

Woolstores Place, Mount Elphinstone, Albany

Engineering Servicing Report

Civil, Electrical and Communication Services



4 April 2023

Ref: 301251018

PREPARED FOR:

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Row Group

PREPARED BY:

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Revision Schedule

Revision No.	Date	Description	Prepared by	Project Manager Final Approval
0	15/11/2022	Preliminary – issued for comment	Fred Wallefeld / Rocco Pienaar	Travis Demeza
1	31/03/2023	Original Issue	Travis Demeza	Travis Demeza
2	04/04/2023		Travis Demeza	Travis Demeza

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1. Executive Summary

This servicing report has been prepared by Stantec Australia Pty Ltd and aims to support the preparation of structure plans for the proposed subdivision of various lots at Woolstores Place, Albany within the City of Albany.

Key findings of this report are as follows:

- The site contains several existing stormwater drainage features and discharge points to Princess Royal Harbour from existing upstream catchments
- Conceptual stormwater drainage designs are provided taking into consideration upstream catchments and based upon conveying the 20% AEP storm event within piped networks and flood routing the 1% AEP storm event via road reserves
- Conceptual stormwater drainage designs are inclusive of treatment of stormwater flows from impervious surfaces. Online bioretention cells within road reserves are anticipated for public road infrastructure. Future lots shall require to consider treatment of flows at source within future development layouts
- Attenuation of post-development stormwater flows is not recommended, due to close proximity of downstream receiving water body
- Groundwater levels inclusive of long-term seawater level rise have been considered whilst setting indicative conceptual road and lot levels
- The site contains no existing Water Corporation wastewater reticulation assets and as such a Type 10 Wastewater Pumping Station and 1.8km of off-site Wastewater Pressure Main will be required to service the development, discharging to existing Water Corporation assets within Newton Street
- The site contains existing Water Corporation water distribution and water reticulation assets, that will require consideration for protection during future detailed engineering designs
- Water Corporation have confirmed that the existing water network has sufficient capacity to service the development
- Western Power mapping tools suggest sufficient capacity within the existing network to service the development
- Existing Communications assets are located near the site, providing available connectivity
- There is no existing ATCO gas reticulation network adjacent to the site

The following Engineering related items will be required to support future subdivision application and subsequent clearance of title:

- CWFA with Water Corporation for off-site wastewater discharge
- Detailed Hydrologist analysis of upstream stormwater drainage catchment areas as part of detailed engineering designs
- Confirmation of existing stormwater drainage discharge locations to Princess Royal Harbour by further feature survey
- Confirmation of stormwater strategy with the City of Albany as part of detailed engineering designs inclusive of roadway levels, lot levels and stormwater drainage
- Application to Western Power to confirm detailed engineering requirements
- Application to NBN to confirm detailed engineering requirements
- Application to ATCO Gas for reticulated gas, if so required by the Developer



2. Introduction

Stantec Australia Pty Ltd has been engaged by Rowe Group to prepare this report in support of structure plans for the proposed subdivision of various lots at Woolstores Place, Albany within the City of Albany.

This report discusses the following engineering and infrastructure items necessary to service the proposed development:

- Stormwater Management
- Wastewater Reticulation
- Water Reticulation
- Gas Reticulation
- Power Reticulation
- Communications

Servicing investigations have been undertaken by Stantec to establish the availability of existing infrastructure in the area and their capacity to service the proposed development.

No liaison with the relevant Authorities have taken place as part of this desktop study, unless noted otherwise in the report.

The contents of this report are based on the ROWE GROUP Development Concept Plan 9116-CON-02-A (refer Appendix A).

This report does not provide professional advice with respect to items such as Traffic, Transport, Coastal Engineering, Hydrological items such as groundwater rise and flood management, Aboriginal Heritage, Landscaping, Bushfire, Acoustics (noise) or detailed Geotechnical or Environmental issues. We recommend that you liaise with relevant specialist consultants in this regard.

In preparing this report we advise that we have collaborated with, and relied upon advice from, Hydrological and Coastal Engineering consultants to consider effect of long-term sea level rise, ground water interaction and existing upstream stormwater drainage catchments to assist with the development of wider local water management strategies.



3. Existing Site Conditions

3.1 General

The Site comprises various existing lots and totals approximately 16.5Ha.

The Site is located approximately 2.0km west of the Albany CBD on the northwest shore of Princess Royal Harbour.

The Site is generally bounded by Frenchman Bay Road (and the proposed Albany Ring Road interchanges) to the northwest, by existing residential lots to the west, by the existing Rail Line to the northeast and Princess Royal Harbour and associated foreshore to the south.

Existing land uses vary across the different lots, from industrial to vacant, reserve, semi-rural and residential.

3.2 Topography & Vegetation

The site generally grades in a southerly direction, from a high point of RL 7m AHD in the northern corner of Lot 1157, to a low point of approximately RL 1m AHD along the southern boundary to Princess Royal Harbour. However, levels across the site have been altered, with road reserves and several lots locally filled to approximately RL 3m AHD to accommodate their existing developments.

There are several existing drainage lines though out the site, including an open drain running alongside Woolstores Place which drains in a westerly direction. This drain is currently a Water Corporation managed asset. There are several, potentially seasonal, existing water bodies within the Site.

The Site consists of a mix of developed lots and larger undeveloped lots with grasses/sedges and scattered taller vegetation.

Refer to Appendix B for site survey plan depicting vegetation and contours. Please note that at the time of writing both demolition and construction works were in progress on, and adjacent to, the site as part of the Albany Ring Road project.

For more information regarding the vegetation and hydrology of the site, please refer to investigations and reports by others.

3.3 Geotechnical

Refer to investigations by others.

3.4 Groundwater

Refer to investigations by others.

3.5 Acid Sulphate Soils (ASS)

The site is located in an area of High to Moderate ASS Risk as mapped by the Department of Agriculture, Water and the Environment.

As such it is anticipated that ASS will require management in the process of developing this site.

Refer to Appendix H.



4. Servicing

4.1 Stormwater and Flood Management

A desktop review of the area has identified several existing stormwater drainage features within the proposed development area. These features are evident from both the City of Albany's Stormwater Mapping Database (attached as Appendix C), the Water Corporation's 'Esinet' Asset Register and from the site Feature Survey (attached as Appendix B). It is noted that the surveyor was not able to access and survey the existing open drain along Woolstores Place.

There is an existing stormwater discharge point to Princess Royal Harbour located in the southwestern corner of the site between adjacent existing Lots 55 and 54. Additional discharge points may exist within the site and it is recommended that these are confirmed by survey and inspection prior to detailed engineering designs.

Based on the available stormwater network information, it is assumed that stormwater from catchments to the north-west, north and north-east flow through the site and discharges to Princess Royal Harbour. The location and magnitude of these flows (within open drains, pipes or as overland flow) requires further investigation. Appropriate allowance will need to be made for the safe conveyance of both minor and major event stormwater flows from upstream catchments through the site to Princess Royal Harbour. This will require detailed analysis of both the development site as well as the upstream catchments. Minor (up to the 20% AEP*) event flows should be conveyed within an inground piped stormwater drainage system. Major (up to the 1% AEP) event flows shall be conveyed to Princess Royal Harbour via the road network and POS areas with appropriate flow depths, velocities and freeboard to proposed lot levels and building floor levels (*Desired capacity of the inground pipe drainage conveying upstream flows through the site to be confirmed with Client through design process. A capacity greater than 20%AEP may be desirable).

A portion of the existing open channel drain within Woolstores Place is currently a Water Corporation asset. Initial advice from the Water Corporation is that the portion of this open drain within Woolstores Place can be closed, replaced with a pipe system and transferred to the control of the City of Albany. Refer to advice attached in Appendix I.

Stormwater Runoff generated within the site will need to be collected, controlled, treated and discharged (or infiltrated) to the satisfaction of the City of Albany and Department of Water.

The collection and control of stormwater runoff for the 'minor' event is envisaged to be via the provision of a local authority managed stormwater drainage pipe network located within the road reserve, and with the provision of piped stormwater connections to proposed lots. This pipe system shall conform to the requirements of the City of Albany.

The treatment of stormwater runoff should include the removal of pollutants, and this is proposed to be via biofiltration and the use of gross pollutant traps. Given the physical constraints of the site (grade and level of receiving waters) it is recommended that runoff be treated via small, distributed biofiltration structures (swales and basins) prior to discharge into the pipe system, rather than collection via the pipe system and treatment in a centralised 'end of line' structure (basin) prior to discharge to Princess Royal Harbour. This approach can be further discussed with the Client and confirmed during the design process. Biofiltration structures, with a base area equivalent to 2% of the impervious areas they are treating, shall be provided to treat both public (road) and private (lot) catchment runoff. These structures are envisaged to be in the form of a combination of central median biofiltration swales and small 'pocket' roadside biofiltration basins for public road reserves, with future development of lots requiring to treat impervious areas within their development layout in accordance with industry best practices.

Attenuation of stormwater runoff (to avoid discharge rates exceeding the flow capacity of downstream stormwater infrastructure) is not considered necessary given the site's proximity to, or direct discharge to, the large capacity receiving water body (Princess Royal Harbour). This approach shall be confirmed with the City of Albany prior to detailed design.

Note: the site is impacted by the construction of stormwater drainage infrastructure associated with the Albany Ring Road project. The sites' detailed stormwater design shall integrate with the ARR design to ensure a coordinated design outcome.

Indicative groundwater modelling, inclusive of long-term seawater level rise, has been reviewed and incorporated as part of initial stormwater and roadway concepts. Imported fill will be required as part of the subdivisional design to ensure minimum offsets to worst-case, long-term groundwater levels to underside of future building footprints and roadways.



Refer Appendix C for existing stormwater drainage infrastructure. Refer to Appendix D for Stormwater Design and Flood Routing Concepts and indicative road and lots levels to suit groundwater modelling. Refer to Appendix J for ARR Stormwater Designs.

4.2 Wastewater Reticulation

There are no existing Water Corporation (WC) wastewater reticulation assets within or surrounding the site.

The WC's long-term planning for the proposed development is to discharge to the existing WC network within Newton Street, approximately 1.8 kilometres to the north-west, via a Type 10 wastewater pumping station (WWPS) located within the development and a DN100 pressure main. Internal sewers will be a combination of DN225 and DN150.

The WWPS should be located within a proposed Public Open Space, with minimum distance from buildings to centre of WWPS pumping well of 30m, as per standard WC requirements outlined in Design Standard 51 (DS51).

This proposed pressure main route may be subject to clearing permit requirements and other environmental constraints.

The WWPS and associated pressure main may be subject to a Customer Funded Works Agreement and reimbursed by the WC. This will need to be confirmed during subsequent phases of the development.

As part of preparing this servicing report we have liaised with the Water Corporation to confirm the site's Wastewater Reticulation requirements. Water Corporation have confirmed that the aforementioned future infrastructure will be required to service the proposed structure plan area based upon indicative development flows.

Refer to Appendix E for Water Corporation wastewater planning information. Refer to Appendix F for Schematic sewer concept design.

4.3 Water Reticulation

The following existing Water Corporation (WC) water distribution and water reticulation assets exist within the site and surrounding the site:

- a DN150 AC main located within Princess Royal Drive and Lower Denmark Road to the north-east of the development
- a DN58 AC main located within Frenchman Bay Road and Ware Road to the north of the development
- a DN200 AC main, DN300 steel main and DN525 steel main located within Woolstores Place within the development (existing Woolstores Place road reserve). NOTE: both the DN300 and DN525 steel mains are distribution mains and critical assets for the WC and require measured consideration with respect to development offsets as per the WC's technical guideline for safely working near Water Corporation assets document. As a minimum a building footprint will not need WC specific prior approval if it is located 10m from the existing assets. Ground disturbance activities will require WC specific prior approval if within 6m from their existing assets. These assets will require consideration during future detailed engineering designs.

Water Corporation have not advised of specific water servicing requirements as part of this servicing report however we understand that the existing water network has sufficient capacity to service the proposed development.

This will need to be confirmed with the Water Corporation during detailed design or via a formal planning request.

Refer to Appendix G, for existing water reticulation assets.

4.4 Gas Reticulation

ATCO Gas (ATCO) does not operate a reticulated gas network adjacent the Site and as such, no gas is currently available for the proposed development. The nearest existing ATCO gas network is located approximately 800m to the east, within Festing Street, or approximately 1000m to the east, within Grey Street West.



If the Developer wishes to connect the proposed development to reticulated gas at the time of subdivision, then an application for off-site gas headworks can be made to ATCO Gas. The Developer will be responsible for all construction costs of all off-site headworks.

4.5 Underground Power

4.5.1 Existing Infrastructure

An analysis of Western Powers (WP) DFIS system has been conducted to determine the existing power supply configuration surrounding the development. The existing Western Power network surrounding the site consists of the following:

- HV overhead line on the North Eastern side of proposed Lot 1157. This HV line is located within the future road reserve and is likely to be abandoned after completion of the proposed subdivision
- HV overhead line originating from the Northern side of Princess Royal Drive and continuing in a Westerly direction along Woolstores Place into Frenchman Bay Road. It is likely that Western Power will require that this overhead line be replaced with underground HV cabling

4.5.2 Infrastructure Capacity / Proposed Upgrades

Based on the proposed development (Lots 4 - 7) and the indicated lot yield, it is likely that the site power demand will be in the vicinity of 1 MVA. This is based on the standard Western Power load allocation of 3.1kva per unit for residential units.

The Western Power Network Capacity Mapping Tool indicates that the forecasted remaining capacity for this area for 2023 is in the order of 5-10MVA (as at 8/11/2022). This figure indicates that capacity is available at the zone substation.

In order to service the proposed subdivision, it is likely that a new switchgear site will be established on one of the lots, probably the North Western corner of Lot 7. The switchgear site will obtain power from the newly undergrounded hv line in Woolstores Place and will provide an hv supply to two transformers, 1 each on Lots 7 & 6. These transformers will provide low voltage connections to Lots 4 - 7.

It should be noted that due to the dynamic nature of Western Power's network, infrastructure requirements and connection points referred above may differ when applications are placed in the future. It is recommended that a planning study be undertaken closer to the date of proposed load uptake to determine if the above information is still valid.

4.6 Telecommunications

The proposed development will require a fibre ready pit and conduit network to be installed at the developer's cost.

The pit and conduit will be designed in accordance with NBN standards and will be installed in the telecommunications alignment within the internal road reserves. Once installed and inspected, ownership of the pit and conduit network will be transferred to NBN.

An analysis of NBN's DBYD has been conducted to determine the location of the existing NBN network that would supply the proposed pit and conduit network. The nearest existing NBN network is located within the road reserve in Frenchman's Bay Road. Based on the proposed development, it is likely that the connection will initially originate from existing pits along Frenchman's Bay Road. Minor works (relocations) may be required in this vicinity to accommodate the new connection to the subdivision.

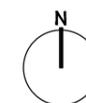
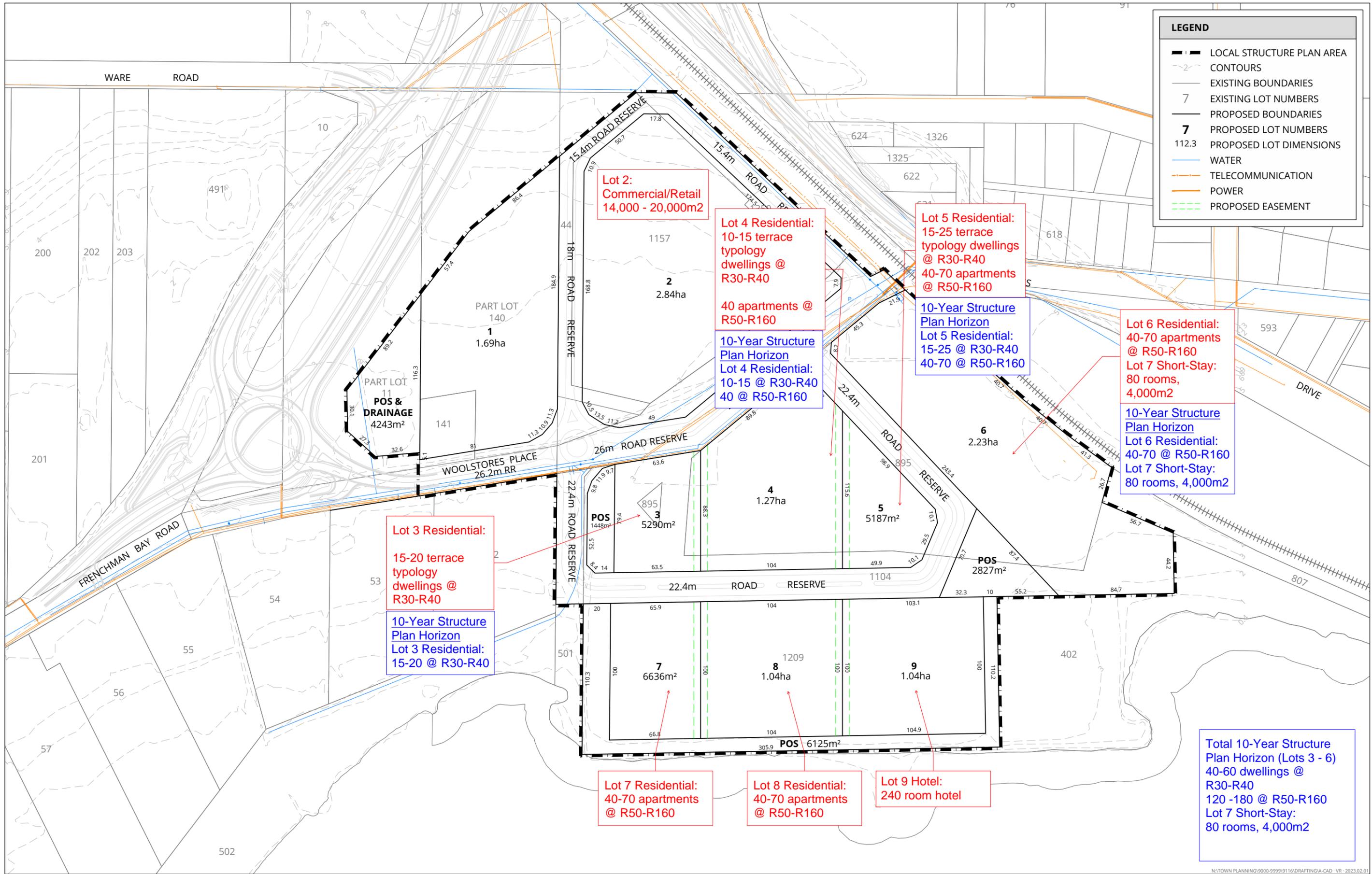
It should be noted that due to the dynamic nature of NBN's network, infrastructure requirements and connection points referred above may differ when applications are placed in the future.

In addition to the new pit and conduit network, the developer will be required to remove all existing telecommunications infrastructure that may be located within the proposed new lots.



Appendix A – Indicative Concept Plan & Density





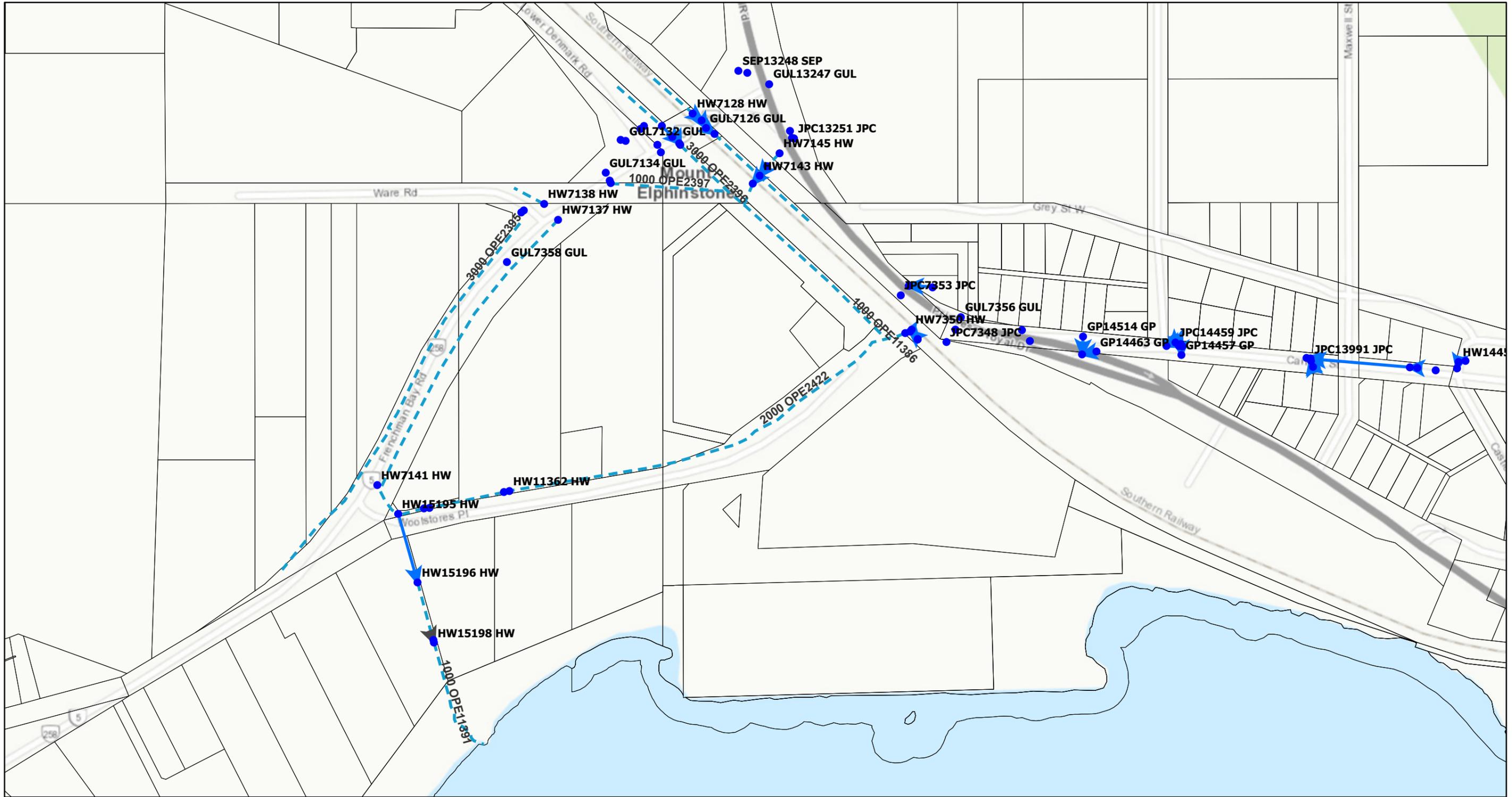
Appendix B – Site Survey Plan



Appendix C – Woolstores Existing Stormwater

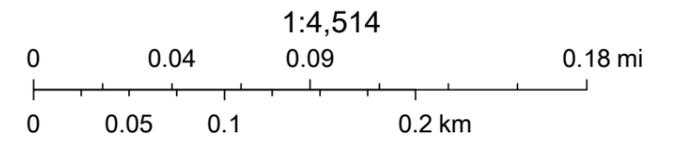


City of Albany Stormwater Network



11/8/2022, 11:31:21 AM

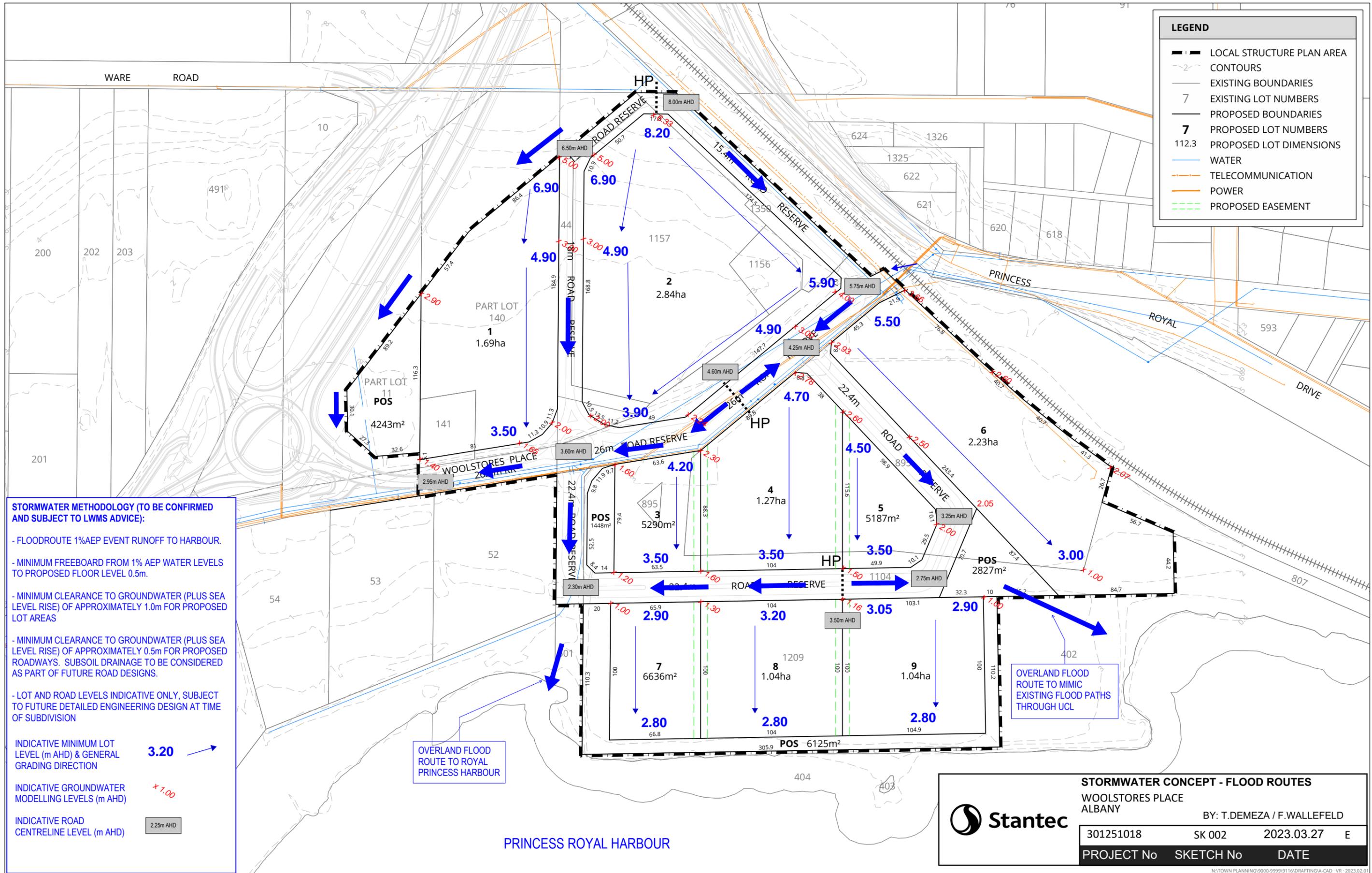
- DRAINAGE PITS
- ➔ CROSSOVER - Property entrances
- — — DRAINAGE PIPES
- ➔ LONGITUDINAL - Longitudinal
- — — OPEN DRAIN - Constructed Open Drain
- ➔ CULVERT - Box culvert
- Cadastre (LGATE-001)



Esri, HERE, Garmin, USGS

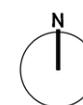
Appendix D – Concept Stormwater Pipe System SK001E & Concept 1% AEP Routing Stormwaer SK002E





DEVELOPMENT CONCEPT
 VARIOUS LOTS, WOOLSTORES PLACE
 MOUNT ELPHINSTONE, ALBANY

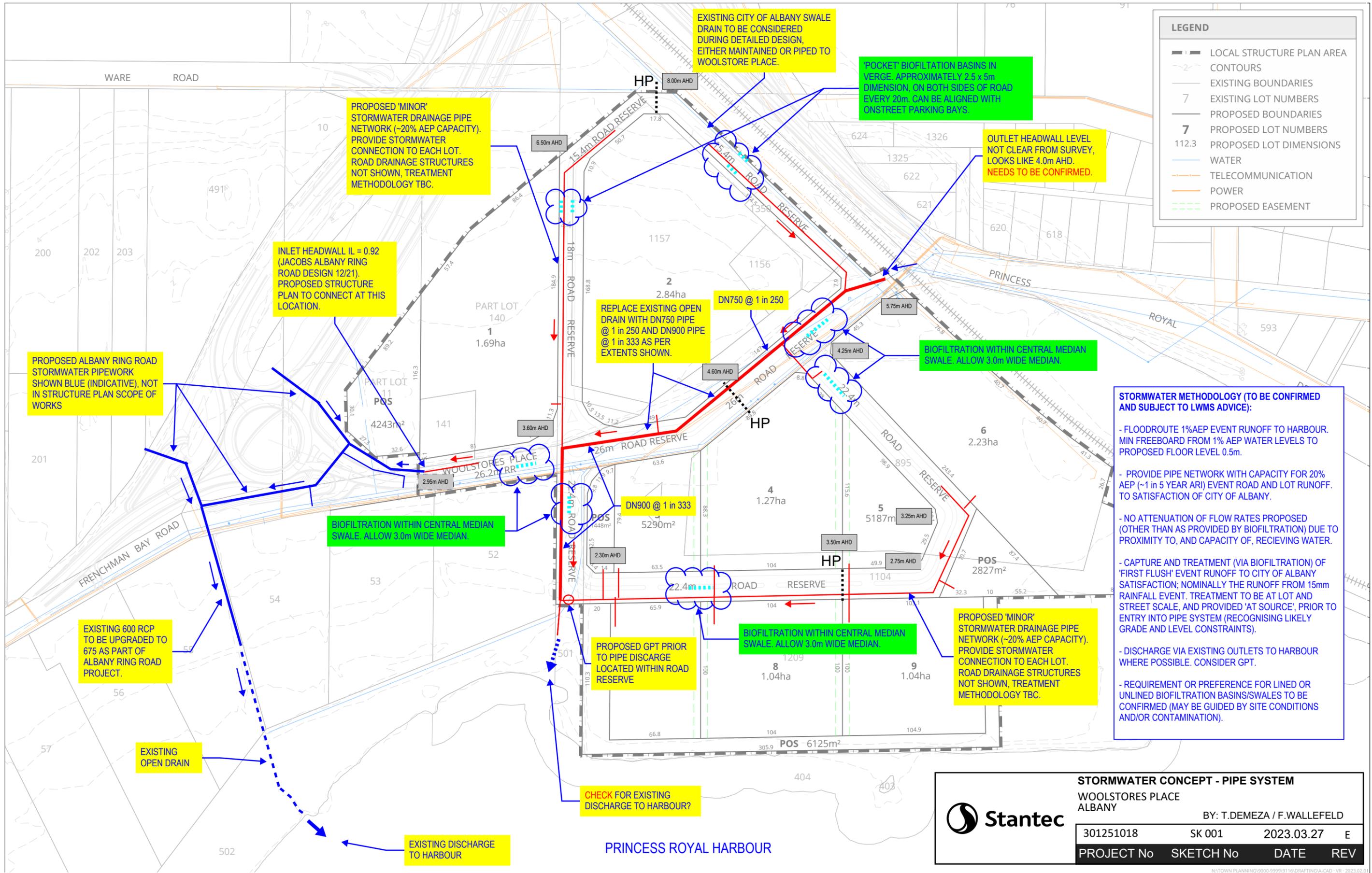
DRAFT



0 62.5 m
 SCALE @ A3: 1:2500
9116-CON-02-A

DRAWN: VR
 DATE CREATED: 2023.02.01
 PROJECTION: MGA50 GD94
 CADASTRE: LANDGATE
 SURVEY: HARLEY DYKSTRA 23304-01A
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DEVELOPMENT CONCEPT
 VARIOUS LOTS, WOOLSTORES PLACE
 MOUNT ELPHINSTONE, ALBANY

DRAFT



DRAWN: VR
 DATE CREATED: 2023.02.01
 PROJECTION: MGA50 GD94
 CADASTRE: LANDGATE
 SURVEY: HARLEY DYKSTRA 23304-01A
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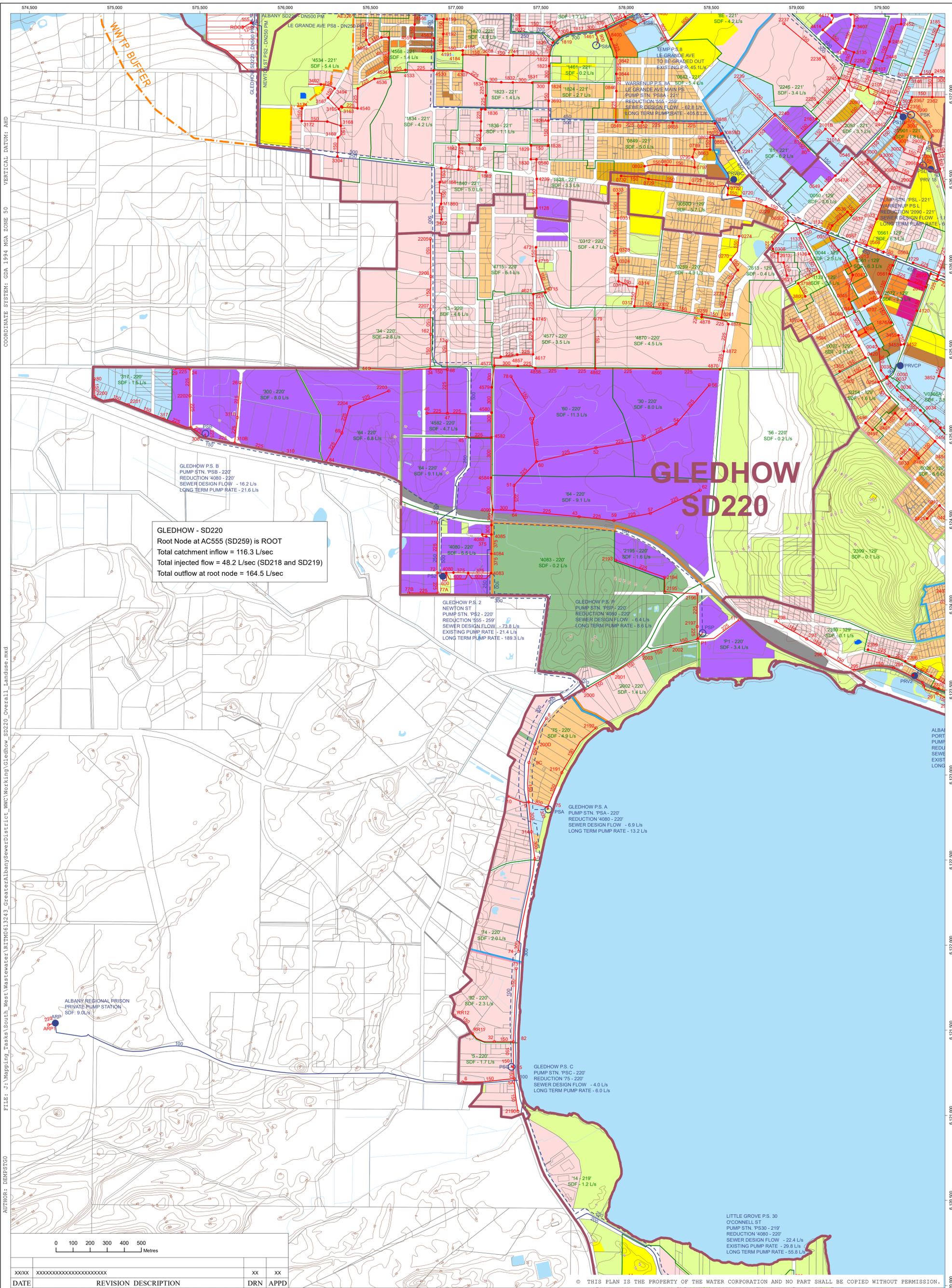
STORMWATER METHODOLOGY (TO BE CONFIRMED AND SUBJECT TO LWMS ADVICE):

- FLOODROUTE 1%AEP EVENT RUNOFF TO HARBOUR. MIN FREEBOARD FROM 1% AEP WATER LEVELS TO PROPOSED FLOOR LEVEL 0.5m.
- PROVIDE PIPE NETWORK WITH CAPACITY FOR 20% AEP (~1 in 5 YEAR ARI) EVENT ROAD AND LOT RUNOFF. TO SATISFACTION OF CITY OF ALBANY.
- NO ATTENUATION OF FLOW RATES PROPOSED (OTHER THAN AS PROVIDED BY BIOFILTRATION) DUE TO PROXIMITY TO, AND CAPACITY OF, RECEIVING WATER.
- CAPTURE AND TREATMENT (VIA BIOFILTRATION) OF 'FIRST FLUSH' EVENT RUNOFF TO CITY OF ALBANY SATISFACTION; NOMINALLY THE RUNOFF FROM 15mm RAINFALL EVENT. TREATMENT TO BE AT LOT AND STREET SCALE, AND PROVIDED 'AT SOURCE', PRIOR TO ENTRY INTO PIPE SYSTEM (RECOGNISING LIKELY GRADE AND LEVEL CONSTRAINTS).
- DISCHARGE VIA EXISTING OUTLETS TO HARBOUR WHERE POSSIBLE. CONSIDER GPT.
- REQUIREMENT OR PREFERENCE FOR LINED OR UNLINED BIOFILTRATION BASINS/SWALES TO BE CONFIRMED (MAY BE GUIDED BY SITE CONDITIONS AND/OR CONTAMINATION).

STORMWATER CONCEPT - PIPE SYSTEM			
WOOLSTORES PLACE ALBANY			
		BY: T.DEMEZA / F.WALLEFELD	
301251018	SK 001	2023.03.27	E
PROJECT No	SKETCH No	DATE	REV

Appendix E – Gledhow SD220 Planning Overall District Plan with Landuse





GLEDHOW - SD220
 Root Node at AC555 (SD259) is ROOT
 Total catchment inflow = 116.3 L/sec
 Total injected flow = 48.2 L/sec (SD218 and SD219)
 Total outflow at root node = 164.5 L/sec

GLEDHOW P.S. B
 PUMP STN. 'PSB - 220'
 REDUCTION '4080 - 220'
 SEWER DESIGN FLOW - 16.2 L/s
 LONG TERM PUMP RATE - 21.6 L/s

GLEDHOW P.S. 2
 NEWTON ST. 2
 PUMP STN. 'PS2 - 220'
 REDUCTION '555 - 259'
 SEWER DESIGN FLOW - 73.8 L/s
 EXISTING PUMP RATE - 71.4 L/s
 LONG TERM PUMP RATE - 189.3 L/s

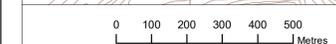
GLEDHOW P.S. P
 PUMP STN. 'PSP - 220'
 REDUCTION '4080 - 220'
 SEWER DESIGN FLOW - 6.4 L/s
 LONG TERM PUMP RATE - 8.6 L/s

GLEDHOW P.S. A
 PUMP STN. 'PSA - 220'
 REDUCTION '4080 - 220'
 SEWER DESIGN FLOW - 6.9 L/s
 LONG TERM PUMP RATE - 13.2 L/s

GLEDHOW P.S. C
 PUMP STN. 'PSC - 220'
 REDUCTION '75 - 220'
 SEWER DESIGN FLOW - 4.0 L/s
 LONG TERM PUMP RATE - 6.0 L/s

LITTLE GROVE P.S. 30
 O'CONNELL ST
 PUMP STN. 'PS30 - 219'
 REDUCTION '4080 - 220'
 SEWER DESIGN FLOW - 22.4 L/s
 EXISTING PUMP RATE - 29.8 L/s
 LONG TERM PUMP RATE - 55.8 L/s

FILE: J:\Mapping_Tasks\South_West_Wastewater\BIM\0613243_GreaterAlbanySewerDistrict_WWC\Working\Gledhow_SD220_Overall1_Landuse.mxd



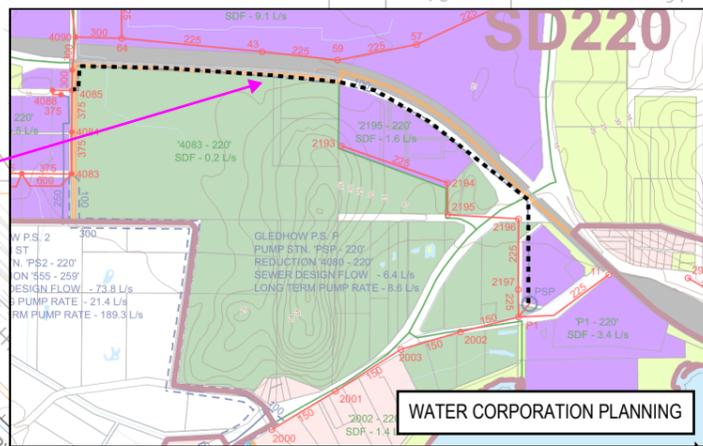
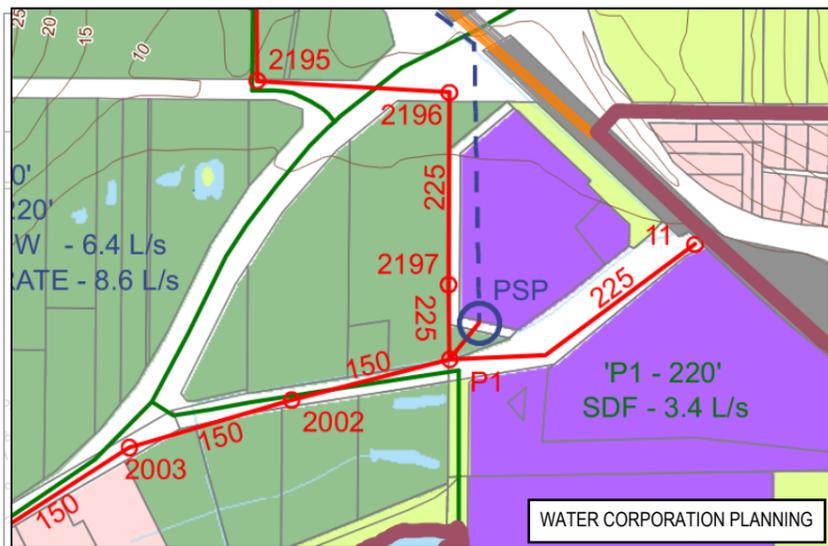
DATE	REVISION DESCRIPTION	DRN	APPD
xxxx	xxxxxxxxxxxxxxxxxxxxxxxx	xx	xx

THE INFORMATION ON THIS PLAN IS BASED ON THE BEST DATA AVAILABLE AT DATE OF PRINTING AND IS SUBJECT TO ONGOING REVIEW AND AMENDMENT. NO RESPONSIBILITY IS ACCEPTED BY THE WATER CORPORATION FOR ACCURACY OF DATA SUPPLIED BY EXTERNAL AGENCIES.

LEGEND <ul style="list-style-type: none"> Existing Access Chamber Proposed Access Chamber Existing Vacuum Chamber Proposed Vacuum Chamber Existing Pump Station Proposed Pump Station Existing Gravity Sewer 		NOTATION <ul style="list-style-type: none"> Proposed Gravity Sewer Existing Vacuum Sewer Proposed Vacuum Sewer Existing Pressure Main Proposed Pressure Main Node Catchment PS and Sewer Catchments 		SEWER DISTRICT NUMBER CATCHMENT NODE CATCHMENT '7001 - 121' R15 - 108.4 @75% (W) 'R' CODE ZONING GROSS AREA (ha) % OF LAND DEVELOPMENT (W) - WET CONDITIONS (D) - DRY CONDITIONS		SHEET INDEX 		<p>ISSUED WITH THE AUTHORITY OF THE MANAGER ASSET PLANNING GROUP 629 NEWCASTLE STREET, LEEDERVILLE 6007 WESTERN AUSTRALIA. TELEPHONE (08) 9420 2420, FAX (08) 9420 3179</p>		WASTEWATER SCHEME PLANNING SERIES GLEDHOW - SD220 CONCEPTUAL PLANNING LONG TERM SCHEME WITH LANDUSE		PLANNING BY APG PLANNERS		COMPILED BY W. CALLANAN		ACCEPTED BY C. DELPORT		SCALE 1:10,000		FULL REVIEW NOVEMBER 2021		NEXUS FOLDER 59247668		A1	
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Appendix F – Schematic Sewer Concept Woolstores Place SK003D





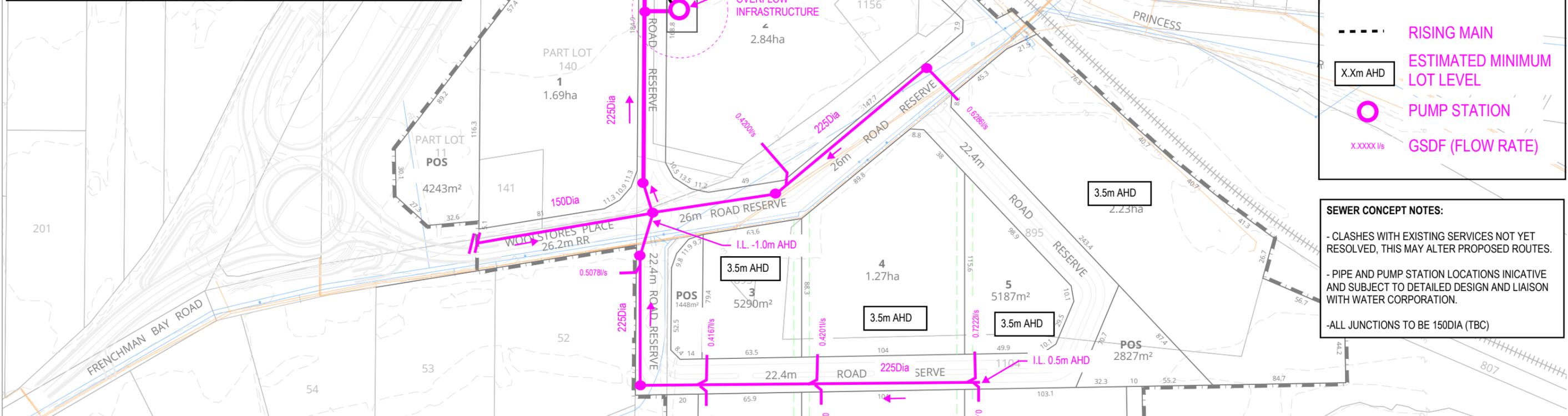
LEGEND

- LOCAL STRUCTURE PLAN AREA
- CONTOURS
- EXISTING BOUNDARIES
- EXISTING LOT NUMBERS
- PROPOSED BOUNDARIES
- PROPOSED LOT NUMBERS
- PROPOSED LOT DIMENSIONS
- WATER
- TELECOMMUNICATION
- POWER
- PROPOSED EASEMENT

— GRAVITY MAIN
- - - RISING MAIN
X.Xm AHD ESTIMATED MINIMUM LOT LEVEL
 PUMP STATION
X.XXXX l/s GSDP (FLOW RATE)

SEWER CONCEPT NOTES:

- CLASHES WITH EXISTING SERVICES NOT YET RESOLVED, THIS MAY ALTER PROPOSED ROUTES.
- PIPE AND PUMP STATION LOCATIONS INICATIVE AND SUBJECT TO DETAILED DESIGN AND LIAISON WITH WATER CORPORATION.
- ALL JUNCTIONS TO BE 150DIA (TBC)



Design Standard No. DS 50
Design and Construction Requirements for Gravity Sewers DN150 to DN600



TABLE 4.4
SEWER GRADES

PIPE DIA. Mm	MINIMUM GRADE	MAXIMUM GRADE	MAXIMUM DISTANCE BETWEEN ACCESS CHAMBERS/ MAINTENANCE SHAFTS	MAXIMUM ALLOWABLE FLOW WITHIN THE RANGE OF GRADES SHOWN BELOW		
				FROM	TO	L/s
150	1:200	1:5 (1)	100m	-	1:100	8
				1:101	1:200	6
				1:201	1:250 (2)	5
225	1:300	1:5 (1)	100m	-	1:200	27
				1:201	1:300	22
				1:301	1:350 (2)	20

SEWER CONCEPT
WOOLSTORES PLACE
ALBANY

BY: F. WALLEFELD

301251018	SK 003	2023.04.03	E
PROJECT No	SKETCH No	DATE	REV

DEVELOPMENT CONCEPT
VARIOUS LOTS, WOOLSTORES PLACE
MOUNT ELPHINSTONE, ALBANY

DRAFT



DRAWN: 2023.02.01
DATE CREATED: MGA50 GD A94
PROJECTION: LANDGATE
CADASTRE: HARLEY DYKSTRA
SURVEY: 23304-01A
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Appendix G – Woolstores Place Existig Waer Infrastructure



Appendix H – Woolstores Place ASS Map





REV	DESCRIPTION	DES/DRW	APP'D	DATE

CONSULTANT	CLIENT



PROJECT

TITLE

Acid Sulphate Overlay Plan

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Appendix I – Moreys Drain Advice



Wallefeld, Fred

From: Land Planning <LandPlanning@watercorporation.com.au>
Sent: Tuesday, 15 November 2022 9:08 AM
To: Wallefeld, Fred
Subject: RE: Water & Sewer services in Albany - Proposed redevelopment of Woolstores

Categories: Filed by Newforma

Good morning Fred,

Our drainage planners have advised that the piping and transfer of the Moreys Branch Drain to the City of Albany has been agreed in principle by the Corporation as part of the Albany Ring Road project. It makes logical sense to pipe and transfer this upstream section of open drain along Woolstores Place as you have proposed to tie all the change of ownership together with the ring road project.

The process of designing and constructing a suitable piped drain can be done through the Corporation's Development Services Networks Expansion Team either as part of the subdivision and development site works, or separately if required. The proponent/developer of this land will need liaise with the WC Great Southern Region Office and the City of Albany to co-ordinate the construction works and the transfer of the drains.

Regards

Brett Coombes
Senior Urban Planner
Development Services

From: Wallefeld, Fred <fred.wallefeld@stantec.com>
Sent: Monday, 14 November 2022 2:26 PM
To: Land Planning <LandPlanning@watercorporation.com.au>
Cc: Demeza, Travis <travis.demeza@stantec.com>; Li, Luxi <luxi.li@stantec.com>
Subject: RE: Water & Sewer services in Albany - Proposed redevelopment of Woolstores

Hi Brett

Can I please add an additional enquiry onto the sewer enquiry already in progress?

Part of the existing open drain along Woolstores Place is listed as a Water Corporation drain, see image below. It is also shown on the City of Albany's asset database (attached).

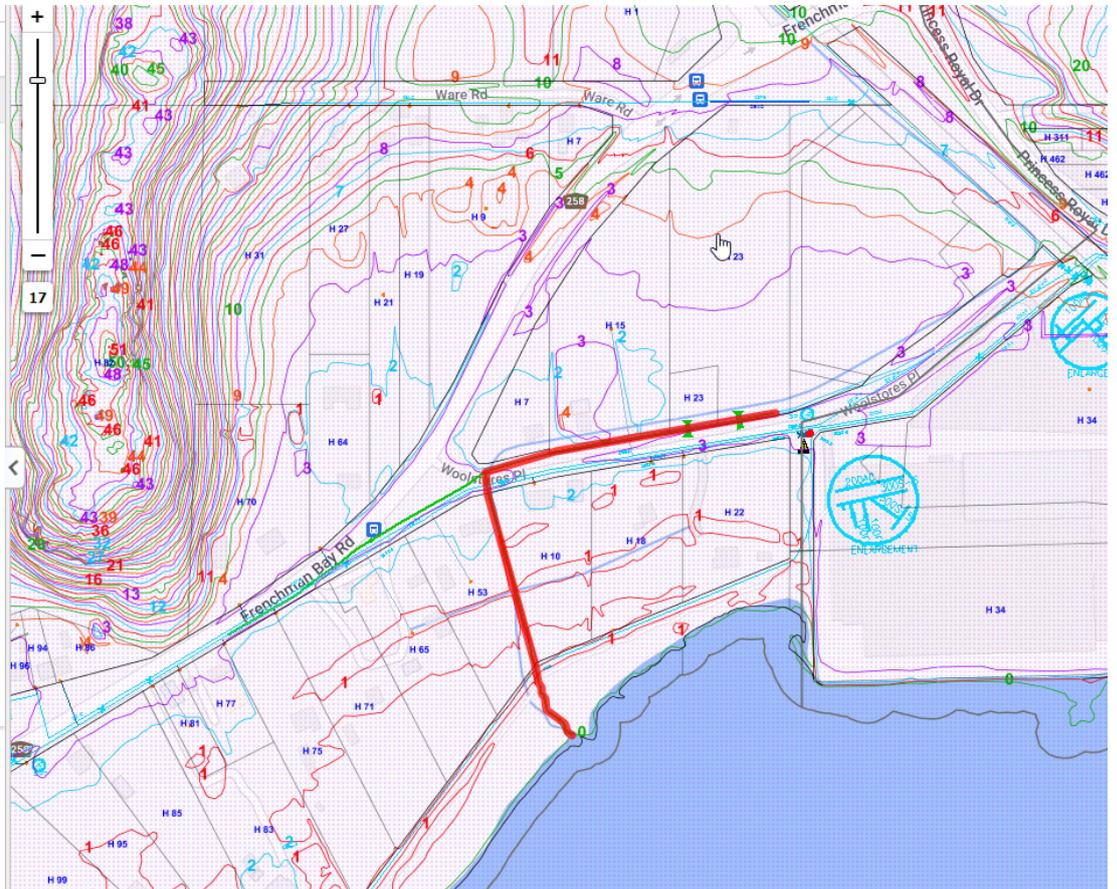
We are proposing to close this open channel drain and replace with an appropriate sized stormwater pipe system, within the road reserve (as per conventional Local Authority pipe systems). Can you advise if this will be an issue? Or if any particular conditions will apply to the closure, replacement or relocation of this asset?

Regards, Fred

Layers help

Drain Open Channel: 206426070

Drain No. 0
 reliability code U-unsurveyed (approx)
 Date Installed 1980-01-01
 status A-actual
 Channel Type E-normal open earth channel
 D/S Invert -99.9
 U/S Invert -99.9
 channel width 0.0
 side slope 0.0
 grade 0.0
 Length-calculated 486.8788
 Length-displayed 0.0
 owner W-water corporation
 maintenance W-water corporation
 Drain Type B-branch
 Name MOREYS DRAIN
 Sub-Section No. no value
 planset format not applicable
 book type not applicable
 Book No. no value
 Level Book No. no value
 Locality MOUNT ELPHINSTONE
 Local Authority ALBANY, CITY OF

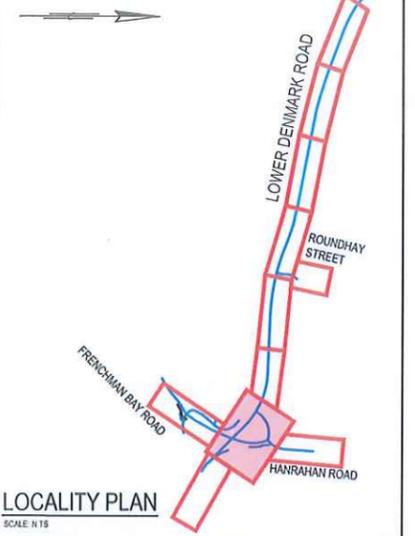
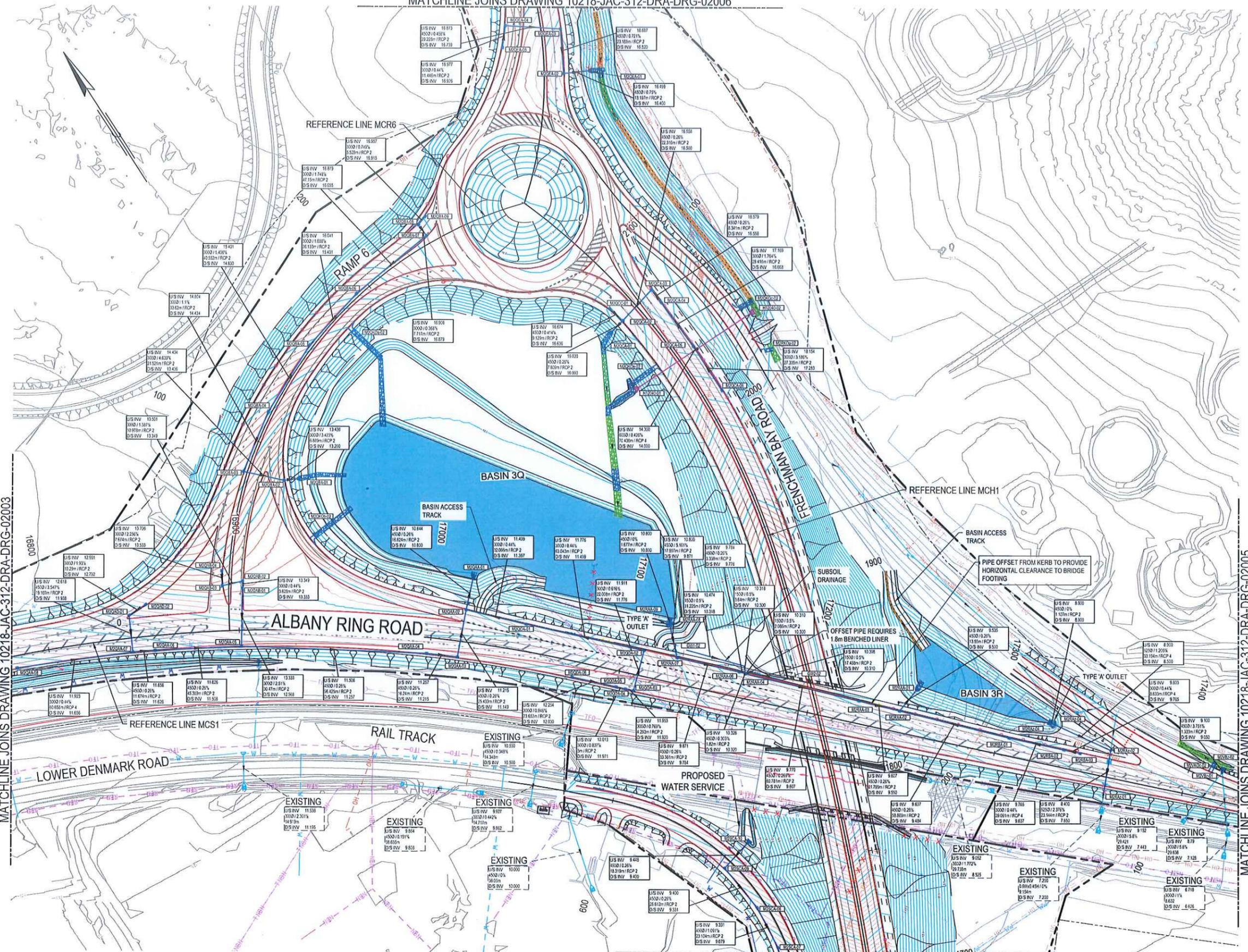


Fred Wallefeld
 Civil Project Engineer, Albany
 Direct: +61 8 6819 7214
 Mobile: +61 407 081 570
 fred.wallefeld@stantec.com
 Stantec Australia Pty Ltd

Appendix J – ARR Stormwater Designs



MATCHLINE JOINS DRAWING 10218-JAC-312-DRA-DRG-02006



- NOTES:**
- ALL ELEVATIONS ARE IN m AHD
 - ALL PIPE DIAMETERS ARE DIMENSIONED IN mm
 - REFER TO DRG. 10218-JAC-310-DRA-DRG-04001 TO 04006 FOR PIT AND CULTVERT SCHEDULE.
 - REFER TO DRG 10218-JAC-DRA-DRG-01002 FOR LIST OF MRWA DRAWINGS REQUIRED.
 - REFER TO DRAWINGS 10218-JAC-341-RD-DRG-02001 - 02006 AND 10218-JAC-342-RD-DRG-02001 - 02006 FOR KERB TYPE.
 - INVERT LEVELS MODELLED IN DRAINS / SWALES ARE FINAL SURFACE LEVELS INCLUSIVE OF TREATMENTS
 - REFER TO 10218-JAC-310-DRA-DRG-01002 FOR ADDITIONAL LEGEND ITEMS.

- LEGEND**
- SITE BOUNDARY
 - NEW KERB
 - NEW SEAL EDGE
 - NEW DRAINAGE PIPE
 - NEW TRANSVERSE CULTVERT
 - FLOW DIRECTION
 - NEW END TREATMENT
 - NEW MANHOLE
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 - NEW CATCHPIT / BUBBLE UP PIT (ROCK PITCHING AS SPECIFIED)
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 - EXISTING END TREATMENT
 - EXISTING PIPES/STRUCTURES TO BE REMOVED OR SLURRY FILLED
 - NEW CONTOURS MAJOR (0.5m)
 - NEW CONTOURS MINOR (0.1m)
 - EXISTING CONTOURS
 - DRAINAGE STRUCTURE NO.

DESIGN DRAINAGE PIPE INFORMATION	<table border="1"> <tr> <td>US INV</td> <td>3153</td> <td>UPSTREAM INVERT</td> <td></td> </tr> <tr> <td>DS INV</td> <td>3153</td> <td>DOWNSTREAM INVERT</td> <td></td> </tr> <tr> <td>PIPE DIA</td> <td>150</td> <td>PIPE DIA</td> <td></td> </tr> <tr> <td>LENGTH</td> <td>1.00</td> <td>LENGTH</td> <td></td> </tr> </table>	US INV	3153	UPSTREAM INVERT		DS INV	3153	DOWNSTREAM INVERT		PIPE DIA	150	PIPE DIA		LENGTH	1.00	LENGTH	
US INV	3153	UPSTREAM INVERT															
DS INV	3153	DOWNSTREAM INVERT															
PIPE DIA	150	PIPE DIA															
LENGTH	1.00	LENGTH															

MATCHLINE JOINS DRAWING 10218-JAC-312-DRA-DRG-02003

MATCHLINE JOINS DRAWING 10218-JAC-312-DRA-DRG-02005

MATCHLINE JOINS DRAWING 10218-JAC-312-DRA-DRG-02006

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DATE OF CAPTURE:	02-03/2018
MAPPING SURVEY STANDARD:	67-08-44
DATE OF CAPTURE:	04/2018
MAIN ROADS PROJECT ZONE:	ALB 94
HEIGHT DATUM:	AHD 71

AMENDMENTS	
No	DESCRIPTION

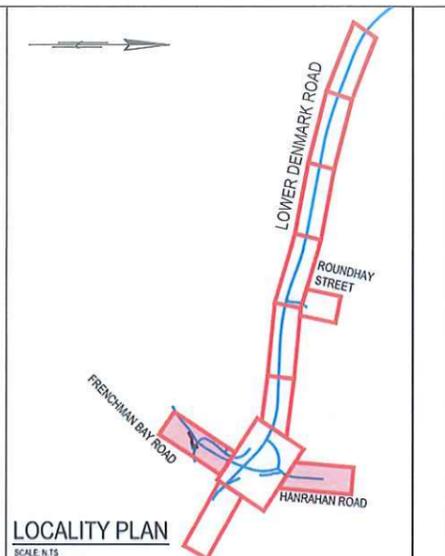
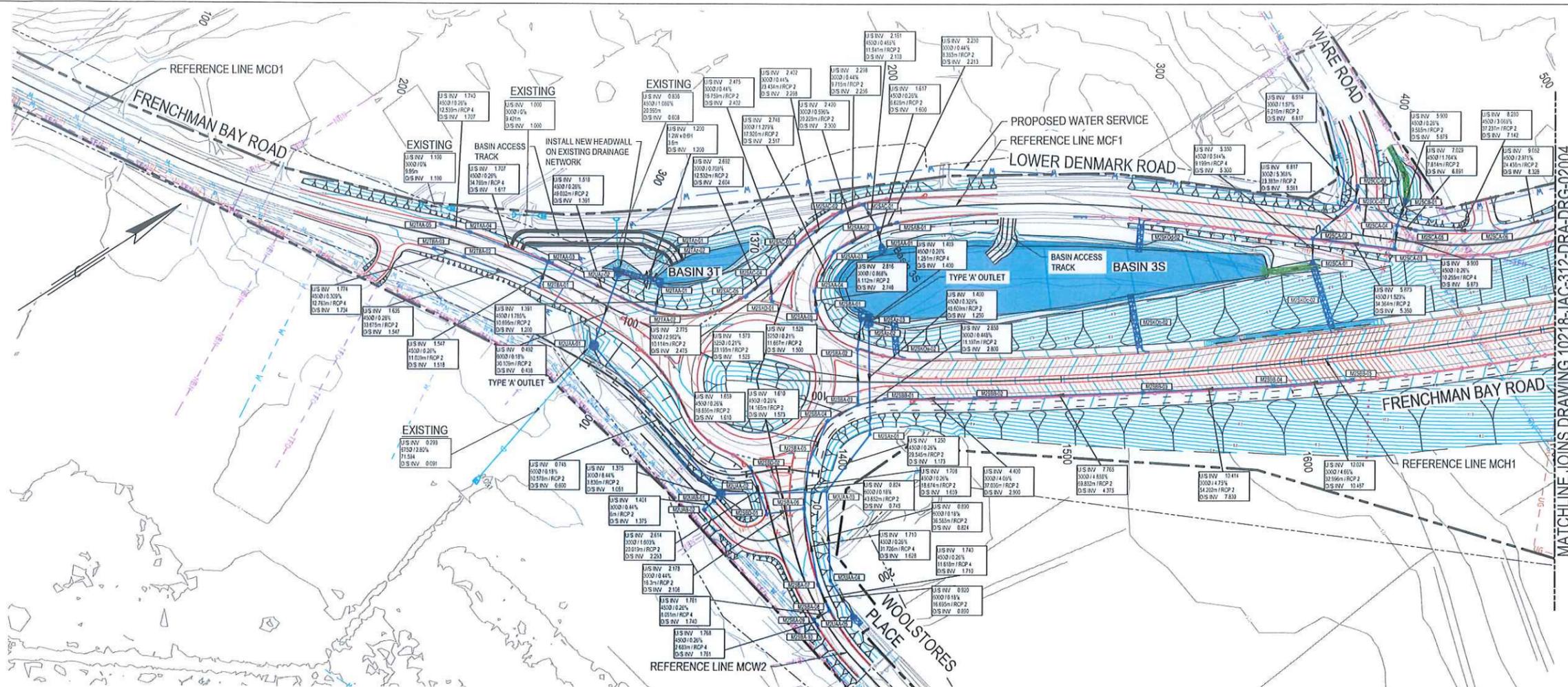
JACOBS
Challenging today.
Reinventing tomorrow.

DESIGNED BY	M. BURWOOD	12/21
CHECKED BY	D. MEYER	12/21
APPROVED BY	A. V.D. HEYDEN	06/12/21

DECMIL
INFRASTRUCTURE DELIVERY DIRECTORATE

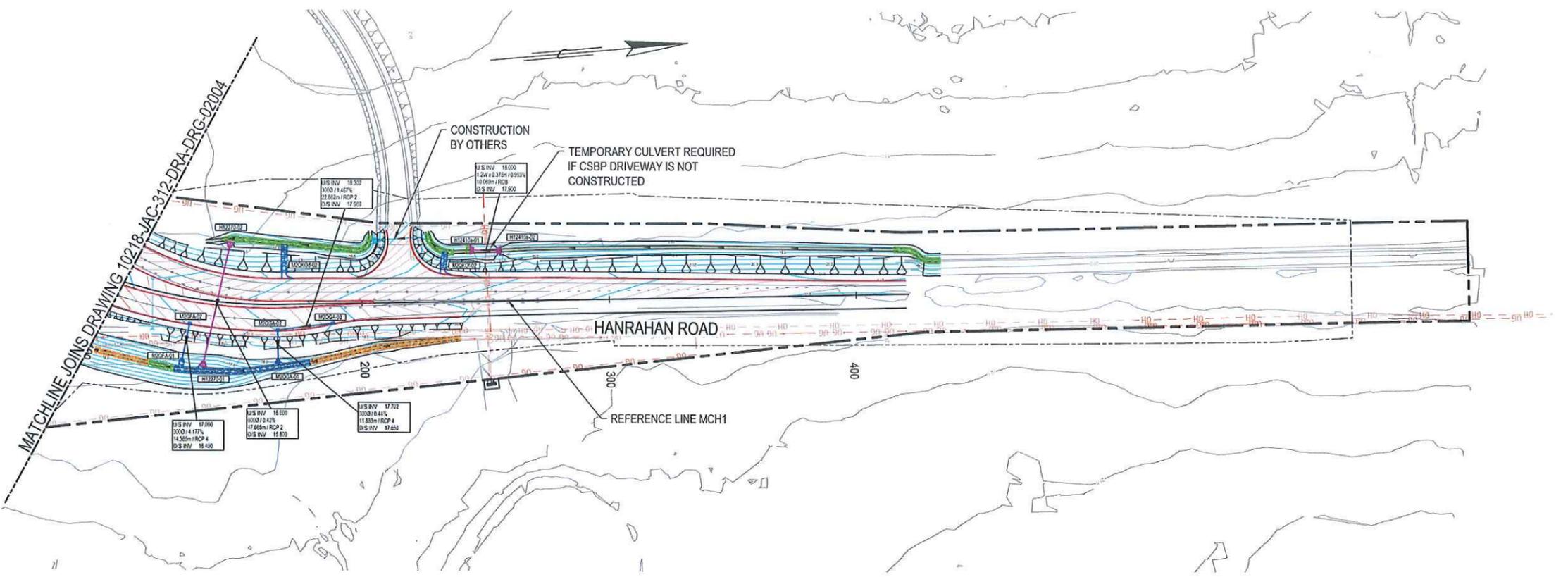
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PROJECT TITLE	ALBANY RING ROAD (H054)		
DRAWING TITLE	SP3-2 CHAINAGE 13500 TO CHAINAGE 17600 GENERAL ARRANGEMENT SHEET 4 OF 6		
DRAWING STATUS	100% DESIGN	DRAWING NO.	10218-JAC-312-DRA-DRG-02004

Plot Date: 22 Mar 2022, 2:19pm
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- NOTES:**
- ALL ELEVATIONS ARE IN m AHD
 - ALL PIPE DIAMETERS ARE DIMENSIONED IN mm
 - REFER TO DRG. 10218-JAC-310-DRA-DRG-04001 TO 04006 FOR PIT AND CULVERT SCHEDULE.
 - REFER TO DRG. 10218-JAC-DRA-DRG-01002 FOR LIST OF MRWA DRAWINGS REQUIRED.
 - REFER TO DRAWINGS 10218-JAC-341-RD-DRG-02001 - 02006 AND 10218-JAC-342-RD-DRG-02001 - 02006 FOR KERB TYPE.
 - INVERT LEVELS MODELLED IN DRAINS / SWALES ARE FINAL SURFACE LEVELS INCLUSIVE OF TREATMENTS
 - REFER TO 10218-JAC-310-DRA-DRG-01002 FOR ADDITIONAL LEGEND ITEMS.

- LEGEND**
- SITE BOUNDARY
 - NEW KERB
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 - DRAINAGE STRUCTURE NO.
- DESIGN DRAINAGE PIPE INFORMATION**
- | | | |
|---|--|----------------------------------|
| US INV 31.553
3000/10.44%
41.05m RCP 2
DS INV 31.373 | UPSTREAM INVERT
DOWNSTREAM INVERT
LENGTH / TYPE
CONCRETE INVERT | DESIGN DRAINAGE PIPE INFORMATION |
|---|--|----------------------------------|



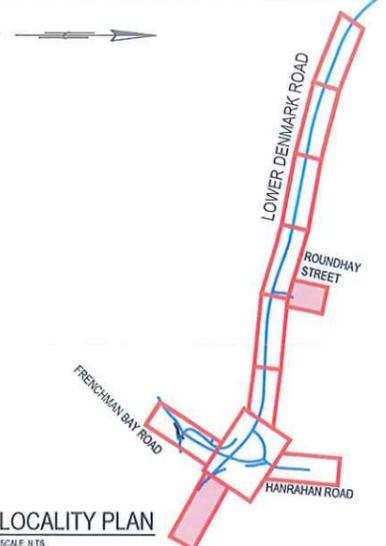
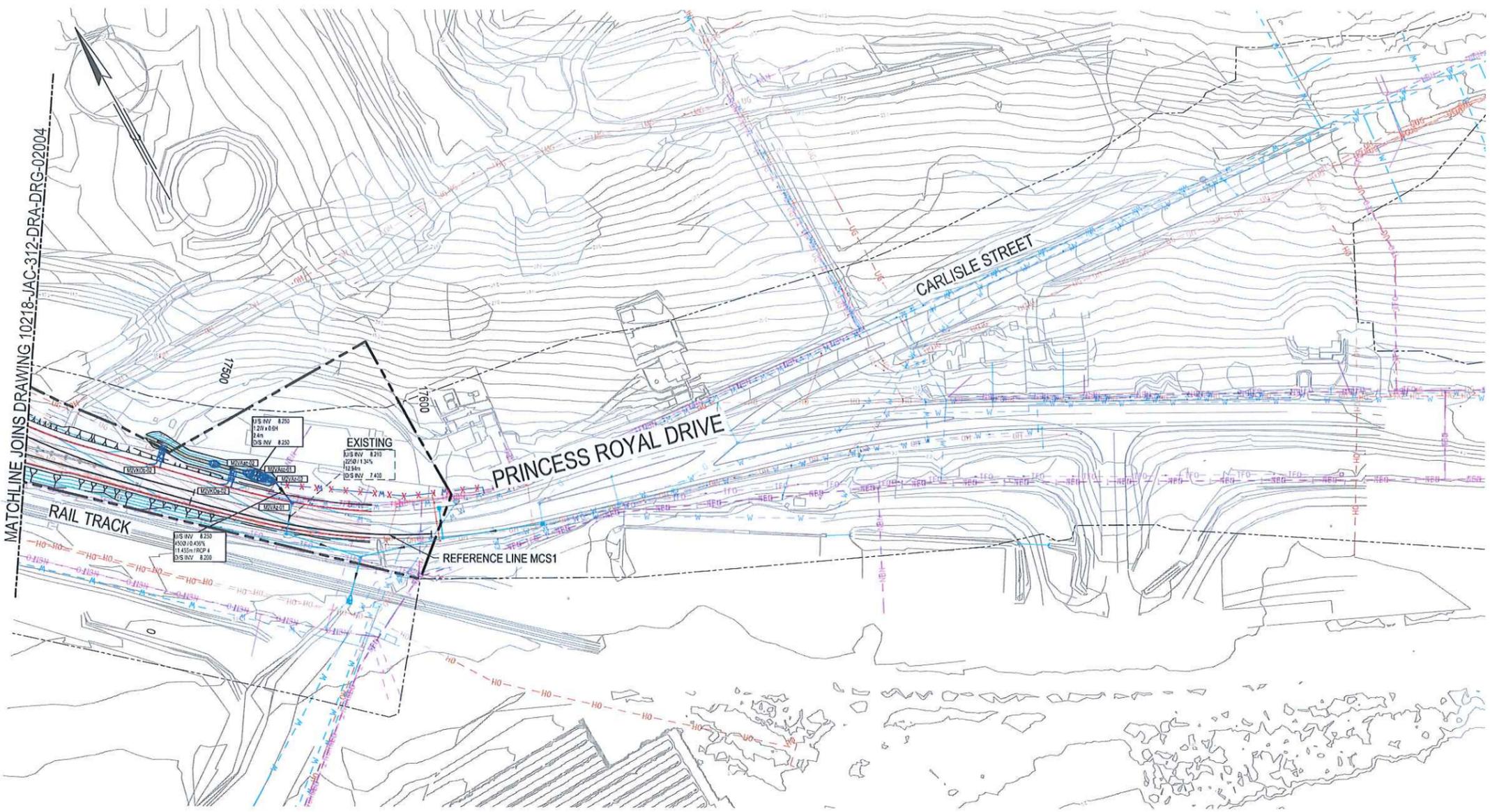
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GROUND SURVEY STANDARD:	67-08-43
DATE OF CAPTURE:	02-03/2018
MAPPING SURVEY STANDARD:	67-08-44
DATE OF CAPTURE:	04/2018
MAIN ROADS PROJECT ZONE:	ALB 94
HEIGHT DATUM:	AHD 71



DESIGNER	H. BURWOOD	12/21
CHECKED	D. MEYER	12/21
APPROVED	A. V.D. HEYDEN	06/12/21

LOCAL AUTHORITY: (302) CITY OF ALBANY MAIN ROADS RESPONSIBILITY AREA: GREAT SOUTHERN REGION			
PROJECT TITLE: ALBANY RING ROAD (H054)			
DRAWING TITLE: SP3-2 CHAINAGE 13500 TO CHAINAGE 17600 LOT 312 - DRAINAGE GENERAL ARRANGEMENT SHEET 6 OF 6			
DRAWING STATUS: 100% DESIGN		DRAWING NO: 10218-JAC-312-DRA-DRG-02006	

Plot Date: 22 Mar 2022, 2:15pm
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J.S. REV 3153 10021844 11/05/18 RCP 2 D.S. REV 31373	UPSTREAM INVERT UPSTREAM INVERT LENGTH TYPE DOWNSTREAM INVERT	DESIGN DRAINAGE PIPE INFORMATION
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LOCAL AUTHORITY: (302) CITY OF ALBANY
 MAIN ROADS RESPONSIBILITY AREA: GREAT SOUTHERN REGION

PROJECT TITLE: ALBANY RING ROAD (H054)

DRAWING TITLE: SP3-2 CHAINAGE 13500 TO CHAINAGE 17600
 LOT 312 - DRAINAGE
 GENERAL ARRANGEMENT
 SHEET 5 OF 6

DRAWING STATUS: 100% DESIGN
 DRAWING NO: 10218-JAC-312-DRA-DRG-02005

SCALE: 1:1000 (A1) / 1:2000 (A3)

PLAN
 SCALE
 1:1000

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 Challenging today.
 Reinventing tomorrow.

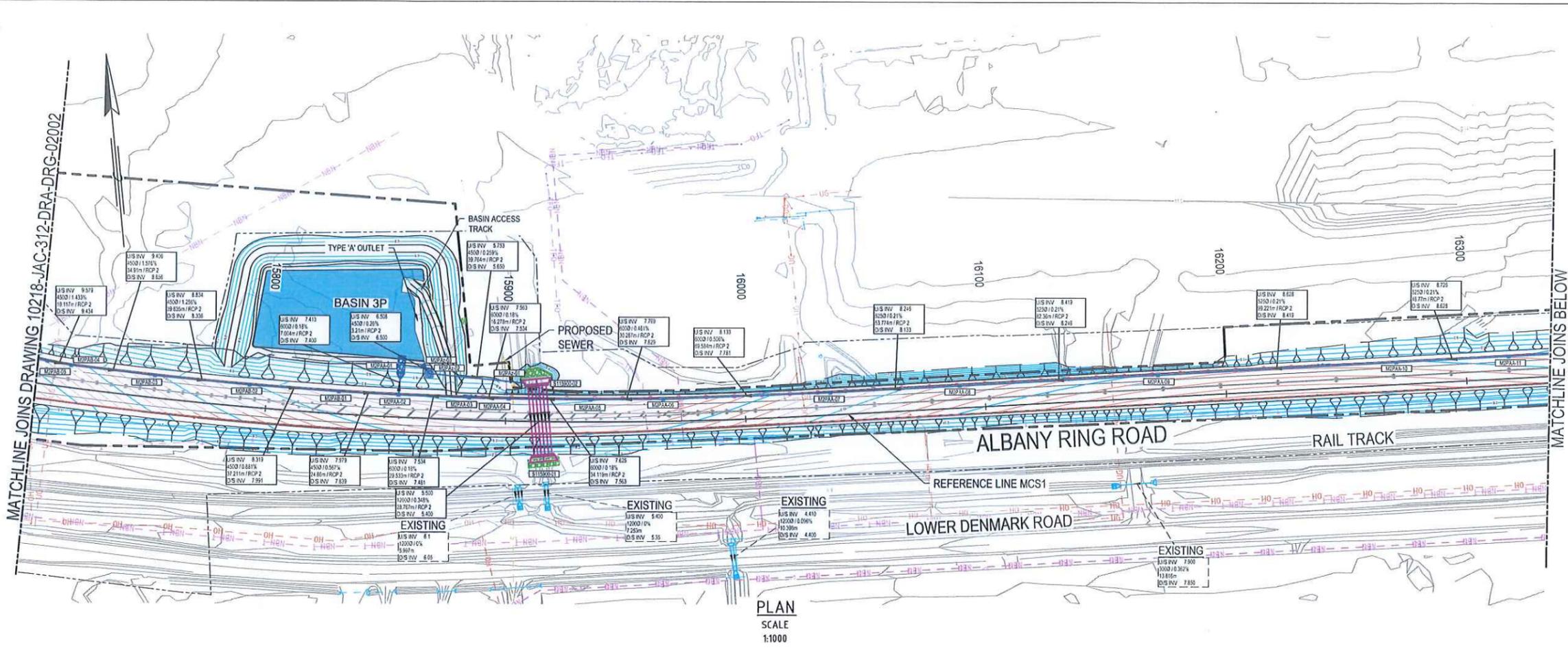
DRAWN	H. BURWOOD	12/21
DESIGNED	D. MEYER	12/21
CHECKED		
APPROVED	A. V.D. HEYDEN	06/12/21
VERIFIED		



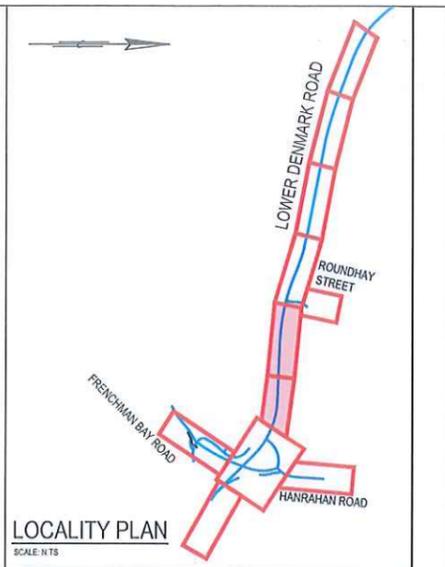
INFRASTRUCTURE DELIVERY DIRECTORATE

ISSUED FOR 100% DESIGN REVIEW	A.V.D.H 18/03/22
ISSUED FOR 85% DESIGN REVIEW	A.V.D.H 06/12/21
ISSUED FOR 15% DESIGN REVIEW	A.V.D.H 20/08/21
DESCRIPTION	APPROVED & DATE
AMENDMENTS	

METADATA	
GROUND SURVEY STANDARD:	67-08-43
DATE OF CAPTURE:	02-03/2018
MAPPING SURVEY STANDARD:	67-08-44
DATE OF CAPTURE:	04/2018
MAIN ROADS PROJECT ZONE:	ALB 94
HEIGHT DATUM:	AHD 71

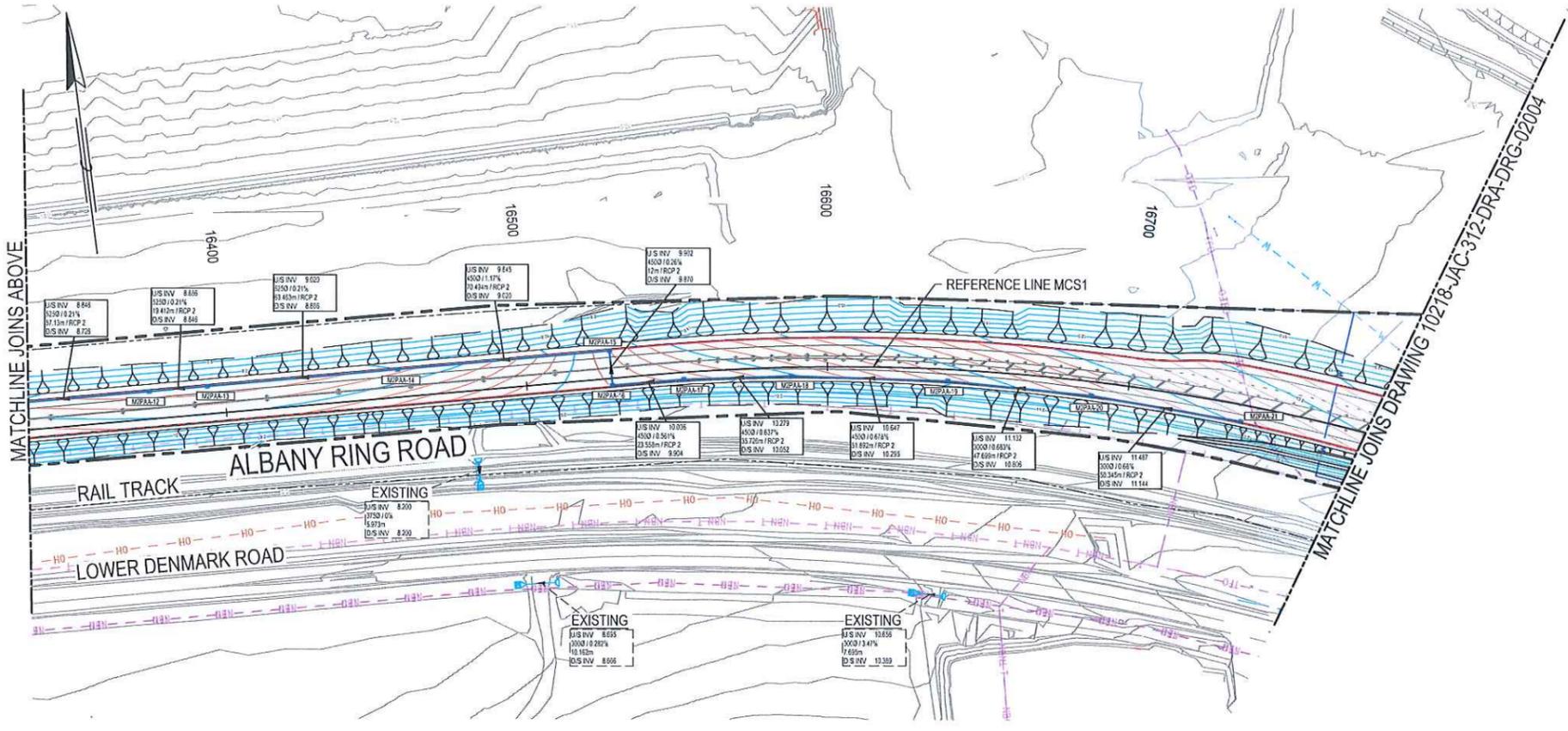


PLAN
SCALE
1:1000



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C B A	ISSUED FOR 100% DESIGN REVIEW	A.V.D.H 18/03/22
	ISSUED FOR 85% DESIGN REVIEW	
No	DESCRIPTION	APPROVED & DATE
	AMENDMENTS	

METADATA	
GROUND SURVEY STANDARD:	67-08-43
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DRAWN	H.BURWOOD	12/21
DESIGNED	D. MEYER	12/21
CHECKED		
APPROVED	A. V.D. HEYDEN	06/12/21

VERIFIED DATE

DESIGN MANAGER DATE

PROJECT DIRECTOR DATE

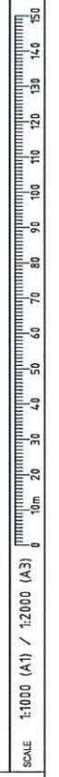
KBR

DECMIL

INFRASTRUCTURE DELIVERY DIRECTORATE

mainroads
WESTERN AUSTRALIA

LOCAL AUTHORITY	(302) CITY OF ALBANY	MAINTENANCE RESPONSIBILITY AREA	GREAT SOUTHERN REGION
PROJECT TITLE	ALBANY RING ROAD (H054)		
DRAWING TITLE	SP3-2 CHAINAGE 13500 TO CHAINAGE 17600 LOT 312 - DRAINAGE GENERAL ARRANGEMENT SHEET 3 OF 6		
DRAWING STATUS	100% DESIGN	DRAWING NO.	10218-JAC-312-DRA-DRG-02003



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Level 1, The Terrace Centre, 96 - 102 Stirling Terrace
Albany WA 6330
Tel 9842 3700



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