Mount Klappan Coal Project: March 2006 Update Series

Reclamation Planning

Initial site conditions, September 1985

Site conditions following reclamation seeding of low elevation species mix, September 1987

Prepared for

Fortune Coal Limited
Vancouver, British Columbia

Prepared by

Rescan Tahltan Environmental Consultants
Vancouver and Dease Lake, British Columbia

Mount Klappan Coal Project: February 2006 Update Series

Reclamation Planning

Reclamation

Reclamation is the process of returning disturbed land into productive land for the uses agreed to by the regulators and the community. Reclamation activities were started at the Mount Klappan site by Gulf Canada Resources Ltd. in the 1980's as part of the earlier exploration programs.

The current studies are aimed at inventorying local soils and developing a soil handling plan that will meet the requirements of the reclaimed land objectives, primarily a variety of wildlife habitats. Topsoil in the areas of mine development will be stripped and stockpiled for use in reclamation. The actual depth of topsoil varies from site to site but, in general, it includes the rooting zone (usually ranges from 30 cm to 60 cm deep) and surface organic layers that are overlying mineral soils.

Figure 1 shows the expected landscape types, to be reclaimed at the end of mining operations in 2028. The landscape types are summarized in the following table. The suggested vegetation noted in the table will be replaced by vegetation selection based on field trials conducted during the life of the mine to meet land use (habitat) objectives.

Examples of some of the results of the 1985/1987 reclamation trial programs before and after photographs of disturbance associated with that program can be seen on the cover of this report.

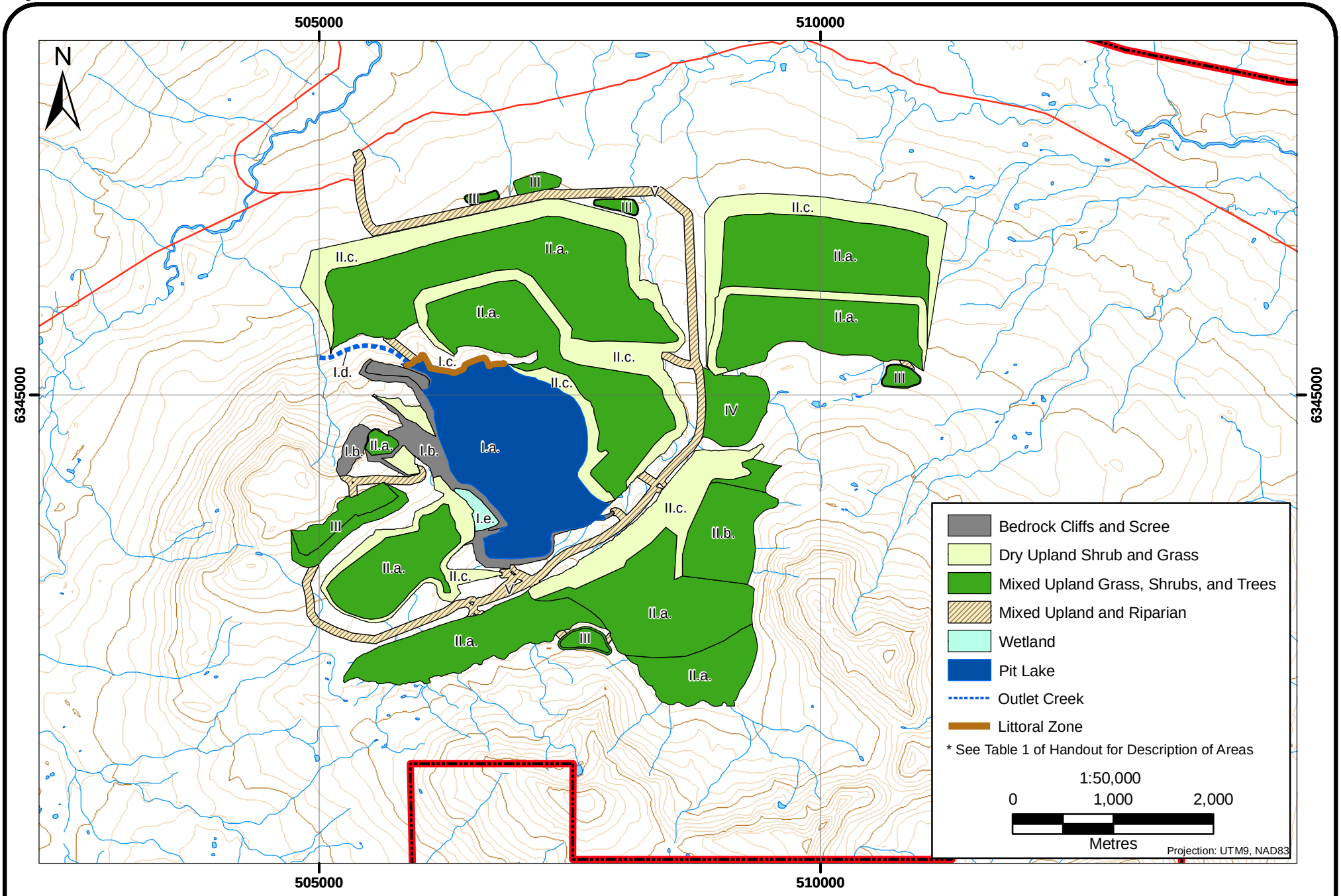
Soils – 2005 Field Season

Soil mapping was carried out during July and August of 2005 in conjunction with the Terrestrial Ecosystem Mapping (TEM) and Predictive Ecosystem Mapping (PEM) for Mount Klappan. Soils were mapped on aerial photos during July 2005 and then field checked. One-hundred and twenty-one ground checks were done; 90 of them were soil descriptions. In addition, 18 full soil profiles described during the 1986 Gulf Canada Phase II environmental studies, from within the mine footprint area, were included in the soil data base. Sixteen kinds of soils representing five different soil Orders[1] were identified.

Some soil samples were collected and analyzed; seventeen for fertility and 13 for metals. Generally speaking, soils are acid to very slightly alkaline and low in nitrogen. However, their chemical fertility is comparable to many other wildland soils. Some soil samples showed somewhat elevated concentrations for chromium, copper, and nickel. Further sampling and analysis during the 2006 field season is needed in order to interpret the results.

Most soils in the area have developed from clayey and loamy glacial till or from tills that have been transported by earth flows or similar processes. Soils at high elevations, in the alpine tundra, are greatly influenced by frost action. Many soils in the area show little soil profile development due to the area's cool climate and short growing season, as well as their geologically young surficial materials.

[1] Soil Orders are the most general grouping of soils in the Canadian System of Soil Classification. The 5 Orders are: Brunisolic, Cryosolic, Gleysolic, Organic and Regosolic.



Mount Klappan Coal Project: Conceptual Reclamation Map

FORTUNE COAL LIMITED

RTEC

Rescan™

Table 1
Summary of Conceptual Landscape Types for Reclamation: Mount Klappan

LANDSCAPE TYPE	POST-MINE LAND USE/VEGETATION	COMMENTS
I. PIT		
I.a Pit area below potential drainage outlet	Pit Lake	Estimated outlet elevation to be approximately ~ 1560 m a.s.l.
I.b.Pit Walls	Bedrock cliffs and talus	Slopes too steep (1:1 horizontal:vertical) to spread topsoil and establish vegetation.
I.c. Shoreline	Littoral zone[2]	Investigate feasibility of establishing littoral vegetation on shallow, gentle gradient areas near the pit outlet
I.d.Outlet channel	Stream and riparian area	Establish cover of shrubs (willows, subalpine fir, and others) and riparian edge understorey vegetation.
I.e.Minor flat area in SE of pit	Wetland	Investigate possibility of establishing wetland on near level, toe area, probably subject to seepage.
II. WASTE ROCK DUMP		
II.a. Flat areas ("tops")	Willow, birch, grasses & forbs. Short Subalpine fir & others at lower elevations.	Spread and prepare topsoil to an adequate rooting depth. Then fertilize, seed or plant as needed. Tree planting in the lower elevations generally located north and northeast of the pit lake, part of the SWBmk subzone.
II.b. Flat areas with underlying buried coal	Willow, birch, grasses & forbs. Short Subalpine fir & others at lower elevations	Cap with 2 m of neutral materials; cap the neutral materials with topsoil. Then fertilize seed or plant as needed.
II.c. Steep (2:1 h:v) slopes of the dump face	Willow, birch, grasses & forbs. With few Short Subalpine fir & others at toe and lower slopes	Prepare site and spread and prepare topsoil. Fertilize plant and seed as needed. Anticipate relatively drier site conditions compared to level dump tops (area IIa)
III. TOPSOIL STORAGE AREAS	Willow, birch, grasses & forbs. Short Subalpine fir & others at lower elevations	Prepare soil surface if necessary; then fertilize, seed or plant as needed.
IV. PLANT SITE	Willow, birch, grasses & forbs. Short Subalpine fir	Site needs to be checked for contaminants. Stabilizing cover of grasses and herbs will likely need to be established first before tree and shrub planting.
V. ROADS & DITCHES	Establish drainage to tie into natural patterns.	Establish stabilizing cover of grasses or other ground cover. Investigate creating riparian habitats for any large drainage channels.

For similar reasons, surface organic horizons of mineral soils are often thin (*e.g.*, less than a few centimetres). Soil rooting depth is often relatively shallow (30-60 cm) and is often restricted by bedrock and high water tables, as well as by soil fertility and soil climate.

Because of the area's cool, moist climate, mainly gentle slopes, medium to fine-textured soils, and, in some cases, frozen sub-soils, soil drainage is often at least somewhat impaired. In topographic depressions and other areas of restricted soil drainage, peat accumulates. Where accumulations are deep, organic soils supporting vegetation of grasses, sedges and forbs are found. Willows are the dominant vegetation in other, snow-melt-fed, wet areas where peat accumulations are shallower.

[2] Area of shallow water with potential for establishing emergent or submerged vegetation.

2006 Field Season

Approximately 2 weeks of field work will be carried out during 2006 in order to complete the soil survey and mapping in the mine footprint area. Approximately 70 more soil descriptions will be carried out and 20 more soil samples will be collected and analyzed for fertility and metals.

A final soil map and report will be produced and it will be an important input for the mine reclamation plan. This report will include a list of indigenous plant species that could be planted in the latter stages of the project with the intent of re-establishing suitable habitat for wildlife species that traditionally use the area. Together with the information on vegetation collected from the TEM program and provided by the Traditional Knowledge component of the socio-economic studies, prescriptions for vegetation cover types will be developed for these reclaimed lands. As requested by the Tahltan/Iskut who frequent the area, consideration will be given to propagation of traditional food or medicinal plants used for human consumption.

To provide seed and/or appropriate planting stock, nursery facilities and test plots for field trials will be established early in the mine life with the aim of propagating native species for use in the reclamation program. A particular challenge with indigenous species is propagation, either from seed or vegetative cutting. Local experience, if available, would facilitate the process.