Exhibit “B”
Storm Water Calculations

Pacific Cross Building at Leveton Commons, Tualatin OR

Developer:
RA Gray Construction
PO Box 1000
Sherwood, OR 97140

Site:
Lot 5 of Leveton Commons No. 2
SW 126th Place, North of Leveton Drive
Assessor Map 2S 1W 21A, Tax Lot 3700
Tualatin, Washington County, OR

Preliminary Surface Water Management Report

SISUL ENGINEERING
A Division of Sisul Enterprises, Inc.
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Gladstone, OR 97027
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Narrative:

The development site is a 1.82-acre site located on SW 126th Place, north of SW Leveton Drive in Tualatin, Washington County, OR. The site is Lot 5 of Leveton Commons No. 2 and the tax lot number of the site is T2S, R1W, Section 21A, Tax Lot 3700.

The site is currently undeveloped and the site slopes from north to south at a slope of approximately 2% with steeper slopes on the sides of the side. The vegetation ground cover consists of long grass. An existing storm drain line is located in SW 126th Place, on the west side of the site and a storm drain lateral to serve the site is located in the southwest corner of the site.

The Web Soil Survey indicates that there are two soils types onsite. 21B - Hillsboro Loam and Pits. Hillsboro Loam is in Hydrologic Soil Group B. According to the Web Soil Survey, Pits refers to surface bedrock which does not appear to be the case on this site. Therefore, it will be assumed that the site in the Hillsboro Loam soil group.

The site will be developed with a 100' by 180' building including asphalt driveways, asphalt parking areas, concrete curbs, sidewalks and landscaping. A stormwater treatment facility will be located on the west side of the site.

Existing Drainage

The existing drainage on the site consists of sheet flow across the site from north to south. The site is currently covered with long grass.

Post Developed Drainage

When the site is developed runoff from the building roof, asphalt and sidewalks will be directed into a private storm drain system that will convey the runoff into the new stormwater facility located at the west side of the site.

Water Quantity Requirements

The site is located in the City of Tualatin, which follows the Clean Water Services Standards. Per Clean Water Services Design Standards, Section 4.03, hydromodification is required for sites which create or modify impervious surfaces greater than 1000 square feet. Therefore, hydromodification appears to be required for this site. Based on the hydromodification assessment requirements in Section 4.03, the site appears to be a low risk, medium size project, which requires a category 2 hydromodification approach. Per table 4-7, the following requirements shall be met:

The 2 year Post Developed Runoff Rate shall be reduced to 50% of the 2 year Pre Developed Runoff Rate.

The 5 year Post Developed Runoff Rate shall be reduced to the 5 year Pre Developed Runoff Rate.

The 10 year Post Developed Runoff Rate shall be reduced to the 10 year Pre Developed Runoff Rate.

Water Quality Requirements
Per Clean Water Services Design Standards, Section 4.03, water quality is required for sites which create or modify impervious surfaces greater than 1000 square feet. Therefore, water quality appears to be required for this site.

Stormwater Facility
A new stormwater facility will be located at the west side of the site. A water quality swale will be located in the bottom of the stormwater facility to meet the water quality requirements. Detention storage will be provided above the water quality swale to meet the hydromodification (water quantity) requirements.

Pre-Development Site Conditions:

Total Area:	79,488 sf = 1.82 acres
Pervious Area:	79,488 sf = 1.82 acres

Post-Development Site Conditions:

Total Area:	79,488 sf = 1.82 acres
Pervious Area:	19,385 sf = 0.44 acres
Impervious Area:	60,103 sf = 1.38 acres

Water Quality:

Water quality will be provided by a vegetated water quality swale located in the bottom of the stormwater facility located at the west side of the site. Calculations below will demonstrate that the water quality swale has adequate capacity to treat the water quality flow from the site. The length of the water quality swale is 160 feet.

The impervious area draining into the water quality swale is 60,103 square feet. Based on this area, the water quality flow rate will be calculated.

Onsite Water Quality Volume and Flow Rate: (per 4.08.5, R&O 19-22)

Onsite Impervious Area = 60,103 sf = 138 acres

Water Quality Volume (WQV):

Per CWS, the water quality storm event is 0.36 inches in 4 hours.

$$WQV = \frac{0.36\ (in.) \times Area\ (s.f.)}{12\ (in/ft)} = \frac{0.36\ (in.) \times 60{,}103\ (sq.ft.)}{12\ (in/ft)} = 1{,}803\ cu.\ ft.$$

Water Quality Flow (WQF):

$$WQF = \frac{WQV\ (cu.\ ft)}{4\ (hours)} = \frac{1{,}803\ (cu.\ ft.)}{14{,}400\ (s)} = 0.125\ cfs$$

The HydoCAD program will be used to model the swale and determine the flow depth and velocity.

Pacific Cross *Type IA 24-hr 2 year, 2.5 inch Rainfall=2.50"*
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Summary for Reach 1R: Water Quality Swale

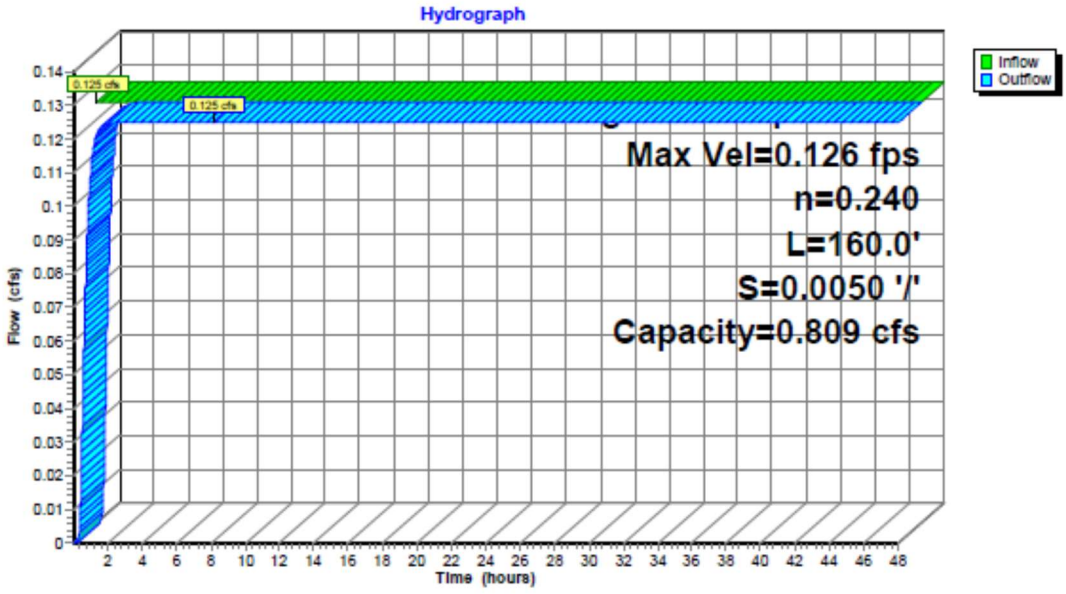
Inflow = 0.125 cfs @ 0.01 hrs, Volume= 21,600 cf, Incl. 0.125 cfs Base Flow
Outflow = 0.125 cfs @ 8.17 hrs, Volume= 21,280 cf, Atten= 0%, Lag= 489.6 min

Routing by Stor-Ind+Trans method, Time Span= 0.01-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.126 fps, Min. Travel Time= 21.2 min
Avg. Velocity = 0.125 fps, Avg. Travel Time= 21.3 min

Peak Storage= 159 cf @ 7.80 hrs
Average Depth at Peak Storage= 0.17' , Surface Width= 6.39'
Bank-Full Depth= 0.50' Flow Area= 3.5 sf, Capacity= 0.809 cfs

5.00' x 0.50' deep channel, n= 0.240
Side Slope Z-value= 4.0 '/' Top Width= 9.00'
Length= 160.0' Slope= 0.0050 '/'
Inlet Invert= 0.80', Outlet Invert= 0.00'

Reach 1R: Water Quality Swale



Per Clean Water Services Design Standards, the swale must have a minimum bottom width of 2-feet, maximum slide slopes of 4:1, a minimum slope of 0.5% and a minimum length of 100 feet. Mannings "n" value = 0.24.

The vegetated water quality swale will have a bottom width of 5.0 feet, 4:1 side slopes, a slope of 0.50% and will be 160 feet long.

Below we list the vegetated swale requirements in section 4.09.4 b & c, R&O 19-22 and demonstrate that they have been met.

CWS Requirements	Actual Swale Values	
Minimum residence time = 9 min.	Actual res. time = 21.3 min	.O.K.
Maximum design depth = 0.5'	Actual water depth = 0.17'	.O.K
Minimum length = 100'	Actual length = 160'	.O.K
Minimum slope = 0.5%	Actual slope = 0.50%	.O.K
Minimum bottom width = 2'	Actual bottom width = 5.0'	.O.K
Maximum 4:1 side slope	Actual side slope = 4:1	.O.K

Water Quantity/Hydromodification:

As stated earlier in the report, hydromodification is required by Clean Water Services. Per table 4-7, the following requirements shall be met:

The 2 year Post Developed Runoff Rate shall be reduced to 50% of the 2 year Pre Developed Runoff Rate.

The 5 year Post Developed Runoff Rate shall be reduced to the 5 year Pre Developed Runoff Rate.

The 10 year Post Developed Runoff Rate shall be reduced to the 10 year Pre Developed Runoff Rate.

Model Pre-Developed Peak Flows:

Pre-Developed Area:

Total Area: 79,488 sf = 1.82 acres
Pervious Area: 76,154 sf = 1.74 acres
Impervious Area (gravel): 3,334 sf = 0.08 acres

Pre-Developed CN values:
(Values from HydroCAD)

Pervious Area CN = 69 (pasture grassland, fair, hydrologic group B)

Time of Concentration:

Sheet Flow: $\frac{0.42\ (n_s * L)^{0.8}}{(P_2)^{0.5} * (S)^{0.4}}$

n_s = roughness coef. = 0.15
L = flow length = 290 feet
P_2 = 2 yr, 24 hr rainfall = 2.5 in
S = slope = 0.0170

Sheet Flow: $\frac{0.42\ (0.15*290)^{0.8}}{(2.5)^{0.5} * (0.0170)^{0.4}}$

Sheet Flow = 27.7 minutes

Time of Concentration = 27.7 mins

Rainfall Depths: (Table 4-4)

2 year 24 Hour Precipitation Depth	2.50 inches
5 year 24 Hour Precipitation Depth	3.10 inches
10 year 24 Hour Precipitation Depth	3.45 inches

2-Year, Pre-Developed Storm Event

(HydroCAD will be used to model the pre-developed storm events.)

Summary for Subcatchment 2S: Pre Developed

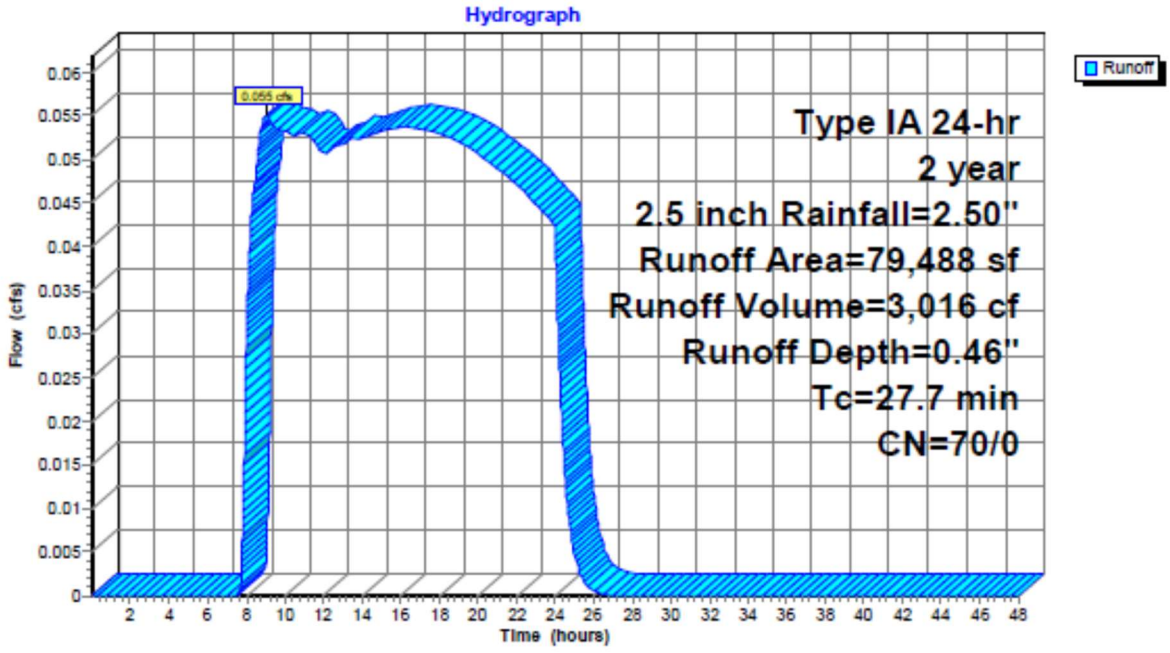
Runoff = 0.055 cfs @ 9.04 hrs, Volume= 3,016 cf, Depth= 0.46"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.01-48.00 hrs, dt= 0.01 hrs
Type IA 24-hr 2 year, 2.5 inch Rainfall=2.50"

Area (sf)	CN	Description
76,154	69	Pasture/grassland/range, Fair, HSG B
3,334	96	Gravel surface, HSG B
79,488	70	Weighted Average
79,488	70	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
27.7					Direct Entry,

Subcatchment 2S: Pre Developed



Per the calculations above, the 2 year pre-developed runoff from the site is 0.055 cfs.

5-Year, Pre-Developed Storm Event

(HydroCAD will be used to model the pre-developed storm events.)

Pacific Cross *Type IA 24-hr 5 year, 3.10 inch Rainfall=3.10"*
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Summary for Subcatchment 2S: Pre Developed

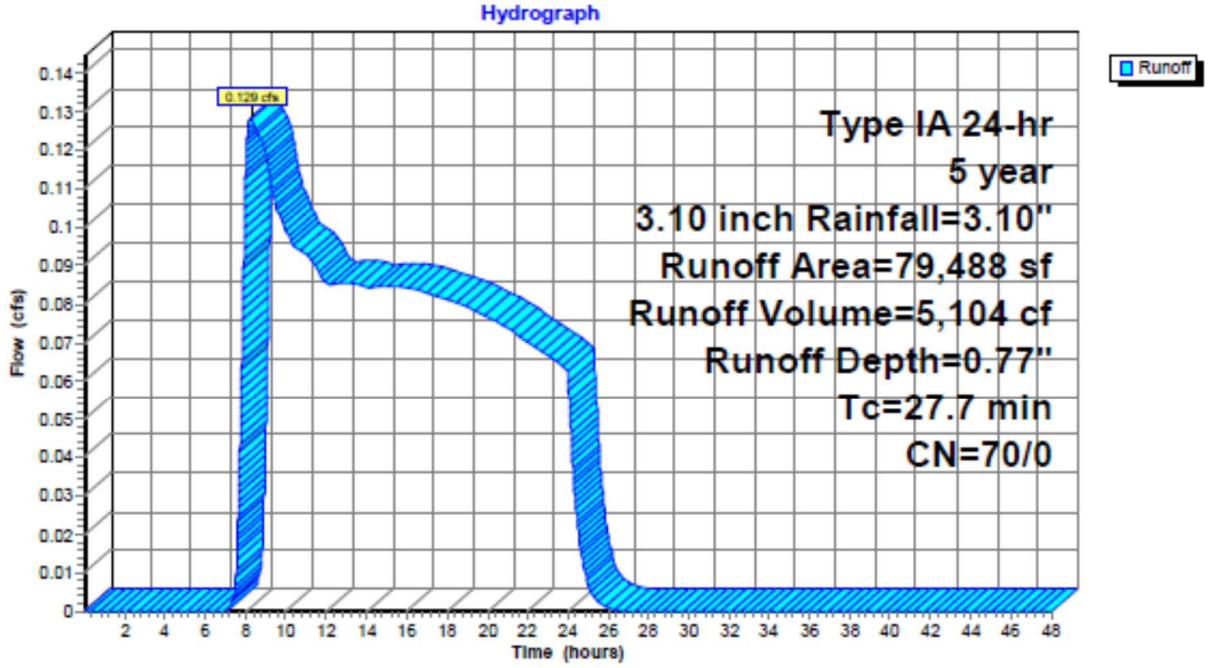
Runoff = 0.129 cfs @ 8.28 hrs, Volume= 5,104 cf, Depth= 0.77"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.01-48.00 hrs, dt= 0.01 hrs
Type IA 24-hr 5 year, 3.10 inch Rainfall=3.10"

Area (sf)	CN	Description
76,154	69	Pasture/grassland/range, Fair, HSG B
3,334	96	Gravel surface, HSG B
79,488	70	Weighted Average
79,488	70	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
27.7					Direct Entry,

Subcatchment 2S: Pre Developed



Per the calculations above, the 5 year pre-developed runoff from the site is 0.129 cfs.

10-Year, Pre-Developed Storm Event

(HydroCAD will be used to model the pre-developed storm events.)

Summary for Subcatchment 2S: Pre Developed

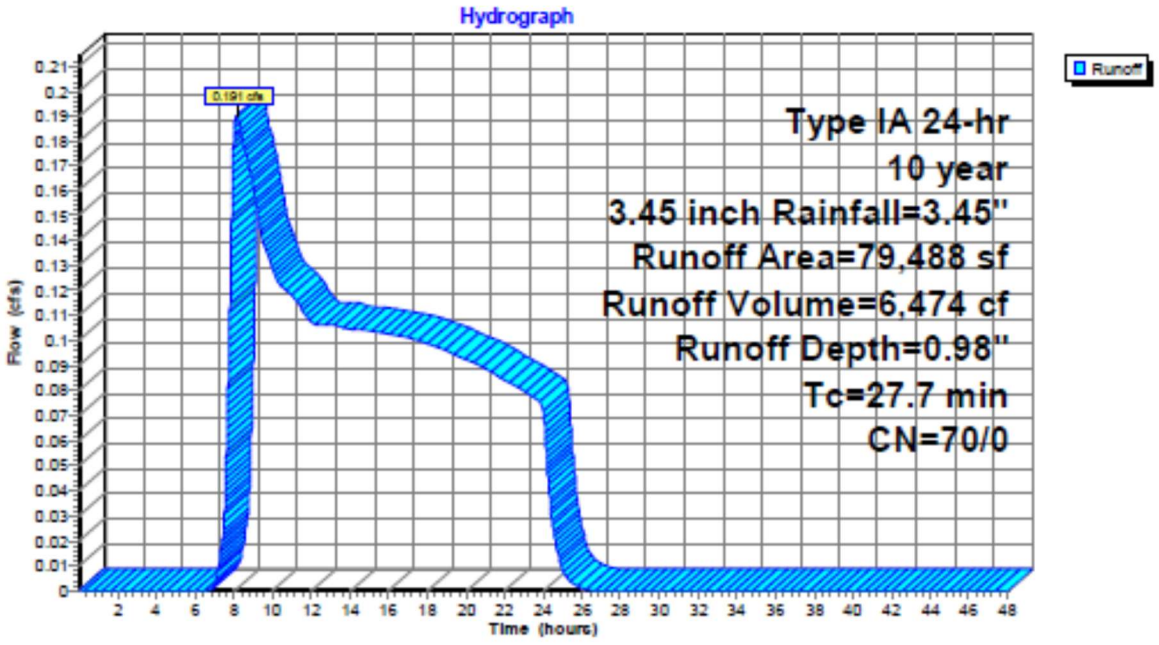
Runoff = 0.191 cfs @ 8.20 hrs, Volume= 6,474 cf, Depth= 0.98"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.01-48.00 hrs, dt= 0.01 hrs
Type IA 24-hr 10 year, 3.45 inch Rainfall=3.45"

Area (sf)	CN	Description
76,154	69	Pasture/grassland/range, Fair, HSG B
3,334	96	Gravel surface, HSG B
79,488	70	Weighted Average
79,488	70	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
27.7					Direct Entry,

Subcatchment 2S: Pre Developed



Per the calculations above, the 10 year pre-developed runoff from the site is 0.191 cfs.

Pre-Developed Storm Event Summary:

Storm	Peak Q, cfs
2 year	0.055 cfs
10 year	0.129 cfs
25 year	0.191 cfs

Model Post Developed Peak Flows:

Post Developed Area:

Total Area: 79,488 sf = 1.82 acres
Pervious Area: 19,385 sf = 0.44 acres
Impervious Area: 60,103 sf = 1.38 acres

Post Developed CN values:
(Values from HydroCAD)

Pervious Area CN = 69 (grass cover, fair, hydrologic group B)
Impervious Area CN = 98 (paved parking, hydrologic group B)

Time of Concentration:
Since the majority of the area is impervious, the minimum time of concentration of 5 minutes will be used.

Time of Concentration = 5.0 mins

Rainfall Depths: (Table 4-4)

2 year 24 Hour Precipitation Depth	2.50 inches
5 year 24 Hour Precipitation Depth	3.10 inches
10 year 24 Hour Precipitation Depth	3.45 inches

2-Year, Post Developed Storm Event – Pervious Area

(HydroCAD will be used to model the post developed storm events.)

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Summary for Subcatchment 3S: Post Developed Pervious Area

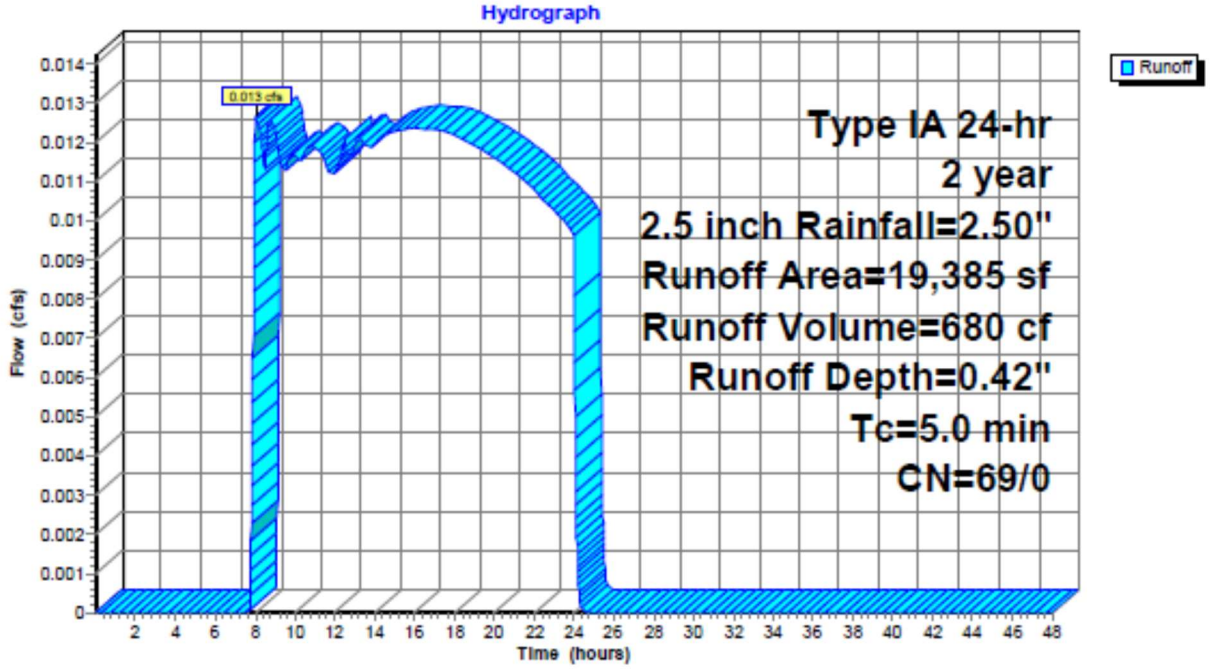
Runoff = 0.013 cfs @ 8.01 hrs, Volume= 680 cf, Depth= 0.42"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.01-48.00 hrs, dt= 0.01 hrs
Type IA 24-hr 2 year, 2.5 inch Rainfall=2.50"

Area (sf)	CN	Description
19,385	69	50-75% Grass cover, Fair, HSG B
19,385	69	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 3S: Post Developed Pervious Area



Per the calculations above, the 2 year post developed runoff from the pervious area is 0.013 cfs.

2-Year, Post Developed Storm Event – Impervious Area

(HydroCAD will be used to model the post developed storm events.)

Summary for Subcatchment 4S: Post Developed Impervious Area

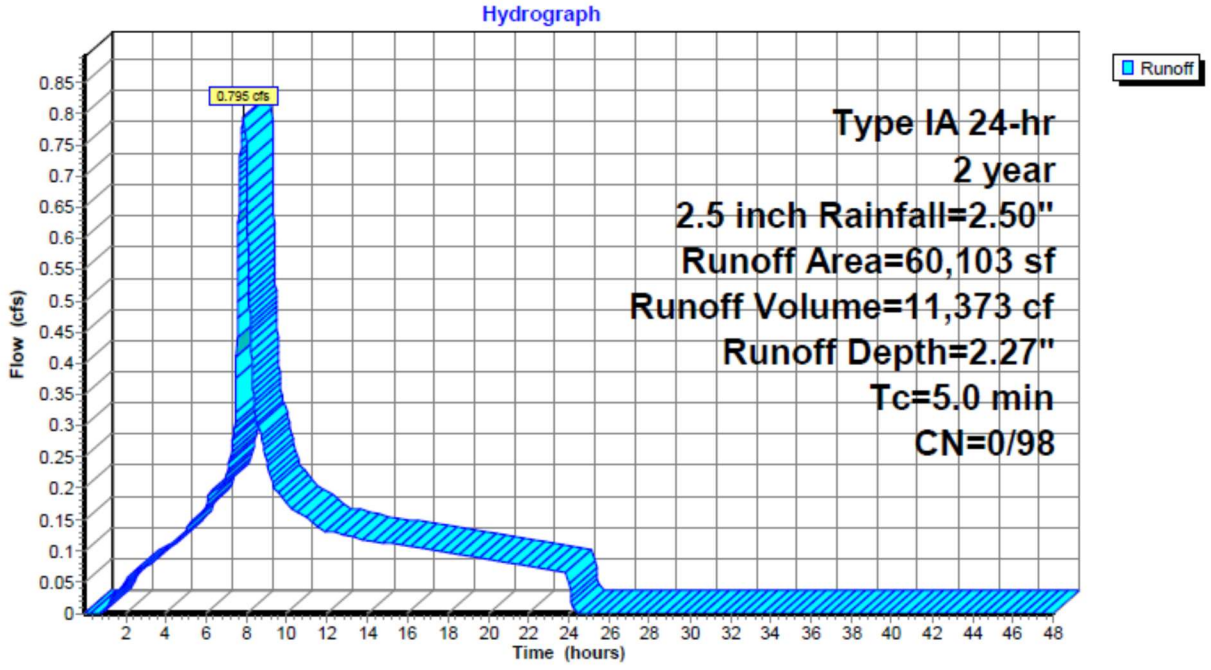
Runoff = 0.795 cfs @ 7.88 hrs, Volume= 11,373 cf, Depth= 2.27"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.01-48.00 hrs, dt= 0.01 hrs
Type IA 24-hr 2 year, 2.5 inch Rainfall=2.50"

Area (sf)	CN	Description
60,103	98	Paved parking, HSG B
60,103	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 4S: Post Developed Impervious Area



Per the calculations above, the 2 year post developed runoff from the impervious area is 0.795 cfs.

5-Year, Post Developed Storm Event – Pervious Area

(HydroCAD will be used to model the post developed storm events.)

Summary for Subcatchment 3S: Post Developed Pervious Area

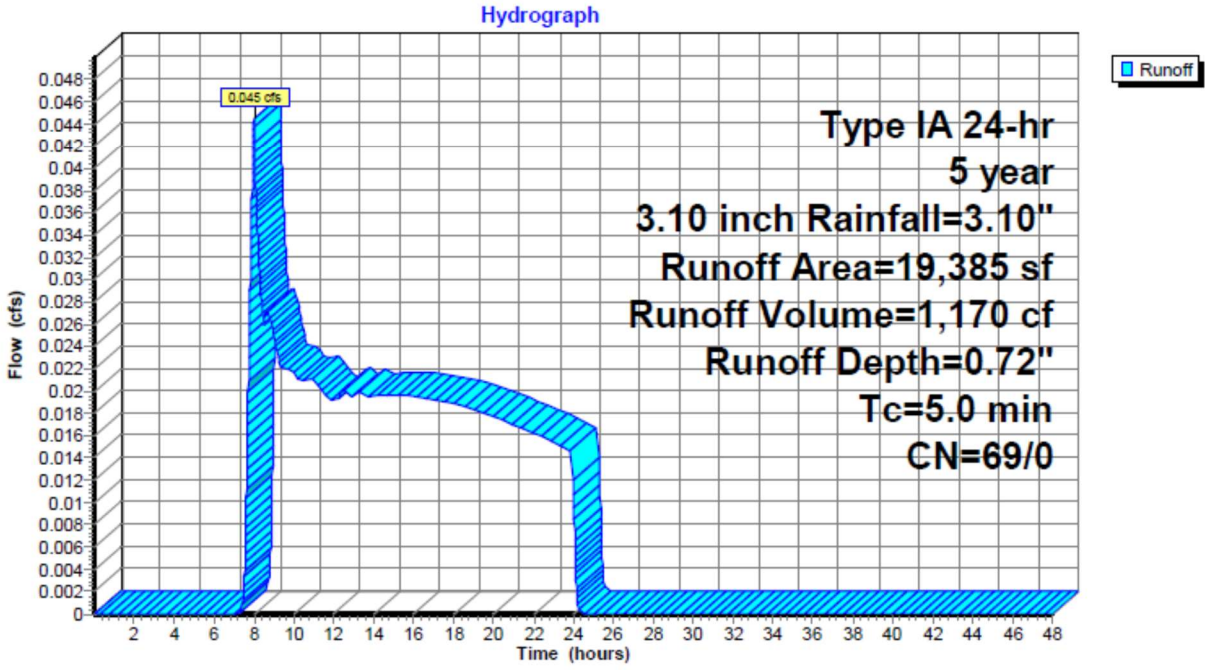
Runoff = 0.045 cfs @ 8.00 hrs, Volume= 1,170 cf, Depth= 0.72"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.01-48.00 hrs, dt= 0.01 hrs
Type IA 24-hr 5 year, 3.10 inch Rainfall=3.10"

Area (sf)	CN	Description
19,385	69	50-75% Grass cover, Fair, HSG B
19,385	69	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 3S: Post Developed Pervious Area



Per the calculations above, the 5 year post developed runoff from the pervious area is 0.045 cfs.

5-Year, Post Developed Storm Event – Impervious Area
(HydroCAD will be used to model the post developed storm events.)

Summary for Subcatchment 4S: Post Developed Impervious Area

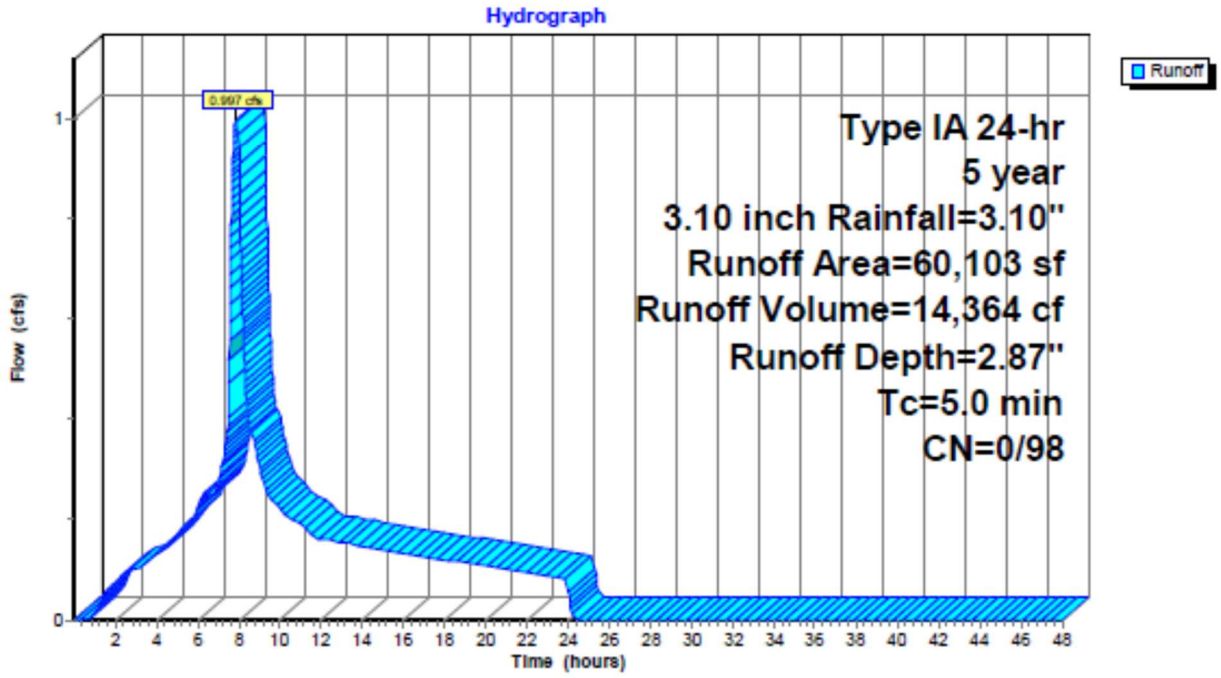
Runoff = 0.997 cfs @ 7.88 hrs, Volume= 14,364 cf, Depth= 2.87"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.01-48.00 hrs, dt= 0.01 hrs
Type IA 24-hr 5 year, 3.10 inch Rainfall=3.10"

Area (sf)	CN	Description
60,103	98	Paved parking, HSG B
60,103	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 4S: Post Developed Impervious Area



Per the calculations above, the 5 year post developed runoff from the impervious area is 0.997 cfs.

10-Year, Post Developed Storm Event – Pervious Area

(HydroCAD will be used to model the post developed storm events.)

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Summary for Subcatchment 3S: Post Developed Pervious Area

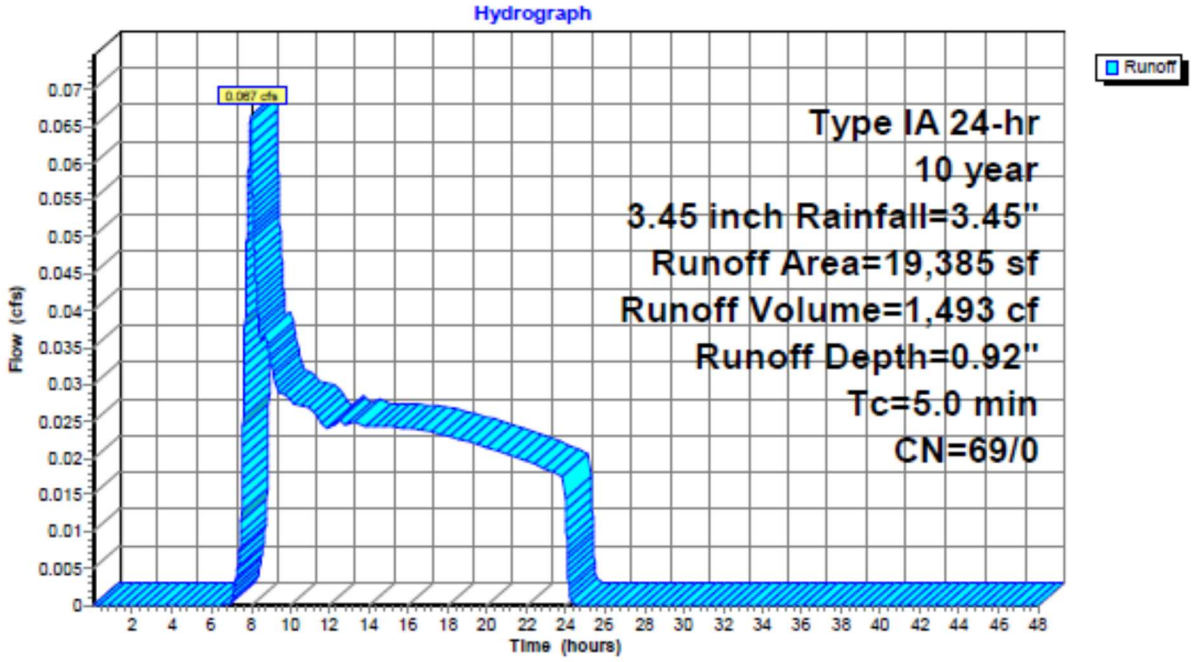
Runoff = 0.067 cfs @ 8.00 hrs, Volume= 1,493 cf, Depth= 0.92"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.01-48.00 hrs, dt= 0.01 hrs
Type IA 24-hr 10 year, 3.45 inch Rainfall=3.45"

Area (sf)	CN	Description
19,385	69	50-75% Grass cover, Fair, HSG B
19,385	69	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 3S: Post Developed Pervious Area



Per the calculations above, the 10 year post developed runoff from the pervious area is 0.067 cfs.

10-Year, Post Developed Storm Event – Impervious Area

(HydroCAD will be used to model the post developed storm events.)

Summary for Subcatchment 4S: Post Developed Impervious Area

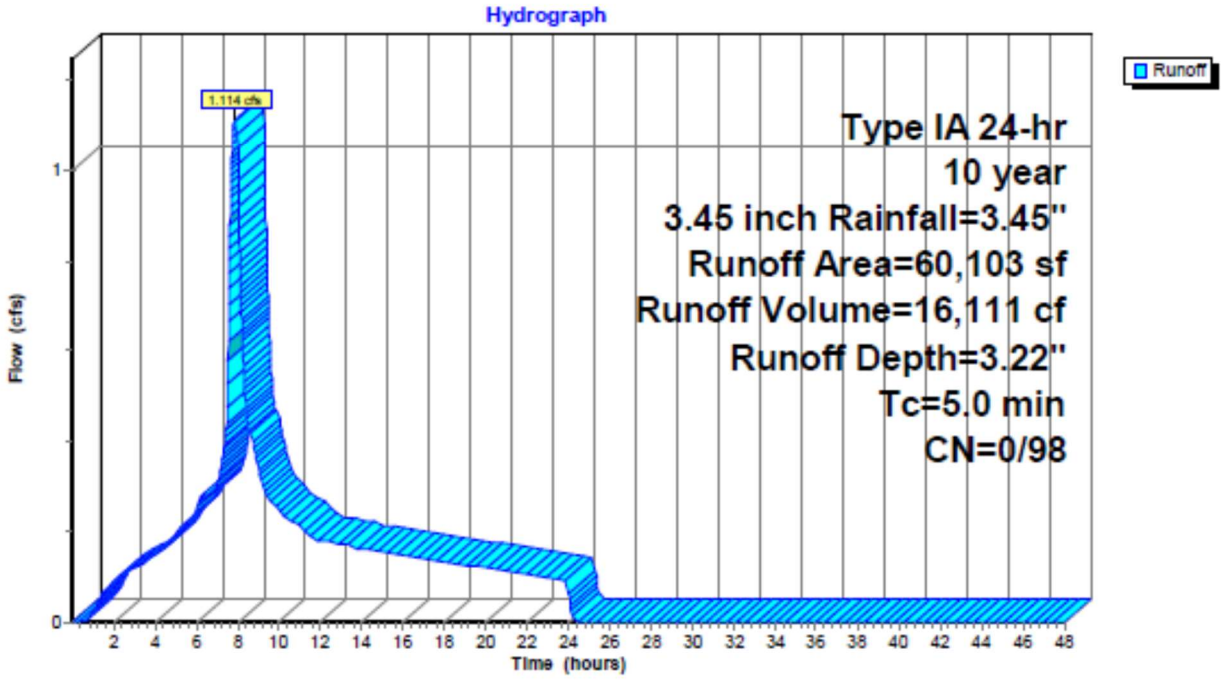
Runoff = 1.114 cfs @ 7.88 hrs, Volume= 16,111 cf, Depth= 3.22"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.01-48.00 hrs, dt= 0.01 hrs
Type IA 24-hr 10 year, 3.45 inch Rainfall=3.45"

Area (sf)	CN	Description
60,103	98	Paved parking, HSG B
60,103	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 4S: Post Developed Impervious Area



Per the calculations above, the 10 year post developed runoff from the impervious area is 1.114 cfs.

Post Developed Storm Event Summary:

Storm Event	Pervious Area Peak Q, cfs	Impervious Area Peak Q, cfs
2 year	0.013 cfs	0.795 cfs
10 year	0.045 cfs	0.997 cfs
25 year	0.067 cfs	1.114 cfs

Water Quantity/Hydromodification Stormwater Facility:

The stormwater facility will consist of a detention pond with a water quality swale in the bottom of the pond. The water quality swale will be in the bottom 1 foot of the pond. There will be 3 feet of detention storage above the water quality swale and 1 foot of freeboard during a 10 year storm event. The flow control structure will have two orifices and a 10” overflow riser.

2-Year, Detention Pond Routing

(HydroCAD will be used to model the detention pond routing.)

Summary for Pond 2P: Stormwater Detention Pond

Inflow Area = 79,488 sf, 75.61% Impervious, Inflow Depth = 1.82" for 2 year, 2.5 inch event
Inflow = 0.802 cfs @ 7.89 hrs, Volume= 12,053 cf
Outflow = 0.024 cfs @ 24.10 hrs, Volume= 3,357 cf, Atten= 97%, Lag= 972.4 min
Primary = 0.024 cfs @ 24.10 hrs, Volume= 3,357 cf

Routing by Stor-Ind method, Time Span= 0.01-48.00 hrs, dt= 0.01 hrs
Peak Elev= 2.64' @ 24.10 hrs Surf.Area= 4,197 sf Storage= 10,658 cf

Plug-Flow detention time= 1,297.4 min calculated for 3,356 cf (28% of inflow)
Center-of-Mass det. time= 951.3 min (1,639.5 - 688.2)

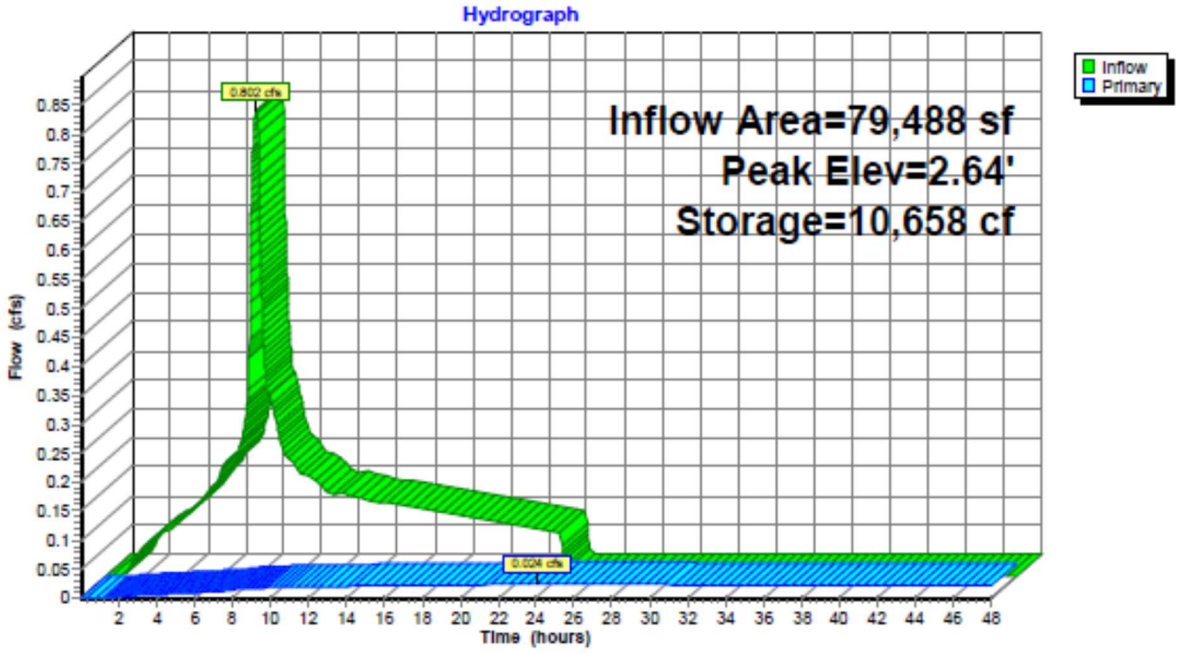
Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	16,480 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
0.00	3,880	0	0
1.00	4,000	3,940	3,940
2.00	4,120	4,060	8,000
3.00	4,240	4,180	12,180
4.00	4,360	4,300	16,480

Device	Routing	Invert	Outlet Devices
#1	Primary	0.00'	**0.750" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#2	Primary	2.70'	**3.000" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Primary	3.00'	**3.1' long Sharp-Crested Vee/Trap Weir** Cv= 2.62 (C= 3.28)

Primary OutFlow Max=0.024 cfs @ 24.10 hrs HW=2.64' (Free Discharge)
- **1=Orifice/Grate** (Orifice Controls 0.024 cfs @ 7.822 fps)
- **2=Orifice/Grate** (Controls 0.000 cfs)
- **3=Sharp-Crested Vee/Trap Weir** (Controls 0.000 cfs)

Pond 2P: Stormwater Detention Pond



Per the calculations above, the 2 year release rate from the detention pond is 0.024 cfs. As calculated earlier in the report, the 2 year pre-developed runoff rate is 0.055 cfs. The requirements are to reduce the 2 year storm event to 50% of the pre-developed runoff rate, which is 0.027 cfs. The 2 year release rate is 0.024 cfs, which is less than the allowable release rate of 0.027 cfs. Therefore, the requirement is met.

5-Year, Detention Pond Routing

(HydroCAD will be used to model the detention pond routing.)

Summary for Pond 2P: Stormwater Detention Pond

Inflow Area = 79,488 sf, 75.61% Impervious, Inflow Depth = 2.35" for 5 year, 3.10 inch event
Inflow = 1.034 cfs @ 7.89 hrs, Volume= 15,533 cf
Outflow = 0.120 cfs @ 20.74 hrs, Volume= 6,386 cf, Atten= 88%, Lag= 770.6 min
Primary = 0.120 cfs @ 20.74 hrs, Volume= 6,386 cf

Routing by Stor-Ind method, Time Span= 0.01-48.00 hrs, dt= 0.01 hrs
Peak Elev= 2.86' @ 20.74 hrs Surf.Area= 4,223 sf Storage= 11,594 cf

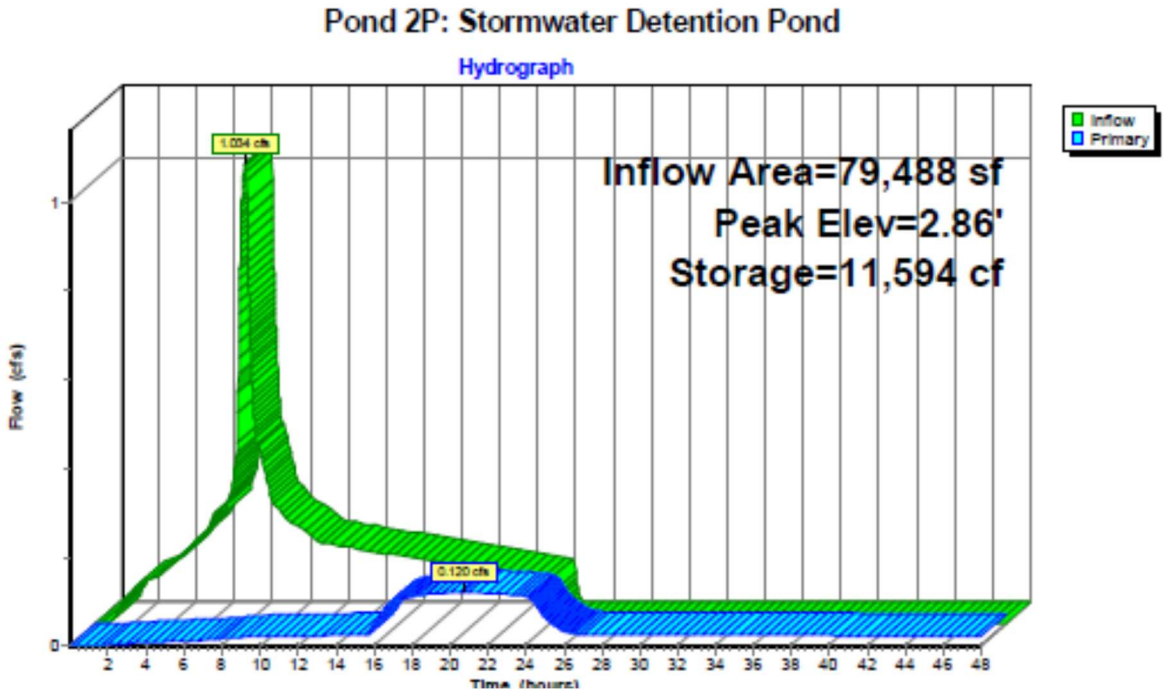
Plug-Flow detention time= 1,065.2 min calculated for 6,385 cf (41% of inflow)
Center-of-Mass det. time= 764.4 min (1,448.6 - 684.2)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	16,480 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
0.00	3,880	0	0
1.00	4,000	3,940	3,940
2.00	4,120	4,060	8,000
3.00	4,240	4,180	12,180
4.00	4,360	4,300	16,480

Device	Routing	Invert	Outlet Devices
#1	Primary	0.00'	**0.750" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#2	Primary	2.70'	**3.000" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Primary	3.00'	**3.1' long Sharp-Crested Vee/Trap Weir** Cv= 2.62 (C= 3.28)

Primary OutFlow Max=0.120 cfs @ 20.74 hrs HW=2.86' (Free Discharge)
- 1=**Orifice/Grate** (Orifice Controls 0.025 cfs @ 8.145 fps)
- 2=**Orifice/Grate** (Orifice Controls 0.095 cfs @ 1.935 fps)
- 3=**Sharp-Crested Vee/Trap Weir** (Controls 0.000 cfs)



Per the calculations above, the 5 year release rate from the detention pond is 0.120 cfs. As calculated earlier in the report, the 5 year pre-developed runoff rate is 0.129 cfs. The requirements are to reduce the 5 year post developed storm event to the 5 year pre-developed runoff rate. The 5 year release rate is 0.120 cfs, which is less than the allowable release rate of 0.129 cfs. Therefore, the requirement is met.

10-Year, Detention Pond Routing

(HydroCAD will be used to model the detention pond routing.)

Summary for Pond 2P: Stormwater Detention Pond

Inflow Area = 79,488 sf, 75.61% Impervious, Inflow Depth = 2.66" for 10 year, 3.45 inch event
Inflow = 1.173 cfs @ 7.89 hrs, Volume= 17,604 cf
Outflow = 0.146 cfs @ 19.41 hrs, Volume= 8,403 cf, Atten= 88%, Lag= 691.0 min
Primary = 0.146 cfs @ 19.41 hrs, Volume= 8,403 cf

Routing by Stor-Ind method, Time Span= 0.01-48.00 hrs, dt= 0.01 hrs
Peak Elev= 2.96' @ 19.41 hrs Surf.Area= 4,235 sf Storage= 12,009 cf

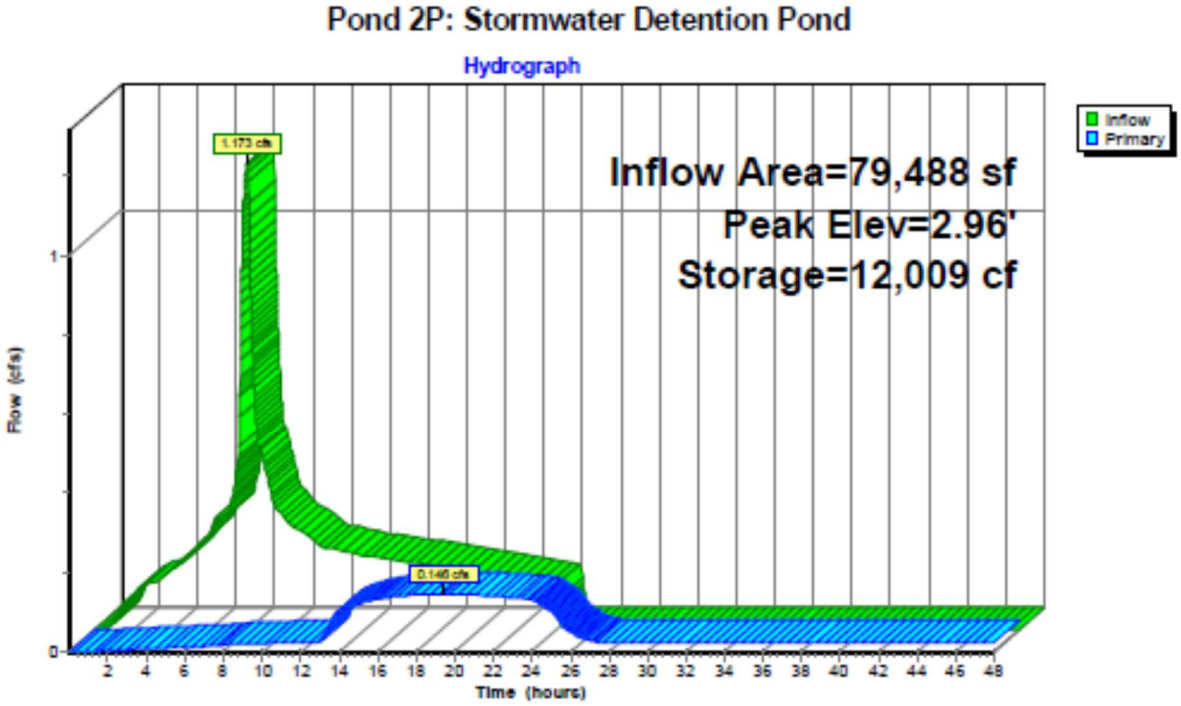
Plug-Flow detention time= 956.6 min calculated for 8,403 cf (48% of inflow)
Center-of-Mass det. time= 676.4 min (1,358.7 - 682.3)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	16,480 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
0.00	3,880	0	0
1.00	4,000	3,940	3,940
2.00	4,120	4,060	8,000
3.00	4,240	4,180	12,180
4.00	4,360	4,300	16,480

Device	Routing	Invert	Outlet Devices
#1	Primary	0.00'	**0.750" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#2	Primary	2.70'	**3.000" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Primary	3.00'	**3.1' long Sharp-Crested Vee/Trap Weir** Cv= 2.62 (C= 3.28)

Primary OutFlow Max=0.146 cfs @ 19.41 hrs HW=2.96' (Free Discharge)
- 1=Orifice/Grate (Orifice Controls 0.025 cfs @ 8.284 fps)
- 2=Orifice/Grate (Orifice Controls 0.120 cfs @ 2.454 fps)
- 3=**Sharp-Crested Vee/Trap Weir** (Controls 0.000 cfs)



Per the calculations above, the 10 year release rate from the detention pond is 0.146 cfs. As calculated earlier in the report, the 10 year pre-developed runoff rate is 0.191 cfs. The requirements are to reduce the 10 year post developed storm event to the 10 year pre-developed runoff rate. The 10 year release rate is 0.146 cfs, which is less than the allowable release rate of 0.191 cfs. Therefore, the requirement is met.

Maintenance Access to Stormwater Facility & Structures:

The stormwater facility is located on the west side of the site, adjacent to the parking lot for the new building. The edge of the stormwater facility is approximately 5' from parking lot, so access to facility will be available from the parking lot. The flow control structure is located on the south end of the stormwater facility and is approximately 25' from the parking lot for access.

Summary:

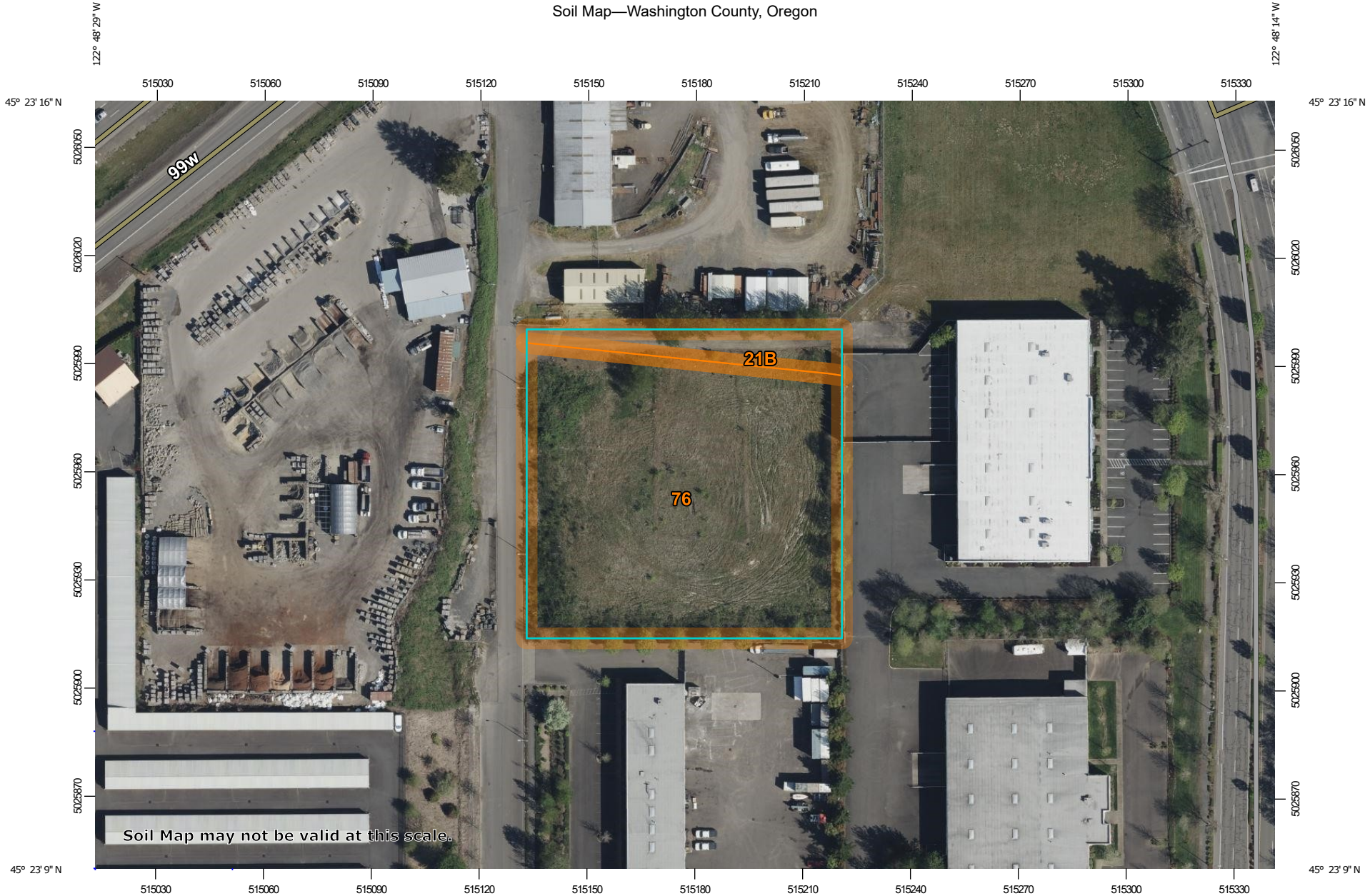
Water quality will be provided with a vegetated water quality swale located in the bottom the pond. The swale will have a length of 160 feet, a bottom width of 5' and 4:1 side slopes. Per the calculations, the hydraulic residence time of the swale is 21.3 minutes, which is greater than the 9 minutes required. Therefore, the water quality requirements are met.

Since the new impervious area is greater than 1,000 square feet, hydro-modification is required. A detention pond will be used to meet the water quantity/ hydromodification requirements. A water quality swale will be located in the bottom 1 foot of the pond. There will be 3 feet of detention storage above the water quality swale and 1 foot of freeboard during a 10 year storm event. The flow control structure will have two orifices and a 10" overflow riser. The bottom orifice will be 0.75 inches in diameter and the upper orifice will be 3 inches in diameter. Below is a table showing that the water quantity/ hydromodification requirements have been met.

Storm Event	Allowable Release Rate	Post Developed Release Rate
2 year	0.027 cfs	0.024 cfs
5 year	0.129 cfs	0.120 cfs
10 year	0.191 cfs	0.146 cfs

Supporting Information:

Web Soil Survey Information
Clean Water Services Table 4-4
Clean Water Services Table 4-7



Map Scale: 1:1,500 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 20 40 80 120

Feet: 0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features

- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Washington County, Oregon
Survey Area Data: Version 21, Oct 27, 2021

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Apr 16, 2021—Apr 18, 2021

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
21B	Hillsboro loam, 3 to 7 percent slopes	0.2	9.6%
76	Pits	1.7	90.4%
Totals for Area of Interest		**1.9**	**100.0%**

Engineering Properties

This table gives the engineering classifications and the range of engineering properties for the layers of each soil in the survey area.

Hydrologic soil group is a group of soils having similar runoff potential under similar storm and cover conditions. The criteria for determining Hydrologic soil group is found in the National Engineering Handbook, Chapter 7 issued May 2007(http://directives.sc.egov.usda.gov/OpenNonWebContent.aspx?content=17757.wba). Listing HSGs by soil map unit component and not by soil series is a new concept for the engineers. Past engineering references contained lists of HSGs by soil series. Soil series are continually being defined and redefined, and the list of soil series names changes so frequently as to make the task of maintaining a single national list virtually impossible. Therefore, the criteria is now used to calculate the HSG using the component soil properties and no such national series lists will be maintained. All such references are obsolete and their use should be discontinued. Soil properties that influence runoff potential are those that influence the minimum rate of infiltration for a bare soil after prolonged wetting and when not frozen. These properties are depth to a seasonal high water table, saturated hydraulic conductivity after prolonged wetting, and depth to a layer with a very slow water transmission rate. Changes in soil properties caused by land management or climate changes also cause the hydrologic soil group to change. The influence of ground cover is treated independently. There are four hydrologic soil groups, A, B, C, and D, and three dual groups, A/D, B/D, and C/D. In the dual groups, the first letter is for drained areas and the second letter is for undrained areas.

The four hydrologic soil groups are described in the following paragraphs:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

Depth to the upper and lower boundaries of each layer is indicated.

Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter. "Loam," for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If the content of particles coarser than sand is 15 percent or more, an appropriate modifier is added, for example, "gravelly."

Classification of the soils is determined according to the Unified soil classification system (ASTM, 2005) and the system adopted by the American Association of State Highway and Transportation Officials (AASHTO, 2004).

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to particle-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as PT. Soils exhibiting engineering properties of two groups can have a dual classification, for example, CL-ML.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of particle-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection.

If laboratory data are available, the A-1, A-2, and A-7 groups are further classified as A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, or A-7-6. As an additional refinement, the suitability of a soil as subgrade material can be indicated by a group index number. Group index numbers range from 0 for the best subgrade material to 20 or higher for the poorest.

Percentage of rock fragments larger than 10 inches in diameter and 3 to 10 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages are estimates determined mainly by converting volume percentage in the field to weight percentage. Three values are provided to identify the expected Low (L), Representative Value (R), and High (H).

Percentage (of soil particles) passing designated sieves is the percentage of the soil fraction less than 3 inches in diameter based on an ovendry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in nearby areas and on estimates made in the field. Three values are provided to identify the expected Low (L), Representative Value (R), and High (H).

Liquid limit and *plasticity index* (Atterberg limits) indicate the plasticity characteristics of a soil. The estimates are based on test data from the survey area or from nearby areas and on field examination. Three values are provided to identify the expected Low (L), Representative Value (R), and High (H).

References:

American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.

American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.

Report—Engineering Properties

Absence of an entry indicates that the data were not estimated. The asterisk '*' denotes the representative texture; other possible textures follow the dash. The criteria for determining the hydrologic soil group for individual soil components is found in the National Engineering Handbook, Chapter 7 issued May 2007(http://directives.sc.egov.usda.gov/OpenNonWebContent.aspx?content=17757.wba). Three values are provided to identify the expected Low (L), Representative Value (R), and High (H).

Engineering Properties–Washington County, Oregon														
Map unit symbol and soil name	Pct. of map unit	Hydrologic group	Depth	USDA texture	Classification		Pct Fragments		Percentage passing sieve number—				Liquid limit	Plasticity index
					Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*
21B—Hillsboro loam, 3 to 7 percent slopes														
Hillsboro	90	B	0-15	Loam	ML	A-4	0- 0- 0	0- 0- 0	100-100 -100	100-100 -100	95-98-100	75-83-90	30-33 -35	NP-3 -5
			15-48	Loam, silt loam	ML	A-4	0- 0- 0	0- 0- 0	100-100 -100	100-100 -100	95-98-100	75-83-90	30-33 -35	5-8 -10
			48-57	Fine sandy loam	SM	A-2, A-4	0- 0- 0	0- 0- 0	100-100 -100	100-100 -100	95-98-100	30-40-50	20-25 -30	NP-3 -5
			57-81	Loamy fine sand, fine sand	SM	A-2	0- 0- 0	0- 0- 0	100-100 -100	100-100 -100	65-73-80	20-28-35	20-23 -25	NP-3 -5

Data Source Information

Soil Survey Area: Washington County, Oregon
Survey Area Data: Version 21, Oct 27, 2021

Physical Soil Properties

This table shows estimates of some physical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated.

Particle size is the effective diameter of a soil particle as measured by sedimentation, sieving, or micrometric methods. Particle sizes are expressed as classes with specific effective diameter class limits. The broad classes are sand, silt, and clay, ranging from the larger to the smaller.

Sand as a soil separate consists of mineral soil particles that are 0.05 millimeter to 2 millimeters in diameter. In this table, the estimated sand content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

Silt as a soil separate consists of mineral soil particles that are 0.002 to 0.05 millimeter in diameter. In this table, the estimated silt content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

Clay as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In this table, the estimated clay content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of sand, silt, and clay affects the physical behavior of a soil. Particle size is important for engineering and agronomic interpretations, for determination of soil hydrologic qualities, and for soil classification.

The amount and kind of clay affect the fertility and physical condition of the soil and the ability of the soil to adsorb cations and to retain moisture. They influence shrink-swell potential, saturated hydraulic conductivity (Ksat), plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earthmoving operations.

Moist bulk density is the weight of soil (ovendry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at 1/3- or 1/10-bar (33kPa or 10kPa) moisture tension. Weight is determined after the soil is dried at 105 degrees C. In the table, the estimated moist bulk density of each soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute linear extensibility, shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water and roots. Depending on soil texture, a bulk density of more than 1.4 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

Saturated hydraulic conductivity (Ksat) refers to the ease with which pores in a saturated soil transmit water. The estimates in the table are expressed in terms of micrometers per second. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Saturated hydraulic conductivity (Ksat) is considered in the design of soil drainage systems and septic tank absorption fields.

Available water capacity refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in inches of water per inch of soil for each soil layer. The capacity varies, depending on soil properties that affect retention of water. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

Linear extensibility refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. It is an expression of the volume change between the water content of the clod at 1/3- or 1/10-bar tension (33kPa or 10kPa tension) and oven dryness. The volume change is reported in the table as percent change for the whole soil. The amount and type of clay minerals in the soil influence volume change.

Linear extensibility is used to determine the shrink-swell potential of soils. The shrink-swell potential is low if the soil has a linear extensibility of less than 3 percent; moderate if 3 to 6 percent; high if 6 to 9 percent; and very high if more than 9 percent. If the linear extensibility is more than 3, shrinking and swelling can cause damage to buildings, roads, and other structures and to plant roots. Special design commonly is needed.

Organic matter is the plant and animal residue in the soil at various stages of decomposition. In this table, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter. The content of organic matter in a soil can be maintained by returning crop residue to the soil.

Organic matter has a positive effect on available water capacity, water infiltration, soil organism activity, and tilth. It is a source of nitrogen and other nutrients for crops and soil organisms.

Erosion factors are shown in the table as the K factor (Kw and Kf) and the T factor. Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and Ksat. Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

Erosion factor Kw indicates the erodibility of the whole soil. The estimates are modified by the presence of rock fragments.

Erosion factor Kf indicates the erodibility of the fine-earth fraction, or the material less than 2 millimeters in size.

Erosion factor T is an estimate of the maximum average annual rate of soil erosion by wind and/or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

Wind erodibility groups are made up of soils that have similar properties affecting their susceptibility to wind erosion in cultivated areas. The soils assigned to group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible. The groups are described in the "National Soil Survey Handbook."

Wind erodibility index is a numerical value indicating the susceptibility of soil to wind erosion, or the tons per acre per year that can be expected to be lost to wind erosion. There is a close correlation between wind erosion and the texture of the surface layer, the size and durability of surface clods, rock fragments, organic matter, and a calcareous reaction. Soil moisture and frozen soil layers also influence wind erosion.

Reference:
United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. (http://soils.usda.gov)

LEVETON COMMONS NO. 2

RECORDED AS DOCUMENT NO. 2006001389

SITUATED IN THE NORTHEAST 1/4 OF SECTION 21 AND THE NORTHWEST 1/4 OF SECTION 22,
TOWNSHIP 2 SOUTH, RANGE 1 WEST, WILLAMETTE MERIDIAN,
CITY OF TUALATIN, WASHINGTON COUNTY, OREGON
DECEMBER 14, 2005

SCALE: 1"=100'

REGISTERED PROFESSIONAL LAND SURVEYOR
OREGON
JULY 25, 1980
GARY R. ANDERSON
2434

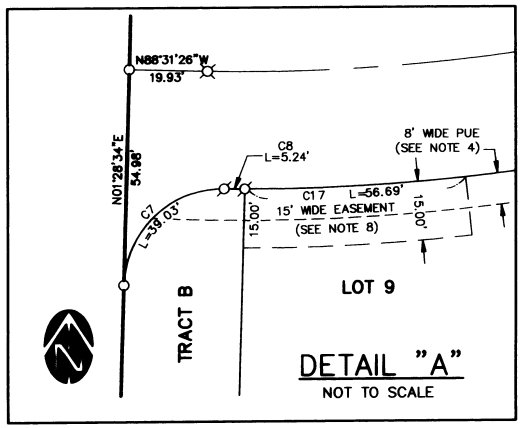
12-31-07
RENEWAL DATE

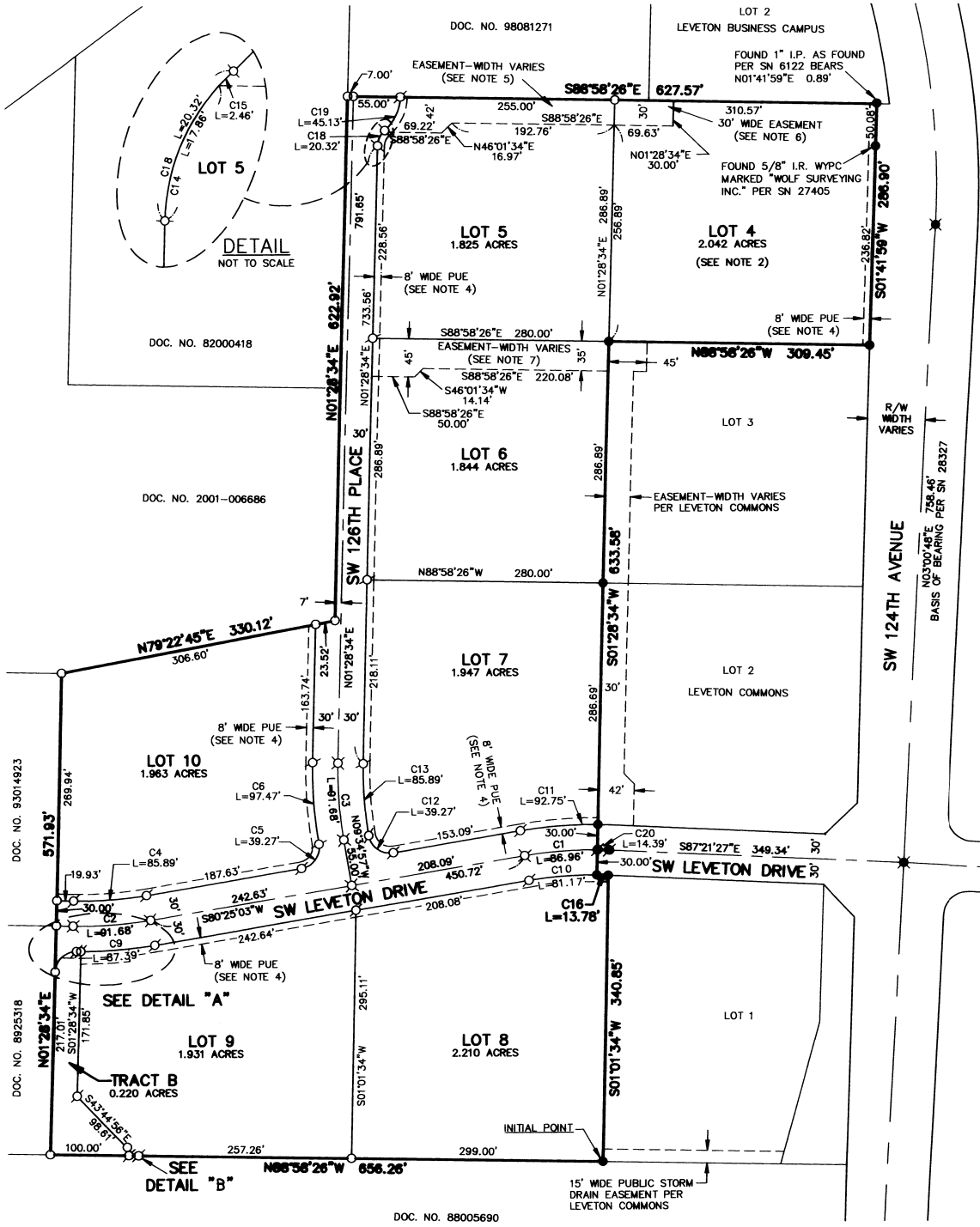
NARRATIVE

THE PURPOSE OF THIS PLAT IS TO SUBDIVIDE THE PROPERTY AS SHOWN. THE EXTERIOR BOUNDARY IS BASED ON SN 28327 AND THE PLAT OF LEVETON COMMONS. MY BASIS OF BEARING IS BETWEEN FOUND MONUMENTS ON THE CENTERLINE OF SW 124TH AVENUE AS SHOWN AND NOTED, HOLDING THE RECORD BEARING PER SN 28327.

CURVE TABLE

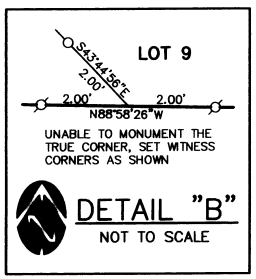
CURVE	RADIUS	DELTA	LENGTH	CHORD BEARING	CHORD LENGTH
C1	475.00'	10°29'21"	86.96'	S85°39'44"W	86.84'
C2	475.00'	11°03'31"	91.68'	N85°56'48"E	91.54'
C3	475.00'	11°03'31"	91.68'	S04°03'12"E	91.54'
C4	445.00'	11°03'31"	85.89'	N85°56'48"E	85.75'
C5	25.00'	90°00'00"	39.27'	N35°25'03"E	35.36'
C6	505.00'	11°03'31"	97.47'	S04°03'12"E	97.32'
C7	25.00'	89°27'05"	39.03'	S46°12'06"W	35.19'
C8	505.00'	0°35'40"	5.24'	S89°22'12"E	5.24'
C9	505.00'	9°54'55"	87.39'	N85°22'31"E	87.28'
C10	445.00'	10°27'03"	81.17'	S85°38'35"W	81.06
C11	505.00'	10°31'23"	92.75'	S85°40'44"W	92.62'
C12	25.00'	90°00'00"	39.27'	S54°34'57"E	35.36'
C13	445.00'	11°03'31"	85.89'	S04°03'12"E	85.75'
C14	25.00'	40°55'34"	17.86'	N21°56'20"E	17.48'
C15	25.00'	5°38'29"	2.46'	N45°13'22"E	2.46'
C16	445.00'	1°46'27"	13.78'	S88°14'41"E	13.78'
C17	505.00'	6°25'56"	56.69'	N87°07'01"E	56.66'
C18	25.00'	46°34'03"	20.32'	N24°45'35"E	19.76'
C19	55.00'	47°01'03"	45.13'	N24°32'05"E	43.88'
C20	475.00'	1°44'09"	14.39'	N88°13'31"W	14.39'





LEGEND

○	SET 5/8" X 30" IRON ROD WYPC MARKED "WESTLAKE CONSULTANTS"
⊠	SET 5/8" X 30" IRON ROD WITH 1-1/2" ALUMINUM CAP MARKED "WESTLAKE CONSULTANTS, INC." TO BE POST-MONUMENTED WITHIN THE TIME SPECIFIED IN THE SURVEYOR'S CERTIFICATE SET ON _____
⊠	SET 5/8" X 30" IRON ROD WITH YELLOW PLASTIC CAP MARKED "WESTLAKE CONSULTANTS" TO BE POST-MONUMENTED WITHIN THE TIME SPECIFIED IN THE SURVEYOR'S CERTIFICATE SET ON _____
●	FOUND 5/8" IRON ROD WYPC MARKED "WESTLAKE CONSULTANTS" PER LEVETON COMMONS, UNLESS NOTED OTHERWISE
⊠	FOUND 5/8" IRON ROD WITH ALUMINUM CAP MARKED "CH2MHILL PLS 2692" PER SN 28125
⊠	FOUND 5/8" IRON ROD WITH ALUMINUM CAP MARKED "WESTLAKE CONSULTANTS" PER LEVETON COMMONS
WYPC	WITH YELLOW PLASTIC CAP
R/W	RIGHT-OF-WAY
SN	SURVEY NUMBER, WASHINGTON COUNTY SURVEY RECORDS
PUE	PUBLIC UTILITY EASEMENT



SURVEYED BY:
WESTLAKE CONSULTANTS, INC.
15115 S.W. SEQUOIA PARKWAY, SUITE 150
TIGARD, OREGON 97224
(503) 684-0652

SHEET 1 OF 2

485-07(D)

48507F.DWG

LEVETON COMMONS NO. 2

RECORDED AS DOCUMENT NO. 200600 1389

SITUATED IN THE NORTHEAST 1/4 OF SECTION 21 AND THE NORTHWEST 1/4 OF SECTION 22,
TOWNSHIP 2 SOUTH, RANGE 1 WEST, WILLAMETTE MERIDIAN,
CITY OF TUALATIN, WASHINGTON COUNTY, OREGON
DECEMBER 14, 2005

SURVEYOR'S CERTIFICATE

I, GARY R. ANDERSON, HEREBY CERTIFY THAT I HAVE CORRECTLY SURVEYED AND MARKED WITH PROPER MONUMENTS THE LAND REPRESENTED ON THE ANNEXED MAP OF "LEVETON COMMONS NO. 2," THE BOUNDARIES OF WHICH BEING DESCRIBED AS FOLLOWS:

A TRACT OF LAND SITUATED IN THE NORTHEAST QUARTER OF SECTION 21 AND THE NORTHWEST QUARTER OF SECTION 22, TOWNSHIP 2 SOUTH, RANGE 1 WEST OF THE WILLAMETTE MERIDIAN, IN THE CITY OF TUALATIN, WASHINGTON COUNTY, OREGON, BEING A PORTION OF THOSE TRACTS OF LAND CONVEYED TO HENRIKSEN PROPERTIES, LLC, BY DEED DOCUMENT NUMBERS 97093490 AND 99010543, WASHINGTON COUNTY DEED RECORDS, ALSO BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT THE INITIAL POINT, BEING A 5/8" X 30" IRON ROD WITH A YELLOW PLASTIC CAP MARKED "WESTLAKE CONSULTANTS" SET AT THE SOUTHWEST CORNER OF LOT 1, LEVETON COMMONS, SAID POINT BEING ALSO ON THE NORTHERLY LINE OF THAT TRACT OF LAND CONVEYED TO GRIMM'S FUEL CO., AN OREGON CORPORATION, BY DEED DOCUMENT NO. 8805690; THENCE ALONG SAID NORTHERLY LINE NORTH 88°58'26" WEST, 656.26 FEET TO THE SOUTHEAST CORNER OF THAT TRACT OF LAND CONVEYED TO R.G. GRIMM, J.D. GRIM, M.D. GRIMM AND D.F. GRIMM BY DEED DOCUMENT NO. 8925318; THENCE ALONG THE WESTERLY LINE OF SAID GRIMM TRACT AND THE WESTERLY LINE OF THAT TRACT OF LAND CONVEYED TO CONSTRUCTION EQUIPMENT COMPANY BY DEED DOCUMENT NO. 93014923, NORTH 01°28'34" EAST, 571.93 FEET TO THE SOUTHWEST CORNER OF THAT TRACT OF LAND CONVEYED TO G.L. INGRAM BY DEED DOCUMENT NO. 2001-006686; THENCE ALONG THE SOUTH LINE OF SAID INGRAM TRACT, NORTH 79°22'45" EAST, 330.12 FEET TO THE EASTERLY LINE OF SAID INGRAM TRACT; THENCE ALONG SAID EASTERLY LINE, AND THE EASTERLY LINE OF THAT TRACT OF LAND CONVEYED TO L.G. & M.I. SPEIGHT BY DEED DOCUMENT NO. 82000418, NORTH 01°28'34" EAST, 622.92 FEET; THENCE SOUTH 88°58'26" EAST, 627.57 FEET TO THE WESTERLY RIGHT OF WAY LINE OF SW 124TH AVENUE (VARIABLE WIDTH); THENCE ALONG SAID RIGHT OF WAY LINE SOUTH 01°41'59" WEST, 286.90 FEET TO THE NORTHEAST CORNER OF LOT 3, LEVETON COMMONS; THENCE ALONG THE NORTHERLY LINE OF SAID LOT 3, NORTH 88°58'26" WEST, 309.45 FEET TO THE NORTHWEST CORNER THEREOF; THENCE ALONG THE WESTERLY LINE OF SAID LOT 3 AND THE SOUTHERLY EXTENSION THEREOF SOUTH 01°28'34" WEST, 633.58 FEET TO THE SOUTHERLY RIGHT-OF-WAY LINE OF SW LEVETON DRIVE; THENCE ALONG SAID SOUTHERLY RIGHT-OF-WAY LINE 13.78 FEET THROUGH THE ARC OF A CIRCULAR CURVE TO THE RIGHT, SAID CURVE HAVING A RADIUS OF 445.00 FEET, A CENTRAL ANGLE OF 01°46'27", A CHORD BEARING OF SOUTH 88°14'41" EAST AND A CHORD DISTANCE OF 13.78 FEET TO THE NORTHWEST CORNER OF LOT 1, LEVETON COMMONS; THENCE ALONG THE WESTERLY LINE OF SAID LOT 1 SOUTH 01°01'34" WEST, 340.85 FEET TO THE SOUTHWEST CORNER THEREOF AND THE INITIAL POINT.

CONTAINS 15.825 ACRES, MORE OR LESS.

AS PER O.R.S. 92.070 (2), I ALSO CERTIFY THAT THE POSTMONUMENTATION OF THE REMAINING CORNERS SHALL BE ACCOMPLISHED WITHIN 90 CALENDAR DAYS FOLLOWING COMPLETION OF PAVING IMPROVEMENTS OR ONE YEAR FOLLOWING THE RECORDATION OF THE PLAT, WHICHEVER COMES FIRST, IN ACCORDANCE WITH O.R.S. 92.060.

REGISTERED
PROFESSIONAL
LAND SURVEYOR

OREGON
JULY 25, 1990
GARY R. ANDERSON
2434

12-31-07
RENEWAL DATE

REMAINING CORNER MONUMENTATION

IN ACCORDANCE WITH O.R.S. 92.070, THE REMAINING CORNERS OF THIS SUBDIVISION HAVE BEEN CORRECTLY SET WITH PROPER MONUMENTS. AN AFFIDAVIT HAS BEEN PREPARED REGARDING THE SETTING OF SAID MONUMENTS AND IS RECORDED IN DOCUMENT NO. _____, WASHINGTON COUNTY DEED RECORDS.

APPROVED THIS____DAY OF_____, 200___.

_____
WASHINGTON COUNTY SURVEYOR

DECLARATION

KNOW ALL MEN BY THESE PRESENTS, THAT HENRIKSEN PROPERTIES, LLC, AN OREGON LIMITED LIABILITY CORPORATION, IS THE OWNER OF THE LAND REPRESENTED ON THE ANNEXED MAP OF "LEVETON COMMONS NO. 2", AND MORE PARTICULARLY DESCRIBED IN THE SURVEYOR'S CERTIFICATE, AND HAS CAUSED THE SAME TO BE SUBDIVIDED AND PLATTED INTO LOTS AND TRACTS, AND HEREBY DEDICATES ADDITIONAL RIGHT-OF-WAY TO THE PUBLIC FOR PUBLIC USE AND HEREBY GRANTS ALL EASEMENTS AS SHOWN OR NOTED HEREON. TRACT "B" IS HEREBY CONVEYED TO THE CITY OF TUALATIN.

LYNN S. HENRIKSEN MANAGER

ACKNOWLEDGMENT

STATE OF OREGON)
) SS
COUNTY OF WASHINGTON)

THIS INSTRUMENT WAS ACKNOWLEDGED BEFORE ME ON 12-15-05
BY LYNN S. HENRIKSEN AS MANAGER OF HENRIKSEN PROPERTIES, LLC.

NOTARY SIGNATURE
Vicki Gillespie
NOTARY PUBLIC FOR OREGON

COMMISSION NO.: 386760

MY COMMISSION EXPIRES: 12.8.08 December 08, 2008

NOTES

1. THIS PLAT IS SUBJECT TO THE CONDITIONS OF APPROVAL CONTAINED IN THE CITY OF TUALATIN, CASE FILE NUMBER SB-03-01 FOR LEVETON COMMONS, DATED JULY 18, 2003.

2. THERE SHALL BE NO DIRECT MOTOR VEHICLE ACCESS TO OR FROM LOT 4 ONTO SW 124TH AVENUE UNLESS AUTHORIZED BY THE GOVERNING BODY HAVING JURISDICTION OF SAID ROAD.

3. TRACT "B" IS DESIGNATED AS A STORM WATER FACILITY AND SHALL BE OWNED AND MAINTAINED BY THE CITY OF TUALATIN.

4. THERE SHALL BE AN 8.0 FOOT WIDE PUBLIC UTILITY EASEMENT ALONG THE FRONTAGE OF ALL LOTS AND TRACTS AS SHOWN AND NOTED.

5. LOT 5 IS SUBJECT TO AN EASEMENT OF VARIABLE WIDTH, AS SHOWN, FOR THE PURPOSE OF PUBLIC UTILITIES, EMERGENCY VEHICLE ACCESS AND ACCESS BENEFITING LOT 4 OF THIS PLAT AND LOT 2 OF LEVETON BUSINESS CAMPUS.

6. LOT 4 IS SUBJECT TO A 30.0 FOOT WIDE EASEMENT, AS SHOWN, FOR THE PURPOSE OF PUBLIC UTILITIES, EMERGENCY VEHICLE ACCESS AND ACCESS BENEFITING LOT 2 OF LEVETON BUSINESS CAMPUS.

7. LOT 6 IS SUBJECT TO AN EASEMENT OF VARIABLE WIDTH, AS SHOWN, FOR THE PURPOSE OF PUBLIC UTILITIES, EMERGENCY VEHICLE ACCESS AND ACCESS BENEFITING LOT 7 OF THIS PLAT AND LOTS 2 AND 3 OF LEVETON COMMONS.

8. LOT 9 IS SUBJECT TO A 15.0 FOOT WIDE ACCESS EASEMENT AS SHOWN. SAID EASEMENT BENEFITS THE CITY OF TUALATIN FOR ACCESS TO TRACT "B".

CITY OF TUALATIN APPROVALS

APPROVED THIS 27TH DAY OF December, 2005,
CITY OF TUALATIN MAYOR

BY: _____

ATTEST THIS 27TH DAY OF December 2005,
CITY OF TUALATIN RECORDER

BY: Steve Wheeler

WASHINGTON COUNTY APPROVALS

APPROVED THIS 27TH DAY OF Dec., 2005
WASHINGTON COUNTY SURVEYOR

BY: _____

APPROVED THIS 27th DAY OF December, 2005
WASHINGTON COUNTY BOARD OF COMMISSIONERS

BY: Kathy Lehtola, Director, L.U.T.

APPROVED THIS 5TH DAY OF JAN, 2006
DIRECTOR OF ASSESSMENT AND TAXATION
(WASHINGTON COUNTY ASSESSOR)

BY: Paul A. Kaufman

ATTEST THIS 5th DAY OF JAN, 2006
DIRECTOR OF ASSESSMENT AND TAXATION
EX-OFFICIO COUNTY CLERK

BY: Janice Gregory
DEPUTY

STATE OF OREGON)
) SS
COUNTY OF WASHINGTON)

I DO HEREBY CERTIFY THAT THIS SUBDIVISION PLAT WAS RECEIVED FOR RECORD ON THIS 5th DAY OF JAN., 2006 AT 3:19 O'CLOCK P M., AND RECORDED IN THE COUNTY CLERK RECORDS.

Janice Gregory
DEPUTY COUNTY CLERK

SURVEYED BY:
WESTLAKE CONSULTANTS, INC.
15115 S.W. SEQUOIA PARKWAY, SUITE 150
TIGARD, OREGON 97224
(503) 684-0652

485-0(D)

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Report—Physical Soil Properties

Three values are provided to identify the expected Low (L), Representative Value (R), and High (H).

Physical Soil Properties–Washington County, Oregon														
Map symbol and soil name	**Depth**	**Sand**	**Silt**	**Clay**	**Moist bulk density**	**Saturated hydraulic conductivity**	**Available water capacity**	**Linear extensibility**	**Organic matter**	**Erosion factors**			**Wind erodibility group**	**Wind erodibility index**
										Kw	**Kf**	**T**		
	In	*Pct*	*Pct*	*Pct*	*g/cc*	*micro m/sec*	*In/In*	*Pct*	*Pct*					
21B—Hillsboro loam, 3 to 7 percent slopes														
Hillsboro	0-15	-43-	-43-	10-14- 18	1.50-1.55 -1.60	4.00-9.00-14.00	0.16-0.19-0. 21	0.0- 1.5- 2.9	2.0- 3.5- 5.0	.43	.43	4	5	56
	15-48	-33-	-44-	18-23- 27	1.40-1.45 -1.50	4.00-9.00-14.00	0.16-0.19-0. 21	0.0- 1.5- 2.9	1.0- 1.5- 2.0	.43	.43			
	48-57	-65-	-27-	7- 9- 10	1.40-1.45 -1.50	14.00-28.00-42. 00	0.13-0.14-0. 15	0.0- 1.5- 2.9	0.5- 0.8- 1.0	.37	.37			
	57-81	-94-	- 1-	3- 5- 7	1.30-1.33 -1.35	42.00-92.00-14 1.00	0.06-0.08-0. 10	0.0- 1.5- 2.9	0.0- 0.3- 0.5	.10	.10			
76—Pits														
Pits	—	—	—	—	—	—	—	—	—					

Data Source Information

Soil Survey Area: Washington County, Oregon
Survey Area Data: Version 21, Oct 27, 2021

TABLE 4-4

Recurrence Interval	**Total 24-Hour Precipitation Depth (water equivalent inches)**
2-year	2.5
5-year	3.10
10-year	3.45
25-year	3.90

4.08.3 Infiltration-based Design

a. For purposes of sizing infiltration-based facilities, the following apply:

1. Soil data should be obtained from either:

A) Soil series data as mapped on the NRCS WebSoil Survey . The more common soil series within the District, and key data for design purposes, are listed in Table 4-5.

B) Onsite infiltration tests at multiple locations (1 per ¼ acre or 1 per 2 proposed infiltration-based facilities, as needed to support facility design), performed at the depth of the base of the infiltration facility.

2. Where required, infiltration testing of native soil shall use either open pit or encased falling head infiltration methods, or a double-ring infiltrometer. For medium and large projects, these tests must be performed by a qualified civil engineer (PE) or certified engineering geologist (CEG). A factor of safety of 2 shall be used.

3. The following conditions will be assumed to preclude infiltration, and will require appropriate documentation of site conditions:

A) "High" or "very high" landslide susceptibility. (Note: areas with moderate landslide susceptibility require dispersed infiltration unless accompanied by a geotechnical report describing conditions under which infiltration can be safely implemented.)

B) Depth to seasonal high groundwater, persistent restrictive layer, or competent bedrock < 36 inches below ground surface.

C) Presence of subsurface contamination, such as would be documented in a "no further action" determination following site cleanup or listing as an active cleanup site by Oregon Department of Environmental Quality.

TABLE 4-6

Post-Development Peak Runoff Rate	**Pre-Development Peak Runoff Rate Target**
2-year, 24-hour	2-year, 24-hour
10-year, 24-hour	10-year, 24-hour
25-year, 24-hour	25-year, 24-hour

c. When required as a hydromodification approach, a combination of on-site detention and infiltration approaches may be used. Approaches shall be designed such that the post-development runoff rates from the site do not exceed the pre-development runoff rates in the table below. If the resulting orifice size is less than the minimum diameter listed in under the Design Standards in Section 4.09, then the post-development flow may be permitted to exceed the target to comply with the minimum orifice size requirement.

TABLE 4-7

Post-Development Peak Runoff Rate	**Pre-Development Peak Runoff Rate Target**
2-year, 24-hour	50% of 2-year, 24-hour
5-year, 24-hour	5-year, 24 hour
10-year, 24-hour	10-year, 24-hour

d. If a proposed project includes modified impervious surface (Redevelopment), a curve number (CN) of 75 shall be used as the pre-developed condition for all modified impervious surfaces. The CN for new impervious surfaces shall be based on actual Pre-Development site conditions.

4.08.7 Flow Duration Curve Matching Hydraulic Design Criteria

a. Flow Duration Curve Matching Detention design shall be assessed by dynamic flow routing through the basin. Acceptable analysis programs include those listed below.

1. TRUST interface to HSPF
2. Site specific HSPF model with local climate and geographic data, as approved by the District

c. When using Flow Duration Curve Matching Detention, stormwater discharges shall maintain the duration of high flows at their pre-development levels for all flows greater than one-half of the 2-year peak flow to the 10-year peak flow. Projects that also require detention due to a downstream conveyance capacity deficiency must also maintain the post-development 25-year peak flow rate at the pre-development 25-year peak flow rate. If the resulting orifice size is less than the minimum diameter listed in under the Design Standards in Section 4.09, then the post-development flow may be permitted to exceed the target to comply with