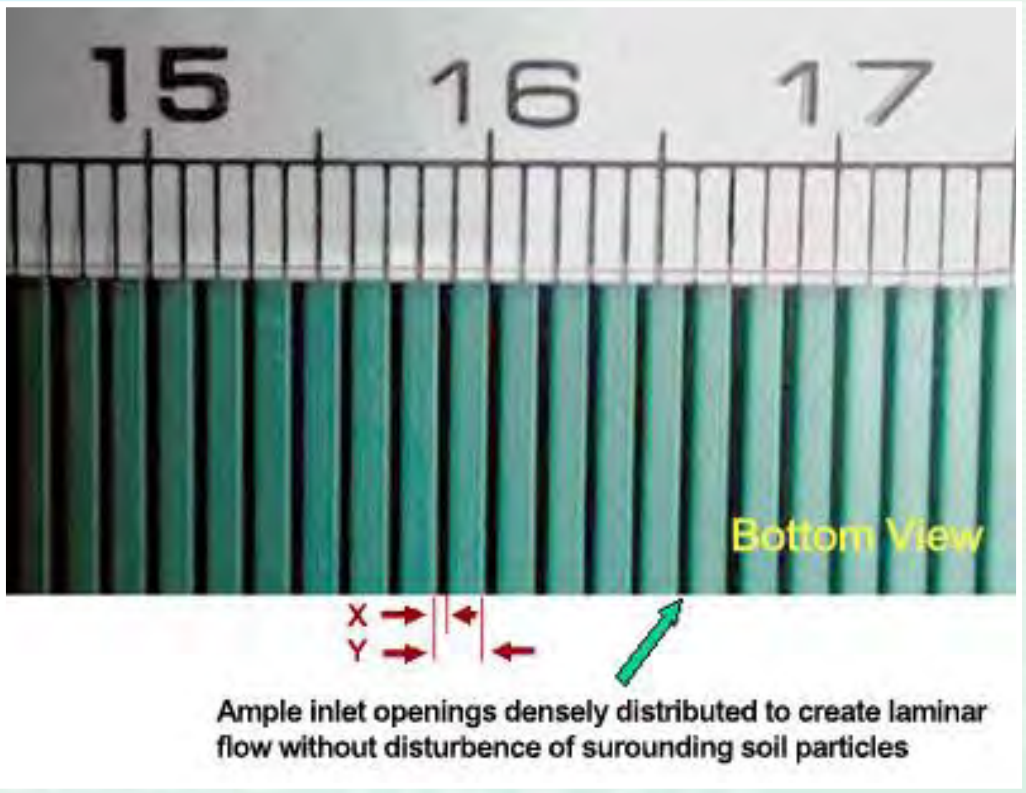

Lifetime Savings
introducing
CAPIPHON™
Drainage
Capillary Drainage Technology
Removes 3-4 times more water
Installation Savings

What is Capiphon?

- 20 cm wide belt of soft durable plastic
- 2 mm thick
- Ω (Greek Omega) shaped grooves on under-side
- 0.3 mm opening, 1 mm internal pore

What is Capiphon?



Ample inlet openings densely distributed to create laminar flow without disturbence of surounding soil particles

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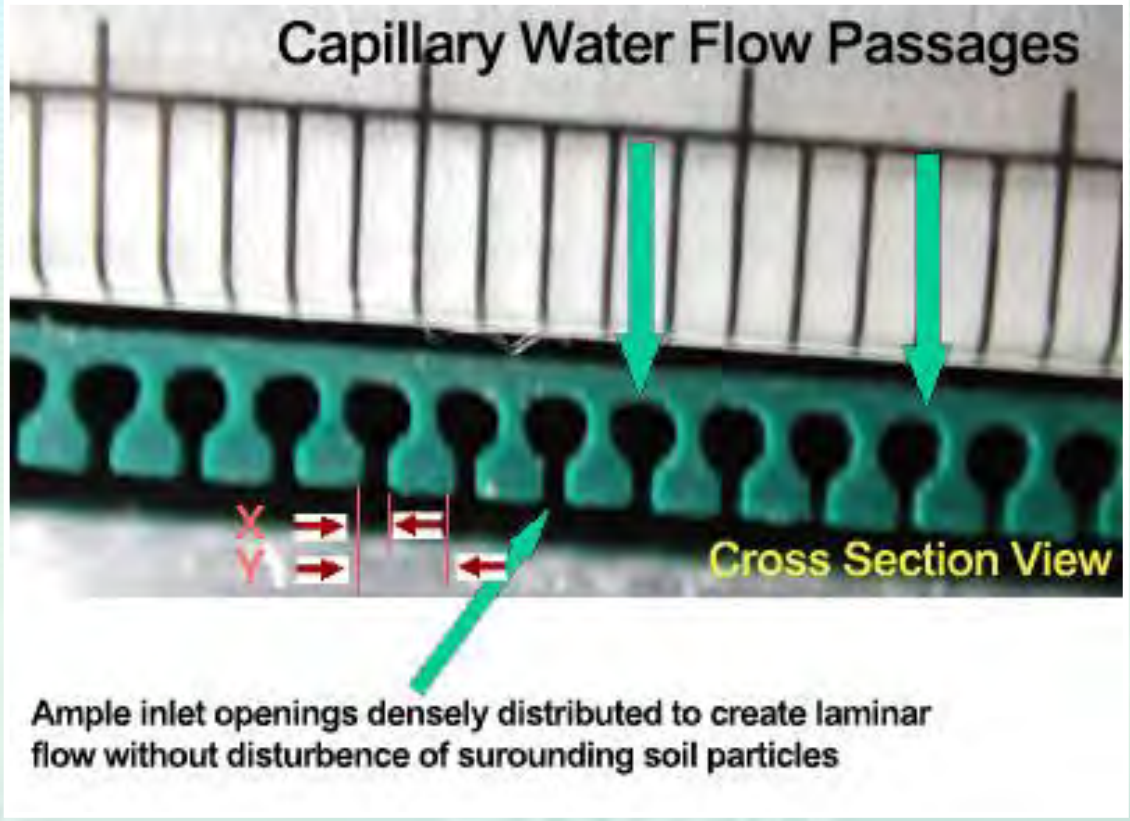

Ample inlet openings densely distributed to create laminar flow without disturbence of surounding soil particles

What's in a Name?

- Capiphon = **capi**llary + si**phon**
  - Capillarity
  - Siphon
  - Surface Tension
  - Gravity


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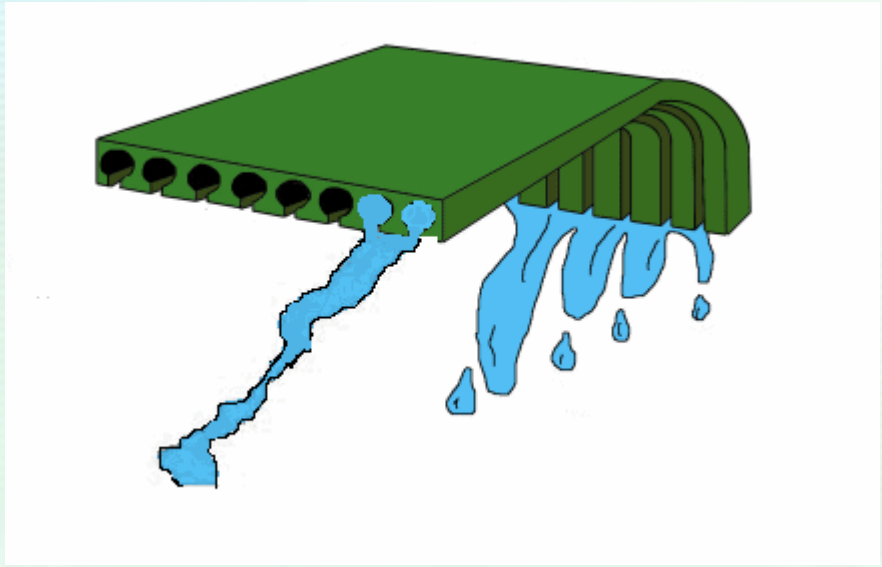
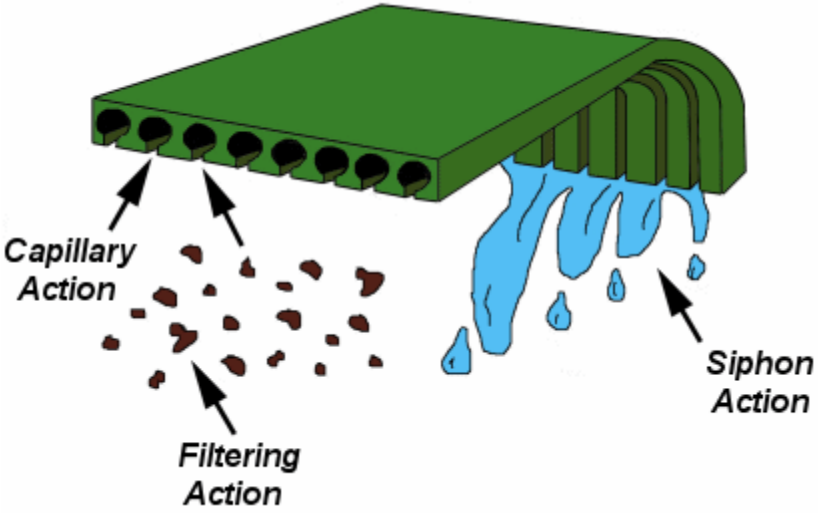
Water Management Technology

How does it work?



Continuous column of water in soil

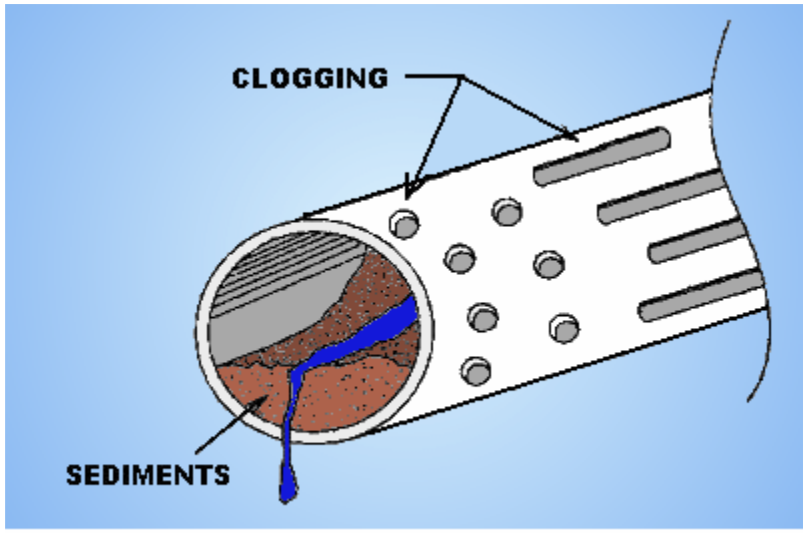
How does it work?



What makes Capiphon better?

- Blockage Free
  - Gravity pulls larger particles down away
  - Smaller particles fall through or are flushed out

- Conventional systems flow rate decreases over time



Conventional Perforated Pipe Drainage System

What makes Capiphon better?

Blockage Free

Slotted pipe often block.

Geotech fabric also becomes blocked

Short Summary

- Technology to replace Ag pipe
  - Housing & construction,
  - Roadside, including flood mitigation
  - Agriculture, horticulture, vineyards
  - Turf-grass including sports fields
- Launched in 2014
- Distributors in place in 4 States plus NZ

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Drainage

The Business

Solving Problems

1: End-user dissatisfaction

- Ag Pipe blocks with silt and tree roots
- Even the geotextile sock blocks after a while
- No perceived alternative

Solution:

Capiphon never blocks!

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The Business

Solving Problems

2: Cost

- Ag Pipe requires deep & wide trenches
- Gravel drainage layer
- Geotextile sock and/or cover

Solution:

Capiphon's installed cost 40-60% less!

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The Business

Solving Problems

3: Performance

- Ag Pipe relies on gravity alone,
- Difficult to install in cramped spaces
- Requires heavy machinery

Solution:

- Surface tension/Capillarity/Syphonic action
- As well as gravity

In most soils, Capiphon

» starts to drain sooner, drains longer

» 3-33 times more effective!

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CAPIPHON Drainage

Highlights

- Many Case Studies covering different market sectors.
- Mostly landscapers and drainage contractors
- Online DIY customers or those requesting installation
- Now supplied through Reece branches and others.

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Drainage

A NEW AND MORE COST-EFFECTIVE DRAINAGE SYSTEM FOR TURF – A COMPARATIVE TRIAL IN A RACETRACK

The Claim:

Capiphon Drainage is more effective than standard Ag Pipe?

The Test:

A comparative trial measuring at a racetrack.

A NEW AND MORE COST-EFFECTIVE DRAINAGE SYSTEM FOR TURF – A COMPARATIVE TRIAL IN A RACETRACK

Tweed River Jockey Club
Murwillumbah, NSW

A NEW AND MORE COST-EFFECTIVE DRAINAGE SYSTEM FOR TURF – A COMPARATIVE TRIAL IN A RACETRACK

Capiphon versus standard drainage in racetrack

The standard Ag Pipe system of

- 70mm wide trench, 350mm deep,
- 50mm slotted poly drainage pipe (Ag Pipe)
- Covered with approximately 100mm of 5-7mm gravel
- Then coarse sand to the surface.

Capiphon Belt Installation

Capiphon Belt system of

- 70mm wide trench, 350mm deep,
- 50mm wide Capiphon belt inserted into PVC collector pipe
- Collector pipe 10cm below belt
- Backfilled with coarse sand to the surface.

Capiphon Pipe Installation

Capiphon Belt system of

- 75mm wide Capiphon belt wrapped around 40mm DWV PVC collector pipe
- 70mm wide trench, 350mm deep,
- Backfilled with coarse sand to the surface.

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Trial Design

- The three treatments alternated at 3-metre spacing. The final number of each treatment trench was:
  - 1. Ag Pipe: 15.
  - 2. Capiphon Belt: 14.
  - 3. Capiphon Pipe: 7.
- Trenches approximately 10m long, running across the track and joining the separate outlet pipes along side of the track to a sump pit.

Trial Design

- Sump pit at a depth below ground level at edge of the track
- Outflows were measured in three separate tipping bucket flow gauges (40ml buckets)
- 12v bilge pump with float-valve switch installed.
- Pit covered with a metal grate, plastic sheeting, and geotextile cloth to protect the gauges.
- Lastly, the pit was covered with soil and the turf left to regenerate.

A NEW AND MORE COST-EFFECTIVE DRAINAGE SYSTEM FOR TURF – A COMPARATIVE TRIAL IN A RACETRACK

Trial Design

- **Outflow from each of the three different treatments was divided by the number of trenches for each.**

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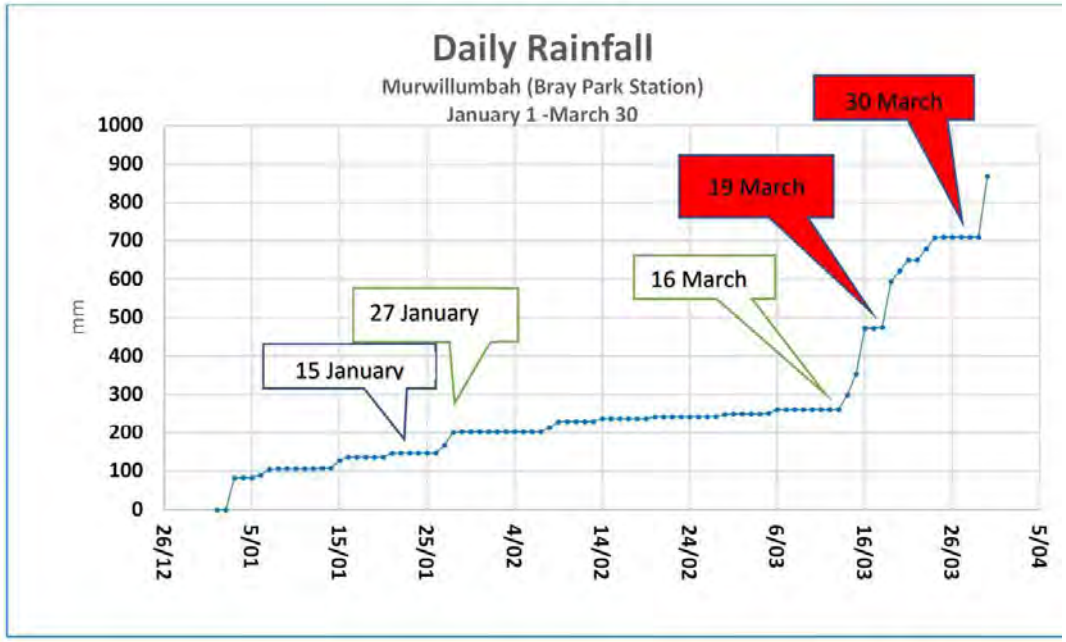

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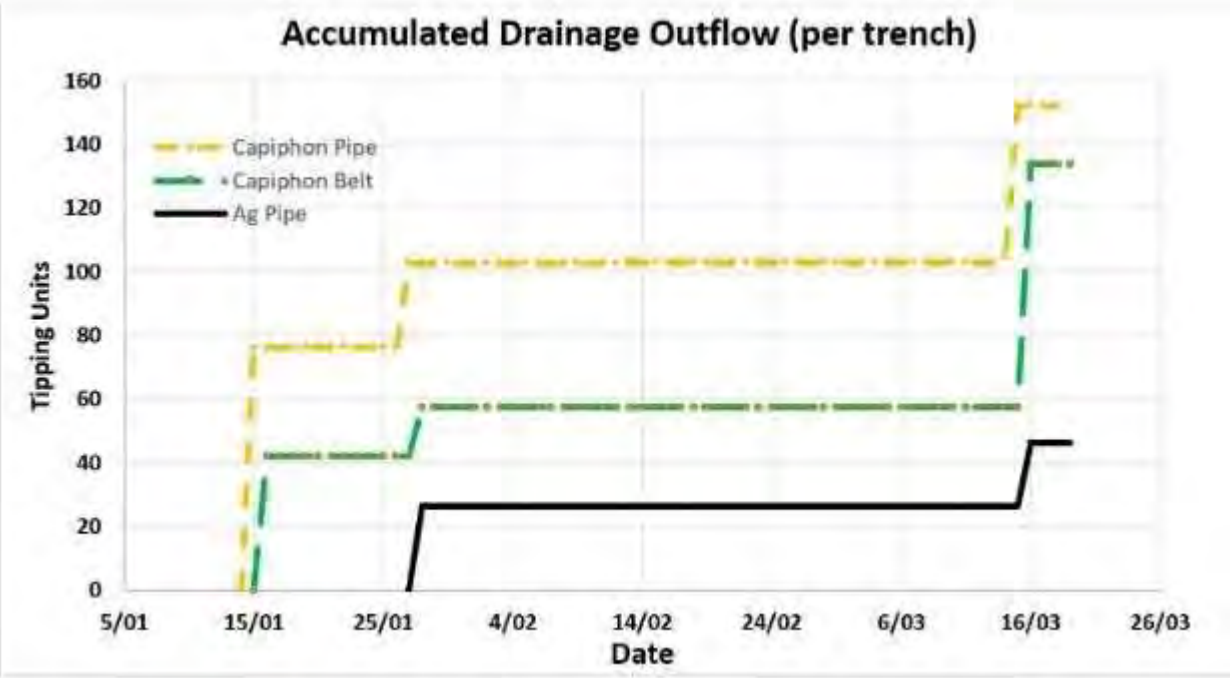

A NEW AND MORE COST-EFFECTIVE DRAINAGE SYSTEM FOR TURF – A COMPARATIVE TRIAL IN A RACETRACK

15 January - First outflow recorded. Both Capiphon Pipe and Belt flowed, Capiphon Pipe flowed first and with greater volume. **Ag Pipe did not flow at all.**

27 January - Second outflow. All three installations flowed with similar volumes

16 March - Third outflow. Flow from both Capiphon Pipe and Belt exceed that from Ag Pipe.

19 March – Flow gauges ceased to operate (possibly because the ground water level had risen to the extent that water seeped into through the gap between the pit proper and the extension. The battery would have been covered and the pump stopped)

30 March – The Tweed River backed up the drains, flooding the sump pit and disabling the flow gauges.

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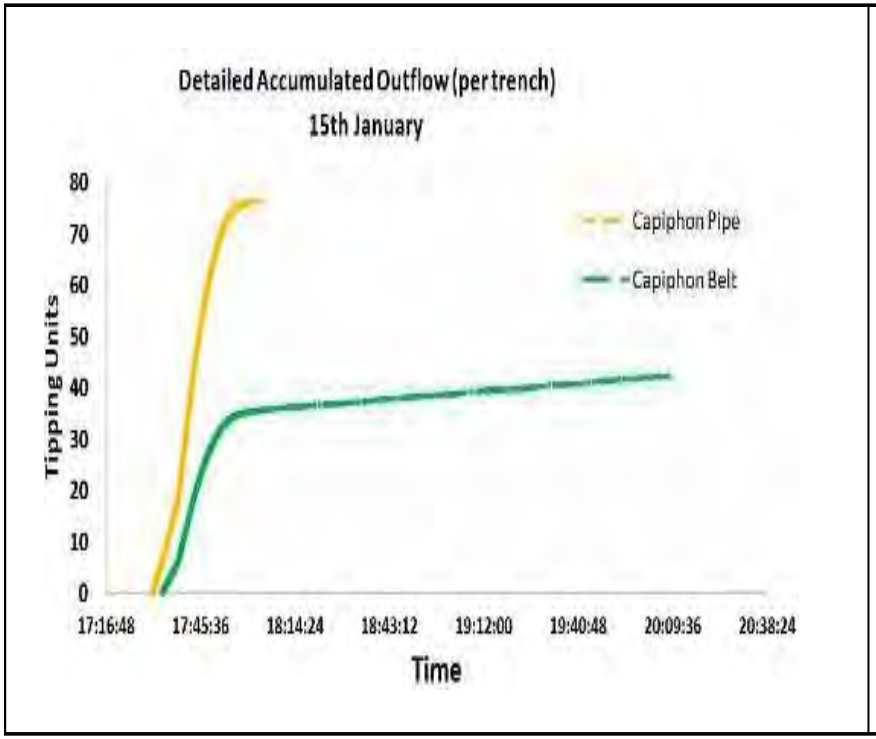

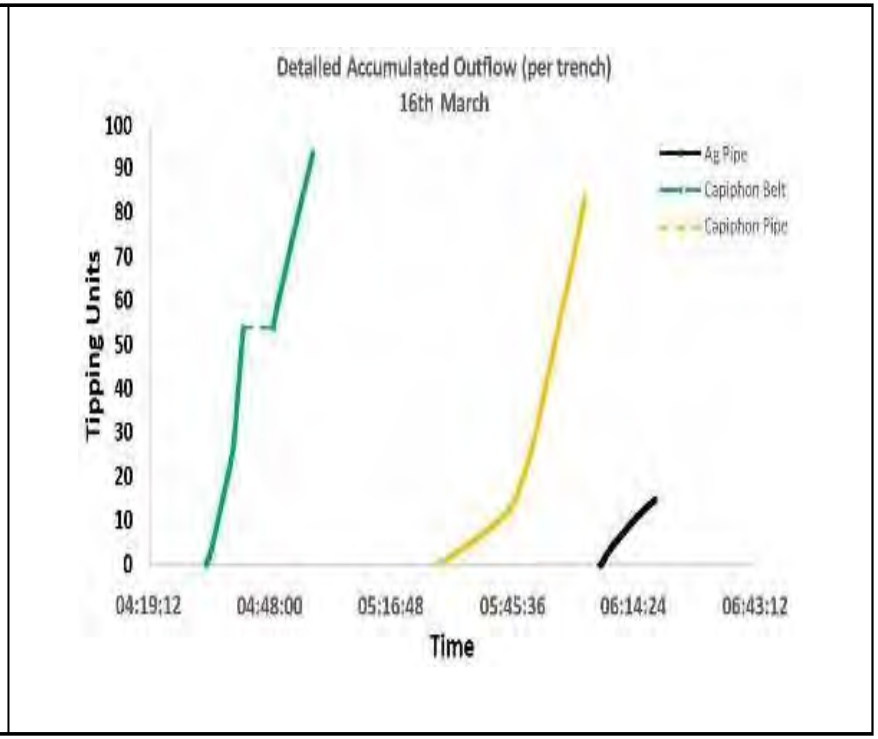

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- **After the Flood – Improved track conditions.**
  - **Repeat visit and measurements to confirm long term improvement**
- **Installation Costs: 60% of the standard Ag Pipe cost.**
  - **Single back-fill with washed coarse sand was significantly easier than gravel followed by sand.**
  - **Further, that the sand did not require time-consuming clean-up after the installation.**

Acknowledgements

- Racing NSW, especially Andrew Small
- Tweed River Jockey Club, especially Brian Charman

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