



New

Pits and Quarries

Thursday, July 3, 2025

from 2025-06-01 to 2026-10-06

Glen Molloy

5581 Nunavut Ltd

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ᖃᓕᓗᓴᓂᓂᓐ: - Who is proposing the project?5581 Nunavut Ltd. is proposing the Whale Cove Airside Surfaces Rehabilitation project.- What is the project about?The project involves resurfacing the gravel runway at Whale Cove Airport to enhance condition and safety. Work includes excavation, grading, compacting, placing granular surface material, installing drainage systems, applying dust suppressant, and stockpiling materials. Heavy equipment—excavators, graders, rollers, water trucks, and dust applicators—will be used. Scheduled for summer 2025, with expected completion within the same year weather permitting.- Why is this project needed?Resurfacing is essential to maintain airport safety and functionality. Upgrading to current aviation standards allows modern aircraft, supports community transport, cargo delivery, and medevac services, and improves the reliability of essential air services for Whale Cove.- Where will the project take place?The work will occur at Whale Cove Airport, approximately 5 km north of the Hamlet of Whale Cove (population ~470), situated on Hudson Bay's western shore. The nearest protected area is Iqalugaarjuup Nunanga Territorial Park, about 80 km north of the airport.- When will the project occur?Construction is planned for summer 2025 and is expected to be completed that same year, subject to weather. - Community Involvement5581 Nunavut Ltd. commits to ongoing community engagement and will consult with Whale Cove residents throughout the project. The Hamlet will be informed of project progress and invited to provide input to align with community interests.- Environmental ConsiderationsThe project will comply with environmental regulations. Measures include dust control, responsible water use, and materials handling. An approval for the use of water or deposit of waste without a licence will be obtained for compaction and dust suppression.

ᐅᐃᐱᓂᑦ: Qui propose le projet?La société 5581 Nunavut Ltée propose le projet de réhabilitation des surfaces aéroportuaires de Whale Cove.- En quoi consiste le projet?Le projet consiste à refaire la surface de la piste en gravier de l'aéroport de Whale Cove pour en améliorer l'état et la sécurité. Les travaux incluent l'excavation, le nivellement, le compactage, la pose de matériau granulaire de surface, l'installation de systèmes de drainage, l'application d'abat-poussière et le stockage de matériaux. De l'équipement lourd sera utilisé : excavatrices, niveleuses, compacteurs, camions-citernes et épandeurs d'abat-poussière. Prévu pour l'été 2025, l'achèvement est attendu la même année, sous réserve des conditions météorologiques.- Pourquoi ce projet est-il nécessaire?Le resurfaçage est essentiel pour maintenir la sécurité et la fonctionnalité de l'aéroport. La mise aux normes aéronautiques actuelles permettra d'accueillir des avions modernes, de soutenir le transport communautaire, le fret, les services médévac et d'améliorer la fiabilité des services aériens essentiels pour Whale Cove.- Où le projet aura-t-il lieu?Les travaux se dérouleront à l'aéroport de Whale Cove, situé à environ 5 km au nord de la collectivité de Whale Cove (population ~470), sur la rive ouest de la baie d'Hudson. La zone protégée la plus proche est le parc territorial Iqalugaarjuup Nunanga, à environ 80 km au nord de l'aéroport.- Quand le projet aura-t-il lieu?La construction est prévue pour l'été 2025 et devrait s'achever la même année, sous réserve des conditions météorologiques.- Implication communautaire5581 Nunavut Ltée s'engage à une consultation communautaire continue et consultera les résidents de Whale Cove tout au long du projet. La municipalité sera informée de l'avancement et invitée à fournir des commentaires pour respecter les intérêts locaux.- Considérations environnementalesLe projet respectera les réglementations environnementales. Les mesures incluent le contrôle des poussières, l'utilisation responsable de l'eau et la manutention des matériaux. Une autorisation d'utilisation d'eau ou de dépôt de déchets sans permis sera obtenue pour le compactage et l'abat-poussière.

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Inuinnaqtun: Kina tukhiliqtuq havaakhamik? 5581 Nunavut Ltd. tukhiliqtun Tikirajuami Tingmitiqaqvik Qaanganiitun Mamittirvikharnik havaakhangit. Hunauva havaakhaq? Tamna havaakhaq ilauqaqtuq utiqtiffaagianganani qaanganiitunik ujaralialik milvik Tikirajuq Milvianni ihuaqhijuumirianganani qanurinia uvalu qajangnautikkut. Havaktakhaptingnut ilaujut: pualrukhungniq, manikhiniq, qikhuqtiginikkut, iliugainirlu ujaraliunuanik qaangani hunavalungniklu, iliurakhugit qurluarviit auladjutit, iliuraqlugit pujuulaitkutikhat, imaalu katitighutiklu ujaraliuluqhimajut atuqtakhangit. Akhaluutirjuat ingilrutit-pualrutirjuangitlu, manikhirutit, kaipluarutit ikhuqtirutit, imiqtautit akhaluutit, pujuulaitkutitlu atuqtakhat— atuqtauniaqtut. Ihuaqhariiqhimajut aujani 2025, niriuktaujuq initirnimmun takvani ukium namakumi hilaput, naunarman. Huuq una havaakhaq ihariagijaujuq? Nunap iluaniittut qalligiiktuffaagianganik ihariagijaujut pihimajaami tingmitiqarvingmi qajangnaitkutikhanik aulladjutikhainiklu. Maniktigijaangat uumunga tadjia tingmihiliqinikkut atuqtakhat pipkaijut nutaanik tingmitinik, ikajuutighat nunallaani tingmidjutikhat, tujuqtaujuqhatlu tujungiangani, uvalu aanniaqtunik tingmitinun kivgaqtuutit, uvalu ihuaqhijuumikhugit ihuangnikhait ihariagijaujut tingmitikkut kivgaqtuutit Tikirajuarmun. Humi havaaqhat havaktauniaqqat? Havaktakhat havaktauniaqtuq Tikirajuami Tingmitiqarvingmi, qanituani 5 kilaamitat ungahiktilaani Tikirajuq (inuigaiktilaanga ~470), inilik talvani Hudson Bay's uataani hinirarni. Qaniniqhaq munarijaujuq nuna Iqalugaarjuup Nunanga Ukiuqtaqtumi Min'nguiqhivik, imaavjak 80 km tunungani tingmitiqarviup. Qakugu havaaqhaq havaktauniaqqat? Nappaktirirnimmun upalungaijagiikhimajut aujani 2025mi niriuktaujuqlu iniqtauluni uvani ukiungani, hila namakpan. Nunallaaq Ilaudjutikhat 5581 Nunavut Ltd. akhuuqtut aullaranginnaqtumik nunallaani ilaupkaidjutikhanik imaalu uqaqatiginiaqtait Tikirajuami nunaqaqtut tamainni havaakhami. Hamilaatkut tuhaqtitauniaqtun talvuuna havaaq aulavalianingit qaitqujaujutlu pipkaijaangani ihumagijamiknik nalaumajunik nunagijaujumi ihumagijainik. Avatiliqinikkut Ihumagijakhatit Tamna havaaqhaq aulaniaqtuq avatiliqinikkut malikhautikharnik. Qanuriliurutikhat ilaujut pujuulaitkutikhanik munaqhidjutikhanik, munarijaqaqtut imarmik aturnirmik, imaalu tamajanik hanaqinirmik. Angiqtaudjunmik hapkununga aturniit imakkut uvaluuniin iliugaqtaulutik iqakunik laisiqangitumik pijauniaqtut qikhutiqinikkut uvalu pujuulaitkutikharniklu.

Operations Phase: from 2025-06-01 to 2026-10-06

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Whale Cove Airport-Site location	Airstrip use or construction	Commissioners	Whale Cove Airport has a 1,200 m gravel runway (layout 15/33). Last major rehabilitation was in 2000; condition was assessed as "poor." Operated by the Government of Nunavut, it serves small fixed-wing aircraft including Calm Air flights to Rankin Inlet and charters.	No known archaeological or paleontological sites are reported on airport grounds. The region contains Pre-Dorset and Thule archaeological sites and Inuit-era encampments, but none have been recorded at the runway.	The airport lies approximately 8 km north of the Hamlet of Whale Cove (population ~470). Other nearby communities include Rankin Inlet (~74 km north) and Arviat (~145 km south). The airport primarily serves Whale Cove residents for passenger, cargo, and medevac flights. The nearest protected area is Iqalugaarjuup Nunanga Territorial Park (~80 km north). Whale Cove's coastal waters host seasonal beluga whale aggregations and lie on a polar bear migration route.
Whale Cove Airport-Quarry and Pit location	Quarry/Borrow pit	Commissioners	The quarry site, located 5 km north of the Whale Cove Airport runway, has not been previously used. The borrow pit, however, has been utilized for aggregate extraction in the past. The area is characterized by disturbed terrain with ongoing small-scale extraction activities. No	No known archaeological or paleontological sites have been recorded within or near the quarry and borrow pit area. The site is situated outside known traditional land use locations and has been previously disturbed. Any	The site is approximately 13 km north of Whale Cove (population ~470) and ~69 km south of Rankin Inlet. The closest protected

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Project transportation types

Transportation Type	Material Handling and Transport	Length of Use
Land	Materials will be transported via the existing gravel haul road, located 5 km north of the runway. This road will undergo necessary upgrades to accommodate dump trucks for aggregate transport. Construction support includes loaders, excavators, motor graders, and water trucks for road preparation, maintenance, and dust suppression.	

Project accomodation types

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47	Water will be abstracted using a portable pump from a small local lake, then transported via water truck to the runway for	Unnamed small lake approximately 50 m west of the runway, selected for minimal impact and ease of access from

compaction and dust suppression. the project site.

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Environmental Impacts and Mitigation Measures The airside surfaces rehabilitation project in Whale Cove, Nunavut, aims to enhance the safety and functionality of the local airport's infrastructure. However, several environmental impacts have been identified: **Soil and Water Contamination:** Potential spills of diesel, gasoline, hydraulic oil, and lubricants during equipment operation and refueling could lead to soil and water contamination. **Wildlife Disturbance:** Construction activities may disrupt local wildlife habitats, particularly affecting species sensitive to noise and human presence. **Air and Noise Pollution:** Machinery operation and transportation may contribute to elevated levels of air pollutants and noise, impacting both the environment and community health. **Mitigation Measures:** **Spill Prevention and Response:** Implementation of a comprehensive Spill Contingency Plan, including the use of spill kits, designated refueling zones, and regular training for personnel, to minimize and manage potential spills. **Wildlife Protection:** Scheduling construction activities outside critical wildlife periods and establishing buffer zones to minimize habitat disruption. **Pollution Control:** Utilization of low-emission machinery and adherence to noise control protocols to reduce air and noise pollution levels. These measures are designed to minimize adverse environmental impacts and ensure the project's alignment with environmental protection standards.

Additional Information

SECTION A1: Project Info

SECTION A2: Allweather Road

SECTION A3: Winter Road

SECTION B1: Project Info

SECTION B2: Exploration Activity

SECTION B3: Geosciences

SECTION B4: Drilling

SECTION B5: Stripping

SECTION B6: Underground Activity

SECTION B7: Waste Rock

SECTION B8: Stockpiles

SECTION B9: Mine Development

SECTION B10: Geology

SECTION B11: Mine

SECTION B12: Mill

SECTION C1: Pits

1. Activities Included in This Project
Pitting / Overburden Removal: Shallow pits and trenches will be dug at quarry site 4 (existing disturbed area), likely exposing permafrost and patterned ground. Overburden will be removed and stockpiled nearby for later site reclamation. Field mapping confirmed permafrost thaw sensitivities in low-lying depressions.
Quarrying / Crushing / Stockpiling: Suitable aggregate (coarse sand, gravel) will be extracted using pneumatic breakers, loaded into trucks, crushed to desired specifications, and stored on a stable gravel pad.
Road Use/Construction: Existing haul road (~5 km) will be repaired and compacted to transport material to the runway.
Explosives Transportation and Blasting: No blasting is planned; material is friable and test pits showed acceptable fracturing.
Washing: Optional water-washing may be used if excess fines are present in aggregate stockpiles, with water recycled per the water-use plan.
Work in Navigable Waters: None—no marine or stream crossings at this site.
2. Field Investigations
Extensive test-pitting was conducted in March 2024 at 21 locations (AB24-08 to AB24-21 and RQ24-03 to RQ24-06). Results indicated a 0.3–0.6 m overburden layer (silt, organic matter) overlying coarse till. Gravel quality and quantity at the quarry site are sufficient for project needs, with no need for blasting.
3. Carving Stone Deposits
No stone suitable for carving (e.g., soapstone or schist) was identified during field investigations; no traditional quarry sites are present.
4. Conceptual Design & Footprint
The proposed borrow site is approximately 200 m × 150 m (~3 ha), located north of the airport. Aggregate extraction will occur within a defined pit footprint, with haul road tied into existing gravel road. Stockpile areas of ~0.5 ha are planned adjacent to the borrow site and at the runway.
5. Material Type & Volume
Up to 15,000 m³ of

granular material (coarse sand and gravel) will be extracted and crushed to 50–100 mm for runway surfacing.6. Overburden DepthOverburden varies from 0.3 to 0.6 m, composed of frost-disturbed silt and vegetative mat, and will be removed and stockpiled.7. Thermokarst Potential & PreventionMinor thermokarst terrain features were noted, including thaw-sensitive micro-depressions. Prevention will include limiting surface disturbance, preserving permafrost insulation, and avoiding draining depressions.8. Flooding & ControlsNo permanent watercourses; minor ponding may occur during thaw. Extraction areas will be graded to avoid pooling, and sediment fences will be installed.9. Erosion ControlsErosion control measures include installing silt fences around stockpiles, seeding disturbed areas, and maintaining gentle slopes to limit sediment runoff.10. Sedimentation ControlsBeaches of gravel and filter cloth will be used to trap sediment before it enters nearby low-ground areas; periodic inspections will detect any fines.11. Slumping PreventionSide slopes will be graded to a maximum of 3:1 and monitored periodically. Any slump activity will be stabilized with gravel fill.12. Moisture ContentGround moisture is typical of coarse till in active layer: slightly damp; lab tests confirm below-liquid limits, suiting compaction needs.13. Ice Lens EvidenceTest pits revealed polygonal ground frost-structures and minor ice lenses, indicating permafrost continuity. Measures to buffer thermal exposure include staged extraction and berming.14–15. Blasting Methods & Explosive StorageBlasting is not required, so explosives will not be used or stored at the site.16. ARD & Metal Leaching PotentialGeological analysis showed low sulfide content in amalgamated till; ARD/ML risk is negligible. No acid-generating materials present.17. Worker & Public Safety MeasuresAccess Control: Fencing around the quarry.Signage: Clear hazard and equipment signage posted.Training: Site-specific orientations for workers.PPE: Required use of hard hats, safety boots, high-visibility vests at all times.Traffic Management: Spotters for loading machinery, speed limit on haul road set at 20 km/h.Equipment Inspections: Daily safety and spill kit checks.

SECTION D1: Facility

SECTION D2: Facility Construction

SECTION D3: Facility Operation

SECTION D4: Vessel Use

SECTION E1: Offshore Survey

SECTION E2: Nearshore Survey

SECTION E3: Vessel Use

SECTION F1: Site Cleanup

SECTION G1: Well Authorization

SECTION G2: Onland Exploration

SECTION G3: Offshore Exploration

SECTION G4: Rig

SECTION H1: Vessel Use

SECTION H2: Disposal At Sea

SECTION I1: Municipal Development

Proximity to CommunitiesWhale Cove is a small hamlet (~470 residents) located just south of the airport. The Hamlet lies on Hudson Bay's western shore and is the primary community impacted by project activities.

Archaeological & Culturally Significant SitesWithin the Local Study Area, no documented archaeological sites (e.g., pingos or soapstone quarries) have been recorded. However, regional studies indicate that Inuit have historically used the broader area for tool-making and cultural practices.

Palaeontological ComponentSurface and bedrock geology in the region have not revealed significant fossil deposits. The focus remains on sedimentary and permafrost features rather than preserved paleontological resources.

Land & Resource UseThe surrounding area supports subsistence harvesting of caribou, seals, belugas, Arctic char, and other wildlife. Whale and wildlife hunting occurs seasonally. Tourism and guided wildlife viewing draw occasional visitors, though operations are limited.

Local & Regional Traffic PatternsTraffic is dominated by airport operations (small aircraft) and limited gravel road access. Ice-road use and snowmobile travel connect the community to outlying areas seasonally. Marine traffic increases in summer months due to re-supply vessels and occasional tourism charters.

Human Health & WellbeingHealth is closely tied to traditional food sources, clean air, and safe infrastructure. The airport

supports access to medical evacuations, supplies, and emergency support. Noise, dust, and vehicle traffic are managed to minimize impacts on physical and mental health. Other Valued Socioeconomic Components (VSEC) Support for traditional livelihoods like carving and sewing. Connection to cultural identity through harvesting, land-based travel, and community cohesion. Educational and training opportunities generated through project employment and contractor partnerships.

Miscellaneous Project Information

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1. Impact Identification (Overview) Project activities—grading, excavation, resurfacing, water pumping, increased traffic and noise, and fuel handling—will cause negative but mitigable impacts. Conversely, improved runway safety and job creation are positive outcomes. Effects on SARA-listed species remain to be determined.

2. Description of Key Impacts

Vegetation & Soil Disturbance Excavation and grading will disrupt tundra and shallow soils. Mitigation: Confine disturbance to required areas, preserve topsoil, and restore vegetation post-construction.

Dust and Air Quality Surface work produces particulate emissions. Mitigation: Use approved dust suppressants, apply water on haul routes, and conduct daily dust monitoring.

Noise & Traffic Equipment use will temporarily elevate noise and traffic levels. Mitigation: Limit work to daylight hours, fit mufflers on equipment, and schedule traffic to avoid peak community times.

Wildlife Disturbance Heavy equipment may disrupt polar bears, migratory birds, and caribou. Mitigation: Establish buffer zones, enforce speed limits, collaborate with bear patrols, and avoid noise during migration. Monitor and log wildlife interactions.

Water Withdrawal Drawing 47 m³/day from a small lake could affect water levels. Mitigation: Limit intake duration, monitor water levels, avoid low-flow periods, and follow water-use approval conditions.

Spill Risk (Fuel & Oil) Refueling and vehicle operations risk spills. Mitigation: Implement spill prevention strategies—berms, absorbents, staff training, spill kits. Ensure prompt reporting and cleanup if a spill occurs.

3. Socioeconomic & Human Health Considerations

Positive Impacts: Enhanced runway supports medevacs, supply transport, employment, and training—boosting safety, wellbeing, and economic opportunities in Whale Cove.

Temporary Inconvenience: Residents may experience brief disturbances from noise, dust, or traffic. Mitigation: Maintain clear communication through the Hamlet council, limit sensitive timing, and apply dust control measures.

4. Transboundary Effects All project impacts are local. Minimal sediment discharge into Hudson Bay is highly unlikely to extend to other regions, and no cross-boundary issues are anticipated.

5. Effects on SARA-listed Species & Monitoring

Polar Bears (of special concern in Nunavut): May pass near the airport. Mitigation: Collaborate with the Hunters and Trappers Organization (HTO), maintain a 500 m buffer, control attractants, and log sightings for follow-up.

Beluga Whales (SARA-listed): Present offshore during fall. Mitigation: Restrict noisy activities near the shore during migration season (July–October), screen water intakes, and conduct post-activity wildlife surveys.

6. Overall Mitigation Approach

Footprint Management: Minimize clearing, reseed, and stabilize disturbed areas.

Water and Dust Control: Use approved suppressants, monitor intake rates, and assess daily dust levels.

Wildlife Protection: Enforce speed limits, flag equipment, log sightings, implement seasonal scheduling.

Spill Prevention & Response: Train staff, maintain kits, run drills, and follow territorial spill protocols.

Noise Control: Restrict operation hours, use silencers.

Community Engagement: Provide weekly updates, integrate feedback, and prioritize local Inuit employment and training.

These combined strategies aim to minimize negative effects while maximizing benefits to Whale Cove’s environment and residents.

Cumulative Effects

Definition & ContextCumulative effects refer to the combined environmental and socio-economic impacts resulting from the incremental effects of this project when added to other past, present, and reasonably foreseeable future actions. Even individually minor, these can collectively alter conditions in Whale Cove and the broader Kivalliq Region.¹ **Regional Infrastructure Renewal**The Government of Nunavut's 20-Year Capital Needs Assessment includes Whale Cove among several airports being upgraded to enhance safety and community access. Continued infrastructure investment may slightly disturb land and repeat dust emissions over time, but collectively supports economic resilience and emergency services.² **Resource Extraction & Energy Projects**Nearby aggregate quarrying and haul road use (existing and expanded) have previously impacted tundra vegetation and wildlife habitat. Future developments—like the Talston lithium exploration or the Kivalliq Hydro-Fibre Link—could increase industrial traffic and noise. This runway project integrates with past disturbance by applying best practices to minimize incremental impacts.³ **Transportation & Climate Vulnerability**A 2019 study classifies Whale Cove as highly vulnerable to climate-change impacts on its airport and marine linkages. Ongoing projects—including runway work, gravel resupply, and community facilities—intersect with rising permafrost thaw and sea-level risk, necessitating

resilient infrastructure design that accounts for cumulative climate effects.

4. Subsistence & Wildlife UseCumulatively, multiple infrastructure projects—roads, gravel extraction, marine access—increase disturbance to migratory corridors for caribou, polar bears, and birds. The rehabilitation's wildlife-mitigation measures (buffers, timing restrictions) build on existing monitoring and patrol frameworks to help offset added pressure.

5. Social & Economic ConsiderationsIncreased activity and infrastructure upgrades bring jobs, training, and improved medevac reliability—supporting local economy and wellbeing. Simultaneously, improved access to goods and services may alter traditional lifestyles, increasing subsistence harvesting pressures and transport-based pollution. Community oversight is required to balance benefits and cultural sustainability.

Holistic View & Strategic ApproachThis project's cumulative impact is primarily additive, layering with past quarry use and future development plans across land (haul roads), water (river intake, marine traffic), and social fabrics (skills, jobs, pressures on local culture). To manage this, project design aligns with regional strategies and applies a precautionary approach, including:

- Integrating runoff and dust control with quarry management.
- Scheduling around wildlife migrations and subsistence seasons.
- Liaising with regional authorities and Hunters and Trappers Organizations.
- Designing climate-resilient structures compatible with projected permafrost thaw.
- Reporting and adaptive monitoring to detect incremental impacts early.

ConclusionBy situating the runway rehabilitation within the broader nexus of existing and future projects in the Kivalliq Region, Whale Cove adopts a proactive regionally integrated strategy. This ensures development benefits—such as safety, socioeconomics, and access—are realized while reinforcing incremental mitigation to prevent cumulative degradation of fragile Arctic ecosystems and community wellbeing.

Impacts

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	PHYSICAL	Designated environmental areas	Ground stability	Permafrost	Hydrology / Limnology	Water quality	Climate conditions	Eskers and other unique or fragile landscapes	Surface and bedrock geology	Sediment and soil quality	Tidal processes and bathymetry	Air quality	Noise levels	BIOLOGICAL	Vegetation	Wildlife, including habitat and migration patterns	Birds, including habitat and migration patterns	Aquatic species, incl. habitat and migration/spawning	Wildlife protected areas	SOCIO-ECONOMIC	Archaeological and cultural historic sites	Employment	Community wellness	Community infrastructure	Human health
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Airstrip use or construction		N	M	M	-	M	M	N	M	M	N	M	M		M	M	M	M	N		N	P	P	P	P
Quarry/Borrow pit		N	M	M	-	M	M	N	M	M	N	M	M		M	M	M	M	N		N	P	P	P	P
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List of Project Geometries

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|---|-------|--|
| 1 | point | Whale Cove Airport-Site location |
| 2 | point | Whale Cove Airport-Quarry and Pit location |