Tamar Valley Geology and British Settlement

Addendum: to Tamar Valley Geology Determining the First Peoples Occupation of Northern Van Diemen's Land

Domination and accommodation

British settlements, based on the traditions of British farming and shipping, needed arable land and protected anchorages for long-term survival. Well-watered farmland was not to be found easily near the mouth of the Tamar, near York Town or George Town, where the best port facilities were available. In contrast, good port facilities were not to be found at the head of the Tamar where well-watered farmland was available.

In deciding where to establish the largest, permanent, British settlement, food production won over ease of loading and unloading ships and the majority of the early settlement was transferred from the mouth of the River Tamar to the estuary's head at Launceston from 1806.

Both William Collins and William Paterson's logs[1] recorded their having to negotiate rapids at the head of the waterway and Paterson's journal was effusive about farmland on the North Esk River delta and beyond. Both men also made for the North Esk River before attempting to row into the South Esk River, possibly because of the mid-stream bar and rapids. Further, sailing or rowing into the North Esk River was an easier proposition than negotiating the mud banks on either the West Tamar or the area below the high ground which is labelled "Barracks Military" in what is now Royal Park.

Paterson's decision to move to the head of the Tamar Estuary, where mudbanks and swampland were obvious, would not have been seen as a major problem for the British. Aboriginal fire-stick operations over thousands of years had created large, estate-like stretches of land in the Launceston hinterland and arable land was, in British terms, plentiful. The British also brought with them the knowledge of living in mud-bank estuaries and draining and reclaiming land over more than a thousand years, from at least the time of the Roman occupation from AD 43.

London was created from the embanking of the Thames River marshlands with the consequence that the Thames River narrowed, the tidal limit moved upstream, a longer estuary was created, and larger ships could navigate the waterway. Further, low embankments subsided resulting in flooding and further raising of the embankments and the start of a workplace cycle of protecting the land and the built environment.[2]

Similarly, centuries ago, the farmers of East Anglia transformed the marshlands of The Fens with drainage channels with the same result as the London experience – the land subsided under the intensity of farming, such as it was in the early years - and the development of pumping technology to keep the land as a significant agricultural region of Britain.[3] Although Fenland reclamation was thought to have started with the Romans, the major drainage program started in the 1630s, 170 years before Paterson brought the British settlement to Launceston.

Farming practices that created arable riches on the former marshlands of London and The Fens were well organized and effective by the time the British arrived in Van Diemen's Land and seeing the swampland of Launceston's three-river system would not have been a disincentive to settlement.

The North Esk River's "swamp" would not have been "swamp" all year round and in the drier seasons would have been excellent cattle grazing country on native grasses.

The following sketches show that if the British settlement were to survive on British cultural presumptions, heroic landscape changes would be required and first among them would be the recognition that a ship of 400 tons was not a large vessel and if larger ships were to be accommodated, and have a safer anchorage, better port facilities were a must. Those facilities could only be found in the North Esk River where, closing the Southern channel flow (See sketch 2) to the Tamar would create deeper water over the bar and rapids in the Northern channel and, thus, a safer entrance into the North Esk River's estuary.

Closing the North Esk River's Southern channel would eventually expand the mud island and it became Royal Park. The western beacon of the mud island, shown clearly on Sketch 2, approximates the present Home Point.

A hundred metres from the North Esk River's mud island, beyond where Charles Street crossed (Sketch 3), the early settlers created the first wharves. These were accompanied by hard piling on the estuary's Northern side.

Developing the North Esk River, wharves required dredging the bar and rapids in the Northern channel and the dredged material was used to close off the Southern channel. Even so, after 80-years of settlement, in 1885, the Launceston Examiner reported that:

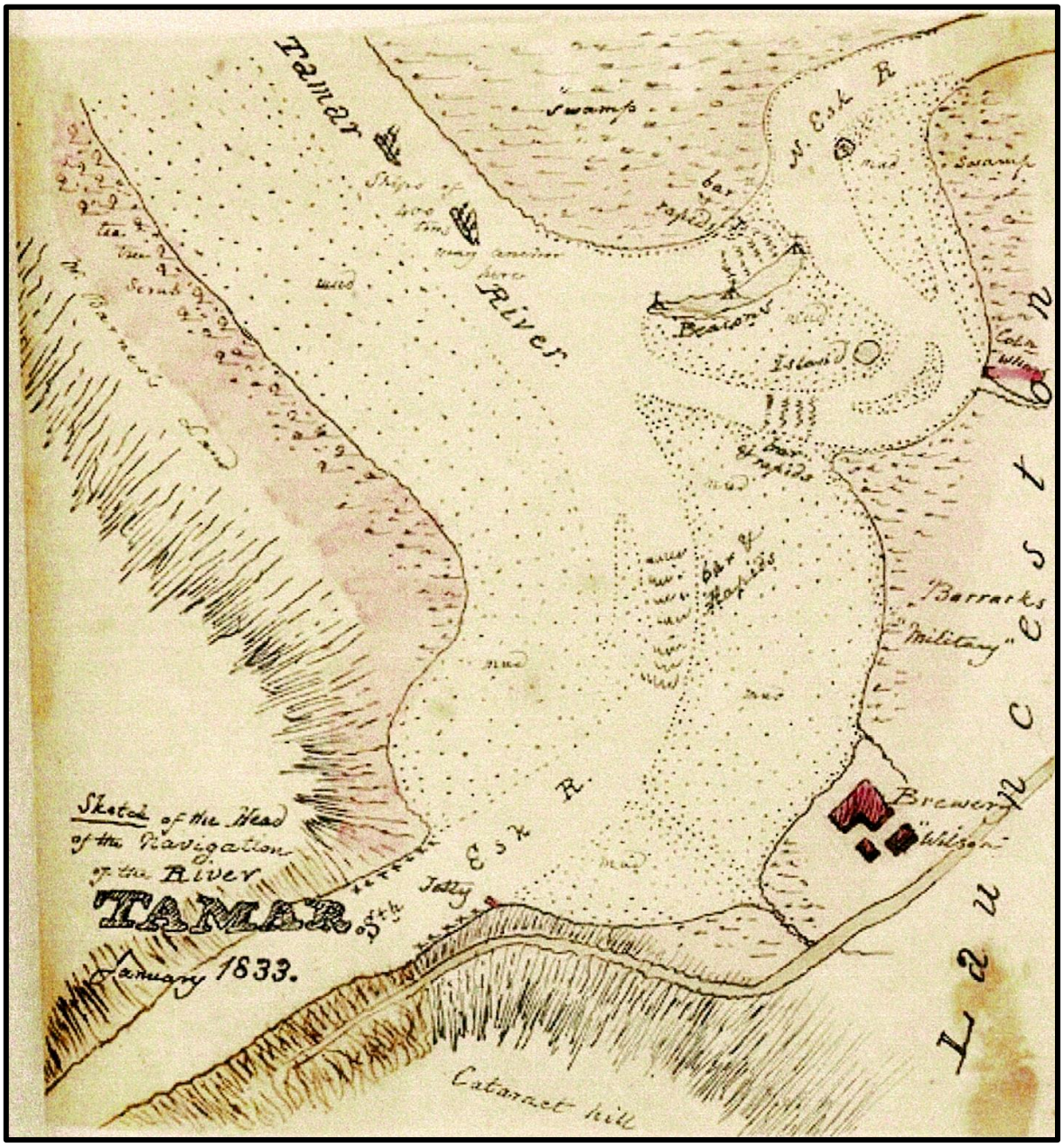
> The depth of water in the channel at Town Point is being increased from 4ft. at low water to 12ft., which, as the rise and fall of tide is from 9ft. to 12ft., will enable almost any vessel to come up to the wharf.[4]

Town point is directly opposite Home Point, or as shown in Sketch 2, directly opposite the western beacon on Mud Island at the mouth of the North Esk.

The Examiner story suggests that, with only 4-feet of water over the bar at low tide, dredging to that stage had been minimal.

Dredged material from this venture was reclaiming "some acres of land … at Fisherman's Creek and the foot of the Invalid Depot Grounds."[5] Fisherman's Creek was most likely the inlet shown directly to the right of the smaller mud island and shown on Sketch 2, the enhanced drawing, as a red slash and small jetty alongside a creek. The Invalid Depot was sited in part of the Military Barracks precinct on the rising ground to the South of the creek.

Dredging in Home Reach, where Sketch 2 shows that ships of 400 tons could anchor, did not start until the 1890s[6] and once started, had to continue, as ships became larger. It did not end until 1965.



Sketch 1: Thomas Scott: Sketches/ Van Diemen's Land

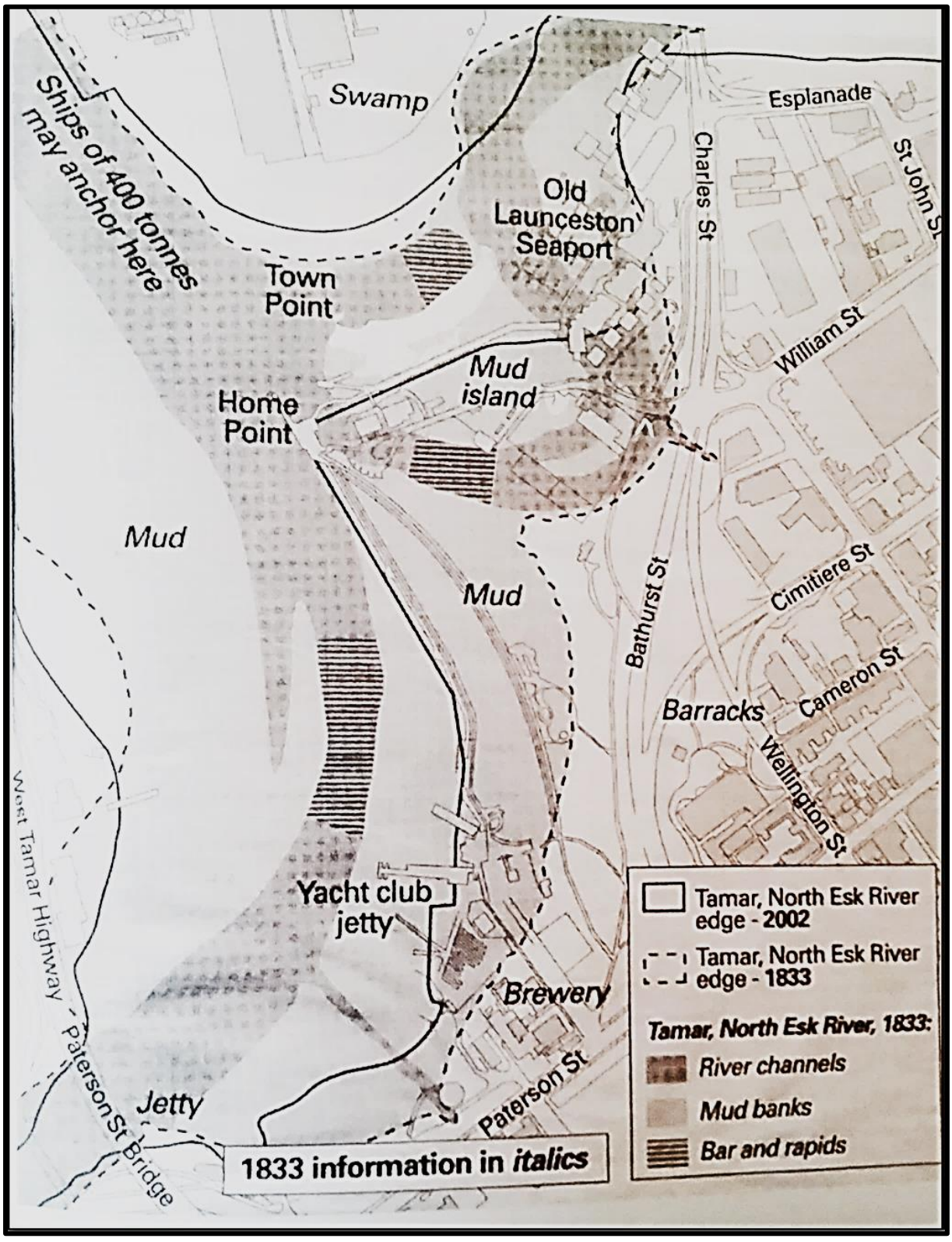
57a. Sketch of the Head of the Navigation of the River Tamar, 1833; full title shown, bottom left-hand corner.

http://image.sl.nsw.gov.au/cgi-bin/ebindshow.pl?doc=pxb216/a557;seq=69

Features of the sketch include:

- *Wide mud banks on the Tamar's western side.*
- *Rapids and a Southern mudbank on the South Esk River's outfall.*
- *Two outflows with rapids from the North Esk River, separated by a mud island.*
- *Beacons on both ends of the mudbank.*
- *Swampland on both sides of the North Esk River.*
- *Anchorage for ships of 400 tons in the Tamar's mid-stream.*

Sketch 2: Enhanced view of the Thomas Scott sketch of the Head of the Tamar River, 1833



Sketch 3: 2002 overlay of the Thomas Scott sketch of the Head of the Tamar River, 1833: source unknown

Sketch 4: Launceston Ca 1832 (Ross) published in The Launceston Heritage Study—Stage 1: Thematic History by Ian Terry and Nathalie Servant, for Paul Davies Pty Ltd, p 47.

The sketch shows town and suburban development to the South-East of the North Esk River, and to the North of the river, a windmill has been constructed on the Inveresk Swamp. The Church of England Glebe is shown on the South-Eastern bends of the river.

With plenty of land to the South of the North Esk, there was no rush to develop the swamp land to the North although, by this stage, there was a market garden established in Invermay and dredged silt and rock from the North Esk was creating the area later to be known as Royal Park and creating tidal flood barriers for the swamp land at Inveresk.

Harvest time at Mr C. White's Farm at Invermay: Weekly Courier 1906: Source: Archival Revival: Life in Launceston https//:www.examiner.com.au/story/1588486

From the outset of the Launceston settlement, and the subsequent series of decisions to create a major inland port, the citizens of Launceston would be in a constant battle with its geology. The swamp had to be drained to create year-round farming and housing areas, and significant buildings on the swamp land had to constructed on deep piling. The die was cast early. The inland port meant that when a water scheme technology, such as Western Australia's Goldfields Water Scheme of 530kms in length and eight pumping stations, was conceived in the late 1880s, Launceston was too-long settled to pump water to the better port facilities at the mouth of the Tamar.

Old Custom House, Launceston, Tasmania; Whitelaw's Studio; c. 1960s; TSO00018652

Launceston's desire to accommodate larger ships in a growing sea-borne trade, saw the grand Custom House built on swamp land on a huge complex of deep piles driven into the swamp. The new Custom House was 100m closer to the North Esk River than the Old Custom House. Was it necessary for it to be as close to wharves as it was? Would it not have been possible to build less-expensively on more solid soil in the area where the Launceston Town Hall sits?

New Custom House, 87-89 The Esplanade, Launceston/ Leonard Clark Webster: Libraries Tasmania's Online collection

Custom House, Launceston, 87-89 The Esplanade protected by a flood levee: Ian Pattie photograph 22 Oct. 2020. Note: ship's masts installation

The decisions about an inland port became ever-more complex and it could be said that, even after 80 years in Launceston, the vision of New South Wales Governor Lachlan Macquarie, to have the major settlement in Northern Tasmania at George Town, might have yet been realized. However, the next series of commitments to grapple with the geology of the North Esk delta, decided forever, that any major settlement outside Launceston would be created in extraordinary circumstances only.

In The Examiner of 1 January 1885, it was reported that, Messrs. Plummer and Griffiths commenced a contract for 580ft. of wharf extension at £7751, which will be completed about August next, and Parliament has voted £5500 for purchase of the last piece of private wharf between the present wharves and Tamar Street, so that ample wharf accommodation for many years to come will soon be provided.

"Many years to come" had an interesting lifespan in the terms of what was named Queens Wharf, in the North Esk, for work on a new wharf at Home Reach, eventually to be called Kings Wharf, began in 1915, in the area that was already the site of the town's cattle jetties[7] near what became known as Town Point. (See Sketch 3) In other words, some of the merchant shipping was already being conducted outside the designated North Esk port facilities. There were, obviously, good reasons for not having cattle shipments in the area where dry goods were loaded and unloaded, and passengers embarked and disembarked.

Steamers at Queens Wharf, in the North Esk, Launceston, long after the sailing ship era ended. J.A. Allen photo: Tasmanian Archives and Heritage Office: LPIC147/7/177

Old railway wharf and dock, North Esk, Launceston (c1912) Tasmanian Archives and Heritage Office: LPIC147/7/181

Hard piling on the Northern side of the North Esk allowed a railway line to extend from the Launceston Station on Invermay Road to Kings Wharf via the North Esk dock.

From this point, infrastructure plans moved rapidly, but always with the intention of defeating the swamp foundation of central and Northern Launceston. On 13 December 1885, in the same year the wharf extension contract was let, "the Parliamentary Public Works Committee took further evidence at Launceston today on the proposal to build a bridge across the North Esk near Charles Street." [8] (See Sketch 3)

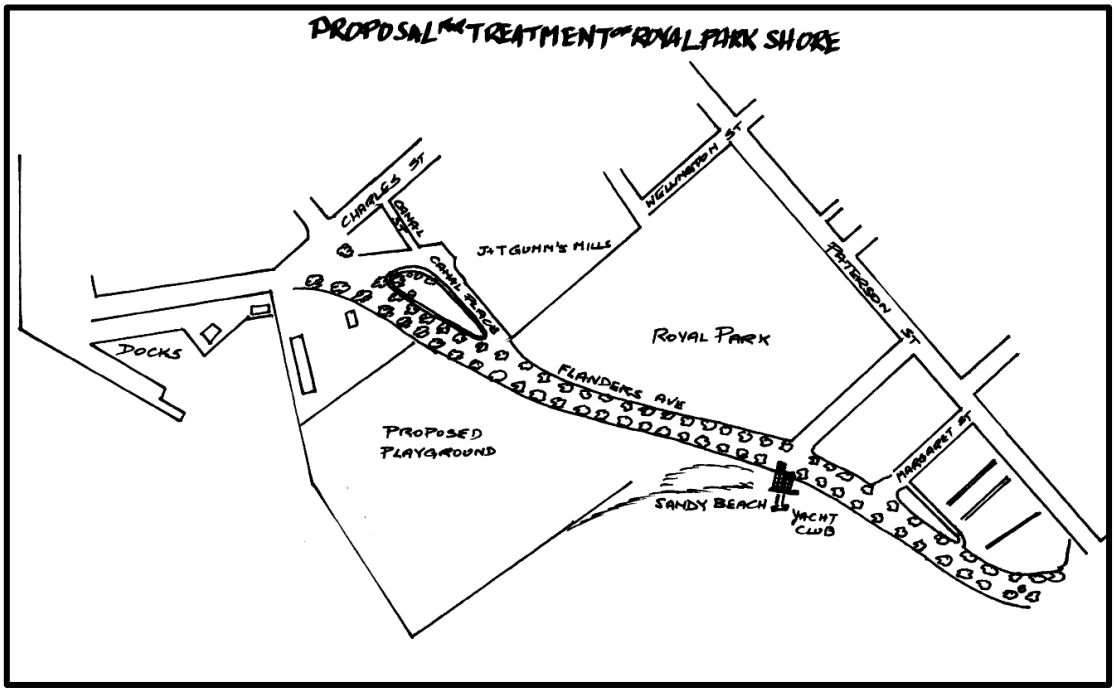
The decision to build the Charles Street Bridge foresaw an end to the use of the North Esk wharves as freight and passenger terminals but not the end of the town's battles with the landscape. The Parliamentary Public Works Committee member, the Hon. E. Mulcahy, told them that with the move of Launceston's port to Home Reach, the maintenance of "the banks between Charles Street and Tamar Street should fall on the government, though he had not looked into that question. The law would doubtless settle the question the question of who should be responsible for the work." [9]

The battle for funding the slump of the North Esk delta into the waterway had begun even before Kings Wharf was completed "for it did not come into full use until 1917." [10]

The dredged material that was reclaiming land around Mud Island was an eyesore but there existed an opportunity to create more than an open space.

Soon after the return of soldiers from the War-to-end-all-Wars, 1914-1918, Australians' thoughts turned to war memorials and Launceston was not lacking in ideas.

Circa 1920, architect Frank Heyward, prepared a blueprint showing a memorial, tree-lined Flanders Avenue running from a junction with Charles Street, North of Canal Street, crossing the reclaimed parkland and joining with Paterson Street at the Bourke Street intersection. While Flanders Avenue did not become a reality, the sandy beach at the bottom of Park Street did. The Flanders Avenue concept pre-dated the Royal Park, granite obelisk, Launceston Cenotaph, which was not established until 1924.

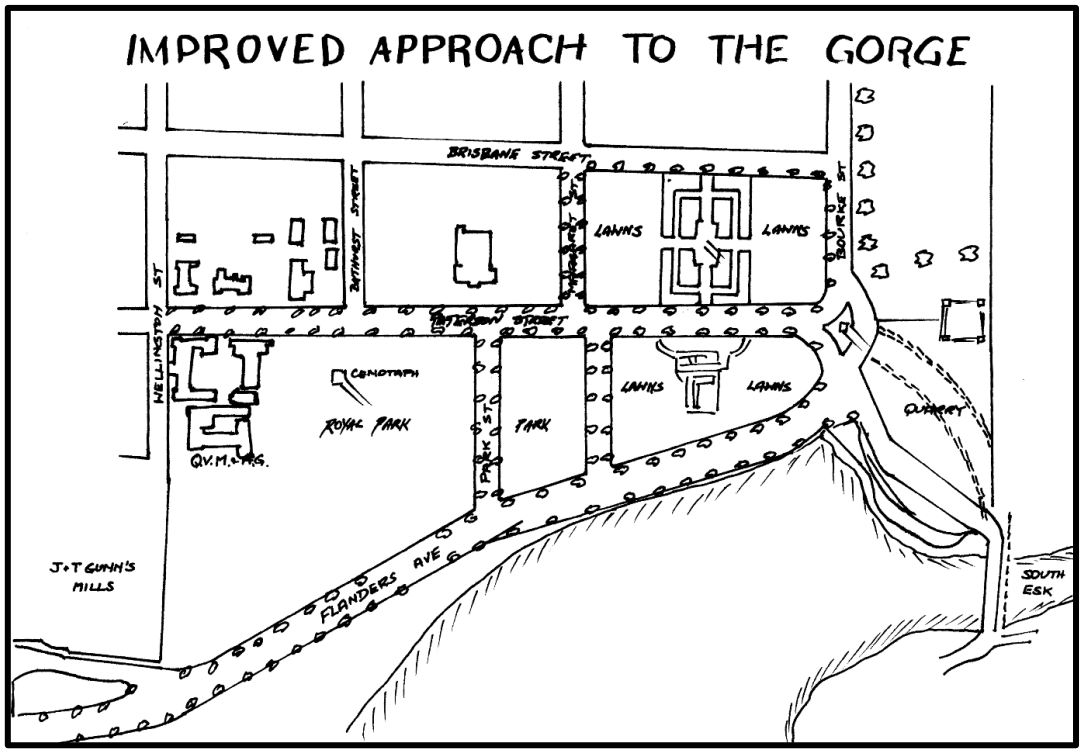


Sketch No. 4: A tracing of the blueprint created to honour Launceston soldiers of World War I:

(Ian Pattie tracing)

Below: The Royal Park Beach: Archival Revival: Life in Launceston: examiner.com.au

The South Esk floods into the Tamar Yacht Basin lapping the still unformed Royal Park showing the space for the proposed Flanders Avenue: Picture source unknown



A tracing of the 1932 blueprint created to improve traffic flow to Cataract Gorge (Ian Pattie tracing)

Flanders Avenue was still a living idea in 1932, when architect A.H. (Harold) Masters expanded the concept. His plan showed the original Margaret Street, meeting Flanders Avenue as it swept across Kings Park to create a new entrance to Cataract Gorge. But

between these two visions, Launceston suffered *in extremis* the consequences of heroic interventions in the landscape through the devastating floods of 1929 when the North Esk and South Esk combined to reclaim the flood plain.

"The suburbs of Inveresk and Invermay and other low-lying parts of Launceston were flooded to a depth of upwards of 10ft (three metres)," and "about 4000 people had to be evacuated from their homes." … The cost of the flood damage was estimated to be in the millions of pounds." [11]

"Since Launceston's establishment, there have been 36 significant floods with 1929 reputedly the worst. However, the years 1852, 1863 and 1893 are also recorded as very serious flood events." [12] The biggest (flood) was in December 1863 when an estimated 4625 cubic metres per second (cumsecs) of water raged down the Gorge. In 1929 the estimated peak flood flow was put at 4250 cumecs in the South Esk River and 567 cumecs in the North Esk River. More recently the June 1969 flood saw the flow through the Gorge peak at 2670 cumecs and in June 2016 it was 2375 cumecs of water from the South Esk River and approximately 800 cumecs from the North Esk River.[13]

Inveresk and Invermay from Trevallyn in the 1929 flood: Tasmanian Archive & Heritage Office: accessed 22 October 2020

Invermay residents near the Railway Station take to the water during the 1929 Launceston Floods. Archival Revival: Life in Launceston: examiner.com.au

The point of no return, the point at which Launceston was forever to be a settlement fighting for its existence with a floodplain may be debated ad nauseum but the fight with the floodplain must continue.

From the earliest times, small levees were created to control the floods. In the 1850s, when the powder magazine was transferred from Cormiston to the bend in the North Esk on, what is now Glebe Farm, a levee of less than a metre high was created as a first level of protection from floods and high tides.[14] It was constantly maintained and upgraded while the area remained a powder magazine and later a rifle range. In the 1950s, when the rifle range was abandoned, the levee network fell into disrepair and has only been restored over the last 20 years.

The 1929 flood, because of the huge damage caused to buildings on the flood plain, focussed the minds of the city fathers on flood protection and the creation of an extensive levee system of concrete walls and mud boxes on the Northern bank of the North Esk. The levee system, designed to protect against a 200-year flood event, gradually subsiding under its own weight into the unstable soils of the floodplain.

One of the most significant structures in the levee system was the 1960s concrete training wall in Royal Park. The stepped wall, with its amphitheatre appearance, was built to protect Launceston from the rages of the South Esk when flood waters would pour across the yacht basin and inundate Royal Park, Inveresk and Invermay. The wall was built to absorb the rush of the South Esk and "train" the flow into the Tamar's channel. Within a few years of its being completed, it was tested by the 1969 flood, the most severe flooding in Launceston since April 1929.[15]

High tide in Launceston 9 October 2003: Launceston Examiner picture, showing the concrete flood training wall, built in the 1960s

Launceston's population will be forever in a battle with the Tamar Valley geology. The North Esk delta, with its endemic, diverse flora and fauna, sustained the First People in their seasonal travels for thousands of years. The British decision to settle the floodplain has required an accommodation with the geology and the forces of nature.

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