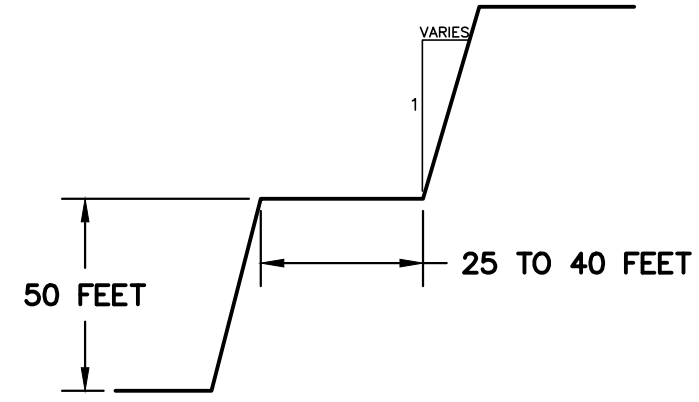


**Exhibit F**  
**Updated Operations Map**

QUARRY OPERATING LEVELS	
LEVEL	FLOOR ELEVATION (FEET)
3	1190
4	1140
5	1090
6	1040
7	990
8	940
9	890
10	840
11	790
12	740

TYPICAL BENCH/HIGH WALL LAYOUT



**LEGEND**

- 1200 ——— EXISTING TOPOGRAPHIC MAJOR CONTOUR (25' CONTOUR INTERVAL)
- EXISTING TOPOGRAPHIC MINOR CONTOUR (5' CONTOUR INTERVAL)
- PROPERTY BOUNDARY
- - - - - EXISTING PERMIT BOUNDARY
- PROPOSED PERMIT BOUNDARY
- PROPOSED 1000' PERMIT BOUNDARY OFFSET
- ===== CUP MAINTAINED BUFFER
- ===== CUP OPERATIONAL BUFFER
- ===== EXISTING ROAD
- GAS ----- EXISTING GAS LINE
- OHE ----- EXISTING OVERHEAD ELECTRICAL LINES
- OHE ----- PROPOSED OVERHEAD ELECTRICAL LINES
- 300-FOOT DWELLING BARRIER
- ===== WATERS OF THE UNITED STATES
- ===== STREAM
- ===== DIRECTION OF MINING
- ===== WETLANDS (DELINEATED BY SKELLY & LOY 12/16/2015)
- ===== WETLANDS (DELINEATED BY AECOM 1/2011 AND 5/2012)
- ===== OCCUPIED STRUCTURE
- ===== UNOCCUPIED STRUCTURE
- ===== EXISTING ROAD - 100' BUFFER
- ===== STREAM - 100' BUFFER
- ⊕ TB-XX SOIL BORINGS
- ⊕ RT-XX ROCK BORINGS
- ⊕ MW-3 MONITORING WELL OR PIEZOMETER
- ⊕ 958B16 EXISTING PRIVATE WATER SUPPLY WELL

**WATER SAMPLING LOCATION LEGEND**

- ⊕ MW-12D BACKGROUND GROUND WATER MONITORING STATION FOR NORTHERN TRACT QUARRY (MONITORING WELL)
- ⊕ MW-11D BACKGROUND AND PROPOSED GROUND WATER MONITORING STATION FOR NORTHERN TRACT QUARRY (MONITORING WELL)
- ⊕ SS-13 EXISTING STREAM SAMPLE LOCATION
- ⊕ SP-3 EXISTING SPRING/SEEP LOCATION
- ⊕ 001 NPDES DISCHARGE LOCATION
- ⊕ BACKGROUND SURFACE WATER MONITORING STATION FOR NORTHERN TRACT QUARRY
- ⊕ BACKGROUND AND LONG TERM SURFACE WATER MONITORING STATION FOR NORTHERN TRACT QUARRY
- ⊕ 07A16 BACKGROUND GROUND WATER MONITORING STATION FOR NORTHERN TRACT QUARRY (EXISTING PRIVATE WATER SUPPLY WELL)
- ⊕ 15A16 BACKGROUND AND LONG TERM GROUND WATER MONITORING STATION FOR NORTHERN TRACT QUARRY (EXISTING PRIVATE WATER SUPPLY WELL)

**NOTES:**

1. THE MINE PLAN DEPICTED FOR THE NORTHERN TRACT IS SUBJECT TO CHANGE BASED UPON ENCOUNTERED FIELD CONDITIONS. THE CONFIGURATION OF THE ACCESS RAMPS AND HIGHWALLS ASSOCIATED WITH DEVELOPING THE MINE MAY DIFFER FROM WHAT IS SHOWN BASED ON FIELD CONDITIONS. IF CHANGES TO THE CONFIGURATIONS IMPACT THE EROSION AND SEDIMENTATION CONTROL (E&SC) DESIGNS, A REVISED EXHIBIT 9 OPERATION MAP AND REVISED E&SC DESIGNS AND CALCULATIONS SHALL BE SUBMITTED TO THE PADEP FOR APPROVAL.
2. NT POND NOS. 1 AND 2 MAY ULTIMATELY BE BREACHED AS THE QUARRY FOOTPRINT ADVANCES INTO THE FOOTPRINT OF THE PONDS. WRITTEN APPROVAL FROM THE PADEP IS REQUIRED PRIOR TO BREACHING ANY POND.
3. BENCH WIDTHS SHOWN REPRESENT THE APPARENT WIDTH WHICH IS BASED ON A VARIABLE INTERSECTION ANGLE BETWEEN THE SECTION LINE AND THE QUARRY FACE.
4. QUARRY RECLAMATION WILL BE ACHIEVED AND BONDED BY ELIMINATING HIGH WALLS USING A COMBINATION OF PARTIAL BACKFILL AND BLASTING (35 DEGREES), CAPPING THE AREAS WITH OVERBURDEN SOILS, AND VEGETATING THE AREAS WITH THE APPROVED PERMANENT SEED MIX. (SEE DRAWING NO. 43). THE QUARRY WILL BE ALLOWED TO NATURALLY FILL WITH WATER, AS AN UNMANAGED WATER IMPOUNDMENT, TO AN APPROXIMATE ELEVATION OF 1020 FEET.

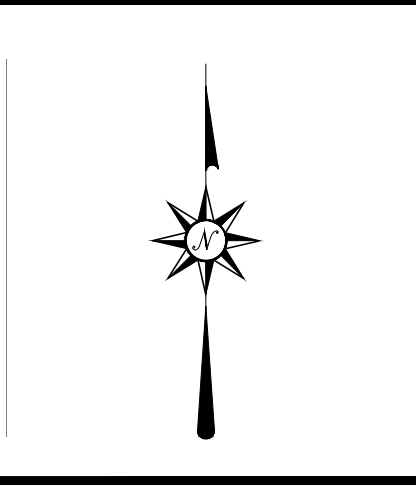


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**NOTES / REVISIONS**  
REFER TO DRAWING NO. 10 FOR A 1"=200' SCALE EXHIBIT 9.

ISSUED FOR	DATE	REV.	REVISION DESCRIPTION	MADE BY	CHKD BY	DATE
PADEP-DMO	2/13/2020	1	ADDED SUSPECT MATERIAL BURIAL LOCATIONS	MJD	MDW	2/13/2020
PADEP-DMO	4/17/2018	1	REVISED PER PADEP-DMO COMMENT LETTER DATED 3/6/2018	MJD	MDW	4/17/2018

SEAL:



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PROJECT NUMBER: 152596A  
FILE NAME: Exhibit 9 (1 of 2)-R1.dwg

DRAWN BY: AJM  
CHECKED BY: RMS/MDW

DATE: 2/13/2020  
DATE: 12/22/2017

**SPECIALTY GRANULES LLC**  
**CHARMIAN - NORTHERN TRACT QUARRY**

EXHIBIT 9  
OPERATIONS MAP (SHEET 1 OF 2)

SCALE: AS SHOWN  
DRAWING NO. 9  
REV 2

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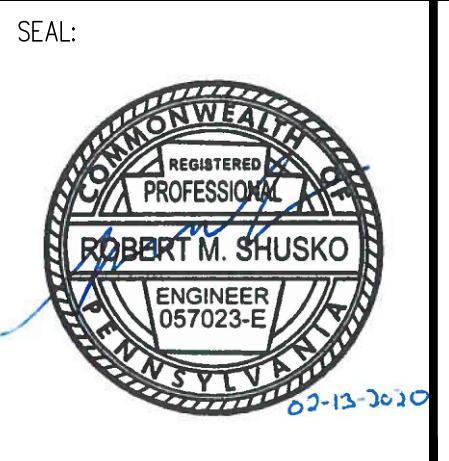
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DRAWING INDEX				
DRAWING NUMBER	EXHIBIT NUMBER	DRAWING TITLE	REVISION NUMBER	REVISION DATE
1	-	TITLE SHEET	0	12/22/2017
2	-	DRAWING INDEX	2	2/13/2020
3	-	LEGEND AND ABBREVIATIONS	0	12/22/2017
EXHIBIT 6.1				
4	EXHIBIT 6.1	U.S.G.S MAP	0	12/22/2017
EXHIBIT 6.2				
5	EXHIBIT 6.2	ENVIRONMENTAL RESOURCES MAP	1	4/17/2018
EXHIBIT 9				
6	EXHIBIT 9	QUARRY SITE DEVELOPMENT - PHASE 1	1	4/17/2018
7	EXHIBIT 9	QUARRY SITE DEVELOPMENT - PHASE 2	1	4/17/2018
8	EXHIBIT 9	QUARRY SITE DEVELOPMENT - PHASE 3	1	4/17/2018
9	EXHIBIT 9	OPERATIONS MAP (SHEET 1 OF 2)	2	2/13/2020
10	EXHIBIT 9	OPERATIONS MAP (SHEET 2 OF 2)	1	4/17/2018
EXHIBIT 7.1				
11	EXHIBIT 7.1	GEOLOGIC CROSS-SECTIONS	0	12/22/2017
EXHIBIT 10.5				
12	EXHIBIT 10.5	RECLAMATION CROSS-SECTIONS	0	12/22/2017
EXHIBIT 12				
13	EXHIBIT 12	E&SC STAGE 1	1	4/17/2018
14	EXHIBIT 12	E&SC STAGE 2	1	4/17/2018
15	EXHIBIT 12	E&SC STAGE 3	1	4/17/2018
16	EXHIBIT 12	E&SC STAGE 4	1	4/17/2018
17	EXHIBIT 12	E&SC STAGE 5	1	4/17/2018
18	EXHIBIT 12	E&SC STAGE 6	1	4/17/2018
19	EXHIBIT 12	CULVERT C-1	0	12/22/2017
20	EXHIBIT 12	CULVERT C-2	0	12/22/2017
21	EXHIBIT 12	CULVERT C-3	0	12/22/2017
22	EXHIBIT 12	CULVERT C-4	0	12/22/2017
23	EXHIBIT 12	CULVERT - DETAILS	0	12/22/2017
24	EXHIBIT 12	DITCH - DETAILS	0	12/22/2017
25	EXHIBIT 12	DETAILS	0	12/22/2017
26	EXHIBIT 12	OPTIONAL TEXAS CROSSINGS	0	12/22/2017
27	EXHIBIT 12	OPTIONAL TEXAS CROSSINGS	0	12/22/2017
28	EXHIBIT 12	LEVEL SPREADER - DETAIL	0	12/22/2017
EXHIBIT 13				
29	EXHIBIT 13	NT POND NO. 1 - PLAN	0	12/22/2017
30	EXHIBIT 13	NT POND NO. 1 - CROSS-SECTIONS	0	12/22/2017
31	EXHIBIT 13	NT POND NO. 1 - CROSS-SECTIONS	0	12/22/2017
32	EXHIBIT 13	NT POND NO. 1 - CROSS-SECTIONS	0	12/22/2017
33	EXHIBIT 13	NT POND NO. 2 - PLAN	0	12/22/2017
34	EXHIBIT 13	NT POND NO. 2 - CROSS-SECTIONS	0	12/22/2017

35	EXHIBIT 13	NT POND NO. 2 - CROSS-SECTIONS	0	12/22/2017
36	EXHIBIT 13	NT POND NO. 2 - CROSS-SECTIONS	0	12/22/2017
37	EXHIBIT 13	DETAILS	0	12/22/2017
EXHIBIT 14.3				
38	EXHIBIT 14.3	WETLAND LOCATION PLAN	0	12/22/2017
39	EXHIBIT 14.3	WETLAND A CROSS-SECTION	0	12/22/2017
40	EXHIBIT 14.3	WETLAND B & C CROSS-SECTION	0	12/22/2017
41	EXHIBIT 14.3	WETLAND D CROSS-SECTION	0	12/22/2017
42	EXHIBIT 14.3	WETLAND E CROSS-SECTION	0	12/22/2017
EXHIBIT 18				
43	EXHIBIT 18	LANDUSE AND RECLAMATION MAP	0	12/22/2017

**NOTES / REVISIONS**

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<b>SPECIALTY GRANULES LLC</b>	
<b>CHARMIAN - NORTHERN TRACT QUARRY</b>	
DRAWING INDEX	
SCALE: AS SHOWN	DRAWING NO. 2
	REV 2