EarthRes
ENGINEERING AND SCIENCE

PENNSYLVANIA
P.O. Box 468
Pipersville, PA 18947
215.766.1211

WEST VIRGINIA
P.O. Box 794
Morgantown, WV 26505
304.212.6866

800.264.4553

June 20, 2018

Mr. Joseph S. Blyler, Jr., P.E.
Mining Engineer
PA Department of Environmental Protection
Pottsville District Mining Office
5 West Laurel Boulevard
Pottsville, PA 17901-2454

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

Dear Mr. Blyler:

On behalf of Hanson Aggregates Pennsylvania LLC (Hanson), EarthRes Group, Inc. (EarthRes) is hereby submitting additional information in response to your request regarding the E&S Certification for the Rock Hill Quarry located in East Rockhill Township, Bucks County. For ease of reference your comments are listed below in bold followed by our response:

- **I will need the Pond Cert. sheets (13-3 & 13-4) for ALL impoundments (Clarifier Pond and Sed. Traps 1,2,3)**

  Response: Pond Certification sheets have been included for all impoundments (Sediments Basins 1 and 2, Clarifying Pond, and Sediment Traps 1, 2, and 3). Refer to Attachment 1.

- **Provide the following info. On sheet 13-3, as applicable:**
  - **Principle Spillway Inlet and Crest Elev.'s**
  - **Principle Spillway Capacity with 2' Freeboard remaining (in cfs)**
  - **Emergency Spillway Capacity with 2' Freeboard remaining**
  - **Volume @ Principle Spillway Crest**

  Response: The pond certification sheets have been modified to include the above requested information, as applicable. Refer to Attachment 1.

- **Indicate that the Clarifier Pond Outlet will be adjusted as necessary to provide a minimum 6hr Det. Time (+sludge factor) at design/field flow. Also address the source of the existing pipes outletting into the Clarifier pond observed on my last site visit. This can be added as a narrative to the Clarifier Cert.**

  Response: A narrative description outlining the process for field adjustments to the Clarifying Pond outlet weir as well as a description of the origin of the inflow pipe has been included in Attachment 2.

- **Indicate that all channels/berms have been constructed and completed as designed.**

  Response: A summary description of all E&S Controls indicating that they have been constructed as designed is included in Attachment 3.

- **Indicate with the Sed. Trap Cert.'s any deviations from the design (i.e. the outlet for Sed. Trap 2).**

  Response: A description of the deviation from the outlet design for Sediment Trap 2 is included within the E&S Controls description included in Attachment 3.

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

Sincerely,
EarthRes Group, Inc.

Michael D. Fling, P.E.
Project Manager

Enclosures: As stated

Cc: Mark Kendrick, Hanson
Andrew Gutshall, Hanson
Charlie Elwell, R.E. Pierson

ATTACHMENT 1
POND CERTIFICATION FORMS
AS-BUILT CALCULATIONS
AS-BUILT SITE PLAN

EarthRes
ENGINEERING AND SCIENCE

POND CERTIFICATION

Commonwealth of Pennsylvania
Department of Environmental Protection
Bureau of Mining Programs

POND CERTIFICATION

Permittee HANSON AGGREGATES PENNSYLVANIA LLC
Permit No. SMP NO. 7974SM1
Pond SEDIMENT BASIN 1
Township EAST ROCKHILL TOWNSHIP
County BUCKS COUNTY
Engineer/Land Surveyor MICHAEL D. FLING, P.E.
Date 06/20/2018

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′ 13.6″ ; Longitude 76° 18′ 11.4″ or
Location from ***Bottom Right*** corner of U.S.G.S. Quadrangle: N/A inches North; N/A inches West
HYDROLOGY: Drainage Area 14.51 ACRES acres Design Storm 10-YEAR Average Watershed Slope N/A
Land Use MINING SUPPORT Soil Type N/A Curve Number 89 Peak Discharge 61.12

		Permit Application	***As Constructed***
Embankment	Top Width (Minimum)	10 FT	13 FT
	Outside Slope (Maximum) (_H: _ V)	3:1	3:1
	Inside Slope (Maximum)	2:1	2:1
	Top Elevation	537 MSL	537 MSL
	Bottom Elevation	528 MSL	526 MSL
	Upstream Toe Elevation	530 MSL	529.81 MSL
	Downstream Toe Elevation	529.5 MSL	528.72 MSL
	Type of Cover	GRASS	GRASS
	Incised Slope (if any)	N/A	N/A
	Inside Slope (Maximum) (_H: _V)	N/A	N/A
	Top Elevation	N/A	N/A
	Bottom Elevation	N/A	N/A
Principal Spillway	Type	BARREL/RISER	BARREL/RISER
	Conduit Diameter (if barrel/riser give both)	18" / 24"	18" / 24"
	Inlet Elevation / Crest Elevation	530 MSL / 533.89 MSL	529.81 MSL / 533.64 MSL
	Outlet Protection	R-4	R-4
	Spillway Capacity Max/ With 2' Freeboard / Volume @ Crest	20.36 CFS / 15.94 CFS / 116,409 CUFT	21.47 CFS / 17.64 CFS / 147,997 CUFT
Dewatering Device	Type/Size	PERFORATIONS / 1"	PERFORATIONS / 1"
	Inlet Elevation	530 MSL	530.35 MSL
	Discharge Regulation (ie., self draining or valved)	SELF DRAINING	SELF DRAINING
	Discharge Capacity (cubic feet/second)	0.19 CFS	0.28 CFS
	Time to Dewater Full Pond	6.99 DAYS	6.65 DAYS
Emergency Spillway	Type	BROAD CRESTED WEIR	BROAD CRESTED WEIR
	Width	15'	32.5'
	Depth (with 2 feet of freeboard)	2.5'	2.61'
	Length	21.6'	26.4'
	Sideslopes	2:1	2:1
	Crest Elevation	534.50 MSL	534.39 MSL
	Slope	3:1	3:1
	Type of Lining/Protection	R-3	R-3
	Spillway Capacity Max (provide design calculations) / With 2' Freeboard	177.88 CFS / 15.91 CFS	411.12 CFS / 46.45 CFS
Storage Capacity	Length @ Bottom	184.5'	188.5'
	Width @ Bottom	83.1'	81.2'
	Length @ Crest of Emergency Spillway	220.8'	249.5'
	Width @ Crest of Emergency Spillway	110.7'	132.9'
	Volume @ Crest of Emergency Spillway	129,610 CUFT	167,170 CUFT

Permittee HANSON AGGREGATES PENNSYLVANIA LLC
Permit No. SMP NO. 7974SM1
Pond SEDIMENT BASIN 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 (specify stage e.g. layout, impoundment/embankment construction, spillway/piping installation)	Date of Inspection	Inspected By
FINAL AS-BUILT	05/17/2018	EARTHRES

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.

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL MICHAEL D. FLING ENGINEER PE080620 SEAL

6/20/18
Signature of Registered Professional Engineer/Registered Professional Land Surveyor Date

PE080620 09/30/2019
Registration Number and Expiration Date

6/20/18
Signature of Permittee or Responsible Official Date

VICE PRESIDENT
Title

Commonwealth of Pennsylvania
Department of Environmental Protection
Bureau of Mining Programs

POND CERTIFICATION

Permittee HANSON AGGREGATES PENNSYLVANIA LLC
Permit No. SMP NO. 7974SM1
Pond SEDIMENT BASIN 2
Township EAST ROCKHILL TOWNSHIP
County BUCKS COUNTY
Engineer/Land Surveyor MICHAEL D. FLING, P.E.
Date 06/20/2018

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

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U.S.G.S. Quadrangle: QUAKERTOWN Location (point of discharge): Latitude 40° 24′ 17.7″ ; Longitude 75° 18′ 15.4″ or
Location from ***Bottom Right*** corner of U.S.G.S. Quadrangle: N/A inches North; N/A inches West
HYDROLOGY: Drainage Area 20.34 ACRES acres Design Storm 10-YEAR Average Watershed Slope N/A
Land Use MINING SUPPORT Soil Type N/A Curve Number 89 Peak Discharge 115.39 CFS

		Permit Application	***As Constructed***
Embankment	Top Width (Minimum)	10 FT	15 FT
	Outside Slope (Maximum) (_H: _ V)	3:1	3:1
	Inside Slope (Maximum)	2:1	2:1
	Top Elevation	534 MSL	533 MSL
	Bottom Elevation	526 MSL	525 MSL
	Upstream Toe Elevation	527.21 MSL	526.84 MSL
	Downstream Toe Elevation	526.75 MSL	526.67 MSL
	Type of Cover	GRASS	GRASS
	Incised Slope (if any)	N/A	N/A
	Inside Slope (Maximum) (_H: _V)	N/A	N/A
	Top Elevation	N/A	N/A
	Bottom Elevation	N/A	N/A
Principal Spillway	Type	BARREL/RISER	BARREL/RISER
	Conduit Diameter (if barrel/riser give both)	18" / 24"	18" / 24"
	Inlet Elevation / Crest Elevation	527.21 MSL / 530.17 MSL	526.84 MSL / 529.70 MSL
	Outlet Protection	R-4	R-4
	Spillway Capacity Max/ With 2' Freeboard / Volume @ Crest	20.93 CFS / 17.42 CFS / 150,185 CUFT	19.87 CFS / 15.92 CFS / 155,700 CUFT
Dewatering Device	Type/Size	PERFORATIONS / 1"	PERFORATIONS / 1"
	Inlet Elevation	527.21 MSL	526.76 MSL
	Discharge Regulation (ie., self draining or valved)	SELF DRAINING	SELF DRAINING
	Discharge Capacity (cubic feet/second)	0.72 CFS	0.39 CFS
	Time to Dewater Full Pond	5.37 DAYS	6.63 DAYS
Emergency Spillway	Type	BROAD CRESTED WEIR	BROAD CRESTED WEIR
	Width	15'	21.1'
	Depth (with 2 feet of freeboard)	3.33'	2.80'
	Length	26.6'	30.2'
	Sideslopes	2:1	2:1
	Crest Elevation	530.67 MSL	530.20 MSL
	Slope	3:1	3:1
	Type of Lining/Protection	R-3	R-3
	Spillway Capacity Max (provide design calculations) / With 2' Freeboard	273.45 CFS / 69.02 CFS	296.58 CFS / 45.29 CFS
Storage Capacity	Length @ Bottom	357.3'	358.1'
	Width @ Bottom	90.2'	91.6'
	Length @ Crest of Emergency Spillway	374.0'	377.0'
	Width @ Crest of Emergency Spillway	106.9'	108.5'
	Volume @ Crest of Emergency Spillway	170,350 CUFT	175,900 CUFT

Permittee HANSON AGGREGATES PENNSYLVANIA LLC
Permit No. SMP NO. 7974SM1
Pond SEDIMENT BASIN 2
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 (specify stage e.g. layout, impoundment/embankment construction, spillway/piping installation)	Date of Inspection	Inspected By
FINAL AS-BUILT	05/17/2018	EARTHRES

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 of Registered Professional Engineer/Registered Professional Land Surveyor — Date 6/20/18

PE080620 — 09/30/2019
Registration Number and Expiration Date

Signature of Permittee or Responsible Official — Date 6/20/18 — Title VICE PRESIDENT

Commonwealth of Pennsylvania
Department of Environmental Protection
Bureau of Mining Programs

POND CERTIFICATION

Permittee HANSON AGGREGATES PENNSYLVANIA LLC
Permit No. SMP NO. 7974SM1
Pond CLARIFYING POND
Township EAST ROCKHILL TOWNSHIP
County BUCKS COUNTY
Engineer/Land Surveyor MICHAEL D. FLING, P.E.
Date 06/20/2018

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

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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′ 11.0″ ; Longitude 75° 18′ 10.8″ or
Location from ***Bottom Right*** corner of U.S.G.S. Quadrangle: N/A inches North; N/A inches West
HYDROLOGY: Drainage Area N/A acres Design Storm N/A Average Watershed Slope N/A
Land Use MINING SUPPORT Soil Type N/A Curve Number N/A Peak Discharge 1000 GPM (2.23 cfs)

		Permit Application	*As Constructed*
Embankment	Top Width (Minimum)	10 FT	15 FT
	Outside Slope (Maximum) (_H: _ V)	3:1	3:1
	Inside Slope (Maximum)	2:1	2:1
	Top Elevation	536 MSL	536 MSL
	Bottom Elevation	526 MSL	526 MSL
	Upstream Toe Elevation	N/A	N/A
	Downstream Toe Elevation	N/A	N/A
	Type of Cover	GRASS	RIPRAP
	Incised Slope (if any)	N/A	N/A
	Inside Slope (Maximum) (_H: _V)	N/A	N/A
	Top Elevation	N/A	N/A
	Bottom Elevation	N/A	N/A
Principal Spillway	Type	90 DEGREE V-NOTCH WEIR	90 DEGREE V-NOTCH WEIR
	Conduit Diameter (if barrel/riser give both)	N/A	N/A
	Inlet Elevation	533.49 MSL	533.64 MSL
	Outlet Protection	R-4	R-4
	Spillway Capacity Max / With 1' Freeboard	39.95 CFS / 11.20 CFS	34.39 CFS / 8.69 CFS
Dewatering Device	Type/Size	N/A	N/A
	Inlet Elevation	N/A	N/A
	Discharge Regulation (ie., self draining or valved)	N/A	N/A
	Discharge Capacity (cubic feet/second)	N/A	N/A
	Time to Dewater Full Pond	N/A	N/A
Emergency Spillway	Type	N/A	N/A
	Width	N/A	N/A
	Depth (with 2 feet of freeboard)	N/A	N/A
	Length	N/A	N/A
	Sideslopes	N/A	N/A
	Crest Elevation	N/A	N/A
	Slope	N/A	N/A
	Type of Lining/Protection	N/A	N/A
	Spillway Capacity (provide design calculations)	N/A	N/A
Storage Capacity	Length @ Bottom	249.2'	265.5'
	Width @ Bottom	10.0'	8.0'
	Length @ Crest of Emergency Spillway / Crest of Principal Spillway	N/A / 279.7'	N/A / 298.5'
	Width @ Crest of Emergency Spillway / Crest of Principal Spillway	N/A / 40.0'	N/A / 38.6'
	Volume @ Crest of Emergency Spillway / Crest of Principal Spillway	N/A / 49,424 CUFT	N/A / 52,290 CUFT

Permittee HANSON AGGREGATES PENNSYLVANIA LLC
Permit No. SMP NO. 7974SM1
Pond CLARIFYING POND
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 (specify stage e.g. layout, impoundment/embankment construction, spillway/piping installation)	Date of Inspection	Inspected By
FINAL AS-BUILT	05/29/2018	EARTHRES

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 has been constructed.

6/20/18
Signature of Registered Professional Engineer/Registered Professional Land Surveyor Date

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL MICHAEL D. FLING ENGINEER PE080620

PE080620 09/30/2019
Registration Number and Expiration Date

6/20/18
Signature of Permittee or Responsible Official Date

VICE PRESIDENT
Title

Commonwealth of Pennsylvania
Department of Environmental Protection
Bureau of Mining Programs

POND CERTIFICATION

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 06/18/2018

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

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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 4.97 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

		Permit Application	*As Constructed*
Embankment	Top Width (Minimum)	N/A	N/A
	Outside Slope (Maximum) (_H: _ V)	3:1	3:1
	Inside Slope (Maximum)	2:1	2:1
	Top Elevation	539 MSL	540 MSL
	Bottom Elevation	544 MSL	545 MSL
	Upstream Toe Elevation	N/A	N/A
	Downstream Toe Elevation	N/A	N/A
	Type of Cover	RIPRAP	RIPRAP
	Incised Slope (if any)	N/A	N/A
	Inside Slope (Maximum) (_H: _V)	N/A	N/A
	Top Elevation	N/A	N/A
	Bottom Elevation	N/A	N/A
Principal Spillway	Type	BROAD CRESTED WEIR	BROAD CRESTED WEIR
	Conduit Diameter (if barrel/riser give both)	N/A	N/A
	Inlet Elevation (Crest)	542.50 MSL	543 MSL
	Outlet Protection	R-3	R-3
	Spillway Capacity Max / With 1' Freeboard	165.34 CFS / 31.82 CFS	263.04 CFS / 93.0 CFS
Dewatering Device	Type/Size	N/A	N/A
	Inlet Elevation	N/A	N/A
	Discharge Regulation (ie., self draining or valved)	N/A	N/A
	Discharge Capacity (cubic feet/second)	N/A	N/A
	Time to Dewater Full Pond	N/A	N/A
Emergency Spillway	Type	N/A	N/A
	Width	N/A	N/A
	Depth (with 2 feet of freeboard)	N/A	N/A
	Length	N/A	N/A
	Sideslopes	N/A	N/A
	Crest Elevation	N/A	N/A
	Slope	N/A	N/A
	Type of Lining/Protection	N/A	N/A
	Spillway Capacity (provide design calculations)	N/A	N/A
Storage Capacity	Length @ Bottom	85.2'	102.15'
	Width @ Bottom	33.8'	57.41'
	Length @ Crest of Emergency Spillway / Crest of Principal Spillway	N/A / 99.2'	N/A / 118.35'
	Width @ Crest of Emergency Spillway / Crest of Principal Spillway	N/A / 50.4'	N/A / 69.77'
	Volume @ Crest of Emergency Spillway / Crest of Principal Spillway	N/A / 20,993 CUFT	N/A / 24,376 CUFT

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 (specify stage e.g. layout, impoundment/embankment construction, spillway/piping installation)	Date of Inspection	Inspected By
FINAL AS-BUILT	06/18/2018	EARTHRES

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[s] [is/are] complete and [has/have] been constructed.

6/20/18
Signature of Registered Professional Engineer/Registered Professional Land Surveyor Date

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL MICHAEL D. FLING ENGINEER PE080620

PE080620 09/30/2019
Registration Number and Expiration Date

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VICE PRESIDENT
Title

Commonwealth of Pennsylvania
Department of Environmental Protection
Bureau of Mining Programs

POND CERTIFICATION

Permittee HANSON AGGREGATES PENNSYLVANIA LLC
Permit No. SMP NO. 7974SM1
Pond SEDIMENT TRAP 2
Township EAST ROCKHILL TOWNSHIP
County BUCKS COUNTY
Engineer/Land Surveyor MICHAEL D. FLING, P.E.
Date 06/18/2018

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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′ 22.5″ ; Longitude 75° 18′ 19.2″ or
Location from ***Bottom Right*** corner of U.S.G.S. Quadrangle: N/A inches North; N/A inches West
HYDROLOGY: Drainage Area 1.23 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

		Permit Application	***As Constructed***
Embankment	Top Width (Minimum)	N/A	N/A
	Outside Slope (Maximum) (_H: _ V)	3:1	3:1
	Inside Slope (Maximum)	2:1	2:1
	Top Elevation	526 MSL	526 MSL
	Bottom Elevation	530 MSL	530 MSL
	Upstream Toe Elevation	N/A	N/A
	Downstream Toe Elevation	N/A	N/A
	Type of Cover	RIPRAP	RIPRAP
	Incised Slope (if any)	N/A	N/A
	Inside Slope (Maximum) (_H: _V)	N/A	N/A
	Top Elevation	N/A	N/A
	Bottom Elevation	N/A	N/A
Principal Spillway	Type	BROAD CRESTED WEIR	BROAD CRESTED WEIR
	Conduit Diameter (if barrel/riser give both)	N/A	N/A
	Inlet Elevation (Crest)	528.50 MSL	528.00 MSL
	Outlet Protection	R-3	R-3
	Spillway Capacity Max / With 1' Freeboard	55.11 CFS / 10.61 CFS	84.00 CFS / 29.70 CFS
Dewatering Device	Type/Size	N/A	N/A
	Inlet Elevation	N/A	N/A
	Discharge Regulation (ie., self draining or valved)	N/A	N/A
	Discharge Capacity (cubic feet/second)	N/A	N/A
	Time to Dewater Full Pond	N/A	N/A
Emergency Spillway	Type	N/A	N/A
	Width	N/A	N/A
	Depth (with 2 feet of freeboard)	N/A	N/A
	Length	N/A	N/A
	Sideslopes	N/A	N/A
	Crest Elevation	N/A	N/A
	Slope	N/A	N/A
	Type of Lining/Protection	N/A	N/A
	Spillway Capacity (provide design calculations)	N/A	N/A
Storage Capacity	Length @ Bottom	36.77'	42.28'
	Width @ Bottom	18.68'	26.19'
	Length @ Crest of Emergency Spillway / Crest of Principal Spillway	N/A / 43.51'	N/A / 51.33'
	Width @ Crest of Emergency Spillway / Crest of Principal Spillway	N/A / 20.88'	N/A / 34.29'
	Volume @ Crest of Emergency Spillway / Crest of Principal Spillway	N/A / 2,974 CUFT	N/A / 2,910 CUFT

Permittee HANSON AGGREGATES PENNSYLVANIA LLC
Permit No. SMP NO. 7974SM1
Pond SEDIMENT TRAP 2
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 (specify stage e.g. layout, impoundment/embankment construction, spillway/piping installation)	Date of Inspection	Inspected By
FINAL AS-BUILT	06/18/2018	EARTHRES

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.

6/20/18
Signature of Registered Professional Engineer/Registered Professional Land Surveyor Date

PE080620 09/30/2019
Registration Number and Expiration Date

6/20/18
Signature of Permittee or Responsible Official Date

VICE PRESIDENT
Title

Commonwealth of Pennsylvania
Department of Environmental Protection
Bureau of Mining Programs

POND CERTIFICATION

Permittee HANSON AGGREGATES PENNSYLVANIA LLC
Permit No. SMP NO. 7974SM1
Pond SEDIMENT TRAP 3
Township EAST ROCKHILL TOWNSHIP
County BUCKS COUNTY
Engineer/Land Surveyor MICHAEL D. FLING, P.E.
Date 06/18/2018

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′ 5.50″ ; Longitude 75° 18′ 1.38″ or
Location from ***Bottom Right*** corner of U.S.G.S. Quadrangle: N/A inches North; N/A inches West
HYDROLOGY: Drainage Area 3.72 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

		Permit Application	*As Constructed*
Embankment	Top Width (Minimum)	N/A	N/A
	Outside Slope (Maximum) (_H: _ V)	3:1	3:1
	Inside Slope (Maximum)	2:1	2:1
	Top Elevation	548 MSL	546 MSL
	Bottom Elevation	544 MSL	549.50 MSL
	Upstream Toe Elevation	N/A	N/A
	Downstream Toe Elevation	N/A	N/A
	Type of Cover	RIPRAP	RIPRAP
	Incised Slope (if any)	N/A	N/A
	Inside Slope (Maximum) (_H: _V)	N/A	N/A
	Top Elevation	N/A	N/A
	Bottom Elevation	N/A	N/A
Principal Spillway	Type	BROAD CRESTED WEIR	BROAD CRESTED WEIR
	Conduit Diameter (if barrel/riser give both)	N/A	N/A
	Inlet Elevation (Crest)	546.80 MSL	548.00 MSL
	Outlet Protection	R-3	R-3
	Spillway Capacity Max / With 1' Freeboard	118.31 CFS / 8.05 CFS	132.27 CFS / 25.46 CFS
Dewatering Device	Type/Size	N/A	N/A
	Inlet Elevation	N/A	N/A
	Discharge Regulation (ie., self draining or valved)	N/A	N/A
	Discharge Capacity (cubic feet/second)	N/A	N/A
	Time to Dewater Full Pond	N/A	N/A
Emergency Spillway	Type	N/A	N/A
	Width	N/A	N/A
	Depth (with 2 feet of freeboard)	N/A	N/A
	Length	N/A	N/A
	Sideslopes	N/A	N/A
	Crest Elevation	N/A	N/A
	Slope	N/A	N/A
	Type of Lining/Protection	N/A	N/A
	Spillway Capacity (provide design calculations)	N/A	N/A
Storage Capacity	Length @ Bottom	67.20'	70.59'
	Width @ Bottom	16.60'	18.49'
	Length @ Crest of Emergency Spillway / Crest of Principal Spillway	N/A / 81.76'	N/A / 102.64'
	Width @ Crest of Emergency Spillway / Crest of Principal Spillway	N/A / 29.37'	N/A / 42.42'
	Volume @ Crest of Emergency Spillway / Crest of Principal Spillway	N/A / 7,600 CUFT	N/A / 7,895 CUFT

Permittee HANSON AGGREGATES PENNSYLVANIA LLC
Permit No. SMP NO. 7974SM1
Pond SEDIMENT TRAP 3
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 (specify stage e.g. layout, impoundment/embankment construction, spillway/piping installation)	Date of Inspection	Inspected By
FINAL AS-BUILT	06/18/2018	EARTHRES

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 of Registered Professional Engineer/Registered Professional Land Surveyor — Date 6/20/18

PE080620 — 09/30/2019
Registration Number and Expiration Date

Signature of Permittee or Responsible Official — Date 6/20/18

VICE PRESIDENT
Title

SUPPLEMENTAL AS-BUILT CALCULATIONS

EarthRes
ENGINEERING AND SCIENCE

Hanson Aggregates Pennsylvania LLC
Rock Hill Quarry –E&S Certification
SMP No. 7974SM1
June 2018

CLARIFYING POND

CALCULATIONS

EarthRes
ENGINEERING AND SCIENCE

HANSON AGGREGATES - ROCK HILL QUARRY

CLARIFYING POND

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
526	2412						
527	3503	2,941	1	2,941	0.068	2,941	0.068
528	4632	4,054	1	4,054	0.093	6,995	0.161
529	5799	5,205	1	5,205	0.119	12,200	0.280
530	6980	6,380	1	6,380	0.146	18,580	0.427
531	8200	7,582	1	7,582	0.174	26,162	0.601
532	9432	8,809	1	8,809	0.202	34,971	0.803
533	10703	10,061	1	10,061	0.231	45,032	1.034
534	11986	11,338	1	11,338	0.260	56,370	1.294
535	13318	12,646	1	12,646	0.290	69,016	1.584
536	14650	13,979	1	13,979	0.321	82,994	1.905

Design:

Volume at Weir Crest =	52,290 CF
Volume with 1' freeboard =	69,016 CF
Volume at Weir Top =	82,994 CF
Minimum Design Volume =	48,168 CF

Average area calculated as follows: [A+B+sqrt(A*B)]/3

By:	JTK
Date:	6/20/2018
Chk'd:	MDF
Date:	6/20/2018

HANSON AGGREGATES - ROCK HILL QUARRY

CLARIFYING POND

WEIR DISCHARGE CAPACITY

WEIR FLOW		
WATER SURFACE ELEV (FT)	HEAD H (FT)	FLOW (1) Q (CFS)
533.64	0.00	0.00
533.75	0.11	0.02
534.00	0.36	0.32
534.25	0.61	1.18
534.50	0.86	2.77
534.75	1.11	5.23
535.00	1.36	8.69
535.25	1.61	13.24
535.50	1.86	18.98
535.75	2.11	26.00
536.00	2.36	34.39

Notes:

(1) Weir Flow, $Q = 4.28*C*\tan(\theta/2)*(h+k)^{(5/2)}$

where:

C = discharge coefficient =	0.5779
k = head correction factor, ft. =	0.0029
θ = notch angle	90.0
H = depth of flow above the spillway crest, ft. =	Variable

* C = 0.607165052 - 0.000874466963*θ + 6.10393334*10^(-6)*θ^(2)
* k = 0.0144902648 - 0.00033955535*θ + 3.29819003*10^(-6)*θ^(2) - 1.06215442*10^(-8

By:	JTK
Date:	6/20/2018
Chk'd:	MDF
Date:	6/20/2018

CLARIFYING POND

DETENTION TIME

VOLUME OVERTURN				
POND INFLOW (GPM)	POND INFLOW (CFS)	POND DESIGN VOLUME SLUDGE FACTOR (CF)	POND DESIGN VOLUME NO FACTOR (CF)	POND DETENTION TIME (HRS)
500	1.11	69,172	52,009	12.97
1,000	2.23	69,172	52,009	6.48
2,000	4.46	69,172	52,009	3.24
3,000	6.68	69,172	52,009	2.16
4,488	10.00	69,172	52,009	1.44

Note: *Sludge Factor = 1.33 x Design Volume
**Design Inflow Rate = 1,000 gpm
***Minimum 6 hour detention time based on the design rate. The long term average flow rate is anticipated to be lower than this rate, thus providing greater detention time.

SEDIMENT TRAP 1

CALCULATIONS

Hanson Aggregates - Rock Hill Quarry

Sediment Trap 1

Design Notes

Required Storage Volume and Elevations		
Drainage Area, DA (acres)	Measured	4.97
Required Sediment Storage Volume (cf)	700 x DA	3,479
Required Settling Volume (cf)	1300 x DA	6,461
Required Total Volume (cf)	Sediment + Settling	9,940
Total Storage Volume Provided (cf)	Storage Volume Table	24,376
Elevation for Sediment Storage Volume (ft.)	Chosen	541.00
Total Volume Elevation (ft.)	Chosen	543.00
Top of Embankment Elevation		
Total Volume Elevation (ft.)	Primary Spillway Table	543.00
Freeboard (ft.)	Required	1.00
Top of Embankment Elevation (ft.)	Flow Elevation + Freeboard (min.)	545.00
Trap Dimensions		
Bottom Length (ft.)	Chosen	102.15
Bottom Width (ft.)	Chosen	57.41
Crest Length (ft.)	Chosen	118.35
Crest Width (ft.)	Chosen	69.77
Top Length (ft.)	Chosen	133.96
Top Width (ft.)	Chosen	77.31

Hanson Aggregates - Rock Hill Quarry

Sediment Trap 1

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
540	6,975					0	0
541	7,661	7,315	1.0	7,315	0.168	7,315	0.168
542	8,373	8,014	1.0	8,014	0.184	15,329	0.352
543	9,738	9,047	1.0	9,047	0.208	24,376	0.560
544	10,848	10,288	1.0	10,288	0.236	34,664	0.796
545	11,850	11,345	1.0	11,345	0.260	46,010	1.056

Design:

Sediment Storage Volume =	7315.17 CF
Sediment Storage Volume Elevation =	541.00 ft.
Settling Storage Volume =	17061.16 CF
Settling Storage Volume Elevation =	543.00 ft.

Requirements:

Sediment Storage Volume (700 CF/disturbed area acres) =	3,479 CF
Settling Storage Volume (1,300 CF/drainage area acres) =	6,461 CF
Drainage Area (acres) =	4.97 acres

Average area calculated as follows: [A+B+sqrt(A*B)]/3

By:	JTK
Date:	6/20/2019
Chk'd:	MDF
Date:	6/20/2019

Hanson Aggregates - Rock Hill Quarry

Sediment Trap 1

EMERGENCY SPILLWAY DISCHARGE CAPACITY

WEIR FLOW		
WATER SURFACE ELEV (FT)	HEAD H (FT)	FLOW (1) Q (CFS)
543.00	0.00	0.00
543.25	0.25	11.63
543.50	0.50	32.88
543.75	0.75	60.41
544.00	1.00	93.00
544.25	1.25	129.97
544.50	1.50	170.85
544.75	1.75	215.30
545.00	2.00	263.04

Notes:

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

where: C = weir coefficient = 3.00

L = bottom width of the spillway crest, ft. = 31.00

H = depth of flow above the spillway crest, ft.

By: JTK

Date: 6/20/2018

Chk'd: MDF

Date: 6/20/2018

SEDIMENT TRAP 2

CALCULATIONS

Hanson Aggregates - Rock Hill Quarry

Sediment Trap 2

Design Notes

Required Storage Volume and Elevations		
Drainage Area, DA (acres)	Measured	1.23
Required Sediment Storage Volume (cf)	700 x DA	861
Required Settling Volume (cf)	1300 x DA	1,599
Required Total Volume (cf)	Sediment + Settling	2,460
Total Storage Volume Provided (cf)	Storage Volume Table	2,910
Elevation for Sediment Storage Volume (ft.)	Chosen	527.00
Total Volume Elevation (ft.)	Chosen	528.00
Top of Embankment Elevation		
Total Volume Elevation (ft.)	Primary Spillway Table	528.00
Freeboard (ft.)	Required	2.00
Top of Embankment Elevation (ft.)	Flow Elevation + Freeboard (min.)	530.00
Trap Dimensions		
Bottom Length (ft.)	Chosen	42.28
Bottom Width (ft.)	Chosen	26.19
Crest Length (ft.)	Chosen	51.33
Crest Width (ft.)	Chosen	34.29
Top Length (ft.)	Chosen	59.43
Top Width (ft.)	Chosen	42.02

Hanson Aggregates - Rock Hill Quarry

Sediment Trap 2

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
526	1,175					0	0
527	1,451	1,310	1.0	1,310	0.030	1,310	0.030
528	1,753	1,600	1.0	1,600	0.037	2,910	0.067
529	2,065	1,907	1.0	1,907	0.044	4,817	0.111
530	2,385	2,223	1.0	2,223	0.051	7,040	0.162

Design:

Sediment Storage Volume =	1310 CF
Sediment Storage Volume Elevation =	527.00 ft.
Settling Storage Volume =	1600 CF
Settling Storage Volume Elevation =	528.00 ft.

Requirements:

Sediment Storage Volume (700 CF/disturbed area acres) =	861 CF
Settling Storage Volume (1,300 CF/drainage area acres) =	1,599 CF
Drainage Area (acres) =	1.23 acres

Average area calculated as follows: [A+B+sqrt(A*B)]/3

By:	JTK
Date:	6/20/2018
Chk'd:	MDF
Date:	6/20/2018

Hanson Aggregates - Rock Hill Quarry

Sediment Trap 2

EMERGENCY SPILLWAY DISCHARGE CAPACITY

WEIR FLOW		
WATER SURFACE ELEV (FT)	HEAD H (FT)	FLOW (1) Q (CFS)
528.00	0.00	0.00
528.25	0.25	3.71
528.50	0.50	10.50
528.75	0.75	19.29
529.00	1.00	29.70
529.25	1.25	41.51
529.50	1.50	54.56
529.75	1.75	68.76
530.00	2.00	84.00

Notes:

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

where: C = weir coefficient = 3.00

L = bottom width of the spillway crest, ft. = 9.90

H = depth of flow above the spillway crest, ft.

By: JTK

Date: 6/20/2018

Chk'd: MDF

Date: 6/20/2018

SEDIMENT TRAP 3

CALCULATIONS

Hanson Aggregates - Rock Hill Quarry

Sediment Trap 3

Design Notes

Required Storage Volume and Elevations		
Drainage Area, DA (acres)	Measured	3.72
Required Sediment Storage Volume (cf)	700 x DA	2,604
Required Settling Volume (cf)	1300 x DA	4,836
Required Total Volume (cf)	Sediment + Settling	7,440
Total Storage Volume Provided (cf)	Storage Volume Table	7,895
Elevation for Sediment Storage Volume (ft.)	Chosen	546.34
Total Volume Elevation (ft.)	Chosen	548.00
Top of Embankment Elevation		
Total Volume Elevation (ft.)	Primary Spillway Table	548.00
Freeboard (ft.)	Required	1.00
Top of Embankment Elevation (ft.)	Flow Elevation + Freeboard (min.)	549.50
Trap Dimensions		
Bottom Length (ft.)	Chosen	70.59
Bottom Width (ft.)	Chosen	18.49
Crest Length (ft.)	Chosen	102.64
Crest Width (ft.)	Chosen	42.42
Top Length (ft.)	Chosen	106.38
Top Width (ft.)	Chosen	47.45

Hanson Aggregates - Rock Hill Quarry

Sediment Trap 3

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
545	1,561					0	0
546	1,923	1,739	1.0	1,739	0.040	1,739	0.040
547	3,236	2,551	1.0	2,551	0.059	4,290	0.098
548	3,985	3,604	1.0	3,604	0.083	7,895	0.181
549	4,902	4,436	1.0	4,436	0.102	12,330	0.283

Design:

Sediment Storage Volume =	2604.00	CF
Sediment Storage Volume Elevation =	546.34	ft.
Settling Storage Volume =	5290.59	CF
Settling Storage Volume Elevation =	548.00	ft.

Requirements:

Sediment Storage Volume (700 CF/disturbed area acres) =	2,604	CF
Settling Storage Volume (1,300 CF/drainage area acres) =	4,836	CF
Drainage Area (acres) =	3.72	acres

Average area calculated as follows: [A+B+sqrt(A*B)]/3

By:	JTK
Date:	6/20/2018
Chk'd:	MDF
Date:	6/20/2018

Hanson Aggregates - Rock Hill Quarry

Sediment Trap 3

EMERGENCY SPILLWAY DISCHARGE CAPACITY

WEIR FLOW		
WATER SURFACE ELEV (FT)	HEAD H (FT)	FLOW (1) Q (CFS)
548.00	0.00	0.00
548.25	0.25	9.00
548.50	0.50	25.46
548.75	0.75	46.77
549.00	1.00	72.00
549.25	1.25	100.62
549.50	1.50	132.27

Notes:

(1) Weir Flow, Q = CLH^1.5

where: C = weir coefficient = 3.00

L = bottom width of the spillway crest, ft. = 24.00

H = depth of flow above the spillway crest, ft.

By: JTK

Date: 6/20/2018

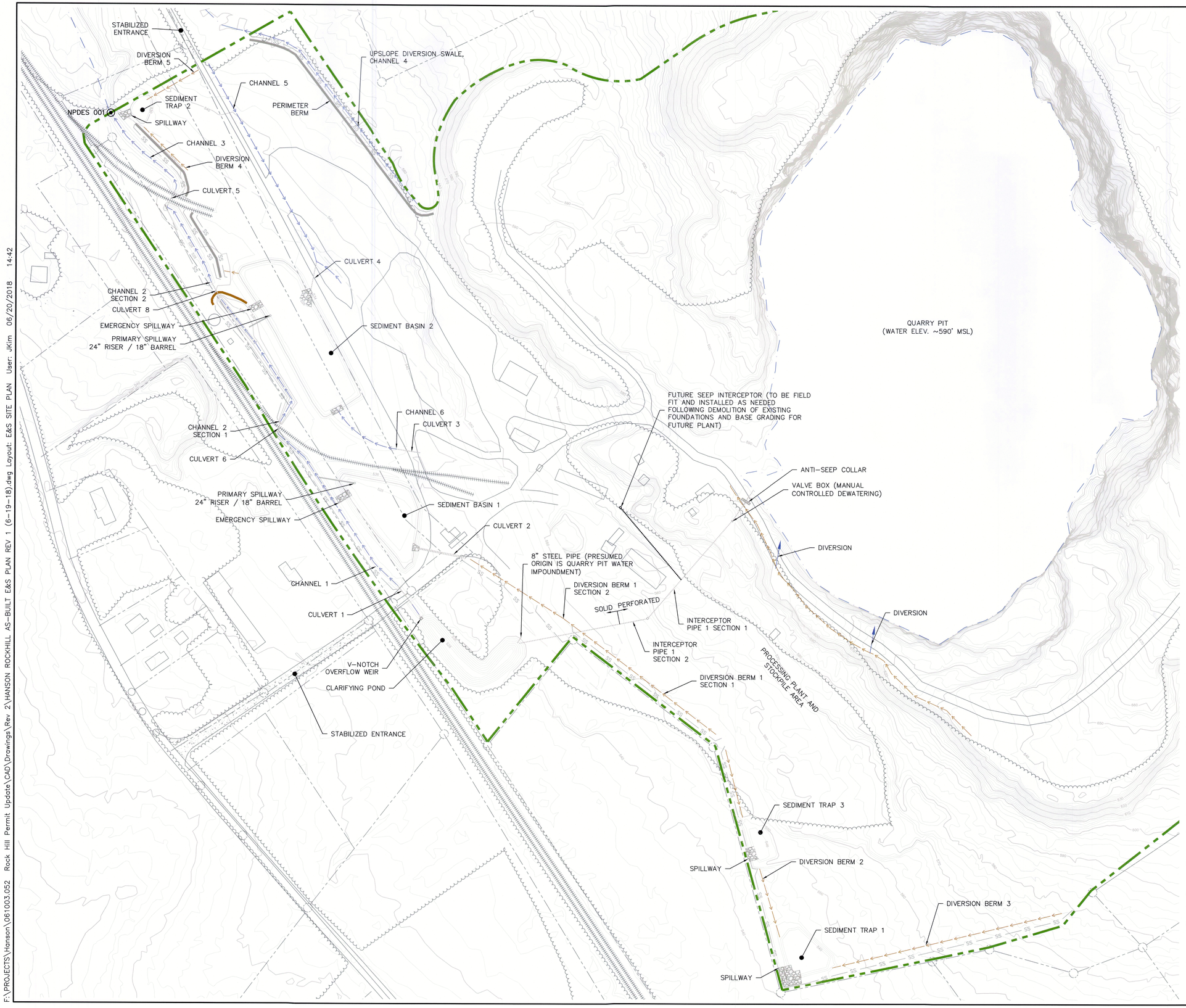
Chk'd: MDF

Date: 6/20/2018

Hanson Aggregates Pennsylvania LLC
Rock Hill Quarry –E&S Certification
SMP No. 7974SM1
June 2018

AS-BUILT SITE PLAN

EarthRes
ENGINEERING AND SCIENCE



LEGEND

- EXISTING GRADE CONTOUR
- EXISTING SMP BOUNDARY
- EXISTING SURFACE WATER
- LIMIT OF EARTHRES SURVEY (1/2018)
- PROPERTY BOUNDARY
- EXISTING RAILROAD
- EXISTING TREELINE
- EXISTING PERIMETER BERM (PRECAST CONCRETE BLOCKS)
- EXISTING FILTER BERM
- EXISTING CHANNEL
- EXISTING DIVERSION BERM
- EXISTING COMPOST FILTER SOCK
- NPDES 001 NPDES DISCHARGE POINT

NOTES:

1. EXISTING GRADE TOPOGRAPHY COMPILED BY PAMAP PROGRAM, PA DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES, BUREAU OF TOPOGRAPHIC AND GEOLOGIC SURVEY, DATED JUNE 2010.
2. TOPOGRAPHY AND SITE FEATURES IN WESTERN PERMIT AREA WERE SURVEYED BY EARTHRES GROUP, INC. PERSONNEL, JANUARY 2018.
3. BASEMAP FEATURES INCLUDING BUILDINGS, ROADS, UTILITIES, WATER FEATURES, AND TREELINES RETRACED FROM AERIAL PHOTOGRAPHY DATED 2015, PUBLISHED BY THE DELAWARE VALLEY REGIONAL PLANNING COMMISSION.
4. EXISTING PERMIT INFORMATION INCLUDING PERMIT BOUNDARY, MINING LIMIT, DEPTH OF MINING, AND PRE-ACT HIGHWALLS ARE REFERENCED TO THE PERMIT DRAWING "MINING PLAN, SHEET 3 OF 6" PREPARED BY SKELLY AND LOY, DATED MARCH 18, 1980.
5. HANSON PROPERTY BOUNDARY PROVIDED BY MAP TITLED "PLAT OF SURVEY OF LANDS OF GENERAL CRUSHED STONE", PREPARED BY ORANGEVILLE SURVEYING CONSULTANTS, INC., DATED MAY 7, 2001.
6. ADJACENT PARCEL BOUNDARIES ARE REFERENCED TO THE BUCKS COUNTY GIS RECORDS.
7. STREAM INFORMATION IS REFERENCED TO THE PA DEP eMAPPA ONLINE RECORDS.
8. AS-BUILT SURVEY CONDUCTED ON MAY 17, 2018 AND JUNE 18, 2018 BY EARTHRES GROUP, INC. PERSONNEL.

GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)
1 inch = 100 ft.

NO.	DATE	BY	REVISIONS
1	6/19/18	JTK	REVISED PER DEP COMMENTS

COMMONWEALTH OF PENNSYLVANIA — Professional Engineer — MICHAEL D. FLING — PROFESSIONAL ENGINEER — PE080620

MICHAEL D. FLING, P.E.
LICENSE NO. PE080620

PREPARED FOR:
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PREPARED BY:
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E&S SITE PLAN AS-BUILT

HANSON AGGREGATES PENNSYLVANIA LLC
ROCK HILL QUARRY
EAST ROCKHILL TOWNSHIP, BUCKS COUNTY
PENNSYLVANIA

DRAWN BY:	CHECKED BY:	PROJECT NO:	DRAWING NUMBER:	SHEET
JTK	MDF	061003.052	D-001	1 OF 1
DATE: 6/7/18				

F:\PROJECTS\Hanson\061003.052 Rock Hill Permit Update\CAD\Drawings\Rev 2\HANSON ROCKHILL AS-BUILT E&S PLAN REV 1 (6-19-18).dwg Layout: E&S SITE PLAN User: JKim 06/20/2018 14:42

ATTACHMENT 2
CLARIFYING POND SUPPLEMENTAL NARRATIVE

Hanson Aggregates Pennsylvania, LLC
Rock Hill Quarry Erosion and Sedimentation Control Plan
Clarifying Pond Supplemental Information
Date: 06/20/18

The following items were noted based on field review of the Site with PA DEP Personnel on June 19, 2018.

Outlet Adjustment for Increased Detention Volume

Given the amount of freeboard available (2.36 feet) above the outlet weir with the current Clarifying Pond configuration, it is possible to raise the weir elevation to provide additional storage volume in the pond to account for future increases in design/field flow. If in the future an increase is proposed/measured, the weir may be raised to allow for a minimum design volume providing a 6-hour detention time with a 1.33 sludge factor up to the minimum design freeboard of 1-foot.

Existing Steel Pipe Entering Clarifying Pond

An existing 6-inch steel pipe currently outlets into the Clarifying Pond adjacent to the location of the Seep Interceptor Pipe. Based on review of the pipe location and consistency of flow it appears as though the source for this pipe is the Quarry Water Impoundment. This assumption has been further confirmed as flow through the steel pipe has abated following the lowering of the Quarry Water Impoundment water level following installation of the Quarry Impoundment Dewatering System. This pipe will continue to be monitored and further investigated if necessary.

ATTACHMENT 3
E&S CONTROLS CONSTRUCTION CERTIFICATION

Hanson Aggregates Pennsylvania, LLC
Rock Hill Quarry Erosion and Sedimentation Control Plan
E&S Controls Construction Certification
Date: 06/20/18

Installation of the erosion and sedimentation controls depicted in the E&S Plan Approved by PADEP on June 8, 2018 has been completed in accordance with the Plan. Confirmation of the construction was completed through as-built survey and photo documentation completed on May 17, 2018, May 29, 2018, and June 18, 2018. A summary of controls and any noted deviations are included below:

Sediment Basins
Construction Certification:
Sediment Basins 1 and 2 have been constructed to function as designed.

Noted Deviations:
The basins were constructed larger than designed to provide additional sediment storage and settling time for collected waters. Additional dewatering holes were added to each basin outlet structure to maintain the required dewatering time between 2 -7 days.

Sediment Traps
Construction Certification:
Sediment Traps 1, 2 and 3 have been constructed to function as designed.

Noted Deviations:
Traps were constructed larger than designed to provide additional sediment storage and settling time. The Sediment Trap 2 outlet was constructed with an overflow outlet as opposed to a filter embankment. The trap maintains a permanent pool of water within the sediment storage zone and is functioning without issue.

Channels
Construction Certification:
Channels 1, 2, 3, 4, 5, and 6 have been constructed to function as designed.

Noted Deviations:
Field adjustments were made to the grades to match field conditions and maintain positive flow through the channels. The channel geometry and lining was constructed to exceed the required design capacities.

Diversion Berms
Construction Certification:
Diversion Berms 1, 2, 3, 4, and 5 have been constructed to function as designed.

Noted Deviations:
Diversion Berm 1 was shortened at its south end requiring the addition of Sediment Trap 3 into the E&S Plan.

Culverts
Construction Certification:
Culverts 1, 2, 3, 4, 5, 6, and 8 have been constructed to function as designed.

Noted Deviations:
The design location of Culvert 6 was replaced with an existing culvert uncovered under the rail spur crossing. The culvert uncovered during construction matched the design pipe size (18").
Culvert 7 was removed from the construction plan and replaced by extending Channel 5.

Clarifying Pond
Construction Certification:
The Clarifying Pond has been constructed to function as designed.

Noted Deviations:
The Clarifying Pond was constructed larger than designed to provide additional settling/detention time for collected waters.
The sideslopes of the Clarifying Pond were lined with riprap as opposed to grasses to promote stability.

Seep Interceptor Pipe
Construction Certification:
The Seep Interceptor Pipe System has been installed to function as designed.

Noted Deviations:
Perforated pipe was installed in a rock filled, geotextile lined trench for portions of the interceptor run to provide for additional collection of shallow groundwater flow.
Additional runs of interceptor pipe will be installed in the future plant area if groundwater seeps are encountered during construction activities. These runs shall be tied in with the existing interceptor trench and directed to the Clarifying Pond.

Quarry Impoundment Dewatering System
Construction Certification:
The Quarry Impoundment Dewatering System has been installed to function as designed.

Noted Deviations:
Field adjustments were made to the location of the dewatering pipe. The system was tied-in with the seep interceptor pipe for discharge at the Clarifying Pond as designed.