ARUP

Elanor Investors Group

Tweed Mall Master Plan

Sewerage and Water Network Capacity Assessment and Site Servicing Report

Reference:

03 | 20 December 2023

Job number 288867

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		Signature			
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		Name	Jin Guo	Jake Cherniayeff	Jake Cherniayeff
		Signature			

Issue Document Verification with Document ☑

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1. Background

Arup has been engaged by Elanor Investors Group to undertake a desktop utilities capacity assessment and site servicing report to support the concept masterplan for the proposed redevelopment of the Tweed Mall.

The purpose of this report is to investigate existing potable water and sewage infrastructure and provide comments on infrastructure requirements to facilitate the proposed development.

As the proposed site design is currently at master planning stage, the advice contained within this report is intended to be high-level and conceptual in nature.

2. Introduction

2.1 Site and Location Description

Tweed Mall is located on the corner of Wharf Street and Bay Street Tweed Heads NSW. The site is rectangular with an area of about 5 hectares (ha), with approximate frontages of 210m along Bay Street and 245m along Wharf Street. The site is bound by Bay Street on the north, Wharf Street on the west, Frances Street on the south and an easement connecting low-rise residential properties on the east.

The site currently comprises low-rise commercial buildings, an at-grade parking area accessed from Wharf Street and two double-storey carparking areas accessed from Frances and Bay streets.

Figure 1: Site Plan

The site is surrounded by low-rise residential properties to the east and south while light commercial developments are situated to the west. North of the site is a public recreational reserve (Chris Cunningham Park). A high-rise residential complex is situated on the north-west corner of the site, approximately 80m from the site.

The Tweed River is located approximately 150m east of the site. The Tweed River is a major waterway of the Northern NSW coast and runs broadly north-south parallel to the coastline and travels inland south-west towards Murwillumbah.

2.2 Proposed Development

The Tweed Mall Master Plan comprises the redevelopment of the site into a mixed-use residential, commercial, and retail precinct.

The proposed re-development will comprise staged demolition of existing structures on the site and construction of a four-storey retail building within the central portion of the site along with a series of residential and commercial towers around the site perimeter that vary in height from ten to twenty storeys. Refer to Figure 2 for the proposed re-development.

Based on the current master planning, the redevelopment comprises of three stage development, with Stage 1 (Lot 1) in 2025, Stage 2 (Lot 3) in 2030 and Stage 3 (Lot 2) in 2036. Refer to Figure 3 for the proposed staging plans.

Figure 2: Proposed Tweed Heads Mall Master Plan Re-Development

Figure 3: Proposed Staging Plan

Table 1 shows the current proposed area schedule for the development.

Table 1: Area Schedule

Area Schedule – Total m^2 (GFA)		Stage 1 m^2 (GFA)	Stage 2 m^2 (GFA)	Stage 3 m^2 (GFA)
Residential	106,959	36,444	46,674	23,840
Retail	44,988	28,220	11,513	5,255
Commercial	14,277	4,368	-	9,910
Hotel	4,537	-	-	4,537

3. Reference Information

The following information has been used to undertake this desktop assessment:

- Dial Before You Dig information, sourced 06 December 2022.
- *Tweed Mall Engineering Infrastructure Due Diligence Report*, Stantec, 19 August 2019
- Tweed Shire Council Development Control Plan (2008)
- Tweed Shire Council D11 – Water Supply (2020)
- Tweed Shire Council D12 – Sewerage System (2022)
- Water Directorate - Section 64 Determinations of Equivalent Tenements Guidelines 2017
- Advice from Tweed Shire Council's Water and Wastewater Engineering Team

3.1 Potable Water

3.1.1 Existing TSC Water infrastructure Review

Various potable water mains exist in the streets adjacent the site, ranging in diameter from 150-250mm. Private supplies to the site are shown to be drawn at various points from the mains in Frances and Bay Streets.

No existing Council-owned potable water infrastructure is shown to be located within the site boundary.

Existing potable water infrastructure within the surrounding street network is as follows:

- North of the site: 250mm diameter Ductile Iron Pipe (DICL) reticulation at Bay Street and Wharf Street intersection which reduces to 150mm diameter Cast-Iron Cement-Line (CICL) reticulation to the east of Bay Street;
- East of the site: 100mm diameter Cast-Iron Cement-Line (CICL) reticulation at Endeavour Parade;
- West of the site: 250mm diameter Ductile Iron Pipe (DICL) reticulation at Bay Street and Wharf Street intersection, which reduces to 150mm diameter Ductile Iron Pipe (DICL) reticulation to the south of Wharf Street;
- South of the site: 150mm diameter Asbestos Concrete (AC) reticulation with 100mm diameter Ductile Iron Pipe (DICL) pipe crossings at Frances Street.

3.1.2 Demand Assessment

An assessment of the estimated increase in potable water demand generated from the proposed development yield has been conducted to determine the estimated peak hour water demand. Individual project areas have been based on the proposed Gross Floor Area (GFA) for residential, commercial, retail and hotel development presented in Table 1.

Demand estimates for potable water have been calculated using WSA 03-2011 and Tweed Shire Council Development Design Specification D 11 – Water Supply. The Equivalent Tenement (ET) for the residential development is calculated in Table 2 using the Water ET value from Section 64 Determinations of Equivalent Tenements Guidelines.

Table 2: Water ET Calculation (Residential Development)

High Density Residential Lots	Water ET/Unit	Stage 1 Units	Stage 2 Units	Stage 3 Units	Stage 1 ET	Stage 2 ET	Stage 3 ET	Comment

1 bedroom	0.33	86	110	55	28	36	18	Assuming 20% of total apartment units
2 bedroom	0.5	321	412	204	161	206	102	Assuming 75% of total apartment units
3 bedroom	0.67	21	28	14	14	19	9	Assuming 5% of total apartment units
	Total	428	550	273	**203**	**261**	**130**	-

A summary of the water demand unit rates is presented below in Table 3.

Table 3: Water Demand Calculation

Development	Demand rate units	Stage 1 (ET or Area)	Stage 2 (ET or Area)	Stage 3 (ET or Area)	Stage 1 Water Demand (L/s)	Stage 2 Water Demand (L/s)	Stage 3 Water Demand (L/s)
Residential	0.05 L/s/ET	203	261	130	10.15	13.05	6.48
Retail	1.2 L/s/ha	2.82	1.15	0.53	3.39	1.38	0.63
Commercial/hotel	1.2 L/s/ha	0.44	0.00	1.35	0.52	0.00	1.61
Water Demand					14.06 L/s	14.43 L/s	8.72 L/s
Total (with 10% contingency)					**15.46 L/s**	**15.88 L/s**	**9.59 L/s**

The estimated fire services water demand is approximately 51.6 L/s with assumption of an OH3 sprinkler system and 3 hydrant outlets flowing simultaneously. On-site fire water tanks within the buildings will be provided if the TSC water mains cannot accommodate the fire water demand.

3.1.3 Authority Liaison

Arup have liaised with the Water and Wastewater Engineering Team in Tweed Shire Council, and have been advised of the following:

- The existing Razorback reservoir which supplies the water supply infrastructure surrounding the site does not have adequate capacity to service the proposed development and although storage augmentation has been planned for in the longer term horizon, augmentation is not currently scheduled within the 10 year capital works plan.
- The capacity of the trunk distribution system feeding the impacted reservoirs needs to be reviewed and additional works identified and their timing determined so they can be placed into the capital works plan. Overall, the timing of these works may need to be brought forward should the Tweed Mall redevelopment occur prior to the current planned completion of works.
- Several works in the vicinity of the site have been identified as required to accommodate the proposed development:

1. A DN200 minimum (TBC) water main is to be provided around the perimeter of the development (see figure 4 below). This will involve a new main along the eastern road verge of Wharf St and upgrade of the existing mains on Bay St, Endeavour Parade and Frances St.
2. A DN200 minimum (TBC) main from Frances St to connect to the existing DN200 main in Enid St to improve capacity in the network. Future hydraulic modelling (conducted by TSC) is to inform any additional required works to ensure standards of service are maintained.
3. A minimum of 2 x fire flow connection points are required to achieve the 56 L/s requirement as stipulated in the Engineering Infrastructure report. Modelling (conducted by TSC) is to confirm the preferred location of these connection points. Onus will then be on the developer to provide firefighting requirements within the site via internal infrastructure, noting this will likely involve a looped reticulation network with connections to Council assets and internal booster systems to navigate the high-rise structures.

- Tweed Shire Council typically provides a nominal 22 L/s to service a developments fire flows.

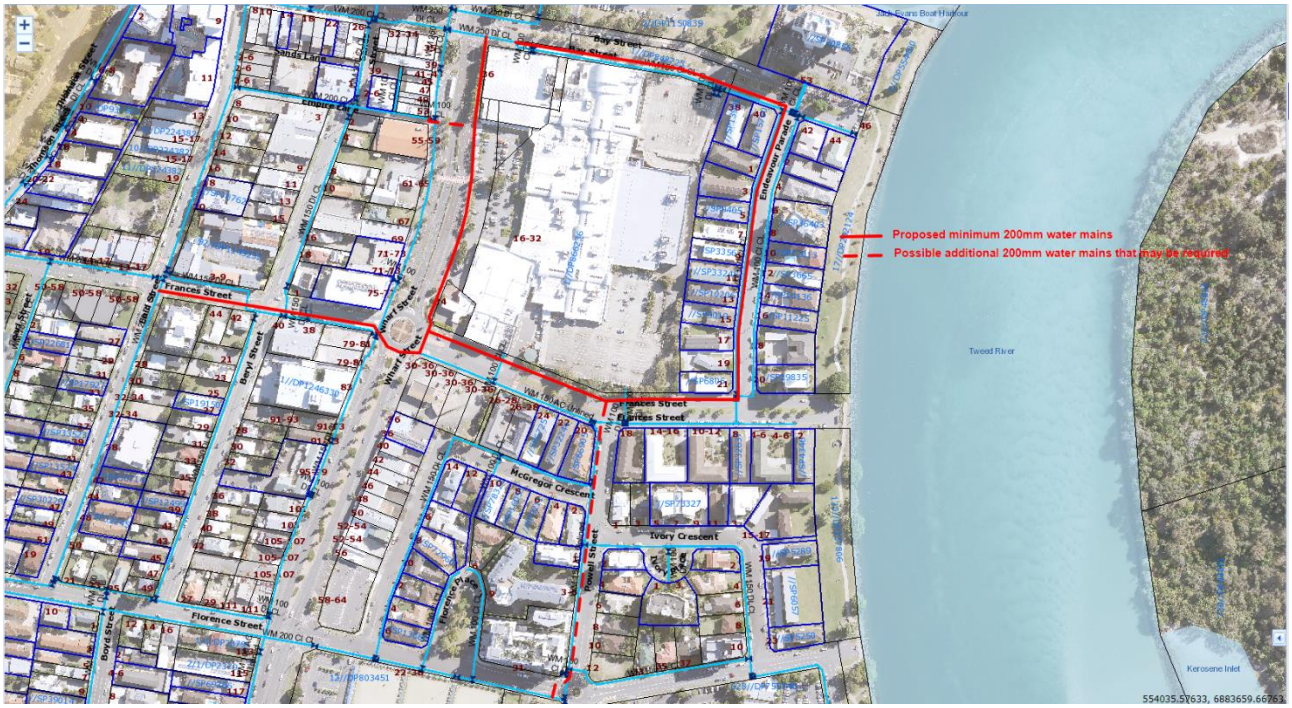

Figure 4 Indicative future water mains to accommodate the Tweed Mall redevelopment (provided by TSC)

3.1.4 Proposed Staging of the Works

The proposed water connections for each stage of the Tweed Mall development, along with anticipated infrastructure upgrades as advised by TSC in section 3.1.3, are outlined below. It's important to note that the commencement dates for each stage are indicative, and the exact construction program is subject to the DA process and further discussions with the Developer.

Stage 1 work is expected to commence in 2025.

- A 150mm water connection is required in Frances Street.
- Anticipated works include the installation of a minimum of 200mm water mains from Frances St connecting to the existing 200mm in Enid St.

Stage 2 work is expected to commence in 2030.

- A 150mm water connection is required in Wharf Street.

- Anticipated works involve the installation of a minimum of 200mm water mains along the eastern road verge of Wharf St, connecting to the existing 250mm water mains on Bays Street and the 200mm water mains in Frances St.

Stage 3 work is expected to commence in 2036.

- A 150mm water connection is required in Bay Street.
- Anticipated works include the upgrade of existing water mains on Endeavour Parade and Frances St to a minimum of 200mm water mains.

Refer to Figure 5 for the proposed water connections for each stage and the associated infrastructure water mains works.

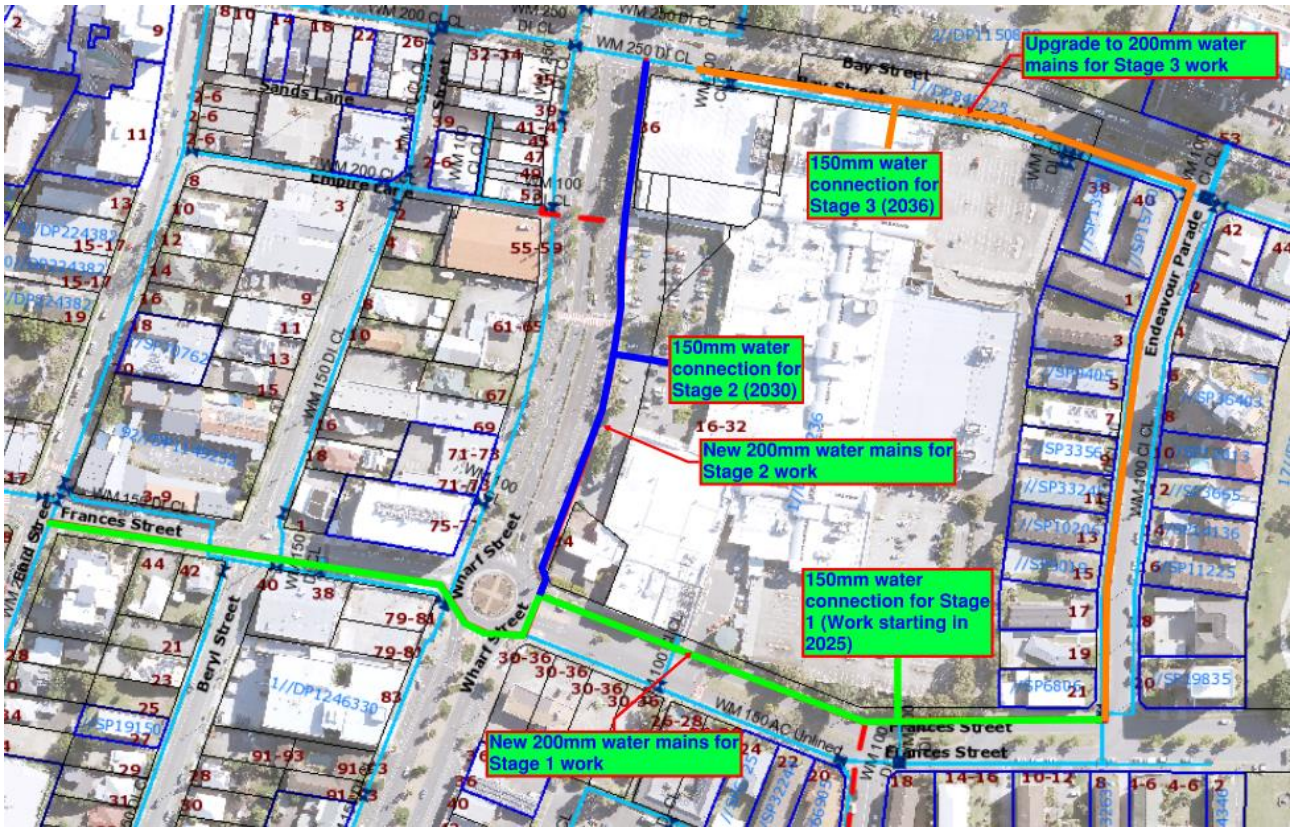

Figure 5 Proposed water connections for each stage and associated TSC water mains works

3.2 Sewer

3.2.1 Existing Utility Infrastructure Review

Various existing sewer gravity and rising mains exist in the streets adjacent the site. Gravity mains range up to 225mm in diameter and rising mains Existing sewer infrastructure is summarised below:

- North of the site: 150mm diameter Vitrified Clay Pipe (VC) gravity main at Bay Street;
- East of the site: no existing sewer infrastructure in Endeavour Parade;
- South of the site: 150mm diameter UPVC rising main along Frances Street;
- West of the site: 250mm diameter Ductile Iron Pipe (DICL) rising main along Wharf Street and reducing to 200mm diameter UPVC near Wharf Street and Frances Street intersection.
- A gravity main varying in size from 150-225mm diameter VC traverses the eastern edge of the site, beneath the existing service road and the northern carpark, connecting the mains in Bay and Frances Street.

3.2.2 Existing Sewer Main Traversing the Proposed Development

Refer to Figure 6, it is proposed to divert existing sewer mains to avoid the proposed development footprint.

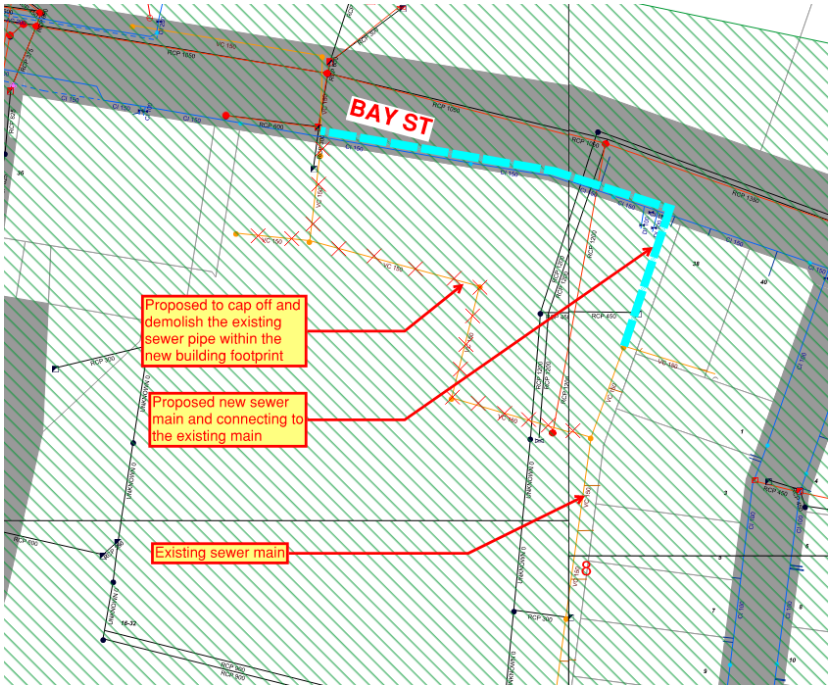

Figure 6: Sewer Traversing the Site

3.2.3 Demand Assessment

An assessment of the estimated increase in sewer loading generated from the proposed development yield has been conducted to determine the estimated peak hour sewer demand. Individual project areas have been based on the proposed Gross Floor Area (GFA) for residential, commercial, retail and hotel development presented in Section 2.2.

Demand estimates for sewer have been calculated using the WSA 02-2014 and Tweed Shire Council Development Design Speciation D 12 – Sewage System. The Equivalent Tenement (ET) for the residential development is calculated in Table 4 using the Sewer ET value from Section 64 Determinations of Equivalent Tenements Guidelines.

Table 4: Sewer ET Calculation (Residential Development)*

High Density Residential Lots	Sewer ET/Unit	Stage 1 Units	Stage 2 Units	Stage 3 Units	Stage 1 ET	Stage 2 ET	Stage 3 ET	Comment
1 bedroom	0.50	86	110	55	43	55	28	Assuming 20% of total apartment units
2 bedroom	0.75	321	412	204	241	309	153	Assuming 75% of total apartment units
3 bedroom	1.00	21	28	14	21	28	14	Assuming 5% of total apartment units
	Total	428	550	273	305	392	195	-

** ET figures corrected by TSC, see section 3.2.4 below*

Summaries of the design flow are presented in the tables below.

Table 5: Stage 1 Design Flow Calculation

Development	Unit	EP Stage 1	d, dry weather peaking factor	PDWF Stage 1	GWI	RDI
Residential	ET=2.8xEP	853	4.0	7.17	0.10	All sewer infrastructure for the development will be new, the RDI will be reduction from previous RDI. Assuming 0
Retail	500/Gross lettable floor (hectare)	1411	3.4	10.07		
Commercial/ hotel	500/Gross lettable floor (hectare)	218	5.5	2.52		
Sub Total				19.76 L/s	0.10 L/s	0
Total				19.86 L/s		

Table 6: Stage 2 Design Flow Calculation

Development	Unit	EP Stage 2	d, dry weather peaking factor	PDWF Stage 2	GWI	RDI
Residential	ET=2.8xEP	1098	3.5	8.07	0.08	All sewer infrastructure for the development will be new, the RDI will be reduction from previous RDI. Assuming 0
Retail	500/Gross lettable floor (hectare)	576	4.1	4.96		
Commercial/ hotel	500/Gross lettable floor (hectare)	0	-	0.00		
Sub Total				13.02 L/s	0.08 L/s	0.00
Total				13.10 L/s		

Table 7:Stage 3 Design Flow Calculation

Development	Unit	EP Stage 2	d, dry weather peaking factor	PDWF Stage 2	GWI	RDI
Residential	ET=2.8xEP	545	4.7	5.38	0.06	All sewer infrastructure for the development will be new, the RDI will be reduction from previous RDI. Assuming 0
Retail	500/Gross lettable floor (hectare)	263	5.5	3.03		
Commercial/ hotel	500/Gross lettable floor (hectare)	446	3.9	3.65		
Sub Total				12.06 L/s	0.06 L/s	0.00
Total				12.12 L/s		

3.2.4 Authority Liaison

Arup have liaised with the Water and Wastewater Engineering Team in Tweed Shire Council, and have been advised of the following:

- The proposed sewerage loadings in table 4 above were noted to be inconsistent with the EP rates stipulated in the Section 64 Guidelines and WSA design flow methodology (adopted by TSC Design Specification D12). The estimated sewer ET for the Tweed Mall redevelopment is to be 1359 ET is significantly higher than what has previously been accounted for in the strategic planning of the network. The following sewerage works are required in order to accommodate the sewerage flows generated by the proposed development:

    1. The existing pumps at SPS2017 Frances St require significant upgrade to accommodate ultimate development flows. The existing design duty of SPS2017 is 30 L/s, with future design flows from the Tweed Mall redevelopment and surrounding local catchment estimated to be circa 75 L/s at ultimate development. The existing location of SPS2017 is highly constrained and TSC would be seeking to acquire land from the developer (approx. 20m x 25m) to construct the new pump station (see Figure 7).
    2. The future upgraded capacity at SPS2017 could not be accommodated within the existing downstream network. A new dedicated DN 250 rising main to the future regional SPS2004 Recreation St would be required (see Figure 8). Flows from SPS2017 could not be accommodated at SPS2004 until SPS2004 upgrade and associated downstream rising main works are complete.
    3. The planned upgrade of SPS2004 and associated downstream rising main works would have to be reviewed and capacity increased to accommodate flows from the SPS2017 catchment. In addition, the timing of these works may need to be brought forward should the Tweed Mall redevelopment occur prior to planned completion of works.

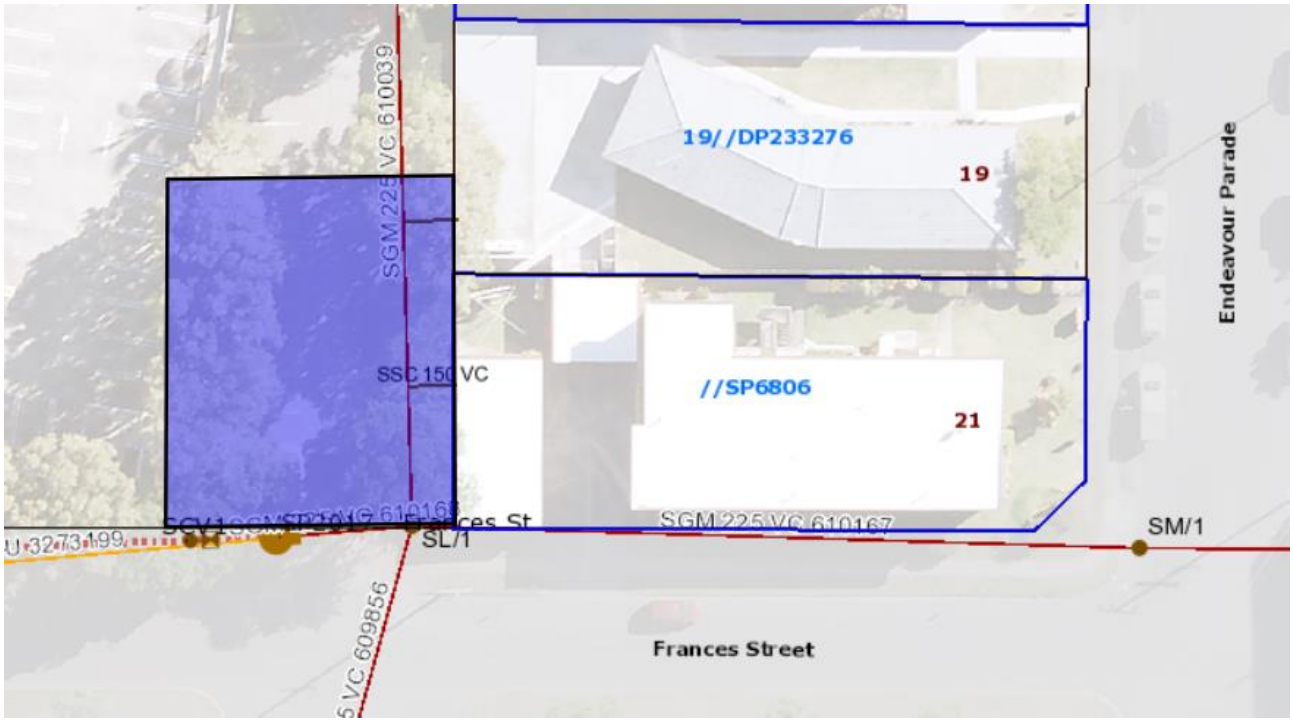

Figure 7 Preferred location of new SPS (provided by TSC)

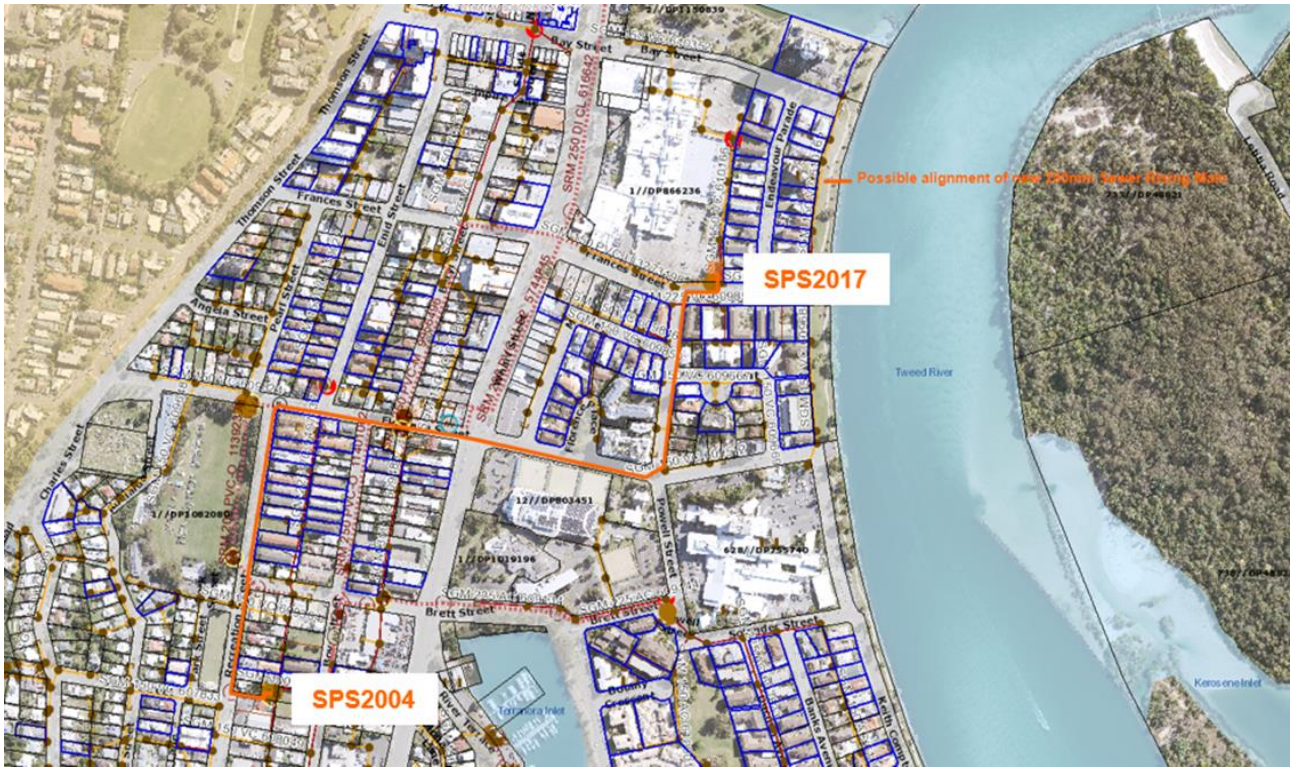

Figure 8 Possible alignment of new DN250 SRM2017 (provided by TCS)

3.2.5 Proposed Staging of the Works

The proposed sewer connections for each stage of the Tweed Mall development, along with anticipated infrastructure upgrades as advised by TSC in section 3.2.4, are outlined below. It's important to note that the commencement dates for each stage are indicative, and the exact construction program is subject to the DA process and further discussions with the Developer.

Stage 1 work is expected to commence in 2025.

- A minimum 225mm sewer connection is required at the proposed loading dock (existing driveway to the carpark).
- Anticipated works include the installation of a minimum 225mm or potential a 300mm sewer mains along the proposed loading dock, leading to upgraded SPS2017.

Stage 2 work is expected to commence in 2030.

- A minimum 150mm sewer connection is required in Frances Street.
- Anticipated works involve the upgrade of existing sewer mains to a minimum of 225mm sewer water mains along the north road verge of Frances St, leading to the upgraded SPS2017.

Stage 3 work is expected to commence in 2036.

- A minimum 150mm sewer connection is required at the proposed loading dock and connecting to the sewer mains installed as part of the stage 1 works.

Refer to Figure 9 for the proposed sewer connections for each stage and the associated infrastructure sewer mains works.

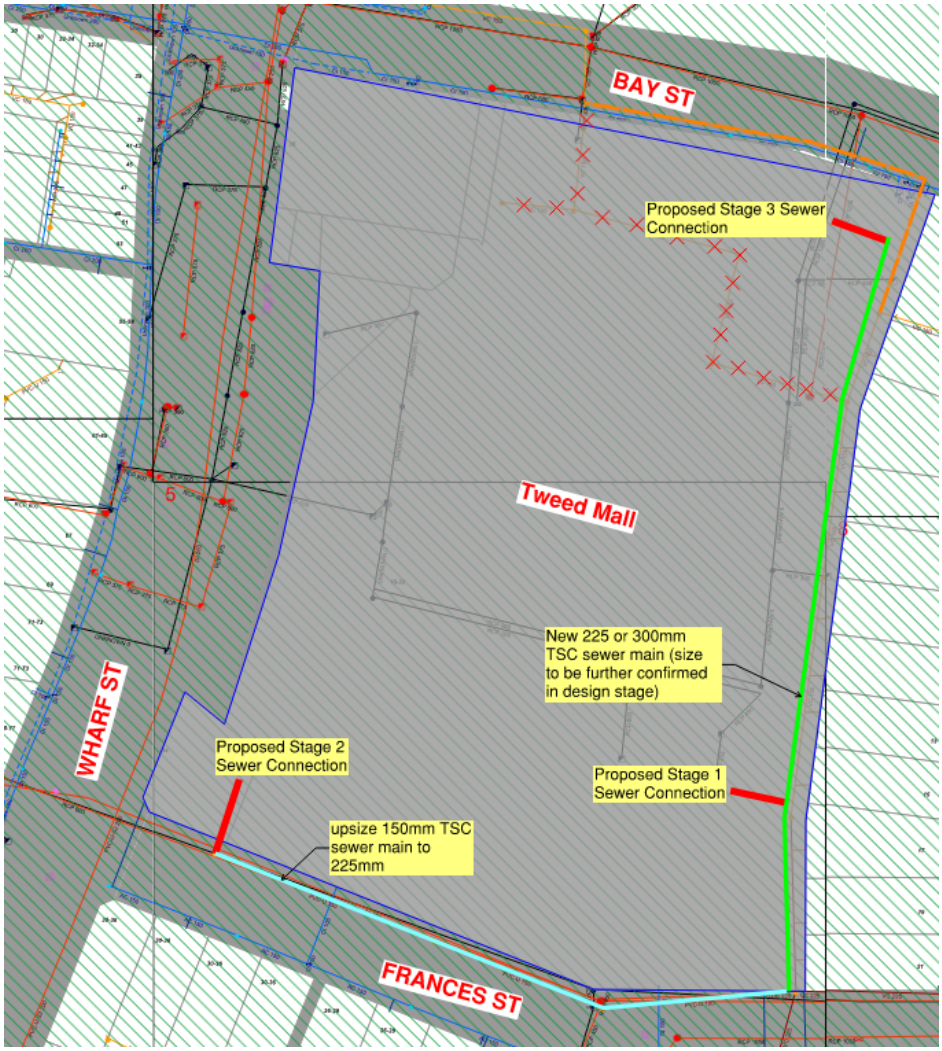

Figure 9 Proposed sewer connections for each stage and associated TSC sewer mains works

4. Next Step

The advice from TSC Water and Wastewater Department in Section 3.1.3 & 3.2.4 needs to be considered and further progressed at the next design stage as part of the DA process. Particularly, the design team will allow the size and location for the new sewer pump station into the design as part of the DA submission.

Appendix A

Dial Before You Dig Plans

Overview Map

Sequence No: 219048802
26-28 Frances Street Tweed Heads

Date: 06/12/2022

1:5000 @ A3 Portrait

Legend:
BYDA Work Area

Imagery sourced from OpenStreetMaps

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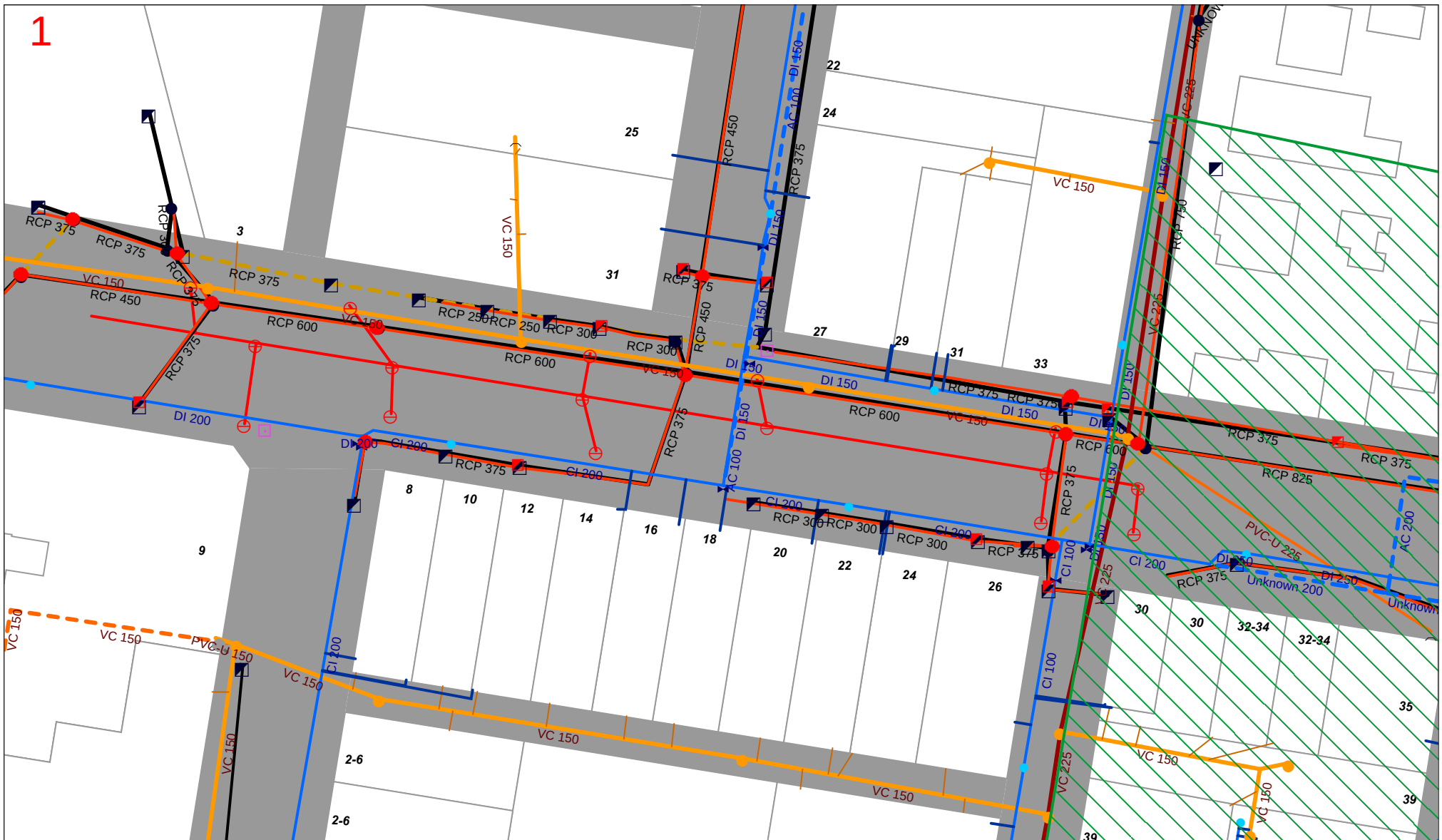
Map 1

Sequence No: 219048802

26-28 Frances Street Tweed Heads

TWEED SHIRE COUNCIL

Date: 06/12/2022



Sewer Pipeline
- Sewer Rising Main
- Sewer Rising Main (Abandoned)
- Sewer Rising Main (Private)
- Sewer Gravity Main (Abandoned)
- Sewer Gravity Overflow
- Sewer Gravity Main (Private)
- Sewer Service Connection

Sewer Gravity Mains
- 0- 200
- 225 - 600
- 700- 900
- Sewer Vacuum Mains

Sewer Node
- End Cap
- Public Manhole
- Public Property Pump
- Public Pump Station
- Vacuum Chamber
- Vent Stack

Communication
- Communication Node
- Communication Cables

Stormwater Pipe (Survey)
- Stormwater Pipe (Survey)
- Stormwater Culvert (Survey)

Stormwater Pipe
- Stormwater Pipe
- Stormwater Pipe (Abandoned)
- Stormwater Pipe (Private)
- Stormwater Culvert
- Stormwater Culvert (Abandoned)
- Stormwater Channel
- Stormwater Channel (Abandoned)

Stormwater Node (Survey)
- Manhole
- Drop Inlet
- Kerb Inlet
- Wingwall

Stormwater Node
- Manhole
- Drop Inlet
- Kerb Inlet
- Wingwall
- Private Stormwater Point

Water Pipe Location
- Water Main
- Water Main (Abandoned)
- Water Main (Private)
- Water Main (Recycled)
- Water Service Connections

Water Node
- Gate Valve
- Hydrant
- Pressure Reducing Valve
- Pressure Sustaining Valve
- Pump
- Reservoir
- Scour Valve

SCIMS Survey Marks
- CP
- CR
- GB
- MM
- PM
- SS
- TS

General
- Property Boundary
- BYDA Work Area
- Flood Levee

1:600 @ A3 Portrait

Date printed: 06/12/2022

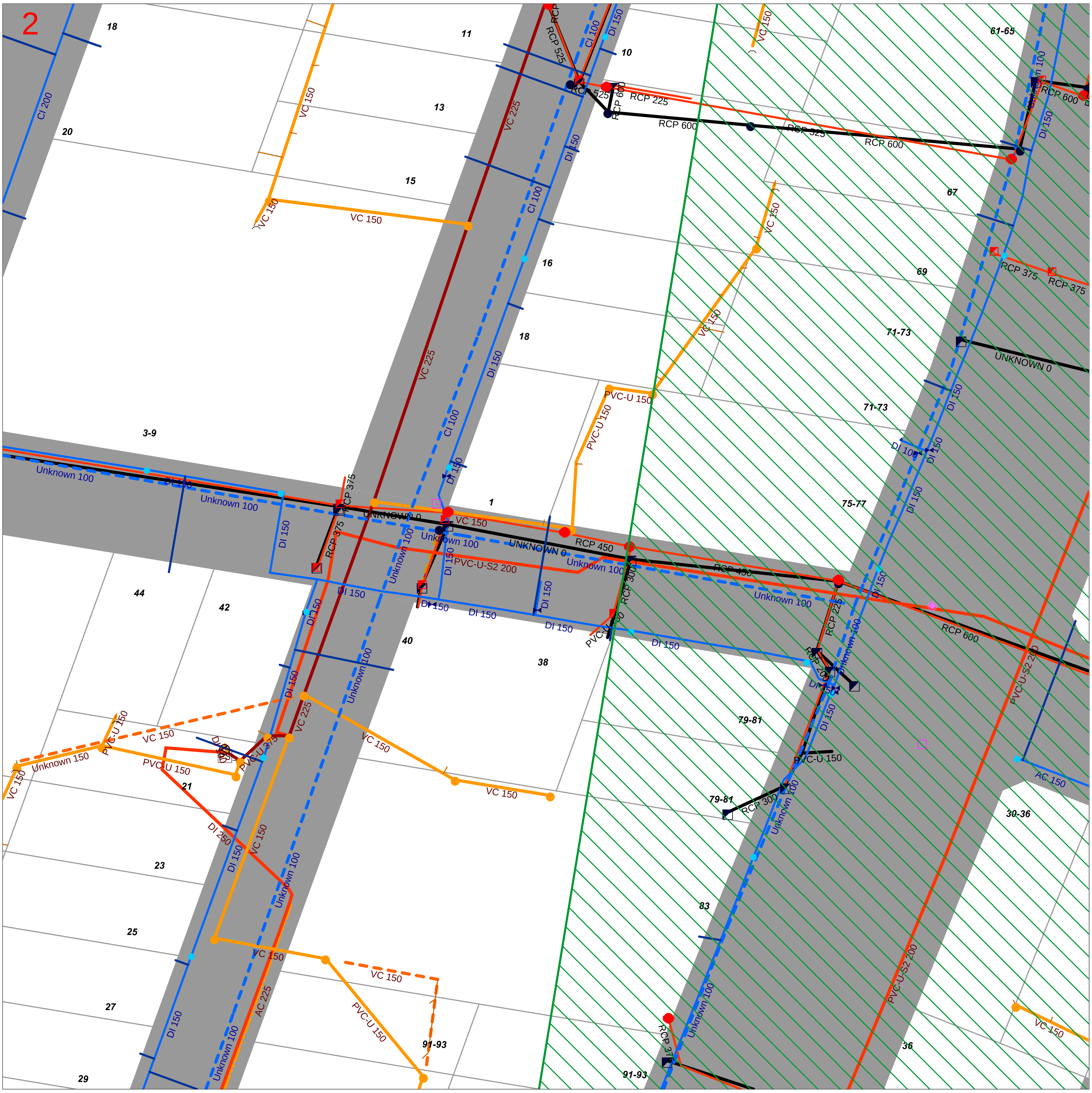
Boundaries shown should be considered approximate only

Map 2

Sequence No: 219048802
26-28 Frances Street Tweed Heads

TWEED SHIRE COUNCIL

Date: 06/12/2022



Sewer Pipeline
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- Sewer Rising Main (Private)
- Sewer Gravity Main (Abandoned)
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- Sewer Vacuum Mains

Sewer Node
- End Cap
- Public Manhole
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- Vacuum Chamber
- Vent Stack

Communication
- Communication Node
- Communication Cables

Stormwater Pipe (Survey)
- Stormwater Pipe (Survey)
- Stormwater Culvert (Survey)

Stormwater Pipe
- Stormwater Pipe
- Stormwater Pipe (Abandoned)
- Stormwater Pipe (Private)
- Stormwater Culvert
- Stormwater Culvert (Abandoned)
- Stormwater Channel
- Stormwater Channel (Abandoned)

Stormwater Node (Survey)
- Manhole
- Drop Inlet
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Stormwater Node
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Water Pipe Location
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- Water Main (Recycled)
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General
- Property Boundary
- BYDA Work Area
- Flood Levee

N

1:600 @ A3 Portrait

Date printed: 06/12/2022
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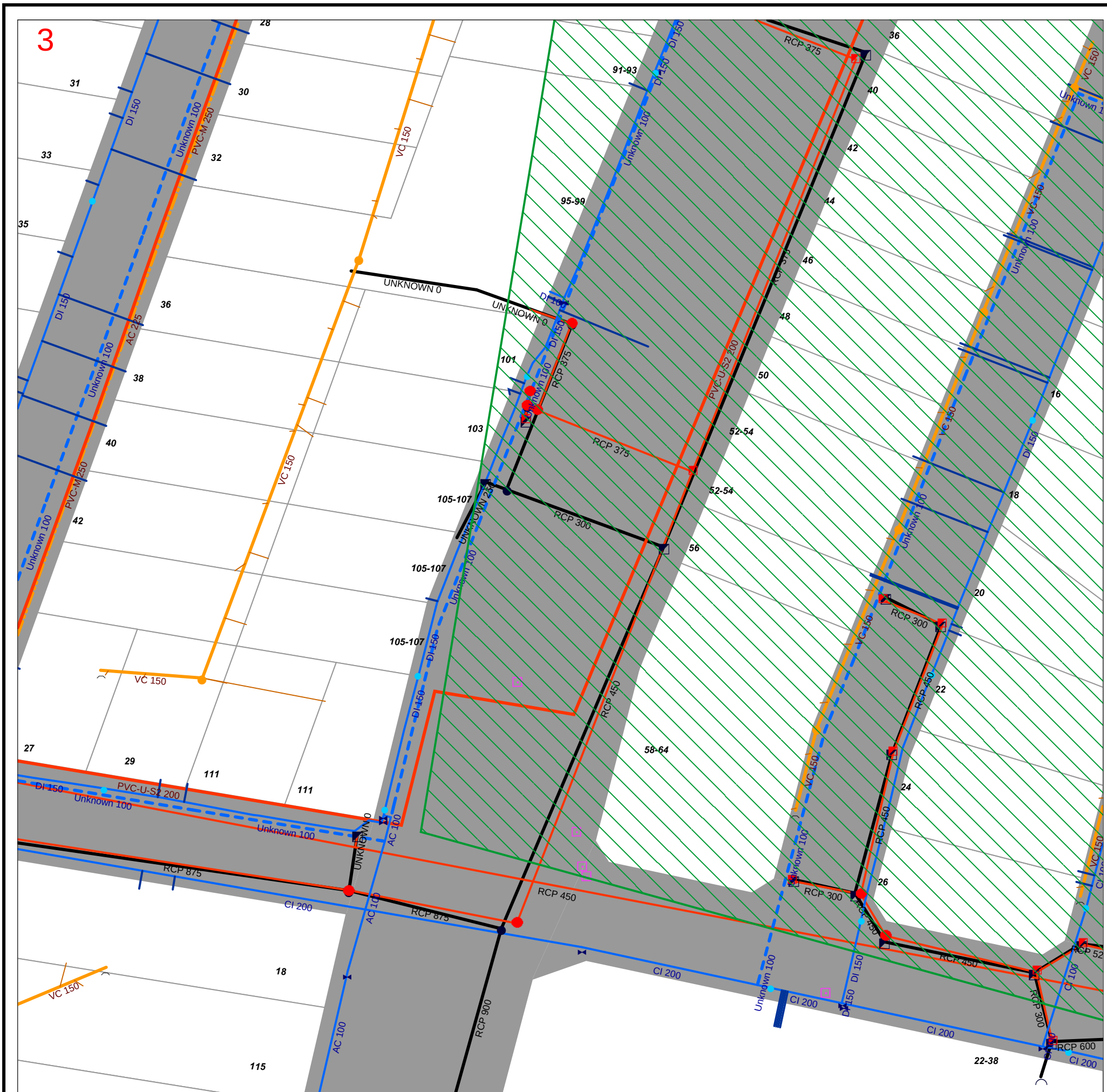
Map 3

Sequence No: 219048802

26-28 Frances Street Tweed Heads

TWEED SHIRE COUNCIL

Date: 06/12/2022



Sewer Pipeline
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- Sewer Rising Main (Private)
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Communication
- Communication Node
- Communication Cables

Stormwater Pipe (Survey)
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Stormwater Pipe
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Stormwater Node (Survey)
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General
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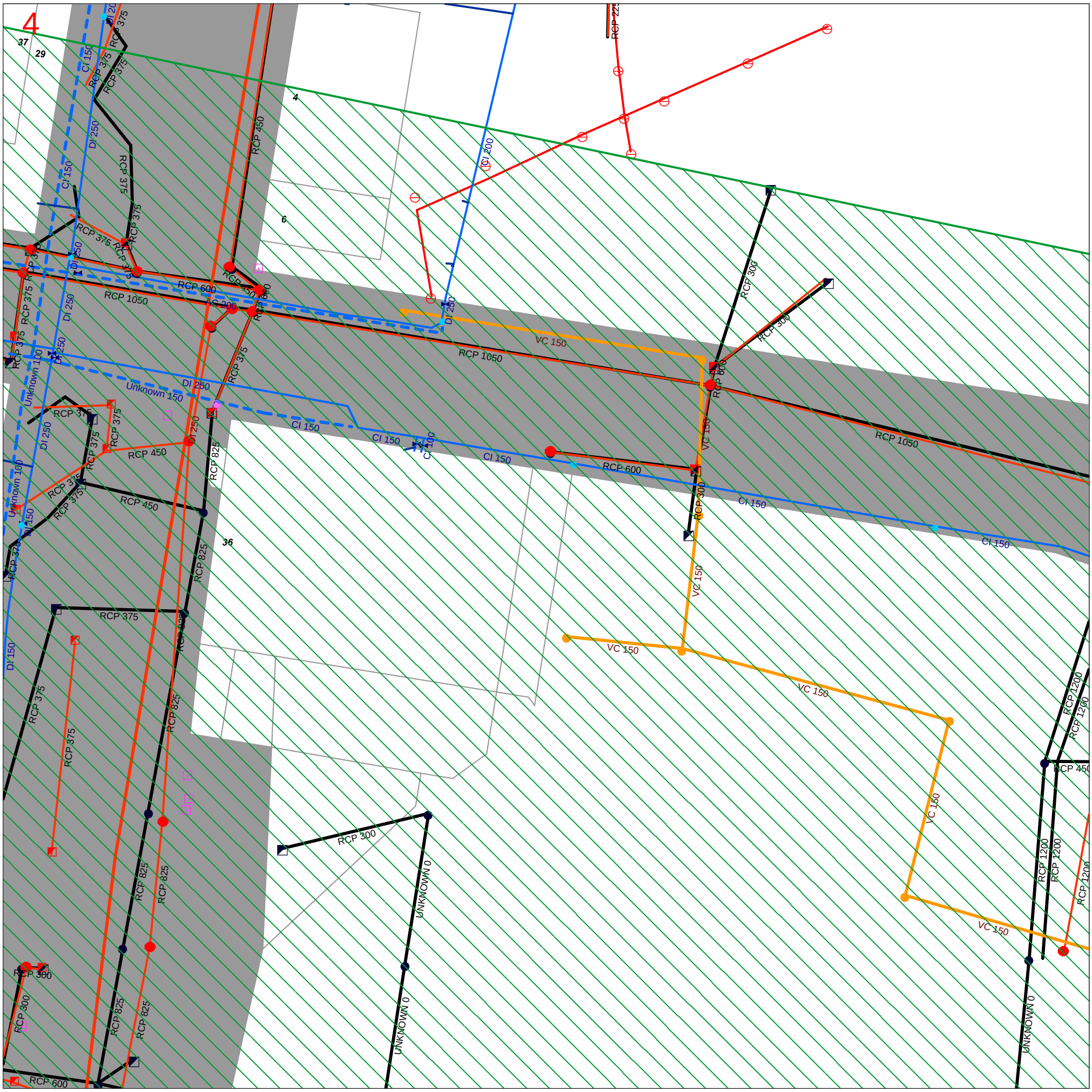
Map 4

Sequence No: 219048802
26-28 Frances Street Tweed Heads

TWEED SHIRE COUNCIL

Date: 06/12/2022



Sewer Pipeline
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Map 5

Sequence No: 219048802
26-28 Frances Street Tweed Heads

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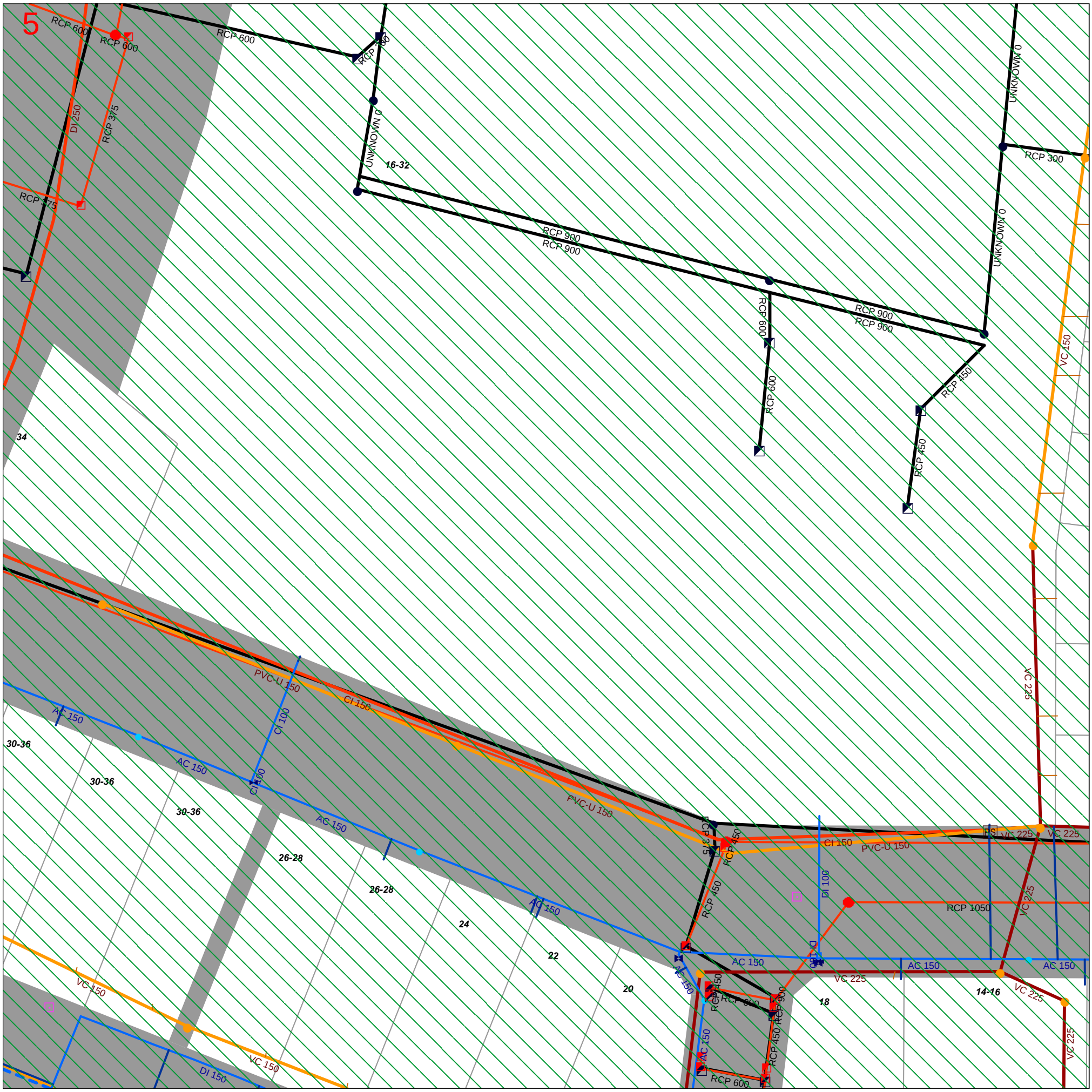

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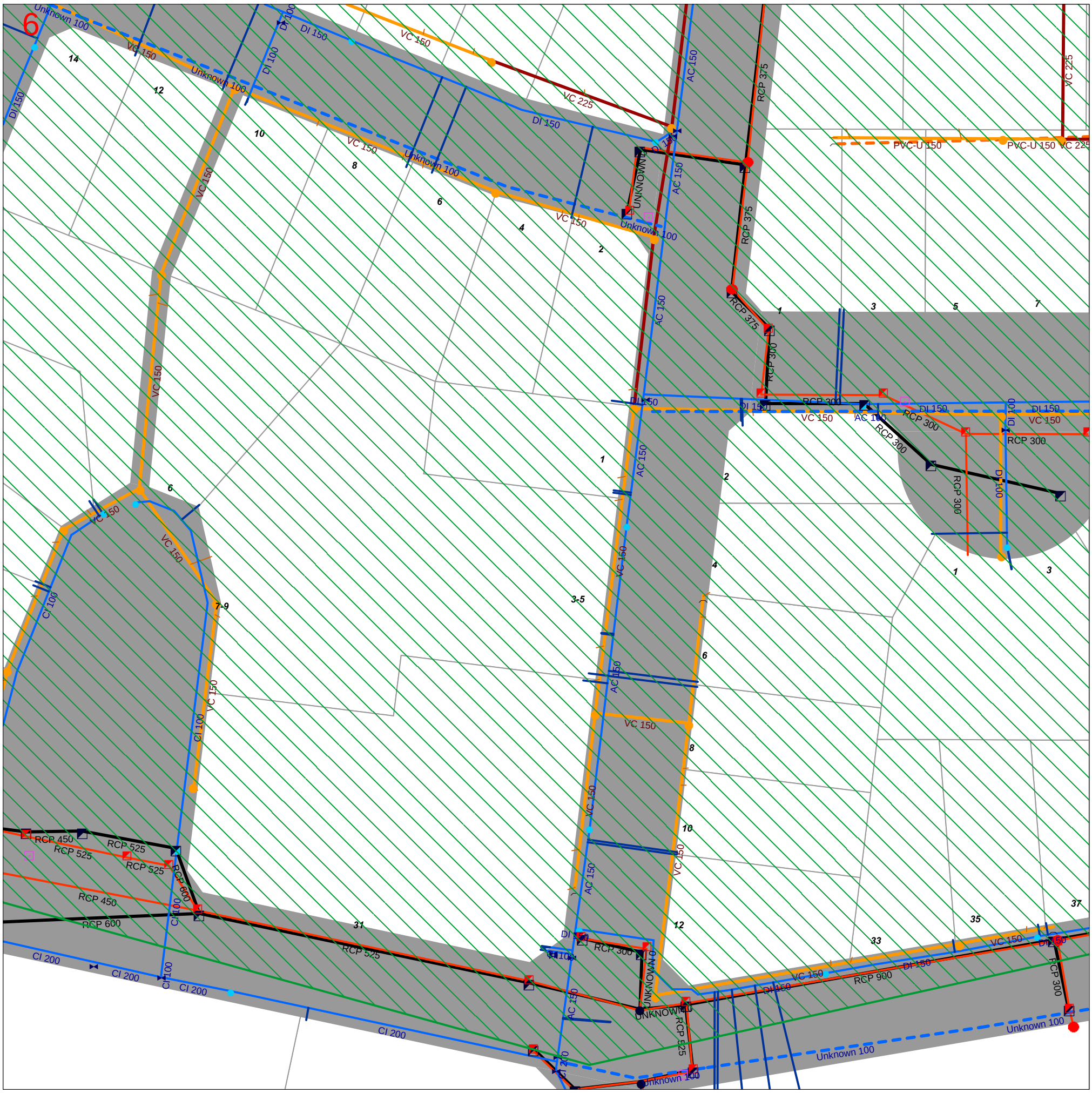
Map 6

Sequence No: 219048802

26-28 Frances Street Tweed Heads

TWEED SHIRE COUNCIL

Date: 06/12/2022



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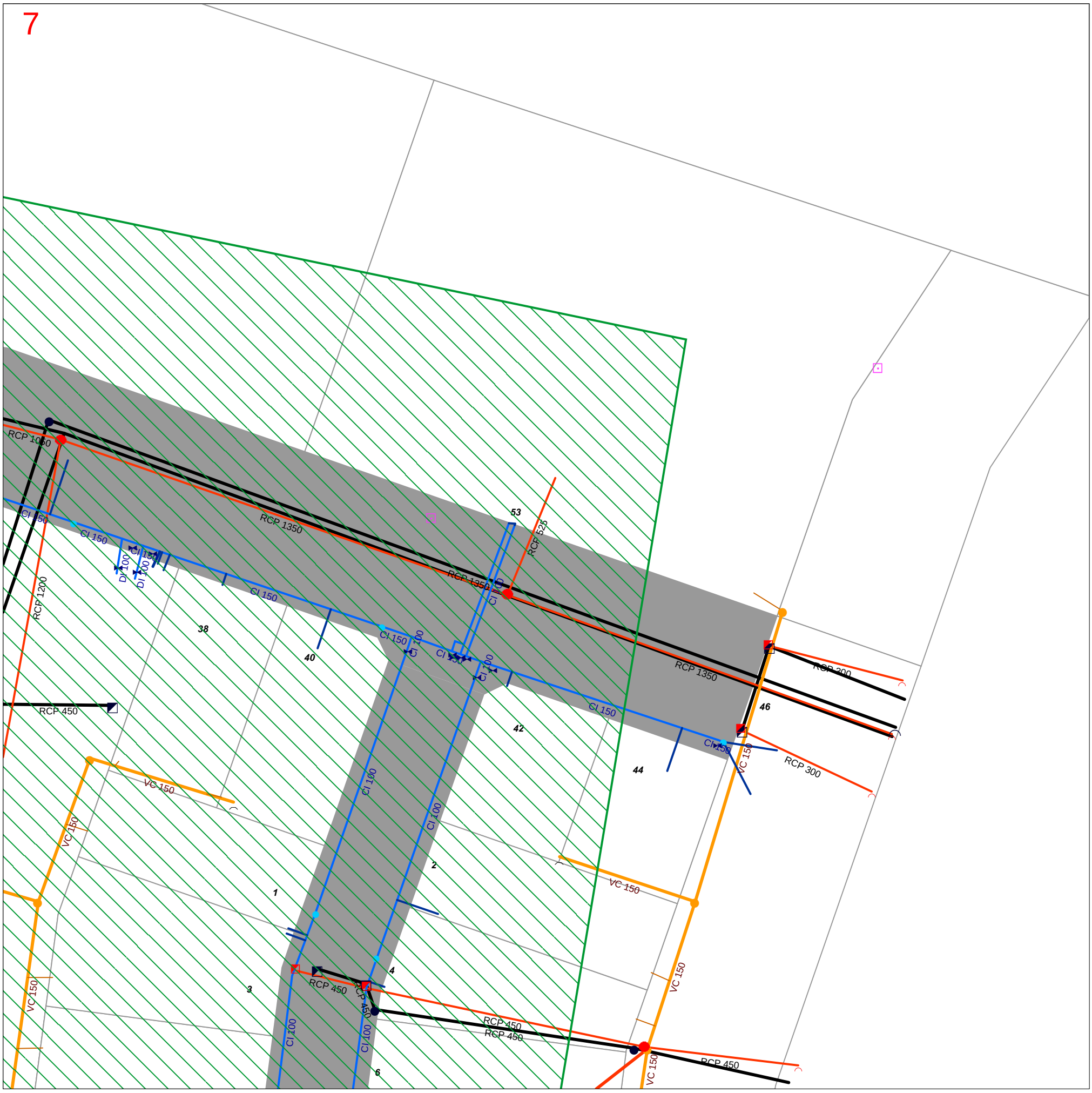

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Map 8

Sequence No: 219048802

26-28 Frances Street Tweed Heads

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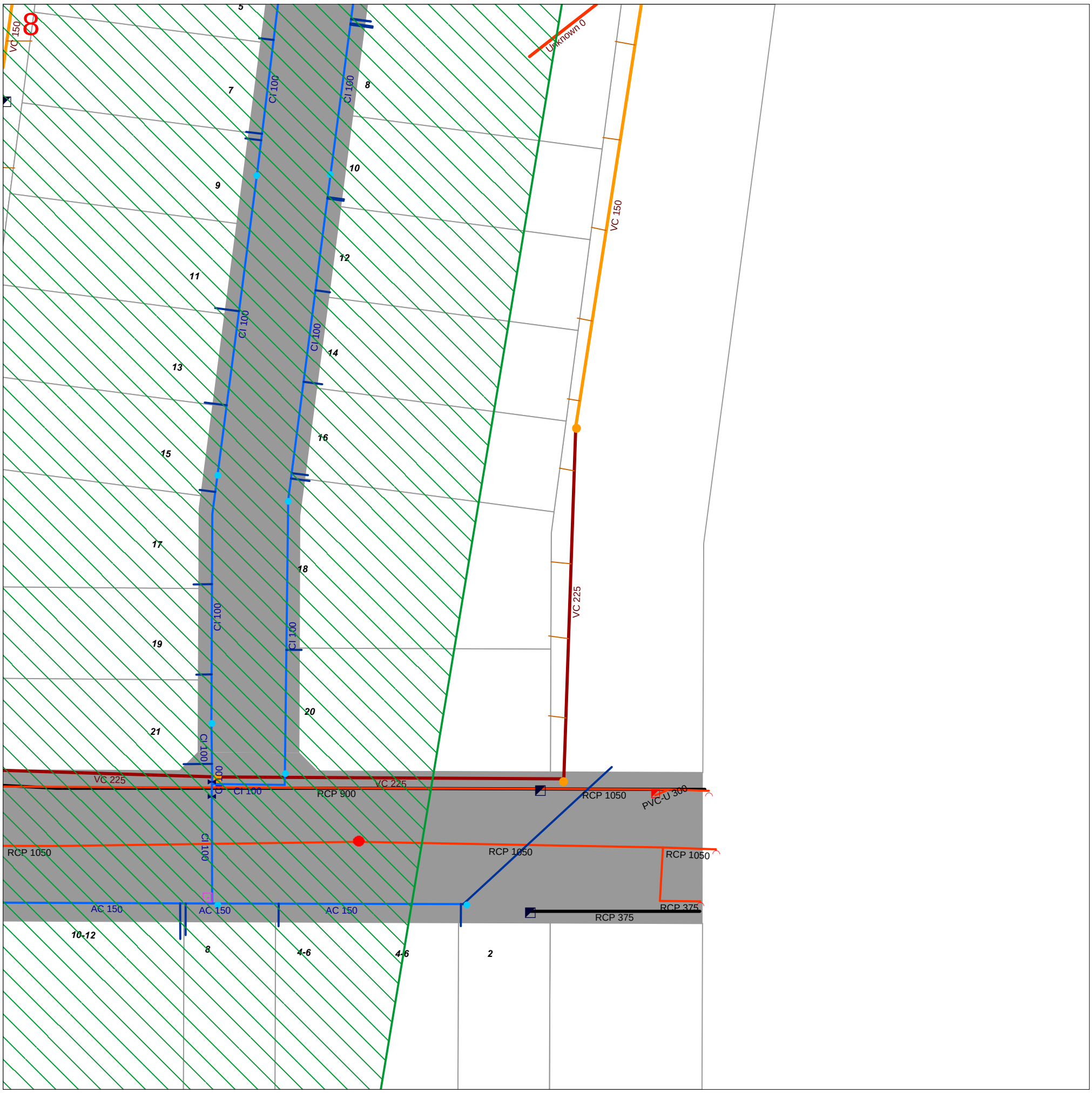

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Map 9

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26-28 Frances Street Tweed Heads

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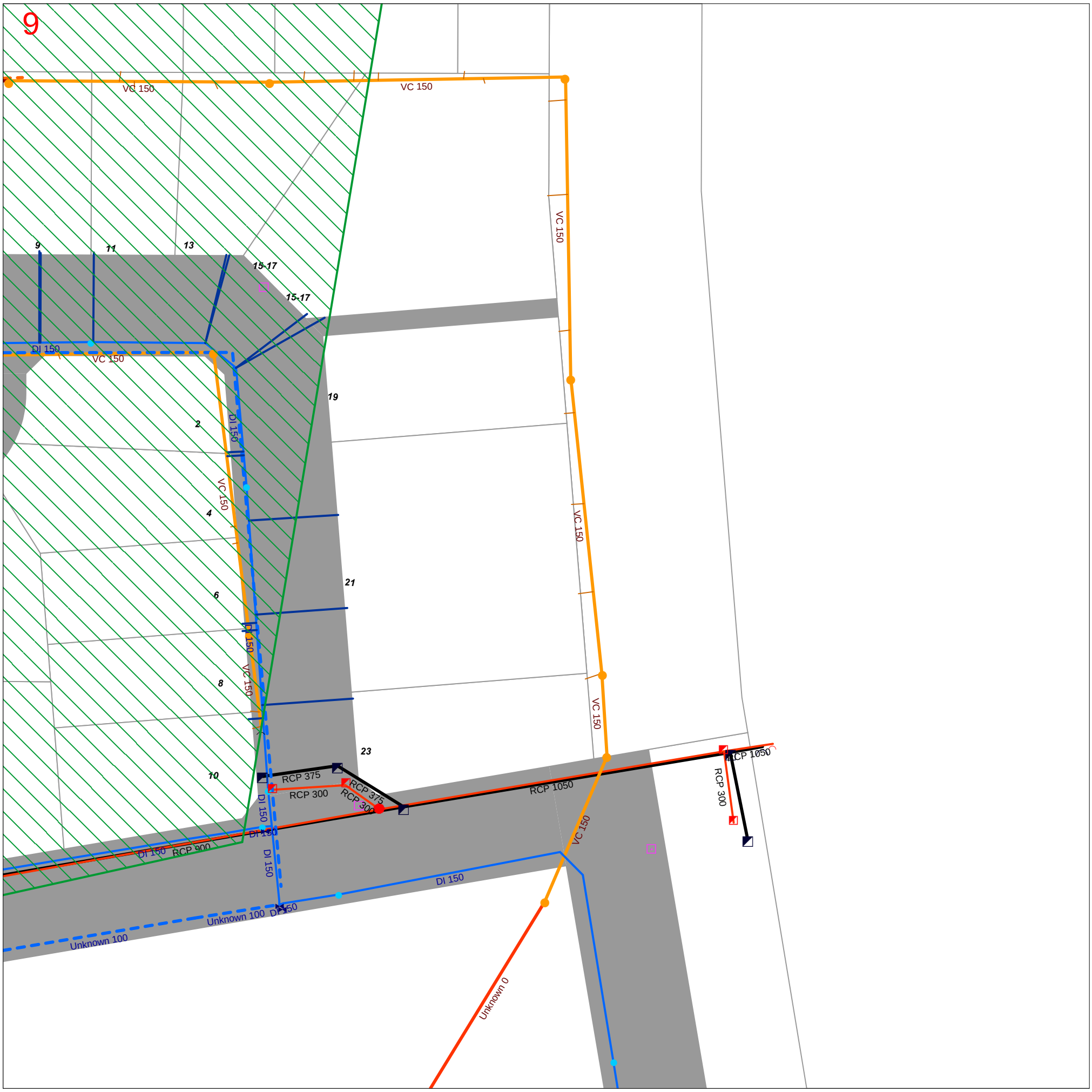

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Appendix B

Tweed Shire Council – Water and Wastewater Connection Advice

Jake Cherniayeff

From: Jack Porter <JAPorter@tweed.nsw.gov.au>
Sent: Friday, 3 February 2023 4:09 PM
To: Jin Guo
Cc: Nicholas Darwin; Colleen Forbes
Subject: RE: Tweed Mall Redevelopment - Water and Wastewater Connection Advice

Dear Mr Jin Guo,

The scale of development proposed for the Tweed Mall redevelopment is significantly greater than what has previously been accounted for in our strategic planning of the network. As such, several capacity limitations have been identified and required works to accommodate the development have been noted below.

Water

The existing Razorback reservoir does not have adequate capacity to service proposed development and although storage augmentation has been planned for in the longer term horizon, augmentation is not currently scheduled within the 10 year capital works plan.
Additionally the capacity of the trunk distribution system feeding the impacted reservoirs will need to be reviewed and additional works identified and their timing determined so they can be placed into the capital works plan. Overall the timing of these works may need to be brought forward should the Tweed Mall redevelopment occur prior to the current planned completion of works.

Several works in the vicinity of the site have been identified as required to accommodate the proposed development:

1. A DN200 minimum (TBC) water main is to be provided around the perimeter of the development (see figure 1). This will involve a new main along the eastern road verge of Wharf St and upgrade of the existing mains on Bay St, Endeavour Parade and Frances St.
2. A DN200 minimum (TBC) main from Frances St to connect to the existing DN200 main in Enid St to improve capacity in the network. Future hydraulic modelling (conducted by TSC) is to inform any additional required works to ensure standards of service are maintained.
3. A minimum of 2 x fire flow connection points are required to achieve the 56 L/s requirement as stipulated in the Engineering Infrastructure report. Modelling (conducted by TSC) is to confirm the preferred location of these connection points. Onus will then be on the developer to provide firefighting requirements within the site via internal infrastructure, noting this will likely involve a looped reticulation network with connections to Council assets and internal booster systems to navigate the high-rise structures.

Please note TSC desired standard to service fire flow is nominally 22 L/s at any given hydrant location.

Further information on the development's staging is required to facilitate the approval of the Concept DA and its associated approvals. Commentary on the proposed development staging and associated timing of any augmentations/extensions with respect to proposed s to Council's water network are required. Please refer to the DAP comments for further commentary regarding firefighting considerations and Civil Engineering Services Report requirements. This Civil Engineering Report will need to provide for appropriate survey information and engineering plans to confirm an appropriate service corridor is available for the water network extensions.

Figure 1. Indicative future water mains to accommodate the Tweed Mall redevelopment

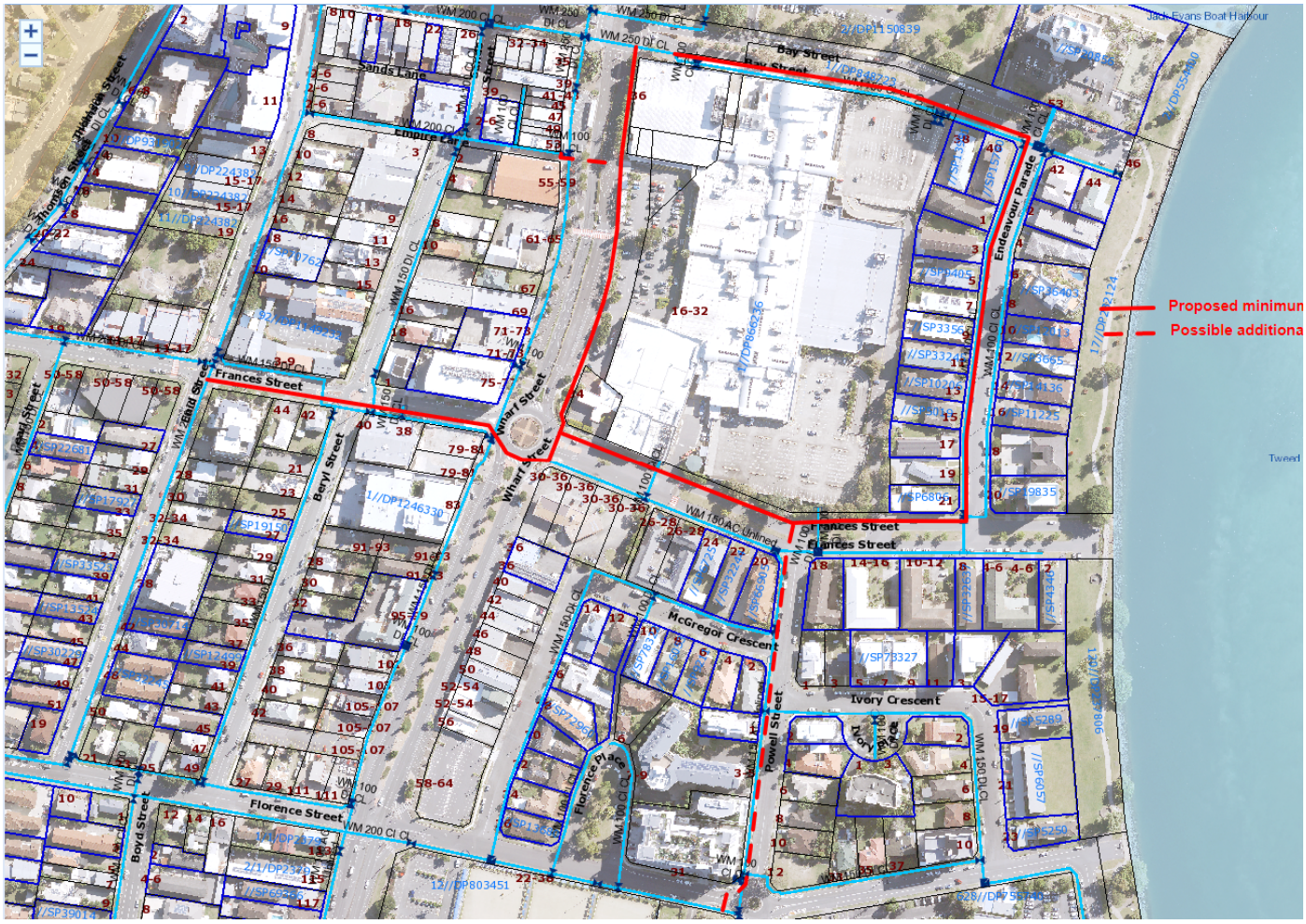


Figure 1. Indicative future water mains to accommodate the Tweed Mall redevelopment

Sewer

The proposed sewerage loadings provided in the recently submitted Engineering Infrastructure report appear inconsistent with the EP rates stipulated in the Section 64 Guidelines and WSA design flow methodology (adopted by TSC Design Specification D12). Please find revised estimates attached based on the information provided in the Engineering Infrastructure report.

The estimated sewer ET for the Tweed Mall redevelopment (1359 ET) is significantly higher than what has previously been accounted for in our strategic planning of the network. Several sewerage works are required in order to accommodate the sewerage flows generated by the proposed development:

1. The existing pumps at SPS2017 Frances St require significant upgrade to accommodate ultimate development flows. The existing design duty of SPS2017 is 30 L/s, with future design flows from the Tweed Mall redevelopment and surrounding local catchment estimated to be circa 75 L/s at ultimate development. The existing location of SPS2017 is highly constrained and we would be seeking to acquire land from the developer (approx. 20m x 25m) to construct the new pump station (see figure 2).
2. The future upgraded capacity at SPS2017 could not be accommodated within the existing downstream network. A new dedicated DN 250 rising main to the future regional SPS2004 Recreation St would be required (see figure 3). Flows from SPS2017 could not be accommodated at SPS2004 until SPS2004 upgrade and associated downstream rising main works are complete.
3. The planned upgrade of SPS2004 and associated downstream rising main works would have to be reviewed and capacity increased to accommodate flows from the SPS2017 catchment. In addition, the timing of these works may need to be brought forward should the Tweed Mall redevelopment occur prior to planned completion of works.

Further information on the development's staging and its impact on the sewerage network is required to facilitate the approval of the Concept DA and its associated approvals. Please refer to the DAP comments for further commentary regarding consideration of the servicing needs of the development and the surrounding impacted

properties which are to be addressed via the submission of a Civil Engineering Services Report. This Civil Engineering Report will need to provide for appropriate survey information and engineering plans to confirm an appropriate service corridor is available for the of the rising main from SPS2017 to SPS2004.

Figure 2. Preferred location of new SPS

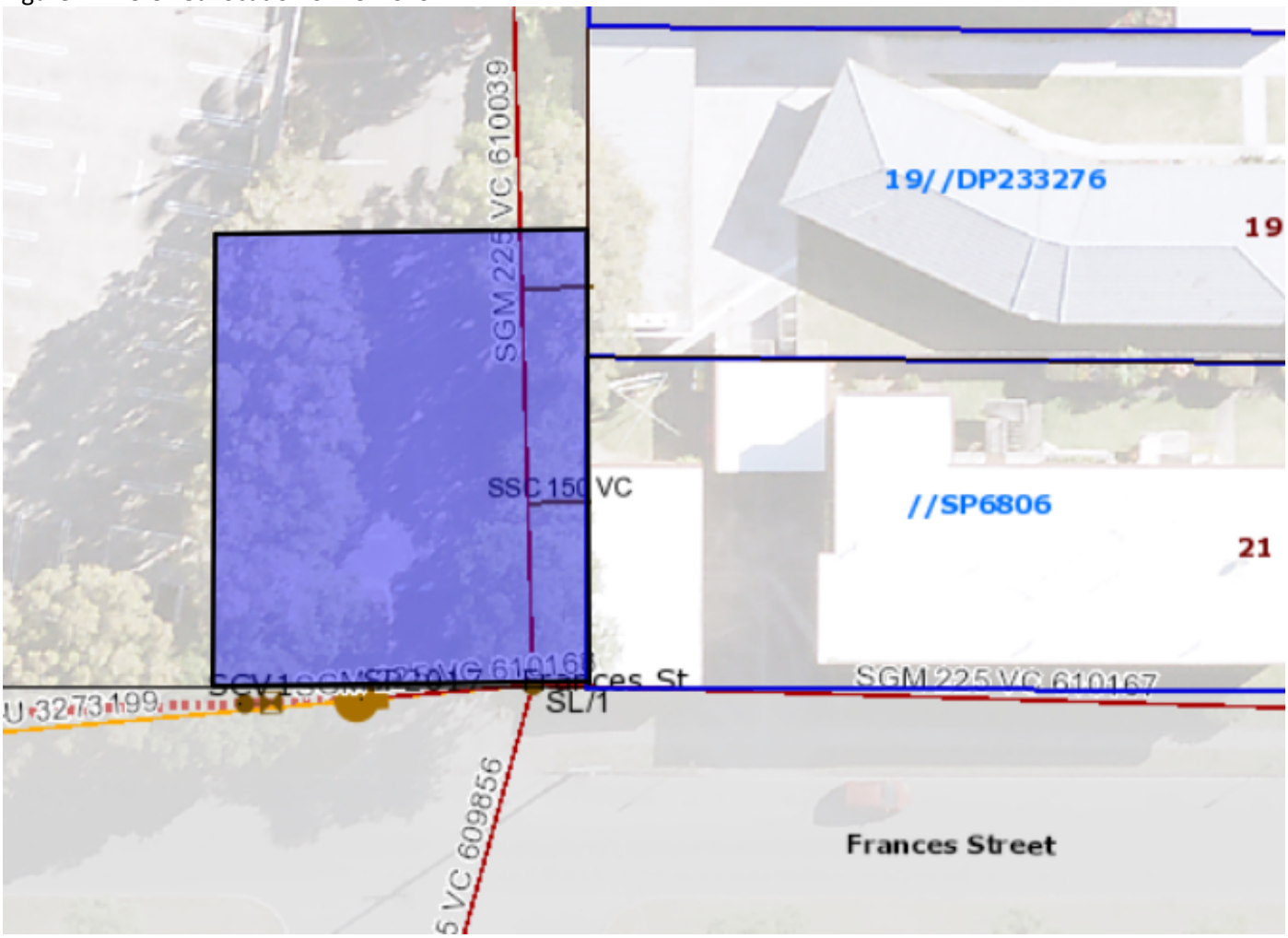
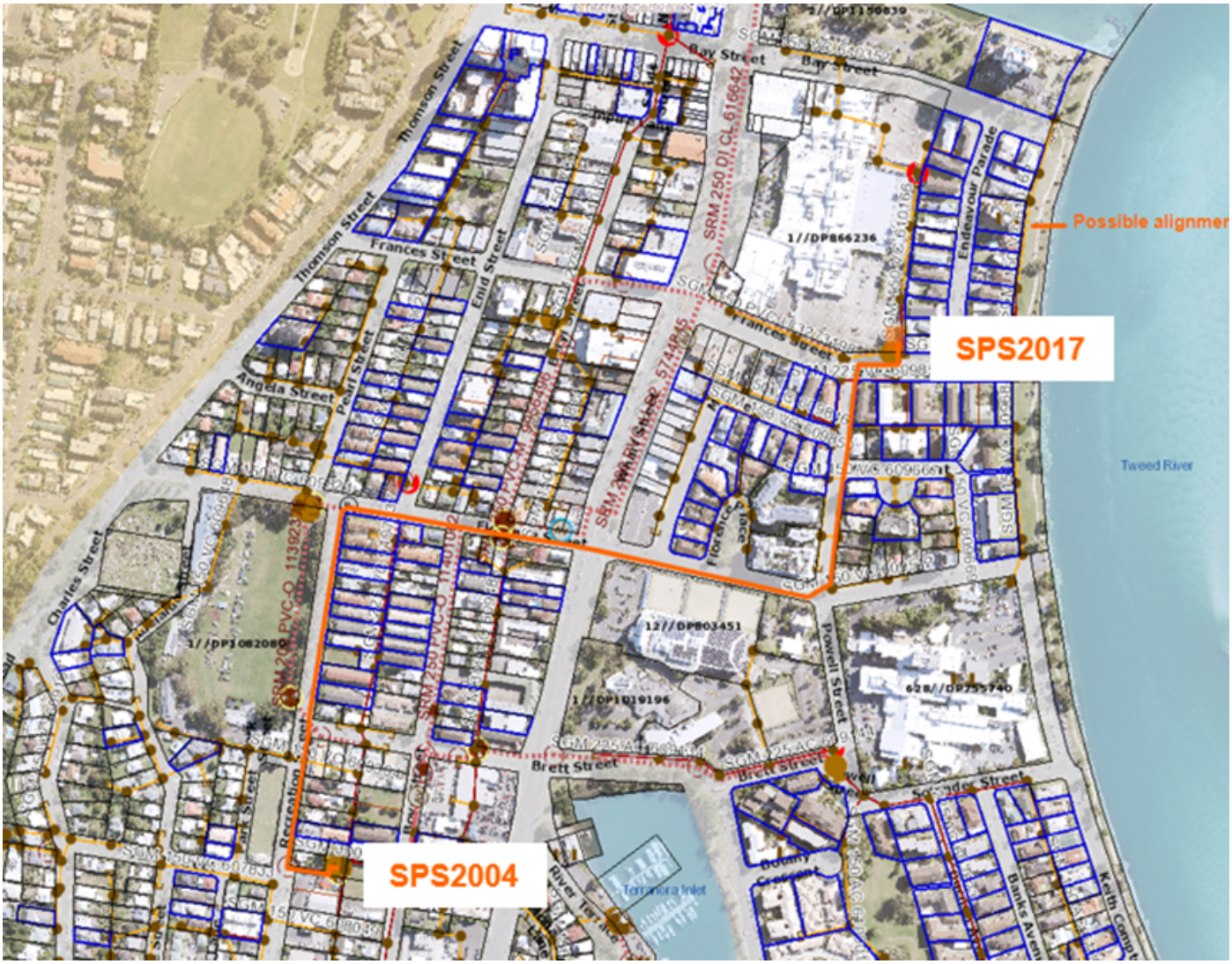


Figure 3. Possible alignment of new DN250 (TBC) SRM2017



Regards,

Jack Porter
Engineer – Developments
Water and Wastewater Unit

p (02) 6670 2252

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From: Jin Guo <Jin.Guo@arup.com>
Sent: Tuesday, 24 January 2023 10:46 AM
To: Jack Porter <JAPorter@tweed.nsw.gov.au>
Cc: Scott Reinke <SReinke@tweed.nsw.gov.au>; Nicholas Darwin <NDarwin@tweed.nsw.gov.au>
Subject: RE: Tweed Mall Redevelopment - Water and Wastewater Connection Advice

Thank you Jack,

Please feel free to contact me if you need any further information.

Regards,

Jin Guo
He/him/his
Senior Hydraulic and Fire Services Engineer | NSW/ACT Group 1

Arup
Gadigal Country
Barrack Place, Level 5, 151 Clarence Street,
Sydney, NSW, 2000, Australia
d +61 2 9320 9107
arup.com

From: Jack Porter <JAPorter@tweed.nsw.gov.au>
Sent: Tuesday, January 24, 2023 10:40 AM
To: Jin Guo <Jin.Guo@arup.com>
Cc: Scott Reinke <SReinke@tweed.nsw.gov.au>; Nicholas Darwin <NDarwin@tweed.nsw.gov.au>
Subject: RE: Tweed Mall Redevelopment - Water and Wastewater Connection Advice

Hi Jin,

Sorry about the delay in this reply.

There has been conversation internally regarding potential connection points for water and sewer in respect to the proposed redevelopment of the Tweed Mall though nothing certain has been decided.

Unfortunately we will require some extra time to further progress this and in such I will keep you well informed on the progress.

Again sorry for the delay on this response.

Regards,

Jack Porter
Engineer – Developments
Water and Wastewater Unit

p (02) 6670 2252

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From: Jin Guo <Jin.Guo@arup.com>
Sent: Tuesday, 24 January 2023 10:29 AM
To: Scott Reinke <SReinke@tweed.nsw.gov.au>
Subject: FW: Tweed Mall Redevelopment - Water and Wastewater Connection Advice

Hi Scott,

As discussed over the phone just now, please see the email below and the attached.

Regards,

Jin Guo
He/him/his
Senior Hydraulic and Fire Services Engineer | NSW/ACT Group 1

Arup
Gadigal Country
Barrack Place, Level 5, 151 Clarence Street,
Sydney, NSW, 2000, Australia
d +61 2 9320 9107
arup.com

From: Jin Guo
Sent: Thursday, December 15, 2022 10:20 AM
To: wateradmin@tweed.nsw.gov.au; tsc@tweed.nsw.gov.au
Subject: Tweed Mall Redevelopment - Water and Wastewater Connection Advice

Dear Council Officer/Water and Wastewater Engineering Department,

We are hydraulic services engineering consultant working on the master planning of the Tweed Mall redevelopment project.

As part of the Concept Development Application requirement, we have prepared an engineering infrastructure report that outlines the high-level anticipated sewage discharge and potable water demand for the proposed development, please see attached.

We are seeking Council's advice on the following:

- potential water and sewer connection points
- the effect of the proposed development on the capacity of the existing water and sewer infrastructures
- whether infrastructure upgrades are required and any further steps to be carried out for the upgrades works
- a road map and further steps to service the development and to achieve approval of water connections on existing or upgraded infrastructure.

We look forward to receiving your advice. Please don't hesitate to let me know if there are any questions.

Regards,

Jin Guo
He/him/his
Senior Hydraulic and Fire Services Engineer | NSW/ACT Group 1

Arup
Gadigal Country
Barrack Place, Level 5, 151 Clarence Street,
Sydney, NSW, 2000, Australia
d +61 2 9320 9107
arup.com

All official correspondence requiring a formal written response should be addressed to the General Manager, PO Box 816, Murwillumbah, 2484; or emailed to tsc@tweed.nsw.gov.au; or faxed to 02 6670 2429.

We work flexibly. If you have received an email from me outside of normal business hours, I'm sending it at a time that suits me. Unless it's flagged as urgent, I'm not expecting you to read or reply until normal business hours.