



**KOERS
& ASSOCIATES
ENGINEERING LTD.**
Consulting Engineers

PO BOX 790
194 MEMORIAL AVENUE
PARKSVILLE, BC V9P 2G8
Phone: (250) 248-3151
Fax: (250) 248-5362
www.koers-eng.com

December 18, 2024
File: 2423-243-01

Regional District of Nanaimo, Greater Nanaimo Pollution Control Centre
4600 Hammond Bay Road
Nanaimo, B.C. V9T 5A8

Attention: **Zach Suhan**
Senior Operator, Wastewater Services

Re: **Engineer Certification for Wastewater Isolation**

Project Name	Sedimentation Tank Maintenance
Project Location	Greater Nanaimo Pollution Control Center (GNPCC)

Project Description: The project involves the repair and maintenance to the existing piping, and other related components in Sedimentation Tanks No. 1, 2, 3 and 4. This Work will require a confined space entry program.

The entry points for wastewater flow into this work area that will require isolation are listed below and are shown on the attached sketches:

Sedimentation Tank No. 1

- 1) Through one (1) 965 mm x 1400 mm aluminum plate slide gate on the inlet of the tank.
- 2) Through one (1) 150 mm dia. plug valve on the sludge discharge outlet of the tank.

Sedimentation Tank No. 2

- 1) Through one (1) 965 mm x 1400 mm aluminum plate slide gate on the inlet of the tank.
- 2) Through one (1) 150 mm dia. plug valve on the sludge discharge outlet of the tank.

Sedimentation Tank No. 3

- 1) Through one (1) 965 mm x 1400 mm aluminum plate slide gate on the inlet of the tank.
- 2) Through one (1) 150 mm dia. plug valve on the sludge discharge outlet of the tank.

Sedimentation Tank No. 4

- 1) Through one (1) 1195 mm x 1250 mm stainless steel plate slide gate on the inlet of the tank.
- 2) Through one (1) 150 mm dia. plug valve on the sludge discharge outlet of the tank.

It should also be noted that there is an effluent channel that flows adjacent to the sedimentation tanks. The channel has the ability to flow into the sedimentation tanks if effluent levels in the channel exceed the weir wall heights of the sedimentation tanks. Effluent levels in the existing channel are to be monitored during the Work.

It is our understanding that the tanks will be shut down individually for maintenance and the other tanks will remain in service.

This certification will be part of the confined space entry safe work procedures developed for the project.



December 18, 2024

File: 2423-243-01

Regional District of Nanaimo

Attn: Zach Suhan

Area Description: (See Attached Sketches)

1.

Item	Slide Gates (3 locations)
Location	Aluminum Slide Gates (Tank 1, 2 and 3 Inlet)
Installed	Tank 1, 2 and 3 - 1973
Pressure Rating (psi)	N/A
Operating Pressure (psi)	0 - 2 psi
Comments	- Aluminum gates are constructed out of ¼" plate with 3 L3 x 2x ¼" - channel stiffeners. - The aluminum gates do not have a gasket and are subject to potential leakage. Prior to starting the Work, the slide gates are to be closed and confirmed to be drip tight. - Based on discussions with the RDN, if the slide gates do not seat properly and leakage is detected, an additional secondary barrier will be installed prior to starting the Work. - An electric submersible pump will be used during the Work to discharge any flow that bypasses the primary barrier, as well as water from the cleaning process. - A second submersible pump shall be onsite in the event of pump failure. - The electric submersible pump with a capacity of 3.0 lps (50 usgpm) is to be placed in the tank sump and is to run continuously during the works. - Leakage around the slide gate is to be monitored during construction and shall not exceed 50% of the pump capacity. If leakage through this primary barrier exceeds 50% of the pump capacity, the work is to be stopped immediately, and a second pump installed.

2.

Item	Slide Gate (1 Location)
Location	Stainless Steel Slide Gate (Tank 4 Inlet)
Installed	Tank 4 - 2013
Pressure Rating (psi)	N/A
Operating Pressure (psi)	0-2 psi
Comments	- The stainless steel gate is constructed out of ¼" 304L SS plate with 3.5" stiffeners. - The stainless steel gate does have a rubberized gasket. Prior to starting the Work, the slide gate is to be closed and confirmed to be drip tight. - Based on discussions with the RDN, if the slide gates do not seat properly and leakage is detected, an additional secondary barrier will be installed prior to starting the Work. - An electric submersible pump will be used during the Work to discharge any flow that bypasses the primary barrier, as well as water from the cleaning process. - A second submersible pump shall be onsite in the event of pump failure.

KOERS & ASSOCIATES ENGINEERING LTD.



December 18, 2024

File: 2423-243-01

Regional District of Nanaimo

Attn: Zach Suhan

	- The electric submersible pump with a capacity of 3.0 lps (50 usgpm) is to be placed in the tank sump and is to run continuously during the works. - Leakage around the slide gate is to be monitored during construction and shall not exceed 50% of the pump capacity. If leakage through this primary barrier exceeds 50% of the pump capacity, the work is to be stopped immediately, and a second pump installed.
--	---

3.

Item	Plug Valves (4 Locations)
Location	Sludge Discharge (Tank 1, 2, 3 and 4 Outlet)
Installed	Based on discussions with RDN staff, the valves have been replaced in the last 8 years.
Pressure Rating (psi)	175 psi
Operating Pressure (psi)	10-15 psi
Comments	- Valves are located on the outlet of the sedimentation tanks. - Based on discussions with the RDN, the plug valves are controlled by electric actuators and are operated every 45-minutes. The secondary knife gates are controlled manually and are operated on an annual basis. - Prior to starting the Work, the outlet valves of the tank that is being isolated should be closed, the plug valve actuator and knife gate manual wheel locked out, and a bleed connected. - Prior to starting the Work, the downstream valve shall be exercised and confirmed to be drip tight. If the downstream valve does not seat properly and leakage is detected the valve is to be replaced or a CL150 blind flange shall be installed.

Based on the information provided above, I Cody Morris, P.Eng., certify that the existing valves and slide gates, installed to prevent sewage inflow into the proposed work area for the maintenance of the sedimentation tanks, are adequate to be used for isolation for the scheduled confined space entry.

This certification, as detailed in this document, shall be valid until **December 31, 2025.**

Any modifications to the existing valves or gates will require this certification form to be revised, subject to the review of the installed materials by the Engineer.

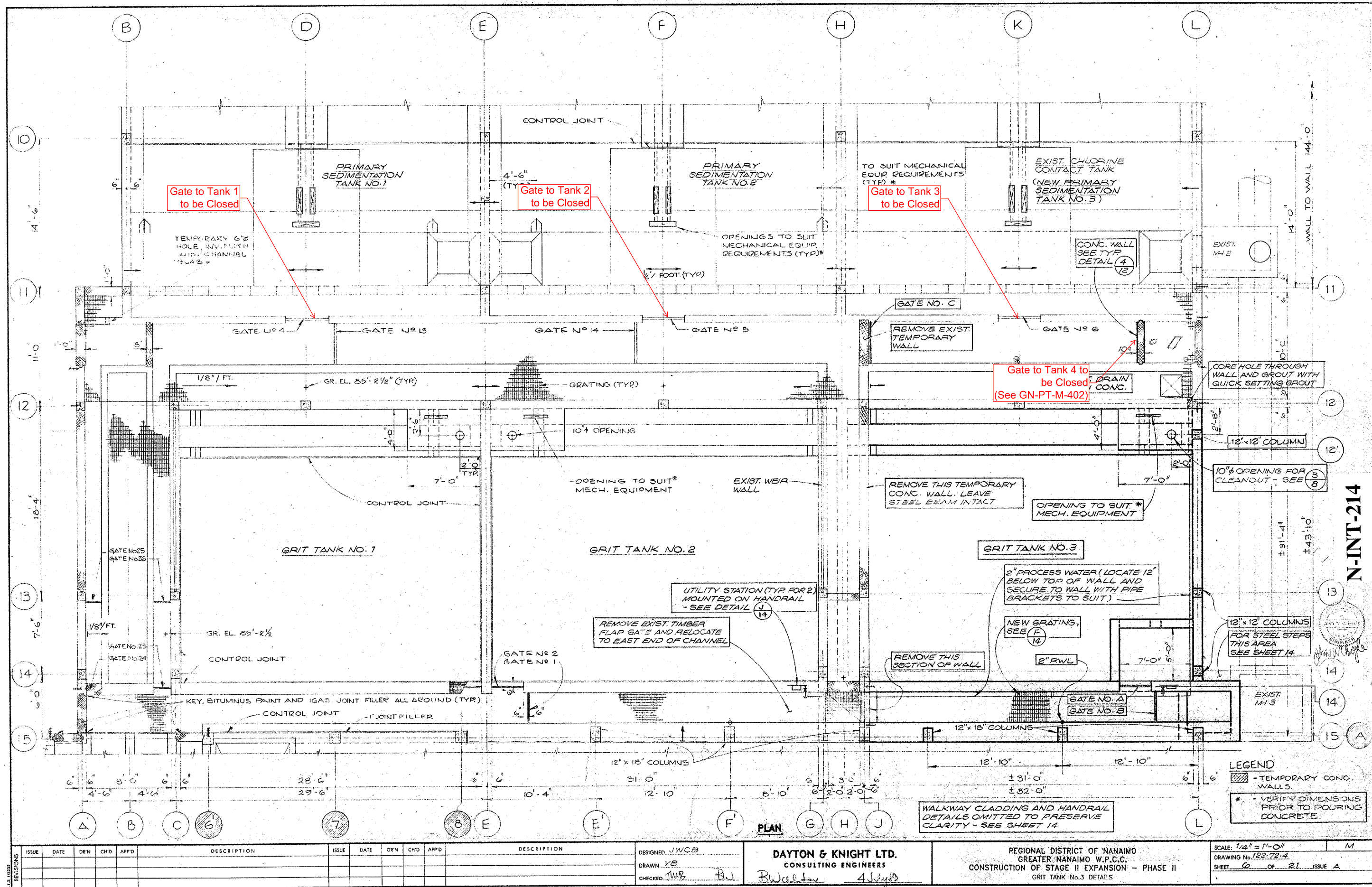
Engineer Signature & Seal

Permit to Practice No. 1001658

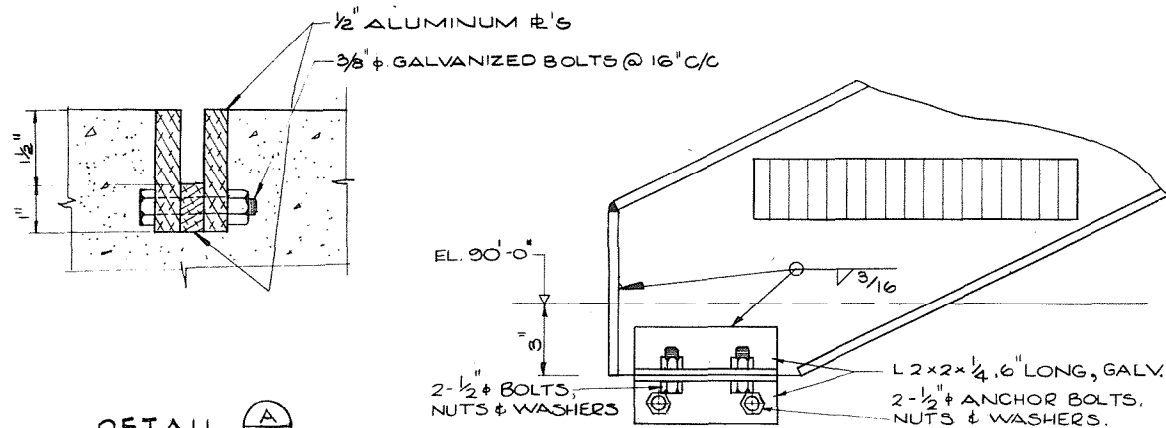
KOERS & ASSOCIATES ENGINEERING LTD.



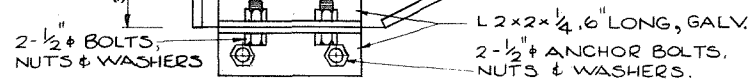
N-INT-214



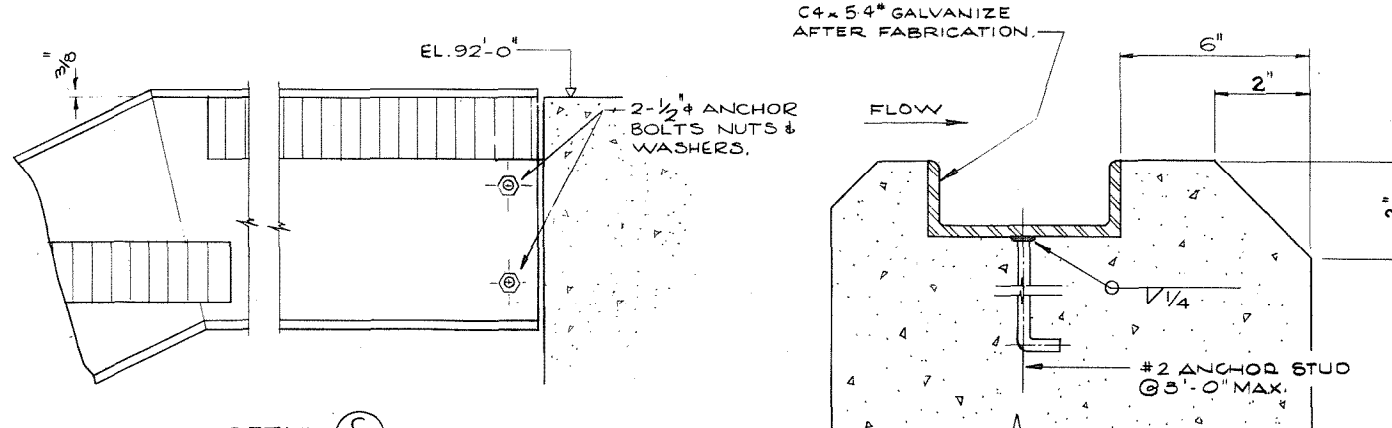
N-INT-214



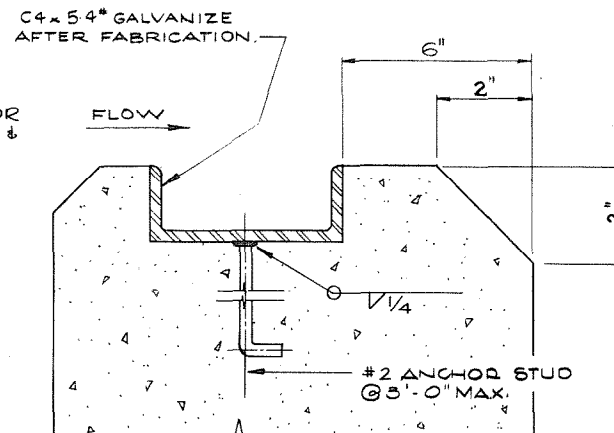
DETAIL A
SCALE: 1/2" = 1'



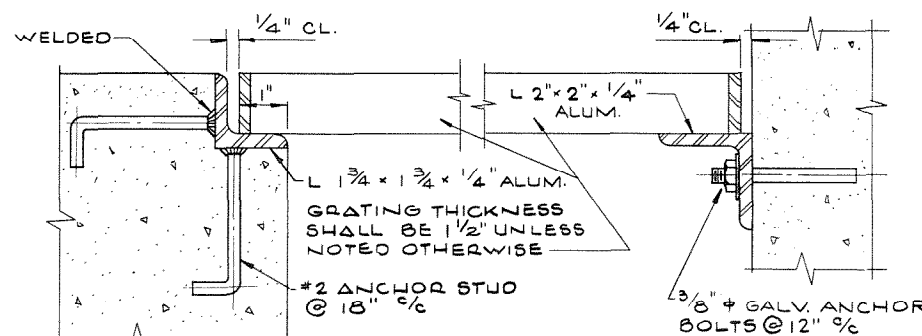
DETAIL B
SCALE: 3/4" = 1'-0"



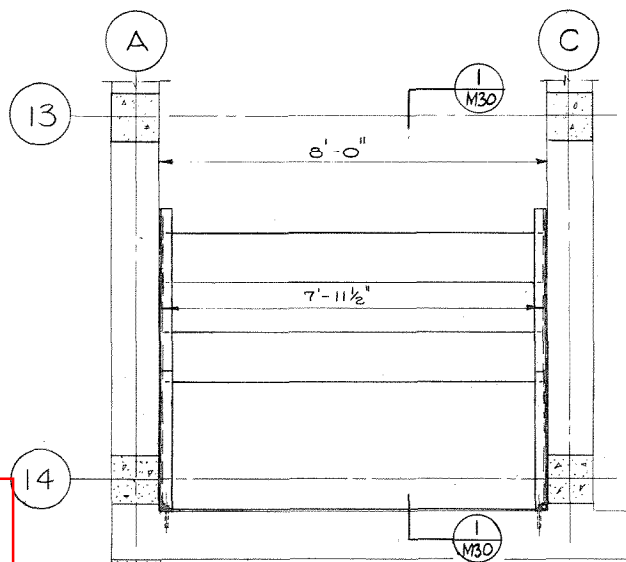
DETAIL C
SCALE: 3/4" = 1'-0"



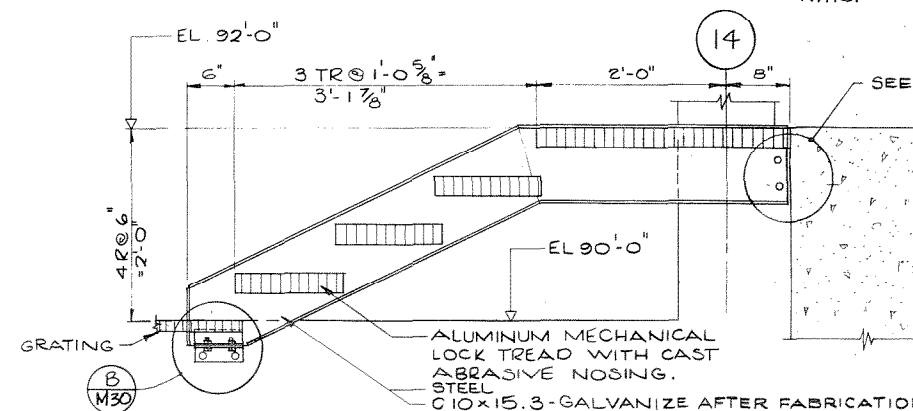
DETAIL D
SCALE: 3/4" = 1'-0"



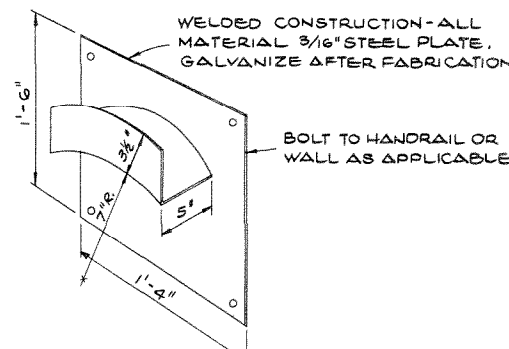
TYPICAL GRATING AND SUPPORT
SCALE: 1/2" = 1'



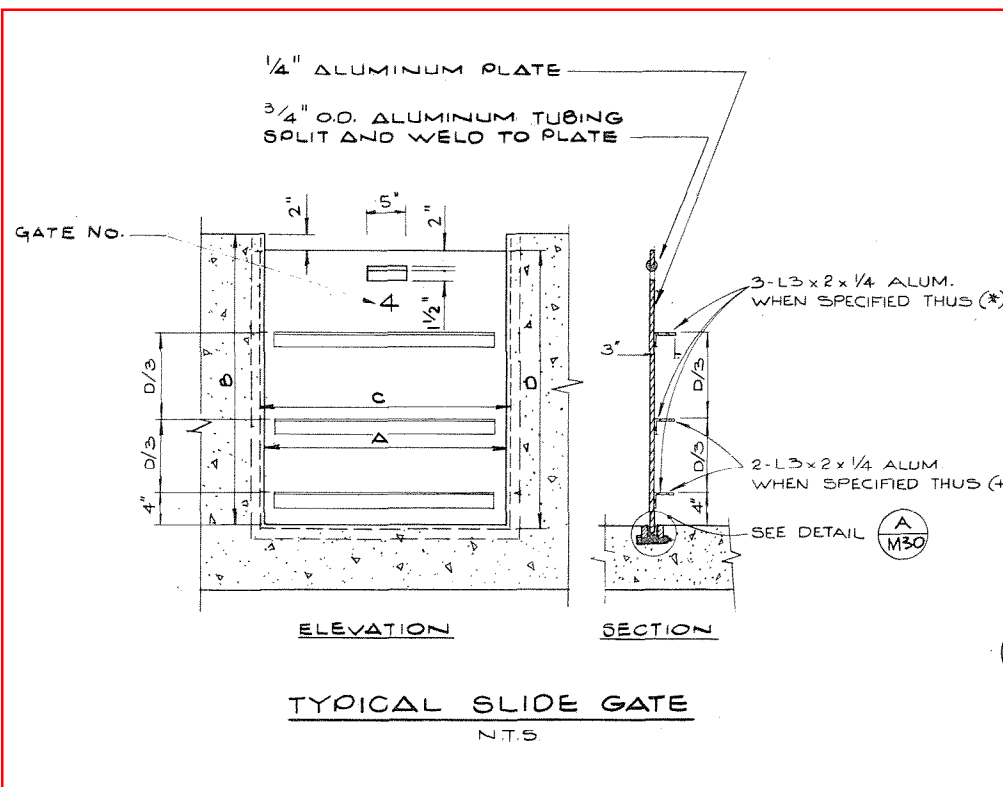
STAIRWAY PLAN
SCALE: 1/2" = 1'-0"



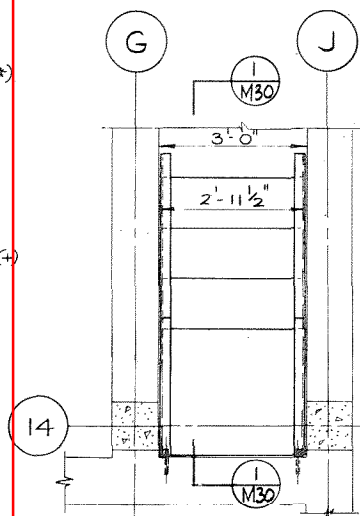
SECTION
SCALE: 1" = 1'-0"



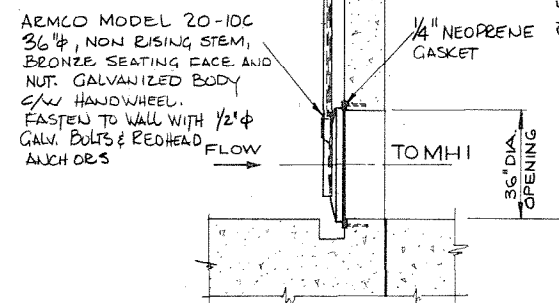
HOSE RACK



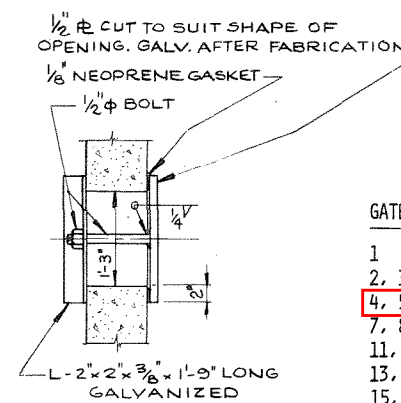
TYPICAL SLIDE GATE
N.T.S.



STAIRWAY PLAN
SCALE: 1/2" = 1'-0"



36" DIA. SLUICE GATE
DETAIL H
SCALE: 1/2" = 1'-0"

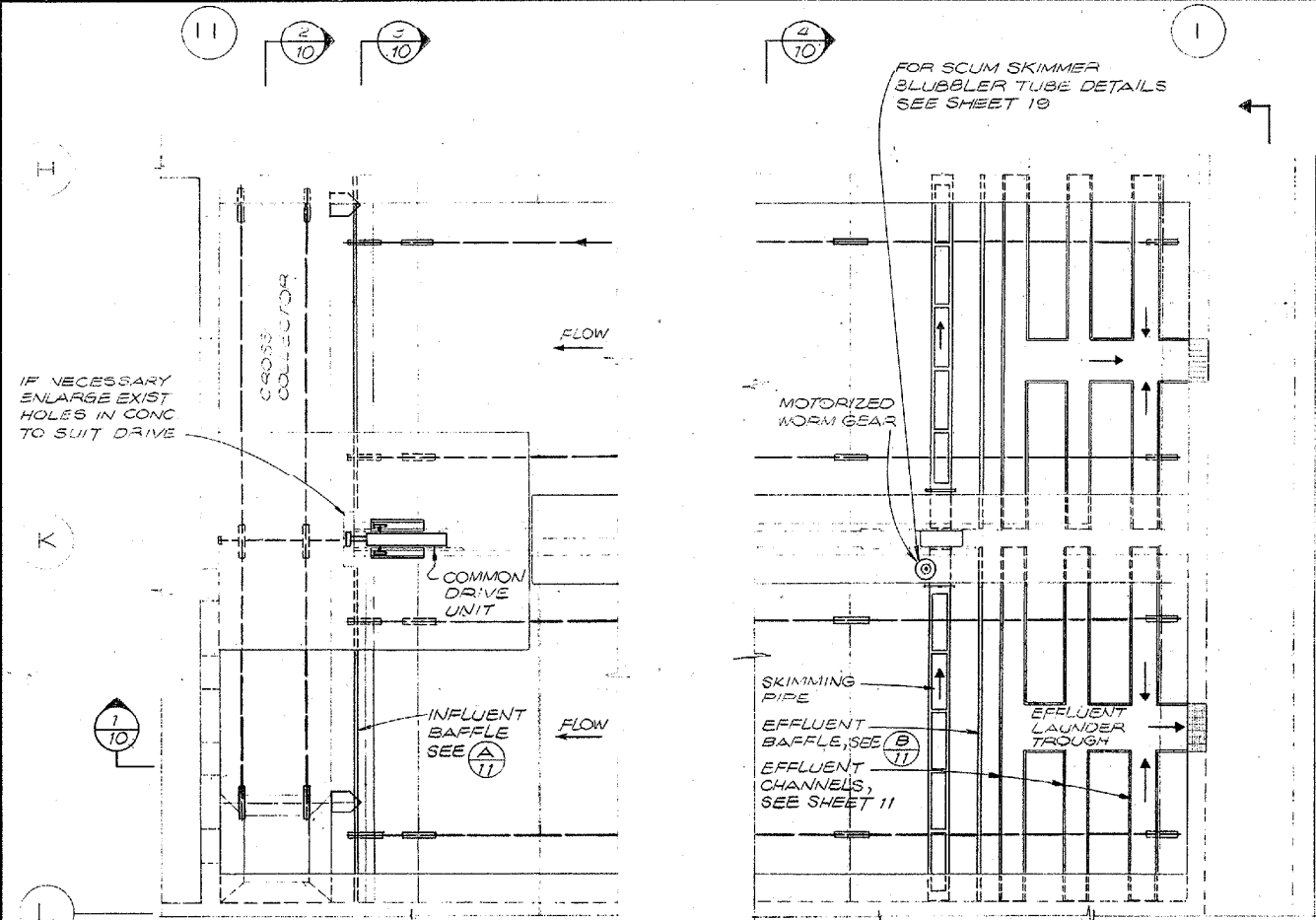


DETAIL K
N.T.S.

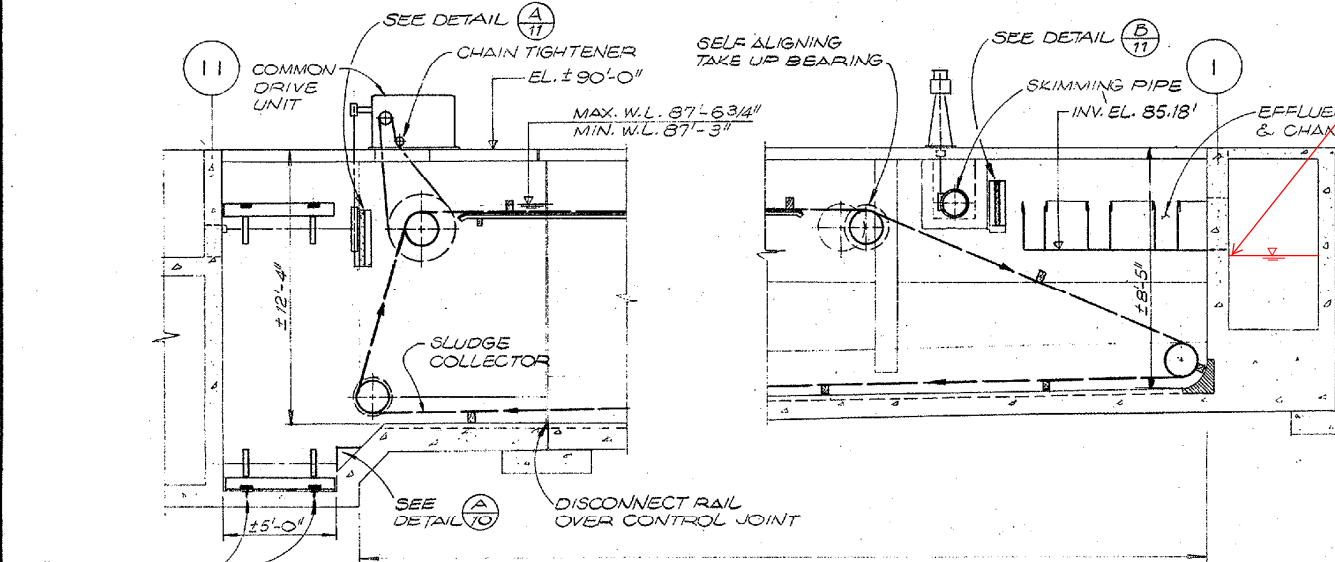
SLIDE GATE SCHEDULE

GATE NUMBER	FRAME SIZE		GATE SIZE	
	A	B	C	D
1	3'-0"	5'-0 1/2"	3'-2 1/2"	2'-11" +
2, 3	3'-0"	5'-0 1/2"	3'-2 1/2"	5'-0" *
4, 5, 6	3'-0"	4'-8"	3'-2 1/2"	4'-7" *
7, 8, 9, 10	2'-0"	4'-8 1/2"	2'-2 1/2"	3'-6" +
11, 12	2'-0"	8'-3 1/2"	2'-2 1/2"	7'-1" *
13, 14	4'-0"	4'-8"	4'-2 1/2"	4'-7" *
15, 16	3'-3"	5'-0 1/2"	3'-5 1/2"	4'-7 1/2" *
17, 18	3'-0"	5'-0 1/2"	3'-2 1/2"	4'-7 1/2" *
19, 20, 21, 22	2'-6"	5'-0 1/2"	3'-8 1/2"	4'-7 1/2" *
23, 24	1'-6"	5'-2"	1'-8 1/2"	4'-11" *
25, 26	1'-6"	4'-3"	1'-8 1/2"	4'-11" *

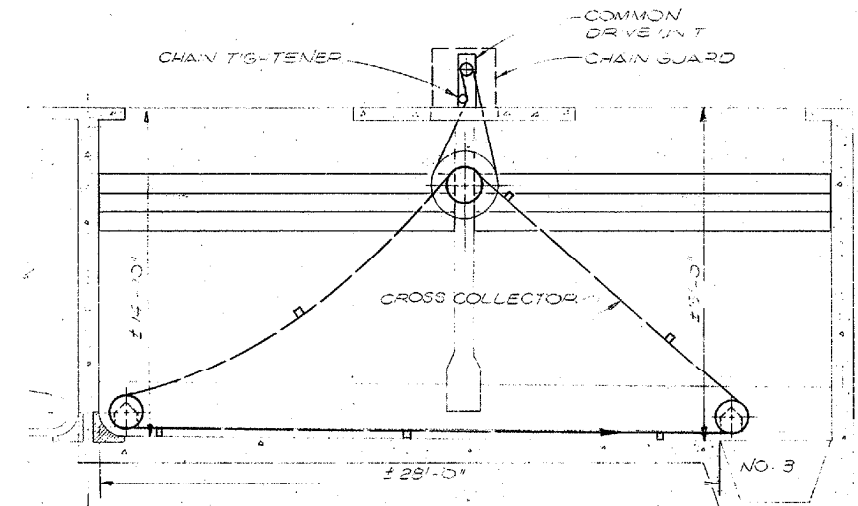
(+)(*) ANGLE BRACING REQUIRED.



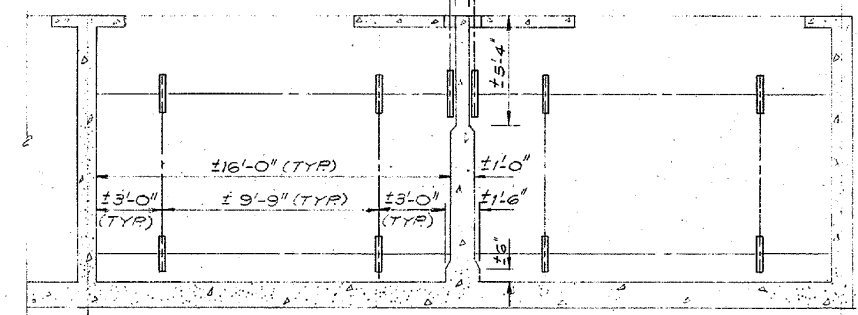
PLAN ON PRIMARY SEDIMENTATION TANK No. 3



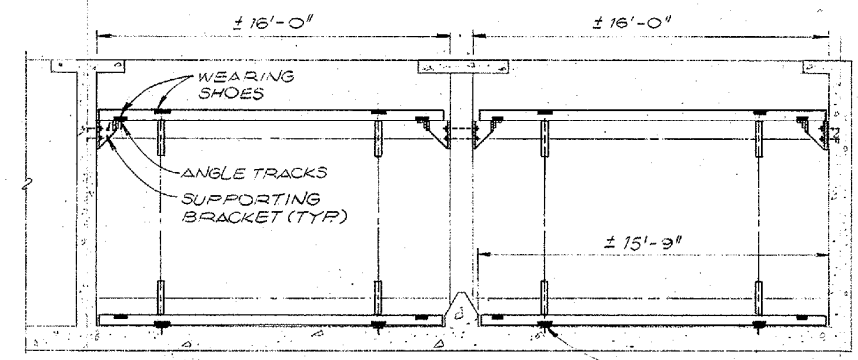
SECTION (1)
(10)



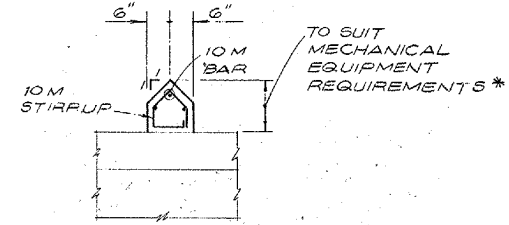
SECTION (2)
(10)



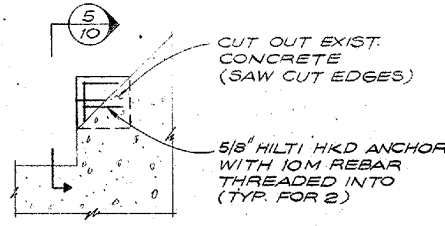
SECTION (3)
(10)



SECTION (4)
(10)



SECTION (5)
(10)



DETAIL (A)
(10)

1/8" = 1'-0"

30 #/YD. TEE RAILS
(EXIST. 2"x4'S IN
CONCRETE SLAB
TO BE REMOVED)

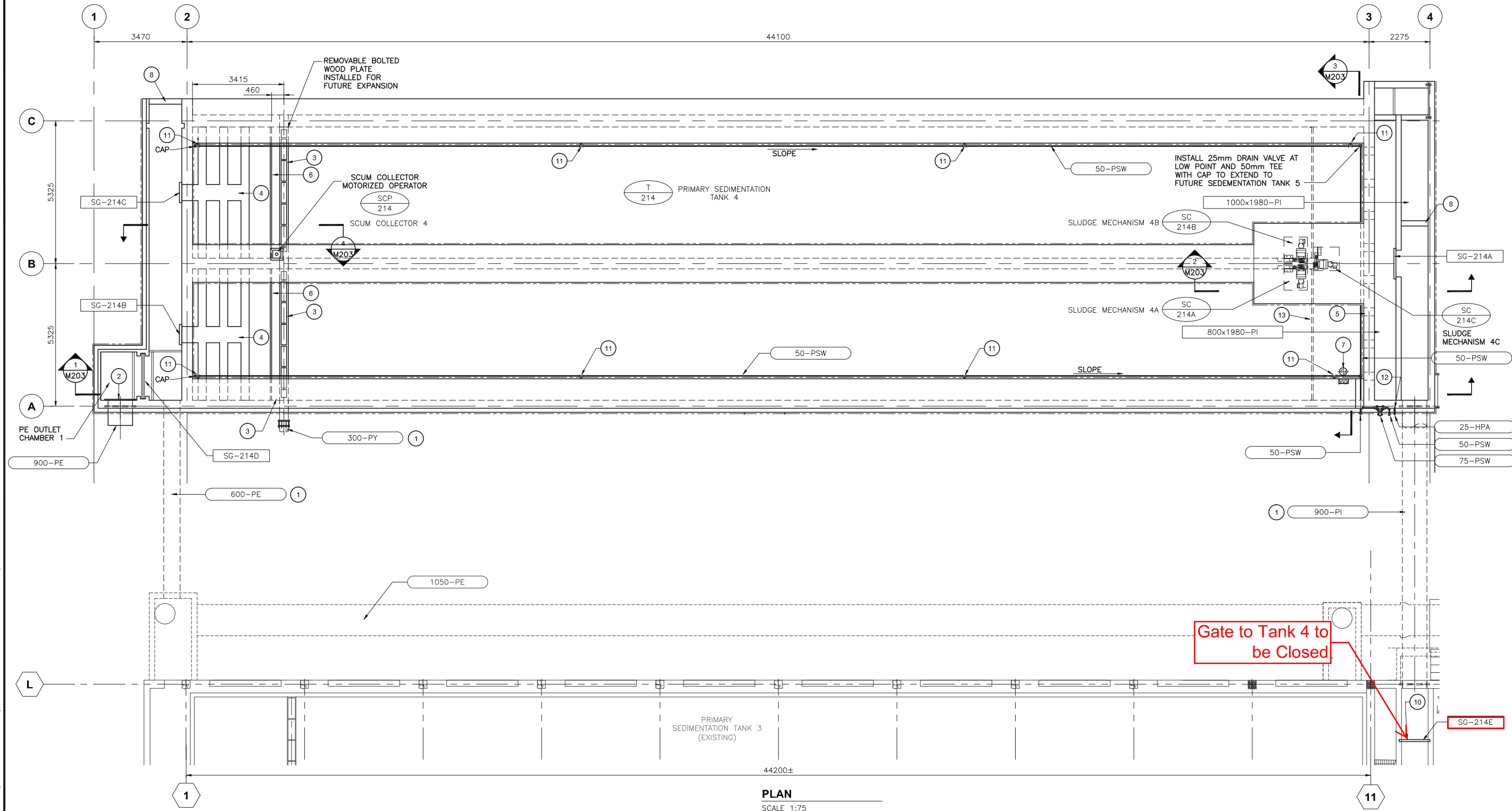
Effluent Level
to Remain
Below Weir
Level (Typ.)

SEE SHT. 11.

30 #/YD. T-RAILS (TYP.)
(EXIST. 2"x4'S IN CONC.
SLAB TO BE REMOVED)

REVISIONS	ISSUE	DATE	DRN	CHD	APPD	DESCRIPTION	DESIGNED	DRAWN	CHECKED	DAYTON & KNIGHT LTD. CONSULTING ENGINEERS	REGIONAL DISTRICT OF NANAIMO GREATER NANAIMO W.P.C.C. CONSTRUCTION OF STAGE II EXPANSION - PHASE II PRIMARY SEDIMENTATION TANK No.3 - DETAILS	SCALE: 1/4" = 1'-0" OR AS SHOWN DRAWING No. 122-72.4 SHEET 10 OF 21 ISSUE 4
							JWCB	YB	JWB	Bw		

Plotted By: leongp
Plot File Date Created: Mar/03/2014 3:40 PM
Layout-Sheet Name: LAYOUT1
Filename: L:\WORK\114005\02A-CAD\WAT\DESIGN\6-PROCESS MECH\AS-BUILT DRAWINGS NOV 29 2013\W202 114005.DWG



KEY NOTES

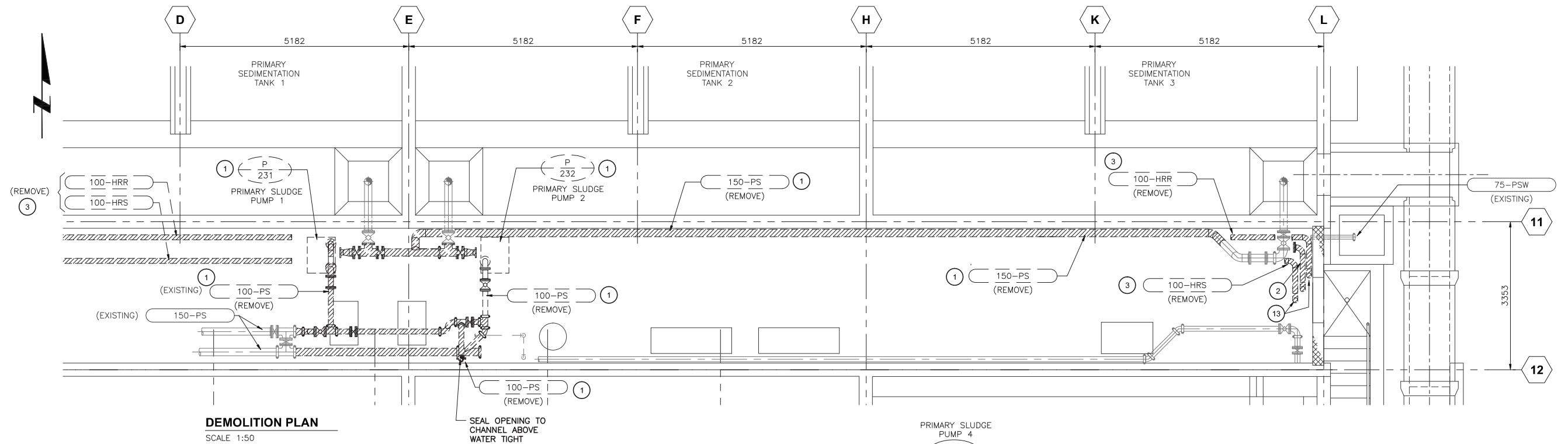
- REFER TO YARD PIPING CIVIL DRAWING C-103 FOR DETAILS.
- 900 DIA. PIPE STUB C/W END PLATE ON INSIDE OF TANK, TO CONNECT TO FUTURE 1200 PE PIPE, SEE DRAWING C-103 FOR DETAILS.
- 300 DIA. SLOTTED SCUM COLLECTOR PIPE AND MOTORIZED OPERATOR, REFER TO SPECIFICATION SECTION 11378 FOR DETAILS.
- PRIMARY EFFLUENT LAUNDER WITH V-NOTCH WEIRS, REFER TO SPECIFICATION SECTION 11378 FOR DETAILS.
- 300 W X 1680 INLETS, 4 PER TANK.
- SCUM BAFFLE PLATE. REFER TO SPECIFICATION SECTION 11378 FOR DETAILS.
- 150 DIA. CLEAN-OUT C/W BLIND FLANGE AND TAPPING HEX BOLTS AND WASHERS.
- CONSTRUCTED CONCRETE BULKHEAD GROUTED IN PLACE.

- REMOVED EXISTING CONCRETE BULKHEAD IN CHANNEL AFTER INSTALLATION OF SLIDE GATE SG-214E. CHIP OUT CHANNEL BOTTOM TO FLUSH MOUNT SLIDE GATE SG-214E.
- EXISTING GRATING CUT AND MODIFIED, AND REMOVABLE 200mm WIDE GRATING SECTION PROVIDED OVER SLOT OPENING.
- SERVICE WATER UTILITY STATION, MOUNTED TO HANDRAIL, (8 TOTAL), REFER TO DETAIL STD/M17 ON DRAWING M-002.
- HIGH PRESSURE AIR UTILITY STATION, MOUNTED ON HANDRAIL.
- WOODEN INFLUENT BAFFLE.

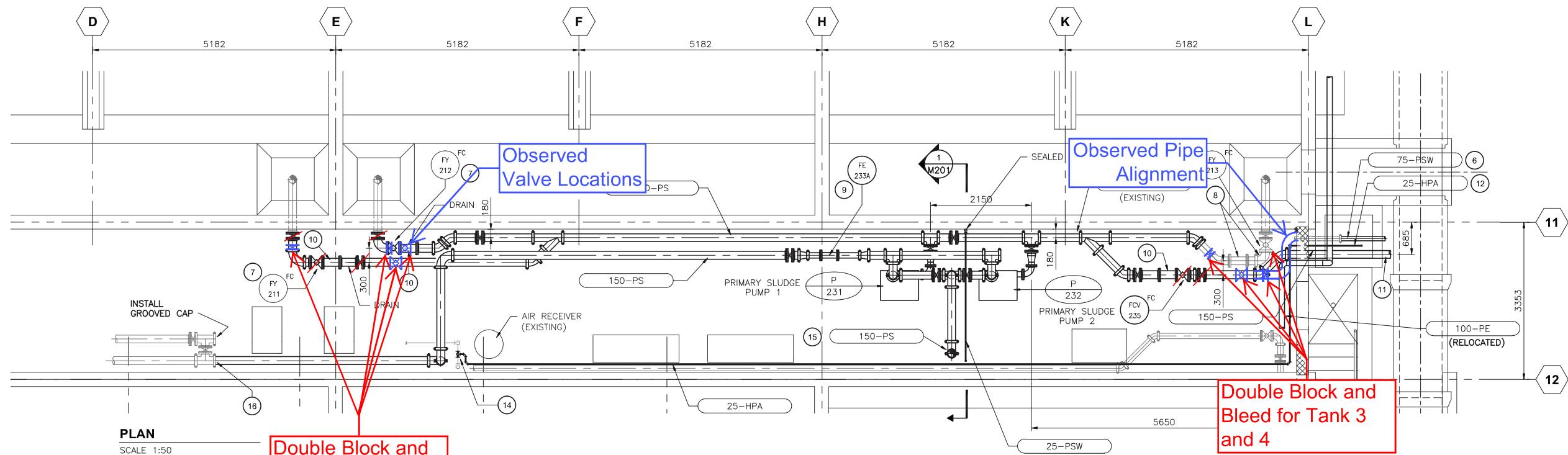
GENERAL NOTES

- REFER TO DRAWING C-103 FOR CONNECTIONS TO YARD PIPING.

DRN BY:	PAL	DES BY:	SS	CHK BY:	AK
VERIFIED SCALE IF PLAN SHEET IS REDUCED					
PREPARED FOR:					
REGIONAL DISTRICT OF NANAIMO					
GREATER NANAIMO DISTRICT POLLUTION CONTROL CENTRE					
PRIMARY SEDIMENTATION TANK 4					
PROCESS MECHANICAL					
PRIMARY SEDIMENTATION TANK 4					
PROJECT START DATE (M)					
OCT					
PROJECT NO.					
6011					
FILENAME					
M202 114005.dwg					
RDN DRAWING NO.					
GN-PT-M-					
DRAWING NO.					
M-					



DEMOLITION PLAN
SCALE 1:50



PLAN
SCALE 1:50

KEY NOTES

- EXISTING PS SLUDGE PUMPS, CONCRETE PADS, 150mm PS DISCHARGE PIPING, VALVES AND SUPPORTS REMOVED.
- ABANDONED LSG PIPE REMOVED AND CEILING OPENINGS SEALED WATER TIGHT.
- ABANDONED HRS/HRR PIPE REMOVED, ENDS OF PIPES AT WEST END TUNNEL, 31m APPROXIMATELY DISTANCE ALONG TUNNEL CAPPED.
- GROOVED CAP REMOVED AND SS WATER LINE EXTENDED TO NEW PRIMARY SEDIMENTATION TANK 4, REFER TO CIVIL DRAWING C-103 FOR DETAILS.
- EXISTING AUTOMATED CONTROL VALVES FY-211 & FY-212 RELOCATED.
- 150mm CI SR FLANGED ELBOW INSTALLED, RECONNECTED TO EXISTING 150 PS PIPE.
- OWNER SUPPLIED 100mm MAGMETER INSTALLED.

KEY NOTES

- NEW 150mm SITE GLASS.
- 150 PS LINE FROM PRIMARY SEDIMENTATION TANK 4, REFER TO CIVIL DRAWING C-103 FOR CONTINUATION.
- 25 HPA LINE TO SEDIMENTATION TANK 4, REFER TO DRAWING C-103 FOR CONTINUATION.
- SEALED PIPE PENETRATION CEILING OPENINGS WATER TIGHT.
- NEW 25 HPA LINE C/W ISOLATION BALL VALVE CONNECTED TO EXISTING 50 HPA LINE AT AIR RECEIVER.
- 150 PS BYPASS LINE TO CHANNEL ABOVE AND DISCHARGE INTO PRIMARY INFLUENT CHANNEL. CORED HOLE IN CONCRETE ROOF SLAB AND MADE WATERTIGHT.
- NEW 150 PS LINE CONNECTED TO EXISTING GROOVED TEE.