

NO: R208

COUNCIL DATE: September 17, 2018

REGULAR COUNCIL

TO: **Mayor & Council** DATE: **September 13, 2018**

FROM: **General Manager, Planning & Development** FILE: **5650-20(FRPA)**
General Manager, Engineering

SUBJECT: **Application to Vancouver Fraser Port Authority by Fraser Grain Terminal for a Grain Export Facility at the Fraser Surrey Docks**

RECOMMENDATION

The Planning & Development Department and the Engineering Department recommend that Council:

- Receive this report for information;
- Request that Vancouver Fraser Port Authority (“VFPA”) and Fraser Surrey Docks (“FSD”) address the following as part of the approval for the proposed grain export facility:
 1. Implementation of mitigation measures to ensure that the concerns expressed by the community during the public consultation regarding the increased noise associated with the shunting of train cars, the blowing of train whistles are suitably addressed;
 2. Undertake engagement with the community, particularly Royal Heights, and incorporate the input into construction of a new grade separated road connection across the railway tracks and Highway 17 near Grace Road with direct access to Highway 17, which will provide community, safety and Port operation benefits;
 3. Provide the low noise initiatives outlined in the previous BKL Consultants report prepared for the direct transfer potash facility at the FSD; and
 4. Develop a plan to provide flood protection for FSD lands and adjacent Surrey Lands. This plan should be done in cooperation with the City of Surrey and tie into Surrey’s dyking system.
- Instruct the City Clerk to forward a copy of this report and related Council resolution to VFPA and FSD as the City’s formal comments on the application by Fraser Grain Terminal.

INTENT

The intent of this report is to seek Council authority to share the City’s comments on Fraser Grain Terminal proposal to construct a new bulk grain export facility at the FSD.

BACKGROUND

At the July 20, 2018, Regular Council – Land Use meeting, Council supported the recommendations of Corporate Report No. R185; 2018 (Attached at Appendix “I”) concerning the application to implement a direct transfer potash facility at FSD. The public consultation conducted to provide comments concerning the proposed bulk grain export facility has generated similar comments as those provided for the direct transfer potash facility at FSD.

DISCUSSION

About the Project

Fraser Grain Terminal proposes to build a grain export facility adjacent to FSD on port industrial lands (Site Location Plan attached as Appendix “II”). It will be used to ship bulk grain products, including wheat, barley, oil seeds, pulses and other specialty grains overseas. The proposed project will bring the total capacity for the terminal to ship 4 mega tonnes per annum (MT/a). This new facility will receive grain by rail, and then load the agricultural products onto cargo vessels. The facility and travelling ship loader will have a modern design that minimizes noise and dust generated from grain handling operations and will replace the existing manufacturing warehouse on vacant port land.

The project will consist of the following:

- Semi-loop rail track and loading track connected to the adjacent PARY;
- Rail unloading building and transfer tower with fully-enclosed conveying equipment and a built-in dust suppression system;
- Three (3) fixed tower ship loaders with telescoping spouts, each with dust reducing features during vessel loading, replacing existing ship loader mobile conveyors. Each tower will be supported on steel piles in the foreshore and land side shore area;
- Twenty-five (25) above-ground steel storage bins (20 x 3,500 Mt, 4 x 400 Mt and 1 x 700 Mt);
- Ground densification for the silo and ship loader foundations using Rammed Aggregate Pier (“RAP”) densification. The foundation densification program for the silo area was developed to minimize potential movement of in-situ contamination plumes;
- Single integrated container, bulk truck, and rail loading facility and container storage yard; and
- An administration building, maintenance shop building and sample storage, two control rooms, motor control centers (“MCCs”), and container preparation area with fabric rain cover.

The steel storage upper distribution system is completely enclosed and connected to a dust control system. The ship loader system will also be used by the existing Joint Venture Facility. Ship loaders will not require vessel warping and will be fitted with a cascading telescopic or choke-fed discharge dust control spout to reduce emissions during loading.

Preliminary Public Comment Period

Lucent Quay Consulting had an initial round of engagement with the community and stakeholders in the form of an Open House, as well as an on-line survey. The following

summarizes input received from residents through the Project on-line feedback form, public meetings and submissions:

- Questions about air quality;
- Increased noise from train traffic, train whistles, idling and shunting;
- Noise during construction;
- Questions about the use of shore power to decrease the sounds of ships running engines; and
- Questions about lighting.

These concerns are similar to the feedback reflected in the public consultation process held for the proposed direct potash export facility operation at FSD.

Traffic

A Traffic Impact Study (“TIS”) was prepared by Stantec to evaluate the impact of the additional rail traffic from this proposal.

The new facility is typically expected to receive and dispatch one 112 unit-train Monday through Saturday, and on four Sundays per year. Fifty unit manifest cars (one per day) would also arrive and depart on twenty-two other days per year. Stantec provided an analysis of the impact the proposed rail delivery would have at the existing at-grade crossings, and determined that there is no significant change in the operations at Tannery Road interchange with the addition of the Fraser Grain Terminal traffic.

However, the reports provided for this current proposal did not include the combined traffic impact findings created by the operations of both the direct transfer potash facility and the proposed grain export facility. The report did refer to a previous study completed by Stantec, which recommended the long term grade separation over the tracks adjacent to Elevator Road to provide direct access to Highway 17 (South Fraser Perimeter Road) and reduce wait times to access the FSD.

The TIS prepared by Mott Macdonald for the direct transfer potash facility provided an analysis of the potential traffic generated by both of these proposed operations, and recommended the construction of a grade separation over the tracks adjacent to Elevator Road which will provide direct access to Highway 17 and reduce the wait times to access FSD.

City staff believe there is good merit in construction of a grade separated crossing and direct ramps to Highway 17 near Grace Road. In addition to the value for truck access to FSD, this would provide improved emergency and business access to all the lands west of Highway 17, would enable the elimination of train whistling at the Elevator Road crossing, and improves overall traffic circulation for the area. However, further consultation with the community, in particular Royal Heights, should be undertaken before proceeding with these works.

Air Quality

Lucent Quay Consulting was commissioned to evaluate the air quality impacts related to the proposed bulk grain export facility at the FSD. The air quality readings at the Metro Vancouver stations in North Delta, North Vancouver, and Burnaby were used to characterize the background air quality in the vicinity of the project. The information on the air quality at these stations, the

assessment of meteorological influences on dispersion of particulants, and historical air quality trends allowed for the modelling of future emission estimates in 2020. The 2020 future project facility emissions include: particulate matter from dust filters used for the receiving, transfer, storage, shipping and loading operations; particulate matter from the ship loader; and combustion emissions from the switch locomotive, line-haul locomotive, ocean going vessels, and tug boats.

Using conservative assumptions to predict potential air quality impacts at receptors in the study area, the following conclusions have been drawn for the 2020 Future with Project Scenario:

- Predicted air quality impacts including ambient background at sensitive receptors and within residential neighbourhoods in the vicinity of the Project are generally low and remain below all Ambient Air Quality Objectives;
- The predicted air contaminant concentrations quickly diminish as emissions disperse further away from the proposed Project;
- For all air contaminants and averaging periods, there were no predicted exceedances of the Ambient Air Quality Objectives with ambient background included beyond the facility;
- Exceedance of the Ambient Air Quality Objectives were predicted for NO₂ (Annual) at 16 receptors all located on the boundary between the Project and the existing Joint Venture Facility; and
- The receptors are located adjacent to the switch locomotive operations which may cause the increase in the overall NO₂ levels.

The air quality modelling incorporated the dust control measures proposed which will reduce the amount of particulants released during the loading/unloading of the agricultural products.

Lighting

During the public consultation there were concerns expressed on the lighting of the proposed Fraser Grain Terminal and the potential impacts on the residents. DMD & Associates Ltd. were contracted to evaluate the project related light trespass on the upland residents. The project related light trespass effects and sky glow effects will be minimized at the terminal area. The container area, shipping area and the walkway to the shop loading area will have downward cast lighting, directed away from the residents. At night, exterior-emergency levels and full lighting will only be turned on when required for night time operations. The majority of the lighting proposed for this facility is wall mounted downward facing and of low wattage (21 W LED) to reduce impacts of the lighting on the upland residents.

Noise

BKL Consultants was commissioned to evaluate noise impacts related to the proposed bulk grain export facility at the FSD. Similar to the noise evaluation completed for the direct potash facility, noise monitors were installed close to River Road and in Royal Heights to determine a base line of the existing noise levels generated by FSD. The existing baselines noise at these locations is approximately 69 decibels adjusted (“dBA”) during the day and 60 dBA in the evenings.

The study determined that there would be an overall increase in 1 dBA in the noise levels generated by the grain export facility, however it did acknowledge that overall the noise levels were anticipate to increase by 3% per year for the combined noise generated by FSD.

The Project design already incorporates the following low noise initiatives:

- All filter unit fans are to be fitted with a silencer;
- Multiple smaller baghouses and point source filters will be used at the site;
- Conveyors will utilize low noise polyethylene rollers;
- Conveyors will be fully enclosed with a solid enclosure;
- Rail squeal has been addressed by rail track layouts and greasing of tracks; and
- Loading operation of the container yard will be limited to daytime/weekday only.

It is recommended that FSD include these measures into the design and construction of the bulk grain export facility in order to mitigate the noise generated by the loading and unloading of grains.

Authority

It is noted other than having jurisdiction on the dyking right-of-way through the site, that the City does not have any jurisdiction or authority in relation to the approval of this application. FSD has provided consultants' reports with recommendations in order to resolve issues related to noise, protection of the environment and traffic management, which for the most part address these issues, provided that the recommendations provided by the consultants are implemented, specifically:

- Provide assurances and response to the concerns expressed by the community during the Open House regarding the increased noise associated with the shunting of train cars, the blowing of train whistles at crossings throughout Surrey;
- Ensure construction of the grade separation over the tracks adjacent to Elevator Road to provide direct access to the SFPR and reduce the wait times to access FSD;
- Provide the low noise initiatives outlined in the BKL Consultants report; Ensure the construction of the facility does not compromise the flood protection of the South Westminster area; and
- Develop a plan to provide flood protection for FSD lands and adjacent Surrey Lands. Plan should be done in cooperation with the City of Surrey and tie into Surrey's dyking system.

SUSTAINABILITY CONSIDERATIONS

The installation of a bulk grain export facility at FSD has the potential to impact nearby neighbourhoods, and so the City was asked to provide comments on the application to VFPA. While the City does not have jurisdiction in relation to the approval of the facility, it is important that any benefits and concerns with the application are put forward to VFPA. This supports the following Desired Outcomes ("DO's") and Strategic Directives ("SD's") of our Sustainability Charter 2.0:

Built Environment and Neighbourhoods

- DO6:** Land is used efficiently and sensitively, and development minimizes the impacts on the natural environment, viewscape, agricultural land and urban wildlife.
- DO7:** Exposure to natural hazards is minimized through appropriate location and design of development.

Economic Prosperity and Livelihoods

- DO1:** Diverse and meaningful employment and business opportunities are available close to where people live, and provide incomes that can support a high quality of life.
- DO3:** Job creation and entrepreneurship development are widely fostered.
- DO4:** Surrey's economy is diversified with a mix of service, industrial, agricultural and innovation-based businesses.
- DO6:** Efficient land use and well-managed transportation infrastructure are in place to attract businesses and support a thriving economy.
- DO8:** Economic activities recognize the importance of, and have minimal impact on the natural environment.

CONCLUSION

An application install a bulk grain export facility at FSD is under consideration by VFPA. As part of the consultation process, the City has been asked to provide comments on the application.

Based on the above discussion, it is recommended that Council:

- Request that Vancouver Fraser Port Authority ("VFPA") and Fraser Surrey Docks ("FSD") address the following as part of the approval for the proposed grain export facility:
 1. Implementation of mitigation measures to ensure that the concerns expressed by the community during the public consultation regarding the increased noise associated with the shunting of train cars, the blowing of train whistles are suitably addressed;
 2. Undertake engagement with the community, particularly Royal Heights, and incorporate the input into construction of a new grade separated road connection across the railway tracks and Highway 17 near Grace Road with direct access to Highway 17, which will provide community, safety and Port operation benefits;
 3. Provide the low noise initiatives outlined in the previous BKL Consultants report prepared for the direct transfer potash facility at the FSD; and
 4. Develop a plan to provide flood protection for FSD lands and adjacent Surrey Lands. This should be done in cooperation with the City of Surrey and tie into Surrey's dyking system.

- Instruct the City Clerk to forward a copy of this report and related Council resolution to VFPA and FSD as the City's formal comments on the application by Fraser Grain Terminal.

Original signed by
Jean Lamontagne
General Manager, Planning & Development

Original signed by
Fraser Smith, P. Eng., MBA
General Manager, Engineering

LAP/ar

Appendix "I" Corporate Report No. R185; 2018
Appendix "II" FGT Grain Export Facility Site Location Plan



CORPORATE REPORT

NO: R185

COUNCIL DATE: July 23, 2018

REGULAR COUNCIL

TO: Mayor & Council DATE: July 20, 2018

FROM: General Manager, Planning & Development;
General Manager, Engineering FILE: 5650-20(FRPA)

SUBJECT: Application to Vancouver Fraser Port Authority by BHP Billiton Canada Inc. to
Implement a Direct Transfer Potash Facility at the Fraser Surrey Docks

RECOMMENDATION

The Planning & Development Department and the Engineering Department recommend that Council:

- 1) Receive this report for information;
- 2) Request that Vancouver Fraser Port Authority ("VFPA") and Fraser Surrey Docks ("FSD") address the following as part of the approval for the proposed potash export facility:
 - Provide assurances and response to the concerns expressed by the community during the Open House regarding the increased noise associated with the shunting of train cars, the blowing of train whistles at crossings throughout Surrey;
 - Ensure construction of the grade separation over the tracks adjacent to Elevator Road to provide direct access to the South Fraser Perimeter Road ("SFPR") and reduce the wait times to access the FSD;
 - Provide the low noise initiatives outlined in the BKL Consultants report;
 - Ensure the construction of the facility does not continue to infringe on the City's rights over the existing Surrey Dyking right-of-way ("ROW") nor compromise the flood protection of the South Westminster area; and
 - Develop a plan to better flood-proof current vulnerabilities in FSD lands
3. Instruct the City Clerk to forward a copy of this report and related Council resolution to VFPA and FSD as the City's formal comments on the application by BHP Billiton Canada Inc. ("BHL") to install and operate a potash export facility at FSD.

INTENT

The intent of this report is to seek Council authority to share the City's comments on the BHP's application to VFPA in order to allow a potash export facility operation at FSD.

BACKGROUND

VFPA has received a project permit application from BHP for the construction of a new potash export facility at 11060 - Elevator Road. The applicant is proposing to receive potash from their proposed Jansen Mine in Saskatchewan via rail, store the products on-site, and load the potash onto bulk ocean-going vessels on the Fraser River. They anticipate that by 2030 approximately 8 million metric tonnes of potash will be transferred and trans-shipped annually from this facility.

VFPA held two open houses on Saturday, July 14, 2018 at LA Matheson Secondary School and on Monday, July 16, 2018 at the Inn at the Quay in New Westminster to provide the public and communities an opportunity to provide comments on the proposal. As well as the public consultation, VFPA has requested comments from the City on the proposal.

DISCUSSION

About the Project

Potash is a naturally occurring mineral salt and a key ingredient in agricultural fertilizer. It is non-flammable, non-combustible, and is considered non-toxic to aquatic species. BHP is proposing to construct an export facility to receive and store rail shipments of potash and load onto bulk ocean-going vessels. The proposed facility will include a covered area for the off-loading of the potash, and a conveyor belt system to load the material onto the vessels. BHP anticipates approximately eight to ten trains per week to supply the facility, with three to four sailings a week of filled trans-shippers.

VFPA has completed a number of studies to consider when evaluating the proposal during this initial phase of consultation. These studies can be summarized as follows:

- Environmental (air quality, flood protection, storm water pollution plan);
- Noise assessment and rail operations;
- Traffic impact study; and
- Noise assessment.

Preliminary Public Comment Period

BHP had an initial round of engagement with the community and stakeholders in the form of an Open House to initiate dialogue about the proposal from October to November 2017. The attendees responded to a questionnaire, and their feedback reflected the following:

- Questions about air quality;
- Lighting impacts;
- Increased noise from train traffic, train whistles idling and shunting;
- Questions about the use of shore power to decrease the sounds of ships running engines;
- Questions about the corrosive nature of the commodity;
- Questions about protecting the salmon and spill response; and
- Questions about construction noise.

Traffic

A Traffic Impact Study was prepared by Mott MacDonald to evaluate the impact that the additional rail traffic from this proposal will cause; however, when the new rail operations for the new grain, coal, and potash facilities were cumulatively calculated, it was determined there would be a substantial impact on the rail crossings.

The report estimated that the anticipated blockages caused by rail movements along Robson Road will be up 257% from current levels. With two level crossings along Robson Road, each crossing will be blocked 75 minutes per day. The consultants have recommended the construction of grade separation over the tracks adjacent to Elevator Road which will provide direct access to the SFPR, and reduce the wait times to access the FSD.

This section of Robson Road which will be impacted by the at grade rail crossings lies within the Ports lands. The congestion generated by the at grade rail crossings will only impact the truck traffic accessing the docks.

Noise

BKL Consultants was commissioned to evaluate noise impacts related to the proposed Potash Facility at the FSD. In Surrey, two noise monitors were installed close to River Road and in Royal Heights to determine the existing noise levels generated at the South Fraser Perimeter Road and the current FSD operation. The existing baseline noise at these locations is approximately 69 dBA during the day and 60 dBA in the evening. The baseline noise levels were modelled to project the future noise levels of the current and proposed Port activities, and the increase in the traffic noise generated by the South Fraser Perimeter Road, and it is predicted that there will be a 3% growth rate in the noise levels at that time (71 dBA during the day and 61 dBA during the evening).

FSD has proposed low noise initiatives, which includes:

- Conveyor belts operating at a limited speed;
- Incoming railcars unloading in a continuous, steady action, thereby eliminating the need for shunting of the cars;
- Extending the rail track radius to minimize the rail squeal;
- Applying lubrication to the rail track to minimize rail noise;
- Installing low impact and soft landing chutes to minimize noise from impacting materials; and
- Non-emergency clean-up of the site will be limited to daytime hours.

The report noted that during construction of the potash facility, the noise from construction is predicted to exceed Health Canada noise criteria during the pile driving. The noise management procedures proposed include a communication plan for the residents to minimize the effects from the construction noise. The community had previously expressed concerns related to the noise generated by the construction of the facility. The soils in this area are soft, and piles are required in order to support the new building. Unfortunately, this pile driving for the building will contribute to the majority of the noise during construction.

It was noted that they are proposing to construct this facility from 7:00 am to 7:00 pm, seven days a week. The proposed hours of construction comply with Section C of *Surrey Noise Control By-*

law 1982 No. 7044 ("the Noise By-law"), with the exception of working on Sunday. Written permission from the City is required to allow for construction on this day. It is recommended that this request be granted, as it will allow for a shorter period of construction.

BHP included in the report additional low noise initiatives relating to noise reduction, such as:

- The minimization of openings in the rail car during unloading;
- Baffling the opening to the building; and
- Installing sound absorbing materials inside the building to reduce sound emission.

It is recommended that FSD include these measures into the design and construction of the unloading facility in order to mitigate the noise generated by the unloading of the potash.

The low noise initiatives proposed noted above will aid in reducing additional noise generated by the potash facility; however, the inclusion of the additional building noise reducing construction materials will further reduce the noise.

Environmental Considerations

The potash will be removed from the train car in a covered unloading facility which will include dust control units. The material will then be moved by a conveyor belt into a fully enclosed product storage building, including materials handling and transfer equipment. The product will be loaded into the ship by a covered conveyor belt. Hemmera Envirochem Inc. was commissioned to conduct an environmental review related to the proposed Potash Facility at the FSD. To mitigate the environmental impact of potash on the surrounding drainage, the environmental report recommends the installation of additional storm water catch basins. Storm water which could be infused with the potash will be directed to these additional man holes, and separated from the regular water. The contaminated storm water will then be removed by a pumper truck. Potash is a salt, and a spill will cause a localized increase in salinity in the surrounding water which would dilute and dissipate rapidly. Potash is generally non-toxic. The salinity of the Fraser River varies with the tidal cycle and seasonal flows, which will minimize the risk in the water environment. The greatest risk is to the Gunderson Slough area as outlined in their report. Consideration of directing storm water away from the Gunderson Slough should be considered.

Potash is corrosive to metals, and there may be an increased risk of an incident as a result of deterioration of the metals that come into contact with the potash. The Hemmera Envirochem Inc. report suggests regularly scheduled inspections, testing, and maintenance will reduce the possibility of an incident. It is recommended that all equipment and structures need to be confirmed suitable for a potash environment. This may include the replacement of the flap gates on the stormwater system which protects the potash facilities surrounding area from backwater flooding.

The proposed works are within the Fraser River floodplain. An assessment of the flood elevations on the site was undertaken by BHP. In all cases the potash facility, including transfer tunnel, electrical substation and the building would experience some degree of flooding. There is a report suggesting some mitigative works which have not been provided to the City for review. The key concern for the City is the possibility of the proposed potash facility compromising the larger area flood protection and also introducing significant contaminants into the floodwaters if the facility should be inundated. Some of the proposed works are within an existing Surrey Dyking ROW. Any new works within the ROW area must require consultation with the City to

resolve the City's continued right over the Surrey Dyking ROW, which includes assurances of how the proposed works will improve existing flood protection for the area and also safeguard against potential contamination during a flood event.

Authority

While the City does not have the jurisdiction to approve this application, FSD cannot disregard the City's continuing right over the Surrey Dyking ROW and must adhere to the City's noise, nuisance, and environmental protection requirements. Accordingly, FSD has provided consultants' reports with recommendations in order to resolve issues related to these matters including traffic management, which for the most part address these issues, provided that the recommendations provided by the consultants are implemented, specifically:

- Provide assurances and response to the concerns expressed by the community during the Open House regarding the increased noise associated with the shunting of train cars, the blowing of train whistles at crossings throughout Surrey;
- Ensure construction of the grade separation over the tracks adjacent to Elevator Road to provide direct access to the SFPR and reduce the wait times to access the FSD;
- Provide the low noise initiatives outlined in the BKL Consultants report;
- Ensure the construction of the facility does not compromise the flood protection of the South Westminster area; and
- Develop a plan to better floodproof current vulnerabilities in FSD lands.

SUSTAINABILITY CONSIDERATIONS

The installation of a potash export facility at FSD has the potential to impact nearby neighbourhoods, and so the City was asked to provide comments on the application to VFPA. While the City does not have jurisdiction in relation to the approval of the facility, it is important that any benefits and concerns with the application are put forward to VFPA. This supports the following Desired Outcomes (DO) and Strategic Directives (SD) of our Sustainability Charter 2.0:

Built Environment and Neighbourhoods

- DO6:** Land is used efficiently and sensitively, and development minimizes the impacts on the natural environment, viewsapes, agricultural land and urban wildlife.
- DO7:** Exposure to natural hazards is minimized through appropriate location and design of development.

Economic Prosperity and Livelihoods

- DO1:** Diverse and meaningful employment and business opportunities are available close to where people live, and provide incomes that can support a high quality of life.
- DO3:** Job creation and entrepreneurship development are widely fostered.
- DO4:** Surrey's economy is diversified with a mix of service, industrial, agricultural and innovation-based businesses.

DO6: Efficient land use and well-managed transportation infrastructure are in place to attract businesses and support a thriving economy.

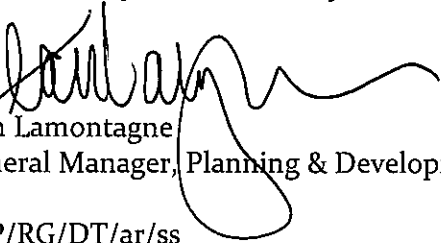
DO8: Economic activities recognize the importance of, and have minimal impact on the natural environment.

CONCLUSION

An application by BHP to install a potash transfer facility at FSD is under consideration by VFPA. As part of the consultation process, the City has been asked to provide comments on the application.

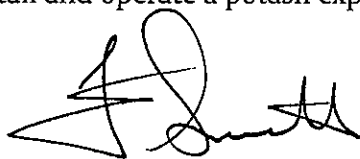
Based on the above discussion, it is recommended that Council:

- Receive this report for information; and
- Instruct the City Clerk to forward a copy of this report and related Council resolution to Vancouver Fraser Port Authority and Fraser Surrey Docks as the City's formal comments on the application by BHP Billiton Canada Inc. to install and operate a potash export facility at Fraser Surrey Docks.



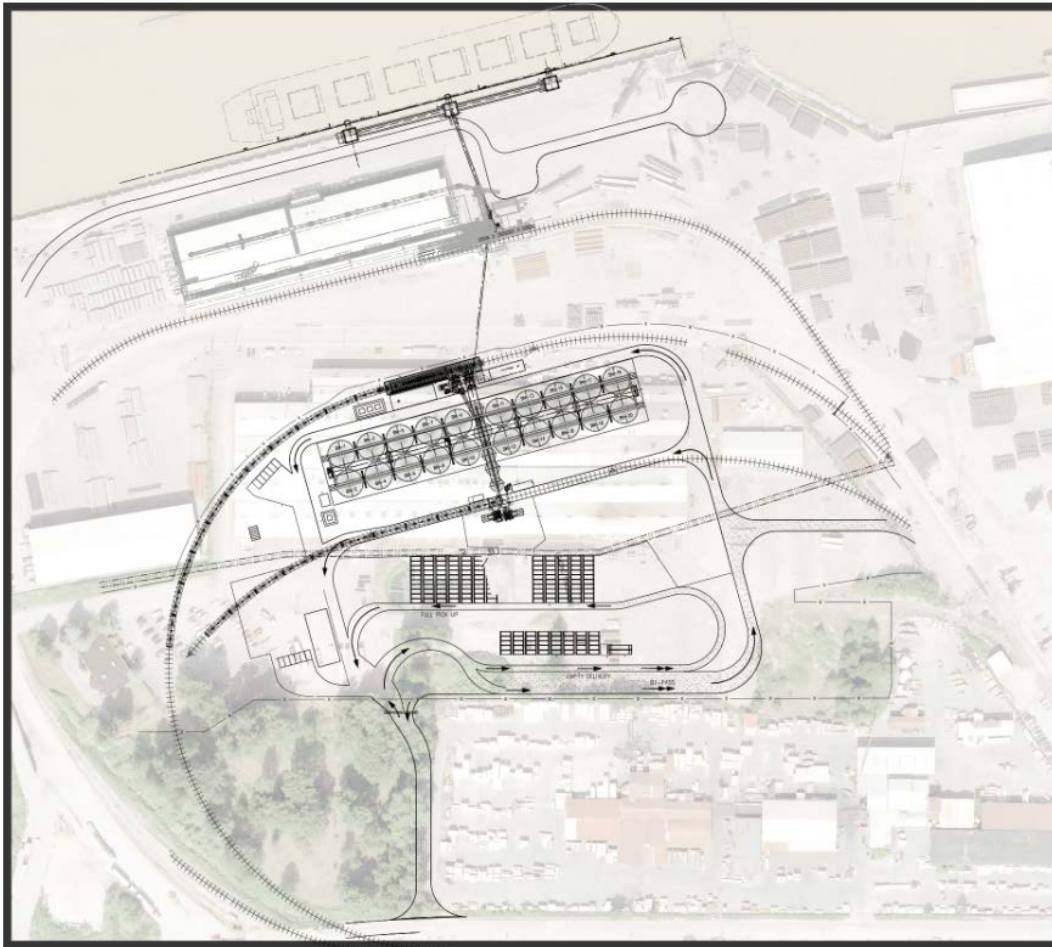
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General Manager, Engineering

FGT Grain Export Facility Site Location Plan



Design amendments to the proposed Fraser Grain Terminal Project, 2018

