# Residential Waterfront Redevelopment: Expanding Baltimore's Inner Harbor

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**Presented by Paul H. Hayden**

**Arc Environmental, Inc.**

# City of Baltimore, Maryland
# "Land of Pleasant Living"

## Historical Baltimore

- Manufacturing City
- Large Shipping Industry
- Warehousing
- Railroad Connections
- "Digital Harbor"

# Project Introduction

## Site Facts

- Eight (8) acres in size
- Historical manufacturing, industrial, and residential use
- Industrial use began as early as 1860
- Current use – parking lot
- Prime waterfront property
    - Exhibits the three L's

# History of the Former Constellation Properties - 1947

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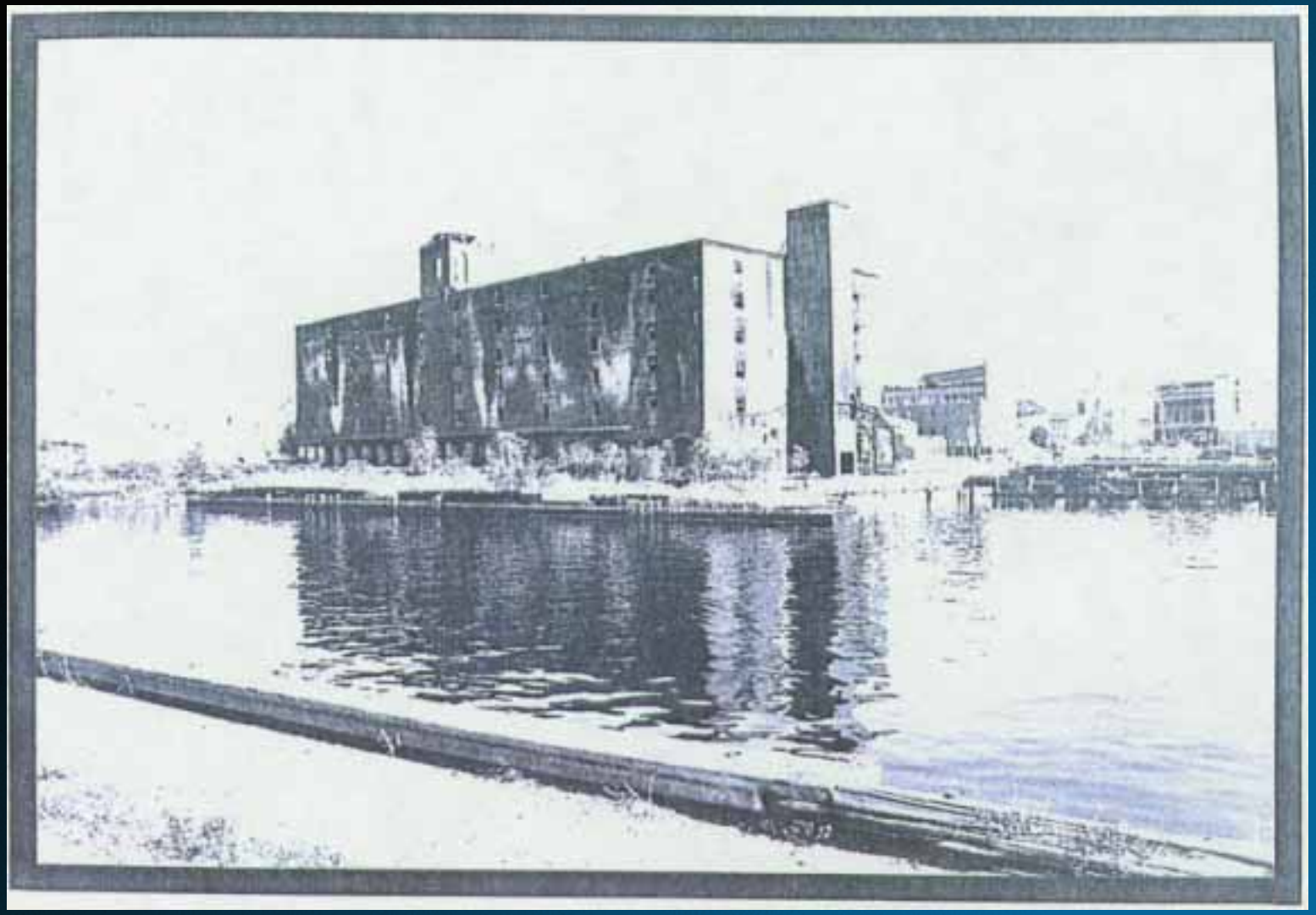


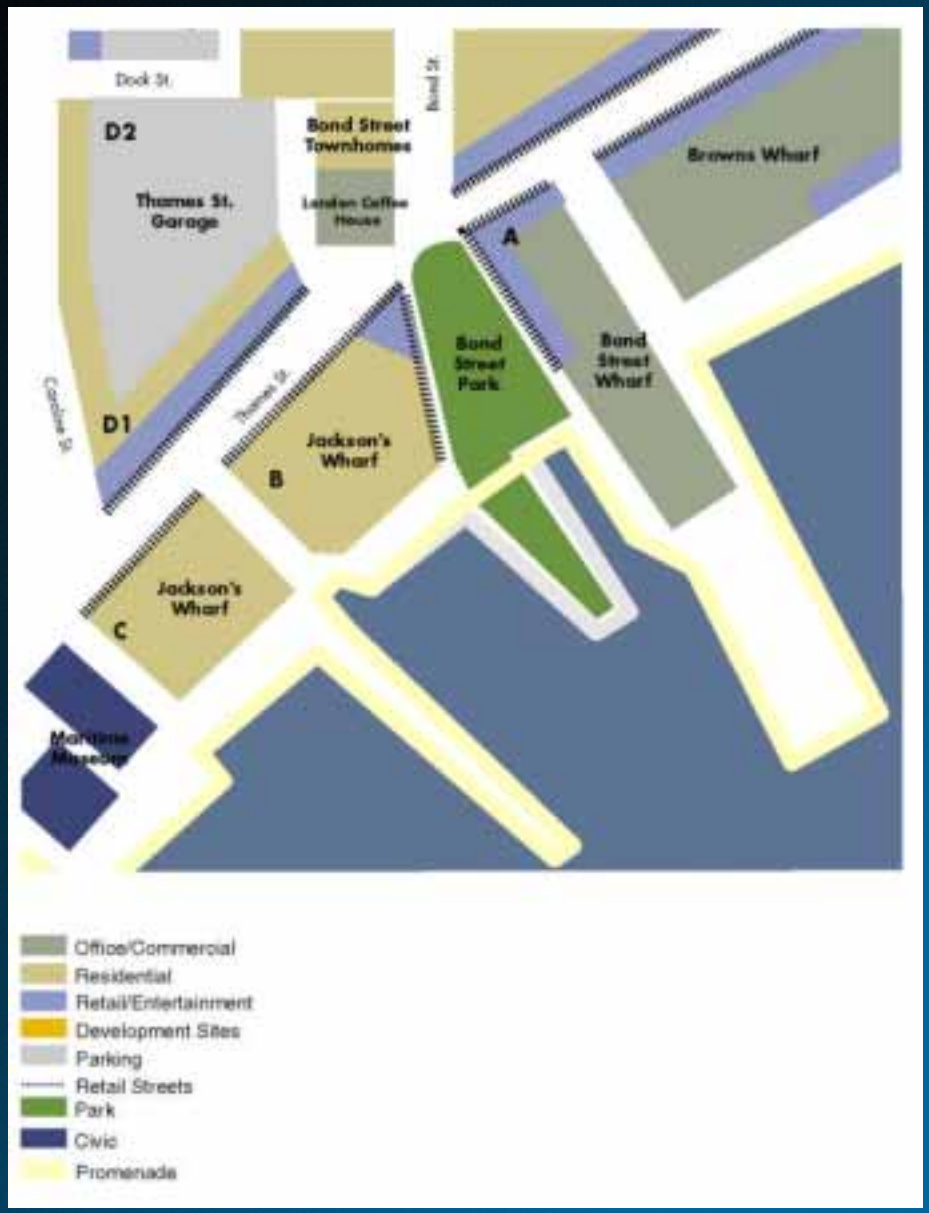
# History of the Former Constellation Properties - 1969

# Proposed Redevelopment

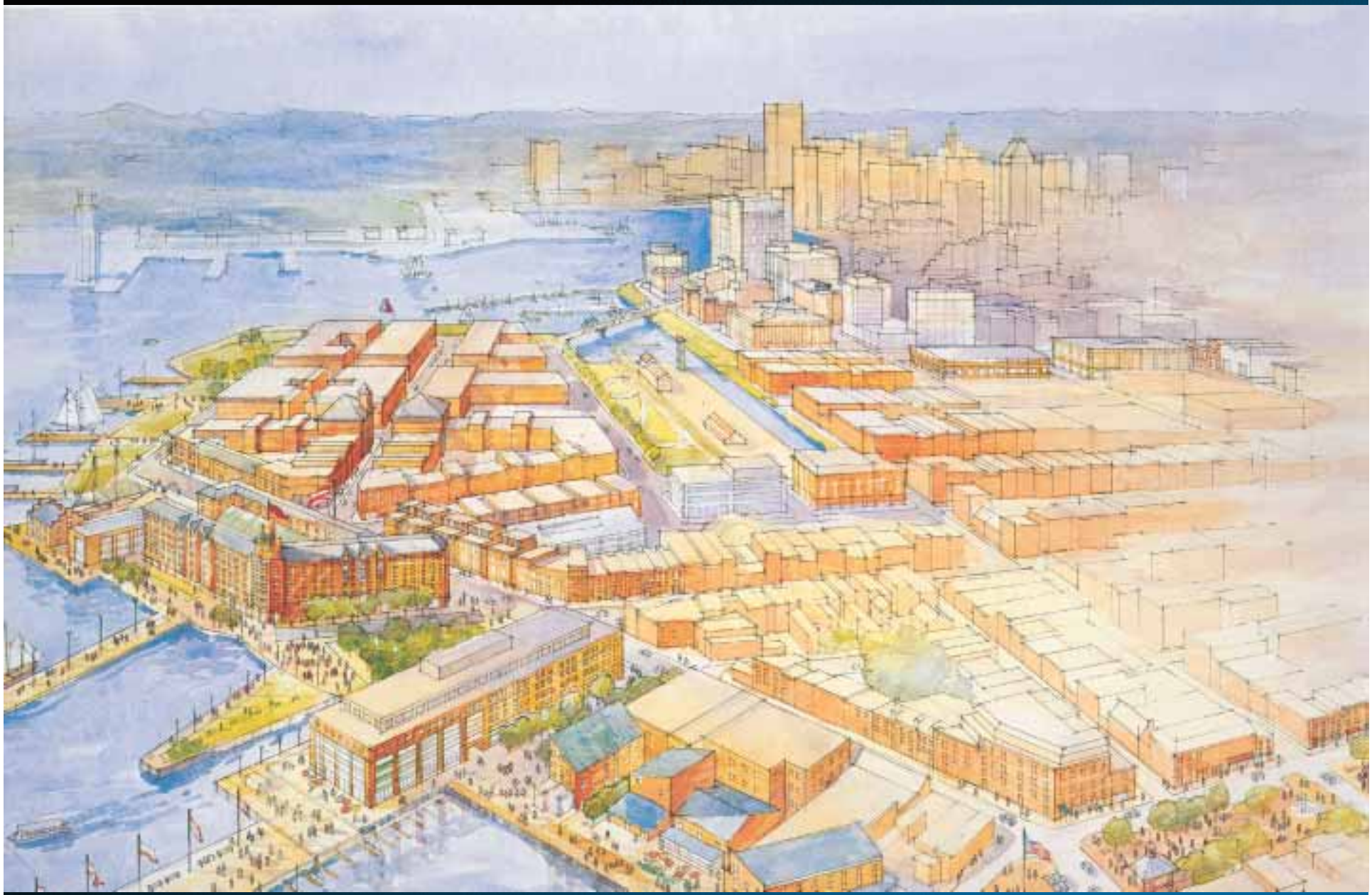
**Stakeholders:**

STRUEVER BROS. ECCLES & ROUSE, INC.

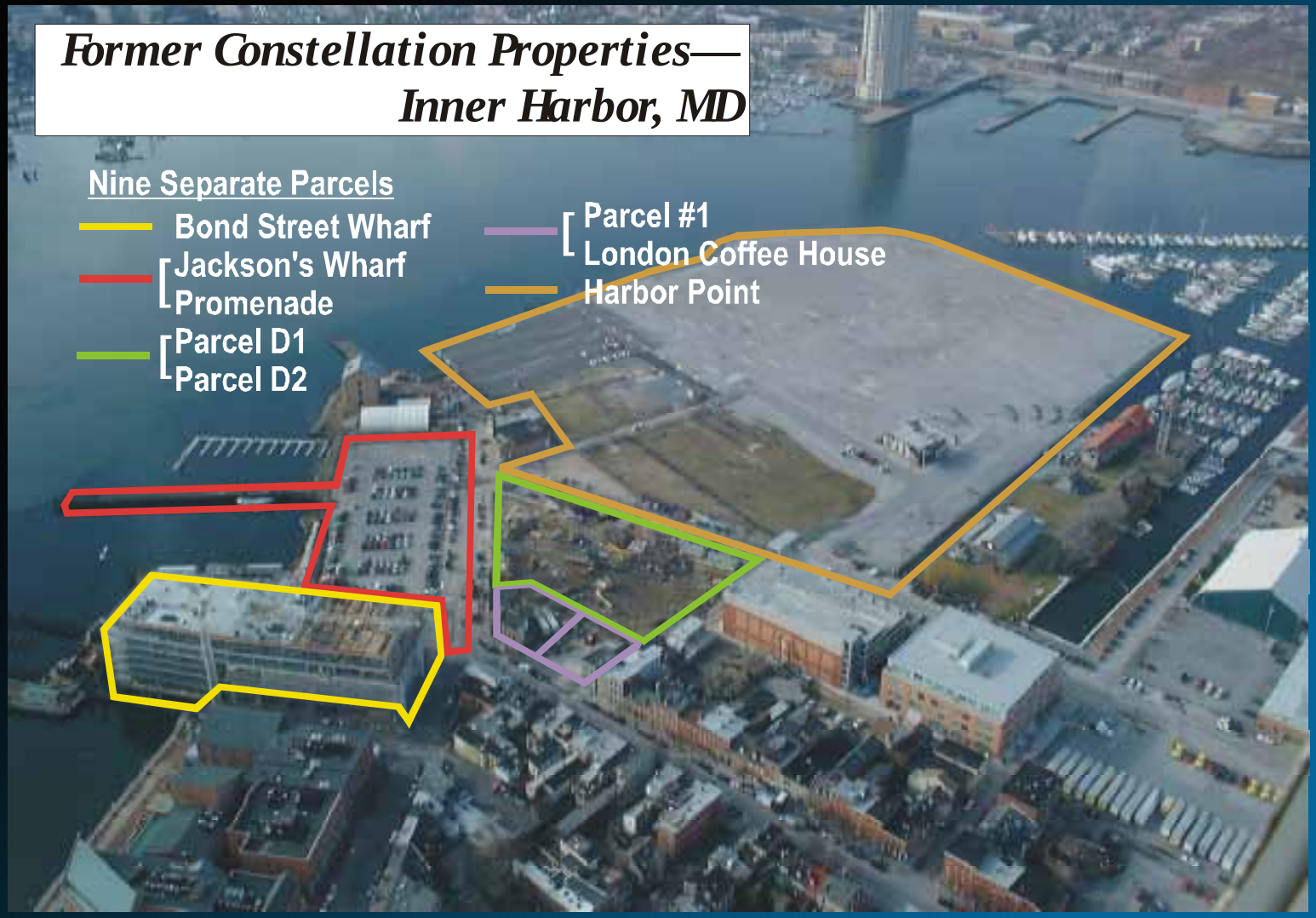
MDE



# Proposed Redevelopment



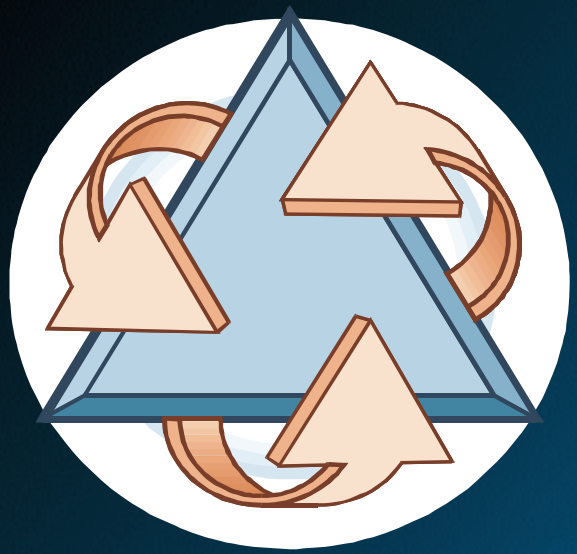
# Parcel Delineation



# A Systems Approach Framework

# The Triad Approach

**Systematic Project Planning**



**Dynamic Work Plan Strategy**

**Real-time Measurement Technologies**

# Regulatory Authority

- Enter all 8 acres into Maryland's Voluntary Cleanup Program (VCP)
  - The VCP encourages Field Based Technologies
    - XRF for metals in soil
    - Field GC for VOCs in groundwater
    - Diphenylcarbazide for $Cr^{+6}$
    - Summa® canisters
    - Interim Removal Action or "Hot Spot" removal
    - Mercury speciation in soil

# Original Project Approach

- Environment Due Diligence – ASTM Guidelines
  - Phase I ESA
  - Phase II ESA
  - VCP Application
  - Generation of the Sampling & Analysis Plan (SAP)
    - Based on Conceptual Site Model or
    - Exposure pathway networks

# Original Project Approach

**Environment Due Diligence – ASTM Guidelines**

- **SAP Implementation**
- **Interim Removal Action – “Hot Spot Removal”**
- **MDE issued No Further Requirements Determination**
- **Begin Construction**

# Actual Project Schedule

- Phase I ESA: March 2000
- Phase II ESA: June 2000
- VCP Application and SAP Generation: 7/00 – 6/01
- Hot Spot Removal: 7/01
- Construction began: 9/01

# Logistical Problems

- Developer's schedule
- All 8 parcels had to be separated for VCP approval
  - Lingering Hot Spots
  - Coordination with construction schedule
  - Negotiations with MDE for closure

# New Project Approach

## Parcel A

- *Future use:* commercial office space
- Hot spot removal
  - Performance Based Measurement System (PBMS)
  - XRF characterization
    - Lead & arsenic
- Waste characterization
  - Marine sediments
- Engineering and institutional controls
  - Utility worker protection

# New Project Approach

## Parcel D

- Second parcel scheduled for construction
- *Future use*: parking garage with residential "wrapper"
- First week of construction:
  - Hexavalent chromium

# New Project Approach

## Parcel D

- Hexavalent chromium ($Cr^{+6}$)
  - Diphenylcarbazide
- Remediation
  - $Cr^{+6}$ soil: 700 tons
  - $Cr^{+6}$ water: 35,000 gal.
  - Petroleum soil: 2,000 tons
  - Petroleum water: 300 gal.
  - Six UST

# New Project Approach

## Parcel D

- HASP
  - MDE approval
- Coordination with construction contractors
  - Logistical
  - Spatial organization
  - Safety meetings
- Engineering and institutional controls

# New Project Approach

**<u>London Coffee House and Parcel #1</u>**

- *Future use:* five luxury townhomes & two commercial units
- Hot spot removal
- Field GC: groundwater
- Mercury speciation - soil

# New Project Approach

## London Coffee House and Parcel #1

- Vapor sampling
  - Summa® canisters
  - Modeling of data – Johnson & Ettinger model
- Engineering and institutional controls
  - Vapor barrier

# New Project Approach

## Parcel B & C

- *Future use:* Jackson's Wharf – waterfront residential townhomes and condominiums
- Hot spot removal
  - XRF characterization
- Engineering and institutional controls

# Finished Product


# Finished Product

# Thank You!

Arc Environmental, Inc.

www.arcenvironmental.com