



WOLVERINE PROJECT  
MILL BYPASS ROAD  
CONSTRUCTION REPORT AND DRAWINGS

Prepared for:

Yukon Energy, Mines and Resources  
Quartz Mining License QML-0006 Condition 7.8

Prepared by:

Yukon Zinc Corporation  
Vancouver, British Columbia

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## 1 Introduction

This report provides as-constructed details pertaining to the construction of the Mill Bypass Road for Yukon Zinc Corporation's (YZC) Wolverine Project. This report has been prepared to satisfy requirements of Quartz Mining License QML-0006 (QML) Condition 7.8:

*Within sixty (60) days of completing construction of the infrastructure at the site, the Licensee must submit a written report to the Chief containing: as-built drawings of all structures, works and installations constructed; and a summary of any quality assurance or quality control monitoring conducted.*

Yukon Zinc Corporation submitted an Addendum to General Site Plan Version 2008-04 to the Chief as per QML Section 6.2 on March 26, 2009. Approval from the Chief was received on March 27, 2009. The Addendum outlined a temporary Mill Bypass Road that would be constructed to permit access from km 27 of the mine access road to the lower millsite pad while construction activities at the Industrial Complex are ongoing.

This report details the general layout, completed construction activities, engineering details, quality assurance and quality control documentation, and reclamation plans.

## 2 General Site Description

The Wolverine Project, located in the southeast Yukon (Figure 1), is a zinc-silver-copper-lead-gold underground mining project that will mine up to 1,700 t/d of diluted ore. Following construction over a one and one half year period, the mine will operate for approximately nine years. The reclamation and closure phase will occur over a three-year period as previously described in the *Wolverine Project Reclamation and Closure Plan V2008-02*. Details pertaining to other project components are provided in *General Site Plan V2008-04*, approved by Yukon Energy, Mines and Resources February 13, 2009. Figure 2, an updated site layout from *GSP V2008-04*, shows the layout for existing and future site infrastructure (as of April 13, 2009).

The Mill Bypass Road issued for construction route is shown on Figure 2 connecting the road from the camp with the Ditch 3 excavation area.

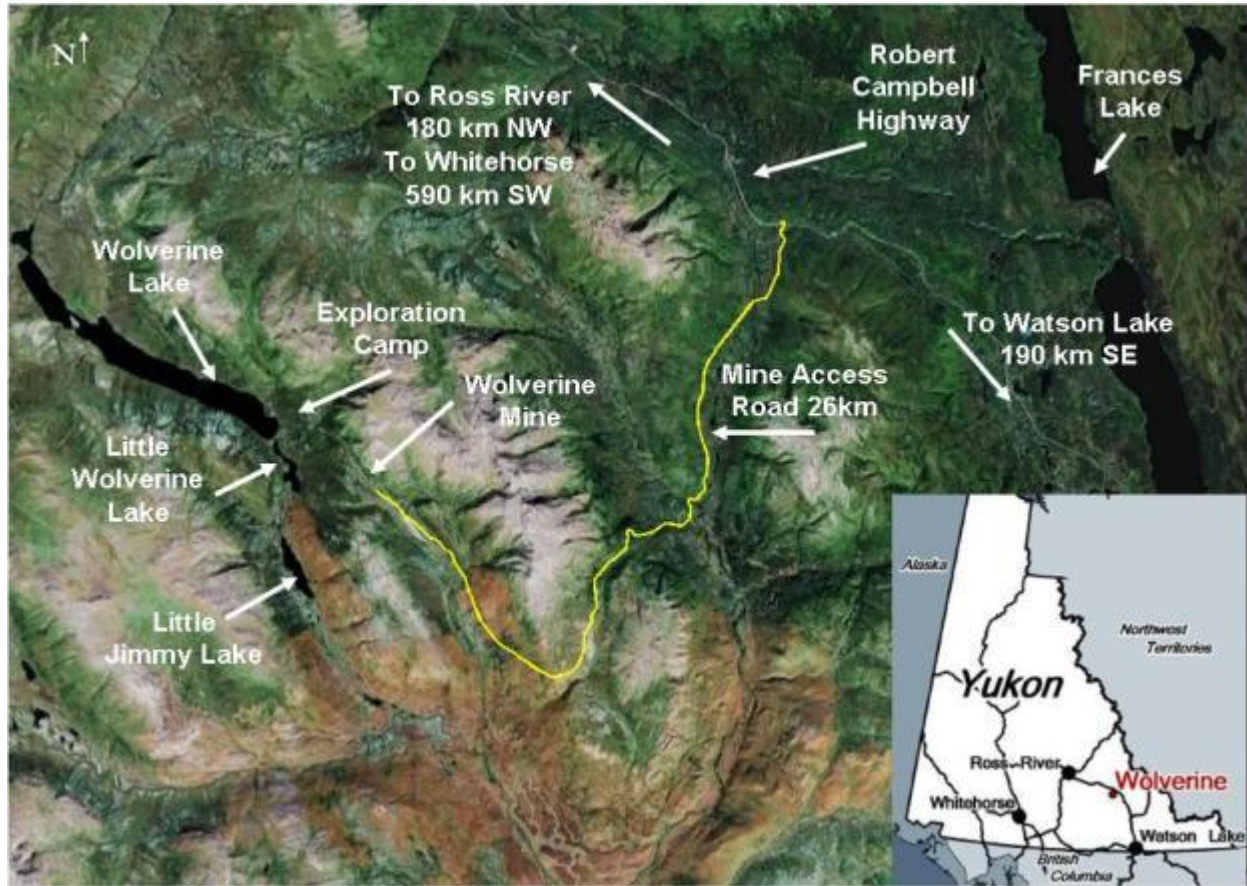


Figure 1. Location of Yukon Zinc Corporation's Wolverine Project



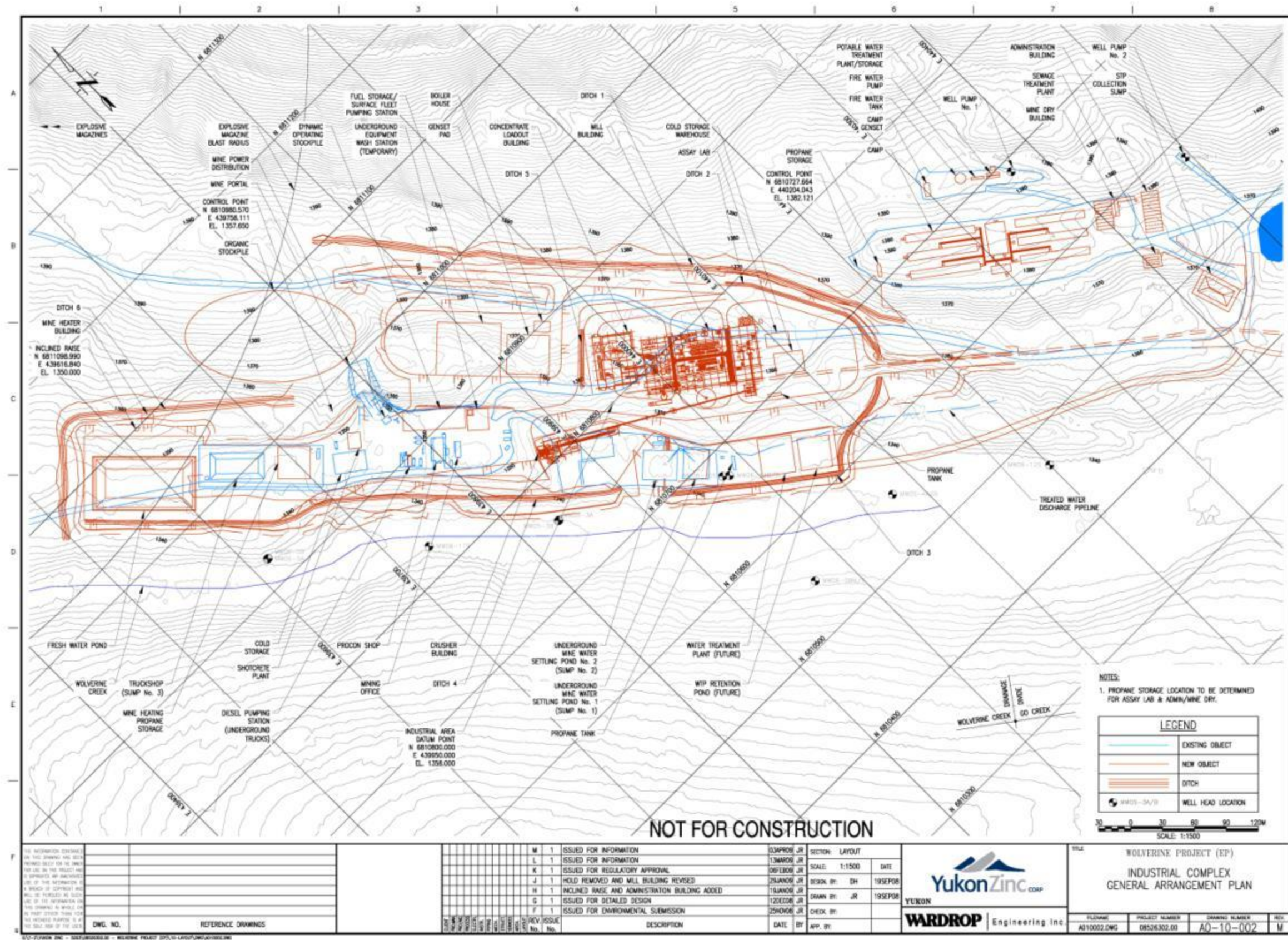


Figure 2. Existing and Future Industrial Complex Layout with the Mill Bypass Road Shown at Right

### 3 Mill Bypass Road Design and Construction Details

Construction of the Mill Bypass Road began on March 28, 2009 and was completed April 3, 2009. Site preparation activities in the area of Sump #3 commenced on September 5, 2008. The following sections provide information on the road design, geochemical testwork, construction details, quality assurance/quality control monitoring and decommissioning plans.

#### 3.1 Design

Yukon Zinc Corporation commissioned Yukon Engineering Services (YES) to provide engineered design drawings for the Mill Bypass Road. The YES millsite bypass road *Issued for Construction* Drawing is provided in Figure 3. The road was designed to be ~412m long with a maximum grade of -6.0% with two culverts; one for the overland flow from diversion Ditch #1 to Wolverine Creek (which is currently in construction) and the other for the treated water discharge pipe overland water flow to Go Creek.

#### 3.2 Geochemical Site Investigations

A sample of the road bed material used to construct the mill bypass road was taken April 24, 2009 and the ABA results are presented in Table 1. Testing for Non-Acid Generating (NAG) or Potentially Acid Generating (PAG) material was evaluated as per Section B1.5.3 of *General Site Plan Version 2008-04*. Based on the results presented in Table 1, the construction material for the mill bypass road was considered to be NAG, and is consequently suitable for use as construction material.

**Table 1. Acid Base Accounting Results for Mill Bypass Road Construction Material**

	Sample ID	MILL BYPASS Rd
Analysis Parameter	Units	
Paste pH	-	7.6
Fizz Rating	-	1
NP	kg CaCO <sub>3</sub> / t rock	11
AP	kg CaCO <sub>3</sub> / t rock	1.9
NNP	kg CaCO <sub>3</sub> / t rock	9
NPR	-	5.87
Total S	%	0.06
Sulphate	S %	0.05
Sulphide	S %	0.01



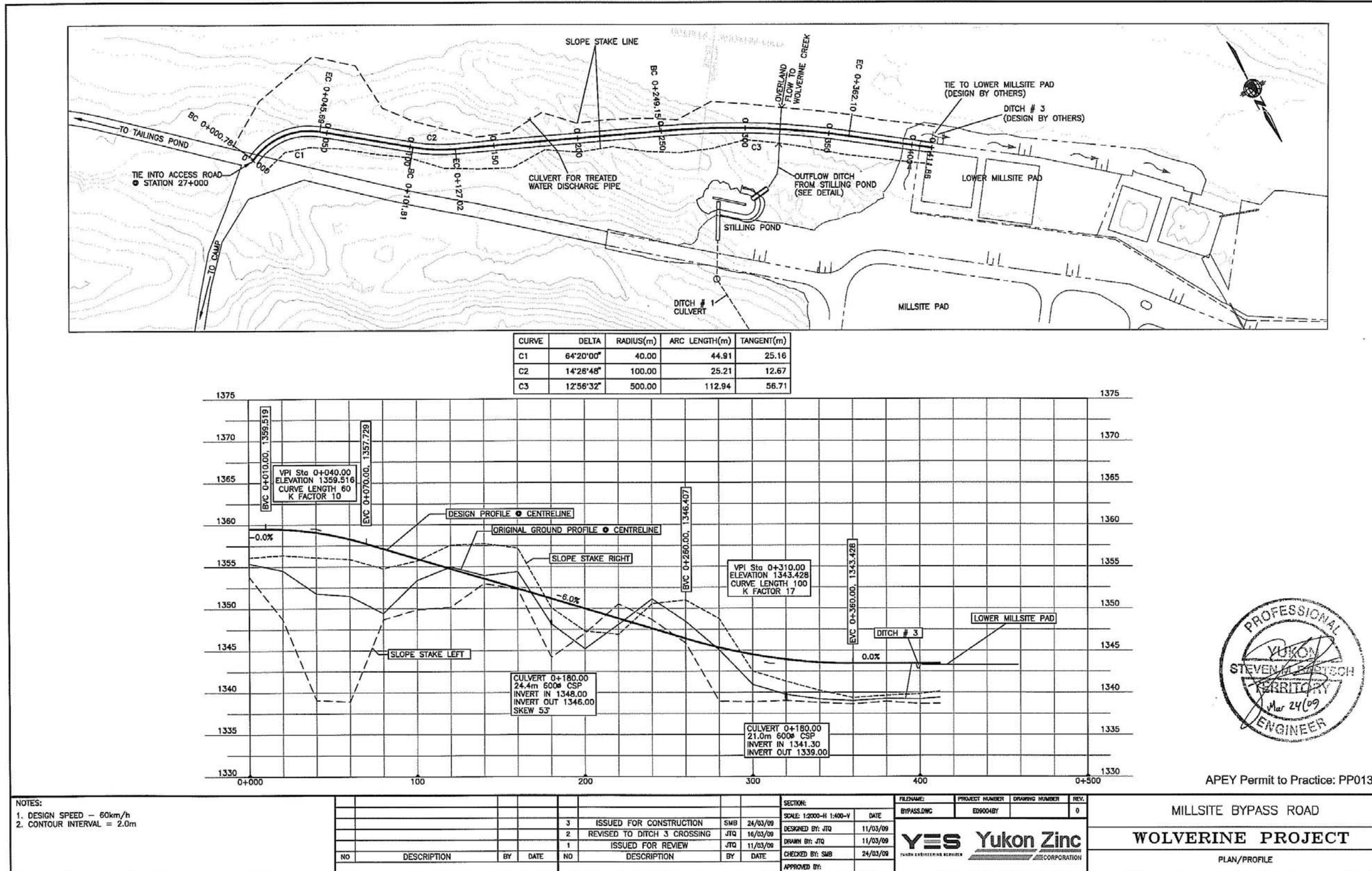


Figure 3. Mill Bypass Road Issued for Construction Drawing - Yukon Engineering Services

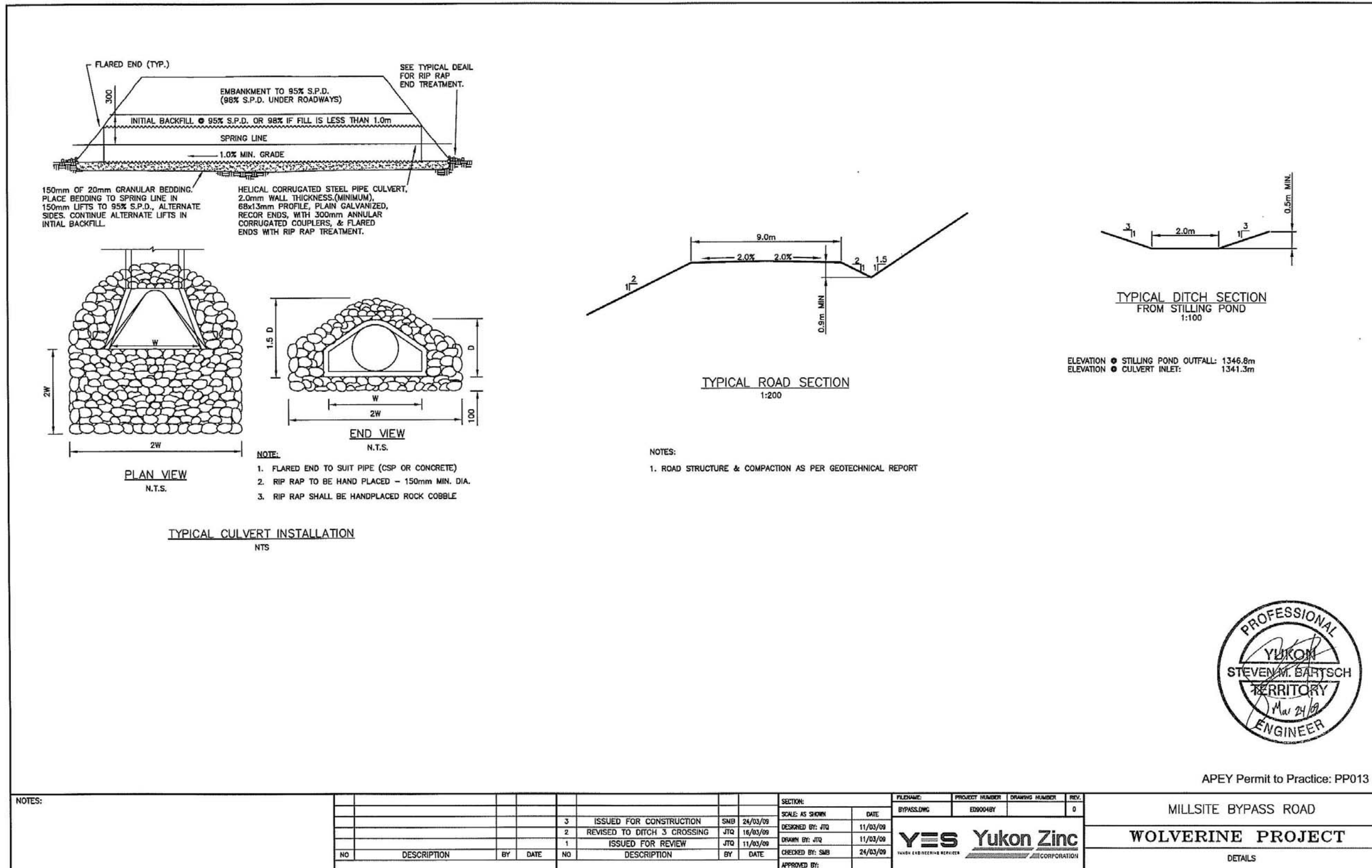


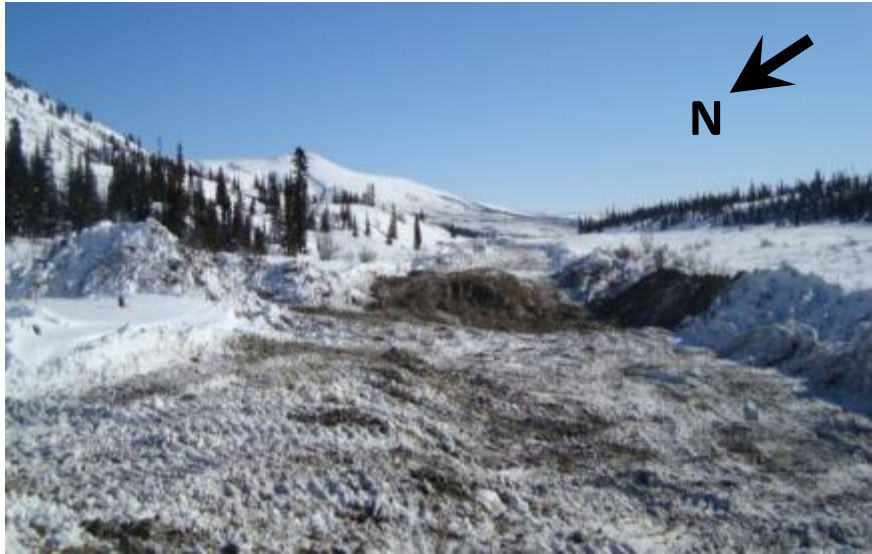
Figure 3. Mill Bypass Road Issued for Construction Drawing - Yukon Engineering Services cont'd



### 3.3 Construction Details

The Mill Bypass Road construction activities included snow and organics removal, earthworks and culvert installation. The YES as-constructed drawing for the Mill Bypass Road is provided in Figure 4; as-constructed details varied from issued for construction details due to site conditions which resulted in minimized excess cut and fill by maximizing the use of the natural contours of the terrain. Construction details are provided below, and the environmental construction monitoring report is provided in Appendix A.

Construction began with snow clearing and organics removal (Picture 1), and organics were stored on the downslope shoulder of the road.



**Picture 1. Snow Clearing and Organics Removal of Mill Bypass Road (March 31, 2009)**

Road bed material taken from the area was machinery compacted to produce the final road (Picture 2).



**Picture 2. Road Bed Fill and Compaction of Mill Bypass Road (April 1, 2009)**

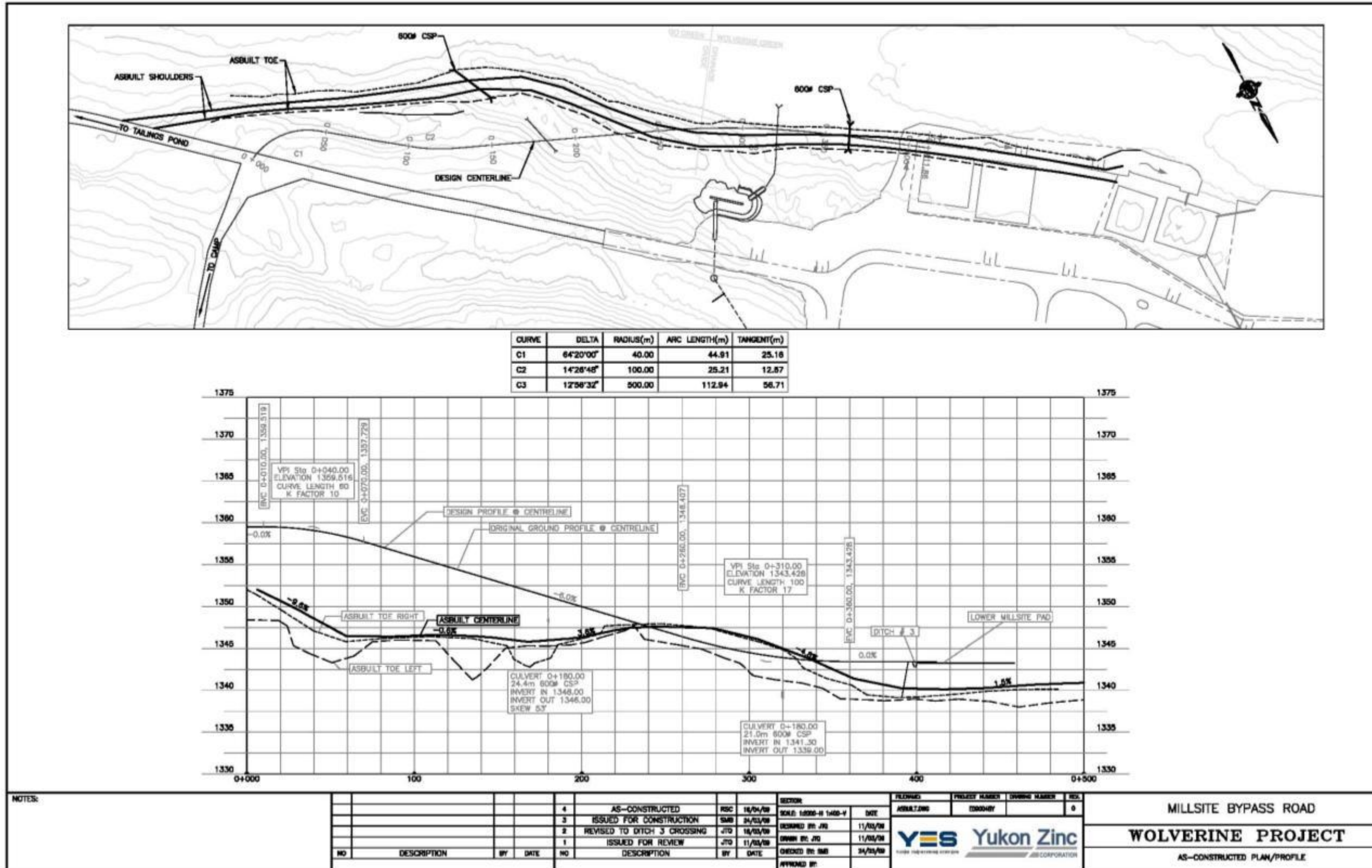


Figure 4. Mill Bypass Road As-built Drawing – Yukon Engineering Services



Culverts were installed to permit overland flow from the water treatment discharge pipe to Go Creek (Picture 3) and from Ditch #1 to Wolverine Creek (Picture 4).



**Picture 3. Completed Mill Bypass Road (April 3, 2009)**



**Picture 4. Completed Mill Bypass Road (April 3, 2009)**

### 3.4 Quality Assurance and Quality Control

As the Mill Bypass Road is a temporary measure to provide safe access to the lower mill pad until the permanent mill access road is complete, quality assurance and quality control measures (such as Packer tests, etc.) were not undertaken during construction.

### 3.5 Decommissioning Plans

When the Mill Bypass Road is no longer required for access to the Industrial Complex the site will be re-contoured to align to the natural topography and the organics stored on the downslope side of the road replaced. The organics will be seeded with the approved seed mix (Table 2) and slope stabilization and revegetation will be monitored as outlined in *Reclamation and Closure Plan Version 2008-02* (March 2008).

**Table 2. Wolverine Project – Custom Seed Mixture**

Use	Common Name <i>Species</i>	% in Mixture	Application Rate
Roadside	Violet wheat grass <i>Agropyron violaceum</i>	40	30kg/ha
	Slender wheat grass <i>Agoropyron pauciflorum</i>	10	
	Tickle Grass <i>Agrostis scabra</i>	5	
	Sheep Fescue <i>Festuca ovina</i>	20	
	Arctic Fescue <i>Festuca saximontana</i>	25	
	Violet wheat grass <i>Agropyron violaceum</i>	50	
	Fowl Blue grass <i>Poa palustris</i>	10	
Slope	Tickle Grass <i>Agrostis scabra</i>	5	40kg/ha
	Tufted Hair Grass <i>Deschampsia caespitosa</i>	10	
	Arctic Fescue <i>Festuca saximontana</i>	25	



# **Appendix A      Mill Bypass Road Construction Monitoring Report**

## Wolverine Project Environmental Inspection Form

<b>Part 1 – Site Description</b>	
Date and Time: Mar.31-Apr. 3, 2009	Inspector(s): Robin McCall/Mary McDougall/ Billie Maje
Site Name: Mill bypass road	Location/Co-ordinates: Km 27.3 N 0440 431 E 6810 369
Site Location Description: The start of the mill bypass road is at Km 27.3 just west of the concrete batch plant. The road is temporary and will be functional for the duration of the construction of the mill. The bypass extends to the West side of Sump #1 and #2.	
Weather Conditions:	
31-Mar-09	Sunny all day. +5
01-Apr-09	Sunny with some cloud. -8
02-Apr-09	High overcast with light snow. -12
03-Apr-09	Sunny all day. +2
<b>Part 2 – Site Assessment</b>	
Activity: Construction of the temporary bypass road starting at Km 27.3 has been completed. The road is approximately 400m long and passes by Sump#1 and #2. A treated water discharge line runs parallel along the NE side of the road approximately 10 m away. A 600 mm culvert has been installed to allow the treated discharge to flow beneath the road and into the Go Creek watershed. This area has a moderate risk due to the large amount of exposed soil and erosion potential, and should be monitored during the spring as snow melts. The area has been stripped and cleared to open a temporary bypass. Access into the site has been approved.	
Assessed Risk: Moderate	
Photos Attached: 7	
Samples Taken: None	
Additional Information Attached: None	
<b>Part 3 –Mitigation Requirements</b>	
Mitigation Required: None	
Mitigation Condition: Good	
<b>Part 4 –Monitoring Requirements</b>	
Follow-up Monitoring: Monitor discharge line and culvert. Sediment control during rain, in and around the culvert. The south slope of the road should also be monitored for erosion and sedimentation during the spring.	
Monitoring Frequency: This site is complete and the monitoring frequency is moderate.	
Reporting Requirements: Complete - no further actions required until decommissioning.	

**Wolverine Project  
Environmental Inspection Form – Photos**

**Site Name:** Mill bypass road

**Date and Time:** Mar.31 - April.1, 2009



**03\_31\_09** Photo looking D/C taken by sump#1. The end of bypass road. MW to the left of in the snow in the photo.

**04\_01\_09** Equipment building temporary bypass road which will eventually be Ditch #3. Looking D/C towards new camp.






**04\_03\_09** Photo looking D/C. Road is going over discharge culvert. Culvert in the middle of photo.

**04\_03\_09** Excavator is ditching and grader making a pass over on the road. Photo taken looking U/C towards Sump#1. Culvert in place at the low point.



**Wolverine Project  
Environmental Inspection Form – Photos**

<b>Site Name:</b> Mill bypass road	<b>Date and Time:</b> Mar.31 - April.1, 2009
	
<b>04_03_09</b> Temporary bypass looking towards Sump #1.	<b>04_03_09</b> Excavator leveling ditch. Culvert at the low point.
	
<b>04_03_09</b> Temporary Road complete. Looking South.	