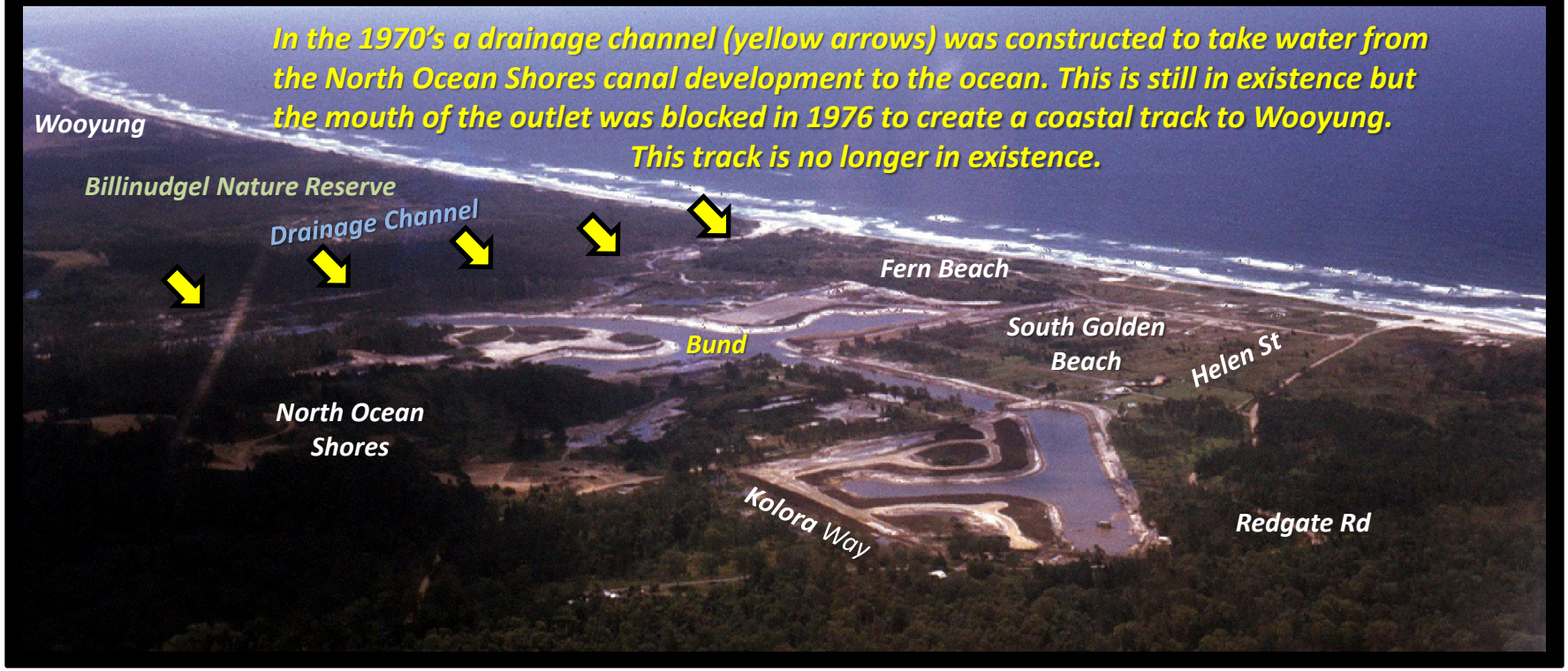
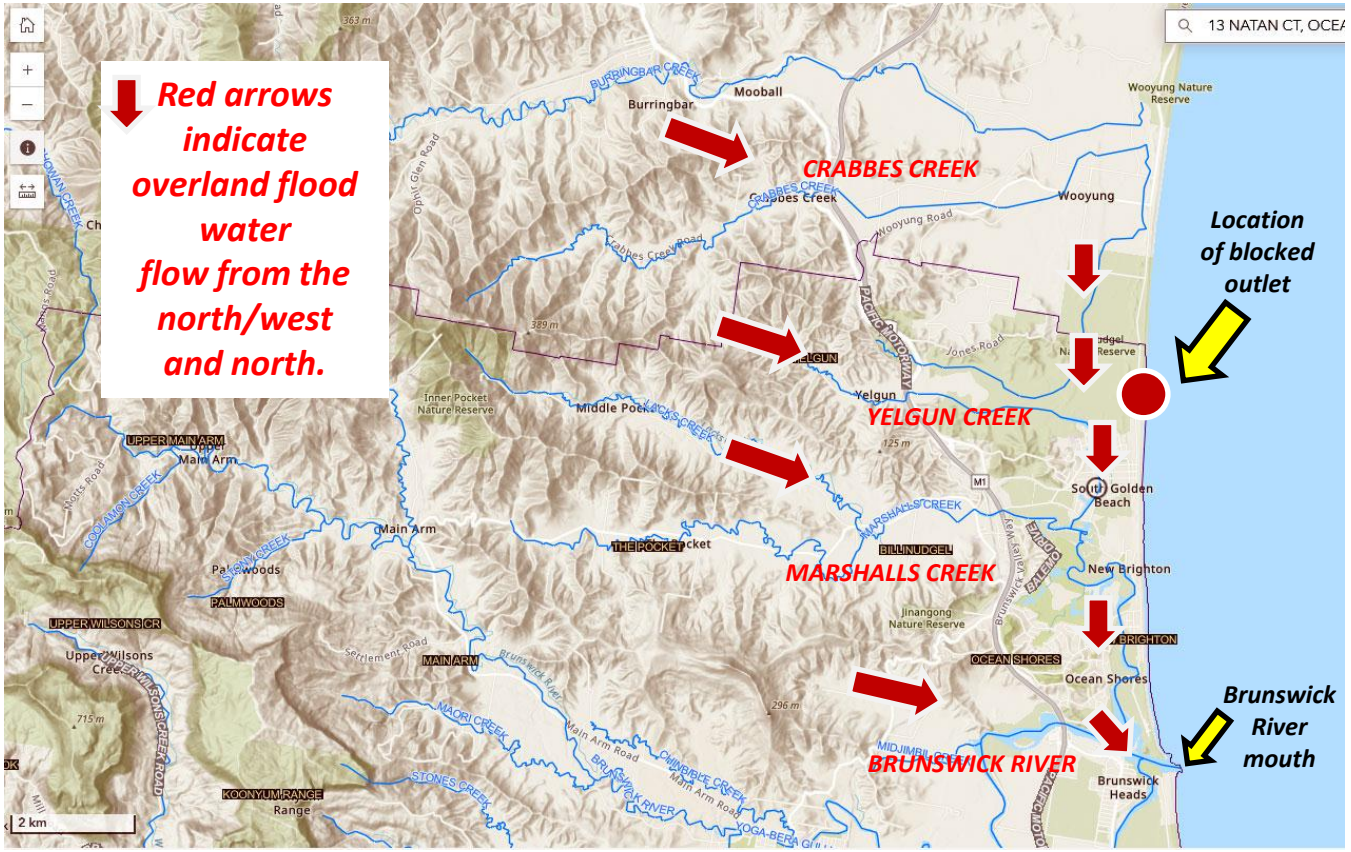
Flood Mitigation & Restoration



*'On examination of **historical photographs**, the drainage channel originally had **a wide sandy meandering entrance** on the coast.' Cr David Warth 2025*

Project prepared by
Cr David Warth & the Flood Mitigation Working Group
Environmental Film Maker, Byron Bay NSW.

Tweed & Brunswick Catchments



Map taken from – Byron Shire Council Mapping Tool program 2026.

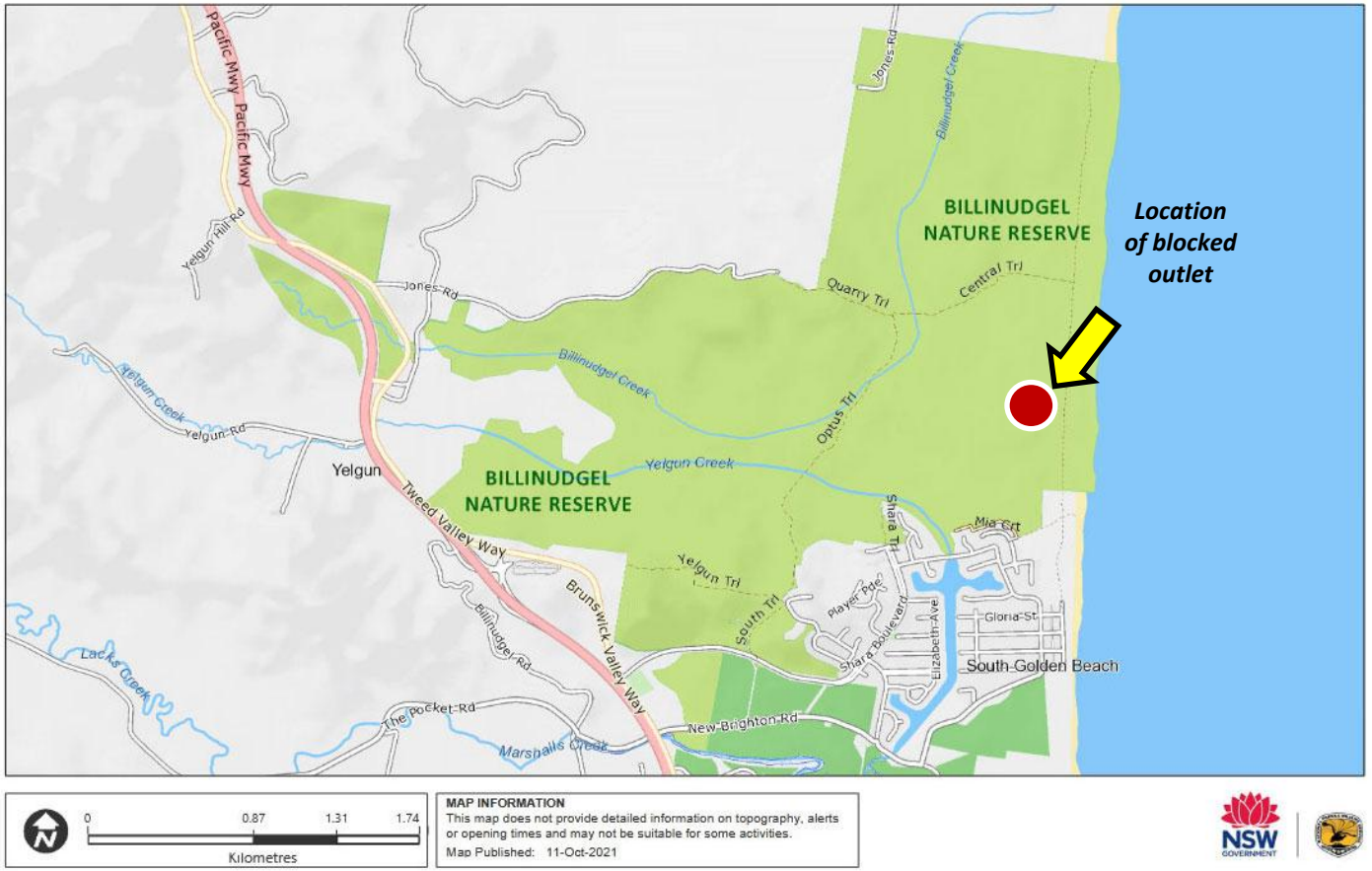
The Brunswick River & Tweed catchments, covering the floodplain area from Wooyung in the north to Brunswick Heads in the south, is part of a catchment estimated at **22,000 hectares**. This area features a low-lying, flat landscape with extensive swamps behind coastal dunes, and is drained by a number of major streams **including Crabbes Creek, Yelgun Creek, Billinudgel Creek and Marshalls Creek** which at present, feed floodwater out to the ocean via the mouth of the **Brunswick River**. The **flood risks** are managed by the **Byron Shire Council**.

The Report Part 1 – Flood Mitigation

The **Billinudgel Nature Reserve (light green) created in April 1996,** forms a natural drainage basin covering an area of **789 ha**. It is the main destination for water flowing from the north and north/west. The central and still fully functioning drainage channel and its blocked outlet is still plainly evident from aerial observation.

(Map taken from National Parks NSW website)

Outlet open prior to 1976



The Report Part 1 – *Flood Mitigation*

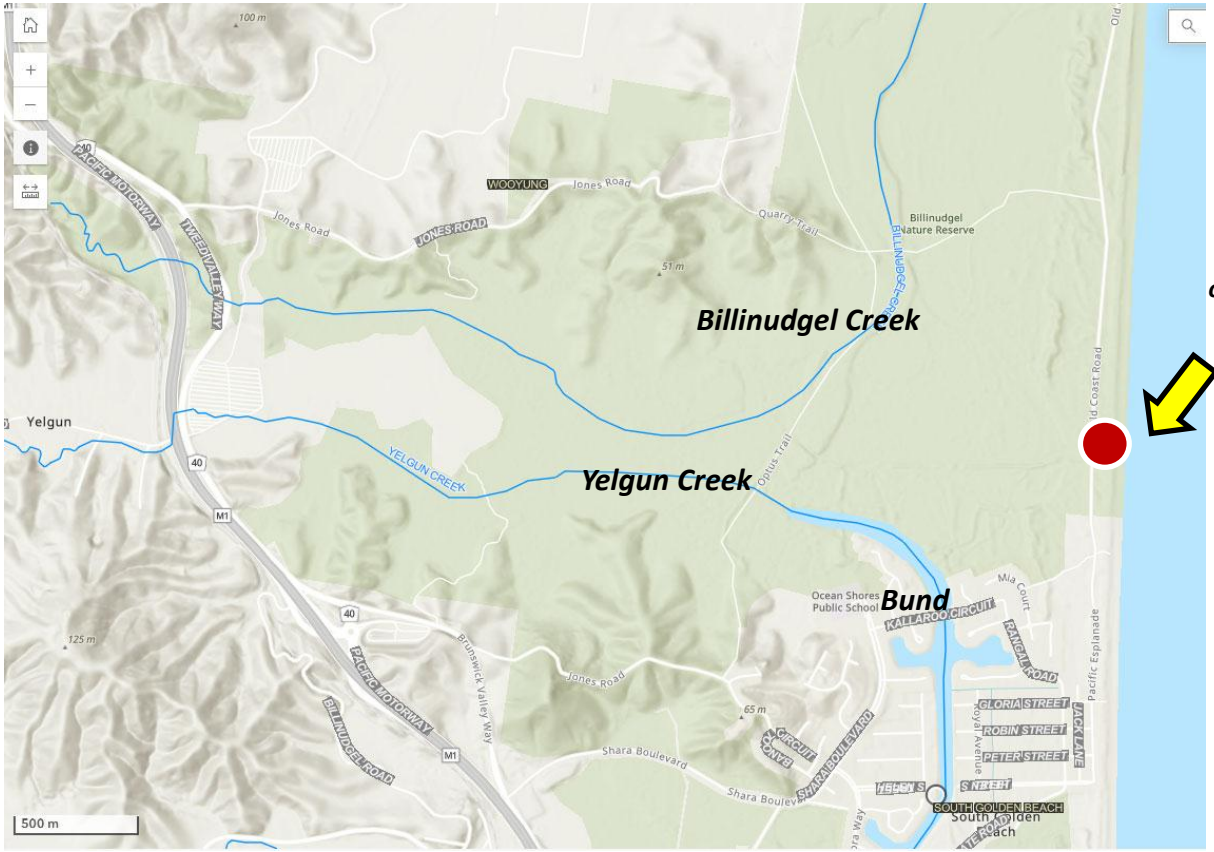
Creeks feeding into Billinudgel Nature Reserve.

'The low-lying coastal corridor between Ocean Shores, Billinudgel and Wooyung operates as a ***single floodplain basin*** *during major flood events.'*

Sourced from Billinudgel Nature Reserve Plan of Management; Regional Flood Studies.

Outlet open prior to 1976

Map taken from – Byron Shire Council Mapping Tool program 2026.



The Report Part 1 – Flood Mitigation

1987 - The remaining central and functioning water course in **Billinudgel Nature Reserve** with mouth blocked to the ocean. The entrance to the channel was closed to become part of the coastal track to Wooyung. This track is no longer in existence.

Outlet open prior to 1976

Overflow outlet closed in 1976

Coastal track to Wooyung Circa 1987. No longer in existence.

The Report Part 1 – Flood Mitigation

The remaining **central** and **functioning water course** is still plainly evident from aerial observation.

Note: By blocking this flood water overflow outlet, the water backs up behind the obstruction acting like a dam.

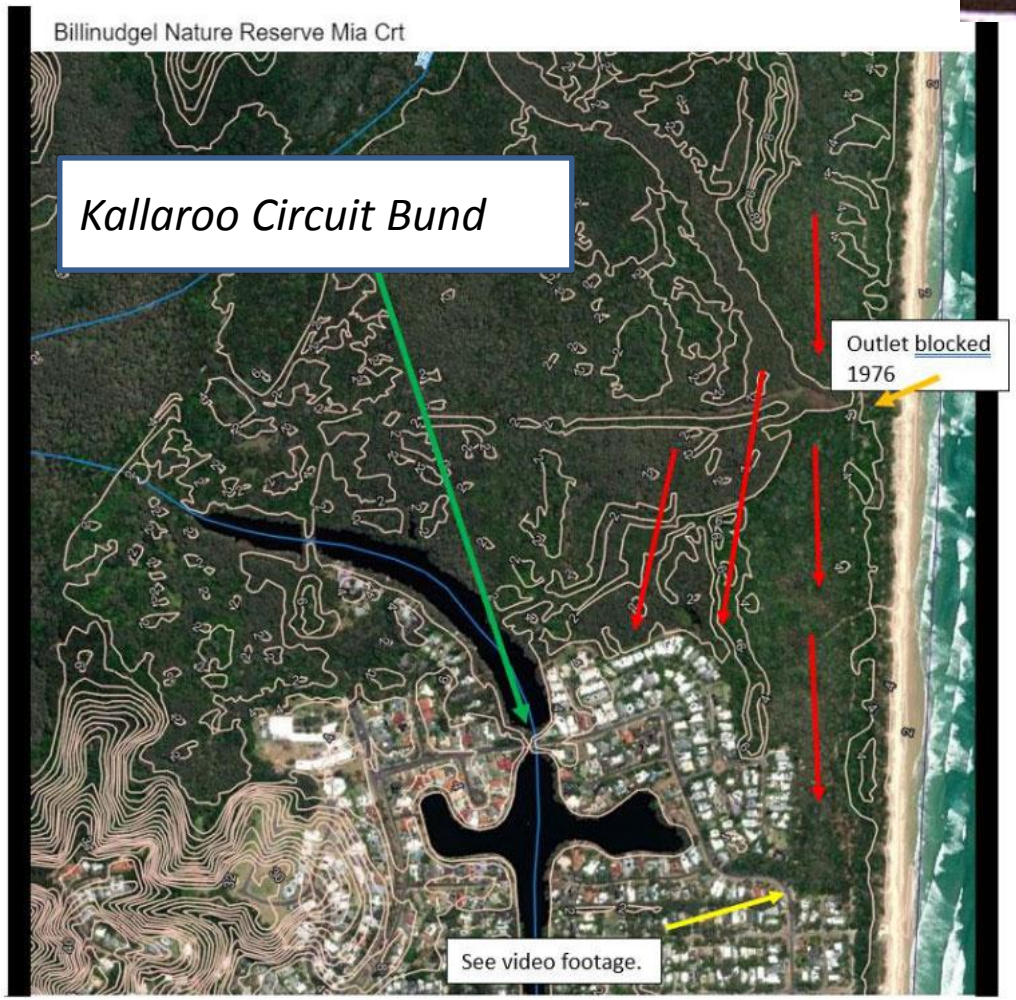
Outlet open prior to 1976

2025 Drone Footage

The Report Part 1 – Flood Mitigation

Note: By blocking the flood water overflow outlet, the water backs up behind the obstruction **acting like a dam** causing a southward flow of flood water into Fern Beach & South Golden Beach.

Outlet open prior to 1976



The Report Part 1 – Flood Mitigation

Note: By blocking this flood water overflow outlet, the water backs up behind the obstruction acting like a dam causing a southward flow of flood water into Fern Beach & South Golden Beach. A sheet of flood water came **from the north** and **was clear** as opposed to typically muddy, dis-coloured water from Capricornia Canal.

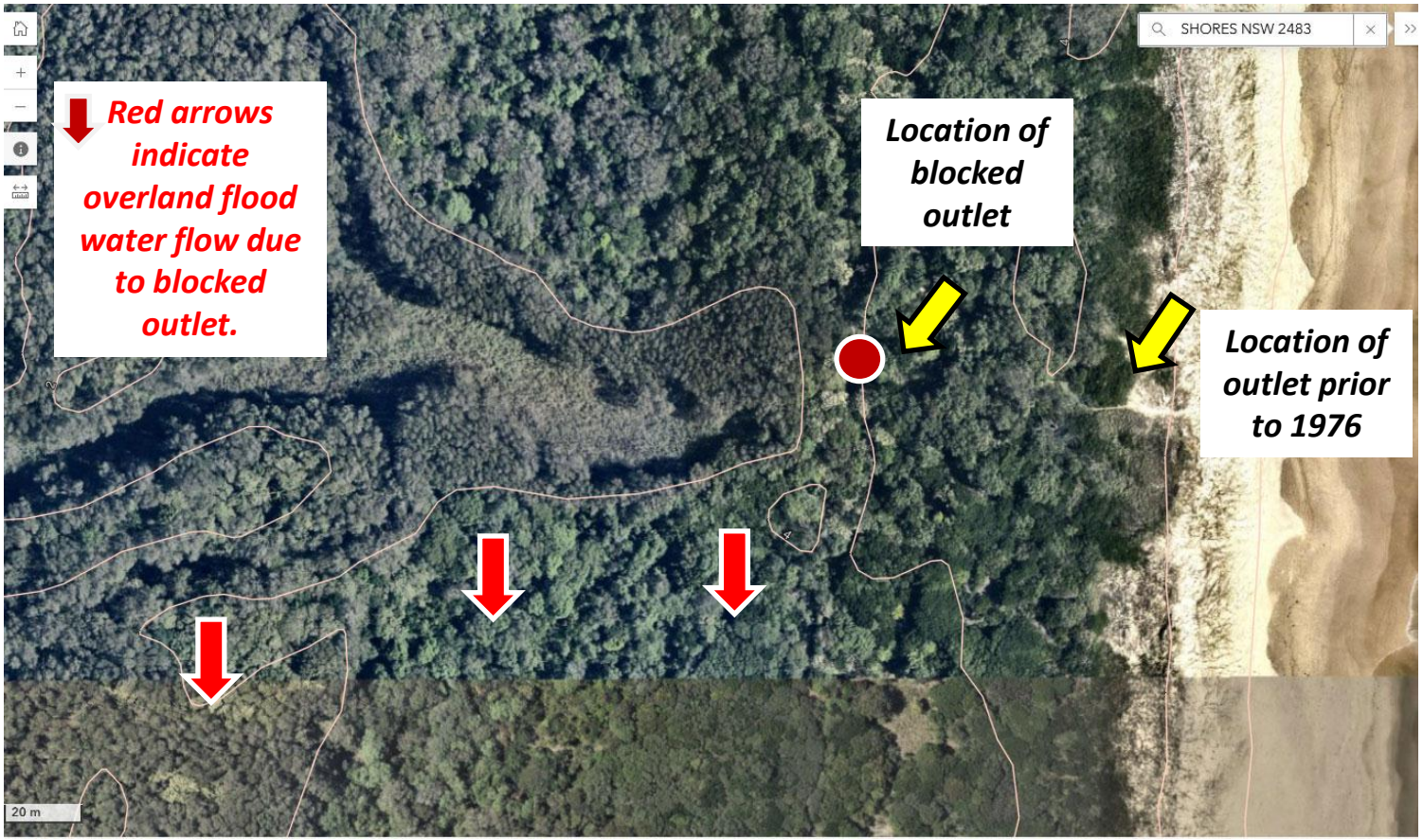
Outlet open prior to 1976

The Report Part 1 – *Flood Mitigation*

Note: By blocking this flood water overflow outlet, the water backs up behind the obstruction acting like a dam causing a southward flow of flood water into Fern Beach & South Golden Beach.

Outlet open prior to 1976

*Current aerial photo from **Byron Shire Council Mapping Tool** program 2026 showing the drainage channel plus another water course entering from the north.*



The Report Part 1 – Flood Mitigation

Note: By blocking this flood water overflow outlet, the water backs up behind the obstruction acting like a dam causing a southward flow of flood water into Fern Beach & South Golden Beach.

Current aerial photo from Byron Shire Council Mapping Tool program 2026 showing the path of flood water forced to flow south as the outlet is blocked.

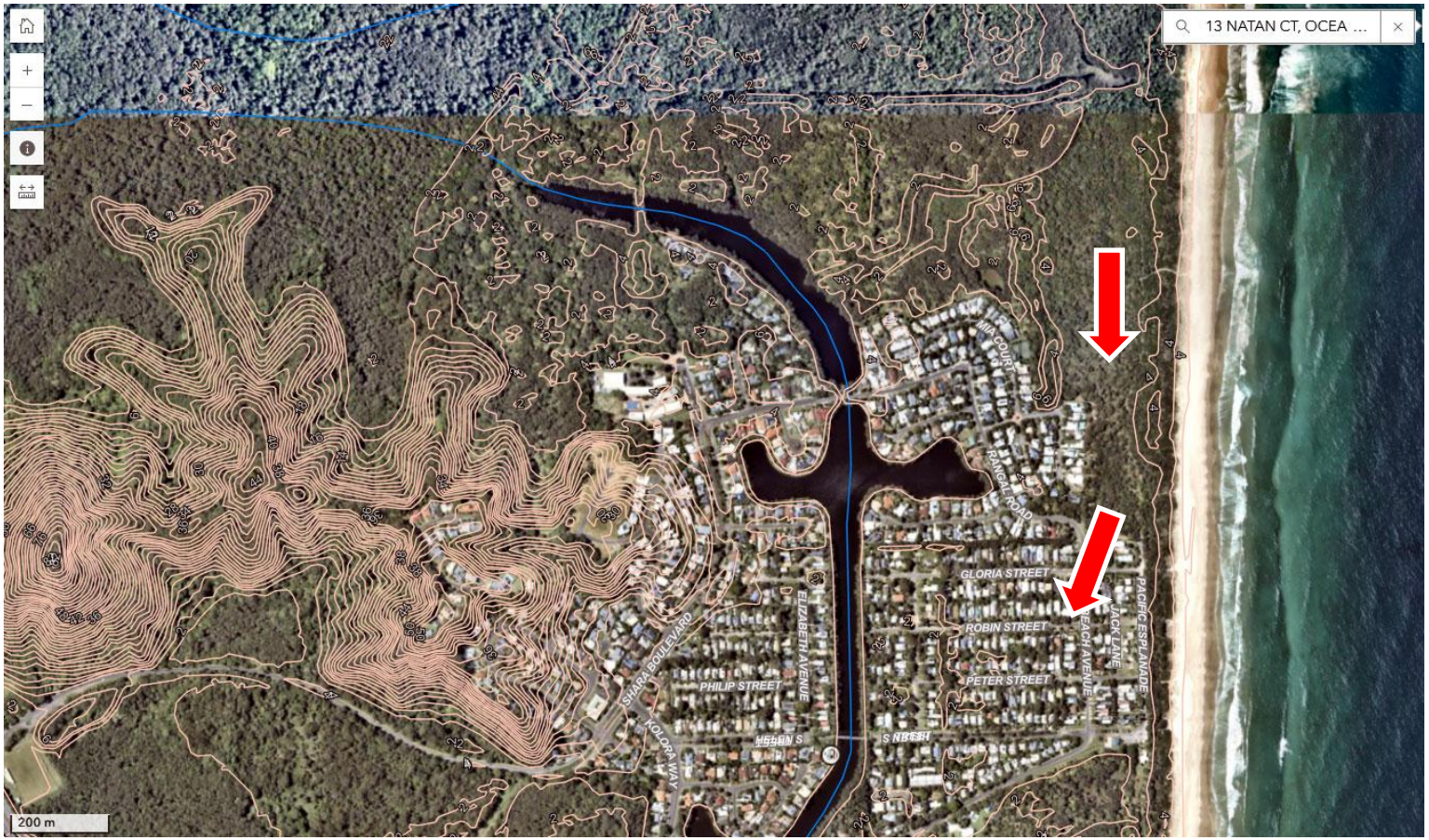
Outlet open prior to 1976

The Report Part 1 – *Flood Mitigation*

Note: By blocking this flood water overflow outlet, the water backs up behind the obstruction acting like a dam causing a southward flow of flood water into Fern Beach & South Golden Beach.

Outlet open prior to 1976

Current aerial photo from Byron Shire Council Mapping Tool program 2026 showing the path of flood water forced to flow south as the outlet is blocked.



The Report Part 2 – Restoration

Drainage channel outlet prior to being closed.
Billinudgel Nature Reserve north of Fern Beach (153.5506, -28.4856)

OBSERVATION : Drainage channel Outlet 1974

Drainage channel outlet looking north

Drainage channel outlet looking south

RESEARCH FINDINGS: 1974 drainage channel outlet open and flowing.

The Report Part 2 – Restoration

Drainage channel outlet located in Billinudgel Nature Reserve north of Fern Beach (GPS - 153.5506, -28.4856).

OBSERVATION : Drainage Channel Outlet blocked.

RESEARCH FINDINGS: 1976 North Ocean Shores **outlet closed**.

The Report Part 2 – *Restoration*

Drainage channel outlet blocked north of Fern Beach to create the coastal track to Wooyung. (GPS - 153.5506, -28.4856).

OBSERVATION: 1987 Mothers Day Flood

Coastal track no longer in existence.

The Report Part 2 – Restoration

Position of former drainage channel outlet in 2025. Billinudgel Nature Reserve north of Fern Beach (GPS - 153.5506, -28.4856).

OBSERVATION:
Personal observation photo - May 18, 2025.

RESEARCH FINDINGS:

Photo by Cr David Warth of the standing water behind the blocked drainage channel outlet, close to the beach (May 18, 2025).

The Report Part 2 – Restoration

It is unlikely the **Billinudgel Nature Reserve Channel** would contain as much water as these creeks at Belongil (see photo below) and Tallows, however, the entrance would have been a prime coastal habitat.

Belongil Creek outlet operating after a rain event.

RESEARCH FINDINGS:

Cr David Warth - Environmental Film Maker 2025.

The Report Part 2 – Restoration

Bearing in mind habitats such as these are rare. The closing (see photos below) of this particular entrance would have been a considerable loss to the many creatures that thrive in these entrances.

RESEARCH FINDINGS:

Cr David Warth - Environmental Film Maker 2025.

The Report Part 2 – *Restoration*

Bearing in mind habitats such as the outlet to the drainage channel north of Fern Beach are rare. The closing (see photos below) of this particular entrance would have been a considerable loss to the many creatures that thrive in these entrances.

A point in case is the establishment of a small creek on **Clarkes Beach** in **Byron Bay**. This is from rainwater exiting the storm water pipe opposite Cowper St.

RESEARCH FINDINGS:

Cr David Warth - Environmental Film Maker 2025.

The Report Part 2 – *Restoration*

Even with this small amount of water at Clarkes Beach, this tiny creek has become one of the few sites still remaining for *nesting* of endangered (1) Pied Oyster Catchers (only 200 pairs left in NSW), critically endangered (2) Beach Stone Curlews (only 16 individuals left in NSW) and (3) Red Capped Plovers.

RESEARCH FINDINGS:

Cr David Warth - Environmental Film Maker – Images from Clarkes Beach Habitat, 2025.

RECENT CASE STUDY: Byron Shire Council SANDHILLS

Flood Mitigation and Environmental Restoration Project, Byron Bay.

Description:

Byron Shire Council homepage / Council / Projects / Major projects / **Restoring the Sandhills Wetlands in Byron Bay**

Restoring the Sandhills Wetlands in Byron Bay

Listen

The Sandhills Wetlands is now open.

The Sandhills Wetlands sit on the outskirts of the Byron Bay town centre, behind Lawson

Project timeline

- Council developed a staged precinct plan for the Sandhills site.
  2020
- A preliminary concept design prepared by Australian Wetland Consulting.
  Early 2023
- Planit Consulting prepare Environmental Impact Statement
  March to November 2023
- Consultation on Concept Design and Environmental Impact Statement
  18 December 2023 to 19 February 2024
- Tender awarded
  May 2024
- Construction works
  August 2024 - complete November 2025

CASE STUDY POINTS:

Cr David Warth - Environmental Film Maker

RECENT CASE STUDY: Byron Shire Council SANDHILLS
Flood Mitigation and Environmental Restoration Project, Byron Bay.

Description: Extensive environmental damage due to sand mining in the 1960's.

CASE STUDY POINTS:

Cr David Warth - Environmental Film Maker

RECENT CASE STUDY: Byron Shire Council SANDHILLS
Flood Mitigation and Environmental Restoration Project, Byron Bay.

Description:

The **Sandhills Wetlands project** in Byron Bay is a 5.46 hectare **restoration** and **flood mitigation initiative** by Byron Shire Council, aimed at *improving water quality*, *biodiversity*, *reducing flood risk* and *creating a cultural and environmental space* for the community.

CASE STUDY POINTS:

Cr David Warth - Environmental Film Maker

The Report Part 2 – *Restoration*

Restoration of the entrance would be **a major boost to biodiversity**.

Restoration of the entrance would be a major boost to biodiversity. These entrances are highly sought after **wildlife habitats** and are **rare environments**. They attract many species including some that are endangered due to habitat loss.

RESEARCH FINDINGS:

Cr David Warth - Environmental Film Maker 2025.

The Report Part 2 – Restoration

The **loss of biodiversity** when the **Billinudgel Nature Reserve channel** was blocked must have been highly significant.

RESEARCH FINDINGS:

Cr David Warth - Environmental Film Maker 2025.