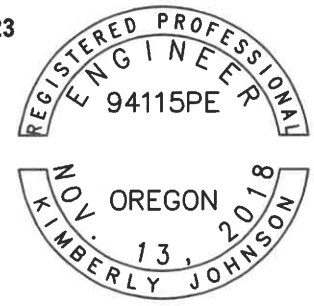
PRELIMINARY STORMWATER MANAGEMENT REPORT

FOR

FAMILY BUILDING BLOCKS
at
NWC of N. 10th Avenue & E. Santiam Street
Stayton, OR.

July 21, 2023



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Contents

APPENDICES

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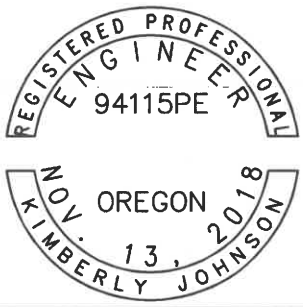
ENGINEER'S CERTFICATION STATEMENT

"I hereby certify that this Drainage Report for Family Building Blocks has been prepared by me or under my direction supervision and complies with the City of Stayton's Public Works Standards and standard engineering practice."



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I. PURPOSE OF REPORT

This report describes the proposed improvements compliance with the City of Stayton Division 607 and 608 Stormwater Management Public Works Design Standards, 2021 Edition.

II. PROJECT DESCRIPTION

The site is located at the NWC of E. Santiam Street and N 10th Avenue in the City of Stayton. The property is bordered by E. Santiam Street to the South, Orchard Court to the west, N. 10th Avenue to the east, and the City of Stayton's public drainage facility to the north.

A. EXISTING CONDITION

The existing site is currently undeveloped, however, based on available records concluded an existing bowling alley was previously developed onsite. The existing bowline alley has since been demolished.
The overall existing site drains from the southwest corner of the site to the northeast corner of the site, towards the City's Public storm drain detention basin.

The existing site is protected by curb on the south, east, and west property lines eliminating any potential site run-on.

The existing site is not located within a FEMA flood zone overlay per FIRM Map 41047C0716G, effective 1/19/2000.

B. PROPOSED CONDITION

The proposed development is a new Family Building Blocks daycare facility, including a new parking lot, new landscape, and a new student playground.

The overall drainage pattern will be slightly altered, due to the site play layout configuration. A basin with an underdrain is being proposed at the southwest corner of the site, that will detain and slowly release runoff out a storm drain connected to the existing City of Stayton's storm drain in Orchard Street.

III. METHODOLOGY

The City of Stayton's Division 607 and 608, Stormwater Quality and Stormwater Quantity Facilities complies with the most current edition of the City of Portland Stormwater Management Manual (SWMM).

Stormwater Quality (Pollution Control) Facilities:

The minimum design criteria shall be met.

MINIMUM DEISGN CRITERIA	
The stormwater quality facilities shall be designed to remove 70 percent of the total suspended solids from 90 percent of the average annual runoff in accordance with the most current edition of the City of Portland Stormwater Management Manual	A basin with an underdrain is being proposed that will be in conformance with this design criteria to the maximum extent practical.
The total suspended solids removal efficiency specifies only the design requirements and is not intended as a basis for performance evaluation or compliance determination of the stormwater quality control facility installed or constructed pursuant to this document	A basin with an underdrain is being proposed that will be in conformance with this design criteria to the maximum extent practical.
If an onsite stormwater quality facility cannot be constructed to treat the runoff from the development's impervious surface, then with City approval, an on- or off-site stormwater quality facility may be designed to treat runoff from an equivalent area of adjacent untreated impervious surfaces	A basin with an underdrain is being proposed therefore this criteria is not applicable.
Facilities shall be designed such that flow from the development is treated off-line from the storm conveyance system and reconnected to upstream flows following treatment. If an off-line facility is not feasible, additional capacity may be required for upstream flow.	A basin with an underdrain is being proposed therefore this criteria is not applicable.
Discharges to sensitive areas shall maintain the pre-development flow rate to the extent necessary to protect the characteristic functions of the sensitive area	This development does not directly discharge into an Environmentally Sensitive Area.
Stormwater quality facilities shall be constructed as part of the public improvements.	Public stormwater improvements are not anticipated
Stormwater quality facilities shall be designed to address the Willamette Basin TMDL pollutants of mercury, temperature, and bacteria.	A basin with an underdrain is being proposed that will be in conformance with this design to the maximum extent practical.

Stormwater Quantity (Flow Control) Facilities:

Stormwater quantity facilities will be required to detain post-developed peak runoff rates from the 2-year, 5-year, 10-year, 50, and 100-year 24-hour storm events to the respective pre-developed peak runoff rates, and the post-developed peak runoff rate for the 25-year storm event will be required to be detained to the 10-year pre-developed peak runoff rate (required release rates). Potential downstream damage due to stormwater quantity facility system failure/overflow may require greater detention requirements or improvements downstream. In no case shall the required release rates increase the flooding conditions downstream.

All stormwater quantity and infiltration facilities shall have emergency overflow (auxiliary outlet) provisions incorporated into the design. Flow capacity of the overflow shall be calculated and shown as supporting information. The emergency overflow must be designed to accommodate the undetained post-developed 100-year 24-hour storm event peak flows. Emergency overflow spillways shall be located in existing soils when feasible and armored with riprap or other approved erosion protection extending to the toe of the embankment.

V. SUMMARY

A basin with an underdrain is being proposed to collect the maximum extent practical of runoff, detain and slowly release the stormwater to not only match the existing pre-development condition runoff for the 2-year, 5-year, 10-year, 25-year, 50-year, and 100-year, but also detain the post-developed peak runoff rate for the 25-year storm event to slowly release to rate less than the 10-year pre-developed peak runoff rate.

The proposed basin with an underdrain will be fully lined due to proximity to existing groundwater. Additionally, a flow control grated inlet will be installed to slowly release the runoff at the calculated rate. A high flow grated inlet will be installed to collect the remaining calculated runoff. Both orifices will connect to a proposed storm drain lateral that will connect to the existing storm drain main in Orchard Court.

Below is a summary of the stormwater calculations, demonstrating the proposed development will be in compliance with the City of Stayton's Division 607 and 608 and the current edition of the City of Portland Stormwater Management Manual (SWMM).

CATCHMENT AND FACILITY TABLE						
CATCHMENT/ FACILITY ID	TOTAL AREA (AC.)	IMPERVIOUS AREA (SF)	PERVIOUS AREA (SF)	OWNERSHIP (PRIVATE/ PUBLIC)	FACILITY TYPE	FOOTPRINT (BOTTOM) SF
A	0.85	65.58%	34.42%	PRIVATE	RAIN GARDEN-FILTRATION	1,323

PRE VS. POST CONSTRUCTION FLOW RATES												
FACILITY ID	PEAK FLOW RATE (CFS)											
	2-YEAR		5-YEAR		10-YEAR		25-YEAR		50-YEAR		100-YEAR	
PROJECT SITE	PRE	POST	PRE	POST	PRE	POST	PRE	POST	PRE	POST	PRE	POST
A	0.07	0.05	0.12	0.05	0.18	0.05	0.24	0.08	0.31	0.13	0.31	0.13