The Yukon Consolidated Gold Corporation, Limited

DAWSON, Y. T.
CANADA

GRANVILLE PROJECT

1934

R.E.F.

November 12, 1934.

J. T. Patton Esq.,
President, The Yukon Cons. Gold Corp. Ltd.
502 Victoria Building,
Ottawa, Ont.

GRANVILLE PROJECT

Stripping and Thawing Methods.

Dear Sir:

Following is a Report covering the present stripping and thawing procedure on the Granville Flat, together with an outline of the general plan under which the work has been carried out to date. Attached hereto are the following Maps of the Granville Area which will assist in following the various points discussed.

(1) General Prospecting Map of the Granville Area.

(2) Plan of the Stripped and Thawed ground in the vicinity of Dredge N.N.W. No. 2 and the construction site for the new dredge Yukon No.6.

Physical Characteristics of Area

The area under immediate consideration is that lying between the present location of Dredge N.N.W.No. 2 and the mouth of Sulphur Creek. The Area extending from the Mouth of Gold Run down to the dredge constitutes a separate project, which has to be considered in any general plan for Granville Flat, but with which we are not concerned for the immediate future.

While a large amount of prospecting has been done in the area below the dredge, the exact limits of the pay streaks have not been determined and authentic records of some of the shafts put down are not available. For these reasons we had intended to put the new Gasoline caterpillar drill wo work in the area this Fall and next Spring, primarily to outline the limits of workable ground and secondly to check some of the shaft values. This should be done before stripping operations are carried very far down stream.

For convenience in describing the area I will divide it into three working sections, as follows:

(a) Right Limit Area - Along the right limit of the proposed dredge cuts, approximately 600 ft. wide.

(b) Left Limit Area - Along the left limit of main drain. Approximately 600 feet wide.

(c) Center Area - The main pay streak, covering all of

the old workings and tailing piles--500 to 700 feet wide.

(a) Right Limit Area

This area, practically all of which is virgin ground, averages 32 feet total depth, with the following general characteristics:

Niggerheads and live moss	1 ft.
Old moss and muck	1.5
Fine silt and sand	14.0
Coarse sand and fine gravel	10.0
Pay gravel	5.0
Workable Bedrock	1.5
TOTAL ORIGINAL DEPTH	33.0 ft.
Depth stripped	9.0 ft.
Depth dredged	24.0 ft.

The area is ideal for both stripping and thawing. The moss is loose and easily moved by the nozzles and the fine sand will cut out and run away with surface water only. Both the fine gravel and the pay gravels thaw readily and there is no tendency to freeze back. The stripping duty is fully 10 cubic yards per Miners' Inch Day. Points can be set on 12 to 15 foot centers and a thaw completed in 20 to 24 days, with an average duty of approximately 10 cubic yards per M.I. day in completely stripped ground.

(b) Left Limit Area

This area, most of which is virgin ground, averages 30 feet total depth with the following characteristics:

Niggerheads and live moss	1.5 ft.
Hard dead moss (peat)	4.0
Ice and light muck	10.0
Sand	1.0
Gravel	12.0
Workable bedrock	1.5
TOTAL ORIGINAL DEPTH	30.0 ft.
Depth stripped (when completed)	14.0 ft.
Depth dredged	16.0 ft.

Stripping in this area is much more difficult than along the Right Limit, owing to the heavy blanket of hard brown moss or peat. High pressure water will not touch this material when frozen and has only a limited effect when thawed. Surface stripping

and thawing is very slow as with an unbroken surface the peat will not thaw more than half an inch per day. In the early Spring and late fall months it freezes back overnight. If broken up by thawing holes in it, or by cutting trenches with monitors, thus exposing the underlying ice, it tends to slack and disintegrate in about a year and can then be washed away with high pressure water. The ice and frozen muck lying below the peat thaws readily when exposed to the air and with sufficient time available requires practically no high pressure water to dispose of it. The stripping duty in this Area to date has not exceeded four cubic yards per M. I. Day as compared with ten cubic yards on the Right Limit.

The gravel along the Left Limit is much harder and tighter than on the Right Limit and the thawing rate appreciably slower. When thawing in unstripped ground here we are forced to reduce the point spacing to ten feet, though twelve feet will usually do in completely stripped sections. A test block in some of the hardest gravel in 1933 was not thawed sufficiently for the dredge to dig it after 21 days with a ten foot point spacing. The thawing duty in this Left Limit area has ranged from 5 to 6 cubic yards per M. I. Day.

(c) Center Area

This area, which covers practically all of the old main pay streak, has been extensively worked by drifting in years past. A large portion of it is covered with tailing piles deposited on the original surface. There are also many ponds, partially or completely filled with muck and silt, which were formed by the settling of the surface over old drifts.

The unworked ground partakes of the characteristics of both the side areas, an average section being approximately as follows:

Niggerheads and live moss	1.5 ft.
Old moss and peat	2.0
Ice and muck	4.0
Sand	3.0
Fine and coarse Gravel	19.0
Workable bed rock	1.5
TOTAL ORIGINAL DEPTH	31.0 ft.
Depth stripped	9.0 ft.
Depth dredged	22.0 ft.

Stripping in this Center Area during the past two seasons was confined to the virgin surface and the muck filled ponds, no attempt being made to blow off the tailing piles on account of the scarcity of high pressure water. The stripping

duty, for virgin surface only, in this area is estimated at eight cubic yards per M. I. Day on the average. It is lower in the moss covered sections and higher in the muck filled ponds. The duty in Tailings will not be over four cubic yards per M. I. Day.

The gravel in this Center Area thaws readily, but the presence of old workings which have in most cases back-filled with sand and muck, and the high tailing piles underlain with the original moss and muck, render advance estimates on the amount of water required somewhat uncertain. We used a ten foot point spacing over the old drifts and the unstripped portions, taking 20 days to the thaw, and even then had to put down some intermediate points to get all of the muck under the tailings. It is believed that a 12 foot spacing with intermediate sweaters where necessary would be more efficient. However the dredge encountered considerable frost in May and July of this year while working in ground that had been given a twenty day thaw with points on a ten foot spacing in 1933. In this area we leave the exact point spacing more or less to the judgment of the Foreman, as the character of the ground varies with every point setting. I estimate the average duty at eight cubic yards thawed per M.I.Day.

Water Available.

Granville Ditch:

This ditch, which runs along the Right Limit of the Valley and takes water out of Dominion Creek at the mouth of Jensen Creek, has a capacity of 300 to 400 Miners' Inches but the flume across Gold Run in its present condition will not carry over 300 M. I. There is a "pick up" ditch along the right limit that would ordinarily supply enough water from Gold Run Creek to compensate for the limited capacity of the flume across Gold Run. Operations by individual miners on Gold Run below the flume however limit the water which we can divert at this point to excess only and in the dry season there is no excess. To offset this during the past season we spilled from 50 to 100 inches from our ditch on the Left Limit of Gold Run and picked up an equal amount with our ditch on the Right Limit.

During May and June the Granville Ditch delivers approximately 400 M. I. at the Thawing Plant pressure box. In July and August the average is about 300 M.I., increasing to 350 M.I. for a few weeks during the fall rains. For an average figure I calculate the capacity of the ditch at 300 M.I. for 135 days, with an effective head of 135 feet at the Thawing Plant.

The proposed Gold Run pump and enlarged ditch from the discharge of this pump to the thawing plant penstock will increase the amount of water delivered to 600 M. I. for the same period---

(135 days). This pump is located on Dominion Creek below the mouth of Gold Run and therefore has available not only the Dominion Creek water passing by the intake of the Granville Ditch, ut also the water of all tributaries of Dominion below the mouth of Jensen Creek. Of these, Burnham, Rob Roy and Gold Run Creeks are the most important, though Kentucky, Arkansas, and Cache Creeks each add something.

The advantage of this pump lies in the fact that it eliminates the necessity for enlarging the Granville Ditch from Jensen to the Right Limit of Gold Run, while doubling the amount of high head water available at the Thawing Plant pressure box. (This pumping plant has been discussed in detail in a previous report.)

Measurements made in 1933 and 1934 indicate a maximum flow of 10,000 M.I. and a minimum of 800 M.I. in Dominion Creek (Main Drain) at the point where our stripping pumps were located. In 1934 this minimum was never below 1000 M.I. The maximum occurs only during the May and June floods and the minimum in August. The water taken by the Gold Run pump will of course be subtracted from the amount available at this point in 1935.

The Sulphur Ditch, which takes water from Sulphur Creek at Claim No. 95 below Discovery, has a capacity of 200 M.I. This amount is available from Sulphur Creek throughout an average season. The ditch delivers the water under a low head along the right limit of the dredging area at Granville. All of the remainder of Sulphur Creek, which has a May and June flow of around 200(Miners' inches, has been diverted at Claim No, 102 below Discovery and used to cut a drain along the right limit of the Granville Flat from Marshall Lake to Claim No. 277 Below Lower Discovery on Dominion Creek. As stripping proceeds down Dominion Creek this water will be available for cross drains and preliminary ground sluicing.

Australia Creek, which flows into Dominion Creek on the Left Limit about 2 miles below the mouth of Sulphur Creek, has an extensive watershed and a minimum flow of around 600 M.I. This water can be brought to the Left Limit of the Granville Flat at a cost of not over $10,000.00.

To Summarize: There will be available in 1935:-

	Average M.I.	Days	M.I. Days
Granville Ditch	300	135	40,500
Gold Run Pump	300	135	40,500
Dominion Creek	450	140	63,000
Sulphur Creek	200	130	26,000
TOTAL			170,000

This does not include flood waters of Dominion and

Sulphur Creeks or the proposed Australia Creek water. Part of the flood waters can be utilized for ground sluicing at little expense, especially the Sulphur Creek run-off. All of the water from the thawing operations can be picked up by sand pumps from the main drain and re-circulated for stripping further down stream.

General Plan

The general plan of stripping and thawing for the Granville Flat area as laid out last winter was as follows:

(a) Hold initial expenditure for equipment down to the lowest possible figure until the equipment from Dredge Canadian No. 3 Thawing plant is available.

(b) Concentrate on stripping in advance rather than thawing, providing just enough thawed ground to insure continuous operation of the dredges for the next two or three years, by which time stripped ground should be available for thawing and the thawing rate automatically increased without additional equipment.

(c) Concentrate all thawing possible in the months of June, July, and August, this being the warm weather period when the thawing rate is at a maximum.

(d) Concentrate all possible advance stripping in August, September and October, this being the period of the year when it is most effective. The stripping duty in September is fully double the duty in June. In partially stripped areas where the muck and sand are exposed, stripping would of course be carried on throughout the full season.

(e) Strip additional sand an silt off the thawed areas in May when the frost is coming out of the ground. This "After Stripping" cannot be done for the first year or two as all water will be required for thawing, but should be possible after that. Early May thawing is not very effective but for about two weeks at this time of the year very high stripping duty can be secured and a large amount of excess material disposed of. This would be done while the first points were being set.

(f) Use the clear water from the Granville Ditch and from the main drain above the stripping operations for thawing exclusively during June, July and August. Use part of it for after stripping in May and advance stripping in early September and all of it for advance stripping in late September and October.

(g) Make up additional thawing water required by the installation of a high pressure pump located on the Main Drain

just above the discharge of the cross drain carrying off the used thawing water. This pump would use any excess clear water available in the drain from rainfall etc. making up the shortage by diverting part of the thawing runoff.

(h) Set up sand pumps on the main drain below the cross drain carrying the thawing runoff and use this water for the all-season continuous stripping operations. Sand pumps available will handle this dirty water without screening as it will be thawing runoff only and the stripping water will flow into the Main Drain below the pumps site.

(i) Bring in the Australia Creek water by gravity ditch in 1935, discharging it into the Main Drain above the thawing pumps so that it will be available for either thawing or stripping.

Stripping Procedure

The stripping procedure contemplated was as follows:

(a) Cut cross drains from the Right to the Left Limit of the area by ground-sluicing with surface water. These drains would be about 500' apart with intemediate drains where possible. The first cut through the moss would be made by a "cat" and plow or grader, (depending on the depth of moss). Water from the Sulphur ditch and the Sulphur drain would then be turned into the plow cut and allowed to gradually work it to gravel. Experience indicates that 100 M.I. of water will cut one of these drains to gravel in a season, and that the Spring surface water will greatly enlarge it.

(b) Concentrate the advance stripping, by which is meant the first stripping done on the niggerheads and moss, in the Fall months when the maximum depth of thawed material is available. Use no water on frozen material. The cross drains will be utilized to carry off the material from the Advance Stripping operations, which will thus be deposited in the Main Drain well below all pumping plants. It is this material which is so detrimental to thawing water.

(c) Carry on the "Continuous Stripping" by means of the Sand Pumps, between the Advance Stripping area and the Thawing area. The first step in this operation would be to cut trenches down through the heavy moss and peat to the ice and frozen muck underlying it, then gradually wash off the material as thawed by the sun and air. On the right limit, continuous surface stripping, that is gradually washing off the surface as it thaws, will be quite feasible but on the left limit the overburden must be first cut up into blocks and mounds, exposed to the air on the sides as well as the top.

Thawing Procedure

Thawing would be done by means of half-inch extra heavy pipe points with open ends. The spacing would vary according to the character of the ground, and endeavor being made to keep the thawing time equal regardless of the spacing. This permits lines to be advanced in regular sequence and eliminates the delay and inconvenience caused by having to leave a block of points longer in tough spots than in ordinary ground.

Spacing would vary from ten to fifteen feet. To get the benefit of a triangular spacing on our so-called fifteen foot spacing for instance, we lay out parallel lines 15 feet apart and then stagger the points on alternate lines at 15 feet. This does not give an exact equilateral triangle but the effect is practically the same as a 16 foot triangle and it is simpler and easier for the foreman to lay out. It is also easier to measure yardage as each point on a 12 foot spacing covers 4 X 4 or 16 square yards and each point on a 15 foot spacing covers 5 X 5 or 25 square yards.

Main water supply lines are from 11 to 16 inches in diameter with six, eight and ten inch laterals and 1½ or 2 inch standard pipe feed lines. Points are connected to the feed lines with ¾ inch water hose. Valves are used on the feed lines only. Feed lines are connected to the laterals and sometimes to each other by 2½ inch rubber lined fire hose. No attempt would be made to standardize connections at present as a large supply of old material is available and should be used as long as it lasts.

Details of point spacing and thawing rates have been covered in the description of the three areas under "Characteristics". Considerable experimental work was done on this problem in 1933, which convinced me that one standard spacing for all ground in the area was not the most efficient method and that a short point spacing was justified in some sections. For instance at Dredge N.N.W. No. 1 on Upper Dominion we often use an eight foot spacing with good results, leaving the points for ten days on bedrock and ten days in the intermediate space.

We also did some experimental work on the question of driving time. In 1933 we used 2 men to each 14 points, taking two days to drive. In 1934 we used 2 men to 32 points, taking four days to drive. This gave better thawing in the top gravels and sand but lengthened the overall thawing period by one day. Four points to bedrock per man day is about as well as we have done to date in partially stripped ground, but a little more systematic lay-out will easily increase this to five points. In fully stripped ground we should get an average of 7 or 8 points per man day.

After the points have been on bedrock for 15 days the ground between the points is tested for frost by driving a "dry point", that is a point without water. Such a point cannot be driven at all in frozen ground. The ground is then re-tested at intervals of about 2 days till a complete thaw is indicated.

In the Granville area we had figured on retaining the

½ inch open-end points in preference to the ¾ inch chisel bit point used at Fairbanks. The Fairbanks point, samples of which were obtained last year, seems to have no advantage whatever over the ½ inch open point in shallow, easily penetrated gravels such as we have at Granville. In hard gravel such as exists on the Arlington Project, and in deep gravel, the advantage lies all with the Fairbanks point however. The following comparison of the two types indicates the basis of our decision.

	½"-X	¾"-X
Price F.O.B. Dawson -per foot-cents	10.0¢	15.0 ¢
Weight per foot.--lbs.	1.087	1.473
External diameter--inches	.840	1.050
Internal area--square inches	.234	.433
Approximate orifice at point-sq.ins.	.234	.0625
Average flow of point--M. I.	.600	.450
Equivalent duty per point day--Cu.Yds	4.80 4.80	3.60

In the above table the flow is based on an open end ½ inch point and a chisel bit pointed ¾ inch point. The chisel bit has an opening approximately ¼ inch square on each side only, which accounts for the smaller flow. The friction loss in the ¾ inch pipe is of course much lower than for ½ inch pipe, which compensates to some extent for the smaller orifice. In long points such as are used at Fairbanks, this friction head is an important factor and practically eliminates the ½ inch point from consideration. In the Granville Flat however, where the average point is from 20 to 25 feet long this friction loss is of little importance, the average flow of .60 M.I. being ample for good thawing.

The ¾ inch point is harder to drive than the ½ inch owing to its greater outside diameter. The ½ inch pipe is more easily bent than the ¾ inch however and for points over 30 feet long this feature soon becomes of considerable importance. In the long points used at Fairbanks it practically eliminates the ½ inch point from consideration.

The chisel bit points used at Fairbanks are absolutely essential in deep ground and heavy gravel and are recommended for the Arlington Project. They are not essential at Granville however, where an open end point can be driven to bedrock with only a light wooden maul.

To summarize: it would appear from all data available at present, that in so far as the Granville Flat area is concerned the ¾ inch Fairbanks point is heavier and thus harder to handle, costs more and is more expensive to maintain. It does not give any greater water flow and therefore no greater thawing rate, which means that it cannot be used on a longer point spacing. The labor required to drive it to bedrock is certainly no less than for the ½ inch point and may be somewhat greater.

EQUIPMENT AVAILABLE

We have the following major items of equipment on hand or available for the Granville thawing and stripping plants:

Thawing Equipment

Half inch thawing point pipe--Granville	55,000 ft.
Half inch pipe couplings	3,000
Driving heads for points, nipples etc.	2,000
¾" Hose for points approximately	18,000 ft.
1½" pipe with valves and fittings	4,500 ft.
2" pipe with valves and fittings	1,500 ft.
Miscellaneous driving mallets, twisters, pullers, etc.	

In stock--Available, etc.

Half inch X pipe	3,000 ft.
2" pipe for feeders	3,000 ft.
3" pipe for feeders	3,000 ft.
Ample supply of 1½ and 2" Valves and fittings for above.	

Pipe and Stripping Equipment(at Granville)

24 inch slip joint pipe	500 ft.
22 inch do	850 ft.
20 inch do	300 ft.
18 inch do	1,000 ft.
16 inch do	600 ft.
12 inch do	1,500 ft.
11 inch slip joint pipe	1,700 ft.
10 inch do	5,000 ft.
8 inch do	6,000 ft.
6 inch do	2,000 ft.
16 inch spiral rivetted pipe	600 ft.
14 inch do (Gold Run Pump)	1,200 ft.

Also a large amount of various sizes available from Canadian No. 3. (See Inventory)

Monitors No. 1 and 2	12
Large Gate Valves	15
Reducers, Y's, T's, L's etc.	70

Pumps

10" Byron Jackson--3000 GPM, 125 ft. Head, Direct connected with motor. (New Gold Run Pump.)	1
10" Byron Jackson--3000 GPM, 125 ft. Head, Belted, with motor	1
10" Worthington, 2100 GPM, 125 ft. Head, Belted with motor	1

12" Gwynne Gravel Pump, 3200 GPM, 82 ft. Head--Direct con. with Motor 1

Available for Granville from Canadian #3

12" Price Sand pumps--4000GPM 70' Head--Belted, with motors 2

Rresent Status of Stripping and Thawing

At the close of the 1934 operating season the following stripped, partially stripped and thawed ground was available ahead of the dredges:

Water thawed and stripped	50,300 sq.yds.
Naturally thawed and stripped	13,500 sq.yds.
Drain--Thawed and stripped	10,600 sq.yds.
Total Thawed	74,400 sq.yds.
Completely stripped but not thawed	36,500 sq.yds.
Partially stripped-available for thawing	54,400 sq.yds.
Drained and opened for stripping	26,700 sq.yds.

As practically all of the 1933 thaw was dredged this year the above represents the work done in the season of 1934.

The 50,000 square yards of water thawed ground lies immediately ahead of Dredge N.W. No. 2. The 10,600 yards in the Main Drain is also immediately adjoining her present area and available for 1935. As the dredge proceeds down stream there will be approximately 10,000 square yards of this thawed ground available each season.

The 13,500 square yards of naturally thawed ground shown above lies in the 1936 area of the dredge but will be connected with the 1935 area next summer. (See Map)

The 36,500 square yards of completely stripped ground is on the Right Limit of the Area and will supply the ground needed for the 1935 operations of Dredge Yukon No. 6. It will be water thawed next Spring in ample time for the dredge.

The 54,400 square yards of partially stripped ground can be water thawed as it is, but we expect to do considerable more stripping on it first if possible, as the points will not reach it before August.

The 26,700 square yards of ground opened up for

stripping is drained and cut up ready for continuous stripping operations, which gives us a good area to start in early in the Spring.

Requirements:

During the season of 1934 Dredge N. W. No. 2 dredged exactly 80,000 square yards in 169 days. I estimate the average maximum requirements for this dredge at 85,000 square yards with a season of 170 days, that is, 500 square yards per day. In 1933 this dredge covered 72,611. square yards in 156 days or an average of 467 square yards per day.

In 1935 I estimate the requirements of new Dredge Yukon No. 6 at 500 square yards per day for 70 days, or a total of 35,000 square yards. This gives a total requirement for the two dredges in 1935 of 120,000 square yards.

For future years I estimate the requirements for both dredges at 170,000 square yards, which translated into cubic yards will be approximately 1,400,000 per season. In 1934 Dredge N.W. #2 dug 669,231 cubic yards with an area of 80,000 square yards, the average depth being about 8.36 yards. In future seasons we should be able to bring this average depth down to 7 cubic yards, the excess this season being due primarily to high tailing piles.

The equipment now on hand should thaw 1,200,000 cubic yards in 1935. When more completely stripped ground is available this same equipment will thaw 1,400,000 cubic yards.

To build up an adequate reserve of thawed ground the additional pump specified in Paragraph (g) under"General Plan" should be provided in 1935, together with 500 additional points--(10,000 feet of point pipe). This pump will increase the Thawing plant capacity at least 300,000 cubic yards per season. The cost of this equipment landed here will be:

1 - 3000 GPM Special Byron Jackson pump complete with motor and starting equipment	$ 4,300.00
10,000 lineal feet of ½" X Pipe	1,000.00
2,000 lineal feet of 6" slip joint pipe	1,000.00
TOTAL	$ 6,300.00

Everything else required can be made up here from old stock available.

Costs

In 1933 we thawed and stripped 89,000 square yards at a total cost of $29,117.05, equivalent to 32.78 cents per square yard. This averaged 3.92 cents per cubic yard dredged.

This figure must be considered below average for two reasons:

(1) We did very little stripping in 1933, there being quite a stripped area available. There was a very small reserve of thawed ground available however and it was necessary to concentrate all water on thawing to insure an adequate yardage for the 1934 operations of Dredge N.W. No.2.

(2) No general expense was charged against Thawing in 1933. This item amounted to $4,436.69 in the 1934 thawing costs.

In 1934 we concentrated all water possible, especially in the late Fall months, on stripping, only thawing the minimum requirements for the 1935 operations. The total cost for stripping and thawing in 1934 was $39,972.30 including General Expense. The 1934 operations also included the re-construction of the Sulphur Ditch, the Sulphur drain and the installation of additional pumps and pipe lines for stripping.

Approximately 50,000 square yards were water thawed during 1934, which would work out at 80.0 cents per square yard or approximately 9.4 cents per cubic yard if no stripping were done and the total charges applied to thawing. However approximately 100,000 square yards were completely stripped and 54,400 square yards partially stripped. Stripping costs and thawing costs are almost the same in the Granville Area. Disregarding the partially stripped area entirely we have a total of 150,000 square yards of surface stripped or thawed for $40,000.00, equivalent to 26.7 cents per yard. On this basis the cost of stripping and thawing a square yard of surface would be 2 X 26.7 or 53.4 cents; approximately 6.3 cents per cubic yard dredged.

This figure is above average as no allowance is made for the naturally thawed ground stripped during the season or the thawed ground available in the Drain. Taking all of the thawed ground available at the end of the 1934 operating season and charging it with the total in "Advance Tawing 1935", plus a small amount transferred from "Advance Thawing 1934", we will have a cost of approximately $\frac{42,894.98}{74,400.}$ = 57.7 cents per sq.yd or 6.7¢ per ~~sq~~ cu.yd dredged

This again makes no allowance for the 54,400 square yards of partly stripped ground or the 26,700 square yards of ground drained and ready for stripping.

If these factors are taken into consideration we should reach a cost of 4.0 cents per cubic yard dredged for stripping and thawing combined, after 1935. On this basis it would cost us $48,000.00 to strip and thaw the 1,200,000 cubic yards proposed for 1935 operations as compared with an overall cost of $40,000 for stripping and thawing for the season of 1934.

FUTURE POSSIBLE OPERATIONS

Gold Run Area

We now own or control all of the workable ground from Claim No. 9 Gold Run out into the Granville Flat and down stream to the dresent Dredges. While this area has been extensively worked in the past, much of it was very high grade ground and will without doubt pay to dredge.

It includes the Claims on Gold Run below the old Yukon Gold Company dredge tailings, the large area at the mouth of Gold Run comprising the Ennis-McDonald, Matheson and Tweet-Peterson holdings and the old workings between Dredge N.N.W. No. 2 tailings and the left limit of Dominion Creek.

The large amount of tailings on the surface of the entire area will make extensive stripping operations very difficult and it is believed that the virgin surface areas only should be stripped and the tailings covered areas water thawed in place. Extensive stripping would be certain to interfere with the thawing operations downstream ahead of dredges N.N.W. No.2 and Yukon No. 6 but water thawing alone would have little effect. It was the possibility of stripping and thawing operations in this area that prompted the recommendation in our Report of November 1933, to enlarge the Granville ditch above Gold Run and re-build the Burnham Creek ditch. I am now of the opinion that stripping and thawing operations at the mouth of Gold Run could be handled by pumps to better advantage. The transformer purchased to handle the Gold Run pump has sufficient capacity to handle a second pump of the same size and characteristics and is centrally located for the purpose. If this work could be started on a small scale several years ahead of actual mining operations it would not interfere with the stripping and thawing program for dredges N.W. No. 2 and Yukon No. 6 to any noticeable extent.

Sulphur Creek

The present operating plan is to work dredges N.W. No.2 and Yukon No. 6 side by side down stream, Dredge No. 2 handling the shallow ground along the left limit and Dredge No. 6 the deeper ground along the Right Limit. Dredge No. 6 can dig 50 feet below water without difficulty, is a larger, stronger boat and has a great deal more power than No. 2. The ground gradually deepens along the Right Limit and is around 40 feet in the vicinity of Marshall Lake. Some of the ground on the lower end of Sulphur Creek in the vicinity of Claim No. 110 is nearly 50 feet deep and nearly all of it is over 40 feet. By keeping Dredge No. 6 on the Right Limit she will be in a position to handle this ground should values warrant it.

Alternate Operating Plan

Should further prospecting indicate that the Granville

Flat pay continues on down the Main Drain Area, along the Left Limit of the Creek, it may be possible to start Dredge N.W. #2 straight on down the Drain, continually diverting the water with her tailings against the right bank, where it will gradually strip and thaw another cut behind her as she goes. There are several small blocks of stripped ground in the vicinity of the Cruger Concession below the mouth of Sulphur Creek that could be dug before the dredge turned back upstream. With the help of a stripping pump it might be possible to provide enough naturally thawed ground along the drain in this manner to keep the dredge going back and forth the full length of the Drain each cut, only water thawing areas at the upper and lower ends of her cut to give the necessary time lag for the natural thawing to function. Even if only 50% of her total yardage could be obtained by the natural stripping and thawing action of the Main Drain water it would be of tremendous advantage.

Yours very truly,

R. E. Franklin .....

R. E. Franklin

TITLE/TITRE _____
RG _____ MG 28 R- _____ SERIES/SÉRIE III-43
ACCESSION _____ VOL 25 PAGE(S) 16
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