FromTony HolmanToJon EmeryRePermissions discussion documentDate26th March 2015



Dear Jon.

Thank you for sharing the concerns raised by the conservation officer with me. Most of the recommendations are achievable and beneficial to the overall aesthetics of the initiative. Some are however are very difficult to achieve from a technical perspective. The object of this report is to go through the individual points and table workable solutions where potential conflict is present.

The key points are as follows and for clarity I have highlighted the conservation officer's comments in red

- 1. Detail on the drawings the painting method and colour of the proposed pergola/railings. AGREED
- 2. Detailed drawings of the proposed balustrading and metal stairs. AGREED
- 3. Details of the proposed paving bond (schematic sketch). AGREED
- 4. Detail on the drawings the painting method and colour of the proposed pergola/railings. AGREED
- 5. A method statement outlining how the works will be carried out. AGREED
- 6. Detailed location of the retractable transparent screen so as not to be visible through the proposed

open lattice. PLEASE SEE APP A

- 7. Samples required.
 - Canopy cover fabric AGREED there is an outer protective skin and an inner decorative element
 - Retractable transparent screen. AGREED
 - Stone veneer pavers. AGREED
- 8. The conservation officer is simply not satisfied that the aluminium ornate elements are of sufficient

quality. It is evident from the photos that the elements are very flat with sharp edges, as opposed to the more rounded edges that you would get from iron. With regard to the mix of materials, we would like to see the following:

- wrought and cast iron combination for the decorative elements PLEASE SEE APP B
- cast iron or aluminium for the tubular columns PLEASE SEE APP C
- aluminium for the lateral roof members PLEASE SEE APP D
- 9. The cladding is considered to be overly pastiche. A simple tubular column would be preferred AGREED

APP A-1

This is the view or the blind head box from the inside and it is basically 131 mm square and you have an option of a rounded edge on the bottom as seen on picture 2. Picture 3 is the blind from the inside.



The drawing on the right above is what would be seen from the rear of the blind and the box is 131 mm deep and it will be painted black. This will be sat behind <u>AND ABOVE</u> the proposed open lattice. It will not be seen from any angle other than inside the structure itself.



If the agreed solution is to place the blind on the inside of the structure as shown here on the left then the supports are totally hidden from outside view.

NOTE the blinds needs to run in tracks down the side to prevent them flapping around in heavy winds and because of this they need a flat surface to attach these tracks to. Thus, if the uprights are not flat on the inside face then unsightly brackets will be required to create the fixing points.





This is without the clear "crystal" fabric as if we had shown the clear fabric you would not be able to see it.

APP B-1

The decoration is purely that and non-structural and as such weight is a significant issue as the structural frame required to hold up the decorative finishes increases exponentially in size as the weight of the decoration "hanging" from it increases in mass or density.

There are three materials considered for the decoration and in basic terms there are as follows.

Aluminium Castings at 2500 Kgs per cubic metre.

Cast Iron at 7500 Kgs per cubic metre.

Wrought Iron at 7500 Kgs per cubic metre.

This means that 3 times as much aluminium decoration could be used in terms of physical mass as either Cast Iron or Wrought Iron <u>OR</u> for the same amount of mass the aluminium would weigh 3 times less than either the Cast Iron or the Wrought Iron.

On the initial assumption however that aluminium is discounted then that leaves cast and wrought iron.

Without getting too involved in metallurgy "cast" product by its nature is very brittle due to the manufacturing process rendering the molecules random and haphazard thereby forming millions of cracks just waiting propagate. This means that cast product is at least 4 times as brittle and normally a great deal more than Wrought Iron

For this reason cast iron decoration is normally very large in section compared to a similar decorative section made from forged steel or Wrought Iron.

The outcome of this is that if aluminum casting is not acceptable then decorative wrought iron is preferred over cast iron as delicate and sympathetic decoration can then be utilised, this would then bring the wrought iron decoration down to a similar weight to the cast aluminum.

Recommendation.

We present two actual samples to the decision makers.

- The first is the cast aluminium re worked to look identical to cast iron and painted black
- The second is a delicate and sympathetic wrought iron designed to complement the existing ironwork



Height	290 mm
Length	1000 mm
Flange width	40 mm
Thickness	12 mm
Weight	8.1 kg

This is the decorative aluminium lattice work. It is manufactured using exactly the same process as cast iron.

We have a sample and we will clean off all the sharp edges and paint it black and submit this for comment

Visually this will be identical to cast iron









This shows the existing railings and gates none of which except the tiny decorative roundels and flowers is cast iron and it is all cold formed bar and hollow section.



APP C-1

Tubular columns are an absolute necessity and that point is not in question. The issue is cast iron or aluminium and round or square.

The columns need to be square for all the reason explained in APP -1 the predominant factor being that we need to fix the blinds to them and hide the blinds behind them and this is only possible with square plain columns.

Extruded aluminium columns are load bearing and because extrusions can be manufactured with the appropriate dies in very complex shapes both internally and externally it is possible to use aircraft grade materials and create a corrosion resistant leg with minimal visual impact.



Add to this the following facts

Cast iron is normally decorative only (unless it's of very large AND SOLID section)

Cast iron is brittle

Cast iron sections of equivalent strength will be very large in cross section

With solid large section cast iron we will need to drain externally and that will cause significant aesthetic issues

For all these reasons we would propose high grade aluminium extrusion painted black to look like cast iron.

APP D-1

For all the reasons the legs should be extruded aluminium it is excellent news that all parties are in agreement that the lateral roof members should be made of aluminium.

These are again internally ribbed to reduce cross sectional area and retain strength as this is a very important structural member.

On traditional roofs the weight of the roof trusses and tiles counteract the uplift caused by severe wind. Because of this traditional buildings do not take off in a storm (but warehouses and tin sheds do)

Like warehouses and a tin shed our fabric roof has no weight in it to counteract the wind up lift and as such these beams need to be able to withstand up to 100 Kgs of up lift per square metre. For example if you assume a 5 metre projection and a 4.5 metre wheelbase (the distance between the centre of each beam) then $4.5 \times 5 \times 100 = 2,250$ kg which is much heavier than a large car. As uplift and down lift are the same you could in theory park a large car on a fabric roof supported these beams quite safely.



The extruded aluminium roof beam will be 120 wide and 150 mm high.

We can achieve these minimalist dimensions and retain the strength required due to the internal bracing you see here on the left.

The beam will be painted black and from floor level will look like cast iron as we can use а textured paint (such as hammerite) as a base coat to age the surface and give the appearance of decades of maintenance and top coat this to the exact RAL colour required to achieve acceptance by all.