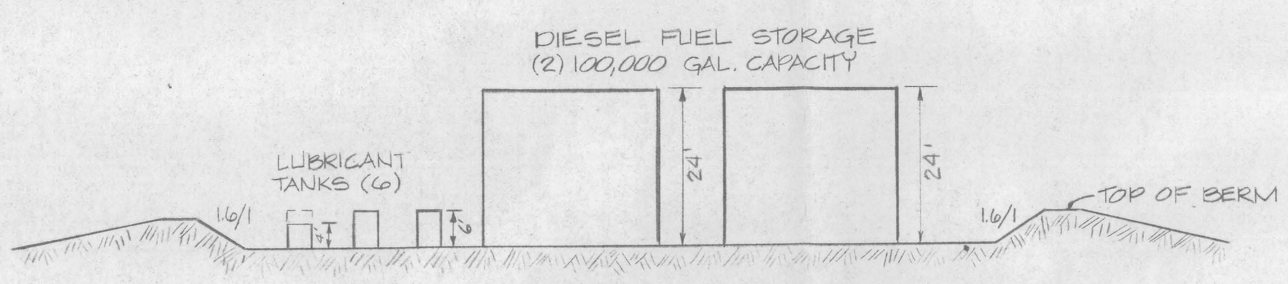
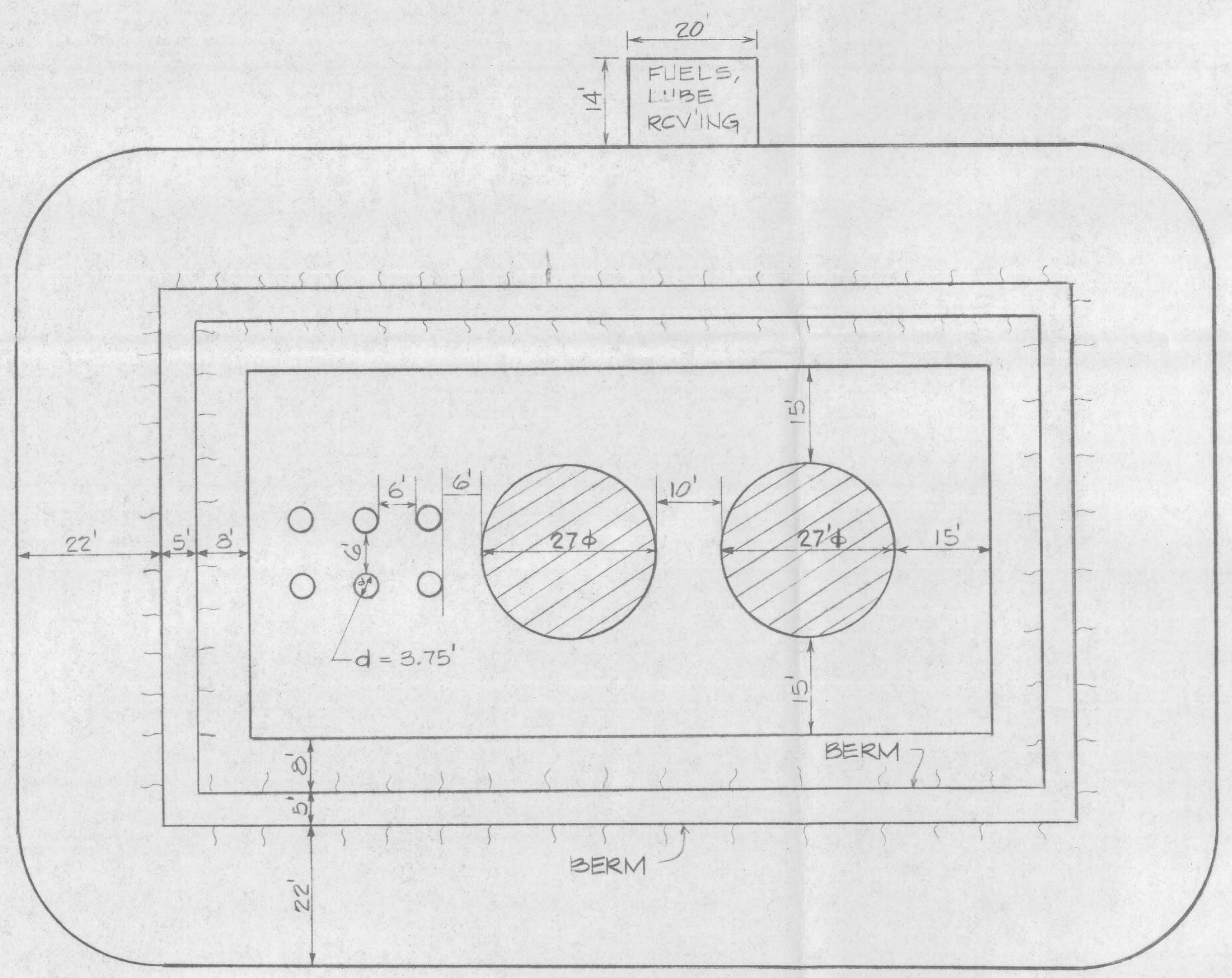
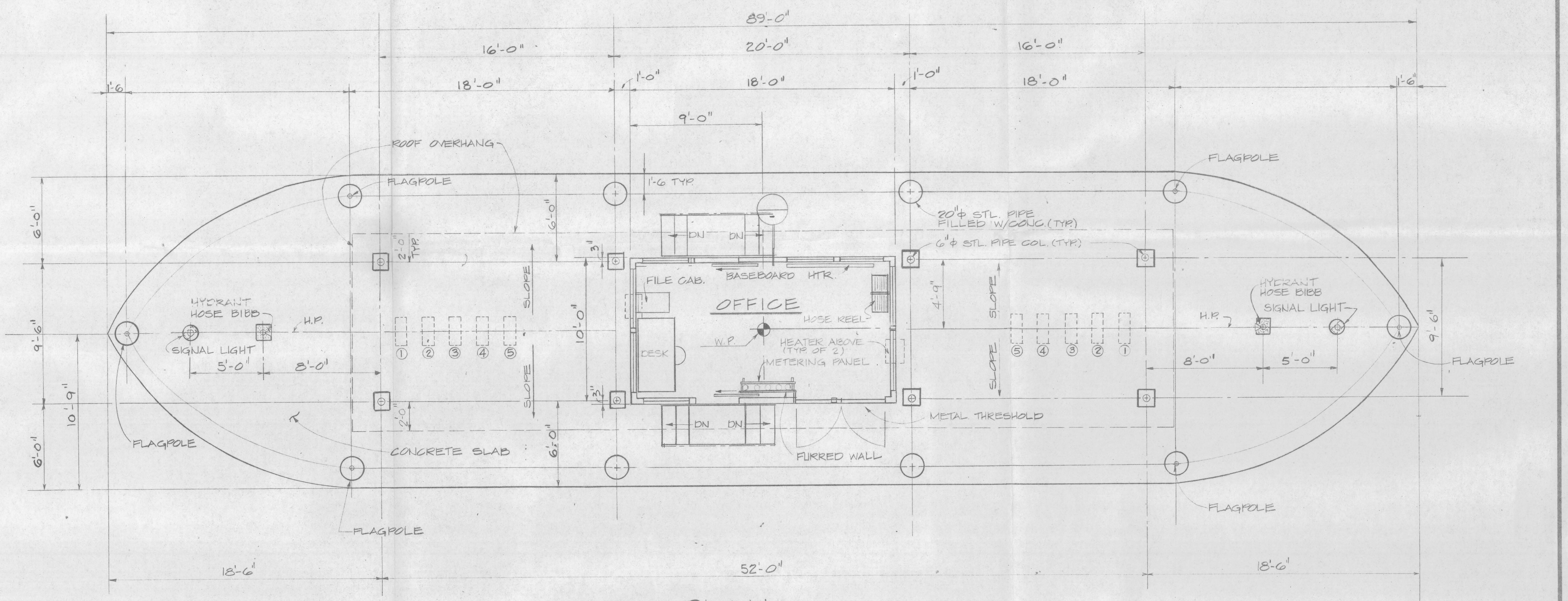




PLAN

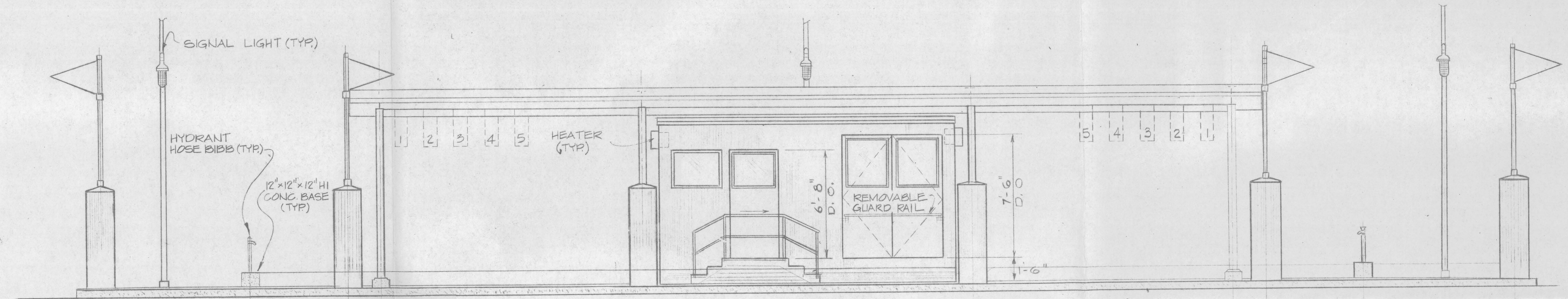
SCALE: 1" = 20'



PLAN

SERVICE LEGEND

1. – DIESEL
2. – COOLANT
3. – HYD. FLUID
4. – ENGINE OIL
5. – AIR



SOUTH ELEVATION

PRELIMINARY

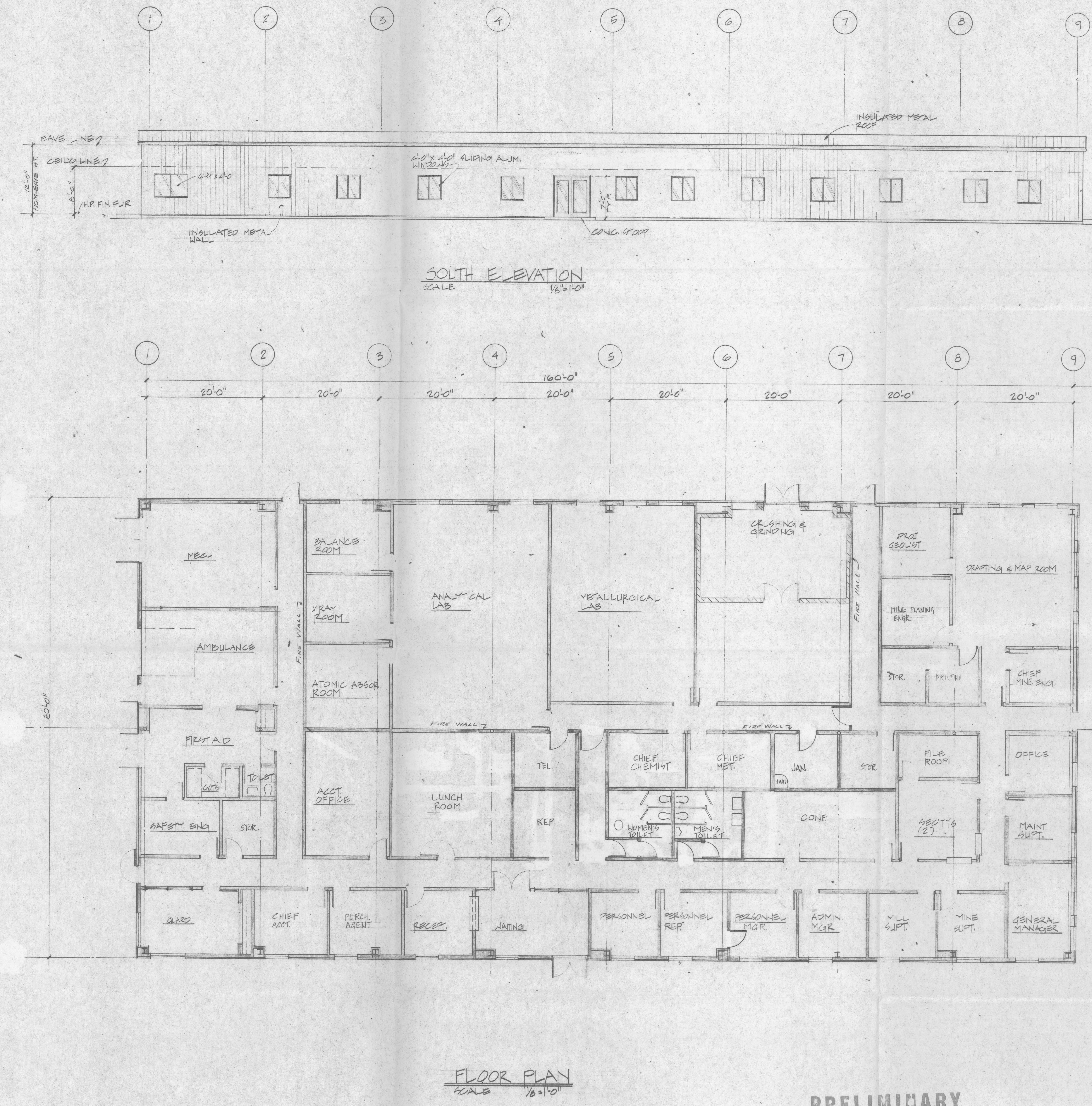
JUN 29 1978

UNION MINERALS EXPLORATION CO.		
FUELING ISLAND PLAN & ELEVATIONS TANK FARM AND CROSS SECTION		
SCALE H: 1/8"=1'-0" V:	DATE: JUNE 1978 DRAWN BY: L.R.R. CHECKED: D.J.S. G.C.D. DESIGN: -	APPROVED	REVISIONS FILE:

MEC-004

M.E.C.-004

110-0-15-12



PRELIMINARY

JUN 28 1978

NO.	DATE	REVISION	BY	APPR.	APPR.

REFERENCE DRAWING	NUMBER	NOTES

DESCRIPTION	COST ACCOUNT
WORK COVERED BY THIS DRAWING CHARGED TO COST ACCOUNT ABOVE	

PROPRIETARY STATEMENT

MINERALS EXPLORATION COMPANY
ANDERSON PROJECT

2000 TPD URANIUM MILL FACILITY
YAYAPAI COUNTY, ARIZONA

APPROVALS	DATE	SCALE	DATE
CLIENT [illegible]	12/13/77	DRAWN BY Ron Hixson	11-21-77
		DESIGNED BY	
PROJECT MANAGER R.J. Mueller	12/13/77	CHECKED BY A.E. Foster	12/12/77
		APPROVED T. Wilson	12/12/77
		APPROVED	

DEPT.	ARCH.	STRUCT.	MECH.	ELECT.	P.&I.	PIPING	SAF.DEPT.	P.E.
INITIAL								
DATE								

MORRISON-KNUDSEN COMPANY INC.
ENGINEERS CONTRACTORS DEVELOPERS
TWO MORRISON-KNUDSEN PLAZA / P.O. BOX 7808 / BOISE, IDAHO 83729

ADMINISTRATION BUILDING

JOB NO.	DRAWING NO.	REVISION
1114	21-51-0-011	0

NO.	DATE	REVISION	BY	APPR.	APPR.
A	11-22-77	ISSUE FOR OWNERS APPROVAL	DHP		

REFERENCE DRAWING | NUMBER | NOTES

DESCRIPTION | COST ACCOUNT — WORK COVERED BY THIS DRAWING CHARGED TO COST ACCOUNT ABOVE

PROPRIETARY STATEMENT

MINERALS EXPLORATION COMPANY
ANDERSON PROJECT

2000 TPD URANIUM MILL FACILITY
YAVAPAI COUNTY, ARIZONA

APPROVALS		DATE	SCALE		DATE
CLIENT	[signature]	12/13/77	DRAWN BY	D.H. PRICHARD	11-8-77
			DESIGNED BY	P.O. LEE	11-5-77
			CHECKED BY	[signature]	12/12/77
PROJECT MANAGER	R.J. [signature]	12/13/77	APPROVED	T. Wilson	12/12/77
			APPROVED		

DEPT. | ARCH. | STRUCT. | MECH. | ELECT. | P.&I. | PIPING | SAF.DEPT. | P.E.
INITIAL
DATE

MORRISON-KNUDSEN COMPANY INC.
ENGINEERS CONTRACTORS DEVELOPERS
TWO MORRISON-KNUDSEN PLAZA / P.O. BOX 7808 / BOISE, IDAHO 83729

SHOP, WAREHOUSE & CHANGE HOUSE
GENERAL ARRANGEMENT PLAN & ELEV.

JOB NO.	DRAWING NO.	REVISION
1114	21-51-0-012	0

EXHIBIT II-B
EQUIPMENT OPERATING
COST CALCULATIONS

EXHIBIT II-B

MINE EQUIPMENT HOURLY COST CALCULATIONS

17 Cu Yd Stripping Shovel

	Cost/Operating Hour
Electric Power	
450 kwh x 0.04 $/kwh	$18.00
Repairs, Maintenance & Supplies	
@ $0.018/ton, 2,380 t/hr x 0.018	42.84
Labor	
Operator	14.64
Oiler	13.76
	$89.24
	USE $89.00

Reference P & H Costing Method

Rotary Drill

	Cost/Operating Hour
Fuel 18.8 gal/hr @ $0.38/gal	$ 7.14
Lube Oil	1.26
Tires	0.52
Parts & Supplies 6.90 x (5 hp ÷ 3 hp)	11.50
Labor Operator @ 7/8 hrs - 13.76 Helper @ 7/8 hrs - 12.96	26.72
Subtotal Operating	$47.14
Bits 10" @ $600 @ 3,000 ft @ 80 ft/hr x 0.83	13.28
Dripp Pipe $12,000 set 100,000 ft life $5,000 rebuild (2) x 0.83	4.87
Stabilizers $3,000 - 40,000 ft life	4.98
Subtotal Consumables	$23.13
TOTAL OPERATING COSTS	$70.29
	USE $70.00

Reference Updated Ingersoll-Rand T-4 Drilling Costs

Dozers - Pit & Dump (less than 20% ripping)

	Cost/Operating Hour
Fuel 18.8 gal/hr x $0.38/gal	$ 7.14
Preventative Maintenance	0.46
Repair $\frac{0.09 \text{ factor } (256{,}000)}{1{,}000}$	23.04
Operator 8.60 x 1.40 x 8/7.5	12.84
	$43.48
	USE $43.00

Dozers - Mining Application - 100% of Time Ripping

	Cost/Operating Hour
Ripper - Teeth, Shanks, Adaptors & Repair	$13.40
Cost from above	43.48
	$56.88
	USE $57.00

Reference Caterpillar Performance Handbook

Hydraulic Excavator

	Consumption/Hour	Unit Cost	Cost/Operating Hour
Fuel	12 gal	$0.38	$ 4.56
Lube & Preventative Maintenance			
Crankcase Oil	0.15	1.50	0.23
Final Drive	0.02	1.50	0.03
Hydraulic Oil	0.15	1.50	0.23
Grease	0.05 lb	0.30	0.02
Filters			0.13
Repairs $\frac{0.07 \text{ factor} \times \$314,000}{1,000}$			21.98
Bucket & Teeth			4.00
Operator			14.64
			$45.82
			USE $46.00

Reference Caterpillar Performance Handbook

35-Ton Hauler

	Cost/Operating Hour
Fuel 10.2 gal/hr x $0.38/gal	$ 3.88
Lube	0.93
Repairs Maintenance & Repair Fc[Pf + (Lf x Mw)] Fc = 10.2 Pf = 0.577 Lf = 0.0527 Mw = 8.60 x 1.40 = 12.04 M&R 10.2[0.577 + (0.0527 x 12.04)]	12.36
Tires Life = 4,000 hrs Cost = 1,098 x 6 = $6,588	1.65
Operator	12.84
	$31.66
	USE $32.00

Reference Wabco Costing Method

Motorgrader - 16 Ft Moldboard

	Consumption/Hour	Unit Cost	Cost/Operating Hour
Fuel	9.5 gal	$0.38	$ 3.61
Lube & Preventative Maintenance			
Crankcase Oil	0.11	1.50	0.17
Transmission Fluid	0.05	1.50	0.08
Final Drive	0.02	1.50	0.03
Hydraulic Oil	0.02	1.50	0.03
Grease	0.02 lb	0.30	0.01
Filters			0.08
Repairs $\frac{0.05\ (155{,}863)}{1{,}000}$			7.79
Tires $6,437 @ 3,500 hrs			1.84
Operator			12.84
			$26.48
			USE $26.00

Reference Caterpillar Performance Handbook

Rubber-Tired Dozer

	Cost/Operating Hour
Fuel 11.2 gal/hr x $0.38/gal	$ 4.26
Preventative Maintenance	0.56
Tires Life = 3,500 hrs Cost = $12,400	3.43
Repair $\frac{0.09\ (150{,}600)}{1{,}000}$	13.55
Operator	12.84
	$34.64
	USE $35.00

Reference Caterpillar Performance Handbook

50-Ton Water Truck

	Consumption/Hour	Unit Cost	Cost/Operating Hour
Fuel	17.0 gal	$0.38	$ 6.46
Engine Oil	0.07	1.610	0.11
Transmission Oil	0.04	2.07	0.08
Final Drive	0.014	3.15	0.04
Hydraulic Oil	0.04	1.50	0.06
Grease	0.10 lbs	0.42	0.04
Filters			0.20
Repairs $\frac{0.07\ (223,298)}{1,000}$			15.63
Tires @ 4,000 hrs			2.96
Operator			12.84
			$38.42
			USE $38.00

Reference International Earthmoving Principles

Miscellaneous Equipment

	Cost/Operating Hour
Air Track Drill (includes operator)	$34.56
	USE $35.00
Compressor	$14.23
	USE $14.00
12-Ton Prill Truck (operator not included)	$13.93
	USE $14.00

Reference "Preliminary Feasibility Study, 12/77", Morrison-Knudsen

Small Vehicles	USE $ 6.00

Reference "Cost Reference Guide", Equipment Guide-Book Company

Medium Size Vehicles	$10.06
	USE $10.00

Reference "Cost Reference Guide", Equipment Guide-Book Company

EXHIBIT II-C
EQUIPMENT JUSTIFICATION

EXHIBIT II-C

EQUIPMENT JUSTIFICATION

MINING EQUIPMENT AND FACILITY SIZING CALCULATIONS

A. Equipment

1. 17 cu yd Stripping Shovel

Material Density @ 10% H_2O = 1.81 ton/Bank cu yd

Dipper Capacity - 17 cu yd

Dipper Fill Factor = 0.90

Swell Factor @ 25% = 0.80

Effective tons/dipper:

17 cu yd x 1.81 ton/Bank cu yd x 0.80 x 0.90 = 22.15 tons/cycle

Cycle Time @ 90% Swing = 27.8 seconds

Job Efficiency Factor = 83%

Effective tons/hr:

22.15 tons/cycle x (3600 sec/hr x 0.83) ÷ 27.8 sec/cycle
= 2381 ton/hour

Effective Operating Hours per 8-hr shift = 7 hours (actual)

Production/shift:

2381 tons/hr x 7 hrs/shift = 16,667 tons/shift

Annual Production during Period I:

16,667 tons/shift x 35 shifts/wk x 50 wk/yr = 29,167,250 tons/yr
approximately 29.2 million tons/yr

% Utilization = 35 scheduled shifts ÷ 42 potential shifts = 83%

Annual Production during Period II:

16,667 tons/shift x 25 shifts/wk x 50 wk/yr = 20,833,750 tons
approximately 20.8 million tons/yr

% Utilization = 25 scheduled shifts ÷ 42 potential shifts = 60%

2. Front Shovel

Material Weight: 2.71 million tons @ 15.45 cu ft/ton
0.73 million tons @ 20.46 cu ft/ton
3.44 million tons @ 16.51

Material required per shift = 4590 tons

Dipper Fill Factor = 100% assumed

% Swell Factor = 25%

Working time per shift = 7 hr x 60 min x 60 sec = 25,200 sec

Tons per cu yd = 27 cu yd ÷ (16.51 x 1.25)

Front Shovel Production:

5 cu yd dipper = 5 cu yd x 1.31 = 6.55

3 cu yd dipper = 3 cu yd x 1.31 = 3.93

Work efficiency = 0.83

cycle time = 35 sec

availability = 0.75

5 cu yd:
6.55 x (25,200 x 0.83) ÷ 35 x 0.75 = 2936

3 cu yd:
3.93 x (25,200 x 0.83) ÷ 35 x 0.75 = 1761 ÷ 4697

Safety factor: 4697 tons ÷ 4590 tons = 1.02

3. 120-ton Truck Fleet Estimation

Assumptions:

Material Density = 14.95 cu ft/ton

Shovel Production = 16,685 ton/shift x 2 = 33,700 total tons/shift

Truck Capacity = 120 tons

Time Available per Shift - 354 minutes per shift

Calculations:

tons/shift per unit = (min/shift x 120 tons/cycle) ÷ min/cycle

units required = (33,700 tons/shift shovel production) ÷ tons/shift/unit

120-Ton Truck Requirements for Project Life

Years of Stripping	Accumulated Years	Increments	Cycle Time	Tons/ Shift	Units Required	Units Req. @ 75% Avail.
0.54	0.54	A-1	9.93	4278	7.80	10.40
0.97	1.51	A-2	9.39	4524	7.38	9.84
0.67	2.18	A-3	10.67	3981	8.38	11.17
1.65	3.83	A-4	10.65	3989	8.37	11.16
1.94	5.77	A-5	12.13	3502	9.53	12.77
1.03	6.80	A-6	12.81	3316	10.06	13.41
0.88	7.68	A-7	12.62	3366	9.91	13.21
1.28	8.96	A-8	12.37	3434	9.72	12.92
0.78	9.74	A-9	12.08	3516	9.49	12.60
0.76	10.50	A-10	12.08	3516	9.49	12.60

4. Rotary Drills

10-inch, truck mounted

Assumptions:

Preproduction and Production I:	29.2×10^6 tons/year (years 1-5)
Production II:	20.8×10^6 tons/year (years 6-10)
Density:	14.95 ft^3/ton
Scheduled weeks/year:	50 weeks/year
Drill Productivity:	550 feet/shift (maximum est. drilling rate)
Feet/hole:	50 ft bench plus 5 ft subgrade = 55 ft
Drill Pattern:	25 ft (burden) x 30 ft (spacing) pattern x 50 ft bench

Calculations:

Tons/hole = (25 ft x 30 ft x 50 ft) ÷ 14.95 ft^3 ton = 2,508.36 tons/hole

Holes/shift = 550 ft/shift ÷ 55 ft/hole = 10

Tons/shift = 10 x 2,508.36 = 25,083.6 tons/shift

Production Annual Tons	Required Tons/Week	Required Shifts/Week	Scheduled Shifts/Week	Utilization of Scheduled Shifts
29.2×10^6	584,000	23.28	(2) 30	77.6%
20.8×10^6	416,000	16.59	(2) 17	97.6%

Stripping activity will require two rotary drills scheduled for 30 shifts per week during Preproduction and Production I, and only 17 shifts per week during Production II.

5. Ore Control Drill

Basis: 1. Required Productivity = 2.71 million tons/year secondary and interior waste
0.73 million tons/year ore

2. Average Density = 16.51 ft^3/ton

3. Estimated average drill patterns = B x S x Depth

(A) 10x10x10 (B) 15x15x15 (c) 20x20x20

4. Drill Productivity (failing 1000)

400 ft/8 hr shift actual productivity, includes a low job efficiency due to the many shallow holes and irregular nature of drilling. (Does not include machine availability).

5. 50 scheduled weeks/yr

6. Required drill holes per year = 3.44 million tons/yr x 16.51 ft^3/ton ÷ cu ft per drill hole

56,794 16,828 7,099

7. Ft drilling/yr = drill holes/yr x depth

576,940 252,420 141,980

8. Required drill shifts/wk = annual ft drilling ÷ 50 wk/yr ÷ 400 ft/shift

28.4 12.62 7.10

Recommendation:

Based upon an estimated average drill pattern of 15x15x15 and applying an 85% machine availability, required shifts/week are 12.62 ÷ .85 = 14.85

Conclusion:

1 (one) ore control drill scheduled 15 shifts/wk

6. <u>Mining Dozer (Ripping)</u>

Basis: 1. 68,800 t/wk or 4,587 t/shift

2. 7 operating hours/8 hour schedule

3. 83% job efficiency

4. Effective available time/shift = 350 min

5. 2.71 million tons/yr secondary @ 15.45 BCF/ton
0.73 million tons/yr ore @ 20.46 BCF/ton

Weighted average material density = 16.51 BCF/ton

6. Required panel per shift
4,587 tons/shift x 16.51 cu ft/ton - 75,731 ft^3/shift
@ 2 ft ripping depth = 37,866 sq ft/shift
250 ft x 150 ft panel

7. Cycles/shift (based upon 2 ft ripping width)
150 ft ÷ 2 ft/cycle + 250 ft ÷ 2 ft/cycle = 200 cycles/shift

8. Linear ft ripping/shift

75 cycles x 250 ft + 125 cycles x 150 ft = 37,500 ft/shift

9. Total cycle time/shift required

a) Fixed time based on a maneuver time of 0.5 min/cycle
0.50 min/cycle x 200 cycles/shift = 100 min/shift

b) Travel time based on average ripping speed of 150 ft/min
37,500 ft/shift ÷ 150 ft/min = 250 min/shift

Required cycle time/shift = 350 min

Recommendation:

Units required per shift = Required cycle time/shift ÷ effective available time/shift

= 350 min ÷ 350 min = 1.0

Down time due to machine availability (estimated at 75%) can be adequately covered during the non-scheduled mining shifts, (i.e., machine utilized only 15 out of 21 potential shifts). Backup is available from the dozers assigned to pioneer work

Conclusion:

1 (one) track dozer with ripper scheduled 15 shifts per week

7. Track Dozer and Rubber-Tired Dozer

(3 dozers)

1. Rubber-tired dozer is allocated for pushing newly blasted material and will also clean up rock spills on haul roads and mining areas, and the working area around the shovel.

2. Dump Dozer - 1 dozer will be required on the waste dump to push the material over the side and create a safety berm. It will also be utilized to maintain the level dumping area.

3. Pioneer Dozer - 2 dozers are scheduled to prepare access drill roads and preliminary levels. These two dozers will provide backup for the dump and mining dozers. In the latter years of the mine life, one dozer will be transferred to the mining backfill dump.

8. <u>35-Ton Truck Fleet Estimation</u>

Assumptions:

Annual Production	=	3.44 million tons
Shift Production	=	3.44 million tons ÷50 wk/yr ÷ 15 shifts/wk
	=	4590 tons/shift
Truck Capacity	=	35 tons
Time Available/ shift	=	354 min/shift
Average cycle time (Ore/waste hauls)	=	20.4 min

Calculations:

Tons/shift/unit	=	(354 min/shift x 35 tons/cycle) ÷ 20.4 min/cycle
	=	607.4
Units required	=	4,590 tons/shift ÷ 607.4 = 7.56 or 8 units
Units required @ 75% fleet availability	=	10.08 or 10 units

9. Motorgrader

1. Length of Hauls:

		Width
Stripping	6,000 ft (2 shovels)	90 ft
Mining-ore run	5,600 ft	90 ft
Mining-waste	3,300 ft	90 ft
TOTAL	14,900 ft = 2.82 miles	90 ft

2. Travel Speed:

   1st gear forward = 2.4 mph
   1st gear reverse = 3.9 mph

   Average Travel Speed $(4.8 \times 3.9) \div (2.4 + 3.9) = \frac{18.72}{6.3} = 2.97$ mph

3. Required Blading (assume 12 ft of blade surface):

   (2.82 miles)(90 ft/12 ft) = 21.15 miles

4. Blade Production/Shift (assume 83% job efficiency):

   (2.97 mph)(7½hr/shift)(0.83) = 18.49 miles/shift

5. Blades Required/Shift:

   21.15 miles ÷ 18.49 miles/shift = 1.14 blades

6. Blades Required @ 75% Availability:

   1.14 ÷ 0.75 = 1.53 blades

∴ Use 2 Motorgraders

10. Water Truck

1. Area required to cover:

		Area (Ft^2)
Stripping		
Roads	6,000 ft x 60 ft	360,000
Dumps		1,000
Pits		2,000
Mining		
Roads - Ore	5,600 ft x 50 ft	280,000
Roads - Backfill	3,300 ft x 50 ft	165,000
Stockpile		1,000
	TOTAL	809,000

2. Coverage = 25 ft/pass:

Linear Coverage = $\frac{809{,}000\ ft^2}{25\ ft}$ x 3 passes = 97,080 ft

Speed - 17 mph

Spray Time = 10,000 gal ÷ (1,500 gal/min x 0.5) = 13 min

3. Time Required per Pass:

Fix and fill time @ 400 gpm	30 min
Travel time	15
Spray time	13
TOTAL	58 min/trip

4. Water Schedule:

Day Shift	4
Swing	3
Graveyard	2
Average	3 passes (used above)

5. Units Required:

Coverage/Trip = 13 min x 17 mph x 5,280 ft/mi x hr/50 min
= 19,448 ft/trip

Time to cover - 97,080 ft ÷ 19,448 ft/trip x 58 min/trip = 290 min

Add 3 hrs (180 min) to cover mill and office

Units Required (75% availability) = (290 min ÷ 180 min) ÷ 373 min/shift ÷ 0.75 = 1.68 units/shift

∴ Use 2 Units

11. <u>12 Ton Prill Truck</u>

Basis: 1. Preproduction and Production I (highest stripping period)

2. 11,641 holes/yr ÷ 50 wk/yr = 233 holes/wk

3. Capacity based upon certain periods when loading 100% dry holes.

4. Tons ANFO/we = 838 lb/hole x 233 holes/wk ÷ 2000 lb/ton = 97.63 tons/we

5. Prill truck scheduled 5 shifts/wk = 19.53 tons/shift <u>OR</u> 10 tons ANFO/shift/blast-site

Recommendations:

A prill truck with a 10 ton tank would adequately cover each drill with a single trip under fully dry loading conditions during the highest productivity periods of the mine.

The following points justify going to the next larger commercial tank size, which is a 12 ton:

1. At 98% capacity with a 10 ton tank when servicing each blast site with a single trip. Any change in rock type and powder factor may require an additional trip.

2. Amerind-MacKissic's capital cost sheets indicate the extra 20% capacity will cost only 1% over the smaller 10 ton truck.

Conclusion:

1 (one) 12 ton prill truck

B. <u>Facilities</u>

1. AN Prill Storage

Basis:

1. 1-week storage
2. Highest stripping period (preproduction & production I)
3. Dry loading conditions - blasting 100% ANFO
4. Required Tons AN Prill/wk = 91.7
   (233 holes/wk x 787 lbs AN/hole ÷ 2000 lb/ton)

Recommendations:

1. Multiple tanks - allows the capability of periodically cleaning and repairing one while others remain in service. Structural damage which would bring the storage tank out of service is much less likely with multiple tanks.
2. Storage capacity factor - 20%
   Considers the possible increase in powder consumption during the stripping of harder than average rock conditions. 91.7 tons/wk x 1.20 = 110 ton capacity
3. Design considerations - Amerind-Mackissic recommends two identical storage units of 60-ton capacity each.

Conclusion:

(two) 2 60 ton vertical storage units

2. Explosives Magazine

Basis:

1. 1-week of storage of slurry

2. 2 weeks storage of ancillary explosives, most specifically primers and primer cord.

3. Highest stripping period (preproduction & production I)

4. Loading condition - temporary severe conditions of wet holes, estimated at 2x the average 25% giving 2 x 25% x 233 holes/wk = 117 holes/wk

5. Blasting caps are stored separate and distant from the above explosive magazine. Cap storage is necessary but incidental.

6. Slurry storage: 117 holes/wk x 1072 lbs/hole ÷ 65.6 lbs/cu ft = 1912 cu ft
   1912 cu ft ÷ 6 ft high piles = 319 sq ft

7. Primers and Primer cord storage:

   Primers/2 wk = 466 holes/2 wk x 2/hole = 932

   Primer storage = 932 primers ÷ 60/case x 4.5 ft^3/case = 70 ft^3
   70 cu ft ÷ 6 ft high piles = 12 sq ft

   Primer cord/2 wk = 466 holes/2 wk x 105 ft/hole = 48,930 ft

   Primer cord storage = 48,930 ft ÷ 1000 ft/case x 1 ft^3/case = 49 cu ft
   49 cu ft ÷ 6 ft high piles = 8 sq ft

   Total primers and primer cord storage = 20 ft^2

Recommendation:

(based on Table 30-3, DuPont Blaster's Handbook, p.463)

Concrete block magazine, 16 x 26 ft outside dimensions with 336 cu ft of inside space.

3. Fuel and Lubricant Storage Requirements

Conclusions: Apply a factor of 1.10 to the major mine equipment for allowance of all the minor vehicle consumption at the mine.

Results:

Stripping Shovels	
Open Gear Lube	294 lbs/wk
Grease	466 lbs/wk
All Other Mine Mobile Equipment	
Crankcase	494 gal/wk
Transmission	185 gal/wk
Final Drive	127 gal/wk
Hydraulic	331 gal/wk
Grease	338 lbs/wk
Fuel	70,521 gal/wk

Lubricant Storage - Tank Farm Design Capacity

Assumptions:

1. Standardized crankcase (engine oil) to 40W
2. Combine hydraulic and transmission oil to one grade, 10W
3. Standardized final drive to 90W
4. Grease will be stored in 55 gal drums
5. All special lubricants (i.e. 140W wheel motor lube for electric haulers) shall be stored in individual 55 gal drums
6. Storage duration of 2 weeks
7. Design for later use of particular lubricant changes, extra lube grades, etc., by two half-size tanks for each major component above
   2 engine oil tanks
   2 transmission & hydraulic tanks
   1 final drive tank (because of small quantity)
8. Use of a storage ratio of 0.5:1 coolant to engine oil (as shown by Kaiser Engineers Drawing No. 10-23-HV, "Lubricant Storage for Sweetwater Project")

Lubricant Storage - Tank Farm Design Capacity (continued)

Tanks	Lubricant	Unit Capacity gal	Total Capacity gal
2	Engine Oil (40W)	500	1000
2	Transmission and Hydraulic Oil (10W)	500	1000
1	Final Drive (90W)	300	300
1	Coolant	500	500

Fuel Storage - Project Consumption

Point of Use	Two Weeks Supply gal	Fuel Type
Mine Mobile Equipment	141,042	#2
Mill Boilers*	52,752	#2
ANFO Explosive Mix	3,357	#2
	197,151	

*Ramon Pizarro, Morrison-Knudsen
Used Ross Milling Report, p. 523 as basis
Mill consumption - average for leaching, solvent extraction, precipitation, etc.
157 gal/hr x 24 hr x 14 days = 42,752 gal/2 wks
#2 Diesel Fuel (140,000 Btu/gal)

Fuel Storage - Tank Farm Design Capacity

Tanks	Fuel Type	Unit Capacity gal	Total Capacity
2	Diesel #2	100,000	200,000

EXHIBIT II-D
MINING ASSUMPTIONS
AND FACTORS