

Appendix O

Preliminary Remedial Cost Estimates

**FORREST STREET AND FORREST STREET PROPERTIES
CURRENT-USE REMEDIATION AREAS
REMEDY COSTS - EXTERIOR WORK**

PRELIMINARY COST ESTIMATE

ITEM No.	ACTIVITY	UNIT	QUANTITY	COST
1.0	100 Forrest Street Offset - HDPE Liner and GCCM Installation (Completed)			
1.1	Subgrade Preparation (Excavation, Grading)	Each	1	\$ 30,000
1.2	Installation of Engineering Control (GCCM, HDPE Liner)	Each	1	\$ 8,000
1.3	Backfill Placement & Compaction	Each	1	\$ 20,000
1.4	Asphalt Placement & Compaction	SF	1,500	\$ 9,000
1.5	Landscape Stone	Each	1	\$ 3,000
2.0	100 Forrest Street Loading Dock Driveway - Sealing of Cracks and Breaches			
2.1	Concrete Apron/Driveway	Each	1	\$ 1,000
2.2	Concrete Block Wall	Each	1	\$ 1,000
3.0	90 Forrest Street Alleyway - Mill and Pave			
3.1	Mill 2" of Asphalt and Repave	SF	3000	\$ 50,000
3.2	Dispose of Millings	CY	20	\$ 1,200
3.3	Conduct Spot Excavation in Grid EE16B (Completed)	DAY	1	\$ 4,200
3.4	Backfill & Compact Spot Excavation in Grid EE16B (Completed)	CY	6	\$ 300
3.5	Transport and Dispose of Soil in Grid EE16B (Completed)	Tons	9	\$ 540
4.0	Grid GG15B - Spot Excavation (Completed)			
4.1	Conduct Spot Excavation	DAY	1	\$ 4,200
4.2	Backfill & Compact Spot Excavation	CY	10	\$ 500
4.3	Transport and Dispose of Soil	Tons	15	\$ 900
5.0	Forrest Street - Restoration and Capping (Completed)			
5.1	Subgrade Preparation (Excavation, Grading)	Each	1	\$ 30,000
5.2	Catch Basin, Piping, Manholes Upgrades	Each	1	\$ 12,000
5.3	Place and Compact Underlying DGA	CY	500	\$ 20,000
5.4	Install HDPE Liner, Pave Forrest Street	SF	11,000	\$ 90,000
5.5	Restore Sidewalk	SF	2,000	\$ 10,000
5.6	Transport and Dispose of Soil	Tons	3050	\$ 260,000
5.7	Transport and Dispose of Asphalt	Tons	550	\$ 30,000
6.0	Support			
6.1	Engineering/Structural Consulting/Construction Oversight/Air Monitoring	Each	1	\$ 150,000
7.0	Maintenance (See Note 1)			
7.1	Replace Portion of GCCM (As Needed)	LS	100 SF/year	\$ 5,000
7.2	Seal Cracks in Asphalt of 100 Forrest Street Offset, 100 Forrest Street Loading Dock Driveway, and 90 Forrest Street Alleyway (As Needed)	LS	1 event/year	\$ 36,000
7.3	HDPE Liner Repair in 100 Forrest Street Offset and Forrest Street (As Needed)	LS	1 event/year	\$ 25,000

Notes:

- Duration of maintenance is assumed to be 20 years until demolition and redevelopment of the Forrest Street Properties buildings.
- Costs are preliminary and subject to change based on cost proposals, final design, and Site conditions.

Abbreviations:

CY - cubic yards
DGA - dense-graded aggregate
GCCM - geosynthetic cementitious composite mat
HDPE - high-density polyethylene
LF - linear foot
LS - lump sum
SF - square foot

**FORREST STREET AND FORREST STREET PROPERTIES
CURRENT-USE REMEDIATION AREAS
REMEDY COSTS - INTERIOR WORK**

PRELIMINARY COST ESTIMATE

ITEM No.	ACTIVITY	UNIT	QTY	COST
1.0	84 Forrest Street Building Footprint and Loading Dock - Epoxy and Block Wall Construction			
1.1	Install New Concrete Block Wall and HDPE Liner	Each	1	\$ 25,000
1.2	Apply Epoxy to Loading Dock Walking Surface and Install Protective Cover Over Epoxy	SF	600	\$ 10,000
1.3	Install Bumpers	Each	1	\$ 4,000
2.0	90 Forrest Street Boiler Room Basement - Engineering Controls			
2.1	Remove/Dispose of Wood Stairs and Landing at Entrance	Each	1	\$ 7,000
2.2	Install New Stairs for Entrance	Each	1	\$ 25,000
2.3	Install Epoxy Coating for Three Sets of Masonry Stairs (New Entrance Stairs and Two Other Stairs)	SF	60	\$ 4,000
2.4	Improvements to Concrete Floor	-	1	\$ 22,000
2.5	HDPE Dimpled Membrane: Floor	SF	1400	\$ 19,600
2.6	HDPE Dimpled Membrane: Walls	SF	2000	\$ 31,000
2.7	Dri-Core or Equivalent Subfloor	SF	1400	\$ 13,300
2.8	Remove & Dispose of Existing Sumps (3)	Each	3	\$ 3,500
2.9	Install 3 New Sump Systems with Battery Backup	Each	2	\$ 25,000
2.10	Electrical Connections, PVC Piping, Power Drop	LF	100	\$ 39,500
3.0	Management of Sump Water (1 Year)			
3.1	Install Conveyance Piping, Bulk Storage Containers, Concrete Pad	Each	1	\$ 175,000
3.2	Transport Water to Site 114 Groundwater Treatment Plant	Trucks	120	\$ 60,000
4.0	86/90 and 98/100 Forrest Street Building Footprints - Sealing of Cracks and Breaches			
4.1	86/90 Building Footprint	Each	1	\$ 1,000
4.2	98/100 Building Footprint	Each	1	\$ 1,000
5.0	Support			
5.1	Engineering/Structural Consulting/Construction Oversight/Air Monitoring	-	1	\$ 150,000
6.0	Maintenance			
6.1	Reapplication of Epoxy to 84 Forrest Street Loading Dock (2 Times)	SF	600	\$ 41,000
6.2	Application of Epoxy to 5' x 5' Concrete Surface (5 Times)	SF	25	\$ 4,000
6.3	Sawcutting of 5' x 5' Section of Concrete Floor and Replace (4 Times)	SF	25	\$ 5,000
6.4	Repairs to Engineering Controls in 90 Forrest Boiler Room Basement (4 Times)	Each	1	\$ 40,000

Notes:

1. Duration for maintenance is assumed to be 20 years until demolition and redevelopment of the Forrest Street Properties buildings.
2. Costs are preliminary and subject to change based on cost proposals, final design, and Site conditions.

Abbreviations:

HDPE - high-density polyethylene
 LF - linear foot
 PVC - polyvinyl chloride
 SF - square foot

**FORREST STREET AND FORREST STREET PROPERTIES
FUTURE RESIDENTIAL-USE REMEDIATION
REMEDY COSTS**

PRELIMINARY COST ESTIMATE

ITEM No.	ACTIVITY	UNIT	QTY	COST
1.0	Mobilization	Each	1	\$ 30,000
2.0	Abatement	Each	1	\$ 600,000
3.0	Demolition	Each	1	\$ 500,000
4.0	Excavation of Impacted Soils	Tons	3,600	\$ 108,000
5.0	Transport and Dispose of Impacted Soils	Tons	3,600	\$ 316,800
6.0	Dewatering and Groundwater Treatment	Gallons	500,000	\$ 580,000
7.0	Backfill Placement and Compaction	CY DGA	2,400	\$ 120,000
8.0	Replacement of Utilities (As Needed)	Each	330 ft 8" diameter potable water line 100 ft 30" RCP sewer line 150 ft 15" RCP sewer lateral 80 ft 18" RCP sewer lateral 4 sewer manholes	\$ 86,000
9.0	Asphalt Placement and Compaction (No HDPE Liner)	SF	12,000	\$ 72,000
10.0	Sidewalk Restoration	SF	2,000	\$ 10,000
11.0	Demobilization	Each	1	\$ 20,000

Notes:

1. Responsibility for costs associated with abatement, demolition, and replacement of utilities is pending ongoing negotiations.
2. Costs are preliminary and subject to change based on cost proposals, final design, and Site conditions.
3. Costs associated with Site groundwater remediation are not included.

Abbreviations:

CY - cubic yards
DGA - dense-graded aggregate
HDPE - high-density polyethylene
RCP - reinforced concrete pipe
SF - square feet