With respect to Differential Settlement, L (in inches) is defined as a maximum distance of 25 feet, or the lesser distance between settlement reference points or major structural elements such as columns. Consider both heave and settlement in the determination of differential settlement.

2.52.7.4.1 Alaskan Way Viaduct

Allowable deformation tolerances for settlement and other parameters are shown in Tables 2-52.6 and 2-52.7:

Table 2-52.6 – Alaskan Way Viaduct Bents 92 through 121

	Alert Level	Maximum Level	Location
Transverse Differential Vertical Movement (inches)	0.75	1.00	Measured between ends of transverse crossbeams
Transverse Differential Horizontal Movement (inches)	0.35	0.50	Measured between bent column/footing pedestal interface
Longitudinal Differential Vertical Movement (inches)	0.35	0.50	Measured between ends of exterior longitudinal girders
Longitudinal Differential Horizontal Movement (inches)	0.35	0.50	Measured between bent column/footing pedestal interface
Total Bent Settlement (inches)	1.50	2.00	Measured at bent column/footing pedestal interface

Table 2-52.7 – Alaskan Way Viaduct Bents E121 through E130

	Alert Level	Maximum Level	Location
Transverse Differential Vertical Movement (inches)	0.35	0.50	Measured between ends of transverse crossbeams
Transverse Differential Horizontal Movement (inches)	0.35	0.50	Measured between adjacent bent column/pile cap interface
Total Bent Settlement (inches)	0.75	1.00	Measured at bent column/pile cap interface

2.52.7.4.2 Group A Buildings – Using Compensation Grouting as Deformation Mitigation Measure

Table 2-52.8 – Group A Buildings Using Compensation Grouting as Mitigation

	Maximum Level
Settlement or Heave (inches)	±0.5
Differential Settlement (inches)	L/600

2.52.7.4.3 Group A Buildings – Other Grouting Deformation Mitigation Measures

Table 2-52.9 – Group A Buildings Using Other Mitigation Measures

	Alert Level	Maximum Level
Settlement or Heave (inches)	0.5	0.75
Differential Settlement (inches)	L/600	L/400

2.52.7.4.4 Group B Buildings

Table 2-52.10 – Group B Buildings

	Alert Level	Maximum Level
Settlement or Heave (inches)	0.5	1.0
Differential Settlement (inches)	L/600	L/300

2.52.7.4.5 Group A Other Structures

Table 2-52.11 – Group A Other Structures

Structures	Alert Level Settlement (inch)	Maximum Level Settlement (inch)
BNSF Railway Tunnel	0.75	1.0
Pike Street Adit	0.75	1.0
EBI	0.75	1.0

2.52.7.4.6 Group B Other Structures

Table 2-52.12 – Group B Other Structures

Structures	Alert Level Settlement (inch)	Maximum Level Settlement (inch)
Seawall	0.75	1.0
Columbia Street Ramp	0.75	1.0
Seneca Street Ramp	0.75	1.0
Marion Street Pedestrian Bridge	0.75	1.0
Monorail	0.75	1.0

Battery Street Tunnel	Alert Level	Maximum Level
Settlement	0.75 inch	1.0 inch
Horizontal Movement	0.75 inch	1.0 inch

2.52.7.4.7 Other Structures (Streets, Sidewalks, etc. and Seattle Steam) and Utilities

Table 2-52.13 – Ground Surface Settlement Limits for Other Structures (Streets, Sidewalks, etc. and Seattle Steam) and Utilities[1]

Tunnel Reach	Station Number	Maximum Level Inches[2]
S. King Street to Yesler Way	200+00 to 213+00	3.0
Yesler Way to Madison Street	213+00 to 218+00	2.0
Madison Street to Denny Way	218+00 to 279+00	1.0
Denny Way to North End	279+00 to 288+20	1.5

[1]Maximum heave for streets, sidewalks, and utilities shall be 1.0 inch.

[2]As measured by near surface settlement points

2.52.7.4.8 Deep Settlement Limits Based on Borehole Extensometer Readings

For the purposes of establishing Action Plans, the maximum level shall be 4 inches of settlement measured at a deep extensometer anchor point (multiple position borehole extensometer, MPBX) at 5 feet above the tunnel crown at the centerline of the tunnel alignment.

2.52.8 DEFORMATION MITIGATION METHODS

The Design-Builder shall implement mandatory deformation mitigation measures for Group A structures and utilities. Mitigation methods include grouting (compensation or compaction) from the ground surface, grouting from within the Bored Tunnel, and structural strengthening for buildings.