June 12, 2015

Tracking Number: 329412
Authorization Number: 105017

REGISTERED MAIL

Red Chris Development Company Ltd.
200-580 Hornby Street
Vancouver, BC V6C 3B6

Dear Permittee:

Enclosed is Amended Permit 105017 issued under the provisions of the *Environmental Management Act*. Your attention is respectfully directed to the terms and conditions outlined in the permit. An annual fee will be determined according to the Permit Fees Regulation.

This permit does not authorize entry upon, crossing over, or use for any purpose of private or Crown lands or works, unless and except as authorized by the owner of such lands or works. The responsibility for obtaining such authority rests with the Permittee. This permit is issued pursuant to the provisions of the *Environmental Management Act* to ensure compliance with Section 120(3) of that statute, which makes it an offence to discharge waste, from a prescribed industry or activity, without proper authorization. It is also the responsibility of the Permittee to ensure that all activities conducted under this authorization are carried out with regard to the rights of third parties, and comply with other applicable legislation that may be in force.

This decision may be appealed to the Environmental Appeal Board in accordance with Part 8 of the *Environmental Management Act*. An appeal must be delivered within 30 days from the date that notice of this decision is given. For further information, please contact the Environmental Appeal Board at (250) 387-3464.

Administration of this permit will be carried out by staff from Environmental Protection. Plans, data and reports pertinent to the permit are to be submitted to Environmental Protection at Ministry of Environment – Mining Operations, Bag 5000, Smithers, BC V0J 2N0.

Ministry of Environment
Environmental Protection Division
Bag 5000
Smithers, BC V0J 2N0
Mining Operations
Telephone: (250) 847-7260
Facsimile: (250) 847-7591

Yours truly,

Douglas J. Hill, P.Eng.
for Director, *Environmental Management Act*
Mining Operations

Enclosure

cc: Environment Canada, Vancouver BC
Ministry of Energy and Mines, Smithers BC
Tahltan Central Council, Dease Lake BC

Ministry of Environment
Environmental Protection Division
Bag 5000
Smithers, BC V0J 2N0
Mining Operations
Telephone: (250) 847-7260
Facsimile: (250) 847-7591

**MINISTRY OF
ENVIRONMENT**

PERMIT

105017

Under the Provisions of the Environmental Management Act
Red Chris Development Company Ltd.

**200-580 Hornby Street
Vancouver, BC V6C 3B6**

is authorized to discharge effluent to the land and surface water from a copper-gold mine and mill complex located near Iskut, British Columbia, subject to the terms and conditions listed below. Contravention of any of these conditions is a violation of the *Environmental Management Act* and may lead to prosecution.

1. AUTHORIZED DISCHARGES

1.1 North Dam Tailings Impoundment Area

This section applies to the discharge of effluent (slurry including tailings and supernatant) from a **COPPER-GOLD MINE AND ORE CONCENTRATOR** to the North Dam Tailings Impoundment Area (herein "TIA").

1.1.1 The maximum annual authorized rate of discharge of tailings slurry is 30 Million cubic metres.

1.1.2 The authorized discharge period is continuous.

1.1.3 The characteristics of the slurry must be typical concentrator tailings from the milling of ore, mill site runoff, rock disposal site runoff, open pit water, and camp treated wastewater effluent from a copper-gold mine and mill complex.

1.1.4 The works authorized are the North Dam, the temporary Saddle Dam and an emergency spillway on the Saddle Dam; tailings discharge line; tailings impoundment; seepage collection and recycle system, including seepage collection ditches downstream of the dams; mine, mill, and rock disposal site runoff collection ditches and sumps; tailings supernatant recycle systems; sediment control ponds; flocculant addition works; continuous flow, tailings and supernatant level monitoring devices; wastewater treatment plant (including lagoons and aeration system); and related

Date issued: September 23, 2013
Date amended: June 12, 2015
(most recent)

Douglas J. Hill, P.Eng.
for Director, *Environmental Management Act*
Mining Operations

appurtenances located approximately as shown on the attached Site Plans.

1.1.5 The authorized works necessary to manage and control the discharge must be complete and in operation when the discharge commences.

1.1.6 The maximum elevation of the supernatant stored in the TIA is limited by the temporary Saddle Dam and must not exceed the elevation of 1118 metres above sea level. Sufficient storage will be provided within the TIA to store the Inflow Design Flood which is defined as the 10-day duration Probable Maximum Flood without overtopping the dam plus a minimum freeboard of 2.0 metres.

1.1.7 The location of the facilities from which the discharge originates is in Mineral Tenure 323341 and Mining Lease Numbers 999362, 999363, 999364, and 999382.

1.1.8 The location of the point of discharge (tailing impoundment) is upstream of Quarry Creek but North of the Saddle Dam and approximately located at 57.7427N, 129.7286W on Mining Lease 999382.

1.2 **North Reclaim Dam Discharge (herein "NRDD")**

This section applies to the discharge of **DAM FILTERED WATER** and **TIA SUPERNATANT** from the North Dam and the North Reclaim Dam, TIA drains, and other sources of mine water to Quarry Creek as approved by the Director in writing.

1.2.1 The characteristics of the discharge must be equivalent to or better than those identified in Table 1:

Table 1. Characteristics of the discharge (NRDD)

Parameter	Limit
Total Suspended Solids (TSS)	Maximum (1): 30 mg/L Monthly Mean (2): 15 mg/L
pH	6.5 to 9.0 pH units
Rainbow Trout 96 hr Acute Lethality, Single Concentration	50% Survival in 100% Concentration, Minimum
Daphnia magna 48 hr acute lethality single concentration	50% Survival in 100% Concentration, Minimum
Nitrite, as N	Maximum (1): 0.06 mg/L
Nitrate, as N	Maximum (1): 6.0 mg/L
Ammonia, as N	Maximum (1): 0.8 mg/L
Sulphate - dissolved	Maximum (1): 400 mg/L
Aluminum – dissolved	Maximum (1) 100 µg/L
Cadmium – dissolved	Maximum (1): 1.1 µg/L
Copper – total	Maximum (1): 20 µg/L
Iron – total	Maximum (1): 1000 µg/L

Date issued: September 23, 2013
Date amended: June 12, 2015
(most recent)

Douglas J. Hill, P.Eng.
for Director, *Environmental Management Act*
Mining Operations

Iron – dissolved	Maximum (1): 350 µg/L
Selenium – total	Maximum (1): 10 µg/L
Zinc – total	Maximum (1): 100 µg/L

(1) Maximum allowable concentration in any grab sample
(2) Calculation of average TSS is the same as required under the Metals Mines Effluent Regulation (SOR/2002-222)

1.2.2 The authorized annual maximum volume discharged from the NRDD must not exceed 4 Million cubic metres per year.

1.2.3 The maximum daily discharge from the NRDD is 34 000 cubic metres per day.

1.2.4 The maximum daily discharge rate identified in section 1.2.3 may be exceeded for up to 10 consecutive days once per year, provided the combined maximum NRDD and Quarry Creek flow rate, measured at the NRDD discharge point and W20 respectively, do not exceed 130 000 cubic meters per day.

1.2.5 The authorized discharge period is continuous from March 1st to November 30th inclusive each year.

1.2.6 The Permittee must cease discharging immediately if the effluent fails to meet the characteristics in Section 1.2.1. The discharge may resume only if two subsequent re-tests demonstrate that the effluent meets the characteristics of Section 1.2.1.

1.2.7 At least 30 days prior to commencing a discharge each year, the Permittee must submit to the Director and to the Red Chris Monitoring Committee (herein "RCMC"), an Annual Discharge Plan prepared by a Qualified Professional, as outlined in Section 3.2, that stipulates the expected volume, timing, and duration of effluent to be released to Quarry Creek for that year, and which must demonstrate how the Site Performance Objectives (herein "SPO") in Table 4, Section 4.1, will be attained at a downstream monitoring site known as W69. The discharge must be conducted for that year in accordance with the Annual Discharge Plan. The Director may request alterations to the plan, or request to suspend the discharge, based on any information collected by Environmental Protection in connection with this discharge.

1.2.8 The authorized works are a mill based lime addition system (for water treatment purposes), collection works, settling pond, spillway and engineered ditch to W20 (Quarry Creek), seepage collection ditch, continuous flow and level monitoring devices, flocculant addition works and related appurtenances approximately located as shown on the Site Plan.

1.2.9 The authorized works must be completed and in operation when the discharge commences.

Date issued: September 23, 2013
Date amended: June 12, 2015
(most recent)

Douglas J. Hill, P.Eng.
for Director, *Environmental Management Act*
Mining Operations

1.2.10 The location of the facilities from which the discharge originates is in Mineral Tenure 323341 and Mining Lease Numbers 323341, 999362, 999363, 999364, and 999382.

1.2.11 The location of the discharge and final point of compliance is the outfall structure from the North Reclaim Dam on Mining Lease 999382.

1.3 Sediment Control Ponds (herein "SCP")

This section applies to the discharge of treated storm water to the ground and to surface waters from the Sediment Control Ponds 1-6 inclusive.

1.3.1 The characteristics of the discharge from the sediment control works to surface waters must be equivalent to or better than those identified in Table 2:

Table 2. Characteristics of the discharge (SCP 1 - 6)

Parameter	Limit
Nitrate, as N	Maximum (1) : 32 mg/L
TSS	Maximum (1): 30 mg/L
TEH (2)	15 mg/L
pH	6.5 to 9.0 pH units
Rainbow Trout 96 hr Acute Lethality, Single Concentration	50% Survival in 100% Concentration, Minimum

(1) Maximum allowable concentration in any grab sample
(2) TEH includes HEPH (C19-32) & LEPH (C10-19)

1.3.2 The authorized works are collection works, sumps, settling ponds, flocculant addition works and related appurtenances approximately located as shown on the Site Plan.

1.3.3 The location of the facilities from which the discharges originate are as presented in Table 3:

Table 3. Sediment Control Pond Location (SCP 1 - 6)

Pond Name	Pond Location	Mineral Tenure
Sediment Control Pond #1	57.7331 N, 129.7816 W	999364
Sediment Control Pond #2	57.7294 N, 129.7925 W	999364
Sediment Control Pond #3	57.7257 N, 129.8120 W	999364
Sediment Control Pond #4	57.7095 N, 129.7857 W	999362
Sediment Control Pond #5	57.7271 N, 129.7561 W	999363
Sediment Control Pond #6	57.7487 N, 129.7692 W	323341

1.3.4 The final point of compliance for discharges to surface waters must be the

sediment control pond spillways or pipe outlets if pumping storm water from sediment control works to surface waters.

1.4 Saddle Dam Diversion (herein "SDD")

This section applies to the discharge of treated storm water from the Saddle Dam Diversion Works.

1.4.1 The characteristics of the discharge must be equivalent to or better than:

Table 4. Characteristics of the discharge (SDD)

Parameter	Limit
Nitrate, as N	Maximum (1) : 32 mg/L
TSS	Maximum (1): 30 mg/L
TEH (2)	15 mg/L
pH	6.5 to 9.0 pH units
Rainbow Trout 96 hr Acute Lethality, Single Concentration	50% Survival in 100% Concentration, Minimum

(1) Maximum allowable concentration in any grab sample
(2) TEH includes HEPH (C19-32) & LEPH (C10-19)

1.4.2 The authorized works are settling basin, pumps, pipelines, unnamed natural pond, flocculant addition works and related appurtenances approximately located as shown on the Site Plan.

1.4.3 The location of the facilities from which the discharge originates is in Mineral Tenure 323341 and Mining Lease Numbers 323341, 999362, 999363, 999364, and 999382.

The point of discharge and the final point of compliance is the outflow channel of the unnamed natural pond approximately located at 57.7319N, 129.7332W on Mining Lease 999382.

2. GENERAL REQUIREMENTS

2.1 Lethal Toxicity of the Discharge

The discharges authorized in Section 1 must not be acutely toxic to aquatic organisms at the point which it enters the receiving environment. Undiluted effluent must not cause greater than 50% mortality for 96 hr Rainbow Trout (*Oncorhynchus mykiss*) single concentration toxicity test EPS 1/RM/13 2nd edition, December 2000). An acute toxicity test fails if undiluted effluent

results in more than 50% mortality of Rainbow Trout in 96 hours. In the event of an acute toxicity test failure the permittee must notify the Director without delay and additional toxicity testing must be conducted in accordance with Section 6.8

2.2 Qualified Professionals

All documents submitted to the Director must be signed by the author. Submissions where an opinion or recommendation is expressed regarding data analysis, interpretation, assessment and/or design must be signed by an appropriate Qualified Professional, who in doing so takes professional responsibility for the content of the document. A Qualified Professional is defined as follows:

"Qualified Professional" means an applied scientist or technologist specializing in an applied science or technology applicable to the duty or function including, but not limited to agrology, biology, forestry, chemistry, engineering, geoscience, geology or hydrogeology, and who:

a) is registered in good standing with the appropriate professional organization, is acting under that organization's code of ethics and is subject to disciplinary action by that organization, and

b) through suitable education, experience, accreditation and knowledge, may be reasonably relied on to provide advice within their area of expertise.

2.3 Maintenance of Works and Emergency Procedures

The Permittee must inspect the authorized works regularly and maintain them in good working order. In the event of a condition or emergency which prevents effective operation of the authorized works, leads to unauthorized discharge, or results in a permit exceedance, the Permittee must:

i. Comply with all applicable statutory requirements, including the Spill Reporting Regulation;

ii. Immediately contact the Director or an Officer designated by the Director by e-mail and/or telephone; and,

iii. Take appropriate remedial action for the prevention or mitigation of pollution.

Date issued: September 23, 2013
Date amended: June 12, 2015
(most recent)

Douglas J. Hill, P.Eng.
for Director, *Environmental Management Act*
Mining Operations

The Director may reduce or suspend operations to protect the environment during a condition or emergency until the authorized works have been restored and/or corrective steps have been taken to prevent unauthorized discharges.

During and/or after the emergency event or condition, the Permittee must conduct appropriate sampling and analysis of discharges, which may be equivalent to or more stringent than the monitoring requirements of this permit and/or applicable statutory requirements. As the results of such sampling become available, the Permittee must provide the results to the Director or a designated Officer. The Director may require additional monitoring or reporting at any time by specifying such in writing to the Permittee.

The Permittee must prepare contingency plans outlining emergency procedures to be undertaken in the event of emergency incidents that may result in a significant release of contaminants to the environment.

2.4 Inspection and Maintenance of Water Management Works

All ponds, ditches, runoff or seepage collection, diversion works, flow monitoring weirs and gauges must be inspected at least twice per year, once in spring after freshet and once in fall before freeze-up. Records of inspections must be maintained, and any identified deficiencies in the work must be corrected immediately.

2.5 Controlled Bypasses

Bypass of the authorized works is prohibited unless the prior approval of the Director is obtained and confirmed in writing.

2.6 Process Modifications

The Permittee must notify the Director in writing prior to implementing changes to any process that may adversely affect the quality and/or quantity of the discharge. Notwithstanding notification under this section, permitted levels must not be exceeded.

2.7 Temporary Shutdown

In the event of a temporary shutdown in construction and mining activities at the site, the Permittee must notify the Director in writing and must ensure all Permit conditions continue to be met.

Date issued: September 23, 2013
Date amended: June 12, 2015
(most recent)

Douglas J. Hill, P.Eng.
for Director, *Environmental Management Act*
Mining Operations

2.8 Future Upgrading of Works

The Director may require repair, alteration, removal, improvement or addition to works or construction of new or existing works, and submission of plans and specification for works specified in this authorization.

2.9 Transfer of Authorization

A transfer of a Permit is without effect unless a Director has consented in writing to the transfer a minimum of 10 days prior to the transfer.

2.10 Security

The Permittee must maintain security with the Minister of Finance as required in the *Mines Act* Permit M-240.

2.11 Third Party Environmental Monitor

The Permittee must implement a third party environmental monitor program using a qualified environmental monitor to ensure implementation of the terms and conditions of the Permit. The environmental monitor program must include but not be limited to one site visit per year scheduled approximately 4 months after the submission of the Annual Report required in Section 6.4, and must include the review of the Annual Report and associated monitoring results. The environmental monitor will report once per year to the RCMC in writing as per Section 6.7. The third party qualified environmental monitor, the scope of the environmental monitor program and the reporting requirements are to be established by MOE in consultation with RCMC.

The third party environmental monitor program is to be implemented for a minimum period of two years from commencement of milling operations. The requirements in this Section, including extension of the initial two year period, may be modified by the Director, based on recommendations from the RCMC as well as any other information obtained by Environmental Protection in connection with the discharges.

2.12 Notification to the Red Chris Monitoring Committee (RCMC)

A copy of a notification provided to the Director under sections 2.3, 2.6, 2.7 and 3.10 must be sent to the Chairs of the RCMC established under the Mines Act Permit M-240.

2.13 RCMC Involvement in Site Water Management Aspects

The Permitee must work in collaboration with the existing RCMC established under the *Mines Act* Permit M-240 and any other relevant working groups formed under the RCMC Terms of Reference to address site water management aspects including but not be limited to the following action items:

1) Follow up on recommendations made in third party reviews by Klohn Crippen Berger, and Robertson GeoConsultants Ltd. dated October 10, 2014, July 4, 2014 and November 21, 2012 respectively;
2) Review the site Water Management Plan, required under Section 3.1, to continuously improve the water balance and water quality models, including the review of assumptions, source terms, monitoring and calibration results;
3) Review water quality and water prediction results, including seepage collection and characterization;
4) Review the Annual Discharge Plan, as required under Section 3.2;
5) Review the seepage collection system and the components of the Contingency and Mitigating Measures Plan required in Sections 3.8 and 3.9, as they relate to surface and groundwater quality.

3. OPERATIONAL REQUIREMENTS

3.1 Water Management Plan

The Permittee must maintain and implement a site Water Management Plan that must include, but not be limited to, water quality and water balance modeling methods and assumptions, source terms, predictions and calibration results using all available and relevant site specific data, surface water, groundwater, weather and source term results. The next update of the plan must be submitted to the Director by December 31, 2015 and then annually for the first five years of operation. The plan updates must consider recommendations made by the RCMC and be consistent with all associated action plan(s) to ensure continuous improvement of the long term water quality and water balance predictions. The plan must also include details on any contingency and mitigation measures

implemented, or proposed to be implemented, as required under Section 3.9. The plan must identify management measures required to limit adverse impacts from groundwater extraction activities that may influence contaminant migration from the site. Water quality and water balance predictions, including seepage characterization and/or estimates, must be presented to the RCMC in a suitable format for review and comment prior to the reporting date.

Water Management Plan updates must be prepared by a Qualified Professional and submitted as part of the Annual Report, as per Section 6.4. The Director may require alterations to the Water Management Plan or require the permittee to re-run water quality and / or water quantity models based on results submitted as well as any other information obtained by Environmental Protection in connection with the discharges.

3.2 **Annual Discharge Plan**

The Annual Discharge Plan required in Section 1.2.7 must outline the expected volume, water quality, timing, and duration of effluent discharge proposed to be released to Quarry Creek in the next year. The Annual Discharge Plan must take into account recent hydrology and snowpack information, mine water balance information, water quality information and all other relevant input identified in the Water Management Plan required under Section 3.1. The plan must outline how the discharge rate will be adjusted to correlate with the Quarry Creek natural hydrograph, and how scouring will be prevented. The Annual Discharge Plan must demonstrate how the Site Performance Objective (SPO) in Table 4, Section 4, will be attained at downstream monitoring site W69.

The Annual Discharge Plan must include limits on the maximum volume of effluent discharged per day as required in Section 1.2.2, 1.2.3 and 1.2.4, referencing flow rate and the proportion of effluent in Quarry Creek; and must include limits on the concentration of contaminants in source water(s), including groundwater seepage input, as necessary to meet the SPO. The Annual Discharge Plan must identify the sources of mine water and the percent of each source in the total effluent discharge, including estimated seepage rates and clean water proposed to be diverted to the TIA and/or the NRDD for each day. The Annual Discharge Plan must demonstrate how the discharge will be managed to prevent erosion, undesirable temperature changes in Quarry Creek, and any other undesirable affects to the fish habitat in the creek.

Annual Discharge Plans must be submitted by December 31st of each year. An Annual Discharge Plan is not required when no discharge is planned that year.

3.3 Erosion and Sediment Control Plans

The Permittee must develop and implement an Erosion and Sediment Control Plan developed by a qualified professional. Any plan updates must be submitted to the Director and copied to the RCMC within 30 days of adoption. The Director may require modification to the plan based on the monitoring results and any other information received by Environmental Protection in connection with the discharge.

3.4 Construction of Water Management and Pollution Control Works

Plans and specifications of the ponds authorized under Sections 1.1, 1.2, 1.3 and 1.4 must be certified by a qualified professional and retained on site for inspection. A qualified professional must certify that the works have been constructed in accordance with the plans before discharge commences.

3.5 Flocculant Management Plan

Prior to using flocculants the Permittee must implement the Flocculant Management Plan developed by a qualified professional that must include, at a minimum, flocculants used, expected application locations, flocculant addition works, expected application rates, and details on how toxicity in the discharge will be prevented. The plan must also describe the sampling procedures of the influent, procedures for determining when the flocculant(s) will be used and when their use must be terminated. The Flocculant Management Plan may be modified as required by the Director.

3.6 Flocculant Addition

The Permittee must maintain a record of the use of flocculant(s) for sediment control on site. The Permittee must record daily, when in use, the type(s) of flocculant used, the weight applied or application rate (mg/L/day) and type of application system used. The Permittee must maintain records for inspection for a period of five years.

3.7 Explosive and Nitrogen Management Plan

The Permittee must submit an Explosive and Nitrogen Management Plan developed by a qualified professional by September 30, 2015. The plan must specifically target measures that prevent the loss of nitrogen species into the environment. The nitrogen management program must be implemented and any

update to the plan submitted within 30 days of adoption to the Director.

3.8 North Reclaim Dam, North Dam and Saddle Dam Seepage Collection

The Permittee must install and operate seepage collection systems, including as required groundwater pumping wells, seepage collection ditches and collection ponds, to intercept supernatant seepage from the North Dam and from the North Reclaim Dam. The Permittee must demonstrate the seepage collection system is efficient, has the ability to intercept seepage at a rate sufficient to mitigate impacts to surface and groundwater downstream of the NRDD, and that the seepage collection system will not draw contamination into adjacent aquifers. Seepage collection rates must be measured using direct flow measurements from the seepage collection system. The Director may require the permittee to implement additional temporary seepage collection works to mitigate any potential impact to surface and groundwater South of the Saddle Dam.

3.9 Contingency and Mitigation Measures Plan

The Permittee must maintain and implement a Contingency and Mitigation Measures Plan to the satisfaction of the Director. The Permittee must keep this plan up to date and keep the RCMC and appropriate mine personnel aware of its contents. A revised Contingency and Mitigation Measures Plan must be submitted to the Director by December 31, 2015. The Director may require alterations to the plan based on results submitted as well as any other information obtained by Environmental Protection in connection with the discharges. The plan must, as a minimum, define specific measures to take in the event of exceedances of NRDD permit limits stated in Section 1.2.1, Table 1; and exceedances of SPOs stated in Section 4.1, Table 4. In addition, the Contingency and Mitigation Measures Plan and must include the followings:

3.9.1 TIA Water Quality Trigger Levels

The Permittee must establish, in consultation with the RCMC, TIA water quality trigger levels that will be used to inform the implementation of contingency and mitigation measures necessary to ensure compliance with the NRDD discharge limits specified in Section 1.2.1, Table 1 and / or SPO specified in Section 4.1, Table 4. The trigger levels must be set at levels sufficiently low to allow timely implementation of contingency and mitigation measures.

3.9.2 Groundwater Quality Trigger Levels

The Permittee must establish, in consultation with the RCMC, groundwater

quality trigger levels to inform the implementation of contingency and mitigation measures as defined in the plan. Trigger levels must be compared to groundwater monitoring data as results become available. Trigger levels must be set at levels sufficiently low to allow timely implementation of contingency and mitigation measures.

3.9.3 TIA Elevation Trigger Levels

The Permittee must, in consultation with the RCMC, set TIA tailings and supernatant elevation monitoring protocols and trigger levels above which contingency and mitigation measures and/or as preventive or emergency discharge may be required. Trigger levels must be set at levels sufficiently low to allow timely implementation of contingency and mitigation measures.

3.10 Contingency and Mitigation Measures Notification Protocol

The Permittee must notify the Director, the Chief Inspector of Mines, the Tahltan Central Council (or their delegate), the Iskut Band Council and the Tahltan Band prior to implementing contingency and mitigation measures identified in section 3.9.

4. RECEIVING ENVIRONMENT REQUIREMENTS

All monitoring results from the water quality sampling station W69 must be compared to the SPO presented in Table 4, Section 4.1.

4.1 Quarry Creek SPO (W69)

Table 4. Site Performance Objective for Quarry Creek (W69)

Parameter	SPO
Selenium – total	Maximum (1) 5.0 µg/L
Nitrite, as N	30-day average (2): 0.02 mg/L
Nitrate, as N	30-day average (2): 3.0 mg/L
Ammonia, as N	30-day average (2): 0.4 mg/L
Sulphate - dissolved	30-day average (2): 400 mg/L
Aluminum – dissolved	30-day average (2): 50 µg/L
Cadmium – dissolved	30-day average (2): 0.3 µg/L
Copper – total	30-day average (2): 10 µg/L
Iron – dissolved	30-day average (2): 350 µg/L
Zinc – total	30-day average (4): 75 µg/L

(1) Maximum allowable concentration in any grab sample
(2) 30-d average concentration calculated as the mean concentration of a minimum of 5 evenly spaced samples collected over 30 day.

Date issued: September 23, 2013
Date amended: June 12, 2015
(most recent)

Douglas J. Hill, P.Eng.
for Director, *Environmental Management Act*
Mining Operations

Additionally, selenium at site W3 on Quarry Creek must be compared to BCAWQG of 2.0 µg/L.

4.2 Exceedance of SPO at W69

Any exceedance of an SPO identified in section 4.1 must be reported to the Director and RCDC immediately, and contingency and mitigation measures, as determined for Section 3.9 of the Permit, must be implemented as soon as possible.

4.3 Additional Selenium Studies

The Permittee must develop and implement a site specific work program, to the satisfaction of the Director, to inform a review of the NRDD selenium discharge limit stated in Section 1.2.1, Table 1, the associated SPO for selenium stated in Section 4.1, Table 4, and the Aquatic Effects Monitoring Program (herein "AEMP") required in Section 5.9. The program must assess risks of bioaccumulation at the base of the food chain in both the lotic and lentic environments in Quarry Creek and must be submitted to the Director by September 30, 2015. The program submitted to the Director must include details on the schedule proposed to implement the program and reporting timelines and review of the AEMP and the associated Adaptive Management Framework.

The work program must include, as a minimum, but not limited the following deliverables:

1) Monitoring of selenium levels concurrently in water, periphyton and benthic invertebrates;
2) Monitoring of selenium levels in fish eggs and fish health every 3 years. This frequency is intended to align with monitoring cycle required by the Federal Environmental Effects Monitoring Program;
3) Developing and / or updating a lentic and a lotic site specific selenium bioaccumulation model using concurrent sampling of water, periphyton and benthic invertebrates; and,
4) Review of the monitoring results, the bioaccumulation model, and the newest science to re-evaluate the risks of selenium to bird, amphibian, and fish reproduction and growth in lentic and lotic environments.

Date issued: September 23, 2013
Date amended: June 12, 2015
(most recent)

Douglas J. Hill, P.Eng.
for Director, *Environmental Management Act*
Mining Operations

Results and recommendations from the program implementation are to be reported annually in the Annual Report, as required in Section 6.4. Upon review of the results and recommendations, the Director may approve amendments, in consultation with the RCMC, to the selenium monitoring program identified above; to the NRDD selenium discharge limit stated in Section 1.2.1, Table 1; and / or to the associated SPO for selenium stated in Section 4.1.

5. MONITORING REQUIREMENTS

The Permittee must conduct sampling and monitoring as outlined below. The Director may alter the monitoring requirements based on advice from the RCMC, results submitted as well as any other information obtained by Environmental Protection in connection with the discharges.

5.1 Mill, TIA, Discharge, and Receiving Environment Monitoring

The Permittee must develop and submit for approval by the Director a monitoring program for all sources, discharges and surface waters receiving effluent from the mine site. An updated monitoring program must be submitted by July 31, 2015. The Permittee must implement the Approved Discharge and Receiving Environment Monitoring Program. Any updates to the monitoring program must be submitted for approval by the Director.

The Permittee must install suitable flow and level measuring devices and sampling facilities and undertake flow and level monitoring, sampling and analyses at locations and frequencies as specified in the latest Approved Discharge and Receiving Environment Monitoring Program.

5.2 Groundwater Monitoring

A groundwater monitoring program must be developed by a qualified professional in consultation with the RCMC to identify potential environmental impacts to groundwater. The program and any updates must be submitted and for approval by the Director. An updated plan must be submitted by August 31, 2015. The Permittee must implement the approved groundwater monitoring program.

5.3 Climate and Precipitation and Snow Water Equivalent Monitoring

The Permittee must install and maintain suitable precipitation gauge(s), and

maintain the snow survey courses to the satisfaction of the Director. Snow surveys must be conducted in accordance with the guidance provided in the BC Snow Survey Sampling Guide (BCMOE, 1981). Data collection and reporting must be to the satisfaction of the Director.

The Permittee must install and maintain a meteorological station in the TIA valley and on the Todagin plateau and measure continuous daily precipitation; daily maximum, minimum and mean temperature; wind speed and direction; and net incident radiation. The permittee must establish a suitable method for estimating open water evaporation at the site. The station must include a wind shield to minimize precipitation under-catch or suitable alternative as approved by the Director.

5.4 TSS-Turbidity Curves

The Permittee must maintain site-specific TSS-Turbidity regression curves to allow for use of turbidity monitoring as a field monitoring tool. Modifications to the regression curves must be submitted with the monitoring reports as the data set improves.

5.5 Sampling Procedures

Proper care must be taken in sampling, storing and transporting samples to adequately control temperature and avoid contamination, breakage etc. Sampling is to be carried out in accordance with the procedures described in the "British Columbia Field Sampling Manual for Continuous Monitoring and the Collection of Air, Air-Emission, Water, Wastewater, Soil, Sediment, and Biological Samples, 2003 Edition (Permittee)", "Manual of British Columbia Hydrometric Standards developed by the Resource Information Standards Committee (MOE 2009), "Water and Air Baseline Monitoring Guidance Document for Mine Proponents and Operators (MOE 2012)", or most recent edition, or by suitable alternative procedures as authorized by the Director.

5.6 Analytical Procedures

Analyses are to be carried out in accordance with procedures described in the "British Columbia Laboratory Manual (2009 Permittee Edition)", or the most recent edition, or by suitable alternative procedures as authorized by the Director.

Date issued: September 23, 2013
Date amended: June 12, 2015
(most recent)

Douglas J. Hill, P.Eng.
for Director, *Environmental Management Act*
Mining Operations

A copy of the above manual is available on the Ministry web page at www.env.gov.bc.ca/epd/wamr/labsys/lab_meth_manual.html.

5.7 Toxicity Analytical Procedures

Rainbow Trout 96 hour acute lethality bioassay (96HR LT50) analyses are to be carried out in accordance with procedures described in the "Reference Method for Determining Acute Lethality of Effluents to Rainbow Trout" EPS1/RM/13. Second Edition. December 2000 and May 2007 Amendments.

48 hour Daphnia magna single concentration toxicity tests analyses are to be carried out in accordance with procedures described in the "Reference Method for determining acute lethality of effluents to Daphnia magna" EPS 1/RM/14, Second Edition, December 2000.

5.8 Quality Assurance

a. The Permittee must obtain from the analytical laboratory(ies) their precision, accuracy and blank data for each sample set submitted as well as an evaluation of the data acceptability, based on the criteria set by the laboratory.

b. Quality assurance procedures are to be carried out in accordance with procedures described in the "British Columbia Laboratory Manual (2009 Permittee Edition)", or the most recent edition, or by suitable alternative procedures as authorized by the Director.

c. The analytical laboratory(ies) must be registered in accordance with CALA (Canadian Association for Laboratory Accreditation) unless otherwise instructed by the Director.

5.9 Aquatics Effects Monitoring Program (AEMP)

The Permittee must implement the AEMP developed by a qualified professional. The AEMP studies must be planned in consultation with the Director and RCMC, and a copy of the study design must be submitted for approval to the Director by September 30, 2015. The Permittee must submit results of the studies to the Director and RCMC by March 31st of the year after the studies are conducted. Based on the results of this monitoring program, the monitoring requirements may be

extended or altered by the Director.

5.10 Aquatic Effects Monitoring Program Objectives

The design of the AEMP must be such that it addresses, at a minimum, the following:

i. Provision of detailed and reliable characterization of the baseline conditions in the background and potentially affected aquatic environment;

ii. Systematic collection of data for biological parameters sufficient to detect mine-related changes in the aquatic environment;

iii. Analysis on at least an annual basis of the monitoring data and a determination of whether or not mine-related changes are occurring;

iv. Utilization of the AEMP findings to guide the development and implementation of effective adaptive management plans for addressing situations where biological parameters are exceeding pre-defined thresholds' as a result of mine-related discharges;

v. Review of results and recommendations coming from work program required under Section 4.3 of the Permit in regards to selenium management.

6. REPORTING REQUIREMENTS

6.1 Reporting to Red Chris Monitoring Committee

All monitoring plans developed under section 5, and all reports submitted under Section 6 must be copied to the Director, to the Chairs of the RCMC, established under *Mines Act* Permit M-240, and to the Tahltan Central Council (or their delegate), the Iskut Band Council and the Tahltan Band.

6.2 Spill Reporting

All spills to the environment as defined in the Spill Reporting Regulation must be reported immediately in accordance with the Spill Reporting

Regulation. Notification must be via the Provincial Emergency Program at 1-800-663-3456.

6.3 Reporting of Monitoring Results

Field and laboratory monitoring results, including a summary of non-compliances and corrective actions taken, must be submitted within 30 days of the end of the month in which the monitoring occurred. Submissions are to be in tabulated and/or graphical formats approved by the Director and will include an assessment of compliance with the Approved Monitoring Programs required under Section 5.1 and interpretation comments.

6.4 Annual Report and Evaluation

The Permittee must submit a comprehensive annual report, in a format suitable for public release, by March 31st of each year or at earlier date. The annual report must include:

(a) An overview of the previous year's operational and monitoring activities and a summary of activities planned in the upcoming year
(b) an evaluation of the impacts of construction, mining and milling activities on the receiving environment;
(c) a summary of compliance with the Approved Monitoring Programs (Section 5.1) and with the groundwater monitoring program (Section 5.2);
(d) a summary of all surface and groundwater water quality and hydrometric monitoring data for the previous year, including tables and graphs where appropriate to indicate trends in key water quality parameters, and an assessment of the quality of the all submitted data, including all information required to support the quality assessment;
(e) effluent flow measurements, estimates of the amount and type of chemical additions (flocculants and chemicals used in the mill for ore processing);
(f) results of water treatment and milling operation and removal efficiency for all contaminants of potential concern;
(g) results of receiving environment monitoring, including analyses of key water quality trends;
(h) results of hydrogeological assessment work and updates to the groundwater model for the site;
(i) results of ongoing ML/ARD chemistry studies;

(j) results and analyses of ongoing review of the site water quality predictions and source terms, water balance and water management of the site; and,
(k) a summary of all non-compliances, including those raised by the third party environmental monitor program required in Section 2.11, and including responses to recommendations made and corrective actions identified and mitigation efforts employed by the mine.

6.5 Non-Compliance Notification

The Permittee must immediately notify by facsimile 250-847-7591 or email the Director or designate of any non-compliance with the requirements of this permit and take appropriate remedial action. Written confirmation of all non-compliance events, including available test results is required within 24 hours of the original notification unless otherwise directed by the Director.

6.6 Non-Compliance Reporting

For any noncompliance with the requirements of this permit, the Permittee must submit a written report within 30 days of the noncompliance occurrence. The report must include, but is not necessarily be limited to, the following:

(a) all relevant test results related to the noncompliance;
(b) an explanation of the most probable cause(s) of the noncompliance;
(c) remedial action planned and/or taken to prevent similar noncompliance(s) in the future.

6.7 Third Party Environmental Monitor Reporting

The Permittee must ensure the third party qualified environmental monitor responsible, as per Section 2.11, submits a written evaluation report, in a format acceptable to the Director within 30 days of the end of the month in which the evaluation exercise occurred.

The report must include, but not be limited to, the following:

(a) An overview of the environmental monitor scope of work;
(b) An evaluation of compliance with the relevant requirements of the Permit within the scope of work of the environmental monitor;
(c) Conclusions and recommendations to the RCMC.

Date issued: September 23, 2013
Date amended: June 12, 2015
(most recent)

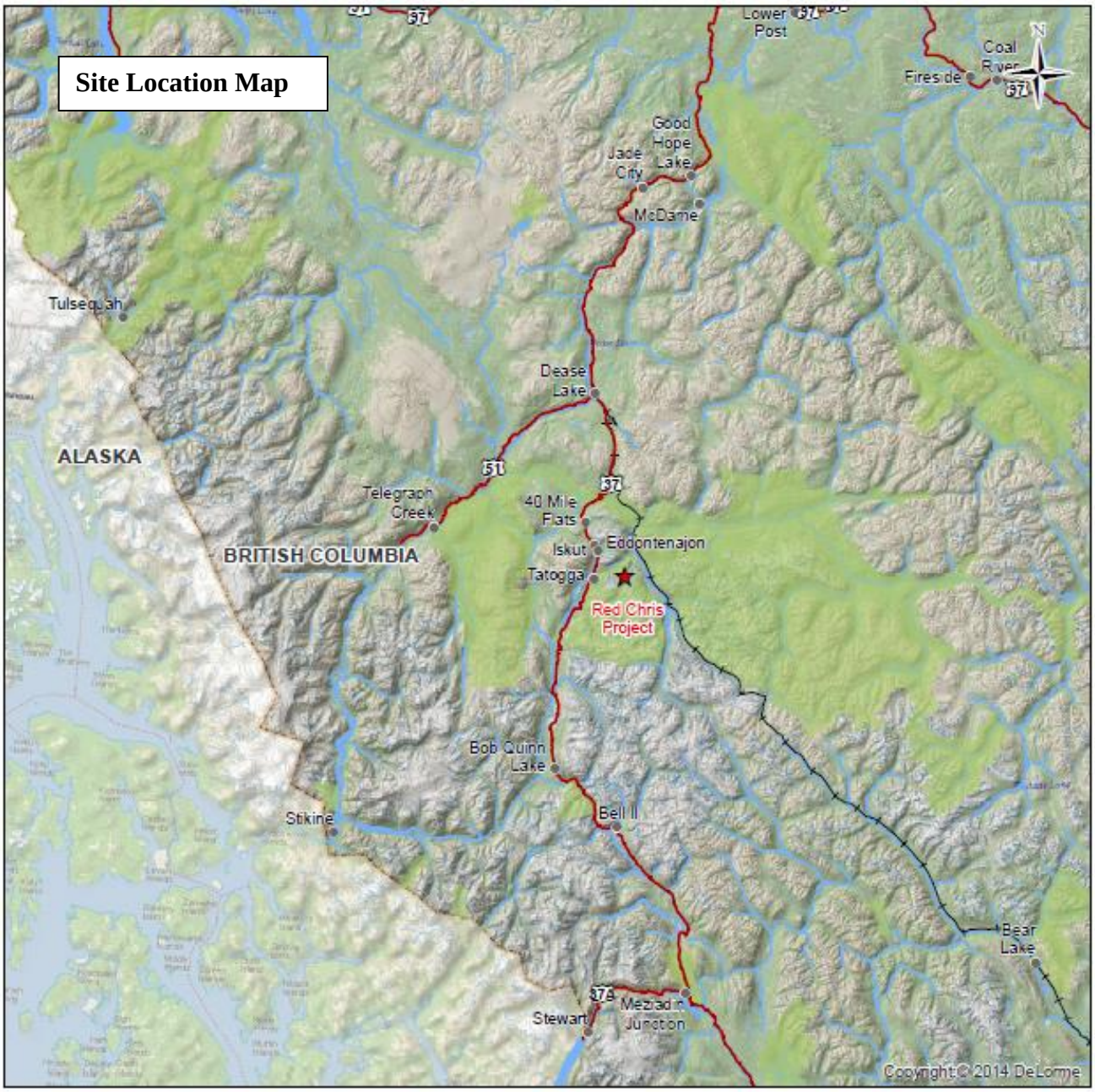
Douglas J. Hill, P.Eng.
for Director, *Environmental Management Act*
Mining Operations

6.8 **Additional Toxicity Monitoring**

For the discharges described in Sections 1.2, 1.3 and 1.4, rainbow trout toxicity testing must be increased to once per week if a sample of effluent fails the rainbow trout toxicity test (96HR LC_{50}) as defined in section 2.1. For intermittent discharges, if a sample has failed the rainbow trout toxicity test, then the Permittee must collect a sample during each subsequent discharge period. In the event of a toxicity test failure the permittee shall without delay, conduct effluent characterization and the Director may require a Toxicity Identification Evaluation (TIE) to be initiated to determine the cause of the effluent toxicity. The percent of fish survival after 96 hours must also be recorded. Samples must continue to be collected and tested on one day each week until three consecutive tests are determined to be not acutely toxic, at which time testing can revert to the normal frequency.

Date issued: September 23, 2013
Date amended: June 12, 2015
(most recent)

Douglas J. Hill, P.Eng.
for Director, *Environmental Management Act*
Mining Operations



Legend

- Red Chris Project
- Populated Place
- Highway
- Railway
- Major Stream
- Major Waterbody
- Park or Protected Area

0 25 50
Kilometers
Scale: 1:2,500,000

Reference:

DataBC Data Distribution Service
Open Government License
(http://www.data.gov.bc.ca/)

GeoGratis/Geobase
Open Government License - Canada
(http://data.gc.ca/eng/about-datagcca)

CLIENT: Red Chris

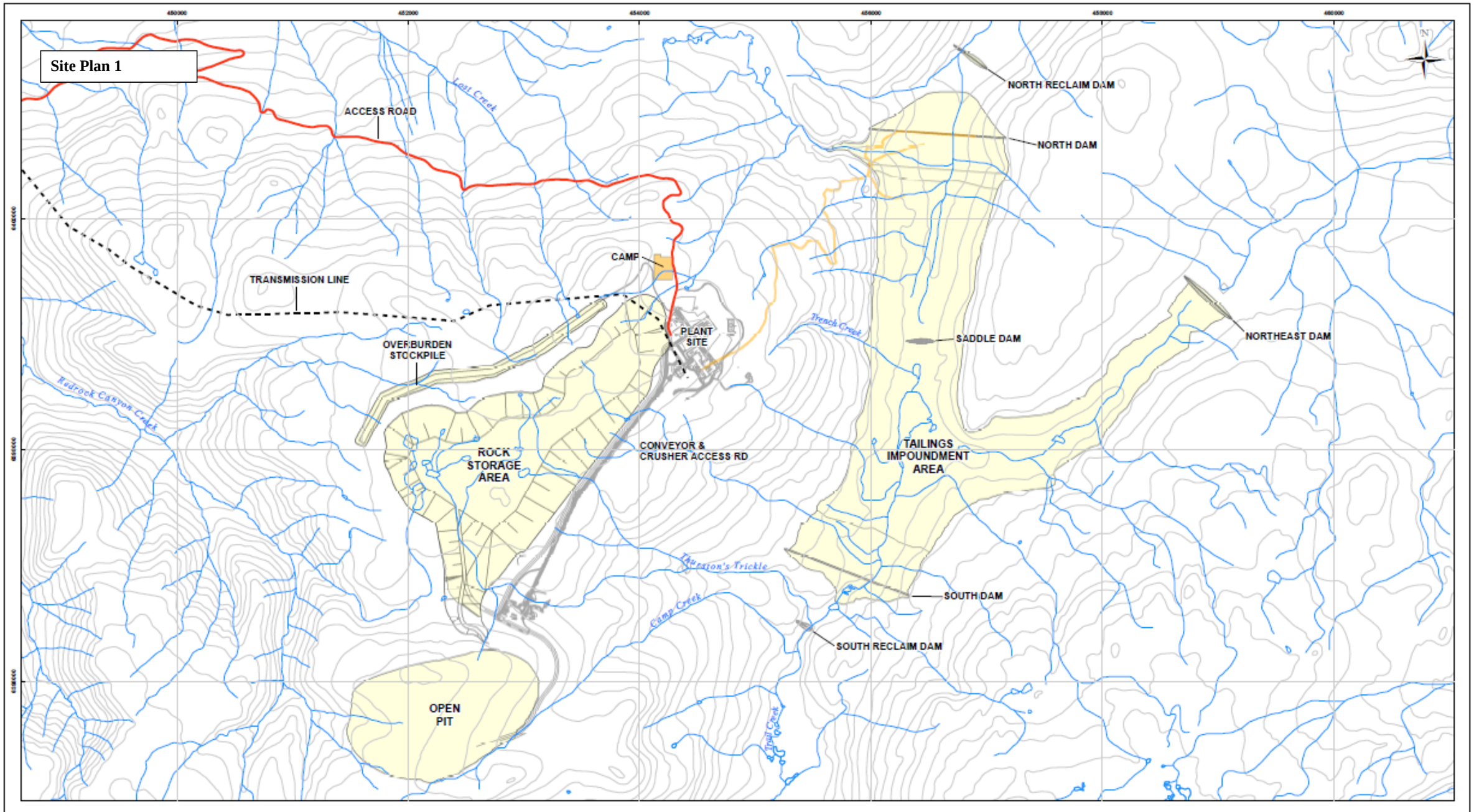
PROJECT: Red Chris Project

TITLE: Location Map

DATE: March, 2015	Figure 1.1	
JOB No: VM00532C	ANALYST: MY	QA/QC: DA
GIS File: General_Map_v2		
COORDINATE SYSTEM: NAD 1983 UTM Zone 9N		

amec foster wheeler

Site Plan 1



0 0.5 1
Kilometers

References:

CLIENT: Red Chris — an Imperial Metals company

Amec Foster Wheeler
Suite 600 - 4445 Lougheed Highway, Burnaby, B.C., V5C 0E4
Tel. 604-294-3811 Fax 604-294-4664

amec foster wheeler

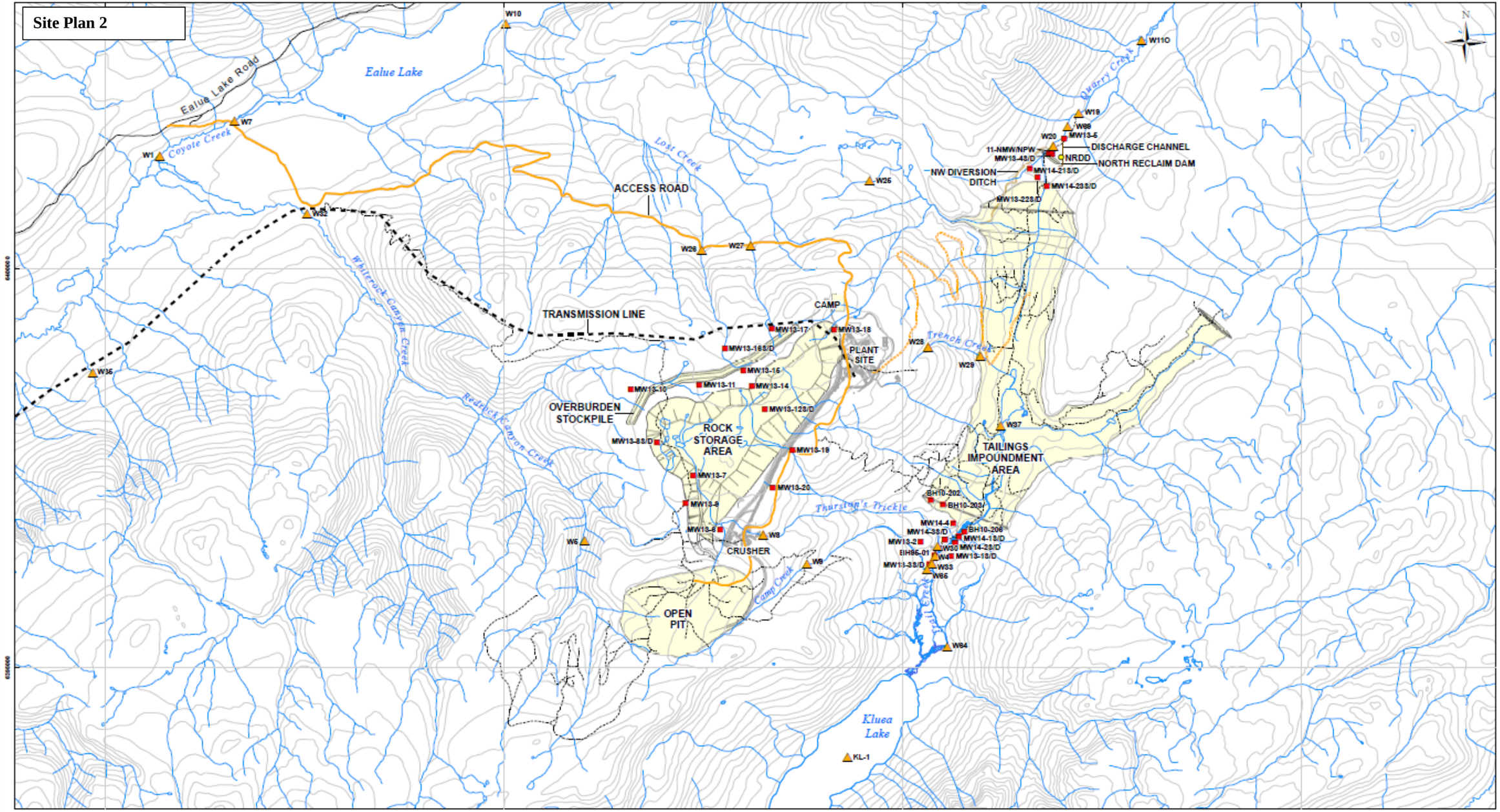
ANALYST:	PK
QA/QC:	DA
COORDINATE SYSTEM:	NAD 1983 UTM Zone 9N
SCALE:	1:30,000
PAGE SIZE:	11in X 17in

PROJECT: Red Chris Project

TITLE: General Layout

PROJECT NO:	VM00592C
REVISION NO:	1
DATE:	March, 2015
SHEET NO:	N/A
DRAWING NO:	Figure 1.2

Site Plan 2



Legend

- Surface Water Quality Sampling Site
- Groundwater Monitoring Well
- Main Access Road
- Site Access Road/Trail
- Transmission Line

0 0.5 1
Kilometers

Reference:

DataBC Data Distribution Service
Open Government Licence
(http://www.data.gov.bc.ca/)

GeographicBase
Open Government Licence - Canada
(http://data.gc.ca/eng/about-data#ogl)

CLIENT: Red Chris
an Imperial Metals company

Amec Foster Wheeler
Suite 600 - 4445 Lougheed Highway, Burnaby, B.C., V5C 0E4
Tel. 604-294-3811 Fax 604-294-4664

amec foster wheeler

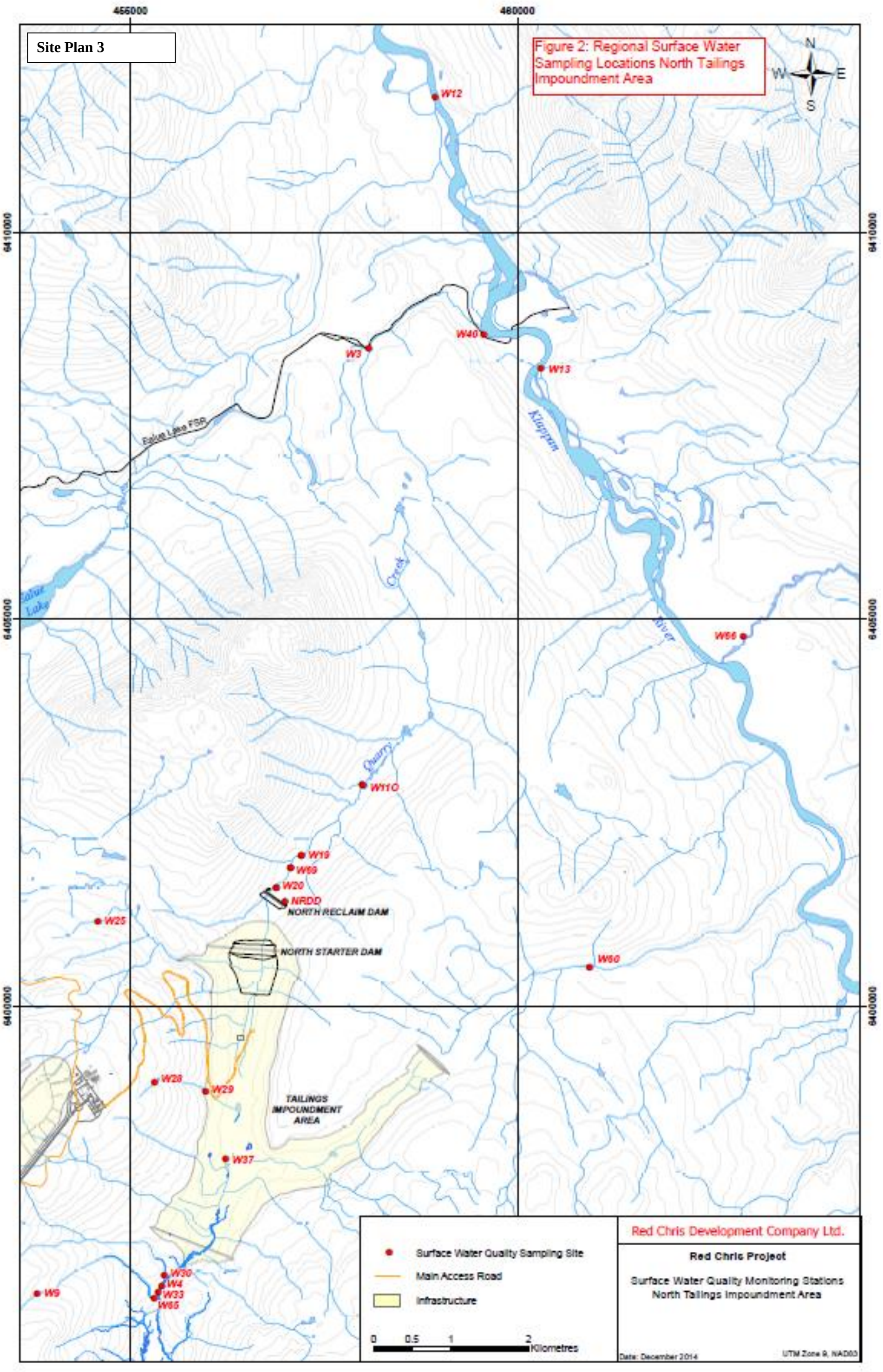
ANALYST:	PK
QA/QC:	DA
COORDINATE SYSTEM:	NAD 1983 UTM Zone 9N
SCALE:	1:45,000
PAGE SIZE:	11in X 17in

PROJECT: Red Chris Project

TITLE: Current Water Quality Montoring Stations

PROJECT NO:	VM00532C
REVISION NO:	1
DATE:	March, 2015
SHEET NO:	N/A
DRAWING NO:	Figure 3.8

Site Plan 3


456000
480000
64100000
64050000
64000000
Figure 2: Regional Surface Water Sampling Locations North Tailings Impoundment Area
N
W
E
S
W12
W40
W3
W13
Eskay Lake FSR
Klastline River
Creek
Lake
River
W55
Quarry
W11O
W19
W59
W20
NRDD
NORTH RECLAIM DAM
W25
NORTH STARTER DAM
W60
W28
W29
TAILINGS IMPOUNDMENT AREA
W37
W9
W30
W4
W33
W65
Surface Water Quality Sampling Site
Main Access Road
Infrastructure
0 0.5 1 2
Kilometres
Red Chris Development Company Ltd.
Red Chris Project
Surface Water Quality Monitoring Stations
North Tailings Impoundment Area
Date: December 2014
UTM Zone 9, NAD83