

**APPENDIX H**  
**COST ESTIMATE ASSUMPTIONS**

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## Appendix H - Assumptions for Cost Estimate

### Alternative 2 – Excavation, On-Site Treatment, and Off-Site Disposal in a RCRA Class II Facility

- Item 1
  - Mobilization, insurance and bonding is 20% of construction costs.
  - Mobilization includes bringing equipment to site and initial site setup including temporary erosion control installation.
- Item 2
  - Treatability study includes site visit and report
  - The study will blend Portland cement with differing volumes of homogenized site soil to determine the most cost effective blend percentage.
- Item 3
  - 2,900 CY removed with excavator.
  - Soil excavation bulking factor of 15%
  - Bulk density equals 1.3 tons/CY
- Item 4
  - 2,700 CY of soil screened by placing removal soil through 0.25 inch vibrating screener using a loader and spread at site for treatment.
- Item 5
  - Concrete slabs demolished and loaded into trucks with excavator.
- Item 6
  - Dust control includes light watering of site to prevent dust.
- Item 7
  - On site stabilization includes applying 10% Portland cement by volume to spread soil, tilling in cement, then loading into trucks.
  - Estimated 20% Portland cement addition by volume will allow soil to pass TCLP and be disposed of at Northwest Landfill.
- Item 8
  - 3,600 CY screened, stabilized soil loaded into haul trucks with a loader.
  - Approximately 200 CY of soil that did not exceed TCLP but are above the PRAG hauled directly to Northwest Landfill from excavation.
- Item 9
  - Haul rate calculated for 4-hour round trip to Northwest landfill
  - Waste disposed of at Northwest Regional Landfill in Surprise, AZ.
  - Disposal Fees include disposing of soil and concrete from the site.
- Item 10
  - Soil lime treatment includes spreading 6% hydrated lime onto removal areas to increase the alkalinity of soil pore water and immobilize any residual lead.
  - Includes rough leveling of entire site using a dozer.
  - Cost estimate assumes no borrow soil will need to be imported for site grading.

- Item 11
  - Includes rough leveling of entire site using a dozer, including remaining berms.
  - Cost estimate assumes no borrow soil will need to be imported for site grading.
- Item 12
  - Sediment basin outlets as follow:
    - Existing Drainage Basin 2 will have two spillways, 10 feet in length, 4 feet wide, up to 2 feet of rip rap (6 CY total).
    - Existing Drainage Basin 3 will have two spillways, 10 feet, 4 feet wide, up to 2 feet of rip rap (6 CY total).
    - New sediment detention basin on Drainage 3 will have one spillway 16 feet in length, 6 feet wide, up to 3 feet of rip rap (11 CY total).
- Item 13
  - Berm installation includes using a dozer to install 630 feet of berms and a sediment basin for stormwater runoff and erosion control at the locations shown in Figure 8-1.
  - Berms will be graded to angle of repose and vegetated.
- Item 14
  - Slope regrading includes tying existing slopes into excavated areas.
- Item 15
  - Signage includes installing 10 signs at the site to prevent damage to revegetated areas.
- Item 16
  - Close potential 250 foot deep water well, if located, south of the range.
- Item 17
  - Dust monitoring at four locations between project area and east adjacent residences over a one month period and laboratory analysis of dust (PM2.5) and lead captured in filter cassettes.

**Alternative 3 – Excavation, Off-Site Stabilization of Lead, and Off-Site Disposal in a RCRA Class I TSD Facility**

- Item 1
  - Mobilization, insurance and bonding is 20% of construction costs.
  - Mobilization includes bringing equipment to site and initial site setup including temporary erosion control installation.
- Item 2
  - 2,700 CY of lead contaminated soil excavated and loaded into trucks using an excavator.
  - Soil excavation bulking factor of 15%
  - Bulk density equals 1.3 tons/CY
  - Concrete slabs demolished and loaded into trucks with excavator.

- Item 3
  - 200 CY of lead contaminated soils that did not exceed TCLP but are above the PRAG will be hauled to Northwest Landfill for disposal.
  - Waste disposed of at Northwest Regional Landfill in Surprise, AZ.
  - Disposal Fees include disposing of soil and concrete from the site.
- Item 4
  - 2,700 CY of lead contaminated soils that exceed TCLP will be hauled to Clean Harbors Grassy Mountain, Utah TSD facility for stabilization and disposal.
  - Soils shipped in 20 ton batches (AZDOT State load limit).
- Item 5
  - Includes light watering of site soils for dust control during all earthwork activities.
- Item 6
  - Soil lime treatment includes spreading 6% hydrated lime onto removal areas to increase the alkalinity of soil pore water and immobilize any residual lead.
- Item 7
  - Includes rough leveling of entire site using a dozer, including remaining berms.
  - Cost estimate assumes no borrow soil will need to be imported for site grading.
- Item 8
  - Sediment basin outlets as follow:
    - Existing Drainage Basin 2 will have two spillways, 10 feet in length, 4 feet wide, up to 2 feet of rip rap (6 CY total).
    - Existing Drainage Basin 3 will have two spillways, 10 feet, 4 feet wide, up to 2 feet of rip rap (6 CY total).
    - New sediment detention basin on Drainage 3 will have one spillway 16 feet in length, 6 feet wide, up to 3 feet of rip rap (11 CY total).
- Item 9
  - Berm installation includes using a dozer to install 630 feet of berms and one sediment basin for stormwater runoff and erosion control at the locations shown in Figure 8-1.
  - Berms will be graded to angle of repose and vegetated.
- Item 10
  - Slope regrading includes tying existing slopes into excavated areas.
- Item 11
  - Includes installing 10 signs at the site to prevent revegetation area damage.
- Item 12
  - Close potential 250 foot deep water well, if located, south of the range.
- Item 13
  - Dust monitoring at four locations between project area and east adjacent residences over a one month period and laboratory analysis of dust (PM2.5) and lead captured in filter cassettes.

**Site Revegetation (Common Element for each Alternative)**

- No imported fill or top soil is required for revegetation, backfill, and site grading.
- Revegetation includes fertilizer, native seeding, and mulch of the entire site (approximately 2.5 acres).
- Slope areas are hydroseeded with native seed and hydromulched.

**TABLE H-1**  
**ALTERNATIVE 2 - EXCAVATION, ON-SITE TREATMENT, AND OFF-SITE DISPOSAL**  
**AT A RCRA CLASS II FACILITY**  
**FORMER PRESCOTT SPORTSMAN'S CLUB SHOOTING RANGE**  
**PRESCOTT, YAVAPAI COUNTY, ARIZONA**

<b>Construction Costs</b>					
<b>Item</b>	<b>Description</b>	<b>Quantity</b>	<b>Units</b>	<b>Unit Cost</b>	<b>Total Cost</b>
1	Mobilization, Insurance, Bonding	1	EA	\$ 87,980.75	\$ 87,980.75
2	Treatability Study	1	EA	\$ 25,000.00	\$ 25,000.00
3	Lead Contaminated Soil Excavation and Spreading	2,900	CY	\$ 6.40	\$ 18,560.00
4	Soil Screening	3,105	CY	\$ 25.05	\$ 77,780.25
5	Concrete Demolition and Loading	60	TON	\$ 6.40	\$ 384.00
6	Dust Control and Dust Monitoring	20	DAY	\$ 1,400.00	\$ 28,000.00
7	On-Site Stabilization with 10% Portland Cement	702	TON	\$ 110.00	\$ 77,165.00
8	Loading Treated and Untreated Soil Into Haul Trucks	3,803	CY	\$ 9.25	\$ 35,174.67
9	Hauling to Northwest Landfill	3,803	CY	\$ 32.00	\$ 121,685.33
10	Soil Lime Addition Prior to Backfilling	2,725	SY	\$ 9.30	\$ 25,342.50
11	Rough Site Regrading and Berm Knockdown	1	EA	\$ 1,300.00	\$ 1,300.00
12	Import and Place Sediment Basin Outlet Rip Rap	23	CY	\$ 49.00	\$ 1,127.00
13	Stormwater Control Berm Installation	1,000	CY	\$ 2.51	\$ 2,510.00
14	Fine/Slope Regrading and Backfilling	4,500	SY	\$ 0.25	\$ 1,125.00
15	Signage	10	EA	\$ 1,000.00	\$ 10,000.00
16	Water Well Closure	1	EA	\$ 2,250.00	\$ 2,250.00
17	Site Revegetation	2.5	ACRE	\$ 15,000.00	\$ 37,500.00
<b>Subtotal Construction Costs</b>					<b>\$ 552,884.50</b>
<b>Capital Costs</b>					
Disposal Fees		5,003	TON	\$ 21.00	\$ 105,072.80
Project Management		6% Construction Cost			\$ 33,173.07
Remedial Design		12% Construction Cost			\$ 66,346.14
Construction Management		8% Construction Cost			\$ 44,230.76
Construction Contingencies		20% of Construction Cost			\$ 110,576.90
<b>Subtotal Capital Costs</b>					<b>\$ 359,399.67</b>

**TABLE H-1**  
**ALTERNATIVE 2 - EXCAVATION, ON-SITE TREATMENT, AND OFF-SITE DISPOSAL**  
**AT A RCRA CLASS II FACILITY**  
**FORMER PRESCOTT SPORTSMAN'S CLUB SHOOTING RANGE**  
**PRESCOTT, YAVAPAI COUNTY, ARIZONA**

<b>Yearly Operation and Maintenance Costs (O&amp;M)</b>			
Annual Site Inspections	2	EA	\$ 2,000.00
Annual Site Maintenance			\$ 27,644.23
Subtotal O&M Costs			\$ 29,644.23
O&M Contingencies	15%		\$ 4,446.63
<b>Total Annual O&amp;M Costs</b>			<b>\$ 34,090.86</b>
Present Worth of O&M Costs Based on 5 Year Life @ 7.00%	PF Factor = 4.1		\$ 139,772.52
<b>Total Estimated Project Costs</b>			<b>\$ 1,052,056.69</b>

Notes:

CY      Cubic Yard  
EA      Each  
LF      Linear Foot  
SY      Square Yard  
TON     Ton (2,000 pounds)

**TABLE H-2**  
**ALTERNATIVE 3 - EXCAVATION, OFF-SITE STABILIZATION OF LEAD, AND OFF-SITE DISPOSAL**  
**AT A RCRA CLASS I TSDF FACILITY**  
**FORMER PRESCOTT SPORTSMAN'S CLUB SHOOTING RANGE**  
**PRESCOTT, YAVAPAI COUNTY, ARIZONA**

<b>Construction Costs</b>					
<b>Item</b>	<b>Description</b>	<b>Quantity</b>	<b>Units</b>	<b>Unit Cost</b>	<b>Total Cost</b>
1	Mobilization, Insurance, Bonding	1	EA	\$ 44,615.73	\$ 44,615.73
2	Soil Excavation and Loading	2,900	CY	\$ 6.40	\$ 18,560.00
3	Untreated Soil Hauling to Northwest Landfill	200	CY	\$ 32.00	\$ 6,400.00
4	Lead-Contaminated Soil Transportation to TSDF	176	LOAD	\$ 4,400.00	\$ 772,200.00
5	Dust Control and Dust Monitoring	10	DAY	\$ 1,400.00	\$ 14,000.00
6	Soil Lime Addition Prior to Backfilling	2,725	SY	\$ 9.30	\$ 25,342.50
7	Rough Site Regrading and Berm Knockdown	1	EA	\$ 1,300.00	\$ 1,300.00
8	Import and Place Sediment Basin Outlet Rip Rap	23	CY	\$ 49.00	\$ 1,127.00
9	Stormwater Control Berm Installation	1,000	CY	\$ 2.51	\$ 2,510.00
10	Fine/Slope Regrading and Backfilling	4,500	SY	\$ 0.25	\$ 1,125.00
11	Signage	10	EA	\$ 1,000.00	\$ 10,000.00
12	Water Well Closure	1	EA	\$ 2,250.00	\$ 2,250.00
13	Site Revegetation	2.5	ACRE	\$ 15,000.00	\$ 37,500.00
<b>Subtotal Construction Costs</b>					<b>\$ 936,930.23</b>
<b>Capital Costs</b>					
Municipal Disposal Fees		260	TON	\$ 21.00	\$ 5,460.00
Off-Site Stabilization and Disposal at TSDF		3,510	TON	\$ 132.50	\$ 465,075.00
Project Management		6% Construction Cost			\$ 56,215.81
Remedial Design		12% Construction Cost			\$ 112,431.63
Construction Management		8% Construction Cost			\$ 74,954.42
Construction Contingencies		20% of Construction Cost			\$ 187,386.05
<b>Subtotal Capital Costs</b>					<b>\$ 901,522.90</b>

**TABLE H-2**  
**ALTERNATIVE 3 - EXCAVATION, OFF-SITE STABILIZATION OF LEAD, AND OFF-SITE DISPOSAL**  
**AT A RCRA CLASS I TSDF FACILITY**  
**FORMER PRESCOTT SPORTSMAN'S CLUB SHOOTING RANGE**  
**PRESCOTT, YAVAPAI COUNTY, ARIZONA**

<b>Yearly Operation and Maintenance Costs (O&amp;M)</b>			
Site Inspections	2	EA	\$ 2,000.00
Site Maintenance			\$ 28,107.91
Subtotal O&M Costs			\$ 30,107.91
O&M Contingencies	15%		\$ 4,516.19
<b>Total Yearly O&amp;M Costs</b>			<b>\$ 34,624.09</b>
Present Worth of O&M Costs Based on 30 Year Life @ 7.00%	PF Factor = 4.1		\$ 141,958.78
<b>Total Estimated Costs</b>			<b>\$ 1,980,411.91</b>

Notes:

CY      Cubic Yard  
EA      Each  
LF      Linear Foot  
SY      Square Yard  
TON     Ton (2,000 pounds)  
TSDF    Treatment, Storage, and Disposal Facility