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Cassiar
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161 PEMBERTON AVENUE,
NORTH VANCOUVER, B.C.

MR. W. R. WHEELER, PRESIDENT,
CASSIAR CONSOLIDATED MINES LTD. OCTOBER 1, 1964.
APT. # 34, 610 JARVIS STREET,
VANCOUVER, B.C.

DEAR MR. WHEELER:

THE ACCOMPANYING ESTIMATES ARE PRESENTED IN ACCORDANCE WITH DIRECTIVES ISSUED AT THE RECENT DIRECTORS MEETING, AND ON THE BASIS OF OPINIONS AND ESTIMATED COSTS, ETC. - DISCUSSED BY YOURSELF, JACK, BOB, & ME YESTERDAY.

THE MODIFIED "PHASE-I" PROGRAM OUTLINED EMBODIES MY OWN OPINIONS AS TO THE MOST EFFICIENT GEOLOGICAL-ENGINEERING APPROACH AT THIS TIME OF YEAR, WITH PARTICULAR REGARD TO YOUR WARNINGS CONCERNING WINTER WEATHER AT THE SITE.

JACK MCBETH, AS CO-ESTIMATOR ON THE DEVELOPMENT AND OTHER COSTS, SHOULD CHECK OVER MY FIGURES HERE BEFORE THESE SHEETS ARE TYPED FOR THE RECORD.

FOR THE MOMENT, I FEEL THAT I WILL HAVE TO DEFER FURTHER WORK ON THIS PROJECT UNTIL MY ACCOUNTS ARE GIVEN ATTENTION. THESE, AS YOU KNOW, WERE HANDLED TO MR. EARLE, AND INCLUDE ALL FEES & EXPENSES ACCRUED SINCE I DID THE FIRST FIELD WORK ON AUGUST 1-10 LAST.

PERHAPS THE ABOVE, AND FUTURE ARRANGEMENTS WILL BE SETTLED BY THE TIME I HAVE COMPLETED 10 DAYS OR SO DEFERRED FIELD WORK ^{FOR} OTHER CLIENTS AT THE REGULAR PROFESSIONAL RATE.

YOURS SINCERELY,

ENCL.

W M Sharp - P.ENG.

KASSIAR CONSOLIDATED MINES LTD.,
 PHASE I PREPARATORY WORK

SEPT 30, 1964

1. BUNKHOUSE	PRICE 6 SEAT 28 REAT.	10,000
	ADD FOR EXTERIOR (PLYWOOD AN- DAPER) INSULATION, AND FOUND- ATION REPAIRS - - - - -	2,500
		<u>12,500</u>
2. CAMP HELIPORT & NAT'L SANCE	- - - - -	200
3 "D" PORTAL PREPARATION, INCL. SNOW SHEDS, TIMBER SHED, & SHOP & REPAIR FACILITIES	- - - - -	2,000
4 '5100' PORTAL REHAB. & SUPPLY PORTAL FACILITIES FOR UNDERGROUND DIAMOND DRILL PROGRAM - - - - -		2,000
5. "I" TUNNEL PORTAL REHABILITATION & SHAFT ACCESS REHAB. - - - - -		1,000
6. POWERHOUSE REPAIRS & CLEAN UP		250
7. PROVISION FOR 6" & AIRLINE REPAIRS		750
8. ALLOWANCE FOR MISCELL & CONTING.	- - - - -	1,300
		<u>20,000</u>
	TOTAL - - - - -	\$ 20,000

W.M.S.

CASSIAR CONSOL MINES LTD. SEPT. 30/64.

PHASE I - TRANSPORTATION COST, VAN-MINE
EST. @ 0.08/16 BOAT 45-38 ETC.

EQUIPMENT, MATLS. & SUPPLIES:

2 260 CM COMPRESS @ 3500 #	7000 #
6 - MINE CARS @ 1000 "	6000 "
1 - FIMCO 12 B. APPROX	3500 "
LITTLE MANCHA CW 2 BATT'S & CHARGER. APPROX	5000 "
JACK LEGS, HOSE, MISCELL.	2000 "
	<u>23,500 #</u>

Windy
DIA DRILL CW 400 LF RODS &
ACCESSORIES - APPROX. - - - - 7,500 #

WINTER DIESEL 4 MO - 200 SH. @ 12 GAL/SH.
2400 GALS = 54 BOLS - COMPRESS OR
36 " CAMP.

MISCELL LUBES 10 " 100 BOLS @ 425" (L.S.O) - - - 42,500 #

CAMP REPAIR EQUIP. & SUPPLIES; EST. - - - 10,000 #

RAIL - 2000 L.F. @ 20" / L.V. - - - - 15,000 #

POWDER (-200) @ 50" (MAY & FUSE - - - 10,000 #

PIPE 1500 L.F. 2" & LIGHT CW FITTINGS - - - 2,000 #

DRILL STEEL. EST. - - - - 1,000 #

TIES 670 x 3.5' x 5.7# - - - - 13,000 #

SPIKES, NAILS ETC - - - - 500 #

TIMBER: EST 25% OR 350 L.F.
70 SETS @ 500" EST. - - - 35,000 #

INTERIM SUPPLIES. CONTING. 10,000 #

TOTAL. - - - 170,000 #

TOTAL TRANSPORT VAN-MINE
= 170,000 x 0.08 - - - - \$ 13,600 ⁰⁰

CONTING ALLOWANCE FOR OMISSION,
UNDER-ESTIMATES. ETC. 1,400
\$ 15,000 ⁰⁰

W.M.S.

CASSIAR CONSOL. MINES LTD

Expansion of mine program per Sept. 3. 28 report

PHASE I: "D" TUNNEL X-CUT, DRIFT, (5'x7') & DIA. DRILLING PROJECT.

SEPT 30/64.

RE-TRACK 1000 L.F.; NEW TRACK 1200 L.F.

4400 LF @ 1467 L.F. x 20 / 3000	14.677 @ 200 ⁰⁰	2934 ⁰⁰
SPIKES, FISHBONE BOLTS, ETC. (EST)		200.00
TIES: 750 x 3.5' x 2 FOM. x 0.08'		420.00
		<u>\$ 3554</u>
SLASH & RETIMBER (800 L.F.) EST-150' ACTUAL		2500
LADDOUR, INSTALL 1000 L.F. TRACK @ 0.50		500
SLASH 40 L.F. STUB X-C. @ 20 ⁰⁰ /L.F.		800
CROSS-CUT & DRIFT (C.W.) TRACK @ 25%		
TIMBER @ 5'x7' I.T. 1200 L.F. @ 50 ⁰⁰		60,000
		<u>9,000</u>
DIAMOND DRILL 1500 LF @ 6 ⁰⁰ (BXWL)		9,000
DRILL STA. PREP.		1,000
DRILL PERSONNEL TRANSPORT, ETC		1,000
PLUS 10% MISCELL. & CONTING		7,646
		<u>\$ 86,000</u>

3800

PHASE I '5100' LEV. DIA. DRILL.

EST. 1500' @ \$ 6.50 - - - \$ 9,750

SUMMARY TOTAL PHASE I PROGRAM:

PREPARATORY - SHEET I.	\$ 20,000
TRANSPORT. SHEET 2	13,600 *
"D" TUNNEL SHEET 3.	86,000
'5100' TUNNEL " 3.	9,750
ADD PERSONNEL TRANSPORT	5,000
ADD COMMUNICATION & LOCAL EXPEDITING	2,500
ADD MISCELL. & H.O EXP. ETC	10,000
	<u>\$ 146,850.</u>
TOTAL. PHASE I	1,400

17,500

NOTE ALLOWANCE FOR "I" TUNNEL CONTING. ON '5100' SUBSTITUTION AND TIME & WEATHER OBSTACLES - AND FURTHER INSPECTION PAST "CAVE"

10,000? WIND.

1- PROJECT SPECIFICATIONS.

(A) GENERAL - "D" TUNNEL.

PORTAL FACILITIES TO BE ADEQUATE FOR ALL-WEATHER OPERATION, & SAFETY OF PERSONNEL.

WASTE ROCK TO BE DUMPED CLEAR OF EXISTING ORE DUMPS.

ADEQUATE CONSIDERATION TO BE GIVEN TO CONCURRENT DIAMOND DRILLING - IF REQUIRED.

NEW TIMBERING: ESTIM. $\left. \begin{array}{l} 6" \times 8" \text{ POSTS.} \\ 8" \times 8" \text{ CHAS} \\ 3" \times 6" \text{ COLLAR BRACES} \end{array} \right\} \text{LAG } 2" \text{ \& } 3"$

(B) REHABILITATION OF INITIAL TUNNEL SECTION (800')

ADEQUATE FOR OPERATION OF SMALL MECH. TUNNEL EQUIPMENT.

ADEQUATE PROVISION FOR 2x PRESENT DRAINAGE AND VENTILATION THROUGH 12" Φ VENT PIPE.

CROSS SECTION AS NEAR 5' x 7' I.T. AS COMPANY THINKS PRACTICABLE.

(C) "D" TUNNEL H.V. X-C & DRIFTS.

TOTAL EXTENT 1200 L.F. OR ADDITIONAL AS REQUIRED.

CROSS SECTION 5' x 7' INSIDE TIMBER

TIMBER WHERE SPECIFIED BY MANAGEMENT.

DITCH ADEQUATE TO HANDLE FLOW EQUIVALENT TO THAT IN MAIN TUNNEL.

DIAMOND DRILL OR OTHER SLASHES AS DIRECTED BY MANAGEMENT. (UP TO 12' x 14' x 14')

INSTALLATION OF VENTILATION EQUIPMENT AS REQUIRED BY COMPANY. (NOMINAL 12" Φ)

(D) CONDUCT OF OPERATION IN ACCORD WITH PROVINCIAL & DOMINION GOVT. REGULATIONS.

WORK & INSTALLATIONS TO BE TO APPROVAL OF MANAGEMENT.

DRIVE TO BE COMPLETED IN 3 MONTHS OR MORE AS ACCEPTABLE TO MANAGEMENT.

CASSIAR CONSOLIDATED MINES LTD.

2 - PROJECT SPECIFICATIONS.

SEPT. 30/64

DIAMOND DRILLING - UNDERGROUND.

GENERAL: ESTIMATED MINIMUM FOOTAGE @ 1500 LF. FOR ASSESSMENT OF SUITABILITY OF DRILLING FOR LOCAL EXPLORATION.

PRESENT PLANS CALL FOR DRILLING ON 5100-LEVEL AND "D" TUNNEL, AND SCHEDULED IN ACCORDANCE WITH OTHER UNDERGROUND OPERATIONS.

EQUIPMENT - CONTRACTOR

"BX" WIRE-LINE SUFFICIENT FOR 400' HOLES FROM -90° TO +70° RANGE.

ACCESS & PORTAL FACILITIES PROVIDED BY COMPANY.

COMPRESSED AIR & WATER

TO 50' FROM DRILL SET-UP.

DIAMOND DRILL STATIONS - PREPARED BY COMPANY

OR IN COOPERATION WITH CONTRACTOR, AND GENERALLY PLANNED AT PORTAL + 200' TO 1500'; TIMBER BY COMPANY.

CORE BOXES - BY COMPANY OR CONTRACTOR,

DEPENDING ON COST.

CORE SPLITTER - TO BE LOANED BY CONTRACTOR.

CORE STORAGE - AT 5100 PORTAL OR AS SPECIFIED.

CEMENTING OR GROUTING AS REQUIRED FOR

FOR OPTIMUM CORE RECOVERY.

CASING - UP TO 100', IF REQUIRED.

NOTE: COUNTRY ROCK IS GENERALLY MODERATELY - TO QUITE HARD TUFF OR ACCUMERATE AND IS MODERATELY FRACTURED

VEIN MATERIAL . SOFT, BROKEN TO FIRM & HARD COMPACT.

PROVISION SHOULD BE MADE FOR FULL SLUDGE COLLECTION.

W.M.S.

Sept. 29/64

Phase I - expanded.

During this; geol. mapping (w. access rehab in)
to be completed undist'd + survey control as far
as possible -

I (a) Rehab. Camp

(b) Clean up "D" + 5100 portals + salvage timber
Equip + supplies to "D" for tunneling, + to 5100
for d. drill

(c) Rehab. "D" to 800' point. D. Drill " " for d. drill
Rehab. Proper: 5100' to 250' beyond Blind v.
intersection.

2 (a) Commence undist'd dia. drill in 5100 level
on "D" + "Blind" vein, etc targets

(b) Commence drive on ^{1200' drive.} 220' - 700' "D" H.W.
X-C.

3 - D. Drill "D" @ -4700 elev.; 1700 L.F.

4 - Drill flat + (+) holes on "Blind" vein
if strength of struct. warrants this.
(or drift depending on success of (3))

5 - Drill exploration of Prosperity @ '4900' - 4700'
horizon (also depend on results in 3)

Phase II - (reduced pending phase I results)
<sup>accord to Wheeler - ^{most} work here would be
unnecessary during coming winter weather.</sup>

Clean up "I" portal site for landing
equip + supplies; also for portal plant facilities

Rehabilitate and enlarge "I" tunnel through
"Big Rig" Fault zone - suitable for inspection
of section beyond.

PRELIMINARY ESTIM.

BUNKHOUSE REPAIRS

ROOF: 18' x 72' - GALV. CORRUG. IRON BUNDLED FOR HANDLING & HELICOPTER TRANSPORT. MAX. LOAD BELL 6-3 @ 800#.

NAILS, - ABOVE.
RIDGEPIECE - 72' LONG @ PEAK.

PORCHES: - 2" x 4's. & 1" LUMBER (SHEETING) ADDITIONAL GALV. CORRUG. OR "DUROID" WITH FLASHINGS & FASTENINGS.

ENG OFFICE - $\frac{1}{2}$ " PLYWOOD, 1" x 4", 2" x 2" FOR 2 3 $\frac{1}{2}$ ' x 6' x 3'-4" TABLES

FACILITIES. - ELECTRIC SET, REPAIR WIRE, FIXTURES, ETC.

- 1 - KITCHEN STOVE, OIL - 8" ϕ PIPE.
- 2 - SPACE HEATERS; " - 6" ϕ " G.L.F. PIPE + ELS. FOR EACH.
3. COLD STORAGE (FRIDGE; DEEP-FREEZE.)
4. MISCELL. KITCHEN & SANITARY SUPPLIES
5. 1" ϕ PLASTIC PIPE + COUPLINGS FOR WATER SUPPLY.
6. WATER CLOSETS, URINAL, SHOWERS, ETC. PLUS PIPE, FITTINGS, & ACCESSORIES.

PHASE I - EXPLORATION & DEVELOPMENT.

"D" PROJECT (a) SALVAGABLE TIMBER ADEQUATE HERE.

2 $\frac{1}{2}$ ", 4", 6", 8" COMMON NAILS.

TRACK SPIRES FOR 200 L.F. 12" TRACK.

POWDER, CAPS. & FUSE FOR SAY 300 L.F.

DIA. DRILL (SMALL) X-CUT & DRILL STA.

TRACK & TIMBERING TOOLS.

(b) ~~260~~ OR 325 (?) CFM. AIR-COOLED COMPRESSOR
JACK LEG. LUBRICATOR. HOSE, STEEL, ROCK
DRILL OIL, ETC.

EIMCO 12 B. MUCKING MACHINE, SPARE PARTS
& LUBES.

1-TON END-DUMP ROLLER-BRG. MINE CARS.

DIESEL FUEL FOR 1-2 MO. OP'N CAMP &
COMPRESSOR, PLUS SPECIAL COMPRESSOR
LUBES.

200 L.F. 2" ϕ VIC. PIPE & FITTINGS, WITH A
FEW (3-4) ADAPTORS FOR 2" ϕ TAC TO 2" ϕ VIC.

BUNKHOUSE REPAIRS

ROOF: 18' x 72' - GALV. CORRUG. IRON BUNDLED FOR HANDLING & HELICOPTER TRANSPORT. MAX LOAD BELL 6-3 @ 800#.

NAILS, ABOVE.

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RADIO - LEAVE IN S+T. HANDS.

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FIMCO 12 B. MUCKING MACHINE, SPARE PARTS & LUBES.

1-TON END-DUMP ^{side} ROLLER-BAG, MINE CARS.

DIESEL FUEL FOR 1-2 MG O/W (MINE & COMPRESSOR) PLUS SPECIAL COMPRESSOR LUBES.

200 L.F. 2" ϕ VIC. PIPE & FITTINGS, WITH A FEW (3-4) ADAPTORS FOR 2" ϕ TRC TO 2" ϕ VIC.