Stormwater Facility Background and Inspection Report

Location:	44510 Concrete Sauk Valley Rd., Concrete, WA. 98237
Parcel number:	P70969
Owner:	Skagit County
Inspection date:	6/13/18
Report Update:	9/20/22

Background

On June 13, 2018 Skagit County Public Works (SCPW) staff inspected the stormwater facilities at 44510 Concrete Sauk Valley Road in Concrete, WA (Figure 1). This parcel (P70969) is approximately 0.75 acres and owned by Skagit County. The property serves as a satellite road shop for eastern Skagit County, includes gas pumps, a 3,072 square-foot equipment shop, two pole buildings, an ecology bunker and a washout area.

Figure 1. East County Road Shop in Concrete, WA. The blue line represents Lorenzan Creek as shown on Skagit County's geoSkagit 3.0 *Unnamed Rivers, Creeks and Streams* hydrology layer. It is worth noting that the stream layer is shifted slightly east of actual location.

Stormwater Infrastructure

Skagit County stormwater inspections include identifying all structures on a parcel that manage stormwater and using criteria from the Washington State Department of Ecology (ECY) to determine if these structures are in working condition and being properly maintained. Following the inspection, staff will determine if overall conditions of the facility are compliant

with ECY standards, then request and perform corrective actions accordingly. Facilities required for inspection are based on special conditions (S5.C.9) in the Western Washington Phase II Municipal Stormwater Permit. Facilities at P70969 meet those conditions.

Stormwater for the site at P70969 is managed through seven catch basins within the parcel (Figure 2). The site also receives stormwater from external sources, including the ditches north and south of State Route 20 (SR20). The north ditch flows through a cross-culvert underneath SR20 into CB8 before entering the county's site and the south ditch flows eastward into CB8 before entering the county's site. All stormwater captured onsite discharges to Lorenzan Creek. The portion of Lorenzan Creek that crosses the property is enclosed in a 30" concrete culvert that runs under the site for approximately 278'. The stream flows west, entering a culvert just before crossing Concrete Sauk Valley Road and daylights approximately 20 feet west of the property boundary toward the southwestern corner of the parcel. This culvert is documented by Washington Department of Fish and Wildlife (WDFW) as a barrier to fish passage at both the inlet and outlet (*WDFW Fish Passage, GR18 surveyed by WDFW 5/2018*).

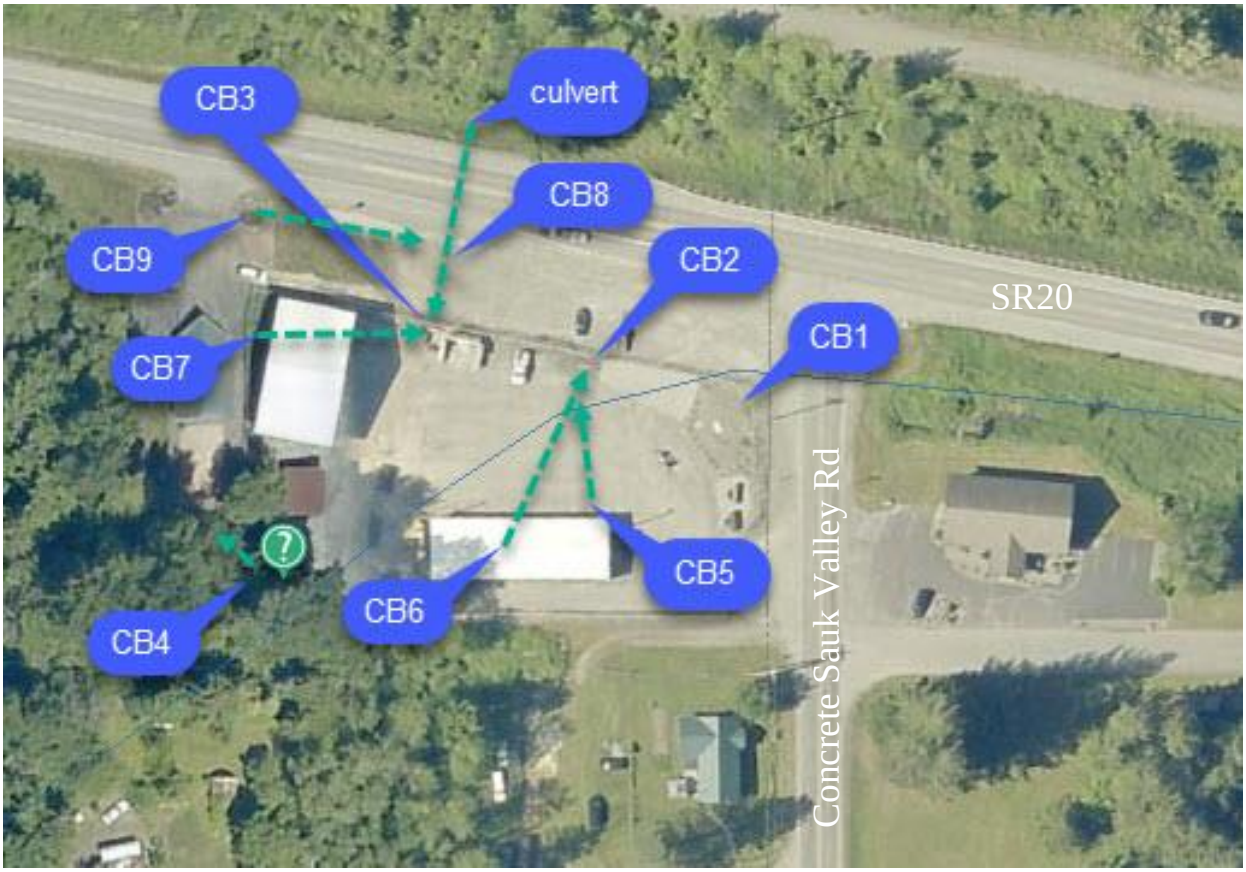

Figure 2. Approximate locations of catch basins. Blue line represents the approximate location of Lorenzan Creek (see remarks for Fig. 1) and the green arrows represent stormwater paths. A question mark is assigned to CB4 because it is constructed with a downturn pipe (presumed to function as an oil-water separator), which is suspected to discharge directly into Lorenzan Creek (cannot be confirmed at this time).

Lorenzan Creek is a second order, Type F stream within the Lower Skagit River Watershed and Water Resource Inventory Area (WRIA) 4. Salmon species with a documented presence in Lorenzan Creek include coho salmon *(Oncorhynchus kisutch)*, steelhead (*O. mykiss*), sea-run and resident cutthroat (*O. clarki clarki*), and bull trout (*Salvelinus confluentus*). Steelhead and bull trout are listed as threatened under the Endangered Species Act. At least 10 partial fish barriers have been identified on Lorenzan Creek and at least one culvert was identified with an unknown barrier status. Coho salmon presence has been documented upstream of the all the identified, partial fish barriers. Additionally, Fish Creek is a tributary to Lorenzan Creek whose confluence is downstream of P70969. Fish Creek has at least eight fish passage barriers identified. Fish Creek has a known contribution of sediment to Lorenzan Creek and has been a cause of flooding (e.g., closure of Grassmere Road was associated with issues on Fish Creek).

The three catch basins (CB) along the fence line on the north side of the parcel – CB1, CB2, and CB3 – drain directly into the concrete culvert that encloses Lorenzan Creek as it runs under the site. There is no sump depth within these CBs (i.e., the pipe inverts are at ground level). A typical CB is constructed with capacity (via sump) to control flow and capture coarse sediments, debris, and pollutants. While lack of research makes it difficult to quantify pollution removal (*Fact Sheet, 2017*), this function helps to improve stormwater water quality. The Stormwater Action Monitoring (SAM) group of Western Washington municipal stormwater permittees has a study aimed at measuring the effectiveness of catch basins, but the study has yet to conclude. The three CBs have effectively created an artificial stream bed for Lorenzan Creek (Figure 3). County staff have yet to determine if an as-built document exists for stormwater facilities on this site.

All sediment deposits in the CBs are presumed to be a combination of transport by Lorenzan Creek and stormwater runoff. Inspection notes from June 13, 2018 indicated that CB1 accumulated at least six inches of sediment along the catch basin walls. There was little to no sediment in the path between the inlet and outlet pipes (flow of Lorenzan Creek). CB2 contained at least 12 inches of sediment evenly distributed across the bottom and CB3 had at least 18 inches of sediment evenly distributed across the bottom. All CBs are approximately six feet in diameter.

Both CB2 and CB3 contained sediment build-up at the inlet and outlet points of the structure that covered more than 50% of the pipe opening. Ecology standards require CBs to be cleaned when they exceed 60%, measured from the bottom of the sump to the invert of the lowest pipe. Therefore, these CBs exceeded the standard and required maintenance.

Figure 3. CB3 with the lid off revealing the artificial stream bed. Sediment depth is ≥ 18”. The metal pipe discharges stormwater from CB7.

CB4 is located at the edge of a washout station; functionality and conveyance are currently unknown (Figure 4). When stormwater staff inspected CB4, the sump was almost completely full of sediment. A request was submitted for CB4 to be cleaned. Unfortunately, the stormwater inspector was not able to be present during the cleaning to observe and identify internal structures. A subsequent observation to determine conveyance was precluded by turbid water in CB4. Based on communication with the maintenance staff, CB4’s outlet conveys stormwater west into Lorenzan Creek. The outlet pipe is a 90-degree downturn pipe that is suspected function as an oil-water separator. No inlet pipe has been identified in CB4.

Figure 4. CB4, known as the washout station

Figure 5. Possible oil-water separator within CB4.

There are two small CBs that drain stormwater from the equipment shop and discharge directly to CB2 (Figures 6, 7, 8 & 9). CB5 is situated just outside the main entrance on the NE corner of the building and CB6 is located inside the equipment shop in a garage stall.

Figure 6. CB5 with lid removed.

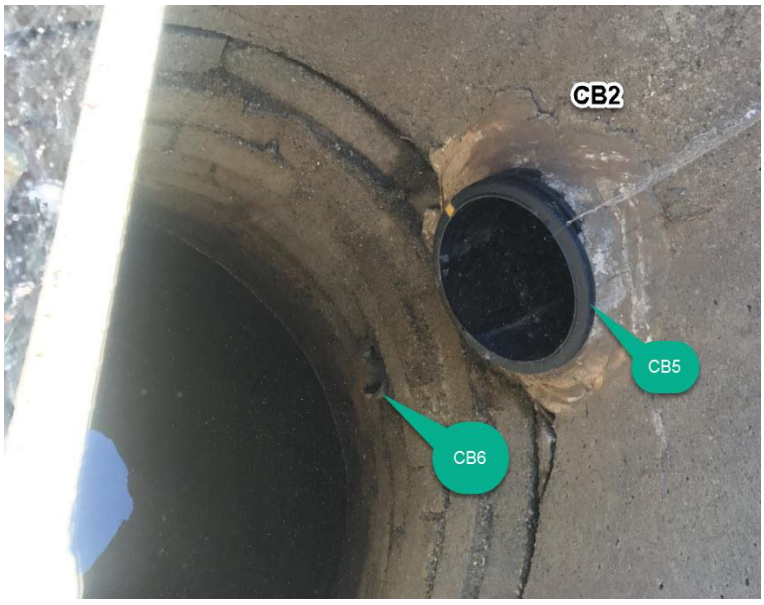

Figure 7. CB2 with origins of inlet pipes identified.

Figure 8. CB6 located in the equipment shop.

Figure 9. CB6 with lid removed.

Lastly, CB7 receives stormwater from the roof drains of the larger pole building located on the northwest corner of the parcel (Figure 10). Stormwater from CB7 flows to CB3, where it discharges to Lorenzan Creek.

Figure 10. CB7 and one of two roof drains connected to CB7.

Fish Presence

In 2023, SCPW stormwater staff documented fish presence in CB2 (Figures 11 & 12) and CB3 (no available photo). These observations were made while conducting the annual stormwater facilities inspection.

Figure 11. Two unidentified salmon in CB2 – June 2023.

Figure 12. Two unidentified salmon in CB2 – June 2023.

Summary

Inspection results from June 13, 2018 deemed the overall condition of the stormwater facilities at P70969 as non-compliant. However, the inspection did result in cleaning a significant sediment load from CB4. The CB is estimated to be approximately five feet in depth. Prior to the cleaning, the CB had little to no storage capacity remaining and likely would have overflowed as sheetflow into Lorenzan Creek just a few feet downgrade from the CB.

Other non-compliant issues included excessive sediment accumulation in CB1, CB2, CB3, CB5 and CB6, and the location of CB6 and its potential to deliver pollutants to the stream. SCPW stormwater staff are looking into how to treat possible sediment removal from CB1, CB2 and CB3 and also plans to reach out to appropriate staff to discuss concerns over CB6.

The following are ongoing concerns for this facility:

- Uncertainty of proper maintenance protocol for CB1, CB2 and CB3 when the bottom of the CB also serves as an artificial stream bed in a salmonid stream.
- CB2 and CB3 may be vulnerable to receiving excessive sediments/polluted runoff.
- CB4 may be inadequate for properly treating stormwater that drains an equipment washout area before discharging to surface water (Lorenzan Creek).
- Location of CB5 and its direct discharge into Lorenzan Creek with the only treatment being a relatively shallow sump.

- Location of CB6 and its direct discharge into Lorenzan Creek with the only treatment being a relatively shallow sump.
- Possible violation of RCW 90.48.080 if pollution from the site enters surface water via stormwater runoff/direction deposition (*RCW 90.48.080*).

Recommendations

SCPW stormwater staff highly recommend reviewing operations-and-maintenance procedures, as it relates to stormwater infrastructure, for P70969. This may include, but not be limited to, reconsideration of allowing CB5 and CB6 to discharge directly to Lorenzan Creek via CB2, taking a closer look at how CB4 functions and its impact to receiving waters, and looking at additional Best Management Practices (BMPs) that insure only stormwater is entering and discharging from the site.

Secondly, this site would be an excellent candidate for a stormwater retrofit project. This work would include a restoration project on Lorenzan Creek to improve habitat for all documented salmon species in that waterbody. Lorenzan Creek is a tributary to the Skagit River, an extremely important river system for indigenous salmon and trout of the genus *Oncorhynchus*. It is well documented that Pacific salmon are facing extensive, anthropogenic pressures, including, but not limited to, stormwater pollution and habitat loss/degradation. A retrofit project could also address the fish-passage issues identified by WDFW on Lorenzan Creek at the inlet to and outlet from P70969. Lorenzan Creek flows under the property as a 278-foot culvert, so a retrofit project could also be part of a greater effort to address water quantity and flooding issues in the area.

References

Fact Sheet Portland Harbor Catch Basins. (2017, September 25). Retrieved from https://www.oregon.gov/deq/FilterDocs/ph-CatchBasins.pdf

GR18 surveyed by WDFW. (May, 2018). Personal communication September 19, 2018.

RCW 90.48.080: Discharge of polluting matter in waters prohibited. (n.d.). Retrieved August 29, 2018, from http://apps.leg.wa.gov/RCW/default.aspx?cite=90.48.080

SalmonScape. (n.d.). Retrieved August 20, 2018, from https://apps.wdfw.wa.gov/salmonscape/map.html

WDFW Fish Passage. (n.d.). Retrieved September 7, 2018, from http://apps.wdfw.wa.gov/fishpassage/