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NORTHERN MIDLANDS COUNCIL
MINUTES – ORDINARY MEETING
17 FEBRUARY 2020

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052/20 PLANNING APPLICATION PLN-19-0218: 10 NORFOLK STREET, PERTH

Attachments: Section 1 – Page 175

File Number: 110500.125, CT128769/2
Responsible Officer: Amanda Bond, Community & Development Manager
Report prepared by: Chloe Lyne, Consultant Planner

1 INTRODUCTION

This report assesses an application for 10 Norfolk Street, Perth for an 8 Lot Subdivision and balance.

2 BACKGROUND

Applicant: Rebecca Green & Associates	Owner: Northern Midlands Council
Zone: General Residential	Codes: Road and Railway Assets Code Flood Prone Areas Code Water Quality Code Recreation and Open Space Code
Classification under the Scheme: Discretionary	Existing Use: Vacant
Deemed Approval Date: 22 February 2020	Recommendation: Approve

Discretionary Aspects of the Application

- Clause 10.4.4.5 P1 – Integrated Urban Landscape
- Clause 10.4.4.6 P1 – Walking and Cycling Network
- Clause E6.5.1 P1 – Flooding and Coastal Inundation
- Clause E7.4.7 P1 – Sight Distance at Accesses, Junctions and Level Crossings
- Clause E9.6.2 P2.1 and P2.2 – Water Quality Management
- Clause E10.6.1 P1 Provision of Public Open Space

Planning Instrument: *Northern Midlands Interim Planning Scheme 2013, Version 29, Effective from 3 June 2019.*

Preliminary Discussion

Prior to submission of the application, the applicant held discussions with Council officers regarding the application.

Subject site



3 STATUTORY REQUIREMENTS

The proposal is an application pursuant to section 57 of the *Land Use Planning & Approvals Act 1993* (i.e. a discretionary application).

Section 48 of the *Land Use Planning & Approvals Act 1993* requires the Planning Authority to observe and enforce the observance of the Planning Scheme. Section 51 of the *Land Use Planning & Approvals Act 1993* states that a person must not commence any use or development where a permit is required without such permit.

4 ASSESSMENT

4.1 Proposal

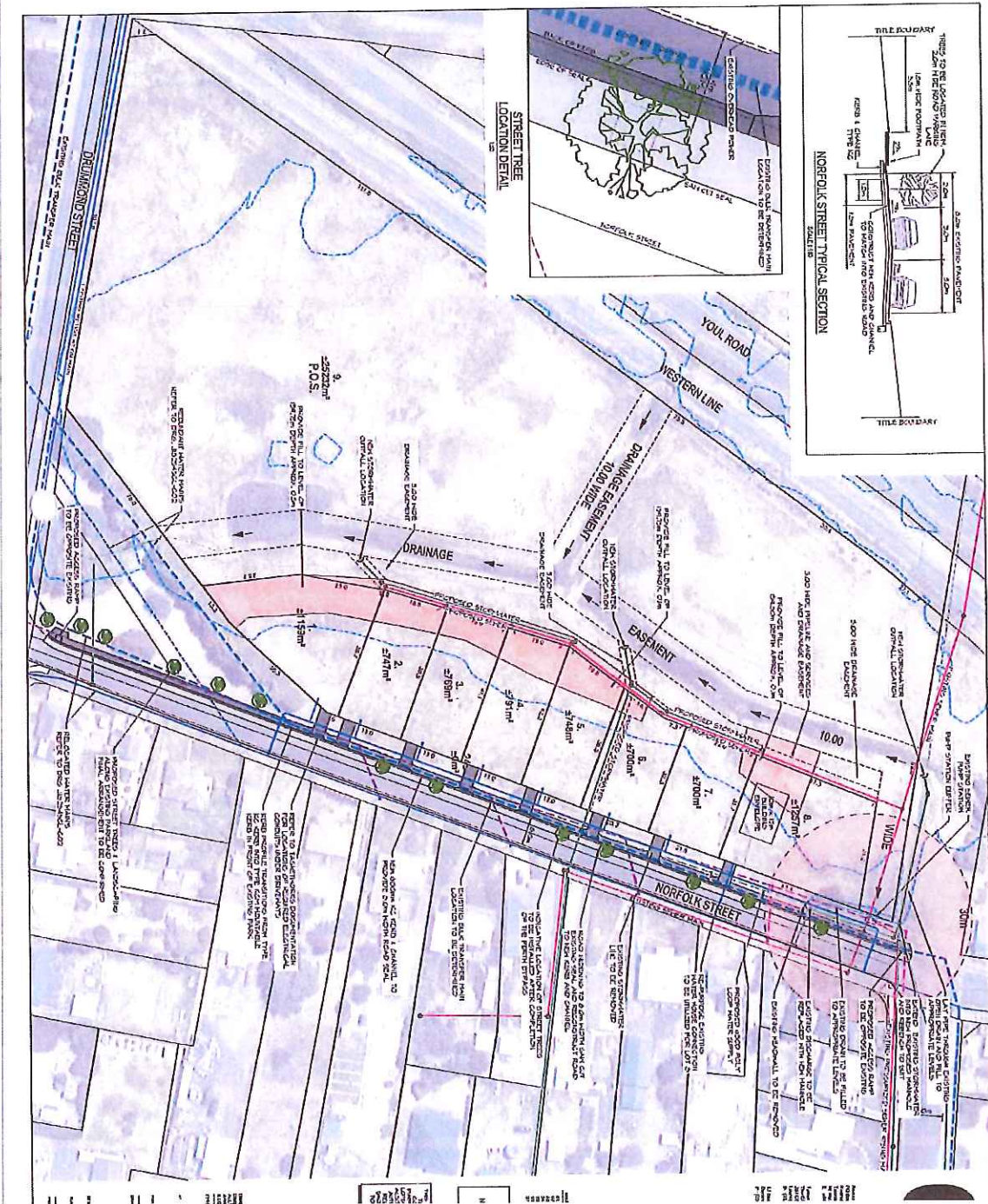
It is proposed to:

- Create an 8-lot residential subdivision plus balance lot to remain as public open space.

Each residential lot is provided with vehicular access to Norfolk Street and will be connected to reticulated water, sewerage and stormwater. Parts of the site require fill to ensure they are above the 100-year flood line as shown in the plan below.

Part of the subdivisional works include street beautification of the western side of Norfolk Street, including the provision of a footpath extending from Drummond Street to Frederick Street, new kerb and channel into the existing western side of Norfolk Street adjacent to the subdivision and street plantings.

Plan of Subdivision



Proposed Fill – shown in red shaded areas

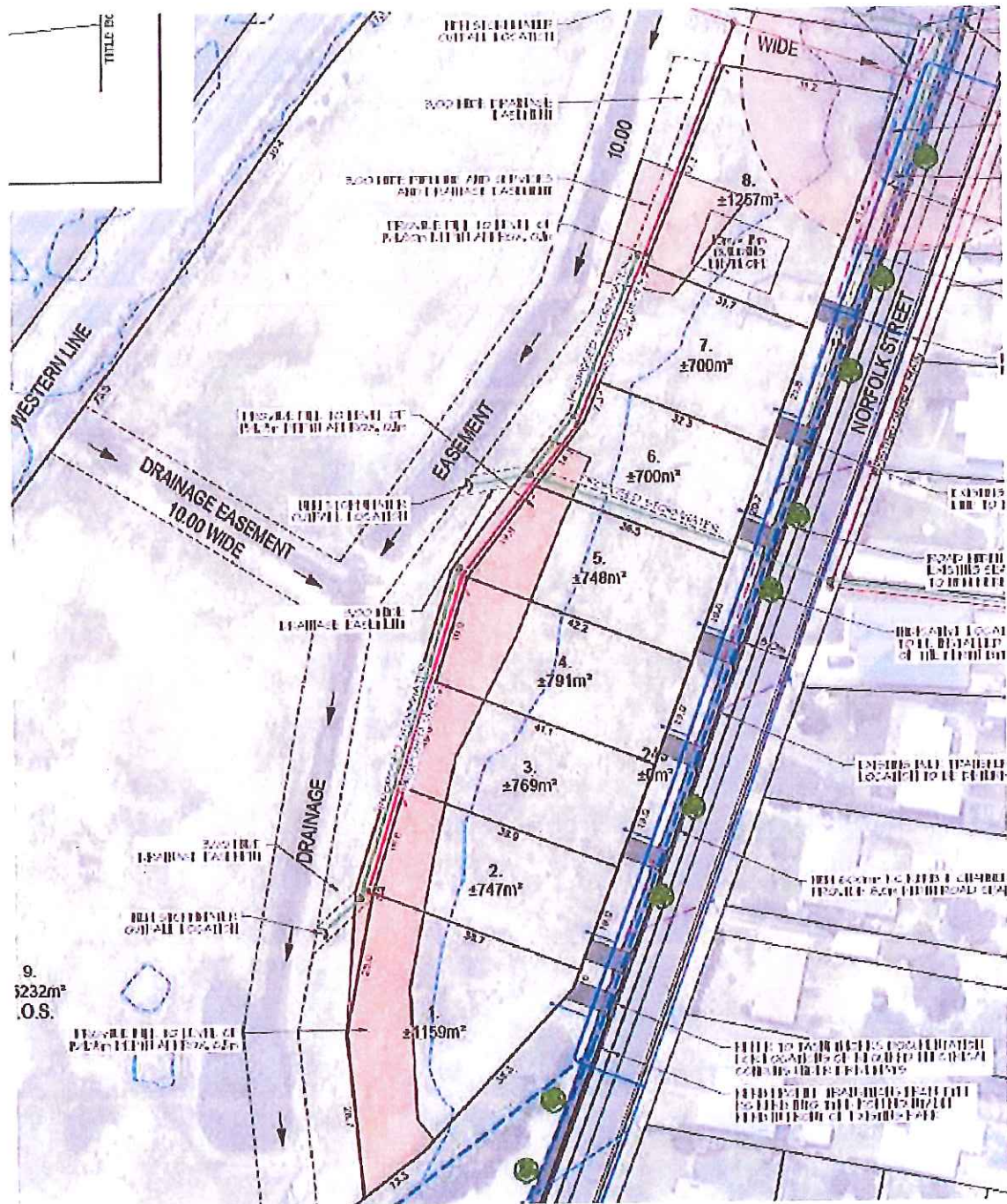
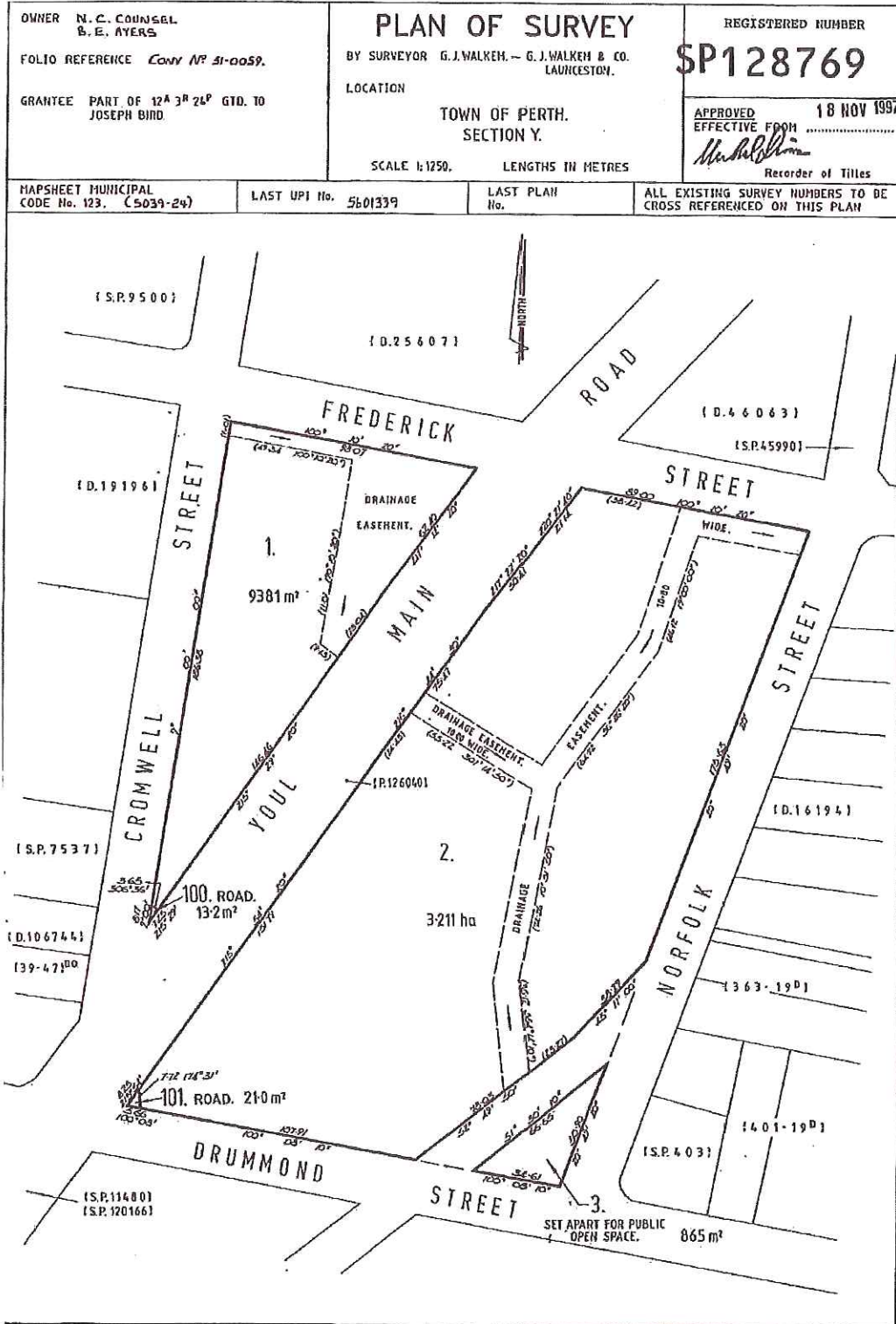


Figure 2. Proposed residential lots (6ty Degrees Rev F, 17/09/2019)



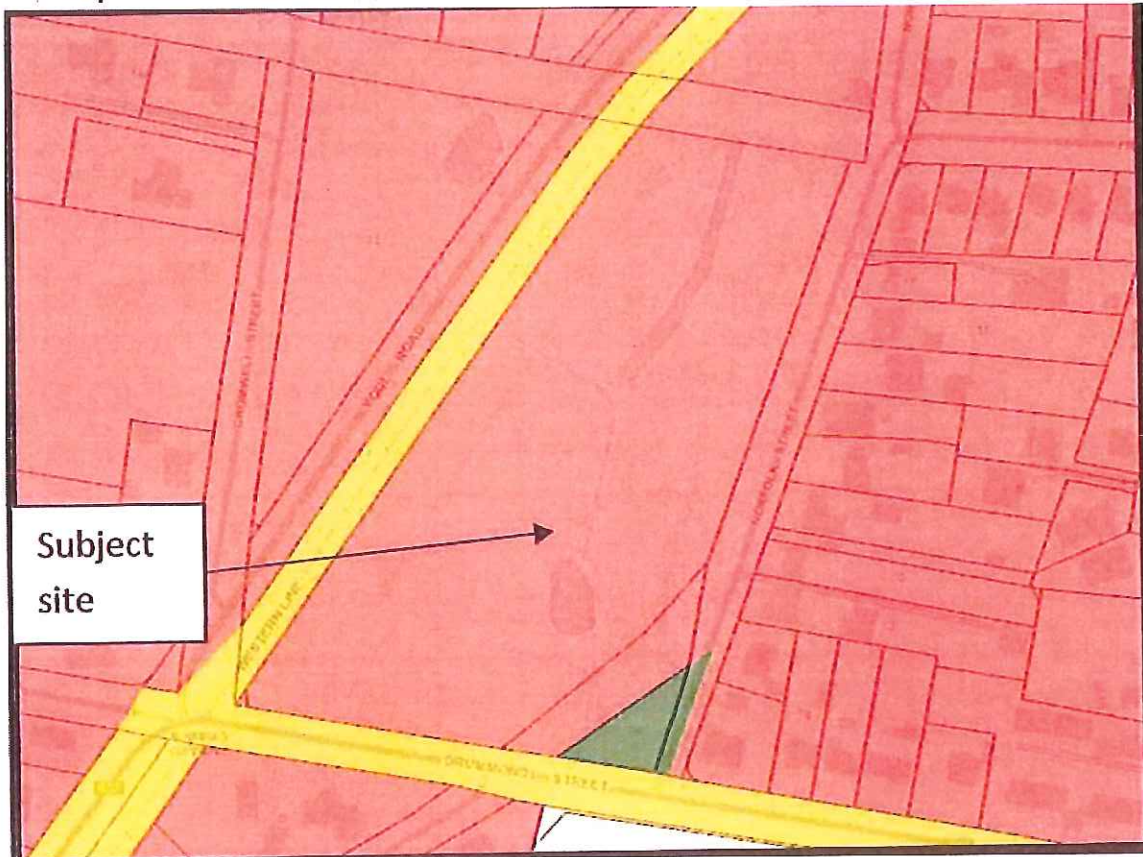
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Current title plan



4.2 Zone and land use

Zone Map – General Residential Zone



The land is zoned General Residential and is within the Urban Growth Boundary overlay.

The relevant Planning Scheme definition is:

<i>subdivision</i>	<i>means the act of subdividing or the lot subject to an act of subdividing.</i>
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4.3 Subject site and locality

An inspection the of the site was undertaken by Council’s Consultant Planner, Chloe Lyne on the 17th December 2019.

The subject site has an area of 3.211ha and is bordered by Drummond Street to the south, Norfolk Street to the east and the western railway line to the west. The site is bounded to the north by a reserved road beyond which is 32 Norfolk Street which is also in Council ownership and contains a single dwelling.

The site is contained within a residential area situated in the south-western corner of the Perth township. A new residential subdivision is under construction on the western side of Youl Main Road.

The site is largely vacant with the exception of a small picnic shelter located in the south-eastern corner. Recent vegetation clearing works have occurred along Sheepwash Creek which bisects the site from north to south. Strategic revegetation has also occurred on proposed lot 9 which will remain as public open space. A drainage easement also bisects the site from north to south.

Aerial photograph of area



Photographs of subject site

View of northern end of site



View of middle portion of site



View of southern section of site



4.4 Permit/site history

Relevant permit history includes:

110500.125 - 10 NORFOLK ST - PERTH - NORTHERN MIDLANDS COUNCIL

... P04-01 --
110500.125 - 10 NORFOLK ST - PERTH - NORTHERN MIDLANDS COUNCIL

... P06-400 (27/003/438) - WI - GJ Walkem (Obo Gerke) - WITHDRAWN - 10 Lot Subdivision - WITHDRAWN
110500.125 - 10 NORFOLK ST - PERTH - NORTHERN MIDLANDS COUNCIL

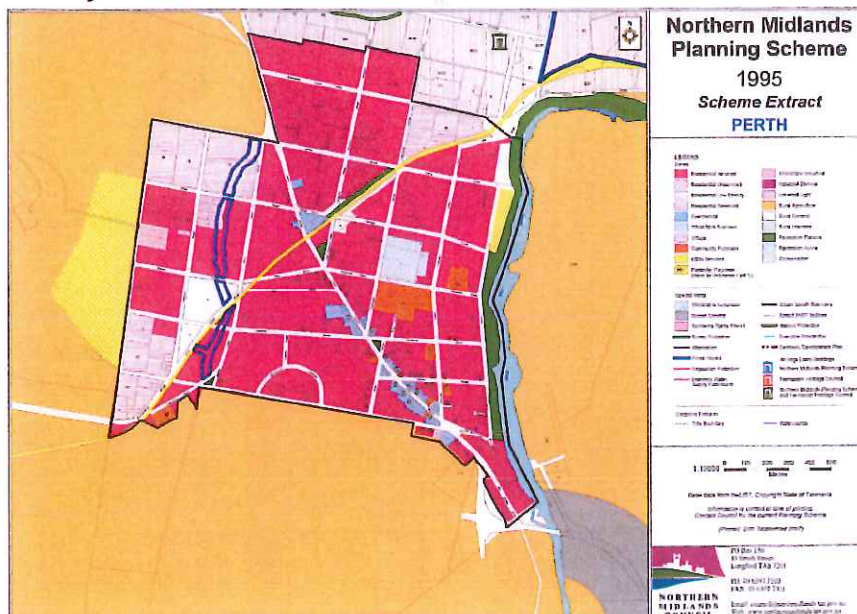
... P11-158 (Not Required) - Owner - Dam Repair Works
110500.125 - 10 NORFOLK ST - PERTH - NORTHERN MIDLANDS COUNCIL

... PLN19-0218 - R Green & Assoc - 8 Lot Subdivision
110500.125 - 10 NORFOLK ST - PERTH - NORTHERN MIDLANDS COUNCIL

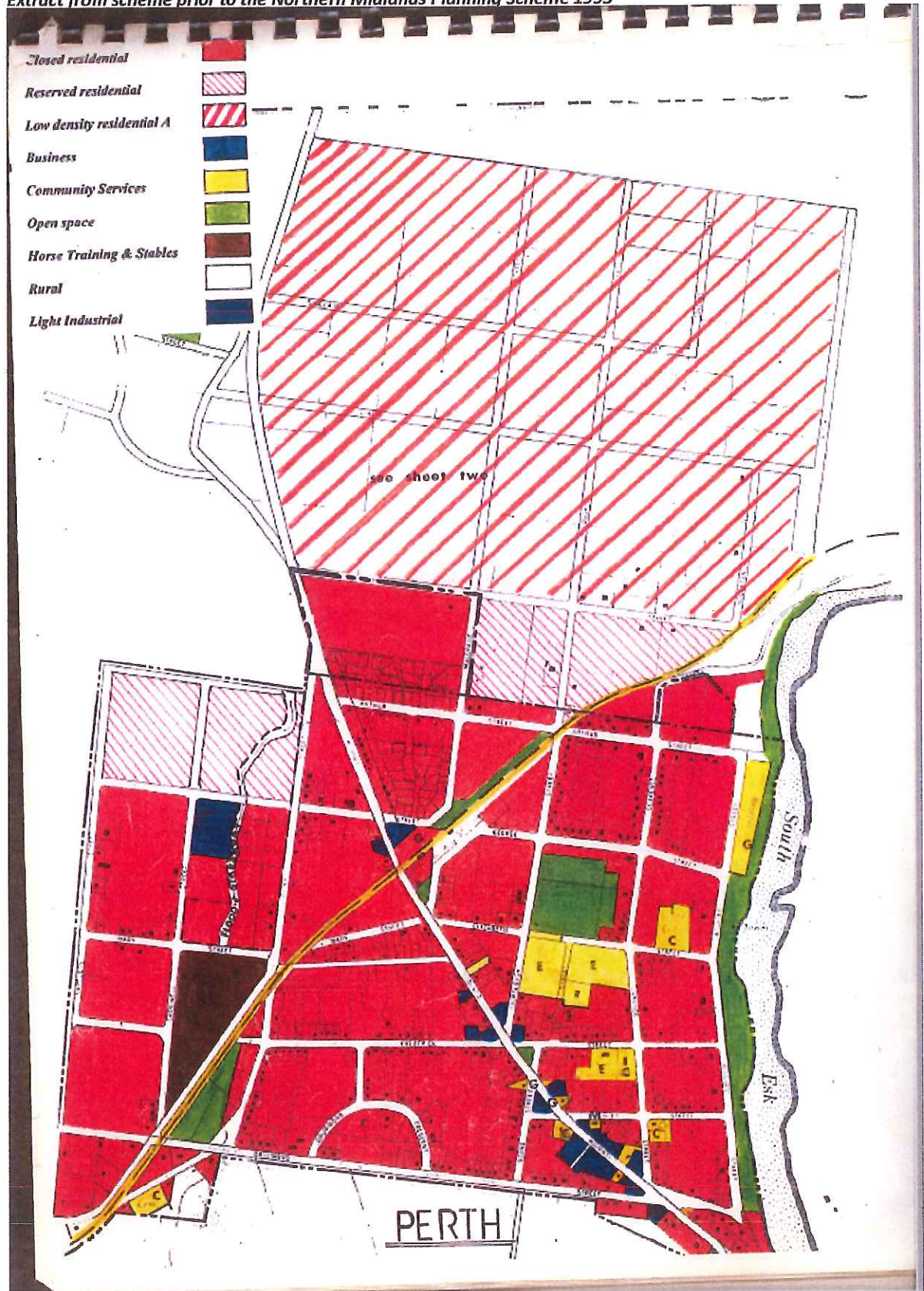
Under the Northern Midlands Planning Scheme 1995 the land was zoned Residential Serviced with a Flood Hazard Special Area over part of the land.

Under the scheme prior to the 1995 scheme, the land was zoned partly Open Space and partly Closed Residential (see scheme extracts below).

Extract from Northern Midlands Planning Scheme 1995



Extract from scheme prior to the Northern Midlands Planning Scheme 1995



4.5 Representations

Notice of the application was given in accordance with Section 57 of the *Land Use Planning & Approvals Act 1993*. A review of Council's Records management system after completion of the public exhibition period revealed that representations (attached) were received from:

- Stephen and Michaela Boon, 9 Norfolk St, Perth
- Christopher and Ingrid Selby, 8 Range Road, Western Junction
- Michael Tonkin, 9A Norfolk Street, Perth
- James and Fiona Stevenson, 69 Frederick Street, Perth
- Olwyn Nilon, 11 Old Bridge Road, Perth
- TasRail

N.B The application was sent to TasRail for comment. As they are not a formal referral agency their response is being treated as a representation.

Map showing location of representors' properties in relation to subject site
– red indicates representors' properties and yellow the site.



The matters raised in the representations are outlined below followed by the planner's comments.

Issue 1

- Concerned about the proposal to create residential lots on a known flood plain. The proposal to fill the lots will have an unknown effect on the flow of flood water creating a new flood footprint which may undermine new structures as well as existing ones in the area. Local residents have seen the entire site flood as recently as 2016.

Planner's comment:

Proposed lots 1-7 all have the majority of the lot contained outside the 1:100-year flood line. Lot 8 has approximately 2/3rds of the lot within the 1:100-year flood line. Hydrodynamica were engaged by Council to prepare a fill plan which will ensure all lots sit above the 1:100-year flood line. Hydrodynamica has confirmed that the fill is unlikely to cause any increase to the flood footprint with 32 Norfolk Street as only



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a small portion of the creek is being affected and no real barriers to flow are being created which could lead to increased backwater effects.

Issue 2

- There is a sewerage pump station located near 32 Norfolk Street which may need to be relocated, especially in view of the unknown flood path if houses are built on no 10.

Planner's comment:

Hydrodynamica have assessed the potential impact on the flood paths of the proposed fill and determined that there is unlikely to be any increase in the flood footprint at 32 Norfolk Street as a result.

Issue 3

- Concerned about the impact of altered flood flows on heritage listed dwellings.

Planner's comment:

Hydrodynamica have assessed the potential impact on the flood paths and determined that the proposed fill is unlikely to have any material impacts on the flood pathway.

Issue 4

- Concerned about impact of subdivision to a range of listed fauna species.

Planner's comment:

The application is not required to be assessed under the Biodiversity Code (E8) of the Planning Scheme as the site is not mapped as priority habitat and no native vegetation is proposed to be removed.

Issue 5

- Notes that the site has been shown on old maps as a lagoon.

Planner's comment:

The areas of the site subject to the 1:100-year flood will be filled to ensure they are above that particular flood event level.

Issue 6

- The land is ideal for the original proposed public park area. The Council has no right to spend rates money on speculation and developing real estate.

Planner's comment:

This is not a relevant matter for consideration under the Planning Scheme. It is understood that the Council has proposed the subdivision in order to recoup the costs of upgrading the balance area of Public Open Space as well as other parks within the township.

Issue 7

- The site was recently advertised by Council as being reserved for a green belt area with walking, riding, play and dog facilities due to the flood prone nature of the area. Local residents were excited about the prospect of a large open space area in the vicinity. The growing population of Perth would benefit from a new multi-use open space area.

Planner's comment:

This is not a relevant matter for consideration under the Planning Scheme. The balance Lot 9 provides 2.5 ha for use as public open space.

Issue 8

- Queries why Council spent money purchasing the site and the viability of an 8-lot subdivision.



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Planner's comment:

This is not a relevant matter for consideration under the Planning Scheme. It is understood that the Council has proposed the subdivision in order to recoup the costs of upgrading the balance area of Public Open Space as well as other parks within the township.

Issue 9

- Representor queries the Traffic Report which states there are no known crash points at the intersection of Norfolk and Frederick Street. The representor provided details of known crash locations in the vicinity including one less than two months ago.

Planner's comment:

When undertaking Traffic Impact Assessments, traffic engineers refer to a database of crashes. If the crashes referred to by the representor were not reported to police, then they would not be on the database.

Issue 10

- Concerned about the visual impact to the streetscape that any new houses and associated landscaping will have, particularly given the heritage nature of many of the homes in Norfolk Street.

Planner's comment:

The subject site is not within a Heritage Precinct and the application does not require assessment against the Local Historic Heritage Code. Streetscape improvement works are proposed along the western side of Norfolk Street as part of the subdivision including the planting of street trees which will improve the visual amenity of the street.

Issue 11

- Queries why Council spent money purchasing the site and the viability of an 8-lot subdivision.

Planner's comment:

This is not a relevant matter for Council acting as the planning authority. Nonetheless it is understood the site was purchased by Council to undertake flood improvement works along Sheepwash Creek and provide public open space. The proposed subdivision enables Council to recoup some of the monies spent on the purchase and works and assist in making the project cost neutral to ratepayers.

Issue 12

- A large subdivision planned at Drummond St negates the need for an additional 8 residential lot.

Planner's comment:

Supply and demand is not a relevant consideration under the Planning Scheme when assessing a subdivision.

Issue 13 (TasRail)

TasRail raised a number of queries regarding the Traffic Impact Assessment and addressing level crossings.

Planner's comment:

Council officers responded to TasRail confirming the crossings in question were not relevant to consideration of the subdivision as all lot accesses are onto Norfolk Street.

4.6 Referrals

Council's Works Department

Precis: Council's Works & Infrastructure Department (Jonathan Galbraith) reported that Council services for this subdivision can be addressed by standard conditions which were included within the referral.

TasWater

Precis: A TasWater Submission to Planning Authority Notice was issued on 12th December 2019. (TasWater Ref: TWDA 2019/0166-NMC).



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4.7 Planning Scheme Assessment

GENERAL RESIDENTIAL ZONE
ZONE PURPOSE
<i>To provide for residential use or development that accommodates a range of dwelling types at suburban densities, where full infrastructure services are available or can be provided.</i>
<i>To provide for compatible non-residential uses that primarily serve the local community.</i>
<i>Non-residential uses are not to be at a level that distorts the primacy of residential uses within the zones, or adversely affect residential amenity through noise, activity outside of business hours traffic generation and movement or other off-site impacts.</i>
<i>To encourage residential development that respects the neighbourhood character and provides a high standard of residential amenity.</i>
Assessment: The proposal meets the zone purpose. The proposal will provide for eight additional residential lots on land that can be fully serviced and is zoned for residential purposes. The proposal provides for a range of lot sizes at suburban densities encouraging diversity in future housing development.

LOCAL AREA OBJECTIVES
<i>To consolidate growth within the existing urban land use framework of the towns and villages.</i>
<i>To manage development in the General residential zone as part of or context to the Heritage Precincts in the towns and villages.</i>
<i>To ensure developments within street reservations contribute positively to the Heritage Precincts in each settlement.</i>
Assessment: The proposal meets the local area objectives. The site is not located within a Heritage Precinct.

10.4.4 SUBDIVISION

10.4.4.1 Lot Area, Building Envelopes and Frontage

<i>Objective:</i>	
<i>To provide lots with areas and dimensions that enable the appropriate siting and construction of a dwelling, private open space, vehicle access and parking, easements and site features.</i>	
Acceptable Solutions	Performance Criteria
A1 Lots must:	P1 Each lot for residential use must provide sufficient useable area and dimensions to allow for:
a) have a minimum area of at least 450m ² which:	a) a dwelling to be erected in a convenient and hazard-free location; and
i) is capable of containing a rectangle measuring 10m by 15m; and	b) on-site parking and manoeuvrability; and
ii) has new boundaries aligned from buildings that satisfy the relevant acceptable solutions for setbacks; or	c) adequate private open space.
b) required for public use by the Crown, an agency, or a corporation all the shares of which are held by Councils or a municipality; or	
c) for the provision of utilities; or	
d) for the consolidation of a lot with another lot with no additional titles created; or	
e) to align existing titles with zone boundaries and no additional lots are created.	
A1 (a) – Complies.	N/a
(i) Complies.	
(ii) Complies.	
(b-e) N/a	
A2 Each lot must have a frontage of at least 3.6m.	P2 Each lot must have appropriate, permanent access by a Right of Carriageway registered over all relevant titles.
Complies with A2.	N/a

10.4.4.2 Provision of Services

<i>Objective: To provide lots with appropriate levels of utility services.</i>	
Acceptable Solutions	Performance Criteria
A1 Each lot must be connected to a reticulated:	P1 Each lot created must be:
a) water supply; and	a) in a locality for which reticulated services are not available or capable of being connected; and
b) sewerage system.	b) capable of accommodating an on-site wastewater management system.
Complies with A1.	N/a



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A2 Each lot must be connected to a reticulated stormwater system.	P2 Each lot created must be capable of disposal of stormwater to a legal discharge point.
Complies with A2.	N/a

10.4.4.3 Solar Orientation of Lots

Objective: To provide for solar orientation of lots and solar access for future dwellings.

Acceptable Solutions	Performance Criteria
A1 At least 50% of lots must have a long axis within the range of: a) north 20 degrees west to north 30 degrees east; or b) east 20 degrees north to east 30 degrees south.	P1 Dimensions of lots must provide adequate solar access, having regard to the likely dwelling size and the relationship of each lot to the road.
Complies with A1 (b).	N/a
A2 The long axis of residential lots less than 500m ² , must be within 30 degrees east and 20 degrees west of north.	P2 Lots less than 500 m ² must provide adequate solar access to future dwellings, having regard to the: a) size and shape of the development of the subject site; and b) topography; and c) location of access way(s) and roads.
N/a – all lots are greater than 500m ² .	N/a

10.4.4.5 Integrated Urban Landscape

Objective: To provide attractive and continuous landscaping in roads and public open spaces that contribute to the:
a) character and identity of new neighbourhoods and urban places; or
b) to existing or preferred neighbourhood character, if any.

Acceptable Solutions	Performance Criteria
A1 The subdivision must not create any new road, public open space or other reserves.	P1 For subdivision that creates roads, public open space or other reserves, the design must demonstrate that: a) it has regard to existing, significant features; and b) accessibility and mobility through public spaces and roads are protected or enhanced; and c) connectivity through the urban environment is protected or enhanced; and d) the visual amenity and attractiveness of the urban environment is enhanced; and e) it furthers the local area objectives, if any.
Relies on P1 as the balance Lot 9 will be dedicated as public open space.	Proposed Lot 9 with an area of 2.5ha will be dedicated as public open space which will extend the existing parkland located at the corner of Drummond and Norfolk Streets. The proposed public open space will provide connectivity and accessibility around Sheepwash Creek. The visual attractiveness of the site will be improved in the future by further landscaping works within the area of public open space. Complies with P1

10.4.4.6 Walking and Cycling Network

Objective:
a) To provide safe, convenient and efficient movement through and between neighbourhoods by pedestrians and cyclists; and
b) To design footpaths, shared path and cycle path networks that are safe, comfortable, well constructed and accessible.
c) To provide adequate provision to accommodate wheelchairs, prams, scooters and other footpath bound vehicles.

Acceptable Solutions	Performance Criteria
A1 The subdivision must not create any new road, footpath or public open space.	P1 Subdivision that creates new roads, footpaths, or public open spaces must demonstrate that the walking and cycling network is designed to: a) link to any existing pedestrian and cycling networks; and b) provide the most practicable direct access for cycling and walking to activity centres, community facilities, public transport stops and public open spaces; and c) provide an interconnected and continuous network of safe, efficient and convenient footpaths, shared paths, cycle paths and cycle lanes based primarily on the network of arterial roads, neighbourhood roads and regional public open spaces; and d) promote surveillance along roads and from abutting dwellings.



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Relies on P1 as the balance Lot 9 will be dedicated as public open space and footpath is proposed.	Proposed lot 9 with an area of 2.5ha will be dedicated as public open space which will extend the existing parkland located at the corner of Drummond and Norfolk Streets. The proposed public open space will provide connectivity and accessibility around Sheepwash Creek. The visual attractiveness of the site will be improved in the future by further landscaping works within the area of public open space. An extension of the footpath on the western side of Norfolk Street also form part of the proposed works and will improve accessibility through the area. Complies with P1
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10.4.4.7 Neighbourhood Road Network

- Objective:**
- a) To provide for convenient, safe and efficient movement through and between neighbourhoods for pedestrians, cyclists, public transport and other motor vehicles using the neighbourhood road network; and
 - b) To design and construct road carriageways and verges so that the road geometry and traffic speeds provide an accessible and safe neighbourhood road system for all users.

Acceptable Solutions	Performance Criteria
A1 The subdivision must not create any new road.	<p>P1 The neighbourhood road network must:</p> <ul style="list-style-type: none"> a) take account of the existing mobility network of arterial roads, neighbourhood roads, cycle paths, shared paths, footpaths and public transport routes; and b) provide clear hierarchy of roads and physical distinctions between arterial roads and neighbourhood road types; and c) provide an appropriate speed environment and movement priority for the safe and easy movement of pedestrians and cyclists and for accessing public transport; and d) provide safe and efficient access to activity centres for commercial and freight vehicles; and e) ensure connector roads align between neighbourhoods for safe, direct and efficient movement of pedestrians, cyclists, public transport and other motor vehicles; and f) provide an interconnected and continuous network of roads within and between neighbourhoods for use by pedestrians, cyclists, public transport and other vehicles and minimise the provision of cul-de-sacs; and g) provide for service and emergency vehicles to safely turn at the end of a dead-end road; and h) take into account of any identified significant features.
Complies with A1. No new road is proposed.	N/a

CODES		
E1.0	BUSHFIRE PRONE AREAS CODE	N/a – not located within a Bushfire Prone Area, refer to amendment 01/2019 Insert Bushfire Prone Areas Overlay effective 3 June 2019.
E2.0	POTENTIALLY CONTAMINATED LAND	N/a
E3.0	LANDSLIP CODE	N/a
E4.0	ROAD AND RAILWAY ASSETS CODE	Complies – See code assessment below.
E.5.0	FLOOD PRONE AREAS CODE	Complies – See code assessment below
E6.0	CAR PARKING AND SUSTAINABLE TRANSPORT CODE	Complies – See code assessment below
E7.0	SCENIC MANAGEMENT CODE	N/a
E8.0	BIODIVERSITY CODE	N/a
E9.0	WATER QUALITY CODE	Complies – See code assessment below
E10.0	RECREATION AND OPEN SPACE CODE	Complies – See code assessment below.
E11.0	ENVIRONMENTAL IMPACTS & ATTENUATION CODE	N/a
E12.0	AIRPORTS IMPACT MANAGEMENT CODE	N/a
E13.0	LOCAL HISTORIC HERITAGE CODE	N/a
E14.0	COASTAL CODE	N/a
E15.0	SIGNS CODE	N/a



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ASSESSMENT AGAINST E4.0
ROAD AND RAILWAY ASSETS CODE

E4.6 Use Standards

E4.6.1 Use and road or rail infrastructure

Objective	
To ensure that the safety and efficiency of road and rail infrastructure is not reduced by the creation of new accesses and junctions or increased use of existing accesses and junctions.	
Acceptable Solutions	Performance Criteria
A1 Sensitive use on or within 50m of a category 1 or 2 road, in an area subject to a speed limit of more than 60km/h, a railway or future road or railway must not result in an increase to the annual average daily traffic (AADT) movements to or from the site by more than 10%.	P1 Sensitive use on or within 50m of a category 1 or 2 road, in an area subject to a speed limit of more than 60km/h, a railway or future road or railway must demonstrate that the safe and efficient operation of the infrastructure will not be detrimentally affected.
N/a	N/a
A2 For roads with a speed limit of 60km/h or less the use must not generate more than a total of 40 vehicle entry and exit movements per day	P2 For roads with a speed limit of 60km/h or less, the level of use, number, location, layout and design of accesses and junctions must maintain an acceptable level of safety for all road users, including pedestrians and cyclists.
Complies with A2 – to be further assessed when the proposed subdivision is developed. However, the Traffic Impact Assessment prepared for the application found that the 8 residential lots will generate 56-64 Vehicle Movements per day. This number of vehicle movements is considered insignificant in terms of the number of vehicle movements in the broader road network.	N/a
A3 For roads with a speed limit of more than 60km/h the use must not increase the annual average daily traffic (AADT) movements at the existing access or junction by more than 10%.	P3 For limited access roads and roads with a speed limit of more than 60km/h: a) access to a category 1 road or limited access road must only be via an existing access or junction or the use or development must provide a significant social and economic benefit to the State or region; and b) any increase in use of an existing access or junction or development of a new access or junction to a limited access road or a category 1, 2 or 3 road must be for a use that is dependent on the site for its unique resources, characteristics or locational attributes and an alternate site or access to a category 4 or 5 road is not practicable; and c) an access or junction which is increased in use or is a new access or junction must be designed and located to maintain an adequate level of safety and efficiency for all road users.
N/a	N/a

E4.7 Development Standards

E4.7.1 Development on and adjacent to Existing and Future Arterial Roads and Railways

Objective	
To ensure that development on or adjacent to category 1 or 2 roads (outside 60km/h), railways and future roads and railways is managed to:	
a) ensure the safe and efficient operation of roads and railways; and b) allow for future road and rail widening, realignment and upgrading; and c) avoid undesirable interaction between roads and railways and other use or development.	
Acceptable Solutions	Performance Criteria
A1 The following must be at least 50m from a railway, a future road or railway, and a category 1 or 2 road in an area subject to a speed limit of more than 60km/h:	P1 Development including buildings, road works, earthworks, landscaping works and level crossings on or within 50m of a category 1 or 2 road, in an area subject to a speed limit of more than 60km/h, a railway or future road or railway must be sited, designed and landscaped to:



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<p>a) new road works, buildings, additions and extensions, earthworks and landscaping works; and</p> <p>b) building areas on new lots; and</p> <p>c) outdoor sitting, entertainment and children's play areas</p>	<p>a) maintain or improve the safety and efficiency of the road or railway or future road or railway, including line of sight from trains; and</p> <p>b) mitigate significant transport-related environmental impacts, including noise, air pollution and vibrations in accordance with a report from a suitably qualified person; and</p> <p>c) ensure that additions or extensions of buildings will not reduce the existing setback to the road, railway or future road or railway; and</p> <p>d) ensure that temporary buildings and works are removed at the applicant's expense within three years or as otherwise agreed by the road or rail authority.</p>
Complies with A1. Lots 1-7 are all setback in excess of 50m to the Western Rail line and the building envelope on Lot 8 is setback in excess of 50m to the Western Rail line.	N/a

E4.7.2 Management of Road Accesses and Junctions

<p>Objective To ensure that the safety and efficiency of roads is not reduced by the creation of new accesses and junctions or increased use of existing accesses and junctions.</p>	
Acceptable Solutions	Performance Criteria
A1 For roads with a speed limit of 60km/h or less the development must include only one access providing both entry and exit, or two accesses providing separate entry and exit.	P1 For roads with a speed limit of 60km/h or less, the number, location, layout and design of accesses and junctions must maintain an acceptable level of safety for all road users, including pedestrians and cyclists.
Complies with A1 Each residential lot (1-8) is provided with only one access point to provide both ingress and egress.	N/a
A2 For roads with a speed limit of more than 60km/h the development must not include a new access or junction.	P2 For limited access roads and roads with a speed limit of more than 60km/h: a) access to a category 1 road or limited access road must only be via an existing access or junction or the development must provide a significant social and economic benefit to the State or region; and b) any increase in use of an existing access or junction or development of a new access or junction to a limited access road or a category 1, 2 or 3 road must be dependent on the site for its unique resources, characteristics or locational attributes and an alternate site or access to a category 4 or 5 road is not practicable; and c) an access or junction which is increased in use or is a new access or junction must be designed and located to maintain an adequate level of safety and efficiency for all road users.
N/a	N/a

E4.7.3 Management of Rail Level Crossings

<p>Objective To ensure that the safety and the efficiency of a railway is not unreasonably reduced by access across the railway.</p>	
Acceptable Solutions	Performance Criteria
A1 Where land has access across a railway: a) development does not include a level crossing; or b) development does not result in a material change onto an existing level crossing.	P1 Where land has access across a railway: a) the number, location, layout and design of level crossings maintain or improve the safety and efficiency of the railway; and b) the proposal is dependent upon the site due to unique resources, characteristics or location attributes and the use or development will have social and economic benefits that are of State or regional significance; or c) it is uneconomic to relocate an existing use to a site that does not require a level crossing; and d) an alternative access or junction is not practicable.
N/a	N/a

E4.7.4 Sight Distance at Accesses, Junctions and Level Crossings

Objective	
To ensure that use and development involving or adjacent to accesses, junctions and level crossings allows sufficient sight distance between vehicles and between vehicles and trains to enable safe movement of traffic.	
Acceptable Solutions	Performance Criteria
A1 Sight distances at a) an access or junction must comply with the Safe Intersection Sight Distance shown in Table E4.7.4; and b) rail level crossings must comply with AS1742.7 <i>Manual of uniform traffic control devices - Railway crossings</i> , Standards Association of Australia; or c) If the access is a temporary access, the written consent of the relevant authority has been obtained.	P1 The design, layout and location of an access, junction or rail level crossing must provide adequate sight distances to ensure the safe movement of vehicles.
Relies on P1	Table E4.7.4 requires a safe intersection sight distance of 80m. The Traffic Impact Assessment accompanying the application has confirmed that the safe intersection sight distance is readily achieved for all proposed lots to the south. However, some of the northern accesses, particularly for Lot 8 do not meet the 80m requirement. However, based on the visibility to the Norfolk and Frederick Street intersection and taking account of the requirements of AS2890 it is considered that the sight distance for all lots is satisfactory.

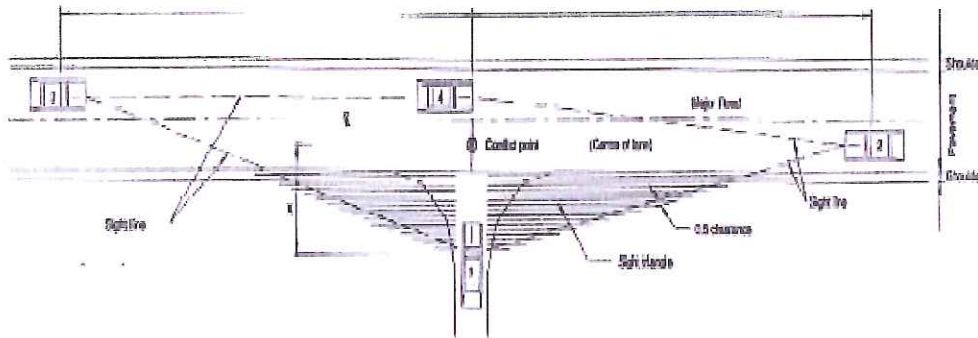


Figure E4.7.4 Sight Lines for Accesses and Junctions

X is the distance of the driver from the conflict point.

For category 1, 2 and 3 roads X = 7m minimum and for other roads X = 5m minimum.

Table E4.7.4 Safe Intersection Sight Distance (SISD)

Vehicle Speed km/h	Safe Intersection Sight Distance (SISD) metres, for speed limit of:	
	60 km/h or less	Greater than 60 km/h
50	80	90
60	105	115
70	130	140
80	165	175
90		210
100		250
110		290

Notes:

- (a) Vehicle speed is the actual or recorded speed of traffic passing along the road and is the speed at or below which 85% of passing vehicles travel.
- (b) For safe intersection sight distance (SISD):



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- (i) All sight lines (driver to object vehicle) are to be between points 1.2 metres above the road and access surface at the respective vehicle positions with a clearance to any sight obstruction of 0.5 metres to the side and below, and 2.0 metres above all sight lines;
- (ii) These sight line requirements are to be maintained over the full sight triangle for vehicles at any point between positions 1, 2 and 3 in Figure E4.7.4 and the access junction;
- (iii) A driver at position 1 must have sight lines to see cars at any point between the access and positions 3 and 2 in Figure E4.7.4;
- (iv) A driver at any point between position 3 and the access must have sight lines to see a car at position 4; and
- (v) A driver at position 4 must have sight lines to see a car at any point between position 2 and the access.

ASSESSMENT AGAINST E5.0
FLOOD PRONE AREAS CODE

E5.5 Use Standards
E5.5.1 Use and flooding

<i>Objective</i> To ensure that use does not compromise risk to human life, and that property and environmental risks are responsibly managed.	
Acceptable Solutions	Performance Criteria
A1 The use must not include habitable rooms.	P1 Use including habitable rooms subject to flooding must demonstrate that the risk to life and property is mitigated to a low risk level in accordance with the risk assessment in E5.7.
Complies with A1. No new buildings are proposed.	N/a
A2 Use must not be located in an area subject to a medium or high risk in accordance with the risk assessment in E5.7.	P2 Use must demonstrate that the risk to life, property and the environment will be mitigated to a low risk level in accordance with the risk assessment in E5.7.
Complies with A2. The site is not within an area subject to a medium or high risk	N/a

E5.6 Development Standards
E5.6.1 Flooding and Coastal Inundation

<i>Objective</i> To protect human life, property and the environment by avoiding areas subject to flooding where practicable or mitigating the adverse impacts of inundation such that risk is reduced to a low level.	
Acceptable Solutions	Performance Criteria
A1 No acceptable solution.	<p>P1.1 It must be demonstrated that development:</p> <ul style="list-style-type: none"> a) where direct access to the water is not necessary to the function of the use, is located where it is subject to a low risk, in accordance with the risk assessment in E5.7 a); or b) where direct access to the water is necessary to the function of the use, that the risk to life, property and the environment is mitigated to a medium risk level in accordance with the risk assessment in E5.7. <p>P1.2 Development subject to medium risk in accordance with the risk assessment in E5.7 must demonstrate that the risk to life, property and the environment is mitigated through structural methods or site works to a low risk level in accordance with the risk assessment in E5.7.</p> <p>P1.3 Where mitigation of flood impacts is proposed or required, the application must demonstrate that:</p> <ul style="list-style-type: none"> a) the works will not unduly interfere with natural coastal or water course processes through restriction or changes to flow; and b) the works will not result in an increase in the extent of flooding on other land or increase the risk to other structures; c) inundation will not result in pollution of the watercourse or coast through appropriate location of effluent disposal or the storage of materials; and d) where mitigation works are proposed to be carried out outside the boundaries of the site, such works are part of an approved hazard reduction plan covering the area in which the works are proposed.
N/a	Complies with P1.1 (a), P1.2 is not applicable and complies with P1.3



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All the lots currently have areas which are outside the 1:100 year flood level and following placement of fill they will all be mostly outside of the 1:100 year flood level. In accordance with Table E5.1, that means the risk rating is Low.

The proposed fill works have been assessed by Hydrodynamica as not likely to have an impact on the flood flows and will not result in an increase in the extent of flooding on other land or increase the risk to other structures. All mitigations works are proposed within the boundaries of the site.

ASSESSMENT AGAINST E9.0
WATER QUALITY CODE

E9.5 Use Standards

Not used in this Scheme.

E9.6 Development Standards

E9.6.1 Development and Construction Practices and Riparian Vegetation

<i>Objective</i>	
<i>To protect the hydrological and biological roles of wetlands and watercourses from the effects of development.</i>	
Acceptable Solutions	Performance Criteria
A1 Native vegetation is retained within: a) 40m of a wetland, watercourse or mean high water mark; and b) a Ben Lomond Water catchment area - inner buffer.	P1 Native vegetation removal must submit a soil and water management plan to demonstrate: a) revegetation and weed control of areas of bare soil; and b) the management of runoff so that impacts from storm events up to at least the 1 in 5 year storm are not increased; and c) that disturbance to vegetation and the ecological values of riparian vegetation will not detrimentally affect hydrological features and functions.
Complies with A1. No native vegetation removal is proposed.	N/a
A2 A wetland must not be filled, drained, piped or channelled.	P2 Disturbance of wetlands must minimise loss of hydrological and biological values, having regard to: (v) natural flow regimes, water quality and biological diversity of any waterway or wetland; (vi) design and operation of any buildings, works or structures on or near the wetland or waterway; (vii) opportunities to establish or retain native riparian vegetation; (viii) sources and types of potential contamination of the wetland or waterway.
Complies with A3.	N/a
A3 A watercourse must not be filled, piped or channelled except to provide a culvert for access purposes.	P3 A watercourse may be filled, piped, or channelled: a) within an urban environment for the extension of an existing reticulated stormwater network; or b) for the construction of a new road where retention of the watercourse is not feasible.
Complies with A4. Sheepwash Creek will not be filled, piped or channelled.	N/a

E9.6.2 Water Quality Management

<i>Objective</i>	
<i>To maintain water quality at a level which will not affect aquatic habitats, recreational assets, or sources of supply for domestic, industrial and agricultural uses.</i>	
Acceptable Solutions	Performance Criteria
A1 All stormwater must be: a) connected to a reticulated stormwater system; or b) where ground surface runoff is collected, diverted through a sediment and grease trap or artificial wetlands prior to being	P1 Stormwater discharges to watercourses and wetlands must minimise loss of hydrological and biological values, having regard to: (vi) natural flow regimes, water quality and biological diversity of any waterway or wetland; (vii) design and operation of any buildings, works or structures, on or near the wetland or waterway;



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<p><i>discharged into a natural wetland or watercourse; or</i></p> <p>c) <i>meet emission limit guidelines from the Board of the Environment Protection Authority in accordance with the State Policy for Water Quality Management 1997.</i></p>	<p>(viii) <i>sources and types of potential contamination of the wetland or waterway;</i></p> <p>(ix) <i>devices or works to intercept and treat waterborne contaminants;</i></p> <p>(x) <i>opportunities to establish or retain native riparian vegetation or continuity of aquatic habitat.</i></p>
Complies with A1. Stormwater will be diverted to a reticulated system.	N/a
<p>A2.1 <i>No new point source discharge directly into a wetland or watercourse.</i></p> <p>A2.2 <i>For existing point source discharges into a wetland or watercourse there is to be no more than 10% increase over the discharge which existed at the effective date.</i></p>	<p>P2.1 <i>New and existing point source discharges to wetlands or watercourses must implement appropriate methods of treatment or management to ensure point sources of discharge:</i></p> <p>a) <i>do not give rise to pollution as defined under the Environmental Management and Pollution Control Act 1994; and</i></p> <p>b) <i>are reduced to the maximum extent that is reasonable and practical having regard to:</i></p> <p>i) <i>best practice environmental management; and</i></p> <p>ii) <i>accepted modern technology; and</i></p> <p>c) <i>meet emission limit guidelines from the Board of Environmental Management and Pollution Control in accordance with the State Policy for Water Quality Management 1997.</i></p> <p>P2.2 <i>Where it is proposed to discharge pollutants into a wetland or watercourse, the application must demonstrate that it is not practicable to recycle or reuse the material.</i></p>
Relies on Performance Criteria. There will be two new stormwater discharge points into Sheepwash Creek.	<p>Complies with P2.1 and P2.2.</p> <p>The two new stormwater outfalls into Sheepwash Creek to the west of the residential lots will implement appropriate methods of treatment including the provision of gross pollutant traps to ensure that the proposal does not give rise to pollution. Sheepwash Creek currently serves as a stormwater outlet generally.</p>
A3 <i>No acceptable solution.</i>	P3 <i>Quarries and borrow pits must not have a detrimental effect on water quality or natural processes.</i>
N/a	N/a

E9.6.3 Construction of Roads

Objective	
<i>To ensure that roads, private roads or private tracks do not result in erosion, siltation or affect water quality.</i>	
Acceptable Solutions	Performance Criteria
A1 <i>A road or track does not cross, enter or drain to a watercourse or wetland.</i>	P1 <i>Road and private tracks constructed within 50m of a wetland or watercourse must comply with the requirements of the Wetlands and Waterways Works Manual, particularly the guidelines for siting and designing stream crossings.</i>
N/a	N/a

E9.6.4 Access

Objective	
<i>To facilitate appropriate access at suitable locations whilst maintaining the ecological, scenic and hydrological values of watercourses and wetlands.</i>	
Acceptable Solutions	Performance Criteria
A1 <i>No acceptable solution.</i>	P1 <i>New access points to wetlands and watercourses are provided in a way that minimises:</i>
	a) <i>their occurrence; and</i>
	b) <i>the disturbance to vegetation and hydrological features from use or development.</i>
N/a	N/a
A2 <i>No acceptable solution.</i>	P2 <i>Accesses and pathways are constructed to prevent erosion, sedimentation and siltation as a result of runoff or degradation of path materials.</i>
N/a	N/a



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E9.6.5 Sediment and Erosion Control

Objective To minimise the environmental effects of erosion and sedimentation associated with the subdivision of land.	
Acceptable Solutions	Performance Criteria
A1 The subdivision does not involve any works.	P1 For subdivision involving works, a soil and water management plan must demonstrate the: a) minimisation of dust generation from susceptible areas on site; and b) management of areas of exposed earth to reduce erosion and sediment loss from the site.
N/a	A condition of permit will require the submission of a soil and water management plan to be submitted prior to works commencing.

**ASSESSMENT AGAINST E10.0
RECREATION AND OPEN SPACE CODE**

E10.6 Development Standards**E10.6.1 Provision of Public Open Space**

Objective a) To provide public open space which meets user requirements, including those with disabilities, for outdoor recreational and social activities and for landscaping which contributes to the identity, visual amenity and health of the community; and b) To ensure that the design of public open space delivers environments of a high quality and safety for a range of users, together with appropriate maintenance obligations for the short, medium and long term.	
Acceptable Solutions	Performance Criteria
A1 The application must: a) include consent in writing from the General Manager that no land is required for public open space but instead there is to be a cash payment in lieu.	P1 Provision of public open space, unless in accordance with Table E10.1, must: a) not pose a risk to health due to contamination; and b) not unreasonably restrict public use of the land as a result of: i) services, easements or utilities; and ii) stormwater detention basins; and iii) drainage or wetland areas; and iv) vehicular access; and c) be designed to: i) provide a range of recreational settings and accommodate adequate facilities to meet the needs of the community, including car parking; and ii) reasonably contribute to the pedestrian connectivity of the broader area; and iii) be cost effective to maintain; and iv) respond to the opportunities and constraints presented by the physical characteristics of the land to provide practically useable open space; and v) provide for public safety through <i>Crime Prevention Through Environmental Design</i> principles; and vi) provide for the reasonable amenity of adjoining land users in the design of facilities and associated works; and vii) have a clear relationship with adjoining land uses through treatment such as alignment, fencing and landscaping; and ix) create attractive environments and focal points that contribute to the existing or desired future character statements, if any.
Relies on P1	Proposed Lot 9 with an area of 2.5 ha is to be set aside for public open space. The area is of sufficient size and topographical profile to provide for a large useable area of public open space that affords the opportunity to provide pedestrian and cycling linkages with other trails and open space networks in the community.

SPECIFIC AREA PLANS

F1.0	TRANSLINK SPECIFIC AREA PLAN	N/a
F2.0	HERITAGE PRECINCTS SPECIFIC AREA PLAN	N/a



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SPECIAL PROVISIONS	
9.1 Changes to an Existing Non-conforming Use	N/a
9.2 Development for Existing Discretionary Uses	N/a
9.3 Adjustment of a Boundary	N/a
9.4 Demolition	N/a

STATE POLICIES
The proposal is consistent with all State Policies.

OBJECTIVES OF LAND USE PLANNING & APPROVALS ACT 1993
The proposal is consistent with the objectives of the <i>Land Use Planning & Approvals Act 1993</i> .

STRATEGIC PLAN/ANNUAL PLAN/COUNCIL POLICIES
<i>Strategic Plan 2017-2027</i> <i>Statutory Planning</i>

5 SERVICES

Sewer & Water

The application was referred to TasWater regarding water and sewer infrastructure. Their certificate of consent is included as to this report and will be included as an attachment if a permit is issued.

Stormwater & Access

The application was referred internally to the Council's Works Department, who advised that the subdivision can be serviced by Council infrastructure. Their recommended conditions of approval will be included if a permit is issued.

Provision of Services

Prior to the sealing of the final plan of subdivision, the applicant would be required to provide water services, sewer and stormwater services to the property boundaries of all lots (as required by TasWater/Works Department Section's conditions).

Public Open Space Contribution

A large area of public open space is provided as part of the subdivision in the form of the 2.5ha lot 9.

6 FINANCIAL IMPLICATIONS TO COUNCIL

Not applicable to this application.

7 OPTIONS

Approve subject to conditions, or refuse and state reasons for refusal.

8 DISCUSSION

Discretion to refuse the application is limited to:

- Clause 10.4.4.5 P1 – Integrated Urban Landscape
- Clause 10.4.4.6 P1 – Walking and Cycling Network
- Clause E6.5.1 P1 – Flooding and Coastal Inundation
- Clause E7.4.7 P1 – Sight Distance at Accesses, Junctions and Level Crossings
- Clause E9.6.2 P2.1 and P2.2 – Water Quality Management
- Clause E10.6.1 P1 Provision of Public Open Space



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Council has discretion to approve or refuse the application, due to reliance on the Performance Criteria under the Zone in relation to provision of public open space noting that by providing public open space means the proposal automatically does not comply with the acceptable solution. Council also has discretion to refuse the application under the Road and Rail Network Code in relation to sight distances and the Flood Code, Water Quality Code and Recreation and Public Open Space Code.

The proposed vehicle access will remain convenient, safe and efficient to use, having regard to matters such as slope, dimensions, layout and the expected number and type of vehicles that will access the lots.

The proposed provision of lot 9 as public open space will ensure there is a large area of public open space in the area that also doubles up a runoff for flood flows.

The majority of the residential lots are outside the mapped 1:100-year flood level and the proposed fill will ensure they all above that level. The exception being proposed lot 1 which has an area of 1257m² and will have a small area still subject to flooding and as such is proposed to contain a 130m² building envelope. Hydrodynamica have assessed that the placement of fill will not impact the flood flows or increase risk to other properties or structures.

Referral bodies were consulted regarding the proposal, and provided consent/conditions of approval.

The proposed development meets all relevant provisions of the *Northern Midlands Interim Planning Scheme 2013* and conditions that relate to any aspect of the application can be placed on a permit.

9 ATTACHMENTS

- Application & plans, correspondence with applicant
- Responses from referral agencies
- Representations

RECOMMENDATION

That land at 10 Norfolk Street, Perth be approved to be developed and used for an 8 Lot Subdivision and balance (Flood Prone Areas Code, Water Quality Code & Road & Railway Assets Code) in accordance with application PLN-19-0218, and subject to the following conditions:

1 Layout not altered

The use and development shall be in accordance with the endorsed plans numbered **P1** *Plan of Subdivision prepared by 6ty (Drawing No: P01, Revision F)* and **P2** *Preliminary Sewer Design Longitudinal Section prepared by 6ty (Drawing No: P02, 21.11.19)*.

2 Land Set Aside for Public Open Space

When the Final Survey Diagram is submitted for sealing, Lot 9 must be dedicated as Public Open Space.

3 Council's Works Department conditions

3.1 Stormwater

Each lot must be provided with a connection to the Council's stormwater system, constructed in accordance with Council standards and to the satisfaction of Council's Works & Infrastructure Department.

3.2 Access (Urban)

- A concrete driveway crossover and apron must be constructed from the edge of Norfolk Street to the property boundary of each Lot in accordance with Council standards.

3.3 Roadworks

- Kerb and channel and hotmix sealed roads shall be constructed along the frontage of all lots.
- A 1.8m wide concrete footpath shall be constructed along the frontage of all lots.



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- An engineering design plan showing the road, footpath and drainage system including pavement long sections and cross sections is to be approved by Council before the commencement of works on site

3.4 Street trees

A street tree shall be planted outside the frontage of each lot (where practical) prior to the end of the maintenance period.

3.5 As constructed information

As Constructed Plans and Asset Management Information must be provided in accordance with Council's standard requirements.

3.6 Municipal standards & certification of works

Unless otherwise specified within a condition, all works must comply with the Municipal Standards including specifications and standard drawings. Any design must be completed in accordance with Council's subdivision design guidelines to the satisfaction of the Works & Infrastructure Department. Any construction, including maintenance periods, must also be completed to the approval of the Works & Infrastructure Department.

3.7 Works in Council road reserve

- a) Works must not be undertaken within the public road reserve, including crossovers, driveways or kerb and guttering, without prior approval for the works by the Works Manager.

3.8 Separation of stormwater services

- All existing stormwater pipes and connections must be located.
- Where required, pipes are to be rerouted to provide an independent system for each lot.
- Certification must be provided that stormwater services have been separated between the lots.

3.9 Easements to be created

Easements must be created over all Council owned services in favour of the Northern Midlands Council. Such easements must be created on the final plan to the satisfaction of the General Manager.

3.10 Pollutants

- The developer/property owner must ensure that pollutants such as mud, silt or chemicals are not released from the site.
- Prior to the commencement of the development authorised by this permit the developer/property owner must install all necessary silt fences and cut-off drains to prevent soil, gravel and other debris from escaping the site. Material or debris must not be transported onto the road reserve (including the nature strip, footpath and road pavement). Any material that is deposited on the road reserve must be removed by the developer/property owner. Should Council be required to clean or carry out works on any of their infrastructure as a result of pollutants being released from the site the cost of these works may be charged to the developer/property owner.

3.11 Nature strips

Any new nature strips, or areas of nature strip that are disturbed during construction, must be topped with 100mm of good quality topsoil and sown with grass. Grass must be established and free of weeds prior to Council accepting the development.

4 TasWater conditions

Sewer and water services shall be provided in accordance with TasWater's Submission to Planning Authority Notice (reference number TWDA 2019/01664-NMC).

5 Soil and Water Management Plan

- 5.1 Before works commence, a Soil and Water Management Plan must be submitted detailing how soil and water is to be managed during the construction process, to prevent the inappropriate discharge of soil, sediment or water from the site.
- 5.2 The Soil and Water Management Plan must be implemented and maintained during construction to ensure that soil erosion is to be appropriately managed.



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6 Sealing of Plans

All conditions must be complied with prior to sealing of the final plan of survey. Council may, at the developer's request, accept a bond or bank guarantee, for particular works or maintenance, to enable early seal and release of the final plan of survey.

DECISION

Cr Polley/Cr Goninon

That the matter be discussed.

Carried unanimously

Cr Goninon/Cr Brooks

That the application be refused.

Lost

Voting for the motion:

Cr Goninon, Cr Brooks, Cr Lambert

Voting against the motion:

Cr Adam, Cr Goss, Cr Calvert, Cr Knowles, Cr Polley

Cr Polley/Cr Adams

That land at 10 Norfolk Street, Perth be approved to be developed and used for an 8 Lot Subdivision and balance (Flood Prone Areas Code, Water Quality Code & Road & Railway Assets Code) in accordance with application PLN-19-0218, and subject to the following conditions:

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- Kerb and channel and hotmix sealed roads shall be constructed along the frontage of all lots.
- A 1.8m wide concrete footpath shall be constructed along the frontage of all lots.
- An engineering design plan showing the road, footpath and drainage system including pavement long sections and cross sections is to be approved by Council before the commencement of works on site

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A street tree shall be planted outside the frontage of each lot (where practical) prior to the end of the maintenance period.

3.5 As constructed information

As Constructed Plans and Asset Management Information must be provided in accordance with Council's standard requirements.

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Unless otherwise specified within a condition, all works must comply with the Municipal Standards including specifications and standard drawings. Any design must be completed in accordance with Council's subdivision design guidelines to the satisfaction of the Works & Infrastructure Department. Any construction, including maintenance periods, must also be completed to the approval of the Works & Infrastructure Department.



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3.7 Works in Council road reserve

- b) Works must not be undertaken within the public road reserve, including crossovers, driveways or kerb and guttering, without prior approval for the works by the Works Manager.

3.8 Separation of stormwater services

- All existing stormwater pipes and connections must be located.
- Where required, pipes are to be rerouted to provide an independent system for each lot.
- Certification must be provided that stormwater services have been separated between the lots.

3.9 Easements to be created

Easements must be created over all Council owned services in favour of the Northern Midlands Council. Such easements must be created on the final plan to the satisfaction of the General Manager.

3.10 Pollutants

- The developer/property owner must ensure that pollutants such as mud, silt or chemicals are not released from the site.
- Prior to the commencement of the development authorised by this permit the developer/property owner must install all necessary silt fences and cut-off drains to prevent soil, gravel and other debris from escaping the site. Material or debris must not be transported onto the road reserve (including the nature strip, footpath and road pavement). Any material that is deposited on the road reserve must be removed by the developer/property owner. Should Council be required to clean or carry out works on any of their infrastructure as a result of pollutants being released from the site the cost of these works may be charged to the developer/property owner.

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Any new nature strips, or areas of nature strip that are disturbed during construction, must be topped with 100mm of good quality topsoil and sown with grass. Grass must be established and free of weeds prior to Council accepting the development.

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Sewer and water services shall be provided in accordance with TasWater's Submission to Planning Authority Notice (reference number TWDA 2019/01664-NMC).

5 Soil and Water Management Plan

- 5.1 Before works commence, a Soil and Water Management Plan must be submitted detailing how soil and water is to be managed during the construction process. to prevent the inappropriate discharge of soil, sediment or water from the site.
- 5.2 The Soil and Water Management Plan must be implemented and maintained during construction to ensure that soil erosion is to be appropriately managed.

6 Sealing of Plans

All conditions must be complied with prior to sealing of the final plan of survey. Council may, at the developer's request, accept a bond or bank guarantee, for particular works or maintenance, to enable early seal and release of the final plan of survey.

Carried

Voting for the motion:

Mayor Knowles, Cr Polley, Cr Adams, Cr Calvert, Cr Goss

Voting against the motion:

Cr Brooks, Cr Lambert, Cr Goninon

Traffic Impact Assessment (TIA)

9 Lot Subdivision (inc. new property accesses)
Norfolk St, Perth, Tasmania

Northern Midlands Council

Author: Andrew Howell,
BEng(Hons), MEngSci

October 2019

Document History and Status

Rev	Date	Revision Details
A	08/10/2019	TIA Draft for Comment

Distribution of Copies

Rev	Quantity	Issued To
A	1	Client

Author: Andrew Howell, BEng (Hons) - UTAS, MEngSci - UNSW
Client: J Galbraith, Northern Midlands Council
Project: 9 Lot Residential Subdivision Development, Norfolk Street, Perth, Tasmania
Subject: 'TIA report'
Document: Report
Job No. 1902

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1. Introduction

A proposed subdivision development at 10 Norfolk Street Perth requires the proponent to complete a Traffic Impact Assessment (TIA) (refer Fig 1.1 - Locality Plan) to assess and consider traffic impacts arising. The Proponent is Northern Midlands Council.

The development proposed consists of an 9 Lot subdivision - creating 8 new residential lots and one (1) new large POS lot as a balance lot. The balance lot is now proposed to complement an existing smaller park area to the Southeast of the subject site. Refer *APPENDIX A – Subdivision Layout Plan*.

A site inspection to consider the site proposal was carried out on 10th September 2019.

1.1 Background & Project Scope

Preliminary information has been developed by 6ty Degrees Surveying, in anticipation of providing a Development Application to Northern Midlands Council (NMC). *Northern Midlands Council is also the proponent for this development.*

The nature of the development requires that a TIA is required to be undertaken, and the below report addresses traffic related aspects and attempts to identify any potential impacts affecting the development.

1.2 Objectives

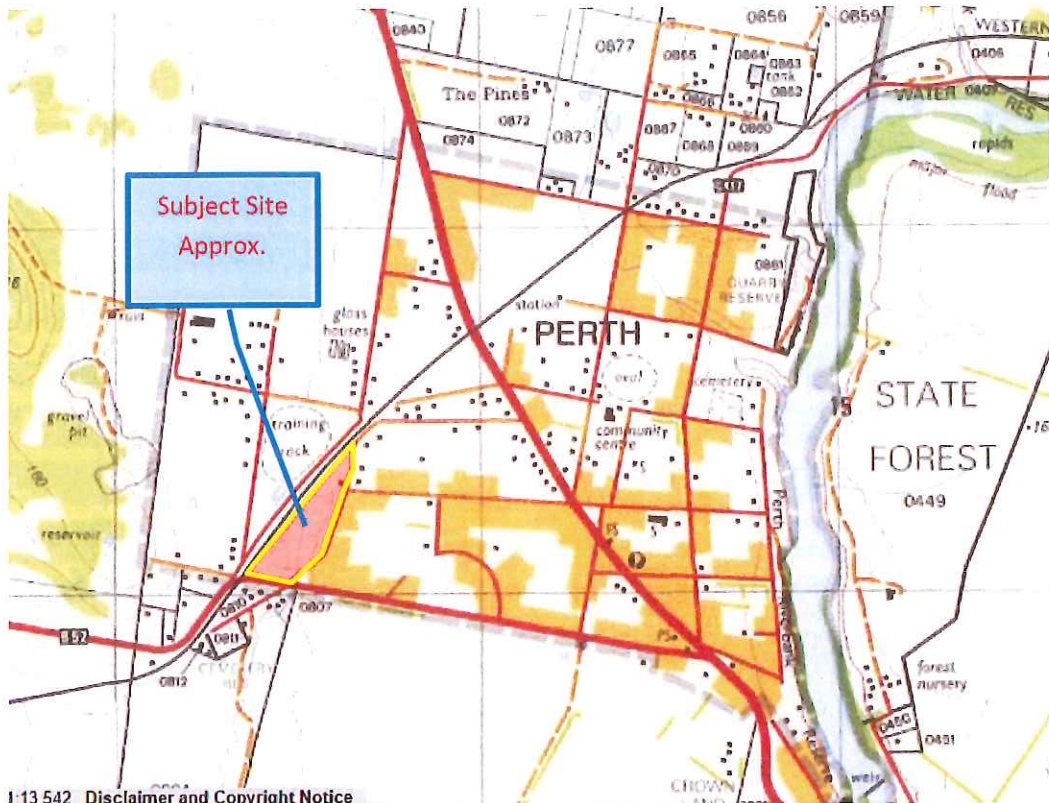
The key objectives of this report are:

- Review of the existing road physical characteristics in the vicinity of the site.
- Review of existing traffic conditions and arrangements.
- Describe the development with regards to arrangements for access, including any implications for traffic efficiency, safety, and amenity.

1.3 Subject Site Location

The subject site considered in this TIA is located at 10 Norfolk Street, Perth, which has frontage to both Norfolk Street generally but also at South boundary has frontage to Drummond Street, and at rear to the “Western line” TASRAIL train line and then beyond this to the adjacent Youl Main Road (currently part of Bass/Midland Highway network link, noting Perth is soon to be bypassed via the PERTHLINKS project currently under construction, and volumes on both of these other major roads will substantially reduce, soon becoming local Council access roads only).

The area of land is currently vacant and undeveloped but abuts on to a small area of parkland to the Southeast corner. It is proposed that the new subdivision will enlarge this park significantly with the new lot 9 being designated Public Open Space. The proposed subdivision as shown in the attached plan will require a new property access to each new residential lot, which will be constructed to NMC Municipal Standards.



I:13,542 Disclaimer and Copyright Notice

Fig 1.1 – Locality Plan /Area of site (Existing Image from www.THELIST.tas.gov.au)



Fig 1.2 – Site (zoom) (Existing Image from www.THELIST.tas.gov.au)

1.4 Information Sources & References

The author has been provided with relevant information from the proponent, including the preliminary subdivision development engineering design plan layout (Refer APPENDIX A). This provides an outline of the proposal, and indicates that generally the development proposes construction of typical road property accesses to Norfolk Street for the residential lots, and frontage for future pedestrian access to the balance lot (potential parkland) will be able to be constructed relatively easily from site inspection. All accesses would need to be in accordance with LGAT/IPWEA Municipal Standards.

Based on the outline of the layout and access works, generally the development proposes no significant change to existing traffic arrangements for the wider network (no material traffic increase arising based on wider network volumes, capacity and generation for the nearby Perth streets).

The report has also reviewed publicly available information including www.THELIST.tas.gov.au and online mapping and street-image tools to ascertain any obvious issues relating to the development. The author has a 20-year history of the site area generally and a recent site inspection has been undertaken to ascertain any obvious issues relating to the development

The author has utilised the DIER (now Department of State Growth or DSG) document "Traffic Impact Assessment (TIA) Guidelines" in the preparation of this report.

Further referenced documents include:

- DSG Tasmanian State Road Hierarchy
- Road and Rail Assets Code (Feb 2013)
- Northern Midlands Council Interim Planning Scheme 2013
- Tasmanian Standard Drawing Set (LGAT/IPWEA Municipal Standards)
- Australian Standards, including specifically AS2890-Off Street Parking

1.5 Planning Scheme Aspects

The Planning scheme applicable is the Northern Midlands Council Interim Planning Scheme 2013.

The current zoning for the land and surrounding area is believed to be **10.0 - General Residential**. *It is noted the adjacent small parkland (corner Norfolk and Drummond Streets) appears to be zoned 19.0 - Open Space and it is likely that the future parkland (Lot 9) may be considered for rezoning as part of this project at a later time – zoning details and any changes proposed in future TBC by Council.*

Based on the likely traffic movements to be generated by the development (>40 VPD), a TIA is required as part of the Development Application, based on E4.6.1.

2. Existing Conditions

2.1 Transport Network

The site access for new residential lots (8 lots total plus a large balance lot as POS and possible future parkland) as proposed is direct to Norfolk Street, Perth, which is probably best considered a 3.0 LINK ROAD under the LGAT Local Government Road Hierarchy – based on the connection of this link from the state road Drummond Street, via Norfolk and then Frederick Streets, to the Midland Highway (in Central Perth), and likely for traffic beyond to East Perth.

This link road is within the town boundary of Perth and has existing residential accesses on both sides of the road in Frederick Street and the East side of Norfolk, throughout the town boundaries, and thus has the urban default speed limit of 50 km/hr.

It is noted that this road sits inside the key links of Youl Rod, Drummond Street and Perth Main Road (Midland Highway) which all currently act as linkages for the Midland/Bass Highway and as a connector to Illawarra Road between Bass and Midland Highways. However, it is noted that this will soon no longer be the case when the Perth Bypass (PERTHLINKS PROJECT) is completed, which is likely within 6 months (DSG contractors are completing construction at present, completion anticipated April 2020). Traffic volumes will significantly reduce as a result of this through traffic no longer being required to travel through Perth, likely including this Norfolk Street link.

Current traffic statistics are likely not particularly relevant, and thus the guidance metric for a road of this type once the Perth Bypass is completed, of a 3.0 Link Road of 1000-3000 VPD using this road is in fact very high compared to actual use, based on site observation during day time periods.

Following site inspection, no traffic capacity issues are expected, with low traffic volumes anticipated even under current operation.

2.2 Road Conditions & Road Safety Performance

The speed limit outside the subject site is the default urban 50km/hr.

Norfolk Street is a lower priority road that connects to the state road link of Drummond Street (which acts as a default link between the Bass and Midland Highways), and so has some potential for through traffic to and from this link, via the Frederick Street link through to the Midland Highway as a link through to and from Eastern areas of Perth. However this is only under the current operation, shortly the completion of the Perth Bypass will significantly reduce this link traffic volume as noted above.

Norfolk Street outside the proposed site is constructed generally to rural road standards on the Western side (proposed development site side), with an approx. 8m wide chip-seal pavement, gravel shoulders, and minor swale-style open drains, with no kerb and channel, footpath or formed nature strip.

The Eastern side of the road is generally fully developed to urban standards with kerb and channel, but no footpath but a grassed nature strip.

The vertical alignment of the road at the proposed property access locations for each lot is excellent with no issues anticipated. Horizontal alignment for the South for all accesses is sound, however there is a curve/corner to the North as the main road link turns to the right through the Frederick Street corner, with only a minor road link extending to the North (Dead end servicing only a handful of properties). This corner requires consideration for SISD for the northern lots but appears sound on site specific assessment and review (*refer sight distance comments/review below in Section 4*).



Fig 2.1 –View to South on Norfolk Street generally, to Junction with Drummond Street; showing current gravel parking area for corner parkland zone (Approx views)



Fig 2.2 –View to North on Norfolk Street generally (Approx)

3. Proposed Development

3.1 Site Development

The development as proposed provides for 8 new residential lots and one new balance lot likely proposed for public open space (POS) to complement the existing corner park area, all generally as per the layout plan attached.

New property accesses are required for each new serviceable residential lot and will need to be specified and constructed to the IPWEA/LGAT municipal standard drawings in terms of construction, width, etc. This consists of a level sealed access of suitable width and with continuous kerb and channel, plus new footpath as shown - Council will likely to require this roadside upgrade to create urban road frontage construction standards. It is noted barrier Kerb is proposed outside the residential lots, with street trees, and width for a nominal parking lane. This kerb will transition to mountable kerb South of the final residential lot, to allow off street access and parking at the existing park frontage area, for further off street parking – this zone currently exists for informal parking (gravel parking area) and no specific changes are currently proposed.

The applicable IPWEA/LGAT standards detail requirements apply for driveway accesses in each case, and the design plans appear to show these meeting the intent of these standards.

The interface options at the undeveloped roadside edge appears sound for this work as proposed to occur, with existing levels, edge of pavement and kerb alignments appearing to be able to be easily matched in with. Some stormwater improvement works appear to have been considered to facilitate this kerb drainage and access construction works, however based on the flat grades in the area final surface improvements/drainage works are likely required as part of current engineering design for construction works as proposed.

Connection for potential pedestrian and bike traffic is provided to the balance lot (potential parkland), with street frontage at the North linking directly to the Frederick Street alignment, and to the existing parkland area at the South. This provides sound connectivity for these uses.

3.2 Traffic Generation & Distribution

Due to the low probability of off-site impacts in light of the general residential nature of the surrounding area, a detailed assessment of external site impacts, beyond the proposed new property accesses and SISD, is not likely to be required by Council/DSG at this time.

Despite the above, for guidance, as a residential subdivision it is likely each lot may generate approximately 7-8 VPD. This equates to 56-64 VPD generation for the development – this is not material in terms of off-site network implications based on Youl Road likely capacity following PERTHLINKS completion due by early to mid-2020.

4. Traffic Impacts

4.1 Access/Junctions – Sight Distances

Based on an understanding of the current and proposed situation the new property accesses for the subdivision, constructed as per the Subdivision Design Plans and in accordance with DSG & IPWEA/LGAT Municipal Standards, appear to be able to satisfactorily cater for the proposed accesses to the properties in all cases. Some consideration and comment on sight distance with regard to the northern most lots is provided below.

It is noted that standard accesses with appropriate widths, construction standards, etc. will contribute to ensuring safe and efficient turning and access opportunities for vehicles entering and exiting the site. Stormwater checks should be undertaken during detailed design to ensure that the road drainage is maintained satisfactorily.

For Council, Clause E4.7.4 of the Planning Scheme notes that sight distance for accesses for Acceptable Solution A1 comply with Safe Intersection Sight Distance (SISD) from table E4.7.4. For a vehicle limit of 50 km/hr and a speed zone of 60km/hr or less this would require 80 metres at the proposed site.

For practical purposes with reference to AS2890, a road frontage speed limit of 50 km/h, min sight distance for a domestic driveway is 40m (Fig 3.2).

This distance is easily achieved for all new accesses for a view to the SOUTH with extensive visibility due to suitable horizontal and vertical alignment – approximately 100m min back to the Drummond St intersection, for the worst case/Southernmost access.

However, looking to the north some of the Northern accesses, particularly Lot 8, are located towards the corner of Frederick Street. The current area is clear and has open visibility to this corner, allowing drivers to see at the intersection (and vice-versa), a distance of around 70m to the likely location of Lot 8 driveway (worst case access). Lower speed turning manoeuvres are also likely at the corner for approaching traffic turning left into Norfolk Street from Frederick.

On this basis, whilst the Planning Scheme A1 is not strictly met, by consideration if the site specific requirements and with reference to AS2890, Performance Solution P1 can be achieved to ensure SISD for all accesses.

With site specific consideration and review of Austroads and Australian Standards requirements, sight distance for all lots is thus determined satisfactory.

Based on above analysis, E4.7.4 is met by P1. Sight distances are satisfactory.



Fig 4.1a – View from typical proposed new access to the NORTH – approximate



Fig 4.1b – View from typical proposed new access to the SOUTH – approximate



Fig 4.1c – Sight Distance from Lot 9 access (worst case) to North, considering potential sight distance to nearby intersection with Frederick Street



Fig 4.1d – Sight Distance to Lot 9 access (worst case) from North, considering potential sight distance from nearby intersection with Frederick Street

4.2 Surrounding Road Network Impacts

Whilst assessment of additional road network parameters beyond property access arrangements were outside the remit of this report, it is believed that off-site impacts arising from this development would not significantly affect the wider road network, based on the development fitting within the existing residential arrangements for the general Perth area, particularly in light of the future Perth Bypass soon to be completed. It is also noted other properties in the immediate area including Norfolk Street (eastern side) have similar accesses which operate successfully with no issues noted.

4.3 Parking Assessment

Not required to be considered as part of this report.

4.4 Road Safety & Traffic Service

Due to the appropriate sight distances as outlined, there appear no apparent issues for road safety arising from the development.

Traffic service for the proposed development is likely to be adequately provided with the existing infrastructure off site (capacity, turning gaps, etc.), based on the current development levels for existing property accesses operating successfully in this zone on the Eastern side of the street and residences likely serviced by this link. It is noted that the volume reductions likely arising from the proposed Perth Bypass soon to commence construction will only improve traffic service further for these accesses in future.

4.5 Pedestrians, Cyclist impacts, Public Transport

Currently there is no dedicated pedestrian footpath on the Norfolk Street frontage at the site. Design pans proposed that the proponent Council construct a footpath, as part of wider footpath linkages in the West Perth area and to link the proposed parkland area behind the proposed lots. An access link across from the extension of the Frederick Street footpath direct into the parkland site (north of Lot 8) is also proposed and considered appropriate.

This footpath network arrangement appears reasonable and provides good linkage to the proposed parkland and for pedestrian traffic to connect to the current Perth shipping precinct and other nearby destinations.

Existing cyclist access appears to be informal only in Perth (no dedicated infrastructure), and no specific impacts or changes are identified.

4.6 Public Transport Provision

Not part of this assessment, however taxis are able to service the site and buses service the general area of Perth. No change to any existing arrangements in the Perth area is proposed.

4.7 Summary of Assessment against Planning Scheme E4 – Road and Railway Assets Code

Item	Comment/Criteria Met
E4.6.1 – Use of Road or Rail Infrastructure	A1 – Not Applicable (speed limit not more than 60km/hr) A2 – Not Met (>40VPD) – refer P2 P2 – refer comments Section 4 – REQUIREMENTS ARE MET (Safety and Service requirements met) A3 – Not applicable (speed limit <60km/hr)
E4.7.1 – Development on and adjacent to Existing & Future Arterial Roads and Railways	A1 – REQUIREMENTS ARE MET (SUBJECT TO CONSTRUCTION OF PERTH BYPASS UNDER CONSTRUCTION – Both roads soon no longer be DSG Category 1 & 2 roads), Building envelopes and other key items >50m from rail line.
E4.7.2 – Management of Road Accesses and Junctions	A1 – REQUIREMENTS ARE MET (Single access only each property) A2 – Not applicable (speed limit <60km/hr)
E4.7.3 – Management of Rail Level Crossings	NOT APPLICABLE
E4.7.4 – Sight Distances at Accesses, Junctions and Level Crossings	A1 – NOT MET P1 - REQUIREMENTS ARE DEEMED MET (refer Section 4.4 Assessment)

Conclusion: Requirements for E4 are met.

5. Authority Feedback

5.1 Northern Midlands Council Comment/Feedback

Northern Midlands Council is the proponent for this development, and has commissioned this report.

Officers have provided the design layout plans for review, and noted the infrastructure department of Council see no immediate issues arising from the proposal, having had input into its development.

5.2 DSG comment

DSG crash statistics were sought for the preparation of this report, and noted no significant issues relating to the new property accesses area, based on the large traffic volumes using the through roads of Perth links (several minor crashes were located at the Youl Road section of road nearby, however based on volumes this crash history does not appear to be significant or related to any specific road arrangement or deficiency – lower volumes in future for Perth in general, are expected to reduce any potential such issues). Norfolk Street itself has no crash history apparent.

Perth will soon be bypassed as noted (April 2020), and DSG staff have previously indicated their expectations for traffic volumes in Perth to significantly reduce during informal discussions.

6. TIA Conclusions

This TIA has investigated the potential impacts from the development of a new 9 lot subdivision at Norfolk Street Perth as details in this report, including the construction of new property accesses for the subject site.

Key findings are as follows:

- That the new property accesses with likely locations in the subdivision general design layout as proposed will meet the requirements for traffic safety and service (when constructed in accordance with LGAT/IPWEA Municipal Standard requirements)
- Sight distances for all accesses as proposed can comply with the NMC Planning Scheme E4.7.4 requirements for SISD, and AS2890 requirements for property accesses
- All other aspects of the development comply with NMC planning scheme requirements under Code E4

Based on the above assessment of available information that the development including the new property accesses is likely to meet the requirements for Traffic Safety and Service, and any potential for adverse effect on the existing Traffic Safety situation is unlikely.

Limitations

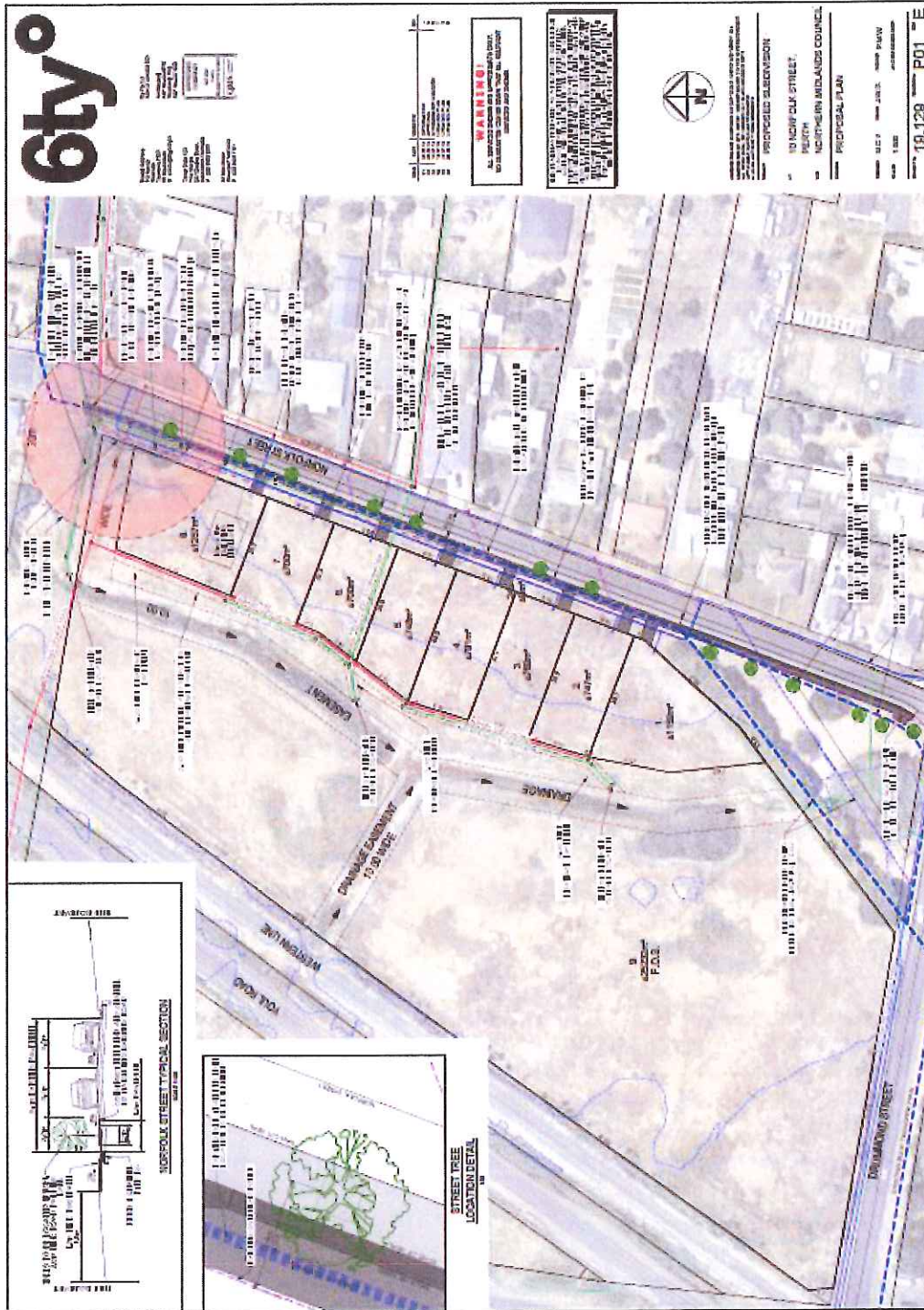
This TIA has been completed based on information provided by the client and available in the public domain, additional information beyond this has not been considered.

Based on the nature of the development, this TIA has considered the access and operational aspects for this development only, and has not considered in detail the wider impacts beyond the site (upstream network impacts), this being outside the scope of this report.

Any subsequent changes to configuration or arrangements relating to the development which may impact on the content or recommendations of this report must be reviewed and approved by the author.

APPENDIX A

Proposed Development Plan & Engineering Design Plan Draft



APPENDIX B

DSG Crash Statistics – Local Area

(Refer attached data set also, local map detail below – no issues shown)

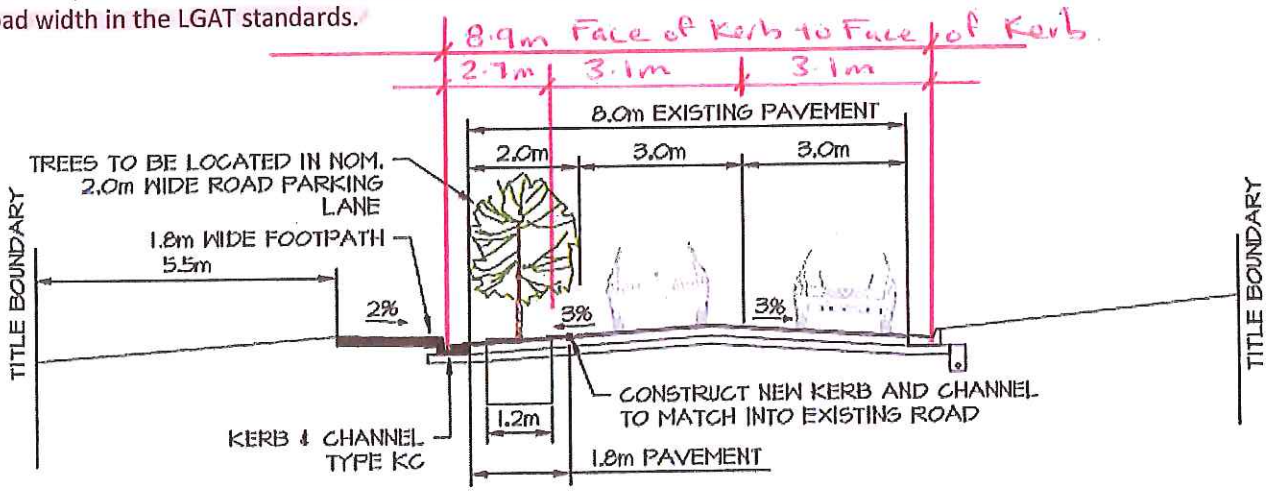


Des Jennings

Subject: Norfolk St tree widths

The plan states that there is a "nom 2.0m wide parking lane." This means that the engineer has made an allowance for small changes if necessary. The actual width is 2.2m so only just slightly wider than the nominal measurement shown on the plan. It's also worth noting that AS2890.5 states that under normal conditions a parking lane should be 2.3m, or 2.1m on a narrow road.

* This still provides 2 x 3m wide lanes for vehicles to pass because the kerb is .45m wide and is counted as part of the road width in the LGAT standards.



NORFOLK STREET TYPICAL SECTION

SCALE 1:100

- Typical Section
- Actual Section

SECTION 2 PARKING ARRANGEMENTS AND BAY DIMENSIONS

2.1 GENERAL On-street parking for cars generally comprises the following:

- (a) Parallel kerbside parking (see Clause 2.2).
- (b) Angle kerbside parking (see Clause 2.3).
- (c) Centre-of-road parking, either parallel or angle parking (see Clause 2.5).

Facilities are also provided for trucks, motorcycles, buses, taxis, bicycles and other special uses (see also Section 4).

Guidance on the types of parking permitted on roads of various widths and traffic volume, is given in Clause 2.4.

2.2 PARALLEL PARKING

2.2.1 General characteristics Parallel kerbside parking in the direction of traffic flow is the basic method of parking provided for in regulations. It presents, under properly controlled conditions, the least impediment to the orderly and regular flow of traffic along a road. The number of vehicles able to parallel park along any given length of kerb is not as high as in angle parking, but it has the advantage of minimizing accidents associated with parking and unparking manoeuvres. Parallel parking is also the best system for use where parking must be provided and street capacity must be kept to a maximum, because it requires a lesser width of roadway for parking and manoeuvring.

2.2.2 Dimensions and layout of parking spaces Figure 2.1 shows typical layouts of parallel parking spaces. The minimum width of these spaces for various uses is given in Table 2.1 (see also Clause 2.4(a)).

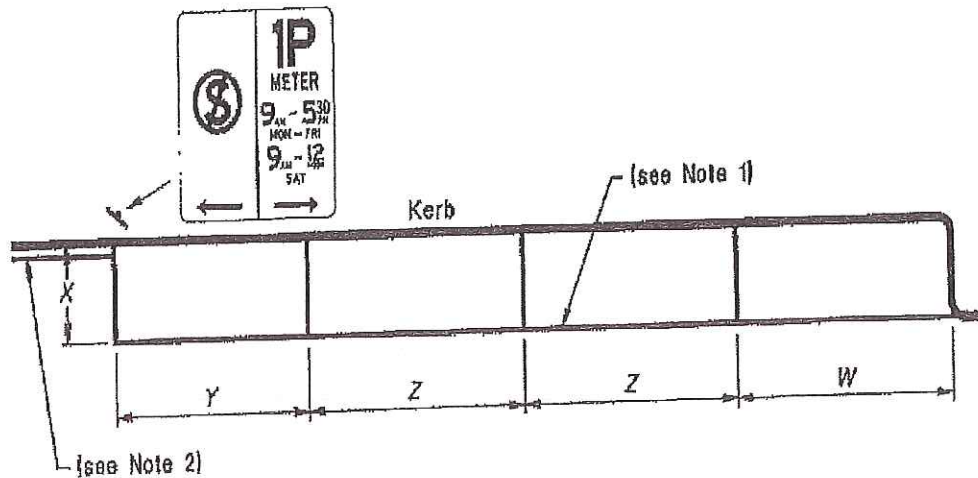
TABLE 2.1
WIDTH OF PARALLEL PARKING SPACES

Space usage	Space width, minimum m
Cars and light commercial vehicles, normal conditions	2.3
Cars and light commercial vehicles, restricted roadway width, parking of wide vehicles unlikely and where a continuously marked narrow parking lane will aid traffic flow	2.1
Trucks and buses	2.6

To provide orderly parking, it is desirable to mark parking spaces in areas of high demand and turnover. Pavement markings shall be in accordance with AS 1742.11, which also details pavement messages that may be marked on the road to supplement parking sign controls and help users to recognize the applicable parking restrictions.

2.3 ANGLE PARKING

2.3.1 General characteristics Angle parking can generally accommodate up to twice as many vehicles per unit length of kerb as parallel parking. Small angles (30 degrees or less) give little advantage over parallel parking, especially where there are frequent driveways or other kerb interruptions. The maximum advantage occurs at 90 degrees. However, all forms of angle kerbside parking present a greater hazard to road users than parallel parking. Studies show that when parking is changed from angle to parallel kerbside parking, the accident rate along a length of road decreases substantially and the traffic capacity is greatly increased.



LEGEND:

- X = width of space—see Table 2.1
 Y = length of end space where vehicles may enter or leave the space directly—5.4 m minimum
 Z = length of intermediate space—6.0 m to 6.7 m, depending on parking turnover and traffic volume (see Note 3)
 W = length of end space which is obstructed at one end by a kerb or barrier—6.3 m or length Z of adjacent space, whichever is the greater

NOTES:

- 1 Space markings may be broken or unbroken. Unbroken longitudinal space markings can assist in the guidance of traffic past parking spaces.
- 2 'No Stopping' restrictions may be supplemented by a yellow line 80 to 100 mm wide, close to the kerb, broken for part-time and unbroken for full-time restrictions.
- 3 Where parking turnover is high and vehicles backing into parking spaces cannot be readily tolerated, increased space lengths, up to 8 m, should be considered.

FIGURE 2.1 TYPICAL PARALLEL PARKING LAYOUT FOR CARS

The use of angle kerbside parking may therefore need to be considered in conjunction with other measures designed to lessen the adverse effects.

The parking manoeuvre is generally more easily accomplished with angle parking than with parallel parking, and is easier with small angles than with large. As the angle of parking increases so does the width of roadway which is required for parking and unparking manoeuvres. 90 degrees is the only angle suitable for access from both approach directions.

Angle parking may be either 'front-in' or 'reverse-in'. Any town or city applying angle parking should be consistent in adopting one form or the other. Reverse-in angle parking is prohibited by law in some States.

NOTE: When proposing the use of reverse-in angle parking, consideration should be given to potential minor hazards associated with vehicles stopping in the moving traffic stream prior to reversing into a parking space, and with nose swing into the adjacent through traffic lane as each vehicle starts its back-in manoeuvre. These hazards are of most concern where moving lanes are narrow and lane traffic volumes are high. Reverse-in angle parking may also result in excessive footpath obstruction from the rear overhang of vehicles, and could contribute to excessive exhaust fumes on the footpath.

TABLE 1 - ROAD REQUIREMENTS (RESIDENTIAL)

ROAD TYPES	ROAD TYPE	ROAD LENGTH / NUMBER OF TENEMENTS	MINIMUM ROAD WIDTH	MINIMUM RESERVATION WIDTH	MINIMUM FOOTPATH REQUIREMENTS
1 - Arterial					
2 - Sub Arterial					
3 - Collector	Through Road	Any length	11.0m	20.0m	Both Sides
	Through Road	Any length	8.9m	18.0m	One Side Only
	Cul-De-Sac	Length > 150m	8.9m	18.0m	One Side Only
4 - Local	Cul-De-Sac	Length ≤ 150m and / or No. of equiv. tenements ≤ 15	6.9m	15.0m	One Side Only

Detail design required

NOTES (TABLE 1)

- Road and reservation widths shown are the minimum required. Increased widths for any road class may be required to accommodate any or all of the following:
 - high numbers of commercial vehicles e.g. Buses, Semi Trailers and B-Doubles
 - high traffic volumes
 - provision for bicycles
- Intermediate road widths between the following ranges are not permitted, 6.9m and 8.9m (F.O.K) 8.9m and 11.0m
- The General Manager's delegated officer, may approve variations to any of the requirements in this Table to suit specific project outcomes.
- Council bylaws apply.

TABLE 2 - ROAD REQUIREMENTS (COMMERCIAL / INDUSTRIAL)

ROAD CLASS	ROAD TYPE	ROAD LENGTH / NUMBER OF TENEMENTS	MINIMUM ROAD WIDTH	MINIMUM RESERVATION WIDTH	MINIMUM FOOTPATH REQUIREMENTS
3 - Collector	Through Road	Lot Size < 10,000m ² or Cul-De-Sac	11.0m	18.0m	(Refer note)
4 - Local		Lot Size ≥ 10,000m ²	10.0m	18.0m	(Refer note)

Detail design required

NOTES (TABLE 2)

- Footpath provision to suit Commercial / Industrial development.
- Notes a. and c. from Table 1.

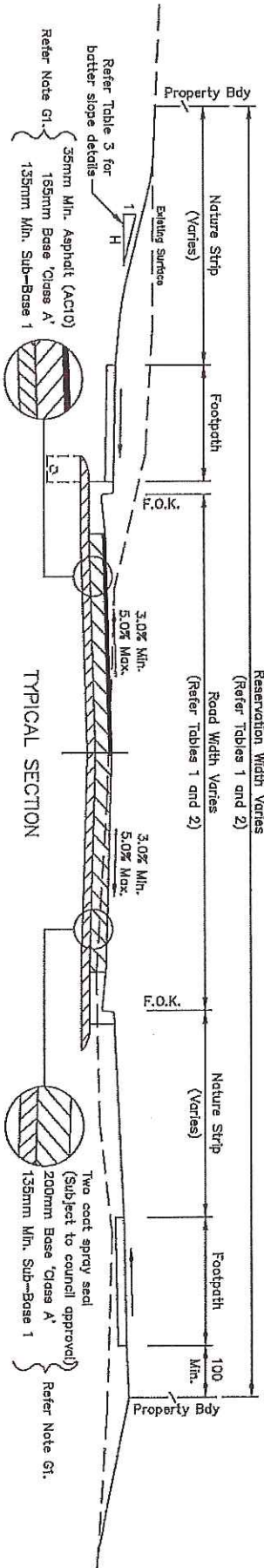
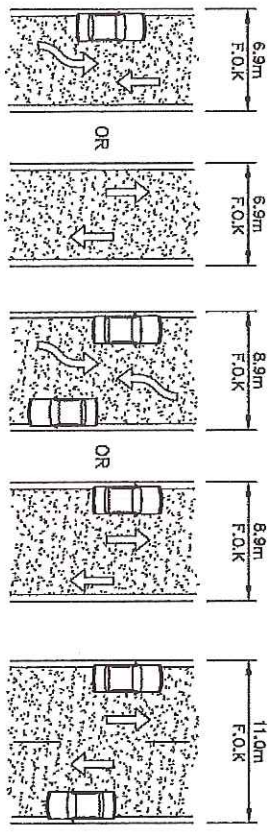


TABLE 3 - MAXIMUM BATTER SLOPES

MATERIAL TYPE	VERT. EMBANKMENT	HORIZ. CUTTING
Solid Rock	1	0.25
Loose Rock	1	1.33
Soil	1	1.50
Sand	1	3.00

TYPICAL LANE CONFIGURATIONS



- NOTES
- Pavement depths shown are the minimum required. Final depths are determined by structural calculations based on the actual sub-grade C.B.R. and design traffic loads. In accordance with the Austroads publication: 'A Guide To The Structural Design Of Road Pavements'. The base course is shown to facilitate ease of construction. It may be reduced to a minimum of 100mm, provided the overall pavement depth (including seal) is ≥ 300mm
 - References:
 - TSD-R09 & TSD-R10 - Driveways
 - TSD-R11 - Footpaths
 - References: Road crossfall greater than 5% must be approved by the General Manager's delegated officer.
 - Surfacing type to consider grades/vehicle type and turning movements.

SCALES: AS SHOWN (All scales are carried at A3)

REFERENCES

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STANDARD DRAWING URBAN ROADS AND PAVEMENT WIDTHS

ISSUED 18-09-2020 PROJECT TSD-R06-V3