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Fwd: AWDM/1214/18 - Handrail amendments

1 message

Gary Peck <gary.peck@adur-worthing.gov.uk> 4 September 2018 at 10:09
To: Planning - <planning@adur-worthing.gov.uk>

---------- Forwarded message ----------
From: **Mike Wooldridge** [redacted]
Date: 3 September 2018 at 19:36
Subject: RE: AWDM/1214/18 - Handrail amendments
To: Gary Peck <gary.peck@adur-worthing.gov.uk>
Cc: Joss Loader [redacted], Jessica Aidley [redacted] Jon Potter [redacted]

Gary, please find below my response to your information from the EA. You will see that I am still 'objecting' but can see grounds for softening my 'objection' if other options (not necessarily 316 grade) are explored. Tony Parker (Engineering Director at Shoreham Port) may also provide useful independent advice.

My report refers to various photo exhibits. I will send these later today, but I don't want to miss the deadline for getting my written comments in – and I have to go out now.

Mike

Adur Tidal Walls, Reach W5, hand rail considerations

Submission to ADC Planning dept, by M C Wooldridge 3 Sept 2018

1 Introduction

Problems associated with the proposed provision of the new Reach W5 handrails seem to fall into 2 categories, namely a) the need for handrails in the first place and b) if required, then what materials should be used. It also has to be recognised that the rails to the north of the path present different needs to those on the south. Taking each item in turn:

2 The need

2.1 North side

We have never had handrails (on either side of the path) before, but now that said path is being raised (by up to 200mm) it seems that there is a risk of people falling off, of sufficient magnitude to justify the installation of handrails. Arguably this need is greater at the west end approach to the boats, where there are no jetties, flower bed

extensions, fences or sheds and the provision of public lighting is poor. It has also been suggested that the emergency services will not use the footpath when flooded, unless a north side handrail is in place.

I must now express a personal view. I'm not sure that the emergency services would adopt this stance, especially as in the past they have said that they will always do their best to rescue us. OK, they may be slow to get to us, especially if there is a significant flooding event such that other parts of Shoreham/Lancing are also demanding their services. But once on the scene, and bearing in mind that there is now a wide and highly visible south edge flood defence wall, it would seem that they could easily and safely be able to stay within 5' of said wall (unless, of course, the path itself is badly blocked by flotsam). They will also, presumably, have their own torches.

As for the risk of people/children/toddlers falling down the bank at other times, I would have thought that it is still reasonably low, and any resulting injuries relatively minor. Said risk does have to be balanced against the visual intrusion of a new handrail – well actually it's really a fence.

Having said all this, if the powers that be, deem that a handrail is necessary, and certainly if there is any risk that a mooring owner could be sued for not having a suitable fence in position, then the provision of any such fence must be 'fit for purpose'. This would not only entail having sufficient horizontal members to prevent individuals falling through the fence, but also ensuring that the selected materials were fit for purpose – see below.

2.2 South side

The new wall is much wider than the original design. (Interestingly, the original wall would only have been an elegant 300mm wide, and given a rounded top, would probably not have needed a handrail at all.) Being relatively low with respect to the new path height, the new wall design looks very inviting to children (and vandals) to walk on. And no doubt the box outs for the steps will be seen as challenges to jump over rather than serious obstacles.

The drop from the top of the wall is now higher, and if we residents are allowed to keep the lower ledge level for the garden, then the potential fall could be over 2m. Hence the need for a rail would seem justified. Maybe the rail could be just a single one – bearing in mind that the wall itself will provide the first 500mm of barrier height. But I suppose to be really effective, the 'rail' should actually be 2 or 3 rails or else any would be 'wall walker' will easily be able to walk on the horizontal top surface that is not encumbered by the rail. Planter boxes may help, but it is unlikely that they would be sufficiently densely provided in order to deter all 'wall walkers'. However. the provision of 2 or more rails, or any other deterrent mechanisms, would be visually intrusive and somehow out of keeping with the Riverbank. So hopefully a single rail, will meet health and safety needs and free mooring owners from any risk of being sued.

A further footnote. I have just visited Brighton Marina and was interested to see a wall there running along the undercliff walk, but at the west end to the north of the marina itself. This wall was of comparable height and thickness to the ATW W5 wall, but had a 3m shear drop on the south side to a concrete ledge and then the water. It had no handrail or other safety guard on top of it (see photo 1).

3 Choice of materials

The original design featured a hardwood handrail. It was said at the time that this would seem unlikely to last the 100 year design life of the wall, and should therefore be replaced by a stainless steel rail (and supporting system) of sufficient quality to withstand a marine atmosphere for 100 years. This would seem to dictate 316 grade stainless steel (aka A4 grade or EN 1.4401) as used on yachts and other marine structures, including EA handrails on some sea walls!

316 stainless steel was duly specified and agreed in the Plans, and it is only now at this late stage that EA are trying to replace it with powder coated mild steel – presumably on cost saving grounds.

We are told that the design will use Akzo Nobel D1036 coating of corrosivity category C4, applied to zinc sprayed mild steel. This combination has a design life of 17 years compared with an EA quoted figure of 20 years for (presumably) 316 steel. WSCC who will be maintaining the structure, are said to be happy with the design and will put in place the necessary maintenance schedule.

Hence, prima facie, and assuming the initial appearance is acceptable, we should all be happy.

BUT I still have serious reservations.

Firstly, I do not accept that 316 grade stainless steel only has a life of 20 years. Experience suggests it is far longer than this – witness the current state of the hand rails near the Brighton Marina (see photos 2 and 3). Witness yachts etc that have not had their fittings replaced for well over 20 years.

Secondly, experience of powder coated mild steel suggests that its design life is certainly no more than 17 years. My own experience on the Riverbank is less than 5 years (see photo 4), but this may be due to faulty initial workmanship?

It is not clear how effective the WSCC maintenance schedule will be. Inspection of the Akzo Nobel 'cleaning and maintenance guide for Interpon d1036' says that coatings within 50m to 500m of high water mark (and we are less than 5m! and don't forget salt which may be applied to the path during icing conditions) should be inspected and cleaned every 3 months. Are WSCC committing to this?

The Akzo Guide appears to give no advice when it comes to actual maintenance, but bearing in mind that the original coating requires a 2 stage baking process (110-120°C for 15 to 20 minutes, followed by 190°C for 12 to 25 minutes) it would seem virtually impossible to repeat anything approaching such thoroughness on site. Perhaps WSCC could say exactly how they intend to maintain the rails?

I have since spoken to a specialist firm (Cromodex in Portsmouth) that supplies d1036 powder coating, and also the company that carried out the powder coating shown in photo 4. They advise that the life expectancy of coated rails in our sort of situation is more likely to be 11 years. There are paints that can be used to repair damage, but these are not as effective as stripping the coating off and re-applying (back in the workshop). Cromodex did however mention modern marine paints that should have a life expectancy of 24 years if applied properly in the first place. This information also tallies with advice I have heard from the Director of Engineering at Shoreham Port who mentioned a figure of 30 years.

Of course there are other options, eg coating to grade C5 or possibly using heavy galvanising (up to 215 microns thick) but even the latter only has a life of up to 40 years in a salt atmosphere. And the C5 grade powder coating may not be much better than 15 years in our environment.

Photo 5 shows an example of what is believed to be powder coating failure on some inland (8 miles from the coast) road signs. Whether powder coated or painted, it shows what can happen to non stainless steel tubes within a space of less than 30 years.

Finally I have checked some prices of materials. Grade 304 stainless steel is about 3 or 4 times the cost of mild steel. But for grade 316, the supplier I spoke to (Denmay Steel) was unable to get a quote. He thought that the quantity that we would be asking for would require a special run, and might cost up to ten times that for mild steel.

Hence maybe we should consider grade 304. My experience of this material is that it will acquire a rusty sheen after a year or two of exposure to a marine environment. This is probably acceptable compared with the sort of failure that we could see in photo 5. When compared with Mild steel, and even allowing for the cost of zinc spraying and powder

coating, the latter will probably have a lower initial cost. BUT the latter will have a far higher maintenance cost and may have to be replaced several times during the next 100 years. Therefore 304 stainless steel would appear to be a better choice on cost grounds alone, quite apart from appearance and failure considerations.

Marine grade paint may be another option and arguably justifies further consideration.

Hence I have to come back to my original request – please can we have 316 grade rails as originally agreed, but if this is truly unjustifiable, then I'd be willing to listen to options other than powder caoting. Arguably the EA could save costs on the north rail, by either dispensing with it altogether, or replacing the design with either quality-finish concrete posts or recycled plastic posts as used for street furniture. The horizontal wires do not have to be fancy tensioned stainless steel cables, but could possibly be heavy galvanised as employed for agricultural use? There must be experts who can advise on the most cost-effective solution.

4 Summary

It is not clear why the EA are reneging on their initial agreement to supply 316 grade rails, at least for the south wall. And it is certainly not clear why EA are saying such rails only have a 20 year life, when patently this is not the case when one inspects other marine applications.

Powder coated D1036 rails to C4 standard will not last anywhere near 100 years, and it is far from clear just how effective the WSCC maintenance programme will be for such rails. And to be even semi effective, the total life cost may be more than providing 316 rails in the first place.

The case remains strong for 316 rails along the south wall, and I continue to 'object' to any inferior solution. But other options (use of 304 grade stainless steel, or high quality marine paint) could/should be explored and may give rise to my lifting my objection. There are yet more options to explore for those parts of the north fence that need to be implemented.

From: Gary Peck <gary.peck@adur-worthing.gov.uk>
Sent: 31 August 2018 14:54
To: Mike Wooldridg[redacted]>; Jessica Aidley [redacted]
Cc: Joss Loader [redacted]
Subject: AWDM/1214/18 - Handrail amendments

Mike/Jess

Thank you for your comments in response to the above. As you may be aware, the application has been submitted under the non material amendment procedure which means I must respond by the 5th otherwise deemed permission is automatically granted in the absence of any decision from the Council. I asked the EA to respond directly to your representations and I include the response below. If you have anything further to add, please could you let me know by Monday as time is short on this one.

Many thanks

Gary

EA response

Materials

As part of the project's original planning application, the guardrail in Reach W5 was to be primarily made from timber with mild steel posts and tension wire intermediates. However, following consultation with West Sussex County Council as the future maintainer, it was clear that the County Council had a strong preference to move away from timber. The design was subsequently amended to stainless steel, which was explored and found to be extremely costly given the bespoke nature required in this location (the total cost was approaching £1 million). A number of options were then examined with manufacturers to identify a solution that balanced aesthetics, cost and maintenance considerations.

The proposed guardrail design has been agreed with West Sussex County Council as the future asset owner and maintainer. It is more expensive than the original timber solution, and other alternatives that have been discounted due to a lower aesthetic quality. It entails a shot blast / hot zinc spray 100 microns / epoxy primer to a marine grade specification Akzo Nobel D1036. The powder coat corrosivity category is C4 (high), which was deemed the most appropriate powder coat solution for the location.

With regard to lifespan, the powder coated solution has an advised design life of 17 years (for comparison purposes, stainless steel has an expected lifespan of 20 years). However, if maintained correctly it should last indefinitely. To facilitate ongoing regular maintenance, the Environment Agency is currently agreeing a commuted sum figure with West Sussex County Council as part of the handover preparation. Should the handrail be accidentally damaged to remove the outer layer of powder coating, this will not result in immediate rusting of the handrail. The two further layers of zinc and epoxy coating still provide a degree of protection to the railing which will allow for time between planned maintenance inspections.

Safety

From the consultation responses received, it is assumed that the concerns raised primarily relate to the Northern side of the footpath, as the guardrail proposed on top of the new flood defence wall on the Southern side of the footpath is situated on the path side to deter access on the capping beam. Planters have also been proposed to deter access along the capping beam.

There is no statutory guidance for the installation of guardrails in open exterior public spaces. Therefore, a risk assessment was undertaken by the project's designer analysing the likelihood of a fall from the embankment and the severity factors associated. It was determined that the risk of a member of the public falling from the embankment was low, and therefore it was not considered necessary to provide guardrailing along the full length of the embankment. At the ramps at either end, a guardrail was recommended to provide a barrier where the change in gradient presents a variation in the residual risk. The gradient change to the western end is minimal and riverward guardrail was deemed by the designer to not be required, though the Environment Agency have decided to install guardrail on the riverward side at both ends of the Reach to reduce residual risk.

The proposed guardrail design on the Northern side of the footpath has only one intermediate rail at present, with the upper rail offset. This guardrail reduces an already low risk. However, the Environment Agency is willing to examine introducing a second intermediate rail on the riverside of the path to address the concerns raised. This will require a further risk assessment to be undertaken to examine whether the change introduces additional risks (e.g. encourages climbing).

A further note on the decision to move away from tension wires as an intermediary: this was taken following feedback from other projects, where over time high tensile wires can become damaged and are subject to increased maintenance to rectify sag and breakages.

Guardrail Omission

As outlined above, the Designer has carried out a risk assessment to assess where a guardrail must be installed, which concluded that the risk of a member of the public falling from the embankment is low, excluding the ramped sections at either end where a guardrail has been recommended.

Following this assessment, it was initially proposed to omit all guardrailing on the Northern side of the footpath. However, following feedback from residents it was decided to continue with the installation of a guardrail from the final houseboat at either end to the furthest extent of the Reach. With regard to the areas between individual houseboats (including between plot 2 and plot 3 as raised by the consultee), the project team have found differing preferences between residents on whether they wanted a guardrail to be installed between properties.

Particularly where some sections are small, concerns were raised about the aesthetic appearance of short sections of guardrailing, whilst others have raised concerns that a guardrail will remove foreshore access. We have sought to avoid works which impact on land boundaries. Installing guard railing between properties also has the potential to give rise to boundary disputes between neighbours. Given this feedback, and the Designer's assessment that a guardrail is not required on the Northern side of the footpath, the proposal remains to only install a guardrail at either end of the reach from the final houseboat. This will not prevent others from electing to install a guardrail on private land independently.

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Gary Peck

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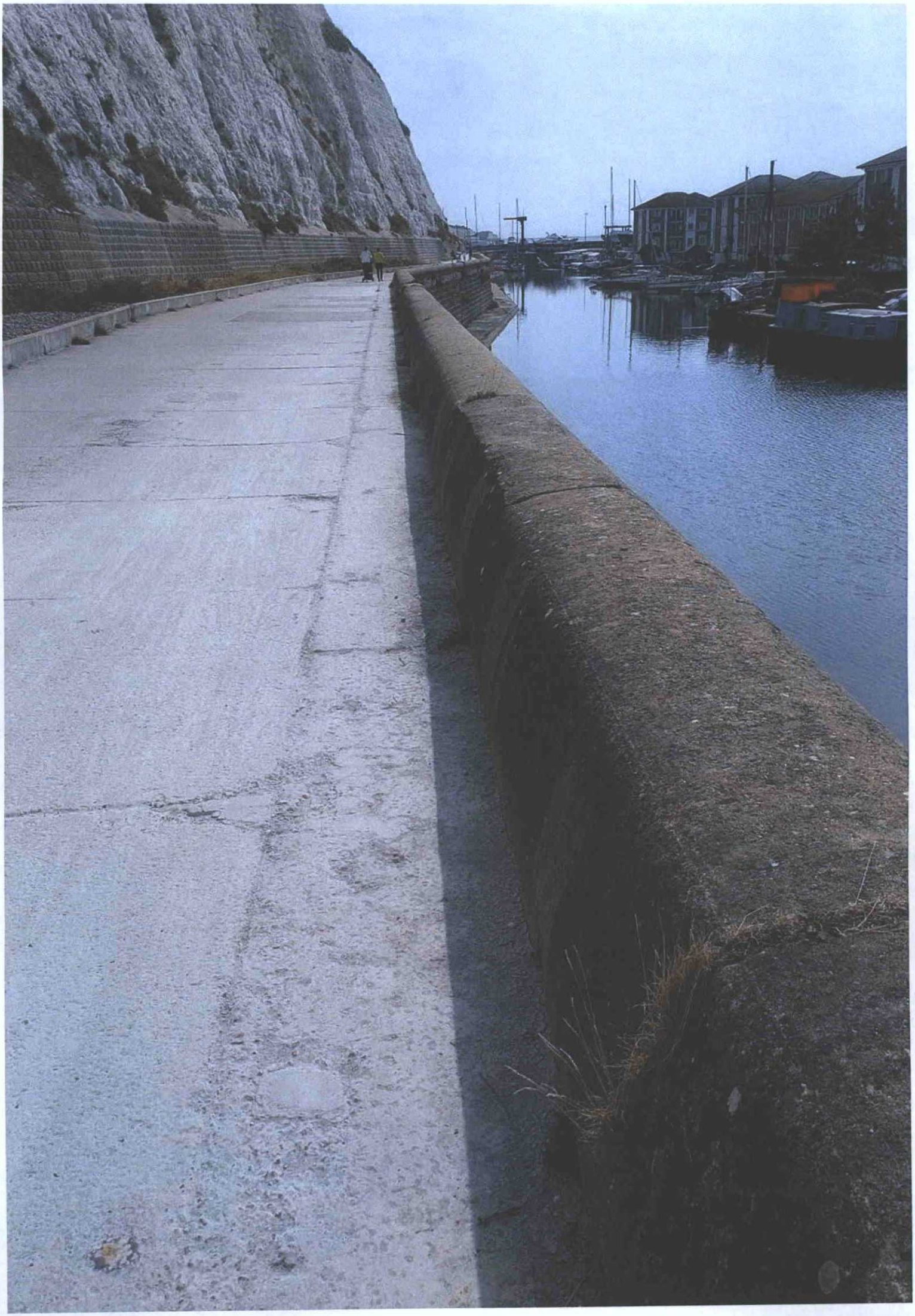
Gary Peck







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