

Appendix C
Offsite Analysis Descriptions

Downstream Analysis

East Lake Sammamish Master Plan Trail, North Sammamish

Date: 2/1/2013

TDA	Type of Outfall	Station	Description (Upstream)	Description (Downstream)	Owner	Comments
1	18" Pipe to Lake	473+00	N/A	18" pipe collects runoff from Driveway #1 and discharges into the lake.	Burkholder	No new discharge*
2	private drainage	475+50	N/A	driveway drains to lake in private enclosed system	Haslam	No new discharge*
3	private drainage	477+50	N/A	driveway drains to lake in private enclosed system	Gunther	No new discharge*
4	private drainage	478+40	N/A	driveway drains to lake in private enclosed system	Evans	No new discharge*
5	private drainage	480+60	N/A	driveway drains to lake in private enclosed system	Comer	No new discharge*
6	private drainage	482+20	N/A	driveway drains to lake in private enclosed system	Newberry	No new discharge*
7	24" Storm drain	485+00	Existing 24" storm drain collects runoff from East Lake Sammamish Parkway and conveys it down a steep slope to edge of a driveway and then to the trail.	24" pipe conveys stormwater across the trail to the lake. CB downstream of trail has a birdcage grate and was full of water - could not see pipe to lake.	Harsh	System appears to function adequately.
8	Tributary J	486+75	Steep channel flows down from ELSP, turns south along trail to 12" pipe.	Stream J enters a 12" pipe that parallels the east side of the trail and then crosses west under the trail and discharges into an open channel flowing to Lake Sammamish	Carvajal	System appears to function adequately. No signs of erosion visible in channel. Did not access private property.
9	Pipe	489+75	Flows collect from ditches north and south, as well as driveway runoff. Runoff collects in a rock lined basin that extends beneath the trail under a wooden bridge.	The water flows under the small bridge on the trail into a culvert, then under the residents' access road and into a half-pipe to the lake. The water seemed to flow fine but there wasn't that much.	Stenson	System appears to function adequately.
10	Unnamed Trib #1	493+15	12" pipe discharges from ELSP, just below road and flows down steep slope in an open channel lined with angular rock.	The stream is collected in a 12" pipe that runs north to the middle of the driveway and then Tees into a 12" pipe that discharges at the lake.	Patterson	System appears to function adequately.
11	Unnamed Trib #2	497+75	The stream crosses under ELSP at Sta 499+40 near just below the road, flows down steep slope, then turns south along trail.	Stream is collected in a 36" culvert that also receives discharge from the sand filter south of the culvert. The culvert crosses under the trail and discharges to an open channel that flows to the lake.	Utagawa	System appears to function adequately. No signs of erosion visible in channel.
12	Tributary H	503+40	The stream crosses under ELSP and an access road east of the trail. It flows in a rip-rap lined channel down to the trail, turns north at the trail and flows to the trail crossing in a narrow straight trapezoidal channel.	Pipe enters 12" pipe at property line and is piped to the lake.	Compton	System appears to function adequately.
13	sheet flow	505+00 to 510+00	N/A	No concentrated discharges	multiple owners	No erosion or flooding noted.
14	Tributary M	510+55	The stream crosses under ELSP in a 18" pipe, and flows down steep rock lined channel to the trail. Stream carries high sediment load.	Stream crosses under trail in a partially filled 24" culvert with a 12" high flow overflow culvert. The culverts outfall into an open channel that flows into downstream property. It continues in a small channel with a gravel bottom through a wooded area to the lake.	Evans/Ferry	System appears to function adequately. No signs of erosion visible in channel.
15	private drainage	511+00	N/A	Runoff from driveways flows through private drainage system to lake.	Frost	No new discharge*
16	18" storm drain	516+00	18" pipe conveys water under ELSP at steep grade to a catch basin on the east side of the trail. Upstream end of culvert not found, heavy sediment load appears to be coming from other end of culvert. The catch basin was full of sediment. From there, the 18" pipe continues north to another catch basin (Sta 516+10).	From the CB at 516+10, an 18" pipe drains to lake.	Schlepp	No new discharge*
17	private discharge	518+00	N/A	Yard drains & trench drains collect driveway runoff.	Chapman	No new discharge*
18	private discharge	519+00	N/A	Yard drains & trench drains collect driveway runoff.	Mohandessi	No new discharge*

TDA	Type of Outfall	Station	Description (Upstream)	Description (Downstream)	Owner	Comments
19	4" PVC Pipe	521+00	N/A	Driveway runoff collected in a catch basin and conveyed to the lake in a 4" PVC pipe through private property.	Kobi's crossing	No new discharge*
20	4" PVC Pipe	522+50	N/A	Driveway runoff collected in a catch basin and conveyed to the lake in a 4" PVC pipe through private property.	Brooks	No new discharge*
21	Tributary G	525+60	Unnamed Tributary #3 and Trib. G flow under ELSP in culverts discharging just below the roadway. Both streams flow down steep open channels to the east side of the trail. Trib. #3 turns north to the confluence with Trib. G before crossing the trail.	Trib. G crosses the trail in a 36" culvert and outfalls into an open channel that flows to the lake.	Barrett	Stream is in fair condition downstream of trail. No erosion problems observed.
22	Tributary F	528+12	Trib. F flows under ELSP in an 18" culvert and flows in a steep rock lined open channel down to the trail.	Trib. F crosses under the trail in two culverts (12" & 18"). The culverts outfall into an open channel that flows to the lake.	Barrett	Some incising noted in near lake. See Section 3.4 for additional information.
23	Drainage course	533+80	Drainage from Wetland 32A flows north along trail collecting in a 24" culvert crossing the trail.	Water flow through an open drainage course to lake, except for private driveway crossing. No houses/structures near drainage path.	Fugo	Flows are intermittent, no signs of erosion or flooding.
24	sheet flow	535+00	N/A	Trail sheet flows to vegetation on west, drains to lake, no structures.	multiple owners	No signs of erosion.
25	Tributary D	539+14	Trib. D flows under ELSP in an 18" culvert and outfalls into a moderately steep channel that flows down to the trail and then parallels the trail, flowing south to the point where it crosses under the trail in a 24" culvert.	The outfall from the culvert is perched 2' above the downstream channel, which flows to the lake.	multiple owners	No signs of erosion.
26	sheet flow	540+00	N/A	Trail sheet flow to vegetation on west, drains to lake, no structures.	multiple owners	No problems noted.
27	sheet flow	545+00	N/A	Area west of trail, no project discharge.	multiple owners	No problems noted.
28	Tributary B	553+00	Tributary B flows under ELSP in an 18" culvert below the level of the trail. The channel turns north and parallels the trail for approximately 120' before entering the 36" culvert below the trail. The channel adjacent the trail has a very gentle gradient and is trapezoidal, straight, and mostly	The stream crosses under the trail in a 36" culvert. The stream is piped all the way to the lake through a series of pipes and catch basins. The 36" pipe daylights within the K.C. right of way, but then continues a few feet later. The 36" pipe is reduced to an 18" pipe through private property to the lake.	Catania	System appears to function adequately.
29	Wetland 33A	560+56	Wetland 33B drains north in a shallow ditch parallel to the trail before crossing the trail in a 12" culvert. Homeowner reports that this ditch is often full of stagnant water.	Culvert discharges into Wetland 33A.	Stevenson/Yates	Upstream ditch will be replaced with underdrain trench.
30	6" pipe	561+50	Runoff collects in a ditch on the east side of the trail.	12" culvert crosses under the trail and is perched above a custom yard drain. Water flowing through the culvert is collected in a small basin surrounding the grate and flows through a private 6" pipe to lake.	Allison	See Section 5.5 for downstream conveyance discussion.
31	Unnamed Trib #5	570+10	A manhole east of the trail collects water from the north, east, and south and crosses the trail in a 24" pipe.	The water outfalls into Unnamed Trib #5 and flows via an open channel to the lake.	City of Sammamish	System appears to function adequately.
32	outfall to woods	573+12	Ditch parallel to trail flows north and crosses trail in 12" culvert.	Discharge flows though city property to the lake. No downstream structures.	City of Sammamish	System appears to function adequately.
33	outfall to woods	575+00	Ditches parallel to the trail flow north and south, collecting in a 12" culvert crossing the trail.	Discharge flows though city property to the lake. No downstream structures.	City of Sammamish	System appears to function adequately.
34	outfall to woods	578+40	Runoff from Wetland I from the south and ditch flow from the north collect in a 24" culvert that crosses the trail.	Discharge flows though city property to the lake. No downstream structures.	City of Sammamish	System appears to function adequately.

TDA	Type of Outfall	Station	Description (Upstream)	Description (Downstream)	Owner	Comments
35	outfall to wetland C	583+75	Runoff crosses under ELSP in an 18" pipe, flows down a steep gradient to the trail, and then crosses the trail in a second 18" culvert.	The downstream end of the concrete culvert has a disconnected end section and erosion at the end of the culvert. The channel disappears into wetland C before reaching the lake.	City of Sammamish	Culvert crossing the trail will be replaced.
36	outfall to Wetland B	588+70	A ditches parallel the trail intercept seepage and runoff and flow to the 24" culvert that crosses the trail.	Culvert daylights on west side of trail into heavy vegetation and flows down to Wetland B and then Lake Sammamish.	City of Sammamish	No problems noted.
37	outfall to Wetland A	592+25	An 18" clay culvert collects water from Wetland E on the east side of the trail, and daylights on the west side of the trail.	The water flows across City property to wetland A and then to Lake Sammamish.	City of Sammamish	The culvert under the trail will be replaced.
38	Unnamed Trib #6	596+90	Unnamed Tributary #6 is covered under ELSP in a 24" culvert part way down the road embankment. The stream flows down a steep channel to the trail, turns north for a short distance and then flows under the trail in a 12" clay culvert.	The steep culvert under the trail outfalls to short section of open channel and then enters another 12" culvert to the lake.	Sammamish View Pk	The culvert under the trail will be replaced, with a drop structure and a flatter sloped 24" culvert. Outfall adjusted to reduce risk of erosion at the wall downstream.
39	Tributary A	599+25	Trib. A flows under ELSP in a 24" culvert. Flow for approx. 10 feet in an open channel before entering the 24" culvert under the trail.	On the west side of the trail, the stream daylights again for less than 10' and is then contained in pipes to Lake Sammamish.	Martin	No problems noted.

* No new discharge to outfall, using Exemption #3 from Core Requirement #2.

Craig Buitrago

From: Nunnenkamp, Robert <Robert.Nunnenkamp@kingcounty.gov>
Sent: Thursday, April 26, 2012 2:25 PM
To: Craig Buitrago
Cc: Auld, Gina; Jenny Bailey; Phoebe Johannessen; Yammie Ho
Subject: RE: Drainage complaints for ELST
Attachments: ELSTDrainage-Sta510-5 Jan 2006.jpg; ELSTdrainage-Sta483.jpg; ELSTDrainage-Sta479.jpg; ELSTDrainage-Sta510-5.jpg; ELSTDrainageWeberPt-Sta541.jpg

There were a few more areas that came to mind when I was out on the trail with the geotech guys last week. Here's the list:

Lockard, 1723 NE, Station 479. This is a French drain installed by the previous owner (Bolger) to capture runoff from the uphill side and driveway. Bolger refused to sign a permit for his work, so this is an unpermitted and unmaintained feature. It seems to work but this will have to be modified or replaced when the trail is built.

Stahl, 1827 NE, Station 483. Already mentioned below, but Mr. Stahl told me about it again last week when I was escorting the geotech crew. As an FYI Mr. Stahl doesn't think we've done anything right to date or will ever do anything right in the future. I told him everybody says hello.

Frost, 2635 NE, Station 510+50. This is a culvert that plugs up with sediment. The neighbors help clean it out, but it overtopped the trail during construction in January 2006.

Weber Point, 3417 NE, Station 541. This is another area with a lot of sediment issues. The ditch has to be cleaned out every year but sometimes it backs up water in the ditch to the north towards the Weber Point crossing.

From: Craig Buitrago [<mailto:CBuitrago@parametrix.com>]
Sent: Thursday, April 26, 2012 1:04 PM
To: Nunnenkamp, Robert
Cc: Auld, Gina; Jenny Bailey; Phoebe Johannessen; Yammie Ho
Subject: RE: Drainage complaints for ELST

Robert,

Have you found any other complaints that weren't resolved with the construction of the interim trail?

Craig

From: Nunnenkamp, Robert [<mailto:Robert.Nunnenkamp@kingcounty.gov>]
Sent: Thursday, March 29, 2012 12:11 PM
To: Craig Buitrago
Cc: Auld, Gina; Jenny Bailey; Phoebe Johannessen; Yammie Ho
Subject: RE: Drainage complaints for ELST

I'll look more thoroughly, but one that comes to mind is Stahl, 1827 NE. He's said that in the past KC Roads block off a culvert and created drainage issues. I've attached a photo of the area from 2006 when we were building the interim trail, I'm not sure if this was the only thing he complained about. I also recall Hamilton at 3931 NE having issues but I believe we resolved those with the interim construction.

Probably more to come, I'll have to look through the files for more.

From: Craig Buitrago [<mailto:CBuitrago@parametrix.com>]
Sent: Thursday, March 29, 2012 11:56 AM
To: Nunnenkamp, Robert
Cc: Auld, Gina; Jenny Bailey; Phoebe Johannessen; Yammie Ho
Subject: Drainage complaints for ELST

Robert,

Phoebe and I are the drainage designers for the East Lake Sammamish Trail project. As we move forward with our design in the North Sammamish section we need to identify any drainage complaints from neighboring property owners. This section of the project extends from Kokomo Drive at the south end to the City of Redmond boundary at 187th on the north end. Please provide us with a record of drainage complaints dating back 10 years. I look forward to your response.

Regards,

Craig

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