



June 27, 2007

TO: Steve Kim/Anthony Dorrough, 4-7440

FROM: Bryan Dias, 4-7440

SUBJECT: I-5 OL-3451
Grand Mound to Maytown Widening
Monotube Cantilever Sign Structure Foundation Report

This project proposes to install three new monotube cantilever sign structures along southbound I-5 between mileposts 93.6 and 94.6 vicinity in Thurston County.

FIELD INVESTIGATION

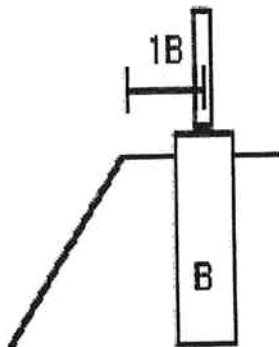
Our investigation consisted of hand probing and a field review of each proposed sign structure location. We anticipate groundwater will be located at least 10 feet below the ground surface at the proposed foundation locations, see attachments for cross sections.

- Cantilever Sign Structure No. 1 Station 668+37.73 Lt. (MP 93.6 Vicinity)
The soils in this site location generally consist of (fill) poorly graded sub-rounded gravel and sands with silt, dry to moist, medium dense to dense. The groundwater table is expected to be approximately 15 feet below the ground surface and will vary with seasonal rainfall.
- Cantilever Sign Structure No. 2 Station 694+50.00 Lt. (MP 94.1 Vicinity)
The soils in this site location generally consist of sand with silt and gravels, dry to moist, medium dense. The groundwater table is expected to be approximately 10 feet below the ground surface and will vary with seasonal rainfall.
- Cantilever Sign Structure No. 3 Station 721+19.00 Lt. (MP 94.6 Vicinity)
The soils in this site location generally consist of (fill) poorly graded sub-rounded gravel and sands with silt, dry to moist, medium dense to dense. The groundwater table is expected to be approximately 10 feet below the ground surface and will vary with seasonal rainfall.

RECOMMENDATIONS

We recommend using a Type I foundation and a soil lateral bearing pressure of 1,500 psf when determining a standard foundation depth for cantilever sign structure number 1 and 3.

We recommend using a Type I foundation and a soil lateral bearing pressure of 1,000 psf when determining a standard foundation depth for cantilever sign structure number 2.



For all foundations placed in a slope or where the centerline of the foundation is less than $1B$ from the shoulder (B = width or diameter of the Standard Foundation), we recommend that the Standard Plan foundation depths be increased as follows:

2H:1V slopes add $0.5B$ to the depth
1.5H:1V slopes add $0.75B$ to the depth

For slopes 3H:1V or flatter, no additional depth is required. Interpolation between the values is acceptable. However, the Geotechnical Branch should be contacted if slopes are steeper than the 1.5H:1V.

CONSTRUCTION CONSIDERATIONS

We recommend the monotube cantilever sign structures be constructed using drilled shaft installation methods. We recommend against using a backhoe or excavator to perform the foundation excavation. The contractor may be required to install temporary casing in conjunction with the possibility of dewatering.

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I-5 OL-3451 Grand Mound to Maytown Widening
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Page 3

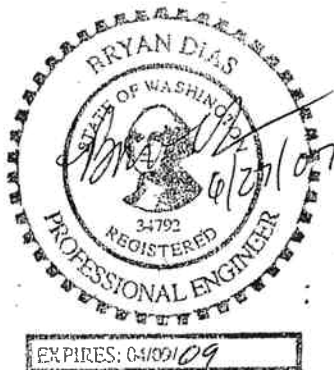
Prior to PS&E review the Olympic Region Materials Office should be notified so that we can prepare a geotechnical summary for inclusion into the PS&E.

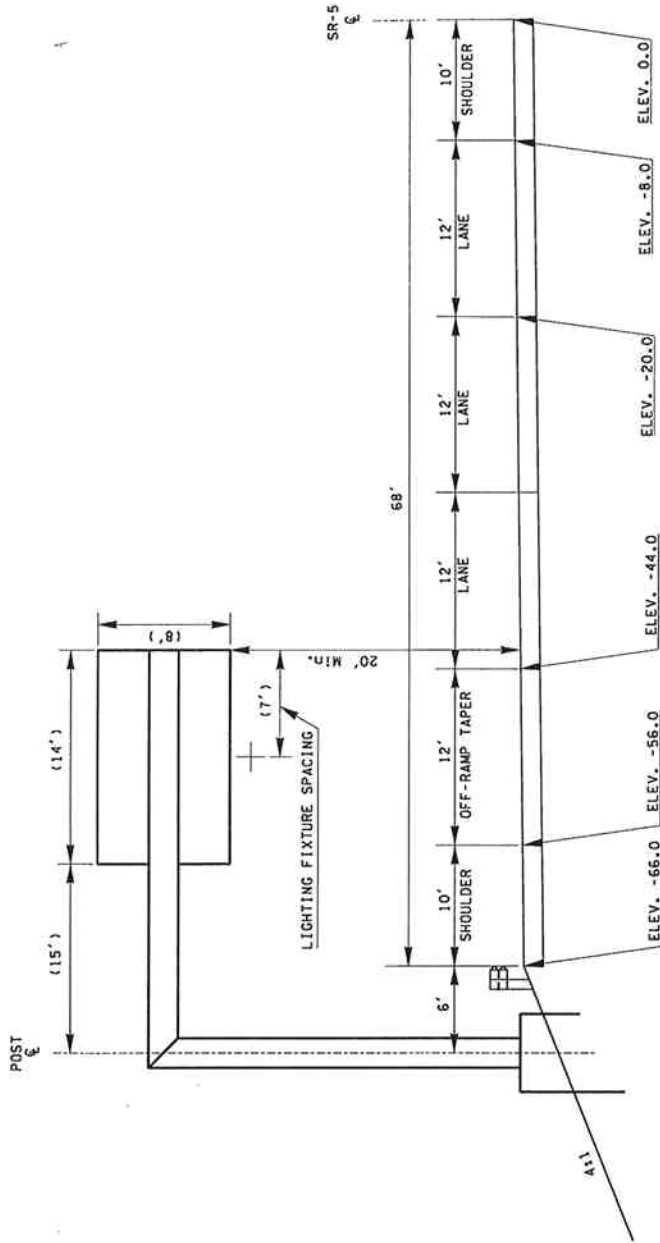
If different subsurface soil conditions are encountered or appear to be present during construction, our office should be contacted to evaluate changed soil conditions.

If you have any questions or require further information, please contact Terry MacAuley at (360) 704-3279.

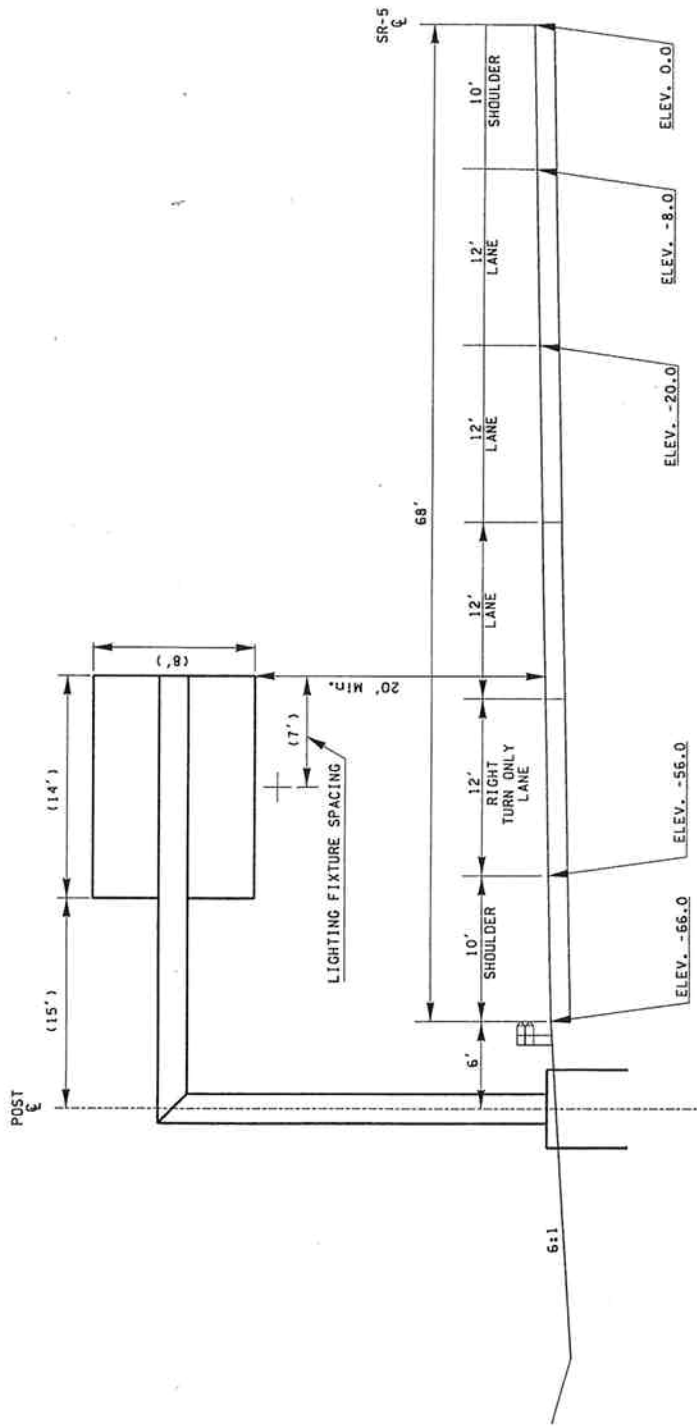
BD:tm
TM
Attachments

cc: Jim Cuthbertson, w/attachments 4-7365
Richard Zeldenrust/Stuart Bennion, w/attachments 4-7340
Jeff Petterson, w/attachments 4-7446

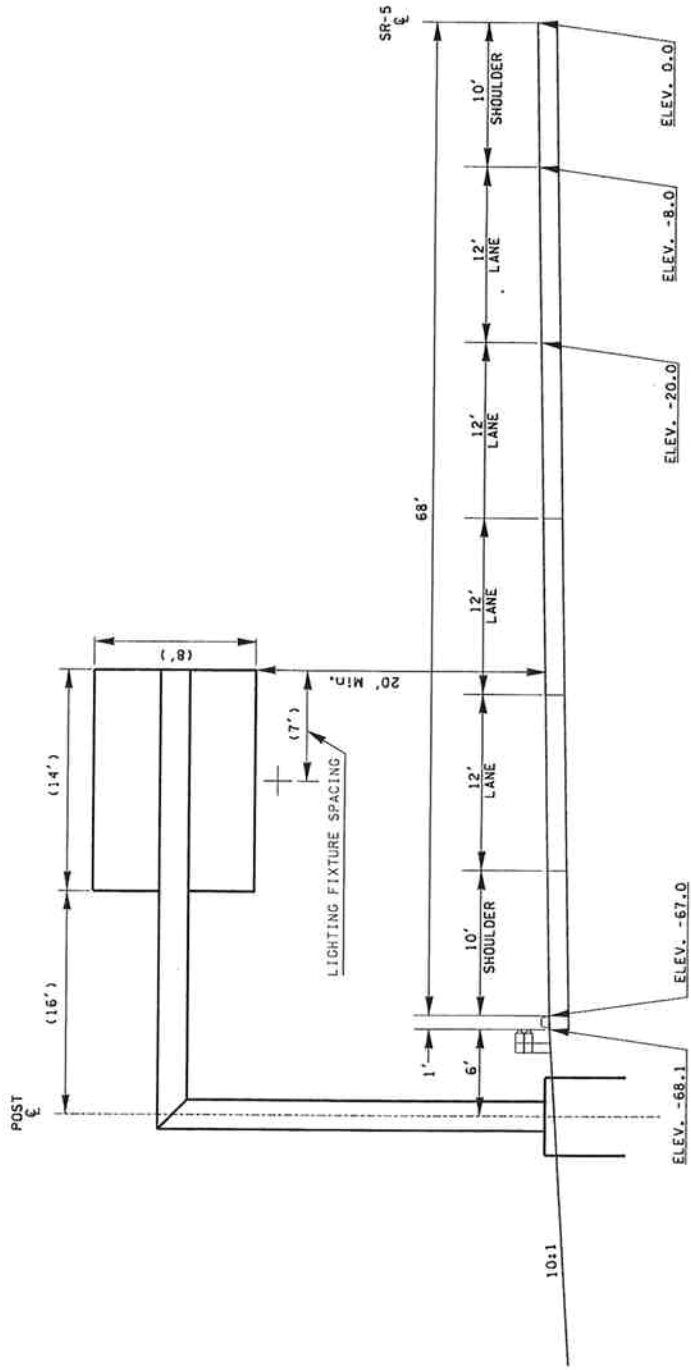




CANTILEVER SIGN STRUCTURE NO. 1
 SR-5 SOUTHBOUND
 STA. I-5 668+37 LT MP 93.6 VIC.
 LOOKING AHEAD ON STATION
 NOT TO SCALE



CANTILEVER SIGN STRUCTURE NO. 2
 SR-5 SOUTHBOUND
 STA. 694+50 LT. MP 94.1 VIC.
 LOOKING AHEAD ON STATION
 NOT TO SCALE



CANTILEVER SIGN STRUCTURE NO. 3
 SR-5 SOUTHBOUND
 STA. 721+19 LT. MP 94.6 VIC.
 LOOKING AHEAD ON STATION
 NOT TO SCALE