

San Lorenzo Creek at San Lorenzo (Zone 2 Line B)



A) View looking upstream at the Washington Street Bridge. B) View looking upstream from the potential sample location on the upstream side of Washington Street.

San Lorenzo Creek flows through the City of San Lorenzo, with the potential sample location on Washington Street just south of Highway 880. At this location the channel is a concrete lined flood control channel with 4 m tall vertical walls and a flat bed with a 1.5 m wide inset low-flow channel. The turbidity probe would likely be suspended from the bridge and would sample on the downstream side. The USGS gauge house is approximately 50 m downstream of Washington Street, however the upstream sidewalk appears to be the best sampling location. Although Washington Street is a major road (4 lanes of traffic), a sidewalk and lighting allow for safe sampling. The field team would park in the adjacent Walgreens parking lot and carry the equipment approximately 50 m to the bridge. The surrounding area is commercial on Washington Street, but residential on either side. Graffiti underneath the bridge suggests that teens regularly hangout, and might potentially vandalize a turbidity probe. This location appears to be suitable for this sampling effort.

- Safety rating- Medium because of graffiti
- Overall feasibility- Medium (Higher? if we can work out a solution for vandalism)
- Drawback- On a major road but it has a sidewalk

Estudillo Canal



A) View looking downstream at the Wicks Blvd Bridge. B) View looking upstream from the sampling site on the upstream side of the bridge.

Estudillo Canal is located on the San Leandro/San Lorenzo border. The potential sample location is located on Wicks Blvd, a two-lane road with sidewalks on both sides. The channel is a stable engineered flood-control channel with a low-flow channel, wide floodplain, 2:1 slopes on the outer banks, and maintenance roads on both sides. The bridge is supported by 66 (6 across the channel width, 11 along the channel length) concrete pillars, which appear to have minimal effect during floods. A turbidity probe could be mounted to one of the concrete pillars and would likely sample on the downstream side of the bridge. Arleen Feng notes that tidal influence very occasionally reaches Wicks Blvd. This is evidenced by the brackish plant community observed on the low floodplain (species such as tule, bulrush, atriplex, distichlis, sedge, and rush). The water surface reaches the low floodplain surface even on the lowest flow events. With permission and a key from the ACFCWCD, access to the maintenance roads and underneath the bridge would be possible. However, sampling could occur from the bridge without access. The surrounding neighborhood is residential, with a school, park, and parking immediately adjacent to the channel. Off-street parking is immediately adjacent to the sidewalk. The sidewalk, lighting, railing, parking and neighborhood make this bridge ideal for this sampling effort.

- Safety rating- Good
- Overall feasibility- Good
- Drawback- Some tidal influence – soccer hooligans

Zone 4 Line A



A) Downstream side of the concrete single barrel culvert. B) Downstream side sidewalk and fence. C) Looking downstream. D) Looking upstream.

Zone 4 Line A is located in the City of Hayward, with the potential sampling location on Cabot Blvd, south of Winton Avenue. The channel is a straight engineered channel, flowing through a single barrel concrete box culvert under Cabot Blvd. The concrete culvert bed and wingwalls extend 3 m from the culvert, but elsewhere the bed is natural. Downstream the bank slopes are approximately 3:1 with concrete slabs armoring the base of the banks. The turbidity probe would be mounted to the culvert wingwall, and would sample on the downstream side. A sidewalk exists on both the upstream and downstream sides, but the upstream side is preferable. However, a 2 m chain link fence would require modification to allow for sampling. With permission and a key from ACFCWCD, access to the maintenance road and channel is possible. The surrounding area is an industrial office park, with a fair amount of semi-truck traffic. This location has low crime potential during the day, but may not be ideal during nighttime hours. This location appears to be slightly less than ideal for this sampling effort.

- Safety rating- Medium (nighttime safety is questionable)
- Overall feasibility- Poor
- Drawback- Fence would need to be modified

Colma Creek at South San Francisco



A) View looking upstream across West Orange Drive into Orange Memorial Park. B) Looking at the upstream side of the concrete double barrel culvert.

Colma Creek is located in South San Francisco, with the potential sample location on West Orange Drive, just east of the El Camino Real. The creek flows in a concrete lined flood-control channel. Upstream of the bridge, the walls are at a 2:1 slope, with a flat-bottomed concrete bed. The channel flows underneath Orange Drive in a concrete double barrel culvert. The turbidity probe would be attached to the concrete and could be sampled either on the upstream or downstream side. Orange Drive is a two-lane main residential street with sidewalks and lighting on both sides. The surrounding neighborhood is primarily residential with some commercial space. Because the neighborhood is good, there is a low potential for vandalism or crime. Parking is available on the street immediately adjacent to the bridge. This location appears to be suitable for this sampling effort.

- Safety rating- Good
- Overall feasibility- Good
- Drawback- A stormdrain inputs 10 m upstream, potentially causing an unmixed sample

Item #6b

	San Lorenzo Creek at San Lorenzo (Zone 2 Line B)	Estudillo Canal	Colma Creek at South San Francisco	Zone 4 Line A
GIS Watershed boundary	yes	yes	yes	yes
County	Alameda	Alameda	San Mateo	Alameda
Watershed area upstream of gauge/sample location (km ²)	115.51	15.37	27.97	4.14
>50% Urban (y/n) ABAG1995	no ~45%	yes ~95%	yes ~80%	yes ~95%
>50% Urban (y/n) 2000CensusCASIL	yes ~50%	yes ~100%	yes ~100%	yes ~70%
Amount of watershed with industrial landuse (h/m/l)	low ~10%	low ~5%	low ~ 10%	med ~30%
Sampling position relative to main industrial area (US/DS)	US	DS	US	DS
Amount of watershed contributing clean sed/water (h/m/l)	high ~55%	low ~5%	low ~ 15%	low ~ 5%
Previous monitoring- contaminants Hg/PCB (y/n)	yes	no	yes	no
BASMAA PCB data (range ng/g) ¹	20-200	0-20	200-1000	20-200
Concentration of Hg on bay margin (range ng/g) ²	0-500	0-500	0-500	0-500
Concentration of PCB on bay margin (ng/g) ³	22	22	37	22
USGS gauge number	11181040	na	11162720	na
USGS gauge (historic/current/none)	current	none	historic	none
USGS gauge years of operation	1967-2004	na	1964-1996	na
USGS SSC (historic/current/none/years of operation)	hist 1989-1993	none	hist 1965-1976 1981-1982	none
USGS bedload (historic/current/none/years of operation)	hist 1989-1993	none	none	none
Channel type (natural/engineered/stormdrain/etc)	engineered	engineered	engineered	engineered
Channel width (m)	11.3	11	10	6
Top of bank height (m)	4	4	3.6	2.6
Channel gradient (%)	< 0.5	< 0.5	< 0.5	~1
Bank controls	concrete lined	none	concrete lined	wingwalls
Bed controls	concrete lined	none	concrete lined	concrete slabs
D50 visual estimate (mm)	none	4	none	2
Debris type and abundance (wood/trash/etc)	none	low trash	none	low trash
Overhead sampling structure (y/n/yes but)	yes	yes	yes	yes but fence
Overhead structure height from bed (m)	8.5	4	4	2.6
Permission needed (y/n)	no	no	no	yes
Jurisdiction	ACFCWCD	ACFCWCD	City of SF?	ACFCWCD
Sidewalk (y/n)	yes	yes	yes	yes
Lighting (y/n)	yes	yes	yes	no
Vehicle access (y/n)	yes	yes	yes	yes
Overall safety rating (good/med/poor)	medium	good	good	medium
Overall feasibility (good/med/poor)	good	good	good	medium
Drawback	road, vandalism	tidal influence	stormdrain	fence
Future changes (in management or landuse)	yes (redevelop + BMPs)	yes (redevelop + BMPs)	possible	yes (redevelop + BMPs)
Existing water quality data	probable (EpTox, sed study pending)	little	probable (USGS)	probable
Existing watershed mapping	well mapped	well mapped	well mapped (stormdrains in 2007)	well mapped

¹ BASMAA Creeks and Stormdrain samples

² RMP and Bay Protection data

³ EMAP 2000-2001 Surface sediments, contoured by John Oram

* Laurel Ck watershed is much closer to 100% urban rather than 50%