ACCORDANCE WITH COUNCIL'S REQUIREMENTS.
S11. DRAINAGE LINES MUST BE INSTALLED AFTER SEWERAGE LINES HAVE BEEN INSTALLED WHERE SEWER IS PROPOSED ADJACENT TO DRAINAGE

SERVICES ARE SHOWN INDICATIVE ONLY. CONTRACTOR TO CONFIRM ALL SERVICE LOCATIONS PRIOR TO CONSTRUCTION

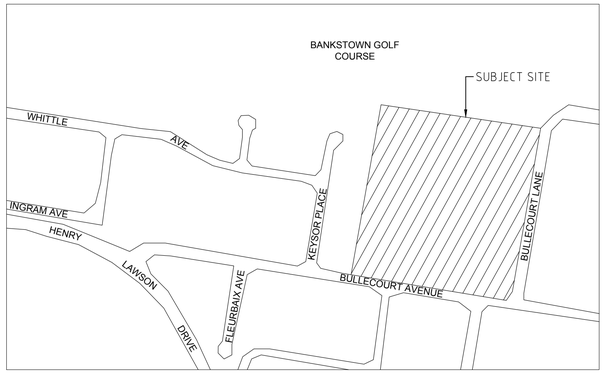
DIMENSIONS SHALL BE NOT BE OBTAINED BY SCALING FROM THIS SET OF PLANS

LEGEND PROPOSED

- STORMWATER PIPE
- GRATED PIT
- JUNCTION PIT
- KERB INLET PIT
- SEDIMENT FENCE
- ST — SEDIMENT TRAP
- TEMPORARY CONSTRUCTION EXIT
- 10.00 — PAVEMENT LEVEL
- CONTOURS
- CATCHMENT BOUNDARY
- EDGE STRIP
- KERB & GUTTER
- LAYBACK KERB & GUTTER
- RETAINING WALL
- SUBSOIL DRAINAGE
- SP — SIGNPOST

LEGEND EXISTING

- STORMWATER LINE
- STORMWATER PIT
- W W W — WATER LINE
- S S S — SEWER LINE
- T T T — TELSTRA LINE
- +10.00 — EXISTING SPOT LEVEL
- EXISTING CONTOURS
- G G G G — GAS LINE
- E E E E — ELECTRICAL LINE



LOCALITY SKETCH
N.T.S

Sheet List Table

Sheet Number	Sheet Title
01	TITLE PAGE
02	CIVIL WORKS PLAN
03	BULK EARTHWORKS PLAN
04	TYPICAL ROAD CROSS SECTIONS 1
05	TYPICAL ROAD CROSS SECTIONS 2
06	BUILDING C BASEMENT ENTRY CH0 TO CH32.727 LONGSECTION
07	BULLECOURT LANE CH0 TO CH100 LONGSECTION
08	BULLECOURT LANE CH100 TO CH187 LONGSECTION
09	ROAD NO.1 CH0 TO CH33.640 LONGSECTION
10	ROAD NO. 2 CH0 TO CH94.874 LONGSECTION
11	ROAD NO.3 CH0 TO CH39.867 LONGSECTIONS
12	ROAD NO.4 CH0 TO CH40 LONGSECTION
13	ROAD NO. 5 CH0 TO CH94.822 LONGSECTION
14	PIT CATCHMENT PLAN
15	DRAINAGE CALCULATIONS
16	PIT SCHEDULE
17	DRAINAGE LONGSECTIONS 1
18	DRAINAGE LONGSECTIONS 2
19	DRAINAGE LONGSECTIONS 3
20	DRAINAGE LONGSECTIONS 4
21	DRAINAGE LONGSECTIONS 5
22	OVERLAND FLOW CHANNEL DETAILS
23	SOIL AND WATER MANAGEMENT PLAN
24	SOIL AND WATER MANAGEMENT DETAIL
25	B8.8m ENTRY SWEPT PATH 1
26	B8.8m EXIT SWEPT PATH 2
27	7.73m MINI BUS ENTRY AND EXIT SWEPT PATH
28	B99 ENTRY SWEPT PATH 1
29	B99 EXIT SWEPT PATH

T:\Projects\16116 milperra village\DWG\DA\16116_DA_A.dwg

REVISIONS

No.	DESCRIPTION	DRN	APP	DATE
C	REVISED ARCHITECTURAL PLANS	A.C.	A.C.	06.07.18
D	DRAFT DA ISSUE	A.C	A.C	16.12.18
E	REVISED TO SUIT CONSULTANTS COMMENTS	A.C	A.C	19.12.18
F	REVISED TO PLANNERS COMMENTS	A.C	A.C	25.01.19
G	REVISED TO COUNCIL COMMENTS	M.D	a.c	16.08.19

siteplus
Site Plus Pty Ltd ABN 73 104 315 095
planning engineering landscape design management
HEAD OFFICE
345 Keira St
Wollongong NSW 2500
PO Box 5104
Wollongong NSW 2520
T 61 2 4227 4233
F 61 2 4227 4133
E info@siteplus.com.au

Height Datum	A.H.D.
Drawn	A.C.
Designed	A.C.
Checked	A.C.
Approved	A.C.

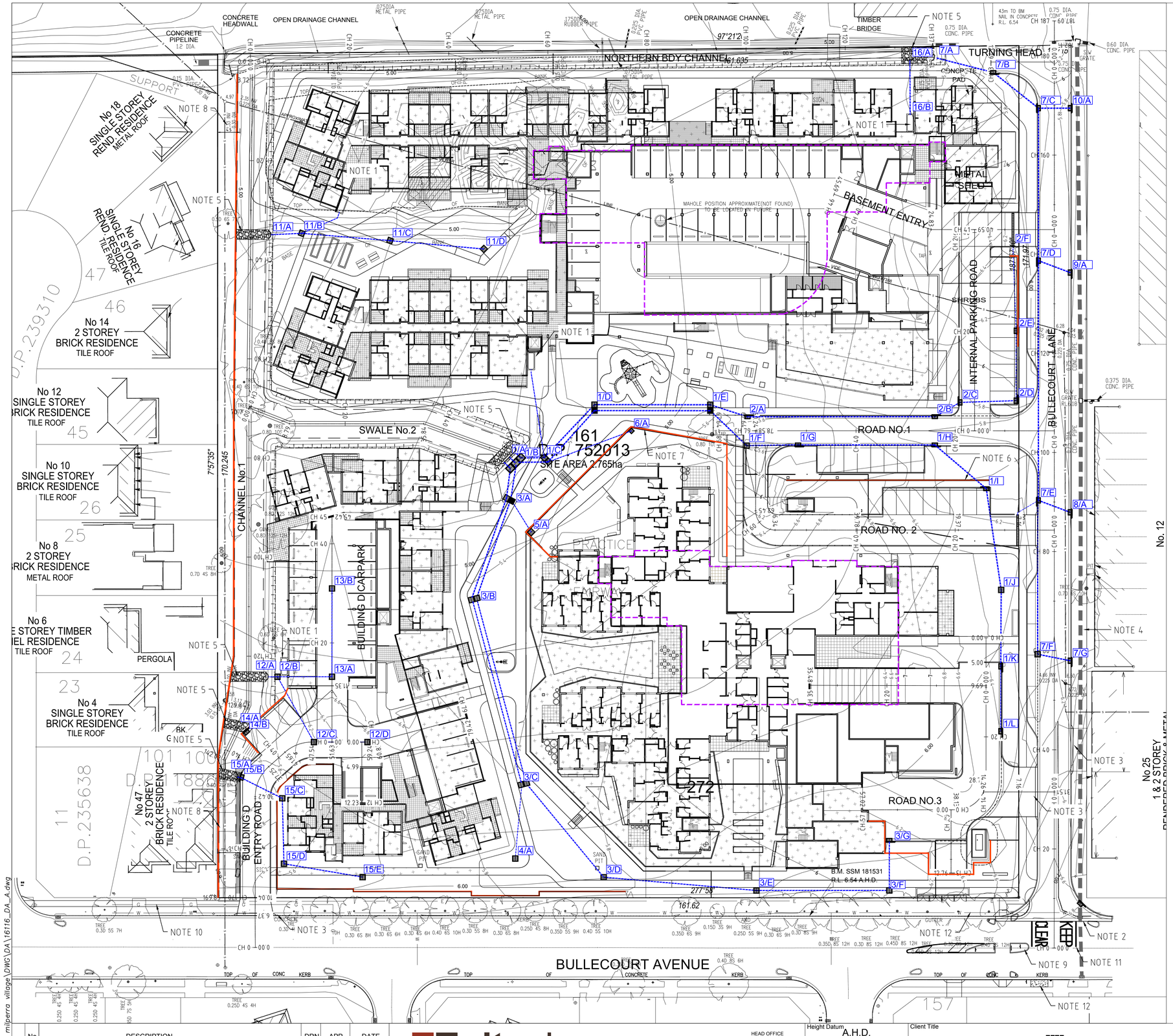
Client Title: ANGLICARE (ACA), SYDNEY

Dwg Status: APPROVAL

Local Authority: BANKSTOWN CITY COUNCIL

Dwg Title: PROPOSED ANGLICAN RETIREMENT VILLAGE
BULLECOURT AVE, MILPERRA
TITLE PAGE

Ref & Dwg No	16116.DA.C01
Sheet No	Sheet 01 of 27
Scale	1:5000 @ A1
Date	25.01.19
Rev	G
	A1



CIVIL WORKS PLAN NOTES

1. PROPOSED 10KL RAINWATER TANK TO BE USED FOR ONSITE IRRAGATION.
2. SAW CUT AND MAKE SMOOTH JOIN TO PROPOSED PAVEMENT IN BULLECOURT AVE DETAILS AT CC STAGE.
3. PROVIDE COMMERCIAL VEHICULAR CROSSING TO COUNCIL STANDARDS.
4. EXISTING Ø750mm DIA PIPE TO REMAIN WITH NO PROPOSED CONNECTIONS.
5. PROVIDE SCOUR PROTECTION AT EACH DRAINAGE OUTLET INTO THE EXISTING OPEN CHANNEL. DETAILS AT CC STAGE.
6. PROVIDE BLOCK RETAINING WALL MAX HEIGHT 0.9m DETAILS AT CC STAGE.
7. CONSTRUCT RETAINING WALL AROUND RC BUILDING TO CREATE LEVEL PLATFORM FOR DEMENTIA COURT YARDS.
8. OPEN CHANNEL TO DRAIN OVERLAND FLOW OFF BULLECOURT AVE. DETAILS ON SHEET 22. RETAINING WALL DOWN WESTERN SIDE WITH MAX HEIGHT 0.6m.
9. CONSTRUCT PEDESTRIAN REFUGE WITH ASSOCIATED LINE MARKING AND PRAM RAMPS TO THE SOUTHERN SIDE OF BULLECOURT AVENUE FOR ACCESS TO THE BUS STOP.
10. CONSTRUCT 1.2m WIDE FOOTPATH WEST OF THE SITE ALONG BULLECOURT AVENUE AND PROVIDE PRAM RAMP ONTO KEYSOR PLACE.
11. "KEEP CLEAR" PAVEMENT MARKING ON THE EASTBOUND LANE OF BULLECOURT AVENUE AS PER RMS DELINEATION - SECTION 9: MESSAGES ON PAVEMENTS.
12. PROVIDE CONCRETE SET DOWN PAD AND ASSOCIATED SIGNAGE FOR BUS STOPS EITHER SIDE OF BULLECOURT AVENUE. CONCRETE PAD AND TACTILE INDICATORS TO BE PROVIDED FOR COMPLIANCE WITH ACCESSIBILITY CODE.

LEGEND

PROPOSED SUSPENDED BUILDING AS PER RECOMMENDATIONS OF SITEPLUS FLOOD STUDY

OUTLINE OF BASEMENT CARPARK BELOW GROUND

N

CIVIL WORKS PLAN

SCALE 1:400

0 10 15 20 25

Meters

SCALE : - 1 : 400 @ A1
- 1 : 800 @ A3

REVISIONS No.	DESCRIPTION	DRN	APP	DATE
C	REVISED ARCHITECTURAL PLANS	A.C.	A.C.	06.07.18
D	DRAFT DA ISSUE	A.C	A.C	16.12.18
E	REVISED TO SUIT CONSULTANTS COMMENTS	A.C	A.C	19.12.18
F	REVISED TO PLANNERS COMMENTS	A.C	A.C	25.01.19
G	REVISED TO COUNCIL COMMENTS	M.D	a.c	16.08.19

siteplus
Site Plus Pty Ltd ABN 73 104 315 095
planning engineering landscape design management
HEAD OFFICE
345 Keira St
Wollongong NSW 2500
PO Box 5104
Wollongong NSW 2520
T 61 2 4227 4233
F 61 2 4227 4133
E info@siteplus.com.au

Height Datum	A.H.D.
Drawn	A.C.
Designed	A.C.
Checked	A.C.
Approved	A.C.

Client Title: ----

ANGLICARE (ACA), SYDNEY

Dwg Status: APPROVAL

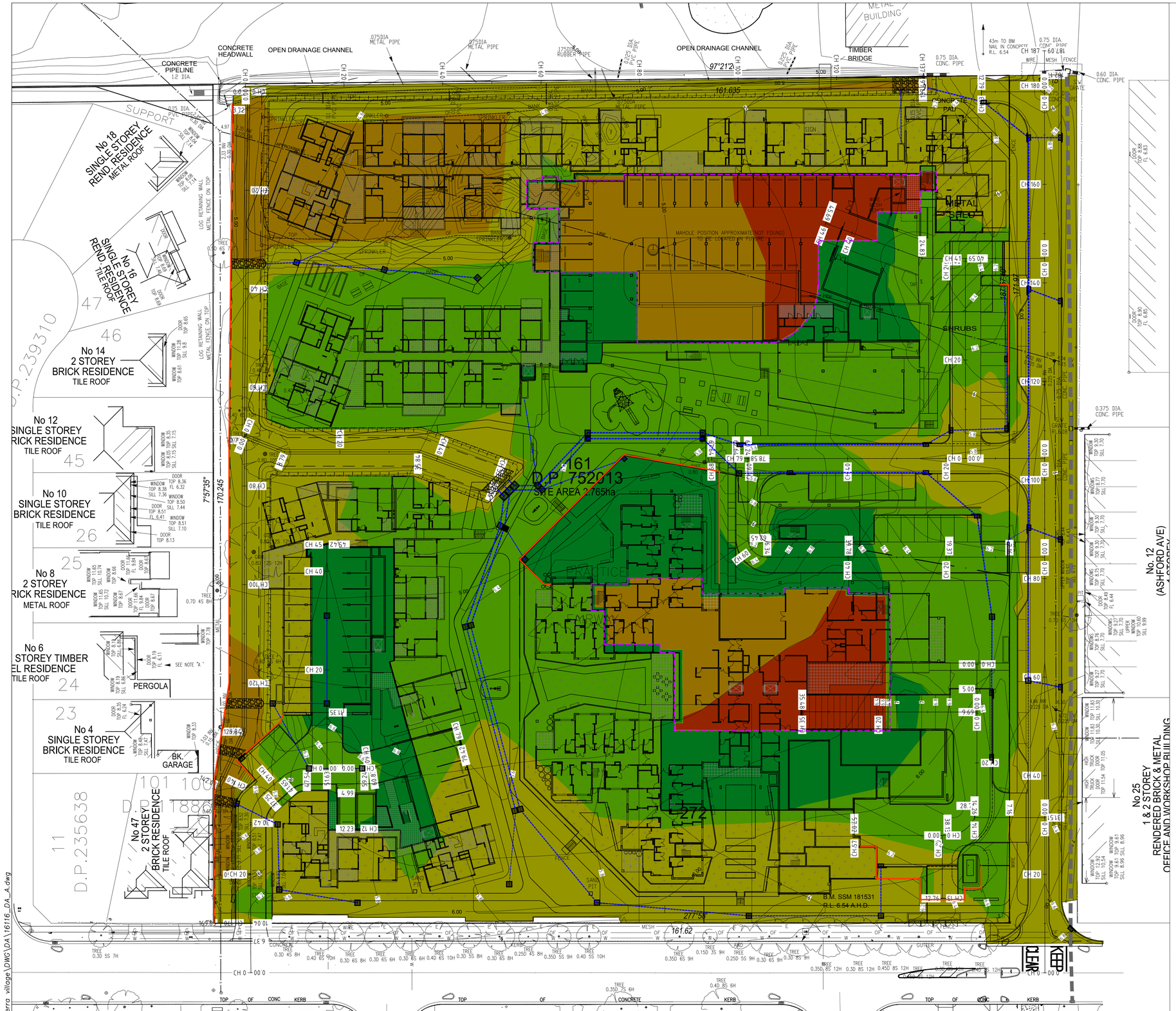
Local Authority: BANKSTOWN CITY COUNCIL

Dwg Title: PROPOSED ANGLICAN RETIREMENT VILLAGE
BULLECOURT AVE, MILPERRA

CIVIL WORKS PLAN

Ref & Dwg No	16116.DA.C02
Sheet No	Sheet 02 of 27
Scale	1:500 @ A1
Date	25.01.19
Rev	G
	A1

T:\Projects\16116 milperra village\DWG\DA\16116_DA_A.dwg



SURFACE ELEVATION DATA			
NUMBER	MINIMUM ELEVATION	MAXIMUM ELEVATION	COLOR
1	−3.00	−2.00	
2	−2.00	−1.00	
3	−1.00	0.00	
4	0.00	1.00	
5	1.00	2.25	

Site Volume Table: Unadjusted

Site	Stratum	Surf1	Surf2	Cut cu.m.	Fill cu.m.	Net cu.m.	Method
MILPERRA VILLAGE							
Datunm Surface	SURVEY - Top soil			11,589	8,356	3,232 (CUT)	TIN

EARTHWORK VOLUME NOTES:
1. NO EXCAVATION FOR SERVICES HAS BEEN TAKEN INTO ACCOUNT.
2. 300mm DEEP FOOTINGS FOR BUILDINGS ON GROUND.
3. 300mm DEEP EXCAVATION FOR LANDSCAPING AND FOOTPATHS.
4. 340mm PAVEMENT THICKNESS.
5. 150mm THICK OF TOPSOIL.

NOTES:
1. IF ANY OF THE ABOVE ASSUMPTIONS CHANGE DURING CONSTRUCTION THE VOLUMES WILL CHANGE.
2. THE CURRENT GRADING IS BASED ON A FLOOD MODEL WHICH DOES NOT COMPLY WITH COUNCIL STANDARDS. THEREFORE, THE VOLUMES ARE SUBJECT TO CHANGE.

N

BULK EARTHWORKS PLAN

SCALE 1:400

0 10 15 20 25
Meters

SCALE : - 1 : 400 @ A1
- 1 : 800 @ A3

T:\Projects\16116 milperra village\DWG\DA\16116_DA_A.dwg

REVISIONS No.	DESCRIPTION	DRN	APP	DATE
C	REVISED ARCHITECTURAL PLANS	A.C.	A.C.	06.07.18
D	DRAFT DA ISSUE	A.C	A.C	16.12.18
E	REVISED TO SUIT CONSULTANTS COMMENTS	A.C	A.C	19.12.18
F	REVISED TO PLANNERS COMMENTS	A.C	A.C	25.01.19
G	REVISED TO COUNCIL COMMENTS	M.D	a.c	16.08.19

siteplus
Site Plus Pty Ltd ABN 73 104 315 095
planning engineering landscape design management
HEAD OFFICE
345 Keira St
Wollongong NSW 2500
PO Box 5104
Wollongong NSW 2520
T 61 2 4227 4233
F 61 2 4227 4133
E info@siteplus.com.au

Height Datum	A.H.D.
Drawn	A.C.
Designed	A.C.
Checked	A.C.
Approved	A.C.

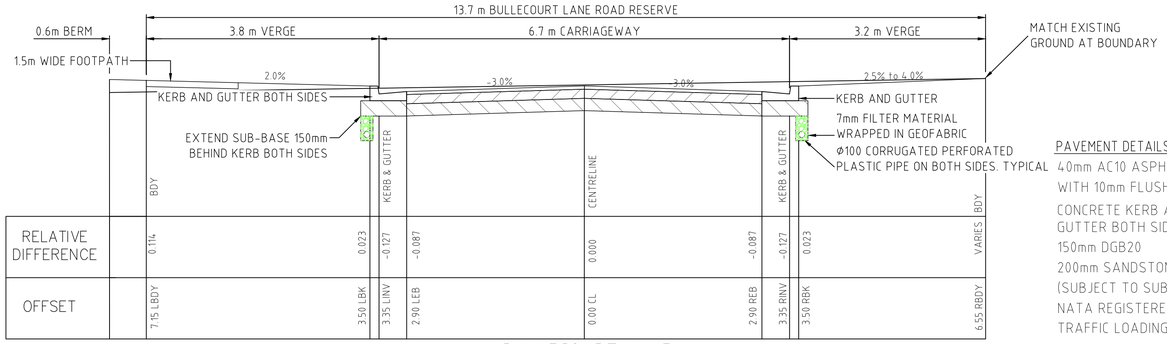
Client Title: ---- ANGLICARE (ACA), SYDNEY

Dwg Status: APPROVAL

Local Authority: BANKSTOWN CITY COUNCIL

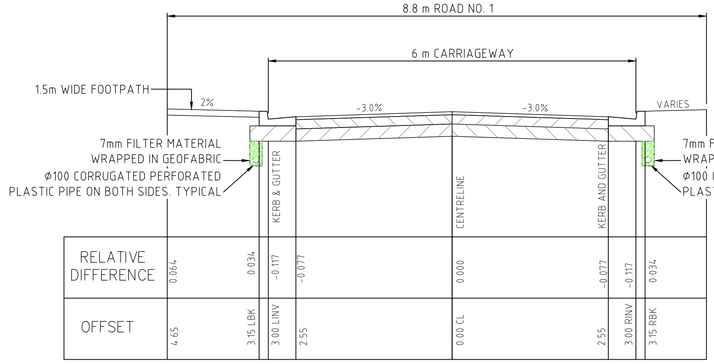
Dwg Title: PROPOSED ANGLICAN RETIREMENT VILLAGE BULLECOURT AVE, MILPERRA — BULK EARTHWORKS PLAN

Ref & Dwg No	16116.DA.C03
Sheet No	Sheet 03 of 27
Scale	1:500 @ A1
Date	25.01.19
Rev	G
	A1



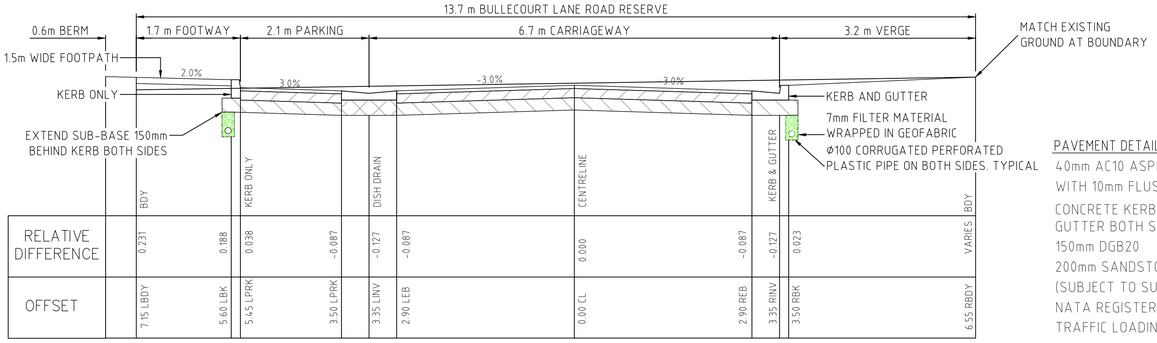
PAVEMENT DETAILS CATEGORY B ROADS:-
40mm AC10 ASPHALT
WITH 10mm FLUSH SEAL
CONCRETE KERB AND GUTTER BOTH SIDES
150mm DGB20
200mm SANDSTONE
(SUBJECT TO SUBGRADE TESTING BY NATA REGISTERED LABORATORY.)
TRAFFIC LOADING ESA 5 x 10^6

BULLECOURT LANE
CH 0 TO CH 46.50 & CH71.30 TO CH120.90 & CH132.70 TO END
TYPICAL CROSS SECTION
SCALE 1:50



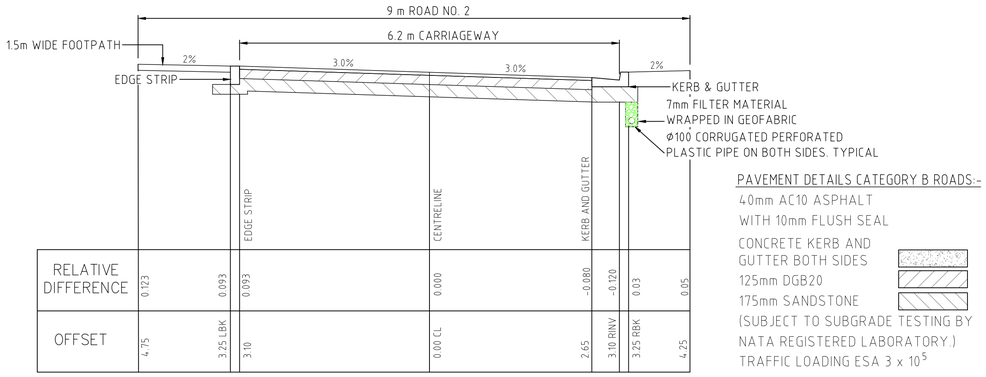
PAVEMENT DETAILS CATEGORY B ROADS:-
40mm AC10 ASPHALT
WITH 10mm FLUSH SEAL
CONCRETE KERB AND GUTTER BOTH SIDES
125mm DGB20
175mm SANDSTONE
(SUBJECT TO SUBGRADE TESTING BY NATA REGISTERED LABORATORY.)
TRAFFIC LOADING ESA 3 x 10^5

ROAD NO.1
CH0.0 TO CH26.50 & CH48 TO CH62.60
TYPICAL CROSS SECTION
SCALE 1:50



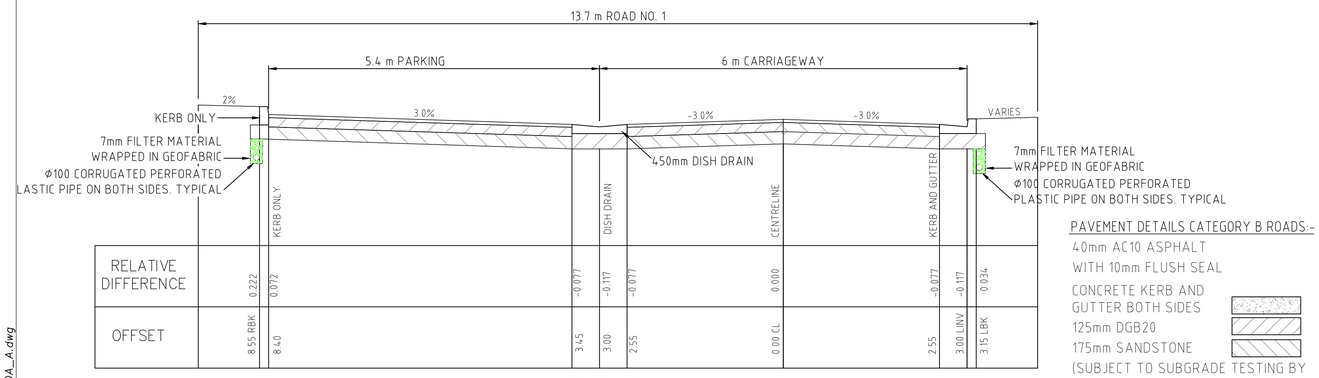
PAVEMENT DETAILS CATEGORY B ROADS:-
40mm AC10 ASPHALT
WITH 10mm FLUSH SEAL
CONCRETE KERB AND GUTTER BOTH SIDES
150mm DGB20
200mm SANDSTONE
(SUBJECT TO SUBGRADE TESTING BY NATA REGISTERED LABORATORY.)
TRAFFIC LOADING ESA 5 x 10^6

BULLECOURT LANE
CH46.50 TO CH71.30 & CH120.90 TO CH132.70
TYPICAL CROSS SECTION
SCALE 1:50



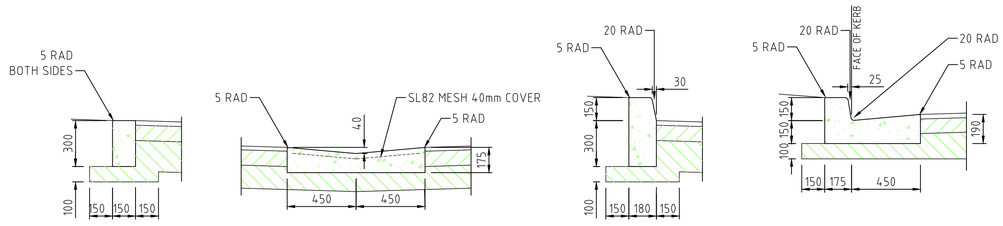
PAVEMENT DETAILS CATEGORY B ROADS:-
40mm AC10 ASPHALT
WITH 10mm FLUSH SEAL
CONCRETE KERB AND GUTTER BOTH SIDES
125mm DGB20
175mm SANDSTONE
(SUBJECT TO SUBGRADE TESTING BY NATA REGISTERED LABORATORY.)
TRAFFIC LOADING ESA 3 x 10^5

ROAD NO.2
CH0 TO CH13.0 & CH34.70 TO CH78.60
TYPICAL CROSS SECTION
SCALE 1:50



PAVEMENT DETAILS CATEGORY B ROADS:-
40mm AC10 ASPHALT
WITH 10mm FLUSH SEAL
CONCRETE KERB AND GUTTER BOTH SIDES
125mm DGB20
175mm SANDSTONE
(SUBJECT TO SUBGRADE TESTING BY NATA REGISTERED LABORATORY.)
TRAFFIC LOADING ESA 3 x 10^5

ROAD NO.1
CH26.50 TO CH48.00
TYPICAL CROSS SECTION
SCALE 1:50



EDGE STRIP (ES)
SCALE 1:20

DISH CROSSSING
SCALE 1:20

KERB ONLY (KO)
SCALE 1:20

KERB & GUTTER (K&G)
SCALE 1:20

T:\Projects\16116 milperra village\DWG\DA\16116_DA_A.dwg

REVISIONS No.	DESCRIPTION	DRN	APP	DATE
C	REVISED ARCHITECTURAL PLANS	A.C.	A.C.	06.07.18
D	DRAFT DA ISSUE	A.C	A.C	16.12.18
E	REVISED TO SUIT CONSULTANTS COMMENTS	A.C	A.C	19.12.18
F	REVISED TO PLANNERS COMMENTS	A.C	A.C	25.01.19
G	REVISED TO COUNCIL COMMENTS	M.D	a.c	16.08.19

siteplus
Site Plus Pty Ltd ABN 73 104 315 095
planning engineering landscape design management
HEAD OFFICE
345 Keira St
Wollongong NSW 2500
PO Box 5104
Wollongong NSW 2520
T 61 2 4227 4233
F 61 2 4227 4133
E info@siteplus.com.au

Height Datum	A.H.D.
Drawn	A.C.
Designed	A.C.
Checked	A.C.
Approved	A.C.

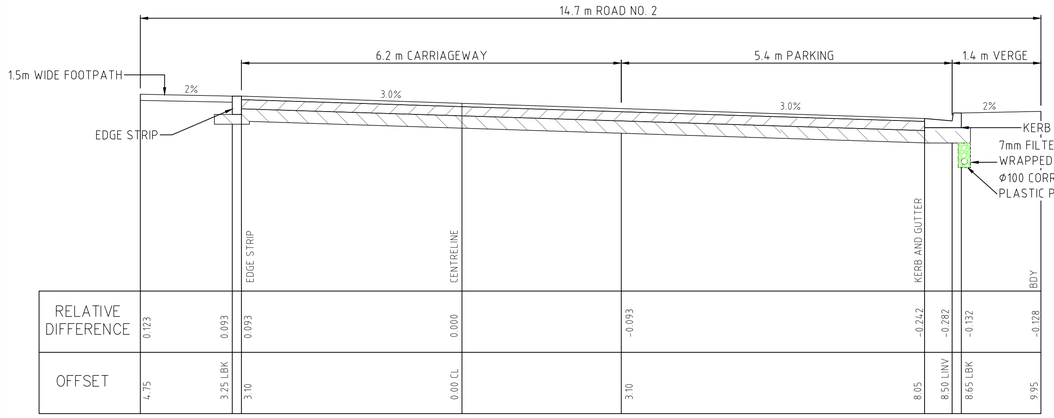
Client Title

ANGLICARE (ACA), SYDNEY

Dwg Status: APPROVAL
Local Authority: BANKSTOWN CITY COUNCIL

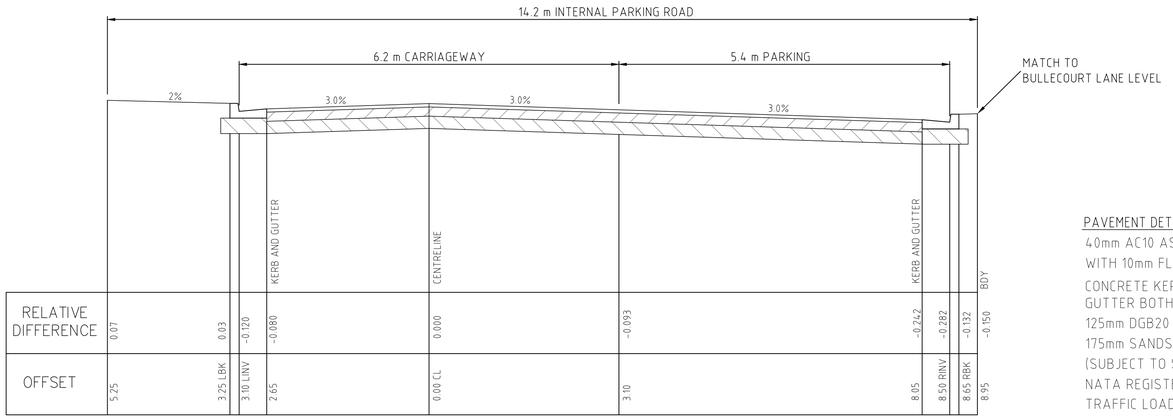
Dwg Title
PROPOSED ANGLICAN RETIREMENT VILLAGE
BULLECOURT AVE, MILPERRA
TYPICAL ROAD 1
CROSS SECTIONS

Ref & Dwg No	16116.DA.C04
Sheet No	Sheet 04 of 27
Scale	AS SHOWN
Date	25.01.19
Rev	G
	A1



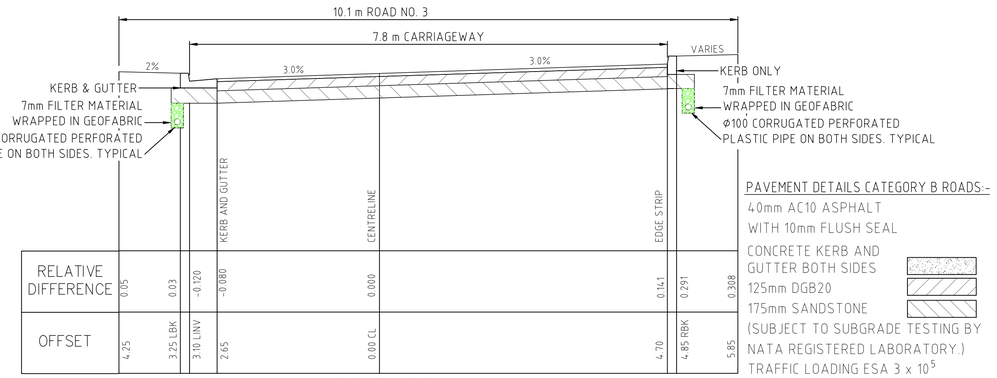
PAVEMENT DETAILS CATEGORY B ROADS:-
40mm AC10 ASPHALT
WITH 10mm FLUSH SEAL
CONCRETE KERB AND GUTTER BOTH SIDES
125mm DGB20
175mm SANDSTONE
(SUBJECT TO SUBGRADE TESTING BY NATA REGISTERED LABORATORY.)
TRAFFIC LOADING ESA 3 x 10^5

ROAD NO.2
CH13.00 TO CH34.70
TYPICAL CROSS SECTION
SCALE 1:50



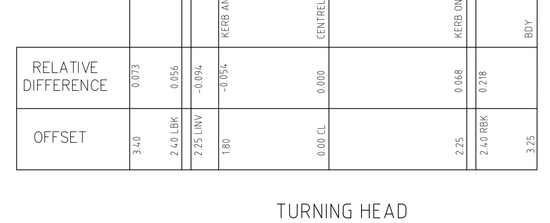
PAVEMENT DETAILS CATEGORY B ROADS:-
40mm AC10 ASPHALT
WITH 10mm FLUSH SEAL
CONCRETE KERB AND GUTTER BOTH SIDES
125mm DGB20
175mm SANDSTONE
(SUBJECT TO SUBGRADE TESTING BY NATA REGISTERED LABORATORY.)
TRAFFIC LOADING ESA 3 x 10^5

INTERNAL PARKING ROAD
CH5.3 TO CH40.59
TYPICAL CROSS SECTION
SCALE 1:50



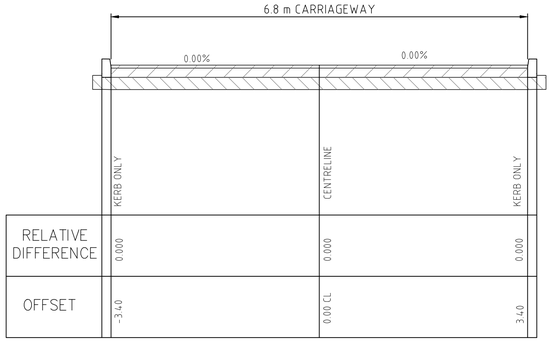
PAVEMENT DETAILS CATEGORY B ROADS:-
40mm AC10 ASPHALT
WITH 10mm FLUSH SEAL
CONCRETE KERB AND GUTTER BOTH SIDES
125mm DGB20
175mm SANDSTONE
(SUBJECT TO SUBGRADE TESTING BY NATA REGISTERED LABORATORY.)
TRAFFIC LOADING ESA 3 x 10^5

ROAD NO.3
CH0 TO CH28.0
TYPICAL CROSS SECTION
SCALE 1:50



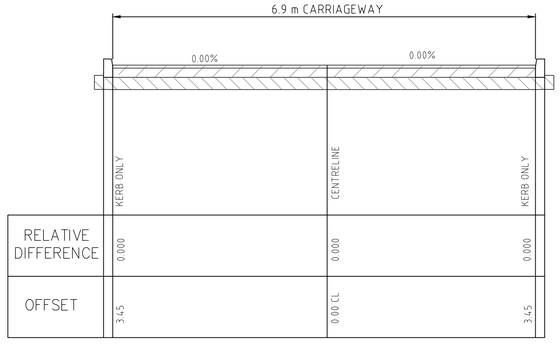
PAVEMENT DETAILS CATEGORY B ROADS:-
40mm AC10 ASPHALT
WITH 10mm FLUSH SEAL
CONCRETE KERB AND GUTTER BOTH SIDES
150mm DGB20
200mm SANDSTONE
(SUBJECT TO SUBGRADE TESTING BY NATA REGISTERED LABORATORY.)
TRAFFIC LOADING ESA 5 x 10^6

TURNING HEAD
CH0 TO CH13.00
TYPICAL CROSS SECTION
SCALE 1:50



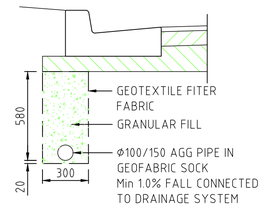
PAVEMENT DETAILS CATEGORY B ROADS:-
40mm AC10 ASPHALT
WITH 10mm FLUSH SEAL
CONCRETE KERB AND GUTTER BOTH SIDES
125mm DGB20
175mm SANDSTONE
(SUBJECT TO SUBGRADE TESTING BY NATA REGISTERED LABORATORY.)
TRAFFIC LOADING ESA 3 x 10^5

BUILDING A: ENTRY
CH0 TO CH46
TYPICAL CROSS SECTION
SCALE 1:50



PAVEMENT DETAILS CATEGORY B ROADS:-
40mm AC10 ASPHALT
WITH 10mm FLUSH SEAL
CONCRETE KERB AND GUTTER BOTH SIDES
125mm DGB20
175mm SANDSTONE
(SUBJECT TO SUBGRADE TESTING BY NATA REGISTERED LABORATORY.)
TRAFFIC LOADING ESA 3 x 10^5

RC BASEMENT
CH0 TO CH35
TYPICAL CROSS SECTION
SCALE 1:50



SUBSOIL DRAINAGE DETAIL
BEHIND KERB
SCALE 1:20

T:\Projects\16116 milperra village\DWG\DA\16116_DA_A.dwg

REVISIONS No.	DESCRIPTION	DRN	APP	DATE
C	REVISED ARCHITECTURAL PLANS	A.C.	A.C.	06.07.18
D	DRAFT DA ISSUE	A.C	A.C	16.12.18
E	REVISED TO SUIT CONSULTANTS COMMENTS	A.C	A.C	19.12.18
F	REVISED TO PLANNERS COMMENTS	A.C	A.C	25.01.19
G	REVISED TO COUNCIL COMMENTS	M.D	a.c	16.08.19

siteplus
Site Plus Pty Ltd ABN 73 104 315 095
planning engineering landscape design management
HEAD OFFICE
345 Keira St
Wollongong NSW 2500
PO Box 5104
Wollongong NSW 2520
T 61 2 4227 4233
F 61 2 4227 4133
E info@siteplus.com.au

Height Datum	A.H.D.
Drawn	A.C.
Designed	A.C.
Checked	A.C.
Approved	A.C.

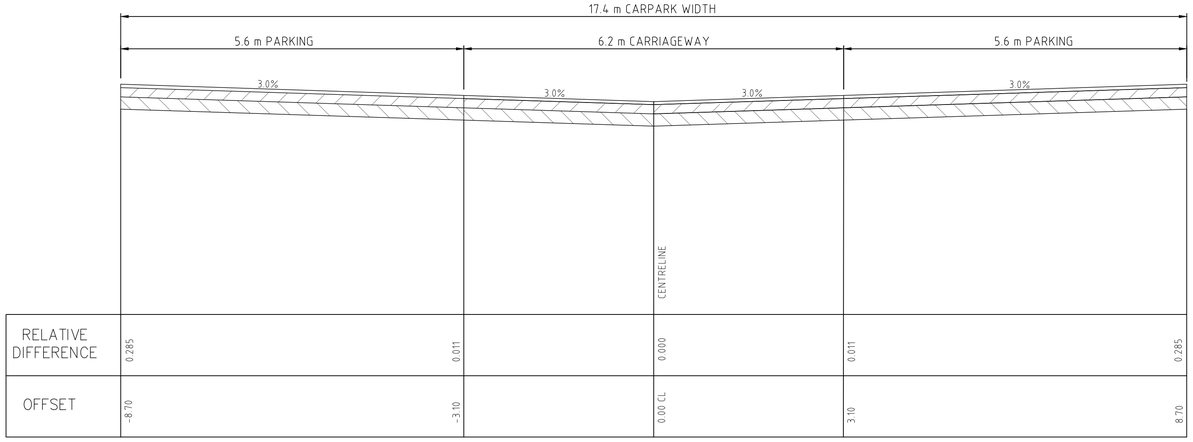
Client Title: ---- ANGLICARE (ACA), SYDNEY

Dwg Status: APPROVAL

Local Authority: BANKSTOWN CITY COUNCIL

Dwg Title: PROPOSED ANGLICAN RETIREMENT VILLAGE
BULLECOURT AVE, MILPERRA
TYPICAL ROAD 2
CROSS SECTIONS

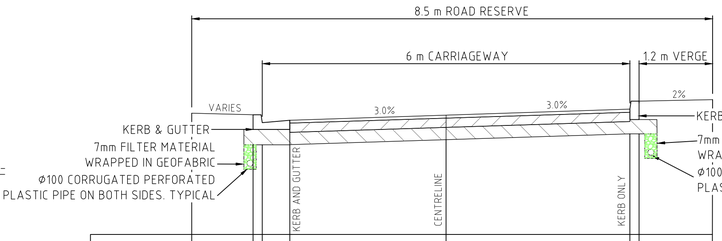
Ref & Dwg No	16116.DA.C05
Sheet No	Sheet 05 of 27
Scale	AS SHOWN
Date	25.01.19
Rev	G
	A1



RELATIVE DIFFERENCE	0.285	0.011	0.000	0.011	0.285
OFFSET	-8.70	-3.10	0.00 CL	3.10	8.70

PAVEMENT DETAILS CATEGORY B ROADS:-
40mm AC10 ASPHALT
WITH 10mm FLUSH SEAL
CONCRETE KERB AND GUTTER BOTH SIDES
125mm DGB20
175mm SANDSTONE
(SUBJECT TO SUBGRADE TESTING BY NATA REGISTERED LABORATORY.)
TRAFFIC LOADING ESA 3 x 10^5

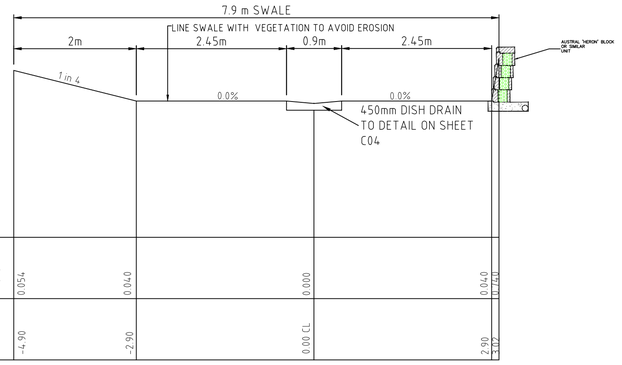
BUILDING D CARPARK
CH0 TO CH35
TYPICAL CROSS SECTION
SCALE 1:50



RELATIVE DIFFERENCE	0.034	-0.117	-0.077	0.000	0.090	0.240	0.261
OFFSET	3.15 LBK	3.00 UNV	2.55	0.00 CL	3.00	3.15 RBK	3.60

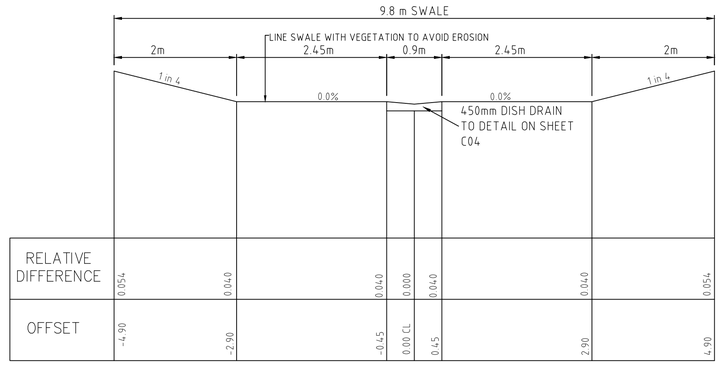
PAVEMENT DETAILS CATEGORY B ROADS:-
40mm AC10 ASPHALT
WITH 10mm FLUSH SEAL
CONCRETE KERB AND GUTTER BOTH SIDES
125mm DGB20
175mm SANDSTONE
(SUBJECT TO SUBGRADE TESTING BY NATA REGISTERED LABORATORY.)
TRAFFIC LOADING ESA 3 x 10^5

BUILDING D ENTRY ROAD
CH0 TO CH79.4
TYPICAL CROSS SECTION
SCALE 1:50



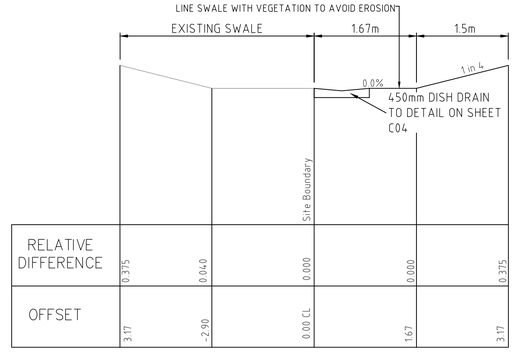
RELATIVE DIFFERENCE	0.054	0.040	0.000	0.040 0.740
OFFSET	-4.90	-2.90	0.00 CL	2.90 3.32

CHANNEL
CH0.0 TO CH129.0
TYPICAL CROSS SECTION
SCALE 1:50



RELATIVE DIFFERENCE	0.054	0.040	0.040	0.000	0.040	0.040	0.054
OFFSET	-4.90	-2.90	-0.45	0.00 CL	0.45	2.90	4.90

SWALE NO.2
CH0.0 TO CH53.0
TYPICAL CROSS SECTION
SCALE 1:50



RELATIVE DIFFERENCE	0.375	0.040	0.000	0.000	0.375
OFFSET	3.17	-2.90	0.00 CL	1.67	3.17

NORTHERN BDY CHANNEL
CH0.0 TO CH137.50
TYPICAL CROSS SECTION
SCALE 1:50

REFER TO FLOOD STUDY AND STORMWATER MANAGEMENT PLAN BY SITEPLUS FOR RESULTS OF THE FLOODWATER WITHIN SWALES AND CHANNEL

T:\Projects\16116 milperra village\DWG\DA\16116_DA_A.dwg

REVISIONS

No.	DESCRIPTION	DRN	APP	DATE
C	REVISED ARCHITECTURAL PLANS	A.C.	A.C.	06.07.18
D	DRAFT DA ISSUE	A.C	A.C	16.12.18
E	REVISED TO SUIT CONSULTANTS COMMENTS	A.C	A.C	19.12.18
F	REVISED TO PLANNERS COMMENTS	A.C	A.C	25.01.19
G	REVISED TO COUNCIL COMMENTS	M.D	a.c	16.08.19

siteplus
Site Plus Pty Ltd ABN 73 104 315 095
planning engineering landscape design management
HEAD OFFICE
345 Keira St
Wollongong NSW 2500
PO Box 5104
Wollongong NSW 2520
T 61 2 4227 4233
F 61 2 4227 4133
E info@siteplus.com.au

Height Datum	A.H.D.
Drawn	A.C.
Designed	A.C.
Checked	A.C.
Approved	A.C.

Client Title

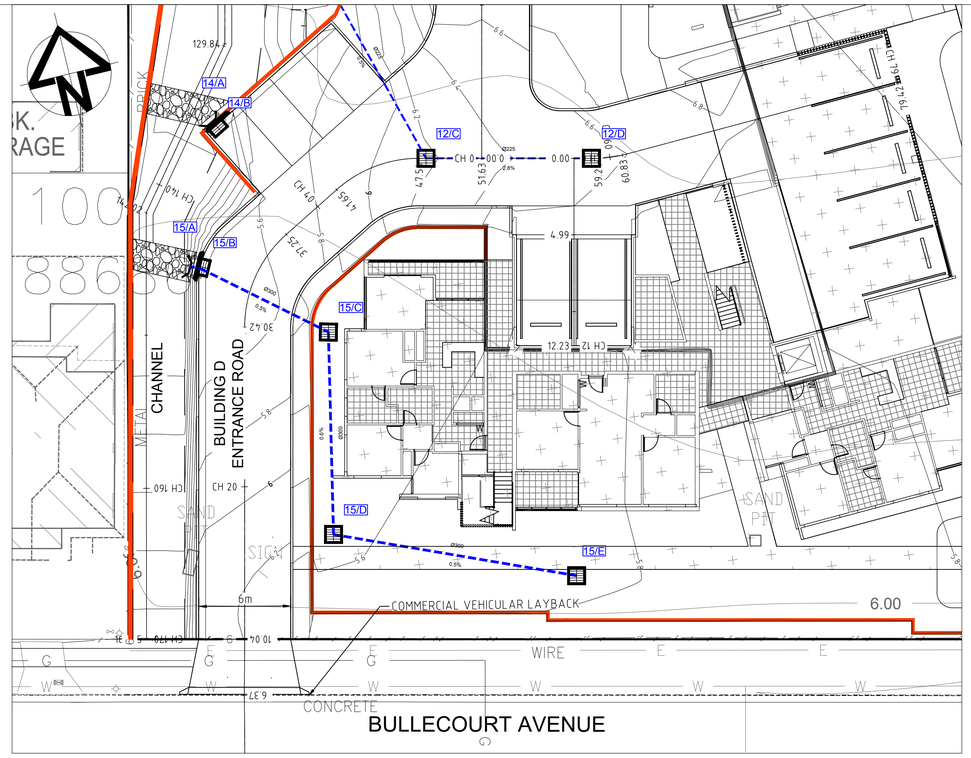
ANGLICARE (ACA), SYDNEY

Dwg Status: APPROVAL
Local Authority: BANKSTOWN CITY COUNCIL

Dwg Title
PROPOSED ANGLICAN RETIREMENT VILLAGE
BULLECOURT AVE, MILPERRA

TYPICAL ROAD CROSS SECTIONS 03

Ref & Dwg No	16116.DA.C06
Sheet No	Sheet 06 of 27
Scale	AS SHOWN
Date	25.01.19
Rev	G
	A1

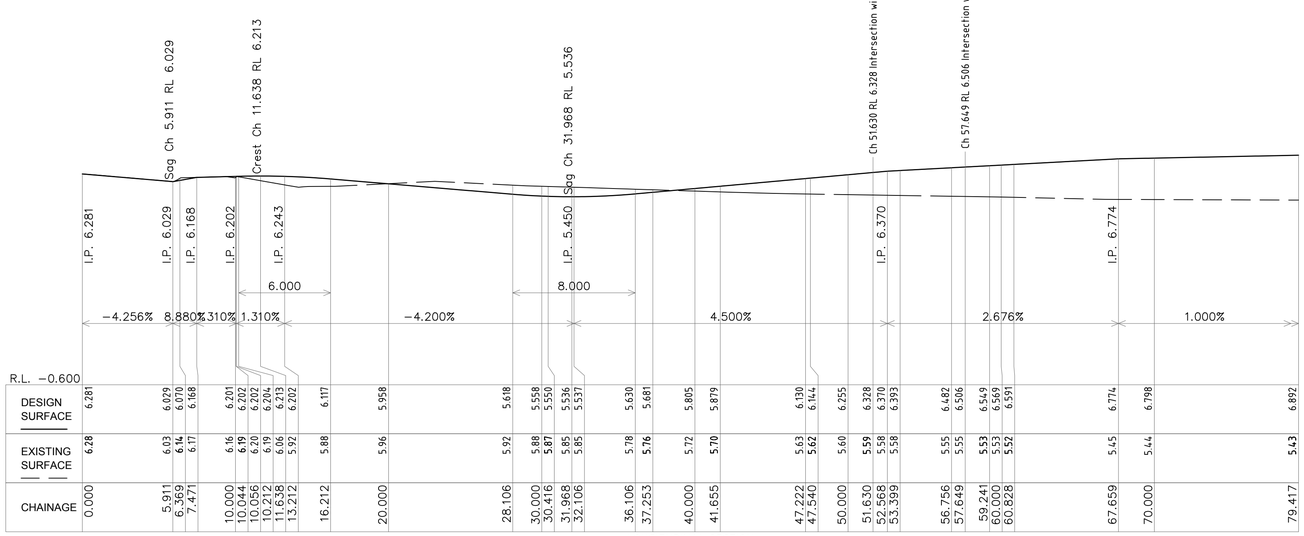


BUILDING D ENTRANCE ROAD
CH0 TO CH79.00

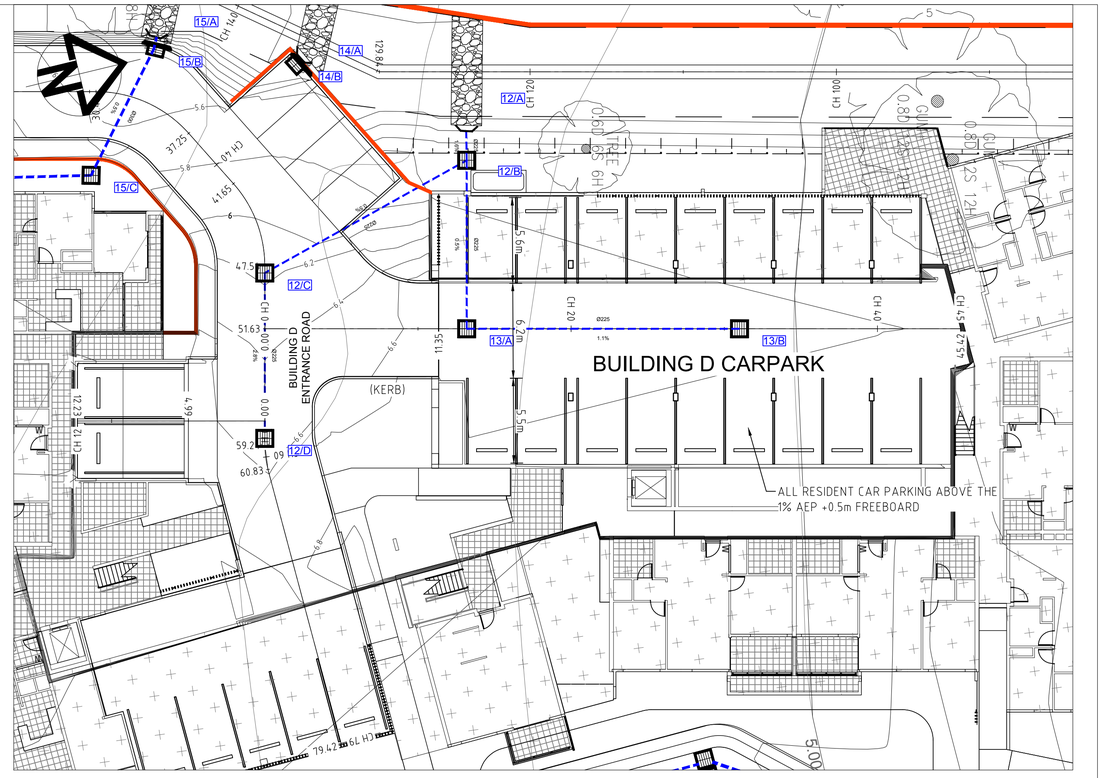
SCALE 1:200

0 5 10 15 20
Meters

SCALE : - 1 : 200 @ A1
- 1 : 400 @ A3



LONGITUDINAL SECTION
BUILDING D ENTRY ROAD Ch 0.000 to Ch 79.417
SCALES: HORIZONTAL 1:200 VERTICAL 1:100

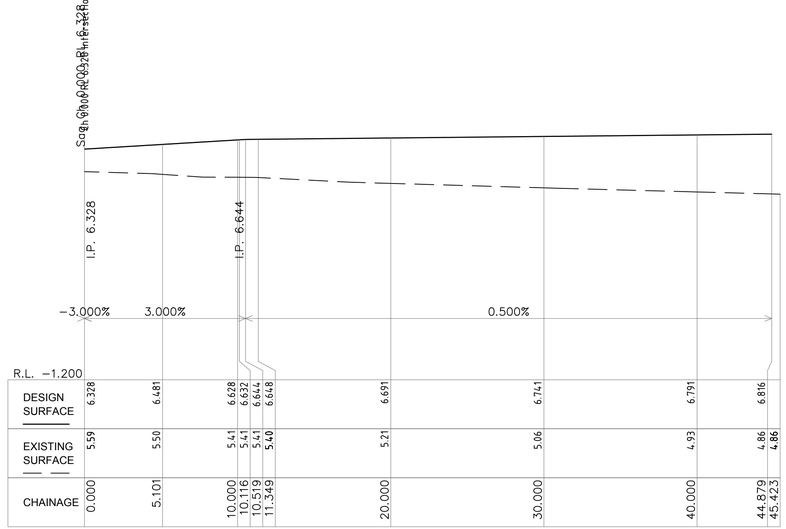


BUILDING D CARPARK
CH0 TO CH45.42

SCALE 1:200

0 5 10 15 20
Meters

SCALE : - 1 : 200 @ A1
- 1 : 400 @ A3



LONGITUDINAL SECTION
BUILDING D CARPARK Ch 0.000 to Ch 45.423
SCALES: HORIZONTAL 1:200 VERTICAL 1:100

T:\Projects\16116 milperra village\DWG\DA\16116_ROAD DETAILS.dwg

REVISIONS

No.	DESCRIPTION	DRN	APP	DATE
C	REVISED ARCHITECTURAL PLANS	A.C.	A.C.	06.07.18
D	DRAFT DA ISSUE	A.C	A.C	16.12.18
E	REVISED TO SUIT CONSULTANTS COMMENTS	A.C	A.C	19.12.18
F	REVISED TO PLANNERS COMMENTS	A.C	A.C	25.01.19
G	REVISED TO COUNCIL COMMENTS	M.D	a.c	16.08.19

siteplus
Site Plus Pty Ltd ABN 73 104 315 095
planning engineering landscape design management
HEAD OFFICE
2a Thomas Street
Wollongong NSW 2500
PO Box 5104
Wollongong NSW 2520
T 61 2 4227 4233
F 61 2 4227 4133
E info@siteplus.com.au
CAMDEN
12 View St
PO Box 615
Camden NSW 2570
T 61 2 4655 5877
F 61 2 4655 5024
E camden@siteplus.com.au

Height Datum	A.H.D.
Drawn	A.C.
Designed	A.C.
Checked	A.C.
Approved	A.C.

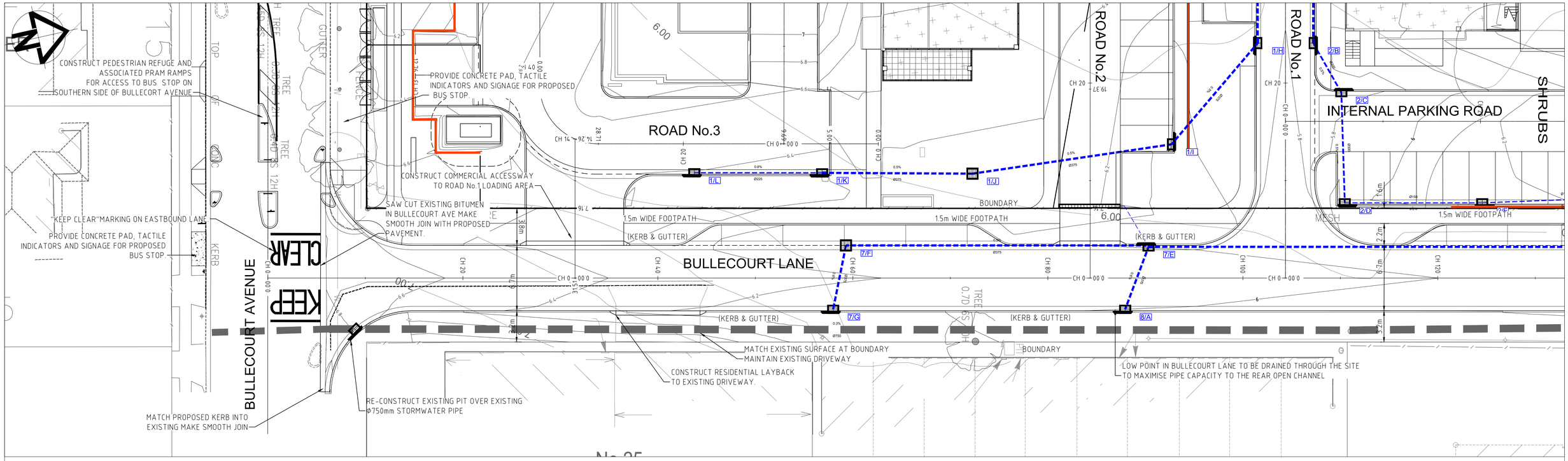
Client Title: ---- ANGLICARE (ACA), SYDNEY

Dwg Status: APPROVAL

Local Authority: BANKSTOWN CITY COUNCIL

Dwg Title: PROPOSED ANGLICAN RETIREMENT VILLAGE
BULLECOURT AVE, MILPERRA
BUILDING D ENTRANCE ROAD & PARKING
LONGSECTION

Ref & Dwg No	16116.DA.C07
Sheet No	Sheet 07 of 27
Scale	1:200 @ A1
Date	25.01.19
Rev	G
	A1



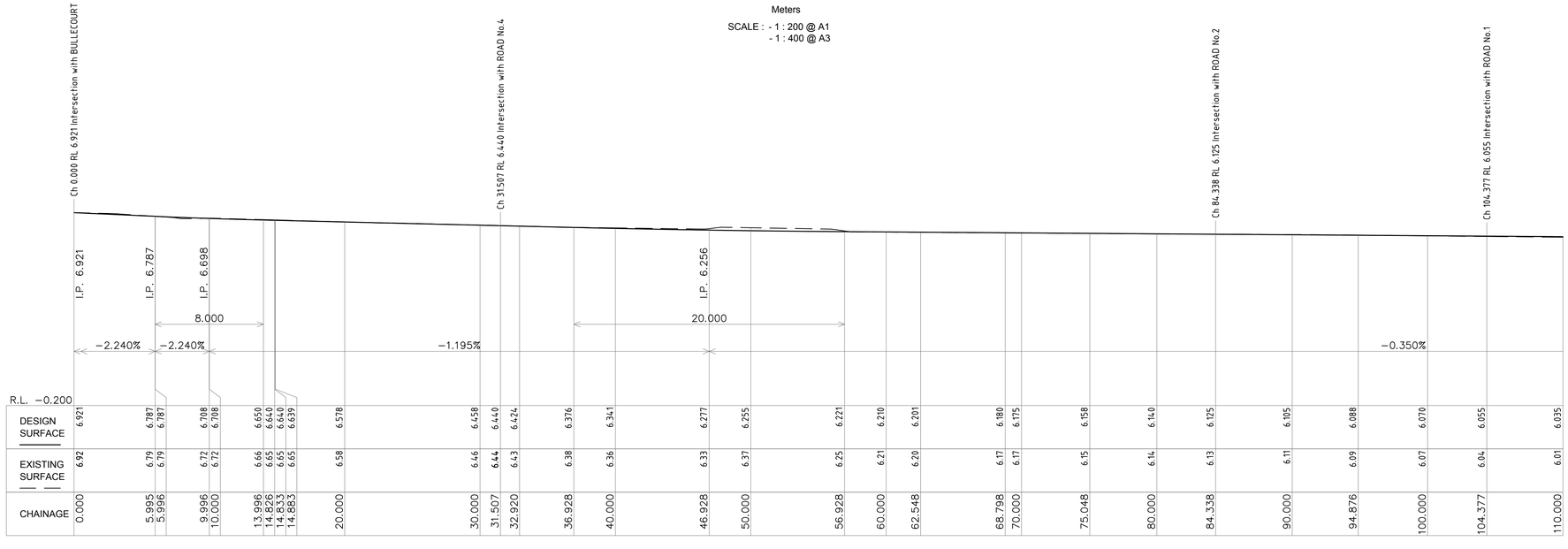
BULLECOURT LANE CH0 TO CH100

SCALE 1:200

0 5 10 15 20

Meters

SCALE : - 1 : 200 @ A1
- 1 : 400 @ A3



R.L. −0.200

CHAINAGE	0.000	5.995	5.996	9.996	10.000	13.996	14.826	14.833	14.883	20.000	30.000	31.507	32.920	36.928	40.000	46.928	50.000	56.928	60.000	62.548	68.798	70.000	75.048	80.000	84.338	90.000	94.876	100.000	104.377	110.000
DESIGN SURFACE	6.921	6.787	6.787	6.708	6.708	6.650	6.640	6.640	6.639	6.578	6.458	6.440	6.424	6.376	6.341	6.277	6.255	6.221	6.210	6.201	6.180	6.175	6.158	6.140	6.125	6.105	6.088	6.070	6.055	6.035
EXISTING SURFACE	6.92	6.79	6.79	6.72	6.72	6.66	6.65	6.65	6.65	6.58	6.46	6.44	6.43	6.38	6.36	6.33	6.37	6.25	6.21	6.20	6.17	6.17	6.15	6.14	6.13	6.11	6.09	6.07	6.04	6.01

LONGITUDINAL SECTION
BULLECOURT LANE Ch 0.000 to Ch 100.000
SCALES: HORIZONTAL 1:200 VERTICAL 1:100

REVISIONS No.	DESCRIPTION	DRN	APP	DATE
C	REVISED ARCHITECTURAL PLANS	A.C.	A.C.	06.07.18
D	DRAFT DA ISSUE	A.C	A.C	16.12.18
E	REVISED TO SUIT CONSULTANTS COMMENTS	A.C	A.C	19.12.18
F	REVISED TO PLANNERS COMMENTS	A.C	A.C	25.01.19
G	REVISED TO COUNCIL COMMENTS	M.D	a.c	16.08.19

siteplus
Site Plus Pty Ltd ABN 73 104 315 095
planning engineering landscape design management

HEAD OFFICE
2a Thomas Street
Wollongong NSW 2500
PO Box 5104
Wollongong NSW 2520
T 61 2 4227 4233
F 61 2 4227 4133
E info@siteplus.com.au

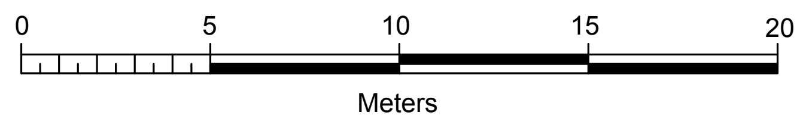
CAMDEN
12 View St
PO Box 615
Camden NSW 2570
T 61 2 4655 5877
F 61 2 4655 5024
E camden@siteplus.com.au

Height Datum	A.H.D.
Drawn	A.C.
Designed	A.C.
Checked	A.C.
Approved	A.C.
Client Title	----
	ANGLICARE (ACA), SYDNEY
Dwg Status	APPROVAL
Local Authority	BANKSTOWN CITY COUNCIL
Dwg Title	PROPOSED ANGLICAN RETIREMENT VILLAGE BULLECOURT AVE, MILPERRA BULLECOURT LANE CH0 TO CH100 LONGSECTION
Ref & Dwg No	16116.DA.C08
Sheet No	Sheet 08 of 27
Scale	1:200 @ A1
Date	25.01.19
Rev	G
	A1

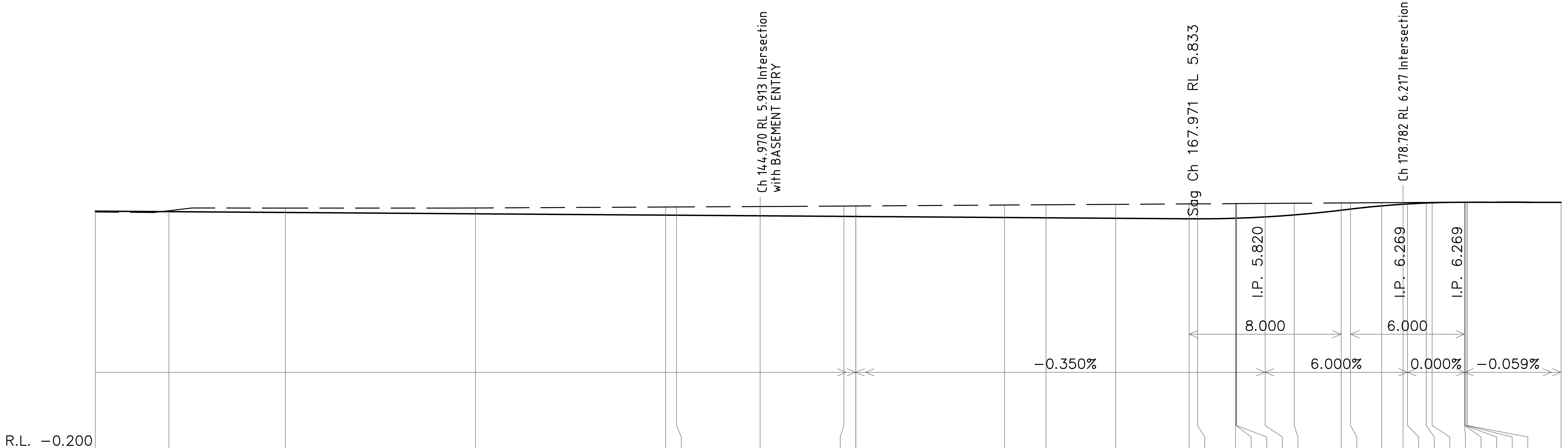
T:\Projects\16116 milperra village\DWG\DA\16116_ROAD DETAILS.dwg

BULLECOURT LANE
CH100 TO CH187.09

SCALE 1:200



SCALE : - 1 : 200 @ A1
- 1 : 400 @ A3



DESIGN SURFACE	6.035	6.022	6.000	5.965	5.930	5.928	5.913	5.898	5.895	5.895	5.868	5.860	5.847	5.834	5.833	5.849
EXISTING SURFACE	6.01	6.05	6.12	6.12	6.14	6.14	6.16	6.17	6.17	6.17	6.20	6.20	6.21	6.23	6.23	6.23
CHAINAGE	110.000	113.876	120.000	130.000	140.000	140.570	144.970	149.370	150.000	150.000	157.822	160.000	163.672	167.530	167.971	169.972

DESIGN SURFACE	5.850	5.850	5.883	5.936	6.060	6.089	6.174	6.217	6.224	6.249	6.254	6.269	6.269	6.269	6.269	6.269	6.266
EXISTING SURFACE	6.23	6.23	6.24	6.24	6.25	6.25	6.26	6.26	6.26	6.26	6.27	6.27	6.27	6.27	6.27	6.27	6.27
CHAINAGE	170.000	170.032	171.530	173.059	175.530	176.014	177.655	178.782	179.014	180.000	180.308	182.014	182.022	182.032	182.090	182.166	187.090

LONGITUDINAL SECTION
BULLECOURT LANE Ch 100.000 to Ch 187.090
SCALES: HORIZONTAL 1:200 VERTICAL 1:100

T:\Projects\16116 milperra village\DWG\DA\16116_ROAD DETAILS.dwg

REVISIONS

No.	DESCRIPTION	DRN	APP	DATE
C	REVISED ARCHITECTURAL PLANS	A.C.	A.C.	06.07.18
D	DRAFT DA ISSUE	A.C	A.C	16.12.18
E	REVISED TO SUIT CONSULTANTS COMMENTS	A.C	A.C	19.12.18
F	REVISED TO PLANNERS COMMENTS	A.C	A.C	25.01.19
G	REVISED TO COUNCIL COMMENTS	M.D	a.c	16.08.19

siteplus
Site Plus Pty Ltd ABN 73 104 315 095

HEAD OFFICE
2a Thomas Street
Wollongong NSW 2500
PO Box 5104
Wollongong NSW 2520
T 61 2 4227 4233
F 61 2 4227 4133
E info@siteplus.com.au

CAMDEN
12 View St
PO Box 615
Camden NSW 2570
T 61 2 4655 5877
F 61 2 4655 5024
E camden@siteplus.com.au

planning engineering landscape design management

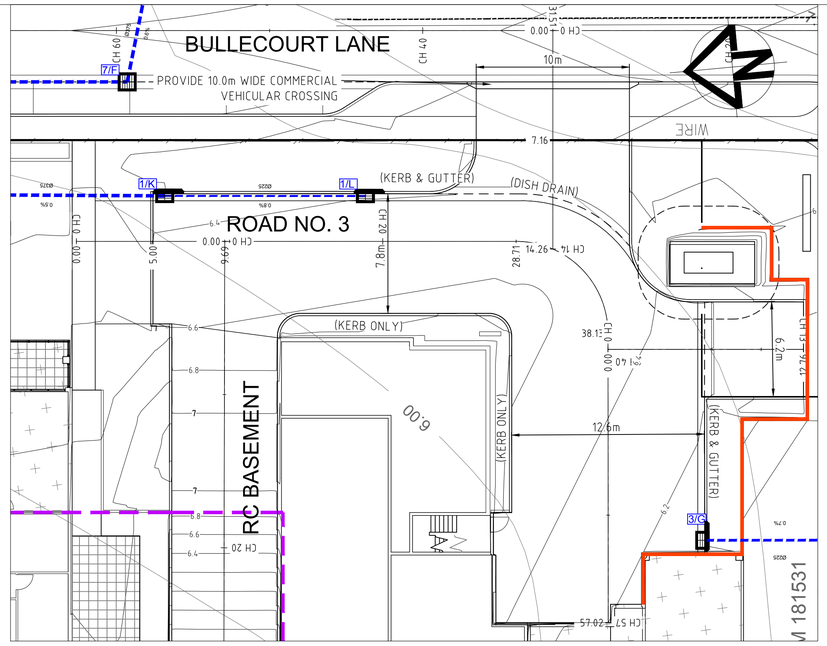
Height Datum: A.H.D.
Drawn: A.C.
Designed: A.C.
Checked: A.C.
Approved: A.C.

Client Title: ----
ANGLICARE (ACA), SYDNEY

Dwg Status: APPROVAL
Local Authority: BANKSTOWN CITY COUNCIL

Dwg Title:
PROPOSED ANGLICAN RETIREMENT VILLAGE
BULLECOURT AVE, MILPERRA
BULLECOURT LANE CH100 TO CH187
LONGSECTION

Ref & Dwg No: 16116.DA.C09
Sheet No: Sheet 09 of 27
Scale: 1:200 @ A1
Date: 25.01.19
Rev: G
A1



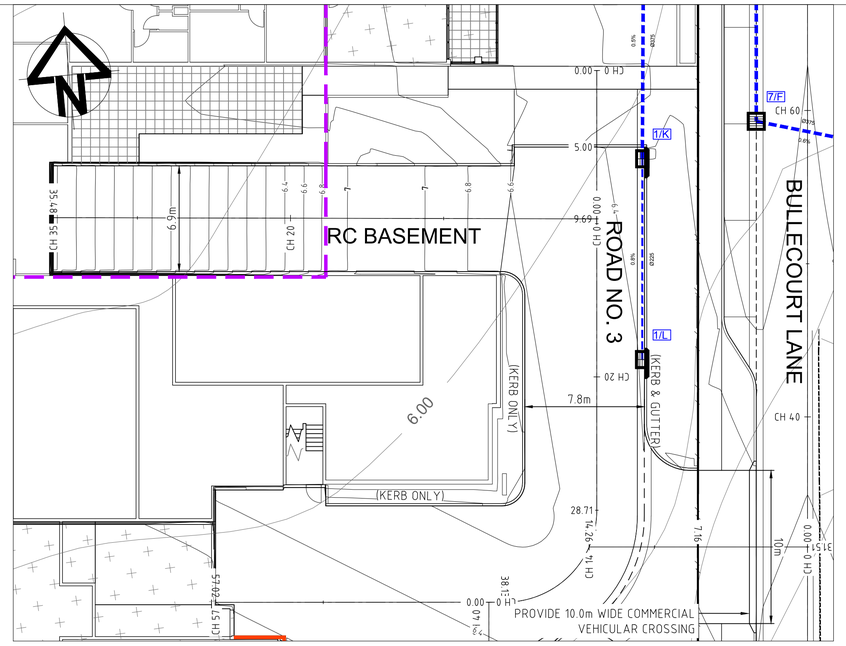
ROAD NO. 3 CH0 TO CH57.02

SCALE 1:200

0 5 10 15 20

Meters

SCALE : - 1 : 200 @ A1
- 1 : 400 @ A3



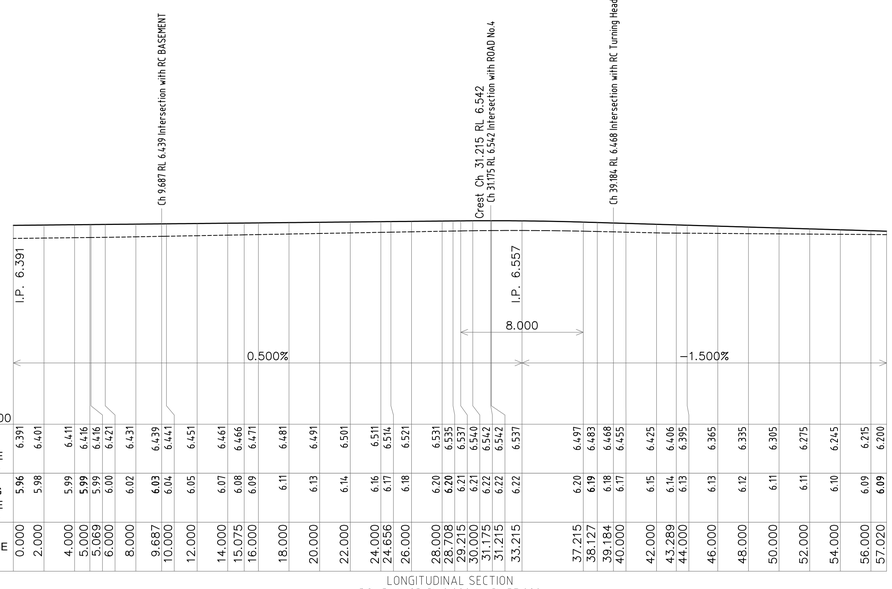
RC BASEMENT CH0 TO CH35.48

SCALE 1:200

0 5 10 15 20

Meters

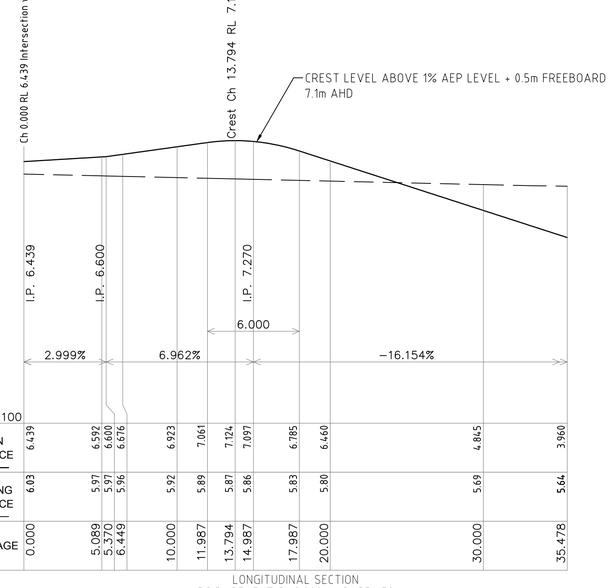
SCALE : - 1 : 200 @ A1
- 1 : 400 @ A3



R.L. −0.100

CHAINAGE	0.000	2.000	4.000	5.000	5.096	6.000	8.000	9.687	10.000	12.000	14.000	15.075	16.000	18.000	20.000	22.000	24.000	24.656	26.000	28.000	28.708	29.315	30.000	31.175	31.215	33.215	37.215	38.127	39.184	40.000	42.000	43.289	44.000	46.000	48.000	50.000	52.000	54.000	56.000	57.020
EXISTING SURFACE	5.96	5.98	5.99	5.99	5.99	6.00	6.02	6.03	6.04	6.05	6.07	6.08	6.09	6.11	6.13	6.14	6.16	6.17	6.18	6.20	6.20	6.21	6.21	6.22	6.22	6.22	6.20	6.19	6.18	6.17	6.15	6.14	6.13	6.13	6.12	6.11	6.11	6.10	6.09	6.09
DESIGN SURFACE	6.391	6.401	6.411	6.416	6.416	6.421	6.431	6.439	6.441	6.451	6.461	6.466	6.471	6.481	6.491	6.501	6.511	6.514	6.521	6.531	6.535	6.537	6.540	6.542	6.542	6.537	6.497	6.483	6.468	6.455	6.425	6.406	6.395	6.365	6.335	6.305	6.275	6.245	6.215	6.200

LONGITUDINAL SECTION
ROAD No.23 Ch 0.000 to Ch 57.020
SCALES: HORIZONTAL 1:200 VERTICAL 1:100



R.L. −2.100

CHAINAGE	0.000	5.089	5.370	6.449	10.000	11.987	13.794	14.987	17.987	20.000	30.000	35.478
EXISTING SURFACE	6.03	5.97	5.97	5.96	5.92	5.89	5.87	5.86	5.83	5.80	5.69	5.64
DESIGN SURFACE	6.439	6.592	6.600	6.676	6.923	7.061	7.124	7.097	6.785	6.460	4.845	3.960

LONGITUDINAL SECTION
RC BASEMENT Ch 0.000 to Ch 35.478
SCALES: HORIZONTAL 1:200 VERTICAL 1:100

T:\Projects\16116 milperra village\DWG\DA\16116_ROAD DETAILS.dwg

REVISIONS

No.	DESCRIPTION	DRN	APP	DATE
C	REVISED ARCHITECTURAL PLANS	A.C.	A.C.	06.07.18
D	DRAFT DA ISSUE	A.C	A.C	16.12.18
E	REVISED TO SUIT CONSULTANTS COMMENTS	A.C	A.C	19.12.18
F	REVISED TO PLANNERS COMMENTS	A.C	A.C	25.01.19
G	REVISED TO COUNCIL COMMENTS	M.D	a.c	16.08.19

siteplus
Site Plus Pty Ltd ABN 73 104 315 095
HEAD OFFICE
2a Thomas Street
Wollongong NSW 2500
PO Box 5104
Wollongong NSW 2520
T 61 2 4227 4233
F 61 2 4227 4133
E info@siteplus.com.au
CAMDEN
12 View St
PO Box 615
Camden NSW 2570
T 61 2 4655 5877
F 61 2 4655 5024
E camden@siteplus.com.au
planning engineering landscape design management

Height Datum	A.H.D.
Drawn	A.C.
Designed	A.C.
Checked	A.C.
Approved	A.C.

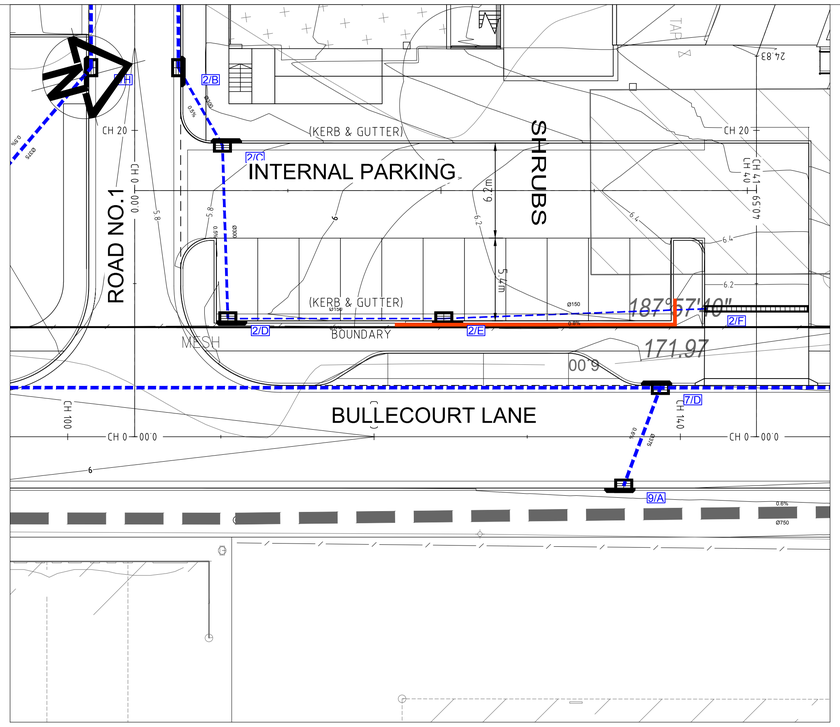
Client Title: ---- ANGLICARE (ACA), SYDNEY

Dwg Status: APPROVAL

Local Authority: BANKSTOWN CITY COUNCIL

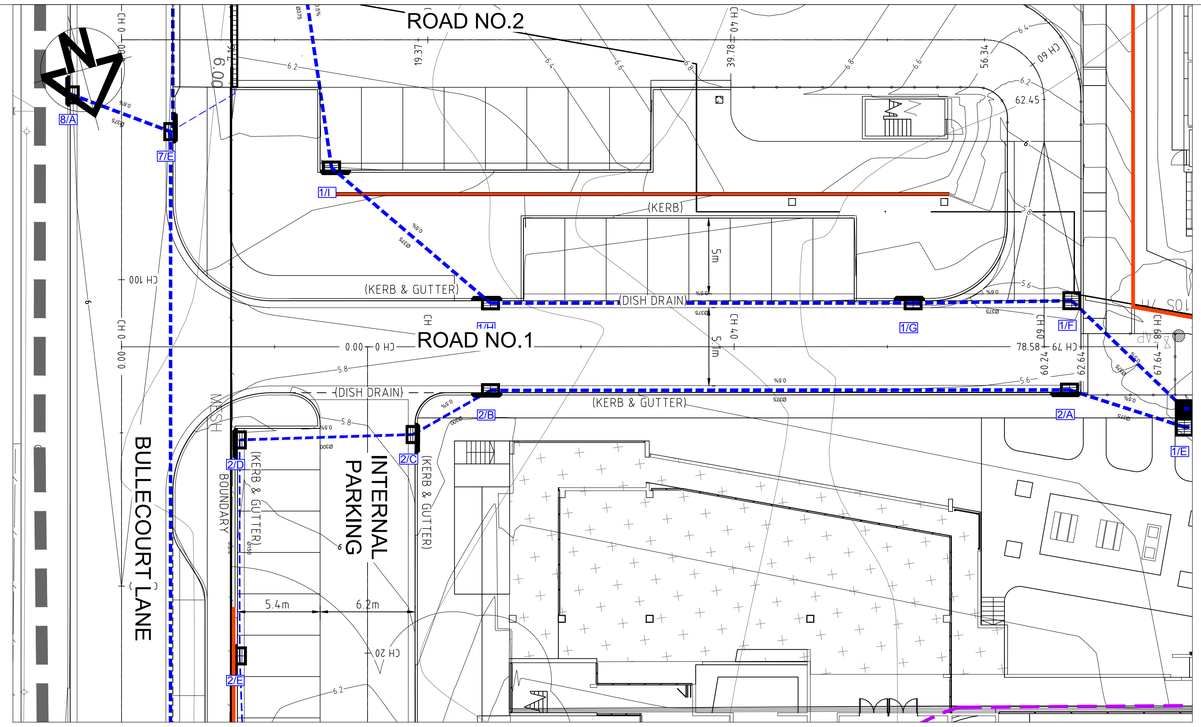
Dwg Title: PROPOSED ANGLICAN RETIREMENT VILLAGE
BULLECOURT AVE, MILPERRA
ROAD NO.3 CH0 TO CH57.00
LONGSECTION

Ref & Dwg No	16116.DA.C10
Sheet No	Sheet 10 of 27
Scale	1:200 @ A1
Date	25.01.19
Rev	G
	A1



INTERNAL PARKING CH0 TO CH40.59

SCALE 1:200



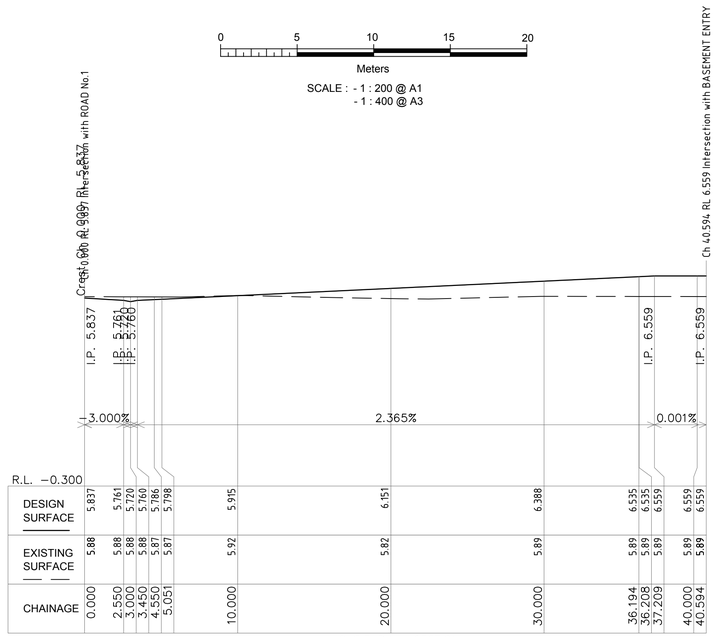
ROAD NO.1 CH0 TO CH67.64

SCALE 1:200

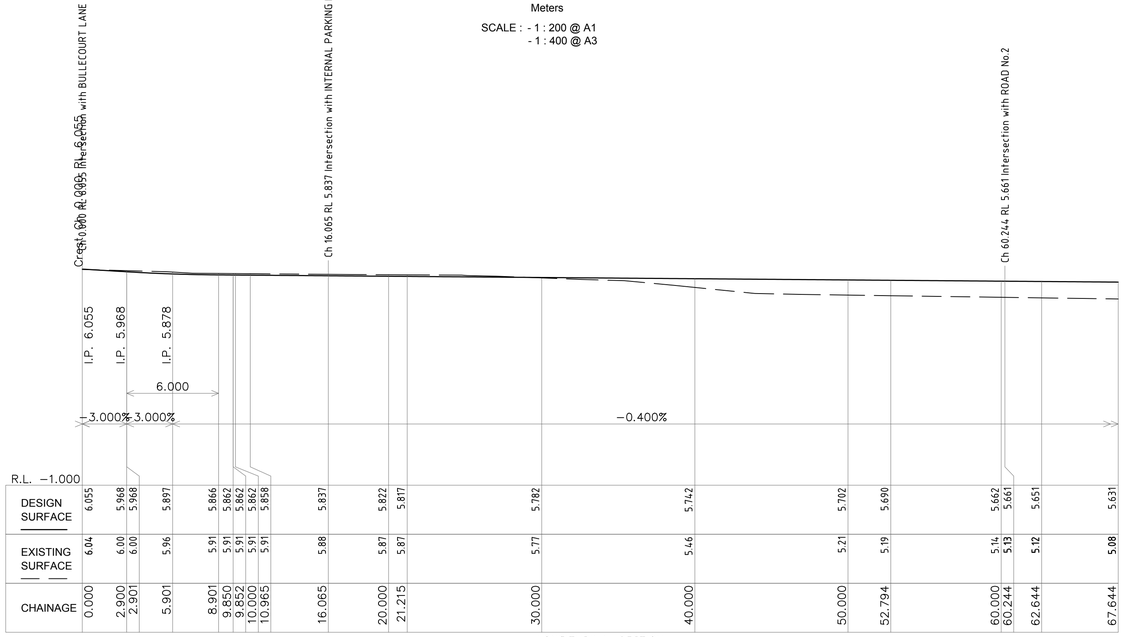
0 5 10 15 20

Meters

SCALE : - 1 : 200 @ A1
- 1 : 400 @ A3



LONGITUDINAL SECTION
INTERNAL PARKING ROAD Ch 0.000 to Ch 40.594
SCALES: HORIZONTAL 1:200 VERTICAL 1:100



LONGITUDINAL SECTION
ROAD No.1 Ch 0.000 to Ch 67.644
SCALES: HORIZONTAL 1:200 VERTICAL 1:100

T:\Projects\16116 milperra village\DWG\DA\16116_ROAD DETAILS.dwg

REVISIONS No.	DESCRIPTION	DRN	APP	DATE
C	REVISED ARCHITECTURAL PLANS	A.C.	A.C.	06.07.18
D	DRAFT DA ISSUE	A.C	A.C	16.12.18
E	REVISED TO SUIT CONSULTANTS COMMENTS	A.C	A.C	19.12.18
F	REVISED TO PLANNERS COMMENTS	A.C	A.C	25.01.19
G	REVISED TO COUNCIL COMMENTS	M.D	a.c	16.08.19

siteplus
Site Plus Pty Ltd ABN 73 104 315 095
planning engineering landscape design management
HEAD OFFICE
2a Thomas Street
Wollongong NSW 2500
PO Box 5104
Wollongong NSW 2520
T 61 2 4227 4233
F 61 2 4227 4133
E info@siteplus.com.au
CAMDEN
12 View St
PO Box 615
Camden NSW 2570
T 61 2 4655 5877
F 61 2 4655 5024
E camden@siteplus.com.au

Height Datum	A.H.D.
Drawn	A.C.
Designed	A.C.
Checked	A.C.
Approved	A.C.

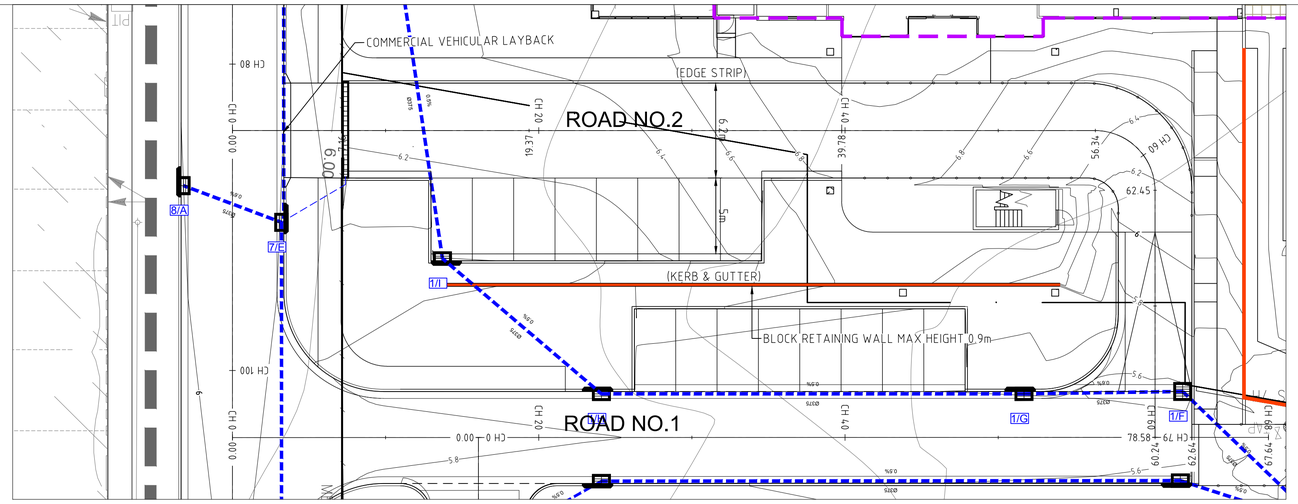
Client Title: ---- ANGLICARE (ACA), SYDNEY

Dwg Status: APPROVAL

Local Authority: BANKSTOWN CITY COUNCIL

Dwg Title: PROPOSED ANGLICAN RETIREMENT VILLAGE
BULLECOURT AVE, MILPERRA
ROAD NO.1 & INTERNAL PARKING
LONGSECTION

Ref & Dwg No	16116.DA.C11
Sheet No	Sheet 11 of 27
Scale	1:200 @ A1
Date	25.01.19
Rev	G
	A1



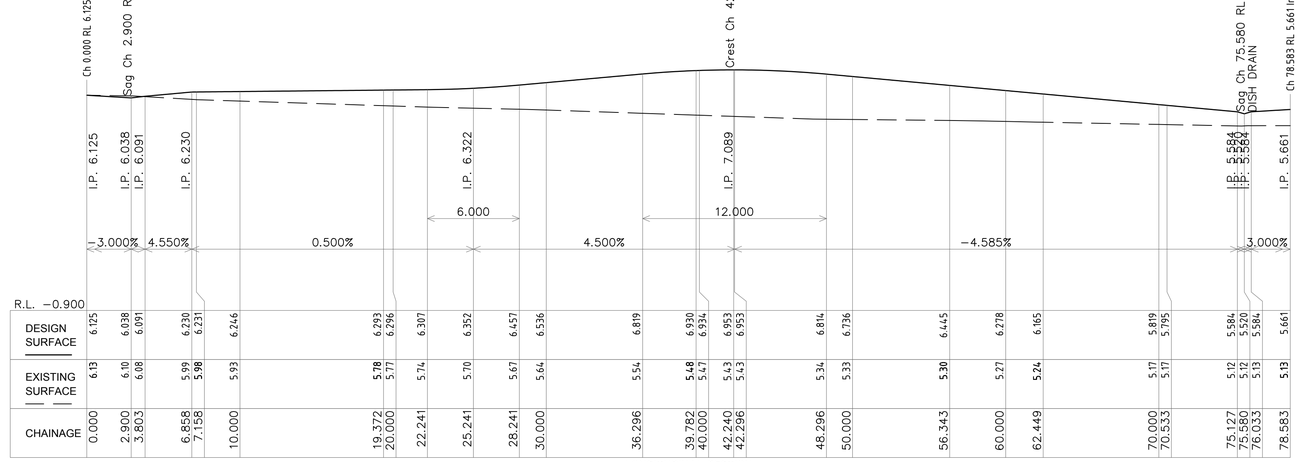
ROAD NO.2 CH0 TO CH78.583

SCALE 1:200

0 5 10 15 20

Meters

SCALE : - 1 : 200 @ A1
- 1 : 400 @ A3



LONGITUDINAL SECTION
ROAD No.2 Ch 0.000 to Ch 78.583
SCALES: HORIZONTAL 1:200 VERTICAL 1:100

T:\Projects\16116 milperra village\DWG\DA\16116_ROAD DETAILS.dwg

REVISIONS No.	DESCRIPTION	DRN	APP	DATE
C	REVISED ARCHITECTURAL PLANS	A.C.	A.C.	06.07.18
D	DRAFT DA ISSUE	A.C	A.C	16.12.18
E	REVISED TO SUIT CONSULTANTS COMMENTS	A.C	A.C	19.12.18
F	REVISED TO PLANNERS COMMENTS	A.C	A.C	25.01.19
G	REVISED TO COUNCIL COMMENTS	M.D	a.c	16.08.19

siteplus
Site Plus Pty Ltd ABN 73 104 315 095
planning engineering landscape design management
HEAD OFFICE
2a Thomas Street
Wollongong NSW 2500
PO Box 5104
Wollongong NSW 2520
T 61 2 4227 4233
F 61 2 4227 4133
E info@siteplus.com.au
CAMDEN
12 View St
PO Box 615
Camden NSW 2570
T 61 2 4655 5877
F 61 2 4655 5024
E camden@siteplus.com.au

Height Datum	A.H.D.
Drawn	A.C.
Designed	A.C.
Checked	A.C.
Approved	A.C.

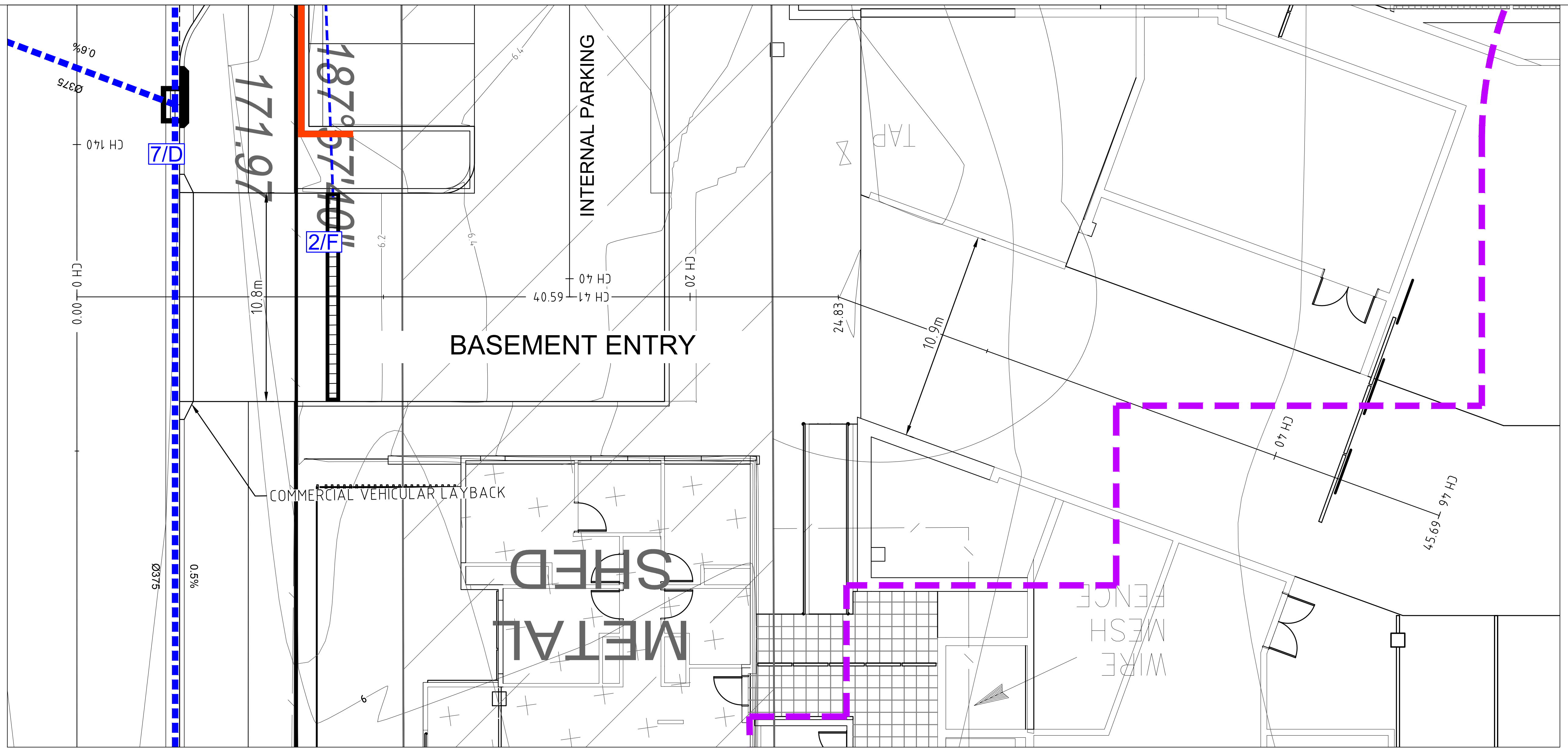
Client Title

ANGLICARE (ACA), SYDNEY

Dwg Status: APPROVAL
Local Authority: BANKSTOWN CITY COUNCIL

Dwg Title
PROPOSED ANGLICAN RETIREMENT VILLAGE
BULLECOURT AVE, MILPERRA
ROAD NO.2 CH0 TO CH78.58
LONGSECTIONS

Ref & Dwg No	16116.DA.C12
Sheet No	Sheet 12 of 27
Scale	1:200 @ A1
Date	25.01.19
Rev	G
	A1

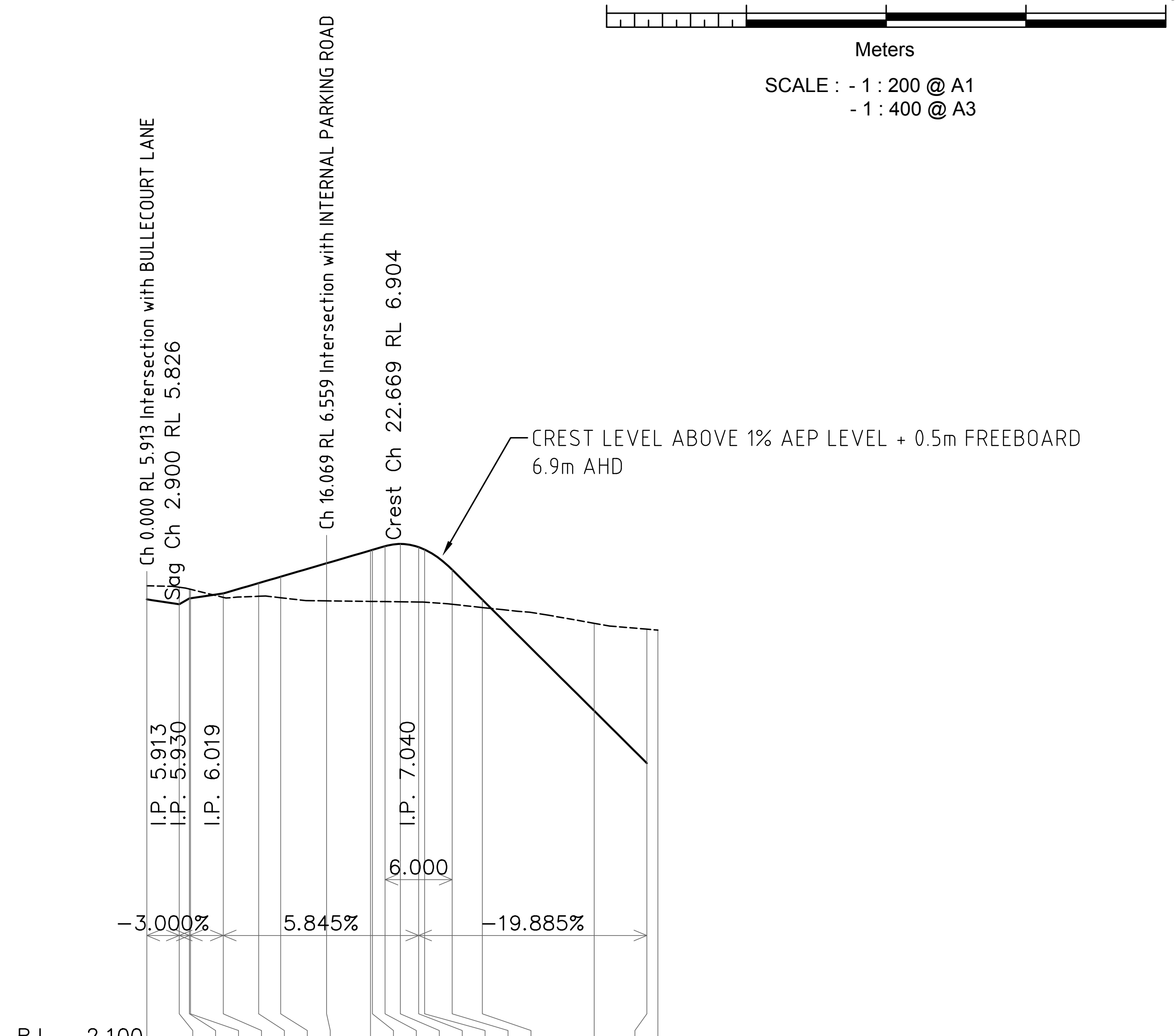


BASEMENT ENTRY CH0 TO CH46.000

SCALE 1:200

0 5 10 15 20
Meters

SCALE : - 1 : 200 @ A1
- 1 : 400 @ A3



DESIGN SURFACE	5.913	5.826	5.930	5.933	6.019	6.204	6.319	6.559	6.788	6.798	6.865	6.904	6.847	6.804	6.443	5.908	3.919	2.982	
EXISTING SURFACE	6.16	6.13	6.10	6.09	5.95	5.97	5.94	5.89	5.88	5.88	5.87	5.87	5.87	5.86	5.83	5.77	5.49	5.38	5.36
CHAINAGE	0.000	2.900	3.803	3.899	6.838	10.000	11.969	16.069	20.000	20.169	21.306	22.669	24.306	24.834	27.306	30.000	40.000	44.711	45.695

LONGITUDINAL SECTION
BASEMENT ENTRY Ch 0.000 to Ch 45.695
SCALES: HORIZONTAL 1:500 VERTICAL 1:100

T:\Projects\16116 milperra village\DWG\DA\16116_ROAD DETAILS.dwg

REVISIONS

No.	DESCRIPTION	DRN	APP	DATE
C	REVISED ARCHITECTURAL PLANS	A.C.	A.C.	06.07.18
D	DRAFT DA ISSUE	A.C	A.C	16.12.18
E	REVISED TO SUIT CONSULTANTS COMMENTS	A.C	A.C	19.12.18
F	REVISED TO PLANNERS COMMENTS	A.C	A.C	25.01.19
G	REVISED TO COUNCIL COMMENTS	M.D	a.c	16.08.19

siteplus

Site Plus Pty Ltd ABN 73 104 315 095

HEAD OFFICE
2a Thomas Street
Wollongong NSW 2500
PO Box 5104
Wollongong NSW 2520
T 61 2 4227 4233
F 61 2 4227 4133
E info@siteplus.com.au

CAMDEN
12 View St
PO Box 615
Camden NSW 2570
T 61 2 4655 5877
F 61 2 4655 5024
E camden@siteplus.com.au

planning engineering landscape design management

Height Datum A.H.D.
Drawn A.C.
Designed A.C.
Checked A.C.
Approved A.C.

Client Title

ANGLICARE (ACA), SYDNEY

Dwg Status APPROVAL
Local Authority BANKSTOWN CITY COUNCIL

Dwg Title
PROPOSED ANGLICAN RETIREMENT VILLAGE
BULLECOURT AVE, MILPERRA
BASEMENT ENTRY CH0 TO CH40
LONGSECTION

Ref & Dwg No 16116.DA.C13
Sheet No Sheet 13 of 27
Scale 1:200 @ A1
Date 25.01.19
Rev G
A1

SCALE : - 1 : 500 @ A1
- 1 : 1000 @ A3

PIT CATCHMENT PLAN

PIT CATCHMENT AREAS	
Pit No.	AERA
(m)	(ha)
1/A	
1/B	
1/C	0.07
1/D	0.07
1/E	0.10
1/F	0.08
	0.03
	0.05
1/G	0.05
1/H	0.03
10/A	0.14
11/A	0.10
	0.02
	0.08
11/B	0.01
2/A	0.04
2/B	0.04
3/A	0.06
3/B	0.07
4/A	0.03
4/B	0.09
4/C	0.06
4/D	0.05
4/E	0.06
4/F	0.01
4/G	0.05
4/H	0.02
5/A	0.06
5/B	0.07
	0.03
	0.05

PIT CATCHMENT AREAS	
Pit No.	AERA
(m)	(ha)
6/A	0.01
7/A	0.07
	0.02
	0.05
8/A	0.05
8/B	0.02
8/C	0.23
9/A	0.07
9/B	0.01
9/C	0.02
12/A	
12/B	0.01
12/C	0.05
12/D	0.12
12/E	0.11
12/F	
13/A	0.12
14/A	0.13
15/A	0.06
15/B	0.09
16/A	
16/B	0.08
16/C	0.05
16/D	0.00
16/E	0.01
16/F	0.02
18/A	
18/B	
12/A	
12/B	0.06
	0.05
	0.00

PIT CATCHMENT AREAS	
Pit No.	AERA
(m)	(ha)
15/A	
15/B	0.02
	0.02
	0.00
15/C	0.08
	0.07
	0.01
15/D	0.01
	0.01
	0.00
15/E	0.01
	0.01
	0.00
14/A	
14/B	0.02
	0.02
	0.00
16/A	
16/B	0.24
	0.23
	0.01

UPSTREAM PIT CATCHMENT PLAN

T:\Projects\16116 milperra village\DWG\DA\16116_DA_A.dwg

REVISIONS No.	DESCRIPTION	DRN	APP	DATE
C	REVISED ARCHITECTURAL PLANS	A.C.	A.C.	06.07.18
D	DRAFT DA ISSUE	A.C	A.C	16.12.18
E	REVISED TO SUIT CONSULTANTS COMMENTS	A.C.	A.C	19.12.18
F	REVISED TO PLANNERS COMMENTS	A.C	A.C	25.01.19
G	REVISED TO COUNCIL COMMENTS	M.D	a.c	16.08.19

siteplus
Site Plus Pty Ltd ABN 73 104 315 095
planning engineering landscape design management
HEAD OFFICE
345 Keira St
Wollongong NSW 2500
PO Box 5104
Wollongong NSW 2520
T 61 2 4227 4233
F 61 2 4227 4133
E info@siteplus.com.au

Height Datum	A.H.D.
Drawn	A.C.
Designed	A.C.
Checked	A.C.
Approved	A.C.

Client Title: ---- ANGLICARE (ACA), SYDNEY

Dwg Status: APPROVAL

Local Authority: BANKSTOWN CITY COUNCIL

Dwg Title: PROPOSED ANGLICAN RETIREMENT VILLAGE BULLECOURT AVE, MILPERRA

PIT CATCHMENT PLAN

Ref & Dwg No	16116.DA.C14
Sheet No	Sheet 14 of 27
Scale	1:500 @ A1
Date	25.01.19
Rev	G
	A1

HGL Report - Proposed Return Period: 10yrs Location: Milperra

Pipe Connecting Pits (Downstream Upstream)	Pipe ID	Pipe Class	Pipe Diameter	Pipe Length	Pipe Design Flow	Mannings n	Pipe Velocity	Pipe Part Velocity	Pipe Velocity Head	HGL at Downstream Pit	Pipe Friction Slope	Pipe Friction Loss	HGL at Upstream Pit	Pit Loss Coefficient	Pipe Head Loss	Adopted Upstream Water Level	Pit Surcharge Level (Pit Inlet/Outlet Level)	Downstream Pipe Obvert	Upstream Pipe Obvert	Downstream Pipe Invert	Upstream Pipe Invert	Pipe Slope	Pipe Design Flow	Pipe HGL Capacity	Pipe Manning Capacity
			(mm)	(m)	(l/s)		(m/s)	(m/s)	(m)	(m)	(%)	(m)	(m)	Ku	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(%)	(l/s)	(l/s)	(l/s)
1/A 1/B	1/B1/A	Class 3 RRJ	375	1.723	628.1	0.013	1.90	1.896	0.183	4.735	0.01	0.013	4.748	1.754	0.322	5.070	5.064	4.735	4.745	4.360	4.370	0.581	628.1	550.8	400.8
1/B 1/C	1/C1/B	Class 3 RRJ	375	5.894	347.9	0.013	1.58	1.575	0.127	5.064	0.01	0.031	5.095	1.033	0.131	5.226	5.309	4.775	4.805	4.400	4.430	0.509	347.9	342.9	250.2
1/C 1/D	1/D1/C	Class 3 RRJ	375	14.726	286.2	0.013	1.30	1.296	0.086	5.226	0.00	0.053	5.279	1.373	0.118	5.397	5.422	4.835	4.915	4.460	4.540	0.543	286.2	354.7	258.5
1/D 1/E	1/E1/D	Class 4 RRJ	375	23.369	222.2	0.013	1.28	1.284	0.052	5.397	0.00	0.052	5.449	1.461	0.075	5.524	5.595	4.945	5.065	4.570	4.690	0.514	222.2	344.5	251.3
1/E 1/F	1/F1/E	Class 4 RRJ	375	11.034	159.6	0.013	1.44	1.445	0.107	5.524	0.00	0.049	5.573	1.500	0.160	5.733	5.537	5.095	5.155	4.720	4.780	0.544	159.6	177.5	129.3
1/F 1/G	1/G1/F	Class 4 RRJ	375	10.361	116.7	0.013	1.36	1.362	0.057	5.537	0.00	0.025	5.562	1.000	0.057	5.619	5.592	5.185	5.245	4.810	4.870	0.579	116.7	183.4	133.4
1/G 1/H	1/H1/G	Class 4 RRJ	375	27.592	107.2	0.013	1.27	1.271	0.048	5.592	0.00	0.057	5.649	1.000	0.048	5.697	5.702	5.275	5.415	4.900	5.040	0.507	107.2	171.2	124.9
1/H 1/I	1/I1/H	Class 4 RRJ	375	13.630	96.1	0.013	1.25	1.252	0.039	5.697	0.00	0.023	5.720	1.197	0.046	5.766	5.996	5.445	5.515	5.070	5.140	0.514	96.1	172.2	125.6
1/I 1/J	1/J1/I	Class 2 RRJ	375	20.639	78.5	0.013	1.22	1.217	0.026	5.766	0.00	0.024	5.790	2.074	0.053	5.844	6.357	5.595	5.705	5.220	5.330	0.533	78.5	175.6	128.0
1/J 1/K	1/K1/J	Class 2 RRJ	375	15.424	19.8	0.013	0.83	0.830	0.002	5.844	0.00	0.001	5.845	1.000	0.002	5.847	6.312	5.745	5.825	5.370	5.450	0.519	19.8	173.1	126.3
1/K 1/L	1/L1/K	PVC	225	13.107	10.9	0.009	1.10	1.100	0.004	5.847	0.00	0.005	5.851	14.148	0.054	5.906	6.378	5.705	5.805	5.480	5.580	0.763	10.9	56.2	56.7
1/E 2/A	2/A1/E	Class 4 RRJ	375	7.877	52.3	0.013	1.08	1.082	0.011	5.524	0.00	0.004	5.528	1.940	0.022	5.550	5.554	5.095	5.135	4.720	4.760	0.508	52.3	171.2	124.9
2/A 2/B	2/B2/A	Class 3 RRJ	375	37.800	19.3	0.013	0.82	0.816	0.002	5.550	0.00	0.003	5.554	1.000	0.002	5.555	5.702	5.165	5.355	4.790	4.980	0.503	19.3	170.3	124.3
2/B 2/C	2/C2/B	Class 2 RRJ	300	5.835	14.9	0.013	0.78	0.784	0.002	5.555	0.00	0.001	5.556	1.000	0.002	5.558	5.707	5.330	5.360	5.030	5.060	0.514	14.9	95.8	69.3
2/C 2/D	2/D2/C	Class 2 RRJ	300	11.309	15.2	0.013	0.80	0.797	0.002	5.558	0.00	0.002	5.560	2.105	0.005	5.565	5.948	5.390	5.450	5.090	5.150	0.531	15.2	97.4	70.4
2/D 2/E	2/E2/D	PVC	150	14.101	9.4	0.009	1.12	1.115	0.014	5.565	0.00	0.028	5.594	1.924	0.028	5.621	6.088	5.390	5.508	5.240	5.358	0.835	9.4	20.2	20.1
2/E 2/F	2/F2/E	PVC	150	17.025	3.5	0.009	0.86	0.858	0.002	5.621	0.00	0.006	5.627	14.820	0.029	5.657	6.163	5.508	5.650	5.358	5.500	0.835	3.5	20.2	20.1
1/B 3/A	3/A1/B	Class 2 RRJ	375	7.269	283.7	0.013	1.50	1.501	0.084	5.064	0.00	0.026	5.090	1.000	0.084	5.174	5.257	4.785	4.835	4.410	4.460	0.688	283.7	401.1	290.8
3/A 3/B	3/B3/A	Class 2 RRJ	375	21.725	226.5	0.013	1.33	1.329	0.054	5.174	0.00	0.050	5.224	1.043	0.056	5.280	5.418	4.865	4.985	4.490	4.610	0.552	226.5	357.8	260.6
3/B 3/C	3/C3/B	PVC	300	38.643	151.4	0.009	1.50	1.497	0.059	5.280	0.00	0.123	5.403	1.000	0.059	5.462	5.621	4.940	5.120	4.640	4.820	0.466	151.4	184.9	190.7
3/C 3/D	3/D3/C	PVC	300	25.061	108.1	0.009	1.80	1.798	0.119	5.462	0.01	0.157	5.619	1.907	0.228	5.846	5.772	5.150	5.310	4.850	5.010	0.638	108.1	109.2	111.6
3/D 3/E	3/E3/D	PVC	300	30.941	48.5	0.009	1.59	1.585	0.024	5.772	0.00	0.043	5.815	1.634	0.039	5.855	5.935	5.350	5.570	5.050	5.270	0.711	48.5	115.5	117.8
3/E 3/F	3/F3/E	PVC	300	26.801	25.9	0.009	1.36	1.359	0.007	5.855	0.00	0.012	5.866	2.200	0.015	5.881	6.075	5.600	5.800	5.300	5.500	0.746	25.9	118.5	120.7
3/F 3/G	3/G3/F	Class 2 RRJ	225	10.114	16.1	0.013	0.90	0.903	0.008	5.881	0.00	0.007	5.888	11.809	0.092	5.981	6.078	5.759	5.829	5.530	5.600	0.692	16.1	54.9	39.2
3/C 4/A	4/A3/C	PVC	150	14.933	8.7	0.009	1.09	1.089	0.012	5.462	0.00	0.026	5.488	8.719	0.108	5.596	5.718	5.125	5.250	4.975	5.100	0.837	8.7	20.2	20.1
3/A 5/A	5/A3/A	Class 2 RRJ	225	8.503	19.6	0.013	1.20	1.199	0.012	5.174	0.00	0.009	5.183	10.486	0.121	5.304	6.746	4.719	4.829	4.490	4.600	1.294	19.6	76.1	53.5
1/C 6/A	6/A1/C	Class 2 RRJ	225	18.389	11.3	0.013	0.93	0.928	0.004	5.226	0.00	0.007	5.233	14.177	0.055	5.287	6.928	4.739	4.915	4.510	4.686	0.955	11.3	65.0	46.0
12/A 12/B	12/B12/A	Class 2 RRJ	450	34.248	203.8	0.013	1.28	0.084	3.872	0.00	0.097	4.213	1.321	0.111	4.324	5.063	3.872	4.421	3.422	3.971	1.603	203.8	500.8	361.0	0.000
12/B 12/C	12/C12/B	PVC	450	11.726	166.1	0.009	1.04	0.056	4.511	0.00	0.022	4.581	2.200	0.122	4.703	5.145	4.730	4.800	4.280	4.350	0.597	166.1	306.2	318.2	0.000
12/B 13/A	13/A12/B	Class 2 RRJ	225	8.009	43.7	0.013	1.06	0.057	4.443	0.00	0.036	4.538	5.461	0.314	4.851	5.400	4.509	4.604	4.280	4.375	1.186	43.7	72.8	51.3	0.000
12/C 12/D	12/D12/C	PVC	450	22.018	154.3	0.009	0.97	0.048	4.703	0.00	0.036	4.813	1.000	0.048	4.861	5.240	4.830	4.940	4.380	4.490	0.500	154.3	279.0	291.1	0.000
12/D 14/A	14/A12/D	PVC	300	28.503	45.5	0.009	0.64	0.021	4.861	0.00	0.035	4.896	9.287	0.196	5.093	5.613	4.820	5.000	4.520	4.700	0.632	45.5	108.6	111.0	0.000
12/D 15/A	15/A12/D	PVC	300	17.216	48.1	0.009	0.68	0.024	4.861	0.00	0.024	4.885	1.171	0.028	4.912	5.411	4.820	4.910	4.520	4.610	0.523	48.1	98.3	101.0	0.000
12/D 12/E	12/E12/D	PVC	375	23.870	40.1	0.009	0.36	0.007	4.861	0.00	0.008	4.981	2.200	0.015	4.996	5.357	4.895	5.015	4.520	4.640	0.503	40.1	173.3	179.6	0.000
15/A 15/B	15/B15/A	PVC	300	15.463	34.5	0.009	0.49	0.012	4.912	0.00	0.011	4.996	11.219	0.137	5.133	5.716	4.940	5.024	4.640	4.724	0.543	34.5	100.3	102.9	0.000
12/E 12/F	12/F12/E	Class 2 RRJ	225	14.859	0.0	0.013	0.00	0.000	4.996	0.00	0.000	4.996	18.000	0.000	4.996	5.431	4.658	4.806	4.429	4.577	1.000	0.0	66.6	0.0	0.000
16/A 16/B	16/B16/A	Class 2 RRJ	375	3.888	54.4	0.013	0.49	0.012	4.595	0.00	0.002	4.597	1.537	0.019	4.616	4.901	4.595	4.625	4.220	4.250	0.772	54.4	212.9	154.0	0.000
16/B 16/C	16/C16/B	Class 2 RRJ	375	49.081	31.4	0.013	0.28	0.004	4.616	0.00	0.010	4.876	1.769	0.007	4.884	5.392	4.655	4.915	4.280	4.540	0.530	31.4	175.1	127.6	0.000
16/C 16/D	16/D16/C	Class 2 RRJ	375	48.208	14.6	0.013	0.13	0.001	4.884	0.00	0.003	5.194	2.124	0.002	5.195	5.813	4.945	5.255	4.570	4.880	0.643	14.6	193.7	140.6	0.000
16/D 16/E	16/E16/D	Class 2 RRJ	375	20.233	13.9	0.013	0.13	0.001	5.195	0.00	0.001	5.335	1.906	0.002	5.337	5.910	5.285	5.425	4.910	5.050	0.692	13.9	201.2	145.8	0.000
16/E 16/F	16/F16/E	Class 2 RRJ	375	7.062	8.7	0.013	0.08	0.000	5.337	0.00	0.000	5.407	18.000	0.006	5.413	5.910	5.455	5.525	5.080	5.150	0.991	8.7	242.4	174.6	0.000
18/A 18/B	18/B18/A	Class 2 RRJ	225	5.910	0.0	0.013	0.00	0.000	3.950	0.00	0.000	4.456	18.000	0.000	4.456	5.310	3.950	4.685	3.721	4.456	12.439	0.0	243.4	0.0	0.000
12/A 12/B	12/B12/A	Class 2 RRJ	225	1.909	31.7	0.013	1.46	1.459	0.030	4.629	0.00	0.005	4.634	1.444	0.044	4.677	4.967	4.629	4.659	4.400	4.430	1.572	31.7	84.2	59.0
12/B 12/C	12/C12/B	Class 2 RRJ	225	15.097	12.9	0.013	0.77	0.772	0.005	4.677	0.00	0.007	4.757	2.066	0.010	4.768	6.164	4.689	4.769	4.460	4.540	0.530	12.9	47.7	34.3
12/C 12/D	12/D12/C	Class 2 RRJ	225	10.801	4.8	0.013	1.04	1.044	0.001	4.768	0.00	0.001	5.068	17.588	0.012	5.080	6.537	4.799	5.099	4.570	4.870	2.777	4.8	113.0	78.4
12/B 13/A	13/A12/B	Class 2 RRJ	225	10.998	0.0	0.013	0.00	0.000	0.000	4.677	0.00	0.000	4.737	2.200	0.000	4.737	6.657	4.789	4.849	4.560	4.620	0.546	0.0	48.5	0.0
13/A 13/B	13/B13/A	Class 2 RRJ	225	17.811	0.0	0.013	0.00	0.000	0.000	4.737	0.00	0.000	4.937	18.000	0.000	4.937	6.746	4.879	5.079	4.650	4.850	1.123	0.0	70.7	0.0
15/A 15/B	15/B15/A	Class 2 RRJ	300	0.818	54.2	0.013	1.96	1.961	0.030	4.800	0.00	0.001	4.801	1.000	0.030	4.831	5.425	4.800	4.820	4.500	4.520	2.446	54.2	215.1	151.2
15/B 15/C	15/C15/B	Class 2 RRJ	300	9.228	44.7	0.013	1.06	1.064	0.020	4.831	0.00	0.011	4.881	2.146	0.044	4.925	5.465	4.850	4.900	4.550	4.600	0.542	44.7	98.4	71.2
15/C 15/D	15/D15/C	Class 2 RRJ	300	13.218	10.6	0.013	0.75	0.749	0.001	4.925	0.00	0.001	5.005	2.121	0.002	5.008	5.546	4.960	5.040	4.660	4.740	0.605	10.6	104.3	75.2
15/D 15/E	15/E15/D	Class 2 RRJ	300	16.252	4.8	0.013	0.55	0.553	0.000	5.008	0.00	0.000	5.088	18.000	0.004	5.092	5.752	5.070	5.150	4.770	4.850	0.492	4.8	93.6	67.8
14/A 14/B	14/B14/A	Class 2 RRJ	300	0.616	7.0	0.013	1.21	1.213	0.000	4.680	0.00	0.000	4.680	18.000	0.009	4.689	5.479	4.680	4.700	4.380	4.400	3.245	7.0	248.7	174.2
16/A 16/B	16/B16/A	Class 2 RRJ	300	10.983	103.8	0.013	2.72	2.717	0.110	4.169	0.01	0.066	4.440	4.582	0.504	4.944	5.235	4.169	4.581	3.869	4.281	3.749	103.8	267.8	187.2

T:\Projects\16116 milperra village\DWG\DA\16116_DA_A.dwg

REVISIONS No.	DESCRIPTION	DRN	APP	DATE
C	REVISED ARCHITECTURAL PLANS	A.C.	A.C.	06.07.18
D	DRAFT DA ISSUE	A.C	A.C	16.12.18
E	REVISED TO SUIT CONSULTANTS COMMENTS	A.C	A.C	19.12.18
F	REVISED TO PLANNERS COMMENTS	A.C	A.C	25.01.19
G	REVISED TO COUNCIL COMMENTS	M.D	a.c	16.08.19

siteplus
Site Plus Pty Ltd ABN 73 104 315 095
HEAD OFFICE
345 Keira St
Wollongong NSW 2500
PO Box 5104
Wollongong NSW 2520
T 61 2 4227 4233
F 61 2 4227 4133
E info@siteplus.com.au
planning engineering landscape design management

Height Datum	A.H.D.
Drawn	A.C.
Designed	A.C.
Checked	A.C.
Approved	A.C.
Client Title	---- ANGLICARE (ACA), SYDNEY
Dwg Status	APPROVAL
Local Authority	BANKSTOWN CITY COUNCIL
Dwg Title	PROPOSED ANGLICAN RETIREMENT VILLAGE BULLECOURT AVE, MILPERRA DRAINAGE CALCULATIONS 02
Ref & Dwg No	16116.DA.C15
Sheet No	Sheet 15 of 27
Scale	AS SHOWN
Date	25.01.19
Rev	G
	A1

Hydrologic Design Sheet -Proposed Return Period: 10 Location: Milperra

Pit	Catchment Flow Length	Catchment Slope	Catchment Roughness	Catchment Flow Time	Gutter Flow Time	Total Time	Pit C Factor	Total Catchment Area	Aera Contributing	Rainfall Intensity	Total Catchment Flow	Pit Type	Gutter Pit Inflow	Gutter Slope	Gutter Flow Width	Total Upstream Catchment
	(m)	(%)	'n'	(min)	(min)	(min)		(ha)	(l/s)	(mm/hr)	(l/s)		(l/s)	(%)	(m)	(ha)
1/B									1.6	157.0		1800 x 1800				1.8
1/C	32.59	0.7	0.013	5.00		5	0.828	0.07	0.7	157.0	23.5	1500 x 1500		5.860		0.8
1/D	46.12	3.1	0.013	5.00		5	0.828	0.07	0.7	157.0	23.8	SAG				0.8
1/E	36.34	0.7	0.013	5.00		5	0.828	0.10	0.3	157.0	37.2	1% on grade				0.3
1/F				5.00		5	0.873	0.08	0.1	157.0	30.1	900 x 900				0.2
	19.04	0.4	0.013				0.828	0.03						0.400		
							0.900	0.05								
1/G	27.77	0.5	0.013	5.00		5	0.828	0.05	0.1	157.0	18.1	900 x 900				0.1
1/H	15.22	3.2	0.013	5.00		5	0.828	0.03	0.0	157.0	10.1	900 x 900	0.0			0.0
10/A	64.21	2.6	0.013	5.00		5	0.900	0.14	0.1	157.0	55.3	900 x 900				0.1
11/A				5.00		5	0.885	0.10	0.1	157.0	37.8	900 x 900				0.1
	19.51	2.5	0.013				0.828	0.02								
							0.900	0.08								
11/B	22.23	1.7	0.013	5.00		5	0.828	0.01	0.0	157.0	4.7	900 x 900				0.0
2/A	53.42	1.2	0.013	5.60	0.601	6	0.900	0.04	0.1	151.0	13.6	Default	13.6	1.450	0.969	0.1
2/B	52.56	1.2	0.013	5.62	0.622	6	0.900	0.04	0.0	150.8	13.2	1% on grade	13.2	1.640		0.0
3/A	69.05	0.1	0.013	7.07	0.338	7	0.900	0.06	0.1	140.1	22.1	SAG	22.1	1.660		0.1
3/B	69.91	0.1	0.013	7.49		7	0.828	0.07	0.1	137.3	22.1	SAG				0.1
4/A	27.35	0.1	0.013	5.00		5	0.828	0.03	0.6	157.0	10.8	900 x 900				0.7
4/B	40.48	0.9	0.013	5.00		5	0.828	0.09	0.6	157.0	32.1	900 x 900				0.7
4/C	26.95	0.7	0.013	5.00		5	0.828	0.06	0.5	157.0	20.2	900 x 900	0.0			0.6
4/D	31.60	0.8	0.013	5.00		5	0.828	0.05	0.3	157.0	19.5	900 x 900				0.4
4/E	38.87	0.9	0.013	5.00		5	0.828	0.06	0.2	157.0	19.9	900 x 900				0.3
4/F	8.89	2.2	0.013	5.00		5	0.828	0.01	0.1	157.0	5.1	900 x 900	0.0			0.1
4/G	36.77	1.7	0.013	5.00		5	0.828	0.05	0.1	157.0	17.7	900 x 900				0.1
4/H	22.85	2.1	0.013	5.24	0.239	5	0.900	0.02	0.0	154.6	7.0	900 x 900	7.0	2.210		0.0
5/A	51.08	0.1	0.013	6.94		7	0.828	0.06	0.1	140.9	17.8	900 x 900				0.1
5/B				5.00		5	0.874	0.07	0.1	157.0	26.7	900 x 900				0.1
	18.69	1.2	0.013				0.828	0.03								
							0.900	0.05								
6/A	16.55	1.1	0.013	5.00		5	0.828	0.01	0.0	157.0	4.7	900 x 900				0.0
7/A				5.00		5	0.881	0.07	0.1	157.0	27.3	900 x 900	0.0			0.1
	25.06	0.6	0.013				0.828	0.02								
	35.60	0.0	0.013				0.900	0.05								
8/A	35.61	1.0	0.013	5.00		5	0.828	0.05	0.3	157.0	16.3	900 x 900				0.3
8/B	49.79	1.4	0.013	5.00		5	0.828	0.02	0.2	157.0	8.3	900 x 900				0.2
8/C	64.81	0.6	0.013	5.00		5	0.900	0.23	0.2	157.0	88.3	900 x 900				0.2
9/A	31.84	2.2	0.013	5.00		5	0.828	0.07	0.2	157.0	24.2	900 x 900				0.2
9/B	13.27	6.2	0.013	5.00		5	0.828	0.01	0.2	157.0	4.3	900 x 900				0.2
9/C	26.16	1.8	0.013	5.28	0.280	5	0.900	0.02	0.0	154.2	7.7	900 x 900	7.7	2.500		0.0
12/B	14.21	5.2	0.013	5.00		5	0.828	0.01	0.6	157.0	3.3	900 x 900	0.0			0.7
12/C	28.69	0.7	0.013	5.00		5	0.828	0.05	0.5	157.0	16.3	900 x 900				0.6
12/D	48.06	0.4	0.013	5.00		5	0.828	0.12	0.4	157.0	42.6	900 x 900				0.5
12/E	49.26	3.4	0.013	5.00		5	0.828	0.11	0.1	157.0	40.1	900 x 900	0.0			0.1
12/F									0.0	157.0		900 x 900				0.0
13/A	33.27	1.1	0.013	5.00		5	0.828	0.12	0.1	157.0	43.7	900 x 900				0.1
14/A	41.12	1.1	0.013	5.00		5	0.828	0.13	0.1	157.0	45.5	900 x 900				0.1
15/A	160.12	0.4	0.013	8.33		8	0.828	0.06	0.1	131.9	19.1	900 x 900				0.2
15/B	48.81	1.8	0.013	5.00		5	0.900	0.09	0.1	157.0	34.5	900 x 900				0.1
16/B	51.91	1.7	0.013	5.00		5	0.828	0.08	0.1	157.0	28.2	1% on grade				0.2
16/C	42.67	1.7	0.013	5.00		5	0.828	0.05	0.1	157.0	19.5	1% on grade				0.1
16/D	4.27	0.1	0.013	5.00		5	0.828	0.00	0.0	157.0	1.1	1% on grade				0.0
16/E	22.95	0.2	0.013	5.45	0.451	5	0.900	0.01	0.0	152.5	5.3	900 x 900	5.3	0.840		0.0
16/F	4.40	5.0	0.013	5.49	0.489	5	0.900	0.02	0.0	152.1	8.7	900 x 900	8.7	1.350		0.0
18/B									0.0	157.0		900 x 900				0.0

Hydrologic Design Sheet -Drainage Building C Return Period: 10 Location: Milperra

Pit	Catchment Flow Length	Catchment Slope	Catchment Roughness	Catchment Flow Time	Total Time	Pit C Factor	Total Catchment Area	Aera Contributing	Rainfall Intensity	Total Catchment Flow	Pit Type	Gutter Pit Inflow	Total Upstream Catchment
	(m)	(%)	'n'	(min)	(min)		(ha)	(l/s)	(mm/hr)	(l/s)		(l/s)	(ha)
12/B				7.96	8	1.000	0.06	0.1	134.3	20.5	1200 x 1200	19.5	0.1
	46.70	0.2	0.013			1.000	0.05						
						0.000							
	46.70	0.2	0.030			1.000	0.00						
12/C				5.00	5	1.000	0.02	0.0	157.0	8.3	900 x 900	7.9	0.0
	22.49	3.3	0.013			1.000	0.02						
						0.000							
	22.49	3.3	0.030			1.000	0.00						
12/D				5.00	5	1.000	0.01	0.0	157.0	4.8	900 x 900	4.6	0.0
	14.78	2.5	0.013			1.000	0.01						
						0.000							
	14.78	2.5	0.030			1.000	0.00						
13/A								0.0	157.0		900 x 900		0.0
13/B								0.0	157.0		900 x 900		0.0
15/B				5.00	5	1.000	0.02	0.1	157.0	10.5	SAG	9.9	0.1
	25.28	4.5	0.013			1.000	0.02						
						0.000							
	25.28	4.5	0.030			1.000	0.00						
15/C				5.10	5	1.000	0.08	0.1	156.0	36.0	900 x 900	32.4	0.1
	44.82	0.6	0.013			1.000	0.07						
						0.000							
	44.82	0.6	0.030			1.000	0.01						
15/D				5.00	5	1.000	0.01	0.0	157.0	6.1	900 x 900	4.3	0.0
	17.15	1.0	0.013			1.000	0.01						
						0.000							
	17.15	1.0	0.030			1.000	0.00						
15/E				5.00	5	1.000	0.01	0.0	157.0	4.8	900 x 900	3.4	0.0
	13.27	1.0	0.013			1.000	0.01						
						0.000							
	13.27	1.0	0.030			1.000	0.00						
14/B				5.00	5	1.000	0.02	0.0	157.0	7.0	1% on grade	6.6	0.0
	15.23	5.4	0.013			1.000	0.02						
						0.000							
	15.23	5.4	0.030			1.000	0.00						
16/B				5.00	5	1.000	0.24	0.2	157.0	103.8	10KL	98.6	0.2
	75.42	2.2	0.013			1.000	0.23						
						0.000							
	75.42	2.2	0.030			1.000	0.01						

T:\Projects\16116 milperra village\DWG\DA\16116_DA_A.dwg

REVISIONS

No.	DESCRIPTION	DRN	APP	DATE
C	REVISED ARCHITECTURAL PLANS	A.C.	A.C.	06.07.18
D	DRAFT DA ISSUE	A.C	A.C	16.12.18
E	REVISED TO SUIT CONSULTANTS COMMENTS	A.C	A.C	19.12.18
F	REVISED TO PLANNERS COMMENTS	A.C	A.C	25.01.19
G	REVISED TO COUNCIL COMMENTS	M.D	a.c	16.08.19

siteplus
Site Plus Pty Ltd ABN 73 104 315 095
HEAD OFFICE
345 Keira St
Wollongong NSW 2500
PO Box 5104
Wollongong NSW 2520
T 61 2 4227 4233
F 61 2 4227 4133
E info@siteplus.com.au
planning engineering landscape design management

Height Datum	A.H.D.
Drawn	A.C.
Designed	A.C.
Checked	A.C.
Approved	A.C.

Client Title: ----
ANGLICARE (ACA), SYDNEY

Dwg Status: APPROVAL
Local Authority: BANKSTOWN CITY COUNCIL

Dwg Title: PROPOSED ANGLICAN RETIREMENT VILLAGE
BULLECOURT AVE, MILPERRA

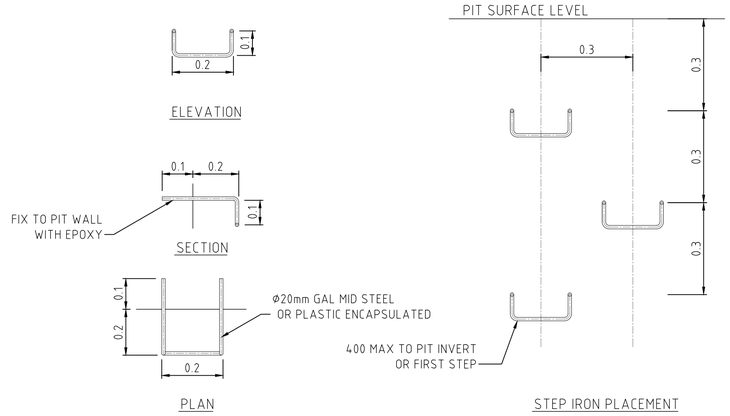
DRAINAGE CALCULATIONS

Ref & Dwg No: 16116.DA.C16
Sheet No: Sheet 16 of 27
Scale: AS SHOWN
Date: 25.01.19
Rev: G
A1

Pit Schedule - Proposed

Pit No.	Pit Type	Pit Type	Pit Width	Pit Length	Outlet Diameter	Outlet Invert RL	Inlet Diameter	Inlet Invert RL	Pit Depth	Pit Lid Level	Easting	Northing
			(mm)	(mm)	(mm)	(m)	(mm)	(m)	(m)	(m)	(m)	(m)
1/A	Headwall	525	1600	780			375	4.360	0.327	4.687	313853.22	6243062.40
1/B	GSIP	2700 x 900	900	2700	375	4.370	375	4.400	0.694	5.064	313854.28	6243061.04
							375	4.410				
1/C	GSIP	1800 x 900	900	1800	375	4.430	225	4.510	0.879	5.309	313860.16	6243061.34
							375	4.460				
1/D	GSIP	1800 x 900	900	1800	375	4.540	375	4.570	0.882	5.422	313871.67	6243070.53
1/E	GSIP	1800 x 900	900	1800	375	4.690	375	4.720	0.905	5.595	313894.81	6243067.26
							375	4.720				
1/F	GSIP	900 x 900	900	900	375	4.780	375	4.810	0.757	5.537	313900.94	6243058.09
1/G	KIP 2	1% on grade	900	900	375	4.870	375	4.900	0.722	5.592	313911.22	6243056.81
1/H	KIP 2	1% on grade	900	900	375	5.040	375	5.070	0.662	5.702	313938.55	6243052.99
1/I	KIP 2	1% on grade	900	900	375	5.140	375	5.220	0.856	5.996	313947.61	6243042.80
1/J	GSIP	900 x 900	900	900	375	5.330	375	5.370	1.027	6.357	313947.76	6243022.16
1/K	KIP 2	1% on grade	900	900	375	5.450	225	5.480	0.862	6.312	313945.54	6243006.90
1/L	KIP 2	1% on grade	900	900	225	5.580			0.798	6.378	313943.71	6242993.92
2/A	KIP 2	1% on grade	900	900	375	4.760	375	4.790	0.794	5.554	313901.90	6243063.83
2/B	KIP 2	1% on grade	900	900	375	4.980	300	5.030	0.722	5.702	313939.34	6243058.63
2/C	KIP 2	1% on grade	900	900	300	5.060	300	5.090	0.647	5.707	313944.76	6243060.78
2/D	KIP 2	1% on grade	900	900	300	5.150	150	5.240	0.798	5.948	313956.01	6243059.56
2/E	KIP 2	1% on grade	900	900	150	5.358	150	5.358	0.731	6.088	313957.96	6243073.53
2/F	GSIP	900 x 900	900	900	150	5.500			0.663	6.163	313959.69	6243090.47
3/A	GSIP	1800 x 900	900	1800	375	4.460	225	4.490	0.797	5.257	313851.48	6243054.33
							375	4.490				
3/B	GSIP	1800 x 900	900	1800	375	4.610	300	4.640	0.808	5.418	313841.61	6243034.98
3/C	GSIP	1800 x 900	900	1800	300	4.820	300	4.850	0.801	5.621	313846.35	6242996.62
							150	4.975				
3/D	GSIP	900 x 900	900	900	300	5.010	300	5.050	0.762	5.772	313860.30	6242975.81
3/E	GSIP	900 x 900	900	900	300	5.270	300	5.300	0.665	5.935	313890.47	6242968.92
3/F	GSIP	900 x 900	900	900	300	5.500	225	5.530	0.575	6.075	313917.01	6242965.22
3/G	KIP 2	1% on grade	900	900	225	5.600			0.478	6.078	313918.41	6242975.24
4/A	GSIP	900 x 900	900	900	150	5.100			0.618	5.718	313843.17	6242982.03
5/A	GSIP	900 x 900	900	900	225	4.600			2.146	6.746	313855.47	6243046.82
6/A	GSIP	900 x 900	900	900	225	4.686			2.242	6.928	313878.32	6243064.25
11/A	Headwall	225-450	1100	565			300	4.070	0.393	4.463	313811.71	6243113.53
11/B	GSIP	900 x 900	900	900	300	4.110	300	4.140	0.533	4.643	313817.96	6243112.93
11/C	GSIP	900 x 900	900	900	300	4.250	300	4.280	0.548	4.798	313835.40	6243109.01
11/D	GSIP	900 x 900	900	900	300	4.390			0.572	4.962	313853.90	6243104.72
10/A	KIP 2	SAG	900	900	375	4.870			0.858	5.728	313975.00	6243116.50
7/A	Headwall	225-450	1100	565			375	4.620	0.041	4.661	313949.28	6243130.42
7/B	KIP 2	1% on grade	900	900	375	4.700	375	4.730	1.067	5.767	313960.60	6243125.81
7/C	KIP 2	SAG	900	900	375	4.790	375	4.820	0.938	5.728	313968.65	6243117.39
							375	4.830				
7/D	GSIP	900 x 900	900	900	375	4.980	375	5.020	0.841	5.821	313964.39	6243086.91
							375	5.010				
11/A	Headwall	225-450	1100	565			300	4.070	0.393	4.463	313811.71	6243113.53
11/B	GSIP	900 x 900	900	900	300	4.110	300	4.140	0.533	4.643	313817.96	6243112.93
11/C	GSIP	900 x 900	900	900	300	4.250	300	4.280	0.548	4.798	313835.40	6243109.01
11/D	GSIP	900 x 900	900	900	300	4.390			0.572	4.962	313853.90	6243104.72
12/A	Headwall	225-450	1100	565			225	4.400	0.204	4.604	313798.84	6243025.22
12/B	GSIP	1200 x 1200	1200	1200	225	4.430	225	4.560	0.537	4.967	313800.74	6243025.00
							225	4.460				
12/C	GSIP	900 x 900	900	900	225	4.540	225	4.570	1.624	6.164	313806.20	6243010.93
12/D	GSIP	900 x 900	900	900	225	4.870			1.667	6.537	313816.89	6243009.43
13/A	GSIP	900 x 900	900	900	225	4.620	225	4.650	2.037	6.657	313811.63	6243023.48
13/B	GSIP	900 x 900	900	900	225	4.850			1.896	6.746	313814.09	6243041.12
15/A	Headwall	225-450	1100	565			300	4.500	0.472	4.972	313789.98	6243006.06
15/B	KIP 2	SAG	900	900	300	4.520	300	4.550	0.905	5.425	313790.78	6243005.91
15/C	GSIP	900 x 900	900	900	300	4.600	300	4.660	0.865	5.465	313798.31	6243000.58
15/D	GSIP	900 x 900	900	900	300	4.740	300	4.770	0.806	5.546	313796.81	6242987.44
15/E	GSIP	900 x 900	900	900	300	4.850			0.902	5.752	313812.31	6242982.56
14/A	Headwall	225-450	1100	565			300	4.380	-0.041	4.339	313792.60	6243015.28
14/B	KIP 2	1% on grade	900	900	300	4.400			1.079	5.479	313793.00	6243014.81
16/A	Headwall	225-450	1100	565			300	3.869	0.931	4.800	313944.30	6243130.56
16/B	RAINWATER TANK	10KL			300	4.281			0.954	5.235	313942.83	6243119.67

NOTES:
1. ALL PITS OVER 1.2m DEEP REQUIRE STEP IRONS TO DETAIL.
2. ALL KERB INLET PITS ARE TO BE CONSTRUCTED TO STANDARD DEPARTMENT OF HOUSING DRAWINGS RM10.
3. 'GSIP' PITS ARE TO BE GRATED AND 'JP' PITS ARE TO HAVE SEALED LIDS. KIP 1, KIP 2, KIP 3 & KIP 5 ARE TO BE KERB INLET PITS WITH 1.8m, 2.4m, 3.0m AND 4.8m LINTELS RESPECTIVELY.



STEP IRON DETAIL
SCALE 1:10

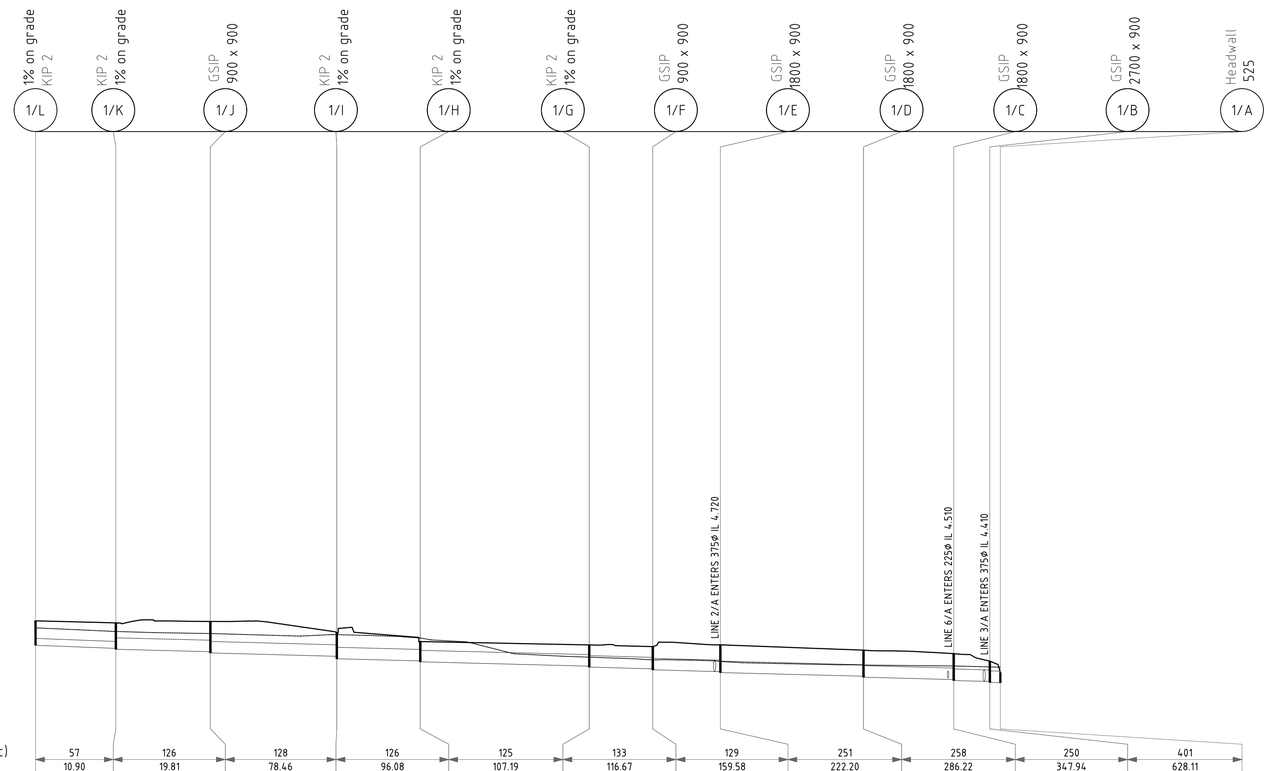
ALL PITS OVER 1.2m DEEP TO CONTAIN STEP IRONS

T:\Projects\16116 milperra village\DWG\DA\16116_DA_A.dwg

REVISIONS No.	DESCRIPTION	DRN	APP	DATE
C	REVISED ARCHITECTURAL PLANS	A.C.	A.C.	06.07.18
D	DRAFT DA ISSUE	A.C	A.C	16.12.18
E	REVISED TO SUIT CONSULTANTS COMMENTS	A.C	A.C	19.12.18
F	REVISED TO PLANNERS COMMENTS	A.C	A.C	25.01.19
G	REVISED TO COUNCIL COMMENTS	M.D	a.c	16.08.19

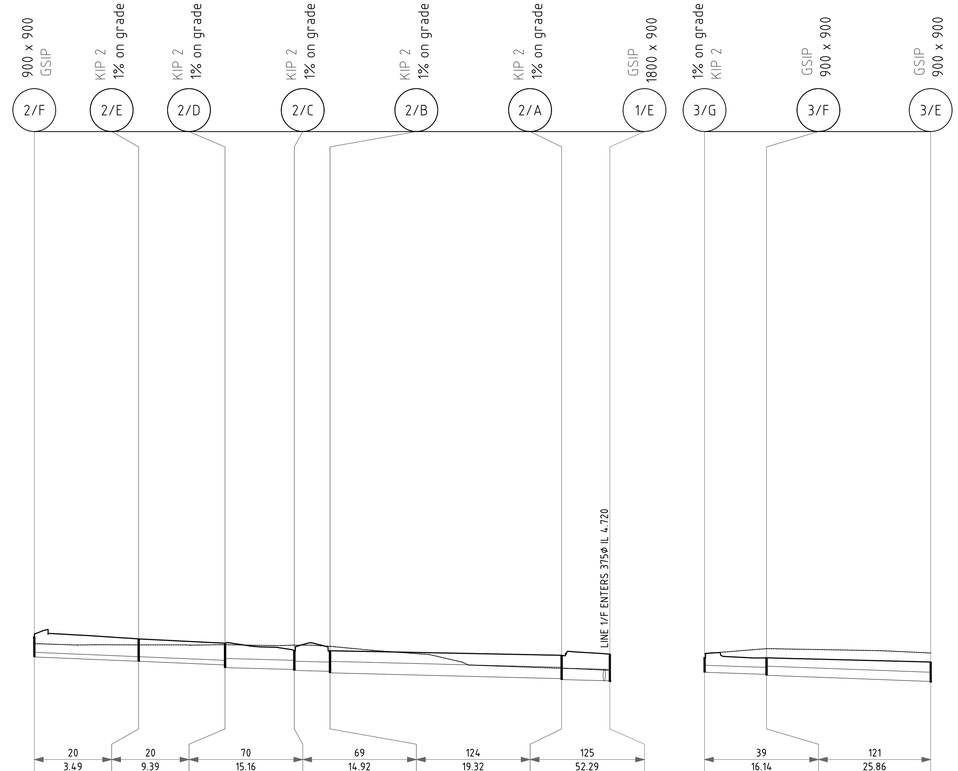
siteplus
Site Plus Pty Ltd ABN 73 104 315 095
HEAD OFFICE
345 Keira St
Wollongong NSW 2500
PO Box 5104
Wollongong NSW 2520
T 61 2 4227 4233
F 61 2 4227 4133
E info@siteplus.com.au
planning engineering landscape design management

Height Datum	A.H.D.
Drawn	A.C.
Designed	A.C.
Checked	A.C.
Approved	A.C.
Client Title	---- ANGLICARE (ACA), SYDNEY
Dwg Status	APPROVAL
Local Authority	BANKSTOWN CITY COUNCIL
Dwg Title	PROPOSED ANGLICAN RETIREMENT VILLAGE BULLECOURT AVE, MILPERRA — PIT SCHEDULE
Ref & Dwg No	16116.DA.C17
Sheet No	Sheet 17 of 27
Scale	AS SHOWN
Date	25.01.19
Rev	G
	A1



CAPACITY (l/sec)	57	126	128	126	125	133	129	251	258	250	401	
FLOW (l/sec)	10.90	19.81	78.46	96.08	107.19	116.67	159.58	222.20	286.22	347.94	628.11	
PIPE DETAILS	225Ø PVC	375Ø Class 2 RRJ	375Ø Class 2 RRJ	375Ø Class 4 RRJ	375Ø Class 4 RRJ	375Ø Class 4 RRJ	375Ø Class 4 RRJ	375Ø Class 4 RRJ	375Ø Class 3 RRJ	375Ø Class 3 RRJ	375Ø Class 3 RRJ	
GRADE	0.763%	0.519%	0.533%	0.514%	0.507%	0.579%	0.544%	0.514%	0.543%	0.509%	0.581%	
DATUM RL -0.6												
HGL	5.906	5.847	5.845	5.844	5.790	5.766	5.720	5.697	5.649	5.592	5.562	5.537
	5.573	5.524	5.449	5.397	5.279	5.226	5.095	5.064	4.748	4.735		
DEPTH TO INVERT	0.798	0.832	0.862	0.987	1.027	0.776	0.856	0.632	0.662	0.692	0.722	0.727
	0.757	0.875	0.905	0.852	0.882	0.849	0.879	0.664	0.694	0.327		
INVERT LEVEL	5.580	5.480	5.450	5.370	5.330	5.220	5.140	5.070	5.040	4.900	4.870	4.810
	4.780	4.720	4.690	4.570	4.540	4.460	4.430	4.400	4.370	4.360		
FINISHED SURFACE	6.378	6.312	6.357	5.996	5.702	5.592	5.537	5.595	5.422	5.309	5.064	4.687
EXISTING SURFACE	6.150	6.032	5.964	5.928	5.820	5.192	5.109	5.055	4.934	4.905	4.875	4.865
CHAINAGE	0.000	13.107	13.107	15.424	28.531	20.639	49.170	13.630	62.800	27.592	90.392	10.361
	100.753	11.034	111.787	23.369	135.156	14.726	149.882	5.894	155.775	1.723	157.498	

LINE 1
SCALES: HORIZ 1:500 VERT 1:100



CAPACITY (l/sec)	20	20	70	69	124	125						
FLOW (l/sec)	3.49	9.39	15.16	14.92	19.32	52.29						
PIPE DETAILS	150Ø PVC	150Ø PVC	300Ø Class 2 RRJ	300Ø Class 2 RRJ	375Ø Class 3 RRJ	375Ø Class 4 RRJ						
GRADE	0.835%	0.835%	0.531%	0.514%	0.503%	0.508%						
RL -0.3												
HGL	5.657	5.621	5.594	5.565	5.560	5.558	5.556	5.555	5.554	5.550	5.528	5.524
DEPTH TO INVERT	0.663	0.731	0.708	0.798	0.617	0.647	0.672	0.722	0.764	0.794	0.875	
INVERT LEVEL	5.500	5.358	5.240	5.150	5.090	5.060	5.030	4.980	4.790	4.760	4.720	
FINISHED SURFACE	6.163	6.088	5.948	5.707	5.702	5.554	5.595					
EXISTING SURFACE	5.934	5.894	5.901	5.885	5.847	5.129	5.055					
CHAINAGE	0.000	17.025	17.025	14.101	31.126	11.309	42.435	5.835	48.270	37.800	86.070	7.877
	93.947											

LINE 2
SCALES: HORIZ 1:500 VERT 1:100

CAPACITY (l/sec)	39	121				
FLOW (l/sec)	16.14	25.86				
PIPE DETAILS	225Ø Class 2 RRJ	300Ø PVC				
GRADE	0.692%	0.746%				
RL 0.3						
HGL	5.981	5.881	5.866	5.855		
DEPTH TO INVERT	0.478	0.545	0.575	0.635		
INVERT LEVEL	5.600	5.530	5.500	5.300		
FINISHED SURFACE	6.078	6.075	5.935			
EXISTING SURFACE	6.207	6.371	6.228			
CHAINAGE	0.000	10.114	10.114	26.801	36.914	

LINE 3
SCALES: HORIZ 1:500 VERT 1:100

T:\Projects\16116 milperra village\DWG\DA\16116_DA_A.dwg

REVISIONS

No.	DESCRIPTION	DRN	APP	DATE
C	REVISED ARCHITECTURAL PLANS	A.C.	A.C.	06.07.18
D	DRAFT DA ISSUE	A.C	A.C	16.12.18
E	REVISED TO SUIT CONSULTANTS COMMENTS	A.C	A.C	19.12.18
F	REVISED TO PLANNERS COMMENTS	A.C	A.C	25.01.19
G	REVISED TO COUNCIL COMMENTS	M.D	a.c	16.08.19

siteplus
Site Plus Pty Ltd ABN 73 104 315 095
planning engineering landscape design management
HEAD OFFICE
345 Keira St
Wollongong NSW 2500
PO Box 5104
Wollongong NSW 2520
T 61 2 4227 4233
F 61 2 4227 4133
E info@siteplus.com.au

Height Datum	A.H.D.
Drawn	A.C.
Designed	A.C.
Checked	A.C.
Approved	A.C.

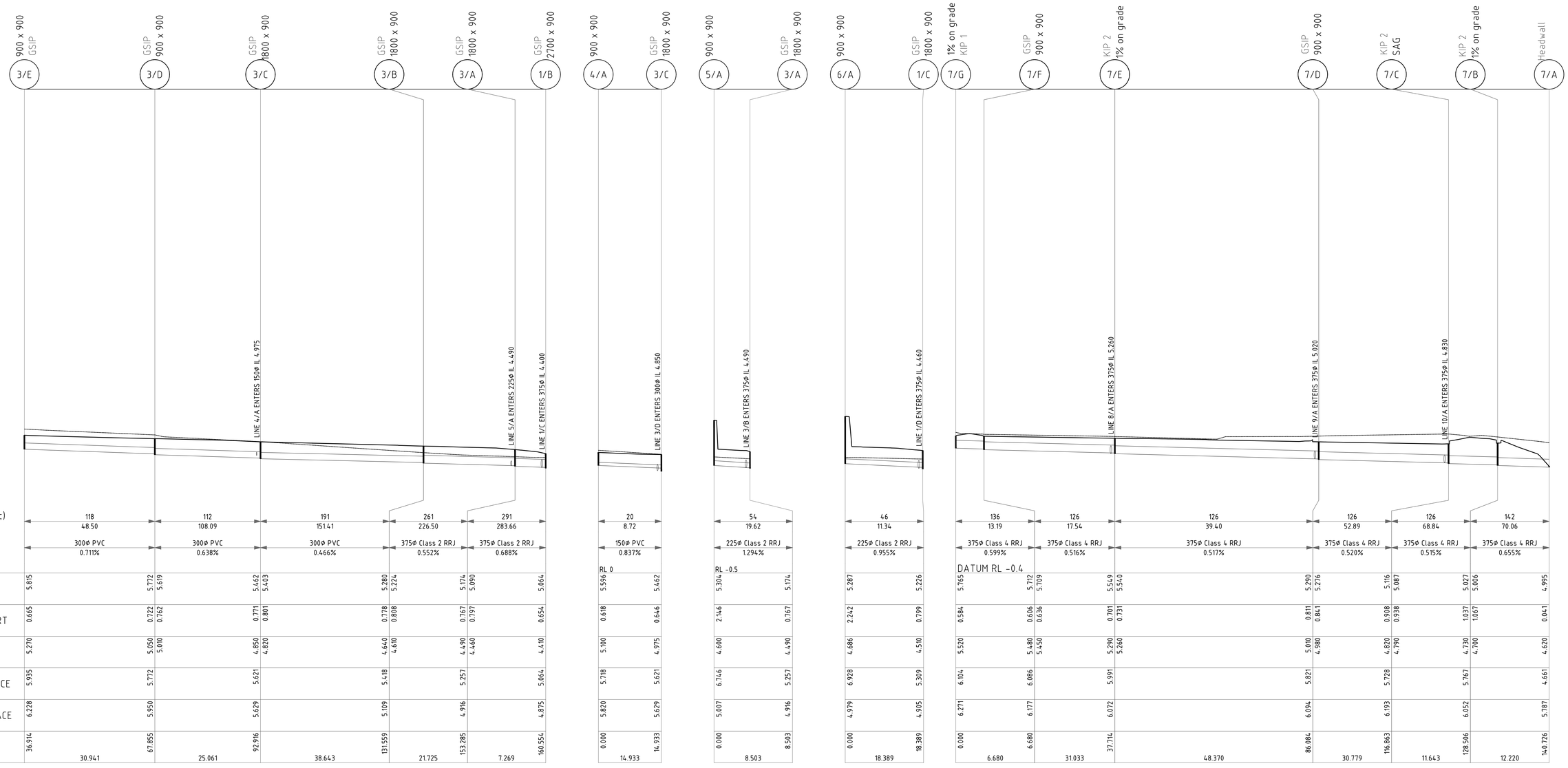
Client Title

ANGLICARE (ACA), SYDNEY

Dwg Status: APPROVAL
Local Authority: BANKSTOWN CITY COUNCIL

Dwg Title
PROPOSED ANGLICAN RETIREMENT VILLAGE
BULLECOURT AVE, MILPERRA
DRAINAGE LONGSECTIONS

Ref & Dwg No	16116.DA.C18
Sheet No	Sheet 18 of 27
Scale	AS SHOWN
Date	25.01.19
Rev	G
	A1



T:\Projects\16116 milperra village\DWG\DA\16116_DA_A.dwg

REVISIONS

No.	DESCRIPTION	DRN	APP	DATE
C	REVISED ARCHITECTURAL PLANS	A.C.	A.C.	06.07.18
D	DRAFT DA ISSUE	A.C	A.C	16.12.18
E	REVISED TO SUIT CONSULTANTS COMMENTS	A.C	A.C	19.12.18
F	REVISED TO PLANNERS COMMENTS	A.C	A.C	25.01.19
G	REVISED TO COUNCIL COMMENTS	M.D	a.c	16.08.19

siteplus
Site Plus Pty Ltd ABN 73 104 315 095
planning engineering landscape design management
HEAD OFFICE
345 Keira St
Wollongong NSW 2500
PO Box 5104
Wollongong NSW 2520
T 61 2 4227 4233
F 61 2 4227 4133
E info@siteplus.com.au

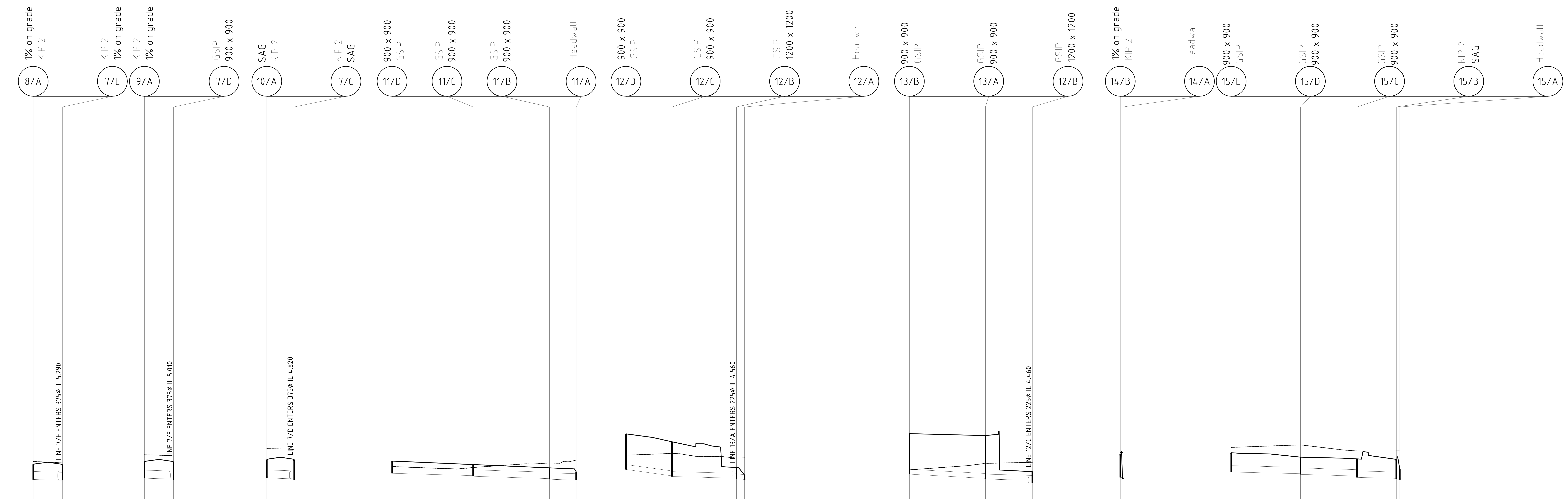
Height Datum	A.H.D.
Drawn	A.C.
Designed	A.C.
Checked	A.C.
Approved	A.C.

Client Title: ----
ANGLICARE (ACA), SYDNEY

Dwg Status: APPROVAL
Local Authority: BANKSTOWN CITY COUNCIL

Dwg Title
PROPOSED ANGLICAN RETIREMENT VILLAGE
BULLECOURT AVE, MILPERRA
DRAINAGE LONGSECTIONS

Ref & Dwg No	16116.DA.C19
Sheet No	Sheet 19 of 27
Scale	AS SHOWN
Date	25.01.19
Rev	G
	A1



RL 0.3

CAPACITY (l/sec)	134
FLOW (l/sec)	15.00
PIPE DETAILS	375Ø Class 3 RRJ
GRADE	0.585%
HGL	5.606 5.549
DEPTH TO INVERT	0.699 0.731
INVERT LEVEL	5.300 5.260
FINISHED SURFACE	5.999 5.991
EXISTING SURFACE	6.141 6.072
CHAINAGE	0.000 6.833 6.833

LINE 8
SCALES: HORIZ 1:500 VERT 1:100

RL 0

CAPACITY (l/sec)	134
FLOW (l/sec)	14.15
PIPE DETAILS	375Ø Class 4 RRJ
GRADE	0.585%
HGL	5.345 5.290
DEPTH TO INVERT	0.770 0.801
INVERT LEVEL	5.060 5.020
FINISHED SURFACE	5.830 5.821
EXISTING SURFACE	6.158 6.094
CHAINAGE	0.000 6.834 6.834

LINE 9
SCALES: HORIZ 1:500 VERT 1:100

RL -0.2

CAPACITY (l/sec)	138
FLOW (l/sec)	15.26
PIPE DETAILS	375Ø Class 3 RRJ
GRADE	0.624%
HGL	5.174 5.116
DEPTH TO INVERT	0.858 0.898
INVERT LEVEL	4.870 4.830
FINISHED SURFACE	5.728 5.728
EXISTING SURFACE	6.245 6.193
CHAINAGE	0.000 6.415 6.415

LINE 10
SCALES: HORIZ 1:500 VERT 1:100

DATUM RL -0.9

CAPACITY (l/sec)	106	110	77
FLOW (l/sec)	8.72	22.22	73.78
PIPE DETAILS	300Ø PVC	300Ø PVC	300Ø Class 2 RRJ
GRADE	0.579%	0.615%	0.638%
HGL	4.641 4.517	4.508 4.502	4.390 4.370
DEPTH TO INVERT	0.572 0.518	0.548 0.503	0.533 0.393
INVERT LEVEL	4.390 4.280	4.250 4.140	4.110 4.070
FINISHED SURFACE	4.962 4.798	4.643	4.463
EXISTING SURFACE	4.706 4.662	4.875	5.014
CHAINAGE	0.000 18.988 18.988	36.868 17.879	43.142 6.274

LINE 11
SCALES: HORIZ 1:500 VERT 1:100

DATUM RL -0.6

CAPACITY (l/sec)	78	34	59
FLOW (l/sec)	4.80	12.94	31.70
PIPE DETAILS	225Ø Class 2 RRJ	225Ø Class 2 RRJ	225Ø Class 2 RRJ
GRADE	2.777%	0.530%	1.572%
HGL	5.080 4.768	4.757 4.677	4.634 4.629
DEPTH TO INVERT	1.667 1.594	1.624 0.507	0.537 0.204
INVERT LEVEL	4.870 4.570	4.540 4.460	4.430 4.400
FINISHED SURFACE	6.537 6.164	4.967	4.604
EXISTING SURFACE	5.537 5.620	5.405	5.415
CHAINAGE	0.000 10.801 10.801	25.898 15.097	27.806 1.909

LINE 12
SCALES: HORIZ 1:500 VERT 1:100

RL -0.4

CAPACITY (l/sec)	0	0
FLOW (l/sec)	0.00	0.00
PIPE DETAILS	225Ø Class 2 RRJ	225Ø Class 2 RRJ
GRADE	1.123%	0.546%
HGL	4.937 4.737	4.677
DEPTH TO INVERT	1.896 2.007	2.037 0.407
INVERT LEVEL	4.850 4.650	4.620 4.560
FINISHED SURFACE	6.746 6.657	4.967
EXISTING SURFACE	5.050 5.354	5.405
CHAINAGE	0.000 17.811 17.811	28.809 10.998

LINE 13
SCALES: HORIZ 1:500 VERT 1:100

DATUM RL -0.7

CAPACITY (l/sec)	174
FLOW (l/sec)	6.98
PIPE DETAILS	300Ø Class 2 RRJ
GRADE	3.245%
HGL	4.689 4.680
DEPTH TO INVERT	1.079 -0.041
INVERT LEVEL	4.400 4.380
FINISHED SURFACE	5.479 4.339
EXISTING SURFACE	5.560 5.563
CHAINAGE	0.000 0.616 0.616

LINE 14
SCALES: HORIZ 1:500 VERT 1:100

DATUM RL -0.5

CAPACITY (l/sec)	68	75	71	151
FLOW (l/sec)	4.80	10.56	44.73	54.16
PIPE DETAILS	300Ø Class 2 RRJ	300Ø Class 2 RRJ	300Ø Class 2 RRJ	300Ø Class 2 RRJ
GRADE	0.492%	0.605%	0.542%	2.446%
HGL	5.092 5.008	5.005 4.925	4.881 4.831	4.801 4.800
DEPTH TO INVERT	0.902 0.776	0.806 0.805	0.865 0.875	0.905 0.472
INVERT LEVEL	4.850 4.770	4.740 4.660	4.600 4.550	4.520 4.500
FINISHED SURFACE	5.752 5.546	5.465	5.425	4.972
EXISTING SURFACE	6.003 6.121	5.836	5.837	5.837
CHAINAGE	0.000 16.252 16.252	29.471 13.218	38.699 9.228	39.516 0.818

LINE 15
SCALES: HORIZ 1:500 VERT 1:100

T:\Projects\16116 milperra village\DWG\DA\16116_DA_A.dwg

REVISIONS

No.	DESCRIPTION	DRN	APP	DATE
C	REVISED ARCHITECTURAL PLANS	A.C.	A.C.	06.07.18
D	DRAFT DA ISSUE	A.C	A.C	16.12.18
E	REVISED TO SUIT CONSULTANTS COMMENTS	A.C	A.C	19.12.18
F	REVISED TO PLANNERS COMMENTS	A.C	A.C	25.01.19
G	REVISED TO COUNCIL COMMENTS	M.D	a.c	16.08.19

siteplus
Site Plus Pty Ltd ABN 73 104 315 095
planning engineering landscape design management

HEAD OFFICE
345 Keira St
Wollongong NSW 2500
PO Box 5104
Wollongong NSW 2520
T 61 2 4227 4233
F 61 2 4227 4133
E info@siteplus.com.au

Height Datum A.H.D.
Drawn A.C.
Designed A.C.
Checked A.C.
Approved A.C.

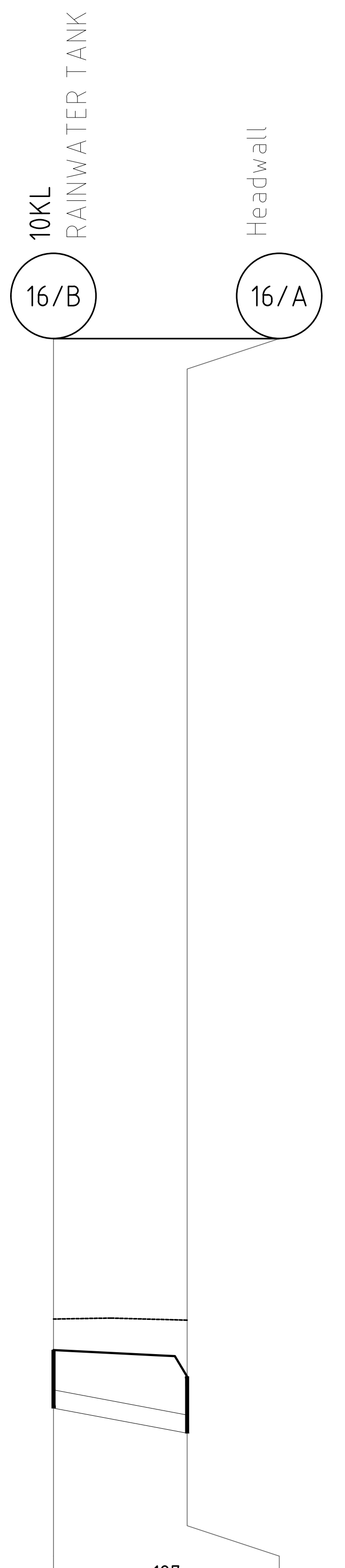
Client Title

ANGLICARE (ACA), SYDNEY

Dwg Status APPROVAL
Local Authority BANKSTOWN CITY COUNCIL

Dwg Title
PROPOSED ANGLICAN RETIREMENT VILLAGE
BULLECOURT AVE, MILPERRA
DRAINAGE LONGSECTIONS 3

Ref & Dwg No 16116.DA.C20
Sheet No
Sheet 20 of 27
Scale AS SHOWN
Date 25.01.19
Rev G
A1



	16/B		16/A
CAPACITY (l/sec)		187	
FLOW (l/sec)		103.79	
PIPE DETAILS		300Ø Class 2 RRJ	
GRADE		3.749%	
DATUM RL -1.1			
HGL	4.944		4.169
DEPTH TO INVERT	0.954		0.931
INVERT LEVEL	4.281		3.869
FINISHED SURFACE	5.235		4.800
EXISTING SURFACE	5.745		5.726
CHAINAGE	0.000	10.983	10.983

LINE 16
SCALES: HORIZ 1:500 VERT 1:100

	A/5		A/4		A/3		A/2		A/1
CAPACITY (l/sec)		665		639		919		1025	
FLOW (l/sec)		2222.85		2491.18		2456.23		2431.58	
PIPE DETAILS		EXISTING 750Ø Class 2		EXISTING 750Ø Class 2		EXISTING 750Ø Class 2		EXISTING 750Ø Class 2	
GRADE		0.333%		0.307%		0.635%		0.790%	
DATUM RL -0.4									
HGL	9.946		6.836 8.738		6.091 8.084		6.293 6.085		5.380
DEPTH TO INVERT	1.286		1.176 1.206		0.781		1.443		1.134
INVERT LEVEL	5.700		5.660 5.630		5.310		4.850		4.620
FINISHED SURFACE	6.982		6.836		6.091		6.293		5.754
EXISTING SURFACE	6.982		6.869		6.084		6.293		5.754
CHAINAGE	0.000	12.022	12.022	104.148	116.170	72.460	188.630	29.097	217.728

EXISTING Ø750 LINE
SCALES: HORIZ 1:500 VERT 1:100

T:\Projects\16116 milperra village\DWG\DA\16116_DA_A.dwg

REVISIONS

No.	DESCRIPTION	DRN	APP	DATE
C	REVISED ARCHITECTURAL PLANS	A.C.	A.C.	06.07.18
D	DRAFT DA ISSUE	A.C	A.C	16.12.18
E	REVISED TO SUIT CONSULTANTS COMMENTS	A.C	A.C	19.12.18
F	REVISED TO PLANNERS COMMENTS	A.C	A.C	25.01.19
G	REVISED TO COUNCIL COMMENTS	M.D	a.c	16.08.19

siteplus
Site Plus Pty Ltd ABN 73 104 315 095

HEAD OFFICE
345 Keira St
Wollongong NSW 2500
PO Box 5104
Wollongong NSW 2520
T 61 2 4227 4233
F 61 2 4227 4133
E info@siteplus.com.au

planning engineering landscape design management

Height Datum A.H.D.
Drawn A.C.
Designed A.C.
Checked A.C.
Approved A.C.

Client Title

ANGLICARE (ACA), SYDNEY

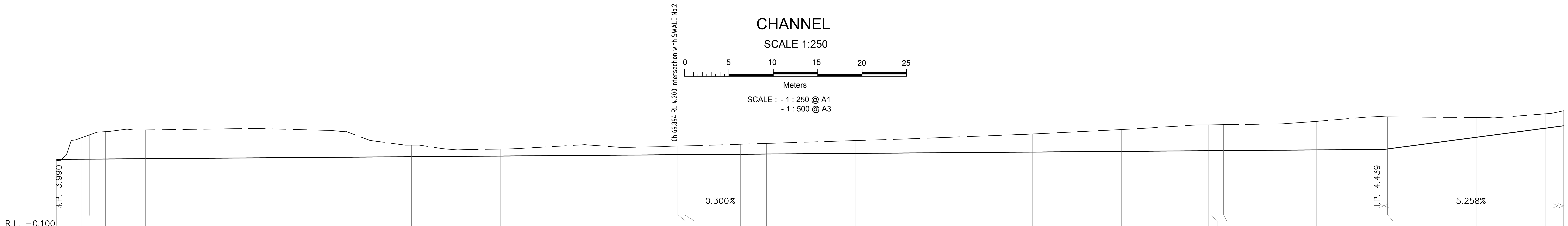
Dwg Status APPROVAL
Local Authority BANKSTOWN CITY COUNCIL

Dwg Title
PROPOSED ANGLICAN RETIREMENT VILLAGE
BULLECOURT AVE, MILPERRA
DRAINAGE LONGSECTIONS

Ref & Dwg No 16116.DA.C21
Sheet No
Sheet 21 of 27
Scale AS SHOWN
Date 25.01.19
Rev G
A1

CHANNEL

SCALE 1:250

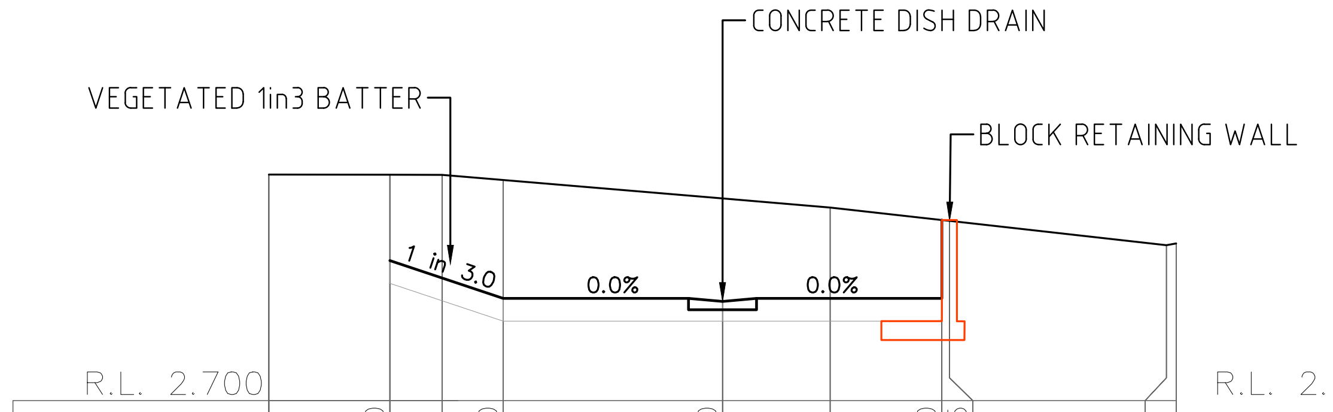


DESIGN SURFACE	3.990	3.998	4.001	4.007	4.020	4.050	4.080	4.110	4.140	4.170
EXISTING SURFACE	3.94	4.96	5.10	5.24	5.32	5.37	5.30	4.63	4.46	4.64
CHAINAGE	0.000	2.754	3.720	5.508	10.000	20.000	30.000	40.000	50.000	60.000

DESIGN SURFACE	4.192	4.200	4.200	4.202	4.221	4.230	4.260	4.290	4.320	4.350
EXISTING SURFACE	4.56	4.59	4.59	4.60	4.67	4.71	4.84	4.98	5.14	5.34
CHAINAGE	67.199	69.894	70.000	70.721	77.059	80.000	90.000	100.000	110.000	120.000

DESIGN SURFACE	4.380	4.380	4.385	4.410	4.416	4.439	4.460	4.986	5.398	5.504
EXISTING SURFACE	5.54	5.54	5.55	5.65	5.70	5.91	5.90	5.88	6.04	6.18
CHAINAGE	129.842	130.000	131.510	140.000	142.018	149.595	150.000	160.000	167.832	169.850

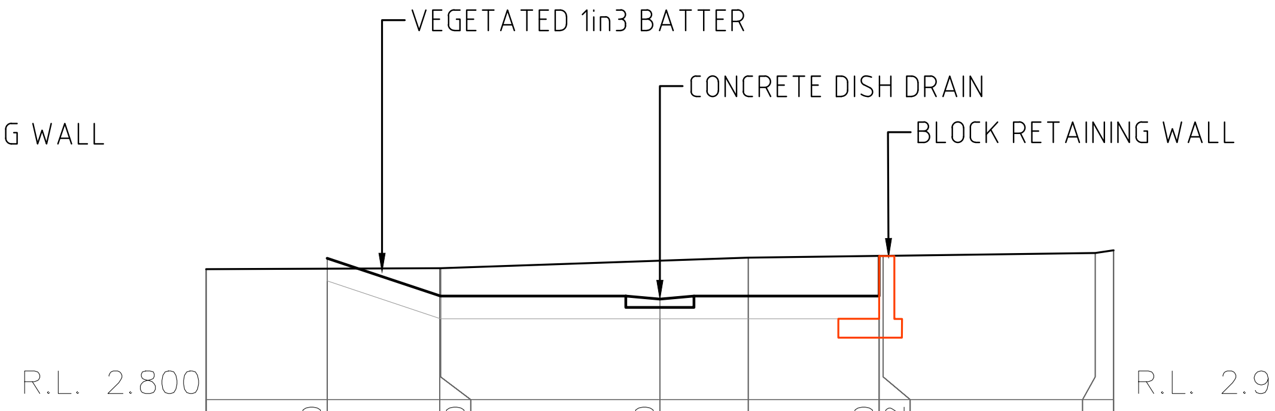
LONGITUDINAL SECTION
CHANNEL Ch 0.000 to Ch 169.850
SCALES: HORIZONTAL 1:250 VERTICAL 1:100



DESIGN		4.550		4.050	4.050		4.050	5.075		
EXISTING	5.688	5.684	5.683	5.615	5.371	5.251	5.086	5.075	4.755	4.776
OFFSET	−6.000	−4.400	−3.710	−2.900	0.000	1.424	2.900	3.002	5.870	6.000

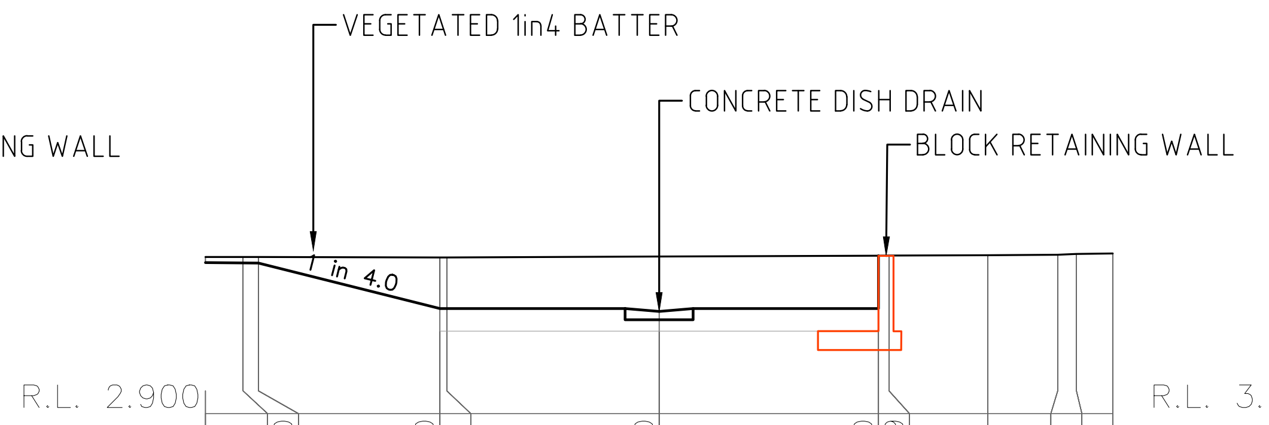
CHANNEL
Scales: Horz 1:100 Vert 1:100

Ch 20.000



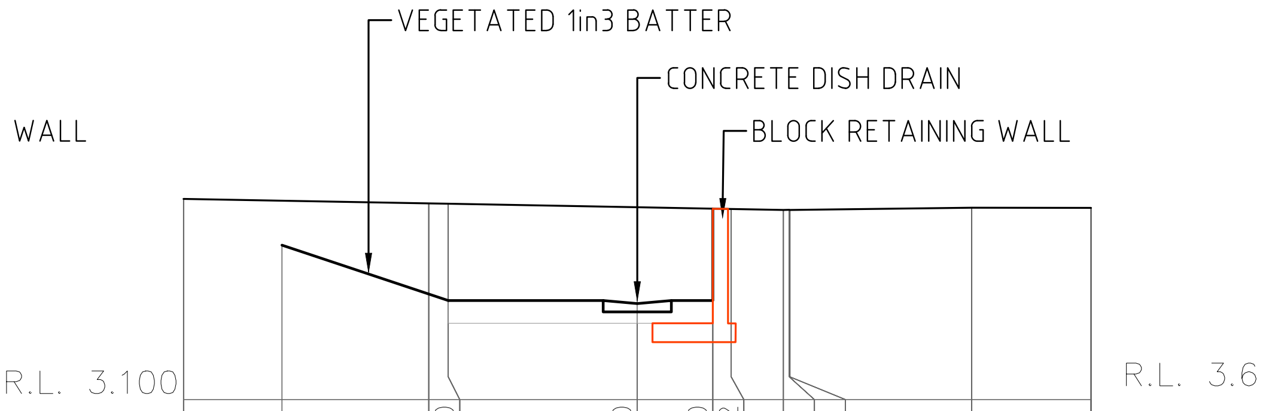
DESIGN		4.670		4.170	4.170		4.170	4.702		
EXISTING	4.526	4.532	4.537	4.538	4.638	4.679	4.701	4.702	4.739	4.776
OFFSET	−6.000	−4.400	−2.912	−2.900	0.000	1.169	2.900	2.953	5.757	6.000

Ch 60.000



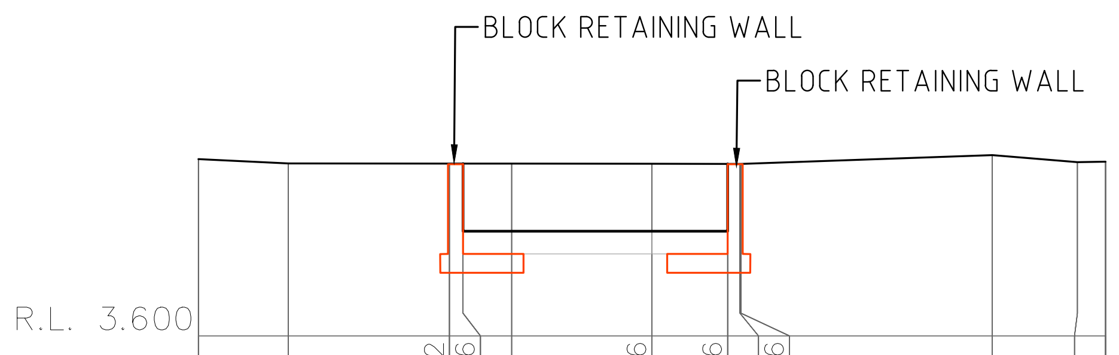
DESIGN			4.890	4.290		4.290	4.290	4.989				
EXISTING	4.970	4.971	4.970	4.965	4.965	4.977	4.988	4.989	4.994	5.001	5.011	5.017
OFFSET	−6.000	−5.503	−5.300	−2.900	−2.808	0.000	2.900	3.040	4.345	5.270	5.518	6.000

Ch 100.000



DESIGN			4.410	4.410	4.410	5.622					
EXISTING	5.756	5.696	5.691	5.645	5.627	5.622	5.609	5.610	5.609	5.639	5.637
OFFSET	−6.000	−2.757	−2.500	0.000	1.000	1.242	1.933	2.010	2.020	4.425	6.000

Ch 140.000



DESIGN			5.882	4.986		4.986	4.986		5.876			
EXISTING	5.941	5.883	5.882	5.882	5.881	5.878	5.876	5.876	5.876	5.994	5.900	5.907
OFFSET	−6.000	−4.811	−2.679	−2.500	−1.856	0.000	1.000	1.164	1.178	4.501	5.627	6.000

Ch 160.000

T:\Projects\16116 milperra village\DWG\DA\16116_ROAD DETAILS.dwg

REVISIONS

No.	DESCRIPTION	DRN	APP	DATE
C	REVISED ARCHITECTURAL PLANS	A.C.	A.C.	06.07.18
D	DRAFT DA ISSUE	A.C	A.C	16.12.18
E	REVISED TO SUIT CONSULTANTS COMMENTS	A.C	A.C	19.12.18
F	REVISED TO PLANNERS COMMENTS	A.C	A.C	25.01.19
G	REVISED TO COUNCIL COMMENTS	M.D	a.c	16.08.19

siteplus
Site Plus Pty Ltd ABN 73 104 315 095
planning engineering landscape design management

HEAD OFFICE
2a Thomas Street
Wollongong NSW 2500
PO Box 5104
Wollongong NSW 2520
T 61 2 4227 4233
F 61 2 4227 4133
E info@siteplus.com.au

CAMDEN
12 View St
PO Box 615
Camden NSW 2570
T 61 2 4655 5877
F 61 2 4655 5024
E camden@siteplus.com.au

Height Datum A.H.D.
Drawn A.C.
Designed A.C.
Checked A.C.
Approved A.C.

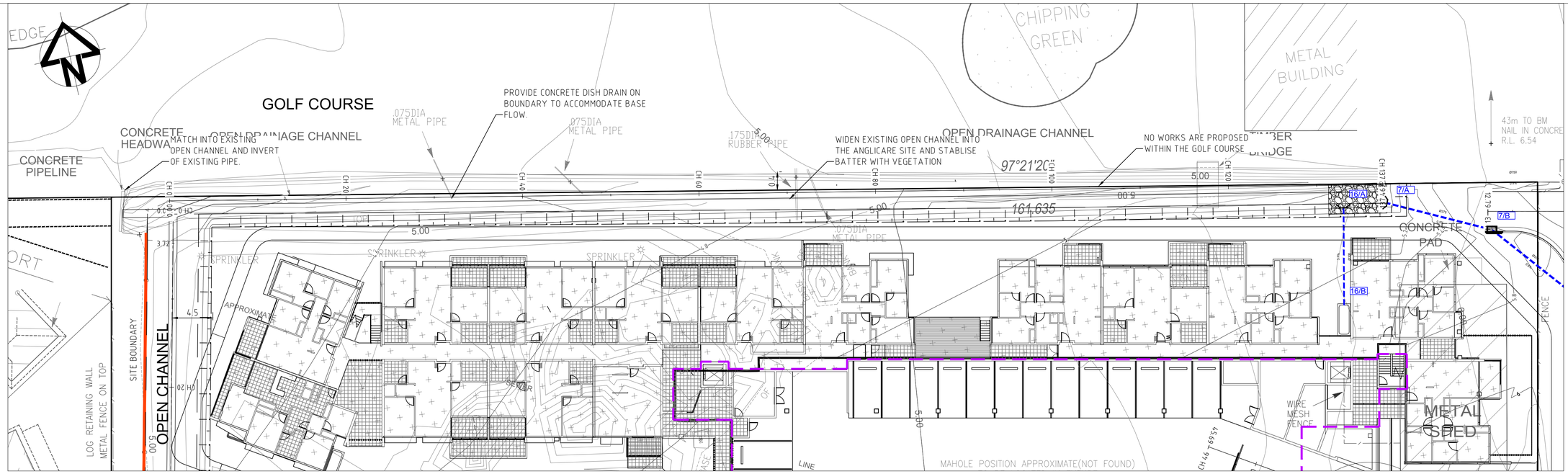
Client Title

ANGLICARE (ACA), SYDNEY

Dwg Status APPROVAL
Local Authority BANKSTOWN CITY COUNCIL

Dwg Title
PROPOSED ANGLICAN RETIREMENT VILLAGE
BULLECOURT AVE, MILPERRA
CHANNEL SWALE LONGSECTION

Ref & Dwg No 16116.DA.C22
Sheet No
Sheet 22 of 27
Scale 1:250
Date 25.01.19
Rev G
A1



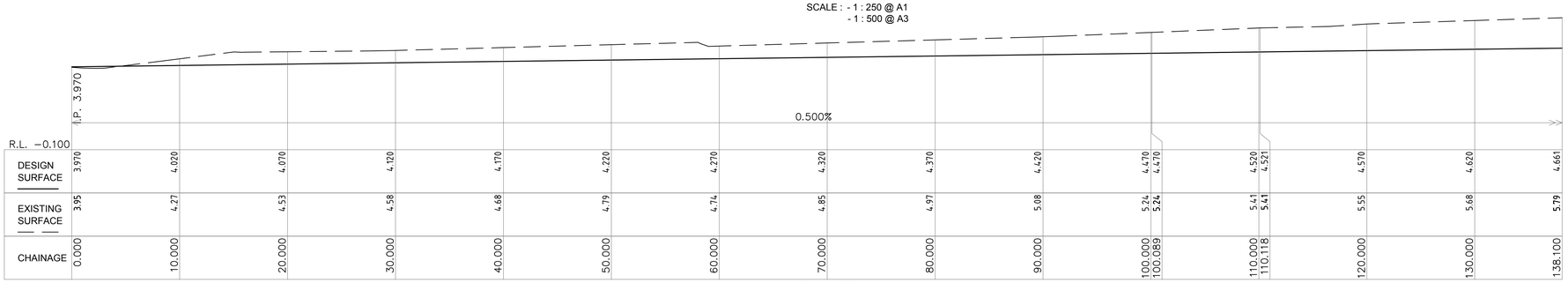
NORTHERN BDY CHANNEL

SCALE 1:250

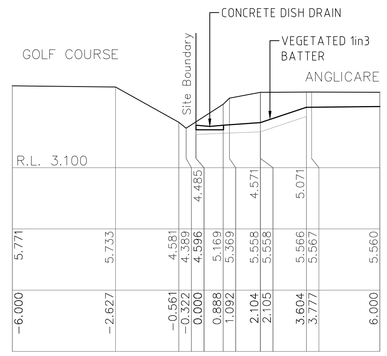
0 5 10 15 20 25

Meters

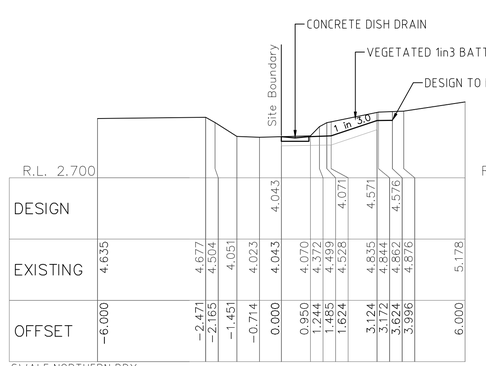
SCALE : - 1 : 250 @ A1
- 1 : 500 @ A3



LONGITUDINAL SECTION
NORTHERN BDY CHANNEL BOTTOM Ch 0.000 to Ch 138.100
SCALES: HORIZONTAL 1:250 VERTICAL 1:100

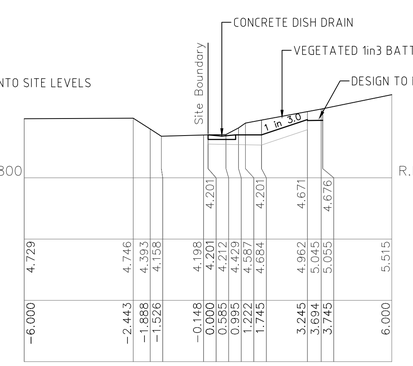


Ch 120.000

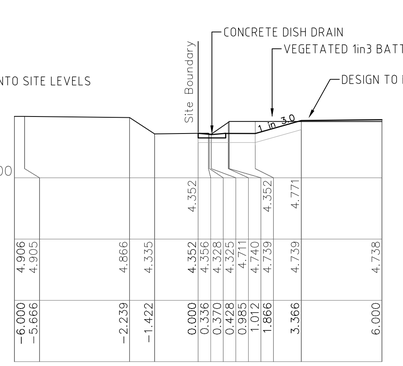


SWALE NORTHERN BDY
Scales: Horz 1:100 Vert 1:100

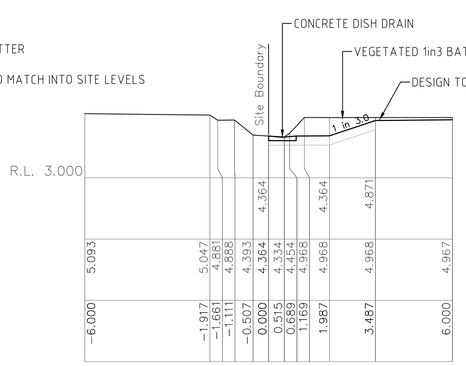
Ch 20.000



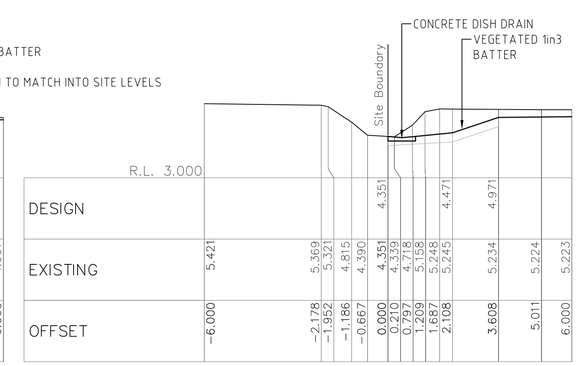
Ch 40.000



Ch 60.000



Ch 80.000



Ch 100.000

T:\Projects\16116 milperra village\DWG\DA\16116_ROAD DETAILS.dwg

REVISIONS	No.	DESCRIPTION	DRN	APP	DATE
	C	REVISED ARCHITECTURAL PLANS	A.C.	A.C.	06.07.18
	D	DRAFT DA ISSUE	A.C	A.C	16.12.18
	E	REVISED TO SUIT CONSULTANTS COMMENTS	A.C	A.C	19.12.18
	F	REVISED TO PLANNERS COMMENTS	A.C	A.C	25.01.19
	G	REVISED TO COUNCIL COMMENTS	M.D	a.c	16.08.19

siteplus
Site Plus Pty Ltd ABN 73 104 315 095
planning engineering landscape design management

HEAD OFFICE
2a Thomas Street
Wollongong NSW 2500
PO Box 5104
Wollongong NSW 2520
T 61 2 4227 4233
F 61 2 4227 4133
E info@siteplus.com.au

CAMDEN
12 View St
PO Box 615
Camden NSW 2570
T 61 2 4655 5877
F 61 2 4655 5024
E camden@siteplus.com.au

Height Datum	A.H.D.
Drawn	A.C.
Designed	A.C.
Checked	A.C.
Approved	A.C.

Client Title: ----

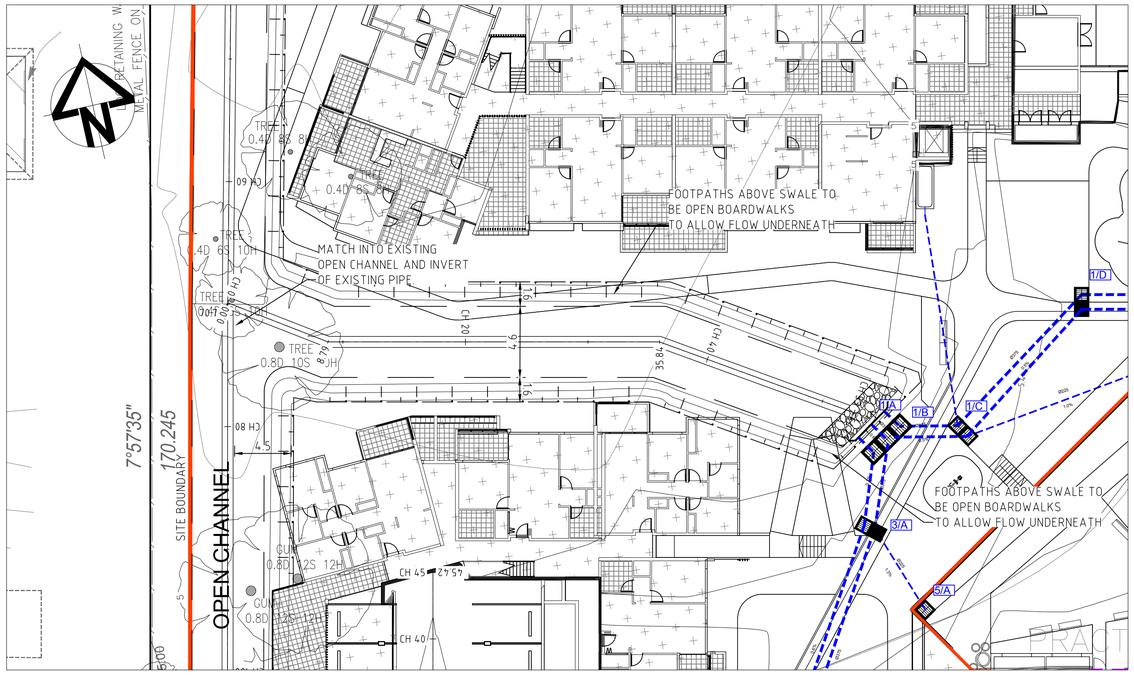
ANGLICARE (ACA), SYDNEY

Dwg Status: APPROVAL

Local Authority: BANKSTOWN CITY COUNCIL

Dwg Title: PROPOSED ANGLICAN RETIREMENT VILLAGE
BULLECOURT AVE, MILPERRA
NORTHERN BDY CHANNEL LONGSECTION

Ref & Dwg No: 16116.DA.C23
Sheet No: Sheet 23 of 27
Scale: 1:250 @ A1
Date: 25.01.19
Rev: G
A1



SWALE No.2

SCALE 1:250

0 5 10 15 20 25

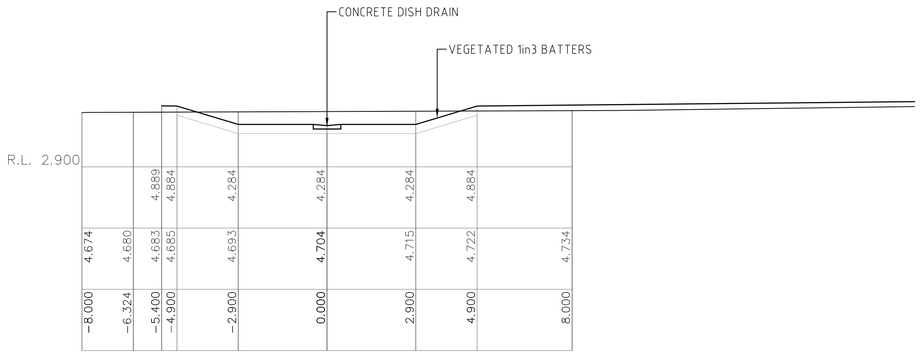
Meters

SCALE : - 1 : 250 @ A1
- 1 : 500 @ A3

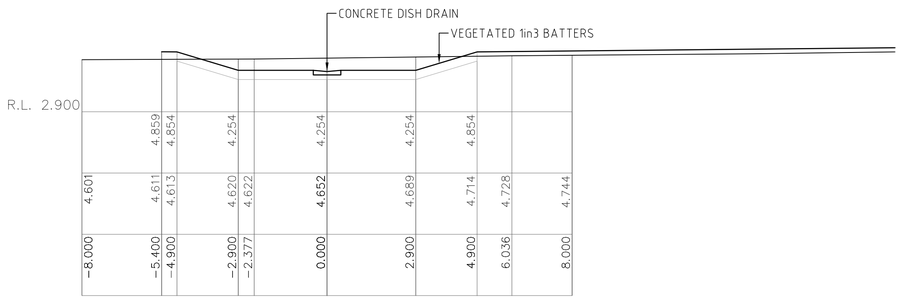
R.L. −1.900

DESIGN SURFACE	4.200	4.203	4.203	4.215	4.220	4.224	4.254	4.284	4.301	4.314	4.344	4.352
EXISTING SURFACE	4.59	4.63	4.64	4.69	4.69	4.68	4.65	4.70	4.75	4.77	4.84	4.85
CHAINAGE	0.000	2.694	3.104	7.160	8.786	10.000	20.000	30.000	35.841	40.000	50.000	52.734

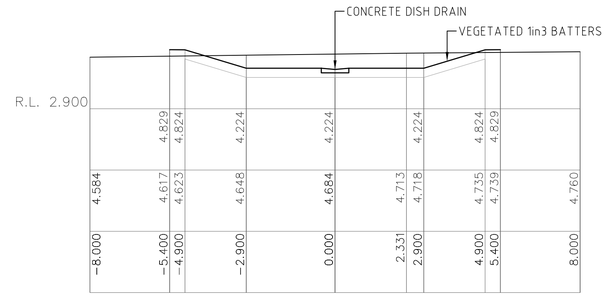
LONGITUDINAL SECTION
SWALE No.2 Ch 0.000 to Ch 52.734
SCALES: HORIZONTAL 1:250 VERTICAL 1:100



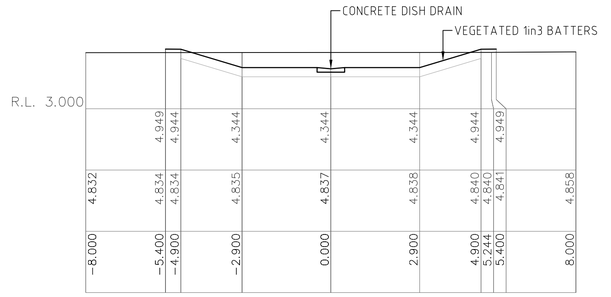
Ch 30.000



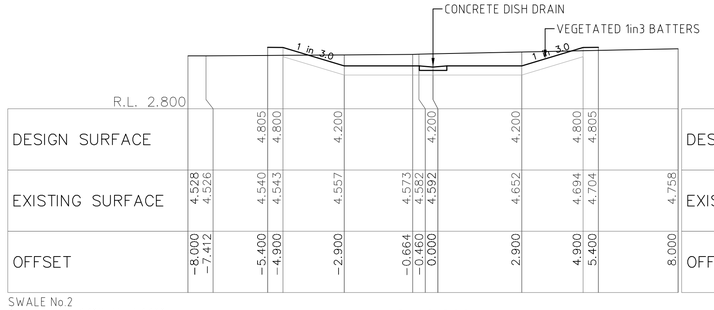
Ch 20.000



Ch 10.000



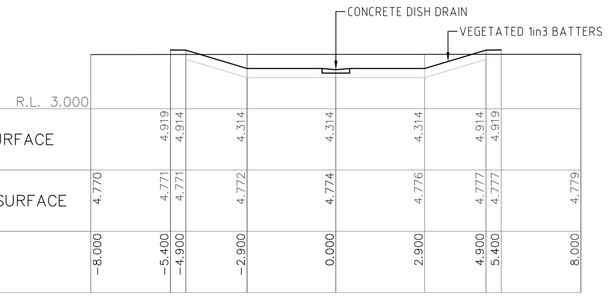
Ch 50.000



DESIGN SURFACE			4.805	4.800	4.200	4.200	4.200	4.200	4.800	4.805		
EXISTING SURFACE	4.528	4.526	4.540	4.543	4.557	4.573	4.582	4.592	4.652	4.694	4.704	4.758
OFFSET	−8.000	−7.412	−5.400	−4.900	−2.900	−0.664	−0.460	0.000	2.900	4.900	5.400	8.000

SWALE No.2
Scales: Horz 1:100 Vert 1:100

Ch 0.000



DESIGN SURFACE		4.919	4.914	4.314	4.314	4.314	4.914	4.919			
EXISTING SURFACE	4.770	4.771	4.771	4.772	4.774	4.776	4.777	4.777	4.779		
OFFSET	−8.000	−5.400	−4.900	−2.900	0.000	2.900	4.900	5.400	8.000		

Ch 40.000

T:\Projects\16116 milperra village\DWG\DA\16116_ROAD DETAILS.dwg

REVISIONS No.	DESCRIPTION	DRN	APP	DATE
C	REVISED ARCHITECTURAL PLANS	A.C.	A.C.	06.07.18
D	DRAFT DA ISSUE	A.C	A.C	16.12.18
E	REVISED TO SUIT CONSULTANTS COMMENTS	A.C	A.C	19.12.18
F	REVISED TO PLANNERS COMMENTS	A.C	A.C	25.01.19
G	REVISED TO COUNCIL COMMENTS	M.D	a.c	16.08.19

siteplus
Site Plus Pty Ltd ABN 73 104 315 095
planning engineering landscape design management
HEAD OFFICE
2a Thomas Street
Wollongong NSW 2500
PO Box 5104
Wollongong NSW 2520
T 61 2 4227 4233
F 61 2 4227 4133
E info@siteplus.com.au
CAMDEN
12 View St
PO Box 615
Camden NSW 2570
T 61 2 4655 5877
F 61 2 4655 5024
E camden@siteplus.com.au

Height Datum	A.H.D.
Drawn	A.C.
Designed	A.C.
Checked	A.C.
Approved	A.C.

Client Title: ---- ANGLICARE (ACA), SYDNEY

Dwg Status: APPROVAL

Local Authority: BANKSTOWN CITY COUNCIL

Dwg Title: PROPOSED ANGLICAN RETIREMENT VILLAGE
BULLECOURT AVE, MILPERRA

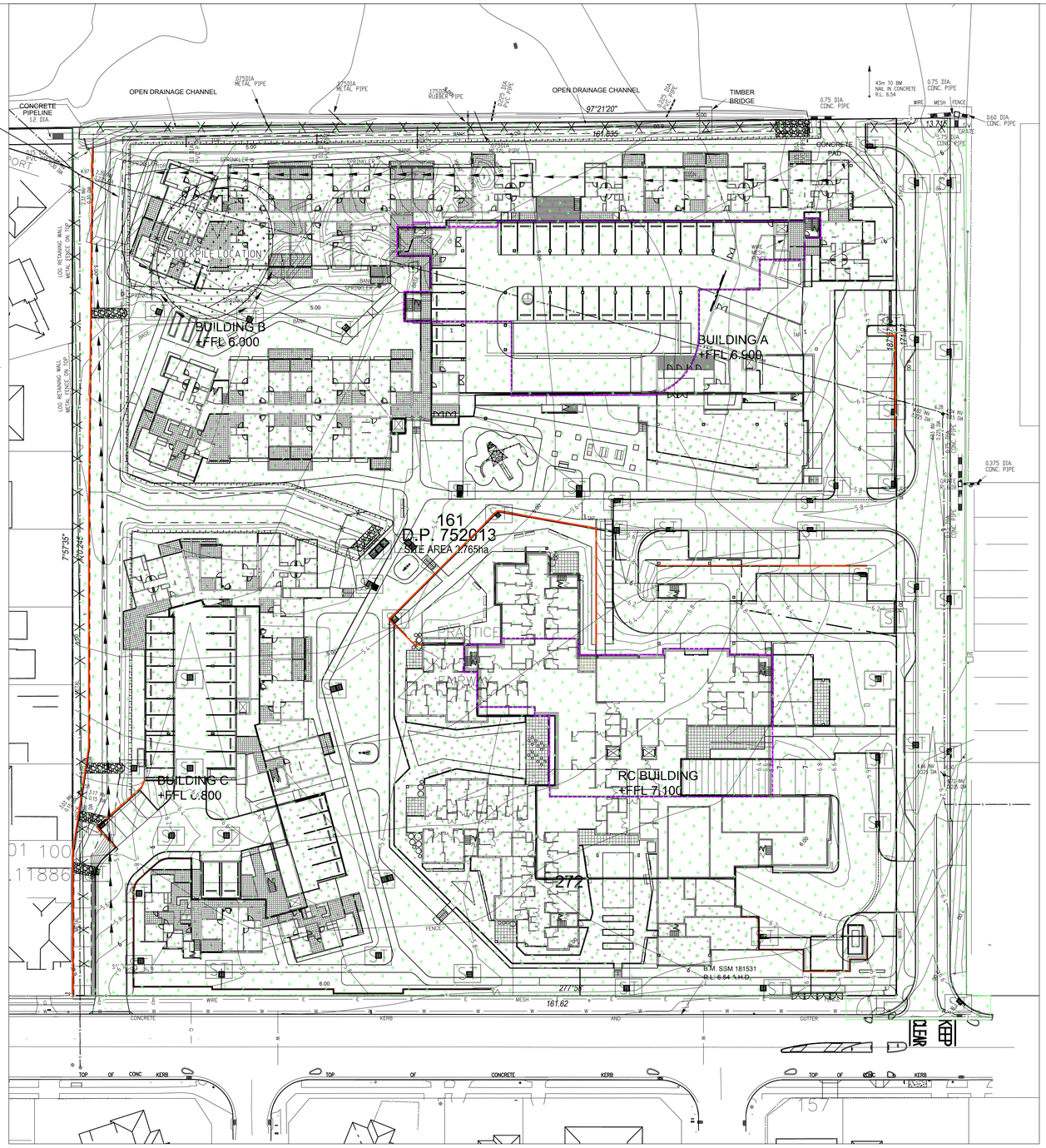
SWALE NO.2 LONGSECTION

Ref & Dwg No	16116.DA.C24
Sheet No	Sheet 24 of 27
Scale	1:250 @ A1
Date	25.01.19
Rev	G
	A1

LEGEND PROPOSED

- STRAW BALE CHECK DAM
- STORMWATER PIPE
- GRATED PIT
- JUNCTION PIT
- KERB INLET PIT
- SEDIMENT FENCE
- SEDIMENT TRAP (ST)
- TEMPORARY CONSTRUCTION EXIT
- DISTURBED AREA
- TEMPORARY SWALE

SEDIMENT BASIN TO BE SIZED AT CC STYAGE



MAINTENANCE PROCEDURES DURING CONSTRUCTION

1 ALL EROSION CONTROL MEASURES ARE TO BE MAINTAINED AT ALL TIMES SO THAT THOSE MEASURES ARE FULLY FUNCTIONAL / OPERATIONAL DURING THE CURRENCY OR WORKS. ALL SUCH CONTROLS MUST ALSO BE FULLY FUNCTIONAL / OPERATIONAL SHOULD WORK OPERATIONS CEASE TEMPORARILY, (e.g. WEEKENDS, ROSTERED DAYS OFF, etc.) 2 RESPREAD MATERIAL GAINED DURING MAINTENANCE OPERATION OR ALTERNATIVELY PLACE ON STOCKPILES.

STATEMENT OF SOIL MANAGEMENT

1 ALL TOPSOIL IS TO BE STOCKPILED IN AREAS DESIGNATED ON PLAN.
2 ALL FORMED EMBANKMENTS (CUT & FILL) ARE TO BE SEEDED WITHIN 7 DAYS.
3 ALL DISTURBED AREAS INCLUDING ANY CONTROLLED FILL ARE TO BE TOPSOILED & SEEDED PRIOR TO COMPLETION OF WORKS. ALL DISTURBED AREAS THAT WILL NOT BE STABILIZED WITHIN 2 MONTHS MUST BE TEMPORARILY REVEGETATED WITHIN 7 DAYS OF CLEARING. AREAS THAT FAIL TO ESTABLISH MUST BE RESOWN IMMEDIATELY.
4 ALL GULLY PITS ARE TO BE PROVIDED WITH SEDIMENT FILTER BARRIERS SUCH AS STRAW BAIL OR SANDBAGS.
5 PROVIDE TEMPORARY DIVERSION BANKS ON SITE AS DIRECTED.
6 AT THE TOP OF ALL FILL EMBANKMENTS, PROVIDE A BERM TO PREVENT WATER RUNNING DOWN EMBANKMENTS, BERM IS TO BE MAINTAINED AT ALL TIMES AS THE FILL EMBANKMENT PROGRESSES TO FINAL LEVEL.
7 ALL FORMED EMBANKMENTS (CUT & FILL) TO BE TOPSOILED & SEEDED/FERTILIZED ON FINAL TRIMMING.
8 FOR TEMPORARY REVEGETATION PURPOSES, THE REVEGETATION MIXTURE SHOULD BE TO COUNCIL SPECIFICATIONS.
9 TRENCHES FOR INTERLOT DRAINAGE LINES ARE TO BE REINSTATED WITH TOPSOIL FOLLOWING PIPE INSTALLATION & BACKFILLING & IMMEDIATELY SEEDED/FERTILIZED
10 THE GROUND SHALL BE TYNED / SCARIFIED TO A MIN DEPTH 100mm PRIOR TO SEEDING
11 CONTRACTOR SHOULD LIASE REGULARLY WITH ENGINEER TO DETERMINE AREAS WHICH CAN BE PROGRESSIVELY REVEGETATED
12 TO ASSIST IN DUST CONTROL/WIND EROSION A TRACKIFIER SUCH AS CUROSOL SHOULD BE USED OR EQUIVALENT ENDORSED PRODUCT BY EPA, RATES AS PER MANUFACTURES SPECIFICATION
13 DESIGNATED PLANT AND MACHINERY ACCESSWAYS TO BE DEFINED ONSITE BY THE INSTALLATION OF PARAWEBBING FENCING TO MINIMIZE UNNECESSARY SITE DISTURBANCE.
14 IT IS THE CONTRACTORS RESPOSIBILITY TO MAINTAIN SOIL EROSION CONTROL DEVICES AND CONTROL DUST

GENERAL NOTES

1 REMOVE ALL SOIL & SPOIL MATERIAL FROM THE ROADWAY & GUTTER SYSTEM FOR THAT SECTION OF TRENCHING & / OR OTHER WORKS CARRIED OUT ON ANY ONE DAY. THIS IS TO BE UNDERTAKEN ON THE COMPLETION OF EACH DAY'S WORK.
2 ABSTAIN FROM PLACING SPOIL / STOCKPILES ON OR IN THE IMMEDIATE VICINITY OF THE KERB & GUTTER SYSTEM. A MINIMUM SET BACK OF THREE (3) METRES WILL BE REQUIRED.
3 STOCKPILES REFERED TO IN ITEM 2 ARE NOT TO BE PLACED WITHIN FIFTEEN (15) METRES EITHER SIDE OF KERB INLET PITS. THIS IS TO BE REGARDED AS A DESIGNATED EXCLUSION ZONE.
4 WHERE ROCK IS ENCOUNTERED DURING THE TRENCHING OPERATIONS & THIS MATERIAL IS CONSIDERED TO BE UNSUITABLE AS BACKFILL, THEN ALL OVERSIZED ROCK WILL BE REQUIRED TO BE REMOVED FROM THE SITE & WILL NOT BE PERMITTED TO REMAIN ON THE SURFACE OF REGRADING & SURFACE PREPARATION PRIOR TO SEEDING DISTURBED AREAS.

0 5 10 15 20 30 40 50

Meters

SCALE : - 1 : 500 @ A1
- 1 : 1000 @ A3

SOIL AND WATER MANAGEMENT PLAN

T:\Projects\16116 milperra village\DWG\DA\16116_SOIL AND WATER MANAGEMENT.dwg

REVISIONS No.	DESCRIPTION	DRN	APP	DATE
C	REVISED ARCHITECTURAL PLANS	A.C.	A.C.	06.07.18
D	DRAFT DA ISSUE	A.C	A.C	16.12.18
E	REVISED TO SUIT CONSULTANTS COMMENTS	A.C	A.C	19.12.18
F	REVISED TO PLANNERS COMMENTS	A.C	A.C	25.01.19
G	REVISED TO COUNCIL COMMENTS	M.D	a.c	16.08.19

siteplus
Site Plus Pty Ltd ABN 73 104 315 095
planning engineering landscape design management

HEAD OFFICE
2a Thomas Street
Wollongong NSW 2500
PO Box 5104
Wollongong NSW 2520
T 61 2 4227 4233
F 61 2 4227 4133
E info@siteplus.com.au

CAMDEN
12 View St
PO Box 615
Camden NSW 2570
T 61 2 4655 5877
F 61 2 4655 5024
E camden@siteplus.com.au

Height Datum	A.H.D.
Drawn	A.C.
Designed	A.C.
Checked	A.C.
Approved	A.C.

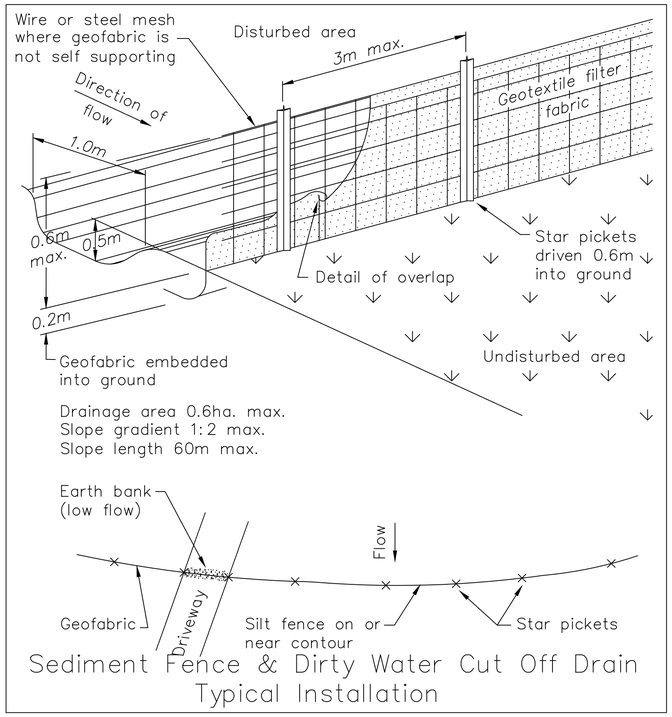
Client Title: ---- ANGLICARE (ACA), SYDNEY

Dwg Status: APPROVAL

Local Authority: BANKSTOWN CITY COUNCIL

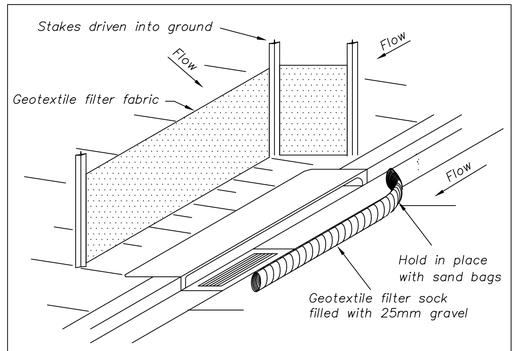
Dwg Title: PROPOSED ANGLICAN RETIREMENT VILLAGE BULLECOURT AVE, MILPERRA — SOIL AND WATER MANAGEMENT PLAN

Ref & Dwg No	16116.DA.C25
Sheet No	Sheet 25 of 27
Scale	1:500 @ A1
Date	25.01.19
Rev	G
	A1



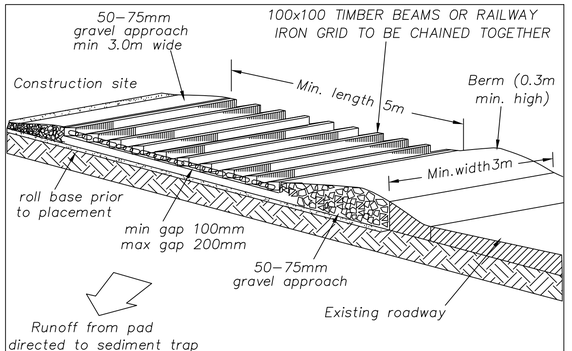
Sediment Fence & Dirty Water Cut Off Drain Typical Installation

NOT TO SCALE



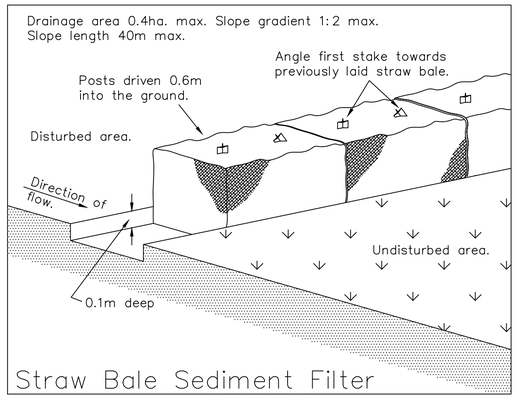
Kerb Inlet Pit Sediment Barrier

NOT TO SCALE



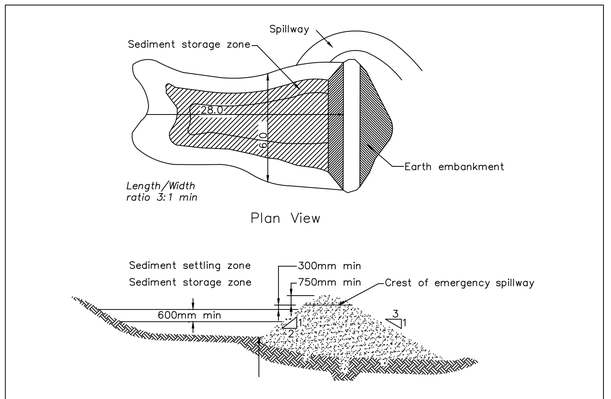
Temporary Construction Entry/Exit

NOT TO SCALE



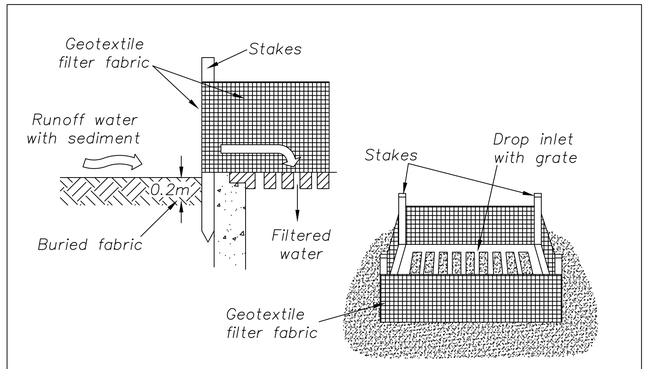
Straw Bale Sediment Filter

NOT TO SCALE



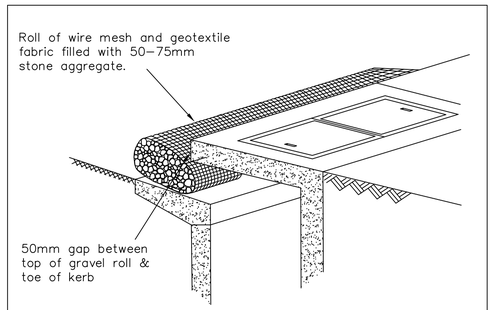
WET SEDIMENT BASIN – SD 6–4

NOT TO SCALE



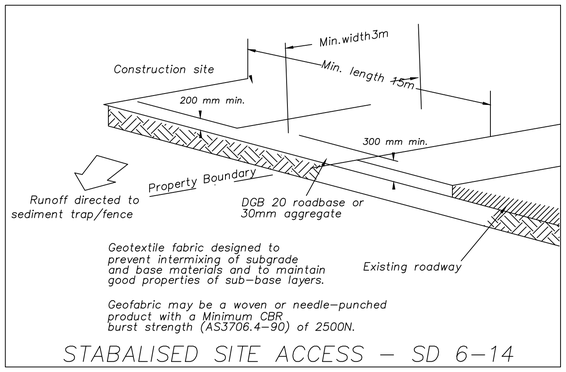
Geotextile Filter Fabric Drop Inlet Sediment Trap

NOT TO SCALE



Kerb Inlet Pit Sediment Trap

NOT TO SCALE



STABALISED SITE ACCESS – SD 6–14

NOT TO SCALE

T:\Projects\16116 milperra village\DWG\DA\16116_SOIL AND WATER MANAGEMENT.dwg

REVISIONS No.	DESCRIPTION	DRN	APP	DATE
C	REVISED ARCHITECTURAL PLANS	A.C.	A.C.	06.07.18
D	DRAFT DA ISSUE	A.C	A.C	16.12.18
E	REVISED TO SUIT CONSULTANTS COMMENTS	A.C	A.C	19.12.18
F	REVISED TO PLANNERS COMMENTS	A.C	A.C	25.01.19
G	REVISED TO COUNCIL COMMENTS	M.D	a.c	16.08.19

siteplus
Site Plus Pty Ltd ABN 73 104 315 095
planning engineering landscape design management
HEAD OFFICE
2a Thomas Street
Wollongong NSW 2500
PO Box 5104
Wollongong NSW 2520
T 61 2 4227 4233
F 61 2 4227 4133
E info@siteplus.com.au
CAMDEN
12 View St
PO Box 615
Camden NSW 2570
T 61 2 4655 5877
F 61 2 4655 5024
E camden@siteplus.com.au

Height Datum	A.H.D.
Drawn	A.C.
Designed	A.C.
Checked	A.C.
Approved	A.C.

Client Title: ANGLICARE (ACA), SYDNEY

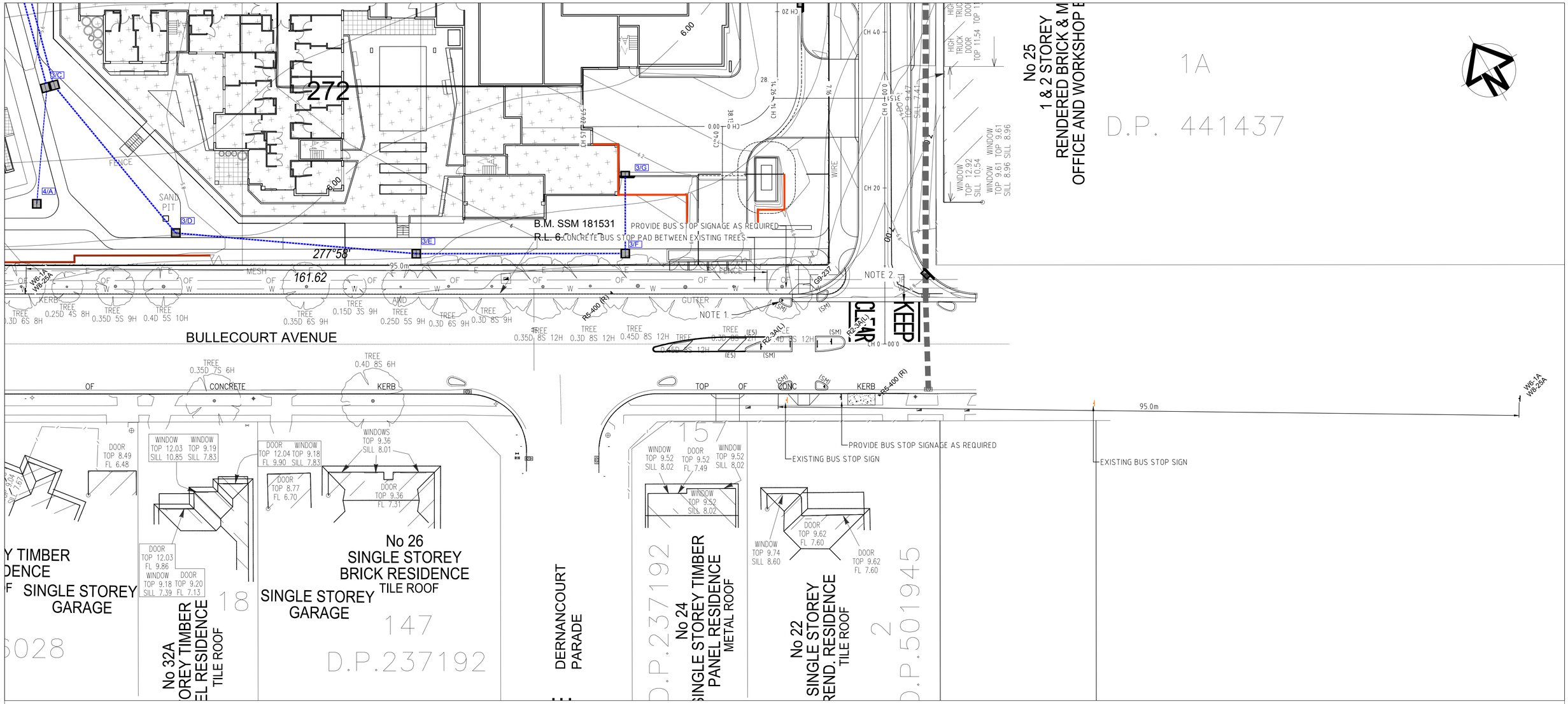
Dwg Status: APPROVAL

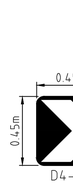
Local Authority: BANKSTOWN CITY COUNCIL

Dwg Title: PROPOSED ANGLICAN RETIREMENT VILLAGE
BULLECOURT AVE, MILPERRA

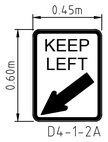
SOIL AND WATER MANAGEMENT DETAIL

Ref & Dwg No	16116.DA.C26
Sheet No	Sheet 26 of 27
Scale	1;500 @ A1
Date	25.01.19
Rev	G
	A1

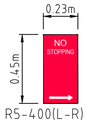




UNIDIRECTIONAL HAZARD MARKER
NOT TO SCALE



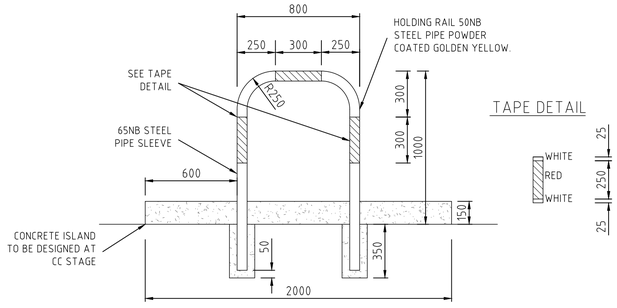
KEEP LEFT
NOT TO SCALE



NO STOPPING
NOT TO SCALE

PEDESTRIAN REFUGE
NOT TO SCALE

DO NOT QUEUE
NOT TO SCALE



ISLAND DETAIL
SCALE 1:20

NOTES:
1. CONSTRUCT PEDESTRIAN REFUGE IN ACCORDANCE WITH RMS TECHNICAL DIRECTION TDT2011/01a.
2. "KEEP CLEAR" PAVEMENT MARKING ON THE EASTBOUND LANE OF BULLECOURT AVENUE AS PER RMS DELINEATION - SECTION 9.3.2.5 SPECIFICATIONS.

0 10 20 30
Meters

SCALE : - 1 : 250 @ A1
- 1 : 500 @ A3

SIGNAGE PLAN

T:\Projects\16116 milperra village\DWG\DA\16116_DA_A.dwg

REVISIONS

No.	DESCRIPTION	DRN	APP	DATE
C	REVISED ARCHITECTURAL PLANS	A.C.	A.C.	06.07.18
D	DRAFT DA ISSUE	A.C	A.C	16.12.18
E	REVISED TO SUIT CONSULTANTS COMMENTS	A.C	A.C	19.12.18
F	REVISED TO PLANNERS COMMENTS	A.C	A.C	25.01.19
G	REVISED TO COUNCIL COMMENTS	M.D	a.c	16.08.19

siteplus
Site Plus Pty Ltd ABN 73 104 315 095
planning engineering landscape design management
HEAD OFFICE
345 Keira St
Wollongong NSW 2500
PO Box 5104
Wollongong NSW 2520
T 61 2 4227 4233
F 61 2 4227 4133
E info@siteplus.com.au

Height Datum	A.H.D.
Drawn	A.C.
Designed	A.C.
Checked	A.C.
Approved	A.C.

Client Title: ANGLICARE (ACA), SYDNEY

Dwg Status: APPROVAL

Local Authority: BANKSTOWN CITY COUNCIL

Dwg Title: PROPOSED ANGLICAN RETIREMENT VILLAGE
BULLECOURT AVE, MILPERRA
SIGNAGE PLAN

Ref & Dwg No	16116.DA.C27
Sheet No	27 of 27
Scale	1:500 @ A1
Date	25.01.19
Rev	G
	A1

Appendix B

Traffic Survey Results

Location	Bullecourt Lane	Duration	0630 - 0930
	Bullecourt Avenue		1530 - 1830
	Dernancourt Parade		-
	Bullecourt Avenue	Day/Date	Friday, 11 August 2017
Suburb	MILPERRA	Weather	-

All Vehicles Time Per 15 Mins		NORTH *Bullecourt Lane*				EAST *Bullecourt Avenue*				SOUTH *Dernancourt Parade*				WEST *Bullecourt Avenue*				
		L	T	R	TOTAL	L	T	R	TOTAL	L	T	R	TOTAL	L	T	R	TOTAL	TOTAL
6:30	6:45	0	0	0	0	1	36	0	37	1	0	1	2	0	87	2	89	128
6:45	7:00	0	0	0	0	1	32	0	33	2	0	2	4	0	133	2	135	172
7:00	7:15	0	0	0	0	6	45	1	52	1	0	1	2	0	111	0	111	165
7:15	7:30	0	0	0	0	3	59	0	62	0	0	1	1	0	152	0	152	215
7:30	7:45	0	0	0	0	2	55	0	57	1	0	1	2	0	147	2	149	208
7:45	8:00	0	0	0	0	8	48	0	56	4	0	0	4	0	155	2	157	217
8:00	8:15	0	0	0	0	4	56	0	60	3	0	0	3	0	189	4	193	256
8:15	8:30	0	0	0	0	1	66	0	67	8	0	1	9	0	173	4	177	253
8:30	8:45	0	0	0	0	3	64	0	67	6	0	0	6	0	154	1	155	228
8:45	9:00	0	0	0	0	3	72	0	75	1	0	1	2	0	171	6	177	254
9:00	9:15	0	0	1	1	5	59	0	64	3	0	3	6	0	154	4	158	229
9:15	9:30	0	0	0	0	8	72	1	81	0	0	2	2	0	135	3	138	221
Period End		0	0	1	1	45	664	2	711	30	0	13	43	0	1761	30	1791	2546
15:30	15:45	0	0	0	0	13	136	0	149	3	0	2	5	0	83	4	87	241
15:45	16:00	0	0	1	1	10	118	0	128	2	0	1	3	0	70	5	75	207
16:00	16:15	0	0	0	0	5	139	0	144	4	0	0	4	1	70	6	77	225
16:15	16:30	0	0	0	0	7	122	0	129	6	0	3	9	0	68	2	70	208
16:30	16:45	0	0	0	0	7	129	0	136	4	0	0	4	0	70	1	71	211
16:45	17:00	0	0	0	0	5	131	0	136	2	0	1	3	0	60	2	62	201
17:00	17:15	0	0	0	0	7	166	0	173	2	0	3	5	0	38	2	40	218
17:15	17:30	0	0	1	1	15	158	0	173	3	0	1	4	0	40	1	41	219
17:30	17:45	0	0	0	0	6	117	0	123	1	0	1	2	0	63	2	65	190
17:45	18:00	1	0	0	1	6	11	0	17	3	0	2	5	0	69	0	69	92
18:00	18:15	0	0	0	0	4	117	0	121	1	0	4	5	0	54	3	57	183
18:15	18:30	0	0	0	0	4	91	0	95	3	0	4	7	0	45	0	45	147
Period End		1	0	2	3	89	1435	0	1524	34	0	22	56	1	730	28	759	2342

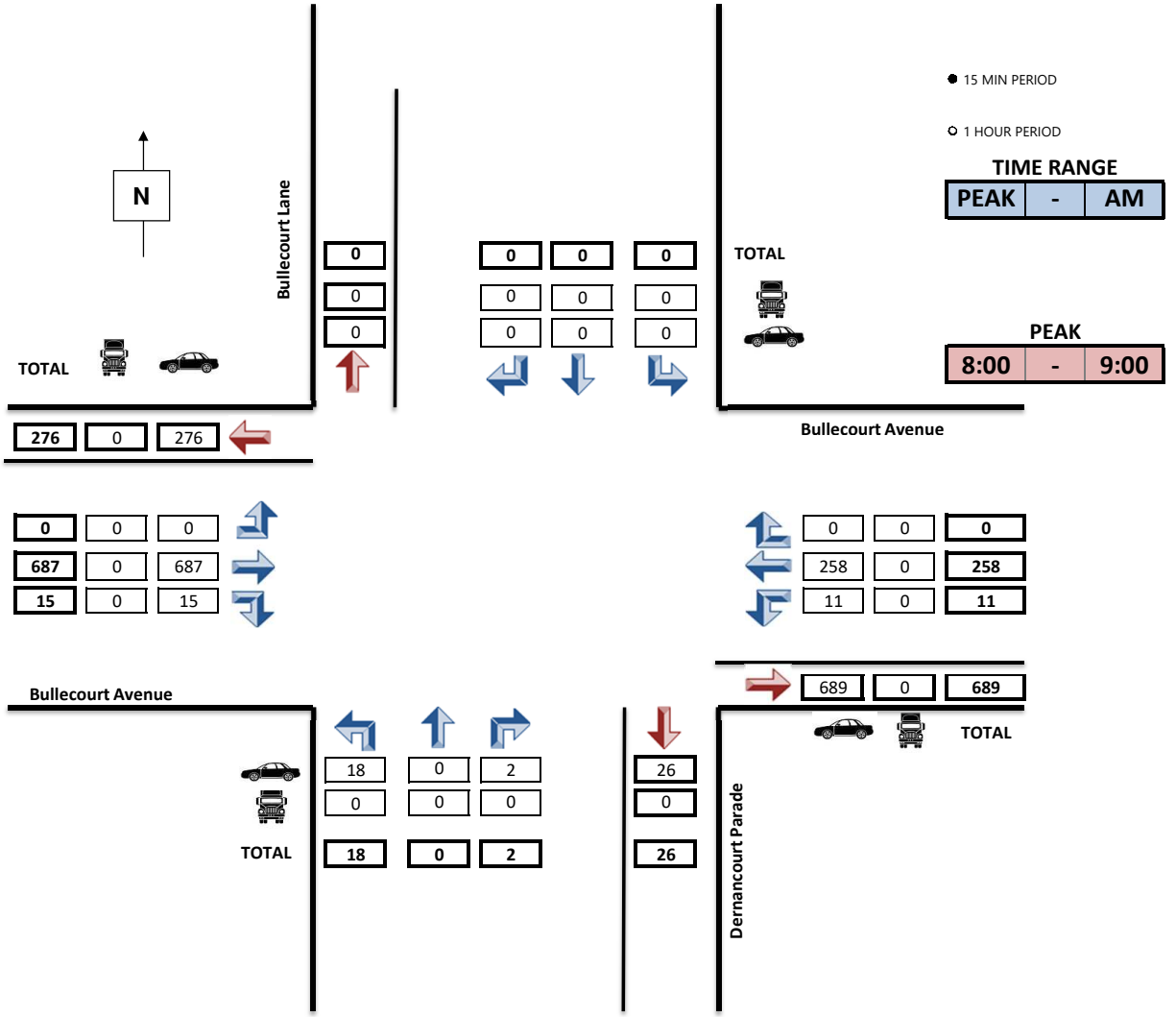
Traffic Information Specialists

ABN: 42 613 389 923

Email info@trafficinfospecialist.com.au

All Vehicles Time Per Hour			NORTH Bullecourt Lane				EAST Bullecourt Avenue				SOUTH Dernancourt Parade				WEST Bullecourt Avenue				
			L	T	R	TOTAL	L	T	R	TOTAL	L	T	R	TOTAL	L	T	R	TOTAL	TOTAL
6:30	-	7:30	0	0	0	**0**	11	172	1	**184**	4	0	5	**9**	0	483	4	**487**	**680**
6:45	-	7:45	0	0	0	**0**	12	191	1	**204**	4	0	5	**9**	0	543	4	**547**	**760**
7:00	-	8:00	0	0	0	**0**	19	207	1	**227**	6	0	3	**9**	0	565	4	**569**	**805**
7:15	-	8:15	0	0	0	**0**	17	218	0	**235**	8	0	2	**10**	0	643	8	**651**	**896**
7:30	-	8:30	0	0	0	**0**	15	225	0	**240**	16	0	2	**18**	0	664	12	**676**	**934**
7:45	-	8:45	0	0	0	**0**	16	234	0	**250**	21	0	1	**22**	0	671	11	**682**	**954**
8:00	-	9:00	0	0	0	**0**	11	258	0	**269**	18	0	2	**20**	0	687	15	**702**	**991**
8:15	-	9:15	0	0	1	**1**	12	261	0	**273**	18	0	5	**23**	0	652	15	**667**	**964**
8:30	-	9:30	0	0	1	**1**	19	267	1	**287**	10	0	6	**16**	0	614	14	**628**	**932**
Period End			**0**	**0**	**2**	**2**	**132**	**2033**	**4**	**2169**	**105**	**0**	**31**	**136**	**0**	**5522**	**87**	**5609**	**7916**
15:30	-	16:30	0	0	1	**1**	35	515	0	**550**	15	0	6	**21**	1	291	17	**309**	**881**
15:45	-	16:45	0	0	1	**1**	29	508	0	**537**	16	0	4	**20**	1	278	14	**293**	**851**
16:00	-	17:00	0	0	0	**0**	24	521	0	**545**	16	0	4	**20**	1	268	11	**280**	**845**
16:15	-	17:15	0	0	0	**0**	26	548	0	**574**	14	0	7	**21**	0	236	7	**243**	**838**
16:30	-	17:30	0	0	1	**1**	34	584	0	**618**	11	0	5	**16**	0	208	6	**214**	**849**
16:45	-	17:45	0	0	1	**1**	33	572	0	**605**	8	0	6	**14**	0	201	7	**208**	**828**
17:00	-	18:00	1	0	1	**2**	34	452	0	**486**	9	0	7	**16**	0	210	5	**215**	**719**
17:15	-	18:15	1	0	1	**2**	31	403	0	**434**	8	0	8	**16**	0	226	6	**232**	**684**
17:30	-	18:30	1	0	0	**1**	20	336	0	**356**	8	0	11	**19**	0	231	5	**236**	**612**
Period End			**3**	**0**	**6**	**9**	**266**	**4439**	**0**	**4705**	**105**	**0**	**58**	**163**	**3**	**2149**	**78**	**2230**	**7107**

Location	Bullecourt Lane	Duration	0630 - 0930
	Bullecourt Avenue		1530 - 1830
	Dernancourt Parade		-
	Bullecourt Avenue	Day/Date	Friday, 11 August 2017
Suburb	MILPERRA	Weather	-

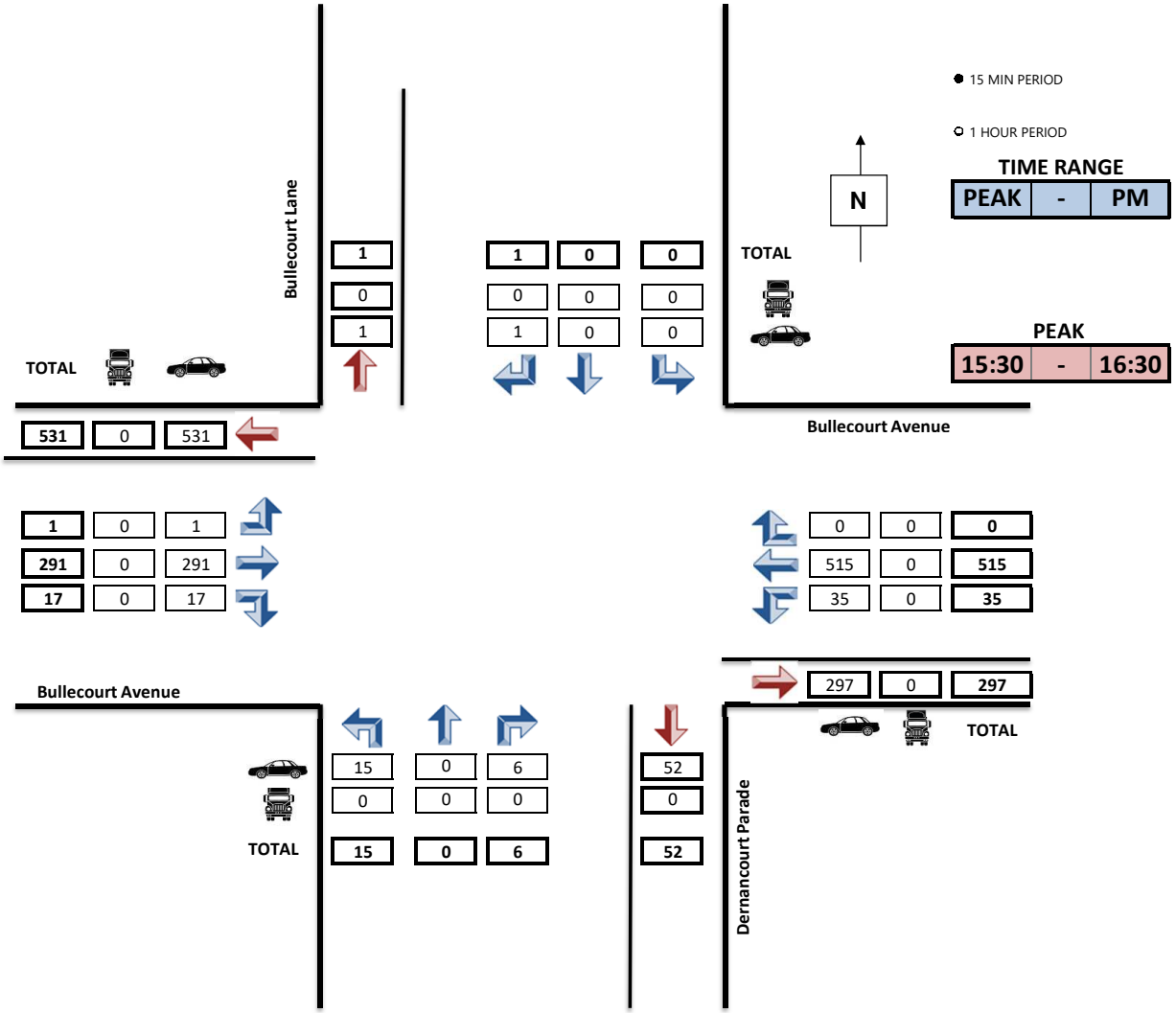


Traffic Information Specialists

ABN: 42 613 389 923

Email info@trafficinfospecialist.com.au

Location	Bullecourt Lane	Duration	0630 - 0930
	Bullecourt Avenue		1530 - 1830
	Dernancourt Parade		-
	Bullecourt Avenue	Day/Date	Friday, 11 August 2017
Suburb	MILPERRA	Weather	-



Traffic Information Specialists
ABN: 42 613 389 923
Email info@trafficinfospecialist.com.au

Appendix C

SIDRA Model Results

MOVEMENT SUMMARY

Site: 101 [EX AM BULLECOURT LANE - BULLECOURT]

Network: N101 [EX AM PEAK]

New Site
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	Aver. Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
East: BULLECOURT														
5	T1	292	7.0	292	7.0	0.158	0.0	LOS A	0.0	0.1	0.01	0.00	0.01	58.2
6	R2	1	7.0	1	7.0	0.158	8.2	LOS A	0.0	0.1	0.01	0.00	0.01	47.3
Approach		293	7.0	293	7.0	0.158	0.1	NA	0.0	0.1	0.01	0.00	0.01	58.0
North: BULLECOURT LANE														
7	L2	1	7.0	1	7.0	0.005	9.6	LOS A	0.0	0.0	0.68	0.74	0.68	27.5
9	R2	1	7.0	1	7.0	0.005	14.0	LOS B	0.0	0.0	0.68	0.74	0.68	27.3
Approach		2	7.0	2	7.0	0.005	11.8	LOS B	0.0	0.0	0.68	0.74	0.68	27.4
West: BULLECOURT														
10	L2	1	7.0	1	7.0	0.401	5.7	LOS A	0.0	0.0	0.00	0.00	0.00	55.7
11	T1	747	7.0	747	7.0	0.401	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach		748	7.0	748	7.0	0.401	0.0	NA	0.0	0.0	0.00	0.00	0.00	59.9
All Vehicles		1043	7.0	1043	7.0	0.401	0.1	NA	0.0	0.1	0.00	0.00	0.00	59.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [EX AM DERNANCOURT - BULLECOURT]

Network: N101 [EX AM PEAK]

New Site
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	Aver. Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: DERNANCOURT														
1	L2	20	7.0	20	7.0	0.016	6.6	LOS A	0.0	0.2	0.35	0.57	0.35	51.1
3	R2	2	7.0	2	7.0	0.007	14.1	LOS B	0.0	0.1	0.74	0.82	0.74	41.1
Approach		22	7.0	22	7.0	0.016	7.3	LOS A	0.0	0.2	0.39	0.59	0.39	50.3
East: BULLECOURT														
4	L2	12	7.0	12	7.0	0.157	3.1	LOS A	0.0	0.0	0.00	0.02	0.00	56.2
5	T1	280	7.0	280	7.0	0.157	0.0	LOS A	0.0	0.0	0.00	0.02	0.00	59.6
Approach		292	7.0	292	7.0	0.157	0.1	NA	0.0	0.0	0.00	0.02	0.00	59.4
West: BULLECOURT														
11	T1	745	7.0	745	7.0	0.412	0.1	LOS A	0.1	0.7	0.03	0.01	0.03	59.3
12	R2	16	7.0	16	7.0	0.412	7.5	LOS A	0.1	0.7	0.03	0.01	0.03	57.1
Approach		761	7.0	761	7.0	0.412	0.2	NA	0.1	0.7	0.03	0.01	0.03	59.2
All Vehicles		1074	7.0	1074	7.0	0.412	0.3	NA	0.1	0.7	0.03	0.03	0.03	58.8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [EX PM BULLECOURT LANE - BULLECOURT]

Network: N101 [EX PM PEAK]

New Site
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	Aver. Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: BULLECOURT														
5	T1	596	7.0	596	7.0	0.321	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.7
6	R2	1	7.0	1	7.0	0.321	4.7	LOS A	0.0	0.0	0.00	0.00	0.00	47.5
Approach		597	7.0	597	7.0	0.321	0.0	NA	0.0	0.0	0.00	0.00	0.00	59.5
North: BULLECOURT LANE														
7	L2	1	7.0	1	7.0	0.004	6.7	LOS A	0.0	0.0	0.48	0.62	0.48	30.7
9	R2	1	7.0	1	7.0	0.004	11.7	LOS B	0.0	0.0	0.48	0.62	0.48	31.0
Approach		2	7.0	2	7.0	0.004	9.2	LOS A	0.0	0.0	0.48	0.62	0.48	30.8
West: BULLECOURT														
10	L2	1	7.0	1	7.0	0.173	5.6	LOS A	0.0	0.0	0.00	0.00	0.00	55.8
11	T1	322	7.0	322	7.0	0.173	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach		323	7.0	323	7.0	0.173	0.0	NA	0.0	0.0	0.00	0.00	0.00	59.9
All Vehicles		923	7.0	923	7.0	0.321	0.0	NA	0.0	0.0	0.00	0.00	0.00	59.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [EX PM DERNANCOURT - BULLECOURT]

Network: N101 [EX PM PEAK]

New Site
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	Aver. Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: DERNANCOURT														
1	L2	16	7.0	16	7.0	0.019	8.1	LOS A	0.0	0.2	0.51	0.67	0.51	50.2
3	R2	7	7.0	7	7.0	0.015	11.7	LOS B	0.0	0.1	0.66	0.81	0.66	43.5
Approach		23	7.0	23	7.0	0.019	9.2	LOS A	0.0	0.2	0.55	0.71	0.55	48.8
East: BULLECOURT														
4	L2	38	7.0	38	7.0	0.321	3.1	LOS A	0.0	0.0	0.00	0.04	0.00	56.0
5	T1	558	7.0	558	7.0	0.321	0.0	LOS A	0.0	0.0	0.00	0.04	0.00	59.4
Approach		596	7.0	596	7.0	0.321	0.2	NA	0.0	0.0	0.00	0.04	0.00	59.1
West: BULLECOURT														
11	T1	317	7.0	317	7.0	0.191	0.4	LOS A	0.1	0.8	0.10	0.04	0.10	57.7
12	R2	18	7.0	18	7.0	0.191	9.2	LOS A	0.1	0.8	0.10	0.04	0.10	56.4
Approach		335	7.0	335	7.0	0.191	0.9	NA	0.1	0.8	0.10	0.04	0.10	57.6
All Vehicles		954	7.0	954	7.0	0.321	0.6	NA	0.1	0.8	0.05	0.05	0.05	58.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [POST-DEV AM BULLECOURT LANE - BULLECOURT]

Network: N101 [POST-DEV AM PEAK]

New Site
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	Aver. Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: BULLECOURT														
5	T1	378	6.9	378	6.9	0.235	1.1	LOS A	0.2	1.6	0.13	0.02	0.15	36.9
6	R2	15	0.6	15	0.6	0.235	12.4	LOS B	0.2	1.6	0.13	0.02	0.15	44.6
Approach		393	6.7	393	6.7	0.235	1.5	NA	0.2	1.6	0.13	0.02	0.15	38.0
North: BULLECOURT LANE														
7	L2	26	0.4	26	0.4	0.092	12.6	LOS B	0.1	0.8	0.76	0.90	0.76	26.1
9	R2	11	0.9	11	0.9	0.092	14.8	LOS B	0.1	0.8	0.76	0.90	0.76	25.6
Approach		38	0.5	38	0.5	0.092	13.3	LOS B	0.1	0.8	0.76	0.90	0.76	26.0
West: BULLECOURT														
10	L2	6	1.8	6	1.8	0.518	5.6	LOS A	0.0	0.0	0.00	0.00	0.00	56.4
11	T1	962	7.0	962	7.0	0.518	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	59.7
Approach		967	6.9	967	6.9	0.518	0.1	NA	0.0	0.0	0.00	0.00	0.00	59.7
All Vehicles		1398	6.7	1398	6.7	0.518	0.8	NA	0.2	1.6	0.06	0.03	0.06	57.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [POST-DEV AM DERNANCOURT - BULLECOURT] Network: N101 [POST-DEV AM PEAK]

New Site
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	Aver. Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: DERNANCOURT														
1	L2	25	7.0	25	7.0	0.023	7.0	LOS A	0.0	0.3	0.41	0.61	0.41	50.9
3	R2	4	4.7	4	4.7	0.013	15.0	LOS B	0.0	0.1	0.80	0.92	0.80	40.4
Approach		29	6.7	29	6.7	0.023	8.2	LOS A	0.0	0.3	0.47	0.65	0.47	49.7
East: BULLECOURT														
4	L2	17	6.4	17	6.4	0.209	3.1	LOS A	0.0	0.0	0.00	0.02	0.00	56.2
5	T1	372	6.7	372	6.7	0.209	0.0	LOS A	0.0	0.0	0.00	0.02	0.00	59.6
Approach		389	6.7	389	6.7	0.209	0.1	NA	0.0	0.0	0.00	0.02	0.00	59.4
West: BULLECOURT														
11	T1	959	7.0	959	7.0	0.533	0.2	LOS A	0.2	1.5	0.04	0.01	0.06	59.0
12	R2	21	7.0	21	7.0	0.533	9.1	LOS A	0.2	1.5	0.04	0.01	0.06	57.0
Approach		980	7.0	980	7.0	0.533	0.4	NA	0.2	1.5	0.04	0.01	0.06	58.9
All Vehicles		1398	6.9	1398	6.9	0.533	0.5	NA	0.2	1.5	0.04	0.03	0.05	58.6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [POST-DEV PM BULLECOURT LANE - BULLECOURT]

Network: N101 [POST-DEV PM PEAK]

New Site
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	Aver. Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: BULLECOURT														
5	T1	848	7.0	848	7.0	0.473	0.2	LOS A	0.2	1.2	0.05	0.01	0.06	52.8
6	R2	19	0.6	19	0.6	0.473	6.6	LOS A	0.2	1.2	0.05	0.01	0.06	48.3
Approach		868	6.8	868	6.8	0.473	0.3	NA	0.2	1.2	0.05	0.01	0.06	52.4
North: BULLECOURT LANE														
7	L2	12	0.9	12	0.9	0.025	7.3	LOS A	0.0	0.2	0.51	0.69	0.51	30.9
9	R2	5	2.3	5	2.3	0.025	13.9	LOS B	0.0	0.2	0.51	0.69	0.51	31.2
Approach		17	1.3	17	1.3	0.025	9.1	LOS A	0.0	0.2	0.51	0.69	0.51	30.9
West: BULLECOURT														
10	L2	10	1.1	10	1.1	0.252	5.6	LOS A	0.0	0.0	0.00	0.01	0.00	56.4
11	T1	460	7.0	460	7.0	0.252	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	59.6
Approach		470	6.8	470	6.8	0.252	0.1	NA	0.0	0.0	0.00	0.01	0.00	59.5
All Vehicles		1354	6.8	1354	6.8	0.473	0.4	NA	0.2	1.2	0.04	0.02	0.05	57.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [POST-DEV PM DERNANCOURT - BULLECOURT] Network: N101 [POST-DEV PM PEAK]

New Site
Site Category: (None)
Giveway / Yield (Two-Way)

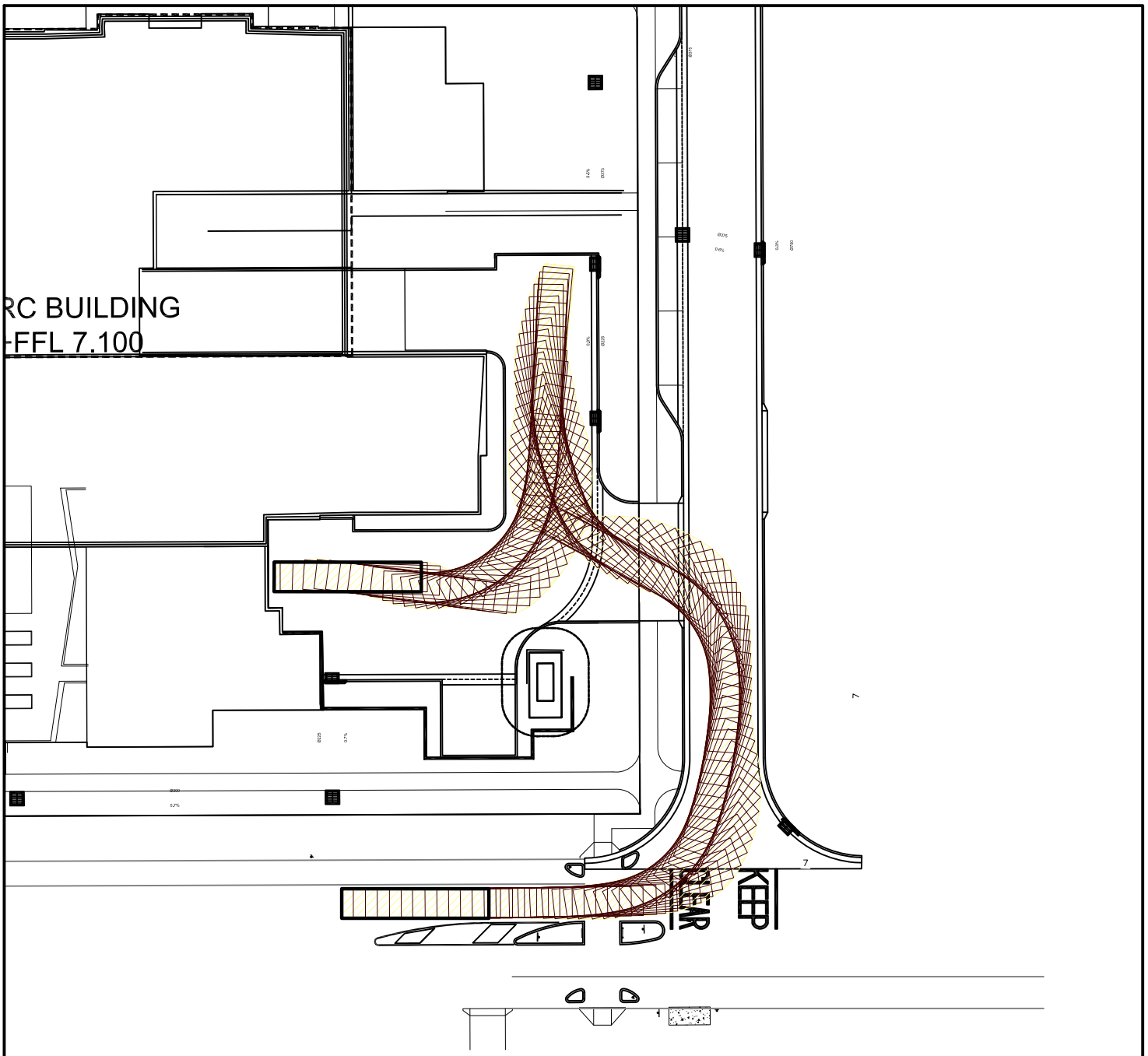
Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	Aver. Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: DERNANCOURT														
1	L2	23	7.0	23	7.0	0.040	10.5	LOS B	0.1	0.4	0.65	0.82	0.65	48.3
3	R2	10	6.3	10	6.3	0.029	13.8	LOS B	0.0	0.2	0.77	0.91	0.77	41.4
Approach		33	6.8	33	6.8	0.040	11.5	LOS B	0.1	0.4	0.68	0.85	0.68	46.7
East: BULLECOURT														
4	L2	55	6.9	55	6.9	0.460	3.1	LOS A	0.0	0.0	0.00	0.04	0.00	56.0
5	T1	801	6.9	801	6.9	0.460	0.0	LOS A	0.0	0.0	0.00	0.04	0.00	59.4
Approach		856	6.9	856	6.9	0.460	0.2	NA	0.0	0.0	0.00	0.04	0.00	59.1
West: BULLECOURT														
11	T1	455	6.9	455	6.9	0.292	1.2	LOS A	0.3	2.5	0.17	0.04	0.21	55.2
12	R2	26	7.0	26	7.0	0.292	13.9	LOS B	0.3	2.5	0.17	0.04	0.21	55.4
Approach		481	6.9	481	6.9	0.292	1.9	NA	0.3	2.5	0.17	0.04	0.21	55.3
All Vehicles		1370	6.9	1370	6.9	0.460	1.1	NA	0.3	2.5	0.08	0.06	0.09	57.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Appendix D

Turning Path Assessment

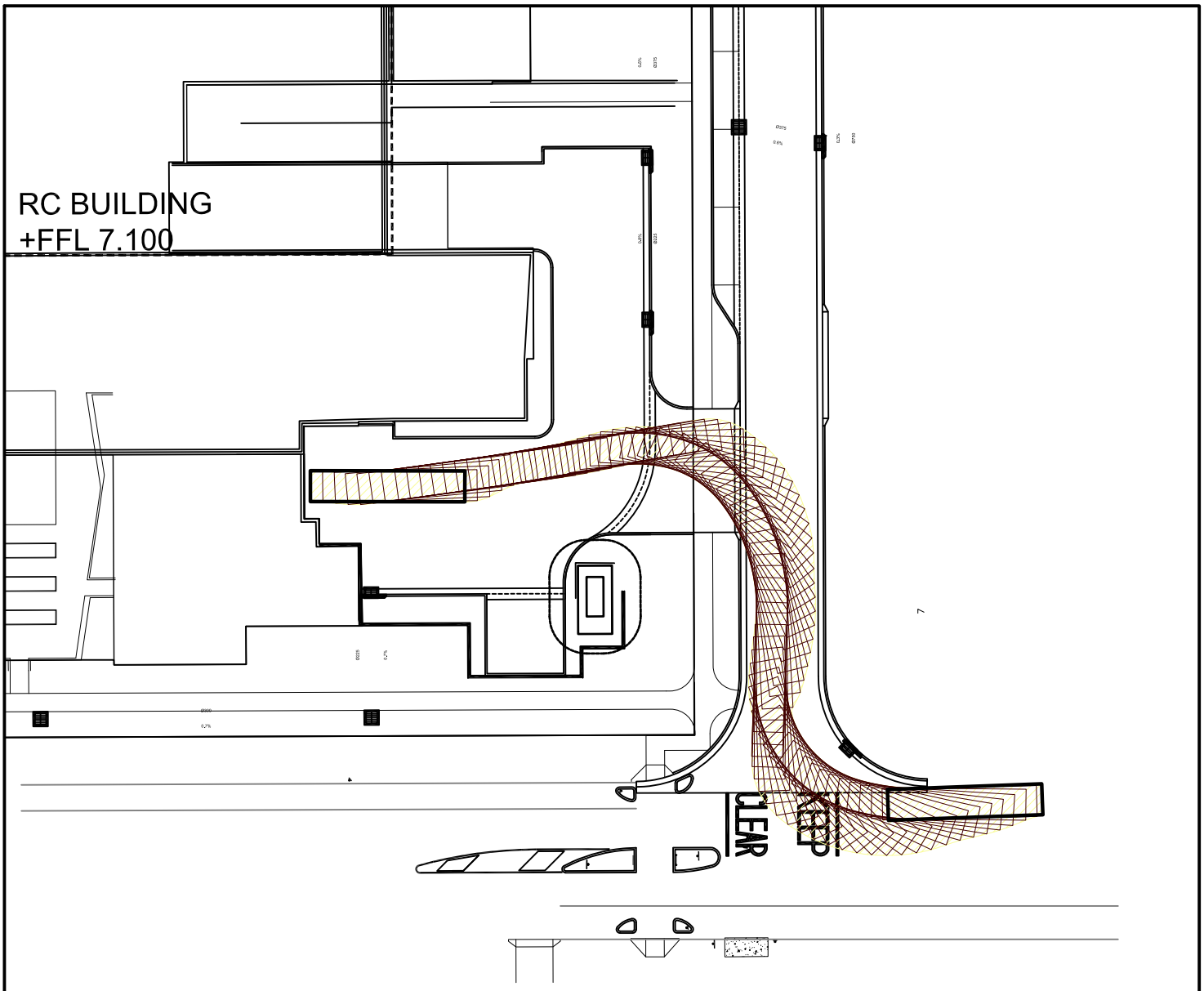


LEGEND

This drawing has been prepared using vehicle modelling computer software AutoTrack V5.00a in conjunction with AutoCAD 2013. The vehicle used is based upon vehicle data provided by Austroads and incorporates a reasonable degree of tolerance. However, it is not possible to account for all vehicle types/characteristics and/or driver ability.

SWEPT PATH ANALYSIS OF A 12.5m RIGID VEHICLE ENTERING THE SITE

SP 1

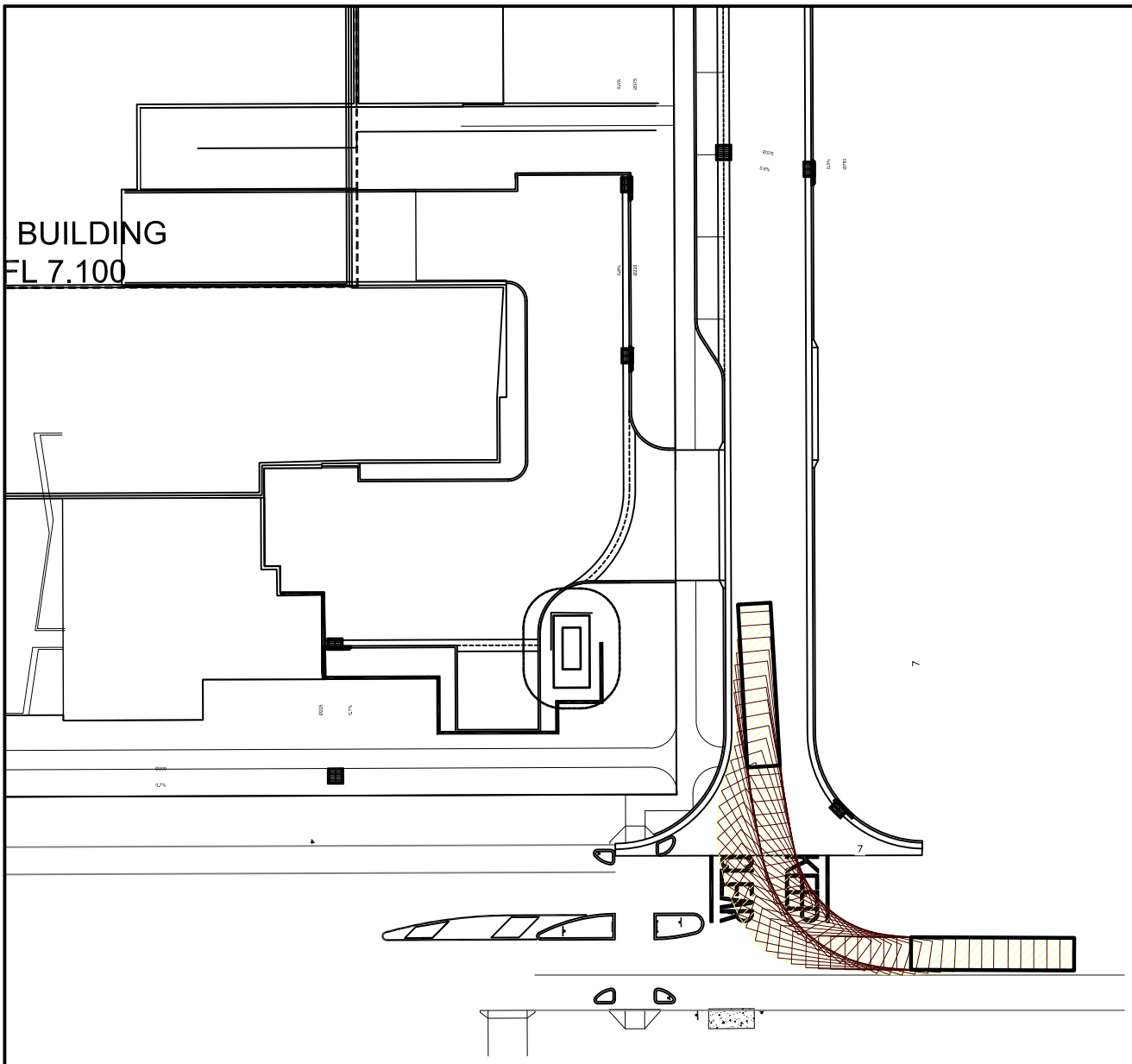


LEGEND

This drawing has been prepared using vehicle modelling computer software AutoTrack V5.00a in conjunction with AutoCAD 2013. The vehicle used is based upon vehicle data provided by Austroads and incorporates a reasonable degree of tolerance. However, it is not possible to account for all vehicle types/characteristics and/or driver ability.

SWEPT PATH ANALYSIS OF A 12.5m RIGID VEHICLE EXITING THE SITE

SP 2



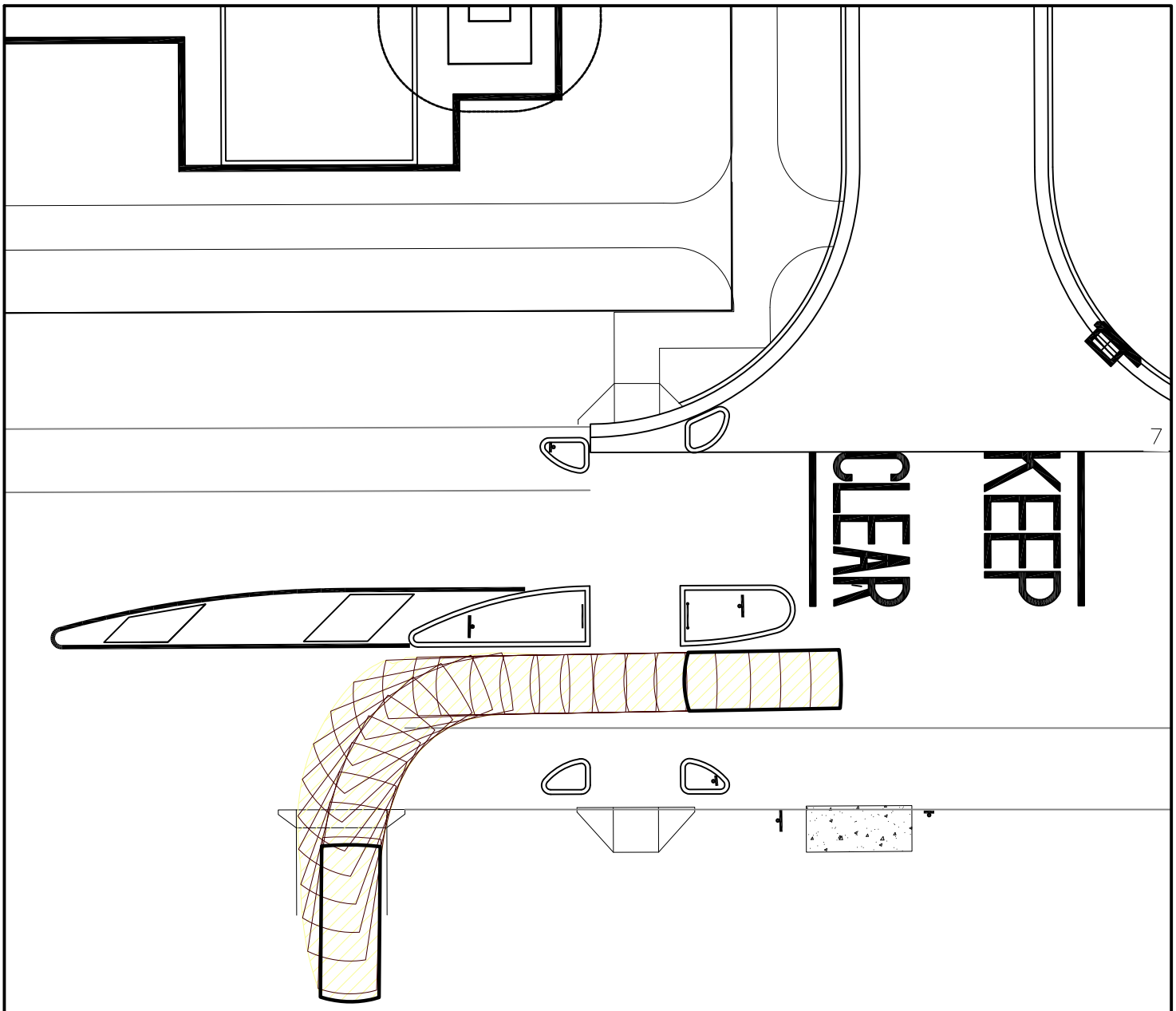
LEGEND

This drawing has been prepared using vehicle modelling computer software AutoTrack V5.00a in conjunction with AutoCAD 2013. The vehicle used is based upon vehicle data provided by Austroads and incorporates a reasonable degree of tolerance. However, it is not possible to account for all vehicle types/characteristics and/or driver ability.

N

SWEPT PATH ANALYSIS OF A 12.5m RIGID VEHICLE ENTERING THE SITE

SP 3

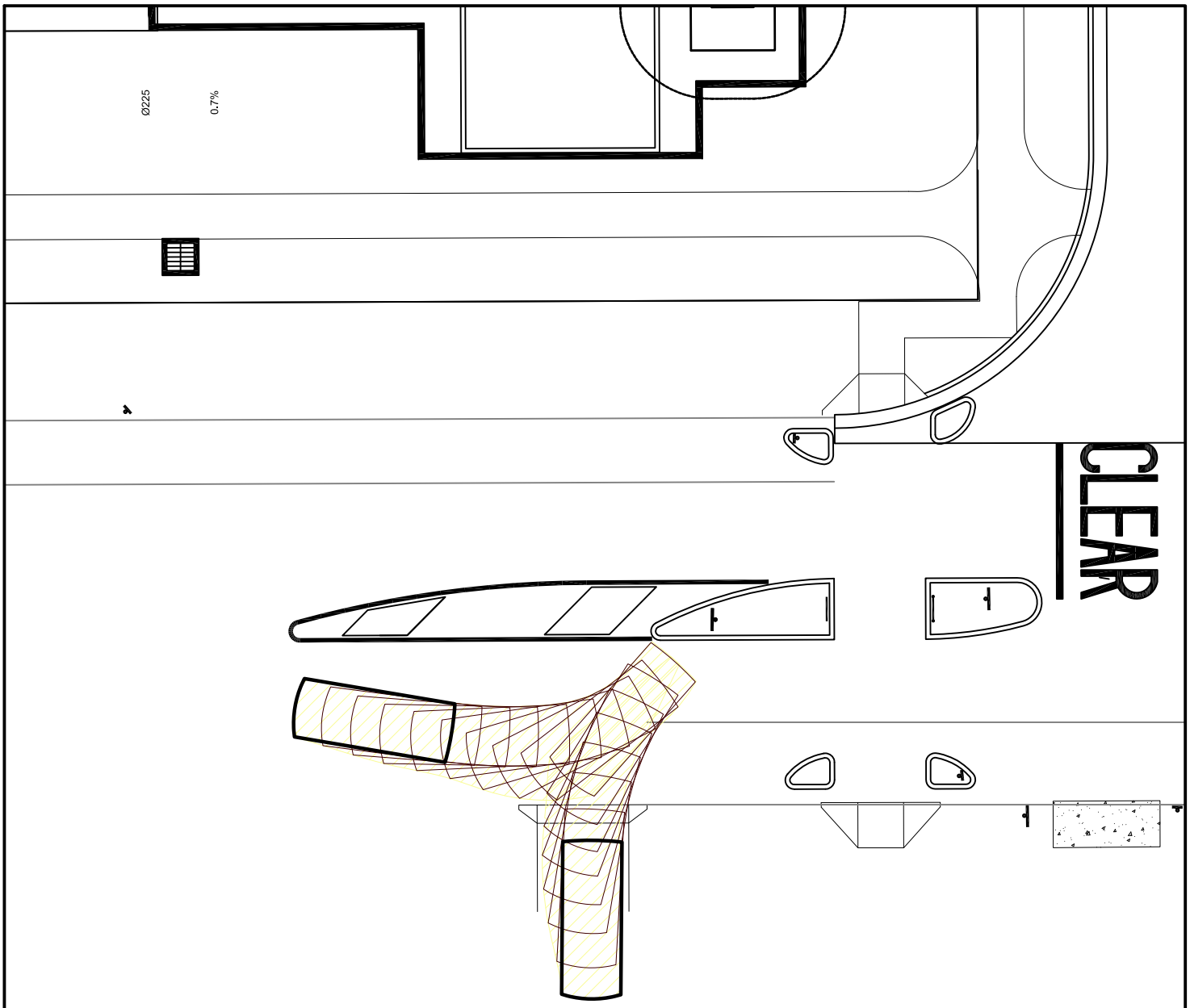


LEGEND

This drawing has been prepared using vehicle modelling computer software AutoTrack V5.00a in conjunction with AutoCAD 2013. The vehicle used is based upon vehicle data provided by Austroads and incorporates a reasonable degree of tolerance. However, it is not possible to account for all vehicle types/characteristics and/or driver ability.

SWEPT PATH ANALYSIS OF A 99th PERCENTILE VEHICLE ENTERING THE DRIVEWAY OPPOSITE SITE

SP 4



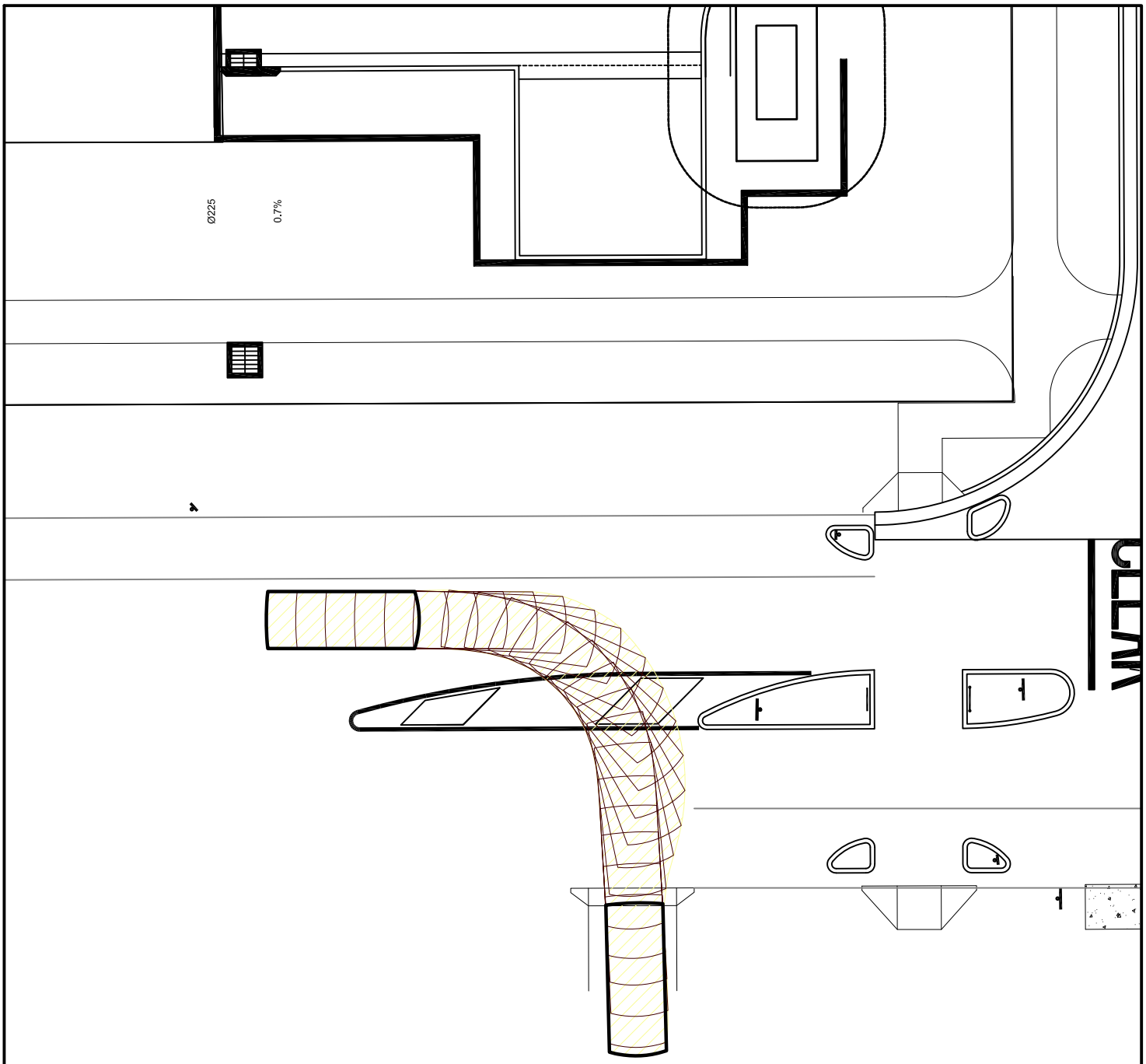
LEGEND

This drawing has been prepared using vehicle modelling computer software AutoTrack V5.00a in conjunction with AutoCAD 2013. The vehicle used is based upon vehicle data provided by Austroads and incorporates a reasonable degree of tolerance. However, it is not possible to account for all vehicle types/characteristics and/or driver ability.

N

SWEPT PATH ANALYSIS OF A 99th PERCENTILE VEHICLE EXITING THE DRIVEWAY OPPOSITE SITE

SP 5



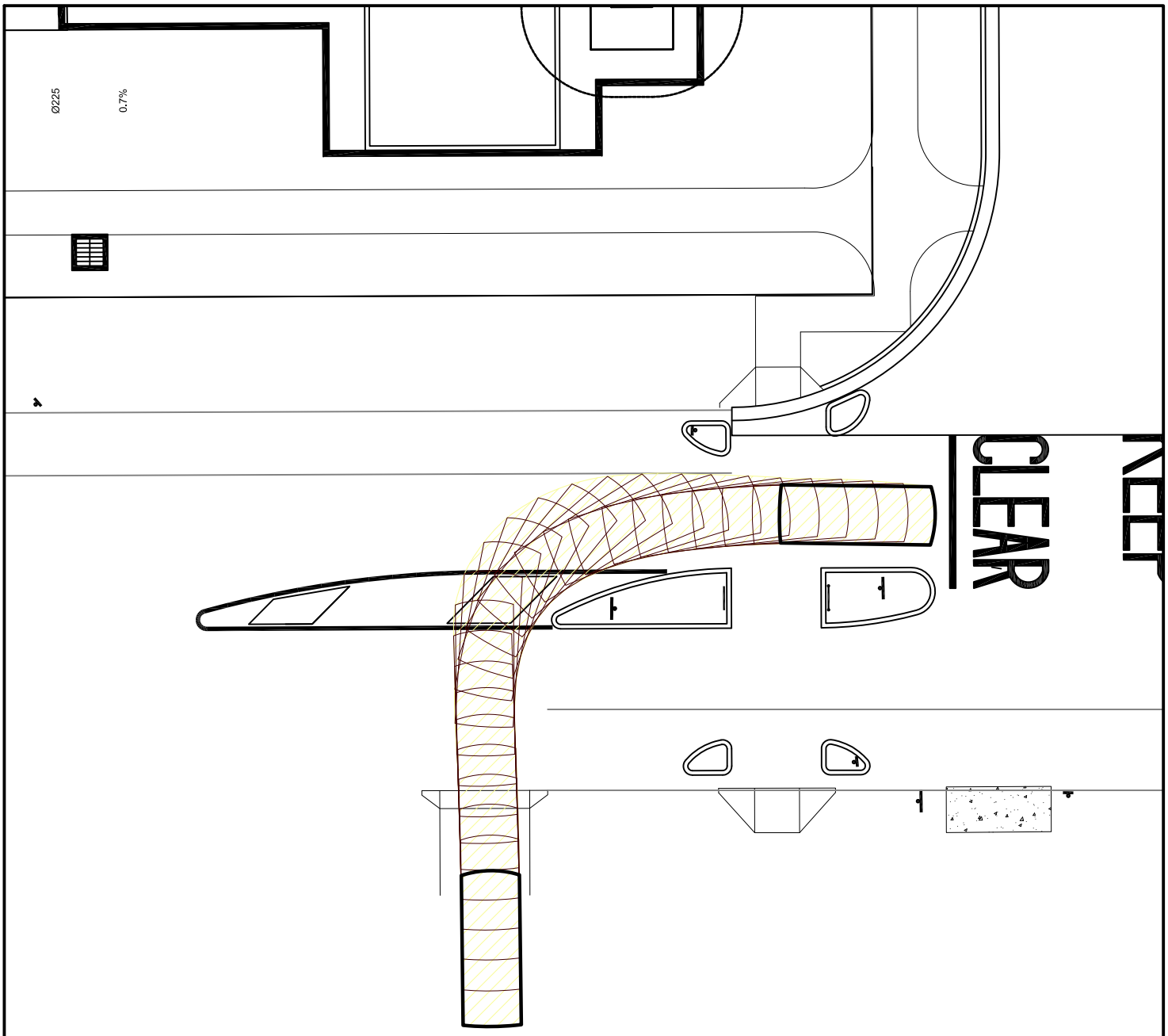
LEGEND

This drawing has been prepared using vehicle modelling computer software AutoTrack V5.00a in conjunction with AutoCAD 2013. The vehicle used is based upon vehicle data provided by Austroads and incorporates a reasonable degree of tolerance. However, it is not possible to account for all vehicle types/characteristics and/or driver ability.

N

SWEPT PATH ANALYSIS OF A 99th PERCENTILE VEHICLE ENTERING THE DRIVEWAY OPPOSITE SITE

SP 6



LEGEND

This drawing has been prepared using vehicle modelling computer software AutoTrack V5.00a in conjunction with AutoCAD 2013. The vehicle used is based upon vehicle data provided by Austroads and incorporates a reasonable degree of tolerance. However, it is not possible to account for all vehicle types/characteristics and/or driver ability.

N

SWEPT PATH ANALYSIS OF A 99th PERCENTILE VEHICLE EXITING THE DRIVEWAY OPPOSITE SITE

SP 7