



Memorandum

To: *Lindsey Ozbolt, Associate Planner*

From: *Haim Strasbourger, P.E.
Development Review Engineer*
*Tawni Dalziel, P.E.
Stormwater Program Manager*

Date: *March 27, 2017*

Subject: *Public Works Review 1
East Lake Sammamish Trail 2B
Shoreline Substantial Development Permit
SSDP2016-00415*

This letter presents comments from Public Works review and the peer review by SDA Engineers of the East Lake Sammamish Master Plan Trail, South Sammamish Segment 2B for the shoreline substantial development application under SMC Chapter 25 Shoreline Management. Based on Chapter 25 the following sections are most applicable to the review performed.

SMC 25.06.050 Water quality, stormwater, and nonpoint pollution regulations.

(1) New shoreline uses and developments (and their related construction processes) shall incorporate all known, available, and reasonable methods of preventing, controlling, and treating stormwater to protect and maintain surface and ground water quantity and water quality in accordance with Chapter [15.05](#) SMC (Surface Water Management), requirements of Chapter [21A.50](#) SMC and other applicable laws.

(2) Best management practices (BMPs) for controlling erosion and sedimentation and preventing pollutants from entering lakes shall be implemented for all new uses and developments (and their related construction processes).

SMC 25.07.100 Transportation regulations.

(1) The following regulations for transportation use shall apply to any use or development where transportation infrastructure is, or is proposed to be, a primary land use, including new or expanded roadways, trails, nonmotorized facilities and parking facilities. Transportation use regulations shall not apply to residential access drives that are accessory to residential use.

(2) New transportation development shall be carried out in a manner that maintains or improves water quality for receiving waters through implementation of state and City stormwater regulations (see SMC [25.07.110](#)).

(3) New transportation and stormwater facilities and improvements to existing transportation facilities, not including trails, shall be located outside of the shoreline setback and any required building setback unless there is no feasible alternative. Adverse impacts shall be mitigated according to the mitigation requirements of Chapter 21.50 SMC and other applicable regulations.

(4) New roads shall be developed to minimize impacts to surface waters and new culverts shall meet applicable City and state standards.

(5) New transportation facilities shall be located and designed to preclude the need for shoreline stabilization where reasonable.

(6) Parking within the shoreline jurisdictions shall be limited to parking facilities that directly serve a permitted shoreline use, such as waterfront regional trails, including on-street parking where otherwise allowed in SMC Titles [14](#) (Public Works and Transportation) and [21A](#). Parking as a primary use shall be prohibited.

(7) To the extent possible, vehicle and pedestrian circulation systems shall be designed to minimize clearing, grading and alteration of topography and natural features. Roadway and driveway alignment shall follow the natural contours and minimize width to the maximum extent reasonable.

(8) Parking facilities shall be located and designed to minimize adverse environmental impacts including, but not limited to, the following:

(a) Stormwater runoff; and

(b) Water quality and shoreline habitat; and

(c) Visual qualities; and

(d) Public access; and

(e) Lake management districts regulated by Chapter [21A.50](#) SMC.

(9) Parking is prohibited on structures located in, on or over water. (Ord. O2011-308 § 1 (Att. A))

25.07.110 Utilities regulations. 

(1) Utility regulations shall apply to any use or development where utility infrastructure is required to support the primary land use.

(2) Utility facilities shall provide for multiple use of sites and rights-of-way (i.e., trail corridors along underground utility rights-of-way), except in instances where multiple uses would unduly interfere with utility operations, endanger public health and safety, or create a significant and disproportionate liability for the owner.

(3) When reasonable, new utility lines shall use existing rights-of-way, corridors and/or bridge crossings and shall avoid duplication and/or construction of new or parallel corridors in all shoreline jurisdictions.

(4) Conveyance utilities shall be placed underground or alongside or under bridges except where the presence of bedrock or other obstructions make such placement infeasible. Stormwater conveyance facilities may be open ditch where appropriate and beneficial to water quality.

(5) New transmission and distribution facilities shall avoid shoreline setbacks and shoreline jurisdiction wherever possible. Otherwise, such facilities shall only cross areas of shoreline jurisdiction by the shortest, most direct route reasonable, unless such route would cause significant environmental damage.

(6) Utility developments shall be located and designed so as to avoid or minimize the need for current or future structural shoreline stabilization.

(7) All underwater pipelines transporting liquids intrinsically harmful to aquatic life or potentially injurious to water quality are prohibited, except in situations where no other reasonable alternative exists. In those limited instances when permitted, automatic shutoff valves shall be provided on both sides of the water body.

(8) Surface water management facilities, such as an energy dissipater and associated pipes, are allowed in the Lake Sammamish, Pine Lake, and Beaver Lake shoreline setbacks only if the applicant demonstrates, to the satisfaction of the department, that:

(a) No feasible alternative exists; and

(b) The functions of the lake and related VEA are not adversely affected or are appropriately mitigated.

(9) Clearing of vegetation for the installation or maintenance of utilities shall be minimized and disturbed areas shall be restored following project completion consistent with the requirements of City stormwater management regulations.

(10) Utility production and processing facilities, such as power plants and sewage treatment plants, or parts of those facilities that are non-water-oriented, shall not be allowed in shoreline areas, unless it can be demonstrated that no other feasible option is available.

(11) Accessory Utilities. For single-family residences accessory utilities include electrical, gas, water, cable, telephone, and public sewer connections to the primary utilities, and also installation of septic tank and drainfields. (Ord. O2011-308 § 1 (Att. A))

Comments provided below are based on additional information request to comprehensively review the documents for compliance with SMC 25. They are not intended to provide a full or comprehensive construction document review. The Applicant should expect additional comments and/or conditions to be placed on the Shoreline Substantial Development Permit. The Applicant should expect that full compliance with vested Surface Water Design Manual and Public Works Standards will be required under the Clear and Grade Permit review.

The following items were received and considered in the review:

- Engineering Plans by Parametrix, East Lake Sammamish Master Plan Trail, South Sammamish Segment B, SE 33rd Street to Inglewood Hill Road (60% Review Submittal) which we received by the City on October 19, 2016.
- *East Lake Sammamish Master Plan Trail, South Sammamish Segment B, Draft Technical Information Report (TIR)* by Parametrix dated October 2016.
- *East Lake Sammamish Master Plan Trail, South Sammamish Segment B, Geotechnical Engineering Services* prepared by Icicle Creek Engineers for Parametrix dated October 2016.

Civil Engineering Drawings

General

1. Provide temporary erosion and sediment control plans in conjunction with Section 25.06.050 of the City of Sammamish Municipal Code. These plans should clearly show the following items:
 - a. Trees to be removed and retained.
 - b. Existing culverts to be removed.
 - c. Physical features located within the trail right-of-way to be removed as part of the construction. Many of the existing stairs are called out to be removed, but there are several that don't have any type of designation.
 - d. The standard best management practices required typically shown in TESC plans.
2. There are several driveways proposed to be removed as part of the trail construction. Provide an overall schematic plan showing preconstruction access, access during

construction, and post construction access. Clearly demonstrate how each of the residences will be accessing their homes based on the construction. Also demonstrate that proposed driveway revisions do not impact existing emergency vehicle access and turn arounds. Once plan is provided, City will route to Fire Department for comment. Since adding additional trips to existing driveways, sight distance analysis at ELSP will be required for each affected driveway.

3. Show all existing utilities to remain that cross the trail in the profiles. There are several culverts to remain that need to be shown.
4. Provide cross sections of the trail every 100 feet. These sections do not have to be included in the formal plan set, but can be provided as a separate submittal for general reference. It is difficult to determine the boundary conditions of the proposed trail based on the current information provided and the cross sections would aid significantly in the review.
5. Clearly demonstrate that the properties downstream of the infiltration facilities and the dispersion areas won't be negatively impacted (see TIR comments).
6. Indicate jetting, cleaning, and TV of all existing storm pipe and culverts to be retained in system.
7. Indicate jetting, cleaning, and TV of all new storm pipe, culverts, and underdrains in system.
8. Show right-of-way dedication adjacent to ELSP (minor arterial) consistent with dedication requirements in accordance to vested Public Works Standards. City will have a peer review surveyor review ROW dedication.
9. For all stairs to be removed, clearly show extent of removal. For example, will only the part of stairs within the clearing limits be removed. This could provide some safety issues. How will removed stair areas be restored?

Sheets EX1 to EX 21 - Existing Conditions Plan

10. The existing and proposed contours are too light and difficult to see in the plans provided (half-size). Show the contours darker on these plans for clarity.
11. The ROW shown in the plans doesn't match King County Assessor's information and the property owner's information at Stations 453+00 and 457+00. Verify the limits of the ROW and update the plans accordingly.
12. Public Comment indicates a significant dogwood at Station 295. Please verify and show on plans.
13. Public Comment indicates that Jurisdictional Ditch #11A from Station 319 to Station 322 flows to south. Please verify and show on plans.
14. Public Comment indicates a row of arborvitae on east side of house at 2417 E Lake Sammamish Place near Station 326 and 327. Please verify and show on plans.
15. Public Comment indicates significant ponding in Jurisdiction Ditch #11B with no outlet. Please verify outlets of four 6-inch PVC culverts as shown on plans at Station 327.

16. Public Comment indicates power runs to lights on existing rockery to be replaced at Station 371+50. Please show on plans and protect as needed.
17. Public Comment indicates 36-inch concrete pipe at approximate Station 386+50 discharges to a 20-ft tank before outletting to Lake Sammamish. Please contact property owner to verify and add leader to plans. Add discussion in TIR.
18. Locate and show on plans inlet to 12-inch CMP to CB P#25644 at approximate Station 386+50.
19. Public comment indicates at 3145 E Lake Sammamish Shore Lane SE near Station 294 and Station 295, there is a heritage dogwood. Please verify and show on plans. Show protection on AL Sheets as appropriate.

Sheets CS1 to CS3 - Typical Cross Sections

20. Provide a typical cross section for the trail with the underdrain trench adjacent to a structural earth wall.

Sheet AL1 - Plan and Profile

21. Address how runoff from the slope down from East Lake Sammamish Parkway SE will be collected and conveyed across the trail between Station 284+00 to 287+50.

Sheet AL2 - Plan and Profile

22. Provide an infiltration test at the location of the proposed infiltration facility.
23. Provide emergency overflow from the proposed infiltration facility and that demonstrate that this facility won't adversely impact the downstream property (private park).

Sheet AL3 - Plan and Profile

24. Public Comment questions the need to remove fence from Station 294 to Station 295. Please review and revise CG if feasible.

Sheet AL4 - Plan and Profile

25. Provide a detail for the gravity block wall with fencing.
26. Demonstrate how sheet flow from the trail won't negatively impact the adjacent downstream homes (Station 300+00 to 301+00).

Sheet AL5 - Plan and Profile

27. Adjust the stationing in the profile to match the plan.

Sheet AL6 - Plan and Profile

28. Address what happens to the drainage at the low point at Station 308+00. The trail slopes towards the wall and is not collected in any type of conveyance system.
29. Demonstrate that the trail from Station 308+50 to 311+00 that sheet flows to the east won't negatively impact the adjacent homes.
30. Public Comment requests relocation of Type 1 Rest Area to Station 306+50. Please address the siting of the rest in the proposed location.
31. Public Comment questions need to replace existing ramp with Stair #14. Please address and revise if feasible.
32. Public comment indicates there are underground utilities serving cabin at 2917 and 2905 E Lake Sammamish Parkway SE. Please show on plans and protect.

Sheet AL8 - Plan and Profile

33. Specify plan for existing rockery at approximate Station 319.
34. Public Comments asserts that home at 2609 East Lake Sammamish Shore Ln SE is the low point in the neighborhood and receives both surface and groundwater. Please investigate and verify that drainage conditions will be unaffected or improved.

Sheet AL9 - Plan and Profile

35. Public Comment indicates erosion and slide concerns over slope cuts/fills from Station 320+50 to Station 324. Please address on plans and Geotechnical Report.

Sheet AL10 - Plan and Profile

36. Address the plan for the drainage on the east side of the trail from Station 325+00 to 327+00. Where does it outlet and/or get to the other side of the trail?
37. Place CB #9 at the low point in the trail (Station 327+16) as shown in the profile.

38. Public Comment indicates that Jurisdictional Ditch #11B has standing water with no outlet. Please address and provide outlet for ditch to CB #9 if feasible.
39. Public Comment suggests shift of trail alignment at Station 324 to 324+50 instead of Station 327. Please provide reasoning on the proposed trail shift location.
40. Public Comment indicates underground power under trail near Station 329. Please show and address.
41. Clearly show if Stair 34 and unidentified stairs at Station 329 are to be retained, modified, or removed.

Sheet AL11 - Plan and Profile

42. Public Comment indicates underground power under trail near Station 332+25. Please show and address.
43. Address wood bridges and how they will be affected by work.
44. Clearly show if Stair 37, 38, 39, and 40 are to be retained, modified, or removed. Unclear how transition will be safely made if only removing to clearing limits.

Sheet AL13 - Plan and Profile

45. Provide a detail for the rock-lined ditch located to the west of Outfall #3.
46. Identify extent of existing storm at CB 7055.

Sheet AL14 - Plan and Profile

47. Address the plan for the drainage between Station 347+50 to 351+00. It currently sheets flows westward toward the retaining wall.
48. Public Comment indicates there is a sprinkler system near Stair 47. Please address.
49. Address impact to retaining wall at Station 348+90 where clearing limits jog around wall.

Sheet AL15 - Plan and Profile

50. Public Comment indicates water and power lines to the wood shed at Station 351+70. Public comment indicates wood shed is a pump house and location is incorrectly shown on plans. Please verify, show, and address underground utilities.

Sheet AL16 - Plan and Profile

51. Provide infiltration testing for the proposed infiltration trench in accordance with the King County Surface Water Design Manual requirements. The trench is being proposed at a location where there are currently wetlands and standing water adjacent to the trail.

Sheet AL17 - Plan and Profile

52. Unclear where CB 16 discharges. Please clarify on plans.

Sheet AL18 - Plan and Profile

53. The existing pipe upstream of the pipe into CB #17 is 36-inches in diameter. Verify that the capacity of the proposed 12-inch pipe out of CB #17 is sufficient.
54. Public Comment indicates that Tom Hornish owns property at 1237 East Lake Sammamish Shore Ln SE. Please verify and correct.

Sheet AL19 - Plan and Profile

55. Provide infiltration testing for the proposed infiltration trench in accordance with the King County Surface Water Design Manual requirements. The trench is being proposed at a location where there are currently wetlands and standing water adjacent to the trail. Trail low point appears to be at Station 370+25. Assess any overtopping of Driveway 9.
56. Public Comment indicates boat house and dock not shown at 1204 E Lake Sammamish Parkway SE.

Sheet AL21 - Plan and Profile

57. The proposed 24-inch diameter culvert at Station 384+23 discharges to an existing 12-inch culvert further downstream. Verify that there won't be any adverse impacts to the downstream property and that the 12-inch culvert can accommodate drainage from the upstream basin modelled as fully developed.

Sheet AL22 - Plan and Profile

58. Demonstrate that the dispersion area is designed in accordance with KCSWDM requirements for basic dispersion. This includes the following:
 - a. The flowpath segment must be over well-established lawn or pasture, landscaping with well-established groundcover, or native vegetation with natural groundcover. The groundcover must be dense enough to help disperse and infiltrate flows and to prevent erosion.

- b. That the slope of the flowpath segment must be no steeper than 15% for any 20-foot reach of the flowpath segment. The grading is currently shown at 33%.
- c. Sheet flow shall include crushed rock edge line.

Sheet AL23 - Plan and Profile

59. Trees shown at Station 393+50 to 394+25 shall be shown as protected if feasible.

Sheet AL24 - Plan and Profile

60. The fill on the east side of the trail from Station 395+00 to 400+00 will create a natural ditch section. Address the drainage plan for this area.

61. Provide infiltration testing for the proposed infiltration trench in accordance with the King County Surface Water Design Manual requirements.

Sheet AL25 - Plan and Profile

62. Verify that the proposed grading in the dispersion area meets the KCSWDM slope criteria and vegetation cover requirements

Sheet AL26 - Plan and Profile

63. Show the proposed grading for the new driveways (spot elevations and contours).

Sheet AL28 - Plan and Profile

64. The dispersion area from Station 417+00 to 419+00 is shown in cut. Verify that the dispersion area slopes away from the trail.

65. Verify of clearing limits need to extend to garden area at Station 419+25.

Sheet AL29 - Plan and Profile

66. Verify that the proposed grading in the dispersion area meets the KCSWDM slope criteria and vegetation cover requirements.

67. Verify that new fence is needed.

68. Significant trees shown should be retained as part of dispersion if feasible.

69. Update Zackuse culvert and channel consistent with coordination with City Zackuse Creek Fish Passage and Stream Restoration project.

Sheet AL30 - Plan and Profile

70. Verify that new fence is needed.

71. Significant trees shown should be retained as part of dispersion if feasible.

Sheet AL31 - Plan and Profile

72. Provide a detailed plan for the walkway. Show landings in plan view and the ADA handrail. Show revisions to the guardrail at the top of the ramp necessary for access.

Sheet AL32 - Plan and Profile

73. Provide a culvert underneath the proposed driveway at Station 438+44 to accommodate the flows from Jurisdictional Ditch #17.

Sheet AL33 - Plan and Profile

74. Provide infiltration testing for the proposed infiltration trench in accordance with the King County Surface Water Design Manual requirements.

Sheet AL34 - Plan and Profile

75. Public Comment for 813 ELSP NE indicates a desire to keep existing fence. Verify need to remove and adjust plans as appropriate.

Sheet AL35- Plan and Profile

76. Provide a detailed plan of the proposed parking area and additional details about the design of the wall and wall heights.

Sheet AL36- Plan and Profile

77. Public Comment at 1111 ELSP NE indicates that fence and covered entrance are within CG limits. Please verify and adjust CG as appropriate.

Sheet AL37 - Plan and Profile

78. Provide infiltration testing for the proposed infiltration trench in accordance with the King County Surface Water Design Manual requirements.
79. Have the geotechnical engineer verify that it is feasible and advisable to provide an infiltration trench at the top of the retaining wall. Provide a section of the wall at this location with additional details. Include recommendation in Geotechnical Report.

Sheet SD1 – Storm Drainage Profiles and Sections

80. Provide steel casings for the storm pipes through or underneath the retaining walls.
81. Provide a rip rap pad for the outlet of the 24" culvert for Profile 384+25.

Sheet SD2 – Storm Drainage Profiles and Sections

82. Provide inlet protection for the pipes.
83. Show the existing ground profile for both profiles.

Sheets FP1 to FP 8 - Fish Passage Culverts

84. Provide approvals from the Washington Department of Fish and Wildlife for the design of each of the fish passage culverts.
85. Coordinate the design and size of the Zackuse Creek fish passage culvert with the City of Sammamish in order to provide consistency between the culvert beneath the trail and the culvert project currently being designed by the City.

Sheets DP1 to 12 - Driveway Plan and Profile Sheets

86. Provide spot elevations and proposed contours for each of the driveways. There are several situations where the trail cross slope is opposite of the driveway slope. Show appropriate cross slope transition areas.
87. Verify that the grades shown in the driveway profiles matches the proposed cross slope of the trail.

88. For the driveways to be removed, show removal of the existing asphalt pavement up to the edge of the existing roadway. Currently the removal stops at the edge of the trail ROW which would leave an unnecessary remnant of asphalt pavement.
89. For the driveways proposed to be removed, provide support from East Side Fire and Rescue that the homes can still be accessed for emergency purposes.

Sheets WP1 to WP9 - Wall Profiles

90. Provide structural details and typical cross sections for each of the wall types called out in the plans (rockery, structural earth and gravity block walls).
91. Show the proposed stairs to be constructed in the wall profiles for reference.
92. Show the proposed and existing culverts to remain in the wall profiles.
93. Demonstrate how existing culverts to remain that are located beneath the proposed walls will be protected from the new loads imposed by the walls.

Sheets LA1 to LA 21- Landscape Plan

94. Show the planting proposed for dispersion areas that meets the requirements of the KCSWDM for dispersion located between the following stations:
 - a. 400+00 to 402+30
 - b. 408+30 to 419+00
 - c. 420+20 to 424+20
 - d. 426+30 to 431+60

Technical Information Report

95. Update TIR to address vested Surface Water Design Manual requirements.
96. There are several culverts missing from Table 5-1 *Summary of Existing Culverts and Proposed Action* (Station 340+00, 342+75, 432+80, 454+50, etc.). Please check the table and update the status of these culverts accordingly.
97. For all proposed exemptions to flow control facilities required in accordance with Core Requirement No 3, demonstrate how each TDA meets all criteria. For example, for all direct discharge exemptions, provide documentation that all criteria in the vested Surface Water Design Manual are met.
98. For each TDA, discuss any new proposed driveways and any new pollution generating impervious surfaces related to Core Requirement No. 8.
99. For each TDA, discuss any new pervious and impervious surfaces proposed by the project and how they meet requirements of Core Requirement No 3, 8, and 9.

100. For each TDA, include analysis of impacts to downstream conditions where any dispersion or infiltration is proposed. Depict through a figure where stormwater will be conveyed in emergency situations and show an overflow path if downstream flooding of driveways and homes would occur.

Geotechnical Report

101. Update Geotechnical Report to address infiltration testing using the requirements of the vested Surface Water Design Manual.
102. Show results and analysis of infiltration testing as commented throughout Engineering Drawings. Show location of each test pit as it relates to proposed design.
103. For each TDA proposing infiltration, include analysis of downstream groundwater conditions that could affect homes and private property.