Appendix I:
Drainage Information
ORCHARD STREET REALIGNMENT STUDY

Figure 1

Proposed Drainage Areas

Legend
- 10' Multi-use Path
- Buffer/Potential Drainage Area
- Orchard Street Removed
- Truck Apron
- Roadway Profile
- Flow Direction
- Channel Flow Direction
- Fivemile Creek
- Proposed Concrete Stiffleg Culvert
- Culvert
- Drainage Area
Drainage Area Summaries

**Drainage Area 1**

Drainage Area 1 is located along Orchard Street north of the New York Canal. Work in this area is anticipated to include roadway re-surfacing of Orchard Street and the construction of new curb and gutter and sidewalks. Existing curb and gutter and sidewalks currently stop approximately 115 ft from the pedestrian sidewalks on the bridge over the New York Canal.

The drainage basin area for this area is small as there are existing catch basins just upstream along Orchard Street near Victory Rd. Stormwater facilities for this drainage basin are anticipated to be catch basins with seepage beds beneath the sidewalks with sand and grease trap pre-treatment (ACHD BMP 20).

**Drainage Area 2**

Drainage Area 2 is located along Orchard Street south of the New York Canal to a proposed sag vertical curve approximately 1,700 ft south of the bridge. Stormwater facilities in this area are anticipated to be roadside borrow ditches or below grade seepage beds that manage and infiltrate the 100-year storm event and do not discharge surface stormwater. Roadside borrow ditches are anticipated to be similar to ACHD Section 8200 – Detail 05 Borrow Ditch.

**Drainage Area 3**

Drainage Area 3 is located along re-aligned Diamond Street east of the proposed intersection of Orchard Street and Diamond Street. Due to proximity of drainage area to landfill stormwater must be captured and conveyed away from the landfill. Options for conveyance are to north of Diamond Street or to south where conveyance will connect to Drainage Areas 5 and 6. If conveyed to south, stormwater is anticipated to be discharged to Fivemile Creek after meeting ACHD policy requirements for conveyance, treatment, and attenuation. If conveyed to north, stormwater disposal options include infiltration, using seepage beds or dry infiltration basins, north of Diamond Street.

**Drainage Area 4**

Drainage Area 4 is located along re-aligned Diamond Street west of the proposed intersection of Orchard Street and Diamond Street. Stormwater facilities on the north side of Diamond Street are anticipated to be below grade seepage beds or roadside borrow ditches that manage and infiltrate the 100-year storm event and do not discharge surface stormwater.

Within an ACHD easement, there is an existing privately owned retention basin and sand and grease trap on the south side of Diamond Street. There is an easement for this facility, which may have to be relocated to accommodate the relocating of a private property approach. Stormwater management on the south side of Diamond Street may be a sand and grease trap and retention basin similar to the existing system or a below grade seepage bed.

**Drainage Area 5**

Drainage Area 5 is located along proposed Orchard Street south of the proposed sag vertical curve to just north of the existing landfill. Due to proximity of drainage area to landfill stormwater must be captured and conveyed away from the landfill. Options for conveyance are to north of Diamond Street or to south where conveyance will connect to Drainage Area 6. If conveyed to south, stormwater is anticipated to be discharged to Fivemile Creek after meeting ACHD policy requirements for conveyance, treatment, and attenuation. If conveyed to north, stormwater disposal options include infiltration, using seepage beds or dry infiltration basins, north of Diamond Street.
Drainage Area 6

Drainage Area 6 is located along proposed Orchard Street just north of the existing landfill to Fivemile Creek (approximately 700 ft north of Gowen Road). Total drainage basin length is approximately 2,200 ft. Infiltration facilities adjacent to the landfill are not anticipated to be acceptable means of stormwater discharge.

Stormwater facilities in this area are anticipated to include catch basins, storm drain piping, flow attenuation system, and water quality treatment prior to discharging to Fivemile Creek. Potential options include below grade storage vaults, below grade storage piping systems, sand filtration, and proprietary treatment options, such as media filtration. Flow attenuation and water quality treatment are key to meet ACHD policy for this drainage area. In the case that elevations of storm drain piping do not allow for discharge to Fivemile Creek, conveyance swales, lined to be impervious, may be used to convey stormwater to Fivemile Creek.

Depending on limits of the landfill determined during geotechnical investigation and additional soil sampling from the abandoned sewage lagoons, below grade infiltration may be acceptable south of the landfill. In the case that infiltration is feasible in the vicinity of the abandoned sewage lagoons, dry infiltrating detention basins may be used to meet attenuation and storage requirements prior to discharge to Fivemile Creek. This option would likely be at a reduced cost when compared to below grade stormwater attenuation options.

Drainage Area 7A

Drainage Area 7A is located along the proposed Dorman Street extension. Due to proximity of drainage area to landfill, stormwater needs to be captured and conveyed, using storm drain piping or lined conveyance swales, to connect to Drainage Area 6. ACHD stormwater policy must be met for conveyance, attenuation, and treatment prior to discharge to Fivemile Creek.

Drainage Area 7B

Drainage Area 7B is located along the proposed Aeronca Street extension. For the Aeronca Street extension, stormwater is required to be captured and conveyed, using storm drain piping or lined conveyance swales, to connect to Drainage Area 6. Stormwater will be required to be treated and attenuated prior to discharge to Fivemile Creek.

Drainage Area 8

Drainage Area 8 is located along existing Orchard Street. Due to proximity of drainage areas to abandoned sewage lagoons, further soil sampling and testing is required during design phase to determine suitability of infiltration in this area. If infiltration is determined to be feasible, stormwater facilities in this area are anticipated to be seepage beds or roadside borrow ditches that manage and infiltrate the 100-year storm event and do not discharge surface stormwater.

If infiltration for drainage areas is determined to not be feasible, potential management options include treating, attenuating, and discharging to north of Gowen Road that eventually connects to Fivemile Creek. Conveyance options are storm drainage piping or lined conveyance swales if infiltration is determined not to be suitable.

Drainage Area 9

Drainage Area 9 is located along the extension of Harvard Street. Stormwater facilities in this area are anticipated to be seepage beds or roadside borrow ditches that manage and infiltrate the 100-year storm event and do not discharge surface stormwater.
**Drainage Area 10 & 11**

Drainage Area 10 & 11 are located along Gowen Road west of the proposed intersection of Orchard Street and Gowen Road. Due to proximity of drainage areas to abandoned sewage lagoons, further soil sampling and testing is required during design phase to determine suitability of infiltration in these areas. If infiltration is determined to be feasible, stormwater facilities in this area are anticipated to be roadside borrow ditches that manage and infiltrate the 100-year storm event and do not discharge surface stormwater.

If infiltration for drainage areas is determined to not be feasible stormwater will be required to be conveyed, treated, and attenuated prior to discharge to Fivemile Creek. Conveyance options are storm drainage piping or lined conveyance swales if infiltration is determined not to be suitable.

**Drainage Area 12**

Drainage Area 12 is located along Orchard Street from the proposed intersection of Orchard Street and Gowen Road north for 700 ft to Fivemile Creek’s discharge point underneath Orchard Street to the west. Due to proximity of drainage areas to abandoned sewage lagoons, further soil sampling and testing is required during design phase to determine suitability of infiltration in this area. If infiltration is determined to be feasible, stormwater facilities in this area are anticipated to be roadside borrow ditches that manage and infiltrate the 100-year storm event and do not discharge surface stormwater.

Depending on the suitability of infiltration near the abandoned sewer lagoon ponds, stormwater may have to be captured, treated, attenuated, and discharged to Fivemile Creek. Conveyance options are storm drainage piping or lined conveyance swales if infiltration is determined not to be suitable.

**Drainage Area 13**

Drainage Area 13 is located along Gowen Road west of the proposed intersection of Orchard Street and Gowen Road. Stormwater facilities in this area are anticipated to be below grade seepage beds or roadside borrow ditches that manage and infiltrate the 100-year storm event and do not discharge surface stormwater.

**Drainage Area 14**

Drainage Area 14 is located along Gowen Road south of the proposed intersection of Orchard Street and Gowen Road. Stormwater facilities in this area are anticipated to below grade seepage beds or roadside borrow ditches that manage and infiltrate the 100-year storm event and do not discharge surface stormwater.