Allison Merla
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August 29, 2019

Director
Environmental Approvals Branch
Department of Sustainable Development
1007 Century Street
Winnipeg, MB R3H 0W4

RE: Notice of Alteration to Environment Act Licence 960VC
Vale Canada Limited Transition from Truck Haulage to Rail Transport of Concentrate

Vale Canada Limited (Vale) produces a nickel concentrate material at its Thompson, Manitoba operations. The concentrate is currently transported off site by truck where it is then trans-loaded to gondola style rail cars for shipping to Sudbury, Ontario. Following from successful onsite trials wherein the feasibility of shipping the product directly from Thompson by rail, Vale herein proposes to transition its concentrate shipping from truck haulage to rail haulage. With this transition, changes are required to concentrate handling and storage activities at the site, as further described in the appended documentation.

Please accept the included Notice of Alteration Form, detailed report and associated application fee as formal request for review of this proposed alteration to the operations currently approved under Environment Act Licence No. 960VC. Your time and consideration are appreciated.

Regards,

Allison Merla
Encl.

Manitoba Operations
PO Box 5000
Thompson, MB R8N 1P3

Notice of Alteration Form

Manitoba
Sustainable Development

Client File No. :	Environment Act Licence No. : 960VC

Legal name of the Licencee: Vale Canada Limited

Name of the development: Thompson Mine

Category and Type of development per Classes of Development Regulation:

Mining — Mines, other than pits and quarries

Licencee Contact Person: Lyle Safronetz
Mailing address of the Licencee: PO Box 5000
City: Thompson Province: Manitoba Postal Code: R8N 1P3
Phone Number: (204) 778-2797 Fax: Email: lyle.safronetz@vale.com

Name of proponent contact person for purposes of the environmental assessment (e.g. consultant):

Phone: Fax:	Mailing address:

Email address:

Short Description of Alteration *(max 90 characters):*

Change from truck to rail haulage of concentrate material.

Alteration fee attached: Yes: ☑ No: ☐

If No, please explain:

Date: 2019-08-29	Signature:  Printed name: Allison Merla for Lyle Safronetz

A complete Notice of Alteration **(NoA)** consists of the following components:

- ☑ **Cover letter**
- ☑ **Notice of Alteration Form**
- ☑ **2 hard copies and 1 electronic copy of the NoA detailed report** (see "Information Bulletin - Alteration to Developments with Environment Act Licences")
- ☑ **$500 Application fee, if applicable** (Cheque, payable to the Minister of Finance)

Submit the complete NoA to:

Director
Environmental Approvals Branch
Manitoba Sustainable Development
1007 Century Street
Winnipeg, Manitoba R3H 0W4

For more information:

Phone: (204) 945-8321
Fax: (204) 945-5229
http://www.gov.mb.ca/sd/eal

Note: Per Section 14(3) of the Environment Act, Major Notices of Alteration must be filed through submission of an Environment Act Proposal Form (see "Information Bulletin – Environment Act Proposal Report Guidelines")

Notice of Alteration Detailed Report
Environment Act Licence 960VC
Transition from Truck Haulage to Rail Transport of Concentrate Product

Project Description:
Vale Canada Limited (Vale) proposes to switch from truck to rail transport to facilitate the direct shipment of Manitoba Division (MD) concentrate to other Vale Canada sites. Currently, Vale's Manitoba Division ships 10-16 trucks per day of concentrate from the Thompson Mill to a trans-loading facility located in Winnipeg, where it is trans-loaded to gondola rail cars and transported to the Sudbury Smelter.

The benefits of directly loading rail cars in Thompson include a reduction in operating costs and, through the elimination of 10-16 trucks per day travelling between Thompson and Winnipeg, improved highway safety and a reduction in transportation-related greenhouse gas emissions.

An initial outdoor trial of concentrate loading to gondola-style rail cars was successfully undertaken this spring, and a second outdoor trial will be undertaken in Sept. and Oct 2019.

Highlights of the initial trial are:

1. A total of 50 cars over a 4 month period (April – July) were shipped to Sudbury.
2. Validated a number of assumptions – savings and risks
3. Increased confidence to deliver results

In order to facilitate year round rail car loading and manage any residual potential for environmental effects, Vale will repurpose its existing Shear Shed, formerly utilized at its now-closed refinery opeartions, for indoor material handling, concentrate storage and controlled rail car loading.

Project scope:
The scope to modify the shear shed includes:

- Rebuilding the rail spur to the shear shed,
- Removal of existing equipment in the shear shed
- Assessment and installation of ventilation required to operate mobile equipment in the shear shed,
- Installation of roll up doors for truck and rail movement,
- Addition of concrete lock-blocks to hold concentrate for shipment and additional storage in case of rail interruption.

Detailed engineering and procurement is in progress, with a target to start loading rail cars on Nov 1st after the Notice of Alteration permitting outdoor loading expires.

With the approval of the NOA, Manitoba Division Concentrate will be hauled from the existing Thompson Concentrate Loadout (TCLO) building to the shear shed. Either an excavator or a loader will be used at the TCLO to load concentrate into covered haul trucks for subsequent transport to the shear shed as per the proposed traffic routes identified in Appendix 1. Haul trucks will then enter the shear shed and offload the concentrate into dedicated bunkers. A loader will be used to stockpile material within the shear shed (see Appendix 2). Pending mill production, 500-700 wet tonnes per day will be loaded at the TCLO and hauled to the shear shed facility.

Gondola-style covered rail cars will be loaded, two at a time, indoors at the shear shed. A trackmobile will be used to move both empty and full cars into and out of the shear shed. In addition, the trackmobile will be used to manage rail cars on Vale property, and to transport rail cars to and from the Thompson rail yard to Vale's operations.

The existing overhead crane within the shear shed will be used to remove and replace rail car lids. Rail cars will be loaded with an excavator or loader (see Appendix 3). Once loaded, the trackmobile will shuttle the full cars to the rail yard. Pending mill production, Vale expects to load 25-40 rail cars per week.

In case of rail interruption, the site requires the capacity to store approx. 8000 tonnes of concentrate. The TCLO storage area has been modified to allow storage of up to 3500 tonnes of concentrate, up from the previous capacity of 2000 tonnes. Additional concentrate storage will include the VBN Building. Currently the facility is approved for off-spec storage, going forward the requirement will be to store 2000 tonnes of concentrate. The remaining capacity of 2500 tonnes will be stored in the modified shear shed building.

Summary of Potential Project Environmental Effects:
The overall environmental impacts will be mitigated through design, best practices and existing Vale standards and procedures.

Spill containment and fire prevention measures are planned to reduce the likelihood and severity of such an occurrence. Existing site control measures and procedures exist to address issues should they arise.

Health Effect:
All applicable Vale health and safety policies and procedures will apply to Vale employees and contract workers (and anyone else working on site).

The shear shed will be equipped with local alarms for CO, NOx and SO2. Procedures will be developed to manage if storage is required due to rail upset.

All work will be assigned to and completed by qualified personnel only.

An Occupational Health and Environment program will be implemented to measure and monitor workroom environment and personnel exposure. Health, safety, environment and hygiene policies and procedure will be developed to mitigate risk.

Terrestrial:
This project does not involve major excavation nor will there be new footprint required:

- Rail to the shear shed will be re-established; the shear shed previously had rail service.
- Truck movement will use existing roads, as show in appendix 1. Three routes are identified, all within the existing facilities, to accommodate demolition activities in the Smelter and Refinery.

The concentrate within the building will be safely contained from the environment. The shear shed has a concrete floor and concrete barriers within the building will be used to contain concentrate. All material handling, including loading and unloading, will occur with the doors to the shear shed closed so as to mitigate any potential for entrainment outside of the building.
Spill containment and fire prevention measures are planned to reduce the likelihood and severity of such an occurrence.

Site has a mature waste management system with designated areas for various materials' safe disposal. The Project will utilize this site waste management system for disposal of existing equipment, in consultation with the ARO project.

The shear shed has been checked for barn swallow activity, with none found. All work on the modifications will occur outside of the nesting season.

Aquatic:
The shear shed and all material handling and transport areas are located within the existing plant footprint and within catchment areas that contain and direct all surface contact waters to waste water management system for treatment prior to discharge to the natural environment, in accordance with provincial and federal legislative requirements.

Atmospheric:
Particulate emissions from the shear shed will be mitigated by ensuring all overhead doors are closed when handling concentrate. No material handling changes are proposed at the TCLO and material will be shuttled between the two facilities in covered trucks. Further, and as is an inherent control also in the TCLO material handling operations, the moisture content of the concentrate precludes fugitive emission generation.

A dedicated sweeper will keep the roadway within the facility clean. In addition to the sweepers inside both the TCLO and the shear shed, the existing site street sweeper will be used to clean up any track-out of material onto the roads.

Particulate emissions in the community will be monitored using data from the Thompson Station within the province's Envista monitoring program, inline with the compliance monitoring under Condition 4 of the NOA for operations at the TCLO.

Noise:
No change long term. The noise levels moving the concentrate within the plant limits and within the shear shed are expected to have minimal impact on existing plant noise levels. The excavator and loader will be used inside of the building.

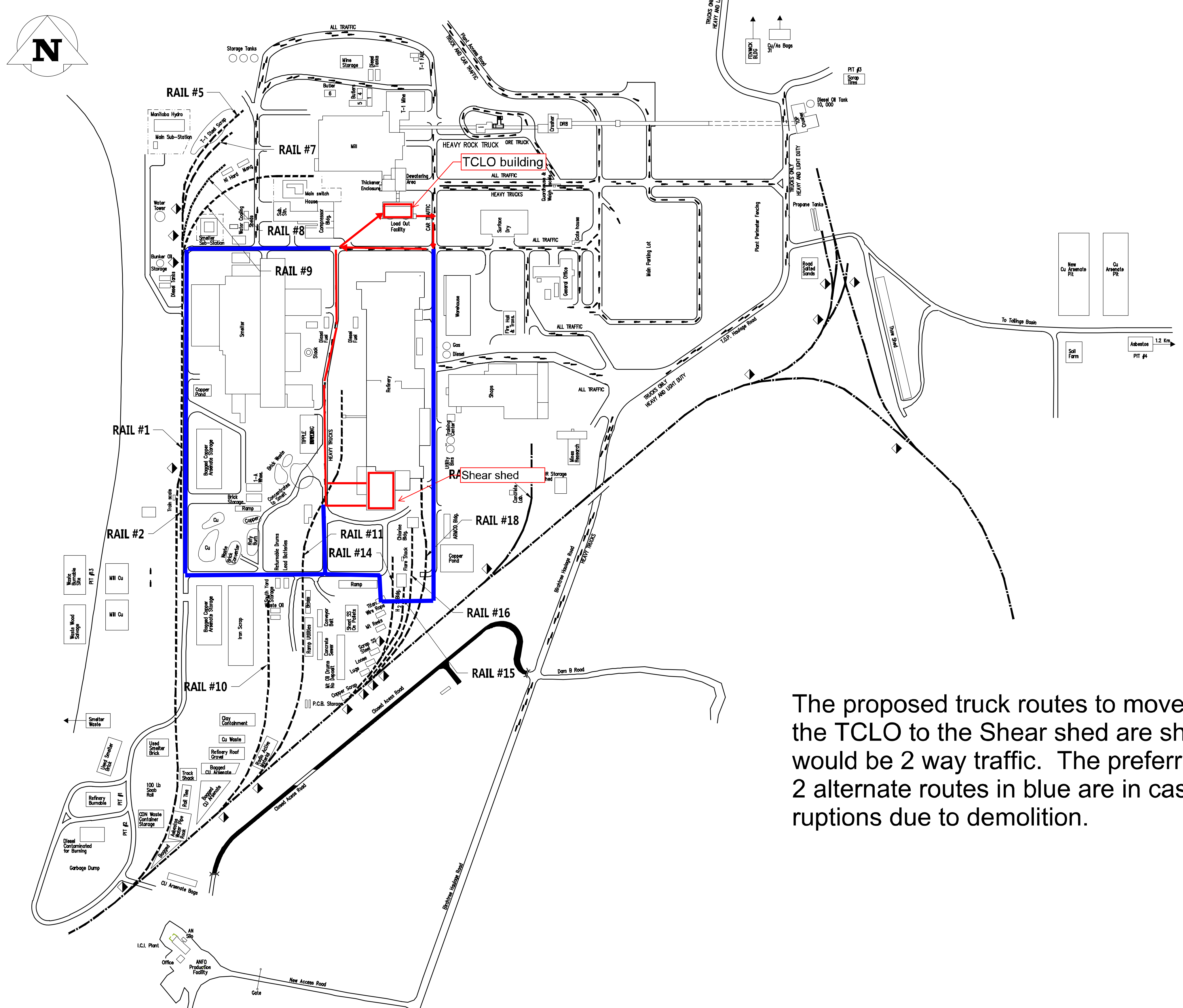
Community Impact:
This project will eliminate 10-16 trucks per day from Manitoba highways, reducing traffic safety risks and greenhouse gasses.

Additional jobs will be created in the Thompson community to satisfy the resource requirements to carry out the described work.

Given that all material handling will occur indoors with mitigative measures included to the design of the storage and handling facilities and equipment, and further given the moisture content of the concentrate material which precludes fugitive emission generation when properly monitored and controlled, changes to air and noise emissions profiles within the community are not expected.

Attached Appendices:

1. Truck Traffic Flow
2. General arrangement drawing – Truck flow
3. General arrangement drawing – Rail car loading



LEGEND:

80 LB RAIL	▬▬▬▬▬
100 LB RAIL	▬ ▬ ▬ ▬
115 LB RAIL	▬▬ · ▬▬
SWITCH	◆

TRACKS NUMBERS

#1 SCALE TRACK
#2 SIDE TRACK OF SCALE
#5 T-1 YARD
#8 MILL BALLS
#9 MILL PENTLANDITE
#10 SMELTER INGOTS (STORAGE TRACKS)
#11 SO2 REFINERY
#14 REFINERY SHEAR SHED
#15 H2S
#16, CHLORINE
#18 ACID
#29 PIT TRACK

The proposed truck routes to move concentrate from the TCLO to the Shear shed are shown; the routes would be 2 way traffic. The preferred is in orange, the 2 alternate routes in blue are in case of access interruptions due to demolition.

DWG NO.	REFERENCE DRAWINGS	REV	JOB NO.	DESCRIPTION	DATE	DRAWN BY	CHECKED DRAWING	APPROVED DESIGN	REVIEWED DESIGN
–	–	–	–	–	07MAY2019	M. TUGADE	–	–	–
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VALE
MANITOBA OPERATIONS

PLANT – | SUB PLANT – | AREA – | CLASSIFICATION –

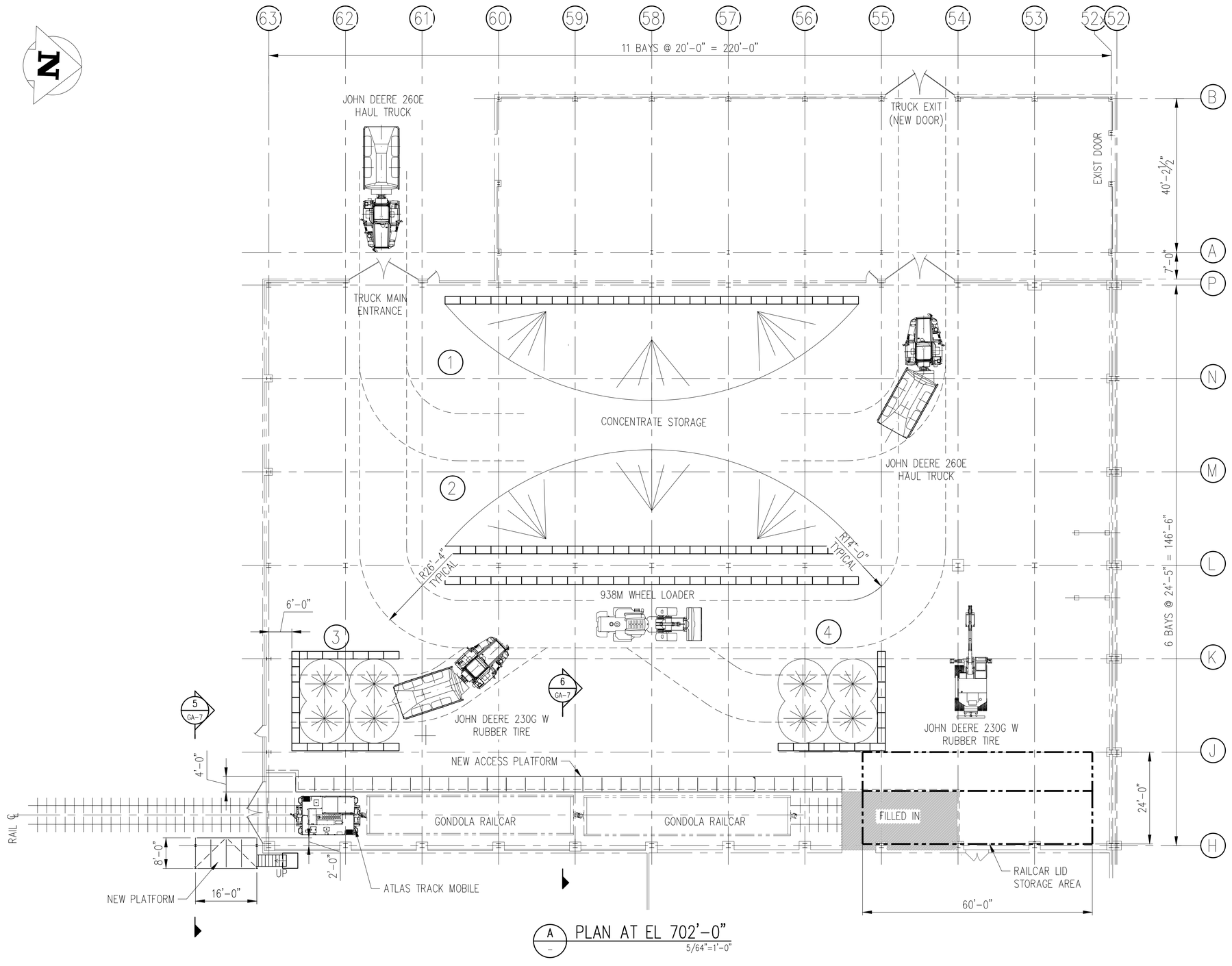
TITLE
TRUCK TO RAIL FEL–2 STUDY – GENERAL SITE
EXISTING SURFACE TRACK LAYOUT AND PROPOSE RAIL CAR STORAGE

SCALE – | REV. 1 PROJECT NO. – | DWG. NO. C–1 | REV. A

START DATE – | REV. – | OLD DRAWING NO. –

DWG. NO. –

DWG. NO. –



A – PLAN AT EL 702'–0"
5/64"=1'–0"

OPTION - 4

PRELIMINARY
NOT FOR CONSTRUCTION

BOGE BOGE
(1980) LTD. CONSULTING ENGINEERS
268 ELLEN STREET WINNIPEG, MANITOBA
CANADA R3A 1A7
(204) 942-7276 FAX 942-7288
E-MAIL:boge@boge-boge.com
WEB:www.boge-boge.com

DWG NO.	REFERENCE DRAWINGS	REV	JOB NO.	DESCRIPTION	DATE	DRAWN BY	CHECKED DRAWING	APPROVED DESIGN	REVIEWED DESIGN
–	–	A	–	ISSUED FOR CLIENT REVIEW	23AUG2019	M. TUGADE	D. MOFFAT	D. MOFFAT	D. MOFFAT
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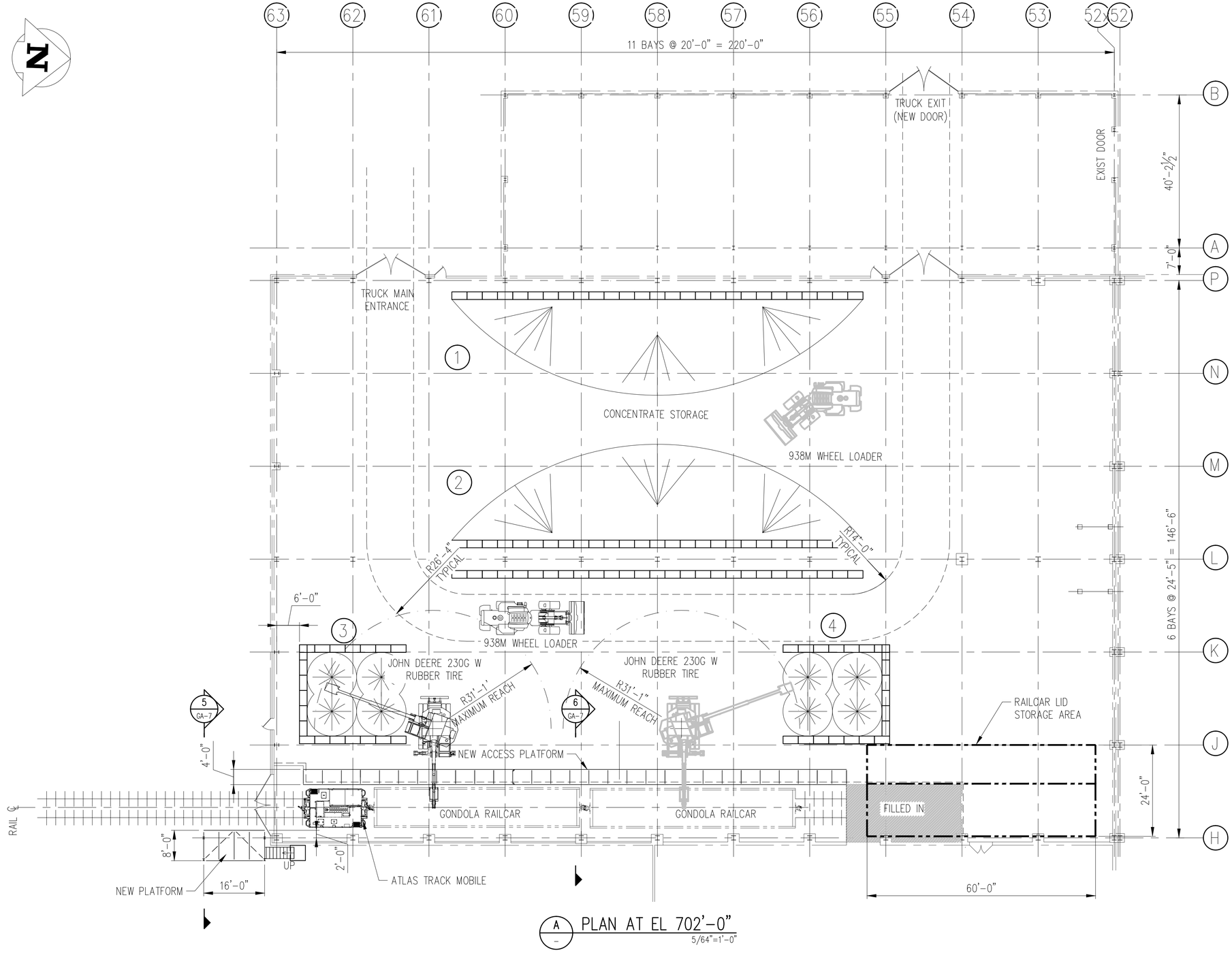
VALE
MANITOBA OPERATIONS

PLANT: —
SUB PLANT: —
AREA: SHIPPING AND SHEARING AREA
CLASSIFICATION: —
TITLE: TRUCK TO RAIL CONCENTRATE – RAILCAR LOADING
PLAN AT EL. 702'–0" – TRUCK PATHS FOR CONCENTRATE DELIVERY
SCALE: –
REV. 1 PROJECT NO.: —
DWG. NO.: 19–027X1 04 GA–2
REV.: A
OLD DRAWING NO.: –
REV: –
START DATE: –

DWG. NO. –



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5/64"=1'-0"

OPTION - 4

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VALE
MANITOBA OPERATIONS

PLANT: –
SUB PLANT: –
AREA: SHIPPING AND SHEARING AREA
CLASSIFICATION: –
TITLE: TRUCK TO RAIL CONCENTRATE – RAILCAR LOADING
PLAN AT EL. 702'-0"
SCALE: –
REV. 1 PROJECT NO.: –
DWG. NO.: 19-027X1 04 GA-1
REV.: A
OLD DRAWING NO.: –
REV.: –
START DATE: –