PROVINCE OF BRITISH COLUMBIA - MINISTRY OF TRANSPORTATION AND INFRASTRUCTURE

Highway 97 Assessment of Existing Infrastructure: Options to Mitigate Overhead Clearance Constraints

ENGINEERING ANALYSIS

NOVEMBER 2009

BACKGROUND

The Northern Region of the BC Ministry of Transportation & Infrastructure (the Ministry) along with Northern Development Initiative Trust (Northern Development) have partnered in conducting a study to determine if the existence of seven overhead railway crossings and two bridges on Highway 97 between Quesnel and Dawson Creek (Table 1) have a substantial impact on commercial usage of the corridor and to estimate the costs and benefits of eliminating or increasing these overhead and side clearances. The identified structures currently limit this corridor to a vertical clearance of 4.64 metres and width of 7.2 metres. Industry has stated that vertical clearances and width constraints hamper their ability to diversify manufacturing and to transport large loads along this corridor.

The study was broken into two parts; an engineering study of the infrastructure and an economic study of the commercial impacts of the structures based on unrealized commercial potential. Ministry of Transportation and Infrastructure undertook the engineering study while Northern Development Initiative Trust undertook the economic study. This document focuses on the engineering assessment only and should be considered with the inclusion of the economic assessment. The existence of this document alone is not a demonstration that a positive business case exists in support of altering these structures. That is yet to be determined.

The objective of the study is twofold: to identify all viable options to achieve acceptable clearance standards at each of the sites; and to Identify potential benefits in economic growth and diversification over the next 15 years. Northern Development retained Associated Engineering to undertake the economic analysis, focusing on the opportunities for industry to develop and grow in the absence of structural impediments along the Highway 97 corridor. The results of that work are documented in a separate report titled, "Economic Assessment of Highway 97: Constraints to the Movement of Goods and Opportunities for Economic Growth."

The Ministry undertook the task of technically assessing the identified structures, to find viable solutions to the clearance constraints at each of the sites. This engineering analysis focused on alternate routes, detours, and structural modifications. Each option is discussed in this report and high level, preliminary

cost estimates have been developed (Table 2). These estimates are in 2009 dollars, based on limited investigation and are intended to provide a comparison between options. Further investigation would be required to produce reliable cost estimates for project funding submissions. The Ministry has identified a preferred option at each site, with the knowledge that an assortment of factors could impact the decision making during future phases and with the acknowledgement that a benefit to cost ratio has not yet been determined in support of the investment.

OBJECTIVES

- Identify an acceptable vertical clearance standard for overhead structures along the Highway 97 corridor in question
- Identify alternate routes around each identified structure, and associated implications
- Identify detour routes around each identified structure, and associated implications
- Identify structural modifications required to achieve an acceptable vertical clearance standard for each structure
- Quantify costs associated with all viable options

STUDY AREA

The study area encompassed Highway 97 and the surrounding road network, between Quesnel and Dawson Creek, BC (Figure 1). Within this area, seven railway overpasses and two highway bridges were analyzed (Table 1).

Table 1. Highway 97, Railway Overpasses and Highway Bridges

NAME	POSTED VERTICAL CLEARANCE (METRE)
Bellows CN Railway Overpass	4.96
Hixon CN Railway Overpass	4.90
Stoner CN Railway Overpass	4.70
Red Rock CN Railway Overpass	4.64
Bijoux CN Railway Overpass	5.45
West Pine CN Railway Overpass	4.92
East Pine CN Railway Overpass	5.00
Salmon River Bridge	5.17
Parsnip River Bridge	5.05

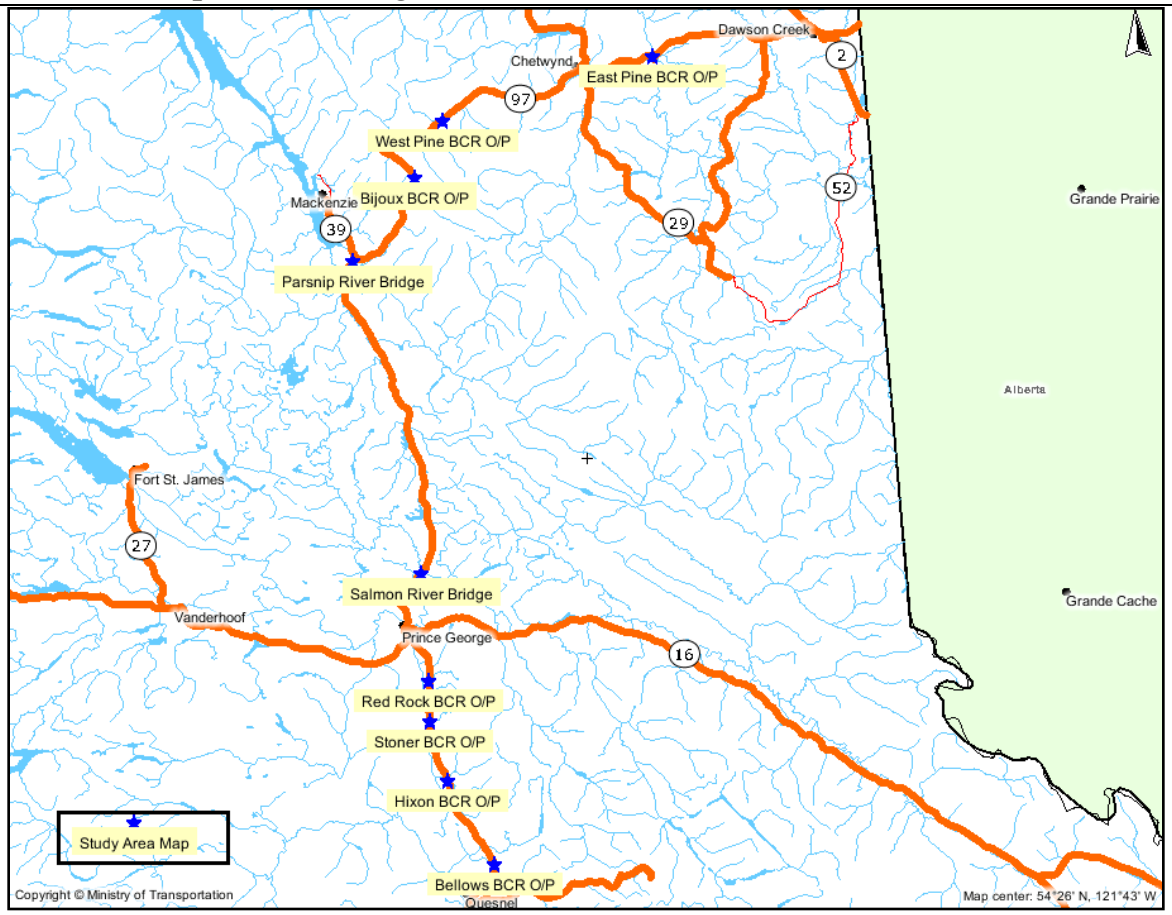

Figure 1. Study Area

INFORMATION COLLECTION AND ANALYSIS

The Ministry collected data from various sources to prepare this report. Dependent upon availability, three different types of base mapping were utilized: LiDAR, aerial, and TRIM mapping. The base mapping was used to project new design options and to quantify costs.

Structural information about the railway overpasses was received from CN Rail and/or retrieved from Ministry sources. This information included: general arrangement drawings of the structures, photos, age of structures, latest inspection reports, and seniority status of the highway and the railway. Structural information about the highway bridges was retrieved from Ministry databases.

The Ministry of Forests and Range supplied additional mapping of the forest road network. This information was utilized in developing the alternate route options. It should be noted that ownership of the alternate routes identified in this report varies. As such, seasonal condition and maintenance schedules were unknown and subject to change based on industry use.

The Transportation Association of Canada (TAC) design guidelines were used to determine minimum vertical clearance guidelines, as were relevant practices in other North American jurisdictions. The TAC manual recommends a minimum vertical clearance for design of new structures of 5.0 metres and suggests that this minimum should be exceeded, to accommodate future pavement overlays. Based on this guideline, and in discussions with the Ministry's Commercial Vehicle Safety and Enforcement Branch, a vertical clearance of 5.3 metres was adopted as an acceptable standard for the purposes of this assignment. The Province of Alberta has adopted 5.35 metres as their standard for new structures. (Reference Alberta Infrastructure and Transportation, Roadside Design Guide, Chapter H-7 Bridges, H7.7 Underpasses, November 2007, www.transportation.alberta.ca/3451.htm.)

Based on the information collected, all nine structures were technically assessed and the following parameters were investigated:

- existing vertical and lateral clearances
- existing highway geometrics
- age of structure
- detour possibility and length
- alternate route availability, condition, length, and time delay
- potential modifications to structure
- potential modifications to highway

The background information and baseline data used in this study are included in Appendix A.

DEVELOPMENT AND EVALUATION OF ALTERNATIVES

Site 1: Bellos CN Railway Overpass

The Bellos railway overpass is located 15.7 kilometres north of Quesnel, BC. Built in 1957, it is a 20.1 metre single-span structure. It is a steel through-girder bridge on concrete abutments. The two lane highway crosses under the railway at a 45 degree skew with a clearance of 4.96 metres. The highway is on a tangent with a sag curve of maximum 3% grade.

The crossing is filed under Railway Act Certificate 873 of April 6, 1956 with the railway having seniority over the highway. A level railway crossing approximately 137 metres to the south was closed when the grade separated crossing was constructed.

Alternate Route Options

- Batnuni Rd. to Blackwater Rd. – west side of the Fraser River
- Route: 1000 Road, 500 Road, Willow Forest Service Road (FSR)– east side of the Fraser River
- Bowron FSR
- Naver FSR
- Quesnel Hixon Road

Travel time delays are estimated to be between 1.5 and 3 hours, depending on the condition of the alternate route at the time of travel.

Assumptions/ implications:

- Forest Service Roads are maintained by the Ministry of Forests and Range, they are all weather roads capable of highway loadings.
- Logging traffic may be significant requiring radio controlled traffic.
- Gravel surface roadways and lower geometric standards than highway

Local Detour Options (Shoo-fly)

- Establish level crossing 360 metres north of the existing crossing: 607 metre length
- Re-establish level crossing 137 metres to the south

Assumptions/implications:

- Suitable to infrequent usage.
- Discussion with CN Rail and/or Transport Canada required.
- Federal approval process and Order required from Transport Canada. Viability at this time for this option is uncertain.

Structural Modification Option

- Lower the highway 0.34metres.
- Raise the railway bridge 0.34 metres. Reduce girder depth on railway bridge.
- Replace railway bridge with a new structure.

Assumptions/implications:

- Raising railway grade and structures, will require extensive engineering to achieve acceptable railway grade requirements
- This site is located on Highway 97, between Prince George and Cache Creek. This location falls within the scope of the Cariboo Connector Four Laning Program, which requires all highway improvements along this corridor to be constructed to a four lane standard. As such, a new structure at this site would need to accommodate four lanes and the highway alignment would be improved at that time.

Preferred Option

The preferred option is to replace the railway bridge with a new four lane structure, in conjunction with a highway realignment. Due to the long term

objective of the Cariboo Connector program, the sub-standard horizontal geometry of the existing highway to the north of the railway crossing, and the accident history at this location, a new structure is the preferred choice for public investment at the Bellos site.

Site 2: Hixon CN Railway Overpass

The Hixon railway overpass is located 51.7 kilometres north of Quesnel, BC. Built in 1957, it is a 15.8 metre single-span structure. It is a steel through-girder bridge on concrete abutments. The two lane highway crosses under the railway at a 29 degree skew with a clearance of 4.90 metres. The highway is on a tangent with a sag curve of maximum 6.8% grade.

The crossing is filed under Railway Act Certificate 872 of April 6, 1956 with the railway having seniority over the highway. A level railway crossing approximately 134 metres to the south was closed when the grade separated crossing was constructed.

Alternate Route Options

- Batnuni Road to Blackwater Road – west side of the Fraser River
- 1000 Road, to 500 Road, to Willow FSR– east side of the Fraser River
- Bowron FSR
  3800 Rd, to Pennefather FSR, to 500 Rd., to Stone Creek FSR.Travel time delays are estimated to be between 1.5 and 3 hours, depending on the condition of the alternate route at the time of travel.

Assumptions/ implications:

- Forest Service Roads are maintained by the Ministry of Forests and Range, they are all weather roads capable of highway loadings.
- Logging traffic may be significant requiring radio controlled traffic.
- Gravel surface roadways and lower geometric standards than highway

Local Detour Options (Shoo-fly)

- Connect highway with level crossing 360 metres south of the existing crossing: 370 metres of new construction

Assumptions/implications:

- Suitable to infrequent usage.
- Discussion with CN Rail and/or Transport Canada required.
- Federal approval process and Order may be required from Transport Canada. Viability at this time for this option is uncertain.

Structural Modification Options

- Lower the highway 0.40 metres.
- Raise the railway bridge 0.40metres. Reduce girder depth on railway bridge.
- Replace railway bridge with a new structure.

Assumptions/implications:

- Raising railway grade and structures, will require extensive engineering to achieve acceptable railway grade requirements
- This site is located on Highway 97, between Prince George and Cache Creek. This location falls within the scope of the Cariboo Connector Four Laning Program, which requires all highway improvements along this corridor to be constructed to a four lane standard. As such, a new structure at this site would need to accommodate four lanes and the highway alignment would be improved at that time.

Preferred Option

The preferred option is to lower the highway 0.40 metres to achieve a 5.3 metre clearance. Although this site is located within the Cariboo Connector project, this segment is anticipated to be a longer term priority. In the absence of detailed

design discussions with CN Rail, the Ministry recommends modifications to its own infrastructure rather than to the railway structure.

Site 3: Stoner CN Railway Overpass

The Stoner railway overpass is located 75.8 kilometres north of Quesnel, BC. Built in 1956, it is a skewed 4 span structure. The span consists of a 23.9 metre steel through-girder bridge on concrete piers, with opposite end 8.7 metre steel through-girders. There are two 13 metre deck-plate girder spans on each end. The two lane highway crosses under the railway at a 55 degree skew with a clearance of 4.70 metres. The highway is on a tangent with a maximum grade of 1.8%.

The crossing is filed under Railway Act Certificate 878 of May 29, 1956 with the railway having seniority over the highway. A level railway crossing approximately 49 metres to the north was closed when the grade separated crossing was constructed.

Alternate Route Options

- Batnuni Road to Blackwater Road – west side of the Fraser River
- 1000 Road, to 500 Road, to Willow FSR– east side of the Fraser River
- Bowron FSR
- 3800 Road, to Pennefather FSR, to 500 Road, to Stone Creek FSR

Travel time delays are estimated to be between 1.5 and 3 hours, depending on the condition of the alternate route at the time of travel.

Assumptions/ implications:

- Forest Service Roads are maintained by the Ministry of Forests and Range, they are all weather roads capable of highway loadings.
- Logging traffic may be significant requiring radio controlled traffic.
- Gravel surface roadways and lower geometric standards than highway

Local Detour Options (Shoo-fly)

- Establish level crossing 150 metres northeast of the existing crossing: 900 metres of new road construction and upgrading of existing road network.
- Re-establish level crossing 49 metres to the northeast. This would require construction of approximately 350 metres of new roadway and would utilize 600 metres of an existing gravel pit road.

Assumptions/implications:

- Suitable to infrequent usage.
- Discussion with CN Rail and/or Transport Canada required.
- Federal approval process and Order required from Transport Canada. Viability at this time for this option is uncertain.

Structural Modification Options

- Lower the highway 0.60metres.
- Raise the railway bridge 0.60 metres. Reduce girder depth on railway bridge.
- Replace railway bridge with a new structure.

Assumptions/implications:

- Raising railway grade and structures, will require extensive engineering to achieve acceptable railway grade requirements
- This site is located on Highway 97, between Prince George and Cache Creek. This location falls within the scope of the Cariboo Connector Four Laning Program, which requires all highway improvements along this corridor to be constructed to a four lane standard. As such, a new structure at this site would need to accommodate four lanes and the highway alignment would be improved at that time.

Preferred Option

The preferred option is to lower the highway 0.60 metres to achieve a 5.3 metre clearance. Although this site is located within the confines of the Cariboo Connector program, this segment is anticipated to be a longer term priority. In the absence of detailed design discussions with CN Rail, the Ministry recommends modifications to its own infrastructure rather than to the railway structure.

Site 4: Red Rock CN Railway Overpass

The Red Rock railway overpass is located 83.7 km north of Quesnel, BC. Built in 1956, it is a skewed 4 span structure. The span consists of a 23.9 metre steel through-girder bridge on concrete piers, with opposite end 8.7 metre steel through-girders. There are two 15 metre deck plate girder spans on each end. The two lane highway crosses under the railway at a 56 degree skew with a clearance of 4.64 metres. The highway is on tangent with a maximum grade of 2.0%, but increases immediately to 3% to the north of the site.

The crossing is filed under Railway Act Certificate 879 of May 29, 1956 with the railway having seniority over the highway. A level railway crossing approximately 55 metres to the north was closed when the grade separated crossing was constructed.

Alternate Route Options

- Batnuni Road to Blackwater Road – west side of the Fraser River
- 1000 Road, to 500 Road, to Willow FSR– east side of the Fraser River
- Bowron FSR
- Stone Creek Road, to Stonebuck Road, to Willow Cale FSR

Travel time delays for the Stone Creek route are estimated to be 45 minutes and for all other routes the delay is expected to be between 1.5 and 3 hours, depending on the condition of the alternate route at the time of travel.

Assumptions/ implications:

- Forest Service Roads are maintained by the Ministry of Forests and Range, they are all weather roads capable of highway loadings.
- Logging traffic may be significant requiring radio controlled traffic.
- Gravel surface roadways and lower geometric standards than highway

Local Detour Option (Shoo-fly)

- Connect old highway and existing level crossing with current highway 97: 150 metres of new construction

Assumptions/implications:

- Suitable to infrequent usage.
- Discussion with CN Rail and/or Transport Canada required.
- Federal approval process and Order may be required from Transport Canada. Viability at this time for this option is uncertain.

Structural Modification Options

- Lower the highway 0.66 metres.
- Raise the railway bridge 0.66 metres.
- Reduce girder depth on railway bridge.
- Replace railway bridge with a new structure.

Assumptions/implications:

- Raising railway grade and structures, will require extensive engineering to achieve acceptable railway grade requirements
- This site is located on Highway 97, between Prince George and Cache Creek. This location falls within the scope of the Cariboo Connector Four Laning Program, which requires all highway improvements along this

corridor to be constructed to a four lane standard. As such, a new structure at this site would need to accommodate four lanes and the highway alignment would be improved at that time.

Preferred Option

The preferred option is to replace the railway bridge with a new structure, in conjunction with a highway realignment. Work is underway on the Red Rock weigh scale and four laning project to the north, and the Stone Creek bridge replacement and four laning project to the south. A structural replacement at this site would be most efficiently delivered in conjunction with a four laning project from the Stone Creek Bridge to Williams Road. Due to the long term objective of the Cariboo Connector program, proximity to the median weigh scale at Red Rock, and the horizontal geometry of the existing highway to the south of the railway crossing, a new structure combined with a highway realignment is the preferred choice for public investment at the this site.

Site 5: Salmon River Highway Bridge

The Salmon River Bridge is located 27.7 kilometres north of Prince George, BC. Built in 1954, it is a single span structure. It consists of a 54.9 metre steel through-truss bridge on pile foundation and concrete abutments. The two lane highway crosses the Salmon River on a tangent, with an overhead clearance of 5.17 metres and a maximum grade of 0.5%. The highway has no shoulder width on the bridge and has a curb clearance of approximately 7 metres.

Alternate Route Options

- Chief Lake Road, to Teardrop FSR, to 600 Road, to Salmon River FSR. It is uncertain whether the northern half of this 94 km route meets an all-weather standard.
- Highway 16 East, to Upper Fraser Road, to Church FSR, to North Fraser FSR. This 100 km route will usually meet an all-weather standard.

Travel time delay for both routes is estimated to by 1.5 hours, depending on the condition of the alternate route at the time of travel.

Assumptions/ implications:

- Forest Service Roads are maintained by the Ministry of Forests and Range, they are all weather roads capable of highway loadings.
- Logging traffic may be significant requiring radio controlled traffic.
- Gravel surface roadways and lower geometric standards than highway

Structural Modification Option

- Replace highway bridge with a new structure.

Assumptions/ implications:

- The structural condition of the bridge indicates that replacement will be required in the short to mid-term, being approximately 10 to 30 years.

Preferred Option

The preferred option is to replace the highway bridge with a new structure. Based on traffic volumes, a 2 lane structure is warranted.

Site 6: Parsnip River Highway Bridge

The Parsnip River Bridge is located 155.8 kilometres north of Prince George, BC. Built in 1953, it is a 3 span structure consisting of three identical 61 metre steel through-trusses supported by piles and concrete abutments. The two lane highway crosses the Parsnip River on a tangent, with an overhead clearance of 5.06 metres and a maximum grade of 0.5%. The highway has no shoulder width on the bridge and has a curb clearance of approximately 7 metres.

Alternate Route Option

- Finlay FSR, to Parsnip River Causeway Crossing, to Highway 39. This 52 km route is known to meet an all-weather standard.

  Travel time delay for this route is estimated to be 45 minutes.

Assumptions/ implications:

- Forest Service Roads are maintained by the Ministry of Forests and Range, they are all weather roads capable of highway loadings.
- Logging traffic may be significant requiring radio controlled traffic.
- Gravel surface roadways and lower geometric standards than highway

Structural Modification Option

Replace highway bridge with a new structure.

Assumptions/implications:

- The structural condition of the bridge indicates that replacement will be a longer term consideration.

Preferred Option

The preferred option is to replace the highway bridge with a new structure. Based on traffic volumes, a 2 lane structure is warranted.

Site 7: Bijoux CN Railway Overpass

The Bijoux railway overpass is located 190.2 kilometres north of Prince George, BC. The overpass is a single 25 metre span, monolithic concrete structure. The two lane highway crosses under the railway at a 20 degree skew with a clearance of 5.5 metres in the northbound lane. The clearance in the southbound lane is posted at 5.45 metres, but this measurement is uncertain due to heavy snow

conditions at the time of the survey. The highway is on a tangent with a maximum grade of 5.5 %.

The crossing is filed under Railway Act Certificate 4602 of July 28, 1983 with the highway having seniority over the railway.

There are no alternate routes or viable detour options for this site. The existing structure exceeds the stated overhead clearance standard of 5.3 metres. As such, structural modifications were not explored.

Preferred Option

No additional works are recommended at this site. The structure meets the required vertical clearance of 5.3 metres.

Site 8: West Pine CN Railway Overpass

The West Pine railway overpass is located 233.8 km north of Prince George, BC. Built in 1957, the overpass is a single 25 metre span, monolithic concrete structure. The two lane highway crosses under the railway at a 56 degree skew with clearance of 4.92 metres. The highway is on a tangent with a maximum grade of 2.0 %.

The crossing is filed under Railway Act Certificate 4603 of July 28, 1983 with the highway having seniority over the railway.

Alternate Route Option

There are no alternate routes for this crossing.

Local Detour Option (Shoo-fly)

- Establish level crossing 150 metres north of the existing crossing: 350 metre length

Assumptions/implications:

- Suitable for infrequent usage.
- Discussion with CN Rail and/or Transport Canada required.
- Federal approval process and Order required from Transport Canada. Viability at this time for this option is uncertain.

Structural Modification Options

- Lower the highway 0.38 metres.
- Replace railway bridge with a new 2 lane structure.

Assumptions/implications:

- Raising the railway bridge is not an option due to the structure being monolithic concrete.
- Raising railway grade and structures, will require extensive engineering to achieve acceptable railway grade requirements

Preferred Option

The preferred option is to lower the highway 0.38 metres to achieve a 5.3 metre clearance. This option is expected to provide the best value for investment.

Site 9: East Pine CN Railway Overpass

The East Pine railway overpass is located 32.4 kilometres east of Chetwynd, BC. Built in 1957, the overpass is a 19.8 metre single span, monolithic concrete structure.
The two lane highway crosses under the railway at a 46 degree skew with a clearance of 5.00 metres. The highway is on a curve with a maximum grade of -6.0 %.

The crossing is filed under Railway Act Certificate 4601 of July 28, 1983 with the highway having seniority over the railway.

Alternate Route Options

- Dawson Creek, to Fort St. John, to Highway 29 via Hudson's Hope, to Chetwynd.
- Highway 52, via Tumbler Ridge

Travel time delays are estimated to be 1 hour.

Assumptions/implications:

- The Highway 29 route has a 64 tonne weight restriction on the Peace River bridge.
- Highway 52 has some gravel surfaced length.

Local Detour Option (Shoo-fly)

- Establish level crossing 200 metres northeast of the existing crossing: 900 metre length

Assumptions/implications:

- Suitable to infrequent usage.
- Discussion with CN Rail and/or Transport Canada required.
- Federal approval process and Order required from Transport Canada. Viability at this time for this option is uncertain.

Structural Modification Options

- Lower the highway 0.30 metres.
- Replace railway bridge with a new structure.

Assumptions/implications:

- Raising the railway bridge is not an option due to the structure being monolithic concrete.
- Raising railway grade and structures, will require extensive engineering to achieve acceptable railway grade requirements
- A new highway alignment would likely accompany a new structure at this site, to better align with the existing highway bridge over the Pine River. This additional work is accounted for in the cost estimate.

Preferred Option

The preferred option is to lower the highway 0.30 metres to achieve a 5.3 metre clearance. This option is expected to provide the best value for investment. Although a more optimum highway alignment is desirable, traffic volumes along this portion of the corridor remain relatively low and the cost of a new structure combined with highway realignment is anticipated to be prohibitive.

Table 2 - Costs to Mitigate Overhead Clearance Constraints on Hwy 97 †
(2009 Dollars)

Site	Detour	Lower Highway	Raise Railway	Replace Structure
Bellos Overpass	$400,000	$700,000	$1,000,000	*** $50,000,000**
Hixon Overpass	$500,000	**$1,200,000**	$1,000,000	** $12,600,000
Stoner Overpass	$600,000	**$1,000,000**	$1,500,000	** $22,200,000
Red Rock Overpass	$100,000	$1,400,000	$1,500,000	*** $40,000,000**
Salmon River Bridge	N/A	N/A	N/A	**$11,300,000**
Parsnip River Bridge	N/A	N/A	N/A	**$30,700,000**
Bijoux Overpass	N/A	N/A	N/A	N/A
West Pine Overpass	$900,000	**$700,000**	N/A	$7,600,000
East Pine Overpass	$1,100,000	**$900,000**	N/A	$6,400,000
		Total Estimate for Ministry's Preferred Options:		**$135,800,000**

† Preferred options are highlighted

* new structure to accomodate 4 lanes, combined with highway realignment

** new structure to accomodate 4 lanes

SUMMARY

The Northern Region of the BC Ministry of Transportation & Infrastructure (the Ministry) along with Northern Development Initiative Trust (Northern Development) have partnered in conducting a comprehensive study to determine if the existence of seven overhead railway crossings and two bridges have a substantial impact on commercial usage of the corridor and to determine the costs and benefits of altering these overheads. on the Highway 97 corridor, between Quesnel and Dawson Creek, BC. The identified structures currently have a minimum vertical clearance of 4.64 metres. Industry has stated that vertical clearances and width constraints hamper their ability to diversify manufacturing and to transport large loads along this corridor.

Northern Development retained Associated Engineering to undertake the economic analysis, focusing on the opportunities for industry to develop and grow in the absence of structural impediments along the Highway 97 corridor. The results of that work are documented in a separate report titled, "Economic Assessment of Highway 97: Constraints to the Movement of Goods and Opportunities for Economic Growth."

The Ministry undertook the task of technically assessing the identified structures, to find viable solutions to the clearance constraints at each of the sites. This engineering analysis focused on alternate routes, detours, and structural modifications. Each option is discussed in this report and high level, preliminary cost estimates (2009 Dollars) have been developed (Table 2). The Ministry has identified a preferred option at each site, with the knowledge that an assortment of factors could impact the decision making during future phases and with the acknowledgement that a benefit to cost ratio has not yet been determined in support of the investment.

The recommended options are all accommodated on the existing highway. Lower cost alternatives exist at many sites that involve alternate routes or short detours to level crossings of the railway. These options could be explored further with industry to determine if they would be acceptable alternatives.

The total cost of the recommended improvements in 2009 dollars is $135,800,000.00

STEPS FORWARD

The Ministry is presently working on the Cariboo Connector Program, a program to 4 lane Cariboo Highway 97 between Cache Creek and Prince George. Two CN Rail overpasses will be addressed in the near future as part of this program. The height clearances for the Stoner and Red Rock overpasses will incorporate the recommendations of this assessment.

The Ministry will also shortly begin engineering assessments designed towards the replacement of the Salmon River Bridge. Archaeological, Environmental, Hydraulic and Geotechnical assessments will be required. These arch truss bridges are being replaced with structures that are open topped thus eliminating any height concern.

QUALIFYING STATEMENT:

The Ministry explored all viable options to address the overhead clearance constraints that have been highlighted by industry, along the identified segment of the Highway 97 corridor. Although the best available data was collected and utilized, there are many unknown factors at this stage. The cost estimates provided are in 2009 dollars, based on limited investigation and are intended to provide a comparison between options. Further investigation would be required to produce reliable cost estimates for project funding submissions.

Highway 97 Assessment

Table of Contents

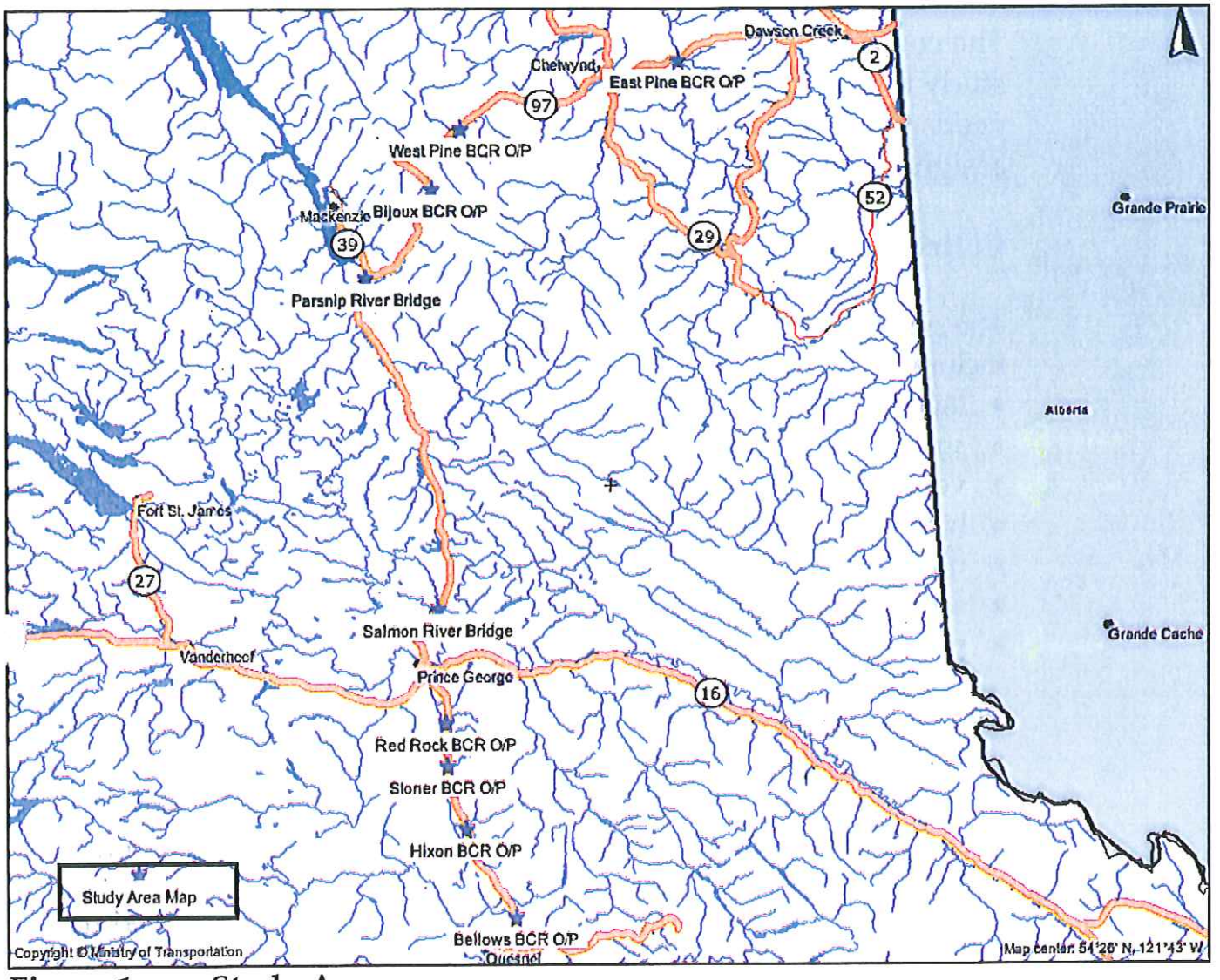

Figure 1 Study Area

Highway 97 Assessment

Summary of Contents

Bridge No.	Bridge Name	Railway	Railway Location		General Arrangement	Map	Detour	Maintenance	
			Subdivision	Mileage				HWY	RWY
1823	Bellos Railway Overpass	CN	Prince George	399.80	✓	✓	☒	100%	
1822	Hixon Railway Overpass	CN	Prince George	423.50	✓	✓	✓	100%	
1824	Stoner Railway Overpass	CN	Prince George	441.20	✓	✓	✓	100%	
1825	Red Rock Railway Overpass	CN	Prince George	446.19	✓	✓	☒	100%	
253	Salmon River Bridge				✓	✓	✓	100%	
1185	Parsnip River Birdge				✓	✓	✓	100%	
2608	Bijoux Railway Overpass	CN	Chetwynd		☒	✓	☒		100%
6161	West Pine Railway Overpass	CN	Chetwynd	612.20	✓	✓	☒		100%
6160	East Pine Railway Overpass	CN	Dawson Creek	16.25	✓	✓	✓		100%

Bellows BCR O/P

Bridge No. 1823

BELLOS OVERPASS

North Cariboo District

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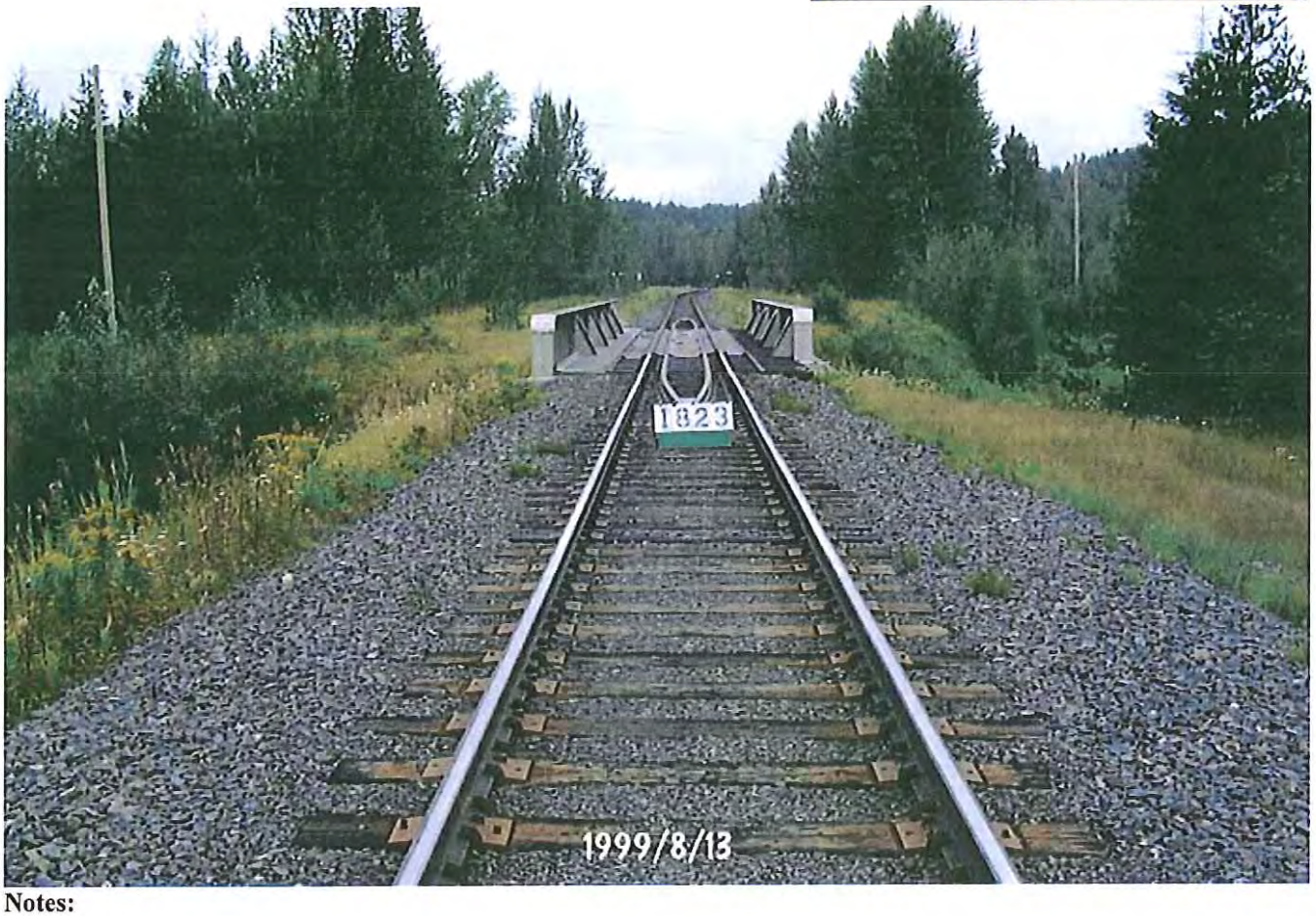

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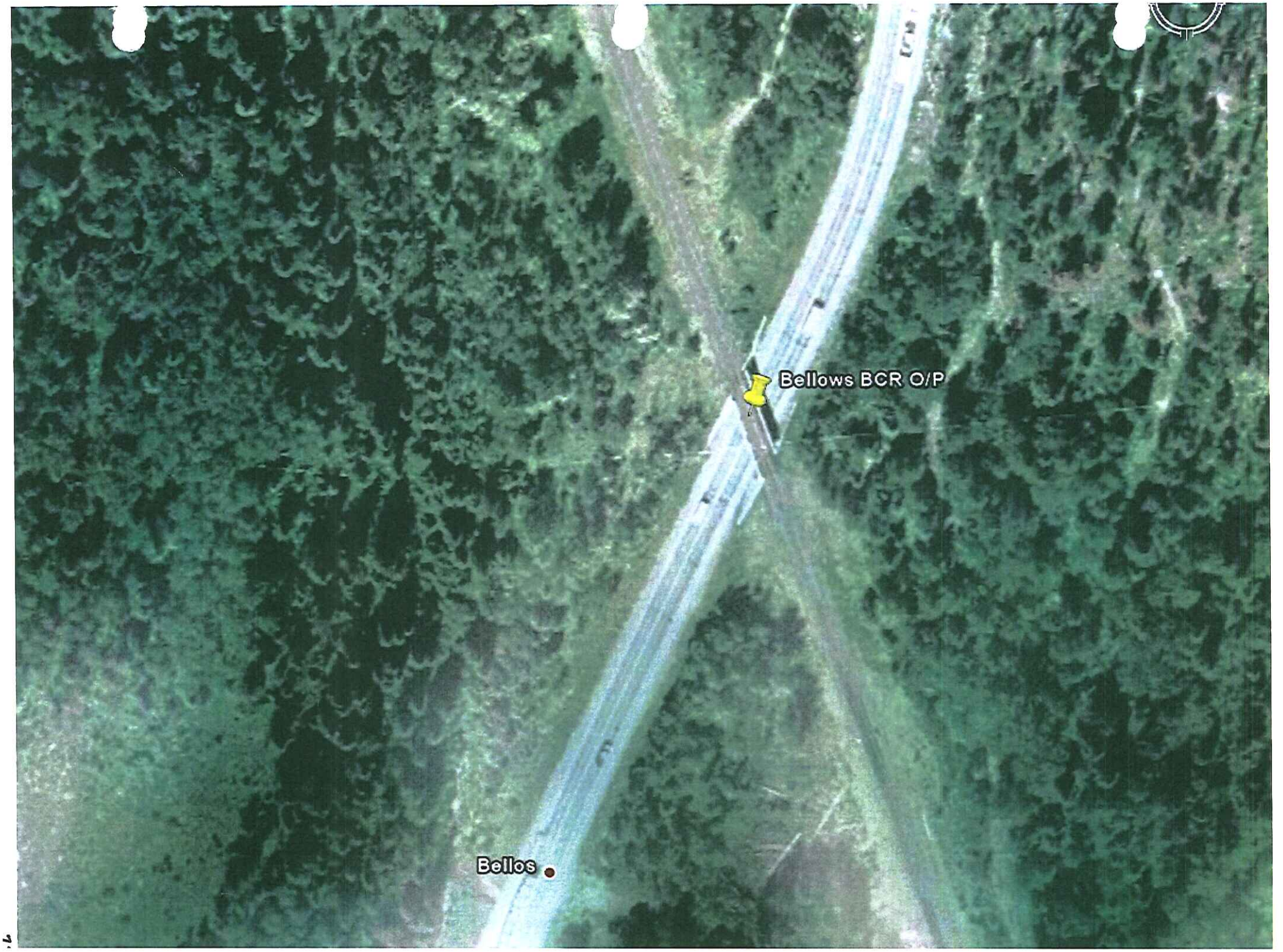
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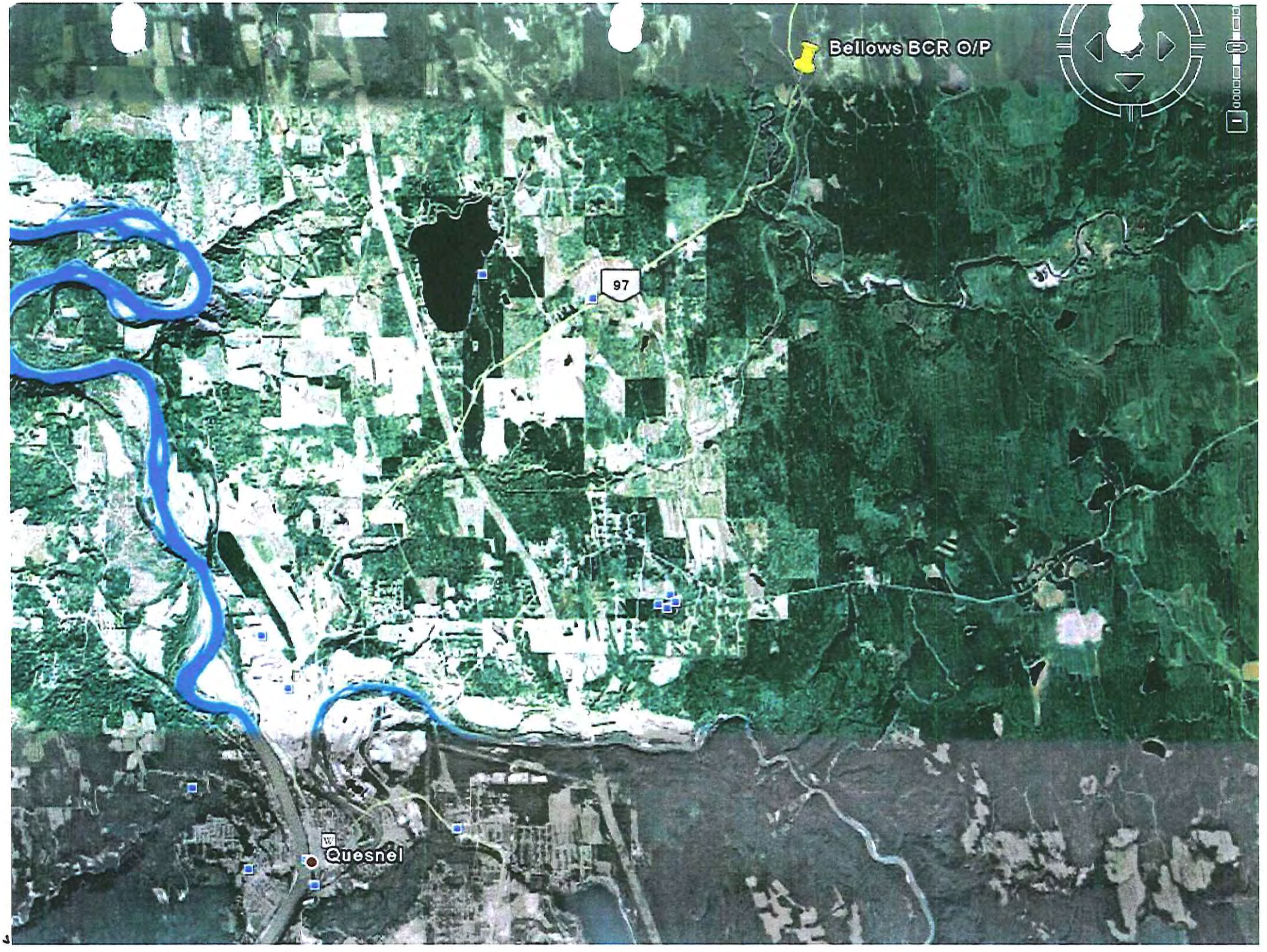
Bellos


Bellows BCR O/P
97
Quesnel

CONFIDENTIAL

Province of British Columbia

TOTAL TENDER AND ASSOCIATED MINISTRY COST ESTIMATE

Schedule of Approximate Quantities and Unit Prices

Project No: 00000-0000

Project Name: Bellos Railway Overpass - lower Highway 0.34 meters.

TOTAL TENDER AND ASSOCIATED MINISTRY COST ESTIMATE					
Item#	**Description of Work**	**Unit of Measure**	**Approx. Quantity**	**Unit Price**	**Extended Amount**
1.01	Excavation	Cubic Metre	3500	$14.00	$49,000.00
1.02	Culverts	L.S.	100%	L.S.	$24,000.00
1.03	Borrow	Cubic Metre	500	$25.00	$12,500.00
1.04	Granular Sub-Base	Cubic Metre	1400	$30.00	$42,000.00
1.05	Granular Base Course	Cubic Metre	700	$40.00	$28,000.00
1.06	Asphalt	Tonne	450	$150.00	$67,500.00
1.07	Mobilization/Quality/Traffic Control	L.S.	100%	L.S.	$35,000.00
Part A	**TENDER COST ESTIMATE**				**$258,000.00**
	TOTAL TENDER COST (Tender Cost Estimate plus Site Occupancy(if applicable))				**$258,000.00**
901.00	Contingencies - 125%			$325,000.00	
902.00	Engineering - 20%			$52,000.00	
903.00	Materials Supplied by MOT			$15,000.00	
904.00	Miscellaneous (please enter miscellaneous items below)			$44,000.00	
905.00	Utility Relocation - Minor			$10,000.00	
	ASSOCIATED MINISTRY COST ESTIMATES				**$446,000.00**
	TOTAL TENDER, SITE OCCUPANCY (if applicable) AND ASSOCIATED MINISTRY COST ESTIMATES				**$704,000.00**

Miscellaneous Ministry Cost Breakdown

Description		Cost:
Pavement Marking		$4,000.00
Property Aquisition	Unknown	
Geotechnical Investigation	Unknown	
Environmental Investigation	Unknown	
Archaeological Investigation	Unknown	
Utility Relocation - Major	Unknown	
Construction Supervision - 20 days at $2000		$40,000.00
Project Management	Unknown	
Payroll, Payments, & Accounting	Unknown	

This total will auto populate the Miscellaneous Category above **Total:** $44,000.00

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Province of British Columbia

TOTAL TENDER AND ASSOCIATED MINISTRY COST ESTIMATE

Schedule of Approximate Quantities and Unit Prices

Project No: 00000-0000

Project Name: Bellos Railway Overpass - 250 meter Shoo-fly

TOTAL TENDER AND ASSOCIATED MINISTRY COST ESTIMATE					
Item#	**Description of Work**	**Unit of Measure**	**Approx. Quantity**	**Unit Price**	**Extended Amount**
1.01	Excavation	Cubic Metre	1000	$14.00	$14,000.00
1.02	Culverts	L.S.	100%	L.S.	$12,000.00
1.03	Borrow	Cubic Metre	500	$25.00	$12,500.00
1.04	Granular Sub-Base	Cubic Metre	500	$30.00	$15,000.00
1.05	Granular Base Course	Cubic Metre	350	$40.00	$14,000.00
1.06	Install Railway Crossing	L.S.	100%	L.S.	$40,000.00
1.07	Mobilization/Quality/Traffic Control	L.S.	100%	L.S.	$15,000.00
Part A	**TENDER COST ESTIMATE**				**$122,500.00**
	TOTAL TENDER COST (Tender Cost Estimate plus Site Occupancy(if applicable))				**$122,500.00**
901.00	Contingencies - 150%			$180,000.00	
902.00	Engineering - 20%			$25,000.00	
903.00	Materials Supplied by MOT			$5,000.00	
904.00	Miscellaneous (please enter miscellaneous items below)			$20,000.00	
905.00	Utility Relocation - Minor			$10,000.00	
	ASSOCIATED MINISTRY COST ESTIMATES				**$240,000.00**
	TOTAL TENDER, SITE OCCUPANCY (if applicable) AND ASSOCIATED MINISTRY COST ESTIMATES				**$362,500.00**

Miscellaneous Ministry Cost Breakdown

Description		Cost:
Pavement Marking		$0.00
Property Aquisition	Unknown	
Geotechnical Investigation	Unknown	
Environmental Investigation	Unknown	
Archaeological Investigation	Unknown	
Utility Relocation - Major	Unknown	
Construction Supervision - 10 days at $2000 daily		$20,000.00
Project Management	Unknown	
Payroll, Payments, & Accounting	Unknown	
This total will auto populate the Miscellaneous Category above	**Total:**	$20,000.00

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TOTAL TENDER AND ASSOCIATED MINISTRY COST ESTIMATE

Schedule of Approximate Quantities and Unit Prices

Project No: 00000-0000

Project Name: Bellos Overpass Replacement

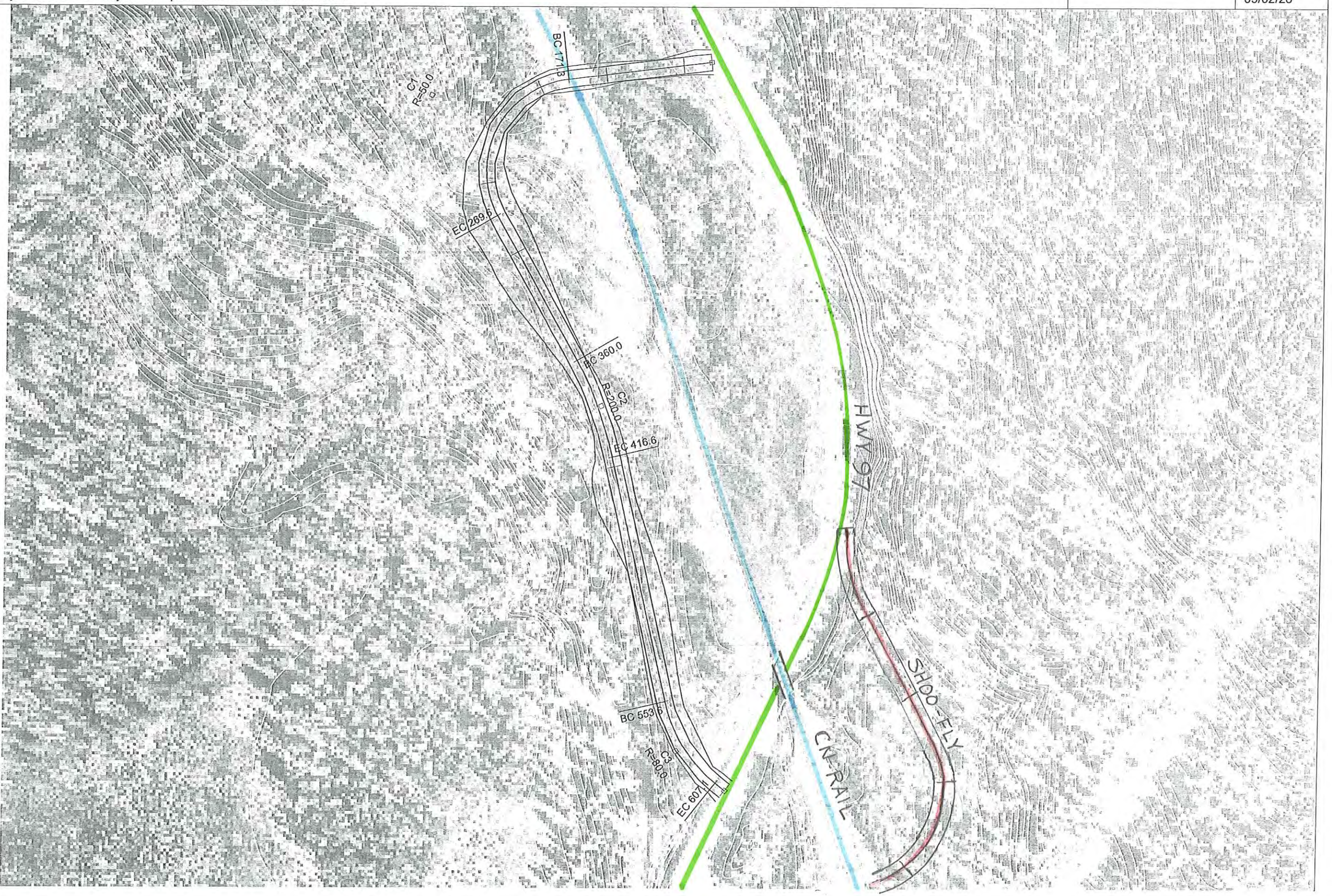
TOTAL TENDER AND ASSOCIATED MINISTRY COST ESTIMATE					
Item#	**Description of Work**	**Unit of Measure**	**Approx. Quantity**	**Unit Price**	**Extended Amount**
1.01	Bridge Replacement - 20 m.	Square Metre	111	$8,000.00	$888,000.00
1.02	Detour Bridge - 20 m.	Square Metre	111	$5,000.00	$555,000.00
1.03	Demolition of Existing Bridge	Square Metre	111	$2,500.00	$277,500.00
1.04	Mobilization/Quality/Traffic Control	L.S.	100%	L.S.	$270,000.00
Part A	**TENDER COST ESTIMATE**				**$1,990,500.00**
	TOTAL TENDER COST (Tender Cost Estimate plus Site Occupancy(if applicable))				**$1,990,500.00**
901.00	Contingencies - 100%			$1,990,000.00	
902.00	Engineering -20%			$398,000.00	
903.00	Materials Supplied by MOT			$10,000.00	
904.00	Miscellaneous (please enter miscellaneous items below)			$420,000.00	
905.00	Utility Relocation - Minor			$10,000.00	
	ASSOCIATED MINISTRY COST ESTIMATES				**$2,828,000.00**
	TOTAL TENDER, SITE OCCUPANCY (if applicable) AND ASSOCIATED MINISTRY COST ESTIMATES				**$4,818,500.00**

Miscellaneous Ministry Cost Breakdown

Description		Cost:
Pavement Marking		$0.00
Property Aquisition	Unknown	
Geotechnical Investigation	Unknown	
Environmental Investigation	Unknown	
Archaeological Investigation	Unknown	
Utility Relocation - Major	Unknown	
Construction Supervision - 120 days at $3500 daily		$420,000.00
Project Management	Unknown	
Payroll, Payments, & Accounting	Unknown	
This total will auto populate the Miscellaneous Category above	**Total:**	$420,000.00

DATA FROM 2002 MAPPING

ROADENG Plan	Scale 1:2000	P. 1
W:\Engineering\survey\Projects 2009\9-01 Hwy97 underpasses\BELLOWS\Bellows rev1		09/02/26



Hixon BCR O/P

Bridge No. 1822


HIXON OVERPASS
North Cariboo District
1999/9/22

Return to BMIS | Return to Image List

Notes:

Filename: 1822_side1s .jpg

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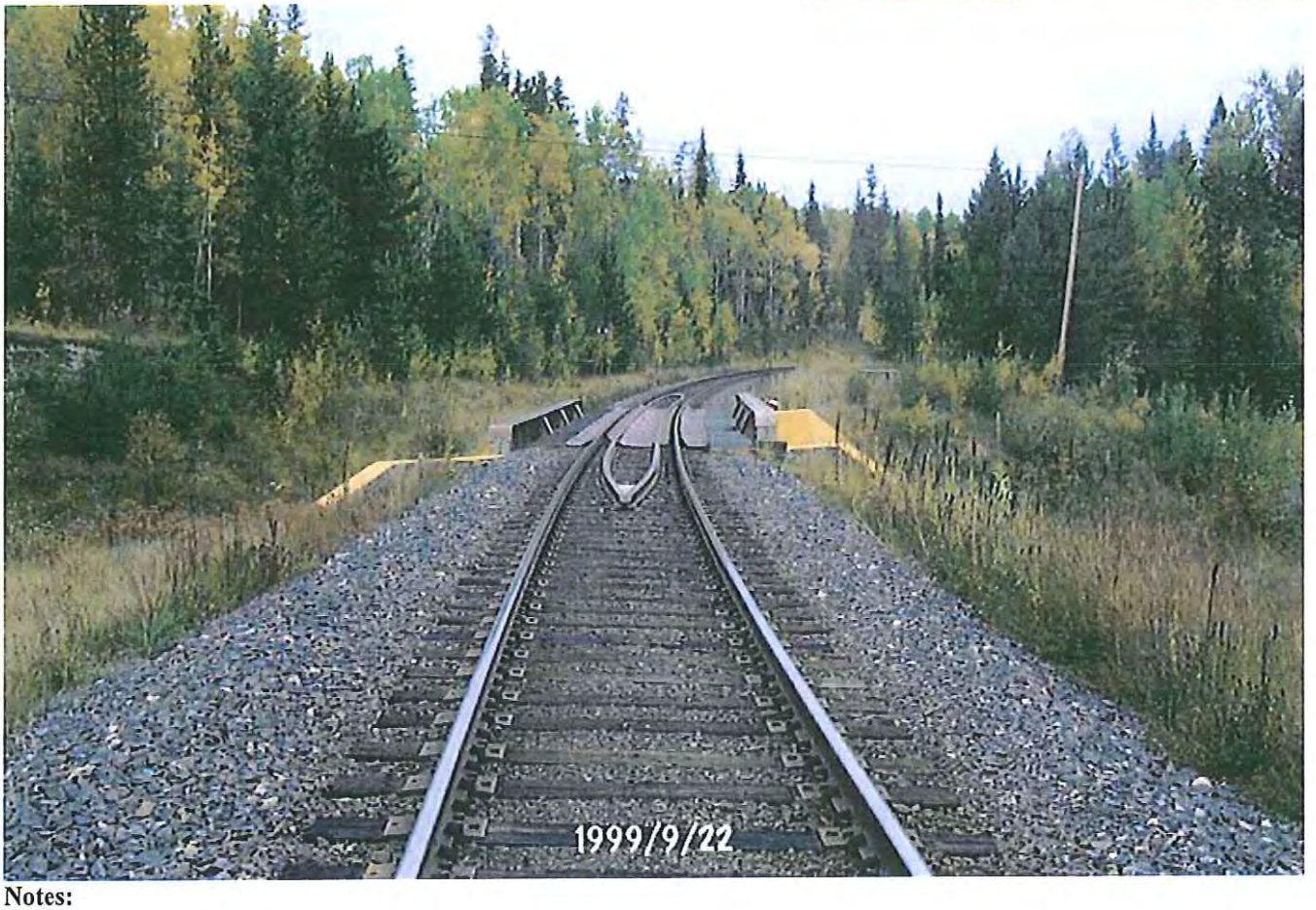

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Filename: 1822_ap2w .jpg

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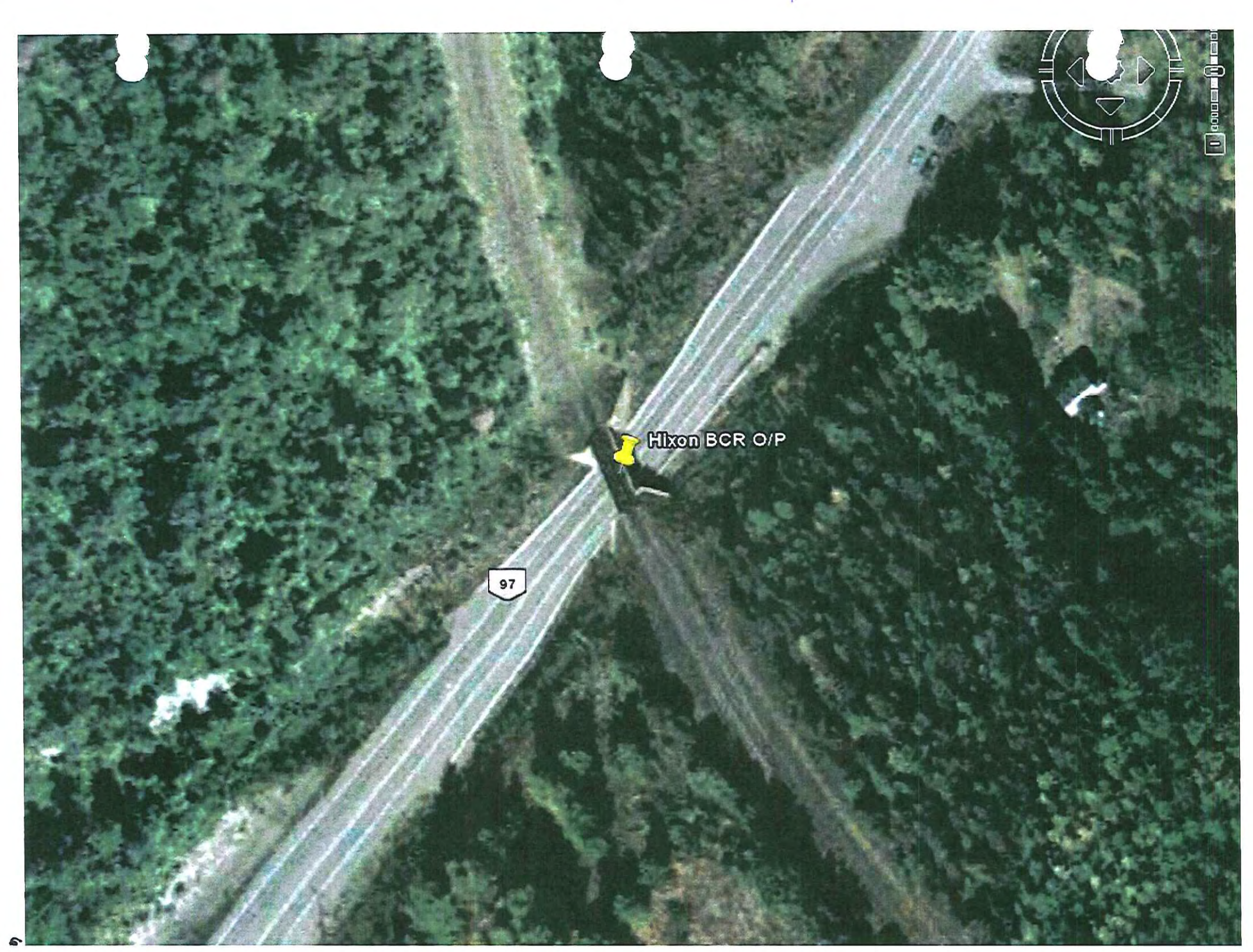
Hixon BCR O/P
97


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Hixon BCR O/P

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Province of British Columbia

TOTAL TENDER AND ASSOCIATED MINISTRY COST ESTIMATE

Schedule of Approximate Quantities and Unit Prices

Project No: 00000-0000

Project Name: Hixon Railway Overpass - lower Highway 0.40 meters.

TOTAL TENDER AND ASSOCIATED MINISTRY COST ESTIMATE					
Item#	**Description of Work**	**Unit of Measure**	**Approx. Quantity**	**Unit Price**	**Extended Amount**
1.01	Excavation	Cubic Metre	7000	$14.00	$98,000.00
1.02	Culverts	L.S.	100%	L.S.	$24,000.00
1.03	Borrow	Cubic Metre	2500	$25.00	$62,500.00
1.04	Granular Sub-Base	Cubic Metre	2200	$30.00	$66,000.00
1.05	Granular Base Course	Cubic Metre	1000	$40.00	$40,000.00
1.06	Asphalt	Tonne	600	$150.00	$90,000.00
1.07	Mobilization/Quality/Traffic Control	L.S.	100%	L.S.	$60,000.00
Part A	**TENDER COST ESTIMATE**				**$440,500.00**
	TOTAL TENDER COST (Tender Cost Estimate plus Site Occupancy(if applicable))				**$440,500.00**
901.00	Contingencies - 125%			$550,000.00	
902.00	Engineering - 20%			$88,000.00	
903.00	Materials Supplied by MOT			$20,000.00	
904.00	Miscellaneous (please enter miscellaneous items below)			$65,000.00	
905.00	Utility Relocation - Minor			$10,000.00	
	ASSOCIATED MINISTRY COST ESTIMATES				**$733,000.00**
	TOTAL TENDER, SITE OCCUPANCY (if applicable) AND ASSOCIATED MINISTRY COST ESTIMATES				**$1,173,500.00**

Miscellaneous Ministry Cost Breakdown

Description		Cost:
Pavement Marking		$5,000.00
Property Aquisition	Unknown	
Geotechnical Investigation	Unknown	
Environmental Investigation	Unknown	
Archaeological Investigation	Unknown	
Utility Relocation - Major	Unknown	
Construction Supervision - 30 days at $2000 daily		$60,000.00
Project Management	Unknown	
Payroll, Payments, & Accounting	Unknown	
This total will auto populate the Miscellaneous Category above	**Total:**	$65,000.00

GROUND DATA FROM TRIM

TERRAIN Plan	Scale 1:2000	P. 1
W:\Engineering\survey\Projec.... underpasses\HIXON\HIXON.ter		09/02/27

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Province of British Columbia

TOTAL TENDER AND ASSOCIATED MINISTRY COST ESTIMATE

Schedule of Approximate Quantities and Unit Prices

Project No: 00000-0000

Project Name: Hixon Railway Overpass - 370 meter Shoo-fly

TOTAL TENDER AND ASSOCIATED MINISTRY COST ESTIMATE					
Item#	**Description of Work**	**Unit of Measure**	**Approx. Quantity**	**Unit Price**	**Extended Amount**
1.01	Excavation	Cubic Metre	2500	$14.00	$35,000.00
1.02	Culverts	L.S.	100%	L.S.	$24,000.00
1.03	Borrow	Cubic Metre	1300	$25.00	$32,500.00
1.04	Granular Sub-Base	Cubic Metre	800	$30.00	$24,000.00
1.05	Granular Base Course	Cubic Metre	550	$40.00	$22,000.00
1.06	Mobilization/Quality/Traffic Control	L.S.	100%	L.S.	$20,000.00
Part A	**TENDER COST ESTIMATE**				**$157,500.00**
	TOTAL TENDER COST (Tender Cost Estimate plus Site Occupancy(if applicable))				**$157,500.00**
901.00	Contingencies - 150%			$240,000.00	
902.00	Engineering - 20%			$32,000.00	
903.00	Materials Supplied by MOT			$10,000.00	
904.00	Miscellaneous (please enter miscellaneous items below)			$50,000.00	
905.00	Utility Relocation - Minor			$10,000.00	
	ASSOCIATED MINISTRY COST ESTIMATES				**$342,000.00**
	TOTAL TENDER, SITE OCCUPANCY (if applicable) AND ASSOCIATED MINISTRY COST ESTIMATES				**$499,500.00**

Miscellaneous Ministry Cost Breakdown

Description		Cost:
Pavement Marking		$0.00
Property Aquisition	Unknown	
Geotechnical Investigation	Unknown	
Environmental Investigation	Unknown	
Archaeological Investigation	Unknown	
Utility Relocation - Major	Unknown	
Construction Supervision - 25 days at $2000 daily		$50,000.00
Project Management	Unknown	
Payroll, Payments, & Accounting	Unknown	
This total will auto populate the Miscellaneous Category above	**Total:**	$50,000.00

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Province of British Columbia

TOTAL TENDER AND ASSOCIATED MINISTRY COST ESTIMATE

Schedule of Approximate Quantities and Unit Prices

Project No: 00000-0000

Project Name: Hixon Overpass Replacement

TOTAL TENDER AND ASSOCIATED MINISTRY COST ESTIMATE					
Item#	**Description of Work**	**Unit of Measure**	**Approx. Quantity**	**Unit Price**	**Extended Amount**
1.01	Bridge Replacement - 17 m.	Square Metre	94	$8,000.00	$752,000.00
1.02	Detour Bridge - 17 m.	Square Metre	94	$5,000.00	$470,000.00
1.03	Demolition of Existing Bridge	Square Metre	94	$2,500.00	$235,000.00
1.04	Mobilization/Quality/Traffic Control	L.S.	100%	L.S.	$250,000.00
Part A	**TENDER COST ESTIMATE**				**$1,707,000.00**
	TOTAL TENDER COST (Tender Cost Estimate plus Site Occupancy(if applicable))				**$1,707,000.00**
901.00	Contingencies - 100%			$1,710,000.00	
902.00	Engineering -20%			$342,000.00	
903.00	Materials Supplied by MOT			$10,000.00	
904.00	Miscellaneous (please enter miscellaneous items below)			$420,000.00	
905.00	Utility Relocation - Minor			$10,000.00	
	ASSOCIATED MINISTRY COST ESTIMATES				**$2,492,000.00**
	TOTAL TENDER, SITE OCCUPANCY (if applicable) AND ASSOCIATED MINISTRY COST ESTIMATES				**$4,199,000.00**

Miscellaneous Ministry Cost Breakdown

Description		Cost:
Pavement Marking		$0.00
Property Aquisition	Unknown	
Geotechnical Investigation	Unknown	
Environmental Investigation	Unknown	
Archaeological Investigation	Unknown	
Utility Relocation - Major	Unknown	
Construction Supervision - 120 days at $3500 daily		$420,000.00
Project Management	Unknown	
Payroll, Payments, & Accounting	Unknown	
This total will auto populate the Miscellaneous Category above	**Total:**	$420,000.00

Stoner BCR O/P

Bridge No. 1824


1824
STONER OVERPASS
North Cariboo District
1999/8/13

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Notes:

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Notes:

Filename: 1824_aplw .jpg

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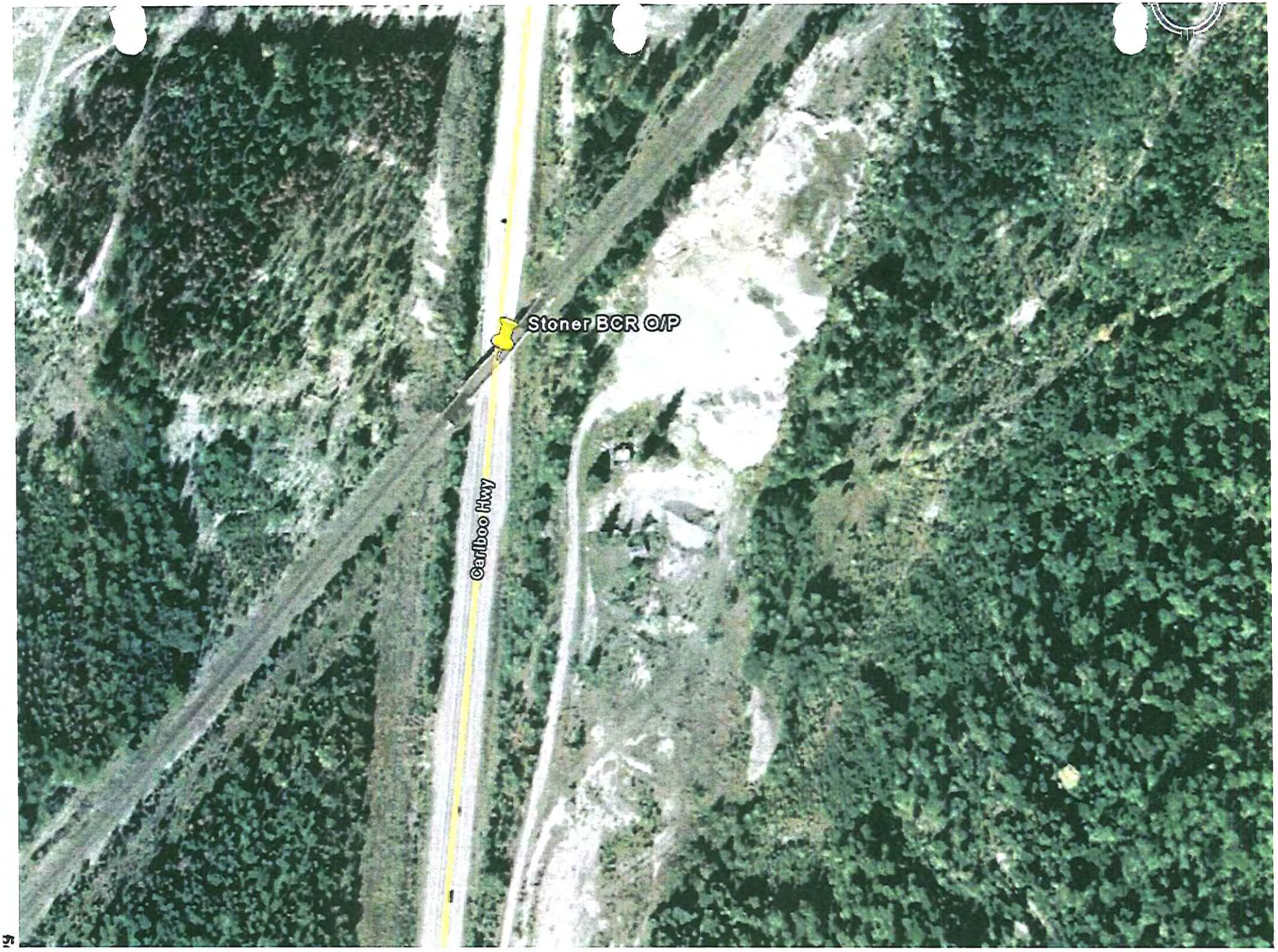
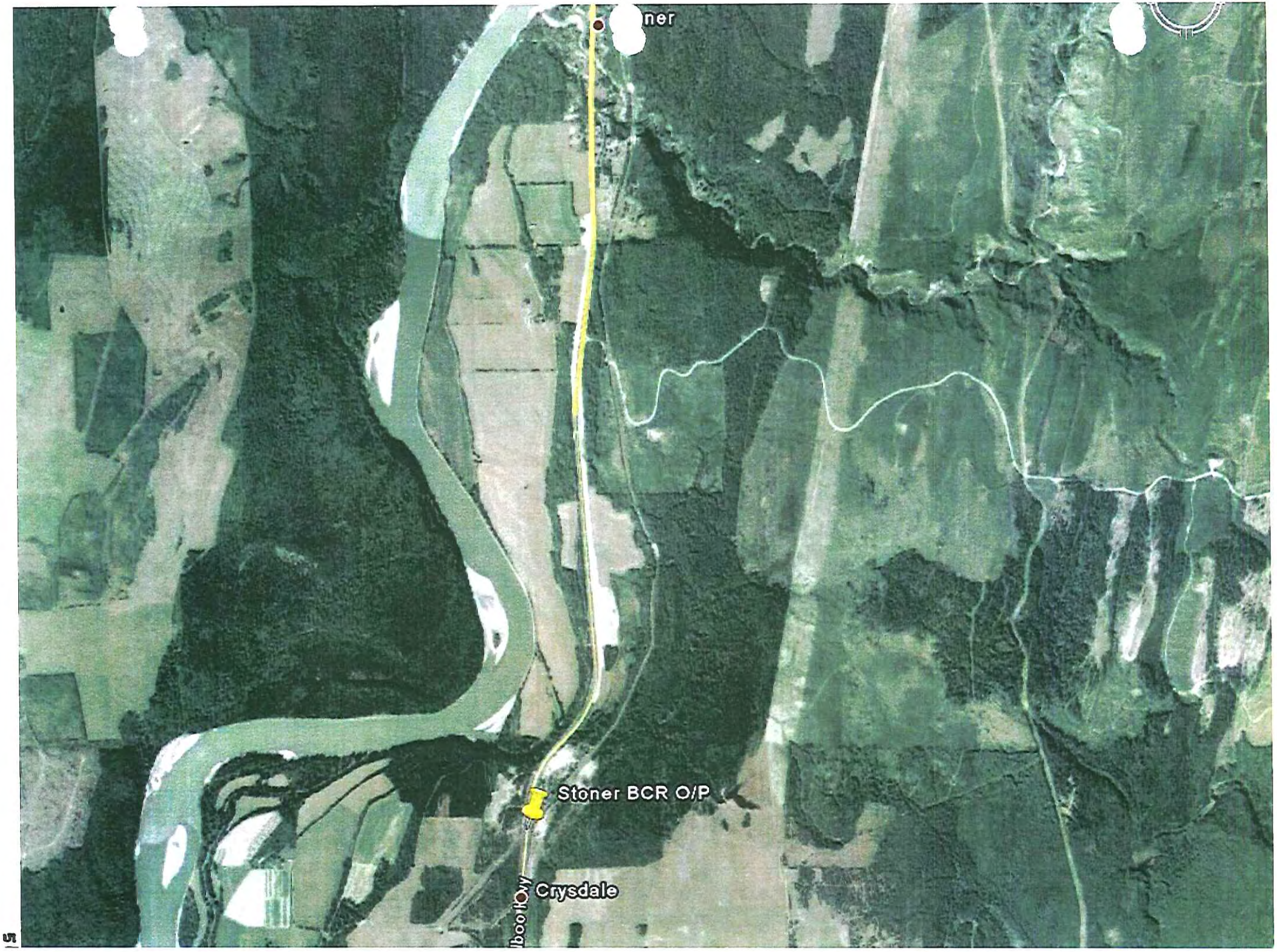

Stoner BCR O/P
Cariboo Hwy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Stoner BCR O/P
Crysdale

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Province of British Columbia

TOTAL TENDER AND ASSOCIATED MINISTRY COST ESTIMATE

Schedule of Approximate Quantities and Unit Prices

Project No: 00000-0000

Project Name: Stoner Railway Overpass - lower Highway 0.60 meters.

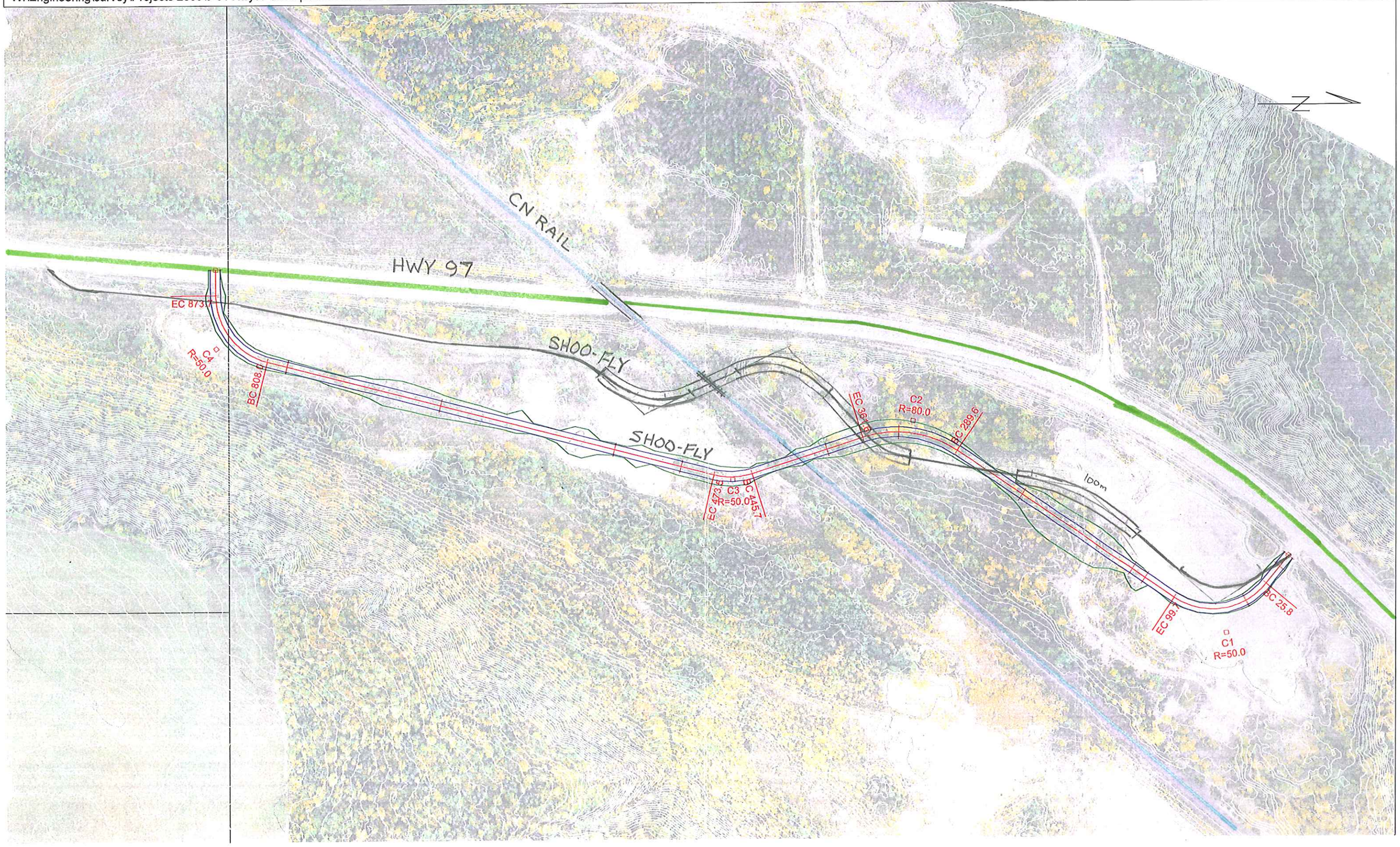
TOTAL TENDER AND ASSOCIATED MINISTRY COST ESTIMATE					
Item#	**Description of Work**	**Unit of Measure**	**Approx. Quantity**	**Unit Price**	**Extended Amount**
1.01	Excavation	Cubic Metre	8500	$12.00	$102,000.00
1.02	Culverts	L.S.	100%	L.S.	$24,000.00
1.03	Borrow	Cubic Metre	500	$20.00	$10,000.00
1.04	Granular Sub-Base	Cubic Metre	2000	$25.00	$50,000.00
1.05	Granular Base Course	Cubic Metre	850	$35.00	$29,750.00
1.06	Asphalt	Tonne	600	$150.00	$90,000.00
1.07	Mobilization/Quality/Traffic Control	L.S.	100%	L.S.	$45,000.00
Part A	**TENDER COST ESTIMATE**				**$350,750.00**
	TOTAL TENDER COST (Tender Cost Estimate plus Site Occupancy(if applicable))				**$350,750.00**
901.00	Contingencies - 125%			$440,000.00	
902.00	Engineering - 20%			$70,000.00	
903.00	Materials Supplied by MOT			$10,000.00	
904.00	Miscellaneous (please enter miscellaneous items below)			$74,000.00	
905.00	Utility Relocation - Minor			$10,000.00	
	ASSOCIATED MINISTRY COST ESTIMATES				**$604,000.00**
	TOTAL TENDER, SITE OCCUPANCY (if applicable) AND ASSOCIATED MINISTRY COST ESTIMATES				**$954,750.00**

Miscellaneous Ministry Cost Breakdown

Description		Cost:
Pavement Marking		$4,000.00
Property Aquisition	Unknown	
Geotechnical Investigation	Unknown	
Environmental Investigation	Unknown	
Archaeological Investigation	Unknown	
Utility Relocation - Major	Unknown	
Construction Supervision - 35 days at $2000 daily		$70,000.00
Project Management	Unknown	
Payroll, Payments, & Accounting	Unknown	

GROUND DATA FROM LIDAR

ROADENG Plan	Scale 1:2500	P. 1
W:\Engineering\survey\Projects 2009\9-01 Hwy97 underpasses\STONER\STONER ROUTE1		09/02/27



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Province of British Columbia

TOTAL TENDER AND ASSOCIATED MINISTRY COST ESTIMATE

Schedule of Approximate Quantities and Unit Prices

Project No: 00000-0000

Project Name: Stoner Railway Overpass - 950 meter Shoo-fly (350 m. new, 600 m. upgrade)

TOTAL TENDER AND ASSOCIATED MINISTRY COST ESTIMATE					
Item#	**Description of Work**	**Unit of Measure**	**Approx. Quantity**	**Unit Price**	**Extended Amount**
1.01	Excavation	Cubic Metre	1000	$14.00	$14,000.00
1.02	Culverts	L.S.	100%	L.S.	$5,000.00
1.03	Borrow	Cubic Metre	5000	$15.00	$75,000.00
1.04	Granular Sub-Base	Cubic Metre	900	$25.00	$22,500.00
1.05	Granular Base Course	Cubic Metre	550	$30.00	$16,500.00
1.06	Install New Level Crossing	L.S.	100%	L.S.	$40,000.00
1.07	Mobilization/Quality/Traffic Control	L.S.	100%	L.S.	$25,000.00
Part A	**TENDER COST ESTIMATE**				**$198,000.00**
	TOTAL TENDER COST (Tender Cost Estimate plus Site Occupancy(if applicable))				**$198,000.00**
901.00	Contingencies - 150%			$300,000.00	
902.00	Engineering - 20%			$40,000.00	
903.00	Materials Supplied by MOT			$10,000.00	
904.00	Miscellaneous (please enter miscellaneous items below)			$40,000.00	
905.00	Utility Relocation - Minor			$10,000.00	
	ASSOCIATED MINISTRY COST ESTIMATES				**$400,000.00**
	TOTAL TENDER, SITE OCCUPANCY (if applicable) AND ASSOCIATED MINISTRY COST ESTIMATES				**$598,000.00**

Miscellaneous Ministry Cost Breakdown

Description		Cost:
Pavement Marking		$0.00
Property Aquisition	Unknown	
Geotechnical Investigation	Unknown	
Environmental Investigation	Unknown	
Archaeological Investigation	Unknown	
Utility Relocation - Major	Unknown	
Construction Supervision - 20 days at $2000 daily		$40,000.00
Project Management	Unknown	
Payroll, Payments, & Accounting	Unknown	
This total will auto populate the Miscellaneous Category above	**Total:**	$40,000.00

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Province of British Columbia

TOTAL TENDER AND ASSOCIATED MINISTRY COST ESTIMATE

Schedule of Approximate Quantities and Unit Prices

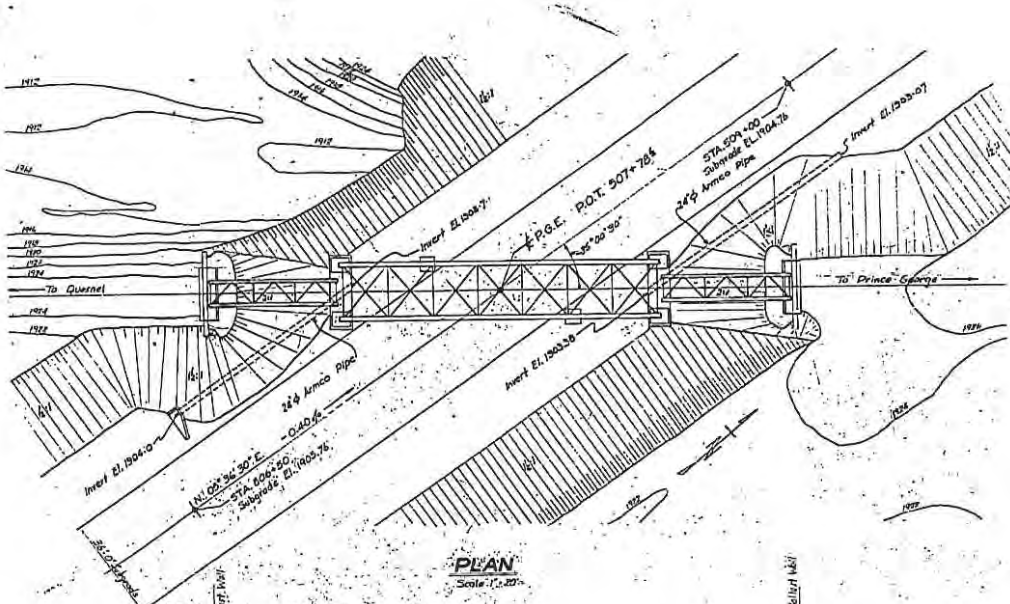
Project No: 00000-0000

Project Name: Stoner Overpass Replacement

TOTAL TENDER AND ASSOCIATED MINISTRY COST ESTIMATE					
Item#	**Description of Work**	**Unit of Measure**	**Approx. Quantity**	**Unit Price**	**Extended Amount**
1.01	Bridge Replacement - 35 m.	Square Metre	193	$8,000.00	$1,544,000.00
1.02	Detour Bridge - 35 m.	Square Metre	193	$5,000.00	$965,000.00
1.03	Demolition of Existing Bridge	Square Metre	331	$2,500.00	$827,500.00
1.04	Mobilization/Quality/Traffic Control	L.S.	100%	L.S.	$500,000.00
Part A	**TENDER COST ESTIMATE**				**$3,836,500.00**
	TOTAL TENDER COST (Tender Cost Estimate plus Site Occupancy(if applicable))				**$3,836,500.00**
901.00	Contingencies - 100%			$3,830,000.00	
902.00	Engineering -20%			$767,000.00	
903.00	Materials Supplied by MOT			$10,000.00	
904.00	Miscellaneous (please enter miscellaneous items below)			$420,000.00	
905.00	Utility Relocation - Minor			$10,000.00	
	ASSOCIATED MINISTRY COST ESTIMATES				**$5,037,000.00**
	TOTAL TENDER, SITE OCCUPANCY (if applicable) AND ASSOCIATED MINISTRY COST ESTIMATES				**$8,873,500.00**

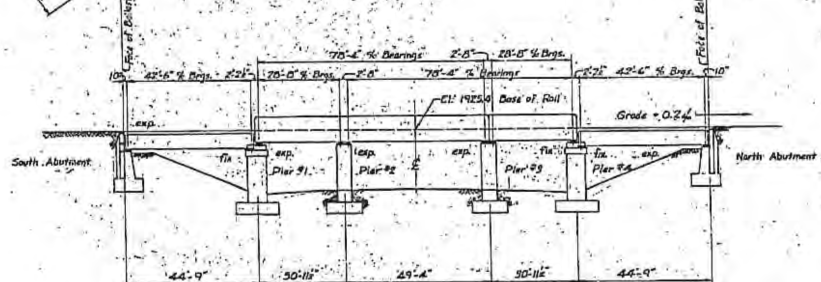
Miscellaneous Ministry Cost Breakdown

Description		Cost:
Pavement Marking		$0.00
Property Aquisition	Unknown	
Geotechnical Investigation	Unknown	
Environmental Investigation	Unknown	
Archaeological Investigation	Unknown	
Utility Relocation - Major	Unknown	
Construction Supervision - 120 days at $3500 daily		$420,000.00
Project Management	Unknown	
Payroll, Payments, & Accounting	Unknown	
This total will auto populate the Miscellaneous Category above	**Total:**	$420,000.00



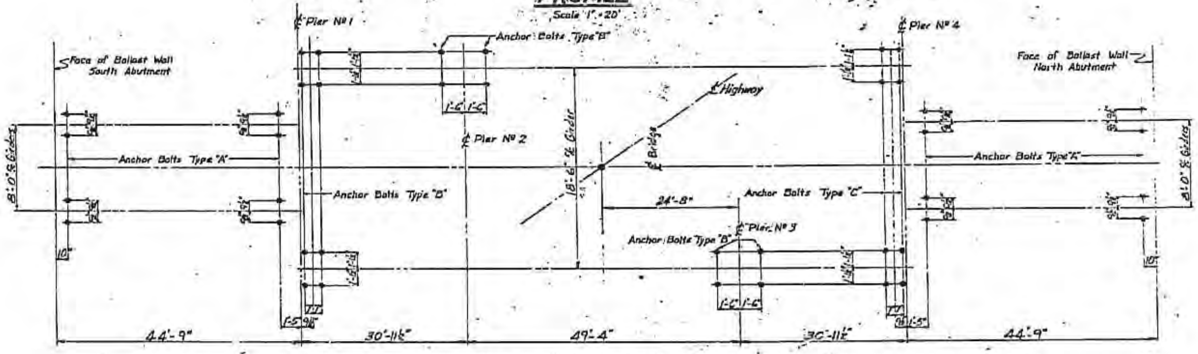
PLAN

Scale 1"=20'



PROFILE

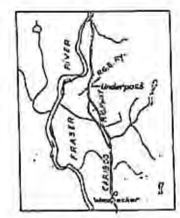
Scale 1"=20'



ANCHOR BOLT DIAGRAM

N.T.S.

Bolt Type	Projection Above Bridge Seat
A	4½"
B	4½"
C	5½"



KEY PLAN

Scale 1"=3 Miles

AS BUILT

REVISIONS		
NO.	DATE	DESCRIPTION
A	Sept 1956	[illegible]
B	17 Mar '57	Abutments and cross section of cut revised

B.C. DEPARTMENT OF HIGHWAYS

CARIBOO HIGHWAY

P.G.E. UNDERPASS AT STA.507+78½

GENERAL LAYOUT

A.B. SANDERSON AND COMPANY LTD

CONSULTING ENGINEERS

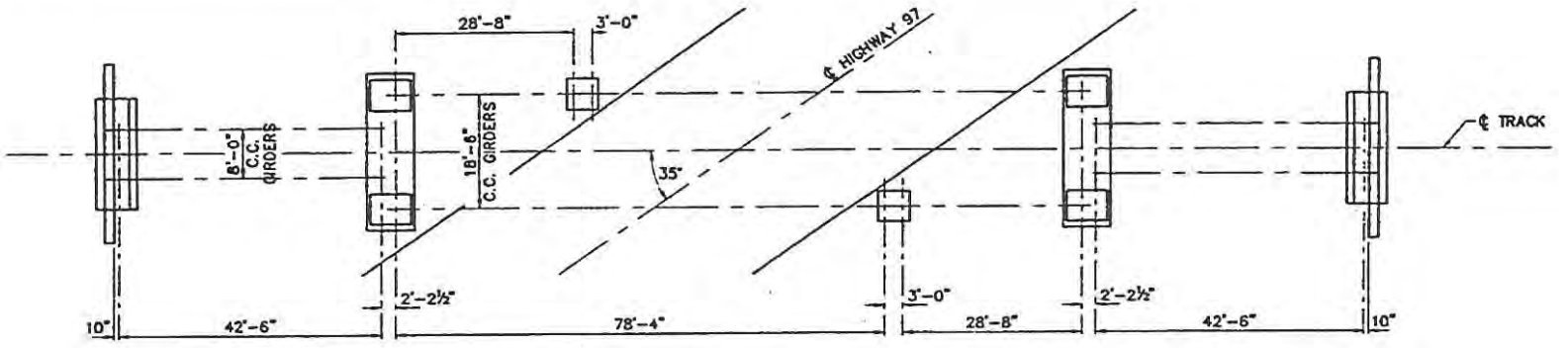
SCALE:- AS NOTED

MADE:- H.B. DATE: 14 Aug.56 CHKD. LKN

APPROVED- [signature] P.ENG.

DRAWING NUMBER 043-1 B

XING #0124 (AL2.pdf) BR # 1824

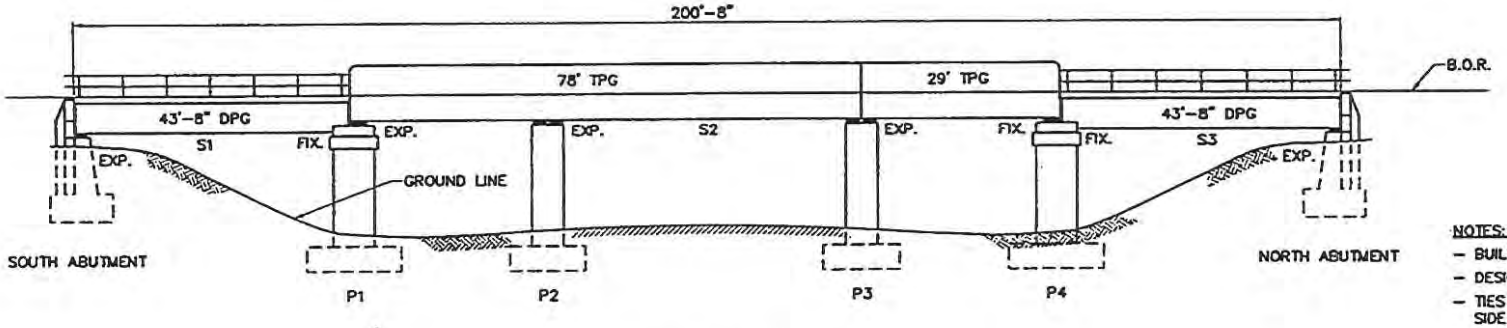


PLAN

WILLIAMS LAKE

ALIGNMENT: TANGENT
GRADE: +0.20%

PRINCE GEORGE



ELEVATION

NOTES:
- BUILT 1957 BY DEPT. OF HIGHWAYS.
- DESIGN LIVE LOAD COOPER E55.
- TIES REPLACED, STEEL WALKWAY ADDED WEST SIDE 1990.
- REPAIRED DAMAGE TO BOTTOM FLANGE OF MAIN GIRDER CAUSED BY VEHICLE COLLISION 1998.

-REF. DWGS.
D1-7831 THRU D1-7839
D1-7848 THRU D1-7850
D1-7852 THRU D1-7855
A1/1-28128 AND A1/1-28129
D1-32908

REV	DATE	DESCRIPTION	DRFT	ENG

DESIGNED
DRAWN P H M
DSGN. CHK
DWG. CHK. fal

BCRAIL ENGINEERING DEPARTMENT
P.O. Box 8770
Vancouver, B.C
V6B 4X6

SUBMITTED
BRIDGE ENGINEER
DATE

APPROVED
MNGR. GRD. BRIDGE, TRK PLANING
DATE

LOCATION

SUBDIVISION
PRINCE GEORGE

HIGHWAY 97 OVERPASS
MILE 441.20

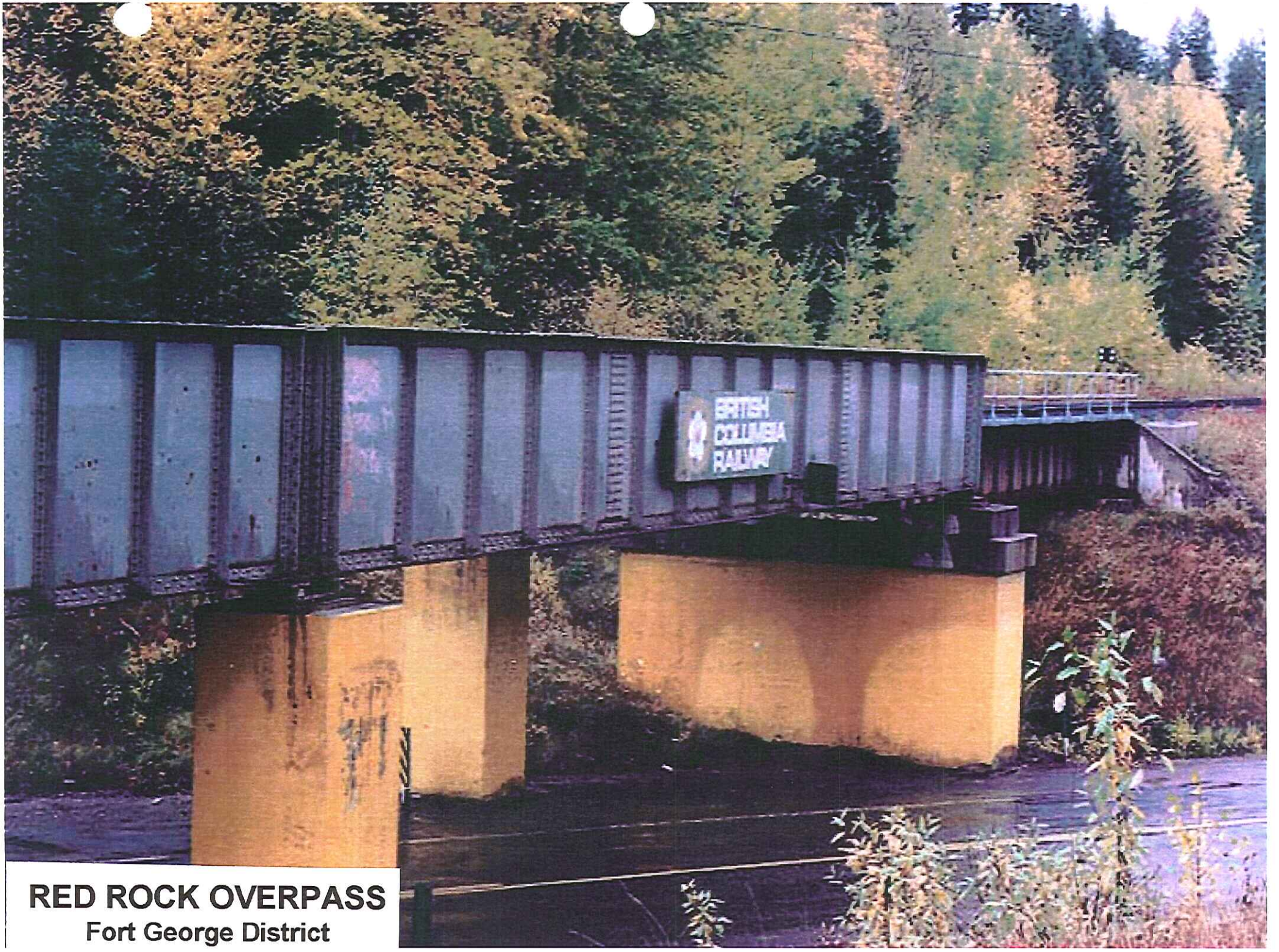
SCALE	DATE	DRAWING No.	SHEET	REV.
1" = 20'	99/05/03	A3/1-12600	1 OF 1	0

FILE: a1260000.dwg PLOTID:[moring] PLOTTED DATE: 99/05/07 TIME: 13:01:32


Stoner BCR O/P
Cariboo Hwy
Woodpecker

Red Rock BCR O/P

Bridge No. 1825



RED ROCK OVERPASS

Fort George District

Return to BIG | Return to Image List

Notes:

Filename: 1825_side1s .jpg

Return to BIG | Return to Image List

Return to BIG | Return to Image List

Notes:

Filename: 1825_ap1e .jpg

Return to BIG | Return to Image List

W Williams Rd
Red Rock BCR O/P


Red Rock
Red Rock BCR O/P
Cariboo Hwy
Stoner

CONFIDENTIAL

Province of British Columbia

TOTAL TENDER AND ASSOCIATED MINISTRY COST ESTIMATE

Schedule of Approximate Quantities and Unit Prices

Project No: 00000-0000

Project Name: Red Rock Railway Overpass - lower Highway 0.66 meters.

TOTAL TENDER AND ASSOCIATED MINISTRY COST ESTIMATE					
Item#	**Description of Work**	**Unit of Measure**	**Approx. Quantity**	**Unit Price**	**Extended Amount**
1.01	Excavation	Cubic Metre	12600	$14.00	$176,400.00
1.02	Culverts	L.S.	100%	L.S.	$36,000.00
1.03	Borrow	Cubic Metre	500	$25.00	$12,500.00
1.04	Granular Sub-Base	Cubic Metre	2900	$30.00	$87,000.00
1.05	Granular Base Course	Cubic Metre	1200	$40.00	$48,000.00
1.06	Asphalt	Tonne	850	$150.00	$127,500.00
1.07	Mobilization/Quality/Traffic Control	L.S.	100%	L.S.	$70,000.00
Part A	**TENDER COST ESTIMATE**				**$557,400.00**
	TOTAL TENDER COST (Tender Cost Estimate plus Site Occupancy(if applicable))				**$557,400.00**
901.00	Contingencies - 100%			$560,000.00	
902.00	Engineering - 20%			$110,000.00	
903.00	Materials Supplied by MOT			$15,000.00	
904.00	Miscellaneous (please enter miscellaneous items below)			$96,000.00	
905.00	Utility Relocation - Minor			$10,000.00	
	ASSOCIATED MINISTRY COST ESTIMATES				**$791,000.00**
	TOTAL TENDER, SITE OCCUPANCY (if applicable) AND ASSOCIATED MINISTRY COST ESTIMATES				**$1,348,400.00**

Miscellaneous Ministry Cost Breakdown

Description		Cost:
Pavement Marking		$6,000.00
Property Aquisition	Unknown	
Geotechnical Investigation	Unknown	
Environmental Investigation	Unknown	
Archaeological Investigation	Unknown	
Utility Relocation - Major	Unknown	
Construction Supervision - 45 days at $2000 daily		$90,000.00
Project Management	Unknown	
Payroll, Payments, & Accounting	Unknown	
This total will auto populate the Miscellaneous Category above	**Total:**	$96,000.00

GROUND DATA FROM LIDAR

ROADENG Plan	Scale 1:2000	P. 1
W:\Engineering\survey\Projects 2009\9-01 Hwy97 underpasses\RED ROCK\Red Rock go around		09/02/27

CONFIDENTIAL

Province of British Columbia

TOTAL TENDER AND ASSOCIATED MINISTRY COST ESTIMATE

Schedule of Approximate Quantities and Unit Prices

Project No: 00000-0000

Project Name: Red Rock Railway Overpass - 50 meter new, upgrade 170 meter Shoo-fly

TOTAL TENDER AND ASSOCIATED MINISTRY COST ESTIMATE					
Item#	**Description of Work**	**Unit of Measure**	**Approx. Quantity**	**Unit Price**	**Extended Amount**
1.01	Excavation	Cubic Metre	100	$14.00	$1,400.00
1.02	Culverts	L.S.	100%	L.S.	$6,000.00
1.03	Borrow	Cubic Metre	200	$25.00	$5,000.00
1.04	Granular Sub-Base	Cubic Metre	100	$30.00	$3,000.00
1.05	Granular Base Course	Cubic Metre	50	$40.00	$2,000.00
1.06	Mobilization/Quality/Traffic Control	L.S.	100%	L.S.	$10,000.00
Part A	**TENDER COST ESTIMATE**				**$27,400.00**
	TOTAL TENDER COST (Tender Cost Estimate plus Site Occupancy(if applicable))				**$27,400.00**
901.00	Contingencies - 200%			$60,000.00	
902.00	Engineering - 60%			$20,000.00	
903.00	Materials Supplied by MOT			$2,000.00	
904.00	Miscellaneous (please enter miscellaneous items below)			$20,000.00	
905.00	Utility Relocation			$10,000.00	
	ASSOCIATED MINISTRY COST ESTIMATES				**$112,000.00**
	TOTAL TENDER, SITE OCCUPANCY (if applicable) AND ASSOCIATED MINISTRY COST ESTIMATES				**$139,400.00**

Miscellaneous Ministry Cost Breakdown

Description		Cost:
Pavement Marking		$0.00
Property Aquisition	Unknown	
Geotechnical Investigation	Unknown	
Environmental Investigation	Unknown	
Archaeological Investigation	Unknown	
Utility Relocation - Major	Unknown	
Construction Supervision -10 days at $2000 daily		$20,000.00
Project Management	Unknown	
Payroll, Payments, & Accounting	Unknown	
This total will auto populate the Miscellaneous Category above	**Total:**	$20,000.00

CONFIDENTIAL

Province of British Columbia

TOTAL TENDER AND ASSOCIATED MINISTRY COST ESTIMATE

Schedule of Approximate Quantities and Unit Prices

Project No: 00000-0000

Project Name: Red Rock Overpass Replacement

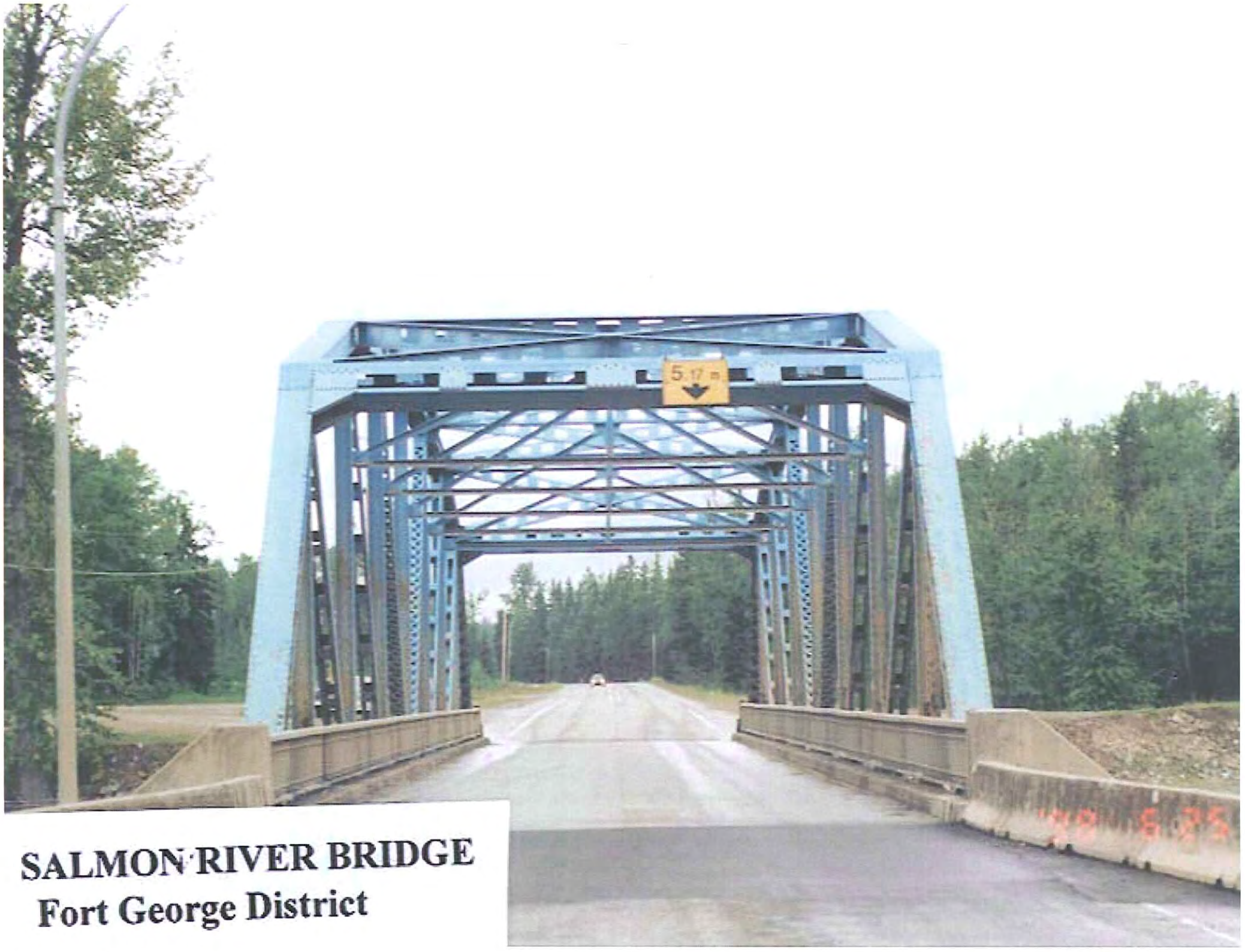
TOTAL TENDER AND ASSOCIATED MINISTRY COST ESTIMATE					
Item#	**Description of Work**	**Unit of Measure**	**Approx. Quantity**	**Unit Price**	**Extended Amount**
1.01	Bridge Replacement - 35 m.	Square Metre	193	$8,000.00	$1,544,000.00
1.02	Detour Bridge - 35 m.	Square Metre	193	$5,000.00	$965,000.00
1.03	Demolition of Existing Bridge	Square Metre	331	$2,500.00	$827,500.00
1.04	Mobilization/Quality/Traffic Control	L.S.	100%	L.S.	$500,000.00
Part A	**TENDER COST ESTIMATE**				**$3,836,500.00**
	TOTAL TENDER COST (Tender Cost Estimate plus Site Occupancy(if applicable))				**$3,836,500.00**
901.00	Contingencies - 100%			$3,830,000.00	
902.00	Engineering -20%			$767,000.00	
903.00	Materials Supplied by MOT			$10,000.00	
904.00	Miscellaneous (please enter miscellaneous items below)			$420,000.00	
905.00	Utility Relocation - Minor			$10,000.00	
	ASSOCIATED MINISTRY COST ESTIMATES				**$5,037,000.00**
	TOTAL TENDER, SITE OCCUPANCY (if applicable) AND ASSOCIATED MINISTRY COST ESTIMATES				**$8,873,500.00**

Miscellaneous Ministry Cost Breakdown

Description		Cost:
Pavement Marking		$0.00
Property Aquisition	Unknown	
Geotechnical Investigation	Unknown	
Environmental Investigation	Unknown	
Archaeological Investigation	Unknown	
Utility Relocation - Major	Unknown	
Construction Supervision - 120 days at $3500 daily		$420,000.00
Project Management	Unknown	
Payroll, Payments, & Accounting	Unknown	
This total will auto populate the Miscellaneous Category above	**Total:**	$420,000.00

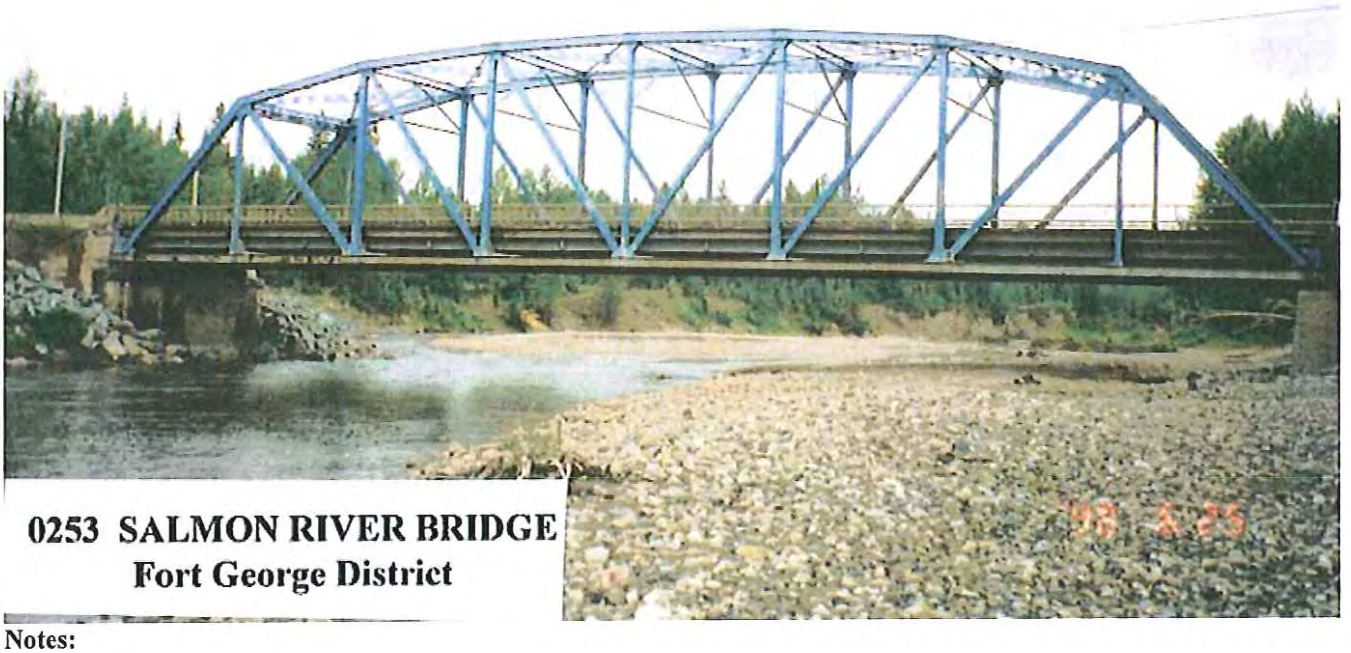
Salmon River Bridge

Bridge No. 0253



SALMON RIVER BRIDGE
Fort George District

Return to BMIS | Return to Image List



Notes:

Filename: 0253_side1 .jpg

Return to BMIS | Return to Image List


97
Salmon Valley Rd
Salmon River Bridge
Hart Hwy


Salmon River Bridge
Hart Hwy
Fort George (Shelley) 2
97
John Hart Hwy

CONFIDENTIAL

Province of British Columbia

TOTAL TENDER AND ASSOCIATED MINISTRY COST ESTIMATE

Schedule of Approximate Quantities and Unit Prices

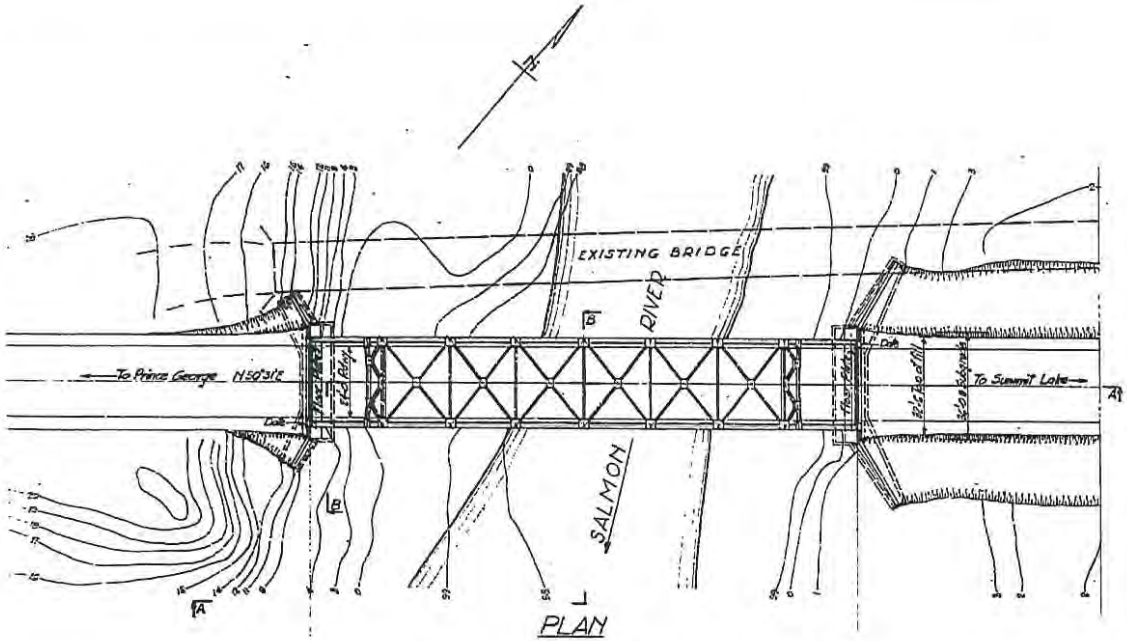
Project No: 00000-0000

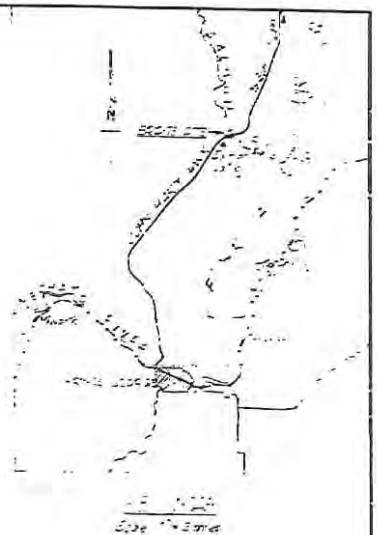
Project Name: Salmon River Bridge Replacement

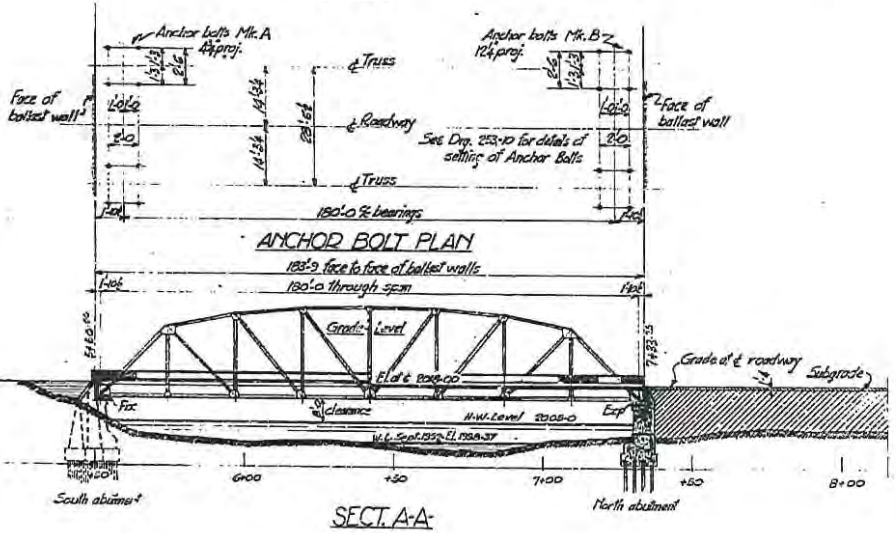
TOTAL TENDER AND ASSOCIATED MINISTRY COST ESTIMATE					
Item#	**Description of Work**	**Unit of Measure**	**Approx. Quantity**	**Unit Price**	**Extended Amount**
1.01	Bridge Replacement - 55 m.	Square Metre	671	$5,000.00	$3,355,000.00
1.02	Detour Bridge - 40 m.	Square Metre	280	$3,500.00	$980,000.00
1.03	Demolition of Existing Bridge	Square Metre	671	$2,500.00	$1,677,500.00
1.04	Mobilization/Quality/Traffic Control	L.S.	100%	L.S.	$600,000.00
Part A	**TENDER COST ESTIMATE**				**$6,612,500.00**
	TOTAL TENDER COST (Tender Cost Estimate plus Site Occupancy(if applicable))				**$6,612,500.00**
901.00	Contingencies - 50%			$3,000,000.00	
902.00	Engineering -20%			$1,200,000.00	
903.00	Materials Supplied by MOT			$10,000.00	
904.00	Miscellaneous (please enter miscellaneous items below)			$420,000.00	
905.00	Utility Relocation - Minor			$10,000.00	
	ASSOCIATED MINISTRY COST ESTIMATES				**$4,640,000.00**
	TOTAL TENDER, SITE OCCUPANCY (if applicable) AND ASSOCIATED MINISTRY COST ESTIMATES				**$11,252,500.00**

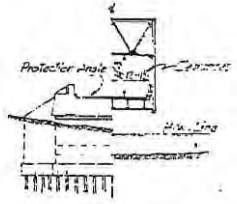
Miscellaneous Ministry Cost Breakdown

Description		Cost:
Pavement Marking		$0.00
Property Aquisition	Unknown	
Geotechnical Investigation	Unknown	
Environmental Investigation	Unknown	
Archaeological Investigation	Unknown	
Utility Relocation - Major	Unknown	
Construction Supervision - 120 days at $3500 daily		$420,000.00
Project Management	Unknown	
Payroll, Payments, & Accounting	Unknown	
This total will auto populate the Miscellaneous Category above	**Total:**	$420,000.00









Spec. Dept of Public Works
Live Load: H20
Survey: A.P. Sept 13th 1952
Datum: B.M. "B" 40'E. of ℄ of existing rd. 350' south of 0+00, Elev. 1027.98

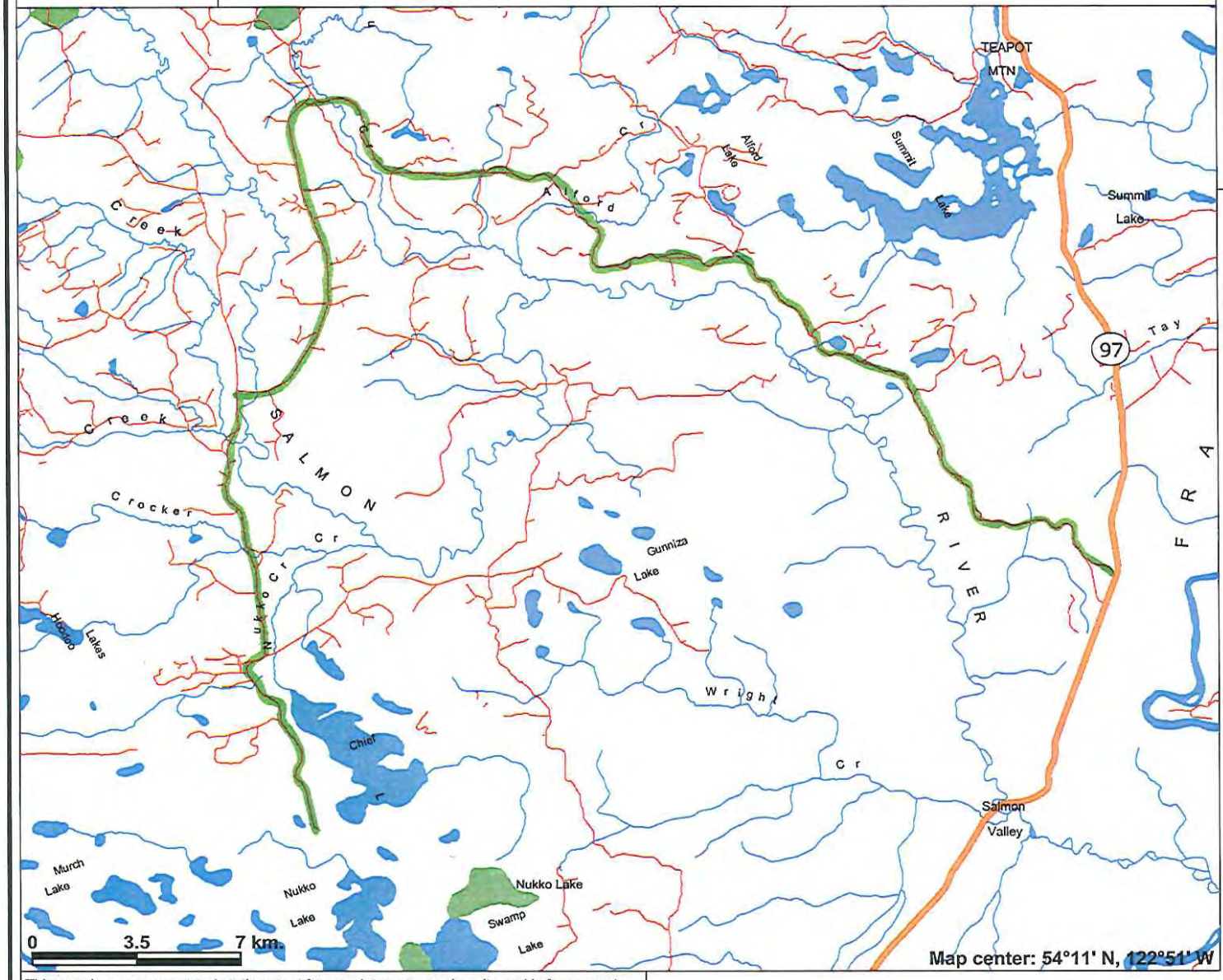
FOR DEPARTMENT OF PUBLIC WORKS
SALMON RIVER BRIDGE
LAYOUT ANCHOR BOLT PLAN & LINE
SUBSTRUCTURE

REVISIONS			
No.	Particulars	Init.	Date
1	Anchor bolt projections 21½ to 24		

GOVT. OF BRITISH COLUMBIA
DEPT. OF PUBLIC WORKS
BRIDGE ENGINEER'S OFFICE

	Init.	Date	DRAWING NO.
Made by			
Checked by			

Salmon River (0253) Detour



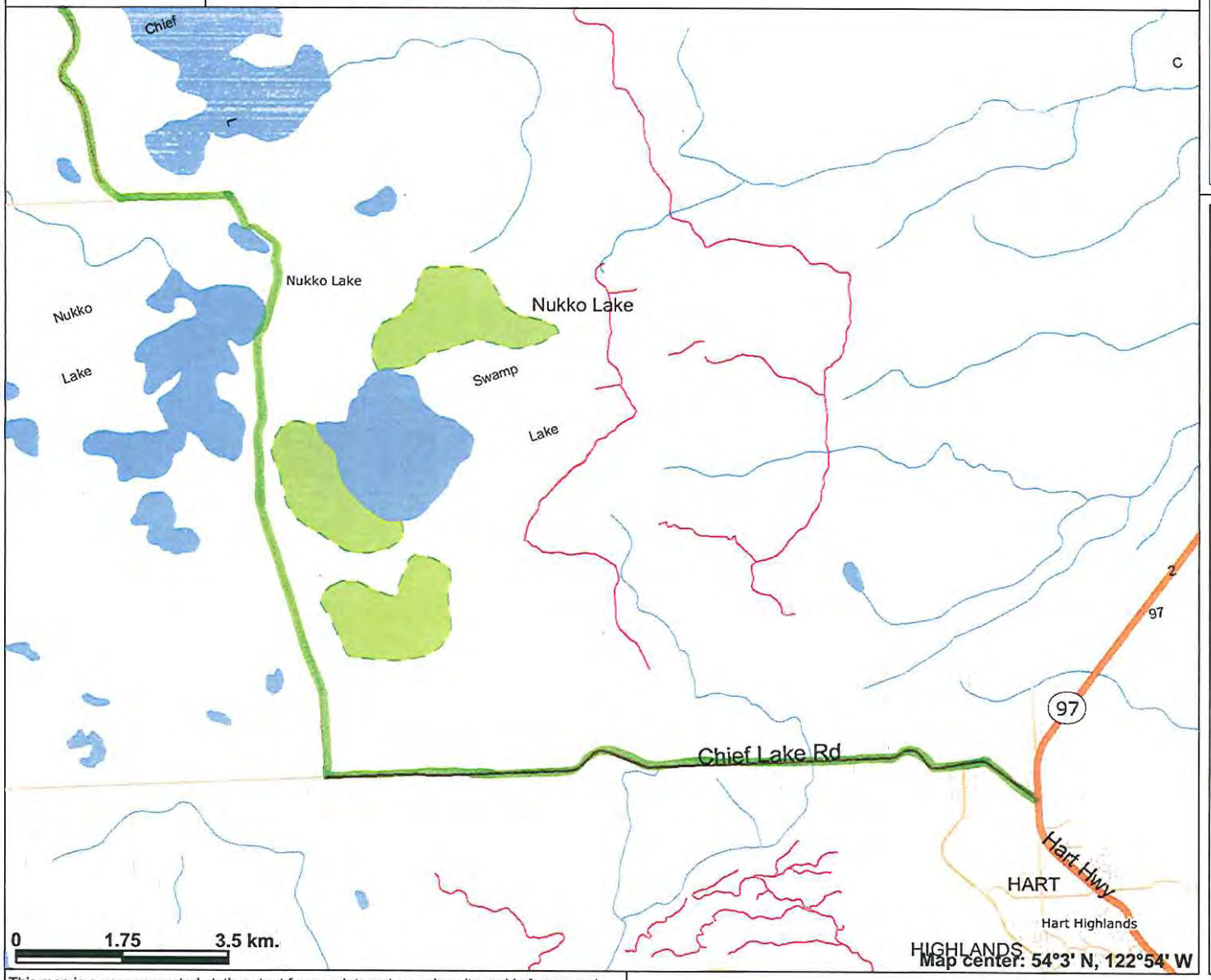
Legend

- Photolog Outline Geometry
- DSA Highways
- Annotation (NTS)
- Cities and Towns
  - City
  - District Municipality
  - Town
  - Village
  - Village - Unincorporated
  - Capital City
- Forest Tenure Roads
- Water - Lines (1:250K)
  - Conduit - Aboveground
  - Conduit - Electrical - Underground
  - Canal - Irrigation
  - Falls
  - Penstock
  - Rapids
  - River/Stream - Definite
  - River/Stream - Braided
  - River/Stream - Disappearing
  - River/Stream - Dry
  - River/Stream - Indefinite
  - River/Stream - Left Bank
  - River/Stream - Right Bank
  - Penstock - Underground
  - Dam
  - Flooded Land - Inundated
  - Lake - Definite
  - Lake - Indefinite
  - Lake - Intermittent
  - Lake - Marshy
  - Reservoir - Definite
  - Flooded Land - Inundated.Indefinite
  - Lake - Marshy.Indefinite

N

Scale: 1:202,321

Salmon River (0253) Detour



Legend

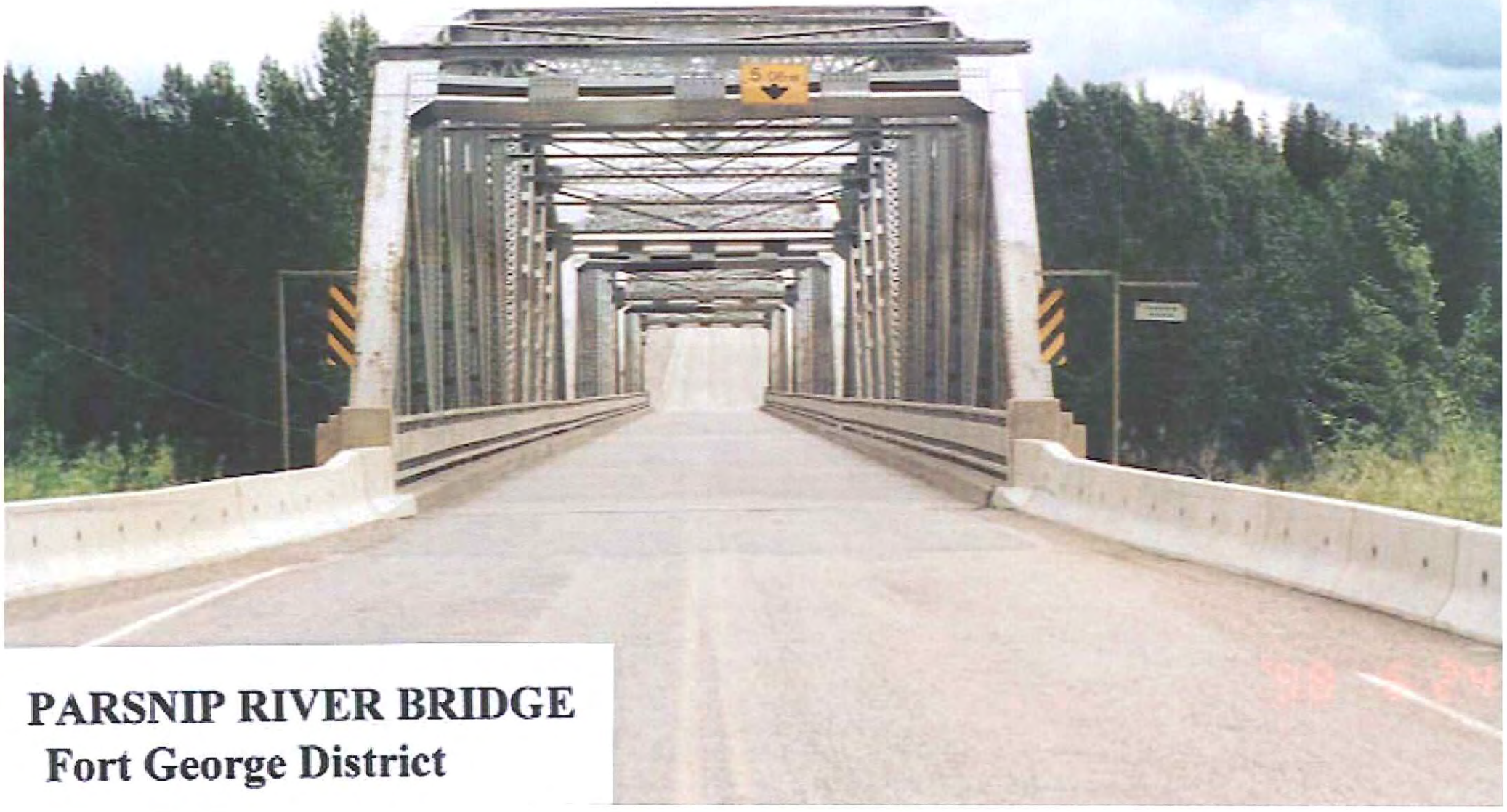
- Photolog Outline Geometry
- DSA Highways
- Annotation (NTS)
- Communities
- Roads
  - Arterial
  - Collector
  - Ferry
  - Freeway
  - Highway
  - Lane
  - Local
  - Ramp
  - Recreation
  - Resource
  - Restricted
  - Strata
  - Trail
- Forest Tenure Roads
- Water - Lines (1:250K)
  - Conduit - Aboveground
  - Conduit - Electrical - Underground
  - Canal - Irrigation
  - Falls
  - Penstock
  - Rapids
  - River/Stream - Definite
  - River/Stream - Braided
  - River/Stream - Disappearing
  - River/Stream - Dry
  - River/Stream - Indefinite
  - River/Stream - Left Bank
  - River/Stream - Right Bank
  - Penstock - Underground
  - Dam

N

Scale: 1:98,567

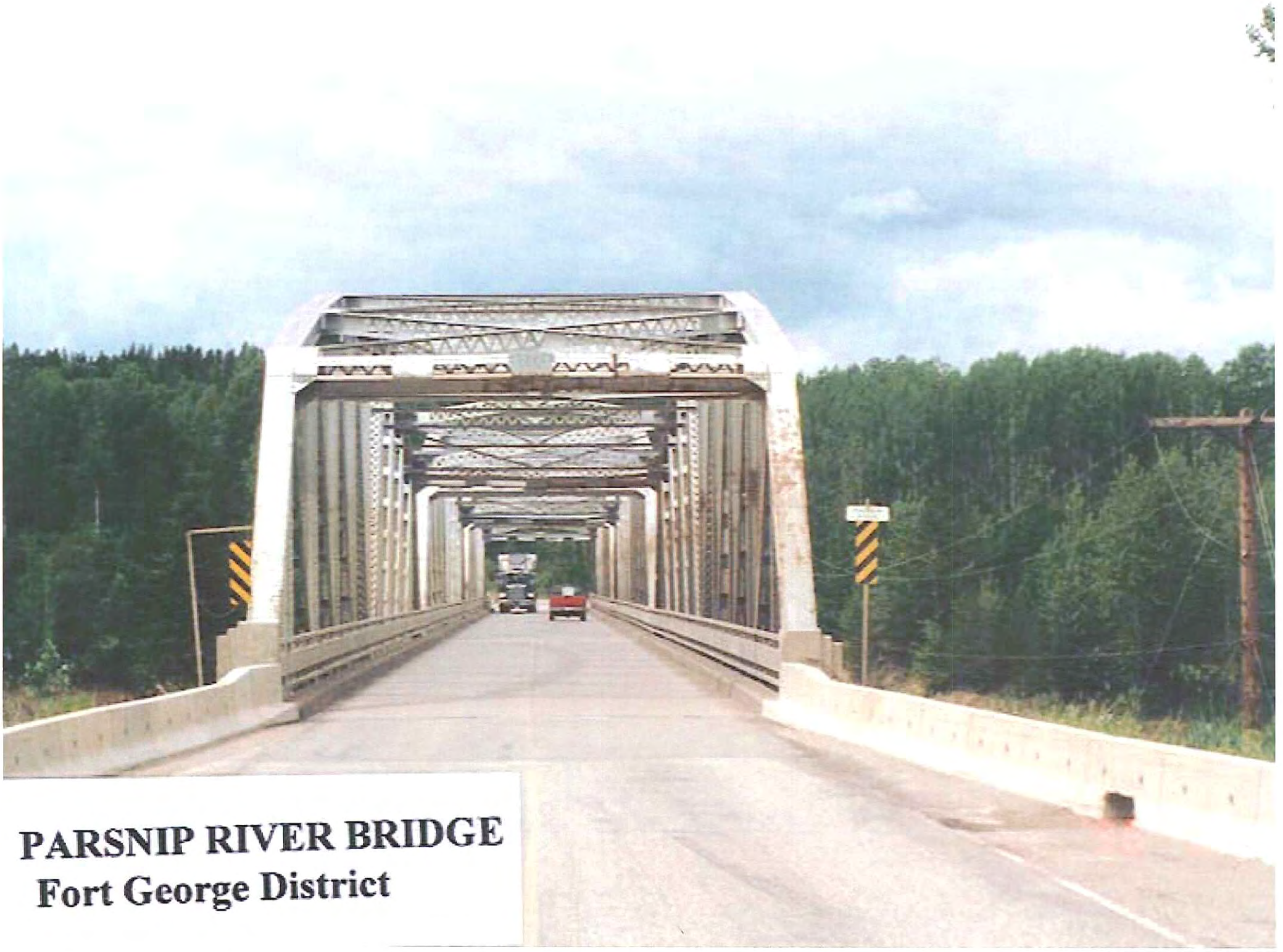
Parsnip River Bridge

Bridge No. 1185



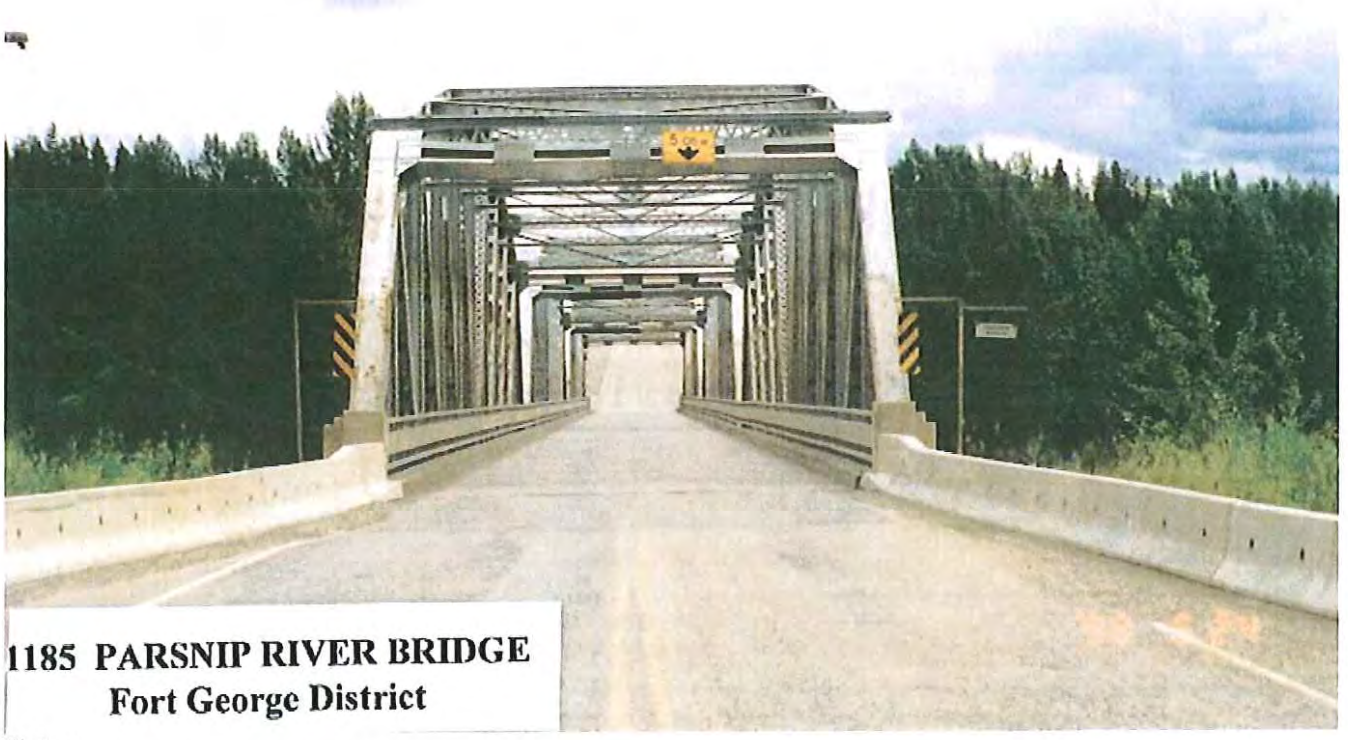
PARSNIP RIVER BRIDGE

Fort George District



PARSNIP RIVER BRIDGE
Fort George District

Return to BMIS | Return to Image List



Notes:

Filename: 1185_Thru Truss 3.jpg

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Notes:

Filename: 1185_side1 .jpg

Return to BMIS | Return to Image List


Parsnip 5
Parsnip River Bridge
97


Bljoux BCR O/P
97
Parsnip River Bridge

CONFIDENTIAL

Province of British Columbia

TOTAL TENDER AND ASSOCIATED MINISTRY COST ESTIMATE

Schedule of Approximate Quantities and Unit Prices

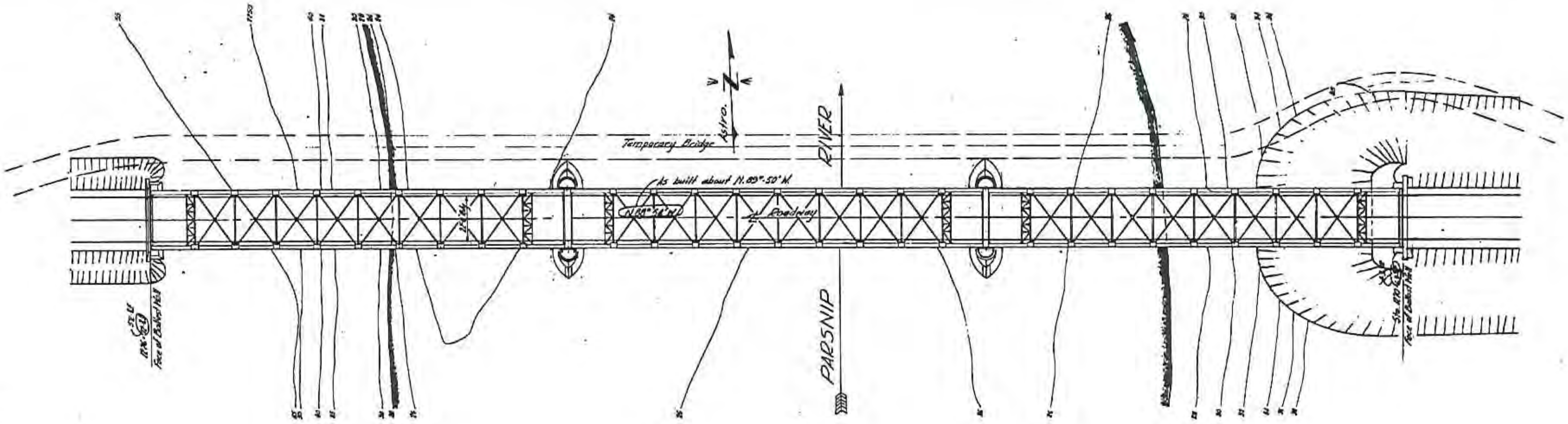
Project No: 00000-0000

Project Name: Parsnip River Bridge Replacement

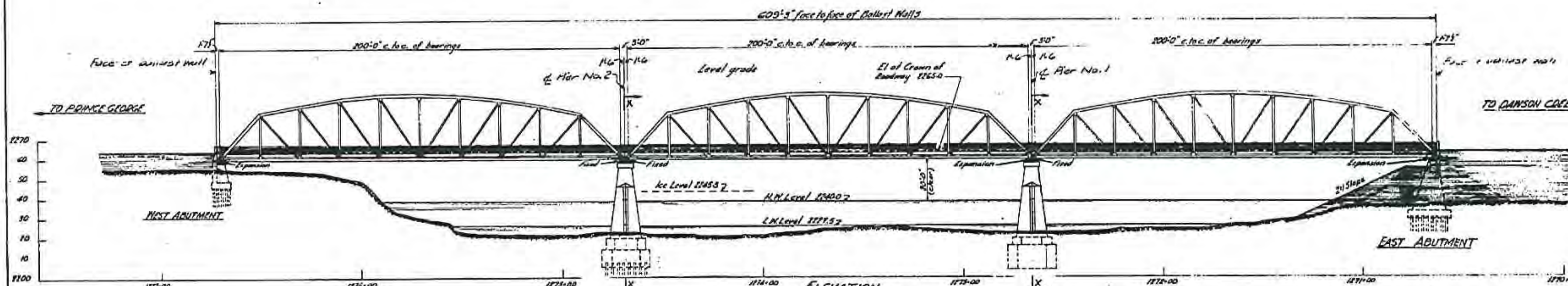
TOTAL TENDER AND ASSOCIATED MINISTRY COST ESTIMATE					
Item#	**Description of Work**	**Unit of Measure**	**Approx. Quantity**	**Unit Price**	**Extended Amount**
1.01	Bridge Replacement - 185 m.	Square Metre	2257	$5,000.00	$11,285,000.00
1.02	Detour Route Maintenance	Kilometre	70	$2,000.00	$140,000.00
1.03	Demolition of Existing Bridge	Square Metre	2257	$2,500.00	$5,642,500.00
1.04	Mobilization/Quality/Traffic Control	L.S.	100%	L.S.	$1,700,000.00
Part A	**TENDER COST ESTIMATE**				**$18,767,500.00**
	TOTAL TENDER COST (Tender Cost Estimate plus Site Occupancy(if applicable))				**$18,767,500.00**
901.00	Contingencies - 40%			$7,500,000.00	
902.00	Engineering -20%			$3,600,000.00	
903.00	Materials Supplied by MOT			$10,000.00	
904.00	Miscellaneous (please enter miscellaneous items below)			$840,000.00	
905.00	Utility Relocation - Minor			$10,000.00	
	ASSOCIATED MINISTRY COST ESTIMATES				**$11,960,000.00**
	TOTAL TENDER, SITE OCCUPANCY (if applicable) AND ASSOCIATED MINISTRY COST ESTIMATES				**$30,727,500.00**

Miscellaneous Ministry Cost Breakdown

Description		Cost:
Pavement Marking		$0.00
Property Aquisition	Unknown	
Geotechnical Investigation	Unknown	
Environmental Investigation	Unknown	
Archaeological Investigation	Unknown	
Utility Relocation - Major	Unknown	
Construction Supervision - 240 days at $3500 daily		$840,000.00
Project Management	Unknown	
Payroll, Payments, & Accounting	Unknown	
This total will auto populate the Miscellaneous Category above	**Total:**	$840,000.00



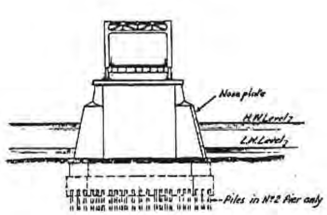
PLAN



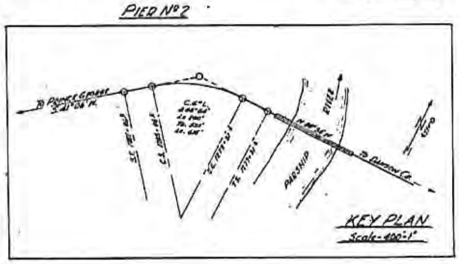
ELEVATION

PIER Nº 2

PIER Nº 1



SECTION X-X



KEY PLAN
Scale - 400'-1"

LIST OF DRAWINGS	
1155-10	Site Plan & Key Map
-11	General Arrangement
-12	Substructure Layout & Anchor Bolt Layout
-13	West Abutment
-14	Pier Details
-15	East Abutment
-16	Substructure Steelwork
-18	Truss Design Sheet
-19	Typical Span Details
-20	Details of Floor Bk. & Protection Angles
-21	Fence Details
-22	Deck Details

FORT GEORGE DISTRICT
HART HIGHWAY
PARSNIP RIVER BRIDGE
GENERAL ARRANGEMENT
AND KEY PLAN
Scale - 1":25' and as noted

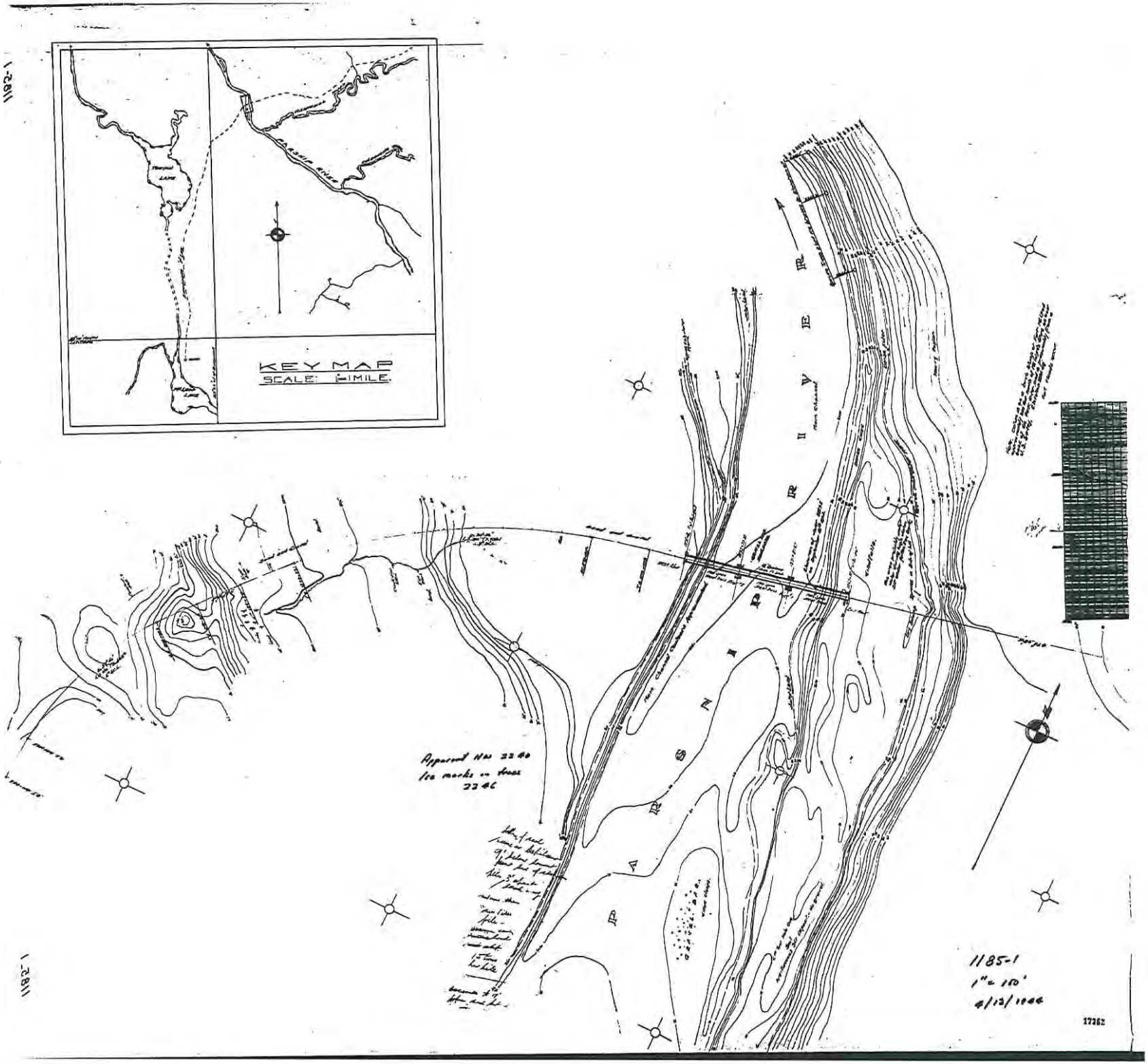
Notes:-
Specification - C.E.S.A. specification for Steel Highway Bridges. S6, 1938.
Live Load:- U.20 or 2-20 ton trucks

Pier footings as built - 15/5/53 - J.D.J.
Revised Feb. 12. 1952 -

GOVT. OF BRITISH COLUMBIA
DEPT. OF PUBLIC WORKS
VICTORIA.

Made by
Traced by
Checked by
Chief Engineer.

Drawing No. 1155-11


KEY MAP
SCALE: 1 MILE
Approved MW 2246
Ice marks on trees 2246
1185-1
1" = 10'
4/12/1946
17362


97
Parsnip River Bridge

Bijoux BCR O/P

Bridge No. 2608

BIJOUX OVERPASS

South Peace District


6.30m


Bijoux BCR O/P
John Hart Hwy
97

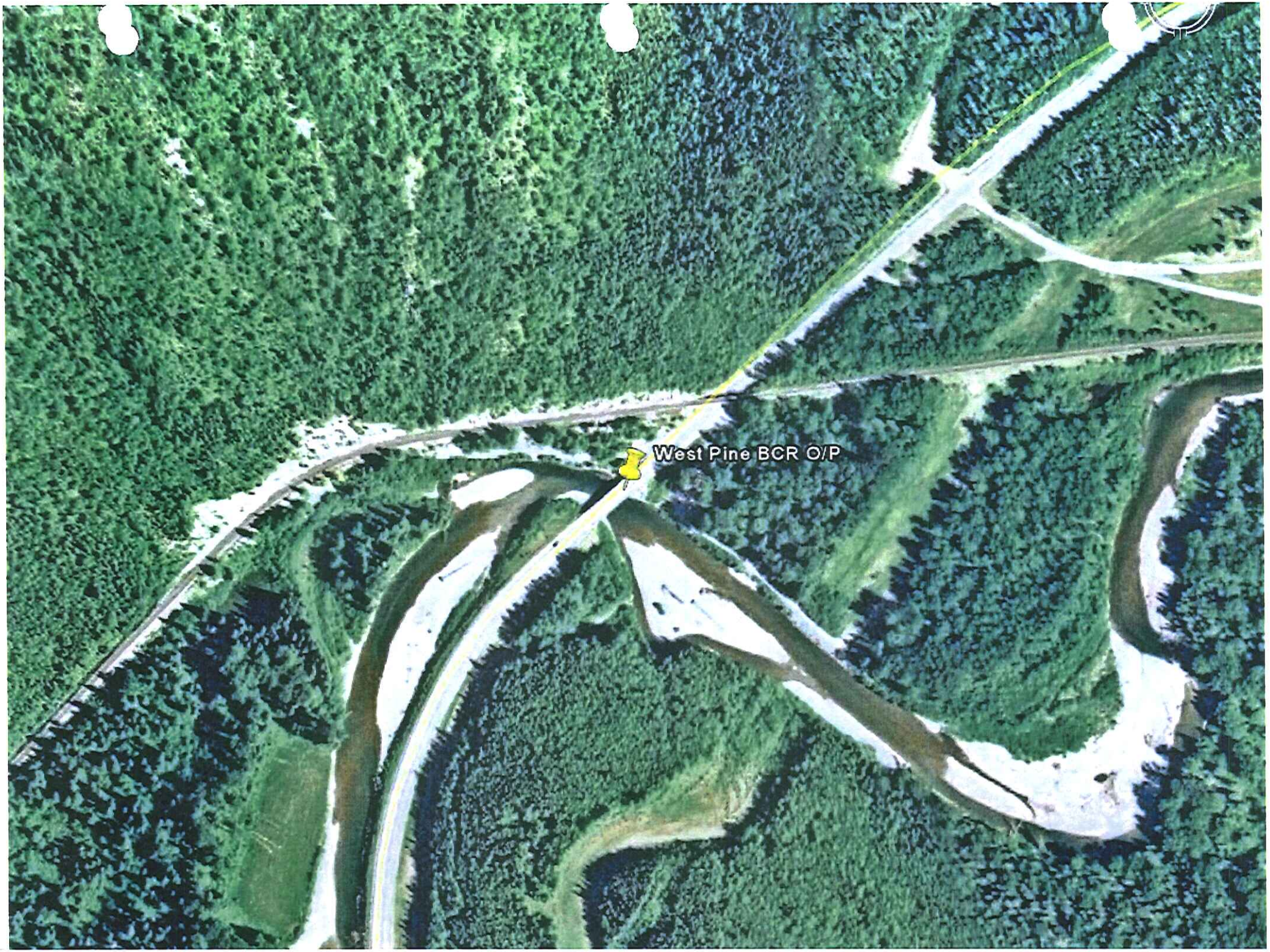

Powder King
John Hart Hwy
Bijoux BCR O/P

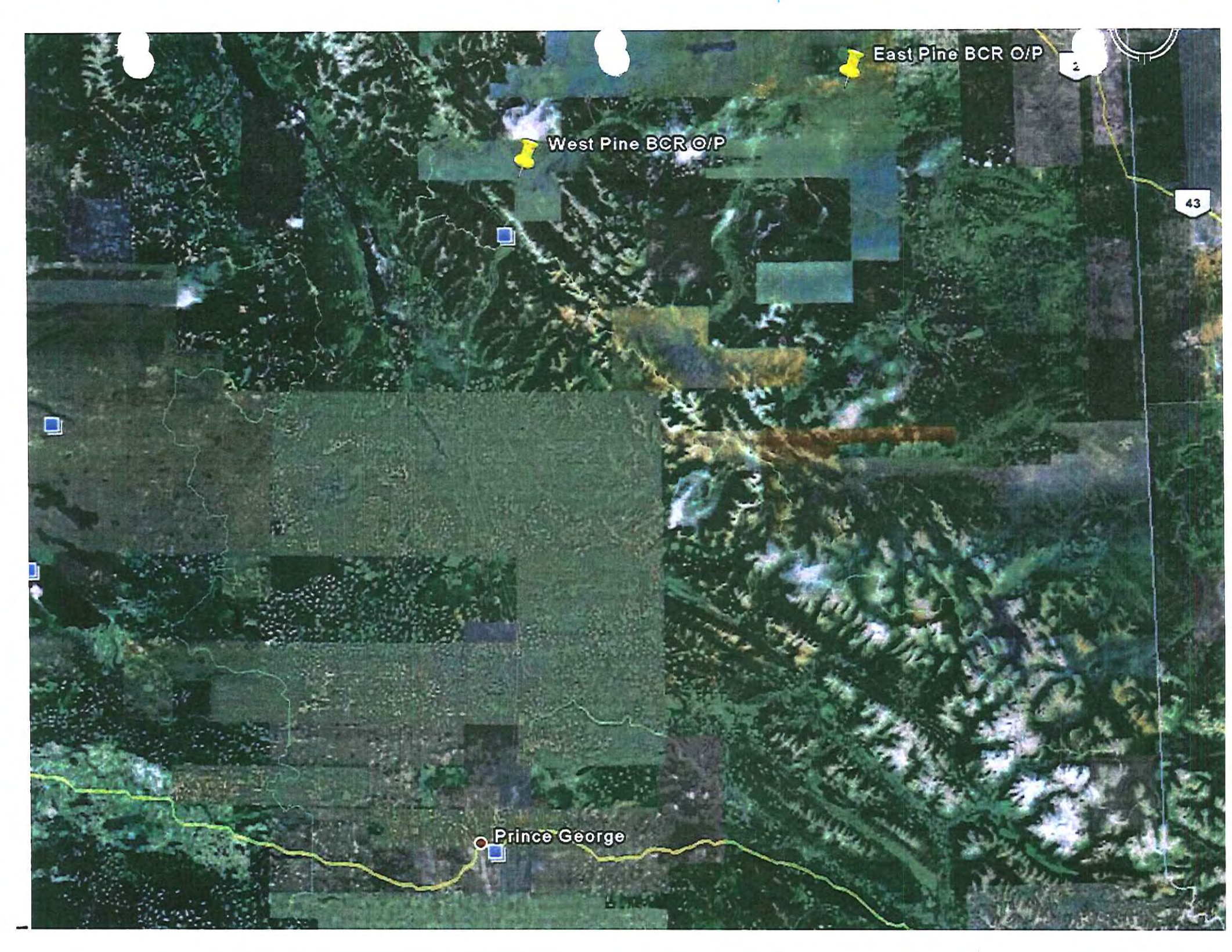
West Pine BCR O/P

Bridge No. 6161

WEST PINE OVERPASS

South Peace District


West Pine BCR O/P


East Pine BCR O/P
West Pine BCR O/P
43
Prince George

ROADENG Plan	Scale 1:5000	P. 1
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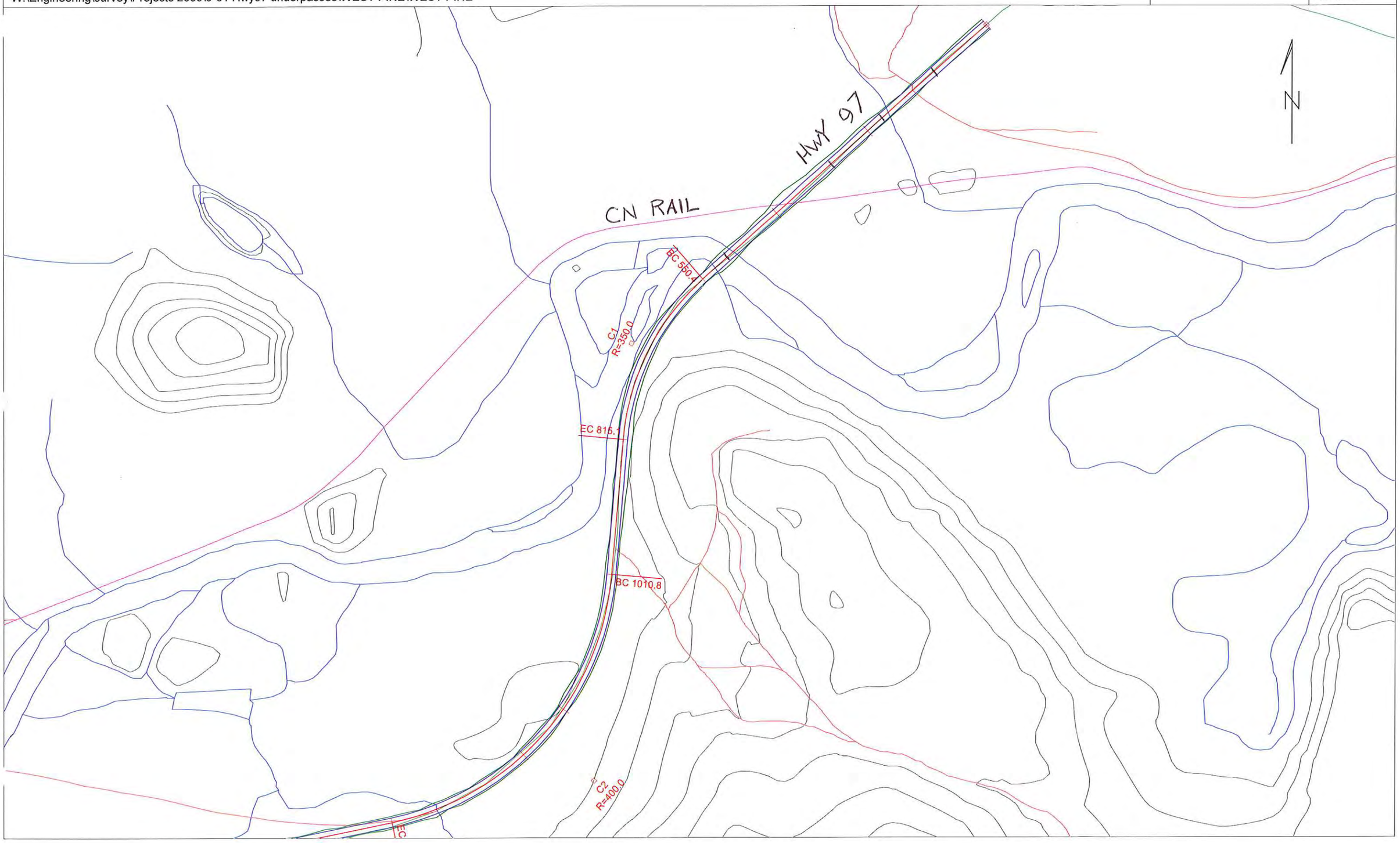

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Province of British Columbia

TOTAL TENDER AND ASSOCIATED MINISTRY COST ESTIMATE

Schedule of Approximate Quantities and Unit Prices

Project No: 00000-0000

Project Name: W. Pine Railway Overpass - lower Highway 0.38 meters.

TOTAL TENDER AND ASSOCIATED MINISTRY COST ESTIMATE					
Item#	**Description of Work**	**Unit of Measure**	**Approx. Quantity**	**Unit Price**	**Extended Amount**
1.01	Excavation	Cubic Metre	4000	$12.00	$48,000.00
1.02	Culverts	L.S.	100%	L.S.	$24,000.00
1.03	Borrow	Cubic Metre	500	$20.00	$10,000.00
1.04	Granular Sub-Base	Cubic Metre	1500	$25.00	$37,500.00
1.05	Granular Base Course	Cubic Metre	500	$35.00	$17,500.00
1.06	Asphalt	Tonne	400	$150.00	$60,000.00
1.07	Mobilization/Quality/Traffic Control	L.S.	100%	L.S.	$30,000.00
Part A	**TENDER COST ESTIMATE**				**$227,000.00**
	TOTAL TENDER COST (Tender Cost Estimate plus Site Occupancy(if applicable))				**$227,000.00**
901.00	Contingencies - 150%			$340,000.00	
902.00	Engineering - 20%			$46,000.00	
903.00	Materials Supplied by MOT			$10,000.00	
904.00	Miscellaneous (please enter miscellaneous items below)			$64,000.00	
905.00	Utility Relocation - Minor			$10,000.00	
	ASSOCIATED MINISTRY COST ESTIMATES				**$470,000.00**
	TOTAL TENDER, SITE OCCUPANCY (if applicable) AND ASSOCIATED MINISTRY COST ESTIMATES				**$697,000.00**

Miscellaneous Ministry Cost Breakdown

Description		Cost:
Pavement Marking		$4,000.00
Property Aquisition	Unknown	
Geotechnical Investigation	Unknown	
Environmental Investigation	Unknown	
Archaeological Investigation	Unknown	
Utility Relocation - Major	Unknown	
Construction Supervision - 30 days at $2000 daily		$60,000.00
Project Management	Unknown	

This total will auto populate the Miscellaneous Category above **Total:** $64,000.00

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ROADENG Plan	Scale 1:2000	P. 1
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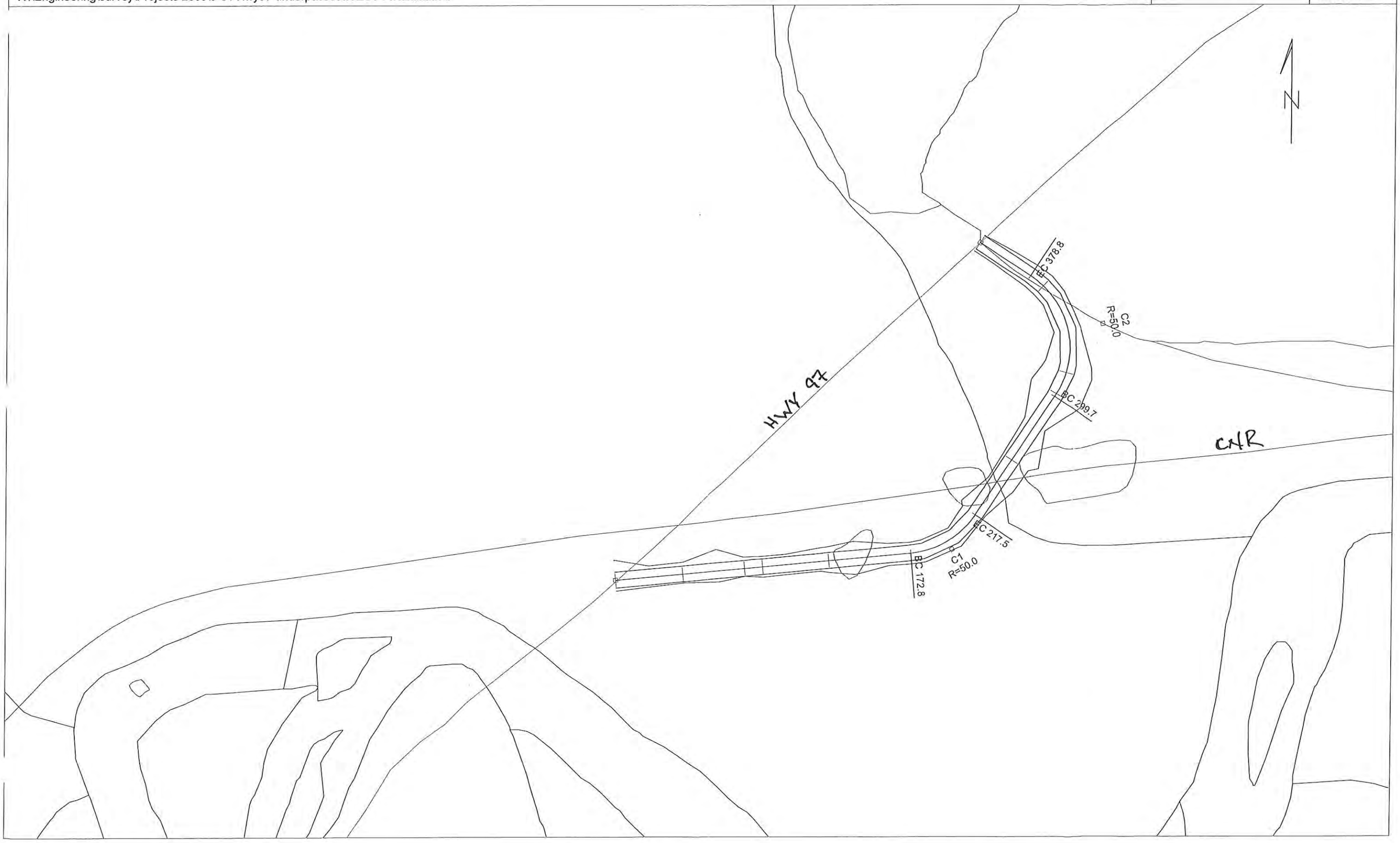

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Province of British Columbia

TOTAL TENDER AND ASSOCIATED MINISTRY COST ESTIMATE

Schedule of Approximate Quantities and Unit Prices

Project No: 00000-0000

Project Name: W. Pine Railway Overpass - 350 meter Shoo-fly

TOTAL TENDER AND ASSOCIATED MINISTRY COST ESTIMATE					
Item#	**Description of Work**	**Unit of Measure**	**Approx. Quantity**	**Unit Price**	**Extended Amount**
1.01	Excavation	Cubic Metre	10000	$14.00	$140,000.00
1.02	Culverts	L.S.	100%	L.S.	$24,000.00
1.03	Borrow	Cubic Metre	500	$25.00	$12,500.00
1.04	Granular Sub-Base	Cubic Metre	1500	$30.00	$45,000.00
1.05	Granular Base Course	Cubic Metre	500	$40.00	$20,000.00
1.06	Install New Level Crossing	L.S.	100%	L.S.	$40,000.00
1.07	Mobilization/Quality/Traffic Control	L.S.	100%	L.S.	$45,000.00
Part A	**TENDER COST ESTIMATE**				**$326,500.00**
	TOTAL TENDER COST (Tender Cost Estimate plus Site Occupancy(if applicable))				**$326,500.00**
901.00	Contingencies - 125%			$410,000.00	
902.00	Engineering -20%			$65,000.00	
903.00	Materials Supplied by MOT			$10,000.00	
904.00	Miscellaneous (please enter miscellaneous items below)			$60,000.00	
905.00	Utility Relocation - Minor			$10,000.00	
	ASSOCIATED MINISTRY COST ESTIMATES				**$555,000.00**
	TOTAL TENDER, SITE OCCUPANCY (if applicable) AND ASSOCIATED MINISTRY COST ESTIMATES				**$881,500.00**

Miscellaneous Ministry Cost Breakdown

Description		Cost:
Pavement Marking		$0.00
Property Aquisition	Unknown	
Geotechnical Investigation	Unknown	
Environmental Investigation	Unknown	
Archaeological Investigation	Unknown	
Utility Relocation - Major	Unknown	
Construction Supervision - 30 days at $2000 daily		$60,000.00
Project Management	Unknown	
Payroll, Payments, & Accounting	Unknown	
This total will auto populate the Miscellaneous Category above	**Total:**	$60,000.00

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Province of British Columbia

TOTAL TENDER AND ASSOCIATED MINISTRY COST ESTIMATE

Schedule of Approximate Quantities and Unit Prices

Project No: 00000-0000

Project Name: West Pine Overpass Replacement

TOTAL TENDER AND ASSOCIATED MINISTRY COST ESTIMATE					
Item#	**Description of Work**	**Unit of Measure**	**Approx. Quantity**	**Unit Price**	**Extended Amount**
1.01	Bridge Replacement - 30 m.	Square Metre	165	$8,000.00	$1,320,000.00
1.02	Detour Bridge - 30 m.	Square Metre	165	$5,000.00	$825,000.00
1.03	Demolition of Existing Bridge	Square Metre	165	$4,000.00	$660,000.00
1.04	Mobilization/Quality/Traffic Control	L.S.	100%	L.S.	$420,000.00
Part A	**TENDER COST ESTIMATE**				**$3,225,000.00**
	TOTAL TENDER COST (Tender Cost Estimate plus Site Occupancy(if applicable))				**$3,225,000.00**
901.00	Contingencies - 100%			$3,220,000.00	
902.00	Engineering -20%			$664,000.00	
903.00	Materials Supplied by MOT			$10,000.00	
904.00	Miscellaneous (please enter miscellaneous items below)			$420,000.00	
905.00	Utility Relocation - Minor			$10,000.00	
	ASSOCIATED MINISTRY COST ESTIMATES				**$4,324,000.00**
	TOTAL TENDER, SITE OCCUPANCY (if applicable) AND ASSOCIATED MINISTRY COST ESTIMATES				**$7,549,000.00**

Miscellaneous Ministry Cost Breakdown

Description		Cost:
Pavement Marking		$0.00
Property Aquisition	Unknown	
Geotechnical Investigation	Unknown	
Environmental Investigation	Unknown	
Archaeological Investigation	Unknown	
Utility Relocation - Major	Unknown	
Construction Supervision - 120 days at $3500 daily		$420,000.00
Project Management	Unknown	
Payroll, Payments, & Accounting	Unknown	
This total will auto populate the Miscellaneous Category above	**Total:**	$420,000.00

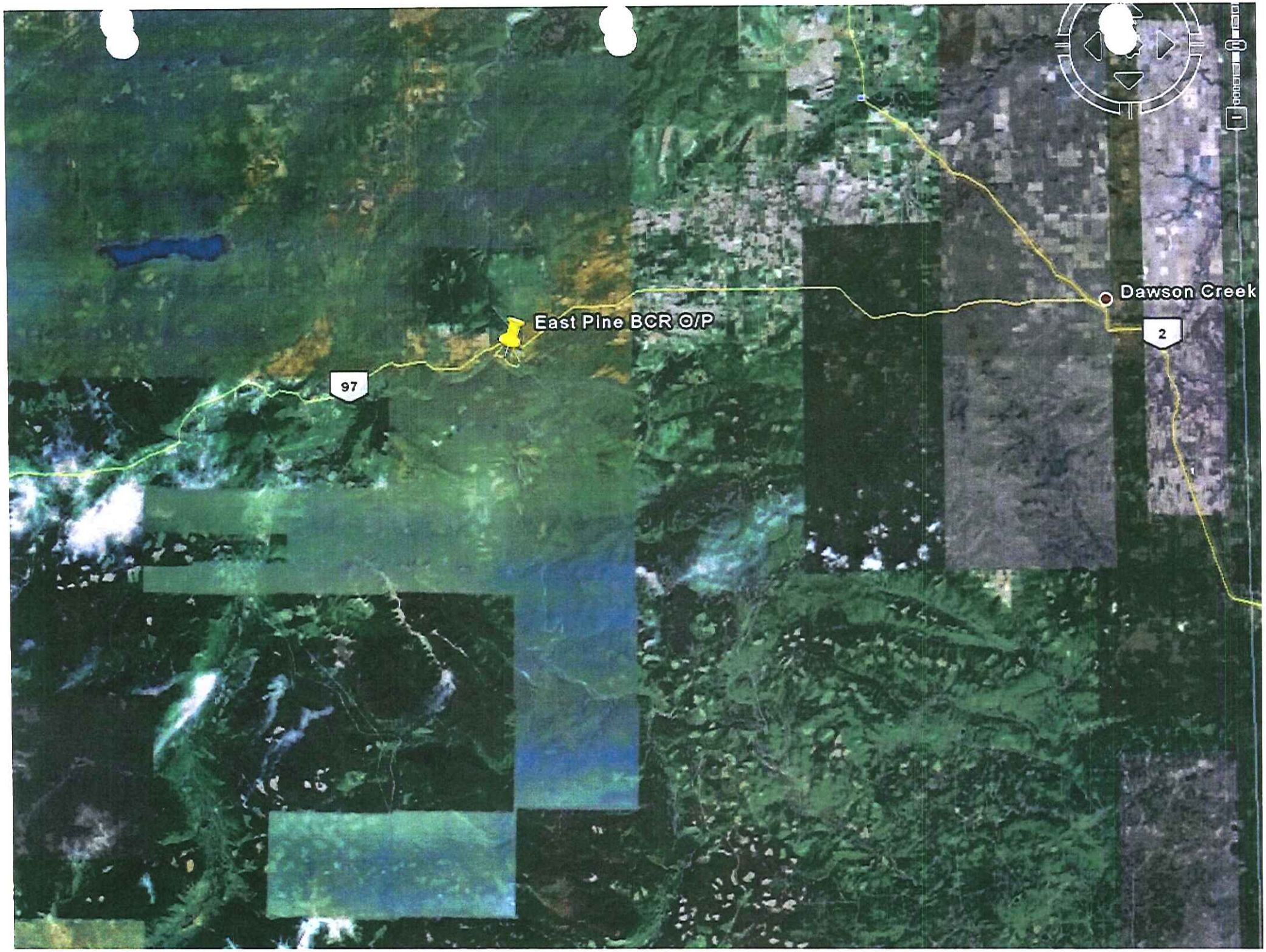
East Pine BCR O/P

Bridge No. 6160

EAST PINE OVERPASS

South Peace District


East Pine
East Pine BCR O/P
97


East Pine BCR O/P
Dawson Creek
97
2

ROADENG Plan	Scale 1:2000	P. 1
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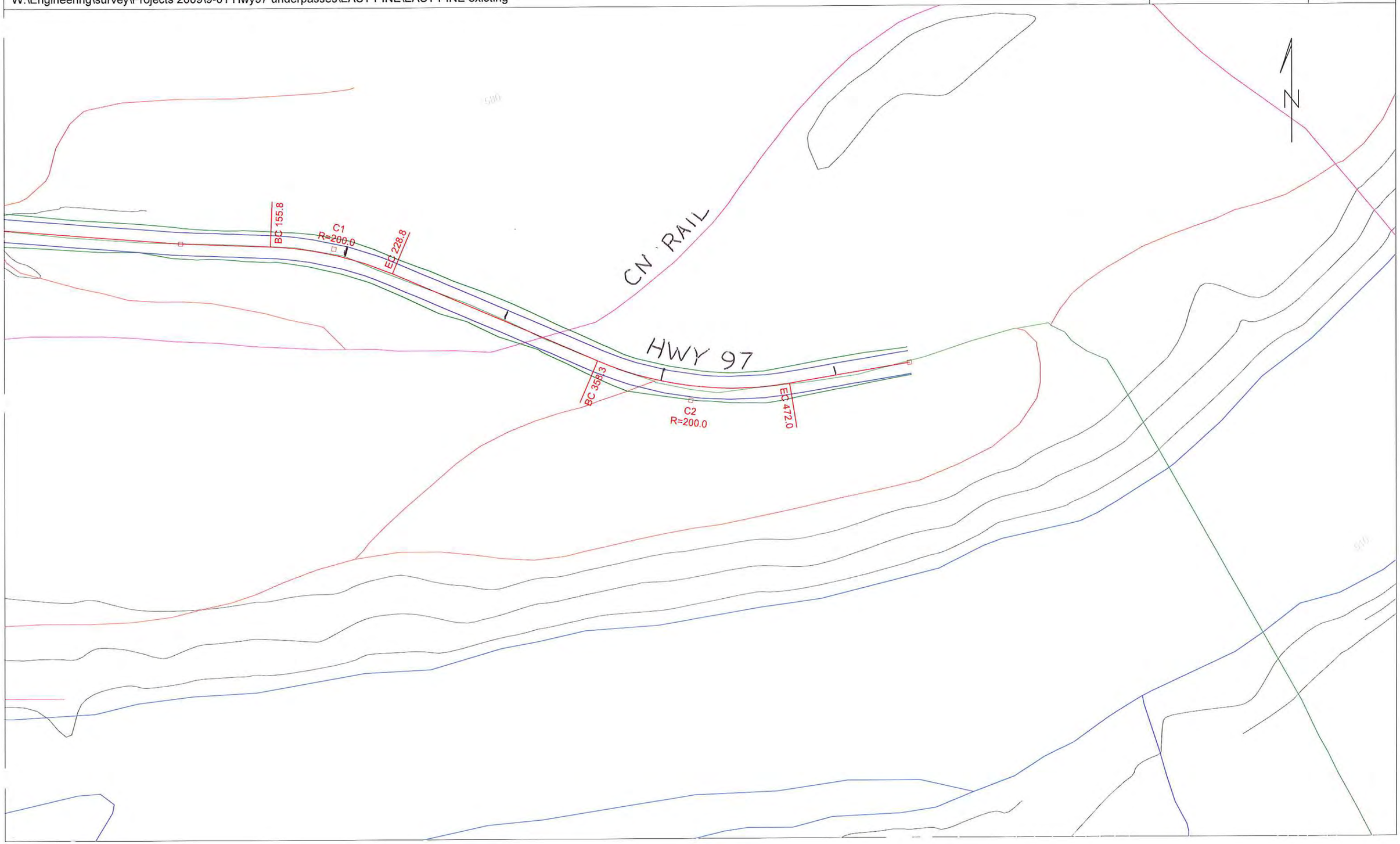

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Province of British Columbia

TOTAL TENDER AND ASSOCIATED MINISTRY COST ESTIMATE

Schedule of Approximate Quantities and Unit Prices

Project No: 00000-0000

Project Name: E. Pine Railway Overpass - lower Highway 0.30 meters.

TOTAL TENDER AND ASSOCIATED MINISTRY COST ESTIMATE					
Item#	**Description of Work**	**Unit of Measure**	**Approx. Quantity**	**Unit Price**	**Extended Amount**
1.01	Excavation	Cubic Metre	5000	$14.00	$70,000.00
1.02	Culverts	L.S.	100%	L.S.	$24,000.00
1.03	Borrow	Cubic Metre	500	$25.00	$12,500.00
1.04	Granular Sub-Base	Cubic Metre	1600	$30.00	$48,000.00
1.05	Granular Base Course	Cubic Metre	750	$40.00	$30,000.00
1.06	Asphalt	Tonne	450	$150.00	$67,500.00
1.07	Mobilization/Quality/Traffic Control	L.S.	100%	L.S.	$40,000.00
Part A	**TENDER COST ESTIMATE**				**$292,000.00**
	TOTAL TENDER COST (Tender Cost Estimate plus Site Occupancy(if applicable))				**$292,000.00**
901.00	Contingencies - 150%			$440,000.00	
902.00	Engineering -20%			$60,000.00	
903.00	Materials Supplied by MOT			$10,000.00	
904.00	Miscellaneous (please enter miscellaneous items below)			$65,000.00	
905.00	Utility Relocation - Minor			$10,000.00	
	ASSOCIATED MINISTRY COST ESTIMATES				**$585,000.00**
	TOTAL TENDER, SITE OCCUPANCY (if applicable) AND ASSOCIATED MINISTRY COST ESTIMATES				**$877,000.00**

Miscellaneous Ministry Cost Breakdown

Description		Cost:
Pavement Marking		$5,000.00
Property Aquisition	Unknown	
Geotechnical Investigation	Unknown	
Environmental Investigation	Unknown	
Archaeological Investigation	Unknown	
Utility Relocation - Major	Unknown	
Construction Supervision - 30 days at $2000 daily		$60,000.00
Project Management	Unknown	
Payroll, Payments, & Accounting	Unknown	
This total will auto populate the Miscellaneous Category above	**Total:**	$65,000.00

ROADENG Plan	Scale 1:5000	P. 1
W:\Engineering\survey\Projects 2009\9-01 Hwy97 underpasses\EAST PINE\EAST PINE north side		09/05/29

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Province of British Columbia

TOTAL TENDER AND ASSOCIATED MINISTRY COST ESTIMATE

Schedule of Approximate Quantities and Unit Prices

Project No: 00000-0000

Project Name: East Pine Railway Overpass - 800 meter Shoo-fly (600 m. new, 200 m. upgrade)

TOTAL TENDER AND ASSOCIATED MINISTRY COST ESTIMATE					
Item#	**Description of Work**	**Unit of Measure**	**Approx. Quantity**	**Unit Price**	**Extended Amount**
1.01	Excavation	Cubic Metre	15300	$14.00	$214,200.00
1.02	Culverts	L.S.	100%	L.S.	$5,000.00
1.03	Borrow	Cubic Metre	3000	$15.00	$45,000.00
1.04	Granular Sub-Base	Cubic Metre	900	$25.00	$22,500.00
1.05	Granular Base Course	Cubic Metre	550	$30.00	$16,500.00
1.06	Install New Level Crossing	L.S.	100%	L.S.	$40,000.00
1.07	Mobilization/Quality/Traffic Control	L.S.	100%	L.S.	$50,000.00
Part A	**TENDER COST ESTIMATE**				**$393,200.00**
	TOTAL TENDER COST (Tender Cost Estimate plus Site Occupancy(if applicable))				**$393,200.00**
901.00	Contingencies - 150%			$590,000.00	
902.00	Engineering - 20%			$74,000.00	
903.00	Materials Supplied by MOT			$10,000.00	
904.00	Miscellaneous (please enter miscellaneous items below)			$40,000.00	
905.00	Utility Relocation - Minor			$10,000.00	
	ASSOCIATED MINISTRY COST ESTIMATES				**$724,000.00**
	TOTAL TENDER, SITE OCCUPANCY (if applicable) AND ASSOCIATED MINISTRY COST ESTIMATES				**$1,117,200.00**

Miscellaneous Ministry Cost Breakdown

Description		Cost:
Pavement Marking		$0.00
Property Aquisition	Unknown	
Geotechnical Investigation	Unknown	
Environmental Investigation	Unknown	
Archaeological Investigation	Unknown	
Utility Relocation - Major	Unknown	
Construction Supervision - 20 days at $2000 daily		$40,000.00
Project Management	Unknown	
Payroll, Payments, & Accounting	Unknown	
This total will auto populate the Miscellaneous Category above	**Total:**	$40,000.00

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Province of British Columbia

TOTAL TENDER AND ASSOCIATED MINISTRY COST ESTIMATE

Schedule of Approximate Quantities and Unit Prices

Project No: 00000-0000

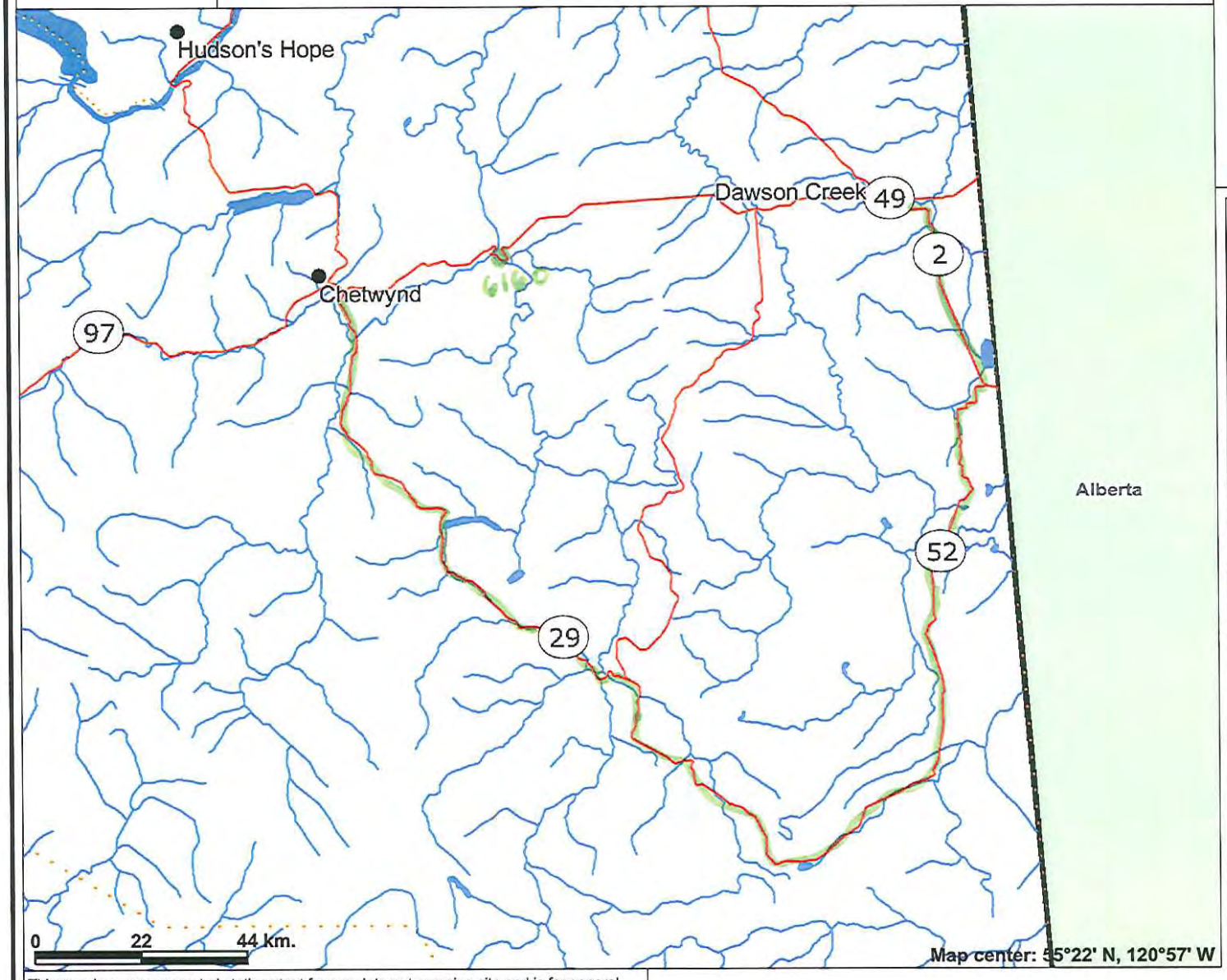
Project Name: East Pine Overpass Replacement

TOTAL TENDER AND ASSOCIATED MINISTRY COST ESTIMATE					
Item#	**Description of Work**	**Unit of Measure**	**Approx. Quantity**	**Unit Price**	**Extended Amount**
1.01	Bridge Replacement - 25 m.	Square Metre	138	$8,000.00	$1,104,000.00
1.02	Detour Bridge - 25 m.	Square Metre	138	$5,000.00	$690,000.00
1.03	Demolition of Existing Bridge	Square Metre	138	$4,000.00	$552,000.00
1.04	Mobilization/Quality/Traffic Control	L.S.	100%	L.S.	$350,000.00
Part A	**TENDER COST ESTIMATE**				**$0.00**
	TOTAL TENDER COST (Tender Cost Estimate plus Site Occupancy(if applicable))				
901.00	Contingencies - 100%			$2,700,000.00	
902.00	Engineering -20%			$540,000.00	
903.00	Materials Supplied by MOT			$10,000.00	
904.00	Miscellaneous (please enter miscellaneous items below)			$420,000.00	
905.00	Utility Relocation - Minor			$10,000.00	
	ASSOCIATED MINISTRY COST ESTIMATES				**$3,680,000.00**
	TOTAL TENDER, SITE OCCUPANCY (if applicable) AND ASSOCIATED MINISTRY COST ESTIMATES				**$6,376,000.00**

Miscellaneous Ministry Cost Breakdown

Description		Cost:
Pavement Marking		$0.00
Property Aquisition	Unknown	
Geotechnical Investigation	Unknown	
Environmental Investigation	Unknown	
Archaeological Investigation	Unknown	
Utility Relocation - Major	Unknown	
Construction Supervision - 120 days at $3500 daily		$420,000.00
Project Management	Unknown	
Payroll, Payments, & Accounting	Unknown	
This total will auto populate the Miscellaneous Category above	**Total:**	$420,000.00

6160 East Pine BCR O/P Detour



Legend

- Numbered Routes (DSA)
- Major Cities
- Capital City
- City
- Water - Lines (1:2M)
- River or Stream - Definite
- River or Stream - Left Bank
- River or Stream - Right Bank
- Dam
- Provincial Boundary (1:2M)
- Boundary (International)
- Boundary (Interprovincial)
- MOT Contract Areas
- (250K) Water - Ocean - Colour Filled
- Water - Polygons (1:2M)
- Provinces and States
- Canadian Provinces
- US States

Scale: 1:1,243,478