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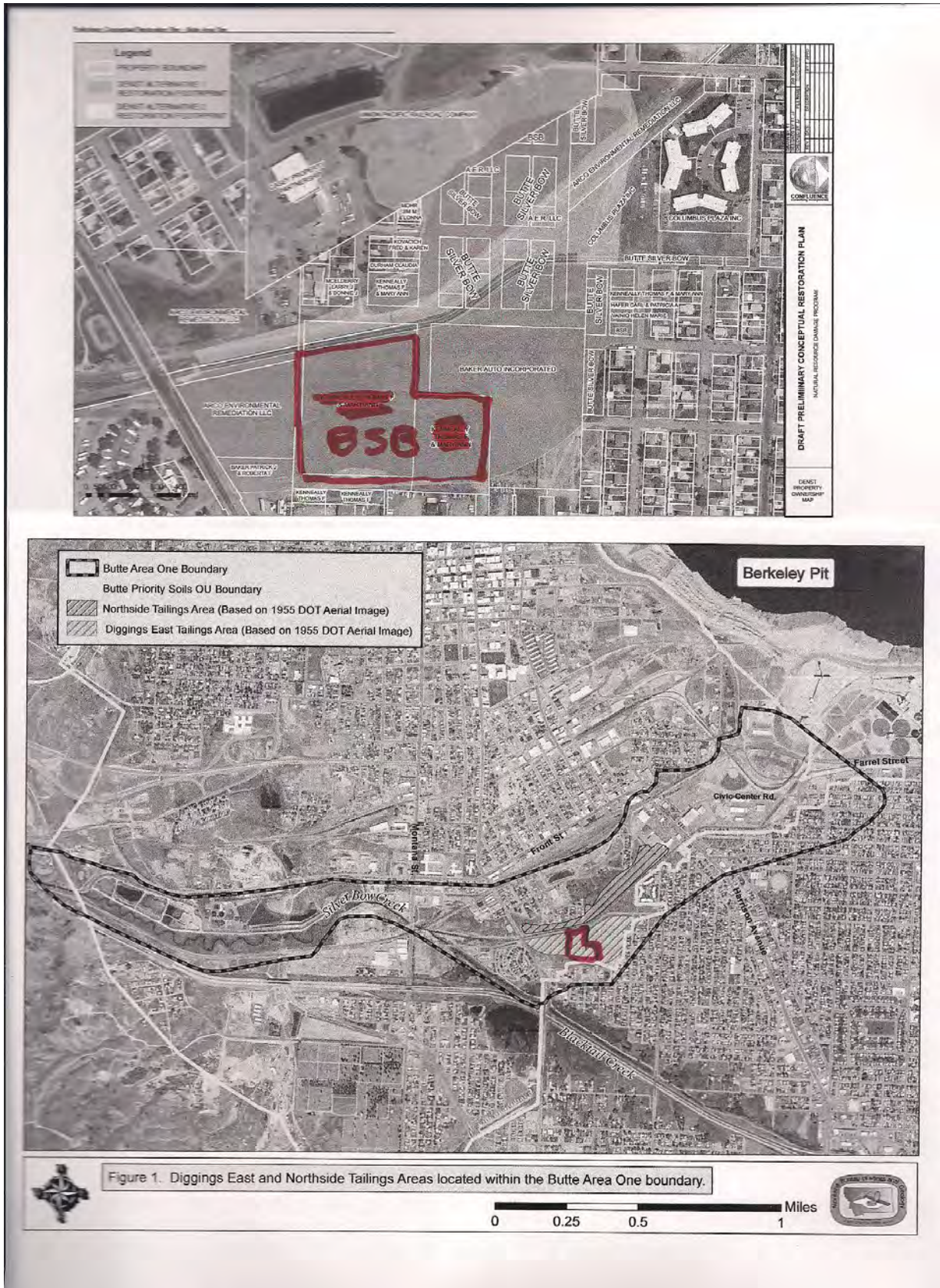
## **Project Summary**

### **Pilot Program for cleaning contaminates from tailings at Diggings East**

It is our intention to do a pilot which will utilize our equipment the PETK4 process plant to remove contaminates from tailings. The Pet4K removes metals from tailings using only water and pressure, and utilizes specific gravity. It is our intent to prove the concept of cleaning tailings in location without the necessity of moving, hauling or storing. It is our intention of doing the pilot at the Diggings East tailings dumps, in the area recently donated to Butte Silver Bow. It is our intent to recover the area the pilot will be located in to pre contaminated condition. The pilot will be done by Eugene Marais, Sofus and Jackie Michelsen, and Mike Hossfeld as well as 2 unnamed laborers. We will begin June 2017

# Map

Pilot area will be within the area indicated on maps below. Exact location will be determined based upon best location with minimal fill.



## **Project Goals and Objectives**

The project objective pursued under this project include:

1. Restore the pilot area as existed prior to contamination.
2. Facilitate removal of contaminants in the tailings which will allow for the reduction of contaminant sources to permit the development and beneficial use of the injured area as well eliminate the spread of contaminates to surrounding areas and ground water sites.
3. Provide a prototype for future tailings cleaning, with significantly reduced cost, utilizing no chemicals , no hauling no storing.

## **Project Benefits:**

This pilot will offer an alternative to costly practice of moving or storing contaminated tailings. It will effectively clean and restore the pilot area, to be used as the county sees fit. It will also open the door to the concept of recovery in place while stopping contamination to adjacent area and groundwater.

## **Project Implementation and schedule:**

- Select specific site location within the area of Diggings East tailings dumps, in the area recently donated to Butte Silver Bow. The area will encompass approximately 120 cubic yards of material , processing 160 tons of tailings.
- Receive approval from Butte Silver Bow Council of commissioners for excavating and written access agreement.
- Apply and purchase excavation permit from Butte Silver Bow
- Follow up prior conversation with reclamation manager of Butte Silver Bow with site walk through
- Receive written notice from EPA and BP regarding agreement to allow placement of overflow water from the plant into the sub drain utilizing flex hose to a vault.
- Bring yellow goods into location to begin excavation
- Bring processing plant into location to begin processing
- Cordon off pilot area with stakes flags and tape
- Collect samples prior to processing for assay
- Test samples with a portable XRF unit
- Deliver samples to MSE for full analytical and metal analysis.
- Begin processing tailings
- Spot test processed tailings with portable XRF unit

- Deliver processed concentrate and processed tailing to MSE for full analytical and metal analysis each day
- Daily review IT from processing plant to determine running with no issues
- Provide to EPA processed tailing samples for their testing.
- Finish processing, place cleaned tailing back in place where originally removed.
- Place top soil and seed recovered area.

### **Project Schedule**

- Immediately upon approval of small project grant: select specific site location within the area of Diggings East tailings dumps, in the area recently donated to Butte Silver Bow.
- Immediately upon approval of small project grant: Place item on Council of Commissioners agenda.
- Immediately upon approval of small project grant: Apply and purchase excavation permit from Butte Silver Bow
- Immediately upon approval of small project grant: Schedule site walk through with reclamation manager of Butte Silver Bow
- Immediately upon approval of small project grant: follow up with EPA for written agreement and BP regarding agreement to allow placement of overflow water from the plant into the sub drain utilizing flex hose to a vault.
- Immediately upon approval of small project grant: Arrange for water delivery to arrive June 5
- June 5 Cordon off pilot area with stakes and warning tape and flags
- June 5 Bring yellow goods into location and begin excavation
- June 5 Bring processing plant into location and begin processing
- June 5 Collect samples prior to processing for assay and deliver to MSE
- June 5 Test samples with a portable XRF unit
- June 5, 6, 7, 8, 9 Collect samples of processed concentrate and processed tailing and deliver to MSE for full analytical and metal assay
- June 5, 6, 7, 8, 9 Spot test processed tailings with portable XRF unit
- June 5, 6, 7, 8, 9 review IT from processing plant to determine processing with no issues
- June 5, 6, 7, 8, 9 Provide to EPA processed tailing samples for their testing.
- June 9 Finish processing, place cleaned tailing back in place where originally removed.
- June 9 Seed area that has been recovered
- June 15 first results available from MSE

- June 26 balance of test results available from MSE
- August 1 meet with BNRC to review results

### Monitoring Activities

- Collect samples prior to processing for assay
- Test samples with a portable XRF unit
- Deliver pre processed samples to MSE for full analytical and metal analysis.
- Spot test processed tailings with portable XRF unit
- Deliver processed concentrate and processed tailing to MSE for full analytical and metal analysis each day
- Daily review IT from processing plant to determine running with no issues
- Provide to EPA processed tailing samples for their testing.

All samples will be handled according to acceptable protocol for collection and chain of custody.

### Project Budget

Since inception of the processing plant we have self funded the program at just under 1.5million dollars. Spread Sheet below.

### Self Funded Expenses to Date

Summary of Expenditure March 2008 - October 2016								
Cost in US\$:								
Year	Direct Annual spent		Build costs				Legal	Grand Total
	on Processing	R&D	Full Plant	Travel	Tests	I.T		
2008	\$ 9,818.18	\$ 36,266.67	\$ 31,515.15	\$ 21,818.18	\$ 12,000.00	\$ -	\$ 12,121.21	\$ 123,539.39
2009	\$ 29,132.95	\$ 40,878.61	\$ -	\$ 27,745.66	\$ 2,300.00	\$ -	\$ 13,872.83	\$ 113,930.06
2010	\$ 26,122.45	\$ 48,108.84	\$ 121,088.44	\$ 35,918.37	\$ 6,500.00	\$ -	\$ 16,326.53	\$ 254,064.63
2011	\$ 14,210.53	\$ 46,526.32	\$ -	\$ 34,736.84	\$ 4,900.00	\$ -	\$ 15,789.47	\$ 116,163.16
2012	\$ 28,314.61	\$ 39,730.34	\$ -	\$ 13,483.15	\$ 3,000.00	\$ -	\$ 13,483.15	\$ 98,011.24
2013	\$ 38,787.88	\$ 35,717.17	\$ -	\$ 36,363.64	\$ 17,000.00	\$ -	\$ 12,121.21	\$ 139,989.90
2014	\$ 39,633.03	\$ 40,550.46	\$ -	\$ 35,229.36	\$ 4,000.00	\$ -	\$ 16,709.17	\$ 136,122.02
2015	\$ 29,407.11	\$ 34,940.71	\$ 70,355.73	\$ 33,201.58	\$ 16,000.00	\$ -	\$ 9,486.17	\$ 193,391.30
2016	\$ 32,157.10	\$ 37,126.76	\$ 18,676.06	\$ 42,713.34	\$ 57,120.00	\$ 78,300.00	\$ 8,450.70	\$ 274,543.96
<b>Total</b>	<b>\$ 247,583.83</b>	<b>\$ 359,845.88</b>	<b>\$ 241,635.37</b>	<b>\$ 281,210.12</b>	<b>\$ 122,820.00</b>	<b>\$ 78,300.00</b>	<b>\$ 118,360.45</b>	<b>\$ 1,449,755.65</b>

In October we were approved for a TIFID grant in the amount of \$30,000.00 to cover the cost of transport and customs for the processing plant to Butte from South Africa. ( Committed) We are requesting an additional \$99,707.00.

Yellow goods operator and equipment	\$ 3,146.00	
diesel for yellow goods	\$ 500.00	
diesel for processing plant	\$ 262.00	
flat hose 3in 100ft	\$ 1,404.00	
conveyor	\$ 8,700.00	
water	\$14,625.00	
water truck	\$ 2,000.00	
laborers x2	\$ 2,200.00	
small consumables	\$ 800.00	
MSE lab tests	\$55,900.00	
operator pet4k 2	\$ 3,630.00	
excavation permit	\$ 10.00	
Storage and security of PP during pilot	\$ 220.00	
rent pickup to move PP	\$ 450.00	
trailer for pp	\$ 210.00	
travel from South Africa	\$ 5,000.00	
grass seed and top soil	\$ 650.00	
	\$99,707.00	

### Budget Breakdown

- Yellow goods operator and equipment charges based upon rate of \$65 per hours 44 hours plus 10%
- Diesel for yellow goods based upon 200 gallons at 4.54gallons per hour at \$2.50 per gallon
- Diesel for processing plant generator based upon 105 gallons at 2.38 gallons per hour at \$2.50 per gallon
- Flat house for water overflow delivery from the plant into the sub drain utilizing flat hose to a vault.
- Conveyor to be purchased from Continental Steel Works in Butte to deliver tailings into processing plant
- Water and water truck for the filling and replenishing of processing plant
- 2 laborers at 25\$ per hour for 40 hours plus 10%.
- small consumables ie, wheel barrows, shovels, sample buckets and bags sample trowels, bags, markers, cooler, oil and rags, etc.

- MSE testing at \$650 per sample 8 samples per day of tailings, 8 samples per day of concentrate( that which has been removed from tailings). Plus original 6 non processed assays. This cost could come down if we choose to do less sampling relying more on the portable XRF, however is the most prudent to have lab assays done.
- Operators of pet 4 k plant 2 operators at \$37 per hour plus 10%
- Excavation permit \$10
- Security and storage of processing plant at KOA campground
- Rental vehicle and trailer to deliver PP to Diggings East
- Travel for Eugene Marais (Inventor and patent owner ) from South Africa and stay in Butte
- Grass seed and topsoil to recover area after pilot is done