

17 September 2015

To: Dept of Planning

Re: Stage 2 draft of Riverstone East Precinct.

To whom it may concern,

My Father Mother and I would like to make the following submission to amend the current draft plans of the Riverstone East Precinct.

Whilst we know there were workshops regarding the plans in 2013 and 2014, my parents ages have limited our ability to attend these meetings. We assumed that being on gradually sloping acreage with no trees and no easements that our land would be prime developable land.

To our horror, the current draft plans show a sporting field has been designated for our prime developable land.

I am in my mid 50's, my mother is nearly 80 and my father is 86 year old and we have been residents on Clarke Street Riverstone for nearly 50 years and have been in the area for even longer. We have all seen many adverse weather cycles in the area over this period. We feel we have some useful knowledge that should be used to improve the current draft plan and particularly the relocation of the proposed sporting field.

The proposed sporting field crosses all of our land as well as parts of the neighbouring properties at No.4 and No.8. We do understand its necessity but believe it could be placed in a more appropriate location.

We feel that the selected area is not the most efficient place to put it when considering the Department of Planning's criteria. We also feel the original 1 in 100 year flood plan gave a false impression as to the suitability of the current area.

The following submission is based on information from Dept. of Planning website including workshop feedback information from the various workshop discussions that we were unable to attend.

This information identifies Criteria for locating sporting fields in the most appropriate location. The following describes why we feel these criteria are not being met.

## Dept of Planning perceived Criteria for sporting fields:

### Should be in 1 in 100 year flood area and connected to Green Corridors (for reference see appendices)

While this is an excellent criterion, we feel it is not being adhered to in this case.

We do not really understand how the flood prone land map (Appendix 1) shows a flood area that does not even remotely match the contour map (Appendix 2a). We have lived on "Flood Area 1" for almost 50 years and have never seen flooding on our property. The catchment area above is not large enough to cause such a large flood area to its high side and is only barely in the 1 in 100 year flood zone (according to the Department's contour map) from the low side.

We have lived in the area since the early sixties and at the Clarke street address since 1966. We have lived through 2 of the biggest floods in the last 150 years (as shown in Appendix 3) and have never seen the flood area you indicate on our property. Whilst during the same flooding periods and particularly the 1978 flood, we have seen an area of flood at least the size indicated in "Flood Area 2" to at least 1 metre deep. However, no flooding was visible on our property during this period.

The Departments 1 in 100 year flood map conflict further from reality based on the following real life evidence:

1. The fact that we have lived in a fibro house that is located in "Flood Area 1" (see attached Appendix 5a and 5b), which is not even 300mm above the ground, and has never moved and never been undermined by water. Your 1 in 100 year flood data would suggest it should have been under water by some metres. It would have floated away according to your data. But it has never happened and is still there and is still dry. There is also a storage shed that has been in this same vicinity since the early seventies that has never flooded.
2. We have a small dam in this "Flood Area 1" which was used to water crops we used to grow. We have had to abandon any crop growing because the dam hardly ever refills once emptied. Only extremely heavy rains over a few weeks ever fills this dam. This further highlights the limited runoff from the above catchment area. Clearly, most water from the above catchment travels down through the creek at No.10 Clarke Street Riverstone.
3. There is also the A- framed timber house on piers on a slight hill, at No.8 Clarke street Riverstone, built in the early 1960's that is right in the middle of "Flood Area 1" as you have it drafted (See attached Appendix 5). It also has never been under water in our lifetimes, and likewise it would have floated away based on your data. We believe that your 1 in 100 year flood drawings are completely false for "Flood Area 1" in terms of area size.
4. We have had chicken sheds in this area through the 1978 flood. No water was seen.
5. We have had crops right in the middle of draft "Flood Area 1" and you can still see the furrows that are all still intact and unaffected by any water flows.

## Further analysis

Due to time and financial constraints, we have been unable to get expert advice on this matter in the time allowed. However, using some simplified formulae based on my Fluid Dynamics knowledge, I have done a reasonable mathematical analysis that backs up our real life observations.

Analysis of the upstream flows would suggest the catchment area is not big enough to flow the amount of water indicated. Interpolations from the topographic map in Appendix 7 shows a catchment area of approximately 800 metres x 500 metres to the area in question.

In considering data from the nearest area being UWS Richmond from the Bureau of Meteorology website dating back to the 1860's, the highest recorded rainfall in 1 day is 309 mm. Refer to Appendix 8. The table also shows daily rainfall during the 1961 flood (the biggest in 150 years, post Warragamba dam). It rained 131 mm in 1 day as the highest recorded for the year. So in the unlikely worst case it rained 131mm in 1 hour over this catchment area with a saturated ground I have done my own calculations.

Doing the numbers would suggest a water volume of  $800 \times 500 \times .13 = 52,400$  cubic metres of water in 1 hour based on the 131mm figure. Or 873 cubic metres of water in 1 minute.

Your map shows an area converted to the equivalent of approximately 75 metres wide x 600metres. Even at a depth of only 300 mm and a slope of 5 metre in 200metres (as per topography). The discharge flow rate would be 6049.90 cubic metres of water per minute (using the manning discharge formula). This represents 6.9 times larger capacity than the maximum rainfall.

Another perspective on this would be that over the 75 metre wide flood corridor with a slope of 5 in 200, 533cubic metres per minute corresponds to a depth of only 90mm. Not likely when you consider that the area is not flat

If we compare this to the creek at No.10 it can be seen that if the width of the creek is say 20metres to a depth of around 300 mm as we have seen in 1978, and the slope of the land is 2 in 200 the discharge capacity would have been 1619.7 cubic metres per minute. More than 2 times the net amount. Well and truly enough to cope with the entire catchment area, even with double the amount of rainfall.

Clearly, the flood diagram model is inaccurate for this particular catchment area.

This appears to be why the creek indicated can currently dissipate the amount of water in the catchment. The catchment area is not big enough to flood the area indicated.

This is why we have seen water flowing down the creek which crosses No 10 Clarke Street. Clearly, most of the water during these major floods mentioned earlier, from the catchment above this area flows down this creek which we have seen flood across the road into First Ponds Creek. The proposed drainage channel is an excellent solution and would carry away any and all water from upstream. Clearly there has always been water runoff in this area, but has always been constrained to the vicinity of the stream. Doing some simple calculations, a canal only 10 metres wide and 1

metre deep, on a slope of 2 metres in 200 would be sufficient for more than 200mm per hour rainfall.

We believe the contour map is the most accurate method in determining the 1 in 100 year flood zone for our property with the creek clear and flowing. If you could look closely at Appendix 2 and follow the contour lines from "Flood Area 2" to "Flood Area 1" and along Clarke Street. This we believe is the correct 1 in 100 year flood area based my memories, My memories as well as my mother and fathers memories of the second biggest flood in 150 years.

"Flood Area 1" will be even less susceptible to flooding when the local drainage channel is excavated at the creek through No.10 Clarke Street as seen in Appendix 4 and houses are built with the storm water runoff directed into First Ponds creek.

Further to this, if "Flood Area 1" was to be as large as is shown on your flood map assuming significant runoff from the catchment above, then "Flood Area 2" would also be far bigger in area than that shown.

One final piece of evidence can be seen in Appendix 2b. A topographical map extract from the Departments Landscape and Visual Assessment document from the Departments website showing heights. In considering the top 10 floods in recorded history measured at the Hawkesbury river bridge, several kilometers away, it can be seen that the 1867 flood of the 19.2 metre level of flood does not even reach the front fence of 6 Clarke Street Riverstone. However, with a bank up of some water in this location, the water level was probably be between in the 20 and 30 metre areas. This exactly matches our memories as well as our line on the contour line map.

### **Further real-life evidence**

If we compare Appendix 9a (April 2015 storm) with Appendix 8 (1961 storm, biggest in 150 years) the similarities can be seen in terms of maximum rainfalls over a few days. In particular the maximum daily amounts for the individual years. There is only 22 mm difference on the 2 biggest flood days.

Now if we look at Appendices 9B, 9C and 9D, we can see that actual photos taken on the 23 April 2015 of the actual maximum water levels of 2 areas in Appendix 9D and they do not match anything like the current flood model.

Photo 1 on Riverstone Road (Appendix 9b) matches nearly exactly the water level indicated on the flood model. However, on the same day, still pouring with rain, within a few minutes Photo 2 shows no running water at all on the land from 6 to 8 Clarke Street. Again, it is not a flood prone area.

For water levels or flows to reach the levels shown on the flood prone map, water would have to be completely over Clarke Street which would in fact cause flooding issues at the R3 zoning just across the road from where photo 1 was taken.

We are also disappointed to see areas of far more flood prone land far and less premium than ours, in the Riverstone precinct, have already been zoned for development. Land has been subdivided and all blocks sold at the bottom of Riverstone Road. Refer to Appendices 9D, 11A and 11B. As you can see it is a flood zone. The rear of the 5 acres is under water.

### **Further Investigation required**

Even after all has been said above. There has not been a study as to what the flood area would look like once the road and the drainage channel were installed. Clearly, if Flood Area 1 is NOT flood affected now, then it certainly will be even less so after the 2 items of infrastructure (the Road and the Canal) were introduced. This would also mean that "Flood Area 1" would not be a flood area but "Flood Area 2" would be the same or worse.

Our concern then is for the developments proposed near the Riverstone road and Clarke street intersection given that the flood waters were not that far away when looking at our photographs of the area in the April 2015 storm (Appendix 9B)

In this regard, we believe that "Flood Area 1" is nothing like what is shown in Appendix 1 and does not match this Criterion for sporting fields while "Flood Area 2" would be a far better proposition for such a sporting field.

### **Large relatively flat areas**

If we again look at the contour map (Appendix 2) you can see that the area RE1 that has been chosen is not very flat and is sloped from both sides and particularly on the left at No 4 Clarke Street. It slopes left to right and back to front by some metres. This would mean that there would need to be significant excavation of the land to make it flat enough to be used for a sporting field.

Again if you consider the contour map of Appendix 2, "Flood Area 2" is far more suitable in terms of flatness and size of the land. Very little effort would be required in this area to convert it to one or more sporting fields.

Again this criterion has not been met for the position selected in the current draft.

### **Do Not Want to Waste Developable Land**

This is another criteria listed in your workshop sheets.

Based on the above analysis, the area in question is clearly NOT flood prone. Therefore this prime developable land is being wasted.

Developers were falling over themselves to buy this land for residential development prior to the draft. They all say that the land is easy building land and is on an existing road, ready to go. No other roads need to be constructed for this to go ahead.

Prior to this draft plan, my parents signed an agreement to sell the property to a Developer who was ready to develop. Refer to Appendix 10. They are extremely disappointed. They are ready to jump at the opportunity to develop on this site if you were to change the zoning.

If we again look at the contour map in Appendix 2a, you can see it is perfectly developable land and in fact it is of a more premium quality than that of area R3 for example as shown in Appendix 4, which is very close to a drainage channel and potential flooding from across the road.

So again, based on the fact that the land is NOT flood and NOT flat, you are wasting perfectly developable land area.

Looking at Appendix 4 and in particular the bottom end of area E4, why is development proposed in this area? Again, we have seen flooding in this entire area to at least 1 metre deep. Why is this land being developed? It makes no sense to build on salt ridden significant flood land. How will people access their land during stormy weather without major infrastructure? It would be better to utilise this land as a sporting field with the possibility of linking it to the sporting fields designated in stage 3 directly across Garfield road.

If you consider the density of houses available on "Flood Area 2", this site based on your Environmental Living criterion, you would add merely an extra 10 to 14 dwellings over 10 acres and more than half of the houses would have to be raised significantly or the entire area back-filled with soil. At least three times as many houses could be developed on the current draft sporting field from No.4 to No.8 Clarke Street.

It is a waste of developable land to place the sporting field as indicated and again would be better moved to the corner of Garfield road and Clarke Street at the bottom of the hill in "Flood Area 2".

### **Dual purpose and near schools**

This criterion is not consistent either. There are no schools in the vicinity of this particular proposed sporting field. If this sporting field is added there will be 5 sporting fields in a 1 kilometre radius. Directly on the other side of First Ponds Creek there are 2 sporting fields is planned already in Riverstone, to accommodate the schools. In saying that Riverstone high school already has 3 sporting fields and Norwest School already has 2 sporting fields. This means there will be 10 sporting fields in a 1.5 km radius. Overall we have counted 15 sporting fields both existing and proposed in a 5km radius of our house. This is if we include the sporting fields at St Johns school and the Riverstone primary school field.

Also, with the 2 other sporting fields drafted for stage 3 making 4 in total in stage 3. This means that Riverstone East alone will have 6 sporting fields in a 4 kilometer radius (see Appendix 6), plus there will be a huge regional park hundreds of acres in size, as well as scattered smaller fields and at least 500,000 sqm of green space on either side of First ponds creek.

In this case, we challenge the need for the sporting field designated on our property when considering the overall sheer numbers of parks all around, and considering it does not even fall into a flood zone nor is it flat.

It may not be necessary to burden any property with this sporting field. We question the necessity of the number of sporting fields that would be required for the population in this entire area.

### **Sporting fields located in one area**

This is another criterion we read in your workshop discussions. If this is to be adhered to, why not put the sporting field at the bottom of area E4 which is only across the road from 2 sporting fields as indicated in Stage 3 draft. This proposition would then make this criterion much more valid.

## **Near schools and Noise impact areas**

This is another excellent Criterion. However, it does not apply very well for the proposed sporting field on our property.

This sporting field would have housing on 3 sides. Noise would affect surrounding houses particularly because of the hill to the left of the property that would reflect a lot of noise.

This again would make "Flood Area 2" at the bottom of E4 a better proposition for the sporting field because it would be flanked by housing on 2 sides only and not the 3 as would be the case of the current position. Being in "Flood Area 2" and in a hollow would also mean that noise from sports events would be better contained in the hollow.

## **In conclusion**

The current draft location of the sporting field between No4 and No.8 Clarke Street Riverstone ,does not effectively match any of your criteria for sporting field.

The current proposed position is NOT in a 1 in 100 year flood area to any major extent, the area is NOT very flat, nowhere near schools and is not in an effective noise impact area and is a waste of prime developable land.

Developers are ready to start subdividing and building because of the nature of the gradually sloping land and perfect for building.

We request that you reconsider the placement of the sporting field from the current drafted position to a far better and more appropriate position in "Flood Area 2" at the bottom of the hill in area E4, at the corner of Garfield road and Clarke Street Riverstone. We request that you not waste our developable land and rezone as at least low density.

Alternatively, you could consider removing the sporting field altogether and rezone all of the land as developable.

We hope you consider our application and thank you for your time reviewing our application.