April 13, 2006

REVISED CONCEPTUAL SITE PLAN

ExxonMobil Former Buffalo Terminal
625 Elk Street
Buffalo, New York

Prepared for

EXXONMOBIL OIL CORPORATION
1001 Wampanoag Trail
Riverside, Rhode Island 02915

ROUX ASSOCIATES, INC.

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1.0 INTRODUCTION

Roux Associates, Inc. (Roux Associates) has prepared this Brownfield Cleanup Program (BCP) Revised Conceptual Site Plan (CSP) on behalf of ExxonMobil Oil Corporation (ExxonMobil) for the ExxonMobil Former Buffalo Terminal and offsite areas formerly owned by ExxonMobil (Site) located at 625 Elk Street, Buffalo, New York (Figure 1). The active petroleum products storage and distribution facility portion of the site is now owned and operated by Buckeye Terminals, LLC (Buckeye). ExxonMobil entered into Consent Order #95-08 with New York State Department of Environmental Conservation (NYSDEC) in May 1997 that called for completion of a Site Facility Investigation in several areas of the Site. ExxonMobil completed the requirements of the Consent Order and has progressed beyond those requirements to complete investigation of remaining areas of the Site. The results of the remedial investigation indicate that remedial action will be warranted. ExxonMobil has entered the BCP to complete subsequent remediation activities under a BCP Agreement with NYSDEC dated April 3, 2006. The original CSP was submitted with the BCP application for the Site.

This Revised CSP has been prepared to fulfill the following main objectives:

- Provide background information regarding the Site;
- Summarize the previously completed investigations and interim remedial measures (IRMs) which have been documented in reports submitted to NYSDEC;
- Provide an overview of the qualitative exposure assessment for the Site;
- Provide an overview description of remedial action goals and objectives for the Site;
- Provide an overview of operable units to be defined at the Site; and
- Provide an overview of anticipated project activities and a project schedule.

The requirements and recommendations of the NYSDEC guidance document, Draft Brownfield Cleanup Program Guide (May 2004) and the NYSDEC "Draft DER-10 Technical Guidance for Site Investigation and Remediation (DER-10)," dated December 25, 2002 (NYSDEC 2002) were incorporated into this Revised CSP. As stated in the NYSDEC Draft BCP Guide (May 2004): "The goal under the BCP is to remediate the site to a level that is protective of human health and the environment; taking into account the current, intended and reasonably anticipated future use of the Site." As described in Section 2.0, a portion of the Site is currently operating as a

petroleum products storage and distribution facility owned and operated by Buckeye with the surrounding buffer area owned by ExxonMobil. ExxonMobil and Buckeye intend for this land use to remain unchanged for the foreseeable future; therefore, the current land use is also consistent with the reasonably anticipated future land use at the Site. However, it is possible to anticipate that at some point in the future some portions of the current buffer area may be used for a different purpose consistent with allowable land use. Thus, this possibility will be considered when developing site-specific remedial alternatives for the Site. Based upon information from the City of Buffalo website, the current zoning of the portion of the site South of Elk Street is either M2-General Industrial District (ETYA) or M3-Heavy Industrial District (all other areas) with allowable industrial land use. Additional information regarding zoning and land use was provided by the City of Buffalo during the public comment period on ExxonMobil's BCP application. This information indicates that per the City's Local Waterfront Revitalization Program (LWRP), the proposed zoning of the portion of the Site south of Elk Street is CM-Central Commercial District with a proposed land use of mixed-use commercial/light industrial.

2.0 SITE DESCRIPTION AND HISTORY

The Site and offsite areas formerly owned by ExxonMobil have been divided into nine geographic areas for the purpose of assessing environmental conditions and reporting the results of area-specific activities (Figure 2). These areas were designated according to the historical primary operations that occurred in each portion of the Site. In addition, for the purposes of the BCP, the site has been divided into operable units (OUs) based upon the anticipated phasing of subsequent remedial actions at the site (Figure 3). For the purpose of the BCP, the "Site" is defined as the area within the limits of the five Operable Units as shown in Figure 3. The geographic areas and corresponding operable units are as follows:

- Elk Street Properties Area (ESPA) within OU-1;
- Northeast Process and Storage Area (NPSA) within OU-2 and OU-3;
- Northern Tank Yard Area (NTYA) within OU-2;
- Former Refinery Area (FRA) within OU-2 and OU-3;
- Central Rail and Process Area (CRPA) within OU-2 and OU-3;
- Southern Tank Yard Area (STYA) within OU-3;
- Eastern Tank Yard Area (Former Disposal Area [ETYA]) within OU-4;
- Babcock Street Properties Area (BSPA) within OU-2 and OU-3; and
- Administrative Offices and Operations Area (AOOA) within OU-2.

A land use map in the vicinity of the ExxonMobil Former Buffalo Terminal based upon information available from the City of Buffalo website is shown in Figure 4. Based on Figure 4, the current zoning of the portion of the site South of Elk Street is either M2-General Industrial District (ETYA) or M3-Heavy Industrial District (all other areas) with allowable industrial land use. Additional information regarding zoning and land use was provided by the City of Buffalo during the public comment period on ExxonMobil's BCP application. This information indicates that per the City's Local Waterfront Revitalization Program (LWRP), the proposed zoning of the portion of the Site south of Elk Street is CM-Central Commercial District (Figure 5) with a proposed land use of mixed-use commercial/light industrial (Figure 6).

The historical information presented in this section was obtained from the document entitled "History of Operations at Buffalo Terminal" (Roux Associates, 2000b). The petroleum refining operations at the Site began during 1880. During the early period of refining, several petroleum companies occupied portions of the Site including Buffalo Pipeline Company, Solar Oil Company, Tidewater Pipe Line Company, Buffalo Lubricating Oil Company, and Atlas Refining Company. The majority of the Site was purchased by Standard Oil Company of New York (SOCONY), ExxonMobil's predecessor, in 1892. In May 1981, the Site terminated all refinery operations. The Site continued as a distribution terminal, receiving product via a pipeline and barge. Throughout the Site's history, the areal extent of property owned by ExxonMobil changed as portions of property were acquired or sold for various reasons. Historically, the major Site refinery and terminal operations occurred south of Elk Street in an area of approximately 89 acres. The area within the current ExxonMobil property boundary is approximately 43.6 acres. The area of the Site for the purposes of the BCP application is approximately 90.4 acres (the portions of OU-5 in the Buffalo River are not included in this total). The historic portions of the site that are not owned by ExxonMobil are the BSPA (owned by One Babcock, Inc.) and the active terminal area encompassing the ETYA and portions of the NPSA, NTYA, AOOA, CRPA, STYA and FRA. The active petroleum products storage and distribution terminal portion of the Site was sold on May 4, 2005 and is now owned and operated by Buckeye. The area of Buckeye's active terminal is approximately 35.8 acres. The BSPA, located to the west of the currently owned ExxonMobil property, was sold to One Babcock, Inc. in 1994.

Formerly, the Buffalo River transected the southern portion of the Site. Between 1914 and 1917, the river was rerouted to the south to form a relatively straight channel. The rerouting of the Buffalo River was intended to facilitate the navigation of ships and in turn, benefit industries along the river. The rerouted river line became the Site's southern boundary. To the east of the D.L.&W.R.R tracks, the Buffalo River was filled in, relocated farther to the east, and rerouted to run generally in an west-southwesterly direction to the railroad bridge where the straightened navigable channel began. The parcel between the east side of the D.L. & W.R.R rail tracks and the new river channel is included in the ETYA.

Originally, until around 1917, the Site was utilized for the refining of crude petroleum for illuminating oil. The heavy residuum obtained from the distillation process was converted into

paraffin oil and wax, which was refined onsite. In the paraffin and wax refinery area, located within the NPSA, the oil was extracted from the wax and refined into lubricating oil. The wax was utilized onsite for the manufacture of products such as candles. Additionally, the Site had extensive railcar shops where Union Tank Line railcars were manufactured and repaired. The car shops were capable of manufacturing six rail tank cars each day. The Site also had a cooper shop that manufactured approximately 1,600 storage barrels each day. The Site contained an acid treatment department in which sulfuric acid used in the refinery processes was treated and recycled. Additional departments included naphtha works and a compounding plant.

Between 1917 and 1924, the Site underwent a transformation in operations and structural layout. During this period, the emergence of motor vehicles began, thus leading to additional uses for refined petroleum. The Site terminated its tank car construction, repair operations and barrel manufacturing. The majority of the Site was cleared and reconstructed with new storage tanks and refining structures. The original structures remaining after the transformation were the paraffin and wax refining department and a few warehouses and boiler rooms.

Between 1939 and 1951, the Site continued to evolve through the addition of modernized refining units including the Houdry Unit, Thermofor Catalytic Cracking Unit (TCC Unit), and the Deflorez Cracking Unit. Between 1951 and 1955, the Site continued to be modernized and underwent another transformation including the addition of an Alkylation Unit, a Sovaformer Unit, a Treating, Blending, and Shipping Area, and Asphalt Refining and Distribution Units. These processes and structures remained at the Site until the refinery structures were demolished between 1988 and 1991, as discussed below. The primary products manufactured at the Site included gasoline, kerosene, home heating fuels, industrial fuels, diesel fuel, and asphalt.

In 1951, the ETYA, the parcel of land between the Erie Lackawanna Railroad and the Buffalo River, was purchased from the City of Buffalo, who had utilized the property from 1921 through 1951 for the disposal of municipal waste. This parcel originated from the filling of the original Buffalo River during the rerouting of the river, as discussed above. In 1953, the ETYA was developed with two 70,000-barrel storage tanks, four propane tanks, and a propane loading rack.

In September 1959, the paraffin and wax refining operations were terminated. Associated structures and 50 storage tanks with capacities ranging from 2,000 to 10,000 barrels were removed. In 1963, the terminal began receiving shipments of crude oil through a Canadian pipeline in addition to the crude oil delivered through the Buckeye Pipeline from Texas and occasionally by barge via the Buffalo River.

In May 1981, the Site terminated all refinery operations. The Site continued only as a distribution terminal, receiving product via a pipeline and barge. The terminal distributed No. 1 Fuel Oil, No. 2 Fuel Oil (diesel), leaded gasoline, two types of unleaded gasoline, and Jet A commercial fuel. Leaded gasoline storage was discontinued in 1989.

Demolition of the refinery occurred from 1988 through 1991. The demolition included the removal of buildings, structures, above ground tanks and piping. Upon completion of the demolition activities, the thirteen storage tanks remaining in the STYA and Tanks 175 and 176 in the ETYA were realigned. Subsequently, Tanks 96 and 198 were removed. In 1991, the current tank truck loading rack located in the CRPA was constructed to replace the former tank truck loading rack in the BSPA.

Currently, a portion of the Site operates as a petroleum products storage and distribution terminal within the limits of the Site boundary, as shown on Figure 2. The active terminal operations and property were sold to Buckeye Terminals, LLC on May 4, 2005. The northwestern portion of the FRA had been leased to Custom Topsoil from July 1996 through June 2001 for the storage and distribution of construction materials. The former Main Office on the northern Site boundary located in the NPSA has been leased to the City of Buffalo Police Department since 1991. The Babcock Street Properties Area, which comprises the westernmost portions of Operable Units 2 and 3 as shown on Figure 3, was sold by ExxonMobil to One Babcock, Inc. in 1994. This area is still owned by One Babcock, Inc., which operates as a construction company.

The Buffalo River is maintained as a federal navigation channel along the length of the Site's bulkhead to a location approximately 300 feet west of the former Erie Lackawanna Railroad Bridge. This federally maintained channel begins approximately 30 feet south of ExxonMobil's bulkhead and extends to within approximately 30 feet of the bulkhead on the southern bank of

the river. ExxonMobil maintains the 30-foot portion of the Buffalo River between the bulkhead and the federal navigation channel for barge access. The federal navigation channel has been dredged by the United States Army Corps of Engineers (USACOE) every 2 to 5 years to remove sediment and maintain an adequate water depth for navigation. During the 1992 and 1997 dredging events, ExxonMobil participated by dredging the 30-foot wide portion of the river along the length of their bulkhead to maintain barge access to the Site.

3.0 SUMMARY OF ENVIRONMENTAL CONDITIONS

Data regarding environmental conditions at the Site are summarized below based upon the results of previous investigations and the ongoing monitoring program at the Site. The scope and results of these investigations are detailed in the work plans and investigation reports listed in Section 8.0. Each of the reports listed in Section 8.0 and referenced herein have been previously submitted to NYSDEC. A copy of each of these reports is included in the public information repository that has been established for the Site.

The site investigation reports previously submitted to NYSDEC satisfy the requirements of ECL Article 27-1415(2)(a) for a remedial investigation of the Site. The "Site Investigation Completion Report" (Roux Associates, 2002) provides a detailed presentation of investigation data for all site areas with the exception of BSPA and the ESPA. The final reports for the BSPA and ESPA are titled "BSPA Investigation Completion Report" and "ESPA Investigation Completion Report," respectively. The reports titled "Stormwater Collection System Investigation Report," "Evaluation of Aquifer Characteristics" and "Additional Sediment Sampling of the Buffalo River Shoreline Completion Letter Report" are also reports that document key aspects of the environmental conditions at the Site.

The following sections present a brief summary of the data generated during these prior investigations regarding hydrogeology, occurrence of separate-phase product, soil, groundwater, sediment (where applicable) and surface water quality. In general, the soil, groundwater and sediment quality in many areas of the Site have been impacted by former refinery, lube plant, and terminal activities. In addition, separate-phase product is present in portions of the Site, mostly south of Prenatt Street in the southern portions of the BSPA, FRA and STYA and east of the Erie Lackawanna Railroad in the ETYA.

3.1 Hydrogeology

The information presented below includes a general description of the Site geology, discussion of groundwater flow, and a summary of the detailed studies performed to define the aquifer characteristics.

General Description of Site Geology

Three unconsolidated deposits exist throughout the majority of the Site. The first is a fill layer that consists of black cinders, silt, gravel, sand, slag, and trace amounts of concrete, brick, glass, and wood. The second unit, colored gray to brown, consists of alluvial deposits of silt (sandy silts to clayey silts), silts and clays, sands, and sands and gravel. Underlying the alluvial layer is a gray to brown glacio-Lacustrine clay. The thickness of both the fill and alluvial deposits is generally greatest in the southern portion of the Site, in proximity of the Buffalo River. The alluvial layer pinches out at the central portion of the Site as the depth to the top of clay decreases northward.

The geology of the ETYA differs from the other geographic areas of the Site due the influence of the former disposal activities that were conducted in this area and the re-routing of the Buffalo River. Four unconsolidated deposits exist in the ETYA (two are subsets of the alluvial deposits described above). The first is a fill layer that consists of black cinders, concrete, brick, glass, wood, silt, gravel, sand and slag that is consistent with the historical disposal activities. This layer varies in thickness from 7 to 23 feet. The second unit consists of sands; silt (sandy silt to clayey silts); and silts and clays. The thickness of this layer is between 0 and 20 feet throughout the area of interest (a subset of the alluvial deposits described above). The third layer is predominantly comprised of sand and gravel and ranges in thickness from 4 to 11 feet (a subset of the alluvial deposits described above). Underlying the sand and gravel layer is a clay layer. Bedrock was not encountered in any of the wells installed in the ETYA.

Groundwater Flow Direction

Groundwater flow is shown in Plate 1. The groundwater flow direction in the area of the Site west of the former Erie-Lackawanna Railroad is generally southwest toward the Buffalo River. In the area between the operating dual phase recovery wells and the well point system (WPS), a groundwater flow divide is created between the cones of influence of the two pumping systems.

The influence of the eastern leg of the WPS can be seen in monitoring wells in the STYA and the southwest portion of the ETYA. A groundwater divide, caused by the operation of the eastern leg of the WPS, exists in the southwestern portion of the ETYA. The groundwater flow direction east of the divide is generally southeast toward the Buffalo River. The groundwater flow

direction west of the divide, in the southwestern portion of the ETYA, is generally west toward the WPS.

The groundwater flow direction in the area of the Site west of the former Erie-Lackawanna Railroad is generally southwest toward the Buffalo River. The influence of the western leg of the WPS in drawing down the water table and affecting the direction of groundwater flow can usually be seen in monitoring wells in the southern portion of the FRA and BSPA. The influence of the eastern leg of the WPS can be seen in monitoring wells in the STYA and the southwest portion of the ETYA.

In general, the data demonstrates that pumping of the WPS depresses the water table sufficiently to induce recharge from the Buffalo River into the aquifer in the area between the WPS and the Buffalo River.

In the area between the operating dual phase recovery wells and the WPS, a groundwater flow divide is created between the cones of influence of the two pumping systems.

Aquifer Characteristics

Aquifer tests were performed at four locations in the unconfined aquifer beneath the Buffalo Terminal. Two tests were located within the main separate-phase product plume in the Southern Tank Yard Area (STYA) and two tests were located in the Eastern Tank Yard Area (ETYA). The purpose of the evaluation of aquifer characteristics was to develop the data necessary to determine the most effective and efficient way to protect the Buffalo River by containing and recovering groundwater, controlling the migration of separate-phase product and enhancing separate-phase product recovery. The results of these tests were used with other site data to develop and calibrate a numerical groundwater flow model and a multi-phase model for the Site. The report titled ‘Evaluation Aquifer Characteristics” (Roux Associates 2003b) presents the scope and results of the aquifer testing program and also describes the development and calibration of the groundwater flow and multi-phase models. These models will be used in subsequent feasibility studies to develop, evaluate and select appropriate remedial actions for groundwater containment and product recovery enhancement in various areas of the Site.

3.2 Separate-Phase Product

Separate-phase product exists throughout much of the southern portion of the Site (Plate 1). Product extends from the east side of the Babcock Street sewer in the BSPA through the southern portion of the FRA and the southern portion of the STYA. The eastern limit of the product plume in the STYA is approximately to the Erie-Lackawanna Railroad, which separates the STYA from the ETYA.

The separate-phase product is shown as a continuous plume extending through all three of these areas of the Site. However, it is likely that the product observed in the BSPA in the vicinity of the former Truck Loading Rack, and extending along the eastern side of the Babcock Street sewer to MW-27, is separate from the remainder of the plume. This portion of the plume is likely attributable to releases at the former Truck Loading Rack.

Localized product plumes are shown around well MW-7, SB-12, MW-6 and Well Point 23 in the FRA, around MW-22 and SB-37 in the BSPA, around MW-16 in the CRPA and around MW-38 in the NPSA.

In addition, separate-phase product has been delineated beneath and downgradient of the containment area for Tank 176 in the ETYA. Measurable separate-phase product is currently present in six wells within the ETYA. These wells are P-15, LF-1S, LF-3, LF-4, LF-6 and MW-28. Historically, MW-3URS also showed measurable separate-phase product.

Product Composition

The results of analyses performed on product samples from the ETYA, FRA and STYA indicate that the product present in the various areas of the Site is comprised of a number of different types of product.

In the ETYA, the product analyses from P-15 and MW-3URS indicated that the product was primarily comprised of severely biodegraded diesel fuels (15 to 20 percent gasoline range hydrocarbons [GRH] and 80 to 85 percent diesel range hydrocarbons [DRH]).

In the FRA, the product from well MW-7 was distinctly different from the product in the other five wells sampled (RW-4, RW-5, MW-4, MW-5 and MW-8). It was comprised of no GRH, 10 percent DRH and 90 percent higher boiling point hydrocarbons. This correlates with field observations that the product at this location is very viscous. MW-5 also had a significant percentage of higher boiling point hydrocarbons (40 percent) with only 15 percent GRH and the remaining 45 percent being DRH. The product from these two wells would potentially be more difficult to recover due to the increased viscosity caused by the elevated percentage of higher boiling point hydrocarbons. In the other four locations, the product was comprised of 30 to 60 percent GRH, 40 to 50 percent DRH and zero to 20 percent higher boiling point hydrocarbons.

In the STYA, the composition of the product in the 11 of the 13 wells sampled (ESI-1, ESI-2, ESI-5, MW-10, MW-11, MW-14, MW-18, MW-19, RW-1 product tank, RW-2 product tank and RW-3 product tank) was similar to the composition of the product in RW-4, RW-5, MW-4, and MW-5 in the FRA. At these 11 locations, the product was comprised of 30 to 60 percent GRH, 30 to 60 percent DRH and only 5 to 15 percent higher boiling point hydrocarbons. The product at MW-12 and MW-20 was comprised of 10 percent GRH, 65 to 70 percent DRH and only 10 to 20 percent higher boiling point hydrocarbons.

Separate-Phase Product Volume Estimates

Separate-phase product plume volumes for the Main Plume and the ETYA Plume were estimated using the multi-phase model as described in the Evaluation of Aquifer Characteristics. The total volume of free-product was estimated to be approximately 299,000 gallons and 1,900 gallons within the Main Plume and ETYA Plume, respectively. These volumes are based upon average fluid properties from the samples collected from various locations within the two plumes. The variation in these fluid properties across the Site is indicative of historical site operations that resulted in numerous releases of a variety of different product types throughout the history of the Site. The fluid properties of the product in the western portion of the Main Plume are indicative of the heavier and more viscous product types that were stored in this portion of the Site, as well as the mixture of product types that was handled by the former Main Inground Oil/Water Separator. Similarly, the fluid properties of the product in the eastern portion of the Main Plume

are indicative of the lighter and less viscous product types that have been stored in this portion of the Site.

3.3 Soil Quality

The soil quality data generated during previous investigations have been evaluated against the criteria presented in the following NYSDEC documents:

- NYSDEC Recommended Soil Cleanup Objectives (RSCOs) presented in the "Division of Hazardous Waste Remediation. Division Technical and Administrative Guidance Memorandum (TAGM) 4046: Determination of Soil Cleanup Objectives and Cleanup Levels" (NYSDEC 1994).

- NYSDEC revised soil cleanup criteria tables for TAGM 4046 for gasoline and fuel oil contaminated soil dated August 22, 2001 (NYSDEC 2001b).

Volatile Organic Compounds (VOCs), Semivolatile Organic Compounds (SVOCs) and metals are present in the soil at shallow and deep intervals, some exceeding NYSDEC RSCOs to varying degrees, across the Site. The rationale for selecting soil sample locations was to evaluate potential impacts from previous and/or current Site operations. In general, the highest petroleum-related impacts were observed in the vicinity of former and/or current tanks, former and active Loading/Filling Racks, some of the former Waste Handling Areas (WHAs) and in the vicinity of the former Main In-Ground Oil/Water Separator. The distribution of elevated metals concentrations is more widespread and more uniform across the site than the distribution of elevated VOCs, SVOCs and TPH (Roux Associates, 2002a).

In the NPSA, where selected samples in the eastern portion of the area were analyzed for PCBs, levels did not exceed NYSDEC RSCOs.

Tetraethyl lead (TEL) was analyzed in a total of 28 locations in the BSPA, ESPA, ETYA, NPSA, NTYA and STYA during one or more of the investigations completed at the Site. Tetraethyl lead was not detected in any of these samples, with exception of one sample (SS-16 at a depth of 4 to 4.3 ft below grade) adjacent to the ETYA. Hexavalent chromium was analyzed in a total of 17 locations in the BSPA, ETYA, NPSA and NTYA during the SFI. Hexavalent chromium was not detected in any of these samples.

In the ESPA, the only area where petroleum-related impacts from the release at former Tank 60 are present at concentrations exceeding RSCOs is in the northeast portion of Parcel No. 5. With the exception of the northeast portion of Parcel No. 5, the SVOC concentrations observed on the ESPA and properties to the north of Parcel No. 5 are apparently due to background influences, including residential uses, previous property owner usage, regional industrial influences, nearby highways and fill material.

In general, in the BSPA, soil has been impacted by former refinery/lube plant/terminal activities. VOCs, SVOCs and metals are present in the soil at shallow and deep intervals, some exceeding NYSDEC RSCOs to varying degrees across the BSPA (Roux Associates, 2001b).

3.4 Groundwater Quality

The groundwater data collected during prior investigations has been compared to the NYSDEC Ambient Water Quality Standards and Guidance (AWQSG) values for Class GA groundwater presented in the Division of Water Technical and Operational Guidance Series (1.1.1) "Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations" (NYSDEC, 1998) as amended in April 2000.

The groundwater sampling results generally indicate lower concentrations of VOCs and SVOCs at the upgradient or northern edge of the Site and higher concentrations towards the center and southern areas (Roux Associates, 2002a).

In general, similar to patterns observed in the soil quality data, the areas of the Site where the highest concentrations of VOCs and SVOCs were observed were in the vicinity of former and/or current tanks, former and active Loading/Filling Racks and some of the former WHAs. In the vicinity of the former Main In-Ground Oil/Water Separator, where relatively high concentrations of VOCs and SVOCs were observed in soil, groundwater was not collected due to the presence of separate-phase product.

In the ESPA, no impacts to groundwater quality that could be attributed to the incident at former Tank 60 or other Site activities have been observed (Roux Associates, 2002b).

In general, groundwater in the BSPA has been impacted by former refinery/lube plant/terminal activities. VOCs, SVOCs and metals are present in the groundwater, some exceeding NYSDEC AWQSGs to varying degrees across the BSPA (Roux Associates, 2001b).

North of Prenatt Street in the BSPA, dissolved phase groundwater impacts are not significant. Several VOCs, SVOCs and metals exceeded NYSDEC AWQSGs at one or more locations on the BSPA south of Prenatt Street. Higher concentrations of constituents of concern are generally observed in the vicinity of the former Tank Truck Loading Rack and former Barrel House. This distribution of data is consistent with the historical Site operations, as well as the groundwater flow direction, and presence of separate-phase product within the central/southern portion of the BSPA.

3.5 Sediment Quality

Sediment quality data collected from locations along the Buffalo River west of the BSPA and adjacent to the ETYA indicate the presence of petroleum and non-petroleum related VOCs and SVOCs. TEL was not detected in the sediment samples. Based upon the access agreement with the adjacent property owner (PVS Chemicals), the sediment was not analyzed for SVOCs and metals (Roux Associates, Inc. 2002a).

Field observations and laboratory results indicate that sediment quality in a 1,000-foot segment of Buffalo River shoreline adjacent to the ETYA has been impacted by diesel range and gasoline range constituents. Impacts related to diesel fuel constituents (SVOCs and TPH-DRO) are more widespread with higher concentrations than impacts due to gasoline constituents (VOCs and TPH-GRO). This information is consistent with the analysis results of product samples collected from ETYA wells that indicate the product is primarily comprised of diesel fuel and diesel range hydrocarbons. The highest impacts from gasoline constituents were observed within the boomed areas at locations where product/iron staining and/or product seepage were observed during the October 2000 inspection of the shoreline and during the April 2001 sampling program.

The distribution of petroleum-related impacts along the shoreline is consistent with the possibility that impacts may be transported along the riverbank by the actions of currents and wind in either direction.

Additional sediment sampling was performed in September 2003 along the Buffalo River Shoreline of the ETYA at the Site (Roux Associates, Inc. 2003d). The analytical results from sediment samples collected from the Buffalo River shoreline in September 2003 generally confirmed previous field observations and previous sampling results. In addition, TEL was detected in one of the six samples collected at a concentration of 12.5 mg/kg.

3.6 Supplemental Investigation

Additional focused investigation activities may be required as identified by NYSDEC, to develop appropriate remedy selection and/or to develop remedial design parameters within an operable unit.

4.0 INTERIM REMEDIAL MEASURES

There are three major Interim Remedial Measures (IRMs) that have been completed or are ongoing at the Site. These include:

- Closure of the Main Inground Oil/Water Separator (completed);
- Product recovery (ongoing); and
- Underground pipe removal (ongoing).

A brief description of each of the IRMs is provided below.

4.1 Closure of the Main Inground Oil/Water Separator Product Recovery

The former Main Inground Oil/Water Separator was constructed between 1917 and 1924 in the southern portion of the FRA. The Separator was used for the separation of petroleum from aqueous waste streams and storm water. The Separator collected waste streams from process areas, the Site's Well Point System (WPS) and storm sewers across the entire Site.

The Main In-ground Oil/Water Separator measured approximately 260 ft by 103 ft in size, was 16 feet deep and consisted of eight chambers with varying measurements. The five southernmost chambers were abandoned by backfilling in 1993. Between 1993 and March 2000, the remaining three chambers of the Main Inground Oil/Water Separator were used only for temporary storage of storm water in excess of the capacity of the existing water treatment system prior to completion of treatment system upgrades in March 2000. The Main Inground Oil/Water Separator had not been used since the treatment system upgrades were completed, however it was inspected periodically.

The remediation activities for the closure of the Main Inground Oil/Water Separator were performed from October 22 through November 25, 2002. This work was completed in accordance with the Work Plan for Closure of the Main Inground Oil/Water Separator, dated August 5, 2002 (Roux Associates, 2002e). The Main Inground Oil/Water Separator Closure Report was issued on January 23, 2003 (Roux Associates, Inc. 2003a).

4.2 Product Recovery

Two remedial systems are operating on-site to contain and recover separate-phase hydrocarbons (SPH) and petroleum-impacted groundwater. A Well Point System, consisting of a series of interconnected wells located adjacent to the Buffalo River, has been operating since 1971. In addition, a two-phase recovery system has been operating since September 1993 to recover product. The fluids from the Well Point System (WPS) and the water from the two-phase recovery system are routed to the Site's water treatment system. Groundwater monitoring and manual/automated product-only recovery operations are also conducted at the Site. Results of these activities are reported on a quarterly basis in a Site Monitoring Report. A description of the various product recovery systems and the water treatment system is provided below.

4.2.1 Well Point System

The WPS was installed and operational in 1971. It consists of approximately 123 well points located parallel to the Buffalo River and is configured in two legs, eastern (EWPS) and western (WWPS). The western leg consists of 23 well points and the eastern leg consists of over 100 well points. The eastern leg has run continuously since its installation, however, the western leg had not operated from 1992 through August 1999.

Each leg has an independent header collection pipe and discharge pipe to the Water Treatment System, as well as a totalizing flow meter. Each well point is approximately 25 feet deep and 2.5 inches in diameter with a drop tube assembly within the well. Most points have been modified with a riser to the surface so that the well can be accessed. Each well has a valve connecting it to the 6-inch collection header pipe.

The well points are connected in series to the header pipe that leads to a dual-phase liquid ring pump vacuum system for each leg of the WPS. Each leg has an independent pump. The eastern leg has one operating pump and one standby pump. The western leg has one operating pump. The pumps provide a vacuum that extracts fluid from all of the well points tied into each header. Total fluids pulled from the WPS are pumped directly into the piping system and transmitted to the Site's Water Treatment System.

The western leg of the WPS was rehabilitated between August 1998 and April 1999. The rehabilitation included accessing and inspecting each well point drop tube, isolation valve and connection piping to the collection header. The collection header was observed to be in poor condition and was replaced with new pipe and connections to the well points. In addition, each well point was pressure cleaned. The rehabilitation also included the purchase and installation of a new liquid ring vacuum pump. The western leg of the WPS was reactivated on August 23, 1999 and has been operated since then with only relatively short periods of downtime.

4.2.2 Dual-Phase Recovery System

A dual-phase recovery system was installed at the Terminal between 1991 and 1993 to recover product. The dual-phase recovery system was activated in September 1993. The five recovery wells currently operating (RW-1 through RW-5) are located in the STYA within the separate phase product plume. RW-2 currently recovers groundwater only with manual bailing of product. A sixth recovery well had been installed in RW-6 in the STYA, but is no longer in use due to insufficient product recovery.

Associated with each recovery well are product and water recovery pumps, liquid level probes, a product storage tank, product and water transfer piping and a control panel. A groundwater pump is located near the bottom of the well and the product pump is located above it. By pumping water out of the recovery well, the water level is lowered in the surrounding area, creating a "cone of depression," which is used to capture floating product and maximize its recovery. Recovered water is pumped to the Water Treatment System and recovered product is pumped to an above ground storage tank for later disposal offsite.

4.2.3 Treatment and Discharge Systems

The Site's Water Treatment System was installed and operational by 1993. The Water Treatment System is located in the Remediation Building in the FRA. The treatment system handles all extracted groundwater (from the dual-phase recovery systems and the WPS), as well as storm water not associated with the lined active tank farm drainage system, prior to discharge to the BSA sewer system.

An upgrade of the Water Treatment System was completed in March 2000. The Water Treatment System currently consists of two treatment trains. Treatment Train 1 handles all groundwater sources described above, as well as dry-weather flow from the storm-water lift station. Treatment Train 2 handles wet weather flow from the storm-water lift station. Flow from the storm-water lift station to Train 1 or Train 2 is controlled by a manually operated valve.

Treatment Train 1 consists of a 500 gallons per minute (gpm) oil/water separator followed in series by a 300 gpm oil/water separator to remove separate-phase product and air sparging tanks to remove dissolved phase constituents. Treatment Train 2 consists of a 1,500 gpm oil/water separator followed by a 500 gpm oil/water separator in series. Train 2 is configured so that wet weather flow in excess of the capacity of the 500 gpm separator is automatically bypassed after passing through the 1,500 gpm separator. Following treatment and flow monitoring by an ultrasonic flow meter, water is discharged to the BSA sewer system. The Site's Water Treatment System is currently discharging to the BSA under BPDES Permit No. 03-06-BU045.

Water collected from the active lined tank farm for the above ground storage tanks is pumped from the dedicated lift station located in the STYA to the Lined Tank Farm Above Ground Oil/Water Separator located along the dock in the STYA prior to discharge to the Buffalo River under State Pollution Discharge Elimination System (SPDES) permit No. NY-0204480, first issued in April 1992.

4.2.4 Product-Only Pumping Systems

Several product-only pumping systems are operating at the Site. A permanent product-only pumping system is installed in monitoring well MW-14 in the STYA. In addition, there are three mobile solar-powered product-only pumping systems that can be moved from well to well to address product across the site. One is currently deployed in the ETYA, the second is deployed in the BSPA and the third is deployed in the STYA.

4.2.5 Separate-Phase Product Recovery To Date

Cumulative product recovered from the dual-phase recovery systems, product-only pumping systems, WPS, main In-Ground Oil/Water Separator and manual/passive product bailing since September 1993 is approximately 47,772 gallons. Approximately 33,637 gallons were recovered

from automated product recovery systems (RW-1 through RW-5 and product-only pumping systems); approximately 12,632 gallons were recovered from the main In-Ground Oil/Water Separator, the water treatment system oil/water separators and the Site sewer system; and 1,503 gallons were recovered from manual/passive bailing of wells.

4.2.6 Product Recovery in the ETYA

Two pilot tests were performed to evaluate potential remedial technologies for the remediation of the separate-phase product plume south of Tank 176 in the ETYA. A Vacuum Enhanced Recovery (VER) pilot test was performed in October 2003 in accordance with the approved Vacuum Enhanced Recovery Pilot Test Work Plan (VER Work Plan) dated September 15, 2003. Subsequently, a Chemical Oxidation Pilot test was performed in accordance with the approved Chemical Oxidation Pilot Test Work Plan for the Eastern Tank Yard Area (Chemical Oxidation Work Plan) prepared by Groundwater and Environmental Services, Inc. (GES), dated January 7, 2004. The purpose of the pilot testing was to evaluate the effectiveness of these technologies as a remedial alternative for recovery of separate-phase product from this plume and to establish design parameters for the selected technology. Chemical oxidation has been selected for implementation in the ETYA as an IRM for recovery of the separate-phase product plume based upon the pilot test results. A Remedial Action Selection Report (RAS) was submitted to NYSDEC on January 5, 2005. Implementation is scheduled for 2006.

4.3 Underground Pipe Removal

The objectives of the work are to identify and remove abandoned underground process piping related to former refinery operations at the Site in areas north of Prenatt Street and west of the Erie-Lackawanna Railroad (the areas include the NPSA, NTYA, portions of the BSPA, portions of the FRA, portions of the CRPA, and AOOA), as described in the March 4, 2004 work plan. Petroleum products remaining in the non-active pipelines represent a potential source of impact to surrounding soil and ground water. Removal of the lines and any product contained within them are part of the source removal activities at the Site. The work entails:

- Identification and location of abandoned underground process piping using historical maps and aerial photographs, as well as a geophysical survey;
- Remove abandoned underground process piping; and
- Document all pipe removal activities.

The field work for pipe removal began during the week of June 7, 2004. The inspection log describes the location of the work, weather conditions, personnel present, equipment and material used, length, type and condition of pipe, soil conditions, PID readings, description of photographs taken, description of samples taken and sketches showing the location of the work and the configuration of the pipe. Removal of underground piping (and tanks/structures if applicable) continued until November 2004 and was suspended due to winter weather conditions. The results of the electromagnetic survey described above, coupled with other available documentation (i.e., maps, aerial photographs and visual observations) were used to identify and remove abandoned underground process piping related to former refinery operations in the areas of the Site. Removal of underground piping was restarted on June 6, 2005 and continued through November 2005, when work was suspended for the winter. Work is anticipated to restart in the spring of 2006 and be completed by the fall of 2006. However, as described in the work plan, the exact quantity of underground pipe installed at the Site since 1881 is unknown and therefore, the completion date may be adjusted based upon site-specific conditions. A separate pipe removal completion report, which will document all pipe removal activities, will be submitted once field activities are completed.

5.0 QUALITATIVE EXPOSURE ASSESSMENT

New York State ECL Article 27-1415(2) requires that a qualitative exposure assessment be conducted for all sites in the BCP. The objective of the qualitative exposure assessment is to describe how human and environmental receptors may be exposed to site contaminants based upon the site-specific conditions and to assess whether there are any complete or potentially complete exposure pathways. As documented in the prior Site investigations, the contaminants of concern (COCs) at the Site include petroleum hydrocarbons, petroleum-related VOCs and PAHs, and metals that exceed NYSDEC RSCOs across large portions of the Site. In addition, several VOCs and PAHs, and various metals, have been detected in groundwater at concentrations exceeding their respective NYSDEC AWQSG values for Class GA groundwater. The NYSDEC RSCOs and Class GA AWQSG values were developed to be protective of public health based upon residential land use exposure assumptions and consideration of groundwater as a potential source of drinking water. Neither of these exposure scenarios is applicable to the Site given the current land use and the reasonably anticipated land use at the Site. The one exception to the above discussion will be OU-1. In this area, the possibility of residential land use will be considered when evaluating remedial alternatives and exposure scenarios, as appropriate. As specified in ECL Article 27-1415(2), the exposure assessment should consider the current conditions as well as the reasonably anticipated future land use of the site and the affected offsite areas and the reasonably anticipated future groundwater use.

The following section presents an overview of the qualitative human health exposure assessment that will be completed for the Site. The results of the qualitative exposure assessment will be used during the development of remedial action goals and objectives described in Section 6 and during the subsequent development of remedial alternatives for the Site. ExxonMobil is prepared to conduct a more detailed quantitative human health risk assessment to support the development of site-specific remedial objectives. Section 5.2 describes how ExxonMobil will satisfy the requirements for a fish and wildlife resources impacts analysis as required by Draft DER-10, Section 3.10.

5.1 Human Health Exposure Assessment

An exposure pathway describes the means by which an individual may be exposed to contaminants originating from a site. An exposure pathway has five elements: (1) a contaminant

source; (2) contaminant release and transport mechanisms; (3) a receptor population; (4) a point of exposure, and (5) a route of exposure. The following paragraphs provide an overview discussion of exposure pathways that may potentially exist at the Site.

Contaminant Sources

The primary sources of contamination at the Site are the historical petroleum refining; storage and distribution operations that have taken place across the majority of the Site since the late 1800s. Given the intensive and prolonged use of the Site for these operations, the widespread occurrence of petroleum related COCs across the Site is not unexpected. In addition, the Site is located in an area with an extensive industrial history of metal production, chemical manufacturing, and waste disposal. These background influences also have likely contributed to the concentrations of metals and PAHs across the Site and in the surrounding areas, and in the Buffalo River.

Contaminant Release and Transport Mechanisms

Releases of petroleum products from storage tanks and piping, which historically were present across the majority of the Site, resulted in impacts to both soil and groundwater, stormwater, and in turn, surface water and sediment in the Buffalo River.

The petroleum products released at the Site exist in the form of separate-phase product (both mobile and residual), hydrocarbon compounds adsorbed to soil particles in the unsaturated and saturated zones and hydrocarbons compounds dissolved in groundwater. The separate-phase product and leaching of contaminants from soil serves as an ongoing source of contamination to groundwater beneath portions of the Site. However, it is also important to note that in some site areas there is residual product and stained soil that is not a significant source of groundwater contamination due to the composition of the product and the amount of degradation.

Under natural hydraulic gradients (i.e., non-pumping conditions), mobile separate-phase product and dissolved hydrocarbons in groundwater would migrate towards and discharge to the Buffalo River. However, the Well Point System described in Section 4.2.1, has been in operation since 1971. This system recovers free product and intercepts groundwater prior to discharge to the River with the exception of in the ETYA. Stormwater that comes in contact with impacted

surface soil may also become contaminated. As a result, stormwater across the Site, excluding lined active tank farm areas, is collected for treatment and discharged to the BSA as described in Section 4.2.3.

Receptor Population

The potential onsite receptors include occupational workers, construction workers, visitors and trespassers. The potential offsite receptors include offsite workers and offsite residents.

Potential Points and Routes of Exposure

Onsite workers may contact contaminants present in surface soil during general site maintenance activities. Such contact with contaminated soils can result in exposure via dermal adsorption or incidental ingestion. However, the potential for daily occupational workers and visitors to contact surface soils is limited by the fact that most operational areas of the Site and therefore those areas frequented by visitors are covered with asphalt, concrete or liner material. The potential for trespassing is also limited because the Site is completely fenced, under 24-hour surveillance, and has a community police office onsite.

Construction and soil moving activities have the potential to generate fugitive dusts and also may allow volatilization of vapors from subsurface contaminated soil. Construction workers and other potential onsite and offsite receptors near or downwind from such activities may be exposed via the inhalation route of exposure.

The site and the surrounding properties are supplied with public drinking water. As a result, there is no potential for exposure to site contaminants via ingestion of groundwater as a source of drinking water. Persons conducting excavation activities in areas where the water table is high may encounter groundwater and, potentially, separate-phase product. In such instances there is potential for contact with COCs in groundwater and product, and for volatilization of COCs. Therefore, there is potential for exposure via the dermal adsorption and inhalation routes. It is assumed that adults performing such activities would not ingest groundwater or separate phase product.

In areas where there are Site buildings (or future Site buildings) in the vicinity of separate-phase product, and areas of soil and groundwater contamination, there is potential for volatilization of VOCs to migrate into indoor air. If such circumstances occur, Site workers could be exposed to contaminants via the indoor air inhalation route of exposure. It should be noted that there have been no documented complaints of petroleum odors within Site buildings.

Surface water and sediment in the Buffalo River adjacent to the ETYA is impacted by petroleum sheen and petroleum hydrocarbon compounds. The sheen is contained by sorbent booms maintained by ExxonMobil. There is limited accessibility to the area by land due to the fact that it is on the fenced ExxonMobil property and due to the narrow strip of shoreline adjacent to a steep river embankment that is difficult to traverse. As a result, there is only minimal potential for human exposure to contaminants in this area. The Buffalo River is generally not accessible from land across the remainder of the Site due the presence of the bulkhead.

5.2 Fish and Wildlife Resources Impact Analysis

The Buffalo River is an ecological resource that is a potential receptor for contaminants migrating from the Site. As described previously, under natural hydraulic gradients (i.e., non-pumping conditions), mobile separate-phase product and dissolved hydrocarbons in groundwater would migrate towards and discharge to the Buffalo River. However, the Well Point System has been in operation since 1971 to recover free product and intercept groundwater prior to discharge to the Buffalo River. The system effectively provides hydraulic containment during all but the most extreme precipitation events along the entire Site boundary with Buffalo River with the exception of the ETYA.

The historical seepage of separate-phase product and groundwater into the Buffalo River could have potentially impacted sediments in the River. However, the Buffalo River is maintained as a federal navigation channel along the length of the Site's bulkhead to a location approximately 300 feet west of the former Erie Lackawanna Railroad Bridge. The federal navigation channel has been dredged by the United States Army Corps of Engineers (USACOE) every 2 to 5 years to remove sediment and maintain an adequate water depth for navigation. During the 1992 and 1997 dredging events, ExxonMobil participated by dredging the 30-foot wide portion of the river

along the length of their bulkhead to maintain barge access to the Site. Thus, ExxonMobil has removed impacted sediments within this area on a regular basis.

The dredging operations described above have not addressed impacted sediments adjacent to the ETYA. In addition, presence of sheen and odor along the riverbank adjacent to the ETYA indicate that the separate-phase product and impacted groundwater beneath ETYA are still impacting the River. ExxonMobil maintains sorbent boom in the area of seepage to contain and remove the petroleum sheen.

Due to the documented historical and ongoing impacts to the Buffalo River summarized above, ExxonMobil will conduct a fish and wildlife impact analysis (FWIA) to satisfy the requirements of ECL-27-1415(2)(b), the draft BCP Guide and Draft DER-10, Section 3.10.1. The first part of the FWIA consists of a resource characterization to identify actual or potential impacts to fish and wildlife resources from site contaminants of ecological concern. The resource characterization consists of five steps:

1. Identify fish and wildlife resources based upon knowledge of the Site and a search of Department records and other sources.
2. Identify contaminant migration pathways and any fish and wildlife exposure pathways.
3. Describe the resources on the site and within one-half mile of the Site.
4. Identify contaminants of ecological concern and compare measured concentrations to standards, criteria and guidance (SCGs) for protection of biota in each media of concern.
5. Draw conclusions regarding the actual or potential adverse impacts to fish and wildlife.

Based upon the findings of this work ExxonMobil will evaluate, in consultation with NYSDEC, the need to proceed with Part 2: Ecological Impact Assessment, as described in Draft DER-10, Section 3.10.2.

6.0 DEVELOPMENT OF REMEDIAL ACTION GOALS AND OBJECTIVES

As stated in the NYSDEC Draft BCP Guide (May 2004): "The goal under the BCP is to remediate the site to a level that is protective of human health and the environment; taking into account the current, intended and reasonably anticipated future use of the Site." As described in Section 2.0, a portion of the Site is currently operating as petroleum products storage and distribution facility owned and operated by Buckeye with surrounding buffer area owned by ExxonMobil. ExxonMobil and Buckeye intend for this land use to remain unchanged for the foreseeable future. However, it is possible to anticipate that at some point in the future some portions of the current buffer area may be used for a different purpose consistent with allowable land use. Thus, this possibility will be considered when developing site-specific remedial alternatives for the Site. Based upon information from the City of Buffalo website, the current zoning of the portion of the site South of Elk Street is either M2-General Industrial District (ETYA) or M3-Heavy Industrial District (all other areas) with allowable industrial land use. Additional information regarding zoning and land use was provided by the City of Buffalo during the public comment period on ExxonMobil's BCP application. This information indicates that per the City's Local Waterfront Revitalization Program (LWRP), the proposed zoning of the portion of the Site south of Elk Street is CM-Central Commercial District with a proposed land use of mixed-use commercial/light industrial. The one exception to the above land use discussion will be the ESPA (OU-1). In this area, the possibility of residential land use will be considered when developing remedial alternatives.

6.1 Remedial Action Objectives

As specified in Draft DER-10, Section 4.1(c), remedial action objectives (RAOs) are to be established by:

1. Identifying all contaminants exceeding applicable SCGs and the environmental media impacted by the contaminants;

2. Identifying applicable SCGs taking into consideration the current and, where applicable, future land use for the Site;

3. Identifying all actual or potential public health and/or environmental exposures resulting from contaminants in environmental media at, or impacted by, the Site; and

4. Identifying any site-specific action levels for all impacted media.

The prior Site investigations have identified the contaminants exceeding RSCOs and Class GA AWQSG values and environmental media impacted by the contaminants. It is understood that NYSDEC is in the process of developing cleanup "track" based soil standards that will take into account the reasonably anticipated future land use of a Site. The NYSDEC has issued a draft revised Title 6 of the New York Code of Rule and Regulations (6 NYCRR) Part 375. This is the regulation that will now include the guidelines to implement the BCP and which will include the track-specific cleanup criteria tables. The draft regulation and supporting documentation was available for a public comment period until March 27, 2006. The schedule for finalizing the regulation has not been provided at this time. Therefore, given the current and anticipated land use at the Site, ExxonMobil will re-evaluate the existing soil quality data relative to these new standards once they have been developed.

An overview of the potential exposure pathways at the Site is provided in Section 5. As outlined in DER-10, Appendix 4A, the primary RAO for public health protection at the Site is to eliminate potential exposure pathways by preventing human contact, ingestion or inhalation of contaminated environmental media. In addition, the following RAOs will be applicable to the Site for environmental protection:

- Removal of the source of groundwater or surface water contamination, including free product and grossly contaminated soil, to the extent technically and practicably feasible;
- Eliminate, to the extent practicable, migration of groundwater not attaining groundwater standards; and
- Preventing impacts to biota from ingestion/direct contact with surface water and sediments causing toxicity and impacts from bioaccumulation through the marine or aquatic food chain.

6.2 Determination of Appropriate BCP Cleanup Track

NYSDEC has defined four potential cleanup tracks (Tracks 1 through 4) as described in the Draft BCP Guide, Section 4.6. The draft Part 375 regulations further define the Cleanup Track concepts and regulatory implementation. Given the size of the Site and the nature and extent of contamination across the Site, ExxonMobil anticipates that the remediation for most Site operable units will follow Track 4. The Track 4 approach recognizes that it may not be technically feasible nor practicable to remove or treat all contamination at the Site. As a result, a Track 4 remedy allows for placing restrictions on land use and groundwater use, and for utilizing

institutional controls (IC) and engineering controls (EC) to contain and prevent exposure to contamination. The one exception to this will be the ESPA (OU-1), which is anticipated to follow Track 1 given the historical residential land use and possibility for future residential land use.

6.3 Preliminary Definition of Operable Units

As described in Section 2, the Site has been divided into nine geographic areas for the purpose of assessing environmental conditions and reporting the results of area-specific activities (Figure 2). These areas were designated according to the historical primary operations that occurred in that portion of the Site. Now that sitewide remedial investigation is complete, it is appropriate to divide the Site into Operable Units based upon the anticipated phasing of subsequent remedial actions considering environmental media to be addressed, potential remedial approach and geographic areas. ExxonMobil proposes to divide the Site into operable units for the project as shown in Figure 3. It is recognized that there may be a need to modify or subdivide these operable units depending upon the ultimate remedial approach for various areas of the Site. The remedial approach may be influenced by the further development operable unit specific RAOs, the available technically feasible and practicable remedial action alternatives, the outcome of ongoing or potential additional IRMs, and final qualitative exposure assessment results. A brief description of each operable unit, media to be addressed and operable unit specific RAOs is provided below.

Operable Unit 1

This operable unit will include addressing the soil impacts in the ESPA that have been determined to be attributable to the former Tank 60 release from 1976.

Operable Unit 2

This operable unit will address soil, groundwater and any areas of free product located to the north of Prenatt Street and south of Elk Street, within the area shown in Figure 3. The work performed under this operable unit will, at a minimum, address the following media and operable unit specific objectives:

- Surface soils that potentially pose a direct contact hazard;
- Subsurface soils that are potentially a continuing source of groundwater impacts;

- Free product recovery to the extent practicable;
- Preventing migration of free product to the Buffalo River;
- Long term containment of residual product;
- Stormwater drainage and management controls across the OU-2 area; and
- Groundwater management controls to prevent exposure.

Operable Unit 3

This operable unit will address the main Free Product Plume and contaminated soil and groundwater south of Prenatt Street, within the area shown in Figure 3. The work to be performed under this operable unit will, at a minimum, address the following:

- Surface soils that potentially pose direct contact hazard;
- Subsurface soils that are potential continuing source of groundwater impacts;
- Free product recovery to the extent practicable;
- Preventing migration of free product to the Buffalo River;
- Long term containment of residual product;
- Stormwater drainage and management controls across the OU-3 area; and
- Groundwater management controls to prevent exposure and impacts to the Buffalo River.

Operable Unit 4

This operable unit will address soil and groundwater within the ETYA as shown in Figure 3.

- Surface soils that potentially pose a direct contact hazard;
- Subsurface soils that are potential continuing source of groundwater impacts;
- Free product recovery to the extent practicable (as a note, the separate-phase product plume in this area will be addressed by the chemical oxidation IRM, planned to be implemented in 2006, as described in Section 4.2.6, above);
- Preventing migration of free product to the Buffalo River;
- Long term containment of residual product;
- Stormwater drainage and management controls across the OU-4 area;

- Stabilization of the river embankment that was formed by the historical waste disposal activities;
- Groundwater management controls to prevent exposure.

Operable Unit 5

This operable unit will address the Buffalo River sediment impacted by ExxonMobil historical operations (Figure 3), including, at a minimum, evaluation of the need for remedial action based upon the results of the qualitative exposure assessment It should be noted that the area that is shaded on the west portion of OU-5 has been dredged historically by ExxonMobil to maintain barge access to the Site.

7.0 REMEDY SELECTION AND REMEDIAL DESIGN/REMEDIAL ACTION

ExxonMobil will develop and evaluate remedial alternatives and propose remedial actions to address the environmental media and operable unit specific RAOs for each operable unit at the Site. The main steps to be followed in the decision-making process for each operable unit are described below based upon information presented in the Draft BCP Guide and Draft DER-10.

Identify General Response Actions

General response actions include non-technology specific categories such as treatment, containment, excavation, extraction, disposal, engineering and institutional controls or a combination of these. All general response actions will be developed on a medium specific basis, similar to the development of RAOs. For each environmental media, the volumes or areas that require remediation will be identified and characterized.

Identify and Screen Technologies

In this step of the process, technology types appropriate to the site-specific conditions and contamination are identified for each of the general response actions identified above. The technology process options are also identified at this time. The technologies are screened, on a medium specific basis, to identify those that technically implementable for the Site and that can meet RAOs. During this step, additional data requirements may be identified that necessitate additional site characterization data or pilot testing to adequately evaluate alternatives and technologies. Technologies that are not implementable are dropped from further consideration. Those that remain are used in the next step to assemble alternatives.

Assemble Technologies into Remedial Alternatives

In this step the retained technologies are assembled into media-specific remedial alternatives. The alternatives are developed and defined to a level of detail that will allow for cost estimation and for the subsequent detailed analysis of alternatives. Specific alternatives that will be evaluated include a “no-action” and an alternative that would restore the site to “pre-disposal conditions.” Other alternatives to be considered will include those based on:

- The current, intended and reasonably anticipated future use of the Site;
- Removal of source areas of contamination; and
- Containment of contamination.

Analysis of Alternatives

Each of the remedial alternatives will be evaluated against the following nine criteria that are defined Section 4.2 of Draft DER-10:

- Protection of Human Health and the Environment;
- Standards, Criteria and Guidance (SCGs);
- Short-term effectiveness and Impacts;
- Long-term effectiveness and permanence;
- Reduction of Toxicity, Mobility or Volume;
- Implementability;
- Cost Effectiveness;
- Community Acceptance (this criteria will be evaluated following the public comment period for the proposed remedy); and
- Land Use.

A comparative evaluation of each alternative to the other alternatives using above criteria will also be conducted.

Remedial Action Recommendation

This final step in the process will identify the recommended remedy and summarize the reasons why, with reference to the nine evaluation criteria, it is the best alternative for remediation of the operable unit or sub-operable unit area of concern.

Alternatives Analysis Report (AAR) / Remedial Work Plan (RWP)

An Alternatives Analysis Report (AAR) and Remedial Work Plan (RWP) will be prepared to document the development and evaluation of remedial alternatives and remedial action recommendation for each operable unit, or sub-operable unit, as appropriate. For remedies that will follow a Track 1 cleanup approach, a separate AAR is not required. In this case, the RWP will compare the selected remedy to the nine criteria listed above. The AAR/RWP will also analyze any IC/EC for each operable (or sub-operable) unit, if applicable. For those remedial

actions where the RWP will serve as the basis for remedy construction, the RWP will be prepared to include technical plans with a sufficient level of detail to implement the remedy.

As specified in the Draft BCP Guide, the RWP may be submitted concurrent with or after preliminary review of the AAR by NYSDEC. A draft Operation, Maintenance and Monitoring Plan (OM&M), prepared in accordance with Section 6 of the Draft DER-10, will also be submitted with the draft RWP, as appropriate.

Remedial Action Work Plan (RAWP)

For simple remedial actions, the approved Remedial Work Plan, will provide sufficient documentation and control for the project, with the addition of the site-specific technical plans to allow it to serve as a Remedial Action Work Plan. The plans to be added to an approved conceptual level Remedial Work Plan to make it a Remedial Action Work Plan for construction are:

- Project Plans and Specifications (level of detail commensurate with the complexity of the project);
- Institutional and Engineering Controls;
- Health and Safety Plans;
- Quality Assurance/Quality Control Plan;
- Schedule;
- Reporting;
- Project Organization; and
- Citizen Participation Plan of Construction Activities.

Remedial Design

As described in DER-10, not all remedial actions will require preparation of a formal remedial design document. The need for preparing formal remedial design packages will be evaluated on a case-by-case basis, depending upon the complexity of the work. For those operable units and sub-operable units where the remedial action will require a formal Remedial Design, the RWP will be prepared as a conceptual level document and serve as a Remedial Design Work Plan. As described in Section 5 of the Draft DER-10, a formal remedial design, if necessary, will

incorporate all of the elements identified for the RWP into a set of biddable quality plans and specifications. In addition to the RWP, the submittals for a remedial design will include one or more of the following, depending upon the complexity of the project:

- A preliminary design that is submitted at the 50-75% completion level. The appropriate completion level for the submittal is determined based upon the complexity of the project;
- A 95% completion submittal of the design plans and specifications; and
- A final design submittal of the plans and specifications that is signed and stamped by a professional engineer licensed to practice in NYS.

Upon completion of remedial action in each Operable Unit, a Remedial Action Report will be prepared and submitted to the NYSDEC. The report will present and discuss the results of the major remedial construction activities. The report will contain a summary statement by a Professional Engineer Licensed in the State of New York certifying that the project was completed in accordance with approved work plans and design documents, as appropriate. The completion report will be prepared in accordance with Section 5.7 of the Draft BCP Guide and Section 5.8 of the Draft DER-10.

8.0 OPERATION, MAINTENANCE AND MONITORING

A formal OM&M Plan will be prepared for all operable units and sub-operable units requiring long-term operation, maintenance and monitoring, in accordance with the requirements of Section 6 of the Draft DER-10. A Long Term Groundwater Monitoring Plan will be prepared for all operable units that address groundwater remediation (OU-2, 3 and 4), as appropriate. A Site Management Plan, including Soil Management Plan will be prepared for all operable units that address soil remediation (OU- 2, 3 and 4), except OU-1, since it will follow a Track 1 cleanup approach.

Institutional and/or Engineering Controls, if applicable, will be addressed as described in the Draft DER-10, including an annual certification by a professional engineer licensed in the State of New York that the institutional and engineering controls remain in place, and remain effective for the protection of public health and the environment.

9.0 PROJECT SCHEDULE

A preliminary project schedule has been developed taking into account the status of ongoing IRMs, and the magnitude and complexity of environmental issues that need to be addressed at the Site. The preliminary schedule is general in nature, since the actual remedial actions have yet to be defined. ExxonMobil intends to submit progress reports on a periodic basis to update the schedule and keep the NYSDEC apprised of the progress of completed and planned work. In addition, each RWP will contain a more detailed implementation schedule for the specific remedial action that is proposed. Schedules may need to be modified based upon the actual scope of work to be performed, changes in field conditions, availability of specialized contractor personnel, equipment or facilities, seasonal weather conditions, permitting and approval requirements, or other factors. If a task is completed ahead of schedule, subsequent tasks will be moved forward in the schedule, as appropriate.

The preliminary schedule is presented below and shown in Gantt chart format as Figure 7. The schedule will be updated and modified based upon actual work requirements.

Year 1 (January through December 2006)

- Citizen Participation Plan: Prepare and submit written plan to NYSDEC within 20 days after effective date of BCP Agreement.
- Product Recovery IRM: Continue site wide implementation of this IRM as described in Section 4.2 (ongoing).
- Pipe Removal IRM: The goal was to complete this IRM by November 2005; however, due to the quantity of pipe encountered, pipe removal activities will recommence in the spring of 2006 with a plan for completion during this construction season.
- Preparation of a Remedial Work Plan and implementation of IRM for remediation of product in the ETYA: The goal is to construct and begin to operate this IRM in 2006.
- Commence/complete qualitative exposure assessment.
- OU-1: Preparation and submittal of RWP and implementation of remedial action.

Year 2 (January through December 2007)

- Continue operation of the IRM for remediation of product in the ETYA.
- OU-2: Preparation and Submittal of AAR/RWP, commence/complete remedial design (if necessary) and commence implementation (first year construction).

Year 3 (January through December 2008)

- Product Recovery IRM: Continue sitewide implementation of this IRM as described in Section 4.2 (ongoing).
- OU-2: Complete implementation (second construction season, if necessary) and begin operation and maintenance.
- OU-3: Preparation and submittal of AAR/RWP and commence remedial design (if necessary).

Year 4 (January through December 2009)

- OU-3: Complete remedial design and commence implementation (first year construction).
- OU-4: Preparation and submittal of AAR/RWP and commence remedial design (if necessary). Note that the design for OU-4 will be based upon approval of the AAR/RWP by NYSDEC and any agreements with other regulatory agencies, as appropriate.
- OU-5: Commence preparation of AAR/RWP.

Year 5 (January through December 2010)

- Product Recovery IRM: Continue implementation of this IRM as described in Section 4.2 (ongoing).
- OU-2: Operation and maintenance, performance monitoring (ongoing).
- OU-3: Continue implementation (second construction season, if necessary).
- OU-4: Complete remedial design (if necessary).
- OU-5: Complete preparation and submittal of AAR/RWP.

Years 6 (January through December 2011) and Beyond

- OU-2: Operation and maintenance, performance monitoring (ongoing).
- OU-3: Complete implementation (third construction season, if necessary) and begin operation and maintenance.
- OU-4: The remedy for this portion of the site is anticipated to be constructed beginning in Year 6 (to the extent practicable), with the first full construction season in Year 7, the second full construction season Year 8 (if necessary), and the third full construction season in Year 9 (if necessary). However, the scope will be coordinated with remedial activities in OU-5 (if necessary) and with work of the NYSDEC and USACE associated with the Buffalo River, to the extent practicable. The schedules of these activities are yet

to be determined. Operation, maintenance and performance monitoring will commence following implementation.

- OU-5: If necessary, design and implementation of a remedy for this Operable Unit will be coordinated with the work in OU-4 and with the work of the NYSDEC and USACE associated with the Buffalo River, to the extent practicable. The schedules of these activities are yet to be determined.

10.0 REFERENCES

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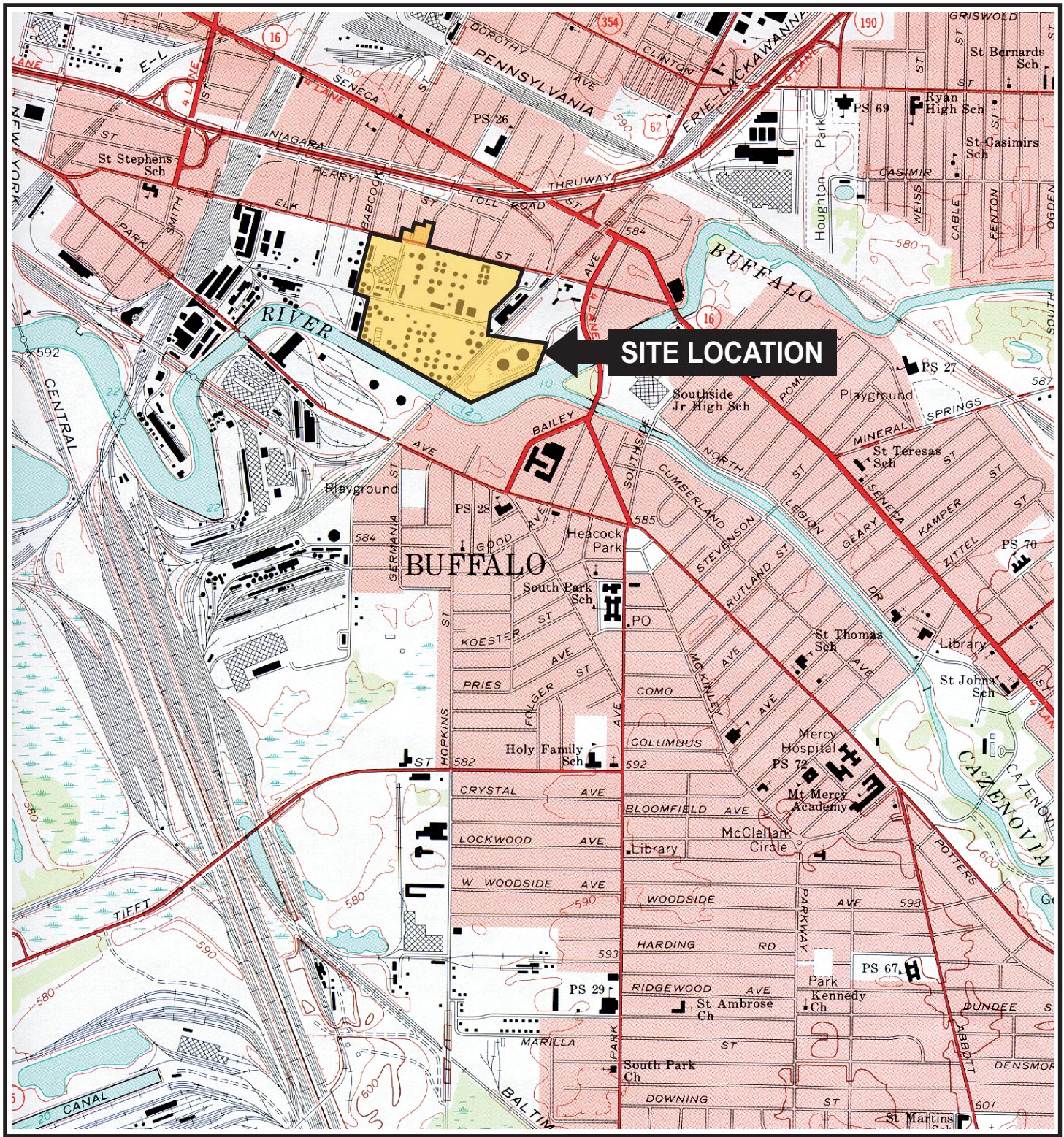

QUADRANGLE LOCATION

SOURCE:
USGS; 1965, Buffalo SE, New York
7.5 Minute Topographic Quadrangle

N

0 2000'

Title:

SITE LOCATION MAP

FORMER BUFFALO TERMINAL

Prepared for:

EXXONMOBIL OIL CORPORATION

ROUX
ROUX ASSOCIATES, INC.
Environmental Consulting & Management

Compiled by: W.S.		Date: 20SEP04	FIGURE
Prepared by: B.H.C.		Scale: AS SHOWN	1
Project Mgr.: W.S.		Office: NY	
File No.: MC5224906.CDR		Project No.: 17252Y07	

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ELK STREET PROPERTIES AREA

BABCOCK STREET

PARCELS #1, #2 AND #3

GORHAM STREET

PARCEL #4

WINONA STREET

PARCEL #5

BRADFORD STREET

ELK STREET

BABCOCK STREET

NORTHEAST PROCESS AND STORAGE AREA

NORTHERN TANK YARD AREA

FORMER REFINERY AREA

ADMINISTRATIVE OFFICES AND OPERATIONS AREA

CENTRAL RAIL AND PROCESS AREA

BABCOCK STREET PROPERTIES AREA

75

25

26

90

99

38

97

171

87

104

105

SOUTHERN TANK YARD AREA

175

176

EASTERN TANK YARD AREA (FORMER DISPOSAL AREA)

BUFFALO RIVER

BUFFALO RIVER

N

LEGEND

- EXISTING TANK
- EXISTING STRUCTURE
- PROPERTY CURRENTLY OWNED BY EXXONMOBIL (BASED ON DENLUCK–O'NEILL ENGINEERING AND SURVEYING, DEC. 15, 1988; AND NUSSBAUMER & CLARKE, INC. FEBRUARY 6, 1995)
- LIMITS OF PROPERTY FORMERLY OWNED BY EXXONMOBIL OIL CORPORATION
- GEOGRAPHIC AREA BOUNDARY AND/OR FORMER PROPERTY LINES
- PROPERTY OWNED AND OPERATED BY BUCKEYE TERMINALS, LLC AS OF MAY 4, 2005

NOTE:

THIS FIGURE WAS PREPARED TO IDENTIFY THE HISTORICAL USES OF VARIOUS PORTIONS OF THE PROPERTY. REFER TO FIGURE 3 FOR THE BROWNFIELDS SITE BOUNDARY AND DEFINITION OF OPERABLE UNITS.

250' 0 250'

Title:

GEOGRAPHIC AREAS OF THE EXXONMOBIL FORMER BUFFALO TERMINAL

EXXONMOBIL FORMER BUFFALO TERMINAL, BUFFALO, NEW YORK

Prepared For:

EXXONMOBIL OIL CORPORATION

ROUX ASSOCIATES, INC.
Environmental Consulting & Management

Compiled by: W.S.	Date: 29MAR06	FIGURE
Prepared by: R.K.	Scale: AS SHOWN	2
Project Mgr: W.S.	Office: NY	
File No: MC5224901	Project: 17252Y07	

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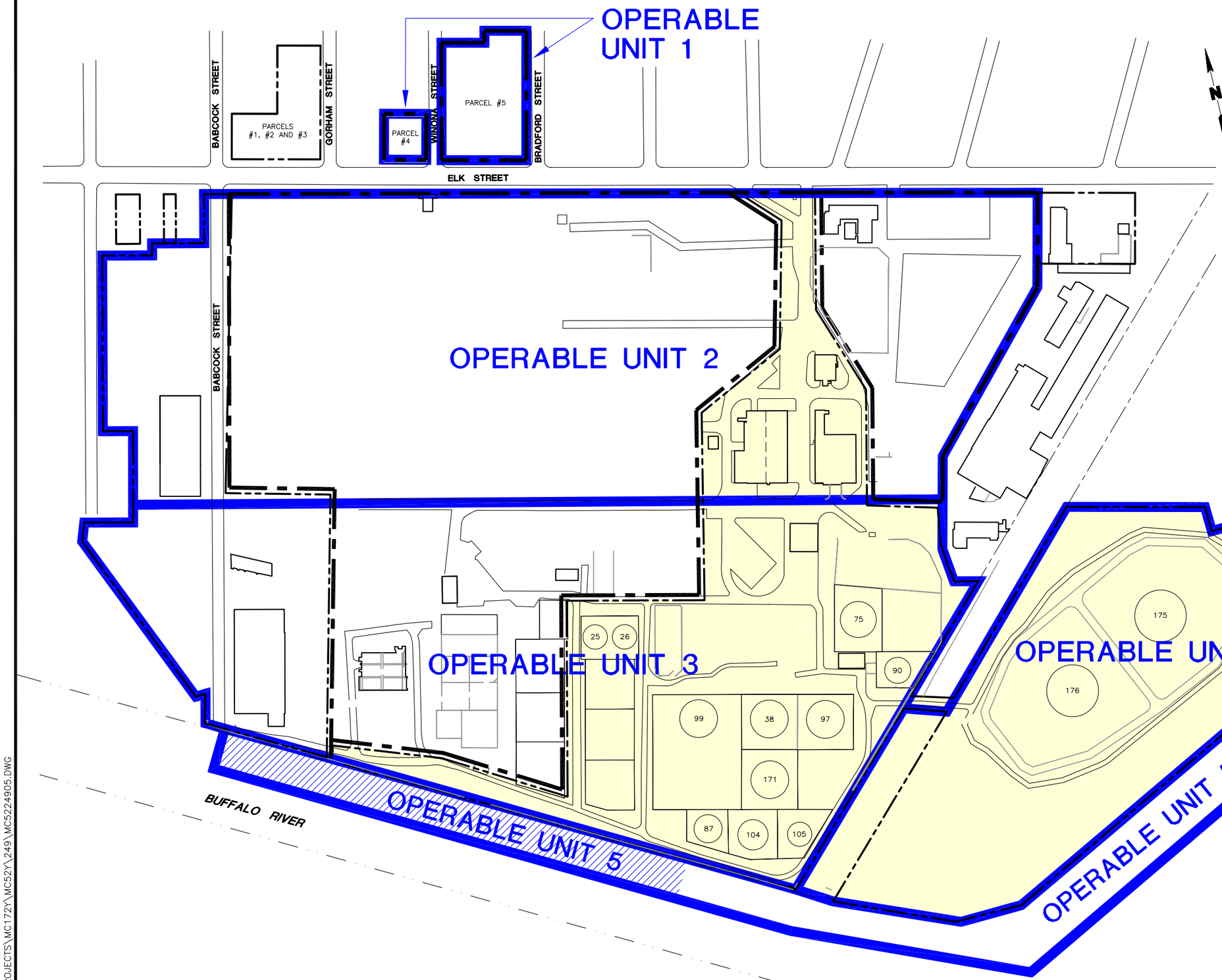


LEGEND

- EXISTING TANK
- EXISTING STRUCTURE
- PROPERTY CURRENTLY OWNED BY EXXONMOBIL (BASED ON DENLUCK–O'NEILL ENGINEERING AND SURVEYING, DEC. 15, 1988; AND NUSSBAUMER & CLARKE, INC. FEBRUARY 6, 1995)
- LIMITS OF PROPERTY FORMERLY OWNED BY EXXONMOBIL OIL CORPORATION
- OPERABLE UNIT BOUNDARY
- AREA WHERE EXXONMOBIL HAS PARTICIPATED IN DREDGING OPERATIONS TO MAINTAIN BARGE ACCESS TO THE SITE
- PROPERTY OWNED AND OPERATED BY BUCKEYE TERMINALS, LLC AS OF MAY 4, 2005

NOTES

1. OPERABLE UNIT 5 IS NOT PART OF THE CURRENT OR FORMER EXXONMOBIL PROPERTY.
2. THE BROWNFIELD SITE IS DEFINED AS ALL AREAS WITHIN THE OPERABLE UNIT BOUNDARIES.

250' 0 250'

Title:

DEFINITION OF OPERABLE UNITS AND BROWNFIELD SITE BOUNDARIES FOR THE EXXONMOBIL FORMER BUFFALO TERMINAL

EXXONMOBIL FORMER BUFFALO TERMINAL, BUFFALO, NEW YORK

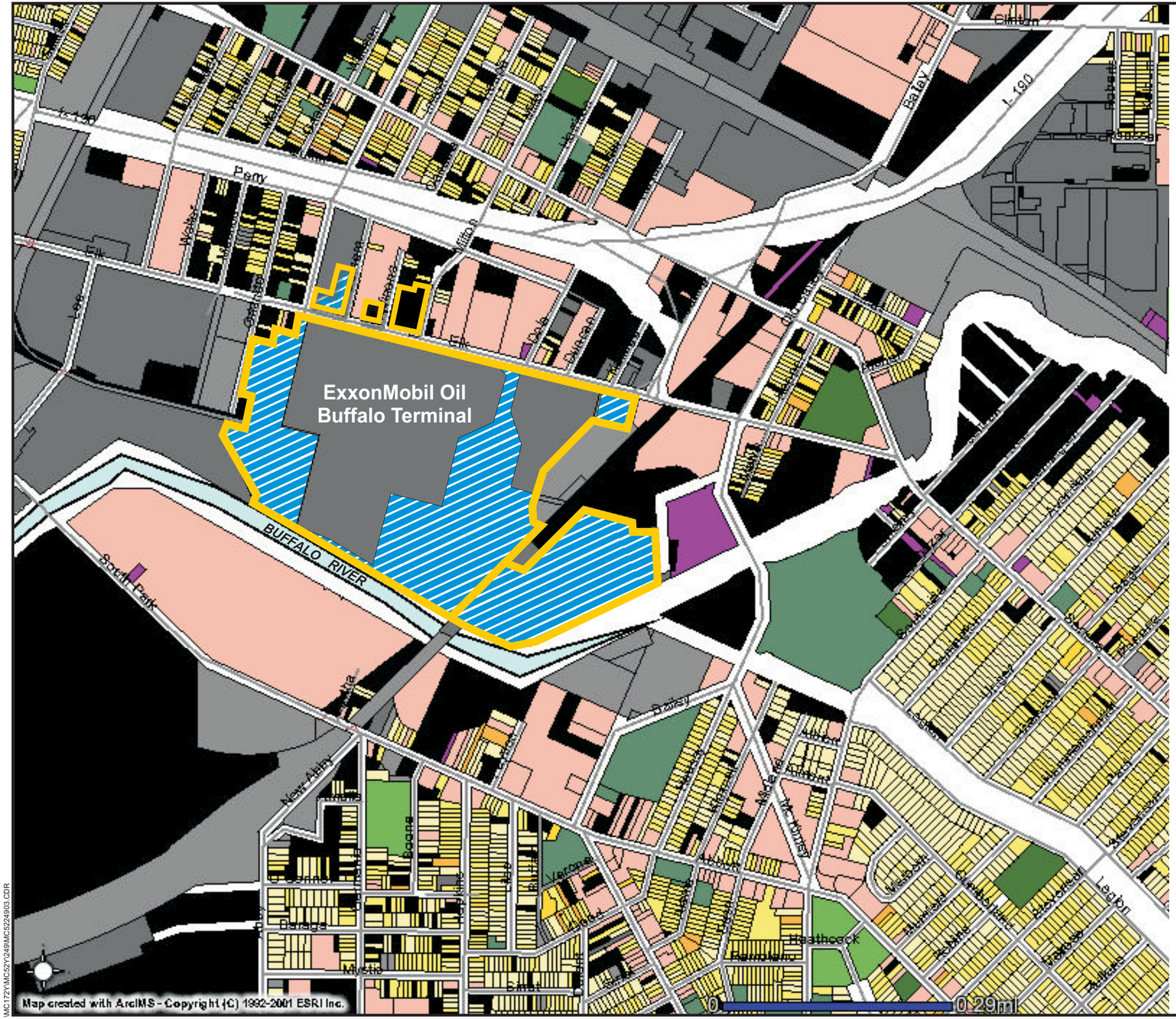
Prepared For:

EXXONMOBIL OIL CORPORATION

ROUX ASSOCIATES, INC.
Environmental Consulting & Management

Compiled by: W.S.	Date: 29MAR06	FIGURE
Prepared by: B.H.C.	Scale: AS SHOWN	3
Project Mgr: W.S.	Office: NY	
File No: MC5224905	Project: 17252Y07	

N:\PROJECTS\MC172Y\MC52Y\249\MC5224905.DWG



Legend

- Streets
- Parcels
  - Residential single family
  - Residential two family
  - Residential three family
  - Residential Other
  - Vacant
  - Commercial
  - Recreational
  - Community Service
  - Industrial
  - Public Service
  - Conservation Areas / Parks
  - Other
- Railroads
- ExxomMobil Former Buffalo Terminal site boundary
- Divested property no longer owned by ExxonMobil

Source: City of Buffalo website
(http://erie-gis.co.erie.ny.us/website/buffalony/viewer.htm)

Title:

LAND USE IN THE VICINITY OF THE EXXONMOBIL OIL FORMER BUFFALO TERMINAL

EXXONMOBIL FORMER BUFFALO TERMINAL

Prepared for:

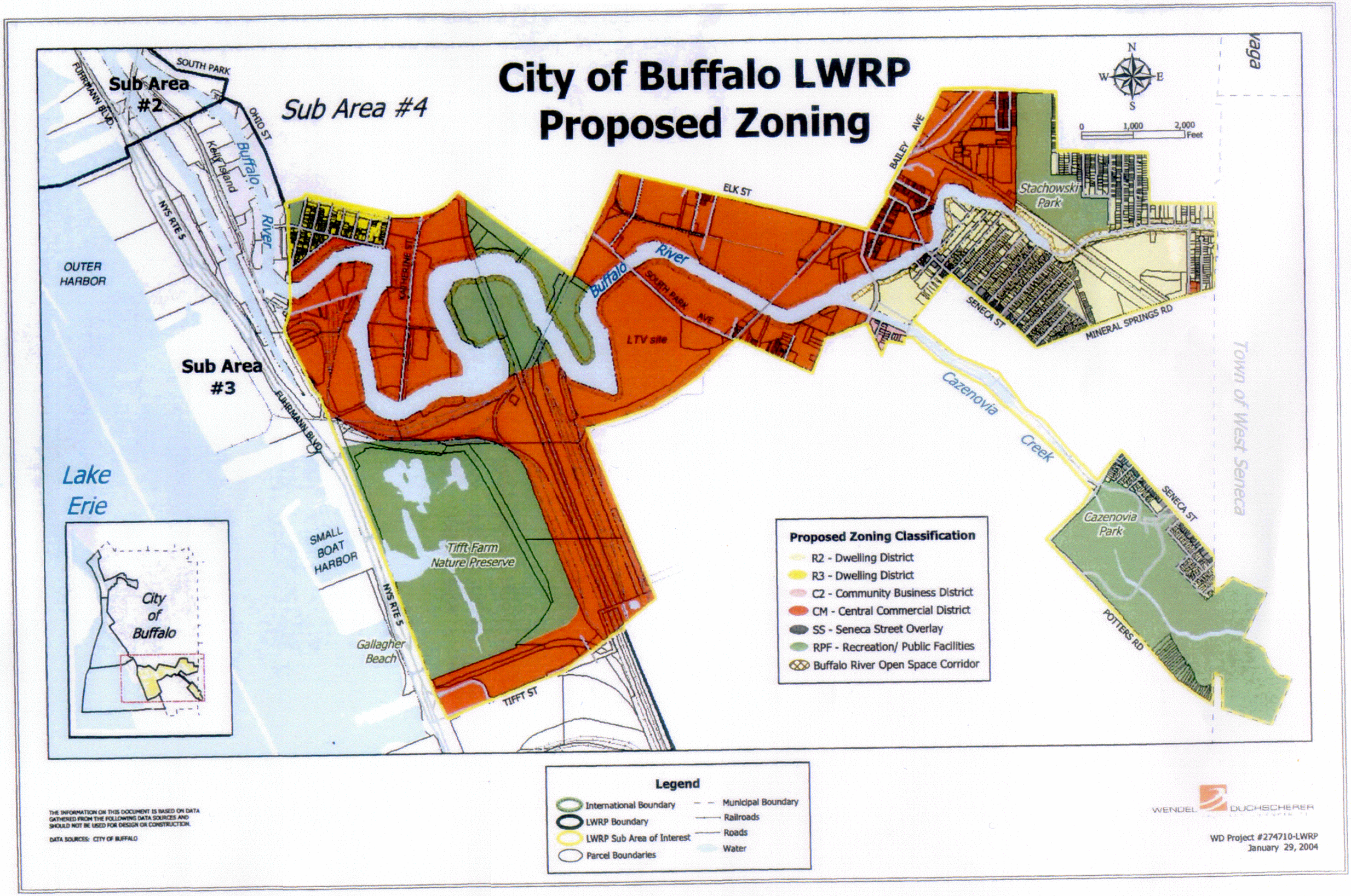
EXXONMOBIL OIL CORPORATION

ROUX ASSOCIATES, INC.
Environmental Consulting & Management

Compiled by: W.S.	Date: 08AUG05	FIGURE
Prepared by: B.H.C.	Scale: AS SHOWN	4
Project Mgr.: W.S.	Office: NY	
File No.: MC5224903.CDR	Project No.: 17252Y07	

\MC172Y\MC52Y\249\MC5224903.CDR

FIGURE 5



THE INFORMATION ON THIS DOCUMENT IS BASED ON DATA GATHERED FROM THE FOLLOWING DATA SOURCES AND SHOULD NOT BE USED FOR DESIGN OR CONSTRUCTION.

DATA SOURCES: CITY OF BUFFALO

WENDEL DUCHSCHERER

WD Project #274710-LWRP
January 29, 2004

FIGURE 6

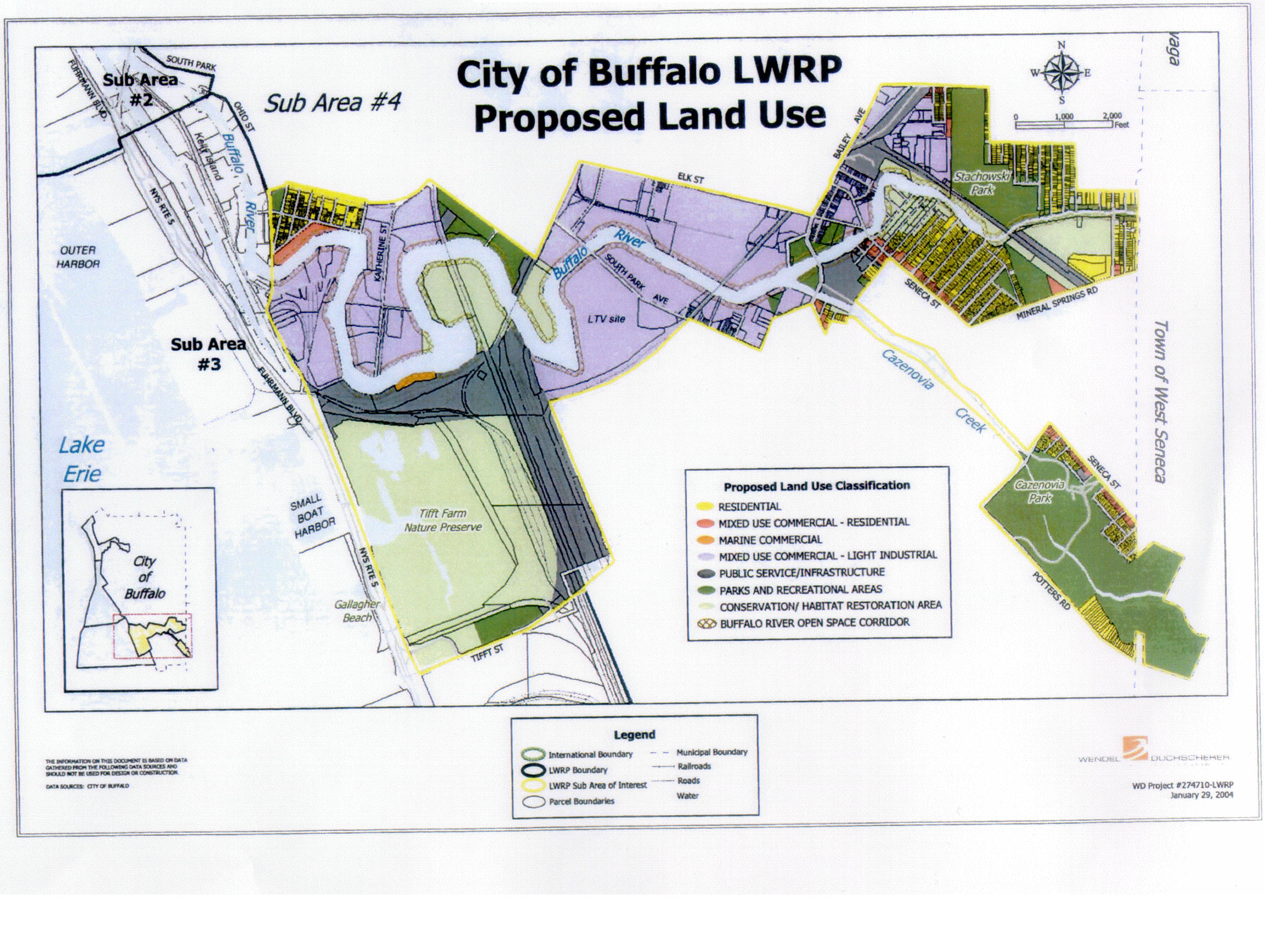
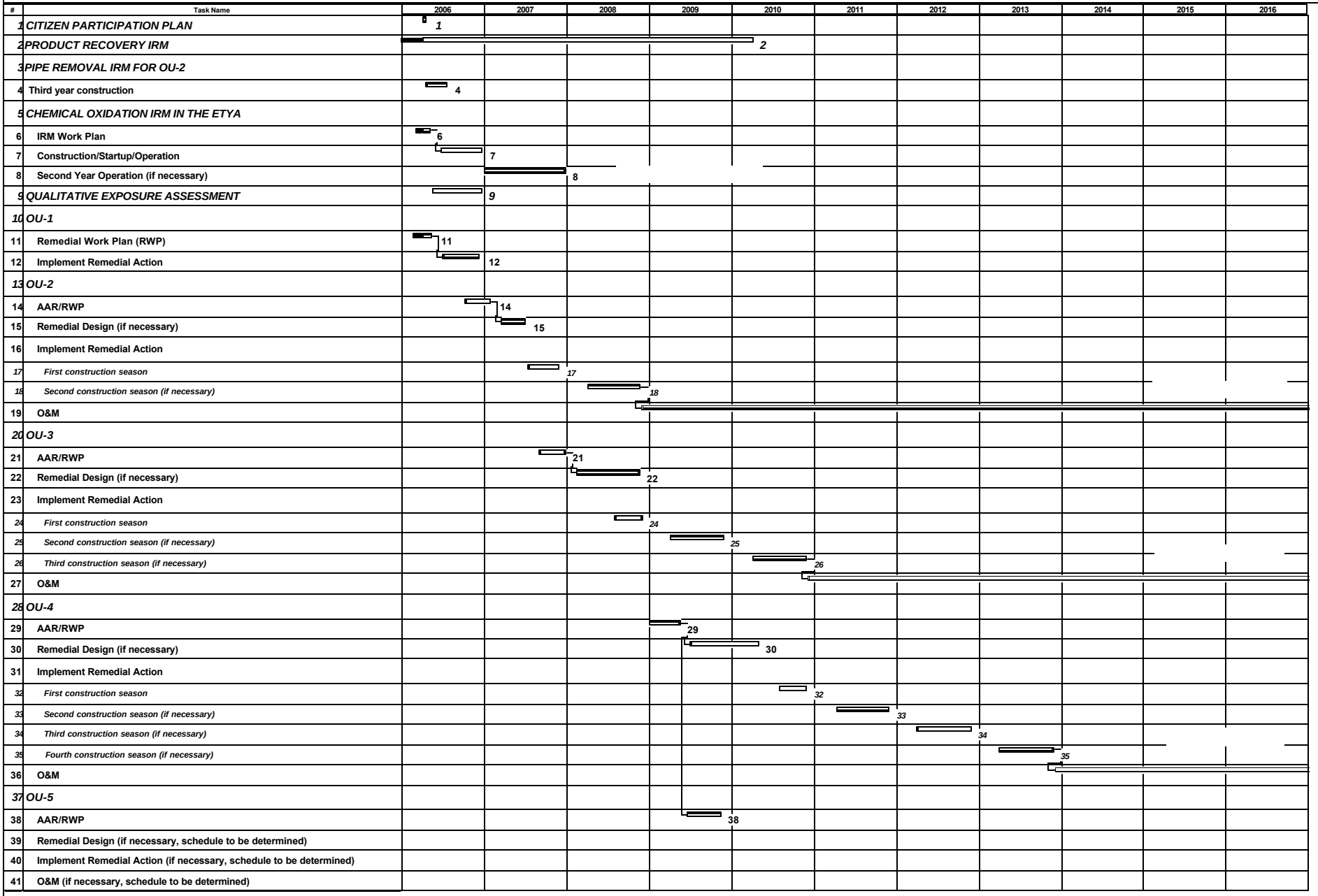

City of Buffalo LWRP
Proposed Land Use
Sub Area #2
Sub Area #3
Sub Area #4
SOUTH PARK
FUHRMANN BLVD
OHIO ST
Kelly Island
Buffalo River
NYS RTE 5
OUTER HARBOR
KATHERINE ST
ELK ST
BAILEY AVE
Stachowski Park
SENECA ST
MINERAL SPRINGS RD
SOUTH PARK AVE
LTV site
Cazenovia Creek
Lake Erie
SMALL BOAT HARBOR
Tifft Farm Nature Preserve
Gallagher Beach
TIFFT ST
Cazenovia Park
POTTERS RD
Town of West Seneca
City of Buffalo
N
S
E
W
0
1,000
2,000
Feet
Proposed Land Use Classification
RESIDENTIAL
MIXED USE COMMERCIAL - RESIDENTIAL
MARINE COMMERCIAL
MIXED USE COMMERCIAL - LIGHT INDUSTRIAL
PUBLIC SERVICE/INFRASTRUCTURE
PARKS AND RECREATIONAL AREAS
CONSERVATION/ HABITAT RESTORATION AREA
BUFFALO RIVER OPEN SPACE CORRIDOR
Legend
International Boundary
LWRP Boundary
LWRP Sub Area of Interest
Parcel Boundaries
Municipal Boundary
Railroads
Roads
Water
THE INFORMATION ON THIS DOCUMENT IS BASED ON DATA GATHERED FROM THE FOLLOWING DATA SOURCES AND SHOULD NOT BE USED FOR DESIGN OR CONSTRUCTION.
DATA SOURCES: CITY OF BUFFALO
WENDEL DUCHSCHERER
WD Project #274710-LWRP
January 29, 2004

FIGURE 7. PROPOSED SCHEDULE OF REMEDIAL ACTIVITIES
EXXONMOBIL OIL CORPORATION - FORMER BUFFALO TERMINAL, BUFFALO, NEW YORK
Revised 04/01/06



A minimum 45 day public comment period/NYSDEC review period is included after each Remedial Work Plan submittal, prior to initiating design

Task numbers provided in the left column of the chart and next to the schedule bars are provided to facilitate correlation of the schedule bars in the center of the chart with the corresponding tasks in the left hand column.

The schedule shown is based upon available information and should be considered preliminary. Schedules may need to be modified based upon the actual scope of work to be performed, changes in field conditions, availability of specialized contractor personnel, equipment or facilities, seasonal weather conditions, permitting and approval requirements, or other factors. This schedule does not provide time for additional investigation that may be required. We anticipate additional investigations to be completed within remedial design components.

MC5224901SCH-rev.PSB

ROUX ASSOCIATES, INC.

AREA	Structure Number	Current Structure Name (Original Structure Name)
Northeast Process and Storage Area	21	Leased to Police Community Services (Main Office)
	22	Former Biotreatment Cell
	23	Gated Entrance
Northern Tank Yard Area	35	Sub-Station C
Former Refinery Area	69	Main Inground Oil/Water Separator
	73	Remediation Building (Pump House #25, Fire House)
Central Rail and Process Area	105	Brick Building (Dehydrator/Pipe Line Pump House #38)
	112	Tank Truck Loading Rack
Southern Tank Yard Area	133	Vapor Recovery Unit
Babcock Street Properties Area	135	One Babcock Street Offices (Barrel House)
	140	Various Tenants of One Block of Babcock Street (Lakes Division Garage)
	141	One Babcock Street Storage Building (Truck Loading Rack)
Administrative Offices and Operations Area	146	Electrical Sub-Station A (Furnace Room)
	150	Laboratory Building
	152	Main Office/Mechanical Shops
	153	Store House
Elk Street Properties Area		Parcel #4
		Parcel #5

LEGEND

- EXISTING TANK
- 153 — EXISTING STRUCTURE
- CURRENT PROPERTY LINE (BASED ON DENLUCK-O'NEILL ENGINEERING AND SURVEYING, DEC. 15, 1988; AND NUSSBAUMER & CLARKE, INC. FEBRUARY 6, 1995)
- LIMITS OF PROPERTY FORMERLY OWNED BY EXXONMOBIL OIL CORPORATION
- GEOGRAPHIC AREA BOUNDARY AND/OR FORMER PROPERTY LINES
- MW-1 — LOCATION AND DESIGNATION OF MONITORING WELL
- MW-4 — LOCATION AND DESIGNATION OF MONITORING WELL ABANDONED IN 2001 OR 2002
- RW-5 569.07 5.20 — LOCATION AND DESIGNATION OF RECOVERY WELL; GROUNDWATER ELEVATION, MEASURED IN FEET ABOVE MEAN SEA LEVEL; FREE-PRODUCT THICKNESS IN FEET
- RW-8 — LOCATION AND DESIGNATION OF ABANDONED RECOVERY WELL
- NM — NOT MEASURED
- ND — NOT DETECTED
- NA — NOT APPLICABLE
- 586 — LINE OF EQUAL GROUNDWATER ELEVATION, MEASURED IN FEET ABOVE MEAN SEA LEVEL (DASHED WHERE INFERRED)
- APPROXIMATE GROUNDWATER FLOW DIRECTION
- WELL POINT SYSTEM
- SECTION OF WELL POINT SYSTEM NOT OPERATIONAL
- MH — LOCATION AND DESIGNATION OF MANHOLE
- HISTORICAL AND CURRENT SEPARATE-PHASE PRODUCT
- CB-69 — LOCATION AND DESIGNATION OF CATCH BASIN
- MH-14 — LOCATION AND DESIGNATION OF MANHOLE

WELL DESIGNATION	AVERAGE FLOW RATE FOR OCTOBER 2005 (GALLONS PER MINUTE)
RW-1	0.9
RW-2	0.1
RW-3	0.1
RW-4	1.0
RW-5	0.1
EASTERN WPS	34.4
WESTERN WPS (NOTE 7)	–

NOTE

1. QUARTERLY GAUGING ROUND WAS CONDUCTED ON OCTOBER 12, 2005.
2. LF-2D GROUNDWATER ELEVATION NOT USED; SCREENED AT DEEPER INTERVAL.
3. SB-7, SB-13 AND SB-10 WERE NOT GAUGED AS THEY WERE REPLACED BY MW-25, MW-27 AND MW-22, RESPECTIVELY.
4. SB-19 WAS NOT GAUGED BECAUSE THE WELL WAS UNDER WATER.
5. WATER-TABLE ELEVATION AT MW-32, MW-42, LF-8 AND RW-9 NOT USED FOR CONTOURING DUE TO ANOMALOUSLY HIGH READING. WATER-TABLE ELEVATION AT MW-33 WAS NOT USED FOR CONTOURING DUE TO ANOMALOUSLY HIGH GROUNDWATER TABLE ELEVATION (LOCALIZED PERCHED WATER ZONE SUSPECTED).
6. MW-7 WAS NOT GAUGED BECAUSE THE PRODUCT WAS TOO THICK TO BE GAUGED.
7. FLOW METER ON THE WESTERN WELL POINT SYSTEM WAS NOT OPERATING PROPERLY THROUGHOUT THE QUARTER.

120' 0 120'

Title:

GROUNDWATER POTENTIOMETRIC MAP OCTOBER 2005

FORMER BUFFALO TERMINAL, BUFFALO, NEW YORK

Prepared For:

EXXONMOBIL OIL CORPORATION

ROUX ASSOCIATES, INC. Environmental Consulting & Management

Compiled by: W.S.	Date: 16JAN06	PLATE 1
Prepared by: G.M.	Scale: AS SHOWN	
Project Mgr: W.S.	Office: NY	
File No: MC5224907	Project: 17252Y07	

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