



Commonwealth of Pennsylvania
Department of Environmental Resources

Area Code (717)
783-8845

CERTIFIED MAIL

OCT 13 1976

Permit Number 7974SM1
East Rockhill Township
Bucks County

General Crushed Stone Company
P. O. Box 231
Easton, PA 18042

SUBJECT: MINE DRAINAGE PERMIT

Dear Sir(s):

The enclosed permit has been issued pursuant to action taken by the Department of Environmental Resources.

If you have any questions regarding any of the conditions of this permit, please contact

Bureau of Surface Mine Reclamation
Department of Environmental Resources
P. O. Box 2063
Harrisburg, Pennsylvania 17120

NOTE: In accordance with Chapter 99, Section 99.15, of the Rules and Regulations, this Permit is not valid until the enclosed "Acceptance Form-Special Conditions" is signed and returned to this Bureau.

Very truly yours,

A handwritten signature in cursive script that reads "D. R. Thompson".

D. R. Thompson, Chief
Division of Mine Drainage Control
and Reclamation
Bureau of Surface Mine Reclamation

DRT:de

cc: Fish Commission
Mail Clerk
File
Mine Conservation Inspector

Enclosure: Permit
Standard Conditions
Acceptance Form
Special Conditions



Commonwealth of Pennsylvania
 Department of Environmental Resources

MINE DRAINAGE PERMIT

No. 7974SM1

A. Permittee: (Name and Address) General Crushed Stone Company P. O. Box 231 Easton, PA 18042	B. Project Location Municipality <u>East Rockhill</u> County <u>Bucks</u>
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C. Type of Mine <u>Diabase Quarry</u>	D. Name of Mine <u>Rock Hill</u>
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E. This Permit approves the plans for construction of Industrial Wastes Treatment Facilities for the operation of a Surface Mine whose maximum surface area to be affected shall not exceed 95 acres with drainage to Unnamed Run to Tonickon Creek to Delaware River.

F. You are hereby authorized to construct, operate or discharge, as indicated above, provided that you comply with the following:

1. All representations regarding operation, construction, maintenance and closing procedures as well as all other matters set forth in your application and its supporting documents (Application No. 7974SM1 Dated February 1, 1974 and Amendments Dated _____

Such application, its supporting documents and amendments are hereby made a part of this permit.
 Title 25, Chapter 77, Subchapter D, Rules & Regulations, Department of Environmental Resources, for coal mines.
 Title 25, Chapter 77, Subchapter E, Rules & Regulations, Department of Environmental Resources, for non-coal mines.

2. Conditions numbered _____ of the _____ M.D. Standard

Conditions dated 3/31/67, which conditions are attached hereto and are made a part of this permit.

3. Special Condition(s) numbered 1, 2

 which are attached hereto and are made a part of this permit.

- G. The authority granted by this permit is subject to the following further qualifications:
1. If there is a conflict between the application or its supporting documents and amendments and the standard or special conditions, the standard or special conditions shall apply.
 2. Failure to comply with the rules and regulations of the Department of Environmental Resources or the terms or conditions of this permit shall void the authority given to the permittee by the issuance of the permit.
 3. This permit is issued pursuant to the clean streams law, the act of June 22, 1937, P. L. 1987, as amended. Issuance of this permit shall not relieve the permittee of any responsibility under any other law.

Permit Issued

Dated October 13, 1976

By *M. J. [Signature]*
 Department of Environmental Resources

MINE DRAINAGE PERMIT NO. 7974SM1

This Permit is subject to the following Special Conditions:

1. Reclamation shall be accomplished as set forth in the the revised reclamation plans numbered sheets 5 of 6 and 6 of 6, dated January 29, 1975. The information contained on these maps shall replace any conflicting data set forth in the reclamation narrative originally submitted with the application.
2. As set forth in the mine drainage and erosion and sedimentation control narrative, all surface water will be passed through a settling basin prior to being discharged.

IN ORDER FOR YOUR PERMIT TO BE VALID, YOU MUST SIGN AND RETURN THE ENCLOSED ACCEPTANCE FORM TO THE DEPARTMENT OF ENVIRONMENTAL RESOURCES, 7TH FLOOR, FULTON BUILDING, P. O. Box #2063, HARRISBURG, PENNSYLVANIA 17120.

ACCEPTANCE FORM - SPECIAL CONDITIONS

I (WE) UNDERSTAND AND HEREBY ACCEPT AND AGREE TO ABIDE BY THE SPECIAL ADDED CONDITIONS INCORPORATED INTO AND MADE A PART OF THE PERMIT IDENTIFIED AS FOLLOWS:

APPLICATION - PERMIT No. 7974SM1
TOWNSHIP East Rockhill
COUNTY Bucks

General Crushed Stone Company

(NAME OF PERMITTEE)

BY: Paul Martin Vice President
(SIGNATURE AND TITLE)

DATE: November 3, 1976

ACTION MUST BE
 PROVIDED BY A
 CHECK FOR \$25.00
 DRAWN TO THE ORDER
 OF "COMMONWEALTH
 OF PENNSYLVANIA"

ER-MR-10

COMMONWEALTH OF PENNSYLVANIA
 DEPARTMENT OF ENVIRONMENTAL RESOURCES
 BUREAU OF SURFACE MINE RECLAMATION
 HARRISBURG, PENNSYLVANIA

733-5
 FOR AGENCY USE ONLY
 Application No:
7974871
 Operator No. (New)
207,701

Application for Permit
 Approving Discharge of Industrial
 Wastes and Mine Drainage Pursuant
 To "The Clean Streams Law"

AND

Application for Permit
 Approving Mining and Reclamation
 Plan Pursuant to "The Surface Mining
 Conservation and Reclamation Act"

FOR SURFACE MINING

(A) Applicant: The General Crushed Stone Co.		(B) Mailing Address: P.O. Box 231, Easton, Pa. 18042			
(C) Type Ownership: <input type="checkbox"/> INDIVIDUAL <input type="checkbox"/> PARTNERSHIP <input checked="" type="checkbox"/> CORPORATION <input type="checkbox"/> OTHER		(D) Status: <input checked="" type="checkbox"/> ORIGINAL APPLICATION <input type="checkbox"/> AMENDMENT		(E) Location: Distance in inches from Lower Right Hand Corner USGS QUAD (<input type="checkbox"/> 15' or <input checked="" type="checkbox"/> 7 1/2') North: 5 5/16 West: 6 7/8	
(F) Existing Application Number: I.P. 198		(G) County: Bucks		(H) Municipality: E. Rockhill Twp.	
(I) Mine Name: Rock Hill		(J) Type: <input type="checkbox"/> Pit <input checked="" type="checkbox"/> Quarry <input type="checkbox"/> Strip <input type="checkbox"/> Other		(K) License No.: 733	
(M) Date Mine Opened: Approximately 1900		(L) License Fee: <input type="checkbox"/> \$50 <input checked="" type="checkbox"/> \$300 <input type="checkbox"/> \$500			
(N) Raw Material(s) Mined: Diabase		(O) Yield Tons/Day: 1600		(P) Drainage: Unnamed Tributary of Tohickon Creek	
				(Q) Tributary To: Tohickon Creek	
		(R) Geologic Data: GROUP OR FORMATION <u>None</u> MEMBER <u>None</u>		(S) Area Mined Prior to 1-1-72 (Acres) 40	
(T) Bonding Data:		(U) ACREAGE TO BE AFFECTED: 95	(V) NAME OF LANDOWNER: The General Crushed Stone Company	(W) TOWNSHIP: E. Rockhill	(X) COUNTY: Bucks
INITIAL OR PREVIOUS	THIS AMENDMENT				Department Use Only AMOUNT OF BOND
95					
(Y) Type of Bond: <input checked="" type="checkbox"/> Surety <input type="checkbox"/> Collateral <input type="checkbox"/> Other, Specify			(Z) Check: <input checked="" type="checkbox"/> Supplemental "C" Included <input type="checkbox"/> Not filing "C" Lease Agreement Prior to 1-1-72, Copy Attached <input type="checkbox"/> Supplemental "C" Filed Under Original Permit		

THE FOLLOWING SUPPORTING DOCUMENTS ARE SUBMITTED IN TRIPPLICATE AS PART OF THIS APPLICATION.

(1) Maps: USGS 1 of 6 (Sheets of Folios) Property 2 of 6	(2) Plans: Mining 3 of 6, Mine Drainage 4 of 6, Reclamation 5 of 6	(3) Reports: Geologic Property Map 2 of 6	(4) Aerial Photos:	(5) Other: Cross-Sections 6 of 6
(6) Documents Prepared By: Skelly and Loy, 2601 N. Front St., Harrisburg, Pa 17110			(7) Telephone: 717-232-0593	
(8) Name and Address of Responsible Person to be Contacted: F.C. Moore, Vice Pres., P.O. Box 231, Easton, Pa. 18042			(9) Telephone: 215-253-4271	

AFFIDAVIT:
 COMMONWEALTH OF PENNSYLVANIA:
 COUNTY OF Northampton :
 SWORN AND SUBSCRIBED TO BEFORE ME THIS
1st DAY OF February 19 74
Marion S. Maley
 NOTARY PUBLIC
 MY COMMISSION EXPIRES Oct 7, 1976

(10) Print or Type Name to be Signed: **F. C. Moore**
 (11) Date:
 I, F. C. Moore BEING DULY SWORN,
 ACCORDING TO LAW, DEPOSE AND SAY THAT I (AM THE APPLICANT) (AM AN
 OFFICER OR OFFICIAL OF THE APPLICANT) (HAVE THE AUTHORITY TO MAKE
 THIS APPLICATION) AND THAT THE DOCUMENTS AND STATEMENTS SUBMITTED
 AS PART OF THIS APPLICATION ARE TRUE AND CORRECT TO THE BEST OF MY
 KNOWLEDGE AND BELIEF.
 SIGNATURE F.C. Moore, V.P.

EXHIBIT II
THE GENERAL CRUSHED STONE COMPANY
Directors and Officers

DIRECTORS

W. Julian Parton	Magnolia Drive, Easton, Pa. 18042
Charles R. Pullin	117 Warwick Drive, Pittsburgh, Pa. 15228
A. William Capone	1703 Hastings Mill Rd., Pittsburgh, Pa. 15241
Thomas C. Cochran, Jr.	40 Standish Blvd., Pittsburgh, Pa. 15228
Jay E. Hummer	3600 Mountain View Ave., Easton, Pa. 18042
William B. Jackson	1567 Tiffany Dr., Pittsburgh, Pa. 15228
Frederick C. Moore	R.D. #4, Bethlehem, Penna. 18015

OFFICERS

W. Julian Parton, Pres., Ch. of Bd.	Magnolia Drive, Easton, Penna. 18042
Charles R. Pullin, V.P., Vice Ch. of Bd.	
A. William Capone, V.P.	117 Warwick Dr., Pittsburgh, Pa. 15241
Thomas C. Cochran, Jr. V.P., Sec.	1703 Hastings Mill Rd., Pittsburgh, Pa. 15241
Thomas C. Foote, V.P., Asst. Sec.	40 Standish Blvd., Pittsburgh, Pa. 15228
John C. Hayes, V.P.	3782 Sycamore Dr., Easton, Pa. 18042
Jay E. Hummer, V.P., Treas.	3512 Southwood Dr., Easton, Pa. 18042
William B. Jackson, V.P.	3600 Mountain View Ave., Easton, Pa. 18042
J. Paul Martin, V.P.	1567 Tiffany Dr., Pittsburg, Pa. 15241
Frederick C. Moore, V.P.	Woodlawn Ave., Easton, Pa. 18042
Albert J. Eisenbeis, Jr., Asst. Treas.	R.D. #4, Bethlehem, Pa. 18015
Lewis A. Hazlewood, Asst. Treas.	477 Parkview Dr., Pittsburgh, Pa. 15243
Edward W. Purdy, Jr., Asst. Treas.	34 Ladera Dr., Bethel Park, Pa. 15102
Thomas M. St. Clair, Asst. Treas.	Apple Hill Dr., R.D. #1, Easton, Pa. 18042
K.L. Shields, Asst. Treas.	102 Amherst Pl., Glenshaw, Pa. 15116
Robert P. Vetter, Asst. Treas.	461 Greenhurst Dr., Pittsburgh, Pa. 15243
Joseph G. Wilking, Asst. Treas.	553 Audubon Avenue, Pittsburgh, Pa. 15228
Robert H. Young, Asst. Treas.	1034 Berkshire Ave., Pittsburgh, Pa. 15226
John F. Ramsen, Asst. Sec.	2046 Elmbrook Lane, Pittsburgh, Pa. 15243
	1295 Heather Hgts. Dr., Allison Pk, Pa. 15101

EXHIBIT III

ADJACENT OWNERS

Reading Company Railroad
Neil Degrote
Walter Lubaczewski
Perkasie Boro Authority
Grace Building Company
William F. Simon, Jr.
Guther Etzler
Louis Groves
William Seachrist
Louis Ciarto
Walter Wood
Alvin Schuch
Robert Miller
Clifford Gammin
Colin Swithenback
Leroy Mumberger
Harvey Ronner
Mary Roder
Ross Blum
George Sheets
Jacob Mood
Wilmer L. Lovett
Maude S. Erb
Charles Fehl
George Hoppe
Samuel Isenberg
William Goldberg
Charles Foulke
Commonwealth of Pennsylvania
Charles Hammerschidt
Rock Hill Materials

MINERAL RIGHTS

Reading Company Railroad
Neil Degrote
Walter Lubaczewski
Perkasie Boro Authority
Grace Building Company
William F. Simon, Jr.
Guther Etzler
Louis Groves
William Seachrist
Louis Ciarto
Walter Wood
Alvin Schuch
Robert Miller
Clifford Gammin
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George Hoppe
Samuel Isenberg
William Goldberg
Charles Foulke
Commonwealth of Pennsylvania
Charles Hammerschidt
Rock Hill Materials

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COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
DIVISION OF MINE DRAINAGE CONTROL AND RECLAMATION

SUPPLEMENTAL "A-1"

REPORT OF TEST BORINGS

NOTE:

- (a) Show the location by number of all test holes on the property map attached to the application.
- (b) For each test hole, show in feet and decimals thereof the thickness of each strata overlying the coal or mineral vein or veins (identify by technical name). If the vein is split, also describe the intervening strata or partings.
- (c) Give an analysis of the coal or mineral vein or veins as obtained from a channel sample or from the test hole cores.
- (d) If additional space is needed, attach additional sheets.

TEST HOLE ()	TEST HOLE ()	TEST HOLE ()
Strata Thickness	Strata Thickness	Strata Thickness

SEE ATTACHED GEOLOGIC REPORT AND MINERAL ANALYSIS.

Total Overburden Overburden ranges from _____
2 feet - 3 feet with exposed
Total Coal or Mineral Thickness boulders present at the surface. _____

* ANALYSIS OF ASSOCIATED COAL REFUSE (BONE, RIDER, ROOSTER, ETC.)

Fe _____
S _____
Al _____

* This portion to be completed when specifically requested by the Division of mine Drainage Control.

Date 2/1/74

J.C. Moore, V.P.
(Signature of Applicant)

7974SM1

MINERAL ANALYSIS

Physical

(SSD) Specific Gravity	2.78
(APP) Specific Gravity	2.80
Absorbtion	0.3
Sodium Sulphate	1.0
Deval Loss	3.5

Chemical

SO ₂	51.77%
Al ₂ O ₃	15.52%
Fe ₂ O ₃	10.09%
CaO	11.65%
MgO	6.81%
Na ₂ O	2.21%
K ₂ O	0.38%
Ig. Loss	1.38%

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COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
DIVISION OF MINE DRAINAGE CONTROL AND RECLAMATION

SUPPLEMENTAL "B-1"

WATER

- (a) How will water encountered in the pit or quarry area be handled?

Pit sumps will be used when pumping water from the pit.

- (b) If pumping is required, will water be passed through collection basins for settling and/or neutralization prior to discharging.

Yes If not, describe in detail, why? Water is pumped from the pit and used as make-up water for the processing system, or discharged into the wet weather ditch. If not used, the water will pass through Settling Pond #6 before discharge.

- (c) The volume of the quarry or pit discharge is _____ gal. per day.

Zero to 129,600 gallons per day.

- (d) If the pit discharge requires treatment, describe how this will be accomplished. (For chemical treatment give chemical name and/or formula). The source of water from the pit is springs, so the water is usually clean and clear. However, when blasting or after a rain, the water becomes cloudy. The water is pumped to Pond #6, where the suspended solids, if any, are settled. This insures a clear discharge, at all times. No toxic substances are present in the quarry water. Quarry water is also used as make-up water in which case it is pumped to Pond #5.

- (e) How will surface water be handled in order to prevent its entrance into the pit or quarry area? Natural contour of the land directs surface runoff away from the pit area.

- (f) If siltation from the spoil or stockpile areas becomes a problem, how will this be corrected?

All surface runoff from the operation is collected and passed through a settling basin before discharge. The stone is washed before it is stockpiled, therefore, very little silt, if any, is washed from the stockpiles. (See Mine Drainage Plan and Narrative)

COMMONWEALTH OF PENNSYLVANIA
 DEPARTMENT OF ENVIRONMENTAL RESOURCES
 DIVISION OF MINE DRAINAGE CONTROL AND RECLAMATION

EXHIBIT SHEET

Exhibit I List all names under which the applicant has previously operated Surface Mines in Pennsylvania.

Bradford Hills Quarries, Inc.
 The General Crushed Stone Company

Exhibit II List name, title and address of all partners in the case of a partnership or all officers in the case of a corporation.

See attached Exhibit II

Exhibit III List the owners of both the affected and adjacent properties and mineral rights as indicated below:

See attached Exhibit III

Affected:

<u>Owner</u>	<u>Mineral Rights</u>
The General Crushed Stone Co.	The General Crushed Stone Co.

Adjacent:

See Attached Exhibit III

- (g) If your operation is upstream from a public water supply or if the stream is subject to recreational use, what other steps will be taken to protect these uses?

The extensive settling pond system provides excellent protection against any possible accidental discharge of sediments.

- (h) What is the depth to the ground water table in this area? Elevation
510 FT.
- (i) If private water supplies are located within 1000' of the proposed limit of mining, state the direction of ground water movement in the affected area.

Ground water flows in a southwest direction.

- (j) Discharge characteristics (in Mg/L)

Alkalinity	Acidity	Iron	Total Solids	Suspended Solids	Settleable Solids
------------	---------	------	--------------	------------------	-------------------

7.0

200

No quarry water is discharged under normal conditions, and no process water is ever discharged.

No sample could be taken because there was no discharge.

If additional space is needed, attach additional sheets.

MINE DRAINAGE AND
EROSION AND SEDIMENTATION CONTROL NARRATIVE
(SEE MINE DRAINAGE PLAN)

The Rock Hill plant produces both blacktop and crushed stone; each of which uses water in the processing system. Quarry dewatering is also necessary, which involves another source of industrial water.

The entire material process water system is closed, and is composed of five (5) settling ponds, referenced by number in order of flow. Waste water from the blacktop plant scrubber and the crusher - washer system is collected in a sump and pumped to Pond#1. The waste water then flows by gravity through Ponds#2, #3, #4, and #5. At the end of Pond#5, the fresh water pond, the water is pumped back to the scrubber and washer for recirculation in the process system. The sump for the scrubber and washer is equipped with a drain to Pond#3, to insure treatment of wastes in case of pump failure. This drain line from the sump is used only under emergency conditions. Pond #1 discharge may be directed to Pond #3, by-passing Pond #2.

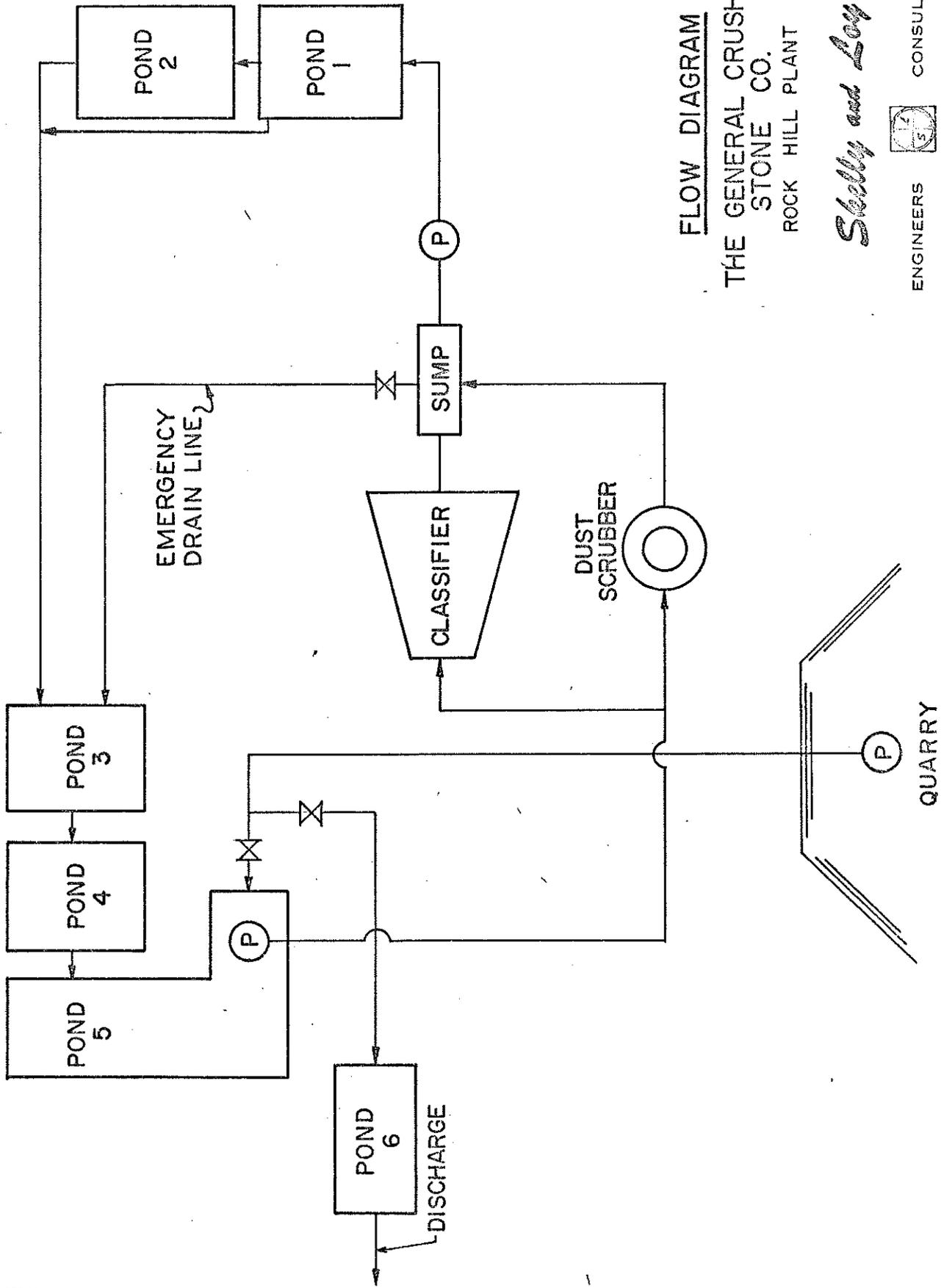
Make up water for the plant process water system is taken primarily from the pit discharge. The pit discharge line is equipped with a valve which permits quarry water to be directed to Pond#5 or to the wet weather drainage ditch. When pit water is not utilized in the process system, it flows in the ditch to Pond#6 to insure settlement of any solids before final discharge. In times of dry weather, it may be necessary to use more make-up water than is available through the quarry discharge. In this

case, a temporary pumping system is used to pump water from Pond #6 to Pond #5. Under normal conditions, the entire quarry water discharge is used for make-up water.

No surface water escapes the operation without first passing through a settling basin. All surface runoff from the southern stockpile area and impure mineral storage area is collected by diversion dikes and directed from this area into the wet weather drainage ditch. This ditch also collects water from the plant area, and directs the runoff to Pond #6 for settlement of suspended solids. Runoff from the northern stockpile is directed by a drainage ditch into a sedimentation control pond, adjacent to Pond #6, and is then discharged to Pond #6.

All water encountered by the quarry and stone processing operations at Rock Hill, including runoff, is treated for the removal of sediments. No process water is ever discharged from this site. Quarry water is the only water ever discharged, but this water is usually used entirely for make-up water.

A flow diagram (following sheet) is included as part of the Permit Application to further clarify the Water Treatment System for this quarry.



FLOW DIAGRAM

THE GENERAL CRUSHED
STONE CO.
ROCK HILL PLANT

Stelly and Loy



ENGINEERS CONSULTANTS

HARRISBURG PENNSYLVANIA

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COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
DIVISION OF MINE DRAINAGE CONTROL AND RECLAMATION

SUPPLEMENTAL "C-1"

REFUSE and/or WASTE DISPOSAL

(a) Is this operation presently under an industrial waste permit? Yes

If yes, Permit No. 0971205

(b) Type of Collection Basins used:

- | | | | |
|--------------------------|----------|-------------------------------------|---------|
| <input type="checkbox"/> | Concrete | <input type="checkbox"/> | Steel |
| <input type="checkbox"/> | Wood | <input checked="" type="checkbox"/> | Earthen |

(c) Earthen Basins only:

Explain how the bottom and sides will be made impervious and the slopes stabilized to prevent erosion. Ponds 1 and 2 are lined with 6" - 8" of clay, 6" - 8" of "Poz-O-Pac" (a lime-pozzolan substance) and a bentonite coating of 100 #/sq. ft. All other ponds, already constructed, show no signs of seepage and are impervious. Embankments are seeded to curb erosion.

(d) Will surface water be diverted around the basins? Yes

(e) Will sludge be removed from the settling basins? Yes

If yes

1. Describe the method and frequency of sludge removal. Sludge will be removed by quarry equipment whenever necessary, and transported to the sludge drying pond.
 2. How will sludge be transported to the disposal site. (Locate site on property map)
Sludge is transported to the disposal site by quarry equipment.
 3. How will the disposal site be designed/constructed so as to be impervious and retain all sludge material. Wet sludge is deposited in a water tight pond and allowed to dry. After it is dry, the sludge is transported to the sludge disposal area, and is sold for fill.
- (f) If sludge is not to be removed, describe method to be used to cover settling basins after reaching their functional capacity. N/A

(g) Describe type(s) of waste material produced during mineral processing/preparation.

Rock dust and fine rock particles from dust collection and washing systems are collected as sludge in a system of 5 earthen basins. Sediments from quarry water discharge are collected in Settling Pond #6.

REFUSE and/or WASTE DISPOSAL (con't)

(h) What method will be used to dispose of waste materials. The waste is collected as sludge, then stockpiled to be sold as fill.

(i) Will all waste water from mineral processing/preparation be passed through basins before being discharged or recirculated? Yes, See Attached Plans

If not, describe in detail, Why?

N/A

(j) Data to be submitted for settling basin capacity

- (1) Maximum length of highwall or open cut N/A
- (2) Maximum height of highwall N/A
- (3) Maximum width of cut N/A
- (4) Maximum area between the highwall and surface water diversion ditch N/A
- (5) Maximum area of that portion of the stripped area that will drain to strip cut N/A

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
DIVISION OF MINE DRAINAGE CONTROL AND RECLAMATION

SUPPLEMENTAL "D-1"

STREAM

- (a) Will this operation involve the relocation of any watercourse or stream? No
- (b) What is the area of the watershed above the relocation of the stream? N/A
- (c) Have you obtained a permit from the Water and Power Resources Board to do this? N/A
- (d) Will any mining and/or the placing of spoil be within 100' of the stream? No
- (e) Have any provisions been made to prevent the possible break thru of any stream into the operation? N/A No streams of significant size occur near the operation. The entire operation is situated well above any flooding zones.
If so, what are they?

(f) If additional space is needed, attach additional sheets.

7974SM1

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
DIVISION OF MINE DRAINAGE CONTROL AND RECLAMATION

SUPPLEMENTAL "E-1"

DEVELOPMENT OF MINE

- (a) Describe the development of the mining operation. The stone is drilled, blasted, crushed in primary, secondary and tertiary crushers to obtain size reduction and finally washed by water sprays and separated according to size on vibrating sizing screens. The quarry will be expanded to the limits shown on the Mining Plan.
- (b) Describe method of removing, handling and storing overburden. (Indicate location of overburden storage areas on plan map). Overburden is removed by dozers and loaders and used to construct berms for settling ponds, and for haul roads and embankments.
- (c) What will be done with non-usable mineral (Impure, oversize, etc.) encountered during mining? (Locate any storage areas on plan map). Impure and oversized mineral is stored on quarry property. The impure mineral will be used as fill. Oversized will be broken and processed. (See Mining Plan)
- (d) Will any mineral product be stockpiled? Yes
(Show Stockpile locations on plan map).

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
DIVISION OF MINE DRAINAGE CONTROL AND RECLAMATION

SUPPLEMENTAL "F-1"

MINE RECLAMATION PROPOSAL

- (a) State the highest and best use of the affected land prior to commencement of surface mining.

Undeveloped land with scrub timber.

- (b) State the proposed use following reclamation.

(See Reclamation Narrative)

- (c) Describe your plan for restoration of the operation. Include a detailed timetable and estimated cost of the major reclamation steps.

(See Reclamation Narrative)

- (d) Describe plan for revegetating the land affected. If this plan does not provide for planting on all or part of the area, describe in detail alternate procedures to prevent soil erosion and/or siltation.

(See Reclamation Narrative)

- (e) Describe method of conserving and handling topsoil and/or subsoil.

Topsoil and subsoil are stripped off and hauled by truck to the Overburden Storage Area shown on the Mining Plan.

THE GENERAL CRUSHED STONE COMPANY
ROCK HILL QUARRY
RECLAMATION NARRATIVE

General

The General Crushed Stone Company quarry in East Rockhill Township, Bucks County, extracts diabase for use as crushed stone and aggregate.

The quarry rock is drilled and blasted, trucked to the primary crusher, processed, and stockpiled. Oversized and impure mineral is stored in the areas shown on the Mining Plan. A multiple bench mining system will be used, consisting of benches 40' to 60' in height. This quarry has been operational since before 1900, and the termination date of quarry activities is not yet determined.

Reclamation

Due to the longevity of stone reserves at this site, a final end use can not justifiably be determined. Therefore, reclamation intentions will involve rendering the site safe to the public, and returning the land to its natural use before mining.

In order to promote maximum productivity of this site, and to establish stable slopes for the quarry walls, the following procedures will be taken, as recommended by Dunn Geoscience Corporation in the accompanying

Geologic Report:

1) Quarry faces on all lifts in the northwest portion of the quarry should be oriented parallel to the major joint and fracture system which trends north 50 degrees east and dips 80 degrees to the southeast.

2) Quarry faces on all lifts in the northeast and southwest portions of the quarry should be oriented parallel to the strike of a minor joint system which trends north 45 degrees west, north of the major dike, and north 30 degrees west, south of the major dike (See Reclamation Plan). The faces should be cut to a slope of at least 20 degrees from the vertical.

3) Quarry faces on all lifts in the southeast portion of the quarry shall be oriented north 60 degrees east (a direction which is rotated 30 degrees from the strike of the major joint system referred to in point 1) and cut to an angle of 20 degrees from the vertical.

4) Around the entire perimeter of the quarry in the highest operating lift, a 20 feet wide by 10 feet high safety bench will be cut in the top of the rock face. The bench face will be sloped to a minimum 20° from the vertical.

Reclamation for the remainder of the affected area will include the following steps:

- 1) All operational buildings and facilities including roads, power-lines, conveyors, etc., will be demolished and removed.
- 2) Stockpiles will be depleted and removed.

- 3) Settling ponds will be dewatered, dried and filled in with overburden.
- 4) The entire affected area outside the pit will be graded to smooth continuous contours with no abrupt changes in slope. Overburden will be spread to a minimum 1 foot thickness in all areas where none exists at the time of reclamation.
- 5) In order to prohibit access to the quarry edge, a berm planted with multiflora rose will be constructed around the entire perimeter of the pit, at a minimum distance of 20 feet from the safety bench.
- 6) All areas that are not vegetated at the time of reclamation will be seeded according to the following revegetation plan in order to establish permanent ground cover and erosion prevention:

Rye grass	20 lbs/acre
Orchard grass	9 lbs/acre
Birdsfoot Trefoil	8 lbs/acre
Black Locust	3 lbs/acre
Hay or Straw Mulch	1½-2 tons/acre

Soil tests will be taken at the time of reclamation to determine the type and rate of fertilizer to be applied.

Plan of Work

Orientation and shaping of the quarry faces and safety bench will take place as the final step in the mining operation. The multiflora rose berm will be constructed whenever the top bench reaches the final

limit of mining. This will produce a thick growth on the berm by the time of reclamation.

Upon completion of quarry activities, all plant buildings and facilities will be removed. The settling ponds will also be dewatered at this time. Final grading and revegetation will occur as the last steps.

Estimated Reclamation Costs

Berm - 6250' @\$2.75/L.F.	\$17,200
Earthwork - 75,000 C.Y. @ \$.50/C.Y.	\$37,500
Pond Dewatering	\$ 4,000
Demolition of Plant Facilities	\$12,000
Revegetation 30A @ \$400/acre	<u>\$12,000</u>
TOTAL	- \$82,700

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
DIVISION OF MINE DRAINAGE CONTROL AND RECLAMATION

SUPPLEMENTAL "G-1"

PUBLIC and PRIVATE WATER SUPPLY INFORMATION

(a) List all public water supplies within ten (10) miles of the closest discharge point of the proposed mining operation.

1. Distance from operation to water supply 2 miles.

2. Name and address of Water Supply(s)

Perkasie Borough Authority
South 7th Street
Perkasie, Penna.

3. Principal person(s) to be contacted and address(s).

Karl Schoeller, Chairman of Board
Perkasie Borough Authority
South 7th Street
Perkasie, Pa.

L.W. Davis, P.E. Manager
Perkasie Borough Authority
South 7th Street
Perkasie, Pa. 215-257-3654

4. Type of Water Supply

- (a) Reservoir - fed by wells
- (b) Impoundment
- (c) Wells
- (d) Intake

5. Location of Water Supply

a) Reservoir - Bridge Ave and Ridge Road, Perkasie, Pa.
c) Wells - Bridge Ave. and Ridge Road, Perkasie, Pa.

6. Stream Perkiomen Creek

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
DIVISION OF MINE DRAINAGE CONTROL AND RECLAMATION

SUPPLEMENTAL "G-1"

PUBLIC and PRIVATE WATER SUPPLY INFORMATION

(a) List all public water supplies within ten (10) miles of the closest discharge point of the proposed mining operation.

1. Distance from operation to water supply 3 1/2 miles.

2. Name and address of Water Supply(s)

Quakertown Water Department
330 W. Broad St.
Quakertown, Penna.

3. Principal person(s) to be contacted and address(s).

Mr. Nicholas Luca, Borough Manager
Borough Bldg.
Quakertown, Pa. 215-536-5001

4. Type of Water Supply

- (a) Reservoir
- (b) Impoundment
- (c) Wells
- (d) Intake

5. Location of Water Supply

a) Reservoir - Reservoir Road in Richland Twp.

6. Stream Tohickon Creek

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
DIVISION OF MINE DRAINAGE CONTROL AND RECLAMATION

SUPPLEMENTAL "G-1"

PUBLIC and PRIVATE WATER SUPPLY INFORMATION

(a) List all public water supplies within ten (10) miles of the closest discharge point of the proposed mining operation.

1. Distance from operation to water supply 3 1/4 miles.

2. Name and address of Water Supply(s)

Sellersville Water Company
140 E. Church Street
Sellersville, Penna. 18960

3. Principal person(s) to be contacted and address(s).

Mr. Richard Coll, Manager
Sellersville Water Company
140 E. Church Street
Sellersville, Pennsylvania 18960 215-257-7333

4. Type of Water Supply

- (a) Reservoir and tank
- (b) Impoundment
- (c) Wells
- (d) Intake

5. Location of Water Supply

- a) Ridge Ave (approximately 2 miles apart) Sellersville
- b) Ridge Road and Catch Basin Rd., Sellersville
- c) 1. Rear of Maple Ave., near the playground, Sellersville
2. 9th Street, Sellersville
- d) Forest and Persimmon Ave., Sellersville

6. Stream _____

(b) List all Individual Sources of Water Supply on and adjacent to area of mining.

1. Name and address of each owner or user.
2. Type of Water Supply
 - (a) Well
 - (b) Spring
 - (c) Stream
 - (d) Public
3. Key the names of individually owned or used water sources, with their locations on the property maps submitted with the Mine Drainage Application.

KEY	NAME	ADDRESS	TYPE
1	John A Dine	2221 E. Rockhill Rd., Quakertown, Pa.	(a) well
2	Foulke Bros.	2215 N. Rockhill Rd., Quakertown, Pa.	(a) well
3	Joseph Lancenese	2211 N. Rockhill Rd., Quakertown, Pa.	(a) well
4	J.L. Raymond	2203 E. Rockhill Rd., Quakertown, Pa.	(a) well
5	Randy Wendtland	2206 N. Rockhill Rd., Quakertown, Pa.	(a) well
6	Frank A. Holt	2204 N. Rockhill Rd., Quakertown, Pa.	(a) well
7	Pasquale Galluppi	2200 N. Rockhill Rd., Quakertown, Pa.	(a) well
8	Mrs. Chester Gross	2107 N. Rockhill Rd., Quakertown, Pa.,	(a) well
9	Norman Renner	2105 N. Rockhill Rd., Quakertown, Pa.	(a) well
10	Carlos Mandez	2039 N. Rockhill Road, Quakertown, Pa.	(a) well
11	James Ragan	2034 N. Rockhill Road, Quakertown, Pa.	(a) well
12	Neil DeGrote	2033 N. Rockhill Road, Quakertown, Pa.	(a) well
13	Charles Edwards	1934 Rockhill Road, Quakertown, Pa.	(a) well

(b) List all Individual Sources of Water Supply on and adjacent to area of mining.

1. Name and address of each owner or user.
2. Type of Water Supply
 - (a) Well
 - (b) Spring
 - (c) Stream
 - (d) Public
3. Key the names of individually owned or used water sources, with their locations on the property maps submitted with the Mine Drainage Application.

KEY	NAME	ADDRESS	TYPE
14	Howard Bryan	1932 N. Rockhill Road, Quakertown, Pa.	(a) well
15	Carl Sidle	1914 N. Rockhill Road, Quakertown, Pa.	(a) well
16	William Lubazeruski	1829 N. Rockhill Road, Quakertown, Pa.	(a) well
17	William Seachrist	MRI W. Rock Road, Quakertown, Pa.	(a) well
18	William Miller	1616 W. Rock Road, Quakertown, Pa.	(a) well
19	Clifford Gammin	1618 W. Rock Road, Quakertown, Pa.	(a) well
20	Harold McCaulley	1700 W. Rock Road, Quakertown, Pa.	(a) well
21	Harold Swithenbank	1710 W. Rock Road, Quakertown, Pa.	(a) well
22	Enes Centurione	2217 N. Rockhill Rd., Quakertown, Pa.	(a) well
23	Mariannina Galluppi	2210 N. Rockhill Road, Quakertown, Pa.,	(a) well
24	Joseph Edsall	2123 N. Rockhill Rd., Quakertown, Pa.	(a) well
25	Grant Afflerbach	2031 N. Rockhill Road, Quakertown, Pa.,	(a) well

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COMMONWEALTH OF PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL RESOURCES DIVISION OF MINE DRAINAGE CONTROL AND RECLAMATION

SUPPLEMENTAL "C" CONSENT OF LANDOWNER

We the undersigned, the owners of land located in East Rock Hill Township Bucks County (Township) (County)

upon which The General Crushed Stone Company (Name of Operator)

is to conduct an open pit mining operation and for which application for permit is being made, and of which application this consent is a part, do hereby irrevocably grant to the operator, the Commonwealth of Pennsylvania or any of its authorized agents, the right to enter upon the land affected by the operator within a period of five (5) years after the operation is completed or abandoned for the purpose of backfilling, planting and reclamation in accordance with the provisions of the Surface Mining Conservation and Reclamation Act, No. 418, as amended.

In witness whereof we have hereunto set our hands and seal this 16th day of July, 19 73.

THE GENERAL CRUSHED STONE COMPANY F.C. Moore SEAL Exec. V. P. (Signature of Landowner) Thomas C. Foote SEAL V.P. & Asst. (Signature of Landowner) Secretary

COMMONWEALTH OF PENNSYLVANIA : : SS. COUNTY OF Northampton :

Before me the undersigned authority personally appeared F. C. Moore and Thomas C. Foote who after being duly sworn according to law acknowledge that they have read this instrument and it is true and correct.

Sworn to and subscribed before me this 16th day of July, 19 73.

Jean R. Brown Notary Public JEAN R. BROWN, Notary Public Forks Twp., Easton, Northampton County, Pa. My Commission Expires March 20, 1975

- INSTRUCTIONS: 1. File one (1) copy for each landowner. 2. If the land is owned by one or more persons, all owners must sign. 3. If owned by an Estate, Authority for signing must be established.

THE GENERAL CRUSHED STONE COMPANY

ROCK HILL QUARRY

Reclamation Narrative

General

The General Crushed Stone Company quarry in East Rockhill Township, Bucks County, extracts diabase for use as crushed stone and aggregate.

The quarry rock is drilled, blasted and trucked to the primary crusher, processed and stockpiled. Oversized and impure mineral is stored in the areas shown on the Mining Plan. A multiple bench mining system will be used, consisting of benches 40' to 60' in height. This quarry has been operational since before 1900, and the termination date of quarry activities is not yet determined.

Reclamation

Due to the longevity of stone reserves at this site, a final end use cannot justifiably be determined. Therefore, reclamation intentions will involve rendering the site safe to the public and returning the land to its natural use before mining where possible. Reclamation for the quarry proper consists basically of quarrying via the multiple bench system and "shooting" the benches to form a slope of the natural angle of repose for shot rock.

Other reclamation of the affected area includes the following:

1. All operational buildings and facilities including roads, power lines, conveyors, etc. will be removed.
2. Stockpiles will be depleted and removed.
3. Settling ponds will be de-watered, dried and filled in with overburden.
4. The entire affected area outside the pit will be graded to smooth, continuous contours with no abrupt changes in slope.
5. All areas that are not vegetated at the time of reclamation will be seeded according to the following revegetation plan in order to establish permanent ground cover and prevent erosion.

Rye Grass	20 lbs/acre
Orchard Grass	9 lbs/acre
Birdsfoot Trefoil	8 lbs/acre
Black Locust	3 lbs/acre
Hay or Straw Mulch	1½ to 2 tons/acre

Plan of Work

Shooting of the benches and sloping the walls will take place as the final step in the mining operation.

Upon completion of quarry activities, all plant buildings and facilities will be removed.

The settling ponds will be de-watered at this time.

Final grading and vegetation will occur as the last steps.

Estimated Reclamation Costs

Earth work - 75,000 C.Y. @ \$.50/C.Y. -----	\$37,500
Pond De-watering -----	4,000
Demolition of Plant Facilities -----	12,000
Revegetation of 30 acreas @ \$400/acre -----	<u>12,000</u>
TOTAL	\$65,500



3800 MARKET STREET
CAMP HILL, PENNSYLVANIA 17011
717/761-6710

ROBERT E. ELMER
Manager, Harrisburg Office

RECOMMENDED GEOLOGIC
ENGINEERING GUIDELINES FOR
REHABILITATION OF THE
GENERAL CRUSHED STONE COMPANY
QUARRY AT ROCK HILL, PENNSYLVANIA

SUBMITTED TO:

Mr. Robert C. Skelly
Skelly and Loy, Engineers

PREPARED BY:

Dunn Geoscience Corporation

G. Robert Ganis
Project Geologist

REVIEWED BY:

Robert E. Elmer
Manager, Harrisburg Office

January 2, 1974

1.0 INTRODUCTION

This report summarizes the basic findings and conclusions of our engineering geologic investigation of the General Crushed Stone Quarry at Rock Hill, Pennsylvania. The study was designed to provide basic geologic engineering data to be incorporated into a surface mining permit application and to develop specific recommendations for implementing a rehabilitation plan upon cessation of quarry operations.

The final face configurations, which are recommended here, were determined taking into consideration: (1) The natural structural, mechanical and weathering characteristics of the rocks, (2) The practical and economic factors relating to quarry operations, and (3) The public interest, as related to safety, appearance, and external effects on surrounding properties.

For this project the services of Dunn Geoscience Corporation were retained by Skelly and Loy, Engineers, in a letter dated June 6, 1973. The work was performed by Mr. G. Robert Ganis and reviewed by Mr. Robert E. Elmer.

2.0 RECOMMENDATIONS

2.1 In order to successfully implement a rehabilitation plan, to satisfy the criteria set forth above, we recommend that the specific guidelines outlined below be used in designing the final quarry face configurations. These recommended guidelines

are based on the assumption that the present highwall, which is over 100 feet high in places, will be broken into multiple lifts with maximum face heights of 50 feet.

2.2 Quarry faces on all lifts in the northwest portion of the quarry should be oriented parallel to the major joint and fracture system which trends north 50 degrees east and dips 80 degrees from the horizontal to the southeast.

2.3 Quarry faces on all lifts in the northeast and southwest portions of the quarry should be oriented parallel to the strike of a minor joint system which trends north 45 degrees west, north of the major dike (see Reclamation Plan), and north 30 degrees west, south of the major dike. The faces should be cut to a slope of at least 20 degrees from the vertical.

2.4 Quarry faces on all lifts in the southeast portion of the quarry should be oriented north 60 degrees east (a direction which is rotated 30 degrees from the strike of the major joint system in the area south of the major dike) and cut to an angle of 20 degrees from the vertical.

2.5 Around the entire perimeter of the quarry in the highest operating lift a 20 foot wide bench with a face height of 10 feet should be cut in the top of the face. The face should be sloped a minimum of 20 degrees from the vertical.

3.0 CONCLUSIONS

3.1 The geology of the Rock Hill Quarry consists of a diabase pluton with minor dikes of diabase pegmatite and one major diabase pegmatite dike. The texture of the pluton throughout the quarry is consistently coarse grained, massive and homogeneous.

3.2 The diabase is very resistant to natural weathering processes, heating and cooling, wetting and drying. Only a thin rind of iron rich secondary weathering minerals will form over a long period of time.

3.3 The diabase pluton is transected by one dominant joint system and a number of minor systems. The major diabase pegmatite dike approximates a boundary whereby the trend of the dominant joint planes on either side is slightly different. To the north of the dike, the dominant joint system strikes an average of $N50^{\circ}E$ and dips an average of 80 degrees to the southeast. To the south of the dike the dominant joint system strikes an average of $N 30^{\circ}E$ and dips an average of 80 degrees to the southeast. The joint spacing of the major system in all areas of the quarry is irregular but tends to be closer spaced, between 2 and 5 feet, south of the dike. North of the dike the dominant joint system has a spacing of between 5 and 10 feet on the average. The minor joint systems, as well as the dominant system, are plotted on the Reclamation Plan.

3.4 The existing northwest face on the upper lift is cut parallel to the dominant joint system and has produced a flat stable surface dipping about 80 degrees from the horizontal forming a footwall. Faces cut at a similar orientation should be equally stable in that area of the quarry. The existing northeast and southwest faces do not coincide with a dominant joint system and are highly irregular. Stable, but irregular, surfaces can be produced by laying back these faces to a minimum of 20 degrees from the vertical. The existing southeast face on the upper lift is cut parallel to the dominant joint system, producing a flat surface. However, since the dip direction of the joint planes is to the southeast, the face is unstable and overhangs to the northwest. If the faces in this area of the quarry are cut at an oblique angle of approximately 30 degrees to the strike of the major joint system, the joint surfaces should "lock in", greatly increasing stability. As an additional safety measure the southeast faces should be sloped 20 degrees from the vertical.

3.5 The water table in the vicinity of the quarry has not been accurately determined, because of a lack of reliable data for the area. However, at the 514 foot lift a maximum of 1000 gpd is presently being pumped and it is probable that the ground water table is at approximately 510 feet plus or minus 5 feet.

3.6 Upon cessation of mining operations, according to the proposed plan, the lowermost bench, 464 feet to 514 feet, will fill with

water to approximately 510 feet. No special plans for reclamation have been proposed for this water area, since no access will be afforded to this bench from the outside rim of the quarry. At least one 50 foot high face, the bench from 514 feet to 564 feet, will completely surround the lake.