

# MEMORANDUM

## State of Alaska

Department of Transportation & Public Facilities  
Central Region

TO: Distribution

DATE: May 9, 2018

FROM: Wolfgang Junge, P.E.   
Preconstruction Engineer  
Central Region

TELEPHONE NO: 269-0780

SUBJECT: Policy on Stormwater Facilities Design  
Within the Municipality of Anchorage

### POLICY

It is the policy of DOT&PF Central Region to apply the guidance contained within the latest approved version of the Municipality of Anchorage, Anchorage Stormwater Manual to projects located within the boundaries of the Municipality of Anchorage.

### PURPOSE

The Municipality of Anchorage (MOA) and Alaska Department of Transportation and Public Facilities (DOT&PF) are co-permittees to the Anchorage Municipal Separate Storm Sewer System (MS4) Individual Permit. This MS4 Permit requires DOT&PF to have an up-to-date manual specifying acceptable permanent stormwater management control practices within the MOA. This policy adopts, as modified herein, the following sections in the MOA's Anchorage Stormwater Manual Volume 1 to meet this requirement.

- Section 1.0 Introduction
- Section 2.0 Overview of Stormwater Management
- Section 3.1 Overview
- Section 3.2 Stormwater Plan Review and Approval
- Section 3.3.2.1 Requirement 1 – Water Quality Treatment
- Section 3.3.2.8 Requirement 8 – Stormwater Management Report
- Section 4.0 Estimating Stormwater Runoff
- Section 5.1 Introduction
- Section 5.2 Storm Events for Conveyance Design
- Section 5.3.2 Pipe Sizing and Standards
- Section 5.3.3 Freeze Protection Criteria
- Section 5.3.4 Thaw Systems Criteria

- Section 5.3.5 Manhole Criteria
- Section 5.3.7 Subdrain Criteria
- Section 5.3.9 Outfall Criteria
- Section 5.4.3 Storm Drain Inlets
- Section 5.4.5 Pavement Encroachment
- Section 5.4.6 Subsurface Drainage Control
- Section 5.5.2 Design Methods – Bullets D through F
- Section 6.0 Structural Stormwater Controls
- Section 7.0 Better Site Design Practices

## **EXCEPTIONS**

The following are exceptions to the requirements of the Anchorage Stormwater Manual Volume 1:

- DOT&PF will conduct all required management and reporting for its projects internally.
- Section 1.4.1.2 Construction Drainage Related Permits, Delete and substitute the following: "Additional permits that relate to construction are discussed in the Alaska Construction Manual, Central Region Standard Specifications section 641 Erosion, Sediment and Pollution Control for Highway Construction, and item P-157 Erosion, Sediment and Pollution Control for Airport Construction."
- Section 1.5 Municipal Stormwater Policies, item E, Delete the first sentence and substitute the following: "Discharge off State right of way or easement must maintain natural or existing drainage conditions unless an easement is granted by the downstream property owner."
- Section 1.5 Municipal Stormwater Policies, item F, Delete the first sentence and substitute the following: "Where discharge from a proposed State system does not maintain existing or natural drainage conditions and creates adverse impacts to a downstream property, a letter of non-objection shall be obtained from the owner of any downstream property that could be affected."
- Section 1.5 Municipal Stormwater Policies, item F, Delete the third sentence and substitute the following: "Exceptions may be granted by the State upon request if the discharge is into an established natural drainage way or other watercourse (such as a creek) and the designer demonstrates that the facility is capable of handling the modified runoff without exacerbating flooding, icing, erosion, or siltation on adjacent properties or otherwise adversely impacting the watercourse on adjacent properties."
- Section 1.5 Municipal Stormwater Policies, Delete item I and substitute the following: "Improvements shall be designed and constructed in a manner that minimizes the potential for change to icings in constructed or natural drainageways."
- Section 1.5 Municipal Stormwater Policies, Delete item L and substitute the following: "Driveways and buffer areas of commercial projects or residential projects of triplex size

or greater shall be designed so that no surface drainage originating off the right-of-way is permitted to drain onto the traveled way of a municipal or State public road. This applies to all municipal and State rights-of-way and to private roads that may potentially become owned or maintained by the municipality or State in the future. This does not apply to private, onsite grading and drainage routing."

- Section 1.5 Municipal Stormwater Policies, Delete item M and substitute the following:  
"These design criteria and other references herein present the Stormwater Management Requirements for projects under the jurisdiction of the MOA or State. At the sole discretion of the Municipal Engineer or the DOT&PF Preconstruction Engineer, the MOA or State may impose greater standards and criteria when deemed appropriate to protect the safety and welfare of the public."
- Delete Section 1.6 Drainage Variances and substitute the following: "Approval from the Preconstruction Engineer is required for all variances that could affect arterials and above."
- Section 3.2 Stormwater Plan Review and Approval:
  - In the first paragraph, delete the second sentence and substitute the following: "DOT&PF projects are reviewed by ADOT&PF."
  - Delete the last paragraph and substitute the following: "Required submittal information for construction-related stormwater controls is addressed in the Alaska Construction Manual, the Central Region Standard Specifications section 641 Erosion, Sediment and Pollution Control for Highway Construction, and item P-157 Erosion, Sediment and Pollution Control for Airport Construction."
- Section 3.3.2.8, Delete Requirement 8 – Stormwater Management Report and substitute the following: "The Stormwater Management Report shall meet the requirements of the Alaska Highway Preconstruction Manual 1120.5.6 Hydrologic and Hydraulic Reports when applicable. The report shall provide details, including narrative, technical information, and analysis indicating how the proposed development meets Requirement 1. If a Hydrologic and Hydraulic Report is not required for the project, details pertaining to Requirement 1 shall be included in the Design Study Report."
- Section 4.2.2 Design Storm Depth – Base and Adjusted, With the exception of the "Water Quality Treatment" row, delete Table 4.2-1: MOA Design Storm Depths and substitute Table 1120-1 in the Alaska Preconstruction Manual.
- Section 4.5.4 USGS Regression Equations, Delete the fourth paragraph and substitute the following: "The equations should not be used for urban drainage analyses."
- Section 5.2 Storm Events for Conveyance Design – Replace the last paragraph with the following: "Conveyance systems are designed to pass peak runoff flows for the 24-hour duration design storm with a return period as listed in Table 1120-1 of the Alaska Preconstruction Manual."
- Section 5.3.2 Pipe Sizing and Standards:
  - Delete the first paragraph.
  - Replace bullet C with the following: "The minimum diameter of storm drain pipe is 18 inches. However, if minimum cover requirements are met 24 inches is

- desirable. The minimum diameter of storm drain in areas with known or expected icing problems is 36 inches.”
  - Delete bullet D and substitute the following: “Catch basin lead minimum sizes are 10 inch diameter for the MOA and 12 inches in DOT&PF ROW.”
  - In bullet F, delete the second sentence and substitute the following: “The maximum spacing between manholes is 200 feet.”
  - Delete bullet H and substitute the following: “Grates are an important safety consideration. Grates with an opening no more than four inches are required on the pipe inlet and outlet of closed storm drain systems 12 inch diameter or larger. Grates shall be either hinged or removable for maintenance access.”
- Section 5.3.3 Freeze Protection Criteria – Replace the first paragraph with the following: “This section presents freeze protection criteria that are good practice and shall be considered for all DOT&PF projects.”
  - Delete bullet C and substitute the following: “Catch basin leads with less than four feet of cover may require insulation. DOT&PF Maintenance and Operations personnel and the Regional Hydrologist will help make this decision.”
  - Delete bullet D and substitute the following: “Ask the DOT&PF Maintenance and Operations Superintendent and/or Station Manager if a thaw system is needed at any location within the project limits. If a thaw system is needed, ask one of these persons what kind of thaw system is preferred.”
  - Delete bullet E and substitute the following: “Artificial melting of snow or ice that is expected to flow into a DOT&PF storm drain system requires written approval from DOT&PF Maintenance and Operations personnel.”
  - Delete bullets F and G.
- Section 5.3.4 Thaw Systems Criteria, Delete the first paragraph and substitute the following: “This section presents thaw system criteria that are good practice and shall be considered for all DOT&PF projects.”
  - Delete the first paragraph of bullet A and substitute the following: “Many factors impact the need for and the preferred type of thaw device in a storm drain system. Several factors that should be considered are presented below. The designer is encouraged to contact DOT&PF Maintenance and Operations personnel to determine what type of thaw device is preferred.”
  - Delete item 1 under bullet A and substitute the following. “Depth of cover – Consider a thaw system for a storm drain pipe with less than four feet of cover”.
  - Delete bullets B, C, D, E, F, and G.
- Section 5.3.5 Manhole Criteria
  - Delete bullet A and substitute the following: “A manhole shall be installed at junctions, places where there are changes in vertical or horizontal alignment, and at locations where there are changes in pipe size or shape.”
  - Delete bullet B and substitute the following: “Maximum manhole spacing is 200 feet.”
  - Delete bullets C, I, J, and K.
  - Delete bullet F and substitute: “Depress manhole lids as required by section 604 in the DOT&PF Standard Specifications for Highway Construction 2017 Edition.”
- Delete section 5.3.7 Subdrain Criteria and substitute the following: “The need for a subdrain system to collect and transport subsurface water is determined by the designer



and/or the Regional Hydrologist. Design details must be approved by the Regional Hydrologist. Subdrains are to be constructed per the Underdrain Regional Detail as modified for site specific conditions."

- Delete section 5.3.9 Outfall Criteria and substitute the following: "Drainage outfalls or spillways to natural ground from curbs and gutters, pavements, drainage swales, ditches, or other drainageways shall be designed and constructed to provide positive drainage, prevent erosion, prevent ponding within the ROW, and to create no impacts on adjoining property (or properties)."
- Add the following in Section 5.4.3 Storm Drain Inlets: "Storm drain inlets shall be designed following criteria in section 1120.5.2 Storm Sewers in the Alaska Highway Preconstruction Manual."
  - Delete the first bullet D and substitute the following: "Use the high capacity curb inlet box frame and grate shown on standard drawing D-25.00 if the gutter profile slope is approximately 2% or greater."
- Delete section 5.4.5 Pavement Encroachment and substitute the following: "The allowable spread of water on the pavement during the design event shall be as required by the latest edition of Hydraulic Engineering Circular (HEC) No. 22 by FHWA. The design discharge return intervals shall follow section 1120.5 of the Alaska Highway Preconstruction Manual."
- Section 5.4.6 Subsurface Drainage Control, delete the last sentence and substitute the following: "The Regional Hydrologist will assist with the design of subsurface drainage control."

#### **TIMELINE AND EFFECTIVE DATE**

This policy is in effect for all applicable highway projects within the MOA advertised or scheduled after May 15, 2018 and supersedes the July 28, 2016 policy memorandum.

#### **IMPLEMENTATIONS RESPONSIBILITY**

Central Region Preconstruction Engineer

#### **DISTRIBUTION**

All Central Region Preconstruction Staff