



Best Practices Train Handling Guide



Yale Revision 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.

Colour 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 psi beyond the previous application to avoid an inadequate brake application and Unintentional Release.

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% accurate. 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

 PUBLIC CROSSING

 LEFT CURVE

 RIGHT CURVE

 SIGNAL NUMBERS

 SPRING SWITCH
& MILE

 ANTI-WHISTLE

F=SLIDE DETECTOR FENCE
(located above curve line)

 SIDINGS/SPUR

 MAIN LINE

 GRADE

 PSGR. PLATFORM

 STATION NAME

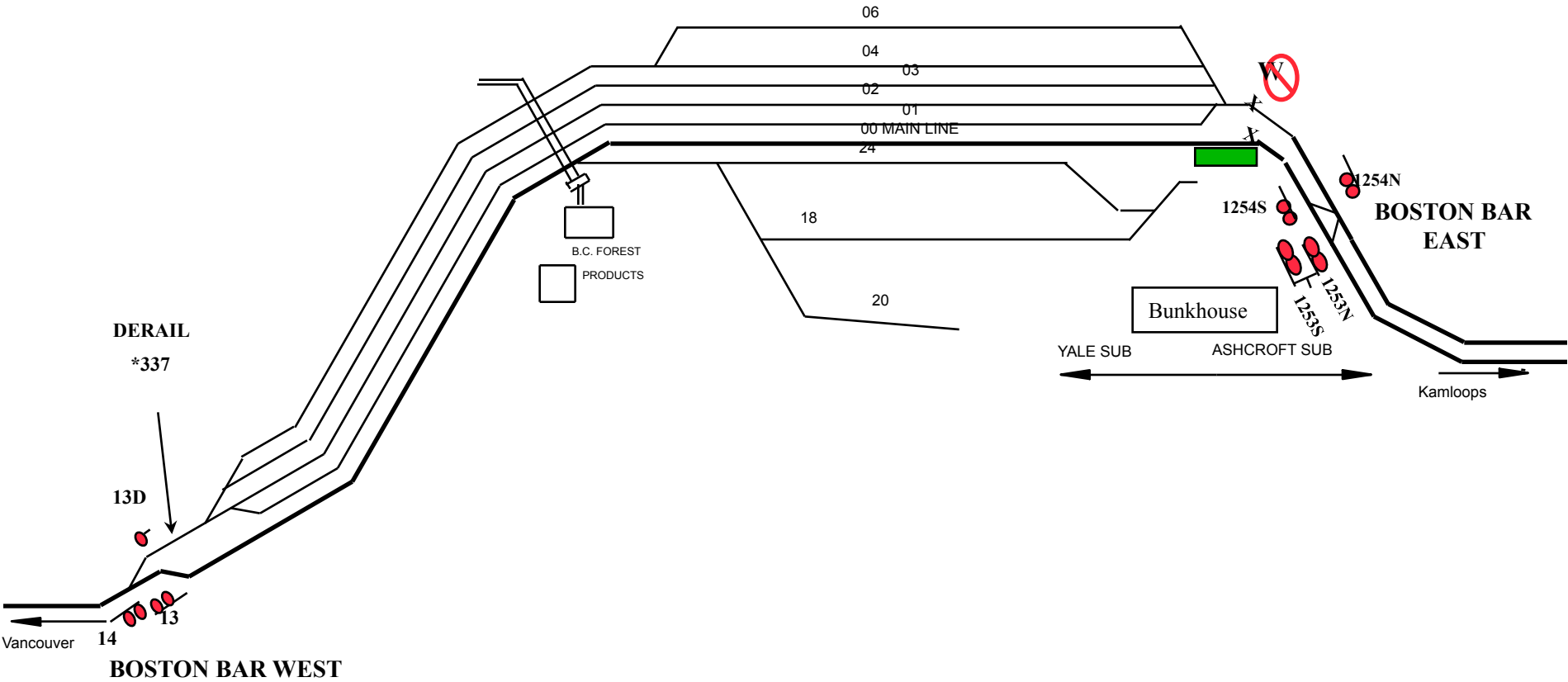
 SPEED ZONE

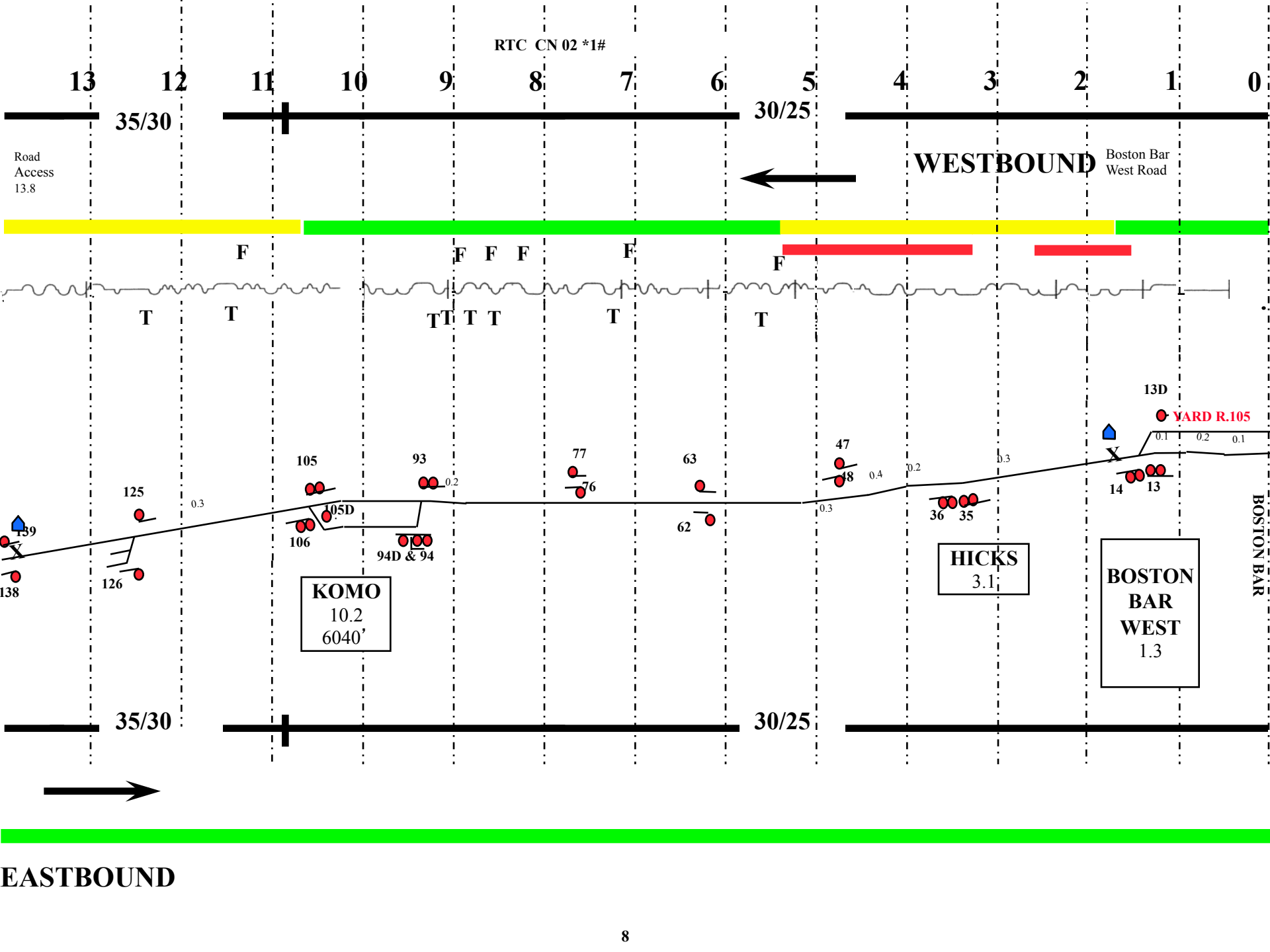
T= TUNNEL
(located below curve line)

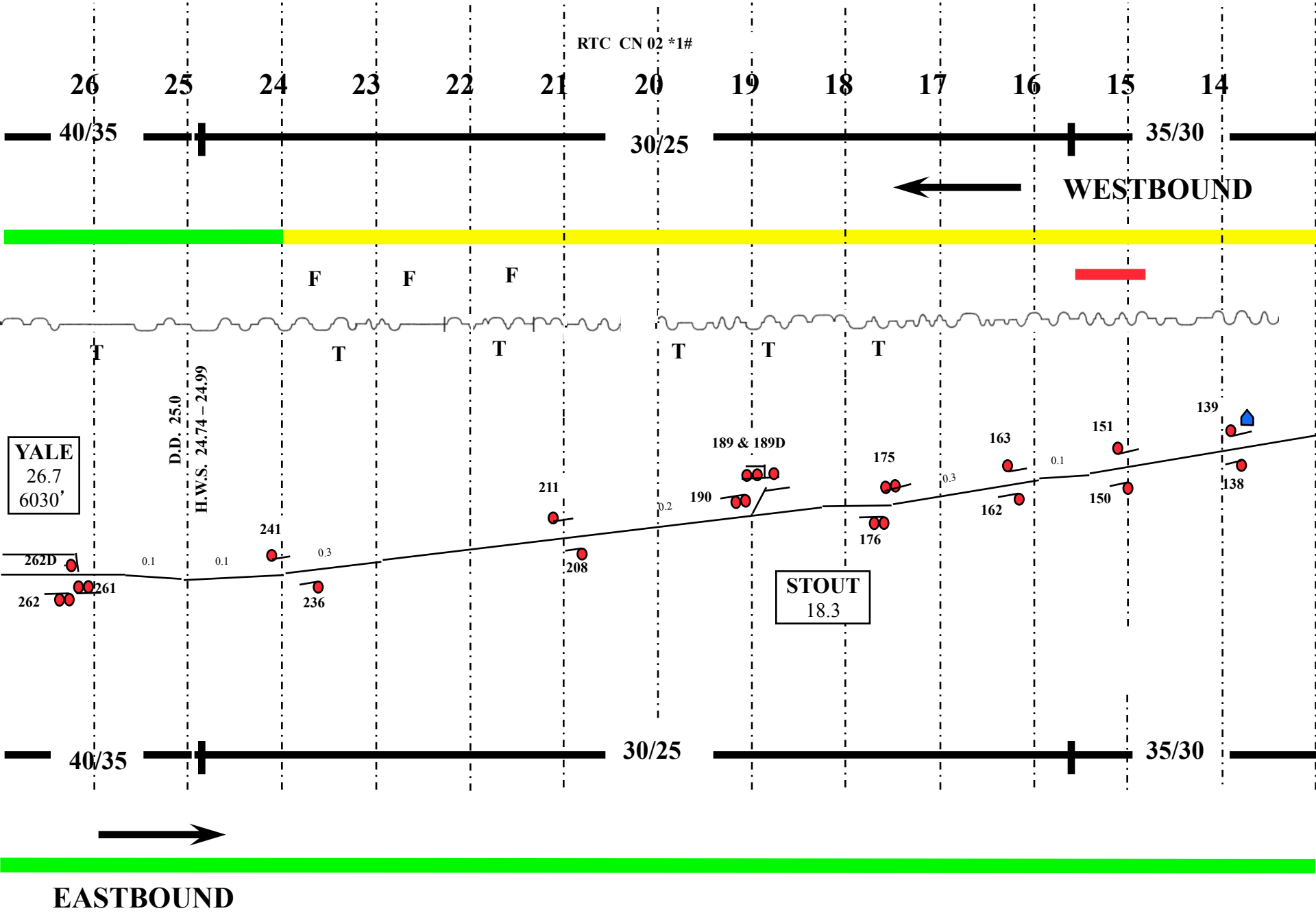
YALE SUB

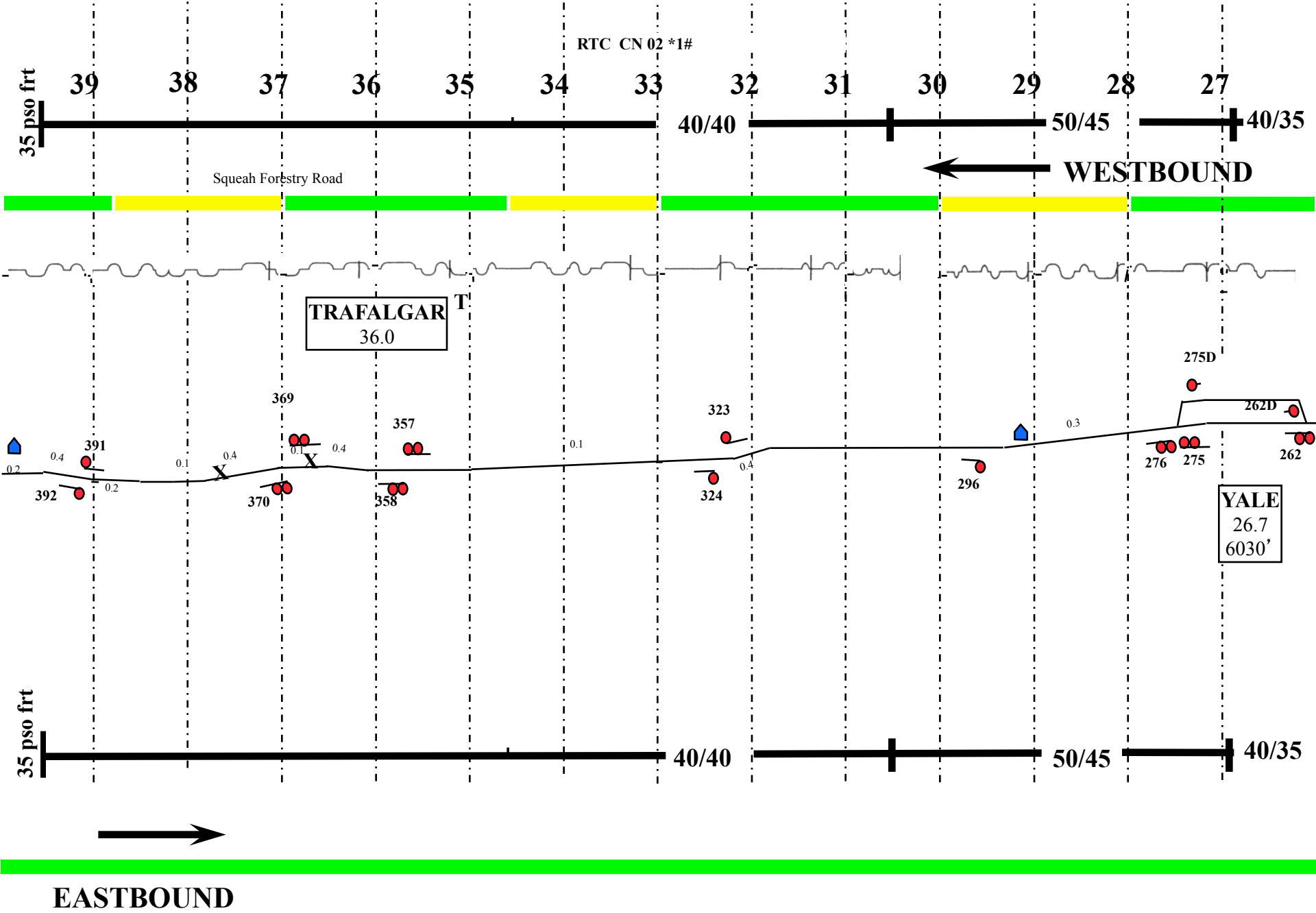
HC

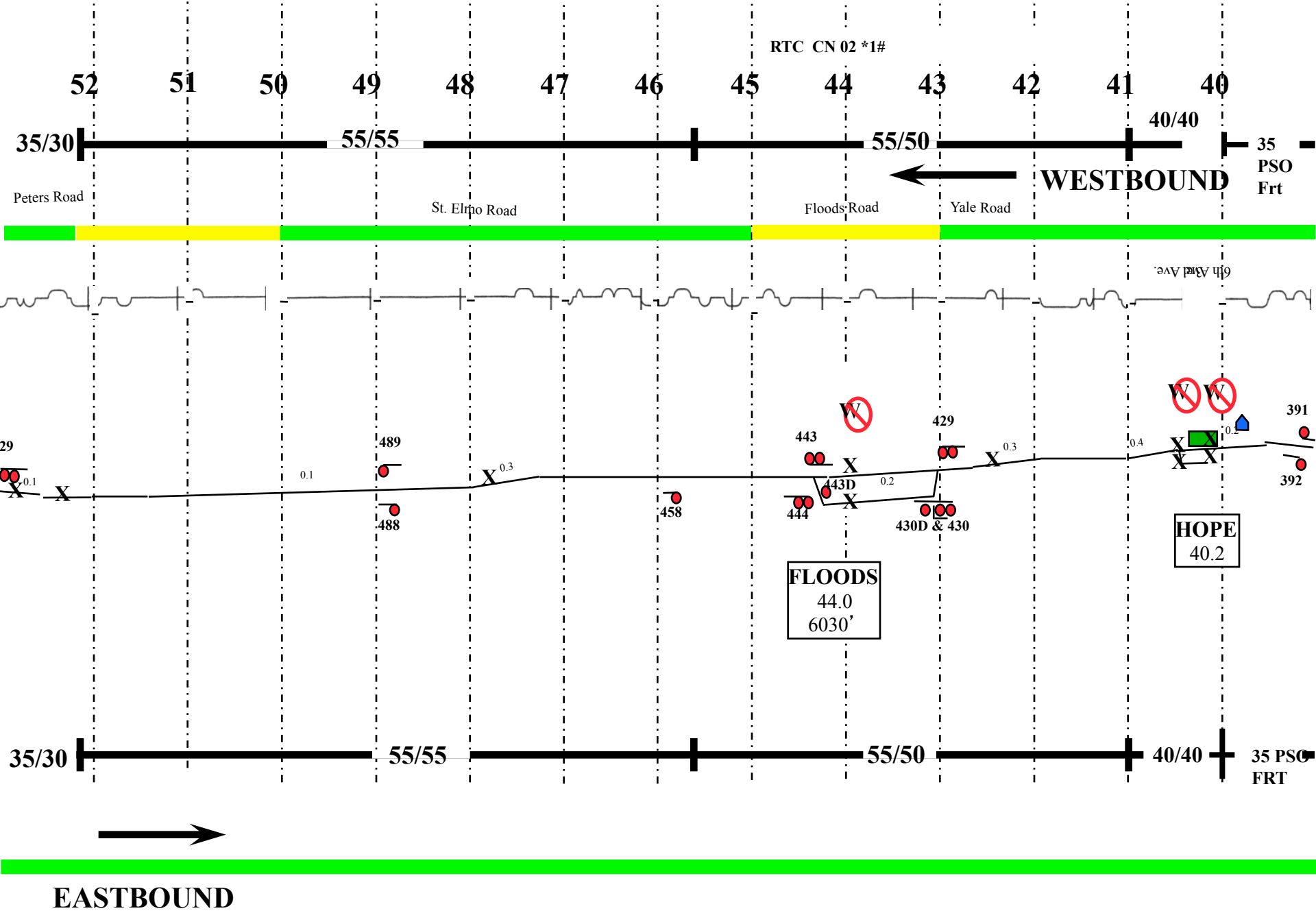
BOSTON BAR YARD
92796

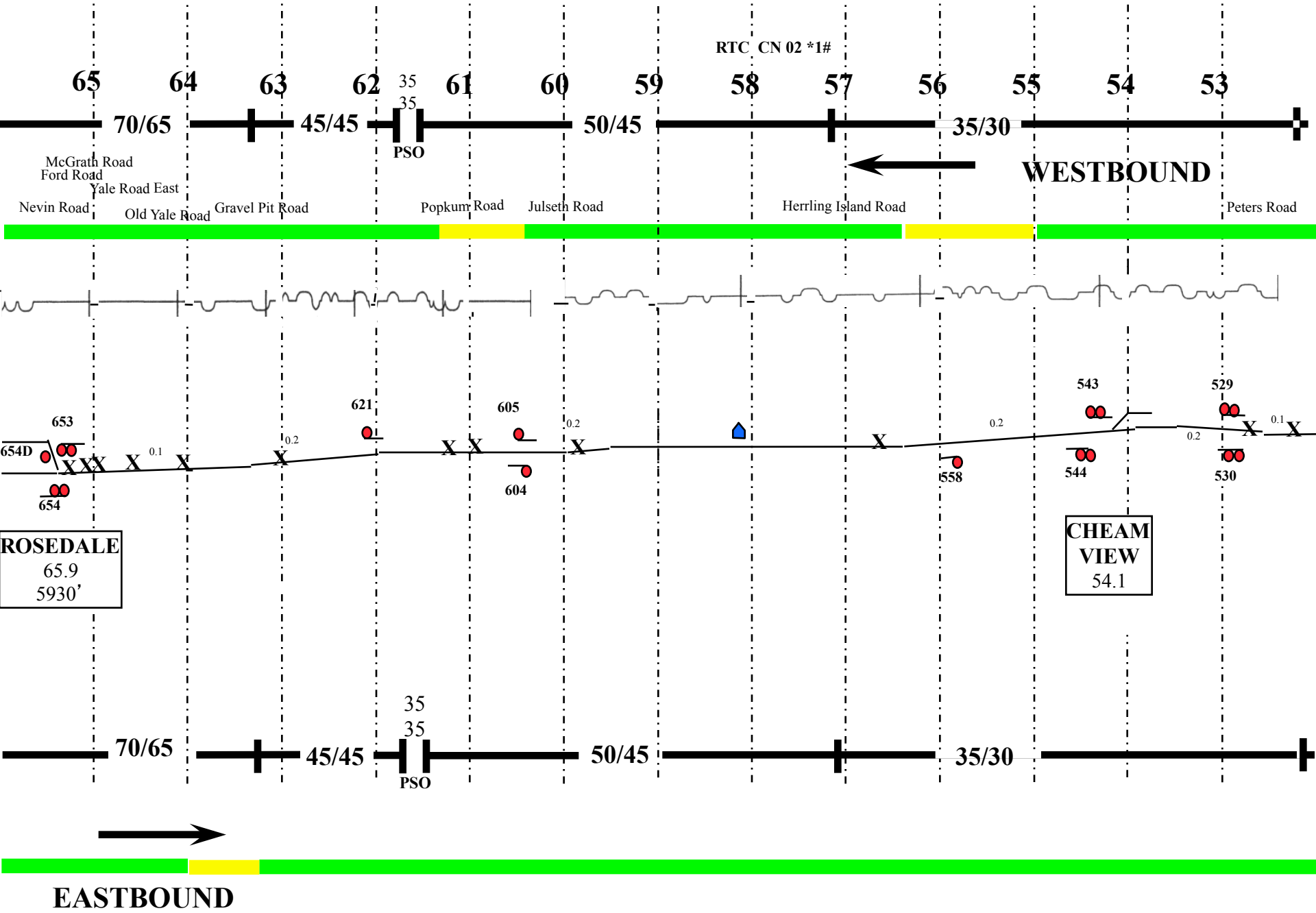


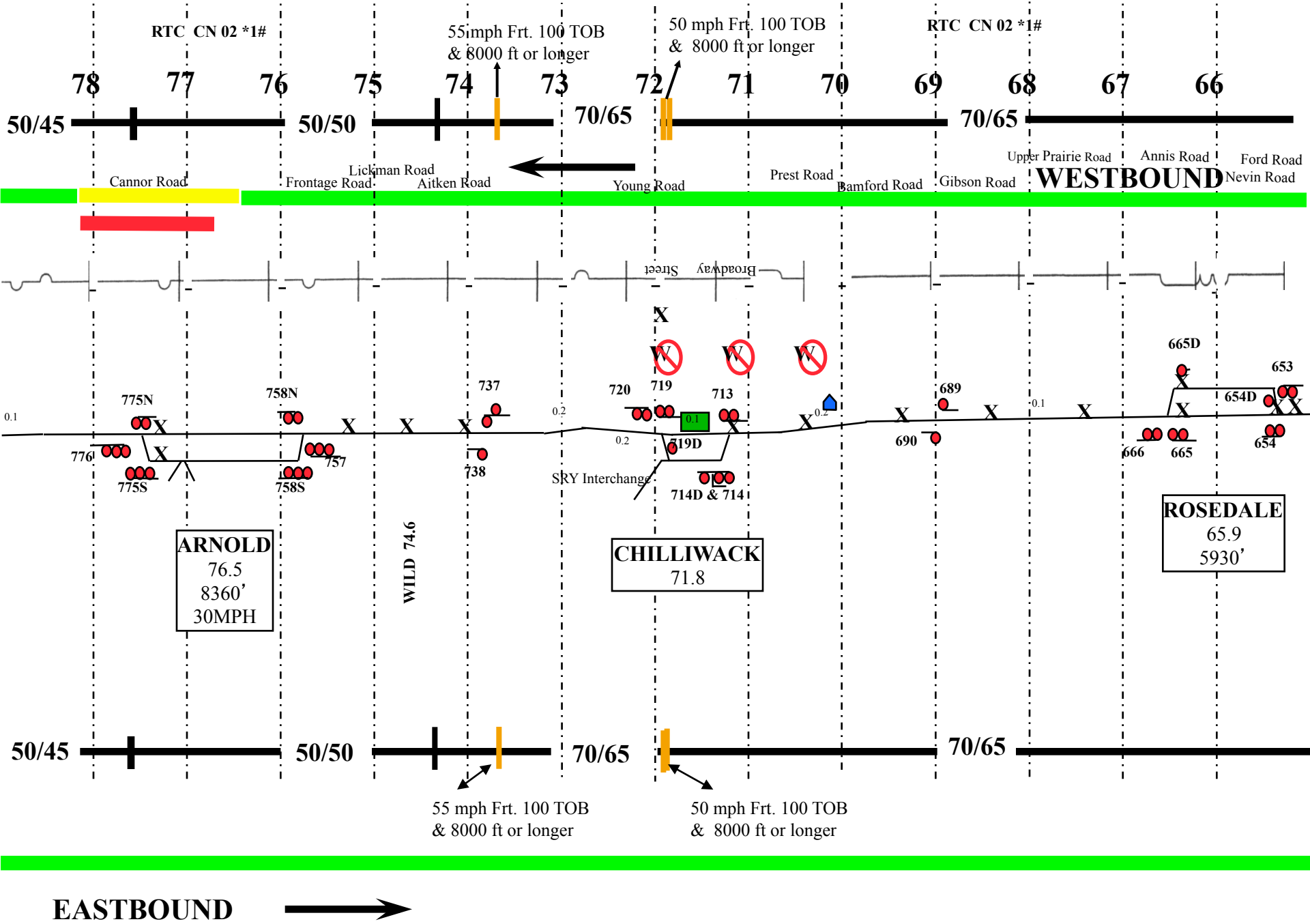


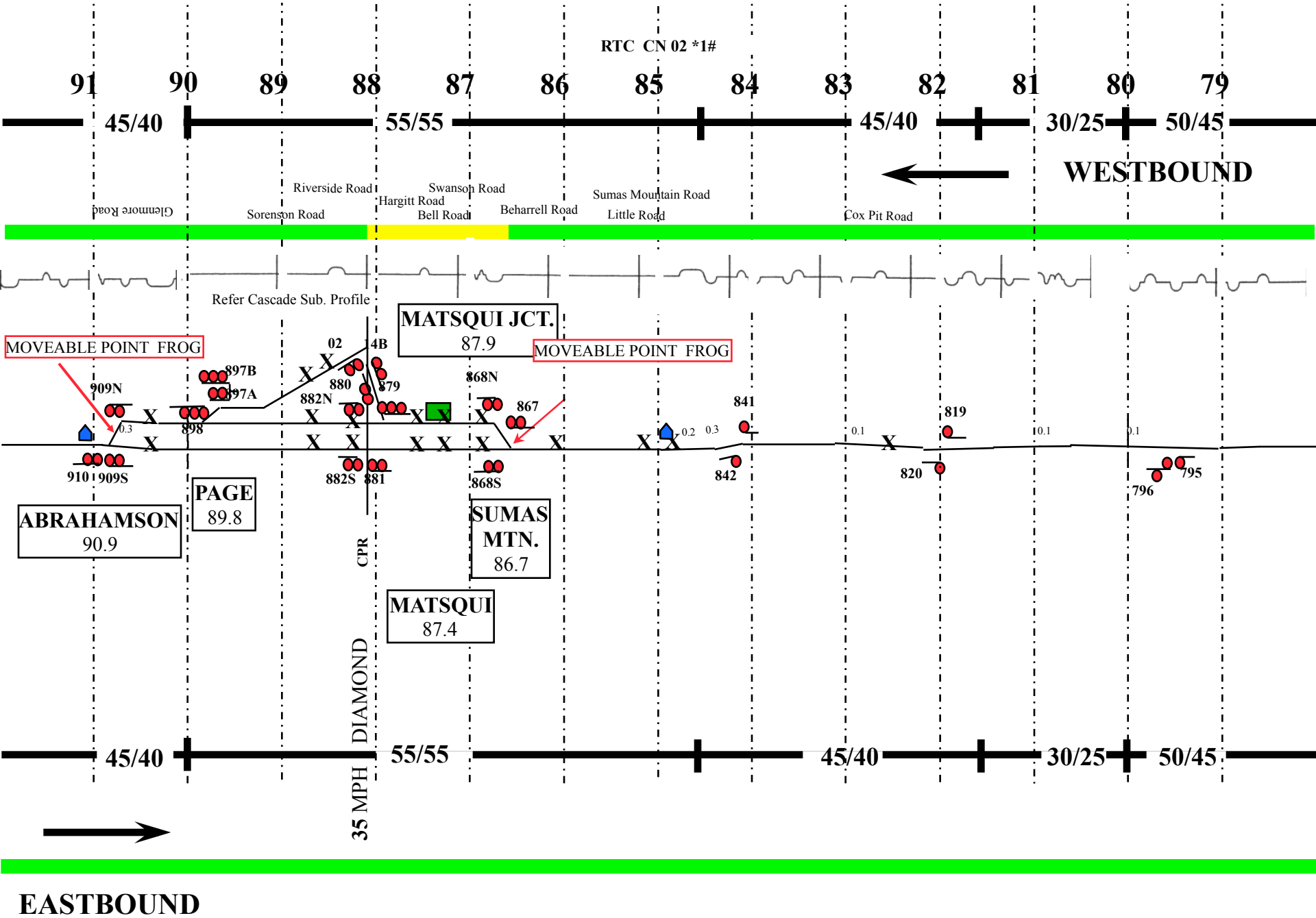


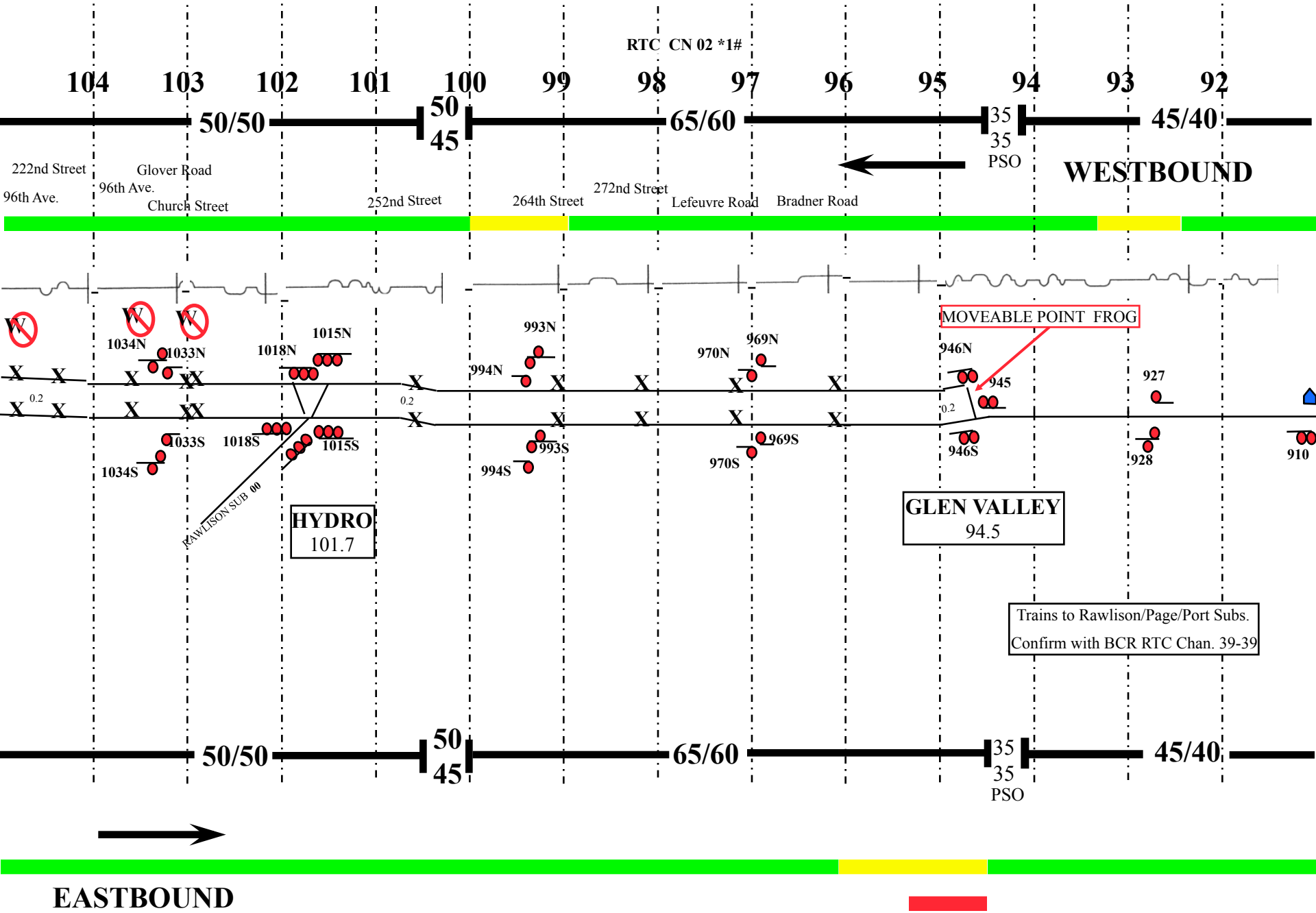










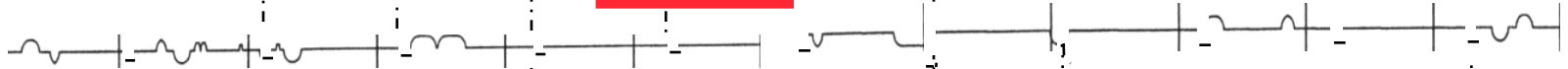


114 113 112 111 110 109 108 107 106 105

RULE 105 TERRITORY

50/50

WESTBOUND



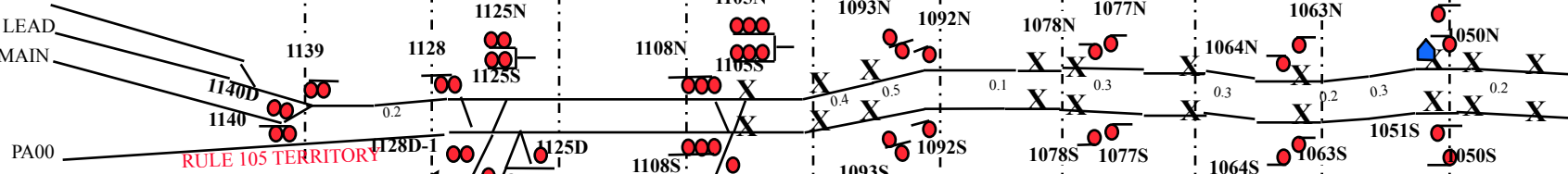
MACDONALD
113.8
END OF M/T

DOUGLAS
ISLAND
112.6

HAMPTON
110.7



RIVER LEAD
MIDDLE LEAD
OLD MAIN



PLAN VIEW
(GRADE NOT SHOWN)

DERAIL - PA00
(JUST WEST OF SIGNAL 1128D-1)

RULE 105 TERRITORY

50/50

EASTBOUND



Thornton Yard East (Surge Yard)



MACDONALD
113.8
END OF M/T

**CTC SIGNALS NOT SHOWN
REFER TO PAGE 16**

DERAIL - PA00
(JUST WEST OF SIGNAL 1128D-1)

DOUGLAS ISLAND
112.6

HAMPTON
110.7

