Level 3 Project Study Plan

2014 Dugway Brook Environmental Monitoring

(1) Objectives

The objective of this study is to conduct environmental monitoring on Dugway Brook as part of the Northeast Ohio Regional Sewer District (NEORSD) general watershed monitoring program. In addition, this study will provide post construction data on the effects of the completion of the Dugway East Interceptor Relief System (DEIRS), as well as additional baseline data prior to the completion of the Dugway West Interceptor Relief System (DWIRS). In 2009 and 2010, the NEORSD conducted baseline environmental assessments at one site on the Dugway Brook Main Branch, two sites on the Dugway Brook East Branch, and two sites on the Dugway Brook West Branch. This baseline sampling was performed to assess the conditions of Dugway Brook prior to the completion of two capital improvement projects, the DEIRS and DWIRS, designed to reduce combined sewer overflow (CSO) events and increase interceptor capacity in portions of the cities of Cleveland, East Cleveland and Bratenahl. Construction of DIERS began in 2009 and was completed in 2011. Construction of DWIRS began in 2013, and is scheduled to be completed in 2016. The results of the 2014 Dugway Brook study will be compared to the data collected at the same sites in 2009 and 2010 to evaluate the effects of the implementation of the DEIRS on the conditions of the stream.

Data collection on Dugway Brook will consist of water chemistry samples to assess the chemical and bacteriological water quality conditions upstream and downstream on Dugway Brook. Fish, macroinvertebrate and habitat assessment will also be conducted on Dugway Brook downstream of the culvert where the brook becomes open water and on a site on the West Branch in Lakeview Cemetery and a NEORSD flood control dam. These results will be evaluated using the Ohio Environmental Protection Agency's (EPA) Qualitative Habitat Evaluation Index (QHEI), Index of Biotic Integrity (IBI), and Invertebrate Community Index (ICI). An examination of the individual metrics that comprise these indices will be used in conjunction with water quality data to identify impacts to the biotic communities. Water chemistry data will also be compared to the Ohio Water Quality Standards to determine attainment of applicable uses (Ohio EPA, 2011)[1].

[1] See Appendix H for a list of references.

(2) Point/Nonpoint Sources

Point Sources	Nonpoint Sources
Storm Sewer Outfalls	Urban runoff
Combined Sewer Overflows	Spills
Sanitary Sewer Overflows	Stormwater surface runoff

A map has been provided to show point sources that may be influencing the water quality at each sample location. These sources of pollution, along with the nonpoint sources listed in the table above, may be impacting the health of the fish and benthic macroinvertebrate communities in Dugway Brook and will need to be taken into account when evaluating changes to these communities following completion of the DEIRS and DWIRS projects.

(6) Sampling Locations

The following chemistry, habitat, electrofishing, and macroinvertebrate sample locations, listed from upstream to downstream on Dugway Brook, will be surveyed during the 2014 field season. HD and water chemistry collection sites are located within each electrofishing zone, indicated by River Mile, unless otherwise noted. GPS coordinates are recorded at the downstream end of each electrofishing zone.

Location	Latitude	Longitude	River Mile	Description	HUC 8	Purpose
Forest Hills Park Forest Hills Blvd. and Forest Hills Avenue	41.5218	-81.5850	N/A	Dugway Brook, East Branch Upstream of DEIRS Alignment	Ashtabula-Chagrin 04110003	Evaluate water chemistry post DEIRS Alignment
East 110th Street Salt Dome Road	41.5479	-81.6076	N/A	Dugway Brook, East Branch Downstream of DEIRS Alignment	Ashtabula-Chagrin 04110003	Evaluate water chemistry post DEIRS Alignment
North of Lakeshore Boulevard North of NEORSD Netting facility	41.5509	-81.6086	0.37	Dugway Brook Main Branch North of Lakeshore Boulevard	Ashtabula-Chagrin 04110003	Evaluate water chemistry, fish, habitat and macroinvertebrates
Lakeview Cemetery downstream of NEORSD flood control dam	41.5122	-81.5905	2.40	Dugway Brook, West Branch Upstream section	Ashtabula-Chagrin 04110003	Evaluate water chemistry, fish, habitat and macroinvertebrates post DWIRS Alignment
10658 Dupont Avenue	41.5446	-81.6118	N/A	*Dugway Brook, West Branch	Ashtabula-Chagrin 04110003	Evaluate water chemistry post DWIRS Alignment
*This is the furthest downstream access location of all regulators tributary to the West Branch of Dugway Brook. It should be noted that there are two regulators (D-61 & D-03A) downstream of this location that will not be captured during sample collection as there is no access to the culvert downstream of this location.						

Northeast Ohio Regional Sewer District
Protecting Your Health and Environment

Overview Map

Dugway Brook Environmental Monitoring

RM 0.37

East Branch at E. 110th & Salt Bin

West Branch at Dupont Avenue

East Branch at Forest Hills Park

RM 2.4, West Branch at Lakeview Dam

- Sample Sites
- Stream
- CSO Outfall
- Outfalls
- District Facility
- NEORSD CSO Combined Sewer
- NEORSD CSO Responsibility Sewer
- NEORSD Intercommunity Relief Sewer
- NEORSD INTERCEPTOR
- Local Combined Sewer
- Local Culverted Stream
- Local Sanitary Sewer
- Local Storm Sewer

N

0.4

Miles