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M [redacted]
E [redacted]
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Pukerua Property Group LP (CC: Torrey McDonnell, William Dorset)

Email: William.Dorset@classicdevelopments.co.nz

Dear Pukerua Property Group

Following on from the Fast Track Panel formation conference, a meeting was held with GWRC on 28 May 2026 and their consultant freshwater ecology reviewer (Gareth Taylor). It was agreed that I would undertake a formal SEV measurement and calculation of the unnamed tributary of the QEII stream that is required to be piped if the SH59 access must contain an NZTA dedicated roundabout, and from there recalculate the offset requirements.

For context, in the ecological assessment, I had predicted a conservative current SEV score of 0.65 and a resultant post culvert (with substrate bottom and no change to wetted width or velocities) SEV of 0.3 and that the offset through riparian enhancement (and some instream woody debris additions) gain 0.2 SEV on a averaged 0.4 current score which is typical of pastoral high erosion streams in Wellington. The benefits being shade, surface stormwater filtration, vegetation not stock, reduced bank erosion, instream complexity additions etc).

On Monday 1 June, I undertook 10 transects SEV measurements and collected the other data relevant to running the SEV model (I have used the 2013 model). Photos of each transect are attached.

The following is a copy of the functional scoring columns from the model.

Function category	Function	Variable (code)	Mt Welcome	MTW culvert
		Vchann	0.75	0.10
		Vlining	0.98	0.00
		Vpipe	1.00	1.00
Hydraulic	**NFR**	**=**	**0.83**	**0.07**
		Vbank	0.54	0.00
		Vrough	0.82	0.00
Hydraulic	**FLE**	**=**	**0.44**	**0.00**
		Vbarr	0.00	0.00
Hydraulic	**CSM**	**=**	**0.00**	**0.00**
		Vchanshape	0.80	0.20
		Vlining	0.98	0.00
Hydraulic	**CGW**	**=**	**0.92**	**0.07**
		Hydraulic function mean score	**0.55**	**0.03**
		Vshade	0.58	1.00
biogeochemical	**WTC**	**=**	**0.58**	**1.00**
		Vdod	0.50	0.50
biogeochemical	**DOM**	**=**	**0.50**	**0.50**

		Vripar	0.60	0.00
		Vdecid	1.00	1.00
biogeochemical	**OMI**	**=**	**0.60**	**0.00**
		Vmacro	1.00	1.00
		Vretain	0.90	0.20
biogeochemical	**IPR**	**=**	**0.90**	**0.20**
		Vsurf	0.50	0.37
		Vripfilt	0.80	0.00
biogeochemical	**DOP**	**=**	**0.65**	**0.18**
		Biogeochemical function mean score	**0.65**	**0.38**
		Vgalspwn	0.40	0.00
		Vgalqual	0.25	0.00
		Vgobspwn	0.10	0.10
habitat provision	**FSH**	**=**	**0.10**	**0.05**
		Vphyshab	0.75	0.38
		Vwatqual	0.27	0.38
		Vimperv	1.00	1.00
habitat provision	**HAF**	**=**	**0.69**	**0.53**
		Habitat provision function mean score	**0.40**	**0.29**
		Vfish	0.00	0.00
Biodiversity	**FFI**	**=**	**0.00**	**0.00**
		Vmci	0.84	0.44
		Vept	1.00	0.11
		Vinvert	0.77	0.16
Biodiversity	**IFI**	**=**	**0.87**	**0.24**
		Vripcond	0.76	0.00
		Vripconn	0.00	0.00
Biodiversity	**RVI**	**=**	**0.00**	**0.00**
		Biodiversity function mean score	**0.29**	**0.08**
		Overall mean SEV score (maximum value 1)	**0.506**	**0.203**

The spreadsheet used and the data therein is available on request.

The result of the formal SEV measurements and calculation is a current SEV of 0.51, which, given the true left side is influenced to a reasonable degree by the SH 59 proximity, is to be expected.

Further the SEV is unlikely to be better than 0.51 as the SH59 influences on stream values are unlikely to change, and other improvements (such as the fish barrier issue) are unlikely to be addressed or too difficult to improve. In short, the improvement of the 0.51 current SEV is not resting on the usual simple aspects of removal of stock and creation of riparian vegetation.

The result of a long pipe (110m) where the diameter and gradient allow retention of the velocity, substrate and wetted width, is a little less than the example I used (0.3) attained from another stream pipe example (i.e. 0.2).

The resultant ECR formulation is:

(0.51-0.2) / (0.6-0.4) = 1.55 -i.e. an ECR of 1m lost stream to 1.55m stream improvement – noting both streams are circa average 1.5m in width.

Using a current SEV of 0.51 and a post-culverting SEV of 0.20, and assuming an offset site improving from 0.40 to 0.60, the resulting ECR is 1.55:1. This means that for every 1 m of stream lost, 1.55 m of stream enhancement is required

This is without the multiplier of 1.5 added which is used most often to reflect a default or to account for a lag time in the improvements of gains at the offset work.

The AEE reported a 1: 1.75 ECR (which also did not use the multiplier, but that fact had not been explained in the report).

I do not consider that the multiplier should be applied, firstly because default of success would be a breach of conditions and there is no difficult site circumstance of condition that makes removal of stock, fencing, native revegetation or installation of large woody debris difficult or at risk of success.

While the riparian vegetation to be planted will take between 5 and 10 years to provide shade and drop leaf litter and invertebrates directly into the stream, the fencing off and planting and weed management etc will change the erosion susceptibility of the banks, the woody inputs will have an immediate benefit, and the filtration of stormwater over the surface through vegetation will function from the time of the fencing. In short, while the shade component will take approximately 7-10 years, most of the other functions and gains of riparian edge treatment occur sufficiently quickly that a true lag time for in-stream habitat gains of the SEV are not sufficient to warrant (in my opinion) such a multiplier.

Under this revised SEV -ECR outcome the requirements for the extent of west kakaho improvements would technically be reduced by a small amount (23m).

The report states that (page 54) 193m of perennial stream requires enhancement to offset the 110m culverting of the Taupo stream

Now the 110m piping requires 170.5m or the west kakaho main stem to be enhanced.

Yours sincerely
Dr Vaughan Keesing

Ecologist

02.06.2026
BlueGreen Ecology Ltd.

Transect 1

Transect 2

Transect 3

Transect 4

Transcect 5

Transcect 6

Transect 7

Transect 8

Transect 9

Transect 10