



Rail Operations Plan R2

Fraser Surrey Canola Oil Transload
Facility Project

February 16, 2023

Prepared for:

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Acronyms

CN	Canadian National
MT	Metric Tonnes
PARY	Port Authority Rail Yard
VFPA	Vancouver Fraser Port Authority



RAIL OPERATIONS PLAN R2

Background
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1 Background

DP World Canada Inc. (DP World) is proposing to develop a canola oil transload facility (the Project) at DP World's Fraser Surrey Terminal. The Project includes development of new marine infrastructure to support vessel mooring and loading at the existing Berth 10, and the development of canola storage facilities and supporting transfer infrastructure on a parcel of land within the leased DP World Fraser Surrey terminal area. The Project site is fully located on federal lands and waters managed by the Vancouver Fraser Port Authority (VFPA).

Facility throughput will be 300,000 MT per year initially with future volumes projected to reach 1,000,000 MT per year.

2 Rail Operations

The Project will operate 362 days per year, 24 hours per day.

Product will arrive loaded in DOT-111 type tank cars loaded with average lading of 89,800 kg each.

Table 1 Typical Tank Car Parameters

Length	59' 10"	18.2m
Light Weight	81,000 lbs	36,740 kg
Tare Weight	205,000 lbs	93,000 kg
Gross Weight	286,000 lbs	130,000 kg
Volume	29,300 US Gallons	111,000 litres

These cars will be delivered by CN to PARY from CN's Thornton Yard in cuts of up to 32 cars, either in unit train service or mixed with other traffic.

Based on 362 operating days per year, an average of 31 cars per day will be required to meet the 1,000,000 MT per year. At peak this requires delivery of 32 cars approximately every 25 hours.

Fluctuations in train delivery may require 3 trains per day for brief periods during recovery. The PARY is expected to have sufficient capacity for the 1,000,000 MT of canola oil delivery. Market conditions will govern when the Project is able to be utilized at full capacity of 1,000,000 MT of canola oil throughput annually. At present, it is estimated that this will occur by year 2033. A separate PER application will be submitted if and when required.

The railcar offloading system will consist of thirty-two (32) bottom unloading stations over two tracks with 16 railcar unloading stations per track, unloading simultaneously via 4" railcar nozzles.



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Switching Operations
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3 Switching Operations

DPW has one three-man yard crew consisting of one locomotive engineer and two-yard employees who are equipped with a vehicle to allow for efficient operations and positioning. They operate a 2GS-12B locomotive which is a Tier IV, 1200 hp locomotive. Maximum speed in yard 15 mph, further restricted by sightlines.

DPW completes all switching operations with their own forces and locomotive. This includes distributing cars for processing as well as compiling cars for departure. Commodities include intermodal, grain, and steel in addition to the proposed canola oil traffic.

CN will deliver the loaded canola oil cars to an inbound track in PARY, typically T-91 or T-92. The CN locomotives will then be cut off and run through an empty track to the east end of PARY to return to Thornton Yard. If cars are available for departure, CN may lift cars ready for departure from T-90.

CN shifts start at 06:00, 14:00 or 22:00 and crews take roughly 2 hours to arrive. One crew brings containers (~4000'), one grain (~6000'), one manifest (~500'-2000'). Canola oil would come with regular manifest deliveries from Thornton Yard. We communicate multiple times per day with Thornton Yard to avoid congestion in PARY. Also talk daily to CN Intermodal and CN Grain planning groups directly. Switching activities within PARY are planned daily to avoid conflicts and to facilitate efficient operations. Plans are modified when required by fluctuations in available traffic and CN delivery times.

The Port's yard assignment will then cycle the cars from the inbound track to the canola oil unloading tracks. Should the unloading tracks be unavailable the cars will be temporarily stored in the shorter storage tracks, T-93 to T-99. In the unlikely event that T-91 through T-99 are unavailable for inbound rail traffic due to other inbound demands, DP World will coordinate with CN to delay shipment from Thornton Yard.

Loaded cars will ideally be spotted for unloading 32 cars at a time, 16 cars into each track. The unloading process for 32 cars is scheduled to be completed in less than 8 hours. Once the cars are released, the yard assignment will lift the 32 empty cars and place them in PARY for later departure. Empty cars will be lifted by CN.

Intermodal and Canola Oil tracks will be switched outside of peak vehicular traffic times, where at all possible. Some flexibility is required on deliveries from CN. Each switch into the Intermodal or Canola Oil tracks will block the crossing for roughly 2 minutes. Peak periods are from 06:00 – 09:00, 10:00 – 13:00, and 14:00 – 17:00.

This cycle will repeat as long as there are loaded cars available in the yard. The number of cars spotted per cycle may decrease depending on the availability of loaded cars.

Timing diagrams are show in Appendix A. The timing diagrams assume the Canola Oil switching operations will start at 09:00, however this could occur at any time during the day, depending on car, yard crew, and unloading rack availability. At the initial volume levels, 300,000 Tonnes per year, this will occur



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Capacity and Rail Specifications
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every 90.8 hours on average, and will ramp up to 1,000,000 Tonnes per year and the frequency will increase to every 27.2 hours on average.

4 Capacity and Rail Specifications

Two new canola oil unloading tracks will be constructed, 370m and 366m long. Clear length will be 330m and 325m with unloading equipment provided for 16 cars in each track.

In addition to the proposed canola oil tracks PARY has receiving/departure tracks, storage tracks and other customer tracks.

Table 2 Yard Capacity

Track ID	Clear Length (ft)	Comments
T-90	5900	Outbound
T-91	4950	Inbound
T-92	4940	Inbound
T-93	4910	Storage/Marshalling
T-94	1500	Storage/Marshalling
T-95	1160	Pull back/runaround
T-96	985	Storage/Marshalling
T-97	845	Storage/Marshalling
T-98	700	Storage/Marshalling
T-99	630	Storage/Marshalling
Total	26,520	438 cars (@60') ~ 13 x 32-car trains

It is anticipated that the Opening Day canola oil volumes will have a negligible impact on yard capacity.

Current average daily footage including all traffic is approximately 13,800 feet. With the addition of canola oil, and the anticipated reduction in intermodal traffic, the projected average daily footage is 12,200 on opening day.

4.1 New Track Specifications

New track will be constructed to conform with CN's Engineering Specifications for Industrial Track. The following are highlights from these standards:

- Design Speed 15 mph
- Turnouts will be #8 special
- Maximum degree of curvature 9 degrees (excluding turnouts)
- Rail 115# RE CWR
- Ties #1 treated Hardwood, 8'6" long, spaced 22" centre to centre
- Tie plates 14" double shouldered with a 1 in 40 cant



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Projected Traffic Volumes
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- 6" cut spikes installed as per CN Engineering Specifications for Industrial Tracks
- Fair anchors installed as per CN Engineering Specifications for Industrial Tracks
- Bumping posts, Hayes Type WG or HD, will be installed on the stub ended tracks

5 Projected Traffic Volumes

Initial volumes in Phase 1 will be 300,000 Metric Tonnes annually with operations scheduled to commence in Q4 2023. By 2033 volumes are projected to reach 1,000,000 Metric Tonnes annually.

Table 3 Projected Canola Oil Volume

Canola Oil	Tonnes/ Year	Cars/Train	Train Length Ft	Cars/ Year	Trains/ Year	Trains/ Day	Interval Hours
Initial	300,000	32	1920	3341	104	0.29	83.2
10 year	1,000,000	32	1920	11,136	348	0.96	25.0

It is anticipated that the increase in canola oil traffic will be offset by a decrease in intermodal traffic.

The initial volume of 300,000 Tonnes will have an average of 184,000 feet of traffic per year. During this timeframe, intermodal traffic is projected to decrease from 125,000 to 80,000 TEU's annually or from 2,125,000 to 1,360,000 feet per year, a decrease of 765,000 using an average of 17 feet of train per TEU.

The 10-year projection is an increase to 1,000,000 Tonnes per year or 612,000 feet of traffic with a further decrease of intermodal traffic to 25,000 TEU's or 425,000 feet.

Table 4 Projected Canola Oil + Intermodal Annual Footage

	Current	Initial	10 Year
Intermodal TEU's	125,000	80,000	25,000
Canola Oil	0 Tonnes	300,000 Tonnes	1,000,000 Tonnes
Intermodal Feet	2,125,000	1,360,000	425,000
Canola Oil Feet	0	184,000	612,000
Total Feet	2,125,000	1,544,000	1,037,000

6 Timberland Road Crossing Occupation

Trains using the proposed Timberland Road crossing were examined and anticipated crossing occupations were provided to the Traffic Team to determine the impact of crossing occupation on road traffic.



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Closure
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A discrete event simulation was completed, which examined switching operations in and out of the Canola Oil rack and Intermodal pad tracks. The following assumptions were used in developing the occupation times:

- Average Train Speed of 6 mph
- 60 foot locomotive length
- 100 foot crossing length
- Additional 30 seconds per occupation

7 Closure

This Rail Operations Plan has been created to assist with the protection of valued ecological features within and adjacent to the Project site during construction, and to support the PER Application. This plan may be updated as Project conditions, execution plans, and schedules are implemented or revised. The plan will also be reviewed as required to address updates or potential changes in the Project and permit conditions prior to mobilization of the Contractor and throughout construction of the Project.

Regards,

Stantec Consulting Ltd.

Final Signed by Stantec



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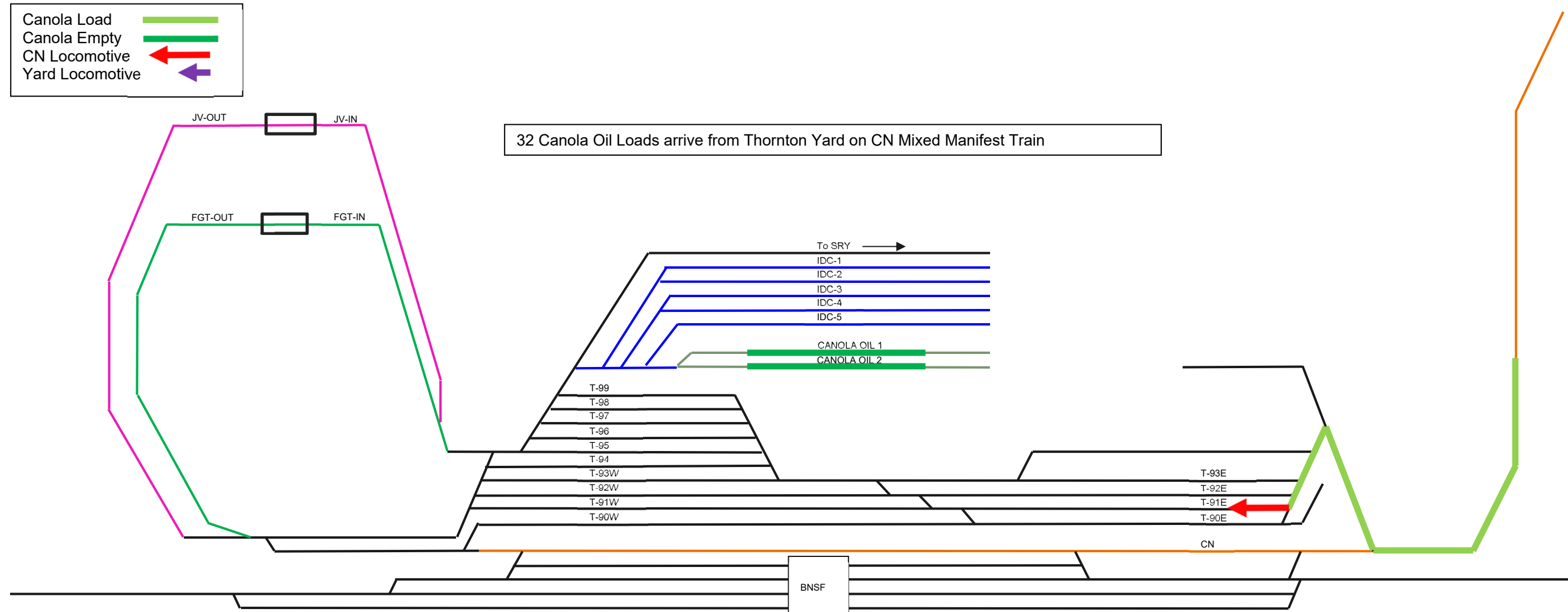
Appendix A Timing Diagrams

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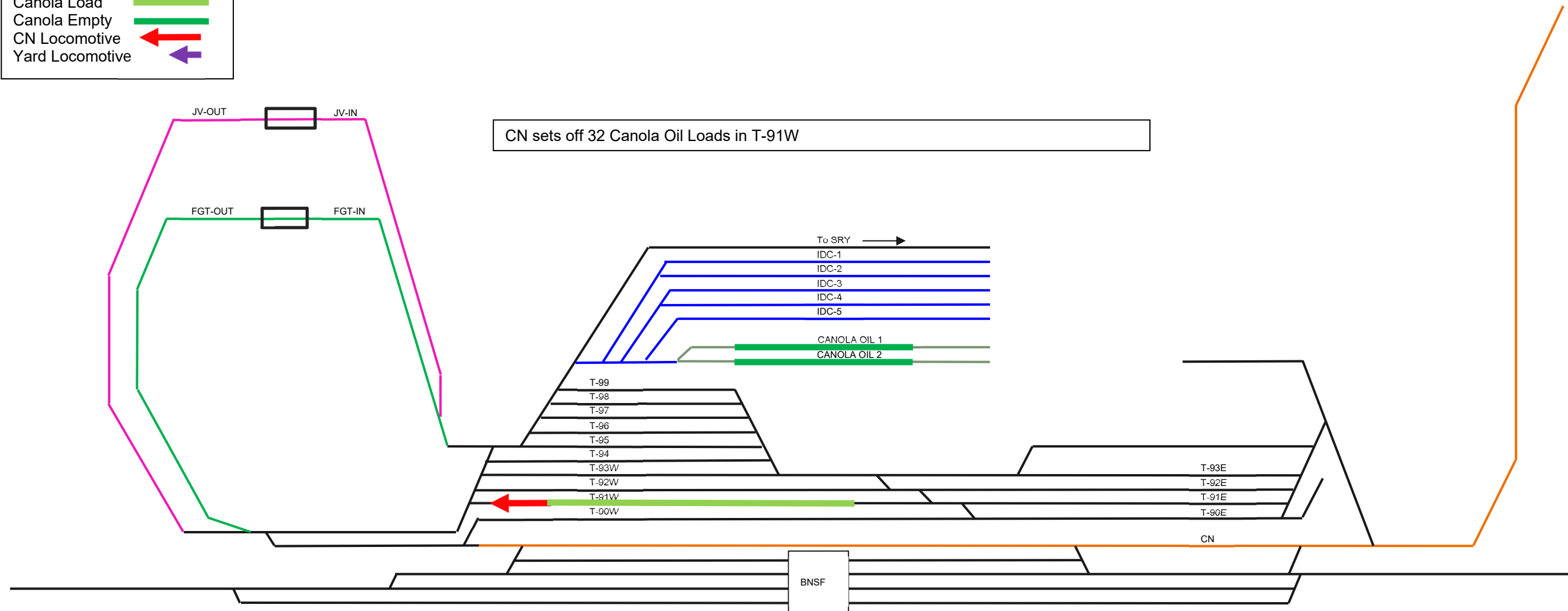
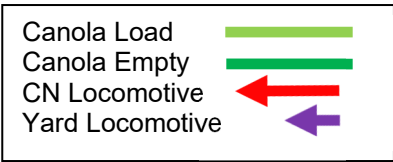
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Appendix A Yard Configuration
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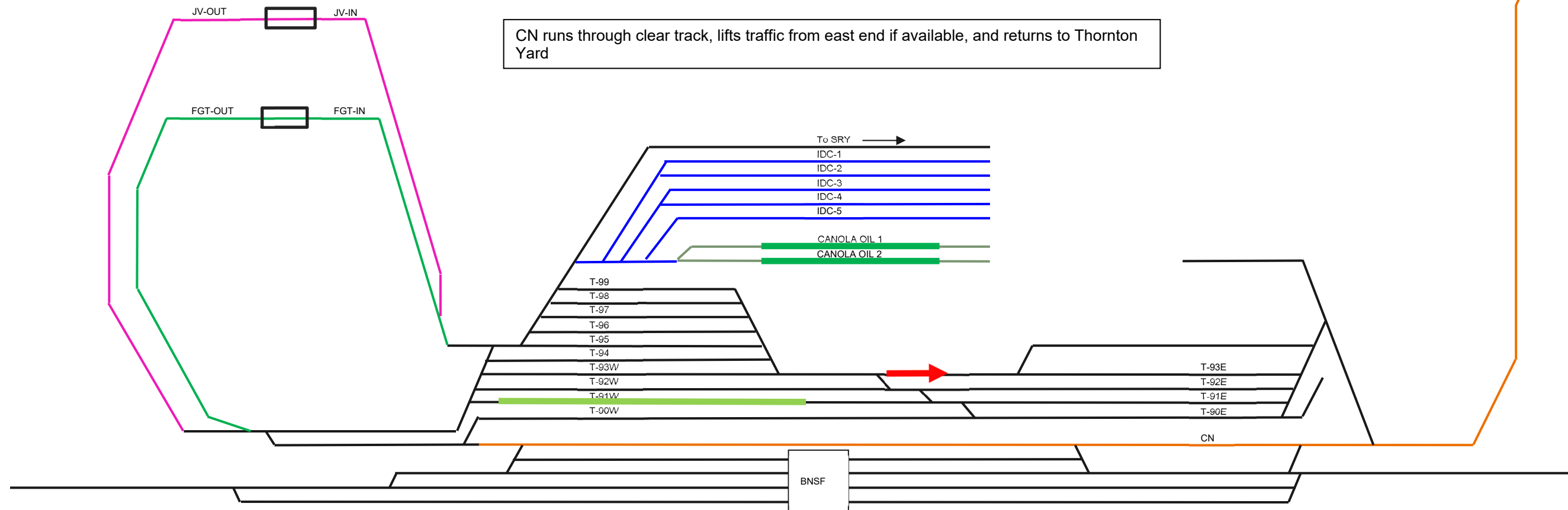
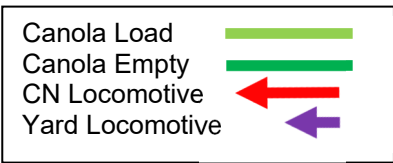
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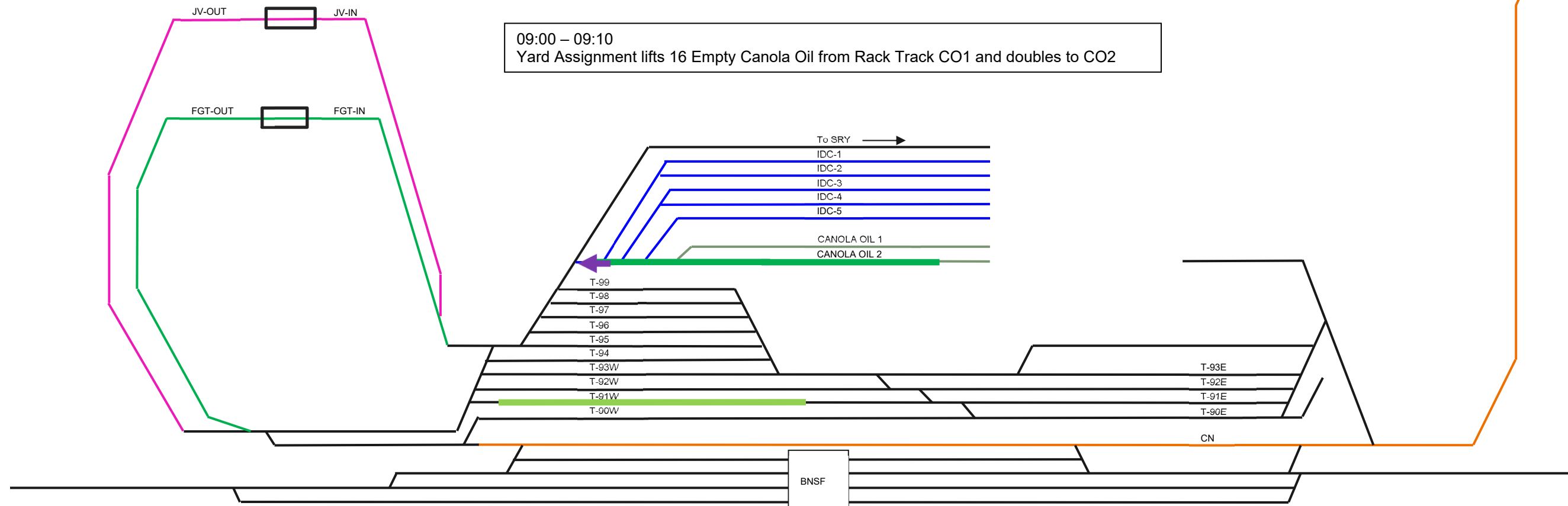
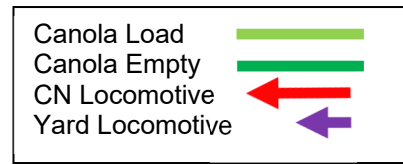
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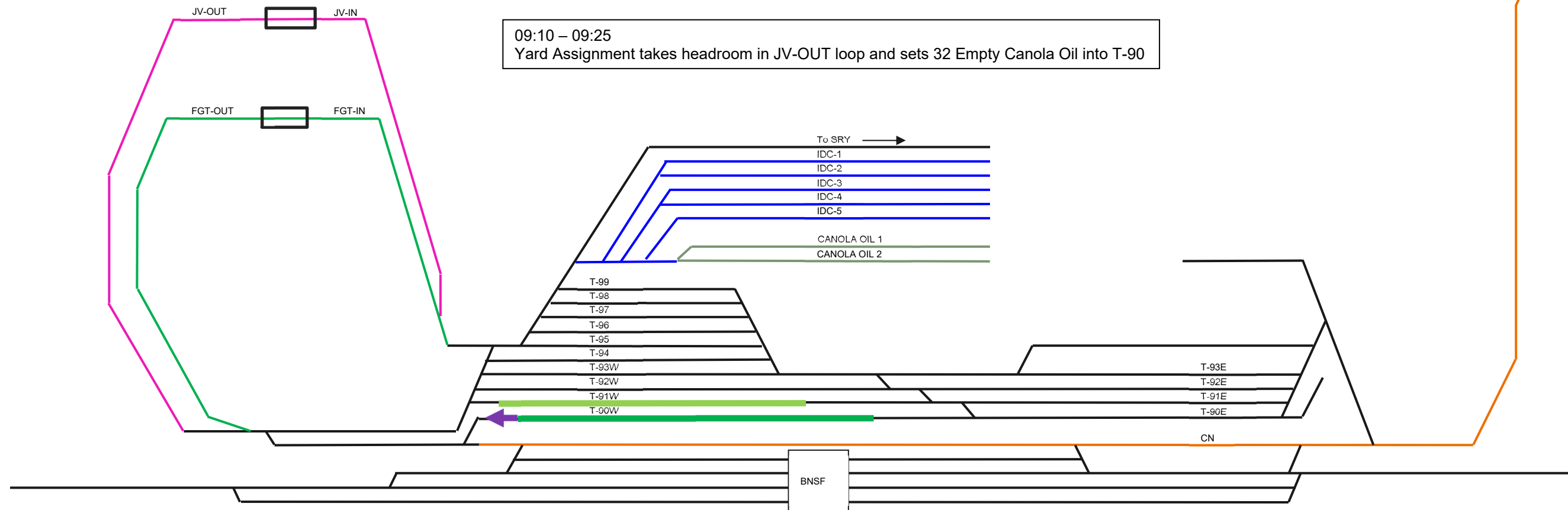
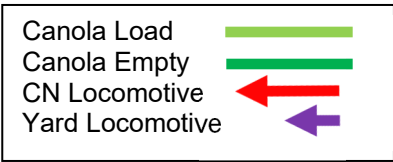
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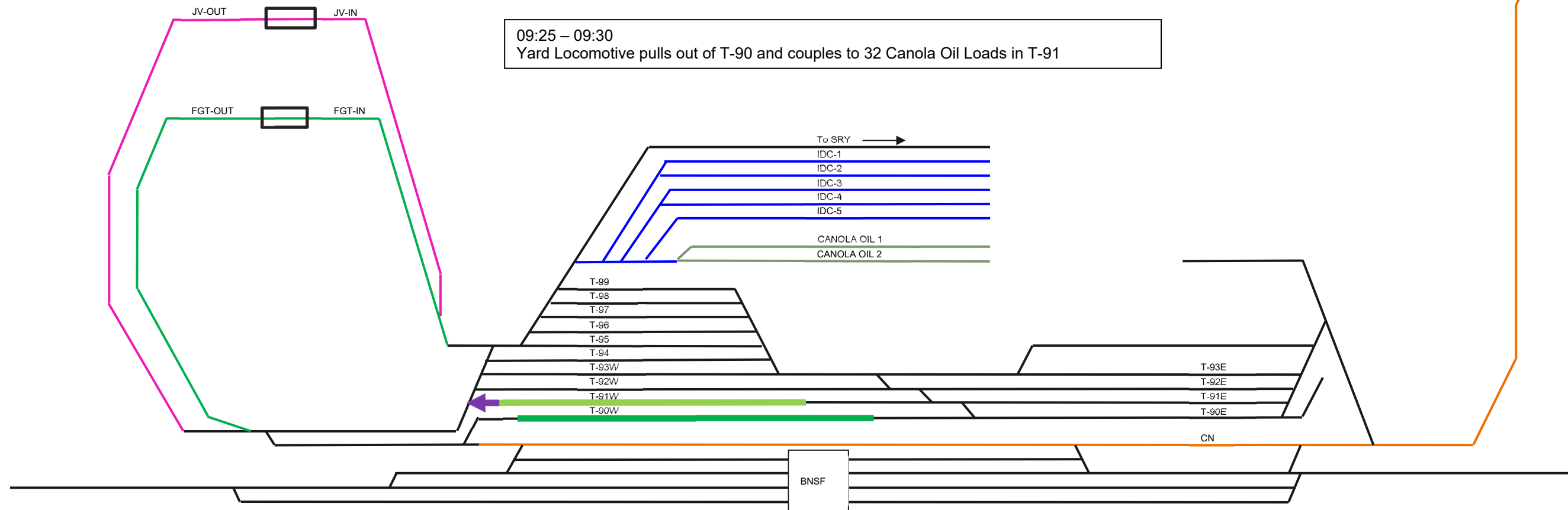
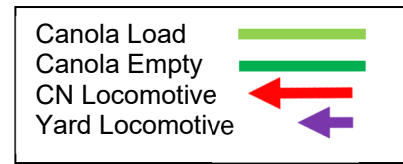
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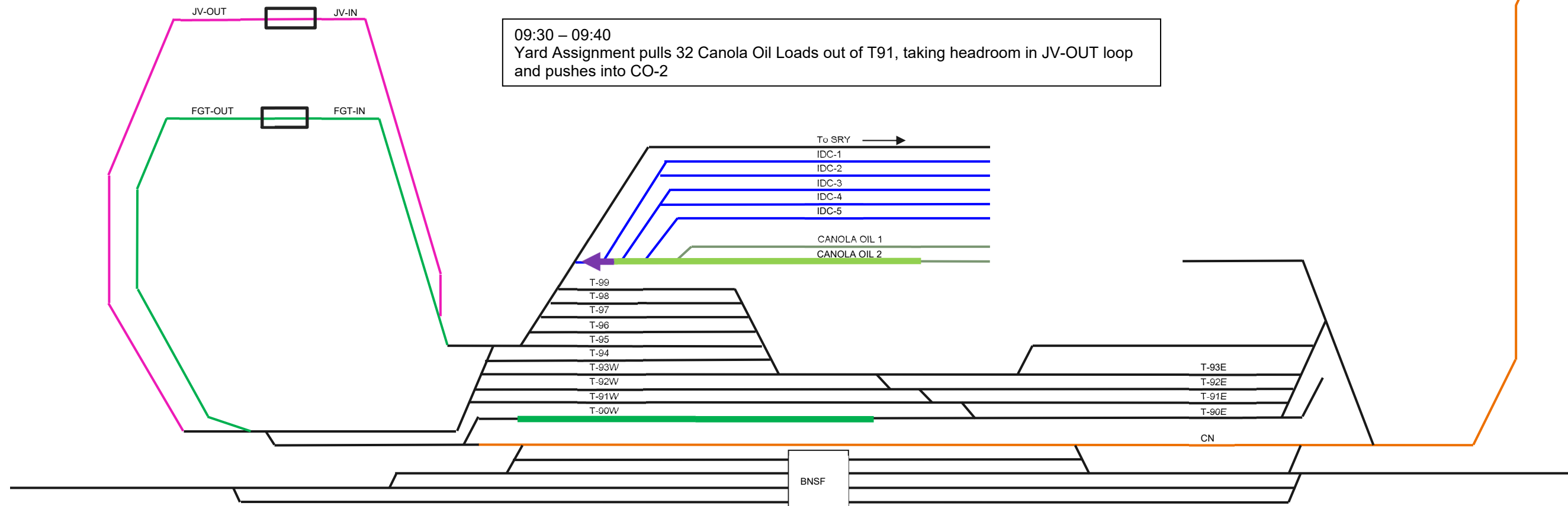
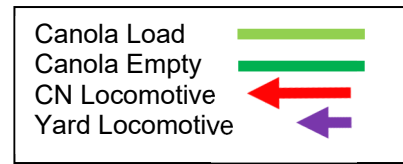
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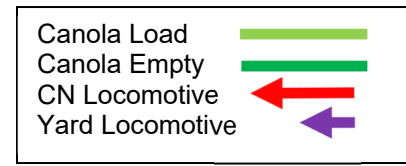
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Appendix A Yard Configuration
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09:40 – 09:50
Yard Assignment pulls 16 Canola Oil Loads out of CO-2 and pushed into CO-1
Locomotive departs and unloading process begin

