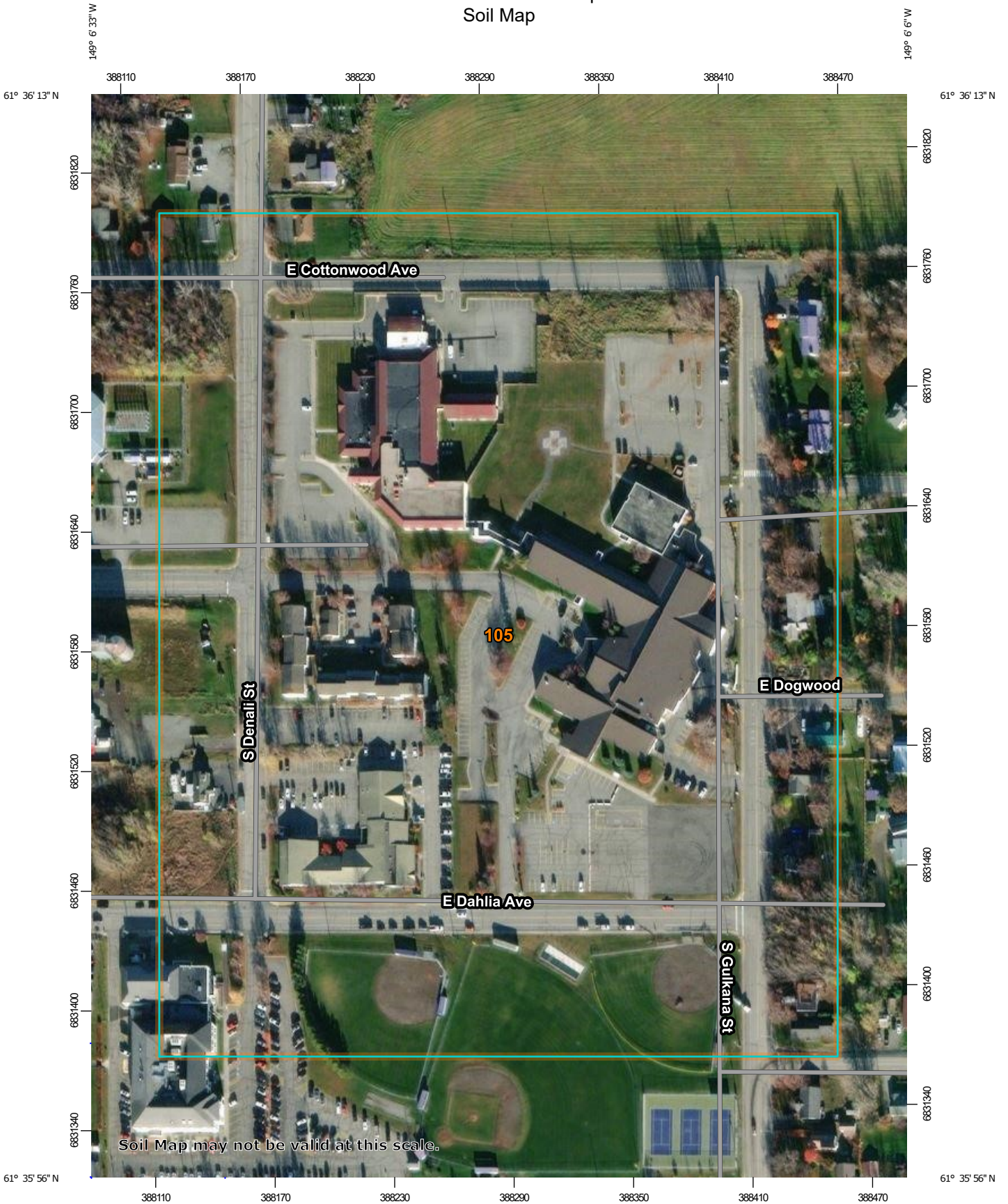


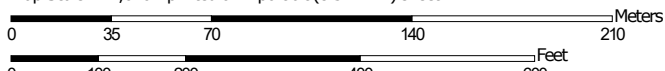
Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report Soil Map




Map Scale: 1:2,640 if printed on A portrait (8.5" x 11") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 6N 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 1:24,000.

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: Matanuska-Susitna Valley Area, Alaska
 Survey Area Data: Version 25, Sep 2, 2025

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

Date(s) aerial images were photographed: Mar 25, 2015—Oct 19, 2023

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
105	Bodenburg silt loam, 0 to 3 percent slopes	35.7	100.0%
Totals for Area of Interest		35.7	100.0%

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Custom Soil Resource Report

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Matanuska-Susitna Valley Area, Alaska

105—Bodenburg silt loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 1p8f
Elevation: 100 to 400 feet
Mean annual precipitation: 15 to 20 inches
Mean annual air temperature: 34 to 36 degrees F
Frost-free period: 90 to 110 days
Farmland classification: Farmland of local importance

Map Unit Composition

Bodenburg and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Bodenburg

Setting

Landform: Plains
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Silty loess over sandy and gravelly glaciofluvial deposits

Typical profile

Oe - 0 to 2 inches: moderately decomposed plant material
A1 - 2 to 5 inches: silt loam
A2,Bw - 5 to 50 inches: silt loam
2BC,2C - 50 to 60 inches: very gravelly loamy coarse sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 41 to 59 inches to strongly contrasting textural stratification
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.57 to 1.42 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Very high (about 15.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B
Ecological site: R224XY304AK - Skeletal Slopes Provisional Ecological Site Group
Other vegetative classification: Silty slopes (F170XB011AK), Mixed paper birch-white spruce/herbaceous forest (040b)
Hydric soil rating: No

Minor Components

Steeper soils

Percent of map unit: 5 percent
Landform: Plains
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Yensus

Percent of map unit: 3 percent
Landform: Outwash plains
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F224XY011AK - Silty slopes
Other vegetative classification: Silty slopes (F170XB011AK), Mixed paper birch-white spruce/herbaceous forest (040b)
Hydric soil rating: No

Temporarily ponded soils

Percent of map unit: 2 percent
Landform: Depressions
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: No

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Custom Soil Resource Report

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Palmer Courthouse
Renovation & Expansion

APPENDIX

B

SSA OUTPUT

Project Description

File Name Palmer Infiltration Model.SPF

Project Options

Flow Units CFS
 Elevation Type Elevation
 Hydrology Method Santa Barbara UH
 Time of Concentration (TOC) Method User-Defined
 Link Routing Method Hydrodynamic
 Enable Overflow Ponding at Nodes YES
 Skip Steady State Analysis Time Periods ... YES

Analysis Options

Start Analysis On 00:00:00 0:00:00
 End Analysis On 00:00:00 0:00:00
 Start Reporting On 00:00:00 0:00:00
 Antecedent Dry Days 0 days
 Runoff (Dry Weather) Time Step 0 01:00:00 days hh:mm:ss
 Runoff (Wet Weather) Time Step 0 00:05:00 days hh:mm:ss
 Reporting Time Step 0 00:05:00 days hh:mm:ss
 Routing Time Step 30 seconds

Number of Elements

	Qty
Rain Gages	1
Subbasins.....	1
Nodes.....	2
<i>Junctions</i>	0
<i>Outfalls</i>	1
<i>Flow Diversions</i>	0
<i>Inlets</i>	0
<i>Storage Nodes</i>	1
Links.....	1
<i>Channels</i>	0
<i>Pipes</i>	1
<i>Pumps</i>	0
<i>Orifices</i>	0
<i>Weirs</i>	0
<i>Outlets</i>	0
Pollutants	0
Land Uses	0

Rainfall Details

SN	Rain Gage ID	Data Source	Data Source ID	Rainfall Type	Rain Units	State	County	Return Period (years)	Rainfall Depth (inches)	Rainfall Distribution
49		Time Series	25-yr	Intensity	inches	Alaska	Matanuska-Susitna (B)	25.00	2.24	SCS Type I 24-hr

Subbasin Summary

SN	Subbasin ID	Area	Impervious Area	Impervious Area Curve Number	Pervious Area Curve Number	Total Rainfall	Total Runoff	Total Runoff Volume	Peak Runoff	Time of Concentration
		(ac)	(%)			(in)	(in)	(ac-in)	(cfs)	(days hh:mm:ss)
1	Sub-01	0.35	13.00	98.00	61.00	2.24	0.37	0.13	0.06	0 00:05:00

Node Summary

SN Element ID	Element Type	Invert Elevation (ft)	Ground/Rim (Max) Elevation (ft)	Initial Water Elevation (ft)	Surcharge Elevation (ft)	Ponded Area (ft ²)	Peak Inflow (cfs)	Max HGL Elevation (ft)	Max Surcharge (ft)	Min Time of Freeboard (ft)	Time of Flooding (days hh:mm)	Total Flooded Volume (ac-in)	Total Time Flooded (min)
1	Out-02	10.00					0.00	10.00					
2	DRYWELL-01	226.75	251.75	0.00		0.00	0.06	235.12				0.00	0.00

Subbasin Hydrology

Subbasin : Sub-01

Input Data

Area (ac) 0.35
Impervious Area (%) 13
Impervious Area Curve Number 98
Pervious Area Curve Number 61
Rain Gage ID

Composite Curve Number

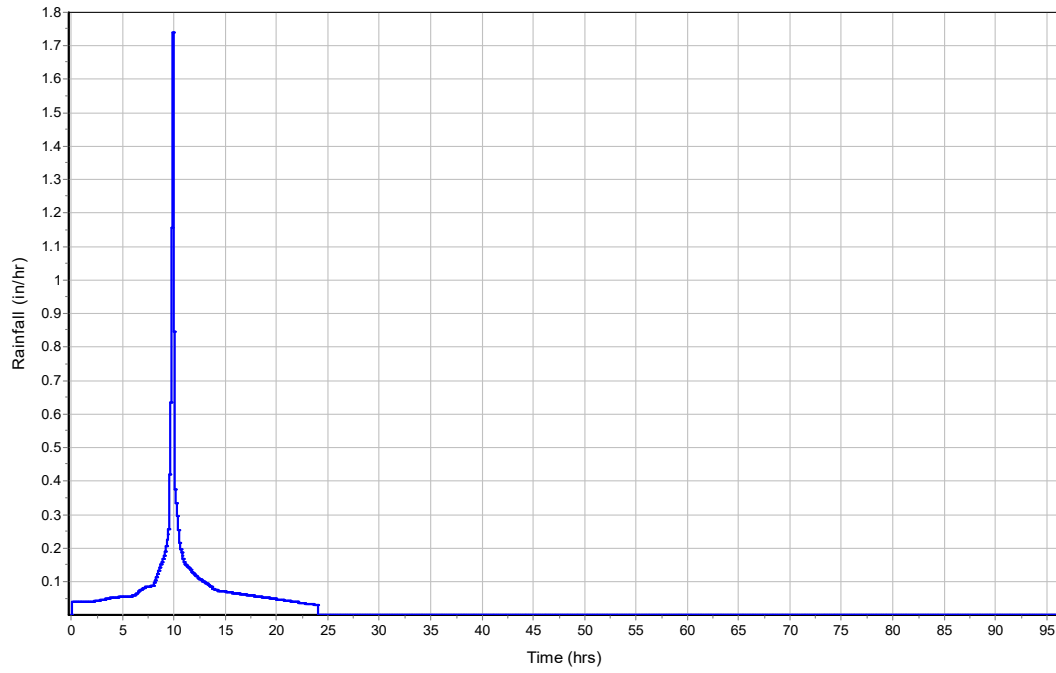
32	Area	Soil	Curve
Soil/Surface Description	(acres)	Group	Number
Composite Area & Weighted CN	0.35		65.81

Subbasin Runoff Results

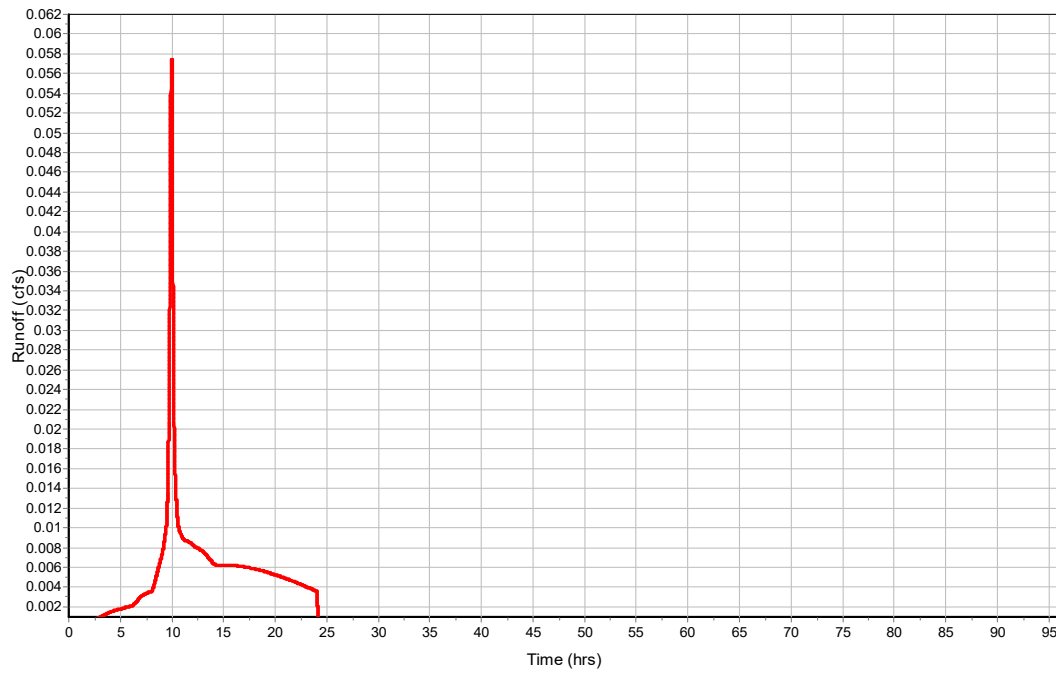
Total Rainfall (in) 2.24
Total Runoff (in) 0.37
Peak Runoff (cfs) 0.06
Weighted Curve Number 65.81
Time of Concentration (days hh:mm:ss) 0 00:05:00

Subbasin : Sub-01

Rainfall Intensity Graph



Runoff Hydrograph



Storage Nodes

Storage Node : DRYWELL-01

Input Data

Invert Elevation (ft)	226.75
Max (Rim) Elevation (ft)	251.75
Max (Rim) Offset (ft)	25.00
Initial Water Elevation (ft)	0.00
Initial Water Depth (ft)	-226.75
Ponded Area (ft ²)	0.00
Evaporation Loss	0.00

Infiltration/Exfiltration

Constant Flow Rate (cfs)	0.0045
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Output Summary Results

Peak Inflow (cfs)	0.06
Peak Lateral Inflow (cfs)	0.06
Peak Outflow (cfs)	0
Peak Exfiltration Flow Rate (cfm)	0.27
Max HGL Elevation Attained (ft)	235.12
Max HGL Depth Attained (ft)	8.37
Average HGL Elevation Attained (ft)	228.26
Average HGL Depth Attained (ft)	1.51
Time of Max HGL Occurrence (days hh:mm)	0 21:52
Total Exfiltration Volume (1000-ft ³)	0.473
Total Flooded Volume (ac-in)	0
Total Time Flooded (min)	0
Total Retention Time (sec)	0

Palmer Courthouse
Renovation & Expansion

APPENDIX

C

OPERATIONS & MAINTENANCE

Drywells

RESOURCE NEEDS

DEFINITIONS:

Drywells are facilities that collect and infiltrate storm water runoff into the ground.

PERMIT REFERENCES:

This SOP was prepared according to the permit requirements (3.4.3.1).

ACTIVITY DESCRIPTION:

An inspection is completed of each drywell and minor cleaning, such as litter pick-up, is completed as part of the inspection routine. The inspection and maintenance of outfalls requires accurate record keeping. This task is completed by using MOA's GIS mapping system to inventory the drainage structures. The DOT&PF Supervisor prints out grid maps identifying the drywells and assigns maintenance crews to inspect the structures on the map. Crews inspect and prepare the equipment fleet needed to perform the inspection of the assigned structures. Each drywell is visually inspected for sediment buildup, structural deterioration, and evidence of infiltration.

INSPECTION CRITERIA:

1. The depth of sediment accumulation is noted in the field notes. If sediment build-up appears to prevent proper infiltration the drywell is cleaned.
3. The structure is checked for structural integrity and/or damage for the following items:
 - A. Drywell is clear and free from plugging.
 - B. Cracks and deterioration of the structure or grouting including rotting of concrete structure, exposure of rebar or structural matting, discontinuous sections in the grout.
 - C. Structural integrity is in good alignment, showing no evidence of cracking, lifting, or movement.
 - D. Signs of abrasion and/or corrosion.

MAINTENANCE CRITERIA:

1. Remove sediment using vactor truck.
2. If repairs and/or maintenance are required, record the condition and transfer to the DOT&PF work log for prioritization and scheduling.
 - A. Record and/or photograph plugging condition for DOT&PF work log.
 - B. Record and/or photograph cracks and deterioration for DOT&PF work log.
 - C. Record and/or photograph structural integrity for DOT&PF work log.
 - D. Record and/or photograph corrosion or abrasion for DOT&PF work log.

INSPECTION SCHEDULE:

Drywell inspection is performed on an annual basis.

MAINTENANCE SCHEDULE:

Drywell maintenance is performed as identified through inspections.

POLLUTION PREVENTION/GOOD HOUSEKEEPING PROCEDURES

Train field crews annually and provide frequent verbal reminders on how to operate the equipment and what to look for during routine inspections prior to the field season.

Keep training records that include attendees, date, and description of training.

Check all vehicles, including vactor trucks, used for stormwater infrastructure inspection and maintenance for operational condition, leaks, and deficiencies prior to leaving the DOT&PF yard. For equipment inspection and maintenance:

- Place drip pans under equipment parts that may leak. Empty drip pans when they are more than ½ full.
- Clean up all drips and leaks immediately.
- Empty fuel and oil filters where drips cannot reach stormwater.
- Do not wash equipment or pavement surrounding equipment where wash water can enter storm drains.

Check fittings associated with the vactor truck prior to starting operation of the vactor truck to remove accumulated sediment material.

Remove all litter and debris found during the inspection procedure. Dispose of litter/debris from the site in solid waste containers located at the DOT&PF yard.

Sediment and debris collected in the vactor truck are transferred to the snow disposal site and used to regrade the site or a paid disposal of material is made through Anchorage Sand and Gravel Company. If sediment is spilled or released during collection or disposal clean the area thoroughly and immediately.