Crawford Nickel Project
Impact Statement

Chapter 33 Extent to Which the Project Contributes to Sustainability

Prepared for:
Canada Nickel Company

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Table of Contents

List of Tables

Acronyms and Abbreviations

IAA	*Impact Assessment Act,* 2019
PA	Project Area
VC	Valued Component

33 Extent to Which the Project Contributes to Sustainability

In accordance with Section 16 of the Tailored Impact Statement Guidelines (TIS Guidelines) and section 22(1)(h) of the *Impact Assessment Act*, 2019 (IAA), the Impact Statement of a designated project must address the extent to which the Crawford Nickel Project (Project) contributes to sustainability.

The IAA defines 'sustainability' as the ability to protect the environment, contribute to the social and economic well-being of the people of Canada, and preserve their health in a manner that benefits present and future generations.

This chapter considers human-ecological systems, well-being of present and future generations, as well as mitigation and enhancement measures. It is intended to provide a high-level summary of the primary measures that Canada Nickel Company (Canada Nickel) is implementing to reduce adverse environmental, health, social, and economic effects of the Project, advance the Project in an environmentally and socially responsible manner, and enhance benefits to local communities.

33.1 Policy Context

The Project is undergoing an assessment in accordance with IAA. The assessment of the Project's contribution to sustainability is based on the TIS Guidelines and the federal guidance document titled "Guidance: Considering the Extent to which a Project Contributes to Sustainability" (Government of Canada 2021).

33.2 Approach

To determine the extent to which the Project contributes to sustainability, Canada Nickel analyzed the Project's potential effects. To do this, all Valued Components (VCs) considered in the Impact Statement were evaluated for their potential residual effects through a sustainability lens. This sustainability analysis considered the potential effects of the Project through the application of the following principles:

- **Principle #1** - consider the interconnectedness and interdependence of human-ecological systems
- **Principle #2 –** consider the well-being of present and future generations
- **Principle #3** – consider positive effects and reduce adverse effects of the Project
- **Principle #4** – apply the precautionary principle and consider uncertainty and risk of irreversible harm

33.2.1 The Influence of Consultation and Engagement on the Assessment

Canada Nickel has engaged with potentially affected Indigenous nations, regulators, the public, and other stakeholders. Information presented in Table 33.1 provides a summary of the topics, key information including Indigenous knowledge, suggested mitigation measures and concerns that Canada Nickel identified as part of their engagement efforts (e.g., public engagement meetings) that relate to the extent to which the Project contributes to sustainability, as well as a summary of the influence that the outcomes of this engagement had on the assessment.

Table 33.1 Summary of Key Information, Indigenous Knowledge, and Concerns for the Project Related to the Extent to Which the Project Contributes to Sustainability

Topic	Key Information, Indigenous Knowledge, and Concerns	Influence on the Assessment	Where Information is Addressed in the Impact Statement
Seven Grandfather Teachings and Seven Generation Forward Thinking	• Flying Post First Nation, Matachewan First Nation and Mattagami First Nation shared that the Seven Grandfather Teachings and Seven Generation Forward Thinking are key sustainability principles for their communities. The Seven Grandfather Teachings are: Wisdom, love, respect, bravery, honesty, humility, and truth; these teachings have been shared generation after generation, with the guiding belief that with each decision that is made, people are responsible to look forward and consider the impacts to the next seven generations.	• Contributed to an understanding of sustainability principles from the perspective of potentially affected Indigenous nations. • Considered in the identification of boundaries for this assessment in Section 33.2.2, informed the four sustainability principles described in section 33.4.3, and informed the development of key mitigation measures relative to sustainability in Section 33.4.4. • Informed the assessment on Indigenous interests in Chapters 25 to 28 of the Impact Statement (Assessment of Potential Effects on Indigenous Interests). Canada Nickel's responses to mitigation recommendations made by the Indigenous nations are provided in Chapters 25 to 28 of the Impact Statement (Assessment of Potential Effects on Indigenous Interests).	• Chapter 33 (Extent to Which the Project Contributes to Sustainability), Sections 33.2.2, 33.4.3, 33.4.4 • Chapters 25 to 28 (Assessment of Potential Effects on Indigenous Interests)
Three Pillars of Sustainability	• Taykwa Tagamou Nation identified the three pillars of sustainability (economic, environmental, and social) as a key principle connected to its community's worldview and protocols. The three pillars work together and must be considered equally to create sustainability for the community and future generations. • Taykwa Tagamou Nation recommended consideration of balance among the three pillars as a key sustainability principle.		

Topic	Key Information, Indigenous Knowledge, and Concerns	Influence on the Assessment	Where Information is Addressed in the Impact Statement
Carbon Storage	• Members of the public, stakeholder groups and Apitipi Anicinapek Nation, Mattagami First Nation and Métis Nation of Ontario (Region 3) expressed support for increased carbon capture/storage opportunities and commented about the Project's ability to store carbon through the mineral carbonation of tailings and the potential effectiveness of this novel technology in reducing greenhouse gas emissions and the Project's ability to reach carbon neutral/net-zero by 2050. • NRCan commented about the validity of Canada Nickel's Carbon Storage Plan, Best Available Technologies / Best Environmental Practices (BAT / BEP), and a credible net-zero plan that uses and builds off the BAT/BEP determination to describe mitigation measures that will be taken to minimize GHG emissions. • Stakeholder groups as well as Taykwa Tagamou Nation, Apitipi Anicinapek Nation, Flying Post First Nation, Matachewan First Nation, Mattagami First Nation, and Métis Nation of Ontario (Region 3) expressed concern regarding potential changes to wetlands and muskeg function for carbon sequestration within the Project Area (PA). • Flying Post First Nation, Matachewan First Nation, Mattagami First Nation, Métis Nation of Ontario - Region 3, and Taykwa Tagamou Nation expressed concern over the effects from changes to waste management because of mineral carbonization techniques.	• Informed Project design and considered in Section 33.3 Alternatives to the Project, and Section 33.4.3 regarding the Project's alignment with the four sustainability principles. • Greenhouse gas emissions of the Project as well as changes to forest cover and other vegetation communities that may affect natural carbon capture cycle were assessed in Chapter 20 of the Impact Statement (Assessment of Potential Effects on Climate Change). • Potential changes in wetland form and function are provided in Chapter 16 of the Impact Statement (Assessment of Potential Effects on Vegetation, Riparian and Wetland Environments). • Active carbonation (In-Process Tailings (IPT) Carbonation) process is discussed in Chapter 20 of the Impact Statement (Assessment of Potential Effects on Climate Change). • Informed the assessment on Indigenous Interests in Chapters 25 to 28 of the Impact Statement (Assessment of Potential Effects on Indigenous Interests).	• Chapter 16 (Assessment of Potential Effects on Vegetation, Riparian and Wetland Environments) • Chapter 20 (Assessment of Potential Effects on Climate Change) • Chapter 25-28 (Assessment of Potential Effects on Indigenous Interests) • Chapter 33 (Extent to Which the Project Contributes to Sustainability), Sections 33.3 and 33.4.3

Where made available by Indigenous nations through engagement, information gathering, and voluntary information sharing, Indigenous knowledge has been considered and incorporated into the Impact Statement, as applicable. Refer to Description of Engagement with Indigenous Peoples (Chapter 7 of the Impact Statement) for detailed methods regarding the incorporation of Indigenous knowledge to the Impact Statement.

33.2.2 Boundaries

The TIS Guidelines require that the Impact Statement describe how the sustainability principles described in Section 33.2 were considered in setting spatial and temporal boundaries.

33.2.2.1 Spatial Boundaries

As described in Chapter 8 of the Impact Statement (Assessment Methodology), spatial boundaries were selected based on the geographic extent over which Project activities and their effects on VCs are likely to occur, as well as other ecological, technical, Indigenous knowledge, and social considerations.

The VC-specific spatial boundaries identified for the Impact Statement (e.g., Local Study Areas, Regional Study Areas) are directly linked to sustainability principles 1, 3 and 4 described in Section 33.2. These three sustainability principles relate to aspects of the environmental, health, social, and economic effects assessed for applicable VCs that are interrelated and capture the interdependence of human and ecological systems that can influence the extent of potential effects (both positive and adverse) associated with Project-related activities. These principles also require consideration of the level of uncertainty and ecosystem complexity relative to the established spatial boundaries.

33.2.2.2 Temporal Boundaries

Temporal boundaries for the assessment address the potential effects during the Project's construction, operations, and decommissioning and closure phases over relevant timescales (Chapter 8 of the Impact Statement [Assessment Methodology]). These temporal boundaries are used in the assessment of residual effects and are also considered applicable for the assessment of cumulative effects in the Impact Statement.

Sustainability principle #2, which requires consideration of the well-being of present and future generations, informed the setting of temporal boundaries as well as the duration criteria applied for the characterization of residual effects. Effects on the well-being of present generations include those predicted to occur during the construction and/or operations phases. Effects on the well-being of future generations include those predicted to occur during and/or after the decommissioning/closure phases. As described in Table 33.1, this approach is informed by the results of engagement with the Indigenous nations and the request for consideration of the concept of Seven Generation Forward Thinking in the Impact Statement. Seven Generation Forward Thinking is linked to sustainability principle 2 and operates on the guiding belief that with each decision that is made, people are responsible to look forward and consider the impacts to the well-being of the next seven generations (Benton-Banai 1988; Seven Generations Education Institute 2021; Chapter 27 of the Impact Statement [Assessment of Potential Effects on Flying Post First Nation, Matachewan First Nation and Mattagami First Nation Interests]).

Temporal boundaries also considered future effects such as climate change and associated effects of the environment on the Project, and related effects on future generations.

33.3 Alternatives To the Project

The sustainability principles presented in Section 33.2 were considered by Canada Nickel while selecting alternatives to the Project. The Project has been designed not just to mitigate adverse effects but also to identify opportunities to enhance positive ones.

Consideration of a Project's sustainability requires recognition of links and interdependencies among VCs and Section 33.4.3.1 provides a summary of how the VCs considered in the assessment of effects of the proposed Project are interconnected and interdependent VCs. The connections among VCs help to establish an understanding of the interdependence of the human-ecological systems involved and informed the understanding of the Project's contribution to sustainability.

In regard to principle 2, the Project will provide the opportunity to generate employment opportunities, including training and capacity building opportunities, generate tax revenue, and to support the established mining sector in northern Ontario, all of which may make positive contributions to sustainability in terms of the well-being of present and future generations. Positive effects are primarily anticipated for those successful in securing Project-related employment and acquiring higher individual or household incomes. Additional positive effects may be felt at the provincial and national levels through the supply of critical minerals to the North America market to reduce reliance on overseas resources. Project benefits may be realized by potentially affected Indigenous and non-Indigenous communities, with Indigenous nations benefiting through opportunities to establish Agreements with Canada Nickel. Given that this Project is long-lived (i.e., operational for more than 40 years), Project benefits may be realized immediately and over the life of the Project by current and future generations.

Project design, as well as the assessment of the Project under the IAA have embraced the precautionary principle, acknowledging uncertainty in a world of complexity, by first assessing conservatively both positive and negative effects, identifying ways to enhance positive effects and mitigate adverse effects, and identifying follow-up and monitoring programs designed to verify the accuracy of predictions, identify unanticipated effects, and evaluate the effectiveness of mitigation measures that were proposed during the assessment process. As such, taking a precautionary approach during the assessment relies on and fosters learning. While some level of uncertainty is inevitable, it may be addressed through follow-up, monitoring, and adaptive management. This approach allows the Project team to learn and respond to new information that may not have been available during the assessment or to confirm predictions and assumptions made during the assessment.

As discussed in Chapter 5 of the Impact Statement (Alternatives Assessment), given that the Project is a mining operation, alternatives to the Project are limited by the fact that the Project can only be carried out at sites where the resource exists. As discussed in Chapter 5 (Alternatives Assessment), there are no alternatives to Project development that meet the needs of Canada Nickel, particularly given the growing interest globally in critical minerals for the battery and stainless-steel markets. Should the Project not proceed, advantages/benefits would not be realized, and the status quo would continue. While potential

adverse effects on the environment may be avoided under a 'Do Nothing' scenario, failing to proceed with the Project would result in unrealized benefits. In addition, not proceeding with the Project would result in the mineral resources in the area, for which global demand exists, to remain untouched, foregoing an opportunity to secure domestic sources of nickel and other critical minerals. The effects to sustainability associated with the 'Do Nothing' alternative are summarized in Table 33.2.

Table 33.2 Effects to Sustainability Associated with Alternatives to the Project

Alternative to the Project	Effects to Sustainability
'Do Nothing' (or No Project)	• Should the Project not proceed, there would be no Project-related adverse environmental effects, such as wildlife habitat disturbance / clearing, removal of fish habitat, or discharges to waterbodies. • A domestic source of critical minerals for which there is currently global demand, would not be realized. • Local communities will not experience changes or disruptions associated with the Project, including potential job and business opportunities. In cases where potentially affected Indigenous nations were considering economic benefits from the Project, these potential benefits will not materialize. Project-related opportunities to enhance the well-being of current and future generations would not be realized. • The Project not being developed would result in potential opportunities not materializing for training and employment of members of potentially affected Indigenous nations and the local community, which in turn would result in potential opportunities to increase the well-being of current and future generations not occurring. • There will be no Project-related contributions to local/regional businesses (Indigenous and non-Indigenous) nor would there be Project-related contributions to the provincial or federal economies and the generation of tax revenues associated with the Project (e.g., federal and provincial corporate income tax, personal income tax, and sales tax). • The opportunity to sequester carbon through the In Process Tailings (IPT) carbonation process, including the CO_2 sequestration that occurs naturally in brucite and the enhanced carbon sequestration potential of the tailings, will be lost.

33.4 Potential Effects and Proposed Mitigation Measures

33.4.1 Valued Components

Canada Nickel understands that individual and community well-being, and the well-being of present and future generations include the relationship between tangible and intangible aspects of human health and the social, economic, cultural, and biophysical environments. To identify the VCs that should be assessed through the sustainability lens, the following was considered:

- Indigenous knowledge and concerns shared by potentially affected Indigenous nations
- whether the VC could experience long-term effects
- whether the VC may interact with other VCs
- whether the VC may interact with potential effects of the Project
- whether the VC may interact with Project activities

As a result of the above considerations, all VCs considered in this Impact Statement have also been assessed through the sustainability lens.

33.4.2 Potential Project Effects

The potential effects on the VCs and Indigenous interests assessed for the Project that influence the Project's contribution to sustainability are identified in Table 33.3 below. Key findings, with a focus on effects within federal jurisdiction are discussed in the context of the sustainability principles in Section 33.4.3.

Table 33.3 Valued Components and Indigenous Interests with Potential Effects that Influence Contribution to Sustainability

Valued Component and Indigenous Interests	Effects Identified in the Impact Statement
Biophysical VCs: • Geology and Geologic Hazards • Soil • Atmospheric Environment • Acoustic Environment • Groundwater • Surface Water • Vegetation, Riparian and Wetland environments • Fish and Fish Habitat • Birds and Bird Habitats • Wildlife and Wildlife Habitat • Climate Change	• Change in terrain stability • Change in soil quality • Change in soil quantity • Change in ambient air quality • Change in ambient light • Change in noise • Change in vibration • Change in groundwater quantity • Change in groundwater quality • Change in surface water quantity • Change in surface water quality • Change in vegetation communities and species diversity • Change in riparian function • Change in wetland form and function • Change in fish habitat • Change in fish health, growth, or survival • Change in bird habitat • Change in bird mortality risk • Change in wildlife habitat • Change in movement • Change in wildlife mortality risk • Change in wildlife health • Change in release of Greenhouse Gas (GHG) to the environment • Change in carbon capture
Health	• Change to biophysical determinants of health • Change to social determinants of health

Valued Component and Indigenous Interests	Effects Identified in the Impact Statement
Social Conditions	• Change in demand for services and infrastructure • Change in accommodation availability • Change in demand for transportation infrastructure • Change in land use designations and private property • Change in recreation • Change in resource use
Economic Conditions	• Change in employment • Change in business • Change in provincial economy
Indigenous Interests	• Change to Indigenous and Treaty rights (includes Indigenous land and resources use) • Change in physical and cultural heritage • Change to governance, health, social and economic

33.4.3 Sustainability Principles

Per the TIS Guidelines, Canada Nickel considered the potential Project effects through the application of the following four principles, as outlined in the TIS Guidelines:

- consider the interconnectedness and interdependence of human-ecological systems
- consider the well-being of present and future generations
- consider positive effects and reduce adverse negative effects
- apply the precautionary principle and consider uncertainty and risk of irreversible harm

The following sections provide information on how these principles informed the assessment of the extent to which the Project contributes to sustainability.

33.4.3.1 Principle 1: Canada Nickel's Consideration of the Interconnectedness and Interdependence of Human-Ecological Systems

Canada Nickel understands that Indigenous knowledge is an important source of information when describing human-ecological systems interactions. Indigenous knowledge is understood to include direct observations about the biophysical world, as well as ecological indicators, oral histories, community practices, language, teachings, laws, relationships, rituals, cultural identity, spirituality, cultural values, and other ways of knowing that have been identified by Indigenous nations (IAAC 2022). Where made available by Indigenous nations through engagement, information gathering, and voluntary information

sharing, Indigenous knowledge has been considered and incorporated into the Impact Statement, as applicable.[1]

Aspects of the environmental, health, social and economic effects assessed in the Impact Statement are interrelated and demonstrate the interdependence of human and ecological systems. These are captured in the introduction to the individual assessments completed in the VC Chapters (Chapters 10 to 23) and through the holistic approach taken for the assessment of effects on Indigenous interests (Chapters 25 to 28 [Assessment of Potential Effects on Indigenous Interests]). A summary of the interconnectedness and interdependencies among VCs and Indigenous interests are summarized below in Table 33.4.

[1] Refer to the Description of Engagement with Indigenous Peoples (Chapter 7 of the Impact Statement) for detailed methods regarding the incorporation of Indigenous Knowledge to the Impact Statement.

Table 33.4 Consideration of Interconnected and Interdependent Valued Components and Indigenous Interests

Valued Component(s) and Indigenous Interests	Interconnectedness and Interdependencies Among VCs
Geology and Geologic Hazards	• Soil - changes in terrain stability may affect soil quality and/or quantity • Groundwater - changes in terrain stability may affect groundwater quality and/or quantity • Surface water - changes in terrain stability may affect surface water quality and/or quantity • Vegetation, riparian and wetland environments - changes in terrain stability may affect vegetation communities • Indigenous interests - changes in geology and geologic hazards have the potential to affect traditional practices, subsurface physical and cultural heritage (if present), and health and wellbeing of Indigenous nations
Soil	• Geology and geologic hazards - changes in terrain stability may affect topography, soil quality and/or quantity • Groundwater - changes in soil quality and/or quantity may affect groundwater quality and/or quantity • Surface water - changes in soil quality and/or quantity may affect surface water quality and/or quantity • Vegetation, riparian and wetland environments - changes in soil quality and/or quantity may affect vegetation communities • Indigenous interests - changes in terrain stability may affect soil quality and/or quantity, which may affect the habitat of species that are harvested and consumed or hold other cultural importance for Indigenous nations. Changes in terrain stability may also affect surface and subsurface features of cultural importance (e.g., physical and cultural heritage sites)

Valued Component(s) and Indigenous Interests	Interconnectedness and Interdependencies Among VCs
Atmospheric Environment	• Water Quality – Project emissions and the deposition of these emissions may affect water quality of surrounding lakes and streams • Fish and Fish Habitat – Project emissions and the deposition of these emissions may affect water quality of surrounding lakes and streams and changes in water quality may affect the availability and suitability of fish habitat and affect the growth, survival, and health of fish • Vegetation, riparian, and wetland environments - Project fugitive dust emissions and the deposition of these emissions on surrounding native plant communities may affect plant species diversity, community diversity and wetland functions • Wildlife and wildlife habitat - Project emissions and the associated ambient concentrations and deposition of these emissions may increase the exposure of wildlife to air contaminants and may affect wildlife health. The deposition of Project emissions to soil may affect soil quality which may, in turn, alter soil-related exposures for wildlife receptors • Health - Project emissions and the associated ambient concentrations may increase the exposure of humans to air contaminants that may affect human health. The deposition of Project emissions to soil may affect soil quality which may, in turn, alter soil-related exposures for human receptors • Indigenous interests - changes to chemical concentrations in air may affect the health of Indigenous nations by increasing the amount of chemicals inhaled compared to existing conditions, and/or may affect resources harvested and consumed by Indigenous nations. Project-related fugitive dust emissions and changes to lighting may affect the use of lands by Indigenous nations through sensory disturbance
Acoustic Environment	• Fish and fish habitat - changes in overpressures or peak particle velocities from blasting may affect the health and survival of fish and fish eggs nearby waterbodies • Wildlife and wildlife habitat - changes in noise and vibration (e.g., blasting) have the potential to affect wildlife behaviour and use of habitat • Health - noise may affect people's health by increasing levels of sleep disturbance compared to existing conditions • Social conditions - changes in noise and vibration may cause disturbance to land and resource users • Indigenous interests - changes in noise and vibration may affect the use of lands by Indigenous nations through sensory disturbance

Valued Component(s) and Indigenous Interests	Interconnectedness and Interdependencies Among VCs
Groundwater	• Surface water - groundwater can interact directly with surface water resources and surface water ecosystems at points of groundwater discharge (e.g., lakes and streams) • Vegetation, riparian and wetland environments - changes in groundwater levels can affect vegetation communities (wetlands) that are formed by or supported by groundwater • Fish and fish habitat - changes in the quantity or quality of groundwater discharge to surface water have the potential to affect fish health and habitat • Health - groundwater is a transport pathway to humans through seepage to surface water followed by consumption of surface water • Social conditions - changes in groundwater levels and quality (e.g., changes in groundwater wells) have the potential to directly affect residential, municipal, industrial, and commercial groundwater users • Indigenous interests – changes in groundwater quality and/or quantity can affect the ability or desire of Indigenous nations to participate in traditional water-based activities (e.g., fishing, trapping, hunting) or features on the landscape considered to be of importance to Indigenous nations
Surface Water	• Groundwater – changes in surface water can interact directly with groundwater resources at areas of groundwater discharge and recharge • Vegetation, riparian and wetland environments – changes in surface water quality and quantity can affect vegetation communities (wetlands) that are influenced by surface water runoff • Fish and fish habitat - changes in the quantity or quality of surface water have the potential to affect fish health and habitat • Health - changes in surface water is a transport pathway to humans through the consumption of surface water and organisms that inhabit and/or use surface water • Indigenous interests – changes in surface water quality and quantity can affect the ability or desire of Indigenous nations to participate in traditional water-based activities, such as fishing, hunting, and trapping. Additionally, changes in surface water quality and quantity can affect features on the landscape considered to be of importance to Indigenous nations

Valued Component(s) and Indigenous Interests	Interconnectedness and Interdependencies Among VCs
Vegetation, Riparian and Wetland environments	• Atmospheric environment - vegetation may be affected by dust and emissions from project activities • Surface water - changes in surface water quantity and quality may affect wetland and riparian ecosystem composition and function by altering nutrients, hydrology, and causing sedimentation • Groundwater - changes to groundwater levels through activities such as water table drawdown from pit dewatering may alter wetland hydrology • Birds and bird habitat - changes in the abundance and distribution of wetlands, grasslands, and forests may affect availability of suitable habitat for migratory birds • Wildlife and wildlife habitat - changes in the abundance and distribution of vegetation, riparian and wetland environments may affect habitat quality for wildlife species potentially resulting in changes to wildlife populations • Climate change - changes to forest cover and other vegetation communities may affect natural carbon capture cycle • Social conditions - changes in abundance and distribution of some plant species (e.g., berries) may affect land and resource use activities • Indigenous interests - changes in the abundance and distribution of plant species may impact species of importance to Indigenous nations and may affect plant harvesting by Indigenous nations for subsistence and cultural purposes
Fish and Fish Habitat	• Surface water - changes in surface water quality may affect fish health, growth, and survival and changes in surface water quantity may affect the availability and suitability of fish habitat upon which fish depend to spawn, rear, forage, migrate, and overwinter • Atmospheric environment - changes in water quality due to atmospheric deposition of dust and/or potentially acidifying or eutrophying emissions from burning of fossil fuels • Acoustic environment - changes in sound overpressures or peak particle velocities from blasting may affect the health and survival of fish and fish eggs in waterbodies near the Open Pit • Vegetation, riparian, and wetland environments - changes in riparian vegetation may affect bank stability, shade, and organic debris inputs that may affect the suitability of adjacent fish habitat for fish; changes in wetland habitat may affect water quality and quantity in fish habitats downstream or connected to these wetlands • Wildlife and wildlife habitat - changes in fish tissue metal concentrations in fish downstream of mine effluent discharge locations may affect the health, growth, or survival of wildlife that consume fish; changes in fish habitat may affect the abundance and distribution of wildlife that rely on aquatic habitats for all or part of their life histories • Health - changes in fish tissue metals concentrations in fish downstream of mine effluent discharge locations may affect the health of human consumers of fish • Social conditions - changes in the abundance, distribution, or contamination levels in fish may affect the use of fish populations by commercial or recreational fisheries • Indigenous interests - changes in the abundance, distribution, and/or contamination levels in fish may affect fish harvesting by Indigenous nations for subsistence and cultural purposes

Valued Component(s) and Indigenous Interests	Interconnectedness and Interdependencies Among VCs
Birds and Bird Habitats	• Atmospheric environment - atmospheric deposition of dust and/or potentially acidifying or eutrophying emissions may result in changes in terrestrial and aquatic bird habitat quality • Acoustic environment - changes in noise may affect quality of bird habitat and bird health • Surface water - changes in surface water may impact the availability and quality of aquatic habitats that are used by birds • Vegetation, riparian and wetland environments - changes in vegetation and wetlands may impact bird habitat quality and availability • Social conditions - changes in the bird community and bird habitat may impact the distribution and abundance of bird species that are hunted and/or species of cultural importance • Health - changes in concentrations of metals in tissues of may affect the fish health and consequent effects on fish-eating birds • Indigenous interests - changes in the abundance and distribution of birds may affect harvesting by Indigenous nations for subsistence and cultural purposes or species of spiritual importance
Wildlife and Wildlife Habitat, including Wildlife SAR	• Geology and geologic hazards - changes in terrain stability may affect wildlife habitat availability and quality • Atmospheric environment - changes in light and air quality have the potential to affect wildlife behaviour, use of habitat, and health • Acoustic environment - changes in noise and vibrations (e.g., blasting) have the potential to affect wildlife behaviour and use of habitat • Surface water - changes in surface water quantity, flow rates, pathways and quality have the potential to alter the quality and availability of wildlife habitat • Vegetation, riparian and wetland environments - changes to the composition, structure, and quality of vegetation communities have the potential to affect habitat availability and use of those communities by wildlife • Fish and fish habitat - changes in fish communities, abundance, and health have the potential to affect wildlife movement, mortality risk, and health, for species that consume fish (e.g., American mink, North American river otter) • Birds and bird habitats - changes in bird abundance and distribution and health may affect wildlife movement, mortality risk and health for species that prey on birds as a primary food source • Climate change - changes in climate (seasonal patterns, temperature) have the potential to affect wildlife habitat availability and movement of species • Social conditions - changes in wildlife movement and health have the potential to affect hunting, trapping, recreation, and corresponding tourism • Economic Conditions - changes in wildlife movement and health that affect social activities (i.e., hunting, trapping, recreation, and corresponding tourism) have corresponding economic impacts • Indigenous interests - changes in wildlife movement and health have the potential to affect traditional practices, subsistence and livelihood, economic opportunities, and health and wellbeing of Indigenous nations

Valued Component(s) and Indigenous Interests	Interconnectedness and Interdependencies Among VCs
Climate Change	• Atmospheric environment - emissions from project activities have the potential to increase the emission of GHG • Surface water - climate change has the potential to alter future frequency and intensity of rainfall events affecting flows in waterbodies • Vegetation, riparian and wetland environments - climate change has the potential to alter growing periods / seasons for vegetation and affecting water levels associated with vegetation (e.g. wetlands) • Birds and bird habitat - climate change has the potential to alter habitat affecting abundance and distribution • Wildlife and wildlife habitat - climate change has the potential to alter habitat affecting abundance and distribution • Indigenous interests - climate change has potential to affect vegetation and wildlife used for traditional practices, effects on subsistence and livelihood, economic opportunities, and health and wellbeing of Indigenous nations
Health	• Atmospheric environment - changes to chemical concentrations in air may affect people's health by increasing the amount of chemicals inhaled compared to existing conditions • Acoustic environment - changes to noise may affect people's health by increasing levels of sleep disturbance compared to existing conditions • Surface water - changes to the land may affect people's health due to perceived (or actual) changes in environmental quality and tranquillity • Social and economic conditions - changes to community structure may affect people's health due to access to health and social services and community cohesion • Indigenous interests – changes in air quality, noise levels, potential for contamination in country foods and water, and the potential effects on mental health and well being from Project activities may affect Indigenous nations overall health
Social Conditions	• Atmospheric environment and acoustic environment - Project-related fugitive dust emissions and changes to lighting, noise, and vibration levels may cause a disturbance to land and resource users • Surface water - changes to surface water quantity may affect navigation and water-based activities • Vegetation, riparian and wetland environment - changes to vegetation due to the removal or alteration of vegetation communities may affect vegetation-based resource activities (i.e., harvesting timber, gathering firewood) • Fish and fish habitat - changes to fish and fish habitat may affect recreational fishing activities, guide outfitting and commercial bait harvesting • Birds and bird habitats and Wildlife and Wildlife Habitat - changes in bird and wildlife abundance, distribution and health may affect hunting, outfitting, and trapping activities • Economic conditions - Information on the workforce and available supply of labour, as well as mitigation and management measures for economic conditions is critical for the assessment of effects on social conditions

Valued Component(s) and Indigenous Interests	Interconnectedness and Interdependencies Among VCs
	• Health - changes in the conditions of vegetation, fish, bird, and wildlife harvested as country foods may affect the health of human consumers during recreational or commercially based land and resource use • Indigenous interests - changes in social conditions may impact social conditions of Indigenous nations
Economic Conditions	• Social conditions - changes in employment, labour capacity, and investment may impact housing and community well-being, including for diverse subgroups • Health - changes to economic conditions may impact the social determinants of health, including the health of Indigenous peoples • Indigenous interests - changes in economic conditions may impact economic conditions of Indigenous nations
Indigenous Interests	• Geology and geologic hazards - changes in geology and geologic hazards have the potential to affect traditional practices, subsurface physical and cultural heritage (if present), and health and wellbeing of Indigenous nations • Soil - changes in terrain stability may affect soil quality and/or quantity, which may affect the habitat of species that are harvested and consumed or hold other cultural importance for Indigenous nations. Changes in terrain stability may also affect surface and subsurface features of cultural importance (e.g., physical and cultural heritage sites) • Atmospheric environment - changes to chemical concentrations in air may affect the health of Indigenous nations by increasing the amount of chemicals inhaled compared to existing conditions, and/or may affect resources harvested and consumed by Indigenous nations. Project-related fugitive dust emissions and changes to lighting may affect the use of lands by Indigenous nations through sensory disturbance • Acoustic environment- changes in noise and vibration may affect the use of lands by Indigenous nations through sensory disturbance • Groundwater - changes in groundwater quality and/or quantity can affect the ability or desire of Indigenous nations to participate in traditional water-based activities (e.g., fishing, trapping, hunting, canoeing) or features on the landscape considered to be of importance to Indigenous nations. Changes in groundwater may also affect the habitat of species that are harvested and consumed or hold other cultural importance for Indigenous nations • Surface water - changes to surface water quantity may affect navigation and water-based activities. Changes in surface water quality may affect the ability or desire of Indigenous nations to collect water for consumption (e.g., natural springs). Additionally, changes in surface water quality and quantity may affect landscape features of importance to Indigenous nations • Vegetation, riparian and wetland environments - changes in the abundance and distribution of plant species may impact species of importance to Indigenous nations and may affect plant harvesting by Indigenous nations for subsistence and cultural purposes (e.g., food, medicinal, textile) • Fish and fish habitat - changes in the abundance, distribution, or contamination levels in fish may affect fish harvesting by Indigenous nations for subsistence and cultural purposes • Birds and bird habitats - changes in the abundance and distribution of birds may affect harvesting by Indigenous nations for subsistence and cultural purposes or bird species of spiritual importance

Valued Component(s) and Indigenous Interests	Interconnectedness and Interdependencies Among VCs
	• Wildlife and wildlife habitat - changes in wildlife movement, abundance and distribution and health have the potential to affect traditional practices, subsistence and livelihood, economic opportunities, and health and well-being • Climate change - climate change has potential to affect vegetation, wildlife and waterbodies used for traditional practices, effects on subsistence and livelihood, economic opportunities, and health and wellbeing of Indigenous nations • Health – changes in air quality, noise levels, impacts from accidents, increase in collisions, potential for contamination in country foods and water, impacts of pesticides and herbicides on wildlife, human health, quality of harvested food, and potential impacts on mental health and well being from Project activities may affect Indigenous nations overall health • Social conditions – changes in transportation infrastructure, land use, housing, health, and medical services may impact the daily lives of Indigenous nations. • Economic conditions – changes in employment and training opportunities and business opportunities may impact the economic conditions of Indigenous nations

Interconnections among VCs help to establish an understanding of the interdependence of the human-ecological systems and informs the understanding of the Project's contributions to sustainability. According to the federal guidance (Government of Canada 2021), a systems approach requires an examination of resilience, that is, the ability or inability of natural systems to recover from disturbances and to tolerate or adapt to change. Resilience is a factor considered in the effects assessment for the VCs that include consideration of species at risk. The conservation status of various species, including fish, plants, birds, and wildlife, serves as a measure of the resilience of these species. Most often, the conservation status of species reflects the effects of human activities on a species population security and distribution. In general, all human activities have effects on fish, birds, wildlife, and vegetation, with the more adaptable, generalist species thriving in environments with higher activity than species with more niche habitat requirements (i.e., these species tend to be more resilient to change).

It should be noted that resilience, as defined in the guidance document (Government of Canada 2021), was determined to be inappropriate to apply directly to the assessment and characterization of Indigenous interests. As discussed in Chapters 25 to 28 of the Impact Statement (Assessment of Potential Effects on Indigenous Interests), the notion of resilience is understood as the ability of a receptor to recover from or adapt to a change in its environment, real or perceived. The degree of resilience may be measured or characterized for species or ecosystems relied upon by Indigenous peoples for the exercise of their rights, traditional activities, and practices. Such characterization may be relevant and incorporated into this assessment, where noted, given the interdependence of community health, well-being and culture, and the health and availability of the land and water. However, the ability of Indigenous peoples to recover from or adapt to environmental effects of the Project remains contingent on personal, cultural, esthetic, and/or spiritual values that are subjective and cannot be meaningfully reduced to environmental assessment criteria. When applied to human receptors, resilience in this sense, or as a concept overall, is viewed as nation-specific, as it is informed by an Indigenous persons lived experience, individually and/or collectively in their social and community groups. It would not be appropriate given the complex nature of these considerations for anyone but the affected party to characterize resilience. As such, the "resilience" criterion was not carried forward for the assessment of Project effects on the collectively held rights and interests of Indigenous nations, nor for the purpose of the Project's sustainability assessment as it relates to Indigenous interests.

The more commonly understood and accepted criteria defined for the assessment of potential effects on Indigenous interests and applied in the assessment of the Project's contribution to sustainability, included:

1. consideration of disproportionate effects on vulnerable populations
2. the views of the potentially affected Indigenous nation regarding existing environmental, social, or economic barriers
3. the preferred conditions required by the potentially affected Indigenous nation to maintain or enhance their rights and interests

These were viewed as appropriate to assist in the determination of the overall effects of the Project on the identified Indigenous interests, and the Project's potential effects on current and future generations.

The mitigation measures identified to avoid or reduce these effects are intended to protect the function and sustainability of the human-ecological systems and thereby maintain the interconnectedness and interdependence of the local communities in the vicinity of the PA. Further information on key mitigation measures is presented in Section 33.4.4.

33.4.3.2 Principle 2: Canada Nickel's Consideration of the Well-Being of Present and Future Generations

The concept of well-being includes "the relationships between many tangible and intangible aspects of human health and the social, economic, cultural and biophysical environment" (Government of Canada 2021: 15).

The broad range of potential Project-related environmental, social, cultural, economic, and health effects that contribute to changes in community well-being have been discussed in Chapters 21 (Assessment of Potential Effects on Health), and 25 to 28 (Assessment of Potential Effects on Indigenous Interests) of the Impact Statement. These effects can be highly dependent on each other and are interrelated, and all are connected to the concept of Seven Generation Forward Thinking described in Table 33.1 and Section 33.2. Indigenous nations engaged on this Project expressed that community health includes physical, mental, spiritual, and cultural well-being. Indigenous nations also reported that their relationship with the land and water, and their ability to participate in traditional harvesting practices and transmit knowledge is important to the health and well-being of their communities. Through engagement, Indigenous nations also expressed the importance of the assessment to consider and address potential Project effects on social well-being from in and out migrations, including crime rates, addiction, mental health, impacts to women, girls, and 2SLGBTQI+2, and discrimination and violence towards members of Indigenous nations. The Impact Statement therefore includes an assessment of disproportionately distributed residual effects on subgroups for applicable VC chapters and for the assessment of effects on Indigenous interests in Chapters 25 to 28 of the Impact Statement (Assessment of Potential Effects on Indigenous Interests; IAAC 2021).

Well-being is considered from a holistic perspective, acknowledging that potential Project-related environmental, social, cultural, economic, and health effects may contribute to changes in community well-being, that it is experienced at the individual, family, social/cultural group, and community level, and that it may be experienced differently by different groups in a community. The assessment includes physical health, mental health, social well-being and determinants of health and the interactions between environmental, health, social, and economic effects.

As discussed in Chapter 4, the proposed Project intends to produce nickel domestically to supply North America with a source of critical minerals with a lower carbon footprint compared to current practice worldwide. This Project is anticipated to provide minerals that critical for the sustainable economic success of Canada and its allies and are needed to support important sectors such as communications manufacturing, aerospace, national security, and low-carbon technologies. Further, this Project aligns with the Canadian Critical Minerals Strategy on December 9, 2022 (NRCan 2022) aimed at supporting economic growth, competitiveness, and job creation, promoting climate action and environmental protection, advancing reconciliation with Indigenous nations, fostering diverse and inclusive workforces and communities, and enhancing global security and partnerships with allies.

As discussed in Chapter 21 of the Impact Statement (Assessment of Potential Effects on Health), the Project may have positive and adverse effects on well-being. It will create jobs and economic opportunities for the local community, members of potentially affected Indigenous nations, and the region that will result in positive effects on the well-being of present and future generations during all phases of the Project. Project-related income can reduce financial strain and potential financial-related stress on family dynamics. Project wages are anticipated to be substantially higher than the average wage in the Local Study Area and Regional Study Area for Economic Conditions (see Chapter 23 of the Impact Statement [Assessment of Potential Effects on Economic Conditions]), and local workers successful in securing employment by Canada Nickel may have more income that can be spent on safe housing, nutrient dense food and recreational activities that support the well-being of present and future generations. However, shift work may adversely affect family dynamics. With shorter shifts, workers may be able to have more frequent time to spend with family and friends and rapid shift rotations can reduce disruption to the body as it minimizes readjustment time of circadian rhythms. Longer shift rotations (e.g., 2 weeks to a month) can also allow for workers circadian rhythm to adjust however longer shifts may contribute to additional strain on family dynamics as workers will be away from their families for longer periods of time, and family members may have additional household responsibilities. During operations, it is anticipated that shifts will be 12-hour days for an average of 42 hours per week. This shortened shift schedule may allow workers to spend more time with families and friends and is anticipated to reduce mental health outcomes associated with shift work.

The implementation of mitigation and enhancement measures described in more detail below (Section 33.4.4) as well as project design features will reduce potential adverse effects on community well-being. The local community, and local and regional health service providers will continue to be engaged to address health-related concerns and the well-being of present and future generations.

As described in Chapters 25 to 28 of the Impact Statement (Assessment of Potential Effects on Indigenous Interests), Canada Nickel will continue to engage the potentially affected Indigenous nations to understand and mitigate the Project's effects on their Indigenous interests, explore opportunities to enhance Project benefits, and consider their recommendations and input on Project decisions, including the development of management plans and offsetting (e.g., Construction Environmental Management Plan; Fish Habitat Offsetting Plan; Site-Wide Water Management Plan; Closure Plan). Through this ongoing collaboration, Canada Nickel aims to foster positive long-term relationships with the Indigenous nations, inclusive of current and future generations.

33.4.3.3 Principle 3: Canada Nickel's Consideration of the Positive Effects and Reduction of Adverse Effects of the Project

The assessment of positive and adverse effects for the purpose of the sustainability assessment considered population demographics, population stability, disadvantaged communities, gender, and intra- and intergenerational inequity, consistent with the sustainability principles. Project residual effects are summarized in Chapter 24 of the Impact Statement (Summary of Residual Effects) while mitigation and enhancement measures committed to by Canada Nickel are compiled in Appendix E of the Impact Statement (Summary of Project Commitments). The proposed mitigation and enhancement measures contribute towards long-term sustainability for local and Indigenous nation members and followed a holistic approach by assessing various components of the human-ecological system as described in this chapter.

Additionally, Chapter 21 of the Impact Statement (Assessment of Potential Effects on Health) describes how the assessment of effects for the Project considered the potential for the Project to affect subgroups within a population differently. Certain subgroups may be more vulnerable to adverse effects, and other subgroups may be better positioned to realize positive effects. For example, disproportionate effects on community well-being are generally concentrated for those subpopulations with poorer health status, including those who have existing mental or physical conditions. Adverse effects on access to health services, on health behaviours due to disposable income, or on stress due to inaccessible housing, for example, will be more acutely felt by those with lower health status. The implementation of mitigation and enhancement measures will assist in identifying and managing these effects. In addition to mitigation measures previously discussed, emergency and health services providers will continue to be engaged to support management of effects related to health and community well-being.

Socio-economic and community benefits of the Project include providing jobs, contracting and other economic opportunities for the local community, members of potentially affected Indigenous nations, and the region. Canada Nickel is also working to enter into Impact Benefit Agreements with potentially affected Indigenous nations as a means of providing direct economic benefits (refer to Chapter 2 of the Impact Statement [Proponent Information] for additional information). In addition, Canada Nickel participates in the initiative "Equal by 30", which aims to increase benefits to women and to accelerate gender equality and diversity to close the gender gap by 2030.

Local employment opportunities during all phases of the Project may have a positive effect on health and community well-being through increased income, health benefits, and improved mental health, but change in employment conditions could also have adverse effects through behavioural changes and coping mechanisms (see Chapter 21 of the Impact Statement [Assessment of Potential Effects on Health]). Positive effects will be most apparent for those who have been unemployed or underemployed and are successful in gaining employment either directly through the Project or through indirect or induced employment.

The selection of preferred alternative means (see Chapter 5 of the Impact Statement [Alternatives Assessment] for details) considered not only reducing adverse effects, but also enhancing positive effects. Examples include the following:

- Consolidation of the stockpile locations (now referred to as Impoundment Facility) into a single facility to the east of the realigned Highway 655, north of the Open Pit, instead of having a portion of the facility located west of the realigned Highway 655.
  - reduces the total site footprint
  - reshapes the site layout to a more linear shape, reducing the incremental disturbances on natural habitat (existing linear disturbances already present, such as existing Highway 655 and 500 kV transmission line)
  - maintains a larger buffer with the Mattagami River and the Mahaffy Township Ground Moraine Conservation Area
  - reduces greenhouse gas emissions, in addition to operational costs by locating facility closer to the Open Pit
  - eliminates need for a permanent overpass on Highway 655
  - reduces number of water collection ponds and ditches
- Revised discharge locations (no longer a single discharge location to Mattagami River).
  - better maintains natural flow / water balance by dispersing runoff through multiple discharges and better mimicking existing drainage patterns
  - reduces the expansion of Project infrastructure to the west of the realigned Highway 655
  - avoids potential or perceived effects on water quality and use of the Mattagami River given its social and cultural importance
  - avoids potential effects on Lake Sturgeon within the Mattagami River
- Limiting the impacts on bigger watercourses and waterbodies by adapting the site layout, to avoid overprinting lakes west of the TMF (Martin, Gerry, etc.) as well as the West Buskegau River
- Use of IPT carbonation to provide critical minerals with a lower carbon footprint compared to current practice worldwide
  - IPT Carbonation is a CO_2 sequestration process developed by Canada Nickel where tailings generated by the milling process are first thickened and then processed to store CO_2 that reacts with the brucite contained in the tailings, permanently fixing CO_2 in solid mineral form within the tailings. The carbonated tailings from the IPT carbonation process are discharged and stored as a permanent bank for CO_2
  - this storage of CO_2 in brucite occurs naturally. The IPT carbonation process further increases the carbon sequestration potential in the tailings, providing an opportunity to enhance the positive effects related to the Project by a substantial margin
  - in addition, IPT Carbonation process enhances cementation of the tailing particles thus reducing wind erosion and increasing TMF's stability

  - pilot plant testing of the IPT carbonation process, completed in summer 2023, validated the sequestration models that were developed and confirmed the ability to scale up the process and to store up to 1.5 Mt of CO_2 per year
- The tailings that are produced from the milling process will be deposited in the TMF for the first 17 years of the Project, using a thickened tailings process with no internal ponding
  - in combination with a central cone deposition, this tailings management approach limits the footprint of the TMF, thereby reducing potential adverse effects. Then, tailings will be pumped to the Open Pit, which is made possible by leaving a saddle separating the pit into two distinct zones (one can be mined while the other is used for tailings storage)
- Trolley assist system will be implemented, and autonomous and remotely controlled electric machinery is being explored, to support all or components of the mining fleet
- Haul trucks will use a diesel engine to drive a traction alternator, which produces the electricity used to drive the wheel motors. When on trolley, a truck's diesel engine and alternator usage for propulsion are minimal
- Trolley assist can result in reduction in particulate matter, noise, and greenhouse gases associated with generating energy from hydrocarbons
- Natural channel design principles used for the North Driftwood River realignment that include long-term stability as well as aquatic habitat to be incorporated in the fish habitat offset plan for the Project and includes the following principles:
  - sinuous watercourse with a variety of in-stream depths and cover to increase habitat diversity
  - riparian ponds and wetlands in floodplain areas
  - native species riparian plantings to enhance riparian habitat and to provide shade, bank stability, and leaf and woody debris inputs to the channel

33.4.3.4 Principle 4: Canada Nickel's Application of the Precautionary Principle and Consideration of Uncertainty and Risk of Irreversible Harm

The 'precautionary principle' states that where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation (Government of Canada 2021). Canada Nickel has embraced this principle in the planning, engineering design, and assessment stages of the Project. Throughout the development of the Project, Canada Nickel has been working to enhance the Project's contribution to sustainability, including designing the Project to avoid or reduce effects and advancing potential opportunities for members of potentially affected Indigenous nations and residents of nearby communities. The design of the Project was directly influenced by the views of potentially affected Indigenous nations, with the objective to reduce adverse effects and enhance positive effects.

Baseline conditions incorporated information from government databases, literature, previous environmental impact assessments, project-specific baseline studies, and Indigenous knowledge shared by Indigenous nations, all of which helped Canada Nickel build on past/existing knowledge to reduce uncertainty and the risk of irreversible harm. In some instances, data limitations necessitated that a conservative approach be taken to accommodate uncertainty for the effects assessment. This conservative approach involved assuming plausible worst-case scenarios where data was incomplete or ambiguous, thereby avoiding an underestimation of potential effects. By erring on the side of caution, the assessment aimed to provide a buffer against unforeseen adverse effects.

In addition, an adaptive management strategy has been developed by Canada Nickel that integrates adaptive management into the follow-up programs. Adaptive management is a means to address uncertainty associated with the effectiveness of mitigation measures or predicted effects and to help achieve expected outcomes. This iterative process includes assessment, design, implementation, monitoring, evaluation, and adjustment, and provides a framework to address uncertainty and ecosystem complexity and to rectify or improve mitigation throughout the life of the Project.

33.4.4 Key Mitigation and Enhancement Measures

The mitigation and enhancement measures identified for the Impact Statement are directly linked to the sustainability principles described in Section 33.2. The sustainability principles relate to aspects of the environmental, health, social, and economic effects assessed for applicable VCs that are interrelated and capture the interdependence of human and ecological systems that can influence the extent of potential effects (both positive and adverse) associated with Project-related activities and, therefore, influence the mitigation and enhancement measures that have been proposed. The sustainability principles also require consideration of the level of uncertainty and ecosystem complexity, which can influence the level of confidence in the effectiveness of proposed mitigation and enhancement measures. Follow-up programs will further address uncertainty by confirming predicted effects and effectiveness of mitigation measures.

This Impact Statement has assessed potential effects specified in the TIS Guidelines and identified best management practices to reduce or avoid potential adverse effects on VCs. Most proposed mitigation measures have been used in similar projects in the past, which allows for a high level of confidence in the effectiveness of these measures. Nevertheless, as discussed in Section 33.4.3.4, an adaptive management approach has been developed by Canada Nickel that integrates adaptive management into the follow-up programs to address uncertainties associated with the effectiveness of proposed mitigation measures or predicted effects, and to help achieve expected outcomes and provide a framework to rectify or improve mitigation throughout the life of the Project. In addition, where innovation in the mitigation and enhancement measures is proposed, such as the IPT carbonation, the expected effectiveness is supported by engineering and testing.

Measures to manage potential effects on the VCs assessed in the Impact Statement are organized into two groups: 1) project design measures, and 2) mitigation and enhancement measures developed for the VCs. Both the project design and mitigation and enhancement measures work collectively to improve Project outcomes. Enhancement measures have also been considered to increase positive effects to potentially affected Indigenous nations and local communities, where applicable. Where adverse effects are unavoidable, mitigation measures have been included to reduce these effects. Many of these measures are shared among two or more VCs because they are inherently connected within the functioning ecosystem.

Mitigation and best management practices were selected for each VC to firstly avoid and secondly reduce the identified potential effects. These are described in each VC and Indigenous Interests Chapters (Chapters 10 to 23 and 25 to 28 [Assessment of Potential Effects on Indigenous Interests]) and Appendix E of the Impact Statement (Summary of Project Commitments) provides a consolidation of Project commitments (i.e., mitigation and enhancement measures), summarizing measures selected for each VC as well as the timing associated with each measure.

The mitigation measures listed in Appendix E of the Impact Statement (Summary of Project Commitments) are connected to and informed the assessment of the extent to which the Project contributes to sustainability. The list below summarizes examples of mitigation measures relevant to the Project's contribution to sustainability, through the reduction of adverse Project-related effects on future generations, as well as examples of enhancement measures that will be implemented to distribute benefits over time and throughout the region in consideration of future generations:

- Canada Nickel will implement a Site-Wide Water Management Plan (Appendix J of the Impact Statement) for all phases of the Project, including a dewatering strategy to mitigate the risk of slope instability within the pit slopes.
- Canada Nickel will design the exterior lighting systems for Project operations to include directional lighting to limit light trespass and to avoid glare. Downward directed, full cutoff luminaires will be incorporated into the Project lighting plan (where practical) and portable lighting will be positioned to limit visibility outside the PA.
- Canada Nickel will limit the construction footprint (i.e., Project Area) to the extent possible to reduce the potential for reductions in groundwater recharge and limit the number of watersheds overprinted by the PA.
- Canada Nickel will treat water effluents prior to discharge to the receiving environment, as required, to meet regulatory criteria including an Environmental Compliance Approval issued by the Ministry of the Environment, Conservation and Parks (MECP) as well as criteria developed through the receiving watercourse Assimilative Capacity Study (Appendix G of the Surface Water Resources Assessment [Appendix C.5 of the Impact Statement]), in addition to the Metal and Diamond Mining Effluent Regulations (MDMER).
- Canada Nickel will restrict clearing to the approved PA.
- Canada Nickel will use only native Ontario species and nurse crops when conducting progressive reclamation.

- Canada Nickel will incorporate plant species at risk (SAR) and species of conservation concern (SOCC) in reclamation planting activities planning, if and where habitat is deemed suitable.
- Canada Nickel will incorporate plant species of importance to Indigenous nations into progressive reclamation and planting associated with decommissioning and closure of the site.
- Canada Nickel will adjust the limits of clearing and disturbance to avoid riparian communities, where practical.
- Canada Nickel will incorporate wetlands into reclamation planning to re-establish wetlands, where practical.
- Canada Nickel will progressively construct mine infrastructure to delay alteration of fish habitat, to the extent practical.
- Canada Nickel will apply natural channel design principles to appropriately design and dimension the North Driftwood River Diversion Channel.
- Canada Nickel will prepare and implement a Construction Environmental Protection Plan and Wildlife Management Plan, which will include tailored strategies for species and sensitive habitats that align with the principles of the “hierarchy of mitigation measures.” Avoiding and restricting activities during critical timing windows will be prioritized, to the extent practical.
- Canada Nickel will mark clearing boundaries prior to site preparation to maintain clearing activities within the designated footprint to mitigate potential for encroachment into sensitive features.
- Canada Nickel will develop and implement a net-zero plan for the Project and is committed to continuous improvement of the net-zero plan, as new technology becomes available or best practices evolve.
- Canada Nickel will implement a novel active carbon sequestration process known as the In Process Tailings (IPT) Carbonation process.
- Canada Nickel is committed to hire from local communities and the region, pending the availability of qualified applicants.
- Canada Nickel has made, and will continue to make, contributions to support social, economic, health, and other activities/programs for local communities, including Indigenous communities through its Community Contributions Program. The Program will include a local procurement policy, as well as a sponsorship and donation strategy adapted to Canada Nickel’s guiding principles and the needs of the communities.
- Canada Nickel is in regular communication with local training/education institutions regarding existing, upcoming, and potential course and training offerings, and how this aligns with Canada Nickel's anticipated needs. Canada Nickel continues to explore education, training opportunities and will develop hiring practices that encourages the employment and retention of qualified Indigenous peoples and local community members, including opportunities targeted towards youth.

- Canada Nickel has or will be developing several policies, procedures, and training programs which will mitigate adverse effects on services and infrastructure. These are:
  - Health and Safety Policy
  - Local Procurement Policy
  - Code of Business Conduct and Ethics
  - Workplace Violence, Harassment and Discrimination Policy
  - Diversity and Inclusion
  - Fit for Duty, including Drug and Alcohol Policy
  - Cultural Awareness Training
- Canada Nickel will use existing roads, trails and Right of Way to access the Project Area, to the extent practical. Canada Nickel will develop internal access routes in compliance with provisions of the Mining Act.
- Canada Nickel will engage with local resource users (commercial hunters, trappers, bait harvesters) and Ministry of Natural Resources (MNR) Regional Officials to address to the extent possible the potential conflict, disturbance, or access restrictions to commercial hunting, trapping, and bait fishing areas in the Project Area, and availability of wildlife and bait fish resources.
- Canada Nickel has and will continue to engage local Indigenous nations and has established agreements to support present and future engagement and participation in the Project. Additional Indigenous nations will be included in negotiations for long-term agreements (e.g., Impact Benefit Agreement, Mutual Support Agreements as well as additional agreements, as appropriate).
- Canada Nickel is participating in the initiative “Equal by 30”, which aims to increase benefits to women and to accelerate gender equality and diversity to close the gender gap by 2030.

Canada Nickel is committed to working with potentially affected Indigenous nations to explore opportunities to further mitigate adverse effects to their Indigenous interests and enhance Project benefits. While the scope of these conversations will evolve through ongoing discussions with potentially affected Indigenous nations, it is anticipated that key areas of focus will include training, education and employment, capacity building and contracting opportunities, and cultural awareness training for on-site staff and contractors; key areas identified in this assessment as contributing to sustainability. These key areas of focus are also fundamental to the well-being of future generations.

33.5 Conclusions

Based on the analyses and findings presented in the Impact Statement, the extent to which the Project contributes to sustainability is rated moderate to high. The proposed Project intends to produce nickel domestically to supply North America with a source of critical mineral with a lower carbon footprint compared to current practice worldwide. Canada Nickel is committed to constructing and operating the Project in a manner that reduces adverse effects and enhances positive effects. In addition, an adaptive management strategy has been developed by Canada Nickel that integrates adaptive management into the follow-up programs so that uncertainties associated with the effectiveness of mitigation measures or predicted effects can be verified and changes made, as required, to help achieve expected outcomes.

By delivering lasting benefits while mitigating adverse effects, the Project is likely to result in opportunities for positive contributions to sustainability for potentially affected Indigenous nations and local communities (i.e., Project benefits are not likely to compromise the long-term ability of future generations to benefit from the land and the natural resources in the vicinity of the Project). Given that Project wages are anticipated to be substantially higher than the average wage in the Local Study Area and Regional Study Area for Economic Conditions, the Project is likely to provide economic benefits to local communities and members of potentially affected Indigenous nations who are able to secure employment, therefore, this aspect of the Project's contribution to sustainability is expected for both present and future generations. With the implementation of mitigation and enhancement measures, the Project is likely to meet the needs of the present generation without compromising the ability of future generations to meet their own needs.

33.6 References

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