LEGEND

Coarse sand with minor gravel, fine sand and silt 3-5 metres thick; associated with modern drainage. Mountain rivers are predominantly gravel with minor sand i.e. Keele, Little Bear and Redstone.

Coarse gravel with minor sand; in places underlain by discontinuous layers of woody peat. Areas associated with alluvial fans, along the eastern side of the Mackenzie River are more sand than gravel.

Unsorted gravel up to 0.5 metres in size and 25 metres thick with minor coarse sand; associated with glaciofluvial deposits in deltas, terraces, plains and eskers; occurs in patches within till complexes; commonly of Late Pleistocene age.

• BP124 Shot point or observation number (refer to data table)

× DOA2003–9–2 2003 field observation by A. Duk–Rodkin, A. Couch and J. Hood.

⊗ Kame

Esker

SOURCE OF GRANULAR DATA

Information obtained from field observations by A. Duk–Rodkin in 1990, by A. Duk–Rodkin, A.G. Couch, and J.L. Hood in 2003, and by P.L. Handley in 1974. Helicopter observations by A. Duk–Rodkin. Shotpoint data (unpublished) from oil companies (British Petroleum, Shell, Sigma, Aquitane, N.S.M. Resources, RKL) and the Geological Survey of Canada obtained from aerial photograph interpretation conducted by O.L. Hughes.

BP–British Petroleum
Sh–Shell
Si–Sigma

SOURCE OF SURFICIAL GEOLOGY POLYGONS

Duk–Rodkin, A. and Couch, A
2004: Surficial Geology, Fort Norman area, Northwest Territories
Geological Survey of Canada,
Open File 4662, Scale 1:250 000

Digital cartography by Andrew G. Couch.

Natural Resources Canada / Ressources naturelles Canada

GEOLOGICAL SURVEY OF CANADA / COMMISSION GÉOLOGIQUE DU CANADA

Canada

GRANULAR MATERIALS

FORT NORMAN

NORTHWEST TERRITORIES

Scale 1:250 000 Échelle 1/250 000

CONTOUR INTERVAL 100 METRES
Elevations in Metres above Mean Sea Level
North American Datum 1983
Universal Transverse Mercator Projection

Kilometres 0 5 10 15 20 Kilomètres

Universal Transverse Mercator Projection
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Projection transverse universelle de Mercator
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2004

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95E	95F	95G
95D	95C	95B
95M	95N	95O

NATIONAL TOPOGRAPHIC SYSTEM REFERENCE AND INDEX TO ADJOINING GEOLOGICAL SURVEY OF CANADA MAPS

station_num	Observation Type	east83	north83	nts_map	utm_zn	Material observed (top to bottom)
1	measured observation	361842	7195966	96C/13	10	30 m of gravel over bedrock.
2	measured observation	361763	7195049	96C/13	10	15 m of gravel over bedrock.
3	measured observation	362611	7195353	96C/13	10	greater than 3 m of gravel over bedrock.
4	measured observation	365324	7207606	96C/13	10	sand
5	measured observation	379262	7202194	96C/13	10	8 m of sand over 3 m of till over bedrock.
6	measured observation	379872	7203536	96C/13	10	3 m of sand over 5 m of till.
7	measured observation	381591	7204152	96C/13	10	7.5 meters of sand and silt.
8	measured observation	382197	7204645	96C/14	10	10 m of sand over three meters of silty clay.
9	measured observation	383681	7205903	96C/14	10	2 m of sand and gravel over 1 m of silt.
10	measured observation	385359	7207227	96C/14	10	8 m of sand over silt over till.
11	measured observation	396692	7208310	96C/14	10	10 m of sand over silt.
12	measured observation	379581	7199471	96C/13	10	15 m of sand.
13	measured observation	378261	7201656	96C/13	10	4 m of sand over bedrock.
14	measured observation	382711	7199728	96C/14	10	3 m of sand over bedrock.
15	measured observation	387794	7199078	96C/14	10	10 m of sand over bedrock.
16	measured observation	401697	7191437	96C/14	10	7 m of sandy silt.
17	measured observation	412727	7207337	96C/15	10	3 m of sand over 5 m of silt.
18	measured observation	413208	7206244	96C/15	10	2 m of sand over 8 m of silt.
19	measured observation	413330	7204622	96C/15	10	2 m of sand over 4 m of till.
20	measured observation	415082	7203054	96C/15	10	1 m of sand over 2 m of till.
21	measured observation	412788	7204133	96C/15	10	1 m of sand over 10 m of silt.
22	measured observation	416887	7202243	96C/15	10	3 m of sand and silt.
23	measured observation	419052	7198572	96C/15	10	10 m of sand and silt.
24	measured observation	419419	7197792	96C/15	10	8 m of sand and gravel
25	measured observation	420842	7199543	96C/15	10	3 m of sand.
26	measured observation	428812	7172097	96C/9	10	4 m of gravel and sand
27	measured observation	444167	7131476	96C/8	10	30 m of gravel.
28	measured observation	430569	7129884	96C/8	10	7 m of sand over 4 m gravel over 6 m sand over clay.
29	measured observation	445821	7130155	96C/8	10	25-30 m of gravel.
30	measured observation	447889	7123415	96C/1	10	hummocky gravel
31	measured observation	407705	7141039	96C/7	10	8 m sand over till over sand and gravel.
32	measured observation	410108	7134239	96C/7	10	5 m of sand over gravel.
33	measured observation	409654	7131689	96C/7	10	gravel, sand, and silt.
34	measured observation	409681	7129568	96C/7	10	5 m of silt and sand over till.
35	measured observation	409909	7128269	96C/7	10	2 m of sand.
36	measured observation	419787	7120339	96C/2	10	3 m of sand and gravel.
37	measured observation	419302	7115878	96C/2	10	3 m of gravel over bedrock.
38	measured observation	418534	7109056	96C/2	10	2 m of gravel over bedrock.
39	measured observation	418160	7107504	96C/2	10	till over 2 m of gravel over bedrock.
40	measured observation	406632	7100300	96C/2	10	2 m of sand over 2 m of gravel over bedrock.
41	measured observation	430645	7087966	96C/1	10	1 m of sand and gravel over 10 m till.
42	measured observation	429005	7103002	96C/1	10	till over 2 m of gravel over bedrock.
43	measured observation	431191	7100348	96C/1	10	10 m of sand and gravel
44	measured observation	433033	7098149	96C/1	10	3 m of sand and gravel.
45	measured observation	409850	7167748	96C/10	10	8m sand over 42m of sandy silt, sand and silt.
46	measured observation	405680	7137863	96C/7	10	silty sand.
47	measured observation	401910	7141948	96C/6	10	sandy till.
161	Shotpoint	402250	7194475	96C/14	10	0-4.5m silty sand, 4.9-6.1m inorganic clay.
162	Shotpoint	401725	7195752	96C/14	10	0-4.5m silty sand.
163	Shotpoint	399100	7197775	96C/14	10	0-5.2m poorly graded sand, 5.2-6.1 inorganic clay.
164	Shotpoint	396875	7198850	96C/14	10	0-0.7m peat, 0.7-1.2m poorly graded sand, 1.2-2.1m silty sand, 2.1-2.8m inorganic silt, 2.8-6.0m inorganic clay.
BP129	Shotpoint	410500	7176875	96C/10	10	sand-silty
BP131	Shotpoint	408750	7177825	96C/10	10	fine sand
BP134	Shotpoint	403500	7193050	96C/14	10	fine sand, silty
BP135	Shotpoint	402875	7194200	96C/14	10	fine sand, silty.
BP136	Shotpoint	400150	7197350	96C/14	10	fine sand, silty.
BP138	Shotpoint	394575	7198425	96C/14	10	clay-silty
BP139	Shotpoint	394000	7199125	96C/14	10	clay-silty sand
GSC-1	Shotpoint	410700	7175475	96C/10	10	0-0.6m sand, 0.6-6.4m sand, 6.4-9.0m clay
GSC-2	Shotpoint	409275	7177175	96C/10	10	0-1.2m sand, 1.2-2.1m sand, 2.1-8.8m sand.
H1	Helicopter observation	389755	7142713	96C/6	10	coarse sand and gravel.
H15	Helicopter observation	366662	7205218	96C/1	10	sand
H16	Helicopter observation	368572	7206828	96C/1	10	gravel and sand.
H17	Helicopter observation	368912	7207168	96C/1	10	esker 10-15 meters high
H18	Helicopter observation	369272	7207408	96C/1	10	gravel and sand.
H19	Helicopter observation	369782	7208828	96C/1	10	gravel
H2	Helicopter observation	397864	7134333	96C/6	10	gravel and sand.
H20	Helicopter observation	370082	7208718	96C/1	10	gravel hummocks and bedrock.
H3	Helicopter observation	391719	7136417	96C/6	10	gravel.
H8	Helicopter observation	374756	7162948	96C/12	10	gravel
H9	Helicopter observation	395351	7163553	96C/11	10	kame gravel.
HL10	measured observation	362172	7201698	96C/1	10	6m of gravely sand
HL11	measured observation	362282	7201468	96C/1	10	2m sand.
HL12	measured observation	409030	7160953	96C/10	10	3m sand over 20m silty clay over 5m Tertiary sandstone and gravel.
HL13	measured observation	408750	7163168	96C/10	10	2m sand over 20m silty clay
HL14	measured observation	362012	7199508	96C/1	10	6m sand over Tertiary sand and gravel
HL15	measured observation	362062	7199728	96C/1	10	20m sand over Tertiary
HL16	measured observation	361422	7197558	96C/1	10	20m gravel over Tertiary
HL4	measured observation	408500	7141508	96C/7	10	8m of sand over till over sand and gravel.
HL5	measured observation	410525	7141648	96C/7	10	10m sand over 8m of silt.
HL6	measured observation	414370	7145928	96C/7	10	10m of sand and gravel over 15m silt over 3m till.
HL7	measured observation	414710	7143938	96C/7	10	5-10m of gravel over 20m of silt
P139	Shotpoint	414300	7164468	96C/10	10	0-0.1m moss, 0.1-0.6m fiber peat, 0.6-2.4m sand with trace of silty clay, 2.4m to 4.3m gravely sand.
P143	Shotpoint	411910	7169458	96C/10	10	0-0.5m peat, 0.5-0.9m silt, 0.9-1.16m silty sand, 1.16-1.37m sandy silt with clay trace, 1.37-2.4m sand with silty clay trace 2.4-3.0 clay silt, 3-6.1m silty clay with sand trace.
P147	Shotpoint	411375	7174900	96C/10	10	0-0.15m peat, 0.15-1.8m silty sand with trace of clay, 1.8-3.0m silty clay, 3.0-4.3m silty sand with some clay, 4.3-6.1m silty clay.
P148	Shotpoint	411050	7175425	96C/10	10	0-0.24m peat, 0.24-6.1m sand with trace of silt and clay.
P149	Shotpoint	410975	7175950	96C/10	10	0-0.15m peat, 0.15-6.1m sand with trace of silt and clay.
P150E	Shotpoint	409550	7176700	96C/10	10	0-0.24m peat, 0.24-6.1m sand with trace of silt and clay.
P151E	Shotpoint	409275	7177225	96C/10	10	0-0.1m moss, 0.1-0.3m peat, 0.3--6.1m sand with trace of silt and clay.
P152	Shotpoint	408500	7178400	96C/10	10	0-0.15m peat, 0.15-6.1m sand with trace of silt and clay.
P154	Shotpoint	407050	7179225	96C/10	10	0-0.06m moss, 0.06-0.7m clayey silt, 0.7-6.1m sand with a trace of silt.
P155	Shotpoint	406800	7181225	96C/10	10	0-0.1m moss, 0.1-0.45m peat, 0.45-3.7m sand some silt with trace of clay, 3.7-6.1m sand some clay, with trace of silt.
P156	Shotpoint	405550	7180900	96C/10	10	0-0.03m moss, 0.03-6.1m sand with trace of silt.
P157	Shotpoint	404350	7185525	96C/14	10	0-0.1m moss, 0.1-0.15m peat, 0.15-5.8m sand with trace of silt and clay.
P158	Shotpoint	404100	7186025	96C/14	10	0-0.15m peat, 0.15-1.5m silty sand with trace of clay, 1.5-3.4m sand with trace of silt and clay, 3.4-4.3m sandy silt, 4.3-6.1m sandy silt with trace of clay.
RKL 3065	Shotpoint	414410	7150853	96C/7	10	0-1.1m muskeg, 1.1-4.9m coarse sand, pebbles with silt.
RKL 3066	Shotpoint	416600	7145008	96C/7	10	0-0.3m organics, 0.3-6.6.1m gravel, sandy, well graded
RKL 38AT	Shotpoint	410620	7136978	96C/7	10	0-1.2m peat, 1.2-1.7m medium sand, 1.7-4.6m silt, 4.6-6.2m silty clay.
RKL 38ET	Shotpoint	409660	7139288	96C/7	10	0-2.4m peat, 2.4-6.1m sand and gravel. well graded
RKL 38FT	Shotpoint	412025	7141328	96C/7	10	0-0.15m peat, 0.15-1.0m clayey silt, 1.0-6.4m fine sand.
RKL 38GT	Shotpoint	412430	7136778	96C/7	10	0-0.8m peat, 0.8-1.7m fine sand, 1.7-3.2m silt, 3.2-6.25m fine to medium sand.
RKL 38HT	Shotpoint	410970	7136328	96C/7	10	0-0.6m peat, 0.6-1.5m sand, 1.5-6.4m clayey silt.
RKL 38OT	Shotpoint	409710	7138688	96C/7	10	0-1.2m peat, 1.2-1.7m sandy silt, 1.7-6.1m sand and gravel.
RKL 57AT	Shotpoint	415740	7144758	96C/7	10	0-0.6m peat, 0.6-3.35m gravel with some sand, 3.35-5.2m sand.
RKL 57BT	Shotpoint	415820	7145258	96C/7	10	0-0.8m peat, 0.8-6.5m sandy gravel, 5.5-6.5m silt sandy (till)
Sh5-105-100	Shotpoint	378009	7134077	96C/5	10	0-2.4m frozen muskeg, 2.4-4.9m clay and boulders, 4.9-6.7m gravel.
Sh5-105-104	Shotpoint	375329	7132977	96C/5	10	0-3.4m clay and boulders (till), 3.4-6.7m gravel and sand, 6.7-7.6m clay and boulders (till), 7.6-7.9m gravel.
Sh5-105-107	Shotpoint	372399	7132017	96C/5	10	0-6.1m sand, gravel and boulders
Sh5-105-61	Shotpoint	407110	7143538	96C/7	10	0-3.0m sand, 3.0-9.9m sand and layers of gravel.
Sh5-105-63	Shotpoint	405750	7142868	96C/7	10	0-11.6m sand and clay.
Sh5-105-65	Shotpoint	404570	7142548	96C/7	10	0-7.62m clay and boulders (till?) with some gravel.
Sh5-105-70	Shotpoint	400950	7141478	96C/6	10	0-3m sandy clay, 3.0-3.35m gravel, 3.35-7.6m sandstone, 7.6-11.6m sandy shale.
Sh5-105-73	Shotpoint	398200	7140828	96C/6	10	0-6.1m boulders and gravel
Sh5-105-88	Shotpoint	386659	7137254	96C/6	10	0-4.6m gravel, 4.6-7.6m gravel and coal.
Sh5-105-90	Shotpoint	385983	7135967	96C/6	10	0-4.6m gravel.
Sh5-105-94	Shotpoint	382731	7135007	96C/6	10	0-1.2m sand, 1.2-6.1m pea gravel and sand.
Sh5-105-95	Shotpoint	382088	7134798	96C/6	10	0-8.5m gravel and sand.
Si 10 6777	Shotpoint	391041	7167933	96C/11	10	0-9m of wet sand and gravel.
Si 10 6786	Shotpoint	391511	7167478	96C/11	10	0-18m of wet clayey sand.
Si 10 6801	Shotpoint	393191	7162918	96C/11	10	0-9m clay, 9-18m sand.
Si 10 6813	Shotpoint	394681	7160988	96C/11	10	0-18m wet clay and boulders (till?)
DOA-90-28	measured observation	387479	7150369	96C/6	10	4 m of fine sand interbedded with organic detritus including stumps in place.
DOA-90-29	measured observation	378223	7123336	96C/4	10	2 m covered over 0.6 m wood detritus over 0.77 m of silty sand with lenses of organics over 2.0 m of gravel over 1.8 m of sand with organics over 3.3 m of gravel.

Recommended citation:
Duk-Rodkin A.
2004: Granular Materials, Fort Norman, Northwest Territories; Geological Survey of Canada, Open File 4661, scale 1:250 000.