



Wisemark Commons Storm Drainage Narrative

Project Address: 6804 204th St NE, Arlington, WA 98223
County Parcel No. 31051400200600

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CORPORATE OFFICE

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ENGINEERING + SURVEYING

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Wisemark Commons is a proposed mixed-use development consisting of an apartment complex and restaurant to be built at 6804 204th St NE, Arlington, WA 98223, in Snohomish County. The site is approximately 4.91 acres and sits on Everett gravelly sandy loam soils, with 0 to 8 percent slopes. The site is relatively level, gently sloping from east to west. Stormwater on the site naturally infiltrates. Due to the flat nature of the area, no runoff from neighboring properties should enter the site. There are no wetlands, creeks, or other critical areas within the site. There are no steep slopes or landslide hazards present. The site lies within the Mainstem Stillaguamish watershed, is in the Stillaguamish basin, Portage Creek sub-basin, and falls within WRIA 5.

The proposed site will consist of eight residential apartment buildings, one facility club house, one restaurant, and associated roads and parking areas. All stormwater from the site will be mitigated using full infiltration, therefore ensuring the natural drainage pattern is maintained. Due to this, there will be no upstream or downstream impacts. Stormwater runoff from the pollution generating impervious surfaces (PGIS) will first be routed through a stormwater filter to account for water quality requirements. The overall site basin has been broken down into thirteen sub-basins. Each area is explained below.

Area 1 includes buildings D & E and the road / parking area to the east of the buildings. The total area mitigated is 21,166 square feet. The infiltration trench was sized using WWHM2012 and will be located between buildings D & E. The trench will be 60 feet long by 14 feet wide by 2 feet deep. Downspouts from the two buildings will be routed to a catch basin, which is routed to the west end of the trench. Stormwater from the road will flow to a low point where a stormwater filter catch basin (SFCB) will collect the water. Stormwater flows through the filter, then enters the east end of the trench.

SFCB#1:

Standard Off-line WQ Flow Rate = 0.0262 cfs = 11.8 gpm

Cartridge Height = 12" Perk Filter Cartridge = 12.0 gpm/cartridge

Total Cartridges Required = 11.8 gpm /12.0 gpm/cartridge = 0.98 = 1 cartridge

Area 1 Surfaces	Area (sf)
Roof	10,744
Road	10,422
Total	21,166
Total PGHS	10,422

Area 2 includes the restaurant and the road / parking area to the east of the restaurant. The total area mitigated is 8,108 square feet. The infiltration trench was sized using WWHM2012 and will be in the road / parking area. The trench will be 25 feet long by 14 feet wide by 2 feet deep. Downspouts from the restaurant will be routed to a catch basin, which is routed to the north end of the trench. Stormwater from the road will flow to a low point where a stormwater filter catch basin (SFCB) will collect the water. Stormwater flows through the filter, then enters the north end of the trench.

SFCB#2:

Standard Off-line WQ Flow Rate = 0.0109 cfs = 4.9 gpm

Cartridge Height = 12" Perk Filter Cartridge = 12.0 gpm/cartridge

Total Cartridges Required = 4.9 gpm /12.0 gpm/cartridge = 0.41 = 1 cartridge

Area 2 Surfaces	Area (sf)
Roof	3,544
Road	4,564
Total	8,108
Total PGHS	4,564

Area 3 includes the western half of building A and the road / parking area to the north of the building. The total area mitigated is 14,758 square feet. The infiltration trench was sized using WWHM2012 and will be in the road / parking area. The trench will be 45 feet long by 14 feet wide by 2 feet deep. Downspouts from the building will be routed to a catch basin, which is routed to the east end of the trench. Stormwater from the road will flow to a low point where a stormwater filter catch basin (SFCB) will collect the water. Stormwater flows through the filter, then enters the east end of the trench.

SFCB#3:

Standard Off-line WQ Flow Rate = 0.0186 cfs = 8.3 gpm

Cartridge Height = 12" Perk Filter Cartridge = 12.0 gpm/cartridge

Total Cartridges Required = 8.3 gpm /12.0 gpm/cartridge = 0.69 = 1 cartridge

Area 3 Surfaces	Area (sf)
Roof	7,373
Road	7,385
Total	14,758
Total PGHS	7,385

Area 4 includes the eastern half of building A and the road / parking area to the north of the building. The total area mitigated is 14,970 square feet. The infiltration trench was sized using WWHM2012 and will be in the road / parking area. The trench will be 45 feet long by 14 feet wide by 2 feet deep. Downspouts from the building will be routed to a catch basin, which is routed to the west end of the trench. Stormwater from the road will flow to a low point where a stormwater filter catch basin (SFCB) will collect the water. Stormwater flows through the filter, then enters the west end of the trench.

SFCB#4:

Standard Off-line WQ Flow Rate = 0.0186 cfs = 8.3 gpm

Cartridge Height = 12" Perk Filter Cartridge = 12.0 gpm/cartridge

Total Cartridges Required = 8.3 gpm /12.0 gpm/cartridge = 0.69 = 1 cartridge

Area 4 Surfaces	Area (sf)
Roof	7,373
Road	7,597
Total	14,970
Total PGHS	7,597

Area 5 includes the road / parking area to the east of building A. The total area mitigated is 4,302 square feet. The infiltration trench was sized using WWHM2012 and will be in the road / parking area. The trench will be 35 feet long by 5 feet wide by 2 feet deep. Stormwater from the road will flow to a low

point where a stormwater filter catch basin (SFCB) will collect the water. Stormwater flows through the filter, then enters the north end of the trench.

SFCB#5:

Standard Off-line WQ Flow Rate = 0.0109 cfs = 4.9 gpm

Cartridge Height = 12" Perk Filter Cartridge = 12.0 gpm/cartridge

Total Cartridges Required = 4.9 gpm /12.0 gpm/cartridge = 0.41 = 1 cartridge

Area 5 Surfaces	Area (sf)
Road	4,302
Total	4,302
Total PGHS	4,302

Area 6 includes buildings B & C and the road / parking area to the north of the buildings. The total area mitigated is 25,224 square feet. The infiltration trench was sized using WWHM2012 and will be in the road / parking area. The trench will be 70 feet long by 14 feet wide by 2 feet deep. Downspouts from the two buildings will be routed to a catch basin, which is routed to the east end of the trench. Stormwater from the road will flow to a low point where a stormwater filter catch basin (SFCB) will collect the water. Stormwater flows through the filter, then enters the east end of the trench.

SFCB#6:

Standard Off-line WQ Flow Rate = 0.0295 cfs = 13.2 gpm

Cartridge Height = 18" Perk Filter Cartridge = 18.0 gpm/cartridge

Total Cartridges Required = 13.2 gpm /18.0 gpm/cartridge = 0.73 = 1 cartridge

Area 6 Surfaces	Area (sf)
Roof	13,466
Road	11,758
Total	25,224
Total PGHS	11,758

Area 7 includes the facility club house and the road / parking area to the north of the building. The total area mitigated is 12,658 square feet. The infiltration trench was sized using WWHM2012 and will be in the road / parking area. The trench will be 50 feet long by 10 feet wide by 2 feet deep. Downspouts from the building will be routed to a catch basin, which is routed to the east end of the trench. Stormwater from the road will flow to a low point where a stormwater filter catch basin (SFCB) will collect the water. Stormwater flows through the filter, then enters the east end of the trench.

SFCB#7:

Standard Off-line WQ Flow Rate = 0.0251 cfs = 11.3 gpm

Cartridge Height = 12" Perk Filter Cartridge = 12.0 gpm/cartridge

Total Cartridges Required = 11.3 gpm /12.0 gpm/cartridge = 0.94 = 1 cartridge

Area 7 Surfaces	Area (sf)
Roof	2,789
Road	9,869

Total	12,658
Total PGHS	9,869

Area 8 includes the road / parking area to the east of building B. The total area mitigated is 7,592 square feet. The infiltration trench was sized using WWHM2012 and will be in the road / parking area. The trench will be 60 feet long by 5 feet wide by 2 feet deep. Stormwater from the road will flow to a low point where a stormwater filter catch basin (SFCB) will collect the water. Stormwater flows through the filter, then enters the north end of the trench.

SFCB#8:

Standard Off-line WQ Flow Rate = 0.0186 cfs = 8.3 gpm

Cartridge Height = 12" Perk Filter Cartridge = 12.0 gpm/cartridge

Total Cartridges Required = 8.3 gpm /12.0 gpm/cartridge = 0.69 = 1 cartridge

Area 8 Surfaces	Area (sf)
Road	7,592
Total	7,592
Total PGHS	7,592

Area 9 includes the road / parking area between buildings B & H. The total area mitigated is 10,310 square feet. The infiltration trench was sized using WWHM2012 and will be in the road / parking area. The trench will be 45 feet long by 10 feet wide by 2 feet deep. Stormwater from the road will flow to a low point where a stormwater filter catch basin (SFCB) will collect the water. Stormwater flows through the filter, then enters the east end of the trench.

SFCB#9:

Standard Off-line WQ Flow Rate = 0.0262 cfs = 11.8 gpm

Cartridge Height = 12" Perk Filter Cartridge = 12.0 gpm/cartridge

Total Cartridges Required = 11.8 gpm /12.0 gpm/cartridge = 0.98 = 1 cartridge

Area 9 Surfaces	Area (sf)
Road	10,310
Total	10,310
Total PGHS	10,310

Area 10 includes the road / parking area between the facility club house and building F. The total area mitigated is 11,293 square feet. The infiltration trench was sized using WWHM2012 and will be in the road / parking area. The trench will be 45 feet long by 10 feet wide by 2 feet deep. Stormwater from the road will flow to a low point where a stormwater filter catch basin (SFCB) will collect the water. Stormwater flows through the filter, then enters the west end of the trench.

SFCB#10:

Standard Off-line WQ Flow Rate = 0.0284 cfs = 12.7 gpm

Cartridge Height = 18" Perk Filter Cartridge = 18.0 gpm/cartridge

Total Cartridges Required = 12.7 gpm /18.0 gpm/cartridge = 0.71 = 1 cartridge

Area 10 Surfaces	Area (sf)
Road	11,293
Total	11,293
Total PGHS	11,293

Area 11 includes building H and the eastern half of building G. The total area mitigated is 8,574 square feet. The infiltration trench was sized using WWHM2012 and will be located between buildings G & H. The trench will be 70 feet long by 5 feet wide by 2 feet deep. Downspouts from the two buildings will be routed to a catch basin, which is routed to the south end of the trench.

Area 11 Surfaces	Area (sf)
Roof	8,574
Total	8,574
Total PGHS	0

Area 12 includes building F and the western half of building G. The total area mitigated is 8,438 square feet. The infiltration trench was sized using WWHM2012 and will be located between buildings F & G. The trench will be 65 feet long by 5 feet wide by 2 feet deep. Downspouts from the two buildings will be routed to a catch basin, which is routed to the south end of the trench.

Area 12 Surfaces	Area (sf)
Roof	8,438
Total	8,438
Total PGHS	0

Area 13 includes the road / parking area to the south of building E. The total area mitigated is 6,969 square feet. The infiltration trench was sized using WWHM2012 and will be in the road / parking area. The trench will be 55 feet long by 5 feet wide by 2 feet deep. Stormwater from the road will flow to a low point where a stormwater filter catch basin (SFCB) will collect the water. Stormwater flows through the filter, then enters the west end of the trench.

SFCB#11:

Standard Off-line WQ Flow Rate = 0.0175 cfs = 7.9 gpm

Cartridge Height = 12" Perk Filter Cartridge = 12.0 gpm/cartridge

Total Cartridges Required = 7.9 gpm /12.0 gpm/cartridge = 0.66 = 1 cartridge

Area 13 Surfaces	Area (sf)
Road	6,969
Total	6,969
Total PGHS	6,969