



Sahtu Land and Water Board

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PRELIMINARY SCREENING REPORT FORM

PRELIMINARY SCREENER: Sahtu Land and Water Board REFERENCE / FILE NUMBER: S15E-004 – AMENDMENT TITLE: Norman Wells to Canyon Creek All Season Access Road APPLICANT: GNWT – Department of Transportation MEETING DATE: February 24, 2016	EIRB REFERENCE NUMBER:
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Type of Development:
(CHECK ALL THAT APPLY)

- New Development
- Amend, EIRB Ref. #
- Renew, EIRB Ref. #
- Requires permit, licence or authorization
- Does not require permit, licence or authorization

Development Summary

The Government of the Northwest Territories Department of Transportation (GNWT-DOT) submitted a Type A Land Use Permit and a Type B Water Licence applications to the Sahtu Land and Water Board (SLWB) for the construction of approximately 14 km of All-Season Access Road from Quarry Road in the Town of Norman Wells to approximately 450 m beyond the existing bridge at Canyon Creek. The project also includes the development of a haul road to a proposed new quarry, upgrades to the access road to Jackfish Lake and development of a road to a proposed camping/recreational areas on Sahtu Lands at Canyon Creek. The total estimate of new road construction and upgrades to existing road is 18.75 km.

Water will be required for Access Road construction, including for the construction of an initial winter access trail to the proposed quarry, water for grading, compaction and dust control during the placement of surface gravel. Water for these purposes is proposed to be extracted from the Mackenzie River. Direct water use is estimated at 150 m³/day for winter work, and 150-250 m³/day in the summer.

Construction of the Access Road is estimated to take six months to eight months to complete. A detailed design of the Access Road is to be completed in the fall of 2015 with construction being undertaken from January to March 2016, and June to September 2016.

Scope

The proposed Norman Wells to Canyon Creek All-Season Access Road construction will consist of the following components:

- a) Mobilizing construction equipment from Norman Wells and Tulita;
- b) Clearing, grubbing and stripping all vegetated material from within the working face and development area of the quarry;
- c) Blasting, excavation, crushing and stockpiling of gravel materials within the staging area;
- d) Sourcing and use of water from the Mackenzie River to provide temporary working surfaces and winter access road during frozen ground conditions;

- e) Use of construction equipment and a lunchroom/wash car combination trailer;
- f) Disposal of waste at approved offsite disposal facilities;
- g) Construction of an estimated 10 km winter access trail along new and existing cut lines from the intersection with Quarry Road in the Town of Norman Wells to the proposed new quarry;
- h) Construction of an all-season haul road from the proposed new quarry to the new Access Road;
- i) Construction of an all-season Access Road from the intersection with Quarry Road in the Town of Norman Wells to approximately 450 m east of Canyon Creek Bridge;
- j) Construction of an all-season access road to camping/recreational areas on either side of Canyon Creek, downstream from the Canyon Creek Bridge.

Access Road Location:

Latitude	Longitude	Extent
65° 17' 40.577"N	-126° 31' 56.275"W	Western Extent, Intersection with Quarry Road in Town of Norman Wells
65° 13' 25.577"N	-126° 30' 53.362"W	Eastern Extent, East of Canyon Creek Bridge

Proposed New Quarry Location:

Latitude	Longitude	Extent
65° 17' 7.465"N	-126° 32' 17.319"W	Northwest Corner
65° 16' 58.009"N	-126° 32' 29.063"W	West Corner
65° 16' 50.994"N	-126° 32' 23.229"W	Southwest Corner
65° 16' 57.035"N	-126° 31' 25.103"W	Northeast Corner
65° 16' 42.746"N	-126° 31' 41.348"W	Southeast Corner

Principal Activities (related to scoping)

(CHECK ALL THAT APPLY)

- | | | |
|--|---|--|
| <input checked="" type="checkbox"/> Construction | <input type="checkbox"/> Exploration | <input type="checkbox"/> Decommissioning |
| <input type="checkbox"/> Installation | <input type="checkbox"/> Industrial | <input type="checkbox"/> Abandonment |
| <input checked="" type="checkbox"/> Maintenance | <input type="checkbox"/> Recreation | <input type="checkbox"/> Aerial |
| <input type="checkbox"/> Expansion | <input type="checkbox"/> Municipal | <input type="checkbox"/> Harvesting |
| <input checked="" type="checkbox"/> Operation | <input checked="" type="checkbox"/> Quarry | <input type="checkbox"/> Camp |
| <input type="checkbox"/> Repair | <input checked="" type="checkbox"/> Linear / Corridor | <input type="checkbox"/> Scientific / Research |
| <input checked="" type="checkbox"/> Water Intake | <input type="checkbox"/> Sewage | <input type="checkbox"/> Solid Waste |
| <input type="checkbox"/> Other: | | |

(DESCRIBE)

Principal Development Components (related to scoping)

(CHECK ALL THAT APPLY)

- | | |
|---|---|
| <input checked="" type="checkbox"/> Access Road <ul style="list-style-type: none"> <input checked="" type="checkbox"/> construction <input type="checkbox"/> abandonment/removal <input type="checkbox"/> modification e.g., widening, straightening | <input checked="" type="checkbox"/> Waste Management <ul style="list-style-type: none"> <input type="checkbox"/> disposal of hazardous waste <input checked="" type="checkbox"/> waste generation <input type="checkbox"/> drilling wastes and hydraulic flowback fluids |
| <input checked="" type="checkbox"/> Automobile, Aircraft or Vessel Movement | <input type="checkbox"/> Sewage <ul style="list-style-type: none"> <input type="checkbox"/> disposal of sewage |
| <input checked="" type="checkbox"/> Blasting | <input type="checkbox"/> Geoscientific Sampling <ul style="list-style-type: none"> <input type="checkbox"/> trenching <input type="checkbox"/> diamond drill <input type="checkbox"/> borehole core sampling |
| <input type="checkbox"/> Building | <input type="checkbox"/> Bulk soil sampling |
| <input type="checkbox"/> Burning | |
| <input type="checkbox"/> Burying | |
| <input type="checkbox"/> Channeling | |
| <input checked="" type="checkbox"/> Cut and Fill | |

- Cutting of Trees or Removal of Vegetation
- Dams and Impoundments
 - construction
 - abandonment/removal
 - modification
- Ditch Construction
- Drainage Alteration
- Drilling other than Geoscientific
- Ecological Surveys
- Excavation
- Explosive Storage
- Fuel Storage, drilling fluid, and hydraulic fracture fluid storage
- Topsoil, Overburden or Soil
 - fill
 - disposal
 - removal
 - storage

- Gravel
- Hydrological Testing
- Site Restoration
 - fertilization
 - grubbing
 - planting/seeding
 - reforestation
 - scarify
 - spraying
 - recontouring
- Slashing and removal of vegetation
- Soil Testing
- Stream Crossing/Bridging
- Tunneling/Underground
- Water Intake
- Other

NTS Topographic Map Sheet Numbers

(LIST ALL THAT APPLY)

NTS Map Sheet #s: 096E

Latitude/Longitude and UTM System:

Minimum Latitude: 65° 17' 40.577"N
 Minimum Longitude: -126° 31' 56.275"W

Maximum Latitude: 65° 13' 25.577"N
 Maximum Longitude: -126° 30' 53.362"W

(DEGREES, MINUTES, SECONDS, MAP SHEET)

Nearest Community and Water Body:

The Town of Norman Wells, NT; Mackenzie River

Land Status (*consultation information*)

(CHECK ALL THAT APPLY)

- Free Hold / Private
- Commissioner's Land
- Federal Crown Land
- Municipal Land

Transboundary Implications

(CHECK ALL THAT APPLY - IF KNOWN & APPLICABLE)

- British Columbia
- Alberta
- Saskatchewan
- Yukon
- Nunavut
- Wood Buffalo National Park
- Inuvialuit Settlement Region

N/A

Type of Transboundary Implication:

- Impact / Effect
- Development

Public Concern _____
 (DESCRIBE)

N/A

PHYSICAL - CHEMICAL EFFECTS

IMPACT

MITIGATION

1. Groundwater

Water table alteration

Water quality changes

1. Water will be required for Access Road construction and operation for winter trail construction and dust control. Water for this use will be obtained from the Mackenzie River. The construction of the Access Road and haul road and the management of the proposed new quarry will be such that water quality, quantity and rate of flow is not altered and surface and groundwater will not be impacted.
2. Potential impacts to groundwater are limited to accidents and spills, and DOT has developed Emergency Response and Spill Management Plans that will be adhered to in case of emergencies and accidental spills.
3. All fuel trucks and equipment refueling will be done at least 100 meters (m) from Ordinary High Water Mark of any adjacent water bodies.
4. Fuel will not be stored in project site. Construction equipment working on the Access Road and at the proposed new quarry will be fueled by pickups with tidy tanks and a dedicated fuel/lube truck with a fuel tank capacity of 10,000 litres travelling between Norman Wells and the working equipment.
5. Land Use Permit (LUP) conditions #53-67 and Water Licence (WL) Part D, Items 1 and 6 address fuel storage and containment, spill response and cleanup.

Infiltration changes

Other:

N/A

IMPACT

MITIGATION

1. Surface Water

Water flow or level changes

Water quality changes

1. Water will be required for Access Road construction and operation for winter trail construction and dust control. Water for this use will be obtained from the Mackenzie River. The construction of the Access Road and haul road and the management of the proposed new quarry will be such that water quality, quantity and rate of flow is not altered and surface and groundwater will not be impacted.
2. Potential impacts to surface water are limited to accidents and spills, and DOT has developed Emergency Response and Spill Management Plans that will be adhered to in case of emergencies and accidental spills.
3. LUP conditions #53-67 address and WL Part D, Items 1 and 6 fuel storage and containment, spill response and cleanup.

Water quantity changes

1. Direct water use for the Access Road construction is estimated at 150 cubic meters per day (m³/day) for winter work and 150 to 250 m³/day in the summer. Water will be sourced from the Mackenzie River in accordance with the protocol outlined in the DFO Freshwater Intake End-of-Pipe Fish Screen Guideline and the DFO Protocol for Winter Water

Withdrawal from ice-covered Waterbodies in the Northwest Territories and Nunavut.

✓ Drainage pattern changes

1. The haul road to the proposed new quarry has the potential to change the drainage system near Hamar Mountain and impact the water in Bandy Lake. The DoT will design and construct haul road such that surface drainage is not impacted.
2. Localized ditching will be completed to install culverts and ensure drainage flows are maintained. Approximately four (4) 600-mm diameter culverts will be placed every one (1) km of the Access Road to convey flows from localized drainage across the road. Design for culverts will include requirements for bedding materials and geotextile to protect surrounding permafrost from thaw. Rip-rap will be incorporated into culvert design to prevent erosion around inlet and outlet of each culvert.
3. LUP condition #22 prohibits obstruction of natural drainage.
4. LUP condition #3 prohibits quarry operations within a 100m from any Watercourse, unless otherwise authorized by Inspector.

Temperature

Wetland changes / loss

Other:

N/A

IMPACT

MITIGATION

2. Noise

✓ Noise increase

1. Most of the noise during the Access Road construction phase will be associated with equipment and blasting operations. Increases in noise level and unfamiliar noise may disturb wildlife.
2. Trucks will typically be dump trucks or other haul trucks, operating at slow speeds. Noise levels associated with such trucks are typically within 78 dBA to 82 dBA at 15 m from the truck. This noise level is low, rapidly reversible and the impact will be to the local area within which the specific activity is taking place.
3. The DoT is committed to provide adequate maintenance of equipment that will reduce possible effects associated with construction noise.
4. Blasting activities in the quarries will create noise that is intermittent and temporary in nature.

Noise in/near water

Other:

N/A

IMPACT

MITIGATION

3. Land

Geologic structure changes

✓ Soil contamination

1. Potential soil contamination is limited to accidents and spills, and the DoT has developed Emergency Response and Spill Management Plans that will be adhered to in case of emergencies and accidental spills.

- 2. LUP conditions #53-67 address fuel containment, spill response and cleanup.

- ✓ Ground disturbance
 - 1. Potential effects of construction activities on land can be related to surface disturbance during construction that can cause damage to soils, permafrost, cause erosion and alter landforms.
 - 2. Approximately 13% of the Access Road is already disturbed as part of the footprint of the existing cleared trail following the Public Works Canada (PWC) 1970s alignment.
 - 3. Mitigative efforts associated with the impacts of the construction to sensitive terrain and ground ice in the design and construction stage include: Design the Access Road using a fill only, embankment concept rather than a cut and fill due to the very weak subgrade; Use woven geotextile to support weak subgrade soils and reduce differential settlement; Incorporate approaches to lowering the water table in the immediate vicinity of the roadbed by using ditches or similar components; Use geofabrics, geosynthetic materials, wattles or other erosion control products in ditches covered by organics to minimize erosion of the existing fine grained soils; Use material from the proposed rock quarries to construct the embankment rather than adjacent and low quality borrow materials; Design and construct a workable drainage approach to manage surface flow; Take advantage of the natural topography and grades along the alignment that are gentle so sidehill cuts are eliminated; Stage the construction such that the placement of granular surfacing is delayed until any significant differential settlement has occurred; and Confine the project footprint to the extent where possible, to cut lines and other areas that have already been disturbed.
 - 4. The proposed road structure will comprise woven geotextile placed on the existing ground, embankment of 300 mm minus quarried rock, 200 mm thick sub-base course of 50 mm minus gravel and 150 mm thick base course of 20 mm minus surfacing gravel.
 - 5. The conceptual design and construction approach for the Access Road is based on "Development and Management of Transportation Infrastructure in Permafrost Regions" by Transportation Association of Canada, 2010.
 - 6. LUP conditions #71-76 require restoration and cleanup of the lands used during land-use operations.

 - Buffer zone loss

 - Soil compaction & settling

 - ✓ Destabilization / erosion
 - 1. Permafrost terrain is vulnerable to both physical erosion of soils and thermal erosion of frozen ground.
 - 2. Mitigative efforts are the same as those described for Ground disturbance above.
 - 3. LUP conditions #20-37 deal with erosion control and prevention.

 - ✓ Permafrost regime alteration
 - 1. The Access Road lies entirely within extensive discontinuous permafrost zone.
 - 2. The Access Road will be built on sensitive permafrost terrain which is vulnerable to physical and thermal ground disturbances.
 - 3. Key mitigative measures incorporated into the design parameters to manage uncertainty related to future climate trends and extremes in the permafrost region that the Access Road will be constructed in, are the same as those described above for Ground disturbance, Destabilization / erosion.
 - 4. LUP condition #21 deals with permafrost protection.

 - Other:

○ N/A

IMPACT

MITIGATION

4. Non Renewable Natural Resources

✓ Resource depletion

1. The proposed Access Road construction will use non-renewable natural resources (diesel fuel) but are necessary to conduct the project. The proposed activities are localized and have temporary effect.

○ Other

○ N/A

IMPACT

MITIGATION

5. Air / Climate / Atmosphere

✓ Greenhouse emissions

1. Emissions from diesel engine combustion exhaust during construction and operation will be generated and will negatively impact air quality in the local area around where the equipment is operating at the particular time. To minimize emissions from this source, construction equipment will be well maintained and in good operating conditions. Unnecessary idling will be minimized during winter months.

✓ Other: Dust and air emissions

1. Access Road construction and material sources development will generate dust and air emissions. Dust particles of various sizes will be generated by handling of embankment and granular materials in material sources and along the Access Road during construction. Dust is also generated by vehicles travelling along the Access Road during construction and after the Access Road is in operation. Larger particles (>44 microns diameter) are typically associated with nuisance issues, while smaller particles (<10 microns diameter) can potentially create human health issues at elevated levels in populated areas.
2. The application of water as per the GNWT Guideline for Dust Suppression [Environment and Natural Resources (ENR) 2013], will be effective during summer construction periods in controlling dust created by crushing and surfacing operations. Water will be withdrawn from the Mackenzie River.

✓ Other: Climate change

1. These effects of climate change (warming temperatures, greater precipitation, and extreme and unpredictable weather events) could have an impact on the stability of the Access Road from operations, maintenance and preservation aspects, potentially resulting in negative effects to the surrounding environment.
2. Key mitigative measures incorporated into the design parameters to manage uncertainty related to future climate trends and extremes in the permafrost region that the Access Road will be constructed in, include (p. 26 of the LUP application): Design the Access Road using a fill only, embankment concept rather than a cut and fill due to the very weak subgrade; Use woven geotextile to support weak subgrade soils and reduce differential settlement; Incorporate approaches to lowering the water table in the immediate vicinity of the roadbed by using ditches or similar components; Use geofabrics, geosynthetic materials, wattles or other erosion control products in ditches covered by organics to minimize erosion of the existing fine grained soils; Use material from the proposed rock quarries to construct the embankment rather than adjacent and low quality borrow materials; Design and construct a workable drainage approach to manage surface flow; Take advantage of the natural topography and grades along the alignment that are gentle so sidehill cuts

are eliminated; Stage the construction such that the placement of granular surfacing is delayed until any significant differential settlement has occurred; and Confine the project footprint to the extent where possible, to cut lines and other areas that have already been disturbed.

BIOLOGICAL ENVIRONMENT

IMPACT

MITIGATION

1. Vegetation

Species composition

Species introduction

1. Plant communities may be indirectly affected by the introduction of non-native or invasive plant species during construction and operation of the Access Road. The disturbances associated with development projects can unintentionally create growing conditions that facilitate the successful establishment of invasive plants. Exposed soil resulting from the removal of plant cover is particularly susceptible to colonization. Dirty equipment transported to site from other areas can act as a dispersal mechanism for invasive plant propagules that may have become lodged in tires and mud. Off-road vehicle use (e.g., All-Terrain Vehicles) can also increase the potential for non-native and invasive plant species introduction.

Toxin / heavy accumulation

Loss of timber along seismic lines

Damage to ground vegetation and permafrost

1. The vegetation in the area will be impacted by the construction activities, the physical presence of the infrastructure, and the ongoing use of the infrastructure. Vegetation will be lost due to clearing of trees and brush along areas that have not yet been disturbed, and due to the removal of overburden to access rock in the proposed new quarry site. Portions of the existing town quarry, winter road, and cutlines will be traversed, to the extent possible, to minimize new disturbances. The total project footprint encompasses 117.03 ha of newly disturbed land.

2. The total design area for the quarry has increased from 112,500 m² (250 m x 45 m) to 367,500 m² (750 m x 490 m). Overburden depth is estimated at an average of 0.5 m. The estimated quantity of stripping and grubbing is 180,000 m³ for the expanded quarry area.

3. With the direct loss of vegetation, potential merchantable timber may also be directly affected. Timber volumes are uncertain; however, given the open and sparse canopied coniferous forests that dominate the proposed Access Road footprint, a low volume of merchantable and/or waste timber will be available for use by the local community, should they want it. Salvageable timber with a butt size greater than 150 mm will be stockpiled in staging areas for the public to utilize for fire wood or other purposes.

4. Vegetation immediately adjacent to the project footprints may be indirectly affected by dust generated during the construction (including blasting) and through use of the Access Road. Road construction and use of the access road during the summer months, will generate dust. The potential effects of dust deposition on plant species varies with the deposition frequency, load and duration, as well as the physical and chemical properties of the dust and the plant species involved. The primary dust-related effects resulting from the year round use of the all season road are anticipated to occur within about 10 m of the main development footprint, as this is where the majority of the large dust particles are expected to settle out. Dust particles that settle directly onto plants can smother leaf surfaces

and increase leaf surface temperature, all of which can reduce the overall photosynthetic efficiency in the plant.

5. The indirect impacts from off-road vehicle access to previously undisturbed areas off the proposed Access Road may also damage plants and create ruts resulting in localized erosion and changes to the natural drainage patterns. These impacts may indirectly alter the local plant communities.
6. These impacts will be minimized by taking steps similar to those outlined above and including: Minimize the loss of vegetation by confining the project footprint to the extent where possible, to cut lines, existing or old rights-of-way and other areas that have already been disturbed, and removing overburden from only those areas in the proposed new quarry site that are needed for the immediate use; Take advantage of the natural topography and grades along the alignment that are gentle so sidehill cuts are eliminated; Post notifications in Norman Wells for community members to recover timber from along the proposed footprint; Employ water based dust control methods during construction by following applicable guidelines; Restrict construction traffic to the planned footprint; Avoid damage to the surface organic layer and leave root structures intact during winter clearing activities at non-permanent footprints (e.g., road right of way), wherever possible; Re-contour and facilitate the natural revegetation of non-permanent footprints; Clean equipment thoroughly prior to use on site to avoid the transfer of non-native or invasive plant species; Prohibit use of potentially invasive plant species (e.g., prohibit use of straw to minimize erosion potential); Maintain natural drainage patterns by using adequately sized and positioned culverts; and Implement and maintain erosion control measures during construction and operation, where appropriate.
7. Of greater importance are the activities undertaken after the Access Road is in operation. Given the uncertainty of the events associated with climate change, greater vigilance and effort on the part of maintenance operators will be required including: more frequent inspections, and monitoring, of the performance of the infrastructure, sufficient additional resources for maintenance and rehabilitation particularly during summer months when traffic is likely to generate more dust from the road surface, and post lower speed limits on the Access Road as slower travel will generate less dust in summer, dryer months.
8. LUP conditions #18, 21 and 74 address vegetation and permafrost protection.

Increased fire hazard

N/A

IMPACT

MITIGATION

2. Wildlife & Fish

✓ Effects on rare, threatened or endangered species

1. The DoT will maintain natural drainage patterns (including quantity and quality).
2. Access Road construction is designed to maintain at least 250 m distance between lakes and construction operations from June 1 to August 31.
3. The DoT will adhere to SLUP recommended setbacks, and avoid known raptor nesting sites by 1 km, and not cause adverse negative effects to nesting raptors from March 1 to August 1.
4. The DoT will avoid clearing and construction during nesting and fledging season (May 1 to August 15).
5. The DoT will minimize project footprint in open forests, forest clearings, and lakeshores.
6. Avoid disturbing (May 1 to August 15) or destroying nests during bridge maintenance work and quarry excavation.

- 7. The DoT will cease clearing and construction activities within 800 m of all known den sites during carnivore denning season (October 15 to May 15).
 - 8. The DoT will maintain a horizontal setback of 800 m from all known Wolverine natal dens.
 - 9. The DoT will cease clearing and construction activities if caribou are within 500 m.
 - 10. LUP condition #80 pertains to migratory birds and species at risk.
- ✓ Fish population changes
- 1. The DoT will employ sediment and erosion control measures, as appropriate, and appropriate sizing of culverts.
 - 2. The DoT will regularly provide maintenance of equipment away from waterbodies.
 - 3. DOT will provide on-site spill containment equipment and provide staff training.
 - 4. DOT will maintain sufficient distance from waterbodies, if possible, and install sediment control in ditches and cross drainage channels.
 - 5. DOT will follow protocols of Fisheries and Oceans Canada (DFO) Freshwater Intake End-of-Pipe Fish Screen Guideline.
- Waterfowl population
 - Breeding disturbances
 - Population reduction
 - Species diversity change
 - Health changes (identify)
 - Behavioral changes (identify)
- ✓ Habitat changes / effects
- 1. DOT will carry out land-use operations as far as possible from lakes, ponds, and wetland complexes to avoid possible calving areas and to reduce hunter visibility from the Access Road.
 - 2. DOT will concentrate construction activities temporally and spatially by adopting a sequential development strategy (including blasting) to reduce the duration of disturbances.
 - 3. DOT will concentrate blasting activities in the winter, outside the sensitive calving period (late May to at least July).
 - 4. All disturbances to the material sources will be minimized. DOT will adhere to Sahtu Land Use Planning (SLUP) recommended horizontal setback of 800 m from bear, wolverine and wolf dens during the denning period (mid-October to late May for bears; early May to late June for wolves; and either January to April or June to July for wolverines).
 - 5. Avoid altering the natural drainage conditions (water quality and quantity) by using appropriately placed and sized culverts.
 - 6. Remain at least 100 m from lakes, ponds, and wetland complexes.
 - 7. Remain as far back from lakes and wetlands as possible. DOT will adhere to the SLUP recommended setback distance of a minimum of 250 m from waterfowl nesting (June 1 to Aug 31) and staging areas (May 10 to June 20 and August 15 to September 30).
 - 8. The proposed Access Road is designed to avoid lakes, ponds, and open water wetlands by at least 250 m, and avoids the Mackenzie River by at least 1,000 m.
 - 9. DOT will adhere to the SLUP recommended horizontal setback of 1,000 m from known raptor nests during the breeding season (March 1 to August 1) and 500 m for the remainder of the year.
 - 10. DOT will schedule clearing activities to occur during the winter, a period of time when the majority of species absent.
 - 11. Disturbance to nests will be minimized by avoidance.

12. Clearing activities scheduled to occur during the winter, a period of time when the majority of species absent.
13. Minimize the disturbance footprint as much as possible by maximizing the use of already disturbed areas.
14. Design with suitable culvert placement and sizes to maintain natural drainage patterns.
15. A wildlife monitor may be present during construction activities (including blasting) to monitor the location of overwintering caribou.
16. DOT will cease clearing and construction activities (including blasting) if caribou are within 500 m.
17. Conduct an active den survey in the late fall prior to disturbing these areas to locate active den sites, including at and near the known bear den near the Norman Wells quarry and possible wolf denning area near the proposed quarry access road.
18. As per the SLUP, cease clearing and construction activities within 800 m of all known active den sites during the specific species denning season (mid-October to late May for bears; early May to late June for wolves; and either January to April or June to July for wolverines).
19. DOT will adhere to the DFO Water Withdrawal Protocol if pumping from a water source known to support nesting waterfowl.
20. Avoid clearing during raptor nesting and fledging season (March to August) in all habitat types (this timing restriction includes early nesters such as owls and later nesters such as hawks).
21. As indicated in the SLUP, avoid known raptor nesting sites by 1 km, and not cause adverse negative effects on nesting raptors from March 1 to August 1.
22. Conduct a raptor nest survey within at least 1 km of the proposed footprint, including along Canyon Creek (nearest to km 0 to km 4.0 of the proposed Access Road).
23. Construction monitoring of known active nests present within 1 km may be required to confirm project activities are not causing adverse negative effects.
24. Avoid clearing during nesting and fledging season (May 1 to August 15) in all habitat types.
25. Minimize the project footprint to the extent possible.
26. Maintain existing drainage patterns by using appropriate sized drainage culverts.
27. Use and maintain erosion controls.
28. Construct all culvert openings flush with the surrounding terrain to allow small mammal and amphibian access.
29. Manage snow bank heights during winter operations (e.g., less than 1 m high) and create breaks in snow berms and windrowed timber (e.g., breaks 10 m wide every 300 m) to allow wildlife passage.
30. Discourage off-road vehicle access to the fire breaks and seismic lines/trails from the proposed Access Road (i.e., soil mounding, placement of waste timber into windrows).
31. Diligent management of dust following the GNWT dust suppression guidelines, including during blasting (e.g., water suppression, dust skirts).
32. Prohibit littering, and provide appropriate food and waste disposal bins.
33. Do not use salts for road maintenance to avoid potential wildlife attraction to the road.
34. Policy giving all wildlife the right-of-way during construction.
35. Project-related employees and contractors prohibited from harassing wildlife.
36. LUP condition #42 requires the DoT to take all reasonable measures to prevent damage to wildlife and fish Habitat during this land-use operation.

✓ Game species effects

1. Caribou may be disturbed by the land use operations. LUP condition #79 requires that all construction activities stop if caribou are in the immediate vicinity.

○ Toxins / heavy metals

- Forestry changes
- Agricultural changes
- Other:
- N/A

INTERACTING ENVIRONMENT

1. Habitat & Communities

- Predator-prey

Wildlife habitat / ecosystem composition changes

1. Potential direct and indirect effects on wildlife from the construction and operation of the Access Road include localized habitat loss and alteration (for example, noise, visual disturbance), reduction in habitat connectivity and wildlife mortality (direct and indirect).
2. The construction of the Access Road will open habitat patches, such as stands of previously undisturbed forest.
3. The critical habitat disturbed by Project (footprint and buffer) on existing boreal caribou habitat is estimated at approximately 862 hectares, which represents 0.0030% of the critical habitat available across the Northwest Territories boreal caribou range.
4. DOT will implement the following mitigation and best practices during design, construction and operation phases of the Access Road construction: Remain at least 100 m from lakes, ponds, and wetlands; Concentrate construction activities temporarily and spatially by adopting a sequential development strategy (including blasting) to reduce the duration of disturbance; Concentrate blasting activities in the winter, outside the sensitive periods; Maintain SLUP recommended horizontal setbacks for all habitat types; Avoid altering natural drainage conditions by using appropriately placed and sized culverts; Employment of a wildlife monitor during the construction phase and conduct active den and nest surveys prior to disturbance; Cease clearing and construction activities (including blasting) if caribou are within 500 m; Avoid open, mature spruce habitats; Prohibit littering, and provide appropriate food and waste disposal bins; Policy giving all wildlife the right-of-way during construction; Project-related employees and contractors prohibited from harassing wildlife.
5. LUP condition #42 requires the DoT to take all reasonable measures to prevent damage to wildlife and fish Habitat during this land-use operation.

Reduction / removal of keystone or endangered species

Removal of wildlife corridor or buffer zone

Other:

6. Social & Economic

Planning / zoning changes or conflicts

Rental house

Airport operations / capacity changes

Human health hazard

1. Access Road construction and material sources development will generate dust and air emissions. Dust particles of various sizes will be generated by handling of embankment and granular materials in material sources and along the Access Road during construction. Dust is also generated by vehicles travelling along the Access Road during construction and after the Access Road is in operation. Larger particles (>44 microns diameter) are typically associated with nuisance issues, while smaller particles (<10 microns diameter) can potentially create human health issues at elevated levels in populated areas.
2. The application of water as per the GNWT Guideline for Dust Suppression [Environment and Natural Resources (ENR) 2013], will be effective during summer construction periods in controlling dust created by crushing and surfacing operations. Water will be withdrawn from the Mackenzie River.

Impair the recreational use of water or aesthetic quality

Affect water use for other purposes

1. Direct water use for the Access Road construction is estimated at 150 cu m/day for winter work and 150 to 250 cu m/day in the summer. Water will be sourced from the Mackenzie River in accordance with the protocol outlined in the DFO Freshwater Intake End-of-Pipe Fish Screen Guideline and the DFO Protocol for Winter Water Withdrawal from ice-covered Waterbodies in the Northwest Territories and Nunavut.

Affect other land use operations

1. The Access Road including the proposed new quarry and other associated infrastructure are within the General Use and Special Management Zones of the SLUP.
2. The activities meet the conformity requirements.
3. The work associated with the proposed Access Road including improving the access to Jackfish Lake and the access to camping/recreation areas at Canyon Creek will improve the safety and trafficability of access to these areas.

Quality of life changes

1. Increased opportunities that emerge with the opening of the Access Road – tourism, mining, oil and gas exploration, and development.
2. DOT intends to promote and support business opportunities at the appropriate time.

Public concern

1. Potential for an all-season access road to increase access to harvesting, having both negative and positive impacts. DOT will support broad government activities of public education promoting responsible harvesting.

Other:

N/A

1. Cultural & Heritage

Affects to historic property

Increased economic pressure

Changes to or loss of historic resources

Changes to or loss of archeological resources

Increased pressure on archeological resources

1. The proposed Access Road avoids areas that are permanently protected such as the Canol Heritage Trail and Kelly Lake, and avoids existing mineral claims.
2. The DoT plans to conduct Archaeological field work in fall 2015 to cover areas not previously covered.
3. The DoT will avoid known or potential locations of heritage an archaeological resources.
4. LUP conditions #49-51 requires protection of historical, archaeological, and burial sites.

Affects to aboriginal lifestyle

1. The DoT is committed to strictly enforce a no alcohol and drugs policy for employees and contractors, including those involved in the construction and maintenance.
2. The Access Road will cross the traditional trail from Canyon Creek to Jackfish Lake. DOT will install appropriate warning signage along the Access Road at the crossing of the traditional trail.

Other:

PRELIMINARY SCREENER / REFERRING BODY INFORMATION
(CHECK ALL THAT APPLY)

	RA or DRA	ADVISE	PERMIT REQUIRED
Federal			
ATOMIC ENERGY CONTROL BOARD	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
CANADIAN HERITAGE	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
CANADIAN TRANSPORTATION AGENCY	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ENVIRONMENT CANADA	<input type="radio"/>	<input checked="" type="checkbox"/>	<input type="radio"/>
FISHERIES & OCEANS	<input type="radio"/>	<input checked="" type="checkbox"/>	<input type="radio"/>
ABORIGINAL AFFAIRS AND NORTHERN DEVELOPMENT CANADA	<input type="radio"/>	<input checked="" type="checkbox"/>	<input type="radio"/>
INDUSTRY CANADA	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
NATIONAL DEFENSE	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
NATIONAL ENERGY BOARD	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
NATURAL RESOURCES	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
PUBLIC WORKS & GOVERNMENT SERVICES	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
TRANSPORT CANADA	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
CANADIAN NUCLEAR SAFETY COMMISSION	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Territorial			
MUNICIPAL & COMMUNITY AFFAIRS	<input type="radio"/>	<input checked="" type="checkbox"/>	<input type="radio"/>
PUBLIC WORKS & GOVERNMENT SERVICES	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ENVIRONMENT & NATURAL RESOURCES	<input type="radio"/>	<input checked="" type="checkbox"/>	<input type="radio"/>
TRANSPORTATION	<input type="radio"/>	<input checked="" type="checkbox"/>	<input type="radio"/>
DEPARTMENT OF HEALTH AND SOCIAL SERVICES	<input type="radio"/>	<input checked="" type="checkbox"/>	<input type="radio"/>
PRINCE OF WALES NORTHERN HERITAGE CENTRE	<input type="radio"/>	<input checked="" type="checkbox"/>	<input type="radio"/>
INDUSTRY, TOURISM AND INVESTMENT	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
LANDS	<input type="radio"/>	<input checked="" type="checkbox"/>	<input type="radio"/>
Boards			
GWICH'IN LAND & WATER BOARD	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
SAHTU LAND & WATER BOARD	<input checked="" type="checkbox"/>	<input type="radio"/>	<input checked="" type="checkbox"/>
MACKENZIE VALLEY LAND & WATER BOARD	<input type="radio"/>	<input checked="" type="checkbox"/>	<input type="radio"/>
MACKENZIE VALLEY ENVIR. IMPACT REVIEW BOARD	<input type="radio"/>	<input checked="" type="checkbox"/>	<input type="radio"/>
SAHTU LAND USE PLANNING BOARD	<input type="radio"/>	<input checked="" type="checkbox"/>	<input type="radio"/>
SAHTU RENEWABLE RESOURCES BOARD	<input type="radio"/>	<input checked="" type="checkbox"/>	<input type="radio"/>
SAHTU HEALTH BOARD	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Aboriginal / First Nation			
SAHTU SECRETARIAT INCORPORATED	<input type="radio"/>	<input checked="" type="checkbox"/>	<input type="radio"/>
NORMAN WELLS LAND CORPORATION	<input type="radio"/>	<input checked="" type="checkbox"/>	<input type="radio"/>
TULITA RENEWABLE RESOURCES COUNCIL	<input type="radio"/>	<input checked="" type="checkbox"/>	<input type="radio"/>
TULITA DISTRICT LAND CORPORATION	<input type="radio"/>	<input checked="" type="checkbox"/>	<input type="radio"/>
FORT NORMAN METIS LOCAL #60 LAND CORPORATION	<input type="radio"/>	<input checked="" type="checkbox"/>	<input type="radio"/>
TULITA LAND CORPORATION	<input type="radio"/>	<input checked="" type="checkbox"/>	<input type="radio"/>
NORMAN WELLS RENEWABLE RESOURCES COUNCIL	<input type="radio"/>	<input checked="" type="checkbox"/>	<input type="radio"/>
Local Government			
TULITA HAMLET INCORPORATED	<input type="radio"/>	<input checked="" type="checkbox"/>	<input type="radio"/>
TOWN OF NORMAN WELLS	<input type="radio"/>	<input checked="" type="checkbox"/>	<input type="radio"/>
Communities			

(IDENTIFY)

REASONS FOR DECISION

(LIST ALL REASONS AND SUPPORTING RATIONALES FOR PRELIMINARY SCREENING DECISION)

- Adequate time has been given to Reviewers to provide potential environmental impacts and mitigation measures on information as requested from the Proponent during the initial review period.
- The construction of the Access Road provides training, employment and economic opportunities for Tulita District beneficiaries;
- The construction of the Access Road provides access to Sahtu lands for recreation, tourism and business development, including easier access for community members to their traditional fishing and hunting areas;
- It is the opinion of the Board that the terms and conditions attached to S15E-004, pursuant to the *Mackenzie Valley Resource Management Act (MVRMA)*, will ensure that any potential environmental impacts resulting from this development are not significant. The effects of the Project on the environment can take place in an environmentally responsible manner provided that environmental considerations and mitigation measures outlined in the Land Use Permit and Water Licence application documents are followed; and
- The use of land proposed by the Proponent is of a nature contemplated by the MVRMA.

-	PRELIMINARY SCREENING DECISION
✓	Outside Local Government Boundaries
○	The development proposal might have a significant adverse impact on the environment, <i>refer it to the EIRB.</i>
✓	<i>Proceed with regulatory process and/or implementation.</i>
○	The development proposal might have public concern, <i>refer it to the EIRB.</i>
✓	<i>Proceed with regulatory process and/or implementation.</i>
○	Wholly within Local Government Boundaries
○	The development proposal is likely to have a significant adverse impact on air, water or renewable resources, <i>refer it to the EIRB.</i>
○	<i>Proceed with regulatory process and/or implementation.</i>
○	The development proposal might have public concern, <i>refer it to the EIRB.</i>
○	<i>Proceed with regulatory process and/or implementation.</i>

Preliminary Screening Organization

Signatures

Sahtu Land and Water Board

