Total metals concentrations were generally below the applicable aquatic life guidelines with the exception of arsenic (18 out of 19 samples), chromium (10 out of 19 samples) and copper (14 out of 19 samples):

- Arsenic concentrations ranged from 3.4 to 173 mg/kg dw. All but one sample was above the ISQG of 5.9 mg/kg dw; 17 of 19 samples were below the PEL of 17.0 mg/kg dw.
- Chromium concentrations ranged from 14.4 to 61.5 mg/kg dw. Ten samples had concentrations that were above the ISQG of 37.3 mg/kg dw but lower than the PEL of 90.0 mg/kg dw.
- Copper concentrations ranged from 12.1 to 123 mg/kg dw, 14 samples were higher than the ISQG of 35.7 mg/kg dw but lower than the PEL of 197 mg/kg dw.

Concentrations of PAHs were measured in the 2008 samples from lake A8. Concentrations were either below the detection limits and/or below the ISQGs and PELs with the exception of naphthalene, which was detected in all samples and ranged from 0.03 to 0.06 mg/kg dw. In one sample, the naphthalene concentration (0.06 mg/kg dw) exceeded the ISQG of 0.0346 mg/kg dw[13]. Three PAHs (i.e., acenaphthene, acenaphthylene and chrysene) had detection limits that were higher than guidelines.

Total extractable hydrocarbons were measured in 3 samples in 1994 from lakes A1, A5, and A8. Concentrations were below detection limits of 40 mg/kg dw in lakes A1 and A8 and 124 mg/kg dw (C9 to C40 fraction) and 121 mg/kg dw (C10 to C30 fraction) in lake A5. Pesticides were not analyzed in any samples from this area.

Peninsula Basin B

Sediment samples were collected from 4 lakes from Basin B between 1994 and 2008 (Figure 6-2; Appendix C, Table C1-3):

- B5 (1998, 2008);
- B6 (2008);
- B7 (2008); and
- B36 (1994).

Particle size distribution varied among lakes. For example, Lake B5 sediments had about equal proportions of sand and silt in 1998, but were more variable in 2008. Sediment moisture was similar among lakes and years, ranging from 65 to 94% in all samples except one from Lake B36, which was collected in 1994. This sample had a low moisture content of 21%. The highest total organic carbon concentrations were measured in lake B6 (15 to 17%) whereas other lakes had concentrations ranging from 4.3 to 9%. Total nitrogen concentrations ranged from 0.38 to 1.44%.

Total cyanide concentrations were highest in lake B6 at 3.6 to 7.7 mg/kg dw. In comparison, the concentrations in the other lakes ranged from less than the detection limit of 0.5 mg/kg dw to 3.3 mg/kg dw.

[13]The laboratory QA/QC results indicated the presence of blank contamination (Golder 2008). The blank-corrected naphthalene concentration for this sediment sample would be 0.051 mg/kg dw, which is also higher than the ISQG.

Total metals concentrations were generally below the applicable aquatic life guidelines with the exception of arsenic (15 out of 16 samples), chromium (2 out of 16 samples) and copper (11 out of 16 samples):

- Arsenic concentrations measured in lakes B5, B6, and B7 (*n*=15) ranged from 22 to 111 mg/kg dw. These concentrations exceeded both the ISQG of 5.9 mg/kg dw and the PEL of 17 mg/kg dw. The arsenic concentration in Lake B36 was 3.58 mg/kg dw.
- Chromium concentrations in 2 samples from lake B5 had concentrations (39.2 and 39.4 mg/kg dw) that were above the ISQG of 37.3 mg/kg dw.
- Copper concentrations ranged from 38 and 155 mg/kg dw in 11 samples, which exceeded the ISQG of 35.7 mg/kg dw. The other 5 samples had copper concentrations that ranged from 15.4 to 34 mg/kg dw.

Concentrations of PAHs were measured in the 1998 samples from lake B5 and in the 2008 samples from lakes B5 and B7. Concentrations were either below the detection limits and/or below the ISQGs and PELs. Detection limits were higher in 1998 than in 2008, and several parameters (i.e., acenaphthene, acenaphthylene, benz(a)anthracene/chrysene, benzo(a)pyrene, dibenzo(a,h)anthracene, fluorene, methylnaphthalene, naphthalene, and phenanthrene/anthracene) had detection limits that were higher than guidelines.

Volatile organic compounds such as BTEX, total volatile hydrocarbons, and total extractable hydrocarbons were measured in three 1998 samples from lake B5. Ethylbenzene and xylenes were detected in one sample at 0.15 mg/kg dw and 3.2 mg/kg dw, respectively. Total volatile hydrocarbons were detected in 2 samples at 0.8 and 15 mg/kg dw. Total extractable hydrocarbons concentrations were detected in all 3 samples and ranged from 13 to 17 mg/kg dw.

Peninsula Basin C

One sediment sample was collected in Lake C5 in 1994 (Figure 6-2; Appendix C, Table C1-4). The sample was analyzed for metals and moisture content, but not for texture, total organic carbon, nutrients, or organic compounds such as PAHs or pesticides. Sediment moisture was 19%. Total metals concentrations were generally below the applicable aquatic life guidelines with the exception of arsenic and chromium. The arsenic concentration of 11.1 mg/kg dw was higher than the ISQG of 5.9 mg/kg dw but lower than the PEL of 17.0 mg/kg dw. The chromium concentration of 42.4 mg/kg dw was higher than the ISQG of 37.3 mg/kg dw but lower than the PEL of 90.0 mg/kg dw.

Peninsula Basin D

One sediment sample was collected in Lake D7 in 1994 (Figure 6-2; Appendix C, Table C1-5). The sample was analyzed for metals and moisture content, but not for texture, total organic carbon, nutrients, or organic compounds such as PAHs or pesticides. Sediment moisture was 20%. Total metals concentrations were below the applicable aquatic life guidelines.

6.2.1.3 Little Meliadine Lake

Five replicate samples were collected from a single station in Little Meliadine Lake (LML) in 1998 (Figure 6-3; Appendix C, Table C1-6). The samples were analyzed for moisture content, particle size, total organic carbon, total nitrogen, total cyanide, and total metals. In general, all parameters were similar among the samples. Particle size was dominated by silt (81 to 85%) and sand (12 to 16%). Sediment moisture ranged from 72 to

78%. Total organic carbon ranged from 3.4 to 6.0%. Total nitrogen concentrations ranged from 0.37 to 0.55%. Total cyanide was not detected in any sample (detection limit was 0.5 mg/kg dw).

Total metals concentrations were generally below the applicable aquatic life guidelines with the exception of arsenic (1 sample), chromium (all 5 samples), and copper (all 5 samples):

- One sample had an arsenic concentration of 21.6 mg/kg dw, which was above both the ISQG of 5.9 mg/kg dw and the PEL of 17.0 mg/kg dw. The other 4 samples had arsenic concentrations ranging from 4.7 to 5.6 mg/kg dw.
- Chromium concentrations were similar among the samples at 41.5 to 51.7 mg/kg dw; these concentrations were above the ISQG of 37.3 mg/kg dw.
- Copper concentrations were also similar among samples and ranged from 44 to 58 mg/kg dw, which were higher than ISQG of 35.7 mg/kg dw.

6.2.1.4 DI2 Lake

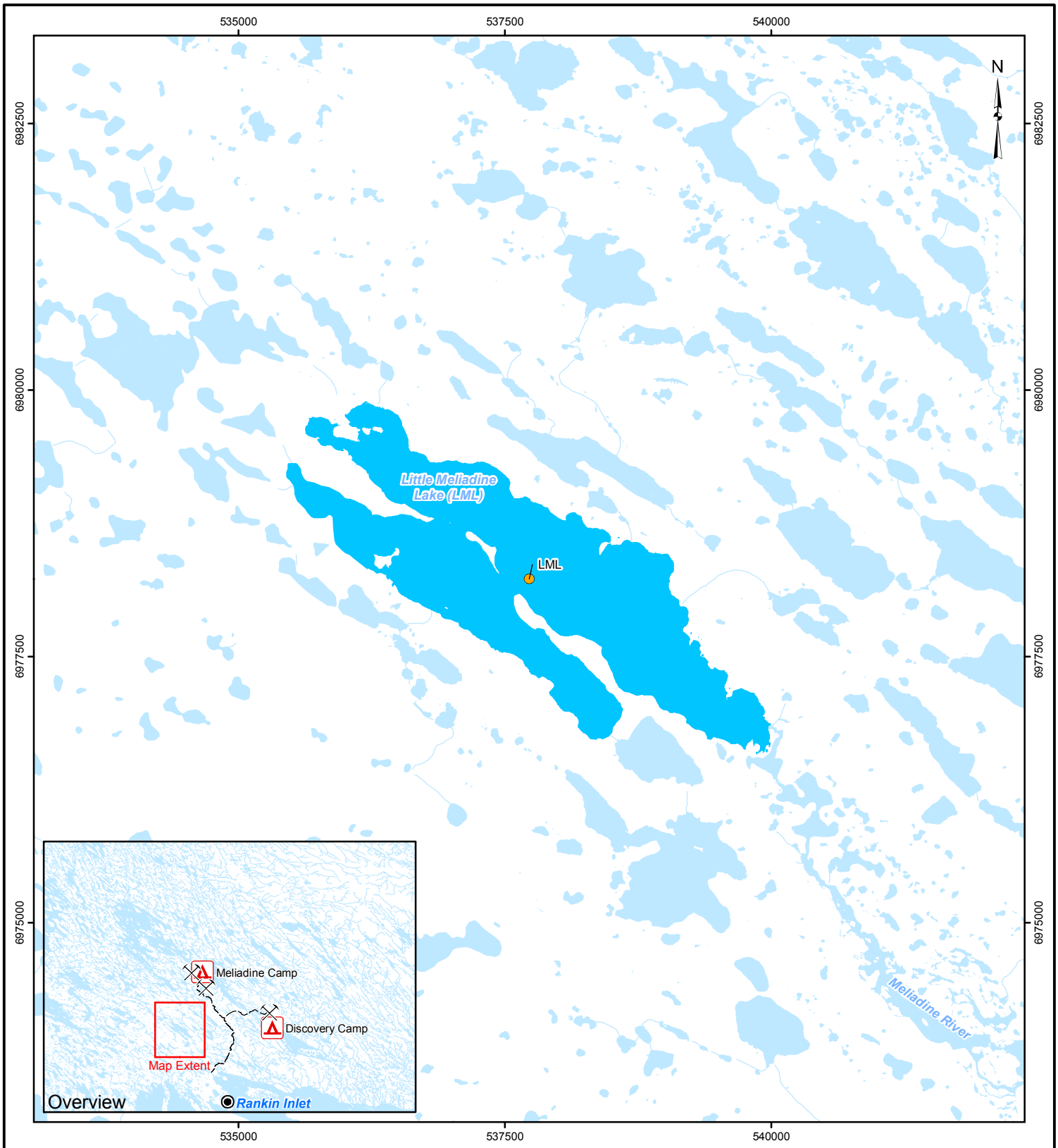
One sediment sample was collected in Lake DI2 in 1994 (Figure 6-1; Appendix C, Table C1-7). This lake is located in a watershed that drains into the southeast basin of Meliadine Lake. The sample was analyzed for metals and moisture content, but not for texture, total organic carbon, nutrients, or organic compounds such as PAHs or pesticides. Sediment moisture was 28%. Total metals concentrations were below the applicable aquatic life guidelines.

6.2.1.5 Control Lake

Control Lake drains into the southwest basin of Meliadine Lake and was selected as a control basin due to the absence of past and likely future drilling activities (RL&L 1998, 1999, 2000, and 2001). Control Lake was sampled in 1998 and 2008 (Figure 6-4; Appendix C, Table C1-8).

Sediment moisture was similar between years and ranged from 76 to 90%. Particle size differed between years. In 1998, the sediments had similar proportions of sand and silt. In 2008, the sediments were dominated by sand (70 to 79%). Total organic carbon was also slightly lower in 2008 (3.6 to 5.4%) than 1998 (7.3 to 8.4%). Total nitrogen concentrations ranged from 0.29 to 0.64%. Total cyanide concentrations were higher in 2008 (1.6 to 3.6 mg/kg dw) than in 1998 (1.1 to 1.3 mg/kg dw).

Total metals concentrations were generally below the applicable aquatic life guidelines with the exception of arsenic (all 9 samples) and copper (5 samples). Arsenic concentrations were lower in 2008 (6.3 to 7.3 mg/kg dw) than in 1998 (12 to 16 mg/kg dw), but all were above the ISQG of 5.9 mg/kg dw. The 5 samples collected in 1998 had copper concentrations above the ISQG of 35.7 mg/kg dw with values ranging from 58 to 65 mg/kg dw. Copper concentrations in samples collected in 2008 were lower and ranged from 26 to 35 mg/kg dw.



LEGEND

- Sediment Sampling Location
- Camp
- Proposed Mine Site
- Proposed Road
- Watercourse
- Sampled Waterbody
- Waterbody

1,250 0 1,250

SCALE 1:50,000 METRES

REFERENCE

Base data obtained from Comaplex Minerals Corporation. Water quality data obtained from the field.
Projection: UTM Zone 15 Datum: NAD 83

DRAFT

PROJECT

COMAPLEX MINERALS CORP

COMAPLEX MINERALS CORPORATION
MELIADINE GOLD PROJECT
NUNAVUT

TITLE

SEDIMENT QUALITY SAMPLING LOCATIONS IN MELIADINE RIVER AND LITTLE MELIADINE LAKE

Golder Associates
Edmonton, Alberta

PROJECT NO. 09-1373-0010			PHASE No. 1000	
DESIGN	KS	06 Oct. 2009	SCALE AS SHOWN	REV. 0
GIS	CDB	06 Oct. 2009		
CHECK	KS	27 Oct. 2009		
REVIEW	PMC	27 Oct. 2009		

FIGURE 6-3

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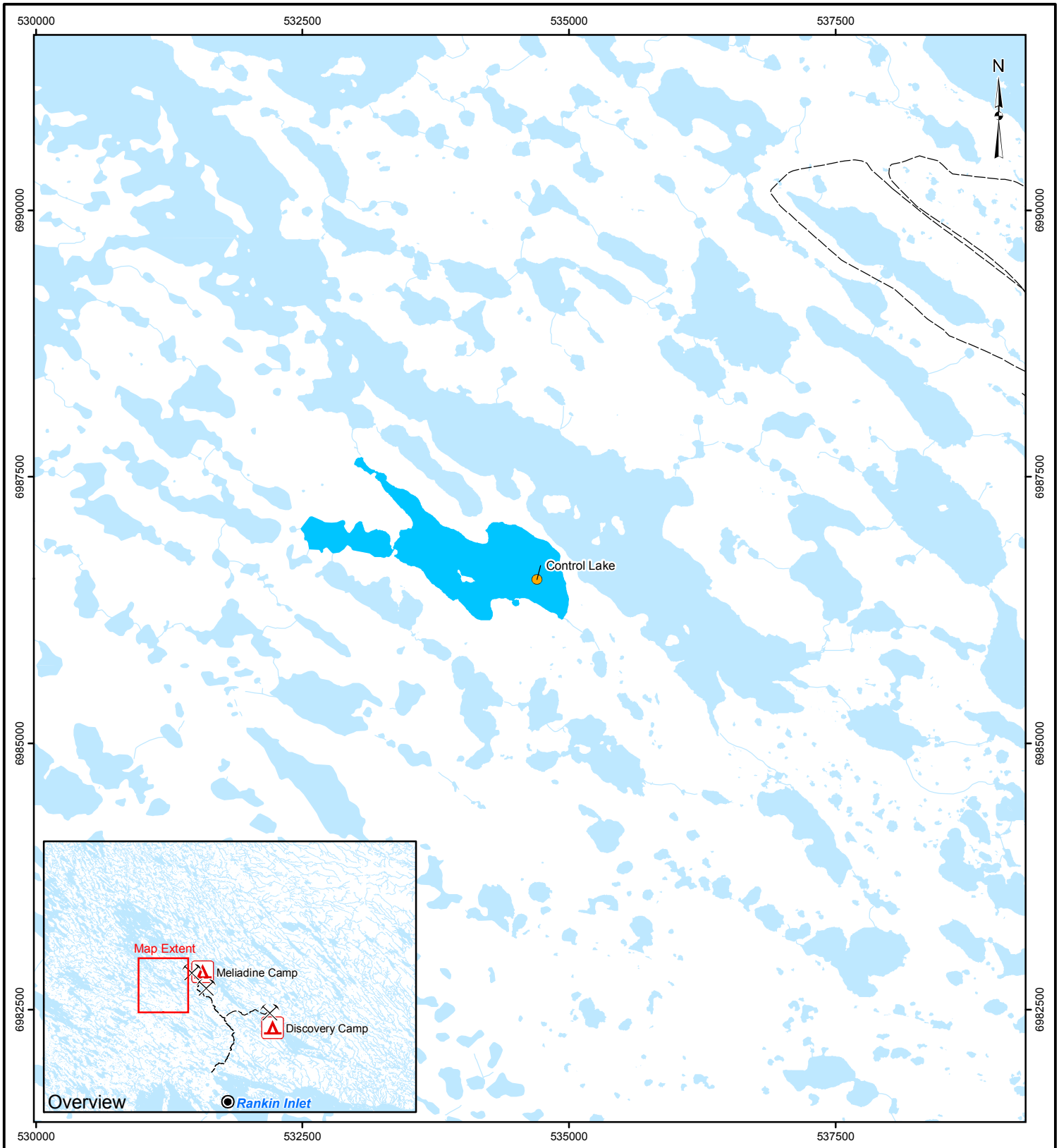

LEGEND

- Sediment Sampling Location
- Camp
- Proposed Mine Site
- Proposed Road
- Watercourse
- Sampled Waterbody
- Waterbody

1,250 0 1,250

SCALE 1:50,000 METRES

REFERENCE

Base data obtained from Comaplex Minerals Corporation. Water quality data obtained from the field.
Projection: UTM Zone 15 Datum: NAD 83

DRAFT

PROJECT

COMAPLEX MINERALS CORP

COMAPLEX MINERALS CORPORATION
MELIADINE GOLD PROJECT
NUNAVUT

TITLE

SEDIMENT QUALITY SAMPLING LOCATIONS IN CONTROL LAKE

Golder Associates
Edmonton, Alberta

PROJECT NO. 09-1373-0010			PHASE No. 1000	
DESIGN	KS	06 Oct. 2009	SCALE AS SHOWN	REV. 0
GIS	CDB	06 Oct. 2009		
CHECK	KS	27 Oct. 2009		
REVIEW	PMC	27 Oct. 2009		

FIGURE 6-4

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