Bruce Johnson

From: Doug Newton <newtontechnicalservices@charter.net>
Sent: Friday, October 28, 2016 12:59 PM
To: eastmontadmin@comcast.net
Cc: Kris Jurentkuff
Subject: Murray Road project
Attachments: East Montpelier TH 47 Timber Rail Layout.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

Hi Bruce,
I had originally received the reply from Charlie Coleman at Storey Lumber on Tuesday morning and shared that reply with you and Kris.

Later Tuesday afternoon, I asked Charlie if these types of installations were only used on straight sections of road or on sections that were on a slight curve.

His reply is shown below and, in that reply, he had asked for the gps coordinates for the project.

Kris had developed a sheet showing the timber rail layout and how he could only get things to work if the transition was done on a chord-by-chord basis; earlier today, I took an 11 x 17 print of that sheet, marked it up in color and sent it to Charlie and have attached it here as well.

It wasn't long before Charlie called me and we discussed the problem; he said he wasn't an engineer, and that they don't have any on their staff, but he could see exactly what we were up against.

He also said that despite the gr being flared back on a chord-by-chord basis, he personally didn't see anything wrong with the way it was designed with the exception that perhaps the transition on the SE corner could be started sooner.

We can get the straight 1 on 8 flare to work in the area of Sta. 3+50 Lt. and that's important because it is an entrance end, i.e. traffic is approaching that transition. At Sta. 2+25+/- Lt. and at Sta. 3+25+/- Rt., traffic is exiting the area protected by the gr system and consequently have a much less chance of hitting the end of the rail.

As noted above, maybe we can take another look at the entrance end at Sta. 2+25+/- Rt. to see if we could get the 1 on 8 flare to work there; fortunately because of the skew involved, we a a little more length of structure to work with at that point in case the edge of shoulder needs to flare back sooner.

I asked Charlie if they had ever been asked for a "design exception" to use the rail in some other manner than it had been tested for and he said "no".

I asked him that if the town wanted to use this rail, but weren't able to install it as tested on 2 or 3 of the 4 corners of the project, would that be ok with them, and he said "yes, we'll sell it to them".

Just some info to ponder for your Nov. 7th meeting!

Doug

----- Original Message -----
From: Charlie Coleman
To: 'Doug Newton'
Sent: Thursday, October 27, 2016 4:50 PM
Subject: RE: East Montpelier, VT project

Doug:

What if you lengthened the run of rail into the straight section of the road. The end terminal itself is not guardrail, it is there primarily to provide a transition from the length of need ends to the end of the terminal.

Can you send me the GPS coordinates from Google Maps of where you are wanting to install?

Charlie Coleman
S.I. Storey Lumber Company, Inc.
706-331-1605 Mobile
706-234-1605 Office

From: Doug Newton [mailto:newtontechnicalservices@charter.net]
Sent: Tuesday, October 25, 2016 3:25 PM
To: Charlie Coleman
Subject: Re: East Montpelier, VT project

Charlie,
Are most of the installations that use this rail on a straight section of road?

Maybe it could be used it on a real flat curve.

What we were finding is that because the road was curved, it only worked on the outside of the curve; when we tried to flare it back on the inside of the curve, it was like the curve was working against us because we never seemed to be able to get to a point 18' off centerline.

It seemed like the curve was going around in the same direction and at the same rate; that's why we tried the chord-by-chord method.

Doug

----- Original Message -----
From: Charlie Coleman
To: 'Doug Newton'
Sent: Tuesday, October 25, 2016 8:51 AM
Subject: RE: East Montpelier, VT project

Doug:

None of the tests that were performed used that type of layout. Installing the rail in the manner you described increases the angle of impact with each successive section and in our opinion would not be within the capacity of the system.

All successful tests were conducted in accordance with NCHRP 350 TL 2 at 45 mph with ¾ ton pickup. We can't advise you to install it other than it was tested.

I'd be glad to discuss this in more detail with you by phone if you would like.

Thanks!

Charlie Coleman
S.I. Storey Lumber Company, Inc.

706-331-1605 Mobile
706-234-1605 Office

From: Doug Newton [mailto:newtontechnicalservices@charter.net]
Sent: Monday, October 24, 2016 1:03 PM
To: Charlie Coleman
Subject: East Montpelier, VT project

Hi Charlie,
With the town deciding to move forward using your StreetGuard Plus timber rail system, we have been working on trying to develop the end treatment that you and I had previous discussed, that end treatment consisting of flaring the rail back on a 1 on 8 taper until the end of the beam was outside the clear zone.

The clear zone for this road is 7' and with the lane widths being designed at 11' meant that we had to flare the rail back to a point that was 18' off centerline.

Due to the geometrics of the roadway alignment, we can't find a solution to transitioning that rail outside of clear zone on 3 of the 4 corners of the project.

We were able to get it to work when we flared it back on a chord-by-chord basis; in other words, flare the first 8' section back one foot and then using the face of rail as the tangent going forward, flare the second rail element back another foot and so on until we reached a point 18' off centerline.

Approaching it like that results in that end treatment being on about a 63.5' radius; I know you had said in a previous email that you guys preferred to see things as a constant taper and not on a chord-by-chord basis but has the system ever been tested with a radius such as that?

We're unsure as to how to proceed; the town would like to try this rail system and we were wondering if you could provide some guidance.

Thanks,
Doug

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