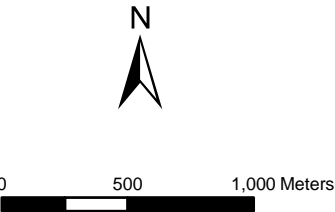


- Site Mapping Location
- Borehole
- Topographic Contours**
  - 20 m
  - 100 m
- Soil Classification \***
  - Class S
  - Class M
  - Class H
- \* In accordance with AS2870



## **Plates**

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Plate 1: Basalt flow overlying a residual soil formed by a previous basalt flow.


## **Appendix A**

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Summary of Mapping Results



**Table A1: Summary of Conditions Encountered During Mapping**

<b>Site: 1</b>	<b>Location:</b> Quality Row, Kingston
	<b>Coordinates:</b> E: 58 789142      N: 6782091
<b>Description:</b>	
Timber post and panel retaining walls stepped on the slope. Posts are tilting down slope, due to soil creep movements and erosion. The retaining walls are possible supporting a previous erosion feature, or an old surface slump.	
The slope above falls at 30° to 35°, and displays regular terracing/stepping of the ground surface, indicating surface creep. This is likely to be exasperated by stock contouring around the steep slopes. Fresh basalt boulders are evident scattered thinly over the slope.	
<b>Photograph:</b>	

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**Site: 2****Location:** Quality Row,**Coordinates:** E: 58 789330      N: 6782140

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**Description:** Layered weathered basalt/tuff exposed in a road cutting, which falls at 60° to 80°.

Basalt/Tuff is extremely weathered to highly weathered, very low strength, light brown and grey brown, vesicular, generally massive but also displaying flow contacts.

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**Photograph:**



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**Site: 3****Location:** Driver Christian Road**Coordinates:** E: 58 789519      N: 6782231

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**Description:** Driver Christian Road rises steeply from the southern side of the island up to the island plateau. Exposed in the road cuttings about 2m to 3m high is a thin (about 0.5m thick) well structured residual profile of high plasticity silty clay, overlying extremely weathered to highly weathered basalt of very low to low strength, vesicular, typically weathering to form spheroidal core stones up to 0.8m in diameter.

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**Photograph:**

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**Site: 4**      **Location:**      Driver Christian Road

**Coordinates:**    E: 58 789581    N: 67 82376

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**Description:** Road cutting 2m to 3m high exposing a residual profile of well structured high plasticity silty clay overlying extremely weathered basalt. Erosion of the soil and basalt has left fence posts hanging, suspended by the fence wire.

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**Photograph:**





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**Site: 5****Location:** Stock Yard Road, cutting in Crushing Plant site**Coordinates:** E: 58 789747 N: 67 83332

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**Description:** As part of the development of a crushing plant facility, an excavation into the side of a hill was completed to provide access to the crushing plant shed. The cutting was formed at an angle of about 45° to a depth of about 8m. The cutting exposed a deeply weathered profile consisting of two overlying basalt flows. The upper flow has weathered to produce a residual soil of brown, well structured, high plasticity silty clay overlying extremely weathered basalt. This upper flow has been laid down over an older ground surface profile, consisting of orange brown mottled purple brown, well structured, high plasticity silty clay overlying extremely weathered basalt.

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**Photograph:**

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## **Appendix D:**

### **Development Control Plan No. 7 - KAVHA (Assessment)**

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## Appendix D

### Assessment of the Proposal against *Development Control Plan No. 7 - KAVHA*

This document presents an assessment of the Proposal against the relevant requirements of *Development Control Plan No. 7 - KAVHA* (AECOM, 2020)

The KAVHA Archaeological Precincts referred to in this document are presented in **Figure 7.4-1** of the EIS.

The section of the Proposal that is within KAVHA is predominantly located within Precinct M. In addition to this:

- The upper sections of the proposed route on both Middlegate Road and Taylors Road are located within Precinct E.
- The lower section of the proposed route on Country Road is located within Precinct F, immediately adjacent to the boundary of Precinct M.
- The lower section of the proposed route on Middlegate Road is located within Precinct M, immediately adjacent to the boundary of Precinct D.

While the construction footprint would be physically located within Precincts M, E and F, potential impacts on Precinct D have also been considered as it is immediately adjacent to the proposed route.

Guideline / Control	Complies	Comment
<b>Overall Precinct Controls</b>		
1a. Comply with Precinct Controls.	✓	The Proposal would comply with all relevant Precinct Controls as outlined in this Table.
1b. Comply with the controls set out in Section 5.0 Heritage Elements and Section 6.0 General Provisions.	✓	The Proposal would comply with all relevant controls set out in Section 5.0 Heritage Elements and Section 6.0 General Provisions as outlined in this Table.
2. Include a Heritage Impact Statement in the Development Application.	✓	A Heritage Impact Statement is included in the Development Application at <b>Appendix G</b> of the Environmental Impact Statement.
3. Where a Proposal includes major alterations to an identified heritage structure, prepare a Conservation Management Plan.	N/A	The Proposal would not result in major alteration to any identified heritage structure.
<b>Precinct Controls (In order of M, E, F, D)</b>		
<b>Precinct M - Arthur's Vale / Watermill Valley</b>		
85. Development shall preserve significant views (360 degree) from Arthur's Vale and Watermill Valley identified in Figure 5 (of the KAVHA DCP).	✓	<p>The development proposed for Precinct M includes the installation of underground emergency holding tanks, underground sewage pumping stations, underground rising pressure mains and electrical transformers on existing high voltage power poles.</p> <p>Following the completion of construction, the Proposal would not interrupt the significant views identified in Figure 5 of the KAVHA DCP.</p>

Guideline / Control	Complies	Comment
86. Development shall conserve and protect Arthur's Vale and Watermill Valley and associated elements that contribute to the Precinct's heritage significance including: a) Open slopes with planting to the ridgeline b) Prominent hillsides c) Agricultural character (dotted small scale buildings) d) Ruins in the landscape	N/A	Arthur's Vale and Watermill Valley and associated elements that contribute to the Precinct's heritage significance of Precinct M would not be impacted by the Proposal.  No works would take place on the open slopes or on the hillsides; no works would take place in the area of the old Arthur's Vale field systems; no works would go near or impact the small-scale buildings; and no works would impact or go near the ruins.  The Proposed infrastructure would be located underground and would not impacts any views associated with this area.
87. Proposed development should not break the skyline	N/A	The development proposed for Precinct M includes the installation of underground emergency holding tanks, underground sewage pumping stations, underground rising pressure mains and electrical transformers on existing high voltage power poles.  No part of the Proposal would break the skyline.
88. Small scale buildings may be constructed in limited areas of Precinct M and should not impact on key views and vistas identified within KAVHA site or relevant Precincts and: a) Use shall be limited to residential, agricultural and tourist facilities. b) Development shall be screened by appropriate plantings where necessary.	N/A	The Proposal does not include any new building or structure.
89. Development shall include methods to stabilise soil and reduce erosion. The implementation should address existing erosion as well as the potential erosion arising from the proposed development or use.	✓	Existing erosion of the high side banks of Country Road, Taylors Road and Middlegate Road is outside the construction footprint and outside the scope of the Proposal.  Construction of the Proposal would require soil excavation to enable installation of underground services. All excavation would be undertaken in accordance with mitigation measures detailed in <b>Section 7.1.3</b> of the EIS to manage erosion and sedimentation from the construction site.
90. Development proposals to introduce agricultural crops within Watermill Valley are permitted. Plantings shall be based on historical and/or archaeological evidence with no adverse impact on heritage significance or the environment.	N/A	The Proposal does not include the introduction of any agricultural crop.

Guideline / Control	Complies	Comment
91. Development shall allow the continued traditional agricultural use of Watermill Valley, including the use of the dam.	✓	<p>The development proposed for Precinct M includes the installation of underground emergency holding tanks, underground sewage pumping stations, underground rising pressure mains and electrical transformers on existing high voltage power poles.</p> <p>All work would be undertaken within the existing road reserve and predominantly within the existing sealed surface.</p> <p>Agricultural use of Watermill Valley would not be impacted.</p>
92. Proposed development shall maintain an appropriate level of water quality.	✓	<p>The purpose of the Proposal is to transport human waste contamination collected from Crown Land in KAVHA, from KAVHA, to the sewage treatment plant via the Norfolk Island Regional Council (NIRC) Water Assurance Scheme. Once operational, this would contribute to improvement of the water quality in Watermill Creek and associated wetlands, Emily Bay and Slaughter Bay.</p> <p>Construction of the Proposal would require soil excavation to enable installation of underground services. All excavation would be undertaken in accordance with mitigation measures detailed in <b>Section 7.1.3</b> of the EIS to manage erosion and sedimentation from the construction site and prevent discharge to the Swamp Precinct, downstream waterways and Emily Bay and Slaughter Bay.</p>
<b>Precinct E – Uplands</b>		
33. Development shall not negatively impact on the ability of the surrounding prominent hills, cliffs and trees to act as a backdrop and screen for the low-lying precincts.	✓	<p>The Proposal includes the installation of underground emergency holding tanks, underground sewage pumping stations, underground rising pressure mains and electrical transformers on existing high voltage power poles.</p> <p>Following the completion of construction, the Proposal would not impact on the ability of the surrounding prominent hills, cliffs trees to act as a backdrop and screen for the low-lying precincts.</p>
34. Development shall not be visible within identified significant views from: a) QEII (Queen Elizabeth Lookout) b) Middlegate Road, c) Taylor's Road, and d) Flagstaff Hill identified in the CLMP for KAVHA.	✓	<p>The Proposal includes the installation of underground emergency holding tanks, underground sewage pumping stations, underground rising pressure mains and electrical transformers on existing high voltage power poles.</p> <p>Following the completion of construction, the Proposal would not be visible from any of the identified significant views.</p>

Guideline / Control	Complies	Comment
35. Proposed development shall not break the skyline identified.	✓	<p>The Proposal includes the installation of underground emergency holding tanks, underground sewage pumping stations, underground rising pressure mains and electrical transformers on existing high voltage power poles.</p> <p>Following the completion of construction, the Proposal would not break the identified skyline, nor would it for the most part be visible above ground.</p>
36. Permit removal of plantings to re-establish or maintain significant historic views identified in Figure 5 (of the KAVHA DCP).	N/A	The Proposal would not result in the removal of plantings.
37. Subdivision applications must consider the controls within the <i>Norfolk Island Plan 2002</i> Clause 10 (2) (a), (c) and (d)	N/A	The Proposal would not result in subdivision.
38. Comply generally with policies set out in <i>Norfolk Island Plan 2002</i> for Rural Zone development that relate to: a) Maximum height of buildings (9 metres, unless requirement for a taller structure can be demonstrated as necessary due to operational, topographical or other reason) b) Setback from boundaries (minimum 10 metres from front boundary and 3.6 metres from other boundaries) c) Building projection (Buildings shall not project above a 45 degree line (from horizontal) as measured from any property boundary into the property upon which the building is situated).	N/A	The Proposal would not involve the construction of new buildings.
39. Habitable buildings should incorporate environmentally sustainable design principles including: a) Passive solar design b) Thermal performance c) Low impact on energy, water and material resources	N/A	The Proposal would not involve the construction of new buildings.
40. Small scale buildings may be constructed in Precinct E and should not impact on key views and vistas identified within KAVHA site or relevant Precincts and: a) Use shall be limited to residential, agricultural and tourist facilities b) Development shall be screened by appropriate plantings.	N/A	The Proposal would not involve the construction of new buildings.
41. Development or use shall not remove the QEII (Queen Elizabeth) lookout as a lookout and recreation area.	N/A	The Proposal would not impact (or even come near to) the QEII lookout.
42. Development shall consider the removal of identified intrusive structures.	N/A	The Proposal would not occur near any intrusive structures, nor is the removal of structures part of the Proposal. Removal of intrusive structures is outside the scope of the Proposal.



Guideline / Control	Complies	Comment
43. Development shall include methods to stabilise soil and reduce erosion. The implementation should address existing erosion as well as the potential erosion arising from the proposed development or use.	✓	<p>Existing erosion of the high side banks of Taylors Road and Middlegate Road is outside the construction footprint and outside the scope of the Proposal.</p> <p>Construction of the Proposal would require soil excavation to enable installation of underground services. All excavation would be undertaken in accordance with mitigation measures detailed in <b>Section 7.1.3</b> of the EIS to manage erosion and sedimentation from the construction site.</p>
<b>Precinct F – Swamp (Kingston Common)</b>		
44. Development or use must not negatively impact on surrounding prominent hills, cliffs and trees as a backdrop for the Swamp Precinct.	✓	<p>The Proposal includes the installation of underground emergency holding tanks, underground sewage pumping stations, underground rising pressure mains and electrical transformers on existing high voltage power poles.</p> <p>The construction footprint has been designed to avoid significant trees along Country Road. The rising main would be located in the opposite side of the sealed road surface to the tree plantings to minimise potential impacts to root systems.</p> <p>Following the completion of construction, the Proposal would not negatively impact on the surrounding prominent hills, cliffs or trees as a backdrop for the Swamp Precinct.</p>
45. Development shall not negatively impact on significant views from the War Memorial.	✓	<p>The Proposal commences at the intersection of Quality Row, Country Road, Middlegate Road and Pier Street and extends both north-west along Country Road and north along Middlegate Road.</p> <p>The Proposal includes the installation of underground emergency holding tanks, underground sewage pumping stations, underground rising pressure mains and electrical transformers on existing high voltage power poles.</p> <p>Following the completion of construction, the Proposal would not impact on significant views from the War Memorial.</p>

Guideline / Control	Complies	Comment
46. Development or use shall conserve and maintain the Swamp Precinct and associated elements that contribute to the Precinct's heritage significance including: a) Remnant sections of pre-settlement hydrology, b) Creeks, c) Swamps, and d) Waterways	✓	<p>The section of the Proposal located between the intersection of Quality Row, Country Road, Middlegate Road and Pier Street and about 350 metres north-west along Country Road is located immediately inside the boundary of Precinct F (Swamp Precinct).</p> <p>To avoid impacts to the Swamp Precinct and associated elements that contribute to the Precinct's heritage significance, this section of the Proposal would be installed within the existing road surface in an already disturbed area. In this location, the Proposal would not have a direct impact on the pre-settlement hydrology, creeks, swamps or waterways.</p> <p>Erosion and sediment control measures would be implemented (refer <b>Section xx</b> of the EIS) to prevent any indirect impact from erosion and sedimentation from the construction footprint on the Swamp Precinct.</p>
47. Development shall prioritise conservation and protection of heritage elements and archaeological features that are fragile, unstable and susceptible to visitor impact.	✓	<p>The Proposal has been designed to avoid, where possible, heritage elements and areas of known archaeological features and deposits. Notwithstanding, all excavation work would be supervised by the KAVHA Archaeologist. If an archaeological feature or deposit was identified during construction of the Proposal, work would stop until such time that the archaeological find is appropriately managed in accordance with measures identified in the EIS (<b>Section 7.2.3.1</b>) and the HIS (refer <b>Appendix G</b>) for the Proposal.</p>
48. Permit low impact activities such as sports and recreation within Precinct. Activities shall have no adverse impact on archaeology or heritage elements.	N/A	The Proposal does not include any such activity.
<b>Precinct D – Quality Row</b>		
23. Development or use must not negatively impact on the surrounding prominent hillside as a backdrop for Quality Row.	✓	<p>The Proposal includes the installation of underground emergency holding tanks, underground sewage pumping stations, underground rising pressure mains and electrical transformers on existing high voltage power poles.</p> <p>Following the completion of construction, the proposal would not impact on the surrounding prominent hillside as a backdrop for Quality Row.</p>

Guideline / Control	Complies	Comment
24. Development or use must conserve and maintain Quality Row and associated elements that contribute to the Precinct's heritage significance.	✓	<p>The Proposal commences at the intersection Quality Row, Country Road, Middlegate Road and Pier Street and extends both north-west along Country Road and north along Middlegate Road.</p> <p>Quality Row and associated elements that contribute to the Precinct's heritage significance would not be impacted by the Proposal.</p>
25. Development or use must not disrupt the historic spatial layout of the Quality Row Precinct including: a) groupings of buildings b) orientation c) setbacks from boundaries	✓	<p>The Proposal commences at the intersection Quality Row, Country Road, Middlegate Road and Pier Street and extends both north-west along Country Road and north along Middlegate Road.</p> <p>The historic spatial layout of the Quality Row Precinct would not be disrupted.</p>
26. Retain and protect heritage streetscape elements of Quality Row including: a) Line of trees b) Fencing c) Grassed footpaths d) Soft road edges	✓	<p>The Proposal commences at the intersection Quality Row, Country Road, Middlegate Road and Pier Street and extends both north-west along Country Road and north along Middlegate Road.</p> <p>The heritage streetscape elements of Quality Row would not be impacted by the Proposal.</p>
27. No new buildings and structures shall be proposed within the Precinct without undertaking the following measures: a) Ensure that existing buildings are utilised to their full capacity b) Explore methods of adaptive re-use with little or no alteration to significant fabric. c) Explore methods of temporary structures or reversible construction	N/A	The Proposal does not include any new building or structure.
28. Alterations and additions shall be limited to: a) restoring or reconstructing original facades b) removing intrusive elements c) general maintenance and repair	N/A	The Proposal does not include any alterations or additions to buildings.
29. Development shall consider removal of identified intrusive structures.	N/A	The removal of identified intrusive structures is outside the scope of the Proposal.
30. Garden design must demonstrate it responds to historical and archaeological evidence for the species, structure and materials.	N/A	No gardens would be planted.
31. Where a plan of management is available, garden design must demonstrate it aligns with the plan. Fruit and vegetable gardens shall be considered.	N/A	No gardens would be planted.
32. Proposed development shall respond to the plan of management for Quality Row.	N/A	No such plan of management exists.

Guideline / Control	Complies	Comment
<b>Heritage Elements Controls (Section 5.0)</b>		
<b>Conservation Principles (Applicable to all heritage elements and Archaeology)</b>		
102. The Minister or their delegate shall not grant consent to Development Applications unless an assessment of the impact of the proposal on the heritage significance of the element and KAVHA as a whole including the historic, aesthetic, scientific, and social significance has been considered within a Heritage Impact Statement. The Heritage Impact Statement shall meet the requirements set out in Section 2.6.	✓	The Development Application for the Proposal is accompanied by a Heritage Impact Statement prepared in accordance with the requirements of Section 2.6 of <i>Kingston and Arthur's Vale Historic Area Development Control Plan 2020</i> (AECOM, 2020)), the Heritage Overlay and the <i>Heritage Act 2002</i> (NI) – Refer to <b>Section 5, Section 7.4</b> and <b>Appendix G</b> of the EIS.
Control 103. The Minister or their delegate may request the submission of a Conservation Management Plan to assist in the assessment of the development application. The Conservation Management Plan shall meet the requirements set out in Section 2.5.	N/A	The Minister or their delegate has not requested the submission of a Conservation Management Plan to assist in the assessment of the development application.
Control 104. Where relevant, proposed development or uses are to be consistent with a Conservation Management Plan.	✓	The Proposal has been developed in accordance with relevant Conservation Management Plans and Plans of Management applicable to the KAVHA Area as detailed throughout this EIS.
Control 105. Development Applications for development at or use of heritage elements shall meet the objectives and controls set out in its related precinct.	✓	The Proposal would comply with all relevant objectives and controls for Precincts: <ul style="list-style-type: none"> <li>• E – Uplands.</li> <li>• F – Swamp (Kingston Common).</li> <li>• M – Arthur's Vale/Watermill Valley.</li> <li>• E – Quality Row.</li> </ul> as outlined in this Table.
Control 106. An archival recording that meets the guidelines How to Prepare Archival Records of Heritage Items (NSW Heritage Office, 1998) and Photographic Recording of Heritage Items Using Film or Digital Capture (NSW Heritage Office, 2006) should be undertaken prior to major development or conservation to a heritage item.	✓	As the Proposal has been designed to avoid impacts to heritage items, no such archival recordings are expected to be necessary.  However, if unexpected features (e.g., unknown drains) should be identified during works and the works cannot be adjusted to avoid them, archival recordings would be made at the standards set by the NSW Heritage Office publications.
<b>Setting and Location</b>		
Control 107. Development shall retain key views and vistas, including precinct views, streetscape views, from and within heritage elements. Development should consider the re-establishment of views, if applicable.	✓	The Proposal is predominantly located underground and would not impact key views or vistas.
Control 108. Development shall retain related items within their setting by maintaining: <ul style="list-style-type: none"> <li>a) functional relationships between items and related items</li> <li>b) natural characteristics, such as landforms; landmark qualities</li> <li>c) significant characteristics such as similarities and consistencies.</li> </ul>	✓	The Proposal would not impact the relationship between any item or characteristic.



Guideline / Control	Complies	Comment
Control 109. Development must maintain an adequate curtilage around heritage elements, including landscaping, fencing and significant trees.	✓	The Proposal would not impact the curtilage around any heritage element. Fencing would not be impacted. Any impacted landscaping (limited to grass where excavation is required for sewage pumping stations and sewage holding tanks outside the existing sealed road surface) is expected to grow over the any disturbed areas relatively quickly following completion of the excavation in that location and significant trees have been avoided during development of the design.
Control 110. Development must avoid relocation of items unless the heritage item was designed to be readily movable or has a history of relocation.	✓	No known heritage item would be relocated as a result of the Proposal. If an unknown archaeological item is discovered during construction, all work in the vicinity of the item would stop and the item would be appropriately managed in accordance with instructions from the Commonwealth Heritage Manager or KAVHA Archaeologist.
<b>Building Style and Character</b>	N/A	
<b>Alterations and Additions</b>	N/A	
<b>Scale of Additions and Siting</b>	N/A	
<b>Height of Additions</b>	N/A	
<b>Roof Form, Scale and Material</b>	N/A	
<b>Window and Door Openings</b>	N/A	
<b>Verandas and Balconies</b>	N/A	
<b>Materials, Finishes and Details</b>	N/A	
<b>Garages and Carports</b>	N/A	
<b>Access (DDA), Fire Upgrading and Fire Safety</b>	N/A	
<b>Lighting</b>	N/A	
<b>Change of Use (Adaptive Reuse)</b>	N/A	
<b>Demolition and Ruins</b>	N/A	
<b>General Provision Controls (Section 6.0)</b>		
<b>Cultural Landscape</b>		
191. Retain existing topography. All proposed development within KAVHA must maintain: a) the natural settings, contours, amphitheatre appearance, sense of enclosure. b) the modified landforms, terracing, road layouts, reclaimed land, re-alignment of creeks, or quarries.	✓	Excavation along the alignment of the proposed sewerage infrastructure would be required. However, all excavations would be reinstated to pre-excavation levels. No natural settings or modified landforms would be permanently altered.

Guideline / Control	Complies	Comment
<p>192. Maintain walls, retaining walls, steps and stairs. All proposed development within KAVHA must:</p> <p>a) Conserve and maintain existing boundary and retaining walls throughout, including associated steps and stairs.</p> <p>b) Not plant trees in close proximity to the heritage assets without reference to the KAVHA Tree Management Plan (when available) and its requirements for root control and protection and/or</p> <p>c) Demonstrate that the species selected and the distance ensures the preservation of surrounding heritage elements and areas of archaeological sensitivity.</p>	✓	<p>The proposed sewerage infrastructure would not directly impact any heritage building or structure including walls, retaining walls, steps and stairs.</p> <p>No new plantings are proposed.</p>
<p>193. To manage and enhance the visual catchment, proposed development within KAVHA must:</p> <p>a) Recognise that the cultural landscape extends beyond the KAVHA boundary</p> <p>b) Maintain and enhance the KAVHA visual boundary to maintain an appropriate setting</p> <p>c) Identify and maintain significant edges to KAVHA precincts, including landscape elements such as fences, gates, walls, paths, plantings and archaeological elements. This can be demonstrated on the site analysis plan, refer Section 2.4</p> <p>d) Develop specific strategies where needed to protect the KAVHA visual catchment,</p> <p>e) Include filtering or screening elements, enhancement of significant views and vistas with reference to the Cultural Landscape Management Plan and</p> <p>f) Restore/reconstruct significant boundary elements, including landscape design, removal of intrusive elements, control of signage (especially illuminated signs) and vegetation management</p> <p>g) Manage existing tree plantations to protect important vistas with reference to the Cultural Landscape Management Plan, including appropriate reduction in regrowth areas in accordance with the KAVHA Tree Management Plan (when available)</p> <p>h) Demonstrate potential visual impacts due to the proposed development, within the visual catchment, for formal review in accordance with an appropriate Visual Impact Assessment method (e.g. RMS NSW Practice Note EIA-N04) or by,</p> <p>i) On site demonstration of the proposal by an approved method (e.g. a suitable method might entail the erection of height poles/building templates in order to demonstrate the height of the proposed development and to quantify the impact on significant views and vistas across, within, to and from KAVHA site. Height poles/building templates are to be certified by a registered surveyor) to the satisfaction of the consent authority</p>	N/A	<p>The Proposal would be located predominantly underground. Above ground structures would generally be at ground level or not far above ground level (sewage pump stations).</p> <p>The visual catchment and cultural landscape of KAVHA would not be significantly impacted.</p>

Guideline / Control	Complies	Comment
<p>194. To maintain existing cleared areas, all proposed development within KAVHA must:</p> <ul style="list-style-type: none"> <li>a) maintain the present balance between cleared areas and regrowth vegetation.</li> <li>b) ensure that regrowth vegetation is managed to retain important views and vistas identified in the Cultural Landscape Management Plan</li> <li>c) adopt a Tree Management Plan (when available) for associated plantations that provides for periodic thinning and selective removal of trees and understorey vegetation</li> <li>d) maintain controlled grazing on commons in accordance with the KAVHA Erosion Management Plan (when available)</li> <li>e) ensure that vegetation management enables visitor access and provides for public safety</li> </ul>	✓	<p>The Proposal does not include any plantings and would not impact the balance of cleared areas and regrowth vegetation.</p>
<p>195. All proposed development must maintain the use of KAVHA for community cultural practices by:</p> <ul style="list-style-type: none"> <li>a) maintain safe public access to and through existing public open spaces</li> <li>b) enhanced safe public access where it does not conflict with the protection of natural and cultural landscape values,</li> <li>c) enhance public access safety and security</li> </ul>	✓	<p>Operation of the Proposal would not impact the use of KAVHA for community cultural practices.</p> <p>Access to areas of KAVHA would however be impacted during construction.</p> <p>A Traffic Management Plan would be prepared prior to commencement of construction to ensure both ongoing access to public open spaces and public safety on the roads in KAVHA throughout construction.</p> <p>All construction sites would be managed to exclude the public and generally, trenches and other excavations would be reinstated at the end of each work day. Any areas left open overnight would be fenced off for safety purposes.</p>
<p>196. All proposed development must maintain access for recreation by:</p> <ul style="list-style-type: none"> <li>a) allow safe public access to and through existing public recreation spaces for recreation uses</li> <li>b) horse riding and dog walking is permitted</li> <li>c) recreation opportunities are supported where they do not adversely affect sensitive cultural landscape and heritage assets</li> </ul>	✓	<p>Operation of the Proposal would not create recreational opportunities, but it would provide sewerage infrastructure to support recreational use of the area by the public.</p> <p>Access to areas of KAVHA would be impacted during construction.</p> <p>A Traffic Management Plan would be prepared prior to commencement of construction to ensure both ongoing access to public recreation spaces and public safety on the roads in KAVHA throughout construction.</p> <p>All construction sites would be managed to exclude the public and generally, trenches and other excavations would be reinstated at the end of each work day. Any areas left open overnight would be fenced off for safety purposes.</p>

Guideline / Control	Complies	Comment
197. All proposed development within KAVHA must: a) Maintain and protect public access to and along the KAVHA bay precincts, from both land and water b) Enhance access where it does not conflict with the protection of natural and cultural coastal values, health, safety and security requirements c) Maintain access to the coast for passive recreation, swimming and small boat use. d) Recreation programs are supported where they do not adversely affect sensitive coastal ecosystems.	✓	<p>Vehicular access along Country Road and Middlegate Road would be impacted during construction. A Traffic Management Plan would be prepared prior to commencement of construction to ensure ongoing access (with some changes to traffic conditions) to the KAVHA bay precincts throughout construction.</p> <p>The Proposal would not have any impact on access to and along the bay precincts following the completion of construction.</p>
<b>Archaeology</b>		
198. A Development Application that includes ground disturbance exceeding 300 millimetres must contain a statement indicating the Archaeological Zoning and Management Plan has been consulted and the relationship of the disturbance footprint to areas of archaeological potential is identified.	✓	<p>The Proposal would require excavation exceeding 300 mm depth and width. The Development Application for the Proposal is accompanied by a Heritage Impact Statement (<b>Appendix G</b>) which addresses the requirements of the KAVHA <i>Archaeological Zoning and Management Plan</i> (Extent Heritage Advisors, 2020), including areas of archaeological potential that would be within the disturbance footprint.</p>
199. Where archaeological potential has been identified and where ground disturbance will exceed 300 millimetres, management measures commensurate with the Zone identified in the Archaeological Zoning and Management Plan must be submitted for approval.		<p>The Proposal would require excavation exceeding 300 mm depth and width in areas with identified archaeological potential. The Development Application for the Proposal is accompanied by a Heritage Impact Statement (<b>Appendix G</b>) which addresses the requirements of the KAVHA <i>Archaeological Zoning and Management Plan</i> (Extent Heritage Advisors, 2020) and provides management and mitigation measures. The Development Application requires approval by NIRC.</p>
200. Proposals will ensure that no parking or driving will occur over areas of potential archaeological sensitivity and over known archaeological resources.	✓	<p>This Control is intended to limit vehicular movement over exposed ruins (e.g., within the New Gaol complex), not to limit vehicular movement over areas with no visible ruins. Note that the following roads are listed as heritage items within the AZMP but are intended to be driven on:</p> <ul style="list-style-type: none"> <li>• Quality Row roadway (Item D23).</li> <li>• Country Road (Item F2).</li> </ul> <p>The Proposal would not involve vehicular movement (parking or driving) over any exposed ruins.</p>
201. Development and use will not allow grazing to occur around ruins where they are exposed or where the ground becomes very wet from heavy rain or flooding	N/A	<p>The Proposal does not include, and would not enable, any additional grazing.</p>



Guideline / Control	Complies	Comment
202. Where relevant, development within KAVHA must protect areas of maritime archaeological significance by: a) identify and assess any impacts upon the maritime archaeological values of the Landing Place, Slaughter Bay, Emily Bay and Cemetery Bay environs b) develop and implement policies for use and management of these waters which ensure the conservation of maritime archaeological features c) adopt relevant appropriate environmental standards for the maritime heritage and environmental assets and liaise with relevant authorities regarding monitoring of environmental conditions, including water quality, and the health of marine flora and fauna. d) ensure that uses of the maritime assets are compatible with their cultural significance.	✓	<p>The purpose of the Proposal is to contain human waste contamination from sewage holding tanks and septic systems in the Proposal area in a reticulated sewerage system for disposal at the Sewage Treatment Plant. Once operational, this would improve the water quality in Emily Bay and Slaughter Bay.</p> <p>Construction of the Proposal would require soil excavation to enable installation of underground services. All excavation would be undertaken in accordance with mitigation measures detailed in <b>Section 7.1.3</b> of the EIS to manage erosion and sedimentation from the construction site and prevent discharge to Emily Bay and Slaughter Bay.</p> <p>At the closest point, the Proposal would be 300 metres from the waterfront (refer <b>Figure 7.1-2</b> of the EIS) and would have no impact on the maritime archaeology of Emily and Slaughter Bays. No part of the Proposal would be anywhere closer than 500 metres from the HMS Sirius shipwreck which is located on the outer reef of Slaughter Bay. No area or item of maritime archaeological significance would be adversely impacted by the Proposal.</p>
<b>Temporary Services</b>	N/A	
<b>Transport Infrastructure</b>	N/A	
<b>Water Storage, Effluent Disposal and Water Quality</b>		
218. Where relevant, development or use should address drainage and water quality, while respecting the pre-settlement natural drainage patterns and modified post-settlement infrastructure and alignments.	✓	<p>The purpose of the Proposal is to transport human waste contamination collected from Crown Land in KAVHA, from KAVHA, to the sewage treatment plant via the NIRC Water Assurance Scheme. Once operational, this would contribute to improvement of the water quality in Emily Bay and Slaughter Bay.</p> <p>The Proposal would not impact pre-settlement natural drainage patterns or modified post-settlement infrastructure and alignments. No part of the Proposal would change the alignment of Watermill Creek or Town Creek, and no known pieces of pre-modern drainage infrastructure would be impacted by the Proposal.</p>
219. Where relevant, development or use should support the restoration of the swamp system to avoid contamination impacts to the marine environment at Emily Bay.	N/A	<p>The Proposal does not include restoration of the swamp system. However, the purpose of the Proposal is to transport human waste contamination collected from Crown Land in KAVHA, from KAVHA, to the sewage treatment plant via the NIRC Water Assurance Scheme. Once operational, this would contribute to improvement of the water quality in Emily Bay and Slaughter Bay.</p>

Guideline / Control	Complies	Comment
Control 220. Where relevant, development or use should consider the impacts of proposed plantings on water quality.	N/A	No plantings are proposed.
221. Where relevant, development or use should support water holding capacity up stream to avoid adverse impact on the marine environment during flood events.	N/A	Upstream water holding capacity is outside the scope of the Proposal.
<p>222. Development and use must comply with <i>Development Control Plan 2: Water Resources</i> except where it can be demonstrated that the provisions in Development Control Plan 2 will have an adverse impact on the heritage significance of KAVHA. In order to qualify for an exemption from Development Control Plan 2 a proponent must:</p> <ul style="list-style-type: none"> <li>• Demonstrate that the water tanks or effluent disposal system cannot be placed without significant and substantial impacts to archaeological resources and/or significant views;</li> <li>• Demonstrate that there are no alternative locations that would not have significant and substantial impacts to archaeological resources and/or significant views are available or reasonable Where the above can be demonstrated, the proponent must propose an alternative that meets the controls in Development Control Plan 2 to the extent possible within the heritage constraints, in consultation with NIRC.</li> </ul>	N/A	<p>The purpose of <i>this Development Control Plan No. 2: Water Resources</i> is:</p> <ol style="list-style-type: none"> <li>(1) to ensure that the use and management of water resources will sustain the physical, economic and social well-being of the people of Norfolk Island while protecting the ecosystems that depend on those resources;</li> <li>(2) to protect waterways and aquifers from damage and, where practicable, to reverse damage that occurs or has already occurred;</li> <li>(3) to minimise use of groundwater reserves;</li> <li>(4) to ensure groundwater resources are able to meet the reasonable foreseeable needs of future generations;</li> <li>(5) to maximise opportunities to capture and store rainwater and reduce water consumption;</li> <li>(6) to adopt responsible procedures to achieve ecologically sustainable on-site water management;</li> <li>(7) to encourage responsible management of grey water for re-use to reduce demand for fresh water resources.</li> <li>(8) to ensure that water resources are able to meet the reasonably foreseeable needs of future generations.</li> </ol> <p>Whilst the Plan relates to requirements for effluent disposal, it is applicable to individual developments and not to the public infrastructure (Sewerage Scheme) that would service those developments – such as the Proposal. Once the Proposal is operational, <i>Development Control Plan No. 2: Water Resources</i> would require individual (new or modified) developments to connect to the Sewerage Scheme.</p>
223. Rainwater tanks are encouraged, however should be located so they are not obstructing or creating an adverse impact on the KAVHA views and vistas. The siting should also consider views to and from the building in question.	N/A	The Proposal would not require a rainwater supply.
224. Rainwater tanks may be located underground, subject to archaeological considerations	N/A	The Proposal would not require a rainwater supply.

Guideline / Control	Complies	Comment
225. Rainwater tanks should be of non-reflective iron or steel. Another material may be considered if it can be demonstrated to fit within the heritage context. Plastic water tanks are not appropriate, unless concealed underground.	N/A	The Proposal would not require a rainwater supply.
226. Where practical, all habitable and tourism buildings within KAVHA should be connected to a sewerage system.	N/A	The Proposal is the sewerage scheme that habitable buildings should be connected to.
227. Where reticulated sewage is not available, an on-site effluent disposal system must be provided.	N/A	The Proposal is the reticulated sewerage scheme that would replace on-site effluent disposal systems.
<b>Alterations and Additions to Non-heritage Elements</b>	<b>N/A</b>	
<b>New Buildings</b>	<b>N/A</b>	
<b>Design and Building Materials</b>	<b>N/A</b>	
<b>Fences</b>	<b>N/A</b>	
<b>Driveways</b>	<b>N/A</b>	
<b>Satellite Dishes and other Modern Technology, Service Pipes and Vents and other Necessary Additional Minor Features</b>	<b>N/A</b>	
<b>Waste Management</b>		
270. Construction Waste should be managed in accordance with a site specific Construction Waste Management Plan provided as part of any application.	✓	A Decommissioning and Waste Management Plan has been prepared for the Proposal by Fluent Infrastructure Solutions Ltd. and is included in the EIS for the Proposal. Waste management procedures are provided in <b>Section 7.9</b> and Section 10 of <b>Appendix C</b> of the EIS.
271. Where practical, operational waste should be reduced and recycled in accordance with the waste management practices of the Norfolk Island Regional Council. A site specific operational waste management plan should be provided for non-residential developments within KAVHA.	✓	Operational waste would generally be limited to effluent which would be disposed at the NIRC Sewage Treatment Plant for treatment and disposal.
272. Where reticulated sewage is not available, an on-site waste management system must be provided.	N/A	The Proposal is the reticulated sewerage scheme that would replace on-site effluent disposal systems.
273. On-site waste management systems must not cause adverse impacts to the KAVHA site, marine ecosystem or ground water	N/A	The Proposal is the reticulated sewerage scheme that would replace on-site effluent disposal systems.
<b>Fire Control Measures</b>	<b>N/A</b>	

Guideline / Control	Complies	Comment
<b>Sediment / Erosion Control</b>		
<p>276. When relevant, development proposals must:</p> <p>a) submit for approval a Sediment and Erosion Control Plan in accordance with the KAVHA Sediment and Erosion Control Strategy (when available)</p> <p>b) Does not include parking or driving over areas of potential erosion</p> <p>c) Ensure parking areas and paths are appropriately surfaced to manage surface water runoff in accordance with the KAVHA Total Catchment Management Plan (when available)</p> <p>d) Provide adequate protection to archaeological and heritage assets where necessary to avoid damage, compaction, erosion</p>	✓	<p>The Development Application includes an Erosion and Sediment Control Plan prepared for the Proposal by Fluent Infrastructure Solutions Ltd (refer <b>Section 7.1.3</b> and Section 9 of <b>Appendix C</b> of the EIS).</p> <p>The Development Application requires approval by NIRC.</p> <p>The Proposal does not include any parking or driving over areas of potential erosion or any parking areas or paths.</p> <p>Protection from damage, compaction and erosion for archaeological and heritage assets would be provided through on-site archaeological monitoring and management, controlled backfilling, and (where necessary) sediment fencing.</p>
<p>277. Where relevant, proposed development and uses within KAVHA must:</p> <p>a) Minimise erosion impacts by controlling and coordinating grazing activities in a sustainable manner</p> <p>b) Avoid grazing around areas of potential erosion or when the ground becomes very wet from heavy rain or flooding</p> <p>c) Exclude livestock from creek zones by fencing or cattle collars ('virtual fence' GPS controlled).</p> <p>d) Stabilise sand dunes and cliffs through planting, access management and use, and other coordinated measures in accordance with the KAVHA Sediment and Erosion Control Strategy (when available)</p>	N/A	<p>The Proposal would not impact any grazing activities or cliff and dune stability.</p>
<p>278. Where relevant, proposed development and uses within KAVHA must:</p> <p>a) restore disturbed creek and swamp margins and banks to mitigate erosion, enhance habitat, and improve flows and water quality</p> <p>b) protect and enhance of creek lines and waterways for improved water quality, stabilisation of creek edges, and environmental and public health benefits</p> <p>c) prevent unfiltered stormwater and wastewater entering the catchment; slow water flows into creeks to prevent erosion; control sediment release; and provide filtration of groundwater.</p> <p>d) prevent large volumes of fresh and turbid water entering Emily Bay in high rainfall events</p>	✓	<p>The majority of Control 278 is not relevant to the Proposal.</p> <p>The purpose of the Proposal is to transport human waste contamination collected from Crown Land in KAVHA, from KAVHA, to the sewage treatment plant via the NIRC Water Assurance Scheme. Once operational, this would contribute to prevention of the release of untreated wastewater from Crown land in KAVHA and the subsequent impacts to surface water, groundwater and marine water quality.</p> <p>Erosion and sedimentation from construction activities would be managed in accordance with the Erosion and Sediment Control Plan prepared for the Proposal by Fluent Infrastructure Solution Ltd. and included in the Environmental Impact Statement for the Proposal (refer <b>Section 7.1.3</b> and Section 9 of <b>Appendix C</b> of the EIS).</p>



<b>Guideline / Control</b>	<b>Complies</b>	<b>Comment</b>
279. When relevant, development proposals must: a) submit for approval a Slope Stabilisation Plan in accordance with the KAVHA Sediment and Erosion Control Strategy (when available) b) A Slope Stabilisation Plan must be developed by an appropriately qualified engineer and include an analysis of the existing slope conditions, options for stabilisation including associated environmental impacts and a works plan appropriate to the options considered. A variety of stabilisation measures may be considered in response to specific conditions. Guidance is provided in the KAVHA Sediment and Erosion Control Strategy (when available).	N/A	Construction of the Proposal area would not disturb any areas of steep land and slope stabilisation is therefore not required.
<b>Parking, Unloading/Loading Facilities</b>	<b>N/A</b>	
<b>Street Furniture</b>	<b>N/A</b>	
<b>Memorials and Public/Interpretive Art</b>	<b>N/A</b>	
<b>Subdivision</b>	<b>N/A</b>	
<b>Community Title</b>	<b>N/A</b>	
<b>Signage</b>	<b>N/A</b>	

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## **Appendix E:**

### **Significant Development Declaration**

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# NORFOLK ISLAND

## Regional Council

30 June 2023

Carmen Jereb  
Project Manager  
Territories Capital and Major Project / Mainland  
Territories Branch  
Territories Division  
Department of Infrastructure, Transport, Regional Development  
Communications and the Arts  
**CANBERRA ACT 2601**

By email: [Carmen.Jereb@infrastructure.gov.au](mailto:Carmen.Jereb@infrastructure.gov.au)

Dear Ms Jereb

### **KAVHA SEWER SCHEME STAGES 2 AND 3 –**

#### **APPLICATION FOR DECLARATION IN RELATION TO SIGNIFICANT DEVELOPMENT SDDA 1/2023**

Thank you for your Application for Declaration in relation to Significant Development for the proposed KAVHA Sewerage Scheme Stages 2 and 3 made under section 28A(1)(b) of the *Planning Act 2002 (NI)* ('the Act').

The Application was referred to the Norfolk Island Regional Council as required under section 28C(1) of the Act. Council recommended that the proposed Stage 2 and 3 of the KAVHA Sewerage Scheme Project as described in the Application be declared significant development and to refer its recommendation to the Commonwealth Minister pursuant to section 28C(4) of the Act.

The Application, Council's recommendation and relevant material was submitted to the Administrator of Norfolk Island as the Commonwealth Minister's delegate. Having considered the matters listed in section 28D of the Act, on 25 June 2023, the Administrator, as the Commonwealth Minister's delegate declared the proposed development 'significant development' in accordance with section 28C(5)(a) of the Act. No conditions in relation to the declaration have been specified under section 28C(6) of the Act. The notice of decision under section 28(E) of the Act is attached. The Declaration will be published in the next available Gazette as required under section 28F of the Act.

In accordance with section 28C(7) the declaration takes effect from 25 June 2023 and the period of the declaration specified under section 28C(8) is 60 months. Section 28C(9) provides for the period for which a significant development declaration is effective to be extended before the declaration ceases to be in effect.

Please contact [planning@nirc.gov.nf](mailto:planning@nirc.gov.nf) if you have any questions.

Yours sincerely



Jodie Brown  
**Senior Strategic Planner**

**PLANNING ACT 2002 (NI)**

**SECTION 28E NOTICE OF DECISION**

**DECLARATION IN RELATION TO A SIGNIFICANT DEVELOPMENT**

**Application No.:** SDDA 1/2023  
**Applicant:** Department of Infrastructure, Transport, Regional Development, Communications and the Arts  
**Location:** Various Lots in Kingston, Country Road, Taylors Road and Middlegate Road  
**Proposed development:** *Sewerage systems:*  
KAVHA Sewerage Scheme Stages 2 and 3

**Statement of reasons:**

Having considered the matters set out in section 28D of the *Planning Act 2002 (NI)* I am satisfied the proposal meets the requirements for declaration as significant for the following reasons:

1. The development is to establish or upgrade infrastructure of a type prescribed in the regulations, namely *(k) sewerage systems*.
2. The development has potential economic and community benefits. A reticulated sewerage system that collects sewage for disposal at the Sewerage Treatment Plant will contribute towards improvements to water quality in surface water, groundwater, beaches at Kingston and the Norfolk Marine Park and consequently reduce risks to public health potentially caused by contaminated soil and water.
3. The development has links with other developments as it would connect to Stage 1 (currently under construction). It is planned that all development in the KAVHA catchment would be connected to the reticulated sewerage network and sewage transported directly to the Sewage Treatment Plant.
4. The development is consistent with the objectives of the Norfolk Island Plan 2002 for areas designated as High Rural Conservation Value Preferred Dominant Land Use Area as it would contribute to improvements in natural and cultural values through reduced contamination of soil and water.
5. The development is consistent with actions identified in the Operational Plan 2022-23 to protect water quality; and the Community Strategic Plan:
  - Strategic Direction 1 - An environmentally sustainable community*
    - *Objective 1 - Use and manage our resources wisely*
      - *Protect and enhance our water quality*
      - *Keep our waters around Norfolk Island sustainable for the enjoyment of future generation*

**Conditions:**

There are no conditions in relation to the declared significant development.

**Period of declaration:**

This declaration takes effect on the date of this notice for a period of 60 months.

**Dated:** 25 June 2023







GEORGE PLANT

**ADMINISTRATOR OF NORFOLK ISLAND AND COMMONWEALTH MINISTER'S DELEGATE**

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## **Appendix F:**

### **CEO Directions for the EIS**

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30 June 2023

Carmen Jereb  
Project Manager  
Territories Capital and Major Project /  
Mainland Territories Branch  
Territories Division  
Department of Infrastructure, Transport, Regional Development  
Communications and the Arts  
**CANBERRA ACT 2601**

**By email:** Carmen.Jereb@infrastructure.gov.au

**KAVHA SEWER NETWORK STAGE 2 –  
REQUEST FOR DIRECTIONS ON ENVIRONMENTAL ASSESSMENT**

Thank you for your letter dated 18 May 2023 seeking directions about the environmental assessment and statement under section 45(6) of the *Planning Act 2002 (NI)* ('the Act') for Stage 2 of the KAVHA Sewer Network project.

The project was declared 'significant development' by the Minister's delegate on 25 June 2023. Under section 45(4) of the Act, a development application (DA) for 'declared significant development' must be accompanied by an environmental impact statement (EIS) prepared in accordance with section 45 of the Act, including that the EIS must be prepared in accordance with the requirements specified in Schedule 2 of the *Planning Regulations 20024 (NI)* ('the Regulations') and any directions given under section 45(6) of the Act.

As required under clause 27(2) of the Regulations, the Department, as the Applicant, provided details of the proposed use or development in your letter requesting directions dated 19 May 2023.

Following review of the information provided, as delegate of the Chief Executive Officer, under section 45(6) of the Act and clause 28 of the Regulations, I advise that the direction for the environmental assessment and statement is that the EIS shall include the matters set out in Schedule 2 of the Regulations (attached).

KAVHA is identified in the World Heritage List and listed as a heritage item in the Norfolk Island Heritage Register. Section 28 of the *Heritage Act 2002 (NI)* requires that for a DA that is in relation to, or is likely to affect a heritage item, a Heritage Impact Statement (HIS) must be prepared in relation to that item and the Minister shall have regard to that HIS. It is noted in the Supporting Information submitted with the Application for Declaration of Significant Development for the

Project <sup>1</sup> that a HIS will be prepared for the Project and the HIS will address the requirements of the Heritage Overlay in the Norfolk Island Plan 2002, the *Heritage Act 2002 (NI)*, Development Control Plan No. 7 – KAVHA and the *Environment Protection and Biodiversity Conservation Act 1999 (CTH)*. The HIS must accompany the DA for the project to satisfy the requirements of section 28 of the *Heritage Act 2002 (NI)*.

An EIS and HIS that address the matters listed in Schedule 2 of the Regulations will satisfy the requirements for impact assessment under the *Planning Act 2002 (NI)* and *Heritage Act 2002 (NI)*.

Please contact [planning@nirc.gov.nf](mailto:planning@nirc.gov.nf) if you have any questions relating to the environmental assessment and development application for this project.

Yours sincerely

A handwritten signature in black ink that reads "Jodie Brown." The signature is written in a cursive, flowing style.

Jodie Brown

**Senior Strategic Planner**

**Delegate to Chief Executive Officer**

---

<sup>1</sup> KAVHA Sewerage Scheme Stage 2: Application for Declaration as Significant Development - Supplementary Information 18 May 2023 prepared by Planning Assist.

**SCHEDULE 2*****MATTERS TO BE INCLUDED IN ENVIRONMENTAL STATEMENT****Regulation 28***1. Introduction**

An introduction to the environmental impact statement which includes —

- (a) the name and address and, where applicable, professional qualifications of the person who prepared the statement; and
- (b) the name and address of the applicant or person who made the development application; and
- (c) the property description and address of the land subject to the development application; and
- (d) a description of the proposed use or development to which the environmental impact statement relates; and
- (e) a statement that the information contained in the statement is neither false nor misleading.

**2. Statement of objectives**

A statement of the objectives of the proposed use or development.

**3. Analysis of alternatives**

An analysis of any feasible alternatives to the carrying out of the proposed use or development having regard to its objectives, including the consequences of not carrying out the proposed use or development.

**4. Environmental assessment**

An analysis of the proposed use or development including —

- (a) a full description of the proposed use or development which may include plans, drawings, diagrams, figures and the like; and
- (b) a full description of the project site including a general physical description of the site, current land use, tenure and relevant planning controls applicable to the site; and
- (c) a description of the environment likely to be affected by the use or development, together with a detailed description of those aspects of the environment that are likely to be significantly affected; and
- (d) the likely impact on the environment of the use or development, covering the impacts on —
  - (i) the physical environment such as landforms, soils, water quality, watercourses, coast; underground aquifers; and
  - (ii) the human environment such as community, social and economic environment, traffic, noise, odour, visual amenity, public health, public infrastructure, potential impact on the heritage values of a heritage item listed in Schedule 1 of the Norfolk Island Plan; and
  - (iii) the non-human biological environment such as flora and fauna, habitats, aquatic ecology, ecosystems, biodiversity; and
- (e) an evaluation of the potentially beneficial impacts and the potentially negative impacts; and
- (f) an evaluation of the potential contribution of the proposed use or development towards cumulative environmental impacts and the



- implications for long term sustainability; and
- (g) an evaluation of the confidence with which predictions can be made including baseline data, previous experience, modelling, historical records, proven technology and the like; and
  - (h) a full description of the measures proposed to mitigate any adverse effects of the use or development on the environment including —
    - (i) an assessment of the effectiveness of any safeguards or standards for the protection of the environment intended to be adopted or applied to the use or development; and
    - (ii) information describing where and in what circumstances proposed mitigation measures have been used successfully elsewhere; and
  - (i) a full description of any monitoring programs to be implemented to ensure the effective performance of any safeguards or standards to be adopted or applied to the proposed use or development; and
  - (j) a list of any approvals that must be obtained under any other Act or law before the use or development may lawfully be carried out.

**5. Compilation of measures to mitigate adverse effects**

A compilation (in a single section of the environmental impact statement) of the measures referred to in paragraph 4(h).

**6. Justification of development**

The reasons justifying the carrying out of the use or development in the manner proposed, having regard to biophysical, economic and social considerations, including the principles of ecologically sustainable development as explained in the guidelines.

**7. Alternatives**

A consideration of alternatives to the carrying out of the proposed use and development.

**8. Guidelines**

Any matters specified in any guidelines approved by the Minister for that type of use or development.

**9. Conclusion**

A summary of the potential benefits and disadvantages of the project and the key conclusions from the matters included under paragraphs 1 to 8.

**10. References, consultations and appendices**

All supporting material including relevant technical data.

---

## **Appendix G:**

### **Heritage Impact Statement**

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Australian Government

Department of Infrastructure, Transport,  
Regional Development, Communications and the Arts

# Heritage Impact Statement

## Kingston and Arthur's Vale Historic Area (KAVHA) Sewerage Scheme: Stage 2



**March 2024**

Issue	Description of Amendment	Prepared by / Date	Approved by
1	Final	Tom Sapienza	Carmen Jereb 1 March 2024
2			
3			
4			

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# Kingston and Arthur's Vale Historic Area (KAVHA) Sewerage Scheme: Stage 2

## 1. Introduction

The Department of Infrastructure, Transport, Regional Development, Communications and the Arts (the Department) is proposing to install a reticulated sewerage system in the Kingston and Arthur's Vale Heritage Area (KAVHA) and surrounds in Norfolk Island (the Project). The location of Norfolk Island and KAVHA in relation to Australia is shown in **Figure 1** and **Figure 2**.

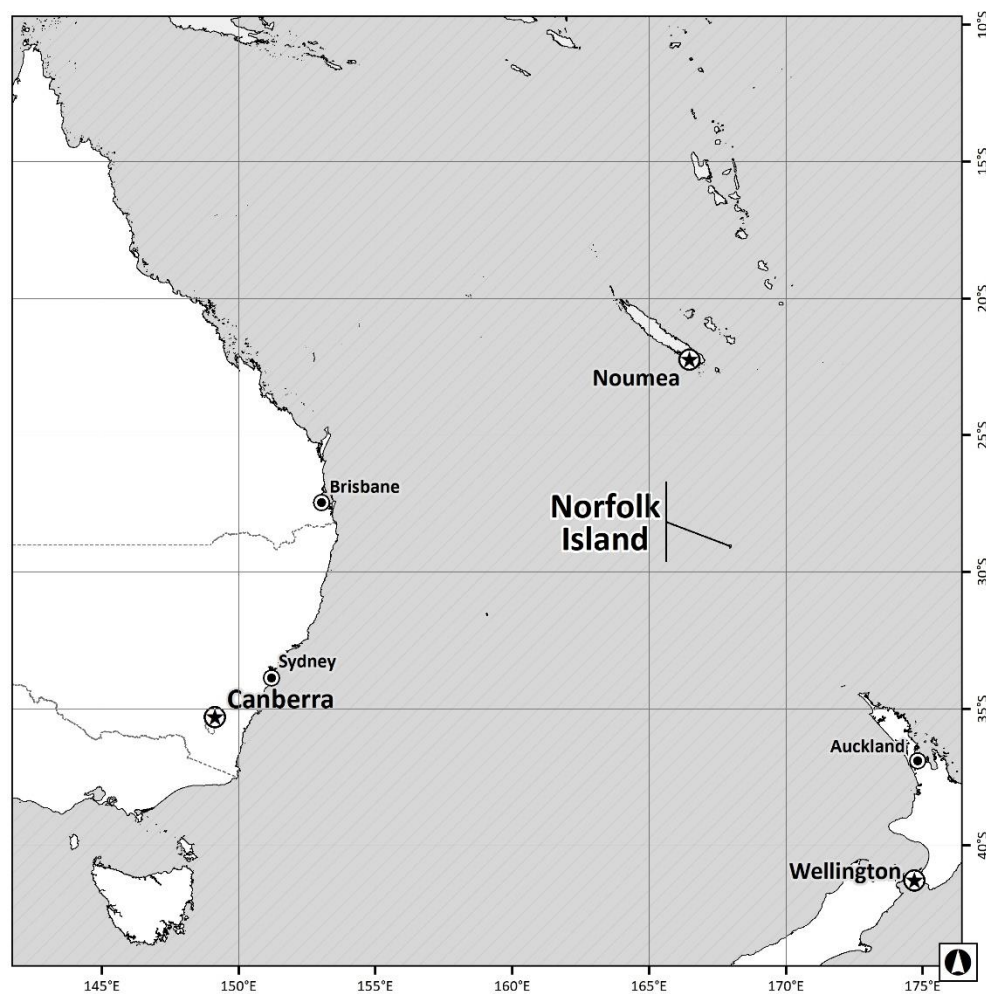
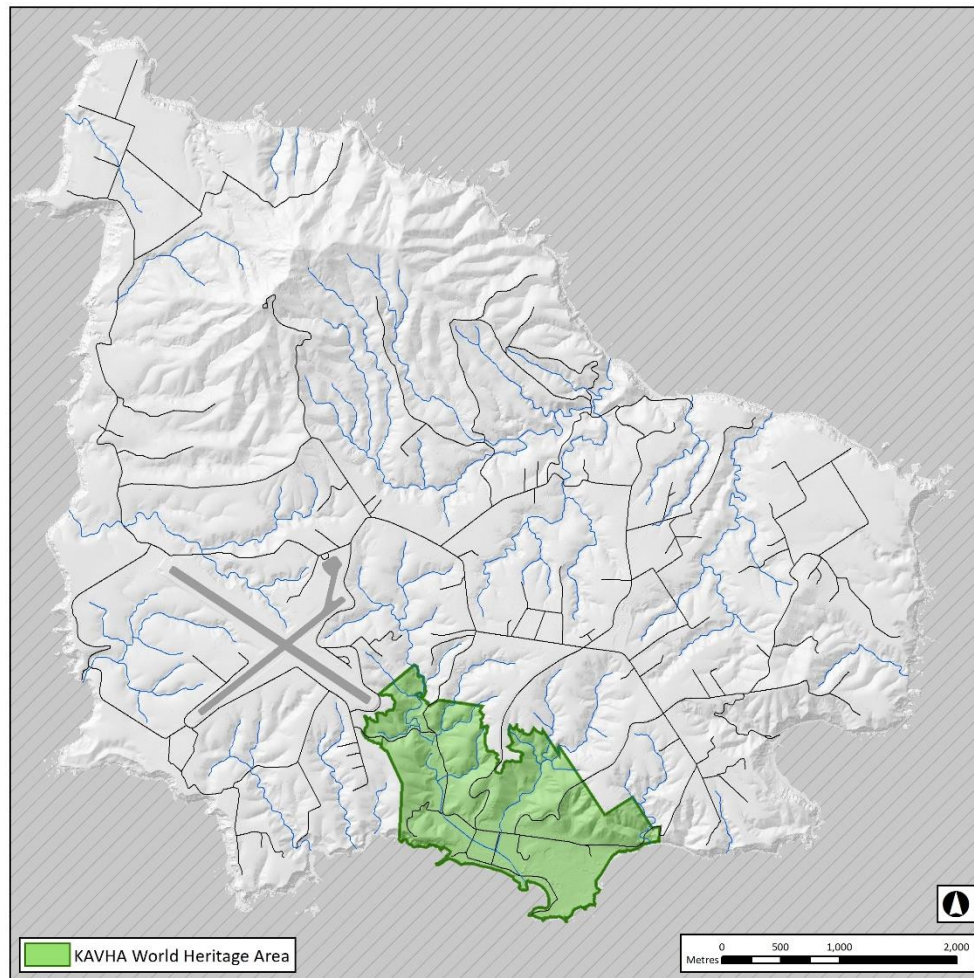


Figure 1. Location of Norfolk Island in relation to Australia and New Zealand (source: Extent Heritage 2020).





*Figure 2. Location of KAVHA on Norfolk Island (source: Extent Heritage 2020).*

While the Project will be delivered in three stages, this Heritage Impact Statement (HIS) relates only to Stage 2 (hereafter, the “Proposal”). The Proposal is to connect the sewerage infrastructure installed as a result of Stage 1 of the Project with the existing Norfolk Island sewer system (Water Assurance Scheme). The connection will be made a short distance south of the intersection of Taylors Road and Queen Elizabeth Avenue, near Burnt Pine. The Proposal will also provide for the future connection of four private properties on Middlegate Road and 19 private properties on Country Road and Taylors Road.

**Figure 3** (on the following page) shows the concept design for all three stages of the Project.



Figure 3. Proposed route for Stages 1, 2 and 3 of the Proposal.

### Need for the Proposal

The KAVHA historic development site (Kingston) relies on the use of septic tanks and holding tanks to store or process effluent produced on-site. Some of these assets were constructed over 60 years ago. An inspection program was undertaken in 2018 to examine septic tanks and holding tanks on Commonwealth land; this program identified that most of these assets were poorly located, unserviceable or did not meet contemporary standards. Additional septic tanks exist on the private properties within the KAVHA catchment, but these have not been subject to a similar inspection program.

Adverse water quality issues have been recorded on Norfolk Island since the 1960s, when outbreaks of gastroenteritis led to concerns about the quality of the island's drinking water. Assessments undertaken of the island's shallow groundwater wells revealed that groundwater was unfit for human consumption due to high levels of faecal coliforms and nitrates. Subsequent assessments in the 1980s revealed groundwater was contaminated with high levels of detergents, nitrates, chloride, faecal coliforms, and viruses, with human wastewater and livestock effluent primarily responsible for the contamination (NIRC 2018).



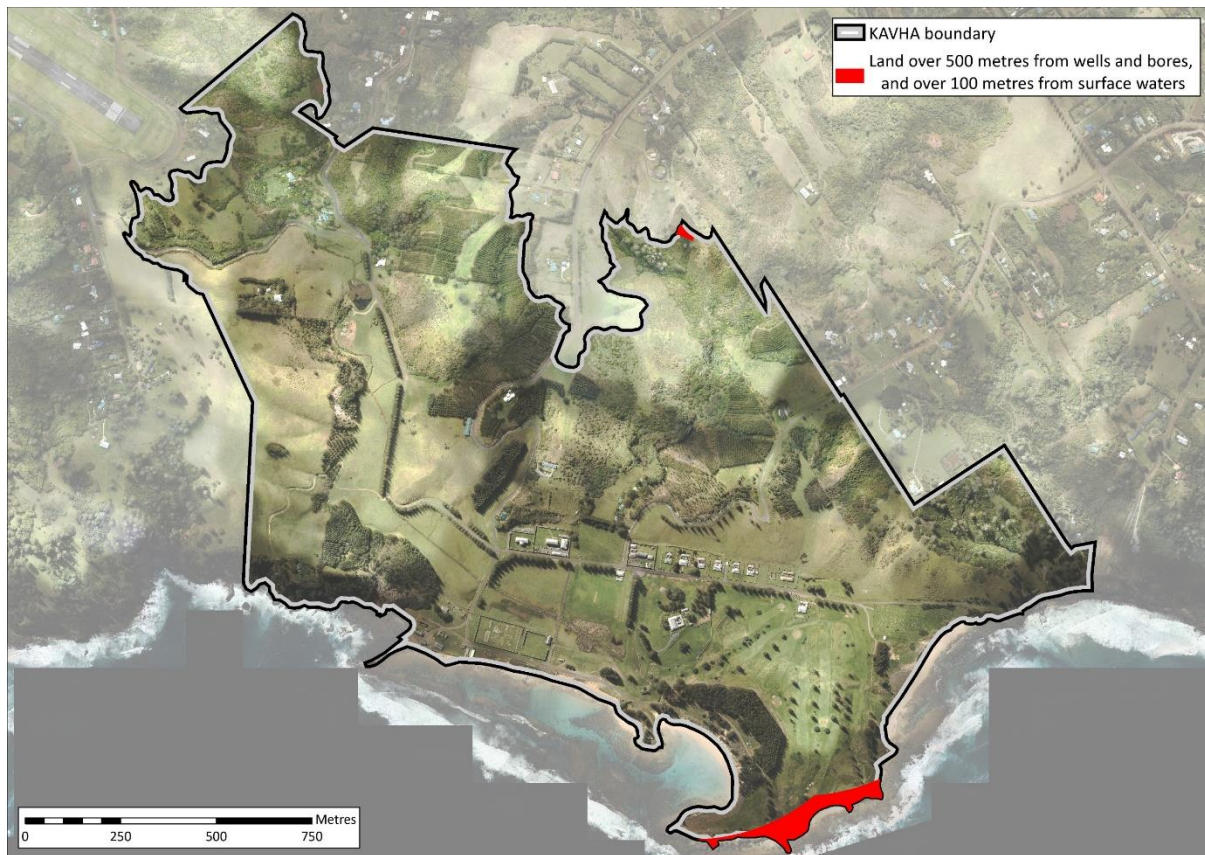
Watermill Creek and Town Creek, two of Norfolk Island's main surface water catchments, flow through KAVHA into Emily Bay; this is Norfolk Island's primary swimming and recreation area. In addition to degrading the marine habitat, the pathogens present in waters discharging into Emily Bay also have the potential to cause serious illness to water users, particularly after high intensity rainfall events. *Escherichia coli* (*E. coli*) levels in the lower reaches of waterways in Kingston often exceed safe levels for primary contact, swimming and fishing (**Appendix B** and **Appendix F**).

As outlined in the 2019 KAVHA Cultural Landscape Management Plan (GML Heritage and Context 2018), changes made to drainage networks within KAVHA both in historic and in recent times have impacted on the quality of the water discharging to Emily Bay. Prior to European settlement, flows from Watermill Creek and Town Creek were filtered through a natural limestone barrier and swamp system before reaching Emily Bay. These systems are no longer in place due to a multitude of landscape changes that have occurred since the late 18<sup>th</sup> century, and as a result creek flows undergo limited natural contaminant filtering before discharging into the marine environment.

The waters surrounding Norfolk Island are contained within the Australian Temperate East Marine Park. In 2016, the Director of National Parks, who is responsible for regulating the quality of water discharged into the ocean from Norfolk Island, wrote to the Administrator of Norfolk Island expressing concern over the impacts of sewage discharge on the marine environment (**Appendix C**).

### Options considered

Refurbishing or replacing the existing septic systems (i.e., septic tanks and associated trenches) in KAVHA is simply not a viable option. Critically, there are no locations within KAVHA that are sufficiently distant from ground and surface water where on-site treatment of effluent is appropriate, as per *AS/NZS 3500.1.2 2015 – Plumbing and Drainage – Part 1: Water Services*. This standard requires septic tanks to be located at least 100 metres from surface waters and 500 metres from bores and/or wells. Because of the density of wells (historic and modern), bores and surface water within KAVHA, GIS analysis indicates that less than 2 hectares of the total gazetted area is suitable for on-site treatment (see **Figure 4**).



*Figure 4. Areas of land suitable for on-site treatment, per the AS/NZS standard for water services.*

Replacing the septic systems with multiple stand-alone pump-out holding tanks does not provide a satisfactory long-term option for sewage management in KAVHA. Holding tanks require constant attention to ensure that sewage does not leak out and contaminate the environment.

Instead, the preferred long-term sewage management solution is to deliver all of KAVHA's sewage directly to Norfolk Island's sewage treatment works.

The design of the sewer line route was based on the following sources of information:

- Searches conducted of relevant heritage registers and reports to determine the significance of each section of the preferred route and to identify the locations of past excavations or site disturbances.
- Reference to the archaeological priority management zones included in the 2020 KAVHA Archaeological Zoning and Management Plan.
- Site inspections and discussions conducted during 2019 with the Commonwealth Heritage Manager (CHM) based on Norfolk Island, the Norfolk Island Contracts and Works Manager (Department), the Manager of Waste and Environmental Services (NIRC), contracted engineers, plus local tradespeople and members of the KAVHA works crew with detailed knowledge of previous site excavations and existing underground services.

### Stylistic Note

Please note that sections of this document reproduce large portions of text from other sources. The choice has been made to present these sections in a different typeface than that used elsewhere in the document, as opposed to putting the text in italics. It was found that this was the best way in which to both maximise legibility and mark off text from other sources.

When possible, this text has also been slightly indented on both the left and right sides, as in the paragraph below. However, when such text appears within boxes, the passages have not been indented.

This is an example of a paragraph in a different typeface. It has also been indented slightly on both the right and left sides. It is hoped that this style of formatting will allow readers to quickly realise the pieces of text that originated from other documents, and also will not cause excessive eyestrain.

Text that has originally come from other sources may differ from the HIS with regards to grammar, editing, presentation of dates, historical facts, and other matters. None of these have been updated in the reproduced texts. If there is a matter of conflict between the reproduced texts and information presented elsewhere in this document, the updated information in this document (in a sans serif typeface) shall take precedence.

## 2. Management Context

### Statutory Management Framework

#### *Environment Protection and Biodiversity Conservation (EPBC) Act 1999 (Commonwealth)*

The *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act) provides the Australian Government's legal framework for the protection and management of nationally and internationally significant natural and cultural places. The EPBC Act defines 'environment' as both natural and cultural environments.

Under the Act, protected heritage items are listed on two lists:

- the National Heritage List (NHL): items of significance to the nation; or
- the Commonwealth Heritage List (CHL): items belonging to the Commonwealth or its agencies

Actions on Commonwealth land (Section 26) and actions undertaken by a Commonwealth agency (Section 28) are required to be assessed for the likelihood that these actions will have a significant impact on the environment, including heritage values.

Per the EPBC Act, an action is defined as a project, development, undertaking, activity (or series of activities), or alteration. Under Part 9, any action that is likely to have a significant impact on a matter of national environmental significance (MNES) is known as a controlled action, and may only progress with approval of the Minister responsible for the EPBC Act.

An action will also require approval if:

- it is undertaken on Commonwealth land and will have or is likely to have a significant impact on the environment on Commonwealth land; and
- it is undertaken by the Commonwealth and will have or is likely to have a significant impact.

As these legislative provisions apply to the Proposal, the objectives of this report are to:

- determine the potential impacts arising from the proposed construction of the Proposal on the identified values and significance the KAVHA site. The impact assessment is presented for each of the KAVHA precincts where construction is proposed; and
- provide guidance regarding the mitigations that will be implemented to reduce the impacts of the action on the identified heritage values and significance.

The assessment of impacts responds to the Significant Impact Guidelines 1.2 (Department of Sustainability Environment Water Population and Communities 2013) and will inform a separate self-assessment of potential impacts to MNES and Commonwealth land which will be undertaken for the Proposal.

**Table 1** provides details from a search undertaken on 20 September 2023, which identified KAVHA as appearing on the listed statutory or non-statutory heritage registers. The significant values of KAVHA are described in Section 4.

*Table 1. Summary of KAVHA's registration status on relevant heritage registers.*

Heritage Register	Listing
World Heritage Register	106209
National Heritage Register	105962
Commonwealth Heritage Register	105606
Register of the National Estate (non-statutory)	103650 & 13637
Norfolk Island Heritage Register	Listed

## World Heritage Convention

Australia ratified the *Convention Concerning the Protection of the World Cultural and Natural Heritage* (World Heritage Convention) in August 1974. On 31 July 2010, the Australian Convict Sites property, which comprises KAVHA and 10 other properties across Australia, was inscribed on the World Heritage List.

The other properties that comprise the Australian Convict Sites are:

- Old Government House and Domain (Parramatta, New South Wales)
- Hyde Park Barracks (Sydney, New South Wales)
- Cockatoo Island Convict Site (Sydney, New South Wales)
- Old Great North Road (near Wiseman's Ferry, New South Wales)
- Port Arthur Historic Site (Tasman Peninsula, Tasmania)
- Cascades Female Factory (Hobart, Tasmania)
- Darlington Probation Station (Maria Island, Tasmania)
- Coal Mines Historic Site (via Premadeyna, Tasmania)
- Brickendon and Woolmers Estates (near Longford, Tasmania)
- Fremantle Prison (Fremantle, Western Australia)

Under Article 4 of the World Heritage Convention, Australia has a duty to ensure the identification, protection, conservation, presentation and transmission to future generations of natural and cultural heritage of outstanding universal value. Specifically, as the 'State Party' to the World Heritage Convention, Australia is required to:

adopt a general policy that aims to give the cultural and natural heritage a function in the life of the community and to integrate the protection of that heritage into comprehensive planning programs;

undertake appropriate legal, scientific, technical, administrative and financial measures necessary for the identification, protection, conservation, presentation and rehabilitation of this heritage; and

refrain from any deliberate measures which might damage, directly or indirectly, the cultural and natural heritage' of other Parties to the Convention, and to help other Parties in the identification and protection of their properties.

## Development Consent

All use or development within KAVHA requires a Development Application under Clause 81(1) of the *Norfolk Island Plan 2002: Housekeeping Amendment 2022, effective 16 March 2023*, unless the development is exempt under specified circumstances.

The *Norfolk Island Plan 2002: Housekeeping Amendment 2022*, requires that the Proposal be accompanied by an environmental impact statement (EIS) prepared in accordance with formal directions from the Chief Executive Officer to guide the environmental impact assessment. The Norfolk Island Regional Council issued Chief Executive Officer Directions for the EIS on 30 June 2023. The heritage requirement included in these directions is inclusion of a Heritage Impact Statement (HIS) that addresses the requirements of the *Heritage Act 2002 (NI)* (Section 28). This HIS has been prepared to comply with the requirements of the *Heritage Act 2002 (NI)* (Section 28).

*Development Control Plan No. 7 – KAVHA* guides development in and around KAVHA. It provides standards and guidelines to assist the preparation and assessment of development applications. A development application for a Proposal in KAVHA must address controls designed to:

- Ensure that the Proposal would not have an adverse impact on the setting, streetscape or views associated with the heritage precinct.
- Ensure that new development is compatible with the significance of heritage precincts.



Following assessment of the Proposal against the relevant provisions of *Development Control Plan No. 7 – KAVHA*, it is considered that the Proposal complies with all relevant controls.

## Non-Statutory Management Considerations

### *Kingston and Arthurs Vale Historic Area Heritage Management Plan*

Section 316 of the EPBC Act requires the preparation of a Heritage Management Plan (HMP) to manage the identified World Heritage Values. The current HMP lays out policies to direct the conservation of the heritage values, and was prepared in 2016 by Context, Godden Mackay Logan Pty Ltd (now GML Heritage) and Jean Rice Architects (Context et al. 2016). The HMP is currently being reviewed and revised by GML Heritage, and a draft version of the updated HMP is expected to be available by the 4<sup>th</sup> quarter of 2023.

Any works within KAVHA should adhere to the policies of the HMP. The Proposal is assessed against the HMP policies in Section 5.

### *Kingston and Arthurs Vale Historic Area Archaeological Zoning and Management Plan*

In recognition of the vast archaeological resources at KAVHA, an Archaeological Zoning and Management Plan (AZMP) was completed in June 2020 (Extent Heritage 2020). The AZMP establishes spatial zones across all of KAVHA to assist in the identification of areas of high, medium and low archaeological potential and to provide guidance on the management of archaeology during proposed works.

The AZMP has been consulted and the policies referenced and recommended as appropriate in Section 6.

### *Kingston and Arthurs Vale Historic Area Cultural Landscape Management Plan*

A Cultural Landscape Management Plan (CLMP) has been established for KAVHA in order to conserve, protect and present the heritage values of KAVHA as a living and evolving cultural landscape, at the World, National and Commonwealth levels (GML Heritage and Context 2018). It also assists with achieving priority policies and recommendations in the KAVHA HMP.

### *The Burra Charter*

*The Burra Charter: The Australian ICOMOS charter for places of cultural significance* (ICOMOS (Australia) 2013) sets a standard of practice and offers guidelines for those who provide advice, make decisions about, or undertake works to places of cultural significance including owners, managers and custodians. The Charter provides specific guidance for physical and procedural actions that should occur in relation to significant places.

Heritage management planning for the Proposal was designed with the principles of the Burra Charter firmly in mind. The entire ethos of the Proposal is to do as little as possible and as much as is needed to protect and conserve the KAVHA site and the water quality on the site.

### 3. Understanding the site

#### Description of the Study Area

Norfolk Island is located in the South Pacific Ocean. It is approximately 1400 km east of Australia and roughly equidistant between New Caledonia (to the north) and New Zealand (to the south), as shown in **Figure 1**.

KAVHA occupies approximately 250 ha of land on the southern side of Norfolk Island, including 78 ha of public reserves, as shown in **Figure 2**.<sup>1</sup> It includes the east-west aligned Kingston lowland, Watermill Valley and the lower courses of several tributary streams that flow from the Kingston escarpment in the north and northwest. The lowland rises to approximately 20 m above sea-level. In the southwest the surrounding high ground rises to 60 m at Flagstaff Hill, forming part of the ridge enclosing Watermill Valley. The lowland is approximately 1.5 km long and 500 m wide. Watermill Valley is almost 1 km long and narrows to 200 m at its northern extremity. The seaward fringe contains three sandy beach areas: Slaughter Bay, Emily Bay and Cemetery Bay. Emily Bay is the best-protected section of foreshore, and is backed by a dune field that extends eastward to Cemetery Bay.

The streams originally discharged into a swamp located behind the foreshore ridge. However, during the First (Colonial) Settlement this swamp was drained, and the streams now discharge into Emily Bay.

#### Gazettal

The extent of the Kingston and Arthurs Vale Historic Area is described in the National Heritage Listing (*Commonwealth of Australia Gazette* No. S1441, 1 August 2007, 18):

About 250ha, at Kingston, being an area bounded by a line commencing at the High Water Mark approximately 120m to the south east of Bloody Bridge, then proceeding westerly via the High Water Mark to about 230m west of the eastern boundary of Block 91a, then from high water level following the watershed boundary along the ridge west of Watermill Creek up to the 90m contour, then north-westerly via that contour to the boundary of Block 176, then following the western and northern boundary of Block 176 or the 90m ASL (whichever is the lower) to the north west corner of Block 52r, then via the northern boundary of Block 52r and its prolongation across Taylors Road to the western boundary of Block 79a, then northerly and easterly via the western and northern boundary of Block 79a to its intersection with the 90m ASL, then easterly via the 90m ASL to its intersection with the eastern boundary of Block 64b, then south easterly via the eastern boundary of Block 64b to its intersection with Block 65d2, then northerly and southerly via the northern and eastern boundary of Block 65d2 to Rooty Hill Road, then directly across this road to the north east corner of Block 67a, then south easterly via the north east boundary of Block 67a to its intersection with the north west boundary of Block 67c, then north easterly and south easterly via the north west and north east boundary of Block 67c to Driver Christian Road, then easterly via the southern side of Driver Christian Road to a point where it veers south (approximately 60 metres to the east), then southerly via the western road reserve boundary of Driver Christian Road, then easterly via the southern side of Driver Christian Road to a point where it veers south (approximately 60 metres to the east), then southerly via the western road reserve boundary of Driver Christian Road and its prolongation to the High Water Mark (point of commencement).

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<sup>1</sup> A site map showing the main buildings and points of interest in KAVHA can be accessed at <https://kingston.norfolkisland.gov.au/visitor-information>

## Historic Layers

The history of the KAVHA site is usually summarised in reference to its four main phases of development.

### *Polynesian Settlement (c. 1150-c. 1540 AD)*

The study area was initially inhabited by Polynesian settlers during the period from c. 1150 to c. 1540 AD, likely as a single occupation phase. The settlers appear to have migrated to Norfolk Island in the course of a westward expansion from either New Zealand or the Cook Islands/Society Islands areas of East Polynesia (Anderson 1997).

### *First (Colonial) Settlement (1788-1814)*

Between 1788 and 1814, Norfolk Island was a British colonial outpost, which was settled mere weeks after the initial settlement of Sydney NSW. The two colonial outposts provided resources for each other throughout this period. However, the mainland colony soon became self-sufficient and this, combined with the expense and danger of supplying Norfolk Island, led Governor Lachlan Macquarie to order the closure of the Norfolk Island settlement in 1810. The evacuation process began in February 1813 and was completed by February 1814 (Context et al. 2016).

### *Second (Penal) Settlement (1825-1855)*

Eleven years later after being abandoned, Norfolk Island was re-occupied; this time as a punishment site for re-offending convicts. This period was surprisingly dynamic, and the social and physical structure of the settlement at Kingston underwent a number of developments during this period. Transportation to New South Wales was ended in 1840, and in 1844 control of the Norfolk Island Penal Station was transferred to Van Diemen's Land (now Tasmania). During the early 1850s, the number of convicts at Norfolk Island was slowly reduced, and by 1855 the only people left on the island were a few dozen caretakers awaiting the arrival of the Pitcairners.

### *Third (Pitcairn) Settlement (1856-present)*

Following the infamous mutiny on the *Bounty* in 1789, the surviving mutineers, together with a number of Tahitian women and men, settled Pitcairn's Island (or Pitcairn Island) in the eastern Pacific Ocean. By 1808, all the mutineers by one had died or been killed, but their descendants continued to live on Pitcairn and soon their numbers began to strain at the capacity of the island.

Towards the end of the penal settlement, the governor of New South Wales had requested that Norfolk Island be returned to the jurisdiction of the colony, as its use as a penal station was coming to an end. In 1855, the governor of New South Wales offered Norfolk Island to the Pitcairn Islanders as a place to settle. The Pitcairn Islanders agreed to the opportunity and sailed for Norfolk Island, arriving on 8 June 1856. Although the Pitcairn Islander population occupied many of the existing structures, most fell into various forms of disrepair as the people did not have a population as large as the former penitentiary settlement, and lacked the detailed knowledge of things like stone masonry.

Norfolk Island was used as a strategic air base during World War II and, although a nascent tourism industry had existed on-island since the early 20<sup>th</sup> century, the construction of the aerodrome meant that tourism exploded in the post-war years. The cultural significance of the region had been recognised since the early 1960s, and this led to a program of historic restoration that continued into the 1980s. The establishment of the KAVHA Board in 1989 and changes to legislation and governance in the following decades saw the institution of management measures designed to retain the site's cultural resource values, including archaeological resources.

The KAVHA Board was replaced by the KAVHA Advisory Committee in 2015 as part of broader reforms to Norfolk Island implemented by the Australian Government. The 1989 Memorandum of Understanding for site management between the Australian and Norfolk Island Governments was discontinued in 2016, with the Department assuming full management and financial responsibility for the site.

## Identification system for KAVHA

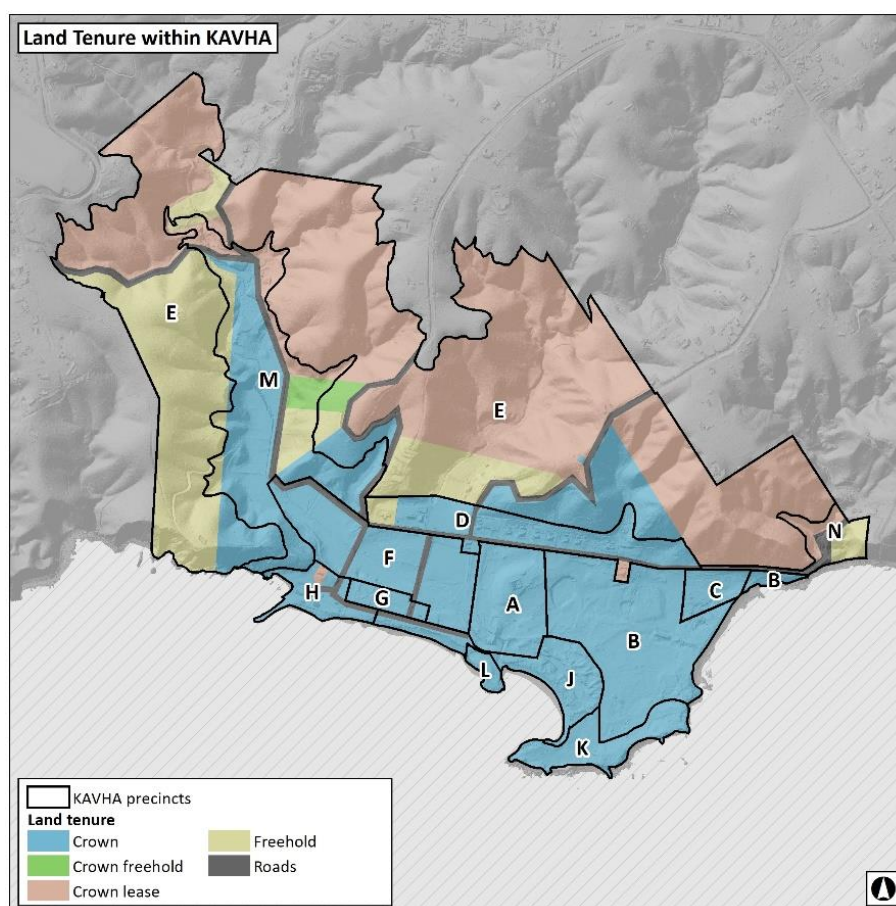
The 1980 KAVHA Management Plan established an identification system that divided the site into a series of 13 precincts. This identification system remains in use for current site management, updated for the 2016 HMP.

Precincts are labelled alphabetically from A to N (with the omission of 'I' as it could be confused with the number '1') as summarised in **Table 2**. The location of the precincts is shown in **Figure 5**.

*Table 2. Precincts used in the KAVHA feature identification system.*

KAVHA Precinct Identifier Letter	Description
A	Government House Reserve
B	Lowlands
C	Cemetery Reserve
D	Quality Row
E	Uplands (land above the 100 foot/30 metre contour) and Stockyard Valley
F	Swamp (known as Kingston Common)
G	Prisoners' Compounds
H	Landing Place Ridge (known as Kingston Pier)
I	Not used
J	Beachfront (known as Slaughter Bay and Emily Bay)
K	Windmill Ridge
L	Chimney Hill
M	Arthur's Vale/Watermill Valley
N	Bloody Bridge, Cemetery Road and Garden

*The precincts that are not impacted by construction of the Proposal appear as greyed text, while the precincts that are impacted by the Proposal have been slightly highlighted in faint yellow.*



*Figure 5. KAVHA precincts.*

The design and construction assessments undertaken for each of the affected precincts are described in Section 7. This includes precinct descriptions, details of land use zoning, current uses, and assessment of the likely impacts of the proposed works.

## Geotechnical Characteristics

In 2005, Parsons Brinkerhoff undertook a geotechnical soils investigation for Norfolk Island (**Appendix D**); this provides the basis of soil classification used for the island today.

In the Kingston area, soils predominately have a sandy texture, having developed over calcarenite. This is in contrast with much of the rest of Norfolk Island, which is characterised by clay type soils that have developed over basaltic flows. Calcarenite forms a ridge along the Slaughter Bay frontage to Emily Bay, with a significant outcrop in the vicinity of Government House. The calcarenite ridge enclosed the Kingston lowlands, and was responsible for the freshwater swamp that existed in Kingston until a channel was constructed during the First (Colonial) Settlement to discharge flows into Emily Bay.

The study area is characterised by the following main soil types:

*Table 3. Soils within the precincts subject to the Proposal.*

Precinct	Soil type	Parent material	Topography and drainage
E	Rooty Hill Clay	Basalt	Steep to moderate convex slopes and ridge tops; unrestricted drainage
F	Unnamed swamp soil	Basaltic alluvium	Valley floors – restricted drainage
	Emily Bay calcareous sand	Calcarenite	Undulating; restricted drainage
M	Selwyn Clay	Basalt	Gently undulating areas on cliff tops; unrestricted drainage

## Marine Environment

The Norfolk Marine Park, which completely surrounds Norfolk Island, supports diverse temperate and tropical marine life, including several unique species of fish, corals and other marine fauna. The Park covers 188,444 km<sup>2</sup>, and the ocean depths in the park range from the high tide mark at Norfolk Island to over 5000 metres in the open ocean. The Park provides a line of oceanic stepping-stones that connect deep water marine species from New Zealand to New Caledonia, including along the Norfolk Ridge (a long, narrow, steep-sided undersea ridge with seamounts and pinnacles).

The marine park includes National Park and Multiple Use Zones, as well as a Special Purpose Zone immediately around the island itself. This Special Purpose Zone allows both conservation and sustainable use and is highly valued by the Norfolk community.

The marine park contains over 20 known shipwrecks listed under the Historic Shipwrecks Act. The most famous is HMS Sirius, a flagship of the First Fleet that was wrecked off the coast of Kingston, Norfolk Island on Slaughter Bay's coral reef in 1790.

#### 4. Heritage Values

In the early 1980s, the KAVHA site was listed by the National Trust (NSW) and included on the Register of the National Estate. KAVHA was listed on the Norfolk Island Register in 2003, on Australia's National Heritage list in 2007 and in 2010 was included as one of the eleven places that together comprise the Australian Convict Sites property, which was included on the World Heritage list.

The KAVHA site includes Commonwealth crown land, Crown lease land, freehold land owned by the Commonwealth, freehold land owned by the Norfolk Island Regional Council (NIRC) and privately managed freehold land.

#### Summary Statement of Significance

The following summary Statement of Significance for KAVHA synthesises the key natural and cultural values previously recognised in various significance assessments. It was prepared for the 2016 HMP, and is reproduced here (Context et al. 2016, p. 60-61):

The KAVHA site is a historic cultural landscape that, in the course and pattern of Australian and world history, presents an extraordinary record of convict settlement, agricultural production and labour spanning the era of penal transportation to Australia from 1788-1855. Archaeological evidence shows the KAVHA site to be rare as the site of the earliest European settlement from Australia to the Southwest Pacific (1788). It contains areas and individual elements that are confirmed or well documented sites of First (Colonial) Settlement buildings and activities (1788-1814). The KAVHA site is important for its role in the evolution of the colony of New South Wales. Arriving in March 1788, six weeks after the First Fleet landed in Sydney, the buildings and archaeological remains and landforms of the First (Colonial) Settlement (1788-1814) illustrate British convict settlement, and living and working conditions at the beginning of European occupation of Australia. The KAVHA site contains areas and individual elements that are confirmed or well documented sites of First (Colonial) Settlement buildings and activities (1788-1814). The design and layout, the outstanding collection of fine Georgian buildings, the extensive archaeological remains, engineering works and landscaping of the Second (Penal) Settlement (1825-1855) clearly show the planning and operation of a nineteenth-century penal settlement with a very high degree of integrity. The KAVHA site has significant association with the other convict period settlements and activities located elsewhere on Norfolk Island, as well as to the ten other sites that are part of the Australian Convict Sites inscribed on the World Heritage List.

The KAVHA site is uncommon as a place where a distinctive Polynesian/European community has lived and practised their cultural traditions for over 150 years. Since 1856 the Pitcairners and their descendants have lived and maintained strong cultural traditions and attachments through language, religion, ceremony, stories, work and song. Parts of the place have been, or were previously, occupied by particular families for many generations; for the Kingston is home or the home of their forebears. The contemporary Norfolk Island community, comprising both Pitcairners and subsequent generations of settlers from elsewhere, has continually and actively used the site as a place of residence, work, worship, burial and recreation. Local people express a deep and continuing attachment to the site which contributes to community identity, giving it symbolic, ceremonial, religious and broader cultural importance. The Norfolk Island community also includes those with continuing family and historical connections who do not live on Norfolk Island. The site is of potential social significance to the broader Australian community as a landmark in Australia's convict and settler history.

With a dramatic and contrasting character, the coastline of the KAVHA site is characterised by the serenity of Emily Bay and its delicate fringing reef, combined with the vast expanse of the Pacific Ocean and the wreck of the flagship of the First Fleet, HMS Sirius, part of which still remain submerged in the waters off Kingston. This coastal setting is framed by green hills and a verdant vale which was the site of some



of Australia's earliest and most successful agricultural production. It retains an imposing collection of convict-built buildings, ruins, archaeological remains, and elements which physically demonstrate colonial regimes of penology as they were transported and transposed across the globe to the Australian colonies. The governance arrangement and settlement patterns are evident in the existing street layout and spatial arrangement of the buildings. The spatial relationship between the Government House, the streetscape of pre-1850 cottages and fortified barracks complexes, combined with the convict precinct and Gaol, articulate and reinforce the hierarchy and regime of power and surveillance. The role of punishment through harsh labour is evident in features such as archaeological remains, the landing pier, Bloody Bridge and the seawall, as well as buildings such as the New Gaol, the Prisoners' Barracks and Crankmill within the convict establishment, and civil engineering structures throughout the area. The development of penal philosophies and the possibility of reform is evident in the cemetery, Protestant and Catholic Chapels and the clergyman's quarter. The use of calcarenite, lime and timber in the construction of buildings and other settlement infrastructure demonstrates the adaption of techniques and the evolution of technology in response to the local environment and its natural materials. These features remain as a compelling reminder of the gruelling physical labour that convicts endured.

The KAVHA site is significant for its association with Lieutenant Philip Gidley King RN who established the colonial settlement on the Island; this contributed to the survival of the New South Wales colony. During the second (Penal) Settlement 1825-1855 period, Alexander Maconochie formulated and applied the principles of modern penology, transforming the KAVHA site from 'hell on earth' to a 'productive and orderly convict population'. The KAVHA site has an enduring association with the Pitcairn Islanders who landed here in 1856, occupying, adapting and reworking the convict-era buildings, and building a new community that remains today a foundational element of Norfolk Island culture.

The distinctive settlement periods evidenced at the KAVHA site through the maritime and terrestrial archaeology resources, as well as the historical collections of maps. Imagery, written records and the extensive collections of objects, have potential to yield information on pre-European Polynesian culture, convict era living and working conditions, and changes in penal practice and philosophy during the convict period and the Pitcairn period from 1856. The cemetery is in continuing use and has a significant and unique collection of headstones and other features, dating from the earliest period of European settlement through to today. The collection includes headstones and graves with outstanding family history research potential.

The KAVHA site has outstanding aesthetic qualities and characteristics. The aesthetic values are evidenced through the site's evocative and picturesque setting. Stunning views are afforded from a range of vantage points—out to sea fringed by rocky coastal cliffs and windswept vegetation, across, within and over the site. The contrasting textures and deep tones of the natural vegetation (such as the iconic Norfolk Island pine) in organic and formal planting compositions, combined with materiality and form of the buildings, create a compelling visual drama that stimulates emotive and sensory responses which are simultaneously poignant and beautiful. The beauty of the KAVHA site is strongly evocative for Norfolk Islanders who appreciate its history, and offers a picturesque landscape setting that is much appreciated by visitors.

Elements of the natural landscape within the KAVHA site and its immediate setting, including the littoral environment, geological and fossilised formations, topography, the terrestrial watercourses, lagoon and the Watermill Dam are of significance. The KAVHA site contains important wetland habitat and remnant vegetation. The wetlands provide a resting place for migratory birds and also support a population of crustaceans found only on Norfolk Island.

The remains of the Polynesian Settlement at Emily Bay are physical evidence of the westernmost known extent of East Polynesian migration. The style of the artefacts and material originating in the Kermadecs are direct evidence of the extraordinary oceanic voyages and navigational skills of the Polynesians, who sailed many thousands of kilometres. The possible marae, house, earth ovens, midden and artefacts evoke the traditional Polynesian lifestyle of the period 1200AD-1600AD. The possible marae resonates with Polynesians, Maori and those of other Polynesian descent in the Norfolk Island community.

## Official National Values - Significance Criteria and Relevance to the Proposal

The following section describes KAVHA's Official Heritage Values as presented on the National Heritage Register and Commonwealth Heritage List, and an assessment of the relevance of the Proposal on these values.

### Criterion A: Events and Processes

Criterion A: National / World Heritage Values
<p>KAVHA is outstanding as a convict settlement spanning the era of convict transportation to eastern Australia. It is a cultural landscape comprising a large group of buildings from the convict era, some modified during the Pitcairn period (the third settlement), substantial ruins and standing structures, archaeological remains, landform and landscape elements.</p> <p>KAVHA is of outstanding national significance in demonstrating the role of the penal systems and changes in penal philosophy in the Australian colonies from 1788-1855.</p> <p>KAVHA is important for its role in the evolution of the colonies of both Van Diemen's Land and New South Wales. The buildings, archaeological remains and landforms of the First Settlement illustrate British convict settlement at the beginning of European occupation of Australia.</p> <p>The design and layout, buildings, archaeological remains, engineering works and landscaping of the KAVHA Second Settlement (1825-1855) demonstrate the planning and operation of a nineteenth century penal settlement with a very high degree of integrity.</p> <p>KAVHA is an outstanding example of a place of severe punishment. It was purposefully established to be the extreme element in the overall convict management system. Its aim was to create fear and prevent crime and re-offending. It became known as 'hell in paradise' for its brutal and sadistic treatment of inmates and this reputation spread beyond the colonies to Britain and ultimately served to fuel the anti-transportation debate.</p> <p>The Second Settlement buildings and archaeological remains of the convict establishment, the New Gaol, the Prisoners' Barracks, and the Crankmill demonstrate the harshness and severity of the treatment of convicts.</p>

Criterion A: Commonwealth Heritage Values
<p>Kingston and Arthur's Vale Historic Area (KAVHA) Commonwealth Tenure Area, comprises the area known as KAVHA with the exclusion of areas of freehold tenure. This Statement of Significance is based on the KAVHA record (RNE 13637). The place is significant for its association with four distinct settlement periods in one place: the pre-European, Polynesian occupation; and three periods of later settlement, two during the convict era referred to as the First and Second Settlements (1788-1814, 1825-1855); and the Pitcairn period (1856-present), referred to as the Third Settlement. KAVHA comprises a large group of buildings from the convict era, some modified during the Pitcairn period, substantial ruins and standing structures, archaeological sub-surface remains, landform and cultural landscape elements, which represent an outstanding example of the development of global convict transportation.</p>



#### Criterion A: Commonwealth Heritage Values

KAVHA is closely associated, through fabric and artefacts, with the wreck of the Sirius in 1790, a calamitous event in the early history of the colony of New South Wales (NSW).

The place is important for its role in the evolution of the colony of NSW. Agricultural activity, during the initial settlement at the place, the remains of which are still visible, arguably saved the settlement at Sydney Cove from failure.

KAVHA is significant for demonstrating transportation as part of a world movement in penal practice. It was the centre of one of the two long lasting places of secondary punishment for British convicts in the nineteenth century (the other was Port Arthur) which, although partly ruined, has not been further substantially altered by subsequent development.

KAVHA is one of two places of secondary punishment of particular infamy for its treatment and degradation of convicts (the other was Macquarie Harbour) and intended at various times to be the extreme expression of the severity of the transportation system. As such it was the site of the one of the major experiments in penal reform in Australia in the period 1788-1855 for which physical evidence is still extant. Other evidence remains at Longridge on Norfolk Island.

KAVHA illustrates the role of the military, penal systems and changes in penal philosophy in the British Empire from 1788-1855. The place illustrates the continuity of administrative history since European settlement.

KAVHA is significant for its association with the arrival of the Pitcairn Islanders in 1856, descendants of Bounty mutineers and Polynesians and the subsequent development of the Norfolk Island community.

KAVHA is significant for its richness of settlement history and array of extant features. It contains areas, buildings and other elements of outstanding individual cultural significance including Government House (1829+), one of the earliest and most intact remaining government house buildings in Australia and the Old Military Barracks (now the Legislative Assembly and Norfolk Island Court) (1829+).

The Old Military Barracks, together with the Commissariat Store and the New Military Barracks, forms a group of buildings which is the most substantial military barracks complex in Australia dating from the 1830s. The Commissariat Store (now All Saints Church) (1835) is the finest remaining colonial (pre 1850) military commissariat store in Australia. This building, together with the Old Military Barracks and the New Military Barracks (now Norfolk Island Government Administration offices) (1836), forms a group of buildings which is a most substantial military barracks complex dating from the 1830s. The soldiers' barracks is one of the finest military barrack buildings built in Australia in the nineteenth century.

There are nine houses providing quarters for military and civil officers (1832-47). Other features include: perimeter walls and archaeological remains of the Prisoners' Barracks (1828-48) including the Protestant Chapel; perimeter walls and archaeological remains of the New Prison (Pentagonal Prison) (1836-40, 1845-57); ruins of the hospital, built on First Settlement remains (1829); the Surgeon's Quarters and Kitchen (1827), on the site of a First Settlement Government House, one of the earliest European dwellings in Australia; the Landing Pier (1839-47) and sea wall, two of the earliest remaining large scale engineering works in Australia; Beach store (1825); Settlement Guardhouse (1826), on the foundations of a First Settlement building; Crankmill (1827-38), the remains of the only known human powered crankmill built in Australia before 1850; Royal Engineer's office and stables (1850); double boat shed (1841); Police Office, now boatshed (1828-29); Flaghouse (1840s); Constable's Quarters, partly standing (1850-53); Blacksmith's Shop (1846); Salt House (1847); and Windmill base (1842-43).

Criterion A: Commonwealth Heritage Values
<p>The Cemetery (1825-present) has an outstanding collection of headstones and other remains dating from the earliest period of European settlement, including the first and second penal settlement periods and the Pitcairn period with associations with the Bounty, set in an evocative and picturesque historical landscape. Many stone walls, wells, drains, building platforms, bridges, culverts, roads, quarry sites, privies and archaeological sites of former buildings are important remains. These include Bloody Bridge. The remnant serpentine landscape is an outstanding example of colonial period (pre-1850) attitudes to landscape design in Australia.</p> <p>KAVHA is significant for its geology, particularly the petrified forest and calcarenite, Kingston Swamp and for its biology, including the marine areas.</p>

*Criterion A: Relevance to the Proposal*

**Low relevance**

The Proposal is extremely unlikely to impact any of the above heritage values. The Proposal is almost entirely located within roadways, and no works will occur within the major compounds or near the Pier area. No alterations will be made to the existing landscape and land, including the Kingston Swamp.

*Criterion B: Rarity*

Criterion B: National / World Heritage Values
<p>Kingston and Arthurs Vale Historic Area (KAVHA) is uncommon as a place where a distinctive Polynesian/European community has lived and practiced their cultural traditions for over 150 years. Aspects of the Third Settlement period including the artefacts, archives, Norf'k language and ongoing use of the Cemetery are of national significance.</p>

Criterion B: Commonwealth Heritage Values
<p>KAVHA is significant for its rare association with pre-European, Polynesian settlement, there being no other known pre-European Polynesian occupation sites in Australia. It demonstrates a rare occupation sequence of Polynesian and European settlement in the west Pacific.</p> <p>KAVHA is rare as the site of, and probably containing extensive archaeological evidence of, the earliest European settlement from Australia to the south-west Pacific (1788), similar in size for a decade to the other initial settlement at Sydney Cove. Its significance is enhanced by the lack of substantial subsequent development. It contains areas and individual elements that are confirmed or well documented sites of First Settlement buildings and activities (1788-1814). The subsurface archaeological remains of the first and second Government Houses (1788-1803) are, along with First Government House Sydney (1788 - 1847), the oldest government house sites in Australia.</p> <p>The area contains the Cemetery Bay Dune area which is unique to the island in its plant and remnant lowland forest. Also associated with the dune area is the fossilised preservation of the island's past biota, and a minute remnant land mollusc population.</p>

*Criterion B: Relevance to the Proposal*

**Low relevance**

The Proposal is unlikely to adversely impact on Third Settlement period artefacts and no works will be undertaken near the Cemetery. Other planned mitigations include consultation with stakeholders on the timing of construction to minimise disruption to cultural events and peak visitor events.

Any artefacts uncovered – regardless of occupation period – will be managed in accordance with the archaeological policies included in the 2020 KAVHA Archaeological Zoning and Management Plan.

## Criterion C: Research

Criterion C: National / World Heritage Values
<p>The KAVHA artefact collections, the buildings in their landscape setting, the archaeological remains and the documentary records have significant potential to contribute to understanding the living and working conditions of convicts, the military and civil establishment, women and children, and changes in penal practice and philosophy during the span of convict transportation.</p> <p>KAVHA has research potential to yield information on pre-European Polynesian culture, exploration and settlement patterns.</p>

Criterion C: Commonwealth Heritage Values
<p>KAVHA is significant for its archaeological research potential to contribute to a wider understanding of the history of pre-European, Polynesian colonisation and occupation of Norfolk Island and the South Pacific. It is significant for its archaeological research potential to contribute to a wider understanding of the history of the First Settlement of Norfolk Island and Australia. It is significant for its archaeological research potential to contribute to a wider understanding of the history of the Second Settlement of Norfolk Island. This significance is enhanced by the lack of substantial subsequent development. KAVHA is also significant for the features and research importance of its Third Settlement Period.</p> <p>KAVHA is significant for its research potential to contribute to a wider understanding of the history and development of industrial processes, technology, architecture and engineering, particularly at the Crankmill, the salt house, lime kilns and mills, the landing pier and jetty and bridges.</p> <p>KAVHA is significant as a place of integrated research, in which the place with its individual building and archaeological elements, the landscape, archives, artefacts, Pitcairn language, ongoing traditions and anthropological research potential provide an unparalleled resource. It is a microcosm of society.</p> <p>KAVHA is significant for its potential to demonstrate ongoing conservation and restoration techniques.</p> <p>KAVHA is significant for its research potential to contribute to knowledge about previous life forms, including an extinct mollusc.</p>

### Criterion C: Relevance to the Proposal

#### Low relevance

The Proposal has low potential for encountering or destroying significant archaeological remains. The majority of the works for the Proposal will take place in the roadway; based on the results of works undertaken for Stage 1, it is expected that the roadways involved in this stage will all have low archaeological research potential.

## Criterion D: Principal characteristics of a class of places

Criterion D: National / World Heritage Values
<p>KAVHA demonstrates the principal characteristics of a longstanding penal settlement in its physical layout, governance arrangements, the management and control of convicts, and the functional arrangements associated with settlement.</p> <p>It has substantial ruins, standing structures and archaeological sub-surface remains related to its operation as a place of primary incarceration and early settlement, as a place of secondary punishment and finally as a place spanning both incarceration and secondary punishment.</p>

#### Criterion D: National / World Heritage Values

The 1829 Government House, one of the earliest and most intact remaining government house buildings in Australia, is positioned prominently on Dove Hill with commanding views of the military precinct, colonial administration, convict quarters, farmland and the pier. The military precinct on Quality Row contains two extant barracks complexes: the Old Military Barracks and officers' quarters constructed between 1829-1834 surrounded by high walls giving it an appearance of a military fortress; and the New Military Barracks commenced in 1836 which follows a similar fortress-like design. The Commissariat Store (now All Saints Church) (1835) is the finest remaining colonial (pre-1850) military commissariat store in Australia.

The Old Military Barracks, together with the Commissariat Store and the New Military Barracks, form a group of buildings which is the most substantial military barracks complex in Australia dating from the 1830s. The military complexes are positioned in view of the convict precinct located closer to the water and at a lower elevation to optimise surveillance. Nine houses in Quality Row built from 1832-47 provided quarters for military and civil officers.

The archaeological remains of the two convict gaols, the perimeter walls and archaeological remains of the Prisoners' Barracks (1828-48) with the Protestant Chapel, show the development of penal philosophies with the original gaol built for barrack type accommodation while the extant remains of the New Prison and its perimeter walls (1836-40, 1845-57) provides a rare representation of a radial design. The role of harsh labour as punishment is evident in the archaeological remains of the blacksmith's shop (1846); lumber yard; water mill; the Crankmill (1827-38), the remains of the only known human powered Crankmill built in Australia before 1850; the salt house (1847); the windmill base (1842-43); lime kilns; the landing pier (1839-47) and sea wall, two of the earliest remaining large scale engineering works in Australia. The possibility of reform is evident in the Protestant and Catholic clergyman's quarters.

The settlement patterns are evident in the existing street layout and in the buildings along Quality Row which form the most extensive street of pre-1850 penal buildings in Australia. The functioning of the settlement is evident in the remains of institutions, buildings and precincts such as the commandant's house; magistrate's quarters; the ruins of the hospital, built on First Settlement remains (1829); the Surgeon's quarters and kitchen (1827), on the site of a First Settlement Government House, one of the earliest European dwellings in Australia; the Royal Engineer's office and stables (1850); the Beach Store, a former commissariat store (1825); a double boat shed (1841); the Police Office, now boatshed (1828-29); the flaghouse (1840s); Constable's Quarters, partly standing (1850-53); and the cemetery which has an outstanding collection of headstones and other remains dating from the earliest period of European settlement, including the first and second penal settlement periods and the Pitcairn period with associations with the Bounty, set in an evocative and picturesque historical landscape.

Many stone walls, wells, drains, building platforms, bridges including Bloody Bridge, culverts, roads, quarry sites, privies and archaeological sites of former buildings remain which are important in demonstrating the rich patterns of KAVHA's settlement history.

The remnant serpentine landscape is an outstanding example of colonial period (pre 1850) attitudes to landscape design in Australia.

#### Criterion D: Commonwealth Heritage Values

KAVHA is a monument to the convict origins of European settlement in Australia, comprising a large group of buildings from the convict era, some modified during the Pitcairn period, substantial ruins and standing structures, archaeological sub-surface

Criterion D: Commonwealth Heritage Values
<p>remains, landform and cultural landscape elements, which represent an outstanding example of the development of global convict transportation.</p> <p>The landscape demonstrates the way and pattern in which the land has been cleared, utilised, developed and the way of life of the inhabitants since European settlement in 1788. It demonstrates the impact of that settlement on a natural environment hitherto occupied by Polynesian peoples, possibly intermittently.</p> <p>KAVHA is the primary site of the Second Settlement period (1825-55) and contains the landform, layout, extensive buildings, standing structures, archaeological remains and remnant landscape features of that period and continuing uses. Its significance is enhanced by the lack of substantial subsequent development, making the design features of the settlement very obvious. It is an outstanding rare example of a place of secondary punishment for nineteenth century British convicts in the world and demonstrates the extreme example of the severity of the transportation system. KAVHA demonstrates the range of activities and structures associated with a secondary punishment penal settlement. It is an outstanding example of different aspects of convict control and its use as a deterrent to crime in Britain. The built elements of Quality Row, formerly known as Military Row, form an intact Georgian administration centre and the most extensive street of surviving (although part reconstructed) pre-1850 penal settlement buildings in Australia. It contains a group of houses that is one of three streets of pre-1850 military officers' residences in Australia, illustrating a Georgian streetscape and town plan.</p> <p>The KAVHA Second Settlement period demonstrates the planning and daily operation of a nineteenth century penal settlement, the physical segregation of classes of convicts, overseers, the military, magistrates and command quarters, changing attitudes to penology of the British Colonial Office and the Governors of New South Wales and Van Diemen's Land (Tasmania), the initial lack of religious guidance and the tenuous relationship between the Church and the State at Norfolk Island and information about the roles, work and conditions for women and children in a penal colony.</p> <p>Along with the Tasman Peninsula buildings and Maria Island, Tasmania, KAVHA demonstrates the principal characteristics of buildings for secondary punishment of nineteenth century British convicts in Australia. The fabric of the Second Settlement clearly shows the method of construction, building techniques and way of life.</p> <p>Since 1856 KAVHA has been the administrative centre for the social, religious and political development of the Norfolk Island community, originally descendants of Polynesians and the participants in perhaps the most famous naval mutiny in modern British history. It retains rare evidence of this Third Settlement period and contains elements and groups of elements along with continuing uses that illustrate aspects of this significance.</p>

#### *Criterion D: Relevance to the Proposal*

##### **Low relevance**

The Proposal has low potential to disturb significant archaeological resources. Excavations on Country Road, Taylors Road and Middlegate Road are limited to the road reserve, and initial results from the excavations undertaken during Stage 1 indicate that roadworks and grading during the early- and mid-20<sup>th</sup> century significantly disturbed wiped away most traces of earlier roads and road infrastructure.

This stage of the sewer would not impact on the Kingston Pier/Landing Place, prison compounds, lumberyard, Surgeon's Quarters/former Government House sites or blacksmith's compound.

#### **Criterion E: Aesthetic characteristics**

Criterion E: National / World Heritage Values
<p>KAVHA is outstanding for its picturesque setting, historic associations, part ruinous configuration and subsequent lack of development. The aesthetic qualities of the landscape</p>

have been acknowledged since the First Settlement, forming the subject matter of an artistic record that has continued to the present.

Elements that contribute to the aesthetic qualities of the place include the sea, reef and islands, historic graves, Quality Row buildings, the New Gaol and prisoner's barracks in a ruinous state, and the extent of the nineteenth century buildings. The picturesque landscape setting, with its domestic scale and agricultural character, is valued for the contrast it represents between the horror of the past and the charm of the present.

KAVHA is outstanding for its views across the site, within the site, from the site to the seascape, and views of the site in its landscape setting.

#### **Criterion E: Commonwealth Heritage Values**

KAVHA is significant for its picturesque setting, historic associations, part ruinous configuration and subsequently undeveloped nature, enabling the visitor to appreciate aspects of the history of Britain, Australia and the South Pacific with rare thematic clarity. The aesthetic qualities of the landscape have been acknowledged since the First Settlement, forming the subject matter of an artistic record that has continued to the present, and is still recognisable in its present form.

There are many elements that contribute to the aesthetic drama of the place, the sea, reef and islands, historic graves, Quality Row buildings in a ruinous state, and the extent of the nineteenth century character buildings. The picturesque landscape setting, with its domestic scale and agricultural character, is valued for the contrast it represents between the horror of the past and the charm of the present.

KAVHA is significant for its views across the site, within the site, from the site to the seascape, and views of the site in its landscape setting.

#### *Criterion E: Relevance to the Proposal*

##### **Low relevance**

Aesthetic impacts would only be short-term during construction. All pipes will be buried and excavations will be closed (backfilled) at the end of each day's construction, unless circumstances arise that prevent this (e.g., unexpected discovery of significant fabric). In the event of such a circumstance, the excavations will be covered (tarpaulin or similar) and isolated (fenced) until the finds were appropriately managed and the excavations then closed.

New pumps and maintenance pits will mostly be installed within the road reserves. A sewage pumping station, an underground emergency storage tank and an electrical control cabinet will be located at the 4-way intersection of Middlegate Road, Country Road, Quality Row and Pier Street. Pier Street provides the only vehicular access to Kingston Pier, Slaughter Bay and Emily Bay and is highly utilised. The Cenotaph is also located on this intersection. There will be minor visual impacts immediately to the northwest of the 4-way intersection due to necessary infrastructure for the emergency storage tank and pumping station there. These impacts will comprise vent pipe(s), pump station lid, and a control cabinet. In the short term these impacts will be noticeable from the road, but future mitigation works will be undertaken to hide these from public view through vegetation screening and other works if required.

## Criterion G: Social value

Criterion G: National / World Heritage Values
<p>KAVHA was the landing place of the Pitcairn Islanders in 1856. Their descendants today comprise nearly a third of Norfolk Island's population. They value KAVHA as a place of special significance because it has been continually and actively used as a place of residence, work, worship and recreation.</p> <p>KAVHA is valued by the Norfolk Island residents for being a place of traditional and ongoing uses, including the continuity of a working waterfront at the Landing Pier; the centre of Norfolk Island administration; continuing religious worship at All Saints Church and the community's burial place at the cemetery; areas for recreation and sports; and as the cultural centre with cultural and social events, museums and archaeological sites.</p>

Criterion G: Commonwealth Heritage Values
<p>Norfolk Island is first and foremost the home of its residents who value KAVHA as a sacred site because it has been continually and actively used as a place of residence, work and recreation since the arrival at Kingston Pier in 1856 of the Pitcairn Islanders, from whom one third of the island's population is descended. It holds significant symbolic, ceremonial, religious, lifestyle and cultural associations in a unique built and natural environment.</p> <p>KAVHA is valued by the Norfolk Island residents for being a place of traditional and ongoing uses, including the continuity of a working waterfront at the Landing Pier; the centre of administration with the Norfolk Island Court, Legislative Assembly, Norfolk Island Government Administration and Administrator's Office and Official Residence being located in the place; the religious focus being All Saints Church and the cemetery; areas for recreation and both passive and active sports; and as the cultural centre providing a meeting place for cultural and social events, museums and archaeological sites.</p> <p>Individual elements of the place identified by the Norfolk Island community for their social significance are the Landing Pier; the foreshores; the Prisoner's Barracks (known as the Compound); the commons; the sports oval; Point Hunter; the War Memorial; the Cemetery; the Commissariat Store; World War Two sites, including: Point Hunter, the Landing Pier, the Military Barracks, the Cemetery and Government House; the mix of land uses within the place including lease holdings, freehold titles, private dwellings, commercial activities, cultural and special events; the building uses are museums, a Church, administrative, the Official Residence, Parliament, lighterage, residential accommodation, industrial/commercial and Pitcairner; Bloody Bridge; the sand dunes; the Swamp; roads; and Government House.</p> <p>KAVHA is valued by visitors for its rich history and genealogical connections.</p>

### Criterion G: Relevance to the Proposal

#### High relevance

The Proposal would provide long-term positive community benefits by increasing the capacity to safely manage large community gatherings and sporting events, improve the quality of water discharging into the Island's most popular swimming beaches and minimising impact of pollution on the Marine Park and the aquatic life and coral reefs it supports.

## Criterion H: Significant people

Criterion H: National / World Heritage Values
<p>KAVHA is significant for its association with Lt Philip Gidley King RN, who successfully established the First Settlement on Norfolk Island, which in turn contributed to the survival of the infant colony of New South Wales.</p>

Criterion H: National / World Heritage Values
KAVHA is significant for its association with Alexander Maconochie, who formulated and applied most of the principles on which modern penology is based during the period he was Superintendent of Norfolk Island.

Criterion H: Commonwealth Heritage Values
KAVHA is significant for its association with many of Australia's founding and other early personalities including King, Hunter, Foveaux, Wentworth, Anderson, Maconochie, Price and Cash.

#### *Criterion H: Relevance to the Proposal*

#### **No relevance**

These associations would not be impacted by the Proposal.

#### **Summary assessment of criteria relevance**

Based on the assessments of relevance described above, the primary objective of this Heritage Impact Statement is to assess, manage and mitigate the potential impacts on KAVHA's archaeological values.



## 5. KAVHA Heritage Management Plan

The KAVHA Heritage Management Plan (HMP) was registered as a legislative instrument in December 2016 following advice from the (then) Department of the Environment and Energy confirming the document had satisfied the requirements of the EPBC Act 1999 to prepare and regularly update management plans for sites on the National Heritage Register.

The HMP can be downloaded at the following web location:

[https://kingston.norfolkisland.gov.au/heritage-management/publications\\_and\\_projects](https://kingston.norfolkisland.gov.au/heritage-management/publications_and_projects)

The HMP was developed following extensive community consultation, consistent with the Code on the Ethics of Co-existence in Conserving Significant Places (ICOMOS (Australia) 1998). The HMP contains 96 Recommendations to guide the management of KAVHA across five key areas:

- Heritage Conservation
- Life in the Community
- Sustainable Tourism
- Education and Information
- Governance and Capacity

### Alignment of the Proposal to the 2016 KAVHA HMP

Section 6.7 of the HMP identifies concerns expressed about the poor water quality of Watermill Creek and of the water discharging into Emily Bay. It refers to a 2013 review report, commissioned by the Norfolk Island administration, which examined water quality in the Watermill Creek catchment. This review identified that the high level of pollution in the stream was a result of both human and agricultural sources – and, in particular, septic tanks and cattle grazing. While it was beyond the scope of the HMP to propose a specific management approach to resolving water quality issues, recommendations in the HMP emphasise that the issue should be managed.

The following is a list of the specific HMP policies that are relevant to the Proposal. The numbered items reference specific policy sections in the HMP.

#### *8.1.2 Natural Environment Policies: Water*

- Water resources will be managed to sustain diverse marine and terrestrial ecosystems and habitats.
- In line with both good heritage management practices and safe water quality practices, water levels and flows will be managed so as to not impact on cultural and natural heritage values, especially historic structures and features, or the cultural landscape as a whole.
- In line with both good heritage management practices and safe water quality practices, aquatic weeds and excessive water-borne nutrient and sediment loads within or from the site will be controlled and reduced.

#### *8.1.5 Natural Environment Policies: Waste Management*

- Waste will be managed so as not to impact on the natural and cultural values of the KAVHA site.
- Sewage and other liquid waste will be managed to prevent pollution of groundwater or surface water

The following policies in the HMP are directly relevant to the Proposal. The numbered items reference specific priority sections in the HMP.

#### *9.2 Heritage Conservation Priorities*

- The natural environment of the KAVHA site will be conserved, protected and managed to sustain natural systems and heritage values.

- Environmental management and physical works should ensure an appropriate level of water quality in Watermill Valley and throughout the KAVHA site, while conserving heritage values.
- Renew and, where necessary, upgrade sewerage infrastructure for all occupied buildings.

## 6. Protecting Archaeological Resources

KAVHA provides an extremely rare and authentic example of both an 18<sup>th</sup>- and 19<sup>th</sup>-century cultural landscape and collection of Georgian period buildings in a structured rural setting. A major issue identified in the HMP was caring for original historic fabric, which is rare, finite, fragile and precious. Of major importance is the protection of the site's intact archaeological deposits, which contribute to the heritage value of the site by retaining cultural heritage values and realising research potential.

### Archaeological Policies

The following sections provide a summary of the archaeological policies in the 2016 KAVHA HMP, and an assessment of their relevance to the Proposal. These policies have informed the mitigations identified in Section 8 to reduce adverse impacts on archaeological values.

#### *8.4.1 Archaeology Policies: Conservation of the Resource*

- Archaeological sites and features will be identified, protected and conserved. These include relics, ruins and standing structures, as well as subsurface deposits and artefacts.
- Damage or intervention to archaeological sites will be avoided and any impact will be strictly managed through approved works only, in conjunction with archaeological supervision.
- New development, works and maintenance activities which involve substantial ground disturbance will be preceded by a site-specific assessment of archaeological sensitivity informed by the Archaeological Zoning Plan (AZMP).
- New development, works and maintenance will be designed and managed to avoid or minimise impact on archaeological resources. This will include a willingness to make changes during works when archaeological features are encountered.
- Impact on archaeological resources will be considered in assessing the overall heritage and environmental impacts of development and works proposals.

#### *Relevance of 8.4.1 Policies to the Proposal*

The archaeological potential of the site has informed the route for the Proposal. This stage of sewer construction avoids highly sensitive heritage areas.

#### *8.4.2 Archaeology Policies: Pre-Colonial*

- Archaeological investigation and research into potential Polynesian occupation of the KAVHA site will be encouraged.
- Pre-colonial sites will be accorded the same level of protection and management as historical archaeological sites.
- Pre-colonial archaeological sites and stories will be included in the KAVHA site interpretation.

#### *Relevance of 8.4.2 Policies to the Proposal*

The route of the sewer is designed to follow the road reserve on Middlegate, Country and Taylors Roads; emergency tanks are to be installed at the four-way intersection of Quality Row, Pier Street, Middlegate and Country Roads. All works will take place fall several hundred metres outside of the areas known Polynesian occupation, and over 100 metres from areas of possible Polynesian agricultural activities (**Appendix E**).

#### *8.4.3. Archaeology Policies: Colonial and Post-Colonial Archaeology*

- Colonial and post-colonial archaeological research projects will be encouraged.

- All colonial and post-colonial archaeological research projects will be preceded by the preparation of a thorough archaeological assessment which gathers and considers information already available from previous research or documentary sources.
- Colonial and post-colonial archaeological sites and stories will be included in the KAVHA site interpretation

#### *Relevance of 8.4.3 Policies to the Proposal*

The Proposal may encounter items of interest for further research. The archaeological research design and methodology from Stage 1 will be updated to include the additional route of the Proposal.

#### *8.4.4 Archaeology Policies: Artefacts*

- Archaeological artefacts will be managed as part of the authentic significant fabric and movable heritage of the KAVHA site.
- Excavated artefacts will be analysed, catalogued and physically conserved, consistent with best practice museum standards.
- Budgets for archaeological investigations (whether undertaken in conjunction with works or as research projects) will include up-front budgetary provisions for artefact analysis, cataloguing, conservation and long-term curation.

#### *Relevance of 8.4.4 Policies to the Proposal*

The Proposal includes budget allocation for archaeological supervision and artefact analysis. The costs of long-term curation are delivered through annual Museum funding allocations.

#### *8.4.5 Archaeology Policies: Research*

- Archaeological research will be encouraged and facilitated, with preference given to projects that contribute to current heritage management or interpretation needs and priorities.
- All archaeological research projects will be approved and undertaken in accordance with an archaeological research design which sets out an agreed methodology and demonstrates how the proposed research will benefit current and future generations.

#### *Relevance of 8.4.5 Policies to the Proposal*

The Proposal is not an archaeological research project, and these policies are not directly relevant. However, the archaeological research design and methodology developed for Stage 1 of the project will be updated to include the Proposal, as required by the following policies.

#### *8.4.6 Archaeology Policies: Archaeological Records*

- Comprehensive archival records, including text, photographs and sketches, will be made in all cases where archaeological features or deposits are disturbed.
- Archaeological investigations (whether undertaken in conjunction with works or as research projects) will include the preparation of post-investigation reports, including comprehensive research archives of all relevant records, responses to research design questions and recommendations for future archaeological heritage management.
- All investigations will be carried out according to an approved specific research design and methodology.
- Information gained from archaeological activities will be made available to the Commonwealth Heritage Manager (CHM) and integrated into site management inventories and other resources.

#### *Relevance of 8.4.6 Policies to the Proposal*

The archaeological research design and methodology from Stage 1 will be updated to include the additional route of the Proposal. The CHM would approve the required reporting scope and endorse the final report produced.

#### **Archaeological Recommendations**

The following sections provide a summary of the archaeological priorities in the 2016 KAVHA HMP, and an assessment of their relevance to the Proposal.

##### *Archaeology Recommendation 25 (priority: Essential)*

A 'Code of Practice' should be developed for all archaeological investigations at the KAVHA site, including both research investigations and conservation and development programs.

#### *Relevance of Recommendation 25 to the Proposal*

A Code of Practice for archaeological investigations is provided at Appendix 3 of the AZMP.

##### *Archaeology Recommendation 26 (priority: Essential)*

Written guidelines for ground disturbance should be prepared for the design and management of works in a way which avoids or minimises impact on archaeological resources.

#### *Relevance of Recommendation 26 to the Proposal*

The scope of works for sewer construction will include written guidelines informed by the AZMP.

##### *Archaeology Recommendation 27 (priority: High)*

An integrated Archaeological Zoning Plan will be prepared for the KAVHA site, incorporating the existing CAD plan and other data, to document known and predicted areas of archaeological sensitivity and known disturbed areas. This plan will be updated as new information becomes available.

#### *Relevance of Recommendation 27 to the Proposal*

The zoning maps included in the AZMP have informed the selection of the route for the Proposal.

#### **KAVHA Archaeological Zoning Management Plan (AZMP)**

The AZMP has closely informed the selection of the route for the Proposal and would guide the approach taken to construction specifications, supervision and the management of excavated heritage materials. The document provides an overview of KAVHA's archaeological resources and their significance, and outlines strategies and policy guidelines for appropriate management of the archaeological heritage values of the site.

The key management guidelines considered in the AZMP include:

- minimising adverse impact on the archaeological resource;
- statutory obligations and the requirement for necessary consents and approvals accompanied by relevant support documentation prior to any ground disturbance works; and
- obligations of contractors or other persons involved in works within KAVHA regarding an awareness of both the site's heritage significance and the potential for archaeological resources to be present across the site and in the vicinity of works.

The AZMP also provides an overview of KAVHA's archaeological resources (both known and potential), assesses their heritage values and provides a method of managing sensitive archaeological resources.

In addition to procedures for effective management commensurate with the assessed heritage values and research potential the AZMP also includes a research framework, investigation strategies and methods to guide archaeological research and physical investigations.

**Table 4**, summarised from the AZMP, identifies the potential archaeological remains from all phases of historical development. The level or likelihood of survival is graded in accordance with the following classifications:

**Extant:** archaeological remains associated with a particular historical phase or features that survive intact and have been retained *in situ*.

**High:** it is likely that archaeological relics associated with a particular historical phase or features survive intact.

**Moderate:** it is possible that some archaeological relics associated with a particular historical phase or features survive, but they may have been subject to some disturbance.

**Low:** it is unlikely that archaeological relics associated with a particular historical phase or features survive.

Descriptions of archaeological potential are provided in Section 7 for each of the KAVHA precincts (**Table 2**) that are affected by the Proposal. **Figure 6**, which follows this table, shows a map of the Proposal overlaid on the archaeological potential mapped in the AZMP.

The Proposal does not include any construction of the sewer within precincts G and H, which have the highest archaeological potential.

*Table 4. Summary of archaeological potential in the precincts impacted by the Proposal*

Site feature or site activities	Potential remains	Precinct	Level (or likelihood) of survival
Polynesian settlement	<ul style="list-style-type: none"> <li>Stone paving</li> <li>Building platforms</li> <li>Ditches</li> <li>Latrines</li> <li>Burials</li> <li>Earth ovens</li> <li>Scoop hearths</li> <li>Postholes</li> <li>Shell middens</li> <li>Isolated artefacts (stone or shell tools)</li> <li>Evidence of early forest clearance (charcoal-enriched deposits)</li> <li>The presence of the remains of introduced dietary/commensal species (e.g. <i>Rattus exulans</i>)</li> </ul>	E F M	Low Low Low
Colonial and post-colonial occupation and use of structures	<ul style="list-style-type: none"> <li>Structural remains (post holes, footings, piers, foundation trenches, earlier floor surfaces; e.g. cobbles/flagging/compacted earth)</li> <li>Underfloor artefacts and deposits within and near structures (artefacts relating to domestic or occupational activity, artefacts relating to use of structure, building materials)</li> <li>Yard surfaces and deposits</li> </ul>	E F M	High High High
Animal husbandry	<ul style="list-style-type: none"> <li>Structural remains of enclosures (postholes, footings, earlier surfaces; e.g. cobbles or flagging, packed earth, paving)</li> <li>Fencing (post holes)</li> </ul>	M	High
Cultivation	<ul style="list-style-type: none"> <li>Field Boundaries</li> </ul>	M	Extant

Site feature or site activities	Potential remains	Precinct	Level (or likelihood) of survival
Industrial activities	<ul style="list-style-type: none"> <li>Structural remains of infrastructure and workshops (post holes, footings, piers, foundation trenches, earlier floor surfaces; e.g. cobbles/flagging/compacted earth, forge base)</li> <li>Underfloor artefacts and deposits within and near structures (artefacts relating to industrial activity, by-products of industrial processes; e.g. ash, slag, bones)</li> </ul>	M	High
Water supply and service infrastructure	<ul style="list-style-type: none"> <li>Wells</li> <li>Service infrastructure (dams, reservoirs, receiving tanks, air chambers, aqueduct footings, drains, pipes, service trenches)</li> </ul>	E F M	High (including Extant) High High <del>Moderate</del>
Settlement establishment and layout	<ul style="list-style-type: none"> <li>Palisade (ditch cut, backfills)</li> <li>Fencing (postholes)</li> <li>Lighting (lamp bases)</li> <li>Roads (former surfaces, kerbing, drainage channels, cart tracks)</li> </ul>	E F M	Moderate High High
Landscaping and gardens	<ul style="list-style-type: none"> <li>Paths, looped drive (compacted deposits, former surfaces, paving, edging/kerbing, drainage channels)</li> <li>Garden beds (excavated areas for planting, garden edging, furrows)</li> <li>Evidence of plantings (pits from removal of tree stumps, remains of plant roots, archaeo-botanical remains)</li> <li>Introduced soils</li> </ul>	E F M	Moderate High Moderate
Waste disposal	<ul style="list-style-type: none"> <li>Privy deposits</li> <li>Rubbish pits</li> <li>Isolated artefacts that have been lost or discarded (e.g. ceramic, glass, bone), tools, building material etc.</li> </ul>	E F M	Moderate High High
Environmental management	<ul style="list-style-type: none"> <li>Water management (cuts of excavated and modified channels and drains, stone facing of drains)</li> <li>Causeway (deposits of introduced soil over sand banks to arrest sand drift)</li> <li>Afforestation (44-gallon drums in sand banks to stabilise dunes)</li> </ul>	F M	High High (including Extant)



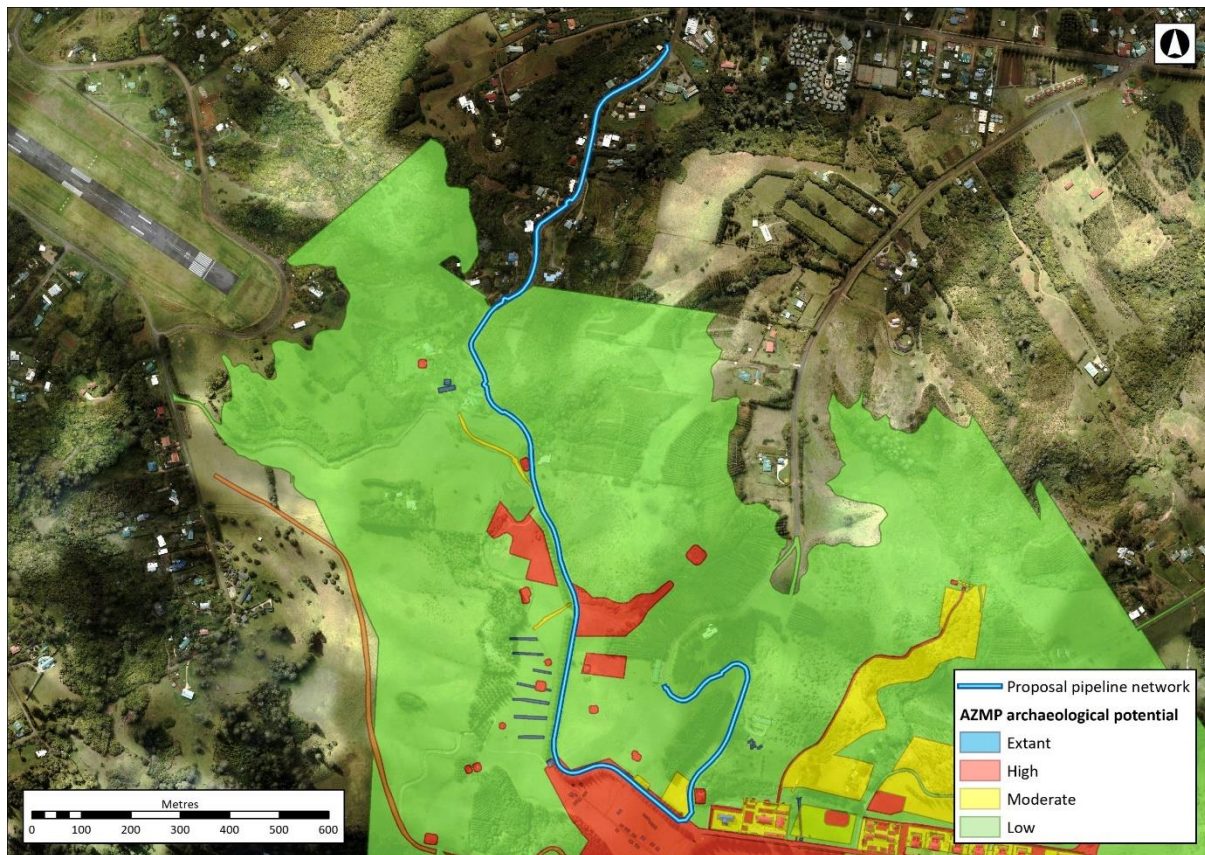


Figure 6. Pipeline network for the Proposal overlaid on the AZMP mapping of archaeological potential.

### Additional Datasets

Two additional datasets are now available to support assessments of the impacts of sewer construction: 2019 Light Detection and Ranging (LiDAR) data and 1858 survey data.

- The LiDAR data, which comprise detailed elevation information, were collected as part of a CSIRO hydrological research project. This data has revealed a number of potential new features within KAVHA including unnatural rectilinear patterns in the ground surface that may indicate the location of former structures and other features. It is possible that some of the features identified from LiDAR data may be the result of post-1940s ground disturbance.
- The 1858 survey of KAVHA has recently been produced as high-resolution digital data by the National Archives of Australia. The data includes survey field books completed by surveyors working on Norfolk Island for much of 1858 which record the location of all of the site's structures and features at an approximate 200 mm resolution. These field books have revealed the location of many structures and features that were not recorded in the 1980 survey of KAVHA.

The data from these sources will be used to plan for the excavations to be undertaken as part of the Proposal.

The AZMP and all associated mapping will be updated to incorporate new features if they are encountered during pre-excitation site surveys associated with the Proposal.

## 7. Description of the Proposal and Assessment of Potential Impacts on Archaeological Features

This section provides a description of each precinct that may be impacted by the Proposal, a description of the proposed extent of works to be undertaken within each precinct, and an assessment of the likelihood of archaeological features being impacted by the Proposal.

The assessments are based on the survival of the features described in **Table 4**, according to the scale outlined in the following table:

*Table 5. Explanation of likelihood rating for the risk of potential impacts on archaeological features*

Likelihood	Description
Improbable	There are no circumstances that can be foreseen where the Proposal will have an impact on the feature.
Unlikely	The location(s) of the particular feature within the precinct is well documented and the Proposal is located a considerable distance from known occurrences of the feature.
Possible	There may be scattered or undocumented remnants of the feature located within the area of the Proposal which may be disturbed or damaged.
Likely	The location of the feature is well documented and in direct alignment of the proposed route.
Almost certain	The extant feature is visible and in direct alignment with the sewer route.

A further assessment of the potential risks to archaeological features from the Proposal is provided in **Section 8**, based on the information presented below.

### Precinct E and the Proposal

#### *Precinct E description*

**Name:** Uplands (land above the 100ft/30m contour) and Stockyard Valley)

**Land types:** Crown lease, Freehold, Road reserve

**Land type impacted by the Proposal:** Road reserve

**Summary of AZMP archaeological potential:** Low in the Proposal area.

Precinct E comprises the highest areas within KAVHA, and the elevations within this precinct range from 30 to just over 100 metres. Prior to European settlement, this land was covered in dense forests which were heavily exploited during both the 1<sup>st</sup> and 2<sup>nd</sup> settlements. It is likely that Polynesian inhabitants moved occupied these lands, but no archaeological remains have ever been recovered; the only known Polynesian presence in this precinct comes from poorly-provenanced adzes recovered by amateur surface collection.

This precinct has never been a major focus of activities during any period of European settlement. Farms and residences were sprinkled across the area during the 1<sup>st</sup> settlement and the region was used for various purposes during the 2<sup>nd</sup> settlement, but none of these land uses were intensive in nature. The sparse use of the precinct is represented in the fact that there are no significant ruins in the precinct.

#### *Proposed works within Precinct E*

**Refer to Drawings C18, C19, C80 (Appendix A)**

There are two separate segments of the sewer pipeline within this precinct, which are described here as the “western” and “eastern” lines. The western line (Drawings C18 and C19) is part of the main sewer pipeline running from Kingston to Burnt Pine, while the eastern line (Drawing C80) is part of the sewer pipeline running



up Middlegate Road. The eastern line will provide for the future connection of Islander Lodge, Panorama Seaside Apartments and two private residences.

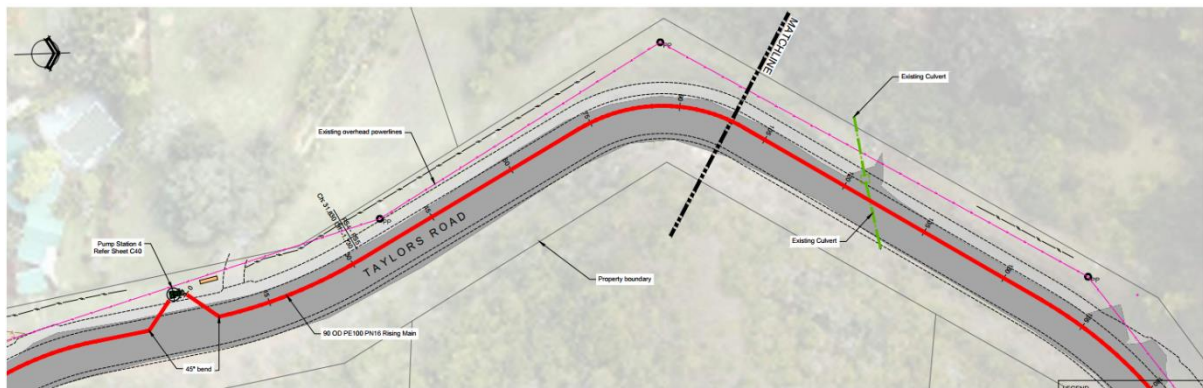


Figure 7. Precinct E proposed works, Drawing C18.

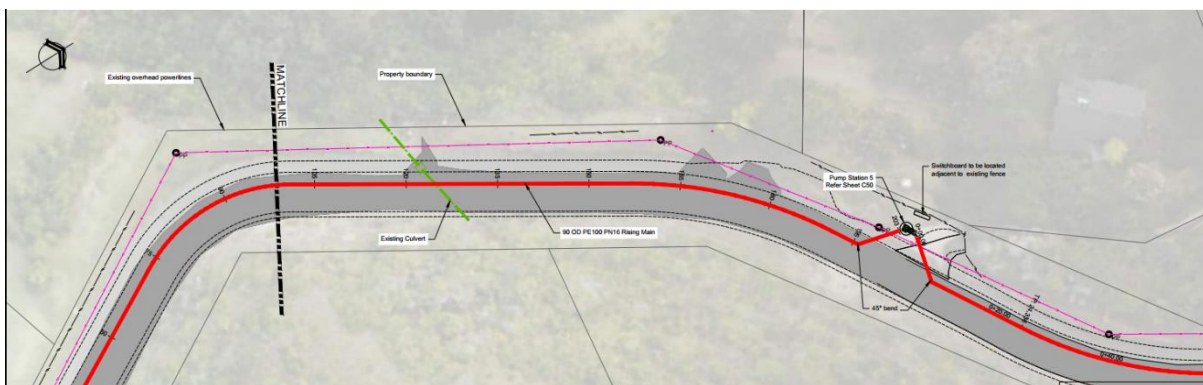


Figure 8. Precinct E proposed works, Drawing C19.

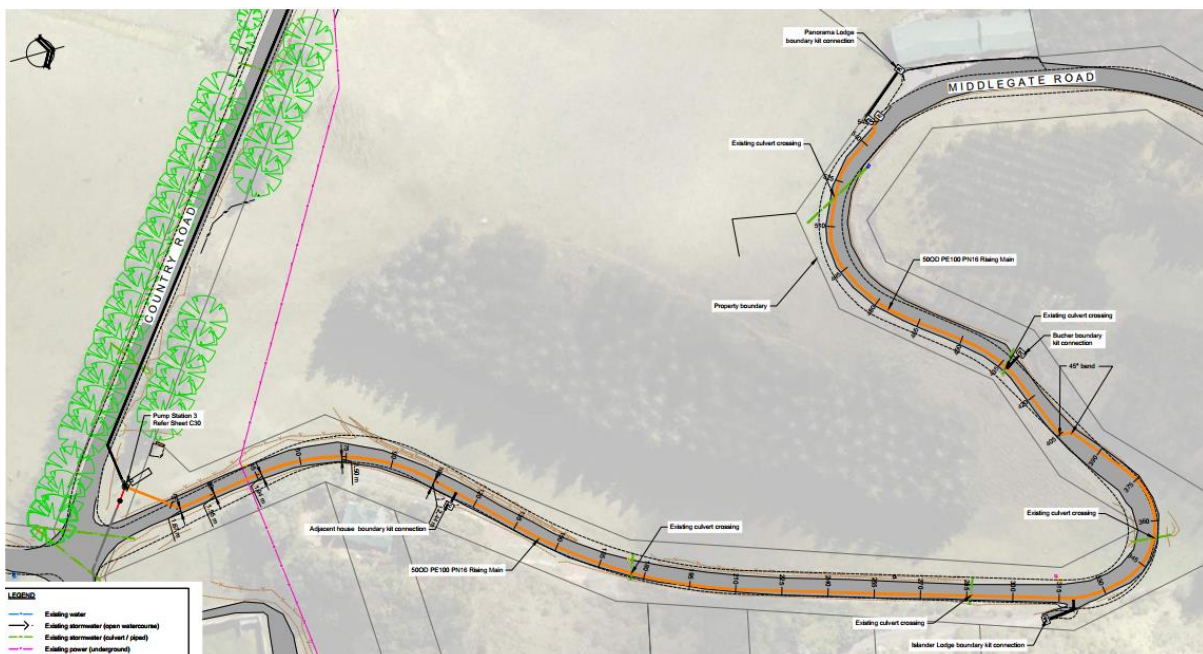


Figure 9. Precinct E proposed works, Drawing C80.

The western line (**Figure 7** and **Figure 8**) comprises ~212 metres of 90 mm diameter rising main pipeline running along Taylors Road from a point roughly 80 metres past the intersection of Country Road and Taylors Road to the external KAVHA boundary. This segment of the sewer network will also include a slight deviation to the

western side of the road to accommodate the installation of pump station 4 (Drawing C40). This section of the pipeline runs entirely within an area assessed to have low archaeological potential, and neither intersects nor comes near any known historical features.

The eastern line (**Figure 9**) comprises ~360 metres of 50 mm diameter rising main pipeline running up Middlegate Road from the war memorial intersection. This segment of the sewer network will cross four modern culverts and will also have three boundary kit connections: two for hotels and one for a private residence. This section of the pipeline runs entirely within an area assessed to have low archaeological potential, and neither intersects nor comes near any known historical features.

*Potential impacts on archaeological features within Precinct E*

Site feature or site activities	Level of survival	Likelihood of the Proposal impacting on the site feature or site activities
Polynesian settlement	Low	<p><b>Improbable</b></p> <p>No traces of Polynesian settlement nor artefacts are known to have been found in Precinct E. It is highly unlikely that any such remains, if present, would still have subsurface traces in the roadways. Such remains would likely have been demolished during initial road construction or removed during subsequent 20<sup>th</sup> century grading.</p> <p>Despite the very low probability of finding Polynesian materials, such materials – should they be encountered – will be managed and mitigated in the same manner as any other unexpected finds.</p>
Colonial and post-colonial occupation and use of structures	High	<p><b>Unlikely</b></p> <p>The only structures that may have ever existed on the site of the present roadways would be those from the First British Settlement, of which there is little to no documentary evidence. Even if any such structures ever once stood on ground that is now part of the roadways, it is likely that the traces of these buildings were demolished either during initial road construction or during 20<sup>th</sup> century road grading.</p>
Water supply and service infrastructure	High / Extant	<p><b>Unlikely</b></p> <p>There is no record of such features existing near the sewer route and there is a low potential that unknown drains and culverts may exist under the short stretch of road that the Proposal impacts in this precinct. Such features are more commonly found near structures and near permanent or ephemeral watercourses. There is a moderate likelihood that any convict-era drains or culverts constructed along the roadway were damaged or destroyed by 20<sup>th</sup> century roadworks.</p>
Settlement establishment and layout	Moderate	<p><b>Unlikely</b></p> <p>The only evidence of settlement layouts that may exist in Precinct E are old road surfaces, but based on the initial evidence from Stage 1 works, it is likely that 20<sup>th</sup> century road grading has destroyed most of the traces of older road surfaces.</p>
Landscaping and gardens	Moderate	<p><b>Improbable</b></p>

Site feature or site activities	Level of survival	Likelihood of the Proposal impacting on the site feature or site activities
		The sewer line will follow the road, far away from any locations at which landscaping or gardening activities may have taken place.
Waste disposal	Moderate	<b>Unlikely</b> The works for the Proposal are within areas that have been actively used as roads for 180-200 years. These are not areas in which waste disposal would have taken place. There is a low probability of significant finds, but individual isolated items (such as glass shards from broken bottles or ceramic sherds from smashed crockery) are likely.

## Precinct F and the Proposal

### *Precinct F description*

**Name:** Swamp (known as Kingston Common)

**Land types:** Crown reserve (War memorial Reserve, Kingston Common Reserve, Kingston Recreation Reserve), Road reserve

**Land types impacted by the Proposal:** Road reserve

**Summary of AZMP archaeological potential:** Per the AZMP, high potential within the road reserve – but reassessed as low potential as a result of more recent findings (see discussion below regarding historical use of road graders).

Precinct F extends west of Government House to the Pier area. Prior to European settlement, this area was a large swampy lowland covered in dense, low vegetation. The waterway was channelised within the first few years of the 1<sup>st</sup> settlement, and this resultant draining of the swampland created the Kingston Common that is still known today. The area of the common near the proposed works was used for agricultural purposes since during both the 1<sup>st</sup> and 2<sup>nd</sup> settlements, but since 1856 has been used for grazing purposes.

### *Proposed works within Precinct F*

#### **Refer to Drawings C10 and C11 (Appendix A)**

The sewer line within this precinct comprises ~325 metres of 90 mm diameter rising main pipeline, running westward along Country Road from a pump station at the war memorial intersection. This pipeline will cross three modern culverts.

This segment of the pipeline will run entirely within an area assessed as having high archaeological potential within the AZMP. However, based on A) updated historical information that has been uncovered and B) the results of works undertaken within Quality Row as part of stage 1, this assessment of archaeological potential is no longer felt to be representative of the situation within the road reserve.

In 1916, the Executive Council of Norfolk Island formally requested the Administrator procure a mechanical grader for the island for road maintenance, and so in 1917, the Australian Commonwealth Department of Home and Territories purchased a Little Western Steel Grader, at a cost of £77. The grader was immediately put to work on the roads, and in the 1921 Annual Report of the Territory the grader was declared as being “of exceptional advantage in maintaining the roads of the island”.

It is clear that, following the introduction of the first grader, the historical roads of the island were severely damaged and – in some cases – destroyed. This is regularly noticed by visitors to the island, who comment upon the elevation discrepancies between roads and the much higher road edges.

Almost 250 metres of works have been undertaken along Quality Row as part of stage 1 of the Project. The results of these works show that there is less archaeological potential within Kingston roads than previously



believed. While convict-era roads have been uncovered, the construction of these roads has been strikingly uniform: a layer of crushed calcarenite (~100 mm thick) overlays a layer of clayey soil (100-200 mm thick), which in turns overlays a layer of crushed and densely compacted calcarenite (400-900 mm thick), which lies over sterile natural soil. Post-1856, road works simply introduced new material (crushed calcarenite or basalt), which was laid directly over the top of the older roads. Once tar sealing was introduced, it was laid directly on top of these later roads.

Almost no artefactual material of any kind has been recovered from these layers. Artefact cataloguing has not yet taken place and so exact numbers cannot be provided, but it is estimated be that only a dozen isolated ceramic and glass fragments have been found across 250 metres of excavation.

Despite having practically no archaeological potential for artefactual evidence, there still may be convict-era drains and culverts in places along the roads. Unfortunately, there is no way to estimate the location or likelihood of such features existing along any given stretch of road.

As a result of the results of the stage 1 Quality Row works and the information about historical road works within Precinct F, it is felt that the archaeological potential of the roadway within this precinct should be revised to low.

The pipeline within Precinct F intersects with two known historical features: the site of a stockyard used in the 1820s and 1830s, and the site of a garden used from the 1830s to the mid-1850s. The pipeline comes within 1.5 metres of the former location of a stone wall, but no impacts will occur to any remaining portions of this feature.

The pipeline will also pass over the location of a former stream channel, which was filled in the early 20<sup>th</sup> century. This channel was filled when part of the waterway through Arthur's Vale was realigned to run along the western side of the road (the current location of the waterway), from its original location along the eastern side of the road.

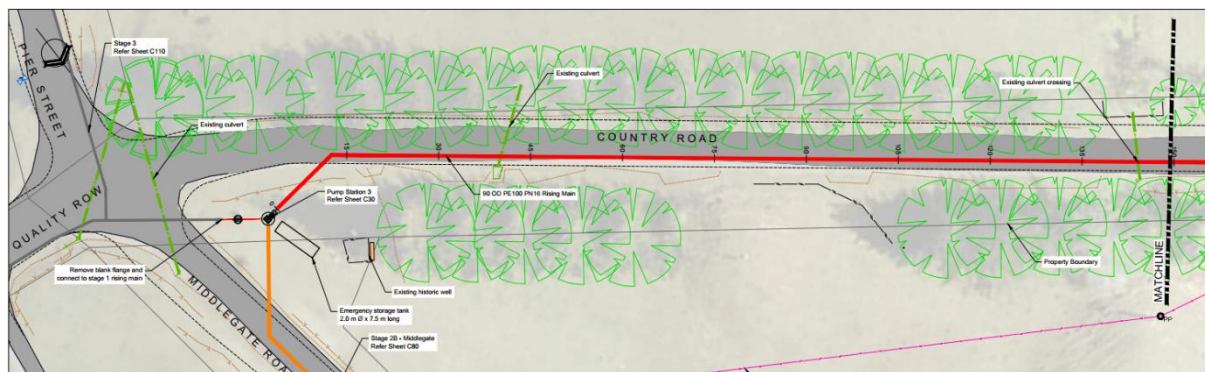


Figure 10. Precinct F proposed works, Drawing C10.

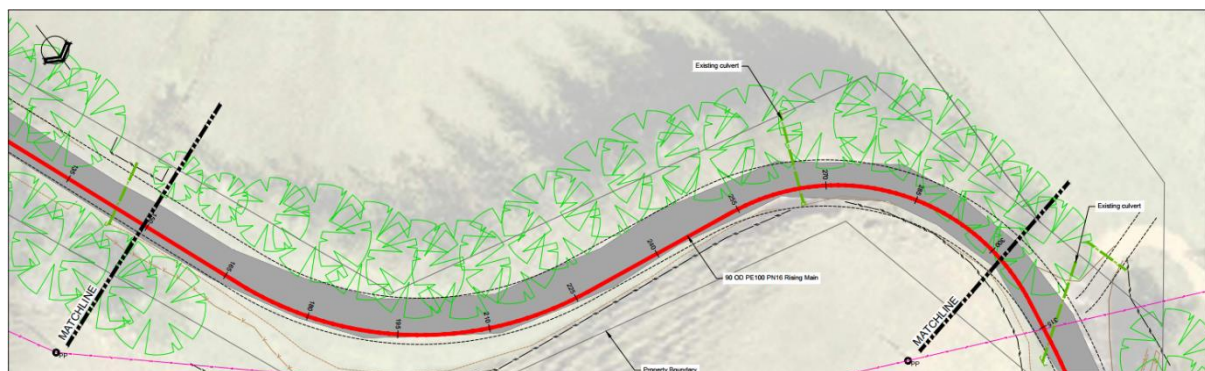


Figure 11. Precinct F proposed works, Drawing C11.

*Potential impacts on archaeological features within Precinct F*

Site feature or site activities	Level of survival	Likelihood of the Proposal impacting on the site feature or site activities
Polynesian settlement	Low	<p><b>Improbable</b></p> <p>No traces of Polynesian settlement nor artefacts are known to have been found in Precinct F. It is highly unlikely that any such remains, if present, would still have subsurface traces in the roadways. Such remains would likely have been demolished during initial road construction or removed during subsequent 20<sup>th</sup> century grading.</p> <p>Despite the very low probability of finding Polynesian materials, such materials – should they be encountered – will be managed and mitigated in the same manner as any other unexpected finds.</p>
Colonial and post-colonial occupation and use of structures	High	<p><b>Unlikely</b></p> <p>The only structures that may have ever existed on the site of the present roadways would be those from the First British Settlement, of which there is little to no documentary evidence. Even if any such structures ever once stood on ground that is now part of the roadways, it is likely that the traces of these buildings were demolished either during initial road construction or during 20<sup>th</sup> century road grading.</p>
Water supply and service infrastructure	High	<p><b>Possible</b></p> <p>There is a moderate potential that unknown drains or culverts may exist under the roadway in Precinct F. Most of the drains and culverts in Kingston fell into disuse by the 1860s, and their ends were covered by soil deposited through landscaping, construction and erosion. There is a moderate likelihood that any convict-era drains or culverts constructed along the roadway were damaged or destroyed by 20<sup>th</sup> century roadworks.</p> <p>A pair of wells (one intact and open, and one filled and covered by the mid-20<sup>th</sup> century) are within 10 metres of the Proposal works. The intact/open well can be seen immediately northwest of the intersection of Quality Row, Pier Street, Middlegate Road and Country Road.</p> <p>The filled well is known from the 1858 survey. It is about 100 metres along Country Road from the 4 intersection of Quality Row, Pier Street, Middlegate Road and Country Road, on the south side of the road. It is now covered by a pine tree planting and there's no evidence of it visible from the surface. It is only known from documentary evidence.</p> <p>No impacts will occur to either well and it is very unlikely that any earlier wells would exist in the roadways.</p>

Site feature or site activities	Level of survival	Likelihood of the Proposal impacting on the site feature or site activities
Settlement establishment and layout	High	<b>Unlikely</b> The only evidence of settlement layouts that may exist in Precinct F are old road surfaces, but based on the initial evidence from Stage 1 works, it is likely that 20 <sup>th</sup> century road grading has destroyed most of the traces of older road surfaces.
Landscaping and gardens	High	<b>Possible</b> The easternmost 10 metres of the pipeline in this precinct will directly intersect an area used as a stockyard and garden during the 2 <sup>nd</sup> settlement. There is the possibility that artefacts (metal tools, animal bones, etc.) related to such uses may remain in the area.
Waste disposal	High	<b>Unlikely</b> The works for the Proposal are within areas that have been actively used as roads for 180-200 years. These are not areas in which waste disposal would have taken place. There is a low probability of significant finds, but individual isolated items (such as glass shards from broken bottles or ceramic sherds from smashed crockery) are likely.
Environmental management	High	<b>Likely</b> The potential for impacts upon the stone facing of drains depends on the possibility of encountering drains; see <b>water supply and service infrastructure</b> , above.  The Proposal works will run through the location of a former natural waterway that was filled in the early 20 <sup>th</sup> century.

## Precinct M and the Proposal

### *Precinct M description*

**Name:** Arthur's Vale – Watermill Valley

**Land types:** Crown reserve (Kingston Common Reserve), Road reserve

**Land types impacted by the Proposal:** Crown reserve, Road reserve

**Summary of AZMP archaeological potential:** Low, within two exceptions. The pipeline will traverse about 8 metres of moderate potential land to the north of the war memorial intersection, and near the Rosie Hessay water standpipe the pipeline will barely skirt the edge of a high potential area. At this latter location, the pipeline will traverse ~68 metres of high potential area, but will not go any more than 1.4 metres into this area.

Precinct M comprises Arthur's Vale and the watermill area. This portion of KAVHA has been used for (relatively) intensive agriculture from the era of Polynesian settlement until the mid-20<sup>th</sup> century. Early in the 1788 settlement of the island, a grove of bananas was found on the western side of Arthur's Vale and identified in maps and paintings. The European settlers recognised that the bananas could not have been spread naturally, and that they were planted in a regular pattern, and quickly concluded that the bananas were evidence that the island had previously been occupied by other people. Arthur's Vale was heavily farmed during both the 1<sup>st</sup> and 2<sup>nd</sup> settlements.

A watermill and dam were constructed in the vale during the 1<sup>st</sup> settlement, and this hydraulic infrastructure was greatly expanded during the second settlement. The dam was enlarged and a new watermill was built.

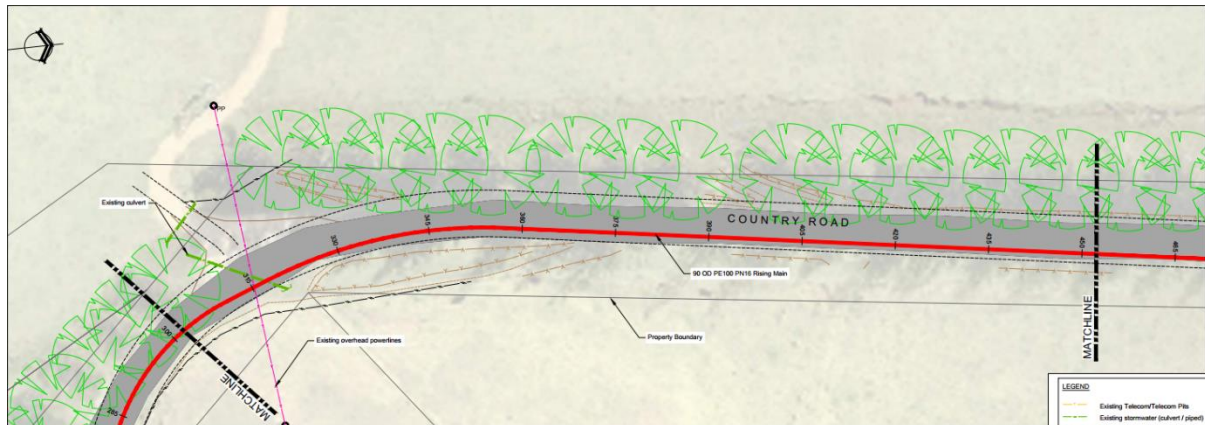


There is no evidence that Country Road was a formal road during the 1<sup>st</sup> settlement. The few maps from that period do not show a road running through the Vale, though paintings appear to show a small path running alongside the waterway. Regardless, during the 2<sup>nd</sup> settlement Country Road was already in use as a track by December 1825, and by 1829 was a formalised road on par with the other major roads through the settlement.

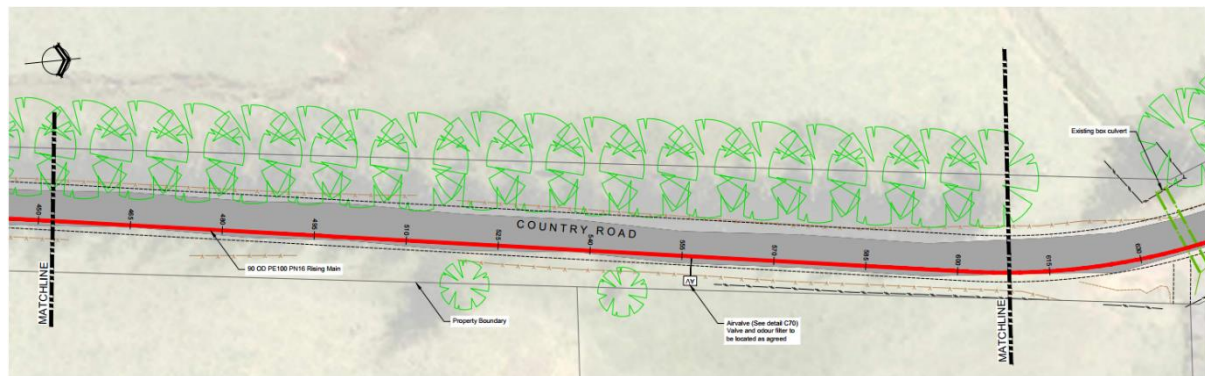
#### *Proposed works within Precinct M: Country Road*

**Refer to Drawings C12, C13, C14, C15, C16, C17, C80 (Appendix A)**

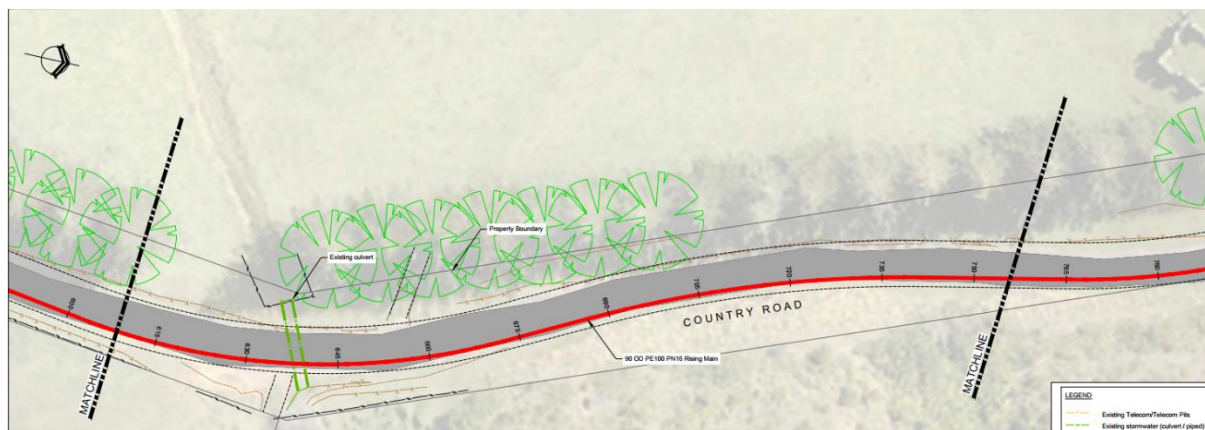
There are two separate segments of the sewer pipeline within this precinct, which are described here as the “western” and “eastern” lines. The western line (Drawings C12, C13, C14, C15, C16 and C17) is part of the main sewer pipeline running from Kingston to Burnt Pine, while the eastern line (Drawing C80) is part of the sewer pipeline running up Middlegate Road. The eastern line will connect to Islander Lodge, Panorama Lodge and two private residences.



*Figure 12. Precinct M proposed works, Drawing C12.*



*Figure 13. Precinct M proposed works, Drawing C13.*



*Figure 14. Precinct M proposed works, Drawing C14.*



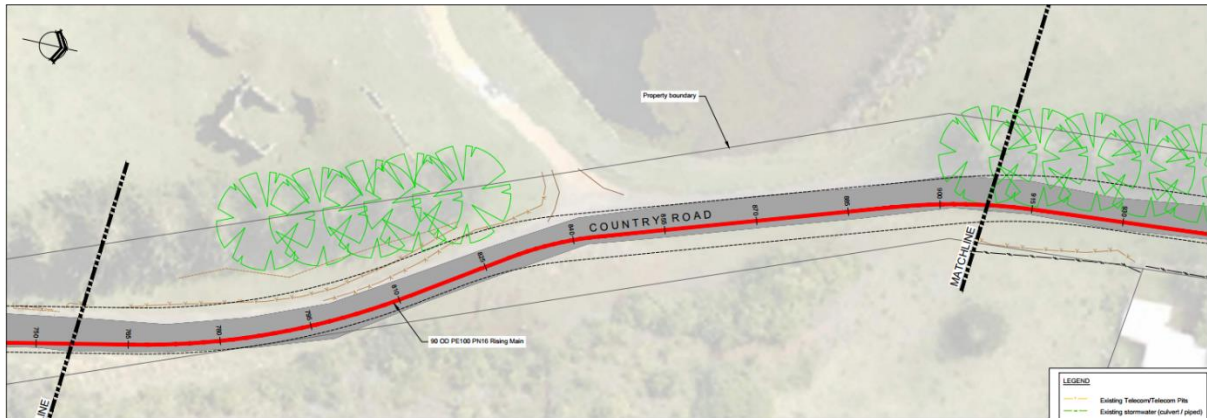


Figure 15. Precinct M proposed works, Drawing C15.

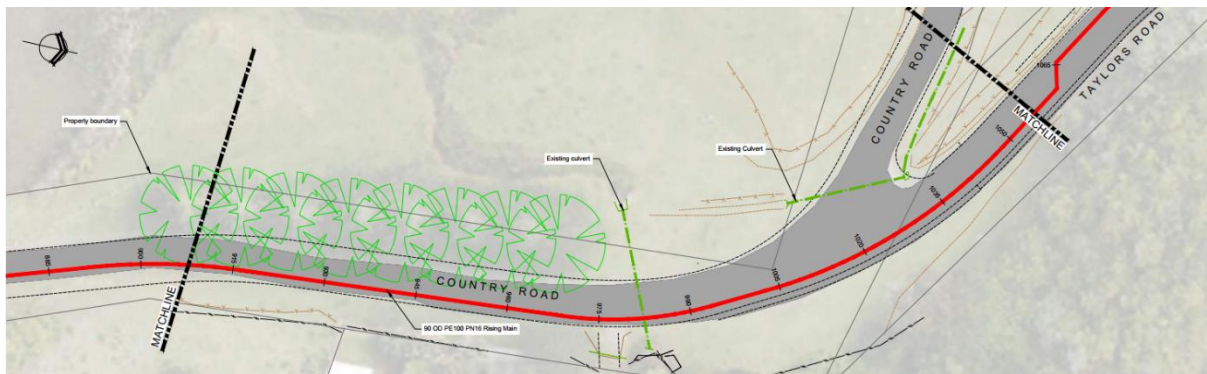


Figure 16. Precinct M proposed works, Drawing C16.

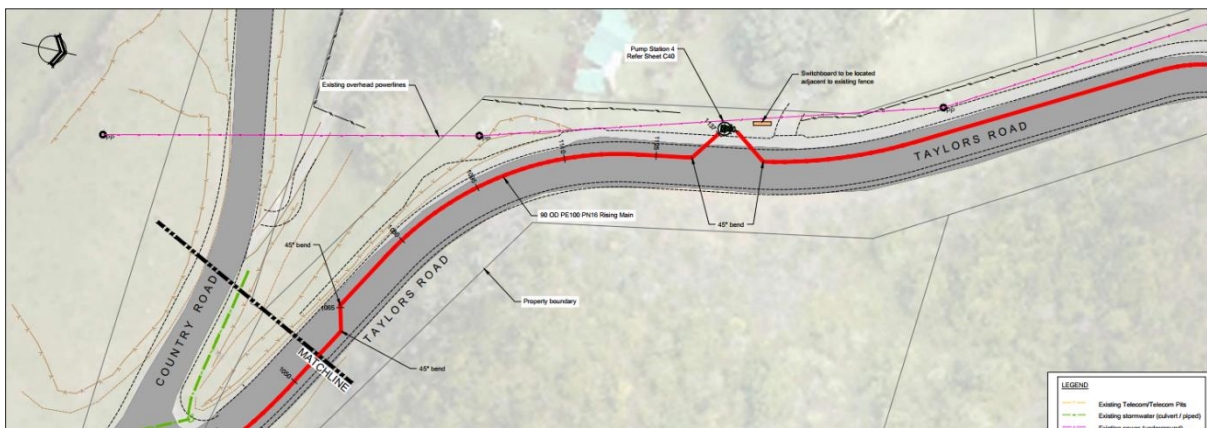


Figure 17. Precinct M proposed works, Drawing C17.

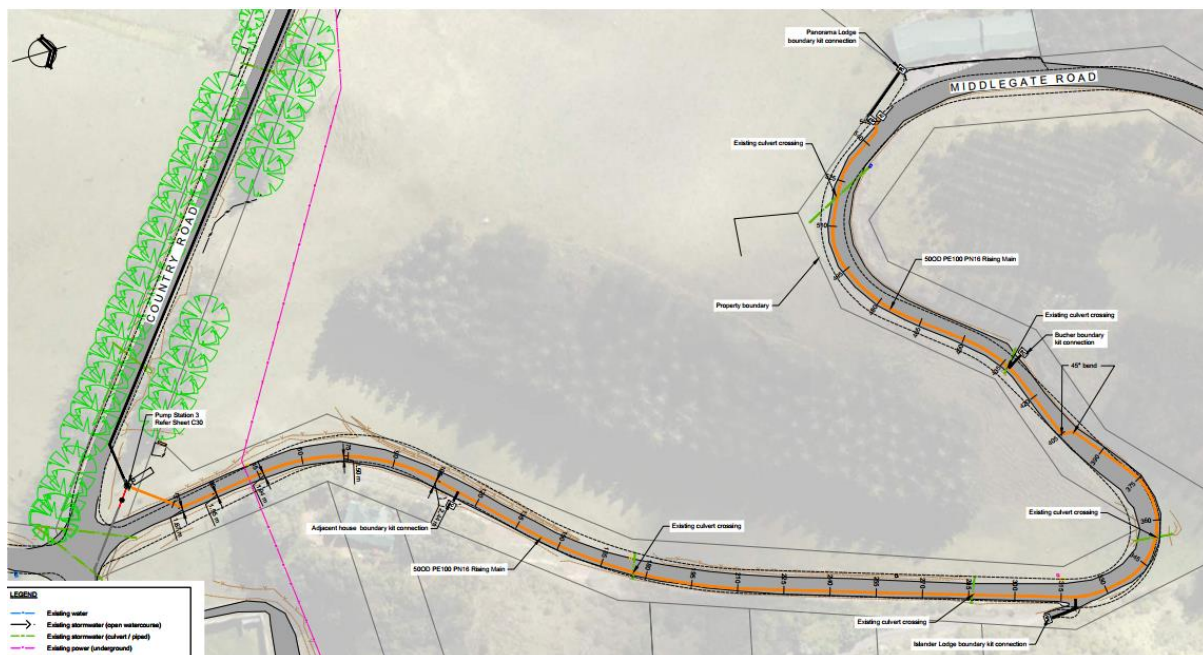


Figure 18. Precinct M proposed works, Drawing C80.

The western line (**Figure 12 to Figure 17**) comprises ~781 metres of 90 mm diameter rising main pipeline running along the primary lowland north-south portion of Country Road. This segment of the sewer network will cross three modern culverts and will have one air valve. The western line will run entirely within an area of low archaeological potential, with the exception of ~68 metres of pipeline that will barely edge into an area of high potential. However, this high potential area was defined based on a region used for residential purposes, and it is unlikely that any such archaeological remains would exist in the road verge, so it is considered unlikely that this potential assessment is valid for this portion of the pipeline.

The western line does not intersect any known historical features, but it will pass over the location of a former stream channel, which was filled in the early 20<sup>th</sup> century. This channel was filled when part of the waterway through Arthur's Vale was realigned to run along the western side of the road (the current location of the waterway), from its original location along the eastern side of the road.

The eastern line (**Figure 18**) comprises ~188 metres of 50 mm diameter rising main pipeline running from the grassed area northwest of the war memorial intersection to Middlegate Road, and from uphill from there. This segment of the sewer network will have one boundary kit connection for a private residence. The first 8 metres of this segment of pipeline runs through an area assessed to have moderate archaeological potential, and the remainder is within areas of low archaeological potential.

Immediately northwest of the war memorial intersection, the eastern line and other required infrastructure – an emergency storage tank, pumping station, and pumping control cabinet – will directly impact two known historical feature areas (the site of a stockyard used in the 1820s and 1830s, and the site of a garden used from the 1830s to the mid-1850s) and come in very close proximity to a third historical feature (a well).

The archaeological potential is moderate for impacts to both the stockyard and garden. Although the sorts of activities that would have taken place in these sorts of areas are unlikely to leave many archaeological materials behind, the early date of use and the lack of subsequent development mean that any works must proceed carefully. It is unlikely that works would uncover any structures; finds are likely to comprise artefactual deposits.

The archaeological potential for the well is high as it is a standing feature, and works should avoid damaging or risking damage to it. The construction of this well is similar to most of the others at Kingston: the upper metre or so of the well below the ground line is formed from cut calcarenite blocks, and below that the walls of the soil are formed of bare earth and clay down to the water line. The structural integrity of the well derives from

the dense nature of the soils and clays in the area. No works will cause impacts to the well, and heavy vehicles and materials will be kept away from the sides of the well to avoid damaging the sides of the well through compression.

This precinct will also be the location of a temporary construction compound, which will be used during construction for secure storage of plant, equipment and materials. The compound will be located near the current KAVHA materials stockpile, approximately 70 metres south of the dam. The installation of the compound will not require any earthworks; the only impacts will be due to the installation of star pickets to allow fencing to be run. These star pickets will be removed following the end of Stage 2 construction.

*Potential impacts on archaeological features within Precinct M*

Site feature or site activities	Level of survival	Likelihood of the Proposal impacting on the site feature or site activities
Polynesian settlement	Low	<p><b>Unlikely</b></p> <p>The traces of Polynesian settlement that are known to have been found in this Precinct were on the western side of Arthur's Vale, no closer than 100 metres from the road. Should any such remains be located on the eastern side of the valley, it is unlikely that subsurface traces would remain in the roadways. Such remains would likely have been demolished during initial road construction or removed during subsequent 20<sup>th</sup> century grading.</p> <p>Despite the low likelihood of finding Polynesian materials, such materials – should they be encountered – will be managed and mitigated in the same manner as any other unexpected finds.</p>
Colonial and post-colonial occupation and use of structures	High	<p><b>Unlikely</b></p> <p>The only structures that may have ever existed on the site of the present roadways would be those from the First British Settlement, of which there is little to no documentary evidence. Even if any such structures ever once stood on ground that is now part of the roadways, it is likely that the traces of these buildings were demolished either during initial road construction or during 20<sup>th</sup> century road grading.</p>
Animal husbandry	High	<p><b>Possible</b></p> <p>The easternmost 8 metres of the pipeline in this precinct will directly intersect an area used as a stockyard and garden during the 2<sup>nd</sup> settlement. There is the possibility that artefacts (metal tools, animal bones, etc.) related to such uses may remain in the area.</p>
Cultivation	High	<p><b>Possible</b></p> <p>The easternmost 8 metres of the pipeline in this precinct will directly intersect an area used as a stockyard and garden during the 2<sup>nd</sup> settlement. There is the possibility that artefacts (metal tools, animal bones, etc.) related to such uses may remain in the area.</p>
Industrial activities	High	<p><b>Unlikely</b></p> <p>There are no known industrial activities that took place within the areas intersected by the pipeline. It is unlikely any remains related to industrial activities will be located during works.</p>

Site feature or site activities	Level of survival	Likelihood of the Proposal impacting on the site feature or site activities
Water supply and service infrastructure	Moderate	<p><b>Possible</b></p> <p>There is a moderate potential that unknown drains or culverts may exist under the roadway in Precinct M. Most of the drains and culverts in Kingston fell into disuse by the 1860s, and their ends were covered by soil deposited through landscaping, construction and erosion. There is a moderate likelihood that any convict-era drains or culverts constructed along the roadway were damaged or destroyed by 20<sup>th</sup> century roadworks.</p> <p>A pair of wells (one intact and open, and one filled and covered by the mid-20<sup>th</sup> century) are within 10 metres of the Proposal works, but no impacts will occur to these and it is very unlikely that any earlier wells would exist in the roadways.</p>
Settlement establishment and layout	High	<p><b>Unlikely</b></p> <p>The only evidence of settlement layouts that may exist in Precinct M are old road surfaces, but based on the initial evidence from Stage 1 works, it is likely that 20<sup>th</sup> century road grading has destroyed most of the traces of older road surfaces.</p>
Landscaping and gardens	Moderate	<p><b>Possible</b></p> <p>The easternmost 8 metres of the pipeline in this precinct will directly intersect an area used as a stockyard and garden during the 2<sup>nd</sup> settlement. There is the possibility that artefacts (metal tools, animal bones, etc.) related to such uses may remain in the area.</p>
Waste disposal	High	<p><b>Unlikely</b></p> <p>The works for the Proposal are within areas that have been actively used as roads for 180-200 years. These are not areas in which waste disposal would have taken place. There is a low probability of significant finds, but individual isolated items (such as glass shards from broken bottles or ceramic sherds from smashed crockery) are likely.</p>
Environmental management	High / Extant	<p><b>Likely</b></p> <p>The potential for impacts upon the stone facing of drains depends on the possibility of encountering drains; see <b>water supply and service infrastructure</b>, above.</p> <p>The Proposal works will run through the location of a former natural waterway that was filled in the early 20<sup>th</sup> century.</p>

## The HMS Sirius shipwreck and the Proposal

### Description

The HMS Sirius shipwreck site is located east of Kingston Pier in Slaughter Bay and is the resting place of the wreck of the HMS Sirius, one of the ships comprising the First Fleet convict transportation voyage to Australia.

The shipwreck was declared a protected Historic Shipwreck in 1984 under the Historic Shipwrecks Act 1976, and it was added on the National and Commonwealth Heritage Lists in 2011 under the EPBC Act.

The shipwreck comprises six separate sites, each of which is the location of an identified artefact concentration. Five of these sites are in Slaughter Bay, south of Bay Street and east of Kingston pier. The sixth is to the west of Kingston pier.

While the shipwreck forms a link between the underwater cultural heritage lying offshore of KAVHA and the terrestrial archaeology and heritage that is so well represented within the KAVHA site, the HMS Sirius is outside of the gazetted boundaries of KAVHA and is not managed by the DITRDCA, which manages KAVHA.

As of May 2021, the HMS Sirius shipwreck HMP had been updated, and was at the draft revision stage. It is expected that the final HMP will be available before the end of the year.

*Proposed works within the HMS Sirius shipwreck site*

None. No part of the Proposal will come within 500 metres of the HMS Sirius shipwreck.

*Potential impacts on archaeological features within the HMS Sirius shipwreck sites*

Site feature or site activities	Level of survival	Likelihood of the Proposal impacting on the site feature or site activities
HMS Sirius shipwreck site	Moderate	<b>Improbable</b>  The construction for the Proposal will be at least 500 metres away from the shipwreck.



## 8. Risk and Mitigation

### Risk Assessment

The priorities for archaeological mitigation or impact avoidance for each of the affected KAVHA precincts are presented below based on the assessments made in **Section 7**. **Table 6** presents the priority risk ratings.

Table 6. Priority risk ratings

Likely impact	Level of survival			Severity
	Extant/High	Moderate	Low	
	Almost Certain			
	Likely			
	Possible			
	Unlikely			
	Improbable			

#### Precinct E – Uplands (land above the 100 foot/30 metre contour) and Stockyard Valley

	High / Extant	Moderate	Low
Almost Certain			
Likely			
Possible			
Unlikely	<ul style="list-style-type: none"> <li>Colonial and post-colonial occupation and use of structures</li> <li>Water supply and service infrastructure</li> </ul>	<ul style="list-style-type: none"> <li>Settlement establishment and layout</li> <li>Waste disposal</li> </ul>	
Improbable		<ul style="list-style-type: none"> <li>Polynesian settlement</li> <li>Landscaping and gardens</li> </ul>	

#### Precinct F – Swamp (known as Kingston Common)

	High / Extant	Moderate	Low
Almost Certain			
Likely	<ul style="list-style-type: none"> <li>Environmental management</li> </ul>		
Possible	<ul style="list-style-type: none"> <li>Water supply and service infrastructure</li> <li>Landscaping and gardens</li> </ul>		
Unlikely	<ul style="list-style-type: none"> <li>Colonial and post-colonial occupation and use of structures</li> <li>Settlement establishment and layout</li> <li>Waste disposal</li> </ul>		
Improbable	<ul style="list-style-type: none"> <li>Landscaping and gardens</li> </ul>	<ul style="list-style-type: none"> <li>Polynesian settlement</li> </ul>	

	High / Extant	Moderate	Low
Almost Certain			
Likely	<ul style="list-style-type: none"> <li>• Environmental management</li> </ul>		
Possible	<ul style="list-style-type: none"> <li>• Animal husbandry</li> <li>• Cultivation</li> </ul>	<ul style="list-style-type: none"> <li>• Water supply and service infrastructure</li> <li>• Landscaping and gardens</li> <li>• Environmental management</li> </ul>	
Unlikely	<ul style="list-style-type: none"> <li>• Colonial and post-colonial occupation and use of structures</li> <li>• Industrial activities</li> <li>• Settlement establishment and layout</li> <li>• Waste disposal</li> </ul>		<ul style="list-style-type: none"> <li>• Polynesian settlement</li> </ul>
Improbable			

## Mitigations

**Table 7** lists the mitigations that will be implemented to protect archaeological values. These measures are informed by the Archaeological Management Plan contained in the AZMP (**Chapter 6**). Some measures would apply to the Proposal in its entirety, whilst others would be applied to aspects of the Proposal where risks are higher (refer to **Table 6**).

*Table 7. Measures to be implemented to protect archaeological values*

#	Mitigation measures	When to implement
<b>Base level measures</b>		
01	An archaeological research design and methodology will be prepared for the project.	Pre-construction
02	A report will be prepared to address research questions and present findings from the works when works are complete. This will include a catalogue of all materials recovered (see #7), a photographic record (see #3), and stratigraphic profiles as appropriate.	Post-construction
03	Excavations in areas of high and moderate archaeological potential will be supervised by the site archaeologist (also refer to #14, below), photographic records of the works will be maintained, and the location of works as executed will be accurately mapped.	Construction Post-construction
04	The site archaeologist must be present during all excavation works in areas zoned as high and moderate archaeological potential (AZMP), in order to be able to guarantee appropriate management and mitigation measures are implemented as works progress.	Construction
05	The site archaeologist will strive to be present as much as possible for monitoring works in low archaeological potential areas. The archaeologist's scheduling will prioritise availability for directing and managing works.	Construction



#	Mitigation measures	When to implement
06	All archaeological features encountered will be recorded and conserved to archival standard. Staff from the Norfolk Island Museum will be invited to attend excavations and assist with the recording of any materials encountered.	Construction
07	<p>Artefacts will be collected or sampled as appropriate. Complete artefacts and large or significant pieces of broken artefacts will be collected. Other artefacts and fragments of artefacts will be recovered as they emerge from the excavations, and soils may be retained for later sieving. Some materials, such as <i>hihi</i> shells, may only be sampled, due to the tremendous number that are typically encountered. All significant building materials (complete bricks or sandstone pieces, stones with lettering or other marks, etc.) will be recovered, but non-significant materials will be sampled due to size/space restrictions.</p> <p>A catalogue of all recovered artefacts will be produced as part of the final report.</p>	<p>Construction</p> <p>Post-construction</p>
08	New ground disturbance will be minimised by aligning the sewer route to existing service trenches and areas covered by deep layers of modern sediment.	<p>Pre-construction</p> <p>Construction</p>
09	The site archaeologist will designate areas of known heritage values as no-go zones on site maps. The use of Contractor laydown areas within KAVHA will be discouraged, and only permitted with CHM and/or site archaeologist approval, and not in areas of high or moderate archaeological potential.	<p>Pre-construction</p> <p>Construction</p>
10	The CHM or site archaeologist will conduct inductions to inform workers and contractors of the importance of safeguarding heritage values including, laydown restrictions, unexpected finds procedure and other moveable cultural heritage requirements (AZMP 6.2.3).	<p>Pre-construction</p> <p>Construction</p>
11	All activities in the immediate vicinity will cease and consultation with the site archaeologist will occur if previously unknown archaeological material is found (unexpected finds procedure).	Construction
12	Chain type trenchers (ditch witch) will not be used in areas of high or moderate archaeological potential due to the destructive potential of this technique.	Construction
13	If accidental damage occurs to any heritage item the works will immediately stop and not recommence until the CHM and/or site archaeologist has surveyed the damage and is satisfied that adjustments have been made to prevent further adverse impact.	Construction
<b>Additional Measures for High Priority risks</b>		
14	Expert archaeological supervision will be engaged where risk level is assessed as High ( <b>Table 6</b> ) or as directed by the site archaeologist.	Construction
15	Test excavations are required where groundworks are proposed in areas of high archaeological potential and as outlined in the archaeological methodology. The route of the sewer line may be adjusted in response to testing and if directed to avoid impacts as required.	Pre-construction

#	Mitigation measures	When to implement
16	Consult data collected from non-invasive investigations (LiDAR and geophysical surveys) to refine/adjust the preferred sewer route in areas of high archaeological potential.	Pre-construction
17	Should works uncover any unknown historic structures and be unable to avoid them, the excavation of footings close to foundations or remains of heritage structures will be carried out by hand.	Construction
18	If works cannot be adjusted to avoid unexpected features (e.g., unknown drains), archival recordings would be made at the standards set by the NSW Heritage Office publications.	Construction
<b>Additional management for significant fabric and findings</b>		
19	Should significant fabric and/or findings be uncovered during the course of investigations, additional recording will be undertaken to capture high-quality photogrammetric data regarding the fabric or findings. These data will be captured to a degree that will allow them to be used for the generation of high-resolution 3D models.	Construction
20	If archaeological materials are discovered, mechanical excavations will be undertaken with a flat-bladed bucket. Toothed buckets are unsuitable for fine scrapes, and cause significant damage to remains.	Construction

## 9. Statement of Heritage Impact

Is there a real chance or possibility that the Proposal will ...	Discussion
... permanently remove, destroy, damage or substantially alter the fabric of a World Heritage property?	<p><b>POSSIBLE</b></p> <p>The Proposal requires extensive excavations. The archaeological features with the highest potential to be impacted include evidence of colonial layout, former gardens, evidence of animal husbandry and drainage. The mitigations proposed to limit adverse impacts include site testing, close archaeological supervision and consulting non-invasive data sets for evidence of these features prior to excavation.</p> <p>There is low potential for damage to intact structural features such as buildings, bridges, etc., and the proposed works will have no aesthetic impact on the buildings of KAVHA. Because the works are almost entirely underground, the few impacts to the overall aesthetics of the site will be both minimal and temporary.</p>
... extend, renovate, refurbish or substantially alter a World Heritage property in a manner which is inconsistent with relevant values?	<p><b>NO</b></p> <p>The works are consistent with the policies and aims of the 2016 KAVHA Heritage Management Plan.</p>
... permanently remove, destroy, damage or substantially disturb archaeological deposits or artefacts in a World Heritage property?	<p><b>LIKELY</b></p> <p>The Proposal requires extensive excavations, and past investigations and anecdotal evidence indicate a high likelihood of impacting archaeological deposits or artefacts, given the large area to be subject to the sewer line. The archaeological feature that is most likely to be impacted is evidence of colonial layout. The mitigations proposed to limit adverse impacts include site testing, close archaeological supervision and consulting non-invasive data sets on the location of features.</p>
... involve activities in a World Heritage property with substantial and/or long-term impacts on its values?	<p><b>UNLIKELY</b></p> <p>The proposed works will only impact on the Outstanding Universal Values (OUV) of the site if the works are inadequately supervised and not undertaken according to contracted requirements.</p>
... involve construction of buildings or other structures within, adjacent to, or within important sight lines of, a World Heritage property which are inconsistent with relevant values?	<p><b>LIKELY</b></p> <p>Most assets within important sightlines will be placed underground. New visual impacts will be introduced in a single location, immediately northwest of the four-way intersection of Quality Row, Pier Street, Middlegate Road and Country Road. Future mitigations (vegetation screening, etc.) may be required to screen these from public view.</p>
... make notable changes to the layout, spaces, form or species composition in a garden, landscape or setting of a World Heritage	<p><b>NO</b></p> <p>The works would not result in a change to the layout, spaces or form of the landscape.</p>

Is there a real chance or possibility that the Proposal will ...	Discussion
property which are inconsistent with relevant values?	

### Management of cumulative heritage impacts

It is recognised that it is possible for a heritage site to suffer from a sort of “death by a thousand cuts” when many minor impacts are approved, which together combine to result in major impacts overall. In order to manage cumulative impacts to KAVHA, the Proposal has been designed to make as much use as possible of previously disturbed land and existing infrastructure corridors.

The following table notes the areas of previous disturbance that will be re-used for the Proposal in order to minimise impacts.

Precinct	Areas of previous disturbance
E (Uplands)	The sewer line will run in the roadway, which has been heavily disturbed as a result of 20 <sup>th</sup> century grading activities.
F (Swamp)	The sewer line will run in the roadway, which has been heavily disturbed as a result of 20 <sup>th</sup> century grading activities.
M (Arthur’s Vale)	The sewer line will run in the roadway, which has been heavily disturbed as a result of 20 <sup>th</sup> century grading activities.

### Assessment of Impact on KAVHA’s Official National, Commonwealth and World Heritage Values

In conjunction with the *Significant Impact Guidelines 1.1*, reference has been made to the UNESCO World Heritage Guidelines *Guidance on Heritage Impact Assessments for Cultural World Heritage Places* (ICOMOS 2011). The following items of guidance are of relevance to this assessment:

- 5-8: The significance of the effect of change – i.e., the overall impact - on an attribute is a function of the importance of the attribute and the scale of change. This can be summarised for each attribute described using the following descriptors. As change or impacts may be adverse or beneficial, there is a nine-point scale with “neutral” as its centre point:
  - **Major beneficial:** A beneficial change to key historic building elements that contribute to the heritage value such that the resource is totally altered. A beneficial comprehensive change to its setting.
  - **Moderate beneficial:** A beneficial change to many key historic building elements, such that the resource is significantly modified. A beneficial change to the setting of an historic building, such that it is significantly modified.
  - **Minor beneficial:** A beneficial change to key historic building elements, such that the asset is slightly different. A beneficial change to setting of an historic building, such that it is noticeably changed.
  - **Negligible beneficial:** A slight beneficial change to historic building elements or setting that hardly affect it.
  - **Neutral:** No change to fabric or setting.
  - **Negligible adverse:** A slight adverse change to historic building elements or setting that hardly affect it.
  - **Minor adverse:** An adverse change to key historic building elements, such that the asset is slightly different. An adverse change to setting of an historic building, such that it is noticeably changed.

- **Moderate adverse:** An adverse change to many key historic building elements, such that the resource is significantly modified. An adverse change to the setting of an historic building, such that it is significantly modified.
- **Major adverse:** An adverse change to key historic building elements that contribute to the heritage value such that the resource is totally altered. An adverse comprehensive change to its setting.

Criterion	Assessed Relevance to the Proposal (per Section 4)	Assessed significance of the effect of change
<b>A Events, Processes</b>	Moderate	<p><i>Minor adverse</i> – this stage of the proposed sewer route is located a considerable distance from most of the structures and remains that reflect the harsh conditions of prison life on Norfolk Island, such as the new Gaol, Civil Hospital, Crankmill and Lumber yard. There is also no excavation to occur within the Old or New Military Barracks compounds.</p> <p>The potential for negative impact is limited to archaeological remains of engineering works, landscaping and animal husbandry. This potential is mitigated by avoiding areas of high archaeological potential (preference given to previously disturbed areas), and locating assets in existing service trenches or in areas overlaid by a substantial layer of modern sediment. The reports from previous archaeological survey have also been extensively consulted. There is little to no potential for negative impacts to structures or the aesthetics of the KAVHA site.</p>
<b>B Rarity</b>	Moderate	<p><i>Neutral</i> – the Proposal is expected to have the most impact on deposits from the Second Settlement, for which the most information is already available. Due to the area selected for the sewer line, no impacts are expected on any Polynesian Settlement deposits, and little to no impacts on any First Settlement deposits. Furthermore, the Proposal would have negligible impact on aspects of the Third Settlement period.</p> <p>The proposed works are located a considerable distance from the cemetery. Staff from the Norfolk Island Museum have been invited to support the excavations. If any artefacts of Pitcairn origin are uncovered, they would be recorded, catalogued and managed according to Museum policies.</p>
<b>C Research</b>	High	<p><i>Negligible beneficial</i> – As previously identified, most excavation is limited to previously disturbed sites or areas overlaid by a deep layer of modern sediment. However, the Proposal would provide some opportunities for research into aspects of early 19th century engineering methods (road and drainage construction), waste management and animal husbandry practices. These themes would be outlined in the archaeological research design and methodology to be prepared for the Proposal.</p>
<b>D Principal characteristics of a class of places</b>	Medium	<p><i>Minor adverse</i> – The Proposal would not impact on any structures within the Kingston Pier/landing place, prison compounds, lumber yard or military barracks complexes.</p>
<b>E</b>	Low	<p><i>Minor beneficial</i> – visual impacts would be minimal and temporary. With the exception of above-ground</p>

Criterion	Assessed Relevance to the Proposal (per Section 4)	Assessed significance of the effect of change
<b>Aesthetic characteristics</b>		components of PS3 and associated infrastructure, including pumping station lid, vent and control cabinet.
<b>G Social value</b>	High	<p><i>High beneficial</i> – Construction of the sewer would deliver significant environmental, economic and social community benefit. Following heavy rainfall on 31 July 2020 the Norfolk Island Regional Council issued a warning to the community not to swim in Emily Bay due to unsafe levels of <i>E. coli</i> levels posing a significant threat to public health (<b>Appendix F</b>). Such warnings are common after storm events.</p> <p>Wastewater from KAVHA contributes to the unsafe and damaging levels of nutrients and pathogens that enter the marine environment near Emily Bay. The ability to collect KAVHA’s wastewater and transport it to a treatment works would enable larger local community and tourism events to be staged within KAVHA.</p>
<b>H Significant people</b>	Not relevant	Not relevant.

## Glossary

<b>AZMP</b>	<b>Archaeological Zoning and Management Plan:</b> A plan for KAVHA that provides information on the archaeological potential of areas around the site, in order to manage development and works within the site. This is not a statutory document.
<b>CHL</b>	<b>Commonwealth Heritage List:</b> A list of Indigenous-related, historic natural heritage places owned or controlled by the Australian Government.
<b>CHM</b>	<b>Commonwealth Heritage Manager:</b> The Commonwealth employee responsible for overall heritage management at KAVHA. Note: The CHM position no longer exists. CHM responsibilities would be fulfilled by the person(s) responsible for the management of Commonwealth Heritage at Kingston at that time.
<b>CLMP</b>	<b>Cultural Landscape Management Plan:</b> A plan at KAVHA that defines the policies and goals for managing the cultural landscape of the site. This is not a statutory document.
<b><i>E. coli</i></b>	<b><i>Escherichia coli</i>:</b> A type of faecal coliform.
<b>HMP</b>	<b>Heritage Management Plan:</b> The statutory document for KAVHA that defines the policies and goals of managing cultural and natural heritage. HMPs are updated on a regular basis (approximately every 6-7 years).
<b>KAVHA</b>	<b>Kingston and Arthur's Vale Historic Area:</b> The historic site at Kingston, originally defined c. 1980, and gazetted as part of the convict sites World Heritage site serial listing in 2007.
<b>NHL</b>	<b>National Heritage List:</b> A list of natural, historic and Indigenous places of outstanding significance to the nation of Australia.
<b>NIRC</b>	<b>Norfolk Island Regional Council:</b> the local government authority on Norfolk Island.
<b>OUV</b>	<b>Outstanding Universal Value:</b> Relating to matters of cultural or natural significance that are so exceptional that they transcend national borders. OUVs are considered to be of common importance for present and future generations of humanity.
<b>Project</b>	The overall KAVHA Sewerage Scheme Project – Stages 1-3.
<b>Proposal</b>	Stage 2 of the overall KAVHA Sewerage Scheme Project (Stages 1-3).

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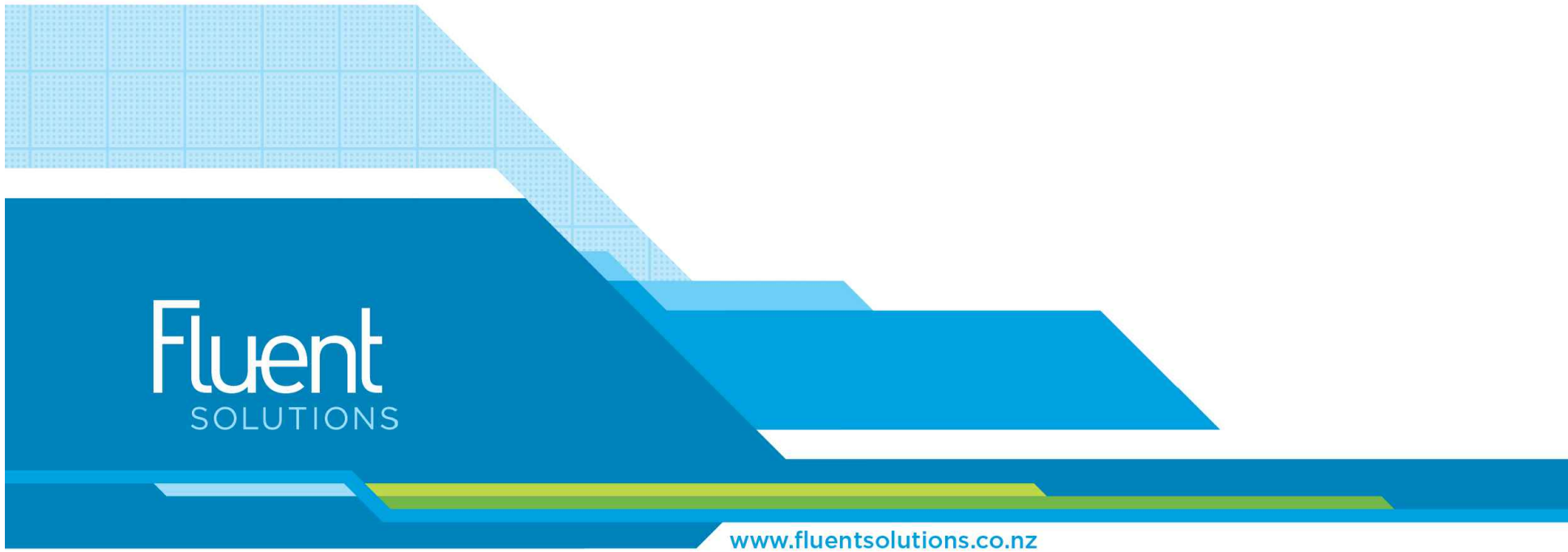
## Appendices

## Appendix A – Sewer design drawings (Fluent)

# NORFOLK ISLAND KAVHA WASTEWATER SCHEME

STAGE 2

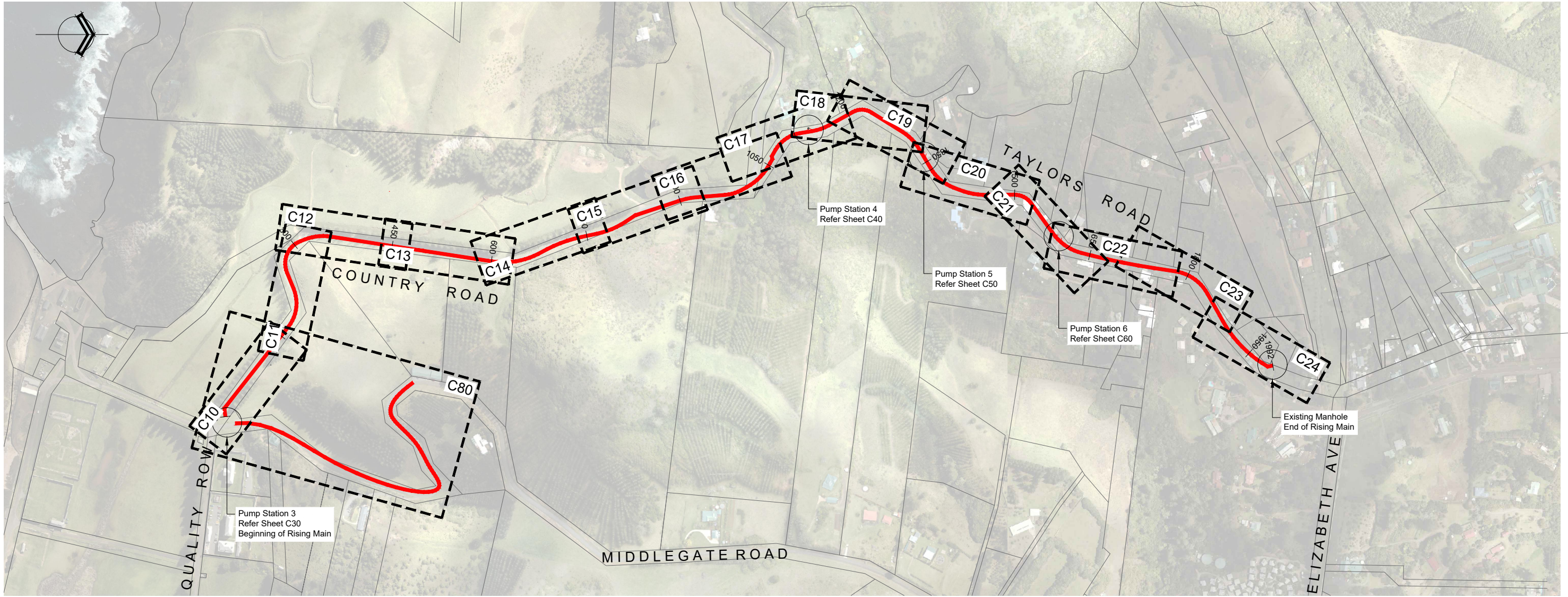
CIVIL ENGINEERING DRAWINGS  
Project No. 000770



Sheet List Table		
Sheet Number	Sheet Title	Rev
C01	General Arrangement	0
Pump Station 3 - Pump Station 4		
C10	Station 0-150	1
C11	Station 150-300	0
C12	Station 300-450	0
C13	Station 450-600	0
C14	Station 600-750	0
C15	Station 750-900	0
C16	Station 900-1050	0
C17	Station 1050-1200	0
Pump Station 4 - Pump Station 5		
C18	Station 0-100	0
C19	Station 100-200	0
Pump Station 5 - Pump Station 6		
C20	Station 0-150	0
C21	Station 150-256	0
Pump Station 6 - Existing Manhole		
C22	Station 0-150	0
C23	Station 150-300	0
C24	Station 300-400	0
Stage 2A - Pump Stations		
C30	Pump Station 3	0
C31	Pump Station 3 Details	0
C40	Pump Station 4	0
C41	Pump Station 4 Details	0
C50	Pump Station 5	0
C51	Pump Station 5 Details	0
C60	Pump Station 6	0
C61	Pump Station 6 Details	0
Details		
C70	Typical Details	0
C71	Typical Details	0
C72	Typical Details	0
Stage 2B - Middlegate Road		
C80	Stage 2B Layout Plan	0
C81	Stage 2B Longsections	0
C82	Stage 2B Longsections	0

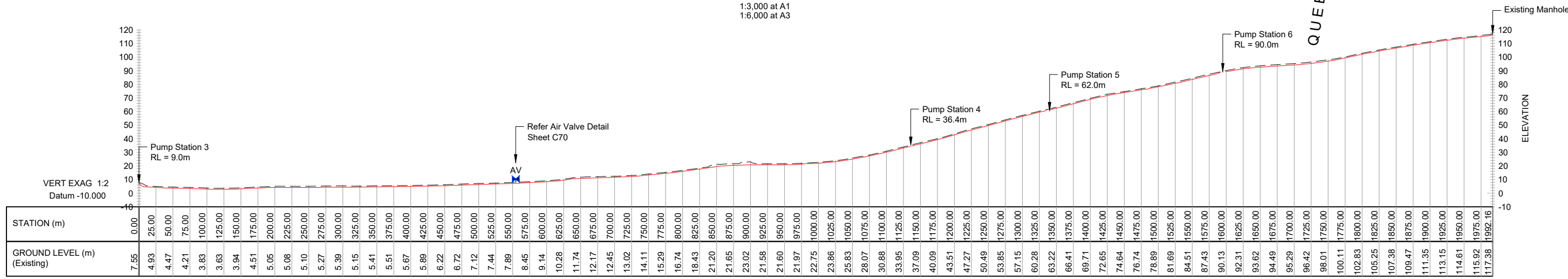
ISSUED FOR  
CONSTRUCTION  
01/12/2023





GENERAL ARRANGEMENT

1:3,000 at A1  
1:6,000 at A3



RISING MAIN LONG SECTION

1:3,000 (h) 1:1,500 (v) at A1  
1:6,000 (h) 1:3,000 (v) at A3

0 For Construction

ACS ESG ACS ACS 29/11/23

Revision  
Verify all dimensions on site before commencing work. Prioritise figured dimensions over scaling. Refer all discrepancies to the drawing office.  
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Des Drn Rvd App Date

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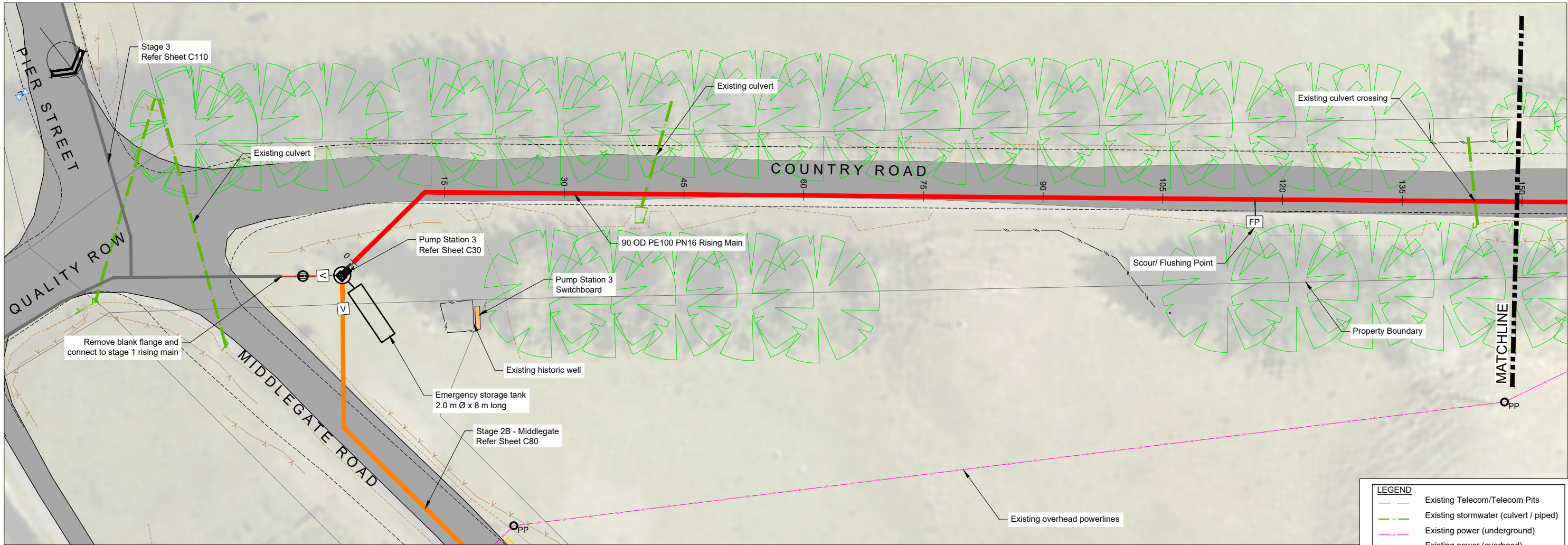
Client  
Australian Government  
Department of Infrastructure, Transport,  
Regional Development and Communications

Project Title  
Norfolk Island  
KAVHA Wastewater Scheme

Sheet Title  
General Arrangement

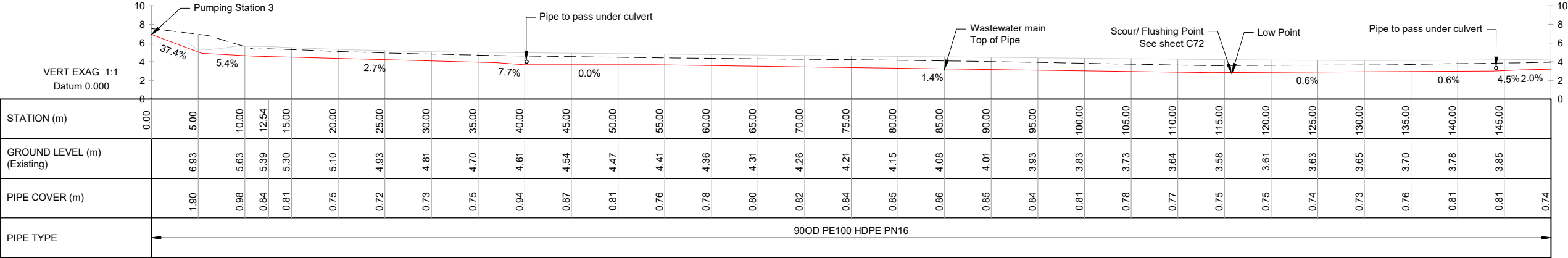
Scale (A1 Original) 1:3000 m  
Issue For Construction  
Project No 000770 Sheet C01 Revision 0





LAYOUT PLAN 0-150

1:250 at A1  
1:500 at A3



LONGSECTION 0 - 150

1:250 at A1  
1:500 at A3

LEGEND	
	Existing Telecom/Telecom Pits
	Existing stormwater (culvert / piped)
	Existing power (underground)
	Existing power (overhead)
	Existing property boundary
	Proposed foul sewer rising main
	Air Relief Valve
	GHD Road Alignment in plan
	GHD Road Alignment Surface
	Existing Ground Surface

- GENERAL NOTES**
- Services locations shown on the plans are indicative only, and may be incomplete. Location of all existing services to be confirmed on site prior to commencing of any works.
  - New underground power supply to pump stations to be taken from new pole mounted transformers as required - confirm location of power route on site.
  - All trench work to be reinstated as per existing.
  - Sections of shallow pipe to be concrete capped. Refer detail sheet C70.
  - 900D PE100 Minimum Bend Radius = 2.0m.
- PUMP STATION NOTES**
- Pumpstation design to be as per supplied Aquatec drawings.
- RISING MAIN NOTES**
- When crossing above of below existing culverts, allow 150mm clearance between the rising main and the existing culvert.
- SURFACE DATA**
- Surface levels have been based on the scale 1 data and coordinate system used to prepare the detail survey (provided by Abbott & Macro) for the KAVHA project site

1	For Construction	ACS	ANS	ACS	ACS	01/12/23
0	For Construction	ACS	ESG	ACS	ACS	29/11/23
<b>Revision</b>						
		<b>Des</b>	<b>Drn</b>	<b>Rvd</b>	<b>App</b>	<b>Date</b>
Verify all dimensions on site before commencing work. Prioritise figured dimensions over scaling. Refer all discrepancies to the drawing office.						
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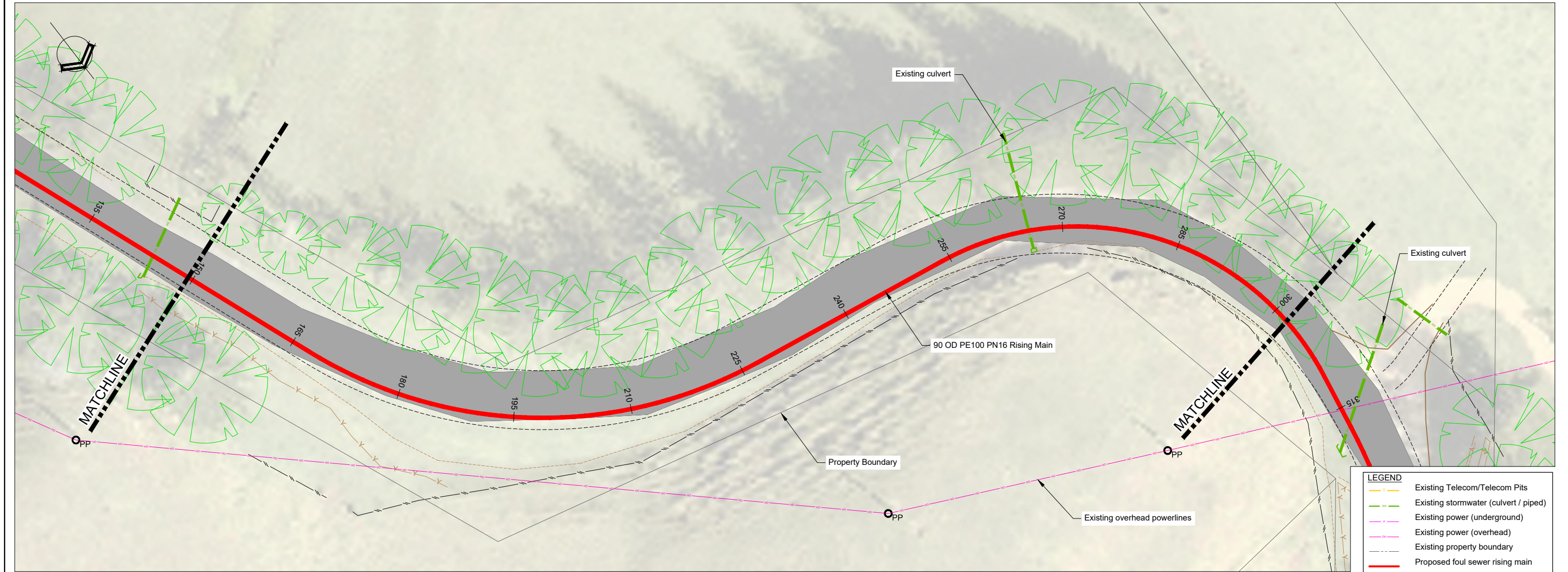
Project Title  
Norfolk Island  
KAVHA Wastewater Scheme

Sheet Title  
Pumpstation 3 to Pumpstation 4  
Layout Plan and Longsection

Scale ( A1 Original )	1:250 m
Issue	For Construction
Project No	000770
Sheet	C10
Revision	1

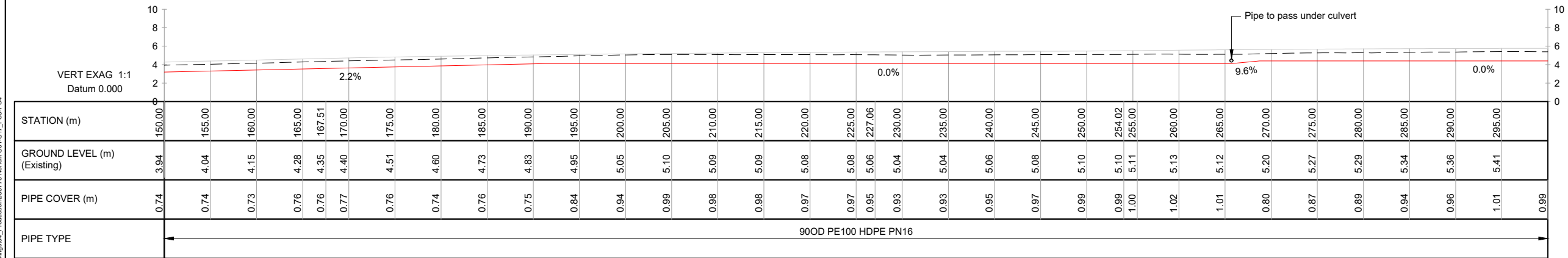


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LAYOUT PLAN 150 - 300

1:250 at A1  
1:500 at A3



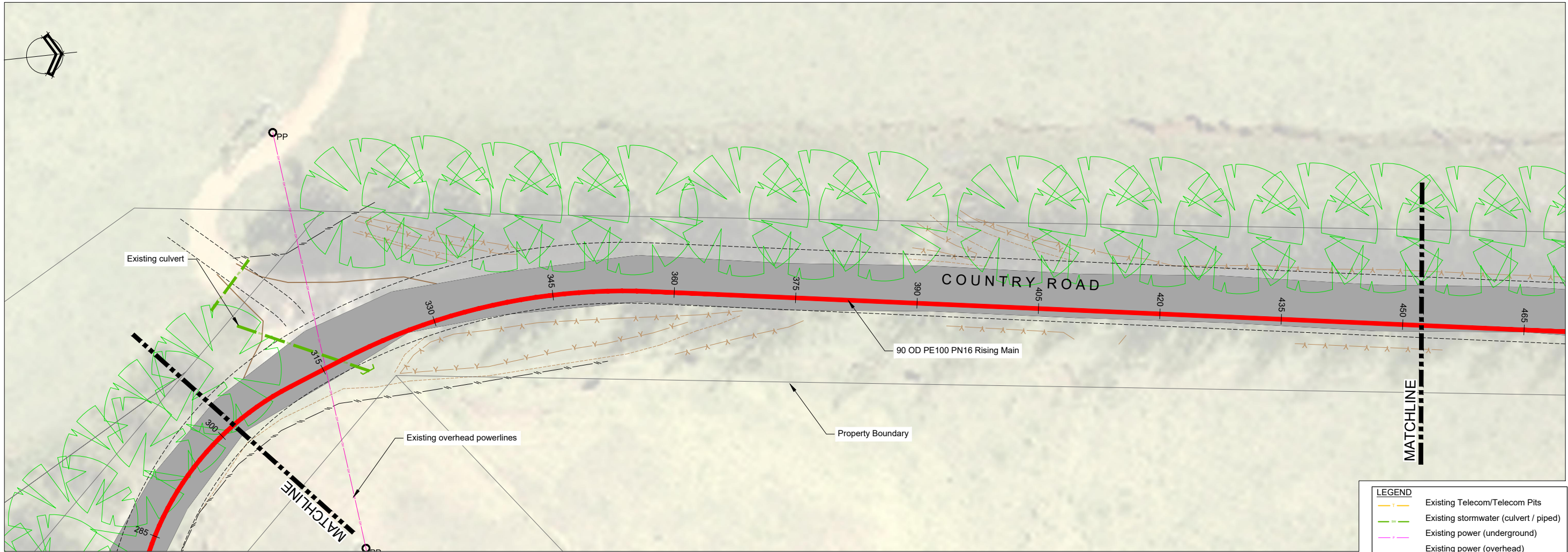
LONGSECTION 150 - 300

1:250 at A1  
1:500 at A3

LEGEND	
	Existing Telecom/Telecom Pits
	Existing stormwater (culvert / piped)
	Existing power (underground)
	Existing power (overhead)
	Existing property boundary
	Proposed foul sewer rising main
	Air Relief Valve
	GHD Road Alignment in plan
	GHD Road Alignment Surface
	Existing Ground Surface

GENERAL NOTES	
1.	Services locations shown on the plans are indicative only, and may be incomplete. Location of <u>all</u> existing services to be confirmed on site prior to commencing of any works.
2.	New underground power supply to pump stations to be taken from new pole mounted transformers as required - confirm location of power route on site.
3.	All trench work to be reinstated as per existing.
4.	Sections of shallow pipe to be concrete capped. Refer detail sheet C70.
5.	90OD PE100 Minimum Bend Radius = 2.0m.
PUMP STATION NOTES	
•	Pumpstation design to be as per supplied Aquatec drawings.
RISING MAIN NOTES	
•	When crossing above of below existing culverts, allow 150mm clearance between the rising main and the existing culvert.
SURFACE DATA	
•	Surface levels have been based on the scale 1 data and coordinate system used to prepare the detail survey (provided by Abbott & Macro) for the KAVHA project site

0 For Construction		ACS ESG ACS ACS 29/11/23		 www.fluentsolutions.co.nz	 <b>Australian Government</b> Department of Infrastructure, Transport, Regional Development and Communications	Project Title Norfolk Island KAVHA Wastewater Scheme	Sheet Title Pumpstation 3 to Pumpstation 4 Layout Plan and Longsection	Scale ( A1 Original ) 1:250 m	
Revision		Des Drn Rvd App Date						Issue For Construction	
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								Sheet C11	
								Revision 0	



LAYOUT PLAN 300-450

1:250 at A1  
1:500 at A3

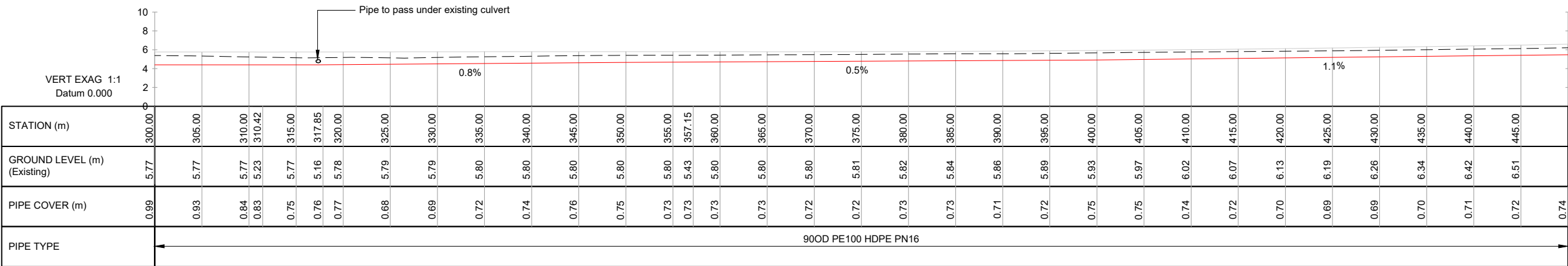
LEGEND	
	Existing Telecom/Telecom Pits
	Existing stormwater (culvert / piped)
	Existing power (underground)
	Existing power (overhead)
	Existing property boundary
	Proposed foul sewer rising main
	Air Relief Valve
	GHD Road Alignment in plan
	GHD Road Alignment Surface
	Existing Ground Surface

- GENERAL NOTES**
- Services locations shown on the plans are indicative only, and may be incomplete. Location of all existing services to be confirmed on site prior to commencing of any works.
  - New underground power supply to pump stations to be taken from new pole mounted transformers as required - confirm location of power route on site.
  - All trench work to be reinstated as per existing.
  - Sections of shallow pipe to be concrete capped. Refer detail sheet C70.
  - 90OD PE100 Minimum Bend Radius = 2.0m.

- PUMP STATION NOTES**
- Pumpstation design to be as per supplied Aquatec drawings.

- RISING MAIN NOTES**
- When crossing above of below existing culverts, allow 150mm clearance between the rising main and the existing culvert.

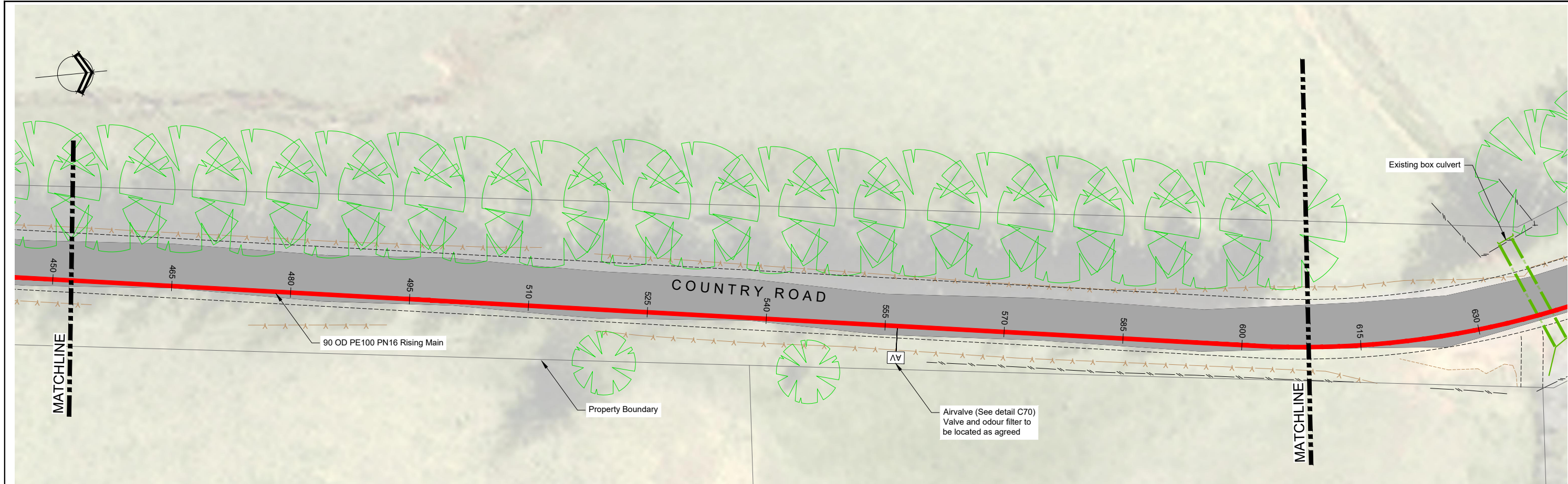
- SURFACE DATA**
- Surface levels have been based on the scale 1 data and coordinate system used to prepare the detail survey (provided by Abbott & Macro) for the KAVHA project site



LONGSECTION 300-450

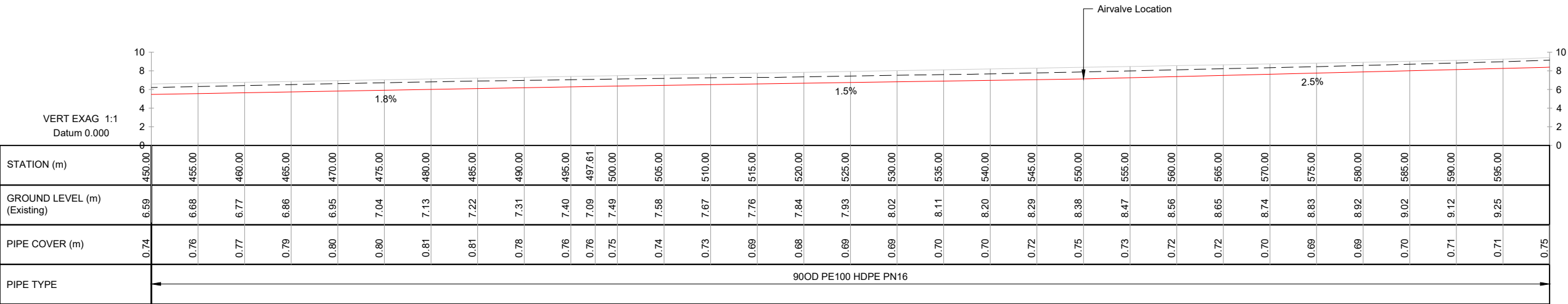
1:250 at A1  
1:500 at A3





LAYOUT PLAN 450-600

1:250 at A1  
1:500 at A3



LONGSECTION 450-600

1:250 at A1  
1:500 at A3

**LEGEND**

- Existing Telecom/Telecom Pits
- Existing stormwater (culvert / piped)
- Existing power (underground)
- Existing power (overhead)
- Existing property boundary
- Proposed foul sewer rising main
- Air Relief Valve
- GHD Road Alignment in plan
- GHD Road Alignment Surface
- Existing Ground Surface

- GENERAL NOTES**
- Services locations shown on the plans are indicative only, and may be incomplete. Location of all existing services to be confirmed on site prior to commencing of any works.
  - New underground power supply to pump stations to be taken from new pole mounted transformers as required - confirm location of power route on site.
  - All trench work to be reinstated as per existing.
  - Sections of shallow pipe to be concrete capped. Refer detail sheet C70.
  - 90OD PE100 Minimum Bend Radius = 2.0m.

**PUMP STATION NOTES**

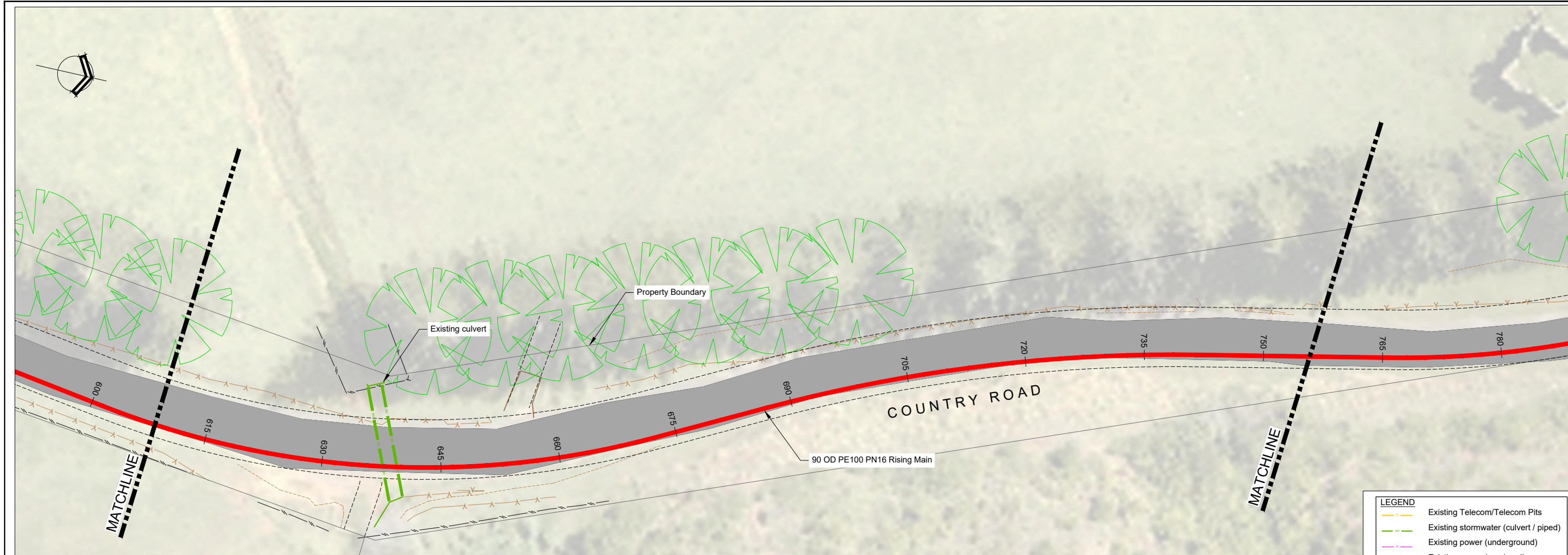
- Pumpstation design to be as per supplied Aquatec drawings.

**RISING MAIN NOTES**

- When crossing above of below existing culverts, allow 150mm clearance between the rising main and the existing culvert.

**SURFACE DATA**

- Surface levels have been based on the scale 1 data and coordinate system used to prepare the detail survey (provided by Abbott & Macro) for the KAVHA project site



LAYOUT PLAN 600-750

1:250 at A1  
1:500 at A3

LEGEND

Existing Telecom/Telecom Pits

Existing stormwater (culvert / piped)

Existing power (underground)

Existing power (overhead)

Existing property boundary

Proposed foul sewer rising main

AV

Air Relief Valve

GHD Road Alignment in plan

GHD Road Alignment Surface

Existing Ground Surface

- GENERAL NOTES
1.

Services locations shown on the plans are indicative only, and may be incomplete. Location of all existing services to be confirmed on site prior to commencing of any works.
2.
- New underground power supply to pump stations to be taken from new pole mounted transformers as required - confirm location of power route on site.

3.

4.

5.

PUMP STATION NOTES

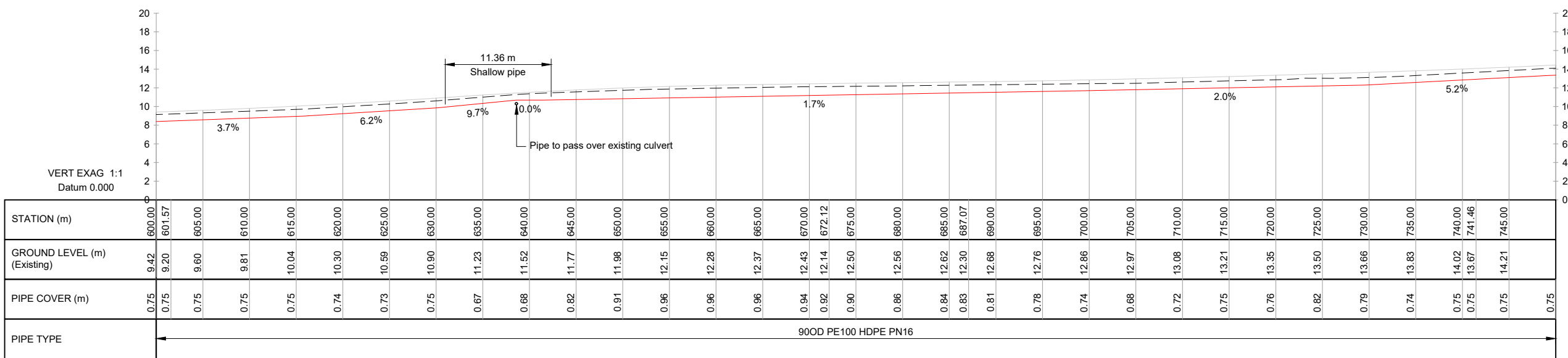
- Pumpstation design to be as per supplied Aquatec drawings.

RISING MAIN NOTES

- When crossing above of below existing culverts, allow 150mm clearance between the rising main and the existing culvert.

SURFACE DATA

- Surface levels have been based on the scale 1 data and coordinate system used to prepare the detail survey (provided by Abbott & Macro) for the KAVHA project site



LONGSECTION 600-750

1:250 at A1  
1:500 at A3

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Revision

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Client

Australian Government  
Department of Infrastructure, Transport,  
Regional Development and Communications

Project Title

Norfolk Island  
KAVHA Wastewater Scheme

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Sheet Title

Pumpstation 3 to Pumpstation 4  
Layout Plan and Longsection

Scale ( A1 Original )

1:250 m

Issue

For Construction

Project No

000770

Sheet

C14

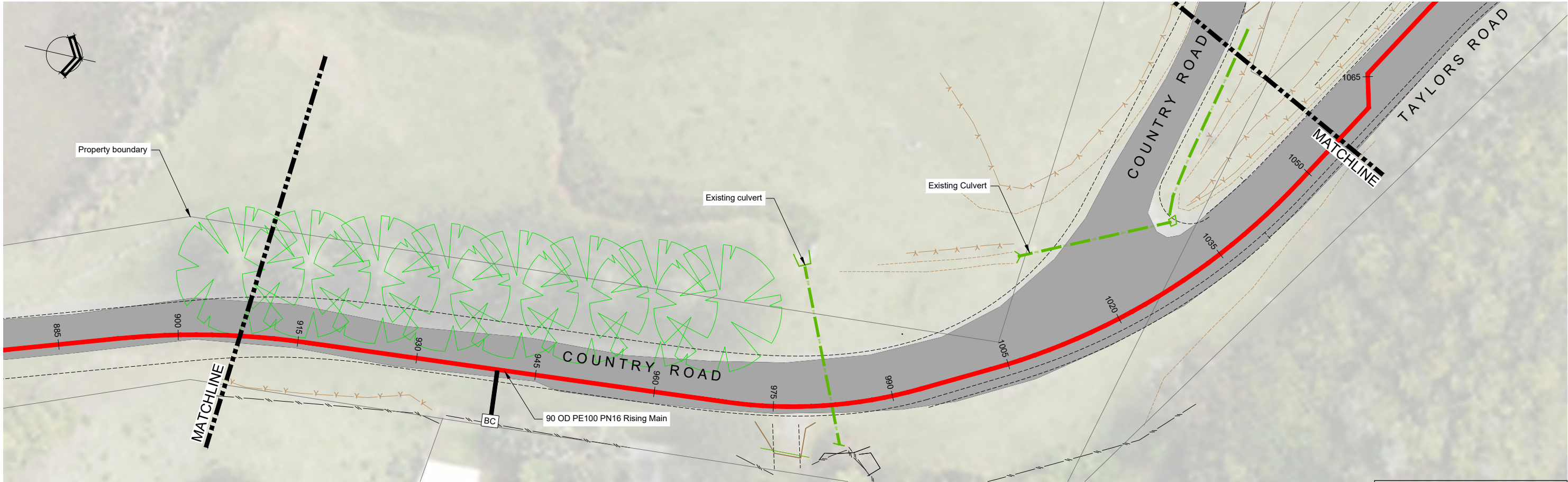
Revision

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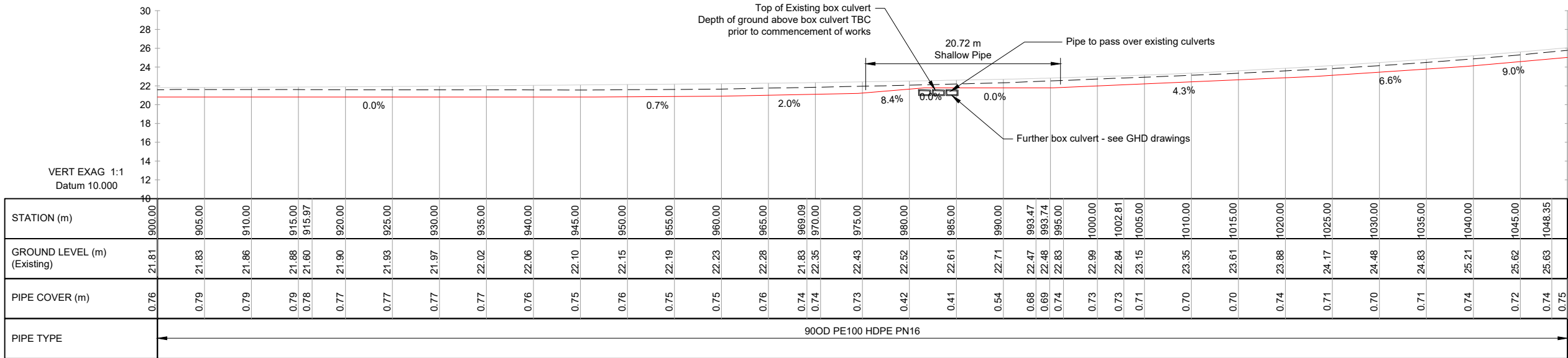






LAYOUT PLAN 900-1050

1:250 at A1  
1:500 at A3



LONGSECTION 900-1050

1:250 at A1  
1:500 at A3

LEGEND	
	Existing Telecom/Telecom Pits
	Existing stormwater (culvert / piped)
	Existing power (underground)
	Existing power (overhead)
	Existing property boundary
	Proposed foul sewer rising main
	Air Relief Valve
	GHD Road Alignment in plan
	GHD Road Alignment Surface
	Existing Ground Surface

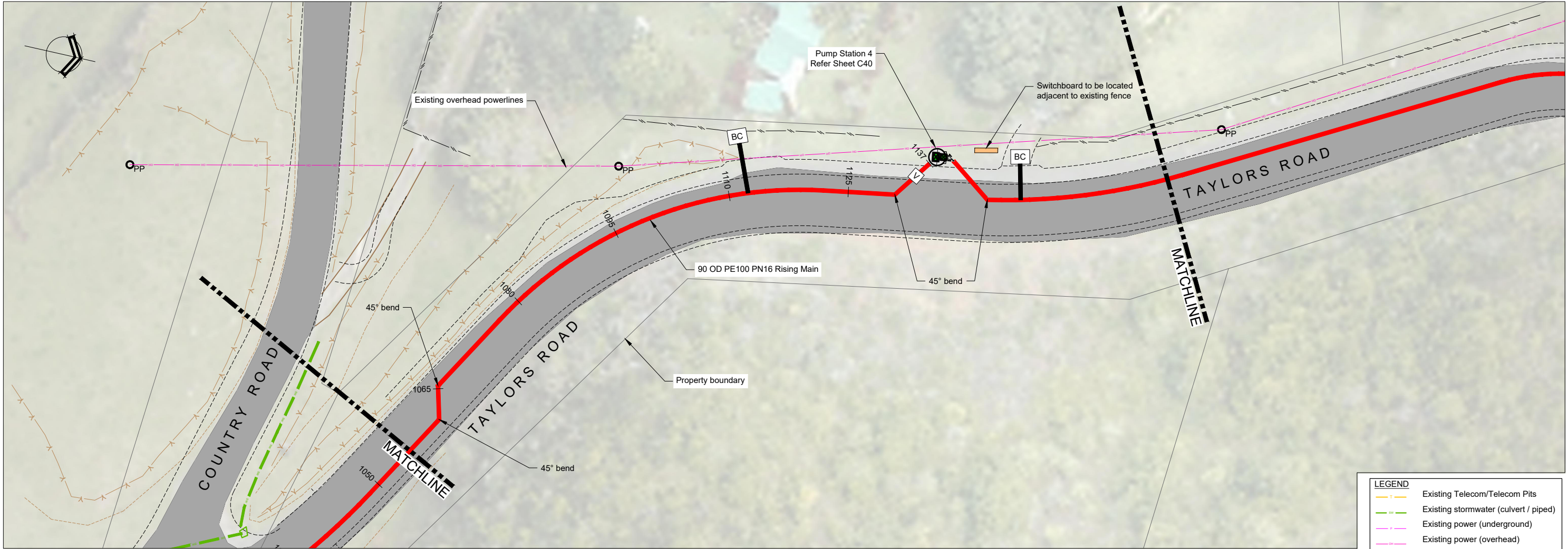
- GENERAL NOTES**
- Services locations shown on the plans are indicative only, and may be incomplete. Location of all existing services to be confirmed on site prior to commencing of any works.
  - New underground power supply to pump stations to be taken from new pole mounted transformers as required - confirm location of power route on site.
  - All trench work to be reinstated as per existing.
  - Sections of shallow pipe to be concrete capped. Refer detail sheet C70.
  - 90OD PE100 Minimum Bend Radius = 2.0m.

- PUMP STATION NOTES**
- Pumpstation design to be as per supplied Aquatec drawings.

- RISING MAIN NOTES**
- When crossing above of below existing culverts, allow 150mm clearance between the rising main and the existing culvert.

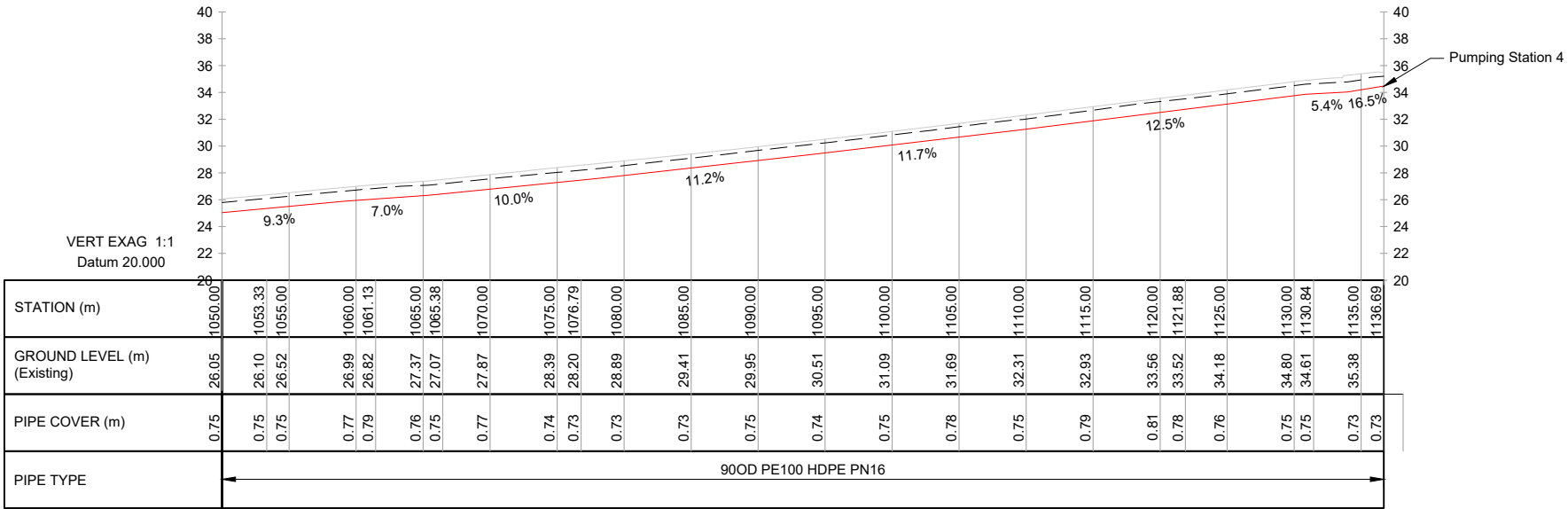
- SURFACE DATA**
- Surface levels have been based on the scale 1 data and coordinate system used to prepare the detail survey (provided by Abbott & Macro) for the KAVHA project site





LAYOUT PLAN 1050-1137

1:250 at A1  
1:500 at A3



LONGSECTION 1050-1137

1:250 at A1  
1:500 at A3

**LEGEND**

- Existing Telecom/Telecom Pits
- Existing stormwater (culvert / piped)
- Existing power (underground)
- Existing power (overhead)
- Existing property boundary
- Proposed foul sewer rising main
- Air Relief Valve
- GHD Road Alignment in plan
- GHD Road Alignment Surface
- Existing Ground Surface

- GENERAL NOTES**
- Services locations shown on the plans are indicative only, and may be incomplete. Location of all existing services to be confirmed on site prior to commencing of any works.
  - New underground power supply to pump stations to be taken from new pole mounted transformers as required - confirm location of power route on site.
  - All trench work to be reinstated as per existing.
  - Sections of shallow pipe to be concrete capped. Refer detail sheet C70.
  - 90OD PE100 Minimum Bend Radius = 2.0m.

- PUMP STATION NOTES**
- Pumpstation design to be as per supplied Aquatec drawings.

- RISING MAIN NOTES**
- When crossing above of below existing culverts, allow 150mm clearance between the rising main and the existing culvert.

- SURFACE DATA**
- Surface levels have been based on the scale 1 data and coordinate system used to prepare the detail survey (provided by Abbott & Macro) for the KAVHA project site

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Client

**Australian Government**  
Department of Infrastructure, Transport,  
Regional Development and Communications

Project Title

Norfolk Island  
KAVHA Wastewater Scheme

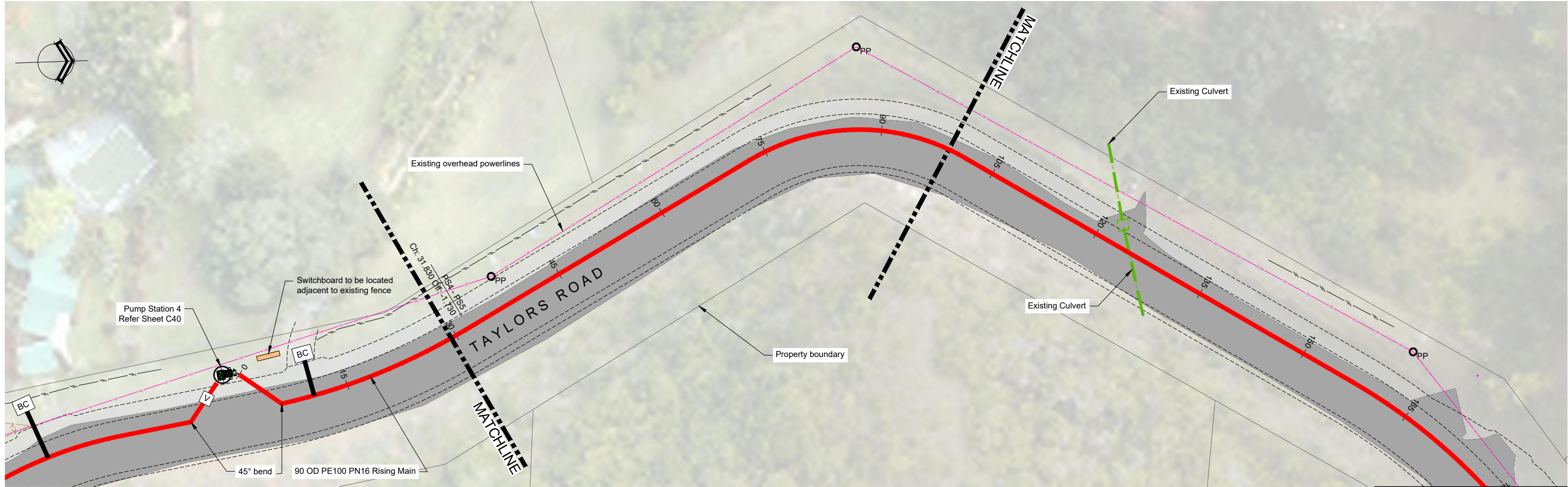
Sheet Title

Pumpstation 3 to Pumpstation 4  
Layout Plan and Longsection

Scale ( A1 Original ) 1:250 m

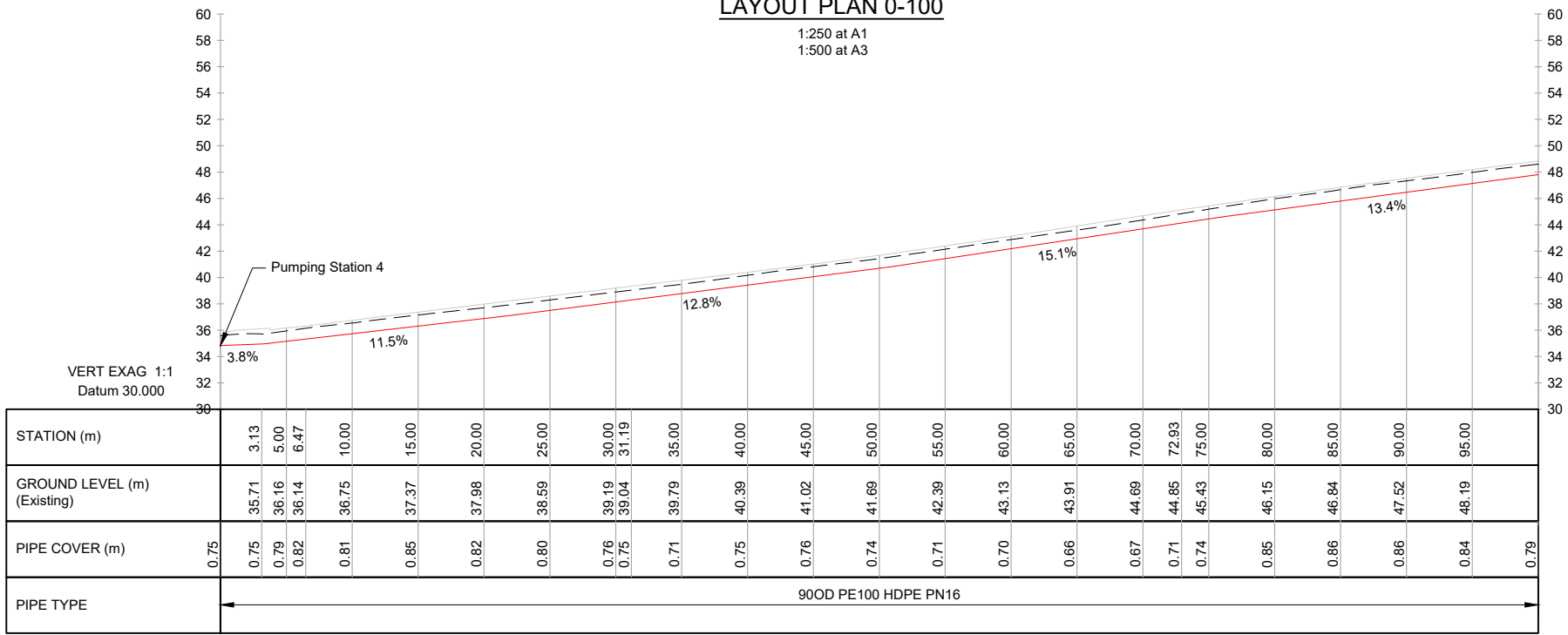
Issue For Construction

Project No	Sheet	Revision
000770	C17	0



LAYOUT PLAN 0-100

1:250 at A1  
1:500 at A3



LONGSECTION 0-100

1:250 at A1  
1:500 at A3

LEGEND	
	Existing Telecom/Telecom Pits
	Existing stormwater (culvert / piped)
	Existing power (underground)
	Existing power (overhead)
	Existing property boundary
	Proposed foul sewer rising main
	Air Relief Valve
	GHD Road Alignment in plan
	GHD Road Alignment Surface
	Existing Ground Surface

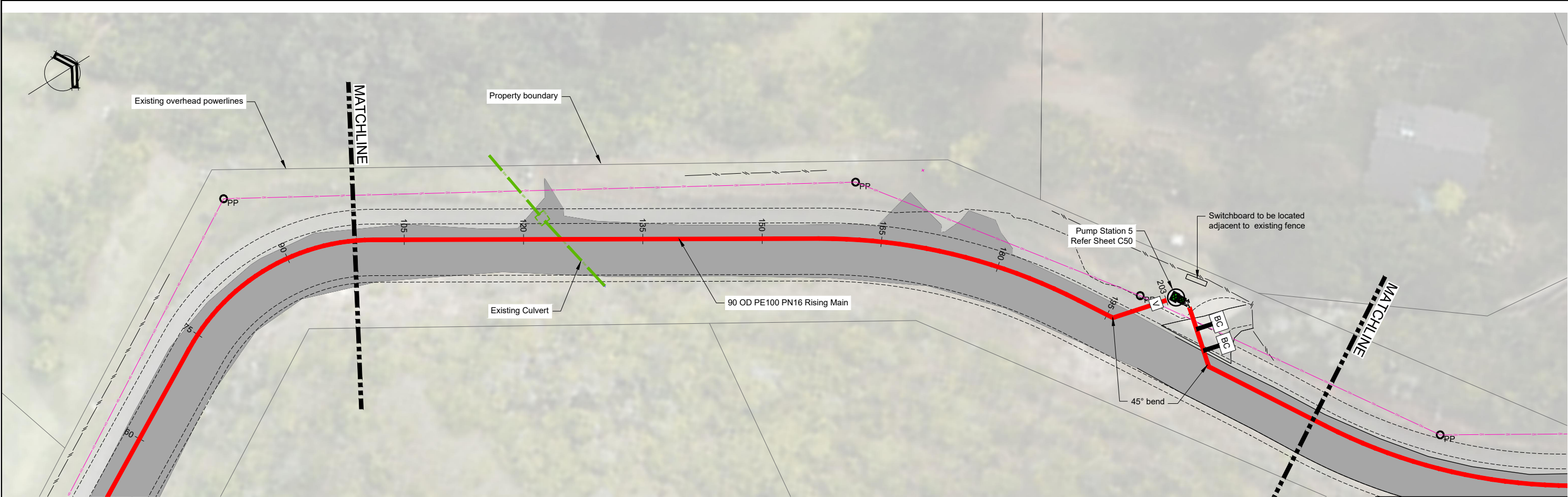
- GENERAL NOTES**
- Services locations shown on the plans are indicative only, and may be incomplete. Location of all existing services to be confirmed on site prior to commencing of any works.
  - New underground power supply to pump stations to be taken from new pole mounted transformers as required - confirm location of power route on site.
  - All trench work to be reinstated as per existing.
  - Sections of shallow pipe to be concrete capped. Refer detail sheet C70.
  - 90OD PE100 Minimum Bend Radius = 2.0m.

- PUMP STATION NOTES**
- Pumpstation design to be as per supplied Aquatec drawings.

- RISING MAIN NOTES**
- When crossing above of below existing culverts, allow 150mm clearance between the rising main and the existing culvert.

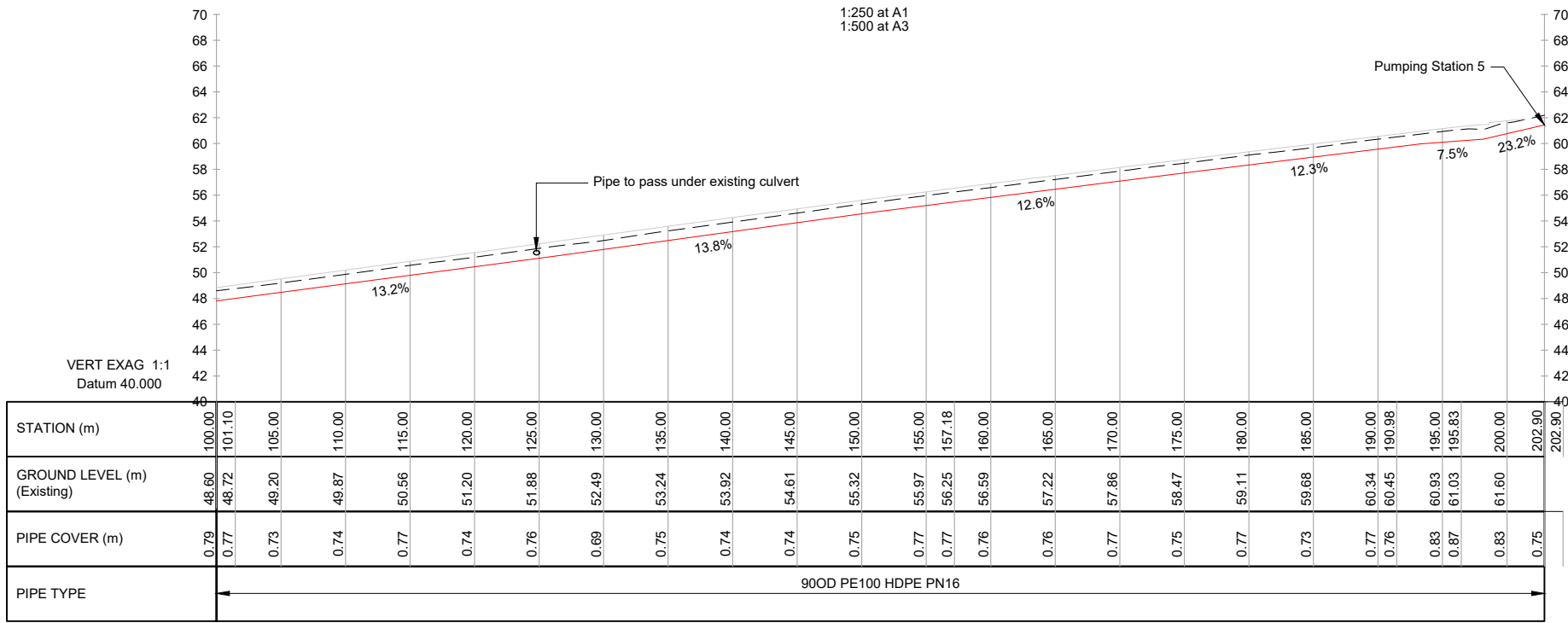
- SURFACE DATA**
- Surface levels have been based on the scale 1 data and coordinate system used to prepare the detail survey (provided by Abbott & Macro) for the KAVHA project site





LAYOUT PLAN 100-203

1:250 at A1  
1:500 at A3



LONGSECTION 100-203

1:250 at A1  
1:500 at A3

**LEGEND**

- Existing Telecom/Telecom Pits
- Existing stormwater (culvert / piped)
- Existing power (underground)
- Existing power (overhead)
- Existing property boundary
- Proposed foul sewer rising main
- Air Relief Valve (AV)
- GHD Road Alignment in plan
- GHD Road Alignment Surface
- Existing Ground Surface

**GENERAL NOTES**

- Services locations shown on the plans are indicative only, and may be incomplete. Location of all existing services to be confirmed on site prior to commencing of any works.
- New underground power supply to pump stations to be taken from new pole mounted transformers as required - confirm location of power route on site.
- All trench work to be reinstated as per existing.
- Sections of shallow pipe to be concrete capped. Refer detail sheet C70.
- 90OD PE100 Minimum Bend Radius = 2.0m.

**PUMP STATION NOTES**

- Pumpstation design to be as per supplied Aquatec drawings.

**RISING MAIN NOTES**

- When crossing above of below existing culverts, allow 150mm clearance between the rising main and the existing culvert.

**SURFACE DATA**

- Surface levels have been based on the scale 1 data and coordinate system used to prepare the detail survey (provided by Abbott & Macro) for the KAVHA project site