

RE: TRANS MOUNTAIN PIPELINE COMPANY LTD.,
PROPOSED STORAGE TANKS AT BURNABY MOUNTAIN TANK SITE,
UNDER CURRENT APPLICATION TO THE NATIONAL ENERGY BOARD
PRELIMINARY PLAN APPROVAL APPLICATIONS #8750, #8751, & #8752

MUNICIPAL MANAGER'S RECOMMENDATION:

1. THAT the recommendation of the Director Planning & Building Inspection be adopted.

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SUPPLEMENTARY

TO: MUNICIPAL MANAGER 1988 JANUARY 07

FROM: DIRECTOR PLANNING &
BUILDING INSPECTION

SUBJECT: TRANS MOUNTAIN PIPELINE COMPANY LTD.
PROPOSED STORAGE TANKS AT BURNABY MOUNTAIN TANK SITE,
UNDER CURRENT APPLICATION TO THE NATIONAL ENERGY BOARD
PRELIMINARY PLAN APPROVAL APPLICATIONS #8750, #8751, & #8752

RECOMMENDATION:

1. THAT Council endorse the elements of the proposed formal written submission of intervenor's evidence, which identifies the environmental issues of concern to Burnaby with respect to the facilities at the Burnaby Mountain and Westridge Terminal installations as outlined in Section 6.0 of this report.

REPORT

1.0 INTRODUCTION & PURPOSE OF REPORT:

On 1987 September 21 Trans Mountain Pipeline Company Ltd. made application to the National Energy Board for expansion of its system, which includes a request for approval to construct three additional 150,000 barrel capacity oil storage tanks on the existing oil tank farm site located on Burnaby Mountain.

In this regard the Corporation of the District of Burnaby has filed a Notice of Intervention and will appear as an intervenor at the 1988 February 01 Hearing (to be held in Vancouver) concerning Trans Mountain's Facilities and Toll Design Application.

Discussions have taken place between representatives of Trans Mountain Pipeline and members of staff from various Municipal departments, and an application for Preliminary Plan Approval has been received from Trans Mountain for the various facilities that require Municipal approval.

The purpose of this report is to inform Council of the proposal and the action taken to date regarding the submission of an Intervention, and to observe the long-standing direction of Council to report on any proposals to develop additional oil storage tanks or petroleum processing facilities in the Municipality.

2.0 BACKGROUND:

As Council is aware, the Trans Mountain Pipeline Tank Farm was constructed on Burnaby Mountain in the early 1950's. Over the years ten oil storage tanks ranging up to 150,000 barrel capacity have been constructed on the site. The use eventually led to the creation of the M7a Zoning District and limited the activity to petroleum storage thus eliminating the potential for heavier industrial uses such as petroleum processing and refining on the mountainside.

The lands occupied by Trans Mountain Pipeline Limited on Burnaby Mountain and at the Westridge Terminal (see attached Sketches #1 & #2) are zoned M7a, which permits the present use and provides the opportunity for facility expansion, in accordance with the requirements of the Municipal bylaws.

In light of the increased residential development over recent years, coupled with changes in the nature of the products handled by Trans Mountain facilities, numerous complaints have been received by Environmental Health staff regarding the emission of crude oil odours. This issue of odour complaints has been reported to Council on various past occasions.

According to information received from Trans Mountain, the company since 1983 has replaced nine of the ten floating tank roofs at its Burnaby Mountain Tank Farm with new floating roofs which incorporate double seal devices. This modification, according to information supplied by Trans Mountain, has been effective in reducing hydrocarbon emissions but has not eliminated odours which are attributable to some crude oils that are shipped to the facility.

In addition, the Company has made an effort to respond to citizen complaints in connection with its vessel loading operations at its Westridge Terminal by seeking, whenever possible, to adjust its operating procedures in relation to weather conditions, loading rates, and the nature of the material being handled. Again, however, this has not overcome the incidence of odour complaints from nearby residents.

In 1985 Trans Mountain Pipeline retained a consultant, Chicago Bridge and Iron (CBI), to study the odour problem and recommend corrective measures to deal with the emission problem. Trans Mountain briefly submitted a preliminary draft of the CBI report to the Environmental Health Department and has indicated that the final report will shortly be available for review.

Notwithstanding the efforts of the oil industry to deal with the environmental problems associated with their activity, it is apparent that the potential for problems of a health, safety, and/or nuisance nature is great for a heavy industrial use of this sort in an urban, heavily populated area. It must be recognized that Burnaby has developed into a major urban Municipality, and considering the major expenditures involved in tank farm and refinery construction, it is expected that Council will want to reflect on the long range effects and the acceptability of future major expansion of petroleum processing, storage, and distribution facilities from a social, economic, and environmental point of view.

However, given the prevailing zoning and the applications that are presently under consideration, it is necessary to proceed with an examination of these proposals under the existing regulations.

3.0 TRANS MOUNTAIN PIPELINE'S CURRENT APPLICATIONS TO THE NATIONAL ENERGY BOARD:

As the availability of light crude oil stocks are depleted, oil producers will become more dependent on heavier crude oils to supply their current markets. Extracting and transporting heavy crudes is costly and in some cases requires special treatment including dilution, heating, and the installation of additional pumping stations to efficiently move the heavy crude through the pipeline.

The proposed expansion in Trans Mountain's petroleum pipeline is to enable the system to accommodate an anticipated new market for the shipment of heavy crude oil and other petroleum products from producers in Alberta to the terminus in Burnaby, primarily for vessel export via the Westridge Terminal.

The local refineries (Chevron and Shellburn) at the present time process only light crude oils used primarily in the production of motor fuels.

With specific reference to facilities in Burnaby, the application to the National Energy Board requests approval to construct three new 23,700 m³ storage tanks (150,000 barrel capacity each) on the northwest edge of the Tank Farm site which would be equipped with aluminum geodesic domes, an internal floating roof, and a vapour collection and scrubber system for each tank (see attached Sketches #3 & #4). According to Trans Mountain Pipeline the aluminum geodesic domes with internal floaters represents the latest and most efficient technology for the reduction of emissions and collection of product vapours. The new tanks will be assigned to those light crude oils having the greatest odour potential, while the existing tanks having floating roofs will be assigned to heavier material storage use, where there is less odour potential. The value of the proposed new tanks and related facilities involve a capital investment of approximately \$16.5 million.

Additionally, in response to discussions with Municipal staff, Trans Mountain has recently made further applications to the National Energy Board for additional installations, as more particularly described in Section 4.0 below.

4.0 GENERAL DISCUSSION:

As a response to discussions with Burnaby staff, Trans Mountain Pipeline officials have advised that in addition to the new tanks, Trans Mountain requested, in an application filed 1988 January 06, that the National Energy Board revise an existing authorization to replace the floating roof on Tank #73 to incorporate a geodesic dome complete with internal floater, vapour recovery, and scrubber system. This request is intended to improve the performance of Tank #73 with respect to odour emissions. If such a conversion is possible on Tank #73 staff would request that Trans Mountain comment on the feasibility of converting all tanks with the floating roof system to the geodesic dome and vapour recovery system.

Another major source of crude oil odour complaints occurs at the Westridge Terminal during vessel loading operations and becomes very prominent during atmospheric inversions, resulting in numerous complaints to the Environmental Health Department. These emissions generally occur during the topping off process whereby vapours within the vessel are vented into the atmosphere.

In response to these complaints, discussions have taken place in past years between Burnaby staff and Trans Mountain representatives, leading to operating procedures designed to minimize occurrences where odour emissions would be likely to cause objections from the community. However, these procedures do not prevent emissions to the atmosphere and cannot be expected to eliminate the incidence of complaints.

The optimum technological solution to the vessel loading emission problem would appear to be collection and chemical scrubbing of tank vent vapours prior to release to the atmosphere. Although Trans Mountain has stated that there is no international agreement in place with respect to the recovery of tank vent vapours from tankers and barges, Burnaby's Environmental Health Department advises that it is investigating this matter. The U.S. Coast Guard is investigating the safety aspects of recovery of tank vent vapours, and this report is scheduled to be released sometime in 1988.

In the meantime, Trans Mountain Pipeline has indicated to staff that a further application has been made, on 1988 January 06, to the National Energy Board as a part of their 1988 Capital Budget to install a ship's tank vapour recovery and scrubber system at the Westridge Terminal to treat hydrogen sulfide and mercaptan emissions during the loading process. The stated value of this scrubbing facility is \$90,000. The company, however, has not provided in writing a firm startup date for the implementation of the scrubbing process, if the application is approved.

Trans Mountain has further pointed out that their equipment will not be adaptable to every ship nor will they have the control over how the captain may choose to top off the tanks. However, Trans Mountain Pipeline does control the supply valve which delivers the petroleum cargo to the vessel. In this regard Trans Mountain Pipeline can play a major role in minimizing vapour emissions during the topping off process by reducing the flow rate to the tanker.

It is requested that Trans Mountain Pipeline provide information on the capability for ensuring that only those vessels that are suitably equipped to connect with vapour collection equipment receive product at the Westridge facility.

In addition to the dockside scrubbing facility, Trans Mountain advises that on 1988 January 06 in response to requests made by the Environmental Health Department, they made further application to the National Energy Board for approval to install and operate a weather station at the Westridge Terminal, to monitor weather conditions, provide a climatic data base, and assist in making determinations for operating procedures based on weather. The value of the proposed weather station is estimated at \$20,000.

5.0 FURTHER DISCUSSION:

In discussing the present proposal with representatives of Trans Mountain, staff have outlined the basis for the concerns, on behalf of the local community, which give rise to the proposed Intervention before the National Energy Board. On 1987 December 07 the Municipal Manager wrote to Mr. J.S. Klenavic, Secretary of the National Energy Board, to provide a general outline of the issues that this Municipality wishes to have addressed at the Public Hearing scheduled for 1988 February 01 (copy attached). These issues have been identified as pertinent to the interests of Burnaby citizens in general and in particular those residing in the vicinity of the Company's two major installations in Burnaby, and are in part related to matters addressed in Section 407.2(5) of the Burnaby Zoning Bylaw: "Conditions of Use" which reads as follows:

"Nothing shall be done which is or will become an annoyance or nuisance to the surrounding areas by reason of unsightliness, the emission of odours, liquid effluents, dust, fumes, smoke, vibration, noise or glare; nor shall anything be done which creates or causes a health, fire or explosion hazard, electrical interference or undue traffic congestion."

The Municipality has been informed of several other Notices of Intervention that have been filed in connection with this National Energy Board application, including one by the Greater Vancouver Regional District which deals with permitting procedures related to air quality and emissions.

In addition to these matters, staff have identified certain other topics for further discussion with Trans Mountain in connection with development approval, including the appearance and character of the proposed geodesic dome tank cover forms, tank paint colour, screening and landscaping, and development of a public viewpoint on the southern slope of Burnaby Mountain, in the vicinity of the north boundary of the Tank Farm site. Officials of Trans Mountain have indicated a willingness to pursue discussions along these lines, and staff will do so unless otherwise directed by Council.

6.0 INTENDED INTERVENTION TO CURRENT TRANS MOUNTAIN PIPELINE APPLICATION
TO THE NATIONAL ENERGY BOARD:

With reference to the Municipality's proposed appearance at the Public Hearing scheduled for February 01, 1988, the Chief Public Health Inspector advises as follows:

On November 27, 1987, the Mayor's office received copies of correspondence regarding an application by Trans Mountain Pipeline Company Ltd. to the National Energy Board for additional facilities and toll designs. Of specific interest to our Municipality was the proposed construction of three additional crude oil storage tanks, with vapour recovery odour systems at the Burnaby Mountain Tank Farm.

As the National Energy Board required that all notice of interventions were to be filed by December 9, 1987, correspondence was forwarded to the National Energy Board on December 7, 1987 advising of the Municipality of Burnaby's intention to appear as an intervenor at a February 01, 1988 Public Hearing.

Staff from the Environmental Health Division are currently preparing the written evidence for the intervention. The written evidence is required to be filed with the Secretary of the National Energy Board and served on all other parties to the proceeding by January 15, 1988.

The environmental issues which the proposed intervention will focus on are:

- a) **The emission of crude oil odours during vessel loading at the Westridge Terminal.**

Comment The nearby residents to Westridge Terminal continue to be subjected to crude oil odours during vessel loading operations in unfavourable weather conditions such as air inversions. It is intended that the intervention will request the National Energy Board require the installation of a vapour collection and treatment facility at the Westridge Terminal.
- b) **Environmental concerns associated with the additional crude oil storage tankage and proposed vapour treatment systems.**

Comment It is intended that the intervention will request the National Energy Board require Trans Mountain Pipeline Co. Ltd. establish continuous monitoring of air emissions associated with crude oil storage and transfer. In addition, The Board will be asked to consider a means of regulating the crude oils which will be stored in the double sealed tanks and the tanks with vapour recovery systems. This would ensure that the odorous types of crude oils are stored only in the tanks with vapour recovery systems.
- c) **Application of the Burnaby Noise Bylaw**

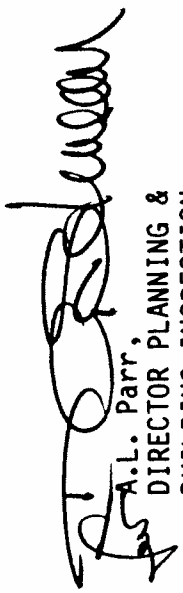
Comment The proposed intervention will request the National Energy Board to require that construction work associated with the proposed facilities comply with the requirements of the Burnaby Noise Bylaw.

The Environmental Health Division has been advising the residents of the Forest Hills Estates of any changes in operations at the nearby Tank Farms. It is the intention of staff to advise the residents of this subdivision and those in proximity to Westridge Terminal on the application to the National Energy Board.

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7.0 CONCLUSION:

At this time, subject to Council adopting the recommendation of this report, staff will proceed with the filing of a formal submission by the 1988 January 15 deadline in connection with the proposed Intervention, and make the appropriate presentation at the scheduled National Energy Board 1988 February 01 Public Hearing. Following this, a further report will be submitted to Council outlining the disposition of the matter and providing further information and an opportunity for Council direction, if desired, prior to finalization of Municipal approvals.

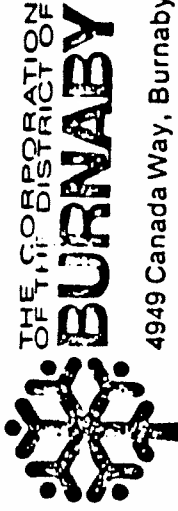


A.L. Parr,
DIRECTOR PLANNING &
BUILDING INSPECTION

DGS/JCu/js

Attachments

- cc: Administrative & Community Services
Chief Public Health Inspector
Director Engineering
Chief Fire Prevention Officer



4949 Canada Way, Burnaby, B.C. V5G 1M2
Manager's Department

Telephone (604) 294-7110

1987 December 07

National Energy Board,
473 Albert Street
Ottawa, Ontario
K1A 0E5

Attn: Mr. J.S. Klenavic,
Secretary

Dear Mr. Klenavic:

Re: Hearing Order No. OH-1-87
File 1755-14-25

The purpose of this correspondence is to formally advise the National Energy Board of the Corporation of the District of Burnaby's intention to appear as an intervenor at the 1988 February 01 Public Hearing concerning Trans Mountain Pipe Line Company Ltd. Facilities and Toll Design Application.

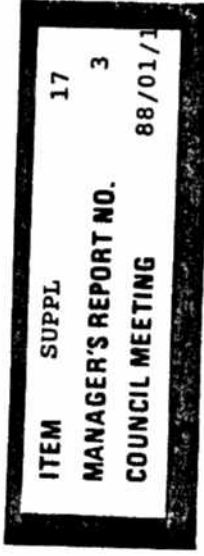
The Corporation of the District of Burnaby, British Columbia, is the location of Trans Mountain Pipe Line Company Ltd., Burnaby Mountain Tank Farm and Westridge Terminal operations.

The issues which our Municipality wishes to address at the Public Hearing take into consideration the information which has been provided to date on the application. The issues are:

1. The potential for increased vessel traffic at the Westridge Terminal.
2. Concern for emission of crude oil odours during loading activity at Westridge Terminal.
3. Concern for emission of crude oil odours from existing and proposed crude oil storage tanks at the Burnaby Mountain Tank Farm.
4. Safety concerns and effluent characteristics associated with the proposed vapour treatment system at the Burnaby Mountain Tank Farm.

Additional information on the application may result in further concerns being addressed at the Public Hearing.

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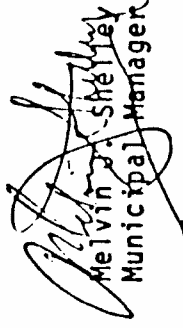
1987 December 07

Please address all correspondence in English to:

Mr. R.H. Moncur, Director of Administrative & Community Services, Corporation of the District of Burnaby, 4949 Canada Way, Burnaby, B.C., V5G 1M2. Telephone (604) 294-7104, Facsimile (604) 660-7050.

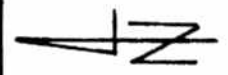
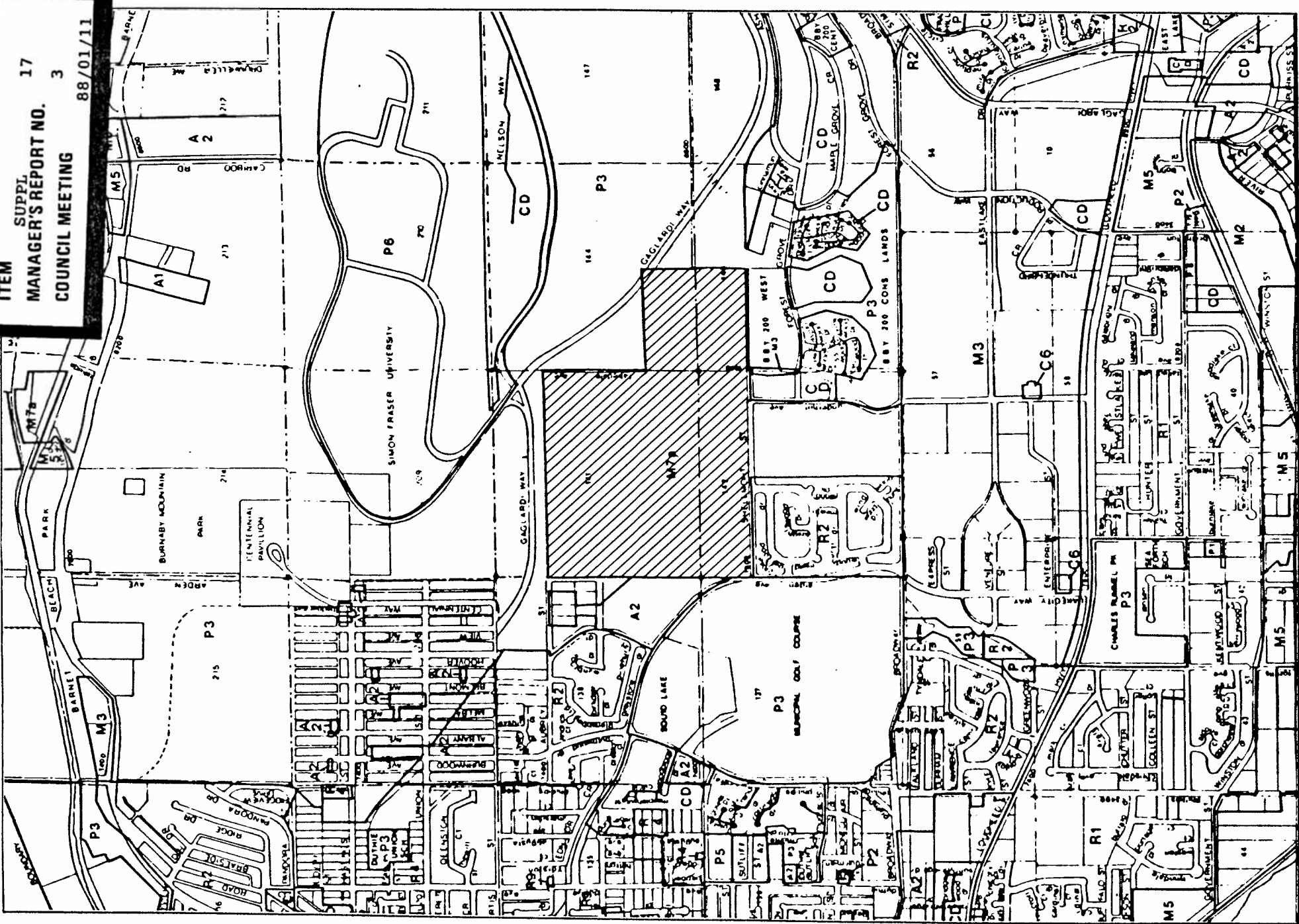
As per the requirements for Public Hearings, Section 32(1), a copy of this correspondence has been served on the applicant.

Yours truly,


Melvin J. Sheehy
Municipal Manager

MJS/g1

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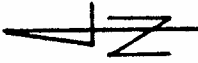
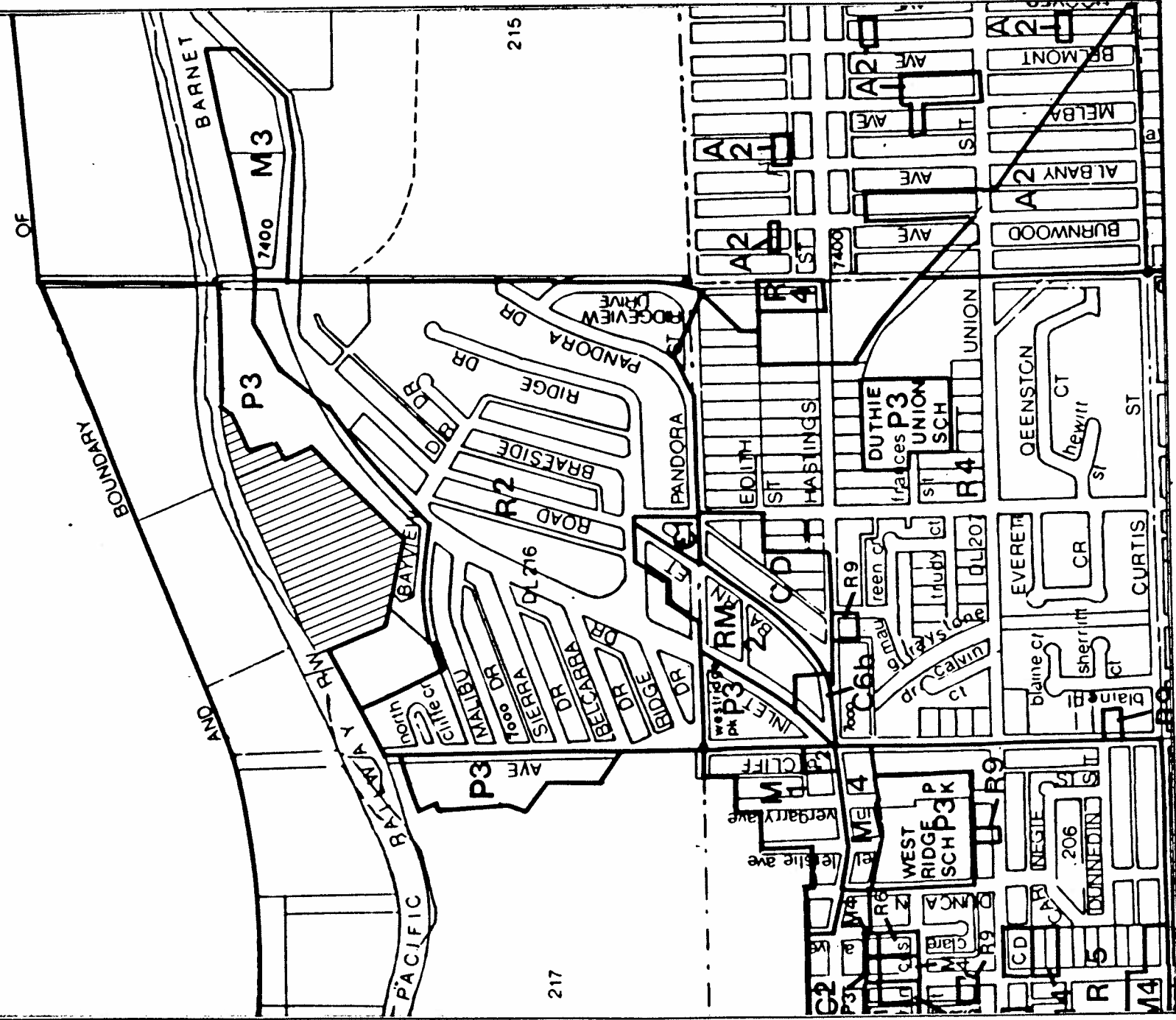
- TRANS MOUNTAIN PIPELINE TANK FARM -
 BURNABY MOUNTAIN

Date: _____


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BURNABY
 Planning &
 Building Inspection
 Department

 - TRANS MOUNTAIN PIPELINE
 WESTRIDGE TERMINAL

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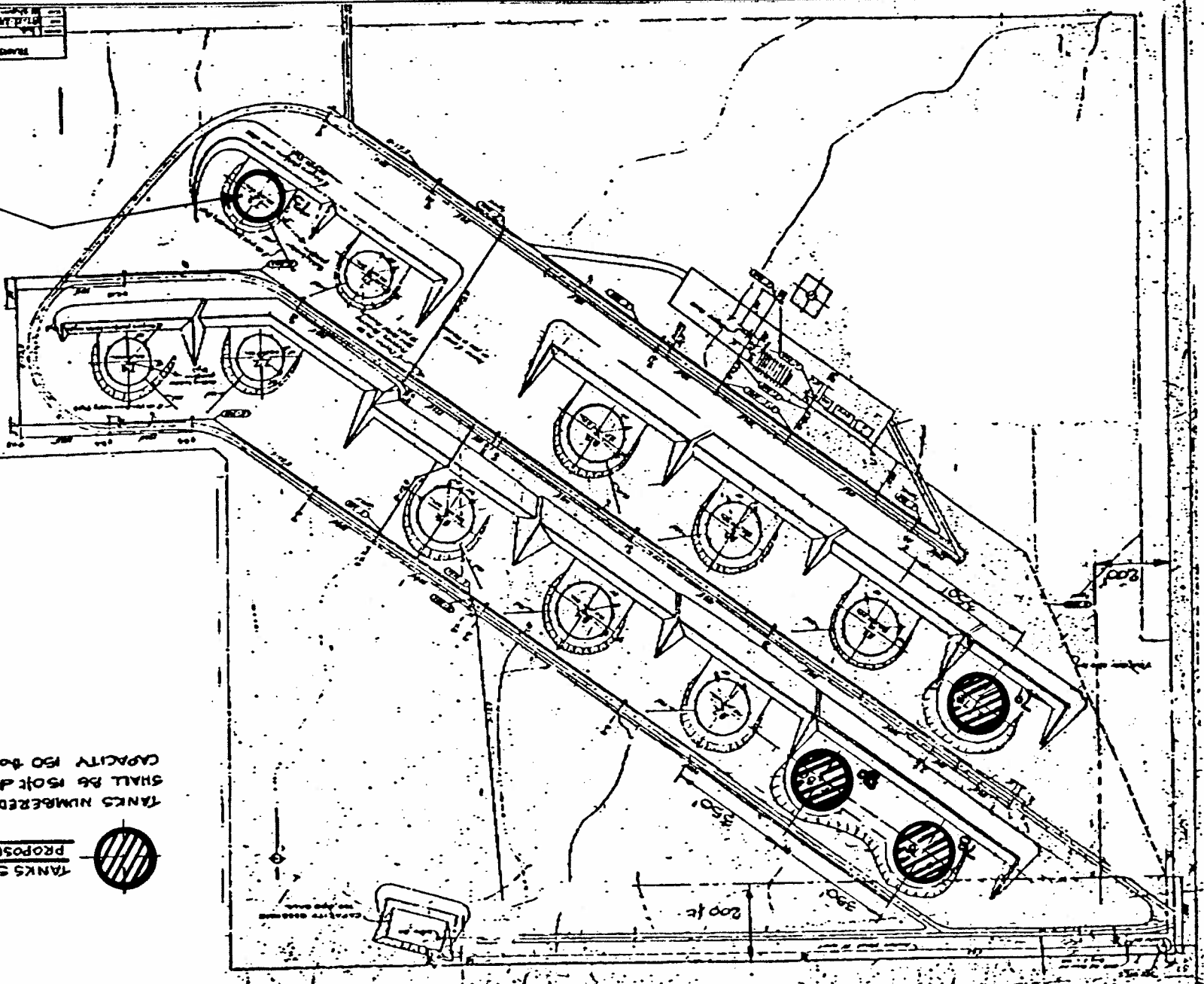
TANKS SHOWN CROSS HATCHED
 PROPOSED FOR CONSTRUCTION



TANKS NUMBERED 1 TO THROUGH 100
 SHALL BE 150ft diameter x 40ft high
 CAPACITY 150 thousand BARRELS

TRANS MOUNTAIN PIPE LINE COMPANY LTD
 PROPOSED NEW
 TANKAGE
 112

TANK # 73
 PROPOSED DOME
 ROOF AND VAPOR
 RECOVERY.



Date:



Planning &
 Building Inspection
 Department



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TRANS MOUNTAIN PIPELINE TANK FARM SITE -
 BURNABY MOUNTAIN

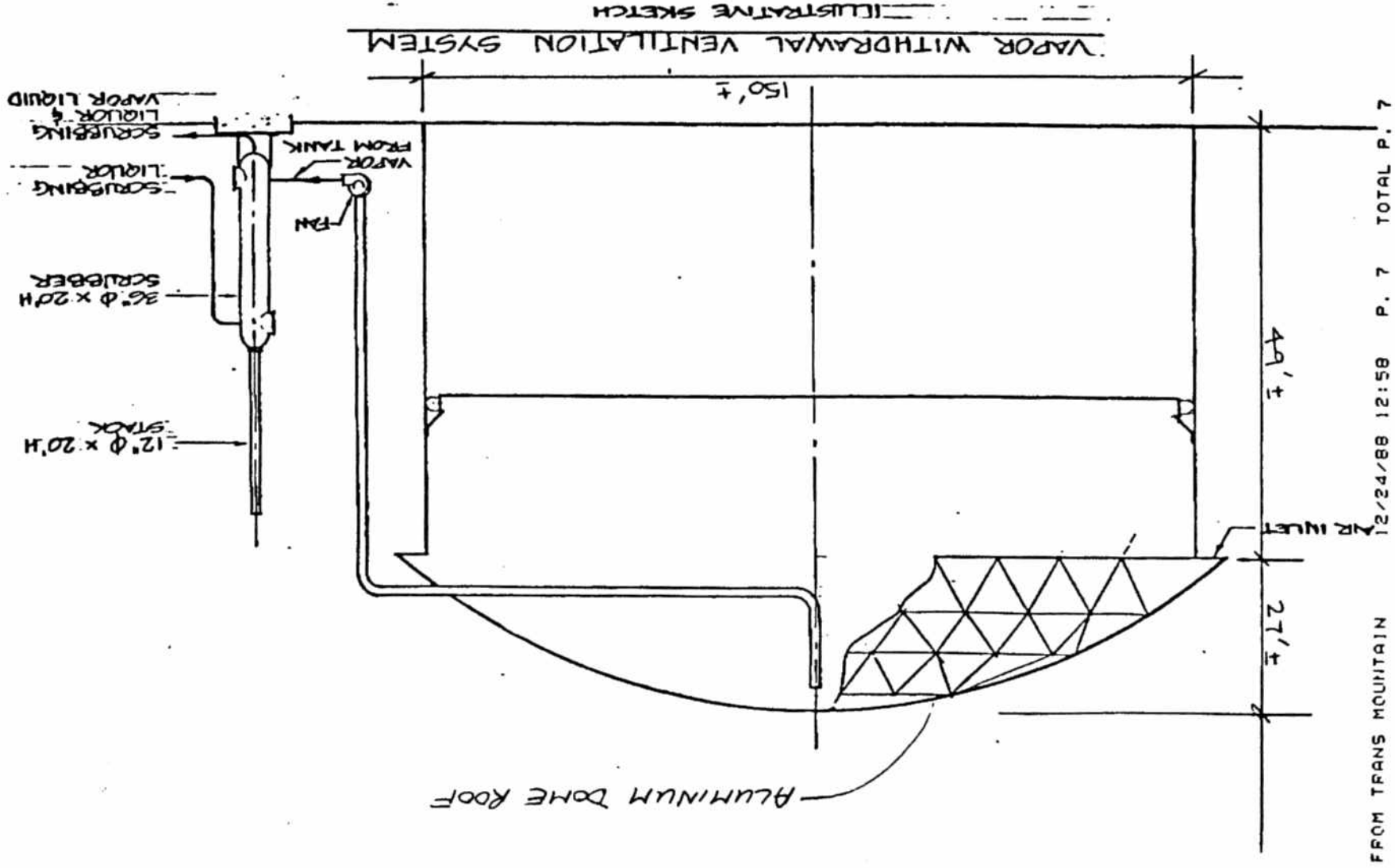
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SKETCH #3

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TRANS MOUNTAIN PIPELINE STORAGE TANK

SKETCH #4