

Earthres Group, Inc.
toll free 800-264-4553

www.earthres.com

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SEP 27 2019

East Rockhill Township



EARTHRES

ENGINEERING FOR SUCCESS™

HEADQUARTERS / PHILADELPHIA REGION

P. O. Box 468, Pipersville, PA 18947
phone 215-766-1211

APPALACHIAN REGIONAL OFFICE

P. O. Box 794, Morgantown, WV 26505
phone 304-212-6866

September 25, 2019

Gary Latsha
District Mining Manager
Bureau of District Mining Operations
PA Department of Environmental Protection
5 West Laurel Boulevard
Pottsville, PA 17901-2454

**SUBJECT: Hanson Aggregates Pennsylvania – Rock Hill Quarry
Permit Update – E&S Plan Certification
SMP No. 7974SM1
East Rockhill Township, Bucks County
Earthres Project No. 061003.052**

Dear Mr. Latsha:

On behalf of Hanson Aggregates Pennsylvania, LLC (Hanson), Earthres Group, Inc. (EARTHRES) is hereby submitting a Pond Certification Report for the improvements associated with Sediment Trap 1 at the Rock Hill Quarry. The following items have been included for your review:

- Sediment Trap 1 Pond Certification;
- Supplemental As-Built Calculations;
- Photo Log; and
- As-Built Site Plan.

If you have any questions or require additional information, please contact us at (215) 766-1211.

Sincerely,
Earthres Group, Inc.

Michael D. Fling, P.E.
Senior Project Manager

Enclosures: As stated

Cc: Andrew Gutshall, Hanson
Curt Mitchell, R.E. Pierson
Marianne Morano, East Rockhill Township

POND CERTIFICATION

Commonwealth of Pennsylvania
 Department of Environmental Protection
 Bureau of Mining Programs

Permittee HANSON AGGREGATES PENNSYLVANIA LLC
 Permit No. SMP NO. 7974SM1
 Pond SEDIMENT TRAP 1
 Township EAST ROCKHILL TOWNSHIP
 County BUCKS COUNTY
 Engineer/Land Surveyor MICHAEL D. FLING, P.E.
 Date 8/23/2019

POND CERTIFICATION

Instructions: Complete first page and submit with permit application. Use both pages to certify completed impoundment.

Sedimentation ponds and other impoundments must be constructed in accordance with the approved permit before any disturbance of the area to be drained into the pond. Impoundment requiring a Chapter 105 permit or is equal to or greater than 20 acre-feet storage capacity must be inspected during construction under the supervision of, and certified to the Department upon completion of construction by a registered professional engineer. If impoundment does not require a Chapter 105 permit or is less than 20 acre-feet storage capacity, it must be inspected during construction, and certified by a registered professional engineer or a registered professional land surveyor.

Any enlargement, reduction in size, reconstruction, or other modification, that may affect the stability or operation must be approved by the Department. Pond must be certified and approved prior to the start of any other mining activities.

Unless otherwise specified in your permit, use this form for the sedimentation pond and other impoundment certification. Submit 1 original and 2 copies to the appropriate District Mining Office. All information must be provided, otherwise it will be returned for completion.

U.S.G.S. Quadrangle: QUAKERTOWN Location (point of discharge): Latitude 40° 24' 2.78" ; Longitude 75° 18' 0.48" or
 Location from **Bottom Right** corner of U.S.G.S. Quadrangle: N/A inches North; N/A inches West
 HYDROLOGY: Drainage Area 4.28 ACRES acres Design Storm N/A Average Watershed Slope N/A
 Land Use MINING SUPPORT Soil Type N/A Curve Number N/A Peak Discharge N/A

		<i>Permit Application</i>	<i>As Constructed</i>
Embankment	Top Width (Minimum)	<u>5'</u>	<u>5'</u>
	Outside Slope (Maximum) (H: V)	<u>2:1</u>	<u>2:1</u>
	Inside Slope (Maximum)	<u>2:1</u>	<u>2:1</u>
	Top Elevation	<u>546' MSL</u>	<u>546.42' MSL</u>
	Bottom Elevation/Dewatering Elevation	<u>540' MSL / 542' MSL</u>	<u>539.15' MSL / 542.00' MSL</u>
	Upstream Toe Elevation	<u>N/A</u>	<u>N/A</u>
	Downstream Toe Elevation	<u>N/A</u>	<u>N/A</u>
	Type of Cover	<u>RIPRAP/VEGETATION</u>	<u>RIPRAP/VEGETATION</u>
	Incised Slope (if any)	<u>N/A</u>	<u>N/A</u>
	Inside Slope (Maximum) (H: V)	<u>N/A</u>	<u>N/A</u>
	Top Elevation	<u>N/A</u>	<u>N/A</u>
	Bottom Elevation	<u>N/A</u>	<u>N/A</u>
Principal Spillway	Type	<u>BROAD CRESTED WEIR</u>	<u>BROAD CRESTED WEIR</u>
	Conduit Diameter (if barrel/riser give both)	<u>N/A</u>	<u>N/A</u>
	Inlet Elevation (Crest)	<u>545.00' MSL</u>	<u>544.82' MSL</u>
	Outlet Protection	<u>Filter Fabric / AASHTO #57/ R-3/ Compost</u>	<u>Filter Fabric / AASHTO #57/R-3/ Compost</u>
	Spillway Capacity Max	<u>90.00 CFS</u>	<u>146.13 CFS</u>
Dewatering Device	Type/Size	<u>N/A</u>	<u>N/A</u>
	Inlet Elevation	<u>N/A</u>	<u>N/A</u>
	Discharge Regulation (ie., self draining or valved)	<u>N/A</u>	<u>N/A</u>
	Discharge Capacity (cubic feet/second)	<u>N/A</u>	<u>N/A</u>
	Time to Dewater Full Pond	<u>N/A</u>	<u>N/A</u>
Emergency Spillway	Type	<u>N/A</u>	<u>N/A</u>
	Width	<u>N/A</u>	<u>N/A</u>
	Depth (with 2 feet of freeboard)	<u>N/A</u>	<u>N/A</u>
	Length	<u>N/A</u>	<u>N/A</u>
	Sideslopes	<u>N/A</u>	<u>N/A</u>
	Crest Elevation	<u>N/A</u>	<u>N/A</u>
	Slope	<u>N/A</u>	<u>N/A</u>
	Type of Lining/Protection	<u>N/A</u>	<u>N/A</u>
	Spillway Capacity (provide design calculations)	<u>N/A</u>	<u>N/A</u>
	Storage Capacity	Length @ Bottom	<u>100'</u>
Width @ Bottom		<u>50'</u>	<u>57.41'</u>
Length @ Crest of Emergency Spillway / Crest of Principal Spillway		<u>N/A / 121'</u>	<u>N/A / 126.22'</u>
Width @ Crest of Emergency Spillway / Crest of Principal Spillway		<u>N/A / 72'</u>	<u>N/A / 80.54'</u>
Volume @ Crest of Emergency Spillway / Crest of Principal Spillway		<u>N/A / 25,301 CF</u>	<u>N/A / 25,400 CF</u>

Permittee HANSON AGGREGATES PENNSYLVANIA LLC
 Permit No. SMP NO. 7974SM1
 Pond SEDIMENT TRAP 1
 Township EAST ROCKHILL TOWNSHIP
 County BUCKS COUNTY

TO BE COMPLETED AFTER CONSTRUCTION

1. Has the facility been constructed at the location shown in the approved permit? Yes No
2. Is the emergency spillway constructed at the location shown in the approved plan? Yes No
3. Is the principal spillway constructed at the location shown in the approved plan? Yes No
4. Are the collection channel inlets constructed with adequate inlet protection and at the location shown in the approved plan? Yes No
5. Identify any conditions or deficiencies in the facility that need to be corrected. N/A

Construction Inspection

Stage of Construction <small>(specify stage e.g. layout, impoundment/embankment construction, spillway/piping installation)</small>	Date of Inspection	Inspected By
<u>Final As-Built</u>	<u>8/23/2019</u>	<u>EARTHRES</u>

Supervising Professional Engineer/Registered Professional Land Surveyor MICHAEL D. FLING

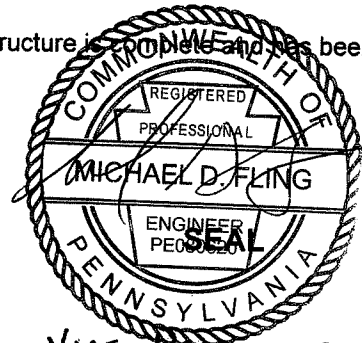
Address 6912 Old Easton Road

Pipersville, PA 18947

Telephone Number 215-766-1211

I certify in accordance with 25 Pa Code Section 77.531 that the above-mentioned structure is complete and has been constructed.

[Signature] 9/24/19
 Signature of Registered Professional Engineer/Registered Professional Land Surveyor Date



PE080620 9/30/2019
 Registration Number and Expiration Date

[Signature] 09/23/2019 VICE PRESIDENT
 Signature of Permittee or Responsible Official Date Title

SUPPLEMENTAL AS-BUILT CALCULATIONS

Hanson Aggregates - Rock Hill Quarry

Sediment Trap 1 - As-Built

Design Notes

Required Storage Volume and Elevations		
Drainage Area, DA (acres)	Measured	4.28
Required Sediment Storage Volume (cf)	700 x DA	2,996
Required Settling Volume (cf)	1300 x DA	5,564
Required Total Volume (cf)	Sediment + Settling	8,560
Total Storage Volume Provided (cf)	Storage Volume Table	25,400
Elevation for Sediment Storage Volume (ft.)	As-Built Survey	543.00
Total Volume Elevation (ft.)	As-Built Survey	544.82
Top of Embankment Elevation		
Total Volume Elevation (ft.)	As-Built Survey	544.82
Freeboard (ft.)	Required	1.00
Top of Embankment Elevation (ft.)	As-Built Survey	546.42
Trap Dimensions		
Bottom Length (ft.)	As-Built Survey	102.15
Bottom Width (ft.)	As-Built Survey	57.10
Crest Length (ft.)	As-Built Survey	126.22
Crest Width (ft.)	As-Built Survey	80.54
Top Length (ft.)	As-Built Survey	135.40
Top Width (ft.)	As-Built Survey	87.04

Hanson Aggregates - Rock Hill Quarry

Sediment Trap 1 - As-Built

Storage Volume Check

Elevation ft.	Plan Area sf	Average Area sf	Elevation Difference ft.	Incremental Volume cf	Incremental Volume acre-ft	Cummulative Volume cf	Cummulative Volume acre-ft
542	7,599					0	0.000
543	8,662	8,125	1.0	8,125	0.187	8,125	0.187
544	9,579	9,117	1.0	9,117	0.209	17,241	0.396
545	10,413	9,993	1.0	9,993	0.229	27,234	0.625
546	11,176	10,792	1.0	10,792	0.248	38,027	0.873

Design:

Sediment Storage Volume = 8,124.70 CF
 Sediment Storage Volume Elevation = 543.00 ft.
 Settling Storage Volume = 25,400.00 CF
 Settling Storage Volume Elevation = 544.82 ft.

Requirements:

Sediment Storage Volume (700 CF/disturbed area acres) = 2,996 CF
 Settling Storage Volume (1,300 CF/drainage area acres) = 5,564 CF
 Drainage Area (acres) = 4.28 acres

Average area calculated as follows: $[A+B+\sqrt{A*B}]/3$

By: JTK
 Date: 9/16/2019
 Chk'd: MDF
 Date: 9/16/2019

Hanson Aggregates - Rock Hill Quarry

Sediment Trap 1 - As-Built

EMERGENCY SPILLWAY DISCHARGE CAPACITY

WEIR FLOW		
WATER SURFACE ELEV (FT)	HEAD H (FT)	FLOW (1) Q (CFS)
544.82	0.00	0.00
545.00	0.18	8.71
545.25	0.43	32.14
545.50	0.68	63.92
545.75	0.93	102.24
546.00	1.18	146.13

Notes:

(1) Weir Flow, $Q = CLH^{1.5}$

where: C = weir coefficient = 3.00
L = bottom width of the spillway crest, ft. = 38.00
H = depth of flow above the spillway crest, ft.

By: JTK
Date: 9/16/2019
Chk'd: MDF
Date: 9/16/2019

AS-BUILT SITE PLAN

PHOTO LOG

Photo log for Rockhill Quarry Site Survey – 08/23/2019



Photo #1: Standing on top of Inlet Spillway #3 facing into the trap



Photo #2: Standing on Southern berm facing Inlet Spillway #3



Photo #3: Standing on Southern berm facing Outlet Spillway



Photo #4: Back side of Outlet Spillway with Infiltration Trench



Photo #6: Standing on Western Berm facing Inlet Spillway #1



Photo #7: Standing on Inlet Spillway #1 looking at Western Berm



Photo #8: Looking at backside of Inlet Spillway #2



Photo #9: Looking downslope from spillway toward infiltration trench and 24" compost filter sock.

