

Appendix 2

Stormwater Management Report

Fore River Substation
Portland, ME

STORMWATER MANAGEMENT REPORT

February 3, 2004

Prepared for:

Central Maine Power

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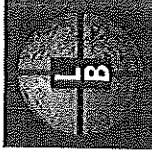
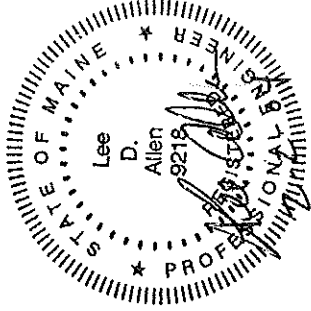


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- A. Locus Map
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I. PROJECT DESCRIPTION

This Stormwater Management Report is being submitted as part of the site plan application for the proposed Fore River Substation in Portland Maine. The substation is located on the northern side of West Commercial Street (See Locust Map included in Appendix A).

II. STUDY METHODOLOGY

The stormwater analysis was completed using the Rational Method. Rainfall intensities for the Rational Method were taken from the Intensity Duration Frequency (IDF) Curves for the City of Portland contained in the Maine Highway Design Guide. These IDF Curves are contained in Appendix C. Pre and Post Development Drainage Area plans were created for the purposes of determining the peak rates of runoff from the site. All drainage calculations can be found in Appendix C.

III. EXISTING CONDITIONS

The site is bordered by Lower Danforth Street to the north and slopes towards West Commercial Street to the south. The eastern property line abuts the Guilford railroad and the western property line abuts an auto body shop.

Current Use: Currently the site houses temporary office buildings and a paved parking lot. The remainder of the site is a grassed area that steeply slopes northward to Lower Danforth Street. Slopes in the grassed area vary from shallow at the toe of slope to steep embankment to Lower Danforth Street.

Soils: A National Resource Conservation Service (NRCS) soil map was obtained to determine the site soil conditions. The NRCS Map used is included in Appendix B. Only one soil type was identified on the site. The soil is classified as Cut and Fill Land. This is consistent with the history of the area, because this section of Portland has been filled in over time to create docking areas for marine activities.

Watershed Delineation: The site currently drains to a catch basin that is located in the eastern portion of the parking area. Table 1 on the following page presents the peak Predevelopment runoff rates to the existing catch basin for 2, 10 and 25-year storms.

Table 1: Predevelopment Runoff

Description	2-Year Runoff (cfs)	10-Year Runoff (cfs)	25-Year Runoff (cfs)
Total Discharge to Municipal Drainage System	0.94	1.28	1.47

IV. POST DEVELOPMENT CONDITIONS

The proposed development is an electric power sub station that will be owned and operated by Central Maine Power. The proposed substation will include a control house, switchgear, transformers, and associated conduit. The transformers, switchgear and control house will be set on concrete pads. A 20' high fire separation wall will be installed between the transformers and adjacent gas piping. An 8' high chain link fence topped with barbed wire will surround the entire substation to protect the public from the equipment. The concrete pad that the transformers are set on will be surrounded by an oil containment berm. The berm is installed to contain an oil spill from a transformer. A transformer contains 6,000 gallons of oil and the berm provides storage for 7,000 gallons. The remaining portion of the site will drain into the municipal storm drain system that discharges into the Fore River. The closed drainage system was designed to discharge flows from a 25-Year storm without surcharging any structures. Calculations for the closed drainage system are included Appendix C. Table 2 below presents the peak Post Development runoff rates to the existing catch basin for the 2, 10 and 25-year storms. Table 3 on the following page compares the peak Predevelopment and Post Development runoff rates for the 25-year storm.

Table 2: Post Development Runoff

Description	2-Year Runoff (cfs)	10-Year Runoff (cfs)	25-Year Runoff (cfs)
Total Discharge to Municipal Drainage System	0.91	1.25	1.43

Table 3: Pre vs. Post Development Runoff - 25-Year Return Period (cfs)

Description	Pre-development (cfs)	Post Development (cfs)	Difference (cfs)
Discharge to Municipal Drainage System	1.47	1.43	-0.04

Water Quality: Under the City of Portland regulations on-site stormwater treatment is not required for this development. The containment berm around the transformers will protect the surrounding environment from an oil spill. Additionally during construction Best Management Practices will be used to control erosion and sediment.

Erosion Control: Best Management Practices (BMPs) from the "Maine Erosion and Sediment Control Handbook for Construction: Best Management Practices" will be used during and after construction to control sediment and erosion. Temporary measures include a stabilized construction entrance, silt fence, hay bales, erosion control matting, inlet protection, and temporary sediment traps. Slope stabilization will be installed on slopes steeper than 3:1 for permanent erosion control. The following outlines

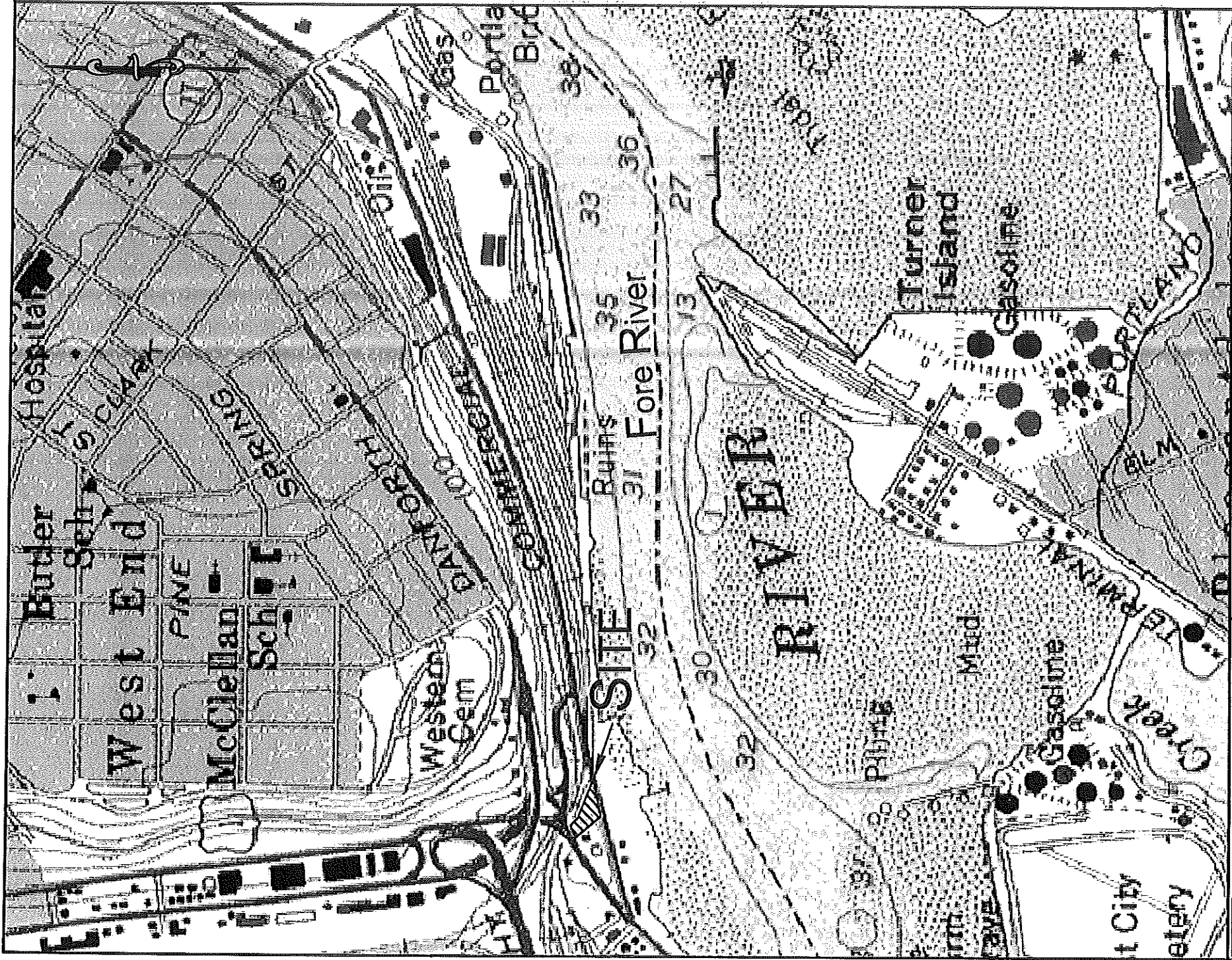
V. CONCLUSIONS

The proposed development will not increase stormwater runoff from the site. The post development runoff will continue to drain into the municipal storm drain system.

APPENDIX A
LOCUS MAP



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LOCUS MAP

FIGURE
 1

APPENDIX B
NRCS SOILS MAP



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