Best Practices Train Handling Guide
Ashcroft Subdivision

Revised January 2007

Introduction

**This book is intended as a guide only to assist Locomotive Engineers and Conductor Locomotive Operators in applying
Best Practices Train Handling Techniques.**

**Color references to THROTTLE MANIPULATION , DYNAMIC BRAKE & AUTOMATIC BRAKE are based on an
optimum train run and may vary dependent on a number of variables, such as train characteristics, meets, weather, etc...**

**The following instructions and required compliance will serve to address a number of ongoing issues within CN. Dynamic braking will provide an additional braking system and improved safety margin. Wheel and brake shoe wear/damage will be reduced providing for a safer operation, especially during winter conditions, and reduce costs associated
with wheel and brake shoe change outs.
Fuel efficiency will be greatly improved reducing expenses and improving the environment. Track damage and chance of derailment, the result of condemnable wheel conditions will be substantially reduced.**

All applicable Operating Rules, General Operating Instructions and Special Instructions remain in effect.

Train Handling Policy

General Instructions

1. Locomotive Engineers should have a thorough knowledge of the physical characteristics of the territory over which they will be operating and use this knowledge and good judgment to ensure proper train handling techniques .
2. Locomotive Engineers must utilize "forward planning" in consideration of territory profiles, planned stops, required speed adjustments and slack control, avoiding aggressive use of the locomotive throttle and train braking systems.
3. To ensure avoidance of wheel slip and control in-train-forces the throttle must be increased gradually and incrementally.
4. Throttle manipulation must be utilized as the primary means of controlling train speed.
5. Dynamic Brake must be fully utilized as the initial braking force. The use of Dynamic Brake will ensure less wear/damage to equipment components and improve fuel efficiency.
6. Power braking MUST be avoided. That is, the automatic brake must not be set with the throttle above idle. When unavoidable the lowest throttle position must be used. Power braking is defined as the simultaneous use of the throttle and automatic brake.
7. The Independent Brake is not to be used at speeds in excess of 15 M.P.H..

8. Following any Automatic Brake Release, throttle position must not be advanced until the IDU pressure has increased for 30 seconds.

9. The Flowmeter and IDU must be closely monitored to identify Brake Release Status and also to provide indication of air flow which could lead to an Unintentional Release following an automatic brake application. Brake Release Status can be determined by observing an increase in the IDU pressure.

10. **(i)**To ensure a positive freight car brake pipe reduction and to avoid sticking brakes, the train brakes must not be released until a positive brake pipe reduction of at least 6 PSI, as indicated by the IDU, has been made on the last car of the train.

(ii) When a running release of the brakes is to be made and the operating conditions permit, the brake pipe must be reduced to ensure a positive brake pipe reduction. When operating conditions do not permit, a positive brake pipe reduction must be achieved at the next appropriate opportunity.

NOTE: *The RTC Centre may contact a train while enroute and request a 6 PSI reduction, then release, in an effort to correct a suspected sticking brake.*

Cycle Braking

1. Cycle braking, on other than long descending grades must be avoided and can be offset with good planning, throttle manipulation and the use of Dynamic Brake.

2. When Cycle Braking, subsequent brake applications must be made at least 5 lb. beyond the previous application to avoid an inadequate brake application and Unintentional Release.

Stopping a Train Consistent with good train handling practices

To make an immediate stop in the context of company instruction **'Split Service Reduction'** should be utilized to reduce the chance of severe in-train forces. A 'Split service reduction' is defined as an initial **6 to 10 PSI** automatic brake application, and after exhaust has stopped for 20 seconds, a farther reduction to full service.

When advised there is an indication of dragging equipment, extreme journal temperature, or over-heated wheel, the locomotive engineer must stop immediately and utilizing a 'Split Service Reduction'.

Split Service Reduction: an initial **6 to 10 PSI** brake pipe reduction, and after exhaust has stopped for 20 seconds, a further reduction to a Full Service application.

Your good judgment and operating knowledge remain an absolute requirement in the stopping of a train, but the importance of the above noted factors must be a part of your decision process.

Dynamic Brake

1. Dynamic Brake is defined as the use of the locomotive traction motors as generators in creating retarding forces which provide responsive and fully variable train braking forces.

2. The use of Dynamic Brake is effective in slowing the train for planned stops, speed restrictions and speed control.

3. When Dynamic Brake is available it must be used as the first means of initiating required train braking forces.

4. When Dynamic Brake is in use, the Automatic Brake may be required to provide additional braking effort.

5. There is no limit on the amount of time spent in Dynamic Brake.

6. The Speedometer and loadmeter should be closely monitored as they provide the required information concerning the use and effectiveness of Dynamic Brake.

7. In consideration of slack action and control, depending on track gradient and curvature, Dynamic Brake application should be gradual and incremental.

Note: **Dynamic becomes disabled on a locomotive with cut-out traction motors!!!**

Pictorial References

Pictorial references in this book have been located as close as possible to actual locations, but may not be 100% accur
Numbers next to signals indicate the signal number, not the signal location.

THROTTLE MANIPULATION

DYNAMIC BRAKE

AUTOMATIC BRAKE
(if no D.B. available)

ELECTRIC LOCK

DIRECTION

HOT BOX DETECTOR

X PUBLIC CROSSING

WASHOUT DETECTOR

PR Private Crossing

LEFT CURVE

RIGHT CURVE

SIGNAL NUMBERS

63

SS **SPRING SWITCH**

123.57 **& MILE**

W **ANTI-WHISTLE**

F **SLIDE DETECTOR**
FENCE

SIDINGS/SPUR

MAIN LINE

0.3 **GRADE**

PSGR. PLATFORM

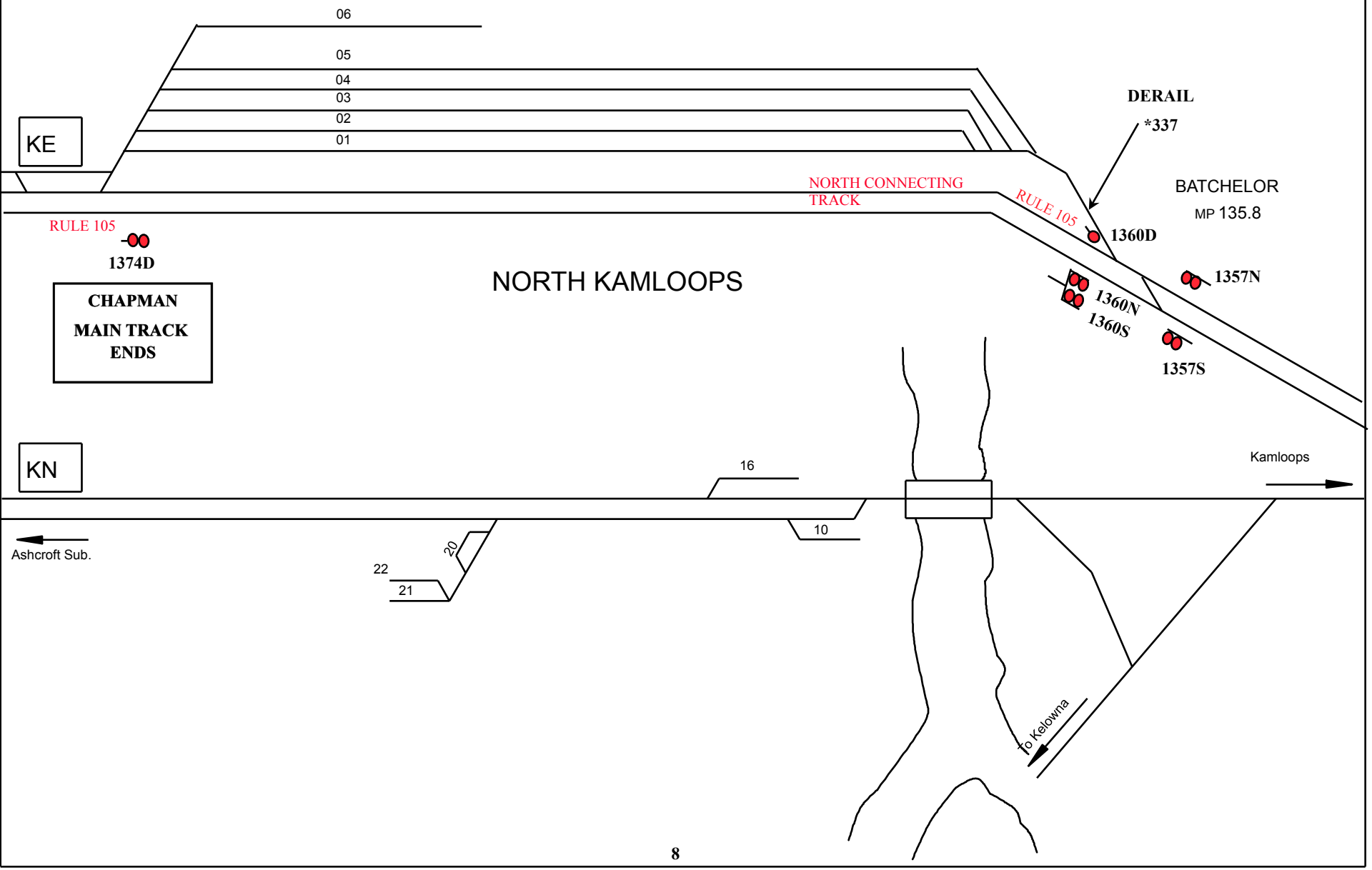
DON **STATION NAME**

30 **SPEED ZONE**

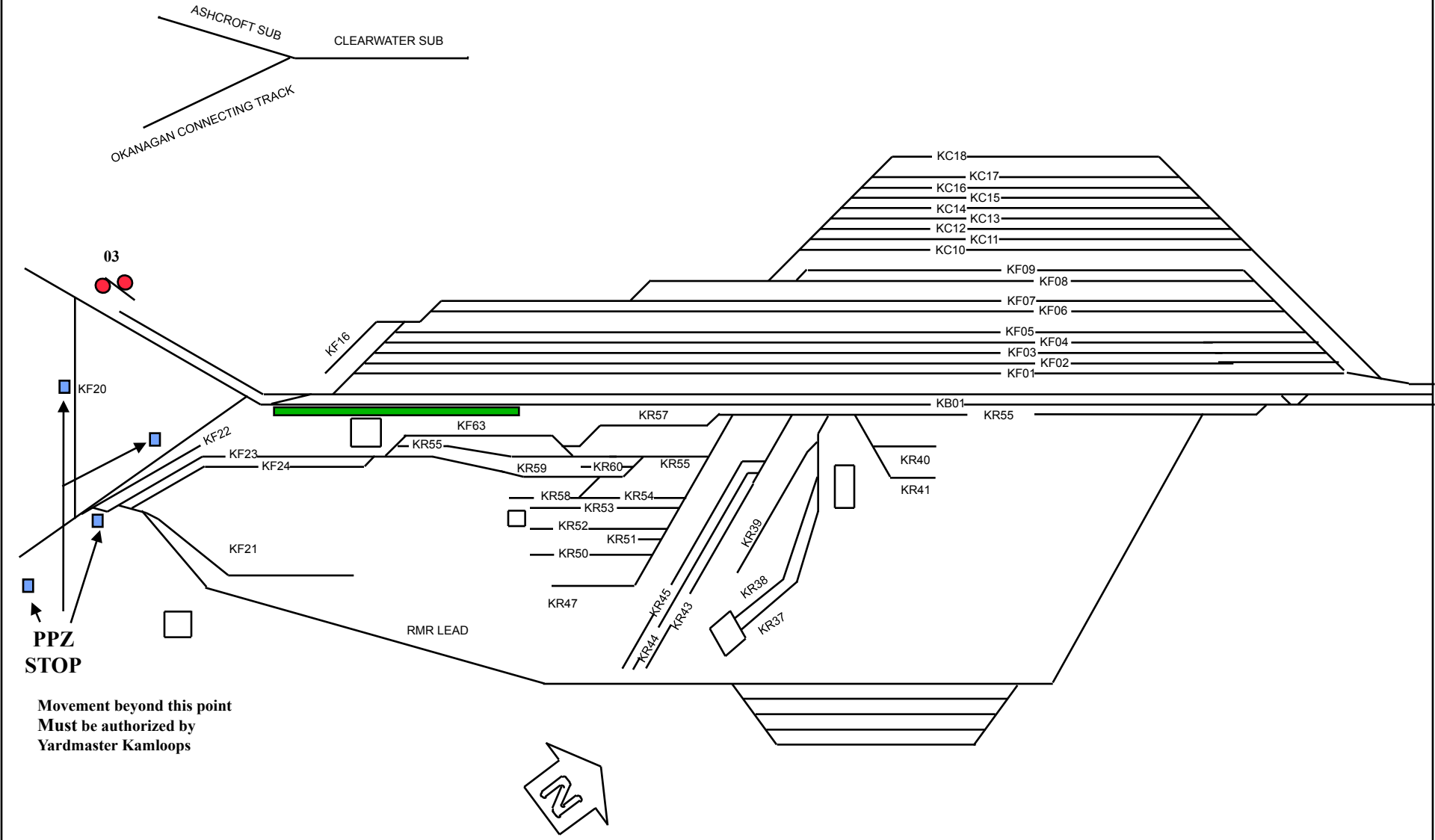
T OR **TUNNEL**

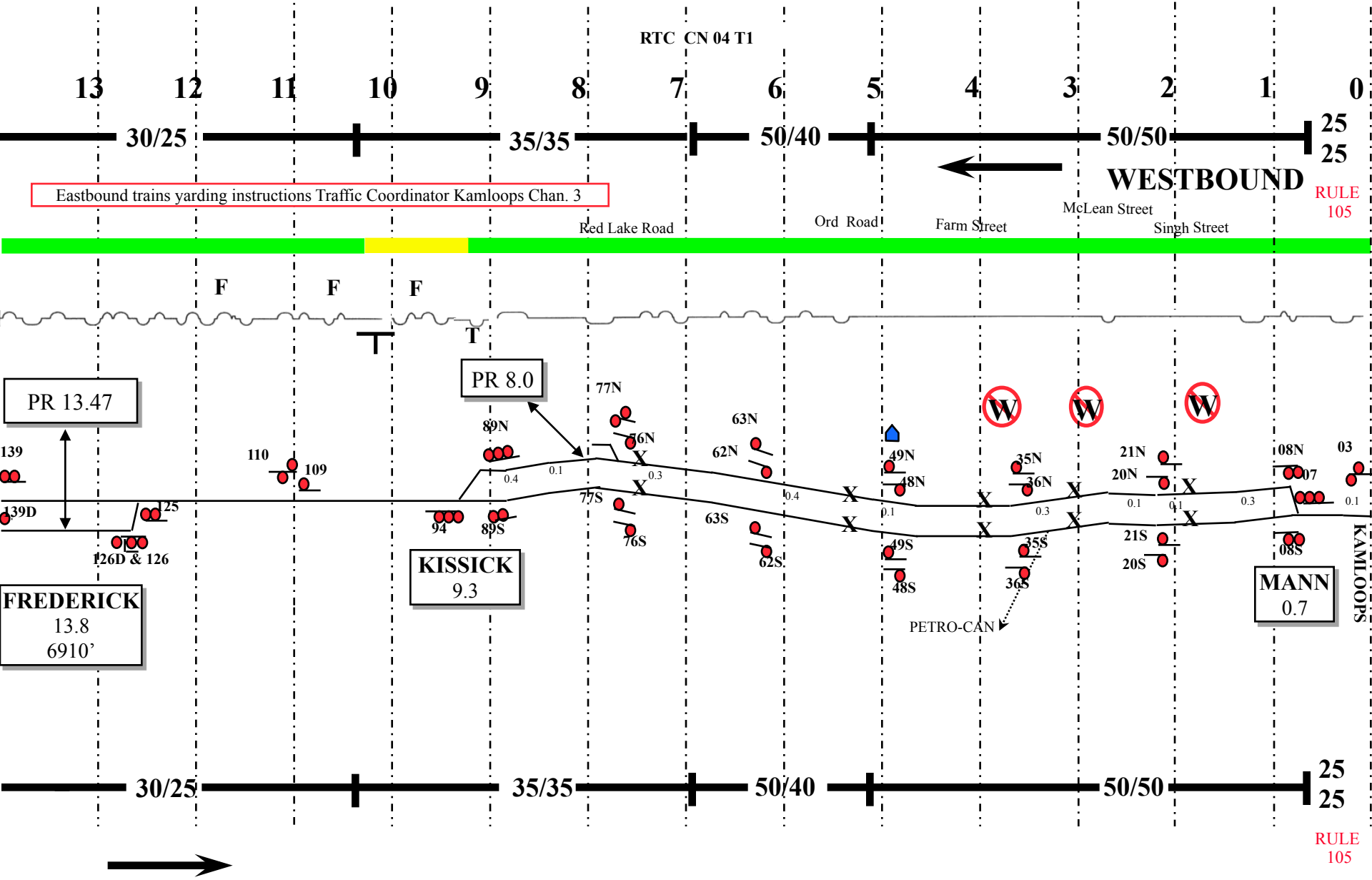
LEONARD YARD

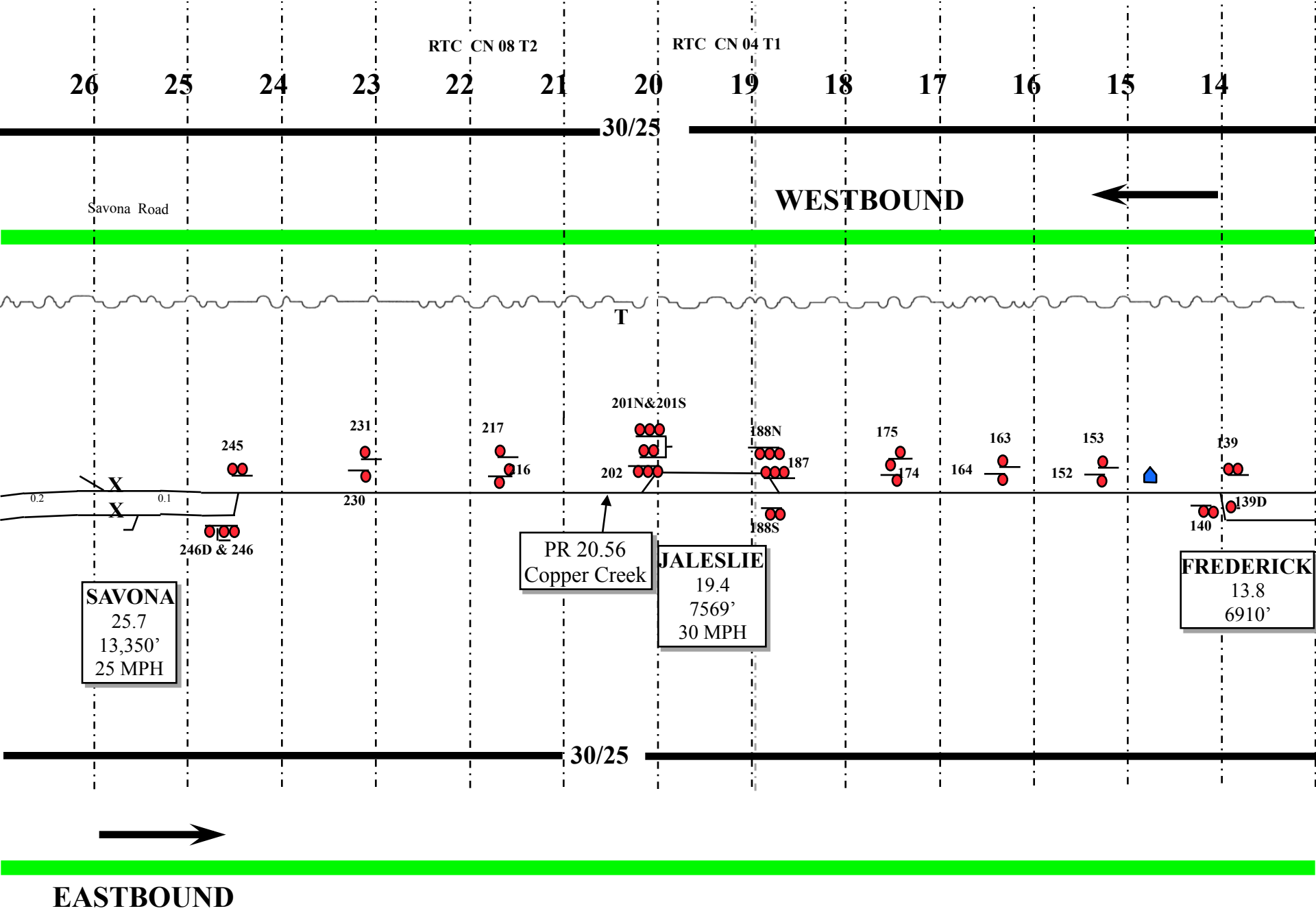
(Kamloops Surge Yard)

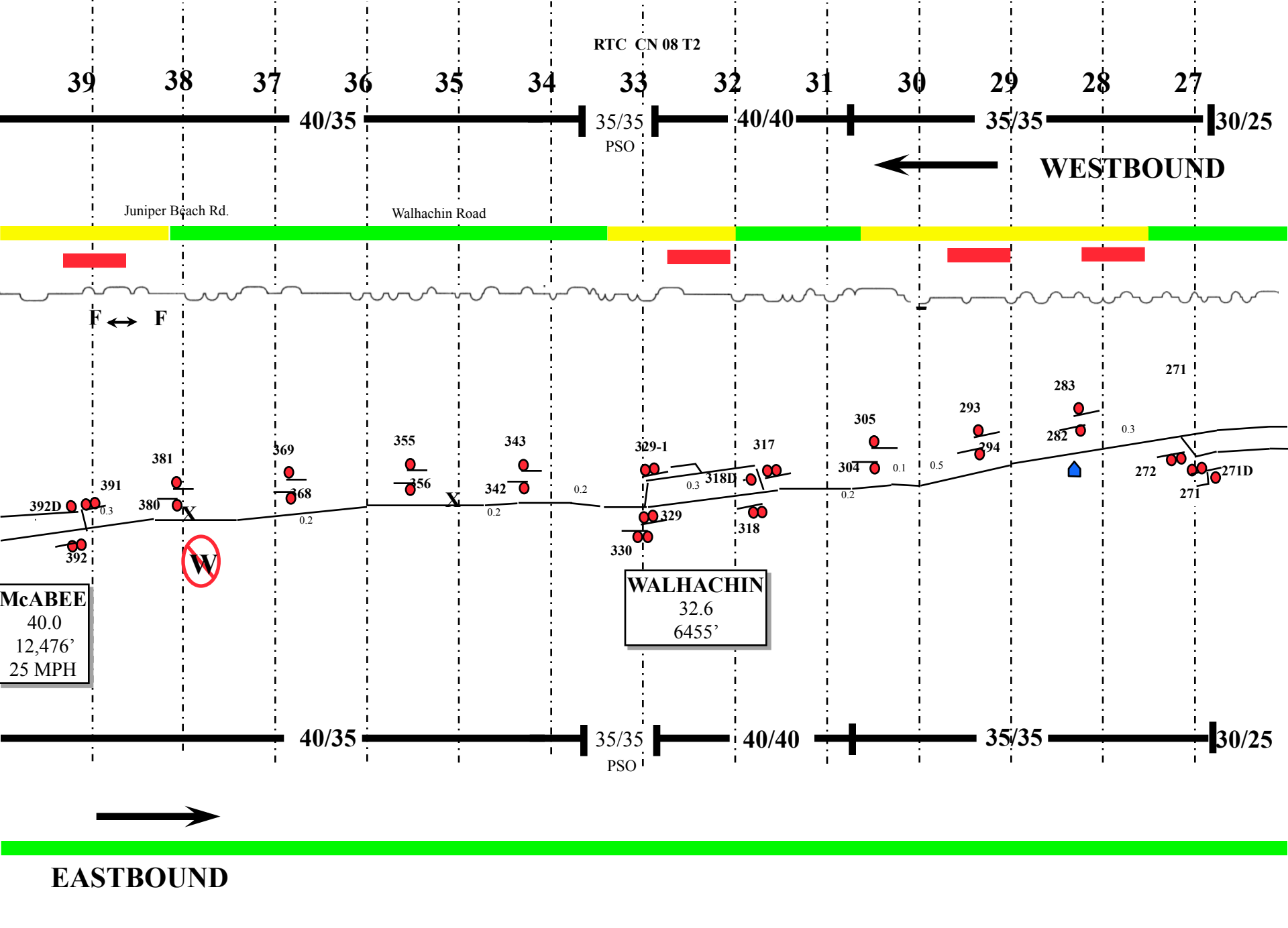


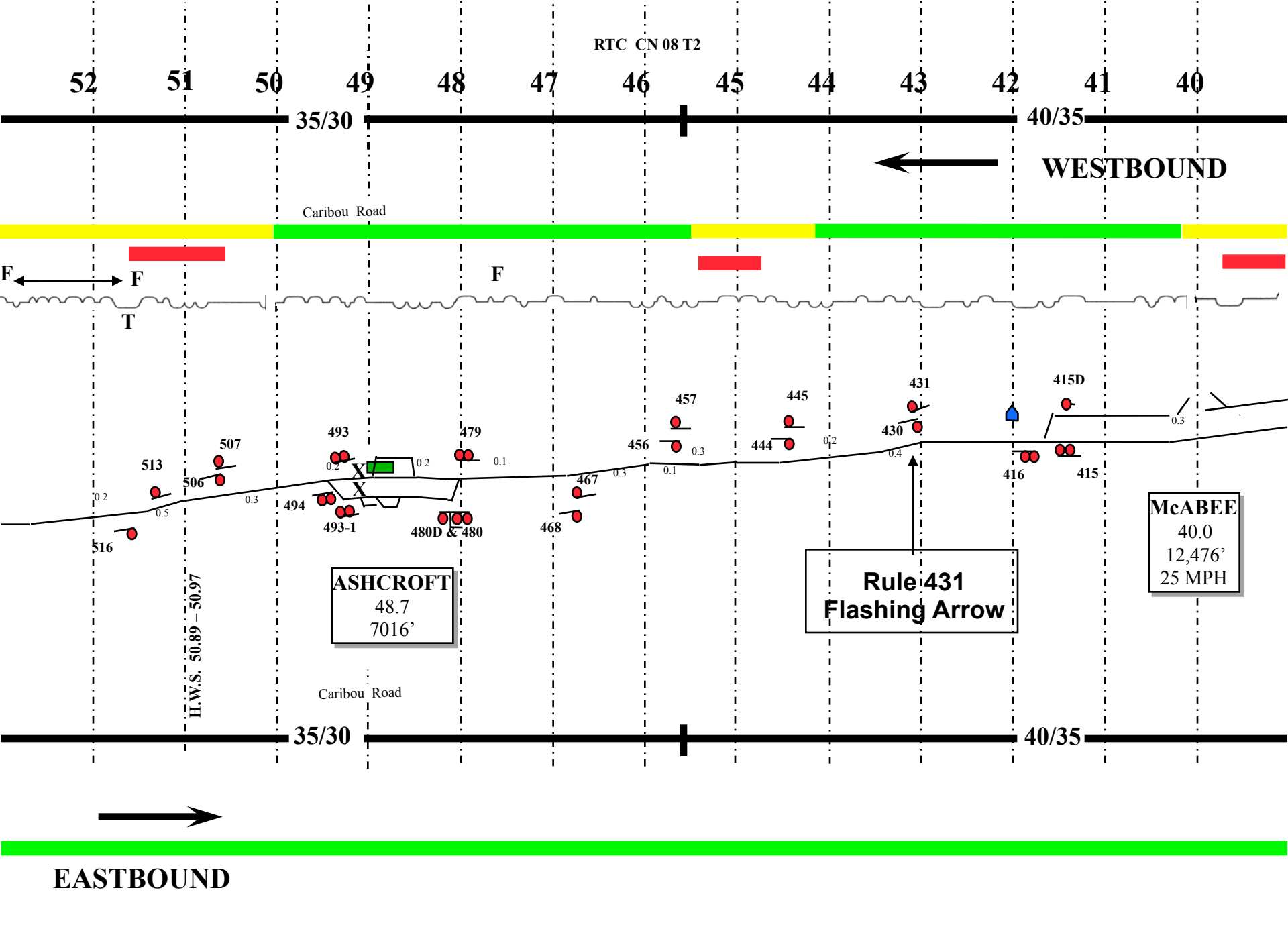
KAMLOOPS YARD

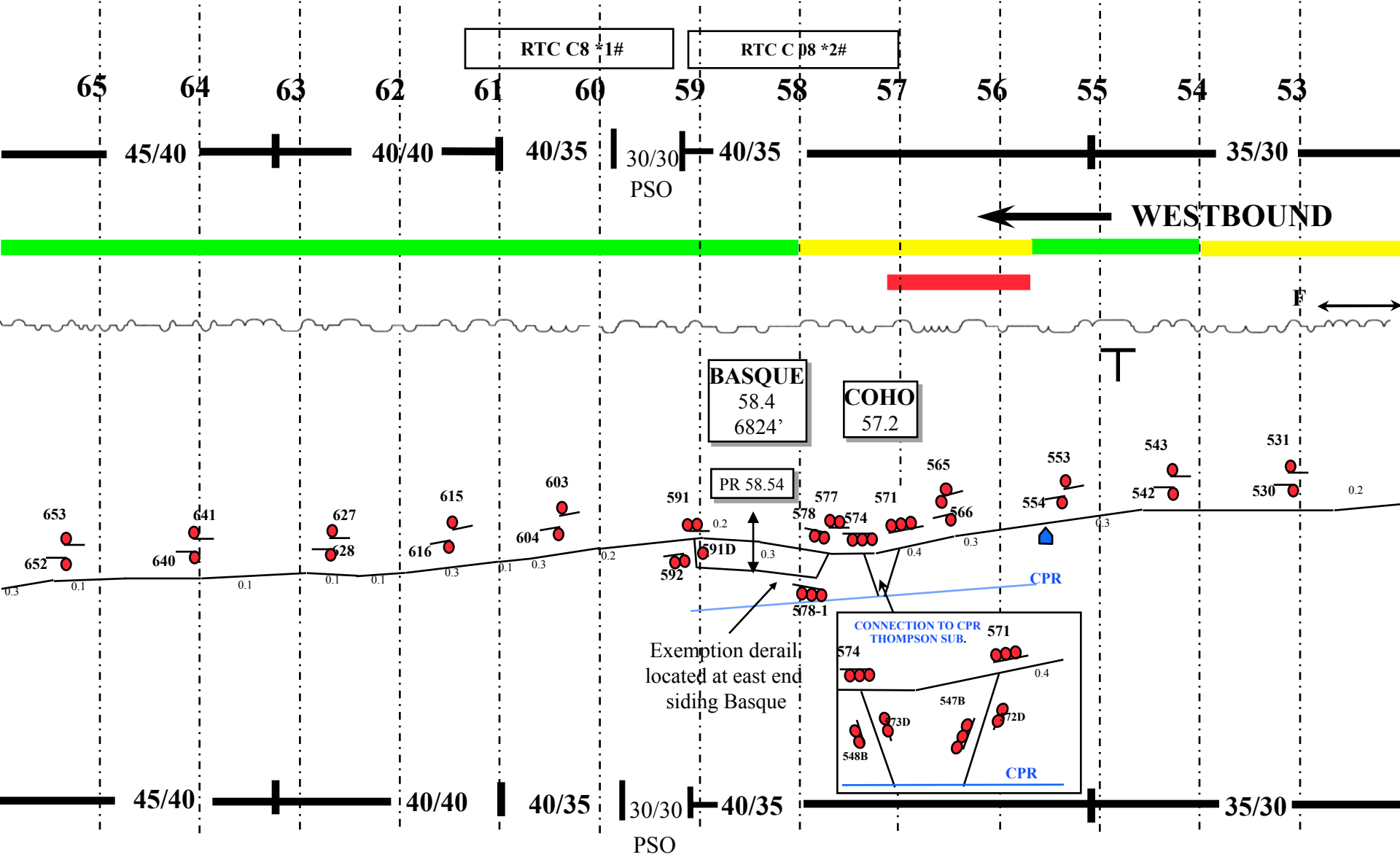


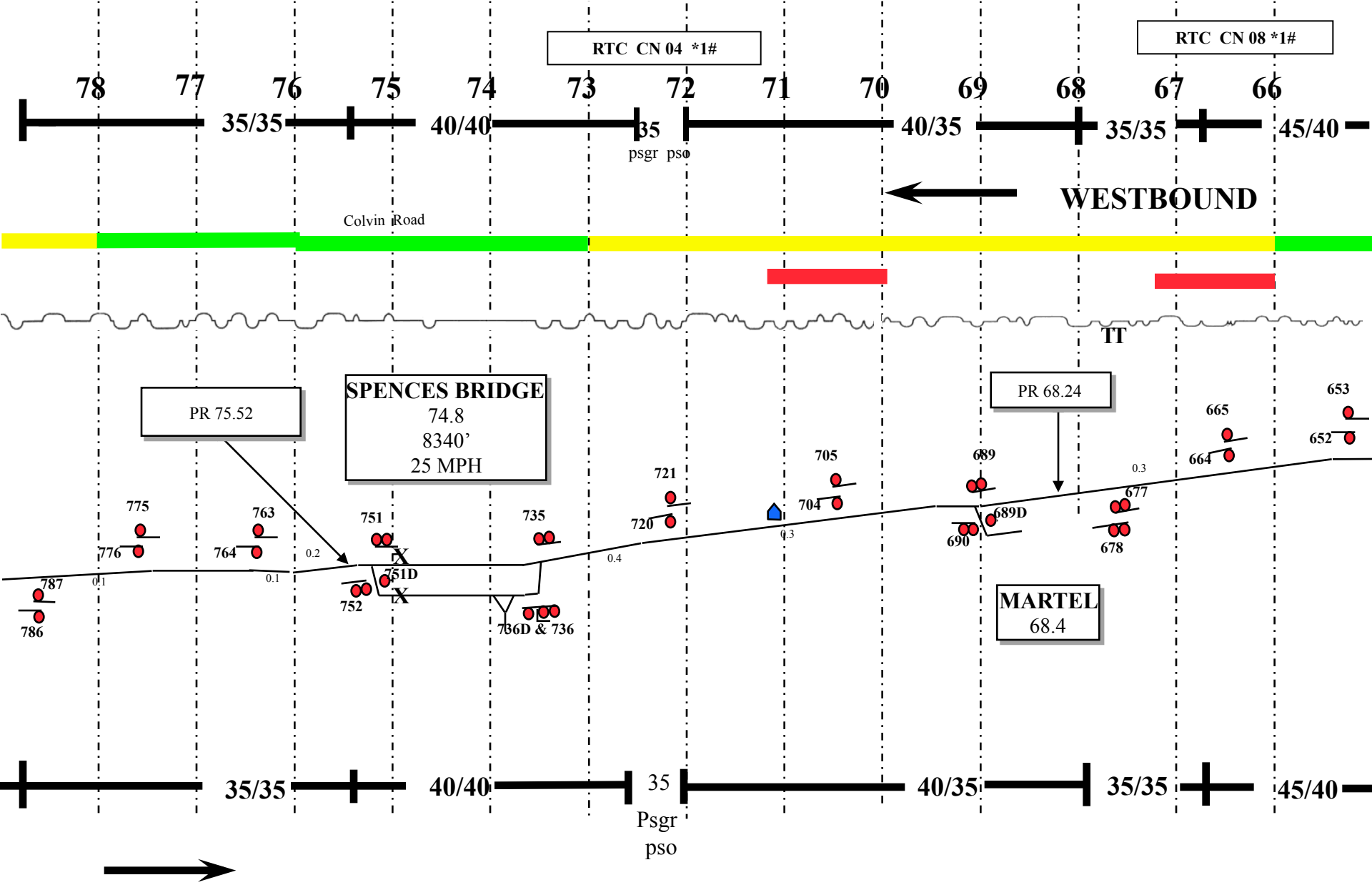

RTC CN 04 T1
13 12 11 10 9 8 7 6 5 4 3 2 1 0
30/25
35/35
50/40
50/50
25
25
WESTBOUND
RULE 105
Eastbound trains yarding instructions Traffic Coordinator Kamloops Chan. 3
Red Lake Road
Ord Road
Farm Street
McLean Street
Singh Street
F F F
T
PR 13.47
PR 8.0
139
139D
25
126D & 126
FREDERICK
13.8
6910'
110
109
89N
94
89S
KISSICK
9.3
77N
76N
77S
76S
63N
62N
63S
62S
49N
48N
49S
48S
35N
36N
35S
36S
PETRO-CAN
21N
20N
21S
20S
08N
07
08S
03
MANN
0.7
KAMLOOPS
W
0.4
0.1
0.3
0.4
0.1
0.3
0.1
0.1
0.3
0.1
30/25
35/35
50/40
50/50
25
25
RULE 105
EASTBOUND

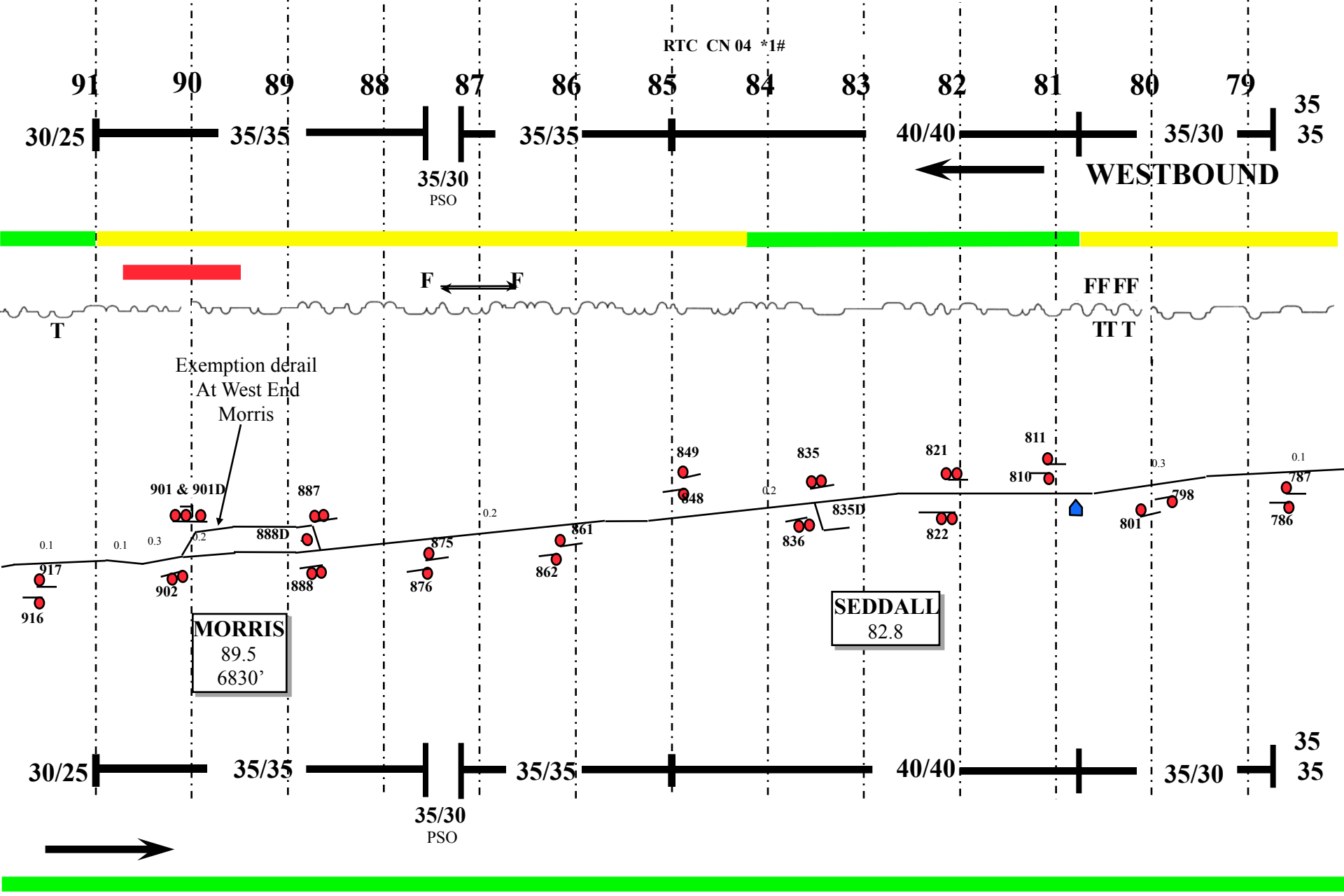

RTC CN 08 T2
RTC CN 04 T1
26
25
24
23
22
21
20
19
18
17
16
15
14
30/25
WESTBOUND
Savona Road
T
201N&201S
231
217
245
188N
175
163
153
139
187
216
202
174
164
152
0.2
0.1
230
188S
139D
140
246D & 246
PR 20.56
Copper Creek
SAVONA
25.7
13,350'
25 MPH
JALESLIE
19.4
7569'
30 MPH
FREDERICK
13.8
6910'
30/25
EASTBOUND


RTC CN 08 T2
39 38 37 36 35 34 33 32 31 30 29 28 27
40/35
35/35
PSO
40/40
35/35
30/25
WESTBOUND
Juniper Beach Rd.
Walhachin Road
F ↔ F
392D
391
392
381
380
369
368
355
356
343
342
329-1
329
330
318D
317
318
305
304
293
294
283
282
271
272
271D
0.3
0.2
0.1
0.5
McABEE
40.0
12,476’
25 MPH
WALHACHIN
32.6
6455’
40/35
35/35
PSO
40/40
35/35
30/25
EASTBOUND

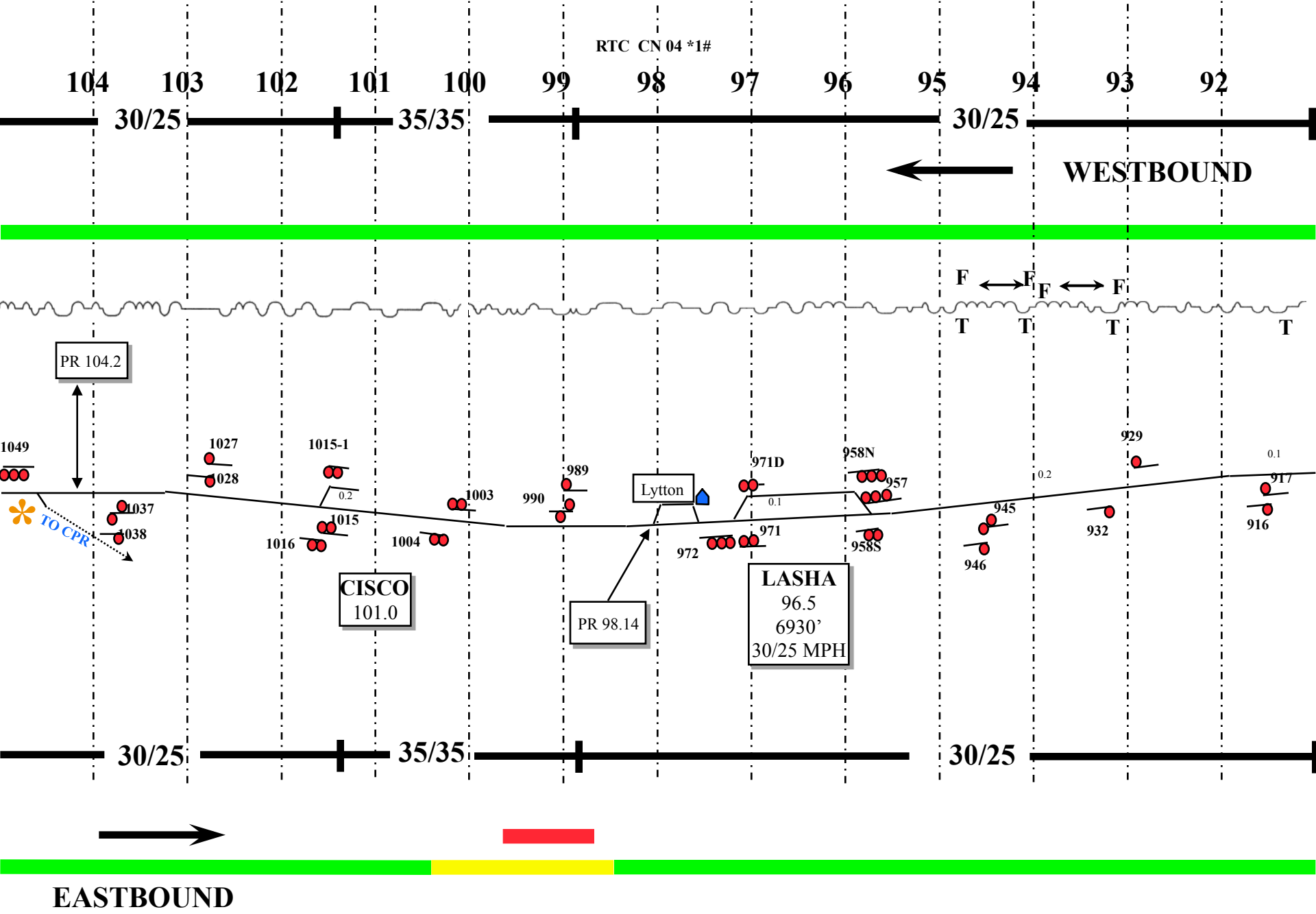

RTC CN 08 T2
52
51
50
49
48
47
46
45
44
43
42
41
40
35/30
40/35
WESTBOUND
Caribou Road
F
F
F
T
513
507
506
516
493
494
493-1
479
480D & 480
467
468
457
456
445
444
431
430
415D
416
415
0.2
0.5
0.3
0.1
0.4
ASHCROFT
48.7
7016'
Rule 431
Flashing Arrow
McABEE
40.0
12,476'
25 MPH
H.W.S. 50.89 – 50.97
Caribou Road
35/30
40/35
EASTBOUND

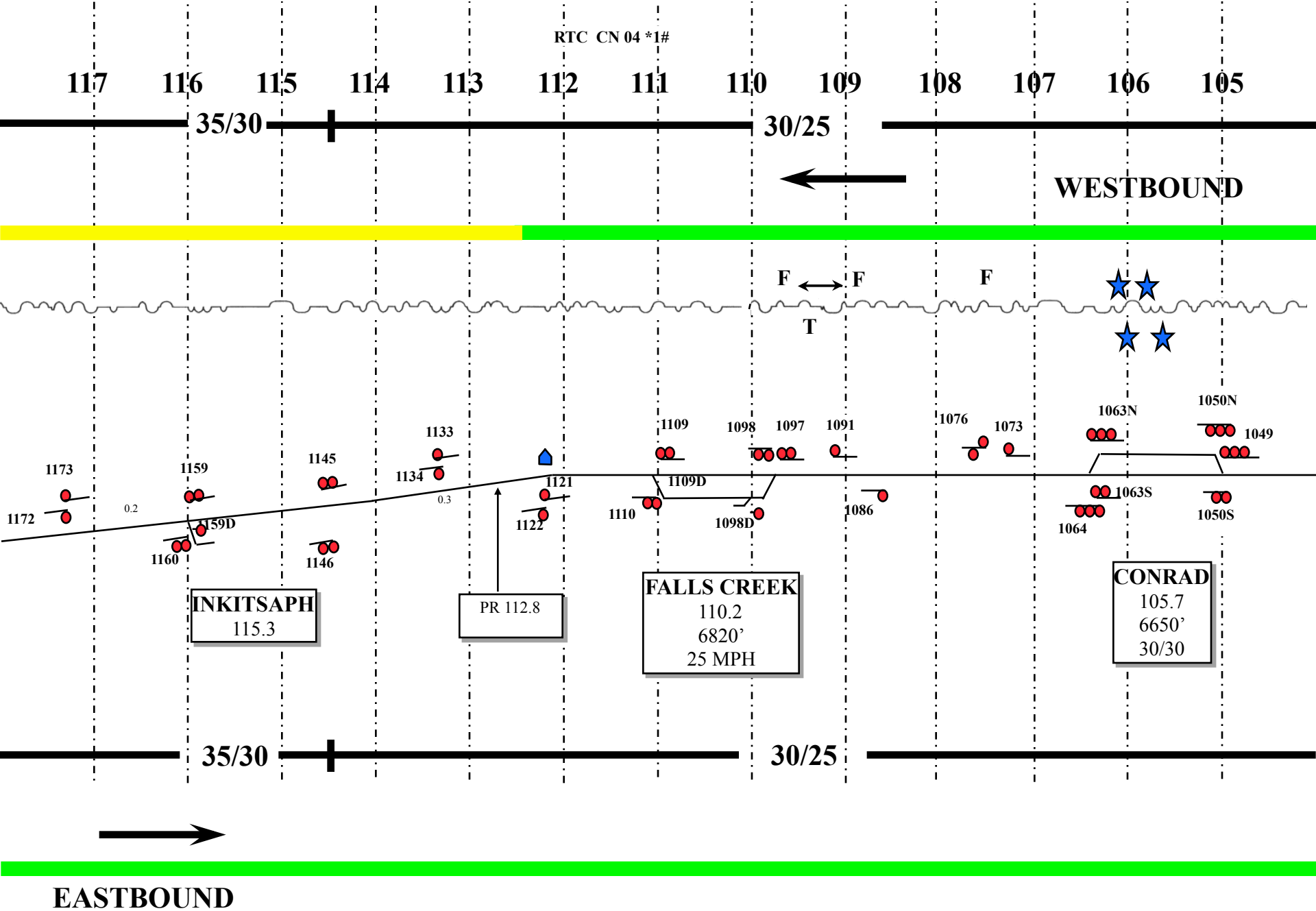

RTC C8 *1#
RTC C 08 *2#
65
64
63
62
61
60
59
58
57
56
55
54
53
45/40
40/40
40/35
30/30
PSO
40/35
35/30
WESTBOUND
F
BASQUE
58.4
6824'
COHO
57.2
PR 58.54
653
652
641
640
627
628
615
616
603
604
591
591D
592
578
577
574
571
565
566
554
553
543
542
531
530
0.2
0.3
0.1
0.4
CPR
578-1
CONNECTION TO CPR
THOMPSON SUB.
574
571
547B
573D
572D
548B
Exemption derail
located at east end
siding Basque
45/40
40/40
40/35
30/30
PSO
40/35
35/30
EASTBOUND

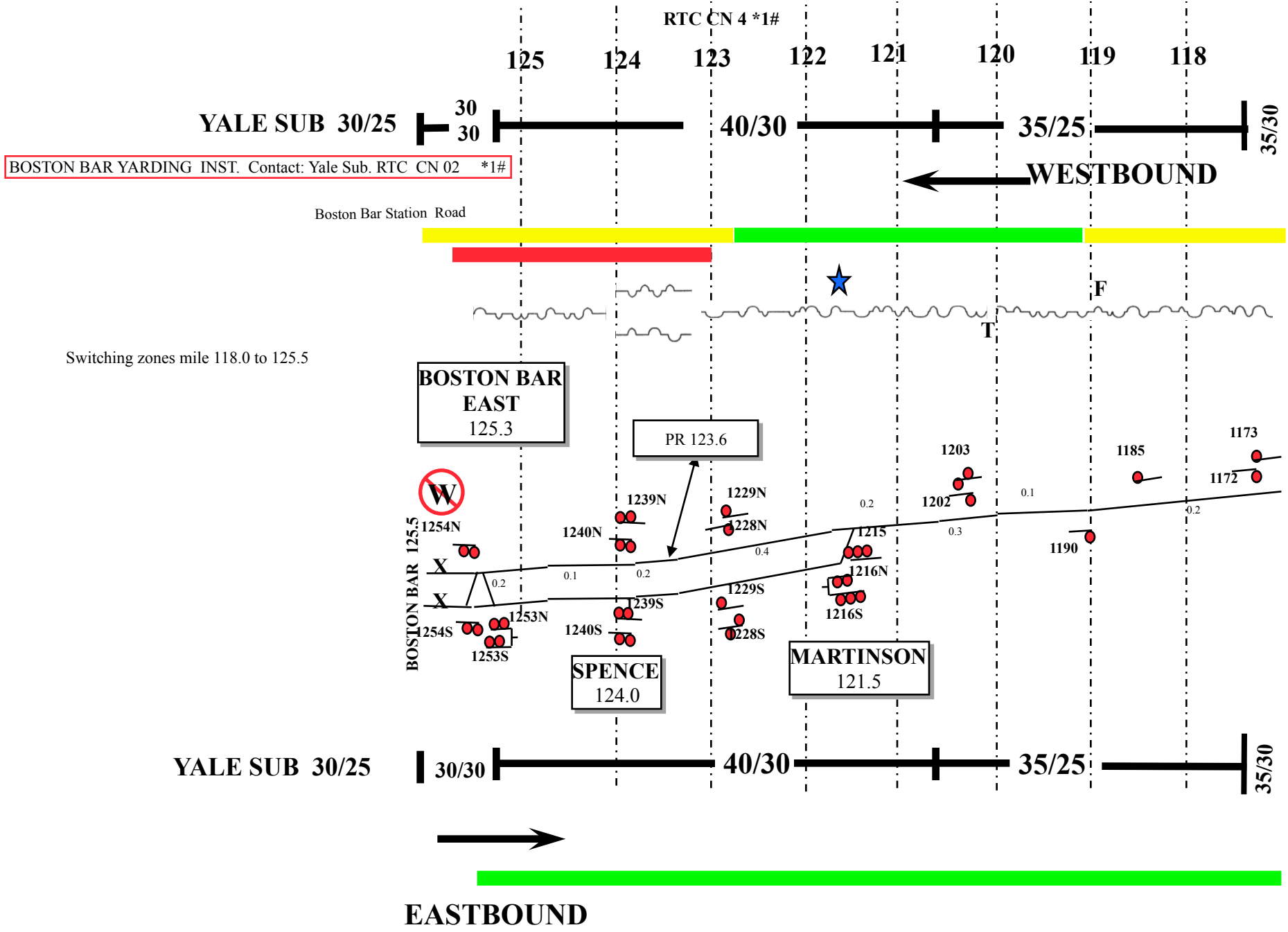

RTC CN 04 *1#
RTC CN 08 *1#
78 77 76 75 74 73 72 71 70 69 68 67 66
35/35
40/40
35
psgr pso
40/35
35/35
45/40
WESTBOUND
Colvin Road
TT
PR 75.52
SPENCES BRIDGE
74.8
8340'
25 MPH
PR 68.24
MARTEL
68.4
775
776
763
764
751
751D
752
735
736D & 736
721
720
705
704
689
689D
690
677
678
665
664
653
652
787
786
0.1
0.2
0.4
0.3
35/35
40/40
35
Psgr
pso
40/35
35/35
45/40
EASTBOUND


RTC CN 04 *1#
91 90 89 88 87 86 85 84 83 82 81 80 79
30/25
35/35
35/30
PSO
35/35
40/40
35/30
35
35
WESTBOUND
F F
FF FF
T
TT T
Exemption derail
At West End
Morris
901 & 901D
887
888D
849
848
835
835D
821
811
810
861
875
862
876
836
822
798
801
787
786
917
916
902
888
MORRIS
89.5
6830'
SEDDALL
82.8
0.1
0.1
0.3
0.2
0.2
0.2
0.3
0.1
30/25
35/35
35/30
PSO
35/35
40/40
35/30
35
35

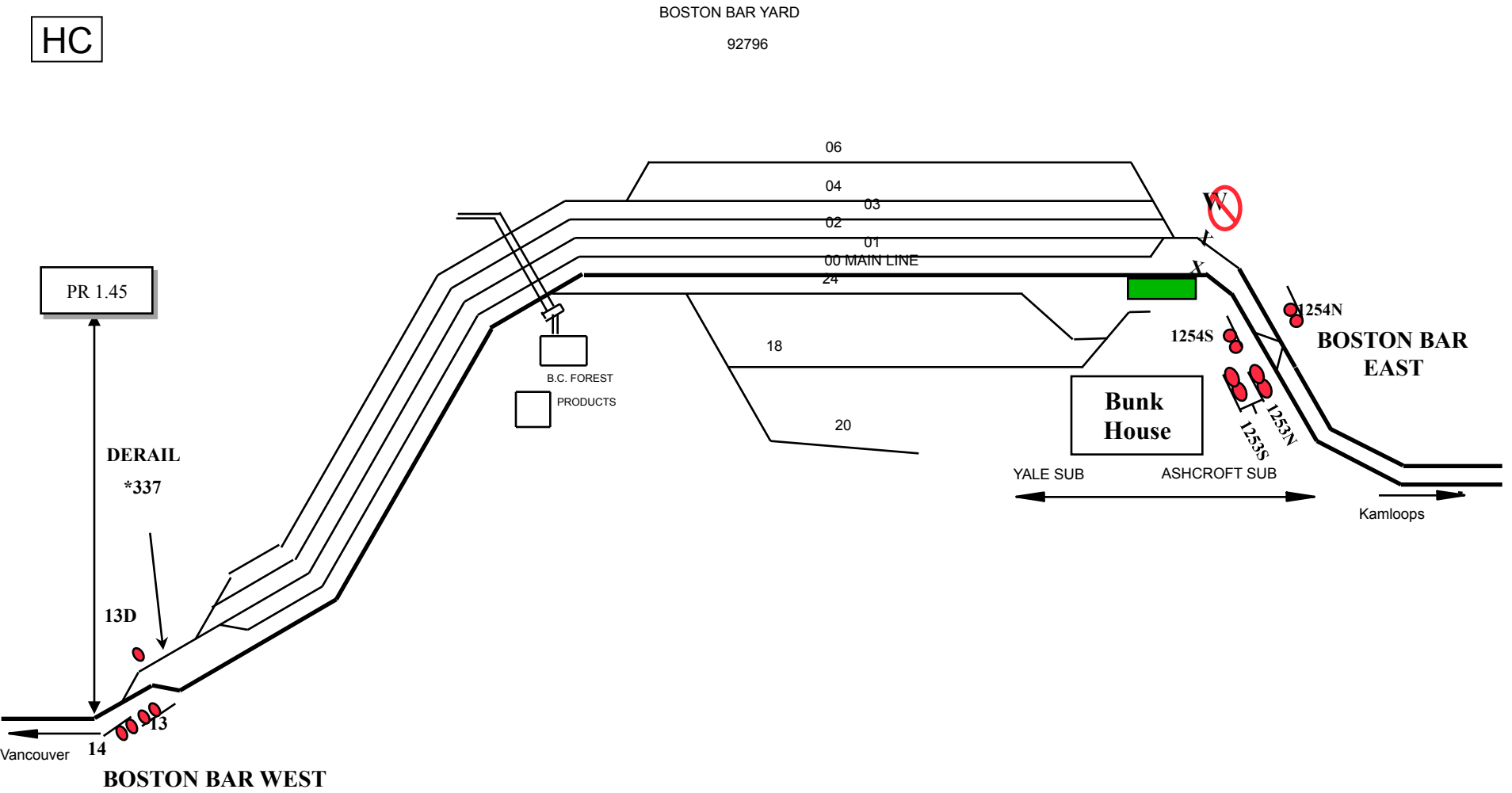
EASTBOUND


RTC CN 04 *1#
104 103 102 101 100 99 98 97 96 95 94 93 92
30/25
35/35
30/25
WESTBOUND
F F F F
T T T T
PR 104.2
1049
1027
1028
1015-1
0.2
1037
1038
TO CPR
1016
1015
1004
1003
990
989
Lytton
971D
0.1
958N
957
958S
971
972
929
0.2
945
946
932
0.1
917
916
CISCO
101.0
PR 98.14
LASHA
96.5
6930'
30/25 MPH
30/25
35/35
30/25
EASTBOUND


RTC CN 04 *1#
117
116
115
114
113
112
111
110
109
108
107
106
105
35/30
30/25
WESTBOUND
F
F
F
T
1173
1172
1159
1160
1159D
1145
1146
1133
1134
1121
1122
1109
1110
1109D
1098
1098D
1097
1091
1086
1076
1073
1063N
1064
1063S
1050N
1049
1050S
0.2
0.3
INKITSAPH
115.3
PR 112.8
FALLS CREEK
110.2
6820’
25 MPH
CONRAD
105.7
6650’
30/30
35/30
30/25
EASTBOUND


RTC CN 4 *1#
125
124
123
122
121
120
119
118
YALE SUB 30/25
30
30
40/30
35/25
35/30
BOSTON BAR YARDING INST. Contact: Yale Sub. RTC CN 02 *1#
WESTBOUND
Boston Bar Station Road
F
T
Switching zones mile 118.0 to 125.5
BOSTON BAR EAST
125.3
PR 123.6
W
1254N
1239N
1229N
1240N
1228N
1203
1185
1173
1202
1172
1215
1190
1216N
1254S
1253N
1240S
1239S
1229S
1216S
1253S
1228S
BOSTON BAR 125.5
SPENCE
124.0
MARTINSON
121.5
0.1
0.2
0.3
0.4
YALE SUB 30/25
30/30
40/30
35/25
35/30
EASTBOUND

YALE SUB


HC
BOSTON BAR YARD
92796
06
04
03
02
01
00 MAIN LINE
24
18
20
PR 1.45
DERAIL
*337
13D
13
14
Vancouver
BOSTON BAR WEST
B.C. FOREST
PRODUCTS
Bunk
House
1254N
1254S
1253N
1253S
BOSTON BAR
EAST
YALE SUB
ASHCROFT SUB
Kamloops