



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

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December 18, 2024
File: 2423-243-02

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	Grit Chamber Maintenance
Project Location	Greater Nanaimo Pollution Control Center (GNPCC)

Project Description: The project involves the repair and maintenance of existing piping, chain, and other related components in Grit Chambers No. 1, 2, and 3. 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:

Grit Chamber No. 1

- 1) Through one (1) 990 mm x 1420 mm aluminum plate slide gate on the inlet of the tank.
- 2) Through one (1) 100 mm dia. plug valve on the outlet of the tank.

Grit Chamber No. 2

- 1) Through one (1) 990 mm x 1420 mm aluminum plate slide gate on the inlet of the tank.
- 2) Through one (1) 100 mm dia. plug valve on the outlet of the tank.

Grit Chamber No. 3

- 3) Through one (1) 990 mm x 1420 mm aluminum plate slide gate on the inlet of the tank.
- 4) Through one (1) 100 mm dia. gate valve on the outlet of the tank.

It should also be noted that there are open channels that flow adjacent to the grit chambers. The channels have the ability to flow into the grit chambers if the fluid level in the channel exceeds the weir wall heights of the grit chambers. The levels in the existing channels are to be monitored during the work.

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

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



Regional District of Nanaimo

Attn: Zach Suhan

Area Description: (See attached sketches)

1.

Item	Slide Gates (3 locations)
Location	Aluminum Slide Gates (Chamber 1, 2 and 3 Inlets)
Installed	Chamber 1 and 2 - 1973, Chamber 3 - 1989
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 possible 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 stating the Work - An electric submersible pump will be used during the Work to discharge any flow that bypasses the slide gate as well as water from the cleaning process. - A second submersible pump shall be onsite in the event of a pump failure. - The electric submersible pump with a capacity of 3.0 lps (50 usgpm) is to be placed in the chamber 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 the primary dam exceeds 50% of the pump capacity the work is to be stopped immediately, and a second pump installed.

2.

Item	Plug Valves (3 Locations)
Location	Chamber Outlets
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 grit chambers. - 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, and the plug valve actuator locked out. - Prior to starting the Work, the valve shall be exercised and confirmed to be drip tight. If the valve does not seat properly and leakage is detected the valve is to be replaced or a CL150 blind flange shall be installed.

December 18, 2024

3

File: 2423-243-02

Regional District of Nanaimo

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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 grit chambers, 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.**

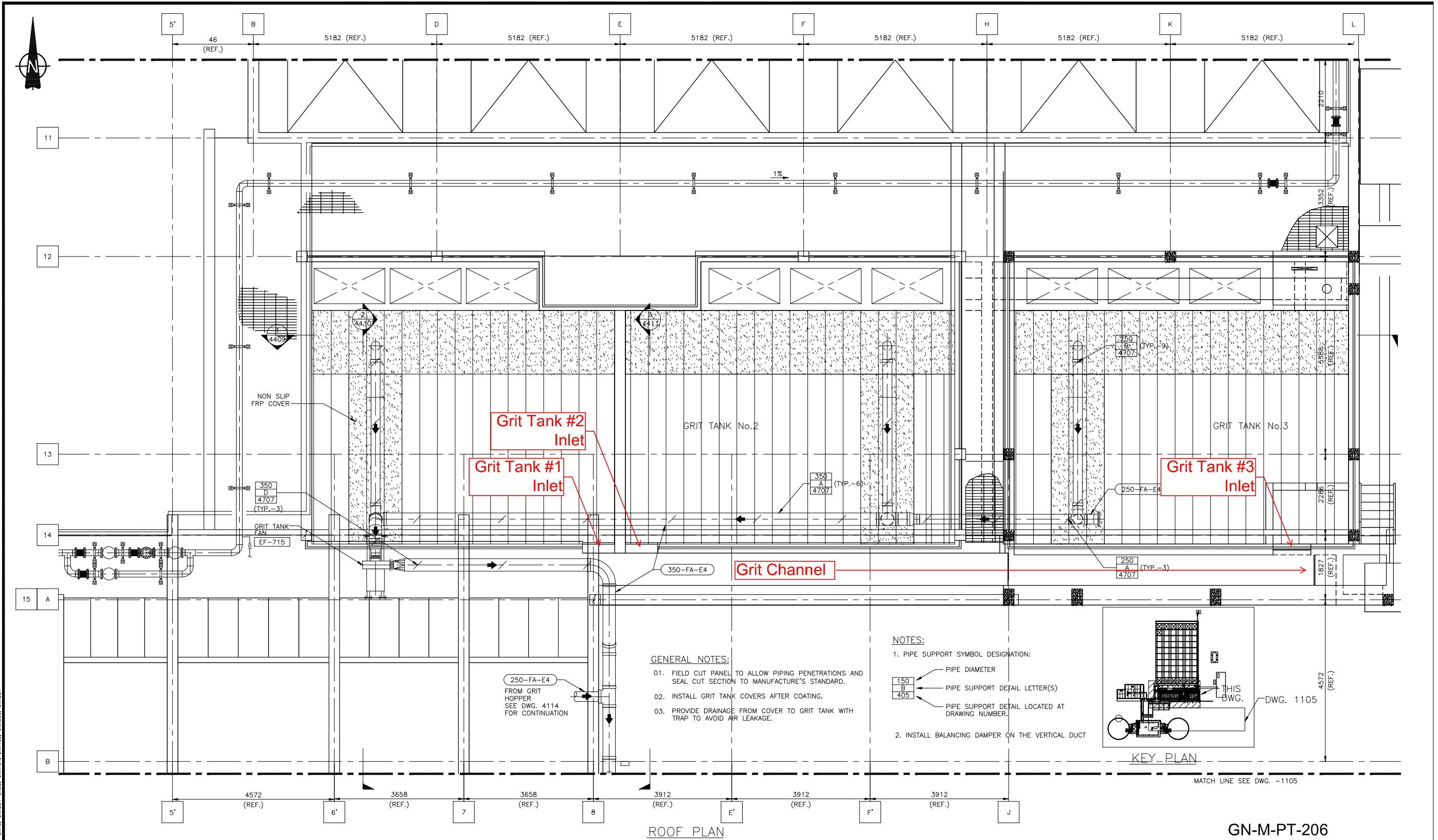
Any modifications to the existing valves or gates will require this certification form to be revised subject to the review of the installed materials by the Engineer.

Engineer Signature & Seal
Permit to Practice No. 1001658



This Drawing Is For The Use Of The Client And Project Indicated
No Representations Of Any Kind Are Made To Other Parties

Time: 14:15
Date: 2007/06/01
By: S.D.
Scale: 1:100
Project: 982819-215
Drawing: GN-M-PT-206
Revision: 2
Subject: GRIT TANKS
Notes: 1. FIELD CUT PANEL TO ALLOW PIPING PENETRATIONS AND SEAL CUT SECTION TO MANUFACTURE'S STANDARD.
2. INSTALL GRIT TANK COVERS AFTER COATING.
3. PROVIDE DRAINAGE FROM COVER TO GRIT TANK WITH TRAP TO AVOID AIR LEAKAGE.



NO.	DATE	ENG.	BY	SUBJECT
2	2009/JAN	S.D.	S.L.	RECORD DRAWING
1	2007/06/01	S.D.	Y.K.	ISSUED FOR CONSTRUCTION
0	2006/12/19	S.D.	A.L.	ADDENDUM No. 2 - MODIFIED DUCTWORK TO EXISTING EXHAUST FAN (EF-717)

VERIFY SCALES
BAR IS 20mm ON ORIGINAL DRAWING
0 20mm
IF NOT 20mm ON THIS SHEET, ADJUST SCALES ACCORDINGLY

THE INFORMATION CONTAINED ON THIS DRAWING, OTHER THAN CHANGES MADE BY ASSOCIATED ENGINEERING (B.C.) LTD., ORIGINATED FROM SOURCES OTHER THAN THE DESIGN PROFESSIONAL AND ASSOCIATED ENGINEERING (B.C.) LTD. DOES NOT WARRANT OR REPRESENT THAT SUCH INFORMATION IS ACCURATE OR REPRESENTS THE ORIGINAL DESIGN AS CONTAINED IN THE CONTRACT DOCUMENTS.



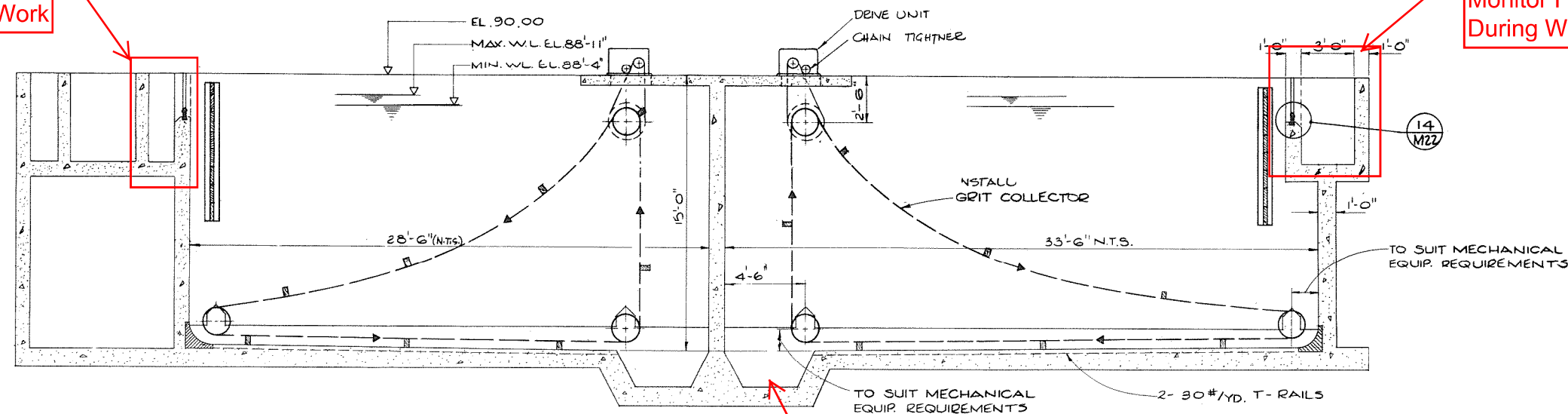
PROJECT No.	982819-215
SCALE	AS SHOWN
DRAWN	A. LIU
DESIGNED	S. DEE
CHECKED	L. PICKARD
APPROVED	L. PICKARD
DATE	

REGIONAL DISTRICT OF NANAIMO
PROCESS MECHANICAL GRIT TANKS ROOF PLAN

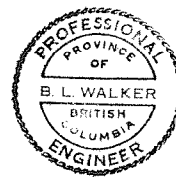
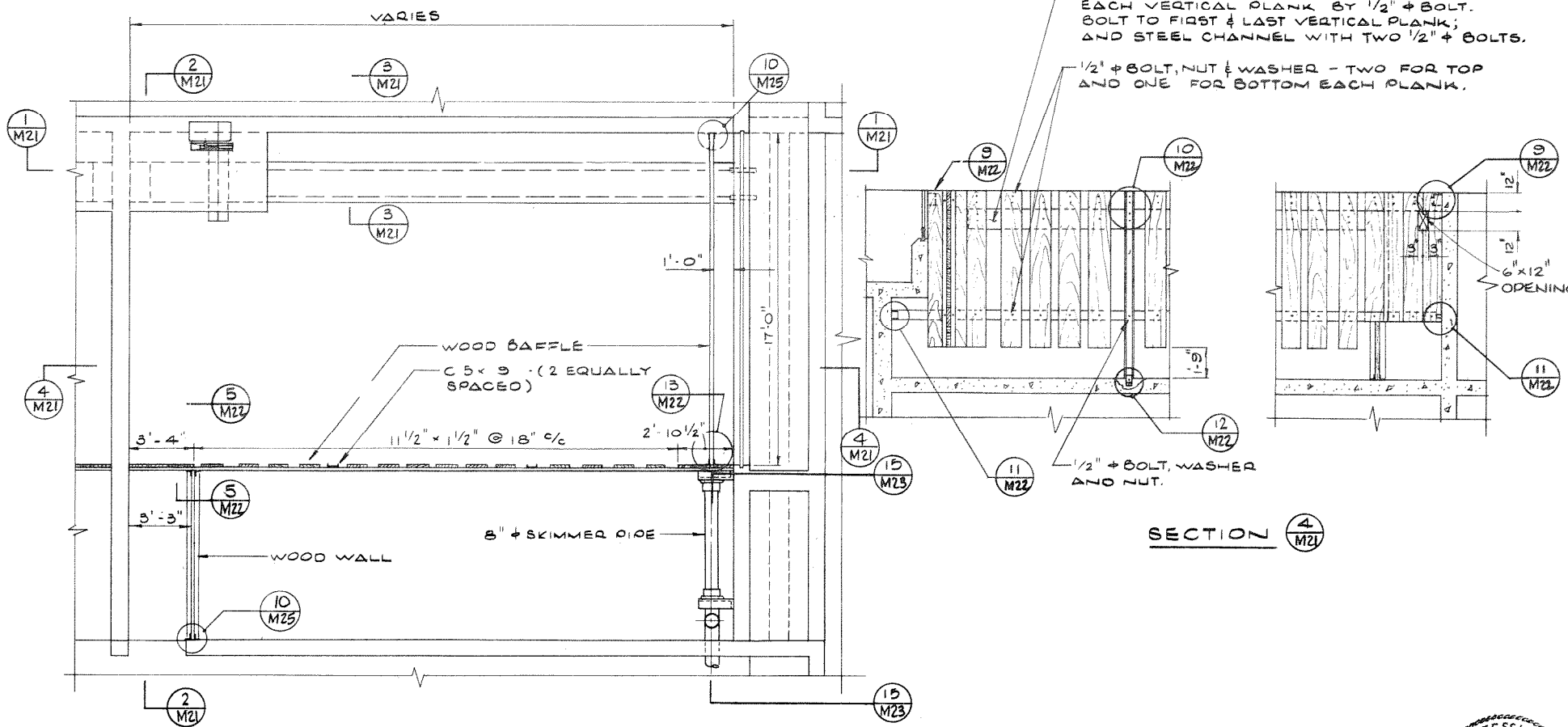
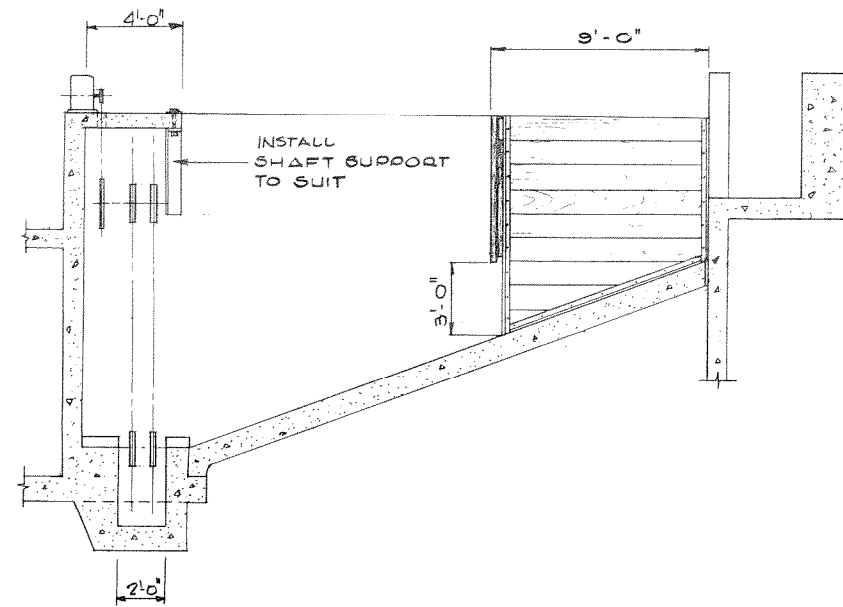
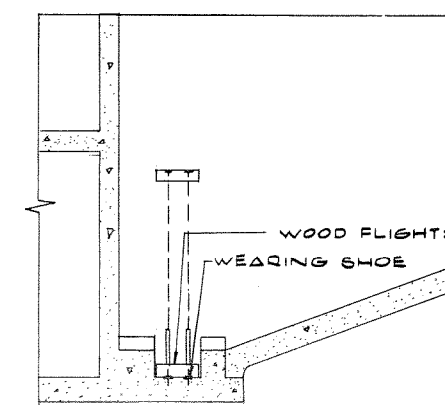
GREATER NANAIMO PCC GRAVITY THICKENERS		
DRAWING NUMBER	REV. NO.	SHEET
GN-17-4109	2	

Potential Inflow from Open Channel.
Monitor Fluid Level During Work

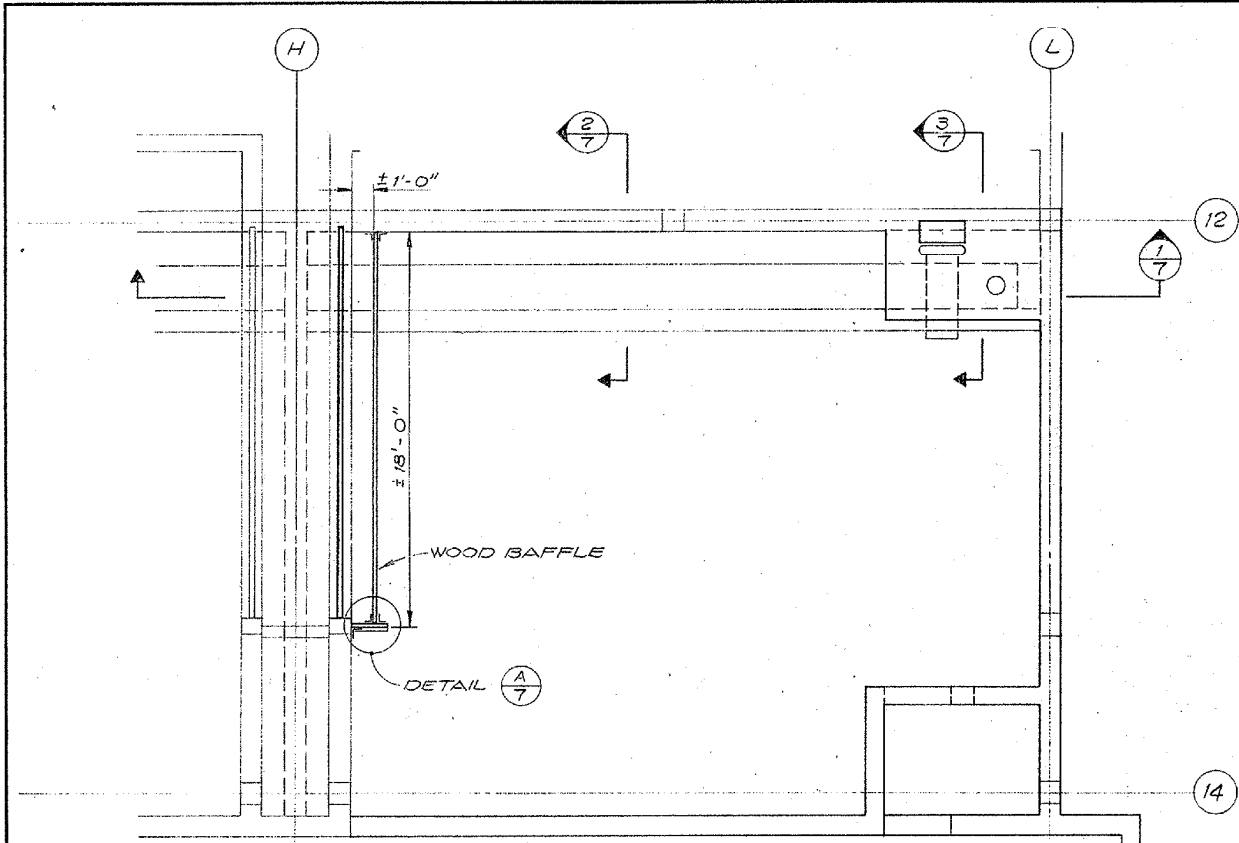
Potential Inflow from Open Channel.
Monitor Fluid Level During Work



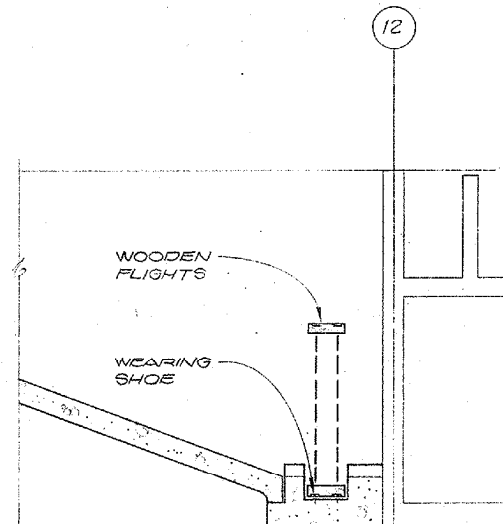
Install Submersible Pump in Chamber Sump



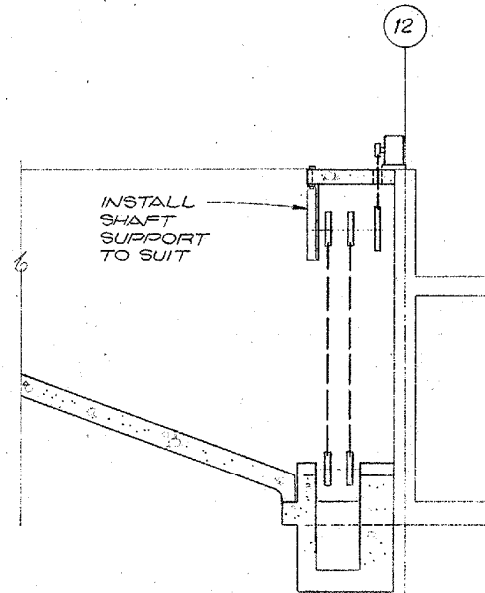
REVISIONS	ISSUE	DATE	DRN	CH'D	APP'D	DESCRIPTION	ISSUE	DATE	DRN	CH'D	APP'D	DESCRIPTION	DESIGNED	DRAWN	CHECKED	DAYTON & KNIGHT LTD.	NANAIMO REGIONAL SEWER AUTHORITY	SCALE
													J.S. BW.	T.F. & D.B.C.	W.M.	CONSULTING ENGINEERS	GREATER NANAIMO WATER POLLUTION CONTROL CENTRE	1/4" = 1'-0"
																		DRAWING No. 69.7.2
																		SHEET M.21 OF 31
																		ISSUE A
																		THIS DRAWING REDUCED TO HALF SCALE



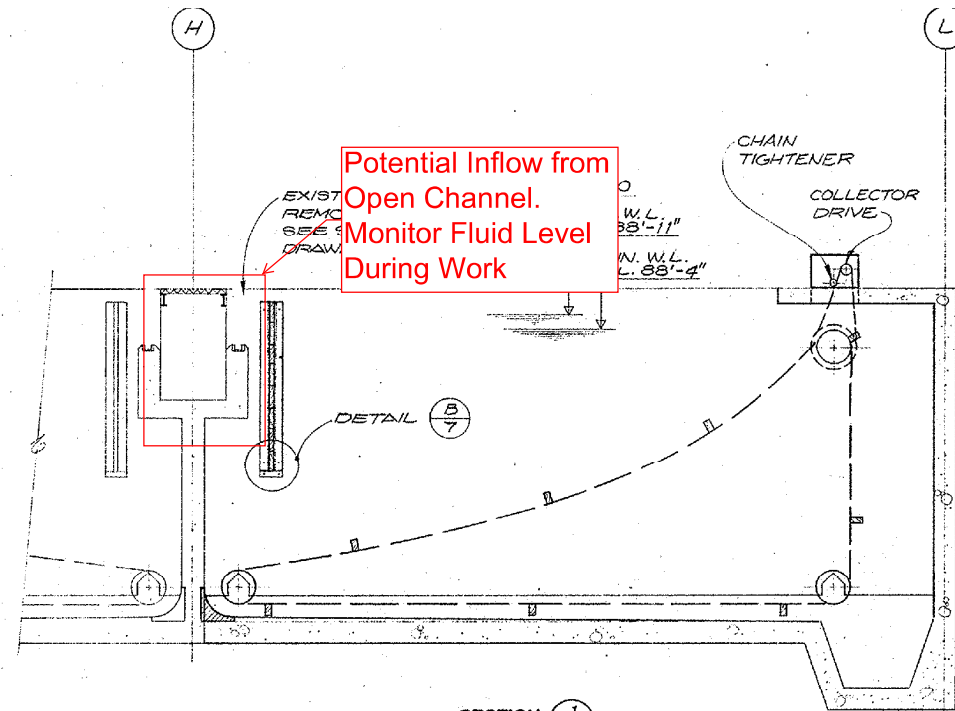
PLAN ON GRIT TANK No. 3
1/4" = 1'-0"



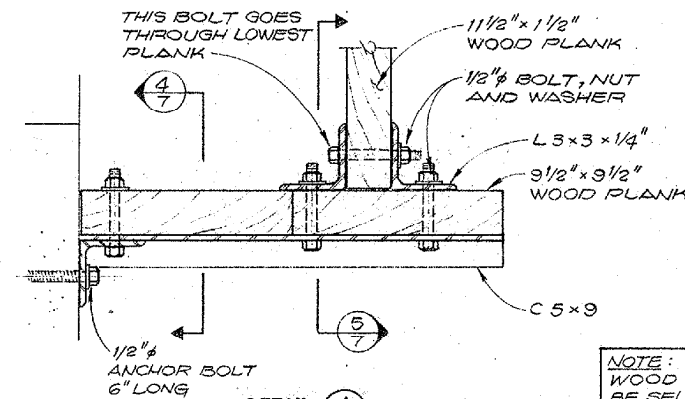
SECTION A-A
1/4" = 1'-0"



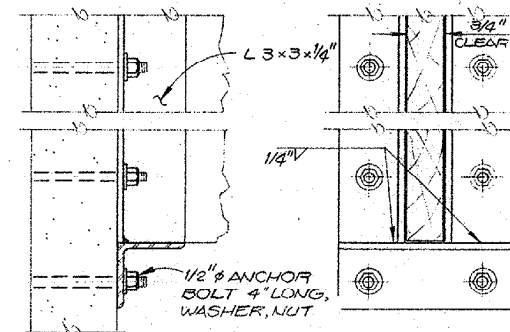
SECTION B-B
1/4" = 1'-0"



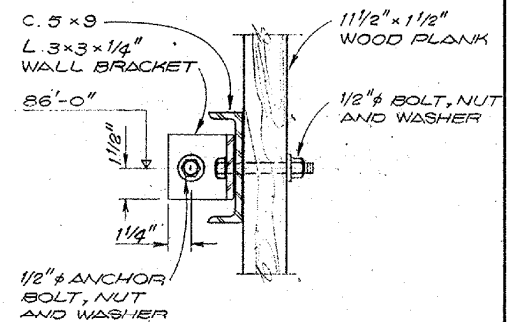
SECTION C-C
1/4" = 1'-0"



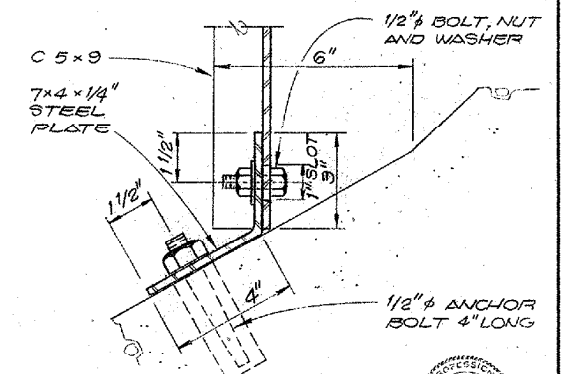
DETAIL A
NTS



DETAIL B
NTS



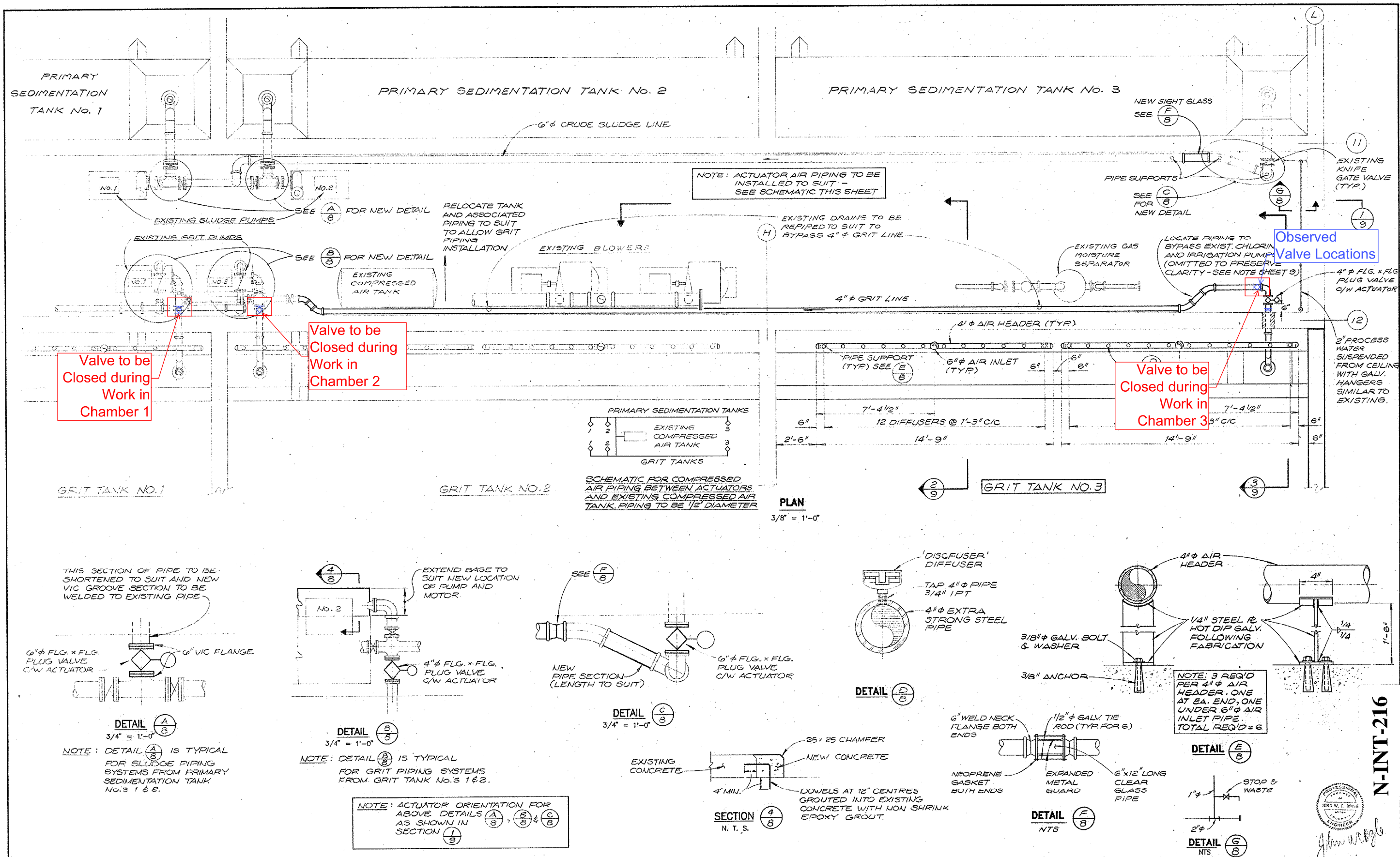
SECTION C-C
NTS



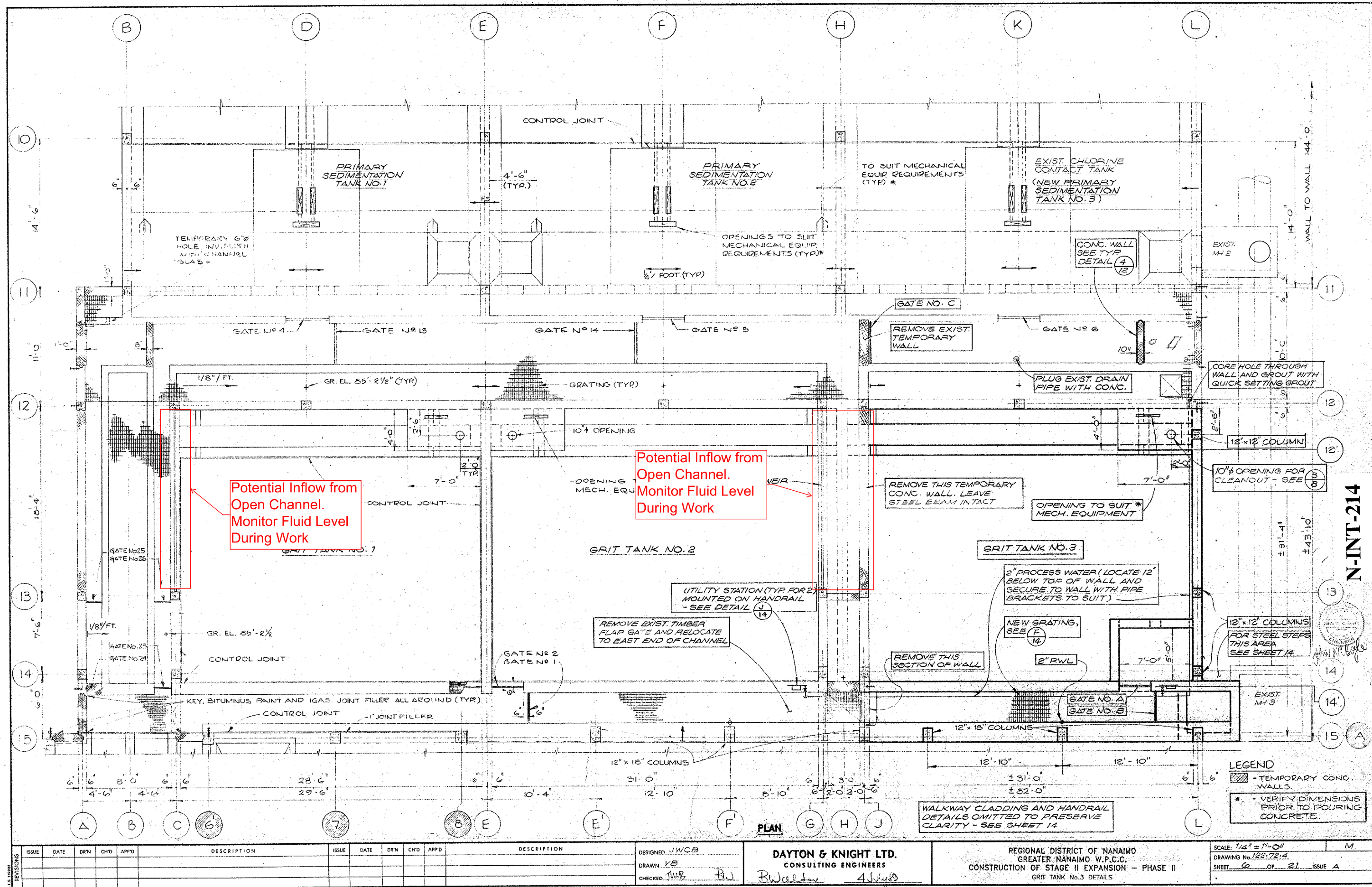
SECTION D-D
NTS

N-INT-215

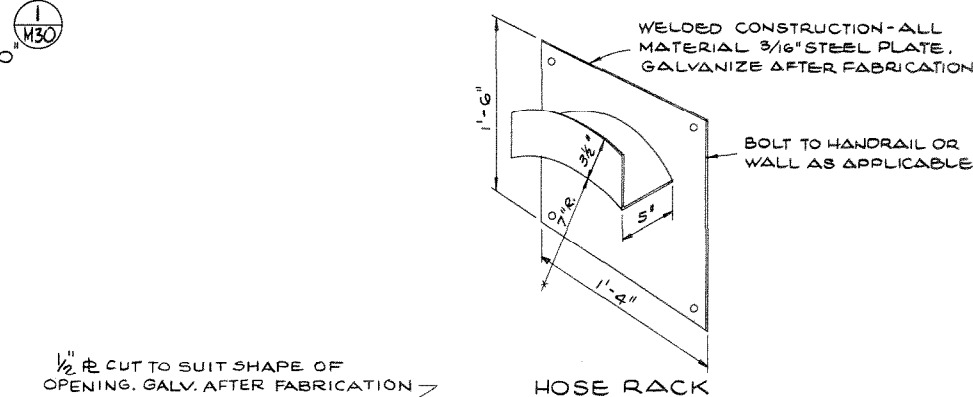
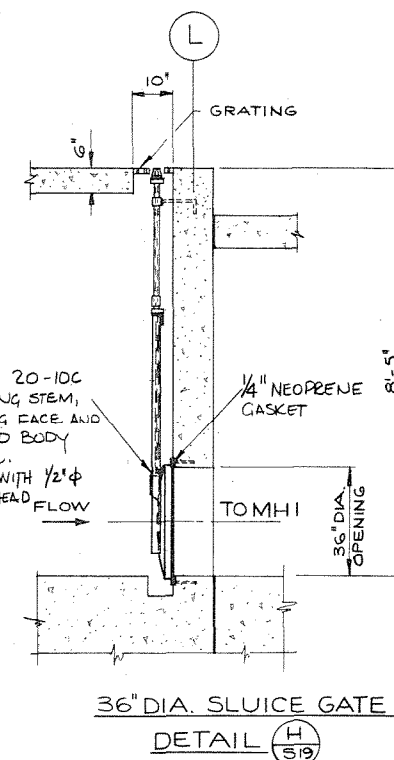
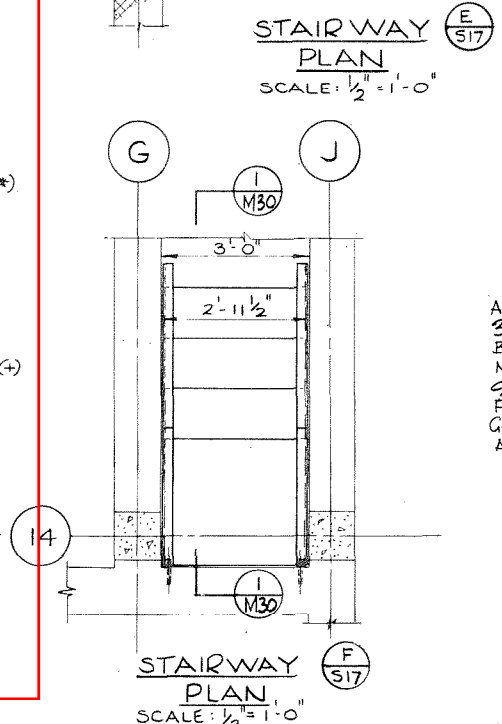
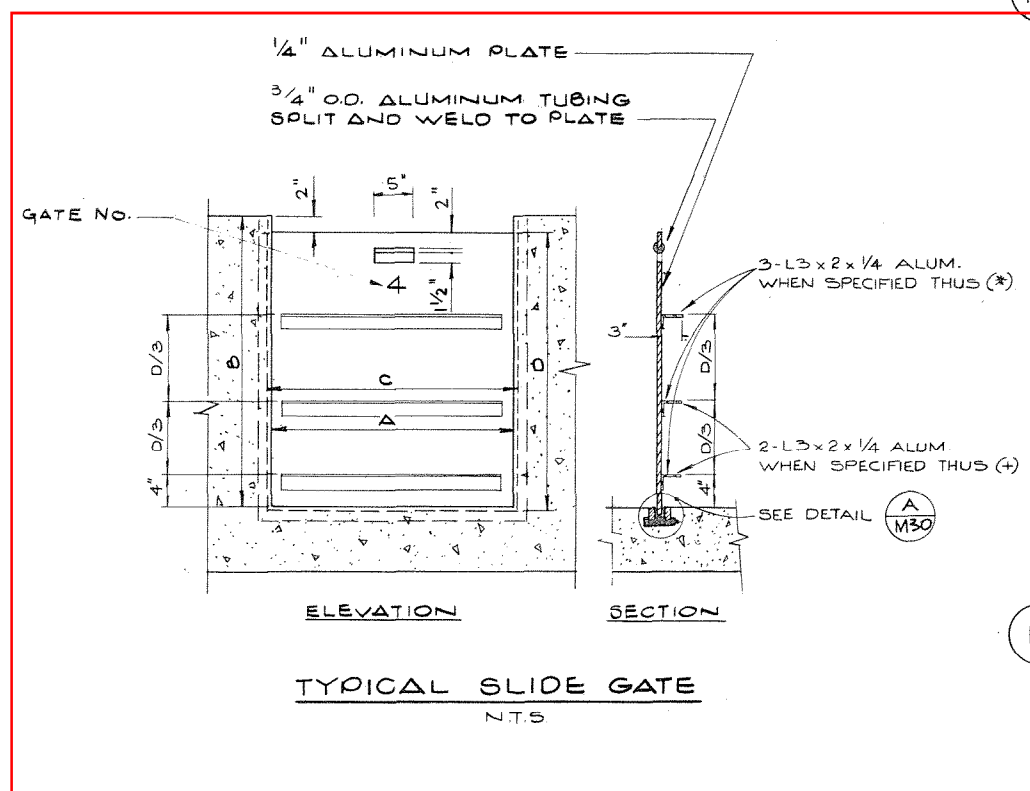
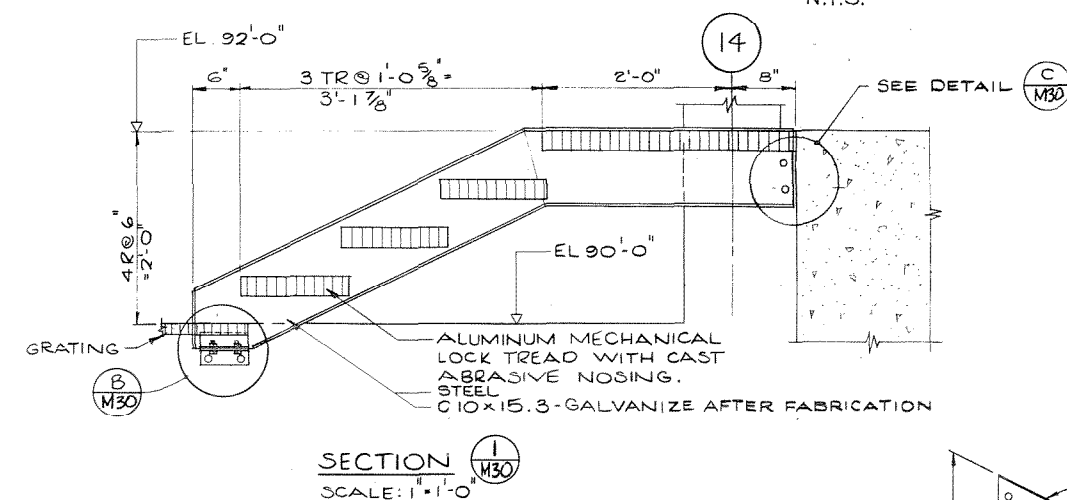
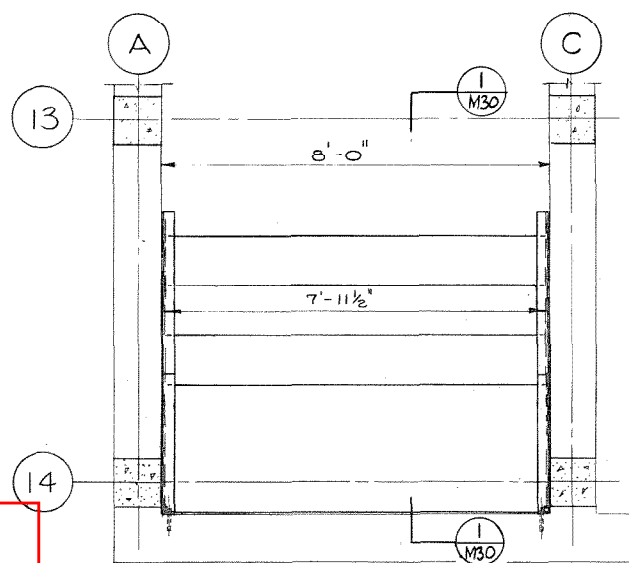
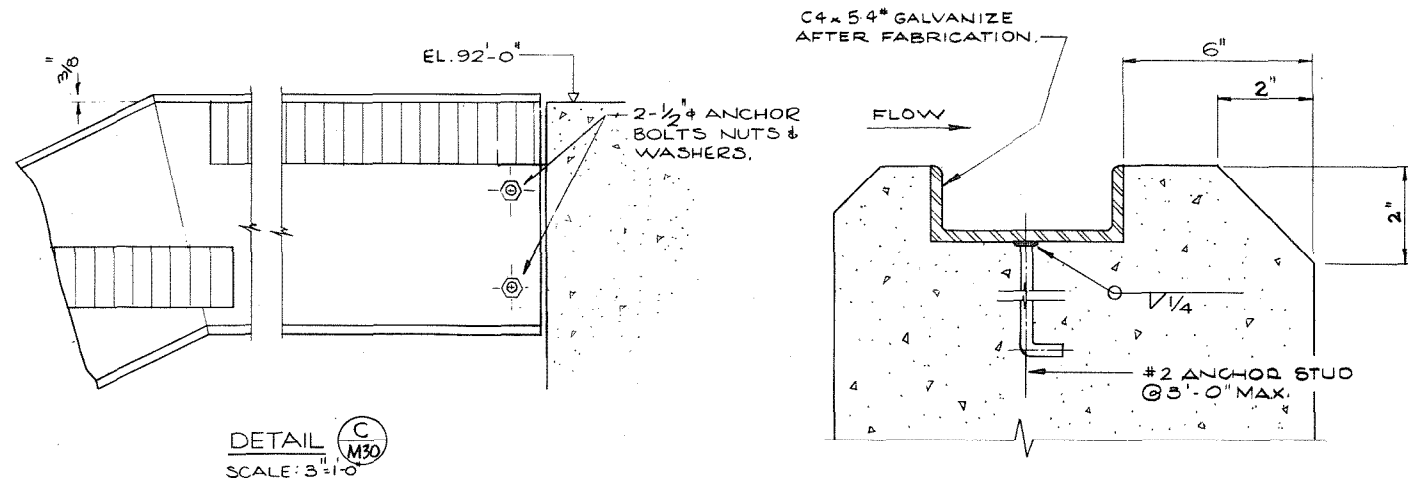
ISSUE	DATE	DRN	CHD	APPD	DESCRIPTION	ISSUE	DATE	DRN	CHD	APPD	DESCRIPTION	DESIGNED	DRAWN	CHECKED	DAYTON & KNIGHT LTD. CONSULTING ENGINEERS	REGIONAL DISTRICT OF NANAIMO GREATER NANAIMO W.P.C.C. CONSTRUCTION OF STAGE II EXPANSION - PHASE II GRIT TANK No.3 DETAILS	SCALE: AS SHOWN	SHEET	OF	21	ISSUE	A
												W.C.B.	W.C.B.	W.C.B.	W.C.B.			7				



N-INT-214



N-INT-214



GATE NUMBER	FRAME SIZE		GATE SIZE	
	A	B	C	D
1	3'-0"	5'-0½"	3'-2½"	2'-11"
2, 3	3'-0"	5'-0½"	3'-2½"	5'-0"
4, 5, 6	3'-0"	4'-8"	3'-2½"	4'-7"
7, 8, 9, 10	2'-0"	4'-8½"	2'-2½"	3'-6"
11, 12,	2'-0"	8'-3½"	2'-2½"	7'-1½"
13, 14,	4'-0"	4'-8"	4'-2½"	4'-7"
15, 16,	3'-3"	5'-0½"	3'-5½"	4'-7½"
17, 18,	3'-0"	5'-0½"	3'-2½"	4'-7½"
19, 20, 21, 22	2'-6"	5'-0½"	3'-8½"	4'-7½"
23, 24	1'-6"	5'-2"	1'-8½"	4'-11"
25, 26	1'-6"	4'-3"	1'-8½"	4'-8"

REVISIONS	ISSUE	DATE	DR'N	CH'D	APP'D	DESCRIPTION	ISSUE	DATE	DR'N	CH'D	APP'D	DESCRIPTION

DESIGNED J.S. BW.

DRAWN D.B.C & A.S.

CHECKED BW MB

DAYTON & KNIGHT LTD.

CONSULTING ENGINEERS

RD Dayton Sept 1 1973

NANAIMO REGIONAL SEWER AUTHORITY

GREATER NANAIMO WATER POLLUTION CONTROL CENTRE

MISCELLANEOUS METALWORK

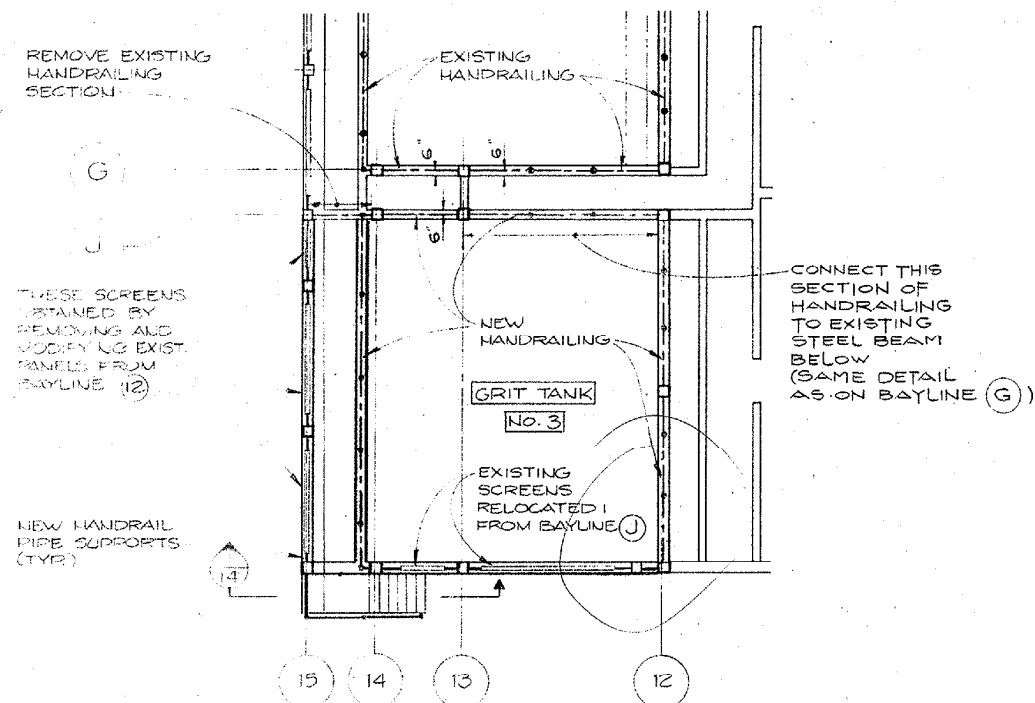
SCALE: AS SHOWN

DRAWING No. 6972

SHEET M30 OF 31 ISSUE A

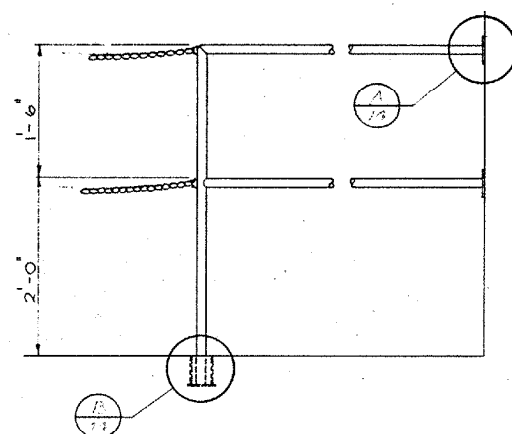
THIS DRAWING REDUCED TO HALF SCALE

ENGINEER

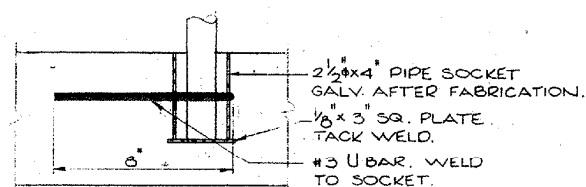


PLAN ON GRIT TANK No. 3

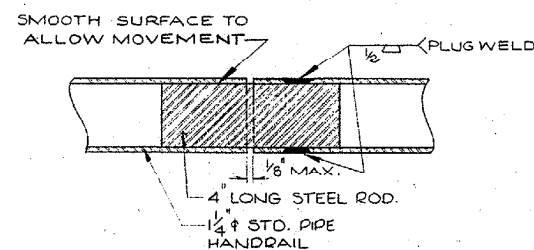
HANDRAIL AND SCREEN LOCATIONS



TOP MOUNTED HANDRAIL DETAIL FOR NEW CONCRETE



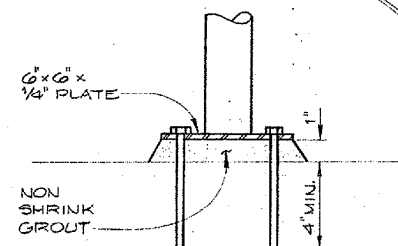
POST SOCKET
DETAIL 
1/4" = 1"



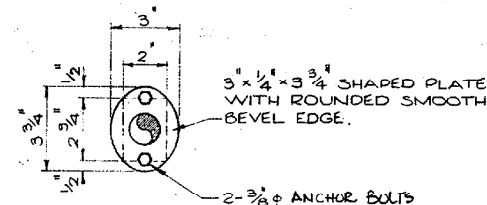
HAND RAIL SPLICE

DETAIL 

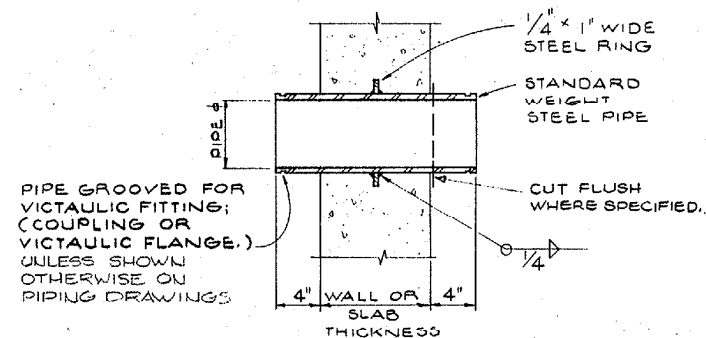
$1/2" = 1"$



TOP MOUNTED HANDRAIL DETAIL
FOR EXISTING CONCRETE
 $1/4" = 1'$

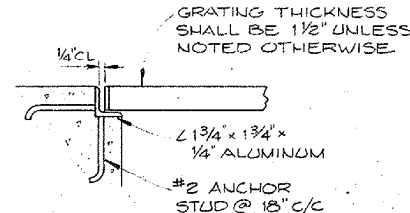


WALL MOUNTING PLATE
DETAIL 
 $1/4" = 1"$

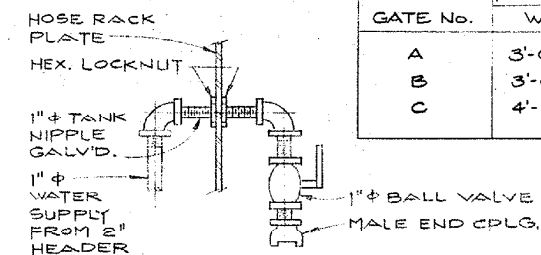


TYPICAL PIPE THROUGH WALL OR SLAB

DETAIL 
N. T. S.



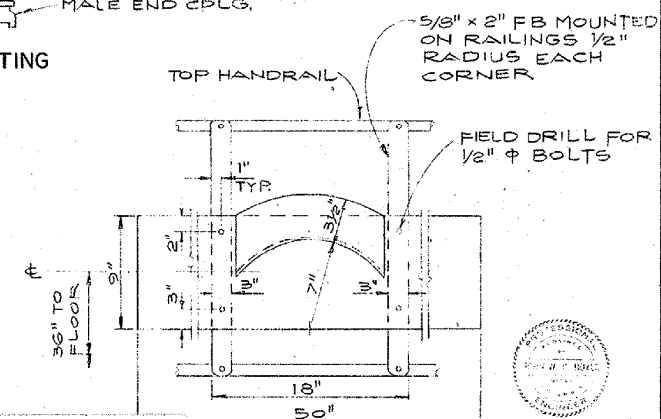
**TYPICAL GRATING
SUPPORT DETAIL**



HOSE VALVE MOUNTING

DETAIL 

GATE No.	FRAME SIZE		GATE SIZE	
	W	X	Y	Z
A	3'-0"	5'-0½"	3'-2½"	2'-11"
B	3'-0"	5'-0½"	3'-2½"	2'-11"
C	4'-0"	4'-8"	4'-2½"	4'-7"



N-INT-222 RAIL MOUNTED J
14
NTS

ISSUE	DATE	DRN	CH'D	APP'D	DESCRIPTION	ISSUE	DATE	DRN	CH'D	APP'D	DESCRIPTION	DESIGNED	J.W.C.B.	DAYTON & KNIGHT LTD. CONSULTING ENGINEERS P. Walker J.W.C.B.	REGIONAL DISTRICT OF NANAIMO GREATER NANAIMO W.P.C.C. CONSTRUCTION OF STAGE II EXPANSION - PHASE II MISCELLANEOUS	SCALE: AS SHOWN	M
												DRAWN	L.W.		DRAWING No. 122-72-4		
												CHECKED	JWB		SHEET 14 OF 21	ISSUE A	