

## ***Appendix 16-C***

*Murray River Project: 2010-2011 Visual Quality Baseline Report*

MURRAY RIVER COAL PROJECT

**Application for an Environmental Assessment Certificate / Environmental Impact Statement**

HD Mining International Ltd.

# MURRAY RIVER PROJECT 2010-2011 Visual Quality Baseline Report



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# MURRAY RIVER PROJECT 2010-2011 VISUAL QUALITY BASELINE REPORT

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Prepared for:



HD Mining International Ltd.

Prepared by:



Engineers and Scientists

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# Executive Summary



# Executive Summary

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Environmental and socio-economic baseline studies were initiated by Rescan Environmental Services Ltd. (Rescan) on behalf of HD Mining International Ltd. (CDI) in 2010 and continued into 2011 for the Murray River Coal Project (the Project). The Murray River Coal Exploration license was acquired in 2009. The licence covers an area of 16,024 hectares with a total of 57 coal licences. The licence area is located within the Peace River Coalfield (PRC), an area that has a long history of metallurgical grade coal mining, mainly from open pit mining. The Project is a proposed coal mine development in British Columbia located approximately 12.5 km southwest of the town of Tumbler Ridge. The project is accessible via the Heritage Highway, Quintette Mine Road and Murray River Forest Service Road. The projected mine capacity for the Project is approximately 6 million tonnes of metallurgical clean coal per year. Based on current knowledge from historical data and an ongoing exploration program, the expected mine life is at least 30 years. The total MRP footprint is expected to be approximately 235 Hectares. Additional details on the Project area will be documented in the Project Description submitted to the British Columbia Ministry of Environment, pursuant to *The Environmental Assessment Act (2002)*.

The precise location of surface mine facilities was not known at the outset of the baseline program in 2010; therefore, the main objective of the first year of biophysical baseline data collection was to provide the Project team with a high level and broad overview of present conditions in the Project area to be used as a planning tool to facilitate Project design and to support the preparation of an environmental assessment for the Project. In 2011 the Mine Surface Development Area (MSDA) was defined in the west section of the Local Study Area (LSA). Subsurface development will occur within a larger area where mineral exploration rights have been acquired by CDI. In March 2001, a Regional Study Area (RSA) was defined (2277 km<sup>2</sup>) based on Predictive Ecosystem Mapping.

This report presents the findings of the 2010 and 2011 visual quality baseline study.

The main objective of the program for 2010 was to document current visual quality conditions and provide a means of determining and assessing future visual quality changes related to the proposed development. Data obtained from the program can also be used to support socioeconomic and land use studies of the Project area.

# Acknowledgements

## Acknowledgements

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This report was prepared for HD Mining International Ltd. by Rescan Environmental Services Ltd. The 2010 fieldwork was conducted by Rescan scientists Pieter van Leuzen (M.Sc.). The report was written by Luke Powell (M.Sc.). The work was managed by Andrea Daezli (M.Env., R.P.Bio.) and directed by Clem Pelletier (B.Sc.).

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# MURRAY RIVER PROJECT

## 2010-2011 VISUAL QUALITY

### BASELINE REPORT

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# Glossary and Abbreviations

## Glossary and Abbreviations

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Terminology used in this document is defined where it is first used. The following list will assist readers who may choose to review only portions of the document.

<b>BC</b>	British Columbia
<b>CDI</b>	HD Mining International Ltd.
<b>EVC</b>	Existing Visual Class
<b>GPS</b>	Global Positioning System
<b>LRMP</b>	Land and Resource Management Plan
<b>MoF</b>	Ministry of Forests
<b>MoFR</b>	Ministry of Forests and Range
<b>MNRO</b>	Ministry of Natural Resource Operations
<b>Rescan</b>	Rescan Environmental Services Ltd.
<b>RMZ</b>	Resource Management Zone
<b>the Project</b>	Murray River Coal Project
<b>VAC</b>	Visual Absorption Class
<b>VLI</b>	Visual Landscape Inventory
<b>VQLSA</b>	Visual Quality Local Study Area
<b>VQO</b>	Visual Quality Objective
<b>VSC</b>	Visual Sensitivity Class
<b>VSU</b>	Visual Sensitivity Unit

# 1. Introduction

# 1. Introduction

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Environmental and socio-economic baseline studies were initiated for the Murray River Coal Project (MRP) by Rescan Environmental Services Ltd. (Rescan) on behalf of HD Mining International Ltd. in 2010. The Murray River Coal Exploration license was acquired in 2009 and covers an area of 16,024 hectares, containing a total of 57 coal licences. The licence area is located within the Peace River Coalfield (PRC), an area that has a long history of metallurgical grade coal mining, mainly from open pit mining.

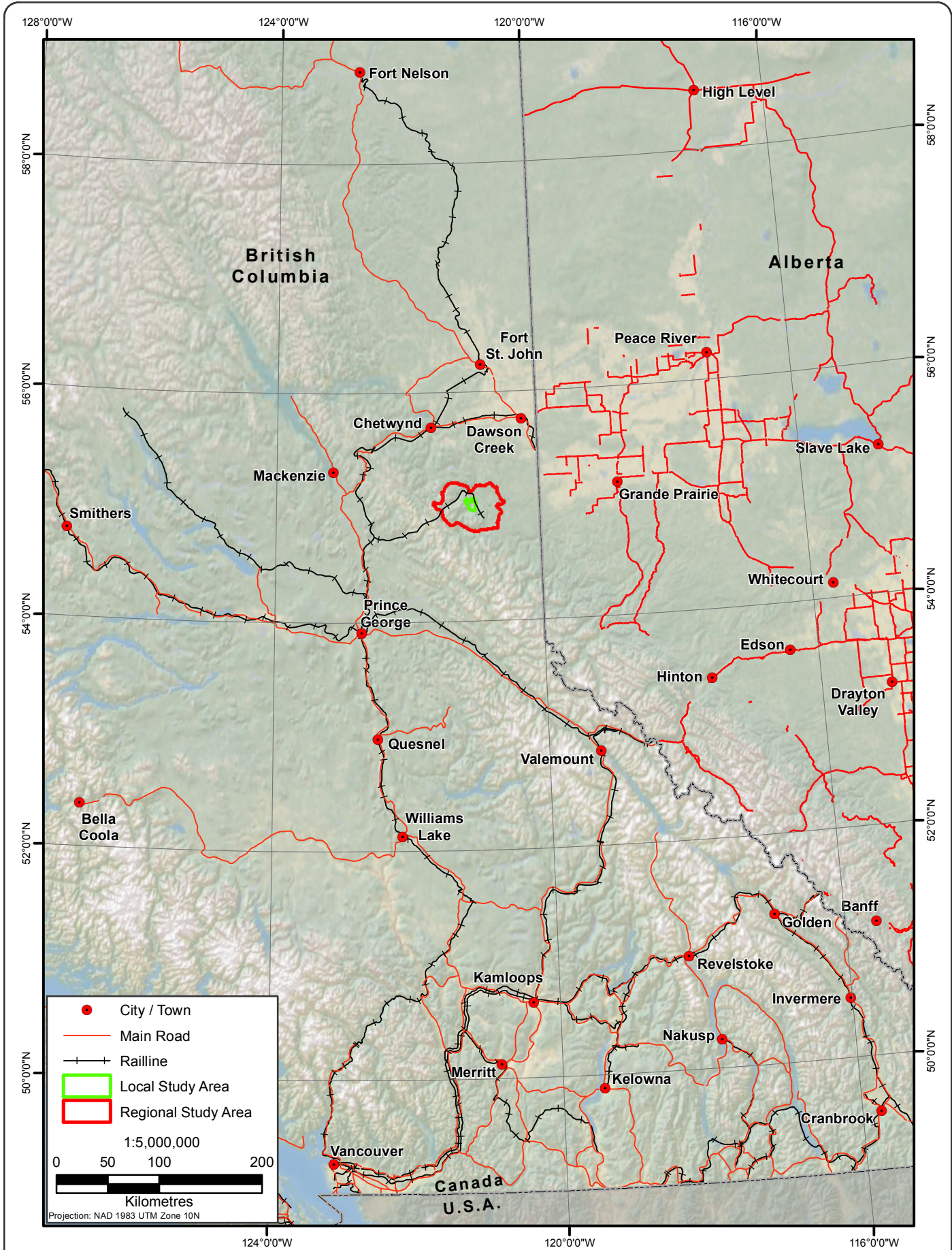
The MRP is a proposed coal mine development in British Columbia located approximately 12.5 km southwest of the town of Tumbler Ridge (Figure 1.1-1). The project is accessible via the Heritage Highway, Quintette Mine Road and Murray River Forest Service Road. As the exact footprint of the Project area was not yet determined at the outset of the 2010 baseline program, for the purpose of baseline studies, a Local Study Area (LSA) of 101 km<sup>2</sup> was defined in which surface facilities may be developed around the Project Site. In early 2011, Project boundary details were further refined and a Mine Surface Development Area (MSDA) was proposed as an option to develop surface facilities to the west of the Project. This option is illustrated in Figure 1.1-2. The MSDA will contain the surface infrastructure of the Project; hence, surface disturbances related to Project facilities are expected to occur within the MSDA.

Subsurface development will occur within a larger area where mineral exploration rights have been acquired by CDI. In March 2001, a Regional Study Area (RSA) was defined (2277 km<sup>2</sup>) based on Predictive Ecosystem Mapping (Figure 1.1-2). The projected mine capacity for the Project is approximately 6 million tonnes of metallurgical clean coal per year. Based on current knowledge from historical data and an ongoing exploration program, the expected mine life is at least 30 years. The total MRP footprint is expected to be approximately 235 Hectares. Additional details on the Project area will be documented in the Project Proposal submitted to the British Columbia Ministry of Environment, pursuant to *The Environmental Assessment Act* (2002).

The Project falls under the jurisdiction of the Dawson Creek Land and Resource Management Plan (LRMP). The LRMP lists visual quality as an essential component of the natural landscape, important to those who live, work, and engage in recreational activities in the area (BC ILMB 1999). In support of this, Visual Quality Objectives (VQOs) were established by the BC MOF and the Peace River district in order to manage forestry-related activities, although the principles may equally be applied to any resource management activity when considering permitting and development planning.

The goal of the Project baseline visual quality program is to document current conditions and provide a means of determining and assessing future visual quality changes related to the proposed development. Data obtained from the program can also be used to support socioeconomic and land use studies of the area. Following procedures established in the BC Ministry of Forests and Range *Visual Impact Assessment Guidebook* (BC MOF 2001), the main objectives of this baseline study are threefold:

- Review BC Ministry of Forests, Lands and Natural Resource Operations (MNRO) guidelines regarding visual quality and any relevant literature;
- Describe existing VQOs in and around the Project area; and
- Identifying existing landscapes and visual resources in the study area that may be sensitive to visual disturbance by conducting a viewshed analysis and field level reconnaissance.





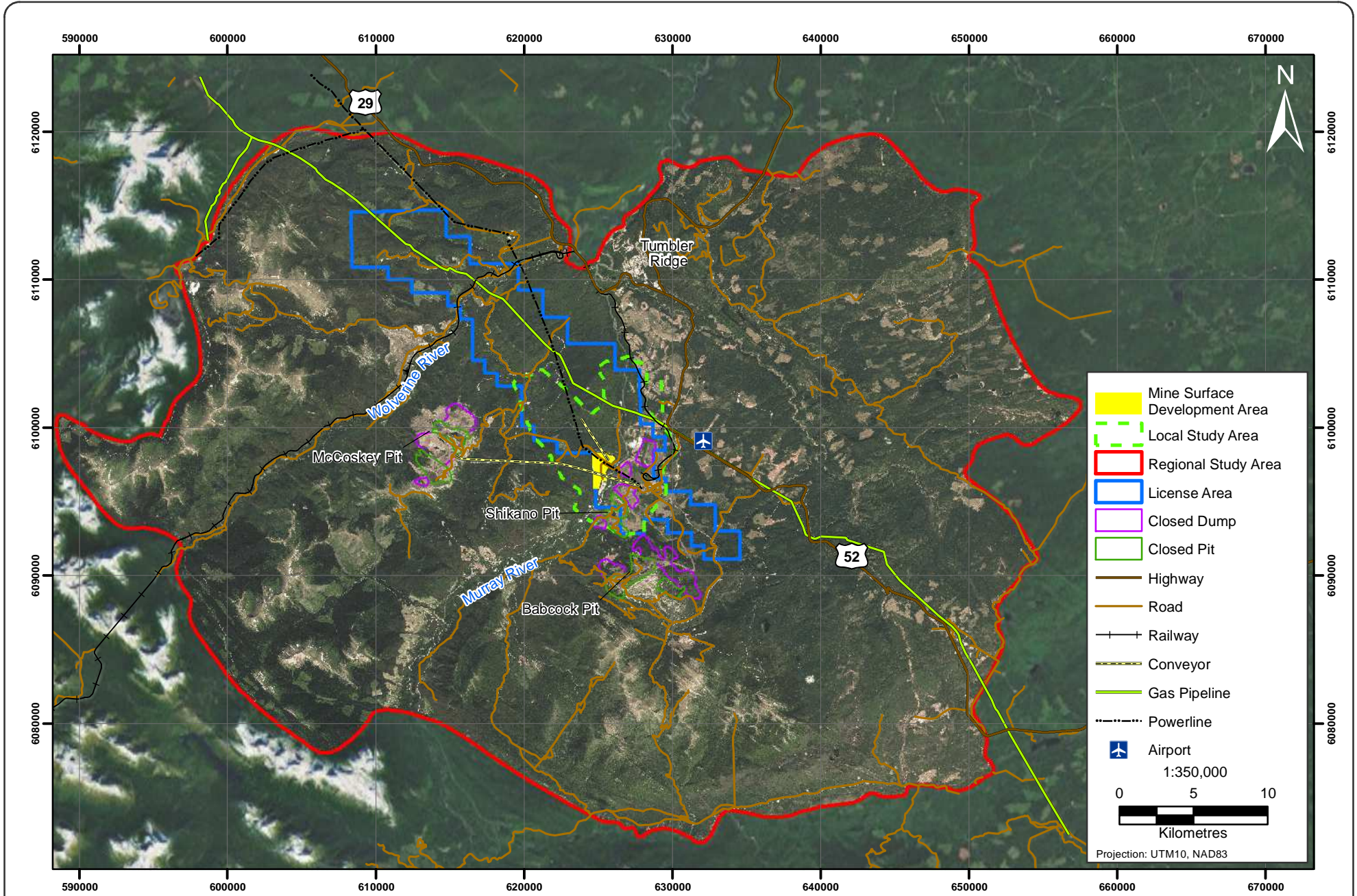


Figure 1.1-2



**MURRAY RIVER PROJECT**

### Murray River Project Map

Figure 1.1-2



The results of this study will be incorporated into the Visual Quality chapter of MRP's Environmental Assessment Certificate Application. Any locations identified that are considered sensitive to resource development may also be used to guide decisions related to the Project's design and implementation, or to develop simulated visual products to assess the potential effects of the Project on visual quality.



## 2. Background Information

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### 2.1 VISUAL LANDSCAPE INVENTORY

The primary piece of legislation governing visual quality in the Project area is the BC *Forest and Range Practices Act* (formerly the *Forest Practices Code of British Columbia Act*), enacted in 2004. The Act established the Visual Landscape Inventory (VLI), which is the main framework for managing visual quality in British Columbia, and created two designations to support it: Scenic Areas and VQOs (MoF 1997).

The VLI is a database of areas and corridors in the province which may be considered visually sensitive. The database classifies the entire province; any areas considered not visually sensitive are marked as such and not assessed further. The remaining areas are considered visually sensitive, and are separated into discrete Visual Sensitivity Units (VSUs), with each unit having specific visual characteristics distinct from those around it. These visual characteristics are determined based on the landscape view from specific points where visual quality would be considered important (e.g. highway pullouts, rest stops, trails, provincial parks, etc.). Characteristics defining a VSU include the Existing Visual Conditions (EVC, rated from Preserved to Excessively Modified), Visual Absorption Capability (VAC), and any specific biophysical or other characteristics unique to the area. Based on those characteristics, a recommended Visual Sensitivity Class (VSC) is assigned. See Appendix I for a description of the rating system for EVCs, VACs, and VSCs.

Areas deemed to have visual value in the VLI, or areas identified in a process carried out or approved by the MNRO District Manager, are considered Scenic Areas. In many cases, these Scenic Areas have VQOs assigned to them, either through a higher level plan (in this case, the Dawson Creek LRMP), or by the District Manager. VQOs are specific resource management objectives that explicitly indicate the level to which the visual quality of an area should be maintained. These levels are:

- Preservation (P): the alteration, when viewed from a public viewpoint, is (i) very small in scale, and (ii) not easily distinguishable from the pre-harvest landscape;
- Retention (R): the alteration, when viewed from a public viewpoint, is (i) difficult to see, (ii) small in scale, and (iii) natural in appearance;
- Partial Retention (PR): the alteration, when viewed from a public viewpoint, is (i) easy to see, (ii) small to medium in scale, and (iii) natural and not rectilinear or geometric in shape;
- Modification (M): the alteration, when viewed from a public viewpoint, (i) is very easy to see, and (ii) is (A) large in scale and natural in its appearance, or (B) small to medium in scale but with some angular characteristics; and
- Maximum Modification (MM): the alteration, when viewed from a public viewpoint, (i) is very easy to see, and (ii) is (A) very large in scale, (B) rectilinear or geometric in shape, or (C) both.

### 2.2 DAWSON CREEK LRMP

The Dawson Creek LRMP is a sub-regional land use plan covering approximately 2.9 million hectares of northeastern British Columbia. The plan is designed to provide a stable framework for resource development while ensuring that access to those resources is maintained. The LRMP is based on the General Management Direction, which represents the overarching goals associated with specific resource values (e.g., biodiversity, fish and wildlife, recreation and tourism, etc.). Visual quality is included as one of those goals. The specific strategies mirror those established in the *Forests and Range Practices Act*, namely establishing, developing, and reviewing VQOs throughout the LRMP.

The LRMP identifies twelve types of Resource Management Zones (RMZs), each of which have distinct biophysical characteristics and resource issues. The LRMP area is divided into numerous subzones, each of which is classified as one of the types of RMZ. Within the LSA, there are 3 subzones: Murray River, classified as a Major River Corridor, Bullmoose Creek, and Mount Anderson, both of which are classified as Foothills.

The Major River Corridor RMZ is considered a Special Resource Management area and is therefore given a very high priority in land and resource planning and development. Resource development is not prohibited in these areas, but due consideration must be applied to all identified values. Major River Corridors are river valleys that have significant fish and wildlife habitat, recreation, tourism, and scenic/visual quality values (BC ILMB 1999). Scenic Areas exist throughout most of the Murray River corridor, and thus have more restrictive VQO ratings, going from Partial Retention to some areas of Preservation.

The Foothills RMZ is considered a General Resource Management area. These lands are identified as those which should be managed with an eye towards integrating resource development and environmental and social goals. Generally, these lands have few conflicting resource management values. Most of the areas identified as important to visual quality are along travel corridors (e.g. Highway 29). VQO ratings in the RMZ run the gamut from Maximum Modification to Preservation.

### 3. Visual Quality Setting and Study Area

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The Murray River Project is located in the foothills of the Rocky Mountains in northeastern British Columbia, approximately 12.5 km southeast of the town of Tumbler Ridge. It is an area that possesses significant opportunities for outdoor recreation, and as a result a large number of tourists are attracted to the area. Recreational activities in the Tumbler Ridge area include hiking, ATVing, fishing, river rafting, canoeing and kayaking, skiing, ice climbing, and snowmobiling (Economic Growth Solutions, 2008). Additionally, 3.5 km east of the Project area is Highway 52, which runs from Dawson Creek to Tupper via Tumbler Ridge. There are no provincial parks or protected areas within 20 km of the Project.

The Project lies within the Northeast Coal Block of British Columbia in the Peace River District. There are a number of resource developments in the area, including other coal mines, oil and natural gas wells, and logging. Coal mines in the area include the previously developed Quintette mine, the currently operating Wolverine and Trend mines, the planned Hermann Mine, and a number of other mines currently undergoing feasibility studies (District of Tumbler Ridge, 2009). In addition, the Tumbler Ridge Wind Energy Project, a 50 megawatt wind energy development, is scheduled to begin construction in the summer of 2011.

## 4. Methodology

## 4. Methodology

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The *Visual Impact Assessment Guidebook* (MoF 2001) outlines a series of guidelines for assessing the effects of development on the visual landscape. The first two steps in the process are:

- planning and pre-field trip preparation; and
- conducting field work.

The first step involved conducting a viewshed analysis is to understand the area's visual sightlines relative to the Project, so that appropriate field sites could be selected. The second step involved visiting the field sites and taking photographs in the direction of the Project to establish a baseline for future assessments.

### 4.1 VIEWSHED ANALYSIS

A viewshed analysis is a procedure that highlights all areas that have a direct line of sight to a specific location. The analysis is required to determine from what locations in the surrounding area the Project could be visible. The resulting output will be used to aid in determining appropriate field sites for investigation and will be used to establish the Visual Quality Local Study Area (VQLSA).

The analysis was conducted in ESRI's ArcGIS 10 Spatial Analyst using the viewshed analysis tool. The inputs into the analysis were:

- a digital elevation model from the BC Terrain Resource Information Management (TRIM) Program with a resolution of approximately 20 m; and
- projected vegetation height above ground level, based on the Vegetation Resources Inventory (MNRO 2011).

Since the Project is in the early stages of development, no information regarding the height of any proposed infrastructure is available. The height of buildings will be omitted from the analysis; this will have the effect of underestimating the amount of area that has a direct line of sight to the Project.

### 4.2 FIELDWORK

The purpose of fieldwork is to gain familiarity with the study area from a visual perspective (BC MOFR 2001). A series of photographs were taken from selected locations around the Project area. These locations were selected based on results obtained from a viewshed analysis of the area and specific viewpoints identified in the VLI. These viewpoints were used to delineate and assess VSUs; the VLI also maintains data pertaining to the direction the view was assessed from for each point. Visits were conducted and photos were taken at each of the assessment viewpoints that included the Project location.

The majority of fieldwork was conducted during site visits on July 26 and 27, 2010. For each viewpoint, the information gathered consisted of:

- GPS (Global Positioning System) coordinates for the viewpoint (using a Garmin 60CX - Accuracy 3 to 5 metres, 95% typical Wide Area Augmentation System (WAAS) accuracy in North America or <10 metres 95% typical where WAAS is not available);
- current weather conditions;



## 2010-2011 VISUAL QUALITY BASELINE REPORT

- photographs from each viewpoint in the direction of the Murray River Project; and
- a compass bearing in which the photograph was taken.

All sample photographs were taken from ground positions using a 10 megapixel digital camera with a 35 mm lens. Access to viewpoints was conducted exclusively by car; due to safety concerns, off-road viewpoints were not assessed (including areas to the south of the Project). In total, 35 viewpoints were visited and photographed, but the landscape from many of the viewpoints was quite similar, so a subsample of 12 viewpoints was selected for analysis in the baseline.

## 5. Results

## 5. Results

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### 5.1 VISUAL LANDSCAPE INVENTORY

Within the LSA, there are five VSUs delineated (Figure 5.1-1). One has not been “made known” (unit number 122), indicating that its designation is less than four months old and therefore the VQO is only considered a recommendation. However, it will be included in this baseline as it will eventually become necessary to include it in any future work. Table 5.1-1 shows the ratings associated with each of the five VSU’s. See Appendix 1 for a definition of the class ratings.

**Table 5.1-1. Ratings of Visual Sensitivity Units in the LSA**

Visual Sensitivity Unit (VSU)	Existing Visual Class (EVC)	Visual Absorption Class (VAC)	Visual Sensitivity Class (VSC)	Existing or Recommended Visual Quality Objective (VQO)
117	R	M	3	PR
122	P	M	3	PR
123	PR	M	3	PR
124	M	H	3	PR
140	P	M	3	PR

### 5.2 VIEWSHED ANALYSIS

Using the DEM and VRI datasets, a viewshed analysis was conducted for the MSDA (Figure 5.2-1). The analysis was undertaken with an eye towards using the results to aid in selecting field sites, including those areas where the Project may or may not be visible. The results suggest that the Project is most likely to be visible from the east side of the Murray River, and only sporadically from the northeast and north. These results, combined with information provided in the VLI database, were the basis for selecting field sites and establishing the VQLSA.

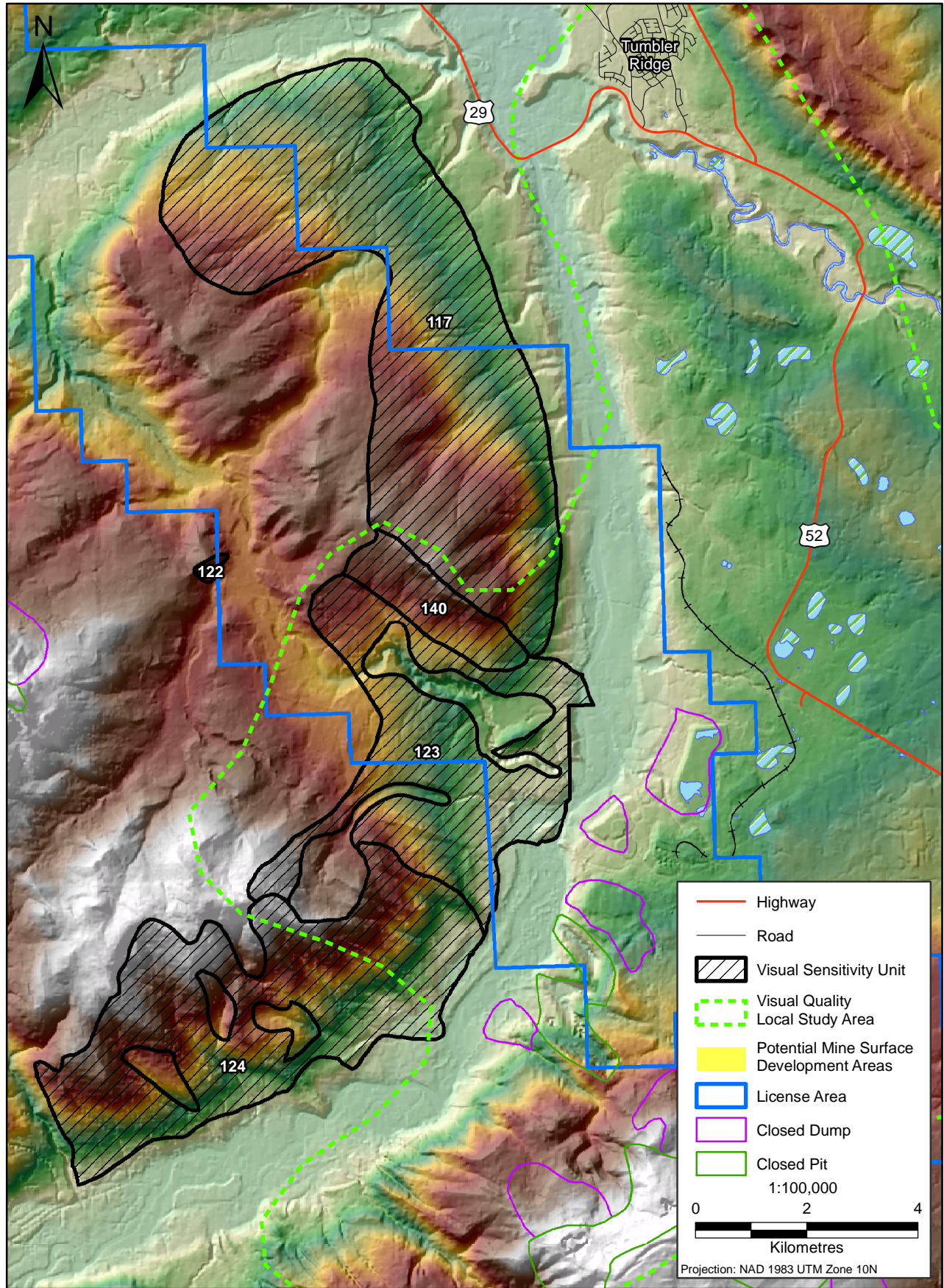
### 5.3 FIELDWORK

Viewpoints considered important in the evaluation of the Visual Sensitivity Units illustrated in Figure 5.1-1 and described in Table 5.1-1 were selected from the VLI database (Figure 5.3-1). At each location, photographs were taken in directions indicated in the VLI database as the ones used to assess the VSUs. Additional photographs were taken in locations that showed evidence of or potential for recreational use. Two general areas were sampled: Highway 52 corridor and Tumbler Ridge, and along the Murray River valley. GPS coordinates, photograph bearings, and corresponding VLI identifiers (if applicable) for each location can be found in Appendix 2.

In Figure 5.3-1, the ridge north of the Project development area is highlighted; it is used as a visual marker in many of the photographs.

#### 5.3.1 Highway 52 and Tumbler Ridge

Highway 52, known locally as the Heritage Highway, runs approximately 240 km from Arras, west of Dawson Creek, through Tumbler Ridge, and on to Tupper, near the BC-Alberta border. It is the major route to gain access to Bearhole Lake and One Island Lake Provincial Parks. Since the highway is an alternate loop from Dawson Creek to Tupper, there is likely little commercial traffic; thus, most of the highway’s traffic consists of local traffic and tourism, making the corridor a potentially important area for visual quality.





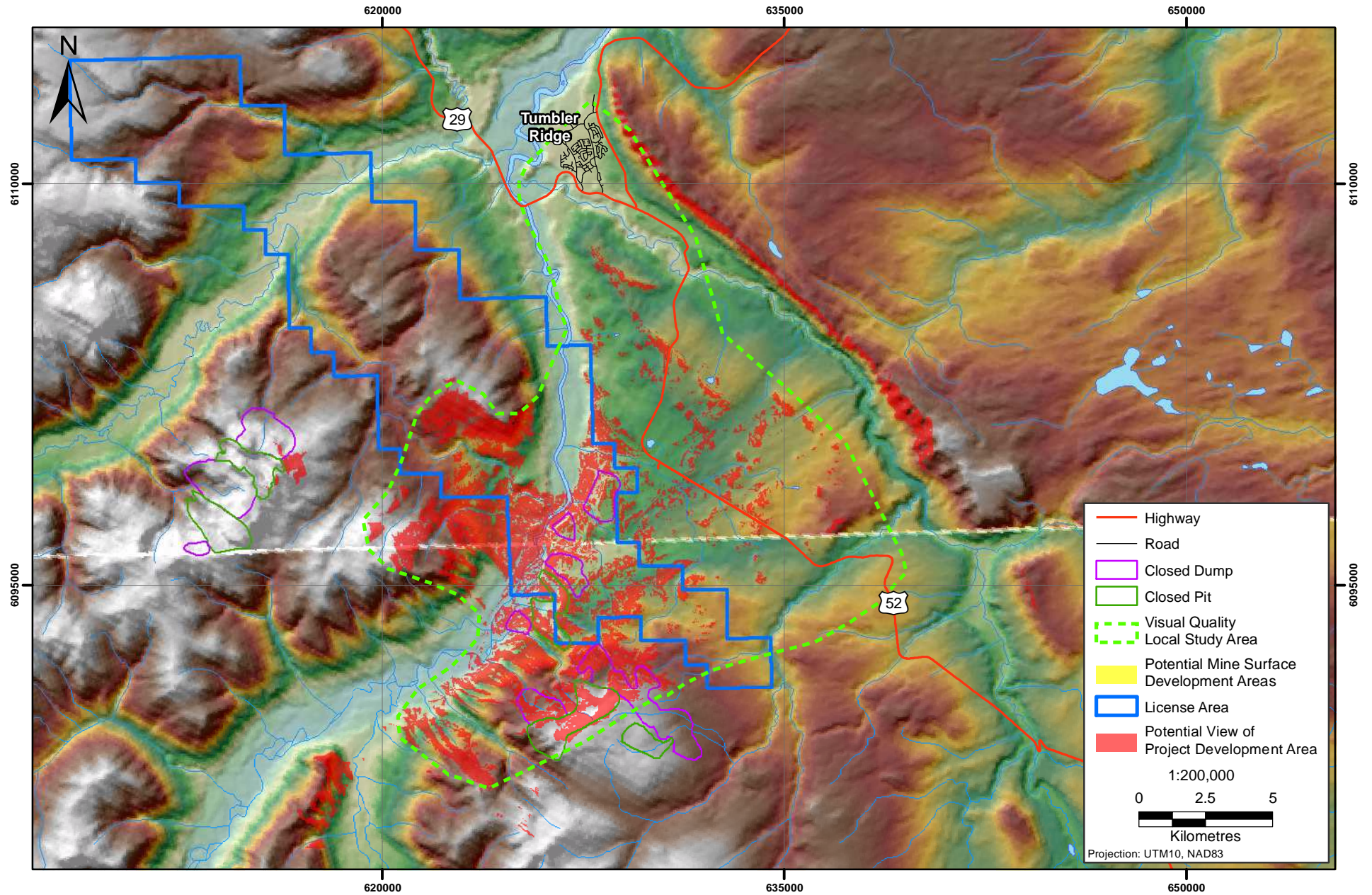


Figure 5.2-1



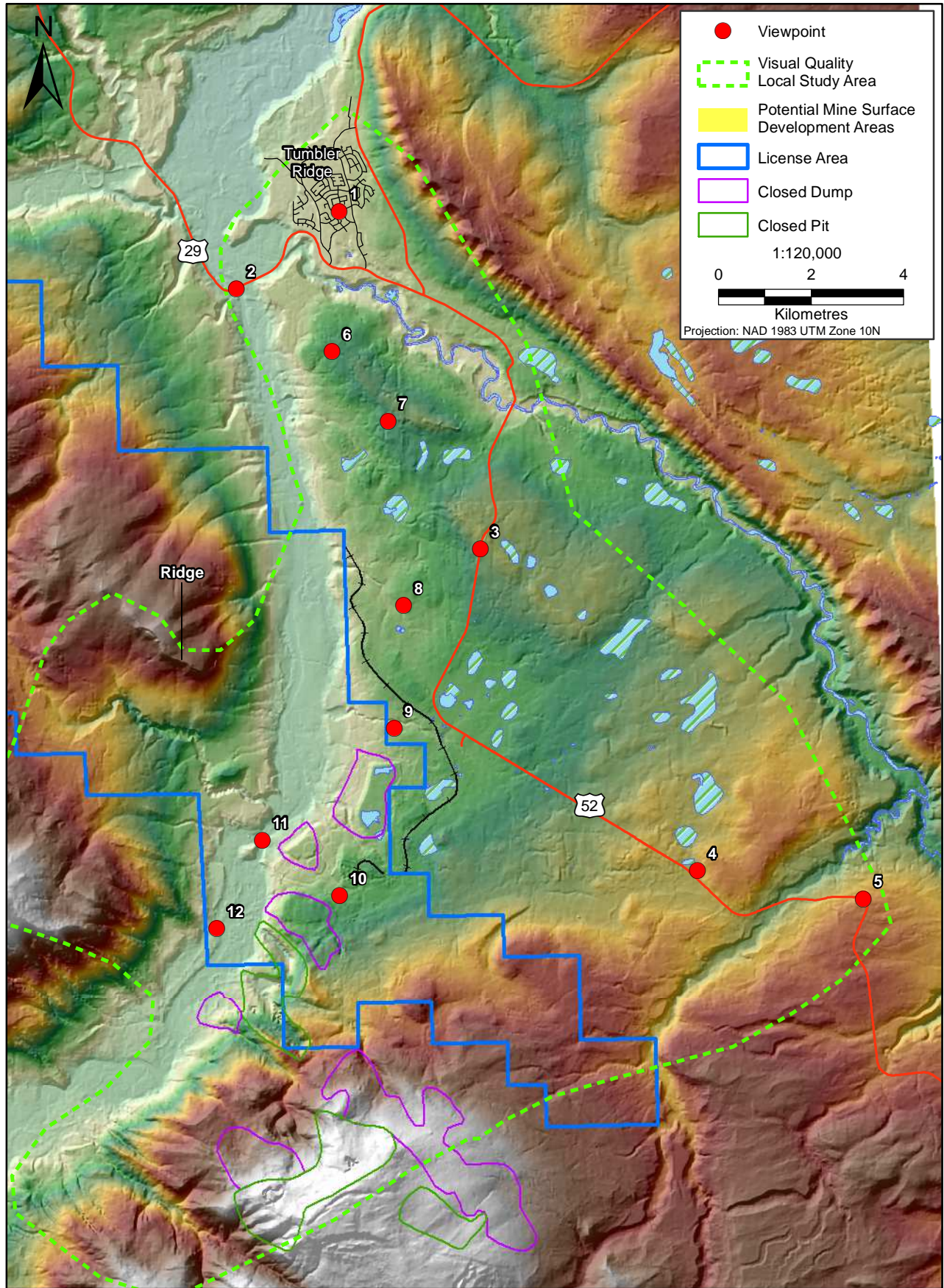
**MURRAY RIVER PROJECT**

### Areas With a Potential View of the MSDA

Figure 5.2-1









Photographs were taken at one location in Tumbler Ridge and numerous locations along Highway 52 on July 28 and 29, 2010. The weather was overcast, but the cloud ceiling was high and visibility was unlimited.

Viewpoint 1 was located in Tumbler Ridge, outside the Tumbler Ridge Wilderness Lodge at 360 Northgate St. (Plates 5.3-1a and 5.3-1b). The photograph faces south towards the Project area. The view is partially blocked by the building; any project development would likely not be seen from this location given that the layout of Tumbler Ridge is such that there are few roads oriented along this bearing, and that the town is largely surrounded by trees. It is likely that there are very few locations in Tumbler Ridge that have an unobstructed view of the Project area.



Plate 5.3-1a. Viewpoint - looking south from the Tumbler Ridge Wilderness Lodge.

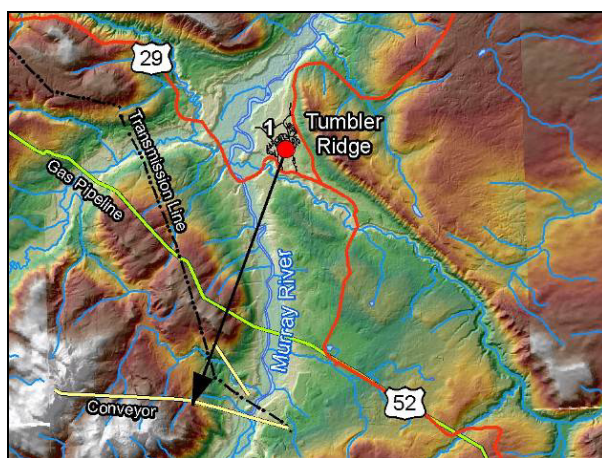


Plate 5.3-1b. Viewpoint 1 - location and bearing, July 27, 2010

Viewpoint 2 is located on Murray River at the point where it crosses under Highway 29, approximately 2 km west of Tumbler Ridge (Plates 5.3-2a and 5.3-2b). The view in the photo looks south southeast, upstream along the Murray River. Little of the area near the potential Project site is visible, as the trees on the banks of the river obstruct the view. The hill visible in the background is the ridge just north of the potential Project site.

Viewpoint 3 is located on Highway 52, approximately 6 km from Tumbler Ridge (Plates 5.3-3a and 5.3-3b). The view is slightly obscured by an overhead transmission line running alongside the highway. The foremost hill on the right is the ridge just north of the potential Project site. This viewpoint has a clear view of the Project area, although only the tallest components of any mine infrastructure would be visible. Most of the area in the foreground of the image has been clearcut, so there are no trees to obscure the view.

Viewpoint 4 is located on Highway 52 near Husky oil and alongside the gas pipeline that runs through the area (Plates 5.3-4a and 5.3-4b), approximately 18 km from Tumbler Ridge. The highway is elevated from the area to the west, so there is a clear view of the Project area. The first distant hill on the right is the ridge just north of the Project site. Viewpoint 4 is 12 km from the potential Project site.

Viewpoint 5 is located on Highway 52, approximately 22 km from Tumbler Ridge (Plates 5.3-5a and 5.3-5b). The view has some additional significance, as it is the first view of the Murray River valley for traffic travelling west on Highway 52 coming from Tupper. The Project site is in view, although only the tallest of structures would be visible. Viewpoint 5 is approximately 14 km from the Project site.



Plate 5.3-2a. Viewpoint 2 - Looking south southeast up the Murray River from the Highway 29 crossing.

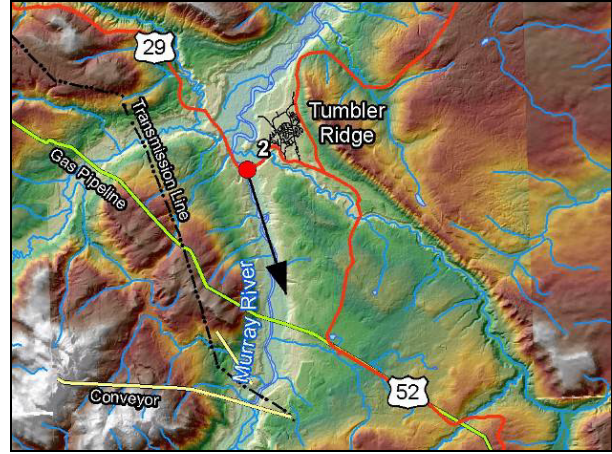


Plate 5.3-2b. Viewpoint 2 - Location and bearing, July 27, 2010

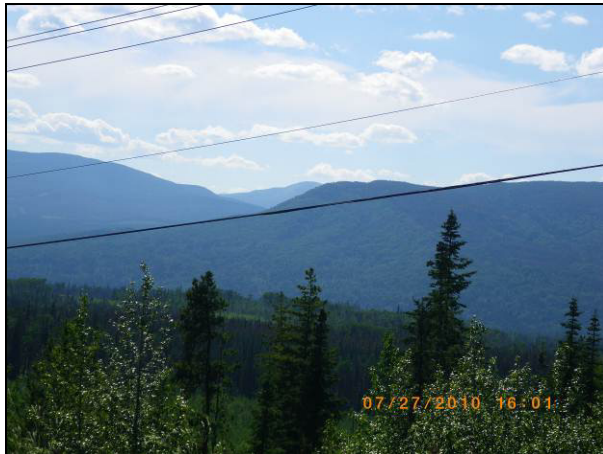


Plate 5.3-3a. Viewpoint 3 - looking southwest from Highway 52.

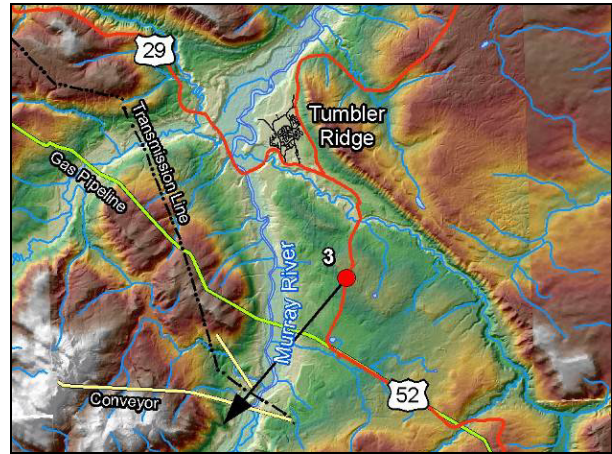


Plate 5.3-3b. Viewpoint 3 - Location and bearing, July 27, 2010.

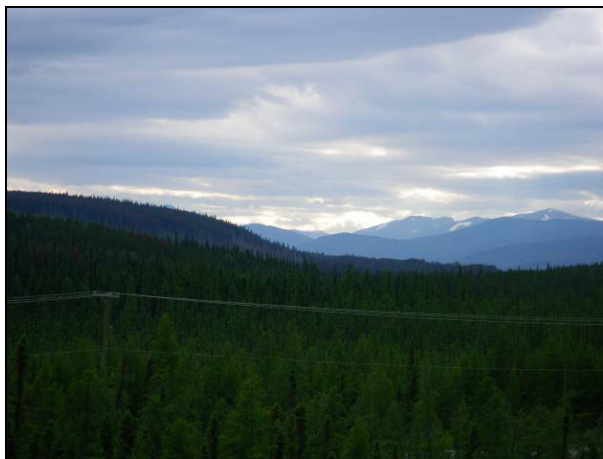


Plate 5.3-4a. Viewpoint 4 - looking west from Highway 52.

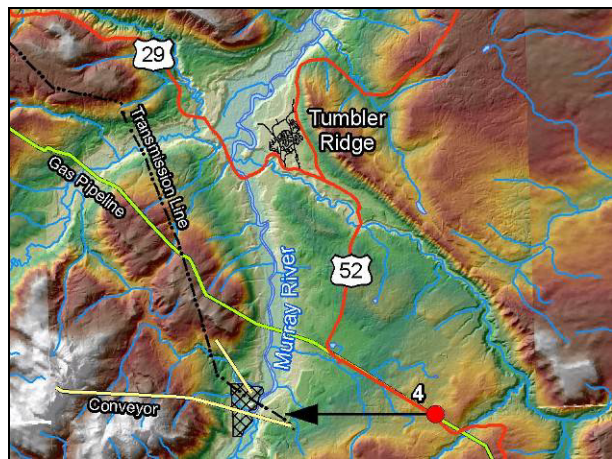


Plate 5.3-4b. Viewpoint 4 - Location and bearing, July 27, 2010.





Plate 5.3-5a. Viewpoint 5 - Looking west from Highway 52.



Plate 5.3-5b. Viewpoint 5 - Location and bearing, July 26, 2010.

### 5.3.2 Murray River

Viewpoint 6 is located on a forestry road approximately 2 km south of Tumbler Ridge and 1 km east of the Murray River (Plates 5.3-6a and 5.3-6b). The view is oriented south towards the Project site. The area around Viewpoint 6 has been heavily clearcut and is elevated from the valley, so there is a clear view towards the Project site. The hill dominating the right half of the photograph is the ridge just north of the Project site. This viewpoint is approximately 10 km from the Project site.



Plate 5.3-6a. Viewpoint 6 - Looking south southwest from a forestry road 2 km south of Tumbler Ridge.

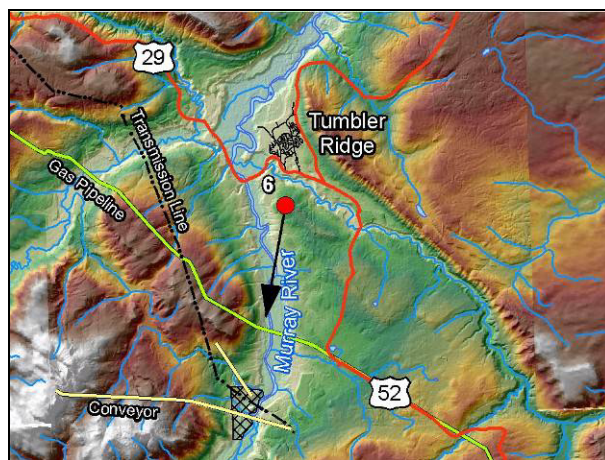


Plate 5.3-6b. Viewpoint 6 - Location and bearing, July 27, 2010.

Viewpoint 7 is located on a forestry road approximately 3.5 km from Tumbler Ridge and 2 km east of the Murray River (Plates 5.3-7a and 5.3-7b). The view is oriented south southwest, and as with other viewpoint in this area, it is situated within a large clearcut and has an elevated view of the Murray River valley. Infrastructure of a moderate height could be visible from this location. The foremost hill on the right side of the photograph is the ridge just north of the Project site. The Viewpoint is approximately 8.5 km from the Project site.





Plate 5.3-7a. Viewpoint 7 - Looking south southwest from a forestry road 3.5 km south of Tumbler Ridge.

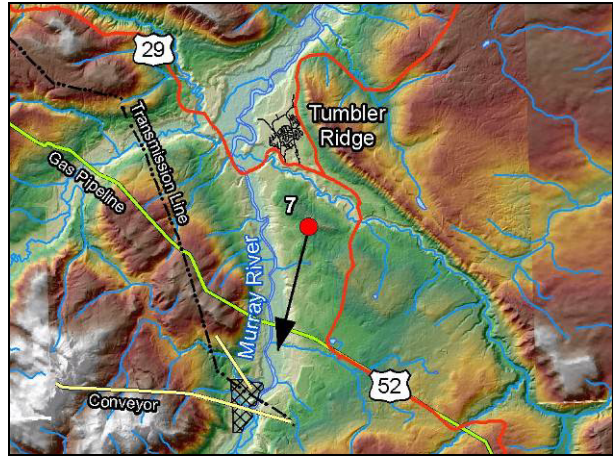


Plate 5.3-7b. Viewpoint 7 - Location and bearing, July 27, 2010.

Viewpoint 8 is located on a forestry road approximately 1.5 km west of Highway 52 and 2 km east of the Murray River (Plates 5.3-8a and 5.3-8b). The view is to the southwest towards the Project, and as with other sites in the area, it has a clear view of the Project site due to elevation and heavy clearcutting. The hill on the right side is the ridge just north of the Project site. The Viewpoint is approximately 5.5 km from the Project site.



Plate 5.3-8a. Viewpoint 8 - Looking south southwest from a forestry road 1.5 km west of Highway 52.

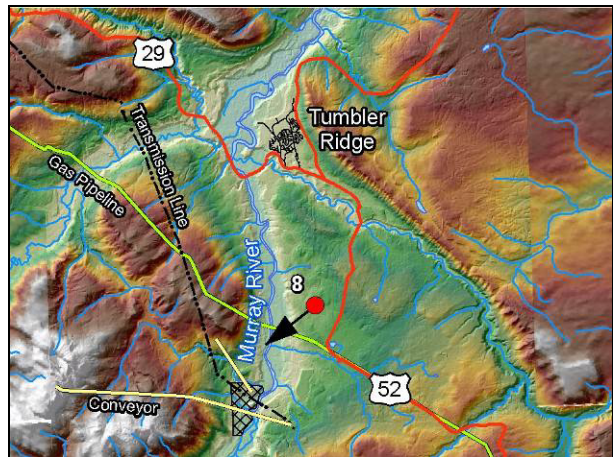


Plate 5.3-8b. Viewpoint 8 - Location and bearing, July 27, 2010.

Viewpoint 9 is located on a forestry road about 1 km west of Highway 52 and 2 km east of the Murray River (Plates 5.3-9a and 5.3-9b). The photograph is facing almost directly west. Again, since the area has been logged, the view is of the Project is unobstructed. In this view, some alterations to the landscape are visible. On the hill to the left side of the image, the conveyor that services the Quintette mine is visible. Additionally, on the hill on the left, the right of way for a gas pipeline is also visible. This Viewpoint is approximately 3 km from the Project site.





Plate 5.3-9a. Viewpoint 9 - Looking west from a forestry road 1 km west of Highway 52.

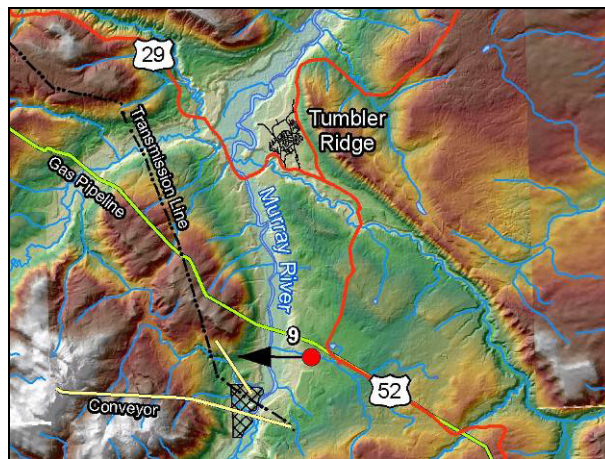


Plate 5.3-9b. Viewpoint 9 - Location and bearing, July 26, 2010.

Viewpoint 10 is located on a gravel road approximately 1km southeast of the now-closed Quintette mill site (Plates 5.3-10a and 5.3-10b). The photograph looks east-northeast towards the Project area. The landscape has been heavily modified, as the conveyor is clearly visible. However, from this point, any facilities located in the valley close to the Murray River would be difficult to see due to vegetation and viewing angle. The viewpoint is approximately 2 km from the Project site.



Plate 5.3-10a. Viewpoint 10 - Looking west from a gravel road 1 km southeast of the Quintette mill site.

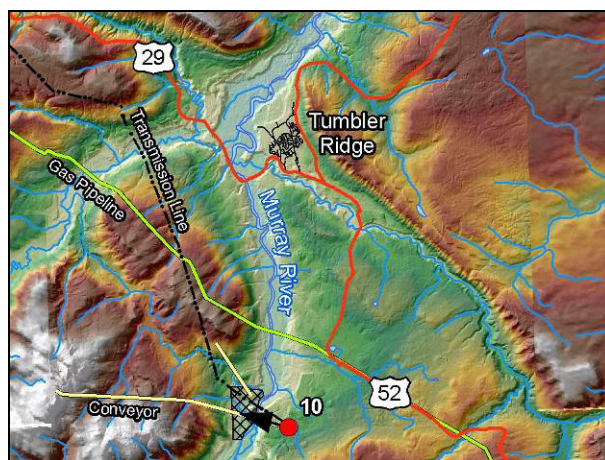


Plate 5.3-10b. Viewpoint 10 - Location and bearing, July 27, 2010.

Viewpoint 11 is located on the Murray River, approximately 600m downstream of the confluence with Twenty Creek and 500 m upstream of the confluence with M20 Creek (Plates 5.3-11a to 5.3-11c). Two photographs were taken from the river's west bank, one looking upstream (Plate 5.3-11a) and one looking downstream (Plate 5.3-11b). Currently, no alterations to the landscape are visible from the Quintette mine; however, this point lies right next to the area selected for potential development. Any infrastructure could be clearly visible from this point, although if the vegetation along the bank remained undisturbed, it could act as an obstruction.



Plate 5.3-11a. Viewpoint 11 - Looking downstream (north).



Plate 5.3-11b. Viewpoint 11 - Looking upstream (south).

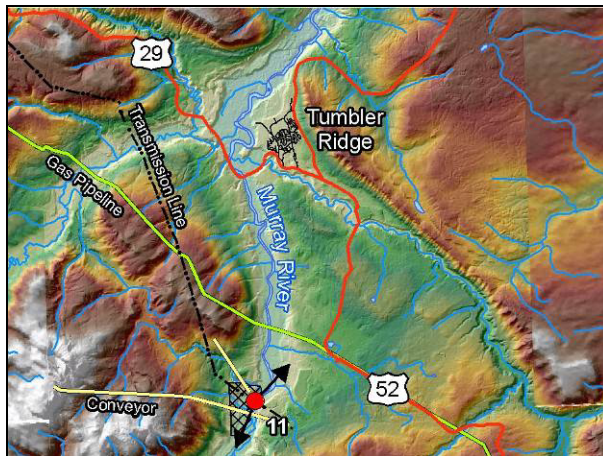


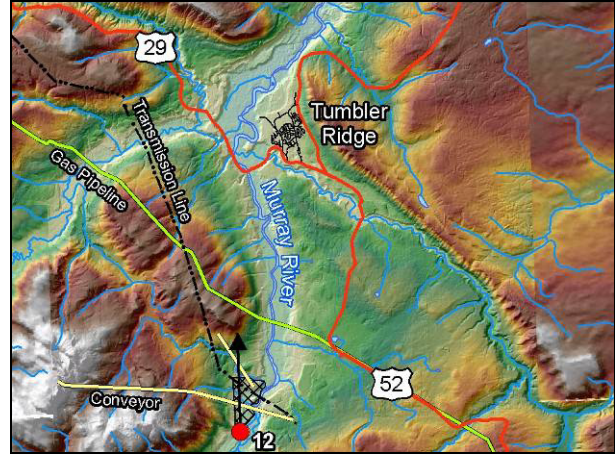
Plate 5.3-11c. Viewpoint 11 - Locations and bearings, July 27, 2010.

Viewpoint 12 is located on a forestry road about 100 m west of the Murray River and approximately 1.5 km upstream of the confluence with Twenty Creek (Plates 5.3-12a and 5.3-12b). The photograph looks north directly over the potential Project site. From this viewpoint, the site is clearly visible, as the point is located in another logged area free from visual obstructions. The hill rising up on the right hand side of the photograph is the ridge just north of the potential Project site.





*Plate 5.3-12a. Viewpoint 12 - Looking north from a forestry road 1.5 km south of Twenty Creek and 100 m west of the Murray River.*



*Plate 5.3-12b. Viewpoint 12 - Location and bearing, July 27, 2010.*

## 6. Summary

## 6. Summary

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The proposed Project area is not an area of heavy use, but it does have significant recreational value. Activities include hiking, fishing, rafting trips, and skiing. Given the emphasis placed on tourism by both the Dawson Creek LRMP and the District of Tumbler Ridge, it can be expected that the area will continue to be used for both summer and winter recreational purposes. Thus the natural landscape is an important part of the areas recreational capacity.

For this baseline study, a relevant literature review regarding visual quality was undertaken. The information, particularly from the VLI database, provided a basis for establishing current VQOs within the LSA. Based on viewpoints used to develop VQOs, locations were selected and visited for field data collection. Photographs were taken of the potential Project area from each location. Those areas that are considered to be potentially sensitive to visual alteration of the landscape were assessed for terrain, vegetation, and other features that may act as visual obstructions. These results are intended to provide support to the Project's environmental assessment regarding visual quality.

Tumbler Ridge and Highway 52, the areas of highest traffic for both locals and visitors to the area, were found to have landscapes that are quite distant (greater than 10 km) from the Project area. For those that had a view of the Project area, few details could be discerned from those distances, including the existing alterations made to the landscape (notably the gas pipeline and the Quintette mine conveyor). Closer to the Project, on the east side of Murray River, most sites had a good view of the Project area, primarily because the views are unobstructed as a result of logging. Sites along Murray River near the Project also had a view of the Project, although vegetation on the banks of the river may act of visual obstructions.

## References



## References

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# Appendix 1

## Visual Landscape Inventory Classification Codes

## Appendix 1. Visual Landscape Inventory Classification Codes

### Existing Visual Class (EVC) Ratings

Rating	Description
P	No visible human-cause alterations
R	Human-caused alterations are visible but not evident
PR	Human-caused alterations are evident bu subordinate and therefore not dominant
M	Human-caused alterations are dominant but have natural appearing characteristics
MM	Human-caused alterations are dominant and out of scale
EM	Human-caused alterations are excessive and greatly out of scale

### Visual Absorption Class (VAC) Ratings

Rating	Description
H	Landscape has high ability to absorb alteration and maintain its visual integrity
M	Landscape has moderate ability to absorb alteration and maintain its visual integrity
L	Landscape has low ability to absorb alteration and maintain its visual integrity

### Visual Sensitivity Class (VSC) Ratings

Rating	Description
1	Very high sensitivity to human-made visual alteration. The area is extremely important to viewers. There is a very high probability that the public would be concerned if the Visual Sensitivity Unit was visually altered in any way or to any scale.
2	High sensitivity to human-made visual alteration. The area is very important to viewers. There is a high probability that the public would be concerned if the Visual Sensitivity Unit was visually altered.
3	Moderate sensitivity to human-made visual alteration. The area is important to viewers. There is a probability that the public would be concerned if the Visual Sensitivity Unit was visually altered.
4	Low sensitivity to human-made visual alteration. The area is moderately important to viewers. There is a risk that the public would be concerned if the Visual Sensitivity Unit was visually altered.
5	Very low sensitivity to human-made visual alteration. The area may be somewhat important to viewers. There is a small risk that the public would be concerned if the Visual Sensitivity Unit was visually altered.

# Appendix 2

## Viewpoint Locations and Bearings

## Appendix 2. Viewpoint Locations and Bearings

Viewpoint No.	Eastings	Northing	Approximate Bearing	Location	VLI Identifier*
1	627636	6110868	210	Tumbler Ridge Wilderness Lodge	3827
2	638959	6096065	165	Murray River/Highway 29 Crossing	4039
3	635381	6096680	230	Highway 52	4044
4	628822	6099744	270	Highway 52	4311
5	625426	6109207	275	Highway 52	4122
6	627484	6107858	190	Forestry Road, 2 km S of Tumbler Ridge	N/A
7	628694	6106363	200	Forestry Road, 3.5 km S of Tumbler Ridge	N/A
8	629033	6102388	245	Forestry Road, 1.5 km W of Highway 52	N/A
9	630691	6103608	270	Forestry Road, 1 km W of Highway 52	N/A
10	627645	6096140	285	Gravel Road, 1 km SE of Quintette Mine	4272
11	625979	6097330	35, 195	Murray River, near Project development area	N/A
12	624998	6095427	0	Murray River, S of Project Development Area	4190

\*This number corresponds to the field VWPNT\_ID in the Recreational Viewpoint feature class