Date Sampled :		Aug 26/83	Mar 13/84	Oct 24/84	Sept 10/85	Sept 11/85	Dec 1/87	Aug 18/92	July 26/94								
Sample Depth (m):		0	0	0	0	0	0	0	2.0	4.0	6.0	8.0	10.0	12.0	GCDWQ GUIDELINES		
PARAMETER	NOTES														Maximum Acceptable Concentrations	Interim Maximum Acceptable Concentrations	Aesthetic Objectives (Max. Conc.)
Ammonia									0.0250	0.0090	0.0030	0.0030	0.0110	0.0005			
Arsenic		0.0010	0.0010			<0.5		<0.005	0.0003	<0.003	0.0003	<0.0003	0.0003	0.0003	0.05	0.025	
Cadmium		<0.05	0.0013					<0.0002							0.005		
Calcium		<0.10	0.50	0.20	1.20	<1.0	1.70	<1.0	0.67	0.62	0.62	0.59	0.62	0.62			
Chloride		2.00	4.50	3.80	3.20	3.30	4.10	3.90	2.42	2.34	2.30	2.29	2.31	2.28			250
Chromium		0.0080	0.0045					0.0030							0.05		
Color (TCU)	2	<5.0	<5.0	10.0	15.0	10.0	10.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0			15
Conductivity (µmho/cm)		18.0	36.0	29.0	28.9	9.0	46.1	22.5	23.2	22.5	22.3	22.2	22.6	22.3			
Copper								0.003									1.0
Iron		0.0555	0.0400	0.2300	0.2300		0.0200	0.0055									0.3
Lead			0.0057					<0.001							0.01		
Magnesium		0.53	0.80	0.60	0.20	0.54	0.80	0.60	0.50	0.50	0.50	0.50	0.50	0.60			
Manganese				0.006	0.005		<0.01										0.05
Mercury		0.00010	0.00006						0.00022	0.00002			0.00030		0.001		
Nickel			0.001					0.001									
Ortho Phosphate	3								<0.002	0.002	0.002	0.002	0.002	0.002			
pH (unitless)		6.50	6.60	6.90	7.43	4.10	6.90	6.76	6.46	6.53	6.59	6.58	6.58	6.60			6.5 - 8.5
Potassium		0.35	0.70	0.70	0.60	0.60	0.60	0.50	0.58	0.41	0.41	0.41	0.42	0.42			
Silica									0.061	0.135							
Sodium		1.80	3.60	2.70	3.60	2.35	2.70	2.50	2.13	1.90	1.92	1.89	1.91	1.90			200
Sulphate		<1.0	1.5	2.0	2.0	2.0	<1.0	<2.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0			500
Suspended Solids		<5	<5					<3	<3	<3	<3	<3	<3	<3			
Total Alkalinity	4	3.1	5.8	8.2	8.4	Note 1.	7.5	4.0	3.1	3.1	3.1	3.0	3.1	3.0			
Total Dissolved Solids								19.0	17.0	<10.0	13.0	10.0	10.0	11.0			500
Total Hardness	4	2.36	4.50	3.00	3.80	4.20	7.40	5.00	3.70	3.60	3.60	3.50	3.60	4.00	500.00		100
Total Kjeldahl N	5								<0.008	<0.008							
Total Nitrates	6			0.050	0.050		<0.05	<0.04	<0.008	<0.008	0.011	0.011	0.038	0.012	45.0		
Total Nitrites	6			0.005	0.003		<0.05				0.011	0.011	0.038	0.012	3.2		
Total Phosphorus	3							<0.005	<0.002	0.008	0.007	0.005	0.010	0.008			
Turbidity (NTU)	7	1.5	0.6	5.0	6.5	6.0	1.0	15.0	2.2	2.2	2.0	2.1	2.1	2.3	1		5
Zinc		0.0440	0.0052					0.0010									5

Notes

All Results are expressed in mg/L, unless indicated in brackets ( ).

Blank cells indicate that the sample was not tested for that parameter.

Shaded cells indicate that the sample exceeds the GCDWQ guidelines for the indicated parameter.

1. Sample was too acidic for alkalinity titration.
2. TCU - True Color Units
3. Ortho Phosphate, and Total Phosphorus are stated in terms of mg/L of P (phosphorus)
4. Total Hardness, and Total Alkalinity are stated in terms of mg/L of CaCO3 (calcium carbonate)
5. Total Kjeldal N is stated in terms of mg/L of N (Nitrogen)
6. Equivalent to 10.0 mg/L nitrate as nitrogen, where nitrate and nitrite are determined separately. Levels of nitrite should not exceed 3.2 mg/L
7. NTU - Neophelometric Turbidity Units

Figure 3.4 Clyde River Water Samples
Arctic Bay & Clyde River Truck Fill Stations, NWT

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Gaseous chlorine requires storage in a separate room that is monitored for chlorine gas emissions. Safety equipment and training is necessary to comply with the Occupational Health and Safety Regulations when chlorine gas is used. The transparent of gaseous chlorine is regulated by the Transportation of Dangerous Goods (TDG) and it cannot be transported by passenger airplane. For these reasons, the use of gaseous chlorine is not recommended for small facilities such as the Arctic Bay or Clyde River Truckfill Stations.

Sodium hypochlorite is shipped and stored as a liquid. The liquid is subject to freezing, and is to be stored in a heated room (above -10°C). Sodium hypochlorite used in water treatment is similar to house hold bleach. It is available at 12% available chlorine, whereas bleach is 6% available chlorine. Sodium hypochlorite looses its concentration with time. After 90 days the level of available chlorine drops slowly and may reach a level similar to bleach after 6 months. If the 12% available sodium hypochlorite is diluted to 2% available, the shelf life is significantly extended. The operation of the disinfection system using sodium hypochlorite is relatively simple. The liquid is used directly without mixing. An injection pump is used to inject the liquid into the water as it flows through the truckfill arm.

Calcium hypochlorite is shipped and stored as a powder. There is no concern with freeze protection, and heated storage is not required. Calcium hypochlorite has 65% available chlorine by weight. The powder is mixed with water to make a solution that can be used in the disinfection process. Typically the solution is mixed at a concentration similar to that of sodium hypochlorite (2% available chlorine is typical). The disinfection system for calcium hypochlorite requires a mixing tank, a solution tank, and an injection pump.

Both calcium and sodium hypochlorite are commonly used for disinfection in small facilities. The use of calcium hypochlorite is more common in the NWT. The issues to be addressed in the selection of a disinfectant are; the cost of the optional system; the relative ease of use; and the risk of failure.

Cost of System

Sodium hypochlorite, as a liquid, requires a greater volume of disinfectant to be shipped to site than calcium hypochlorite. Based on 12% available chlorine for sodium hypochlorite and 65% available for calcium hypochlorite the required shipping weight of disinfectant and volume to be shipped to site are as follows:

Disinfectant	Year 0 (1997)	Year 20 (2018)
Calcium Hypochlorite	37 Kg	60 Kg
Sodium Hypochlorite	200 L (200 Kg)	325 L (325 Kg)

The supply and transportation costs associated with each chemicals.

Disinfectant	Supply (Year 0)	Transportation (Year 0)	Life Cycle
Calcium Hypochlorite	$270	$20	$2,850
Sodium Hypochlorite	$160	$77	$2,350

The above is based on using the sealift for all transportation.

Operation

The mechanical and control systems for either disinfectant is similar. The difference is that calcium hypochlorite requires a mixing and solution tank. Typically these are 30 to 60 litre tanks each. They require a floor area of 1.5 m^2 for the tanks. The mixing tank is elevated to allow it to gravity feed into the solution tank. The sodium hypochlorite does not require any additional tanks as it is transported in its own 22 litre container. The tanks and additional space required for the calcium hypochlorite system increases the capital cost of the facility.

The mixing process requires approximately 1 hour of operation time every 2 weeks for the calcium system. Less than 10 minutes per month will be required for the sodium system.

Risk of Failure

As the two systems are mechanically and electrically the same, the risk of failure for these systems are also similar. These is an additional risk associated with the sodium hypochlorite when there is a power failure. The liquid could freeze during an extended power loss. With the calcium system, the mixed disinfectant will also freeze, however, the remaining powdered calcium hypochlorite will not be damaged.

Summary

The use of sodium hypochlorite is operatively more simplistic and user friendly. The difference in supply ad transportation costs for these chemicals is negligible. The sodium hypochlorite has a risk of freezing in the event of a power outage. Should this occur, standard household bleach from the local Northern Store can be used as a substitute until additional sodium hypochlorite is flown in. To assess the risk, it is assumed that each year 50% of the sodium hypochlorite is flown to site.

Item	Sodium Hypochlorite	Calcium Hypochlorite
Supply Cost (Year 1)	$ 77.00	$ 170.00
Transportation Cost (Year 1)	$ 421.00 * 400	$ 7.00
Operations Time (Year 1)	$ 40.00	$ 520.00
Total Annual Cost (Year 1)	$ 1,015.00	$ 1,140.00
Capital Cost	$ 800.00	$ 920.00
Life Cycle Cost	$ 12,000.00	$ 16,000.00

The above analysis indicates that sodium hypochlorite is the more economical system for disinfection. The detailed cost calculation is Appended.

* The transportation cost for sodium hypochlorite in this annalysis is based on 50% of the required volume being transported by air to the community.

The Department of Municipal and Community Affairs selected the use of the calcium hypochlorite for disinfection in these facilities.

4.0 TRUCKFILL STATION

The truckfill station will have the following major components:

1. Building Foundation
2. Truckfill controls and metering
3. Conveyance Pipes
4. Power Supply
5. Freeze Protection
6. Monitoring and Alarms
7. Building Construction
8. Building Layout
9. Site Access
10. Spares and Ancillary Components

The following section will describe these components for each facility.

4.1 Building Foundation

The geotechnical reports completed by Agra Earth and Environmental for the facility locations are included in the appendix. Recommendations for the foundation from these reports are for steel skid mounted building and a granular pad foundation. The granular pads are to be a minimum of 1.0 m in depth.

4.2 Truckfill Controls and Metering

The truckfill control has been established in accordance with the Government of the Northwest Territories standard for similar facilities in other small communities. The truckfill control system will have the following components:

- Truckfill control with one customer key lock. This will have an individual flow accumulator to record cumulative flows. The control will be on the truckfill arm, with a start/stop and resume button. The fill volume for each fill cycle will be variable, however, it will be pre-selected from within the building.

- Building flow totalizer to indicate total volume of water delivered by the truckfill station.

- Flow rate indicator.

- Flow sensor installed in the truckfill pipe to control individual and building flow accumulations.

- Control device for chlorine feed pump.

- Flow switch to interlock with the pump and chlorine pump to avoid damage to the equipment or excessive chlorine injection into an empty line.

- All measurements for the metering are to be in SI units (litres).

The accumulators, flow indicator, and miscellaneous control devices will be located in a main control panel inside the pumphouse. All flow sensor equipment will be by Signet.

4.3 Conveyance Piping

The process piping is required to deliver 1,000 l/min of treated water to the truckfill discharge point. The pump curves for this system have been developed and are shown in **Figure 4.1 and 4.2**. The flow requirements can be met with a 7.5 h.p. pump and a minimum 100 mm discharge line. This is based on the available prime power supply 120 VAC single phase power. The pump will require an inclined shaft casing of 300 mm.

The process piping will consist of the following:

- Off-take pumps and 100 mm HDPE piping DR17, contained within a 300 mm HDPE DR17, insulated with 50 mm of rigid foam and heat traced, incline shaft conduit. The in-take piping will enter the truckfill station and terminate with a flange connection just inside the truckfill station wall.

- The in-take pipe line will be weighted using pre cost concrete weights.

- The in-take will have large diameter (300 to 1,000 mm) riprap installed over the pipeline to protect against mechanical ice damage.

- Galvanized 100 mm Schedule 40 steel piping with Victaulic system connections from the intake to the truckfill discharge point.

- Chlorine injection diffuser, located on the galvanized steel piping within the building.

- Pipeline drain line, that drains the line into the outer casing of the off-take line, after each fill cycle.

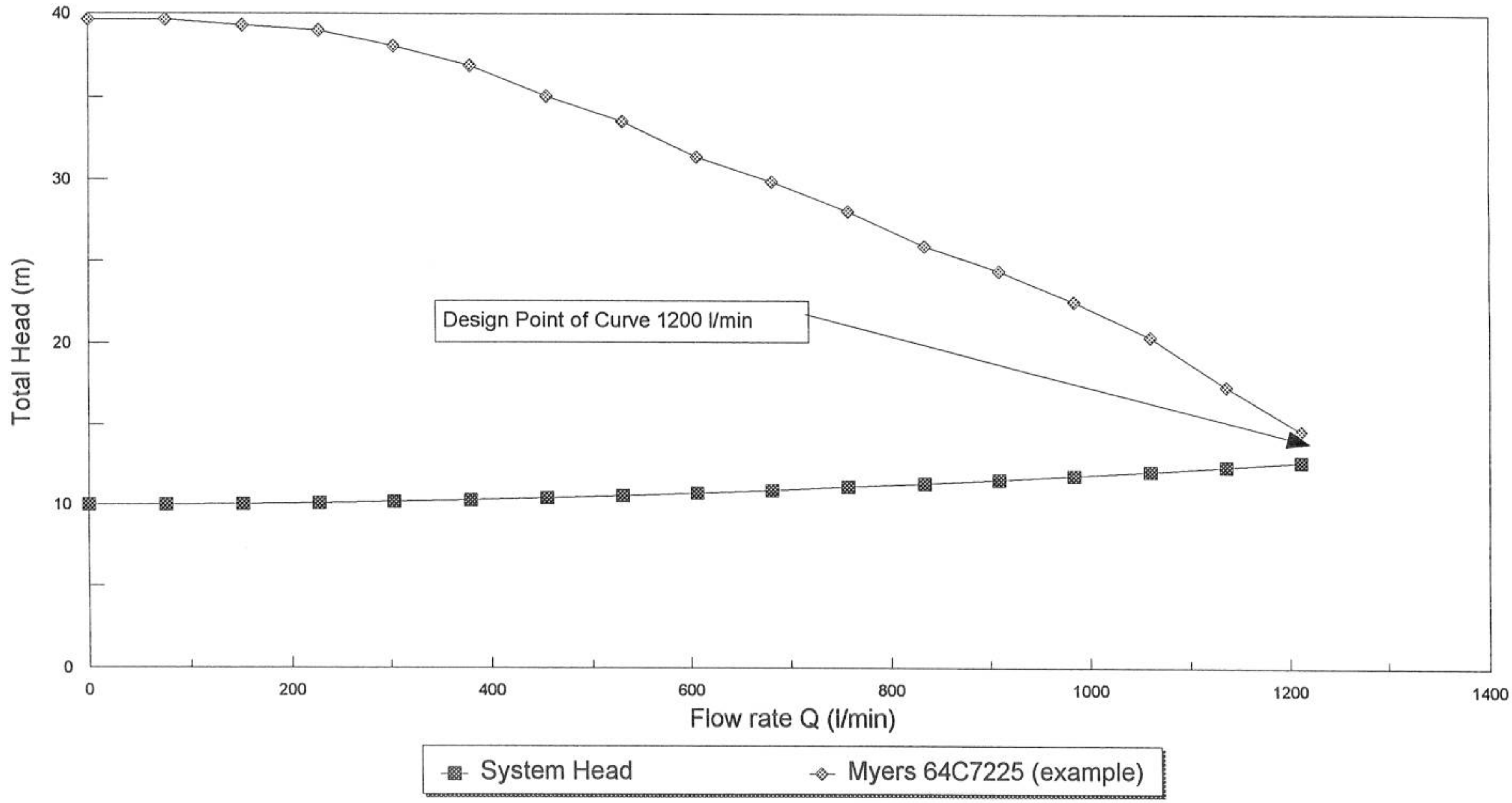

Figure 4.1 Truck Fill Pump Selection- Arctic Bay
Predesign Report, Arctic Bay and Clyde River Truck Fill Stations, N.W.T.
Public Works and Services
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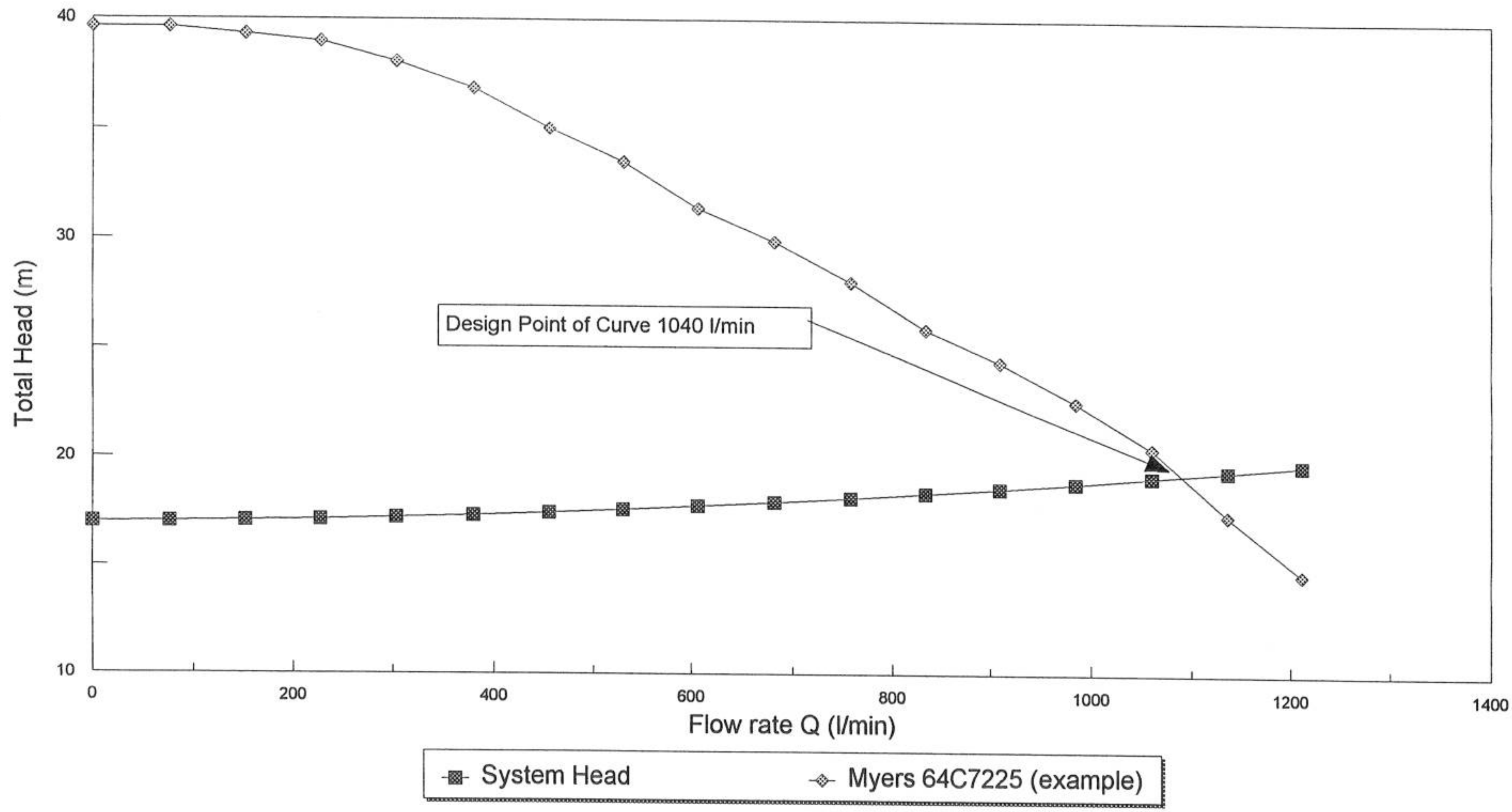


Figure 4.1 Truck Fill Pump Selection- Clyde River
Predesign Report, Arctic Bay and Clyde River Truck Fill Stations, N.W.T.
Public Works and Services
Dillon Consulting limited

- Flow switch to activate the chlorine pump.
- Flow sensor for the truckfill control system.

A schematic of the process piping is shown in **Figure 4.3**.

4.4 Power Supply

Prime Power

Prime power can be obtained from either:

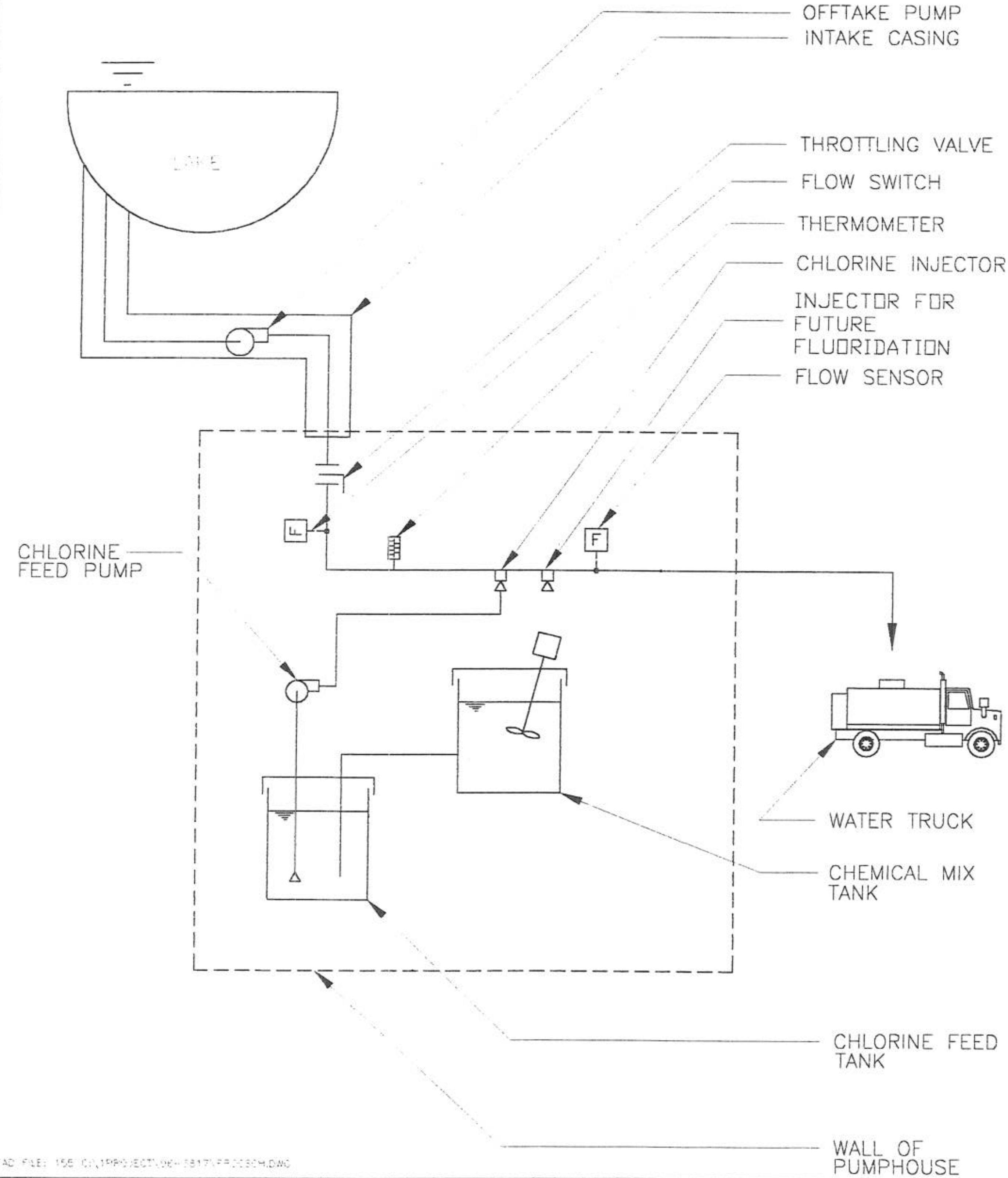
- Northwest Territories Power Corporation's power plant, or
- An on-site electric generator.

Typically, the use of grid power generated by the Power Corporation is the source of prime power. However, the new facilities are not directly adjacent to the community, and a new power line is required to service the truckfill station. Based on estimates received from the Power Corporation, the cost to install the new lines will be approximately:

Clyde River	**700 m**	=	**$ 95,000**
Arctic Bay	**9000 m**	=	**$ 900,000**

The installation of on-site power generation will require:

- A building or space within the truckfill building to house the generator.
- A generator sized to meet the power requirements of the truckfill station.
- Controls, monitoring and alarms for the power supply system.



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PROJECT: ARCTIC BAY AND CLYDE RIVER TRUCKFILL STATIONS, NWT		PROJECT NUMBER: 96-3817
TITLE: PROCESS SCHEMATIC		FIGURE NUMBER: 4.3

The estimated steady-state power requirements of the truckfill station are:

	Power (kW)
• Truckfill Pump	6.0
• Building Heat	0.5
• Heat Trace	1.0
• Lighting	1.0
• Chemical Feed Pumps	0.1
TOTAL	9 kW

This results in a minimal generation requirement of 9 kW. Start-up power for the truckfill pump is not included, but will be approximately 2 kW more for total of 11 kW.

The on-site generator is assumed to run continuously for the 20-Year design horizon. The estimated daily power requirements are 36 kW/h in winter. The capital and life cycle costs of these options are as follows:

Prime Power System	Capital Cost	Operation Cost	Annual Maintenance Cost	Life Cycle Cost		
				4%	8%	12%
Arctic Bay						
Power Line	900,000	2,700	0	937,000	925,000	920,000
On-site Generator	150,000	30,000	6,000	640,000	510,000	420,000
Clyde River						
Power Line	95,000	2,700	0	133,000	122,000	116,000
On-site Generator	150,000	30,000	6,000	640,000	510,000	420,000

The use of an on-site generator at Arctic Bay is significantly more economical and, therefore, recommended over the use of a power line. The generator system will consist of:

- A 9 kW generator and diesel engine.
- Fuel storage for 30 days of operation (calculated to be 792 l, and a 1,120 l tank will be used which will supply 42 days of fuel supply).
- Fuel supply and return line.
- Engine and room ventilation and cooling

Standby Power System	Capital Cost	Operation	Annual Maintenance Cost	Life Cycle Cost		
				4%	8%	12%
Diesel Electric Power	150,000	2,000	6,000	250,000	230,000	210,000
UPS	30,000	1,000	0	44,000	49,000	38,000

The use of a UPS system for Clyde River is significantly more economical and is recommended for this facility.

4.5 Freeze Protection

To protect the water supply system from failure due to freezing, three freeze protection systems are required:

1. Truckfill building heating.
2. In- take casing freeze protection.
3. Truckfill arm.

Truckfill Building

Heating load calculations for the truckfill building are based upon 38 mm x 140 mm wood frame wall construction, vapour barrier, air barrier, and sheathing, with climatic factors of 8,101 degree C days and -45°C January design temperature. Based on these factors, a 4 m x 4 m x 3 m high truckfill building will require 3.2 kW of heat for peak load and an annual requirement of 9,400 kWh. The costs of electricity and diesel fuel for the GNWT in the communities are $0.70/kWh and $0.68/l respectively. The table below shows the estimated costs of heating systems using electric heat or a diesel furnace. For comparison, a heating value of 10 kWh/l was used for diesel.

Freeze Protection System	Capital Cost	Annual Power/Fuel Cost	Annual Maintenance Cost	Life Cycle Cost		
				4%	8%	12%
Diesel Furnace or Unit Heater	3,000	300	5,000	75,000	55,000	42,000
Electric Unit Heater	1,500	3,100	0	46,000	32,000	25,000

The life cycle cost for electric heat is lower than for a diesel furnace. Also, electric heating is much more convenient and the maintenance is minimal. Additionally, electric heating will not require fuel to be stored at the truckfill building, greatly reducing the risk of fire. We recommend the use of an electric unit heater.

In-take Casing and In-take Pipe

The in-take casing and in-take pipe must be protected from freezing. This will be accomplished by electric heat trace cable installed in conduit, located outside the in-take pipe. The cable will be 15 W/m self-limiting, heat trace cable, chosen with the assistance of the manufacturer, such that it will not damage the HDPE pipe. Two lengths of cable will be installed. The second cable will also provide backup in case of failure of the first cable. Automatic controls will be used. The cable will be removable.

Truckfill Arm

A method must be used to protect the truckfill pipe from freezing and to recover the pipe if it freezes. Various methods have been used in past designs, including insulation and heat trace cable. A key to successfully avoiding freezing of the truckfill pipe is to ensure that it drains quickly and completely after use. The truckfill pipe will be installed with a 5% or greater slope back into the pumphouse, and an automatic draining mechanism at the intake. The pipe will be bare steel and not insulated or heat traced. Freezing of the pipe is unlikely, due to the draining system. In the unlikely event that the pipe freezes, a propane tiger torch will be supplied to thaw the pipe.

4.6 Monitoring and Alarms

The truckfill building will have the following monitoring and control system. The system will have two (2) levels of alarms: major and minor. Major alarms will cause an alarm light, and will cause a horn to sound at the pumphouse. Major alarms will activate an auto dialler system that will call the facility operator. At Clyde River this will use the main UPS System, and a land line to the normal phone system. At Arctic Bay the UPS will be included in the auto dialler system, and a remote transmitter system will be used. Minor alarms will only sound an internal horn and flash a light. The alarms for this system are set as follows:

Major
- High building temperature alarm
- UPS failure with power on (Clyde River)
- Power Off/UPS at less than 1 hour storage (Clyde River)
- Power off/Generator failure (Arctic Bay)
- Low fuel level 2 (Arctic Bay)

Minor
- Truckfill pump failure
- Power Off/UPS On
- Building temperature low
- Low fuel level 1 (Arctic Bay)

4.7 Building Construction

There are two types of building construction available for this facility, namely:

- Wood frame, on-site construction.
- Pre-engineered, prefabricated construction, that is built off-site.

The wood frame building would be constructed to the standard for truckfill stations used by the Government of the Northwest Territories Standard as follows:

- Wall construction consisting of 38 mm x 150 mm with 150 mm of fibreglass batt insulation.
- Walls with vapour barrier on the inside and air barrier on the outside of the wall studs.
- Walls with plywood sheathing on the outside face and 50 m of rigid foam insulation.
- The interior of the walls sheathed with dry wall, plywood, and clad with metal siding. (The interior plywood is for convenient equipment installation.)
- Roofing provided by a pre-manufactured truss, or rafter system.

The pre-manufactured building would be constructed to provide the equivalent insulation value as the wood frame building. Several companies produce these structures (Baily, Brytex, Butler), and each have a slightly different building design. Typically these buildings have an insulation value of R-32.

The use of on-site construction will typically add $40,000 to $50,000 to the total facility cost. The increase in cost is a result of the required accommodations, flights and additional man hours on-site for down time. The local involvement created by on-site construction will be approximately 10 man days, or the equivalent of $2,000 in wages the economic benefit to the community is not justified and off-site construction is recommended.

On previous projects, the GNWT has had success with pre-manufactured buildings (Cold Stream). This building type will be used in the final design.

4.8 Building Layout

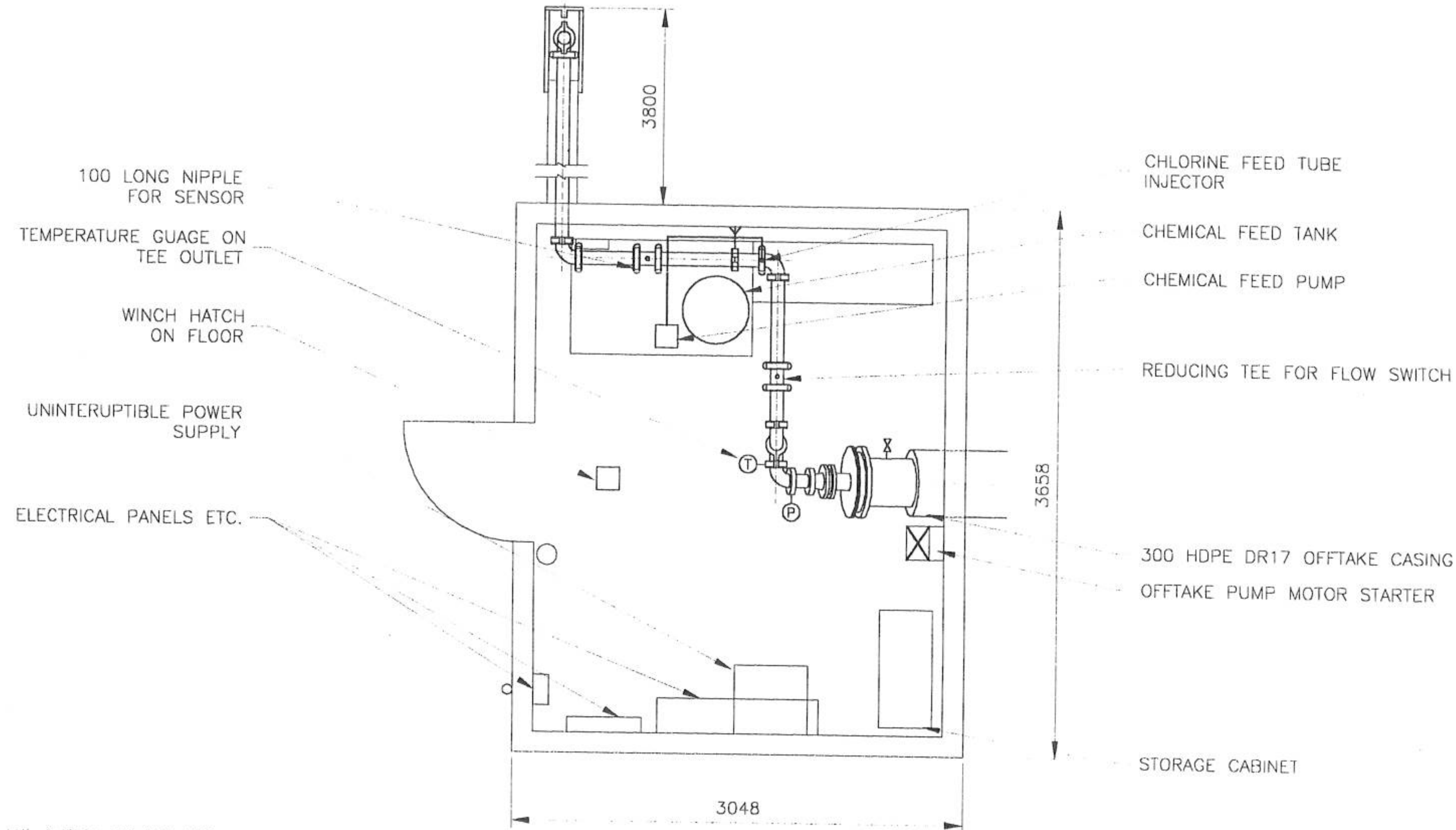
A summary of the requirements for the special allowance for the building is shown below:

- In-take piping and truckfill discharge piping, including allowance for intake pump removal.
- Chlorination system with chlorine pump and injection point.
- Work bench for water testing.
- Control panels, electrical panels.
- UPS System. (Clyde River only)
- Truckfill control box.
- Seasonal fill line through pumphouse.
- Storage of chemicals and spare parts.
- Diesel electric generator, and fuel supply system. (Arctic Bay only)

Future expansion for, and special allocation are to be made for:

- Fluoridation equipment and storage of chemical.
- Filtration equipment. (Arctic Bay only)

Figure 4.4 and 4.5 shows the building layouts providing for the above in each facility.



DILLON CONSULTING

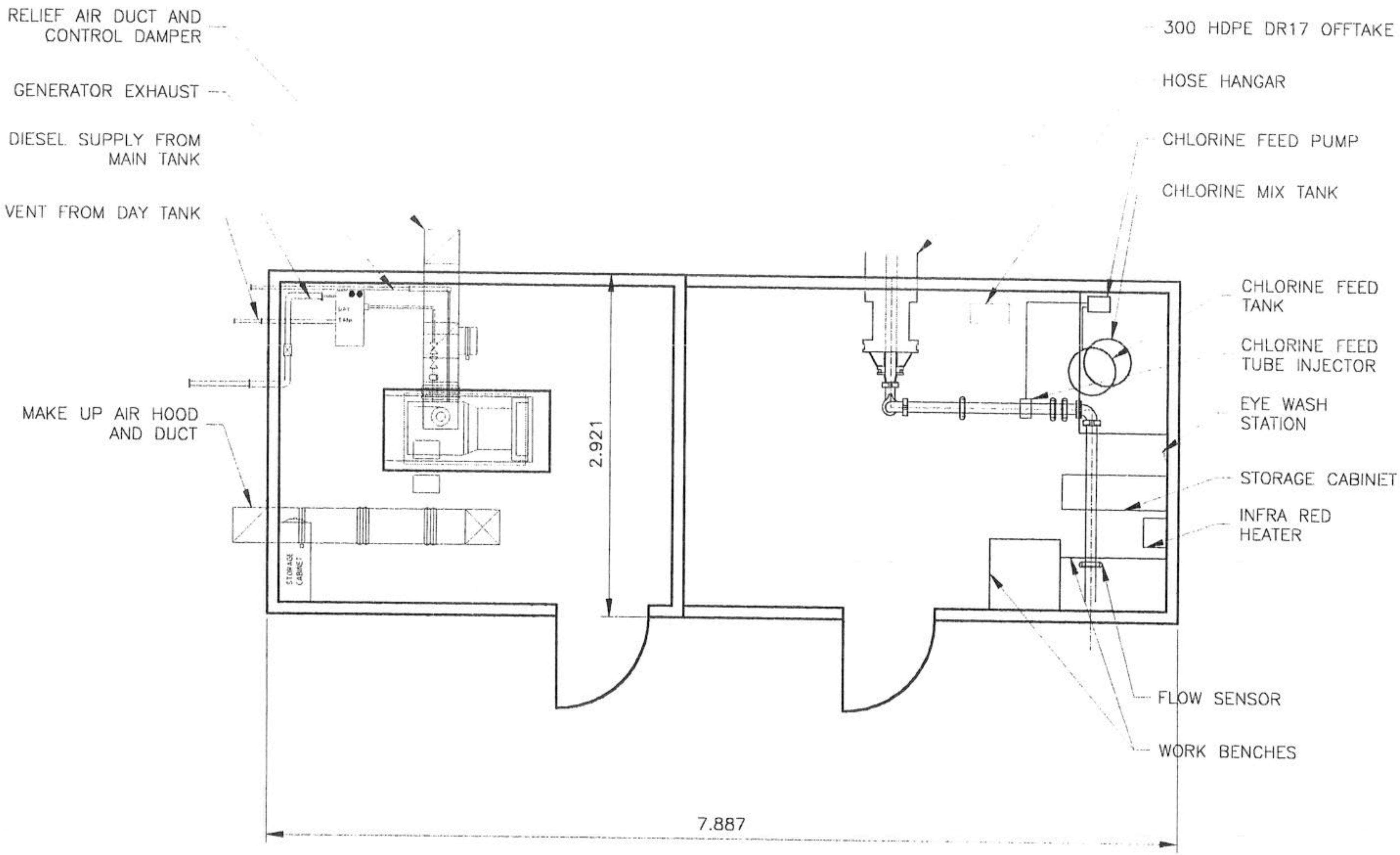
TITLE: ARCTIC BAY AND CLYDE RIVER TRUCKFILL STATIONS, NWT

PROJECT: CLYDE RIVER BUILDING LAYOUT

PROJECT NUMBER: 96-3817

4.4

OCT 96



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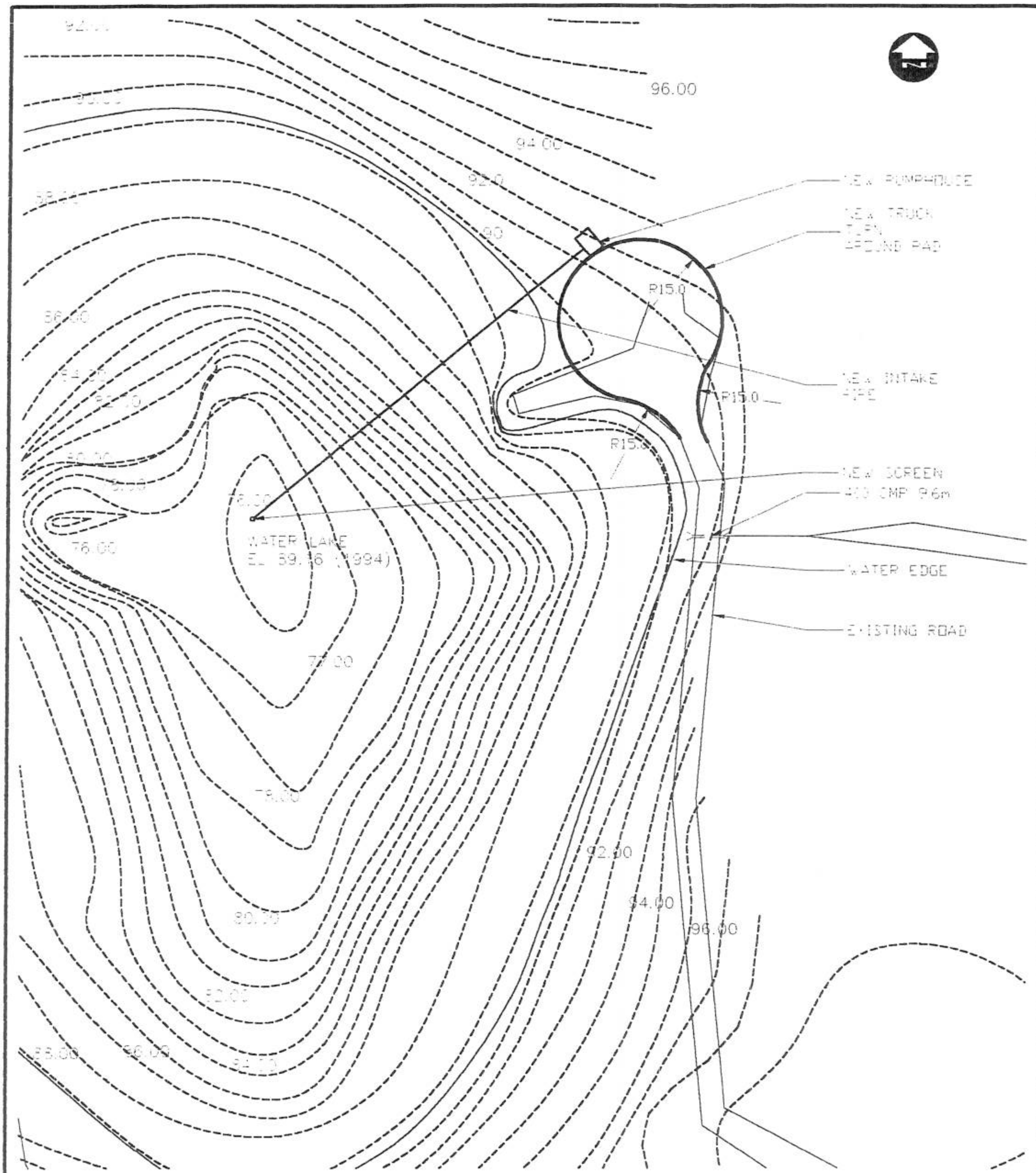
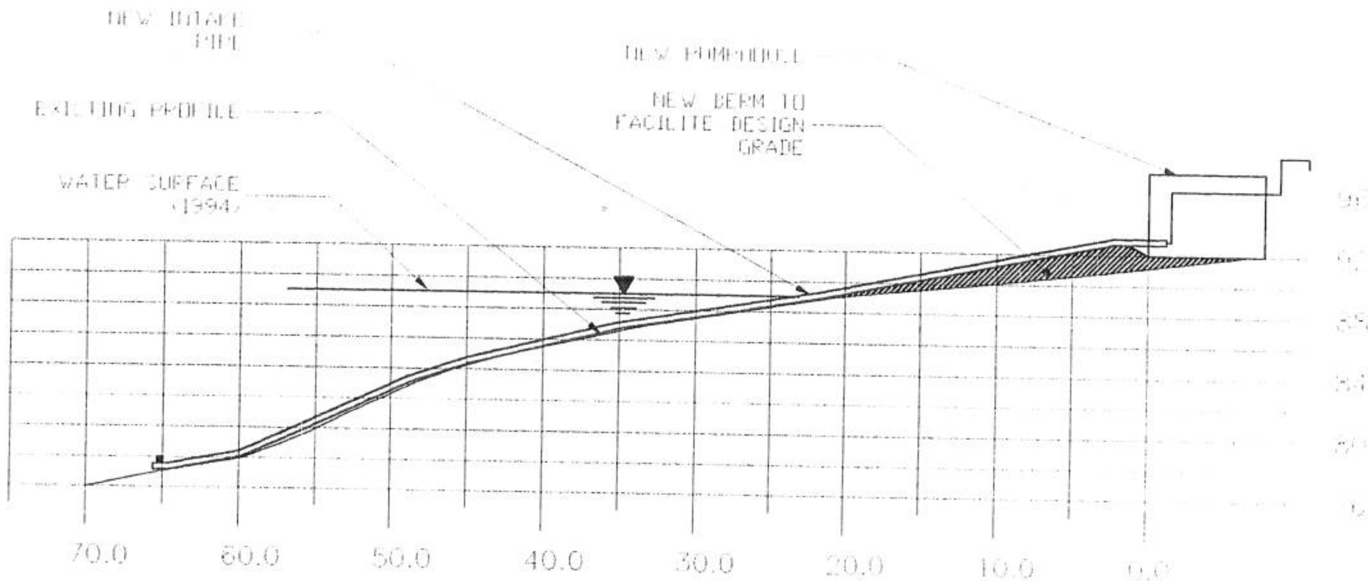
PROJECT: ARCTIC BAY AND CLYDE RIVER TRUCKFILL STATIONS, NWT	PROJECT NUMBER: 96-3817
	DATE: NOV 96
TITLE: ARCTIC BAY BUILDING LAYOUT	FIGURE NUMBER: 4.5



DILLON CONSULTING	PROJECT: ARCTIC BAY AND CLYDE RIVER TRUCKFILL STATIONS, NWT	DATE: OCT 96	PROJECT NUMBER: 96–3817
	TITLE: CLYDE RIVER SITE PLAN	SCALE: 1:1000	FIGURE NUMBER: 4.6



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DILLON CONSULTING

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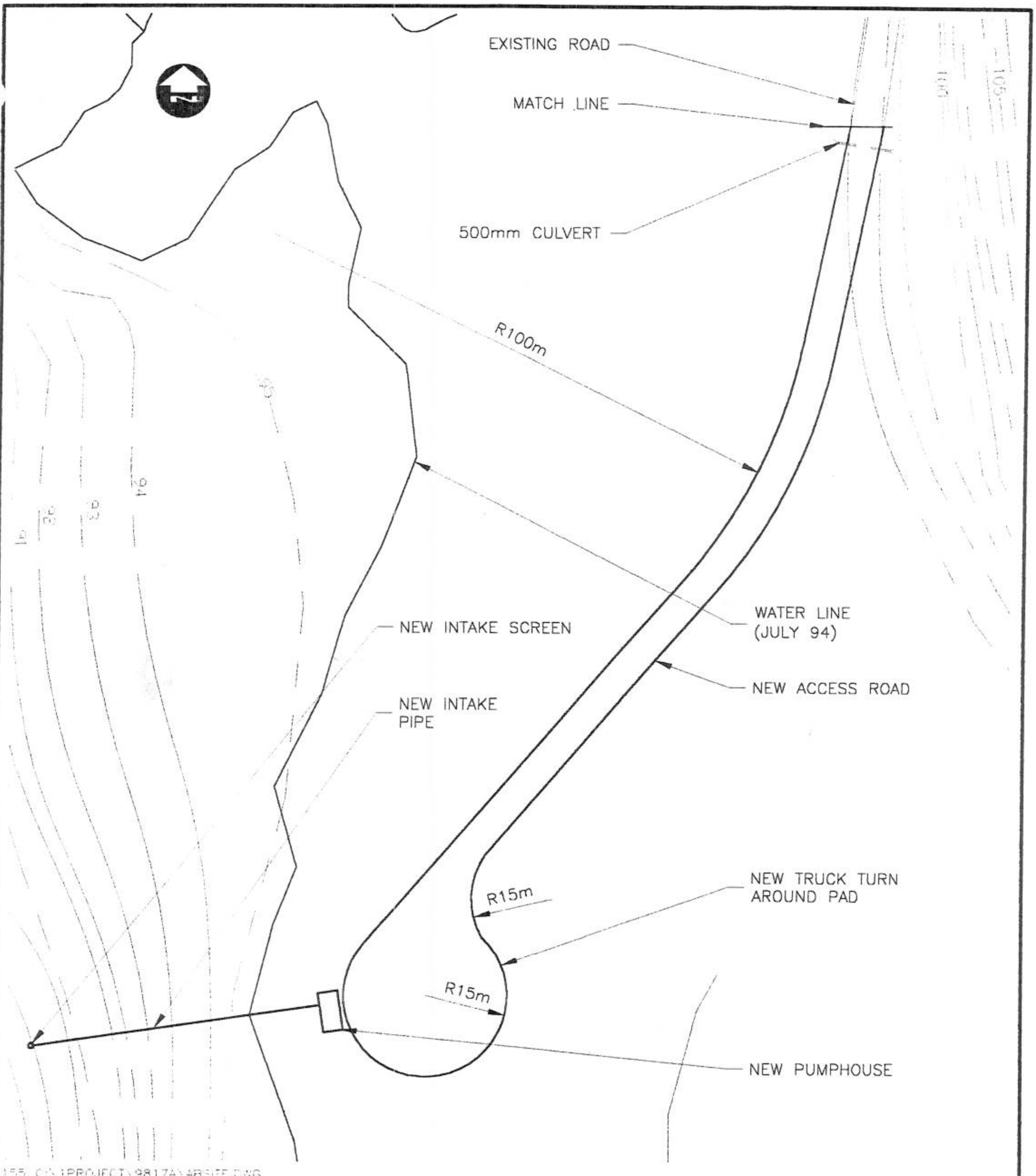
PROJECT: CLYDE RIVER INTAKE PROFILE		FIGURE NUMBER: 4.7
		DATE: OCT 96



DILLON CONSULTING	ARCTIC BAY AND CLYDE RIVER TRUCKFILL STATIONS, NWT	NOV 96	96–3817
	ARCTIC BAY SITE PLAN	1:1000	4.8

4.10 Spares and Ancillary Components

The following is a list of spares, replacement parts, and ancillary components that will be included.

Spare Components	Parts
In-take Pump	• 1 complete submersible pump complete with power cable.
Calcium Hypochlorite Feed System	• 3 replacement part kits for chemical pump. • 1 chlorine flow switch. • 1 chemical feed pump. • Nylon tubing.
Eyewash	• 1 spare container of solution.
Lighting - exterior	• 2 spare lamps each type.
Distribution Panel	• 2 breakers of each size and type.
Terminal Blocks	• 1 set of blocks for each size and type installed including end caps, end plates, cross connectors and tear-off markers.
Fuses	• Unless noted elsewhere, 12 spares for each type required in facility.
Motor Starters	• 6 of each type of pilot light and over load heaters. • 1 of each type of coil and contact.
Control Devices	• 1 of each type of push button pilot light and lens. • 1 spare rotational water flow paddle wheel. • 1 spare flow display/totalizer. • 1 spare flow switch.
Alarm Panel	• 1 alarm annunciator.
6 of each Fuses or Mini-breaker	• 2 of each relay and timer. • 1 of each relay and timer base.
Generator (Arctic Bay Only)	• Fuel filters (12) • Oil filters (12) • Oil 30 @ 4L • Belts • Air filters (18)
K Valves	• 1 spare of each type of valve.
Themostats	• 1 spare of each type of thermostat.
Heat Trace	• Spare controller • Spare thermostat
Miscellaneous	• Damper motors • Fan motors • Timers

Miscellaneous Equipment

1. Fire Extinguisher: One (1) Ansul A20E, Class ABC, UL listed, 9 kg capacity, external nitrogen cartridge Foray powder with wall mounting brackets. Mount on wall near exterior door.

2. Dustmasks: Fisher 11-875-54 disposable masks supply three(3) packs of 50 masks each.

3. Face Shield: One (1) Fisher 11-409-5, optically clear 1.5 mm polycarbonate shield with adjustable head band.

4. Gloves: Twelve(12) Fisher 11-394-30, large, extra long, heavyweight rubber gloves, 19 mm by 380 mm length.

5. Apron: One (1) Fisher 01-357 double coated abrasion resistant, rubberized cloth apron.

6. Fush Broom: One (1) Dustbane 403089, 600 mm wide, horse hair and synthetic bristle broom with handle.

7. Mop: One (1) Dustbane 481127, Syntex Flat size #20 with handle.

8. Mop Bucket and Wringer: One (1) Dustbane No. 2024X, 27 L, round, with Cam Squeezer Wringer.

9. Dust Pan: One (1) Dustbane No. 8 Hooded 300 mm.

10. Garbage Can: One (1) 100 L, galvanized, with cover.

11. Floor Cleaner: Dustbane No. 501379 Liquid cleaner, one (1) 20 L container.

12. Lighting: Two (2) fluorescent tubes and One (1) low temperature ballasts.

13. Storage Cabinet:

    1 Combination shelving/wardrobe unit.

    2 Two (2) doors.

    3 Four (4) half shelves.

    4 Pre-finished in grey.

    5 Standard of Acceptance: Par Equipment Ltd. Model No. 4273

14. Work Benches: (Supply one (1), 1200 mm x 760 mm x 825 mm high, heavy duty construction steel table, no shelves.

15. Cabinet Table: 610 mm x 610 mm x 860 mm high, 50 mm lip on three sides of top, locking cabinet door.

16. Stepstool: 400 mm diameter, treaded top, expanded step, one piece construction, anti-skid bottom with retractable castes.

17. Hand Winch: 1500 lbs. hand winch, 5,1:1 gear ratio.

18. Hach Kit Dr 100 c/w 1 year supply of consumables (100 pillows)

19. Hach pH Kit (Clyde River) c/w 1 year supply of consumables.