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THURBER CONSULTANTS LTD.
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Phone (403) 253-9217 Telex 037-43380

May 29, 1987

File: 16-5-38

Department of Indian & Northern Affairs
Les Terrasses de la Chaudiere
Hull, Quebec
K1A 0H4

Attention: Mr. R.J. Gowan
6th Floor, Room 618

RE: GRANULAR RESOURCES MANAGEMENT STUDY
SOUTH SLAVE REGION (DSS FILE: 38ST.A0632-6-5023)

Dear Sir:

In accordance with the contract for the above study, we are pleased to submit this photo album for your information. It provides documentation of the granular sources visited during the recent field reconnaissance.

During the March 16 to 21 1987 field program, a total of 18 existing pits and stockpile sites were visited. Depending on access conditions and the level of development activity at the time of the visit (ie. whether or not the pit was or had been active during the winter), the photographic documentation ranged from reconnaissance photographs of the general pit area to detailed documentation of existing exposures. In this regard, it will be noted that photographs of the Fort Smith area pits, on Salt Mountain and Hill 1, and Fort Resolution pits have not been included, since snow conditions prevented access to these sites. It is anticipated that these areas will be visited, and other sites will be documented from the air and on the ground, during the proposed June 1987 visit to the South Slave Region. In this event, an addendum to the album will be compiled.

D003519

DOC 280132

Field Reconnaissance (NOGAP A4-18)

THURBER CONSULTANTS LTD.
SUITE 110, 7710 - 5 STREET S.E., CALGARY, ALBERTA T2H 2L9
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December 11, 1987

File: 16-5-38

Department of Indian & Northern Affairs
Les Terrasses de la Chaudiere
Hull, Quebec
K1A 0H4

Attention: Mr. R.J. Gowan
6th Floor, Room 618

RE: GRANULAR RESOURCES MANAGEMENT STUDY
SOUTH SLAVE REGION (DSS FILE: 38ST.A0632-6-5023)

Dear Sir:

In accordance with the contract for the above study, we are pleased to submit this photo album for your information. It presents documentation of the granular sources observed during the recent program of ground and helicopter supported aerial surveys, carried out by Mr. I. Jones, P. Geol. of Thurber Consultants in accordance with the Contract Amendment dated October 8, 1987.

The schedule for the site visit to the South Slave Region was as follows:

- on October 13, 1987, existing pit areas in the Salt Mountain area, along Highway 5 west of Fort Smith, were examined and documented on the ground,
- on October 14, 1987, deposits and existing (active, abandoned and depleted) pits along Highways 1, 2 and 5 (western section) were examined from the air and photographically documented, and
- on October 15, 1987, deposits and pit areas along Highways 5 (eastwards to the north Park boundary) and 6 were examined from the air, photographically documented and, in some cases (Sources 5-27, 5-33 and 6-11), sampled for subsequent laboratory testing.

The following sections present the photographic documentation with captions, organized in the order in which the respective management areas were visited:

- Fort Smith area (Management Area IV)
- Highway 1 and Highway 2 (Management Areas I and II)
- Highway 5 (Management Area III)
- Highway 6 (Management Area V)

We trust that this letter and attachments provide the information you require at this time. Should you have any questions or comments, please contact us at your convenience.

Yours truly,
Thurber Consultants Ltd.
L.B. Smith, P.Eng.
Review Principal

I.G. Jones, P.Geol.
Project Geologist

IGJ/lc
4094A

HIGHWAYS 1 AND 2
(MANAGEMENT AREAS I AND II)

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PHOTO 1: Foxhole South (Bertons') Pit Deposit 5-69. View to northeast along axis of pit, showing stockpiles of sandy gravel on left and windrows of restoration materials on right.

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PHOTO 2: Foxhole South (Berton's) Pit, Deposit 5-69. In situ gravelly sand exposed at east end of existing pit.

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PHOTO 3: Foxhole North Pit, Deposit 5-69. View to west across depleted pit area. Much of remaining material is of variable composition and/or shallow.



PHOTO 4: Foxhole North Pit, Deposit 5-69. Reserves of gravelly sand (Class 4) material remain in southeast part of pit area.

HIGHWAY 5
(MANAGEMENT AREA II)



PHOTO 5: Salt Mountain South Pit, Deposit 5-69. Coarse, gap graded, sand and cobble material is exposed along east wall of pit.



PHOTO 6: Salt Mountain South Pit, Deposit 5-69. General view to north across pit area towards Highway 5 and the powerline right-of-way.

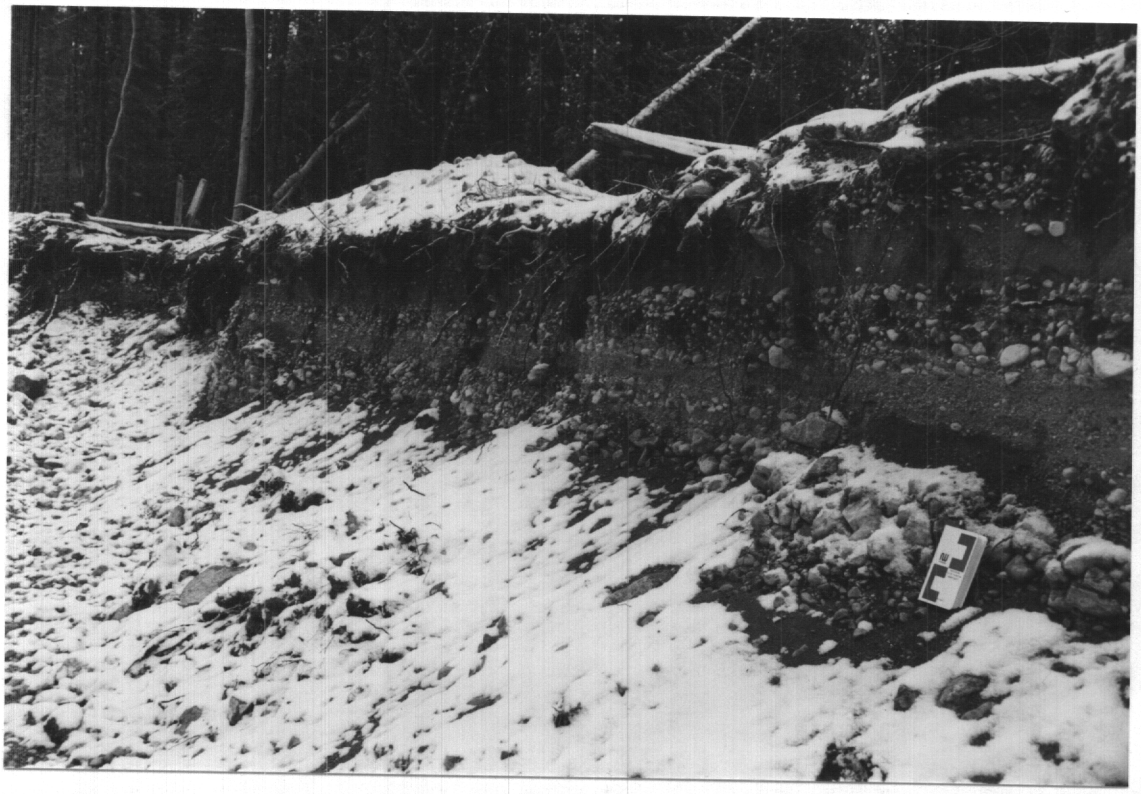

PHOTO 7: Salt Mountain North Pit, Deposit 5-69. Aggregate of variable composition and up to 2 m thick is exposed along northeast wall of pit.



PHOTO 8: Salt Mountain North Pit, Deposit 5-69. General view of pit (towards the north).



PHOTO 9: "Forestry Lookout" Pit, Deposit 5-70. Abandoned pit on north side of Highway 5 contains gap graded cobbly sand. The granular materials appear to be very shallow.



PHOTO 10: Salt Mountain DPW Pit (Km 232.5), Deposit 5-70. Exposure along north pit wall shows typical sandy gravel material.



PHOTO 11: Salt Mountain DPW Pit (km 232.5), Deposit 5-70. General view of pit area.

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PHOTO 12: Deposit 2-8. View to north across depleted and rehabilitated source, now developed as golf course.

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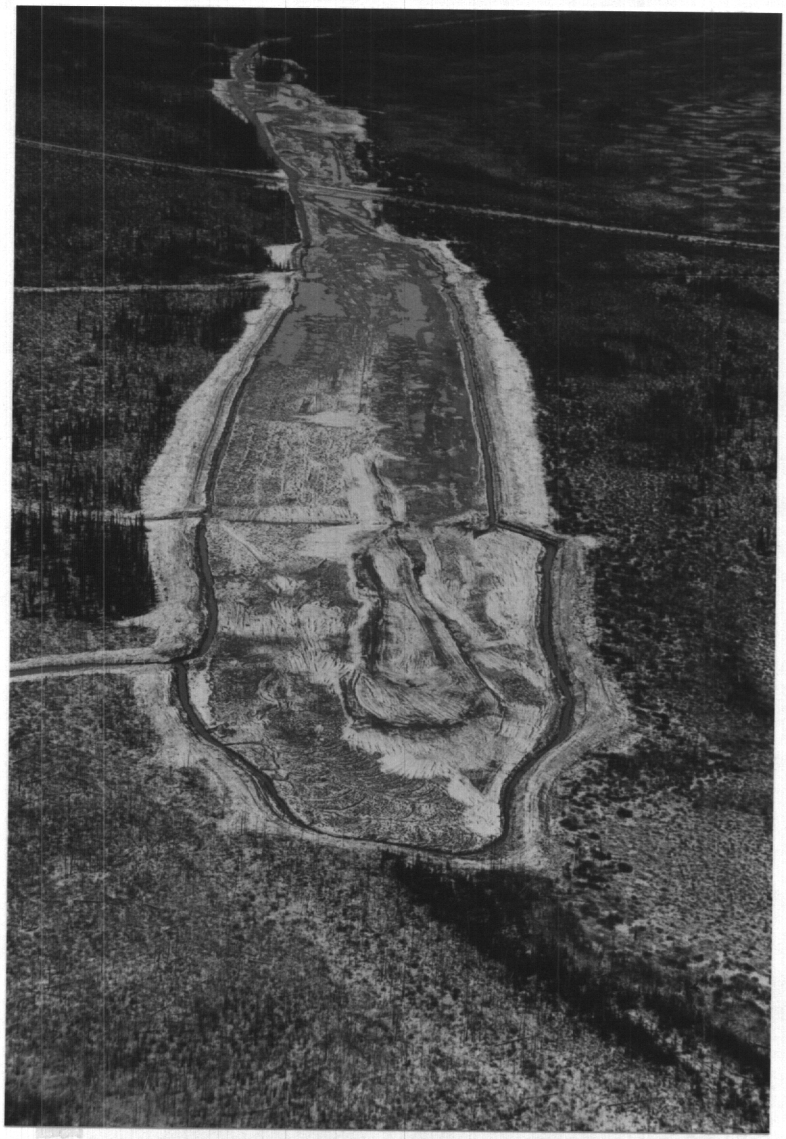

PHOTO 13: View to east along axis of depleted portion of Deposit 2-3 (HR-116). Aggregate has been extracted down to the groundwater table. Ditches have been constructed to improve surface drainage.

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PHOTO 14: Deposit 1-18. Depleted pit area, now used as crushing and stockpile site, along Highway 1 west of Enterprise.

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HIGHWAY 5
(MANAGEMENT AREA III)



PHOTO 15: Deposit 2-1. View to west along axis of deposit (now largely depleted), showing former pit areas. Large pit area in middle distance is used as Enterprise nuisance grounds.

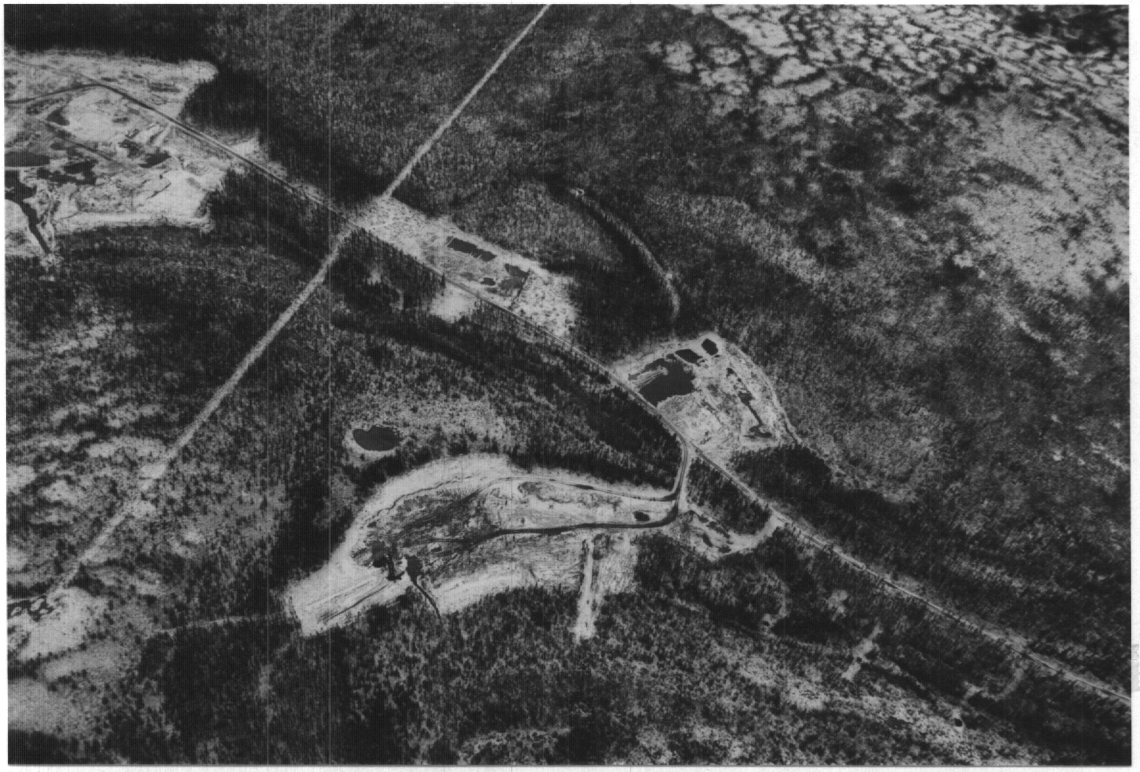

PHOTO 16: Small active pit areas at west end of Deposit 2-1. Pits are developed in isolated pockets of generally shallow aggregate.

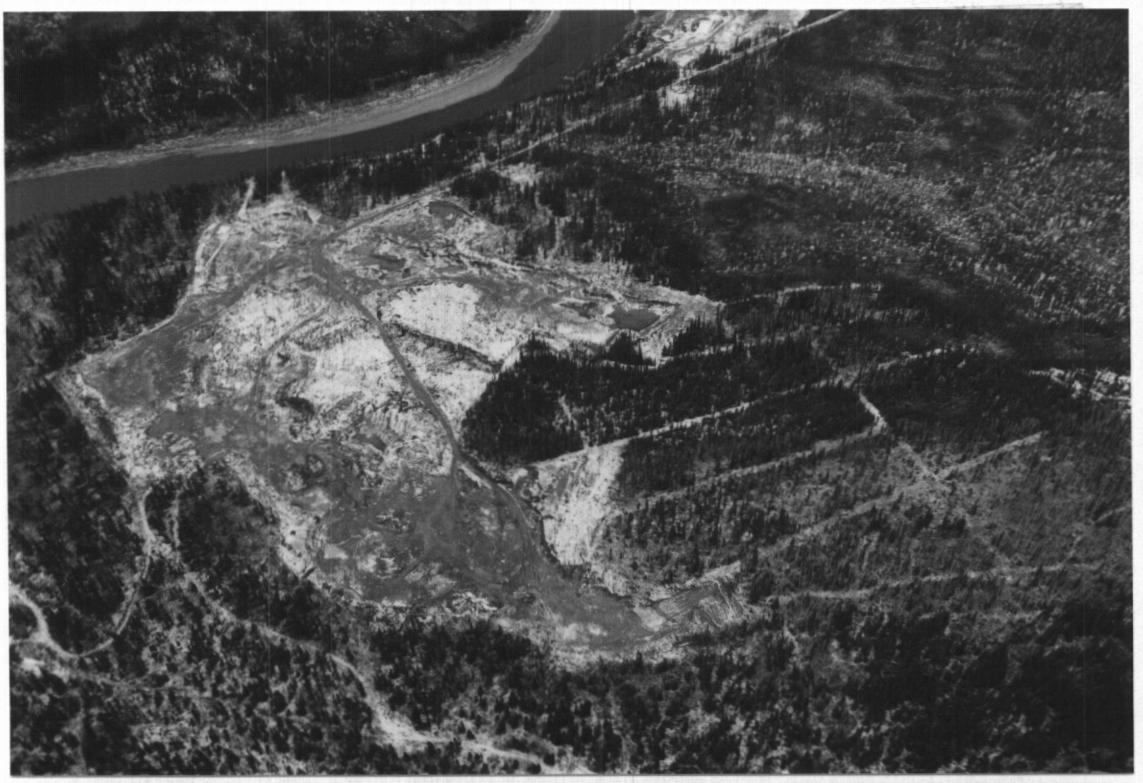

PHOTO 17: Depleted alluvial terrace pit, Deposit 2-5. Restoration and rehabilitation is recommended.



PHOTO 18: Limestone bedrock quarry, Deposit 2-5. It is understood that this area was abandoned due to environmental concerns (primarily proximity to the river valley).



PHOTO 19: Deposit 1-16 (DPW km 77.2). Sand from this source is being blended, on an experimental basis, with crushed limestone from Deposit 1-15, to produce aggregate for highways maintenance.



PHOTO 20: Deposit 1-15 (DPW km 66.6) is the source of limestone bedrock for crushing and blending with sand from Deposit 1-16.



PHOTO 21: Small sand pits, now abandoned, between the highway and CN Rail, within Deposit 1-13.



PHOTO 22: Depleted site of Deposit 1-11, now used as a crushing and stockpile site by DPW.



PHOTO 23: Depleted Deposit 1-18, situated to the north and south of Swede Creek. Restoration and rehabilitation is now recommended.

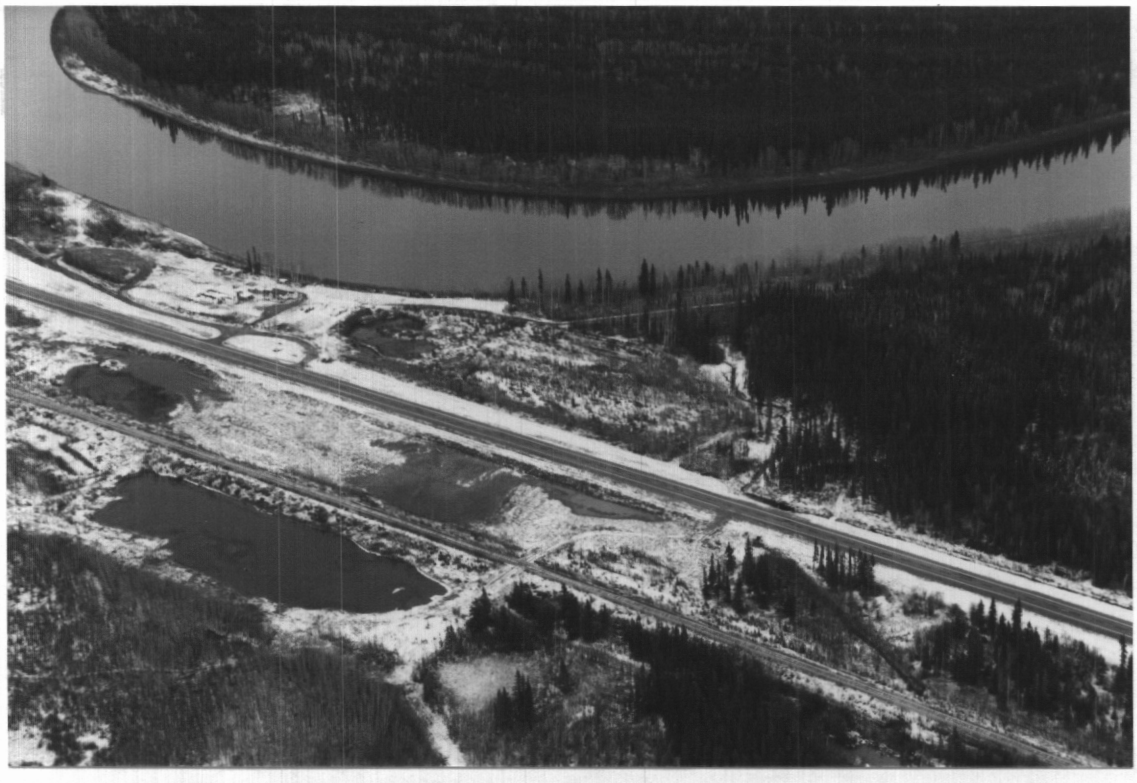

PHOTO 24: View to east across long depleted Deposit 1-4 at Grumbler. Natural revegetation is now well advanced, and additional rehabilitation work is not recommended.

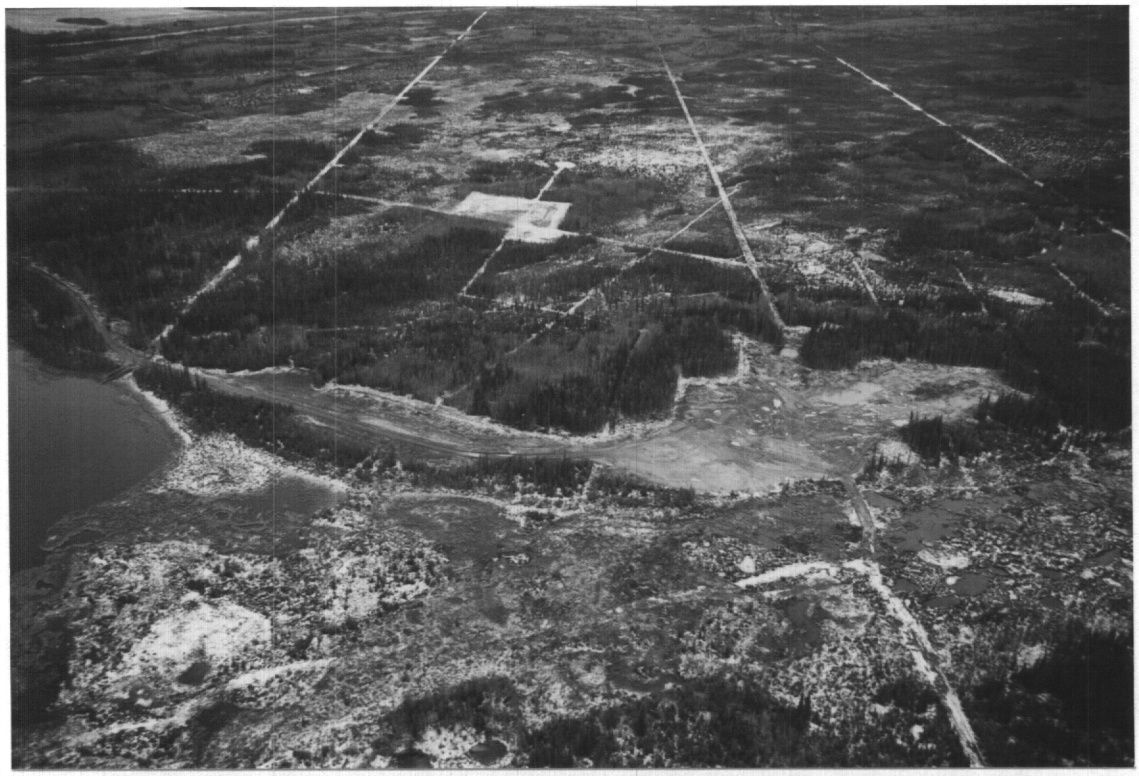

PHOTO 25: Depleted Deposit 1-2 in the southern part of Management Area I. Restoration and rehabilitation of the pit area is recommended.

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FORT SMITH AREA
(MANAGEMENT AREA IV)



PHOTO 26: Long-depleted Deposit 5-1, situated south of Highway 5 about 8 km from Hay River. Natural revegetation is well advanced.



PHOTO 27: View to northeast along axis of depleted eastern section of Deposit 5-11 (HR-107A). Some ponded water is visible.



PHOTO 28: View along axis of Deposit 5-6 (HR-109A) towards the east. The initial (CN Rail) pit area is in the foreground, with more recently developed pits along and to the east of the old Fort Smith winter road alignment visible in background.



PHOTO 29: Deposit 5-14 (HR-124A), showing pit opened in winter 1986-1987 by DPW. The glacial till that underlies the granular aggregate is visible (as blue area) on pit floor to left.



PHOTO 30: View to east along axis of Deposit 5-19 (HR-119, 121 and 122; Mile 21). Note prominent beach ridges, and depleted areas adjacent to C.N.R.



PHOTO 31: Deposit 5-19 (HR-119, 121 and 122; Mile 21), showing a series of depleted pit areas adjacent to Highway 5 at west end of source.



PHOTO 32: Deposit 5-19. The main area of current extraction activity is in central part of deposit.



PHOTO 33: Deposit 5-23 (Mile 26). Note that access has recently been developed across the C.N.R. into the pit.



PHOTO 34: Pit area with stockpile, Deposit 5-27. Material was sampled from this pit during the October 1987 field program.



PHOTO 35: View to the northeast across Deposit 5-29 (Mile 31) towards Polar Lake. A number of abandoned pits are visible along the railway.



PHOTO 36: Deposit 5-29. View north to Polar Lake, showing essentially depleted area between Highway 5 and the C.N.R.



PHOTO 37: Deposit 5-33, view to west. Material from the pit in the foreground was sampled during the October 1987 field program.



PHOTO 38: Pit area, Deposit 5-33. Note that material thickness above the water table is only about 1 m. It is understood that aggregate is extracted from below the water table for use in concrete.



PHOTO 39: DPW camp area at junction of Highways 5 and 6. The camp is developed on a portion of Deposit 5-34. Source 5-35 is visible, as a low ridge, in the left middle distance.

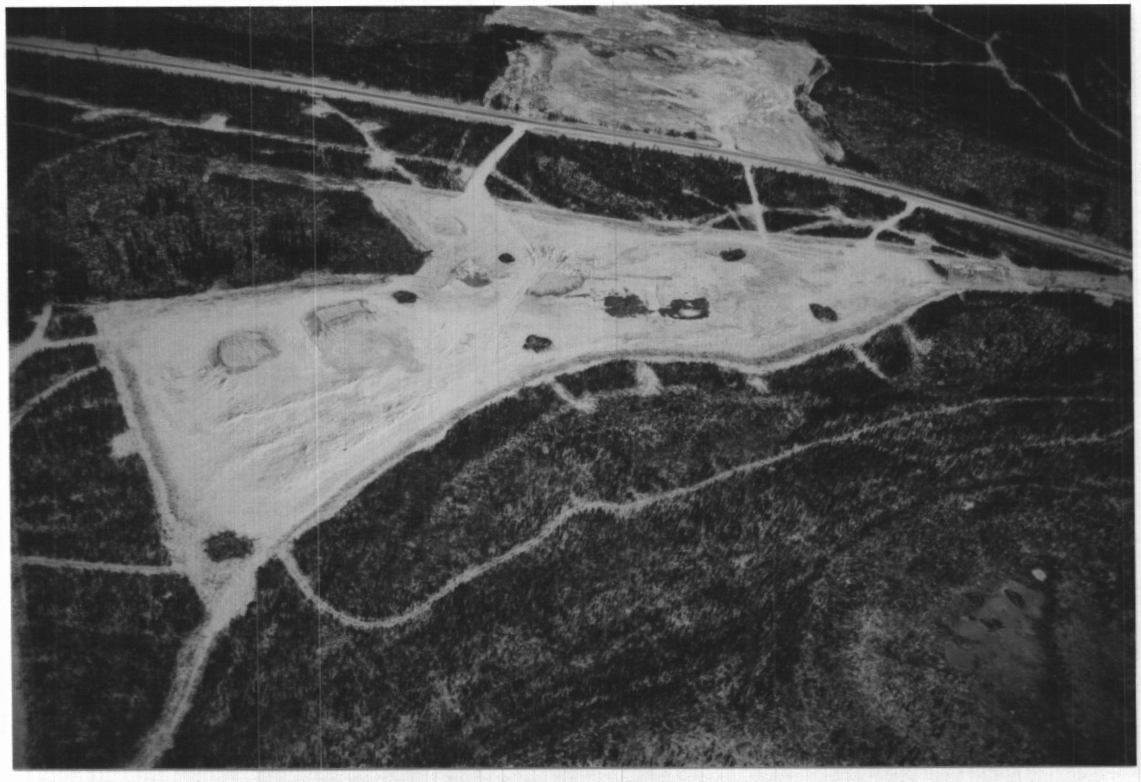

PHOTO 40: DPW km 64.5 pit in Deposit 5-40. Depleted pit is visible to west of Highway 5, while pit opened up in winter 1986-1987 is in foreground.



PHOTO 41: Abandoned pit area, Deposit 5-39. Existing pit appears to be depleted; however, considerable material remains further to the east.



PHOTO 42: Abandoned/depleted pit area, Deposit 5-42.

HIGHWAY 6
(MANAGEMENT AREA V)

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PHOTO 43: Deposit 5-45 (DPW km 83.5), showing recent exploration access trails on east side of highway and power line right of way.



PHOTO 44: Deposit 5-47 (DPW km 89.1). Trails developed during recent (Underhill Engineering) field testing program are visible to left.



PHOTO 45: Small road side pit, Deposit 6-3. The snow cover and frozen material precluded sampling at this location.



PHOTO 46: Roadside borrow pit at east end of Deposit 6-3. A mine waste dump (possible future source of Class 5 aggregate) is visible in background.



PHOTO 47: Depleted Deposit 6-10, along Highway 6 to the southwest of Pine Point.



PHOTO 48: Deposit 6-11 (Town of Pine Point pit), showing depleted pit area closest to community.

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PHOTO 49: Active pit area in Deposit 6-11, located south of Pine Point airstrip. A coarse aggregate sample was obtained during the October 1987 field reconnaissance.



PHOTO 50: Bedrock quarry, with crushed material stockpiles, Deposit 6-18 (DPW km 62.4).



PHOTO 51: Deposit 6-19, showing small gravel pits developed to the north and south of Highway 6.



PHOTO 52: Deposit 6-20, showing road side pits developed for highway maintenance material.



PHOTO 53: Active pit area, Deposit 6-20. Material is being extracted for use in highways maintenance.



PHOTO 54: Fort Resolution. Mission Island (Deposit 6-23) is visible on left and the airstrip on the right.



PHOTO 55: Deposit 6-22, comprising lag gravel deposits on bedrock high, is located at north end of Fort Resolution airstrip.



1. Deposit 1-10: View west from Highway 1. This source is essentially depleted, and in need of rehabilitation.



2. Deposit 1-11: View towards south over depleted pit area. A Highways Department crushed material stock pile is visible in the background.

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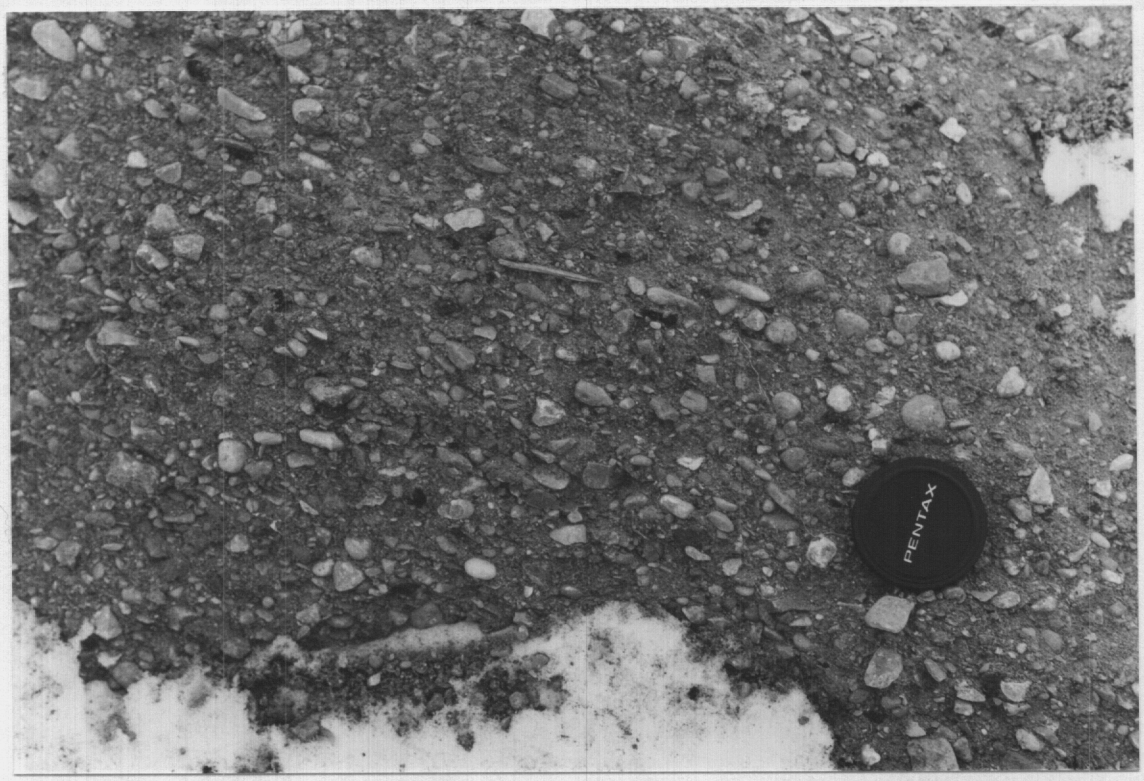
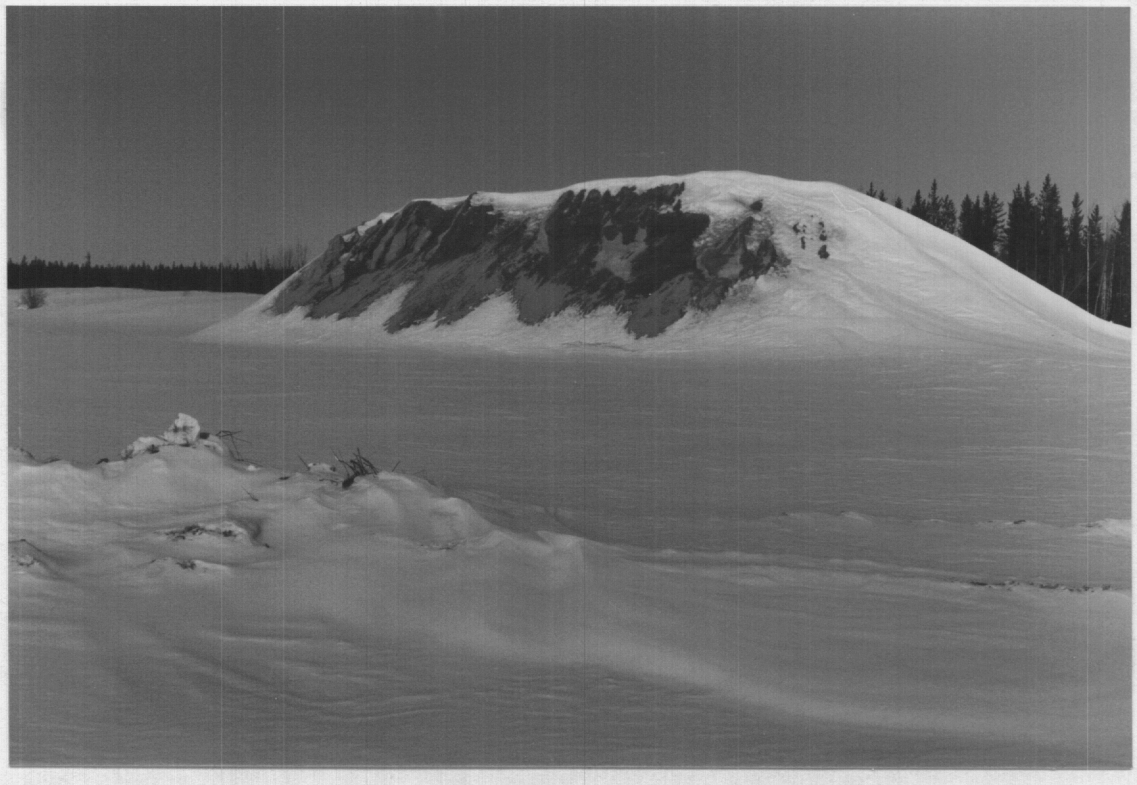


3. Deposit 1-11: Close-up of crushed material in Highways Department stockpile.



4. Deposit 1-15: View to west from Highway 1 (km 66.6) to Highways Department stockpile, consisting of crushed limestone bedrock blended with sand from Deposit 1-15 (km 77.2).



5. Deposit 1-17 (HR-100): View to west from Highway 1 to Highways Department crush stockpile in depleted area of deposit.

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6. Deposit 2-1 (HR-100): View to north across Enterprise nuisance grounds in depleted portion of deposit. Overburden stockpiles and poorly drained depressions on pit floor should be noted.



7. Deposit 2-1 (HR-100): Close-up view of poorly drained depression on pit floor. Rehabilitation of areas excavated below the water table is difficult.

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8. Deposit 2-11 (HR-105): View to east of Town of Hay River sand pit. Clean fine sand has been pushed up; original material thickness (above water table) is about 1 m maximum.



9. Deposit 5-6 (HR-109A): View of west end of pit, recently excavated adjacent to Fort Smith winter road alignment in eastern section.



10. Deposit 5-6 (HR-109A): View to east of recently-excavated pit within eastern part of deposit.



11. Deposit 5-6 (HR-109A): View of north side of recently-excavated pit, showing cobbly, relatively poorly graded, aggregate in upper section of deposit.

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12. Deposit 5-6 (HR-109A): Close-up of poorly-graded and cobbly near-surface material exposed along north side of new pit at east end of deposit.

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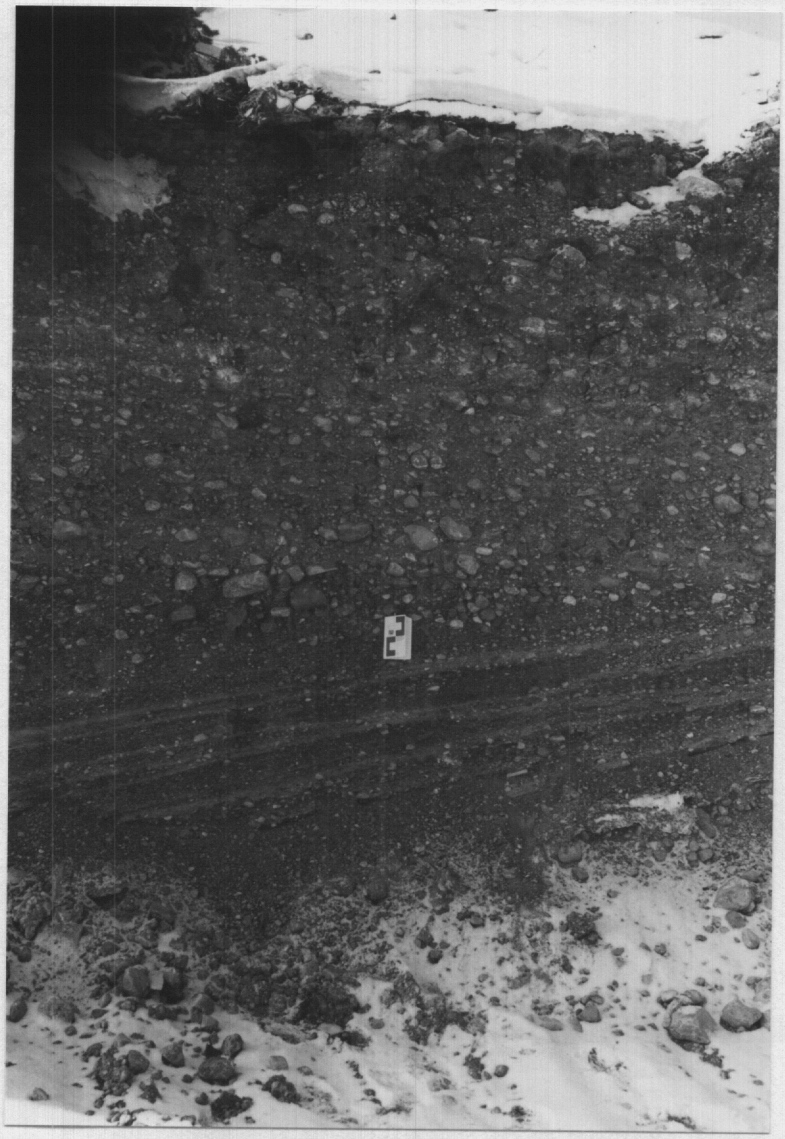

13. Deposit 5-6 (HR-109A): Close-up of east end of new pit, showing poorly-graded nearsurface aggregate overlying well graded fine sandy gravel.

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14. Deposit 5-6 (HR-109A): View of east end of newly developed pit, showing 3 m high face developed in cobbly moderately to poorly graded Class 3 material.

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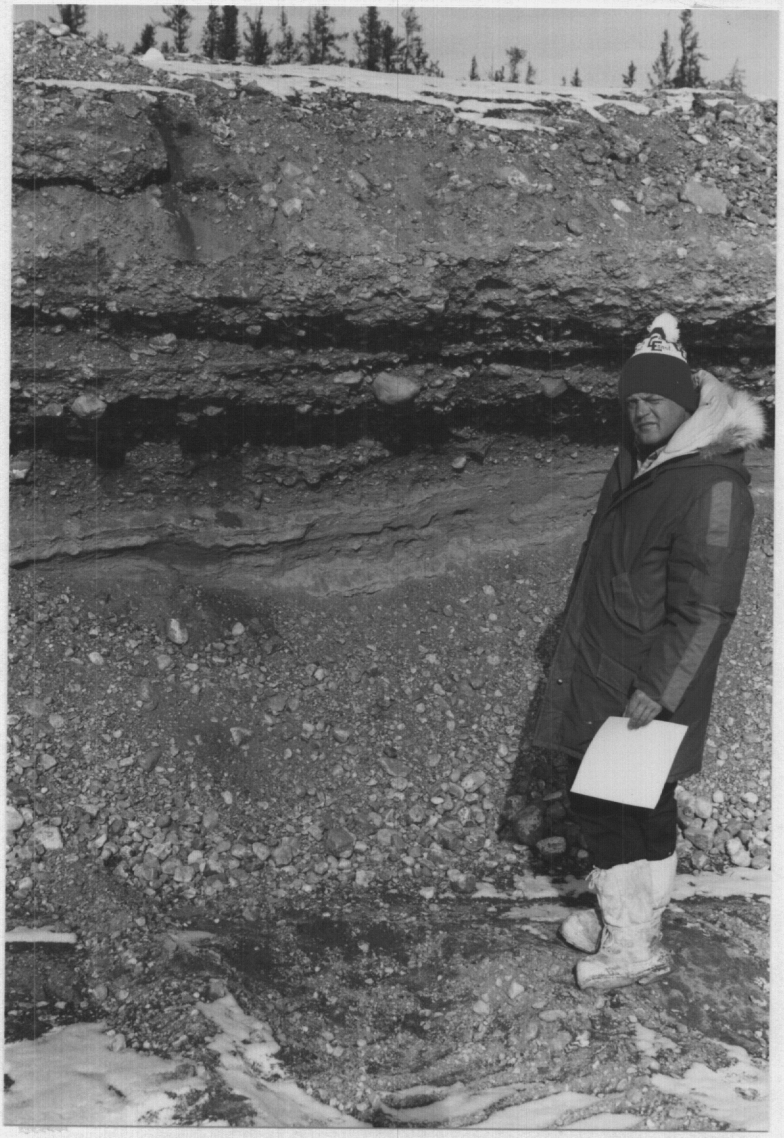
15. Deposit 5-6 (HR-109A): Small pit developed, adjacent to Fort Smith winter road alignment, by J. Pope of Hay River in well graded Class 1 or 2 aggregate.



16. Deposit 5-6 (HR-109A): Close-up of "Pope's" pit, adjacent to winter road alignment and developed in well graded fine gravel.



17. Deposit 5-6 (HR-109A): depleted area to west of Fort Smith winter road alignment (originally developed by CNR).



18. Stockpile at junction of Highway 5 and old Fort Smith winter road. Material is from pit developed at east end of Deposit 5-6.

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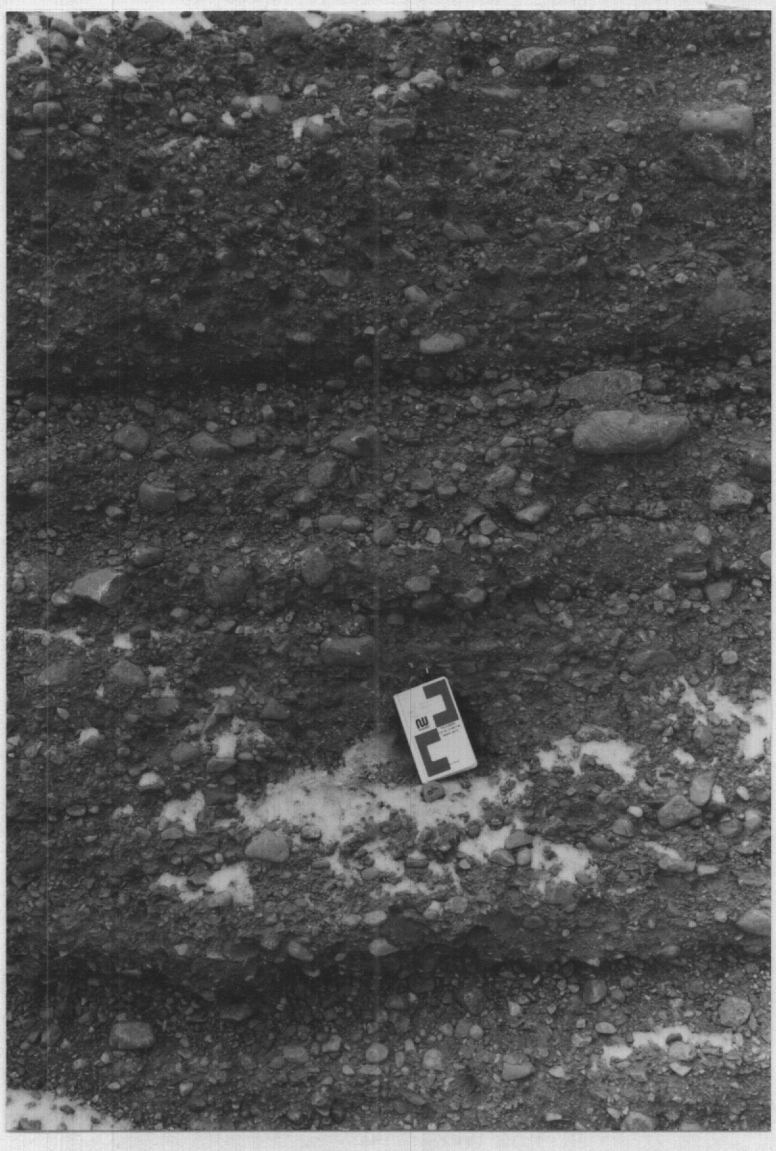
19. Deposit 5-14 (HR-124A): northeast corner of recently developed pit. 2.5 m to 3 m of gravel has been removed down to the underlying clay till.



20. Deposit 5-14 (HR-124A): Exposure in side of pit access ramp, showing 2.5 m of moderately to poorly graded coarse aggregate (Class 3).



21. Deposit 5-14 (HR-124A): Close-up of access ramp exposure.



22. Deposit 5-14 (HR-124A): West end of recently developed pit. Material is only about 1.5 m thick, and less well graded.



23. Deposit 5-14 (HR-124A): View to east across recently-developed pit.



24. Deposit 5-40 (km 64.5): Crush material stockpile.



25. Deposit 5-40 (km 64.5): South end of recently developed pit, exposing about 2.5 m of moderately to well graded coarse aggregate.

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26. Deposit 5-40 (km 64.5): South end of recently developed pit, showing cross-beds (dipping to west) in finer material.



27. Deposit 5-40 (km 64.5): North end of existing pit, showing moderately to poorly graded aggregate, and uniform fine sand exposed in floor of pit.



28. Deposit 5-40 (km 64.5): poorly and gap graded material in northern part of existing pit.



29. Abandoned Highways Department pit on west side of Highway 5, at km 64.5

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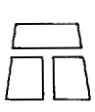
30. Deposit 5-42: View to west from Highway 5 across depleted and abandoned pit.

MANAGEMENT AREA V
(Highway 6 to Fort Resolution)





31. Concrete aggregate stockpile at Pine Point Mines plant site.



32. Poorly-graded gravel exposed in shallow road-side pit, Pine Point Mines.



33. Poorly graded aggregate exposed in road fill pit east of Pine Point Mines plant site.



34. Deposit 6-18: View across existing shallow road-side pit at about km 62, Highway 6.



35. Deposit 6-19: View from Highway 6 towards Highways Department pit and stockpile.

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36. Deposit 6-20: View across existing pit adjacent to Highway 6 at about km 73.3.