PHASE II APPLICATION
CAMP HOPE RUN LANDFILL
BOGGS TOWNSHIP, CLEARFIELD COUNTY, PENNSYLVANIA

FORM 28
EXHIBIT 28-1.1
Bonding Worksheets

REVISED JUNE 2019

BONDING WORKSHEETS
FOR
Landfills and Disposal Impoundments

Revised June 2019

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF AND WASTE MANAGEMENT

General Information

Permits: Please list all permits, approvals, licenses, registrations, other bonds, etc. for this facility.

I.D.#[1]	Authority[2]	Summary[3]

1. *List the permit I.D. number, registration number, etc. If there is no number, put in "none".*
2. *List the issuing authority's name, address and telephone number*
3. *List any closure features or monitoring requirements. As examples: For storage tanks, list the number, type and size of tanks. For NPDES permits list the number of outfalls to be monitored and ponds/plants to be maintained and/or closed.*

Date Prepared		I.D. Number
Rev. March 2019	COMMONWEALTH OF PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION BUREAU OF WASTE MANAGEMENT	TBD

BONDING WORKSHEET A
DECONTAMINATING THE FACILITY

Project Summary[1]: See attached references and assumptions

1.	Maximum volume of solid waste required to be moved or disposed as part of closure (includes cost for solidification).	5,000 Tons
2.	Estimated volume of contaminated soils or materials (from accidents, spills, prior remediation's).	20 Tons
3.	Total volume of waste (line 1 + line 2).	5,020 Tons
4	Unit cost to dispose off-site (include any analyses or transportation cost).	$65.00/Ton
5	Total cost to dispose of waste (line 3 x line 4).	$326,300.00
6	Estimated volume of contaminated liquid generated during decontamination.	3,000 Gallons
7.	Unit cost to treat/dispose of contaminated liquids (including any transportation)	$0.09/Gallon
8.	Total cost to dispose of contaminated liquids (line 6 x line 7).	$270.00
9.	Estimated volume of fill material	20 Cubic Yards
10.	Unit cost of acquiring, transporting, placing and stabilizing (i.e. revegetating) fill material (include costs for off-site purchase if soil not available on-site).	$90.00/Cubic Yard
11.	Total cost to fill (line 9 x line 10).	$1,800.00
12.	Equipment decontamination cost	$1,580.00 LS

Total cost – all Worksheet A **$ 328,150.00**
(Put final total on summary cost sheet – line 1)

[1] *List the areas/equipment that will need to be decontaminated and include any assumptions made. Multiple sheets should be used to estimate the costs for different areas.*

Date Prepared		I.D. Number
Rev. June 2019	COMMONWEALTH OF PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION BUREAU OF WASTE MANAGEMENT	TBD

BONDING WORKSHEET B
CAP AND FINAL COVER PLACEMENT

How do I start? Select a likely "worst case" scenario where you would have a maximum amount of the facility open and in need of closure. Provide a description of the scenario with references to site development stages.

My approved cap and final cover design consists of (top to bottom):

24" Final Cover Soil
Geonet
40 Mil LLDPE
12" Intermediate Cover

1. Volume of fill required for area not at final/intermediate grade, but would require filling prior to capping: 1,125,950 CY
2. Maximum area to be capped and covered (this should include all areas at final grade and not capped, intermediate grades and areas to be filled to get to intermediate grades then capped): 59 acres
3. Closure design, surveying and development of construction drawings (use $750.00/acre of number 2). $ 44,250.00

   a. Construction and maintenance of access roads. $ 0.00 LS

Material Volumes/Areas:

4. Earthen Materials

a.	Structural Fill	0 CY	(Specification[1])	N/A
b.	Intermediate Cover	16,192 CY	(Specification[1])	N/A
c.	Clay Cap Material	0 CY	(Specification[1])	N/A
d.	Final Cover Soil	190,373 CY	(Specification[1])	02258
e.	Sand/Stone	270 CY	(Specification[1])	N/A
f.	Other	N/A CY	(Specification[1])	N/A

5. Synthetic Materials

a.	Geotextile	36,000	Sq.Ft.	(Type)	Seperator / 8 osy
b.	FML	2,570,040	Sq.Ft.	(Type)	40 Mil LLDPE
c.	Drainage Layer	2,570,040	Sq.Ft.	(Type)	Geocomposite
d.	Other	N/A	Sq.Ft.	(Type)	

6. Cap Penetrations: Estimate the number of cap penetrations that will need to be installed for closure of the facility including, but not limited to gas extraction wells, cleanouts, valve pits, etc. 190

[1] *Provide a brief description of the material specification (i.e. ¾" minus, 12" minus – 12" lifts, etc.)*

Material Unit Costs:

7. Unit cost to place or regrade material to reach final grades (this may include additional waste placement to reach grade) 3.40 $/CY

Are sufficient soils available in permitted on-site borrow areas to complete job? (Attach maps that identify sources and stockpiles) Yes, S1 and S2 stockpiles

8. Earthen Materials	Stockpile	Borrow	Onsite	Offsite	Processing Req'd: Yes	Processing Req'd: No
a. Structural Fill	☒	☐	☒	☐	☐	☒
Unit cost to place[2] N/A $/CY						
b. Intermediate Cover	☒	☐	☒	☐	☐	☒
Unit cost to place[2] 3.40 $/CY						
c. Clay Cap Material	☐	☐	☐	☐	☐	☐
Unit cost to place[2] N/A $/CY						
d. Final Cover Soil	☒	☐	☒	☐	☐	☒
Unit cost to place[2] 3.25 $/CY						
e. Sand/Stone	☐	☐	☐	☒	☐	☒
Unit cost to place[2] 55.00 $/CY						
f. Other	☐	☐	☐	☐	☐	☐
Unit cost to place[2] N/A $/CY						

9. Synthetic Materials

a. Geotextile
Unit cost to place[3] 0.15 $/sq. ft.

b. FML
Unit cost to place[3] 0.82 $/sq. ft.

c. Drainage Layer
Unit cost to place[3] 0.94 $/sq. ft.

d. Other
Unit cost to place[3] N/A $/sq. ft.

[2] *The unit costs should include all associated costs including, but not limited to cost of material, excavation, transportation, processing and placement.*
[3] *The unit price should include the material cost, transportation cost, handling cost and installation cost.*

10. Cap Penetration Unit Cost

List the unit cost to fabricate and install each cap penetration

Unit cost to place 55.00 $/each

11. Unit cost to construct E & S structures (i.e. channels, letdowns, etc.) 4,400 $.acre

12. Revegetation Cost

(Seeding rate used: 75 lbs/acre)

(Lime rate used: 2 tons/acre)

(Fertilizer rate used: 0.5 tons/acre)

(Mulch rate used: 2 tons/acre)

Unit cost to revegetate[3] 2,200 $/acre

13. Cost Summary

a.	Fill (line 1 x line 7)		$ 3,828,230.00
b.	Construction Drawings (line 3)		$ 44,250.00
c.	Construction Roads (line 3a)		$ 0.00
d.	Structural Fill (line 4a x line 8a)		$ 0.00
e.	Intermediate Cover (line 4b x line 8b)		$ 55,051.67
f.	Clay Cap Material (line 4c x line 8c)		$ 0.00
g.	Final Cover (line 4d x line 8d)		$ 618,712.25
h.	Sand/Stone (line 4e x line 8e)		$ 14,850.00
i.	Other (line 4f x line 8f)		$ 0.00
j.	Geotextile (line 5a x line 9a)		$ 5,400.00
k.	FML (line 5b x line 9b)		$ 2,107,432.80
l.	Drainage Layer (line 5c x line 9c)		$ 2,415,837.60
m.	Other (line 5d x line 9d)		$ 0.00
n.	Penetrations (line 6 x line 10)		$ 10,450.00
o.	E & S Structures (line 2 x line 11)		$ 259,600.00
p.	Revegetation (line 12 x line 2)		$ 129,800.00
		Subtotal	**$ 9,489,614.32**
	CQA costs (use 5% of subtotal)		$ 474,480.72
		Total	**$ 9,964,095.03**

(Place this total on Summary Cost Worksheet – line 2)

Date Prepared	COMMONWEALTH OF PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION BUREAU OF WASTE MANAGEMENT	I.D. Number
Rev. March 2019		TBD

BONDING WORKSHEET C
GROUNDWATER MONITORING SYSTEM

1.	Number of wells in the approved monitoring plan.			20
	a. Shallowest well depth	10	ft.	
	b. Deepest well depth	230	ft.	
	c. Average well depth	101	ft.	
	d. Number with dedicated pumps	0		
2.	Unit cost to upgrade an existing well with a dedicated pump			900.00 $/well
3.	Unit cost to install a well (assume average well depth, and include drilling, installation, developing and pump installation)			4,700.00 $/well
4.	Number of wells to be installed (wells in the approved plan that haven't been installed)			18
5.	Number of wells to be replaced over the life of the monitoring period (use 10% of line 1 and round up)			2
6.	Number of pumps to be replaced/repaired (use 25% of line 1 over the monitoring period)			5
7.	Unit cost to purge and sample a well (assume average well depth, and include methane monitoring, record keeping and shipping)			250.00 $/well
8.	Unit cost to analyze sample(s)			
	a. Quarterly (25 PA Code §273.284, §277.284 or §288.254)			250.00 $/well
	b. Annually (25 PA Code §273.284, §277.284 or §288.254)			400.00 $/well
9.	Unit cost to analyze data (includes review of lab QA/QC data, database input, form completion, statistical analysis and data review)			150.00 $/well
10.	Cost to purge, sample and analyze – quarterly (line 7 + line 8a + line 9)			650.00 $/well
11.	Cost to purge, sample and analyze – annually (line 7 + line 8b + line 9)			800.00 $/well
12.	Number of years of sampling (30 + time to close)			32 years

13. Cost Summary –Groundwater Monitoring System

a.	System upgrade ([line 1 – line 1d] x line 2)	$ 18,000.00
b.	Wells to be Installed (line 3 x line 4)	$ 84,600.00
c.	Wells to be replaced (line 3 x line 5)	$ 9,400.00
d.	Pumps to be replaced (line 2 x line 6)	$ 4,500.00
e.	Cost of Quarterly Monitoring (line 1 x "4" x line 10 x line 12)	$ 1,664,000.00
f.	Cost of Annual Monitoring (line 1 x line 11 x line 12)	$ 512,000.00
	Subtotal	**$ 2,292,500.00**

Adjustment for resampling, assessments, etc.

a.	Use 0% of subtotal if no assessments in last 2 yrs.	
b.	Use 5% of subtotal if assessment in last 2 yrs.	
c.	Use 10% if currently in assessment, abatement or increase monitoring	$ 229,250.00

Total $ 2,521,750.00

(Place this total on Summary Cost Worksheet – line 3)

Date Prepared	COMMONWEALTH OF PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION BUREAU OF WASTE MANAGEMENT	I.D. Number
Rev. March 2019		TBD

BONDING WORKSHEET D
SURFACE WATER MONITORING

Solid Waste Surface Water Sampling

1.	Number of surface points monitored for Solid Waste Permit	7	
2.	Unit cost to sample a surface point (record keeping and shipping)	200.00	$/point
3.	Unit cost to analyze sample(s)		
	a. Quarterly (25 PA Code §273.284 or §288.254)	250.00	$/point
	b. Annually (25 PA Code §273.284 or §288.254)	400.00	$/point
4.	Unit cost to analyze data (includes review of lab QA/QC data, database input, form completion, and data review)	150.00	$/point
5.	Cost to sample and analyze – quarterly (line 2 + line 3a + line 4)	600.00	$/point
6.	Cost to sample and analyze – annually (line 2 + line 3b + line 4)	750.00	$/point
7.	Number of years of sampling (30 + time to close)	32 years	

NPDES Surface Discharge Sampling

8.	Number of outfalls monitored	7	
9.	Monitoring frequency (i.e. monthly, quarterly, etc)	Semi-Annual	
10.	Number of samples to be taken per point/year	2	
11.	Unit cost to sample a surface point (record keeping and shipping)	150.00	$/point
12.	Unit cost to analyze sample(s) (including data review and completing DMR)	200.00	$/point
13.	Number of years of sampling (30 + time to close)	32 years	
14.	Cost Summary –Surface Water Monitoring		
	a. Cost of Quarterly Surface Water Monitoring (line 1 x “4” x line 5 x line 7)	$ 537,600.00	
	b. Cost of Annual Surface Water Monitoring (line 1 x line 6 x line 7)	$ 168,000.00	
	c. Cost of NPDES Monitoring (line 8 x line 10 x [line 11 + line 12] x line 13)	$ 156,800.00	
	d. NPDES renewals over post-closure period (includes application development, fees, etc.) use 10% of line 14c	$ 15,680.00	
	Subtotal$	**$ 878,080.00**	

Adjustment for resampling, assessments, etc.

a. Use 0% of subtotal if no assessments in last 2 yrs.

b. Use 5% of subtotal if assessment in last 2 yrs.

c. Use 10% if in assessment, abatement or increased monitoring $ 0.00

Total $ 878,080.00

(Place this total on Summary Cost Worksheet – line 4)

Date Prepared		I.D. Number
Rev. March 2019	COMMONWEALTH OF PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION BUREAU OF WASTE MANAGEMENT	TBD

BONDING WORKSHEET E
PRIVATE WATER SUPPLY MONITORING

1.	Number of private water supplies monitored.	1	
2.	Unit cost to sample a well (include methane monitoring, record keeping and shipping)	250.00	$/well
3.	Unit cost to analyze sample(s) quarterly (Act 101 Section 1103)	400.00	$/well
4.	Unit cost to analyze data (includes review of lab QA/QC data, database input, form completion, and data review)	200.00	$/well
5.	Total cost for quarterly sampling (line 2 + line 3 + line 4)	850.00	$/well
6.	Number of years of sampling (30 + time to close)	32	years
7.	Cost Summary –Private Water Supply Monitoring		
	a. Cost of quarterly monitoring (line 5 x 4 x line 6)	$ 108,800.00	

Total $ 108,800.00

(Place this total on Summary Cost Worksheet – line 5)

Date Prepared		I.D. Number
Rev. June 2019	COMMONWEALTH OF PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION BUREAU OF WASTE MANAGEMENT	TBD

BONDING WORKSHEET F
GAS MONITORING SYSTEM

1.	Number of probes in the approved monitoring plan.			20	
	a. Shallowest probe depth	9	ft.		
	b. Deepest probe depth	149	ft.		
	c. Average probe depth	63	ft.		
	d. Number of probes installed	0			
2.	Unit cost to install a probe (including, drilling, and installation)			1,000.00	$/probe
3.	Number of probes to be installed (probes in the approved plan that haven't been installed			20	
4.	Number of probes to be replaced over the life of the monitoring period (use 5% of line 1 and round up)			1	
5.	Unit cost to monitor a probe (include record keeping)			40.00	$/probe
6.	Number of probes and structure monitoring events per year			4	
7.	Number of years of monitoring (30 + time to close)			32	years
8.	Cost Summary –Gas Monitoring System				
	a. System completion (line 3 x line 2) $			$ 20,000.00	
	b. Probe replacement (line 2 x line 4) $			$ 1,000.00	
	c. Probe Monitoring (line 1 x line 5 x line 6 x line 7)			$ 102,400.00	
	Subtotal			**$ 123,400.00**	

Adjustment for resampling, assessments, etc.

a. Use 0% of subtotal if no assessments in last 2 yrs.

b. Use 5% of subtotal if assessment in last 2 yrs.

c. Use 10% if in assessment or increased monitoring

$ 12,340.00

Total $ 135,740.00

(Place this total on Summary Cost Worksheet – line 6)

Date Prepared	COMMONWEALTH OF PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION BUREAU OF WASTE MANAGEMENT	I.D. Number
Rev. June 2019		TBD

BONDING WORKSHEET G
GAS COLLECTION SYSTEM

1.	Number of wells in the approved monitoring plan.		222	
	a. Shallowest well depth	35 ft.		
	b. Deepest well depth	130 ft.		
	c. Average well depth	103 ft.		
	d. Number of wells installed	150		
	e. Number of pumping wells	0		
2.	Cost for flare or other control device installation		$ 0.00	LS
3.	Unit cost to install a well (including, drilling, installation, and connection to active system)		16,000.00	$/well
4.	Unit cost to install a gas well requiring liquid removal (including, drilling, installation, and connection to active system)		N/A	$/well
5.	Number of wells to be installed (wells in the approved plan that haven't been installed)		72	
6.	Number of gas wells requiring liquid removal to be installed		0	
7.	Estimate the length of collection piping to be installed		17,000	LF
8.	Unit cost to install collection piping (include excavation, pipe bedding, pipe, backfilling, regrading, revegetating, surveying and QA/QC)		35.00	$/LF
9.	Number of wells to be replaced/repaired over the life of the monitoring period (use 10% of line 1 and round up)		23	
10.	Unit cost to monitor well and balance system monthly (include monitoring of methane, oxygen, carbon dioxide or nitrogen, temperature, pressure, and NSPS record keeping)		45.00	$/well
11.	Unit cost to conduct surface monitoring (NSPS)		500.00	$/event
12.	Control System Information			
	a. number and size of blowers	3-4500 CFM		
	b. flare dimensions and capacity	3- 4500 CFM - enclosed flare 12" dia., 50' high		
	c. current flow rate	0		
	d. other features	Flare is enclosed		
13.	Cost of electricity to run system		50,000.00	$/year
14	Cost to maintain system (including daily check, weekly charts, maintenance, etc.)		10,000.00	$/year
15.	Cost of annual blower maintenance (including greasing, bearing check and alignment)		2,500.00	$/year

16. Cost of stack testing (once per five years) 4,200.00 $/event
17. Estimate the volume of condensate generated per year N/A gallons
18. Cost of condensate management (including pumping, testing and treatment/disposal) 0.00 $/year
19. Number of years to run system (30 + time to close) 32 years
20. Cost Summary –Gas Collection System

System Installation

a.	Additional well installation (line 5 x line 3)	$ 1,152,000.00
b.	Additional pumping well installation (line 4 x line 6)	$ 0.00
c.	Cost of collection piping (line 7 x line 8)	$ 595,000.00
d.	Well replacement (line 3 x line 9)	$ 368,000.00
e.	Enclosed ground flare system (line 2)	$ 0.00
	System Installation Subtotal (sum lines a to e)	**$** 2,115,000.00
f.	Cost of monitoring/balancing (line 1 x "12" x line 10 x line 19)	$ 3,836,160.00
g.	Cost of surface monitoring (line 11 x "1.5" x line 19)	$ 24,000.00
h.	Electric Cost (line 13 x line 19)	$ 1,600,000.00
i.	System maintenance cost (line 14 x line 19)	$ 320,000.00
j.	Blower maintenance cost (line 15 x line 19)	$ 80,000.00
k.	Stack testing cost (line 16 x [line 19/5])	$ 26,880.00
l.	Condensate management cost (line 18 x line 19)	$ 0.00
	System Monitoring and Maintenance Subtotal (sum lines f to l)	**$ 5,887,040.00**

Adjustment for miscellaneous maintenance items (including; knockout pot maintenance, thermocouple replacement, flame detector replacement, flame arrester maintenance, flare maintenance, enrichment/startup gas replacement, pneumatic valve maintenance, sump maintenance, panel board maintenance, etc.)

a. Use 0% of subtotal if system[1] < 2yrs old
b. Use 5% of subtotal if system[1] is > 2 yrs old, but < 5yrs old
c. Use 10% if system[1] is > 5 yrs old

$ 800,204.00

Total (Installation subtotal + M & M subtotal + Misc. Maintenance) **$ 8,802,244.00**

(Place this total on Summary Cost Worksheet – line 7)

[1] *The age of the system would be considered from the date that the active system went on-line. Expansions of the systems are assumed to occur, however, this does not change the age of the system unless a majority of the existing system is replaced/upgraded.*

Date Prepared	COMMONWEALTH OF PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION BUREAU OF WASTE MANAGEMENT	I.D. Number
Rev. March 2019		TBD

BONDING WORKSHEET H
OTHER MONITORING AND REPORTING

Please list the annual costs to maintain the following permits/registrations that apply. Additional space is provided for items applicable to your facility, but not listed.

1.	Title V or other air permit (include the annual permit fee, cost to complete emissions inventory and emissions fees)	$ 7,000.00
2.	NSPS Annual Report preparation cost	$ 2,500.00
3.	Local permit or Host Agreement requirements	$ N/A
4.	UST/AST registration	$ N/A
5.	Other Solid Waste Annual Report (estimated)	$ 250.00
6.	Other N/A	$ 0.00
7.	Other N/A	$ 0.00
8.	Other N/A	$ 0.00
9.	Other N/A	$ 0.00
10.	Number of years of monitoring/maintenance (30 + time to close)	32 years

Total (sum of lines 1 to 9 x line 10) **$ 312,000.00**

(Place this total on Summary Cost Worksheet – line 8)

Date Prepared	COMMONWEALTH OF PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION BUREAU OF WASTE MANAGEMENT	I.D. Number
February 2018		TBD

BONDING WORKSHEET I
LEACHATE MANAGEMENT

Leachate Management System Narrative: Provide a detailed description of the leachate management system. You need to include all features of the system including but not limited to landfill sumps (with number and size of pumps and controllers), length of conveyance system, number and type of storage facilities, and treatment/disposal method. A schematic should be attached as back up.

1.	Number of years of leachate management (30 years + closure period)	32	years
2.	Annual leachate volume generated	2,500,000	gallons
3.	Annual cost to manage leachate volume (include pump and pipe maintenance, electricity and monitoring)[1]	$ 25,000.00	

Discharge to POTW

4.	Unit cost to discharge leachate to a POTW	0.00	$/gal

On-site Treatment (including pretreatment)

5.	Unit cost for treatment of leachate (include equipment maintenance, electricity, personnel, chemicals, sludge disposal, etc.)	0.07	$/gal
6.	Annual cost to maintain NPDES permit (include sampling, analysis, report preparation, and factor in five year renewal application preparation and fees)	$ 10,000.00	

Interim Trucking of Leachate

7.	Unit cost to transport and dispose of leachate	0.00	$/gal
8.	NPDES Permit (cost to prepare application, fees and sampling/analysis)	$ 0.00	
9.	Cost to construct on-site treatment or pretreatment system or connection to POTW	$ N/A	
10.	Unit cost for treatment of leachate (include equipment maintenance, electricity, personnel, chemicals, etc.)	0.00	$/gal
11.	Annual cost to maintain NPDES permit (include sampling, analysis, report preparation, and factor in five year renewal application preparation and fees)	$ 0.00	

[1] *Does not include storage of leachate which is contained on Worksheet K*

12. Cost Summary:

a. Cost to manage/convey leachate (line 1 x line 3) $ — $ 800,000.00

If discharge to POTW

b. Discharge to POTW cost (line 1 x line 2 x line 4) — $ 0.00

If have on-site treatment

c. Treatment cost (line 1 x line 2 x line 5) — $ 5,600,000.00

d. NPDES maintenance cost (line 1 x line 6) — $ 320,000.00

If you currently truck leachate

e. Cost of trucking leachate for three years (line 2 x "3" x line 7) — $ 0.00

f. NPDES permit (line 8) — $ 0.00

g. Cost to construct on-site treatment system or connection to POTW (line 9) — $ N/A

h. Treatment cost ([line 1 – "3"] x line 2 x line 10) — $ 0.00

i. NPDES maintenance cost ([line 1 – "3"] x line 11) — $ 0.00

If you currently store leachate in impoundments

j. Size of pond(s) — N/A acres

k. Estimate volume of material to be removed (including liner system and minimum of 12" of soil) — N/A CY

l. Unit cost to dispose of materials (Worksheet A, line 4) — N/A $/CY

m. Cost to dispose of materials (line k x line l) — $ N/A

n. Volume of structural backfill — N/A CY

o. Cost for backfill (line n x Worksheet B, line 8a) — $ N/A

p. Revegetation cost — $ N/A LS

Subtotal — **$ 6,720,000.00**
(sum of a – i) +m+o+p)

Adjustment for maintenance, equipment replacement and contingencies, etc. Please note that these are cumulative and you must add all of the percentages that apply to arrive at the final adjustment percentage. The minimum adjustment is 10%.

a. Add 10% of subtotal if pumps are used to convey leachate.
b. Add 5 % of subtotal if flow volume to POTW is restricted.
c. Add 10% of subtotal if leachate is stored in ponds
d. Add 10% of subtotal if onsite treatment
e. Add 15% if trucking leachate
f. Add 10% if current leachate generation exceeds 5MG/year

Final adjustment factor: 10 %

g. Adjustment (subtotal x factor) — $ 672,000.00

Total (subtotal + adjustment) — **$ 7,392,000.00**
(Place this total on Summary Cost Worksheet – line 9)

Date Prepared	COMMONWEALTH OF PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION BUREAU OF WASTE MANAGEMENT	I.D. Number
February 2018		TBD

BONDING WORKSHEET J
BORROW AREA CLOSURE

How do I start? Select a likely "worst case" scenario where you would have a maximum amount of the borrow area open and in need of closure. Provide a description of the scenario with references to site development stages.

1. Size of borrow area N/A acres
2. Volume of material required for regrading: N/A CY
3. Unit cost to regrade (provide equipment and rates) N/A $/CY

Are sufficient soils available to complete job?
(list deficit amount and attach maps that identify sources and stockpiles)

4. Earthen Materials			Stockpile	Borrow	Onsite	Offsite	Processing Req'd Yes	Processing Req'd No
a. Structural Fill	N/A	CY	☐	☐	☐	☐	☐	☐
b. Unit cost to place[1]	N/A	$/CY						
c. Topsoil	N/A	CY	☐	☐	☐	☐	☐	☐
d. Unit cost to place[1]	N/A	$/CY						

5. Revegetation Cost

(Seeding rate used: N/A lbs/acre)
(Lime rate used: N/A tons/acre)
(Fertilizer rate used: N/A tons/acre)
(Mulch rate used: N/A tons/acre)

Unit cost to revegetate N/A $/acre

6. E & S Controls N/A $/acre
7. Bond Maintenance Cost (required if off-site borrow area) $ N/A LS
8. Other costs (provide detail) $ N/A

[1] *The unit costs should include all associated costs including, but not limited to cost of material, excavation, transportation, processing and placement.*

9. Cost Summary

a.	Fill/Regrading (line 2 x line 3)		$ N/A
b.	Structural Fill (line 4a x line 4b)		$ N/A
c.	Topsoil (line 4c x line 4d)		$ N/A
d.	Revegetation (line 1 x line 5)		$ N/A
e.	E & S Controls (line 6)		$ N/A
f.	Bond maintenance (line 7)		$ N/A
g.	Other (line 8)		$ N/A
		Subtotal	**$** N/A
	CQA/Project Management costs (use 5% of subtotal)		$ N/A
		Total	**$ 0.00**

(Place this total on Summary Cost Worksheet – line 10)

Date Prepared	COMMONWEALTH OF PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION BUREAU OF WASTE MANAGEMENT	I.D. Number
Rev. June 2019		TBD

BONDING WORKSHEET K
FACILITY MAINTENANCE COSTS

1.	Size of facility	845	acres
2.	Size of waste placement footprint	217.3	acres
3.	Size of borrow areas on site	0	acres
4.	Size of leachate ponds on site	0	acres
5.	Size of sedimentation ponds on site	16.0	acres
6.	Length of stormwater conveyance ditches	30,830	LF
7.	Number of years of site management (30 years + closure period)	32	years
8.	Annual Cost to repair cap and final cover[1]		
	a. Acres (use 1% of line 2)	2.2	acres
	b. Unit cost[2] to repair final cover	7,700.00	$/acre
	c. Unit cost[2] to repair cap	5,324.00	$/acre
	d. Unit cost[2] to repair vegetation	4,840.00	$/acre
	e. Total unit cost (line b + line c + line d)	17,864.00	$/acre
9.	Annual Cost to repair and maintain E&S facilities[1]		
	a. Channel repair length (use 3% of line 6)	924.9	LF
	b. Sedimentation pond repair volume (use 20% of line 5)	3.2	acres
	c. Unit cost[2] to repair channels	30.00	$/LF
	d. Unit cost[2] to repair ponds	3,250	$/acre
	e. Total annual cost (line a x line c) + (line b x line d)	38,147.00	$/YR
10.	Annual Cost to repair and maintain leachate ponds[1]		
	a. Leachate pond repair volume (use 20% of line 4)	0	acres
	b. Unit cost[2] to repair leachate pond(s)	N/A	$/acre
11.	Annual cost to repair and maintain leachate tanks		
	a. Number and size of tanks	3	
	b. Annual unit cost[1] to maintain tanks	$ 5,000	
12.	Annual cost to repair fences and gates (attach details)	$ 2,500.00	LS

[1] *After the site is stabilized, the Department may allow a reduction in these requirements.*
[2] *Please refer to the instructions. This estimate should reflect unit costs to bring in a contractor to complete the work and should include mobilization, equipment cost, operator costs, material costs and clean-up and inspection costs.*

13. Annual cost to maintain site roads

a.	Length of site roads[2]	18,000	LF
b.	Annual length of site roads to be repaired (2% of line 13a)	360	LF
c.	Unit cost to repair roads[1]	25.00	$/LF

14. Cost Summary – Facility Maintenance

a.	Cost to repair cap/cover (line 7 x line 8a x line 8e)	$	1,242,191.10
b.	Cost to maintain E&S facilities (line 7 x line 9e)	$	1,220,704.00
c.	Cost to maintain leachate ponds (line 7 x line 10a x line 10b)	$	0.00
d.	Cost to maintain leachate tanks (line 7 x line 11a x line 11b)	$	480,000.00
e.	Cost to repair fences and gates (line 7 x line 12)	$	80,000.00
f.	Cost to maintain site roads (line 7 x line 13b x line 13c)	$	288,000.00
	Subtotal	**$**	3,310,894.10

1. Please refer to the instructions. This estimate should reflect unit costs to bring in a contractor to complete the work and should include mobilization, equipment cost, operator costs, material costs and clean-up and inspection costs. Costs not incurred annually should be determine and divided among the years between events. The costs should also include replacements of pumps and meters, electricity used (pumps, heat tracing, etc.) valve replacement and sludge disposal.
2. This should include access to all maintenance and monitoring areas including but not limited to the disposal area, ponds, leachate conveyance system, tanks, discharge locations, gas extraction system wells, gas probes, groundwater monitoring system and surface water monitoring points.

   Adjustment for maintenance, equipment replacement and contingencies, etc. Please note that these are cumulative and you must add all of the percentages that apply to arrive at the final adjustment percentage. The minimum adjustment is 10%.

   a. Add 5% of subtotal if final slopes or benches have been modified from what is specified in 25 PA Code §273.234(f)
   b. Add 5% of subtotal if more than 30 % stormwater channels are unlined
   c. Add 5% of subtotal if the length of site access roads exceeds 5 miles
   d. Add 10% for mowing

   Final adjustment factor: 10 %

   e. Adjustment (subtotal x factor) $ 331,089.51

Total (subtotal + adjustment) **$ 3,641,984.61**

(Place this total on Summary Cost Worksheet – line 11)

[1] *After the site is stabilized, the Department may allow a reduction in these requirements*.
[2] *Please refer to the instructions. This estimate should reflect unit costs to bring in a contractor to complete the work and should include mobilization, equipment cost, operator costs, material costs and clean-up and inspection costs.*

Date Prepared

Rev. June 2019

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WASTE MANAGEMENT

I.D. Number

TBD

BONDING WORKSHEET L
SUMMARY COST WORKSHEET

Cost Summary - Landfills

1.	Decontaminating the Facility		$ 328,150.00
2.	Capping/Closure		$ 9,964,095.03
3.	Groundwater Monitoring System		$ 2,521,750.00
4.	Surface Water Monitoring		$ 878,080.00
5.	Private Water Supply Monitoring		$ 108,800.00
6.	Gas Monitoring		$ 135,740.00
7.	Gas Collection and Maintenance		$ 8,802,244.00
8.	Other Monitoring		$ 312,000.00
9.	Leachate Management		$ 7,392,000.00
10.	Borrow Area Closure		$ 0.00
11.	Maintenance Costs		$ 3,641,984.61
12.	Other Costs[1]	AMD Treatment System	$ 704,000.00
13.	Other Costs[1]	Wetland Treatment System Associated w/AMD	$ 1,652,000
		Subtotal	**$** 36,440,843.64

Inflation

14.	Inflation rate (projected inflation for the next three years based on the inflation for the prior three years).	5.15 %
15.	Inflation cost for facility (subtotal x line 14)	$ 1,876,703.45

Contingency and administrative fees

16.	Administrative fees (5%) (subtotal x 0.05)	$ 1,822,042.18
17.	Project Management (5%) (subtotal x 0.05)	$ 1,822,042.18
18.	Contingency fee amount (subtotal x rate of contingency fee from Table 1)	$ 1,822,042.18

Total (subtotal + line 15 + line 16 + line 17 + 18) **$ 43,783,673.63**

[1] You should include any costs that would be incurred by the Department, but were not included in these sheets. Provide separate sheets for documentation.