Watershed Plan for the North Chili Tributary of Black Creek O-117-19-7

I. Introduction

A. Background

1. Drainage Concerns

a. Summary

Generally all of the resident concerns/complaints result from residents living near flat, long drainage courses and the need to clean and maintain these channels. Problems are not a result of excessive volume. However, detention facilities may be helpful in some areas.

The lack of storm sewers in some areas requires house drainage and lot drainage to be discharged to the surface which, in most cases, is very flat and drains poorly. As a result numerous illegal storm sewer (roof and foundation drain) connections to the sanitary sewer systems have been made. During heavy rainfall, these additional loadings have caused the sanitary sewers to back up into basements. To protect the public health from these sewer backups, pumps are used to temporarily discharge excess sewer flows into adjacent water courses.

b. List of Areas of Concern

The following areas within the watershed have been the subject of drainage complaints:

(1) Brian Drive – west side near Stillmeadow Drive. The north to south channel has no slope. Some retention/detention may help this area.

(2) West Forest subdivision – south side. The development of King Forest subdivision may improve this situation through the development of onsite stormwater management facilities, extension of storm sewers, and paved concrete drainage channels.

(3) King Road – south side. Two larger sub-tributaries have been cleaned as of June 1997; three other branches need to be cleaned. The development of Springbrook subdivision, section "F", should help this area with the addition of a stormwater management facility that controls the rate of outflow.

(4) Parkway. Complaints not verified.

(5) Union Street opposite Parkway, north and west of the greenhouses. The channel in this area needs to be cleaned. It includes an area of federal wetlands that

require permits from the U.S. Army Corps of Engineers.

(6) Union Street – east side; branch runs from rear yard of homes along Paul Road, north through the Union Processing Company, to its junction with the North Chili Tributary. There are a number of problems along this channel that need to be improved/cleaned.

(7) North Chili tributary of Black Creek from Davis Road to Union Street. Needs cleaning.

2. Water Quality Concerns

a. Citizen Concerns about Water Quality

Citizens within the watershed of the North Chili tributary of Black Creek have been concerned with water quality issues as a result of steps taken in the past to relieve surcharged sanitary sewers, exacerbated by inadequate storm management systems. Those steps have included the discharge of sewage into adjacent watercourses in the interest of protecting property and public health. It is believed that unwanted infiltration/inflow (I/I) is a major contributor to this problem, and one that has to be addressed systematically.

Historical areas of concern:

(1) Parkway, including Maplewood Drive: Past history of basement backups and surcharged sanitary sewers during wet weather events.

(2) Watch Hill Trunk Sewer, including Watch Hill Drive, Evergreen Drive, Woodside Drive, West Cannon Drive, and Brian Drive: Past history of basement backups and surcharged sanitary sewers during wet weather events.

(3) Providence Drive, including portions of West Side Drive: History of basement backups and surcharged sanitary sewers during wet weather events.

b. Government Concerns about Water Quality

The Town of Chili and the Monroe County Department of Health are concerned about water quality problems in the North Chili tributary watershed that result from stormwater runoff, failing onsite sewage disposal systems, commercial floor drains, and point sources of pollutants.

(1) Stormwater runoff

The major source of pollution in most Monroe County streams is urban stormwater runoff. Stormwater runoff has a significant impact on the biological

integrity of urban streams. It has the potential to degrade the entire stream ecosystem, including water quality, bottom sediment, diversity of aquatic organisms, and aquatic habitat.

When stormwater runs over a surface, it transports materials on the surface to a waterway.

- When stormwater crosses rooftops and other impervious surfaces, it transports pollutants that have accumulated from the air (atmospheric deposition).
- When stormwater crosses impervious surfaces such as driveways, roads and parking lots, it transports oil and other fluids that have dripped from vehicles.
- When stormwater crosses land that is bare of vegetation, it transports soil particles and nutrients. Soil particles and nutrients that are not pollutants on the land may act as pollutants in a waterway.
- When stormwater crosses farmland or residential lawns, it may transport pesticides and fertilizers.

There is a direct relationship between the amount of impervious surface in a watershed and the level of stream quality. (See Figure 1 and descriptive text at the end of Chapter I.) The quantity and rate of stormwater runoff increases when impervious surfaces are constructed, increasing the amount of pollutant transport to a waterway unless measures are taken to slow and treat the runoff. There are many measures that can be taken to manage stormwater runoff. Whenever stormwater runoff concerns are addressed, mitigating measures that maximize water quality should be chosen. These measures may include constructed wetlands, specially designed retention ponds, and the use of grassed swales instead of concrete swales.

(2) Failing onsite sewage disposal systems

Some residences, particularly along Davis Road and Paul Road, are not on municipal sewer lines and rely on onsite sewage disposal systems. When onsite systems are improperly maintained or are designed for a lower volume of use than they are currently receiving, overflows of liquid wastes to the ground surface may occur. A failing system may pose health concerns along downstream waterways. It is currently unknown what the state of septic system failure is in this area.

(3) Commercial floor drains

Floor drains should be connected to the waste disposal system (i.e. sanitary sewer or septic system). There are two ways that commercial floor drains can contribute to water quality problems:

- If the drain is illegally connected to a stormwater sewer instead of a sanitary sewer, contaminants from the facility will be released to a waterway at the stormwater sewer discharge point. If the floor drain is connected to a dry well, contaminants may enter the groundwater.

- In cases where oil may be present, an oil/water separator may be required. If the oil/water separator is not maintained on a regular basis, oil will pass directly into the sanitary sewer or septic system. The separator must be maintained regardless of where the drain is connected. Size and application of the oil/water separator are subject to the review and approval of the local sewer authority if connected to a sanitary sewer, or to the review and approval of the Monroe County Department of Health if connected to a septic system or dry well.

(4) Point sources of pollutants

The only point source discharger of pollutants in the North Chili tributary watershed is a facility in an area where public sewers are not available. The facility, Union Processing Corporation, 3484 South Union Street, has a commercial sand filter wastewater disposal system with a discrete discharge point.

B. Watershed Plan Purpose

The purpose of the Watershed Plan for the North Chili Tributary of Black Creek is to define and manage stormwater runoff quantity and quality on a watershed basis, rather than piecemeal as new developments are proposed within the watershed. The Plan will address:

- Existing stormwater quantity (drainage) problems
- Prevention of future stormwater quantity problems
- Management of stormwater quality
- Benefits of natural and constructed wetlands to stormwater quality and quantity
- Benefits of protecting stream corridors
- Sanitary sewer management
- Onsite wastewater facility management

C. Plan Development Participants and Contributors

Participants in the development of the Watershed Plan for the North Chili Tributary of Black Creek were:

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Others who have contributed to the development of the Watershed Plan, additional to those listed above, are participants in a February 1997 meeting in which Town of Chili drainage and water quality issues were identified:

Roger Brandt, Cornerstone Group
John Cross, Town of Chili Planning Board Chair
William Kelly, Town of Chili Supervisor
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Insert Figure 1

Definitions for Terms Used in Figure 1

Sensitive Streams. These streams typically have a watershed impervious cover of zero to 10 percent. Consequently, sensitive streams are of high quality, and are typified by stable channels, excellent habitat structure, good to excellent water quality, and diverse communities of both fish and aquatic insects. Since impervious cover is so low, these streams do not experience frequent flooding and other hydrological changes that accompany urbanization. It should be noted that some sensitive streams located in rural areas may have been impacted by prior poor grazing and cropping activities that may have severely altered the riparian zone, and consequently, may not have all the properties of a sensitive stream. Once riparian management improves, however, these streams are often expected to recover.

Impacted Streams. Streams in this category possess a watershed impervious cover ranging from 11% to 25%, and show clear signs of degradation due to watershed urbanization. Greater storm flow begins to alter the stream geometry. Both erosion and channel widening are clearly evident. Stream banks become unstable, and physical habitat in the stream declines noticeably. Stream water quality shifts into the fair/good category during both storms and dry weather periods. Stream biodiversity declines to fair levels, with the most sensitive fish and aquatic insects disappearing from the stream.

Non-Supporting. Once watershed impervious cover exceeds 25%, stream quality crosses a second threshold. Streams in this category essentially become a conduit for conveying stormwater flows and can no longer support a diverse stream community. The stream channel becomes highly unstable, and many stream reaches experience severe widening, down-cutting, and streambank erosion. Pool and riffle structure needed to sustain fish is diminished or eliminated, and the stream substrate can no longer provide habitat for aquatic insects, or spawning areas for fish. Water quality is consistently rated as fair to poor, and water contact recreation is no longer possible due to the presence of high bacterial levels. Subwatersheds in the non-supporting category will generally increase nutrient loads to downstream receiving waters, even if effective urban BMPs are installed and maintained. The biological quality of non-supporting streams is generally considered poor, and is dominated by pollution-tolerant insects and fish.