



VOLUME 6 - APPENDIX SECTION 6.9 – GREVET-CHAPAIS RAILWAY BRIDGE INSPECTION



Consultant Reference: LGA-1-GN-F-FRN-RT-0006_00_Appendix6.9
2023-04-14



Stantec ■ **DESFOR** ■ **SYSTRA**

with subconsultant



91.0 Chapais O'Sullivan River
LAT. N 49.24208 Long. W 76.27592
Type 3 DPG (Length 186 feet height 22 feet)

Level crossing 100 meters North end of bridge.

Wingwalls required on both abutments both sides of bridge for bank stability.

Borehole's locations

Borehole 1 Lat. N.49 .2191 min. Long W.76 27596 min.

Borehole 2 Lat. N.49 .24192 min Long. 76 27589 min.

Borehole 3 Lat. N.49 .2422 min Long. W. 76 27599 min.

Borehole 4 Lat. N. 49.24224 min Long. W. 27597 min.

Steel rating required.

Rating of both abutments and piers and backwall on both piers to be evaluated for capacity.

All bridge seats require minor repairs and cleaning.

Efflorescence active on both piers.

Bridge decks need replacement and walkways with refuge bays to be installed both sides.

Existing bridge ties are 10 x 12 x 13 feet.

Cleaning of the whole structure and trees and rush cutting required.

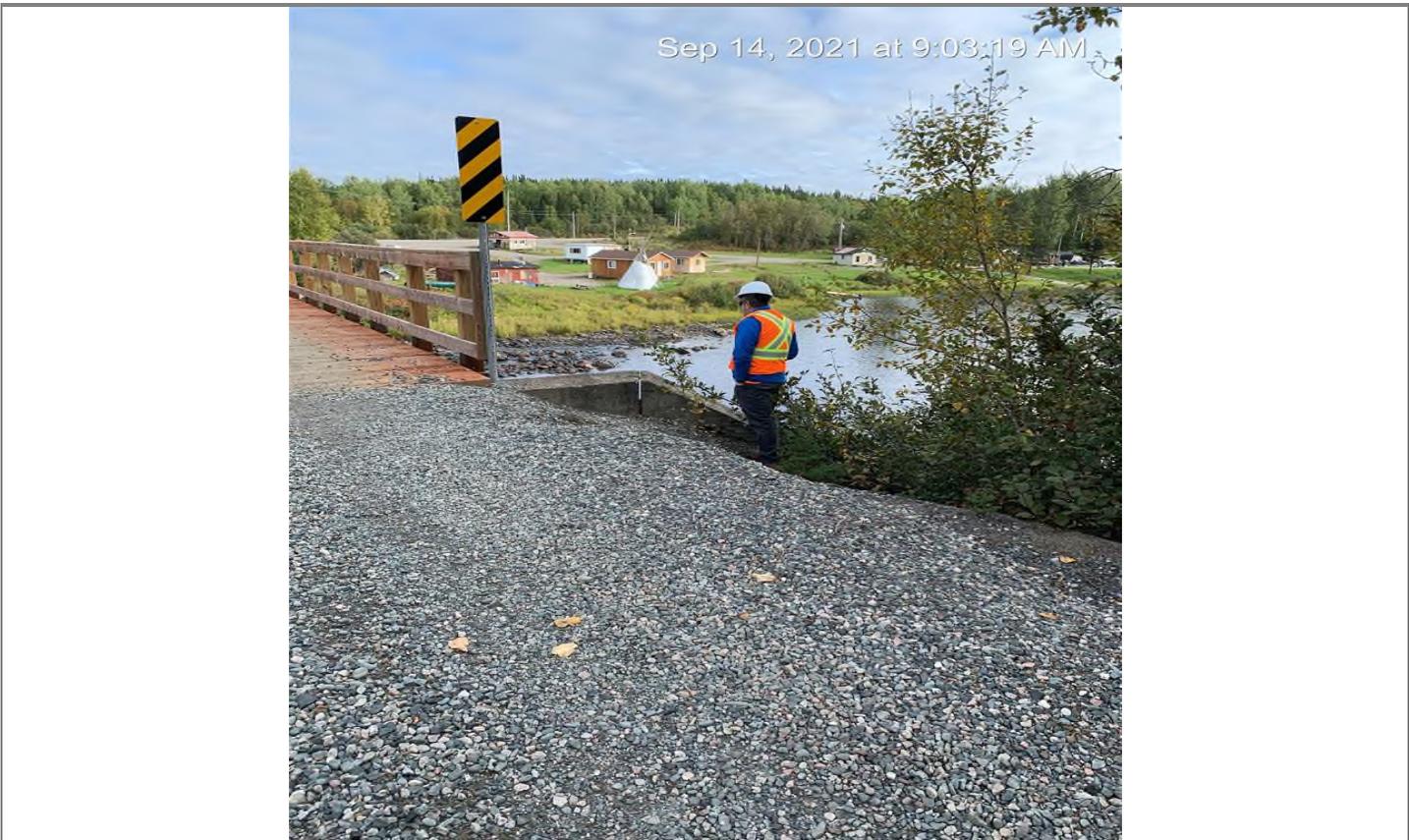
Hydraulic study to be done specially at pier number 2.

Note – Swallow bird nest underneath span # 2 underneath left girder.

File number	Contract number
91.0 Subdivision Chapais	158100425



Number	P-158100425-14/09/21-641-YR	Date (AAAA-MM-JJ)	14/09/2021
Location	91.0 Chapais		
Remarks	Deck view toward the North. Level crossing 100 meters North end.		



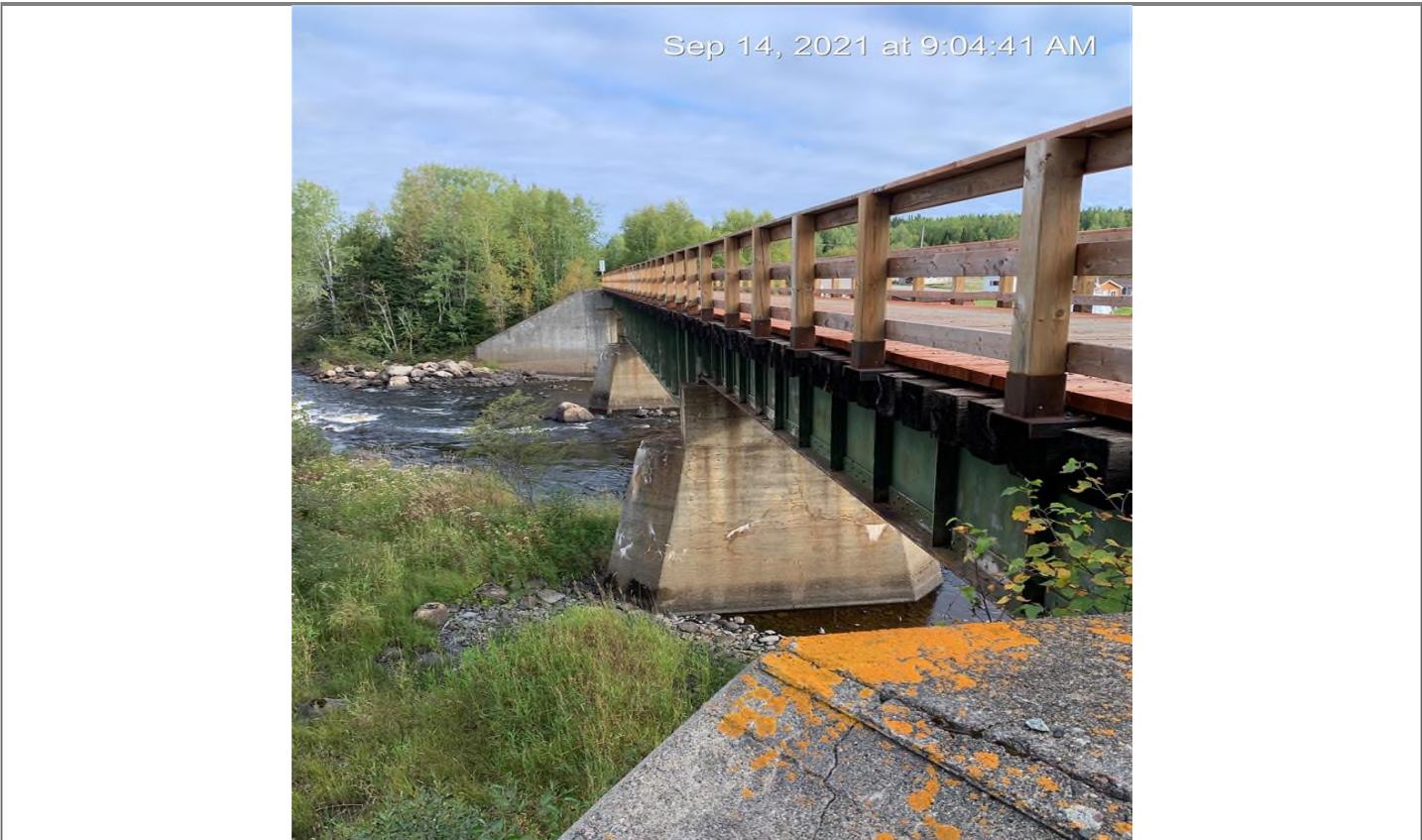
Number	P-158100425-14/09/21-642-YR	Date (AAAA-MM-JJ)	14/09/2021
Location	Southeast corner.		
Remarques	Wingwalls to be installed on both sides each abutment		

Picture taken by: Yvon Roy Senior Tech

File number	Contract number
91.0 Subdivision Chapais	158100425



Number	P-158100425-14/09/21-643-YR	Date (AAAA-MM-JJ)	14/09/2021
Location	View East side looking North		
Remark			



Number	P-158100425-14/09/21-646-YR	Date (AAAA-MM-JJ)	14/09/2021
Location	View West side looking North		
Remark			

Picture taken by: Yvon Roy Senior Tech



Number	P-158100425-14/09/21-649-YR	Date (AAAA-MM-JJ)	14/09/2021
Location	Pier # 1 West side		
Remark	Minor repairs to be completed on the nose of both piers		



Number	P-158100425-14/09/21-651-YR	Date (AAAA-MM-JJ)	14/09/2021
Location	North abutment.		
Remark	Cleaning and minor repairs on bridge seats on both abutments and piers		

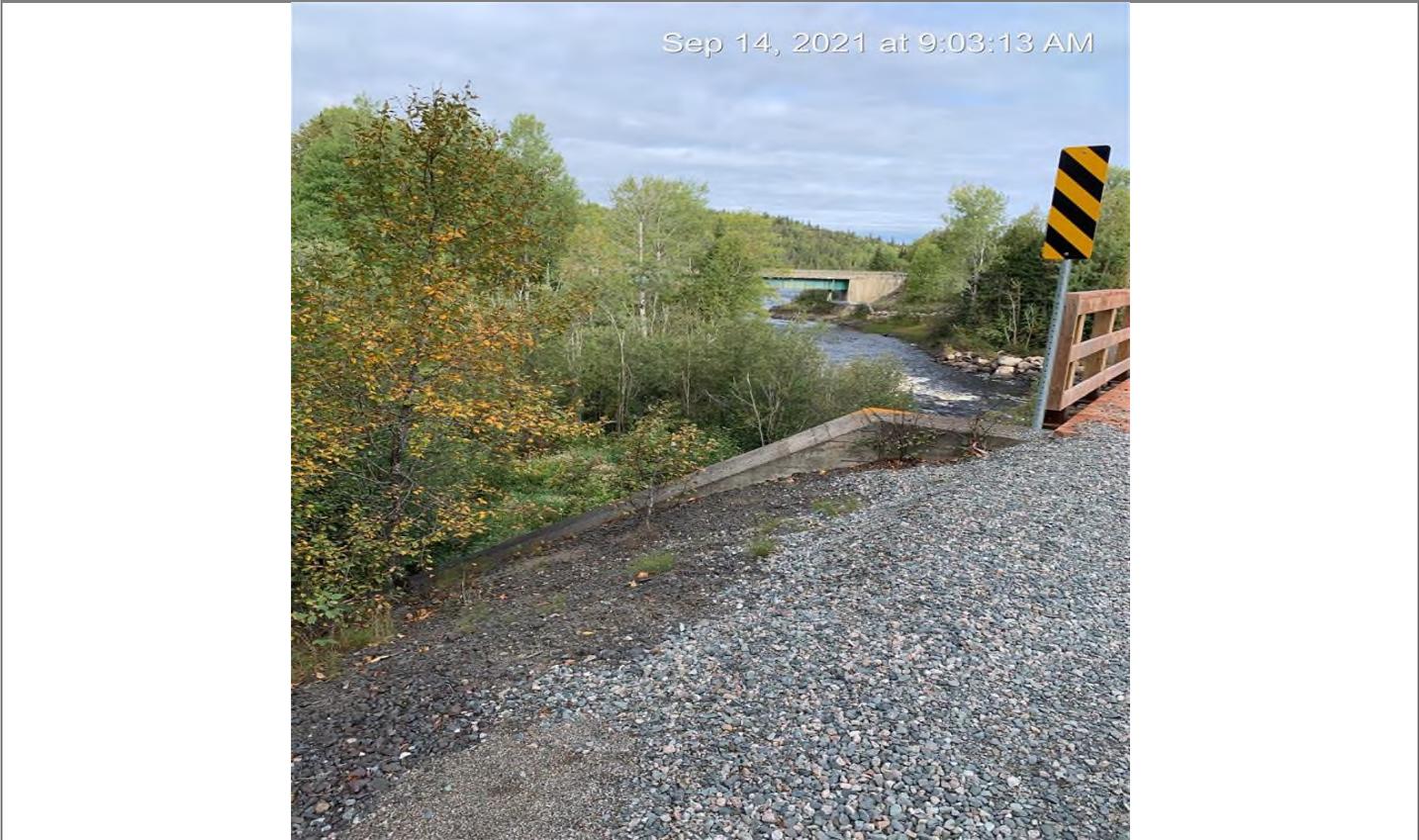
Picture taken by: Yvon Roy Senior Tech.

--	--



Sep 14, 2021 at 9:29:32 AM

Number	P-158100425-14/09/21-660-YR	Date (AAAA-MM-JJ)	14/09/2021
Location	Back Wall Pier # 2		
Remark	Load capacity to be analyzed on back walls on both piers		



Sep 14, 2021 at 9:03:13 AM

Number	P-158100425-14/09/21-640-YR	Date (AAAA-MM-JJ)	14/09/2021
Location	View looking Northwest. Route 113 visible in this picture.		
Remark			

Picture taken by: Yvon Roy Senior Tech.

101.8 Chapais Subdivision.
Bachelo River
1 TIM 1 BM 1 DPG 1 BM 3 TIM.
Total length 158 feet, height 21 feet.

GPS Location.
N-49 29970 min.
W-76 18063 min.

Timber spans 1 and 2 including spans 6, 7 and 8 to be replaced due to their poor condition.
Stingers are 10 inches X 18 inches don't meet loading capacity for proposed railroad classification.

Load capacity study required for both beam spans and DPG spans.

Bridge ties need replacement and new walkway with refuge bays to be installed on both sides.
Note: ties on beam span are 10" x 10" x 12' and 10" x 12" x 13' on DPG.

Boreholes will be required at the following locations:

Location # 1 N-49 29968 min
W- 76 18081 min

Location # 2 N-49-29968 min
W-76 18076 min

Location # 3 N-49 29973 min
W-76 18052 min

Location # 4 N-49 29973 min
W-76 18048 min

File number	Contract number
101.8 Subdivision Chapais	158100425



Number	P-158100425-14/09/21-667-YR	Date (AAAA-MM-JJ)	14/09/2021
Location	101.8 Chapais Bent # 6		
Remark	Note the rotted pile in the center. Typical in many locations on all the bents.		



Number	P-158100425-14/09/21-668-YR	Date (AAAA-MM-JJ)	14/09/2021
Location	Span # 6		
Remarques	Cap beam not centered on piles		

Picture taken by: Yvon Roy Senior Tech.

File number	Contract number
101.8 Subdivision Chapais	158100425



Number	P-158100425-14/09/21-662-YR	Date (AAAA-MM-JJ)	14/09/2021
Location	West side looking North		
Remark	Trees and brush cutting required. Also bridge clean on steel spans		



Number	P-158100425-14/09/21-665-YR	Date (AAAA-MM-JJ)	14/09/2021
Location	101.8 Chapais cap beam bent # 6		
Remark	Cap beam rotten and squashing down.		

Picture taken by: Yvon Roy Senior Tech.

--	--



Number	P-158100425-14/09/21-670-YR	Date (AAAA-MM-JJ)	14/09/2021
Location	101.8 Chapais south side looking West		
Remark	Cleaning and brush cutting required		



Number	P-158100425-14/09/21-677-YR	Date (AAAA-MM-JJ)	14/09/2021
Location	101.8 Chapais bent under span 5		
Remark	Old weld needs grinding		

Picture taken by: **Yvon Roy Senior Tech.**

--	--



Number	P-158100425-14/09/21-680-YR	Date (AAAA-MM-JJ)	14/09/2021
Location	101.8 Chapais span 4		
Remark	Steel on DPG in good condition.		



Number	P-158100425-14/09/21-681-YR	Date (AAAA-MM-JJ)	14/09/2021
Location	101.8 Chapais span 4 & 5		
Remark	View of connection between span 4 & 5		

Picture taken by: Yvon Roy Senior Techn.

--	--



Number	P-158100425-14/09/21-663-YR	Date (AAAA-MM-JJ)	2021/09/14
Location	101.8 Chapais		
Remark	Looking West		



Number	P-158100425-14/09/21-664-YR	Date (AAAA-MM-JJ)	
Location	101.8 Chapais		
Remark	Looking East		

Picture taken by: Yvon Roy Senior Techn.

104.1 Chapais Subdivision
6 Timber spans.
Length 90' Height 12'

GPS Location
N-49 30357 min
W-76 15029 min

Bridge to be replaced with 2 -100 feet TPG due to the limited clearance due to the existing bridge only 12 feet high.

Most cap beams on this bridge are showing signs of crushing and most piles sound hollow when tapping with hammer. There are also many piles with cracks in them.

Also existing 10" x 18" stringers cannot carry the load capacity for the new suggested railway standards.

Bore hole location for new bridge.

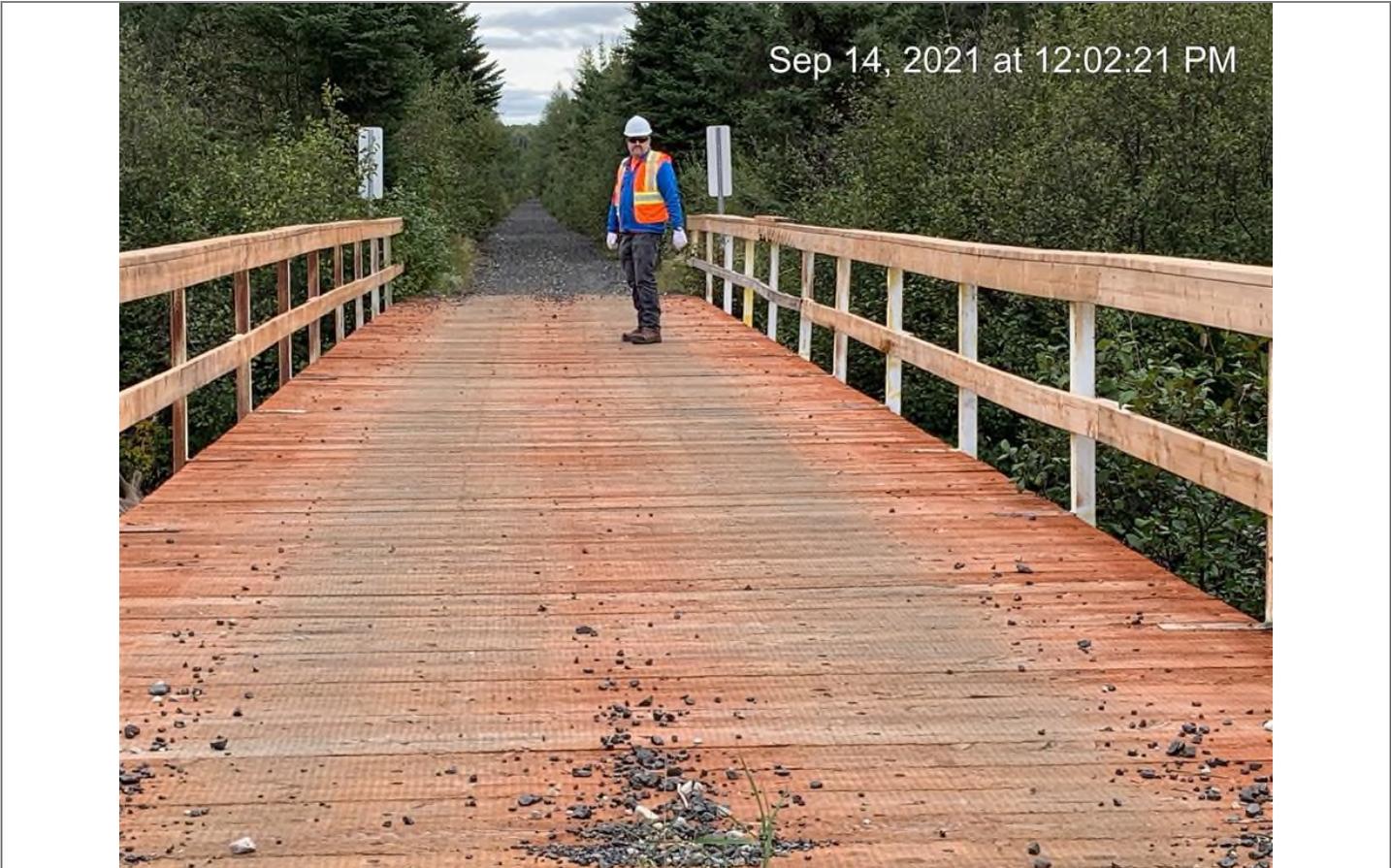
Number 1 N-49 30355 min.

W-76 15038 min.

Number 2 N-49 30360 min.

W-76 15014 min.

File number 104.1 Subdivision Chapais	Contract number 158100425
--	------------------------------



Number	P-158100425-14/09/21-684-YR	Date (AAAA-MM-JJ)	14/09/2021
Location	104.1 Chapais		
Remarks	Deck looking North		



Number	P-158100425-14/09/21-687-YR	Date (AAAA-MM-JJ)	14/09/2021
Location	104.1 Chapais		
Remarks	West side looking South. Notice debris against the bridge. Caps are soft and starting to crush		

Picture taken by: Yvon Roy Senior Tech.

File number 104.1 Chapais	Contract number 158100425
------------------------------	------------------------------



Number	P-158100425-14/09/21-690-YR	Date (AAAA-MM-JJ)	14/09/2021
Location	104.1 Chapais		
Remarks	Rotten piles underneath cap. Most piles sound hallow when tapping with hammer.		



Number	P-158100425-14/09/21-692-YR	Date (AAAA-MM-JJ)	14/09/2021
Location	104.1 Chapais		
Remarks	Caps crushing on most bents.		

Picture taken by: Yvon Roy Senior Tech.

--	--



Number	P-158100425-14/09/21-695-YR	Date (AAAA-MM-JJ)	14/09/2021
Location	104.1 Chapais bent # 3		
Remarks	Note vertical cracks on most piles.		



Number	P-158100425-14/09/21-685-YR	Date (AAAA-MM-JJ)	14/09/2021
Location	104.1 Chapais		
Remarks	Looking East		

Picture taken by: Yvon Roy Senior Tech.

--	--



Number	P-158100425-14/09/21-686-YR	Date (AAAA-MM-JJ)	14/09/2021
Location	104.1 Chapais		
Remarks	Looking West		

--	--

Number		Date (AAAA-MM-JJ)	
Location			
Remarks			

Picture taken by: Yvon Roy Senior Tech.

105.6 Chapais Subdivision
Bachelo River
7 TIM spans Length 104' height 21

GPS Location
N-49 3574 min
W-76 13160 min

Bridge need be replaced with 2 – 85' DPG spans, 2 new abutments and 1 pier.
The majority of timber piles sound hollow when tapped with hammer.
All stringers are 10"x18" not meeting load capacity.

Sol instability underneath span # 2.

Borehole locations.

Location # 1 N-49 30571 min
W-76 13165 min

Location # 2 N-49 30579 min
W-76 13149 min.

File number	Contract number
105.6 Chapais Subdivision	158100425



Number	P-158100425-14/09/21-697-YR	Date (AAAA-MM-JJ)	14/09/2021
Location	105.6 Chapais		
Remark	Looking North		



Number	P-158100425-14/09/21-698-YR	Date (AAAA-MM-JJ)	14/09/2021
Location	105.6 Chapais		
Remark	Sol instability underneath span # 2		

Picture taken by: Yvon Roy Senior Tech

File number	Contract number
105.6 Subdivision Chapais	158100425



Number	P-158100425-14/09/21-699-YR	Date (AAAA-MM-JJ)	14/09/2021
Location	105.6 Chapais		
Remark	Underneath bridge looking North		



Numéro	P-158100425-14/09/21-700-YR	Date (AAAA-MM-JJ)	14/09/2021
Localisation	105.6 Chapais		
Remarques	East side looking West		

Picture taken by: Yvon Roy Senior Tech

--	--



Number	P-158100425-14/09/21-705-YR	Date (AAAA-MM-JJ)	14/09/2021
Location	105.6 Chapais underneath North end		
Remark	Soil instability		



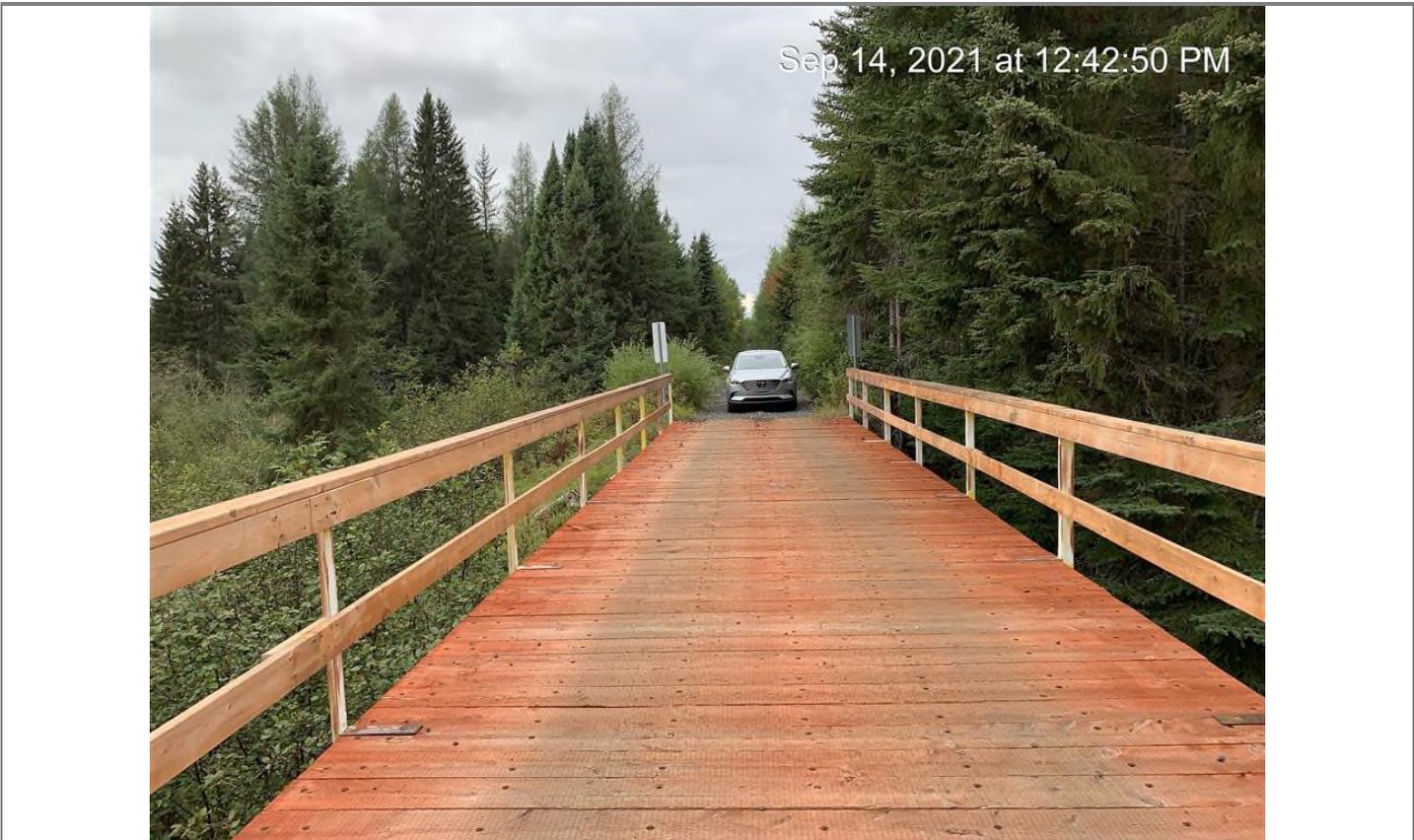
Number	P-158100425-14/09/21-701-YR	Date (AAAA-MM-JJ)	14/09/2021
Location	105.6 Chapais		
Remark	Looking West		

Picture taken by:	Yvon Roy Senior Tech
-------------------	----------------------

--	--



Number	P-158100425-14/09/21-705-YR	Date (AAAA-MM-JJ)	14/09/2021
Location	105.6 Chapais		
Remark	Looking West		



Number	P-158100425-14/09/21-703-YR	Date (AAAA-MM-JJ)	14/09/2021
Location	105.6 Chapais		
Remark	Looking East		

Picture taken by: Yvon Roy Senior Tech

118.8 Chapais Subdivision.
3 TPG, length 75' height 16'

GPS Location:
N-49 33044 min
W-75 56719 min.

Back walls both ends leaking ballast. Replace with deeper backwalls and install wingwalls on all four corners.

Ballast to be removed and replaced with new ballast due to mud fouled. Before installing new ballast, the deck should be waterproofed with proper membrane.

Piles should be evaluated at the waterline due to some signs of corrosion with the possibility of encasing in concrete.

Beaver dam should be removed ASAP

Install walkway on both sides.

Core drilling required at the following locations.

Borehole # 1 N-49 3041 min
W-75 56728 min.

Borehole # 2 N-49-33049
W-75 56709

File number	Contract number
118.8 Chapais Subdivision	158100425



Number	P-158100425-14/09/21-708-YR	Date (AAAA-MM-JJ)	14/09/2021
Location	118.8 Chapais		
Remark	East side looking South. Note – beaver dam to be removed.		



Number	P-158100425-14/09/21-710-YR	Date (AAAA-MM-JJ)	14/09/2021
Location	118.8 Chapais		
Remark	Looking South. Major beaver dam to be removed Note- ballast leaking underneath backwall		

Picture taken by: Yvon Roy Senior Tech

File Number 118.8 Chapais	Contract number 158100425
------------------------------	------------------------------



Number	P-158100425-14/09/21-713-YR	Date (AAAA-MM-JJ)	14/09/2021
Location	118.8 Chapais		
Remark	North end West side name plate on bridge.		



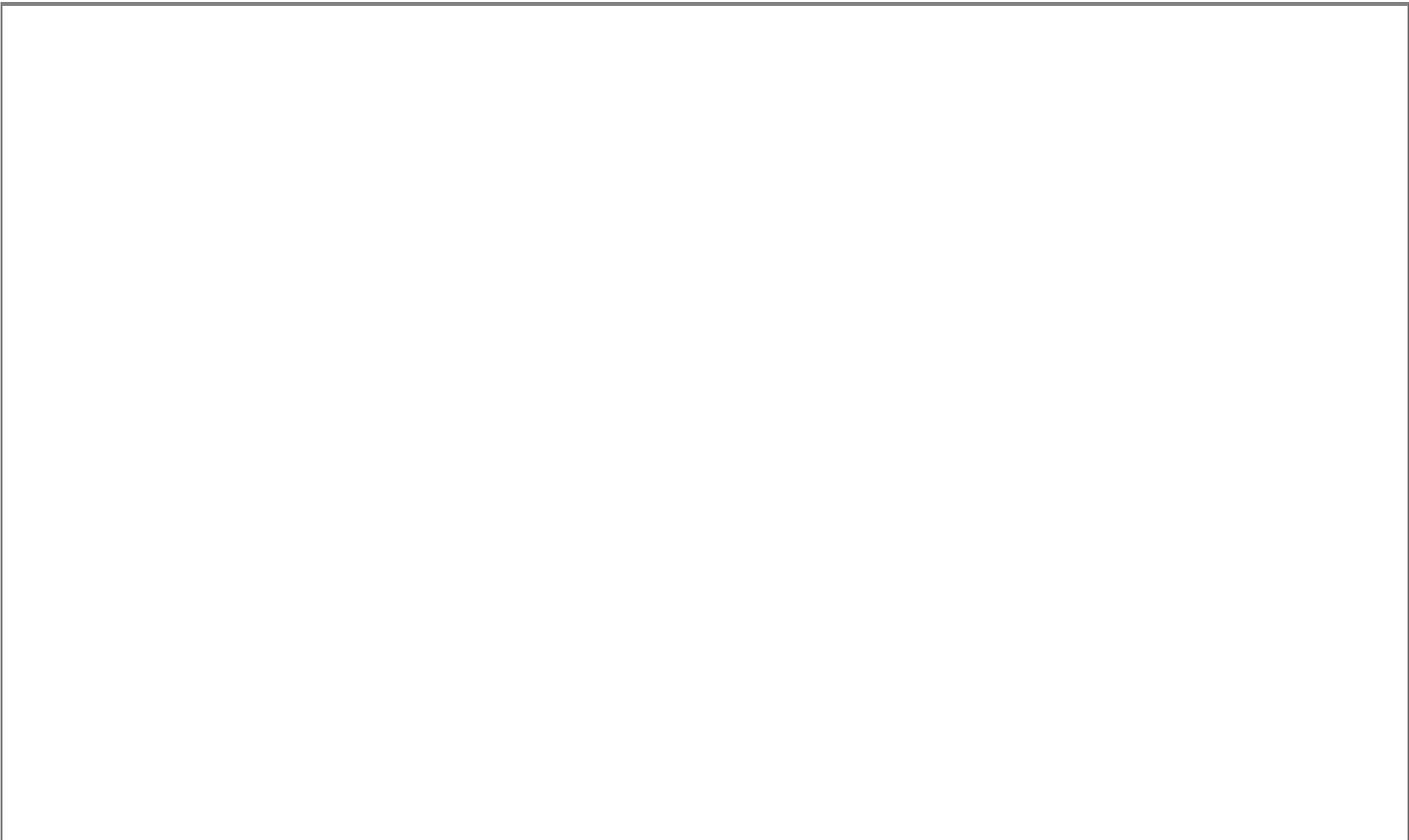
Number	P-158100425-14/09/21-715-YR	Date (AAAA-MM-JJ)	14/09/2021
Location	118.8 Chapais		
Remark	Bent # 2 show signs of corrosion at water line.		

Picture taken by: Yvon Roy Senior Tech

--	--



Number	P-158100425-14/09/21-716-YR	Date (AAAA-MM-JJ)	14/09/2021
Location	118.8 Chapais		
Remark	West side looking South		



Number		Date (AAAA-MM-JJ)	
Location			
Remark			

Picture taken by: Yvon Roy Tech. Senior

122.3 Chapais Subdivision
Opawica Lake 1
2 DPG spans length 139' height 20'

GPS Location
N-49 34274 min
W-75 52465 min

Core sample at pier to determine the quality of concrete.

Hydraulic study to determine if pier requires more protection and possibly an extra concrete envelop at the base.

Signs of scouring at both abutments.

Backwall crack at the center on the East abutment. Possibility to repair with epoxy injection.

All bridge seats and steel to be cleaned out.

Install new deck and walkway with refuge bay both sides. Existing ties are 10" x 12" x 13'

Borehole to be done at the base of pier.

Borehole location

N-49 34273 min

W-75 52458 min

File number	Contract number
122.3 Chapais Subdivision	158100425



Number	P-158100425-14/09/21-720-YR	Date (AAAA-MM-JJ)	14/09/2021
Location	122.3 Chapais		
Remark	East side looking North		



Number	P-158100425-14/09/21-721-YR	Date (AAAA-MM-JJ)	14/09/2021
Location	South abutment East side		
Remark			

Picture taken by: Yvon Roy Senior Tech

File number	Contract number
122.3 Chapais Subdivision	158100425



Number	P-158100425-14/09/21-723-YR	Date (AAAA-MM-JJ)	14/09/2021
Location	122.8 Chapais South abutment		
Remark	Backwall cracked on right side of backwall		



Number	P-158100425-14/09/21-726-YR	Date (AAAA-MM-JJ)	14/09/2021
Location	122.8 Chapais South abutment		
Remark	Backwall cracked on right side of backwall		

Picture taken by: Yvon Roy Senior Tech

--	--



Number	P-158100425-14/09/21-727-YR	Date (AAAA-MM-JJ)	14/09/2021
Location	122.3 Chapais looking Northwest side		
Remark	Note- bottom of pier is eroding. Water flow impacts directly at the nose of pier. Envelop and rip rap required to protect from scour.		



Number	P-158100425-14/09/21-734-YR	Date (AAAA-MM-JJ)	14/09/2021
Location	122.3 Chapais looking Southeast side		
Remark	Water flow hitting directly on nose of pier.		

Picture taken by:	Yvon Roy Senior Tech
-------------------	----------------------

--	--



Number	P-158100425-14/09/21-733-YR	Date (AAAA-MM-JJ)	14/09/2021
Location	122.3 North abutment		
Remark	Base of abutment concrete broken off.		



Number	P-158100425-14/09/21-730-YR	Date (AAAA-MM-JJ)	14/09/2021
Location	122.3 Chapais North abutment		
Remark	Signs of under scouring		

Picture taken by: Yvon Roy Senior Tech

125.2 Chapais Subdivision
Opawica Lake # 2
DPG, TT, DPG Length 293' Height 36'

Bridge deck in very poor condition. Existing ties on DPG spans are 12" x 12" x13' and on Truss span 12" x 10" x 13'. Walkway and refuge bays required on both sides.

Detailed inspection and load capacity study to determine final condition of the structure.

Pier # 1 requires cleaning and waterproofing.

Piers # 2 concrete scaling on surface. To be repaired and waterproofing applied.

The whole bridge needs to be cleaned and brush cutting to be done.

Access closed to Four wheelers and Snowmobiles.

File number	Contract number
125.3 Chapais Subdivision	158100425



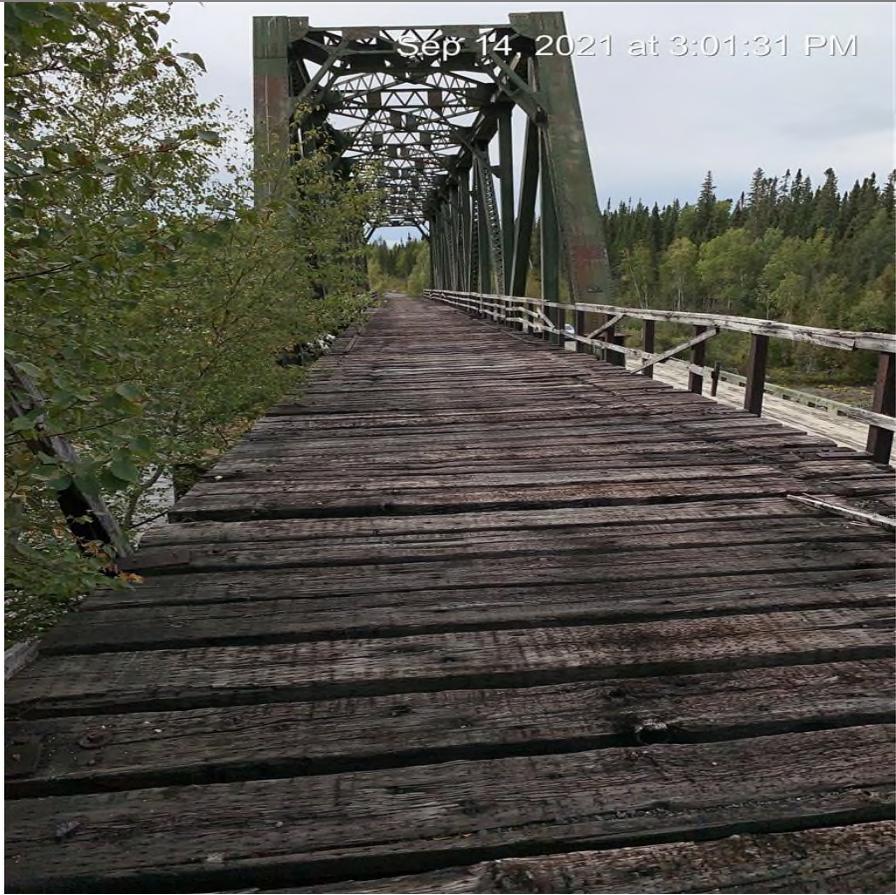
Number	P-158100425-14/09/21-739-YR	Date (AAAA-MM-JJ)	14/09/2021
Location	125.3 Chapais Pier # 2		
Remark	Concrete spalling. Repair and waterproof		



Number	P-158100425-14/09/21-736-YR	Date (AAAA-MM-JJ)	14/09/2021
Location	125.3 Chapais pier # 1		
Remark	Clean and waterproof		

Pictures taken by: Yvon Roy Senior Tech

File number	Contract number
125.3 Chapais Subdivision	158100425



Number	P-158100425-14/09/21-741-YR	Date (AAAA-MM-JJ)	14/09/2021
Location	125.3 deck looking South		
Remark	Deck and handrailing in very poor condition		



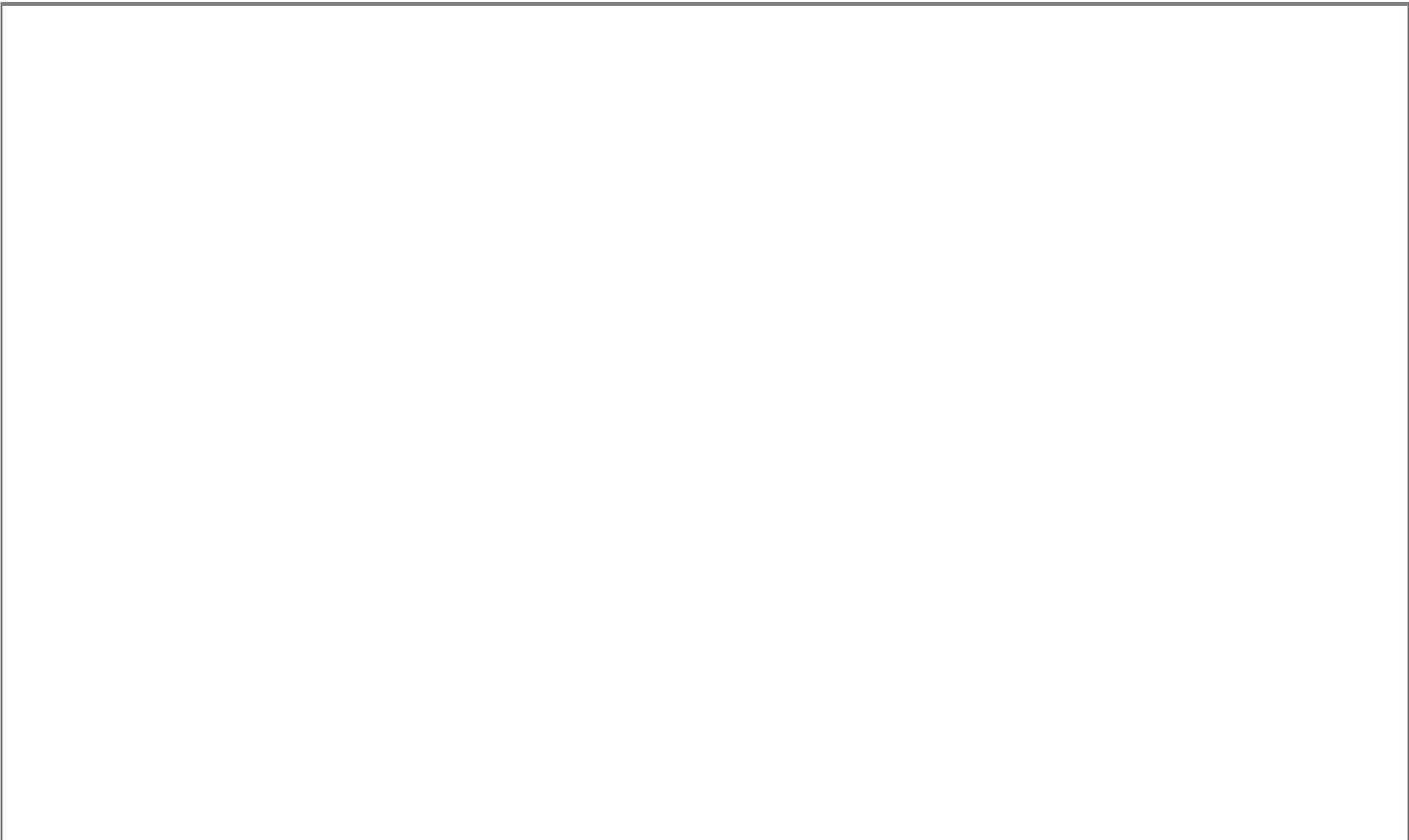
Number	P-158100425-14/09/21-740-YR	Date (AAAA-MM-JJ)	14/09/2021
Location	125.3 Chapais		
Remark	Looking West		

Picture taken by: Yvon Roy Senior Tech

--	--



Number	P-158100425-14/09/21-747-YR	Date (AAAA-MM-JJ)	14/09/2021
Location	125.3 Looking East		
Remark	Needs cleaning and brush cutting		



Number		Date (AAAA-MM-JJ)	
Location			
Remark			

Picture taken by: Yvon Roy Senior Tech

141.7 Chapais Subdivision
Ross river
13 Timber spans, length 190' height 20'

Bridge is now being used on a backroad with regular traffic including trucks.

With 10" x 18" stringers and the existing condition of the bridge, this structures will not meet new standard and needs to be replaced.

This bridge could remain in use for regular traffic and a new railway bridge could be built at a different location.

It would be recommended to replace with 2 90' DPGs with 2 new abutments and 1 pier.

Railing on deck of this bridge is missing sections and in poor condition. Should be repaired ASAP for traffic safety.

Borehole locations.

Location # 1

N-49 41470 min

W-75 22096 min

Location # 2

N-49 41471 min.

W-75 22080 min

Location # 3

N-49-41472 min

W-75 22056 min

File number	Contract number
141.7 Chapais Subdivision	158100425



Number	P-158100425-15/09/21-772-YR	Date (AAAA-MM-JJ)	15/09/2021
Location	141.7 Chapais looking North		
Remark	Section of curb missing right side		



Number	P-158100425-15/09/21-789-YR	Date (AAAA-MM-JJ)	15/09/2021
Location	141.7 Chapais looking south		
Remark	Curb is soft and show signs of rot.		

Picture taken by:	Yvon Roy Senior Tech
-------------------	----------------------

File number	Contract number
141.7 Chapais Subdivision	158100425



Number	P-158100425-15/09/21-801-YR	Date (AAAA-MM-JJ)	15/09/2021
Location	141.7 Chapais South end right side		
Remark	Missing curb section.		



Number	P-158100425-14509/21-792-YR	Date (AAAA-MM-JJ)	15/09/2021
Location	141.7 Chapais looking Southwest		
Remark			

Picture taken by: Yvon Roy Senior Tech

--	--



Number	P-158100425-15/09/21-649-YR	Date (AAAA-MM-JJ)	15/09/2021
Location	141.7 Chapais looking Northwest		
Remark			



Number	P-158100425-15/09/21-651-YR	Date (AAAA-MM-JJ)	15/09/2021
Location	141.7 Chapais looking west		
Remark			

Picture taken by: Yvon Roy Senior Tech

--	--



Number	P-158100425-15/09/21-786-YR	Date (AAAA-MM-JJ)	15/09/2021
Location	141.7 Chapais looking West.		
Remark			



Number	P-158100425-15/09/21-791-YR	Date (AAAA-MM-JJ)	15/09/2021
Location	141.7 Chapais South end.		
Remark			

Picture taken by: **Yvon Roy Senior Tech**

--	--



Number	P-158100425-15/09/21-791-YR	Date (AAAA-MM-JJ)	2021/09/15
Location	141.7 Chapais looking south.		
Remark			



Number		Date (AAAA-MM-JJ)	
Location			
Remark			

Picture taken by: **Yvon Roy Senior Tech**

156.0 Chapais Subdivision.
Obotog River
12 BMS Length 313' height 20'

GPS Location
N-49 42944 min
W-75 10741 min

Bridge to be demolish due to lack of capacity and general overall poor condition.
Most welds all over the entire bridge are deficient and are very poor-quality.
Bridge deck and railing in very poor condition. Not even safe to walk across.

Safety barriers should be installed each end of the bridge ASAP for public safety

File number	Contract number
156.0 Chapais Subdivision	158100425



Number	P-158100425-15/09/21-769-YR	Date (AAAA-MM-JJ)	15/09/2021
Location	156.0 Chapais – deck looking south		
Remark	Ties and handrailing in bad condition. Barrier should be installed both ends for public safety.		



Number	P-158100425-14/09/21-760-YR	Date (AAAA-MM-JJ)	15/09/2021
Location	156.0 Chapais Est side looking south		
Remark	Accumulation of debris against steel bents		

Picture taken by:	Yvon Roy Senior Tech
-------------------	----------------------

File number 156.0 Chapais Subdivision	Contract number 158100425
--	------------------------------



Sep 15, 2021 at 11:16:06 AM

Number	P-158100425-15/09/21-643-YR	Date (AAAA-MM-JJ)	15/09/2021
Location	156.0 Chapais looking south from west side		
Remark			



Sep 15, 2021 at 11:30:39 AM

Number	P-158100425-15/09/21-765-YR	Date (AAAA-MM-JJ)	15/09/2021
Location	156.0 Chapais		
Remark	Poor weld quality		

Picture taken by: Yvon Roy Senior Tech

--	--



Number	P-158100425-15/09/21-764-YR	Date (AAAA-MM-JJ)	15/09/2021
Location	156.0 Chapais		
Remark	Poor weld quality		



Number	P-158100425-15/09/21-759-YR	Date (AAAA-MM-JJ)	15/09/2021
Location	156.0 Chapais		
Remark	Note corrosion on steel pile at water level		

Picture taken by: Yvon Roy Senior Tech

--	--



Number	P-158100425-15/09/21-757-YR	Date (AAAA-MM-JJ)	15/09/2021
Location	156.0 Chapais		
Remark	H Pile corroded at ground line.		



Number	P-158100425-15/09/21-755-YR	Date (AAAA-MM-JJ)	15/09/2021
Location	156.0 Chapais looking South		
Remark	Bridge was probably built-in emergency with different types of beam spans.		

Picture taken by: Yvon Roy Senior Tech