

BC EAO EAC Application – Tenas Project

Section 6.0 Social Effects Assessment
Chapter 4 Land and Resource Use Valued Component

May 2022

VERSION 1.0

Submitted to:	BC Environmental Assessment Office
Pursuant to:	*Environmental Assessment Act,* S.B.C. 2002, c.43
Submitted by:	Telkwa Coal Limited Suite 1410 – 409 Granville Street Vancouver, BC V6C 1T2

Tenas Project

Section 6.0 Social Effects Assessment
Chapter 4 Land and Resource Use Valued Component

TABLE OF CONTENTS

Table of Contents i
List of Figures iv
List of Tables v
List of Appendices vi
Abbreviations and Acronyms vii
Units of Measure ix
Executive Summary x
1. Introduction 1
2. Regulatory Context 2
2.1 Provincial and Federal Land and Resource Use Legislation 2
2.2 Land Use and Resource Management Plans (LRMPs) 4
2.3 Smithers Telkwa Rural Official Community Plan (OCP) 7
2.4 Indigenous Groups Land Use Plans 7
3. Scope of the Assessment 8
3.1 Issues Scoping 8
3.2 Rationale for Selection of Land and Resource Use Valued Component (VC) 8
3.2.1 Valued Component (VC) 8
3.2.2 Subcomponents 9
3.2.3 Indicators 10
3.2.4 Assessment Boundaries 11
3.2.4.1 Spatial Boundaries 11
3.2.4.2 Temporal Boundaries 14
3.2.4.3 Administrative Boundaries 15
3.2.4.4 Technical Boundaries 15
4. Existing Conditions 16
4.1 Background Information and Studies 16
4.1.1 Traditional Knowledge (TK) 16
4.1.2 Scientific and Other Information 16
4.1.3 Baseline Studies 16
4.2 Description of Existing Conditions 17
4.2.1 Land Use Planning 17
4.2.1.1 Land and Resource Management Plans (LRMP) 17

4.2.1.2 Community Plans 19
4.2.1.3 Indigenous Group Land Use Planning 20
4.2.2 Access 20
4.2.2.1 Telkwa Mountain Recreation Access Management (TRAM) 22
4.2.3 Private Land 22
4.2.3.1 Natural Resource Tenures and Licenses 24
4.2.4 Parks and Protected Areas 27
4.2.4.1 Tyhee Lake Provincial Park 29
4.2.4.2 Call Lake Provincial Park 29
4.2.4.3 Babine Mountains Provincial Park 29
4.2.4.4 Ecological Reserves 30
4.2.5 Mining 30
4.2.6 Forestry 33
4.2.7 Oil and Gas 36
4.2.8 Energy 36
4.2.9 Rail 36
4.2.10 Recreation 38
4.2.10.1 Bulkley Backcountry Ski Society 40
4.2.10.2 Bulkley Valley Backpackers Society 40
4.2.10.3 Bulkley Valley Bowmen 40
4.2.10.4 Bulkley Valley Kayak and Canoe Club 40
4.2.10.5 Bulkley Valley Quad Riders 40
4.2.10.6 Bulkley Valley Rod and Gun Club 40
4.2.10.7 Intensive Motorized Association 41
4.2.10.8 Smithers Mountain Bike Association 41
4.2.10.9 Smithers Snowmobile Association 41
4.2.10.10 Back Country Horsemen of BC 41
4.2.11 Agriculture 42
4.2.12 Tourism 44
4.2.13 Guide-outfitting, Hunting, and Angling 44
4.2.14 Trapping 49
5. Assessment of Project-related Effects 51
5.1 Potential Project-related Interactions with the Land and Resource Use Valued Component (VC) 51
5.2 Potential Project-related Effects 55
5.2.1 Commercial Land and Resource Use Subcomponent 55
5.2.1.1 Change in Access 55
5.2.1.2 Change in Sensory Disturbance 57
5.2.1.3 Change in Quantity and Quality of Resources 59
5.2.2 Public Recreation Use Subcomponent 60
5.2.2.1 Change in Access 60

5.2.2.2 Change in Sensory Disturbance 62
5.2.2.3 Change in Quantity and Quality of Resources 64
5.2.2.4 Change in or Interference with Recreational Infrastructure 65
5.3 Mitigation Measures 66
5.3.1 Limit Project Footprint and Project Area 66
5.3.2 Reclamation Measures 67
5.3.3 Transport Measures 68
5.3.4 Project Component Design 69
5.3.5 Blasting Measures 69
5.3.6 Coal Processing Measures 70
5.3.7 Seepage Management Measures 70
5.3.8 Water Capture Measures 70
5.3.9 Management of Metal Leaching/Acid Rock Drainage (ML/ARD) 71
5.3.10 Consultation with Tenure Holders 72
5.3.11 Indigenous Consultation and Engagement 72
5.3.12 Compensation for Affected Commercial Tenure Holders 73
5.3.13 Public Access Management 73
5.3.14 Improvements to Existing Trail 74
5.3.15 Signage 74
5.3.16 Land Use Agreements 74
5.3.17 Summary of Mitigation Measures 74
5.4 Residual Effects and Significance of Residual Effects 77
5.4.1 Description of Evaluation Criteria 78
5.4.1.1 Residual Effects Characteristics 78
5.4.1.2 Likelihood 79
5.4.1.3 Significance Determination 79
5.4.2 Commercial Land and Resource Use Subcomponent 80
5.4.2.1 Change in Access 80
5.4.2.2 Change in Sensory Disturbance 81
5.4.2.3 Change in Quantity and Quality of Resources 83
5.4.3 Public Recreation Use Subcomponent 84
5.4.3.1 Change in Access 84
5.4.3.2 Change in Sensory Disturbance 85
5.4.3.3 Change in Quantity and Quality of Resources 87
5.5 Summary of Project-related Residual Adverse Effects and Significance 88
6. Cumulative Effects Assessment (CEA) 92
6.1 Cumulative Effects Assessment (CEA) for Land and Resource Use Subcomponents - Commercial Land and Resource Use, and Public Recreational Use 92
6.1.1 Potential Cumulative Effects 92
6.1.2 Additional Mitigation Measures 99

6.1.3 Cumulative Effects and Characterisation of Significance 100
6.1.3.1 Commercial Land and Resource Use Subcomponent 101
6.1.3.2 Public Recreation Use Subcomponent 102
6.1.3.2.2 Change in Sensory Disturbance 102
6.2 Summary of Cumulative Effects Assessment (CEA) 103
7. Summary of Effects Assessment For the Land and Resource Use Valued Component (VC) 104
8. Follow-up Strategy 105
9. References 106

LIST OF FIGURES

Figure 2.2-1: Land and Resource Management Plans in the Local and Regional Study Areas 6
Figure 3.2-1: Land and Resource Use Local and Regional Study Areas 13
Figure 4.2-1: Bulkley LRMP Resource Management Planning Zones in the Local and Regional Study Areas 18
Figure 4.2-2: Access in the Regional and Local Study Areas 21
Figure 4.2-3: Private Land in the Regional and Local Study Areas 23
Figure 4.2-4: Water wells in the Regional and Local Study Areas 26
Figure 4.2-5: Parks and Protected Areas in the in the Regional and Local Study Areas 28
Figure 4.2-6: Coal Licenses and Mineral Claims in the Regional and Local Study Areas 32
Figure 4.2-7: Forestry Tenures in the Regional and Local Study Areas 34
Figure 4.2-8: Forestry cutblocks in the Local Study Area 35
Figure 4.2-9: Energy Transmission, Rail Lines and Oil and Gas Activity in the Regional and Local Study Areas 37
Figure 4.2-10: Outdoor Recreational Areas in the Regional and Local Study Areas 39
Figure 4.2-11: Agricultural Land Reserve and Range Tenures in the Regional and Local Study Areas 43
Figure 4.2-12: Hunting and Guide Outfitting Areas in the Regional and Local Study Areas 45
Figure 4.2-13: Angling in the Regional and Local Study Areas 48
Figure 4.2-14: Traplines in the Regional and Local Study Areas 50
Figure 6.1-1: Projects and Activities Included in the Cumulative Effects Assessment for Land and Resource Use 95

LIST OF TABLES

Table 2.1-1: Provincial and Federal Legislation Applicable to the Land and Resource Use Valued Component (VC) 2

Table 3.2-1: Summary of Rationale for Selection of Land and Resource Use Valued Component (VC) and Subcomponents and their Linkages 10

Table 3.2-2: Indicators for Land and Resource Use Valued Component (VC) Subcomponents 11

Table 3.2-3: Spatial Boundary Definitions for Land and Resource Use Valued Component (VC) and Subcomponents 12

Table 3.2-4: Temporal Boundaries for the Tenas Project 14

Table 4.1-1: Summary of Desktop and Field Studies Related to the Land and Resource Use Valued Component (VC) 16

Table 4.2-1: Village of Telkwa Water Use 24

Table 4.2-2: Town of Smithers Water Use 24

Table 4.2-3: Water Wells Within the Local Study Area (LSA) 25

Table 4.2-4: Guide-outfitters in the Wide-ranging Wildlife Regional Study Area (WR-RSA) 46

Table 4.2-4 Traplines Within the Regional Study Area (RSA) 49

Table 5.1-1: Potential for an Interaction between the Land and Resource Use Valued Component (VC) and the Tenas Project 51

Table 5.1-2: Interactions between the Land and Resource Use Subcomponents and the Tenas Project 52

Table 5.3-1: Summary of Potential Effects and Mitigation Measures for Land and Resource Use Valued Component (VC) 75

Table 5.4-1: Effect Characteristics Considered in Determining the Significance of Residual Effects on the Land and Resource Use Valued Component (VC) 78

Table 5.4-2: Summary of Effect Characteristics Ratings for Change in Access 81

Table 5.4-3: Summary of Effect Characteristics Ratings for Change in Sensory Disturbance 82

Table 5.4-4: Summary of Effect Characteristics Ratings for Change in Quantity and Quality Resources 83

Table 5.4-5: Summary of Effect Characteristics Ratings for Change in Access 85

Table 5.4-6: Summary of Effect Characteristics Ratings for Change in Sensory Disturbance 86

Table 5.4-7: Summary of Effect Characteristics Ratings for Change in Quantity and Quality Resources 87

Table 5.5-1: Summary of Residual Adverse Effects for Land and Resource Use – Commercial Land and Resource Use Subcomponent 89

Table 5.5-2: Summary of Residual Adverse Effects for Land and Resource Use – Public Recreation Use Subcomponent 91

Table 6.1-1 Projects Included in the Cumulative Assessment of the Land and Resource Use Valued Component (VC) Based on Spatial and Temporal Interaction 93

Table 6.1-2: Summary of Cumulative Effects for Land and Resource Use – Commercial Land and Resource Use Subcomponent 100

Table 6.1-3: Summary of Cumulative Effects for Land and Resource Use – Public Recreation Use Subcomponent 101

Table 6.2-1: Summary of Cumulative Effects on the Land and Resource Use Valued Component (VC) 103

LIST OF APPENDICES

Appendix 6.4-A Land and Resource Use Baseline Report

ABBREVIATIONS AND ACRONYMS

Abbreviation or Acronym	Long Form of Abbreviation or Acronym
AAC	Annual Allowable Cut
AIR	Application Information Requirements
ALR	Agricultural Land Reserve
AQMP	Air Quality Management Plan (S13.0-C2)
ARD	acid rock drainage
ATV	all-terrain vehicle
BC	British Columbia
BC EAO	British Columbia Environmental Assessment Office
BC MEMPR	British Columbia Ministry of Mines and Petroleum Resources
BC MEMLI	British Columbia Ministry of Energy, Mines and Low Carbon Innovation
BC MFLNRO	British Columbia Ministry of Forests, Lands, Natural Resource Operations
BC MFLNRORD	British Columbia Ministry of Forests, Lands, Natural Resource Operations and Rural Development
BC MOE	British Columbia Ministry of Environment
BGC	biogeoclimatic
BMPs	best management practices
BVCL	Bulkley Valley Collieries Ltd.
C	Chapter
C&M	care and maintenance
CCP	Comprehensive Community Plan
CEA	cumulative effects assessment
CNR	Canadian National Rail
Code	Health, Safety and Reclamation Code in British Columbia (British Columbia Ministry of Energy, Mines and Low Carbon Innovation [BC MEMLI] 2021)
CPP	Coal Processing Plant
CUS	Cultural Use Study
EA	environmental assessment
EAA	*Environmental Assessment Act,* SBC 2002, c 43 (Government of British Columbia [GovBC] 2002)
EAC	Environmental Assessment Certificate
FSR	Forest Service Road
IMA	Intensive Motorized Association
LEH	Limited Entry Hunting
LNG	liquid natural gas
LRMP	Land and Resource Management Plan

Abbreviation or Acronym	Long Form of Abbreviation or Acronym
LSA	Local Study Area
LU	Landscape Unit
ML	metal leaching
MOU	Memorandum of Understanding
MPI	Major Projects Inventory
MTCP	Minesite Traffic Control Plan (S13.0-C10)
MU	Management Unit
NO_2	nitrogen dioxide
OCP	Official Community Plan
OGMA	Old Growth Management Area
OW	Office of Wet'suwet'en
PAG	potentially acid generating
PAMP	Public Access Management Plan (S13.0-C14)
PIR	Pacific Inland Resources
POC/COC	Parameters of Concern/Contaminants of Concern
POPC/COPC	Parameters of Potential Concern/Contaminants of Potential Concern
PM	particulate matter
PM_{10}	particulate matter less than 10 microns in diameter
$PM_{2.5}$	particulate matter less than 2.5 microns in diameter
PNG	Pacific Northern Gas Ltd.
Project	Tenas Project
PSL	Permissible Sound Level
RAMP	Recreation Area Management Plan
RCP	Reclamation and Closure Plan (S13.0-C15)
RDBN	Regional District of Bulkley-Nechako
RMZ	Resource Management Zone
ROM	run-of-mine
ROW	right-of-way
RSA	Regional Study Area
RV	Recreational Vehicle
S	Section
SBSdk	Sub-boreal Spruce dry cool
SBSmc2	upland moist cold sub-boreal spruce
SEMP	Socio-Economic Management Plan
SRMP	Sustainable Resource Management Plan
TAC	Tenas Access Corridor

Abbreviation or Acronym	Long Form of Abbreviation or Acronym
TCL	Telkwa Coal Limited
TCRC	Telkwa Coalmine Recreation Camp
TK	Traditional Knowledge
TRAM	Telkwa Mountain Recreation Access Management
TSA	Timber Supply Area
VC	Valued Component
VRMP	Visual Resources Management Plan (S13.0-C19)
West Fraser	West Fraser Mills Ltd
WHA	Wildlife Habitat Area
WR-RSA	Wide-ranging Wildlife Regional Study Area

UNITS OF MEASURE

Abbreviation	Long form of Abbreviation or Acronym
$	dollar
%	percent
%HA	percent highly annoyed
dB	decibel
dBA	A-weighted decibels
dBC	decibels relative to the carrier
ha	hectare
km	kilometre
km^2	square kilometre
kV	kilovolt
m	metre
m^3	cubic metre
mfbm	one thousand foot board measure
MW	megawatt
V	volt

EXECUTIVE SUMMARY

This chapter provides an assessment of potential interactions between the Tenas Project (Project) and the Land and Resource Use Valued Component (VC). Construction, and Operation phase activities may result in local adverse effects to land and resource use. These activities may compete with various current land uses on tenured and non-tenured Crown lands, private land and protected areas. Potential pathways for adverse effects include either reduced availability of or access to land and resources used for commercial, residential or recreational purposes. In addition to the Minesite, Bypass Road and Rail Loop, potential contributing factors within the surrounding area include noise, vibration, dust levels and/or diminished visual quality.

The assessment of Project-related effects and cumulative effects was conducted according to the methods set out in **Section (S) 3.0 Assessment Methodology** of the **Environmental Assessment Certificate (EAC) Application**. The Land and Resource Use VC is represented by two (2) subcomponents:

1. Commercial Land and Resource Use; and
2. Public Recreation Use.

The assessment of subcomponents was based on evaluating indicators, which included: change in access, change in sensory disturbance, change in quantity and quality of resources The assessment of Public Recreation Use subcomponent also included interference with recreational infrastructure as an additional indicator.

Ongoing stakeholder engagement and consultation, field study interviews with commercial and recreational land users and collection of secondary land use data informed issues scoping, selection and assessment of the Land and Resource Use VC. Key themes of interest identified through consultation and review of other data included potential changes to access for commercial and recreational users, sensory disturbances, especially a change in visual quality, contributing to a loss of the quantity and quality of available land and resources.

Spatial boundaries for the assessment of potential effects on the Land and Resource Use VC include the Local Study Area (LSA) and Regional Study Area (RSA). The LSA adopts the boundaries of the Vegetation LSA as used in **S4.0-Chapter (C) 7 Vegetation VC** of the **EAC Application** and was selected to capture direct and indirect effects to all land users and tenure holders on a finer scale, specific to the Minesite's location and associated infrastructure. The RSA adopts the boundaries of the Wildlife RSA as used in **S4.0-C8 Wildlife VC** of the **EAC Application** and was selected in order to correspond with various biophysical VCs including Wildlife, Fish and Fish Habitat and Vegetation, to support assessment of Community Well-being and Human Health. Appreciating the extent of Guide Outfitting Certificate Areas and the nature of the commercial land and resource use, to assess potential effects on guide-outfitting the Wide-ranging Wildlife RSA (WR-RSA) **(S4.0-C8 Wildlife VC** of the **EAC Application**) was used.

The Project is located in an area in northwestern British Columbia (BC) where there is a variety of tenured and non-tenured land use, private land, parks and protected areas. The Project may change access to some commercial and recreational land use areas. Project activities will contribute to a change in sensory disturbance. The Minesite and associated infrastructure will remove land and resources which may have been used by other competing commercial or recreational land users. Changes to access will be mitigated by improvements to existing access, creation of alternate access and implementation of appropriate management plans (**S13.0 Management Plans** of the **EAC Application**). From the commencement of site clearing during the Construction Phase, and throughout all Active Phases, noise and emissions and changes in the visual quality will be managed in a similar way and through active engagement with local

stakeholders, community groups and associations. During the Operation Phase a program of progressive reclamation will also assist in mitigating changes in the visual quality. Changes in the quantity and quality of land and resources will be limited to the local area, with substantial portions of the Project Area available for alternative land and resource use after the Decommissioning and Reclamation Phase is completed.

After the implementation of mitigation measures, three (3) potential residual effects were predicted for the Land and Resource Use VC:

1. change in access;
2. change sensory disturbance; and
3. change in quantity and quality of resources.

After characterisation, residual effects of the Project were predicted to be **Not Significant;** therefore, the effect of the Project on the VC is predicted to be **Not Significant**. The residual effects were carried forward for cumulative effects assessment (CEA). The CEA considered past, present, and reasonably foreseeable future projects and activities that could interact with the Project. The assessment determined that while there is potential for present and reasonably foreseeable future projects and activities to cumulatively interact with the Project, there is uncertainty surrounding the number of reasonably foreseeable future projects that will be realized, with additional uncertainty around scope and timing of those projects. While all three (3) cumulative effects are predicted, they are rated as **Not Significant**, and therefore cumulative effects on the VC are expected to be **Not Significant**.

1. INTRODUCTION

This chapter considers land and resource use and assesses the proposed Tenas Project (Project)'s potential adverse effects. The Project includes major construction undertakings and operations that may result in local adverse effects to land and resource use. These activities may compete with various current land uses on tenured and non-tenured Crown lands, private land and protected areas. Potential pathways for adverse effects include either reduced availability of or access to land and resources used for commercial, residential or recreational purposes. In addition to the Minesite, Bypass Road, and Rail Loop, potential contributing factors within the surrounding area include noise, vibration, dust levels and/or diminished visual quality or sense of place. For assessment of current use of land and resources for traditional purposes see **Section (S) 11.0 Wet'suwet'en Rights and Interests Assessment** of the **EAC Application**.

This assessment is comprised of the following steps:

- **Regulatory Context:** An overview of the legislative and jurisdictional extent and requirements of the Land and Resource Use Valued Component (VC) assessment is provided. The subsection identifies key land and resource management plans, environmental sensitive areas and notes Indigenous group land and resource planning considerations;
- **Scope of the Assessment:** A description of the assessment scope including issues scoping, rationale for the selection of the Land and Resource Use VC (or Land and Resource Use) and indicators, and definitions for the spatial and temporal boundaries of the assessment;
- **Existing Conditions:** The existing conditions of the Land and Resource Use VC are reviewed, including literature review and desktop research and field study interviews. The **Land and Resource Use Baseline Report (Appendix 6.4-A)** undertaken for the Project provides a summary of existing conditions indicates sources of regional and site-specific data, timeframe, and data collection methods. Assumptions and uncertainties have been documented, as appropriate. Characterisation of land and resource use existing conditions includes comments made in interviews conducted during the socio-economic and land use baseline data collection process;
- **Assessment of Project-related Effects:** Potential interactions between the Project and the Land and Resource Use VC are identified and evaluated to determine whether those interactions could result in effects on the Land and Resource VC. Upon identification of these potential effects, mitigation measures are outlined, and any subsequent residual effects are described. These effects are characterised, and their significance is determined;
- **Cumulative Effects Assessment (CEA):** Potential interactions between residual effects due to the Project and residual effects due to other past, present, or future projects or activities are identified and assessed to determine if residual cumulative effects are likely to occur. Upon identification of effects, any additional available mitigation measures are outlined, and any subsequent residual adverse changes are described and characterised, and their significance is determined; and
- **Follow-up Strategy:** When adverse changes are identified and mitigated, a process of monitoring and adaptive management will be provided.

2. REGULATORY CONTEXT

This environmental assessment (EA) has considered applicable federal and provincial legislation, regulations, strategies, guidelines, plans, and best management practices (BMPs) relevant to the Land and Resource Use VC, and includes information provided by Indigenous groups with respect to on-reserve community planning. Applicable recommendations in provincial land use plans and designations were also considered.

The Tenas Project Application Information Requirements (AIR) for the Project, approved by the British Columbia Environmental Assessment Office (BC EAO) in 2022, outlines the requirements of the EA for the Land and Resource Use VC to meet the provincial EA requirements under the BC *Environmental Assessment Act*, SBC 2002, c 43 (Government of British Columbia [GovBC] 2002a) (*EAA*). Assessment of the Land and Resource Use VC follows these guidelines and legislated requirements and is consistent with the requirements of the Project AIR. Legislation and management plans specific to the Land and Resource Use VC, including applicable land and resource management plans, official community plans and Indigenous groups' land use plans are summarized in the following subsections. The assessment also notes the Memorandum of Understanding (MOU) signed between Canada, BC, and the Office of Wet'suwet'en (OW) Hereditary Chiefs (OW) in May 2020, which includes ongoing negotiations with respect to land and resource use and land use planning.

2.1 Provincial and Federal Land and Resource Use Legislation

Table 2.1-1 provides a summary of provincial and federal legislation related to land and resource use management.

Table 2.1-1: Provincial and Federal Legislation Applicable to the Land and Resource Use Valued Component (VC)

Name	Year	Description
Provincial		
Environmental Assessment Act, SBC 2002, c. 43 (Government of British Columbia [GovBC] 2002b).	2002	The *Environmental Assessment Act* (*EAA*) provides a mechanism for the Province of British Columbia (BC) to review all major projects proposed in BC to assess for any potentially adverse environmental, economic, social, heritage, or health effects. The Tenas Project (Project) requires an assessment of potential adverse environmental effects under the Reviewable Projects Regulation, BC Reg 243/2019 (GovBC 2019d) of the *EAA* because the Project exceeds a production capacity of 250,000 tonnes per year.
Environment and Land Use Act, RSBC 1996, c 117 (GovBC 1996a)	1996	The legislation creates an Environment and Land Use Committee with the duties and powers to establish programs designed to foster increased public concern and awareness of the environment and aspects of preservation and maintenance of the natural environment.
Forest Act, RSBC 1996, c 157 (GovBC 1996b)	1996	Grants rights to harvest timber on Crown land.
Forest and Range Practices Act, SBC 2002, c 69 (GovBC 2002c)	2002	Sets the framework for achieving "results-based" forestry on Crown land. This framework requires forest operators to set specific targets or strategies for environmental objectives established by

Name	Year	Description
		government for soils, timber, fish, biodiversity, cultural heritage, forage and associated plant communities, visual quality, water, wildlife, and resource and recreation features.
Agricultural Land Commission Act, SBC 2002, c 36 (GovBC 2002a)	2002	The Act sets the legislative framework for the establishment and administration of the agricultural land preservation program. The associated Agricultural Land Reserve Use Regulation BC Reg 30/2019 (GovBC 2019b) permitted land uses within the Agricultural Land Reserve (ALR), and the ALR General Regulation, BC Reg 57/2020 (GovBC 2019a) sets out the required application procedures for alternative (i.e., non-farm) land uses.
Land Act, RSBC 1996, c 245 (GovBC 1996c)	1996	Governs the disposition, management, and administration of Crown land in the province, as well as the surveying of Crown land. Powers under the Act include: determining whether a disposition of Crown land is in the public interest; temporarily reserving Crown land from disposition; designating Crown land for a particular use or prohibiting certain uses of Crown land; making a disposition of Crown land by temporary permit, licence of occupation, lease, right-of-way (ROW) or easement, or by Crown grant in fee simple; disposing of Crown land in accordance with the terms and conditions the minister considers advisable; and undertaking trespass actions regarding the unauthorized use of Crown land.
Land Title Act, RSBC 1996, c 250 (GovBC 1996d)	1996	Establishes the land registry system.
Local Government Act, RSBC 2015. C 1 (GovBC 2015)	2015	The Regional District of Bulkley-Nechako Zoning Bylaw No. 1800, 2020 (RDBN 2020) of the Smithers Telkwa Rural Official Community Plan (OCP) (RDBN 2014), under the *Local Government Act*, RSBC 2015, c 1 (GovBC 2015) provides the RDBN with zoning authority. RDBN zoning applies to the Project, and the land that the Rail Infrastructure is located on will need to be rezoned as it is not currently a permitted use. The Act also addresses classification of municipalities, municipal incorporation process, boundary changes, elections and voting, governance and responsibilities of regional districts, bylaw procedures and enforcement, Treaty First Nation membership and services, financial management and collection of taxes, planning and land use management, OCPs, development approvals, and responsibilities and roles for the local government. Part 13, Division 1, of the *Local Government Act*, RSBC 2015, c 1 (GovBC 2015) defines the regional growth strategy and its purpose to maintain the integrity of a secure and productive resource base, including the agricultural land reserve, and to promote economic development that supports the unique character of communities.
Mineral Tenure Act, RSBC 1996, c 292 (GovBC 1996e)	1996	Authorizes the registration of mineral and placer titles within the province and provides the framework for tenure administration.
Mines Act, RSBC 1996, c 293 (GovBC 1996f)	1996	Applies to mineral exploration and mine development, including construction, production, closure, reclamation, and abandonment activities. Section 10 of the Act requires that before starting any work in or about a mine, the owner, agent, manager, or any other person must hold a permit and must have

Name	Year	Description
		filed a plan outlining the details of the proposed work. A program for the conservation of cultural heritage resources and for the protection and reclamation of land, watercourses, and cultural heritage resources affected by the mine must also be in place.
Mining Right Of Way Act, RSBC 1996, C 294 (GovBC 1996g)	1996	Confirms the rights of a "recorded holder" to establish a right-of-way (ROW) on either private or Crown land for the purpose of road access.
Park Act, RSBC 1996, c 344 (GovBC 1996h)	1996	Establishes provincial parks, conservancies, and recreation areas, including management and activities permitted and not permitted in parks.
Protected Areas of British Columbia Act, SBC 2000, c 17 (GovBC 2000)	2000	Confirms or establishes parks, ecological reserves, and conservancies.
Range Act, RSBC 2004, c 71 (GovBC 2004)	2004	Establishes the right of the province to convey tenures for Crown range for the purposes of grazing livestock or cutting hay.
Tourism Act, RSBC 1996, c 453 (GovBC 1996i)	1996	Promotes tourism in British Columbia (BC) and allows for regulation of the tourism industry, to ensure tourism interests are reflected in land and resource planning and decision-making.
Water Protection Act, RSBC 1996, c 484 (GovBC 1996j)	1996	Regulates the province's freshwater resources. Powers under the Act include granting and managing water licences, apportioning rights under licences, reserving and removing bodies of water from being used under the Act, and issuing certificates incorporating water users' communities.
Wildlife Act, RSBC 1996, c 488 (GovBC 1996k)	1996	Applies to the management of wildlife in BC, including establishing wildlife management areas, and regulating the import and export of wildlife, trapping, angling guiding, guide-outfitting, hunting, and fishing.
Federal		
Canada National Parks Act, SC 2000, c 32 (Government of Canada [GovCan 2000)	2000	Establishes national parks and park reserves.

2.2 Land Use and Resource Management Plans (LRMPs)

The Bulkley Land and Resource Management Plan (LRMP) directs the management of 760,000 hectares (ha) of Crown land and provides general management direction related to eleven categories: biodiversity, access, timber, water quality, fish and wildlife habitat, visual quality, range, outdoor recreation and tourism, subsurface resources, cultural heritage resources, and future planning processes (**Figure 2.2-1**). The Bulkley LRMP establishes six (6) Resource Management Zones (RMZ) and new protected areas. Each sub-planning unit falls into one of the six (6) zones. The zones focus on different goals depending on the sub-unit (GovBC 1998). The Bulkley LRMP was preceded by a companion Bulkley Recreation Access Management Plan (RAMP). The RAMP's objective is to manage recreational access to provide a variety of experiences and minimize the impact of human disturbance on fish, wildlife and other environmental resources (GovBC 1997).

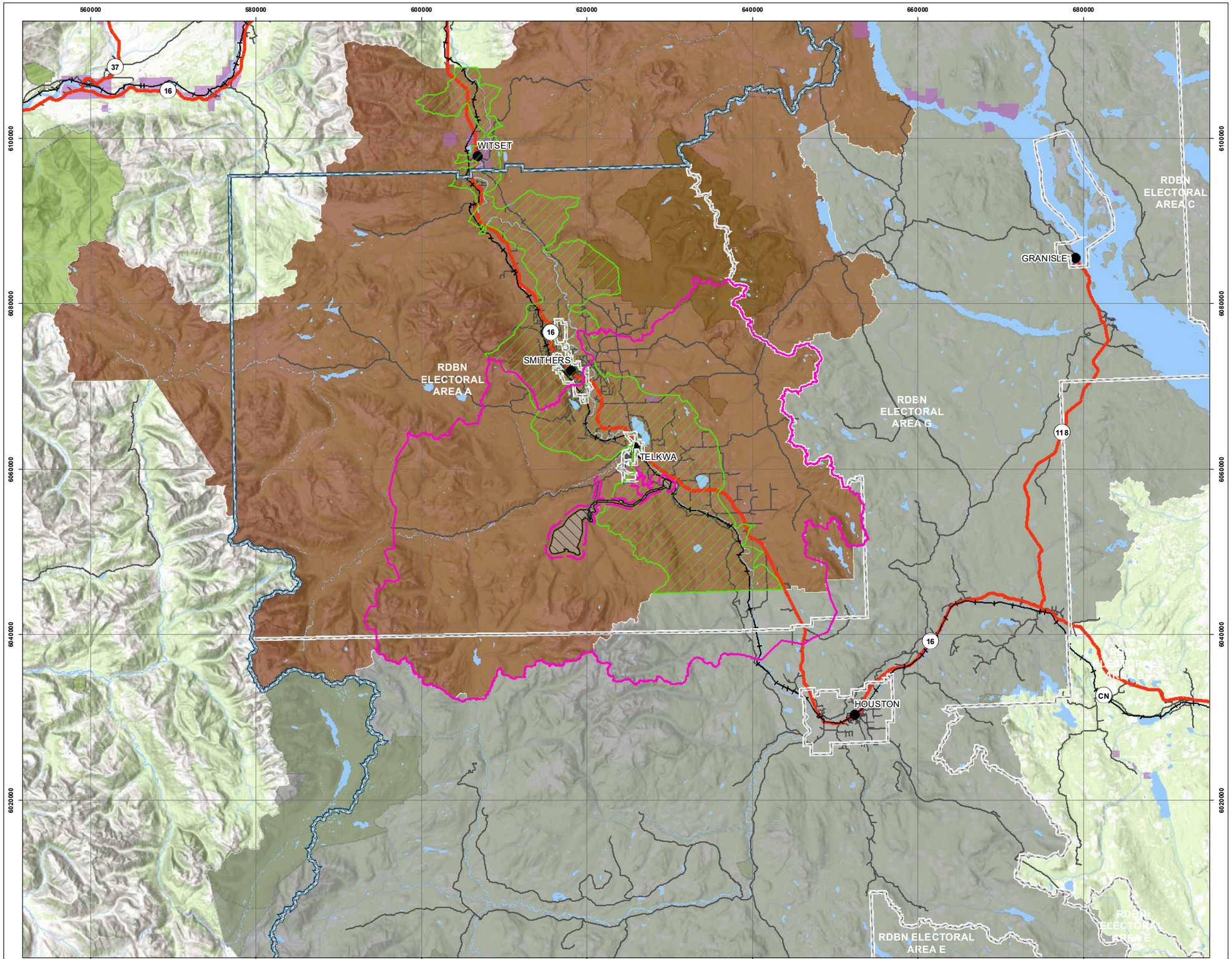
The Bulkley Valley Sustainable Resource Management Plan (SRMP) provides objectives and strategies for resource management within the Bulkley Valley (GovBC 2005) (**Figure 2.2-1**). The objective of the Bulkley

Valley SRMP is to further break down the large Bulkley Valley into more specific areas and update them with their own objectives (GovBC 2005).

The Morice LRMP encompasses approximately 1.5 million ha in central northwestern British Columbia (BC) and was approved 2007 (**Figure 2.2-1**). Additional work was done to develop goals and objectives for biodiversity respecting forest and range activities in the area, and in 2016 a Land Use Objectives Regulation Order for the Morice LRMP Area was established. At the same time, an environmental protection and management regulation order established Old Growth Management Areas (OGMAs) respecting oil and gas activities (GovBC 2007).

Tenas Project

Land and Resource Management Plans in the Local and Regional Study Areas



Legend

- City/Town
- Rail Line
- Highway
- Road
- Watercourse
- Waterbody
- Park or Protected Area
- First Nation Reserve
- Project Area
- Non-Traditional Land Use Local Study Area
- Non-Traditional Land Use Regional Study Area
- Regional District of Bulkley-Nechako
- Electoral Area
- Bulkley Valley Sustainable Resource Management Plan
- Bulkley Land and Resource Management Plan
- Morice Land and Resource Management Plan

Notes

1. All mapped features are approximate and should be used for discussion purposes only.
2. This map is not intended to be a "stand-alone" document, but a visual aid of the information contained within the referenced Report. It is intended to be used in conjunction with the scope of services and limitations described therein.

Sources

- Project Area: Allegiance Coal, April 21, 2021
- Land and Resource Management Data: RMP_STRGC_LAND_RSRCE_PLAN_SVW. Government of British Columbia
- Basedata: Government of British Columbia
- Basemap: World Topo Base

N

1:450,000

0 5 10 15 20 25

Kilometres

NAD 1983 UTM Zone 9N

Page Size: 11" x 17"

20P0172	Production Date: Jun 04, 2021	Figure 2.2-1

TELKWA COAL LIMITED

EDI ENVIRONMENTAL DYNAMICS INC.

Path: I:\PROJECT\20\18\MPO421_Tenas_Mine\Mapping\REPORTING\ESA\Landuse\Fig2-1_LandResourceManagementPlans_202106.mxd

2.3 Smithers Telkwa Rural Official Community Plan (OCP)

The Smithers Telkwa Rural Official Community Plan (OCP) covers Regional District of Bulkley-Nechako (RDBN) Area A and contains objectives to help guide land use planning and development of a variety of topics. The OCP also provides an overview of the communities found in Area A and the general plan vision (RDBN 2014). There are eight (8) different land designations in the OCP and are discussed further in **4.2.1**.

2.4 Indigenous Groups Land Use Plans

The general Project Area overlaps with portions of the traditional territory of the Wet'suwet'en BC Treaty Commission 1995). The Wet'suwet'en are in Stage 4: Active Negotiations of the treaty process with the Governments of BC and Canada. In 2020, Wet'suwet'en Hereditary Chiefs as represented by the OW concluded a MOU on rights and title with BC and Canada.

In 2018, the Witset First Nation, a member of the Wet'suwet'en, approved a Community Land Use Plan, as part of a Comprehensive Community Plan, to guide future development of its reserve lands (Witset 2018).

An assessment of current use of land and resources for traditional purposes, is included in **S11.0 Wet'suwet'en Rights and Interests Assessment** of the **EAC Application**.

3. SCOPE OF THE ASSESSMENT

The assessment of Land and Resource Use, including the assessment of Project-related effects and cumulative effects, was conducted according to the methods set out in **S3.0 Assessment Methodology** of this **EAC Application**. The assessment boundaries specific to Land and Resource Use are provided in **3.2.4** and the characterisation criteria specific to Land and Resource Use are provided at the start of **5.4**.

This subsection outlines the scope of the assessment, including the rationale for the inclusion of Land and Resource Use VC along with its subcomponents, the selection of indicators, and the definition of spatial and temporal boundaries. The assessment is based primarily on publicly available data managed by Governments of BC and Canada or by regional authorities. The assessment is informed by the **Land and Resource Use Baseline Report (Appendix 6.4-A)**, as well as input from Indigenous groups, the public and government agencies through working groups and comment solicitation, which identified the importance of Land and Resource Use. This assessment is organized into two (2) subcomponents (**3.2.2 Subcomponents**):

- Commercial Land; and
- Resource Use and Public Recreation Use.

3.1 Issues Scoping

Telkwa Coal Limited (TCL) has undertaken an engagement and consultation process to support issues scoping for the Project (please refer to **S11.0 Wet'suwet'en Rights and Interests Assessment** and **S12.0 Public Consultation** of the **EAC Application** for details on the consultation and engagement program). The consultation and engagement process has included technical working groups established with Indigenous groups, government ministries, community meetings, one-on-one and small group meetings, regarding key themes of interest and discussion of candidate VCs to represent the themes of interest. The engagement and consultation process highlighted various interests including access to recreational commercial use areas and the use of local infrastructure and community services as topics of interest for residents in the Local Study Area (LSA) and Regional Study Area (RSA). Interviews related to Land and Resource Use were initiated in order to better understand how Project activities or Project-induced changes in population may affect these topics of interest.

3.2 Rationale for Selection of Land and Resource Use Valued Component (VC)

The Land and Resource Use VC and associated subcomponents were selected during the pre-Application phase of the Project following the VC selection process set out in **S3.0-C1-2.4.1 Selection of Valued Components (VCs)** of the **EAC Application** and used the methodology provided in the Guideline for Selection of Valued Components and Assessment of Potential Effects (BC EAO 2013). The goal was to focus on relevant issues, concerns, and components within the human environment as they relate to land and resource use by land users that may be adversely affected by the Project.

3.2.1 Valued Component (VC)

The Project includes construction activities and ongoing operations that may result in local adverse effects on land and resource use by a range of potential users, both commercial and public. These adverse effects may be related to reduced access or availability of land for commercial, recreational and residential purposes. The Project's footprint may affect the surrounding area through dust emissions, noise and could

diminish visual quality in the area or users' sense of place. Potential Project-related effects may occur along several pathways and assessment of Land and Resource Use cross references to other supporting VC assessment sections.

The assessment is dependent on the following VC assessments:

- **Atmospheric Environment VC (S4.0-C1):** Atmospheric environment contributes to air quality and noise that affect the quality of resources;
- **Terrain and Soils VC (S4.0-C2):** Terrain and soils contribute to landscape form and function that define landscape aesthetic and land capability and changes may affect land and resource use;
- **Surface Water VC (S4.0-C3):** Surface water provides resource values such as recreation, fishing, and transportation; and changes to surface water may affect land and resource use;
- **Fish and Fish Habitat VC (S4.0-C6):** Fish provide resource value as food, recreational and commercial fisheries, and changes to fish and fish habitat may affect land and resource use;
- **Vegetation VC (S4.0-C7):** Vegetation provides resource values such as timber harvesting, agriculture, and recreation;
- **Wildlife VC (S4.0-C8):** Wildlife species are harvested for food, either seasonally or year-round;
- **Avian Species VC (S4.0-C9):** Avian species are harvested for food, either seasonally or year-round;
- **Demographics VC (S6.0-C1)**: A change in population can affect or change existing land and resource uses.
- **Visual Resources VC (S6.0-C2):** Certain land uses such as tourism, recreation, and residential development are sensitive to changes in the visual landscape; and
- **Heritage Resources VC (S7.0-C1)**: Effects on historic and cultural sites may have an effect on the use of land and resources as they may result in a change to the presence of a resource.

The Land and Resource Use VC supports:

- **Economic Development VC (S5.0-C2):** The Project is located on forested lands and may have an affect on the timber sector in the region;
- **Community Well-being VC (S6.0-C5):** The Project could affect land access affecting the availability of subsistence foods and thereby, community well-being; and
- **Human Health VC (S8.0-C1):** Some land uses such as tourism and recreation are sensitive to Project effects that could affect the quality of subsistence foods.

The Land and Resource Use VC may also contribute to the assessment of effects on Wet'suwet'en rights and interests and current use of land and resources for tradition purposes in **S11.0 Wet'suwet'en Rights and Interests Assessment** of the **EAC Application**.

3.2.2 Subcomponents

Table 3.2-1 summarizes the Land and Resource Use VC subcomponents, the rationale for their selection and available sources of information for assessment. The subcomponents selected help to focus the assessment of potential effects on key land and resource users.

Table 3.2-1: Summary of Rationale for Selection of Land and Resource Use Valued Component (VC) and Subcomponents and their Linkages

Subcomponent	Rationale for Inclusion	Source of Information	VC Linkages	
Commercial Land and Resource Use	The Project has the potential to interact with land and resources used for commercial purposes, including mining, mining exploration, oil and gas, forestry, trapping, agriculture (including grazing) and other tenured Crown land uses.	▪ Interviews conducted during baseline data collection ▪ Collection and review of publicly available sources of information, including information from other relevant projects ▪ Review of socio-economic and non-traditional land use existing conditions studies for the Project ▪ Review and integration of relevant and available sources of TK or land use information	**Dependent on:** ▪ Noise ▪ Air Quality ▪ Visual Resources ▪ Fish and Fish Habitat ▪ Wildlife	**Supporting:** ▪ Community Well-being ▪ Human Health
Public Recreation Use	The Project has the potential to interact and conflict with community use of the land base, affecting residential and public outdoor recreation activities, recreational fishing and hunting, hiking, camping, horseback riding, winter sports and motorized recreation.	▪ Interviews conducted during baseline data collection ▪ Collection and review of publicly available sources of information, including information from other relevant projects ▪ Review of socio-economic and non-traditional land use existing conditions studies for the Project ▪ Review and integration of relevant and available sources of TK	**Dependent on:** ▪ Noise ▪ Air Quality ▪ Visual Resources ▪ Fish and Fish Habitat ▪ Wildlife	**Supporting:** ▪ Community Well-being ▪ Human Health

Notes: *TK=Traditional Knowledge; Project=Tenas Project; VC=Valued Components; OW=Office of Wet'suwet'en*

3.2.3 Indicators

Quantitative and qualitative indicators used in assessment of the Land and Resource Use VC and subcomponents are described in **Table 3.2-2**. These indicators will be used to evaluate potential adverse effects, characterise potential residual adverse effects, and determine effect significance.

Table 3.2-2: Indicators for Land and Resource Use Valued Component (VC) Subcomponents

Indicator	Rationale for Selection
Commercial Land and Resource Use Subcomponent	
Change in compatibility with existing land use plans	The Tenas Project (Project) has the potential to be inconsistent with existing land use plan direction, objectives, and resource zoning.
Change in access to land use areas	The Project has the potential to reduce or change access to areas managed under existing land use plans or as granted under existing tenures.
Change in sensory disturbance to existing land and resource uses	The Project has the potential to affect commercial land use due to sensory disturbance (emissions, noise or light).
Change in quantity and quality of resources supporting existing land and resource uses	The Project has the potential to reduce or change the amount or quality of resources currently supporting existing commercial land users.
Public Recreation Use Subcomponent	
Change in access to land use areas	The Project has the potential to reduce or change access to areas used for recreational activities.
Change in sensory disturbance to existing land and resource uses	The Project has the potential to affect public recreation land use due to sensory disturbance (emissions, noise or light).
Change in quantity and quality of resources supporting existing land and resource uses	The Project has the potential to reduce or change the amount or quality of resources currently supporting existing land users.
Interference with recreational infrastructure	The Project has the potential to interfere with public recreation infrastructure.

3.2.4 Assessment Boundaries

The spatial and temporal boundaries encompass the area within, and times during which, the Project is expected to interact with the Land and Resource Use VC. The administrative and technical boundaries represent any constraints that may be placed on the EA due to political, social, and economic realities (i.e., administrative boundaries), or limitations in predicting or measuring changes (i.e., technical boundaries).

3.2.4.1 Spatial Boundaries

The Land and Resource Use VC RSA was selected in order to correspond with various biophysical VCs including Wildlife, Fish and Fish Habitat and Vegetation and to support the assessments of Community Well-being and Human Health. The Wildlife RSA was selected to capture potential direct and indirect effects of the proposed Project Area on Land and Resource Use on these VCs, as well as anticipated interaction with Project activities during Construction, Operation, Reclamation and Decommissioning, and Post-closure phases on the other supporting VCs identified in **3.2.1 Valued Component**. Human land uses and wildlife activities are influenced by larger landscape features, such as the Hazelton Mountains and the Skeena Watershed. Recognizing these larger landscape features, the Wildlife RSA boundaries were considered appropriate and adequate for assessment of Land and Resource Use VC subcomponents.

This LSA was chosen to capture direct and indirect effects to land users and tenure holders on a finer scale, specific to the Minesite's location and associated infrastructure. This LSA is based on the Vegetation LSA and supports the inclusion of potential effects to land users and tenure holders in the immediate vicinity of the Minesite and associated infrastructure.

Spatial boundaries for the Land and Resource Use VC and subcomponents are listed in **Table 3.2-3** and shown on **Figure 3.2-1**.

Table 3.2-3: Spatial Boundary Definitions for Land and Resource Use Valued Component (VC) and Subcomponents

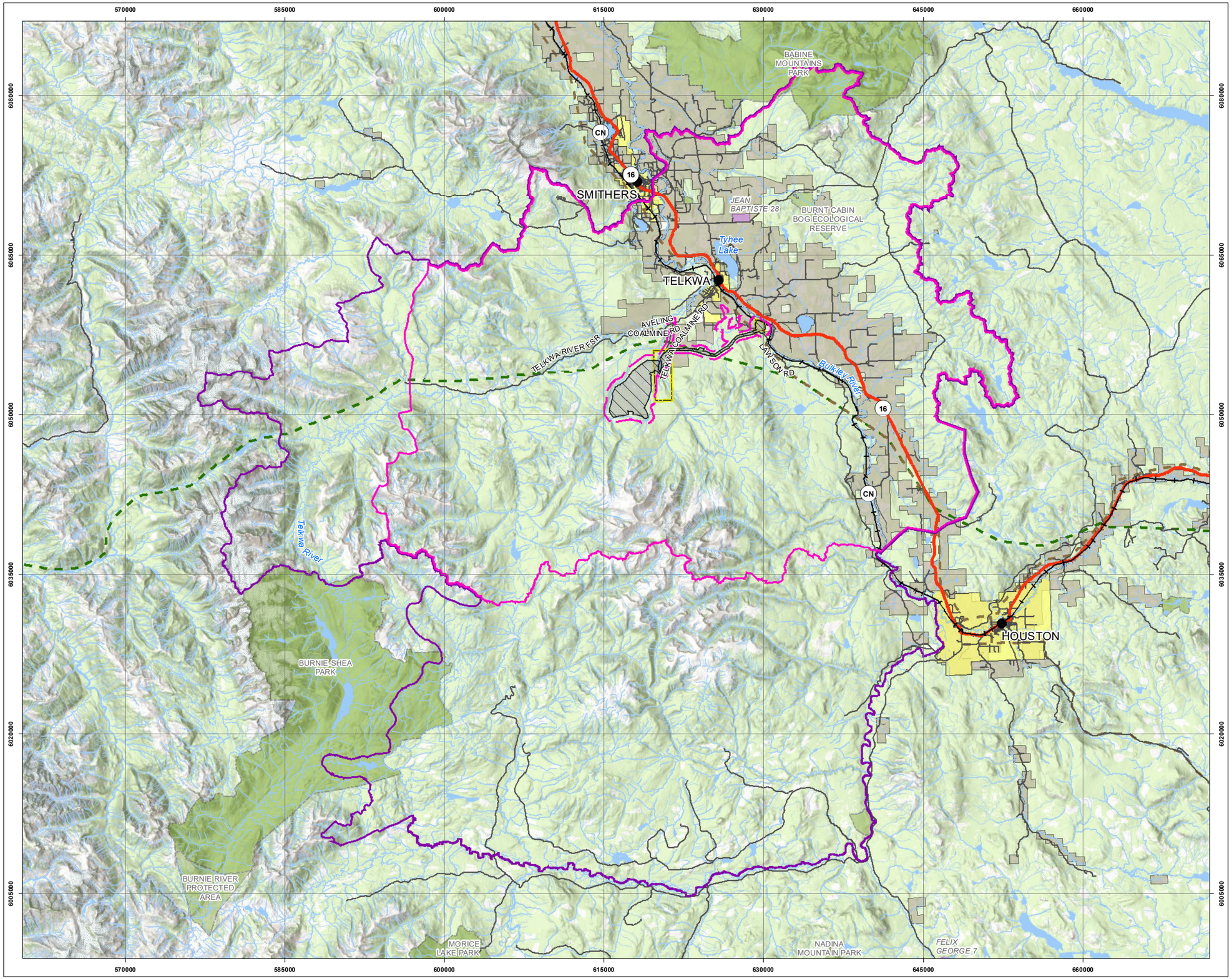
Spatial Boundary	Description of Study Area
Local Study Area (LSA)	The Land and Resource Use LSA is the same as the Vegetation LSA as used in **S4.0-C7** of the **EAC Application**. The LSA extends 3,062 ha around the Mine Infrastructure and Project Area (**Figure 3.2-1**). This includes a 250 m buffer zone around the road and a 500 m buffer zone around the Project Area.
Regional Study Area (RSA)	The Land and Resource Use RSA is the same as the Wildlife RSA as used in **S4.0-C8** of the **EAC Application**. The RSA covers an area of approximately 178,392 ha and encompasses the Village of Telkwa, RDBN Electoral Area A, and a small northern portion of RDBN Area G. It extends approximately 22 km north of the Project, 30 km east, 13 km south, and 12 km west (**Figure 3.2-1**). Appreciating the extent of Guide Certificate Areas and the nature of the commercial land and resource use, to assess potential effects on guide-outfitting the Wide-ranging Wildlife RSA (WR-RSA) was used. The cumulative effects assessment (CEA) Study Area is the same as the WR-RSA, with some additions to include appropriate regional supply routes and centres.

Notes: *C=Chapter; EAC=Environmental Assessment Certificate; ha=hectare; km=kilometre; m=metre; Project=Tenas Project; RDBN=Regional District Bulkley-Nechako S=Section*

.

Tenas Project

Land and Resource Use Local and Regional Study Areas



Legend

- City/Town
- Rail Line
- Highway
- Road
- 138 kV Transmission Line
- 500 kV Transmission Line
- Watercourse
- Waterbody
- Park or Protected Area
- First Nation Reserve
- Municipal Area
- General Private Property
- Telkwa Coal Limited Private Property
- Project Area
- Non-Traditional Land Use Local Study Area
- Non-Traditional Land Use Regional Study Area
- Non-Traditional Land Use Regional Study Area (Guide Outfitting and Trapping)

Notes

1. All mapped features are approximate and should be used for discussion purposes only.
2. This map is not intended to be a "stand-alone" document, but a visual aid of the information contained within the referenced Report. It is intended to be used in conjunction with the scope of services and limitations described therein.

Sources

- Project Area: Allegiance Coal, April 21, 2021
- Basedata: Government of British Columbia
- Basemap: World Topo Base

N

1:350,000

0 4 8 12 16 20

Kilometres

NAD 1983 UTM Zone 9N

Page Size: 11" x 17"

20P0172	Production Date: Jun 07, 2021	Figure 3.2-1

TELKWA COAL LIMITED

EDI ENVIRONMENTAL DYNAMICS INC

Path: I:\PROJECT\20\0181\MP0421_Tenas_MineMapping\REPORTING\EIA\.aredt\arcFig\321_LandResourceUseBoundaries_20210616.mxd

3.2.4.2 Temporal Boundaries

As described in **S3.0-C1-3.2 Temporal Boundaries** of the **EAC Application**, the temporal boundaries for the assessment of Project-related effects on the Land and Resource Use VC encompass the time periods during which the Project is expected to interact with Land and Resource Use. These include the Construction, Operation, Decommissioning and Reclamation, and Post-closure phases.

There is potential for Project-related changes in access, sensory disturbances and the quality and quantity of lands and resources available for non-traditional uses to varying degrees during each of the phases as described in **Table 3.2-4**.

Table 3.2-4: Temporal Boundaries for the Tenas Project

Phase	Year	Duration (years)	Description of Activities
Construction	-0.5 to 0	1.5	Site clearing, soil salvage, open pit development, building construction, service and haul road development, Rail Infrastructure construction, bridge construction and development of onsite utilities and services. Development of mine rock, and overburden storage piles, stockpiling of reclamation material such as soil, overburden and other materials suitable for reclamation. Development of water management systems and management ponds for storage of potentially acid generating (PAG) materials.
Operation	1 to 21	21	Development of the open pit through drilling, blasting, loading, and hauling functions. Development of mine rock, and overburden storage piles, stockpiling of reclamation material such as soil, overburden and other materials suitable for reclamation. Development of water management systems and management ponds for PAG storage. Conducting coal processing, stockpiling of raw coal prior to processing, and stockpiling of processed coal prior to shipping. Progressive reclamation will be accomplished during operation including, where available, reclamation activities such as sloping, topsoil placement and revegetation.
Decommissioning and Reclamation	22 to 25	4	Tear-down of infrastructure onsite plus reclamation activities, including sloping of storage piles, backfill materials, and placement of reclamation materials including growth media, overburden and non-PAG rock for management pond covers and revegetating surfaces that are planned to be reclaimed.
Post-closure	26 to 50	10	Active: This involves the filling of the open pit with water, monitoring of vegetation growth and water quality for both groundwater and surface water and wildlife. Control and sedimentation ponds may still be needed for settling of total suspended solid levels. The management ponds are left as dry land reclamation except for portions that will be left as open water.
		15	Passive: This stage is when the control and sedimentation ponds are no longer required for settling of total suspended solid (TSS) levels and the management ponds are left as dry land reclamation except for portions that will be left as open water. Telkwa Coal Limited (TCL) is now simply monitoring the site.

3.2.4.3 Administrative Boundaries

Administrative boundaries relate to the designated political and social responsibilities and legislative authorities within designated geographic regions that constrain the availability of data. As indicated in **2.2 Land Use and Resource Management Plans**, for consistency in the assessment, selection of study areas considered existing administrative and technical boundaries with respect to the availability of existing conditions data and how the data was organized. However, some Wildlife Management Areas included fall outside of the selected RSA. Hunting and trapping data also includes some data outside of the RSA.

3.2.4.4 Technical Boundaries

Technical boundaries for the Land and Resource Use VC include data availability and reliability. Aerial photo data from 2019 was used. Spatial and tenure information reflects available data during compilation of the **Land and Resource Use Baseline Report** in 2019 (**Appendix 6.4-A**). Wells on private property are required to registered with the government of BC, but land owners may or may not comply with this requirement. Similarly, trapline harvest includes data available and may be incomplete if trapping activity was not reported. It is anticipated that specific user groups (e.g., trappers, guide-outfitters and recreational users) will be engaged throughout the Project. Information as a result of this engagement may not be included in this assessment but will be considered in Project planning and ongoing work. Agricultural data draws from an agricultural land use inventory produced for the RDBN in 2013. As necessary, conservative assumptions have been used to compensate for uncertainties or limitations in available land use data.

Information on Witset First Nation community planning and land use is included in this land and resource assessment as it relates to use of land and resources for non-traditional purposes including commercial and recreational use. See **S11.0 Wet'suwet'en Rights and Interests Assessment** of the **EAC Application** for information on current Wet'suwet'en use of land and resources for traditional purposes. The community of Witset (formerly known as Moricetown) in which Witset First Nation members predominantly reside includes four (4) adjacent reserves on both sides of Highway 16. Witset First Nation and the community of Witset are used in the assessment interchangeably, unless otherwise noted. Information on Witset in this and other socio-economic VC assessments includes federal census data that consolidates data from the four adjacent reserve areas mentioned. Please refer to **S6.0-C1 Demographics VC** of the **EAC Application** for more information on Witset.

4. EXISTING CONDITIONS

The assessment is based on a thorough review of available information related to commercial land use and public recreation land use. Data were collected from government and other publicly available sources, other relevant project submissions and Project interviews during socio-economic baseline fieldwork. Key sources of information included tenure holders, public servants, recreational users and tourism-related business operators.

4.1 Background Information and Studies

4.1.1 Traditional Knowledge (TK)

Traditional Knowledge (TK) and its use in an EA is important to providing a broad-based understanding of potential Project effects, determination of their Significance and in design of appropriate mitigation measures. TK related to Land and Resource Use was identified through a review of publicly available information as well as the **Cultural Use Study (CUS) (S7.0-C1-Appendix 7.1-B** of the **EAC Application**) which compiles various aspects of TK as public sources of this information.

4.1.2 Scientific and Other Information

The assessment considered various sources of scientific and other information, and its applicability to the Project. The **Land Resource Use Baseline Report** in **Appendix 6.4-A** has compiled spatial information and land tenure data from government sources. Reports and websites produced by BC government ministries, such as the British Columbia Ministry of Forests, Lands, Natural Resource Operations and Rural Development (BC MFLNRORD) and the British Columbia Ministry of Mines and Petroleum Resources (BC MEMPR) have also been accessed.

The assessment also includes analysis of projected forestry tenure activities and volumes during the life of the Project. Please refer to the assessment of the **Vegetation VC** in **S4.0-C7** of the **EAC Application** for a summary of projected forestry tenure activities and volumes.

4.1.3 Baseline Studies

Table 4.1-1 summarizes studies that have been compiled or reviewed related to the assessment of land and resource use. Methodological details and data summaries/findings are presented in the **Land and Resource Use Baseline Report (Appendix 6.4-A)** and the **CUS (S7.0-C1-Appendix 7.1-A)** of the **EAC Application**) .

Table 4.1-1: Summary of Desktop and Field Studies Related to the Land and Resource Use Valued Component (VC)

Study Name	Study Purpose, Duration and Spatial Boundaries
Land and Resource Use Baseline Report (Appendix 6.4-A)	▪ The report compiles publicly available information on non-traditional land use within the RSA and LSA. ▪ The report describes provincial, regional and local management plans; tenures and licenses; sensitive areas; parks and recreation areas. ▪ The report characterises commercial, recreational and traditional land and resource uses in the RSA and LSA.

Study Name	Study Purpose, Duration and Spatial Boundaries
	▪ The report also provides information factors related to assessment of potential effects including access and water use. ▪ The study was undertaken in 2019.
Cultural Use Study (Appendix 7.1-B)	▪ Based on publicly available sources, the desktop study compiles a baseline inventory of cultural heritage resources pertaining to Wet'suwet'en communities in the RSA and LSA. ▪ The study includes an examination of pre-existing cultural, social, historic and economic data. ▪ Undertaken in 2021
Socio-economic Baseline Report (Appendix 5.1-A)	▪ This report describes the existing socio-economic conditions for four (4) communities (Telkwa, Smithers, Houston, and Witset [formerly Moricetown]) and the RDBN that comprise the socio-economic LSA study areas and RSA), respectively. ▪ The report includes details about governance, population and demographics, labour force and economy, business activity, income, housing, community health and wellbeing, health and social services, community infrastructure, crime, education facilities and services, and educational attainment.

Notes: *LSA=Local Study Area; RDBN=Regional District of Bulkley-Nechako; RSA=Regional Study Area*

Data on Witset was supplemented in fall 2020 through semi-structured virtual interviews conducted by TCL with Witset First Nation administrators and key informants. Subsequent to these interviews, Witset First Nation released a number of community and land use plans to the public on its website (Witset 2018).

4.2 Description of Existing Conditions

This subsection provides a summary and overview of existing conditions for the Land and Resource Use VC. Further details regarding existing conditions are provided in **Appendix 6.4-A.** Please refer to **S11.0 Wet'suwet'en Rights and Interests Assessment** of the **EAC Application** for assessment of current use of land and resources for traditional purposes. Additional information is also provided in the **CUS** (**S7.0-C1-Appendix 7.1-B** of the **EAC Application**). During existing conditions fieldwork information was collected in interviews with land and resource users. Please refer to **Appendix 6.4-A** for more information on personal communication interviews.

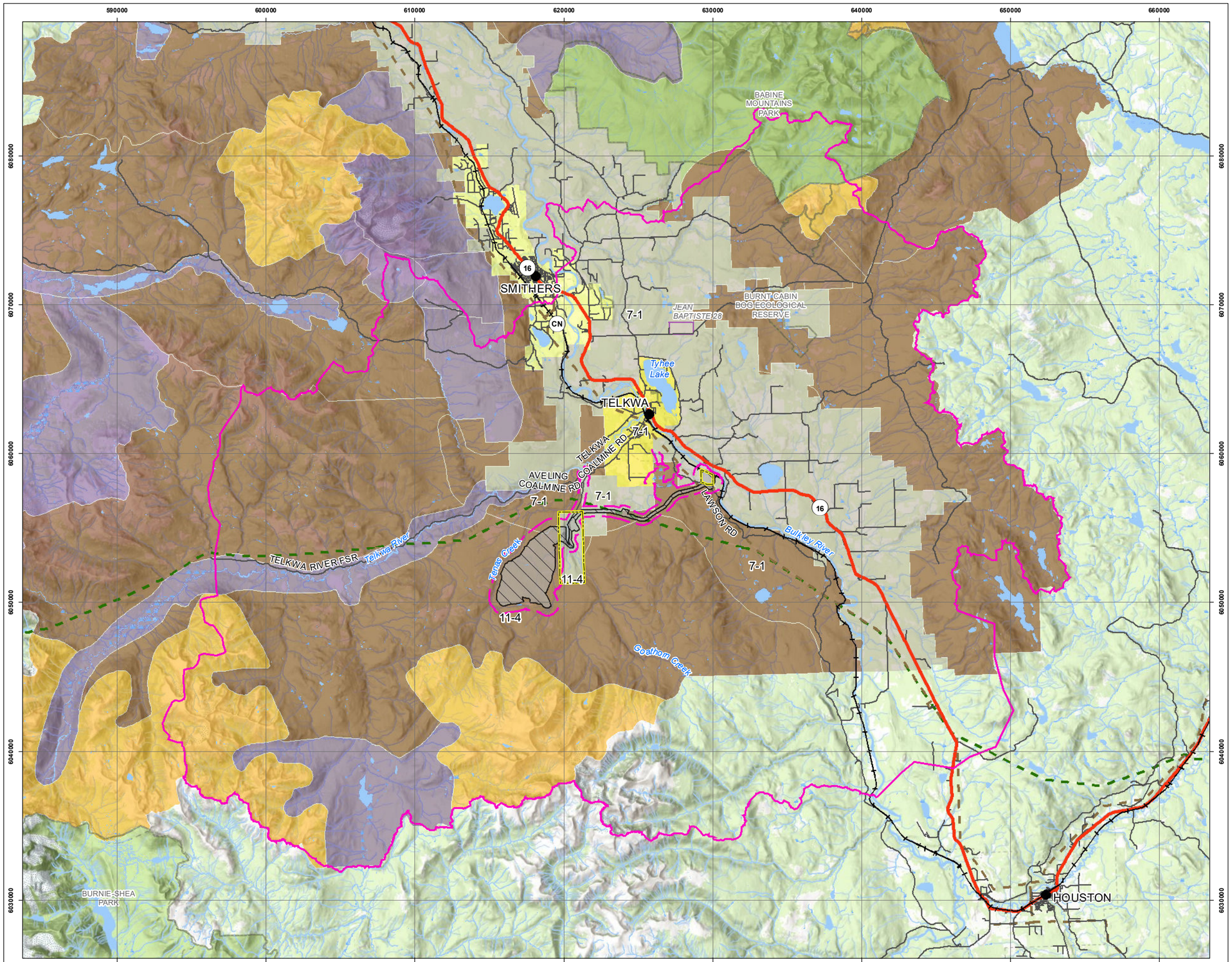
4.2.1 Land Use Planning

4.2.1.1 Land and Resource Management Plans (LRMP)

The Project falls within the Bulkley LRMP, Bulkley RAMP and Bulkley Valley SRMP. The Bulkley LRMP, created by the Government of BC in 1998, directs the management of 760,000 ha of Crown land and provides general management direction related to eleven (11) categories: biodiversity, access, timber, water quality, fish and wildlife habitat, visual quality, range, outdoor recreation and tourism, subsurface resources, cultural heritage resources, and future planning processes, establishing six (6) RMZs and protected areas (**Figure 4.2-1**). The six (6) zones are all contained within the RSA (GovBC 1997, 1998 and 2005).

Tenas Project

Bulkley LRMP
Resource Management Zones
in the Local and Regional Study Areas



Legend

- City/Town
- Rail Line
- Highway
- Road
- 138 kV Transmission Line
- 500 kV Transmission Line
- Watercourse
- Wetland
- Waterbody
- Park or Protected Area
- First Nation Reserve
- Telkwa Coal Limited Private Property
- Project Area
- Non-Traditional Land Use Local Study Area
- Non-Traditional Land Use Regional Study Area

Resource Management Zone (Labeled by Subzone)

- Agriculture-Wildlife
- Full Protection
- Integrated Resource Management
- Settlement 1
- Settlement 2
- Special Management 1
- Special Management 2

Notes

1. All mapped features are approximate and should be used for discussion purposes only.
2. This map is not intended to be a "stand-alone" document, but a visual aid of the information contained within the referenced Report. It is intended to be used in conjunction with the scope of services and limitations described therein.

Sources

- Project Area: Allegiance Coal, April 21, 2021
- Private Land: Parcel Map BC
- Basedata: Government of British Columbia
- Basemap: World Topo Base

N

1:250,000

0 2 4 6 8 10

Kilometres

NAD 1983 UTM Zone 9N

Page Size: 11" x 17"

20P0172	Production Date: Jun 21, 2021	Figure 4.2-1

TELKWA COAL LIMITED

EDI ENVIRONMENTAL DYNAMICS INC.

Path: L:\PROJECT\20\16\MPO421_Tenas_Mine\Mapping\REPORTING\EIA\Landuse\Fig411_LrMPRMZ_20210615.mxd

The Project is located within the Private Zone and the Integrated RMZ, in Planning Unit 11 (Telkwa) and Sub-Unit 11-4 (Goathorn Creek). The Integrated RMZ was created to "recognize a full range of resource values and activities, including timber harvesting, mining, grazing, tourism, wildlife and recreation". Planning unit objectives for Sub-Unit 11-4 include development of a comprehensive plan to sustain a viable caribou population and manage caribou habitat, discourage a circle route to the Morice District, and potential creation of a Telkwa River and Scallion Creek access control point. Specific management direction for Subsurface Resources in this Sub-Unit 11-4 include maintaining "opportunities for coal exploration and extraction" (GovBC 1998). The full list of objectives for the Goathorn Creek Sub-unit 11-4 can be found in **Appendix 6.4-A-Appendix A, Table A.2.**

The Bulkley Valley SRMP was created by the Bulkley Valley Community Resource Board in 2005 and establishes objectives and strategies for resource management within the Bulkley Valley. The planning area is 66,971 ha, although almost half the area (45.3 percent [%]) is private land. The objective of the Bulkley Valley SRMP is to further break down the large Bulkley Valley into more specific planning areas (GovBC 2005). There are seven (7) resource zones within the Bulkley Land Unit described in **Appendix 6.4-A-Appendix A, Table A.3**.

The Bypass Road and the Rail Infrastructure are located within the Bulkley Valley SRMP boundary (please refer to **Figure 2.2-1** above). Bulkley Valley SRMP objectives include mining as a resource value within the Integrated RMZ (GovBC 2005).

A Bulkley River Angling Management Plan was approved by the British Columbia Ministry of Forests, Lands and Natural Resource Operation (BC MFLNRO) in 2013. The Bulkley River Angling Management Plan describes a suite of regulatory measures implemented to manage angling within the Bulkley River watershed, including the Bulkley, Morice and Telkwa River (GovBC 2013).

The LSA does not overlap with the Morice LRMP area, however a small portion of the southern end of the RSA overlaps with the general forested area RMZ and the OGMA RMZ. Management objectives for these RMZ include: maintaining a distribution of seral classes across the Morice LRMP area and managing for old growth forests by retaining all crown forested area located within OGMAs (GovBC 2016b).

4.2.1.2 Community Plans

The Project is located within the Smithers Telkwa Rural OCP. Created by the RDBN in 2014, the OCP covers RDBN Electoral Area A and contains objectives to help guide land use planning and development of a variety of topics. The OCP also provides an overview of the communities found in Area A and a general plan vision. There are eight (8) different land designations in the OCP. Project components straddle two (2) of the designations: Agriculture and Rural Resources. The Minesite is found on private parcels and the Rail Infrastructure is within the Agriculture designation. The Bypass road is within both Agriculture and Rural Resources designations. A diversified economy and industrial land use are two (2) stated goals of the OCP. (RDBN 2014). Please refer to **Appendix 6.4-A** for more information on the Telkwa Rural OCP plan.

A similar Houston, Topley, Granisle Rural Official Plan was created by the RDBN in 2011. The Houston OCP objectives include:

- accommodate primary resource extraction and primary processing, as a value-added industry; and
- support industrial uses that will not have a significant negative impact on the natural environment (RDBN 2011).

4.2.1.3 Indigenous Group Land Use Planning

The Project is within the traditional territory of the Wet'suwet'en (BC Treaty Commission 1995). In 2020, Hereditary Chiefs of the Wet'suwet'en as represented by OW concluded a MOU on rights and title with BC and Canada. The MOU recognizes Wet'suwet'en Aboriginal rights and title and speaks to subsequent negotiations with provincial and federal governments with respect to areas of exclusive and shared jurisdiction, to be addressed in subsequent agreements, including Land Use Planning and Lands and Resources (Government of Canada [GovCan] 2020). Further information on Wet'suwet'en land use planning is summarized in both the **S11.0 Wet'suwet'en Rights and Interests Assessment** and **CUS** in **S7.0-C1-Appendix 7.1-B** of the **EAC Application**.

In 2018, the Witset First Nation, a member of the Wet'suwet'en, approved a Community Land Use Plan, as part of a Comprehensive Community Plan (CCP), to guide future development of its reserve lands. The Community Land Use Plan's objective focuses on land use planning on Witset First Nation's seven (7) reserves. The four (4) adjacent reserves on both sides of Highway 16 form the Village of Witset (formerly Moricetown). Moricetown 1, Witset First Nation's largest reserve (531 ha) is currently used for mixed residential, community, commercial, and light industrial (mill) uses. Moricetown 1 also includes agricultural land and forest. The three (3) other Witset village reserves comprise residential and forest use. The closest reserve to the Project, Jean Baptiste 28, southeast of Smithers, is 130 ha of undeveloped forest and agricultural land. The Community Land Use Plan acknowledges Wet'suwet'en People's Aboriginal rights and title throughout their traditional territory. The Community Land Use Plan is not intended to limit those rights or endorse the reserve system (Witset 2018).

Informed and guided by the Community Land Use Plan, in 2019, Witset First Nation completed a Witset Community Tourism Development Plan. The Community Tourism Development Plan establishes a series of goals for tourism including: creating a platform for sharing and celebrating Wet'suwet'en culture, retention of the Wet'suwet'en language, and support of Witset entrepreneurs, employment opportunities and existing Witset tourism assets such as an Recreational Vehicle (RV) Park, cultural tours, and the museum. The plan also contributes to community efforts to build and restore a network of trails and corridors separated from the highway (Witset 2019).

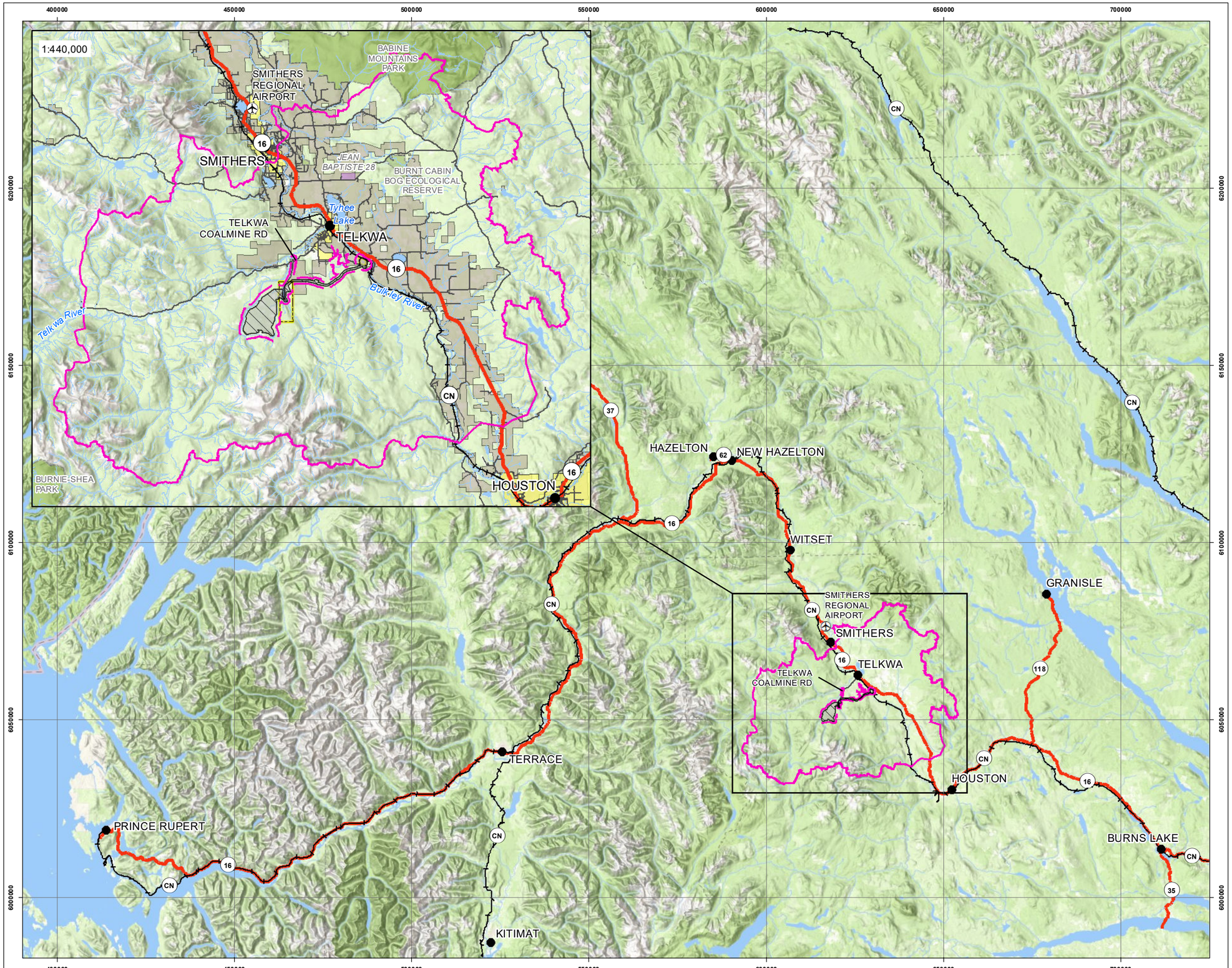
4.2.2 Access

This subsection summarizes available information on access considerations for tenured, non-tenured, and public recreation use. Further detail is available in the **Appendix 6.4-A**. Current use of land and resources for traditional purposes is discussed in both the **S11.0 Wet'suwet'en Rights and Interests Assessment** and **CUS** in **S7.0-C1-Appendix 7.1-B** of the **EAC Application**.

Highway 16 is the main transportation corridor in the RSA and LSA, connecting Telkwa with Smithers and Witset northwest of the Project and Houston to the southeast (**Figure 4.4-2**). The highway extends from Prince George in the northeast BC, through the northwestern regional hub of Terrace, to the Port of Prince Rupert on the western coast of BC. Access to the Minesite will be from Highway 16. Please refer to **Figure 4.2-2**.

Tenas Project

Access in the Regional and Local Study Areas



Legend

- City/Town
- Smithers Regional Airport
- Canadian National Railway (CN)
- Highway
- Road
- Watercourse
- Waterbody
- Park or Protected Area
- First Nation Reserve
- Municipal Area
- General Private Property
- Telkwa Coal Limited Private Property
- Project Area
- Non-Traditional Land Use Local Study Area
- Non-Traditional Land Use Regional Study Area

Notes

1. All mapped features are approximate and should be used for discussion purposes only.
2. This map is not intended to be a "stand-alone" document, but a visual aid of the information contained within the referenced Report. It is intended to be used in conjunction with the scope of services and limitations described therein.

Sources

- Project Area: Allegiance Coal, April 21, 2021
- Basedata: Government of British Columbia
- Basemap: World Topo Base

N

1:1,050,000

0 10 20 30 40 50

Kilometres

NAD 1983 UTM Zone 9N

Page Size: 11" x 17"

20P0172	Production Date: Jun 03, 2021	Figure 4.2-2

TELKWA COAL LIMITED

EDI ENVIRONMENTAL DYNAMICS INC.

Path: L:\PROJECT\20\0161\PP\421_Tenas_MineMapping\REPORTING\EIA Land\Arc\Fig421_Access_202106.mxd

Once off of Highway 16, the Minesite is accessed from Telkwa Coalmine Road. Access to recreational areas to the north and west of the Project, such as Jonas Creek, are from Highway 16. Access to recreational areas south and east of the Project, such as Hunter Basin, Webster Lake and Hankin Plateau Trailhead are by existing trails.

4.2.2.1 Telkwa Mountain Recreation Access Management (TRAM)

Voluntary access restrictions for motorized and non-motorized recreation have been in effect in the Telkwa Mountain area since the early 2000s. A 2015 BC MFLNRO review of the voluntary access restrictions suggested voluntary compliance had deteriorated (BC MFLNRO 2016). A Telkwa Mountain Recreation Access Management (TRAM) group was formed in January 2016 to provide consensus recommendations to BC MFLNRORD on access management in the Telkwa Mountains.

TRAM members created six (6) recreation zones in the Telkwa Mountains to better define specific management objectives for each area:

1. Grizzly Plateau;
2. Meat Cache;
3. North Telkwas proper (also known as the “Core Recovery Area” including Hunter Basin, Webster Lake, and Hankin Plateau);
4. East Telkwas;
5. Mooseskin Johnny East (including Houston Peak); and
6. Mooseskin Johnny West (including Starr Basin) (BC MFLNRO 2016).

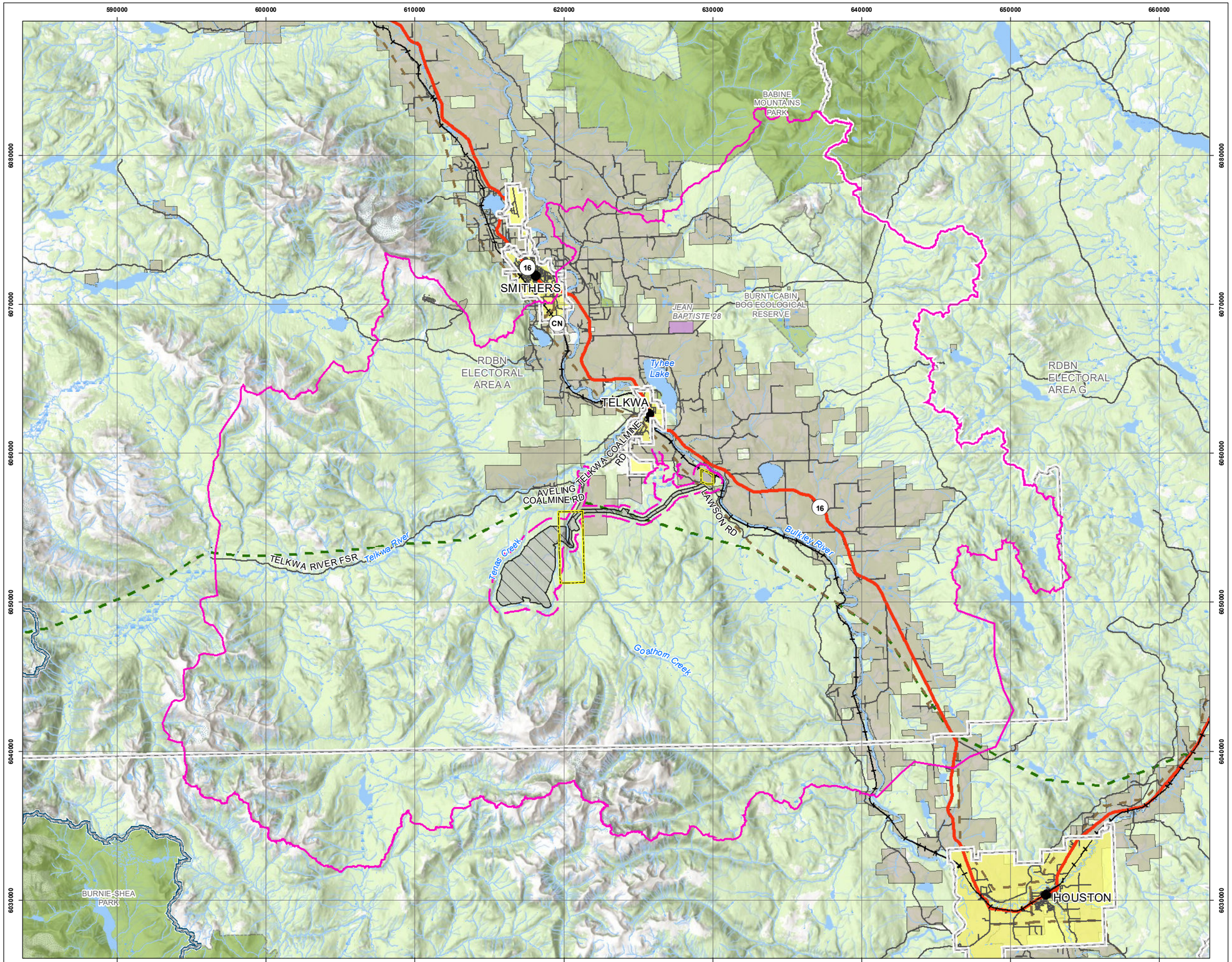
The East Telkwas, Core Recovery Area, and Mooseskin Johnny West zones are within the RSA and LSA. Please refer to **10.1** of **Appendix 6.4-A** for more detail on the proposed TRAM access plans for these zones.

4.2.3 Private Land

Private land use in the study areas varies from residential properties to commercial use (i.e., agricultural and forestry). The RSA encompasses Telkwa, RDBN Area A and a small northern portion of RDBN Area G, resulting in a high amount of privately owned property in the RSA (**Figure 4.2-3**). Residential properties range in size from residential lots with yards in Smithers and Telkwa, to five (5)-acre rural neighbourhoods and large parcels averaging 160 acres in size in the rural areas surrounding Smithers and Telkwa. Within the LSA, there are 35 private properties, four (4) of which are owned by TCL. TCL owns two (2) parcels of private land within the RSA located on the north side of the Telkwa River. Water use and licenses in the RSA and LSA are highlighted in the following subsection. Further detail on private lands is available in **Appendix 6.4-A**.

Tenas Project

Private Land in the Regional and Local Study Areas



Legend

- City/Town
- Rail Line
- Highway
- Road
- 138 kV Transmission Line
- 500 kV Transmission Line
- Watercourse
- Wetland
- Waterbody
- Park or Protected Area
- First Nation Reserve
- Municipal Area
- General Private Property
- Telkwa Coal Limited Private Property
- Project Area
- Non-Traditional Land Use Local Study Area
- Non-Traditional Land Use Regional Study Area
- Regional District of Bulkley-Nechako
- Electoral Area

Notes

1. All mapped features are approximate and should be used for discussion purposes only.
2. This map is not intended to be a "stand-alone" document, but a visual aid of the information contained within the referenced Report. It is intended to be used in conjunction with the scope of services and limitations described therein.

Sources

- Project Area: Allegiance Coal, April 21, 2021
- Private Land: Parcel Map BC
- Basedata: Government of British Columbia
- Basemap: World Topo Base

N

1:250,000

0 2 4 6 8 10

Kilometres

NAD 1983 UTM Zone 9N

Page Size: 11" x 17"

20P0172	Production Date: Jun 03, 2021	Figure 4.2-3

TELKWA COAL LIMITED

EDI ENVIRONMENTAL DYNAMICS INC

Path: I:\PROJECT\20\16\16PO421_Tenas_MineMapping\REPORTING\EIA\.mxd\fig4p3.3_PrivateLand_210105.mxd

4.2.3.1 Natural Resource Tenures and Licenses

A Crown land tenure is defined as an agreement between an individual or company and the provincial or federal government which provides the individual or company with an interest in the land. Tenures are granted for specific purposes and periods of time (BC Assessment 2021). A water license is not required by the BC Government for a groundwater well used for domestic purposes. However, the government encourages individuals to register wells, so their water use can be considered in future decision-making processes (GovBC 2020). There are a number of wells and licences in the RSA that facilitate the drawing of surface water near the Telkwa River, Bulkley River and along the Telkwa Coalmine Road (GovBC 2019c). Four (4) water rights licenses for water utilities are held in the RSA:

- License number C043261 is in the Bulkley River, within the Village of Telkwa. This license is owned by the Village of Telkwa. As of October 1, 1974, the Village of Telkwa can divert 200,000 gallons of water per day;
- License number C115259 is in the Bulkley River, within the Village of Telkwa. This license is owned by the Village of Telkwa. As of November 29, 2002, the Village of Telkwa can divert 562,000 gallons of water per day;
- License number C051653 is held in Tyhee Lake and is owned by a private individual. As of February 8, 1979, the private individual can divert 6,000 gallons of water per day; and
- License number C047204 is found in Canyon Creek, east of Smithers and is owned by Billeter Ridge Water Society. As of November 15, 1976, the Billeter Ridge Water Society can divert 4,000 gallons of water a day (GovBC 2019c).

Table 4.2-1 shows water usage for the Village of Telkwa. Overall, the amount of water usage in the Village of Telkwa has decreased since 2016.

Table 4.2-1: Village of Telkwa Water Use

Year	Amount (m^3)
2016	289,045
2017	n/a
2018	270,501
2019	247,501

Source: *Appendix 6.4-A Land and Resource Use Baseline Report*
Notes: *n/a=not applicable; m^3=cubic metres*

Table 4.2-2 provides available water usage data for the Town of Smithers. Overall, the amount of water usage in the Town of Smithers has decreased since 2010.

Table 4.2-2: Town of Smithers Water Use

Year	Amount (m^3)
2010	1,017,602
2011	909,976
2012	984,022

Year	Amount (m^3)
2013	950,019
2014	953,263
2015	940,014
2016	911,673
2017	857,226
2018	920,207
2019	858,921

Source: *Appendix 6.4-A Land and Resource Use Baseline Report*
Notes: *m^3=cubic metres*

There are approximately 403 private and domestic wells in the RSA, which includes both licensed and unlicensed wells (**Figure 4.2-4**). There are eight (8) wells registered in the LSA, listed in **Table 4.2-3** and shown on **Figure 4.2-4**. Currently there are no water rights applications or commercial water licenses within the LSA (GovBC 2019c).

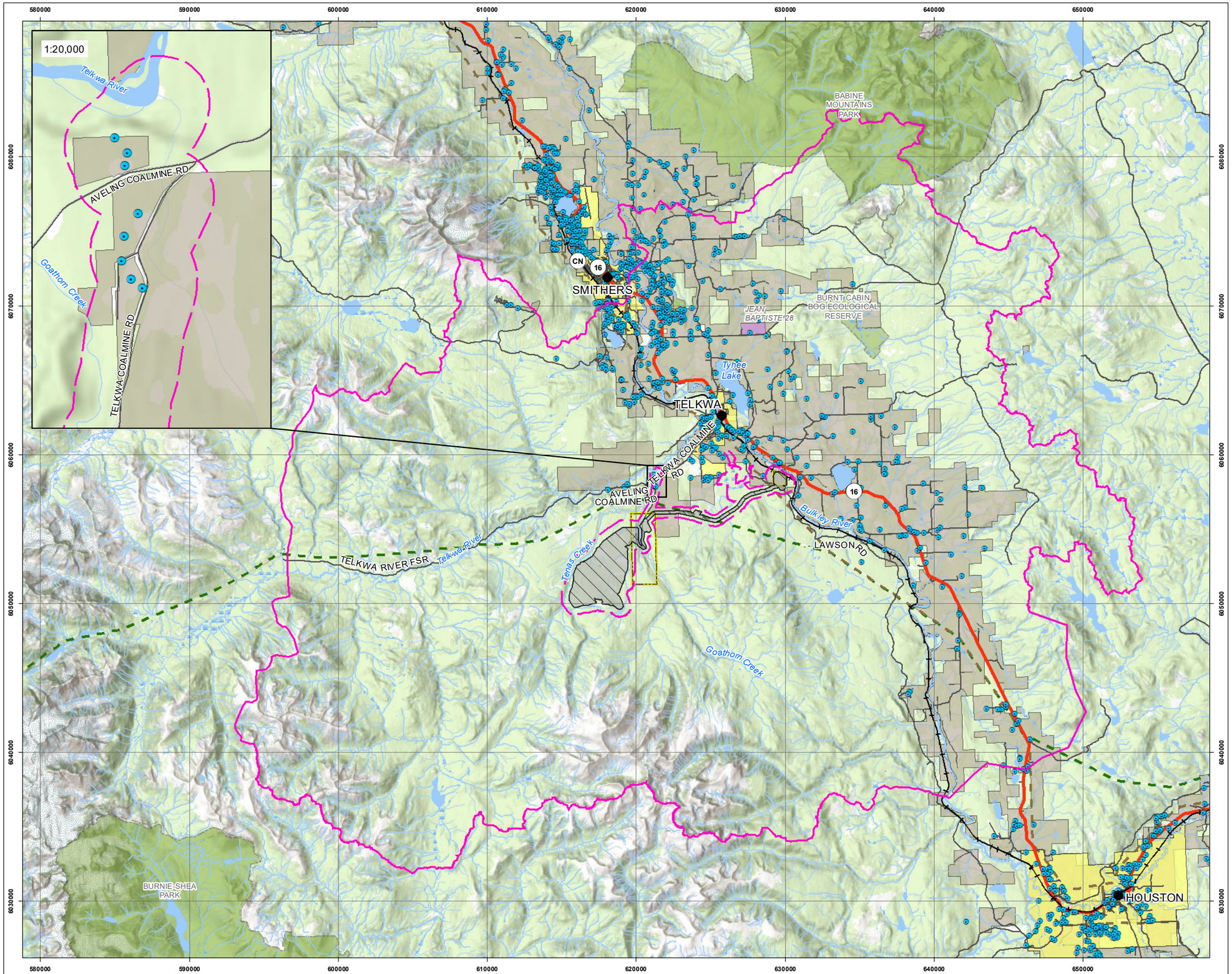
Table 4.2-3: Water Wells Within the Local Study Area (LSA)

Well Tag Number	License Status	Well Use
58995	Unlicensed	Other
51086	Unlicensed	Commercial and Industrial
58993	Unlicensed	Other
60489	Unlicensed	Private Domestic
30889	Unlicensed	Unknown
53149	Unlicensed	Private Domestic
52290	Unlicensed	Private Domestic
58780	Unlicensed	Private Domestic

Source: *Government of British Columbia (GovBC) 2019c*

Tenas Project

Water wells in the Regional and Local Study Areas



Legend

- Water Well
- City/Town
- Rail Line
- Highway
- Road
- 138 kV Transmission Line
- 500 kV Transmission Line
- Watercourse
- Wetland
- Waterbody
- Provincial Park, Ecological Reserve, or Protected Area
- First Nation Reserve
- Municipal Area
- General Private Property
- Telkwa Coal Limited Private Property
- Project Area
- Non-Traditional Land Use Local Study Area
- Non-Traditional Land Use Regional Study Area

Notes

1. All mapped features are approximate and should be used for discussion purposes only.
2. This map is not intended to be a "stand-alone" document, but a visual aid of the information contained within the referenced Report. It is intended to be used in conjunction with the scope of services and limitations described therein.

Sources

- Project Area: Allegiance Coal, April 21, 2021
- Water Wells: GW_WATER_WELLS_WRBC_SVW. Government of British Columbia
- Basedata: Government of British Columbia
- Basemap: World Topo Base

N

1:250,000

0 2 4 6 8 10

Kilometres

NAD 1983 UTM Zone 9N

Page Size: 11" x 17"

20P0172	Production Date: Jun 03, 2021	Figure 4.2-4

TELKWA COAL LIMITED

EDI ENVIRONMENTAL DYNAMICS INC

Path: L:\PROJECT\$\2016\16P0421_Tenas_Mine\Mapping\REPORTING\EIA\Landuse\Fig4x1_WaterWells_20210608.mxd

4.2.4 Parks and Protected Areas

BC's protected areas system provides for the protection and maintenance of important natural and cultural values and outstanding outdoor recreation opportunities. Protected areas include ecological reserves; provincial parks; conservancies (wildlife management areas); recreation areas; and protected areas established under the *Environment and Land Use Act*, RSBC 1996, c 117 (GovBC 1996a). While parks are discussed below, public recreation is discussed in **4.2.10** below.

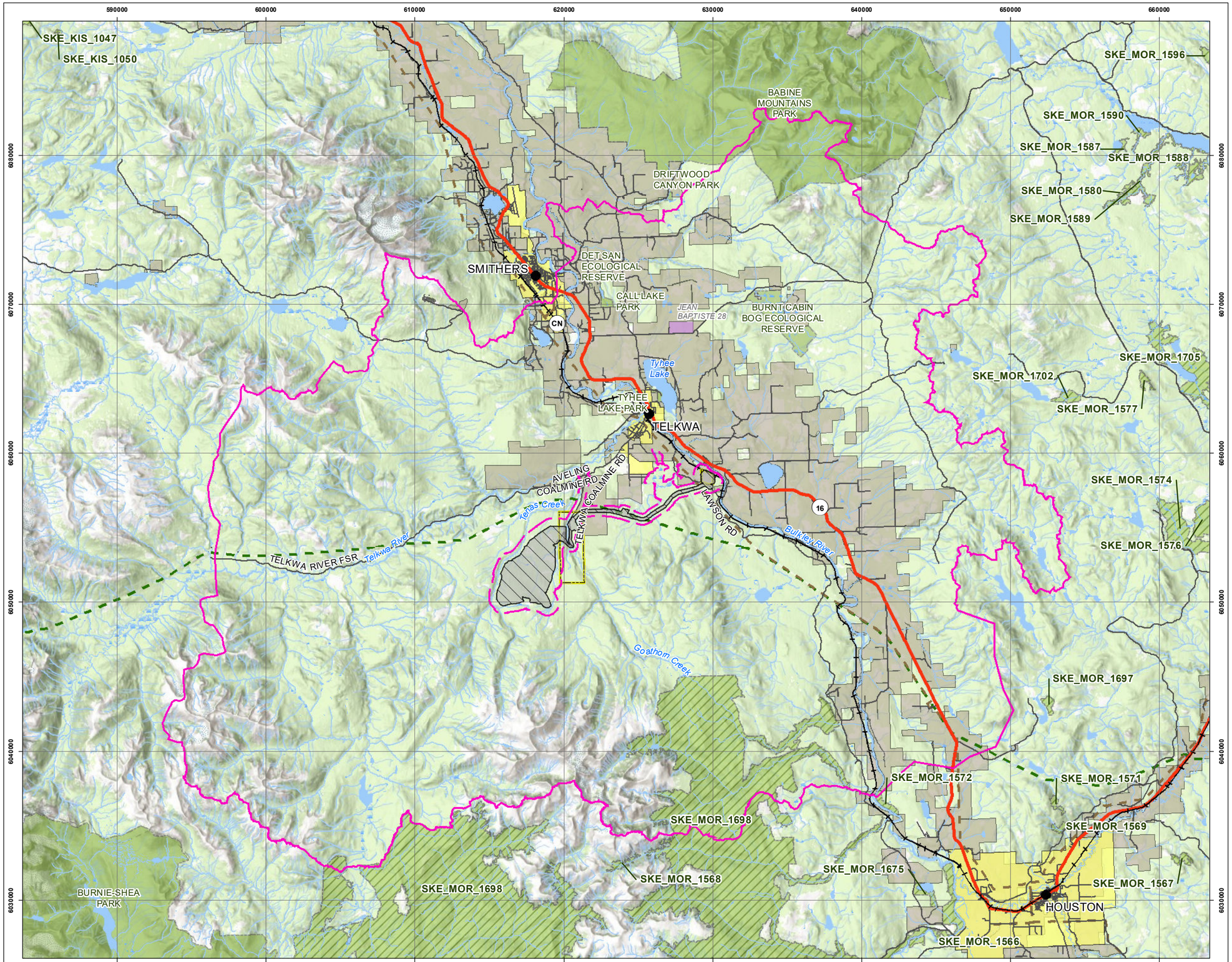
The RSA overlaps with three (3) different provincial parks and no federal parks. Tyhee Lake is the closest Provincial Park to the Project, followed by Call Lake and Babine Mountains (**Figure 4.2-5**). They all offer varying types of recreation and protect different important ecosystems. Ecological reserves within the RSA include Det San Ecological Reserve and Burnt Cabin Bog Ecological Reserve, which were created to protect rare plant species (GovBC 2019c).

The Babine Mountains Trails are the only protected areas located within the RSA and are located just outside of the Babine Mountain Provincial Park boundary on the south and northeast side of the park. There are no protected areas within the LSA (GovBC 2019c).

There is one (1) conservation land complex – the Hubert Hill – Toodienia Reserve, located east of Telkwa on the east side of Highway 16 and within the RSA (GovBC 2019c). The 11-ha conservation land hosts a red listed plant community of shrubs and grasses, and provides rare, high-value spring habitat for deer (GovBC 2021). There are no conservation lands in the LSA. A limited overlap exists with the OGMA within ID SKE_MOR_1698 in the southern portion of the RSA (GovBC 2019c) (**Figure 4.2-5**).

Tenas Project

Parks and Protected Areas in the Regional and Local Study Areas



Legend

- City/Town
- Rail Line
- Highway
- Road
- 138 kV Transmission Line
- 500 kV Transmission Line
- Watercourse
- Wetland
- Waterbody
- Provincial Park, Ecological Reserve, or Protected Area
- Old Growth Management Area (OGMA; Labeled by Legal OGMA Provincial ID)
- First Nation Reserve
- Municipal Area
- General Private Property
- Telkwa Coal Limited Private Property
- Project Area
- Non-Traditional Land Use Local Study Area
- Non-Traditional Land Use Regional Study Area

Notes

1. All mapped features are approximate and should be used for discussion purposes only.
2. This map is not intended to be a "stand-alone" document, but a visual aid of the information contained within the referenced Report. It is intended to be used in conjunction with the scope of services and limitations described therein.

Sources

- Project Area: Allegiance Coal, April 21, 2021
- Provincial Park, Ecological Reserve or Protected Area: TA_PARK_ECORES_PA_SVW. Government of British Columbia
-Old Growth Management Area: RMP_OGMA_LEGAL_CURRENT_SVW. Government of British Columbia
- Basedata: Government of British Columbia
- Basemap: World Topo Base

N

1:250,000

0 2 4 6 8 10

Kilometres

NAD 1983 UTM Zone 9N

Page Size: 11" x 17"

20P0172	Production Date: Jun 07, 2021	Figure 4.2-5

TELKWA COAL LIMITED

EDI ENVIRONMENTAL DYNAMICS INC

Path: I:\PROJECT\20\16\16PO421_Tenas_MineMapping\REPORTING\EIA\.aredt\exFig\1111_ParksandProtectedAreas_20210616.mxd

4.2.4.1 Tyhee Lake Provincial Park

Tyhee Lake Park is a 33 ha recreation and camping destination for local residents and tourists located on the south shore of Tyhee Lake. The entire park has been zoned as Intensive Recreation due to its small size and high usage. The park has the highest attendance of parks located within the RSA. It is a popular swimming and recreational spot for both local residents and tourists, particularly in the summer months (BC Parks 2021a).

The park's management direction statement outlines protection of lakeshore aspen forests and waterfowl habitat, loon nesting sites, and a small remnant (less than 33 ha) of young seral dry cool sub-boreal spruce forest (SBSdk). Tyhee Lake Park lies within the Bulkley Basin Ecosection, which is an underrepresented ecosection within the protected areas system. Tyhee Lake is one (1) of two (2) lakes in BC that are home to giant pygmy whitefish, currently a provincially red-listed species. Wildlife that can be found in this park include common loons, red necked grebes, ruffed grouse, downy woodpecker, red-winged blackbird, squirrels and beavers. Moose can be seen in the winter and black bears occasionally appear in the summer (BC Parks Skeena District 2000c).

4.2.4.2 Call Lake Provincial Park

Call Lake Provincial Park is about 18 km northeast of the Project, approximately 5 km southeast of Smithers and 8 km north of Telkwa. The park is located between the Bulkley Ranges of the Hazelton Mountains to the west, and the Babine Range of the Skeena Mountains to the east. Due to Call Lake Park's proximity to Telkwa and Smithers, and it provides significant space for various forms of recreation and educational opportunities for elementary and high school students on the environment, sustainability, and stewardship (BC Parks 2021a).

The entire park is zoned as Natural Environment, which allows recreational activities while limiting impacts to natural features. Call Lake Park has many bird species, particularly waterfowl near the lake, and includes good nesting duck habitat. The park provides critical habitat for moose and deer in the spring and winter and bears in the spring and summer. Call Lake Park contains high ecological diversity in forested and non-forested wetlands, scrub-steppe grasslands as well as young coniferous and deciduous forests. There is remnant Bulkley Basin ecosystem in the park, SBSdk (dry cool sub-boreal spruce subzone), which is an underrepresented biogeoclimatic zone. There are a few hectares of provincially red-listed Saskatoon-slender wheatgrass scrub-steppe community. The park was previously grazed by cattle (BC Parks Skeena District 2000a).

4.2.4.3 Babine Mountains Provincial Park

Babine Mountains Provincial Park is approximately 31 km northeast of the Project and 4 km east of Smithers. It is found within the Skeena Mountains, specifically within the Babine Mountains. The 31,146 ha park was established in 1984 and extended by an additional 6,400 ha in 1998 (known as the Driftwood Extension). Two (2) traplines and one (1) guide-outfitter operate within the Driftwood Extension (GovBC 2019c).

The Babine Mountains Park is separated into three (3) different zones: Natural Environment zone located in the south, Wilderness Recreation zone to the north (including Driftwood Extension), and a Special Feature zone in the Silver King Basin (BC Parks Skeena District 1992). An important recreation site due to the park's proximity to Smithers and Telkwa, the park offers a range of recreation opportunities based on the season, including hiking and horseback riding (BC Parks 2021a). The Onion, a snowmobile riding area, can be found within the park and has two (2) areas: Four Lakes and Cronin. There are two (2) emergency

shelters in this area, Parker Place Emergency Shelter and Burdettes Emergency Shelter (Smithers Snowmobile Association 2014).

The Driftwood Extension has a separate management plan (BC Parks Skeena District 2000b). The extension protects about 3,000 ha of the upland moist cold sub-boreal spruce (SBSmc2) biogeoclimatic (BGC) zone (GovBC 2019c). This includes the red-listed, shrub-steppe plant community of Saskatoon-slender wheatgrass scrub-steppe, found above Newitt Creek. Protection of these upland ecosystems complements the narrow strip of riparian SBSmc2 forest in Babine River Corridor Park, which increases its overall conservation importance (BC Parks Skeena District 2000b).

4.2.4.4 Ecological Reserves

Ecological reserves are created to preserve representative and special natural ecosystems, plants and animal species, features, and phenomena. Ecological reserves have the highest level of protection to maintain diversity, while still allowing educational and research purposes, provided a permit has been granted. Outdoor recreation is not permitted in ecological reserves unless it is a non-harmful activity like hiking, photography, or wildlife observation (BC Parks 2021b). There are two (2) ecological reserves within the RSA: Det San Ecological Reserve; and Burnt Cabin Bog Ecological Reserve (GovBC 2019c) (**Figure 4.2-5**).

The closest ecological reserve is Det San Ecological Reserve, approximately 19 km outside of the LSA. Det San is six (6) ha and contains a sub-boreal Spruce dry cool (SBSdk) BGC zone on a steep, west facing slope (GovBC 2019). The reserve was originally established to protect a rare example of old growth juniper, as well as unique grassland and savannah ecosystems. Det San provides important habitat for deer in winter and spring, as well as moose, black bears and migratory and resident songbirds (BC Parks 2021b).

Burnt Cabin Bog Ecological Reserve is approximately 23 km northeast of the Project. This ecological reserve is 670 ha and a contains moist cold sub-boreal spruce subzone, Babine variant (SBSmc2) biogeoclimatic zone (GovBC 2019). Burnt Cabin Bog was established to protect a large wetland containing a wide variety of habitats. There is a large black spruce, willow and scrub birch peatland, stream and basin fens which have unique willow, scrub birch and sedge fens, spruce riparian swamps and black spruce-Labrador tea basin bog. There are also a few relic plant species which were established after glaciation, and a rare mesic meadow plant community (Aster-peavine-meadowrue). Burnt Cabin Bog Ecological Reserve provides excellent habitat in the summer and winter for moose, mule deer, and beavers. There is one (1) trapping license within the ecological reserve (BC Parks 2021b).

The southern portion of the RSA overlaps with a 50,542 ha OGMA (Provincial ID of SKE_MOR_1698) and a smaller 7,027 ha OGMA (SKE_MOR_1698) (GovBC 2019c) (**Figure 4.2-5**). The OGMAs do not overlap with the Minesite or the Rail Infrastructure. Approximately 14% of the OGMAs overlap with the RSA.

There are no ecological reserves, protected areas, conservation lands or OGMA within the LSA. However, the LSA is located within Wildlife Habitat Area (WHA) 6-333 for Northern Caribou (GovBC 2019c). A WHA is an area of habitat that is critical to meeting the habitat requirements of an Identified Wildlife species. Within a WHA, activities are managed to minimize any adverse effects to Identified Wildlife (BC MOE 2020). Please refer to **S4.0-C8 Wildlife VC** of the **EAC Application** for more information.

4.2.5 Mining

Coal mining has had a long history in the Bulkley Valley and has been a major economic driver in the region since the early 1900's. Please refer to the **S5.0-C1-Appendix 5.1-A Socio-economic Baseline Report** of

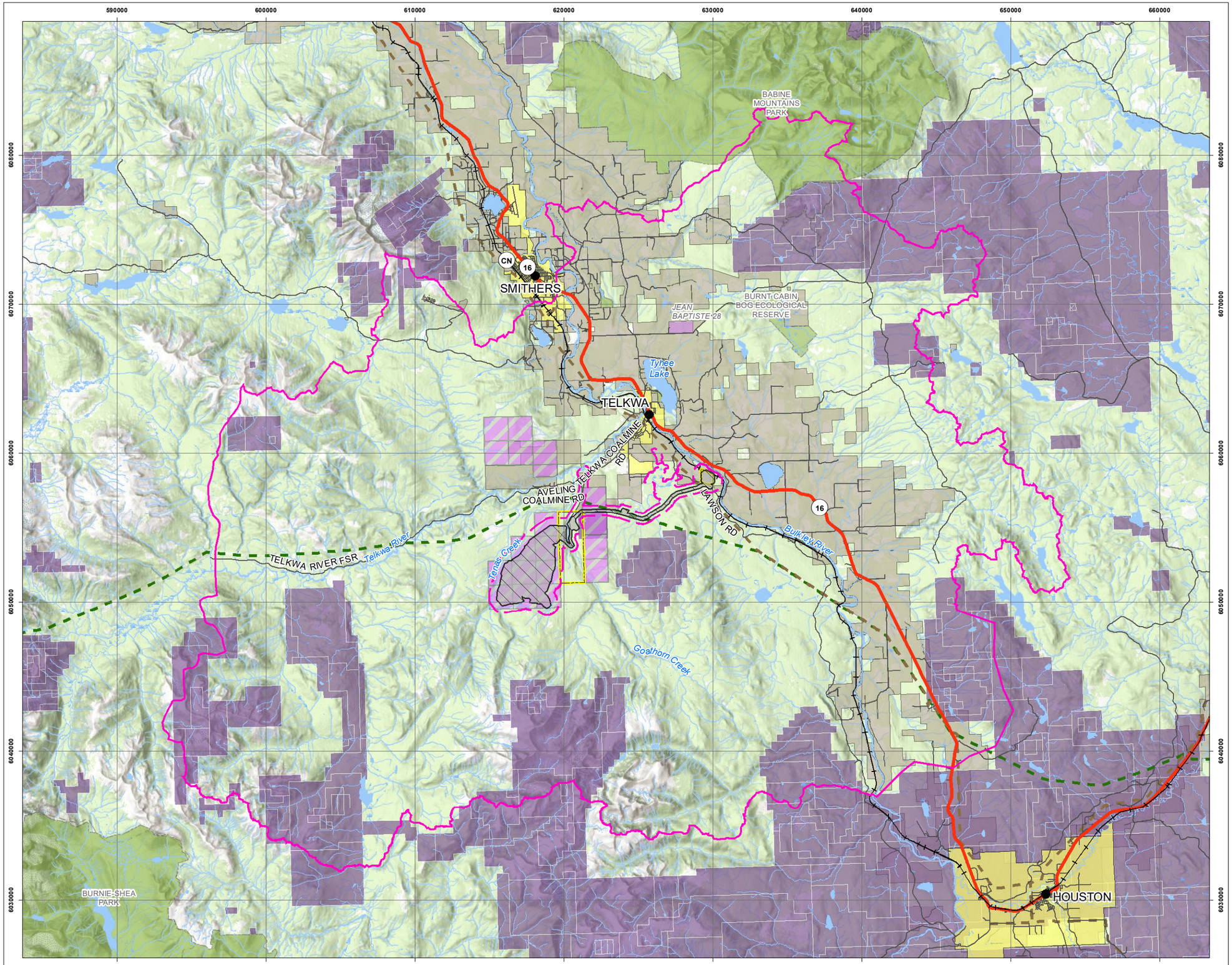
the **EAC Application** for more information of the social and economic importance of mining in the Bulkley Valley.

There currently are no placer claims/leases, mineral leases, or coal leases in the RSA (GovBC 2019c). There are a number of mineral claims in the area owned by private entities, and TCL holds 11 coal licences (**Figure 4.2-6**). Please refer to **Appendix 6.4-A** for detailed mineral claim and coal license information.

Currently, there are no mines built or producing in the RSA and other than the proposed Project, and there is no other mine development in the RSA proceeding with the regulatory application and review process.

Tenas Project

Coal Licenses and Mineral Claims in the Regional and Local Study Areas



Legend

- City/Town
- Rail Line
- Highway
- Road
- 138 kV Transmission Line
- 500 kV Transmission Line
- Watercourse
- Wetland
- Waterbody
- Park or Protected Area
- First Nation Reserve
- Municipal Area
- General Private Property
- Telkwa Coal Limited Private Property
- Project Area
- Non-Traditional Land Use Local Study Area
- Non-Traditional Land Use Regional Study Area
- TelkwaCoalLicenses
- Mineral Claims

Notes

1. All mapped features are approximate and should be used for discussion purposes only.
2. This map is not intended to be a “stand-alone” document, but a visual aid of the information contained within the referenced Report. It is intended to be used in conjunction with the scope of services and limitations described therein.

Sources

- Project Area: Allegiance Coal, April 21, 2021
- Mineral Claims: MTA_ACQUIRED_TENURE_SVW. Government of British Columbia
- Basedata: Government of British Columbia
- Basemap: World Topo Base

N

1:250,000

0 2 4 6 8 10

Kilometres

NAD 1983 UTM Zone 9N

Page Size: 11" x 17"

20P0172	Production Date: Oct 21, 2021	Figure 4.2-6

TELKWA COAL LIMITED

EDI ENVIRONMENTAL DYNAMICS INC.

Path: L:\PROJECT\2018\P0421_Tenas_MineMapping\REPORTING\EIA\Land\JobFig\Ch1_CoalMineral_202110.mxd

4.2.6 Forestry

The Project is located within the Bulkley Valley Timber Supply Area (TSA), which covers approximately 736,000 ha of the eastern drainage of the Skeena River (**Figure 4.2-7**). The Bulkley Valley TSA includes the communities of Smithers, Telkwa, Witset (formerly Moricetown), and Fort Babine. The TSA is administered by BC MFLNRORD. Roughly a third of the TSA, 283,510 ha, are available for timber harvesting, once areas with environmental, economic and operability concerns have been removed. Annual Allowable Cut (AAC) in the Bulkley Valley TSA is 852,000 cubic metre (m^3) (BC MFLNRO 2014 and 2019a).

While there are multiple pending licences to cut in the LSA, there is currently no active logging occurring within the LSA and no pending forest harvest authorizations (GovBC 2019c). Large sections of the LSA have been previously logged (**Figure 4.2-8**). Limits have been put in place by BC MFLNRORD because of proximity to the caribou WHA 6-333. Please refer to **S4.0-C8-Appendix 4.8-A Wildlife Baseline Report** of the **EAC Application** for more information regarding caribou. Fraser Mills Ltd. Owns a forest license which covers sections of the Minesite and surrounding area outside of the LSA. TCL owns an Occupant License to Cut. Wetzin'kwa Community Forest Corporation operates a Community Forest License in the Bulkley Valley, to the north of the Project (**Figure 4.2-8**) (GovBC 2019c).

Forest License A16830 is owned by West Fraser Mills Ltd. (West Fraser) and covers sections of the Minesite and the surrounding area outside the LSA. The forest license was granted December 18, 2000, and expired March 31, 2009 (GovBC 2019c). Pacific Inland Resources (PIR), a division of West Fraser, operates a sawmill in Smithers and is actively logging in other areas of the RSA. PIR produces 300,000 one thousand foot board measure (mfbm) of dimension lumber and 140,000 oven dry tonnes of chips annually (Smithers District Chamber of Commerce 2021). West Fraser has an AAC of 392,313 m^3 within the Bulkley TSA as of April 1, 2019 (BC MFLNRO 2019a). There are three (3) pending forest harvest authorizations in the area. Timber marks TA0395, TA0386 and TA0483 are all owned by the Babine Timber Sales Office. There are also multiple active forest cutblocks within the RSA. There are many pending licenses to cut in the RSA (GovBC 2019c).

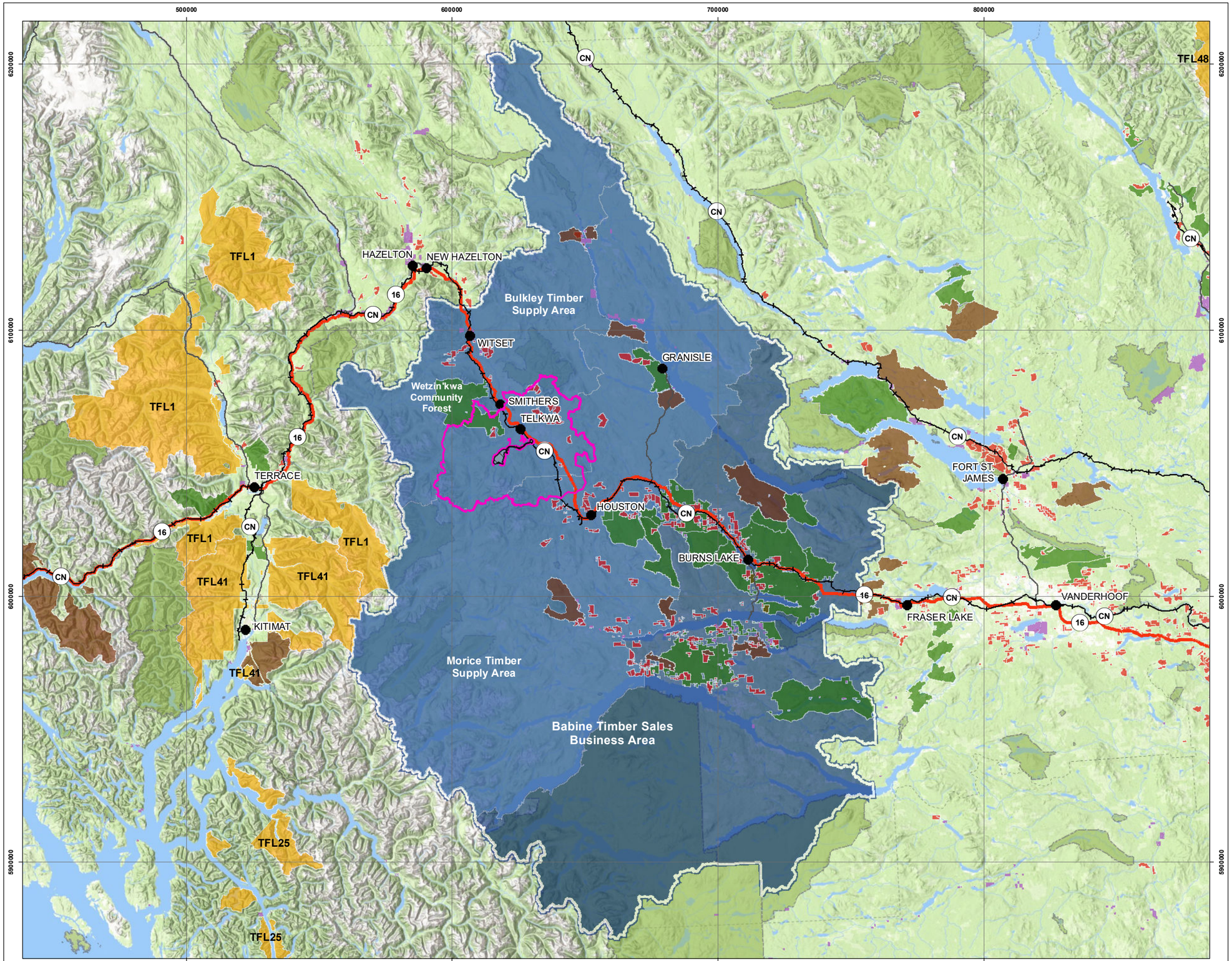
TCL owns an Occupant License to Cut, short form L51262, which expires in March 2022. The Occupant License to Cut extends over the Minesite itself but does not include the Bypass Road or the Rail Infrastructure (GovBC 2019c).

Forestry modelling conducted for the **Vegetation VC** (**S4.0-C7** of the **EAC Application**) estimated that 6,977 ha of forest within the Vegetation RSA[1] will be harvested between 2021 and 2073. This conservative estimate does not account for reforestation or natural forest succession over time, where young and mature forest are expected to transition to mature and Old Growth Forest, respectively, over the course of the Project lifespan (approximately 52 years). In addition, this value overestimates the extent of disturbance, as all future forestry activities are expected to be conducted with consideration of provincial and regional biodiversity and Old Growth Forest management objectives.

[1] The Vegetation RSA is smaller than the Land and Resource Use RSA and is defined as the Project Area with a minimum of a 5 kilometre (km) buffer. The Vegetation RSA is found in **S4.0-C7** of the **EAC Application**, **Figure 3.2-1**.

Tenas Project

Forestry Tenures in the Regional and Local Study Areas



Legend

- City/Town
- Rail Line
- Highway
- Road
- Watercourse
- Waterbody
- Park or Protected Area
- First Nation Reserve
- Project Area
- Non-Traditional Land Use Local Study Area
- Non-Traditional Land Use Regional Study Area
- Timber Sales License Area
- Timber Supply Area
- Treefarm License (labeled by Forest file ID)
- Community Forest License
- First Nation Woodland License
- Woodlot License

Notes

1. All mapped features are approximate and should be used for discussion purposes only.
2. This map is not intended to be a "stand-alone" document, but a visual aid of the information contained within the referenced Report. It is intended to be used in conjunction with the scope of services and limitations described therein.

Sources

- Project Area: Allegiance Coal, April 21, 2021
- Forestry Data: Timber Sales License Area (FADM_BCTS_AREA_SP), Timber Supply Area (FADM_TSA), Treefarm License (FADM_TFL_ALL_SP), Community Forest, Woodlot, and First Nation Woodlan Licenses (FTEN_MANAGED_LICENCE_POLY_SVW). Government of British Columbia
- Basedata: Government of British Columbia
- Basemap: World Topo Base

N

1:1,400,000

0 10 20 30 40 50

Kilometres

NAD 1983 UTM Zone 9N

Page Size: 11" x 17"

20P0172	Production Date: Jun 07, 2021	Figure 4.2-7

TELKWA COAL LIMITED

EDI ENVIRONMENTAL DYNAMICS INC.

Path: L:\PROJECT\2020\18\20P0421_Tenas_Mine\Mapping\MXD\REPORTING\EIA and\Aer\Fig\04.2_ForestryTenures_20210608.mxd

Tenas Project

Forestry cutblocks in the Local Study Area

615000 620000 625000 630000

6060000 6055000 6050000

TELKWA
TELKWA COALMINE RD
AVELING COALMINE RD
TELKWA RIVER FSR
LAWSON RD
16
CN
Bulkley River
Telkwa River
Tenas Creek
Helps Creek
Goathorn Creek
Four Creek

Legend

- Rail Line
- Highway
- Road
- 138 kV Transmission Line
- 500 kV Transmission Line
- Watercourse
- Wetland
- Waterbody
- Municipal Area
- General Private Property
- Telkwa Coal Limited Private Property
- Project Area
- Non-Traditional Land Use Local Study Area
- Active Cutblock
- Retired Cutblock

Notes

1. All mapped features are approximate and should be used for discussion purposes only.
2. This map is not intended to be a "stand-alone" document, but a visual aid of the information contained within the referenced Report. It is intended to be used in conjunction with the scope of services and limitations described therein.

Sources

- Project Area: Allegiance Coal, April 21, 2021
- Cutblocks: FTEN_CUT_BLOCK_POLY_SVW. Government of British Columbia
- Basedata: Government of British Columbia
- Basemap: World Topo Map

N

1:60,000

0 0.5 1 1.5 2 2.5

Kilometres

NAD 1983 UTM Zone 9N

Page Size: 11" x 17"

20P0172	Production Date: Jun 04, 2021	Figure 4.2-8

TELKWA COAL LIMITED

EDI ENVIRONMENTAL DYNAMICS INC.

Path: I:\PROJECT\20\16\MPO421_Tenas_Mine\Mapping\REPORTING\EIA Landbase\Fig060_ForestryCutblocks_LSA_20210616.mxd

4.2.7 Oil and Gas

The Project falls within the South West Oil and Gas Commission Administrative zone. There is a natural gas pipeline approximately 7 km northwest of the Project, owned by Pacific Northern Gas (PNG) Ltd (GovBC 2019c). The existing PNG pipeline right-of-way (ROW) crosses the Project's Bypass Road. The Coastal GasLink pipeline, currently under construction, traverses Electoral Areas A and G. The proposed Pacific Trail Pipelines and the Pacific Northern Gas Looping project, if constructed, would traverse the RSA northwest of the Project. Please refer to **Figure 4.2-9**.

4.2.8 Energy

Transmission line 5L63 runs just south of Telkwa to Terrace. The 600 kilovolt (kV) transmission line is approximately 4 km away from the Project (BC Hydro 2020). The existing 25 kV distribution powerline will be used for the Project. There are no hydro, solar, or wind energy generating stations in the RSA (Energy BC 2020, GovBC 2019c). Please refer to **Figure 4.2-9.**

4.2.9 Rail

The Canadian National Railway (CNR) freight line runs through the RSA, from Prince George to Prince Rupert. There are no rail stations in the LSA. The Village of Hubert, predating the founding of the Town of Smithers, existed in the last century with its own passenger rail station, and disappeared by 1914 as the Town of Smithers grew around a new rail station (Bulkley Valley Museum 2020). Residents of the LSA do not directly rely on CNR rail line for transportation. The Project proposes to build a Rail Loop as a part of the Rail Infrastructure at the request of CNR, near the site of the now defunct Village of Hubert. The processed coal will be loaded into rail cars and transported to the CNR facility in Prince Rupert. Please refer to **Figure 4.2-9.**

Tenas Project

Energy Transmission, Rail Lines, Oil and Gas Activity in the Regional and Local Study Areas

570000 585000 600000 615000 630000 645000 660000

6080000 6065000 6050000 6035000 6020000 6005000

BABINE MOUNTAINS PARK
CN
16
SMITHERS
JEAN BAPTISTE 28
BURNT CABIN BOG ECOLOGICAL RESERVE
Tyhee Lake
TELKWA
AVELING COALMINE RD
TELKWA COALMINE RD
TELKWA RIVER FSR
LAWSON RD
Bulkley River
16
CN
Telkwa River
HOUSTON
BURNIE SHEA PARK
BURNIE RIVER PROTECTED AREA
MORICE LAKE PARK
NADINA MOUNTAIN PARK
FELIX GEORGE 7

Legend

- City/Town
- Rail Line
- Highway
- Road
- 138 kV Transmission Line
- 500 kV Transmission Line
- Watercourse
- Wetland
- Waterbody
- Park or Protected Area
- First Nation Reserve
- Municipal Area
- General Private Property
- Telkwa Coal Limited Private Property
- Project Area
- Non-Traditional Land Use Local Study Area
- Non-Traditional Land Use Regional Study Area
- Coastal GasLink Pipeline Ltd.
- Pacific Northern Gas Ltd.
- Pacific Trail Pipelines Management Inc.
- Oil and Gas Pipeline Tenure

Notes

1. All mapped features are approximate and should be used for discussion purposes only.
2. This map is not intended to be a "stand-alone" document, but a visual aid of the information contained within the referenced Report. It is intended to be used in conjunction with the scope of services and limitations described therein.

Sources

- Project Area: Allegiance Coal, April 21, 2021
- Oil and Gas features: TA_CROWN_TENURES_SVW, Oil and Gas Commission datasets. Government of British Columbia
- Basedata: Government of British Columbia
- Basemap: World Topo Base

N

1:350,000

0 4 8 12 16 20

Kilometres

NAD 1983 UTM Zone 9N

Page Size: 11" x 17"

20P0172	Production Date: Jun 04, 2021	Figure 4.2-9

TELKWA COAL LIMITED

EDI ENVIRONMENTAL DYNAMICS INC.

Path: I:\PROJECT\20\16\MPO421_Tenas_MineMapping\REPORTING\EIA\Landuse\Fig271_EnergyRailOilGas_202106.mxd

4.2.10 Recreation

Recreation occurs year-round in the Bulkley Valley and many of the recreation sites have overlapping and seasonal use. Ten (10) different user groups have been identified, along with ten (10) recreation sites relevant to the RSA. Recreation sites north of the Telkwa River receive more use than those on the south side of the Telkwa River, where the Project is located. Active recreation groups with members that potentially use recreational land in the LSA include:

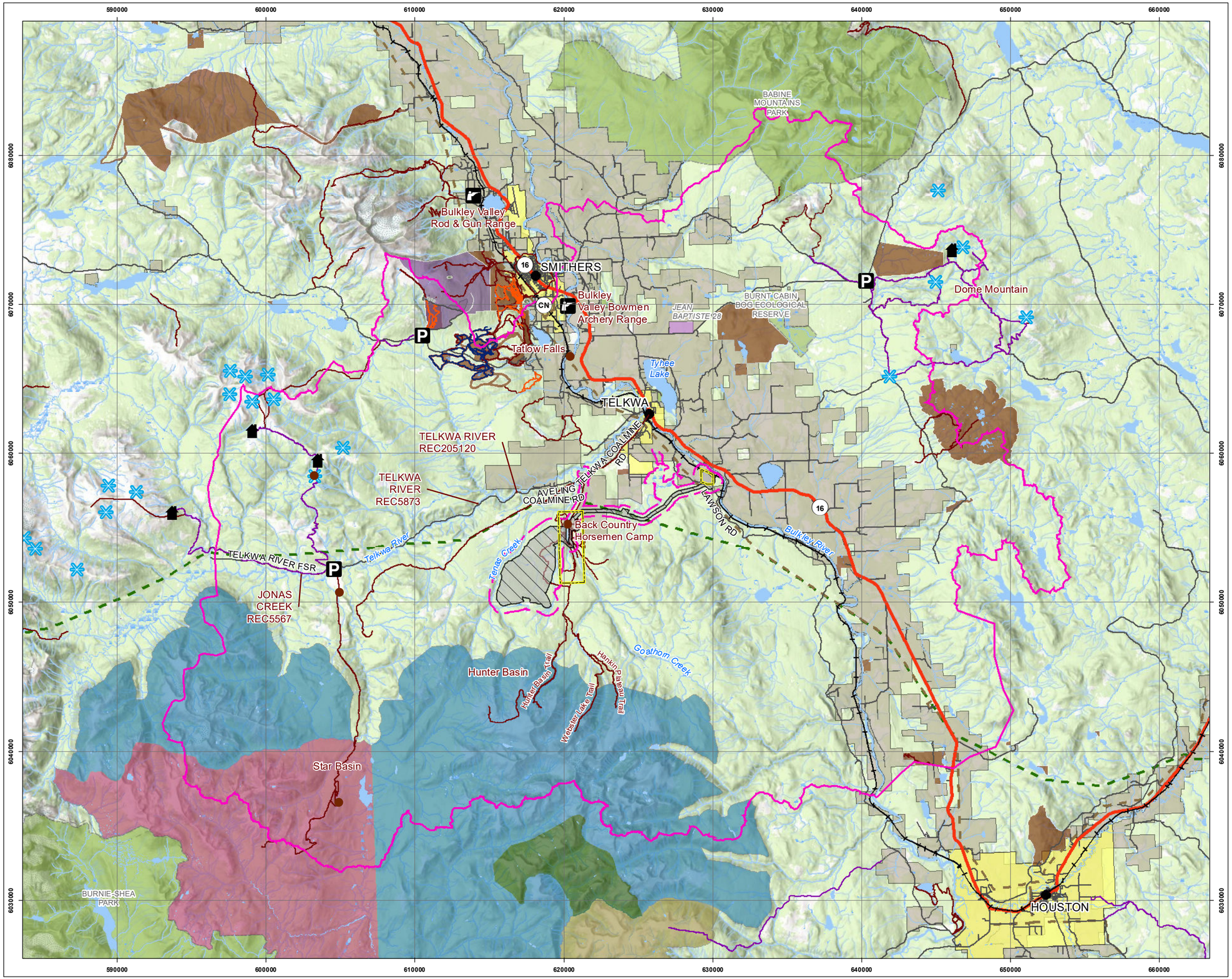
- Bulkley Backcountry Ski Society;
- Back Country Horsemen of BC;
- Bulkley Valley Backpackers Society;
- Bulkley Valley Bowmen;
- Bulkley Valley Kayak and Canoe Club;
- Bulkley Valley Quad Riders;
- Bulkley Valley Rod and Gun Club;
- Intensive Motorized Association;
- Smithers Mountain Bike Association; and
- Smithers Snowmobile Association.

The RDBN completed a Parks and Outdoor Recreation Study in June 2020. Related engagement with residents has provided the impetus for creation and delivery of an outdoor recreation service in the RDBN using a service delivery model in use in six (6) other regional districts in BC. The RDBN proposes to fund development and maintenance of parks, trails, and picnic areas and help fund selected outdoor recreational groups in the RDBN. Revenue for the service would taken from property taxes, parkland or cash-in-lieu of parkland at the time of subdivision, development cost charges, ecological gifts and bequests, gas tax grants, and other senior government grants (RDBN 2020b).

Figure 4.2-10 shows outdoor recreational areas within the RSA.

Tenas Project

Outdoor Recreational Areas in the Regional and Local Study Areas



Legend

- City/Town
- Rail Line
- Highway
- Road
- 138 kV Transmission Line
- 500 kV Transmission Line
- Watercourse
- Wetland
- Waterbody
- Park or Protected Area
- First Nation Reserve
- Municipal Area
- General Private Property
- Telkwa Coal Limited Private Property
- Project Area
- Non-Traditional Land Use Local Study Area
- Non-Traditional Land Use Regional Study Area
- Recreation Site
- Play Area
- Cabin
- Parking
- Recreation Trail
- Smithers Mountain Bike Association Trails
- Bulkley Valley Cross Country Ski Trails
- Snowmobile Trail
- Recreation Area
- Hudson Bay Mountain

Motor Vehicle Closure

- Grizzly Plateau Access Nov 1 - Apr 30 or By Permit
- Meat Cache Access Dec 15 - Apr 15
- Star Basin Access by Wildlife Permit
- No Motor Vehicle Access

Notes

1. All mapped features are approximate and should be used for discussion purposes only.
2. This map is not intended to be a "stand-alone" document, but a visual aid of the information contained within the referenced Report. It is intended to be used in conjunction with the scope of services and limitations described therein.

Sources

- Project Area: Allegiance Coal, April 21, 2021
- Recreation: TA_PARK_ECORES_PA_SVW, REC_TENURE_ALPINE_SKI_AREAS_SP, FTEN_RECREATION_POLY_SVW, FTEN_RECREATION_LINES_SVW. Government of British Columbia
- Basedata: Government of British Columbia
- Basemap: World Topo Base

N

1:250,000

0 2 4 6 8 10

Kilometres

NAD 1983 UTM Zone 9N

Page Size: 11" x 17"

20P0172	Production Date: Jun 18, 2021	Figure 4.2-10

TELKWA COAL LIMITED

EDI ENVIRONMENTAL DYNAMICS INC

Path: I:\PROJECT\20\16\20P0421_Tenas_MineMapping\REPORTING\EIA\.mxd\ArcFig\121_OutdoorRecreation_20210616.mxd

The following provides a brief summary of organized recreational user groups in the RSA and LSA. For more information, please refer to **10.2** of **Appendix 6.4-A.**

4.2.10.1 Bulkley Backcountry Ski Society

The Bulkley Backcountry Ski Society members use a variety of skiing locations throughout the Bulkley Valley, including two locations in the RSA: the Hudson Bay Mountain and the Babine Mountain Provincial Park (Bulkley Backcountry Ski Society 2017).

4.2.10.2 Bulkley Valley Backpackers Society

Bulkley Valley Backpackers Society provides a range of opportunities for self-directed backcountry activities throughout the year. Members work to improve the back-country experience and advocate for the interests of backcountry recreationists. Bulkley Valley Backpackers Society membership consists mostly of people over 50 years old, but the society is actively recruiting new membership and have reported an increase in young people hiking in the area. The Bulkley Valley Backpackers Society perform trail maintenance, mainly consisting of clearing vegetation. Many hiking areas, particularly near Hunter Basin, have been damaged by motorized vehicle use despite an imposed ban (Bulkley Valley Backpackers Society 2021). Interviews with Bulkley Valley Backpackers Society members noted the importance of access to recreation in the area and how the Project has potential to make access easier over Goathorn Creek if public access is granted (**Appendix 6.4-A**).

4.2.10.3 Bulkley Valley Bowmen

The Bulkley Valley Bowmen promote the sport of archery in the Bulkley Valley. The Bulkley Valley Bowmen owns an archery range located behind the Bulkley Valley Exhibition. The range, which can be rented, has a clubhouse with a kitchen, a barbecue pit, sports field and equipment, as well as parking and camping. The Bulkley Valley Bowmen also runs a Junior Olympic Program once a week (Bulkley Valley Bowmen 2020).

4.2.10.4 Bulkley Valley Kayak and Canoe Club

The Bulkley Valley Canoe and Kayak Club is an unofficial group who enjoys various types of paddling in the Bulkley Valley. They organize events through a Public Group on Facebook where locals can share recreation information (Bulkley Valley Kayak and Canoe Club 2020).

4.2.10.5 Bulkley Valley Quad Riders

The Bulkley Valley Quad Riders consists of about 35 people varying in age, with the majority being retired. Members travel from Terrace, Kitimat, and Prince George to use the dry and rocky trails that go up into the alpine (**Appendix 6.4-A**).

4.2.10.6 Bulkley Valley Rod and Gun Club

There are approximately 315 members of the Bulkley Valley Rod and Gun Club, with a wide range of ages. Over the past five (5) years, the club's membership increased from 95 members to 300 members, due to internal changes in the Bulkley Valley Rod and Gun Club. The Bulkley Valley Rod and Gun Club has a certified firearms range that attracts members with handguns to the club (**Appendix 6.4-A**).

4.2.10.7 Intensive Motorized Association

The Intensive Motorized Association was formed in 2016-2017 and has approximately 25 to 30 members. The Intensive Motorized Association is focused on mudbogging, taking two (2) to four (4) wheeled vehicles like Jeeps, dirt bikes, and quads, through challenging, muddy trails. The primary areas used by the Intensive Motorized Association are on the south side of the Telkwa River, accessed by old Forest Service Roads (FSRs), along the BC Hydro Powerline. The trail under the powerline is used as a mudbogging trail. There are two (2) main, unofficial camping areas: where Lawson Road meets the powerline, south of Quick and where the powerline diverges, west of Quick. The Intensive Motorized Association has a working relationship with other recreation users in the area including the Smithers Snowmobile Club and Bulkley Valley Quad Riders, as their recreation areas overlap and require maintenance. The Intensive Motorized Association noted that the Project will shift their recreational use patterns near the Project. However, the Intensive Motorized Association is hoping that the creation of an Intensive Use Area will shift user patterns away from sensitive areas near the Project (**Appendix 6.4-A**).

4.2.10.8 Smithers Mountain Bike Association

Smithers Mountain Bike Association operates within the RSA. The group was formed to promote mountain biking in a safe and responsible manner. Smithers Mountain Bike Association has three (3) main biking areas: Piper Recreation Area, Ptarmigan Recreation Area, and Bluff Recreation Area. Piper Recreation Area and Ptarmigan Recreation Area are located with the RSA; Bluff Recreation Area is not. There are two (2) trails in the Piper Recreation Area, Piper Down and Piper Cross (Smithers Mountain Bike Association 2020).

4.2.10.9 Smithers Snowmobile Association

The Smithers Snowmobile Association has been in operation for over 40 years and has approximately 200 members. Not all snowmobilers are a part of the Smithers Snowmobile Association, as the Smithers Snowmobile Association represents approximately 10-20% of all snowmobile use in the region (**Appendix 6.4-A**). A membership with Smithers Snowmobile Association or a day pass is required for accessing the riding areas and shelters (Smithers Snowmobile Association 2014).

The Smithers Snowmobile Association has a Partnership Agreement with the Province of BC, Recreation Sites and Trails Branch, and BC Parks to maintain seven (7) emergency shelters, and groom approximately 100 km of trails in the immediate area of the shelters (Smithers Snowmobile Association 2014). The Smithers Snowmobile Association has four (4) main riding areas with three (3) located within the RSA: the Dome, the Onion, part of Babine Mountains National Park, and the Microwave/Sinclair. The amount of use these areas receive depends on the weather conditions. These areas are also used by other recreation groups like the Bulkley Valley Backpackers Society, the Back Country Horsemen of BC, and Smithers Snowmobile Association during different times of the year (**Appendix 6.4-A**).

4.2.10.10 Back Country Horsemen of BC

The Back Country Horsemen of BC has multiple chapters across BC. The Smithers chapter was formed to advocate for horseback riders during the creation of the Babine Mountain Provincial Park, as restrictions on horseback riding in the park was considered. The group's demographic is mostly over 50 years old, and they are actively seeking younger membership (**Appendix 6.4-A**).

There are two (2) loops used by the Back Country Horsemen of BC that fall within the LSA: a two (2)-hour loop that follows the east side of Goathorn Creek, and a one (1)-hour loop on the west side of Goathorn Creek. Most trails are used in spring and summer. There is less use of the area since the bridge over

Goathorn Creek was washed out in 2013, resulting in the trails being cleared once a year to remove new growth from surrounding vegetation. Trucks and trailers are required to get the horses into the Telkwa Coalmine Recreation Camp TCRC for use of trails (**Appendix 6.4-A**).

The TCRC is on TCL's private property. The Back Country Horsemen of BC use the TCRC and surrounding trails on a weekly basis, and four (4) to five (5) times a year for larger Back Country Horsemen of BC events from May to mid-October. The TCRC includes an outhouse with a tank, seven (7) RV campsites with one (1) to two (2) corrals per campsite, a few small buildings, and a paddock. Back Country Horsemen of BC members commented that maintaining access to the camp and trails in the area is "very important" to them (**Appendix 6.4-A**).

4.2.11 Agriculture

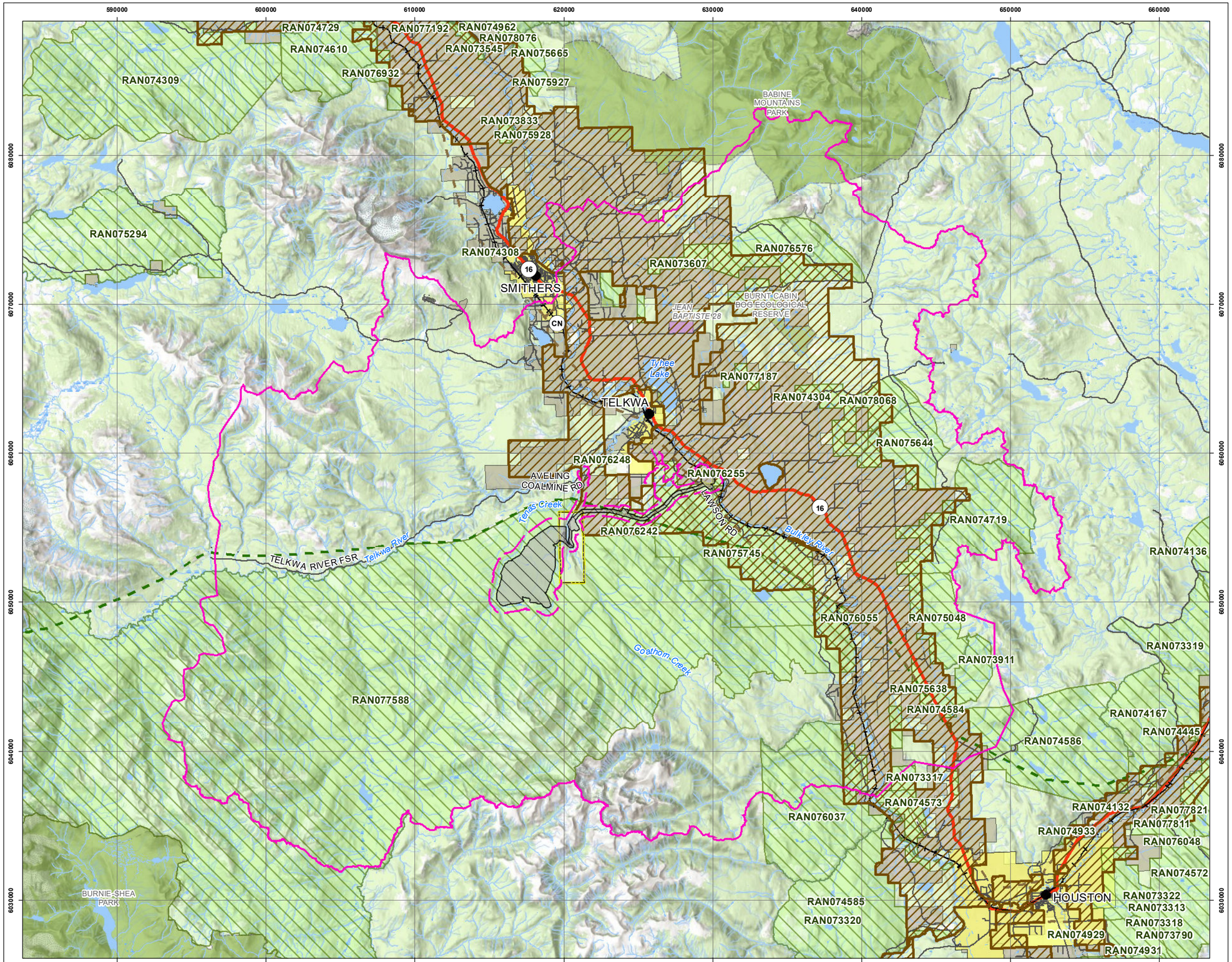
Agriculture continues to play an important role in the Bulkley-Nechako region. An Agricultural Land Use Inventory for Smithers and Telkwa produced for the RDBN in 2013 provides a now dated but useful snapshot of the approximately 29,000 ha classified as being used for agricultural purposes within the LSA. The inventory included 10,600 ha in cultivated fields, the remainder used for ranching and foraging. Part time farming in the RDBN is common in the inventory area as a supplement to other income sources in mining, forestry, and the service industries (RDBN 2013). A 2020 Food and Agriculture Plan updates marketing supports for producers, focusing on ensuring agricultural interests continue to be factored into regional planning and decision-making (RDBN 2020c).

The Minesite is located outside of the Agricultural Land Reserve (ALR), but the Bypass Road and Rail Infrastructure overlap sections of ALR polygon #3547890 for approximately 800 ha (GovBC 2019c) (**Figure 4.2-11**) .

In the RSA, there are 21 active range tenures including four (4) that overlap with the LSA (RAN075745 A, RAN076242 A, RAN077588 A, RAN076255 1) (**Figure 4.2-11**) (GovBC 2019c). Agricultural land in the LSA is primarily used for grazing, and approximately 80 cattle and 22 horses graze in the LSA (**Appendix 6.4-A**). Three (3) range tenures overlap with the Project Area: RAN077588 A overlaps with the Minesite, RAN076242 A overlaps with a portion of the Bypass road, and RAN075745 A overlaps with a portion of the Bypass Road and the Rail Loop.

Tenas Project

Agricultural Land Reserve and Range Tenures in the Regional and Local Study Areas



Legend

- City/Town
- Rail Line
- Highway
- Road
- 138 kV Transmission Line
- 500 kV Transmission Line
- Watercourse
- Wetland
- Waterbody
- Park or Protected Area
- First Nation Reserve
- Municipal Area
- General Private Property
- Telkwa Coal Limited Private Property
- Project Area
- Non-Traditional Land Use Local Study Area
- Non-Traditional Land Use Regional Study Area
- Agricultural Land Reserve
- Range Tenure (Labeled by Forest File ID)

Notes

1. All mapped features are approximate and should be used for discussion purposes only.
2. This map is not intended to be a "stand-alone" document, but a visual aid of the information contained within the referenced Report. It is intended to be used in conjunction with the scope of services and limitations described therein.

Sources

- Project Area: Allegiance Coal, April 21, 2021
- Range Tenure: FTEN_RANGE_POLY_SVW. Government of British Columbia.
- Agricultural Land Reserve: OATS_ALR_POLYS. Government of British Columbia.
- Basedata: Government of British Columbia
- Basemap: World Topo Base

N

1:250,000

0 2 4 6 8 10

Kilometres

NAD 1983 UTM Zone 9N

Page Size: 11" x 17"

20P0172	Production Date: Jun 07, 2021	Figure 4.2-11

TELKWA COAL LIMITED

EDI ENVIRONMENTAL DYNAMICS INC

Path: I:\PROJECT\20\16\MPO421_Tenas_MineMapping\REPORTING\EIA\.mxd\Jan\Fig1101_AgriculturalRange_202106.mxd

4.2.12 Tourism

A report focusing on tourism in northwest BC published by Skeena Wild Conservation Trust in May 2020 acknowledged the limited up-to-date and specific existing conditions data for the northwest BC tourism industry (Skeena Wild 2020). A report on tourism, produced for the RDBN in 2017 provides some data on tourism in the RSA and LSA, using a “value of tourism” model developed by Destination BC. The model is used for tourism planning, development and marketing (RDBN 2017).

In 2015, Smithers and Telkwa saw a combined total of 124,100 tourists. Estimated visitor expenditures in Smithers and Telkwa, including leisure, business and day visitors totaled 28.7 million dollars ($). Municipal taxes from accommodations in RSA in 2016 totaled nearly $163,000 (RDBN 2017).

Tourism in the RSA relies on recreation opportunities in the Bulkley Valley, including hiking, camping, hunting, and fishing and accommodations. Visitors also participate in a number of annual community events including Music in the Park, the Tyhee Lake Triathlon, and the Telkwa Barbeque (Town of Smithers 2013). The Smithers District Chamber of Commerce created a visitors guide listing Bulkley Valley Attractions (Smithers District Chamber of Commerce 2021). The Telkwa Museum is a small, seasonal museum that provides a variety of local information, including the history of Telkwa, the now defunct village of Hubert, period dresses, and agricultural implements The Smithers District Chamber of Commerce created a visitors guide listing Bulkley Valley Attractions (Smithers District Chamber of Commerce 2021). The museum also includes information about the now obsolete Collins Russian American Telegraph line and the Yukon/Dominion Telegraph line that was built through the Bulkley Valley and offers resources to facilitate tourists conducting their own walking tour through historic Telkwa (The Telkwa Museum Society n.d.)

There are three (3) short-term rental accommodations in Telkwa and one (1) RV campground; 17 short-term accommodations in Smithers; and five (5) short-term accommodations in Houston. The community of Witset also has an RV park. Tourism planning and promotion is integrated into a 2014 RDBN Regional Economic Development Plan and an earlier 2010 Tourism Plan. A five (5)-year Strategic Tourism Plan (2017-2021) aims to increase visitation to Smithers by 2022. Tourism is also included in the objectives of the 2014 Smithers OCP. The 2014 Smithers Telkwa Rural OCP recognizes tourism as an increasingly important component of the local economy and encourages support for local bed and breakfasts and agritourism operations (RDBN 2017). A 2020 RDBN Parks and Outdoor Recreation Study also supports tourism objective in the region (RDBN 2020c). Witset First Nation produced its own Tourism Economic Development Plan in 2018. The Witset tourism plan recommends a phased series of investments in further visitor infrastructure and businesses intended to increase local employment and business opportunities (Witset 2019).

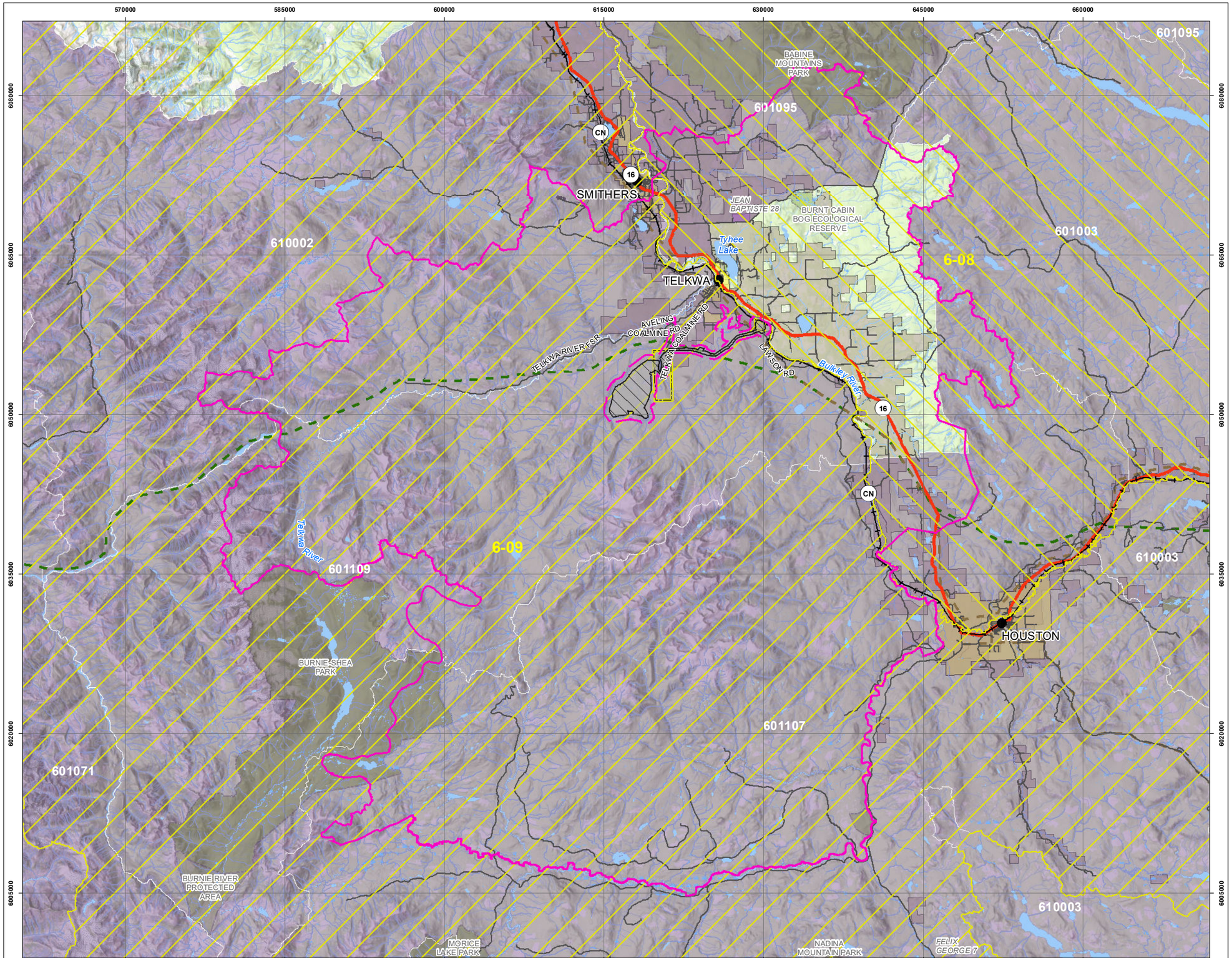
4.2.13 Guide-outfitting, Hunting, and Angling

Hunting and angling provide recreational opportunities for local residents and a supplementary food source. Guide-outfitting also contributes to the local and regional economies. For BC residents, a BC Resident Hunter Number Card is required to purchase Hunting and Species licences. In addition to the hunting licence, species licences are required for most large mammals. Hunters may apply for licences to hunt in special Limited Entry Hunting (LEH) areas, which are allocated by lottery. The limited entry management tool is used to achieve wildlife management objectives without resorting to measures such as shortening seasons or completely closing areas. In BC, either a licensed guide or a resident holding a Permit to Accompany must accompany non-resident hunters (GovBC 2018).

Hunting areas are typically accessed by vehicle, but quads and snowmobiles are also used. **Figure 4.2-12** shows guide-outfitting licenses in relation to the Project.

Tenas Project

Hunting and Guide Outfitting Areas in the Regional and Local Study Areas



Path: L:\PROJECT\$20\16\1P0421_Tenas_Mine\Mapping\REPORTING\EIA Land Use\Fig\141_HuntingGuideOutfitting_202106.mxd

Legend

- City/Town
- Rail Line
- Highway
- Road
- 138 kV Transmission Line
- 500 kV Transmission Line
- Watercourse
- Wetland
- Waterbody
- Park or Protected Area
- First Nation Reserve
- Municipal Area
- General Private Property
- Telkwa Coal Limited Private Property
- Project Area
- Non-Traditional Land Use Local Study Area
- Non-Traditional Land Use Regional Study Area
- Guide Outfitter Areas (Labeled by Guiding Certificate Number)

Management Unit

- 6-08
- 6-09

Notes

1. All mapped features are approximate and should be used for discussion purposes only.
2. This map is not intended to be a "stand-alone" document, but a visual aid of the information contained within the referenced Report. It is intended to be used in conjunction with the scope of services and limitations described therein.

Sources

- Project Area: Allegiance Coal, April 21, 2021
- Guide Outfitting Areas: WAA_GUIDE_OUTFITTER_AREA_SVW. Government of British Columbia
- Hunting Management Zone: WAA_LTD_HNT_ZONE_CURR_YEAR_SVW, Government of British Columbia
- Basedata: Government of British Columbia
- Basemap: World Topo Base

N

1:350,000

0 4 8 12 16 20

Kilometres

NAD 1983 UTM Zone 9N

Page Size: 11" x 17"

20P0172	Production Date: Jun 07, 2021	Figure 4.2-12

TELKWA COAL LIMITED

EDI ENVIRONMENTAL DYNAMICS INC.

The province is divided into nine (9) administrative regions, having a total of 225 management units (MU). For consistency and efficient resource management, MU used for game management and angling regions share the same boundaries. The Project is located within Region 6 – Skeena, which includes 30 MU. The RSA overlaps with MU 6-8 and 6-9 whereas the LSA only overlaps with MU 6-9 (GovBC 2019c) (**Figure 4.2-12**).

Most hunting in MU 6-8 and 6-9 takes place south of the Minesite, within provincially-regulated seasons, with BC resident hunters recording a higher average kill of moose, black bear, mule and white-tailed deer, mountain goats, grizzly bear and wolves than non-residents. From 2007 to 2017, moose was the most successfully hunted species, followed by black bears and mule deer. The trend of species hunted per year has stayed relatively consistent from 2007 to 2017, with minor fluctuations throughout the decade. The **Wildlife Baseline Report** in **S4.0-C8-Appendix 4.8-A** of the **EAC Application** provides additional information on wildlife within the LSA and RSA.

Members of the Bulkley Valley Rod and Gun Club reported that local hunting activities frequently leverage forestry-related infrastructure, such as FSRs to access remote areas. Bulkley Valley Rod and Gun Club members noted the overall number of hunters and available licenses in BC is decreasing, while the number of female hunters and young hunters is increasing. Hunters are known to travel from areas like Prince Rupert for mule deer, spring bear and mountain goats. The number of bow hunters has increased, mostly due to the length of the bow hunting season (**Appendix 6.4-A**).

Under the 2016-2018 Region 6 hunting and trapping regulations, the open moose hunting season lasted (7) seven days, attracting substantial non-resident hunter participation (GovBC 2016a). Under the 2018-2020 Region 6 regulations, the open season for moose has been reduced to three (3) days, limiting participation by non-residents (GovBC 2018; **Appendix 6.4-A**).

The WR-RSA overlaps five (5) guide-outfitting licenses (**Table 4.2-4** and **Figure 4.2-12**). **Appendix 6.4-A** provides information on licenses and hunting seasons for different species.

Table 4.2-4: Guide-outfitters in the Wide-ranging Wildlife Regional Study Area (WR-RSA)

Certificate Holder Full Name	Guiding Certificate #	Status	Area of Guide Certificate (km^2)
Skeena Mountain Outfitters Ltd.	601109	Active	1,914
Nadina Guide Outfitters Ltd.	601107	Active	3,615
Stewart Berg	601003	Active	7,853
Jack Hooper	601095	Active	7,388
Telkwa River Outfitters Inc.	610002	Active	2,168

Source: *Government of British Columbia (GovBC) 2019c*
Notes: *#=number; km^2=square kilometres*

Angling also provides a food source and recreational opportunity in the Bulkley Valley (**Appendix 6.4-A**). A range of options are available from single-day to annual licenses. Non-resident licenses are charged a higher fee for fishing licenses. BC classifies specially designated trout streams in order to maintain the world class fishing opportunities provided by these waters. In addition to the basic angling licence, a Classified Waters Licence is required to fish on a stream during the classified period. The Bulkley River is considered Class 1 water from September 1 to October 31. For non-residents, the Classified Waters Licence is sold on a per diem basis and is date and water-specific. Although anglers may purchase as many Classified Waters Licences as they wish, each licence may not exceed eight (8) consecutive days (BC MFLNRO 2019b).

The two (2) main rivers in the RSA are the Bulkley River and the Telkwa River (**Figure 4.2-13**). The Bulkley River separates MU 6-9 and 6-8 (GovBC 2019c). Please refer to **Appendix 6.4-A**-Appendix G-Table G.1 of for a list of the Region 6 Daily Quotas.

The Telkwa River is fed by smaller mountain rivers and creeks, like Goathorn Creek and Tenas Creek. The Telkwa River feeds into the Bulkley River. The Bulkley River travels north and joins the Skeena River at Hazelton and is the largest tributary of the Skeena River. The Bulkley River is a well-known, highly utilized fishing location for residents and non-residents, available from several access points. There are two (2) boat launches close to Smithers: one (1) at Chicken Creek (outside of the RSA) and the other at Lunan Road (Oscar's 2021) (**Figure 4.2-13**). Additional Bulkley River boat launches in the RSA are located in Telkwa (access to both rivers), one (1) along Quick Road that is designated for pontoons and rafts only, and another at Walcott (Oscar's 2021) (**Figure 4.2-13**). Fishing in the Bulkley River can be conducted on the shore. Recreational fishermen are active from mid-June to the end of December depending on the thickness of the ice. Fishing lodges in the region primarily fish on the Bulkley River for steelhead trout (**Appendix 6.4-A**). The Bulkley River Steelhead fishery generally occurs during September and October and is preceded by Chinook fishing in July and early August, and pink salmon fishing in August (BC MFLNRO 2019b).

A Bulkley River Angling Management Plan was approved by the BC MFLNRO in 2013. As a result, the Telkwa River can only be fished by Canadian residents from September 1 to October 31 and does not allow guiding days (GovBC 2013). The Telkwa River is primarily used by local anglers as it is unpredictable, volatile, and has limited access points. The Telkwa River is recognized for its wild coho and steelhead runs, as well as its bull trout fishery. The 24 km extent of the Telkwa River and is considered an enhanced spawning habitat for Coho salmon. The Telkwa River is also a favoured spot for resident anglers and by families looking for a convenient spot to fish (**Appendix 6.4-A**).

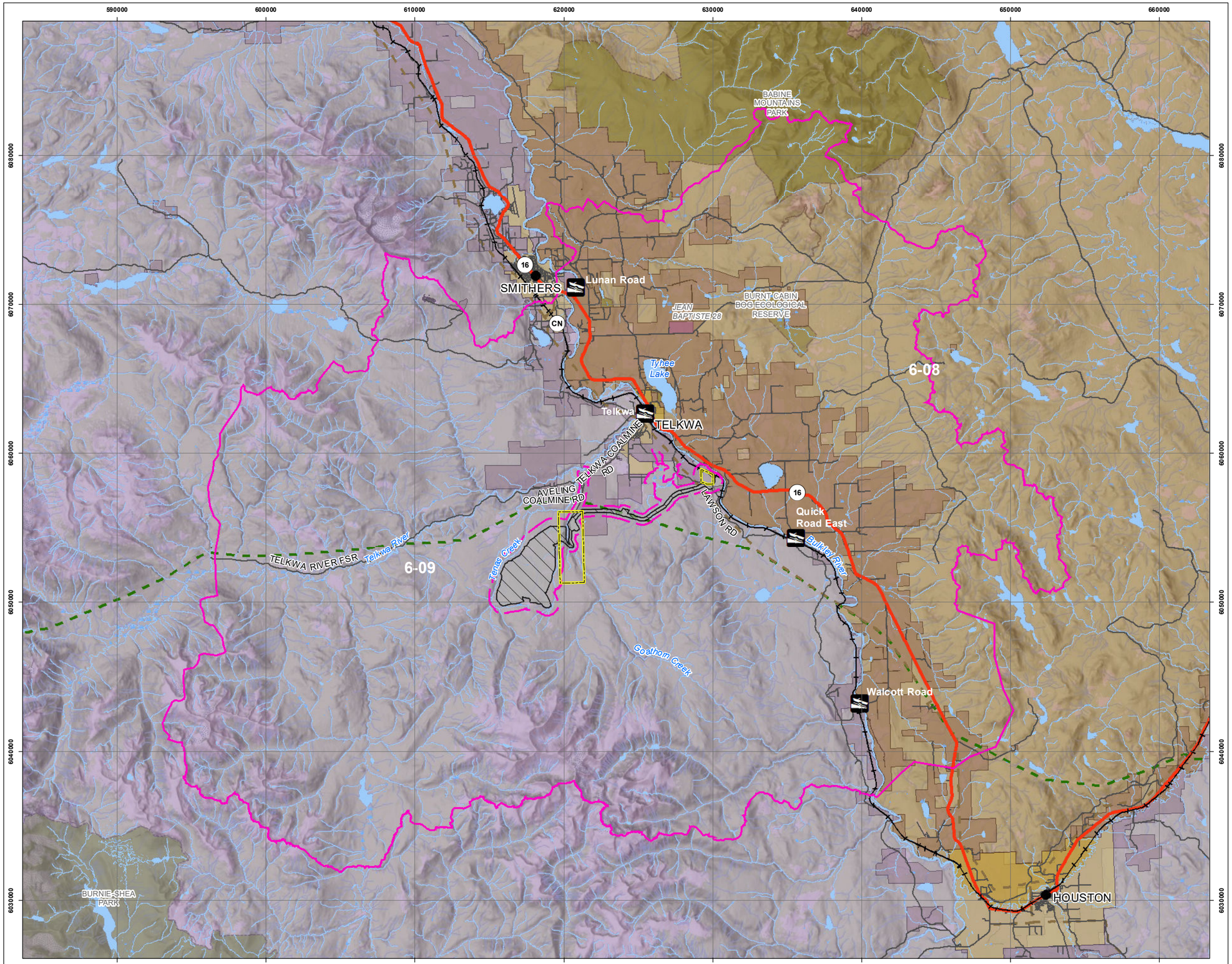
During rainy and high-run-off conditions, the Telkwa River will pick up large amounts of sediment that changes the river's colour to a muddy brown due to high turbidity levels. In these events, fishermen will go north of where the Telkwa River and Bulkley River converge to avoid turbid areas (**Appendix 6.4-A**).

The main species of fish caught in the area are salmon and steelhead trout, particularly on the Bulkley River. Chinook, coho and steelhead have historically had strong runs in the Bulkley River, but have declined in recent years. Spring salmon angling has been restricted in the Telkwa River due to low populations returning to spawn. Alternatively, pink salmon are able to return to the Bulkley River, but also cannot be fished from the Telkwa River. They often return in large numbers and are easy to catch but are less desired as they are considered lower quality. Coho salmon are a common species to catch in the Telkwa River (**Appendix 6.4-A**).

Steelhead trout are a popular species for non-residents to fish. Fishermen must catch and release all steelhead trout found in the Bulkley or Telkwa Rivers. The Bulkley River is excellent for fly fishing because of its accessibility and the river's speed and depth for presenting a fly to a steelhead. The largest run of steelhead also occurs on the Bulkley River (**Appendix 6.4-A**). Refer to **S4.0-C1-Appendix 4.1-C Telkwa Project 2017 to 2019 Baseline Report** of the **EAC Application** for more information with respect to angling in the Bulkley and Telkwa rivers.

Tenas Project

Angling in the Regional and Local Study Areas



Legend

- Boat Launch
- City/Town
- Rail Line
- Highway
- Road
- 138 kV Transmission Line
- 500 kV Transmission Line
- Watercourse
- Wetland
- Waterbody
- Park or Protected Area
- First Nation Reserve
- Municipal Area
- General Private Property
- Telkwa Coal Limited Private Property
- Project Area
- Non-Traditional Land Use Local Study Area
- Non-Traditional Land Use Regional Study Area

Management Unit

- 6-08
- 6-09

Notes

1. All mapped features are approximate and should be used for discussion purposes only.
2. This map is not intended to be a "stand-alone" document, but a visual aid of the information contained within the referenced Report. It is intended to be used in conjunction with the scope of services and limitations described therein.

Sources

- Project Area: Allegiance Coal, April 21, 2021
- Management Unit: WAA_LTD_HNT_ZONE_CURR_YEAR_SVW, Government of British Columbia
- Basedata: Government of British Columbia
- Basemap: World Topo Base

N

1:250,000

0 2 4 6 8 10

Kilometres

NAD 1983 UTM Zone 9N

Page Size: 11" x 17"

20P0172	Production Date: Jun 10, 2021	Figure 4.2-13

TELKWA COAL LIMITED

EDI ENVIRONMENTAL DYNAMICS INC.

Path: L:\PROJECT\20\16\MPO421_Tenas_Mine\Mapping\REPORTING\EIA\Landuse\Fig\161_Angling_202106.mxd

4.2.14 Trapping

The Project is located within a registered trapline. Fourteen (14) traplines are found within the RSA, two (2) of which are within the LSA (GovBC 2019c) (**Figure 4.2-14**).**Table 4.2-4** lists the traplines in the RSA.

Table 4.2-4 Traplines Within the Regional Study Area (RSA)

Trapline Area Identifier	Area of Trapline (km^2)
TR0609T025	419
TR0609T028	816
TR0608T017	382
TR0609T031	327
TR0608T018	118
TR0608T011	232
TR0608T050	36
TR0608T014	199
TR0609T015	253
TR0608T013	112
TR0608T010	65
TR0609T016	171
TR0609T026	255
TR0608T047	125

Source: *Government of British Columbia (GovBC) 2019c*
Note: *km^2=square kilometre*

The LSA overlaps with traplines TR0609T026 and TR0608T014 (GovBC 2019c). There is no record of active trapping in TR0608T014, per BC MFLNRORD data dating back to 1985. TR0609T026 was last active in 2001, with most activity concentrated during the early 1990s (**Appendix 6.4-A**). Prior to that period, there are 20 instances where the trapline holder submitted species and harvest numbers to the government.

Tenas Project

Traplines in the Regional and Local Study Areas

Legend

- City/Town
- Rail Line
- Highway
- Road
- 138 kV Transmission Line
- 500 kV Transmission Line
- Watercourse
- Wetland
- Waterbody
- Park or Protected Area
- First Nation Reserve
- Municipal Area
- General Private Property
- Telkwa Coal Limited Private Property
- Project Area
- Non-Traditional Land Use Local Study Area
- Non-Traditional Land Use Regional Study Area
- Trapline Areas (Labeled by Trapline Area Identifier)

Notes

1. All mapped features are approximate and should be used for discussion purposes only.
2. This map is not intended to be a "stand-alone" document, but a visual aid of the information contained within the referenced Report. It is intended to be used in conjunction with the scope of services and limitations described therein.

Sources

- Project Area: Allegiance Coal, April 21, 2021
- Traplines: WAA_TRAPLINE_AREAS_SP. Government of British Columbia
- Basedata: Government of British Columbia
- Basemap: World Topo Base

N

1:350,000

0 4 8 12 16 20

Kilometres

NAD 1983 UTM Zone 9N

Page Size: 11" x 17"

20P0172	Production Date: Jun 07, 2021	Figure 4.2-14

TELKWA COAL LIMITED

EDI ENVIRONMENTAL DYNAMICS INC.

Path: I:\PROJECT\20\16\MPO421_Tenas_MineMapping\REPORTING\EIA\.aredt\arfig\151_Traplines_20210616.mxd

5. ASSESSMENT OF PROJECT-RELATED EFFECTS

Assessment of Project-related effects involves the following:

- investigation of potential Project-related interactions with the Land and Resource Use VC;
- identification and assessment of potential Project-related effects on the Land and Resource Use VC;
- identification of mitigation measures; and
- identification and characterisation of residual effects, including Significance determination.

5.1 Potential Project-related Interactions with the Land and Resource Use Valued Component (VC)

The Project may have positive or adverse effects on commercial and recreational use of land and resources within the RSA and LSA. This assessment focuses on those interactions with the potential to adversely affect the Land and Resource Use VC. When no interaction between the Project activity and the Land and Resource VC was anticipated, the interaction is not considered further in the assessment. Each potential interaction is rated using the terms provided in **Table 5.1-1** and described in **Table 5.1-2.**

Table 5.1-1: Potential for an Interaction between the Land and Resource Use Valued Component (VC) and the Tenas Project

Term	Definition
No Interaction	Tenas Project (Project) activity will not interact with the Land and Resource Use Valued Component (VC), no adverse effect is expected; no further consideration is warranted.
Interaction	Interaction between the Project activity and the Land and Resource Use VC may have a substantive influence on the short- or long-term integrity of the VC (i.e., measurable or detectable using the identified indicator). The potential effect(s) of the interaction is considered further in the effects assessment.

Project activity interactions for the Land and Resource Use VC identified in **Table 5.1-2** are typically related to a change in access or a change in land base. These potential interactions with Project activities include both tenured and non-tenured lands. Tenures may overlap and individuals or commercial entities may have non-exclusive rights to land and resources where tenures are not required. Project activities that generate an interaction in one (1) phase, but do not in subsequent phases are not carried forward for further assessment.

As an example, after clearing and grubbing and construction of the Minesite Infrastructure is completed and assessed with respect to the Land and Resource Use VC; operation and maintenance of Minesite infrastructure during the Operation Phase is not carried forward for assessment since an additional change in access or usage of land base will not occur. However, construction of the Surface Water Management Infrastructure involving development and maintenance of channels and ponds during Construction Phase may also affect access and change land base use during the Operation Phase. Therefore, Surface Water Management Infrastructure interactions are assessed during both the Construction, and Operation phases of the Project.

Table 5.1-2: Interactions between the Land and Resource Use Subcomponents and the Tenas Project

Project Activities	Land and Resource Use Subcomponents	
	Commercial	Public Recreation
Construction		
Transportation of equipment, materials, and personnel	X	X
Site clearing (surveying, clearing, grubbing, soil salvaging)	X	X
Construction of Surface Water Management Infrastructure, including channels and ponds (sedimentation, control, management, storage)	X	X
Construction of Bypass Road and quarries from the Minesite to the Rail Infrastructure	X	X
Improvements to existing private road and Forest Service Roads	X	X
Construction of haul roads and service roads within the Minesite	X	X
Construction of the permanent Goathorn Bridge Crossing over Goathorn Creek	X	X
Construction of the Coal Processing Plant	X	X
Construction of fuel and lubricant storage facilities and distribution network		
Construction of administration buildings (first aid, maintenance, mine dry, warehouse, laboratory, parking, and vehicle wash facilities)		
Construction of a 25 kilovolt (kV) powerline and a 600 volt (V) substation adjacent to the Coal Processing Plant	X	X
Construction of Rail Infrastructure including Rail Loop and Loadout connecting to the existing main Canadian National Railway line	X	X
Installation of water supply wells, storage, and distribution system	X	X
Construction of the water discharge infrastructure		
Construction of storage piles for overburden, rock separated from coal in Coal Processing Plant, and stockpiles for topsoil and vegetation management	X	X
Construction of material handling systems for Minesite, including run-of-mine coal, processed coal, process rock conveyors, and stockpiles	X	X
Construction of solid waste management systems including recycling and composting facilities		
Construction of Explosives Magazine (storage building)	X	X

Project Activities	Land and Resource Use Subcomponents	
	Commercial	Public Recreation
Employment and labour		
Operation		
Mining the open pit (soil salvaging, drilling and blasting, excavation of material, dewatering, loading, hauling, unloading)		
Operation of Surface Water Management Infrastructure including channels and ponds (sedimentation, control, management, storage)	X	X
Maintain and use Bypass Road and quarries from the Minesite to the Rail Infrastructure	X	X
Maintain improved private and Forest Service Roads	X	X
Maintain haul roads within the Minesite, including service roads	X	X
Maintain permanent bridge over Goathorn Creek	X	X
Operate Coal Processing Plant		
Maintain fuel and lubricant storage facilities		
Maintain administration buildings (first aid, maintenance, mine dry, warehouse, laboratory, and vehicle wash facilities)		
Maintain 25 kV powerline and a 600 V substation adjacent to the Coal Processing Plant		
Transportation of equipment, materials, and personnel	X	X
Maintain and use Rail Infrastructure including Rail Loop and Loadout connecting to the existing main Canadian National Railway line		
Operate water supply wells, storage, and distribution system		
Operate the spillway		
Maintain storage piles for overburden, rock separated from coal in Coal Processing Plant, and stockpiles for topsoil and vegetation management	X	X
Operate material handling systems for Minesite, including run-of-mine coal, processed coal, process rock conveyors, and stockpiles	X	X
Operate solid waste management systems including recycling and composting facilities		
Maintain Explosives Magazine (storage building)		

Project Activities	Land and Resource Use Subcomponents	
	Commercial	Public Recreation
Progressive reclamation	X	X
Employment and labour		
Decommissioning and Reclamation		
Dismantle and remove mining equipment and facilities (including powerline, Rail Infrastructure)	X	X
Transportation of equipment, materials, and personnel		
Reclamation and closure activities at Minesite	X	X
Reclamation and closure of Bypass Road and haul roads, including borrow pits	X	X
Reclamation and closure of permanent bridge over Goathorn Creek	X	X
Reclamation and closure of powerlines	X	X
Reclamation and closure of Rail Infrastructure	X	X
Implement post-mining systems and monitoring	X	X
Employment and labour		
Post-closure		
Maintain post-mining systems and ongoing monitoring	X	X
Transportation of equipment, materials, and personnel		
Employment and labour		

Notes:
Interaction (X): Interaction between the Project activity and the VC may have a substantive influence on the short- or long-term integrity of the VC (i.e., measurable or detectable using the identified indicator). The potential effect(s) of the interaction is considered further in the effects assessment.
No interaction: (blank cell): Project activity will not interact with the VC; no adverse effect is expected; no further consideration is warranted.

5.2 Potential Project-related Effects

This subsection considers potential adverse Project-related effects on the Land and Resource Use VC as a result of Project activities identified in **Table 5.1-1**. For the two (2) subcomponents, Commercial Land and Resource Use and Public Recreation Use, the assessment considers effects on:

- tenured land and resource use, including commercial use; and
- non-tenured land and resource use, including public recreation use.

Please refer to **S11.0 Wet'suwet'en Rights and Interests Assessment** of the **EAC Application** for assessment of current use of land and resources for traditional purposes.

Indicators of potential effects may include:

- change in access to land and resource use areas for commercial and public recreation use;
- change in sensory disturbance to existing land and resource uses for commercial and public recreation use;
- change in quantity and quality of the resources relied upon for commercial and public recreation use; and
- interference with recreational infrastructure.

The following subsections assess potential effects on the Land and Resource Use VC by each subcomponent, indicator, and Project phase identified in **3.2**. To facilitate the assessment, when indicators of potential Project-related changes and effects are identified in the Construction Phase that continue throughout all active Project phases, discussion of these changes and effects are presented in blended sections of All Active Phases (Construction, Operation, and Decommissioning and Reclamation phases). As noted below, there is also potential for overlap between Project-related effects that may be attributed to commercial land and resource use and public recreation use given the overlap in related activities. For example, commercial land and resource use includes guide-outfitting and tourism activities that may include guided hunting, angling, hiking and camping. Since these activities can also be undertaken as public recreation uses, assessment of effects may have a natural similarity.

5.2.1 Commercial Land and Resource Use Subcomponent

The Project has the potential to interact with tenured land and resources used for commercial purposes, including: mining, mining exploration, oil and gas, forestry, trapping, agriculture (including grazing), guide-outfitting, and other tenured Crown land uses. The following subsections describe the nature of potential effects on the Land and Resource Use VC with respect to the Commercial Land and Resource Use subcomponent. Mitigation measures for each potential effect are described in **5.3 Mitigation Measures**.

5.2.1.1 Change in Access

The Project has the potential to change the access available to areas in the LSA used by commercial land and resource users. For commercial land and resource users exclusive access to a parcel of land or corridor is achieved through land tenure. However, licenses for commercial purposes may overlap or grant non-exclusive rights to the land, where land tenures are not required. A "No Unauthorized Entry, Hunting, and Fishing" boundary will be established at the outset of the Construction Phase around the Project Area to prevent unauthorized access for the life of the Project following the *Mines Act*, RSBC 1996, c 293 (GovBC 1996f), and *Land Act,* RSBC 1996, c 245 (GovBC 1996c) requirements.

5.2.1.1.1 Construction Phase

Site clearing, including surveying, clearing, grubbing and soil salvaging is expected to reduce access in the LSA for commercial users (guide-outfitters, trappers, agriculture, forestry). Once site preparation is completed, access to the Minesite will be removed from other potential commercial uses during all Active Phases of the Project (Construction, Operation, and Decommissioning and Reclamation). A similar change in access is expected during construction of other Project infrastructure, including:

- haul roads and service roads within the Minesite;
- 25 kV powerline and a 600 kV substation;
- storage piles for overburden, rock separated from coal in the Coal Processing Plant (CPP), and stockpiles for topsoil and vegetation management;
- water supply wells, storage, and distribution system installation; and
- material handling systems for the Minesite, including run-of-mine (ROM) coal, processed coal, process rock conveyors, and stockpiles.

Overall, 18 km of road will be required to connect the Minesite to the proposed Rail Infrastructure and Lawson Road (Tenas Access Corridor [TAC]). Construction of the Bypass Road is expected to change access for agricultural users crossing the Bypass Road.

Access will be controlled via three gates to be installed along the TAC. Access will be maintained along the existing Telkwa Coalmine Road towards the south of the TAC on the eastern side of the Project Area. A gate will be installed on the TAC to prevent access onto the TAC from either the Telkwa Coalmine Road or from the private driveway that connects to the property designated as PID014-958-881. The TAC gates will only be able to be opened by Minesite employees using TCL supplied remote controls while the public access gates will be able to be opened by the any member of the public using push button activation at these gates to allow access beyond the TAC to the south or to use the private driveway.

A permanent bridge over Goathorn Creek will be constructed with a span of 30 metres (m) and width of 5 m to accommodate trucks travelling to and from the Minesite. A previous bridge built over Goathorn Creek was washed out in 2013, limiting access to areas potentially used for commercial purposes (i.e., guide-outfitting, tourism). The new bridge will change how areas on the west side of Goathorn Creek are accessed and potentially improve access for commercial users (i.e., agricultural, tourism, guide-outfitting, trapping) to surroundings areas. Re-opening of access across Goathorn Creek provides potential commercial use opportunities (guide-outfitting, trapping, forestry) and improved access to areas such as Hunter Basin, Webster Lake and the Hankin Plateau Trailhead.

Transportation of equipment, materials and personnel has the potential to slow access for other commercial users in the LSA during active transportation periods.

Other improvements to an existing private road and existing forest service roads may restrict access in the LSA during active road improvement periods.

5.2.1.1.2 Operation Phase

Due to the potential for public interaction and the hazards associated with active and inactive mining areas, it is critical that the public is not allowed uncontrolled access to the Project Area. As noted above, per the *Mines Act*, RSBC 1996, c 293 (GovBC 1996f), and *Land Act,* RSBC 1996, c 245 (GovBC 1996c) requirements, a “No Unauthorized Entry, Hunting, and Fishing” boundary will be established at the outset

of the Construction Phase around the Project Area to prevent unauthorized access and will be in effect throughout the Project life. This boundary will be appropriately marked in the field.

Maintenance and use of the Bypass Road will potentially continue to limit or change access for agricultural users crossing the Bypass Road, due to health and safety considerations. Ongoing maintenance and improvements to an existing private road and existing FSR may potentially limit access during active maintenance and improvement periods but is likely to improve access. Maintenance of haul roads within the Minesite is not expected to further change access for commercial users, as this access will be removed for the duration of the active Project phases. Similarly, maintenance of storage piles for overburden on the Minesite or operation of the materials handling systems are not expected to further change access for commercial users since access will be removed during the site preparation stage of the Construction Phase.

Maintenance of the permanent Goathorn Bridge replacement is not expected to change access for commercial users from existing conditions. Access for guide-outfitting and recreation areas to the north and west of the Minesite are not expected to be affected, beyond changes noted for the Construction Phase. Similarly, progressive reclamation activities during the Operation Phase are not expected to adversely affect or change access for commercial users. There is the potential for access to be incrementally restored once areas are reclaimed.

5.2.1.1.3 Decommissioning and Reclamation Phase

A continuation of limited access to the Project while Decommissioning and Reclamation Phase activities are undertaken is expected. Dismantling and removal of equipment and facilities is not expected to further affect or change access for commercial users from earlier Project phases, since access will have been removed for the duration of the preceding Active Phases of the project. Similarly, decommissioning and reclamation of the Bypass Road, haul roads, and quarries are not expected to adversely affect or change access for commercial users until activities are completed and certified and access is restored. Reclamation and closure of the Rail Loop infrastructure is also not expected to adversely affect or change access for commercial users.

Implementation of post-mining systems and monitoring may continue to affect some areas of access to the decommissioned Minesite for commercial users, including for example, mined pits, due to health and public safety considerations.

5.2.1.1.4 Post-closure Phase

During the Post-closure Phase, continued maintenance of post-mining systems and ongoing monitoring implemented initiated during the Decommissioning and Reclamation Phase may affect access to some areas for commercial users, including mine pits and monitoring stations, however the effect is expected to be negligible is not considered further in this assessment.

5.2.1.2 Change in Sensory Disturbance

Project-generated sensory disturbance will begin during the Construction Phase and continue to varying degrees during the Operation, and Decommissioning and Reclamation phases. Noise, air emissions, and potential changes to the visual quality are expected to contribute to a sensory disturbance for commercial land and resource users during all Active Phases of the Project. Sensory disturbance may also change the areas chosen for commercial use, and since the commercial activities conducted by guide-outfitters for their clients may be similar to those undertaken by public recreational users (hikers, campers hunters and anglers, equestrians, recreational vehicle operators) there is likely an overlap between potential effects.

These effects will be discussed and assessed below. Please refer to **S4.0-C1 Atmospheric Environment VC** and **S6.0-C2 Visual Resources VC** of the **EAC Application** for more information.

5.2.1.2.1 All Active Phases (Construction, Operation, Decommissioning and Reclamation)

The Construction Phase of the Project will include transportation and use of a variety of heavy equipment to clear and generally prepare the Minesite, Bypass Road, and Rail Loop. Materials, including large plant infrastructure modules, will be transported to the Minesite for assembly. Construction personnel who are not local residents will be accommodated primarily in Smithers and Houston and will also be transported by bus to the Minesite. This transportation of equipment, materials, and personnel is expected to contribute to a sensory disturbance in the LSA through increased road use, noise and emissions which has the potential to affect wildlife and grazing livestock and the commercial users that rely on these resources (guide-outfitters, trappers, agriculture). Visual quality may also be affected for commercial users such as guide-outfitters who rely on providing their clients with as much of a pristine, natural experience as possible.

While there is the potential for sensory disturbance with respect to Project-generated noise levels, noise modelling associated with all equipment and activities associated with the Operation Phase[2] indicates the maximum daytime and nighttime noise levels are expected to remain below the Permissible Sound Level (PSLs) at the residences and at the TCRC. Nighttime noise levels may exceed the nighttime PSL of 40 A-weighted decibels (dBA) at several residences within the surrounding residential subdivisions; however, these exceedances are related to background noise levels rather than the Project. The change in percent highly annoyed (%HA) is expected to remain well below the threshold of 6.5% at all sensitive receptors in the Atmospherics Environment VC LSA and RSA. Furthermore, the Project-related decibels relative to the carrier (dBC) value minus the Project-related dBA value is well below 20 decibel (dB) at all sensitive receptors. Therefore, the Project is not expected to result in any low frequency noise concerns. Please refer to **S4.0-C1 Atmospheric Environment VC** of the **EAC Application** for more information.

Project-related blasting noise was assessed separately. This type of noise is short-term and generally has minimal effect on overall daytime and nighttime noise levels. Please refer to **S4.0-C1 Atmospheric Environment VC** of the **EAC Application** for more information.

In terms of Project-generated[3] emissions and changes to air quality, modelling indicates that the Project's contribution to maximum predicted concentrations of particulate matter (PM) and nitrogen dioxide (NO_2). As well as maximum predicted 30-day dustfall deposition, may exceed the relevant ambient air quality criteria in a small area surrounding the Minesite and CPP, out to approximately 3 km southeast of the Project Area. Maximum predicted concentrations for all contaminants and all averaging periods are expected to remain below the relevant ambient air quality criteria at sensitive receptors, including the TCRC and nearby residences.(please refer to **Figure 5.2-1** to **Figure 5.2-10** in **S4.0-C1 Atmospheric Environment VC** of the **EAC Application**). In the populated area of Telkwa, maximum predicted concentrations of PM less than 10 microns in diameter (PM_{10}) and PM less than 2.5 microns in diameter ($PM_{2.5}$) may exceed the ambient air quality criteria due to high background concentrations, however, the Project contribution is low. More information is available in **S4.0-C1 Atmospheric Environment VC** of the **EAC Application**.

[2] Note that assessment on the Atmospheric Environment VC focuses on the Operation Phase as this phase is associated with the greatest potential effects on Air Quality and Noise. Please refer to **S4.0- C1 Atmospheric Environment VC** of the **EAC Application**.
[3] Emissions of critical air contaminants (CACs) were estimated for all Tenas Project (Project) activities during Year 5 of the Operation Phase to represent effects associated with the peak operating scenario. Please refer to **S4.0-C1 Atmospheric Environment VC** of the **EAC Application**.

A change in visual quality might be placed within the context of resource development in the region. Historically the area has been a major centre of the forest industry, which has resulted in a patchwork of forest cut blocks throughout the Bulkley and Telkwa River valleys. These cut blocks constitute the majority of the visual disturbances in the landscape, and although they regenerate over time, they are typically replaced by new cut blocks at a steady rate. These disturbances are visible from a surrounding area that includes Smithers, Telkwa, and numerous popular guide-outfitting and recreational areas. This suggests a landscape is sensitive to changes in visual quality. However, over the long-term during the Post-closure Phase, regrowth of forests in this heavily forested area will ultimately allow visual quality to recover once the Project is complete and reclaimed.

The Rail Infrastructure is located near the banks of the Bulkley River, near some locations where landscape views are valued (e.g., the Hubert rest stop on Highway 16). There are also locations in the surrounding area that have an elevated view of the site. With limited opportunities for mitigation efforts other than planted vegetation screens around the Rail Infrastructure in addition to the natural tree screens on the west bank of the Bulkley River, it is expected that the Rail Infrastructure will reduce visual quality of the landscape. Please refer to **S6.0-C2 Visual Resources VC** of the **EAC Application** for more information.

5.2.1.2.2 Post-closure Phase

During the Post-closure Phase, most sensory disturbances associated with the Project are expected to have ceased or be close to fully mitigated, and no measurable change is anticipated. The potential effect is, therefore, not considered further in this assessment.

5.2.1.3 Change in Quantity and Quality of Resources

Potential changes to the quantity and quality of resources supporting existing commercial land use (primarily, guide-outfitting, trapping, agricultural grazing) are also expected to continue varying degrees throughout all active Project phases. Activities initiated during the Construction Phase that continue throughout the Operation, and Decommissioning and Reclamation phases are considered together because causes, results and mitigation of effects are not expected to change between phases. The Minesite, Bypass Road, Rail Loop and related infrastructure will remove some habitat and lands that might have supported other competing commercial land uses. Sensory disturbance could also affect wildlife that are the focus of trapping and guide-outfitting, as well as grazing agricultural livestock. These changes may be shared to some extent with residential and recreation users as discussed in **5.2.2.3**.

5.2.1.3.1 All Active Phases (Construction, Operation, Decommissioning and Reclamation)

Site clearing, including surveying, clearing, grubbing and soil salvaging will remove the Minesite from the land available for commercial use in the LSA during all active Project phases. This change extends to the area used after construction of the Bypass Road and Rail Loop and related infrastructure including:

- haul roads, and service roads within the Minesite and material handling systems;
- rock storage piles for overburden;
- a 25 kV powerline and a 600 kV substation; and
- water supply wells, storage and distribution systems.

Transportation of equipment, materials and personnel during the Construction Phase or other active Project phases are not expected to affect a measurable change in the quantity and quality of resources for commercial users in the LSA. Nor are improvements to an existing private road and FSR. Construction and maintenance of the proposed permanent Goathorn Creek Bridge may increase the quantity and quality of

resources for commercial users in the LSA through greater potential opportunities for guide-outfitting and trapping.

During the Operation Phase, the maintenance of Minesite infrastructure, including maintenance of haul roads, the Bypass Road, or Rail Loop are not expected to contribute appreciably to additional changes in the quantity or quality or land and resources used for commercial purposes. Similarly, while progressive reclamation cannot be accurately quantified, it is not expected to contribute to a measurable potential effect.

During the Decommissioning and Reclamation Phase, the dismantling and removal of equipment and facilities are not expected to change the quantity or quality of land and resources, until closure activities are completed. Reclamation and closure of the Bypass Road, haul roads and quarries is not expected to affect a measurable change in the quantity and quality of resources for commercial users in the LSA until closure activities are completed. Once reclamation is completed, the removal of gated access restrictions at the Mine and Rail Loop ends of the reclaimed Bypass Road will mark a return of lands to alternate potential commercial land uses. Implementation of post-mining systems and monitoring is not expected to contribute to a measurable potential effect.

In assessing a change in the quality and quantity of land and resources supporting commercial use, it should be noted that the Project holds private property rights in addition to rights to cut and forestry tenures within the Project area. The proposed Goathorn Creek Bridge is also expected to restore access for commercial and recreational use in the area. Crossing restrictions on the Bypass Road by agricultural users change the quality of land use somewhat, but are necessary for public safety and will be implemented through agreements with land and tenure owners.

Noise, air and visual quality considerations are considered in **5.2.1.2**. However, generally, commercial users will continue to have access to an equivalent quantity and quality of land and resources. Currently trapping licenses do not appear to be in active use. Guide-outfitters typically are using other areas of their tenures at some distance from the Project to the south and north. Forestry tenures closest to the Minesite to the west are not expected to be affected by a change in the quantity and quality of land and resources.

5.2.1.3.2 Post-closure Phase

During the Project's Post-closure Phase, after reclamation efforts have been completed and post-mine monitoring systems have been implemented, the adverse effect with respect to a change in the quantity and quality of resources for commercial users in the LSA is expected to be negligible and is not considered further in this assessment.

5.2.2 Public Recreation Use Subcomponent

The Project is situated in an area where there is a potential for interaction with public recreation users including: hiking, camping, hunting, fishing, equestrian, motorized and non-motorized recreational activities. The following subsections describe the nature of potential effects on the Land and Resource Use VC with respect to public recreation use. Mitigation measures for each potential effect are described in **5.3 Mitigation Measures**.

5.2.2.1 Change in Access

Project activities, throughout all Active Phases of the Project (Construction, Operation, Decommissioning and Reclamation) may change the way recreation users access lands and resources in the LSA. Whereas the range of potential changes in access are different for commercial land and resource users and tenure holders, there may be strong similarities in potential effects on recreational non-tenure holders. Given

commercial activities of guide-outfitters and their paid clients may include hiking, camping, hunting, angling and motorized all-terrain vehicle (ATV) use, similar activities undertaken by local residents or visitors as public recreational users and potential access-related effects may overlap. Changes in commercial access for each active phase have been described in **5.2.1.1.1** through **5.2.1.1.3.** Since similar and overlapping effects are anticipated, the following assesses the range and differences of potential changes and effects for recreational users during all Active Phases.

5.2.2.1.1 All Active Phases (Construction, Operation, Decommissioning and Reclamation)

For public and worker safety, certain areas of the Project Area will be designated as "No Unauthorized Entry" as prescribed by the Health, Safety and Reclamation Code in British Columbia (British Columbia Ministry of Energy, Mines and Low Carbon Innovation [BC MEMLI 2021]) (Code), *Mines Act*, RSBC 1996, c 293 (GovBC 1996f), and *Land Act,* RSBC 1996, c 245 (GovBC 1996c). There will also be "No Hunting" and "No Fishing" boundaries established. These boundaries reflect government "No Hunting" guidance described in the *Wildlife Act*, RSBC 1996, c 488 (GovBC 1996k). The "No Unauthorized Entry, Hunting, and Fishing" boundary will be established at the outset of the Construction Phase around the Project Area to prevent unauthorized access. It will be in effect throughout the Project life.

Due to the potential for public interaction and the hazards associated with active and inactive mining areas, it is critical that the public is not allowed uncontrolled access to the Project Area. Access will be controlled via three gates to be installed along the TAC. Access will be maintained along the existing Telkwa Coalmine Road towards the south of the TAC on the eastern side of the Project Area. A gate will be installed on the TAC to prevent access onto the TAC from either the Telkwa Coalmine Road or from the private driveway that connects to the property designated as PID014-958-881. The TAC gates will only be able to be opened by Minesite employees using TCL supplied remote controls while the public access gates will be able to be opened by any member of the public using push button activation at these gates to allow access beyond the TAC to the south or to use the private driveway.

A permanent bridge over Goathorn Creek will be constructed with a span of 30 m and width of 5 m to accommodate trucks travelling to and from the Minesite. A previous bridge built over Goathorn Creek was washed out in 2013, limiting access to recreational trails and areas on the west side of Goathorn Creek. The new bridge will change access to hiking and horse-riding trails to the south of the Minesite and potentially improve access for public recreation users (i.e., hikers, campers and equestrians) to a popular hiking destination known as Hunter Basin.

Transportation of heavy equipment materials including large Minesite infrastructure modules and construction personnel may temporarily affect access for some recreational users during active transportation periods. However, construction of Minesite stockpiles, materials handling systems, haul roads, and service roads within the Minesite; and construction of a 25 kV powerline and a 600 kV substation are not expected to further change access for recreational purposes beyond the removal of access to the Minesite, Bypass Road, Rail Loop, and Rail Loadout area for any other competing recreational use during the active life of the mine. Similarly, installation of water supply wells, storage and distribution system are not expected to change access for recreational use.

Access to another important recreation area, Jonas Creek, northwest of the Minesite, will not be affected by Project activities. Trails accessed from Highway 16 use an existing transmission line corridor to connect to the Jonas Creek area, Star Basin, and the Microwave snowmobile area. Other unaffected areas include the Smithers Community Forest and Trails, the Pine Creek Connector Snowmobile Trail, the Ptarmigan Recreation Trails, or the Bluff and Piper Down trailheads. Through active consultation with a Tenas Mine Neighbours Group, as well as recreational groups including the Back Country Horsemen of BC, the Bulkley Valley Bowmen, and the Smithers Snowmobile Association, the Project has worked to find agreement of

ways to maintain recreational access. In particular, periodically over the year, the Back Country Horsemen of BC use the TCRC located on TCL private property. The Project has committed to maintain access to this TCRC and surrounding trails for Back Country Horsemen of BC members.

Construction and maintenance of the Bypass Road, Rail Loadout and Rail Loop is not expected to change access for recreation from existing conditions. Similarly, maintenance and improvement of FSR is likely to improve access, except during maintenance and improvement periods. During Construction, Operation, and Decommissioning and Reclamation phases, progressive reclamation activities are also not expected to affect access in the LSA.

During the Decommissioning and Reclamation Phase the disassembly of Minesite infrastructure and reclamation of roads are not expected to affect access until the Bypass Road and other gates are removed and activities are completed prior to the Post-closure Phase. Implementation of post-mining systems and monitoring may have some small effect on access for anglers on the Telkwa River if monitoring stations change access, but generally is unlikely to affect access for equestrians, hikers, ATV or snowmobilers who typically use areas to the southwest and northwest of the Minesite.

5.2.2.1.2 Post-closure Phase

During the Post-closure Phase, access to some areas that were removed from use during active Project phases will for restored to availability and use by recreational users. Maintenance of post-mining systems and ongoing monitoring are expected to have a negligible effect on recreational use. For these reasons, the potential effect of a change in access on public recreation use during Post-closure is not considered further in this assessment.

5.2.2.2 Change in Sensory Disturbance

Project-generated noise, air emissions and changes to visual quality may contribute to a sensory disturbance or sense of place for public recreational users during all active Project phases (Construction, Operation, Decommissioning and Reclamation). Activities initiated during the Construction Phase that continue throughout the Operation, and Decommissioning and Reclamation phases are considered together because causes, results and mitigation of effects are not expected to change between phases. More information is available in **S6.0-C2 Visual Resources VC** and **S4.0-C1 Atmospheric Environment VC** of the **EAC Application**.

5.2.2.2.1 All Active Phases (Construction, Operation, Decommissioning and Reclamation)

The transportation and use of heavy equipment during site clearing, including surveying, clearing, grubbing and soil salvaging at the Minesite are expected to contribute to potential sensory disturbance in the LSA in terms of noise and emissions and visual quality. Project Construction Phase activities contributing to short-term sensory disturbance include:

- transportation of materials, including large modules and construction personnel;
- construction of the Bypass Road, Rail Loop and Loadout area;
- construction of haul roads and service roads within the Minesite;
- construction of the Goathorn Creek Bridge replacement;
- construction of material handling systems, conveyors and storage piles for overburden;
- installation of water supply wells, storage and distribution system;

- construction of the 25 kV powerline and a 600 kV substation; and
- improvements to an existing private road and FSRs.

Site clearing is also expected to result in a long-term change in visual quality for residential and recreational users.

Once construction of the Minesite and related infrastructure is completed, potential contributors to sensory disturbance will be replaced by Operation Phase activities that include blasting and hauling of materials to stockpiles, Rail Loadout, and Rail Loop. Other Operation Phase activities contributing to a potential sensory disturbance are:

- maintenance and ongoing use of the Bypass Road;
- maintenance of haul roads within the Minesite;
- maintenance and improvement of private and forest service roads;
- operation of material handling systems for the Minesite;
- operation of Surface Water Management Infrastructure on the Telkwa River; and,
- maintenance of the permanent Goathorn Creek Bridge.

Progressive reclamation activities are expected to reduce the change in visual quality over time.

With cessation of active mining activities, noise and emissions can be expected to be reduced. Dismantling and removal of equipment and facilities, the Bypass Road, haul roads, quarries, and Rail Loop during the Decommissioning and Reclamation Phase will contribute to a short-term disturbance. However, these activities are likely to contribute to a long-term improvement in visual quality. Given their small and localized nature, typically placed away from used trails, implementation of post-mining systems and monitoring stations implementation of post-mining systems and monitoring activities are not expected to contribute to a measurable potential sensory disturbance for recreation users.

While there is the potential for sensory disturbance, with respect to potential Project-generated noise levels, noise modelling indicates the maximum daytime and nighttime noise levels are expected to remain below the PSLs at the nearest residences and at the TCRC. As indicated in **5.2.1.2**, nighttime noise levels may exceed the nighttime PSL of 40 dBA at several residences within the surrounding residential subdivisions; however, these exceedances are related to background noise levels rather than the Project. The change in %HA is expected to remain well below the threshold of 6.5% at all sensitive receptors in the LSA and RSA. Furthermore, the Project-related dBC value minus the Project-related dBA value is well below 20 dB at all sensitive receptors. Therefore, the Project is not expected to result in any low frequency noise concerns.

Project-related blasting noise was assessed separately. This type of noise is short-term and generally has minimal effect on overall daytime and nighttime noise levels. Engineering formulae from Linehan and Wiss (1980) were used to estimate the peak air overpressure at various distances from the blasting site. More information is available in **5.2.3** of **S4.0-C1 Atmospheric Environment** of the **EAC Application**.

In terms of Project-generated emissions and changes to air quality, modelling indicates that the Project's contribution to maximum predicted concentrations of PM and NO_2, as well as maximum predicted 30-day dustfall deposition, may exceed the relevant ambient air quality criteria in a small area surrounding the Minesite and CPP. Maximum predicted concentrations for all contaminants and all averaging periods, are expected to remain below the relevant ambient air quality criteria at sensitive receptors including the TCRC and nearby residences. In the populated area of Telkwa, maximum predicted concentrations of PM_{10} and

$PM_{2.5}$ may exceed the ambient air quality criteria due to high background concentrations, however, the Project contribution is expected to be low. Please refer to **5.2.11** of **S4.0-C1 Atmospheric Environment VC** of the **EAC Application** for more information.

A change in visual quality might be placed within the context of resource development in the region. Historically the area has been a major centre of the forest industry, which has resulted in a patchwork of forest cut blocks throughout the Bulkley and Telkwa river valleys. These cut blocks constitute the majority of the visual disturbances in the landscape, and although they regenerate over time, they are typically replaced by new cut blocks at a steady rate. These disturbances are visible from a surrounding area that includes Smithers, Telkwa, and numerous popular guide-outfitting and recreational areas. This suggests a landscape sensitive to evolving changes in visual quality. Over the long-term, regrowth of forests in this heavily forested area will ultimately allow visual quality to recover once the Project is complete and reclaimed.

The Rail Infrastructure is located near the banks of the Bulkley River, near some locations where landscape views are valued (e.g., the Hubert rest stop on Highway 16). There are also locations in the surrounding area that have an elevated view of the site. With limited opportunities for mitigation efforts other than planted vegetation screens around the Rail Infrastructure in addition to the natural tree screens on the west bank of the Bulkley River, it is expected that the Rail Infrastructure will reduce the visual quality of the landscape. More information is available in **S6.0-C2 Visual Resources VC** of the **EAC Application**.

5.2.2.2.2 Post-closure Phase

At the beginning of the Post-closure phase, all Project components with the exception of an access road, utility corridors, and maintenance infrastructure are expected to have either been revegetated, seeded for revegetation, or filled with water. While a change in visual quality related to remaining Minesite elements will potentially contribute to an ongoing sensory disturbance for recreational users, the change to the landscape is expected to be similar to the effects of forestry cutblocks, particularly as the open pit will be filled with water. Other contributors such as noise or emissions are expected to be negligible during the Post-closure Phase. For this reason, the potential effect of a change in sensory disturbance on public recreation use during the Post-closure Phase is not considered further in this assessment.

5.2.2.3 Change in Quantity and Quality of Resources

As described in **5.2.1.3,** potential changes to the quantity and quality of resources supporting existing commercial land and resource use (primarily guide-outfitting, trapping, agricultural grazing) are expected to continue throughout all Active Phases of the Project. Similarly, the Minesite, Bypass Road, Rail Loop and related infrastructure will remove some habitat and lands that might have supported other competing public recreation land use. Sensory disturbance may also change the areas chosen for recreational use (hikers, campers, hunters, anglers, equestrians, recreational vehicle operators). Activities initiated during the Construction Phase that continue throughout the Operation, and Decommissioning and Reclamation phases are considered together because causes, results and mitigation of effects are not expected to change between phases.

5.2.2.3.1 All Active Phases (Construction, Operation, Decommissioning and Reclamation)

Site clearing, including surveying, clearing, grubbing and soil salvaging will remove the Minesite from the land available for public recreational use in the LSA during all active Project phases. Other Project elements to remove land from other land and resource include construction of the:

- Bypass Road, Rail Infrastructure, and Rail Loop;
- 25 kV powerline and a 600 kV substation; and

- water supply wells, storage and distribution system.

Improvements to an existing private road and FSRs are not expected to result in a measurable change in the quantity and quality of resources for recreation users in the LSA. Construction of the permanent Goathorn Bridge is expected to improve the quantity of land and resources for recreational use by restoring access to lands used primarily by hikers, equestrians and anglers, including Hunter Basin, located south of the Minesite. However, as noted in **5.2.2.2**, the presence of the Minesite is likely to affect the visual quality and sense of place for recreational users from various viewpoints in a similar way that existing cutblocks in the area have contributed to a sensory disturbance.

Subsequent Project phases are not expected to contribute to a further change in resources supporting the quality and quantity of land and resources for recreational use. Progressive reclamation activities during the Operation Phase, followed eventually by dismantling and removal of Minesite infrastructure and the reclaiming of haul roads during the Decommissioning and Reclamation Phase are expected to contribute to an improvement in the quality and quantity of recreational use areas. Planned recreational user participation in closure planning will allow for discussion of post-closure end use opportunities. Given their small and localized nature, typically placed away from used trails, implementation of post-mining systems and monitoring stations are not expected to affect a measurable adverse change in the quantity and quality of resources for recreation users in the LSA.

5.2.2.3.2 Post-closure Phase

Effects related to a change in the quantity and quality of resources for public recreation user in the LSA during the Post-closure Phase are expected to be negligible. For this reason, the potential effect of a change in quantity and quality of resources on public recreation use during the Post-closure Phase is not considered further in this assessment.

5.2.2.4 Change in or Interference with Recreational Infrastructure

The Project has the potential to interact and conflict with recreational use of the land base, affecting public outdoor recreation activities, recreational fishing and hunting, hiking, camping, horseback riding, winter sports, and motorized recreation. Interference with recreational infrastructure may include:

- removal of existing recreational use trails; and
- change in access to camps, recreation reserves and sites used for recreational purposes.

5.2.2.4.1 All Active Phases (Construction, Operation, Decommissioning and Reclamation)

As noted in **5.2.2.1**, the Project will affect recreational trails used for recreational purposes during the Construction Phase due to site clearing, and this effect will persist throughout all Active Phases of the Project. Access to the TCRC will also be affected by construction of a permanent replacement of the Goathorn Creek Bridge. The Project plans to re-establish existing alternate trails to maintain access to the Hunter Basin recreational area. Construction of the Goathorn Creek Bridge will also improve access to the TCRC but will require escorted access over the bridge for public health and safety.

Other Project infrastructure is not expected to interfere with existing recreational infrastructure. A Telkwa River Recreation River Reserve and Telkwa River Recreation Site are located beyond the fork in Coalmine Road heading to the Minesite. Project modules will be transported to the Minesite using the existing Telkwa-Morice FSR, connecting to Lawson Road and Coalmine Road. Ongoing improvements to LSA FSRs are planned.

Dismantling and removal of Minesite equipment and facilities during the Decommissioning and Reclamation Phase is not expected to interfere with recreational infrastructure, except during short-term active removal periods. Similarly, reclamation of the Bypass Road, haul roads, quarries, or the Rail Loop are not expected to affect a measurable change in the quantity and quality of resources for recreation users.

5.2.2.4.2 Post-closure Phase

The implementation of post-closure monitoring systems are small, localized and not expected to interfere with recreational infrastructure during the Post-closure Phase. Adverse effects with respect to a change in or interference with recreational infrastructure are expected are not anticipated. Monitoring stations are small and localized and placed away from trails. For this reason, the potential effect of a change in or interference with recreational infrastructure during the Post-closure Phase is not considered further in this assessment.

5.3 Mitigation Measures

This subsection describes mitigation measures applicable to potential Project effects on the Land and Resource Use VC. The mitigations provided are aligned with the BC EAO (2013) which describe mitigation measures as any practical means or measures taken to avoid, minimize, rehabilitate onsite, and if required, compensate, or offset the potential adverse effects of a project. Mitigation measures include applicable standards and guidelines.

TCL has incorporated several mitigation measures in the Project's design and/or operational procedures to reduce the magnitude, duration, and extent of effects due to the Project. These Project mitigation measures are outlined in **S1.0 Overview of Project Proponent Description** of the **EAC Application**. Project mitigation measures that are relevant to minimizing potential Project-related effects on the Land and Resource Use VC are described below in **5.3.1** to **5.3 13**. Additional mitigation measures for the Land and Resource Use VC were informed by a review of mitigation measures and follow-up programs undertaken for past projects; TK, scientific or other information; as well as internal Project evaluation of technical and economic feasibility. Proposed mitigation measures also considered input and comments received from regulatory agencies, Indigenous groups, local communities, the public and other stakeholders. Land and Resource Use VC specific mitigation measures are provided in **5.3.14** to **5.3.16** below.

Mitigation measures are intended to address potential adverse effects on the Land and Resource Use VC discussed in the previous section. Measures to mitigate potential adverse effects on the Land and Resource Use VC will be incorporated into the into various Project management plans such as the **Public Access Management Plan (S13.0-C14) (PAMP).** The management plans provide direction on sequencing, monitoring, and adaptive management to ensure that measures are timely and effective. The mitigation measures are expected to be effective immediately following implementation.

Mitigation measures are commitments that TCL has applied through mine design and to the operating principles through the life cycle of the Project. All mitigation measures for the Land and Resource Use VC are described in detail below and summarized in **Table 5.3 1.**

5.3.1 Limit Project Footprint and Project Area

To limit the Project footprint and Project Area the Project has been designed to:

- Cluster Project components, including the open pit, stockpiles for run-of-mine (ROM) coal, processed coal and processed rock, Coal Processing Plant (CPP), management ponds, and ancillary facilities such as the Maintenance Facility and Administration Building;
- Align linear Project features (such as powerlines, roads, water distribution) into a common right-of-way (ROW);
- Place Project features within existing or planned Project Component Footprints to limit the clearing of vegetation and the salvage of reclamation materials (surface soil, woody debris, and overburden). For example, the Minesite buildings will be built in areas previously cleared by forestry activity;
- Minimize the length of haul roads, access roads, and rail line where possible. Use or improve existing roads where practical;
- Utilize a loop design configuration for the rail that requires half the space and subsequent footprint compared to the standard teardrop shape seen at other operating or proposed coal mines in western Canada;
- Place reclamation material (surface soil and woody debris) stockpiles within development areas such as the open pit and haul roads to avoid disturbance, while overburden is directly placed on Project components for future reclamation activities;
- Limit the Tenas Access Corridor (TAC) to a single lane width for long distances and utilize existing Forest Service Roads (FSRs) or private roads where appropriate;
- Backfill approximately 50 percent (%) of non-coal material back into the open pit; and
- Place processed rock from the CPP within the management ponds versus a separate permanent pile to avoid any potential acid rock drainage (ARD) from this material and reduce the Project footprint.

5.3.2 Reclamation Measures

The following reclamation measures have been incorporated into the mine design:

- Use progressive reclamation techniques including to limit the amount of disturbance at any given time by sequencing the open pit and stockpiles to the extent feasible, backfilling of open pit where possible, directly placing reclamation materials, and placing excavated materials on previously disturbed areas;
- Salvage reclamation materials (surface soil, woody debris, and overburden), for later use in accordance with the **Reclamation and Closure Plan (S13.0-C15) (RCP)**;
- Vegetate all surface soil and overburden stockpiles to minimize the potential for erosion and sediment generation, to prevent subsequent potential effects on water quality, and to prevent losses of surface soils;
- Implement progressive reclamation on embankments, buttresses, backfills, TAC cut and fill slopes, and other Project components where possible to minimize fugitive dust emissions and reduce erosion and sediment generation;
- The reclaimed landscape will be shaped and contoured to achieve variations of slope steepness, slope length, aspect, and form to assist in creating landform diversity suitable for the establishment of varied plant communities and to reduce visual effects;

- PAG material deposited in the management ponds will be flooded to prevent acid mine drainage but will also be covered with an engineered cover consisting of non-PAG rock, overburden, and surface soils to allow for terrestrial revegetation;
- Majority of open pit features (e.g., highwalls and footwalls) are covered/resurfaced/recontoured with non-potentially acid generating (PAG) rock and overburden; and
- Revegetate with native plant species appropriate for the target ecosystems, which will include species for merchantable timber, subsistence foods, and ceremonial purposes in consultation with the Wet'suwet'en.

5.3.3 Transport Measures

The following mitigations refers to transport measures:

- Build, maintain, and use the TAC for hauling processed coal to the Rail Infrastructure for the duration of all Project phases after the Construction Phase to minimize traffic on existing, residential roads;
- Build, maintain, and use the TAC for transport of personnel, goods, and services for the duration of all Project phases after the Construction phase to minimize traffic on existing, residential roads;
- Repair and/or replace and/or upgrade existing FSRs or private roads that will be used as part of the TAC;
- Repair and replace new and existing culverts as required for all Project related transport corridors including the TAC;
- Design and build a permanent clear span bridge over Goathorn Creek and Helps Creek and its related tributaries to provide vehicular access to the Project that will be controlled by TCL;
- Use buses and/or vans for employees and contractors as much as practical to reduce the risk of traffic incidents, and to reduce noise and fugitive dust emissions generated by the Project. Bussing options to Witset and/or Houston to be provided (if requested and based on sufficient employees are in these locations) to facilitate potential employees accessing employment opportunities with the Project;
- Use dust suppressing agents on the rail cars to reduce fugitive dust generation;
- Cover super B-train trucks when hauling processed coal from the CPP to Rail Infrastructure to reduce fugitive dust emissions from trucks;
- Use water and chemical agents on the TAC to reduce fugitive dust emissions, where and when appropriate;
- Use water and chemical agents, as required, on processed coal and ROM coal stockpiles to reduce fugitive dust emissions resulting from storage and handling;
- Use privately controlled Rail Infrastructure so that there are no train whistles generated from Rail Infrastructure;
- Utilize low train speeds (10 kilometres/hour [km/hr] within the Rail Infrastructure, and up to 20 km/hr while entering and exiting the Rail Infrastructure) to mitigate vibration and noise;
- Post a speed limit of 50 km/hr on the TAC, 70 km/hr on Minesite haul roads, and 30 km/hr on Project service roads. Mine haul trucks within the Minesite portion of the Project footprint will have a maximum operating speed of approximately 35 km/hr, given their size and weight; and

- Investigate implementing a no train whistle requirement at the existing level rail crossing in the Village of Telkwa based on consultation with and approval of the Canadian National Railway (CNR).

5.3.4 Project Component Design

The following applies to Project component design:

- Select tonal values and low chroma colours to paint buildings and related infrastructure to create low contrast to existing background conditions throughout the spring, summer, and fall months when viewers are more likely to be outdoors;
- Select tonal values best suited for the dominant building face where visible from the priority viewpoints;
- Select non-reflective building and infrastructure surfaces to eliminate glare from reflected sunlight;
- Avoid sharp and linear changes in the slope or aspect of the stockpile, pile, embankment, buttresses, and excavated surfaces;
- Contour benches within backfilled material and embankments and buttresses to prevent obvious and easily discernable linear shapes;
- Landscape (e.g., add small hills, swallows) the tops of material stockpiles to create non-linear silhouettes;
- Manage light effects using acceptable best management practices (BMPs) and engineering design;
- TCL will also incorporate the following mitigation measures associated with effects from lighting:
  - For areas visible to the public from sensitive viewpoints investigate eliminating night lighting of buildings and structures and block light from windows where possible considering safety requirements;
  - Direct lighting shall be directed towards the ground and have appropriate covers to avoid fugitive light emissions; and
  - Lighting should be sensitive to environmental conditions and automatically shut off during daylight hours.

5.3.5 Blasting Measures

The following mitigation measures apply to blasting:

- Use best management stemming techniques (e.g., type of material, size consistency, loading method, and thickness) that will minimize effects of noise and fugitive dust from blast patterns and assist in the complete detonation of drill holes to reduce the introduction of nitrogen species into the surrounding rock per the **Explosives Management Plan (S13.0-C6) (EMP)**;
- Correctly time blasts to minimize effects of noise, vibration, and fugitive dust from blast patterns;
- Keep blast patterns small to minimize effects of noise, vibration, and fugitive dust and to reduce the time that patterns need to sleep or wait until they are blasted which reduces the introduction of nitrogen species into the surrounding rock;
- Monitor actual blast results and implement improvements as required as per the adaptive management process to reduce effects of noise, vibration, fugitive dust and reduce the introduction of nitrogen species into the surrounding rock;

- Use electronic detonators to minimize effects of noise, vibration, and fugitive dust from blast patterns and manage misfires to reduce the introduction of nitrogen species into the surrounding environment; and
- Use noiseless lead lines on the surface to minimize the effects of noise from blasts.

5.3.6 Coal Processing Measures

The following mitigation measures apply to process design:

- Use centrifuges for processed coal dewatering versus coal and/or natural gas fuelled coal dryers to minimize greenhouse gas (GHG) and dust emissions;
- Use BMPs in flowsheet design to maximize the reuse of process water by the CPP and allow the recirculation of grey water from Project equipment wash bays in the Maintenance Facility by the CPP; and
- Use belt filter presses to dewater fine processed rock material versus conventional slurry fine processed rock to reduced water consumption by the CPP.

5.3.7 Seepage Management Measures

The following mitigation measures are associated with seepage management:

- Use overburden bentonite liners for management ponds to reduce the amount of groundwater seepage and potential effects on surface water and groundwater quality;
- Use liners in the Tenas Control Pond, Wastewater Storage Pond, Soil Treatment Facility, Potable Water Storage Pond, and sedimentation pond at the CPP site minimize the risk of seepage to groundwater and potential effects on surface water and groundwater quality;
- Monitor seepage, groundwater, and surface water levels, and quality/quantity downstream and upstream of the Project as per the monitoring programs set up in the **Minesite Water Management Plan (S13.0-C11) (MWMP)**; and
- Establish trigger levels that require the implementation of contingency mitigation measures described in the **Discharge Management Plan (S13.0-C5) (DMP)** to protect surface and groundwater quality and maintain minimum flow levels downstream of the Project.

5.3.8 Water Capture Measures

- Construct diversion channels, where practical, to prevent non-contact water from entering the Project Area and remain as non-contact water;
- Sedimentation and control ponds will have sufficient storage capacity to allow fine sediments to settle out for 1 in 10 year storm events and will be designed to structurally withstand a 1 in 200-year storm event; total suspended solids (TSS) and/or turbidity will be monitored prior to release;
- Establish flocculent addition systems for sedimentation and/or control ponds that will discharge directly to surface waters to provide additional sedimentation control to reduce potential effects on surface water quality;
- If monitoring indicates, construct wetlands within or downstream of sedimentation and/or control ponds to reduce potential effects on surface water quality;

- Include a control structure on the outflow from the C02 diversion channel south of the East Management Pond to control high flow events discharging into the upstream portion of Four Creek by enabling overflow to the East Management Pond directly in the Post-closure phase or to a channel going into the Tenas Control Pond in the Operation, and Decommissioning and Reclamation phases;
- Maintain sufficient capacity in the Tenas Control Pond to store up to a 1 in 10-year storm event to control discharge;
- Monitor and control water discharges from Tenas Control Pond to a tributary of Goathorn Creek based on downstream water flow rates and water quality to meet in-stream guidelines and flow requirements during the Operation, and Decommissioning and Reclamation phases; and
- Develop the open pit in a manner that will allow it to collect water in the Decommissioning and Reclamation, Post-closure Phases to provide additional sedimentation control.

5.3.9 Management of Metal Leaching/Acid Rock Drainage (ML/ARD)

The following mitigation measures apply to preventing potential ARD:

- Identify and segregate PAG material while mining the open pit, and place PAG material in management ponds and submerge PAG material under a minimum of 1.0 metre (m) of water within an average of six (6) months after excavation but no longer than 12 months and under at least two (2) m of water once the management pond has met its PAG material storage requirements (North Management Pond is completed first, followed by the East Management Pond and finally the West Management Pond) to prevent potential ARD and subsequent effects on surface water quality;
- Place approximately a one (1) to two (2) m layer of non-PAG rock on top of the submerged PAG material below the active water level of the respective management pond, followed by approximately one (1) to three (3) m layer of overburden to create a dry landform above water, followed by an approximately 30 centimetre (cm) layer of reclamation materials (surface soil) to reduce evaporative losses from the management ponds and provide a landscape more similar to pre-Project development;
- No PAG material will be used in construction of any external piles, pads, roads, embankments, buttresses, or for backfilling the open pit, to prevent potential ARD and subsequent effects on surface water quality;
- Open pit walls will be covered by non-PAG material to limit oxygen and water ingress into the open pit walls and provide a neutralizing effect on the open pit wall material below;
- Some of the open pit walls will be flooded with water to further reduce the likelihood of ARD from the covered open pit walls;
- Establish a material geochemical testing program for future Project exploration drillholes and Operation phase blast holes as part of the blasting program to verify PAG versus non-PAG materials. Maintain a PAG geological model while the open pit is being mined to reflect any changes observed;
- Maintain a database of geochemical testing results and material placement to avoid the incorrect placement of PAG material and potential ARD with subsequent effects on surface water quality;
- Establish a material tracking system to document the location and type of material being excavated and hauled to avoid misplacement of material and/or remediate any misplacement that may occur;

- Controlled open pit wall blasting will be conducted on both the highwall and footwall to limit the amount of damage to the open pit wall to minimize the potential for particle size reduction and provide pathways for water and oxygen to enter the open walls prior to them being covered;
- Majority of material near the open pit footwall will not be blasted again to minimize the potential of water and oxygen accessing this material;
- Progressive reclamation will be undertaken to reduce the infiltration of water and oxygen into the open pit walls by placing non-PAG rock and overburden on the open pit walls once mining is completed for an open pit wall section in question and people operating equipment have moved at least 100 m away from proposed backfilling operation. Furthermore, this non-PAG material is expected to provide a permanent high neutralization potential (NP) water source to prevent ARD generation from PAG material present in the open pit walls; and
- Provide annual reports to British Columbia Ministry of Energy, Mines and Low Carbon Innovation (BC MEMLI) and BC MECCS and designated Indigenous groups summarizing the results of geochemical testing.

The following mitigation measures for minimizing potential metal leaching (ML):

- Progressive reclamation will be undertaken to reduce the infiltration of water and oxygen into the non-PAG backfills, buttresses, and embankments;
- Non-PAG rock will be covered with overburden as much as material constraints allow to reduce the infiltration of water and oxygen;
- Place some non-PAG rock into management ponds that are characterised as PAG because of the mine planning process using a neutralization potential ratio (NPR) value of 2NP(neutralizing potential):1AP(acid potential [AP]) to classify non-PAG material from PAG material versus the geochemistry NPR value of 1.2NP:1AP used for classifying non-PAG material from PAG material; and
- In the Post-Closure Phase, approximately half of non-PAG material will be flooded with water in the open pit to prevent oxygen ingress and further oxidization of this material resulting in a reduction of metal leaching once this occurs.

5.3.10 Consultation with Tenure Holders

The following commitments apply to consultation with tenure holders:

- Continue to consult through Construction, Operation, and Decommissioning and Reclamation phases with tenure holders that have tenures overlapping with Project components to consider how operational plans can incorporate other land uses with the results being reported to BC FLNRORD on an annual basis; and
- Obtain agreements with tenure holders to allow for Project components to overlap with other existing tenures or allow road use or road/tenure crossings.

5.3.11 Indigenous Consultation and Engagement

The following commitments apply to Indigenous consultation and engagement:

- Discuss and facilitate access to the Project Area by designated Indigenous groups for land and resource harvesting purposes, provided safe access can be accommodated;

- Develop an Indigenous-led Monitoring program(s) as prescribed in the environmental management plans, in consultation with the Wet'suwet'en;
- Continue consultation and engagement with Indigenous groups with respect to design and implementation of the Project components, monitoring, decommissioning, and reclamation, and
- Continue consultation and engagement with Indigenous groups with respect to the design and implementation of the **PAMP**.

5.3.12 Compensation for Affected Commercial Tenure Holders

The following commitment is intended to address affected commercial tenure holders:

- Compensation of affected trapline holders in accordance with industry and provincial protocols (e.g., registered trapper compensation program for oil and gas, BC MEMLI).

5.3.13 Public Access Management

Per the *Mines Act*, RSBC 1996, c 293 (GovBC 1996f), and *Land Act,* RSBC 1996, c 245 (GovBC 1996c) requirements, a "No Unauthorized Entry, Hunting, and Fishing" boundary will be established at the outset of the Construction Phase around the Project Area to prevent unauthorized access. It will be in effect throughout the Project life. It is currently envisioned that the public will be allowed access through and beyond the Project Area to reach identified cultural, subsistence foods, ceremonial, recreational and hunting areas during the Construction, Operation, Decommissioning and Reclamation, and Post-closure phases, the following will apply to the management of public access:

- Establishing a **Public Access Management Plan (S13.0-C14)** (**PAMP)** to mitigate potential safety issues related to public access to/through the Project Area. The **PAMP** was developed for the purpose of public, contractor, visitor, and employee safety, and Project security. The **PAMP** aims to minimize restricted areas and provide opportunities for reasonable and safe access to areas adjacent to and beyond "No Unauthorized Entry, Hunting and Fishing" boundary areas. The Wet'suwet'en will be engaged regarding the final implementation of the **PAMP**;

- The **PAMP** includes details on an access control procedure to maintain public access through the Project Area to allow access to recreational locations. Two (2) types of access will be provided:
  - Escorted Access: TCL will provide guided access via operation of a lead vehicle to escort users of the Project Area roads from either the TCL office in Telkwa, or from the Sandpit Muster Station just south of the TAC to the Telkwa Coalmine Recreation Camp (Backcountry Horsemen of BC and TCL); TCL will also escort vehicles from the above two locations across the bridge constructed over Goathorn Creek to a parking area on the west side of Goathorn Creek;
  - No-Escort Access: From the parking area near the Telkwa Coalmine Recreation Camp, a new trail will be established along the east side of Goathorn Creek that can be used by hikers, horseback riders, bikers, and approved motorized use such as quads, trucks, cars, SUVs and motorbikes, but not including campers. This trail will allow access underneath the TAC via a dedicated public underpass to get to the south side of the TAC. From there the public will be able to use a trail that accesses a divided two (2)-lane bridge installed over Goathorn Creek that allows them to be separated from Project vehicles. After users cross the Goathorn Creek, an existing access trail on the west side of Goathorn Creek can be used as an alternate access trail to Hunter Basin and other recreational sites (please refer to **5.3.14**). Alternately, from Parking Area 2, vehicles will be able to access this same alternate trail on the east side of the Project to recreational areas. Additional details and maps are provided in the **PAMP**;

- With the **PAMP** in place, the Project will improve legal access to recreational facilities via the re-establishment of a bridge over Goathorn Creek;
- Access to the Project Area by the Wet'suwet'en for land use and resource harvesting purposes, will be discussed with the Wet'suwet'en, and facilitated provided that safe access can be accommodated; and
- Tenure holders that overlap with the Project Area will continue to be consulted through the Construction and Operation phases to consider how operational plans can incorporate other land uses with the results being reported to BC FLNRORD on an annual basis.

5.3.14 Improvements to Existing Trail

- An existing access trail on the west side of Goathorn Creek will be used as an alternate recreational access trail to Hunter's Basin and other recreational sites. While a portion of the trail that turns west towards the Project Area/footprint will be blocked off by a physical berm, a gate, and signage, and monitored by video cameras. TCL will improve the remainder of the existing trail that is outside of the Project Area by trimming overgrown vegetation so that that four (4) wheel drive vehicles can safely use it to access recreational sites;
- Water management will be conducted; if required;
- Earthworks to allow safe use by four wheel drive vehicles; and
- New signage will be put in place and maps provided so that the public understands the routing and that they can still get to recreational sites around, and beyond the Project Area if the access can be done safely based on TCL's risk assessment and discussions with stakeholders given Operation activities (refer to **5.3.15** below).

5.3.15 Signage

- TCL will work with Recreation Site and Trails BC and local recreational users and/or recreational groups to develop signage describing trails, access routes, timing for return trips, maps, education materials, and schedule for escorted access.

5.3.16 Land Use Agreements

- TCL has land use agreements/understandings in place with landowners whose land is overlapped by the Project. Private lands that are overlapped by TAC will be provided clear and identified locations where they can cross with vehicles, walking or other means on an unrestricted basis if it is safe to do so; and
- Access to, within, and beyond the Project Area by designated Indigenous groups for land use and resource harvesting purposes will be discussed and facilitated during Project phases by TCL.

5.3.17 Summary of Mitigation Measures

Tables 5.3-1 summarizes potential Project-related adverse effects on the Land and Resource Use VC and proposed mitigation measures.

Table 5.3-1: Summary of Potential Effects and Mitigation Measures for Land and Resource Use Valued Component (VC)

Potential Effect	Contributing Activities within the Project Phases (C, O, D, P)	Proposed Mitigation Measure	Applicable VC Subcomponent	Residual Effect (Yes/No)
Change in Access	All activities (C, O, D)	▪ Limit Project footprint and Project Area ▪ Consultation with tenure holders ▪ Indigenous consultation and engagement ▪ Compensation for affected commercial tenure holders ▪ Public access management (refer to **PAMP**) ▪ Improvements to existing trail ▪ Signage ▪ Land use agreements	▪ Commercial Land and Resource Use	Yes
Change in Access	Activities on Mine site, Bypass Road and Rail Loop (C, O, D)	▪ Limit Project footprint and Project Area ▪ Indigenous consultation and engagement ▪ Public access management (refer to **PAMP**) ▪ Improvements to existing trail ▪ Signage ▪ Land use agreements	▪ Public Recreation Use	Yes
Change in Sensory Disturbance	All activities (C, O, D)	▪ Limit Project footprint and Project Area ▪ Reclamation measures (refer to **RCP**) ▪ Transport measures ▪ Project component design ▪ Blasting measures (refer to **EMP**) ▪ Coal processing measures ▪ Consultation with tenure holders ▪ Indigenous consultation and engagement	▪ Commercial Land and Resource Use	Yes
		▪ Limit Project footprint and Project Area ▪ Reclamation measures (refer to **RCP**) ▪ Transport measures ▪ Project component design ▪ Blasting measures (refer to **EMP**) ▪ Coal processing measures ▪ Indigenous consultation and engagement	▪ Public Recreation Use	Yes
Change in Quantity and		▪ Limit Project footprint and Project Area	▪ Commercial Land and	Yes

Potential Effect	Contributing Activities within the Project Phases (C, O, D, P)	Proposed Mitigation Measure	Applicable VC Subcomponent	Residual Effect (Yes/No)
Quality of Resources	All activities (C, O, D)	▪ Reclamation measures (refer to **RCP**) ▪ Transport measures ▪ Seepage management measures ▪ Water capture measures ▪ Management of ML/ARD ▪ Public Access Management (refer to **PAMP**) ▪ Improvements to existing trail ▪ Consultation with tenure holders ▪ Indigenous consultation and engagement	Resource Use	
		▪ Reclamation measures (refer to **RCP**) ▪ Transport measures ▪ Seepage management measures ▪ Water capture measures ▪ Management of ML/ARD ▪ Public Access Management (refer to **PAMP**) ▪ Improvements to existing trail ▪ Indigenous consultation and engagement	▪ Public Recreational Use	Yes
Change in or Interference with Recreational Infrastructure	All activities (C, O, D)	▪ Public Access Management (refer **PAMP**) ▪ Improvements to existing trail	▪ Public Recreational Use	No

Notes: *C, O, D, P represent Project Phases: (C)onstruction, (O)peration, (D)ecomissioning and Reclamation, (P)ost-closure*
C=Chapter; EMP=Explosives Management Plan (S13.0-C6); S=Section; ML/ARD=metal leaching/acid rock drainage; PAMP=Public Access Management Plan (S13.0-C14); RCP=Reclamation and Closure Plan (S13.0-C15); SC=Subcomponent; VC=Valued Component
Please refer to ***Table 5.1-2*** *for list of applicable activities for each listed Project phase, unless otherwise noted in this table.*

5.4 Residual Effects and Significance of Residual Effects

This subsection describes the anticipated residual effects of the Project on the Land and Resource Use VC subcomponents. Residual effects are the adverse Project effects that remain after the implementation of all mitigation measures and management strategies and are the expected consequences of the Project on the Land and Resource Use VC.

The approach to assessing the residual effects of the Project on the Land and Resource Use VC subcomponents follows the methodology outlined in **S3.0 Assessment Methodology** of the **EAC Application**. For each of the subcomponents, each residual effect is assessed in the context of Project activities that are expected to occur during each Project phase. Each residual effect is then characterised based on the combined predicted residual effect for all Project phases, including an evaluation of Likelihood, Significance, and Level of Confidence.

It is anticipated that potential residual effects on the Land and Resource Use subcomponents will be present during the Construction, and Operation phases, and to an incrementally decreasing degree during the Decommissioning and Reclamation Phase. Once progressive reclamation efforts are completed, Minesite infrastructure and the Rail Loop are dismantled and removed, roads are reclaimed and access restrictions are removed, during the Post-closure Phase potential residual adverse effects of the Project on the Land and Resource Use VC will be substantially reduced with minimal contributions to residual effects predicted. Outside of the immediate open pit area, during the Post-closure Phase, access for tenured commercial and tenured and non-tenured public recreational users will be substantially restored. During the Operation Phase, access to popular recreational trails, sports fishing areas and boat launches on the Bulkley River will continue unimpeded. Construction of the Goathorn Creek bridge replacement and opening of an alternate trail will improve or maintain access to recreational areas. Access to forestry licenses will not be affected by the Project. Pipeline and powerline ROW will continue to be accessible, both for maintenance of infrastructure and for access by recreational users. The Minesite and associated infrastructure will remove land from trapline holder tenures and areas potentially used by guide-outfitting certificate holders and their clients. However, traplines in the LSA appear to have been unused for some time and the most popular areas used for guide-outfitting are at some considerable distance from proposed Minesite operations.

Potential noise and emissions are modelled to be below acceptable regulatory standards or within existing background levels (**S4.0-C1 Atmospheric Environment VC** of the **EAC Application**) and are, therefore, not expected to affect recreational use in the LSA. Potential sensory disturbance for commercial and public users is likely to focus on visual quality changes. Effects on visual quality may be long-lasting, but progressive reclamation and efforts to revegetate the Minesite during decommissioning are expected to reduce long-term effects. Effects on visual quality are comparable to with changes affected by forestry operations and cutblocks in the RSA. Visual quality mitigations are discussed in **S6.0-C2 Visual Resources VC** of the **EAC Application**. Potential interference with existing recreational infrastructure is likely to be negligible after the implementation of mitigation measures described in **5.3** above, and is not carried forward for further assessment.

Potential residual effects of the Project carried forward for further assessment, for both Land and Resource Use subcomponents, include:

- change in access to land and resource use areas;
- change in sensory disturbance to existing land and resource uses; and
- change in quantity and quality of the resources.

5.4.1 Description of Evaluation Criteria

5.4.1.1 Residual Effects Characteristics

Residual effects on the Land and Resource Use VC subcomponents have been characterised in terms of Magnitude, Geographical Extent, Frequency, Duration, Reversibility, and Context. Definitions and ratings for each residual effect characteristic are provided in **Table 5.4-1**. Only adverse effects are characterised.

Table 5.4-1: Effect Characteristics Considered in Determining the Significance of Residual Effects on the Land and Resource Use Valued Component (VC)

Residual Effect Characteristic	Definition	Rating
Magnitude	The amount of change in measurable parameters relative to existing conditions	**Low**: The effect cannot be distinguished from existing conditions use of or access to the resource and will not affect the viability of commercial interests or displace public use such that their use cannot be undertaken elsewhere in the LSA. **Moderate**: The effect will result in a demonstrable change in the use of or access to the resource, but will not affect the viability of commercial interests or displace public use such that their use cannot be undertaken elsewhere in the LSA. **High**: The effect will result in a substantial change in use of or access to the resource, affecting either commercial interests or displacing public use that cannot be undertaken elsewhere in the LSA.
Geographic Extent	The geographic area in which the residual effect is expected to occur	**Project Area**: The effect is restricted to the Project Area **Local**: The effect is limited to the LSA or a portion of the LSA. **Regional**: The effect is limited to the RSA or a portion of the RSA. **Beyond Regional**: The effect extends beyond the RSA.
Duration	The length of time over which the residual effect is expected to persist before returning to existing conditions	**Short-term**: The effect is restricted to a period of up to two (2) years or less. **Medium-term**: The effect extends over a period of two (2) and 25 years. **Long-term**: The effect extends throughout the Project lifetime or permanently.
Frequency	How often the residual effect is expected to occur	**Infrequent**: The effect is not likely to occur or to occur only sporadically. **Frequent**: The effect is likely to occur on a regular but not continuous basis. **Continuous**: The effect occurs continuously.
Reversibility	Whether a residual effect can be reversed once the activity causing the residual effect ceases	**Fully reversible**: Measurable parameters of the effect fully return to existing conditions after decommissioning and reclamation. **Partially reversible**: Measurable parameters of the effect partially return to existing conditions after the Decommissioning and Reclamation Phase.

Residual Effect Characteristic	Definition	Rating
		Irreversible: Measurable parameters of the effect fully remain after decommissioning and reclamation and are considered permanent.
Context	The extent to which Land and Resource Use has been affected by past and present environmental and socio-economic processes and conditions, its potential sensitivity to the Project-related residual effect, and its ability to recover from that effect (i.e., resilience)	**High** sensitivity: Land base and resource availability is limited and cannot accommodate change. **Moderate** sensitivity: Land base and resource availability is somewhat limited, but can accommodate some changes. **Low** sensitivity: Land base and resource availability is extensive and able to accommodate changes.

Notes: *LSA=Local Study Area; Project=Tenas Project; RSA=Regional Study Area, VC=Valued Component*

5.4.1.2 Likelihood

Likelihood is the probability that the predicted residual effect will occur including consideration of the likelihood that the mitigation will be successful. Likelihood is defined as Likely or Unlikely:

- **Likely:** Moderate-to-High probability of an effect; or
- **Unlikely:** Low probability of an effect.

5.4.1.3 Significance Determination

The level of each residual effect has been rated as **Significant** or **Not Significant**, as follows:

- **Significant**: The Project or related activities are not compatible with land and resource use management and planning processes in the local area and will create a change in access, sensory disturbance, or quantity or quality of resources that substantially disrupts existing land and resource use such that it cannot continue at current levels. Residual effects are Significant if they are characterised as having High Magnitude and Long-term Duration, with Frequent or Continuous Occurrence, and/or being Irreversible. Significant residual effects are carried forward to the CEA; or
- **Not Significant**: The Project or related activities substantially align with land and resource use management and planning processes in the local area and does not cause a change in access, sensory disturbance, or quantity or quality of resources such that existing land and resource use cannot continue at current levels. Residual effects are Not Significant when any condition of Significant described above is not met. Not Significant residual effects are still carried forward to the CEA.

Significance determination for effects on the Land and Resource Use VC have been measured qualitatively or semi-quantitatively. Quantitative measures and analysis of change in a particular land or resource use (i.e., percentage loss of total forest tenure area) are used to measure effects and determine Significance, and is included in the assessment, wherever possible.

In addition, Level of Confidence in the assessment include the following ratings: Low, Moderate, and High and inform the predicted effects assessment. Confidence, which can also be understood as the level of uncertainty/risk associated with the residual effects assessment (including Significance determination), is a measure of how well residual effects are understood and of the quality of the input data. The reliability of

data inputs and analytical methods used to predict Project effects, confidence regarding the effectiveness of mitigation measures, and certainty of the predicted outcome are all considered, together with professional judgment. Confidence estimates allows the decision-maker to evaluate risk associated with the residual effects of the Project. In the determination of confidence, the following is considered:

- **Low Confidence**: Cause-effect relationships between the Project and Land and Resource Use VC are poorly understood. There may be a number of unknown external variables and/or data for the Project. The effectiveness of the mitigation measures may not yet be proven. Modelling results may vary considerably given the data inputs. There is a high degree of uncertainty in the conclusions of the assessment;
- **Moderate Confidence**: The cause-effect relationships between the Project and the Land and Resource Use VC are not fully understood (e.g., there are a number of unknown external variables or data for the Project). The effectiveness of mitigation measures may be Moderate or High. Modelling predictions are relatively confident. Based on the above, there is a Moderate Level of Confidence in the assessment conclusions; or
- **High Confidence**: There is a good understanding of the cause-effect relationship between the Project and the Land and Resource Use VC, and all necessary data are available to support the assessment. The effectiveness of the selected mitigation measures is moderate to high. There is a low degree of uncertainty associated with data inputs and/or modelling techniques, and variation from the predicted effect is expected to be low. Given the above, there is High Confidence in the conclusions of the assessment.

Based on these criteria, it was determined that an additional risk analysis was not required.

5.4.2 Commercial Land and Resource Use Subcomponent

5.4.2.1 Change in Access

A residual effect from a change in access for commercial and recreational use is expected throughout the Active Phases of the Project (Construction, Operation, Decommissioning and Reclamation) and mitigation measures are summarized in **5.3.17 Summary of Mitigation Measures** are not expected to fully mitigate the predicted effects.

Construction Phase-related clearing and preparation of the Minesite are expected to result in a loss of habitat and restricted access for some tenured areas (trapping, guide-outfitting) that will continue throughout all Active Phases of the Project, mitigated by improvements to existing trail, replacement of the Goathorn Creek Bridge. Habitat and access are predicted to be substantially restored as a result of progressive reclamation efforts, culminating in the Post-closure Phase. Agricultural grazing areas may be reduced, but access for transportation of livestock across the Bypass Road will be managed through land use agreements with local owners. The Project is not expected to adversely affect access for other commercial uses (forestry, mining, energy transmission, pipelines).

5.4.2.1.1 Residual Effect Characteristics

Table 5.4.2 characterises the residual effect and the rationale for each rating according to definitions in **Table 5.4-1**.

Table 5.4-2: Summary of Effect Characteristics Ratings for Change in Access

Residual Effects Characteristic	Rating	Rationale for Rating
Magnitude	Moderate	The Minesite and associated infrastructure removes access to competing tenured lands and uses during the Active Phases of the Tenas Project (Project) (Construction, Operation, Decommissioning and Reclamation). However, the Project does not remove commercial access to existing land use areas.
Geographic Extent	Local	Access restrictions or prohibitions are limited to the Minesite and associated infrastructure.
Duration	Medium-term	The effect is predicted to occur during the Active Phases of the Project.
Frequency	Continuous	Access restrictions or prohibitions will be continuous during the Active Phases of the Project.
Reversibility	Partially reversible	Except for pit areas where access restrictions will continue for public health and safety, access is expected to be largely restored in the Local Study Area (LSA) during the Post-closure Phase.
Context	Low	Access to other land use areas and availability of resources is extensive and is expected to accommodate the proposed changes

5.4.2.1.2 Likelihood

It is Likely that this residual effect will occur despite the implemented mitigation measures summarized in **Table 5.3-1**. This determination is based primarily on professional judgement. Controlled livestock crossing of the Bypass Road will be negotiated with local agricultural land users by agreement. Implementation of the **PAMP** is intended to assist in mitigating a change in access. This determination is based primarily on professional judgement.

5.4.2.1.3 Significance Determination

The Project is expected to change access to some areas used for commercial (primarily guide-outfitting) activities. However, Project-related activities and use of land and resources resulting in the change in access are aligned with local or regional land use plan and objectives. The residual effect of the change in access is rated as **Not Significant.** The Level of Confidence is Moderate because the access that will be removed is known and the mitigations to improve or replace alternate access are predictable. Whether users will be comfortable using alternate access once the Project is in its Operation Phase is not known.

5.4.2.2 Change in Sensory Disturbance

A residual effect associated with sensory disturbance for commercial use is expected throughout the Active Phases of the Project (Construction, Operation, Decommissioning and Reclamation) and mitigation measures summarized in **5.3.17 Summary of Mitigation Measures** will not be able to be fully mitigate the predicted effects.

The **Visual Resources Management Plan (S13.0-C19) (VRMP)** and the **Air Quality Management Plan (S13.0-C2) (AQMP**), which includes noise, dust and vibration, are intended to partially mitigate sensory disturbance during the Active Phases of the Project. Nevertheless, even as modelling predicts noise and

emissions will be kept to relatively low and acceptable levels for commercial users at a 10 km distance, the Minesite is expected to be visible from guide-outfitting tenures surrounding the Project.

In addition, implementation of the **PAMP and the Minesite Traffic Control Plan (S13.0-C10) (MTCP)** are intended to reduce potential sensory disturbance for commercial users during the Construction, and Operation phases, controlling dust emissions and managing traffic flows further mitigating potential spikes in dust and noise.

Progressive reclamation efforts noted in the **RCP** will also contribute to mitigating changes in visual quality.

5.4.2.2.1 Residual Effect Characteristics

Table 5.4-3 characterises the residual effect and the rationale for each rating according to definitions in **Table 5.4-1**.

Table 5.4-3: Summary of Effect Characteristics Ratings for Change in Sensory Disturbance

Residual Effects Characteristic	Rating	Rationale for Rating
Magnitude	Moderate	There will be a measurable sensory disturbance, but local use of areas for commercial and recreational purposes is not expected to change.
Geographic Extent	Local	Noise and emissions are predicted to be limited to the Local Study Area (LSA). Visual quality changes may extend beyond the LSA.
Duration	Long-term	Changes in sensory disturbance is expected to be present in all Tenas Project phases.
Frequency	Continuous	Sensory disturbance is expected to be continuous during all active Project phases.
Reversibility	Partially-reversible	Changes in visual quality are predicted to remain in Post-closure phase.
Context	Low	Sensory disturbance is not expected to limit availability or use of other land use areas.

5.4.2.2.2 Likelihood

It is Likely that this residual effect will occur despite the implemented mitigation measures. Noise and emissions can be controlled through implementation of management plans. Progressive reclamation may reduce adverse changes in visual quality. However, the Minesite and related activities will be visible throughout all Project phases. Aspects of the Minesite, including open pit areas are likely to be visible in the Post-closure Phase. This determination is based primarily on professional judgement.

5.4.2.2.3 Significance Determination

Modelling undertaken as part of the assessment in **S4.0-C1 Atmospheric Environment** of the **EAC Application** concluded that local noise and emissions would be within acceptable levels or existing background. The sensory disturbance is measurable, but is not expected to displace other commercial or recreational use. Changes in visual quality are expected to persist throughout all Project phases. However, these changes occur in a local area in which forestry activity co-exists with other commercial and recreational uses. As discussed in **S6.0-C2 Visual Resources VC** of the **EAC Application**, forestry cutblocks are predicted to recover from substantial visual disturbance as forests re-grow in disturbed areas.

Similarly, progressive reclamation is expected to contribute to incremental recovery of the visual disturbance, while noise and emissions will be small after the Decommissioning and Reclamation Phase is completed.

Based on **Table 5.4-1** and the definition of significance in **5.4.1.3**, the residual effect of the change in access is rated as **Not Significant.** The Level of Confidence is Moderate because actual commercial user response to sensory disturbance cannot be accurately modelled and the effectiveness of mitigations to reduce noise, emissions and changes in visual quality are expected to change during each Project phase. This determination is based primarily on professional judgement.

5.4.2.3 Change in Quantity and Quality of Resources

A residual effect from a change in the quantity and quality of land and resources for commercial use is expected throughout the Active Phases of the Project (Construction, Operation, Decommissioning and Reclamation) as mitigation measures summarized in **5.3.17** will not be able to be fully mitigate the predicted effects. Minesite and associated Project infrastructure will remove land and resources from alternate commercial tenured (trapping, guide-outfitting, mining exploration, and agricultural grazing lands), but not for existing energy transmission or oil and gas pipelines. Forestry licenses will also be unaffected. As discussed in **5.4.2.2**, sensory disturbance may contribute to a reduction in the quality of existing land and resources used for commercial purposes if the disturbance affects wildlife that change their movements. Implementation of multiple management plans described in **Table 5.3-1** are expected to partially mitigate these effects.

5.4.2.3.1 Residual Effect Characteristics

Table 5.4-4 characterises the residual effect and the rationale for each rating according to definitions in **Table 5.4-1**.

Table 5.4-4: Summary of Effect Characteristics Ratings for Change in Quantity and Quality Resources

Residual Effects Characteristic	Rating	Rationale for Rating
Magnitude	Moderate	There is expected to be a measurable reduction in land and resources that could be used for competing land and resource use. Other commercial land uses continue to be viable in the local area.
Geographic Extent	Local	The reduction in alternate land and resource uses is limited to the Local Study Area (LSA)
Duration	Long-term	The Minesite and associated Project infrastructure footprint will remove this area from alternate use during all active Project phases.
Frequency	Continuous	The effect will be continuous during all active Project phases.
Reversibility	Partially reversible	Progressive reclamation during the Operation and Decommissioning and Reclamation phases is expected to reduce the effect over time.
Context	Low	The availability and viability of other land and resources is extensive is expected to accommodate the proposed changes

5.4.2.3.2 Likelihood

It is Likely that this residual effect will occur despite the implemented mitigation measures. Once the site is cleared and other Project infrastructure is constructed, including the Bypass Road and Rail Loop, these areas will no longer be available for other land and resource uses. Implementation of management plans, progressive reclamation and the Decommissioning and Reclamation Phase will mitigate changes in the quantity and quality of existing resources. However, the Minesite and related activities will be visible throughout all Active Phases of the Project, potentially effecting the quality of surrounding land and resource use. This determination is based primarily on professional judgement.

5.4.2.3.3 Significance Determination

The Minesite and associated Project infrastructure are a measurable change in the resources in the local area. However, Project activities and use of land and resources that may cause this change in the quality and quantity of available land and resources are aligned with the objectives and activities outlined in regional and local land use management plans described in **2. Regulatory Context**. During the Operation Phase, there will continue to be extensive areas available in the LSA for other commercial uses and therefore it is expected that the incremental loss in quantity and quality of resources can be accommodated. Progressive reclamation will reduce the amount of land and resources dedicated to Minesite operation. Other than open pit areas, the Decommissioning and Reclamation Phase will improve and return lands and resources to alternate commercial and recreational uses. Therefore, based on **Table 5.4-1** and the definition of Significance in **5.4.1.3**, the residual effect of a change in the quantity and quality of land and resources is rated as **Not Significant.** The Level of Confidence in this rating is High. The change in the quantity and quality of resources is well understood and limited to the Minesite and associated infrastructure.

5.4.3 Public Recreation Use Subcomponent

5.4.3.1 Change in Access

A residual effect from a change in access for recreational use is expected throughout the Active Phases of the Project (Construction, Operation, Decommissioning and Reclamation) as mitigation measures summarized in **5.3.17** will not be able to be fully mitigate the predicted effects.

Construction Phase-related clearing and preparation of the Minesite will result in adverse changes in access for recreational users that are expected to continue throughout all of the Active Phases of the Project. Wildlife habitat and access is predicted to be substantially restored as a result of progressive reclamation efforts, culminating in the Post-closure Phase.

For non-tenured public recreational users, access to the Minesite, Bypass Road and Rail Loop will be prohibited due to public safety considerations. Public access to the Goathorn Creek Bridge will be escorted. Trails connecting to Hunter Basin will be removed by the Minesite but will be replaced by opening up of alternate trails. Access to other popular recreational areas in the local area are not expected to be affected.

5.4.3.1.1 Residual Effect Characteristics

Table 5.4.5 characterises the residual effect and the rationale for each rating according to definitions in **Table 5.4-1**.

Table 5.4-5: Summary of Effect Characteristics Ratings for Change in Access

Residual Effects Characteristic	Rating	Rationale for Rating
Magnitude	Moderate	The Minesite and associated infrastructure removes access to competing non-tenured lands and resource uses during the Tenas Project (Project)'s Active Phases. However, the Project does not remove recreational access to important existing land use areas.
Geographic Extent	Local	Access restrictions or prohibitions are limited to the Minesite and associated infrastructure.
Duration	Medium-term	The effect is predicted to occur during the Active Phases of the Project.
Frequency	Continuous	Access restrictions or prohibitions will be continuous during all Active Phases of the Project.
Reversibility	Partially reversible	Except for open pit areas where access will continue to be restricted for public health and safety, access will be largely restored in the local area during the Post-closure Phase.
Context	Low	Access to other land use areas and availability of resources is extensive and can accommodate the proposed changes

5.4.3.1.2 Likelihood

It is Likely that this residual effect will occur despite the implemented mitigation measures. Through replacement of the Goathorn Creek Bridge, the Project will improve access to areas not easily accessible since the bridge washed out in 2013. Access, however, will be escorted. Trails removed during Minesite clearing can be partially mitigated by opening up of alternate trails to Hunter Basin and other popular recreational destinations south and west of the Minesite. Implementation of the **PAMP** and **MTCP** are intended to assist in mitigating a change in access. This determination is based primarily on professional judgement.

5.4.3.1.3 Significance Determination

The Project is expected to change access to some areas used for recreational activities. However, the change in access is aligned with acceptable land uses in local or regional land use plans in **2. Regulatory Context.** Based on **Table 5.4-1** and the definition of Significance in **5.4.1.3**, the residual effect of the change in access is rated as **Not Significant.** The Level of Confidence is Moderate because the access that will be removed is known and the mitigations to improve or replace alternate access are predictable. Whether users will be comfortable using alternate access once the Project is in its Operation Phase is not known.

5.4.3.2 Change in Sensory Disturbance

A residual effect associated with sensory disturbance for the Public Recreational Use subcomponent is expected throughout the Active Phases of the Project (Construction, Operation, Decommissioning and Reclamation) and mitigation measures summarized in **5.3.17** will not be able to be fully mitigate the predicted effects.

The **VRMP** and the **AQMP** are intended to partially mitigate sensory disturbance during the Active Phases of the Project. Nevertheless, even as modelling predicts noise and emissions will be kept to relatively low and acceptable levels for recreational users at a 10 km distance, the Minesite will be visible from popular

recreational areas and trailheads surrounding the Project. Implementation of the **PAMP** and **MTCP** will reduce potential sensory disturbance for recreational users during the Construction, and Operation phases, controlling dust emissions during escorted access and managing traffic flows further mitigating potential spikes in dust and noise. Progressive reclamation efforts will also contribute to mitigating changes in visual quality.

5.4.3.2.1 Residual Effect Characteristics

Table 5.4.6 characterises the residual effect and the rationale for each rating according to definitions in **Table 5.4-1**.

Table 5.4-6: Summary of Effect Characteristics Ratings for Change in Sensory Disturbance

Residual Effects Characteristic	Rating	Rationale for Rating
Magnitude	Moderate	There will be a measurable sensory disturbance, but local use of areas for public recreational purposes is not expected to change.
Geographic Extent	Local	Noise and emissions will be limited to the Local Study Area (LSA). Visual quality changes may extend beyond the LSA.
Duration	Long-term	Changes in sensory disturbance will be present in all Project phases.
Frequency	Continuous	Sensory disturbance will be continuous during all Active Phases of the Project
Reversibility	Partially-reversible	Changes in visually quality will remain in Post-closure Phase.
Context	Low	Sensory disturbance will not limit availability or use of other land use areas.

5.4.3.2.2 Likelihood

It is Likely that this residual effect will occur despite the implemented mitigation measures. Noise and emissions can be controlled through implementation of management plans. Progressive reclamation may reduce adverse changes in visual quality. However, the Minesite and related activities will be visible throughout all Active Phases of the Project. Aspects of the Minesite, including open pit areas are likely to be visible in the Post-closure Phase. This determination is based primarily on professional judgement.

5.4.3.2.3 Significance Determination

Modelling undertaken as part of the assessment in **S4.0-C1 Atmospheric Environment VC** of the **EAC Application** concluded that local noise and emissions would be within acceptable levels or existing background. The sensory disturbance is measurable, but is not expected to displace other commercial or recreational use. Changes in visual quality will persist throughout all Project phases. However, these changes occur in a local area in which forestry activity co-exists with other commercial and recreational uses. As discussed in **S6.0-C2 Visual Resources VC** of the **EAC Application** forestry cutblocks will recover from substantial visual disturbance as forests re-grow in disturbed areas. Similarly, progressive reclamation will contribute to incremental recovery of the visual disturbance, while noise and emissions will be small after the Decommissioning and Reclamation Phase is completed. Based **Table 5.4-1** and the definition of Significance in **5.4.1.3**, the residual effect of the change in sensory disturbance is rated as **Not Significant.** The Level of Confidence is Moderate because actual recreational user response to sensory

disturbance cannot be accurately modelled and the effectiveness of mitigations to reduce noise, emissions and changes in visual quality will change during each Project phase.

5.4.3.3 Change in Quantity and Quality of Resources

A residual effect from a change in the quantity and quality of land and resources for the Public Recreational Use subcomponent is expected throughout the Active Phases of the Project (Construction, Operation, Decommissioning and Reclamation) and mitigation measures summarized in **5.3.17** will not be able to be fully mitigate the predicted effects.

Minesite and associated Project infrastructure will remove land and resources from alternate non-tenured public recreation land use (hiking, camping, fishing, hunting, equestrian, ATV, snowmobiles). Trails intersecting the Minesite connecting to popular recreational land use areas such as Hunter Basin will be removed. Construction of the permanent replacement of the Goathorn Creek Bridge and the opening up of alternate trails will assist in mitigating a change in in the quantity and quality of land and resources by restoring access to recreation areas. As discussed in **5.4.2.2**, sensory disturbance may contribute to a reduction in the quality of existing land and resources used for recreational purposes. Implementation of multiple management plans described in **Table 5.3-1** are expected to partially mitigate these effects.

5.4.3.3.1 Residual Effect Characteristics

Table 5.4.7 characterises the residual effect and the rationale for each rating according to definitions in **Table 5.4-1**.

Table 5.4-7: Summary of Effect Characteristics Ratings for Change in Quantity and Quality Resources

Residual Effects Characteristic	Rating	Rationale for Rating
Magnitude	Moderate	The Project footprint will be a measurable reduction in land and resources that currently or could be used for competing public recreation use. Other recreational land uses continue to be viable in the local area.
Geographic Extent	Local	The reduction in alternate land and resource uses is limited to the Local Study Area (LSA)
Duration	Long-term	The Minesite and associated Tenas Project (Project) infrastructure will remove area from alternate public recreational use during all Active Phases of the Project.
Frequency	Continuous	The effect will be continuous during all Active Phases of the Project.
Reversibility	Partially reversible	Progressive reclamation during the Operation, and Decommissioning and Reclamation phases will reduce the effect over time. Access to pit areas will continue to be restricted for health and safety.
Context	Low	The availability and viability of other land and resources is extensive.

5.4.3.3.2 Likelihood

It is Likely that this residual effect will occur despite the implemented mitigation measures. Once the site is cleared and other Project infrastructure is constructed, including the Bypass Road and Rail Loop, these areas will no longer be available for other land and resource uses. Implementation of management plans, progressive reclamation and the Decommissioning and Reclamation Phase will mitigate changes in the quantity and quality of existing resources. However, the Minesite and related activities will be visible throughout all Project phases, potentially effecting the quality of surrounding land and resource use. This determination is based primarily on professional judgement.

5.4.3.3.3 Significance Determination

The Minesite and associated Project infrastructure are a measurable change in the resources in the local area. However, the change is aligned with local and regional LRMPs mentioned in **2. Regulatory Context**. Construction of the Goathorn Creek Bridge may improve the quality of land and resources for recreational use and opening up of alternate trails to access Hunter Basin provides appropriate mitigation. During the Operation Phase, there will continue to be extensive areas available in the LSA for other recreational uses and the incremental loss in quantity and quality of resources can be accommodated. Progressive reclamation will reduce the amount of land and resources dedicated to Minesite activities. Other than open pit areas, the Decommissioning and Reclamation Phase will improve and return lands and resources to alternate commercial and recreational uses. Therefore, based on **Table 5.4-1** and the definition of Significance in **5.4.1.3**, the residual effect of a change in the quantity and quality of land and resources is rated as **Not Significant.** The Level of Confidence in this rating is High. The change in the quantity and quality of resources is well understood and limited to the Minesite and associated infrastructure.

5.5 Summary of Project-related Residual Adverse Effects and Significance

Project-related residual adverse effects for the Land and Resource Use VC are summarized in **Table 5.5-1 (Commercial Use)** and **5.5-2 (Public Recreation)**, including Significance and Level of Confidence ratings. The ratings provided are consistent with the summary of effect characterisation ratings provided in **Table 5.4-2**.

Based on the determination of **Not Significant** for all residual effects listed in **Table 5.5-1** and **5.5-2,** it is concluded that there is no potential for Significant residual effects on the Land and Resource Use VC. The Project is aligned with regional and local land use management plans mentioned in **2. Regulatory Context**. Changes in access for commercial and recreational users can effectively be mitigated and in some respects improved. Sensory disturbance associated with the Project is within acceptable limits. A change in visual quality is not expected to change the viability or commercial or recreational use in the local area and can be accommodated in a similar way to forestry activity. Progressive reclamation will reduce a change in the quality of land and resources. The Decommissioning and Reclamation Phase will return substantial areas back to competing land uses at the end of the mine lifecycle.

All residual effects, **Significant** or **Not Significant**, are carried forward to the CEA.

Table 5.5-1: Summary of Residual Adverse Effects for Land and Resource Use – Commercial Land and Resource Use Subcomponent

Residual Adverse Effects	Contributing Activities within the Project Phases (C, O, D, P)	Proposed Mitigation Measures	Residual Effects Characterisation								
			Magnitude	Geographic Extent	Duration	Frequency	Reversibility	Context	Significance	Likelihood	Level of Confidence
Change in Access	All activities (C, O, D)	▪ Limit Project footprint and Project Area ▪ Consultation with tenure holders ▪ Compensation for affected commercial tenure holders ▪ Indigenous consultation and engagement ▪ Public access management. Refer to **Public Access Management Plan (S13.0-C14) (PAMP)** ▪ Improvements to existing trail ▪ Signage ▪ Land use agreements	M	LSA	MT	CF	PR	L	NS	L	M
Change in Sensory Disturbance	All activities (C ,O, D)	▪ Limit Project footprint and Project Area ▪ Reclamation measures. Refer to **Reclamation and Closure Plan (S13.0-C15) RCP)** ▪ Transport measures ▪ Project component design ▪ Blasting measures. Refer to **Explosives Management Plan (S13.0-C6) (EMP)** ▪ Coal processing measures ▪ Consultation with tenure holders ▪ Indigenous consultation and engagement	M	LSA	LT	CF	PR	L	NS	L	M
Change in Quantity or Quality of Resources	All activities (C, O, D)	▪ Limit Project footprint and Project Area ▪ Reclamation measures (refer to **RCP**) ▪ Transport measures ▪ Seepage management measures ▪ Water capture measures ▪ Management of metal leaching/acid rock drainage (ML/ARD) ▪ Public access management (refer to **PAMP**) ▪ Improvements to existing trail ▪ Consultation with tenure holders ▪ Indigenous consultation and engagement	M	LSA	LT	CF	PR	L	NS	L	H

Notes: *C, O, D, P represent Project phases: (C)onstruction, (O)peration, (D)ecomissioning and Reclamation, (P)ost-closure*
Magnitude: Low (L), Moderate (M), High (H)
Geographic Extent: Project Area (PA), Local (LSA), Regional (RSA), beyond Regional (beyond RSA)
Duration: Short-term (ST), Medium-term (MT), Long-term (LT)
Frequency: Infrequent (IF), Frequent (FF), Continuous (CF)
Reversibility: Fully reversible (FR), Partially reversible (PR), Irreversible (IR)
Context: Low (L), Moderate (M), High (H)
Likelihood: Unlikely (UL), Likely (L)
Significance: Not-Significant (NS), Significant (S)
Level of Confidence: High (H), Moderate (M), or Low (L)
*See **Table 5.1-2** for list of applicable activities for each listed Project phase, unless otherwise noted in this table.*

Table 5.5-2: Summary of Residual Adverse Effects for Land and Resource Use – Public Recreation Use Subcomponent

Residual Adverse Effects	Contributing Activities within the Project Phases (C, O, D, P)	Proposed Mitigation Measures	Residual Effects Characterisation								
			Magnitude	Geographic Extent	Duration	Frequency	Reversibility	Context	Significance	Likelihood	Level of Confidence
Change in Access	All activities (C, O, D)	▪ Limit Project footprint and Project Area ▪ Indigenous consultation and engagement ▪ Public access management. Refer to **Public Access Management Plan (S13.0-C14) (PAMP)** ▪ Improvements to existing trail ▪ Signage ▪ Land use agreements	M	LSA	MT	CF	PR	H	NS	L	M
Change in Sensory Disturbance	All activities (C, O, D)	▪ Limit Project footprint and Project Area ▪ Reclamation measures. Refer to **Reclamation and Closure Plan (S13.0-C15) RCP)** ▪ Transport measures ▪ Project component design ▪ Blasting measures. Refer to **Explosives Management Plan (S13.0-C6) (EMP)** ▪ Coal processing measures ▪ Indigenous consultation and engagement	M	LSA	LT	CF	PR	H	NS	L	M
Change in Quantity or Quality of Resources	All activities (C, O, D)	▪ Reclamation measures (refer to **RCP**) ▪ Transport measures ▪ Seepage management measures ▪ Water capture measures ▪ Management of metal leaching/acid rock drainage (ML/ARD) ▪ Public access management (refer to **PAMP**) ▪ Improvements to existing trail ▪ Indigenous consultation and engagement	M	LSA	LT	CF	PR	H	NS	L	H

Notes: *C, O, D, P represent Project Phases: (C)onstruction, (O)peration, (D)ecomissioning and Reclamation, (P)ost-closure*
Magnitude: Low (L), Moderate (M), High (H)
Geographic Extent: Project Area (PA), Local (LSA), Regional (RSA), beyond Regional (beyond RSA)
Duration: Short-term (ST), Medium-term (MT), Long-term (LT)
Frequency: Infrequent (IF), Frequent (FF), Continuous (CF)
Reversibility: Fully reversible (FR), Partially reversible (PR), Irreversible (IR)
Context: Low (L), Moderate (M), High (H)
Likelihood: Unlikely (UL), Likely (L)
Significance: Not-Significant (NS), Significant (S)
Level of Confidence: High (H), Moderate (M), or Low (L)
*See **Table 5.1-2** for list of applicable activities for each listed Project phase, unless otherwise noted in this table.*

6. CUMULATIVE EFFECTS ASSESSMENT (CEA)

This subsection presents an assessment of the potential cumulative effects on the Land and Resource Use VC. Consideration of cumulative effects is made for all residual adverse effects, whether or not they are **Significant** or **Not Significant**. The following criteria must be met:

- There must be an effect of the Project;
- The identified effect is demonstrated to act cumulatively with the effects from other projects or activities;
- It must be known that the other projects or activities have been or will be carried out and are not hypothetical; and
- The cumulative effect must be likely to occur. If no cumulative interaction is considered likely, no further analysis is completed.

A rationale is provided if a project or activity is not analyzed further than the initial consideration of each project. The Project and Activity Inclusion List is provided in the **S3.0 Assessment Methodology** of the **EAC Application** and identifies past, present and reasonably foreseeable projects in the LSA and RSA that could have residual effects overlapping with the Project's residual effect on the Land and Resources VC.

The approach to determining cumulative effects is as follows:

- identification of the list of projects and activities to be included in a CEA from the Project and Activity Inclusion List in **S3.0 Assessment Methodology** of the **EAC Application**, relative to the spatial and temporal context for land and resource use;
- determination for each subcomponent, which of these projects or activities will have an interaction with residual effects of the Project, based on the indicators for the land and resource use;
- characterisation of cumulative effects;
- consideration of additional mitigation measures to address cumulative effects identified; and
- determination of the Significance of cumulative affects as defined in and as carried out for residual Project effects assessment in **5.4 Residual Effects and Significance of Residual Effects.**

6.1 Cumulative Effects Assessment (CEA) for Land and Resource Use Subcomponents - Commercial Land and Resource Use, and Public Recreational Use

6.1.1 Potential Cumulative Effects

Table 6.1-1 provides a list of projects included in the CEA for the Land and Resource Use VC based on spatial and temporal interactions (boundaries defined in **3.2.4**), while **Figure 6.1-1** depicts their locations with the RSA. All past and present Project-related effects have been addressed as part of the assessment of existing conditions in **4. Existing Conditions**. Potential cumulative effects of the Project in relation to reasonably foreseeable future projects and activities will be considered in **6.1**. It is Likely for cumulative effects to occur in the RSA or LSA given the spatial and temporal boundaries of these projects and activities. **Table 6.1-1** lists projects included in the CEA of the Land and Resource Use VC based on their potential spatial and temporal interaction with the Project.

Existing conditions represent past and present projects and activities, including all existing disturbance. All Projects and activities listed in the Project and Activity Inclusion List (**S3.0 Assessment Methodology** of the **EAC Application**) that are not listed below in **Table 6.1 1** are not considered in the Land and Resource Use CEA as the residual effects of these developments are not anticipated to overlap spatially or temporally with the residual effects of the Project and are not in proximity to the selected RSA.

Table 6.1-1 Projects Included in the Cumulative Assessment of the Land and Resource Use Valued Component (VC) Based on Spatial and Temporal Interaction

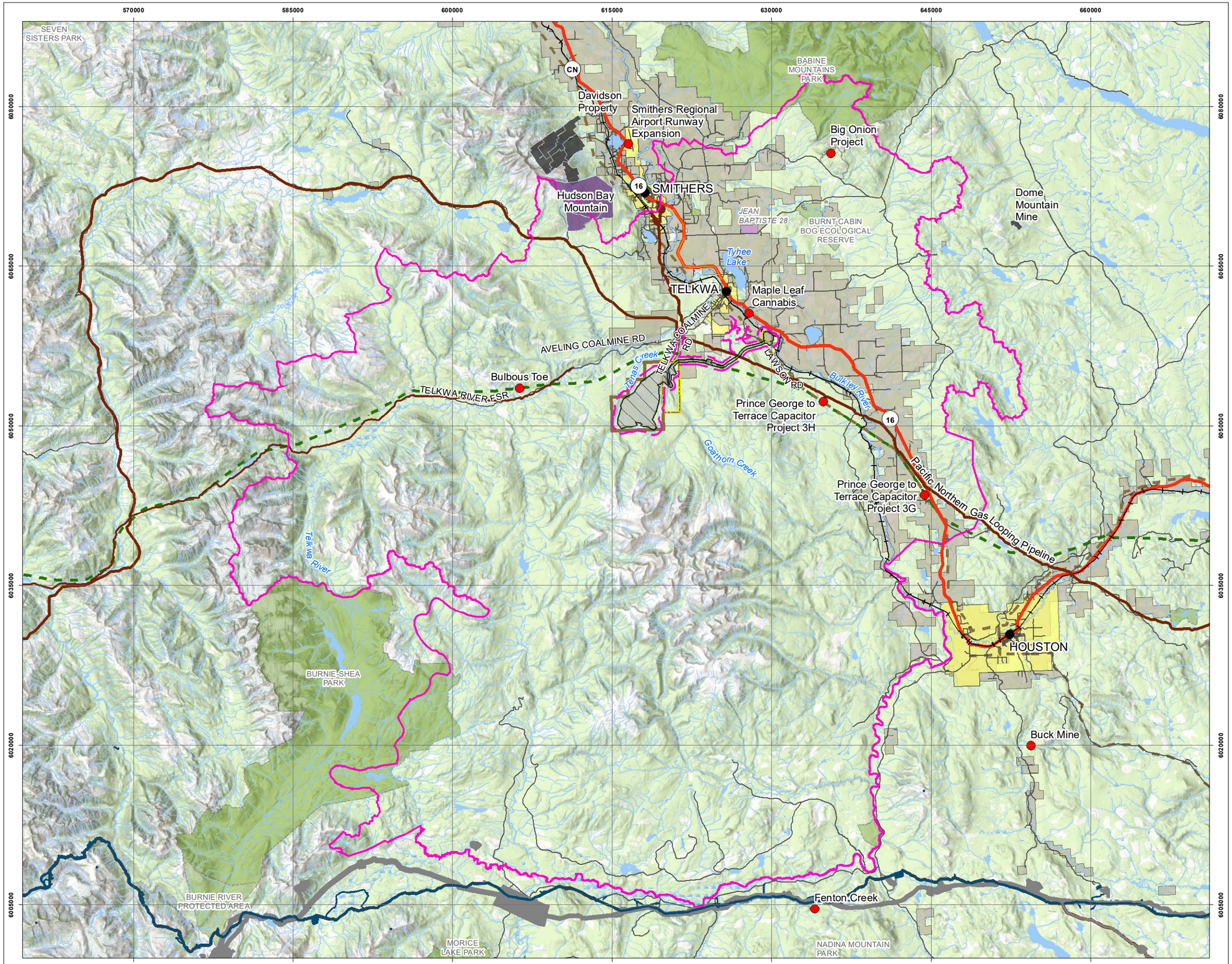
Project/Activity Name	Interacts with Project-related Effects on the VC as a Past, Present or Future Project/Activity	
	Past and Present	Future
Berg Copper-Molybdenum-Silver Mine (Mining)	Yes	Yes
Big Onion Project (Mining)	Yes	Yes
Blackjack Mineral (Mining)	Yes	No
Bulbous Toe (Utilities)	Yes	No
Buck (Gold/silver/zinc property) (Mining)	Yes	Yes
Burning Daylight Quarry (Mining)	Yes	Yes
Cheslatta Green Energy Project (Utilities)	No	Yes
Chuchi Lake Mine (Mining)	Yes	Yes
Coastal Gaslink (Utilities)	Yes	Yes
Davidson (Mining)	Yes	Yes
Decar (Mining	Yes	Yes
Dome Mountain (Mining)	Yes	Yes
Emerald Glacier (Mining)	Yes	Yes
Endako (Mining)	Yes	Yes
Equity Silver (Mining)	Yes	Yes
Fenton Creek (Mining)	Yes	Yes
Fort St. James Green Energy (Utilities)	Yes	Yes
Fran Property (Mining)	Yes	Yes
Hanson (Mining)	Yes	Yes
Holy Cross (Mining)	Yes	Yes
Hudson Bay Mountain Estates (Community)	No	Yes
Huckleberry (Mining)	Yes	Yes
Kenney Dam Cold Water Release Facility (Utilities)	No	Yes
Kwanika (Mining)	Yes	Yes
Lennac Lake (Mining)	Yes	Yes
Lorraine-Jajay Copper Mine (Mining)	Yes	Yes
Maple Leaf Cannabis Production Facility (Commercial)	Yes	Yes

Project/Activity Name	Interacts with Project-related Effects on the VC as a Past, Present or Future Project/Activity	
	Past and Present	Future
Morrison Copper/Gold (Mining)	Yes	Yes
Mount Milligan (Mining)	Yes	Yes
Ogden Mountain Jade (Mining)	Yes	Yes
Ootsa Property (Mining)	Yes	Yes
Pacific Northern Gas Looping Pipeline (Utilities)	No	Yes
Pacific Trails Pipeline (Utilities)	No	Yes
Prince George to Terrace Capacitors Project (Utilities)	No	Yes
Prince Rupert Gas Transmission (Utilities)	No	Yes
Silver Hope Property (Mining)	Yes	Yes
Silver Queen Property (Mining)	No	Yes
Smithers Regional Airport Runway Expansion (Community)	Yes	No
Snowbird Property (Mining)	Yes	Yes
Stardust Project (Mining)	Yes	Yes
Telkwa to Smithers Bike Trail (Recreation)	No	Yes
Wildcat Property (Mining)	Yes	Yes
Agricultural Activities	Yes	No
Forestry Activities	Yes	Yes
Recreation Activities	Yes	Yes
Mining Activities	Yes	Yes

Notes: *Project=Tenas Project; VC=Valued Component*

Tenas Project

Projects and Activities Included in the Cumulative Effects Assessment for Land and Resource Use



Legend

- Project
- City/Town
- Rail Line
- Highway
- Road
- 138 kV Transmission Line
- 500 kV Transmission Line
- Watercourse
- Wetland
- Waterbody
- Park or Protected Area
- First Nation Reserve
- Municipal Area
- General Private Property
- Tenas Coal Licenses
- Telkwa Coal Limited Private Property
- Project Area
- Non-Traditional Land Use Local Study Area
- Non-Traditional Land Use Regional Study Area
- Coastal GasLink Pipeline Ltd.
- Pacific Northern Gas Ltd.
- Pacific Trail Pipelines Management Inc.
- Telkwa to Smithers Bike Trail
- Hudson Bay Mountain Resort Tenure
- Mining Leases

Notes

1. All mapped features are approximate and should be used for discussion purposes only.
2. This map is not intended to be a "stand-alone" document, but a visual aid of the information contained within the referenced Report. It is intended to be used in conjunction with the scope of services and limitations described therein.

Sources

- Project Area: Allegiance Coal, April 21, 2021
- Basedata: Government of British Columbia
- Basemap: World Topo Base

N

1:350,000

0 4 8 12 16 20

Kilometres

NAD 1983 UTM Zone 9N

Page Size: 11" x 17"

20P0172	Production Date: Sep 28, 2021	Figure 6.1-1

TELKWA COAL LIMITED

EDI

Path: L:\PROJECTS\2016\16P0401_Tenas_Mine\Mapping\REPORTING\SEA\LayoutSet\Fig061_ProjectActivitiesCEA_20210928.mxd

The projects and activities listed above and summarized below have been included for their potential to interact with the Project's residual effects and contribute to a cumulative effect of a change in access, change in sensory disturbance, or a change in quantity or quality of resources in the RSA/LSA. As mentioned, all past and present projects have been accounted for in the assessment of effects in **5.4 Residual Effects and Significance of Residual Effects**.

- Berg Copper-Molybdenum-Silver Mine (Mining): Located within Electoral Area G of the RDBN, the last exploration drilling for this mine was conducted in 2008. Further exploration or development may contribute to access-related effects or sensory disturbance to existing land and resource uses within the RSA/LSA;
- Big Onion Project (Mining): Located within Electoral Area G of the RDBN, the last exploration drilling for the Big Onion Project was conducted in 2010. Further exploration or development may contribute to access-related effects or sensory disturbance to existing land and resource use within the RSA/LSA;
- Blackjack Mineral (Mining): This historic mine produced gold and lead;
- Bulbous Toe (Utilities): Bulbous Toe is a BC Hydro transmission line project located within the RDBN requiring periodic maintenance of a transmission tower. Project activity may contribute to change in sensory disturbance to existing land and resource use within the RSA/LSA;
- Buck (gold/silver/zinc property) (Mining): Located within the RDBN, the last exploration drilling at Buck was conducted in 2020. Further exploration or development may contribute to access-related effects or a change in sensory disturbance within the RSA/LSA;
- Burning Daylight Quarry (Mining): Located within the RDBN, the quarry is currently operating. Operations may contribute to a change in sensory disturbance to existing land and resource use within the RSA;
- Cheslatta Green Energy Project (Utilities): Located in Electoral Area B of the RDBN, the proposed 10 megawatt (MW) power plant located near Cheslatta Forest Products, aims to use gasification technology to convert wood residue into electricity for 9,500 homes. Development may contribute to access-related effects or a change in sensory disturbance to existing land and resource use within the RSA/LSA;
- Chuchi Lake Mine (Mining): Chuchi Lake Mine is located in Electoral Area C of the RDBN, south of Klawdetelle Creek, approximately 6 km north of Chuchi Lake, and 90 km north of the community of Fort St. James. Exploration drilling occurred in 2019. Further exploration or development may contribute to access-related effects or to a change in sensory disturbance to existing land and resource use within the RSA/LSA;
- Coastal Gaslink (Utilities): Traversing Electoral Area G of the RDBN, construction of the pipeline is currently underway. Further development may contribute to access-related effects or a change in sensory disturbance to existing land and resource use within the RSA/LSA;
- Davidson (Mining): Located on the border between Electoral Areas and G near Smithers in the RDBN, preliminary assessment for Davidson was withdraw The last project update occurred in 2013. Further exploration or development may contribute to access-related effects or a change in sensory disturbance to existing land and resource use within the RSA/LSA;
- Decar (Mining): Located within the Electoral Area C of the RDBN, rock testing for Decar was conducted in 2019. Further exploration or development may contribute to access-related effects or a change in sensory disturbance to existing land and resource use within the RSA/LSA;

- Dome Mountain (Mining): Dome Mountain is located within the Electoral Area G of the RDBN, approximately 38 km east of the Town of Smithers. As a past producing mine, additional infrastructure was completed 2010 to -2012;
- Emerald Glacier (Mining): Emerald Glacier is located inside Electoral Area E of the RDBN, near the border with Area G and adjacent to the previously operating Huckleberry and Ootsa mines. The last exploration drilling was conducted in 2012;
- Endako (Mining): Located near Fraser Lake, within the RDBN, the mine has been in care and maintenance(C&M) since 2015;
- Equity Silver (Mining): Located with the RDBN, the historic gold, silver, and copper mine site was mined in three open pits; a small underground mine and is currently in C&M;
- Fenton Creek (Mining): Located within Electoral Area G of the RDBN, the last exploration drilling for Fenton Creek occurred in 2015. Further exploration or development may contribute to access-related effects or to a change in sensory disturbance to existing land and resource use within the RSA/LSA;
- Fort St. James Green Energy (Utilities): Fort St. James Green Energy is a 40 MW power plant utilizing wood residue located within the RDBN. Operations may contribute to a change in sensory disturbance to existing land and resource use within the RSA;
- Fran Property (Mining): Located within Electoral Area C of the RDBN, the last exploration drilling for Fran Property occurred in 2013. Further exploration or development may contribute to access-related effects or a change in sensory disturbance to existing land and resource use within the RSA;
- Hanson (Mining): Located within the RDBN, geochemical and exploration drilling results for Hanson were posted in 2015. Further exploration or development may contribute to access-related effects or a change in sensory disturbance to existing land and resource use within the RSA;
- Holy Cross (Mining): Located within Electoral Area D of the RDBN, the last exploration drilling occurred in 1997. Further exploration or development may contribute to access-related effects or a change in sensory disturbance to existing land and resource use within the RSA;
- Hudson Bay Mountain Estates (Community): Located within Electoral Area A of the RDBN, the resort development includes the addition of a chairlift, 10 runs and a 148 lot residential component to Hudson Bay Mountain. The Area Master Plan has received approval, with 35 lots released in phase 1. Further development and operations are likely to contribute to access-related effects or a change in sensory disturbance to existing land and resource use within the RSA/LSA;
- Huckleberry (Mining): A previously operating mine located inside Electoral Area E of the RDBN. The project is currently in C&M. Exploration drilling occurred in 2020. Further exploration or development may contribute to access-related effects or a change in sensory disturbance to existing land and resource use within the RSA/LSA;
- Kenney Dam Cold Water Release Facility (Utilities): Located within the RDBN, the project aims to protect salmon on the Nechako River through either a cold water release facility (Kenney Dam) or other environmental enhancements. Ongoing studies and consultations are in progress. Future construction and operations may contribute to access-related effects or a change in sensory disturbance to existing land and resource use within the RSA/LSA;
- Kwanika (Mining): Located within Electoral Area C of the RDBN, the last exploration drilling occurred in September 2020, together with an agreement with Takla Nation. Further exploration or development may contribute to access-related effects or a change in sensory disturbance to existing land and resource use within the RSA;

- Lennac Lake (Mining): Located within Electoral Area G of the RDBN, the last exploration drilling occurred in September 2013. Further exploration or development may contribute to access-related effects or a change in sensory disturbance to existing land and resource use within the RSA;
- Lorraine-Jajay Copper Mine (Mining): Located within the RDBN, the last exploration occurred in 2005. Further exploration or development may contribute to access-related effects or a change in sensory disturbance to existing land and resource use within the RSA;
- Maple Leaf Cannabis Production Facility (Commercial): Located near the Village of Telkwa, Maple Leaf has leased 37+ acres of land with the option to purchase from Woodmere Nurseries Ltd. The company is currently constructing a 27,200 square foot cannabis production facility. Further development and operations is likely to contribute to access-related effects or a change in sensory disturbance to existing land and resource use within the RSA/LSA;
- Morrison Copper/Gold (Mining): Located within Electoral Area G of the RDBN, the project was refused certification by the BC EAO in 2012. A supplemental AIR was submitted in 2019. Further exploration or development may contribute to access-related effects or a change in sensory disturbance to existing land and resource use within the RSA/LSA;
- Mount Milligan (Mining): Located 155 km northwest of Prince George, between the communities of Fort St. James and Mackenzie, within RDBN, the mine has been in operation since 2013;
- Ogden Mountain Jade (Mining): Located within Electoral Area C of the RDBN, jade has been mined from Ogden Mountain for over 30 years;
- Ootsa Property (Mining): Located adjacent to the Huckleberry Mine and Mill Complex within the RDBN, the last exploration occurred in 2020. Further exploration or development may contribute to access-related effects or a change in sensory disturbance to existing land and resource use within the RSA/LSA;
- Pacific Northern Gas Looping Pipeline (Utilities): Traversing Electoral Area G of the RDBN, the proposed pipeline would loop an existing natural gas transmission pipeline between Summit Lake and Kitimat. Further development may contribute to access-related effects or a change in sensory disturbance to existing land and resource use within the RSA;
- Pacific Trails Pipeline (Utilities): Traversing Electoral Area G of the RDBN, the proposed pipeline would construct a 463-km, 42-inch natural gas pipeline that will deliver natural gas from Summit Lake, BC. to the proposed Kitimat liquid natural gas (LNG) facility site at Bish Cove near Kitimat. Further development may contribute to access-related effects or a change in sensory disturbance to existing land and resource use within the RSA;
- Prince George to Terrace Capacitors Project (Utilities): Located in Electoral Area A and G of the RDBN, the project includes constructing three new capacitor stations to increase the capacity along a 450 km, 500 kV transmission line that runs between Prince George and northwest BC. The project includes one (1) station near Vanderhoof; one (1) station near Burns Lake; and one (1) near Telkwa. Construction of the project is likely to contribute to access-related effects or a change in sensory disturbance to existing land and resource use within the RSA/LSA;
- Prince Rupert Gas Transmission (Utilities): Traversing Electoral Area G of the RDBN, the proposed 900 km natural gas pipeline running from Hudson's Hope to Lelu Island near Prince Rupert support an LNG export facility. The project was granted a five (5)-year EAC extension in 2019. Construction of the project may contribute to access-related effects or a change in sensory disturbance to existing land and resource use within the RSA;
- Silver Hope Property (Mining): Located in Electoral Area G and B of the RDBN, last exploration drilling occurred in 2020. Further exploration or development may contribute to access-related effects or a change in sensory disturbance to existing land and resource use within the RSA/LSA;

- Silver Queen Property (Mining): Located in Electoral Area G of the RDBN, the property is located on the road to the Huckleberry mine at Owen Lake - 43 km south of Houston. Further exploration or development may contribute to access-related effects or a change in sensory disturbance to existing land and resource use within the RSA/LSA;
- Smithers Regional Airport Runway Expansion (Community): Located in Smithers within the RDBN, the proposed runway extension was determined not reviewable by the BC EAO. The expansion occurred in 2008;
- Snowbird Property (Mining): Located in Electoral Area C of the RDBN, near Fort St. James. Further exploration or development may contribute to access-related effects or a change in sensory disturbance to existing land and resource use within the RSA;
- Stardust Project (Mining): Located in Electoral Area C of the RDBN, the last exploration drilling occurred in 2020. Further exploration or development may contribute to access-related effects or a change in sensory disturbance to existing land and resource use within the RSA;
- Telkwa to Smithers Bike Trail (Recreation): Located in Electoral Area A of the RDBN, the trail will run off of Highway 16 along the ROW. At Smithers, it is planned to be along the west side of the highway. At about midway, it will cross the highway via a bridge and follow the east side of the highway to Telkwa. Detailed construction plans were completed in 2020. Construction of the bike trail may contribute incrementally to a change in sensory disturbance to existing land and resource use within the RSA/LSA;
- Wildcat Property (Mining): Located in Electoral Area C of the RDBN, the last exploration drilling occurred in 2018. Further exploration or development may contribute to access-related effects or a change in sensory disturbance to existing land and resource use within the RSA;
- Agricultural Activities: Past and present activities are included in the anthropogenic disturbance layer of the project inclusion map in **Figure 6.1-1**. Future additional disturbance is not known or foreseeable. The extent to which agricultural activities will interact with other land and resource uses and related effects of the Project are not known;
- Forestry Activities: Past and present activities are included in the anthropogenic disturbance layer of the project inclusion map in **Figure 6.1-1**. Future additional disturbance area is estimated based on timber supply forecasts proportional to tenure areas that overlap with the RSA. The extent to which forestry activities will interact with other land and resource uses and related effects of the Project within the RSA/LSA is estimated on this basis; and
- Recreation Activities: Past and present activities are included in the anthropogenic disturbance layer of the project inclusion map in **Figure 6.1-1**. Future additional disturbance is estimated from known recreation-related projects. The extent to which recreation activities will interact with other land and resources-related effects of the Project within the RSA/LSA is estimated on this basis.

Based on this description of projects and land and resources activities, the following subsections provide a more detailed analysis of potential cumulative effects for each subcomponent and indicator.

6.1.2 Additional Mitigation Measures

Additional mitigation measures to those proposed in **5.3 Mitigation Measures** are not identified. However, it is reasonable to expect that the Project will refine applicable management plans and optimize progressive reclamation activities to reduce potential effects on commercial and recreational land and resource users. The Project's Community Engagement Project (refer to **Socio-economic Management Plan (S13.0-C16) (SEMP)**) will also be reviewed and adjusted to reflect arising social issues and potential changes in

stakeholder concerns and preferences. Additional information on these mitigation measures is available in **S13.0 Management Plans** and **S14.0 Follow up Strategies** of the **EAC Application**.

Additionally, it is expected that other present and potential future projects and activities would have similar mitigation measures in place to cumulatively reduce or remove potential cumulative effects in the LSA and the RSA.

6.1.3 Cumulative Effects and Characterisation of Significance

Characterisation of residual effects of the Project in combination with those of other project/activities if provided in **5.4 Residual Effects and Significance of Residual Effects**. As mentioned earlier, given the potential overlap between commercial tenured land and resource use (guide-outfitting and related ATV or snowmobile use, hiking, camping, hunting and fishing) and untenured recreational land and resource use, **Tables 6.1-2** and **6.1-3** include summaries of cumulative effects for commercial and recreational land and resource use. The ratings provided are consistent with the summary of effect characterisation ratings provided in **Table 5.4-2**.

The Level of Confidence in these predictions is Moderate, based on the experience of the assessment team, an understanding existing conditions and the potential level and interactions between projects described and the known effectiveness of mitigation measures. This confidence is tempered by the uncertainty in predicting which future projects will be developed.

Table 6.1-2: Summary of Cumulative Effects for Land and Resource Use – Commercial Land and Resource Use Subcomponent

Cumulative Effects	Contributing Activities within the Project Phases (C, O, D, P)	Cumulative Effects Characterisation								
		Magnitude	Geographic Extent	Duration	Frequency	Reversibility	Context	Significance	Likelihood	Level of Confidence
Change in Access	All activities (C, O, D)	M	LSA	MT	C	PT	L	NS	L	M
Change in Sensory Disturbance	All activities (C, O, D)	M	LSA	MT	C	PT	L	NS	L	M
Change in Quantity or Quality of Resources	All activities (C, O, D)	M	LSA	MT	C	PT	L	NS	L	M

Notes: *C, O, D, P represent Project Phases: (C)onstruction, (O)peration, (D)ecomissioning and Reclamation, (P)ost-closure*
Magnitude: Low (L), Moderate (M), High (H)
Geographic Extent: Project Area (PA), Local (LSA), Regional (RSA), Beyond Regional (beyond RSA)
Duration: Short-term (ST), Medium-term (MT), Long-term (LT)
Frequency: Infrequent (IF), Frequent (FF), Continuous (CF)
Reversibility: Fully reversible (FR), Partially reversible (PR), Irreversible (IR)
Context: Low (L), Moderate (M), High (H)
Likelihood: Unlikely (UL), Likely (L)
Significance: Not-Significant (NS), Significant (S)
Level of Confidence: High (H), Moderate (M), Low (L)
*See **Table 5.1-2** for list of applicable activities for each listed Project phase, unless otherwise noted in this table. Includes all existing and reasonably foreseeable projects as outlined in **Table 6.1-1**.*

Table 6.1-3: Summary of Cumulative Effects for Land and Resource Use – Public Recreation Use Subcomponent

Cumulative Effects	Contributing Activities within the Project Phases (C, O, D, P)	Cumulative Effects Characterisation								
		Magnitude	Geographic Extent	Duration	Frequency	Reversibility	Context	Significance	Likelihood	Level of Confidence
Change in Access	All activities (C, O, D)	M	LSA	MT	C	PT	L	NS	L	M
Change in Sensory Disturbance	All activities (C, O, D)	M	LSA	MT	C	PT	L	NS	L	M
Change in Quantity or Quality of Resources	All activities (C, O, D)	M	LSA	MT	C	PT	L	NS	L	M

Notes: *C, O, D, P represent Project Phases: (C)onstruction, (O)peration, (D)ecomissioning and Reclamation, (P)ost-closure*
Magnitude: Low (L), Moderate (M), High (H)
Geographic Extent: Project Area (PA), Local (LSA), Regional (RSA), Beyond Regional (beyond RSA)
Duration: Short-term (ST), Medium-term (MT), Long-term (LT)
Frequency: Infrequent (IF), Frequent (FF), Continuous (CF)
Reversibility: Fully reversible (FR), Partially reversible (PR), Irreversible (IR)
Context: Low (L), Moderate (M), High (H)
Likelihood: Unlikely (UL), Likely (L)
Significance: Not-Significant (NS), Significant (S)
Level of Confidence: High (H), Moderate (M), Low (L)
*See **Table 5.1-2** for list of applicable activities for each listed Project phase, unless otherwise noted in this table. Includes all existing and reasonably foreseeable projects as outlined in **Table 6.1-1**.*

6.1.3.1 Commercial Land and Resource Use Subcomponent

6.1.3.1.1 Change in Access

The projects described in **6.1.1** are expected to have a cumulative interaction with access for commercial land users. Future projects may restrict access to areas used for commercial purposes. However, the Magnitude of the cumulative effect is considered Moderate given the likely continued viability of access routes for guide-outfitters and other commercial users. The cumulative effect on access will be Medium-term, but will be mitigated by the Project's and future other projects efforts to maintain access to commercial land use areas. The Project's contribution to cumulative effects will be Partially Reversible. The Context of cumulative effects within the LSA also provides for availability and excellent access to multiple commercial and recreational use areas and is rated as High. For these reasons, the Project's contribution to cumulative effects on access is considered **Not Significant**.

6.1.3.1.2 Change in Sensory Disturbance

The Project is expected to contribute to the change in sensory disturbance of future projects. However, the sensory disturbance of some projects (i.e., pipeline or transmission line construction) are likely to be Short-term in nature. The Project and other future projects are also likely to be subject to similar review and regulation of noise and emissions and changes to visual quality. The Magnitude of the Project's contribution to cumulative effects is considered Moderate and Medium-term, in that the change in sensory disturbance for commercial land users is likely to be substantially limited to the Active Phases of the Project, with progressive reclamation and implementation of relevant management plans mitigating the Project's contribution. With completion of the Decommissioning and Reclamation Phase, the Project's contribution

to a cumulative change in sensory disturbance will be minimal, limited to a change in visual quality and considered **Not Significant**.

6.1.3.1.3 Change in Quantity and Quality of Resources

The Project and other future projects are expected to contribute cumulatively to a change in the quantity and quality of resources available to competing commercial land users. Sensory disturbance may also contribute to changes in wildlife patterns and habitat use, which may in turn negatively affect commercial use in the local area. Changes in access and the removal of land and resources used by the Project may cumulatively reduce the availability and value of land and resources in the local area. The Magnitude of Project's contribution is considered Moderate because the change is compatible with regional and local land use plans, is limited to the Active Phases of the Project, and access changes both mitigate, and in some respects improve access. The availability and quality of other land and resources in the local area is also high. With commencement of the Post-closure Phase, the Project's contribution to a cumulative change in the quantity and quality of resources is considered **Not Significant**.

6.1.3.2 Public Recreation Use Subcomponent

6.1.3.2.1 Change in Access

The projects described in **6.1.1** are expected to have a cumulative interaction with access for recreational land users. In some respects, the cumulative effect of future projects will be a positive opening up of access along pipeline or transmission line ROW. In other cases, future projects may restrict access to areas used recreational purposes. The Magnitude of the cumulative effect is, therefore, considered Moderate in that the change in access for recreational land users is likely to be substantially limited to the Active Phases of the Project. The cumulative effect on access is predicted to be Medium-term, but will be mitigated by the Project's and future other projects efforts to maintain or enhance access to popular recreational land use areas. There is expected to be availability and excellent access to multiple recreational use areas within the LSA, and therefore Context is rated as Low. For these reasons, the Project's contribution to cumulative effects on access is considered **Not Significant**.

6.1.3.2.2 Change in Sensory Disturbance

The Project will likely contribute to a change in sensory disturbance of future projects. However, the sensory disturbance of some projects (i.e., pipeline or transmission line construction) will be Short-term in nature. The Project and other future projects are also likely to be subject to similar review and regulation of noise and emissions and changes to visual quality. The Magnitude of the Project's contribution to cumulative effects is considered Moderate and the Duration Medium-term, in that the change in sensory disturbance for recreational land users is likely to be substantially limited to the Active Phases of the Project, with progressive reclamation and implementation of relevant management plans mitigating the Project's contribution. With completion of the Decommissioning and Reclamation Phase, the Project's contribution to a cumulative change in sensory disturbance will be minimal, limited to a change in visual quality, and is considered **Not Significant**.

6.1.3.2.3 Change in Quantity and Quality of Resources

The Project and other future projects are expected to contribute cumulatively to a change in the quantity and quality of resources available to competing recreational land users. Sensory disturbance may also contribute to changes in wildlife patterns and habitat use, which may in turn affect commercial use in the local area. Changes in access and the removal of land and resources used by the Project may cumulatively reduce the availability and value of land and resources in the local area. The Magnitude of the Project's

contribution is considered Moderate because the change is compatible with regional and local land use plans, is limited to the Active Phases of the Project, and access changes both mitigate, and in some respects improve access. The availability and quality of other land and resources in the local area is also high. With commencement of the Post-closure Phase, the Project's contribution to a cumulative change in the quantity and quality of resources is considered **Not Significant**.

6.2 Summary of Cumulative Effects Assessment (CEA)

The following Project-related residual effects on the Land and Resource Use VC were carried forward to the CEA:

- change in access;
- change sensory disturbance; and
- change in quantity and quality of resources.

Based on the determination of **Not Significant** for all cumulative effects listed in **Table 6.2-1,** it is concluded that there is no potential for Significant cumulative effects on the Land and Resource Use VC. Changes in access for commercial and recreational users can effectively be mitigated and in some respects improved over the course of the active Project phases do not contribute significantly to cumulative access changes. Sensory disturbance associated with the Project is within acceptable limits and will be largely mitigated by the end of Project's Active Phases. A change in visual quality is not expected to change the viability or commercial or recreational use in the local area and can be accommodated in a similar way to forestry activity. Progressive reclamation will reduce a change in the quality of land and resources. The Decommissioning and Reclamation Phase will return substantial areas back to competing land uses at the end of the mine lifecycle, thus minimizing the Project's contribution to cumulative effects.

Table 6.2-1: Summary of Cumulative Effects on the Land and Resource Use Valued Component (VC)

VC Subcomponent	Potential Cumulative Effect	Contributing Activities within the Project Phases (C, O, D, P)	Cumulative Effect (Yes/No)	Significant (Yes/No)
Commercial Land and Resource Use	▪ Change in access ▪ Change in sensory disturbance ▪ Change in quantity and quality of resources	▪ All activities (C, O, D)	Yes	No
Public Recreational Use	▪ Change in access ▪ Change in sensory disturbance ▪ Change in quantity and quality of resources	▪ All activities (C, O, D)	Yes	No

Notes: *C, O, D, P represent Project Phases: (C)onstruction, (O)peration, (D)ecomissioning and Reclamation, (P)ost-closure*
VC=Valued Component
*See **Table 5.1-2** for list of applicable activities for each listed Project phase, unless otherwise noted in this table. Includes all existing and reasonably foreseeable projects as outlined in **Table 6.1-1.***

7. SUMMARY OF EFFECTS ASSESSMENT FOR THE LAND AND RESOURCE USE VALUED COMPONENT (VC)

The Project is located in an area in northwestern BC where there is a variety of tenured and non-tenured land use, private land, parks and protected areas. The Minesite and associated infrastructure will remove land and resources which may have been used by other competing commercial or recreational land users. The Project will also result in lost or restricted access to some commercial and recreational land use areas, but these access changes can be mitigated and, in some instances, improved. Project activities will also contribute to a sensory disturbance including changes to air and noise emissions and visual quality in the vicinity of the Project. Predicted air emissions and noise are within acceptable limits. Expected changes in visual quality effects can also be mitigated. Interference with existing recreational infrastructure (e.g., trails) will be minimal and can be fully mitigated.

As discussed in **5.3 Mitigation Measures**, changes that adversely affect access to Hunter Basin, Webster Lake and Hankin Plateau will be mitigated by improvements to existing access, such as construction o of a permanent clear span bridge over Goathorn Creek, improvements to existing trail, and implementation of appropriate management plans (**S13.0 Management Plans** and **S14.0 Follow up Strategies** of the **EAC Application**). From the commencement of site clearing during the Construction Phase, and throughout all Active Phases, noise and emissions and changes in visual quality will be managed in a complementary way through active engagement with local stakeholders, community groups and associations. During the Operation Phase a program of progressive reclamation will also assist in mitigating changes in visual quality. Changes in the quantity and quality of land and resources are predicted to be limited to the local area, with substantial portions of the Project area available for alternative land and resource use after the Decommissioning and Reclamation Phase is completed.

Effects on access, sensory disturbance, quantity and quality of land and resources were carried forward to an assessment of residual effects. Effects during the Post-closure Phase of the Project were considered negligible and not assessed further. Similarly, interference with recreational infrastructure was considered negligible after the implementation of mitigation measures, and as such was not assessed further. While the Project may contribute to cumulative effects, the availability and viability of commercial and public recreational areas in the local area will continue to be high. The assessment of Project-related residual and cumulative effects on the Land and Resource Use VC are predicted to be **Not Significant**.

8. FOLLOW-UP STRATEGY

No specific monitoring or adaptive management programs are recommended. However, it can be reasonably anticipated that the Project, through the Community Engagement Program (refer to the **SEMP**), will continue to engage with local residents to address a range of interests, issues and concerns related to the Land and Resource Use VC, including:

- public health and safety restrictions on access and related issues;
- escorted access and maintenance of the Goathorn Creek Bridge;
- controlled crossing of the Bypass Road by local agricultural land users;
- maintenance of public roads and trails;
- monitoring of noise and emissions; and
- public participation in reclamation and closure planning.

Monitoring of Parameters of Potential Concern/Contaminants of Potential Concern (POPC/COPC) and Parameters of Concern/Contaminants of Concern (POC/COC) identified for aquatic life, wildlife, terrestrial vegetation, human health, and land uses will be conducted for soils, vegetation, sediment, and surface and groundwater.

9. REFERENCES

BC Assessment. 2021. About Crown Land Leases, Licenses and Permits. Available at: https://info.bcassessment.ca/Services-products/property-classes-and-exemptions/crown-land-leases-licenses-and-permits/about-crown-land-leases-license-and-permits#:~:text=A%20Crown%20land%20tenure%20is,purposes%20and%20periods%20of%20time. Accessed June 2021.

BC Hydro. 2020. BC Hydro Provincial Transmission System Map. Available at: https://www.bchydro.com/content/dam/BCHydro/customer-portal/documents/corporate/suppliers/transmission-system/maps/transplt-Default-0001.pdf. Accessed December 2021.

BC Parks Skeena District. 1992. Babine Mountains Recreation Area Master Plan. Available at: http://www.env.gov.bc.ca/bcparks/planning/mgmtplns/babine_mt/babine_mp.pdf?v=1554491030496. Accessed December 2021.

BC Parks Skeena District. 2000a. Management Direction Statement for Call Lake Provincial Park. Available at: http://www.env.gov.bc.ca/bcparks/planning/mgmtplns/call_lk/call_lk_mds.pdf?v=1554488661506. Accessed December 2021.

BC Parks Skeena District. 2000b. Management Direction Statement for Driftwood Extension to Babine Mountains Park. Available at: http://www.env.gov.bc.ca/bcparks/planning/mgmtplns/babine_mt/driftwood_ext_mds.pdf?v=1554491030496 Accessed August 2021.

BC Parks Skeena District. 2000c. Management Direction Statement for Tyhee Lake Provincial Park. Available at: http://www.env.gov.bc.ca/bcparks/planning/mgmtplns/tyhee/tyhee.pdf?v=1554487687720. Accessed December 2021.

BC Parks. 2021a. BC Parks Listed Alphabetically. Available at: https://bcparks.ca/explore/parks/. Accessed August 2021.

BC Parks. 2021b. Reserves. Available at: https://bcparks.ca/eco_reserve/. Accessed August 2021.

British Columbia Environmental Assessment Office (BC EAO). 2013. Guideline for the Selection of Valued Components and Assessment of Potential Effects. Available at: https://www2.gov.bc.ca/assets/gov/environment/natural-resource-stewardship/environmental-assessments/guidance-documents/eao-guidance-selection-of-valued-components.pdf. Accessed December 2021.

British Columbia Environmental Assessment Agency (BC EAO). 2022. Tenas Project Application Information Requirements. Prepared by Telkwa Coal for the British Columbia Environmental Assessment Office. Vancouver, BC.

British Columbia Ministry of Energy, Mines and Low Carbon Innovation (BC MEMLI). 2021. Health, Safety and Reclamation Code in British Columbia (Code). Available at: https://www2.gov.bc.ca/gov/content/industry/mineral-exploration-mining/health-safety/health-safety-and-reclamation-code-for-mines-in-british-columbia. Accessed July 2021.

British Columbia Ministry of Environment (BC MOE). 2020. Wildlife Habitat Areas. Available at: http://www.env.gov.bc.ca/wld/frpa/iwms/wha.html. Accessed March 2018.

British Columbia Ministry of Forests, Lands and Natural Resource Operations (BC MFLNRO). 2014. Bulkley Timber Supply Area – Rationale for Allowable Annual Cut (AAC) Determination. Available at: https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/forestry/stewardship/forest-analysis-inventory/tsr-annual-allowable-cut/bulkley_tsa_aac_rationale.pdf. Accessed December 2021.

British Columbia Ministry of Forests, Lands and Natural Resource Operations (BC MFLNRO). 2016. Proposed Direction for Recreation Access in the Telkwa Caribou Range. Available at: https://telkwa.civicweb.net/document/3853. Accessed December 2021.

British Columbia Ministry of Forests, Lands and Natural Resource Operations (BC MFLNRO). 2019a. Apportionment System – Linkages and Licenses. Available at: https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/forestry/timber-tenures/apportionment/2019-2020/aptr041_linkages_licences.pdf. Accessed December 2021.

British Columbia Ministry of Forests, Lands and Natural Resource Operations (BC MFLNRO). 2019b. 2019-2021 Freshwater Fishing Regulations Synopsis: Region 6 – Skeena. Available at: http://www.env.gov.bc.ca/fw/fish/regulations/docs/1921/Region_6_skeena.pdf. Accessed April 2019.

British Columbia Ministry of Forests, Lands, Natural Resource Operations and Rural Development (BC MFLNRORD). 2019c. British Columbia Hunting and Trapping Data. Personal Communication with Krystal Kriss, Wildlife Biologist, May 16, 2019.

British Columbia Treaty Commission. 1995. A Framework Agreement to Negotiate a Treaty. Available at: https://www.bctreaty.ca/sites/default/files/wetsuwet_frmwrk.pdf. Accessed September 2021.

Bulkley Backcountry Ski Society. 2017. Bulkley Backcountry Ski Society Home Page. Available at: https://bbss.ca/. Accessed December 2021.

Bulkley Valley Backpackers Society. 2021. Home Page. Available at: http://www.bvbackpackers.ca/. Accessed August 2021.

Bulkley Valley Bowmen. 2020. Home Page. Available at: http://bvbowmen.ca/. Accessed August 2021.

Bulkley Valley Kayak and Canoe Club. 2020. Bulkley Valley Kayak and Canoe Club Facebook Group. Available at: https://www.facebook.com/groups/347583558661899/ Accessed August 2021.

Bulkley Valley Museum. 2020. Hubert, B.C., train station. Available at: https://search.bvmuseum.org/permalink/descriptions874. Accessed: December 2020.

Bulkley Valley Rod and Gun Club. (2009). Club Information. Available at: http://www.bvrg.ca/info.html. Accessed December 2021.

Energy BC. 2020. Electricity Generating Stations in British Columbia Map. Available at: http://www.energybc.ca/electricitymap.html. Accessed August 2021.

Government of British Columbia (GovBC). 1996a. *Environment and Land Use Act,* RSBC 1996, c. 117 . Available at: https://www.bclaws.gov.bc.ca/civix/document/id/complete/statreg/96117_01. Accessed November 2020.

Government of British Columbia (GovBC). 1996b. *Forest Act*, RSBC 1996, c 157. Available at: https://www.bclaws.gov.bc.ca/civix/document/id/complete/statreg/96157_00. Accessed May 2020.

Government of British Columbia (GovBC). 1996c. *Land Act*, RSBC 1996, c 245. Available at: https://canlii.ca/t/543qn. Accessed December 2021.

Government of British Columbia (GovBC). 1996d. *Land Title Act*, RSBC 1996, c 250. Available at: https://canlii.ca/t/552h7. Accessed December 2021.

Government of British Columbia (GovBC). 1996e. *Mineral Tenure Act*, RSBC 1996, c 292. Available at: https://www.bclaws.gov.bc.ca/civix/document/id/complete/statreg/96292_01. Accessed December 2021.

Government of British Columbia (GovBC). 1996f. *Mines Act*, RSBC 1996, c 293. Available at: https://www.bclaws.gov.bc.ca/civix/document/id/complete/statreg/96293_01. Accessed December 2021.

Government of British Columbia (GovBC). 1996g. *Mining Right Of Way Act*, RSBC 1996, C 294. Available at: https://canlii.ca/t/kx3g. Accessed December 2021.

Government of British Columbia (GovBC). 1996h. *Park Act*, RSBC 1996, c 344. Available at: https://canlii.ca/t/53315. Accessed December 2021.

Government of British Columbia (GovBC). 1996i. *Tourism Act*, RSBC 1996, c 453. Available at: https://canlii.ca/t/kmpt. Accessed December 2021.

Government of British Columbia (GovBC). 1996j. *Water Protection Act*, RSBC 1996, c 484. Available at: https://canlii.ca/t/552gv. Accessed December 2021.

Government of British Columbia (GovBC). 1996k. *Wildlife Act,* RSBC 1996, c 488. Available at: https://canlii.ca/t/53kqv. Accessed December 2021.

Government of British Columbia (GovBC). 1997. Bulkley Recreational Access Management Plan. Available at: https://www.for.gov.bc.ca/dss/RAMP/Bulkley%20Recreational%20Access%20Management%20Plan%20(1997%20RAMP)l.htm. Accessed January 2021.

Government of British Columbia (GovBC). 1998. Bulkley Land and Resource Management Plan. Available at: https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/natural-resource-use/land-water-use/crown-land/land-use-plans-and-objectives/skeena-region/bulkley-lrmp/bulkley_lrmp.pdf. Accessed December 2021.

Government of British Columbia (GovBC). 2000. *Protected Areas of British Columbia Act,* SBC 2000, c 17. Available at: https://www.bclaws.gov.bc.ca/civix/document/id/complete/statreg/00017_00. Accessed November 2020.

Government of British Columbia (GovBC). 2002a. *Agricultural Land Commission Act*, SBC 2002, c 36. Available at: https://www.bclaws.gov.bc.ca/civix/document/id/complete/statreg/02036_01.Accessed July 2021.

Government of British Columbia (GovBC). 2002b. *Environmental Assessment Act*, SBC 2002, c. 43. Available at: https://www.bclaws.ca/civix/document/id/consol14/consol14/00_02043_01. Accessed November 2020.

Government of British Columbia (GovBC). 2002c. *Forest and Range Practices Act,* SBC 2002, c 69. Available at: https://www.bclaws.gov.bc.ca/civix/document/id/complete/statreg/00_02069_01. Accessed July 2021.

Government of British Columbia (GovBC). 2000d. *Protected Areas of British Columbia Act*, SBC 2000, c 17. Available at https://www.bclaws.gov.bc.ca/civix/document/id/complete/statreg/00_04071_01. Accessed July 2021.

Government of British Columbia (GovBC). 2004. *Range Act*, SBC 2004, c 71. Available at: https://canlii.ca/t/52k89. Accessed December 2021.

Government of British Columbia (GovBC). 2005. Bulkley Valley Sustainable Resource Management Plan. Available at: https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/natural-resource-use/land-water-use/crown-land/land-use-plans-and-objectives/skeena-region/bulkleyvalley-srmp/bulkley_srmp.pdf. Accessed December 2021.

Government of British Columbia (GovBC). 2007. Morice Land and Resource Plan. Available at: https://www2.gov.bc.ca/gov/content/industry/crown-land-water/land-use-planning/regions/skeena/morice-lrmp. Accessed December 2021.

Government of British Columbia (GovBC). 2013. Bulkley River Angling Management Plan. Available at: http://www.env.gov.bc.ca/skeena/fish/AMPs/Bulkley_AMP.pdf. Accessed: January 2021.

Government of British Columbia (GovBC). 2015. *Local Government Act*, RSBC 2015. C 1. Available at: https://www.bclaws.gov.bc.ca/civix/document/id/complete/statreg/r15001_00 . Accessed December 2020.

Government of British Columbia (GovBC). 2016a. Hunting and Trapping Regulations – Region 6, 2016-2018. Available at: https://www2.gov.bc.ca/assets/gov/sports-recreation-arts-and-culture/outdoor-recreation/fishing-and-hunting/hunting/regulations/2016-2018/hunting-trapping-synopsis-2016-2018-region6.pdf. Accessed June 2019.

Government of British Columbia (GovBC). 2016b. Ministerial Order; Land Use Objectives Regulation Order for the Morice Land and Resource Management Plan Area. Available at: https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/natural-resource-use/land-water-use/crown-land/land-use-plans-and-objectives/skeena-region/morice-lrmp/order_luor_with_maps.pdf. Accessed June 2021.

Government of British Columbia (GovBC). 2018. 2018-2020 Hunting and Trapping Regulations Synopsis; p. 64: Skeena Region 6. Available at: http://www.env.gov.bc.ca/fw/tmp/hunting-trapping-synopsis-2018-2020.pdf. Accessed December 2021.

Government of British Columbia (GovBC). 2019a. Agricultural Land Reserve General Regulation, BC Reg 57/2020. Available at: https://canlii.ca/t/54ctz. Accessed December 2021.

Government of British Columbia (GovBC). 2019b. Agricultural Land Reserve Use Regulation, BC Reg 30/2019. Available at: https://canlii.ca/t/5552f. Accessed December 2021.

Government of British Columbia (GovBC). 2019c. iMapBC. Available at: https://www2.gov.bc.ca/gov/content/data/geographic-data-services/web-based-mapping/imapbc. Accessed December 2021.

Government of British Columbia (GovBC). 2019d. Reviewable Projects Regulation, BC Reg 243/2019 Available at: https://canlii.ca/t/543v4. Accessed December 2021.

Government of British Columbia (GovBC). 2020. New Requirements for Groundwater Users. Available at: https://www2.gov.bc.ca/gov/content/environment/air-land-water/water/water-licensing-rights/water-licences-approvals/new-requirements-for-groundwater-users. Accessed December 2020.

Government of British Columbia (GovBC). 2021. Interactive Conservation Lands Map. Available at: https://www2.gov.bc.ca/gov/content/environment/plants-animals-ecosystems/wildlife/wildlife-habitats/conservation-lands/find-conservation-lands. Accessed December 2021.

Government of Canada (GovCan). 2020. *Canada National Parks Act*, SC 2000, c 32. Available at: https://laws-lois.justice.gc.ca/eng/acts/n-14.01/. Accessed November 2020.

Government of Canada (GovCan). 2020. Memorandum of Understanding Between Canada, British Columbia and the Wet'suwet'en, Available at: https://www.rcaanc-cirnac.gc.ca/eng/1589478905863/1589478945624. Accessed November 2020.

Linehan, P and J. Wiss. 1980. Vibration and air blast noise from surface coal mine blasting. Conference: SME-AIME fall meeting and exhibition, Minneapolis, MN, USA, 22 Oct 1980.

Oscar's Fly and Tackle Shop. 2021. Bulkley and Telkwa Rivers Boat Launch Access Points (map). Available at: https://cdn.shopify.com/s/files/1/1717/5133/files/Steelhead-Map-and-Etiquette-2.jpg?3719475625689451531. Accessed: January 2021.

Regional District of Bulkley-Nechako (RDBN). 2011. Houston, Topley, Granisle Rural Official Community Plan. Available at: https://www.rdbn.bc.ca/application/files/5015/5733/5294/Area_G_OCP_Schedule_A.pdf. Accessed December 2021.

Regional District of Bulkley-Nechako (RDBN). 2013. Agriculture Plan. Available at: http://opportunities.rdbn.bc.ca/agriculture. Accessed November 2020.

Regional District of Bulkley-Nechako (RDBN). 2014. Smithers Telkwa Rural Official Community Plan, Bylaw No. 1704, 2014 Schedule "A". Available at: https://www.rdbn.bc.ca/application/files/3316/4425/5580/Bylaw_1704_Sch_A-A_OCP_consolidated_July_2021.pdf. Accessed November 2020.

Regional District of Bulkley-Nechako (RDBN). 2017. Telkwa and Area Tourism Profile Pamphlet.

Regional District of Bulkley-Nechako (RDBN). 2020a. Regional District of Bulkley-Nechako Zoning Bylaw No. 1800, 2020 of the Official Community Plan. Available at: https://www.rdbn.bc.ca/application/files/7515/8405/1415/Zoning_Bylaw_No._1800_2020-_January_22_2020.pdf. Accessed March 2022.

Regional District of Bulkley-Nechako (RDBN). 2020b. Parks and Outdoor Recreation Study. Available at: https://www.rdbn.bc.ca/application/files/8315/9259/9432/Executive_Summary.pdf. Accessed December 2020.

Regional District of Bulkley-Nechako (RDBN). 2020c. RDBN Food and Agriculture Plan, April 2020. Available at: https://www.rdbn.bc.ca/departments/agriculture/rdbn-agriculture-plan. Accessed: December 2020.

Skeena Wild Conservation Trust. 2020. Tourism in Northwest British Columbia; Operations, Initiatives and Opportunities. Available at: https://skeenawild.org/wp-content/uploads/2020/05/SWCT-tourism-report-May2020-for-email.pdf. Accessed: December 2020.

Smithers District Chamber of Commerce. (n.d.). Bulkley Valley Attractions Pamphlet.

Smithers District Chamber of Commerce. 2021. Business Directory – Pacific Inland Resources. Available at: http://smitherschamber.com/business-directory/pacific-inland-resources. Accessed December 2021.

Smithers Mountain Bike Association. 2020. Smithers Mountain Bike Association Home Page. Available at: http://smithersmountainbike.ca/. Accessed December 2021.

Smithers Snowmobile Association. 2014. Smithers Snowmobile Association. Available at: http://smitherssnowmobileassociation.com/. Accessed December 2021.

Telkwa Coal Limited (TCL). 2021. Telkwa Museum. Available at: https://www.telkwa.ca/visit. Accessed December 2021.

The Telkwa Museum Society. (n.d.). A walking tour through historic Telkwa Pamphlet.

Town of Smithers. 2013). Home. Available at: http://www.smithers.ca/. Accessed December 2020.

Witset First Nation. 2018. Witset First Nation Comprehensive Community Plan and Community Land Use Plan. Available at: https://www.witset.ca/planning-and-development. Accessed November 2020.

Witset First Nation. 2019. Witset First Nation Community Tourism Development Plan. Available at: https://fnbc.info/resource-categories?field_resource_description_value=Witset. Accessed November 2020.