Department of Environmental Conservation

Division of Environmental Remediation

Amended Record of Decision

Gratwick Riverside Park Site
City of North Tonawanda, Niagara County
Site Number 9-32-060

December 1998

New York State Department of Environmental Conservation
GEORGE E. PATAKI, *Governor* JOHN P. CAHILL, *Commissioner*

DECLARATION STATEMENT - AMENDED RECORD OF DECISION

Gratwick Riverside Park Inactive Hazardous Waste Site
City of North Tonawanda, Niagara County, New York
Site No. 9-32-060

Statement of Purpose and Basis

This amended Record of Decision (ROD) presents the selected remedial action for the Gratwick Riverside Park Site inactive hazardous waste disposal site which was chosen in accordance with the New York State Environmental Conservation Law (ECL). The remedial program selected is not inconsistent with the National Oil and Hazardous Substances Pollution Contingency Plan of March 8, 1990 (40CFR300).

This decision is based upon the Administrative Record of the New York State Department of Environmental Conservation (NYSDEC) for the Gratwick Riverside Park Site Inactive Hazardous Waste Site and upon public input to the Proposed Remedial Action Plan (PRAP) presented by the NYSDEC. A bibliography of the documents included as a part of the Administrative Record is included in Appendix B of the ROD.

Assessment of the Site

Actual or threatened release of hazardous waste constituents from this site if not addressed by implementing the response action selected in this ROD, presents a current or potential significant threat to public health and the environment.

Description of Selected Remedy

Based upon the results of the Remedial Investigation/Feasibility Study (RI/FS) for the Gratwick Riverside Park Site, subsequent field investigations, and the criteria identified for evaluation of alternatives, the NYSDEC has selected a remedy to contain site wastes and contaminated groundwater by installing a cover over the site and installing a barrier wall and collection trench to recover groundwater and prevent its discharge to the Niagara River. The components of the amended remedy are as follows:

- Installation of a groundwater barrier along the entire length of the site shoreline. The barrier wall will reduce the hydraulic connection between site groundwater and the Niagara River.

- A groundwater collection trench. The groundwater will be treated if necessary and will be released to North Tonawanda Waste Water Treatment Plant. The original ROD called for groundwater collection using extraction wells.

- Installation of rock islets (rock-mound breakwaters) at selected locations along the length of the river at a distance ranging from approximately 50 to 100 feet from the edge of the water line at the shore. Sediments between the shoreline and the rock islets will be covered with hydric soils and/or rip-rap. Shoreline soil will be stabilized with common soil, gabion mats, and vegetation along the entire length of the shoreline except areas of competent slag near the southern end of the site. The original ROD called for a sheet pile breakwater along the shoreline to protect against erosion from the river.

- Stabilization of the black viscous material in the pothole area.

- A permeable soil cap will be placed over the entire site. The cap will consist of twelve inches of common soil and six inches of top soil. The cap will prevent cont act with the surface soil and allow infiltration to percolate through the fill, flushing contaminants.

- Implementation of a long-term monitoring plan and regular operation and maintenance of the components of the remedy as constructed.

- Take actions needed to obtain deed restrictions to prevent any future use of the property that would breach the integrity of the final cap, or any component of the containment system; disturb or disrupt the function of the site's monitoring system; or otherwise increase the potential hazard to human health and the environment.

New York State Department of Health Acceptance

The New York State Department of Health concurs with the amended remedy selected for this site as being protective of human health.

Declaration

The selected remedy is protective of human health and the environment, complies with State and Federal requirements that are legally applicable or relevant and appropriate to the remedial action to the extent practicable, and is cost effective. This remedy utilizes permanent solutions and alternative treatment or resource recovery technologies, to the maximum extent practicable, and satisfies the preference for remedies that reduce toxicity, mobility, or volume as a principal element.

1/6/99
Date

Michael J. O'Toole, Jr., Director
Division of Environmental Remediation

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Amended Record of Decision
Gratwick Riverside Park Site
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1.0 Summary of The Record of Decision

The New York State Department of Environmental Conservation (NYSDEC) in consultation with the New York State Department of Health (NYSDOH) has selected an amended remedy to address the significant threat to human health and/or the environment created by the presence of hazardous waste constituents at the Gratwick Riverside Park Site. As more fully described in Sections 2 and 3 of this document, landfill activities have resulted in the disposal of a number of hazardous wastes, including phenolic resins, phenolic molding compounds, waste oil residues and laboratory chemicals at the site, some of which were released or have migrated from the site to surrounding areas, including the Niagara River. These disposal activities have resulted in the following significant threats to the public health and/or the environment:

- a significant threat to human health associated with dermal contact and incidental ingestion or inhalation of contaminated surficial soils by persons using the site,

- a significant environmental threat associated with the impacts of contaminants to groundwater and potentially to surface water and sediment.

In order to restore the Gratwick Riverside Park inactive hazardous waste disposal site to predisposal conditions to the extent feasible and authorized by law, but at a minimum to eliminate or mitigate the significant threats to the public health and/or the environment that the hazardous waste disposed at the site has caused, the following remedy was selected:

- Installation of a groundwater barrier along the entire length of the site shoreline. The barrier wall will reduce the hydraulic connection between site groundwater and the Niagara River.

- A groundwater collection trench. The groundwater will be treated if necessary and will be released to North Tonawanda Waste Water Treatment Plant. The original ROD called for groundwater collection using extraction wells.

- Installation of rock islets (rock-mound breakwaters) at selected locations along the length of the river at a distance ranging from approximately 50 to 100 feet from the edge of the water line at the shore. Sediments between the shoreline and the rock islets will be covered with hydric soils and/or rip-rap. Shoreline soil will be stabilized with common soil, gabion mats, and vegetation along the entire length of the shoreline except areas of competent slag near the southern end of the site. The original ROD called for a sheet pile breakwater along the shoreline to protect against erosion from the river.

- Stabilization of the black viscous material in the pothole area.

- A permeable soil cap will be placed over the entire site. The cap will consist of twelve inches of common soil and six inches of top soil. The cap will prevent contact with the surface soil and allow infiltration to percolate through the fill, flushing contaminants.

- Implementation of a long-term monitoring plan and regular operation and maintenance of the components of the remedy as constructed.

- Take actions needed to obtain deed restrictions to prevent any future use of the property that would breach the integrity of the final cap, or any component of the containment system; disturb or disrupt the function of the site's monitoring system; or otherwise increase the potential hazard to human health and the environment.

The amended remedy, summarized in Section 5 of this document, is intended to attain the remediation goals selected for this site, in Section 4 of this Record of Decision (ROD), in conformity with applicable standards, criteria, and guidance (SCGs).

2.0 Site Location and Description

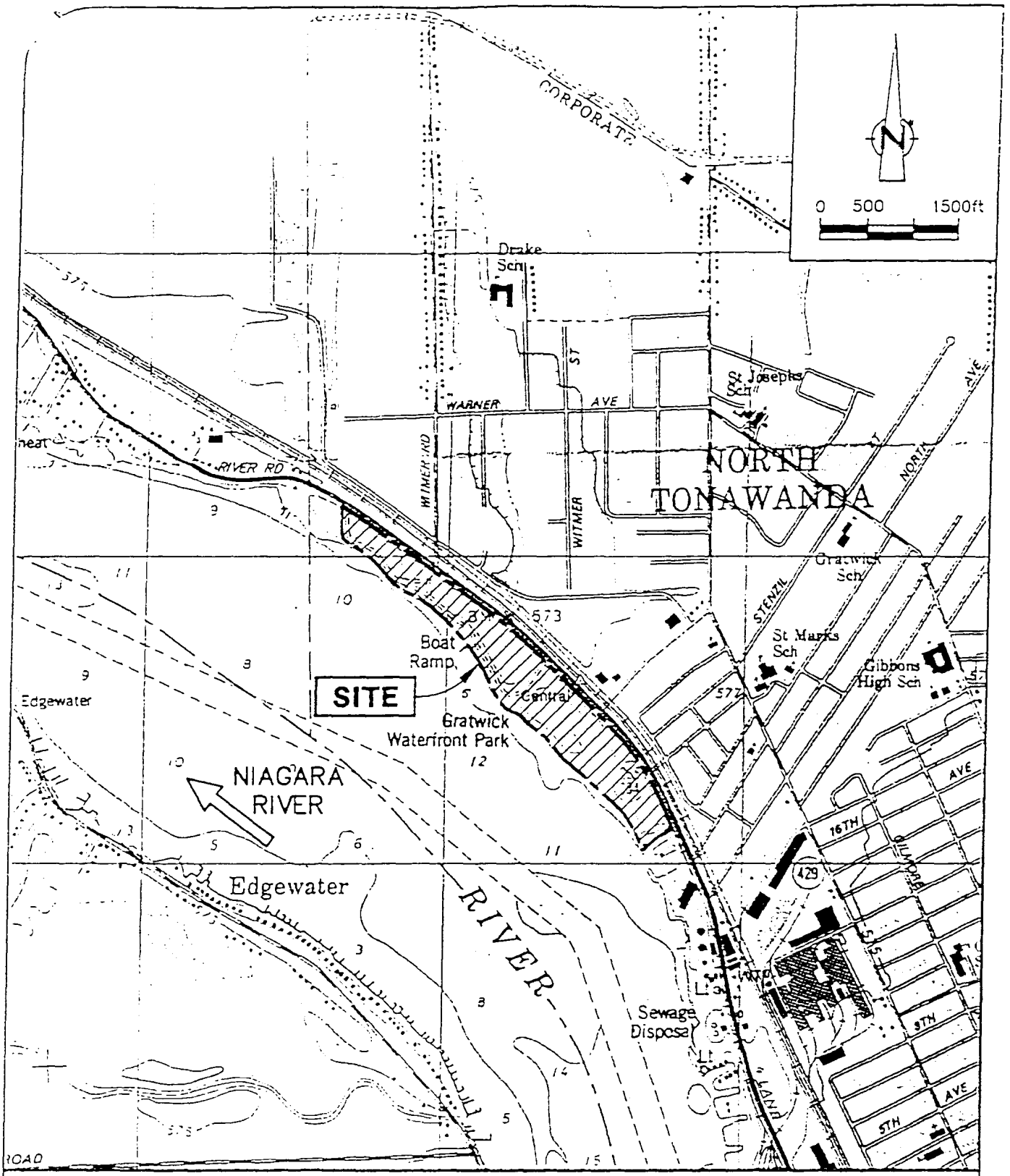
2.1 Site History

The 53 acre site is located along the Niagara River, north of the South Grand Island Bridges (Please see figure 1), in the City of North Tonawanda, Niagara County, in an area zoned as industrial. Approximately half of the site is an active park with a boat launch. The other half is a combination of an undeveloped area and a dog walk area.

The site consists of approximately 13 feet of fill material underlain by 30 feet of lacustrine silt and clay/till lying on Camillus Shale. The fill material is very permeable, whereas the till acts as an aquitard to downward migration of the contaminants. The top 10 feet of the underlying Camillus Shale is weathered. The groundwater flow is generally to the west towards the Niagara River. There is an occasional nearshore groundwater flow reversal caused by the fluctuations in the level of the Niagara River.

Aerial photographs indicate that the site was used as a landfill between 1938 and 1968. Documented (municipal and industrial) waste disposal occurred from 1962 to 1968. Materials disposed at the site include general refuse, phenolic resins, phenolic molding compounds, waste oil distillation residues and grease, molding sand, incinerator ash, slag, and laboratory chemicals. The landfill site was closed in 1968 and was subsequently graded, covered and grassed. The site was reopened as a park in 1969 by the City.

The list of potentially responsible parties (PRPs) includes: Niagara Mohawk Power Corporation, the City of North Tonawanda (the City), the Durez Division of Hooker Chemical, Bell Aerospace -



SOURCE: USGS QUADRANGLE MAPS
TONAWANDA WEST, N.Y. (1980)

figure 1

SITE LOCATION
REMEDIAL ACTION
GRATWICK–RIVERSIDE PARK SITE
North Tonawanda, New York

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Textron, and Booth Oil Company. On May 16, 1996 the PRPs signed an Order on Consent and agreed to design and implement the remedy. Three PRPs (Niagara Mohawk, Occidental Chemical Corporation and the City), referred to as the performing parties (PPs), are actively involved with the actual implementation of the remedial activities after settlement with the other parties.

2.2 Nature and Extent of Site Contamination

As described in the original ROD and other documents, many soil, groundwater, and surface water samples were collected at the Site to characterize the nature and extent of contamination. The investigations indicated that soil at the site is primarily contaminated with semi-volatile organic compounds (SVOCs), mainly Polycyclic Aromatic Hydrocarbons (PAHs), in the fill material.

Soils

A number of organic compounds were detected in the subsurface soil samples during the remedial investigation. The highest observed concentration of volatile organic compounds (VOCs) in subsurface soil was 45 parts per billion (ppb). Total Xylenes and carbon disulfide were the most commonly detected VOCs. The highest observed concentration of SVOCs in the subsurface soil was 277,520 parts per billion (ppb). These concentrations consist primarily of PAHs. Phenanthrene was the most commonly detected SVOC. Metals were detected in most shoreline soil samples, with arsenic, copper, zinc and lead having the highest concentrations.

High concentrations of PCBs were also detected in shoreline soil samples. A shoreline removal action was carried out during August 1989 to remove these materials using a NYSDEC standby spill contractor. A total of approximately 50 cubic yards of material containing high concentration of PCBs was removed and properly disposed.

Sediments

A sediment investigation was not included in the original RI. During subsequent site inspections, seeps were observed along river bank and six sediment samples were collected by NYSDEC from the Niagara River on December 20, 1996 (See Section 3.1 New Information below).

Groundwater

Several SVOCs, VOCs and metals were found in the site groundwater at concentrations in excess of the groundwater standards. The maximum total VOCs and SVOCs detected in upper aquifer were 34,018 ppb and 15,031 ppb respectively. The highest concentrations of individual compounds in the upper aquifer were for 4-methyl-2-pentanone (16,000 ppb), acetone (8,100 ppb), phenol (5,800 ppb), 2-butanone (3,300 ppb) and trichloroethene (2,200 ppb).

Contaminants from the site are discharged to the Niagara River via groundwater and erosion of the shoreline and on-site surficial soil.

2.3 Summary of Human Exposure Pathways

The completed pathways for human exposure include the following :

- Incidental ingestion of contaminated surficial soils by persons using the site,
- Dermal contact with contaminated surficial soils by persons using the site,
- Inhalation of contaminated dust by persons using or living near the site;
- Dermal contact with contaminated shallow groundwater during recreational activities near the shoreline (boat launch); and
- Dermal contact with contaminated sediments during recreational activities near the shoreline (fishing, boating).

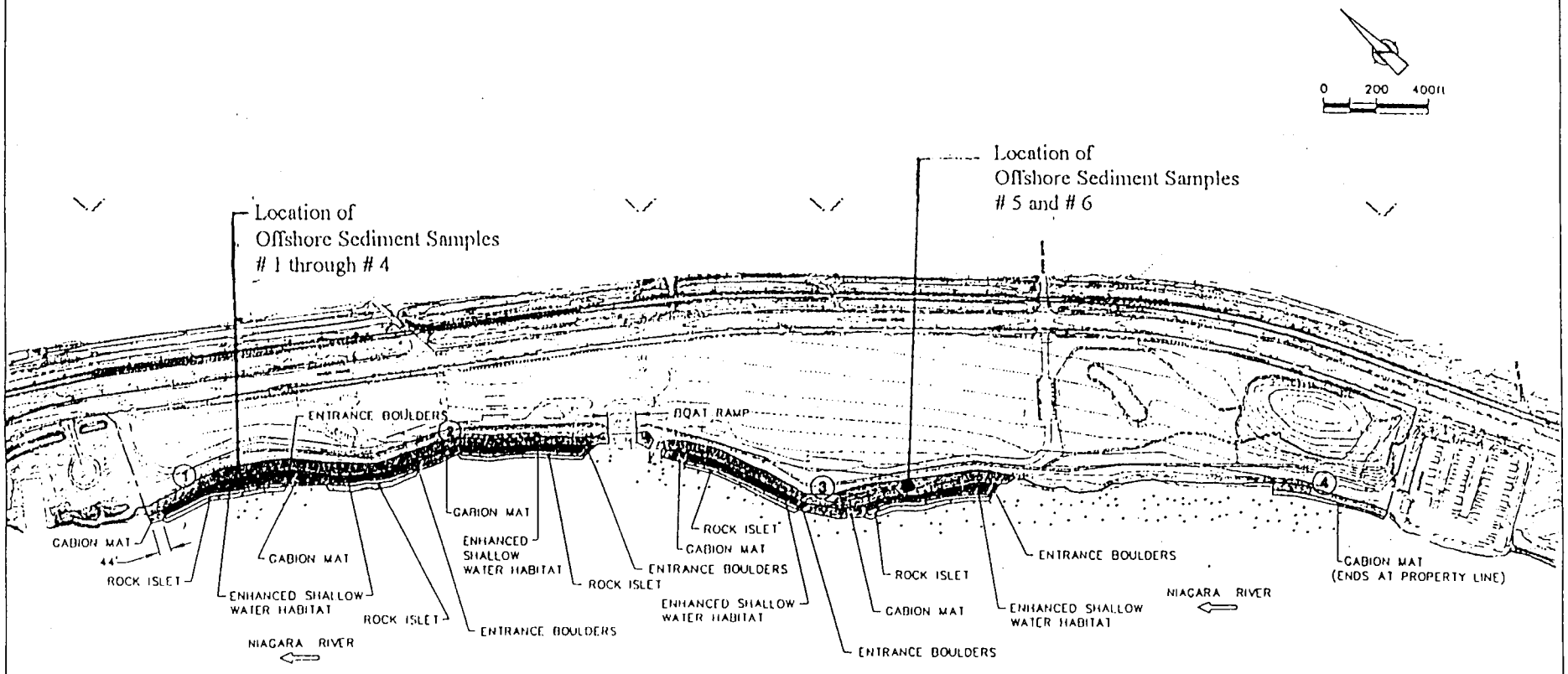
2.4 Summary of Environmental Exposure Pathways

The primary potential impact of the site is upon groundwater and the Niagara River. The Niagara River is a major natural resource that serves as a drinking water supply source and is ecologically important for its diverse value to fish and wildlife. Based on the data collected during the RI, it is estimated that about 2.6 lbs/day of organic compounds and 2.0 lbs/day of total metals are discharged to the Niagara River through groundwater emanating from the site. In addition to groundwater discharge, erosion of surficial and shoreline soils is of concern since PAHs (range 50 to 18,000 ppb) were detected in surficial and shoreline soils. Sediments are essential components of aquatic ecosystems. They provide habitat for a wide variety of benthic organisms. The organisms in sediments are in constant contact with any contaminants that may be adsorbed to the sediment particles. Sediments in the vicinity of the site are contaminated with site related chemicals and this is of concern. These sediments pose a potential threat to the benthic community.

3.0 Description of Changes to Original Remedy

3.1 New Information

In December 1996, the NYSDEC obtained sediment samples from the Niagara River alongside the Site at six locations (see Figure 2). The analytical results from these samples (see Tables 1 and 2) were then compared with levels given in the DEC document entitled, "Technical Guidance for Screening Contaminated Sediments," (November 1993). Several contaminants were present at concentrations above the screening levels. Copper, lead, and zinc were consistently found at concentrations above the screening levels. As stated in the guidance, "Sediments with contaminant concentrations that exceed the criteria listed in this document are considered to be contaminated, and potentially causing harmful impacts to marine and aquatic ecosystems." To evaluate the significance of these potentially harmful impacts, comprehensive studies can be completed to acquire data, perform risk assessments, and ultimately predict impacts. In May 1997, the DEC proposed a Sediment Sampling and Analysis Plan



LEGEND

PROPERTY LINE

EXISTING MARSH/WEEDS (APPROXIMATE)

(2) PHOTOGRAPH LOCATION

NOTE: SHORELINE LENGTH BETWEEN PROPERTY LINES ADJACENT TO SITE APPROXIMATELY 4990 ft.

RIVER LEVELS	UPSTREAM SITE BOUNDARY	DOWNSTREAM SITE BOUNDARY
ANNUAL MEAN	563.88	563.52
MAX MONTHLY MEAN	565.55	565.21
MAX DAILY MEAN	567.12	566.71

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figure 2
SHORELINE STABILIZATION/RIVER ENHANCEMENTS
REMEDIAL ACTION
GRATWICK-RIVERSIDE PARK SITE
North Tonawanda, New York

Table - 1

GRATWICK RIVERSIDE PARK - Site # 9-32-060
Sediment Sample Results - Metals
Date Samples Collected: 12-20-96

CONTAMINANTS	Units	Sediment Criteria(ppm)		Sample Nos.					
		SEL	LEL	S1	S2	S3	S4	S5	S6
METALS (Total)									
Antimony	mg/kg	25	2	3.8B	4.5B	7.6B	4.8B	-	1450
Cadmium	mg/kg	9	0.6	4.2	7.1	2.8	-	-	44.6
Copper	mg/kg	110	16	256	372	1280	201	44.0	226
Iron	mg/kg	4%	2%	45800	37900	84500	58800	26300	33800
Lead	mg/kg	110	31	471	346	456	367	269	26900
Nickel	mg/kg	50	16	32.4	31.0	37.8	25.7	18.3	589
Zinc	mg/kg	270	120	593	3280	1070	415	50.6	87.7
METALS (TCLP)		TCLP (Reg-levels) (ppb)							
Antimony	ug/l			-	-	-	-	-	130B
Cadmium	ug/l	1000		170	64.3	179	60.6	20.8B	50.8
Copper	ug/l	-		-	22.4B	-	82B	-	31B
Iron	ug/l	-		164000	133000	250000	79700	325000	857000
Lead	ug/l	5000		4980	4270	5080	3540	781	577
Nickel	ug/l	-		253B	299B	361B	117B	131B	261B
Zinc	ug/l	-		50500	13800	16200	6960	766	14100

Notes:(Table - 1): 1. SEL - Severe Effect Level.
2. LEL - Lowest Effect Level.
3. TCLP - Toxicity Characteristic Leachate Procedure.
4. ppm - parts per million.
5. ppb - parts per billion.
6. B - analyte is found in blank as well as in the sample.

Notes:(Table - 2):7. TCLP volatiles and semi-volatiles: non detect at 100 ug/l or less than 100 ug/l.
8. Sediment criteria based on Benthic Aquatic Life Chronic Toxicity and 1% organic contents, except where noted.
9. * - Values based on human health bioaccumulation. ** - Values based on wildlife bioaccumulation.
10. P - Used to report the lower of the two values for Aroclor target analyte when there is greater than 25% difference between the two GC columns.
11. X - indicates alternate chromotographic peek calculation qualifier.

Table - 2

Gratwick Riverside Park Site - Sediment Samples - SVOCs & PCBs							
Analyte Date of Sample Units	S1 12/20/96 ug/kg	S2 12/20/96 ug/kg	S3 12/20/96 ug/kg	S4 12/20/96 ug/kg	S5 12/20/96 ug/kg	S6 12/20/96 ug/kg	Sediment Criteria ug/kg
Phenol	-	63J	200J	180J	-	34J	5
1,3-Dichlorobenzene	-	20J	-	-	10J	-	120
1,4-Dichlorobenzene	21J	160J	230J	46J	35J	18J	120
1,2-Dichlorobenzene	-	29J	18J	16J	72J	-	120
2-Methylphenol	-	-	-	-	-	10J	-
bis(2-Chloroisopropyl)ether	-	-	-	-	26J	-	-
4-Methylphenol	-	-	-	-	-	13J	-
2-Nitrophenol	36J	-	-	-	-	-	-
2,4-Dimethylphenol	-	-	-	-	-	13J	-
bis(2-Chloroethoxy)methane	-	-	-	12J	-	-	-
1,2,4-Trichlorobenzene	-	26J	-	22J	480	-	910
Naphthalene	12J	30J	21J	35J	70J	80J	-
2-Methylnaphthalene	10J	20J	20J	13J	100J	83J	-
2,4,6-Trichlorophenol	-	-	-	60J	-	-	-
Acenaphthylene	-	-	22J	-	-	-	-
2,6-Dinitrotoluene	-	-	-	-	-	30J	-
Acenaphthene	44J	-	50J	-	21J	29J	1400
2,4-Dinitrophenol	90J	-	-	-	-	-	-
4-Nitrophenol	370J	-	-	-	-	-	-
Dibenzofuran	90J	400	11000E	29000E	48J	90J	-

Gratwick Riverside Park Site - Sediment Samples - SVOCs & PCBs (cont'd)							
Analyte Date of Sample Units	S1 12/20/96 ug/kg	S2 12/20/96 ug/kg	S3 12/20/96 ug/kg	S4 12/20/96 ug/kg	S5 12/20/96 ug/kg	S6 12/20/96 ug/kg	Sediment Criteria ug/kg
Fluorene	52J	24J	130J	87J	28J	43J	-
Hexachlorobenzene	-	42J	-	51J	-	-	55,700
Phenanthrene	470	210J	1000	130J	120J	240J	1200
Anthracene	34J	50J	230J	32J	-	39J	-
di-n-Butylphthalate	170J	2000	71J	440	-	-	-
Fluoranthene	490	420	3200E	180J	130J	260J	10200
Pyrene	450	370J	4500E	170J	130J	280J	-
Benzo(a)anthracene	160J	230J	360J	89J	52J	150J	13 (*)
Chrysene	200J	240J	320J	110J	58J	140J	13 (*)
bis(2-Ethylhexyl)phtalate	450B	330BS	680B	860B	270BJ	110BJ	1995
di-n-Octylphthalate	200J	25J	270J	-	87J	160J	-
Benzo(b)fluoranthene	540	380J	370J	170J	120J	120J	13 (*)
Benzo(k)fluoranthene	260J	150J	150J	64J	48J	57J	13 (*)
Benzo(a)pyrene	430	310J	280J	140J	51J	65J	13 (*)
Indeno(1,2,3-c,d)pyrene	160J	120J	100J	48J	29J	33J	13 (*)
Dibenzo(a,h)anthracene	33J	-	-	-	-	-	-
Benzo(g,h,i)perylene	69J	85J	91J	32J	-	21J	-
PCB's ug/kg AROCLOR-1248	65PX	290PX	-	-	-	-	14 (**)
ARCOLOR-1254	230X	540PX	320X	240PX	-	-	14 (**)

NOTES: For notes see Table - 1.

to the PPs to obtain additional data for making these determinations. In June 1997, the PPs resampled the river sediments. The resulting analytical data was consistent with the December 1996 DEC results.

In August 1997, the PPs submitted a "Review of NYSDEC Sediment Sampling Plan." The review concluded that "some of the chemicals detected in the sediments were attributable to the Site." The PPs completed a preliminary human health and ecological risk assessment to determine if these chemicals posed an unacceptable risk. The assessments concluded that "there is no unacceptable additional health risk from the chemicals in the sediments and that any adverse ecological effect from the chemicals in sediments would be very small." The PPs proposed that remediation of the sediments is not necessary. The PPs also expressed the concern that the time and money needed to comprehensively evaluate the ecological risks were out of proportion to the cost of the likely response actions that could be taken at the Site.

Because of the uncertainties in these evaluations, the DEC concluded that it was premature to decide that no remediation was necessary. After continuing discussions and evaluations, the DEC and PPs concluded that another approach was feasible. The approach was to recognize that reasonable steps could be taken to contain the potential threat posed by the presence of Site related contaminants in the sediment and that these steps would have the added benefit of significantly increasing the quality of the near shore aquatic habitat. Specifically, an alternative to place clean cover over the sediments to minimize the potential for contaminant exposures and releases along with physical modifications to the shoreline to prevent shoreline erosion and enhance habitat values was evaluated. This alternative is the subject of this proposed change to the original remedy.

3.2 Changes to Remedy

The original ROD (dated February 14, 1991) called for the installation of a sheet pile breakwater along the entire length of the shoreline, to prevent erosion of contaminated shoreline soils as well as reducing the hydraulic connection between the on-site overburden groundwater and the Niagara River. On May 16, 1996 the PPs signed an Order on Consent and agreed to design and implement the remedy. When the Scope of Work (SOW) was being developed for the design and implementation of the remedy, a review of site conditions showed that it would be difficult to install the sheetpile wall through the slag which underlies the site. Also, the sheetpile wall was not considered desirable for either shoreline habitat or a park setting. Therefore, instead of a sheetpile wall, the SOW included a clay barrier wall for groundwater control. To prevent erosion of shoreline soils, the SOW envisioned a combination of a more gradual slope and surface features (e.g. rip-rap) to minimize soil loss.

The approach to stabilizing the shoreline underwent further review during the actual design. Disturbance of the shoreline or the river during construction must comply with regulations administered by Department and the U.S. Army Corps of Engineers (ACOE). To comply with the intent of these regulations, which are independent of any sediment contamination issues, a proposal was developed that would stabilize the shoreline as well as protect and improve habitat values along the shoreline of the site. This proposal had the added benefit of addressing the sediment contamination discovered since the original ROD. Specifically, rock islets (rock-mound breakwaters) will be installed along the length of the river at a distance ranging from approximately 50 to 100 feet from the edge of the water line at the shore (see Figure 3). All sediments (whether contaminated or not) between the shoreline and the rock islets will be covered with a minimum of 12" of hydric soils (saturated soils that supports wetland

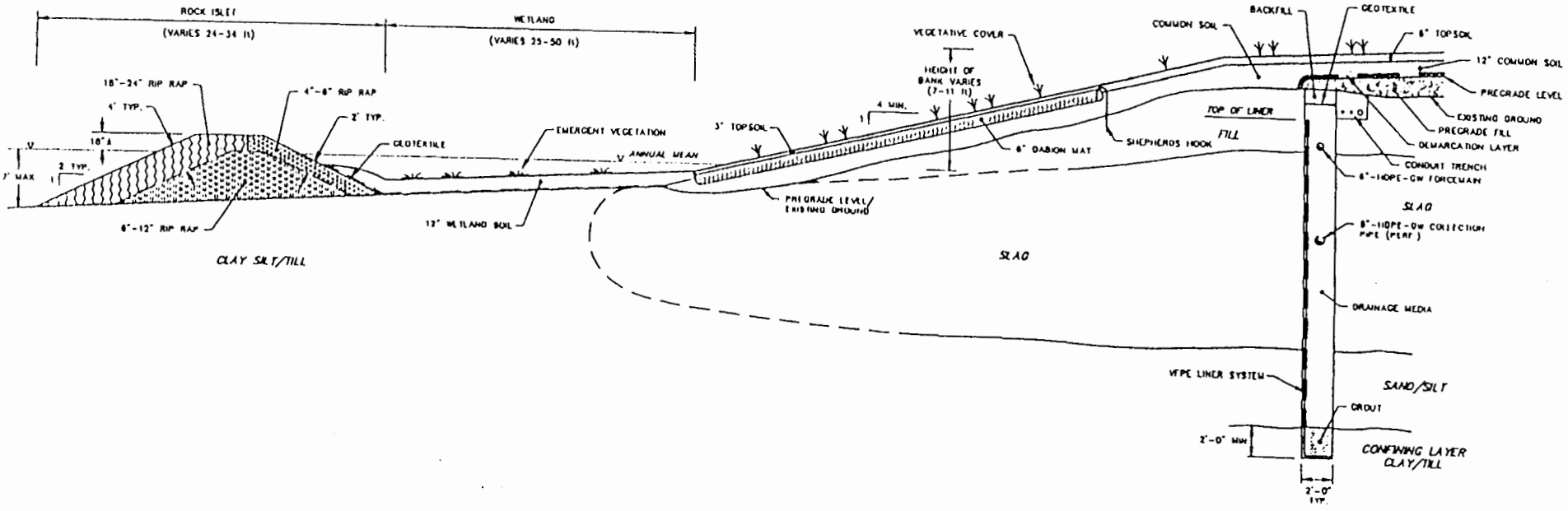

figure 3

TYPICAL CROSS-SECTION DETAIL
GRATWICK-RIVERSIDE PARK SITE
North Tonawanda, New York

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vegetation). Sediments will be covered with 6" of hydric soil and 9" of gabion mattress in areas where rock islets are not included. The New York State Office of Parks, Recreation and Historic Preservation is currently involved in a Rehabilitation Project at the Buckhorn State Park. The Buckhorn Project was permitted by the NYSDEC and US ACOE to allow the dredging of the soils within the marsh for identified beneficial uses. Buckhorn dredged soils can be made available to the City of North Tonawanda for use as the hydric soil for creation of the wetlands. The shoreline will be covered with 12" of common soil, 6" gabion mattress and 3" top soil. Exposed competent slag exists for about 1000 feet near the southern end of the site. All construction and demolition debris and waste material between the barrier wall and the river above competent slag will be removed from this area. The competent slag in this area will not be covered.

The sloped bank will be protected with rip-rap gabions and rock islets along the shoreline. During final design, two types of barrier walls (Bentonite slurry wall and High Density Poly Ethylene (HDPE) wall) were evaluated by the design consultant. Based on this evaluation the HDPE wall was selected.

To obtain the data needed to design the groundwater collection system, a pump test was performed. The results indicated that to capture groundwater all along the site, a significantly greater number of wells would be needed than was estimated in the original ROD. This led to a reevaluation of the use of a collection trench for groundwater. Since a decision had been made to use an HDPE barrier wall instead of sheet piling, and "single-pass" construction techniques are more available, installing a collection trench became more cost effective than many wells. The amended remedy will include a groundwater collection trench rather than separate wells.

The other main elements of the remedy are as follows:

- A barrier wall with a groundwater collection trench will be installed along the entire length of the site. This barrier wall will be anchored a minimum of 2 feet into the existing clay/till confining layer. The original ROD included a sheetpile breakwater and overburden withdrawal wells. The purpose of the barrier and groundwater collection is to prevent contaminated groundwater from discharging to the Niagara River. Collected water will be treated, if necessary, and discharged to the City wastewater treatment plant.

- A permeable soil cap consisting of twelve inches of common soil and six inches of top soil will be installed over the entire site as per the original ROD.

- Stabilization of the black viscous material in the pothole area before installation of the soil cap. The original ROD stipulated that the pothole area will be addressed either as an Interim Remedial Measure (IRM) or during remedial design. A treatability study to evaluate the effectiveness of in-place solidification of the black viscous material was performed during the remedial design. The data collected during this treatability study were used to determine the proper mix of soil and cement to prevent contaminant migration.

- A monitoring plan will include groundwater monitoring, surface water monitoring, and water level monitoring. The Operation & Maintenance (O&M) Plan will include the procedures and requirements for all operation and maintenance of the remedy as constructed including breakwaters and wetlands.

4.0 Evaluation of Changes

4.1 Remedial Objectives

The remedial objectives selected for the cleanup of this site are listed below. Objectives "a" to "d" are as established in the original ROD. Objective "e" is added as a result of this amendment.

a. Prevent direct human contact with on-site surface soils thereby reducing the total incremental risk;

b. Prevent erosion of contaminated on-site surficial and shoreline soil from the Gratwick Site into the Niagara River;

c. Limit the migration of contaminated groundwater from the site into the Niagara River based on the findings of the "Reduction of the toxic loadings to the Niagara River from Hazardous Waste Sites in the United States" Reports;

d. Reduce contaminant levels in the groundwater in order to achieve groundwater standards; and

e. Minimize potential adverse impacts from site related contamination in river sediments alongside the site.

4.2 Remedial Alternatives

The following three alternatives were considered by the Department to address contamination found in the sediment since the original ROD. First, a no action alternative; second, an alternative to enhance the habitat and cover sediments as described above; and third, a removal and on-site or off-site disposal alternative.

Since the sediments were not fully characterized and a potential threat based on limited sampling was identified, a no action alternative was not acceptable.

The habitat based cover in-place alternative was evaluated and was found to be feasible and appropriate. The cover in-place alternative would: (1) reduce risks by eliminating exposure of aquatic biota to sediment chemicals of concern, (2) provide a clean substrate for wetland development, (3) reduce leaching of contaminants and (4) eliminate the need for post-remedial confirmatory sampling. The 12-inch fill proposed for the remediation is expected to provide adequate separation between the contaminated sediments and the aquatic organisms. Therefore, this alternative has been selected for remedial action.

A removal and on-site or off-site disposal alternative would be possible. However, sediment removal would be difficult (because of slag) and costly. A removal alternative would pose greater short-term risks and would not provide a substrate suitable for wetland development and therefore, was not selected.

4.3 Evaluation Criteria

The criteria used to compare the remedial alternatives are defined in the regulation that directs the remediation of inactive hazardous waste sites in New York State (6 NYCRR Part 375). For each criterion, a brief description is provided. A discussion of the evaluation criteria is contained in the original Feasibility Study.

The first two evaluation criteria are called threshold criteria and must be satisfied in order for an alternative to be considered for selection.

1. Protection of Human Health and the Environment. This criterion is an overall evaluation of the health and environmental impacts to assess whether each alternative is protective. It incorporates several of the criteria listed below with an emphasis on achieving the remediation goals described above.

The original remedy would offer overall protection of human health and environment by: (a) preventing ingestion and direct contact exposure to contaminants; (b) eliminating the potential for erosion of waste materials resulting in transport of the contaminants to surface water;(c) preventing the transport of contaminants with groundwater. The amended remedy would offer the same overall protection of human health and environment in a similar manner. In addition the use of cover material over the contaminated sediments in the river would prevent ingestion and direct contact exposure to contaminants by human and aquatic life.

2. Compliance with New York State Standards, Criteria, and Guidance (SCGs). Compliance with SCGs addresses whether a remedy will meet applicable environmental laws, regulations, standards, and guidance.

The chemical specific SCGs for the Gratwick Riverside Park Site are as follows: (a) for groundwater and surface water - 6NYCRR Parts 700-705, water quality regulations for surface water and groundwater; (b) for soils - the process for deriving guidance values is given in NYSDEC Division of Environmental Remediation Guidance Memorandum: "Determination of Soil Cleanup Objectives Cleanup Levels" (TAGM 4046); (c) for sediments - guidance values given in NYSDEC document entitled Technical Guidance for Screening Contaminated Sediments - March 1998."

The State of New York has developed guidance values for evaluating sediment contamination. The concentration of several contaminants in the sediments in Niagara River in the vicinity of the site somewhat exceed these guidance values. The amended remedy includes covering the sediments with hydric soils and/or hydric soil and rip-rap. This will indirectly satisfy this requirement by preventing ingestion and direct contact exposure to contaminants. The thickness and texture of the existing sediment along the shoreline varies considerably. The existing shoreline sediments have little habitat value. Adding hydric soil will result in the sediment remediation and will allow the area to be vegetated thereby increasing the quantity and quality of the near-shore habitat.

A location specific SCG is 6NYCRR Part 608, which regulates placement of fill in navigable waters and protected streams. The Niagara River is both a navigable water and a protected stream. Changing the shoreline stabilization part of the remedy to include sediment remediation requires placing soil in

the river to cover existing sediments. Placement of the rock islets in the river is necessary to reduce erosion of the sediment cover and protect the created wetlands from erosion and ice damage. The NYSDEC believes that this placement of fill in the Niagara River is consistent with the standards of 6NYCRR Part 608 since it is a necessary component of the overall shoreline/sediment remediation and allows the aquatic habitat improvement. This is also consistant with requirements of the U S ACOE.

The islets decrease the water velocity along the shoreline which should allow natural deposition of sediments between the islets and the shoreline and will encourage natural vegetation of these areas.

The next five "primary balancing criteria" are used to compare the positive and negative aspects of each of the remedial strategies.

3. Short-term Effectiveness. The potential short-term adverse impacts of the remedial action upon the community, the workers, and the environment during construction and operation are evaluated. The length of time needed to achieve the remedial objectives is also estimated and compared with the other alternatives.

The time required to complete the construction under the proposed change will be same or slightly more than the original remedy. Therefore, the short term effectiveness will not be impacted by the amended remedy. The original and the amended remedy will involve some work in the river which will expose the remediation workers to the contaminated sediment. This potential short term impact can be controlled by using proper engineering controls.

4. Long-term Effectiveness and Permanence. This criterion evaluates the long-term effectiveness of alternatives after implementation of the response actions. If wastes or treated residuals remain on site after the selected remedy has been implemented, the following items are evaluated: 1) the magnitude of the remaining risks, 2) the adequacy of the controls intended to limit the risk, and 3) the reliability of these controls.

Following completion of the remedial effort, the original remedy and the additional elements will provide very similar long-term effectiveness and permanence. The amended remedy will be effective in preventing the ingestion of and direct contact with the contaminated sediments. Proper O&M will ensure the permanence of the sediment cap.

5. Reduction of Toxicity, Mobility or Volume. Preference is given to alternatives that permanently and significantly reduce the toxicity, mobility or volume of the wastes at the site.

The mobility of the contaminated sediments will be reduced due to the provision of the cap over the sediments under the amended remedy. No reduction in volume of the contaminated sediments will occur.

6. Implementability. The technical and administrative feasibility of implementing each alternative is evaluated. Technically, this includes the difficulties associated with the construction, the reliability of the technology, and the ability to monitor the effectiveness of the remedy. Administratively, the availability of the necessary personnel and equipment is evaluated along with potential difficulties in obtaining specific operating approvals, access for construction, etc.

The changes in the amended remedy are easily implementable and use standard construction equipment. Many vendors should be available to provide these services. The cover material for covering the sediments can be made available from the Buckhorn project.

7. Cost. Capital and operation and maintenance costs are estimated for each alternative and compared on a present worth basis. Although cost is the last balancing criterion evaluated, where two or more alternatives have met the requirements of the remaining criteria, cost effectiveness can be used as the basis for the final decision.

It is not appropriate to directly compare the capital and present worth cost estimates for the original ROD remedy and the amended remedy because of the significant number of differences between the two remedies. The cost estimate for the original remedy was developed in 1991 based on the conceptual design. The cost estimate for the amended remedy is based on the final design recently completed, using current rates. A discount factor of 10% was used for the original remedy whereas 5% was used for the current estimate. The cost estimates of the original remedy and the amended remedy are given below.

The total estimated capital cost of remedial construction for the remedy in the original ROD was $15,752,000. The annual estimated O&M costs was $250,000 for a total estimated present worth cost of $2,357,000 based on 10% discount factor and 30 year O&M period. The present worth of the capital and O&M costs was approximately $18,110,000.

The total estimated capital cost of remedial construction under the amended remedy is $10,723,400. The annual estimated O&M costs varies from $171,800 to $95,100 for a total estimated cost of $1,141,600 (not discounted for present worth) for the first ten years of operation. O&M costs after the initial ten year O&M period were not estimated because the O&M activities may change depending upon the functioning of the remedy.

This final criterion is considered a modifying criterion and is considered after evaluating those above. It is focused upon after public comments on the proposed ROD amendment have been received.

8. Community Acceptance - Concerns of the community regarding the proposed changes have been evaluated. A "Responsiveness Summary" included as Appendix A presents the public comments received and the Department's response to the concerns raised. Comments were generally supportive of the changes to the original remedy.

5.0 Summary of Amended Remedy

Based upon the Remedial Investigation/Feasibility Study (RI/FS) for the site, subsequent field investigations, and the criteria used to evaluate remedial alternatives, the NYSDEC has selected a remedy to contain the site wastes and contaminated groundwater by installing a cover over the site and using a groundwater collection trench in conjunction with a subsurface groundwater barrier wall to recover groundwater and prevent its discharge to the Niagara River.

The elements of the amended remedy are as follows:

- Installation of a groundwater barrier along the entire length of the site shoreline. The barrier wall will reduce the hydraulic connection between site groundwater and the Niagara River.

- A groundwater collection trench. The groundwater will be treated if necessary and will be released to North Tonawanda Waste Water Treatment Plant. The original ROD called for groundwater collection using extraction wells.

- Installation of rock islets (rock-mound breakwaters) at selected locations along the length of the river at a distance ranging from approximately 50 to 100 feet from the edge of the water line at the shore. Sediments between the shoreline and the rock islets will be covered with hydric soils and/or rip-rap. Shoreline soil will be stabilized with common soil, gabion mats, and vegetation along the entire length of the shoreline except areas of competent slag near the southern end of the site. The original ROD called for a sheet pile breakwater along the shoreline to protect against erosion from the river.

- Stabilization of the black viscous material in the pothole area.

- A permeable soil cap will be placed over the entire site. The cap will consist of twelve inches of common soil and six inches of top soil. The cap will prevent contact with the surface soil and allow infiltration to percolate through the fill, flushing contaminants.

- Implementation of a long-term monitoring plan and regular operation and maintenance of the components of the remedy as constructed.

- Take actions needed to obtain deed restrictions to prevent any future use of the property that would breach the integrity of the final cap, or any component of the containment system; disturb or disrupt the function of the site's monitoring system; or otherwise increase the potential hazard to human health and the environment.

Operation and Maintenance (O&M), and monitoring will be an integral part of the amended remedy. The O&M and monitoring requirements will be as finalized during the construction phases.

6.0 Highlights of Community Participation

As part of the ROD amendment process, a number of Citizen Participation (CP) activities were undertaken in an effort to inform and educate the public about conditions at the site and the potential remedial alternatives. Following the signing of the original Record of Decision, the following citizen participation activities took place for the site:

- Fact Sheets were mailed to the interested citizens on the mailing list to inform about the status of the project.

- Notice to amend the ROD was sent to the interested citizens on the mailing list for this site on September 25, 1998.

- Documents relative to the amendment to the ROD were placed in the document repository on September 24, 1998.

- The public was given the opportunity to comment on the proposed amendment to the ROD during the public comment period held from September 28, 1998 to October 28, 1998 and the public meeting held on October 14, 1998.

- A responsiveness summary was prepared and is included as Appendix A.

APPENDIX A
RESPONSIVENESS SUMMARY

AMENDED RECORD OF DECISION
GRATWICK RIVERSIDE PARK SITE
SITE No. 9-32-060

The Proposed amendment to the Record of Decision (ROD) for the Gratwick Riverside Park Site was prepared by the New York State Department of Environmental Conservation (NYSDEC) and issued to the local document repository on September 24, 1998. This outlined proposed changes for the remediation of the Gratwick Riverside Park Site.

During design, the Department determined that work along the shoreline should include not only erosion protection but features to enhance river populations of fish and bottom dwelling organisms. In December 1996, NYSDEC sampled river sediments along the site and found site-related contamination. Preliminary data indicated a potential threat from the contamination. Therefore, to enhance the shoreline habitat and address a potential threat from contaminations, a proposed amendment to the ROD was prepared. The proposal addressed both the potential threat from the sediments and actions to address habitat value issues along the shoreline. The changes to the original ROD have been adopted as proposed.

The elements of the amended remedy are as follows:

- Installation of a groundwater barrier along the entire length of the site shoreline. The barrier wall will reduce the hydraulic connection between site groundwater and the Niagara River.

- A groundwater collection trench. The groundwater will be treated if necessary and will be released to North Tonawanda Waste Water Treatment Plant. The original ROD called for groundwater collection using extraction wells.

- Installation of rock islets (rock-mound breakwaters) at selected locations along the length of the river at a distance ranging from approximately 50 to 100 feet from the edge of the water line at the shore. Sediments between the shoreline and the rock islets will be covered with hydric soils and/or rip-rap. Shoreline soil will be stabilized with common soil, gabion mats, and vegetation along the entire length of the shoreline except areas of competent slag near the southern end of the site. The original ROD called for a sheet pile breakwater along the shoreline to protect against erosion from the river.

- Stabilization of the black viscous material in the pothole area.

- A permeable soil cap will be placed over the entire site. The cap will consist of twelve inches of common soil and six inches of top soil. The cap will prevent contact

with the surface soil and allow infiltration to percolate through the fill, flushing contaminants.

- Implementation of a long-term monitoring plan and regular operation and maintenance of the components of the remedy as constructed.

- Take actions needed to obtain deed restrictions to prevent any future use of the property that would breach the integrity of the final cap, or any component of the containment system; disturb or disrupt the function of the site's monitoring system; or otherwise increase the potential hazard to human health and the environment.

The release of the proposed amendment to the ROD was announced via a notice to persons on the site mailing list.

A public meeting was held on October 14, 1998 which included a presentation of the Site Investigation (SI) and Original ROD remedy as well as a discussion of the proposed amendments to the remedy. The meeting provided an opportunity for citizens to discuss their concerns, ask questions and comment on the proposed remedy. These comments have become part of the Administrative Record for this site.

The public comment period for the proposed amendment started on September 28, 1998 and ended on October 28, 1998.

This Responsiveness Summary responds to all questions and comments raised at the October 14th public meeting. An article regarding the proposal appeared in Tonawanda News on October 22, 1998. This article is reproduced as comment to No. 38 below.

The following are the questions/comments received at the public meeting, with the NYSDEC's responses:

1. Q. Wouldn't the rip-rap be prone to attracting rodents?

   A. The main purpose of the rip-rap is to protect the shoreline from erosion and to provide interstitial spaces for potential colonization by a variety of aquatic organisms. Waste materials currently along the shoreline that may be attracting rodents will be removed.

2. Q. Is there a guarantee that it will not attract rats?

   A. The rock and soil from construction will not attract rats but the Department cannot guarantee that the shoreline will remain free from litter and wastes that could attract rats.

3. Q. Niagara Mohawk owns the site, what will happen once it is restored and the lease runs out?

   A. As per the terms and conditions of the order on consent between the State and the potentially responsible parties, Niagara Mohawk has agreed to transfer its entire

ownership interest in the site to the City on a date to be selected by mutual agreement between the City and Niagara Mohawk. Such transfer of title may take place prior to or subsequent to completion of the remedial program. In addition, the proposed remedy includes deed restrictions. Within 60 days of the completion of the remedial work the owner of the site will record, with the Clerk of the County of Niagara, a notation for potential purchasers that the use of the property is restricted.

4. Q. What is the depth of water between the shore and the islands?

   A. The depth of the newly created wetlands between the shoreline and the rock islets will vary from 2'-6'' to 4'-0" at different islets.

5. Q. Is Gratwick Park going to remain accessible to the public?

   A. Yes. The park will be restored and will remain accessible to public.

6. Q. Why would we cap over rather than remove the sediments?

   A. The sediment removal would be difficult (because of slag),costly, and would not be significantly more protective than the proposed changes. Also, a removal alternative would pose greater short-term risks and would not provide a substrate suitable for wetland development and therefore, was not proposed. The 12-inch fill proposed for the remediation is expected to provide adequate separation between the contaminated sediments and the aquatic organisms.

7. Q. The stuff that is now there, is it hazardous?

   A. The sediment does not meet the definition of the hazardous waste. The analytical results of the six sediment samples collected from the Niagara River indicated that copper, lead, and zinc were at concentrations above the sediment screening levels. The PPs completed a preliminary human health and ecological risk assessment to determine if these chemicals posed an unacceptable risk. The assessments concluded that "there is no unacceptable additional health risk from the chemicals in the sediments and that any adverse ecological effect from the chemicals in sediments would be very small."

8. Q. Are the islets designed for people to walk on?

   A. No.

9. Q. Will the wetlands eliminate shoreline fishing?

   A. The total length of the shoreline is approximately 4,900 feet along the site. The proposed wetlands will cover slightly less than 50% of the shoreline. Therefore, fishing along the remaining 2,500 feet will still be possible. The Department is exploring ways to enhance fishing along the site with the City of North Tonawanda.

10. C. People will climb out onto the islands to fish.

A. The breakwaters are designed to protect the shoreline from erosion, not for fishing.

11. Q. What is to say that 20 years from now someone might want to put another marina in there and take away the public access?

A. See answer to question no. 3 above.

12. Q. What will happen to the soil stockpile that is now on the site?

A. The soil stockpiled at the site will be used for pregrading of the site.

13. Q. Rumor has it that the stockpile is contaminated soil, is that true?

A. The stockpiled soil was acquired (free of cost) by the City of North Tonawanda from road projects in the area. The remedy at the site requires grading the site and installation of a permeable soil cap. The stockpiled soil was analyzed by the PPs and was found to be suitable for the pregrading of the site. This will result in substantial savings in the construction cost of the cap.

14. Q. As part of our share of the remediation, will the City have to treat the collected leachate?

A. The list of potentially responsible parties (PRPs) includes: Niagara Mohawk Power Corporation, the City of North Tonawanda (the City), the Durez Division of Hooker Chemical, Bell Aerospace - Textron, and Booth Oil Company. On May 16, 1996 the PRPs signed an Order on Consent and agreed to design and implement the remedy. Three PRPs (Niagara Mohawk, Occidental Chemical Corporation and the City), referred to as the performing parties (PPs), are actively involved with the actual implementation of the remedial activities after settlement with the other two parties. The City and the other two PPs are governed by separate agreements among themselves. O&M, including disposal of collected groundwater and/or leachate will be the responsibility of the City.

15. Q. Will the leachate be piped directly to the treatment plant?

A. Yes, the groundwater/leachate (after treatment if necessary) will be discharged into a sanitary sewer near south east corner of the site.

16. Q. Why isn't Booth Oil involved as a PRP?

A. Booth Oil is involved as a PRP. See response to question number 14 above.

17. Q. Is there anything in the plans to expand the boat launch?

A. The boat launch will be replaced to the extent it is damaged due to the construction activities. New parking areas and pavements will be constructed. However, expansion of the boat launch is not a part of the remedy.

18. Q. Will this change to the ROD delay the start of the remediation?

A. We do not anticipate any delay in the start of the remediation because of the ROD amendment.

19. Q. Your design suggests you are creating a wetland. Will it be designated a State or Federal protected wetland?

A. No. The newly created wetlands will not be designated wetlands under New York State Article 24, the Freshwater Wetlands Act. However, since the wetlands are located within the bed or banks of the Niagara River which is a protected stream, they will be protected under Article 15, Title 5, Protection of Waters.

20. Q. Will the wetland status preclude development of the park?

A. No. The site will continue to be used as a park.

21. Q. I would also advocate fishing access to one of the islets.

A. Since improvement for fishing access goes beyond the scope of the remedy, it is not part of this project. In response to this comment, the DEC is independently exploring options with the City for expanding fishing access at the Park (see answer number 9).

22. Q. Will the remediation raise the height of the park?

A. The installation of the final cap will raise the elevation of the site by about 1 to 4 feet. The change in elevation will be very gradual (approximate slope 1%) and will not be noticeable.

23. Q. Will the trees along River Road be effected?

A. Yes. Several existing trees at the site will have to be removed to install the cap. However, new trees will be planted to replace the existing trees.

24. Q. Will the park be closed entirely or in sections during the remediation?

A. Yes the Park will have to be closed during construction. It will be up to the contractor to close the park entirely or in sections.

25. Q. Will the cleanup prevent the road from becoming a moon scape again?

A. The cleanup will result in improving the site grading and road system for proper drainage. In addition the periodic O&M activities will take care of any damage to the site features.

26. Q. Are there any other sites where this system of leachate collection is being used?

A. Yes there are a number of sites where underground trenches are used for the collection of the groundwater/leachate. One example is the Cherry Farm site located on the Niagara River about 2 to 3 miles south of this site.

27. Q. How deep will the trench be and at what level will the collection pipe be?

A. The depth of the collection trench varies from 15 to 30 feet depending upon the site topography and the elevation of the underlying till/clay layer. The level of the collection pipe varies and is kept approximately 3 feet to 5 feet below the mean annual water level in the River.

28. Q. How heavy will the plastic be?

A. The barrier wall will consist of a 60 mil very flexible polyethlene (VFPE) geomembrane. A VFPE barrier wall was selected during the design process based on the site conditions.

29. Q. Will that be sufficient to stop the contamination from getting into the river?

A. Yes. A barrier wall of this type with groundwater collection is considered to be very effective in stopping the migration of contaminations. Monitoring for an inward gradient will ensure that there is no flow from site to the river.

30. Q. How long will it last?

A. The manufacturer will provide a warranty for 20 years, but the wall is likely to last indefinitely.

31. Q. Will your cutoff trench isolate the park from the property to the north?

A. Yes. The barrier wall and trench will extend to the east towards River Road at the north and south property line of the site.

32. Q Are there any plans to do further investigations offsite?

A. No. There are no plans for any off-site investigations at this time.

33. Q. There is no fishing and the same boat launch facilities. Please take another look at this issue.

A. The issue is being discussed with the City for alternate funding sources to provide/improve fishing and/or boat launch facilities (see response 21 also).

34. Q. You will be replacing the features in kind. Right now the boat launch is insufficient, so why build the same thing?

A. See response to question no. 21 and 33 above.

35. Q. Is there a monitoring plan and what is the reporting system?

A. Yes, the remedy includes an operation, maintenance and monitoring plan. Periodic inspections will be performed and environmental samples will be collected for analysis. The periodic reports submitted by the PPs will be reviewed by the Department and any changes in the monitoring requirements will be implemented as needed.

36. Q. Can a reporting system be set up where it will be published in the papers?

A. Currently there is no provision for publishing the monitoring reports in the papers. However, the reports can be seen at the NYSDEC office at any time. Arrangements can also be made to place documents in the local library.

37. Q. Is the barrier like what they did at 101st Street by putting rock in the water and then filling in behind it to the shore?

A. The barrier wall will be constructed with VFPE liner in the ground at the top of the bank. In addition rock islets (rock-mound breakwaters) will be installed along the length of the river at a distance of approximately 50 to 100 feet from the shoreline. This will create wetlands and stabilize the banks.

An article published in Tonawanda News on October 22, 1998, under "Outdoors With Ken by Ken Sprenger" is reproduced as comment No. 38 below.

38. Q. An open letter to John P. Cahill, Department Environment Conservation commissioner, and to the Buffalo District of the U.S. Army Corps of Engineers.

"At the October 13 (sic) public hearing to revise the remedial work at Gratwick-Riverside Park, a plan that almost totally denies fishing access was proposed.

A slope with vegetation goes to the water edge of the Erie Canal. The canal will have a depth of 3 ½ feet. On the other side is a breakwall that runs almost the full length of the park.

There is no access to the breakwall for anglers, and if they did get there, the breakwall will no doubt have large stones that will prevent children from fishing there safely.

This type of breakwall is under throughout most of the large bodies of water, jeopardizing life and limb to get close to the water to land a fish.

What's needed is a large drain tile and platform, with rails, from shore to the breakwall, so anglers are able to fish straight down.

At the meeting, I voiced my opinion that to provide a social and economic benefit there must be a safe access to the water.

As you well know, outdoor recreation is an industry, and therefore a benefit to North Tonawanda and the surrounding communities. As for social benefits, there is a need for youngsters and the elderly to have a safe place to cast a line.

As a suggestion, six sites, with widths to accommodate four or more people should be provided. Benches would be ideal, not only for anglers, but for those viewing the sunset.

Please review the remedial plans, and incorporate the necessary access. My request comes as a member of the North Tonawanda Waterfront Commission and as a member of the Niagara County Fishery Board."

A. As discussed above, less than half of the shoreline will include rock islets located 25 to 50 feet from the shoreline. Also the Department is working with the City of North Tonawanda to increase fishing access at the Park.

As part of our efforts to remediate hazardous waste sites, the Department seeks opportunities to enhance fish and wildlife habitats. For example, recently completed remediation projects at both the Cherry Farm/River Road and Buffalo Color Area "D" sites located along the Niagara River and Buffalo River respectively included the development of natural resource habitats. At these site, such features as wetlands, river shallows, fish pods, break waters and select vegetative cover were provided. However, care must be taken to insure that fish and wildlife enhancements do not threaten or compromise remedial efforts to protect public health and the environment from unchecked releases of chemical contamination. As such, the Department must carefully balance all aspects of a project. When opportunities for natural resource habitat improvements arise the Department will continue to pursue them.

Through negotiations between the Department and the responsible parties, a plan to contain low levels of chemical contamination in sediments and concurrently enhance off-shore and shoreline wildlife and fisheries habitat was developed. The plan presently includes five off-shore breakwaters paralleling the shoreline of the site which will, in part, protect the shoreline from erosion. Between the breakwaters and shoreline a submerged soil cover will be placed, providing shallow water wetlands for wildlife and fisheries habitat enhancement. This is the plan presented at the October 14, 1998 public meeting and referenced in the article.

Upon completion of the remedial project, the City of North Tonawanda will manage the site as a waterfront park. More than half the final site shoreline will have access equivalent to or greater than what presently exists. Although your request is beyond the scope of what we can require in this cleanup plan, the Department and the City have been discussing other means by which fishing access to the breakwaters might be provided. The final decision as to whether or not to provide angler access to the breakwaters rests with the City. The Department will continue to support and assist the City in this regard.

APPENDIX B

Administrative Record

Administrative Record

Groundwater Sampling & Analyses	-	Carried out by Recra Research, Inc. for the City of North Tonawanda, July 1979.
Phase I Report	-	Prepared by Engineering Science, Inc. in association with Dames & Moore for the New York State Department of Environmental Conservation, June 1983.
Site Assessment	-	Prepared by Roy F. Weston, Inc. for the USEPA, September 1983.
Preliminary Evaluation of Chemical Migration to Groundwater and the Niagara River from Selected Waste Disposal Sites	-	Prepared by the U.S. Geological Survey (USGS) in cooperation with NYSDEC for the USEPA, March 1985.
Phase II Report	-	Prepared by Wehran Engineering, P.C. for the New York State Department of Environmental Conservation, June 1985.
Gratwick Riverside Park	-	RI/FS Correspondence File.
Surface Soil and Shoreline Soil	-	Carried out by the Niagara County Health Department and Niagara Mohawk Power Corporation in October 1986; results are dated July 1987.
Public Participation Plan	-	Prepared by NYSDEC, September 1987.
Surface Geophysical Studies Report - Carried out as a part of RI/FS.	-	Conducted by Hager-Richter Geoscience, Inc. for URS, September 1987.
Draft Remedial Investigation	-	Prepared by URS Consultants for the New York State Department of Environmental Conservation, dated October 1989.
Reduction of Toxic Loadings to the Niagara River From Hazardous Waste Sites in the United States.	-	A Report by the USEPA and the NYSDEC, November 1989.
Draft Feasibility Study	-	Prepared by URS Consultants for the New York State Department of Environmental Conservation, dated December 1989.

Gratwick Park - Groundwater Modeling - Groundwater Flow and Contaminant Loadings to the Niagara River.	-	Conducted by URS Consultants; Correspondence dated: 4/3/90, 4/10/90, 4/24/90 and 5/7/90.
Results of Test Boring Program Near "Pothole" - Gratwick Riverside Park	-	Conducted by URS Consultants, 5/2/90.
Project Information Sheets.	-	Prepared by NYSDEC, July 1987, November 1987, April 1988, August 1988, April 1989, May 1989, November 1990.
Responsiveness Summaries Documenting Public Meetings	-	Prepared by NYSDEC, September 1987, May 1989, December 1990.
Transcript from December 6, 1990 Public Meeting on the Proposed Remedial Action Plan	-	Prepared for NYSDEC, December 1990.
Review and Response to Substantive Comments Received on Proposed Remedial Action Plan.	-	Prepared by NYSDEC, included as a part of February 1991, Record of Decision.
Proposed Remedial Action Plan (PRAP).	-	Prepared by NYSDEC, October 1990.
Record of Decision.	-	Prepared by NYSDEC, February 14, 1991.
Consent Order, Remedial Design/Remedial Action.	-	Index # B9-0133-91-02 of May 16, 1996.
Review of the NYSDEC Sediment Sampling Plan.	-	Prepared by Conestoga-Rovers & Associates, August 1997.
Fact Sheet and Meeting Notice.	-	Prepared by NYSDEC, September 1998.
Proposed ROD Amendment, Gratwick Riverside Park Site.	-	Prepared by NYSDEC, September 1998.
Amended Record of Decision (ROD), Gratwick Riverside Park Site.	-	Prepared by NYSDEC, December 1998.
Final (100%) Design Report, Gratwick Riverside Park Site (Report & Appendix A - Correspondence).	-	Prepared by Conestoga-Rovers & Associates, January 1999.