BC Ministry of Transportation and Infrastructure
PO Box 9850 Stn Prov Govt
5D - 940 Blanshard St.
Victoria, BC
V8W 9T5

2 June 2015

Attention: Minister Todd Stone
Minister of Transportation and Infrastructure

Dear Minister Stone:

Subject: Requested Assurances - Vancouver Island Rail Corridor Infrastructure Improvement - Project Funding Request

We have been asked to respond to your letter of May 11, 2015 to the Island Corridor Foundation.

While we are pleased the province is committed to providing the remaining $7 million for track infrastructure improvements our respective boards are becoming increasingly concerned at the length of time it is taking to complete the ministry review.

You have asked for assurances that a long term sustainable railway operation will occur safely, and at a standard that is supported by all partners. To the best of our ability we have provided you with the assurances you sought. Each of the four points has been answered in detail, as follows:

1. ICF / SVI Long Term Operating Agreement (**pending only legal review**)

   A current draft ICF / SVI Long Term Operating Agreement (LTA) has been provided to the Ministry. After approximately 3 years of working together, this draft constitutes the nearest final anticipated form of the LTA. s.21 s.21 to bring the LTA to completion and execution by both parties. s.21 the LTA without assurance that the requested infrastructure funding is confirmed before s.21 s.21 Recognizing you require assurance that a final LTA will be executed, we attach a copy of a Memorandum of Understanding to that affect, signed on behalf of both ICF and SVI.

In addition, we are in agreement with the Ministry confirming that funding will be made available, conditional on execution of a formal LTA between ICF and SVI.

2. Funding Partners – Written Assurances (**all funding agreements signed**)

   Funding Agreements with the 5 ICF member regional districts have been completed and executed. A complete breakdown of all partner funding commitments was copied to the Ministry as part of the Business Case submitted to Infrastructure Canada in November/2014. Regional funding commitments total $3,114,953 and cover all immediate and 10 year structural requirements. Also as indicated in the Business Case, the ICF commitment totals $2,285,047, covering the 10 year projected bridge tie requirement. SVI has committed to the $500,000 ten year bridge maintenance projection as part of its operating cost budget projection. All funding commitments are based on the 2012 BC MoTI Bridge Inspection and Assessment. Copies of all executed Funding Agreements are included as Appendix E to the Business Case document. In addition, you will find attached a document containing copies of memos from each of the five regional districts detailing their funds in reserve and to be requisitioned.

   At the request of your staff, a detailed scope of work containing a breakdown of all bridge work and related funding commitments is also attached for your reference.

3. Operating Standard / VIA Rail Canada Inc. (**agreement signed**)

   At the original request of the Ministry, a Train Service Agreement (TSA) with VIA Rail Canada Inc. (VIA) was executed in 2014. The TSA confirms VIA's commitment to provide the refurbished passenger rail equipment along with an annual financial subsidy. It is VIA policy to provide audit and safety oversight with regard to its services, however relies on the applicable regulatory authority, federal Transport Canada regulations, and the ongoing commitment of the host railway / operator (in this case, ICF represented its rail operator, SVI) to maintain the rail infrastructure to a safe standard. The Initial Railway Upgrade Plan submitted is designed to significantly exceed industry standards. Attached for your reference is a sheet comparing the Upgrade Plan with industry standards. The time table operating speed of the VIA passenger train will remain at 40 mph. The Upgrade plan objective to exceed industry standard for Class 3 track in combination with an operating speed of 40 mph will provide an additional margin of safety for the train service. As the federal government is the sole shareholder of VIA, confirmation of the federal component of the funding and minister to minister consultation should provide the necessary comfort concerning VIA's participation. The TSA provides that, as mentioned in the Minister's letter, VIA will not be able to make a final determination until the upgrade work and related assessment of the infrastructure have been completed.

4. Upgrade Plan Safety Standards / Funding Estimates

    a. Upgrade Plan Safety Standards

    The Initial Railway Upgrade Plan (Upgrade Plan) reference is the federal Transport Canada "Rules Respecting Track Safety" Class 3 standard. The Upgrade Plan is designed to significantly exceed industry standards for track maintenance and rehabilitation projects for Class 3 track over the complete line. The time table operating speed is 40 mph. The operating speed combined with the track improvements that are well in excess of the industry standard for Class 3 track will provide for a safe passenger service. Additionally, the Upgrade Plan exceeds the industry standard for Class 3 track over the complete line, including areas that will be operated at less than Class 3 operating speeds (ie. 30 mph or less). By virtue of permanent slow orders that will remain in place, over 50% of the line will be operated at 30 mph or less. Together, maximum operating speed and the elevated standard with regard to areas operated at 30 mph or less provide a significant additional safety margin in comparison to industry standards. A copy of page 2 of the current Time Table detailing all permanent speed restrictions along with the (default) operating speed that will remain in place is attached for your reference.

    Specifically regarding the tie renewal program, as the most significant component of the Upgrade Plan, a detailed tie condition inspection and assessment performed in 2012 and updated in 2014 concluded the following:

➢ The total number of ties in the line	404,938
➢ Total defective ties	- 189,883*
➢ Total number of non-defective ties in the line	= 215,055
➢ Number of tie replacements in the Upgrade Plan	+110,300
➢ Number of non-defective ties in the line post-upgrade	= 325,355

    When the work is complete approximately 80% of the ties will be non-defective, meaning we will exceed the minimum tie requirement by 135,000 ties.

    You will note in the appended comparison sheet that the Upgrade Plan as proposed is projected to **exceed the industry standard requirement for tie renewals by 70%**.

    *2012 assessment results, prorated based on a 2014 inspection / update

b. Funding Estimates

Budget estimates contained in the Upgrade Plan are derived from the best costing information available, including consultations with contractors, at that time (2011). As a private company, we are uncomfortable requesting formal tenders from contractors prior to confirmation that the requested funding will be made available.

We request that the Ministry confirm that funding will be made available, with the condition that formal tenders confirm that the required upgrade work can be completed to the satisfaction of the BC Safety Authority and within the available funding limits. We can commit that, should formal tenders confirm that the Upgrade Plan work scope cannot be completed within the total $20.4M funding limits, the upgrade work will not proceed and no funding contribution will be required of the Province. We believe this will provide sufficient assurance that the Upgrade Plan will be completed within budgetary limits.

Primary components of the track infrastructure upgrade program are as follows:

- Joint Renewals
- Tie Renewals
- Track Re-Ballasting and Surfacing

Original estimating details for these 3 components that form the basis for the track infrastructure funding request are attached for your information. On review, it is the opinion of SVI that unit prices used in these estimates should hold at current values. As indicated in 1 above, funding for bridge improvements is based directly on the BC MoTI 2012 Bridge Inspection and Assessment detailed in the attached Scope of Work. In all cases, the final determination will come only upon completion of a formal tender process.

The above four points are also backed up with the full reports and data that made up the initial submission to the Ministry. In summary, once we receive approval of the $7M provincial contribution to the project, we see the chronology of steps going forward as follows:

1. Obtain federal funding approval through the Infrastructure Canada – Building Canada Fund ($7.5M);
2. The work will be tendered based on the standards outlined in the attached Industry Standard Comparison Sheet;
3. If formal tenders confirm the work can be completed in accordance to the standards specified and within budgetary funding limits, then the Long Term Operating Agreement will be completed, formalized and executed; and then
4. Infrastructure (Track and Bridge) Upgrade Work will commence.

We trust the above assurances will satisfy your areas of concern.

Infrastructure Canada indicated they would wait until the province had finished its due diligence before undertaking their own review. We would greatly appreciate your direct involvement in assisting us to obtain final federal approval.

The federal representatives indicated it could take four to five months to deal with this application. The approval process requires two ministers to sign off before it is taken to treasury board.

This timing could then put us into the federal election and possibly miss the winter works advantages.

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To ensure there are no misunderstandings as to the current situation of this project, ICF and SVI respectfully request an early meeting with you.

Yours truly,

Graham Bruce
CEO
Island Corridor Foundation Limited

Frank Butzelaar
President
Southern Railway of Vancouver Island

List of Attachments:

1. Signed Memorandum of Understanding between Island Corridor Foundation and Southern Railway of Vancouver Island Limited.

2. Document containing current correspondence from all regional districts confirming funding reserved for required railway bridge improvements.

3. Bridge Work – Detailed Scope of Work and Funding Commitments.

4. Upgrade Plan Comparison with Industry Standards.

5. Copy of Page 2 of the current railway time table, detailing operating speeds to remain in place under the future passenger and freight services.

6. Original cost estimates for primary components of the Initial Railway Corridor Upgrade Plan.

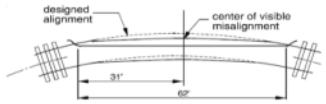
Victoria to Courtenay - Bridge Repair Estimates - Passenger Only to 2021
Bridge Repair Work - Scope of Work Detail - 2015-16

		Essential Repairs (Immediate)			Projected Repairs (>2021)	Total Scope for RD Bridge Work	DESCRIPTION OF WORK		Projected Repairs (>2021)					
Bridge Mile Post	Bridge Name	Structural	Bridge Ties	Total	Structural	Immediate Structural & Bridge Ties & Structural to 2021	ITEM #	DESCRIPTION	Bridge Ties	Total	Strengthening	Projected Bridge Maintenance (SVI)	Total Cost for Bridge (Immediate & >2021)	
1.3	Hereward Road	$ -	$ -	$ -	$ 5,500	$ 5,500	**1.30**	**Total Estimated Repairs**	$ 37,600	$ 43,100	$ -		$ 43,100	
					$ 2,500		1.3.1	Repair spalled edge of abutment seat in front of bearings.						
					$ 2,000		1.3.2	Replace backwall ties						
					$ 1,000		1.3.3	Replace anchor bolts						
							1.3.4	Replace all bridge ties (46 - 8"x10" ties)	$ 37,600					
4	Highway 1A	$ -	$ -	$ -	$ 9,000	$ 9,000	**4.0**	**Total Estimated Repairs**		$ 9,000	$ -		$ 9,000	
					$ 8,000		4.0.1	Repair timber backwall leaning against gerder span.						
					$ 1,000		4.0.2	Notch end floor beams to prevent contact with anchor bolts.						
4.5	Helmcken Road	$ -	$ -	$ -	$ 4,200	$ 4,200	**4.5**	**Total Estimated Repairs**		$ 4,200	$ -		$ 4,200	
					$ 3,200		4.5.1	Repair cracks in abutments under both bearings.						
					$ 1,000		4.5.2	Replace missing anchor bolts at south abutment bearings.						
5.2		$ -	$ -	$ -	$ -	$ -		No Recommendations		$ -	$ -		$ -	
5.34		$ -	$ -	$ -	$ -	$ -		No Recommendations		$ -	$ -		$ -	CRD
5.45		$ -	$ -	$ -	$ -	$ -		No Recommendations		$ -	$ -		$ -	
5.8		$ -	$ -	$ -	$ -	$ -		No Recommendations		$ -	$ -		$ -	
14	Niagara Canyon	$ 128,500	$ 420,000	$ 548,500	$ 60,000	$ 608,500	**14.0**	**Total Estimated Repairs**		$ 60,000	$ -		$ 608,500	
		$ 10,000					14.0.1	Further investigate unacceptable NDT test results.						
			$ 420,000				14.0.2	Replace all bridge ties (525 - 8"x10" ties)						
		$ 100,000					14.0.3	Replace abutment bearing links with a detail that does not allow movement under loading.						
		$ 2,500					14.0.4	Re-tighten top 4" connection poin at northeast corner of north abutment.						
		$ 1,000					14.0.5	Replace cracked turnbuckle in span 3, panel 3 east exterior truss.						
		$ 15,000					14.0.6	Replace or tighten loose diagonals of east truss (U25-L24 & U26-L25).						
					$ 5,000		14.0.7	Repair cracks found on top of pier caps near bearings.						
					$ 55,000		14.0.8	Tighten transverse diagonal bracing members in all spans.						
14.9	Arbutus Canyon	$ 5,000	$ -	$ 5,000	$ 161,000	$ 166,000	**14.9**	**Total Estimated Repairs**	$ 370,400	$ 531,400	$ -		$ 536,400	
		$ 1,000					14.9.1	Reset bearing at south abutment (west girder) with the bent anchor bolt.						
		$ 1,000					14.9.2	Replace broken anchor bolts at north abutment.						
		$ 3,000					14.9.3	Replace three ties rotting next to a broken tie near the north end.						
							14.9.4	Replace all bridge ties (10"x14" ties).	$ 370,400					
					$ 25,000		14.9.5	Clean and paint steel at base of Tower 2.						
					$ 6,000		14.9.6	Replace or repair corroded girder stiffeners.						
					$ 60,000		14.9.7	Replace all corroded bottom lateral gusset plates in Span 1.						
					$ 60,000		14.9.8	Replace all remaining corroded top lateral gusset plates in Span 1.						
					$ 10,000		14.9.9	Replace bottom angles in top chord horizontal bracing that have holes in Span 1.						
18.2	Unnamed Waterway	$ -	$ -	$ -	$ 4,000	$ 4,000	**18.2**	**Total Estimated Repairs**		$ 4,000	$ -		$ 4,000	
					$ 4,000		18.2.1	Replace rotting north abutment end bent cap.						
26.8		$ -	$ -	$ -	$ -	$ -		No Recommendations		$ -	$ -		$ -	
28.2	Shawnigan Lake Tributary	$ -	$ -	$ -	$ 17,000	$ 17,000	**28.2**	**Total Estimated Repairs**	$ 33,600	$ 67,628	$ -		$ 67,628	
					$ 15,000		28.2.1	Repair erosion at base of abutments.						
					$ 2,000		28.2.2	Tuck points open joints between masonary stones in abutments.						
							28.2.3	Replace swinging approach ties at abutments.	$ 33,600					
28.4	Shawnigan Lake Tributary	$ -	$ 42,000	$ 42,000	$ 16,000	$ 58,000	**28.4**	**Total Estimated Repairs**		$ 16,000	$ -		$ 58,000	
			$ 42,000				28.4.1	Replace all bridge ties (42 - 10"x16" ties).						
					$ 15,000		28.4.2	Repair erosion at base of abutments.						
					$ 1,000		28.4.3	Repair cracks found in north abutment.						
28.6	Shawnigan Lake Tributary	$ -	$ 42,000	$ 42,000	$ 11,400	$ 53,400	**28.6**	**Total Estimated Repairs**		$ 11,400	$ -		$ 53,400	
			$ 42,000		$ 3,200		28.6.1	Replace all bridge ties (42 - 10"x16" ties).						
					$ 3,200		28.6.2	Repair cracked masonry blocks under bearings at both abutments.						
					$ 2,000		28.6.3	Repair blocks in both abutments that are fractured.						
					$ 3,000		28.6.4	Tuck point open joints between masonry stones in wingwalls.						
29.8		$ -	$ -	$ -	$ -	$ -		No Recommendations		$ -	$ -		$ -	
35.6	Koksilah Road	$ -	$ -	$ -	$ 8,700	$ 8,700	**35.6**	**Total Estimated Repairs**	$ 27,000	$ 35,700	$ -		$ 35,700	Cow. VRD
							36.6.1	Replace all bridge ties (10"x18" ties)	$ 27,000					
					$ 3,200		36.6.2	Repair cracks in masonry abutment blocks.						
					$ 5,500		36.6.3	Replace corroded bottom lateral bracing system elements.						
37.6	Koksilah Overflow	$ 3,000	$ -	$ 3,000	$ 18,500	$ 21,500	**37.6**	**Total Estimated Repairs**	$ 52,500	$ 71,000	$ -		$ 74,000	
		$ 3,000					37.6.1	Replace broken diagonal timber bracing members in Span 4.						
							37.6.2	Replace all ties (8"x8" open deck ties).	$ 52,500					
					$ 10,000		37.6.3	Repair leaning north wingwalls.						
					$ 5,000		37.6.4	Fill in front of wingwalls to stop erosion.						
					$ 3,000		37.6.5	Post Pile 4 of north end bent to obtain full bearing under cap.						

					$ 500		37.6.6	Replace broken walkway boards at south end of bridge.							
37.8	Koksilah River	$ -	$ -	$ -	$ 20,000	$ 20,000	**37.8**	**Total Estimated Repairs**	$ 158,000	$ 178,000	$ -		$ 178,000		
								Replace all bridge ties (126 - 10"x14" ties).	$ 158,000						
					$ 20,000		37.8.1	Replace heavily corroded expansion bearings.							
39.3	Cowichan River	$ 165,000	$ -	$ 165,000	$ 58,000	$ 223,000	**39.3**	**Total Estimated Repairs**		$ 58,000	$ 1,000		$ 224,000		
		$ 150,000					39.3.1	Replace all bridge counters (because of cracked eye nuts).							
		$ 15,000					39.3.2	Replace or repair bridge south expansion bearings.							
					$ 3,000		39.3.3	Coat exposed top surface of flowwr beam top flanges with environmentally friendly (low VOC) paint to reduce corrosion loss.							
					$ 25,000		39.3.4	Straighten (alternately reinforce or replace) bottom chord members with slight buckle. Includes L0-L1, East and West.							
					$ 20,000		39.3.5	Replace mid-height transverse bracing chords that have packed rust.							
					$ 10,000		39.3.6	Tighten bottom lateral bracing.							
40.6		$ -	$ -	$ -	$ -	$ -		No Recommendations		$ -	$ -		$ -		
46.6	Overflow	$ 10,000	$ -	$ 10,000	$ 2,000	$ 12,000	**46.6**	**Total Estimated Repairs**	$ 7,200	$ 9,200	$ -		$ 19,200		
		$ 10,000					46.6.1	Repair 2 rotten piles by posting - cutting off and replacing the rotten section of pile.							
							46.6.2	Replace 9 bridge ties (8"x10") in poor condition.	$ 7,200						
					$ 2,000		46.6.3	Install bracing on 2 piers.							
46.8	Whitehouse Creek	$ -	$ 23,000	$ 23,000	$ -	$ 23,000	**46.8**	**Total Estimated Repairs**		$ -	$ -		$ 23,000		
			$ 23,000				46.8.1	Replace all bridge ties (23 - 16"x10").							
47.9	Chemainus River	$ -	$ -	$ -	$ 36,500	$ 36,500	47.9	Total Estimated Repairs		$ 36,500	$ -		$ 36,500		
					$ 25,000		47.9.1	Replace bearings.							
					$ 4,000		47.9.2	Repair cracked bottom lateral bracing connection L2R.							
					$ 2,000		47.9.3	Straighten bent eye bar at 4th bay of west truss.							
					$ 5,000		47.9.4	Replace loose rivets in floor beam to stringer connections with bolts.							
					$ 500		47.9.5	Install cotter pin missing from pin at horizontal side sway member from U6L to U7R.							
60.7		$ -	$ -	$ -	$ -	$ -	**60.7**	**Total Estimated Repairs**	$ 11,200	$ 11,200	$ 1,000		$ 12,200		
							60.7.1	Replace bridge ties	$ 11,200						
64.4	Lochner Road & Haslam Cr.	$ -	$ 101,000	$ 101,000	$ -	$ 101,000	**64.4**	**Total Estimated Repairs**		$ -	$ -		$ 101,000		
			$ 101,000				64.4.1	Replace all bridge ties (101 - 16"x10" > verify)							
65.1	Nanaimo River	$ 20,000	$ 28,800	$ 48,800	$ 20,000	$ 68,800	**65.1**	**Total Estimated Repairs**		$ 20,000	$ -		$ 68,800		
			$ 28,800				65.1.1	Replace 36 bridge ties in poor condition							
		$ 20,000					65.1.2	Investigate stability of sandstone bluff supporting bridge piers; this may require geotechnical and hydro-technical expertise as well as sounding.							
					$ 20,000		65.1.3	Repair leaning timber wall at south end.							
0.69 (Wellcox)	Old Island Highway	$ -	$ 17,600	$ 17,600	$ 32,000	$ 49,600	**W0.69**	**Total Estimated Repairs**	$ 4,800	$ 36,800	$ -		$ 54,400		
			$ 17,600				W0.69.1	Replace 22 poor ties in Span 4.							
							W0.69.2	Replace 6 poor ties in Spans 1, 2, 5 & 6.	$ 4,800						
					$ 7,000		W0.69.3	Repair Span 4 girder (bolt an extra local reinforcing plate under damaged girder flange).							
					$ 25,000		W0.69.4	Post 5 piles in Bent 6.							
1.02 (Wellcox)	Chase River	$ 6,000		$ 6,000	$ -	$ 6,000	**W1.02**	**Total Estimated Repairs**	$ 2,000	$ 2,000	$ -		$ 8,000		
		$ 6,000					W1.02.1	Shim to bear under 3 square piles added recently to south end bent (not bearing on bent cap) to properly distribute load.							
							W1.02.2	Replace 2 bridge ties in poor condition.	$ 2,000						
79.1	Dumont Road	$ 7,000	$ 25,200	$ 32,200	$ 10,000	$ 42,200	**79.1**	**Total Estimated Repairs**	$ 58,800	$ 68,800	$ -		$ 101,000		
			$ 25,200				79.1.1	Replace all (approx. 105) bridge ties (immediate & projected)	$ 58,800						
		$ 7,000					79.1.2	Add seating angles at piers 1 and 5.							
					$ 5,000		79.1.3	Replace split diabonal timber bracing members							
					$ 5,000		79.1.4	Restore fill behind wing walls.							
79.9	Green Lake	$ -	$ 6,400	$ 6,400	$ 60,000	$ 66,400	79.9	Total Estimated Repairs		$ 60,000	$ -		$ 66,400		
					$ 60,000		79.9.1	Post rotten timber piles (25% of piles).							
			$ 6,400				79.9.2	Replace 8 bad ties.							
86.9		$ -	$ -	$ -	$ -	$ -	**86.9**	**Total Estimated Repairs**	$ 6,400	$ 6,400	$ -		$ 6,400		
							86.9.1	Replace 8 bridge ties in poor condition.	$ 6,400						
87.2	Hamilton Creek	$ -	$ -	$ -	$ -	$ -	**87.2**	**Total Estimated Repairs**	$ 8,000	$ 8,000	$ -		$ 8,000		RDN
							87.2.1	Replace 10 bridge ties in poor condition.	$ 8,000						
93	Englishman River	$ -	$ 56,880	$ 56,880	$ 10,000	$ 66,880	**93.0**	**Total Estimated Repairs**		$ 10,000	$ -		$ 66,880		
			$ 56,880				93.0.1	Replace 30% (70) ties in poor condition. (Consider Option: Complete deck replacement (237 ties).)							
					$ 10,000		93.0.2	Conduct scour investigation.							
98.6	French Creek	$ -	$ 81,600	$ 81,600	$ 10,000	$ 91,600	**98.6**	**Total Estimated Repairs**		$ 10,000	$ -		$ 91,600		
			$ 81,600				98.6.1	Replace 102 ties in poor condition.							
					$ 10,000		98.6.2	Repair cross bracing and refuge bay.							
103.7	Little Qualicum River	$ -	$ 80,000	$ 80,000	$ 10,000	$ 90,000	**103.7**	**Total Estimated Repairs**		$ 10,000	$ -		$ 90,000		
			$ 80,000				103.7.1	Replace 100 ties in poor condition.							
					$ 10,000		103.7.2	Conduct scour investigation.							
110.7	Big Qualicum River	$ -	$ 33,600	$ 33,600	$ 20,000	$ 53,600	**110.7**	**Total Estimated Repairs**		$ 20,000	$ -		$ 53,600		
			$ 33,600				110.7.1	Replace 42 ties in poor condition, refuge bays and crushing timber boards between bottom of ties and top of stringers. (Consider Option: Complete deck replacement.)							
					$ 10,000		110.7.2	Conduct scour investigation.							
					$ 10,000		110.7.3	Protect bearings from further corrosion.							
113.2	Nile Creek	$ -	$ 26,400	$ 26,400	$ 10,000	$ 36,400	**113.2**	**Total Estimated Repairs**		$ 10,000	$ -		$ 36,400		

			$ 26,400					113.2.1	Replace 33 ties in poor condition and repair refuge bays. (Consider Option: Complete deck replacement							
					$ 10,000			113.2.2	Conduct scour investigation.							
119.2	Cook Creek (South Fork)	$ -	$ -	$ -	$ 3,000	$ 3,000		**119.2**	**Total Estimated Repairs**	$ 23,200	$ 26,200	$ -		$ 26,200		
								119.2.1	Replace all (29) bridge ties (open deck and tangent alignment).	$ 23,200						
					$ 3,000			119.2.2	Remove moss and ferns from abutment seats.							
119.5	Cook Creek (North Fork)	$ 5,000	$ -	$ 5,000	$ -	$ 5,000		**119.5**	**Total Estimated Repairs**	$ 19,200	$ 19,200	$ -		$ 24,200		
		$ 5,000						119.5.1	Investigate undermined wingwalls at south abutment.							
								119.5.2	Replace all (24) bridge ties (open deck and tangent alignment).	$ 19,200						
120.2	Rosewell Creek	$ -	$ -	$ -	$ 60,000	$ 60,000		**120.2**	**Total Estimated Repairs**	$ 54,400	$ 114,400	$ -		$ 114,400		
								120.2.1	Replace all (68) bridge ties.	$ 54,400						
					$ 40,000			120.2.2	Replace bottom flange angles & plate that are corroded near bearings.							
					$ 20,000			120.2.3	Replace corroded bearings (moderate corrosion in 2011).							
122	Waterloo Creek	$ 40,000	$ -	$ 40,000	$ 60,000	$ 100,000		**122.0**	**Total Estimated Repairs**	$ 51,200	$ 111,200	$ -		$ 151,200		
		$ 10,000						122.0.1	Investigate scour.							
		$ 30,000						122.0.2	Restore undermined south abutment and place rip-rap to prevent future damage.							
								122.0.3	Replace all (64) bridge ties (open deck and tangent alignment).	$ 51,200						
					$ 10,000			122.0.4	Replace corroded gusset plates located at various locations throughout the bridge.							
					$ 40,000			122.0.5	Replace members of lateral bracing system that are corroded.							
					$ 10,000			122.0.6	Replace frozen expansion bearings.							
123	Coal Creek	$ 40,000	$ -	$ 40,000	$ 30,000	$ 70,000		**123.0**	**Total Estimated Repairs**	$ 89,600	$ 119,600	$ -		$ 159,600		
		$ 10,000						123.0.1	Investigate scour at Pier 2.							
		$ 30,000						123.0.2	Place rip-rap at Pier 2 to inhibit further undermining.							
								123.0.3	Replace all (112) bridge ties (open deck and tangent alignment).	$ 89,600						
					$ 30,000			123.0.4	Replace frozen expansion bearings.							
124.1	Mill Creek	$ -	$ -	$ -	$ 30,000	$ 30,000		**124.1**	**Total Estimated Repairs**	$ 137,600	$ 167,600	$ -		$ 167,600		
								124.1.1	Replace all (172) bridge ties.	$ 137,600						
					$ 20,000			124.1.2	Replace frozen expansion bearings.							
					$ 10,000			124.1.3	Replace pitted gusset plates.							
125.5	Tsable River	$ 56,000	$ -	$ 56,000	$ 80,000	$ 136,000		**125.5**	**Total Estimated Repairs**	$ 482,400	$ 562,400	$ -		$ 618,400		Com VRD
		$ 20,000						125.5.1	Replace cracked eyebar member (found during NDT testing in 2011).							
		$ 20,000						125.5.2	Replace diagonal member with groove discontinuity (found during NDT testing in 2011).							
		$ 15,000						125.5.3	Further investigate heavy corrosion on pins.							
		$ 1,000						125.5.4	Replace missing pins in top lateral bracing (Span 24).							
								125.5.5	Replace all (603) bridge ties.	$ 482,400						
					$ 2,000			125.5.6	Monitor leaning concrete wingwalls at north abutment.							
					$ 25,000			125.5.7	Replace timber post segments that exhibit section loss.							
					$ 500			125.5.8	Replace broken cross bracing at Bent 23 (one level from top).							
					$ 500			125.5.9	Replace split cross bracing on east side of Bent 22 (one level from top).							
					$ 10,000			125.5.10	Rplace frozen expansion bearings at Span 24.							
					$ 2,000			125.5.11	Replace corroded top splice plate of top chord (Span 24).							
					$ 40,000			125.5.12	Replace pitted gusset plates (Span 25).							
126.2	Buckley Bay Road	$ -	$ -	$ -	$ -	$ -		**126.2**	**Total Estimated Repairs**	$ 25,600	$ 25,600	$ -		$ 25,600		VRD
								126.2.1	Replace all (32) bridge ties.	$ 25,600						
127.6	Hindoo Creek	$ 40,000	$ -	$ 40,000	$ -	$ 40,000		**127.6**	**Total Estimated Repairs**	$ 16,000	$ 16,000	$ -		$ 56,000		
		$ 10,000						127.6.1	Investigate scour at abutments.							
		$ 30,000						127.6.2	Restore fill beneath aprons in front of abutments; place ballast to inhibit future erosion (action expected, but may not be required pending expert investigation).							
								127.6.3	Replace all bridge ties (open deck and tangent alignment).	$ 16,000						
131.1		$ 10,000	$ -	$ 10,000	$ 200,000	$ 210,000		131.1	Total Estimated Repairs	$ 88,800	$ 288,800	$ -		$ 298,800		
		$ 10,000						131.1.1	Investigate scour.							
								131.1.2	Replace all (bridge ties (open deck and tangent alignment).	$ 88,800						
					$ 100,000			131.1.3	Pier scour protection.							
					$ 100,000			131.1.4	Restore eroded embankment at upstream side of Pier 2.							
135.1	Trent River	$ 110,000	$ -	$ 110,000	$ 227,500	$ 337,500		**135.1**	**Total Estimated Repairs**	$ 231,200	$ 458,700	$ -		$ 568,700		
		$ 10,000						135.1.1	Investigate scour.							
		$ 100,000						135.1.2	Pier scour protection at SW leg of Tower 1.							
								135.1.3	Replace all (289) bridge ties (open deck and tangent alignment).	$ 231,200						
					$ 25,000			135.1.4	Restore undermined wingwalls.							
					$ 100,000			135.1.5	Install measures to arrest erosion in fron of wouth abutment before it reaches abutment. (?completed 2012?)							
					$ 2,000			135.1.6	Monitor corroded steel at top of towers.							
					$ 500			135.1.7	Replace broken floor plank in refuge bay.							
TOTALS		$ 645,500	$ 984,480	$ 1,629,980	$ 1,304,300	$ 2,934,280				$ 1,996,700	$ 3,318,028	$ 2,000	$ 458,500	$ 5,391,480		
Contingency	10%	$ 64,550	$ 98,448	$ 162,998	$ 130,430	$ 293,428				$ 199,670	$ 331,803	$ 200	$ 45,850	$ 539,148		
TOTALS (including 10% Contingency)		$ 710,050	$ 1,082,928	$ 1,792,978	$ 1,434,730	$ 3,227,708	$ -	$ -		$ 2,196,370	$ 3,649,831	$ 2,200	$ 504,350	$ 5,930,628		
Final Adjusted Funding Allocations						$ 3,114,953 (Regional District Funding)				$ 2,285,047 (ICF Funding)			$ 500,000 (SVI - 10 Year Maintenance)	$ 5,900,000 Total Bridge Funding		

Vancouver Island Rail Corridor (VIRC) Upgrade Plan - Comparison with Industry Standards for Track Rehabilitation Work

	Class of Track					
	1	2	3		4	5
	Industry Standard*	Industry Standard*	**Industry Standard***	**VIRC Upgrade Plan**	Industry Standard*	Industry Standard*
Maximum operating speed - Freight	10 mph	25 mph	40 mph	30 mph	60 mph	80 mph
Maximum operating speed - Passenger	15 mph	30 mph	60 mph	40 mph	80 mph	95 mph
Gauge *(Gauge is the distance between the inside face of the rail heads (gauge faces) 5/8" below the top of rail. Standard gauge is 56 ½".)*	56 1/2" to 57 5/8" *1 1/8" variance*	56 1/2" to 57 1/4" *¾" variance*	56 1/2" to 57 1/4" *¾" variance*	56 1/2" to 57 1/4" *¾" variance*	56 1/2" to 57 1/4" *¾" variance*	56 1/2" to 57 1/4" *¾" variance*
Track alignment for straight track *(The maximum deviation from the design alignment measured within a 62' track length)* 	3 3/4"	2 1/4"	1 3/8"	1 3/8"	1 1/8"	3/8"
Ties in good/fair condition *(The minimum number of non-defective ties per 39' segment of track)*						
Tangent Track & Curves up to 2 Degrees	5	8	10	17	12	12
Turnouts & Curves over 2 Degrees	6	9	10	17 ***(70% more ties than Industry Standard)***	14	14

*All Industry Standards must meet or exceed all requirements of Transport Canada Rules Respecting Track Safety.

VICTORIA SUBDIVISON FOOTNOTES

2.0 GENERAL FOOTNOTES

2.1 VIA Rail Train service – In addition to RailAmerica Canadian Operating Manual, Conductors and Locomotive Engineers in VIA Rail Train Service must be governed by the provisions of current VIA Train Service Instructions.

2.2 Via Esquimalt Flag Stop - located at Mile 2.63.

2.3 Movements must be prepared to stop short of fallen rocks between Mile 16.2 and Mile 16.3 Victoria Sub.

4.0 INTERLOCKING

Mile 0.1 (Johnson Street)

Locally controlled interlocked drawbridge. All movements will be governed by signal indication. When governing signal indicates STOP and there is no indication of bridge being opened, and barriers are in upright position, a crew member must determine that interlocking is closed by checking with the operator in the bridge control cabin.

If no operator is on duty, then a crew member must check to ensure rail wedges are in place. The train may then proceed at restricted speed, not exceeding 5 MPH.

5.0 PUBLIC CROSSINGS AT GRADE

5.1 Rule 103.1 – the time required in Rule 103.1(b) is increased to 35 seconds on all crossings on the Victoria Subdivision.

6.0 SPEEDS

Northward Trains (miles per hour)		Miles	Southward Trains (miles per hour)	
Rail Diesel Car (RDC)	Other Trains		Rail Diesel Car (RDC)	Other Trains
40	30	0.0 to 138.9 Zone	40	30

6.1 Maximum Speeds

Mile	Location	Permissible Speed MPH	
		RDC	Other Trains
0.0 to 0.1		5	5
0.1 to 1.3		15	15
1.6	Public Crossing	*10	*10
1.6 to 2.9		30	-
3.12 Northward	Public Crossing	*10	*10
2.9 to 4.1	On Curves	25	25
4.1 to 4.2		10	10
5.6 Southward	Private Crossing	*10	*10
4.2 to 7.3	On Curves	25	25
10.7 to 16.2	On Curves	25	20
16.3 to 28.2	On Curves	25	20
28.2 to 28.3		20	20
28.3 to 38.7	On Curves	30	25
38.7	Public Crossing	*25	*25
39.70 to 39.8 Southward		*8	*8
38.7 to 40.0		30	25
40.0 to 43.9	On Curves	30	25
43.9 to 44.1		25	20
44.1 to 53.7	On Curves	30	25
53.7 to 58.0	On Curves	35	25
58.0	Public Crossing	*30	-
58.0 to 60.7	On Curves	35	25
60.7	Bridge	35	10
61.2	On Curves	35	25
64.4 to 66.8	On Curves	25	25
66.9	Public Crossing	*30	-
68.2 (Old Mine)		20	20
68.7 to 70.6	On Curves	25	25
71.5 to 73.9		20	20
76.0 to 78.0		30	-
86.9 to 87.5	On Curves	30	25
93.1		30	25
100.6	Public Crossing	*30	-
101.6 Southward	Public Crossing	*35	-
101.9	Public Crossing	*30	-
102.6	Public Crossing	*30	-
108.9 to 110.0	On Curves	30	25
110.1	Public Crossing	*30	-
110.1 to 111.2	On Curves	30	25
117.9 to 118.9	On Curves	30	25
121.3	Public Crossing	*25	*25
125.4 to 125.5	Bridge	10	10
137.6 to 139.7		25	20
* Until Crossing fully occupied			

SVI Railway Infrastructure Upgrade Estimate

A. Joint Bar Replacement Program

	Unit	Qty.	Unit Cost	Amount
Labour - In-house				
Track Crew - 2 Foreman & 8 Trackmen	mh	12,320	$ 22.00	$ 271,040
112 - 10 hr day program -11hr incl.prem.			Wtd.Avg.	
Project Management & Administration Cost		72%		$ 195,149
Total Labour Cost				$ 466,189
Materials				
Joint Bars	pair	9,000	$ 30.50	$ 274,500
Track Bolts (c/w Sq.Nut & Spring Washer)	each	36,000	$ 2.50	$ 90,000
Total Direct Cost- Materials - Tie Renewal	$			$ 364,500
Project Mgt. & Admin. -per CTA Rate	%	5%		$ 18,225
Total Cost - Materials - Tie Renewal	$			$ 382,725
Equipment				
Misc.Equipment - Bolts / ArcAir /Etc.-6ea.	Eqt.Day	672	$ 100.00	$ 67,200
Project Mgt. & Admin. -per CTA Rate	%	5%		$ 3,360
Total Cost - Contract Labour & Equipment				$ 70,560
Total Estimated Cost - A. Joint Upgrade Program				$ 919,474

B. Tie Renewal Program

	Unit	Qty.	Unit Cost	Amount
Materials				
Track Ties	each	110,338	31	$ 3,420,483
Switch Ties	LF	10,927	5.5	$ 60,099
Tie Plates - 85#	each	172,676	7	$ 1,208,734
Track Spikes (124 spikes/100#keg)	keg	5,405	70	$ 378,374
Total Direct Cost- Materials - Tie Renewal	$			$ 5,067,690
Project Mgt. & Admin. Cost	%	5%		$ 253,384
Total Cost - Materials - Tie Renewal	$			$ 5,321,074
Contract Labour / Equipment - Production Tie Gang				
Track Tie Installation & Removal	$/tie	110,338	50	$ 5,516,909
Switch Tie Installation & Removal	$/tie	974	100	$ 97,400
Total Direct Cost -Contract Labour/Equip.				$ 5,614,309
Project Mgt. & Admin. Cost	%	5%		$ 280,715
Total Cost - Contract Labour & Equipment				$ 5,895,024
Total Estimated Cost - B. Tie Renewals				$ 11,216,098

C. Re-Ballasting & Surfacing **Page 2 of 2**

Track Statistics	Feet	Miles
Total Track Victoria Sub.	737,616	139.7
Total Track Wellcox Spur	16,896	3.2
Total Track	754,512	142.9
Deduct	Feet	Miles
Mile 0.0 to 0.21	1,109	0.21
(North end of bridge over Johnston St.)		
Total Length of Bridge Deck	7,576	1.43
Net Track to Surface	745,827	141.26

Materials - Clear Crushed Rock Ballas - 60mm - Delivered to Stockpiles

	Unit	Qty.	Unit Cost	Amount	
Ballast Weight per mile	tonne/mile	400			
Length of Track to be Surfaced	miles	141.26			
Volume Ballast per Tonne	tonne/cu.yd.	1.14			
Ballast Volume per mile	cu.yd./mile	351			
Ballast Top Width	feet	10			
Ballast Side Slope	hor:vert,	2:1			
Ballast Depth from Top of Tie	feet	1			
Ballast Bottom Width	feet	14			
Weight Ballast per foot	tonne/track foot	0.08			
Volume Ballast per Tonne	cu.yd./track foot	0.07			
Volume Ballast per Tonne	cu.ft./track foot	1.79			
Average Track Lift	feet	0.13			
Average Track Lift	inches	1.54			
Material Cost - Ballast	Tonne	56,502	20	$ 1,130,041	
Project Mgt. & Admin. Cost	%		5%	$ 56,502	
Total Material -Ballast Cost (delivered to stockpile locations)					$ 1,186,543

Equipment

"Zero Lift" (Est. Average 2" Lift) Surface / Tamp / Regulate

Distribution & Surfacing - Production Rate		1	Miles/day		
Surfacing	# Machines	# Days	Units	Unit Cost	Amount
Tamper - Mark 4	1	$ 141	$/day	1000	$ 141,255
Regulator	1	$ 141	$/day	500	$ 70,628
Hi-Rail Dump Trucks	2	$ 141	$/day	500	$ 141,255
Loader	0	$ 141	$/day	500	$ -
Excavator	1	$ 141	$/day	600	$ 84,753
Misc. Equipment -Standby etc.	1	$ 141	$/day	500	$ 70,628
Total Equipment Cost					$ 508,519

Labour

Surfacing	# Personnel	# Days	Units	Unit Cost	Amount
Labour Average Direct Hourly Rate	7	141	$/hour	47	
Based on 10 hour working day					
Surfacing Crew Members	7	141	$/person/day	470	$ 464,729
Expenses - Accommodation	7	141	$/person/day	100	$ 98,879
Expenses - Meals	7	141	$/person/day	50	$ 49,439
Total Labour Cost					$ 613,047
Total Cost - Labour & Equipment					$ 1,121,566
Project Mgt. & Admin. Cost				0.05	$ 56,078
Total Purchased Services - Labour & Equipment					$ 1,177,644
Contract Surfacing Cost per Mile		141	$/mile	8337	

Total Estimated Cost - C. Re-Ballasting & Surfacing	$ 2,364,187
Total Project Estimated Cost	**$ 14,499,760**

From:	Don McGregor
To:	Gilks, Greg E TRAN:EX
Subject:	RE: Initial Railway Upgrade Plan - Clarification Points
Date:	Friday, July 17, 2015 4:30:53 PM
Attachments:	image001.jpg

Greg – Just to clarify, further to our telephone conversation, under point 1.c. below, all replacement of single shoulder tie plates through the upgrade plan and future maintenance will be with standard double shoulder tie plates.
As discussed, let me know if any further questions arise.
Don

From: Don McGregor
Sent: Friday, July 17, 2015 4:06 PM
To: 'Gilks, Greg E TRAN:EX'
Subject: Initial Railway Upgrade Plan - Clarification Points

Greg
Further to your clarification requests, I can confirm the following:

1. With regard to track infrastructure components:
    a. Rail
        The existing rail in the line (80-85lb. CP section and larger) is all in fair to good condition and exceeds both all regulatory and industry standards for the intended passenger rail and light freight use. The rail will continue to be inspected, monitored and ultrasonically tested also in accordance with industry practice and regulatory requirements.
    b. Ties
        The proposed upgrade program provides for a general tie condition that also significantly exceeds all regulatory and industry standard for the intended use.
    c. Tie Plates
        The existing tie plates also exceed minimum regulatory and industry standard for the intended use. In addition, the tie renewal program provides for replacement of all single shoulder tie plates on all ties that are being renewed. Our maintenance plan provides for continuing replacement of single shoulder tie plates in conjunction with future tie renewals. This meets with accepted industry practice for railway maintenance and rehabilitation projects.
    d. Joint Bars
        The upgrade plan provides for removal and replacement of all “full toe” joint bars with the industry standard toeless bars. This also exceed all industry standards for the intended use (passenger rail and light freight service).
    e. Track Ballast
        Ballast required to provide for an approximate 2 inch lift, line and surface over the complete line is provided in the upgrade plan. This re-ballasting and surfacing program will also render the track surface to significantly exceed industry standards.
    f. Other components (Bolts, Spikes and other fasteners)
        Also as with industry practice, all fasteners are to be renewed along with affected components (ties and joints) in the upgrade program.
2. Confirmation through the tendering process

Through detailed project specifications as part of the tendering process, we will continue to confirm that all work can be completed, including assurance that all safety requirements will be met by confirming that all industry standards for the intended use will be exceed. As further assurance, we expect to continue to work closely with the BC Safety Authority throughout this process and through to completion and final inspection of the infrastructure prior to commencing passenger operations.

3. Crossing Safety and Standards

   All crossings continue to be maintained exceeding all regulatory and industry safety standards. We are aware of new crossing regulations to be instituted by Transport Canada. The precise timeline for the new regulations is somewhat unclear at this point and we are current engaged in an railway industry consultation period. We are involved in this process through the Railway Association of Canada. Transport Canada plans to collect and evaluate relevant safety and other feedback from industry. We are naturally unaware at this point what the result of that consultation, however, we fully expect that, even though the time line is unclear, new regulations will be brought into force. Further, we fully expect that the railway, as with many other short line railways across the country, will be in a position to comply with the new regulations on the time line to be determined. We expect to continue to work with regional partners (road authorities) in that regard and also expect other railway business cases to be developed along the line as provided in the long term business plan for the railway will support necessary crossing upgrades. In addition to the proposed reinstatement of passenger rail, those other business cases include expanded freight service, tourism / excursion rail, and potential future commuter rail on the line.

Greg – Hopefully the above helps clarify issues surrounding the upgrade and long term plan for the railway. As always, please feel free to get back to me with any further clarification you may require.
Regards, Don

SOUTHERN RAILWAY of
VANCOUVER ISLAND Ltd. (SVI)
Don McGregor
Project Manager-Railway Infrastructure Improvement
Mobile: 778-549-5928
E-mail: dmcgregor@sryraillink.com

CONFIDENTIAL

MEMORANDUM OF UNDERSTANDING

THIS MEMORANDUM OF UNDERSTANDING ("MOU") is made the 29th day of May, 2015 between Island Corridor Foundation ("ICF"), with an office at 7 Port Way, Nanaimo, British Columbia and Southern Railway of Vancouver Island Limited ("SVI"), with an office at 2102 River Drive, New Westminster, British Columbia (ICF and SVI herein together called the "Parties").

WHEREAS, the Parties have been negotiating a long-term operating agreement (LTA) to replace the Interim Lease but are unable to conclude such an agreement until the Province of British Columbia confirms necessary funding available to upgrade the rail infrastructure on the Victoria Subdivision;

The Parties hereby agree as follows:

1. Upon confirmation of all necessary funding being made available in accordance with the Vancouver Island Rail Corridor Initial Railway Corridor Upgrade Plan Draft of November 7, 2014, the Parties agree to work diligently and expeditiously to complete negotiation of an LTA on the general terms of the current draft LTA dated August 27, 2014; and

2. Timing. The Parties agree to proceed diligently to formalize and execute the LTA within 60 days of confirmation of available funding mentioned in 1. above.

IN WITNESS WHEREOF the Parties hereto have executed this MOU as of the day and year first above written.

ISLAND CORRIDOR FOUNDATION

Per:

Authorized Signatory

Graham Bruce
(Print Name)

Chief Executive Officer
Title

SOUTHERN RAILWAY OF VANCOUVER ISLAND LIMITED

Per:

Authorized Signatory

Frank Butzelaar
(Print Name)

President
Title

BC Ministry of Transportation and Infrastructure
PO Box 9850 Stn Prov Govt
5D - 940 Blanshard St.
Victoria BC
V8W 9T5

1 June 2015

Attention: Minister Todd Stone
Minister of Transportation and Infrastructure

Vancouver Island Rail Corridor
Railway Bridge Improvement Funding
Written Assurance from Regional Districts:

1. **Cowichan Valley Regional District:**

From: Mark Kueber [mailto:mkueber@cvrd.bc.ca]
Sent: May-21-15 8:53 AM
To: IslandRail@shaw.ca
Subject: CVRD funding for ICF

Good morning Graham, the Cowichan Valley Regional District has requisitioned $366,075 and it is currently budgeted in its 2015 budget for contributing to the ICF, the balance of $122,025 is budgeted to be requisitioned in 2016. The CVRD is very supportive of this project.

I hope this is what you are looking for, if you need any additional information please feel free to contact me.

Thank you

Mark Kueber, CPA, CGA
General Manager, Corporate Services Department
Cowichan Valley Regional District
175 Ingram Street, Duncan, BC V9L 1N8
email: mkueber@cvrd.bc.ca
Tel: 250.746.2571 / Toll Free: 1.800.665.3955 / Fax: 250.746.2513

2. Comox Valley Regional District:

From: Beth Dunlop [mailto:bdunlop@comoxvalleyrd.ca]
Sent: May-20-15 4:27 PM
To: 'IslandRail@shaw.ca'
Cc: 'pthorkelsson@rdn.bc.ca'; Debra Oakman; Russell Dyson (rdyson@acrd.bc.ca); Marie Lapp
Subject: FW: ICF Rail Infrastructure Funding

Hello Mr. Bruce, the Comox Valley Regional District's $392,000 funding allocation was requisitioned in full in 2013 and the funds are being held in a reserve fund until such time as the terms and conditions of the agreement between the CVRD and the ICF are met.

Regards,

Beth Dunlop, CPPB, CGA
Corporate Financial Officer
Comox Valley Regional District
600 Comox Road, Courtenay, BC V9N 3P6
Phone 250-334-6004
Toll free: 1-800-331-6007
www.comoxvalleyrd.ca

3. Regional District of Nanaimo:

From: Thorkelsson, Paul [mailto:PThorkelsson@rdn.bc.ca]
Sent: May-20-15 2:56 PM
To: 'Island Corridor Foundation'; 'Bob Lapham'; 'Russell Dyson'; 'Debra Oakman'; Brian Carruthers
Cc: RDN Board; CPC
Subject: RE: ICF Rail Infrastructure Funding

Mr. Bruce as per your request appended below. The RDN Board approved the second "packet" of funding for the ICF Infrastructure Project as part of the 2015 Budget. Previously, the RDN Board approved the first half of the funding in the 2013 RDN Budget.

As a result the RDN funding contribution to the project, as laid out in the agreement between the RDN and the ICF, is held in RDN reserve accounts until the conditions of the agreement are completed and the funds can be released to the ICF.

Paul H. Thorkelsson MArch, MPA, Architect-AIBC
Chief Administrative Officer
Regional District of Nanaimo
6300 Hammond Bay Road
Nanaimo, BC V9T 6N2
(250) 390-4111 toll free 1-877-607-4111
pthorkelsson@rdn.bc.ca

4. Alberni-Clayoquot Regional District:

From: Andrew McGifford [mailto:andrew.mcgifford@acrd.bc.ca]
Sent: May-20-15 2:36 PM
To: Russell Dyson; Island Corridor Foundation
Subject: RE: ICF Rail Infrastructure Funding - Alberni-Clayoquot

Hi Graham,

The Alberni-Clayoquot Regional District has requisitioned the first half of the commitment ($44,929).
The remainder is set to be requisitioned in 2016.

Thank you,
Andrew McGifford
Alberni-Clayoquot Regional District
Acting Manager of Finance
(250) 720-2717 (Phone)
(250) 723-1327 (Fax)
andrew.mcgifford@acrd.bc.ca

ALBERNI-CLAYOQUOT
REGIONAL DISTRICT

5. Capital Regional District:

From: Diana Lokken
To: IslandRail@shaw.ca
Cc: Robert Lapham
Subject: Regional District funding for ICF Rail Infrastructure
Sent: May 25, 2015 2:37 PM

I have received the email sent to the CRD CAO, Robert Lapham requesting an update on the Regional Districts funding.

The Capital Regional District has been raising funds through tax requisitions to meet the agreement amount of $1.2 million. The final $300,000 is included in the 2015 requisition which will be received on October 1, 2015.

This email confirms that the CRD will have the total $1.2 million on hand at August 1, 2015.

Regards,
Diana Lokken
General Manager Finance and Technology
& Chief Financial Officer
Capital Regional District
Tel: 250 360-3010
dlokken@crd.bc.ca

From:	Rockerbie, Kirk TRAN:EX
To:	Bruneski, Michelle TRAN:EX
Subject:	FW: MoTI Presentation - Latest Draft
Date:	Wednesday, April 20, 2016 3:26:28 PM
Attachments:	MoTI Presentation DRAFT 14 03 11 RTC Answers.docx

From: Alberto AMS . Simoes [mailto:simoesa@amsgrp.net]
Sent: Thursday, March 12, 2015 5:45 PM
To: Gilks, Greg E TRAN:EX; Samuelson, Eric L BCSA:EX; Rockerbie, Kirk TRAN:EX
Cc: Bowman, Deborah TRAN:EX
Subject: RE: MoTI Presentation - Latest Draft

Here are some answers to some of the questions. The questions not answered are rather redundant and without an alternate plan I would be unable to address them adequately.

The attached is for our review and consideration. We can discuss them in the morning if you wish and make a decision on, if any, documentation you would like me to put together.

Alberto Simoes
RTC Rail Solutions Ltd.
5909 Great Bear St.
Prince George, British Columbia
V2N 6R2
Phone: 250-614-9182
Fax: 604-357-1100
Cell: 250-613-8628

Email: simoesa@amsgrp.net
Web: www.rtcrailsolutions.net

Inter: 011-351-91-259-4427
Memb: www.amsgrp.net

From: Gilks, Greg E TRAN:EX [mailto:Greg.Gilks@gov.bc.ca]
Sent: March 12, 2015 14:16
To: Alberto AMS . Simoes; Samuelson, Eric L BCSA:EX; Rockerbie, Kirk TRAN:EX
Cc: Bowman, Deborah TRAN:EX
Subject: FW: MoTI Presentation - Latest Draft

Alberto, Eric, Kirk: I have received the materials from ICF (attached).

Are you available for a call at 5:00 this afternoon?

Greg Gilks, Executive Director
Transportation Policy
Transportation Policy & Programs
Ministry of Transportation and Infrastructure
250-387-0882

From: Island Corridor Foundation [mailto:IslandRail@shaw.ca]
Sent: Thursday, March 12, 2015 11:55 AM
To: Gilks, Greg E TRAN:EX
Cc: Bowman, Deborah TRAN:EX
Subject: FW: MoTI Presentation - Latest Draft

Hi Greg
attached is a power point that will systematically take us through the RTC report. As you will see we have not taken this review lightly…through this process we should all better understand what the base elements of the upgrade plan are, the BCSA 2012 sign off and what objectives and information was referenced by RTC that is specific to the upgrade plan.
I am sure the discussion will help us all in this important review.
regards

Graham Bruce
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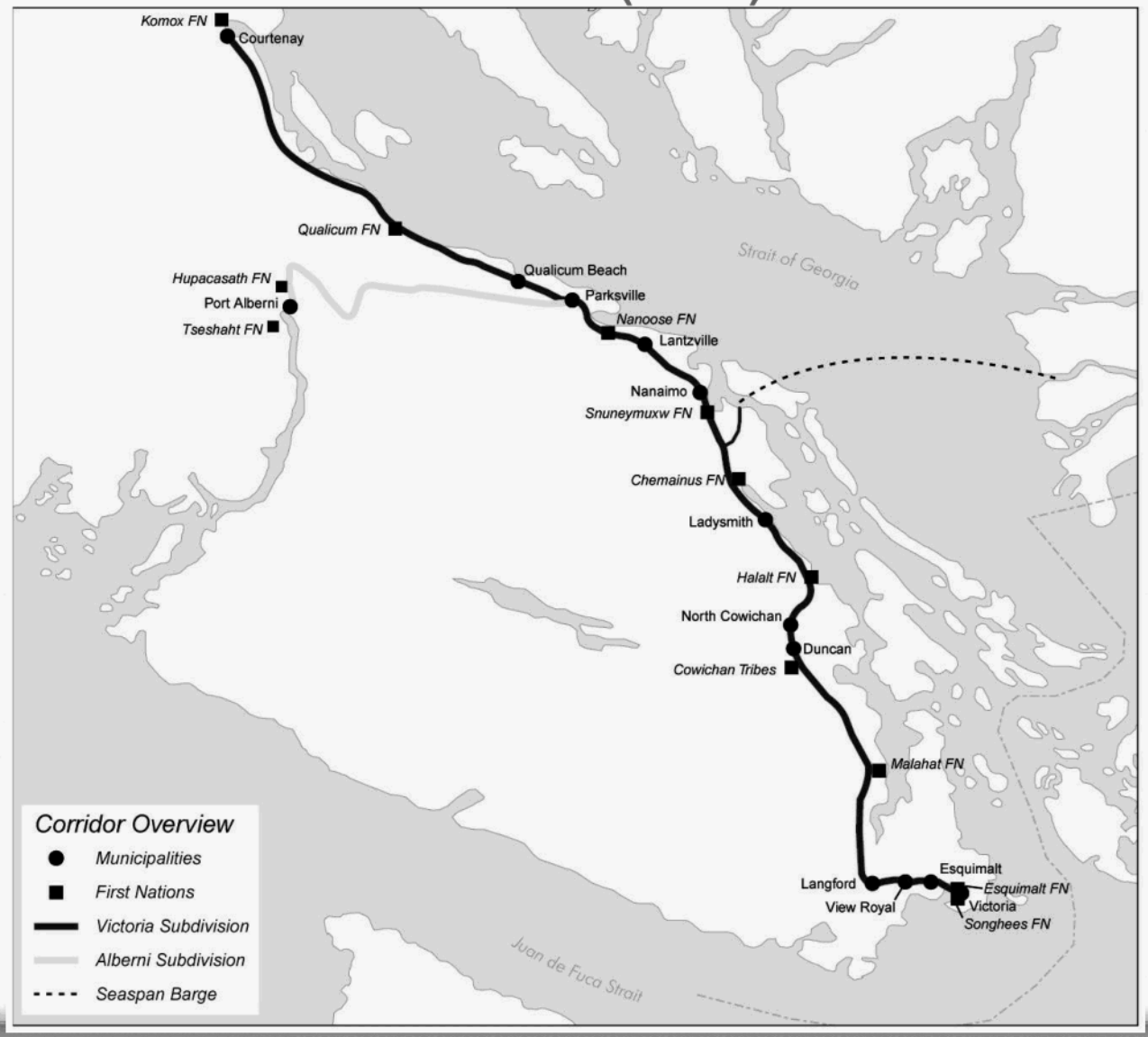
Presentation to BC Ministry of Transportation & Infrastructure – March 13, 2015

Vancouver Island Rail

13 March 2015

VANCOUVER ISLAND RAIL CORRIDOR (VIRC)



Overview

- Chronological History - Review:

1. MoTI 2010 Development Strategies Report;
2. 2012 Initial Upgrade Plan - page 5 opening paragraph that outlines the intent of the plan;
3. 2012 Long Term Viability Plan;
4. Report signed by Gary Smith, P.Eng. to BCSA;
5. 2012 Letter of confirmation from BCSA.

Chronological History - Review

2010 – MoTI Development Strategies Report

- Identified 4 potential rail business components:
  - Passenger
  - Freight
  - Tourism / Excursion
  - Commuter
- Recommended "Incremental Approach" to business development on the line

2012 - Initial Railway Corridor Upgrade Plan

- Requested by BC MoTI
- Intent of the Plan – First phase of "Incremental Approach" recommended in the 2010 BC MoTI Study
  - Page 5 – *"Proposed Initial Upgrade Plan Detail":*

    "The initial railway upgrade plan has been tailored to directly address regulatory and safety issues highlighted in the (2010) MoTI Report in addition to rendering the railway economically and physically sustainable for passenger rail and the existing level of freight services for a minimum period of 10 years."

2012 Long Term Viability Operational Plan

- Requested by BC MoTI
- Top of Page 4 of the Plan, *"While the larger renewal proposal is still considered to be the total requirement to render the railway sustainable in the long term, the (2010) MoTI Report advocated an "incremental approach" to investment in the railway based on development of viable opportunities in multiple business segments. SVI has developed a plan to reinstate and enhance the Vancouver Island inter-city passenger rail service and operate the service for a minimum 10 year period under a new Train Service Agreement with VIA Rail Canada Inc."*

March 26, 2012 - Professional Review of Upgrade Plan

- Requested by the British Columbia Safety Authority
- Included Tie Condition Inspection and Assessment*

  (*Mile by mile detailed tie condition inventory)
- Gary T. Smith, P.Eng., Director of Engineering Services & Maintenance of Way, *"...the Initial Railway Upgrade Plan will provide all necessary improvements to the railway track and bridges to address deficiencies highlighted in the 2009 Baseline Report under the provincial study of the railway and to exceed the Class 3 requirements of the federal Rules Respecting Track Safety".*

April 11, 2012 – BCSA Letter of Confirmation

- In response to the professional review provided by Gary T. Smith, P.Eng. March 26, 2012
- *"The Initial Railway Corridor Upgrade Plan and the letter of added assurance submitted by your railway's Chief Engineer Gary Smith provides the BCSA with a level of confidence that if the plan is executed as designed; the railway will meet or exceed the minimum standards under the adopted regulation for Rules Respecting Track Safety."*

RTC Report – Terms of Reference

RTC Rail Solutions Ltd. (RTC) was assigned to determine the viability of the "Reinstatement and Long Term Viability Operations Plan" based on:

1. *The ability to meet the requirements of the Rules Respecting Track Safety (TSR) for the requested Class of Track (Class 3).*
2. *The ability to meet the requirements of Industry Recommended Standards.*
3. *The constraints of the funding.*

RTC was not part of and did not provide a visual inspection or other inspection or audit of the subject tracks for the purpose of this assessment. The report is based upon the following documents:

- *TRAIN SERVICE AGREEMENT BETWEEN SOUTHERN RAILWAY OF VANCOUVER ISLAND LIMITED AND VIA RAIL CANADA INC.*
- *EVALUATION OF THE E&N RAILWAY CORRIDOR: BASELINE REFERENCE REPORT*
- *VANCOUVER ISLAND RAIL CORRIDOR (VIRC) INITIAL RAILWAY CORRIDOR UPGRADE PLAN*
- *VANCOUVER ISLAND RAIL CORRIDOR (VIRC) REINSTATEMENT and LONG TERM VIABILITY OPERATIONAL PLAN*

Terms of Reference

1. Transport Canada Rules Respecting Track Safety

Track Class – Definition

Maximum allowable operating speeds:

	Freight	Passenger
Class 1 track	10	15
Class 2 track	25	30
Class 3 track	**40**	**60**
Class 4 track	60	80
Class 5 track	80	95

The request within the provided documents is to operate at Class 3. Therefore, track must be so designed to enable the operation of trains at the maximum permissible speed under that class.
The planned Timetable Speed was not provided.

Plan -VIRC Time Table Maximum Allowable Speeds:

30	**40**

(Therefore Class 3 Track Applies to VIRC)

2. Industry Recommended Standards

Objectives of the Upgrade Plan

- Reinstatement of Passenger Rail Service at 40 mph
- Existing Freight at 30 mph
- 68 K lb. Passenger Loading
- 263K lb. Freight Loading
- Estimated Traffic Volumes under 0.5 Million Gross Tons per Year (MGT/Yr)
- 10 Year Horizon

2. Industry Recommended Standards

Questions:

1. What is meant by “Industry Recommended Standards”?

Industry Recommended Standards are those Track Standards which a railways will engineers their Track Structure and maintain it, to. Each Company normal have their own or smaller companies will adopt them from the larger roads (CN / CP / BNSF etc). Rther than recreating the wheel, but normally they will have specific instructions for certain items like PRLT, Anchoring etc.

For Example CP Rail has a "Red Book" CN has a "Engineering Track Standards" booklet and both railways have "Industrial Railway Standards / Recommendations / Track Spec etc.

If the question is to determine whether or not there is a holy grail of Railway Standards Booklet for engineering, which all roads **must** follow the answer is no. All though the provided under AREMA.

Usually these Standards are maintain within a booklet which also provides information in relation to Sub Part D Section IX Continuous Welded Rail (CWR) and Section X Rail Wear of the same part, as required under the Rules Respecting Track Safety. (Where Transport Canada is stated please exchange for the BCSA)

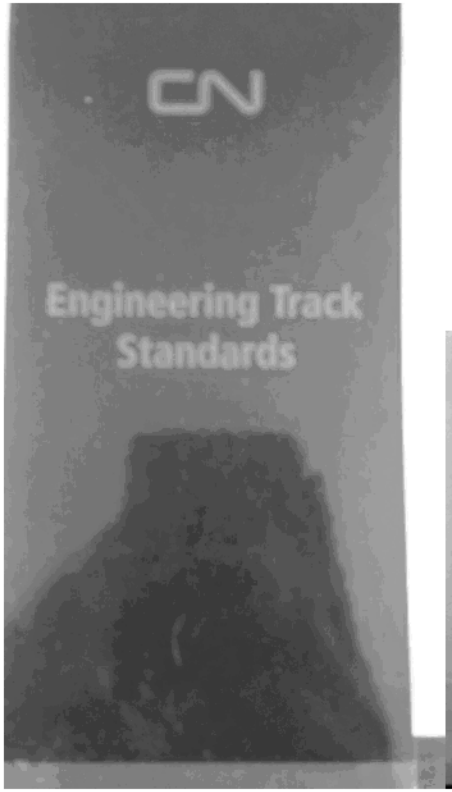
IX. Continuous Welded Rail (CWR)

Each railway company shall have comprehensive written instructions on proper installation and maintenance of CWR. These instructions shall be made available upon request to Transport Canada.

X. Rail Wear

Each railway company shall have written requirements establishing maximum railwear limits. These requirements shall be made available upon request to Transport Canada.

CN Engineering Track Standards Example:



APPENDIX A - TABLE 1: RAIL WEAR LIMITS

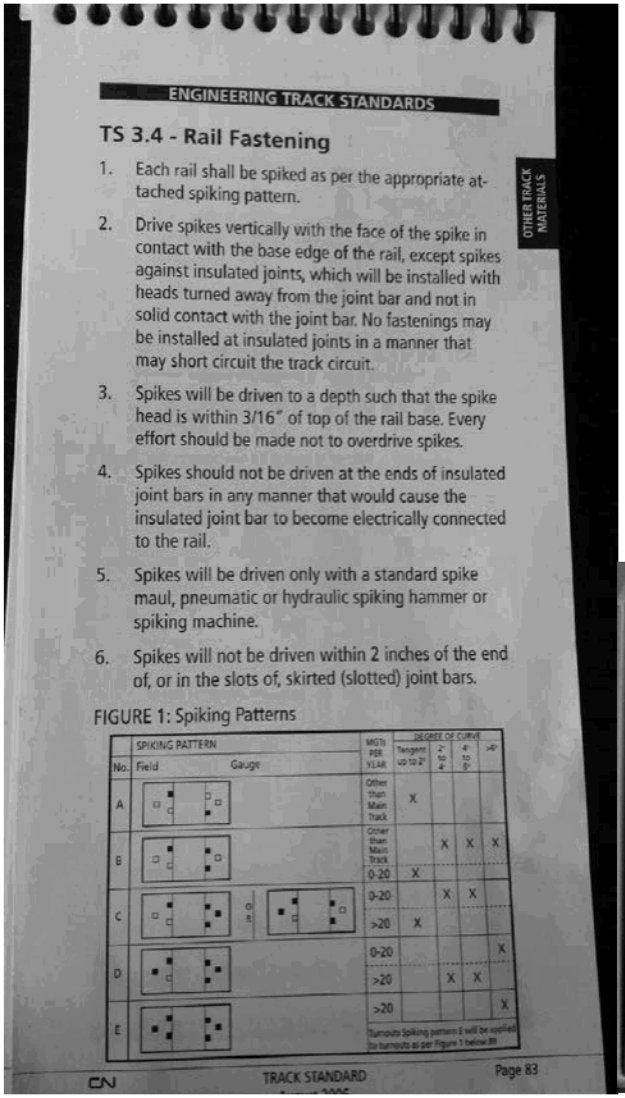
(i) For rail having vertical wear only (no flange wear):

141 lb. 140 lb.	136 lb. 155 lb. 124 lb.	119 lb. 132 lb. 152 lb.	115 lb. 110 lb. 130 HF	112 lb. 113 lb.	100 lb. 105 lb.	90 lb. 100 HF	85lb. (or less)
26 mm 1"	23 mm 7/8"	19 mm 3/4"	16 mm 5/8"	13 mm 1/2"	10 mm 3/8"	6 mm 1/4"	5 mm 3/16"

(ii) For rail having both vertical and flange wear, vertical wear shall not exceed the limits tabulated in (i), but the sum of the vertical and flange wear (gauge and field side) permitted shall not exceed:

141 lb. 140 lb.	136 lb. 155 lb. 124 lb.	132 lb. 152 lb.	115 lb. 119 lb. 110 lb. 130 HF	112 lb. 113 lb.	100 lb. 105 lb.	90 lb. 100 HF	85 lb. (or less)
32 mm 1-1/4"	29 mm 1-1/8"	24 mm 15/16"	21 mm13/16"	17 mm 11/16"	14 mm 9/16"	11 mm 7/16"	8 mm 5/16"

* For gauge face wear see section 12 b)



ENGINEERING TRACK STANDARDS

TS 3.4 - Rail Fastening

OTHER TRACK MATERIALS

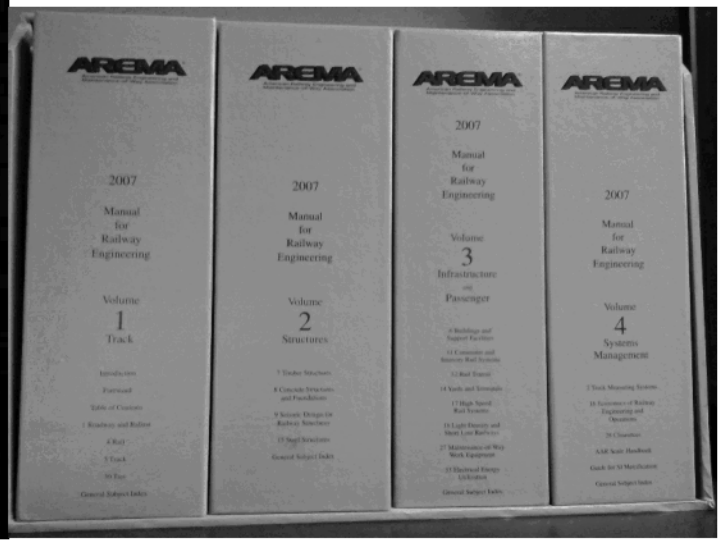
1. Each rail shall be spiked as per the appropriate attached spiking pattern.
2. Drive spikes vertically with the face of the spike in contact with the base edge of the rail, except spikes against insulated joints, which will be installed with heads turned away from the joint bar and not in solid contact with the joint bar. No fastenings may be installed at insulated joints in a manner that may short circuit the track circuit.
3. Spikes will be driven to a depth such that the spike head is within 3/16" of top of the rail base. Every effort should be made not to overdrive spikes.
4. Spikes should not be driven at the ends of insulated joint bars in any manner that would cause the insulated joint bar to become electrically connected to the rail.
5. Spikes will be driven only with a standard spike maul, pneumatic or hydraulic spiking hammer or spiking machine.
6. Spikes will not be driven within 2 inches of the end of, or in the slots of, skirted (slotted) joint bars.

FIGURE 1: Spiking Patterns

No.	SPIKING PATTERN Field	Gauge	MGTs PER YEAR	DEGREE OF CURVE Tangent up to 2°	2° to 4°	4° to 8°	>8°
A			Other than Main Track	X			
B			Other than Main Track		X	X	X
			0-20	X			
C			0-20		X	X	
			>20	X			
D			0-20				X
			>20		X	X	
E			>20				X

Turnouts Spiking pattern E will be applied to turnouts as per Figure 1 below ###

CN TRACK STANDARD Page 83



2. Would Industry Standards be lower for lower speeds and lighter loading? s.13

3. What are the Industry Standards for the objective above? s.13

Terms of Reference
3. Constraints of Funding

Questions:

1. What is meant by "Constraints of Funding"?
   How much money is available to achieve the objective?

2. What objectives were assumed to evaluate the "Constraints of Funding"? (if the meaning is not understood than the question is redundant)

Transport Canada Rules Respecting Track Safety

Ties

Transport Canada Rules Respecting Track Safety (TSR) indicates that a non-defective tie is one that is not:

1. broken through;
2. split or otherwise impaired to the extent the crossties will allow the ballast to work through, or will not hold spikes or rail fasteners;
3. so deteriorated that the tie plate or base of rail can move laterally more than 1/2 inch relative to the crossties; or
4. cut by the tie plate through more than 40 percent of a tie's thickness.

Transport Canada Rules Respecting Track Safety

Ties

Tie Spacing

RTC Report, Page 10, 4th Paragraph; *"While the preferred tie spacing through out industry today is 20 inches for all track and the VIRC has 22 inch spacing, the spacing will not be detrimental to intended use of track."*

Tie Replacement

TSR Standard for Class 3 Track:

1. A minimum number of 10 non-defective ties per 39 foot rail length
2. At least one non-defective tie within 18 inches of each rail joint location.

RTC Report Review / Questions

Tie Replacement - Track

- 2009 MoTI Baseline Reference Report estimates total defective ties at 140,000.

The total number of ties in the line..... 404,938

- 2012 SVI Tie Inspection and Assessment resulted in a physical count of total defective ties at..... -163,861
- Total number of non-defective ties in the line .....= 241,077
- Number of tie replacements in the Upgrade Plan.... +110,300
- Number of non-defective ties in the line after completion of the Upgrade Plan.....= 351,377

RTC Report Review / Questions

Tie Replacement - Track

- Total non-defective ties after Upgrade 351,377 (from previous page)
- Number of non-defective ties exceeding the TSR Class 3 Standard after completion of Upgrade = **161,022**

Question – Given the Upgrade Plan objectives (68K lb. passenger at max. 40 mph & existing 263K freight), is the planned quantity of tie renewals sufficient to safely support rail service on VIRC?

RTC did not inspect the track therefore we cannot determine the requirements of ties.

Tie Replacement – Turnouts

- RTC Report estimates total turnout (switch) ties = 2924

Inspection provided by others.

- The 2009 MoTI Baseline Reference Report indicates turnouts in fair to good condition, confirmed by SVI current assessment
- Upgrade Plan, on physical inspection, provides for replacement of 974 (or 33%) of all switch ties in the line
- Loading and traffic volumes since 2009 have been extremely light – estimated less than 0.5 MGT/Yr.
- Maintenance of existing turnout steel components is included in the10 Year Plan budget model

Swt RTC Report Review / Questions **Tie Replacement - Turnouts** Questions:

1. Is the planned quantity of turnout tie replacements safe to handle the plan objective of 68,000 lb. passenger service loading at maximum 40 mph and existing light freight?

   Inspection provided by others.

2. Given the historical traffic volume and loading, will the condition of the rail and steel components safely support the plan objective?

   Inspection provided by others.

3. RTC Report...last sentence Page 13, *"There is no contingency or plan within the IRCP-2014 to address rail and components needs for turnouts."*

   Please explain?

   Rail, points, plates.

RTC Report Review / Questions

Rail

BC MoTI 2009 Baseline Reference Report states:

- *"The 80 / 85lb. rail is not suitable for a heavier axle loading than currently carried."*
- Regarding existing rail condition and on examination of ultra-sonic rail test results, *"The frequency of less than 0.3 defects / mile tested is not unusual."*
- *"Any increase in tonnage would require more frequent testing to stay ahead of defect growth. If there is any intention to operate a commuter service or increase tonnage such as Coal service, the 80 / 85lb. rail in those areas should be replaced."*

RTC Report Review / Questions **Rail**

- Rail traffic volumes since 2006 averaged under 0.5 MGT/Yr.
- Total traffic volume since 2006 estimated 4.3 MGT.
- Annual ultra-sonic rail testing continues.
- Current ultra-sonic test results and physical inspection confirm MoTI 2009 Baseline Reference Report conclusions.

RTC Report Review / Questions

Rail

Questions:

1. RTC Report Page 18, 3rd Paragraph, *"Based on the potential of business opportunities within these documents, 80 lbs rail and 85 lbs rail would have to be replaced to accommodate **traffic volumes** and **car load weights**."*.....**Please explain**?

Coal, Gravel etc – Heaviest loads on rail, 286 Cars – Page 26 of Hatch report (bottom) 3.13

3.13 Operating Load Restrictions

The Railway has been operating with a freight car load limitation of 263,000lb. This is less than the typical mainland freight car load of 286,000lb. Given the need for significant Capital just to repair and maintain the present railway infrastructure along the corridor, it is considered fiscally improbable to upgrade the trackbed, replace the 80lb. / 85lb. rail, and replace or strengthen the numerous bridges in order to increase the operating load capacity. Therefore, this aspect has not been considered further in this assessment.

2. Is the current rail (80 / 85 lb.CP) sufficient to safely support 68K lb. passenger and existing 263 lb. freight loading?

3. RTC Report, Page 16, last sentence; *"For passenger trains, 85 lbs rail supports the weight of the passenger cars without issue. However, weight in this case is not the primary factor, it is **speed**."* ..... Question: **Please explain**?

3.12 Operating Speed Constraints

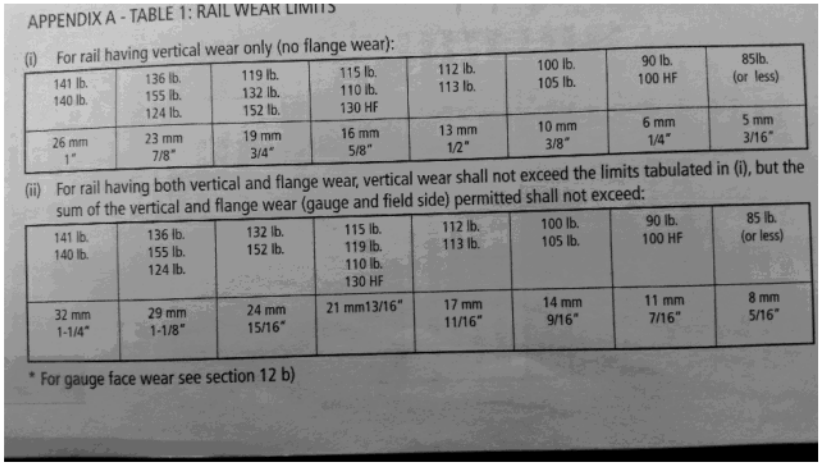
As mentioned above speed restrictions are in force at various locations along the corridor. These are documented in the SRVI and VIA Rail operating timetables, and cover a variety of constraints including track curvature and super elevation, at-grade crossings, rock fall hazard areas, sightline limitations, as well as bridge and track condition. As a consequence only limited operating speed improvements are possible through increased repair and maintenance. Major capital expenditure, including land acquisition would be required for railroad realignment and bridge replacement to gain any significant increase in overall speed restrictions.

4. RTC Report, Page 17, last paragraph regarding rail wear; *"...These standards for the VIRC were not available within these documents."* ..... Question: Please explain?

X. Rail Wear

Each railway company shall have written requirements establishing maximum railwear limits. These requirements shall be made available upon request to Transport Canada.

What are the standards for rail wear at VIRC? How much rail has to be replaced if any?



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* For gauge face wear see section 12 b)

5. Given the assessment in the 2009 MoTI Baseline Reference Report and historical traffic since that time (under 0.5 MGT/Yr) is there any information indicating 80/85 is not adequate to safely support the intended objectives of the Upgrade Plan?

> **Rail supplied for replacement of defective rails should have been recently tested. Rail removed for detail fractures, transverse defects or head web separations should not be cropped and reinstalled. With regular testing and joint maintenance, the existing rail will be adequate for the present service. Any increase in tonnage would require more frequent testing to stay ahead of defect growth. If there is any intention to operate a commuter service or increase tonnage such as Coal service, the 80 / 85lb. rail in those areas should be replaced.**

Page 21 3.2.6 Hatch report

RTC Report Review / Questions

Tie Plates

- The 2009 MoTI Baseline Reference Report states, *"It would be preferable to replace the existing plates with secondhand double shoulder plates during the tie change program on all ties being changed out."*
- This Upgrade Plan calls for replacement of single shoulder tie plates with standard double should tie plates on all ties being replaced.
- The 10 operating plan includes continuation of single shoulder replacement with double shoulder tie plates as part of ongoing tie replacement maintenance programs.

RTC Report Review / Questions

Tie Plates

Questions:

1. RTC Report – Page 20 – 4th paragraph; *"Single shoulder tie plates are generally no longer used and where they are in place, are removed in a tie replacement programs."*..... & 3rd from last paragraph; *"The tie plates presently in track meet the requirement of the rule."*.....Please explain?

2. RTC Report – Page 21 – last paragraph; *"Operating at **Class 3 speed** with single shoulder tie plates is not recommended. The risk of derailment, especially, on curves is extremely high."* **Please explain?** How does this relate to the statements above and the project objectives?

RTC Report Review / Questions **Anchors**

- The 2009 MoTI Baseline Reference Reports, as result of physical examination of the complete railway, states; *"There is no evidence of rail creep under the existing Dayliner traffic."*
- In addition, the 2009 Report recommends; *"If it is intended to operate commuter traffic and increase freight on the southern section of the Railway, a box anchor pattern on every fourth tie should be established on the Malahat hill for commuter operation and every third tie wherever the freight train operates."*

RTC Report Review / Questions **Anchors**

- Current physical examination continues to confirm no rail creep issues under current and past rail traffic that affect rail safety.

Questions:

1. What evidence of rail creep have you found on VIRC that would affect rail safety?
2. Do the Rules Respecting Track Safety require the use of rail anchors?

RTC Report Review / Questions

Joint Bars

- The 2009 MoTI Baseline Reference Report recommends;
  - *"...it is estimated that there are 10,000 joints with full toe angle bars that should be changed",* and
  - *"As part of any Capital program, every joint will need to be serviced, bars inspected for cracking and greased and new bolts with spring washers installed."*
- A physical count confirms the actual number of joints with full toe angle bars in the line is 9000 joints.
- All 9000 joints with full toe are to be replaced with toeless bars, along with a complete joint maintenance program, all as part of the Upgrade Plan.

RTC Report Review / Questions **Joint Bars**

Question:

Will the joint program included in the Upgrade Plan safely support the Plan objectives, 68K passenger and existing light freight?

RTC Report Review / Questions **Track Ballast**

- The 2009 BC MoTI Baseline Reference Report recommends, *"Any surfacing program should include crushed rock at a rate of 480 to 600 cubic yards per mile to replace shoulder cut level to improve drainage, ballast lost by tie change-out, to fill skeleton areas and to provide sufficient material to smooth-out the joints."*

- This recommendation, in addition to the RTC Report, does not take into account the reduced scope of the Upgrade Plan objective, ie. 68K lb. passenger and existing light freight for a period of 10 years.

RTC Report Review / Questions **Track Ballast**

- Specific physical conditions of VIRC include a generally solid granular (gravel / rock) track foundation with very good natural drainage qualities.

Questions:

1. Taking into account the specific conditions of the VIRC and the Plan objectives, is the planned ballast quantity (311 cu.yd. per mile) sufficient to safely support rail service for the plan period of 10 years?

2. Is the planned surfacing program (average 2" lift over the complete line) sufficient to safely support the Plan objectives and provide an improved ride quality for the passenger service?

RTC Report Review / Questions **Crossings**

- The Upgrade Plan confirms, "*Crossing signal systems have always been, and will continue to be, maintained as part of the railway operating maintenance budget as required to protect public safety and meet or exceed all applicable regulatory safety standards.*"

- There has been no difficulty obtain replacement parts for signal systems. Where parts are not available from original manufacturers, we have had no problem obtaining approved parts from other suppliers that meet full safety requirements.

RTC Report Review / Questions

Crossings

- Rusty Rail / Conductivity –shunt enhancer upgrades – included in 10 year maintenance program plan (Rail traffic best defense)
- Commitment to additional precautions to assure no related safety issues regarding conductivity and signal operation during the transition back to rail service.
- Obligation to maintain in safe operation included in 10 year plan
- Obsolete Parts –Safe, but necessary upgrades in 10 Yr Plan:
  - Total 4 Crossings –Nanaimo – Miles 72.09 /72.20 /72.26/72.80
  - Micro-Processor Upgrade (only) to MD2 upgrade to PMD-3 or XP-4
  - Simple Upgrade approx. $10K per crossing
  - Total Cost $40K – s.16,s.17 –(discussion have taken place)

RTC Report Review / Questions **Crossings**

Questions:

1. RTC Report – Page 30 – 6th Paragraph; *"Given the many crossing and public interaction, a train traveling at **Class 3 speeds** would be of great concern and present extreme high risk."* .....**Please explain**?

2. Do current crossings and signal system meet applicable regulatory safety standards to safely support proposed passenger and existing freight services?

RTC Report Review / Questions

Crossings

New Transport Canada Crossing Regulations

- Crossing Maintenance responsibility shared [s.16,s.17] with road authorities
- Funding available to federal railways
- Time Horizon
  - 2 year public and industry consultation period
  - 7 year implementation period
- VIRC Upgrade Plan period = 10 years (trial period concept)
- Other business cases to be developed to support related infrastructure improvement, including crossings

RTC Report Review / Questions **Vegetation / Culverts / Drainage**

- Pest Management Plan implemented since the MoTI 2009 Baseline Reference Report has had significant positive results.
- 10 Year Plan maintenance budget includes all necessary provisions for vegetation management and drainage (including culvert replacement as required).
- Upgrade Plan re-ballast and surfacing program will have initial positive affect on vegetation and drainage.

RTC Report Review / Questions **Vegetation / Culverts / Drainage**

Question:

Will the Upgrade Plan ballasting / surfacing program together with the Pest Management Plan and planned 10 year maintenance requirements be sufficient to safely support the passenger and existing light freight services?

RTC Report Review / Questions **Schedules**

- Schedules developed as part of the Long Term Plan are based on speed and travel times experienced from operation of the passenger service between 2006 and 2012

Question:

What data supports the conclusions?

RTC Report Conclusions

Objectives of the Initial Railway Corridor Upgrade Plan:

1. Maximum Speeds – 40 mph passenger / 30 mph freight
2. Loading – 68,000 lb. passenger / 263,000 lb. freight
3. Volumes less than 0.5 MGT/Yr
4. Upgrade Plan Objective Period – 10 years Questions:

Given the Plan Objectives clarified above:

1. Class 3 Speed: Does the intended maximum speeds alter your assessment? How?
2. Rail: Is the existing rail sufficient to safely support the intended service?

RTC Report Conclusions

Questions (cont'd): **Given the Plan Objectives**:

3. Tie Plates: Given the plan to upgrade to double shoulder on all ties replaced, will the tie plates safely support the intended service?

4. Anchors: Given the nature of the track infrastructure and past experience, are anchors necessary in order comply with the TSR and to safely support the intended service?

5. Ballast & Drainage: Given the nature of the VIRC, foundation and drainage characteristics, are the estimated ballast quantity and surfacing program sufficient to safely support the intended service?

RTC Report Conclusions

Questions (cont'd): **Given the Plan Objectives**:

6. Given the clarifications provided including the obligation to maintain crossings and crossing signal systems in safe condition, can you confirm the existing crossing and signal systems cannot safely support the intended service?

7. At the previously operated maximum passenger speed of 40 mph, is additional super elevation required?

RTC Report Conclusions

Questions:

1. RTC Report (top page 41); *"Notwithstanding Bridge Structures (not evaluated), the proposed Vancouver Island Rail Corridor (VIRC) – Initial Railway Corridor Upgrade Plan funding is sufficient to bring the track back into compliance with the Rules Respecting Track Safety in isolated defects for Class 3 Track."*
   Please explain?

2. RTC Report - Page 41 - 2nd paragraph (regarding the Upgrade Plan); *"However, it is pushing the limits of safety to the extreme."* ....Please explain?

Overview

- Chronological History - Review:

1. MoTI 2010 Development Strategies Report;
2. 2012 Initial Upgrade Plan - page 5 opening paragraph that outlines the intent of the plan;
3. 2012 Long Term Viability Plan;
4. Report signed by Gary Smith to BCSA;
5. 2012 Letter of confirmation from BCSA.

Question: In view of the 2012 Letter from BCSA, given the objectives of the VIRC Upgrade Plan, were the RTC Report Terms of Reference specific enough for a comprehensive review?

Reports & Studies 2006 to date

- MNP Report on E&N Railway - 2005
- BC MoTI / IBI Group - Evaluation of the E & N Railway Corridor – Foundation Paper – 2009
- ICF / SVI - Potential for Tourism Service on Vancouver Island - 2009
- ICF / SVI – Potential for Freight Expansion – 2009
- SVI – The Advantages of Rail vs. Truck Transportation of Coal on Vancouver Island – 2010
- BC MoTI / Associated Engineering / Benesch – Bridge Inspection and Assessment – E&N Railway, Vancouver Island, BC, Canada – 2012
- Island Explorer Excursion Train Feasibility Study – SVI - Sept/2014

From:	Rockerbie, Kirk TRAN:EX
To:	Bruneski, Michelle TRAN:EX
Subject:	FW: SVI Submission in Response to MoTI RTC Report
Date:	Wednesday, April 20, 2016 3:30:52 PM
Attachments:	App A_Curriculum Vitae_DSM.pdf App A_Curriculum Vitae_GTSmith.pdf App B_SVI Detailed Response to RTC Report_15 03 16_Reviewed.pdf App C_MOTI Report_Evaulation_Infrastructure_Final.pdf App D_SVI Initial Upgrade Plan Assessment 12 03 26_GTSmith.pdf App D_Tie Condition Assessment_15 03 11_Excl Bridges&Turnouts.pdf App E_BCSA Response to Upgrade Plan 12 04 11_E.Samuelson.pdf App F_BCSA Presenting RTC Report 15 01 11_E.Samuelson.pdf Appendices List & Covers_SVI Response to RTC Report.pdf MoTI Submission_SVI Response to RTC Report_15 03 17.pdf BCSA_SVI Response to RTC Report_ICF Cover Ltr_15 03 18.pdf
Importance:	High

From: Island Corridor Foundation [mailto:IslandRail@shaw.ca]
Sent: Tuesday, March 17, 2015 4:25 PM
To: Bowman, Deborah TRAN:EX; Gilks, Greg E TRAN:EX
Subject: FW: SVI Submission in Response to MoTI RTC Report
Importance: High

Hi Deborah
thank you for meeting with us last Friday.
Following up from the meeting we have sent you a complete evaluation of the RTC report. Also attached are letters to the Minister from ICF Chair, Judith Sayers,(ICF Cover Ltr) and a summary of the detailed response provided by Don McGregor and Gary Smith, (SVI Response to RTC Report).

Could you please let me know what next steps are to be taken and a possible time line.
regards

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Minister Todd Stone
BC Ministry of Transportation and Infrastructure
Room 306
Parliament Buildings
Victoria, BC
V8V 1X4

17 March 2015

Attention: Deborah Bowman
Assistant Deputy Minister

Greg Gilks
Executive Director
Transportation Policy & Programs

Dear Minister Stone:

Subject: Review & Response to BC Safety Authority / RTC Rail Solutions Report: Vancouver Island Rail Corridor – IRCP-2014 Assessment – 2014

Please find attached a detailed review of the RTC Rail Solutions Report: Vancouver Island Rail Corridor – IRCP-2014 Assessment – 2014 (the "RTC Report") which was submitted to your Ministry by the BC Safety Authority February 11, 2015. Southern Railway of Vancouver Island Limited (SVI), on behalf of the Island Corridor Foundation (ICF), has conducted a thorough review the RTC Report.

The SVI submission attached constitutes a very detailed technical review of the RTC Report; however we find our key concern with the RTC Report to be an apparent fundamental misunderstanding of the objectives of the Initial Railway Corridor Upgrade Plan (IRCP).

Specifically, the IRCP objectives are as follows;

- passenger train speed would only be 40 mph, not 60mph;
- freight train speed would be 30mph not 40mph;
- track weight of 286k lbs. is not necessary;
- there was no onsite track inspection;
- there was no consultation between the consultant and our rail operator.

The primary objective of the IRCP is reinstatement and 10 years operation of the passenger rail service on Vancouver Island. This step will allow for an incremental approach for future expansion of rail freight and all other rail business to be developed. Each additional service is intended to stand on its own in support of related further improvements necessary to safely handle that additional rail business. This principle is all in accordance with the 2010 BC Ministry of Transportation Study on the Vancouver Island Rail Corridor, including the Base-Line Reference Report on the Railway prepared by a qualified railway professional at that time. Details of the IRCP were, in fact, based on that 2009 Base-Line Reference Report.

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We believe this as a necessary step in light of doubts that have been falsely cast on rail safety and the adequacy of the upgrade plan by virtue of the RTC Report. In our opinion, your Ministry, the people of Vancouver Island, Southern Rail and the ICF deserve that assurance.

We continue to appreciate your ongoing support for rail on Vancouver Island.

Yours truly,

Dr. Judith Sayers
Board Chair
Island Corridor Foundation

ISLAND CORRIDOR FOUNDATION SVI Rail Link

BC Ministry of Transportation and Infrastructure
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5D - 940 Blanshard St.
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17 March 2015

Attention: Deborah Bowman
Assistant Deputy Minister

Greg Gilks
Executive Director
Transportation Policy & Programs

Subject: Review & Response to BC Safety Authority / RTC Rail Solutions Report: Vancouver Island Rail Corridor – IRCP-2014 Assessment – 2014

This submission has been prepared in response to the above mentioned RTC Rail Solutions Report: Vancouver Island Rail Corridor – IRCP-2014 Assessment – 2014 (hereinafter "RTC Report") prepared for the BC Ministry of Transportation & Infrastructure. The RTC Report has been reviewed and this submission prepared in response, on behalf of the Island Corridor Foundation, by the following individuals:

Donald S. McGregor, A.Sc.T.
Project Manager, Railway Infrastructure Improvement
Southern Railway of Vancouver Island Limited

Gary T. Smith, P.Eng.
Director - Engineering
Southern Railway of British Columbia Limited

(Curricula Vitae for Donald S. McGregor, A.Sc.T., and for Gary T. Smith, P.Eng. are attached as Appendix A.)

We have jointly conducted a thorough review of the above mentioned RTC Report. The purpose of this submission is to detail the results of our review and related concerns with the RTC Report, content and conclusions. (For ease of reference, we have adopted the same abbreviations as those contained in the RTC Report.)

In summary, we find the RTC Report subject to inaccurate premises and basic misunderstandings with regard to both the Vancouver Island Rail Corridor (hereinafter "VIRC") and the objectives of the related 2014 Initial Railway Corridor Upgrade Plan (hereinafter "IRCP-2014"). Many of the inaccuracies and misunderstandings could have been corrected had we been consulted, as offered, during development of the RTC Report. Attached as Appendix B is a detailed submission providing responses to each of the areas of concern raised in the RTC Report.

The following Summary / Overview outlines primary inaccurate premises and areas of misunderstanding we have found in our review of the RTC Report:

Summary / Overview

1. **"Boiler Plate" Approach – Not Specific to the VIRC Rail Infrastructure**
   The RTC Report indicates under "Overview" on Page 2 that, "RTC Rail Solutions Ltd. (RTC), was not part of and did not provide a visual inspection or other inspection or audit of the subject tracks for the purpose of this assessment." From that statement we find the basis of the report unacceptable on the whole, in that the IRCP-2014 was produced on the basis of detailed inspection and assessment of the actual physical VIRC rail infrastructure to be upgraded. Highly experienced and qualified staff that aided in development of the IRCP-2014 have intimate knowledge specific to the VIRC rail infrastructure, rail safety, and the objectives of the IRCP-2014.

2. **References to "Industry Standards" – Undefined and Not Applicable to VIRC**
   The primary objective of the IRCP-2014 is to provide for reinstatement and safe operation of the passenger rail service on the VIRC for a period of 10 years. The reference to "Industry Standards", however undefined, in the RTC Report generally relates to Class 1 style of heavy haul freight services, including lines handling heavy haul (286,000 lb.) car loading with traffic volumes in the tens of million gross tons per year (MGT/Yr) handled. Examples provided under the definition of "Industry Standards" provided on page 3 include, "...CP, CN, BNSF, UP, CSX and other railways...". All specific examples provided refer to large Class I railways with high volumes of heavy haul freight as their primary business. It is both inappropriate and unnecessary to apply such standards in the context of the objectives of the VIRC IRCP-2014 (ie. reinstatement and 10 years operation of passenger rail service). The loading and volumes projected by VIRC to safely accomplish the target objectives of the IRCP-2014 are a mere fraction of those transported by any typical Class I freight railway by comparison.

3. **Track Standards and Faulty Operating Speed Assumptions**
   Contrary to the basic assumption made in the RTC Report, at no point in the VIRC plan was there any intention to run at the maximum speed (60 mph) provided under the Class 3 regulatory track standards. This is a basic misunderstanding which flows throughout the RTC Report. The main reason we established a Class 3 standard in the IRCP-2014 was in order to reinstate the passenger service at the previous maximum operating speed of 40 mph. (Maximum allowable speed for a passenger service under Class 2 track is 30mph.) A Class 3 standard is required in order to safely operate the railway at a maximum operating speed of 40mph. Class 3 was the applicable track standard of the VIRC up to suspension of the passenger service in 2012. This clarification provides an additional level of track standard in that, effectively, the Class 3 standard <u>can</u> provide for a maximum speed of 60 mph for passenger trains, however the service <u>will not be operated above 40 mph</u>. In fact, to operate at any speed in excess of 40 mph would require revision of the Railway's Safety Management System by virtue of a revision of the railway time table requiring regulatory approval and no doubt significant further infrastructure improvements.

4. **Misunderstood Project Objective – Incremental Approach**
   The primary objective of the IRCP-2014 is reinstatement of the passenger rail service for a period of 10 years. The RTC Report inaccurately assumes that additional incremental freight business will be loaded onto the infrastructure without related necessary capital improvement to safely handle that additional business. The VIRC philosophy and business model calls for infusion of additional capital improvements required as a result of incremental increases in freight traffic (or any other additional rail services), which are to stand independently on their own as the respective business cases are developed. This principle is clearly outlined in the Reinstatement and Long Term Viability Operational Plan. The IRCP-2014 follows the "incremental approach" recommended in the 2010 BC MoTI Study and Report on the VIRC, which includes the BRR-2009 report. Reinstatement of the Vancouver Island passenger rail service, as provided in the IRCP-2014, is the first increment in that approach. That principle is clearly presented within the IRCP-2014.

5. **Misrepresentation of Previous Report Findings**
   The RTC Report states on page 10 that the 2009 Base Line Reference Report, commissioned by BC MoTI, "recommended replacement of 140,000 ties". That statement is patently false. The 2009 Base Line Reference Report (BRR-2009), attached as Appendix C, actually states on page 17 that, "Defective ties in track total approximately 140,000." In fact, rather than a discrepancy between the BRR-2009 and the IRCP-2014, as claimed in the RTC Report, the BRR-2009 supports the tie condition assessment performed by SVI in 2012 (attached as Appendix D). The total defective tie count in the 2012 SVI assessment, procured through physically walking the track and counting individual defective ties, actually showed there were 163,861. Based on the estimated total defective tie count in the BRR-2009 and the total tie count from the 2012 SVI tie condition assessment, the number of new ties required to significantly exceed the minimum Class 3 TSR standard would be less than the 110,300 ties provided for in the IRCP-2014. Accordingly in the 2012 SVI Tie Condition Assessment, the post upgrade tie condition would significantly exceed the minimum TSR Class 3 Track requirement.

We re-confirm our assessment of the IRCP-2014 that, upon completion of the upgrade work as planned for in the IRCP-2014, the VIRC rail infrastructure will significantly exceed all minimum safety requirements for the intended use, and provide for the safe reinstatement and operation of both the passenger rail service and existing freight rail service for a minimum period of 10 Years.

Review conducted and prepared by:

Donald S. McGregor A.Sc.T.
Project Manager – Rail Infrastructure Improvement
Southern Railway of Vancouver Island Limited

Gary T. Smith, P.Eng.
Director - Engineering
Southern Railway of British Columbia Limited

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APPENDIX B

Detailed Review of the RTC Rail Solutions Report:
Vancouver Island Rail Corridor – IRCP-2014 Assessment – 2014
(prepared for the BC Ministry of Transportation & Infrastructure)

Note:
Section titles and page numbers below refer to the related sections with the RTC Rail Solutions Report: Vancouver Island Rail Corridor – IRCP-2014 Assessment – 2014 (hereinafter "RTC Report").
For ease of reference, all abbreviations used are the same as those used within the RTC Report.

"Overview" (Page 2)

The second paragraph indicates there was no, "visual inspection or other inspection or audit of the subject tracks for the purpose of this assessment". We have serious concerns with the basic premise that the IRCP-2014 can be evaluated without referring physically to the VIRC infrastructure to be upgraded. Development of the IRCP-2014 was completed by experienced, qualified and professionals with an intimate knowledge of the infrastructure itself and track safety standards.

It is not clear in the Overview that the IRCP-2014 is developed for the primary purpose of reinstatement of the passenger rail service and safe operation for a minimum period of 10 years. In fact, funding provided by the Regional Districts for required railway bridge improvements specifically supports the passenger service only for a period of 10 years. The overriding principle of this approach was the "incremental approach" recommended in the MoTI Report on the VIRC completed in 2009 (hereinafter "BRR-2009") along with providing a trial period to "prove up" the service.

The second to last paragraph highlights a basic misunderstanding contained throughout the RTC Report regarding track standards and operating speed. 60 mph is the maximum operating speed under the Class 3 standard. There has never been any intention to operate the railway at any speed in excess of 40 mph. This would require revision of the railway time table and therefore the Safety Management System and Regulatory approval. The Class 3 Track Standard is the objective of the IRCP-2014 because that is the standard required to operate at 40 mph. (The maximum allowable speed under the Class 2 standard is 30 mph.) This clarification provides an additional level of quality in that, effectively, the Class 3 standard can provide for a maximum speed of 60 mph for passenger trains, however the service will not be operated above 40 mph.

In the 5th paragraph of the Overview, reference is made to a 2008 funding appeal which identifies "the need for a capital investment of $103.8 million...to bring the track structure up to industry standards and enhance operational viability". In the last paragraph, reference is made to the BC MoTI "Evaluation of the E&N Railway Corridor: Baseline Reference Report" (BRR-2009), conducted June 15-17, 2009. The BRR-2009 (copy attached for reference as Appendix C) was produced by a professional engineer with a high level of background and experience in the railway field after a detailed on-line inspection of the complete VIRC infrastructure, contrary to the subject RTC Report. SVI in fact used the BRR-2009 as the primary basis for the IRCP-2014, along with its own detailed on-site inspections of the VIRC infrastructure. The scope of the objective was changed as a result of the BRR-2009 by adopting an "incremental approach", with the first increment targeting operation of the passenger rail and existing light freight services only. The "incremental approach" was recommended in the 2010 MoTI Report on the VIRC, the over-riding report which included the BRR-2009. The IRCP-2014 was developed based on the BRR-2009.

"Definitions Within This Document" (Page 3)

A definition of "Industry Standards" is provided, however there is no clear frame of reference (or definition) within the RTC Report of any specific "Industry Standards" used to evaluate the IRCP-2014. In any case, specific examples of railways employing such "Industry Standards" include "CP, CN, BNSF, UP, CSX..." are all Class 1 Heavy Haul freight railways. Employing such Industry Standards to evaluate the railway on Vancouver Island is completely inappropriate, considering the lines used as a comparison all handle heavy haul (286,000 lb.) freight car loading with traffic volumes in the tens of million gross tons per year (MGT/Yr) handled. By comparison, the VIRC passenger rail service loading (the primary objective of the IRCP-2014 using the "Incremental Approach") is approximately 68,000 lb. per passenger car, with traffic volumes, utilizing a maximum of 3 cars. This traffic loading and volume computes to approximate 0.15 MGT/Yr, a mere fraction by comparison with any of the example railways sited.

"RTC Assignment Overview" (Page 4)

There is an apparent misunderstanding of the underlying objective of the RTC assignment. We understand that the objective was to evaluate the "Initial Railway Corridor IRCP-2014", not the "Reinstatement and Long Term Viability Operations Plan". The later plan constitutes a business case, outlining a 10 year financial model and evaluation of future business potential for the railway. The financial risk relative to the Long Term plan is proposed to be underwritten by SVI. We understand the Terms of Reference for the RTC Report should have been evaluation of the VIRC railway infrastructure relative to the "Initial Railway Corridor IRCP-2014".

In addition, there is an apparent misunderstanding regarding an application of "Industry Recommended Standards". As indicated under definitions above, no specific such standards are clearly defined. The objective of the IRCP-2014 and related specific evaluations of the VIRC

railway infrastructure is to safely reinstate the passenger rail service on Vancouver Island using the minimum regulatory standards for safe rail service (Rules Respecting Track Safety) as a guide. It is recognized this is a minimum safety standard and the objective of the IRCP-2014 is to exceed that standard in actual practice. It is well recognized that there is an ongoing obligation on the part of SVI, as rail operator, to assure that minimum standard is exceeded at all times. Again, the IRCP-2014 was tailored considering the specific conditions of the VIRC infrastructure and the need to safely reinstate and operate the passenger rail service for a period of 10 years.

"Meeting the Requirements of the Rules Respecting Track Safety (TSR) for the requested Class of Track (Class 3)" (Beginning Page 5.)

Minimum TSR Standards and Tie Renewal Program (Page 6.)

In the first paragraph on page 6, there is a fundamental misunderstanding with regard to both the regulatory safety standards and operating speed. The objective of the IRCP-2014 is the safely reinstate the Vancouver Island passenger rail service at the same speeds in place previous to suspension in 2012, including the system maximum operation speed of 40 mph. There was never an intention to increase operating speed beyond those previous in place. In order to accomplish this, the Rules Respecting Track Safety (TSR) requires that the track be upgraded and maintained to a minimum Class 3 safety standard. It is recognized that the TSR provides the minimum safety standard. The TSR was used as the reference minimum standard in the development of the IRCP-2014 along with the BRR-2009 recommendations; however the plan is designed to significantly exceed that standard. An example includes the tie renewal portion as the major component of the IRCP-2014. In 2012, SVI completed a physical tie inspection and assessment of the VIRC mile by mile. The results of that assessment and overall IRCP-2014 review as submitted by Gary T. Smith, P.Eng. to the BC Safety Authority (BCSA) March 26, 2012. The IRCP-2014 professional review and tie condition assessment are included as Appendix D. The tie assessment indicated that, after upgrading, the tie condition would significantly exceed the minimum TSR Class 3 standard. In addition, the railway would operate under SVI's Safety Management System, which provides for ongoing track maintenance assuring that the minimum safety standard is exceeded at all times. The tie assessment and IRCP-2014 review submitted by Gary Smith was accepted by the BCSA (Eric Samuelson), confirmed by a BCSA letter response to Gary dated April 11, 2012. A copy of that letter is included as Appendix E. In addition, a copy of the BSCA (Eric Samuelson) letter dated January 11, 2015, summarizing and presenting the RTC Report to BC MoTI staff, is attached for reference as Appendix F.

Minimum TSR Standards and Tie Spacing (Page 7-8)

The statement in the last paragraph of page 7 is inaccurate. The TSR minimum standard does not take into account the tie spacing. That is why it specifies the minimum number of sound ties required, as opposed to a maximum number of defective ties. TSR standards regarding tie condition is independent of the spacing standard specified by the railway for the specific loading and volumes required. In addition, the table provided is misleading in that the column labeled TSR does not indicate "Tie spacing in inches" or "Total Ties per segment". That column appears

to actually list an average spacing of the minimum number sound ties only and number of sound ties (not total ties) per segment required under the TSR Class 3 track standard.

It is true that tie spacing plays an important role in the ability of the track structure to support the fundamentals of the track structure, and that the "industry takes into consideration many factors to determine the type of track structure to be built in order to support the anticipated traffic". In the case of VIRC, the standard tie spacing of 22 inches was originally designed to safely accommodate 263,000 lb. freight loading currently handled on the railway. The IRCP-2014 objective is reinstatement of the passenger service (at approximately 68,000 lb. car loading) along with current light (263,000 lb. maximum) freight loading and volumes.

We consider it obvious that it is not a good practice to operate at the minimum regulatory safety standard. That is one of many reasons the IRCP-2014 includes levels of tie renewals that significantly exceed the minimum regulatory safety standard. The RTC Report neglects to take into account our detailed inspection and assessment results, nor does it include a physical inspection of the actual VIRC infrastructure.

Tie Spacing (Page 10)

Again, the table repeated at the top of page 10 is misleading in that the column labeled TSR does not indicate "Tie spacing in inches" or "Total Ties per segment". (The column appears to refer to an average spacing of the minimum number of sound ties only, not total ties, per segment under the TSR Class 3 track standard).

In addition, it is also misleading to indicate that a tie spacing of 20 inches is either preferred or common. As indicated in page 8 of the RTC Report, tie spacing is a design issue that takes into account the specific criteria, including intended loading and traffic volumes. It could be a true statement to proclaim that the preferred tie spacing for heavy haul Class 1 (286,000 lb.) freight railways is 20 inches, however there are many examples of operations that safely handle freight and passenger loading on track with a 22 inch tie spacing.

Tie Replacement – Track (Page 10)

The statement in the 2nd to last paragraph of page 10 is patently false. The 2009 Base Line Reference Report (BRR-2009), attached as Appendix C, did not "recommend the replacement of 140,000 ties". The BRR-2009 actually states on page 17 that, "Defective ties in track <u>total</u> approximately 140,000." Based on an estimated total defective tie count at the time of the BRR-2009, the number of ties renewals required to significantly exceed the minimum Class 3 TSR standard would be less than the 110,300 ties included in the IRCP-2014.

The BRR-2009 was used as the basis for the IRCP-2014, even though the objective of the IRCP-2014 (by virtue of the recommended "Incremental Approach") was modified to provide for reinstatement of the passenger rail service only for a 10 year period along with existing light freight service.

In the last paragraph on page 10, the RTC Report indicates, "It is uncertain as to whether or not ties have been replaced over the last five years...". In reality, tie renewals have continued as part of ongoing track maintenance programs. Tie renewal quantities since 2010 are as follows:

Period	No. of Track Ties Renewed
2010 to 2014 (inclusive)	7288
2006 to 2009 (inclusive)	16,086
Total - 2006 to 2014 (inclusive)	23,374

Note that this information could have been provided if, as offered, we had been consulted during development of the RTC Report.

In the first paragraph on page 11, the RTC Report states that, "the BRR-2009 was conducted within 3 days and therefore it is expected that the required ties to be replaced was estimated rather than "counted" by walking the track. The BRR-2009 in fact states that the 140,000 ties is an estimate, however it refers to total defective ties, not "required ties". This is a crucial flaw in logic and content of the RTC Report. This flaw runs throughout the remainder of this section. Other faulty assumptions prevail including reference to track operating speed at 60 mph, and the recommendation to use Number 1 hardwood ties in curves.

The second to last paragraph on page 11 points to a discrepancy regarding (defective) tie counts between the IRCP-2014 and the BRR-2009. In fact, given the above misrepresentation of the BRR-2009 content regarding tie counts, the BRR-2009 actually supports our assessment of tie condition. As indicated in the detailed tie assessment attached as Appendix D, our defective tie count, a result of a physical walking inspection of the complete VIRC, was 163,861. The BRR-2009 estimated count at 140,000 ties in fact supports our detailed inspection and assessment from 2012.

It should also be noted that the BRR-2009 was based on a 3 day inspection of the VIRC. Our tie condition assessment was the result of a walking inspection of the complete line from Victoria to Courtenay. Contrarily, the RTC Report is not based on any physical inspection of the VIRC infrastructure what so ever. Nonetheless, this section of the RTC Report closes by stating, "Given the provided information, a definitive closure to the feasibility of tie replacement is not possible. However, serious concern is warranted." This statement speaks for itself as to the relevance of the complete RTC Report, in that the track tie renewal program is the single largest component of the IRCP-2014.

Tie Replacement – Turnouts (Page 12)

In the third paragraph, the RTC Report states, "The BRR-2009 does indicate that all turnouts are restricted to 10 mph. No specific reason(s) is provided as to why." This statement is misleading. This is a time table restriction that relates to operation through a turnout into a siding only. It does not refer to main track operation over a turnout. The reason for the restriction is simply to comply with the speeds set for all "Other than Main Track" operation (eg. yards / sidings /etc.). The restriction does not relate in any way to the condition of the turnouts or related infrastructure. This misunderstanding flows through the remainder of this section of the RTC Report. (Note that clarity on this point was available had RTC simply asked us the question.)

The turnout tie replacement requirements recommended within the IRCP-2014 were also derived from physical inspection of the actual VIRC infrastructure. Therefore, we consider the "boiler plate" discussion in the remainder of this section of the RTC Report does not relate to the VIRC physical infrastructure.

The closing sentence of this section on page 13 states, "There is no contingency or plan within the IRCP-2014 to address rail and components needs for turnouts.". We can confirm that, based on physical inspection of the VIRC infrastructure, we can confirm there is no upgrade requirement relative to turnout rail and components. This is supported by the BRR-2009 (also the result of physical inspection) indicating that, "turnouts are in fair to good condition".

Rail (beginning Page 14)

This section is a continuation of a number of basic misunderstandings regarding the upgrade plan objectives, as follows:

1. The IRCP-2014 objective is to reinstate the passenger rail service and operate for a period of 10 years, along with existing freight service levels. Additional rail service, including freight expansion (eg. coal) are not part of this objective and are to stand alone on any such individual business case for such services. Therefore, any discussion of infrastructure requirement beyond the objectives of the IRCP-2014 is irrelevant, including expanded freight, coal and any contemplation regarding upgrade of to 286,000 lb. freight loading.

2. The misunderstanding regarding operating speed again re-surfaces in this section. Again, at no point was it contemplated to increase the operating speed of the passenger rail service beyond the previous speed of 40 mph. In addition, there is no plan to increase the maximum operating speed or maximum loading of the existing freight services beyond the previous levels, 30 mph and 263,000 lb. respectively.

Note that this information also could have been easily provided had we been consulted during development of the RTC Report to avoid these misunderstandings. Basic misunderstandings lead to flawed conclusions.

The section on page 17 regarding rail wear and rail end batter is largely "boiler plate" discussion produced in isolation not considering the specific conditions of the VIRC operation, infrastructure, or objectives of the IRCP-2009. Historical traffic levels, including both freight and passenger, have been very light. As a result, physical assessment of the actual infrastructure confirms that "end batter" as described in the RTC Report is not an issue on the VIRC. Likewise, due to low historical traffic volumes and field inspection of rail condition, we concluded that the existing light rail is perfectly capable of supporting the passenger service and existing 263,000 lb. freight over the IRCP-2014 plan horizon of 10 years. Again, development of future freight and other rail business opportunities are not part of the IRCP-2014 objective and are to stand on their own individual business cases.

Note that the rail condition will continue to be monitored and maintained through physical inspection, annual ultra-sonic rail testing, and appropriate corrective action in accordance with SVI's Safety Management System. Historical records of rail condition through the annual testing was available, had it been requested, during development of the RTC Report.

Based on the faulty premises on which the RTC Report relies, we patently reject what we consider erroneous conclusions made within this section of the RTC Report, namely:

"It is expected that a substantial amount of funding will be required for rail to operate safely."

and;

"Based on the information provided within these documents, in relation to rail, the potential risk of derailment is extreme for all train traveling at these speeds."

These two statements in relation to the inadequacy of 85 lb. rail to be the result of a misunderstanding of the IRCP-2014 objectives, coupled with the assumed unrealistic 60 mph speed over the VIRC rail line, lead to an invalid conclusion.

In fact, the BRR-2009 conclusions regarding rail condition were based on physical inspection of the actual VIRC rail infrastructure and examination of historical ultrasonic test results. Conclusions regarding rail in the BRR-2009 including the following:

- On examination of previous ultrasonic test results, BRR-2009 states, "The frequency of less than 0.3 defects / mile tested is not unusual."
- "With regular testing and joint maintenance, the present rail will be adequate for the existing service."
- BRR-2009 goes on regarding rail to state, "Any increase in tonnage would require more frequent testing to stay ahead of defect growth. If there is any intention to operate a commuter service or increase tonnage such as Coal service, the 80 / 85 lb. rail in those areas should be replaced." (Note: We do not dispute this statement, however the examples of upgraded service noted are beyond the objectives of the IRCP-2014 and if

contemplated, related infrastructure requirements would stand on the related individual business cases.)

Tie Plates (beginning on Page 19)

In the third paragraph on page 20, with regard to single shoulder tie plates, the RTC Report states, "...there is not support on the low side of the plate for the lack of a shoulder. This transfers all forces to the spike(s) trying to hold the rail from rolling over." This statement is technically inaccurate. Dynamic track forces under train loading are directed to the outside of the track, forcing the rail outward with a tendency to spread gauge and potentially roll the rail to the outside given certain speed, loading and track conditions. That is why the shoulder on a single shoulder tie plate is placed on the outside of the rail and that, as the RTC Report states, "The tie plates presently in track meet the requirement of the Rule." The primary function of the tie plate is to transfer load to the tie over a greater surface area, thus reducing tie wear under dynamic load and over longer periods of operation. Additional support and reduced wear on ties through the use of tie plates are recognized as a safety enhancement and therefore regulations require the use of tie plates (not specifically "double shoulder" tie plates) as part of the track structure.

The last paragraph on page 20 states, in part, "Double shoulder tie plates are about 60% larger than single shoulder tie plates." This statement is also technically inaccurate and over-stated. The standard single should tie plate used on the VIRC is 9 inches wide by 6 ½ inches long or 58 ½ square inches in area. The standard double should tie plate used is 7 inches long by 10 inches wide or 70 inches in area. This represents an increase in surface area of less that 20% for double should plates in comparison to single shoulder plates. This does represent a greater bearing surface on the tie however the magnitude of that change (and resulting effect) has been significantly over-stated.

Track forces under traffic are toward to outside of the rails and therefore the outside shoulder of the tie plate have the highest function in transferring lateral forces to the spikes and to the tie. The function of additional inside shoulder on double shoulder tie plates is to contain the rail in a fixed "seat" and lessen the likelihood of "skewing" of the tie plates. The RTC Report also states, "However, again in Industry Standards, the minimum requirement is double shoulder." This statement is misleading. There are many circumstances in the rail industry where single should tie plates are still in place, including Class 1 rail infrastructure, utilized under the correct application. Applications to be considered include the loading, traffic volumes, traffic patterns and the prevalence of "rail creep" within the specific track infrastructure. Rail creep is not prevalent on the VIRC infrastructure as discussed in this submission under Anchors (below). The RTC Report again misses the objective of the IRCP-2014, being 10 years of passenger service and existing freight levels.

Note that, in spite of the above, the IRCP-2014 does include replacement of all single shoulder tie plates on ties to be renewed. This was considered out of practicality, since the spikes need

to be removed and replaced in order to replace the ties. Renewing all other single shoulder plates would add an additional risk or reducing the spike holding capability of the older ties which are planned to remain. The mechanics of pulling and re-spiking older ties not being renewed introduces additional spike holes into the ties which reduce their remaining life at an accelerated rate. It is our intention, as part of future maintenance, to continue to replace single shoulder with double shoulder tie plates in all cases when track ties are renewed in the future (as the RTC Report indicates in the fourth paragraph of this section as industry practice). As indicated in the RTC Report, this plan is supported by the BRR-2009. Conclusions at the end of this section of the RTC Report, again, are at odds with the BRR-2009 and are based a faulty premises, including the objectives of the IRCP-2014 and the proposed operating speeds.

We patently disagree with statement made in the last paragraph of this section, namely, "Operating at Class 3 speed with single shoulder tie plates is not recommended. The risk of derailment, especially, on curves is extremely high." This is a continuation of a lack of understanding of the objectives of the IRCP-2014, proposed operating speed and the specific nature of the VIRC rail infrastructure. Again, misunderstandings and false premises in the RTC Report lead to invalid conclusions. Note that, since the time of our involvement with the VIRC in July 2006, there have been zero main track derailments. The objectives of the IRCP-2014 identify only reinstatement of the previous rail service, including loading and traffic volumes. As mentioned, additional services on the infrastructure must stand alone and provide, as part of their individual business cases, any additional infrastructure improvements warranted to safely handle those additions.

Anchors (beginning on Page 23)

There is no regulatory safety requirement for rail anchors other than (as stated in the RTC Report), "A sufficient number of anchoring devices will be applied to provide adequate longitudinal restraint." The RTC Report, the BRR-2009 and past experience confirm that, "there is no evidence of rail creep" (BRR-2009) and, "...it is confirmed in two RTC Reports that rail creep is not occurring..." The RTC Report then states, "it is highly expected that increased traffic will promote rail creep". We agree that this statement, depending on the nature of the increased traffic, may be true. However, again, that is beyond the objective of the IRCP-2014, which is reinstatement of the passenger rail service and existing freight levels. Over the operating history of the rail line, rail creep, tie skewing and need for anchoring has not been a problem or concern. Anchoring, along with other infrastructure improvements, required will need to be supported by the individual cases for additional business that may be developed on the VIRC. We stand by our assessment, which is supported by experience, contained in the IRCP-2014 concluding that rail creep is not a safety issue for the traffic levels and patterns contemplated within the objectives IRCP-2014.

Joint Bars (Page 24)

We acknowledge agreement with the plan outlined in the IRCP-2014 to replace all 9000 full toe angle bars with toeless standard toeless joint bars. Note this action item is also supported by recommendations contained in the BRR-2009.

Track Ballast (Beginning Page26)

Ballast Quantity

We maintain that the estimated 311 cu.yd. per mile proposed ballast distribution rate is more than adequate to accomplish the objectives of the IRCP-2014. The VIRC has the advantage of a solid foundation and sub-grade in most areas providing good support for the track structure and a natural granular base providing for good drainage. Contrary to the RTC Report, ballast quantities estimated in the IRCP-2014 do take into account specific conditions on the VIRC as a result of experience operating the line, supported by physical inspection of the infrastructure. The IRCP-2014 also takes into account the objectives of the plan, again, 10 years of passenger service and existing light freight volumes. We therefore stand by our estimated ballast quantity within the IRCP-2014 as being adequate to provide the necessary support and re-profiling of the track surface while providing further improvement to the drainage capacity.

Remarks in the RTC Report regarding "dramatically increased" ballast volumes required as a result of increased super elevation are irrelevant. Those remarks relate to the misunderstanding regarding proposed operating speed that was explained earlier in this submission that runs throughout the RTC Report.

Ballast Unit Prices

The RTC Report neither provides any source for the unit ballast prices quoted ($25.42 per cubic yard) nor what is included within that unit price. As with consideration of specific local conditions as they relate to the estimates of ballast quantities required in the IRCP-2014, actual prices from local ballast suppliers on Vancouver Island were considered in producing the budget estimates. Contrary to the RTC Report, along with considering specific local conditions, detailed budget estimates were prepared by separately estimating each component of work including ballast material cost, delivery to specific stock pile locations, distribution, lifting, tamping, and trimming of the ballast section.

Crossings (Beginning Page29)

We stand by our assessment regarding crossings and crossing safety contained in the IRCP-2014, as follows:

> *Crossing signal systems have always been, and will continue to be, maintained as part of the railway operating maintenance budget as required to protect public safety and meet*

or exceed all applicable regulatory safety standards. Approximately 50% of the crossing signal systems are under the full or partial maintenance responsibility of other parties, including local municipal authorities, regional districts, and the provincial Ministry of Transportation and Infrastructure.

In cooperation with various road authorities, numerous new crossing signal systems in addition to specific upgrades and safety enhancements to existing systems have been completed and are ongoing. SVI will continue to perform all necessary maintenance on behalf of those other responsible parties and, in addition, will continue to perform work necessary to all systems for which the railway is responsible as part of SVI's operating maintenance plan. Necessary maintenance expense funds are allocated as part of the 10 year operating financial plan and budget as required in order to continue to maintain all level crossing signal systems in safe condition and in compliance with applicable regulatory standards. In addition, it is anticipated that capital funds necessary for required improvements to signal systems to support potential additional services on the line (eg. commuter rail) will be provided as part of the individual business cases and financial plans for those specific opportunities.

Beyond this position, we can confirm that we have not experienced difficulty obtain replacement parts for signal systems. Where parts are not available from original manufacturers, we have had no problem obtaining approved parts from other suppliers that meet full safety requirements.

The best solution for issues with signal systems related to rusty rail is rail traffic. With regular rail traffic as contemplated in the IRCP-2014, this will not be an issue. Additional precautions as required will be taken to assure that no related safety issues regarding electrical conductivity and signal operation take place during the transition back to rail service. Other issues, including vegetation conditions, have improved vastly with the institution of our Pest Management Plan (PMP). Our long term plan and related 10 year financial model includes necessary provisions for required vegetation control, all of which are in accordance with our PMP.

Vegetation / Culverts / Drainage

We can confirm that our financial budget projections included in the 10 year objective of the IRCP-2014 include necessary funding for vegetation control, culverts and drainage. As indicated above, since the time of the BRR-2009, through our PMP we have affected a marked improvement in vegetation control within the ballast section of the track and at crossings to improve sight-lines. In addition, the proposed re-ballast and surfacing program planned in the

IRCP-2014 will have an immediate positive effect on vegetation clearing and control within the track structure which will extend over the entire rail line.

In addition, we can confirm that, as identified in the BRR-2009, the culvert at Mile 114.95 where a slow order had been issued, along with numerous other culverts requiring replacement in the interim time period, have been replaced.

Schedules (Page 35)

The proposed initial schedule outlined in the Long Term Viability Operational Plan was formulated using the same operating speed and travel times between stations as previously enjoyed with the VIA Rail service. In other words, the schedule and related travel times are based directly on our experience operating the service since 2006. We feel therefore there is no further comment warranted regarding the RTC Report review of those schedules.

Documentation Overview (Page 37)

It is true that the BRR-2009 is dated. What has changed since that time? Freight traffic has be extremely limited during that period (approximate annual average of 800 carloads handled) and the passenger service is light loading and low volume (approximately 0.15 MGT/Yr). Wear on rail and other steel components are primarily impacted by rail traffic as is track settlement and surface variations. As a result of the low traffic volumes there has been negligible resulting effect on the steel components of the track structure, which is confirmed by ongoing physical assessment.

The wooden components (ie. track ties) are another matter. Rot in wood continues to take place regardless of rail traffic loads and volumes. To that point, as a result of a three day inspection undertaken at that time, we look to the BRR-2009 estimated total number of defective ties (not ties recommended to be replaced as stated in the RTC Report) at that time at 140,000 ties. Since the time of the BRR-2009, we conducted a physical walking inspection of the entire line between Victoria and Courtenay, counting all defective ties. The resulting number of defective ties counted was 163,861 ties. This seems reasonable and is supported by the BRR-2009 estimate. The physical inspection and assessment established a number of ties to be replaced to significantly exceed safety standards and support the infrastructure for the IRCP-2014 objectives (reinstatement and 10 years of passenger service and existing light freight volumes) at 110,300 ties. This represents renewal of approximately 25% of <u>all</u> ties and 67% of <u>all defective</u> ties in the line. We maintain this will substantially exceed all minimum safety standards to a degree that will safely support the intended objectives of the IRCP-2014.

Regarding our 2012 Long Term Plan and the 2014 Upgrade Plan (IRCP-2014), we note the RTC Report concludes that "Both documents are consistent with the amount of funding request."

Conclusions (Page 39)

We confirm that we are in general agreement with the conclusions as stated in the RTC Report. The key principle is that the primary objectives of the Initial Railway Corridor Upgrade Plan (IRCP-2014) are in line with the 2009 BC MoTI study on the VIRC recommending an "Incremental Approach". As the first increment in that approach, the primary objectives of the IRCP-2009 are reinstatement and operation of the passenger service and existing light freight volumes. We maintain that the IRCP-2009 will accomplish those objectives. Also in line with the "Incremental Approach", upon reactivation of the line other rail business will be actively pursued. As further businesses (eg. expanded freight / tourism excursion) are developed, those business cases are to stand on their own and support any associated infrastructure improvements required to continue safe rail operations.

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SRY Rail Link

Southern Railway of British Columbia Limited
2102 River Drive
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V3M 6S3

(604) 521-1966
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British Columbia Safety Authority
505 - 6th Street
Suite 200
New Westminster, B.C.
V3L 0E1

26 March 2012

Attention: Eric Samuelson
Manager Railway Safety

Subject: Vancouver Island Rail Corridor – Initial Railway Upgrade Plan

Dear Eric:

Background

The Vancouver Island Rail Corridor has served Vancouver Island for approximately 126 years with passenger and freight rail transportation services between Victoria and Courtenay. In 2004, the Island Corridor Foundation (ICF), a partnership of 13 First Nations, 5 regional districts and 14 municipal governments, acquired the line in recognition of its importance and public support for the railway. On July 1, 2006, Southern Railway of Vancouver Island (SVI) commenced operation of the railway under an operating agreement with the ICF. Concurrently, SVI also assumed the Train Service Agreement with VIA Rail Canada (VIA) to operate the VIA passenger rail service on Vancouver Island.

Decades of under-investment and deferred maintenance in the railway on the part of previous owners and operators of the rail line had greatly diminished the ability of the line to either effectively support continued rail operations or grow future rail opportunities. In 2009, the BC provincial government completed a study and report on the railway. As part of that study, an evaluation of the railway was performed, resulting in a report entitled, Evaluation of the E&N Railway Corridor: Baseline Reference Report (the “Report”). In March 2011, Southern Railway of Vancouver Island, as rail operator on behalf of VIA, decided to discontinue the passenger service, recognizing the declined state of the railway and the inability to comply with the Report and, in addition, Transport Canada Rules Respecting Track Safety (TSR).

Recognizing public support for the railway and its importance as a transportation alternative on Vancouver Island, in July 2011 BC Premier Christy Clark announced support for the railway by committing $7.5M in provincial funding for the railway. This funding support was conditional on a full engineering assessment of the railway bridges and a matching commitment from the Canadian federal government for a total Initial Railway Upgrade funding requirement of $15M. The bridge engineering assessment is currently near completion. Early indications to date are that the bridges, with recommended maintenance, are capable of serving to needs of the railway for decades into the future.

Initial Railway Upgrade Plan

On behalf of the ICF, SVI has developed an Initial Railway Upgrade Plan (the "Plan") designed to return the railway infrastructure to a condition suitable to address the recommendations of the provincial Report and meet the requirements under the TSR for the current time table speeds and track class. Completion of the planned work will render the railway able to safely support a reinstated and enhanced VIA passenger service, and provide confidence in the railway sufficient to grow the freight rail service.

Class 3 track under the TSR was the primary standard used to evaluate the requirements of the Plan. The minimum standards for Class 3 track under the TSR, in part, require that:

1. the track is suitable to support maximum speeds of 60mph passenger train traffic and 40mph freight train traffic;
2. a minimum of 10 competent track cross ties are in place per 39 foot section, suitable to hold track gauge between 56 inches and 57 ¾ inches;
3. the centre line of 1 competent track tie be located within 18 inches of a rail joint; and
4. the track surface and cross-level deviations are within the standards defined in the TSR.

To both, address deficiencies highlighted in the provincial Report and to meet or exceed the minimum standards provided under the TSR for the current time table speed and track class, the Plan provides for the following remedial work:

A. Engineering Inspection and Assessment of 48 railway bridges (in progress with projected completion – Feb/12)

B. Removal and replacement of 9000 pair of full toe joint bars with good relay toeless style bars complete with new track bolts, nuts, and heavy spring washers.

C. Renewal of approximately 110,300 track ties and 974 switch ties, including replacement of associated single shoulder tie plates with double shoulder plates and renewal of all track spikes in ties replaced.

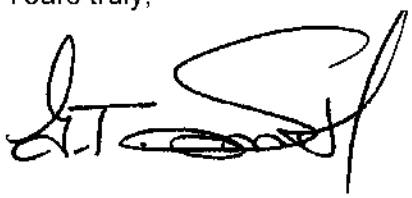
D. Re-ballast, lift (average 2"), tamp, re-line, regulate, and trim complete Victoria Subdivision and Wellcox Spur

Note: The MoTI Bridge Inspection and Assessment, currently nearing release, will specify immediate essential repairs required to the bridges that will be prerequisite to the provincial funding for the railway upgrades. Other funding sources will be explored to cover these essential repairs along with estimated projected repairs to support the passenger service to the year 2021.

Specifically, the tie renewal program will provide for new track ties strategically placed to ensure compliance with the TSR, exceeding the requirements at rail joints and the minimum number of competent ties within each 39-foot rail length. For further detail regarding the tie renewal program, refer to Appendix A attached. In addition, the re-ballasting and surfacing program will provide for an average track lift of 2 inches and as much as 4 inches to eliminate low spots at various locations and to correct deviations in cross level and alignment suitable to exceed the minimum requirements under the TSR for the current time table speed and class of track.

It is with great confidence that I inform the BC Safety Authority the Initial Railway Upgrade Plan will provide all necessary improvements to the railway track and bridges to address deficiencies highlighted in the 2009 Baseline Report under the provincial study of the railway and to exceed the Class 3 requirements of federal Rules Respecting Track Safety. If you have any questions regarding the proposal or the detailed information in Appendix A regarding the track tie rehabilitation program, please feel free to call me to discuss.

Yours truly,



Gary T. Smith, P.Eng
Director of Engineering Services & Maintenance of Way

Vancouver Island Rail Corridor - Tie Condition Assessment - (Derived from 2012 Physical Inspection Data)

Mile	Defective Tie Count	Good Ties	Estimate of Ties to be Installed	Remaining Poor Ties (post program)	Good Ties (post program)	Class 3 Compentent Tie Requirement	Post-Condition Ties Exceeding requirement
0	700	2180	471	229	2651	1354	1297
1	927	1953	624	303	2577	1354	1223
2	1038	1842	699	339	2541	1354	1187
3	918	1962	618	300	2580	1354	1226
4	949	1931	639	310	2570	1354	1216
5	348	2532	234	114	2766	1354	1412
6	1071	1809	721	350	2530	1354	1176
7	1098	1782	739	359	2521	1354	1167
8	841	2039	566	275	2605	1354	1251
9	1369	1511	922	447	2433	1354	1079
10	1234	1646	831	403	2477	1354	1123
11	1201	1679	808	393	2487	1354	1134
12	972	1908	654	318	2562	1354	1208
13	1169	1711	787	382	2498	1354	1144
14	958	1922	645	313	2567	1354	1213
15	991	1889	667	324	2556	1354	1202
16	784	2096	528	256	2624	1354	1270
17	1063	1817	716	347	2533	1354	1179
18	961	1919	647	314	2566	1354	1212
19	930	1950	626	304	2576	1354	1222
20	1056	1824	711	345	2535	1354	1181
21	1007	1873	678	329	2551	1354	1197
22	1450	1430	976	474	2406	1354	1052
23	1066	1814	718	348	2532	1354	1178
24	1100	1780	740	360	2520	1354	1167
25	1156	1724	778	378	2502	1354	1148
26	1196	1684	805	391	2489	1354	1135
27	1019	1861	686	333	2547	1354	1193
28	991	1889	667	324	2556	1354	1202
29	916	1964	617	299	2581	1354	1227
30	1146	1734	771	375	2505	1354	1152
31	962	1918	648	314	2566	1354	1212
32	792	2088	533	259	2621	1354	1267
33	889	1991	598	291	2589	1354	1236
34	1263	1617	850	413	2467	1354	1113
35	990	1890	666	324	2556	1354	1203
36	982	1898	661	321	2559	1354	1205
37	761	2119	512	249	2631	1354	1277
38	1038	1842	699	339	2541	1354	1187
39	1111	1769	748	363	2517	1354	1163
40	1127	1753	759	368	2512	1354	1158
41	1156	1724	778	378	2502	1354	1148
42	1045	1835	703	342	2538	1354	1185
43	742	2138	499	243	2637	1354	1284
44	860	2020	579	281	2599	1354	1245
45	802	2078	540	262	2618	1354	1264
46	1194	1686	804	390	2490	1354	1136
47	857	2023	577	280	2600	1354	1246
48	973	1907	655	318	2562	1354	1208
49	883	1997	594	289	2591	1354	1238

Mile	Defective Tie Count	Good Ties	Estimate of Ties to be Installed	Remaining Poor Ties (post program)	Good Ties (post program)	Class 3 Compentent Tie Requirement	Post-Condition Ties Exceeding requirement
50	941	1939	633	308	2572	1354	1219
51	1049	1831	706	343	2537	1354	1183
52	1310	1570	882	428	2452	1354	1098
53	1194	1686	804	390	2490	1354	1136
54	1136	1744	765	371	2509	1354	1155
55	1229	1651	827	402	2478	1354	1124
56	1218	1662	820	398	2482	1354	1128
57	1119	1761	753	366	2514	1354	1160
58	639	2241	430	209	2671	1354	1317
59	780	2100	525	255	2625	1354	1271
60	755	2125	508	247	2633	1354	1279
61	925	1955	623	302	2578	1354	1224
62	812	2068	547	265	2615	1354	1261
63	851	2029	573	278	2602	1354	1248
64	1007	1873	678	329	2551	1354	1197
65	1006	1874	677	329	2551	1354	1197
66	907	1973	611	296	2584	1354	1230
67	973	1907	655	318	2562	1354	1208
68	746	2134	502	244	2636	1354	1282
69	993	1887	668	325	2555	1354	1202
70	1028	1852	692	336	2544	1354	1190
71	879	2001	592	287	2593	1354	1239
72	842	2038	567	275	2605	1354	1251
73	926	1954	623	303	2577	1354	1223
74	1060	1820	714	346	2534	1354	1180
75	1152	1728	775	377	2503	1354	1150
76	780	2100	525	255	2625	1354	1271
77	705	2175	475	230	2650	1354	1296
78	831	2049	559	272	2608	1354	1255
79	934	1946	629	305	2575	1354	1221
80	1143	1737	769	374	2506	1354	1153
81	1678	1202	1130	548	2332	1354	978
82	1512	1368	1018	494	2386	1354	1032
83	629	2251	423	206	2674	1354	1321
84	1181	1699	795	386	2494	1354	1140
85	718	2162	483	235	2645	1354	1291
86	994	1886	669	325	2555	1354	1201
87	946	1934	637	309	2571	1354	1217
88	1029	1851	693	336	2544	1354	1190
89	1172	1708	789	383	2497	1354	1143
90	1151	1729	775	376	2504	1354	1150
91	1175	1705	791	384	2496	1354	1142
92	1046	1834	704	342	2538	1354	1184
93	970	1910	653	317	2563	1354	1209
94	1004	1876	676	328	2552	1354	1198
95	955	1925	643	312	2568	1354	1214
96	1662	1218	1119	543	2337	1354	983
97	1467	1413	987	480	2400	1354	1047
98	1232	1648	829	403	2477	1354	1123
99	1318	1562	887	431	2449	1354	1095
100	1503	1377	1012	491	2389	1354	1035
101	1464	1416	985	479	2401	1354	1048

Mile	Defective Tie Count	Good Ties	Estimate of Ties to be Installed	Remaining Poor Ties (post program)	Good Ties (post program)	Class 3 Compentent Tie Requirement	Post-Condition Ties Exceeding requirement
102	1298	1582	874	424	2456	1354	1102
103	1387	1493	934	453	2427	1354	1073
104	1199	1681	807	392	2488	1354	1134
105	1556	1324	1047	509	2371	1354	1018
106	1396	1484	940	456	2424	1354	1070
107	1454	1426	979	475	2405	1354	1051
108	1575	1305	1060	515	2365	1354	1011
109	1658	1222	1116	542	2338	1354	984
110	1191	1689	802	389	2491	1354	1137
111	1193	1687	803	390	2490	1354	1136
112	1425	1455	959	466	2414	1354	1060
113	1290	1590	868	422	2458	1354	1104
114	1523	1357	1025	498	2382	1354	1028
115	1678	1202	1130	548	2332	1354	978
116	1453	1427	978	475	2405	1354	1051
117	1320	1560	889	431	2449	1354	1095
118	1282	1598	863	419	2461	1354	1107
119	1563	1317	1052	511	2369	1354	1015
120	1253	1627	843	410	2470	1354	1117
121	1214	1666	817	397	2483	1354	1129
122	1127	1753	759	368	2512	1354	1158
123	1170	1710	788	382	2498	1354	1144
124	1382	1498	930	452	2428	1354	1074
125	952	1928	641	311	2569	1354	1215
126	1164	1716	784	380	2500	1354	1146
127	1136	1744	765	371	2509	1354	1155
128	1316	1564	886	430	2450	1354	1096
129	1192	1688	802	390	2490	1354	1137
130	1360	1520	915	445	2435	1354	1082
131	1409	1471	948	461	2419	1354	1066
132	1462	1418	984	478	2402	1354	1048
133	1508	1372	1015	493	2387	1354	1033
134	1532	1348	1031	501	2379	1354	1025
135	1819	1061	1224	595	2285	1354	932
136	1747	1133	1176	571	2309	1354	955
137	1425	1455	959	466	2414	1354	1060
138	1557	1323	1048	509	2371	1354	1017
139	1967	913	1324	643	2237	1354	883
Wellcox Spur							
1	1000	1880	673	327	2553	1354	1199
2	1000	1880	673	327	2553	1354	1199
3	1000	1880	673	327	2553	1354	1199
Yard	3000	5640	2019	981	7659	1354	6306
Totals*	**163,861**	**241,077**	**110300**	**53561**	**351377**	**190355**	**161022**

* Adjusted to exclude bridge decks and turnouts from total tie counts.

April 11, 2012

Don McGregor,
Project Manager-Railway Infrastructure Improvement
Southern Railway of Vancouver Island Limited
PO Box 581, 7 Port Way
Nanaimo, B.C. V9R 5L3

Re: Vancouver Island Rail Corridor (VIRC*): Initial Railway Corridor Upgrade Plan*

Don,

This is to advise that the BCSA Railway Safety Program has reviewed the *DRAFT* Vancouver Island Rail Corridor (VIRC*) Initial Railway Corridor Upgrade Plan* and its associated documents which are dated March 9th, 2012.

The *Initial Railway Corridor Upgrade Plan* and the letter of added assurance submitted by your railway's Chief Engineer Gary Smith provides the BCSA with a level of confidence that if the plan is executed as designed; the railway will meet or exceed the minimum standards under the adopted regulation for *Rules Respecting Track Safety*.

During the implementation phase of this project, the BCSA will audit the work being performed against the plan and will reserve final judgement when upgrade works are completed.

If there is anything else that you would like to discuss regarding this matter, please feel free to contact me.

Regards,

Eric Samuelson
Provincial Railway Safety Manager
British Columbia Safety Authority
Office: 778-396-2069
Cell: 604-209-9215

cc. Tom Green
Registrar of Railway Safety – Ministry of Transportation and Infrastructure

Safety Authority

January 11, 2015

Deborah Bowman, Assistant Deputy Minister
Policy and Programs Department
Ministry of Transportation and Infrastructure
940 Blanshard Street
Victoria, BC V8W 9T5

Re: Assessment of Southern Railway of Vancouver Island Rehabilitation Plan for the E&N Railway

Dear Ms. Bowman,

As the Province's technical safety advisor and delegated authority for administering adopted provincial railway legislation, I write this letter in support of your efforts to better understand the safety related requirements associated with the rehabilitation of the E&N Railway on Vancouver Island.

I have reviewed all relevant documents provided by the Ministry of Transportation and Infrastructure (MOTI), Southern Railway Vancouver Island (SRYVI), Island Corridor Foundation (ICF) and RTC Rail Solutions (RTC), regarding the plan for rehabilitation of the E&N Railway on Vancouver Island. These documents include:

- *BC Ministry of Transportation and Infrastructure Evaluation of the E & N Railway Corridor: Baseline Reference Report - 2009*
- *Vancouver Island Rail Corridor (VIRC) Initial Railway Corridor Upgrade Plan - July 2014 (SRY – ICF Draft)*
- *Vancouver Island Rail Corridor Upgrade Plan Assessment - 2014 (RTC Rail Solutions)*

From the "*BC Ministry of Transportation and Infrastructure Evaluation of the E & N Railway Corridor: Baseline Reference Report*" commissioned by MOTI in 2009, it was made evident that the condition of the physical infrastructure of the E&N Railway had degraded over time. Passenger rail service was eventually discontinued and SRYVI, as per rules regarding track safety, reduced its operational speed to the point were it is reportedly no longer viable to operate freight traffic, and in December of 2014 ceased rail operations.

In 2010 and again in 2014 SRYVI and the ICF submitted an *"Initial Railway Corridor Upgrade Plan"* to Via Rail, the Province of British Columbia and the Federal Government of Canada, asking for financial support to revive the railway. More than four years have passed since the submission of this original report and during this time there has been little to no maintenance performed on major portions of the track and infrastructure. Further, recent events in the railway industry will impact future operations on this railway corridor. The federal government has passed new *Grade Crossing Regulations* that come into effect on July 1, 2015, impacting the 104 "at grade" crossings that currently exist on the railway.

In the fall of 2014, in discussions between BCSA and MOTI regarding the *Vancouver Island Rail Corridor (VIRC) Initial Railway Corridor Upgrade Plan (July 2014 Draft*), BCSA recommended that RTC Rail Solutions – a railway systems contractor with 28 years of experience in assessing railway operations and track structures - provide an independent assessment to MOTI.

BCSA has prior experience with RTC Rail Solutions, their services and, their deep knowledge and experience with all aspects of track and track maintenance. The assessment was to determine whether the July 2014 draft addressed the upgrades necessary to resume safe railway operations.

RTC Rail Solutions' *"Vancouver Island Rail Corridor Upgrade Plan Assessment – 2014"* concluded that *"... the plan to operate a passenger service with Class 3 track is highly unlikely with the funding available as the planned work will not meet industry standard due to rail, tie plate, and drainage concerns, as well as other considerations like crossings and future weights of rail traffic."*

BCSA recognizes RTC solutions expertise and agrees with RTC Rail Solutions technical assessment. As the advisor to the Ministry on issues regarding railway safety, it is important to point out that BCSA's assessment of the E&N Railway rehabilitation plan is restricted to adopted regulations, rules, standards and guidelines. BCSA is unable to comment on material and labour costs as it is outside of the scope of our knowledge and authority. The SRYVI plan to revive train and passenger operations is predicated on its ability to achieve speeds that will require *Track Safety Rules* - Class 3 track status. To achieve Class 3 track status, significant work will have to occur. BCSA confirms that current track and infrastructure conditions are significantly degraded and do not meet minimum standards in the following areas:

- tie conditions;
- rail;
- tie plates;
- rail anchors;
- joint bars;
- track ballast;
- track profile;
- drainage;
- intrusive vegetative growth on right of way;
- railway sight lines; and
- at grade crossings.

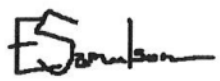
As well, due to an extended period of little to no train activity and a record of severe accidents at level grade crossings and with public trespasses, BCSA would require a detailed risk assessment to be performed by the railway, resulting in a set of effective risk mitigation actions being implemented by the operator prior to the resumption of the operations proposed in the SRYVI plan.

Although BCSA is not in a position to comment on the sufficiency of budgeted funds for achieving the goals outlined in the SRYVI plan, we can confirm, having reviewed the technical

conclusions reached in the RTC Rail Solutions report, that we find them to be consistent with and supported by regulations, rules and best practice within the railway industry. BCSA advises MOTI that significant work must occur prior to the resumption of railway service, and BCSA will only be able to assess ultimate railway compliance when the work has been completed and a detailed audit of the track and infrastructure can be performed.

Should you require any further clarification, I will be pleased to discuss them further, at your convenience.

Regards,



Eric Samuelson
Provincial Railway Safety Manager
BC Safety Authority

Safety Authority

January 11, 2015

Deborah Bowman, Assistant Deputy Minister
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940 Blanshard Street
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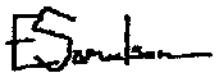

Eric Samuelson
Provincial Railway Safety Manager
BC Safety Authority

RTC
RAIL SOLUTIONS LTD.

British Columbia Ministry of Transportation and Infrastructure
PO BOX 9055
STN PROV GOVT
VICTORIA, BC
V8W 9E2

March 22, 2015

RE: Response to:

APPENDIX B
Detailed Review of the RTC Rail Solutions Report: Vancouver Island Rail Corridor – IRCP-2014 Assessment – 2014 (prepared for the BC Ministry of Transportation & Infrastructure): From Island Corridor Foundation & SVI Rail Link.

"Overview" (Page 2)

The second paragraph indicates there was no, "visual inspection or other inspection or audit of the subject tracks for the purpose of this assessment". We have serious concerns with the basic premise that the IRCP-2014 can be evaluated without referring physically to the VIRC infrastructure to be upgraded. Development of the IRCP-2014 was completed by experienced, qualified and professionals with an intimate knowledge of the infrastructure itself and track safety standards.

The "RTC Report" is an assessment of the BC Ministry of Transport and Infrastructure, "Evaluation of the E&N Railway Corridor: Baseline Reference Report" and the VIRC Reinstatement and Long Term Viability Operational Plan.

The "RTC Report" is based on the information provided to RTC. Unless these components and their condition have been incorrectly identified the provided conclusion within the "RTC Report" is accurate.

The "RTC Report" makes no reference to the validity of the experience of those that provided it. There need not be any justification to outline the professionalism of those involved in acquiring the information. In fact, it is found that the BC Ministry of Transport and Infrastructure "Evaluation of the E&N Railway Corridor: Baseline Reference Report" to be excellent in content along with the provided detailed tie counts.

It is not clear in the Overview that the IRCP-2014 is developed for the primary purpose of reinstatement of the passenger rail service and safe operation for a minimum period of 10 years. In fact, funding provided by the Regional Districts for required railway bridge improvements specifically supports the passenger service only for a period of 10 years. The overriding principle of this approach was the "incremental approach" recommended in the MoTI Report on the VIRC completed in 2009 (hereinafter "BRR-2009") along with providing a trial period to "prove up" the service.

The "RTC Report" is applicable to the any period of time, as the track is presently out of service due to its inability to meet the requirements of the TSR.

The second to last paragraph highlights a basic misunderstanding contained throughout the RTC Report regarding track standards and operating speed. 60 mph is the maximum operating speed under the Class 3 standard. There has never been any intention to operate the railway at any speed in excess of 40 mph. This would require revision of the railway time table and therefore the Safety Management System and Regulatory approval. The Class 3 Track Standard is the objective of the IRCP-2014 because that is the standard required to operate at 40 mph. (The maximum allowable speed under the Class 2 standard is 30 mph.) This clarification provides an additional level of quality in that, effectively, the Class 3 standard can provide for a maximum speed of 60 mph for passenger trains, however the service will not be operated above 40 mph.

This is inaccurate. There is no basic misunderstanding within the "RTC Report" in relation to speed or class of track. As per the letter to the British Columbia Safety Authority, drawn to the attention of Mr. Eric Samuelson, dated 26 March 2012 on page 2 of 3, signed by Mr. Gary T. Smith P.Eng, Director of Engineering Services & Maintenance of Way:

Class 3 track under the TSR was the primary standard used to evaluate the requirements of the Plan. The minimum standards for Class 3 track under the TSR, in part, require that:

1. the track is suitable to support maximum speeds of 60mph passenger train traffic and 40mph freight train traffic;
2. **a minimum of 10 competent track cross ties are in place per 39 foot section, suitable to hold track gauge between 56 inches and 57 ¾ inches;**
3. **the centre line of 1 competent track tie be located within 18 inches of a rail joint; and**
4. **the track surface and cross-level deviations are within the standards defined in the TSR.**

In the 5th paragraph of the Overview, reference is made to a 2008 funding appeal which identifies "the need for a capital investment of $103.8 million...to bring the track structure up to industry standards and enhance operational viability". In the last paragraph, reference is made to the BC MoTI "Evaluation of the E&N Railway Corridor: Baseline Reference Report" (BRR-2009), conducted June 15-17, 2009. The BRR-2009 (copy attached for reference as Appendix C) was produced by a professional engineer with a high level of background and experience in the railway field after a detailed on-line inspection of the complete VIRC infrastructure, contrary to the subject RTC Report. SVI in fact used the BRR-2009 as the primary basis for the IRCP-2014, along with its own detailed on-site inspections of the VIRC infrastructure. The scope of the objective was changed as a result of the BRR-2009 by adopting an "incremental approach", with the first increment targeting operation of the passenger rail and existing light freight services only. The "incremental approach" was recommended in the 2010 MoTI Report on the VIRC, the over-riding report which included the BRR-2009. The IRCP-2014 was developed based on the BRR-2009.

The exception noted within this comment, in regards to the "RTC Report" report not being produced by a *"professional engineer" is* correct. However, in our industry, RTC has the highest regard for "Railway Professional Engineers" and deeply rely on them to provide us with the railway infrastructure engineering Standards, Practices and Recommendations to ensure the **Safety** of all trains as they travel through our, communities, protecting our environment, the general public, as well as **Safely** transport our loved ones that utilize our passenger train services. This very concept has provided me with a clear understanding of the regulatory framework for track (Rules Respecting Track Safety) and its application in collaboration with existing and past railway **Engineered** Practices, Standards and Recommendations, designed, developed and deployed by **Professional Railway Engineers**, committees and groups over our railway industries period of existence. These are the very standards on which the "RTC Report" report was created and on which the final conclusion was assessed.

I do not have the *2010 MoTI Report on the VIRC* for reference.

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"Definitions Within This Document" (Page 3)

A definition of "Industry Standards" is provided, however there is no clear frame of reference (or definition) within the RTC Report of any specific "Industry Standards" used to evaluate the IRCP-2014. In any case, specific examples of railways employing such "Industry Standards" include "CP, CN, BNSF, UP, CSX..." are all Class 1 Heavy Haul freight railways. Employing such Industry Standards to evaluate the railway on Vancouver Island is completely inappropriate, considering the lines used as a comparison all handle heavy haul (286,000 lb.) freight car loading with traffic volumes in the tens of million gross tons per year (MGT/Yr) handled. By comparison, the VIRC passenger rail service loading (the primary objective of the IRCP-2014 using the "Incremental Approach") is approximately 68,000 lb. per passenger car, with traffic volumes, utilizing a maximum of 3 cars. This traffic loading and volume computes to approximate 0.15 MGT/Yr, a mere fraction by comparison with any of the example railways sited.

Professional Engineers have taken into account traffic volumes, axle weights and track configurations in developing these "Industry Standards". Within these, you will find that there are specific engineered "standards" for different operations, including those similar to the railway on Vancouver Island.

"RTC Assignment Overview" (Page 4)

There is an apparent misunderstanding of the underlying objective of the RTC assignment. We understand that the objective was to evaluate the "Initial Railway Corridor IRCP-2014", not the "Reinstatement and Long Term Viability Operations Plan". The later plan constitutes a business case, outlining a 10 year financial model and evaluation of future business potential for the railway. The financial risk relative to the Long Term plan is proposed to be underwritten by SVI. We understand the Terms of Reference for the RTC Report should have been evaluation of the VIRC railway infrastructure relative to the "Initial Railway Corridor IRCP-2014".

In addition, there is an apparent misunderstanding regarding an application of "Industry Recommended Standards". As indicated under definitions above, no specific such standards are clearly defined. The objective of the IRCP-2014 and related specific evaluations of the VIRCrailway infrastructure is to safely reinstate the passenger rail service on Vancouver Island using the minimum regulatory standards for safe rail service (Rules Respecting Track Safety) as a guide. It is recognized this is a minimum safety standard and the objective of the IRCP-2014 is to exceed that standard in actual practice. It is well recognized that there is an ongoing obligation on the part of SVI, as rail operator, to assure that minimum standard is exceeded at all times. Again, the IRCP-2014 was tailored considering the specific conditions of the VIRC infrastructure and the need to safely reinstate and operate the passenger rail service for a period of 10 years.

The "RTC Report" takes into consideration the *"Initial Railway Corridor IRCP-2014" and "Reinstatement and Long Term Viability Operations Plan".*

There is no misunderstanding in the consideration of "Industry Recommended Standards". These "Industry Standards" developed by Professional Engineers over many years and should not be over looked. Their existence would suggest that Professional Engineers determined that the Rules Respecting Track Safety are the minimal requirements for all traffic and therefore such standards created to ensure the Safe passage of trains.

"Meeting the Requirements of the Rules Respecting Track Safety (TSR) for the requested Class of Track (Class 3)" (Beginning Page 5.)

Minimum TSR Standards and Tie Renewal Program (Page 6.)

In the first paragraph on page 6, there is a fundamental misunderstanding with regard to both the regulatory safety standards and operating speed. The objective of the IRCP-2014 is the safely reinstate the Vancouver Island passenger rail service at the same speeds in place previous to suspension in 2012, including the system maximum operation speed of 40 mph. There was never an intention to increase operating speed beyond those previous in place. In order to accomplish this, the Rules Respecting Track Safety (TSR) requires that the track be upgraded and maintained to a minimum Class 3 safety standard. It is recognized that the TSR provides the minimum safety standard. The TSR was used as the reference minimum standard in the development of the IRCP-2014 along with the BRR-2009 recommendations; however the plan is designed to significantly exceed that standard. An example includes the tie renewal portion as the major component of the IRCP-2014. In 2012, SVI completed a physical tie inspection and assessment of the VIRC mile by mile. The results of that assessment and overall IRCP-2014 review as submitted by Gary T. Smith, P.Eng. to the BC Safety Authority (BCSA) March 26, 2012. The IRCP-2014 professional review and tie condition assessment are included as Appendix D. The tie assessment indicated that, after upgrading, the tie condition would significantly exceed the minimum TSR Class 3 standard. In addition, the railway would operate under SVI's Safety Management System, which provides for ongoing track maintenance assuring that the minimum safety standard is exceeded at all times. The tie assessment and IRCP-2014 review submitted by Gary Smith was accepted by the BCSA (Eric Samuelson), confirmed by a BCSA letter response to Gary dated April 11, 2012. A copy of that letter is included as Appendix E. In addition, a copy of the BSCA (Eric Samuelson) letter dated January 11, 2015, summarizing and presenting the RTC Report to BC MoTI staff, is attached for reference as Appendix **F.**

There is no misunderstanding of either the Regulatory Safety Standards, indicated standard as highlighted or operating speed. This was made clear in the letter to the British Columbia Safety Authority, drawn to the attention of Mr. Eric Samuelson, dated 26 March 2012 on page 2 of 3, signed by Mr. Gary T. Smith P.Eng, Director of Engineering Services & Maintenance of Way:

Class 3 track under the TSR was the primary standard used to evaluate the requirements of the Plan. The minimum standards for Class 3 track under the TSR, in part, require that:

1. the track is suitable to support maximum speeds of 60mph passenger train traffic and 40mph freight train traffic;
2. **a minimum of 10 competent track cross ties are in place per 39 foot section, suitable to hold track gauge between 56 inches and 57 ¾ inches;**
3. **the centre line of 1 competent track tie be located within 18 inches of a rail joint; and**
4. **the track surface and cross-level deviations are within the standards defined in the TSR.**

Under this very definition, if you wish to operate at less than maximum permissible speed under that class of track, this is acceptable. However the track structure must be "suitable to support maximum speeds of 60mph passenger train traffic and 40mph freight train traffic.

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Minimum TSR Standards and Tie Spacing (Page 7-8)

The statement in the last paragraph of page 7 is inaccurate. The TSR minimum standard does not take into account the tie spacing. That is why it specifies the minimum number of sound ties required, as opposed to a maximum number of defective ties. TSR standards regarding tie condition is independent of the spacing standard specified by the railway for the specific loading and volumes required. In addition, the table provided is misleading in that the column labeled TSR does not indicate "Tie spacing in inches" or "Total Ties per segment". That column appears to actually list an average spacing of the minimum number sound ties only and number of sound ties (not total ties) per segment required under the TSR Class 3 track standard.

It is true that tie spacing plays an important role in the ability of the track structure to support the fundamentals of the track structure, and that the "industry takes into consideration many factors to determine the type of track structure to be built in order to support the anticipated traffic". In the case of VIRC, the standard tie spacing of 22 inches was originally designed to safely accommodate 263,000 lb. freight loading currently handled on the railway. The IRCP-2014 objective is reinstatement of the passenger service (at approximately 68,000 lb. car loading) along with current light (263,000 lb. maximum) freight loading and volumes.

We consider it obvious that it is not a good practice to operate at the minimum regulatory safety standard. That is one of many reasons the IRCP-2014 includes levels of tie renewals that significantly exceed the minimum regulatory safety standard. The RTC Report neglects to take into account our detailed inspection and assessment results, nor does it include a physical inspection of the actual VIRC infrastructure.

"In this situation as in others within the TSR, it defines specific isolated items that must be met based on Industry established standards."

The statement is not inaccurate. It is defining that the TSR standards are based on Industry establish standards as they have been referred to though out the report in reference to the chart on page 7.

39 FOOT SEGMENT OF RAIL TIE REQUIREMENT

	TSR	Industry Standard			
Tie spacing in Inches	46.8	18	20	22	24
Total Ties per segment	10	26	23.4	21.27	19.5

1

1. In the application of the minimum requirement for Class 3 Track under the TSR tie spacing would be 46.8 inches (39 foot segment of track X 12 inches = 468 inches / 10 ties = 46.8 inch tie spacing.)

   Industry Standard is calculated in the same way. This is present to illustrate the importance of referring the Railway Professional Engineering Standards, Practices and Recommendations and not simply applying the minimum track standards when bringing track back into service.

Tie Spacing (Page 10)

Again, the table repeated at the top of page 10 is misleading in that the column labeled TSR does not indicate "Tie spacing in inches" or "Total Ties per segment". (The column appears to refer to an average spacing of the minimum number of sound ties only, not total ties, per segment under the TSR Class 3 track standard).

In addition, it is also misleading to indicate that a tie spacing of 20 inches is either preferred or common. As indicated in page 8 of the RTC Report, tie spacing is a design issue that takes into account the specific criteria, including intended loading and traffic volumes. It could be a true statement to proclaim that the preferred tie spacing for heavy haul Class 1 (286,000 lb.) freight railways is 20 inches, however there are many examples of operations that safely handle freight and passenger loading on track with a 22 inch tie spacing.

As per the "RTC Report" and information provided above, it is agreed that 22 inch spacing is adequate. However, as per below, Industry Standards recommend 20 inch spacing for new constructions of Industrial Tracks. The insert is taken from the CN ENGINEERING SPECIFICATIONS FOR INDUSTRIAL TRACKS. (Note- Maximum operating speed on industrial track is 15mph). Document can be found at: https://www.cn.ca/-/media/Files/Customer%20Centre/Track-Specifications/Industrial-Track-Spec-en.pdf

7. Clearance envelopes will comply with the Regulatory Requirements per Section 4.2.
8. Industrial track shall be constructed with maximum 20" tie spacing.
9. For new construction the minimum railway clearance requirements (in addition to or at

Tie Replacement – Track (Page 10)

The statement in the 2nd to last paragraph of page 10 is patently false. The 2009 Base Line Reference Report (BRR-2009), attached as Appendix C, did not "recommend the replacement of 140,000 ties". The BRR-2009 actually states on page 17 that, "Defective ties in track total approximately 140,000." Based on an estimated total defective tie count at the time of the BRR-2009, the number of ties renewals required to significantly exceed the minimum Class 3 TSR standard would be less than the 110,300 ties included in the IRCP-2014.

The BRR-2009 was used as the basis for the IRCP-2014, even though the objective of the IRCP-2014 (by virtue of the recommended "Incremental Approach") was modified to provide for reinstatement of the passenger rail service only for a 10 year period along with existing light freight service.

I agree, this is an error our part with the number of ties. It is in fact correct that the number of ties as per *The BRR-2009 actually states on page 17 that, "Defective ties in track total approximately 140,000."* While "App D_Tie Condition Assessment_15 03 11_Excl BridgesTurnouts" states that the total amount of defective ties in track are 163,861. (Difference of 23,861 ties).

In the last paragraph on page 10, the RTC Report indicates, "It is uncertain as to whether or not ties have been replaced over the last five years...". In reality, tie renewals have continued as part of ongoing track maintenance programs. Tie renewal quantities since 2010 are as follows:
Period No. of Track Ties Renewed
2010 to 2014 (inclusive) 7288
2006 to 2009 (inclusive) 16,086
Total - 2006 to 2014 (inclusive) 23,374
Note that this information could have been provided if, as offered, we had been consulted during development of the RTC Report.

I agree, had I known that this opportunity existed; it would have been very helpful.

In the first paragraph on page 11, the RTC Report states that, "the BRR-2009 was conducted within 3 days and therefore it is expected that the required ties to be replaced was estimated rather than "counted" by walking the track. The BRR-2009 in fact states that the 140,000 ties is an estimate, however it refers to total defective ties, not "required ties". This is a crucial flaw in logic and content of the RTC Report. This flaw runs throughout the remainder of this section. Other faulty assumptions prevail including reference to track operating speed at 60 mph, and the recommendation to use Number 1 hardwood ties in curves.

Absolutely disagree. If this logic is applied than the same must be true to the estimated amount and "App D_Tie Condition Assessment_15 03 11_Excl BridgesTurnouts" as its count was conducted in 2012, three years ago.

There is no faulty assumption(s) in track speed or otherwise as presented within this document several times. This was made clear in the letter to the British Columbia Safety Authority, drawn to the attention of Mr. Eric Samuelson, dated 26 March 2012 on page 2 of 3, signed by Mr. Gary T. Smith P.Eng, Director of Engineering Services & Maintenance of Way:

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3. **the centre line of 1 competent track tie be located within 18 inches of a rail joint; and**
4. **the track surface and cross-level deviations are within the standards defined in the TSR.**

The use of number 1 Hardwood Ties is an Industry Standard devised by Professional Railway Engineers.

The second to last paragraph on page 11 points to a discrepancy regarding (defective) tie counts between the IRCP-2014 and the BRR-2009. In fact, given the above misrepresentation of the BRR-2009 content regarding tie counts, the BRR-2009 actually supports our assessment of tie condition. As indicated in the detailed tie assessment attached as Appendix D, our defective tie count, a result

of a physical walking inspection of the complete VIRC, was 163,861. The BRR-2009 estimated count at 140,000 ties in fact supports our detailed inspection and assessment from 2012.
It should also be noted that the BRR-2009 was based on a 3 day inspection of the VIRC. Our tie condition assessment was the result of a walking inspection of the complete line from Victoria to Courtenay. Contrarily, the RTC Report is not based on any physical inspection of the VIRC infrastructure what so ever. Nonetheless, this section of the RTC Report closes by stating, "Given the provided information, a definitive closure to the feasibility of tie replacement is not possible. However, serious concern is warranted." This statement speaks for itself as to the relevance of the complete RTC Report, in that the track tie renewal program is the single largest component of the IRCP-2014.

Agreed, that tie replacement is based on the information provided the single largest component of the IRCP-2014.
However, rail wear reports have not been provided and so have not been assessed in any report. This must be taken into consideration and an assessment of rail wear should be performed in compliance with the requirements of the Rules Respecting Track Safety.

Tie Replacement – Turnouts (Page 12)
In the third paragraph, the RTC Report states, "The BRR-2009 does indicate that all turnouts are restricted to 10 mph. No specific reason(s) is provided as to why." This statement is misleading. This is a time table restriction that relates to operation through a turnout into a siding only. It does not refer to main track operation over a turnout. The reason for the restriction is simply to comply with the speeds set for all "Other than Main Track" operation (eg. yards / sidings /etc.). The restriction does not relate in any way to the condition of the turnouts or related infrastructure. This misunderstanding flows through the remainder of this section of the RTC Report. (Note that clarity on this point was available had RTC simply asked us the question.)

The BRR-2009 states as follows:

> **3.2.7 TURNOUTS**
>
> **The turnouts are in fair to good condition. Mostly 9lb. – 85lb. mixed material with some new 115lb. upgrades paid for during road relocation work. No exceptions were noted in gauge or point adjustment. Most frogs could use grinding. Most turnouts could use some tie replacement. Speed through turnouts on SRVI is limited to 10 mph.**

The turnout tie replacement requirements recommended within the IRCP-2014 were also derived from physical inspection of the actual VIRC infrastructure. Therefore, we consider the "boiler plate" discussion in the remainder of this section of the RTC Report does not relate to the VIRC physical infrastructure.

Please explain "boiler plate" so that a response may be provided.

The closing sentence of this section on page 13 states, "There is no contingency or plan within the IRCP-2014 to address rail and components needs for turnouts." We can confirm that, based on physical inspection of the VIRC infrastructure, we can confirm there is no upgrade requirement relative to turnout rail and components. This is supported by the BRR-2009 (also the result of physical inspection) indicating that, "turnouts are in fair to good condition".

Since the Rules Respecting Track Safety do not provide guidance for *"turnouts are in fair to good condition"*, I believe that a review of each turnout would be warranted, if for nothing else, rail wear to meet the requirements of the Rules Respecting Track Safety.

Rail (beginning Page 14)

This section is a continuation of a number of basic misunderstandings regarding the upgrade plan objectives, as follows:

1. The IRCP-2014 objective is to reinstate the passenger rail service and operate for a period of 10 years, along with existing freight service levels. Additional rail service, including freight expansion (eg. coal) are not part of this objective and are to stand alone on any such individual business case for such services. Therefore, any discussion of infrastructure requirement beyond the objectives of the IRCP-2014 is irrelevant, including expanded freight, coal and any contemplation regarding upgrade of to 286,000 lb. freight loading.

2. The misunderstanding regarding operating speed again re-surfaces in this section. Again, at no point was it contemplated to increase the operating speed of the passenger rail service beyond the previous speed of 40 mph. In addition, there is no plan to increase the maximum operating speed or maximum loading of the existing freight services beyond the previous levels, 30 mph and 263,000 lb. respectively.

Class 3 track under the TSR was the primary standard used to evaluate the requirements of the Plan. The minimum standards for Class 3 track under the TSR, in part, require that:

1. the track is suitable to support maximum speeds of 60mph passenger train traffic and 40mph freight train traffic;
2. a minimum of 10 competent track cross ties are in place per 39 foot section, suitable to hold track gauge between 56 inches and 57 ¾ inches;
3. the centre line of 1 competent track tie be located within 18 inches of a rail joint; and
4. the track surface and cross-level deviations are within the standards defined in the TSR.

Note that this information also could have been easily provided had we been consulted during development of the RTC Report to avoid these misunderstandings. Basic misunderstandings lead to flawed conclusions.

Disagree. There are neither misunderstandings nor flawed conclusions.

The section on page 17 regarding rail wear and rail end batter is largely "boiler plate" discussion produced in isolation not considering the specific conditions of the VIRC operation, infrastructure, or objectives of the IRCP-2009. Historical traffic levels, including both freight and passenger, have been very light. As a result, physical assessment of the actual infrastructure confirms that "end batter" as described in the RTC Report is not an issue on the VIRC. Likewise, due to low historical traffic

volumes and field inspection of rail condition, we concluded that the existing light rail is perfectly capable of supporting the passenger service and existing 263,000 lb. freight over the IRCP-2014 plan horizon of 10 years. Again, development of future freight and other rail business opportunities are not part of the IRCP-2014 objective and are to stand on their own individual business cases.
Note that the rail condition will continue to be monitored and maintained through physical inspection, annual ultra-sonic rail testing, and appropriate corrective action in accordance with SVI's Safety Management System. Historical records of rail condition through the annual testing was available, had it been requested, during development of the RTC Report.
Based on the faulty premises on which the RTC Report relies, we patently reject what we consider erroneous conclusions made within this section of the RTC Report, namely:

"It is expected that a substantial amount of funding will be required for rail to operate safely." and;

"Based on the information provided within these documents, in relation to rail, the potential risk of derailment is extreme for all train traveling at these speeds."

These two statements in relation to the inadequacy of 85 lb. rail to be the result of a misunderstanding of the IRCP-2014 objectives, coupled with the assumed unrealistic 60 mph speed over the VIRC rail line, lead to an invalid conclusion.

Class 3 track under the TSR was the primary standard used to evaluate the requirements of the Plan. The minimum standards for Class 3 track under the TSR, in part, require that:

1. the track is suitable to support maximum speeds of 60mph passenger train traffic and 40mph freight train traffic;
2. **a minimum of 10 competent track cross ties are in place per 39 foot section, suitable to hold track gauge between 56 inches and 57 ¾ inches;**
3. **the centre line of 1 competent track tie be located within 18 inches of a rail joint; and**
4. **the track surface and cross-level deviations are within the standards defined in the TSR.**

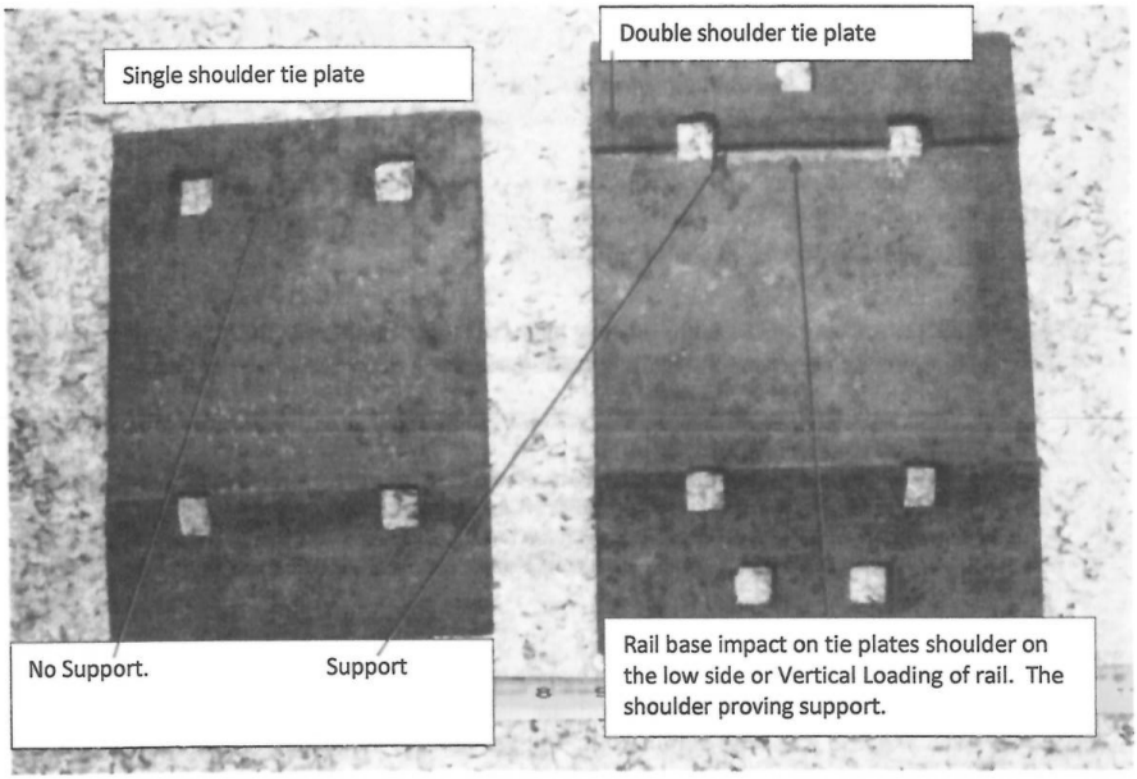
In fact, the BRR-2009 conclusions regarding rail condition were based on physical inspection of the actual VIRC rail infrastructure and examination of historical ultrasonic test results. Conclusions regarding rail in the BRR-2009 including the following:
On examination of previous ultrasonic test results, BRR-2009 states, "The frequency of less than 0.3 defects / mile tested is not unusual."
"With regular testing and joint maintenance, the present rail will be adequate for the existing service."
BRR-2009 goes on regarding rail to state, "Any increase in tonnage would require more frequent testing to stay ahead of defect growth. If there is any intention to operate a commuter service or increase tonnage such as Coal service, the 80 / 85 lb. rail in those areas should be replaced." (Note: We do not dispute this statement, however the examples of upgraded service noted are beyond the

objectives of the IRCP-2014 and if contemplated, related infrastructure requirements would stand on the related individual business cases.)

As per the requirements of the Rules Respecting Track Safety, rail wear measurements are not included, therefore leading to an inconclusive assessment of rail condition or how much is required if any.

Tie Plates (beginning on Page 19)

In the third paragraph on page 20, with regard to single shoulder tie plates, the RTC Report states, "...there is not support on the low side of the plate for the lack of a shoulder. This transfers all forces to the spike(s) trying to hold the rail from rolling over." This statement is technically inaccurate.



I don't understand how this is technically incorrect. Refer to the photos above.

Dynamic track forces under train loading are directed to the outside of the track, forcing the rail outward with a tendency to spread gauge and potentially roll the rail to the outside given certain speed, loading and track conditions. That is why the shoulder on a single shoulder tie plate is placed on the outside of the rail and that, as the RTC Report states, "The tie plates presently in track meet the requirement of the Rule." The primary function of the tie plate is to transfer load to the tie over a greater surface area, thus reducing tie wear under dynamic load and over longer periods of operation. Additional support and reduced wear on ties through the use of tie plates are recognized as a safety enhancement and therefore regulations require the use of tie plates (not specifically "double shoulder" tie plates) as part of the track structure.

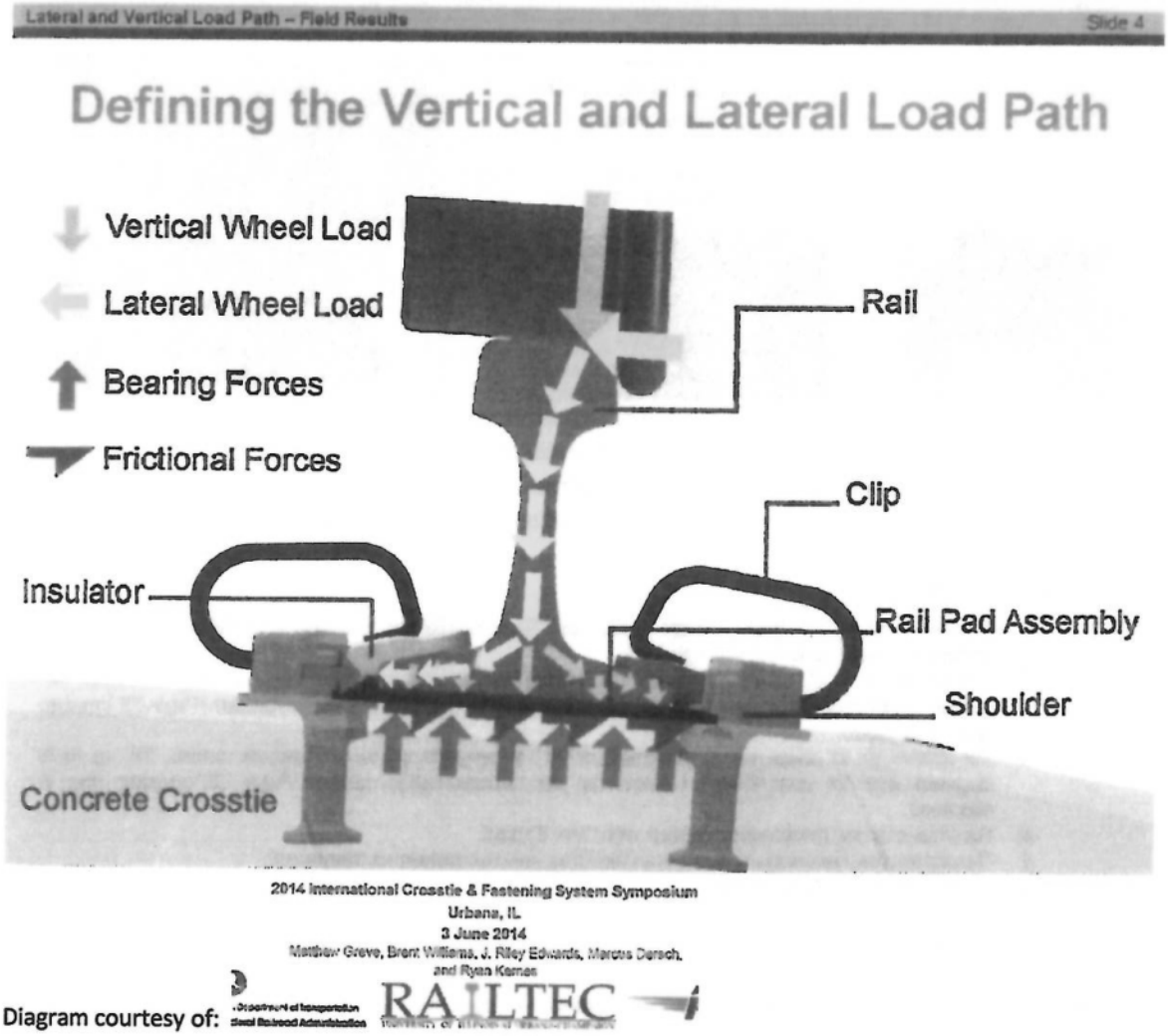
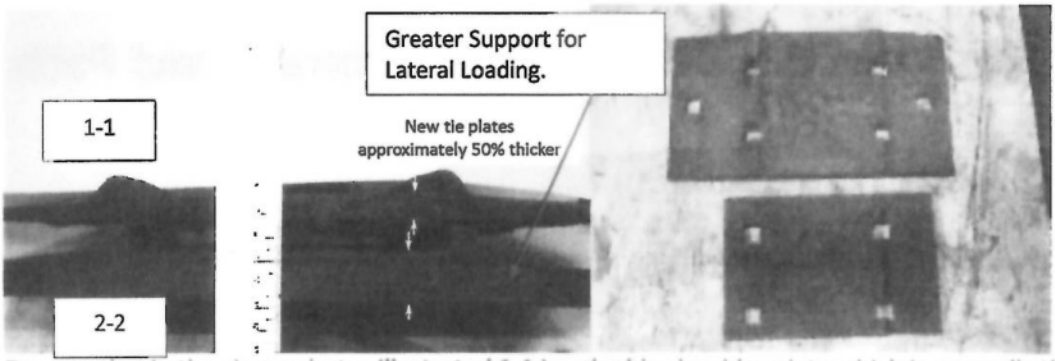


Diagram courtesy of:

As per the diagram above, the concept is the same, however the components in this case are different. Forces may change dramatically depending on track curvature super elevation and track speed. If slow orders are in place where track design is for one speed, for example 30mph freight and that speed is reduce to 20mph the

engineering of the track is altered. This is not uncommon on track and is therefore, why we look at engineering standards.

The last paragraph on page 20 states, in part, "Double shoulder tie plates are about 60% larger than single shoulder tie plates." This statement is also technically inaccurate and over-stated. The standard single should tie plate used on the VIRC is 9 inches wide by 6 ½ inches long or 58 ½ square inches in area. The standard double should tie plate used is 7 inches long by 10 inches wide or 70 inches in area. This represents an increase in surface area of less that 20% for double should plates in comparison to single shoulder plates. This does represent a greater bearing surface on the tie however the magnitude of that change (and resulting effect) has been significantly over-stated.



Do note that in the above photos illustrated 1-1 is a double shoulder plate which is normally thinner than a single shoulder. Additionally both photos illustrate a 5 ½ inch base used for 100lb rail. Rather than the 5 3/16 for 85lb rail presently in place at the VIRC. As per below this reinforces the importance of not only better tie plates but rail upgrades to at least 100lb. in key locations.

3.9.6 Tie Plates

1. Recommended Tie Plate Usage found on "Turnout Return Curves and Spiking Pattern for Industrial Track" drawing, see page 33.
2. Tie plates for 5 ½" base rail to be a minimum of 12" in tangent up to a 2 degree curve. 14" greater than 2 degrees and tie cast Pandrol plated as per turnout spike pattern Page 33 greater than 6 degrees.
3. Tie plates for 6" base rail a minimum of 14" in tangent up to a 2 degree curve, 16" up to 6 degrees and tie cast Pandrol plated as per turnout spike pattern Page 33 greater than 6 degrees.
4. Tie Plates to be double shouldered with 1 in 40 cant.
5. Tie plates may be second hand provided they are not broken or damaged.
6. All ties are to be fully plated.

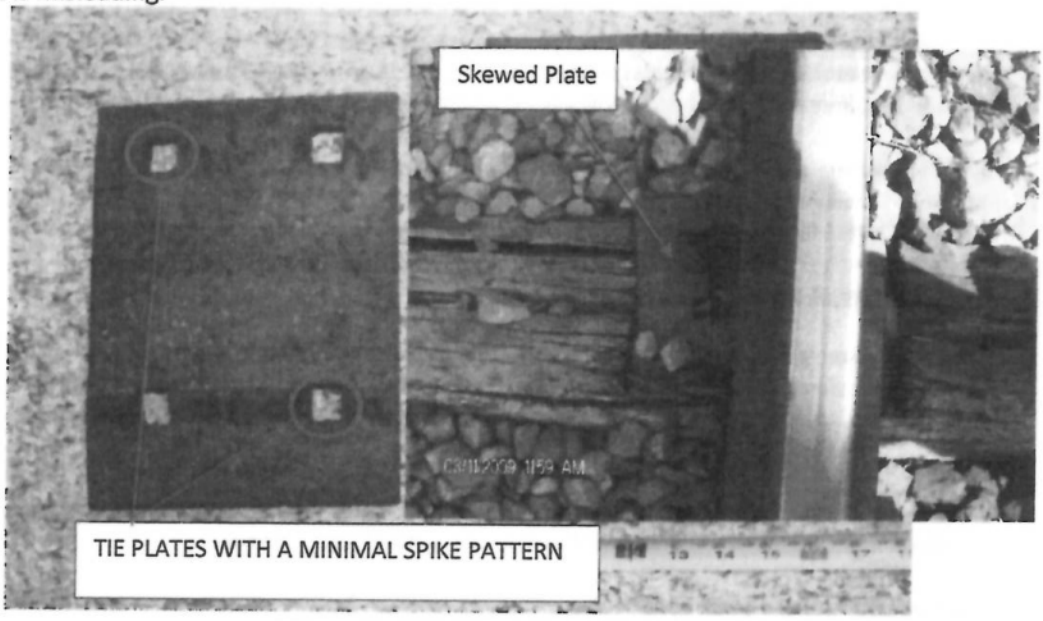
Again we are required to address the Railway Professional Engineer Recommendations, Standards and Practices for new constructions of Industrial Tracks. The insert is taken from the CN ENGINEERING SPECIFICATIONS FOR INDUSTRIAL TRACKS. (Note- Maximum operating speed on industrial track is 15mph).

Document can be found at: https://www.cn.ca/-/media/Files/Customer-Zone/Track-Specifications/Industrial-Track-Spec-en.pdf

Operating passenger trains and freight trains at Class 3 speeds must be taken into consideration in comparison to industry required Industrial Railway Engineering Specifications. It is acknowledged that we are not building

new track, however we are building track which is to handle Passengers and Dangerous goods that travel through communities of the rail corridor.

Track forces under traffic are toward to outside of the rails and therefore the outside shoulder of the tie plate have the highest function in transferring lateral forces to the spikes and to the tie. The function of additional inside shoulder on double shoulder tie plates is to contain the rail in a fixed "seat" and lessen the likelihood of "skewing" of the tie plates. The RTC Report also states, "However, again in Industry Standards, the minimum requirement is double shoulder." This statement is misleading.



The statement above is correct but not complete. As per the Photo above when rail is spiked, spikes are applied opposite to each other, this prevents the plate from "skewing". However, if the tie on which the plate sits is in poor condition or if there are surface issues at that location, the spike is lifts out or breaks and allows the tie plate to skew. There is no misleading here.

3.9.6 Tie Plates

1. Recommended Tie Plate Usage found on "Turnout Return Curves and Spiking Pattern for Industrial Track" drawing, see page 33.
2. Tie plates for 5 ½" base rail to be a minimum of 12" in tangent up to a 2 degree curve, 14" greater than 2 degrees and tie cast Pandrol plated as per turnout spike pattern Page 33 greater than 6 degrees.
3. Tie plates for 6" base rail a minimum of 14" in tangent up to a 2 degree curve, 16" up to 6 degrees and tie cast Pandrol plated as per turnout spike pattern Page 33 greater than 6 degrees.
4. Tie Plates to be double shouldered with 1 in 40 cant.
5. Tie plates may be second hand provided they are not broken or damaged.
6. All ties are to be fully plated.

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There are many circumstances in the rail industry where single should tie plates are still in place, including Class 1 rail infrastructure, utilized under the correct application. Applications to be considered include the loading, traffic volumes, traffic patterns and the prevalence of "rail creep" within the specific track infrastructure. Rail creep is not prevalent on the VIRC infrastructure as discussed in this submission under Anchors (below). The RTC Report again misses the objective of the IRCP-2014, being 10 years of passenger service and existing freight levels.
Note that, in spite of the above, the IRCP-2014 does include replacement of all single shoulder tie plates on ties to be renewed. This was considered out of practicality, since the spikes need

This is agreed to in part. True, there are many applications of where single shoulder tie plates are being used. However, they are not being used to revitalize a railway which has been removed from service due to its inability to meet the very minimal standards of Class 1 and then being put back into services where it will not meet the requirements of Industrial Railways as recommended by Railway Professional Engineers.

Again we are required to address the Railway Professional Engineer Recommendations, Standards and Practices for new constructions of Industrial Tracks. The insert is taken from the CN ENGINEERING SPECIFICATIONS FOR INDUSTRIAL TRACKS. (Note- Maximum operating speed on industrial track is 15mph). Document can be found at: https://www.cn.ca/-/media/Files/Customer%20Centre/Track-Specifications/Industrial-Track-Spec-en.pdf

Operating passenger trains and freight trains at Class 3 speeds must be taken into consideration in comparison to industry required Industrial Railway Engineering Specifications. It is acknowledged that we are not building new track, however we are building track, which is to handle Passengers and Dangerous goods through communities of the rail corridor.

I agree with the statement "***Applications to be considered include the loading, traffic volumes, traffic patterns***" *we should add specific commodities such as dangerous goods and passengers.*

This was considered out of practicality, since the spikes need to be removed and replaced in order to replace the ties. Renewing all other single shoulder plates would add an additional risk or reducing the spike holding capability of the older ties which are planned to remain. The mechanics of pulling and re-spiking older ties not being renewed introduces additional spike holes into the ties which reduce their remaining life at an accelerated rate.

This is a true statement. However, on any railway if our tie condition is such a poor state that we are afraid of respiring a tie, this calls for serious concerns on the stability of the tie renewal program and the total number of ties required. For example, if gauge is required at any location, are we at risk of this correction due to tie condition? If ties are in such a condition where they cannot be respiked where we believe that the railway structure is being compromised than they should be replaced. Areas of track may be gauged several times over a period of its life. In these cases the industry has a component regularly used (wood tie plugs) that fill the hole created by the spike to counter this effect. For years "glue" compounds are available that provide excellent adhesion of the spike. However if the tie is in such a deteriorated condition that this application will not work than it should be removed. Again this casts concern to the number of ties required.

It is our intention, as part of future maintenance, to continue to replace single shoulder with double shoulder tie plates in all cases when track ties are renewed in the future (as the RTC Report indicates in the fourth paragraph of this section as industry practice). As indicated in the RTC Report, this plan is supported by the BRR-2009. Conclusions at the end of this section of the RTC Report, again, are at odds with the BRR-2009 and are based a faulty premises, including the objectives of the IRCP-2014 and the proposed operating speeds.

Please cite the faulty premise for clarification.

We patently disagree with statement made in the last paragraph of this section, namely, "Operating at Class 3 speed with single shoulder tie plates is not recommended. The risk of derailment, especially, on curves is extremely high." This is a continuation of a lack of understanding of the objectives of the IRCP-2014, proposed operating speed and the specific nature of the VIRC rail infrastructure. Again, misunderstandings and false premises in the RTC Report lead to invalid conclusions.

Class 3 track under the TSR was the primary standard used to evaluate the requirements of the Plan. The minimum standards for Class 3 track under the TSR, in part, require that:

1. the track is suitable to support maximum speeds of 60mph passenger train traffic and 40mph freight train traffic;
2. **a minimum of 10 competent track cross ties are in place per 39 foot section, suitable to hold track gauge between 56 inches and 57 ¾ inches;**
3. **the centre line of 1 competent track tie be located within 18 inches of a rail joint; and**
4. **the track surface and cross-level deviations are within the standards defined in the TSR.**

There are no misunderstanding, false premises or invalid conclusions. As the validity of the RTC report and its conclusion are outline within the questions provided. This is further supported by the concern that ties are in such condition that they should not be respiked.

Anchors (beginning on Page 23)

There is no regulatory safety requirement for rail anchors other than (as stated in the RTC Report), "A sufficient number of anchoring devices will be applied to provide adequate longitudinal restraint." The RTC Report, the BRR-2009 and past experience confirm that, "there is no evidence of rail creep" (BRR-2009) and, "...it is confirmed in two RTC Reports that rail creep is not occurring..." The RTC Report then states, "it is highly expected that increased traffic will promote rail creep". We agree that this statement, depending on the nature of the increased traffic, may be true. However, again, that is beyond the objective of the IRCP-2014, which is reinstatement of the passenger rail service and existing freight levels. Over the operating history of the rail line, rail creep, tie skewing and need for anchoring has not been a problem or concern. Anchoring, along with other infrastructure improvements, required will need to be supported by the individual cases for additional business that may be developed on the VIRC. We stand by our assessment, which is supported by experience, contained in the IRCP-2014 concluding that rail creep is not a safety issue for the traffic levels and patterns contemplated within the objectives IRCP-2014.

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We agree that anchoring is a regulatory requirement under specific conditions but an industry standard.

Again we refer to Railway Professional Engineer Recommendations, Standards and Practices for new constructions of Industrial Tracks. The insert is taken from the CN ENGINEERING SPECIFICATIONS FOR INDUSTRIAL TRACKS. (Note- Maximum operating speed on industrial track is 15mph). Document can be found at: https://www.cn.ca/-/media/Files/Customer%20Centre/Track-Specifications/Industrial-Track-Spec-en.pdf
Passengers will be moved at the VIRC.

Ballast Quantity

We maintain that the estimated 311 cu.yd. per mile proposed ballast distribution rate is more than adequate to accomplish the objectives of the IRCP-2014. The VIRC has the advantage of a solid foundation and sub-grade in most areas providing good support for the track structure and a natural granular base providing for good drainage. Contrary to the RTC Report, ballast quantities estimated in the IRCP-2014 do take into account specific conditions on the VIRC as a result of experience operating the line, supported by physical inspection of the infrastructure. The IRCP-2014 also takes into account the objectives of the plan, again, 10 years of passenger service and existing light freight volumes. We therefore stand by our estimated ballast quantity within the IRCP-2014 as being adequate to provide the necessary support and re-profiling of the track surface while providing further improvement to the drainage capacity.

Remarks in the RTC Report regarding "dramatically increased" ballast volumes required as a result of increased super elevation are irrelevant. Those remarks relate to the misunderstanding regarding proposed operating speed that was explained earlier in this submission that runs throughout the RTC Report.

The BRR-2009 recommended :

> **Any surfacing program should include crushed rock at a rate of 480 to 600 cubic yards per mile to replace shoulder cut level to improve drainage, ballast lost by tie change-out, to fill skeleton areas and to provide sufficient material to smooth-out the joints. On a winter program, it should be possible to rent ballast cars from CPR or CN with MK / control flow doors. SRVI currently sources crushed rock near Mile 110.**

We stand by our assessment that the project has insufficient ballast for the proposed work in the amount of 169 cubic yards per mile or 35.2%.

Ballast Unit Prices

The RTC Report neither provides any source for the unit ballast prices quoted ($25.42 per cubic yard) nor what is included within that unit price. As with consideration of specific local conditions as they relate to the estimates of ballast quantities required in the IRCP-2014, actual prices from local ballast suppliers on Vancouver Island were considered in producing the budget estimates. Contrary to the RTC Report, along with considering specific local conditions, detailed budget estimates were prepared by separately estimating each component of work including ballast material cost, delivery to specific stock pile locations, distribution, lifting, tamping, and trimming of the ballast section.

Our pricing was based on a per cubic yard cost, no delivery. We agree that the VIRC through its network of contacts on Vancouver Island may be able to purchase at cheaper prices.

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Conclusion

As railroaders we believe that all commodities and the public should be transported by rail where possible. There are many reports available supporting transportation by rail as the most effective, efficient, environmentally friendly and safest modes of transportation.

Rail provides economic opportunities to all communities and industry along it routs. It provides economic benefits in employment and can stimulate economies where access to rail is available to mineral, agricultural, industrial and forestry lands.

For tax payers, each should support railways as there is not associated cost for the maintenance of the track and each benefit from removing trucks from our roads conserving public roads and highways while reducing our stress load of traffic.

Each company that operates a railroad in Canada has an obligation to meet minimal requirements under legislated Rules, Regulations and Standards. Each has an obligation to ensure that the safety of its employees, the public and our environments is protected from its operations.

On 21 October 1880, the government finally signed a contract with the Canadian Pacific Railway (CPR) Company, headed by George Stephen, and construction began in 1881. The "Last Spike" was driven on 7 November 1885 and the first passenger train left Montréal in June 1886, arriving in Port Moody, BC, on 4 July. Since then we have been learning to operate our railway more effectively, efficiently and safer.

The introduction of "Rules Respecting Track Safety" suggests that there was a requirement to ensure that a minimum standard of safety was maintained at all times within our railway infrastructure. Today 129 years later, we are still railroading. Over this period of time in some cases through trial and error, the industry has developed an engineering standard for the maintenance and construction of rail infrastructure. If reviewed, there are differences in components and even in the applications of specific practices of maintenance. However, they all achieve the same result, an extremely higher level of safety than that of the present "Rules Respecting Track Safety". Why? It must not be misunderstood that the Rules Respecting Track Safety are to regulate the Engineering Standards of track structure for today's railways. We must not utilize the Rules Respecting Track Safety, only, to be our guide to maintain our track structures.

The people of the Vancouver Island Railway have undoubtedly performed incredibly maintaining the track over the past many years. The owners and operators of the VIRC had to make a decision to stop operations of passenger in March or 2011 and freight service within the last year, due to severely deteriorated track conditions. It is well to note that this decision was made of their own accord and without regulatory intervention.

Today, we search for the opportunity to revive the VIRC.

Given the state of the railway corridor, its revival is not an easy step. To attempt to bring back the track to operating status of Class 3 we must look at the history of our railways though out the years and should employee proven Engineering Standards that will guarantee our success.

We should not use the Rules Respecting Track Safety as a guide to reinstate these tracks back into service with the expectations of success, for Class 3 operations (60 passenger and 40 freight) (taking into account zone track speed of 40mph for passenger trains and 30mph for freight trains).

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There is no doubt that the Vancouver Island Rail Corridor Initial Railway Upgrade Plan 2014 will meet the necessary criteria required under the Rules Respecting Track Safety. Regulatory enforcement of the Rules Respecting Track Safety are not robust enough to ensure a successful venture. It is noted that the Vancouver Island Rail Corridor Initial Railway Upgrade Plan 2014 and other documentation provided, endorse that the Rules of Track Safety will be meet and exceed. It is also noted that within, Appendix B Detailed Review of the RTC Rail Solutions Report: Page 1 of 13 Vancouver Island Rail Corridor – IRCP-2014 Assessment – 2014, page 2 of 13 : The financial risk relative to the Long Term plan is proposed to be underwritten by SVI. This statement needs to be clarified.

It also must be taken into consideration the past rail operations and the state of the Track Structure at the time the Southern Railway of Vancouver Island (SVI) took over operations in 2006, approximately eight years ago. The question is posed that, the track structure deteriorated to non-operating status over that period of time (*it is recognized that the tie conditions and other such components did not occur over eight years*), what has changed to enable the feasibility of bringing the track back to meeting the Rules Respecting Track Safety (*and exceeding them by notations within provided documents*) and ensure that over a period of 10 years or further, success.

In closing, given the past history of the railway it is difficult to recognize future opportunities when none where available over a period of eight years. The plan to revitalize the track structure using the Rules Respecting Track Safety is overly concerning. It is strongly recommended the Industry Standards be adopted for the revitalizations of the track. In the case that the Industry Standards are adopted, there is insufficient funds to proceed.