

Executive Summary

The outdated Hastings Point WWTP is no longer fit for purpose. An overly narrow and skewed assessment produced a Council-promoted option that does not respect the needs of the community and the environment. Further, financial comparisons have been misrepresented. A modern, well-designed plant and system achieving far higher standards is warranted. Councillors support is required to encourage Council engineers to rise to the challenge. Councillors are urged to represent the community's will by voting that either Option 3 or Option 5 be adopted as the starting point. Further, that final design for the plant and system evidence a master-planned showpiece that adopts cutting-edge technology. This project needs to be re-imagined as a community-Council collaborative effort with an outcome that all are confident and proud of as a benchmark for decades to come.

Hastings Point Wastewater Treatment Plant - TSC Proposed Upgrade

Context/Background:

1. The plant processes sewage for the approximately 15,000 people of Pottsville, Hastings Point and Cabarita/Bogangar -several thousand more during peak holiday periods. Situated on a flood plain in a highly eco-sensitive landscape within a globally significant, biodiversity hotspot.
2. Poorly treated, highly variable effluent consistently breaches EPA effluent guidelines -especially during the last 3 years.
3. Uncontrolled sewage releases to local waterways – 7 reported in 10 years (impacting Christies/Cudgera Creek-Hastings Point Estuary), all with inadequate public notification.
4. On-going blinding of dune infiltration system resulting in significant repair costs and uncontrolled sewerage effluent discharges to the dunes & surrounding environment.
5. Monthly community complaints including uncontrolled effluent discharges, noise, and odour.
6. Commissioned in 1985, the premises have deteriorated, the process is outdated, and this plant dumps significant amounts of pollutants into the local dunes. It is no longer fit for purpose.

TSC's Proposed Option:

7. Council's preferred option was based on a GHD report developed in close collaboration with TSC personnel. However, inadequate community consultation, environmental disregard, misleading financial comparisons, etc., not surprisingly produced an inappropriate result. Rather than achieving the cost-competitive, much higher standard warranted, a 'patch-up' option was put forward - one that falls far short of current advancements in wastewater treatment:
 - *Performance of Council's option was noted as 'acceptable', whereas all other valid options performed much better, i.e., two options were rated as excellent.
 - *Council acknowledges their recommended option is contrary to EPA's stance that effluent reuse alternatives be expanded. Makes reuse options harder, worse.
 - *Council acknowledges their option does not address a solution to dunes filtration blinding and uncontrolled effluent discharges at the dunes.

8. GHD reported capital cost estimates range between \$28m & \$38m for the five options considered. The accuracy of such price tags provided by GHD are more meaningfully considered in 'confidence ranges' rather than as defined values. When considered appropriately, the costs of all the options overlap showing there may be at most minor but not significant differences between these estimates:
 - *GHD/Council's option selection matrix attributes a significant cost difference between options, when in fact they do not exist.
 - *If cost is eliminated as a factor, the Council's preferred option ranks as the worst of the valid options considered.
9. The community was given a 4% weighting in the GHD option selection matrix - reflecting Council's disregard of community opinion. The Community Resident Associations representing these areas (Pottsville, Hastings Point, Cabarita/Bogangar), residents of Round Mountain, and environmental groups such as Friends of Cudgen Nature Reserve are campaigning to have a better option approved:
 - *An option that provides superior performance in treatment and reuse options - in line with higher standards and modern technologies available.
 - *An option that much reduces pollutants to the environment and 'zero tolerance' for uncontrolled releases into the waterways.
 - *An option that conclusively reduces odour and noise far below EPA guidelines to the plant and pump stations.
 - *A design that restores traffic safety and visual amenity to the plant's frontage.
10. The proposed option does not address the sewage system that supports the plant (mains re Infill and Infiltration issues, pump stations, dunes filtration component, etc.,) thereby overlooking other primary concerns raised by the community.

What the Community Wants:

11. An upgrade that delivers excellent performance (Option 3 or 5).
12. An option and design that prevents uncontrolled discharges to the surrounding environment- dunes and waterways.
13. An option and system-wide plan that eliminates community complaints associated with noise and odour.
14. A plant master plan that restores traffic safety and rural/environmental visual amenity to the premise's road frontage. The closing down or relocation of Solo's plant.
15. Rather than 'throwing good money after bad' at a system that has not withstood the test of time, a long-term upgrade to a higher standard, and one that considers climate change.
16. Engagement with the community to identify and implement future reuse options.

SUPPORTING DOCUMENTATION

Biodiversity hotspot

Reference Pg 187 & 251 (The Fragile Edge)

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THE FRAGILE EDGE

THE BOTANICAL ARK OF THE TWEED REGION

In The Ecological Landscape chapter the circumstances and forces that shaped the unique evolution of the Tweed region are presented. An outcome is the realisation that the native flora of the Tweed region is special — very special. Whether measured by the number of species found nowhere else, the density of native species or the number of distinctive plant communities near each other, the vegetation of the Tweed region ranks as exceptional. Not just compared to 'other areas of New South Wales', or even 'within Australia', but worldwide. For example within Australia, our region is only rivalled in plant biodiversity by the wet tropics of far north Queensland and the temperate forests of south-western Western Australia.



Photographers' credits cited in Appendix

The Tweed Coast can be thought of as the 'Coastal Botanical Province' and a major contributor to the overall wealth of the Tweed native vegetation. Bushland on our coastal strip supports a variety of plants that provide habitats that are exceedingly rich. Animal life is a good barometer of this. The diverse range of fauna found on the Tweed Coast can only be supported by correspondingly complex plant communities.



6 LAND AND FRESHWATER FAUNA

The Australian fauna includes some 400 mammal species, 790 bird species, 1000 reptile species, 240 amphibian, 300 freshwater fish species and probably several hundred thousand invertebrate species. This island continent's isolation has contributed to the evolution and survival of unusual and unique animals. For instance, with few exceptions Australia's marsupials, reptiles and amphibians are found nowhere else, and nearly half of the bird species are also endemic.

A disproportionately large representation of Australia's fauna can be found on the Tweed Coast. Good illustrations are that of Australia's birds and reptiles, around 20% and 5%, respectively, have been recorded here. Just two of the many remarkable examples of this region living up to its reputation as a *biodiversity 'hotspot'* — not bad for a tiny coastal strip that, in proportion to the area of Australia, is comparable to the palm of an adult's hand against the area of a regulation-sized football field!

PRIMARY AUTHORS

David Hannah is a senior fauna ecologist and researcher who leads environmental impact assessment studies and undertakes Threatened species surveys on behalf of the Tweed Shire Council.

Mark Fitzgerald is a herpetologist and ecologist specialising on vertebrate fauna, and particularly interested in changes in faunal assemblages and habitats.

Dr Graham Brown is an insect taxonomist and former museum curator who has collected, photographed and studied insects throughout Australia.

Many of Australia's best-known animals are residents on the Tweed Coast among them wallabies, Koalas, echidnas, colourful birds, the Lace Monitor and an infamous list of poisonous snakes, to name a few. Much of the Tweed Coast's wildlife is rare, even threatened with extinction making the ongoing management and protection of such animals and their habitat a delicate and serious matter. This chapter presents a sample of the fauna found on the Tweed Coast and outlines some of the issues affecting their (in many cases) increasingly tenuous coexistence with us.

Historic Performance

Comparing all the graphs to the effluent quality requirements, indicates that the plant in its current arrangement would not be able to consistently meet the licence requirements (which aligns with the expectation of upgrading the plant). Analytes of particular concern are TN (at 90thile and 100thile), TSS (100thile), BOD (100thile) and TP (90thile).

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3.4.1 Existing effluent quality review

Effluent quality results obtained from TSC were analysed to assess the performance of the existing treatment plant. Table 3.6 summarises this analysis.

Table 3.6 Hastings Point WWTP – Current Plant Performance (04/01/2017 – 06/09/2023)

Pollutant	Unit	Number of Samples	Minimum	Mean	Median	90 th Percentile	100 th Percentile
Alkalinity	mg/L	175	23	62	68	100	250
Ammonia	mg/L	175	0.4	3	4	10	26
BOD ₅	mg/L	175	1	1	3	7	42
Oil & Grease	mg/L	175	2	2	2	3	6
pH	pH Units	175	6.50	7.20	7.17	7.40	7.60
TSS	mg/L	175	1	3	5	12	54
TN	mg/L	175	3	6	8	12	27
TP	mg/L	175	0.2	0.4	0.4	0.7	1.9

Note: green indicates compliance over this period to the EPL with red indicating exceedance.

Using the operational data logs, graphs have been developed to compare the key criteria to the expected future concentration limits for BOD, Oil & Grease (O&G), pH, TSS, TN and TP, using the effluent quality data provided by TSC.

What EPA wanted from Upgrade (pg 24 GHD)

- For the HPWWTP performance upgrade, the EPA require TSC to consider:
 - Identification and maximising beneficial reuse options for treated effluent. The EPA will contact TSC to gain a further understanding of reuse options available from this treatment plant.
 - Steps to mitigate the production of Green House Gas emissions from plant processes.
 - Options that will enable treated effluent licence limits to be met.

Effluent Reuse is a disadvantage for recommended Option

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Option	Advantages	Disadvantages
	<ul style="list-style-type: none"> - More efficient use of concrete by operating at higher biomass concentrations. - Space efficient layout within the existing plant footprint. 	
Construct a third extended aeration tank (intermittent process)	<ul style="list-style-type: none"> - Maintain operational philosophy to existing plant whilst increasing capacity. - Large reuse of existing infrastructure. - Familiar technology to Council. - Low energy requirement option. - Low maintenance requirements. 	<ul style="list-style-type: none"> - Acceptable ability to meet environmental effluent quality requirements. - Less efficient use of concrete. - Lower future reuse potential due to poorer effluent quality than other options (especially MBR). - 3 IDEA tanks more complex to operate with sequences compared to 2 IDEA tanks. - Relatively high chemicals consumption.

Problems Continue at the Dunes

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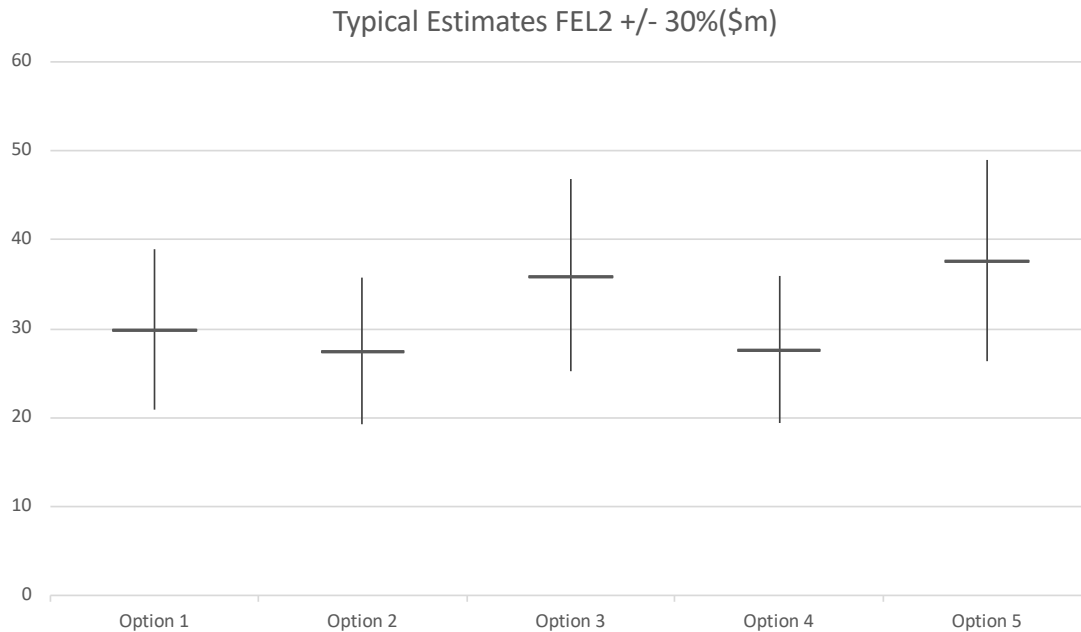
TSC accepted Option 4 as the preferred option but noted the need to manage the risk of solids carryover associated with the continued operation of an intermittent process going forward. This relates to Option 4's lower Compliance and Operational Performance score, relative to the higher scores in this area for 3 of 4 of the other options considered (1,3,5). TSC plan to optimise the effluent dune disposal system to prevent blinding.

Cost Accuracy

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The Cost Estimate is a preliminary estimate only. All costs were prepared in year 2023 AUD. It should be noted that the Australian water industry is currently experiencing significant price volatility due to labour (and to a lesser extent material) shortages and the preliminary cost estimates presented in this section need to be taken in this context. The cost estimates presented in this section have been developed solely for the purpose

Hastings Point WWTP Capital



Operating Cost Assumption flawed

Section 6.1.1 of GHD 2023 acknowledges that the costs of maintenance activities at the dunes will be the same for all options, despite the fact that this is not the case. Option 4 is likely to have a significant cost disadvantage compared to Options 3 & 5 in terms of dune maintenance costs in the future.

Selection Matrix when Cost not Dominant

GHD Criteria Matrix						
	Weighting %	Option 1	Option 2	Option 3	Option 4	Option 5
NPC Cost	0	4.3	5	2.6	5	2.5
Perf/Comp	21	4	1	5	3	5
Environ	4	3.5	4	3	4	3
Comm/Social	4	4	4	3.5	4	3
OP Complex	4	4	3.5	2.5	4	2.5
Rel. Redun	6	4.5	3.5	3	4	3
Constr	7	3	3.5	3	4	2.5
Resil/Longiv	4	3.5	3	4.5	3	4
TOTAL		1.92	1.25	1.98	1.75	1.91
rankings		2	5	1	4	3
Note:	If you eliminate Cost as a significant factor then selection matrix would select Option 3, 1 & 5 above Option 4.					

Ratings if zero out costs

How much the WWTP is polluting the dunes

License EP3618	Mass Loading kg per annum					EPA Breach
	O&G	BOD	N	P	SS	
Feb-24	502.58	4,436.72	8,915.29	398.70	6,316.06	TN and BOD
Feb-23	1,148.52	4,164.41	15,119.35	642.65	16,186.57	TN & SS
Feb-22	744.99	5,100.90	8,697.12	364.80	5,147.97	TN
Feb-21	257.29	2,072.37	6,283.16	312.57	3,949.00	
Feb-20	429.55	1,409.82	4,944.54	376.37	2,306.45	
Feb-19	612.08	2,121.99	5,976.34	452.20	1,862.01	
Feb-18	438.34	500.77	8,787.14	564.17	3,477.09	TN
Feb-17	393.48	1,821.79	7,538.06	481.36	1,989.70	TP
Feb-16	582.00	2,559.00	6,818.00	482.00	1,475.00	
Feb-15	402.90	1,052.63	5,730.77	357.29	1,142.15	

(All info from EPA annual returns)