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June 28, 2007

Phyllis Beaulieu, Manager of Licensing  
Nunavut Water Board  
P.O. Box 119  
Gjoa Haven, NU  
X0E 1J0

VIA EMAIL Phyllis Beaulieu - [licensing@nunavutwaterboard.org](mailto:licensing@nunavutwaterboard.org)

Dear Ms. Beaulieu

**Re: Doris North Water License Pre-Hearing Technical Meeting Information Supplement – New Material for Item #10 (Sewage Treatment Plant)**

Following our submission of the June 25<sup>th</sup> "Water License Pre-Hearing Technical Meeting Information Supplement" we received additional engineering design drawings from Sanitherm Engineering Ltd. for the planned Doris North SaniBrane membrane bio reactor sewage treatment plant. Primarily these drawings show the addition of a third 40' long container to house the sludge storage and filtering equipment.

The following is replacement text for Item #10 - Sheet 1 addressing the proposed change in the planned sewage treatment plant technology. I have underlined where text has been changed from the June 25<sup>th</sup> submission for ease of review.

**Item #10 – Sewage Treatment Plant Process Design Change**

Based on a recommendation from SNC-Lavalin, MHL have proposed that the Doris North packaged sewage treatment plant (STP) be changed from a rotary biological contactor type of plant as described in the April 2007 Water License application to a SaniBrane Membrane bio reactor similar to the units installed at the Snap Lake and Diavik Diamond Mine Projects. These newer membrane bioreactor sewage treatment systems are reported to be easier and cheaper to maintain and operate in Northern Climates and achieve better treatment levels than the rotary biological contactors. A flowsheet for the proposed Doris North Membrane Bio-reactor STP is presented in Sanitherm Drawings 070072-A3822-D1 and 070072-A3822-D2. The STP would come to site pre-constructed inside three 40' long shipping containers. A plan view of this STP arrangement is presented in Sanitherm Drawings 070072-A3822-P01, 070072-A3822-P02 and

070072-A3822-P05. Cross-sectional plans for the three containers are presented in Sanitherm Drawings 070072-A3822-P03, 070072-A3822-P04 and 070072-A3822-P05 respectively.

A membrane bioreactor (MBR) combines one of the oldest and most mature wastewater treatment technologies with the very newest. It is an activated sludge treatment plant combined with an extremely effective clarifier. The basic operating theory behind membranes is conventional biological treatment combined with a semi-permeable barrier that precludes mixed liquor suspended solids (MLSS) from being discharged from the biological reactor. This semi-permeable barrier is generally an engineered plastic such as PVDF or PVC, perforated with innumerable tiny holes less than one micron in diameter – smaller than the size of the MLSS. Clear, treated liquid is drawn through the openings, either by gravity or by using a pump. Normally, such a semi-permeable barrier would plug immediately after being placed in the MLSS tank, but proper design prevents solids from accumulating on the membrane surface and “blinding” the holes. Generally speaking, there are two wastewater membrane configurations. Hollow-fibre designs resemble spaghetti strands with hollow centres. Flat-plate designs consist of plates with membrane fabric on each side. SaniBrane® designs are strictly flat-plate, which allows optimum air-scouring to keep the membrane surfaces clean.

At Snap Lake the SaniBrane Membrane Bioreactor sewage treatment plant is reported to be achieving BOD levels below the 5 mg/L detection level, less than 2 mg/L Total Suspended Solids and fecal coliform concentrations less than the 15 F.C./100 ml detection limit. In MHBL's opinion this change in sewage treatment plant technology is neutral from an environmental impact assessment point of view and does not significantly alter previous assessment predictions related to wastewater treatment at the Doris North Project.

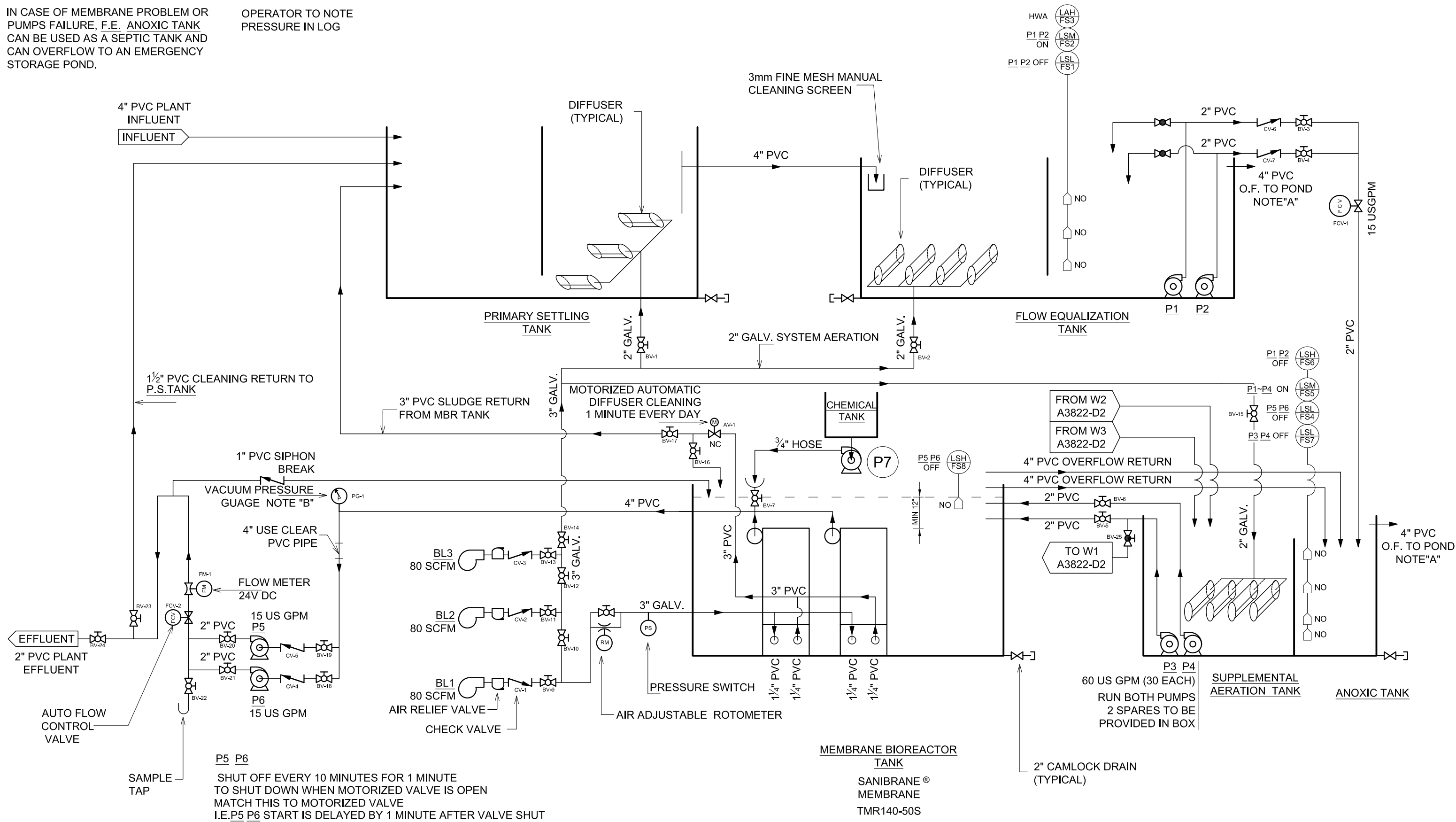
As part of this change/modification all sewage sludge will now be filtered, bagged, dried and then incinerated on site rather than being pumped to the tailings containment area for co-disposal with the tailings. The treated grey water will still report to Tail Lake as previously planned. The volume of dried sludge to be incinerated is small and is not expected to have any significant impact on air quality emissions from on-site camp incinerator.

Regards  
Miramar Hope Bay Ltd.

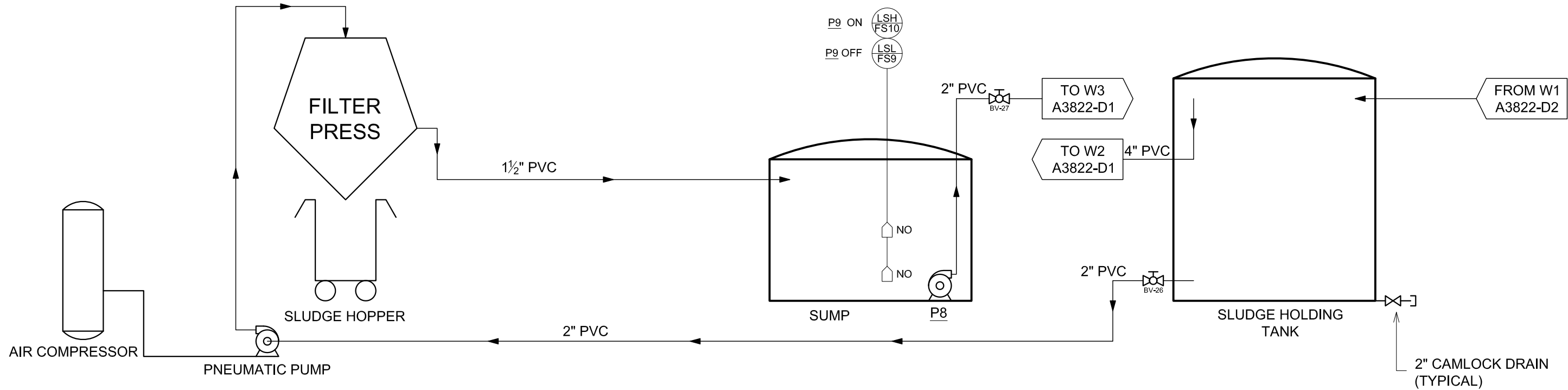
Larry Connell  
General Manager, Environment

IN CASE OF MEMBRANE PROBLEM OR PUMPS FAILURE, F.E. ANOXIC TANK CAN BE USED AS A SEPTIC TANK AND CAN OVERFLOW TO AN EMERGENCY STORAGE POND.

OPERATOR TO NOTE  
PRESSURE IN LOG

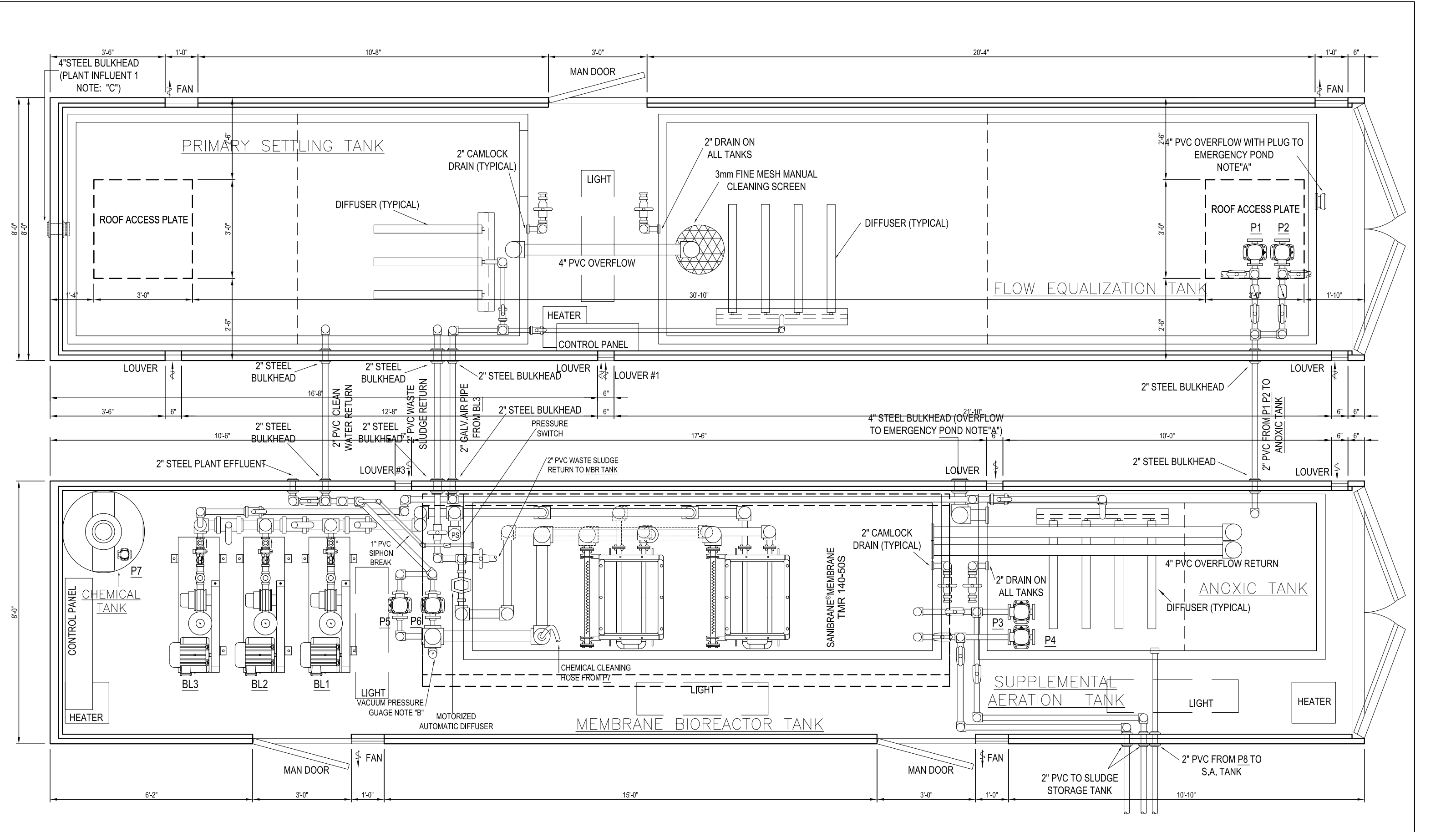


				<div>SANITHERM ENGINEERING LTD.</div> <div>SUITE 100 - 340 BROOKSBANK AVENUE, NORTH VANCOUVER, BC, V7J 2C1, CANADA</div> <div><div>TEL: (604) 986 - 9168</div><div>FAX: (604) 986 - 5377</div></div> <div><div>E-MAIL: <a href="mailto:saneng@sanitherm.com">saneng@sanitherm.com</a></div><div>WEBSITE: <a href="http://www.sanitherm.com">www.sanitherm.com</a></div></div>		PROJECT 180 MAN CAMP			PROJ. NO.	
						CLIENT MIRAMAR DORIS NORTH			REV. NO. 1	
						TITLE SANIBRANE® MBR - P&ID				
REVISION	DATE	DESCRIPTION			DRAWN BY K.C.D.	CHECKED BY	DATE 22-JUN-07	SCALE N.T.S.	DRAWING NO. 070072-A3822-D1	



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				PROJECT180 MAN CAMP		PROJ. NO.		
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REVISION	DATE	DESCRIPTION		DRAWN BYT.Y.		CHECKED BY	DATE07-JUN-07	SCALEN.T.S.
			SANITHERM ENGINEERING LTD. SUITE 100 - 340 BROOKSBANK AVENUE, NORTH VANCOUVER, BC, V7J 2C1, CANADA TEL: (604) 986 - 9168 FAX: (604) 986 - 5377		E-MAIL: saneng@sanitherm.com WEBSITE: www.sanitherm.com			

NOTE "A"

IN CASE OF MEMBRANE PROBLEM OR PUMPS FAILURE, F.E. ANOXIC TANK CAN BE USED AS A SEPTIC TANK AND CAN OVERFLOW TO AN EMERGENCY STORAGE POND.

NOTE "B"

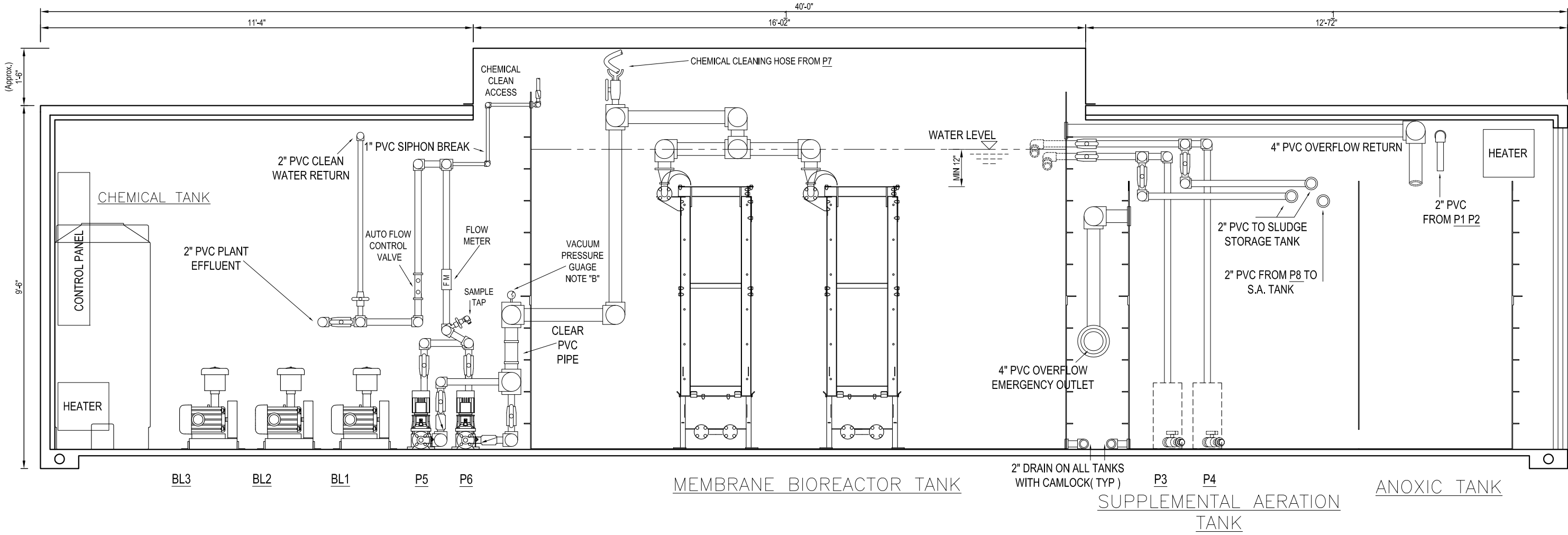
OPERATOR TO NOTE PRESSURE IN LOG

NOTE "C"

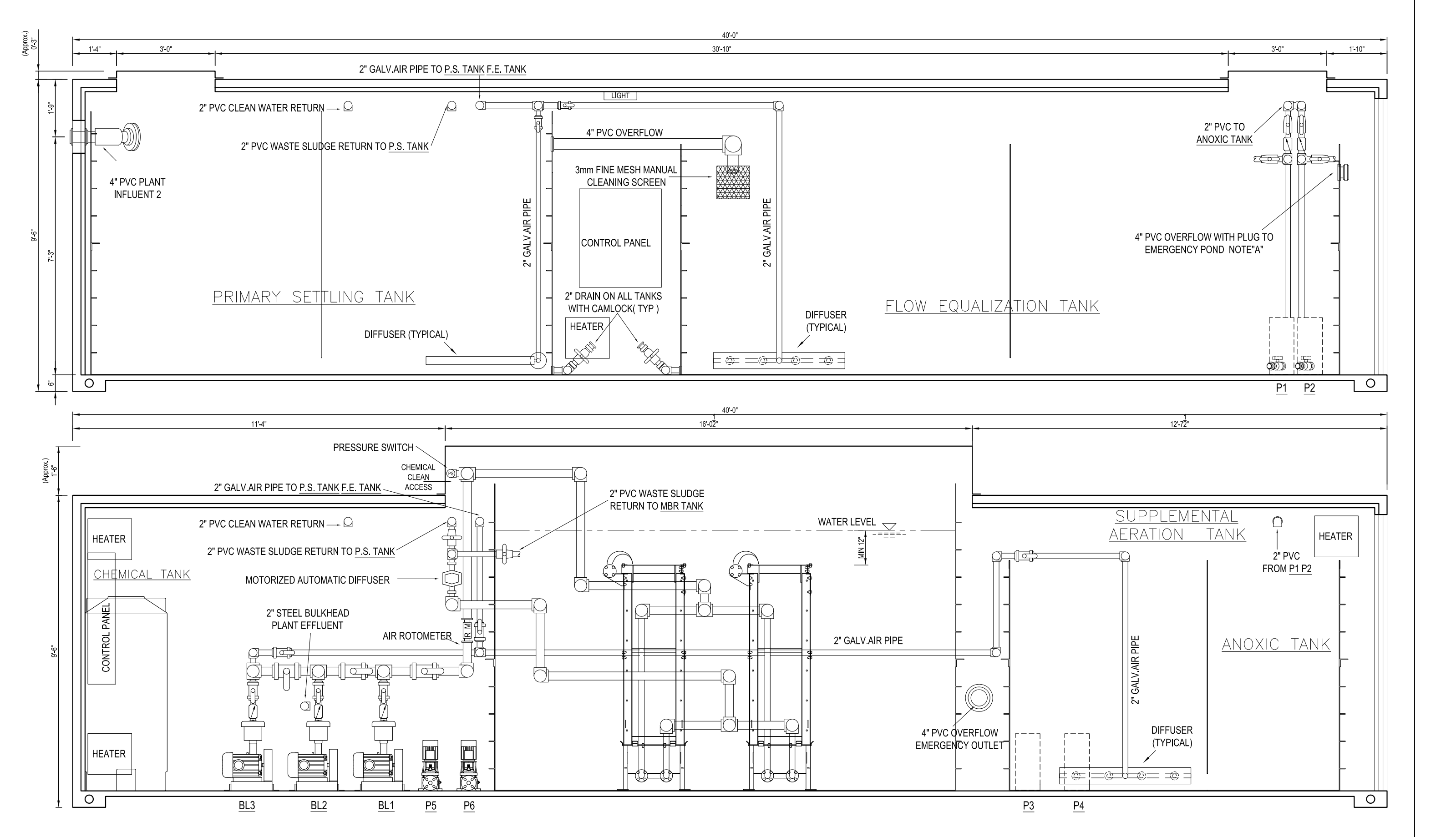
AT CENTERLINE OF 12"X12" PLATE WITH ALUMINIUM PLATE COVER

NOTE "D"

P7 SUPPLIED BY OTHERS

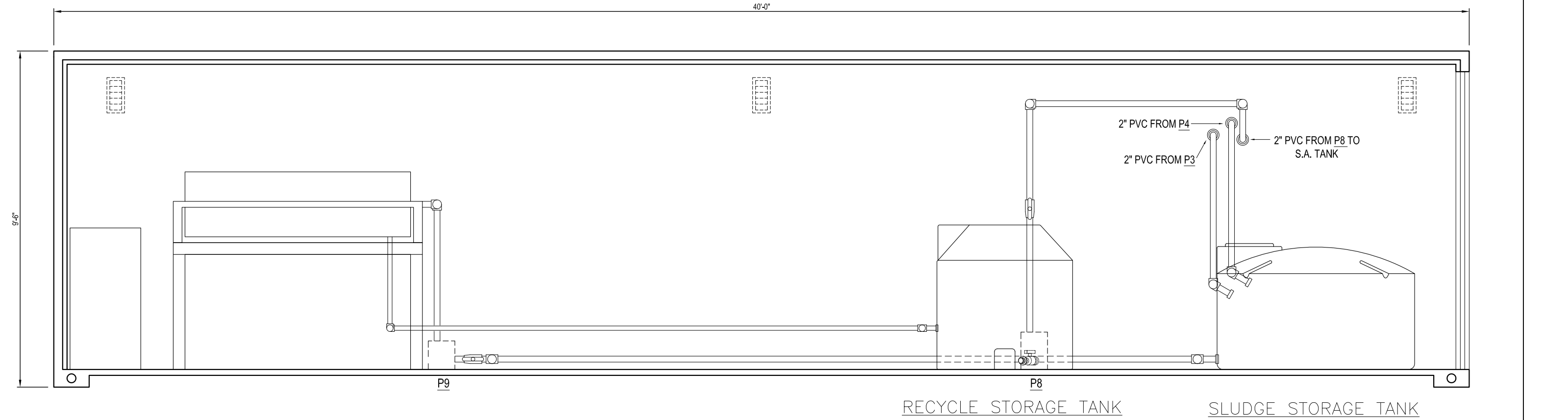
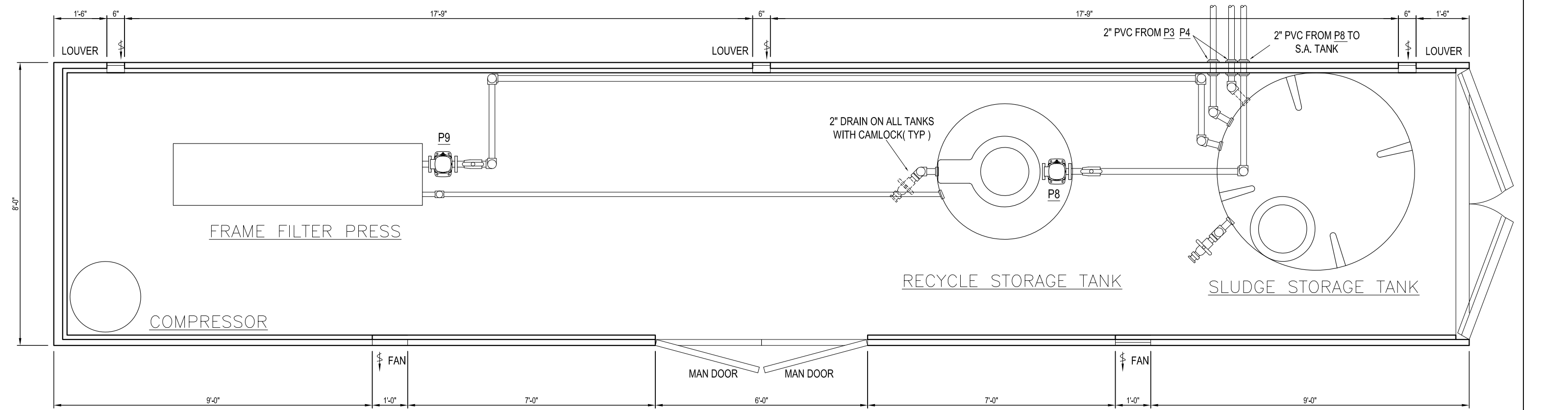


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