



BEECHFORD DESIGN REPORT

APRIL 2025

PREPARED FOR

GEORGE TOWN COUNCIL

DOCUMENT TRANSMITTAL

RECORD OF ISSUE

Issue	Reason	Version	Date	Prepared By	Approved By
01	Draft	01	21/03/2025	JPW	-
01	Interim Issue	02	01/04/2025	JPW	-
01	Revised budget years	03	02/04/2025	JPW	-
01	Final Issue	04	10/04/2025	JPW	JTA

RECORD OF ISSUE

Company	Name & Address	Contact	Copies
George Town Council	Naresh Bista 16-18 Anne Street George Town TAS 7253	nareshb@georgetown.tas.gov.au	1

© 2025 Collective Consulting Pty Ltd all rights reserved. Copyright for this complete document belongs to Collective Consulting Pty Ltd and may not be copied, reproduced in part or whole, sold, transferred in any form or in any media to any person or company without written consent of Collective Consulting Pty Ltd.

This document does not purport to provide legal advice. Legal advice should be obtained from professionals in the field of law.

No responsibility or liability is accepted by Collective Consulting Pty Ltd for any use of this document by a third party.

TABLE OF CONTENTS

1. INTRODUCTION	6
2. BACKGROUND	7
2.1. Data Acquisition and Review	7
2.2. Authorities and Strategies	7
2.3. Assessment Characteristics	7
2.4. Assessment Limitations	8
2.5. Design Philosophies	8
3. FLOOD STUDY REVIEW AND OUTCOMES	10
3.1. Comparison to previous studies	10
3.2. Notable Issues	10
3.3. Proposed Solutions	12
4. FLOOD MODELLING SOLUTIONS	13
4.1. Legends	13
4.2. Flood Extents	15
4.3. Water Quality Management	28
5. COST ESTIMATE	30
5.1. Valuation Methodology	30
5.2. Critical Assumptions	30
5.3. Higgins Street	30
5.4. Dwyer Street	31
5.5. Soldiers Settlement Road	31
5.6. Ryan Street	31
5.7. Esplanade	32
6. CAPITAL WORKS SCHEDULING	33
APPENDIX A – FLOOD MAPS	34
APPENDIX B – DESIGN DOCUMENTATION	35

LIST OF FIGURES

Figure 4-1 - Hazard Category Bands	14
Figure 4-2 – Davis Street at subdivision (Higgins St South) Existing Conditions	16
Figure 4-3 – Davis Street at subdivision (Higgins St South) Proposed Conditions	17
Figure 4-4 – Higgins St. North Existing Conditions	18
Figure 4-5– Higgins St. North Proposed Conditions	19
Figure 4-6 – Dwyer Street Existing Conditions	20
Figure 4-7 – Dwyer Street Proposed Conditions	21
Figure 4-8 – Soldiers Settlement Road Subdivision impacts Existing Condition	22
Figure 4-9 – Soldiers Settlement Road Subdivision impacts Proposed Condition	23
Figure 4-10 – Ryan Street South Existing Conditions	24
Figure 4-11 – Ryan Street South Proposed Conditions	25
Figure 4-12 – Ryan Street North Existing Conditions	26
Figure 4-13 – Ryan Street North Proposed Conditions	27

LIST OF TABLES

Table 2-1 - Data Acquisition Summary	7
Table 3-1 - Existing Issues Summary	10
Table 3-2 - Review of Existing Issues	11
Table 3-3 - Additional Issues Identified	11
Table 3-4 - Grouped Solutions Summary	12
Table 4-1 - Flood Mapping Legend	13
Table 4-2 - Pits and Pipes Legend	13
Table 4-3 - Hazard Vulnerability Descriptions	15
Table 6-1 - Works Package Summary	33
Table 6-2 - Suggested Capital Works Schedule	33

1. INTRODUCTION

Collective Consulting (Collective) was engaged by George Town Council (Council) through a competitive tender process to design and document stormwater solutions for the town of Beechford.

A drainage assessment and report¹ was commissioned last year by the Council to provide a high-level risk-based review of flooding within selected townships. The report highlighted several issues broadly related to a lack of purpose-built infrastructure. Subsequently, Council sought to resolve these issues.

This report and design documentation seeks to:

- Produce a detailed design for drainage systems within Beechford to address issues highlighted by the Beechford Drainage Assessment Report.
- Stage these solutions over a five-year works plan prioritised by a risk-based assessment.
- Provide cost estimates for each stage of work.

¹ Hydrodynamica, *Coastal Areas Drainage Assessment for George Town Council*, May 2024

2. BACKGROUND

2.1. Data Acquisition and Review

Several data sets were used to construct the hydrodynamic model. These are tabulated below.

DATA	FORM	SOURCE	AGE
Topography	LiDAR 1m mosaic	Geoscience Australia (Elvis - Elevation and Depth - Foundation Spatial Data)	2019
Topography	Land Survey dwg (selected areas)	Survey & Alignment Services	2024/2025
Public stormwater infrastructure	Excel Spreadsheet & Land Survey dwg	George Town Council and Survey & Alignment Services	Varies
Surface roughness	Depth varying Manning's in geotiff	Mineral Resources Tasmania/SES	2020
Loss Modelling	IL/CL values	ARR Data Hub	Accessed 2024
Temporal Patterns	Excel Spreadsheets	ARR Data Hub	Accessed 2024
Preburst Modelling	Median values	ARR Data Hub	Accessed 2024
Rainfall Intensity-Frequency-Duration	Excel Spreadsheets	Bureau of Meteorology	2016
Climate Change Factors	RCP 8.5 factors	ARR Data Hub	Accessed 2024

Table 2-1 - Data Acquisition Summary

The Australian Rainfall and Runoff committee, and subsequently ARR Data Hub, revised ARR guidelines, during Collective's modelling and analysis process, to reflect the latest IPCC scheme.

To maintain consistency with previous work, Collective was directed to utilise climate change values prior to version 4.2 from the ARR Data Hub. This involved applying a blanket 16.3% increase for a 1% AEP rain event.

2.2. Authorities and Strategies

Several authorities influence the stormwater network of this catchment and proposed solutions. A general overview of these authorities is provided below.

2.2.1. George Town Council

George Town Council is the Local Government Area for the catchment and must meet certain obligations of the *Urban Drainage Act 2013*, if the catchment is deemed an *Urban Area*.

Council has also provided guidance through a *Township Plan*. This plan seeks to define a 'coherent character' for George Town's coastal townships and rural areas by setting a set of objectives. Within the context of this report, the *Township Plan* provides a notional statement of overland and underground stormwater infrastructure within road casements. Terminology used in the report is partially consistent with State Transport classes. The accompanying design to this report strives to align with the *Township Plan*.

2.2.2. Department of Natural Resources and Environment Tasmania (NRE)

The catchment discharges to several locations managed and/or owned by NRE divisions including Curries River (Parks and Wildlife) and Baker Street reserve (NRE Property Services).

NRE follows Strategies and legislation set by the State Government. The State Stormwater Strategy (2010) may be applicable in this case.

2.3. Assessment Characteristics

Flood modelling undertaken by Collective consisted of a 1D-2D linked hydrodynamic model in ICM Infoworks 2025.2 under the following conditions:

1. Meshing consisted of a minimum 1m² triangular size within the *Urban Area* and a maximum of 50m² for rural areas. Meshing was terrain sensitive.
2. A 1% AEP rainfall ensemble was considered for the major event, and 5% AEP for the minor event. Temporal Patterns analysed ranged from 10 minutes to 2 hours.
3. An initial loss / continual loss (IL/CL) model was included for the catchment with values retrieved from the ARR Data Hub. Roads and buildings were considered impermeable, with the balance of land as permeable area.
4. The model for the proposed case was analysed with modifications to the ground surface that includes defined road swales to direct and capture runoff. A refined mesh minimum of 0.5m² and breaklines to all channel centrelines.

At Council's request, components of subdivision plans and stormwater design for Lot 1 Davis Street were incorporated into the hydrodynamic model. This broadly consisted of:

- a 70% impervious and 30% pervious IL/CL model for the site.
- Realignment of the northern inlet/headwall through Higgins Street with a formal channel to Curries River, including 2/DN450 road crossing culverts.
- Additional flow directed to Soldiers Settlers Road. It is noted that the stormwater report provided contains only a 10% AEP peak critical flow which was used for the 1% AEP analysis. Impacts of this development are therefore assumed to be worse from what is produced in this model.
- An additional headwall and pipe connection under Davis Street, near the junction of Soldiers Settlers Road.
- Topography modifications to concentrate rainfall runoff to a new outlet along Higgins Street

2.4. Assessment Limitations

Due to the accuracy of data acquisition and defined scope of work, several limitations apply:

1. **Model Accuracy:** The flood model is constructed from a variety of data sources. While a high-level review of these data sets was performed prior to integration, they are assumed to have been quality audited for their intended purpose. Model accuracy is also limited by a variety of other factors such as hardware limitations, granularity of data sets and imposed parameters.
2. **Future Provisions:** Stormwater routing through the proposed subdivision (Lot 1 Davis Street) is anticipated to be more nuanced than modelled due to limitations of available information. In addition, final plans and analysis results may differ to what was received.
3. **Scope of Study:** This assessment is guided by principles, parameters and scope provided and defined by the client. It is expected to differ from previous and future assessments of the same catchment.
4. **Calibration:** The flood model is not calibrated beyond anecdotal evidence.
5. **Flood types:** Riverine catchment analysis (Curries River) and subsequent inundation of the urban area is excluded. This catchment is ungauged.

2.5. Design Philosophies

A key action in the flood study produced by Hydrodynamica shares a similar complementing action by Council's Township Plan for Beechford. That is to formalise minor and major stormwater infrastructure in Beechford.

Historically, rural towns such as Beechford maintain ad-hoc stormwater infrastructure consisting of roadside swale drains and stormwater networks discharging to paddocks.

As urban intensification and subdivision occurs, flooding issues frequently arise due to over-capacity networks and unmaintained open channels designed for a purpose not consistent with current industry expectations.

Solutions realised in the following sections consider a holistic view of the network, including minor and major stormwater networks where appropriate. Nominal additional capacity is considered for the underground network to accommodate future growth, urbanisation, direct connections and climate change impacts beyond previous IPCC projections.

3. FLOOD STUDY REVIEW AND OUTCOMES

3.1. Comparison to previous studies

3.1.1. Coastal Areas Drainage Assessment

This report and solutions assessment follows an initial drainage assessment by Hydrodynamic. To ensure consistency between models, several parameters were utilised from the previous study including logic behind the loss model and roughness model. Due to the available data and purpose of this report there are notable deviations:

1. A refined LiDAR data (1m grid instead of 2m) was used for the Digital Terrain Model (DTM).
2. Additional land surveying confirmed existing infrastructure asset data and notable swale drains. This was merged into the DTM.
3. The proposed subdivision at Lot 1 Davis Street was incorporated to the extents discussed above.
4. Infiltration was defined using existing impermeable surfaces rather than a blanket attribution.

Flood mapping between existing studies and this model broadly showed similar impact extent. However, it is expected that flood depths and other parameters will differ noticeably due to the changes list above.

3.1.2. Tasmania Strategic Flood Map – Pipers Study Area

WMAWater produced a combined urban and riverine flood study of the broader Pipers catchment area. Due to the combination of modelling types, exclusion of urban stormwater infrastructure, and the generally high level of granularity in the hydrodynamic model for Beechford, results between these reports are expected to vary considerably.

It is anticipated that areas shared between both models, but independent of riverine impacts, will be represented more accurately by the results produced in this study.

3.2. Notable Issues

3.2.1. Existing Issues – previous flood study

Previous flood modelling and analysis highlighted the following issues and prioritised actions:

RISK	LIKELIHOOD	CONSEQUENCE	CLASSIFICATION
Overland flow and ponding within Lot 1 Davis Street	Moderate/Rare	Insignificant	Low
Overland flow and ponding within 2 Taylor Street and 21 Davis Street	Moderate/Rare	Insignificant/Minor	Low
Surcharge out of the DN300 under Higgins Street, contributing to flooding in 21 Davis Street	Rare	Minor	Low
Flooding through the properties on the eastern side of Geale Street	Moderate/Rare	Insignificant/Minor	Low
Ponding in 12 Davis Street	Moderate/Rare	Insignificant	Low
Lack of a formal minor or major drainage system accommodating the flood path between Ryan Street and Higgins Street, north of Baker Street	Moderate/Rare	Minor	Medium
Shallow overland flows pass from the roadway through 12 and 14 Higgins Street	Moderate/Rare	Insignificant	Low
Shallow ponding in 8 Currie Street	Moderate/Rare	Insignificant	Low

Table 3-1 - Existing Issues Summary

3.2.1. Existing Issues – current flood study

Previously reported issues were reviewed in detail by Collective Consulting and commentary provided as follows:

RISK IDENTIFIED	COMMENTARY	RISK TO PEOPLE & PROPERTY
Overland flow and ponding within Lot 1 Davis Street	Issue was found in the current model and appears to occur due to a lack of capacity within the existing network	Medium
Overland flow and ponding within 2 Taylor Street and 21 Davis Street	Issue was found in the current model and appears to be two-fold; capacity of existing network and ability of runoff within the site to discharge	Medium
Surcharge out of the DN300 under Higgins Street, contributing to flooding in 21 Davis Street	Surcharge does not appear to occur or at least have a substantial impact to flooding within 21 Davis Street	Low
Flooding through the properties on the eastern side of Geale Street	Issue was found in the current model and appears to be two-fold; capacity of existing network and ability of runoff within the site to discharge	Medium
Ponding in 12 Davis Street	Issue was found in the current model and occurs due to inability to discharge.	Low
Lack of a formal minor or major drainage system accommodating the flood path between Ryan Street and Higgins Street, north of Baker Street	Issue was found in the current model and appears to be four-fold: <ol style="list-style-type: none"> 1. Lack of capacity in the Ryan St. stormwater main 2. No internal drainage point for 4 Ryan Street 3. Minor overflow from Higgins St due to a lack of underground capacity and uncontrolled overflow 4. Noticeable issue with local ponding at the back of houses between and around 10-12 Ryan St and 18 Esplanade 	Medium
Shallow overland flows pass from the roadway through 12 and 14 Higgins Street	Issue was found in the current model and appears to be two-fold; capacity of existing network and ability of runoff within the site to discharge	Low
Shallow ponding in 8 Currie Street	Issue occurs from a lack of capacity in stormwater infrastructure	Low

Table 3-2 - Review of Existing Issues

Further issues were identified by Collective Consulting and are summarised below:

LOCATION	ISSUE	CAUSE	RISK TO PEOPLE & PROPERTY
3-5 Davis Street	Water ponding in back yard	Over capacity stormwater network and appropriate shaping to direct stormwater to network	Low
5 Baker Street	Water ponding in front yard	Uncontrolled runoff from Higgins St headwall and lack of formal stormwater infrastructure	Low
14 Esplanade	Flooding of house	Uncontrolled discharge from nearby culvert	Medium

Table 3-3 - Additional Issues Identified

3.3. Proposed Solutions

Council has an obligation under the Urban Drainage Act to minimise the risk of urban flooding in an effort to protect people and property through the provision of stormwater services and infrastructure. Furthermore, stormwater systems should be provided as may be necessary to effectively drain the *Urban Area* of Council's municipal area.

The issues summarised above highlight the importance of internal property drainage and that there is a varied level of responsibility to minimising the risk of flooding. This is also exacerbated by the lack of purpose-built stormwater infrastructure in Beechford.

It is apparent that a lack of capacity within existing stormwater networks is present. As such, solutions can be grouped based on their intrinsically related impact to the tabulated risks above. The proposed grouped solutions are shown in Table 3-4 below which give rise to independent works packages outlined in section 6.

SOLUTION	RESOLUTION TO
"Higgins Street" Provide new road swale and 2/DN450 culvers for road crossovers	<ul style="list-style-type: none"> - Resolves capacity issues at Lot 1 Davis Street including new subdivision - Reduces flooding to 2 Taylor St/21 Davis Street and includes additional capacity to enable owner to discharge - Reduces water ponding at 5 Baker Street - Reduces overflow to houses at the Esplanade - Reduces water ponding at 12-14 Higgins Street
"Dwyer Street" Formalise roadside drainage around Dwyer Street and provide underground stormwater main discharging to the Tasmanian Parks & Wildlife Services (PWS) land to the North	<ul style="list-style-type: none"> - Captures road runoff and discharges safely - Enables owners to connect to stormwater network and resolve internal issues
"Soldiers Settlement Road" New headwall and stormwater main connecting to existing network under Davis Street, and improvement to road swales	<ul style="list-style-type: none"> - Controls increase in discharge from proposed subdivision - Reduce water ponding at 12 Davis Street
"Ryan Street" Upgrade existing main parallel to Ryan Street and extend main to reserve. Formalise road swale.	<ul style="list-style-type: none"> - Enables additional capacity to accept flow from 12 Davis Street, 8 Currie Street and overflow paths from Ryan and Baker Streets. - Enables 4 Ryan Street to discharge ponding water. - Reduces overflow and subsequent water ponding around houses along the Esplanade and West of Higgins Street. - Control outflow to prevent flooding of 14 Esplanade
"Esplanade" Provide stormwater connection point to houses along the Esplanade	<ul style="list-style-type: none"> - Enable safe discharge of stormwater ponding at the back of houses at the Esplanade and West of Higgins St.

Table 3-4 - Grouped Solutions Summary

4. FLOOD MODELLING SOLUTIONS

4.1. Legends

4.1.1. Flood Depths

Flood Mapping shown below is colourised per Table 4-1. Noting flood mapping by Hydrodynamica show depths above 40mm.

WATER DEPTH	COLOUR BAND
0 - 40mm	Not Shown
40 - 100mm	
100 - 150mm	
150 - 300mm	
0.3 - 0.5m	
0.5 - 1m	
1m+	

Table 4-1 - Flood Mapping Legend

It is assumed door thresholds are approximately above 150mm.

4.1.2. Pipes and Pits

Pipes and Pits are colourised as follows:

PIPES	COLOUR BAND
Pipe has some capacity	
Pipe is at or near capacity	
Pipe is over capacity	
Pipe capped or deleted	

PITS/HEADWALLS	COLOUR BAND
Pit or headwall is surcharging	
Pit or headwall does not surcharge	
Pit capped or deleted	

Table 4-2 - Pits and Pipes Legend

4.1.3. Flood Hazards

The flood hazard band classification system is defined by the Australian Institute of Disaster Resilience (Australian Disaster Resilience Handbook Collection). This definition has seen widespread adoption in Australia including the Tasmanian SES, and is shown in Figure 4-1 and Table 4-3.

The definition consists of several bands constructed from the depth and velocity of flow at specific locations. These bands signify thresholds for which a vulnerable user group or asset would find unsafe.

For the purposes of this study, there are two key considerations when reviewing hazard mapping:



1. To ensure egress and access paths under prescribed rainfall events are safe to users.
2. To ensure buildings and infrastructure remain stable and undamaged.

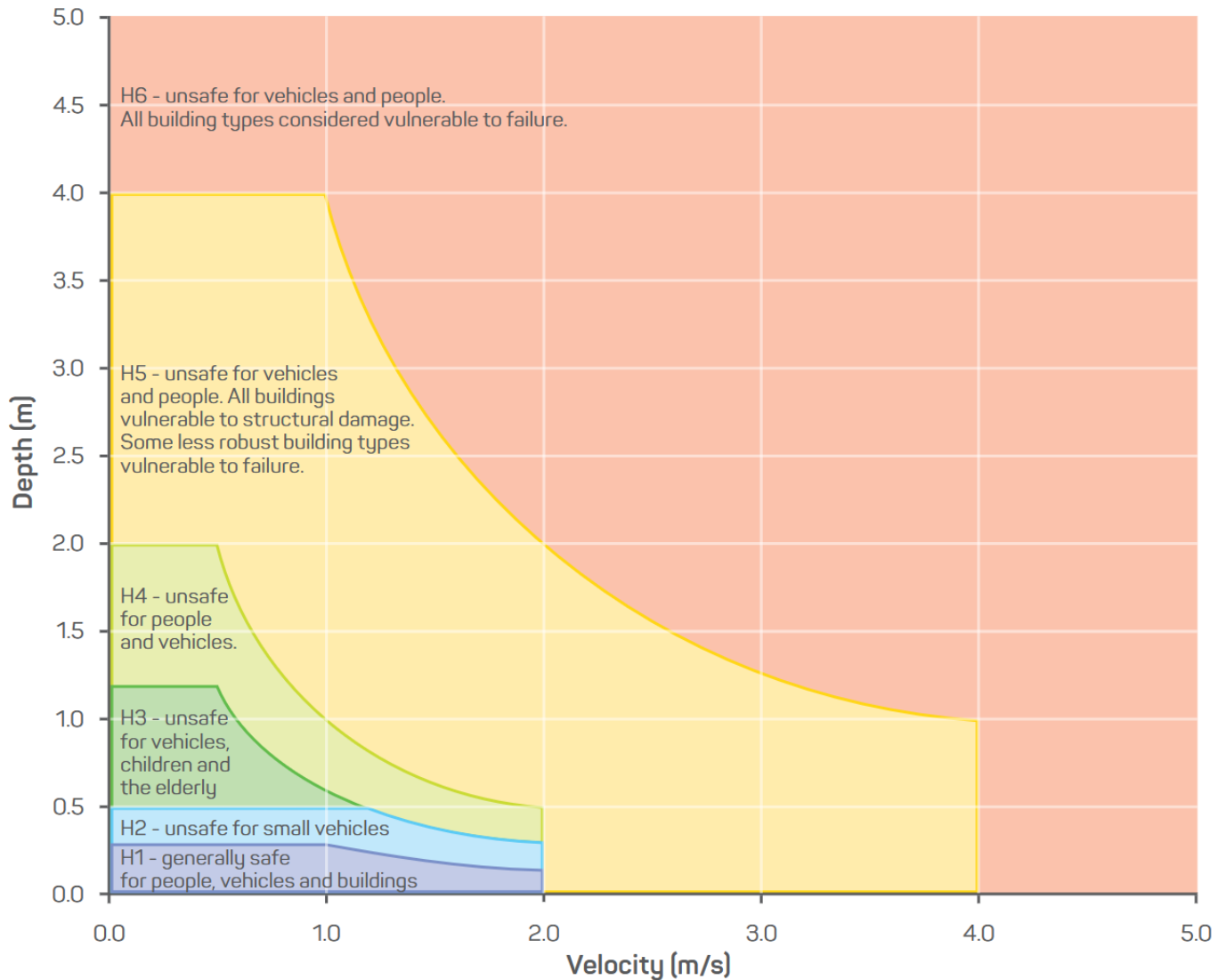


Figure 4-1 - Hazard Category Bands

HAZARD VULNERABILITY CLASSIFICATION	DESCRIPTION
H1	Generally safe for vehicles, people and buildings.
H2	Unsafe for small vehicles.
H3	Unsafe for vehicles, children and the elderly.
H4	Unsafe for vehicles and people.
H5	Unsafe for vehicles and people. All building types vulnerable to structural damage. Some less robust building types vulnerable to failure.
H6	Unsafe for vehicles and people. All building types considered vulnerable to failure.

Table 4-3 - Hazard Vulnerability Descriptions

For clarity, flood hazard mapping shown in the appendices does not highlight areas with a H1 hazard band. Catchments default to class H1 unless shown otherwise.

4.2. Flood Extents

The following sections summarise impacts of proposed solutions to the existing case. The critical event is shown for each case under consideration and does not represent the median critical event depth for the surrounding area. Flood maps appended show a compiled median critical event for all temporal events at each location.

It is important to note the scope of this flood study and model do not account for minor structures, such as boundary fences, and building footprints that may impede or transfer flow.

4.2.1. Higgins Street

The critical median storm event for this proposed stormwater line and catchment is a 1 hour, pattern 5 event. The existing and proposed cases are shown under this critical event per Figure 4-2 and Figure 4-3 below.

Design iteration found a large swale with 2/DN450 culvers under roads was sufficient to cater for the majority of flow produced along this road.

This design is contingent on capturing flow from the proposed Lot 1 Davis Street subdivision and safely discharging to Currie's River to the North. It is noted that uncontrolled overflow from Lot 1 Davis likely exacerbates existing flood extents at, and around, 21 Davis Street.

Further investigation shows the remaining body of water at, and around, 21 Davis Street exists largely due to internal site drainage and topography. With the proposed stormwater upgrade, owners of the surrounding properties will now have the ability to review private drainage systems and connect to stormwater infrastructure.

A minor decrease and contraction of flood water is adjacent to 18 Davis Street. Proposed flood levels appear to have minimal interaction with existing structures. Furthermore, flood hazard mapping appended, shows all classes above H1 are contained within defined channels and therefore allow for safe egress and access to the property.

It is noted that final stormwater conveyance in this area will be altered greatly by the proposed development at Lot 1 Davis Street.

In addition to the above, Collective Consulting were requested by an Elected Member to investigate the feasibility of diverting stormwater flows from the southern end of Higgins Street through open drains or a piped network along Baker Street towards the Esplanade. High Level analysis indicates that a solution in this nature is likely to be substantially more expensive and disruptive. The length of the network required along Baker Street, as a minimum, would need to be equivalent to the network down Higgins Street, however there is an insufficiency that occurs with splitting the system as an upgrade to the network in Higgins Street north of Baker Street is still warranted. Furthermore, the natural fall along Higgins Street provides greater capacity in the network than that of a network along Baker Street.

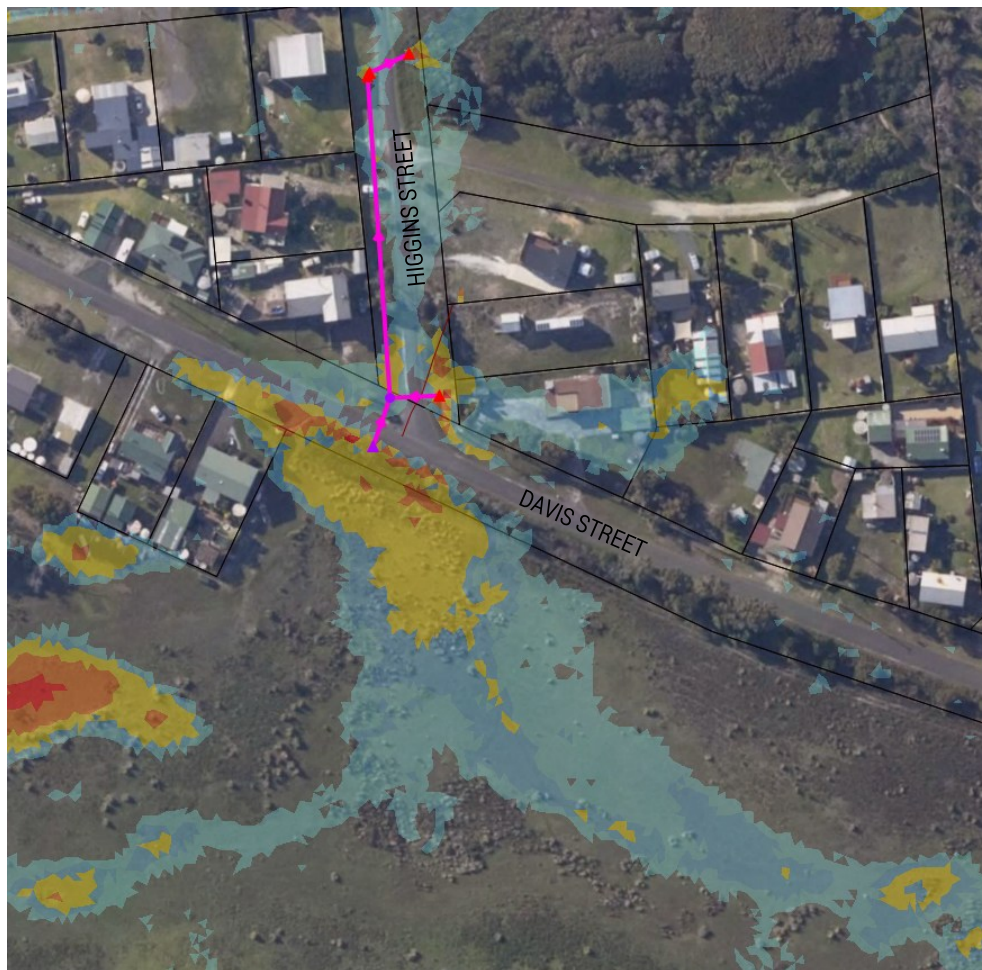


Figure 4-2 – Davis Street at subdivision (Higgins St intersection) Existing Conditions

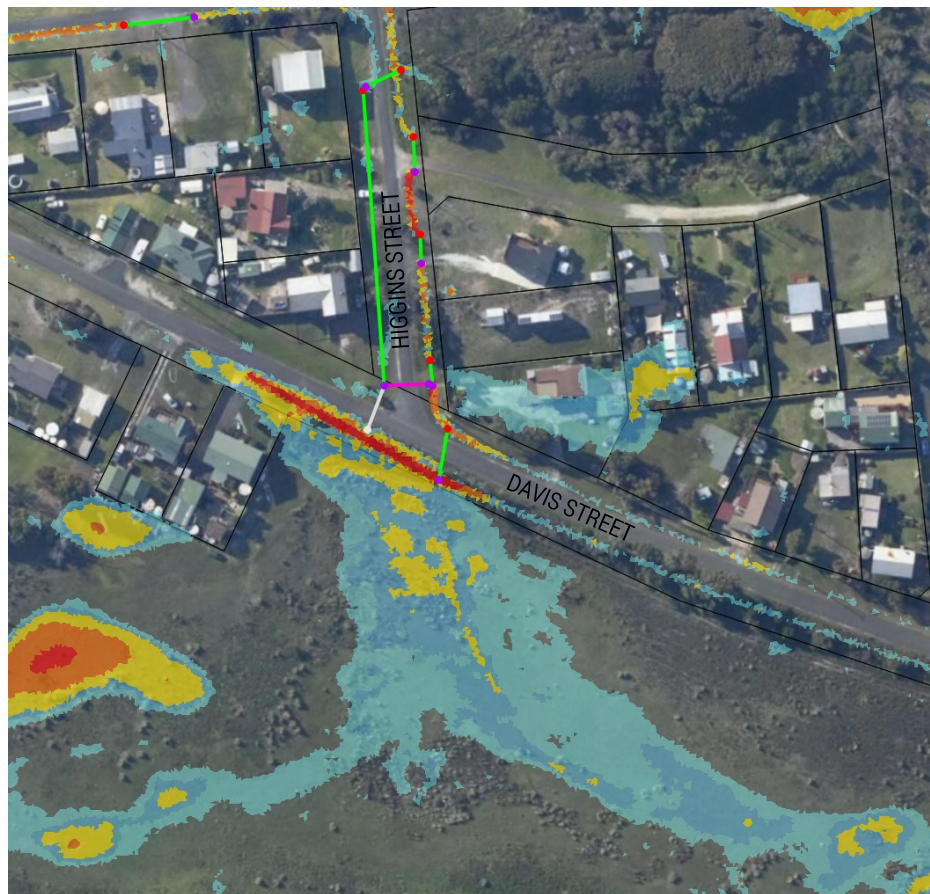


Figure 4-3 – Davis Street at subdivision (Higgins St intersection) Proposed Conditions

Water ponding around 12 Higgins Street is shown (Figure 4-4 and Figure 4-5) to be substantially reduced and that overflow from Higgins Street to the Esplanade has reduced due to the available capacity in the existing swale and stormwater network.

Providing substantially more capacity both overland and underground through Higgins Street also reduces overflow adjacent to Baker Street. A direct result of this is substantially decreased ponding of water at 5 Baker Street.

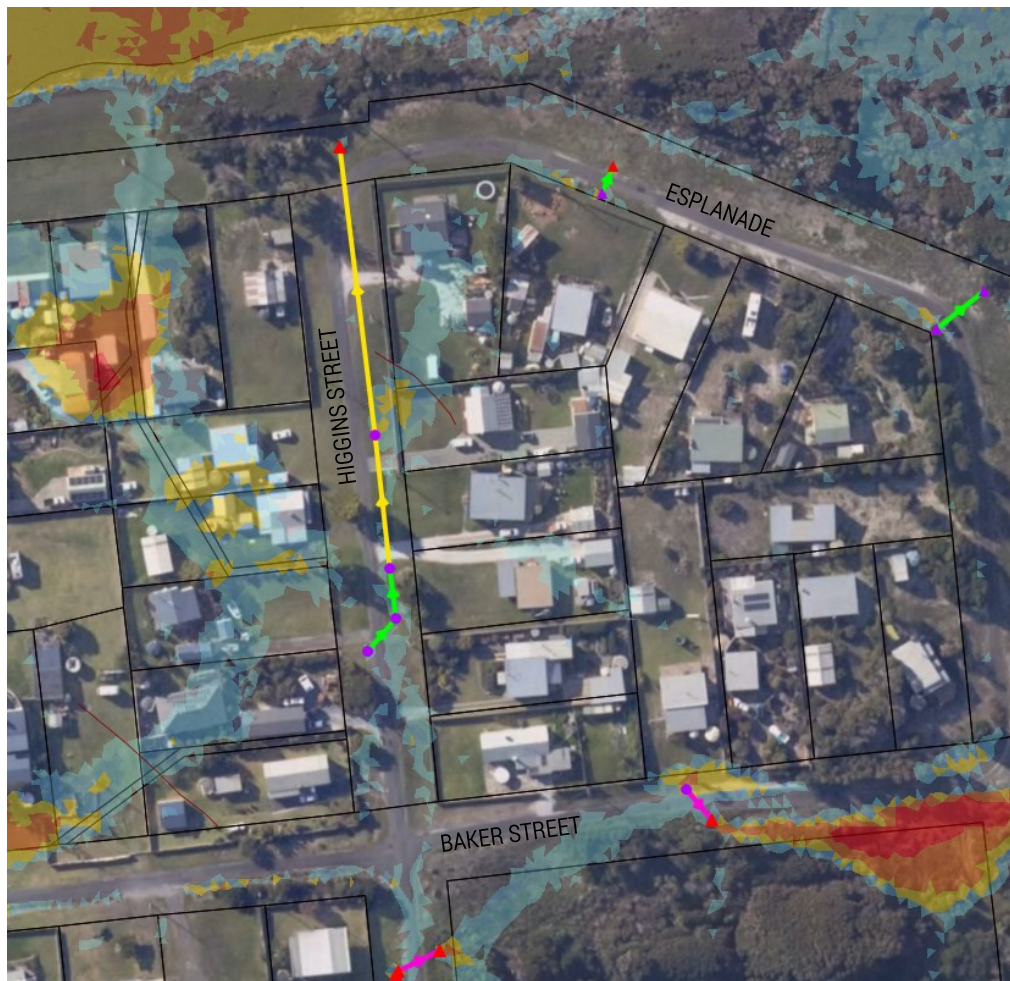


Figure 4-4 – Higgins St. North Existing Conditions

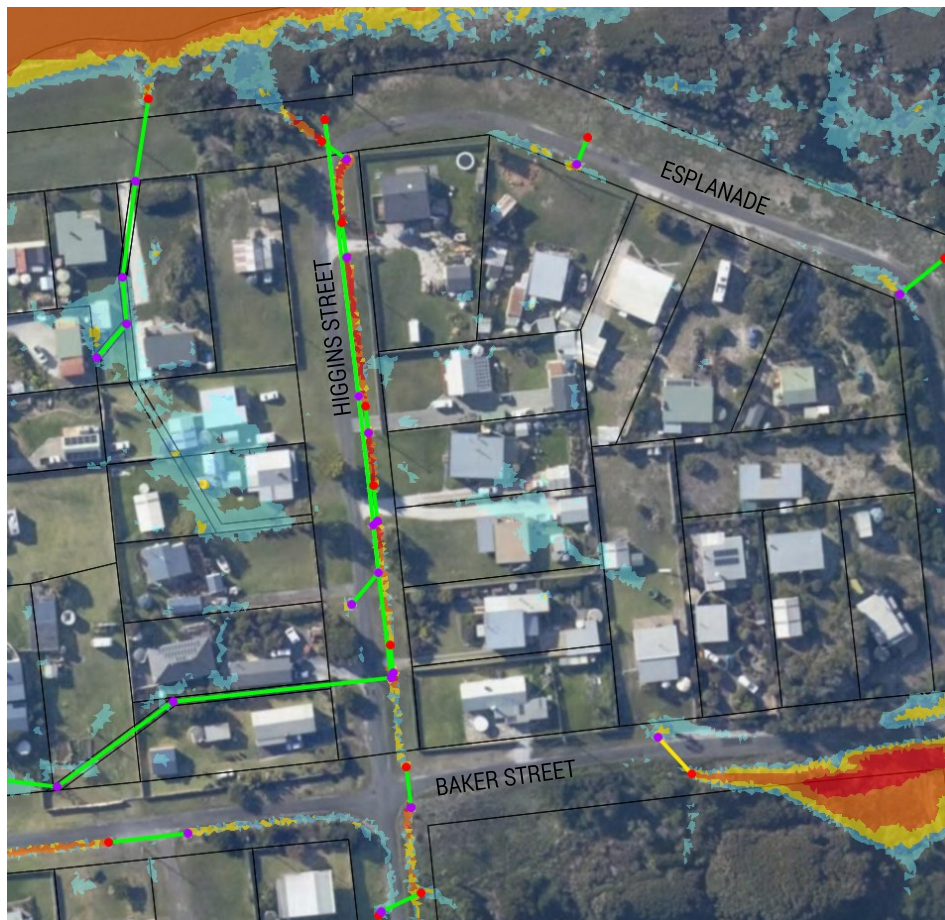


Figure 4-5– Higgins St. North Proposed Conditions

4.2.2. Dwyer Street

The critical storm event for this stormwater system was found to be the 20 minute, pattern 3 event. The existing and proposed cases are shown under this critical event per Figure 4-6 and Figure 4-7 below.

A DN375 was modelled and found to be at capacity (per Figure 4-7 below). To accommodate future flows from residents a DN450 will be detailed. The addition of a roadside swale to capture local flows will provide sufficient capacity to cater for the surrounding stormwater. However, it is apparent that residents near and around 2 Geale Street and 2 Dwyer Street will need to resolve internal private drainage due to local low areas.

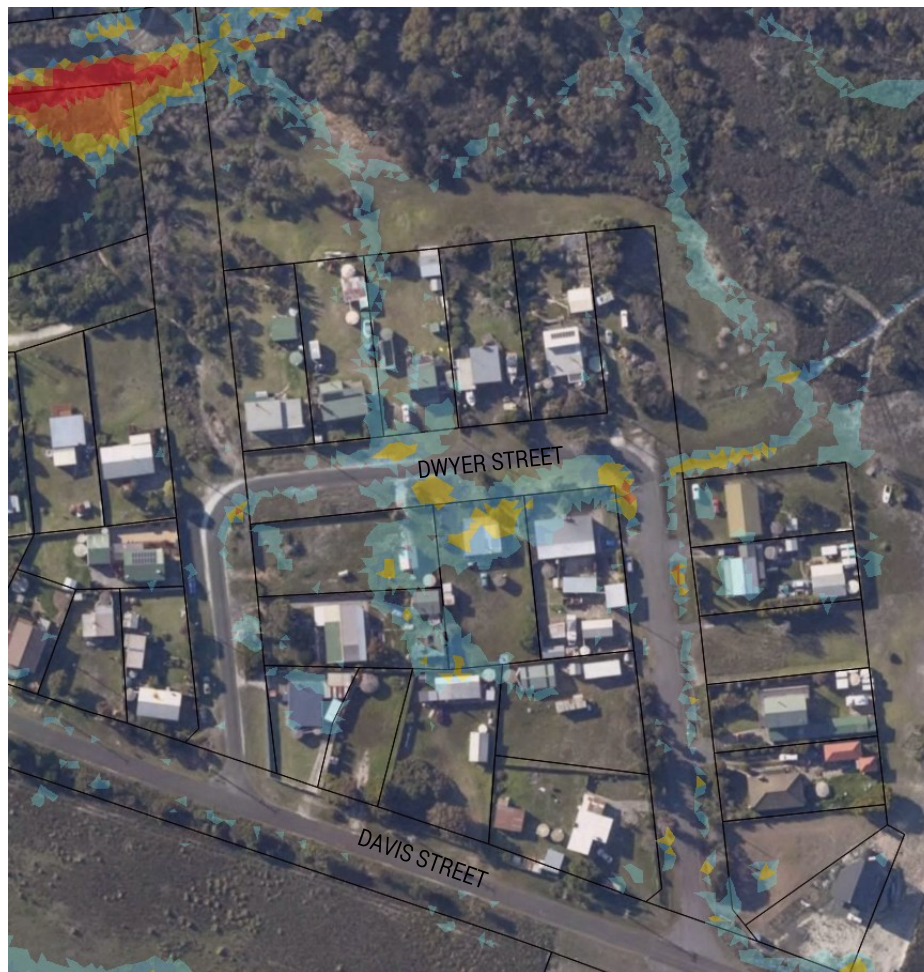


Figure 4-6 – Dwyer Street Existing Conditions

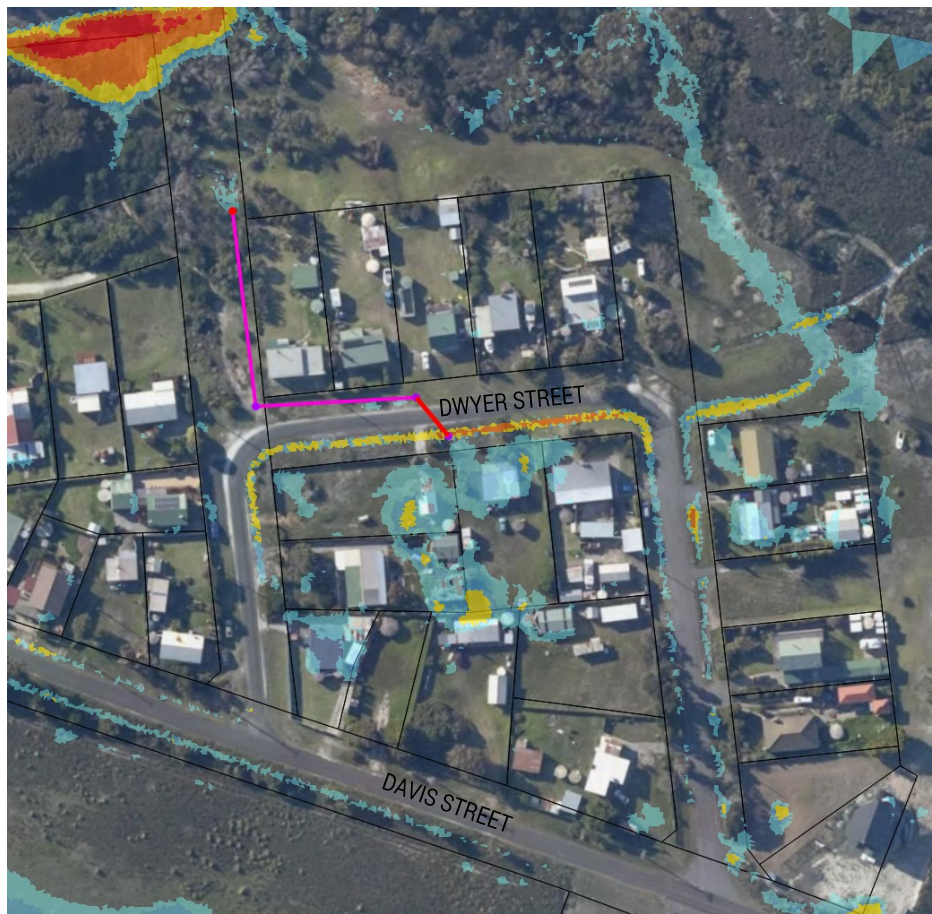


Figure 4-7 – Dwyer Street Proposed Conditions

4.2.3. Soldiers Settlement Road

The critical storm event was found to be a combination of the 45 minute, pattern 1 and the 15 minute, pattern 7 events. Figure 4-8 and Figure 4-9 below show existing and proposed conditions.

It can be seen that ponding of water for 12 Davis Street is exacerbated by the additional flow from the subdivision. Though not immediately obvious due to the flood depth cut-off levels, a substantial overflow occurs from the swale over the road. The existing and proposed stormwater network downstream is at capacity.

Thus, the limiting factor of this issue is the open channel and shaping around the culvert inlets. The proposed solution resolves this by improving the capacity of existing swales and containing stormwater flows.

It is important to note, due to the lack of information provided, this flow was injected into the hydrodynamic model as a constant. Inclusion of the flow in this form provides a conservative impact, however values of this flow were only provided as a 10% AEP event and cannot be extrapolated to 1% AEP event (per this model).

The true impact to this channel from the proposed subdivision and subsequent pipe/headwall is likely to be worse than shown and may require a larger pipe than the DN300 as modelled. This cannot be quantified until additional information is produced from the subdivision design.



Figure 4-8 – Soldiers Settlement Road Subdivision impacts Existing Condition

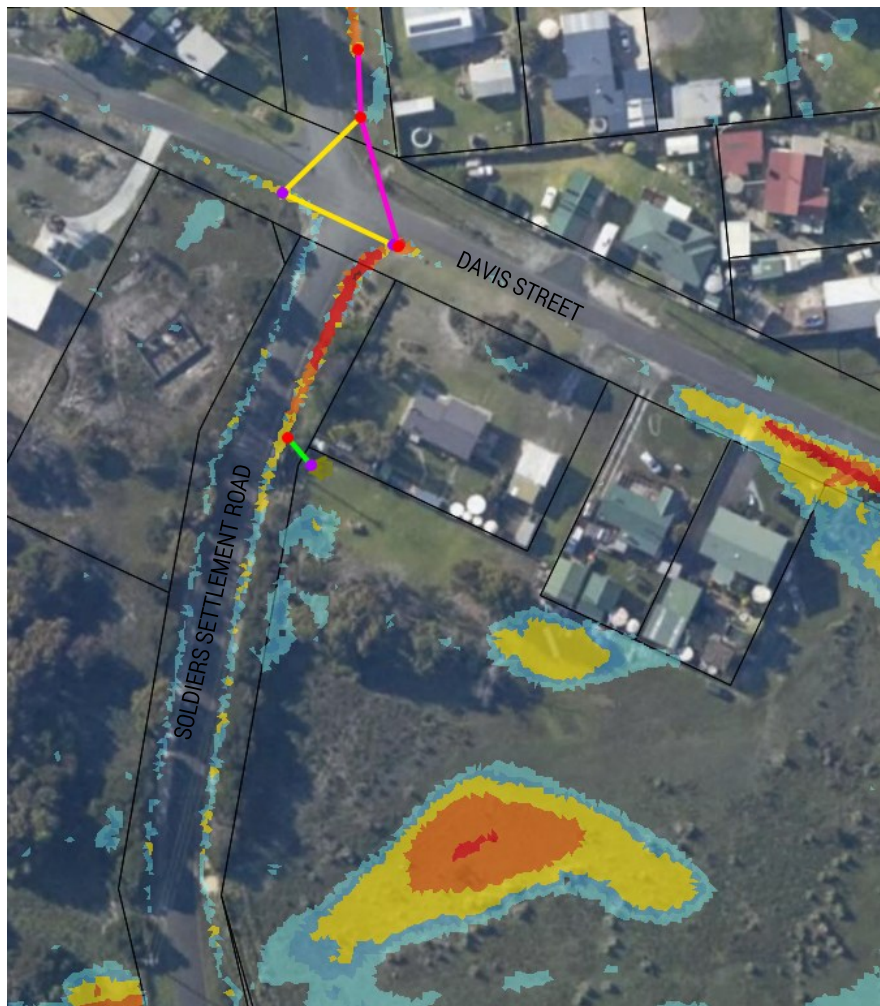


Figure 4-9 – Soldiers Settlement Road Subdivision impacts Proposed Condition

4.2.4. Ryan Street

The critical storm event for this stormwater system was found to be the 15 minute, pattern 7 event. The existing and proposed cases are shown under this critical event per Figure 4-10 and Figure 4-11 below.

It can be seen in Figure 4-10 below that existing stormwater lines are beyond capacity. A new DN450 stormwater line is proposed down Ryan Street in combination with road swales to resolve numerous stormwater issues. In addition, a new culvert is proposed at the Ryan Street – Currie street intersection to reduce ponding near 6 Currie Street.

As shown in the proposed solution (Figure 4-11), there is approximately 20% capacity left within the underground main stormwater line. This allows for futures flows concentrated by proposed swales and connections by residents.

In addition, it can be seen that:

1. 8 Currie Street has substantially reduced flooding as a combination of new lines and upgraded alignments provide sufficient conveyance of stormwater.
2. Overflow from 4 Ryan Street through to the Esplanade is substantially reduced to almost negligible flow.
3. Overflow through Baker Street is substantially reduced.

4. Improved stormwater conveyance from Soldiers Settlement Road is catered for.
5. Improved flow conveyance at outlet ensuring 14 Esplanade is unaffected by stormwater upgrades, with minor improvements showing.



Figure 4-10 – Ryan Street South Existing Conditions



Figure 4-11 – Ryan Street South Proposed Conditions

To the North of Ryan Street, as shown in Figure 4-12 and Figure 4-13, flow into 14 Esplanade is shown to be reduced slightly and broadly controlled by a small swale and piping to the beach head.

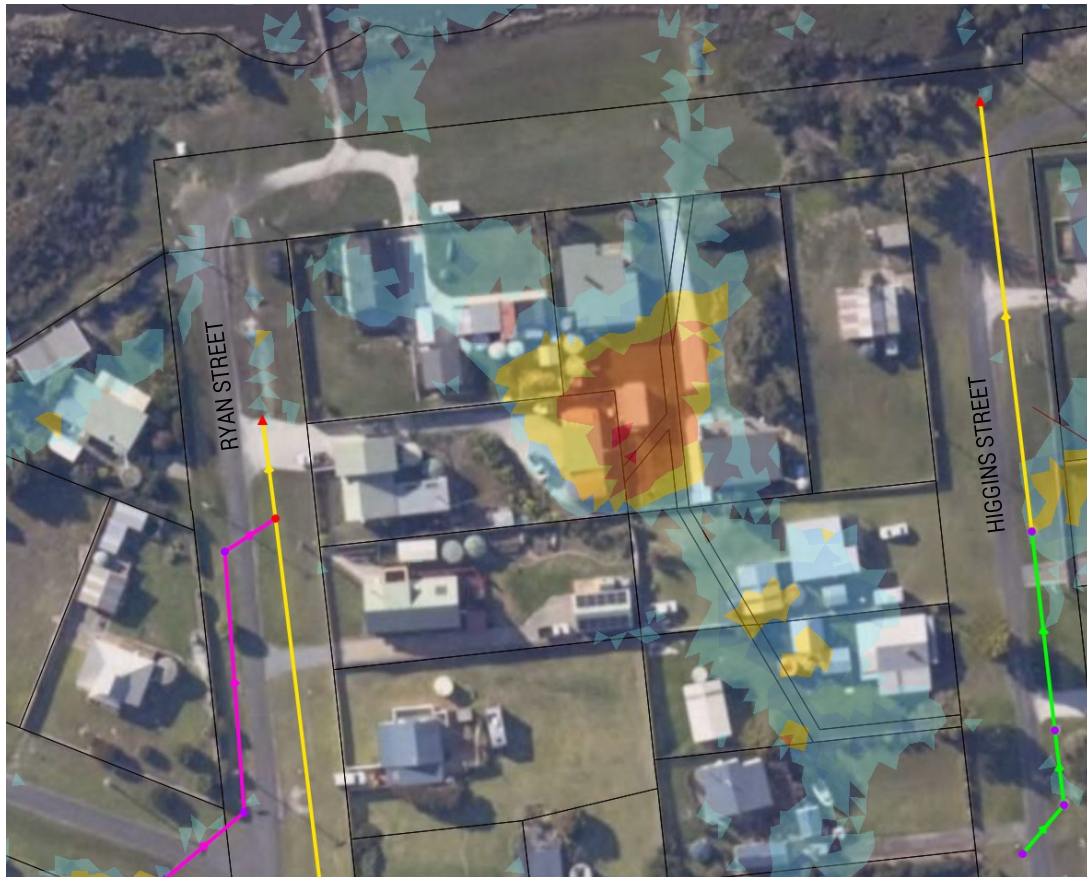


Figure 4-12 – Ryan Street North Existing Conditions

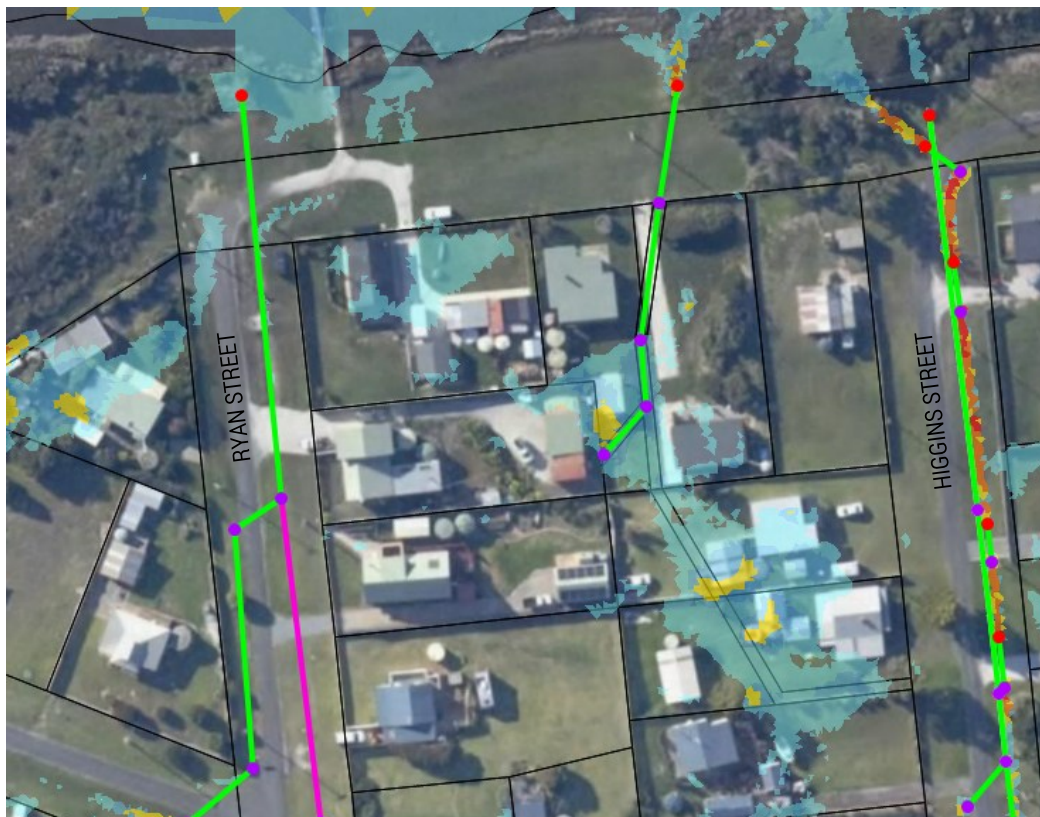


Figure 4-13 – Ryan Street North Proposed Conditions

4.2.5. Esplanade

With reference Figure 4-12 and Figure 4-13, a substantial reduction in water volume can be obtained with the provision of a 2/DN375 connection.

Due to restrictions with outfall invert levels and cover through the area, larger pipe sizes or broad improvements are substantially limited. Alternatives such as reducing the flow from 4 Ryan Street may be provided, in addition a Western swale through Higgins St to contain overflow.

It is noted however the issue largely occurs from a lack of stormwater conveyance or pathways out of the local low point around the Esplanade and West Higgins St.

Suggested vegetation is discussed and tabulated by the Derwent Estuary Program within *WSUD procedures for stormwater management, Appendix B – Plant List*²

4.3. Flood Hazards

Flood hazard maps for the existing and proposed cases are presented in Appendix A.

A review of the existing case yields three houses along the Esplanade impacted by hazards greater than H2 (unsafe for small vehicles) with a small overlap of hazard H3 (unsafe for vehicles, children, elderly) to a structure at 16 Esplanade. The roadways adjacent to 1 Higgins Street and 5 Baker Street contain a H5 hazard.

² https://www.derwentestuary.org.au/assets/Water_Sensitive_Urban_Design_Guidelines_15_Appendix_B_Plant_Lists.pdf

In contrast, the proposed solutions generally decrease the hazardous areas and / or hazard levels within the catchment area. Within the improved areas of the catchment, the hazard level within private property has been reduced to H1. Small areas of hazard areas ranging from H2 to H5 are evident within the road reserves, these depict the open drains that have been included in the proposed solution.

Therefore, the proposed solutions enable safe access and egress for vehicles and pedestrian.

4.4. Water Quality Management

Works proposed have negligible impact to the addition of impervious area. The *State Stormwater Strategy* allows for an exemption if new developments create less than 500m² of additional impervious area, thus these works are exempt.

A nominal stormwater quality improvement can be attributed to the provision and formalisation of swales in the stormwater network.

Swale drains promote moderation of flows and encourages retainment of coarse sediments. Choice of vegetation also enables entrainment of Nitrogen, Phosphorus and Suspended Solids. For example, the proposed Higgins Street swale may have the following reductions for its adjacent catchment:

- 80% reduction in Total Suspended Solids
- 56% reduction in Total Phosphorus
- 23% reduction in Total Nitrogen

4.5. Erosion Control

Shear stresses generated by high velocity flows have the capacity to mobilise and transport sediment in open channels. To mitigate these effects, erosion control measures are generally provided in the form of local grasses, rip rap or concrete lined sections of channels and outlets.

Literature suggests short native grasses have an acceptable critical shear stress limit between 33-45 Pa, long native grasses between 57-80 Pa, aggregates 50mm in size having a 38 Pa limit and for 100mm aggregates at limit of 76-100 Pa.

Open channels within the model are assumed to be maintained with short native grass. For areas requiring reinforcement a 100mm aggregate will be utilised.

There are numerous methods, empirical and numerical, to derive bed shear stress for open channels including a variety of published values. Two are considered for this catchment below.

NUMERICAL

For relatively uniform flow conditions bed shear stress in open channels can be derived from properties of the channel, friction grade and unit weight of the fluid.

Post-processing analysis shows design shear stress for the combined 1% AEP critical patterns is broadly below 33 Pa, further that majority of culvert inlet and outlets are within 33-45 Pa. A select few culverts however will require rip-rap (100mm) to mitigate erosion.

It is generally good practice to moderate flow inbound and outbound of culverts, particularly for large open channels proposed.

INDUSTRY GUIDANCE

AustRoads guidelines suggests erosion control measures dependant on flow velocity.

Within the Guide to Road Design Part 5B – Drainage, recommended maximum velocities within vegetated channels is discussed and tabulated in Table 2.6.

For a 1% channel grade, easily eroded soils and Kikuyu, Pangola and Couch grass species a limit of 2.1 m/s is suggested. For erosion resistant soils this increases to 2.8 m/s.

Under these guidelines, sections of channel adjacent to 21 Davis St, the reserve and 3-8 Higgins St, will require erosion control.

Similarly, Table 3.1 provides suggested culvert outlet velocities for various circumstances. In the case of simple grass cover a recommended maximum of 2.5 m/s is provided. Culvert outlets near the properties noted above will require erosion control under this guidance.

Considering analysis under a 1% AEP storm event being, model accuracy and further numerical analysis it is unlikely rip-rap along the channel will be required. Additionally, erosion within this rare, brief, event is low risk.

Rock pitching/rip-rap will be nominated for all culverts as good practice, and in select cases required via analysis and guidance.

5. COST ESTIMATE

Translating the final design to documentation yields the appended design documentation (works packages) for tender.

A cost estimate is provided below with a nominal $\pm 50\%$ tolerance.

5.1. Valuation Methodology

This valuation utilises a Cost Approach consistent with Financial and Asset Management Practice Summaries, Practice Summary 9 – Valuation Practises (Local Government Association of Tasmania, 2018) produced by the Local Government Association of Tasmania.

Each unit rate is an estimation of the cost to excavate, supply and install the asset. It assumes the cost to remove the infrastructure from site is negligible and/or has zero residual value.

Material costs were retrieved from three avenues: industry knowledge (working projects), directly from suppliers and Rawlinsons Australian Construction Handbook (Rawlinsons, 2023). Calculation of the replacement costs vary depending on the asset and data available which is outlined in the following sections.

An index of 10% is applied to account for logistics consistent with Rawlinsons findings. In addition, Rawlinsons values were indexed by a further 4% to align with costs as of January 2025. This index was based on interim updates provided by the publisher.

All costs herein exclude GST.

5.2. Critical Assumptions

The following material and construction assumptions apply:

1. All pipes were assumed to conform with LGAT Standard Drawing TSD-G01 v3 (Local Government Association of Tasmania, 2020).
2. The cost of design or re-design is not included.
3. The area is generally accessible
4. Minor traffic control will be required for a reduction or temporary close to one lane. A nominal cost associated with this will be included with site mobilisation.
5. Excavated soil will have the characteristics of Sandy SILT.
6. The cost of rehabilitation will be negligible except where excavating pavement.
7. Costs have not been indexed to future delivery years. Costs are provided on the assumption they are provided with the year of this reports issue.
8. Excavation in rock has not been allowed for.

5.3. Higgins Street

Item	Quantity(unit, m, m3)	Cost (ex. GST)
Head wall to suit 2/DN375	20	\$56,000
DN375 RCP	150	\$64,050
Channel Excavation	290	\$26,100
Traffic management, preliminaries, mobilisation and demobilisation, etc.	1	\$40,000
Sub Total		\$186,150
With 50% contingency and variability		\$279,225

5.4. Dwyer Street

Item	Quantity(unit, m, m3)	Cost (ex. GST)
Head wall to suit DN450	2	\$4,000
Head wall to suit DN375	4	\$6,800
100mm rock pitching		
Grated Pit 900 x 900	1	\$3,570
Manhole DN1050	1	\$15,500
DN450 BlackMax	112	\$55,660
DN375 RCP	25	
Channel Excavation	286	\$7,600
Traffic management, preliminaries, mobilisation and demobilisation, etc.	1	\$20,000
	Sub Total	\$106,330
	With 50% contingency and variability	\$159,495

5.5. Soldiers Settlement Road

Item	Quantity(unit, m, m3)	Cost (ex. GST)
Head wall to suit DN300	1	\$1,500
DN300 BlackMax	26	\$8,970
Channel Excavation	165	\$14,850
Traffic management, preliminaries, mobilisation and demobilisation, etc.	1	\$20,000
	Sub Total	\$45,320
	With 50% contingency and variability	\$67,980

5.6. Ryan Street

Item	Quantity(unit, m, m3)	Cost (ex. GST)
Head wall to suit DN450	2	\$4,000
Head wall to suit DN375	1	\$1,750

Manhole DN1050	2	\$10,084
Channel Excavation	165	\$14,850
DN450 BlackMax	200	\$99,400
DN375 BlackMax	27	\$11,529
Channel Excavation	272	\$24,480
Traffic management, preliminaries, mobilisation and demobilisation, etc.	1	\$40,000
Sub Total		\$206,093
With 50% contingency and variability		\$309,140

5.7. Esplanade

Item	Quantity (unit, m, m3)	Cost (ex. GST)
Head wall to suit 2/DN375	1	\$2,800
Grated Pit 900 x 900	2	\$7,140
Manhole DN1050	1	\$5,042
DN375 RCP	90	\$45,000
Traffic management, preliminaries, mobilisation and demobilisation, etc.	1	\$10,000
Sub Total		\$69,982
With 50% contingency and variability		\$104,973

6. CAPITAL WORKS SCHEDULING

Reviewing works packages (solutions) and the associated risk assessment from section 3.2.1 and section 3.3 above yields the following priority list.

WORKS PACKAGE (SOLUTION)	RISK TO PEOPLE & PROPERTY	PRIORITY	ESTIMATED CONSTRUCTION TIME
"Ryan Street"	Medium	1	5-8 months
"Higgins Street"	Medium	2	4-6 months
"Dwyer Street"	Medium	3	3 months
"Esplanade"	Medium	4	3 months
"Soldiers Settlement Road"	Low	5	2 months

Table 6-1 - Works Package Summary

It is noted that priority 5, Soldiers Settlement Road, has minimal impact to people and property and is only exacerbated by the proposed subdivision of Lot 1 Davis Street.

Broadly, each works package should fit within a yearly budget cycle. A recommended works plan is as follows:

WORKS PACKAGE (SOLUTION)	FINANCIAL YEAR
"Ryan Street"	2026/2027
"Higgins Street"	2027/2028
"Dwyer Street"	2028/2029
"Esplanade"	2029/2030
"Soldiers Settlement Road"	2030/2031

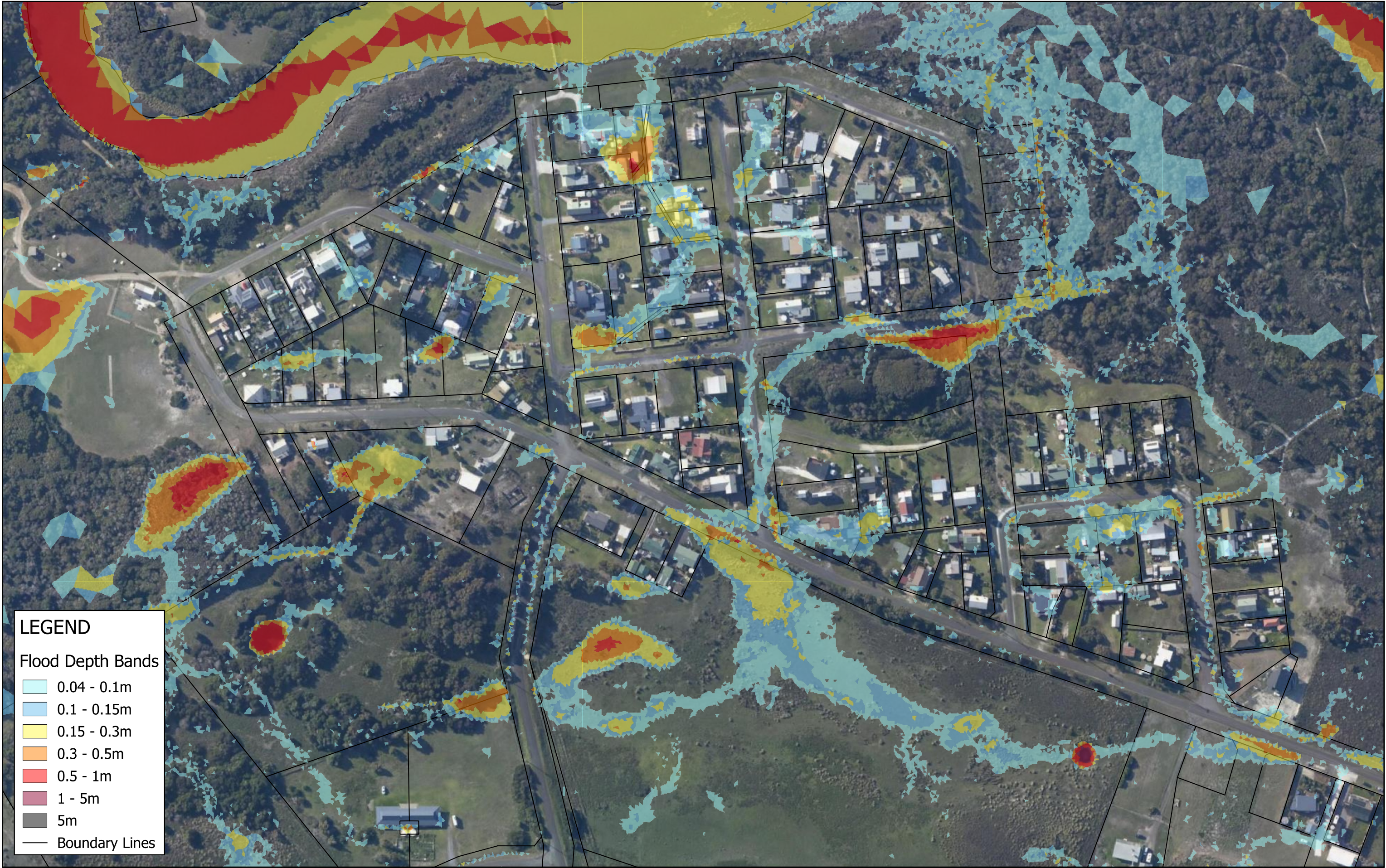
Table 6-2 - Suggested Capital Works Schedule

It is also recommended to investigate possible grants from the State and Federal governments and departments.

Council may also find that combining works packages to one tender may provide noticeable cost savings, even if scheduled to deliver over multiple budget cycles.

APPENDIX A – FLOOD MAPS

SELECT 1% AEP + CC - PEAK FLOOD DEPTHS - EXISTING



LEGEND

Flood Depth Bands

- 0.04 - 0.1m
- 0.1 - 0.15m
- 0.15 - 0.3m
- 0.3 - 0.5m
- 0.5 - 1m
- 1 - 5m
- 5m
- Boundary Lines

0 100 200 m

metres
Scale 1:2,200

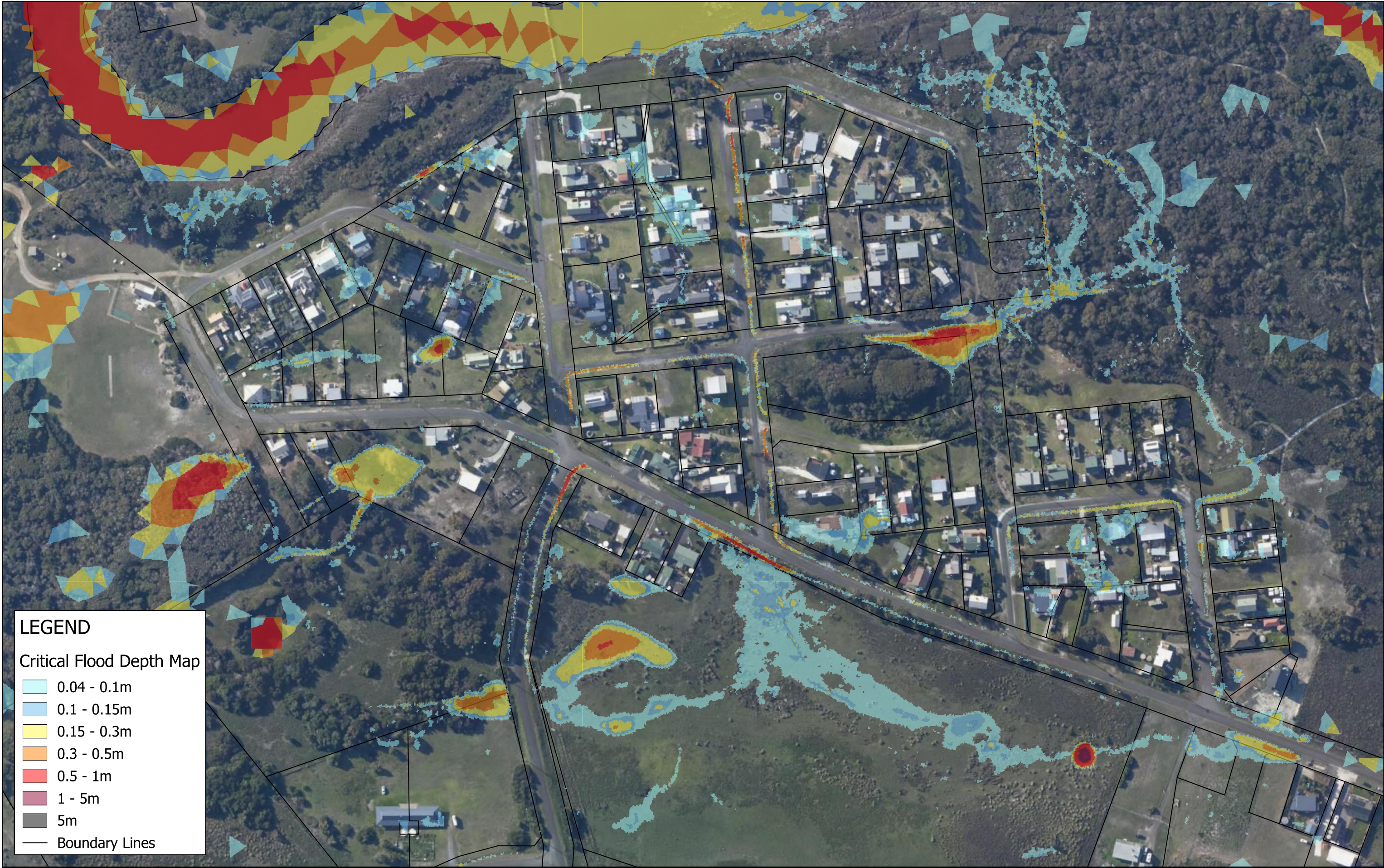
246034-2025-03-27

Map CRS: GDA94 / MGA zone 55
Coordinate Units: Meters
Map Scale: 1:2,200



admin@collectiveconsulting.com.au
(03) 6334 0834
Level 1, 10-14 Paterson Street
Launceston TAS 7250

SELECT 5% AEP + CC PEAK - FLOOD DEPTHS - PROPOSED

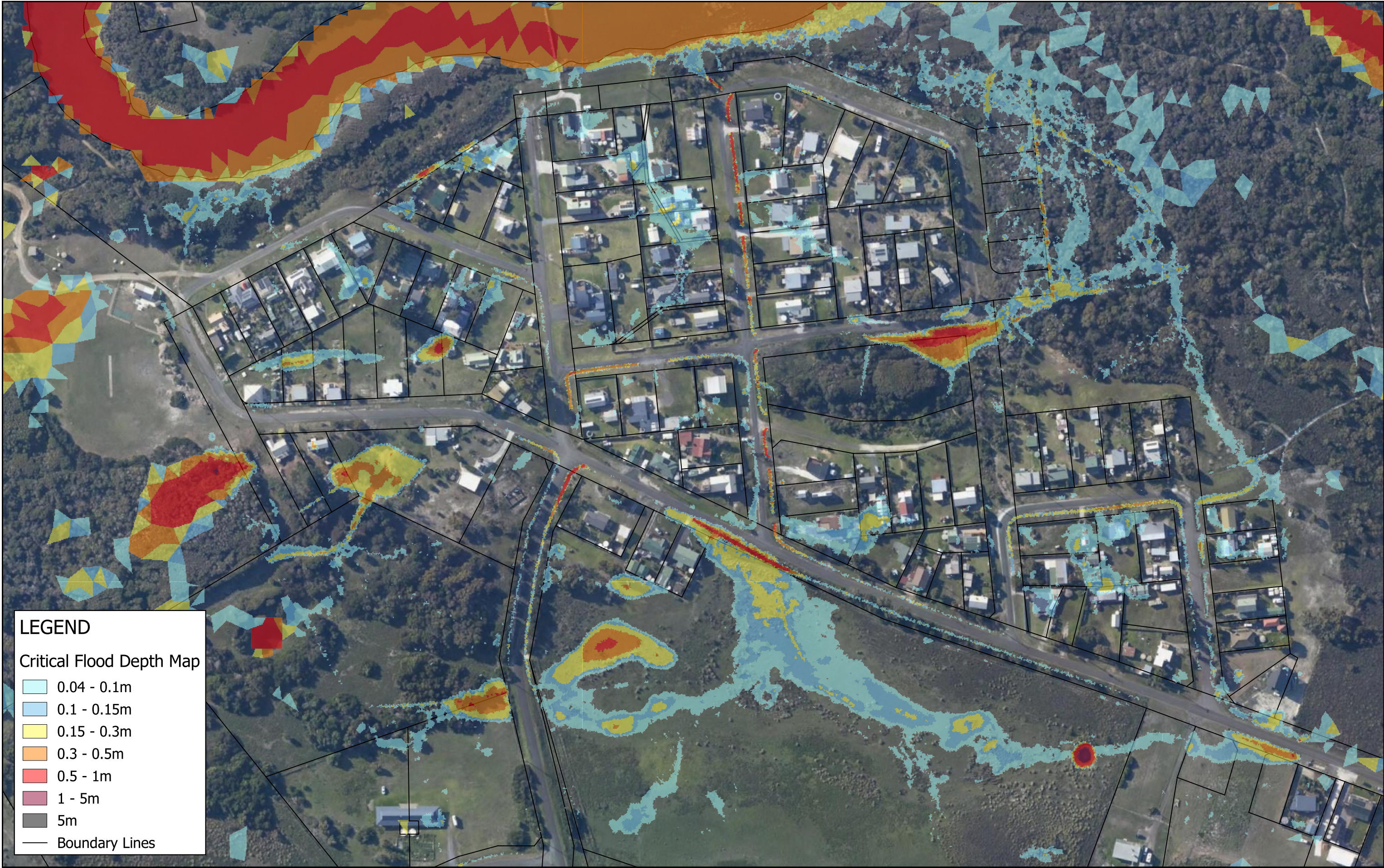


LEGEND

Critical Flood Depth Map

- 0.04 - 0.1m
- 0.1 - 0.15m
- 0.15 - 0.3m
- 0.3 - 0.5m
- 0.5 - 1m
- 1 - 5m
- 5m
- Boundary Lines

SELECT 1% AEP + CC PEAK - FLOOD DEPTHS - PROPOSED



LEGEND

Critical Flood Depth Map

- 0.04 - 0.1m
- 0.1 - 0.15m
- 0.15 - 0.3m
- 0.3 - 0.5m
- 0.5 - 1m
- 1 - 5m
- 5m
- Boundary Lines

0 100 200 m

metres
Scale 1:2,200

246034-2025-04-04

Map CRS: GDA94 / MGA zone 55
Coordinate Units: Meters
Map Scale: 1:2,200



admin@collectiveconsulting.com.au
(03) 6334 0834
Level 1, 10-14 Paterson Street
Launceston TAS 7250

SELECT 1% AEP + CC - PEAK FLOOD HAZARDS - EXISTING



LEGEND

Flood Hazard Bands

- 1 - Not shown for clarity
- 2
- 3
- 4
- 5
- 6

— Boundary Lines

0 100 200 m

metres
Scale 1:2,200

246034-2025-03-27

Map CRS: GDA94 / MGA zone 55
Coordinate Units: Meters
Map Scale: 1:2,200



admin@collectiveconsulting.com.au
(03) 6334 0834
Level 1, 10-14 Paterson Street
Launceston TAS 7250

SELECT 1% AEP + CC - PEAK FLOOD HAZARDS - PROPOSED



LEGEND

Critical Hazard Map

- 2
- 3
- 4
- 5
- 6

Boundary Lines

0 100 200 m

metres
Scale 1:2,200

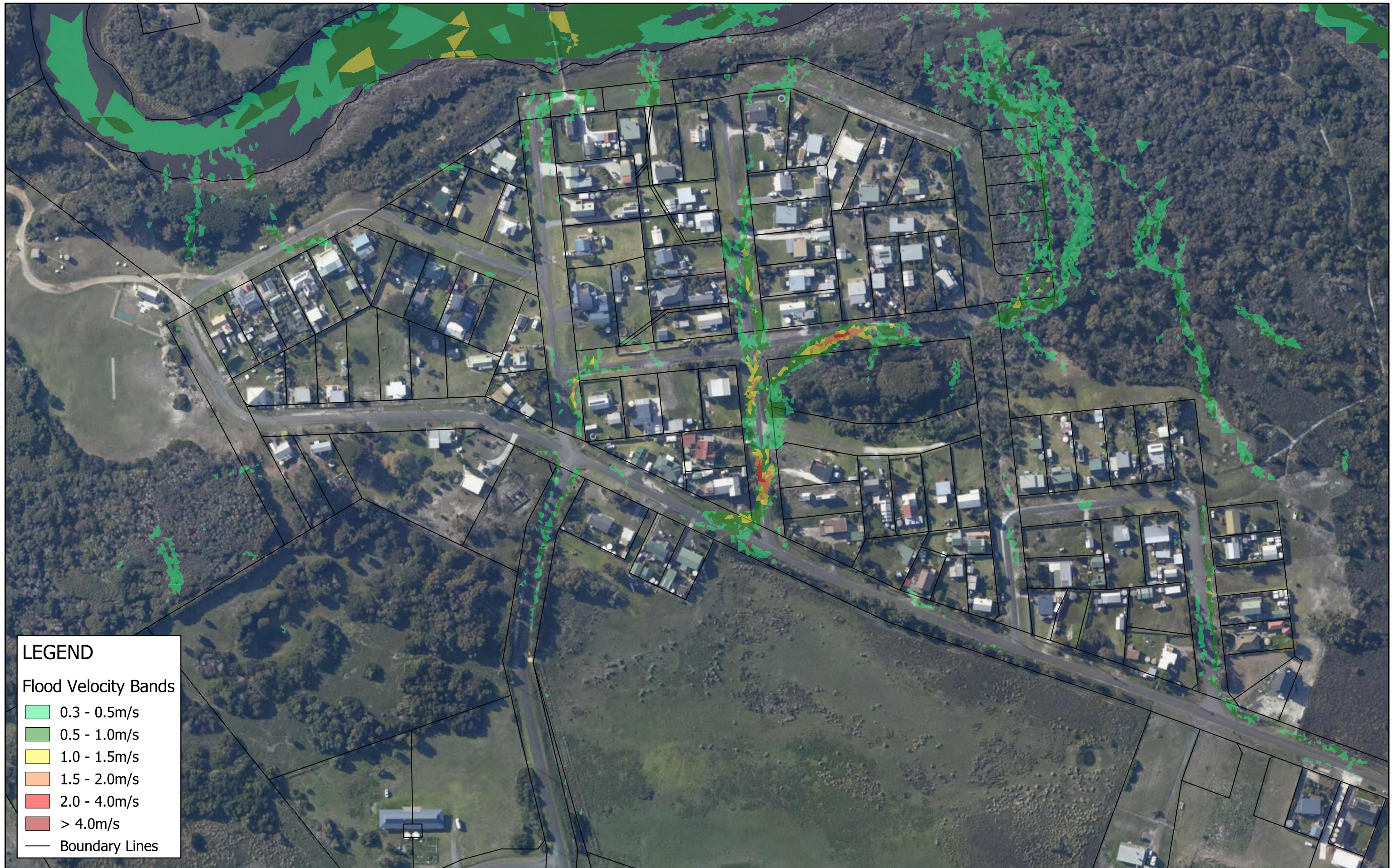
246034-2025-04-04

Map CRS: GDA94 / MGA zone 55
Coordinate Units: Meters
Map Scale: 1:2,200



admin@collectiveconsulting.com.au
(03) 6334 0834
Level 1, 10-14 Paterson Street
Launceston TAS 7250

SELECT 1% AEP + CC - PEAK FLOOD VELOCITY - EXISTING



0 100 200 m

metres
Scale 1:2,200

246034-2025-03-27

Map CRS: GDA94 / MGA zone 55
Coordinate Units: Meters
Map Scale: 1:2,200



admin@collectiveconsulting.com.au
(03) 6334 0834
Level 1, 10-14 Paterson Street
Launceston TAS 7250

SELECT 1% AEP + CC - PEAK FLOOD VELOCITY - PROPOSED



LEGEND

Critical Flood Velocity Map

- 0.3 - 0.5m/s
- 0.5 - 1.0m/s
- 1.0 - 1.5m/s
- 1.5 - 2.0m/s
- 2.0 - 4.0m/s
- > 4.0m/s
- Boundary Lines

0 100 200 m

metres
Scale 1:2,200

246034-2025-04-04

Map CRS: GDA94 / MGA zone 55
Coordinate Units: Meters
Map Scale: 1:2,200

APPENDIX B – DESIGN DOCUMENTATION

CLIENT:
GEORGE TOWN COUNCIL

PROJECT DETAILS:
BEECHFORD STORMWATER
INFRASTRUCTURE IMPROVEMENT

PROJECT No:
246034

DISCIPLINE:
CIVIL

DRAWINGS:

- COV - COVER SHEET
- C001 - CIVIL NOTES
- C100 - OVERALL SITE PLAN
- C401 - INFRASTRUCTURE PLAN - RYAN STREET - PART PLAN 1
- C402 - INFRASTRUCTURE PLAN - RYAN STREET - PART PLAN 2
- C403 - INFRASTRUCTURE PLAN - HIGGINS STREET - PART PLAN 1
- C404 - INFRASTRUCTURE PLAN - HIGGINS STREET - PART PLAN 2
- C405 - INFRASTRUCTURE PLAN - HIGGINS STREET - PART PLAN 3
- C406 - INFRASTRUCTURE PLAN - DWYER STREET
- C407 - INFRASTRUCTURE PLAN - ESPLANADE
- C408 - INFRASTRUCTURE PLAN - SOLDIERS SETTLEMENT ROAD
- C801 - TYPICAL DETAILS

					<div>COLLECTIVE CONSULTING DISCLAIMER: 1. THIS DRAWING HAS BEEN PRODUCED FOR THE NAMED CLIENT AND FOR USE OF THIS PROJECT ONLY, AND IS NOT TO BE USED FOR ANY OTHER PURPOSE. 2. THESE DRAWINGS MUST BE APPROVED BY COUNCIL, TASWATER AND ANY OTHER REQUIRED AUTHORITIES PRIOR TO COMMENCING CONSTRUCTION. 3. THE RECIPIENT IS RESPONSIBLE FOR ENSURING THAT THEY REVIEW THE STATUS OF THIS DRAWING, AND IN RECEIPT OF THE CURRENT REVISION PRIOR TO USE. 4. INFORMATION PROVIDED WITHIN THIS DOCUMENT HAS BEEN PROVIDED UNDER COLLECTIVE CONSULTING'S TERMS OF ENGAGEMENT. BY ACCEPTING OR USING THE INFORMATION WITHIN THIS DOCUMENT YOU HAVE ACCEPTED THE TERMS OF ENGAGEMENT. TERMS CAN BE VIEWED AT: WWW.COLLECTIVECONSULTING.COM.AU/TERMSOFENGAGEMENT. 5. DO NOT SCALE DRAWINGS. COLLECTIVE CONSULTING IS NOT RESPONSIBLE FOR THE DIMENSIONING AND SETTING OUT OF COMPONENTS WITHIN THESE PROJECT DOCUMENTS.</div>	<div><div>COLLECTIVE CONSULTING</div><div><div>E admin@collectiveconsulting.com.au</div><div>Level 1, 10-14 Paterson Street</div><div>Launceston TAS 7250</div><div>P (03) 6334 0834</div><div>collectiveconsulting.com.au</div></div></div>	CLIENT / ARCHITECT: GEORGE TOWN COUNCIL					PROJECT DETAILS: BEECHFORD DRAINAGE UPGRADES					DRAWING TITLE: COVER SHEET			
A	REVIEW / INFORMATION			SP			08/04/25													
REV:	ISSUED FOR / DESCRIPTION:			BY:			DATE:						SCALE @ A1:	PROJECT No:	DRAWING No:	REVISION:				
													-	246034	COV	A				

GENERAL NOTES

- 1/ GENERAL
- A. THESE DRAWINGS AND NOTES SHALL BE READ IN CONJUNCTION WITH ARCHITECTURAL, LANDSCAPE, ARCHITECTS, STRUCTURAL, BUILDING SERVICES AND OTHER DISCIPLINES' DRAWINGS AND SPECIFICATIONS AND WITH ANY WRITTEN ENGINEERS INSTRUCTIONS ISSUED DURING THE CONTRACT.
- B. THE CONTRACTOR SHALL ENSURE THAT ALL CIVIL WORKS, MATERIALS, INFRASTRUCTURE AND WORKMANSHIP COMPLY WITH PLANNING AND BUILDING PERMITS, THE NATIONAL CONSTRUCTION CODE OF AUSTRALIA (NCC), AUSTRALIAN STANDARDS (AS), DEPARTMENT OF STATE GROWTH (DSG), INSTITUTE OF PUBLIC WORKS ENGINEERING AUSTRALIA (IPWEA) - TAS DIVISION, LOCAL GOVERNMENT ASSOCIATION TASMANIA (LGAT), WATER SERVICES ASSOCIATION OF AUSTRALIA (WSAA) AND ANY OTHER STATE / TERRITORY / LOCAL GOVERNMENT REGULATIONS.
- C. ALL AUSTRALIAN STANDARDS REFERENCED IN THESE DRAWINGS ARE TO BE NOTED AS THE CURRENT VERSIONS.
- D. ANY DISCREPANCIES ARE TO BE REPORTED TO THE SUPERINTENDENT BEFORE PROCEEDING WITH THE WORK.
- E. THESE GENERAL NOTES DO NOT HAVE PRECEDENCE OVER THE SPECIFICATION OR DRAWING NOTES.
- F. ALL SET OUT DIMENSIONS ON THE DRAWINGS ARE TO BE VERIFIED BY THE CONTRACTOR ON SITE BEFORE COMMENCING WORK.
- G. DO NOT SCALE FOR DIMENSIONS OF THESE DRAWINGS.
- H. UNLESS NOTED OTHERWISE, ALL DIMENSIONS SHOWN ARE IN MILLIMETRES WITH THE EXCEPTION OF SURVEY LEVELS WHICH ARE IN METRES.
- I. THE CONTRACTOR IS TO ENSURE THAT ANY PROFESSIONALS, TRADESMEN OR SUPPLIERS ENGAGED THROUGHOUT THE DURATION OF THE CONTRACT ARE ACCREDITED AND QUALIFIED FOR THEIR DUTY OF WORK AND CARRY ALL NECESSARY PERMITS REQUIRED BY ANY STATUTORY AUTHORITY.
- J. INSTALL ANY AND ALL PROPRIETARY ITEMS IN ACCORDANCE WITH SPECIFIC MANUFACTURERS REQUIREMENTS, SPECIFICATIONS AND RECOMMENDATIONS.

- 2/ NOTICE TO CONTRACTOR / TENDERER
- A. THE CONTRACTOR / TENDERER IS TO MAKE THEMSELVES AWARE OF THE LOCAL COUNCIL AND THE DEPARTMENT OF STATE GROWTH (DSG) STANDARDS FOR CIVIL WORKS. TENDERER IS TO ALLOW FOR THESE STANDARDS DURING PRICING.
- B. CONSTRUCTION IS TO BE CARRIED OUT IN ACCORDANCE WITH THESE STANDARDS THROUGHOUT THE DURATION OF THE CONTRACT.
- C. COPIES OF THESE STANDARDS ARE AVAILABLE UPON REQUEST FROM THE LOCAL COUNCIL AND/OR WEBSITE.
- 3/ DESIGN LEVELS
- A. CONFIRM / DETERMINE FINISHED FLOOR LEVELS ON SITE TO ACHIEVE DESIGN INTENT. REFER ARCHITECT FOR ANY DISCREPANCIES / ISSUES OR CHANGES TO FLOOR LEVELS. GENERALLY, SURFACES ARE TO BE SLOPED AWAY FROM BUILDINGS.
- 4/ SCOPE OF WORKS
- A. THE SCOPE OF WORKS ARE SHOWN IN THESE DOCUMENTS AND THE SPECIFICATION.
- B. THE CONTRACTOR IS EXPECTED TO RESOLVE ALL ISSUES UNCOVERED ON SITE THAT ARE NOT DETAILLED IN THESE DOCUMENTS, IN CONJUNCTION WITH THE SUPERINTENDENT / PRINCIPAL.
- 5/ DISPOSAL OF EXCAVATED MATERIAL
- A. DISPOSE OF EXCAVATED MATERIAL TO A LICENSED WASTE FACILITY OR APPROVED LAND FILL SITE.
- 6/ APPROVALS
- ALL WORKS ARE TO BE CARRIED OUT IN ACCORDANCE WITH THE FOLLOWING APPROVALS:

- 7/ LINE TYPE LEGEND
- eCOM— EXISTING COMMUNICATIONS LINE - CONFIRM EXACT LOCATION
- COM— PROPOSED COMMUNICATIONS LINE
- eFM— EXISTING FIRE WATER LINE / MAIN - CONFIRM EXACT LOCATION
- FM— PROPOSED FIRE WATER LINE / MAIN
- eGAS— EXISTING GAS LINE / MAIN - CONFIRM EXACT LOCATION
- GAS— NEW GAS LINE / MAIN
- ePWR— EXISTING POWER LINE - CONFIRM EXACT LOCATION
- PWR— PROPOSED POWER LINE
- eS— EXISTING SEWER SERVICE LINE / MAIN - CONFIRM EXACT LOCATION
- S— PROPOSED SEWER SERVICE LINE / MAIN
- eSW— EXISTING STORMWATER LINE / MAIN - CONFIRM EXACT LOCATION
- SW— PROPOSED STORMWATER LINE / MAIN
- eSW-RM— EXISTING STORMWATER RISING MAIN - CONFIRM EXACT LOCATION
- SW-RM— PROPOSED STORMWATER RISING MAIN
- eAG— EXISTING AGRICULTURAL DRAIN (AG DRAIN)
- AG— PROPOSED SLOTTED AGRICULTURAL DRAIN (AG DRAIN)
- eW— EXISTING WATER SERVICE LINE / MAIN - CONFIRM EXACT LOCATION
- W— PROPOSED WATER SERVICE LINE / MAIN
- — — — — PROPOSED VEE DRAIN - REFER SECTIONS AND DETAILS
- — — — — EXISTING SERVICE LINE / MAIN TO BE DEMOLISHED
- — — — — EXISTING SURFACE / STRUCTURE TO BE DEMOLISHED
- — — — — TITLE BOUNDARY
- — — — — DRAINAGE EASEMENT / RIGHT OF WAY
- — — — — EROSION CONTROL BARRIER

EXISTING INFRASTRUCTURE

- 1/ LOCATION OF EXISTING INFRASTRUCTURE
- A. LOCATE ALL EXISTING UNDERGROUND INFRASTRUCTURE PRIOR TO COMMENCING ANY SITE AND DEMOLITION WORKS WITH THE FOLLOWING METHODS:
- A.1. THE CONTRACTOR IS TO NOTIFY ALL RELEVANT STATUTORY AUTHORITIES PRIOR TO COMMENCING ANY WORK FOR THE POSSIBLE LOCATION OF ANY EXISTING INFRASTRUCTURE NOT SHOWN ON THESE PLANS, AND IS TO NOTIFY THE SUPERINTENDENT OF THE SAME.
- A.2. THE CONTRACTOR IS TO COMPLETE A BEFORE YOU DIG:
- A.3. THE CONTRACTOR IS TO REVEAL ALL SURVEY AND UNDERGROUND ASSET DATA.
- A.4. THE CONTRACTOR IS TO ARRANGE AND PAY FOR THE ON SITE MARKING AND CONFIRMATION OF SEPTIC / SERVICES LOCATIONS FOR ALL UNDERGROUND INFRASTRUCTURE INCLUDING BUT NOT LIMITED TO COMMUNICATIONS, TASNETWORKS, TASCAS, TASWATER AND COUNCIL INFRASTRUCTURE (IE SEWER, STORMWATER, WATER ETC.) IN THE AREA OF NEW WORKS. CONFIRM LOCATIONS USING GABLE LOCATORS, POT HOLING, SUCTION TRUCK, HAND DIGGING AND UNDERGROUND CCTV CAMERA INSPECTIONS.
- A.5. THE CONTRACTOR IS TO WALK SITE AND IDENTIFY ANY ASSETS THAT MAY HAVE BEEN MISSED AND REPORT TO SUPERINTENDENT.
- 2/ GENERAL
- A. ANY CLASHES WITH DESIGNED INFRASTRUCTURE ON THE FOLLOWING DESIGN DRAWINGS ARE TO BE REPORTED TO DESIGN ENGINEER FOR DIRECTION.
- B. ALL EXISTING INFRASTRUCTURE IS TO BE PROTECTED DURING CONSTRUCTION. ANY DAMAGE TO EXISTING INFRASTRUCTURE IS TO BE MADE GOOD AT THE CONTRACTORS EXPENSE.
- C. TRENCHES WHERE SERVICES ARE REMOVED ARE TO BE FILLED WITH AN APPROVED COMPACTED MATERIAL AND TO ENGINEERS COMPACTION SPECIFICATIONS. MATCH AND MAKE GOOD SURFACES TO MATCH EXISTING SURROUNDINGS.

SAFETY IN DESIGN

- 1/ GENERAL
- A. THE SAFETY IN DESIGN RISK MITIGATION MEASURES FOR THIS PROJECT TO ACCOUNT FOR ALL DESIGN, CONSTRUCTION, OPERATION, MAINTENANCE AND DEMOLITION ASSESSMENTS.
- B. THEY DO NOT REDUCE OR LIMIT THE OBLIGATIONS OF THE CONTRACTOR, CONSTRUCTOR, USER, OPERATOR, MAINTAINER OR DEMOLISHER TO PERFORM THEIR OWN SAFETY IN DESIGN RISK ASSESSMENTS.
- C. CONSTRUCTION AND INSTALLATION, SAFE WORK METHOD STATEMENTS ARE TO BE REVIEWED BY A QUALIFIED PERSON TO ELIMINATE AND MINIMISE INSTALLATION RISKS.
- 2/ DESIGN LEVELS
- A. CONFIRM / DETERMINE FINISHED FLOOR LEVELS ON SITE TO ACHIEVE DESIGN INTENT. REFER ARCHITECT FOR ANY DISCREPANCIES / ISSUES OR CHANGES TO FLOOR LEVELS. GENERALLY, SURFACES ARE TO BE SLOPED AWAY FROM BUILDINGS.
- 3/ SCOPE OF WORKS
- A. THE SCOPE OF WORKS ARE SHOWN IN THESE DOCUMENTS AND THE SPECIFICATION.
- B. THE CONTRACTOR IS EXPECTED TO RESOLVE ALL ISSUES UNCOVERED ON SITE THAT ARE NOT DETAILLED IN THESE DOCUMENTS, IN CONJUNCTION WITH THE SUPERINTENDENT / PRINCIPAL.
- 4/ DISPOSAL OF EXCAVATED MATERIAL
- A. DISPOSE OF EXCAVATED MATERIAL TO A LICENSED WASTE FACILITY OR APPROVED LAND FILL SITE.
- 5/ APPROVALS
- ALL WORKS ARE TO BE CARRIED OUT IN ACCORDANCE WITH THE FOLLOWING APPROVALS:

- 6/ LINE TYPE LEGEND
- eCOM— EXISTING COMMUNICATIONS LINE - CONFIRM EXACT LOCATION
- COM— PROPOSED COMMUNICATIONS LINE
- eFM— EXISTING FIRE WATER LINE / MAIN - CONFIRM EXACT LOCATION
- FM— PROPOSED FIRE WATER LINE / MAIN
- eGAS— EXISTING GAS LINE / MAIN - CONFIRM EXACT LOCATION
- GAS— NEW GAS LINE / MAIN
- ePWR— EXISTING POWER LINE - CONFIRM EXACT LOCATION
- PWR— PROPOSED POWER LINE
- eS— EXISTING SEWER SERVICE LINE / MAIN - CONFIRM EXACT LOCATION
- S— PROPOSED SEWER SERVICE LINE / MAIN
- eSW— EXISTING STORMWATER LINE / MAIN - CONFIRM EXACT LOCATION
- SW— PROPOSED STORMWATER LINE / MAIN
- eSW-RM— EXISTING STORMWATER RISING MAIN - CONFIRM EXACT LOCATION
- SW-RM— PROPOSED STORMWATER RISING MAIN
- eAG— EXISTING AGRICULTURAL DRAIN (AG DRAIN)
- AG— PROPOSED SLOTTED AGRICULTURAL DRAIN (AG DRAIN)
- eW— EXISTING WATER SERVICE LINE / MAIN - CONFIRM EXACT LOCATION
- W— PROPOSED WATER SERVICE LINE / MAIN
- — — — — PROPOSED VEE DRAIN - REFER SECTIONS AND DETAILS
- — — — — EXISTING SERVICE LINE / MAIN TO BE DEMOLISHED
- — — — — EXISTING SURFACE / STRUCTURE TO BE DEMOLISHED
- — — — — TITLE BOUNDARY
- — — — — DRAINAGE EASEMENT / RIGHT OF WAY
- — — — — EROSION CONTROL BARRIER

EXISTING SURVEY

- 1/ EXISTING SURVEY DETAILS
- A. THE FOLLOWING ARE THE SURVEY DETAILS USED AS A BASIS FOR THE DESIGN:
- | SURVEYOR | SURVALIGN |
|-------------------------|--------------|
| SURVEY REFERENCE NUMBER | SAS-2020003 |
| SURVEY DATE | 14/01/25 |
| SITE LOCATION | BEECHFORD |
| COORDINATION SYSTEM | MGA 94 |
| LEVEL DATUM | 1910 B.M.H.D |
| SERVICE MARKER | SPM041050 |

SITE SETOUT

- 1/ GENERAL
- A. SETOUT IS THE RESPONSIBILITY OF THE CONTRACTOR AND SURVEYOR.
- B. THE CONTRACTOR IS TO ARRANGE AND PAY FOR A REGISTERED SURVEYOR TO SETOUT THE BUILDINGS, CIVIL WORKS AND ANY OTHER COMPONENT.
- C. COLLECTIVE CONSULTING TAKE NO RESPONSIBILITY FOR THE SETOUT OF BUILDINGS, CIVIL WORKS AND ANY OTHER COMPONENT.
- D. REFER ARCHT FOR SETOUT OF ALL BUILDINGS AND RELATED COMPONENTS.
- E. ALL SETOUT DIMENSIONS ON THESE DRAWINGS ARE TO BE VERIFIED BY THE CONTRACTOR ON SITE BEFORE COMMENCING WORK.
- F. DO NOT SCALE FOR DIMENSIONS OF THESE DRAWINGS.
- G. DO NOT SCALE DRAWINGS. COLLECTIVE CONSULTING IS NOT RESPONSIBLE FOR THE DIMENSIONING AND SETTING OUT OF COMPONENTS WITHIN THESE PROJECT DOCUMENTS.

EARTHWORKS

- 1/ GENERAL
- A. GENERAL EARTHWORKS, MATERIAL AND WORKMANSHIP SHALL COMPLY WITH THE SPECIFICATION, THE CURRENT EDITION OF THE SAA CODE FOR EARTHWORKS, AS3378, THE NCC, SAFE WORK AUSTRALIA CODE OF PRACTICE FOR EXCAVATION WORK, TOGETHER WITH THESE STANDARDS OR REGULATIONS REFERRED TO THEREIN.
- B. THE CONTRACTOR SHALL KEEP A COPY OF THE CURRENT VERSION OF AS3378 AND ANY OTHER REQUIRED CODES, STANDARDS AND REGULATIONS ON SITE.
- 2/ TESTING & INSPECTIONS
- A. THE CONTRACTOR IS TO BE RESPONSIBLE FOR ENGAGING AND PAYING ALL COSTS FOR AN APPROVED CONSTRUCTION MATERIALS TESTING COMPANY TO CARRY OUT TESTING OF ALL EARTHWORKS INCLUDING, BUT NOT LIMITED TO:
- | TESTING TYPE | TESTING REQUIREMENTS |
|---------------------------------|----------------------|
| SUBGRADE | LEVEL 1 TESTING |
| BACKFILLING OF SERVICE TRENCHES | LEVEL 1 TESTING |
| FILLS | LEVEL 1 TESTING |
| PAVEMENTS | LEVEL 1 TESTING |
- CERTIFICATION OF THESE ELEMENTS ARE TO BE PROVIDED PRIOR TO PRACTICAL COMPLETION.
- 3/ AREAS OF CUT
- A. STRIP EXISTING TOP SOIL, VEGETATION, HARD SURFACES AND OTHER MATERIAL TO SUBGRADE LEVEL.
- B. PROOF ROLL SUBGRADE IN ACCORDANCE WITH AS1289 T0:
- 98% STANDARD DRY DENSITY UNDER BUILDINGS
- REMOVE ANY SOFT SPOTS AND COMPACT WITH 2% OF OPTIMUM MOISTURE CONTENT TO STANDARD DRY DENSITY AS STATED ABOVE
- 4/ AREAS OF FILL
- A. STRIP EXISTING TOP SOIL, VEGETATION, HARD SURFACES AND OTHER MATERIAL TO SUBGRADE LEVEL.
- B. PROOF ROLL SUBGRADE IN ACCORDANCE WITH AS1289 T0:
- 98% STANDARD DRY DENSITY UNDER BUILDINGS
- 98% STANDARD DRY DENSITY UNDER ROADS AND CARPARKS
- REMOVE ANY SOFT SPOTS AND COMPACT WITH 2% OF OPTIMUM MOISTURE CONTENT TO STANDARD DRY DENSITY AS STATED ABOVE
- 5/ DISPOSAL OF EXCAVATED MATERIAL
- A. DISPOSE OF EXCAVATED MATERIAL TO A LICENSED WASTE FACILITY OR APPROVED LAND FILL SITE.

SOIL AND WATER MANAGEMENT

- 1/ GENERAL
- A. ALL WORKS ARE TO BE CARRIED OUT IN ACCORDANCE WITH SOIL & WATER MANAGEMENT ON BUILDING & CONSTRUCTION SITES' GUIDELINES AVAILABLE FROM NORTHERN SOURCE MANAGEMENT (NSM) AND DETAILS SUPPLIED IN THESE DESIGN DRAWINGS.
- B. COMPLY WITH ALL REQUIREMENTS TO LIMIT STORMWATER RUNOFF FROM THE SITE DURING CONSTRUCTION.
- C. IT IS STRONGLY RECOMMENDED THAT THE DEVELOPER RECOVER ANY DISTURBED AREAS WITH TOPSOIL AS QUICKLY AS POSSIBLE AFTER BULK EARTHWORKS ARE COMPLETED TO PREVENT SOIL DISPERSION.
- 2/ SOIL EROSION CONTROL
- A. CONTRACTOR TO ALLOW TO:
- A.1. LIMIT DISTURBANCE WHEN EXCAVATING BY PRESERVING VEGETATED AREAS AS MUCH AS POSSIBLE.
- A.2. DIVERT UP-SLOPE WATER WHERE PRACTICAL.
- A.3. INSTALL SEDIMENT FENCES DOWN SLOPE OF ALL DISTURBED LANDS TO FILTER LARGE PARTICLES PRIOR TO STORMWATER SYSTEM.
- A.4. WASH EQUIPMENT IN DESIGNATED AREA THAT DOES NOT DRAIN TO STORMWATER SYSTEM OR NATURAL DRAINAGE LINES.
- A.5. PLACE STOCK PILES AWAY FROM ON-SITE DRAINAGE & UP-SLOPE FROM SEDIMENT FENCES.
- A.6. LEAVE AND MAINTAIN VEGETATED FOOTPATHS.
- A.7. STORE ALL HARD WASTE AND LITTER IN A DESIGNATED AREA THAT WILL PREVENT IT FROM BEING BLOWN AWAY AND WASHED INTO THE STORMWATER SYSTEMS.
- A.8. RESTRICT VEHICLE MOVEMENT TO A STABILISED ACCESS.
- 3/ NRM GUIDELINES
- A. CONTRACTOR TO COMPLETE ALL WORKS IN ACCORDANCE WITH NRM SOIL & WATER MANAGEMENT ON BUILDING & CONSTRUCTION SITE USING THE FOLLOWING FACT SHEETS:
- FACT SHEET 1: SOIL & WATER MANAGEMENT ON LARGE BUILDING & CONSTRUCTION SITES
- FACT SHEET 2: SOIL & WATER MANAGEMENT ON STANDARD BUILDING & CONSTRUCTION SITES
- FACT SHEET 3: SOIL & WATER MANAGEMENT PLANS
- FACT SHEET 4: DISPOSING SOILS - HIGH RISKS OF TUNNEL EROSION
- FACT SHEET 5: MINIMISE SOIL DISTURBANCE
- FACT SHEET 6: PRESERVE VEGETATION
- FACT SHEET 7: DIVERT UP-SLOPE WATER
- FACT SHEET 8: EROSION CONTROL MATS & BLANKETS
- FACT SHEET 9: PROTECT SERVICE TRENCHES & STOCKPILES
- FACT SHEET 10: EARLY-ROOF DRAINAGE CONNECTION
- FACT SHEET 11: SCOUR PROTECTION - STORMWATER PIPE OUTFALLS & CHECK DAMS
- FACT SHEET 12: STABILISED ACCESS
- FACT SHEET 13: WHEEL WASH
- FACT SHEET 14: SEDIMENT FENCES & FIBRE ROLLS
- FACT SHEET 15: PROTECTION OF STORMWATER PITS
- FACT SHEET 16: MANAGE CONCRETE, BRICK & TILT CUTTING
- FACT SHEET 17: SEDIMENT BASINS
- FACT SHEET 18: DUST CONTROL
- FACT SHEET 19: SITE RE-VEGETATION

CIVIL WORKS

- 1/ GENERAL
- A. THE CONTRACTOR SHALL ENSURE THAT ALL CIVIL WORKS, MATERIALS AND WORKMANSHIP COMPLY WITH PLANNING AND BUILDING PERMITS, THE NATIONAL CONSTRUCTION CODE OF AUSTRALIA (NCC), AUSTRALIAN STANDARDS (AS), DEPARTMENT OF STATE GROWTH (DSG), INSTITUTE OF PUBLIC WORKS ENGINEERING AUSTRALIA (IPWEA) - TAS DIVISION, LOCAL GOVERNMENT ASSOCIATION TASMANIA (LGAT), AND ANY OTHER STATE / TERRITORY / LOCAL GOVERNMENT REGULATIONS.
- B. ANY DEPARTURE FROM THESE STANDARDS AND REGULATIONS REQUIRES THE PRIOR WRITTEN APPROVAL FROM THE SUPERINTENDENT AND THE WORKS SUPERVISOR / INSPECTOR.
- 2/ INSPECTIONS
- A. THE CONTRACTOR IS TO BE RESPONSIBLE FOR ORGANISING INSPECTIONS WITH THE SUPERINTENDENT.
- B. THE FOLLOWING SITE INSPECTIONS ARE REQUIRED DURING CONSTRUCTION / HOLD POINTS, AS A MINIMUM, BEFORE COMMENCEMENT OF FURTHER WORKS:
- | REQUIRED SITE INSPECTIONS: |
|---------------------------------------|
| SUBGRADE PREPARATION |
| SUBBASE FOR ROADS, CARPARKS AND KERBS |
| FINAL TRIM PRIOR TO PLACING KERBS |
| FINAL TRIM PRIOR TO SEALING |
- C. THE CONTRACTOR IS TO MAKE THEMSELVES AWARE OF ANY ADDITIONAL INSPECTIONS REQUIRED BY THE LOCAL COUNCIL TO ACHIEVE PRACTICAL COMPLETION AND NOTIFY COLLECTIVE CONSULTING.
- D. COLLECTIVE CONSULTING REQUIRE MIN. 48 HOURS NOTICE PRIOR TO ALL REQUIRED INSPECTIONS.
- 3/ TESTING
- A. THE CONTRACTOR IS TO BE RESPONSIBLE FOR ENGAGING AND PAYING ALL COSTS FOR AN APPROVED CONSTRUCTION MATERIALS TESTING COMPANY TO CARRY OUT TESTING IN ACCORDANCE WITH DSG SPEC. SECTION 173 - EXAMINATION AND TESTING OF MATERIALS AND WORK (ROADWORKS).
- 4/ HOTMIX ASPHALT
- A. ALL HOTMIX ASPHALT IS TO BE BLACK IN COLOUR (U.N.O.) AND IS TO BE PLACED IN ACCORDANCE WITH AND MEET THE REQUIREMENTS OF DSG SPEC. SECTION 407 - HOTMIX ASPHALT.
- 5/ KERBS AND CHANNELS
- A. ALL KERBS AND CHANNELS AND ACCESS RAMPS SHOWN ON THE DRAWINGS ARE TO BE IN ACCORDANCE WITH LGAT STANDARD DRAWINGS TSD-R14-v3 TO TSD-R18-v3.
- 6/ FOOTPATHS
- A. CONSTRUCT FOOTPATHS (INCLUDING EXPANSION JOINTS, CONTROL JOINTS, WEAR/CHORD PLANE JOINTS, ETC.) IN ACCORDANCE WITH LGAT STANDARD DRAWING TSD-R11-v3.
- 7/ LANDSCAPE / STREET FURNITURE
- A. LANDSCAPE AND STREET FURNITURE DESIGN AND DETAILING BY OTHERS.
- 8/ ROAD RESERVE WORKS
- A. ALL WORKS IN (OR REQUIRING OCCUPATION) IN THE ROAD RESERVE MUST BE UNDERTAKEN BY CONTRACTOR REGISTERED WITH COUNCIL'S REGISTERED CONTRACTORS OR AS APPROVED BY COUNCIL.

SIGNAGE AND LINE MARKING

- 1/ GENERAL
- A. LINE MARKING AND SIGNAGE SHOWN ON THE DESIGN PLANS ARE FOR INFORMATION ONLY. REFER TO THE ARCHITECTURAL PLANS FOR DETAILS.
- B. CONTRACTOR TO INSTALL ALL SIGNAGE AND LINE MARKING AS PER THE ARCHITECTURAL PLANS.
- C. CAR PARKING SPACES AND LINE MARKING TO BE IN ACCORDANCE WITH AS2890.
- D. ACCESS CAR PARKING SPACES, SIGNAGE, SHARED AREA, BOLLARD AND LINE MARKING TO BE IN ACCORDANCE AS2890.6.
- E. ALL LINE MARKING TO BE WITH DULUX ROADMASTER (OR EQUIVALENT) U.N.O.
- F. ALL SIGN WORKS AND INSTALLATION TO BE IN ACCORDANCE WITH CURRENT VERSION OF MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) & AUSTRADRS FOR SIGNAGE DETAILS.

INFRASTRUCTURE IN EMBANKMENT FILL

- 1/ GENERAL
- A. WHERE THE LOCATION OF SEWER OR STORMWATER INFRASTRUCTURE REQUIRING FILL OR CONSTRUCTION IN AN EMBANKMENT, ALONG THE ROUTE SHOWN IN THE DESIGN DRAWINGS, PROCEED AS FOLLOWS:
- A.1. PREPARE THE FOUNDATION FOR THE FILL BY CLEANING AWAY ALL DEBRIS, VEGETATION, ORGANIC MATERIAL AND TOPSOIL FOR THE FULL WIDTH OF THE FILL AREA.
- A.2. COMPACT THE CLEANED SOIL SURFACE TO NOT LESS THAN 95% OF ITS STANDARD MAXIMUM DRY DENSITY (AS3798).
- A.3. PLACE THE FILL IN LAYERS NOT EXCEEDING 200MM THICKNESS AND COMPACT EACH LAYER TO NOT LESS THAN 95% OF ITS STANDARD MAXIMUM DRY DENSITY (AS3798).
- A.4. BRING THE COMPACTED FILL LEVEL UP TO A HEIGHT OF AT LEAST 300MM ABOVE THE DESIGN LEVEL OF THE TOP OF THE PIPE.
- A.5. PLACE THE REMAINDER OF THE FILL IN LAYERS NOT EXCEEDING 300MM THICKNESS AND COMPACT EACH LAYER TO NOT LESS THAN 95% OF ITS STANDARD MAXIMUM DRY DENSITY (AS3798).
- B. NOTE THAT ALL EARTHWORKS ARE TO BE CONSTRUCTED IN ACCORDANCE WITH AS3798.

CONTRACTOR SPECIFIC WORKS - PLUMBING

- 1/ GENERAL
- A. DUE TO THE AGE OF BUILDING AND THE REQUIREMENTS FOR NEW BUILDING WORKS TO COMPLY WITH THE NATIONAL CONSTRUCTION CODE OF AUSTRALIA (NCC), AUSTRALIAN STANDARDS (AS), DEPARTMENT OF STATE GROWTH (DSG), INSTITUTE OF PUBLIC WORKS ENGINEERING AUSTRALIA (IPWEA) - TAS DIVISION, LOCAL GOVERNMENT ASSOCIATION TASMANIA (LGAT), WATER SERVICES ASSOCIATION OF AUSTRALIA (WSAA) TASMANIA FIRE SERVICE REQUIREMENTS AND ANY OTHER STATE / TERRITORY / LOCAL GOVERNMENT REGULATIONS, CONTRACTORS ARE TO COMPLETE ALL NECESSARY CHECKS AND ASSESSMENTS LISTED BELOW TO ENSURE THE BUILDING WORKS ARE READY FOR CERTIFICATE OF OCCUPANCY A CERTIFICATE OF COMPLETION.
- B. ON-SITE TESTING IS TO BE CARRIED OUT DURING ESTABLISHMENT AND PRIOR TO COMMENCEMENT OF NEW WORKS. PROVIDE LATENT CONDITIONS REPORT TO ENGINEER FOR PRICING. THIS REPORT IS TO IDENTIFY INFRASTRUCTURE UPGRADE AT THE FRONT END OF THE PROJECT.
- C. NO VARIATION WILL BE PAID FOR LATENT PLUMBING CONDITIONS THAT HAVE NOT BEEN IDENTIFIED DURING THE ON-SITE TESTING & LATENT CONDITIONS REPORT.
- D. THESE WORKS ARE TO BE INCLUDED IN CONTRACTORS TENDER AS AGREED WITH SUPERINTENDENT.
- E. LOCATE EXISTING INFRASTRUCTURE USING CABLE LOCATORS, POT HOLING, SUCTION TRUCK, HAND DIGGING AND UNDERGROUND CCTV CAMERA INSPECTIONS.
- 2/ COMPLIANCE WORKS
- A. CONTRACTORS ARE TO COMPLETE THE FOLLOWING WORK:
- A.1. FLOW TEST ALL EXTERNAL & INTERNAL FIRE HYDRANTS FOR COMPLIANCE WITH AS2419.1. NOTIFY RESULTS TO ENGINEER FOR APPROVAL.
- A.2. FLOW TEST ALL FIRE HOSE REELS FOR COMPLIANCE WITH AS1851.5. NOTIFY RESULTS TO ENGINEER FOR APPROVAL.
- A.3. UPGRADE FIRE HOSE REEL & HYDRANTS TO ACHIEVE COMPLIANCE WITH CURRENT STANDARDS TO ALLOW ISSUE OF CERTIFICATE OF OCCUPANCY A COMPLETION.
- A.4. PRESSURE TEST A DIE TESTING SEWER SYSTEM PRIOR TO COMMENCING WORKS & CHECK FOR LEAKS OR DEFECTS. MAKE GOOD DEFECTIVE AREAS & PROVIDE CERTIFIED RESULTS TO ENGINEER FOR APPROVAL AS PART OF LATENT CONDITIONS REPORT. PREPARE AT FRONT END OF PROJECT. RE-TEST AFTER COMPLETION OF WORKS & PROVIDE RESULTS PRIOR TO HAND OVER.

STORMWATER INFRASTRUCTURE

- 1/ GENERAL
- A. ALL STORMWATER INFRASTRUCTURE WORKS TO BE IN ACCORDANCE WITH THE LOCAL COUNCIL AND DSG STANDARDS AND REGULATIONS.
- B. ALL STORMWATER PLUMBING INFRASTRUCTURE AND DRAINAGE TO COMPLY WITH TASWATERS STANDARD DRAWINGS TWS-W-0002 SERIES.
- C. ANY DEPARTURE FROM THESE STANDARDS AND REGULATIONS REQUIRES THE PRIOR WRITTEN APPROVAL FROM THE SUPERINTENDENT AND LOCAL COUNCILS WORKS SUPERVISOR / INSPECTOR.
- 2/ TESTING
- A. ALL DRAINAGE WORKS SHALL BE SUBJECT TO THE TESTS PRESCRIBED BY THE AUTHORITIES WHO HAVE JURISDICTION OVER THE VARIOUS SERVICES.
- B. ANY SECTION FAILING SUCH TESTS SHALL BE REMOVED AND REINSTALLED AT THE CONTRACTORS EXPENSE.
- C. **ONCE DRAINAGE INFRASTRUCTURE HAS BEEN INSTALLED, CONTRACTORS SHALL CCTV ALL PIPES AND SUBMIT FOOTAGE TO LOCAL COUNCIL FOR APPROVAL.**
- 3/ MANHOLES (MH)
- A. MANHOLES ARE TO BE Ø1000 ID (U.N.O.) PRECAST CONCRETE, INSTALLED IN ACCORDANCE WITH THE STANDARDS.
- B. ALL MANHOLES IN TRAFFICABLE AREAS ARE TO BE FITTED WITH HEAVY DUTY CLASS D GATIC COVERS AND SURROUNDS (U.N.O.)
- C. ALL MANHOLES IN NON-TRAFFICABLE AREAS ARE TO BE FITTED WITH MEDIUM DUTY CLASS B GATIC COVERS AND SURROUNDS (U.N.O.)
- D. ALL MANHOLES ARE TO HAVE A 5m LENGTH OF Ø75mm MIN. AGRICULTURAL DRAIN CONNECTED TO MANHOLE AND LAID IN THE UPSTREAM PIPE TRENCH IMMEDIATELY ADJACENT TO AND AT THE INVERT OF THE LOWEST PIPEWORK.
- 4/ TRENCHING AND BACKFILLING
- A. ALL TRENCHES ARE TO BE EXCAVATED AND BACKFILLED IN ACCORDANCE WITH THESE DRAWINGS AND LOCAL COUNCIL STANDARDS, INCLUDING ELECTROMAGNETIC METAL IMPREGATED TAPE IN ALL NON-METALLIC PIPE TRENCHES.
- 6/ INSPECTIONS
- A. THE CONTRACTOR IS TO BE RESPONSIBLE FOR ORGANISING INSPECTIONS WITH THE SUPERINTENDENT - LIAISE WITH LOCAL COUNCIL.
- B. THE FOLLOWING SITE INSPECTIONS ARE REQUIRED DURING CONSTRUCTION / HOLD POINTS, AS A MINIMUM, BEFORE COMMENCEMENT OF FURTHER WORKS:
- | REQUIRED SITE INSPECTIONS: |
|-------------------------------------|
| PIPEWORK BEDDING |
| INSTALLED PIPE PRIOR TO BACKFILLING |
| BACKFILLING |
- C. THE CONTRACTOR IS TO MAKE THEMSELVES AWARE OF ANY ADDITIONAL INSPECTIONS REQUIRED BY THE LOCAL COUNCIL TO ACHIEVE PRACTICAL COMPLETION AND NOTIFY COLLECTIVE CONSULTING.
- D. COLLECTIVE CONSULTING REQUIRE MIN. 48 HOURS NOTICE PRIOR TO ALL REQUIRED INSPECTIONS.
- 7/ AS CONSTRUCTED DRAWINGS
- A. THE CONTRACTOR WILL BE RESPONSIBLE FOR PRODUCING 'AS INSTALLED' DRAWINGS TO THE STANDARD REQUIRED BY THE LOCAL COUNCIL.
- B. THE DRAWINGS SHALL BE CERTIFIED AS BEING CORRECT BY EITHER A CHARTERED CIVIL ENGINEER OR A REGISTERED SURVEYOR.
- C. COLLECTIVE CONSULTING CAN PROVIDE THIS SERVICE, AT AN ADDITIONAL FEE. THIS HAS NOT BEEN ALLOWED FOR AS PART OF THESE WORKS / CONTRACT.
- 8/ REDUNDANT PIPEWORK
- A. FILL ALL REDUNDANT SECTION OF PIPEWORK WITH LIQUIFIILL® (GRADE PC-1 - 0.5-2.0 MPa) U.N.O.

SEWER INFRASTRUCTURE

- 1/ GENERAL
- A. ALL SEWER INFRASTRUCTURE WORKS TO BE IN ACCORDANCE WITH THE WSAA SEWER CODE 02-2014-3.1 GRAVITY SEWERAGE CODE OF AUSTRALIA - MELBOURNE RETAIL WATER AGENCIES INTEGRATED (MRWA) VERSION 2.0 AND AS AMENDED BY THE TASWATER SUPPLEMENT.
- B. TASWATER APPROVED PRODUCTS CAN BE FOUND AT THE FOLLOWING WEBSITE: <https://mrwa.com.au/Pages/Products.aspx>
- C. ANY DEPARTURE FROM THESE STANDARDS AND REGULATIONS REQUIRES THE PRIOR WRITTEN APPROVAL FROM THE SUPERINTENDENT AND TASWATER FIELD SERVICES OFFICER.
- 2/ TESTING
- A. ALL DRAINAGE WORKS SHALL BE SUBJECT TO THE TESTS PRESCRIBED BY THE AUTHORITIES WHO HAVE JURISDICTION OVER THE VARIOUS SERVICES.
- B. ANY SECTION FAILING SUCH TESTS SHALL BE REMOVED AND REINSTALLED AT THE CONTRACTORS EXPENSE.
- C. **ONCE DRAINAGE INFRASTRUCTURE HAS BEEN INSTALLED, CONTRACTORS SHALL CCTV ALL PIPES AND SUBMIT FOOTAGE TO TASWATER FOR APPROVAL.**
- 3/ SEWER MAIN CONNECTIONS
- A. ALL NEW LIVE CONNECTIONS TO EXISTING TASWATER SEWER INFRASTRUCTURE INCLUDING, BUT NOT LIMITED TO SEWER MAINS AND MANHOLES, ARE TO BE COMPLETED BY TASWATER (UNLESS PRIOR WRITTEN APPROVAL) AT OWNERS COST.
- B. INSTALL PROPERTY SEWER CONNECTIONS STANDARD OR SLOPED WITH A SURFACE INSPECTION OPENING (Ø) NOM. 1.0m WITHIN EACH NEW LOT IN ACCORDANCE WITH SECTION 5 OF WSAA SEWER CODE 02-2014-3.1 GRAVITY SEWERAGE CODE OF AUSTRALIA - MRWA VERSION 2.0.
- 4/ MANHOLES (MH)
- A. MANHOLES ARE TO BE Ø1000 ID (U.N.O.) PRECAST CONCRETE, INSTALLED IN ACCORDANCE WITH THE STANDARDS.
- B. CONSTRUCTION AND INSTALLATION OF ALL MANHOLES AND MANHOLE COVERS TO BE IN ACCORDANCE WITH THE WSAA SEWER CODE 02-2014-3.1 GRAVITY SEWERAGE CODE OF AUSTRALIA - MELBOURNE RETAIL WATER AGENCIES INTEGRATED (MRWA) VERSION 2.0 AND AS AMENDED BY THE TASWATER SUPPLEMENT.
- C. ALL MANHOLES IN TRAFFICABLE AREAS ARE TO BE FITTED WITH HEAVY DUTY CLASS D GATIC COVERS AND SURROUNDS (U.N.O.)
- D. ALL MANHOLES IN NON-TRAFFICABLE AREAS ARE TO BE FITTED WITH MEDIUM DUTY CLASS B GATIC COVERS AND SURROUNDS (U.N.O.)
- E. BENCHING TO BE FULL DEPTH OF PIPE DIA. AS PER DETAILS IN WSAA SEWER CODE 02-2014-3.1 GRAVITY SEWERAGE CODE OF AUSTRALIA - MELBOURNE RETAIL WATER AGENCIES INTEGRATED (MRWA) VERSION 2.0 AND AS AMENDED BY THE TASWATER SUPPLEMENT.
- 5/ TRENCHING AND BACKFILLING
- A. ALL TRENCHES ARE TO BE EXCAVATED AND BACKFILLED IN ACCORDANCE WITH THESE DRAWINGS AND TASWATER STANDARDS, INCLUDING ELECTROMAGNETIC METAL IMPREGATED TAPE IN ALL NON-METALLIC PIPE TRENCHES.
- B. CEMENT STABILISED EMBEDEMNT:
- FOR SEWER MAINS, IN ACCORDANCE WITH MRWA SEWERAGE STANDARDS DRAWING RWA-S AND AS AMENDED BY THE TASWATER SUPPLEMENT.
- 6/ INSPECTIONS
- A. THE CONTRACTOR IS TO BE RESPONSIBLE FOR ORGANISING INSPECTIONS WITH THE SUPERINTENDENT - LIAISE WITH TASWATER.
- B. THE FOLLOWING SITE INSPECTIONS ARE REQUIRED DURING CONSTRUCTION / HOLD POINTS, AS A MINIMUM, BEFORE COMMENCEMENT OF FURTHER WORKS:
- | REQUIRED SITE INSPECTIONS: |
|-------------------------------------|
| PIPEWORK BEDDING |
| INSTALLED PIPE PRIOR TO BACKFILLING |
| BACKFILLING |
- C. THE CONTRACTOR IS TO MAKE THEMSELVES AWARE OF ANY ADDITIONAL INSPECTIONS REQUIRED BY TASWATER TO ACHIEVE PRACTICAL COMPLETION AND NOTIFY COLLECTIVE CONSULTING.
- D. COLLECTIVE CONSULTING REQUIRE MIN. 48 HOURS NOTICE PRIOR TO ALL REQUIRED INSPECTIONS.
- 7/ AS CONSTRUCTED DRAWINGS
- A. THE CONTRACTOR WILL BE RESPONSIBLE FOR PRODUCING 'AS INSTALLED' DRAWINGS TO THE STANDARD REQUIRED BY TASWATER.
- B. THE DRAWINGS SHALL BE CERTIFIED AS BEING CORRECT BY EITHER A CHARTERED CIVIL ENGINEER OR A REGISTERED SURVEYOR.
- C. COLLECTIVE CONSULTING CAN PROVIDE THIS SERVICE, AT AN ADDITIONAL FEE. THIS HAS NOT BEEN ALLOWED FOR AS PART OF THESE WORKS / CONTRACT.
- 8/ REDUNDANT PIPEWORK
- A. FILL ALL REDUNDANT SECTION OF PIPEWORK WITH LIQUIFIILL® (GRADE PC-1 - 0.5-2.0 MPa) U.N.O.

WATER RETICULATION INFRASTRUCTURE

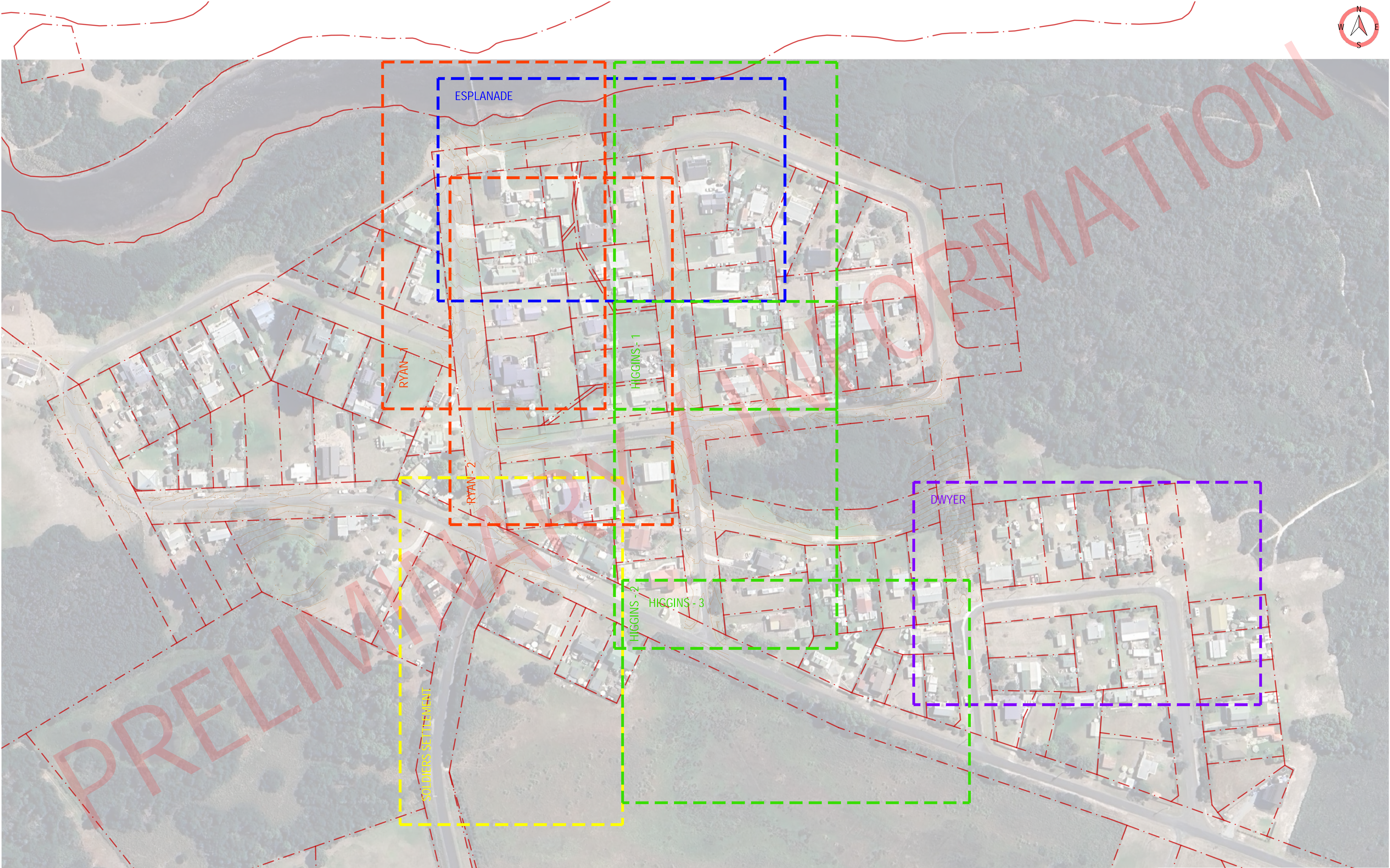
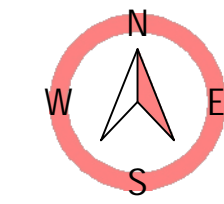
- 1/ GENERAL
- A. ALL WATER INFRASTRUCTURE WORKS TO BE IN ACCORDANCE WITH THE FOLLOWING:
- A.1. WSAA WATER SUPPLY CODE 03-2011-3.1 WATER SUPPLY CODE OF AUSTRALIA - MELBOURNE RETAIL WATER AGENCIES INTEGRATED (MRWA) VERSION 2.0 AND AS AMENDED BY THE TASWATER SUPPLEMENT.
- A.2. TASWATERS STANDARD DRAWINGS TWS-W-0002 SERIES.
- A.3. WATER METERING POLICY / METERING GUIDELINES.
- A.4. TASWATERS STANDARD DRAWINGS TWS-W-0003 SERIES - FOR PROPERTY SERVICES CONNECTIONS - USE FOR WATER METER ASSEMBLY.
- A.5. BOUNDARY BACKFLOW CONTAMINANT REQUIREMENTS AND AS3500.1.
- B. ANY DEPARTURE FROM THESE STANDARDS AND REGULATIONS REQUIRES THE PRIOR WRITTEN APPROVAL FROM THE SUPERINTENDENT AND TASWATERS FIELD SERVICES OFFICER.
- 2/ TESTING
- A. ALL DRAINAGE WORKS SHALL BE SUBJECT TO THE TESTS PRESCRIBED BY THE AUTHORITIES WHO HAVE JURISDICTION OVER THE VARIOUS SERVICES.
- B. ANY SECTION FAILING SUCH TESTS SHALL BE REMOVED AND REINSTALLED AT THE CONTRACTORS EXPENSE.
- 3/ FIRE HYDRANTS (FH)
- A. INSTALLATION, COMMISSIONING AND TESTING OF FIRE HYDRANTS TO BE IN ACCORDANCE WITH THE STANDARDS.
- B. FIRE HYDRANTS ARE TO BE AS SHOWN ON THE DRAWINGS. THE CONTRACTOR IS TO ALLOW TO PLACE STANDARD MARKERS AS REQUIRED BY THE LOCAL AUTHORITY.
- 4/ THRUST AND ANCHOR BLOCKS
- A. THRUST AND ANCHOR BLOCKS ARE TO BE PROVIDED AT BENDS, VALVES, HYDRANTS AND LINE ENDS IN ACCORDANCE WITH TASWATER STANDARDS.
- 5/ TRENCHING AND BACKFILLING
- A. ALL TRENCHES ARE TO BE EXCAVATED AND BACKFILLED IN ACCORDANCE WITH THESE DRAWINGS AND LOCAL COUNCIL STANDARDS, INCLUDING ELECTROMAGNETIC METAL IMPREGATED TAPE IN ALL NON-METALLIC PIPE TRENCHES.
- B. CEMENT STABILISED EMBEDEMNT:
- WITH THE LATEST VERSION OF DRAWING MRWA-W-208 (REV 3) INCLUDES TABLE 208.A WITH NOTE G INDICATING THAT WHEN TRENCH STOPS OR BULKHEADS ARE USED IN TRENCHES GREATER THAN 15m CEMENT STABILISED EMBEDEMNT MUST BE USED. THIS IS NOT TASWATERS PREFERRED STANDARD.
- B.2. FOR PIPES UP TO 100 GRADE TASWATER WILL ACCEPT THE PREVIOUS REVISION OF TABLE 208.A.
- B.3. FOR PIPES AT GRADE GREATER THAN 100mm MRWA-W-208 REV 3 REMAINS VALID.
- B.4. THE LATEST VERSION OF MRWA-W-203 (REV 2) EMBEDEMNT SHALL BE ADOPTED NOTING THAT THIS IT SHOULD BE IDENTIFIED IN THE THIRD DOT POINT FOR TYPE B IN THE NOTES REGARDING TABLE 203.A SHALL BE AMENDED TO READ WHERE WATER MAIN GRADE >10%.
- B.5. FURTHER TO THIS IT SHOULD BE NOTED THAT MOST WATER MAINS ARE LIKELY TO REQUIRE A TYPE A EMBEDEMNT SYSTEM. THE VARIOUS MATERIALS AVAILABLE FOR THIS SYSTEM ARE IDENTIFIED IN TABLE 203.B.
- 6/ INSPECTIONS
- A. THE CONTRACTOR IS TO BE RESPONSIBLE FOR ORGANISING INSPECTIONS WITH THE SUPERINTENDENT - LIAISE WITH LOCAL COUNCIL.
- B. THE FOLLOWING SITE INSPECTIONS ARE REQUIRED DURING CONSTRUCTION / HOLD POINTS, AS A MINIMUM, BEFORE COMMENCEMENT OF FURTHER WORKS:
- | REQUIRED SITE INSPECTIONS: |
|-------------------------------------|
| PIPEWORK BEDDING |
| INSTALLED PIPE PRIOR TO BACKFILLING |
| BACKFILLING |
- C. THE CONTRACTOR IS TO MAKE THEMSELVES AWARE OF ANY ADDITIONAL INSPECTIONS REQUIRED BY CONTRACTOR TO ACHIEVE PRACTICAL COMPLETION AND NOTIFY COLLECTIVE CONSULTING.
- D. COLLECTIVE CONSULTING REQUIRE MIN. 48 HOURS NOTICE PRIOR TO ALL REQUIRED INSPECTIONS.
- 7/ PIPE CLEANING - DISINFECTION
- A. THE CONTRACTOR IS TO ALLOW TO CLEANSE WATER MAINS BY FLUSHING WITH SODIUM HYPOCHLORITE (OR SIMILAR), AS DIRECTED BY THE LOCAL AUTHORITY.
- 8/ AS CONSTRUCTED DRAWINGS
- A. THE CONTRACTOR WILL BE RESPONSIBLE FOR PRODUCING 'AS INSTALLED' DRAWINGS TO THE STANDARD REQUIRED BY TASWATER.
- B. THE DRAWINGS SHALL BE CERTIFIED AS BEING CORRECT BY EITHER A CHARTERED CIVIL ENGINEER OR A REGISTERED SURVEYOR.
- C. COLLECTIVE CONSULTING CAN PROVIDE THIS SERVICE, AT AN ADDITIONAL FEE. THIS HAS NOT BEEN ALLOWED FOR AS PART OF THESE WORKS / CONTRACT.
- 9/ PROPERTY WATER CONNECTIONS
- A. ALL PROPERTY CONNECTIONS SHALL BE CONSTRUCTED IN ACCORDANCE WITH MRWA-W-110, MRWA-W-111 AND TASWATER TW-W-0002 SERIES STANDARD DRAWINGS.
- A. UNLESS NOTED OTHERWISE, PROPERTY WATER CONNECTIONS SHALL BE Ø200 (Ø200) HDPE (PE100) SDR11 PN16 PIPES, WHERE INSTALLED UNDER DRAINAGE PIPES SHALL BE SLEEVED IN Ø200mm SNA PIPES, FITTED WITH TRACE AND TIGHT FITTING RUBBER WORMS AT JOINTS, CENTRES TO PREVENT WATER HAMMER.
- 10/ WATER MAINS CONNECTIONS
- A. ALL NEW LIVE CONNECTIONS TO EXISTING TASWATER WATER INFRASTRUCTURE ARE TO BE COMPLETED BY TASWATER (UNLESS PRIOR WRITTEN APPROVAL) AT OWNERS COST.
- 11/ MINIMUM COVER
- A. MINIMUM COVER FOR WATER LINES ARE TO BE:
- | CONDITIONS / POSITION | MINIMUM COVER: |
|--|----------------|
| UNDER ROADWAYS AND VEHICLE CROSSOVERS (EXCLUDING MAJOR ROADWAYS) | 750mm |
| RESIDENTIAL LAND | 450mm |
| NON-RESIDENTIAL LAND | 600mm |
- 12/ TASWATER APPLICATIONS AND SIGN-OFF
- A. THE CONTRACTOR IS RESPONSIBLE FOR LOOING ALL FURTHER APPLICATIONS FOR THE CONNECTION OR DISCONNECTION OF ANY LIVE TAPPINGS, PROPERTY CONNECTIONS, ETC.
- B. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING ALL FINAL SIGN OFF BY TASWATER.

A	REVIEW / INFORMATION		SP	08/04/25	
REV:	ISSUED FOR / DESCRIPTION:		BY:	DATE:	

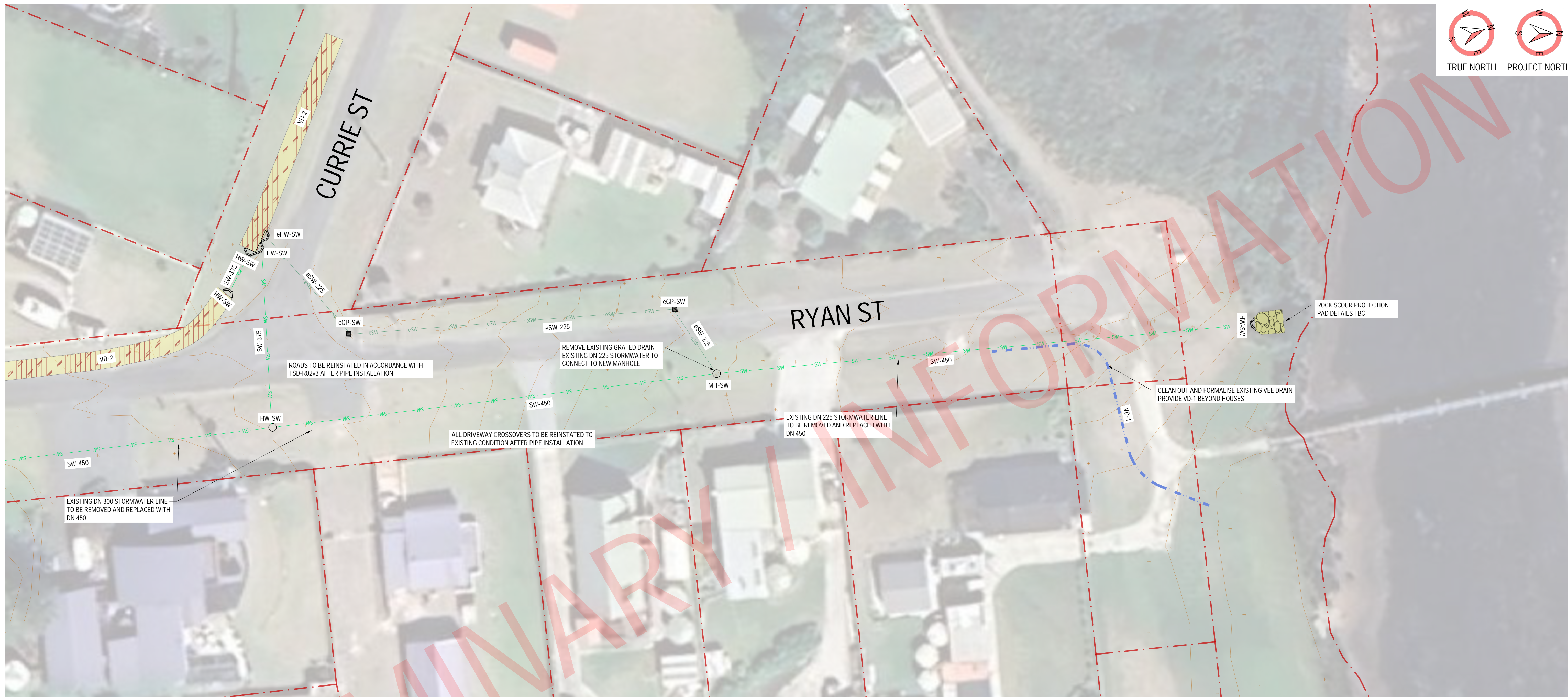
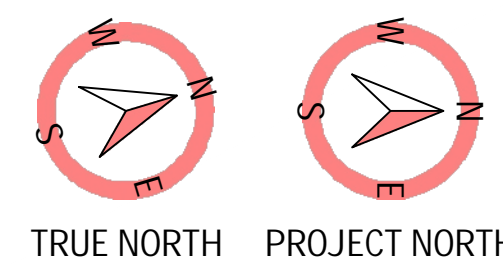
COLLECTIVE CONSULTING DISCLAIMER:

1. THIS DRAWING HAS BEEN PRODUCED FOR THE NAMED CLIENT AND FOR USE OF THIS PROJECT ONLY, AND IS NOT TO BE USED FOR ANY OTHER PURPOSE.
2. THESE DRAWINGS MUST BE APPROVED BY COUNCIL, TASWATER AND ANY OTHER REQUIRED AUTHORITIES PRIOR TO COMMENCING CONSTRUCTION.
3. THE RECIPIENT IS RESPONSIBLE FOR ENSURING THAT THEY REVIEW THE STATUS OF THIS DRAWING, AND IN RECEIPT OF THE CURRENT REVISION PRIOR TO USE.
4. INFORMATION PROVIDED WITHIN THIS DOCUMENT HAS BEEN PROVIDED UNDER COLLECTIVE CONSULTING'S TERMS OF ENGAGEMENT. BY ACCEPTING OR USING THE INFORMATION WITHIN THIS DOCUMENT YOU HAVE ACCEPTED THE TERMS OF ENGAGEMENT. TERMS CAN BE VIEWED AT: WWW.COLLECTIVECONSULTING.COM.AU/TERMSOFENGAGEMENT.
5. DO NOT SCALE DRAWINGS. COLLECTIVE CONSULTING IS NOT RESPONSIBLE FOR THE DIMENSIONING AND SETTING OUT OF COMPONENTS WITHIN THESE PROJECT DOCUMENTS.





						COLLECTIVE CONSULTING DISCLAIMER: 1. THIS DRAWING HAS BEEN PRODUCED FOR THE NAMED CLIENT AND FOR USE OF THIS PROJECT ONLY, AND IS NOT TO BE USED FOR ANY OTHER PURPOSE. 2. THESE DRAWINGS MUST BE APPROVED BY COUNCIL, TASWATER AND ANY OTHER REQUIRED AUTHORITIES PRIOR TO COMMENCING CONSTRUCTION. 3. THE RECIPIENT IS RESPONSIBLE FOR ENSURING THAT THEY REVIEW THE STATUS OF THIS DRAWING, AND IN RECEIPT OF THE CURRENT REVISION PRIOR TO USE. 4. INFORMATION PROVIDED WITHIN THIS DOCUMENT HAS BEEN PROVIDED UNDER COLLECTIVE CONSULTING'S TERMS OF ENGAGEMENT. BY ACCEPTING OR USING THE INFORMATION WITHIN THIS DOCUMENT YOU HAVE ACCEPTED THE TERMS OF ENGAGEMENT. TERMS CAN BE VIEWED AT: WWW.COLLECTIVECONSULTING.COM.AU/TERMSOFENGAGEMENT . 5. DO NOT SCALE DRAWINGS. COLLECTIVE CONSULTING IS NOT RESPONSIBLE FOR THE DIMENSIONING AND SETTING OUT OF COMPONENTS WITHIN THESE PROJECT DOCUMENTS.					 E admin@collectiveconsulting.com.au Level 11, 10-14 Paterson Street Launceston TAS 7250 P (03) 6334 0834 collectiveconsulting.com.au		CLIENT / ARCHITECT: GEORGE TOWN COUNCIL		PROJECT DETAILS: BEECHFORD DRAINAGE UPGRADES					DRAWING TITLE: OVERALL SITE PLAN	
REV:	ISSUED FOR / DESCRIPTION:	BY:	DATE:	SP	08/04/25								DESIGN BY:	DESIGN CHECK:	DRAWN BY:	DRAFT CHECK:	CERTIFIER:	SCALE @ A1:	PROJECT No:	DRAWING No:	REVISION:
A	REVIEW / INFORMATION												JPW	-	SCP	-		1:1000	246034	C100	A



INFRASTRUCTURE NOTES:

1. THE FOLLOWING IS TO BE READ IN CONJUNCTION WITH NOTES ON DRAWING C001.
2. STORMWATER PIPES SHALL BE INSTALLED WITH MIN. 0.5% GRADE FOR PIPE SIZES Ø225 AND ABOVE UNLESS NOTED / SCHEDULED OTHERWISE.
3. STORMWATER PIPES SHALL BE INSTALLED WITH MIN. 1.0% GRADE FOR PIPE SIZES Ø150 AND BELOW UNLESS NOTED / SCHEDULED OTHERWISE.
4. SEWER PIPES SHALL BE INSTALLED WITH MIN. 1.0% GRADE FOR PIPE SIZES Ø150 AND ABOVE UNLESS NOTED / SCHEDULED OTHERWISE.
5. SEWER PIPES SHALL BE INSTALLED WITH MIN. 1.65% GRADE FOR PIPE SIZES Ø100 AND BELOW UNLESS NOTED / SCHEDULED OTHERWISE.
6. ALL 'DN' SIZES SCHEDULED OR NOTED INDICATE INTERNAL DIAMETER.
7. REFER SECTIONS AND DETAILS FOR PIPE TRENCHING SPECS.
8. WATER LINES SHALL GENERALLY BE LAID ABOVE SEWER PIPES WHEREVER POSSIBLE.
9. ALL PIPES SHALL BE INSTALLED WITH MIN. 750mm COVER (N.O.)

INFRASTRUCTURE LEGEND:

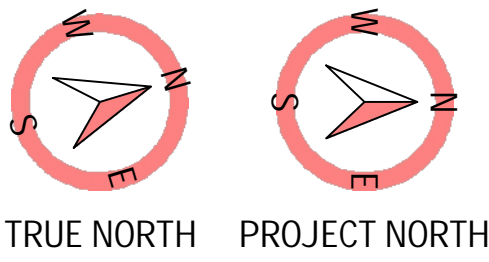
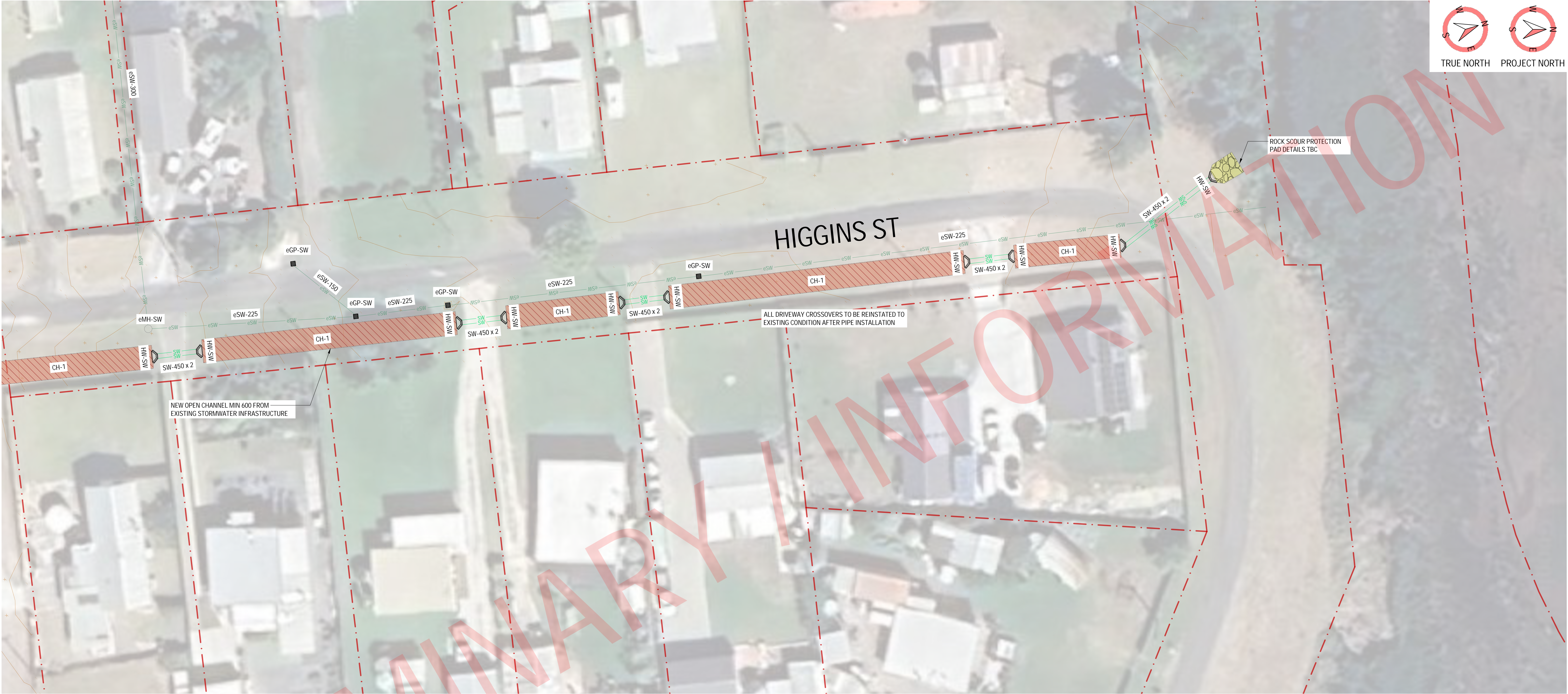
CL	COVER LEVEL
DN	NOMINAL PIPE DIAMETER - INTERNAL DIAMETER (U.N.O.)
DP	DOWNPIPE - AS SCHEDULED
e / EXTG	EXISTING ITEM / ELEMENT
FH	FIRE HYDRANT - REFER SECTIONS AND DETAILS
FM	FIRE WATER SERVICE LINE / MAIN
FP	FIRE PLUG
GD	GRATED DRAIN - AS SCHEDULED / REFER SECTIONS AND DETAILS
GP	GRATED / GULLY PIT - AS SCHEDULED / REFER SECTIONS AND DETAILS
GVP	GRATED VEE PIT - AS SCHEDULED / REFER SECTIONS AND DETAILS
HBC	HOSE BIB COCK
IL	INVERT LEVEL
IO	INSPECTION OPENING - FINISHED TO SURFACE LEVEL
M	METER
MH	MANHOLE - AS SCHEDULED / REFER SECTIONS AND DETAILS
ORG	OVERFLOW RELIEF GULLY
RL	REDUCED LEVEL
S	SEWER
SEP	SIDE ENTRY PIT - AS SCHEDULED / REFER SECTIONS AND DETAILS
SM	SUB-METER
SV	STOP / SWITCH VALVE
SW	STORMWATER
VD	VEE DRAIN - AS SCHEDULED / REFER SECTIONS AND DETAILS
W	WATER

[illegible]



- INFRASTRUCTURE NOTES:
1. THE FOLLOWING IS TO BE READ IN CONJUNCTION WITH NOTES ON DRAWING C001.
 2. STORMWATER PIPES SHALL BE INSTALLED WITH MIN. 0.5% GRADE FOR SIZES Ø225 AND ABOVE UNLESS NOTED / SCHEDULED OTHERWISE.
 3. STORMWATER PIPES SHALL BE INSTALLED WITH MIN. 1.0% GRADE FOR PIPE SIZES Ø150 AND BELOW UNLESS NOTED / SCHEDULED OTHERWISE.
 4. SEWER PIPES SHALL BE INSTALLED WITH MIN. 1.0% GRADE FOR PIPE SIZES Ø150 AND ABOVE UNLESS NOTED / SCHEDULED OTHERWISE.
 5. SEWER PIPES SHALL BE INSTALLED WITH MIN. 1.65% GRADE FOR PIPE SIZES Ø100 AND BELOW UNLESS NOTED / SCHEDULED OTHERWISE.
 6. ALL 'DN' SIZES SCHEDULED OR NOTED INDICATE INTERNAL DIAMETER.
 7. REFER SECTIONS AND DETAILS FOR PIPE TRENCHING SPECS.
 8. WATER LINES SHALL GENERALLY BE LAID ABOVE SEWER PIPES WHEREVER POSSIBLE.
 9. ALL PIPES SHALL BE INSTALLED WITH MIN. 750mm COVER (U.N.O.)
- INFRASTRUCTURE LEGEND:
- | | |
|----------|---|
| CL | COVER LEVEL |
| DN | NOMINAL PIPE DIAMETER - INTERNAL DIAMETER (U.N.O.) |
| DP | DOWNPIPE - AS SCHEDULED |
| e / EXTG | EXISTING ITEM / ELEMENT |
| FH | FIRE HYDRANT - REFER SECTIONS AND DETAILS |
| FM | FIRE WATER SERVICE LINE / MAIN |
| FP | FIRE PLUG |
| GD | GRADED DRAIN - AS SCHEDULED / REFER SECTIONS AND DETAILS |
| GP | GRADED / GULLY PIT - AS SCHEDULED / REFER SECTIONS AND DETAILS |
| GVP | GRADED VEE PIT - AS SCHEDULED / REFER SECTIONS AND DETAILS |
| GT | GREASE TRAP |
| HBC | HOSE BIB COCK |
| HW | HEADWALL - REFER LGAT STANDARD DRAWINGS TSD-SW17-v3 & TSD-SW18-v3 |
| IL | INVERT LEVEL |
| IO | INSPECTION OPENING - FINISHED TO SURFACE LEVEL |
| M | METER |
| MH | MANHOLE - AS SCHEDULED / REFER SECTIONS AND DETAILS |
| ORG | OVERFLOW RELIEF GULLY |
| OS | OIL SEPARATOR |
| RL | REDUCED LEVEL |
| S | SEWER |
| SEP | SIDE ENTRY PIT - AS SCHEDULED / REFER SECTIONS AND DETAILS |
| SM | SUB-METER |
| SV | STOP / SWITCH VALVE |
| SW | STORMWATER |
| VD | VEE DRAIN - AS SCHEDULED / REFER SECTIONS AND DETAILS |
| W | WATER |

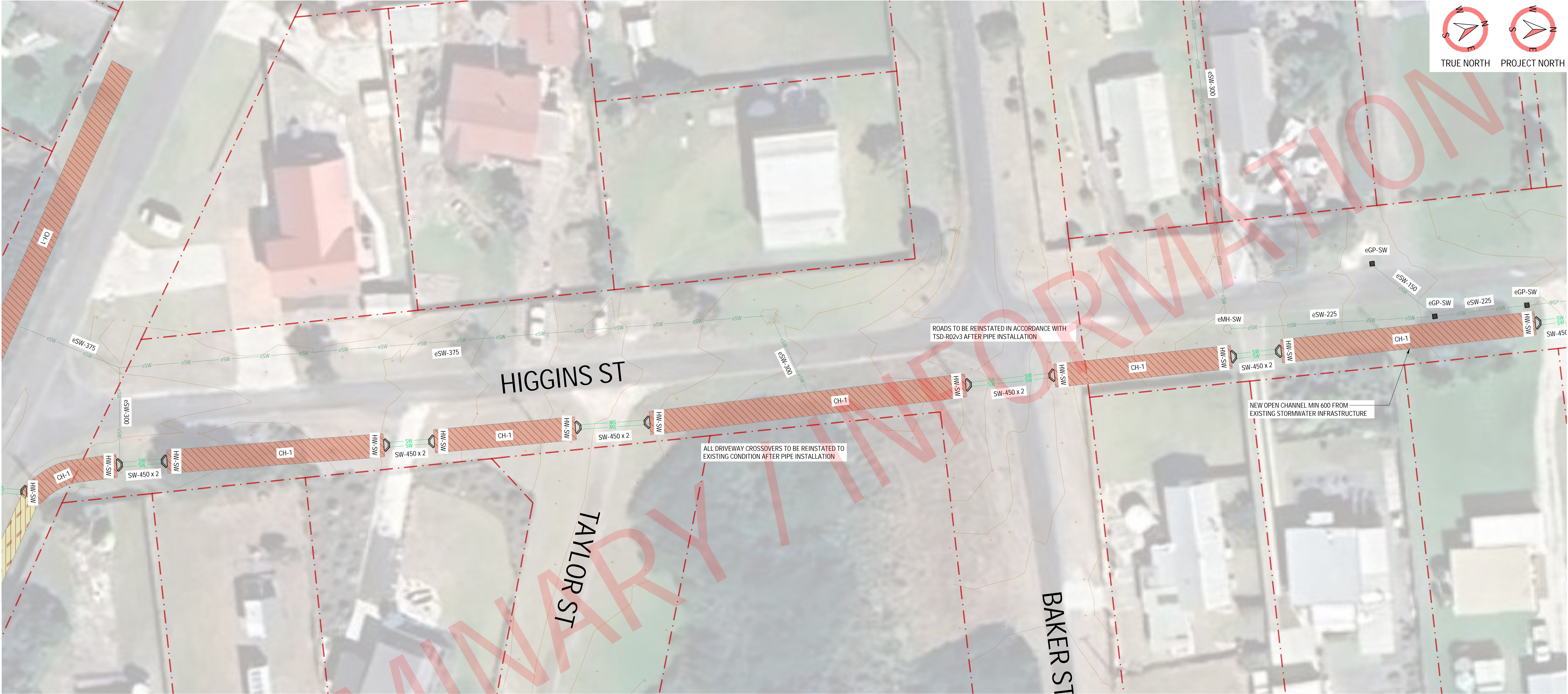
						COLLECTIVE CONSULTING DISCLAIMER: 1. THIS DRAWING HAS BEEN PRODUCED FOR THE NAMED CLIENT AND FOR USE OF THIS PROJECT ONLY, AND IS NOT TO BE USED FOR ANY OTHER PURPOSE. 2. THESE DRAWINGS MUST BE APPROVED BY COUNCIL, TASWATER AND ANY OTHER REQUIRED AUTHORITIES PRIOR TO COMMENCING CONSTRUCTION. 3. THE RECIPIENT IS RESPONSIBLE FOR ENSURING THAT THEY REVIEW THE STATUS OF THIS DRAWING, AND IN RECEIPT OF THE CURRENT REVISION PRIOR TO USE. 4. INFORMATION PROVIDED WITHIN THIS DOCUMENT HAS BEEN PROVIDED UNDER COLLECTIVE CONSULTING'S TERMS OF ENGAGEMENT. BY ACCEPTING OR USING THE INFORMATION WITHIN THIS DOCUMENT YOU HAVE ACCEPTED THE TERMS OF ENGAGEMENT. TERMS CAN BE VIEWED AT: WWW.COLLECTIVECONSULTING.COM/AUTHERSOFENGAGEMENT 5. DO NOT SCALE DRAWINGS. COLLECTIVE CONSULTING IS NOT RESPONSIBLE FOR THE DIMENSIONING AND SETTING OUT OF COMPONENTS WITHIN THESE PROJECT DOCUMENTS.		 COLLECTIVE CONSULTING		E admin@collectiveconsulting.com.au L Level 1, 10-14 Peterson Street U Launceston TAS 7250 P (03) 6334 0834 collectiveconsulting.com.au		CLIENT / ARCHITECT: GEORGE TOWN COUNCIL		PROJECT DETAILS: BEECHFORD DRAINAGE UPGRADES		DRAWING TITLE: INFRASTRUCTURE PLAN - RYAN STREET - PART PLAN 2		
A	REVIEW / INFORMATION	SP	08/04/25															
REV:	ISSUED FOR / DESCRIPTION:	BY:	DATE:							DESIGN BY: JPW	DESIGN CHECK: -	DRAWN BY: SCP	DRAFT CHECK: -	CERTIFIER:	SCALE @ A1: 1:250	PROJECT No: 246034	DRAWING No: C402	REVISION: A



- INFRASTRUCTURE NOTES:
1. THE FOLLOWING IS TO BE READ IN CONJUNCTION WITH NOTES ON DRAWING C001.
 2. STORMWATER PIPES SHALL BE INSTALLED WITH MIN. 0.5% GRADE FOR SIZES Ø225 AND ABOVE UNLESS NOTED / SCHEDULED OTHERWISE.
 3. STORMWATER PIPES SHALL BE INSTALLED WITH MIN. 1.0% GRADE FOR PIPE SIZES Ø150 AND BELOW UNLESS NOTED / SCHEDULED OTHERWISE.
 4. SEWER PIPES SHALL BE INSTALLED WITH MIN. 1.0% GRADE FOR PIPE SIZES Ø150 AND AND ABOVE UNLESS NOTED / SCHEDULED OTHERWISE.
 5. SEWER PIPES SHALL BE INSTALLED WITH MIN. 1.65% GRADE FOR PIPE SIZES Ø100 AND BELOW UNLESS NOTED / SCHEDULED OTHERWISE.
 6. ALL 'DN' SIZES SCHEDULED OR NOTED INDICATE INTERNAL DIAMETER.
 7. REFER SECTIONS AND DETAILS FOR PIPE TRENCHING SPECS.
 8. WATER LINES SHALL GENERALLY BE LAID ABOVE SEWER PIPES WHEREVER POSSIBLE.
 9. ALL PIPES SHALL BE INSTALLED WITH MIN. 750mm COVER (U.N.O.)

INFRASTRUCTURE LEGEND:	
CL	COVER LEVEL
DN	NOMINAL PIPE DIAMETER - INTERNAL DIAMETER (U.N.O.)
DP	DOWNPIPE - AS SCHEDULED
e / EXTG	EXISTING ITEM / ELEMENT
FH	FIRE HYDRANT - REFER SECTIONS AND DETAILS
FM	FIRE WATER SERVICE LINE / MAIN
FP	FIRE PLUG
GD	GRATED DRAIN - AS SCHEDULED / REFER SECTIONS AND DETAILS
GP	GRATED / GULLY PIT - AS SCHEDULED / REFER SECTIONS AND DETAILS
GVP	GRATED VEE PIT - AS SCHEDULED / REFER SECTIONS AND DETAILS
HBC	HOSE BIB COCK
IL	INVERT LEVEL
IO	INSPECTION OPENING - FINISHED TO SURFACE LEVEL
M	METER
MH	MANHOLE - AS SCHEDULED / REFER SECTIONS AND DETAILS
ORG	OVERFLOW RELIEF GULLY
RL	REDUCED LEVEL
S	SEWER
SEP	SIDE ENTRY PIT - AS SCHEDULED / REFER SECTIONS AND DETAILS
SM	SUB-METER
SV	STOP / SWITCH VALVE
SW	STORMWATER
VD	VEE DRAIN - AS SCHEDULED / REFER SECTIONS AND DETAILS
W	WATER

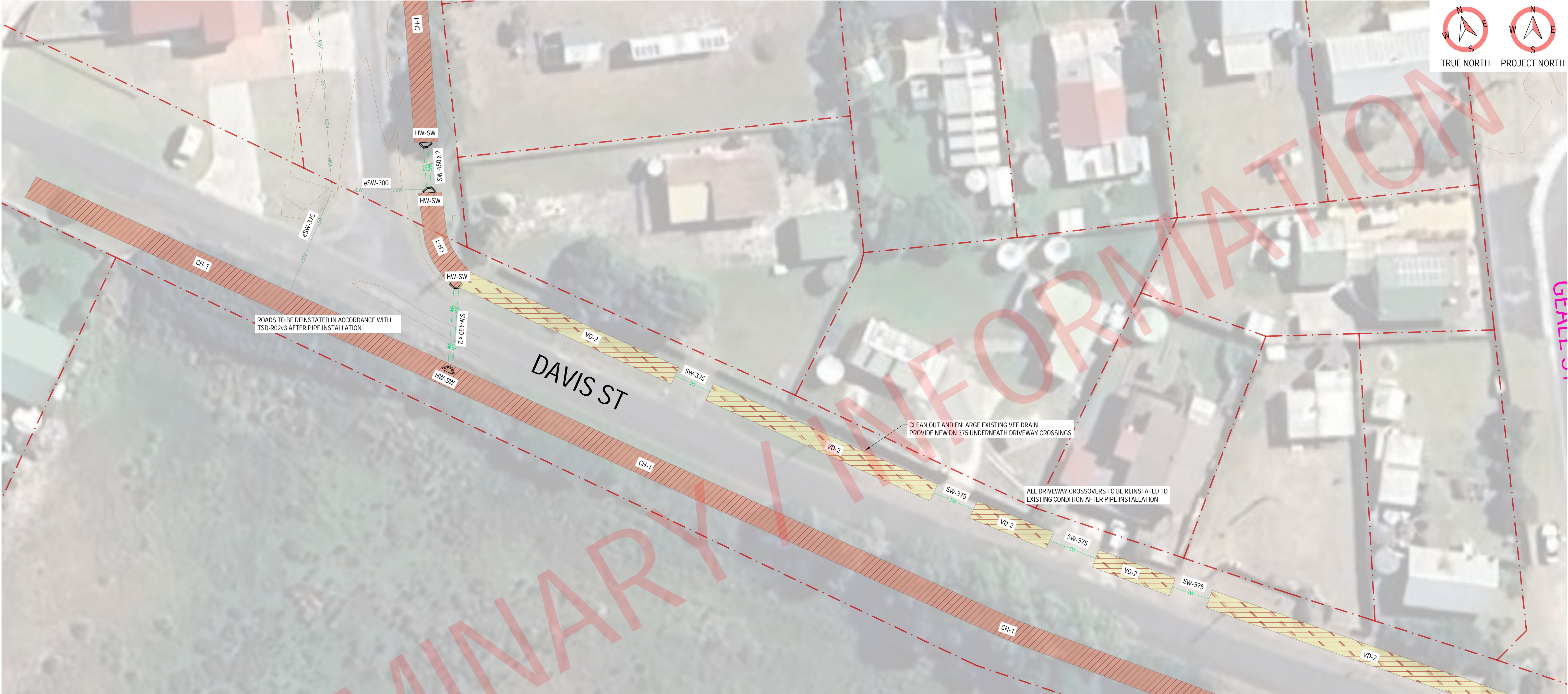
						COLLECTIVE CONSULTING DISCLAIMER: 1. THIS DRAWING HAS BEEN PRODUCED FOR THE NAMED CLIENT AND FOR USE OF THIS PROJECT ONLY, AND IS NOT TO BE USED FOR ANY OTHER PURPOSE. 2. THESE DRAWINGS MUST BE APPROVED BY COUNCIL, TASWATER AND ANY OTHER REQUIRED AUTHORITIES PRIOR TO COMMENCING CONSTRUCTION. 3. THE RECIPIENT IS RESPONSIBLE FOR ENSURING THAT THEY REVIEW THE STATUS OF THIS DRAWING, AND IN RECEIPT OF THE CURRENT REVISION PRIOR TO USE. 4. INFORMATION PROVIDED WITHIN THIS DOCUMENT HAS BEEN PROVIDED UNDER COLLECTIVE CONSULTING'S TERMS OF ENGAGEMENT. BY ACCEPTING OR USING THE INFORMATION WITHIN THIS DOCUMENT YOU HAVE ACCEPTED THE TERMS OF ENGAGEMENT. TERMS CAN BE VIEWED AT: WWW.COLLECTIVECONSULTING.COM.AU/TERMSOFENGAGEMENT . 5. DO NOT SCALE DRAWINGS. COLLECTIVE CONSULTING IS NOT RESPONSIBLE FOR THE DIMENSIONING AND SETTING OUT OF COMPONENTS WITHIN THESE PROJECT DOCUMENTS.		 COLLECTIVE CONSULTING		 E admin@collectiveconsulting.com.au Level 1, 10-14 Paterson Street Launceston TAS 7250 P (08) 6354 0034 collectiveconsulting.com.au		CLIENT / ARCHITECT: GEORGE TOWN COUNCIL		PROJECT DETAILS: BEECHFORD DRAINAGE UPGRADES		DRAWING TITLE: INFRASTRUCTURE PLAN - HIGGINS STREET - PART PLAN 1				
A	REVIEW / INFORMATION	SP	08/04/25																	
REV:	ISSUED FOR / DESCRIPTION:	BY:	DATE:									DESIGN BY:	DESIGN CHECK:	DRAWN BY:	DRAFT CHECK:	CERTIFIER:	SCALE @ A1:	PROJECT No:	DRAWING No:	REVISION:
												JPW	-	SCP	-		1:250	246034	C403	A



- INFRASTRUCTURE NOTES:
1. THE FOLLOWING IS TO BE READ IN CONJUNCTION WITH NOTES ON DRAWING C001.
 2. STORMWATER PIPES SHALL BE INSTALLED WITH MIN. 0.5% GRADE FOR SIZES Ø225 AND ABOVE UNLESS NOTED / SCHEDULED OTHERWISE.
 3. STORMWATER PIPES SHALL BE INSTALLED WITH MIN. 1.0% GRADE FOR PIPE SIZES Ø150 AND BELOW UNLESS NOTED / SCHEDULED OTHERWISE.
 4. SEWER PIPES SHALL BE INSTALLED WITH MIN. 1.0% GRADE FOR PIPE SIZES Ø150 AND AND ABOVE UNLESS NOTED / SCHEDULED OTHERWISE.
 5. SEWER PIPES SHALL BE INSTALLED WITH MIN. 1.65% GRADE FOR PIPE SIZES Ø100 AND BELOW UNLESS NOTED / SCHEDULED OTHERWISE.
 6. ALL 'DN' SIZES SCHEDULED OR NOTED INDICATE INTERNAL DIAMETER.
 7. REFER SECTIONS AND DETAILS FOR PIPE TRENCHING SPECS.
 8. WATER LINES SHALL GENERALLY BE LAID ABOVE SEWER PIPES WHEREVER POSSIBLE.
 9. ALL PIPES SHALL BE INSTALLED WITH MIN. 750mm COVER (U.N.O.)

INFRASTRUCTURE LEGEND:	
CL	COVER LEVEL
DN	NOMINAL PIPE DIAMETER - INTERNAL DIAMETER (U.N.O.)
DP	DOWNPIPE - AS SCHEDULED
e / EXTG	EXISTING ITEM / ELEMENT
FH	FIRE HYDRANT - REFER SECTIONS AND DETAILS
FM	FIRE WATER SERVICE LINE / MAIN
FP	FIRE PLUG
GD	GRATED DRAIN - AS SCHEDULED / REFER SECTIONS AND DETAILS
GP	GRATED / GULLY PIT - AS SCHEDULED / REFER SECTIONS AND DETAILS
GVP	GRATED VEE PIT - AS SCHEDULED / REFER SECTIONS AND DETAILS
HBC	HOSE BIB COCK
IL	INVERT LEVEL
IO	INSPECTION OPENING - FINISHED TO SURFACE LEVEL
M	METER
MH	MANHOLE - AS SCHEDULED / REFER SECTIONS AND DETAILS
ORG	OVERFLOW RELIEF GULLY
RL	REDUCED LEVEL
S	SEWER
SEP	SIDE ENTRY PIT - AS SCHEDULED / REFER SECTIONS AND DETAILS
SM	SUB-METER
SV	STOP / SWITCH VALVE
SW	STORMWATER
VD	VEE DRAIN - AS SCHEDULED / REFER SECTIONS AND DETAILS
W	WATER

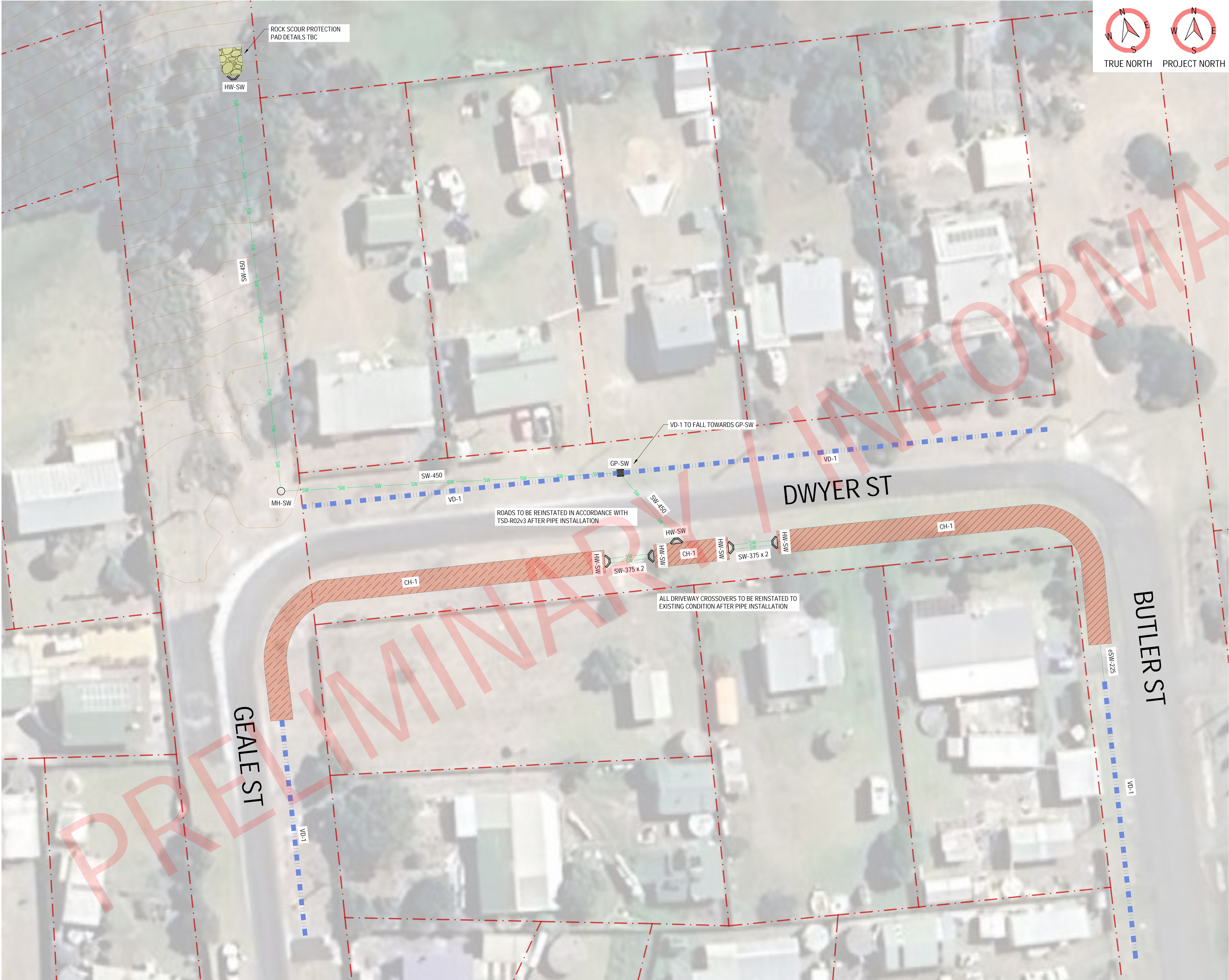
						COLLECTIVE CONSULTING DISCLAIMER: 1. THIS DRAWING HAS BEEN PRODUCED FOR THE NAMED CLIENT AND FOR USE OF THIS PROJECT ONLY, AND IS NOT TO BE USED FOR ANY OTHER PURPOSE. 2. THESE DRAWINGS MUST BE APPROVED BY COUNCIL, TASWATER AND ANY OTHER REQUIRED AUTHORITIES PRIOR TO COMMENCING CONSTRUCTION. 3. THE RECIPIENT IS RESPONSIBLE FOR ENSURING THAT THEY REVIEW THE STATUS OF THIS DRAWING, AND IN RECEIPT OF THE CURRENT REVISION PRIOR TO USE. 4. INFORMATION PROVIDED WITHIN THIS DOCUMENT HAS BEEN PROVIDED UNDER COLLECTIVE CONSULTING'S TERMS OF ENGAGEMENT. BY ACCEPTING OR USING THE INFORMATION WITHIN THIS DOCUMENT YOU HAVE ACCEPTED THE TERMS OF ENGAGEMENT. TERMS CAN BE VIEWED AT: WWW.COLLECTIVECONSULTING.COM.AU/TERMSOFENGAGEMENT . 5. DO NOT SCALE DRAWINGS. COLLECTIVE CONSULTING IS NOT RESPONSIBLE FOR THE DIMENSIONING AND SETTING OUT OF COMPONENTS WITHIN THESE PROJECT DOCUMENTS.		 COLLECTIVE CONSULTING		 E admin@collectiveconsulting.com.au Level 1, 10-14 Peterson Street Lynbrook TAS 7250 P (08) 6354 0834 collectiveconsulting.com.au		CLIENT / ARCHITECT: GEORGE TOWN COUNCIL		PROJECT DETAILS: BEECHFORD DRAINAGE UPGRADES					DRAWING TITLE: INFRASTRUCTURE PLAN - HIGGINS STREET - PART PLAN 2										
A	REVIEW / INFORMATION	SP	08/04/25																										
REV:	ISSUED FOR / DESCRIPTION:	BY:	DATE:									DESIGN BY: JPW		DESIGN CHECK: -		DRAWN BY: SCP		DRAFT CHECK: -		CERTIFIER:		SCALE @ A1: 1:250		PROJECT No: 246034		DRAWING No: C404		REVISION: A	



- INFRASTRUCTURE NOTES:
1. THE FOLLOWING IS TO BE READ IN CONJUNCTION WITH NOTES ON DRAWING C001.
 2. STORMWATER PIPES SHALL BE INSTALLED WITH MIN. 0.5% GRADE FOR SIZES Ø225 AND ABOVE UNLESS NOTED / SCHEDULED OTHERWISE.
 3. STORMWATER PIPES SHALL BE INSTALLED WITH MIN. 1.0% GRADE FOR PIPE SIZES Ø150 AND BELOW UNLESS NOTED / SCHEDULED OTHERWISE.
 4. SEWER PIPES SHALL BE INSTALLED WITH MIN. 1.0% GRADE FOR PIPE SIZES Ø150 AND AND ABOVE UNLESS NOTED / SCHEDULED OTHERWISE.
 5. SEWER PIPES SHALL BE INSTALLED WITH MIN. 1.65% GRADE FOR PIPE SIZES Ø100 AND BELOW UNLESS NOTED / SCHEDULED OTHERWISE.
 6. ALL 'DN' SIZES SCHEDULED OR NOTED INDICATE INTERNAL DIAMETER.
 7. REFER SECTIONS AND DETAILS FOR PIPE TRENCHING SPECS.
 8. WATER LINES SHALL GENERALLY BE LAID ABOVE SEWER PIPES WHEREVER POSSIBLE.
 9. ALL PIPES SHALL BE INSTALLED WITH MIN. 750mm COVER (U.N.O.)

INFRASTRUCTURE LEGEND:	
CL	COVER LEVEL
DN	NOMINAL PIPE DIAMETER - INTERNAL DIAMETER (U.N.O.)
DP	DOWNPIPE - AS SCHEDULED
e / EXT G	EXISTING ITEM / ELEMENT
FH	FIRE HYDRANT - REFER SECTIONS AND DETAILS
FM	FIRE WATER SERVICE LINE / MAIN
FP	FIRE PLUG
GD	GRATED DRAIN - AS SCHEDULED / REFER SECTIONS AND DETAILS
GP	GRATED / GULLY PIT - AS SCHEDULED / REFER SECTIONS AND DETAILS
GVP	GRATED VEE PIT - AS SCHEDULED / REFER SECTIONS AND DETAILS
HBC	HOSE BIB COCK
IL	INVERT LEVEL
IO	INSPECTION OPENING - FINISHED TO SURFACE LEVEL
M	METER
MH	MANHOLE - AS SCHEDULED / REFER SECTIONS AND DETAILS
ORG	OVERFLOW RELIEF GULLY
RL	REDUCED LEVEL
S	SEWER
SEP	SIDE ENTRY PIT - AS SCHEDULED / REFER SECTIONS AND DETAILS
SM	SUB-METER
SV	STOP / SWITCH VALVE
SW	STORMWATER
VD	VEE DRAIN - AS SCHEDULED / REFER SECTIONS AND DETAILS
W	WATER

						<div>COLLECTIVE CONSULTING DISCLAIMER:</div> <div>1. THIS DRAWING HAS BEEN PRODUCED FOR THE NAMED CLIENT AND FOR USE OF THIS PROJECT ONLY, AND IS NOT TO BE USED FOR ANY OTHER PURPOSE.</div> <div>2. THESE DRAWINGS MUST BE APPROVED BY COUNCIL, TASWATER AND ANY OTHER REQUIRED AUTHORITIES PRIOR TO COMMENCING CONSTRUCTION.</div> <div>3. THE RECIPIENT IS RESPONSIBLE FOR ENSURING THAT THEY REVIEW THE STATUS OF THIS DRAWING, AND IN RECEIPT OF THE CURRENT REVISION PRIOR TO USE.</div> <div>4. INFORMATION PROVIDED WITHIN THIS DOCUMENT HAS BEEN PROVIDED UNDER COLLECTIVE CONSULTING'S TERMS OF ENGAGEMENT. BY ACCEPTING OR USING THE INFORMATION WITHIN THIS DOCUMENT YOU HAVE ACCEPTED THE TERMS OF ENGAGEMENT. TERMS CAN BE VIEWED AT: WWW.COLLECTIVECONSULTING.COM.AU/TERMSOFENGAGEMENT.</div> <div>5. DO NOT SCALE DRAWINGS. COLLECTIVE CONSULTING IS NOT RESPONSIBLE FOR THE DIMENSIONING AND SETTING OUT OF COMPONENTS WITHIN THESE PROJECT DOCUMENTS.</div>										<div><div><div>admin@collectiveconsulting.com.au</div><div>Level 1, 10-14 Paterson Street Launceston TAS 7250 P (03) 6334 0834 collectiveconsulting.com.au</div></div></div> <div><div>COLLECTIVE CONSULTING</div></div>		CLIENT / ARCHITECT: GEORGE TOWN COUNCIL		PROJECT DETAILS: BEECHFORD DRAINAGE UPGRADES					DRAWING TITLE: INFRASTRUCTURE PLAN - HIGGINS STREET - PART PLAN 3				
A	REVIEW / INFORMATION	SP	08/04/25																										
REV:	ISSUED FOR / DESCRIPTION:	BY:	DATE:																										
				DESIGN BY: JPW		DESIGN CHECK: -		DRAWN BY: SCP		DRAFT CHECK: -		CERTIFIER:		SCALE @ A1: 1:250		PROJECT No: 246034		DRAWING No: C405		REVISION: A									



- INFRASTRUCTURE NOTES:
1. THE FOLLOWING IS TO BE READ IN CONJUNCTION WITH NOTES ON DRAWING C001.
 2. STORMWATER PIPES SHALL BE INSTALLED WITH MIN. 0.5% GRADE FOR SIZES Ø225 AND ABOVE UNLESS NOTED / SCHEDULED OTHERWISE.
 3. STORMWATER PIPES SHALL BE INSTALLED WITH MIN. 1.0% GRADE FOR PIPE SIZES Ø150 AND BELOW UNLESS NOTED / SCHEDULED OTHERWISE.
 4. SEWER PIPES SHALL BE INSTALLED WITH MIN. 1.0% GRADE FOR PIPE SIZES Ø150 AND ABOVE UNLESS NOTED / SCHEDULED OTHERWISE.
 5. SEWER PIPES SHALL BE INSTALLED WITH MIN. 1.65% GRADE FOR PIPE SIZES Ø100 AND BELOW UNLESS NOTED / SCHEDULED OTHERWISE.
 6. ALL 'DN' SIZES SCHEDULED OR NOTED INDICATE INTERNAL DIAMETER.
 7. REFER SECTIONS AND DETAILS FOR PIPE TRENCHING SPECS.
 8. WATER LINES SHALL GENERALLY BE LAID ABOVE SEWER PIPES WHEREVER POSSIBLE.
 9. ALL PIPES SHALL BE INSTALLED WITH MIN. 750mm COVER (U.N.O.)
- INFRASTRUCTURE LEGEND:
- | | |
|----------|---|
| CL | COVER LEVEL |
| DN | NOMINAL PIPE DIAMETER - INTERNAL DIAMETER (U.N.O.) |
| DP | DOWNPIPE - AS SCHEDULED |
| e / EXTG | EXISTING ITEM / ELEMENT |
| FH | FIRE HYDRANT - REFER SECTIONS AND DETAILS |
| FM | FIRE WATER SERVICE LINE / MAIN |
| FP | FIRE PLUG |
| GD | GRADED DRAIN - AS SCHEDULED / REFER SECTIONS AND DETAILS |
| GP | GRADED / GULLY PIT - AS SCHEDULED / REFER SECTIONS AND DETAILS |
| GVP | GRADED VEE PIT - AS SCHEDULED / REFER SECTIONS AND DETAILS |
| GT | GREASE TRAP |
| HBC | HOSE BIB COCK |
| HW | HEADWALL - REFER LGAT STANDARD DRAWINGS TSD-SW17-v3 & TSD-SW18-v3 |
| IL | INVERT LEVEL |
| IO | INSPECTION OPENING - FINISHED TO SURFACE LEVEL |
| M | METER |
| MH | MANHOLE - AS SCHEDULED / REFER SECTIONS AND DETAILS |
| ORG | OVERFLOW RELIEF GULLY |
| OS | OIL SEPARATOR |
| RL | REDUCED LEVEL |
| S | SEWER |
| SEP | SIDE ENTRY PIT - AS SCHEDULED / REFER SECTIONS AND DETAILS |
| SM | SUB-METER |
| SV | STOP / SWITCH VALVE |
| SW | STORMWATER |
| VD | VEE DRAIN - AS SCHEDULED / REFER SECTIONS AND DETAILS |
| W | WATER |



TRUE NORTH



PROJECT NORTH

- INFRASTRUCTURE NOTES:
1. THE FOLLOWING IS TO BE READ IN CONJUNCTION WITH NOTES ON DRAWING C001.
 2. STORMWATER PIPES SHALL BE INSTALLED WITH MIN. 0.5% GRADE FOR SIZES Ø225 AND ABOVE UNLESS NOTED / SCHEDULED OTHERWISE.
 3. STORMWATER PIPES SHALL BE INSTALLED WITH MIN. 1.0% GRADE FOR PIPE SIZES Ø150 AND BELOW UNLESS NOTED / SCHEDULED OTHERWISE.
 4. SEWER PIPES SHALL BE INSTALLED WITH MIN. 1.0% GRADE FOR PIPE SIZES Ø150 AND ABOVE UNLESS NOTED / SCHEDULED OTHERWISE.
 5. SEWER PIPES SHALL BE INSTALLED WITH MIN. 1.65% GRADE FOR PIPE SIZES Ø100 AND BELOW UNLESS NOTED / SCHEDULED OTHERWISE.
 6. ALL 'DN' SIZES SCHEDULED OR NOTED INDICATE INTERNAL DIAMETER.
 7. REFER SECTIONS AND DETAILS FOR PIPE TRENCHING SPECS.
 8. WATER LINES SHALL GENERALLY BE LAID ABOVE SEWER PIPES WHEREVER POSSIBLE.
 9. ALL PIPES SHALL BE INSTALLED WITH MIN. 750mm COVER (U.N.O.)

INFRASTRUCTURE LEGEND:	
CL	COVER LEVEL
DN	NOMINAL PIPE DIAMETER - INTERNAL DIAMETER (U.N.O.)
DP	DOWNPIPE - AS SCHEDULED
e / EXTG	EXISTING ITEM / ELEMENT
FH	FIRE HYDRANT - REFER SECTIONS AND DETAILS
FM	FIRE WATER SERVICE LINE / MAIN
FP	FIRE PLUG
GD	GRADED DRAIN - AS SCHEDULED / REFER SECTIONS AND DETAILS
GP	GRADED / GULLY PIT - AS SCHEDULED / REFER SECTIONS AND DETAILS
GVP	GRADED VEE PIT - AS SCHEDULED / REFER SECTIONS AND DETAILS
GT	GREASE TRAP
HBC	HOSE BIB COCK
HW	HEADWALL - REFER LGAT STANDARD DRAWINGS TSD-SW17-v3 & TSD-SW18-v3
IL	INVERT LEVEL
IO	INSPECTION OPENING - FINISHED TO SURFACE LEVEL
M	METER
MH	MANHOLE - AS SCHEDULED / REFER SECTIONS AND DETAILS
ORG	OVERFLOW RELIEF GULLY
OS	OIL SEPARATOR
RL	REDUCED LEVEL
S	SEWER
SEP	SIDE ENTRY PIT - AS SCHEDULED / REFER SECTIONS AND DETAILS
SM	SUB-METER
SV	STOP / SWITCH VALVE
SW	STORMWATER
VD	VEE DRAIN - AS SCHEDULED / REFER SECTIONS AND DETAILS
W	WATER

A	REVIEW / INFORMATION	SP	08/04/25
REV:	ISSUED FOR / DESCRIPTION:	BY:	DATE:

COLLECTIVE CONSULTING DISCLAIMER:

1. THIS DRAWING HAS BEEN PRODUCED FOR THE NAMED CLIENT AND FOR USE OF THIS PROJECT ONLY, AND IS NOT TO BE USED FOR ANY OTHER PURPOSE.

2. THESE DRAWINGS MUST BE APPROVED BY COUNCIL, TASWATER AND ANY OTHER REQUIRED AUTHORITIES PRIOR TO COMMENCING CONSTRUCTION.

3. THE RECIPIENT IS RESPONSIBLE FOR ENSURING THAT THEY REVIEW THE STATUS OF THIS DRAWING, AND IN RECEIPT OF THE CURRENT REVISION PRIOR TO USE.

4. INFORMATION PROVIDED WITHIN THIS DOCUMENT HAS BEEN PROVIDED UNDER COLLECTIVE CONSULTING'S TERMS OF ENGAGEMENT. BY ACCEPTING OR USING THE INFORMATION WITHIN THIS DOCUMENT YOU HAVE ACCEPTED THE TERMS OF ENGAGEMENT. TERMS CAN BE VIEWED AT: WWW.COLLECTIVECONSULTING.COM.AU/TERMSOFENGAGEMENT.

5. DO NOT SCALE DRAWINGS. COLLECTIVE CONSULTING IS NOT RESPONSIBLE FOR THE DIMENSIONING AND SETTING OUT OF COMPONENTS WITHIN THESE PROJECT DOCUMENTS.



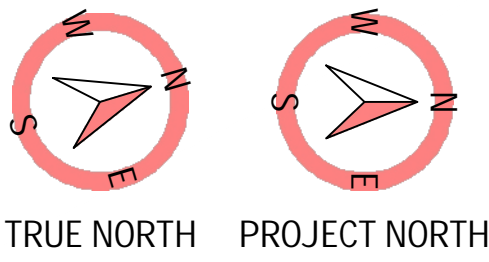
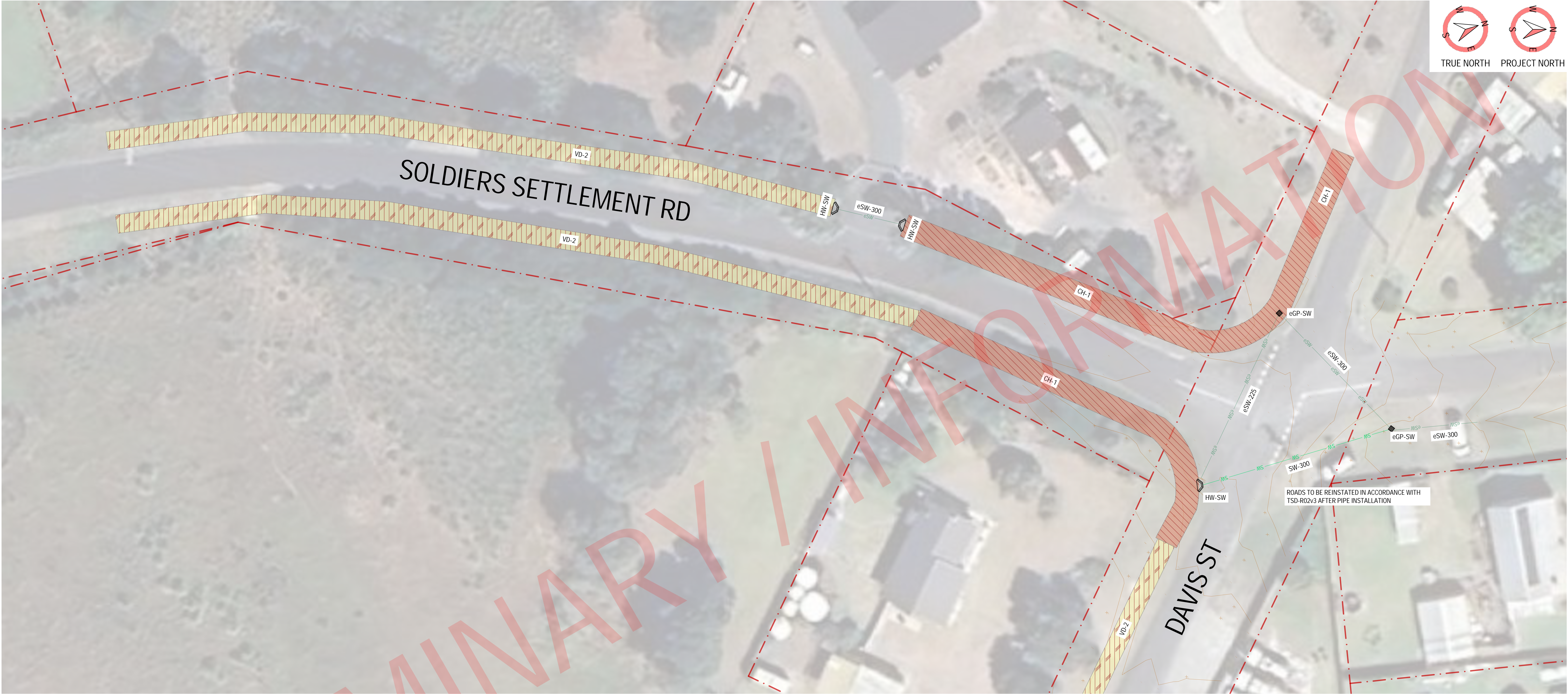
COLLECTIVE
CONSULTING

E admin@collectiveconsulting.com.au
Level 1, 10-14 Paterson Street
Launceston TAS 7250
P (03) 6334 0834
collectiveconsulting.com.au

CLIENT / ARCHITECT:
GEORGE TOWN COUNCIL

PROJECT DETAILS: BEECHFORD DRAINAGE UPGRADES				
DESIGN BY:	DESIGN CHECK:	DRAWN BY:	DRAFT CHECK:	CERTIFIER:
JPW	-	SCP	-	

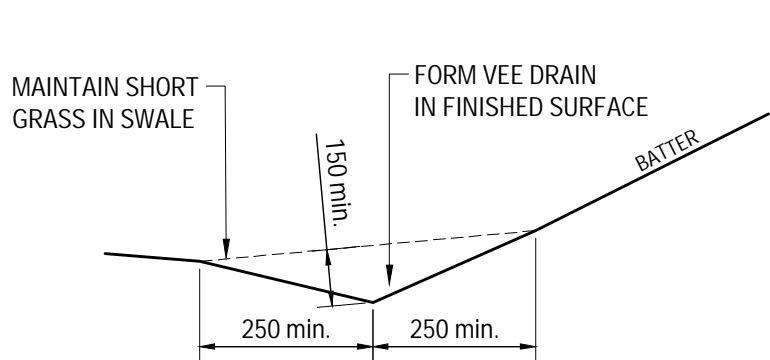
DRAWING TITLE: INFRASTRUCTURE PLAN - ESPLANADE			
SCALE @ A1:	PROJECT No:	DRAWING No:	REVISION:
1:250	246034	C407	A



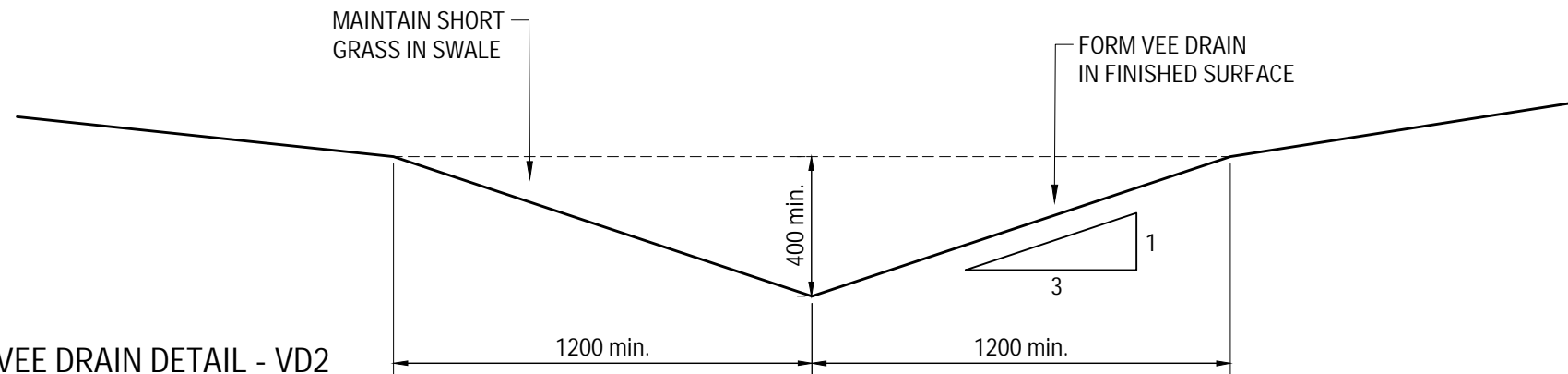
- INFRASTRUCTURE NOTES:
1. THE FOLLOWING IS TO BE READ IN CONJUNCTION WITH NOTES ON DRAWING C001.
 2. STORMWATER PIPES SHALL BE INSTALLED WITH MIN. 0.5% GRADE FOR SIZES Ø225 AND ABOVE UNLESS NOTED / SCHEDULED OTHERWISE.
 3. STORMWATER PIPES SHALL BE INSTALLED WITH MIN. 1.0% GRADE FOR PIPE SIZES Ø150 AND BELOW UNLESS NOTED / SCHEDULED OTHERWISE.
 4. SEWER PIPES SHALL BE INSTALLED WITH MIN. 1.0% GRADE FOR PIPE SIZES Ø150 AND AND ABOVE UNLESS NOTED / SCHEDULED OTHERWISE.
 5. SEWER PIPES SHALL BE INSTALLED WITH MIN. 1.65% GRADE FOR PIPE SIZES Ø100 AND BELOW UNLESS NOTED / SCHEDULED OTHERWISE.
 6. ALL 'DN' SIZES SCHEDULED OR NOTED INDICATE INTERNAL DIAMETER.
 7. REFER SECTIONS AND DETAILS FOR PIPE TRENCHING SPECS.
 8. WATER LINES SHALL GENERALLY BE LAID ABOVE SEWER PIPES WHEREVER POSSIBLE.
 9. ALL PIPES SHALL BE INSTALLED WITH MIN. 750mm COVER (U.N.O.)

INFRASTRUCTURE LEGEND:	
CL	COVER LEVEL
DN	NOMINAL PIPE DIAMETER - INTERNAL DIAMETER (U.N.O.)
DP	DOWNPIPE - AS SCHEDULED
e / EXTG	EXISTING ITEM / ELEMENT
FH	FIRE HYDRANT - REFER SECTIONS AND DETAILS
FM	FIRE WATER SERVICE LINE / MAIN
FP	FIRE PLUG
GD	GRATED DRAIN - AS SCHEDULED / REFER SECTIONS AND DETAILS
GP	GRATED / GULLY PIT - AS SCHEDULED / REFER SECTIONS AND DETAILS
GVP	GRATED VEE PIT - AS SCHEDULED / REFER SECTIONS AND DETAILS
HBC	HOSE BIB COCK
IL	INVERT LEVEL
IO	INSPECTION OPENING - FINISHED TO SURFACE LEVEL
M	METER
MH	MANHOLE - AS SCHEDULED / REFER SECTIONS AND DETAILS
ORG	OVERFLOW RELIEF GULLY
RL	REDUCED LEVEL
S	SEWER
SEP	SIDE ENTRY PIT - AS SCHEDULED / REFER SECTIONS AND DETAILS
SM	SUB-METER
SV	STOP / SWITCH VALVE
SW	STORMWATER
VD	VEE DRAIN - AS SCHEDULED / REFER SECTIONS AND DETAILS
W	WATER

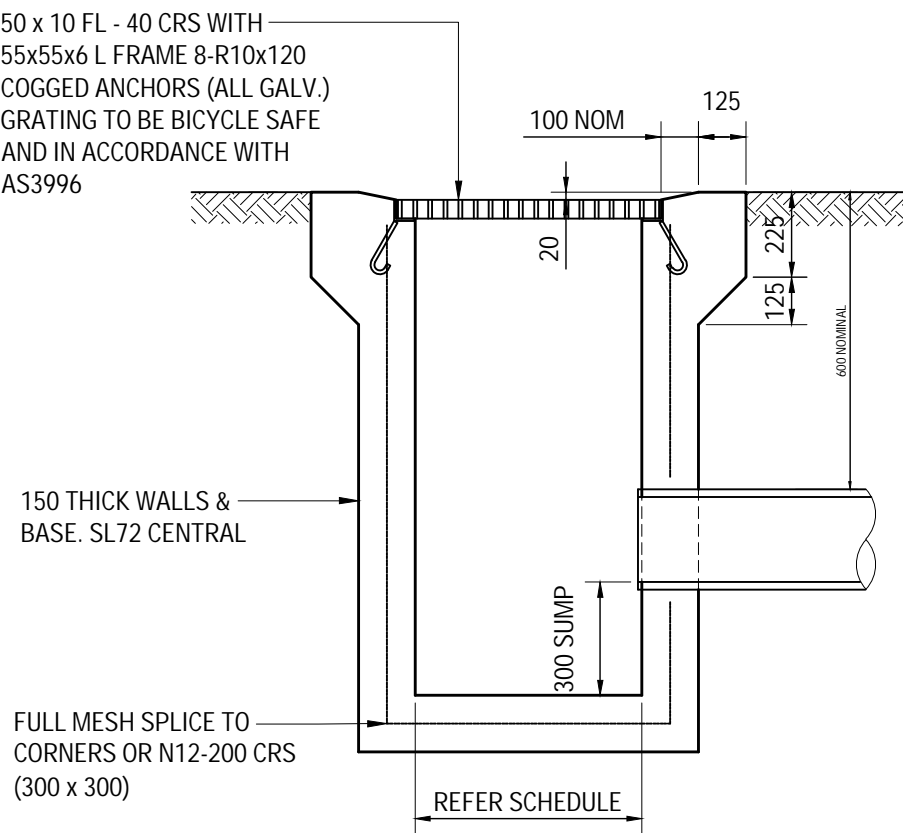
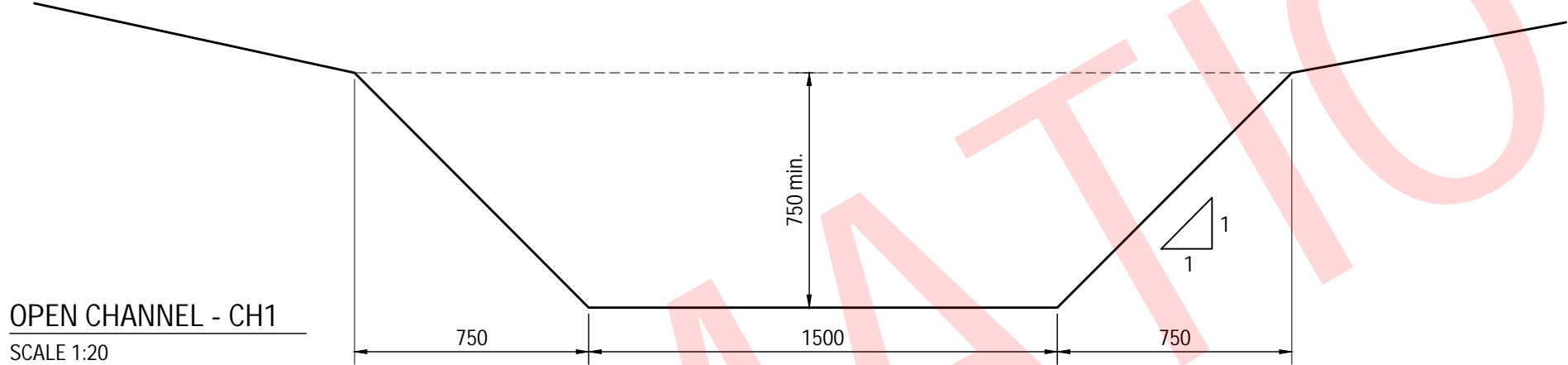
						COLLECTIVE CONSULTING DISCLAIMER: 1. THIS DRAWING HAS BEEN PRODUCED FOR THE NAMED CLIENT AND FOR USE OF THIS PROJECT ONLY, AND IS NOT TO BE USED FOR ANY OTHER PURPOSE. 2. THESE DRAWINGS MUST BE APPROVED BY COUNCIL, TSWATER AND ANY OTHER REQUIRED AUTHORITIES PRIOR TO COMMENCING CONSTRUCTION. 3. THE RECIPIENT IS RESPONSIBLE FOR ENSURING THAT THEY REVIEW THE STATUS OF THIS DRAWING, AND IN RECEIPT OF THE CURRENT REVISION PRIOR TO USE. 4. INFORMATION PROVIDED WITHIN THIS DOCUMENT HAS BEEN PROVIDED UNDER COLLECTIVE CONSULTING'S TERMS OF ENGAGEMENT. BY ACCEPTING OR USING THE INFORMATION WITHIN THIS DOCUMENT YOU HAVE ACCEPTED THE TERMS OF ENGAGEMENT. TERMS CAN BE VIEWED AT: WWW.COLLECTIVECONSULTING.COM.AU/TERMSOFENGAGEMENT . 5. DO NOT SCALE DRAWINGS. COLLECTIVE CONSULTING IS NOT RESPONSIBLE FOR THE DIMENSIONING AND SETTING OUT OF COMPONENTS WITHIN THESE PROJECT DOCUMENTS.		 <div>COLLECTIVE CONSULTING E admin@collectiveconsulting.com.au Level 1, 10-14 Paterson Street Launceston TAS 7250 P (03) 6334 0834 collectiveconsulting.com.au</div>		CLIENT / ARCHITECT: GEORGE TOWN COUNCIL		PROJECT DETAILS: BEECHFORD DRAINAGE UPGRADES				DRAWING TITLE: INFRASTRUCTURE PLAN - SOLDIERS SETTLEMENT ROAD																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
A	REVIEW / INFORMATION		SP	08/04/25																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
REV:	ISSUED FOR / DESCRIPTION:		BY:	DATE:																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								</



VEE DRAIN DETAIL - VD1
SCALE 1:20

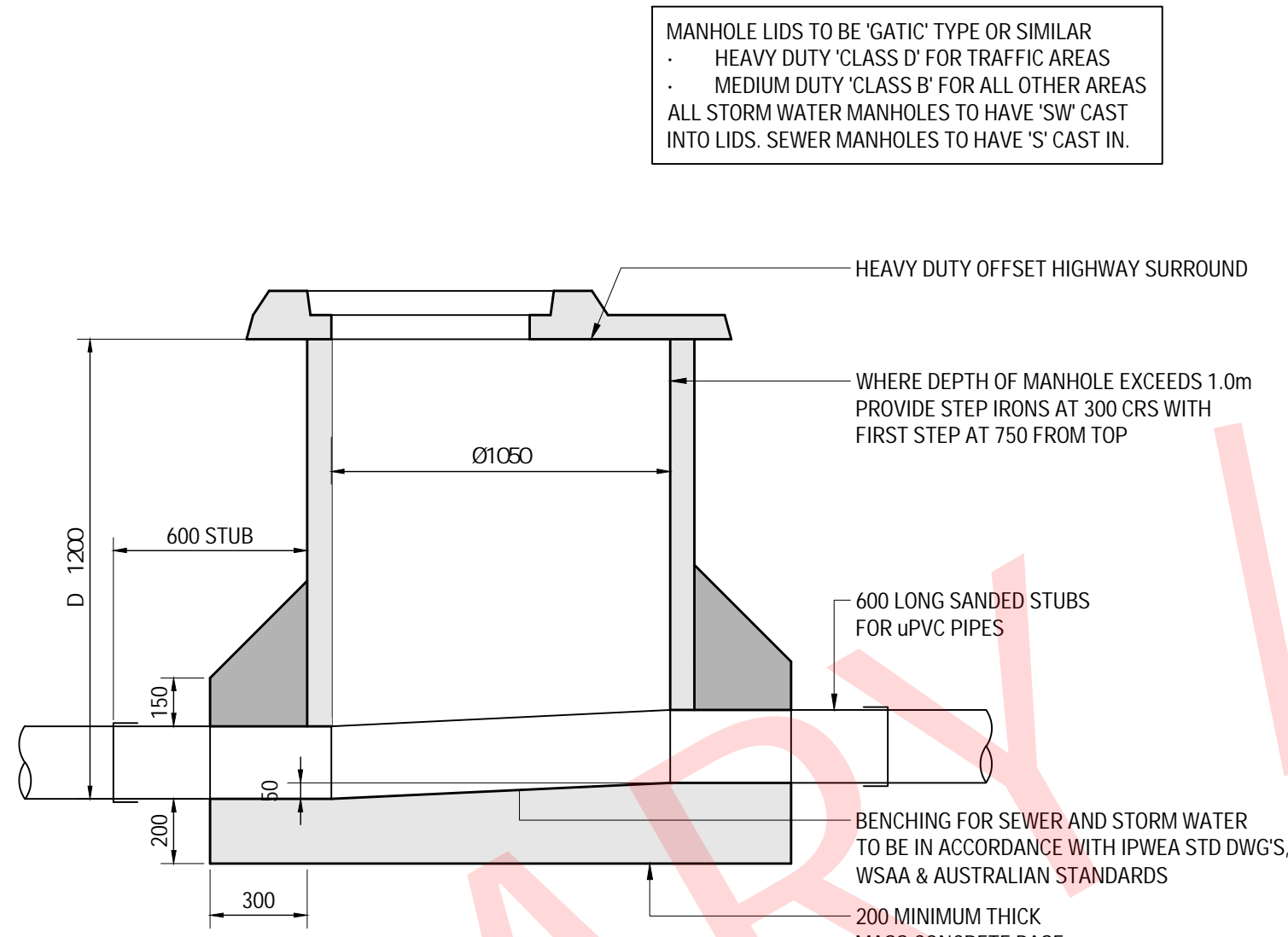


VEE DRAIN DETAIL - VD2
SCALE 1:20
REFER TSD-R02-v3



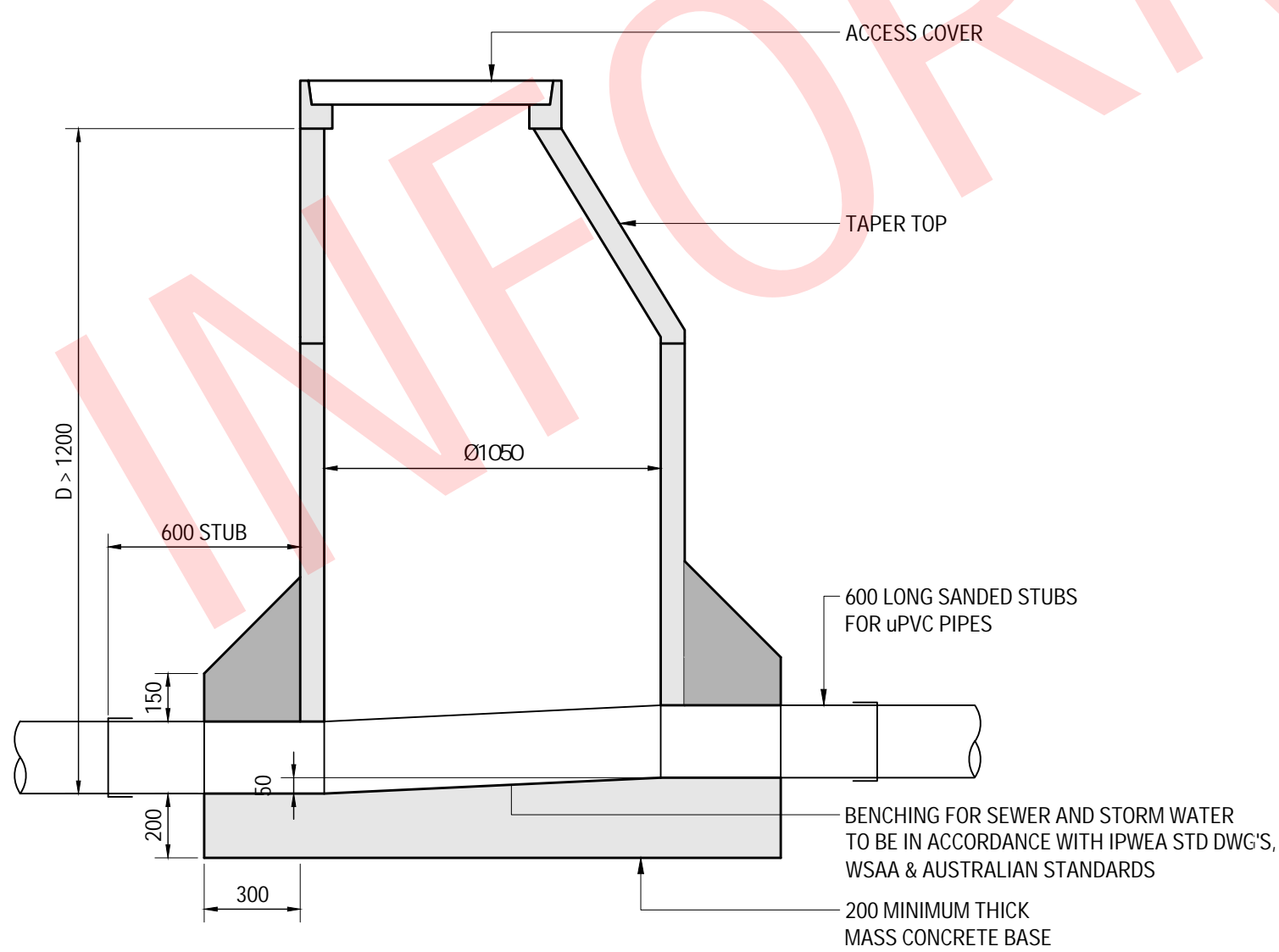
GRADED PIT - TRAFFICABLE
SCALE 1:20

REFER IPWEA STANDARD DRAWINGS FOR ALTERNATE PIT CONSTRUCTION DETAILS.
APPROVED PRECAST UNIT MAYBE SUBSTITUTED.

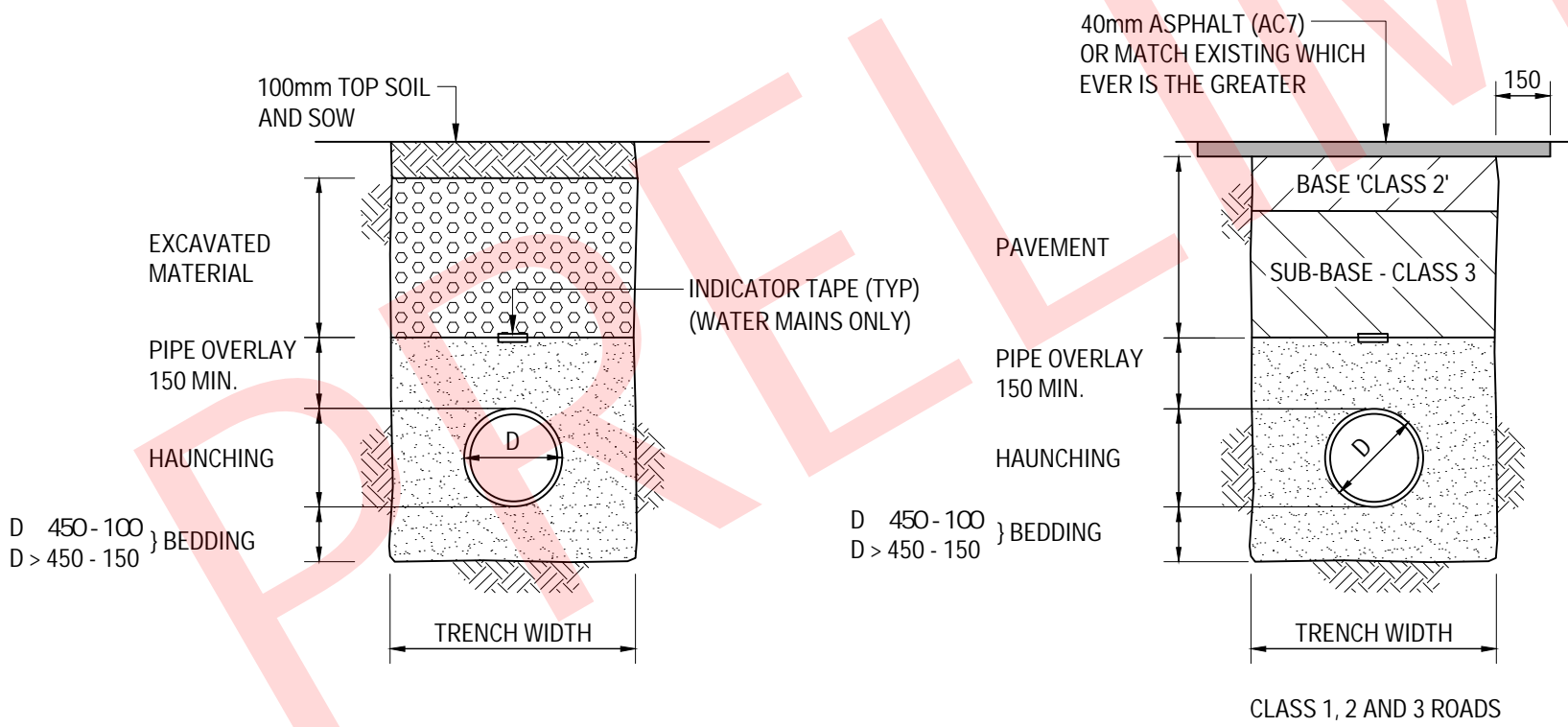


MANHOLE DETAIL - D < 1200
SCALE 1:20

REFER IPWEA STD DWG TSD-SW02-v3 FOR STORMWATER MANHOLE DETAILS
REFER WSAA STD DWG'S FOR SEWER MANHOLE DETAILS



MANHOLE DETAIL - D > 1200
SCALE 1:20



TRENCHES - NON-TRAFFICABLE
SCALE 1:20

TRENCHES - EXISTING ROADS
SCALE 1:20

COLLECTIVE CONSULTING DISCLAIMER:

1. THIS DRAWING HAS BEEN PRODUCED FOR THE NAMED CLIENT AND FOR USE OF THIS PROJECT ONLY, AND IS NOT TO BE USED FOR ANY OTHER PURPOSE.
2. THESE DRAWINGS MUST BE APPROVED BY COUNCIL, TSWATER AND ANY OTHER REQUIRED AUTHORITIES PRIOR TO COMMENCING CONSTRUCTION.
3. THE RECIPIENT IS RESPONSIBLE FOR ENSURING THAT THEY REVIEW THE STATUS OF THIS DRAWING, AND IN RECEIPT OF THE CURRENT REVISION PRIOR TO USE.
4. INFORMATION PROVIDED WITHIN THIS DOCUMENT HAS BEEN PROVIDED UNDER COLLECTIVE CONSULTING'S TERMS OF ENGAGEMENT. BY ACCEPTING OR USING THE INFORMATION WITHIN THIS DOCUMENT YOU HAVE ACCEPTED THE TERMS OF ENGAGEMENT. TERMS CAN BE VIEWED AT: WWW.COLLECTIVECONSULTING.COM.AU/TERMSOFENGAGEMENT
5. DO NOT SCALE DRAWINGS. COLLECTIVE CONSULTING IS NOT RESPONSIBLE FOR THE DIMENSIONING AND SETTING OUT OF COMPONENTS WITHIN THESE PROJECT DOCUMENTS.



E admin@collectiveconsulting.com.au
Level 1, 10-14 Paterson Street
Launceston TAS 7250
P (03) 6334 0834
collectiveconsulting.com.au

CLIENT / ARCHITECT:
GEORGE TOWN COUNCIL

PROJECT DETAILS:
BEECHFORD DRAINAGE UPGRADES

DRAWING TITLE:
SECTIONS & DETAILS - SHEET 1

DESIGN BY:	DESIGN CHECK:	DRAWN BY:	DRAFT CHECK:	CERTIFIER:	SCALE @ A1:	PROJECT No:	DRAWING No:	REVISION:
JPW	-	SCP	-		1:20	246034	C801	A