



Arizona State Mine Inspector (ASMI) Agency
Attn: Amanda Lothner
Reclamation Department
1700 West Washington St., Suite 403
Phoenix, AZ 85007-2805

October 23, 2020

Reference: Cover Letter for Vulcan Materials Company (Vulcan) Southern Avenue Reclamation Plan Package

Enclosed is a package of the Southern Avenue Reclamation Plan submittal including 4 hard copies and 1 electronic copy.

If additional information is required, please contact Timothy O'Brien, Senior Geologist, Email: obrientw@vmcmail.com, and phone (323) 855-4657.

Sincerely,

Timothy O'Brien
Geologist
Mobile: (323) 855-4657



**RECLAMATION AND CLOSURE PLAN
VULCAN MATERIALS COMPANY
SOUTHERN AVE MINE SITE**

**SUBMITTED TO THE STATE MINE INSPECTOR'S OFFICE FOR
REVIEW AND APPROVAL IN ACCORDANCE WITH
ARIZONA REVISED STATUTE
TITLE 27 - CHAPTER 6
STATE MINE INSPECTOR AGGREGATE MINED LAND
RECLAMATION**

OCTOBER 23, 2020

TABLE OF CONTENTS

1.0 ADMINISTRATIVE INFORMATION

2.0 INTRODUCTION

- 2.1 Purpose and Scope
- 2.2 Reclamation Approach
- 2.3 Current Ownership and Land Use Included in the Aggregate Mining Unit
- 2.4 Proposed Postaggregate Mining Land Use
- 2.5 Description of the Aggregate Mining Unit Current as well as Proposed Surface Disturbances
- 2.6 Existing and Proposed Final Topography Including Waste Rock, Stockpiles and Fines Areas
- 2.7 A Narrative Description of Roads

3.0 RECLAMATION

- 3.1 The Proposed Reclamation Measures to Achieve Post Mine Land Use and Public Safety
- 3.2 Equipment and Structure Removal
- 3.3 Site Infrastructure
- 3.4 Area Preparation
- 3.5 Site Stability
- 3.6 Soil Conservation
- 3.7 Revegetation
- 3.8 Timeline
- 3.9 Phasing of Reclamation

4.0 MINE CLOSURE

- 4.1 Mining Areas
- 4.2 Processing and Other Areas
- 4.3 Monitoring

5.0 RECLAMATION COSTS AND FINANCIAL ASSURANCE

- 5.1 Reclamation Costs
- 5.2 Financial Assurance

6.0 RECLAMATION STATEMENT OF RESPONSIBILITY

7.0 REFERENCES

LIST OF MAPS

- Map 1. Site Location Map
- Map 2. Parcel Map
- Map 3. Existing Topography
- Map 4. Approximate Future Topography

LIST OF APPENDICIES

- Appendix A. Engineers Certificate
- Appendix B. Reclamation Costs Detail
- Appendix C. Self-Assurance Information

1.0 ADMINISTRATIVE INFORMATION

Company: Vulcan Materials Company
2526 East University Drive
Phoenix, AZ 85034

Contact: Vulcan Materials Company
2526 East University Drive
Phoenix, AZ 85034
Cell Phone: 323-855-4657
Email: obrientw@vmcmail.com

Applicant: Timothy O'Brien
2526 East University Drive
Phoenix, AZ 85034
Cell Phone: 323-855-4657
Email: obrientw@vmcmail.com

Landowner & Operator:
of Operation Vulcan Materials Company
2526 East University Drive
Phoenix, AZ 85034
Cell Phone: 323-855-4657
Email: obrientw@vmcmail.com

2.0 INTRODUCTION

2.1 PURPOSE AND SCOPE

Vulcan Materials Company (Vulcan) is the owner and operator of the future Southern Avenue open pit future mining operation. Mining is proposed to commence on or after November 30, 2020. The purpose of this Mine Reclamation and Closure Plan (MRCP) is to present the details of reclamation of the Southern Avenue site in Maricopa County, Arizona concurrent with or after proposed mining operations have ceased in accordance with the Arizona Aggregate Mined Lands Act (AAMLRA) (Arizona Revised Statutes[A.R.S.] § 27-1201, as authorized by A.R.S. § 27-1204. This plan has been developed pursuant to the format and content prescribed in the Arizona Aggregate Mined Lands Reclamation Rules (Arizona Administrative Code {A.A.C}, R11-3-101, et seq.) to account for all requirements associated with an environmental assessment and the mining operation MRCP submitted to the State Mine Inspector. Consequently, the MRCP addresses environmental, technical and operational issues that are identified in those documents.

2.2 RECLAMATION APPROACH

Vulcan will reclaim the pit(s) and areas surrounding the pit(s), and will remove above grade structures, except for structures needed for or consistent with postmining land use. Both concurrent and postmining reclamation methods may be utilized at the Southern Ave mine site.

2.3 CURRENT OWNERSHIP AND LAND USE INCLUDED IN THE AGGREGATE MINING UNIT

The Southern Avenue property is a proposed new minesite owned by Vulcan where mining and processing operations have not yet commenced. It is anticipated that mining will begin on or after November 30, 2020. Southern Avenue will be a significant source of construction materials to the greater Phoenix market in the future.

Map 1 is a Site Location Map, on a USGS quad base map, with the approximate location of the Southern Ave mine site in relation to features in the area. The Southern Ave mine site is located on Section 31, T 1N, R 1E. (See Map 1) Parcels owned by Vulcan are shown on Map 2 (See Map 2).

The Southern Ave site is bordered by Southern Avenue to the north, 107th Avenue to the west, and a levee to the south that protects the property (and removes it from the floodplain/floodway) of the Salt and Gila River confluence. Little elevation variance exists at the site.

Southern Avenue has a shallow groundwater table (approximately ± 20 feet bgs), where mining operations will occur above and below groundwater. As mining areas expand, open ponds are left in place. Shown on Map 3 is the existing site topography taken from the Tolleson USGS 24K Quad Map. (See Map 3)

Sand and gravel mining operations will occur in pit(s) around the Southern Avenue Site. Located in the Possible Plant Location Area will be material processing and washing plants, as well as ready mix concrete (RMC), and hot mix asphalt (HMA) plants which manufacture materials for construction and other industries. Material is stockpiled at various locations on site for sales.

The current property boundary is shown on Maps 1, 3 and 4, with areas to be disturbed on site as necessary as the mining operation expands. (See Maps 1, 3, and 4)

The extraction/processing operation will consist of removing earthen material for aggregate mining as described in A.R.S. § 27-441. The process includes, but is not limited to the following: crushers; screens; conveyors; mobile equipment for the support of production; RMC plants; and HMA plants. Other possible activities include the following: core drilling; overburden stripping; loading; hauling; and dredging.

Water for processing may be delivered by pit de-water, and locations are set aside for recycling and water storage. The location of a settling pond will be chosen in a portion of the mined out pit somewhere in the property. Process water will be deposited where area becomes available in the mined out portions of the pit.

It is important to note that since electrical needs change it may be necessary to update power needs in terms of electrical lines or generator sets, and on site fuel storage will be necessary to accommodate heavy equipment.

Elements for the mining operation, such as material processing plants and offices may be relocated from time to time as the mining operation expands. Berms and fences may be placed for environmental, safety, and visual and sound buffers.

All necessary permits for the current Southern Ave mining operation have and will be attained by Vulcan, and any required future permits will be collected as well.

2.4 PROPOSED POSTAGGREGATE MINING LAND USE

Depending on the economics of the area, several possible postmining land uses are available. Some of the options are as follows:

- Reclaimed Plant Area and/or Open pond area for commercial, recreational, or other use;

- Reclaimed Plant Area and/or Groundwater recharge area;
- and Landfill.

2.5 DESCRIPTION OF THE AGGREGATE MINING UNIT CURRENT AS WELL AS PROPOSED SURFACE DISTURBANCES

See Section 2.3, 2.6 and 2.8

2.6 EXISTING AND PROPOSED FINAL TOPOGRAPHY INCLUDING WASTE ROCK, STOCKPILES AND FINES AREAS

Map 3 shows existing topography. (See Map 3)

Map 4 shows the proposed final topography as an open pond, and reclaimed plant area with location and area to be determined. (See Map 4) The pit configuration shown on Map 4 is only an approximation, the final depth and width may vary.

2.7 A NARRATIVE DESCRIPTION OF ROADS

Haul and access roads throughout the site will be created, maintained, and changed as needed. Parking areas may also change locations as needed.

3.0 RECLAMATION

3.1 THE PROPOSED RECLAMATION MEASURES TO ACHIEVE POST MINE LAND USE AND PUBLIC SAFETY

A. What measures will restrict public access to pits or other hazardous surface features?

Public access will be restricted by berms or fences installed around all open pits, or on or near the property boundary. Where hazards to public safety cannot be reduced by reclamation, weather resistant warning signs, to avoid the areas, will be posted. Further, removal of all scrap metal, wood, trash, and other debris that pose a threat to public safety or create a public nuisance will be reviewed.

B. What measures will be taken to address erosion control and stability?

Roads and other disturbed or compacted areas of the property may be revegetated by seeding to control erosion and aid in drainage.

Site specific grading, revegetation, or other proposed control measures may be conducted, as necessary, to address erosion. No permanent piles of mined material or overburden will be left to restrict drainage.

C. What measures will be taken to address revegetation, conservation, and the care and monitoring of revegetated areas?

At this time no anticipated revegetation of the site is planned. If any revegetation is done, the pit slopes may be revegetated by hydro seeding, a method that offers a higher success rate in plant germination on inclines. The plant areas may be seeded by other broadcast methods (i.e. seed drilling).

3.2 EQUIPMENT AND STRUCTURE REMOVAL

Equipment used for the mining operation (i.e.: conveyor belts, and material processing plants) will be removed from the site. Buildings and structures located on the property (office, shop, lab, etc.) may be removed when the mining operation concludes, or left in place depending on the postmining land use. Concrete foundations constructed around the site may be removed at this time and placed in an inert landfill, or left in place for postmining use.

3.3 SITE INFRASTRUCTURE

Haul roads, plant roads, and access roads may be left graded and in usable condition for postmining land use. If the roads are not required, roads may be ripped, plowed, scarified and revegetated. The location of the final pit haul road(s) will vary depending on mine progression, and are not shown on the proposed final topography map. (See Map 4)

Power lines and water lines installed on the property for the mining operation may be removed upon completion of activity, or left in place for the postmining use. Any wells installed on site, may be abandoned in accordance with Arizona Department of Water of Resources regulations, or left in place for the postmining possible utilization.

Fences installed on the property, and not necessary to maintain public safety, may be removed, or the fences will be left in place for postmining use.

3.4 AREA PREPARATION

Grading may take place in order to create contoured slopes around the edges of the pit. If topsoil addition is desired, salvaged soil, import material, or settling pond fines may be utilized as topsoil material.

3.5 SITE STABILITY

Pit slopes to final depth will be either mined or backfilled to 1 Horizontal to 1 Vertical or shallower ratio which will minimize erosion and result in geotechnical stability for the area.

Regrading may be utilized in some areas to maintain slope integrity; otherwise no stabilization activities are anticipated. Located in Appendix A is the Engineers Certificate. (See Appendix A)

3.6 SOIL CONSERVATION

Topsoil at the site is minimal and generally not salvaged. If topsoil at the site is not salvaged, and topsoil additon is desired, then either import material, or settling pond fines can be utilized.

Before redistribution of soil, the regraded land will be treated, if necessary, to reduce the potential for slippage of the redistributed material or to enhance root penetration, or both. Soil and other materials shall be redistributed in a manner that prevents excess compaction and achieves a thickness consistent with the approved postaggregate mining land use as identified in Section 2.4.

3.7 REVEGITATION

Any revegetation will be conducted to establish native plant species that will support the approved postmining land use as identified in Section 2.4. Revegetation will be conducted during the spring or fall to maximize plant establishment.

3.8 TIMELINE

A combination of concurrent and postmining reclamation activities may be utilized for the Southern Ave mine site. Depending on the ultimate postmining land use, timing of reclamation activities is variable. Reclamation activities shall be designed to minimize hazards to public safety to the extent technically and economically practicable. The reclamation timeline may follow the phasing detailed in Section 3.9.

3.9 PHASING OF RECLAMATION

Phasing of Reclamation activities may vary depending on mine progression. With the possible use of concurrent reclamation activities, some areas may be reclaimed well before the end of mine life.

Shown on Map 3 is the potential reclamation phasing (Phases 1 and 2), with Phase 1 being the east pit area and Phase 2 being the west pit, with the potential plant area being the last area to be reclaimed. (See Map 3) Reclamation sequencing and extent of the phases may vary because of many factors; phases shown on Map 3 are only approximate.

4.0 MINE CLOSURE

4.1 MINING AREAS

If concurrent reclamation activities have not been utilized, in accordance with A.R.S. § 27-926 reclamation may commence within one year upon ending of all mining operations. Once initiated, reclamation will be performed to achieve the approved postmining land use.

4.2 PROCESSING AND OTHER AREAS

Reclamation of the processing and related areas will commence sometime after completion of mining and processing operations.

4.3 MONITORING

The closure of operations at this site will be monitored in accordance with the approved conditions of this plan in accordance with the Arizona State Mine Inspector's Office.

5.0 RECLAMATION COSTS AND FINANCIAL ASSURANCE

5.1 RECLAMATION COSTS

All reclamation costs will be wholly born by Vulcan to perform the reclamation activities to achieve the final determined postmining land use.

Reclamation costs for material processing plant removal have been prepared with a contractor doing the removal. Quantities for plant removal are based on high side estimates of similar plants from other sites. Reclamation costs are as follows: for the sand and gravel plant removal and site grading is \$100,000; for the HMA Plant removal is \$112,800; for the RMC Plant removal is \$42,500; and total \$255,300. A cost detail breakdown is located in Appendix B. (See Appendix B)

5.2 FINANCIAL ASSURANCE

Financial surety has been obtained by a Corporate Financial Test or Gaurentee. Southern Avenue will be included in the other Arizona sites included in the Self Assuracne that was submitted and approved in April 2020.

6.0 RECLAMATION STATEMENT OF RESPONSIBILITY

Vulcan Materials Company, owner and operator, assumes responsibility for the reclamation of surface disturbances that are attributable to the aggregate mining unit consistent with A.R.S § 27-1201 and A.C.C. R11-3-501 pursuant to that chapter. Reclaimed areas that have been disturbed at the site will be reclaimed to a safe and stable condition to achieve the postmining land use. Located in Appendix A is the Engineers Certificate. (See Appendix A)

Timothy O'Brien

Signature

10/23/2020

Date

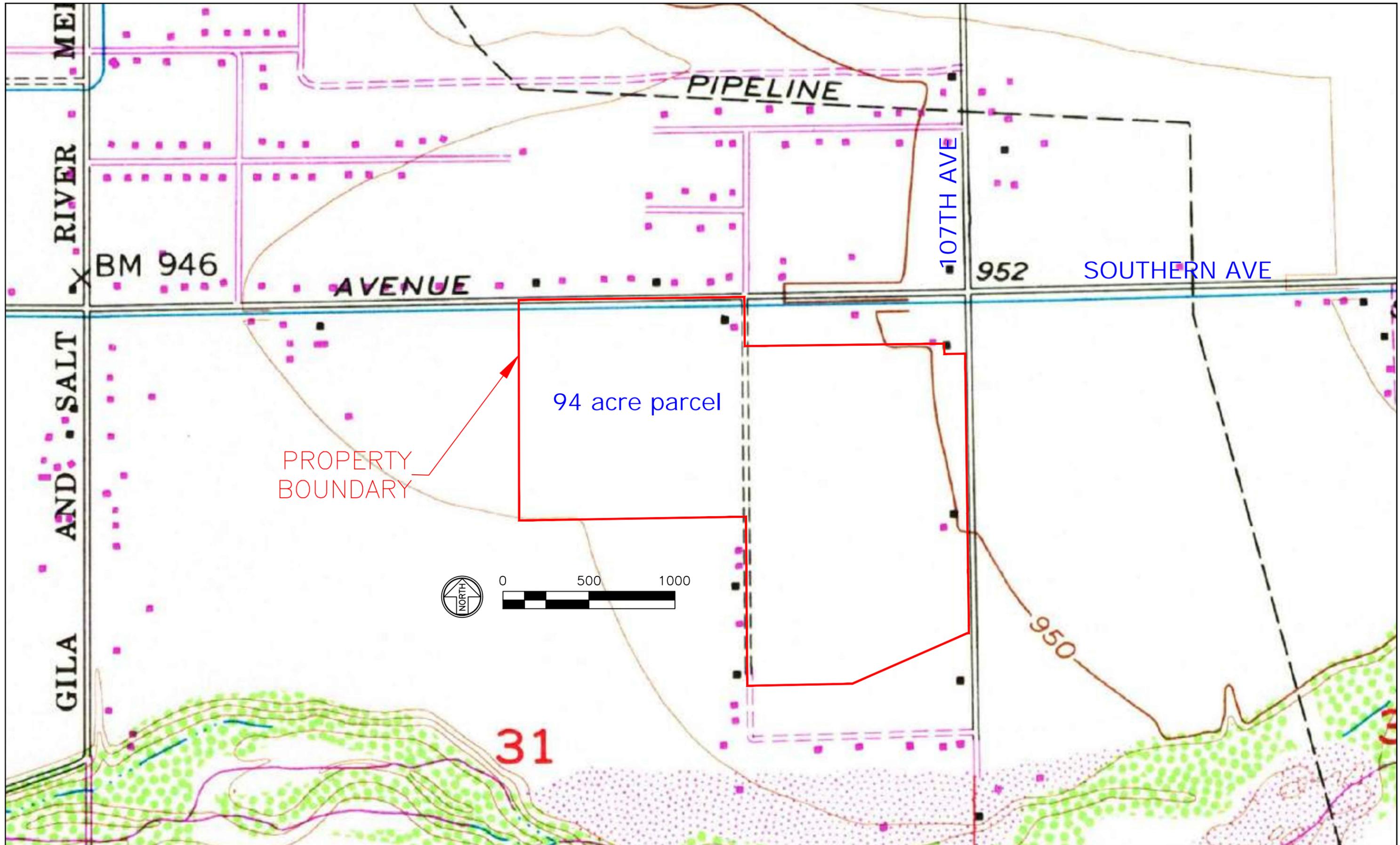
Sr Geologist

Title

7.0 REFERENCES

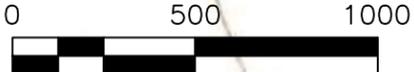
Arizona Administrative Code, Title 11 – Mines, Chapter 3. State Mine Inspector
Aggregate Mined Land Reclamation, Articles 1-8.

Arizona Revised Statutes, Title 27 – Minerals, Oil and Gas, Aggregate Mined Land
Reclamation, Articles 1-6.



PROPERTY BOUNDARY

94 acre parcel



31

D					
C					
B					
A					
-	INITIAL RELEASE				
	DATE	REVISION	BY		

TOLERANCES—UNLESS NOTED
 FRACTIONAL: ± 1/16"
 DECIMAL: ± 0.010"
 ANGLE: ± 0.1"

THIS DRAWING IN DESIGN AND DETAIL IS THE PROPERTY OF VULCAN MATERIALS COMPANY AND MUST BE RETURNED UPON DEMAND. THIS DRAWING MUST NOT BE COPIED, REPRODUCED, OR USED WITHOUT PERMISSION.



USGS QUAD SHEET: TOLLESON, AZ

STATE	ARIZONA	PLANT	SOUTHERN AVENUE
BY	MGH	PROJ. NO.	FILE
DATE	10/01/2020	SCALE	1" = 500'
DWG. NO.	MAP 1 - SITE LOCATION MAP	SHEET	1 OF 1



D			
C			
B			
A			
-	INITIAL RELEASE		
	DATE	REVISION	BY

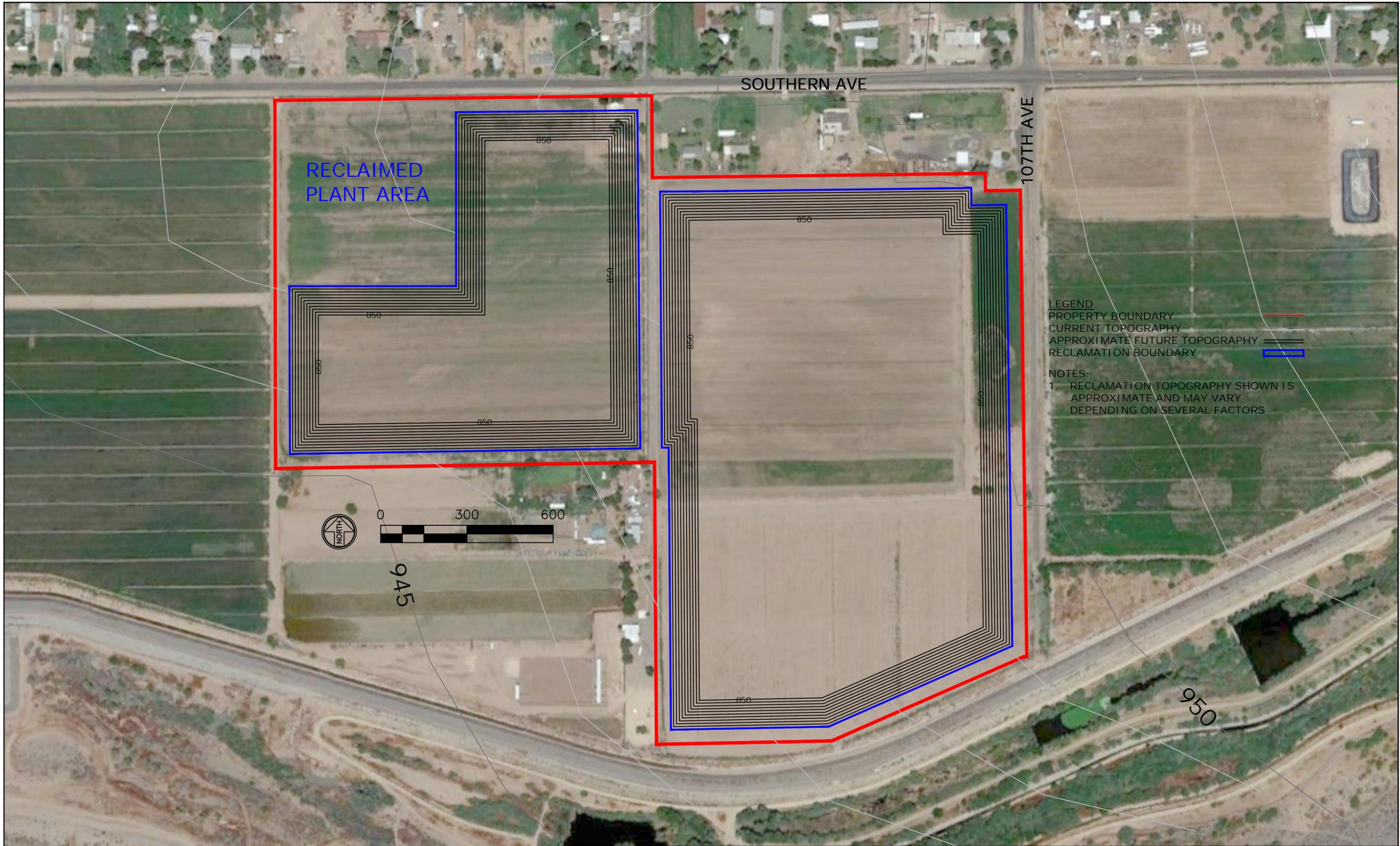
TOLERANCES—UNLESS NOTED
 FRACTIONAL: ± 1/16"
 DECIMAL: ± 0.010"
 ANGLE: ± 0.1"

THIS DRAWING IN DESIGN AND DETAIL IS THE PROPERTY OF VULCAN MATERIALS COMPANY AND MUST BE RETURNED UPON DEMAND. THIS DRAWING MUST NOT BE COPIED, REPRODUCED, OR USED WITHOUT PERMISSION.



PARCEL BOUNDARIES WITH ASSOCIATED
 APN NUMBERS AND AREA (ACRES)
 GOOGLE EARTH IMAGE: AUGUST 2020

STATE	ARIZONA	PLANT	SOUTHERN AVENUE
BY	obrientw	BY	
DATE	10/22/2020	DATE	
DWG. NO.	MAP 2 - PARCEL MAP		REV.
	SCALE	1" = 300'	SHEET 1 OF 1



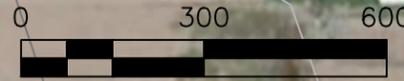
RECLAIMED
PLANT AREA

SOUTHERN AVE

107TH AVE

LEGEND
 PROPERTY BOUNDARY ———
 CURRENT TOPOGRAPHY ———
 APPROXIMATE FUTURE TOPOGRAPHY ———
 RECLAMATION BOUNDARY ———

NOTES:
 1. RECLAMATION TOPOGRAPHY SHOWN IS APPROXIMATE AND MAY VARY DEPENDING ON SEVERAL FACTORS



945

950

D			
C			
B			
A			
-	INITIAL RELEASE		
	DATE	REVISION	BY

TOLERANCES—UNLESS NOTED
 FRACTIONAL: ± 1/16"
 DECIMAL: ± 0.010"
 ANGLE: ± 0.1"
 THIS DRAWING IN DESIGN AND DETAIL IS THE PROPERTY OF VULCAN MATERIALS COMPANY AND MUST BE RETURNED UPON DEMAND. THIS DRAWING MUST NOT BE COPIED, REPRODUCED, OR USED WITHOUT PERMISSION.



USGS QUAD MAP TOPOGRAPHY
 CONTOUR INTERVAL: 1'
 GOOGLE EARTH IMAGE: AUGUST 2020

STATE	ARIZONA	PLANT	SOUTHERN AVENUE
BY	MGH	BY	
DATE	10/01/2020	DATE	
DWG. NO.	MAP 4 - APPROX. FUTURE TOPOGRAPHY		REV.
	SCALE	1" = 300'	SHEET 1 OF 1

APPENDIX A. ENGINEERS CERTIFICATE

ENGINEERS CERTIFICATE

Vulcan will complete reclamation activities to achieve the final determined postmining land use that is a stable surface. All reclamation activities such as: grading; placing topsoil; backfilling; revegetation; or other possible activities will be completed using good engineering practices.

Timothy O'Brien

Signature

10/5/2020

Date

Timothy O'Brien
AZ Geologist #45479
Expires December 31, 2021

APPENDIX B. RECLAMATION COSTS DETAIL



SITE DEMOLITION COST ESTIMATE - SAND & GRAVEL PLANT

PLANT NAME: Southern Avenue
 LOCATION: _____
 SITE SIZE - AC: _____
 CREATED BY: M. HUNT

DATE: October 1, 2020
 PAGE: 1 of 3

1. FUEL SYSTEM REMOVAL

Item	Description	Quantity	Units	Unit Price	Extension
a	Fuel System Tank Disposal	10,000	gal	\$ 0.50	5,000
b			gal	\$ 0.50	-
c			gal	\$ 0.50	-
d		-	gal	\$ 0.75	-
Total Cost					\$ 5,000

2. STRUCTURAL STEEL REMOVAL

Item	Description	Quantity	Units	Unit Price	Extension
a	Structural demo equipment and crew	6	days	\$ 3,500.00	21,000
b					-
c					-
d					-
Total Cost					\$ 21,000

3. DEMOLITION AND REMOVAL OF ALL BUILDINGS/GARAGE/SHOP AND OTHER NON PLANT STRUCTURES EXCLUSIVE OF BUILDING SLABS AND FOOTINGS.

Item	Description	Quantity	Units	Unit Price	Extension
a		-	sq ft	\$ 4.00	-
b		-	sq ft	\$ 2.00	-
c					-
d					-
Total Cost					\$ -

4. STRUCTURAL CONCRETE REMOVAL AND EXPORT OFF SITE.

Item	Description	Quantity	Units	Unit Price	Extension
a	Plant Structural Concrete Removal & Export	500	Cu Yds	\$ 65	32,500
b		-	Cu Yds	\$ 65	-
c					-
d					-
Total Cost					\$ 32,500

5. YARD PAVING MATERIAL (ASPHALT/CONCRETE) REMOVAL AND EXPORT OFF SITE.

Item	Description	Quantity	Units	Unit Price	Extension
a	Total site yard paving material removal	100	Cu Yds	\$ 40.00	4,000
b	Total site yard paving export off site	100	Tons	\$ 5.00	500
c					-
d					-
Total Cost					\$ 4,500

6. ABANDON AND REMOVE ALL UNDERGROUND UTILITIES.

Item	Description	Quantity	Units	Unit Price	Extension
a	Water capped at property line	-	ea	\$ 1,500	-
b	Electric capped at property line	1	ea	\$ 1,500	1,500
c	Sewer capped at property line	-	ea	\$ 1,500	-
d	Natural gas capped at property line	-	ea	\$ 1,500	-
Total Cost					\$ 1,500

SITE DEMOLITION COST ESTIMATE

PLANT NAME: Southern Avenue

DATE: October 1, 2020

LOCATION: _____ 0

PAGE: 2 of 3

7. EXCAVATION REQUIRED AT SITE.

Item	Description	Quantity	Units	Unit Price	Extension
a	Plant excavation required	-	Cu Yds	\$ 6.00	-
b	Import system excavation required	-	Cu Yds	\$ 6.00	-
c					-
d					-
e	Total Cost				\$ -

8. BACKFILL AND COMPACTION REQUIRED AT SITE.

Item	Description	Quantity	Units	Unit Price	Extension
a	Plant backfill and compaction required	-	Cu Yds	\$ 4.00	-
b	Import system backfill and compaction required	-	Cu Yds	\$ 4.00	-
c					-
d					-
e	Total Cost				\$ -

9. IMPORT / EXPORT OF FILL MATERIAL NEEDED AT SITE.

Item	Description	Quantity	Units	Unit Price	Extension
a	Import of fill material needed at site	-	Tons		-
b	Export of fill material from site	-	Tons		-
c					-
d					-
e	Total Cost				\$ -

10. FINAL SITE GRADING.

Item	Description	Quantity	Units	Unit Price	Extension
a	Final site grading	30	acres	\$ 750.00	22,500
b					-
c					-
d					-
e	Total Cost				\$ 22,500

11. YARD MISCELLANEOUS SCRAP REMOVAL.

Item	Description	Quantity	Units	Unit Price	Extension
a	Miscellaneous trash/scrap removal from site	15	15T loads	\$ 800	12,000
b	Asbestos removal contractor	-	ea	\$ 3,000	-
c					-
d					-
e	Total Cost				\$ 12,000

12. ESTIMATED FEES FOR DEMOLITION AND/OR GRADING PERMITS, AND SITE SURVEYS (ASBESTOS, ETC.)

Item	Description	Quantity	Units	Unit Price	Extension
a	Asbestos Survey	-		\$ 2,000	-
b	City Demo Permit	1		\$ 500	500
c	AQMD Demo Permit	1		\$ 500	500
d	MSHA Training (if required)+C136				-
e	Total Cost				\$ 1,000

PLANT NAME: Southern Avenue
LOCATION: _____ 0

DATE: October 1, 2020
PAGE: 3 of 3

DEMOLITION PROJECT SUMMARY OF ESTIMATED COSTS

1. FUEL SYSTEM REMOVAL	\$ 5,000
2. STRUCTURAL STEEL REMOVAL	21,000
3. DEMOLITION AND REMOVAL OF ALL BUILDINGS/GARAGE/SHOP AND OTHER NON PLANT STRUCTURES EXCLUSIVE OF BUILDING SLABS AND FOOTINGS.	-
4. STRUCTURAL CONCRETE REMOVAL AND EXPORT OFF SITE.	32,500
5. YARD PAVING MATERIAL (ASPHALT/CONCRETE) REMOVAL AND EXPORT OFF SITE.	4,500
6. ABANDON AND REMOVE ALL UNDERGROUND UTILITIES.	1,500
7. EXCAVATION REQUIRED AT SITE.	-
8. BACKFILL AND COMPACTION REQUIRED AT SITE.	-
9. IMPORT / EXPORT OF FILL MATERIAL NEEDED AT SITE.	-
10. FINAL SITE GRADING.	22,500
11. YARD MISCELLANEOUS SCRAP REMOVAL.	12,000
12. ESTIMATED FEES FOR DEMOLITION AND/OR GRADING PERMITS, AND SITE SURVEYS (ASBESTOS, ETC.)	1,000
DEMOLITION PROJECT TOTAL COST	<u>\$ 100,000</u>

Note: Third party costs have been used in this estimate.



SITE DEMOLITION COST ESTIMATE - HMA PLANT

PLANT NAME: Southern Avenue
 LOCATION: _____
 SITE SIZE - AC: _____
 CREATED BY: M. HUNT

DATE: October 1, 2020
 PAGE: 1 of 3

1. FUEL SYSTEM REMOVAL

Item	Description	Quantity	Units	Unit Price	Extension
a	Fuel System Tank Disposal	20,000	gal	\$ 0.50	10,000
b			gal	\$ 0.50	-
c			gal	\$ 0.50	-
d		-	gal	\$ 0.75	-
Total Cost					\$ 10,000

2. STRUCTURAL STEEL REMOVAL

Item	Description	Quantity	Units	Unit Price	Extension
a	Structural demo equipment and crew	2	days	\$ 3,500.00	7,000
b					-
c					-
d					-
Total Cost					\$ 7,000

3. DEMOLITION AND REMOVAL OF ALL BUILDINGS/GARAGE/SHOP AND OTHER NON PLANT STRUCTURES EXCLUSIVE OF BUILDING SLABS AND FOOTINGS.

Item	Description	Quantity	Units	Unit Price	Extension
a		-	sq ft	\$ 4.00	-
b		-	sq ft	\$ 2.00	-
c					-
d					-
Total Cost					\$ -

4. STRUCTURAL CONCRETE REMOVAL AND EXPORT OFF SITE.

Item	Description	Quantity	Units	Unit Price	Extension
a	Plant Structural Concrete Removal & Export	1,270	Cu Yds	\$ 65	82,550
b		-	Cu Yds	\$ 65	-
c					-
d					-
Total Cost					\$ 82,550

5. YARD PAVING MATERIAL (ASPHALT/CONCRETE) REMOVAL AND EXPORT OFF SITE.

Item	Description	Quantity	Units	Unit Price	Extension
a	Total site yard paving material removal	100	Cu Yds	\$ 40.00	4,000
b	Total site yard paving export off site	100	Tons	\$ 5.00	500
c					-
d					-
Total Cost					\$ 4,500

6. ABANDON AND REMOVE ALL UNDERGROUND UTILITIES.

Item	Description	Quantity	Units	Unit Price	Extension
a	Water capped at property line	-	ea	\$ 1,500	-
b	Electric capped at property line	-	ea	\$ 1,500	-
c	Sewer capped at property line	-	ea	\$ 1,500	-
d	Natural gas capped at property line	-	ea	\$ 1,500	-
Total Cost					\$ -

SITE DEMOLITION COST ESTIMATE

PLANT NAME: Southern Avenue
 LOCATION: _____ 0

DATE: October 1, 2020
 PAGE: 2 of 3

7. EXCAVATION REQUIRED AT SITE.

Item	Description	Quantity	Units	Unit Price	Extension
a	Plant excavation required	-	Cu Yds	\$ 6.00	-
b	Import system excavation required	-	Cu Yds	\$ 6.00	-
c					-
d					-
e	Total Cost				\$ -

8. BACKFILL AND COMPACTION REQUIRED AT SITE.

Item	Description	Quantity	Units	Unit Price	Extension
a	Plant backfill and compaction required	-	Cu Yds	\$ 4.00	-
b	Import system backfill and compaction required	-	Cu Yds	\$ 4.00	-
c					-
d					-
e	Total Cost				\$ -

9. IMPORT / EXPORT OF FILL MATERIAL NEEDED AT SITE.

Item	Description	Quantity	Units	Unit Price	Extension
a	Import of fill material needed at site	-	Tons		-
b	Export of fill material from site	-	Tons		-
c					-
d					-
e	Total Cost				\$ -

10. FINAL SITE GRADING.

Item	Description	Quantity	Units	Unit Price	Extension
a	Final site grading	5	acres	\$ 750.00	3,750
b					-
c					-
d					-
e	Total Cost				\$ 3,750

11. YARD MISCELLANEOUS SCRAP REMOVAL.

Item	Description	Quantity	Units	Unit Price	Extension
a	Miscellaneous trash/scrap removal from site	5	15T loads	\$ 800	4,000
b	Asbestos removal contractor	-	ea	\$ 3,000	-
c					-
d					-
e	Total Cost				\$ 4,000

12. ESTIMATED FEES FOR DEMOLITION AND/OR GRADING PERMITS, AND SITE SURVEYS (ASBESTOS, ETC.)

Item	Description	Quantity	Units	Unit Price	Extension
a	Asbestos Survey	-		\$ 2,000	-
b	City Demo Permit	1		\$ 500	500
c	AQMD Demo Permit	1		\$ 500	500
d	MSHA Training (if required)+C136				-
e	Total Cost				\$ 1,000

PLANT NAME: Southern Avenue
LOCATION: _____ 0

DATE: October 1, 2020
PAGE: 3 of 3

DEMOLITION PROJECT SUMMARY OF ESTIMATED COSTS

1. FUEL SYSTEM REMOVAL	\$ 10,000
2. STRUCTURAL STEEL REMOVAL	7,000
3. DEMOLITION AND REMOVAL OF ALL BUILDINGS/GARAGE/SHOP AND OTHER NON PLANT STRUCTURES EXCLUSIVE OF BUILDING SLABS AND FOOTINGS.	-
4. STRUCTURAL CONCRETE REMOVAL AND EXPORT OFF SITE.	82,550
5. YARD PAVING MATERIAL (ASPHALT/CONCRETE) REMOVAL AND EXPORT OFF SITE.	4,500
6. ABANDON AND REMOVE ALL UNDERGROUND UTILITIES.	-
7. EXCAVATION REQUIRED AT SITE.	-
8. BACKFILL AND COMPACTION REQUIRED AT SITE.	-
9. IMPORT / EXPORT OF FILL MATERIAL NEEDED AT SITE.	-
10. FINAL SITE GRADING.	3,750
11. YARD MISCELLANEOUS SCRAP REMOVAL.	4,000
12. ESTIMATED FEES FOR DEMOLITION AND/OR GRADING PERMITS, AND SITE SURVEYS (ASBESTOS, ETC.)	1,000
DEMOLITION PROJECT TOTAL COST	<u>\$ 112,800</u>

Note: Third party costs have been used in this estimate.



SITE DEMOLITION COST ESTIMATE - RMC PLANT

PLANT NAME: Southern Avenue
 LOCATION: _____
 SITE SIZE - AC: _____
 CREATED BY: M. HUNT

DATE: October 1, 2020
 PAGE: 1 of 3

1. FUEL SYSTEM REMOVAL

Item	Description	Quantity	Units	Unit Price	Extension
a	Fuel System Tank Disposal	-	gal	\$ 0.50	-
b			gal	\$ 0.50	-
c			gal	\$ 0.50	-
d		-	gal	\$ 0.75	-
Total Cost					\$ -

2. STRUCTURAL STEEL REMOVAL

Item	Description	Quantity	Units	Unit Price	Extension
a	Structural demo equipment and crew	3	days	\$ 3,500.00	10,500
b					-
c					-
d					-
Total Cost					\$ 10,500

3. DEMOLITION AND REMOVAL OF ALL BUILDINGS/GARAGE/SHOP AND OTHER NON PLANT STRUCTURES EXCLUSIVE OF BUILDING SLABS AND FOOTINGS.

Item	Description	Quantity	Units	Unit Price	Extension
a	Misc. Buildings - Demo.	-	sq ft	\$ 4.00	-
b		-	sq ft	\$ 2.00	-
c					-
d					-
Total Cost					\$ -

4. STRUCTURAL CONCRETE REMOVAL AND EXPORT OFF SITE.

Item	Description	Quantity	Units	Unit Price	Extension
a	Plant Structural Concrete Removal	300	Cu Yds	\$ 65	19,500
b	Plant Structural Concrete Removal (Export from site)	300	Cu Yds	\$ 15	4,500
c					-
d					-
Total Cost					\$ 24,000

5. YARD PAVING MATERIAL (ASPHALT/CONCRETE) REMOVAL AND EXPORT OFF SITE.

Item	Description	Quantity	Units	Unit Price	Extension
a	Total site yard paving material removal	-	Cu Yds	\$ 40.00	-
b	Total site yard paving export off site	-	Cu Yds	\$ 15.00	-
c					-
d					-
Total Cost					\$ -

6. ABANDON AND REMOVE ALL UNDERGROUND UTILITIES.

Item	Description	Quantity	Units	Unit Price	Extension
a	Water capped at property line	-	ea	\$ 1,500	-
b	Electric capped at property line	-	ea	\$ 1,500	-
c	Sewer capped at property line	-	ea	\$ 1,500	-
d	Natural gas capped at property line	-	ea	\$ 1,500	-
Total Cost					\$ -

SITE DEMOLITION COST ESTIMATE

PLANT NAME: Southern Avenue

DATE: October 1, 2020

LOCATION: _____ 0

PAGE: 2 of 3

7. EXCAVATION REQUIRED AT SITE.

Item	Description	Quantity	Units	Unit Price	Extension
a	Plant excavation required	-	Cu Yds	\$ 6.00	-
b	Import system excavation required	-	Cu Yds	\$ 6.00	-
c					-
d					-
e	Total Cost				\$ -

8. BACKFILL AND COMPACTION REQUIRED AT SITE.

Item	Description	Quantity	Units	Unit Price	Extension
a	Plant backfill and compaction required	-	Cu Yds	\$ 4.00	-
b	Import system backfill and compaction required	-	Cu Yds	\$ 4.00	-
c					-
d					-
e	Total Cost				\$ -

9. IMPORT / EXPORT OF FILL MATERIAL NEEDED AT SITE.

Item	Description	Quantity	Units	Unit Price	Extension
a	Import of fill material needed at site	-	Tons		-
b	Export of fill material from site	-	Tons		-
c					-
d					-
e	Total Cost				\$ -

10. FINAL SITE GRADING.

Item	Description	Quantity	Units	Unit Price	Extension
a	Final site grading	4	acres	\$ 750.00	3,000
b					-
c					-
d					-
e	Total Cost				\$ 3,000

11. YARD MISCELLANEOUS SCRAP REMOVAL.

Item	Description	Quantity	Units	Unit Price	Extension
a	Miscellaneous trash/scrap removal from site	5	15T loads	\$ 800	4,000
b	Asbestos removal contractor	-	ea	\$ 3,000	-
c					-
d					-
e	Total Cost				\$ 4,000

12. ESTIMATED FEES FOR DEMOLITION AND/OR GRADING PERMITS, AND SITE SURVEYS (ASBESTOS, ETC.)

Item	Description	Quantity	Units	Unit Price	Extension
a	Asbestos Survey	-		\$ 2,000	-
b	City Demo Permit	1		\$ 500	500
c	AQMD Demo Permit	1		\$ 500	500
d	MSHA Training (if required)+C136				-
e	Total Cost				\$ 1,000

PLANT NAME: Southern Avenue
LOCATION: 0

DATE: October 1, 2020
PAGE: 3 of 3

DEMOLITION PROJECT SUMMARY OF ESTIMATED COSTS

1. FUEL SYSTEM REMOVAL	\$ -
2. STRUCTURAL STEEL REMOVAL	10,500
3. DEMOLITION AND REMOVAL OF ALL BUILDINGS/GARAGE/SHOP AND OTHER NON PLANT STRUCTURES EXCLUSIVE OF BUILDING SLABS AND FOOTINGS.	-
4. STRUCTURAL CONCRETE REMOVAL AND EXPORT OFF SITE.	24,000
5. YARD PAVING MATERIAL (ASPHALT/CONCRETE) REMOVAL AND EXPORT OFF SITE.	-
6. ABANDON AND REMOVE ALL UNDERGROUND UTILITIES.	-
7. EXCAVATION REQUIRED AT SITE.	-
8. BACKFILL AND COMPACTION REQUIRED AT SITE.	-
9. IMPORT / EXPORT OF FILL MATERIAL NEEDED AT SITE.	-
10. FINAL SITE GRADING.	3,000
11. YARD MISCELLANEOUS SCRAP REMOVAL.	4,000
12. ESTIMATED FEES FOR DEMOLITION AND/OR GRADING PERMITS, AND SITE SURVEYS (ASBESTOS, ETC.)	1,000
DEMOLITION PROJECT TOTAL COST	<u>\$ 42,500</u>

Note: Third party costs have been used in this estimate.

APPENDIX C. SELF-ASSURANCE INFORMATION



Arizona State Mine Inspector (ASMI) Agency
 Attn: Amanda Lothner
 Reclamation Department
 1700 West Washington St., Suite 403
 Phoenix, AZ 85007-2805

October 5, 2020

Reference: Cover Letter for Vulcan Materials Company (Vulcan) Certificate of Self Insurance Update for Southern Avenue Addition

Attached with this cover letter, are letters from Vulcan independent accounting firm and backup data to confirm the requirements for Self Insurance for the 13 aggregate sites that were approved April 6, 2020. Located below are the individual and total reclamation costs for the 13 Vulcan aggregate mine sites.

Vulcan Sites and Reclamation Costs	
Vulcan Materials Company Mine Site	Reclamation Costs From Plan
Avondale	\$180,850.00
Black Angus	\$180,850.00
Gila 240	\$180,850.00
Green Valley	\$280,658.00
Ina Road	\$1,210,000.00
Litchfield	\$406,920.00
Marana	\$358,550.00
Peoria	\$257,807.80
South Pit	\$51,919.43
Sun City	\$644,493.00
Val Vista	\$42,500.00
West 43rd	\$498,200.00
West Broadway	\$947,000.00
Total Cost	\$5,240,598.23

Internally Vulcan’s naming conventions for the mine sites are different than those used for the AZ State Mine Inspector sites.

Southern Avenue will bring the site total to 14 sites, and Southern Avenue has a total reclamation cost of \$255,300. The 14 Arizona sites reclamation cost is \$5,495,898. Some of the costs are different (\$8.3MM versus \$5.5MM) as well because Vulcan escalations reclamation costs over time (all of the original costs are approximately from 2005). As a company, all Vulcan’s reclamation costs for the 14 Mountain West Sites as listed above are part of one large

reclamation cost. The attached information verifies Vulcan have more than (\$8.3MM) the listed amount (\$5.5MM) listed above.

I hope the information included satisfies the requirements for self-insurance. If additional information is required, please contact Timothy O'Brien, Senior Geologist, Email: obrientw@vmcmail.com, and 323-855-4657.

Sincerely,

Timothy O'Brien 10/5/2020

Timothy O'Brien
Geologist
Mobile: (323) 855-4657

Attachments



Arizona State Mine Inspector (ASMI) Agency
Attn: Amanda Lothner
Reclamation Department
1700 West Washington St., Suite 403
Phoenix, AZ 85007-2805

March 26, 2020

Reference: Certificate of Self Insurance for Vulcan Materials Company Aggregate Mine Sites Reclamation

Per 40 Code of Federal Regulation § 264.143(f) which is incorporated by reference in A.R.S. § 27-1291(B)(8) and R-11-3-809(C) require annual financial statements that have been submitted to the U.S. Securities and Exchange Commission (SEC).

Located below are the individual and total reclamation costs for the 7 Vulcan aggregate mine sites.

Arizona Vulcan Sites and Estimated Reclamation Costs

Mine Site	Estimated Costs as of December 31, 2018
Litchfield C&D Landfill	\$ 3,948,088
Queen Creek	562,713
Avondale	754,015
Peoria	922,413
Black Angus	1,113,087
Marana	483,192
Ina	502,260
Total Estimated Costs	\$ 8,285,768

I have reviewed the requirements listed in the statutes above and have prepared Attachment 1 using Vulcan Materials Company' 2019 SEC Form 10-K.

On Attachment 1, the calculations cover the requirements listed in 40 Code of Federal Regulations § 264.143(f)(1)(ii).

I (Suzanne H. Wood) hereby certify that CalMat Co., a Delaware corporation dba Vulcan Materials Company, Mountain West Division, qualifies for self-insurance as a financial assurance mechanism pursuant to A.R.S. § 27-1291(B)(8) and R-11-3-809(C).

If additional information is required, please contact Michael Hunt, Senior Mining Engineer,
Email: huntm@vmcmail.com, and 602-528-8955.

Sincerely,

A handwritten signature in blue ink, appearing to read "Suzanne H. Wood".

Suzanne H. Wood
Senior VP & Chief Financial Officer
Vulcan Materials Company

Attachments

Attachment 1

VULCAN MATERIALS COMPANY
(as indirect parent of CalMat Co.)
(\$ in Thousands)

December 31, 2019

VMC Aggregate Mine Sites Reclamation Financial Assurance Calculations

(A) Current senior unsecured debt rating

BBB+
(Standard & Poors)

(B) Is tangible net worth => 6X Financial Assurance Amount?

Yes

Tangible Net Worth:

Total Assets	\$	10,648,793
Less: Intangible assets		(4,258,536)
Less: Total Liabilities		(5,026,936)
Tangible Net Worth	\$	<u>1,363,321</u>
Estimated Cost of Work	\$	8,286
Other financially assured environmental obligations		4,883
Total Financial Assurance Amount	\$	<u>13,169</u>

(C) Is Tangible Net Worth => \$10 million

Yes

(D) Are at least 90% of firm's assets located in the U.S.?

Yes

Total Assets	\$	10,648,793
Less: Assets outside of the U.S.		(274,439)
Total U.S. assets	\$	<u>10,374,354</u>

Vulcan Materials Company and Subsidiary Companies

Consolidated Balance Sheets (Condensed and unaudited)	<i>December 31</i> 2019	<i>December 31</i> 2018
Assets		
Cash and cash equivalents	\$271,589	\$40,037
Restricted cash	2,917	4,367
Accounts and notes receivable		
Accounts and notes receivable, gross	573,241	542,868
Allowance for doubtful accounts	(3,125)	(2,090)
Accounts and notes receivable, net	570,116	540,778
Inventories		
Finished products	391,666	372,604
Raw materials	31,318	27,942
Products in process	5,604	3,064
Operating supplies and other	29,720	25,720
Inventories	458,308	429,330
Current deferred income taxes	0	0
Other current assets	76,396	64,633
Assets held for sale	0	0
Total current assets	1,379,326	1,079,145
Investments and long-term receivables	60,709	44,615
Property, plant & equipment		
Property, plant & equipment, cost	8,749,217	8,457,619
Allowances for depreciation, depletion & amortization	(4,433,179)	(4,220,312)
Property, plant & equipment, net	4,316,038	4,237,307
Operating lease right-of-use assets, net	408,189	0
Goodwill	3,167,061	3,165,396
Other intangible assets, net	1,091,475	1,095,378
Other noncurrent assets	225,995	210,289
Total assets	\$10,648,793	\$9,832,130
Total Cash and Securities	274,506	44,404
Ending Cash (Adjusted)	274,506	44,404
Negative Cash Adjustments	0	0
Total Prepaid Expense	76,396	64,634
Liabilities		
Current maturities of long-term debt	25	23
Short-term debt	0	133,000
Trade payables and accruals	265,159	216,473
Accounts payable	113,436	105,047
Materials And Services	151,723	111,426
Other current liabilities	270,379	253,054
Liabilities of assets held for sale	0	0
Total current liabilities	535,563	602,550
Long-term debt	2,784,315	2,779,357
Deferred income taxes, net	633,039	567,283
Deferred Federal Taxes	540,920	481,288
Deferred State Taxes	92,119	85,995
Deferred revenue	179,880	186,397
Operating lease liabilities	388,042	0
Other noncurrent liabilities	506,097	493,640
Total liabilities	\$5,026,936	\$4,629,227
Equity		
Common stock, \$1 par value	132,371	131,762
Preferred stock, no par value	0	0
Capital in excess of par value	2,791,353	2,798,486
Retained earnings	2,895,871	2,444,870
Accumulated other comprehensive loss	(197,738)	(172,215)
Treasury stock at cost	0	0
Total equity	\$5,621,857	\$5,202,903
Total liabilities and equity	\$10,648,793	\$9,832,130

NOTE 15: SEGMENT REPORTING

The vast majority of our activities are domestic. We sell a relatively small amount of construction aggregates outside the United States. Total domestic revenues were \$4,912,972,000 in 2019, \$4,365,309,000 in 2018 and \$3,872,494,000 in 2017. Nondomestic Aggregates segment revenues were \$16,131,000 in 2019, \$17,560,000 in 2018 and \$17,802,000 in 2017; there were no significant nondomestic revenues in our Asphalt, Concrete or Calcium segments. **Long-lived assets outside the United States, which consist primarily of property, plant & equipment, were \$274,439,000 in 2019, \$278,520,000 in 2018 and \$211,282,000 in 2017.** Equity method



Deloitte & Touche LLP
420 North 20th Street
Suite 2400
Birmingham, AL 35205
USA

Tel: +1 205 321 6000
Fax: +1 205 322 2828
www.deloitte.com

**REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM ON APPLYING
AGREED-UPON PROCEDURES**

To the Board of Directors of
Vulcan Materials Company
Birmingham, Alabama

We have performed the procedures included in the Code of Federal Regulations (CFR) Title 40, Part 264, Section 143 (40 CFR 264.143), which were agreed to by the Arizona State Mine Inspector and Vulcan Materials Company ("Vulcan"), solely to assist the specified parties in evaluating Vulcan's compliance with the financial test option as of December 31, 2019, included in the accompanying letter dated March 26, 2020 from Suzanne Wood of Vulcan Materials Company. Management is responsible for Vulcan's compliance with those requirements. This agreed-upon procedures engagement was conducted in accordance with attestation standards established by the American Institute of Certified Public Accountants. The sufficiency of these procedures is solely the responsibility of the parties specified in this report. Consequently, we make no representation regarding the sufficiency of the procedures described below either for the purpose for which this report has been requested or for any other purpose.

The procedures that we performed and related findings are as follows:

1. We compared the amounts included in the financial test attached to the Certificate of Self Insurance letter to the Arizona State Mine Inspector with the corresponding amounts in the audited financial statements of Vulcan Materials Company as of and for the year ended December 31, 2019, on which we have issued our report dated February 26, 2020, and noted that such amounts were in agreement.
2. We recomputed from, or reconciled to, the financial statements referred to in procedure 1 the information included in the financial test in the letter referred to above and noted no differences.

We were not engaged to, and did not perform an examination, the objective of which would be the expression of an opinion on the accompanying letter dated March 26, 2020. Accordingly, we do not express such an opinion. Had we performed additional procedures, other matters might have come to our attention that would have been reported to you.

This report is intended solely for the information and use of the board of directors and management of Vulcan Materials Company and the Arizona State Mine Inspector, and is not intended to be and should not be used by anyone other than these specified parties.

March 26, 2020

**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549
FORM 10-K**

ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the Fiscal Year Ended **December 31, 2019**

OR

TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
For the Transition Period From _____ to _____

Commission file number: **001-33841**

VULCAN MATERIALS COMPANY

(Exact Name of Registrant as Specified in Its Charter)

New Jersey

(State or other jurisdiction of incorporation or organization)

20-8579133

(I.R.S. Employer Identification No.)

1200 Urban Center Drive, Birmingham, Alabama

(Address of Principal Executive Offices)

35242

(Zip Code)

(205) 298-3000

(Registrant's telephone number, including area code)

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Trading Symbol	Name of each exchange on which registered
Common Stock, \$1 par value	VMC	New York Stock Exchange

Securities registered pursuant to Section 12(g) of the Act: **None**

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act.

Yes No

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act.

Yes No

Indicate by check mark whether the registrant: (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days.

Yes No

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T during the preceding 12 months (or for such shorter period that the registrant was required to submit such files).

Yes No

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company" and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer

Non-accelerated filer

Accelerated filer

Smaller reporting company

Emerging growth company

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act.

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Act).

Yes No

Aggregate market value of voting and non-voting common stock held by non-affiliates as of June 28, 2019:

\$18,124,821,274

Number of shares of common stock, \$1.00 par value, outstanding as of February 13, 2020:

132,394,732

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the registrant's annual proxy statement for the annual meeting of its shareholders to be held on May 8, 2020, are incorporated by reference into Part III of this Annual Report on Form 10-K.

ANNUAL REPORT ON FORM 10-K FISCAL YEAR ENDED DECEMBER 31, 2019

CONTENTS

PART	ITEM		PAGE
I	1	<u>Business</u>	3
	1A	<u>Risk Factors</u>	17
	1B	<u>Unresolved Staff Comments</u>	21
	2	<u>Properties</u>	22
	3	<u>Legal Proceedings</u>	25
	4	<u>Mine Safety Disclosures</u>	25
	—	<u>Information about our Executive Officers</u>	26
II	5	<u>Market for the Registrant’s Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities</u>	27
	6	<u>Selected Financial Data</u>	28
	7	<u>Management’s Discussion and Analysis of Financial Condition and Results of Operations</u>	29
	7A	<u>Quantitative and Qualitative Disclosures about Market Risk</u>	63
	8	<u>Financial Statements and Supplementary Data</u>	64
	9	<u>Changes in and Disagreements with Accountants on Accounting and Financial Disclosure</u>	119
	9A	<u>Controls and Procedures</u>	119
	9B	<u>Other Information</u>	121
	III	10	<u>Directors, Executive Officers and Corporate Governance</u>
11		<u>Executive Compensation</u>	122
12		<u>Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters</u>	122
13		<u>Certain Relationships and Related Transactions, and Director Independence</u>	122
14		<u>Principal Accounting Fees and Services</u>	122
IV	15	<u>Exhibits and Financial Statement Schedules</u>	123
	16	<u>Form 10-K Summary</u>	128
	—	<u>Signatures</u>	129

Unless otherwise stated or the context otherwise requires, references in this report to “Vulcan,” the “Company,” “we,” “our,” or “us” refer to Vulcan Materials Company and its consolidated subsidiaries.

PART I

“SAFE HARBOR” STATEMENT UNDER THE PRIVATE SECURITIES LITIGATION REFORM ACT OF 1995

Certain of the matters and statements made herein or incorporated by reference into this report constitute forward-looking statements within the meaning of Section 21E of the Securities Exchange Act of 1934. All such statements are made pursuant to the safe harbor provisions of the Private Securities Litigation Reform Act of 1995. These statements reflect our intent, belief or current expectation. Often, forward-looking statements can be identified by the use of words, such as “anticipate,” “may,” “believe,” “estimate,” “project,” “expect,” “intend” and words of similar import. In addition to the statements included in this report, we may from time to time make other oral or written forward-looking statements in other filings under the Securities Exchange Act of 1934 or in other public disclosures. Forward-looking statements are not guarantees of future performance, and actual results could differ materially from those indicated by the forward-looking statements. All forward-looking statements involve certain assumptions, risks and uncertainties that could cause actual results to differ materially from those included in or contemplated by the statements. These assumptions, risks and uncertainties include, but are not limited to:

- general economic and business conditions
- our dependence on the construction industry, which is subject to economic cycles
- the timing and amount of federal, state and local funding for infrastructure
- changes in the level of spending for private residential and private nonresidential construction
- changes in our effective tax rate
- the increasing reliance on information technology infrastructure, including the risks that the infrastructure does not work as intended, experiences technical difficulties or is subjected to cyber-attacks
- the impact of the state of the global economy on our businesses and financial condition and access to capital markets
- the highly competitive nature of the construction industry
- the impact of future regulatory or legislative actions, including those relating to climate change, wetlands, greenhouse gas emissions, the definition of minerals, tax policy or international trade
- the outcome of pending legal proceedings
- pricing of our products
- weather and other natural phenomena, including the impact of climate change and availability of water
- energy costs
- costs of hydrocarbon-based raw materials
- healthcare costs
- the amount of long-term debt and interest expense we incur
- changes in interest rates
- the impact of a discontinuation of the London Interbank Offered Rate (LIBOR)
- volatility in pension plan asset values and liabilities, which may require cash contributions to the pension plans
- the impact of environmental cleanup costs and other liabilities relating to existing and/or divested businesses
- our ability to secure and permit aggregates reserves in strategically located areas
- our ability to manage and successfully integrate acquisitions
- the effect of changes in tax laws, guidance and interpretations
- significant downturn in the construction industry may result in the impairment of goodwill or long-lived assets
- changes in technologies, which could disrupt the way we do business and how our products are distributed
- the risks set forth in Item 1A “Risk Factors,” Item 3 “Legal Proceedings,” Item 7 “Management’s Discussion and Analysis of Financial Condition and Results of Operations,” and Note 12 “Commitments and Contingencies” to the consolidated financial statements in Item 8 “Financial Statements and Supplementary Data,” all as set forth in this report

- other assumptions, risks and uncertainties detailed from time to time in our filings made with the Securities and Exchange Commission

All forward-looking statements are made as of the date of filing or publication. We undertake no obligation to publicly update any forward-looking statements, whether as a result of new information, future events or otherwise, except to the extent required by law. Investors are cautioned not to rely unduly on such forward-looking statements when evaluating the information presented in our filings, and are advised to consult any of our future disclosures in filings made with the Securities and Exchange Commission and our press releases with regard to our business and consolidated financial position, results of operations and cash flows.

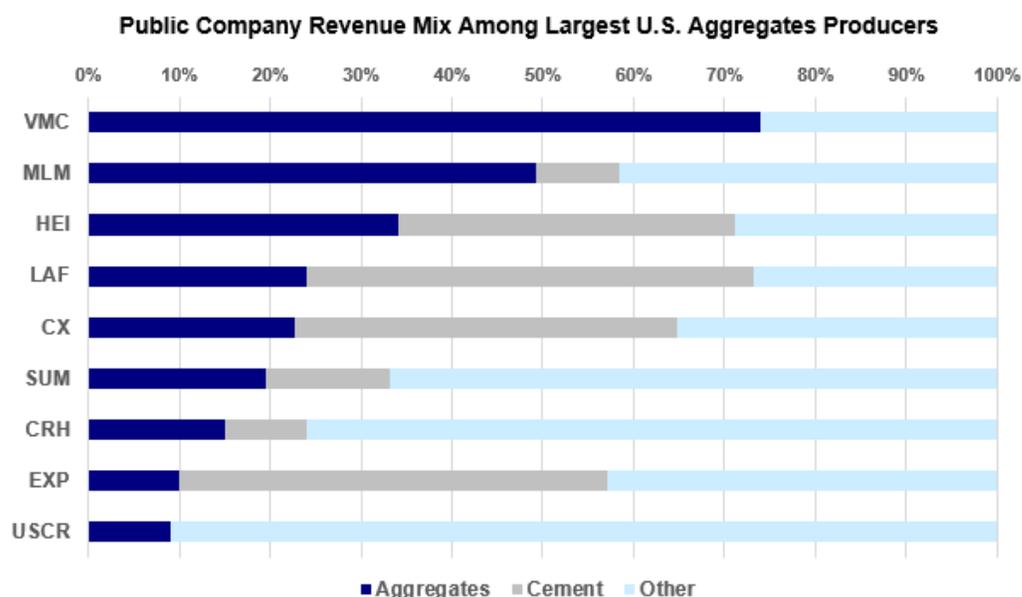
Vulcan Materials Company, a New Jersey corporation, operates primarily in the U.S. and is the nation’s largest supplier of construction aggregates (primarily crushed stone, sand and gravel) and a major producer of asphalt mix and ready-mixed concrete. We provide the basic materials for the infrastructure needed to maintain and expand the U.S. economy. Delivered by trucks, ships, barges and trains, our products are the indispensable materials building homes, offices, places of worship, schools, hospitals and factories, as well as vital infrastructure including highways, bridges, roads, ports and harbors, water systems, campuses, dams, airports and rail networks. As of December 31, 2019, we had 366 active aggregates facilities, 70 asphalt facilities and 53 concrete facilities.

BUSINESS STRATEGY

Our strategy and competitive advantage are based on our strength in aggregates which are used in most types of construction and in the production of asphalt mix and ready-mixed concrete. Our strategy for long-term value creation is built on: (1) an aggregates-focused business, (2) a disciplined approach to portfolio management and capital allocation, (3) a focus on continuous compounding improvement in profitability, (4) a holistic approach to land management, and (5) our commitment to safety, health and the environment.

1. AGGREGATES FOCUS

Vulcan is uniquely positioned as the largest aggregates supplier in the U.S. and the most aggregates-focused public company.



Source: 2018 reported financial information and Company estimates

Aggregates are used in virtually all types of public and private construction, and practically no substitutes for quality aggregates exist. Given our focus on aggregates, we:

- TAKE ADVANTAGE OF SIZE AND SCALE:** Our 366 active aggregates facilities as of December 31, 2019 provide opportunities to standardize operating practices and procure equipment (fixed and mobile), parts, supplies and services in an efficient and cost-effective manner, both regionally and nationally. Each aggregates operation is also unique because of its location within a local market and its particular geological characteristics. Every operation, however, uses a similar group of assets to produce saleable aggregates and provide customer service. Additionally, we are able to share best practices across the organization and leverage our size for administrative support, customer service, accounting, procurement, technical support and engineering.

- **BUILD AND HOLD SUBSTANTIAL RESERVES:** Our reserves are critical to our long-term success. We currently have 16.2 billion tons of permitted and proven or probable aggregates reserves. They are strategically located throughout the United States in high-growth areas that are expected to require large amounts of aggregates to meet future construction demand. Moreover, there are significant barriers to entry in many metropolitan markets due to stringent zoning and permitting regulations. These restrictions curtail expansion in certain areas, but they also increase the value of our reserves at existing locations.

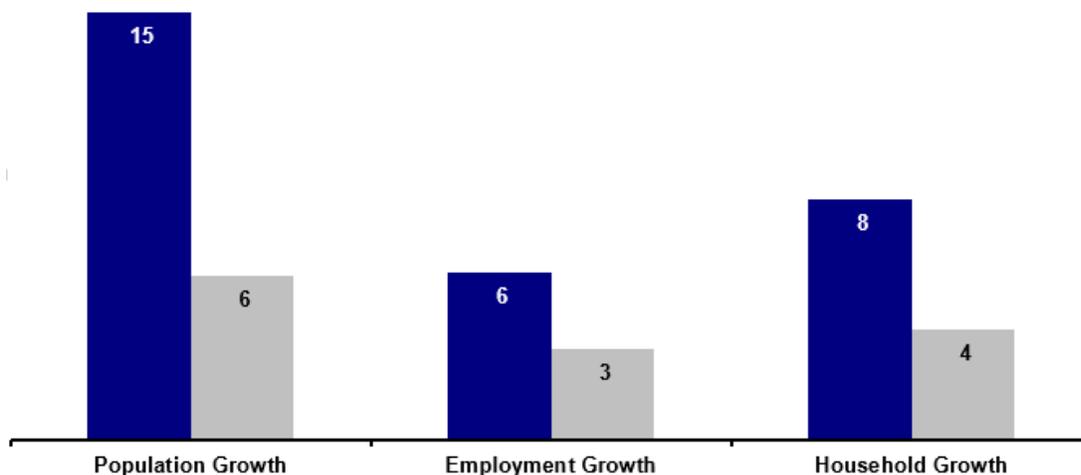
2. PORTFOLIO MANAGEMENT AND CAPITAL ALLOCATION

Demand for our products is dependent on construction activity and correlates positively with changes in population growth, household formation and employment. During the period 2020 - 2030, Moody's Analytics projects that 72% of the U.S. population growth, 68% of household formation and 65% of new jobs will occur in Vulcan-served states. The close proximity of our aggregates reserves and our production facilities to this projected population growth creates many opportunities to invest capital in high-return projects.

Projected Demographic Growth, 2020 to 2030

(Millions)

■ Vulcan States ■ Non-Vulcan States



Source: Moody's Analytics as of December 12, 2019

We have pursued a strategy to increase our presence in U.S. metropolitan areas that are expected to grow the most rapidly and to divest assets that are no longer considered part of our long-term growth strategy. Our coast-to-coast footprint serves 19 of the top 25 highest-growth U.S. metropolitan areas in 20 states plus the District of Columbia.

Our top ten revenue producing states accounted for 87% of our 2019 revenues while our top five accounted for 61%.

VULCAN'S TOP TEN REVENUE PRODUCING STATES IN 2019

- | | |
|---------------|--------------------|
| 1. Texas | 6. Florida |
| 2. California | 7. Arizona |
| 3. Virginia | 8. North Carolina |
| 4. Tennessee | 9. Alabama |
| 5. Georgia | 10. South Carolina |

- **PORTFOLIO MANAGEMENT:** Since becoming a public company in 1956, Vulcan has principally grown by mergers and acquisitions. For example, in 1999 we acquired CalMat Co., thereby expanding our aggregates operations into California and Arizona and making us one of the nation's leading producers of asphalt mix. In 2007, we acquired Florida Rock Industries, Inc. This acquisition expanded our aggregates business in Florida and our aggregates and ready-mixed concrete businesses in other Mid-Atlantic and Southeastern states. In 2017, we acquired Aggregates USA — this acquisition greatly expanded our ability to serve customers in Florida, Georgia and South Carolina. Additionally, throughout our history we have completed many bolt-on aggregates acquisitions that have contributed significantly to our growth. For example, during 2019 we acquired aggregates operations that strengthened our position in Tennessee.

While an aggregates-focused business, we selectively make investments in downstream products that drive local market profitability. Our downstream businesses (asphalt and concrete) use Vulcan-produced aggregates almost exclusively. In 2017, we entered the asphalt market in Tennessee through the acquisition of several asphalt mix operations and a construction paving business. In 2018, we entered the asphalt mix and construction paving markets in Alabama and expanded our asphalt operations and service offerings in Texas through the acquisition of several asphalt mix operations and construction paving businesses. Additionally, throughout our history we have completed many bolt-on downstream acquisitions that have contributed significantly to our growth. For example, during 2019 we expanded our Virginia ready-mixed concrete operations.

From 2017 to 2019, we invested over \$1.1 billion in acquisitions, while further strengthening our portfolio through divestitures and swaps, including swapping our concrete operations in Arizona for asphalt operations in Arizona during 2017.

- **CAPITAL ALLOCATION:** Our long-term strategy around capital allocation has given us the ability to leverage decisions we have made over the past few years. During 2019, we reinvested \$384.1 million into core operating & maintenance capital and internal growth capital, in addition to \$469.1 million and \$459.6 million reinvested in 2018 and 2017, respectively. These investments are fundamental actions that sustain and strengthen the business. They improve the longer-term efficiency, capacity and flexibility of our production, and they support our strong commitment to superior customer service.

3. COMPOUNDING IMPROVEMENT IN PROFITABILITY

Our focus on the following four strategic initiatives has made us one of the most profitable public companies in the industry (as measured by aggregates gross profit per ton).

- **Operational Excellence** — Continuous and sustainable improvements in both our operating disciplines and our industry-leading safety performance coupled with better asset utilization through improved availability and throughput leads to effective cost control.
- **Strategic Sourcing** — Leveraging common practices and innovation leads to more time in our plants and with our suppliers to optimize the total cost of ownership (right part at the right time).
- **Commercial Excellence** — Clearly defined roles and responsibilities together with access to real time, forward-looking metrics leads to our sales teams spending less time on non-selling activities and more time responding to our customers' needs.
- **Logistics Innovation** – Partnering with our customers (truck drivers and contractors) to provide a bundled logistics solution with digital shipping records and on-site, mobile visibility leads to streamlined scheduling, speed and accuracy of delivery, and efficient back-office processes.

We manage these initiatives locally and align our talent and incentives accordingly. Our knowledgeable and experienced workforce and our flexible production capabilities allow us to manage operational and overhead costs aggressively.

4. LAND MANAGEMENT

With approximately 240,000 acres in our land portfolio, a long-term holistic approach to preserving land and water is integral to sustaining our success. From pre-mining to mining to reclamation, we are actively managing the entire life cycle of our land, creating maximum value for the business, our shareholders and our communities.

We are putting land to use before we mine by creating opportunities for agriculture and timber development. After mining, our land and water assets will be converted to other valuable uses including drinking water reservoirs, aquifer recharge basins, public parks, habitat mitigation banks, wetlands, productive farmland and residential and commercial developments.

Because of the evolving needs of our communities, we listen to and collaborate with our neighbors to prepare the land for its highest and best use after mining is complete. Our work with state, regional and local governments to develop solutions today will benefit future generations.

5. SAFETY, HEALTH AND THE ENVIRONMENT

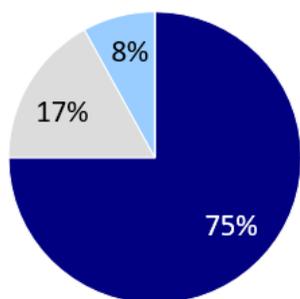
A strategy for sustainable, long-term value creation must include doing right by your employees, your neighbors and the environment in which you operate. We are a leader in our industry in safety performance by applying the shared experiences, expertise and resources at each of our locally led sites with an emphasis on taking care of one another. We focus on our environmental stewardship programs with the same intensity that we bring to our health and safety initiatives. And, our community relations programs serve our neighbors while ensuring that we grow and thrive in the communities where we operate.

PRODUCT LINES

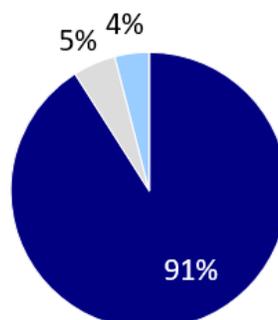
Our products are used to build the roads, tunnels, bridges, railroads and airports that connect us, and to build the hospitals, schools, shopping centers, factories and places of worship that are essential to our lives and the economy. We have four operating (and reportable) segments (Aggregates, Asphalt, Concrete and Calcium) organized around our principal product lines.

Our 2019 total revenues and gross profit by segment are illustrated as follows (Calcium revenues and gross profit were less than one percent):

2019 Total Revenues



2019 Gross Profit



■ Aggregates ■ Asphalt ■ Concrete

For actual amounts, see Note 15 "Segment Reporting" in Item 8 "Financial Statements and Supplementary Data."

1. AGGREGATES

Our construction aggregates are used in a number of ways:

- as a base material underneath highways, walkways, airport runways, parking lots and railroads
- to aid in water filtration, purification and erosion control
- as a raw material used in combination with other resources to construct many of the items we rely on to sustain our quality of life including:
 - houses and apartments
 - roads, bridges and parking lots
 - schools and hospitals
 - commercial buildings and retail space
 - sewer systems
 - power plants
 - airports and runways

AGGREGATES INDUSTRY

Factors that affect the U.S. aggregates industry and our business include:

- **LOCATION AND TRANSPORTATION OF RESERVES:** Aggregates have a high weight-to-value ratio and, in most cases, must be produced near where they are used; if not, transportation can cost more than the materials, rendering them uncompetitive compared to locally produced materials. Where practical, we have operations located close to our local markets because the cost of trucking materials long distances is prohibitive. Approximately 80% of our total aggregates shipments are delivered exclusively from the producing location to the customer by truck.

Exceptions to this typical market structure include areas along the U.S. Gulf Coast and the Eastern Seaboard where there are limited supplies of locally available, high-quality aggregates. We serve these markets from quarries that have access to cost-effective long-haul transportation — shipping by barge and rail — and from our quarry on Mexico's Yucatan Peninsula with our fleet of Panamax-class, self-unloading ships. Approximately 17% of our total aggregates shipments are delivered by truck to the customer after reaching a sales yard by rail or water. The remaining 3% of aggregates shipments are delivered directly to the customer by rail or water.

- **LIMITED PRODUCT SUBSTITUTION:** There are limited substitutes for quality aggregates. Recycled concrete and asphalt have certain applications as a lower-cost alternative to virgin aggregates. However, many types of construction projects cannot be served by recycled concrete and require the use of virgin aggregates to meet technical specifications and performance-based criteria for durability, strength and other qualities. Likewise, the amount of recycled asphalt included in asphalt mix as a substitute for aggregates is limited due to specifications.
- **HIGHLY FRAGMENTED INDUSTRY:** The U.S. aggregates industry is composed of over 5,800 companies that manage close to 10,000 operations. This fragmented structure provides many opportunities for consolidation. Companies in the industry commonly enter new markets or expand positions in existing markets through the acquisition of existing facilities.

Through strategic acquisitions and investments, we have developed an unmatched coast-to-coast footprint of strategically located permitted reserves concentrated in and serving the nation's key growth centers. We have over 23,000 customers in 20 states, the District of Columbia, Mexico and the Bahamas.

- **FLEXIBLE PRODUCTION CAPABILITIES:** The production of aggregates is a mechanical process in which stone is crushed and, through a series of screens, separated into various sizes depending on how it will be used. Production capacity is flexible by adjusting operating hours to meet changing market demand. We are currently operating considerably below full capacity, making us extremely well positioned to further benefit from economies of scale when additional growth materializes.

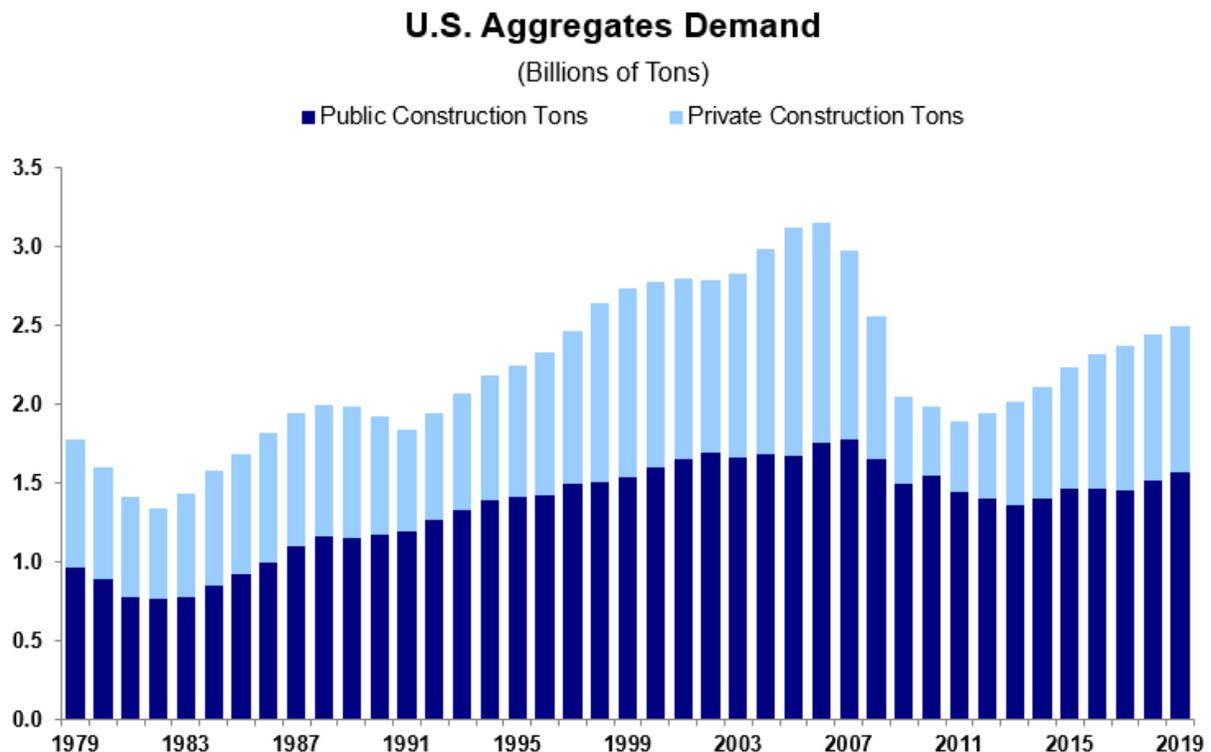
- **RAW MATERIAL INPUTS LARGELY CONTROLLED:** Unlike typical industrial manufacturing industries, the aggregates industry does not require the input of raw material beyond owned or leased aggregates reserves. Stone, sand and gravel are naturally occurring resources. However, production does require the use of explosives, hydrocarbon fuels and electric power.
- **DEMAND CYCLES:** Long-term growth in demand for aggregates is largely driven by growth in population, jobs and households. While short-term and medium-term demand for aggregates fluctuates with economic cycles, declines have historically been followed by strong recoveries, with each peak establishing a new historical high.

The drivers underpinning demand recovery — and sustained, multi-year volume and pricing growth — remain firmly in place, in both the public and private sectors of the economy. They include: population growth; gains in total employment and in household income and wages; a continuing increase in household formations; the growing need for additional housing stock and housing demand; a multi-year federal transportation law in place and continuing increases in transportation funding at state and local levels; record state tax receipts; public investment in infrastructure that is still well below the long-term trend-line, and increasing political awareness and acceptance of the need to invest in infrastructure.

AGGREGATES MARKETS

We focus on the U.S. markets with above-average long-term expected population growth and where construction is expected to expand. Because transportation is a significant part of the delivered cost of aggregates, our facilities are typically located in the markets they serve or have access to economical transportation via rail, barge or ship to a particular end market. We serve both the public and the private sectors.

Public sector construction activity has historically been more stable and less cyclical than privately-funded construction, and generally requires more aggregates per dollar of construction spending. Private sector construction (primarily residential and nonresidential buildings) typically is more affected by general economic cycles than publicly-funded projects (particularly highways, roads and bridges), which tend to receive more consistent levels of funding throughout economic cycles.



Source: Company estimates

PUBLIC SECTOR CONSTRUCTION MARKET

Public sector construction includes spending by federal, state, and local governments for highways, bridges, buildings, airports, schools, prisons, sewer and waste disposal systems, water supply systems, dams, reservoirs and other public construction projects. Construction for power plants and other utilities is funded from both public and private sources. In 2019, publicly-funded construction accounted for approximately 44% of our total aggregates shipments, and approximately 23% of our aggregates sales by volume were used in highway construction projects.

- **PUBLIC SECTOR FUNDING:** Generally, public sector construction spending is more stable than private sector construction spending; public sector spending is less sensitive to interest rates and has historically been supported by multi-year laws, which provide certainty in funding amounts, program structures, and rules and regulations. Federal spending is governed by authorization, budget and appropriations laws. The level of state and local spending on infrastructure varies across the United States and depends on individual state needs and economies.
 - **STATE AND LOCAL TRANSPORTATION FUNDING:** Since 2012, 32 states have increased or adjusted taxes on motor fuel to increase revenues available for transportation investment. In 2019, Alabama and Illinois became the two most recent states in Vulcan's footprint to raise significant revenue for highway construction and maintenance through motor fuel tax increases. Other states have increased revenues outside of fuel taxes or made one-time increases. Since 2012, eleven Vulcan-served states representing over 85% of our 2019 total revenues have averaged a 60% increase in revenues for highways.

In addition, we benefit from state and local transportation funding ballot measures. Major transportation funding measures in Vulcan-served areas are estimated to result in \$30 billion in revenues and bond proceeds primarily dedicated to roads, streets and bridges. Across the U.S., voters in 19 states approved 89% of 305 measures in 2019, which will generate \$9.6 billion in new and recurring transportation investment. This continues a decade-long trend in which voters have approved 81% of nearly 2,000 transportation investment ballot measures.

- **FEDERAL HIGHWAY FUNDING:** In December 2015, President Obama signed a new, long-term federal highway and transit authorization bill, Fixing America's Surface Transportation Infrastructure Act (FAST Act), into law after the final legislation received strong, bipartisan support in both the House and the Senate. The FAST Act provides multi-year funding to state and local governments in support of road, bridge, intermodal and public transportation projects.

The FAST Act increases Federal-Aid Highway Program funding from \$41 billion in the federal fiscal year (FFY) 2015 to \$47 billion in FFY 2020. In addition, the Bipartisan Budget Act of 2018 added approximately \$2 billion per year to base highway programs in 2018 and 2019.

The long-term nature of the FAST Act is important. The Federal-Aid Highway Program is the largest component of the law and has provided, on average, 52% of all state capital investment in roads and bridges over the last 10 years. This multi-year authorization and the associated dedicated funding provides state departments of transportation with the ability to plan and execute long-range, complex highway projects.

The FAST Act also contains important policy changes. To further accelerate the project delivery process, it augments the environmental review and permitting process reforms contained in the prior law, Moving Ahead for Progress in the 21st Century Act (MAP-21). This law also provides assistance for states making investments in major capital projects — particularly freight projects. In states where we operate, we are well positioned to serve the large general contractors who will compete for new freight and other major capacity projects that will move forward with FAST Act funding and policy implementation.

Project financing remains an important additional component of overall surface transportation spending, with the Transportation Infrastructure Finance & Innovation Act (TIFIA) program authorized at \$275 million (in line with the previous program outlays) and growing to \$300 million by 2020. The FAST Act also created a new National Surface Transportation and Innovative Finance Bureau to provide technical assistance to states seeking to pursue public-private partnerships and other financing arrangements for transportation projects.

The FAST Act expires on September 30, 2020. Congress is in the process of developing policy and funding legislative proposals for FAST Act reauthorization. It would not be atypical for an extension of current law to be required to provide Congress with adequate time to complete the reauthorization process. Historically, there is minimal disruption to the flow of federal funding to state and local projects due to extensions.

- **FEDERAL WATER INFRASTRUCTURE:** In October 2018, President Trump signed America’s Water Infrastructure Act of 2018 (AWIA 2018) into law. The new law includes the Water Resources Development Act of 2018 (WRDA 2018), which reauthorizes needed investment in America’s ports, channels, locks, dams, and other infrastructure that supports the maritime and waterways transportation system and provides flood protection for communities. It also improves EPA programs for storm water, water recycling, and sewer overflow projects. Included in AWIA 2018 are improvements to the Water Infrastructure Finance and Innovation Act (WIFIA) program, which was modeled after the highly popular TIFIA program in the surface transportation sector. Created in the Water Resources Reform and Development Act of 2014 (WRRDA 2014), WIFIA allows for federal credit assistance to water resources projects in the form of low-cost loans, loan guarantees and lines of credit.

In addition to these regular authorizations, federal emergency supplemental appropriations were provided in 2018 in the Bipartisan Budget Act of 2018 for hurricane-affected areas in Florida, Louisiana, Texas and other states (\$89.3 billion) and in the Additional Supplement Appropriations for Disaster Relief Act in 2019 (\$19.9 billion). A portion of these funds will be directed to long-term and short-term U.S. Army Corps of Engineers-supported flood control and other water resources construction projects as well as additional infrastructure projects that use aggregates and related materials.

PRIVATE SECTOR CONSTRUCTION MARKET

The private sector construction markets include both nonresidential building construction and residential construction and are considerably more cyclical than public construction. In 2019, privately-funded construction accounted for approximately 56% of our total aggregates shipments.

- **NONRESIDENTIAL CONSTRUCTION:** Private nonresidential building construction includes a wide array of projects. Such projects generally are more aggregates intensive than residential construction. Overall demand in private nonresidential construction generally is driven by job growth, vacancy rates, private infrastructure needs and demographic trends. The growth of the private workforce creates demand for offices, hotels and restaurants. Likewise, population growth generates demand for stores, shopping centers, warehouses and parking decks as well as hospitals, places of worship and entertainment facilities. Large industrial projects, such as a new manufacturing facility, can increase the need for other manufacturing plants to supply parts and assemblies. Construction activity in this end market is influenced by a firm’s ability to finance a project and the cost of such financing. This end market also includes capital investments in public nonresidential facilities to meet the needs of a growing population.
- **RESIDENTIAL CONSTRUCTION:** Household formations in Vulcan-served states continue to outpace household formations in the rest of the United States. The majority of residential construction is for single-family housing with the remainder consisting of multi-family construction (i.e., two family houses, apartment buildings and condominiums). Public housing comprises only a small portion of housing demand. Construction activity in this end market is influenced by the cost and availability of mortgage financing and builders’ ability to maintain skilled labor.

U.S. housing starts, as measured by Dodge Data & Analytics data, peaked in early 2006 at over 2 million units annually. By the end of 2009, total housing starts had declined to less than 0.6 million units, well below prior historical lows of approximately 1 million units annually. In 2019, total annual housing starts in the U.S. reached 1.34 million units.

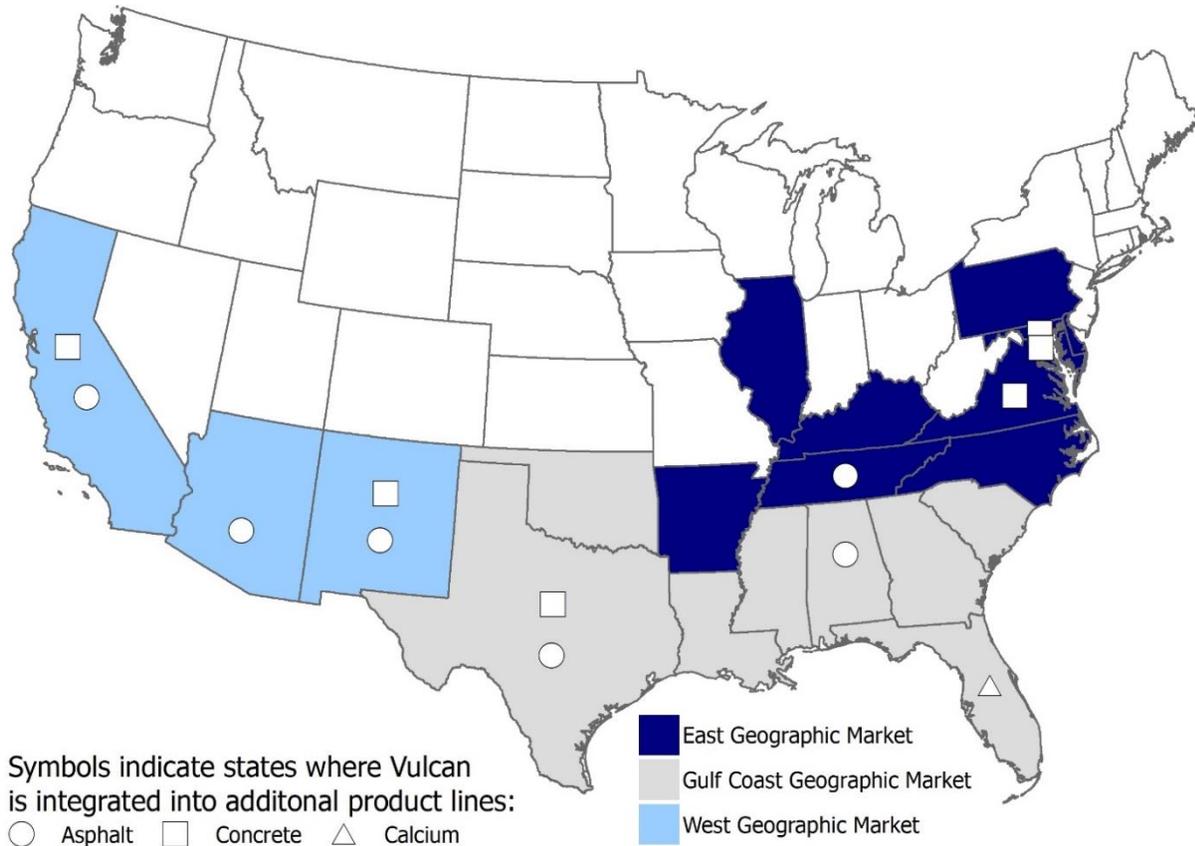
ADDITIONAL AGGREGATES PRODUCTS AND MARKETS

We sell aggregates that are used as ballast for construction and maintenance of railroad tracks. We also sell riprap and jetty stone for erosion control along roads and waterways. In addition, stone can be used as a feedstock for cement and lime plants and for making a variety of adhesives, fillers and extenders. Coal-burning power plants use limestone in scrubbers to reduce harmful emissions. Limestone that is crushed to a fine powder can be sold as agricultural lime.

We sell a relatively small amount of construction aggregates outside of the United States, principally in the areas surrounding our large quarry on the Yucatan Peninsula in Mexico. Nondomestic sales and long-lived assets outside the United States are reported in Note 15 “Segment Reporting” in Item 8 “Financial Statements and Supplementary Data.”

VERTICAL INTEGRATION

While aggregates is our focus and primary business, we believe vertical integration between aggregates and downstream products, such as asphalt mix and ready-mixed concrete, can be managed effectively in certain markets to generate attractive financial returns and enhance financial returns in our core Aggregates segment. We produce and sell asphalt mix and/or ready-mixed concrete within each of our three geographic markets, as noted below. Aggregates comprise approximately 95% of asphalt mix by weight and 80% of ready-mixed concrete by weight. In both of these downstream businesses, aggregates are primarily supplied from our operations.



2. ASPHALT

We produce and sell asphalt mix in Alabama, Arizona, California, New Mexico, Tennessee and Texas. In June 2018, we strengthened our asphalt position in Texas by acquiring additional asphalt mix operations and a construction paving business. In March 2018, we entered the Alabama asphalt market through the acquisition of an aggregates, asphalt mix and construction paving business. In December 2017, we strengthened our asphalt position in Arizona by swapping ready-mixed concrete operations for an asphalt mix operation. In January 2017, we entered the Tennessee asphalt market through the acquisition of several asphalt mix operations and a construction paving business. For additional details, see Note 19 “Acquisitions and Divestitures” in Item 8 “Financial Statements and Supplementary Data.”

This segment relies on our reserves of aggregates, functioning essentially as a customer to our aggregates operations. Aggregates are a major component in asphalt mix, comprising approximately 95% by weight of this product. We meet the aggregates requirements for our Asphalt segment primarily through our Aggregates segment. These product transfers are made at local market prices for the particular grade and quality of material required.

Because asphalt mix hardens rapidly, delivery typically is within close proximity to the producing facility. The asphalt mix production process requires liquid asphalt cement, which we purchase from third-party producers. We do not anticipate any significant difficulties in obtaining the raw materials necessary for this segment to operate. We serve our Asphalt segment customers directly from our local production facilities.

3. CONCRETE

We produce and sell ready-mixed concrete in California, Maryland, New Mexico, Texas, Virginia, Washington D.C. and the Bahamas. In October 2019, we expanded our ready-mixed concrete operations in Virginia via an acquisition. In March 2018, we exited the Georgia ready-mixed concrete market (we retained all real property which is leased to the buyer and obtained a long-term aggregates supply agreement). As noted above, in December 2017 we exited the Arizona ready-mixed concrete market via a swap for an asphalt mix operation, continuing our strategy to focus on asphalt mix in that market. In March 2017, we reentered the California ready-mixed concrete market through an acquisition. For additional details see Note 19 “Acquisitions and Divestitures” in Item 8 “Financial Statements and Supplementary Data.”

This segment relies on our reserves of aggregates, functioning essentially as a customer to our aggregates operations. Aggregates are a major component in ready-mixed concrete, comprising approximately 80% by weight of this product. We meet the aggregates requirements of our Concrete segment primarily through our Aggregates segment. These product transfers are made at local market prices for the particular grade and quality of material required.

Because ready-mixed concrete hardens rapidly, delivery typically is within close proximity to the producing facility. Ready-mixed concrete production also requires cement which we purchase from third-party producers. We do not anticipate any significant difficulties in obtaining the raw materials necessary for this segment to operate. We serve our Concrete segment customers from our local production facilities or by truck.

4. CALCIUM

Our Calcium segment is composed of a single calcium operation in Brooksville, Florida. This facility produces calcium products for the animal feed, plastics and water treatment industries with high-quality calcium carbonate material mined at the Brooksville quarry.

OTHER BUSINESS-RELATED ITEMS

SEASONALITY AND CYCLICAL NATURE OF OUR BUSINESS

Almost all of our products are produced and consumed outdoors. Seasonal changes and other weather-related conditions can affect the production and sales volumes of our products. Therefore, the financial results for any quarter do not necessarily indicate the results expected for the year. Normally, the highest sales and earnings are in the third quarter and the lowest are in the first quarter. Furthermore, our sales and earnings are sensitive to national, regional and local economic conditions, demographic and population fluctuations, and particularly to cyclical swings in construction spending, primarily in the private sector.

COMPETITORS

We operate in a fragmented industry with a large number of small, privately-held companies. We estimate that the ten largest aggregates producers accounted for roughly one-third of the total U.S. aggregates production in 2019. Despite being the industry leader, Vulcan's total U.S. market share is less than 10%. Other publicly traded companies among the ten largest U.S. aggregates producers include the following:

- Cemex S.A.B. de C.V.
- CRH plc
- HeidelbergCement AG
- LafargeHolcim
- Martin Marietta Materials, Inc.
- MDU Resources Group, Inc.
- Summit Materials, Inc.

Because the U.S. aggregates industry is highly fragmented, with over 5,800 companies managing close to 10,000 operations during 2019, many opportunities for consolidation exist. Therefore, companies in the industry tend to grow by acquiring existing facilities to enter new markets or extend their existing market positions.

CUSTOMERS

No material part of our business depends upon any single customer whose loss would have a significant adverse effect on our business. In 2019, our five largest customers accounted for 7.7% of our total revenues, and no single customer accounted for more than 1.9% of our total revenues. Although approximately 45% to 55% of our aggregates shipments have historically been used in publicly-funded construction, such as highways, airports and government buildings, a relatively small portion of our sales are made directly to federal, state, county or municipal governments/agencies. Therefore, although reductions in state and federal funding can curtail publicly-funded construction, the vast majority of our business is not directly subject to renegotiation of profits or termination of contracts with local, state or federal governments. In addition, our sales to government entities span several hundred entities coast-to-coast, ensuring that negative changes to various government budgets would have a muted impact across such a diversified set of government customers.

ENVIRONMENTAL COSTS AND GOVERNMENTAL REGULATION

Our operations are subject to numerous federal, state and local laws and regulations relating to the protection of the environment and worker health and safety; examples include regulation of facility air emissions and water discharges, waste management, protection of wetlands, listed and threatened species, noise and dust exposure control for workers, and safety regulations under both Mine Safety and Health Administration (MSHA) and Occupational Safety and Health Administration (OSHA). Compliance with these various regulations requires capital investment, and ongoing expenditures for the operation and maintenance of systems and implementation of programs. We estimate that capital expenditures for environmental control facilities in 2020 and 2021 will be \$9.3 million and \$7.3 million, respectively. These anticipated expenditures are not expected to have a material impact on our earnings or competitive position.

We have received notices from the United States Environmental Protection Agency (EPA) or similar state or local agencies that we are considered a potentially responsible party (PRP) at a limited number of sites under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA or Superfund) or similar state and local environmental laws. Generally we share the cost of remediation at these sites with other PRPs or alleged PRPs in accordance with negotiated or prescribed allocations. There is inherent uncertainty in determining the potential cost of remediating a given site and in determining any individual party's share in that cost. As a result, estimates can change substantially as additional information becomes available about the nature or extent of site contamination, remediation methods, other PRPs and their probable level of involvement, and actions by or against governmental agencies or private parties.

For additional information about litigation and environmental matters, see Notes 1 and 12 to the consolidated financial statements in Item 8 "Financial Statements and Supplementary Data."

Frequently, we are required by state and local regulations or contractual obligations to reclaim our former mining sites. These reclamation liabilities are recorded in our financial statements as a liability at the time the obligation arises. The fair value of such obligations is capitalized and depreciated over the estimated useful life of the owned or leased site. The liability is accreted through charges to operating expenses. To determine the fair value, we estimate the cost for a third party to perform the legally required reclamation, which is adjusted for inflation and risk and includes a reasonable profit margin. All reclamation obligations are reviewed at least annually. Reclaimed quarries often have potential for use in commercial or residential development or as reservoirs or landfills. However, no projected cash flows from these anticipated uses have been considered to offset or reduce the estimated reclamation liability.

For additional information about reclamation obligations (referred to in our financial statements as asset retirement obligations), see Notes 1 and 17 to the consolidated financial statements in Item 8 "Financial Statements and Supplementary Data."

PATENTS AND TRADEMARKS

We do not own or have a license or other rights under any patents, registered trademarks or trade names that are material to any of our reporting segments.

OTHER INFORMATION ABOUT VULCAN

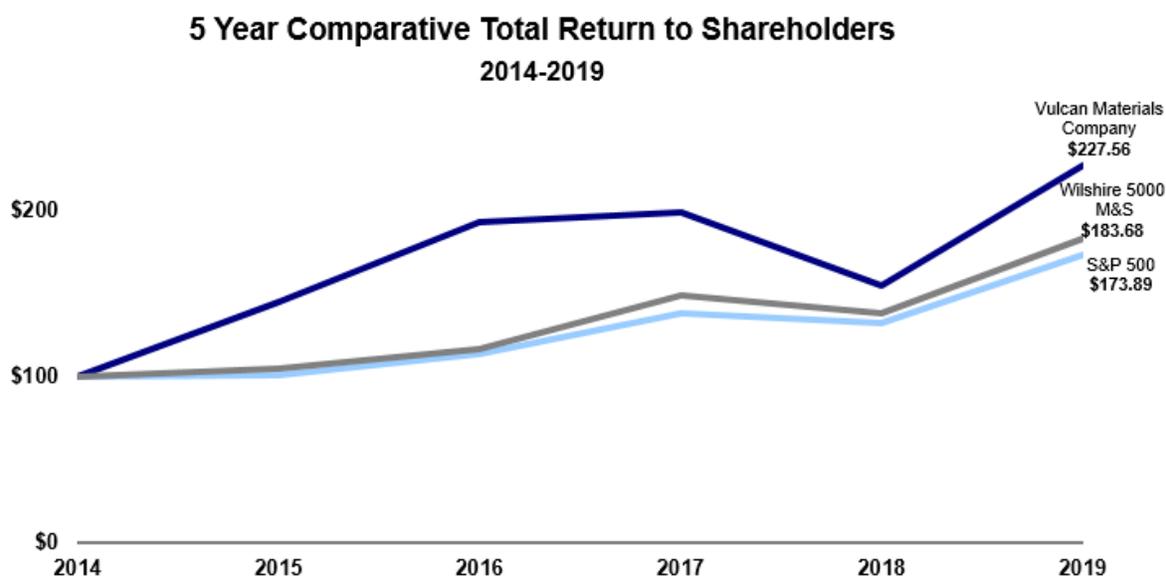
Vulcan is a New Jersey corporation incorporated on February 14, 2007, while its predecessor company was incorporated on September 27, 1956. Our principal sources of energy are electricity, diesel fuel and natural gas. We do not anticipate any difficulty in obtaining sources of energy required for operation of any of our reporting segments in 2020.

As of January 1, 2020, we employed 8,767 people in the United States. Of these employees, 659 are represented by labor unions. Also, as of that date, we employed 405 people in Mexico and 1 in the Bahamas, 330 of whom are represented by labor unions. We do not anticipate any significant issues with any unions in 2020.

We generally ship our products upon receipt of a purchase order or in some cases simply a price quote. Therefore, we do not have a significant order backlog.

SHAREHOLDER RETURN PERFORMANCE

Below is a graph comparing the performance of our common stock, with dividends reinvested, to that of the Standard & Poor's 500 Stock Index (S&P 500) and the Materials and Services Sector of the Wilshire 5000 Index (Wilshire 5000 M&S) from December 31, 2014 to December 31, 2019. The Wilshire 5000 M&S is a market capitalization weighted sector containing public equities of firms in the Materials and Services sector, which includes our company and approximately 1,300 other companies.



	2014	2015	2016	2017	2018	2019
Comparative Total Return ¹						
Vulcan Materials Company	\$ 100.00	\$ 145.10	\$ 192.55	\$ 199.09	\$ 154.70	\$ 227.56
S&P 500	\$ 100.00	\$ 101.40	\$ 113.57	\$ 138.33	\$ 132.24	\$ 173.89
Wilshire 5000 M&S	\$ 100.00	\$ 104.80	\$ 116.75	\$ 148.97	\$ 137.80	\$ 183.68

¹ Assumes an initial investment at December 31, 2014 of \$100 in each stock/index, with quarterly reinvestment of dividends.

INVESTOR INFORMATION

We make available on our website, www.vulcanmaterials.com, free of charge, copies of our:

- Annual Report on Form 10-K
- Quarterly Reports on Form 10-Q
- Current Reports on Form 8-K

Our website also includes amendments to those reports filed with or furnished to the Securities and Exchange Commission (SEC) pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934 as well as all Forms 3, 4 and 5 filed with the SEC by our executive officers and directors, as soon as the filings are made publicly available by the SEC on its EDGAR database (www.sec.gov).

In addition to accessing copies of our reports online, you may request a copy of our Annual Report on Form 10-K, including financial statements, by writing to Denson N. Franklin III, Senior Vice President, General Counsel and Secretary, Vulcan Materials Company, 1200 Urban Center Drive, Birmingham, Alabama 35242.

We have a:

- Business Conduct Policy applicable to all employees and directors
- Code of Ethics for the CEO and Senior Financial Officers

Copies of the Business Conduct Policy and the Code of Ethics are available on our website under the heading “Corporate Governance” under the “Investor Relations” tab. If we make any amendment to, or waiver of, any provision of the Code of Ethics, we will disclose such information on our website as well as through filings with the SEC.

Our Board of Directors has also adopted:

- Corporate Governance Guidelines
- Charters for our Audit, Compensation, Executive, Finance, Governance and Safety, Health & Environmental Affairs Committees

These documents meet all applicable SEC and New York Stock Exchange (NYSE) regulatory requirements.

The Charters of the Audit, Compensation and Governance Committees are available on our website under the heading “Corporate Governance” under the “Investor Relations” tab or you may request a copy of any of these documents by writing to Denson N. Franklin III, Senior Vice President, General Counsel and Secretary, Vulcan Materials Company, 1200 Urban Center Drive, Birmingham, Alabama 35242.

Information included on our website is not incorporated into, or otherwise made a part of, this report.

CERTIFICATIONS AND ASSERTIONS

The certifications of our Chief Executive Officer and Chief Financial Officer made pursuant to Section 302 of the Sarbanes-Oxley Act of 2002 are included as exhibits to this Annual Report on Form 10-K. Additionally, on June 3, 2019 our Chief Executive Officer submitted to the NYSE the annual written affirmation required by the rules of the NYSE certifying that he was not aware of any violations of Vulcan Materials Company of NYSE corporate governance listing standards.

The following risks could materially and adversely affect our business, financial condition and results of operations, and cause the trading price of our common stock to decline. These risk factors do not identify all risks that we face; our operations could also be affected by factors that are not presently known to us or that we currently consider to be immaterial to our operations. Due to risks and uncertainties, known and unknown, our past financial results may not be a reliable indicator of future performance and historical trends should not be used to anticipate results or trends in future periods. You should also refer to the other information set forth in this Annual Report on Form 10-K, including Item 7 “Management’s Discussion and Analysis of Financial Condition and Results of Operations” and Item 8 “Financial Statements and Supplementary Data.”

ECONOMIC/POLITICAL RISKS

Our business is dependent on the construction industry and is subject to economic cycles — Our products are principally sold to the U.S. construction industry. Since our business is dependent on spending in both the public and private sector construction markets, our profits are sensitive to the underlying national, regional, and local economic conditions. Construction spending, which is cyclical, is affected by general economic conditions, changes in interest rates, demographic shifts, industry cycles, employment levels, inflation and other business, economic and financial factors that are beyond our control. A downturn in construction activities or spending in Vulcan-served markets, particularly in our top revenue-generating markets, could have a material adverse effect on our business, financial condition, and results of operations.

Changes in legal requirements and governmental policies concerning zoning, land use, environmental and other areas of the law may result in additional liabilities, a reduction in operating hours and additional capital expenditures — Our operations are affected by numerous federal, state and local laws and regulations related to zoning, land use and environmental matters. Despite our compliance efforts, we have an inherent risk of liability in the operation of our business. These potential liabilities could have an adverse impact on our operations and profitability. In addition, our operations require numerous governmental approvals and permits, which often require us to make significant capital and operating expenditures to comply with the applicable requirements. Stricter laws and regulations, or more stringent interpretations of existing laws or regulations, may impose new liabilities, taxes or tariffs on us, reduce operating hours, require additional investment by us in pollution control equipment, create restrictions on our products or impede our access to reserves or opening new or expanding existing plants or facilities.

Our business is dependent on the timing and amount of federal, state and local funding for infrastructure — Our products are used in a variety of public infrastructure projects that are funded and financed by federal, state and local governments. In 2019, voters in local jurisdictions in California, Georgia, New Mexico, North Carolina, Texas and Virginia, among others, approved bond and revenue-raising measures to provide additional resources for transportation projects. In 2019, two state legislatures in Vulcan-served areas — Alabama and Illinois — passed new long-term highway funding legislation. The federal FAST Act, a five year, fully-funded road, bridge and public transportation authorization law, is providing assistance to state DOTs and metro areas. However, given varying state and local budgetary situations and the associated pressure on infrastructure spending, we cannot be entirely assured of the existence, amount and timing of appropriations for future public infrastructure projects.

Climate change and climate change legislation or regulations may adversely impact our business — A number of governmental bodies have introduced or are contemplating legislative and regulatory change in response to the potential impacts of climate change. Such legislation or regulation, if enacted, potentially could include provisions for a “cap and trade” system of allowances and credits or a carbon tax, among other provisions.

Other potential impacts of climate change include physical impacts, such as disruption in production and product distribution due to impacts from major storm events, shifts in regional weather patterns and intensities, availability of water and potential impacts from sea level changes. There is also a potential for climate change legislation and regulation to adversely impact the cost of purchased energy and electricity. A number of our facilities are located in desert climates and while we have not experienced any significant shortages of energy or water in the past, we cannot guarantee that we will not in the future. Furthermore, public expectations for reductions in greenhouse gas emissions could result in increased energy, transportation and raw material costs, and may require us to make additional investments in facilities and equipment.

The impacts of climate change on our operations and the company overall are highly uncertain and difficult to estimate. However, climate change legislation and regulation concerning greenhouse gases could have a material adverse effect on our future financial position, results of operations or cash flows.

We are subject to various risks arising from our international business operations and relationships, which could adversely affect our business — We have international operations and are subject to both the risks of conducting international business and the requirements of the Foreign Corrupt Practices Act of 1977 (the FCPA). We face political and other risks associated with our international operations, including our largest production facility located in Playa del Carmen, Mexico. These risks may include changes in international trade policies, such as the United States — Mexico — Canada Agreement (USMCA), imposition of duties, taxes or government royalties, arbitrary changes to permits, zoning classifications or operating agreements, or overt acts by foreign governments, including expropriations and other forms of takings of property. In addition, failure to comply with the FCPA may result in legal claims against us.

GROWTH AND COMPETITIVE RISKS

Within our local markets, we operate in a highly competitive industry which may negatively impact prices, volumes and costs — The construction aggregates industry is highly fragmented with a large number of independent local producers in a number of our markets. Additionally, in most markets, we also compete against large private and public companies, some of which are significantly vertically integrated. Therefore, there is intense competition in a number of markets in which we operate. This significant competition could lead to lower prices and lower sales volumes in some markets, negatively affecting our earnings and cash flows.

The expanded use of aggregates substitutes could have a material adverse effect on our business, financial condition and results of operations — Recycled concrete and asphalt are increasingly being used in a number of our markets, particularly urban markets, as a substitute for aggregates. The expanded use of recycled concrete and asphalt could cause a significant reduction in the demand for aggregates.

Our long-term success depends upon securing and permitting aggregates reserves in strategically located areas. If we are unable to secure and permit such reserves it could negatively affect our future earnings — Construction aggregates are bulky and heavy and, therefore, difficult to transport efficiently. Because of the nature of the products, the freight costs can quickly surpass the production costs. Therefore, except for geographic regions that do not possess commercially viable deposits of aggregates and are served by rail, barge or ship, the markets for our products tend to be localized around our quarry sites and are served by truck. New quarry sites often take years to develop; therefore, our strategic planning and new site development must stay ahead of actual growth. Additionally, in a number of urban and suburban areas in which we operate, it is increasingly difficult to permit new sites or expand existing sites due to community resistance. Therefore, our future success is dependent, in part, on our ability to accurately forecast future areas of high growth in order to locate optimal facility sites and on our ability to secure operating and environmental permits to operate at those sites.

Our future growth depends in part on acquiring other businesses in our industry and successfully integrating them with our existing operations. If we are unable to integrate acquisitions successfully, it could lead to higher costs and could negatively affect our earnings — The expansion of our business is dependent in part on the acquisition of existing businesses that own or control aggregates reserves. Disruptions in the availability of financing could make it more difficult to capitalize on potential acquisitions. Additionally, with regard to the acquisitions we are able to complete, our future results will depend in part on our ability to successfully integrate these businesses with our existing operations.

FINANCIAL/ACCOUNTING RISKS

Our industry is capital intensive, resulting in significant fixed and semi-fixed costs. Therefore, our earnings are highly sensitive to changes in product shipments — Due to the high levels of fixed capital required for extracting and producing construction aggregates, our profits are negatively affected by significant decreases in shipments.

Significant downturn in the construction industry may result in an impairment of our goodwill — We test goodwill for impairment on an annual basis or more frequently if events or circumstances change in a manner that would more likely than not reduce the fair value of a reporting unit below its carrying value. While we have not identified any events or changes in circumstances since our annual impairment test on November 1, 2019 that indicate the fair value of any of our reporting units is below its carrying value, a significant downturn in the construction industry may have a material effect on the fair value of our reporting units. A significant decrease in the estimated fair value of one or more of our reporting units could result in the recognition of a material, noncash write-down of goodwill.

A deterioration in our credit ratings and/or the state of the capital markets could negatively impact the cost and/or availability of financing — We currently have \$2.85 billion of debt with maturities between 2020 and 2048. Given our current credit metrics and ratings, together with other factors, we expect to refinance our nearer term debt maturities rather than repay them when due. Furthermore, we expect to finance acquisitions with a combination of cash flows from existing operations, additional debt and/or additional equity. The mix of financing sources for acquisitions will be situationally dependent.

A deterioration in our credit ratings, regardless of the cause, could limit our debt financing options and increase the cost of such debt financing (whether for refinancing existing debt or financing acquisitions). While we do not anticipate a credit ratings downgrade, and plan to manage our capital structure consistent with investment-grade credit metrics, we cannot assure our current credit ratings.

A deterioration in the state of the capital markets, regardless of our credit ratings, could impact our access to, and cost of, new debt or equity capital.

We use estimates in accounting for a number of significant items. Changes in our estimates could adversely affect our future financial results — As discussed more fully in “Critical Accounting Policies” under Item 7 “Management’s Discussion and Analysis of Financial Condition and Results of Operations,” we use significant judgment in accounting for:

- goodwill impairment
- impairment of long-lived assets excluding goodwill
- business combinations and purchase price allocation
- pension and other postretirement benefits
- environmental compliance costs
- claims and litigation including self-insurance
- income taxes

These assumptions and estimates could change significantly in the future and could adversely affect our financial position, results of operations, or cash flows.

The phase-out of LIBOR, or the replacement of LIBOR with a different reference rate or modification of the method used to calculate LIBOR, may adversely affect interest rates — LIBOR is an interest rate benchmark used as a reference rate for a wide range of financial transactions, including derivatives and loans. In July 2017, the United Kingdom’s Financial Conduct Authority, which regulates LIBOR, announced that it intends to stop compelling banks to submit LIBOR rates after 2021. It is unclear whether or not LIBOR will cease to exist at that time (and if so, what reference rate will replace it) or if new methods of calculating LIBOR will be established such that it continues to exist after 2021. The Alternative Reference Rates Committee (ARRC) has proposed that the Secured Overnight Financing Rate (SOFR) is the rate that represents best practice as the alternative to LIBOR for use in financial and other derivatives contracts that are currently indexed to United States dollar LIBOR. ARRC has proposed a paced market transition plan to SOFR from LIBOR, and organizations are currently working on industry wide and company specific transition plans as it relates to financial and other derivative contracts exposed to LIBOR. Uncertainty exists as to the transition process and broad acceptance of SOFR as the primary alternative to LIBOR. We have three material debt instruments with LIBOR as a reference rate, each of which matures before the end of 2021: 1) \$250.0 million floating-rate notes due 2020, 2) \$500.0 million floating-rate notes due 2021, and 3) \$750.0 million line of credit (none outstanding at December 31, 2019) due 2021. At this time, we cannot predict the future impact of a departure from LIBOR as a reference rate; however, if future rates based upon the successor reference rate (or a new method of calculating LIBOR) are higher than LIBOR rates as currently determined, it may have a material adverse effect on our financial condition and results of operations.

PERSONNEL RISKS

Our future success greatly depends upon attracting and retaining qualified personnel, particularly in sales and operations — A significant factor in our future profitability is our ability to attract, develop and retain qualified personnel. Our success in attracting qualified personnel, particularly in the areas of sales and operations, is affected by changing demographics of the available pool of workers with the training and skills necessary to fill the available positions, the impact on the labor supply due to general economic conditions, and our ability to offer competitive compensation and benefit packages.

Disputes with organized labor could disrupt our business operations — Labor unions represent approximately 11% of our workforce. Disputes with our trade unions, or the inability to renew our labor agreements, may lead to strikes or other actions that could disrupt our business operations leading to higher costs and/or reduced revenues.

OTHER RISKS

A significant interruption of our information technology systems or the loss of confidential or other sensitive data, including cybersecurity risks, could have a material adverse impact on our operations and financial results — As part of our regular review of potential risks, we maintain an information and operational technology risk management program that is primarily supervised by information technology management and reviewed by internal cross-functional stakeholders. As part of this program, analyses of emerging cybersecurity threats as well as our plans and strategies to address them are regularly prepared and presented to senior management, the Audit Committee and the Board of Directors. The Audit Committee, which has oversight responsibility for our information security program, is briefed on such program at least twice annually, and our Chief Financial Officer is briefed on such program at least quarterly. Given our reliance on information technology (our own and our third-party providers'), a significant interruption in the availability of information technology, regardless of the cause, or the loss of confidential, personal, or proprietary information (whether our own, our employees', our suppliers', or our customers'), regardless of the cause, could negatively impact our operations. While we have invested in the protection of our data and information technology to reduce these risks and routinely test the security of our information systems network, we cannot be assured that our efforts will prevent breakdowns or breaches in our systems that could adversely affect our business. Management is not aware of a cybersecurity incident that has had a material adverse impact on our financial condition or results of operations; however, we could suffer material financial or other losses in the future and we are not able to predict the severity of these attacks. The occurrence of a cyber-attack, breach, unauthorized access, misuse, computer virus or other malicious code or other cybersecurity event could jeopardize or result in the unauthorized disclosure, gathering, monitoring, misuse, corruption, loss or destruction of confidential and other information that belongs to us, our customers, our counterparties, or third-party providers that is processed and stored in, and transmitted through, our computer systems and networks. The occurrence of such an event could also result in damage to our software, computers or systems, or otherwise cause interruptions or malfunctions in our, our customers', our counterparties' or third parties' operations. This could result in loss of customers and business opportunities, reputational damage, litigation, regulatory fines, penalties or intervention, reimbursement or other compensatory costs, or otherwise adversely affect our business, financial condition or results of operations.

Weather can materially affect our operating results — Almost all of our products are consumed outdoors in the public or private construction industry, and our production and distribution facilities are located outdoors. Inclement weather affects both our ability to produce and distribute our products and affects our customers' short-term demand because their work also can be hampered by weather.

Our products are transported by truck, rail, barge or ship, often by third-party providers. Significant delays or increased costs affecting these transportation methods could materially affect our operations and earnings — Our products are distributed either by truck to local markets or by rail, barge or oceangoing vessel to remote markets. The costs of transporting our products could be negatively affected by factors outside of our control, including rail service interruptions or rate increases, tariffs, rising fuel costs, truck/railcar/barge shortages, truck driver and rail crew shortages, capacity constraints and minimum tonnage requirements. Additionally, inclement weather, including hurricanes, tornadoes and other weather events, can negatively impact our distribution network.

We use large amounts of electricity, diesel fuel, liquid asphalt and other petroleum-based resources that are subject to potential supply constraints and significant price fluctuation, which could affect our operating results and profitability — In our production and distribution processes, we consume significant amounts of electricity, diesel fuel, liquid asphalt and other petroleum-based resources. The availability and pricing of these resources are subject to market forces that are beyond our control. Our suppliers contract separately for the purchase of such resources, and our sources of supply could be interrupted should our suppliers not be able to obtain these materials due to higher demand or other factors that interrupt their availability. Variability in the supply and prices of these resources could materially affect our operating results from period to period and rising costs could erode our profitability.

We are involved in a number of legal proceedings. We cannot predict the outcome of litigation and other contingencies with certainty — We are involved in several complex litigation proceedings, some arising from our previous ownership and operation of a Chemicals business. Although we divested the Chemicals business in June 2005, we retained certain liabilities related to the business. As required by generally accepted accounting principles (GAAP), we establish reserves when a loss is determined to be probable and the amount can be reasonably estimated. Our assessment of probability and loss estimates are based on the facts and circumstances known to us at a particular point in time. Subsequent developments in legal proceedings may affect our assessment and estimates of a loss contingency, and could result in an adverse effect on our financial position, results of operations or cash flows. For a description of our current significant legal proceedings see Note 12 “Commitments and Contingencies” in Item 8 “Financial Statements and Supplementary Data.”

Our construction paving business may subject us to contractually imposed penalties or lost profits — We operate construction paving businesses in Alabama, Tennessee and Texas. In some instances, including many of our fixed price paving contracts, we agree to complete a project by a certain date. If we fail to complete the project as scheduled, we may be held responsible for costs resulting from the delay. Consequently, the total project cost could exceed our original estimate, and we could experience reduced profits or even a loss on the project.

We are involved in certain environmental matters. We cannot predict the outcome of these contingencies with certainty — We are involved in environmental investigations and cleanups at sites where we operate or have operated in the past or sent materials for recycling or disposal. As required by GAAP, we establish reserves when a loss is determined to be probable and the amount can be reasonably estimated. Our assessment of probability and loss estimates are based on the facts and circumstances known to us at a particular point in time. Subsequent developments related to these matters may affect our assessment and estimates of loss contingency, and could result in an adverse effect on our financial position, results of operations or cash flows. For a description of our current significant environmental matters see Note 12 “Commitments and Contingencies” in Item 8 “Financial Statements and Supplementary Data.”

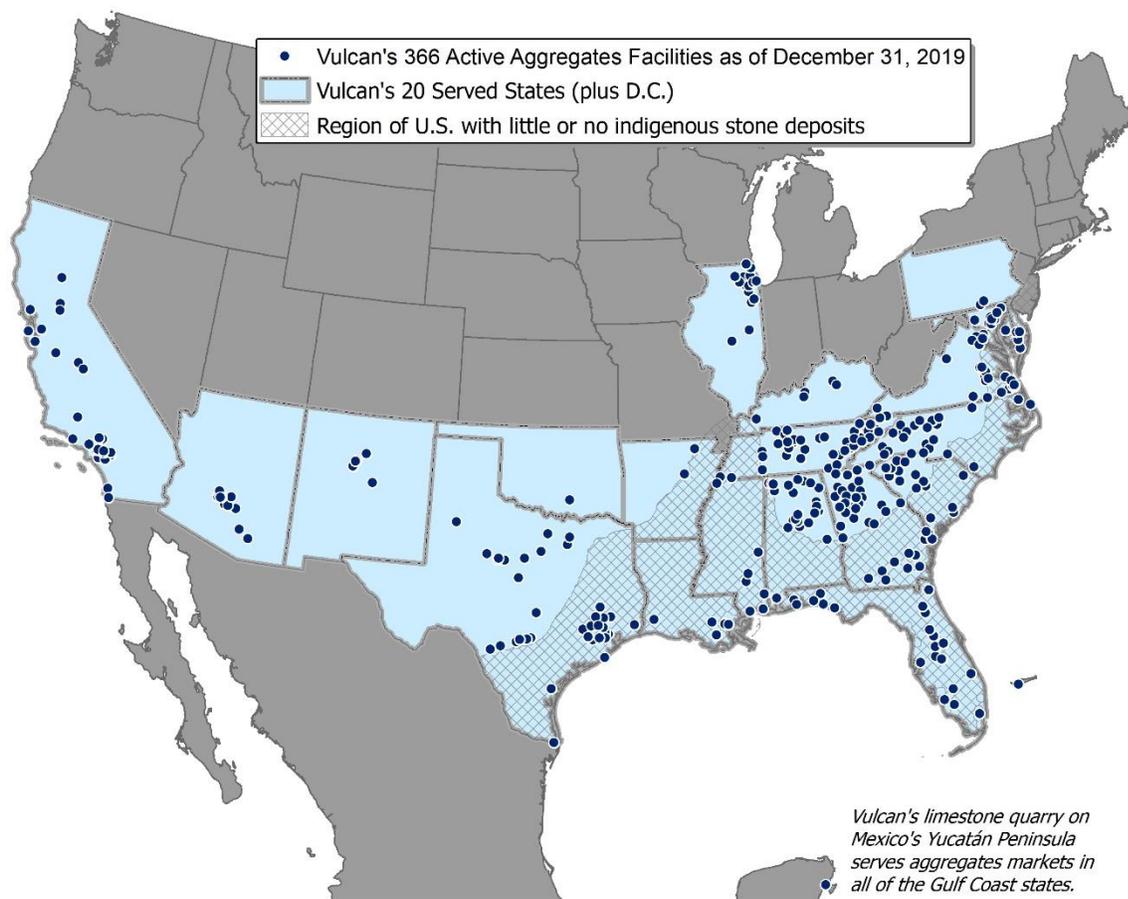
ITEM 1B

UNRESOLVED STAFF COMMENTS

We have not received any written comments from the Securities and Exchange Commission staff regarding our periodic or current reports under the Exchange Act of 1934 that remain unresolved.

AGGREGATES

As the largest U.S. supplier of construction aggregates, we serve markets in twenty states, Washington D.C. and the local markets surrounding our operations in Mexico and the Bahamas. Our primary focus is serving states and metropolitan markets in the U.S. that are expected to experience the most significant growth in population, households and employment. These three demographic factors are significant drivers of demand for aggregates.



Our current estimate of 16.2 billion tons of proven and probable aggregates reserves reflects a decrease of 0.1 billion tons from the prior year's estimate. Estimates of reserves are of recoverable stone, sand and gravel of suitable quality for economic extraction, based on drilling and studies by our geologists and engineers, recognizing reasonable economic and operating constraints as to maximum depth of overburden and stone excavation, and subject to permit or other restrictions.

Proven, or measured, reserves are those reserves for which the quantity is computed from dimensions revealed by drill data, together with other direct and measurable observations, such as outcrops, trenches and quarry faces. The grade and quality of those reserves are computed from the results of detailed sampling, and the sampling and measurement data are spaced so closely and the geologic character is so well defined that size, shape, depth and mineral content of reserves are well established. Probable, or indicated, reserves are those reserves for which quantity, grade and quality are computed partly from specific measurements and partly from projections based on reasonable, though not drilled, geologic evidence. The degree of assurance, although lower than that for proven reserves, is high enough to assume continuity between points of observation.

Reported proven and probable reserves include only quantities that are owned in fee or under lease, and for which all appropriate zoning and permitting have been obtained through permit, contract or grandfathered status. Leases, zoning, permits, reclamation plans and other government or industry regulations often set limits on the areas, depths and lengths of time allowed for mining, stipulate setbacks and slopes that must be left in place, and designate which areas may be used for surface facilities, berms, and overburden or waste storage, among other requirements and restrictions. Our reserve estimates take into account these factors. Technical and economic factors also affect the estimates of reported reserves regardless of what might otherwise be considered proven or probable based on a geologic analysis. For example, excessive overburden or weathered rock, rock quality issues, excessive mining depths, groundwater issues, overlying wetlands, endangered species habitats, and rights of way or easements may effectively limit the quantity of reserves considered proven and probable. In addition, computations for reserves in-place are adjusted for estimates of unsaleable sizes and materials as well as pit and plant waste.

The 16.2 billion tons of estimated proven and probable aggregates reserves reported at the end of 2019 include reserves at inactive and greenfield (undeveloped) sites. The table below presents, by division, the tons of proven and probable aggregates reserves as of December 31, 2019 and the types of facilities operated.

Division ¹	(millions of tons)			2019 Production	Count of Aggregates Operating Facilities ²		
	Aggregates Reserves				Stone	Sand and	
	Proven	Probable	Total			Gravel	Sales Yards
Central	2,838.9	819.6	3,658.5	38.9	53	4	9
International	540.2	0.0	540.2	14.0	1	0	0
Mideast	2,464.5	981.3	3,445.8	39.4	34	3	24
Mountain West	173.2	119.1	292.3	9.1	2	12	2
Southeast ³	3,007.0	874.1	3,881.1	52.6	44	9	22
Southern Gulf Coast	1,376.2	45.0	1,421.2	18.0	23	0	19
Southwest	1,406.6	0.0	1,406.6	23.9	15	1	22
Western	1,017.1	489.7	1,506.8	21.1	6	13	2
Total	12,823.7	3,328.8	16,152.5	217.0	178	42	100

¹ The divisions are defined by states/countries as follows:

Central Division — Arkansas, Illinois, Kentucky and Tennessee

International Division — Mexico

Mideast Division — Delaware, Maryland, North Carolina, Pennsylvania, Virginia and Washington D.C.

Mountain West Division — Arizona and New Mexico

Southeast Division — Florida (excluding panhandle), Georgia, South Carolina and the Bahamas

Southern Gulf Coast Division — Alabama, Florida Panhandle, Louisiana and Mississippi

Southwest Division — Oklahoma and Texas

Western Division — California

² In addition to the aggregates facilities included in the table above, we operated 46 recycled concrete plants which are not dependent on reserves.

³ Includes a maximum of 327.0 million tons of reserves encumbered by volumetric production payments as defined in Note 2 "Revenues" in Item 8 "Financial Statements and Supplementary Data."

Of the 16.2 billion tons of aggregates reserves at December 31, 2019, 9.1 billion tons or 56% are located on owned land and 7.1 billion tons or 44% are located on leased land.

The following table lists our ten largest active aggregates facilities based on the total proven and probable reserves at the sites. None of our aggregates facilities, other than Playa del Carmen, contributed more than 5% to our total revenues in 2019.

Location (nearest major metropolitan area)	Reserves at 12/31/2019			2019 Production
	Proven	Probable	Total	
Playa del Carmen (Cancun), Mexico	540.2	0.0	540.2	14.0
Hanover (Harrisburg), Pennsylvania	223.6	236.4	460.0	2.8
McCook (Chicago), Illinois	101.2	266.5	367.7	4.7
Corona (Los Angeles), California	12.5	319.5	332.0	2.2
Gold Hill (Charlotte), North Carolina	147.7	121.1	268.8	1.0
Postell (Macon), Georgia	190.9	72.3	263.2	4.5
San Emidio (Bakersfield), California	250.0	0.0	250.0	1.4
Medina (San Antonio), Texas	247.3	0.0	247.3	1.0
Macon, Georgia	117.4	128.0	245.4	1.9
Norcross (Atlanta), Georgia	183.4	27.7	211.1	3.6

ASPHALT, CONCRETE AND CALCIUM

As of December 31, 2019, we operated a number of facilities producing asphalt mix, ready-mixed concrete and calcium in several of our divisions as reflected in the table below:

Division ¹	Asphalt ² Facilities	Concrete ³ Facilities	Calcium ⁴ Facilities
Central	11	0	0
Mideast	0	39	0
Mountain West	20	2	0
Southeast	0	1	1
Southern Gulf Coast	2	0	0
Southwest	15	7	0
Western	22	4	0
Total	70	53	1

¹ International Division has no asphalt, concrete or calcium facilities.

² Asphalt facilities for the Central, Southern Gulf Coast and Southwest Divisions are comprised of asphalt mix facilities and construction paving businesses.

³ Southeast Division Concrete is comprised of a ready-mixed concrete plant in the Bahamas.

⁴ Comprised of a ground calcium plant.

The asphalt and concrete facilities are able to meet their needs for raw material inputs with a combination of internally sourced and purchased raw materials.

Our Calcium segment operates a quarry at Brooksville, Florida which provides feedstock for the ground calcium operation.

(millions of tons)

Location	Reserves at 12/31/2019			2019
	Proven	Probable	Total	Production
Brooksville	4.8	7.1	11.9	0.3

Our Brooksville limestone quarry is mined and processed primarily as a supplement for end-use products, such as animal feed and plastics. High purity limestone is inert and relatively inexpensive compared to the other components used in these end-use products. The Brooksville limestone quarry has an average calcium carbonate (CaCO₃) content of 97%.

HEADQUARTERS

Our headquarters are located in an office complex in Birmingham, Alabama. The office space consists of approximately 184,410 square feet and is leased through December 31, 2023, with three five-year renewal periods thereafter. The annual rental cost for the current term of the lease is approximately \$3.7 million.

ITEM 3

LEGAL PROCEEDINGS

We are subject to occasional governmental proceedings and orders pertaining to occupational safety and health or to protection of the environment, such as proceedings or orders relating to noise abatement, air emissions or water discharges. As part of our continuing program of stewardship in safety, health and environmental matters, we have been able to resolve such proceedings and to comply with such orders without any material adverse effects on our business.

We are a defendant in various lawsuits in the ordinary course of business. It is not possible to determine with precision the outcome of, or the amount of liability, if any, under these lawsuits, especially where the cases involve possible jury trials with as yet undetermined jury panels.

We were not subject to any penalties in 2019 for failure to disclose transactions identified by the Internal Revenue Service as abusive under Internal Revenue Code Section 6707A.

See Note 12 "Commitments and Contingencies" in Item 8 "Financial Statements and Supplementary Data" for a discussion of our material legal proceedings.

ITEM 4

MINE SAFETY DISCLOSURES

The information concerning mine safety violations or other regulatory matters required by Section 1503(a) of the Dodd-Frank Wall Street Reform and Consumer Protection Act and Item 104 of Regulation S-K is included in Exhibit 95 of this report.

INFORMATION ABOUT OUR EXECUTIVE OFFICERS

The names, positions and ages, as of February 20, 2020, of our executive officers are as follows:

<i>Name</i>	<i>Position</i>	<i>Age</i>
J. Thomas Hill	Chairman, President and Chief Executive Officer	60
Suzanne H. Wood	Senior Vice President and Chief Financial Officer	59
Stanley G. Bass	Chief Growth Officer	58
Thompson S. Baker II	Chief Operating Officer	61
Denson N. Franklin III	Senior Vice President, General Counsel and Secretary	56
Randy L. Pigg	Vice President, Controller and Principal Accounting Officer	47

The principal occupations of the executive officers during the past five years are set forth below:

J. Thomas Hill was elected Chairman of the Board of Directors effective January 1, 2016 and President and Chief Executive Officer in July 2014. Previously, he served as Executive Vice President and Chief Operating Officer from January 2014 to July 2014, and Senior Vice President – South Region from December 2011 to December 2013. Prior to that, he served in a number of positions with Vulcan including President, Florida Rock Division from September 2010 to December 2011.

Suzanne H. Wood was elected Senior Vice President, Chief Financial Officer effective September 2018 and also served as Secretary from September 2019 to December 2019. From 2012 to 2018, she served as Group Finance Director and Chief Financial Officer of Ashtead Group plc, a FTSE 50 international equipment rental company serving the construction industry and other markets. Prior to that, she was Executive Vice President and Chief Financial Officer of Sunbelt Rentals, Inc., the North American subsidiary of Ashtead Group plc. A certified public accountant, she also previously held Chief Financial Officer positions at Tultex Corporation and Oakwood Homes Corporation. She currently serves on the board of directors and audit committee of RELX Group, a FTSE 50 global professional information and analytics company.

Stanley G. Bass was elected Chief Growth Officer in February 2016. He served as Senior Vice President – Western and Mountain West Divisions from January 2015 to February 2016, and Senior Vice President – West Region from September 2013 to December 2014. Prior to that, he served as Senior Vice President – Central and West Regions from February 2013 to September 2013 and Senior Vice President – Central Region from December 2011 to February 2013. Prior to that, he served in a number of positions with Vulcan including President, Midsouth and Southwest Divisions from September 2010 to December 2011.

Thompson S. Baker II was appointed Chief Operating Officer effective May 2019. He previously served as Senior Vice President from March 2017 to April 2019. Prior to that, he served in a number of positions with Vulcan, including President – Florida Rock Division, before serving as Chief Executive Officer of FRP Holdings, Inc. from October 2010 to March 2017 and President and Chief Executive Officer of Patriot Transportation Holding, Inc. from December 2014 to March 2017.

Denson N. Franklin III joined us in December 2019 as Senior Vice President, General Counsel and Secretary. Prior to that he was a partner at Bradley Arant Boult Cummings LLP, a law firm based in Birmingham, Alabama. While at Bradley, he served as Vulcan's primary outside counsel for more than 20 years and advised other companies in the construction materials, building and engineering industries.

Randy L. Pigg was elected Vice President, Controller and Principal Accounting Officer in April 2018. He served as Vice President, Accounting since June 2016, and prior to that served as Director, Financial Shared Services since April 2014. Prior to that, he served in a number of positions with Vulcan, including Manager Financial Research & Reporting and Finance Director – Central Region.

PART II

ITEM 5

MARKET FOR REGISTRANT'S COMMON EQUITY, RELATED STOCKHOLDER MATTERS AND ISSUER PURCHASES OF EQUITY SECURITIES

Our common stock is traded on the New York Stock Exchange (ticker symbol VMC). As of February 13, 2020, the number of shareholders of record was 2,474.

ISSUER PURCHASES OF EQUITY SECURITIES

Purchases of our equity securities during the quarter ended December 31, 2019 are summarized below.

<i>Period</i>	<i>Total Number of Shares Purchased</i>	<i>Average Price Paid Per Share</i>	<i>Total Number of Shares Purchased as Part of Publicly Announced Plans or Programs</i>	<i>Maximum Number of Shares that May Yet Be Purchased Under the Plans or Programs ¹</i>
2019				
Oct 1 - Oct 31	0	\$ 0.00	0	8,279,189
Nov 1 - Nov 30	0	\$ 0.00	0	8,279,189
Dec 1 - Dec 31	0	\$ 0.00	0	8,279,189
Total	0	\$ 0.00	0	

¹ On February 10, 2017, our Board of Directors authorized us to purchase up to 8,243,243 shares of our common stock to refresh the number of shares we were authorized to purchase to 10,000,000. As of December 31, 2019, there were 8,279,189 shares remaining under this authorization. Depending upon market, business, legal and other conditions, we may purchase shares from time to time through the open market (including plans designed to comply with Rule 10b5-1 of the Securities Exchange Act of 1934) and/or through privately negotiated transactions. The authorization has no time limit, does not obligate us to purchase any specific number of shares, and may be suspended or discontinued at any time.

We did not have any unregistered sales of equity securities during the fourth quarter of 2019.

SELECTED FINANCIAL DATA

The selected earnings data, per share data and balance sheet data for each of the five most recent years ended December 31 set forth below have been derived from our audited consolidated financial statements. The following data should be read in conjunction with our consolidated financial statements and notes to consolidated financial statements in Item 8 “Financial Statements and Supplementary Data.”

	2019	2018	2017	2016	2015
<i>As of and for the years ended December 31</i>					
<i>in millions, except per share data</i>					
Total revenues	\$ 4,929.1	\$ 4,382.9	\$ 3,890.3	\$ 3,592.7	\$ 3,422.2
Gross profit	\$ 1,255.9	\$ 1,100.9	\$ 993.5	\$ 988.9	\$ 857.5
Gross profit margin	25.5%	25.1%	25.5%	27.5%	25.1%
Earnings from continuing operations ¹	\$ 622.5	\$ 517.8	\$ 593.4	\$ 422.4	\$ 232.9
Earnings (loss) on discontinued operations, net of tax ²	\$ (4.8)	\$ (2.0)	\$ 7.8	\$ (2.9)	\$ (11.7)
Net earnings	\$ 617.7	\$ 515.8	\$ 601.2	\$ 419.5	\$ 221.2
Basic earnings (loss) per share					
Continuing operations	\$ 4.71	\$ 3.91	\$ 4.48	\$ 3.17	\$ 1.75
Discontinued operations	(0.04)	(0.01)	0.06	(0.02)	(0.09)
Basic net earnings per share	\$ 4.67	\$ 3.90	\$ 4.54	\$ 3.15	\$ 1.66
Diluted earnings (loss) per share					
Continuing operations	\$ 4.67	\$ 3.87	\$ 4.40	\$ 3.11	\$ 1.72
Discontinued operations	(0.04)	(0.02)	0.06	(0.02)	(0.08)
Diluted net earnings per share	\$ 4.63	\$ 3.85	\$ 4.46	\$ 3.09	\$ 1.64
Cash and cash equivalents	\$ 271.6	\$ 40.0	\$ 141.6	\$ 259.0	\$ 284.1
Total assets ³	\$ 10,648.8	\$ 9,832.1	\$ 9,504.9	\$ 8,471.5	\$ 8,301.6
Total liabilities ³	\$ 5,026.9	\$ 4,629.2	\$ 4,536.0	\$ 3,899.0	\$ 3,847.4
Working capital	\$ 843.8	\$ 476.6	\$ 737.2	\$ 764.9	\$ 731.1
Current maturities and short-term debt	\$ 0.0	\$ 133.0	\$ 41.4	\$ 0.1	\$ 0.1
Long-term debt ⁴	\$ 2,784.3	\$ 2,779.4	\$ 2,813.5	\$ 1,982.8	\$ 1,980.3
Equity	\$ 5,621.9	\$ 5,202.9	\$ 4,968.9	\$ 4,572.5	\$ 4,454.2
Cash dividends declared per share	\$ 1.24	\$ 1.12	\$ 1.00	\$ 0.80	\$ 0.40

¹ Earnings from continuing operations for 2017 include pretax interest charges of \$148.0 million referable to debt purchases and \$297.0 million of discrete net tax benefits.

² Discontinued operations include the results attributable to our former Chemicals business.

³ As a result of our first quarter 2019 adoption of ASU 2016-02 (see Note 1 “Summary of Significant Accounting Policies” in Item 8 “Financial Statements and Supplementary Data” under the caption New Accounting Standards), total assets and total liabilities as of December 31, 2019 included \$408.2 million and \$418.0, respectively, of reported right-of-use assets and related liabilities. We elected not to restate comparative periods.

⁴ Long-term debt includes \$250.0 million of floating-rate notes due June 2020 (see Note 6 “Debt” in Item 8 “Financial Statements and Supplementary Data”) as we intend to refinance these notes, and we have the ability to do so by borrowing on our line of credit.

EXECUTIVE SUMMARY

FINANCIAL SUMMARY FOR 2019 (compared to 2018)

- Total revenues increased \$546.2 million, or 12%, to \$4,929.1 million
- Gross profit increased \$155.0 million, or 14%, to \$1,255.9 million
- Aggregates segment sales increased \$476.6 million, or 14%, to \$3,990.3 million
- Aggregates segment freight-adjusted revenues increased \$346.9 million, or 13%, to \$3,014.2 million
 - Shipments increased 7%, or 14.1 million tons, to 215.5 million tons
 - Same-store shipments increased 6%, or 12.2 million tons, to 213.5 million tons
 - Freight-adjusted sales price increased 6%, or \$0.74 per ton
 - Same-store freight-adjusted sales price increased 6%, or \$0.74 per ton
 - Segment gross profit increased \$154.8 million, or 16%, to \$1,146.6 million
- Asphalt, Concrete and Calcium segment gross profit increased \$0.2 million, or 0%, to \$109.3 million, collectively
- Selling, administrative and general (SAG) expenses increased 11% to \$370.5 million and decreased 0.10 percentage points (10 basis points) as a percentage of total revenues
- Operating earnings increased \$129.7 million, or 17%, to \$877.5 million
- Earnings from continuing operations before income taxes were \$757.7 million compared to \$623.3 million
- Earnings from continuing operations were \$622.5 million, or \$4.67 per diluted share, compared to \$517.8 million, or \$3.87 per diluted share
 - Discrete items in 2019 include:
 - pretax gains of \$13.4 million for the sale of businesses and property donation
 - pretax charges of \$10.8 million for property donation
 - pretax charges of \$3.0 million for divested operations
 - pretax charges of \$1.7 million associated with non-routine business development
 - pretax charges of \$6.5 million for restructuring
 - Discrete items in 2018 include:
 - \$0.6 million of tax expense related to the Tax Cuts and Jobs Act (TCJA)
 - pretax interest charges of \$7.4 million related to the January and March early debt retirements
 - pretax gains of \$2.9 million for the sale of businesses
 - pretax charges of \$18.5 million for divested operations
 - pretax gains of \$2.3 million for business interruption claims
 - pretax charges of \$5.2 million associated with non-routine business development
 - pretax charges of \$6.2 million for restructuring
- Adjusted (for the discrete pretax items noted above) earnings from continuing operations were \$4.70 per diluted share, compared to \$4.05 per diluted share
- Net earnings were \$617.7 million, an increase of \$101.9 million, or 20%
- Adjusted EBITDA was \$1,270.0 million, an increase of \$138.3 million, or 12%
- Returned capital to shareholders via dividends (\$164.0 million versus \$148.1 million) and share repurchases (\$2.6 million versus \$134.0 million)

2019 marked another year of strong earnings growth and cash generation. We are particularly proud of our people who worked hard to achieve these results while ensuring another year of world class safety performance. Widespread improvements in pricing helped drive 8% growth in our industry-leading unit profitability (gross profit per ton) in aggregates and double-digit growth in Adjusted EBITDA. Industry leadership in safety and pace-setting unit margins are both evidence of a strong and healthy business. Going forward, our compounding unit margins and our disciplined capital allocation position us well to increase our cash flows and improve our return on invested capital.

Full year revenues were \$4.9 billion, up 12% as compared to the prior year, and net earnings were \$617.7 million, an increase of 20%. Adjusted EBITDA increased 12% to \$1,270.0 million.

At year end, total debt was \$2.8 billion, or 2.2 times 2019 Adjusted EBITDA. Our weighted-average debt maturity was 14 years and the weighted-average interest rate was 4.4%.

As the leading aggregates producer in the U.S., we are well positioned for continued top line growth, particularly as federal, state and local governments increase spending on public infrastructure construction, while demand for private sector projects gain momentum. In addition, our keen focus on operational excellence, cost control and disciplined investment should enable us to enhance profitability and drive sustainable, long-term shareholder value.

CAPITAL ALLOCATION

We will continue to make disciplined investments in organic and acquisition-led growth, while continuing to emphasize capital returns and cost control. We are completely focused on actions that improve returns to our shareholders. We seek continuous, compounding improvement, generating big results through small actions. Our capital allocation priorities remain unchanged:

- deploying operating capital to sustain our franchise
- maintaining the financial strength and flexibility needed through the cycle
- strategic growth through mergers and acquisitions and internal development
- returning excess cash to shareholders through a healthy mix of sustainable dividend growth and stock repurchases

Our capital allocation and investment-grade rating priorities remain unchanged. For the full year, capital expenditures were \$404.3 million. This amount included \$239.3 million of core operating and maintenance capital investments to improve or replace existing property, plant & equipment. In addition, we invested \$165.0 million in internal growth projects to secure new aggregates reserves, develop new production sites, enhance our distribution capabilities and support the targeted growth of our asphalt and concrete operations.

We continue to pursue opportunities for value-creating acquisitions, swaps and greenfield investments. We remain active in the pursuit of bolt-on acquisitions and other value-creating growth investments. We closed two business acquisitions during 2019 for total consideration of \$45.3 million. These acquisitions strengthened both our aggregates position in Tennessee and our ready-mixed concrete position in Virginia.

During 2019, we returned \$166.6 million to our shareholders through dividends and share repurchases.

For a detailed discussion of our acquisitions and divestitures, see Note 19 "Acquisitions and Divestitures" in Item 8 "Financial Statements and Supplementary Data."

MARKET DEVELOPMENTS AND OUTLOOK

Demand in our markets will continue to benefit from higher levels of highway funding and continued growth in residential and nonresidential markets. Residential construction should continue to strengthen after some softness in certain of our markets during the second half of 2019. Private nonresidential construction activity should also improve as leading indicators point to positive growth in 2020. Demand fundamentals, including population and employment growth, continue to support longer-term growth in residential and nonresidential construction.

We are seeing a positive pricing environment driven by shipment momentum in private demand and visibility of public demand. This visibility to demand growth sets the stage for solid price improvement in 2020. Price improvement coupled with our four strategic initiatives (operational excellence, strategic sourcing, commercial excellence and logistics innovation) should continue to increase unit profitability.

Management expectations for 2020 include:

- Aggregates shipments growth of 2% to 4%
- Aggregates freight-adjusted price increase of 4% to 6%
- Collective Asphalt, Concrete and Calcium segment gross profit growth of 10% to 15%
- SAG expenses of approximately \$365 million
- Interest expense of approximately \$125 million
- Depreciation, depletion, accretion and amortization expense of approximately \$385 million
- An effective tax rate of approximately 20%
- Earnings from continuing operations of \$5.20 to \$5.80 per diluted share
- Net earnings of \$695 million to \$775 million
- Adjusted EBITDA of \$1.385 billion to \$1.485 billion

Additionally, we expect to spend approximately \$275 million on maintenance capital and \$200 million for internal growth projects that are largely underway.

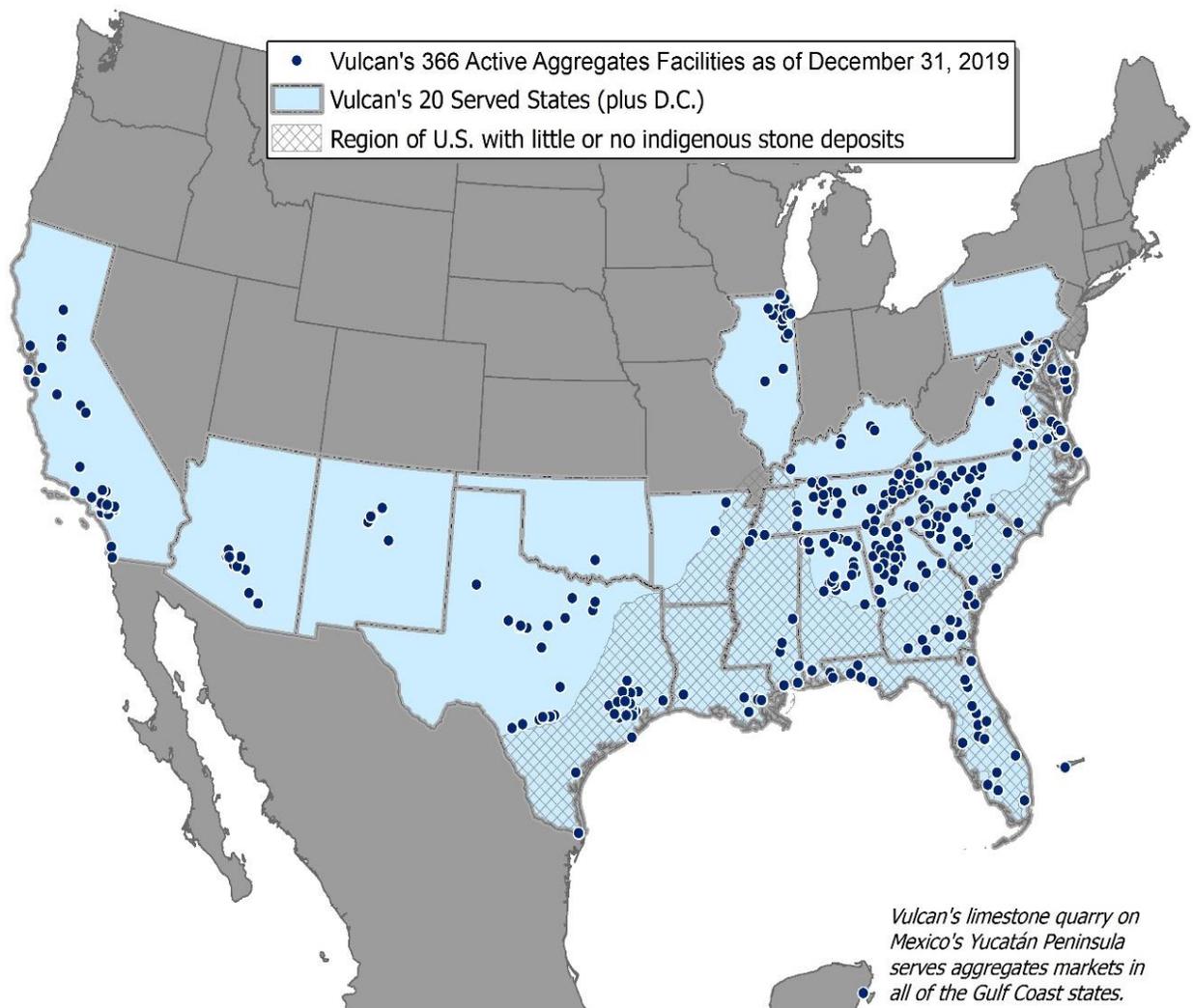
In summary, we expect another year of strong earnings growth in 2020. Vulcan-served markets should continue to benefit from robust public construction demand, led by higher levels of highway funding in our key states. Our focus remains the same — compounding our unit margins through all parts of the cycle.

COMPETITIVE ADVANTAGES

AGGREGATES FOOTPRINT

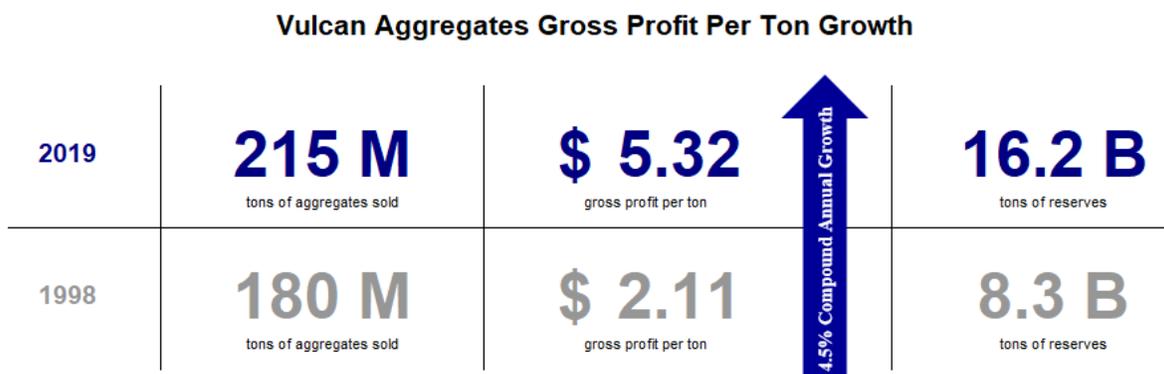
Over time, we have strategically and systematically built one of the most valuable aggregates franchises in the U.S., with a footprint that is impossible to replicate. Zoning and permitting regulations have made it increasingly difficult to expand existing quarries or to develop new quarries. Such regulations, while curtailing expansion, also increase the value of our reserves that were zoned and permitted decades ago.

Demand for aggregates correlates positively with changes in population growth, household formation and employment. We have a coast-to-coast footprint that serves 19 of the top 25 highest-growth metropolitan areas and states where 72% of U.S. population growth from 2020 to 2030 is projected to occur. As state and federal spending increases, Vulcan is poised to benefit greatly from growing private and public demand for aggregates, thereby delivering significant long-term value for our shareholders.



COMPOUNDING IMPROVEMENT IN PROFITABILITY

We have continued to deliver strong financial performance over time and through business cycles. Through our aggregates-led strategy and focus on our four strategic initiatives — operational excellence, strategic sourcing, commercial excellence and logistics innovation (as outlined in Item 1 “Business” under the “Business Strategy” heading) — we have created one of the most profitable public companies in our industry as measured by aggregates gross profit per ton.

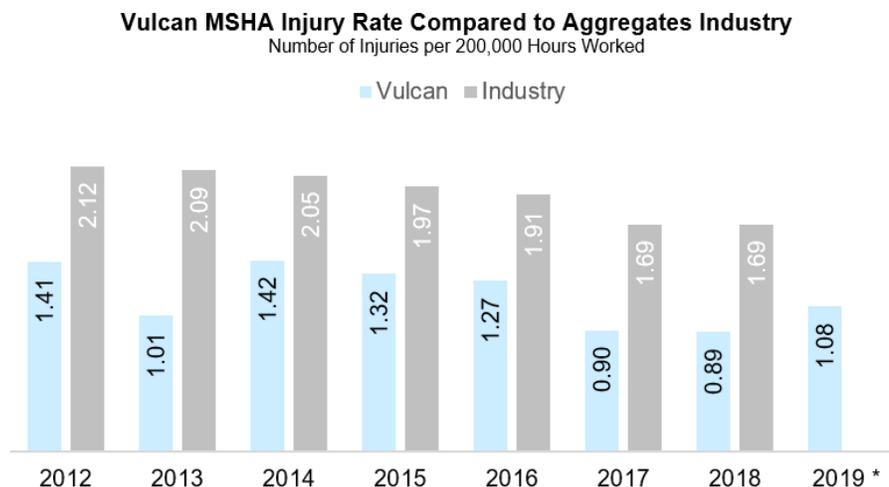


Current economic indicators and market fundamentals point toward continued market growth. We are currently operating considerably below full capacity making us extremely well positioned to further benefit from economies of scale as this growth continues.

SAFETY, HEALTH AND ENVIRONMENTAL PERFORMANCE

A strategy for sustainable, long-term value creation must include doing right by your employees, your neighbors and the environment in which you operate. Over our more than six decades as a public company, we have built a strong, resilient and vital business on this foundation of doing things the right way.

We are a leader in our industry in safety, health and environmental performance, with a safety record substantially better than the industry average. We apply the shared experiences, expertise and resources at each of our locally led sites, with an emphasis on taking care of one another. The result is a record of safety excellence consistently outperforming the industry.



Source: Mine Safety and Health Administration (MSHA) records and Internal Vulcan Data.

* The aggregates industry MSHA injury rate for 2019 was not available as of the filing of this report.

We focus on our environmental stewardship programs with the same intensity that we bring to our health and safety initiatives resulting in 98% citation-free inspections out of all 2019 federal and state environmental inspections.

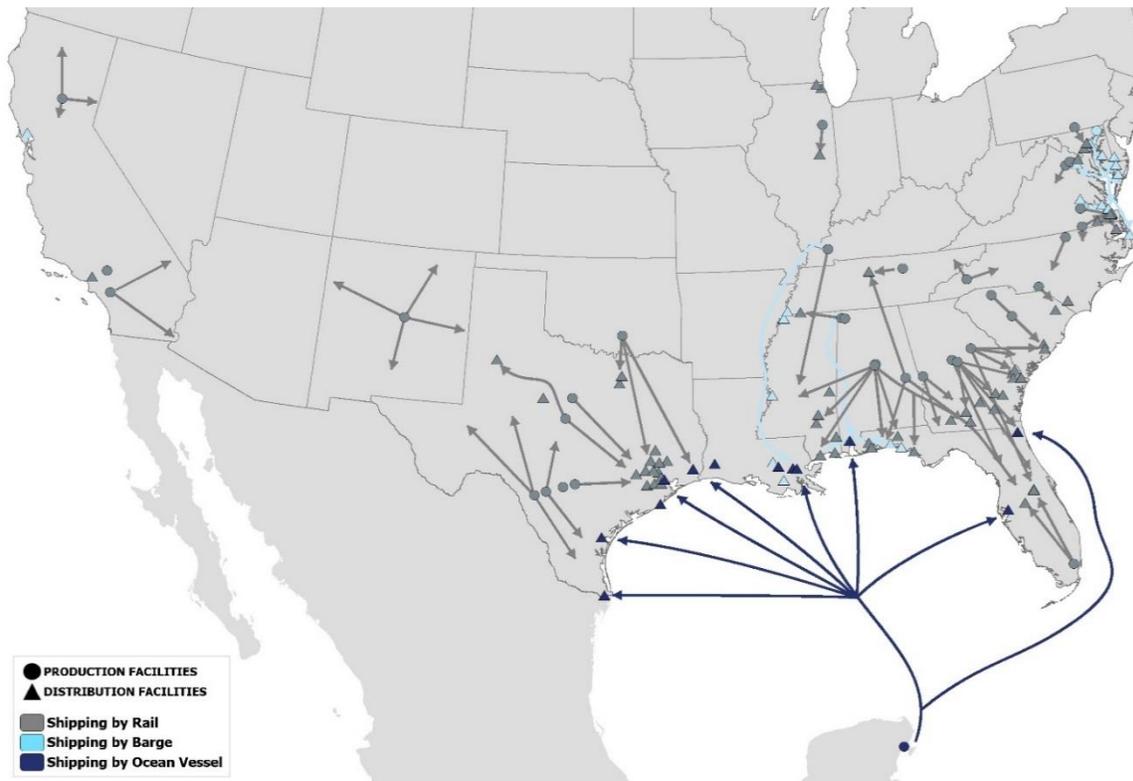
We lead community relations programs that serve our neighbors while ensuring that we grow and thrive in the communities where we operate. During 2019, we operated 40 certified wildlife habitat sites, the third largest number of sites in the nation, as certified by the Wildlife Habitat Council. We conducted tours for more than 25,000 students and neighbors at our operations, partnered with 235 adopted schools, and provided 145 scholarships to students nationwide.

We recognize that the aggregates mining in which we engage is an interim use of the approximately 240,000 acres of land in our portfolio. Our land and water assets will be converted to other valuable uses at the end of mining. Effective management throughout the life cycle of our land — from pre-mining utilization as agriculture and timber development, to post-mining development as water reservoirs or residential and commercial development — not only generates significant additional value for our shareholders but greatly benefits the communities in which we operate.

CUSTOMER SERVICE

More than an aggregates supplier, we are a business dedicated to customer service and finding creative solutions to meet our customers' needs. Being a valued partner and trusted supplier means that we are providing the right product, with the right specifications, that is the right quality, delivered the right way — on time and safely. Our *One-Vulcan, Locally Led* approach, in which our employees work together to leverage the size and strengths of Vulcan as a whole, while running their operations with a strong entrepreneurial spirit and sense of ownership, allows us to deliver market-leading services to our customers.

Transportation costs are passed along to our customers, and because aggregates have a very high weight-to-value ratio, those costs can add up quickly when transporting aggregates long distances. Having the most extensive distribution network of any aggregates producer sets us apart. Combining our trucking, rail, barge and ocean vessel shipping logistics capabilities allows us to provide better customer solutions and create a seamless customer experience at a competitive price.



As an approximation, a truck has a capacity of 20-25 tons of aggregates; a railcar has a capacity of 4-5 truckloads; a barge has a capacity of 65 truckloads and our ocean vessels have the capacity of 2,500 truckloads.

STRONG FINANCIAL FOUNDATION

Our strong balance sheet gives us the financial flexibility to implement our strategy and initiatives and allows us to negotiate from a position of strength. We have a well-established set of priorities with respect to capital allocation, as follows:

1. Operating Capital (maintain and grow value of franchise)
2. Growth Capital (including greenfields and business acquisitions)
3. Dividend Growth with Earnings (with a keen focus on sustainability)
4. Return Excess Cash to Shareholders (primarily via share repurchases)

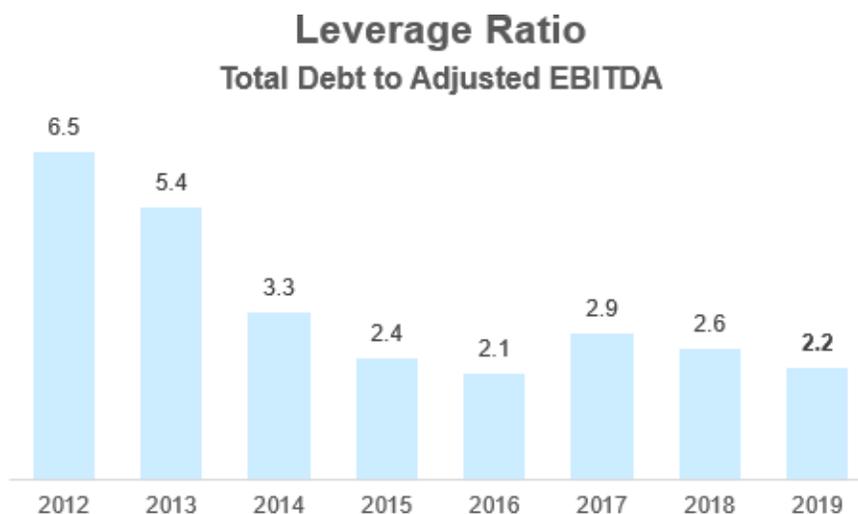
Our first and highest use of cash is to maintain and protect our valuable franchise by keeping our operations in good working order to ensure the timely delivery of goods and services to our customers. This cash use takes the form of operating and maintenance capital and the requirements expand and contract as volume changes.

Our second priority is to grow and expand our franchise. We do this through internal growth projects and business acquisitions. Internal growth projects have generally been among our highest returning projects and include the opening of greenfield production and/or distribution sites and the acquisition of new reserves. For business acquisitions, we tend to look for small bolt-on acquisitions which are easy to integrate and will pursue large business combinations that are the right fit and the right price. We use strategic and returns-based criteria to price potential acquisitions and are disciplined in our approach. We look at a lot of potential acquisitions and only make offers on a few.

Our third priority is dividend growth to a level that we confidently believe we can maintain through the cycle.

And finally, if there is excess cash after fulfilling the first three capital allocation priorities, we will consider returning cash to shareholders via share repurchases.

Additionally, our leverage, as measured by total debt to Adjusted EBITDA, has improved from 6.5x at December 31, 2012 to 2.2x as of December 31, 2019, well within our stated leverage target of 2.0 to 2.5x. Over that period, we also improved the structure of our debt (average maturity from 7 years to 14 years) and reduced the cost of the debt (weighted average interest rate from 7.55% to 4.36%).



RESULTS OF OPERATIONS

Total revenues are primarily derived from our product sales of aggregates, asphalt mix and ready-mixed concrete, and include freight & delivery costs that we pass along to our customers to deliver these products. We also generate service revenues from our asphalt construction paving business and services related to our aggregates business. We present separately our discontinued operations, which consists of our former Chemicals business.

The following table highlights significant components of our consolidated operating results including EBITDA and Adjusted EBITDA.

CONSOLIDATED OPERATING RESULTS HIGHLIGHTS

<i>For the years ended December 31 in millions, except unit and per share data</i>	2019	2018	2017
Total revenues	\$ 4,929.1	\$ 4,382.9	\$ 3,890.3
Cost of revenues	3,673.2	3,282.0	2,896.8
Gross profit	\$ 1,255.9	\$ 1,100.9	\$ 993.5
<i>Gross profit margin</i>	25.5%	25.1%	25.5%
Selling, administrative and general expenses (SAG)	\$ 370.5	\$ 333.4	\$ 325.0
<i>SAG as a percentage of total revenues</i>	7.5%	7.6%	8.4%
Operating earnings	\$ 877.5	\$ 747.7	\$ 639.0
Interest expense	\$ 130.2	\$ 138.0	\$ 295.5
Earnings from continuing operations before income taxes	\$ 757.7	\$ 623.3	\$ 361.3
Earnings from continuing operations	\$ 622.5	\$ 517.8	\$ 593.4
Earnings (loss) on discontinued operations, net of income taxes	(4.8)	(2.0)	7.8
Net earnings	\$ 617.7	\$ 515.8	\$ 601.2
Diluted earnings (loss) per share			
Continuing operations	\$ 4.67	\$ 3.87	\$ 4.40
Discontinued operations	(0.04)	(0.02)	0.06
Diluted net earnings per share	\$ 4.63	\$ 3.85	\$ 4.46
EBITDA ¹	\$ 1,261.3	\$ 1,107.0	\$ 958.4
Adjusted EBITDA ¹	\$ 1,270.0	\$ 1,131.7	\$ 981.9
Average Sales Price and Unit Shipments			
Aggregates			
Tons (thousands)	215,465	201,375	183,179
Freight-adjusted sales price	\$ 13.99	\$ 13.25	\$ 13.06
Asphalt Mix			
Tons (thousands)	12,665	11,318	10,892
Average sales price	\$ 57.79	\$ 55.13	\$ 52.23
Ready-mixed concrete			
Cubic yards (thousands)	3,104	3,223	3,568
Average sales price	\$ 126.38	\$ 123.35	\$ 116.45
Calcium			
Tons (thousands)	294	285	273
Average sales price	\$ 27.85	\$ 28.44	\$ 28.26

¹ Non-GAAP measures are defined and reconciled within this Item 7 under the caption Reconciliation of Non-GAAP Measures.

Net earnings for 2019 were \$617.7 million (\$4.63 per diluted share) compared to \$515.8 million (\$3.85 per diluted share) in 2018 and \$601.2 million (\$4.46 per diluted share) in 2017. Each year's results were impacted by discrete items, as follows:

Earnings for 2019 include:

- pretax gains of \$13.4 million related to the sale of real estate and businesses
- pretax charges of \$10.8 million for property donation
- pretax charges of \$3.0 million associated with divested operations
- pretax charges of \$1.7 million associated with non-routine business development
- pretax charges of \$6.5 million for restructuring

Earnings for 2018 include:

- \$0.6 million of tax expense related to TCJA
- pretax gains of \$2.9 million related to the sale of businesses
- pretax charges of \$18.5 million associated with divested operations
- pretax gains of \$2.3 million for business interruption claims
- pretax charges of \$5.2 million associated with non-routine business development
- pretax charges of \$6.2 million for restructuring
- pretax interest charges of \$7.4 million related to early debt retirements

Earnings for 2017 include:

- \$297.0 million of net tax benefits (TCJA — \$268.2 million, and partial release of the Alabama NOL carryforward valuation allowance — \$28.8 million)
- pretax gains of \$10.5 million related to the sale of real estate and businesses
- pretax charges of \$4.3 million for property donation
- pretax charges of \$18.1 million associated with divested operations
- pretax charges of \$6.7 million for one-time employee bonuses
- pretax charges of \$3.1 million associated with non-routine business development, net of an asset purchase agreement termination fee
- pretax charges of \$1.9 million for restructuring
- a pretax loss on debt purchases of \$148.0 million presented as a component of interest expense

EARNINGS FROM CONTINUING OPERATIONS BEFORE INCOME TAXES

Year-over-year changes in earnings from continuing operations before income taxes are summarized below:

<i>in millions</i>	2017	\$	361.3	2018	\$	623.3
Higher aggregates gross profit			137.3			154.8
Higher (lower) asphalt gross profit			(34.8)			6.5
Higher (lower) concrete gross profit			4.7			(6.7)
Higher calcium gross profit			0.2			0.4
Higher selling, administrative and general expenses			(8.4)			(37.2)
Higher (lower) gain on sale of property, plant & equipment and businesses			(2.9)			8.8
Lower interest expense			157.5			7.8
All other			8.4			0.0
	2018	\$	623.3	2019	\$	757.7

OPERATING RESULTS BY SEGMENT

We present our results of operations by segment at the gross profit level. We have four operating (and reportable) segments organized around our principal product lines: (1) Aggregates, (2) Asphalt, (3) Concrete and (4) Calcium. Management reviews earnings for our reporting segments principally at the gross profit level.

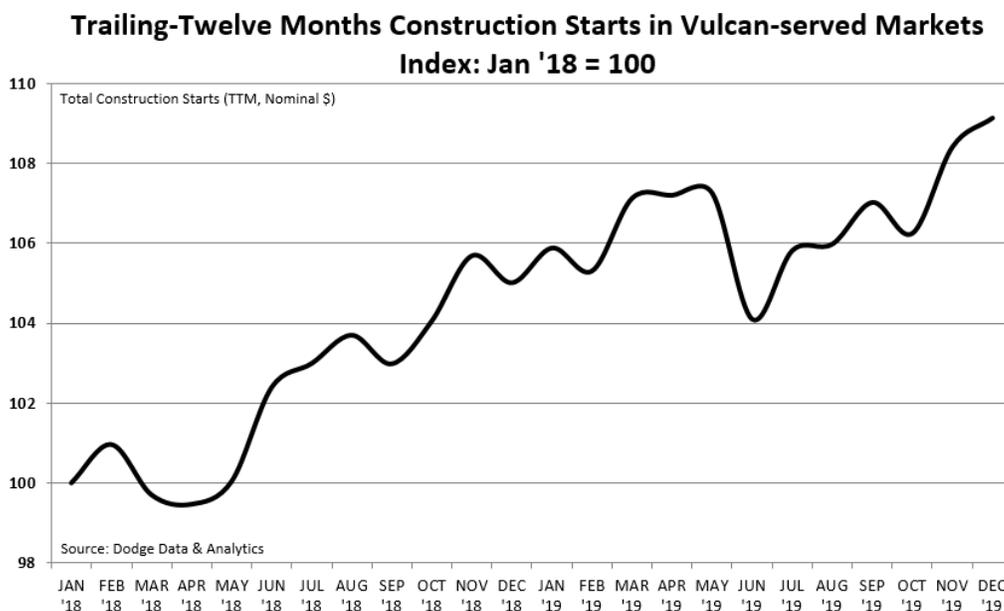
1. AGGREGATES

Our year-over-year aggregates shipments:

- increased 7% in 2019
- increased 10% in 2018 ¹
- increased 1% in 2017

¹ Of the 10% increase in 2018 shipments, 3% was attributable to the fourth quarter 2017 acquisition of Aggregates USA.

Aggregates shipments increased 7% (6% same-store) led by double-digit growth in Alabama, Texas and Virginia. Vulcan-served markets benefitted from strong public construction demand, led by significantly higher levels of highway funding in our key states. Conversely, residential construction in our markets experienced a slowdown during the second half of 2019. We expect both residential and private nonresidential construction to improve in 2020 as leading indicators point to their growth potential.



Our year-over-year freight-adjusted selling price¹ for aggregates:

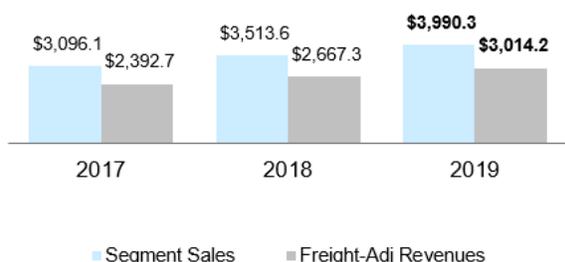
- increased 5.6% in 2019
- increased 1.5% in 2018
- increased 3.2% in 2017

¹ We routinely arrange the delivery of our aggregates to the customer. Additionally, we incur freight costs to move aggregates from the production site to remote distribution sites. These costs are passed on to our customers in the aggregates price. We remove these pass-through freight & delivery revenues (and any other aggregates-derived revenues, such as landfill tipping fees) from the freight-adjusted selling price for aggregates. See the Reconciliation of Non-GAAP Financial Measures within this Item 7 for a reconciliation of freight-adjusted revenues.

Aggregates freight-adjusted pricing increased 5.6%, or \$0.74 per ton, with widespread improvement throughout our key markets. On a mix-adjusted basis, price increased 5.2% versus the prior year. Our disciplined approach to pricing and execution positions us well for compounding improvement. Demand growth in our markets continues to benefit from higher levels of highway funding while leading indicators for private construction point towards a return to growth in 2020. Positive trends in booking pace, along with visibility of public demand and shipment momentum in private demand should help drive sales price increases into 2020.

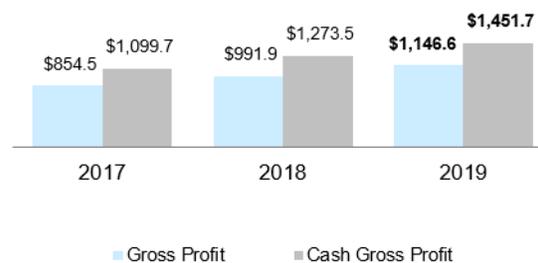
AGGREGATES SEGMENT SALES AND FREIGHT-ADJUSTED REVENUES

in millions



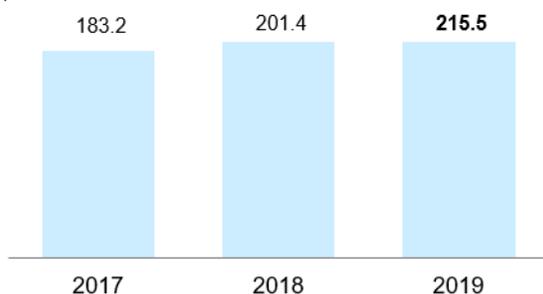
AGGREGATES GROSS PROFIT AND CASH GROSS PROFIT

in millions



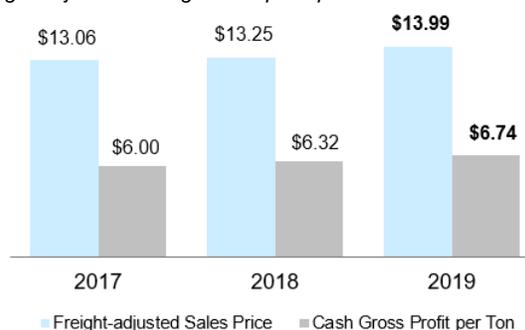
AGGREGATES UNIT SHIPMENTS

tons, in millions



AGGREGATES SELLING PRICE AND CASH GROSS PROFIT PER TON

Freight-adjusted average sales price per ton¹



¹ Freight-adjusted sales price is calculated as freight-adjusted revenues divided by aggregates unit shipments

Unit cost of sales (freight-adjusted) increased 4% (same-store +4%) versus the prior year. Unit profitability (as measured by gross profit per ton) grew by 8% to \$5.32 per ton. We remain focused on compounding unit margins in order to achieve the 12% compound annual growth realized since the recovery began in the second half of 2013.

Incremental gross profit as a percentage of segment sales excluding freight & delivery was 44%. On a same-store basis, this metric at 48% was below our longer-term expectations of 60% due to the aforementioned increase in unit cost of sales. We evaluate this metric on a trailing-twelve month basis as quarterly gross profit flow-through rates can vary widely from quarter to quarter.

2. ASPHALT

Our year-over-year asphalt mix shipments:

- increased 12% in 2019
- increased 4% in 2018 ¹
- increased 14% in 2017 ²

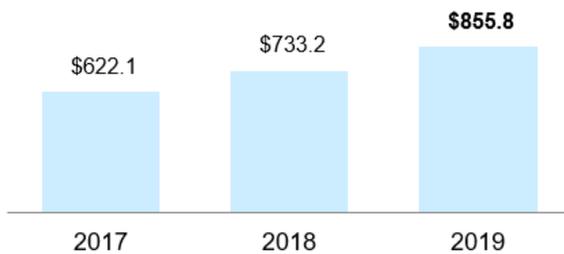
¹ The 4% increase in asphalt mix shipments in 2018 was attributable to first and second quarter 2018 acquisitions of asphalt mix operations and construction paving businesses in Alabama and Texas, coupled with the fourth quarter 2017 swap of our concrete operations for asphalt operations in Arizona. Same-store declined 2%.

² The 14% increase in asphalt mix shipments in 2017 was largely attributable to a first quarter 2017 acquisition of asphalt mix operations and a construction paving business in Tennessee.

Asphalt segment gross profit of \$63.0 million was \$6.5 million or 12% higher than 2018. Asphalt mix shipments increased 12% (+10% same-store) while selling prices increased 4.8%, or \$2.66 per ton. The average unit cost for liquid asphalt was 6% higher than 2018, negatively affecting earnings by \$15.7 million. Material margins declined \$0.28 per ton, or approximately \$3.5 million, as higher prices partially offset the effect of higher liquid asphalt costs. Higher volume drove the increase in gross profit from 2018.

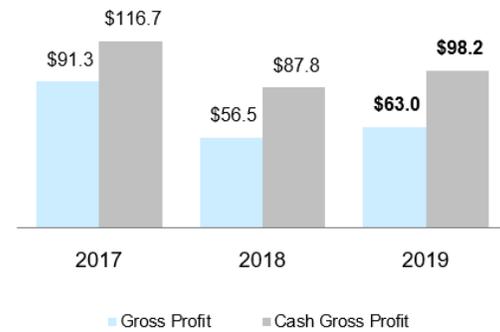
ASPHALT SEGMENT SALES

in millions



ASPHALT GROSS PROFIT AND CASH GROSS PROFIT

in millions



3. CONCRETE

Our year-over-year ready-mixed concrete shipments:

- decreased 4% in 2019
- decreased 10% in 2018 ¹
- increased 19% in 2017 ²

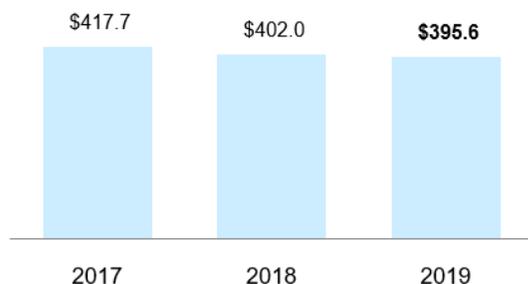
¹ The 10% decrease in ready-mixed concrete shipments in 2018 was attributable to the March 2018 disposition of ready-mixed concrete facilities in Georgia, and the fourth quarter 2017 swap of our concrete operations for asphalt operations in Arizona.

² Of the 19% increase in ready-mixed concrete shipments in 2017, 9% was attributable to a March 2017 acquisition of ready-mixed concrete facilities in California.

Concrete segment gross profit was \$43.2 million, down 14% from 2018 on a 4% decline in shipments (2% same-store). While material margins per cubic yard improved 2% (2% same-store), unit profitability (as measured by gross profit per cubic yard) declined 10% (12% same-store) due primarily to reduced volume leverage on fixed cost.

CONCRETE SEGMENT SALES

in millions



CONCRETE GROSS PROFIT AND CASH GROSS PROFIT

in millions

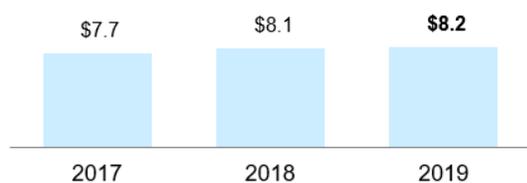


4. CALCIUM

Calcium segment gross profit increased 13% from 2018 to \$3.1 million.

CALCIUM SEGMENT SALES

in millions



CALCIUM GROSS PROFIT AND CASH GROSS PROFIT

in millions



In total, the 2019 gross profit contribution from our three non-aggregates (Asphalt, Concrete and Calcium) segments was \$109.3 million, a \$0.2 million increase over 2018, and a \$29.7 million or 21% decrease from 2017.

SELLING, ADMINISTRATIVE AND GENERAL (SAG) EXPENSES

in millions



As a percentage of total revenues, SAG expense was:

- 7.5% in 2019 — decreased 0.10 percentage points (10 basis points)
- 7.6% in 2018 — decreased 0.75 percentage points (75 basis points)
- 8.4% in 2017 — decreased 0.45 percentage points (45 basis points)

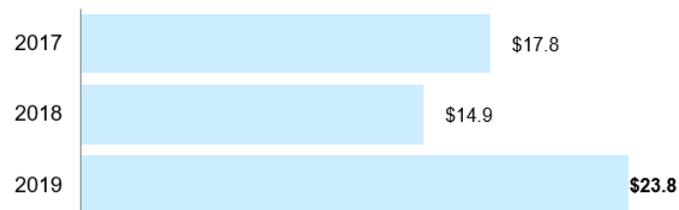
Our comparative total company employment levels at year end:

- increased 6% in 2019
- increased 6% in 2018
- increased 11% in 2017

Increases in our employment levels were partially driven by our acquisitions (see Note 19 “Acquisitions and Divestitures” in Item 8 “Financial Statements and Supplementary Data”). As noted above, 2019 SAG expenses were \$370.5 million or 7.5% as a percentage of total revenues, down from 7.6% in 2018. We remain focused on further leveraging our overhead structure.

GAIN ON SALE OF PROPERTY, PLANT & EQUIPMENT AND BUSINESSES

in millions



The 2019 gain on sale of property, plant & equipment and businesses of \$23.8 million includes: (1) \$4.1 million of pretax gain from the sale of two aggregates operations in Georgia, (2) the reversal of a contingent payable related to the 2017 Department of Justice required divestiture of former Aggregates USA operations and (3) \$9.3 million of pretax gain related to property donations. The 2018 gain on sale of property, plant & equipment and businesses of \$14.9 million includes \$2.9 million of pretax gain from the sale of our ready-mixed concrete operations in Georgia, \$3.8 million of pretax gain related to the sale of mitigation credits and \$1.3 million of pretax gain from the sale of one of the replaced self-unloading ships. The 2017 gain on sale of property, plant & equipment and businesses of \$17.8 million includes \$8.0 million of pretax gain from a swap of ready-mixed concrete operations for an asphalt operation (all in Arizona) and \$2.5 million of pretax gain related to a property donation. See Note 19 “Acquisitions and Divestitures” in Item 8 “Financial Statements and Supplementary Data.”

OTHER OPERATING EXPENSE, NET

Other operating expense, which has an approximate run-rate of \$12.0 million a year (exclusive of discrete items), is composed of various operating items not specifically presented in the accompanying Consolidated Statements of Comprehensive Income. The total other operating expense, net and significant items included in the total were:

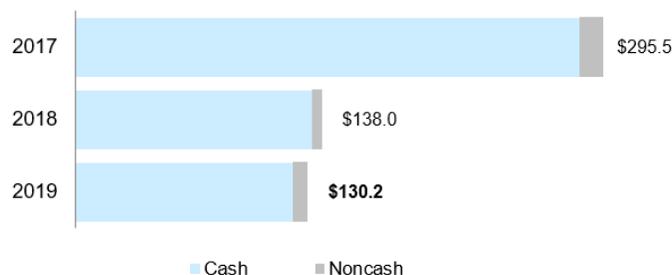
- \$31.6 million in 2019 — includes discrete items as follows:
 - \$10.8 million of charges related to property donations
 - \$3.0 million of charges associated with divested operations, composed entirely of environmental liability accruals associated with previously divested properties
 - \$6.5 million of managerial restructuring charges
- \$34.8 million in 2018 — includes discrete items as follows:
 - \$5.2 million of non-routine business development charges
 - \$18.5 million of charges associated with divested operations
 - \$6.2 million of managerial restructuring charges
- \$47.3 million in 2017 — includes discrete items as follows:
 - \$3.1 million of non-routine business development charges, net of a termination fee. These net charges were composed of \$11.1 million of non-routine business development charges partially offset by an \$8.0 million credit related to an asset purchase agreement termination fee
 - \$18.1 million of charges associated with divested operations including \$16.6 million of environmental liability accruals related to the Hewitt Landfill matter (see Note 12 “Commitments and Contingencies” in Item 8 “Financial Statements and Supplementary Data”)
 - \$6.7 million of one-time cash bonuses for non-incentive eligible employees (\$1,000 per employee)
 - \$4.3 million of charges related to a property donation

OTHER NONOPERATING INCOME, NET

Other nonoperating income (2019 — \$9.2 million, 2018 — \$13.0 million and 2017 — \$13.4 million) is composed primarily of pension and postretirement benefit costs (excluding service costs), foreign currency transaction gains/losses, Rabbi Trust gains/losses and net earnings/losses of nonconsolidated equity method investments.

INTEREST EXPENSE

in millions



Interest expense was \$130.2 million in 2019 compared to \$138.0 million in 2018 and \$295.5 million in 2017. Interest expense for 2017 included \$148.0 million of charges related to the 2017 debt purchases. See Note 6 “Debt” in Item 8 “Financial Statements and Supplementary Data” for additional discussion.

INCOME TAXES

Our income tax expense (benefit) from continuing operations for the years ended December 31 is shown below:

<i>dollars in millions</i>	2019	2018	2017
Earnings from continuing operations before income taxes	\$ 757.7	\$ 623.3	\$ 361.3
Income tax expense (benefit)	\$ 135.2	\$ 105.4	\$ (232.1)
Effective tax rate	17.8%	16.9%	-64.2%

The \$29.8 million increase in our 2019 income tax expense was primarily related to an increase in earnings.

The \$337.5 million increase in our 2018 income tax expense was primarily due to \$297.0 million of net discrete tax benefits recorded in the fourth quarter of 2017. These discrete items were composed of two tax benefits: (1) a \$301.6 million remeasurement of our deferred tax assets and liabilities at the new 21% federal corporate income tax rate and (2) a \$28.8 million partial release of our Alabama NOL carryforward valuation allowance which were partially offset by two tax charges: (1) \$21.1 million of lost tax benefits associated with tax deductions accelerated into 2017 (e.g., lost U.S. production deduction) and (2) a \$12.3 million tax expense for the one-time Deemed Repatriation Transition Tax

See Note 9 “Income Taxes” in Item 8 “Financial Statements and Supplementary Data.”

DISCONTINUED OPERATIONS

Pretax earnings (loss) from discontinued operations were:

- \$(6.5) million in 2019
- \$(2.7) million in 2018
- \$13.0 million in 2017

Pretax earnings (loss) from discontinued operations for 2019, 2018 and 2017, resulted primarily from general and product liability costs, including legal defense costs and environmental remediation costs associated with our former Chemicals business. The 2017 results also include insurance recoveries from previously incurred general liability costs. For additional information about discontinued operations, see Note 1 “Summary of Significant Accounting Policies” in Item 8 “Financial Statements and Supplementary Data” under the caption Discontinued Operations.

RECONCILIATION OF NON-GAAP FINANCIAL MEASURES

SAME-STORE

We have provided certain information on a same-store basis. When discussing our financial results in comparison to prior periods, we may exclude the operating results of recently acquired/divested businesses that do not have comparable results in the periods being discussed. These recently acquired/divested businesses are disclosed in Note 19 “Acquisitions and Divestitures” in Item 8 “Financial Statements and Supplementary Data.” This approach allows us to evaluate the performance of our operations on a comparable basis. We believe that measuring performance on a same-store basis is useful to investors because it enables evaluation of how our operations are performing period over period without the effects of acquisition and divestiture activity. Our same-store information may not be comparable to similar measures used by other companies.

AGGREGATES SEGMENT FREIGHT-ADJUSTED REVENUES

Aggregates segment freight-adjusted revenues is not a Generally Accepted Accounting Principle (GAAP) measure. We present this measure as it is consistent with the basis by which we review our operating results. We believe that this presentation is consistent with our competitors and meaningful to our investors as it excludes revenues associated with freight & delivery, which are pass-through activities. It also excludes immaterial other revenues related to services, such as landfill tipping fees, that are derived from our aggregates business. Additionally, we use this metric as the basis for calculating the average sales price of our aggregates products. Reconciliation of this metric to its nearest GAAP measure is presented below:

<i>in millions, except per ton data</i>	2019	2018	2017
Aggregates segment			
Segment sales	\$ 3,990.3	\$ 3,513.6	\$ 3,096.1
Less			
Freight & delivery revenues ¹	921.1	796.9	670.7
Other revenues	55.0	49.4	32.7
Freight-adjusted revenues	\$ 3,014.2	\$ 2,667.3	\$ 2,392.7
Unit shipments - tons	215.5	201.4	183.2
Freight-adjusted sales price	\$ 13.99	\$ 13.25	\$ 13.06

¹ At the segment level, freight & delivery revenues include intersegment freight & delivery (which are eliminated at the consolidated level) and freight to remote distribution sites.

AGGREGATES SEGMENT INCREMENTAL GROSS PROFIT

Aggregates segment incremental gross profit flow-through rate is not a GAAP measure and represents the year-over-year change in gross profit divided by the year-over-year change in segment sales excluding freight & delivery (revenues and costs). We present this metric as it is consistent with the basis by which we review our operating results. We believe that this presentation is consistent with our competitors and meaningful to our investors as it excludes revenues associated with freight & delivery, which are pass-through activities. Reconciliation of this metric to its nearest GAAP measure is presented below:

MARGIN IN ACCORDANCE WITH GAAP

<i>dollars in millions</i>	2019	2018	2017
Aggregates segment			
Gross profit	\$ 1,146.6	\$ 991.9	\$ 854.5
Segment sales	\$ 3,990.3	\$ 3,513.6	\$ 3,096.1
Gross profit margin	28.7%	28.2%	27.6%
Incremental gross profit margin	32.5%	32.9%	

FLOW-THROUGH RATE (NON-GAAP)

<i>dollars in millions</i>	2019	2018
Aggregates segment		
Gross profit	\$ 1,146.6	\$ 991.9
Less: Contribution from acquisitions (same-store)	2.1	0.1
Same-store gross profit	\$ 1,144.5	\$ 991.8
Segment sales	\$ 3,990.3	\$ 3,513.6
Less: Freight & delivery revenues ¹	921.1	796.9
Segment sales excluding freight & delivery	\$ 3,069.2	\$ 2,716.7
Less: Contribution from acquisitions (same-store)	35.2	1.6
Same-store segment sales excluding freight & delivery	\$ 3,034.0	\$ 2,715.1
Gross profit flow-through rate	37.4%	36.5%
Same-store gross profit flow-through rate	37.7%	36.5%
Incremental gross profit flow-through rate	43.9%	47.1%
Same-store incremental gross profit flow-through rate	47.9%	64.2%

¹ At the segment level, freight & delivery revenues include intersegment freight & delivery (which are eliminated at the consolidated level) and freight to remote distribution sites.

CASH GROSS PROFIT

GAAP does not define “cash gross profit,” and it should not be considered as an alternative to earnings measures defined by GAAP. We and the investment community use this metric to assess the operating performance of our business. Additionally, we present this metric as we believe that it closely correlates to long-term shareholder value. We do not use this metric as a measure to allocate resources. Cash gross profit adds back noncash charges for depreciation, depletion, accretion and amortization to gross profit. Aggregates segment cash gross profit per ton is computed by dividing Aggregates segment cash gross profit by tons shipped. Reconciliation of this metric to its nearest GAAP measure is presented below:

<i>in millions, except per ton data</i>	2019	2018	2017
Aggregates segment			
Gross profit	\$ 1,146.6	\$ 991.9	\$ 854.5
Depreciation, depletion, accretion and amortization	305.1	281.6	245.2
Aggregates segment cash gross profit	\$ 1,451.7	\$ 1,273.5	\$ 1,099.7
Unit shipments - tons	215.5	201.4	183.2
Aggregates segment gross profit per ton	\$ 5.32	\$ 4.93	\$ 4.66
Aggregates segment cash gross profit per ton	\$ 6.74	\$ 6.32	\$ 6.00
Asphalt segment			
Gross profit	\$ 63.0	\$ 56.5	\$ 91.3
Depreciation, depletion, accretion and amortization	35.2	31.3	25.4
Asphalt segment cash gross profit	\$ 98.2	\$ 87.8	\$ 116.7
Concrete segment			
Gross profit	\$ 43.2	\$ 49.9	\$ 45.2
Depreciation, depletion, accretion and amortization	13.6	12.5	13.8
Concrete segment cash gross profit	\$ 56.8	\$ 62.4	\$ 59.0
Calcium segment			
Gross profit	\$ 3.1	\$ 2.7	\$ 2.5
Depreciation, depletion, accretion and amortization	0.2	0.3	0.7
Calcium segment cash gross profit	\$ 3.3	\$ 3.0	\$ 3.2

EBITDA AND ADJUSTED EBITDA

GAAP does not define “Earnings Before Interest, Taxes, Depreciation and Amortization” (EBITDA), and it should not be considered as an alternative to earnings measures defined by GAAP. We use this metric to assess the operating performance of our business and as a basis for strategic planning and forecasting as we believe that it closely correlates to long-term shareholder value. We do not use this metric as a measure to allocate resources. We adjust EBITDA for certain items to provide a more consistent comparison of earnings performance from period to period. Reconciliation of this metric to its nearest GAAP measure is presented below (numbers may not foot due to rounding):

<i>in millions</i>	2019	2018	2017
Net earnings	\$ 617.7	\$ 515.8	\$ 601.2
Income tax expense (benefit)	135.2	105.4	(232.1)
Interest expense, net of interest income	129.0	137.6	291.1
(Earnings) loss on discontinued operations, net of tax	4.8	2.0	(7.8)
EBIT	886.7	760.8	652.4
Depreciation, depletion, accretion and amortization	374.6	346.2	306.0
EBITDA	\$ 1,261.3	\$ 1,107.0	\$ 958.4
Gain on sale of businesses ¹	\$ (13.4)	\$ (2.9)	\$ (10.5)
Property donation	10.8	0.0	4.3
Business interruption claims recovery	0.0	(2.3)	0.0
Charges associated with divested operations	3.0	18.5	18.1
Business development ²	1.7	5.2	3.1
One-time employee bonuses	0.0	0.0	6.7
Restructuring charges	6.5	6.2	1.9
Adjusted EBITDA	\$ 1,270.0	\$ 1,131.7	\$ 981.9
Depreciation, depletion, accretion and amortization	374.6	346.2	306.0
Adjusted EBIT	\$ 895.4	\$ 785.5	\$ 675.9

¹ Includes \$9.2 million of gains associated with property donations in 2019. The net effect of the 2019 property donation was a loss of \$1.6 million.

² Represents non-routine charges associated with acquisitions including the cost impact of purchase accounting inventory valuations.

ADJUSTED DILUTED EPS FROM CONTINUING OPERATIONS

Similar to our presentation of Adjusted EBITDA, we present Adjusted diluted earnings per share (EPS) from continuing operations to provide a more consistent comparison of earnings performance from period to period. This metric is not defined by GAAP and should not be considered as an alternative to earnings measures defined by GAAP. Reconciliation of this metric to its nearest GAAP measure is presented below:

	2019	2018	2017
Diluted Earnings Per Share			
Net earnings	\$ 4.63	\$ 3.85	\$ 4.46
Less: Discontinued operations earnings (loss)	(0.04)	(0.02)	0.06
Diluted EPS from continuing operations	\$ 4.67	\$ 3.87	\$ 4.40
Items included in Adjusted EBITDA above	0.03	0.14	0.11
Debt refinancing costs	0.00	0.04	0.73
Tax reform	0.00	0.00	(1.99)
NOL carryforward valuation allowance release	0.00	0.00	(0.21)
Adjusted diluted EPS - continuing operations	\$ 4.70	\$ 4.05	\$ 3.04

2020 PROJECTED EBITDA

The following reconciliation to the mid-point of the range of 2020 Projected EBITDA excludes adjustments (as noted in Adjusted EBITDA above) as they are difficult to forecast (timing or amount). Due to the difficulty of forecasting such adjustments, we are unable to estimate their significance. This metric is not defined by GAAP and should not be considered as an alternative to earnings measures defined by GAAP. Reconciliation of this metric to its nearest GAAP measure is presented below:

<i>in millions</i>	<i>2020 Projected¹</i>
	<i>Mid-point</i>
Net earnings	\$ 735
Income tax expense	190
Interest expense, net of interest income	125
Discontinued operations, net of tax	0
Depreciation, depletion, accretion and amortization	385
Projected EBITDA	\$ 1,435

¹ See the Market Developments and Outlook section (earlier within this Item 7) for the assumptions used to build this projection.

LIQUIDITY AND FINANCIAL RESOURCES

Our primary sources of liquidity are cash provided by our operating activities and a substantial, committed bank line of credit. Additional sources of capital include access to the capital markets, the sale of surplus real estate, and dispositions of nonstrategic operating assets. We believe these financial resources are sufficient to fund our business requirements for 2020, including:

- contractual obligations
- capital expenditures
- debt service obligations
- dividend payments
- potential share repurchases
- potential acquisitions

Our balanced approach to capital deployment remains unchanged. We intend to balance reinvestment in our business, growth through acquisitions and return of capital to shareholders, while sustaining financial strength and flexibility. In 2019 and 2018, we returned \$164.0 million and \$148.1 million, respectively, in cash to shareholders through our dividends and \$2.6 million and \$134.0 million, respectively, through share repurchases.

We actively manage our capital structure and resources in order to balance the cost of capital and the risk of financial stress. We seek to meet these objectives by adhering to the following principles:

- maintain substantial bank line of credit borrowing capacity
- proactively manage our debt maturity schedule such that repayment/refinancing risk in any single year is low
- maintain an appropriate balance of fixed-rate and floating-rate debt
- minimize financial and other covenants that limit our operating and financial flexibility

CASH

Included in our December 31, 2019 cash and cash equivalents and restricted cash balances of \$274.5 million is \$2.9 million of restricted cash (see Note 1 “Summary of Significant Accounting Policies” in Item 8 “Financial Statements and Supplementary Data” under the caption Restricted Cash).

CASH FROM OPERATING ACTIVITIES

in millions



Net cash provided by operating activities is derived primarily from net earnings before noncash deductions for depreciation, depletion, accretion and amortization.

<i>in millions</i>	2019	2018	2017
Net earnings	\$ 617.7	\$ 515.8	\$ 601.2
Depreciation, depletion, accretion and amortization (DDA&A)	374.6	346.2	306.0
Noncash operating lease expense	35.3	0.0	0.0
Contributions to pension plans	(8.9)	(109.6)	(20.0)
Deferred tax expense (benefit)	76.0	64.6	(235.7)
Cost of debt purchase	0.0	6.9	140.8
Other operating cash flows, net ¹	(110.6)	8.9	(147.6)
Net cash provided by operating activities	\$ 984.1	\$ 832.8	\$ 644.7

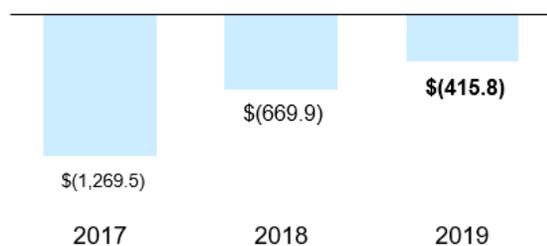
¹ Primarily reflects changes to working capital balances.

2019 VERSUS 2018 — Net cash provided by operating activities was \$984.1 million during 2019, a \$151.3 million increase compared to 2018. During 2018, we made a \$100.0 million discretionary contribution to our qualified pension plans that was deductible for tax purposes in 2017 and early retired debt incurring premium and transactions costs of \$6.9 million (which is added back to operating cash flows and reflected as a financing cash outflow). Additionally, as noted in the table above, beginning with our adoption of ASU 2016-02 in 2019 (see Note 1 to the consolidated financial statements), the noncash amortization component of operating lease expense is added back to operating cash flows.

2018 VERSUS 2017 — Net cash provided by operating activities was \$832.8 million during 2018, a \$188.1 million increase compared to 2017. As noted above, during 2018 we made a \$100.0 million discretionary contribution to our qualified pension plans and early retired debt incurring premium and transaction costs of \$6.9 million (added back to operating cash flows and reflected as a financing cash outflow). During 2017, we made a discretionary pension plan contribution of \$10.6 million and early retired debt incurring premium and transaction costs of \$140.8 million which was added back to operating cash flows and is reflected as a financing cash outflow.

CASH FROM INVESTING ACTIVITIES

in millions

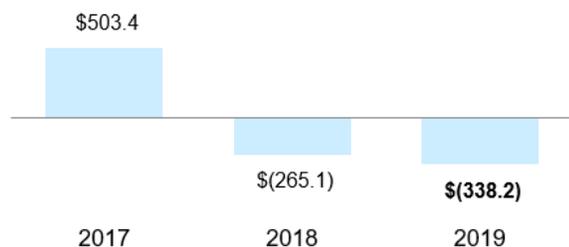


2019 VERSUS 2018 — Net cash used for investing activities was \$415.8 million during 2019, a \$254.1 million decrease compared to 2018. We invested \$384.1 million in our existing operations in 2019, an \$85.0 million decrease compared to 2018. Of this \$384.1 million, \$165.0 million was invested in internal growth projects to enhance our distribution capabilities, develop new production sites and enhance existing production facilities. Additionally, during 2019 we acquired businesses for \$44.2 million of cash consideration as compared to \$221.4 million of cash consideration for businesses in 2018.

2018 VERSUS 2017 — Net cash used for investing activities was \$669.9 million during 2018, a \$599.6 million decrease compared to 2017. We invested \$469.1 million in our existing operations in 2018, a \$9.5 million increase compared to 2017. Of this \$469.1 million, \$247.4 million was invested in internal growth projects to secure new aggregates reserves, develop new production sites, enhance our distribution capabilities and support the targeted growth of our asphalt and concrete operations. As noted above, acquisitions during 2018 totaled \$221.4 million of cash consideration. During 2017, we acquired businesses for \$822.4 million (excluding the assets immediately divested in the Aggregates USA acquisition for \$287.3 million) of cash consideration (see Note 19 “Acquisitions and Divestitures” in Item 8 “Financial Statements and Supplementary Data”).

CASH FROM FINANCING ACTIVITIES

in millions



2019 VERSUS 2018 — Net cash used for financing activities in 2019 was \$338.2 million, compared to \$265.1 million in 2018. The 2019 results include a net \$133.0 million payment on our bank line of credit while debt refinancing activities during 2018 netted proceeds of \$48.8 million. Additionally, the capital returned to our shareholders decreased by \$115.5 million as higher dividends of \$15.9 million (\$1.24 per share compared to \$1.12 per share) were offset by lower share repurchases (18,600 shares @ \$139.90 per share compared to 1,191,928 shares @ \$112.41 per share).

2018 VERSUS 2017 — Net cash used for financing activities in 2018 was \$265.1 million, compared to \$503.4 million provided by financing activities in 2017. The 2017 results included \$721.4 million of net proceeds from debt refinancing activities compared to 2018 net proceeds of \$48.8 million. Additionally, we increased by \$89.5 million the return of capital to our shareholders via higher dividends of \$15.8 million (\$1.12 per share compared to \$1.00 per share) and higher share repurchases of \$73.7 million (1,191,928 shares @ \$112.41 per share compared to 510,283 shares @ \$118.18 per share).

DEBT

Certain debt measures as of December 31 are outlined below:

<i>dollars in millions</i>	2019	2018
Debt		
Current maturities of long-term debt	\$ 0.0	\$ 0.0
Short-term debt	0.0	133.0
Long-term debt ¹	2,784.3	2,779.4
Total debt	\$ 2,784.3	\$ 2,912.4
Capital		
Total debt	\$ 2,784.3	\$ 2,912.4
Equity	5,621.9	5,202.9
Total capital	\$ 8,406.2	\$ 8,115.3
Total Debt as a Percentage of Total Capital	33.1%	35.9%
Weighted-average Effective Interest Rates		
Line of credit ²	1.25%	1.25%
Term debt	4.36%	4.56%
Fixed versus Floating Interest Rate Debt		
Fixed-rate debt	73.7%	70.4%
Floating-rate debt	26.3%	29.6%

¹ Long-term debt includes the \$250.0 million floating-rate notes due June 2020 (see Note 6 "Debt" in Item 8 "Financial Statements and Supplementary Data") as we intend to refinance these notes, and we have the ability to do so by borrowing on our line of credit.

² Reflects the margin above LIBOR for LIBOR-based borrowings; we also paid upfront fees that are amortized to interest expense and pay fees for unused borrowing capacity and standby letters of credit.

At December 31, 2019, our total debt of \$2,784.3 million was 2.2 times 2019 Adjusted EBITDA and our weighted-average debt maturity was 14 years.

LINE OF CREDIT

Our unsecured \$750.0 million line of credit matures December 2021. Covenants, borrowings, cost ranges and other details are described in Note 6 "Debt" in Item 8 "Financial Statements and Supplementary Data." As of December 31, 2019, we were in compliance with the line of credit covenants and the credit margin for LIBOR borrowings was 1.25%, the credit margin for base rate borrowings was 0.25%, and the commitment fee for the unused portion was 0.15%.

As of December 31, 2019, our available borrowing capacity under the line of credit was \$697.4 million. Utilization of the borrowing capacity was as follows:

- none was borrowed
- \$52.6 million was used to provide support for outstanding standby letters of credit

TERM DEBT

All of our \$2,846.4 million (face value) of term debt is unsecured. \$2,846.2 million of such debt is governed by three essentially identical indentures that contain customary investment-grade type covenants. The primary covenant in all three indentures limits the amount of secured debt we may incur without ratably securing such debt. As of December 31, 2019, we were in compliance with all term debt covenants.

Throughout 2017 and during the first quarter of 2018, we completed a number of debt refinancing activities in order to extend the maturity of our debt portfolio consistent with the long-lived nature of our asset base.

As a result of the first quarter 2018 early debt retirements, we recognized premiums of \$5.6 million, transaction costs of \$1.3 million and noncash expense (acceleration of unamortized deferred transaction costs) of \$0.5 million. The combined charge of \$7.4 million was a component of interest expense for the year ended December 31, 2018.

As a result of the 2017 early debt retirements, we recognized premiums of \$139.2 million, transaction costs of \$1.6 million and noncash expense (acceleration of unamortized deferred transaction costs) of \$7.2 million. The combined charge of \$148.0 million was a component of interest expense for the year ended December 31, 2017.

For additional information regarding term debt, see Note 6 “Debt” in Item 8 “Financial Statements and Supplementary Data.”

DEBT PAYMENTS AND MATURITIES

There were no significant scheduled debt payments during 2019. Scheduled debt payments during 2018 included \$350.0 million (which we refinanced in February 2018 via issuing \$350.0 million of 30-year 4.70% senior notes due 2048). Additionally, we early retired \$396.1 million of debt during the first quarter of 2018. There were no significant scheduled debt payments during 2017; however, we early retired over \$1.0 billion of debt.

As of December 31, 2019, maturities for the next four quarters and maturities for the next five years are due as follows (excluding borrowings on the line of credit):

<i>2020</i>		<i>Debt</i>	
<i>in millions</i>	<i>Debt Maturities</i>	<i>in millions</i>	<i>Maturities</i>
First quarter	\$ 0.0	2020 ¹	\$ 250.0
Second quarter ¹	250.0	2021	506.1
Third quarter	0.0	2022	0.0
Fourth quarter	0.0	2023	0.0
		2024	0.0

¹ This second quarter 2020 debt maturity is classified as long-term since we intend to refinance it, and we have the ability to do so by borrowing on our line of credit.

For additional information regarding debt payments and maturities, see Note 6 “Debt” in Item 8 “Financial Statements and Supplementary Data.”

DEBT RATINGS

Our debt ratings and outlooks as of December 31, 2019 are as follows:

	<i>Rating/Outlook</i>	<i>Date</i>	<i>Description</i>
Senior Unsecured Term Debt			
Fitch ¹	BBB-/stable	9/24/2018	rating/outlook affirmed
Moody's	Baa3/stable	3/29/2019	rating/outlook affirmed
Standard & Poor's	BBB/stable	4/4/2019	rating/outlook affirmed

¹ Subsequent to year end, in February 2020, Fitch upgraded our outlook from stable to positive.

LIBOR TRANSITION

The London Interbank Offered Rate (LIBOR) is an indicative measure of the average rate at which major global banks could borrow from one another and is used extensively globally as a reference rate for financial contracts (e.g., corporate bonds and loans) and commercial contracts (e.g., real estate leases). The United Kingdom’s Financial Conduct Authority, which regulates LIBOR, announced in July 2017 that it intends to cease requiring banks to submit LIBOR rates after 2021.

The expected discontinuation of LIBOR has led to the formation of working groups in the U.S. and elsewhere to recommend alternative reference rates. The U.S. working group is the Alternative Reference Rates Committee (ARRC) convened by the Federal Reserve Board and the Federal Reserve Bank of New York. The ARRC has selected the Secured Overnight Financing Rate (SOFR) as the preferred alternative to LIBOR.

We are in the early stages of identifying, evaluating, and addressing the impacts to existing contracts of the discontinuation of LIBOR. We have three material debt instruments with LIBOR as a reference rate, each of which matures before the end of 2021: 1) \$250.0 million floating-rate notes due 2020, 2) \$500.0 million floating-rate notes due 2021, and 3) \$750.0 million line of credit (none outstanding at December 31, 2019) due 2021. At this time, we cannot predict the future impact of a departure from LIBOR as a reference rate; however, if future rates based upon the successor reference rate (or a new method of calculating LIBOR) are higher than LIBOR rates as currently determined, it may have a material adverse effect on our financial condition and results of operations.

EQUITY

The number of our common stock issuances and purchases are as follows:

<i>in thousands</i>	2019	2018	2017
Common stock shares at January 1, issued and outstanding	131,762	132,324	132,339
Common Stock Issuances			
Share-based compensation plans	628	630	495
Common Stock Purchases			
Purchased and retired	(19)	(1,192)	(510)
Common stock shares at December 31, issued and outstanding	132,371	131,762	132,324

On February 10, 2017, our Board of Directors authorized us to purchase 8,243,243 shares of our common stock to refresh the number of shares we were authorized to purchase to 10,000,000. As of December 31, 2019, there were 8,279,189 shares remaining under the authorization. Depending upon market, business, legal and other conditions, we may purchase shares from time to time through the open market (including plans designed to comply with Rule 10b5-1 of the Securities Exchange Act of 1934) and/or privately negotiated transactions. The authorization has no time limit, does not obligate us to purchase any specific number of shares, and may be suspended or discontinued at any time.

The detail of our common stock purchases (all of which were open market purchases) are as follows:

<i>in thousands, except average cost</i>	2019	2018	2017
Shares Purchased and Retired			
Number	19	1,192	510
Total purchase price	\$ 2,602	\$ 133,983	\$ 60,303
Average cost per share	\$ 139.90	\$ 112.41	\$ 118.18

There were no shares held in treasury as of December 31, 2019, 2018 and 2017.

OFF-BALANCE SHEET ARRANGEMENTS

We have no off-balance sheet arrangements, such as financing or unconsolidated variable interest entities, that either have or are reasonably likely to have a current or future material effect on our:

- results of operations and financial position
- capital expenditures
- liquidity and capital resources

STANDBY LETTERS OF CREDIT

For a discussion of our standby letters of credit see Note 6 “Debt” in Item 8 “Financial Statements and Supplementary Data.”

CONTRACTUAL OBLIGATIONS

We expect core capital spending (excluding growth) of \$275.0 million during 2020. Excluding future cash requirements for capital expenditures and immaterial or contingent contracts, our obligations to make future contractual payments as of December 31, 2019 are summarized in the table below:

in millions	Note Reference	Payments Due by Year					Total
		2020	2021-2022	2023-2024	Thereafter		
Cash Contractual Obligations							
Bank line of credit							
Principal payments	Note 6	\$ 0.0	\$ 0.0	\$ 0.0	\$ 0.0	\$ 0.0	0.0
Interest payments and fees ¹	Note 6	1.8	1.8	0.0	0.0		3.6
Term debt							
Principal payments ²	Note 6	250.0	506.1	0.0	2,090.3		2,846.4
Interest payments	Note 6	112.7	195.7	192.0	1,386.0		1,886.4
Leases ³	Note 7	44.3	67.8	42.9	181.9		336.9
Mineral royalties	Note 12	27.1	44.1	28.8	166.3		266.3
Unconditional purchase obligations							
Capital	Note 12	27.7	0.0	0.0	0.0		27.7
Noncapital ⁴	Note 12	24.2	8.8	15.5	0.0		48.5
Benefit plans ⁵	Note 10	8.6	16.5	19.5	41.5		86.1
Total cash contractual obligations ^{6, 7}		\$ 496.4	\$ 840.8	\$ 298.7	\$ 3,866.0	\$	5,501.9

¹ Includes fees for unused borrowing capacity and fees for standby letters of credit. The figures for all years assume that the amount of unused borrowing capacity and the amount of standby letters of credit do not change from December 31, 2019, and borrowing costs reflect a rising LIBOR.

² The 2020 principal term debt payment is classified as long-term since we intend to refinance it, and we have the ability to do so by borrowing on our line of credit.

³ The above table excludes lease renewal options which are included in the table labeled Maturity of Lease Liabilities in Note 7 “Leases” in Item 8 “Financial Statements and Supplementary Data.”

⁴ Noncapital unconditional purchase obligations relate primarily to transportation and electricity contracts.

⁵ Payments in “Thereafter” column for benefit plans are for the years 2025-2029. The future contributions are based on current economic conditions and may vary based on future interest rates, asset performance, participant longevity and other plan experience.

⁶ The above table excludes discounted asset retirement obligations in the amount of \$210.3 million at December 31, 2019, the majority of which have an estimated settlement date beyond 2024 (see Note 17 “Asset Retirement Obligations” in Item 8 “Financial Statements and Supplementary Data”).

⁷ The above table excludes liabilities for unrecognized tax benefits in the amount of \$5.4 million at December 31, 2019, as we cannot make a reasonably reliable estimate of the amount and period of related future payment of these uncertain tax positions (for more details, see Note 9 “Income Taxes” in Item 8 “Financial Statements and Supplementary Data”).

CRITICAL ACCOUNTING POLICIES

We follow certain significant accounting policies when preparing our consolidated financial statements. A summary of these policies is included in Note 1 “Summary of Significant Accounting Policies” in Item 8 “Financial Statements and Supplementary Data.”

We prepare these financial statements to conform with accounting principles generally accepted in the United States of America. These principles require us to make estimates and judgments that affect reported amounts of assets, liabilities, revenues and expenses, and the related disclosures of contingent assets and contingent liabilities at the date of the financial statements. We base our estimates on historical experience, current conditions and various other assumptions we believe reasonable under existing circumstances and evaluate these estimates and judgments on an ongoing basis. The results of these estimates form the basis for our judgments about the carrying values of assets and liabilities as well as identifying and assessing the accounting treatment with respect to commitments and contingencies. Our actual results may materially differ from these estimates.

We believe the following critical accounting policies require the most significant judgments and estimates used in the preparation of our consolidated financial statements:

1. Goodwill impairment
2. Impairment of long-lived assets excluding goodwill
3. Business combinations and purchase price allocation
4. Pension and other postretirement benefits
5. Environmental compliance costs
6. Claims and litigation including self-insurance
7. Income taxes

1. GOODWILL IMPAIRMENT

Goodwill represents the excess of the cost of net assets acquired in business combinations over the fair value of the identifiable tangible and intangible assets acquired and liabilities assumed in a business combination. Goodwill impairment exists when the fair value of a reporting unit is less than its carrying amount. Goodwill is tested for impairment on an annual basis or more frequently whenever events or changes in circumstances would more likely than not reduce the fair value of a reporting unit below its carrying amount. The impairment evaluation is a critical accounting policy because goodwill is material to our total assets (as of December 31, 2019, goodwill represents 30% of total assets) and the evaluation involves the use of significant estimates, assumptions and judgment.

HOW WE TEST GOODWILL FOR IMPAIRMENT

Goodwill is tested for impairment at the reporting unit level, one level below our operating segments. We have identified 17 reporting units (of which 9 carry goodwill) based primarily on geographic location. We have the option of either assessing qualitative factors to determine whether it is more likely than not that the carrying value of our reporting units exceeds their respective fair value or proceeding directly to a quantitative test. We elected to perform the quantitative impairment test for all years presented.

The quantitative impairment test compares the fair value of a reporting unit to its carrying value, including goodwill. If the fair value exceeds its carrying value, the goodwill of the reporting unit is not considered impaired. However, if the carrying value of a reporting unit exceeds its fair value, we recognize an impairment loss equal to that excess.

HOW WE DETERMINE CARRYING VALUE AND FAIR VALUE

First, we determine the carrying value of each reporting unit by assigning assets and liabilities, including goodwill, to those units as of the measurement date. Then, we estimate the fair values of the reporting units using both an income approach (which involves discounting estimated future cash flows) and a market approach (which involves the application of revenue and EBITDA multiples of comparable companies). We consider market factors when determining the assumptions and estimates used in our valuation models. Finally, to assess the reasonableness of the reporting unit fair values, we compare the total of the reporting unit fair values to our market capitalization.

OUR FAIR VALUE ASSUMPTIONS

We base our fair value estimates on market participant assumptions we believe to be reasonable at the time, but such assumptions are subject to inherent uncertainty and actual results may differ. Changes in key assumptions or management judgment with respect to a reporting unit or its prospects may result from a change in market conditions, market trends, interest rates or other factors outside of our control, or underperformance relative to historical or projected operating results. These conditions could result in a significantly different estimate of the fair value of our reporting units, which could result in an impairment charge in the future.

The significant assumptions in our discounted cash flow models include our estimate of future profitability, capital requirements and the discount rate. The profitability estimates used in the models were derived from internal operating budgets and forecasts for long-term demand and pricing in our industry. Estimated capital requirements reflect replacement capital estimated on a per ton basis and if applicable, acquisition capital necessary to support growth estimated in the models. The discount rate was derived using a capital asset pricing model.

RESULTS OF OUR IMPAIRMENT TESTS

The results of our annual impairment tests for the last three years indicated that the fair values of all reporting units with goodwill substantially exceeded (in excess of 100%) their carrying values.

For additional information about goodwill, see Note 18 “Goodwill and Intangible Assets” in Item 8 “Financial Statements and Supplementary Data.”

2. IMPAIRMENT OF LONG-LIVED ASSETS EXCLUDING GOODWILL

We evaluate the carrying value of long-lived assets, including intangible assets subject to amortization, when events and circumstances indicate that the carrying value may not be recoverable. The impairment evaluation is a critical accounting policy because long-lived assets are material to our total assets (as of December 31, 2019, net property, plant & equipment represents 41% of total assets, while net other intangible assets represents 10% of total assets) and the evaluation involves the use of significant estimates, assumptions and judgment. The carrying value of long-lived assets is considered impaired when the estimated undiscounted cash flows from such assets are less than their carrying value. In that event, we recognize a loss equal to the amount by which the carrying value exceeds the fair value.

Fair value is estimated primarily by using a discounted cash flow methodology that requires considerable judgment and assumptions. Our estimate of net future cash flows is based on historical experience and assumptions of future trends, which may be different from actual results. We periodically review the appropriateness of the estimated useful lives of our long-lived assets.

We test long-lived assets for impairment at the lowest level for which identifiable cash flows are largely independent of the cash flows of other assets. As a result, our long-lived asset impairment test is at a significantly lower level than the level at which we test goodwill for impairment. In markets where we do not produce downstream products (e.g., asphalt mix and ready-mixed concrete), the lowest level of largely independent identifiable cash flows is at the individual aggregates operation or a group of aggregates operations collectively serving a local market. Conversely, in vertically integrated markets, the cash flows of our downstream and upstream businesses are not largely independently identifiable as the selling price of the upstream products (aggregates) impacts the profitability of the downstream business.

During 2019, 2018 and 2017, we recorded no losses on impairment of long-lived assets.

We maintain certain long-lived assets that are not currently being used in our operations. These assets totaled \$418.2 million at December 31, 2019, representing a 1% increase from December 31, 2018. Of the total \$418.2 million, approximately 45% relates to real estate held for future development and expansion of our operations. In addition, approximately 20% is comprised of real estate (principally former mining sites) pending development as commercial or residential real estate, reservoirs or landfills. The remaining 35% is composed of aggregates, asphalt and concrete operating assets idled temporarily. We evaluate the useful lives and the recoverability of these assets whenever events or changes in circumstances indicate that carrying amounts may not be recoverable.

For additional information about long-lived assets and intangible assets, see Note 4 “Property, Plant & Equipment” and Note 18 “Goodwill and Intangible Assets” in Item 8 “Financial Statements and Supplementary Data.”

3. BUSINESS COMBINATIONS AND PURCHASE PRICE ALLOCATION

Our strategic long-term plans include potential investments in value-added acquisitions of related or similar businesses. When an acquisition is completed, our consolidated statements of comprehensive income includes the operating results of the acquired business starting from the date of acquisition, which is the date that control is obtained.

HOW WE DETERMINE AND ALLOCATE THE PURCHASE PRICE

The purchase price is determined based on the fair value of consideration transferred to and liabilities assumed from the seller as of the date of acquisition. We allocate the purchase price to the fair values of the tangible and identifiable intangible assets acquired and liabilities assumed as of the date of acquisition. Goodwill is recorded for the excess of the purchase price over the net of the fair value of the identifiable assets acquired and liabilities assumed. The purchase price allocation is a critical accounting policy because the estimation of fair values of acquired assets and assumed liabilities is judgmental and requires various assumptions. Additionally, the amounts assigned to depreciable and amortizable assets compared to amounts assigned to goodwill, which is not amortized, can significantly affect our results of operations.

Fair value is the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction, and therefore represents an exit price. A fair value measurement assumes the highest and best use of the asset by market participants. The fair value hierarchy prioritizes the inputs to valuation techniques used to measure fair value into three broad levels as described below:

Level 1: Quoted prices in active markets for identical assets or liabilities

Level 2: Inputs that are derived principally from or corroborated by observable market data

Level 3: Inputs that are unobservable and significant to the overall fair value measurement

Level 1 fair values are used to value investments in publicly-traded entities and assumed obligations for publicly-traded long-term debt.

Level 2 fair values are typically used to value acquired machinery and equipment, land, buildings, and assumed liabilities for asset retirement obligations, environmental remediation and compliance obligations. Additionally, Level 2 fair values are typically used to value assumed contracts at other-than-market rates.

Level 3 fair values are used to value acquired mineral reserves as well as leased mineral interests (referred to in our financial statements as contractual rights in place) and other identifiable intangible assets. We determine the fair values of owned mineral reserves and leased mineral interests using a lost profits approach and/or an excess earnings approach. These valuation techniques require management to estimate future cash flows. The estimate of future cash flows is based on available historical information and future expectations and assumptions determined by management, but is inherently uncertain. Key assumptions in estimating future cash flows include sales price, shipment volumes, production costs and capital needs. The present value of the projected net cash flows represents the fair value assigned to mineral reserves and mineral interests. The discount rate is a significant assumption used in the valuation model and is based on the required rate of return that a hypothetical market participant would assume if purchasing the acquired business, with an adjustment for the risk of these assets not generating the projected cash flows.

Other identifiable intangible assets may include, but are not limited to, noncompetition agreements. The fair values of these assets are typically determined by an excess earnings method, a replacement cost method or a market approach.

MEASUREMENT PERIOD ADJUSTMENTS

We may adjust the amounts recognized in an acquisition during a measurement period after the acquisition date. Any such adjustments are the result of subsequently obtaining additional information that existed at the acquisition date regarding the assets acquired or the liabilities assumed. Measurement period adjustments are generally recorded as increases or decreases to goodwill, if any, recognized in the transaction. The cumulative impact of measurement period adjustments on depreciation, amortization and other income statement items are recognized in the period the adjustment is determined. The measurement period ends once we have obtained all necessary information that existed as of the acquisition date, but does not extend beyond one year from the date of acquisition. Any adjustments to assets acquired or liabilities assumed beyond the measurement period are recorded through earnings.

4. PENSION AND OTHER POSTRETIREMENT BENEFITS

Accounting for pension and other postretirement benefits requires that we use assumptions for the valuation of projected benefit obligations (PBO) and the performance of plan assets. Each year, we review our assumptions for discount rates (used for PBO, service cost, and interest cost calculations) and the expected return on plan assets. Due to plan changes made in 2012 and 2013, annual pay increases and the per capita cost of healthcare benefits do not materially impact plan obligations.

- **DISCOUNT RATES** — We use a high-quality bond full yield curve approach (specific spot rates for each annual expected cash flow) to establish the discount rates at each measurement date. See Note 10 “Benefit Plans” in Item 8 “Financial Statements and Supplementary Data” for the discount rates used for PBO, service cost, and interest cost calculations.
- **EXPECTED RETURN ON PLAN ASSETS** — Our expected return on plan assets is: (1) a long-term view based on our current asset allocation, and (2) a judgment informed by consultation with our retirement plans’ consultant and our pension plans’ actuary. For the year ended December 31, 2019, the expected return on plan assets was 5.75% (7.0% for 2018).

Changes to the assumptions listed above would have an impact on the PBO and the annual net benefit cost. The following table reflects the favorable and unfavorable outcomes associated with a change in certain assumptions:

<i>in millions</i>	<i>(Favorable) Unfavorable</i>			
	<i>0.5 Percentage Point Increase</i>		<i>0.5 Percentage Point Decrease</i>	
	<i>Inc (Dec) in Benefit Obligation</i>	<i>Inc (Dec) in Annual Benefit Cost</i>	<i>Inc (Dec) in Benefit Obligation</i>	<i>Inc (Dec) in Annual Benefit Cost</i>
Actuarial Assumptions				
Discount rates				
Pension	\$ (61.3)	\$ (1.3)	\$ 67.7	\$ 1.4
Other postretirement benefits	(1.2)	(0.0)	1.3	0.0
Expected return on plan assets	not applicable	(4.4)	not applicable	4.4

As of the December 31, 2019 measurement date, the fair value of our pension plan assets increased from \$836.8 million for the prior year-end to \$949.0 million due to strong investment returns. Our postretirement plans are unfunded.

The discount rate is the weighted-average of the spot rates for each cash flow on the yield curve for high-quality bonds as of the measurement date. As of the December 31, 2019 measurement date, the PBO of our pension plans increased from \$958.9 million to \$1,090.9 million. The PBO of our postretirement plans increased from \$40.8 million to \$41.2 million. The PBO increases were primarily due to lower discount rates, which ranged from 2.67% to 3.37% in 2019 compared with 3.92% to 4.47% in 2018.

During 2020, we expect to recognize net pension expense of \$0.5 million and net postretirement income of \$2.4 million compared to expense of \$1.7 million and income of \$2.5 million, respectively, in 2019. The decrease in pension expense is the result of lower discount rates on frozen plans and better than expected returns during 2019 on plan assets.

We do not anticipate that contributions to the funded pension plans will be required during 2020, and we do not anticipate making a discretionary contribution. We currently do not anticipate that the funded status of any of our plans will fall below statutory thresholds requiring accelerated funding or constraints on benefit levels or plan administration.

For additional information about pension and other postretirement benefits, see Note 10 “Benefit Plans” in Item 8 “Financial Statements and Supplementary Data.”

5. ENVIRONMENTAL COMPLIANCE COSTS

Our environmental compliance costs include the cost of ongoing monitoring programs, the cost of remediation efforts and other similar costs. Our accounting policy for environmental compliance costs is a critical accounting policy because it involves the use of significant estimates and assumptions and requires considerable management judgment.

HOW WE ACCOUNT FOR ENVIRONMENTAL COSTS

To account for environmental costs, we:

- expense or capitalize environmental costs consistent with our capitalization policy
- expense costs for an existing condition caused by past operations that do not contribute to future revenues
- accrue costs for environmental assessment and remediation efforts when we determine that a liability is probable and we can reasonably estimate the cost

At the early stages of a remediation effort, environmental remediation liabilities are not easily quantified due to the uncertainties of various factors. The range of an estimated remediation liability is defined and redefined as events in the remediation effort occur, but generally liabilities are recognized no later than completion of the remedial feasibility study. When we can estimate a range of probable loss, we accrue the most likely amount. If no amount in the range of probable loss is considered most likely, the minimum loss in the range is accrued. As of December 31, 2019, the difference between the amount accrued and the maximum loss in the range for all sites for which a range can be reasonably estimated was \$3.1 million — this amount does not represent our maximum exposure to loss for all environmental remediation obligations as it excludes those sites for which a range of loss cannot be reasonably estimated at this time. Our environmental remediation obligations are recorded on an undiscounted basis.

Accrual amounts may be based on technical cost estimations or the professional judgment of experienced environmental managers. Our Safety, Health and Environmental Affairs Management Committee routinely reviews cost estimates and key assumptions in response to new information, such as the kinds and quantities of hazardous substances, available technologies and changes to the parties participating in the remediation efforts. However, a number of factors, including adverse agency rulings and unanticipated conditions as remediation efforts progress, may cause actual results to differ materially from accrued costs.

For additional information about environmental compliance costs, see Note 8 “Accrued Environmental Remediation Costs” in Item 8 “Financial Statements and Supplementary Data.”

6. CLAIMS AND LITIGATION INCLUDING SELF-INSURANCE

We are involved with claims and litigation, including items covered under our self-insurance program. We are self-insured for losses related to workers' compensation up to \$2.0 million per occurrence and automotive and general/product liability up to \$3.0 million per occurrence. We have excess coverage on a per occurrence basis beyond these retention levels.

Under our self-insurance program, we aggregate certain claims and litigation costs that are reasonably predictable based on our historical loss experience and accrue losses, including future legal defense costs, based on actuarial studies. Certain claims and litigation costs, due to their unique nature, are not included in our actuarial studies. For matters not included in our actuarial studies, legal defense costs are accrued when incurred.

Our accounting policy for claims and litigation including self-insurance is a critical accounting policy because it involves the use of significant estimates and assumptions and requires considerable management judgment.

HOW WE ASSESS THE PROBABILITY OF LOSS

We use both internal and outside legal counsel to assess the probability of loss, and establish an accrual when the claims and litigation represent a probable loss and the cost can be reasonably estimated. Significant judgment is used in determining the timing and amount of the accruals for probable losses, and the actual liability could differ materially from the accrued amounts.

For additional information about claims and litigation including self-insurance, see Note 1 "Summary of Significant Accounting Policies" in Item 8 "Financial Statements and Supplementary Data" under the caption Claims and Litigation Including Self-insurance.

7. INCOME TAXES

VALUATION OF OUR DEFERRED TAX ASSETS

We file federal, state and foreign income tax returns and account for the current and deferred tax effects of such returns using the asset and liability method. We recognize deferred tax assets and liabilities (which reflect our best assessment of the future taxes we will pay) based on the differences between the book basis and tax basis of assets and liabilities. Deferred tax assets represent items to be used as a tax deduction or credit in future tax returns while deferred tax liabilities represent items that will result in additional tax in future tax returns.

Significant judgments and estimates are required in determining our deferred tax assets and liabilities. These estimates are updated throughout the year to consider income tax return filings, our geographic mix of earnings, legislative changes and other relevant items. We are required to account for the effects of changes in income tax rates on deferred tax balances in the period in which the legislation is enacted.

Each quarter we analyze the likelihood that our deferred tax assets will be realized. Realization of the deferred tax assets ultimately depends on the existence of sufficient taxable income of the appropriate character in either the carryback or carryforward period. A valuation allowance is recorded if, based on the weight of all available positive and negative evidence, it is more likely than not (a likelihood of more than 50%) that some portion, or all, of a deferred tax asset will not be realized. A summary of our deferred tax assets is included in Note 9 "Income Taxes" in Item 8 "Financial Statements and Supplementary Data."

LIABILITY FOR UNRECOGNIZED TAX BENEFITS

We recognize a tax benefit associated with a tax position when we judge it is more likely than not that the position will be sustained based upon the technical merits of the position. For a tax position that meets the more likely than not recognition threshold, we measure the income tax benefit as the largest amount that we judge to have a greater than 50% likelihood of being realized. A liability is established for the unrecognized portion of any tax position. Our liability for unrecognized tax benefits is adjusted periodically due to changing circumstances, such as the progress of tax audits, case law developments and new or emerging legislation.

Generally, we are not subject to significant changes in income taxes by any taxing jurisdiction for the years before 2016. While it is often difficult to predict the final outcome or the timing of resolution of any particular tax matter, we believe our liability for unrecognized tax benefits is appropriate.

We consider a tax position to be resolved at the earlier of the issue being “effectively settled,” settlement of an examination, or the expiration of the statute of limitations. Upon resolution of a tax position, any liability for unrecognized tax benefits will be released.

Our liability for unrecognized tax benefits is generally presented as noncurrent. However, if we anticipate paying cash within one year to settle an uncertain tax position, the liability is presented as current. We classify interest and penalties associated with our liability for unrecognized tax benefits as income tax expense.

NEW ACCOUNTING STANDARDS

For a discussion of accounting standards recently adopted or pending adoption and the effect such accounting changes will have on our results of operations, financial position or liquidity, see Note 1 “Summary of Significant Accounting Policies” in Item 8 “Financial Statements and Supplementary Data” under the caption New Accounting Standards.

FORWARD-LOOKING STATEMENTS

The foregoing discussion and analysis, as well as certain information contained elsewhere in this Annual Report, contain “forward-looking statements” within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended, and are intended to be covered by the safe harbor created thereby. See the discussion in Safe Harbor Statement under the Private Securities Litigation Reform Act of 1995 in Part I, above.

MARKET RISK

We are exposed to certain market risks arising from transactions that are entered into in the normal course of business. To manage these market risks, we may use derivative financial instruments. We do not enter into derivative financial instruments for trading or speculative purposes.

As discussed in the Liquidity and Financial Resources section of Item 7 “Management’s Discussion and Analysis of Financial Condition and Results of Operations,” we actively manage our capital structure and resources to balance the cost of capital and risk of financial stress. Such activity includes balancing the cost and risk of interest expense. In addition to floating-rate borrowings, we at times use interest rate swaps to manage the mix of fixed-rate and floating-rate debt. Over time, our EBITDA and operating income are positively correlated to floating interest rates (as measured by 3-month LIBOR). As such, our business serves as a natural hedge to rising interest rates, and floating-rate debt serves as a natural hedge against weaker operating results due to general economic weakness.

At December 31, 2019, the estimated fair value of our long-term debt including current maturities was \$3,073.7 million compared to a face value of \$2,846.4 million. The estimated fair value was determined by averaging several asking price quotes for the publicly traded notes and assuming par value for the remainder of the debt. The fair value estimate is based on information available as of the balance sheet date. The effect of a decline in interest rates of one percentage point would increase the fair value of our debt by approximately \$305.4 million.

We are exposed to certain economic risks related to the costs of our pension and other postretirement benefit plans. These economic risks include changes in the discount rate for high-quality bonds and the expected return on plan assets. The impact of a change in these assumptions on our annual pension and other postretirement benefits costs is discussed in greater detail within the Critical Accounting Policies section of this Annual Report.

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the shareholders and the Board of Directors of Vulcan Materials Company:

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of Vulcan Materials Company and subsidiaries (the "Company") as of December 31, 2019 and 2018, the related consolidated statements of comprehensive income, equity, and cash flows, for each of the three years in the period ended December 31, 2019, and the related notes (collectively referred to as the "financial statements"). In our opinion, the financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2019 and 2018, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2019, in conformity with accounting principles generally accepted in the United States of America.

We have also audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the Company's internal control over financial reporting as of December 31, 2019, based on the criteria established in *Internal Control — Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission and our report dated February 26, 2020 expressed an unqualified opinion on the Company's internal control over financial reporting.

Basis for Opinion

These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's financial statements based on our audits. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. Our audits included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audits provide a reasonable basis for our opinion.

Critical Audit Matter

The critical audit matter communicated below is a matter arising from the current-period audit of the financial statements that was communicated or required to be communicated to the audit committee and that (1) relates to accounts or disclosures that are material to the financial statements and (2) involved our especially challenging, subjective, or complex judgments. The communication of critical audit matters does not alter in any way our opinion on the financial statements, taken as a whole, and we are not, by communicating the critical audit matter below, providing a separate opinion on the critical audit matter or on the accounts or disclosures to which it relates.

Hewitt Landfill Environmental Matter – Refer to Note 12 to the consolidated financial statements

Critical Audit Matter Description

The Company is subject to governmental proceedings and orders pertaining to the protection of the environment. Specific to the Hewitt Landfill Environmental Matter, management is engaged in groundwater testing, certain remedial procedures and ongoing dialogue with federal and local agencies such as the Environmental Protection Agency (EPA), Los Angeles Regional Water Quality Control Board (RWQCB) and the Los Angeles Department of Water and Power (LADWP). The testing and dialogue is related to the Company's potential contribution to soil, soil vapor and/or groundwater contamination in the former Hewitt Landfill in Los Angeles and the potential contribution of the Hewitt Landfill to groundwater contamination in the North Hollywood Operable Unit (NHOU) of the San Fernando Valley Superfund Site.

Cumulatively through December 31, 2019, the Company has incurred life-to-date expense of \$37.3 million for the Hewitt Landfill on-site remediation, which is based on the facts and circumstances known to the Company at this time. The Company has disclosed facts and circumstances that led to the accrual and the inherent uncertainty that exists in the timing and recognition of potential incremental responsibility or share of costs for the Hewitt Landfill on-site remediation or the NHOU. Due to these uncertainties, future amounts recorded related to the ultimate resolution of claims and assessments could be material in a given period to the Company's results of operations or cash flows.

Evaluating the estimate of the liability and the extent and sufficiency of related disclosures is subjective in nature and as such requires significant audit effort, involves especially subjective auditing judgements, and requires the use of our environmental specialists.

How the Critical Audit Matter Was Addressed in the Audit

Our audit procedures related to the uncertainty in the timing, recognition and disclosure of the Company's responsibility and potential share of remediation costs, specifically as they relate to the Hewitt Landfill and NHOU (collectively the Hewitt Landfill Environmental Matter) include the following, among others:

- We tested the effectiveness of controls over the identification and evaluation of information available to assess potential responsibility or share of remediation costs for the Hewitt Landfill Environmental Matter, as well as controls over the adequacy of the related financial statement footnote disclosures.
- With the assistance of our environmental specialists, we evaluated the accuracy and completeness of management's recorded liabilities for the Hewitt Landfill Environmental Matter by:
 - Obtaining letters from internal and external counsel as to the matter's status, probability of an unfavorable outcome, and the amount or range of potential loss should the outcome be unfavorable.
 - Independently obtaining and reading correspondence from the EPA, RWQCB and LADWP regarding the Hewitt Landfill Environmental Matter.
 - Comparing, on a sample basis, management's estimate of remediation costs to third party support.
- We read and compared the Company's footnote disclosure to evidential matter obtained during our audit.

/s/ DELOITTE & TOUCHE LLP
Birmingham, Alabama
February 26, 2020

We have served as the Company's auditor since 1956.

VULCAN MATERIALS COMPANY AND SUBSIDIARY COMPANIES

CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME

	2019	2018	2017
<i>For the years ended December 31</i>			
<i>in thousands, except per share data</i>			
Total revenues	\$ 4,929,103	\$ 4,382,869	\$ 3,890,296
Cost of revenues	3,673,202	3,281,924	2,896,783
Gross profit	1,255,901	1,100,945	993,513
Selling, administrative and general expenses	370,548	333,371	324,972
Gain on sale of property, plant & equipment and businesses	23,752	14,944	17,827
Other operating expense, net	(31,647)	(34,805)	(47,324)
Operating earnings	877,458	747,713	639,044
Other nonoperating income, net	9,243	13,000	13,357
Interest income	1,155	554	4,437
Interest expense	130,155	137,977	295,522
Earnings from continuing operations before income taxes	757,701	623,290	361,316
Income tax expense (benefit)			
Current	58,941	40,516	354
Deferred	76,257	64,933	(232,429)
Total income tax expense (benefit)	135,198	105,449	(232,075)
Earnings from continuing operations	622,503	517,841	593,391
Earnings (loss) on discontinued operations, net of tax	(4,841)	(2,036)	7,794
Net earnings	\$ 617,662	\$ 515,805	\$ 601,185
Other comprehensive income (loss), net of tax			
Deferred gain on interest rate derivative	0	2,496	0
Amortization of prior interest rate derivative loss	227	226	1,862
Adjustment for funded status of benefit plans	(26,892)	(207)	(14,106)
Amortization of actuarial loss and prior service cost for benefit plans	1,142	4,365	2,154
Other comprehensive income (loss)	(25,523)	6,880	(10,090)
Comprehensive income	\$ 592,139	\$ 522,685	\$ 591,095
Basic earnings (loss) per share			
Continuing operations	\$ 4.71	\$ 3.91	\$ 4.48
Discontinued operations	(0.04)	(0.01)	0.06
Net earnings	\$ 4.67	\$ 3.90	\$ 4.54
Diluted earnings (loss) per share			
Continuing operations	\$ 4.67	\$ 3.87	\$ 4.40
Discontinued operations	(0.04)	(0.02)	0.06
Net earnings	\$ 4.63	\$ 3.85	\$ 4.46
Weighted-average common shares outstanding			
Basic	132,300	132,393	132,513
Assuming dilution	133,385	133,926	134,878

The accompanying Notes to Consolidated Financial Statements are an integral part of these statements.

VULCAN MATERIALS COMPANY AND SUBSIDIARY COMPANIES
CONSOLIDATED BALANCE SHEETS

	2019	2018
<i>As of December 31</i>		
<i>in thousands</i>		
Assets		
Cash and cash equivalents	\$ 271,589	\$ 40,037
Restricted cash	2,917	4,367
Accounts and notes receivable		
Customers, less allowance for doubtful accounts		
2019 — \$3,125; 2018 — \$2,090	532,012	512,279
Other	38,104	28,499
Inventories	458,308	429,330
Other current assets	76,396	64,633
Total current assets	1,379,326	1,079,145
Investments and long-term receivables	60,709	44,615
Property, plant & equipment, net	4,316,038	4,237,307
Operating lease right-of-use assets, net	408,189	0
Goodwill	3,167,061	3,165,396
Other intangible assets, net	1,091,475	1,095,378
Other noncurrent assets	225,995	210,289
Total assets	\$ 10,648,793	\$ 9,832,130
Liabilities		
Current maturities of long-term debt	25	23
Short-term debt	0	133,000
Trade payables and accruals	265,159	216,473
Accrued salaries, wages and management incentives	97,228	91,960
Accrued interest	19,167	19,631
Other current liabilities	153,984	141,463
Total current liabilities	535,563	602,550
Long-term debt	2,784,315	2,779,357
Deferred income taxes, net	633,039	567,283
Deferred management incentive and other compensation	22,856	16,604
Pension benefits	142,363	119,587
Other postretirement benefits	35,848	35,274
Asset retirement obligations	210,323	225,726
Deferred revenue	179,880	186,397
Operating lease liabilities	388,042	0
Other noncurrent liabilities	94,707	96,449
Total liabilities	\$ 5,026,936	\$ 4,629,227
Other commitments and contingencies (Note 12)		
Equity		
Common stock, \$1 par value, Authorized 480,000 shares, Outstanding 132,371 and 131,762 shares, respectively	132,371	131,762
Capital in excess of par value	2,791,353	2,798,486
Retained earnings	2,895,871	2,444,870
Accumulated other comprehensive loss	(197,738)	(172,215)
Total equity	5,621,857	5,202,903
Total liabilities and equity	\$ 10,648,793	\$ 9,832,130

The accompanying Notes to Consolidated Financial Statements are an integral part of these statements.

VULCAN MATERIALS COMPANY AND SUBSIDIARY COMPANIES
CONSOLIDATED STATEMENTS OF CASH FLOWS

	2019	2018	2017
<i>For the years ended December 31</i>			
<i>in thousands</i>			
Operating Activities			
Net earnings	\$ 617,662	\$ 515,805	\$ 601,185
Adjustments to reconcile net earnings to net cash provided by operating activities			
Depreciation, depletion, accretion and amortization	374,596	346,246	305,965
Noncash operating lease expense	35,344	0	0
Net gain on sale of property, plant & equipment and businesses	(23,752)	(14,944)	(17,827)
Contributions to pension plans	(8,882)	(109,631)	(20,023)
Share-based compensation expense	31,843	25,215	26,635
Deferred tax expense (benefit)	76,011	64,639	(235,697)
Cost of debt purchase	0	6,922	140,772
(Increase) decrease in assets excluding the initial effects of business acquisitions and dispositions			
Accounts and notes receivable	(29,734)	63,230	(81,561)
Inventories	(28,273)	(34,976)	(14,121)
Prepaid expenses	5,990	(2,167)	(28,445)
Other assets	(61,195)	(58,489)	(23,759)
Increase (decrease) in liabilities excluding the initial effects of business acquisitions and dispositions			
Accrued interest and income taxes	(4,644)	12,148	1,303
Trade payables and other accruals	21,788	40,181	9,823
Other noncurrent liabilities	(51,150)	(26,901)	(32,592)
Other, net	28,518	5,499	13,020
Net cash provided by operating activities	\$ 984,122	\$ 832,777	\$ 644,678
Investing Activities			
Purchases of property, plant & equipment	(384,094)	(469,088)	(459,566)
Proceeds from sale of property, plant & equipment	22,661	22,210	15,756
Proceeds from sale of businesses	1,744	11,256	287,292
Payment for businesses acquired, net of acquired cash	(44,151)	(221,419)	(1,109,725)
Other, net	(11,997)	(12,850)	(3,248)
Net cash used for investing activities	\$ (415,837)	\$ (669,891)	\$ (1,269,491)
Financing Activities			
Proceeds from short-term debt	366,900	739,900	5,000
Payment of short-term debt	(499,900)	(606,900)	(5,000)
Payment of current maturities and long-term debt	(23)	(892,055)	(1,463,308)
Proceeds from issuance of long-term debt	0	850,000	2,200,000
Debt issuance and exchange costs	0	(45,513)	(15,291)
Settlements of interest rate derivatives	0	3,378	0
Purchases of common stock	(2,602)	(133,983)	(60,303)
Dividends paid	(163,973)	(148,109)	(132,335)
Share-based compensation, shares withheld for taxes	(38,585)	(31,846)	(25,323)
Net cash provided by (used for) financing activities	\$ (338,183)	\$ (265,128)	\$ 503,440
Net increase (decrease) in cash and cash equivalents and restricted cash	230,102	(102,242)	(121,373)
Cash and cash equivalents and restricted cash at beginning of year	44,404	146,646	268,019
Cash and cash equivalents and restricted cash at end of year	\$ 274,506	\$ 44,404	\$ 146,646

The accompanying Notes to Consolidated Financial Statements are an integral part of these statements.

VULCAN MATERIALS COMPANY AND SUBSIDIARY COMPANIES
CONSOLIDATED STATEMENTS OF EQUITY

<i>in thousands</i>	<i>Common Stock</i>		<i>Capital in Excess of Par Value</i>	<i>Retained Earnings</i>	<i>Accumulated Other Comprehensive Income (Loss)</i>	<i>Total</i>
	<i>Shares</i>	<i>Amount</i>				
Balances at December 31, 2016	132,339	\$ 132,339	\$ 2,807,995	\$ 1,771,518	\$ (139,376)	\$ 4,572,476
Net earnings	0	0	0	601,185	0	601,185
Share-based compensation plans, net of shares withheld for taxes	495	495	(29,168)	0	0	(28,673)
Purchase and retirement of common stock	(510)	(510)	0	(59,793)	0	(60,303)
Share-based compensation expense	0	0	26,635	0	0	26,635
Cash dividends on common stock	0	0	0	(132,335)	0	(132,335)
Other comprehensive loss	0	0	0	0	(10,090)	(10,090)
Other	0	0	125	(127)	0	(2)
Balances at December 31, 2017	132,324	\$ 132,324	\$ 2,805,587	\$ 2,180,448	\$ (149,466)	\$ 4,968,893
Released stranded tax effects ASU 2018-02 (Note 9)	0	0	0	29,629	(29,629)	0
Balances at January 1, 2018, due to reclassification	132,324	\$ 132,324	\$ 2,805,587	\$ 2,210,077	\$ (179,095)	\$ 4,968,893
Net earnings	0	0	0	515,805	0	515,805
Share-based compensation plans, net of shares withheld for taxes	630	630	(32,428)	0	0	(31,798)
Purchase and retirement of common stock	(1,192)	(1,192)	0	(132,791)	0	(133,983)
Share-based compensation expense	0	0	25,215	0	0	25,215
Cash dividends on common stock	0	0	0	(148,109)	0	(148,109)
Other comprehensive income	0	0	0	0	6,880	6,880
Other	0	0	112	(112)	0	0
Balances at December 31, 2018	131,762	\$ 131,762	\$ 2,798,486	\$ 2,444,870	\$ (172,215)	\$ 5,202,903
Net earnings	0	0	0	617,662	0	617,662
Share-based compensation plans, net of shares withheld for taxes	628	628	(39,080)	0	0	(38,452)
Purchase and retirement of common stock	(19)	(19)	0	(2,583)	0	(2,602)
Share-based compensation expense	0	0	31,843	0	0	31,843
Cash dividends on common stock	0	0	0	(163,973)	0	(163,973)
Other comprehensive loss	0	0	0	0	(25,523)	(25,523)
Other	0	0	104	(105)	0	(1)
Balances at December 31, 2019	132,371	\$ 132,371	\$ 2,791,353	\$ 2,895,871	\$ (197,738)	\$ 5,621,857

The accompanying Notes to Consolidated Financial Statements are an integral part of these statements.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

NOTE 1: SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

NATURE OF OPERATIONS

Vulcan Materials Company (the “Company,” “Vulcan,” “we,” “our”), a New Jersey corporation, is the nation's largest supplier of construction aggregates (primarily crushed stone, sand and gravel) and a major producer of asphalt mix and ready-mixed concrete.

We operate primarily in the United States and our principal product — aggregates — is used in virtually all types of public and private construction projects and in the production of asphalt mix and ready-mixed concrete. We serve markets in twenty states, Washington D.C., and the local markets surrounding our operations in Mexico and the Bahamas. Our primary focus is serving metropolitan markets in the United States that are expected to experience the most significant growth in population, households and employment. These three demographic factors are significant drivers of demand for aggregates. While aggregates is our focus and primary business, we produce and sell asphalt mix and/or ready-mixed concrete in our Alabama, Arizona, California, Maryland, New Mexico, Tennessee, Texas, Virginia and Washington D.C. markets.

Due to the 2005 sale of our Chemicals business as described below, the results of the Chemicals business are presented as discontinued operations in the accompanying Consolidated Statements of Comprehensive Income.

DISCONTINUED OPERATIONS

In 2005, we sold substantially all the assets of our Chemicals business to Basic Chemicals, a subsidiary of Occidental Chemical Corporation. The financial results of the Chemicals business are classified as discontinued operations in the accompanying Consolidated Statements of Comprehensive Income for all periods presented. Results from discontinued operations are as follows:

<i>in thousands</i>	2019	2018	2017
Discontinued Operations			
Pretax earnings (loss)	\$ (6,541)	\$ (2,748)	\$ 12,959
Income tax (expense) benefit	1,700	712	(5,165)
Earnings (loss) on discontinued operations, net of tax	\$ (4,841)	\$ (2,036)	\$ 7,794

Our discontinued operations include charges related to general and product liability costs, including legal defense costs, and environmental remediation costs associated with our former Chemicals business. The 2017 results also reflect insurance recoveries for past legal expenses associated with the Texas Brine matter (see Note 12). There were no revenues from discontinued operations for the years presented.

PRINCIPLES OF CONSOLIDATION

The consolidated financial statements include the accounts of Vulcan Materials Company and all our majority or wholly-owned subsidiary companies. Partially-owned affiliates are either consolidated or accounted for at cost or as equity investments depending on the level of ownership interest or our ability to exercise control over the affiliates' operations. All intercompany transactions and accounts have been eliminated in consolidation.

USE OF ESTIMATES IN THE PREPARATION OF FINANCIAL STATEMENTS

The preparation of these financial statements in conformity with accounting principles generally accepted (GAAP) in the United States of America requires us to make estimates and judgments that affect reported amounts of assets, liabilities, revenues and expenses, and the related disclosures of contingent assets and contingent liabilities at the date of the financial statements. We evaluate these estimates and judgments on an ongoing basis and base our estimates on historical experience, current conditions and various other assumptions that are believed to be reasonable under the circumstances. The results of these estimates form the basis for our judgments about the carrying values of assets and liabilities as well as identifying and assessing the accounting treatment with respect to commitments and contingencies. Actual results may differ materially from these estimates. The most significant estimates included in the preparation of these financial statements are related to goodwill and long-lived asset impairments, business combinations and purchase price allocation, pension and other postretirement benefits, environmental compliance, claims and litigation including self-insurance, and income taxes.

BUSINESS COMBINATIONS

We account for business combinations under the acquisition method of accounting. The purchase price of an acquisition is allocated to the underlying identifiable assets acquired and liabilities assumed based on their respective fair values. The purchase price is determined based on the fair value of consideration transferred to and liabilities assumed from the seller as of the date of acquisition. We allocate the purchase price to the fair values of the tangible and identifiable intangible assets acquired and liabilities assumed as of the date of acquisition. Goodwill is recorded for the excess of the purchase price over the net of the fair value of the identifiable assets acquired and liabilities assumed.

Determining the fair values of assets acquired and liabilities assumed requires judgment and often involves the use of significant estimates and assumptions. Fair value is the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction, and therefore represents an exit price. A fair value measurement assumes the highest and best use of the asset by market participants.

We may adjust the amounts recognized in an acquisition during a measurement period after the acquisition date. Any such adjustments are the result of subsequently obtaining additional information that existed at the acquisition date regarding the assets acquired or the liabilities assumed. Measurement period adjustments are generally recorded as increases or decreases to goodwill, if any, recognized in the transaction. The cumulative impact of measurement period adjustments on depreciation, amortization and other income statement items are recognized in the period the adjustment is determined.

FOREIGN CURRENCY TRANSACTIONS

The U.S. dollar is the functional currency for all of our operations. For our non-U.S. subsidiaries, local currency inventories and long-term assets such as property, plant & equipment and intangibles are remeasured into U.S. dollars at approximate rates prevailing when acquired; all other assets and liabilities are remeasured at year-end exchange rates. Inventories charged to cost of sales and depreciation are remeasured at historical rates; all other income and expense items are remeasured at average exchange rates prevailing during the year. Gains and losses which result from remeasurement are included in earnings and are not material for the years presented.

CASH EQUIVALENTS

We classify as cash equivalents all highly liquid securities with a maturity of three months or less at the time of purchase. The carrying amount of these securities approximates fair value due to their short-term maturities.

RESTRICTED CASH

Restricted cash consists of cash proceeds from the sale of property held in escrow for the acquisition of replacement property under like-kind exchange agreements and cash reserved by other contractual agreements (such as asset purchase agreements) for a specified purpose and therefore not available for use in our operations. The escrow accounts are administered by an intermediary. Cash restricted pursuant to like-kind exchange agreements remains restricted for a maximum of 180 days from the date of the property sale pending the acquisition of replacement property. Restricted cash is included with cash and cash equivalents in the accompanying Consolidated Statements of Cash Flows.

ACCOUNTS AND NOTES RECEIVABLE

Accounts and notes receivable from customers result from our extending credit to trade customers for the purchase of our products. The terms generally provide for payment within 15 days of the month following invoice. On occasion, when necessary to conform to regional industry practices, we sell product under extended payment terms, which may result in either secured or unsecured short-term notes; or, on occasion, notes with durations of less than one year are taken in settlement of existing accounts receivable. Other accounts and notes receivable result from short-term transactions (less than one year) other than the sale of our products, such as interest receivable; insurance claims; freight claims; bid deposits or rents receivable.

Receivables are aged, and appropriate allowances for doubtful accounts and bad debt expense are recorded. Bad debt expense (net of recoveries) for the years ended December 31 was as follows: 2019 — \$1,426,000, 2018 — \$251,000 and 2017 — \$812,000. Write-offs of accounts receivables for the years ended December 31 were as follows: 2019 — \$809,000, 2018 — \$1,291,000 and 2017 — \$1,384,000.

INVENTORIES

Inventories and supplies are stated at the lower of cost or net realizable value. We use the last-in, first-out (LIFO) method of valuation for most of our inventories because it results in a better matching of costs with revenues. Such costs include fuel, parts and supplies, raw materials, direct labor and production overhead. An actual valuation of inventory under the LIFO method can be made only at the end of each year based on the inventory levels and costs at that time. Accordingly, interim LIFO calculations are based on our estimates of expected year-end inventory levels and costs and are subject to the final year-end LIFO inventory valuation. Substantially all operating supplies inventory is carried at average cost. For additional information about our inventories see Note 3.

PROPERTY, PLANT & EQUIPMENT

Property, plant & equipment (including finance leases) are carried at cost less accumulated depreciation, depletion and amortization.

Capitalized software costs of \$2,976,000 and \$4,155,000 are reflected in net property, plant & equipment as of December 31, 2019 and 2018, respectively. We capitalized software costs for the years ended December 31 as follows: 2019 — \$1,506,000, 2018 — \$2,213,000 and 2017 — \$1,988,000.

For additional information about our property, plant & equipment see Note 4.

REPAIR AND MAINTENANCE

Repair and maintenance costs generally are charged to operating expense as incurred. Renewals and betterments that add materially to the utility or useful lives of property, plant & equipment are capitalized and subsequently depreciated. Actual costs for planned major maintenance activities, related primarily to periodic overhauls on our oceangoing vessels, are capitalized and amortized to the next overhaul.

LEASES

Beginning in 2019 (see ASU 2016-02, "Leases," as presented within this Note under the caption Accounting Standards Recently Adopted), our nonmineral leases are recognized on the balance sheet as right-of-use (ROU) assets and lease liabilities. Mineral leases continue to be exempt from balance sheet recognition.

ROU assets represent our right to use an underlying asset for the lease term, and lease liabilities represent our obligation to make lease payments arising from the leases. ROU assets and lease liabilities are recognized at the lease commencement date based on the present value of lease payments over the lease term. As our leases do not provide an implicit rate, we use our incremental borrowing rate based on the information available at the commencement date in determining the present value of lease payments. ROU assets are adjusted for any prepaid lease payments and lease incentives. Our lease terms may include options to extend or terminate the lease when it is reasonably certain that we will exercise that option.

We elected the following practical expedients: (1) the practical expedient package which permits us to not reassess our prior conclusions about lease identification, lease classification, and initial direct costs; (2) to not separate the lease components from the non-lease components for all leases; (3) to apply a portfolio approach to our railcar and barge leases; (4) to not recognize ROU assets and lease liabilities for all pre-existing land easements not previously accounted for as leases; and (5) to not recognize ROU assets or lease liabilities for our short-term leases, including existing short-term leases of those assets in transition.

For additional information about leases see Note 7.

DEPRECIATION, DEPLETION, ACCRETION AND AMORTIZATION

Depreciation is generally computed by the straight-line method at rates based on the estimated service lives of the various classes of assets, which include machinery and equipment (3 to 35 years), buildings (7 to 20 years) and land improvements (8 to 20 years). Finance leases are amortized over varying periods not in excess of applicable lease terms or estimated useful lives. Capitalized software costs are included in machinery and equipment and are depreciated on a straight-line basis beginning when the software project is substantially complete.

Cost depletion on depletable land is computed by the unit-of-sales method based on estimated recoverable units.

Accretion reflects the period-to-period increase in the carrying amount of the liability for asset retirement obligations. It is computed using the same credit-adjusted, risk-free rate used to initially measure the liability at fair value.

Leaseholds are amortized over varying periods not in excess of applicable lease terms or estimated useful lives.

Amortization of intangible assets subject to amortization is computed based on the estimated life of the intangible assets. A significant portion of our intangible assets is contractual rights in place associated with zoning, permitting and other rights to access and extract aggregates reserves. Contractual rights in place associated with aggregates reserves are amortized using the unit-of-sales method based on estimated recoverable units. Other intangible assets are amortized principally by the straight-line method.

Depreciation, depletion, accretion and amortization expense for the years ended December 31 is outlined below:

<i>in thousands</i>	2019	2018	2017
Depreciation, Depletion, Accretion and Amortization			
Depreciation	\$ 300,613	\$ 276,814	\$ 250,835
Depletion	22,421	23,260	19,342
Accretion	10,992	10,776	11,415
Amortization of leaseholds	29	472	608
Amortization of intangibles	40,541	34,924	23,765
Total	\$ 374,596	\$ 346,246	\$ 305,965

DERIVATIVE INSTRUMENTS

During the normal course of operations, we are exposed to market risks including interest rates, foreign currency exchange rates and commodity prices. From time to time, and consistent with our risk management policies, we use derivative instruments to balance the cost and risk of such expenses. We do not use derivative instruments for trading or other speculative purposes.

The accounting for gains and losses that result from changes in the fair value of derivative instruments depends on whether the derivatives have been designated and qualify as hedging instruments and the type of hedging relationship. Changes in the fair value of interest rate swap cash flow hedges are recorded in accumulated other comprehensive income (AOCI) and are reclassified into interest expense in the same period the hedged items affect earnings. Additional disclosures about our derivative instruments are presented in Note 5.

FAIR VALUE MEASUREMENTS

Fair value is defined as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. The fair value hierarchy prioritizes the inputs to valuation techniques used to measure fair value into three broad levels as described below:

Level 1: Quoted prices in active markets for identical assets or liabilities

Level 2: Inputs that are derived principally from or corroborated by observable market data

Level 3: Inputs that are unobservable and significant to the overall fair value measurement

Our assets at December 31 subject to fair value measurement on a recurring basis are summarized below:

<i>in thousands</i>	<i>Level 1 Fair Value</i>	
	2019	2018
Fair Value Recurring		
Rabbi Trust		
Mutual funds	\$ 22,883	\$ 19,164
Total	\$ 22,883	\$ 19,164

<i>in thousands</i>	<i>Level 2 Fair Value</i>	
	2019	2018
Fair Value Recurring		
Rabbi Trust		
Money market mutual fund	\$ 1,340	\$ 1,015
Total	\$ 1,340	\$ 1,015

We have two Rabbi Trusts for the purpose of providing a level of security for the employee nonqualified retirement and deferred compensation plans and for the directors' nonqualified deferred compensation plans. The fair values of these investments are estimated using a market approach. The Level 1 investments include mutual funds for which quoted prices in active markets are available. Level 2 investments are stated at estimated fair value based on the underlying investments in the fund (short-term, highly liquid assets in commercial paper, short-term bonds and certificates of deposit).

Net gains (losses) of the Rabbi Trusts' investments were \$3,993,000, \$(2,741,000) and \$2,441,000 for the years ended December 31, 2019, 2018 and 2017, respectively. The portions of the net gains (losses) related to investments still held by the Rabbi Trusts at December 31, 2019, 2018 and 2017 were \$3,729,000, \$(4,386,000) and \$(3,618,000), respectively.

The carrying values of our cash equivalents, restricted cash, accounts and notes receivable, short-term debt, trade payables and accruals, and all other current liabilities approximate their fair values because of the short-term nature of these instruments. Additional disclosures for derivative instruments and interest-bearing debt are presented in Notes 5 and 6, respectively.

GOODWILL IMPAIRMENT

Goodwill represents the excess of the cost of net assets acquired in business combinations over the fair value of the identifiable tangible and intangible assets acquired and liabilities assumed in a business combination. Goodwill impairment exists when the fair value of a reporting unit is less than its carrying amount. As of December 31, 2019, goodwill totaled \$3,167,061,000, as compared to \$3,165,396,000 at December 31, 2018. Goodwill represents 30% of total assets at December 31, 2019 compared to 32% at December 31, 2018.

Goodwill is tested for impairment annually, as of November 1, or more frequently whenever events or changes in circumstances would more likely than not reduce the fair value of a reporting unit below its carrying amount. Goodwill is tested for impairment at the reporting unit level, one level below our operating segments. We have four operating segments organized around our principal product lines: Aggregates, Asphalt, Concrete and Calcium. Within these four operating segments, we have identified 17 reporting units (of which 9 carry goodwill) based primarily on geographic location. We have the option of either assessing qualitative factors to determine whether it is more likely than not that the carrying value of our reporting units exceeds their respective fair value or proceeding directly to a quantitative test. We elected to perform the quantitative impairment test for all years presented.

The quantitative impairment test compares the fair value of a reporting unit to its carrying value, including goodwill. If the fair value exceeds its carrying value, the goodwill of the reporting unit is not considered impaired. However, if the carrying value of a reporting unit exceeds its fair value, we recognize an impairment loss equal to that excess.

The results of the annual impairment tests performed as of November 1, 2019, 2018 and 2017 indicated that the fair values of all reporting units with goodwill substantially exceeded their carrying values. Accordingly, there were no charges for goodwill impairment in the years ended December 31, 2019, 2018 or 2017.

We estimate the fair values of the reporting units using both an income approach (which involves discounting estimated future cash flows) and a market approach (which involves the application of revenue and EBITDA multiples of comparable companies). Determining the fair value of our reporting units involves the use of significant estimates and assumptions and considerable management judgment. We base our fair value estimates on assumptions we believe to be reasonable at the time, but such assumptions are subject to inherent uncertainty and actual results may differ. Changes in key assumptions or management judgment with respect to a reporting unit or its prospects, which may result from a change in market conditions, market trends, interest rates or other factors outside of our control, or underperformance relative to historical or projected operating results, could result in a significantly different estimate of the fair value of our reporting units, which could result in an impairment charge in the future.

For additional information about goodwill see Note 18.

IMPAIRMENT OF LONG-LIVED ASSETS EXCLUDING GOODWILL

We evaluate the carrying value of long-lived assets, including intangible assets subject to amortization, when events and circumstances indicate that the carrying value may not be recoverable. The carrying value of long-lived assets is considered impaired when the estimated undiscounted cash flows from such assets are less than their carrying value. In that event, we recognize a loss equal to the amount by which the carrying value exceeds the fair value. Fair value is determined primarily by using a discounted cash flow methodology that requires considerable judgment and assumptions. Our estimate of net future cash flows is based on historical experience and assumptions of future trends, which may be different from actual results. We periodically review the appropriateness of the estimated useful lives of our long-lived assets.

We test long-lived assets for impairment at the lowest level for which identifiable cash flows are largely independent of the cash flows of other assets. As a result, our long-lived asset impairment test is at a significantly lower level than the level at which we test goodwill for impairment. In markets where we do not produce downstream products (e.g., asphalt mix and ready-mixed concrete), the lowest level of largely independent identifiable cash flows is at the individual aggregates operation or a group of aggregates operations collectively serving a local market. Conversely, in vertically integrated markets, the cash flows of our downstream and upstream businesses are not largely independently identifiable as the selling price of the upstream products (aggregates) determines the profitability of the downstream business.

As of December 31, 2019, net property, plant & equipment represents 41% of total assets, while net other intangible assets represents 10% of total assets. During 2019, 2018 and 2017, we recorded no losses on impairment of long-lived assets.

For additional information about long-lived assets and intangible assets see Notes 4 and 18.

REVENUES AND REVENUE RECOGNITION

Total revenues include sales of product and services to customers, net of any discounts and taxes, and freight and delivery revenues billed to customers. Freight and delivery generally represent pass-through transportation we incur (including our administrative costs) and pay to third-party carriers to deliver our products to customers. The cost related to freight and delivery is included in cost of revenues.

Revenues for product sales are recognized when control passes to the customer (typically occurs when finished products are shipped/delivered). Construction paving revenues are recognized using the percentage-of-completion method.

For additional information regarding revenues and revenue recognition see Note 2.

STRIPPING COSTS

In the mining industry, the costs of removing overburden and waste materials to access mineral deposits are referred to as stripping costs.

Stripping costs incurred during the production phase are considered costs of extracted minerals under our inventory costing system, inventoried, and recognized in cost of sales in the same period as the revenue from the sale of the inventory. The production stage is deemed to begin when the activities, including removal of overburden and waste material that may contain incidental saleable material, required to access the saleable product are complete. Stripping costs considered as production costs and included in the costs of inventory produced were \$86,090,000 in 2019, \$78,911,000 in 2018 and \$65,944,000 in 2017.

Conversely, stripping costs incurred during the development stage of a mine (pre-production stripping) are excluded from our inventory cost. Pre-production stripping costs are capitalized and reported within other noncurrent assets in our accompanying Consolidated Balance Sheets. Capitalized pre-production stripping costs are expensed over the productive life of the mine using the unit-of-sales method. Pre-production stripping costs included in other noncurrent assets were \$92,759,000 as of December 31, 2019 and \$95,800,000 as of December 31, 2018.

RECLAMATION COSTS

Reclamation costs resulting from normal use of long-lived assets are recognized over the period the asset is in use when there is a legal obligation to incur these costs upon retirement of the assets. Additionally, reclamation costs resulting from normal use under a mineral lease are recognized over the lease term when there is a legal obligation to incur these costs upon expiration of the lease. The obligation, which cannot be reduced by estimated offsetting cash flows, is recorded at fair value as a liability at the obligating event date and is accreted through charges to operating expenses. This fair value is also capitalized as part of the carrying amount of the underlying asset and depreciated over the estimated useful life of the asset. If the obligation is settled for other than the carrying amount of the liability, a gain or loss is recognized on settlement.

To determine the fair value of the obligation, we estimate the cost (including a reasonable profit margin) for a third party to perform the legally required reclamation tasks. This cost is then increased for both future estimated inflation and an estimated market risk premium related to the estimated years to settlement. Once calculated, this cost is discounted to fair value using present value techniques with a credit-adjusted, risk-free rate commensurate with the estimated years to settlement.

In estimating the settlement date, we evaluate the current facts and conditions to determine the most likely settlement date. If this evaluation identifies alternative estimated settlement dates, we use a weighted-average settlement date considering the probabilities of each alternative.

We review reclamation obligations at least annually for a revision to the cost or a change in the estimated settlement date. Additionally, reclamation obligations are reviewed in the period that a triggering event occurs that would result in either a revision to the cost or a change in the estimated settlement date. Examples of events that would trigger a change in the cost include a new reclamation law or amendment of an existing mineral lease. Examples of events that would trigger a change in the estimated settlement date include the acquisition of additional reserves or the closure of a facility.

The carrying value of these obligations was \$210,323,000 as of December 31, 2019 and \$225,726,000 as of December 31, 2018. For additional information about reclamation obligations (referred to in our financial statements as asset retirement obligations) see Note 17.

ENVIRONMENTAL COMPLIANCE

Our environmental compliance costs are undiscounted and include the cost of ongoing monitoring programs, the cost of remediation efforts and other similar costs. We accrue costs for environmental assessment and remediation efforts when we determine that a liability is probable and we can reasonably estimate the cost. At the early stages of a remediation effort, environmental remediation liabilities are not easily quantified due to the uncertainties of various factors. The range of an estimated remediation liability is defined and redefined as events in the remediation effort occur, but generally liabilities are recognized no later than the completion of the remedial feasibility study.

When we can estimate a range of probable loss, we accrue the most likely amount. If no amount in the range of probable loss is considered most likely, the minimum loss in the range is accrued. As of December 31, 2019, the spread between the amount accrued and the maximum loss in the range for all sites for which a range can be reasonably estimated was \$3,105,000 — this amount does not represent our maximum exposure to loss for all environmental remediation obligations as it excludes those sites for which a range of loss cannot be reasonably estimated at this time. Accrual amounts may be based on technical cost estimations or the professional judgment of experienced environmental managers. Our Safety, Health and Environmental Affairs Management Committee routinely reviews cost estimates and key assumptions in response to new information, such as the kinds and quantities of hazardous substances, available technologies and changes to the parties participating in the remediation efforts. However, a number of factors, including adverse agency rulings and encountering unanticipated conditions as remediation efforts progress, may cause actual results to differ materially from accrued costs.

For additional information about environmental compliance costs see Note 8.

CLAIMS AND LITIGATION INCLUDING SELF-INSURANCE

We are involved with claims and litigation, including items covered under our self-insurance program. We are self-insured for losses related to workers' compensation up to \$2,000,000 per occurrence and automotive and general/product liability up to \$3,000,000 per occurrence. We have excess coverage on a per occurrence basis beyond these retention levels.

Under our self-insurance program, we aggregate certain claims and litigation costs that are reasonably predictable based on our historical loss experience and accrue losses, including future legal defense costs, based on actuarial studies. Certain claims and litigation costs, due to their unique nature, are not included in our actuarial studies. We use both internal and outside legal counsel to assess the probability of loss, and establish an accrual when the claims and litigation represent a probable loss and the cost can be reasonably estimated. For matters not included in our actuarial studies, legal defense costs are accrued when incurred. The following table outlines our self-insurance program at December 31:

<i>dollars in thousands</i>	<i>2019</i>	<i>2018</i>
Self-insurance Program		
Self-insured liabilities (undiscounted)	\$ 69,069	\$ 68,912
Insured liabilities (undiscounted)	6,431	4,377
Discount rate	1.63%	2.93%
Amounts Recognized in Consolidated Balance Sheets		
Other accounts and notes receivable	\$ 0	\$ 631
Investments and long-term receivables	5,931	3,932
Other current liabilities	(19,830)	(18,466)
Other noncurrent liabilities	(51,360)	(48,049)
Net liabilities (discounted)	\$ (65,259)	\$ (61,952)

Estimated payments (undiscounted and excluding the impact of related receivables) under our self-insurance program for the five years subsequent to December 31, 2019 are as follows:

<i>in thousands</i>	
Estimated Payments under Self-insurance Program	
2020	\$ 22,348
2021	15,306
2022	10,742
2023	6,256
2024	3,604

Significant judgment is used in determining the timing and amount of the accruals for probable losses, and the actual liability could differ materially from the accrued amounts.

SHARE-BASED COMPENSATION

All of our share-based compensation awards are classified as equity awards. We measure share-based compensation awards using fair-value-based measurement methods. This results in the recognition of compensation expense for all share-based compensation awards based on their fair value as of the grant date. Compensation cost is recognized over the requisite service period. Forfeitures are recognized as they occur.

A summary of the estimated future compensation cost (unrecognized compensation expense) as of December 31, 2019 related to share-based awards granted to employees under our long-term incentive plans is presented below:

<i>dollars in thousands</i>	<i>Unrecognized Compensation Expense</i>	<i>Expected Weighted-average Recognition (Years)</i>
Share-based Compensation		
SOSARs ¹	\$ 2,168	1.2
Performance shares	11,580	1.7
Restricted shares	8,003	1.8
Total/weighted-average	\$ 21,751	1.7

¹ *Stock-Only Stock Appreciation Rights (SOSARs)*

Pretax compensation expense related to our employee share-based compensation awards and related income tax benefits for the years ended December 31 are summarized below:

<i>in thousands</i>	2019	2018	2017
Employee Share-based Compensation Awards			
Pretax compensation expense	\$ 30,067	\$ 23,250	\$ 24,367
Income tax benefits	7,682	5,940	6,226

We receive an income tax deduction for share-based compensation equal to the excess of the market value of our common stock on the date of exercise or issuance over the exercise price. Tax benefits resulting from tax deductions in excess of the compensation cost recognized (excess tax benefits) are reflected as discrete income tax benefits in the period of exercise or issuance. Net excess tax benefits were recorded as reductions to our income tax expense and reflected as operating cash flows, as follows (combined federal and state): 2019 — \$21,020,000; 2018 — \$20,137,000 and 2017 — \$22,962,000.

For additional information about share-based compensation, see Note 11 under the caption Share-based Compensation Plans.

PENSION AND OTHER POSTRETIREMENT BENEFITS

Accounting for pension and other postretirement benefits requires that we use assumptions for the valuation of projected benefit obligations (PBO) and the performance of plan assets. Each year, we review our assumptions for discount rates (used for PBO, service cost, and interest cost calculations) and the expected return on plan assets. Due to plan changes made in 2012 and 2013, annual pay increases and the per capita cost of healthcare benefits do not materially impact plan obligations.

- **DISCOUNT RATES** — We use a high-quality bond full yield curve approach (specific spot rates for each annual expected cash flow) to establish the discount rates at each measurement date. See Note 10 for the discount rates used for PBO, service cost, and interest cost calculations.
- **EXPECTED RETURN ON PLAN ASSETS** — Our expected return on plan assets is: (1) a long-term view based on our current asset allocation, and (2) a judgment informed by consultation with our retirement plans' consultant and our pension plans' actuary. For the year ended December 31, 2019, the expected return on plan assets was 5.75% (7.0% for 2018).

Accounting standards provide for the delayed recognition of differences between actual results and expected or estimated results. This delayed recognition of actual results allows for a smoothed recognition in earnings of changes in benefit obligations and asset performance. The differences between actual results and expected or estimated results are recognized in full in other comprehensive income. Amounts recognized in other comprehensive income are reclassified to earnings in a systematic manner over the average remaining service period of participants for our active plans or the average remaining lifetime of participants for our inactive plans.

We present the service cost component of net periodic benefit cost in cost of revenues and selling, administrative and general expense consistent with employee compensation costs. The other components of net periodic benefit cost are reported within other nonoperating income in our accompanying Condensed Consolidated Statements of Comprehensive Income.

For additional information about pension and other postretirement benefits see Note 10.

INCOME TAXES

We file federal, state and foreign income tax returns and account for the current and deferred tax effects of such returns using the asset and liability method. We recognize deferred tax assets and liabilities (which reflect our best assessment of the future taxes we will pay) based on the differences between the book basis and tax basis of assets and liabilities. Deferred tax assets represent items to be used as a tax deduction or credit in future tax returns while deferred tax liabilities represent items that will result in additional tax in future tax returns.

Significant judgments and estimates are required in determining our deferred tax assets and liabilities. These estimates are updated throughout the year to consider income tax return filings, our geographic mix of earnings, legislative changes and other relevant items. We are required to account for the effects of changes in income tax rates on deferred tax balances in the period in which the legislation is enacted.

Each quarter we analyze the likelihood that our deferred tax assets will be realized. Realization of the deferred tax assets ultimately depends on the existence of sufficient taxable income of the appropriate character in either the carryback or carryforward period. A valuation allowance is recorded if, based on the weight of all available positive and negative evidence, it is more likely than not (a likelihood of more than 50%) that some portion, or all, of a deferred tax asset will not be realized. A summary of our deferred tax assets is included in Note 9.

We recognize a tax benefit associated with a tax position when, in our judgment, it is more likely than not that the position will be sustained based upon the technical merits of the position. For a tax position that meets the more likely than not recognition threshold, we measure the income tax benefit as the largest amount that we judge to have a greater than 50% likelihood of being realized. A liability is established for the unrecognized portion of any tax position. Our liability for unrecognized tax benefits is adjusted periodically due to changing circumstances, such as the progress of tax audits, case law developments and new or emerging legislation.

Generally, we are not subject to significant changes in income taxes by any taxing jurisdiction for the years before 2016. While it is often difficult to predict the final outcome or the timing of resolution of any particular tax matter, we believe our liability for unrecognized tax benefits is appropriate.

We consider a tax position to be resolved at the earlier of the issue being "effectively settled," settlement of an examination, or the expiration of the statute of limitations. Upon resolution of a tax position, any liability for unrecognized tax benefits will be released.

Our liability for unrecognized tax benefits is generally presented as noncurrent. However, if we anticipate paying cash within one year to settle an uncertain tax position, the liability is presented as current. We classify interest and penalties associated with our liability for unrecognized tax benefits as income tax expense.

Our largest permanent item in computing both our taxable income and effective tax rate is the deduction allowed for statutory depletion. The impact of statutory depletion on the effective tax rate is presented in Note 9. The deduction for statutory depletion does not necessarily change proportionately to changes in pretax earnings.

COMPREHENSIVE INCOME

We report comprehensive income in our Consolidated Statements of Comprehensive Income and Consolidated Statements of Equity. Comprehensive income comprises two subsets: net earnings and other comprehensive income (OCI). OCI includes adjustments to cash flow hedges, as well as actuarial gains or losses and prior service costs related to pension and postretirement benefit plans.

For additional information about comprehensive income see Note 14.

EARNINGS PER SHARE (EPS)

Earnings per share are computed by dividing net earnings by the weighted-average common shares outstanding (basic EPS) or weighted-average common shares outstanding assuming dilution (diluted EPS), as set forth below:

<i>in thousands</i>	2019	2018	2017
Weighted-average common shares outstanding	132,300	132,393	132,513
Dilutive effect of			
SOSARs	611	963	1,295
Other stock compensation plans	474	570	1,070
Weighted-average common shares outstanding, assuming dilution	133,385	133,926	134,878

All dilutive common stock equivalents are reflected in our earnings per share calculations. In periods of loss, shares that otherwise would have been included in our diluted weighted-average common shares outstanding computation would be excluded.

Antidilutive common stock equivalents are not included in our earnings per share calculations. The number of antidilutive common stock equivalents for which the exercise price exceeds the weighted-average market price for the years ended December 31 is as follows:

<i>in thousands</i>	2019	2018	2017
Antidilutive common stock equivalents	105	162	79

RECLASSIFICATIONS

As noted below in Accounting Standards Recently Adopted (Lease Accounting), we elected not to restate pre-2019 financials for the adoption of the new lease standard (ASU 2016-02).

NEW ACCOUNTING STANDARDS

ACCOUNTING STANDARDS RECENTLY ADOPTED

LEASE ACCOUNTING During the first quarter of 2019, we adopted Accounting Standards Update (ASU) 2016-02, "Leases," utilizing the comparatives transition option (we elected not to restate comparative periods) under ASC 840. This ASU amends prior accounting standards for lease accounting and adds additional disclosures about leasing arrangements. Under the new guidance, lessees are required to recognize lease right-of-use assets and lease liabilities on the balance sheet for all leases (excluding mineral leases) with terms longer than 12 months. Leases are classified as either finance or operating, with classification affecting the pattern of expense recognition in the income statement and presentation of cash flow in the statement of cash flows. Upon adoption, we recognized operating lease liabilities of \$442,697,000, with corresponding right-of-use assets based on the present value of the remaining minimum rental payments under current leasing standards for existing operating leases. See the caption Leases under this Note 1 for the practical expedients elected and other information. Additionally, see Notes 7 and 16 for the required lease disclosures.

ACCOUNTING STANDARDS PENDING ADOPTION

INCOME TAXES In December 2019, the Financial Accounting Standards Board (FASB) issued ASU 2019-12, "Simplifying the Accounting for Income Taxes," which adds new guidance to simplify the accounting for income taxes and changes the accounting for certain income tax transactions. The new standard is effective as of January 1, 2021, and early adoption is permitted. We do not expect this standard to have a material impact on our consolidated financial statements.

DEFINED BENEFIT PLANS In August 2018, the FASB issued ASU 2018-14, "Changes to the Disclosure Requirements for Defined Benefit Plans," which adds, removes and clarifies the disclosure requirements for employers that sponsor defined benefit pension and other postretirement benefit plans. ASU 2018-14 is effective for fiscal years ending after December 15, 2020 and is to be applied retrospectively. While we are still evaluating the impact of ASU 2018-14, it will not impact our consolidated financial statements as it only affects disclosure. Thus, the adoption of this standard will have a minor impact on the notes to our consolidated financial statements, specifically, our benefit plans note.

CREDIT LOSSES In June 2016, the FASB issued ASU 2016-13, "Measurement of Credit Losses on Financial Instruments," which amends guidance on the impairment of financial instruments. The new guidance estimates credit losses based on expected losses, modifies the impairment model for available-for-sale debt securities and provides for a simplified accounting model for purchased financial assets with credit deterioration. ASU 2016-13 is effective for annual reporting periods beginning after December 15, 2019, and interim reporting periods within those annual reporting periods. We do not expect the adoption of this standard to have a material impact on our consolidated financial statements.

NOTE 2: REVENUES

Revenues are measured as the amount of consideration we expect to receive in exchange for transferring goods or providing services. Sales and other taxes we collect are excluded from revenues. Costs to obtain and fulfill contracts (primarily asphalt construction paving contracts) are immaterial and are expensed as incurred when the expected amortization period is one year or less.

Total revenues are primarily derived from our product sales of aggregates (crushed stone, sand and gravel, sand and other aggregates), asphalt mix and ready-mixed concrete, and include freight & delivery costs that we pass along to our customers to deliver these products. We also generate service revenues from our asphalt construction paving business and service revenues related to our aggregates business, such as landfill tipping fees. Our total service revenues were as follows: 2019 — \$234,099,000, 2018 — \$198,897,000 and 2017 — \$113,422,000. The increased service revenues resulted from acquisitions that included asphalt construction paving businesses (2018 – Alabama and Texas, See Note 19).

Our products typically are sold to private industry and not directly to governmental entities. Although approximately 45% to 55% of our aggregates shipments have historically been used in publicly-funded construction, such as highways, airports and government buildings, relatively insignificant sales are made directly to federal, state, county or municipal governments/agencies. Therefore, although reductions in state and federal funding can curtail publicly-funded construction, our aggregates business is not directly subject to renegotiation of profits or termination of contracts with state or federal governments.

Our segment total revenues by geographic market for the years ended December 31, 2019, 2018 and 2017 are disaggregated as follows:

<i>in thousands</i>	For the Year Ended December 31, 2019				
	<i>Aggregates</i>	<i>Asphalt</i>	<i>Concrete</i>	<i>Calcium</i>	<i>Total</i>
Total Revenues by Geographic Market ¹					
East	\$ 1,254,748	\$ 166,552	\$ 261,249	\$ 0	\$ 1,682,549
Gulf Coast	2,117,526	194,367	66,628	8,191	2,386,712
West	618,001	494,902	67,750	0	1,180,653
Segment sales	\$ 3,990,275	\$ 855,821	\$ 395,627	\$ 8,191	\$ 5,249,914
Intersegment sales	(320,811)	0	0	0	(320,811)
Total revenues	\$ 3,669,464	\$ 855,821	\$ 395,627	\$ 8,191	\$ 4,929,103

<i>in thousands</i>	For the Year Ended December 31, 2018				
	<i>Aggregates</i>	<i>Asphalt</i>	<i>Concrete</i>	<i>Calcium</i>	<i>Total</i>
Total Revenues by Geographic Market ¹					
East	\$ 1,109,489	\$ 156,591	\$ 257,250	\$ 0	\$ 1,523,330
Gulf Coast	1,821,853	131,745	71,739	8,110	2,033,447
West	582,307	444,846	73,010	0	1,100,163
Segment sales	\$ 3,513,649	\$ 733,182	\$ 401,999	\$ 8,110	\$ 4,656,940
Intersegment sales	(274,071)	0	0	0	(274,071)
Total revenues	\$ 3,239,578	\$ 733,182	\$ 401,999	\$ 8,110	\$ 4,382,869

<i>in thousands</i>	For the Year Ended December 31, 2017				
	<i>Aggregates</i>	<i>Asphalt</i>	<i>Concrete</i>	<i>Calcium</i>	<i>Total</i>
Total Revenues by Geographic Market ¹					
East	\$ 1,045,682	\$ 112,673	\$ 244,568	\$ 0	\$ 1,402,923
Gulf Coast	1,512,505	80,311	102,716	7,740	1,703,272
West	537,907	429,090	70,461	0	1,037,458
Segment sales	\$ 3,096,094	\$ 622,074	\$ 417,745	\$ 7,740	\$ 4,143,653
Intersegment sales	(253,357)	0	0	0	(253,357)
Total revenues	\$ 2,842,737	\$ 622,074	\$ 417,745	\$ 7,740	\$ 3,890,296

¹ The geographic markets are defined by states/countries as follows:

East market — Arkansas, Delaware, Illinois, Kentucky, Maryland, North Carolina, Pennsylvania, Tennessee, Virginia, and Washington D.C.

Gulf Coast market — Alabama, Florida, Georgia, Louisiana, Mexico, Mississippi, Oklahoma, South Carolina, Texas and the Bahamas

West market — Arizona, California and New Mexico

PRODUCT REVENUES

Revenue is recognized when obligations under the terms of a contract with our customer are satisfied; generally this occurs at a point in time when our aggregates, asphalt mix and ready-mixed concrete are shipped/delivered and control passes to the customer. Revenue for our products is recorded at the fixed invoice amount and payment is due by the 15th day of the following month — we do not offer discounts for early payment.

Freight & delivery generally represents pass-through transportation we incur (including our administrative costs) and pay to third-party carriers to deliver our products to customers and are accounted for as a fulfillment activity. Likewise, the cost related to freight & delivery are included in cost of revenues.

Freight & delivery revenues are as follows:

<i>in thousands</i>	2019	2018	2017
Freight & Delivery Revenues			
Total revenues	\$ 4,929,103	\$ 4,382,869	\$ 3,890,296
Freight & delivery revenues ¹	(747,862)	(641,815)	(528,916)
Total revenues excluding freight & delivery	\$ 4,181,241	\$ 3,741,054	\$ 3,361,380

¹ Includes freight & delivery to remote distribution sites.

CONSTRUCTION PAVING SERVICE REVENUES

Revenue from our asphalt construction paving business is recognized over time using the percentage-of-completion method under the cost approach. The percentage of completion is determined by costs incurred to date as a percentage of total costs estimated for the project. Under this approach, recognized contract revenue equals the total estimated contract revenue multiplied by the percentage of completion. Our construction contracts are unit priced, and an account receivable is recorded for amounts invoiced based on actual units produced. Contract assets for estimated earnings in excess of billings, contract assets related to retainage provisions and contract liabilities for billings in excess of costs are immaterial. Variable consideration in our construction paving contracts is immaterial and consists of incentives and penalties based on the quality of work performed. Our construction paving contracts may contain warranty provisions covering defects in equipment, materials, design or workmanship that generally run from nine months to one year after project completion. Due to the nature of our construction paving projects, including contract owner inspections of the work during construction and prior to acceptance, we have not experienced material warranty costs for these short-term warranties.

VOLUMETRIC PRODUCTION PAYMENT DEFERRED REVENUES

In 2013 and 2012, we sold a percentage interest in certain future aggregates production for net cash proceeds of \$226,926,000. These transactions, structured as volumetric production payments (VPPs):

- relate to eight quarries in Georgia and South Carolina
- provide the purchaser solely with a nonoperating percentage interest in the subject quarries' future aggregates production
- contain no minimum annual or cumulative guarantees by us for production or sales volume, nor minimum sales price
- are both volume and time limited (we expect the transactions will last approximately 25 years, limited by volume rather than time)

We are the exclusive sales agent for, and transmit quarterly to the purchaser the proceeds from the sale of, the purchaser's share of aggregates production. Our consolidated total revenues exclude the revenue from the sale of the purchaser's share of aggregates.

The proceeds we received from the sale of the percentage interest were recorded as deferred revenue on the balance sheet. We recognize revenue on a unit-of-sales basis (as we sell the purchaser's share of production) relative to the volume limitations of the transactions. Given the nature of the risks and potential rewards assumed by the buyer, the transactions do not reflect financing activities.

Reconciliation of the VPP deferred revenue balances (current and noncurrent) is as follows:

<i>in thousands</i>	2019	2018	2017
Deferred Revenue			
Balance at beginning of year	\$ 192,783	\$ 199,556	\$ 206,468
Revenue recognized from deferred revenue	(7,444)	(6,773)	(6,912)
Balance at end of year	\$ 185,339	\$ 192,783	\$ 199,556

Based on expected sales from the specified quarries, we expect to recognize \$7,500,000 of VPP deferred revenue as income in 2020 (reflected in other current liabilities in our December 31, 2019 Consolidated Balance Sheet).

NOTE 3: INVENTORIES

Inventories at December 31 are as follows:

<i>in thousands</i>	2019	2018
Inventories		
Finished products ¹	\$ 391,666	\$ 372,604
Raw materials	31,318	27,942
Products in process	5,604	3,064
Operating supplies and other	29,720	25,720
Total	\$ 458,308	\$ 429,330

¹ Includes inventories encumbered by volumetric production payments (see Note 2), as follows: December 31, 2019 — \$2,861 thousand and December 31, 2018 — \$3,230 thousand.

In addition to the inventory balances presented above, as of December 31, 2019 and December 31, 2018, we have \$7,557,000 and \$9,980,000, respectively, of inventory classified as long-term assets (other noncurrent assets) as we do not expect to sell the inventory within one year of their respective balance sheet dates.

We use the LIFO method of valuation for most of our inventories as it results in a better matching of costs with revenues. Inventories valued under the LIFO method total \$309,429,000 at December 31, 2019 and \$308,257,000 at December 31, 2018. During 2019, 2018 and 2017, inventory reductions resulted in liquidations of LIFO inventory layers carried at costs prevailing in prior years as compared to current-year costs. The effect of the LIFO liquidation on 2019 results was to decrease cost of revenues by \$1,147,000 and increase net earnings by \$854,000. The effect of the LIFO liquidation on 2018 results was to increase cost of revenues by \$132,000 and decrease net earnings by \$99,000. The effect of the LIFO liquidation on 2017 results was to decrease cost of revenues by \$2,714,000 and increase net earnings by \$1,662,000.

Estimated current cost exceeded LIFO cost at December 31, 2019 and 2018 by \$183,181,000 and \$175,844,000, respectively. In periods of increasing costs, LIFO generally results in higher cost of revenues than under FIFO. In periods of decreasing costs, the results are generally the opposite. We provide supplemental income disclosures to facilitate comparisons with companies not on LIFO. The supplemental income calculation is derived by tax-affecting the change in the LIFO reserve for the periods presented. If all inventories valued at LIFO cost had been valued under first-in, first-out (FIFO) method, the approximate effect on net earnings would have been an increase of \$5,462,000 in 2019, an increase of \$5,223,000 in 2018 and an increase of \$8,092,000 in 2017.

NOTE 4: PROPERTY, PLANT & EQUIPMENT

Balances of major classes of assets and allowances for depreciation, depletion and amortization at December 31 are as follows:

<i>in thousands</i>	2019	2018
Property, Plant & Equipment		
Land and land improvements ¹	\$ 2,920,963	\$ 2,823,092
Buildings	141,898	139,948
Machinery and equipment	5,362,279	5,106,918
Leasehold improvements	1,677	18,217
Deferred asset retirement costs	167,484	183,324
Construction in progress	154,917	186,120
Total, gross	\$ 8,749,218	\$ 8,457,619
Less allowances for depreciation, depletion and amortization	4,433,180	4,220,312
Total, net	\$ 4,316,038	\$ 4,237,307

¹ Includes depletable land: December 31, 2019 — \$1,667,642 thousand and December 31, 2018 — \$1,626,899 thousand.

Capitalized interest costs with respect to qualifying construction projects and total interest costs incurred before recognition of the capitalized amount for the years ended December 31 are as follows:

<i>in thousands</i>	2019	2018	2017
Capitalized interest cost	\$ 3,896	\$ 3,674	\$ 5,177
Total interest cost incurred before recognition of the capitalized amount ¹	134,051	141,651	300,699

¹ Interest expense for 2017 includes \$148,030 thousand of charges related to debt purchases.

NOTE 5: DERIVATIVE INSTRUMENTS

During the normal course of operations, we are exposed to market risks including interest rates, foreign currency exchange rates and commodity prices. From time to time, and consistent with our risk management policies, we use derivative instruments to balance the cost and risk of such expenses. We do not use derivative instruments for trading or other speculative purposes.

In 2007 and 2018, we entered into interest rate locks of future debt issuances to hedge the risk of higher interest rates. These interest rate locks were designated as cash flow hedges. The gain/loss upon settlement of these interest rate hedges is deferred (recorded in AOCI) and amortized to interest expense over the term of the related debt.

This amortization was reflected in the accompanying Consolidated Statements of Comprehensive Income for the years ended December 31 as follows:

<i>in thousands</i>	<i>Location on Statement</i>	2019	2018	2017
Interest Rate Hedges				
Loss reclassified from AOCI (effective portion)	Interest expense	\$ (307)	\$ (306)	\$ (3,070)

The 2017 loss reclassified from AOCI includes the acceleration of deferred losses in the amount of \$1,405,000 referable to the debt retirement as described in Note 6.

For the 12-month period ending December 31, 2020, we estimate that \$332,000 of the \$10,953,000 net of tax loss in AOCI will be reclassified to interest expense.

NOTE 6: DEBT

Debt at December 31 is detailed as follows:

<i>in thousands</i>	<i>Effective Interest Rates</i>	2019	2018
Short-term Debt			
Bank line of credit expires 2021 ¹		\$ 0	\$ 133,000
Total short-term debt		\$ 0	\$ 133,000
Long-term Debt			
Bank line of credit expires 2021 ¹		\$ 0	\$ 0
Floating-rate notes due 2020 ²	2.89%	250,000	250,000
Floating-rate notes due 2021	2.85%	500,000	500,000
8.85% notes due 2021	8.88%	6,000	6,000
4.50% notes due 2025	4.65%	400,000	400,000
3.90% notes due 2027	4.00%	400,000	400,000
7.15% notes due 2037	8.05%	129,239	129,239
4.50% notes due 2047	4.59%	700,000	700,000
4.70% notes due 2048	5.42%	460,949	460,949
Other notes	6.46%	185	208
Total long-term debt - face value		\$ 2,846,373	\$ 2,846,396
Unamortized discounts and debt issuance costs		(62,033)	(67,016)
Total long-term debt - book value		\$ 2,784,340	\$ 2,779,380
Less current maturities		25	23
Total long-term debt - reported value		\$ 2,784,315	\$ 2,779,357
Estimated fair value of long-term debt		\$ 3,073,693	\$ 2,695,802

¹ Borrowings on the bank line of credit are classified as short-term if we intend to repay within twelve months and as long-term if we have the intent and ability to extend payment beyond twelve months.

² This debt is classified as long-term since we intend to refinance it, and we have the ability to do so by borrowing on our line of credit.

Discounts and debt issuance costs are amortized using the effective interest method over the terms of the respective notes resulting in \$4,983,000 and \$5,161,000, respectively, of net interest expense for these items for 2019 and 2018.

LINE OF CREDIT

Our unsecured \$750,000,000 line of credit matures December 2021 and contains affirmative, negative and financial covenants customary for an unsecured investment-grade facility. The primary negative covenant limits our ability to incur secured debt. The financial covenants are: (1) a maximum ratio of debt to EBITDA of 3.5:1 (upon certain acquisitions, the maximum ratio can be 3.75:1 for three quarters), and (2) a minimum ratio of EBITDA to net cash interest expense of 3.0:1. As of December 31, 2019, we were in compliance with the line of credit covenants.

Borrowings on our line of credit are classified as short-term if we intend to repay within twelve months and as long-term if we have the intent and ability to extend repayment beyond twelve months. Borrowings bear interest, at our option, at either LIBOR plus a credit margin ranging from 1.00% to 1.75%, or SunTrust Bank's base rate (generally, its prime rate) plus a credit margin ranging from 0.00% to 0.75%. The credit margin for both LIBOR and base rate borrowings is determined by our credit ratings. Standby letters of credit, which are issued under the line of credit and reduce availability, are charged a fee equal to the credit margin for LIBOR borrowings plus 0.175%. We also pay a commitment fee on the daily average unused amount of the line of credit that ranges from 0.10% to 0.25% determined by our credit ratings. As of December 31, 2019, the credit margin for LIBOR borrowings was 1.25%, the credit margin for base rate borrowings was 0.25%, and the commitment fee for the unused amount was 0.15%.

As of December 31, 2019, our available borrowing capacity was \$697,400,000. Utilization of the borrowing capacity was as follows:

- none was borrowed
- \$52,600,000 was used to provide support for outstanding standby letters of credit

TERM DEBT

All of our \$2,846,373,000 (face value) of term debt is unsecured. \$2,846,188,000 of such debt is governed by three essentially identical indentures that contain customary investment-grade type covenants. The primary covenant in all three indentures limits the amount of secured debt we may incur without ratably securing such debt. As of December 31, 2019, we were in compliance with all term debt covenants.

In December 2018, we completed an exchange offer in which all of the \$460,949,000 of 4.70% senior unregistered notes due 2048 (issued in February 2018 and March 2018 as described below) were exchanged for new registered notes of like principal amount and like denomination as the unregistered notes, with substantially identical terms. We did not receive any proceeds from the issuance of the new notes.

In March 2018, we early retired via exchange offer \$110,949,000 of the \$240,188,000 7.15% senior notes due 2037 for: (1) a like amount of notes due 2048 (these notes are a further issuance of, and form a single series with, the \$350,000,000 of 4.70% senior notes due 2048 issued in February 2018 as described below), and (2) \$38,164,000 of cash. The cash payment primarily reflects the trading price of the retired notes relative to par and will be amortized to interest expense over the term of the notes due 2048. We recognized transaction costs of \$1,314,000 with this early retirement.

In February 2018, we issued \$350,000,000 of 4.70% senior notes due 2048 (these notes now total \$460,949,000 including the notes issued in March as described above) and \$500,000,000 of floating-rate senior notes due 2021. Total proceeds of \$846,029,000 (net of discounts, transaction costs and an interest rate derivative settlement gain), together with cash on hand, were used to retire/repay without penalty or premium: (1) the \$350,000,000 term loan due 2018, (2) the \$250,000,000 term loan due 2021, and (3) the \$250,000,000 bank line of credit borrowings. We recognized noncash expense of \$203,000 with the acceleration of unamortized deferred transaction costs.

In January 2018, we early retired via redemption the remaining \$35,111,000 of the 7.50% senior notes due 2021 at a cost of \$40,719,000 including a premium of \$5,608,000. Additionally, we recognized noncash expense of \$263,000 with the acceleration of unamortized deferred transaction costs.

As a result of the first quarter 2018 early debt retirements described above, we recognized premiums of \$5,608,000, transaction costs of \$1,314,000 and noncash expense (acceleration of unamortized deferred transaction costs) of \$466,000. The combined charge of \$7,388,000 was a component of interest expense for the year ended December 31, 2018.

In 2017, we completed a number of financing and refinancing activities resulting in proceeds of \$2,200,000,000 and payments of \$1,463,308,000. As a result of these activities, we recognized premiums of \$139,187,000, transaction costs of \$1,586,000 and noncash expense (acceleration of unamortized deferred transaction costs) of \$7,257,000. The combined charge of \$148,030,000 was a component of interest expense for the year ended December 31, 2017.

The total scheduled (principal and interest) debt payments, excluding the line of credit, for the five years subsequent to December 31, 2019 are as follows:

<i>in thousands</i>	<i>Total</i>	<i>Principal</i>	<i>Interest</i>
Scheduled Debt Payments (excluding the line of credit)			
2020 ¹	\$ 362,691	\$ 250,025	\$ 112,666
2021	605,685	506,026	99,659
2022	96,041	28	96,013
2023	96,041	30	96,011
2024	96,041	32	96,009

¹ The floating-rate notes due 2020 in the amount of \$250,000 thousand are classified as long-term since we intend to refinance, and we have the ability to do so by borrowing on our line of credit.

STANDBY LETTERS OF CREDIT

We provide, in the normal course of business, certain third-party beneficiaries with standby letters of credit to support our obligations to pay or perform according to the requirements of an underlying agreement. Such letters of credit typically have an initial term of one year, typically renew automatically, and can only be modified or canceled with the approval of the beneficiary. All of our standby letters of credit are issued by banks that participate in our \$750,000,000 line of credit and reduce the borrowing capacity thereunder. Our standby letters of credit as of December 31, 2019 are summarized by purpose in the table below:

<i>in thousands</i>	
Standby Letters of Credit	
Risk management insurance	\$ 44,781
Reclamation/restoration requirements	7,819
Total	\$ 52,600

NOTE 7: LEASES

Operating lease-related assets and liabilities (we do not have any material finance leases) reflected on our December 31, 2019 balance sheet and the weighted-average lease term and discount rate are as follows:

<i>in thousands</i>	<i>Classification on the Balance Sheet</i>	<i>2019</i>
Assets		
Operating lease right-of-use assets		\$ 441,656
Accumulated amortization		(33,467)
Total lease assets	Operating lease right-of-use assets, net	\$ 408,189
Liabilities		
Current		
Operating	Other current liabilities	\$ 29,971
Noncurrent		
Operating	Operating lease liabilities	388,042
Total lease liabilities		\$ 418,013
Lease Term and Discount Rate		
Weighted-average remaining lease term (years)		
Operating leases		9.9
Weighted-average discount rate		
Operating leases		4.3%

Our portfolio of nonmineral leases is composed almost entirely of operating leases for real estate (including office buildings, aggregates sales yards, and concrete and asphalt sites) and equipment (including railcars and rail track, barges, office equipment and plant equipment).

Our building leases have remaining noncancelable periods of 0 - 8 years and lease terms (including options to extend) of 0 - 27 years. Key factors in determining the certainty of lease renewals include the location of the building, the value of leasehold improvements and the cost to relocate. Rental payments for certain of our building leases are periodically adjusted for inflation, and this variable component is recognized as expense when incurred. Many of our building leases contain common area maintenance charges which we include in the calculation of our lease liability (the lease consideration is not allocated between the lease and non-lease components).

Our aggregates sales yard leases have remaining noncancelable periods of 0 - 29 years and lease terms of 0 - 79 years. The key factor in determining the certainty of lease renewals is the financial impact of extending the lease, including the reserve life of the sourcing aggregates quarry. Certain aggregates sales yard lease agreements include rental payments based on a percentage of sales over contractual levels or the number of shipments received into the sales yard. Variable payments for these sales yards comprise a majority of the overall variable lease cost presented in the table below.

Our concrete and asphalt site leases have remaining noncancelable periods of 0 - 20 years and lease terms of 0 - 79 years. The key factor in determining the certainty of lease renewals is the financial impact of extending the lease, including the reserve life of the sourcing aggregates quarry. Rental payments are generally fixed for our concrete and asphalt sites.

Our rail (car and track) leases have remaining noncancelable periods of 0 - 4 years and lease terms of 1 - 65 years. Key factors in determining the certainty of lease renewals include the market rental rate for comparable assets and, in some cases, the cost incurred to restore the asset. Rental payments are fixed for our rail leases. The majority of our rail leases contain substitution rights that allow the supplier to replace damaged equipment. Because these rights are generally limited to either replacing railcars or moving our placement on rail track for purposes of repair or maintenance, we do not consider these substitution rights to be substantive and have recorded a lease liability and ROU asset for all leased rail.

Our barge leases have remaining noncancelable periods of 1 - 2 years and lease terms of 9 - 15 years. Key factors in determining the certainty of lease renewals include the market rental rate for comparable assets and, in some cases, the cost incurred to restore the asset. Rental payments are fixed. Like our rail leases, our barge leases contain non-substantive substitution rights that are limited to replacing barges in need of repair or maintenance.

Office and plant equipment leases have remaining noncancelable periods of 0 - 5 years and lease terms of 0 - 5 years. The key factor in determining the certainty of lease renewals is the market rental rate for comparable assets. Rental payments are generally fixed for our equipment leases with terms greater than 1 year. The significant majority of our short-term lease cost presented in the table below is derived from office and plant equipment leases with terms of 1 year or less.

Our lease agreements do not contain residual value guarantees, restrictive covenants or early termination options that we deem material.

Lease expense for operating leases is recognized on a straight-line basis over the lease term. The components of operating lease expense for the year ended December 31, 2019 are as follows:

<i>in thousands</i>	2019
Lease Cost	
Operating lease cost	\$ 56,546
Short-term lease cost ¹	35,487
Variable lease cost	13,739
Sublease income	(3,108)
Total lease cost	\$ 102,664

¹ We have elected to recognize the cost of leases with an initial term of one month or less within our short-term lease cost.

Total operating lease expense for the years ended December 31, 2018 and 2017 was \$131,015,000 and \$110,358,000, respectively.

Cash paid for operating leases was \$52,660,000 for 2019 and was reflected as a reduction to operating cash flows.

Maturity analysis on an undiscounted basis of our operating lease liabilities (see Note 12 for mineral lease payments) as of December 31, 2019 is as follows:

<i>in thousands</i>	Operating Leases
Maturity of Lease Liabilities	
2020	\$ 49,767
2021	46,100
2022	41,957
2023	37,276
2024	34,073
Thereafter	576,200
Total minimum lease payments	\$ 785,373
Less: Lease payments representing interest	367,360
Present value of future minimum lease payments	\$ 418,013
Less: Current obligations under leases	29,971
Long-term lease obligations	\$ 388,042

Future minimum operating lease payments under leases with initial or remaining noncancelable lease terms in excess of one year, exclusive of mineral leases, reported as of December 31, 2018 were payable as follows:

<i>in thousands</i>	
Future Minimum Operating Lease Payments	
2019	\$ 47,979
2020	43,540
2021	35,732
2022	27,463
2023	19,707
Thereafter	195,104
Total	\$ 369,525

NOTE 8: ACCRUED ENVIRONMENTAL REMEDIATION COSTS

Our Consolidated Balance Sheets as of December 31 include accrued environmental remediation costs (measured on an undiscounted basis) as follows:

<i>in thousands</i>	<i>2019</i>	<i>2018</i>
Accrued Environmental Remediation Costs		
Continuing operations	\$ 30,429	\$ 39,745
Retained from former Chemicals business	10,972	10,685
Total	\$ 41,401	\$ 50,430

The long-term portion of the accruals noted above is included in other noncurrent liabilities in the accompanying Consolidated Balance Sheets and amounted to \$13,567,000 at December 31, 2019 and \$13,597,000 at December 31, 2018. The short-term portion of these accruals is included in other current liabilities in the accompanying Consolidated Balance Sheets.

The accrued environmental remediation costs in continuing operations relate primarily to the former Florida Rock, Tarmac, and CalMat facilities acquired in 2007, 2000 and 1999, respectively. The balances noted above for Chemicals relate to retained environmental remediation costs from the 2003 sale of the Performance Chemicals business and the 2005 sale of the Chloralkali business. Refer to Note 12 for additional discussion of contingent environmental matters.

NOTE 9: INCOME TAXES

The Tax Cuts and Jobs Act (TCJA) was enacted in December 2017. The TCJA, among other changes, reduced the U.S. federal corporate income tax rate from 35% to 21%. This resulted in a \$301,567,000 revaluation of deferred tax balances which was recognized as a net income tax benefit for the year ended December 31, 2017. Remeasuring certain deferred tax balances through income tax expense that were originally measured through other comprehensive income resulted in stranded tax effects in accumulated other comprehensive income. In the fourth quarter of 2018, we reclassified \$29,629,000 of these stranded tax effects from retained earnings to other comprehensive income.

The components of earnings from continuing operations before income taxes are as follows:

<i>in thousands</i>	<i>2019</i>	<i>2018</i>	<i>2017</i>
Earnings from Continuing Operations before Income Taxes			
Domestic	\$ 734,025	\$ 593,446	\$ 346,668
Foreign	23,676	29,844	14,648
Total	\$ 757,701	\$ 623,290	\$ 361,316

Income tax expense (benefit) from continuing operations consists of the following:

<i>in thousands</i>	2019		2018		2017	
Income Tax Expense (Benefit) from Continuing Operations						
Current						
Federal	\$	31,234	\$	21,111	\$	(7,416)
State and local		24,403		15,127		4,661
Foreign		3,304		4,278		3,109
Total	\$	58,941	\$	40,516	\$	354
Deferred						
Federal	\$	67,810	\$	59,216	\$	(202,184)
State and local		8,660		8,369		(30,052)
Foreign		(213)		(2,652)		(193)
Total	\$	76,257	\$	64,933	\$	(232,429)
Total expense (benefit)	\$	135,198	\$	105,449	\$	(232,075)

Income tax expense (benefit) differs from the amount computed by applying the federal statutory income tax rate to earnings from continuing operations before income taxes. The sources and tax effects of the differences are as follows:

<i>dollars in thousands</i>	2019		2018		2017				
Income tax expense at the federal statutory tax rate	\$	159,117	21.0%	\$	130,891	21.0%	\$	126,461	35.0%
Expense (Benefit) from Income Tax Differences									
Statutory depletion	(23,006)	-3.0%	(21,733)	-3.5%	(28,995)	-8.0%			
State and local income taxes, net of federal income tax benefit	26,119	3.4%	18,562	3.0%	8,115	2.2%			
Share-based compensation	(17,277)	-2.3%	(16,551)	-2.7%	(20,740)	-5.7%			
Uncertain tax positions	1,822	0.2%	(6,402)	-1.0%	1,062	0.3%			
Revaluation - deferred tax balances	0	0.0%	0	0.0%	(301,567)	-83.5%			
AL NOL valuation allowance release	0	0.0%	0	0.0%	(28,827)	-8.0%			
Transition tax	0	0.0%	595	0.1%	12,301	3.4%			
Research and development credit	(9,490)	-1.3%	0	0.0%	0	0.0%			
Other, net	(2,087)	-0.2%	87	0.0%	115	0.1%			
Total income tax expense (benefit)/ Effective tax rate	\$	135,198	17.8%	\$	105,449	16.9%	\$	(232,075)	-64.2%

Deferred taxes on the balance sheet result from temporary differences between the amount of assets and liabilities recognized for financial reporting and tax purposes. The components of the net deferred income tax liability at December 31 are as follows:

<i>in thousands</i>	2019	2018
Deferred Tax Assets Related to		
Employee benefits	\$ 29,996	\$ 24,407
Incentive compensation	66,488	62,829
Asset retirement obligations & other reserves	55,033	55,822
State net operating losses	67,354	68,436
Other	44,169	31,294
Total gross deferred tax assets	\$ 263,040	\$ 242,788
Valuation allowance	(29,650)	(29,680)
Total net deferred tax asset	\$ 233,390	\$ 213,108
Deferred Tax Liabilities Related to		
Property, plant & equipment	\$ 590,075	\$ 510,604
Goodwill/other intangible assets	238,712	233,471
Other	37,642	36,316
Total deferred tax liabilities	\$ 866,429	\$ 780,391
Net deferred tax liability	\$ 633,039	\$ 567,283

Each quarter we analyze the likelihood that our deferred tax assets will be realized. A valuation allowance is recorded if, based on the weight of all available positive and negative evidence, it is more likely than not (a likelihood of more than 50%) that some portion, or all, of a deferred tax asset will not be realized. At December 31, 2019, we have Alabama state net operating loss (NOL) carryforward deferred tax assets of \$64,778,000, against which we have a valuation allowance of \$29,183,000. At this time, we do not expect any future adjustment to this valuation allowance. The Alabama NOL carryforward, if not utilized, would expire between 2023 and 2032.

Changes in our liability for unrecognized tax benefits for the years ended December 31 are as follows:

<i>in thousands</i>	2019	2018	2017
Unrecognized tax benefits as of January 1	\$ 3,661	\$ 11,643	\$ 10,828
Increases for tax positions related to			
Prior years	273	0	27
Current year	3,224	698	1,039
Decreases for tax positions related to			
Prior years	0	(655)	(204)
Expiration of applicable statute of limitations	(1,716)	(8,025)	(47)
Unrecognized tax benefits as of December 31	\$ 5,442	\$ 3,661	\$ 11,643

We classify interest and penalties recognized on the liability for unrecognized tax benefits as income tax expense. Interest and penalties recognized as income tax expense (benefit) were \$(11,000) in 2019, \$(1,477,000) in 2018 and \$420,000 in 2017. The balance of accrued interest and penalties included in our liability for unrecognized tax benefits as of December 31 was \$301,000 in 2019, \$312,000 in 2018 and \$1,789,000 in 2017. Our liability for unrecognized tax benefits at December 31 in the table above include \$5,292,000 in 2019, \$3,481,000 in 2018 and \$10,673,000 in 2017 that would affect the effective tax rate if recognized. We anticipate no single tax position generating a significant increase in our liability for unrecognized tax benefits within 12 months of this reporting date.

As of December 31, 2019, income tax receivables of \$299,000 are included in other current assets in the accompanying Consolidated Balance Sheet. There were similar receivables of \$922,000 recorded in other accounts and notes receivable as of December 31, 2018.

NOTE 10: BENEFIT PLANS

PENSION PLANS

We sponsor three qualified, noncontributory defined benefit pension plans. These plans cover substantially all employees hired before July 2007, other than those covered by union-administered plans. Normal retirement age is 65, but the plans contain provisions for earlier retirement. Benefits for the Salaried Plan and the Chemicals Hourly Plan are generally based on salaries or wages and years of service; the Construction Materials Hourly Plan provides benefits equal to a flat dollar amount for each year of service. In addition to these qualified plans, we sponsor three unfunded, nonqualified pension plans. The projected benefit obligation presented in the table below includes \$70,298,000 and \$71,435,000 related to these unfunded, nonqualified pension plans for 2019 and 2018, respectively.

In 2005, benefit accruals for our Chemicals Hourly Plan participants ceased upon the sale of our Chemicals business. Effective July 2007, we amended our defined benefit pension plans to no longer accept new participants with the exception of two unions that continue to add new participants. Future benefit accruals for participants in our salaried defined benefit pension plan ceased on December 31, 2013, while salaried participants' earnings considered for benefit calculations were frozen on December 31, 2015.

The following table sets forth the combined funded status of the plans and their reconciliation with the related amounts recognized in our consolidated financial statements at December 31:

<i>in thousands</i>	2019	2018
Change in Benefit Obligation		
Projected benefit obligation at beginning of year	\$ 958,936	\$ 1,091,223
Service cost	4,995	5,716
Interest cost	37,640	35,503
Actuarial (gain) loss	141,922	(118,827)
Benefits paid	(52,600)	(54,679)
Projected benefit obligation at end of year	\$ 1,090,893	\$ 958,936
Change in Fair Value of Plan Assets		
Fair value of assets at beginning of year	\$ 836,770	\$ 840,901
Actual return on plan assets	155,955	(59,083)
Employer contribution	8,882	109,631
Benefits paid	(52,600)	(54,679)
Fair value of assets at end of year	\$ 949,007	\$ 836,770
Funded status	(141,886)	(122,166)
Net amount recognized	\$ (141,886)	\$ (122,166)
Amounts Recognized in the Consolidated Balance Sheets		
Noncurrent assets	\$ 9,056	\$ 6,488
Current liabilities	(8,579)	(9,067)
Noncurrent liabilities	(142,363)	(119,587)
Net amount recognized	\$ (141,886)	\$ (122,166)
Amounts Recognized in Accumulated Other Comprehensive Income		
Net actuarial loss	\$ 268,483	\$ 240,199
Prior service cost	6,488	7,828
Total amount recognized	\$ 274,971	\$ 248,027

The accumulated benefit obligation (ABO) and the projected benefit obligation (PBO) exceeded plan assets for all of our defined benefit plans at December 31, 2019 and December 31, 2018, except for one where the plan assets exceeded the ABO by \$9,056,000 and \$6,525,000, respectively. The ABO for all of our defined benefit pension plans totaled \$1,090,239,000 (unfunded, nonqualified plans of \$70,298,000) at December 31, 2019 and \$958,899,000 (unfunded, nonqualified plans of \$71,435,000) at December 31, 2018.

The following table sets forth the components of net periodic benefit cost, amounts recognized in other comprehensive income and weighted-average assumptions of the plans at December 31:

<i>dollars in thousands</i>	2019	2018	2017
Components of Net Periodic Pension Benefit Cost			
Service cost	\$ 4,995	\$ 5,716	\$ 6,715
Interest cost	37,640	35,503	36,230
Expected return on plan assets	(47,751)	(59,188)	(48,506)
Amortization of prior service cost	1,340	1,340	1,340
Amortization of actuarial loss	5,433	9,826	7,397
Net periodic pension benefit cost (credit)	\$ 1,657	\$ (6,803)	\$ 3,176
Changes in Plan Assets and Benefit Obligations Recognized in Other Comprehensive Income			
Net actuarial loss (gain)	\$ 33,717	\$ (555)	\$ 7,879
Prior service cost	0	0	10,868
Reclassification of prior service cost	(1,340)	(1,340)	(1,340)
Reclassification of actuarial loss	(5,433)	(9,826)	(7,397)
Amount recognized in other comprehensive income	\$ 26,944	\$ (11,721)	\$ 10,010
Amount recognized in net periodic pension benefit cost and other comprehensive income	\$ 28,601	\$ (18,524)	\$ 13,186
Assumptions			
Weighted-average assumptions used to determine net periodic benefit cost for years ended December 31			
Discount rate — PBO	4.39%	3.72%	4.29%
Discount rate — service cost	4.59%	3.90%	4.63%
Discount rate — interest cost	4.02%	3.35%	3.63%
Expected return on plan assets	5.75%	7.00%	7.00%
Weighted-average assumptions used to determine benefit obligation at December 31			
Discount rate	3.28%	4.39%	3.72%

The estimated net actuarial loss and prior service cost that will be amortized from accumulated other comprehensive income into net periodic pension benefit cost (credit) during 2020 are \$12,905,000 and \$1,339,000, respectively.

Plan assets are invested according to an investment policy that allocates investments in return seeking assets and liability hedging assets based on the plans' funded ratio (fair value of assets/PBO). Return seeking assets include public and private equity securities and public and private debt securities. Liability hedging assets include money market securities, inflation linked debt securities, public corporate debt securities, and government debt securities.

At each measurement date, we estimate the net asset values and fair values of our pension assets using various valuation techniques. For certain investments, we use the net asset value (NAV) as a practical expedient to estimating fair value. Fair value is defined as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants. The fair value hierarchy prioritizes the inputs to valuation techniques used to measure fair value into three broad levels as described below:

Level 1: Quoted prices in active markets for identical assets or liabilities

Level 2: Inputs that are derived principally from or corroborated by observable market data

Level 3: Inputs that are unobservable and significant to the overall fair value measurement

The fair values and net asset values of our pension plan assets at December 31, 2019 and 2018 are in the tables below. The assets in the common/collective trusts and in the private partnerships consist of both return seeking and liability hedging investments. At December 31, 2019, the total pension asset allocation was approximately 50% return seeking and 50% liability hedging, compared to the December 31, 2018 allocation of approximately 70% return seeking and 30% liability hedging.

FAIR VALUE MEASUREMENTS AT DECEMBER 31, 2019

<i>in thousands</i>	<i>Level 1</i>	<i>Level 2</i>	<i>Level 3</i>	<i>Total</i>
Asset Category				
Debt funds	\$ 0	\$ 435,692	\$ 0	\$ 435,692
Equity funds	549	120,253	0	120,802
Investments in the fair value hierarchy	\$ 549	\$ 555,945	\$ 0	\$ 556,494
Interest in common/collective trusts (at NAV)				387,785
Private partnerships (at NAV)				4,728
Total pension plan assets				\$ 949,007

FAIR VALUE MEASUREMENTS AT DECEMBER 31, 2018

<i>in thousands</i>	<i>Level 1</i>	<i>Level 2</i>	<i>Level 3</i>	<i>Total</i>
Asset Category				
Debt funds	\$ 0	\$ 168,953	\$ 0	\$ 168,953
Commodity funds	0	14,697	0	14,697
Equity funds	246	135,656	0	135,902
Investments in the fair value hierarchy	\$ 246	\$ 319,306	\$ 0	\$ 319,552
Interest in common/collective trusts (at NAV)				462,566
Private partnerships (at NAV)				54,652
Total pension plan assets				\$ 836,770

The following describes the types of investments included in each asset category listed in the tables above and the valuation techniques we used to determine the fair values or net asset values as of December 31, 2019 and 2018.

The debt funds category consists of U.S. federal, state and local government debt securities, corporate debt securities, foreign government debt securities, and asset-backed securities. The fair values of U.S. government and corporate debt securities are based on current market rates and credit spreads for debt securities with similar maturities. The fair values of debt securities issued by foreign governments are based on prices obtained from broker/dealers and international indices. The fair values of asset-backed securities are priced using prepayment speed and spread inputs that are sourced from the new issue market.

The commodity funds category (eliminated in 2019) consists of a single open-end commodity mutual fund. The equity funds category consists of a mutual fund investing in domestic equities. For investment funds publicly traded on a national securities exchange, the fair value is based on quoted market prices. For investment funds not traded on an exchange, the total fair value of the underlying securities is used to determine the net asset value for each unit of the fund held by the pension fund. The estimated fair values of the underlying securities are generally valued based on quoted market prices. For securities without quoted market prices, other observable market inputs are used to determine the fair value.

Common/collective trust fund investments consist of index funds for domestic equities, an actively managed fund for international equities, and a short-term investment fund for highly liquid, short-term debt securities. Investments are valued at the net asset value (NAV) of units of a bank collective trust. The NAV is based on the fair value of the underlying investments held by the fund less its liabilities. This practical expedient is not used when it is determined to be probable that the fund will sell the investment for an amount different than the reported NAV.

The private partnerships category consists of various venture capital funds, mezzanine debt funds and leveraged buyout funds. The NAV of these investments has been estimated based on methods employed by the general partners, including consideration of, among other things, reference to third-party transactions, valuations of comparable companies operating within the same or similar industry, the current economic and competitive environment, creditworthiness of the corporate issuer, as well as market prices for instruments with similar maturities, terms, conditions and quality ratings. The use of different assumptions, applying different judgment to inherently subjective matters and changes in future market conditions could result in significantly different estimates of fair value of these securities.

Total employer contributions to the pension plans are presented below:

<i>in thousands</i>	<i>Pension</i>
Employer Contributions	
2017	\$ 20,023
2018	109,631
2019	8,882
2020 (estimated)	8,579

For our qualified pension plans, we made discretionary contributions of \$100,000,000 and \$10,600,000 during 2018 and 2017, respectively, and made no contributions during 2019. We do not anticipate making contributions to our qualified pension plans in 2020. For our nonqualified pension plans, we contributed \$8,882,000, \$9,631,000 and \$9,423,000 during 2019, 2018 and 2017, respectively, and expect to contribute \$8,579,000 during 2020.

The following benefit payments, which reflect expected future service, as appropriate, are expected to be paid:

<i>in thousands</i>	<i>Pension</i>
Estimated Future Benefit Payments	
2020	\$ 58,857
2021	58,914
2022	60,476
2023	61,475
2024	62,138
2025-2029	303,663

We contribute to a number of multiemployer defined benefit pension plans under the terms of collective-bargaining agreements for union-represented employees. A multiemployer plan is subject to collective bargaining for employees of two or more unrelated companies. Multiemployer plans are managed by boards of trustees on which management and labor have equal representation. However, in most cases, management is not directly represented. The risks of participating in multiemployer plans differ from single employer plans as follows:

- assets contributed to a multiemployer plan by one employer may be used to provide benefits to employees of other participating employers
- if a participating employer stops contributing to the plan, the unfunded obligations of the plan may be borne by the remaining participating employers
- if we cease to have an obligation to contribute to one or more of the multiemployer plans to which we contribute, we may be required to pay those plans an amount based on the underfunded status of the plan, referred to as a withdrawal liability

None of the multiemployer pension plans that we participate in are individually significant. Our contributions to individual multiemployer pension funds did not exceed 5% of the fund's total contributions in the three years ended December 31, 2019, 2018 and 2017. Total contributions to multiemployer pension plans were \$10,385,000 in 2019, \$10,081,000 in 2018 and \$9,253,000 in 2017.

As of December 31, 2019, a total of 7.4% of our domestic hourly labor force was covered by collective-bargaining agreements. Of such employees covered by collective-bargaining agreements, 11.4% were covered by agreements that expire in 2020. We also employed 330 union employees in Mexico who are covered by a collective-bargaining agreement that will expire in 2020. None of our union employees in Mexico participate in multiemployer pension plans.

In addition to the pension plans noted above, we had one unfunded supplemental retirement plan as of December 31, 2019 and 2018. The accrued costs for the supplemental retirement plan were \$1,069,000 at December 31, 2019 and \$1,122,000 at December 31, 2018.

POSTRETIREMENT PLANS

In addition to pension benefits, we provide certain healthcare and life insurance benefits for some retired employees. In 2012, we amended our postretirement healthcare plan to cap our portion of the medical coverage cost at the 2015 level. Substantially all our salaried employees and, where applicable, certain of our hourly employees may become eligible for these benefits if they reach a qualifying age and meet certain service requirements. Generally, Company-provided healthcare benefits end when covered individuals become eligible for Medicare benefits, become eligible for other group insurance coverage or reach age 65, whichever occurs first.

The following table sets forth the combined funded status of the plans and their reconciliation with the related amounts recognized in our consolidated financial statements at December 31:

<i>in thousands</i>	2019	2018
Change in Benefit Obligation		
Projected benefit obligation at beginning of year	\$ 40,834	\$ 43,480
Service cost	1,317	1,357
Interest cost	1,388	1,240
Actuarial loss	2,677	856
Benefits paid	(5,029)	(6,099)
Projected benefit obligation at end of year	\$ 41,187	\$ 40,834
Change in Fair Value of Plan Assets		
Fair value of assets at beginning of year	\$ 0	\$ 0
Actual return on plan assets	0	0
Fair value of assets at end of year	\$ 0	\$ 0
Funded status	\$ (41,187)	\$ (40,834)
Net amount recognized	\$ (41,187)	\$ (40,834)
Amounts Recognized in the Consolidated Balance Sheets		
Current liabilities	\$ (5,339)	\$ (5,560)
Noncurrent liabilities	(35,848)	(35,274)
Net amount recognized	\$ (41,187)	\$ (40,834)
Amounts Recognized in Accumulated Other Comprehensive Income		
Net actuarial gain	\$ (14,642)	\$ (18,624)
Prior service credit	(7,575)	(11,494)
Total amount recognized	\$ (22,217)	\$ (30,118)

The following table sets forth the components of net periodic benefit cost, amounts recognized in other comprehensive income, weighted-average assumptions and assumed trend rates of the plans at December 31:

<i>dollars in thousands</i>	2019	2018	2017
Components of Net Periodic Postretirement Benefit Cost			
Service cost	\$ 1,317	\$ 1,358	\$ 1,167
Interest cost	1,388	1,240	1,260
Amortization of prior service credit	(3,919)	(3,962)	(4,236)
Amortization of actuarial gain	(1,309)	(1,298)	(1,587)
Net periodic postretirement benefit credit	\$ (2,523)	\$ (2,662)	\$ (3,396)
Changes in Plan Assets and Benefit Obligations Recognized in Other Comprehensive Income			
Net actuarial loss	\$ 2,673	\$ 835	\$ 342
Reclassification of prior service credit	3,919	3,962	4,236
Reclassification of actuarial gain	1,309	1,298	1,587
Amount recognized in other comprehensive income	\$ 7,901	\$ 6,095	\$ 6,165
Amount recognized in net periodic postretirement benefit cost and other comprehensive income	\$ 5,378	\$ 3,433	\$ 2,769
Assumptions			
Weighted-average assumptions used to determine net periodic benefit cost for years ended December 31			
Discount rate — PBO	4.01%	3.34%	3.59%
Discount rate — service cost	4.23%	3.56%	3.96%
Discount rate — interest cost	3.63%	2.90%	2.89%
Weighted-average assumptions used to determine benefit obligation at December 31			
Discount rate	2.84%	4.01%	3.33%

The estimated net actuarial gain and prior service credit that will be amortized from accumulated other comprehensive income into net periodic postretirement benefit cost (credit) during 2020 are \$(956,000) and \$(3,919,000), respectively.

Total employer contributions to the postretirement plans are presented below:

<i>in thousands</i>	<i>Postretirement</i>
Employer Contributions	
2017	\$ 4,871
2018	6,099
2019	5,029
2020 (estimated)	5,340

The employer contributions shown above are equal to the cost of benefits during the year. The plans are not funded and are not subject to any regulatory funding requirements.

The following benefit payments, which reflect expected future service, as appropriate, are expected to be paid:

<i>in thousands</i>	<i>Postretirement</i>
Estimated Future Benefit Payments	
2020	\$ 5,340
2021	5,049
2022	4,669
2023	4,500
2024	4,257
2025–2029	16,282

Contributions by participants to the postretirement benefit plans for the years ended December 31 are as follows:

<i>in thousands</i>	<i>Postretirement</i>
Participants Contributions	
2017	\$ 2,025
2018	1,984
2019	2,239

PENSION AND OTHER POSTRETIREMENT BENEFITS ASSUMPTIONS

Each year, we review our assumptions for discount rates (used for PBO, service cost, and interest cost calculations) and the expected return on plan assets. Due to plan changes made in 2012 and 2013, annual pay increases and the per capita cost of healthcare benefits do not materially impact plan obligations.

We use a high-quality bond full yield curve approach (specific spot rates for each annual expected cash flow) to establish the discount rates at each measurement date. At December 31, 2019, the discount rates used were as follows:

- PBO for various plans – ranged from 2.67% to 3.37% (December 31, 2018 ranged from 3.92% to 4.47%)
- Service cost – weighted average of 4.59% and 4.23%, respectively, for our pension plans and our other postretirement plans (2018 figures were 3.90% and 3.56%, respectively)
- Interest cost – weighted average of 4.02% and 3.63%, respectively, for our pension plans and our other postretirement plans (2018 figures were 3.35% and 2.90%, respectively)

Our expected return on plan assets is: (1) a long-term view based on our current asset allocation, and (2) a judgment informed by consultation with our retirement plans' consultant and our pension plans' actuary. The expected return on plan assets used to measure plan benefit costs was 5.75% in 2019 and 7.0% in 2018. For 2020, we set the expected return on plan assets to 5.75%.

DEFINED CONTRIBUTION PLANS

In addition to our pension and postretirement plans, we sponsor two defined contribution plans. Substantially all salaried and nonunion hourly employees are eligible to be covered by one of these plans. Under these plans, we match employees' eligible contributions at established rates. Expense recognized in connection with these matching obligations totaled \$53,853,000 in 2019, \$40,718,000 in 2018 and \$44,562,000 in 2017.

NOTE 11: INCENTIVE PLANS

SHARE-BASED COMPENSATION PLANS

Our 2016 Omnibus Long-term Incentive Plan (Plan) authorizes the granting of performance shares, restricted shares, Stock-Only Stock Appreciation Rights (SOSARs) and other types of share-based awards to key salaried employees and nonemployee directors. The maximum number of shares that may be issued under the Plan is 8,000,000, of which 6,753,536 shares remain under this authorization.

PERFORMANCE SHARES — Each performance share unit is equal to and paid in one share of our common stock, but carries no voting or dividend rights. The number of units ultimately paid for performance share awards may range from 0% to 200% of the number of units awarded on the date of grant. Payment is based upon the outcome of performance and/or market conditions. Awards vest on December 31 of the third (2017 - 2019 awards) or fourth (2016 awards) year after date of grant. Vesting is accelerated upon death, disability, or change of control and the awards become non-forfeitable upon reaching retirement age — all as defined in the award agreement. Nonvested units are forfeited upon termination for any other reason. Expense provisions referable to performance share awards amounted to \$18,236,000 in 2019, \$13,656,000 in 2018 and \$16,272,000 in 2017.

The fair value of performance shares is estimated as of the date of grant using a Monte Carlo simulation model. The following table summarizes the activity for nonvested performance share units during the year ended December 31, 2019:

	<i>Target Number of Shares</i>	<i>Weighted-average Grant Date Fair Value</i>
Performance Shares		
Nonvested at January 1, 2019	350,678	\$ 106.06
Granted	133,105	110.39
Vested	(235,611)	100.65
Canceled/forfeited	(3,268)	111.47
Nonvested at December 31, 2019	244,904	\$ 113.55

During 2018 and 2017, the weighted-average grant date fair value of performance shares granted was \$117.20 and \$117.49, respectively.

The aggregate values for distributed performance share awards are based on the closing price of our common stock as of the distribution date. The aggregate values of distributed performance shares for the years ended December 31 are as follows:

<i>in thousands</i>	2019	2018	2017
Aggregate value of distributed performance shares	\$ 33,169	\$ 53,721	\$ 52,368

RESTRICTED SHARES — Each restricted share unit is equal to and paid in one share of our common stock, but carries no voting or dividend rights. Awards vest on the third (2017 - 2019 awards) or fourth (2016 awards) anniversary of the grant date. Vesting is accelerated upon reaching retirement age, death, disability, or change of control, all as defined in the award agreement. Nonvested units are forfeited upon termination for any other reason. Expense provisions referable to restricted share awards amounted to \$7,789,000 in 2019, \$4,831,000 in 2018 and \$4,371,000 in 2017.

The fair value of restricted shares is estimated as of the date of grant based on the stock price adjusted for dividends foregone. The following table summarizes the activity for nonvested restricted share units during the year ended December 31, 2019:

	<i>Number of Shares</i>	<i>Weighted-average Grant Date Fair Value</i>
Restricted Stock Units		
Nonvested at January 1, 2019	145,379	\$ 103.88
Granted	90,335	110.39
Vested	(20,631)	85.45
Canceled/forfeited	(3,153)	111.33
Nonvested at December 31, 2019	211,930	\$ 108.34

During 2018 and 2017, the weighted-average grant date fair value of restricted shares granted was \$117.20 and \$117.49, respectively.

The aggregate values for distributed restricted share awards are based on the closing price of our common stock as of the distribution date. The aggregate values of distributed restricted shares for the years ended December 31 are as follows:

<i>in thousands</i>	2019	<i>2018</i>	<i>2017</i>
Aggregate value of distributed restricted shares	\$ 2,417	\$ 1,345	\$ 7,685

STOCK-ONLY STOCK APPRECIATION RIGHTS (SOSARs) — SOSARs granted have an exercise price equal to the market value of our underlying common stock on the date of grant. The SOSARs vest ratably over 3 years (2017 - 2019 awards) or 4 years (2016 awards) and expire 10 years subsequent to the grant. Vesting is accelerated upon reaching retirement age, death, disability, or change of control, all as defined in the award agreement. Nonvested awards are forfeited upon termination for any other reason.

The fair value of SOSARs is estimated as of the date of grant using the Black-Scholes option pricing model. Compensation cost for SOSARs is based on this grant date fair value and is recognized for awards that ultimately vest. The following table presents the weighted-average fair value and the weighted-average assumptions used in estimating the fair value of grants during the years ended December 31:

	2019	<i>2018</i>	<i>2017</i>
SOSARs			
Fair value	\$ 38.90	\$ 43.72	\$ 43.01
Risk-free interest rate	2.62%	2.90%	2.36%
Dividend yield	0.87%	1.39%	1.27%
Volatility	27.23%	31.49%	31.35%
Expected term (years)	9.00	9.00	9.00

The risk-free interest rate is based on the yield at the date of grant of a U.S. Treasury security with a maturity period approximating the SOSARs expected term. The dividend yield assumption is based on our historical dividend payouts adjusted for current expectations of future payouts. The volatility assumption is based on the historical volatility and expectations about future volatility of our common stock over a period equal to the SOSARs expected term. The expected term is based on historical experience and expectations about future exercises and represents the period of time that SOSARs granted are expected to be outstanding.

A summary of our SOSAR activity as of December 31, 2019 and changes during the year are presented below:

	<i>Number of Shares</i>	<i>Weighted-average Exercise Price</i>	<i>Weighted-average Remaining Contractual Life (Years)</i>	<i>Aggregate Intrinsic Value (in thousands)</i>
SOSARs				
Outstanding at January 1, 2019	1,741,583	\$ 58.64		
Granted	72,900	113.16		
Exercised	(849,268)	41.77		
Forfeited or expired	(20,616)	113.14		
Outstanding at December 31, 2019	944,599	\$ 76.84	4.77	\$ 63,019
Exercisable at December 31, 2019	786,299	\$ 69.27	4.07	\$ 58,405

The aggregate intrinsic values in the table above represent the total pretax intrinsic value (the difference between our stock price on the last trading day of 2019 and the exercise price, multiplied by the number of in-the-money SOSARs) that would have been received by the option holders had all SOSARs been exercised on December 31, 2019. These values change based on the fair market value of our common stock. The aggregate intrinsic values of SOSARs exercised for the years ended December 31 are as follows:

<i>in thousands</i>	2019	2018	2017
Aggregate intrinsic value of SOSARs exercised	\$ 74,838	\$ 49,248	\$ 13,758

The following table presents cash and stock consideration received and tax benefit realized from SOSAR exercises and compensation cost recorded referable to SOSARs for the years ended December 31:

<i>in thousands</i>	2019	2018	2017
SOSARs			
Cash and stock consideration received from exercises	\$ 0	\$ 0	\$ 0
Tax benefit from exercises	29,000	19,083	5,331
Compensation cost	4,042	4,763	3,723

DEFERRED STOCK UNITS — In addition to the share-based compensation plans for employees discussed above, we issue a limited number of deferred stock units to our nonemployee directors annually. These deferred stock units vest immediately upon issuance and accumulate dividends until they are released. Expense provisions referable to nonemployee director deferred stock units amounted to \$1,776,000 in 2019, \$1,965,000 in 2018 and \$2,260,000 in 2017.

CASH-BASED COMPENSATION PLANS

We have incentive plans under which cash awards may be made annually. Expense provisions under these plans referable to awards to officers and certain employees amounted to \$40,847,000 in 2019, \$36,969,000 in 2018 and \$35,280,000 in 2017. Additionally, expense provision referable to a 2017 one-time bonus for non-incentive eligible employees amounted to \$6,716,000.

NOTE 12: COMMITMENTS AND CONTINGENCIES

We have commitments in the form of unconditional purchase obligations as of December 31, 2019. These include commitments for the purchase of property, plant & equipment of \$27,724,000 and commitments for noncapital purchases of \$48,516,000. These commitments are due as follows:

<i>in thousands</i>	<i>Unconditional Purchase Obligations</i>
Property, Plant & Equipment	
2020	\$ 27,724
Thereafter	0
Total	\$ 27,724
Noncapital (primarily transportation and electricity contracts)	
2020	\$ 24,157
2021–2022	8,759
2023–2024	15,600
Thereafter	0
Total	\$ 48,516

Expenditures for noncapital purchases totaled \$87,044,000 in 2019, \$56,674,000 in 2018 and \$40,526,000 in 2017.

We have commitments in the form of minimum royalties under mineral leases as of December 31, 2019 in the amount of \$266,345,000, due as follows:

<i>in thousands</i>	<i>Mineral Leases</i>
Minimum Royalties	
2020	\$ 27,130
2021–2022	44,089
2023–2024	28,757
Thereafter	166,369
Total	\$ 266,345

Expenditures for royalties under mineral leases totaled \$84,782,000 in 2019, \$76,761,000 in 2018 and \$67,933,000 in 2017.

As of December 31, 2019, we were contingently liable for \$686,627,000 within 441 surety bonds underwritten by various surety companies. These bonds guarantee our performance and are required primarily by states and municipalities and their related agencies. The top five in amount totaled \$168,020,000 (24%) and were for certain construction contracts and reclamation obligations. We have agreed to indemnify the underwriting companies against any exposure under the surety bonds. No material claims have been made against our surety bonds.

Certain of our aggregates reserves are burdened by volumetric production payments (nonoperating interest) as described in Note 2. As the holder of the working interest, we have responsibility to bear the cost of mining and producing the reserves attributable to this nonoperating interest.

As described in Note 1 under the caption Claims and Litigation Including Self-Insurance, our net liabilities for our self-insurance program totaled \$65,259,000 as of December 31, 2019.

As summarized by purpose in Note 6, our standby letters of credit totaled \$52,600,000 as of December 31, 2019.

As outlined in Note 7, our present value of future minimum (nonmineral) lease payments totaled \$418,013,000 as of December 31, 2019.

As described in Note 9, our liability for unrecognized tax benefits is \$5,442,000 as of December 31, 2019.

As described in Note 17, our asset retirement obligations totaled \$210,323,000 as of December 31, 2019.

LITIGATION AND ENVIRONMENTAL MATTERS

We are subject to occasional governmental proceedings and orders pertaining to occupational safety and health or to protection of the environment, such as proceedings or orders relating to noise abatement, air emissions or water discharges. As part of our continuing program of stewardship in safety, health and environmental matters, we have been able to resolve such proceedings and to comply with such orders without any material adverse effects on our business.

We have received notices from the United States Environmental Protection Agency (EPA) or similar state or local agencies that we are considered a potentially responsible party (PRP) at a limited number of sites under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA or Superfund) or similar state and local environmental laws. Generally we share the cost of remediation at these sites with other PRPs or alleged PRPs in accordance with negotiated or prescribed allocations. There is inherent uncertainty in determining the potential cost of remediating a given site and in determining any individual party's share in that cost. As a result, estimates can change substantially as additional information becomes available regarding the nature or extent of site contamination, remediation methods, other PRPs and their probable level of involvement, and actions by or against governmental agencies or private parties.

We have reviewed the nature and extent of our involvement at each Superfund site, as well as potential obligations arising under other federal, state and local environmental laws. While ultimate resolution and financial liability is uncertain at a number of the sites, in our opinion based on information currently available, the ultimate resolution of claims and assessments related to these sites will not have a material effect on our consolidated results of operations, financial position or cash flows, although amounts recorded in a given period could be material to our results of operations or cash flows for that period. Amounts accrued for environmental matters are presented in Note 8.

We are a defendant in various lawsuits in the ordinary course of business. It is not possible to determine with precision the outcome, or the amount of liability, if any, under these lawsuits, especially where the cases involve possible jury trials with as yet undetermined jury panels.

In addition to these lawsuits in which we are involved in the ordinary course of business, certain other material legal proceedings are specifically described below.

- **LOWER PASSAIC RIVER STUDY AREA (DISCONTINUED OPERATIONS and SUPERFUND SITE)** — The Lower Passaic River Study Area is part of the Diamond Shamrock Superfund Site in New Jersey. Vulcan and approximately 70 other companies are parties (collectively the Cooperating Parties Group, CPG) to a May 2007 Administrative Order on Consent (AOC) with the EPA to perform a Remedial Investigation/Feasibility Study (draft RI/FS) of the lower 17 miles of the Passaic River (River). The draft RI/FS was submitted recommending a targeted hot spot remedy; however, the EPA issued a record of decision (ROD) in March 2016 that calls for a bank-to-bank dredging remedy for the lower 8 miles of the River. The EPA estimates that the cost of implementing this proposal is \$1.38 billion. In September 2016, the EPA entered into an Administrative Settlement Agreement and Order on Consent with Occidental Chemical Corporation (Occidental) in which Occidental agreed to undertake the remedial design for this bank-to-bank dredging remedy and to reimburse the United States for certain response costs.

In August 2017, the EPA informed certain members of the CPG, including Vulcan, that it planned to use the services of a third-party allocator with the expectation of offering cash-out settlements to some parties in connection with the bank-to-bank remedy. This voluntary allocation process is intended to establish an impartial third-party expert recommendation that may be considered by the government and the participants as the basis of possible settlements. We have begun participating in this voluntary allocation process, which is likely to take several years.

In July 2018, Vulcan, along with more than one hundred other defendants, was sued by Occidental in United States District Court for the District of New Jersey, Newark Vicinage. Occidental is seeking cost recovery and contribution under CERCLA. It is unknown at this time whether the filing of the Occidental lawsuit will impact the EPA allocation process.

In October 2018, the EPA ordered the CPG to prepare a streamlined feasibility study specifically for the upper 9 miles of the River. This directive is focused on dioxin and covers the remaining portion of the River not included in the EPA's March 2016 ROD.

Efforts to remediate the River have been underway for many years and have involved hundreds of entities that have had operations on or near the River at some point during the past several decades. We formerly owned a chemicals operation near the mouth of the River, which was sold in 1974. The major risk drivers in the River have been identified as dioxins, PCBs, DDx and mercury. We did not manufacture any of these risk drivers and have no evidence that any of these were discharged into the River by Vulcan.

The AOC does not obligate us to fund or perform the remedial action contemplated by either the draft RI/FS or the ROD. Furthermore, the parties who will participate in funding the remediation and their respective allocations have not been determined. We do not agree that a bank-to-bank remedy is warranted, and we are not obligated to fund any of the remedial action at this time; nevertheless, we previously estimated the cost to be incurred by us as a potential participant in a bank-to-bank dredging remedy and recorded an immaterial loss for this matter in 2015.

- **TEXAS BRINE MATTER (DISCONTINUED OPERATIONS)** — During the operation of its former Chemicals Division, Vulcan secured the right to mine salt out of an underground salt dome formation in Assumption Parish, Louisiana from 1976 - 2005. Throughout that period and for all times thereafter, the Texas Brine Company (Texas Brine) was the operator contracted by Vulcan (and later Occidental) to mine and deliver the salt. We sold our Chemicals Division in 2005 and transferred our rights and interest related to the salt and mining operations to the purchaser, a subsidiary of Occidental, and we have had no association with the leased premises or Texas Brine since that time. In August 2012, a sinkhole developed in the vicinity of the Texas Brine mining operations, and numerous lawsuits were filed in state court in Assumption Parish, Louisiana. Other lawsuits, including class action litigation, were also filed in federal court before the Eastern District of Louisiana in New Orleans.

There are numerous defendants, including Texas Brine and Occidental, to the litigation in state and federal court. Vulcan was first brought into the litigation as a third-party defendant in August 2013 by Texas Brine. We have since been added as a direct and third-party defendant by other parties, including a direct claim by the state of Louisiana. Damage categories encompassed within the litigation include individual plaintiffs' claims for property damage, a claim by the state of Louisiana for response costs and civil penalties, claims by Texas Brine for response costs and lost profits, claims for physical damages to nearby oil and gas pipelines and storage facilities (pipelines), and business interruption claims.

In addition to the plaintiffs' claims, we were also sued for contractual indemnity and comparative fault by both Texas Brine and Occidental. It is alleged that the sinkhole was caused, in whole or in part, by our negligent actions or failure to act. It is also alleged that we breached the salt lease with Occidental, as well as an operating agreement and related contracts with Texas Brine; that we were strictly liable for certain property damages in our capacity as a former lessee of the salt lease; and that we violated certain covenants and conditions in the agreement under which we sold our Chemicals Division to Occidental. We likewise made claims for contractual indemnity and on a basis of comparative fault against Texas Brine and Occidental. Vulcan and Occidental have since dismissed all of their claims against one another. Texas Brine has claims that remain pending against Vulcan and against Occidental.

A bench trial (judge only) began in September 2017 and ended in October 2017 in the pipeline cases. The trial was limited in scope to the allocation of comparative fault or liability for causing the sinkhole, with a damages phase of the trial to be held at a later date. In December 2017, the judge issued a ruling on the allocation of fault among the three defendants as follows: Occidental 50%, Texas Brine 35% and Vulcan 15%. This ruling has been appealed by the parties.

We have settled all except two outstanding cases, and our insurers to date have funded these settlements in excess of our self-insured retention amount. The remaining cases involve Texas Brine and the State of Louisiana. Discovery remains ongoing, and we cannot reasonably estimate a range of liability pertaining to these open cases at this time.

- **NEW YORK WATER DISTRICT CASES (DISCONTINUED OPERATIONS)** — During the operation of our former Chemicals Division, which was divested to Occidental in 2005, Vulcan manufactured a chlorinated solvent known as 1,1,1-trichloroethane. We are a defendant in 27 cases allegedly involving 1,1,1-trichloroethane. All of the cases are filed in the United States District Court for the Eastern District of New York. According to the various complaints, the plaintiffs are public drinking water providers who serve customers in seven New York counties (Nassau, Orange, Putnam, Sullivan, Ulster, Washington and Westchester). It is alleged that our 1,1,1-trichloroethane was stabilized with 1,4-dioxane and that various water wells of the plaintiffs are contaminated with 1,4-dioxane. The plaintiffs are seeking unspecified compensatory and punitive damages. We will vigorously defend the cases. At this time we cannot determine the likelihood or reasonably estimate a range of loss, if any, pertaining to the cases.

- **HEWITT LANDFILL MATTER (SUPERFUND SITE)** — In September 2015, the Los Angeles Regional Water Quality Control Board (RWQCB) issued a Cleanup and Abatement Order (CAO) directing Vulcan to assess, monitor, cleanup and abate wastes that have been discharged to soil, soil vapor, and/or groundwater at the former Hewitt Landfill in Los Angeles. The CAO follows a 2014 Investigative Order from the RWQCB that sought data and a technical evaluation regarding the Hewitt Landfill, and a subsequent amendment to the Investigative Order requiring us to provide groundwater monitoring results to the RWQCB and to create and implement a work plan for further investigation of the Hewitt Landfill. In April 2016, we submitted an interim remedial action plan (IRAP) to the RWQCB, proposing an on-site pilot test of a pump and treat system; testing and implementation of a leachate recovery system; and storm water capture and conveyance improvements.

Operation of the on-site pilot-scale treatment system began in January 2017 and was completed in April 2017. With completion of the pilot testing and other investigative work, we submitted an amendment to the IRAP (AIRAP) to RWQCB in August 2017 proposing the use of a pump, treat and reinjection system. In December 2017, we submitted an addendum to the AIRAP, incorporating new data acquired since the prior submission. In February 2018, the AIRAP was approved by RWQCB. As a result of this approval, we have begun to implement the on-site source control of activities described in the AIRAP. During the fourth quarter of 2019, we accrued a total of \$3,033,000 for the on-site remedy, bringing the life-to-date expense incurred to \$37,304,000.

We are also engaged in an ongoing dialogue with the EPA, the Los Angeles Department of Water and Power, and other stakeholders regarding the potential contribution of the Hewitt Landfill to groundwater contamination in the North Hollywood Operable Unit (NHO) of the San Fernando Valley Superfund Site. We are gathering and analyzing data and developing technical information to determine the extent of possible contribution by the Hewitt Landfill to the groundwater contamination in the area. This work is also intended to assist in identification of other PRPs that may have contributed to groundwater contamination in the area.

The EPA and Vulcan entered into an AOC and Statement of Work having an effective date of September 2017 for the design of two extraction wells south of the Hewitt Site to protect the North Hollywood West (NHW) well field. In November 2017, we submitted a Pre-Design Investigation (PDI) Work Plan to the EPA, which sets forth the activities and schedule for our evaluation of the need for a two-well remedy. These activities were completed between the first and third quarters of 2018, and in December 2018 we submitted a PDI Evaluation Report to the EPA. The PDI Evaluation Report summarizes data collection activities conducted pursuant to the PDI Work Plan and provides model updates and evaluation of remediation alternatives to protect the NHW and Rinaldi-Toluca well fields from 1,4-dioxane from the Hewitt Site. In May 2019, the EPA provided an initial set of comments on the PDI Evaluation Report but has not yet provided additional, final comments. Vulcan has not yet received final comments from the EPA on the report. Until the EPA's review of the PDI Evaluation Report is complete and an effective remedy can be agreed upon, we cannot identify an appropriate remedial action. Given the various stakeholders involved and the uncertainties relating to issues such as testing, monitoring, and remediation alternatives, we cannot reasonably estimate a loss pertaining to this matter.

- **NAFTA ARBITRATION** — In September 2018, our subsidiary Legacy Vulcan, LLC (Legacy Vulcan), on its own behalf, and on behalf of our Mexican subsidiary Calizas Industriales del Carmen, S.A. de C.V. (Calica), served the United Mexican States (Mexico) a Notice of Intent to Submit a Claim to Arbitration under Chapter 11 of the North American Free Trade Agreement (NAFTA). Our NAFTA claim relates to the treatment of a portion of our quarrying operations in Playa del Carmen (Cancun), Mexico, arising from, among other measures, Mexico's failure to comply with a legally binding zoning agreement and relates to other unfair, arbitrary and capricious actions by Mexico's environmental enforcement agency. We assert that these actions are in breach of Mexico's international obligations under NAFTA and international law.

As required by Article 1118 of NAFTA, we sought to settle this dispute with Mexico through consultations. Notwithstanding our good faith efforts to resolve the dispute amicably, we were unable to do so and filed a Request for Arbitration, which we filed with the International Centre for Settlement of Investment Disputes (ICSID) in December 2018. In January 2019, ICSID registered our Request for Arbitration.

We expect that the NAFTA arbitration will take at least two years to be concluded. At this time, there can be no assurance whether we will be successful in our NAFTA claim, and we cannot quantify the amount we may recover, if any, under this arbitration proceeding if we were successful.

Item 103 of Regulation S-K requires disclosure of certain environmental matters when a governmental authority is a party to the proceedings, or such proceedings are known to be contemplated, unless we reasonably believe that the matter will result in no monetary sanctions, or in monetary sanctions, exclusive of interest and costs, of less than \$100,000. The following matter is disclosed in accordance with that requirement. In June 2019, we received from the EPA a draft administrative order, followed in October 2019 with a proposed penalty of \$193,750, to settle alleged violation of the Clean Water Act noted during a series of EPA inspections conducted in March and May 2017 and May 2018 at one of our aggregates sites. We are negotiating the draft order with the EPA and expect to enter into a settlement. The draft order does not contain requirements for groundwater cleanup or capital expenditure. We do not currently believe that the eventual outcome of such matter could have a material adverse effect on our business, financial condition, results of operations or cash flows.

It is not possible to predict with certainty the ultimate outcome of these and other legal proceedings in which we are involved, and a number of factors, including developments in ongoing discovery or adverse rulings, or the verdict of a particular jury, could cause actual losses to differ materially from accrued costs. No liability was recorded for claims and litigation for which a loss was determined to be only reasonably possible or for which a loss could not be reasonably estimated. Legal costs incurred in defense of lawsuits are expensed as incurred. In addition, losses on certain claims and litigation described above may be subject to limitations on a per occurrence basis by excess insurance, as described in Note 1 under the caption Claims and Litigation Including Self-insurance.

NOTE 13: EQUITY

Our capital stock consists solely of common stock, par value \$1.00 per share, of which 480,000,000 shares may be issued. Holders of our common stock are entitled to one vote per share. We may also issue 5,000,000 shares of preferred stock, but no shares have been issued. The terms and provisions of such shares will be determined by our Board of Directors upon any issuance of preferred shares in accordance with our Certificate of Incorporation.

There were no shares held in treasury as of December 31, 2019, 2018 and 2017.

Our common stock purchases (all of which were open market purchases) and subsequent retirements for the years ended December 31 are summarized below:

<i>in thousands, except average cost</i>	2019	2018	2017
Shares Purchased and Retired			
Number	19	1,192	510
Total purchase price	\$ 2,602	\$ 133,983	\$ 60,303
Average cost per share	\$ 139.90	\$ 112.41	\$ 118.18

As of December 31, 2019, 8,279,189 shares may be purchased under the current authorization of our Board of Directors.

Dividends for the years ended December 31 were as follows:

<i>in thousands, except per share data</i>	2019	2018	2017
Dividends			
Cash dividends	\$ 163,973	\$ 148,109	\$ 132,335
Cash dividends per share	\$ 1.24	\$ 1.12	\$ 1.00

NOTE 14: OTHER COMPREHENSIVE INCOME

Comprehensive income comprises two subsets: net earnings and other comprehensive income (OCI). The components of other comprehensive income are presented in the accompanying Consolidated Statements of Comprehensive Income and Consolidated Statements of Equity, net of applicable taxes.

Amounts in accumulated other comprehensive income (AOCI), net of tax, at December 31, are as follows:

<i>in thousands</i>	2019	2018	2017
AOCI			
Interest rate hedges	\$ (10,953)	\$ (11,180)	\$ (11,438)
Pension and postretirement plans	(186,785)	(161,035)	(138,028)
Total	\$ (197,738)	\$ (172,215)	\$ (149,466)

Changes in AOCI, net of tax, for the three years ended December 31, 2019 are as follows:

<i>in thousands</i>	Interest Rate Hedges	Pension and Postretirement Benefit Plans	Total
AOCI			
Balances at December 31, 2016	\$ (13,300)	\$ (126,076)	\$ (139,376)
Other comprehensive income (loss) before reclassifications	0	(14,106)	(14,106)
Amounts reclassified from AOCI	1,862	2,154	4,016
Net OCI changes	1,862	(11,952)	(10,090)
Balances at December 31, 2017	\$ (11,438)	\$ (138,028)	\$ (149,466)
Released stranded tax effects ASU 2018-02 (Note 9)	(2,464)	(27,165)	(29,629)
Balances at January 1, 2018, due to reclassification	\$ (13,902)	\$ (165,193)	\$ (179,095)
Other comprehensive income (loss) before reclassifications	2,496	(207)	2,289
Amounts reclassified from AOCI	226	4,365	4,591
Net OCI changes	2,722	4,158	6,880
Balances at December 31, 2018	\$ (11,180)	\$ (161,035)	\$ (172,215)
Other comprehensive income (loss) before reclassifications	0	(26,892)	(26,892)
Amounts reclassified from AOCI	227	1,142	1,369
Net OCI changes	227	(25,750)	(25,523)
Balances at December 31, 2019	\$ (10,953)	\$ (186,785)	\$ (197,738)

Amounts reclassified from AOCI to earnings, are as follows:

<i>in thousands</i>	2019	2018	2017
Amortization of Interest Rate Hedge Losses			
Interest expense	\$ 307	\$ 306	\$ 3,070
Benefit from income taxes	(80)	(80)	(1,208)
Total	\$ 227	\$ 226	\$ 1,862
Amortization of Pension and Postretirement Plan Actuarial Loss and Prior Service Cost			
Other nonoperating expense	\$ 1,545	\$ 5,906	\$ 2,915
Benefit from income taxes	(403)	(1,541)	(761)
Total	\$ 1,142	\$ 4,365	\$ 2,154
Total reclassifications from AOCI to earnings	\$ 1,369	\$ 4,591	\$ 4,016

NOTE 15: SEGMENT REPORTING

We have four operating (and reportable) segments organized around our principal product lines: Aggregates, Asphalt, Concrete and Calcium. Management reviews earnings from these reporting segments principally at the gross profit level.

The Aggregates segment produces and sells aggregates (crushed stone, sand and gravel, sand, and other aggregates) and related products and services. During 2019, the Aggregates segment principally served markets in twenty states, Washington D.C., Mexico and the Bahamas with a full line of aggregates, and eight additional states with railroad ballast. Customers use aggregates primarily in the construction and maintenance of highways, streets and other public works and in the construction of housing and commercial, industrial and other nonresidential facilities. Customers are served by truck, rail and water distribution networks from our production facilities and sales yards. Due to the high weight-to-value ratio of aggregates, markets generally are local in nature. Quarries located on waterways and rail lines allow us to serve remote markets where local aggregates reserves may not be available.

The Asphalt segment produces and sells asphalt mix in six states: Alabama, Arizona, California, New Mexico, Tennessee and Texas, and includes asphalt construction paving in three states: Alabama, Tennessee and Texas. We entered the Alabama and Tennessee asphalt markets in 2018 and 2017, respectively, through acquisitions (see Note 19).

The Concrete segment produces and sells ready-mixed concrete in five states: California, Maryland, New Mexico, Texas and Virginia, in addition to Washington D.C. and an immaterial amount in the Bahamas. In 2018, we exited the Georgia ready-mixed concrete market through a divestiture (see Note 19). In 2017, we reentered the California ready-mixed concrete market through an acquisition and exited the Arizona market through a swap (see Note 19).

The Calcium segment consists of a Florida facility that mines, produces and sells calcium products.

Aggregates comprise approximately 95% of asphalt mix by weight and 80% of ready-mixed concrete by weight. Our Asphalt and Concrete segments are primarily supplied with their aggregates requirements from our Aggregates segment. These intersegment sales are made at local market prices for the particular grade and quality of product used in the production of asphalt mix and ready-mixed concrete. Customers for our Asphalt and Concrete segments are generally served locally at our production facilities or by truck. Because asphalt mix and ready-mixed concrete harden rapidly, delivery is time constrained and generally confined to a radius of approximately 20 to 25 miles from the producing facility.

The vast majority of our activities are domestic. We sell a relatively small amount of construction aggregates outside the United States. Total domestic revenues were \$4,912,972,000 in 2019, \$4,365,309,000 in 2018 and \$3,872,494,000 in 2017. Nondomestic Aggregates segment revenues were \$16,131,000 in 2019, \$17,560,000 in 2018 and \$17,802,000 in 2017; there were no significant nondomestic revenues in our Asphalt, Concrete or Calcium segments. Long-lived assets outside the United States, which consist primarily of property, plant & equipment, were \$274,439,000 in 2019, \$278,520,000 in 2018 and \$211,282,000 in 2017. Equity method investments of \$50,587,000 in 2019, \$39,395,000 in 2018 and \$22,967,000 in 2017 are included below in the identifiable assets for the Aggregates segment and in investments and long-term receivables on the accompanying Consolidated Balance Sheets.

SEGMENT FINANCIAL DISCLOSURE

<i>in thousands</i>	2019	2018	2017
Total Revenues			
Aggregates ¹	\$ 3,990,275	\$ 3,513,649	\$ 3,096,094
Asphalt ²	855,821	733,182	622,074
Concrete	395,627	401,999	417,745
Calcium	8,191	8,110	7,740
Segment sales	\$ 5,249,914	\$ 4,656,940	\$ 4,143,653
Aggregates intersegment sales	(320,811)	(274,071)	(253,357)
Total revenues	\$ 4,929,103	\$ 4,382,869	\$ 3,890,296
Gross Profit			
Aggregates	\$ 1,146,649	\$ 991,858	\$ 854,524
Asphalt	63,023	56,480	91,313
Concrete	43,151	49,893	45,201
Calcium	3,078	2,714	2,475
Total	\$ 1,255,901	\$ 1,100,945	\$ 993,513
Depreciation, Depletion, Accretion and Amortization (DDA&A)			
Aggregates	\$ 305,046	\$ 281,641	\$ 245,151
Asphalt	35,199	31,290	25,400
Concrete	13,620	12,539	13,822
Calcium	232	272	677
Other	20,499	20,504	20,915
Total	\$ 374,596	\$ 346,246	\$ 305,965
Capital Expenditures ³			
Aggregates	\$ 383,406	\$ 422,175	\$ 421,989
Asphalt	9,095	38,154	12,970
Concrete	11,641	12,291	25,176
Calcium	31	22	78
Corporate	175	2,587	4,020
Total	\$ 404,348	\$ 475,229	\$ 464,233
Identifiable Assets ⁴			
Aggregates	\$ 9,334,218	\$ 8,887,749	\$ 8,409,505
Asphalt	558,386	527,226	426,575
Concrete	325,102	266,581	271,818
Calcium	3,653	3,942	4,428
Total identifiable assets	\$ 10,221,359	\$ 9,685,498	\$ 9,112,326
General corporate assets	152,928	102,228	245,919
Cash and cash equivalents and restricted cash	274,506	44,404	146,646
Total assets	\$ 10,648,793	\$ 9,832,130	\$ 9,504,891

¹ Includes product sales, as well as freight & delivery costs that we pass along to our customers, and service revenues (see Note 2) related to aggregates.

² Includes product sales, as well as service revenues (see Note 2) from our asphalt construction paving business.

³ Capital expenditures include capitalized replacements of and additions to property, plant & equipment, including renewals and betterments. Capital expenditures exclude property, plant & equipment obtained by business acquisitions.

⁴ Certain temporarily idled assets are included within a segment's Identifiable Assets but the associated DDA&A is shown within Other in the DDA&A section above as the related DDA&A is excluded from segment gross profit.

NOTE 16: SUPPLEMENTAL CASH FLOW INFORMATION

Supplemental information referable to the Consolidated Statements of Cash Flows is summarized below:

<i>in thousands</i>	2019	2018	2017
Cash Payments (Refunds)			
Interest (exclusive of amount capitalized)	\$ 129,224	\$ 128,217	\$ 285,801
Income taxes	56,812	(65,968)	125,135
Noncash Investing and Financing Activities			
Accrued liabilities for purchases of property, plant & equipment	\$ 57,309	\$ 37,116	\$ 31,267
Recognition of new asset retirement obligations	263	20	1,920
Right-of-use assets obtained in exchange for new operating lease liabilities ¹	444,547	0	0
Amounts referable to business acquisitions			
Liabilities assumed	4,373	5,405	3,876
Consideration payable to seller	0	4,500	9,681
Fair value of noncash assets and liabilities exchanged	0	0	9,900

¹ The 2019 amount includes the initial right-of-use assets resulting from our adoption of ASU 2016-02, "Leases," as described in Note 1 under the captions Leases and New Accounting Standards.

NOTE 17: ASSET RETIREMENT OBLIGATIONS

Asset retirement obligations (AROs) are legal obligations associated with the retirement of long-lived assets resulting from the acquisition, construction, development and/or normal use of the underlying assets. Recognition of a liability for an ARO is required in the period in which it is incurred at its estimated fair value. The associated asset retirement costs are capitalized as part of the carrying amount of the underlying asset and depreciated over the estimated useful life of the asset. The liability is accreted through charges to operating expenses. If the ARO is settled for an amount other than the carrying amount of the liability, we recognize a gain or loss on settlement.

We record all AROs for which we have legal obligations for land reclamation at estimated fair value. These AROs relate to our underlying land parcels, including both owned properties and mineral leases. For the years ended December 31, we recognized ARO operating costs related to accretion of the liabilities and depreciation of the assets as follows:

<i>in thousands</i>	2019	2018	2017
ARO Operating Costs			
Accretion	\$ 10,992	\$ 10,776	\$ 11,415
Depreciation	7,075	6,034	6,302
Total	\$ 18,067	\$ 16,810	\$ 17,717

ARO operating costs are reported in cost of revenues. AROs are reported within other noncurrent liabilities in our accompanying Consolidated Balance Sheets.

Reconciliations of the carrying amounts of our AROs for the years ended December 31 are as follows:

<i>in thousands</i>	2019	2018
Asset Retirement Obligations		
Balance at beginning of year	\$ 225,726	\$ 218,117
Liabilities incurred	263	20
Liabilities settled	(12,457)	(13,558)
Accretion expense	10,992	10,776
Revisions, net	(14,201)	10,371
Balance at end of year	\$ 210,323	\$ 225,726

ARO liabilities settled during 2019 and 2018 include \$3,354,000 and \$6,934,000, respectively, of reclamation activities required under a development agreement and conditional use permits at two adjacent aggregates sites on owned property in Southern California. The reclamation required under the development agreement will result in the restoration of 90 acres of previously mined property to conditions suitable for commercial and retail development.

NOTE 18: GOODWILL AND INTANGIBLE ASSETS

Acquired identifiable intangible assets are classified into three categories: (1) goodwill, (2) intangible assets with finite lives subject to amortization and (3) intangible assets with indefinite lives. Goodwill and intangible assets with indefinite lives are not amortized; rather, they are reviewed for impairment at least annually. For additional information about our policies on impairment reviews, see Note 1 under the captions Goodwill Impairment and Impairment of Long-lived Assets excluding Goodwill.

GOODWILL

Goodwill is recognized when the consideration paid for a business exceeds the fair value of the tangible and identifiable intangible assets acquired. Goodwill is allocated to reporting units for purposes of testing goodwill for impairment. There were no charges for goodwill impairment in the years ended December 31, 2019, 2018 and 2017. Accumulated goodwill impairment losses amount to \$252,664,000 in the Calcium segment.

We have four reportable segments organized around our principal product lines: Aggregates, Asphalt, Concrete and Calcium. Changes in the carrying amount of goodwill by reportable segment for the three years ended December 31, 2019 are as follows:

<i>in thousands</i>	<i>Aggregates</i>	<i>Asphalt</i>	<i>Concrete</i>	<i>Calcium</i>	<i>Total</i>
Goodwill					
Totals at December 31, 2017	\$ 3,030,688	\$ 91,633	\$ 0	\$ 0	\$ 3,122,321
Goodwill of acquired businesses ¹	43,075	0	0	0	43,075
Totals at December 31, 2018	\$ 3,073,763	\$ 91,633	\$ 0	\$ 0	\$ 3,165,396
Goodwill of acquired businesses ¹	1,665	0	0	0	1,665
Totals at December 31, 2019	\$ 3,075,428	\$ 91,633	\$ 0	\$ 0	\$ 3,167,061

¹ See Note 19 for a summary of recent acquisitions.

We test goodwill for impairment on an annual basis or more frequently if events or circumstances change in a manner that would more likely than not reduce the fair value of a reporting unit below its carrying value. A decrease in the estimated fair value of one or more of our reporting units could result in the recognition of a material, noncash write-down of goodwill.

INTANGIBLE ASSETS

Intangible assets acquired in business combinations are stated at their fair value determined as of the date of acquisition. Costs incurred to renew or extend the life of existing intangible assets are capitalized. These capitalized renewal/extension costs were immaterial for the years presented. Intangible assets consist of contractual rights in place (primarily permitting and zoning rights), noncompetition agreements, customer relationships and trade names and trademarks. Intangible assets acquired individually or otherwise obtained outside a business combination consist primarily of permitting, permitting compliance and zoning rights and are stated at their historical cost less accumulated amortization.

See Note 19 for the details of the intangible assets acquired in business acquisitions during 2019, 2018 and 2017. Amortization of finite-lived intangible assets is computed based on the estimated life of the intangible assets. Contractual rights in place associated with aggregates reserves are amortized using the unit-of-sales method based on estimated recoverable units. Other intangible assets are amortized principally by the straight-line method. Intangible assets are reviewed for impairment when events or circumstances indicate that the carrying amount may not be recoverable. There were no charges for impairment of intangible assets in 2019, 2018 and 2017.

The gross carrying amount and accumulated amortization by major intangible asset class for the years ended December 31 are summarized below:

<i>in thousands</i>	2019	2018
Gross Carrying Amount		
Contractual rights in place	\$ 1,132,958	\$ 1,107,838
Noncompetition agreements	7,667	7,667
Permitting, permitting compliance and zoning rights	136,646	126,538
Other ¹	11,951	13,996
Total gross carrying amount	\$ 1,289,222	\$ 1,256,039
Accumulated Amortization		
Contractual rights in place	\$ (155,555)	\$ (122,100)
Noncompetition agreements	(6,126)	(4,212)
Permitting, permitting compliance and zoning rights	(30,545)	(27,464)
Other ¹	(5,521)	(6,885)
Total accumulated amortization	\$ (197,747)	\$ (160,661)
Total Intangible Assets Subject to Amortization, net	\$ 1,091,475	\$ 1,095,378
Intangible Assets with Indefinite Lives	0	0
Total Intangible Assets, net	\$ 1,091,475	\$ 1,095,378
Amortization Expense for the Year	\$ 40,541	\$ 34,924

¹ Includes customer relationships, tradenames and trademarks and for 2018, favorable leases (in 2019, favorable leases were reclassified as lease right-of-use assets).

Estimated amortization expense for the five years subsequent to December 31, 2019 is as follows:

<i>in thousands</i>	
Estimated Amortization Expense for Five Subsequent Years	
2020	\$ 36,341
2021	35,451
2022	33,047
2023	32,110
2024	30,491

NOTE 19: ACQUISITIONS AND DIVESTITURES

BUSINESS ACQUISITIONS

2019 BUSINESS ACQUISITIONS — During 2019, we purchased the following operations for total cash consideration of \$45,273,000:

- Tennessee — aggregates operations
- Virginia — ready-mixed concrete operations

The 2019 acquisitions listed above are reported in our consolidated financial statements as of their respective acquisition dates. None of these acquisitions are material to our results of operations or financial position either individually or collectively. Purchase price allocations have not been finalized due to pending appraisals for intangible assets and property, plant & equipment.

As a result of the 2019 acquisitions, we recognized \$25,443,000 of amortizable intangible assets (contractual rights in place). The contractual rights in place will be amortized against earnings on a straight-line basis over a weighted-average 19.5 years and will be deductible for income tax purposes over 15 years.

2018 BUSINESS ACQUISITIONS — During 2018, we purchased the following operations for total consideration of \$219,863,000 (\$215,363,000 cash and \$4,500,000 payable):

- Alabama — aggregates, asphalt mix and construction paving operations
- California — aggregates and asphalt mix operations
- Texas — aggregates rail yards, asphalt mix and construction paving operations

The 2018 acquisitions listed above are reported in our consolidated financial statements as of their respective acquisition dates. None of these acquisitions are material to our results of operations or financial position either individually or collectively. The fair value of consideration transferred for these business acquisitions and the preliminary amounts assigned as of December 31, 2018 (immaterial adjustments were recorded in 2019 including a working capital adjustment in which we received \$1,122,000 and an increase to goodwill of \$1,665,000) to assets acquired and liabilities assumed, are summarized below:

<i>in thousands</i>	<i>2018</i>
Fair Value of Purchase Consideration	
Cash	\$ 215,363
Payable to seller	4,500
Total fair value of purchase consideration	\$ 219,863
Identifiable Assets Acquired and Liabilities Assumed	
Accounts and notes receivable, net	\$ 15,402
Inventories	11,874
Other current assets	661
Property, plant & equipment	150,274
Other intangible assets	
Contractual rights in place	44,163
Deferred income taxes, net	(32,871)
Liabilities assumed	(11,965)
Net identifiable assets acquired	\$ 177,538
Goodwill	\$ 42,325

As a result of the 2018 acquisitions, we recognized \$44,163,000 of amortizable intangible assets (contractual rights in place). The contractual rights in place will be amortized against earnings (\$43,072,000 - straight-line over a weighted-average 19.9 years and \$1,080,000 - units of sales in excess of 30.0 years) and \$7,385,000 will be deductible for income tax purposes over 15 years. Of the \$43,990,000 of goodwill recognized, \$4,863,000 will be deductible for income tax purposes over 15 years, and \$31,721,000 represents the balance of deferred tax liabilities generated from carrying over the seller's tax basis in the assets acquired.

2017 BUSINESS ACQUISITIONS — During 2017, we purchased the following operations related to material business acquisitions for total consideration of \$793,523,000 (excluding the assets immediately divested in the December 2017 Aggregates USA acquisition for \$287,292,000):

- California — aggregates and ready-mixed concrete operations
- Florida — aggregates operations
- Georgia — aggregates operations
- South Carolina — aggregates operations
- Tennessee — asphalt mix and construction paving operations

The amounts of total revenues and net earnings for the material business acquisitions noted above are included in our Consolidated Statement of Comprehensive Income for the year ended December 31, 2017, as follows:

<i>in thousands</i>	<i>2017</i>
Actual Results	
Total revenues	\$ 162,462
Net earnings	11,830

The unaudited pro forma financial information in the table below summarizes the results of operations for Vulcan and these material business acquisitions as if they were combined as of January 1, 2016. The 2016 financial information does not reflect any cost savings, operating efficiencies or synergies as a result of these combinations. Transactions between Vulcan and these businesses during the periods presented in the pro forma financial information were immaterial and have been eliminated as if the companies were consolidated affiliates during the following periods:

<i>in thousands</i>	<i>2017</i>	<i>2016</i>
Supplemental Pro Forma Results		
Total revenues	\$ 4,015,891	\$ 3,882,257
Net earnings	610,494	433,431

The unaudited pro forma results above may not be indicative of the results that would have been obtained had these acquisitions occurred at the beginning of 2016, nor does it intend to be a projection of future results.

Additionally, during 2017 we acquired the following operations related to immaterial business acquisitions for \$48,490,000 of consideration (\$36,746,000 cash, \$1,844,000 payable and \$9,900,000 of fair value of assets swapped):

- Arizona — asphalt mix operations
- Illinois — aggregates operations
- New Mexico — aggregates operations
- Tennessee — aggregates operations
- Virginia — aggregates and ready-mixed concrete operations

As a collective result of the 2017 acquisitions, we recognized \$309,112,000 of amortizable intangible assets (primarily contractual rights in place). The contractual rights in place will be amortized against earnings (\$73,879,000 - straight-line over a weighted-average 19.3 years and \$235,133,000 - units of sales over an estimated 54.7 years) and deductible for income tax purposes over 15 years. Of the \$28,247,000 of goodwill recognized, all will be deductible for income tax purposes over 15 years.

DIVESTITURES AND PENDING DIVESTITURES

In 2019, we sold:

- First quarter — two aggregates operations in Georgia and reversed a contingent payable related to the fourth quarter 2017 Department of Justice required divestiture of former Aggregates USA operations, resulting in a pretax gain of \$4,064,000

In 2018, we sold:

- First quarter — ready-mixed concrete operations in Georgia resulting in a pretax gain of \$2,929,000 (we retained all real property which is leased to the buyer, and obtained a long-term aggregates supply agreement)

In 2017, we sold:

- Fourth quarter — swapped ready-mixed concrete operations in Arizona (fair value of \$9,900,000 and book value of \$1,879,000) for asphalt mix operations in Arizona resulting in a pretax gain of \$8,021,000
- Fourth quarter — as required by the Department of Justice, we immediately divested certain assets obtained in the Aggregates USA acquisition resulting in no gain

No assets met the criteria for held for sale at December 31, 2019, 2018 or 2017.

NOTE 20: UNAUDITED SUPPLEMENTARY DATA

The following is a summary of selected quarterly financial information (unaudited) for each of the years ended December 31, 2019 and 2018:

<i>in thousands, except per share data</i>	2019			
	<i>Three Months Ended</i>			
	<i>March 31</i>	<i>June 30</i>	<i>Sept 30</i>	<i>Dec 31</i>
Total revenues	\$ 996,511	\$ 1,327,682	\$ 1,418,758	\$ 1,186,152
Gross profit	191,675	370,502	400,643	293,081
Operating earnings	104,433	276,074	303,376	193,575
Earnings from continuing operations	63,935	197,907	218,066	142,595
Net earnings	63,299	197,558	215,713	141,092
Basic earnings per share from continuing operations	\$ 0.48	\$ 1.50	\$ 1.65	\$ 1.08
Diluted earnings per share from continuing operations	\$ 0.48	\$ 1.48	\$ 1.63	\$ 1.07
Basic net earnings per share	\$ 0.48	\$ 1.49	\$ 1.63	\$ 1.07
Diluted net earnings per share	\$ 0.48	\$ 1.48	\$ 1.62	\$ 1.06

<i>in thousands, except per share data</i>	2018			
	<i>Three Months Ended</i>			
	<i>March 31</i>	<i>June 30</i>	<i>Sept 30</i>	<i>Dec 31</i>
Total revenues	\$ 854,474	\$ 1,200,151	\$ 1,240,197	\$ 1,088,047
Gross profit	159,334	323,184	343,142	275,285
Operating earnings	81,195	230,843	249,184	186,491
Earnings from continuing operations	53,395	160,302	179,864	124,280
Net earnings	52,979	159,652	179,151	124,023
Basic earnings per share from continuing operations	\$ 0.40	\$ 1.21	\$ 1.36	\$ 0.94
Diluted earnings per share from continuing operations	\$ 0.40	\$ 1.20	\$ 1.34	\$ 0.93
Basic net earnings per share	\$ 0.40	\$ 1.21	\$ 1.35	\$ 0.94
Diluted net earnings per share	\$ 0.39	\$ 1.19	\$ 1.34	\$ 0.93

None.

DISCLOSURE CONTROLS AND PROCEDURES

We maintain a system of controls and procedures designed to ensure that information required to be disclosed in reports we file with the SEC is recorded, processed, summarized and reported within the time periods specified by the SEC's rules and forms. These disclosure controls and procedures (as defined in the Securities Exchange Act of 1934 Rules 13a - 15(e) or 15d - 15(e)), include, without limitation, controls and procedures designed to ensure that such information is accumulated and communicated to our management, including our Chief Executive Officer and Chief Financial Officer, to allow timely decisions regarding required disclosure. Our Chief Executive Officer and Chief Financial Officer, with the participation of other management officials, evaluated the effectiveness of the design and operation of the disclosure controls and procedures as of December 31, 2019. Based upon that evaluation, our Chief Executive Officer and Chief Financial Officer concluded that our disclosure controls and procedures were effective as of December 31, 2019.

No material changes were made during the fourth quarter of 2019 to our internal control over financial reporting, nor have there been other factors that materially affect these controls.

MANAGEMENT'S REPORT ON INTERNAL CONTROL OVER FINANCIAL REPORTING

Our management is responsible for establishing and maintaining an adequate system of internal control over financial reporting as required by the Sarbanes-Oxley Act of 2002 and as defined in Securities Exchange Act Rule 13a-15(f).

Under management's supervision, an evaluation of the design and effectiveness of our internal control over financial reporting was conducted based on the framework in *Internal Control — Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission. Based on this evaluation, management concluded that our internal control over financial reporting was effective as of December 31, 2019.

Deloitte & Touche LLP, an independent registered public accounting firm, as auditors of our consolidated financial statements, has issued an attestation report on the effectiveness of our internal control over financial reporting as of December 31, 2019. Deloitte & Touche LLP's report, which expresses an unqualified opinion on the effectiveness of our internal control over financial reporting, follows this report.

LIMITATIONS OF EFFECTIVENESS OF CONTROLS AND PROCEDURES

In designing and evaluating our disclosure controls and procedures, management recognizes that any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving the desired control objectives. In addition, the design of disclosure controls and procedures must reflect the fact that there are resource constraints and that management is required to apply its judgment in evaluating the benefits of possible controls and procedures relative to their costs.

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM – INTERNAL CONTROL OVER FINANCIAL REPORTING

To the shareholders and Board of Directors of Vulcan Materials Company:

Opinion on Internal Control over Financial Reporting

We have audited the internal control over financial reporting of Vulcan Materials Company and subsidiaries (the “Company”) as of December 31, 2019, based on criteria established in *Internal Control — Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). In our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2019, based on criteria established in *Internal Control — Integrated Framework (2013)* issued by COSO.

We have also audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the consolidated financial statements as of and for the year ended December 31, 2019, of the Company and our report dated February 26, 2020, expressed an unqualified opinion on those financial statements.

Basis for Opinion

The Company’s management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying Management’s Report on Internal Control over Financial Reporting. Our responsibility is to express an opinion on the Company’s internal control over financial reporting based on our audit. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects. Our audit included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, testing and evaluating the design and operating effectiveness of internal control based on the assessed risk, and performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

Definition and Limitations of Internal Control over Financial Reporting

A company’s internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company’s internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company’s assets that could have a material effect on the financial statements.

Because of the inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of the effectiveness to future periods are subject to the risk that the controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

/s/ DELOITTE & TOUCHE LLP

Birmingham, Alabama

February 26, 2020

None.

PART III

ITEM 10

DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE

On or about March 23, 2020, we expect to file a definitive proxy statement with the Securities and Exchange Commission pursuant to Regulation 14A (our “2020 Proxy Statement”). The information under the headings “Proposal 1 - Election of Directors,” “Corporate Governance – Policies,” “Corporate Governance – Director Nomination Process,” “Corporate Governance – Committees of the Board of Directors” and “Delinquent Section 16(a) Reports” (to the extent reported therein) included in our 2020 Proxy Statement is incorporated herein by reference. See also the information about our executive officers and governance policies set forth above in Part I of this report.

ITEM 11

EXECUTIVE COMPENSATION

The information under the headings “Compensation Discussion and Analysis,” “Director Compensation,” “Executive Compensation,” “Corporate Governance – Compensation Committee Interlocks and Insider Participation,” and “Compensation Committee Report” included in our 2020 Proxy Statement is incorporated herein by reference.

ITEM 12

SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT AND RELATED STOCKHOLDER MATTERS

The information under the headings “Security Ownership of Certain Beneficial Owners and Management,” and “Equity Compensation Plans” included in our 2020 Proxy Statement is incorporated herein by reference.

ITEM 13

CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS, AND DIRECTOR INDEPENDENCE

The information under the headings “Corporate Governance – Director Independence,” and “Corporate Governance – Transactions with Related Persons” included in our 2020 Proxy Statement is incorporated herein by reference.

ITEM 14

PRINCIPAL ACCOUNTING FEES AND SERVICES

The information under the heading “Independent Registered Public Accounting Firm” included in our 2020 Proxy Statement is incorporated herein by reference.

PART IV

ITEM 15

EXHIBITS AND FINANCIAL STATEMENT SCHEDULES

(a) (1) Financial statements

The following financial statements are included herein on the pages shown below:

	<i>Page in Report</i>
Report of Independent Registered Public Accounting Firm	64 - 65
Consolidated Statements of Comprehensive Income	66
Consolidated Balance Sheets	67
Consolidated Statements of Cash Flows	68
Consolidated Statements of Equity	69
Notes to Consolidated Financial Statements	70 -118

(a) (2) Financial statement schedules

Financial statement schedules are omitted because of the absence of conditions under which they are required or because the required information is provided in the financial statements or notes thereto.

Financial statements (and summarized financial information) of 50% or less owned entities accounted for by the equity method have been omitted because they do not, considered individually or in the aggregate, constitute a significant subsidiary.

(a) (3) Exhibits

Exhibit 2	<u>Membership Interest Purchase Agreement, dated as of May 24, 2017, by and among Vulcan Construction Materials, LLC, Aggregates USA Holdings Sub, LLC, Aggregates USA, LLC, solely for limited purposes, SPO Partners II, L.P., and, solely for limited purposes, Vulcan Materials Company, filed as Exhibit 2.1 to the Company's Current Report on Form 8-K filed on May 25, 2017</u> ^{1,3}
Exhibit 3(a)	<u>Certificate of Incorporation (Restated 2007) of the Company (formerly known as Virginia Holdco, Inc.), filed as Exhibit 3.1 to the Company's Current Report on Form 8-K on November 16, 2007</u> ¹
Exhibit 3(b)	<u>Amended and Restated By-Laws of the Company (as amended through February 14, 2020) filed as Exhibit 3.1 to the Company's Current Report on Form 8-K filed on February 19, 2020</u> ¹
Exhibit 4(a)	<u>Senior Debt Indenture, dated as of December 11, 2007, between the Company and Wilmington Trust Company, as Trustee, filed as Exhibit 4.1 to the Company's Current Report on Form 8-K on December 11, 2007</u> ¹
Exhibit 4(b)	<u>First Supplemental Indenture, dated as of December 11, 2007, between Vulcan Materials Company and Wilmington Trust Company, as Trustee, to that certain Senior Debt Indenture, dated as of December 11, 2007, between the Company and Wilmington Trust Company, as Trustee, filed as Exhibit 4.2 to the Company's Current Report on Form 8-K on December 11, 2007</u> ¹

- Exhibit 4(c) Second Supplemental Indenture, dated June 20, 2008 between the Company and Wilmington Trust Company, as Trustee, to that certain Senior Debt Indenture dated as of December 11, 2007, filed as Exhibit 4.1 to the Company's Current Report on Form 8-K filed on June 20, 2008¹
- Exhibit 4(d) Third Supplemental Indenture, dated February 3, 2009, between the Company and Wilmington Trust Company, as Trustee, to that certain Senior Debt Indenture dated as of December 11, 2007, filed as Exhibit 10(f) to the Company's Annual Report on Form 10-K filed on March 2, 2009¹
- Exhibit 4(e) Fourth Supplemental Indenture, dated June 14, 2011, between the Company and Wilmington Trust Company, as Trustee, filed as Exhibit 4.1 to the Company's Current Report on Form 8-K filed on June 15, 2011¹
- Exhibit 4(f) Fifth Supplemental Indenture, dated March 30, 2015, between the Company and Regions Bank, as Trustee, filed as Exhibit 4.1 to the Company's Current Report on Form 8-K filed on March 30, 2015¹
- Exhibit 4(g) Sixth Supplemental Indenture, dated March 14, 2017, between the Company and Regions Bank, as Trustee, filed as Exhibit 4.1 to the Company's Current Report on Form 8-K filed on March 14, 2017¹
- Exhibit 4(h) Seventh Supplemental Indenture, dated as of June 15, 2017, between Vulcan Materials Company and Regions Bank, as Trustee, filed as Exhibit 4.1 to the Company's Current Report on Form 8-K filed on June 15, 2017¹
- Exhibit 4(i) Indenture, dated as of May 1, 1991, by and between Legacy Vulcan Corp. (formerly Vulcan Materials Company) and First Trust of New York (as successor trustee to Morgan Guaranty Trust Company of New York) filed as Exhibit 4 to the Form S-3 on May 2, 1991 (Registration No. 33-40284)¹
- Exhibit 4(j) Supplemental Indenture No. 1, dated as of November 16, 2007, among the Company, Legacy Vulcan Corp. and The Bank of New York, as Trustee, filed as Exhibit 4.1 to the Company's Current Report on Form 8-K filed on November 21, 2007¹
- Exhibit 4(k) Supplemental Indenture No. 2, dated as of June 30, 2015, between Legacy Vulcan, LLC and The Bank of New York Mellon Trust Company, N.A., as Trustee, filed as Exhibit 4(a) to the Company's Quarterly Report on Form 10-Q filed on August 5, 2015¹
- Exhibit 4(l) Term Loan Note, dated December 17, 2017, between Vulcan Materials Company and Bank of America, N.A., filed as Exhibit 10.1 to the Company's Current Report on Form 8-K filed on December 21, 2017¹
- Exhibit 4(m) Guaranty Agreement, dated December 21, 2017, by each of the parties identified therein as Guarantors, each other subsidiary of Vulcan Materials Company that becomes a party thereto, and Bank of America, N.A., filed as Exhibit 10.2 to the Company's Current Report on Form 8-K filed on December 21, 2017¹
- Exhibit 4(n) Eighth Supplemental Indenture, dated as of February 23, 2018, between Vulcan Materials Company and Regions Bank, as Trustee, filed as Exhibit 4.1 to the Company's Current Report on Form 8-K filed on February 23, 2018¹
- Exhibit 4(o) Indenture, dated as of February 23, 2018, between Vulcan Materials Company and Regions Bank, as Trustee, filed as Exhibit 4.1 to the Company's Current Report on Form 8-K filed on February 26, 2018¹
- Exhibit 4(p) Registration Rights Agreement, dated as of February 23, 2018, between Vulcan Materials Company and Goldman Sachs & Co. LLC, U.S. Bancorp Investments, Inc. and Wells Fargo Securities, LLC, filed as Exhibit 4.2 to the Company's Current Report on Form 8-K filed on February 26, 2018¹

- Exhibit 4(q) [First Amendment to Credit Agreement dated as of August 16, 2019, among Vulcan Materials Company and SunTrust Bank as Administrative Agent, and other parties named therein, filed as Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q filed on November 7, 2019](#)¹
- Exhibit 4(r) [Description of Securities](#)
- Exhibit 10(a) [Credit Agreement dated as of June 19, 2015 among the Company and SunTrust Bank as Administrative Agent, and other parties named therein filed as Exhibit 10.1 to the Company's Current Report on Form 8-K filed on June 25, 2015](#)¹
- Exhibit 10(b) [Credit Agreement dated as of December 21, 2016 among the Company and SunTrust Bank, as Administrative Agent, and the Lenders and other parties named therein filed as Exhibit 10.1 to the Company's Current Report on Form 8-K filed on December 22, 2016](#)¹
- Exhibit 10(c) [Unfunded Supplemental Benefit Plan for Salaried Employees, as amended, filed as Exhibit 10.4 to the Company's Current Report on Form 8-K filed on December 17, 2008](#)^{1,2}
- Exhibit 10(d) [Amendment No. 1 to the Unfunded Supplemental Benefit Plan for Salaried Employees filed as Exhibit 10.1 to the Company's Current Report on Form 8-K on January 7, 2014](#)^{1,2}
- Exhibit 10(e) [Deferred Compensation Plan for Directors Who Are Not Employees of the Company, as amended, filed as Exhibit 10.5 to the Company's Current Report on Form 8-K filed on December 17, 2008](#)^{1,2}
- Exhibit 10(f) [The 2006 Omnibus Long-Term Incentive Plan of the Company filed as Appendix C to Legacy Vulcan Corp.'s 2006 Proxy Statement on Schedule 14A filed on April 13, 2006](#)^{1,2}
- Exhibit 10(g) [Amendment to the 2006 Omnibus Long-Term Incentive Plan of the Company filed as Appendix A to the Company's 2011 Proxy Statement on Schedule 14A filed March 31, 2011](#)^{1,2}
- Exhibit 10(h) [Amendment to the 2006 Omnibus Long-Term Incentive Plan of the Company dated February 9, 2012, filed as Exhibit 10\(l\) to the Company's Annual Report on Form 10-K for the year ended December 31, 2011 filed on February 29, 2012](#)^{1,2}
- Exhibit 10(i) [Restricted Stock Plan for Nonemployee Directors of the Company, as amended, filed as Exhibit 10.6 to the Company's Current Report on Form 8-K filed on December 17, 2008](#)^{1,2}
- Exhibit 10(j) [Executive Deferred Compensation Plan, as amended, filed as Exhibit 10.1 to the Company's Current Report on Form 8-K filed on December 17, 2008](#)^{1,2}
- Exhibit 10(k) [Form of Change of Control Employment Agreement dated January 1, 2016, filed as Exhibit 10.1 to the Company's Current Report on Form 8-K filed on January 7, 2016](#)^{1,2}
- Exhibit 10(l) [Vulcan Materials Company Change of Control Severance Plan for Senior Officers, effective January 1, 2016, filed as Exhibit 10\(m\) to the Company's Annual Report on Form 10-K filed on February 25, 2016](#)^{1,2}
- Exhibit 10(m) [Executive Incentive Plan of the Company, as amended, filed as Exhibit 10.2 to the Company's Current Report on Form 8-K filed on December 17, 2008](#)^{1,2}
- Exhibit 10(n) [Supplemental Executive Retirement Agreement filed as Exhibit 10 to Legacy Vulcan Corp.'s Quarterly Report on Form 10-Q for the quarter ended September 30, 2001 filed on November 2, 2001](#)^{1,2}
- Exhibit 10(o) [Form of Stock Option Agreement filed as Exhibit 10\(o\) to Legacy Vulcan Corp.'s Report on Form 8-K filed on December 20, 2005](#)^{1,2}
- Exhibit 10(p) [Form of Director Deferred Stock Unit Agreement filed as Exhibit 10.9 to the Company's Current Report on Form 8-K filed on December 17, 2008](#)^{1,2}
- Exhibit 10(q) [Form of Performance Share Unit Agreement filed as Exhibit 10.1 to the Company's Current Report on Form 8-K filed on March 11, 2010](#)^{1,2}

Exhibit 10(r)	<u>Form of Performance Share Unit Agreement (2012) filed as Exhibit 10.1 to the Company's Current Report on Form 8-K filed on February 14, 2012</u> ^{1,2}
Exhibit 10(s)	<u>Form of Stock-Only Stock Appreciation Rights Agreement filed as Exhibit 10(q) to Legacy Vulcan Corp.'s Report on Form 10-K filed on February 26, 2007</u> ^{1,2}
Exhibit 10(t)	<u>Stock-Only Stock Appreciation Rights Agreement between the Company and John R. McPherson dated November 9, 2011, filed as Exhibit 10(a) to the Company's Current Report on Form 8-K filed on November 15, 2011</u> ^{1,2}
Exhibit 10(u)	<u>Form of Employee Deferred Stock Unit Amended Agreement filed as Exhibit 10.7 to the Company's Current Report on Form 8-K filed on December 17, 2008</u> ^{1,2}
Exhibit 10(v)	<u>Vulcan Materials Company 2016 Omnibus Long-Term Incentive Plan, filed as Exhibit 99 to the Company's Registration Statement on Form S-8 (File No. 333-211349) filed on May 13, 2016</u> ^{1,2}
Exhibit 10(w)	<u>Form of Non-Employee Director Deferred Stock Unit Agreement under the Vulcan Materials Company 2016 Omnibus Long-Term Incentive Plan, filed as Exhibit 10(y) to the Company's Quarterly Report on Form 10-Q filed on August 3, 2016</u> ^{1,2}
Exhibit 10(x)	<u>Form of Stock-Only Stock Appreciation Rights Award Agreement under the Vulcan Materials Company 2016 Omnibus Long-Term Incentive Plan, filed as Exhibit 10(z) to the Company's Quarterly Report on Form 10-Q filed on August 3, 2016</u> ^{1,2}
Exhibit 10(y)	<u>Form of Restricted Stock Unit Award Agreement under the Vulcan Materials Company 2016 Omnibus Long-Term Incentive Plan, filed as Exhibit 10(aa) to the Company's Quarterly Report on Form 10-Q filed on August 3, 2016</u> ^{1,2}
Exhibit 10(z)	<u>Form of Performance Share Unit Award Agreement under the Vulcan Materials Company 2016 Omnibus Long-Term Incentive Plan, filed as Exhibit 10(bb) to the Company's Quarterly Report on Form 10-Q filed on August 3, 2016</u> ^{1,2}
Exhibit 10(aa)	<u>Separation Agreement, dated as of July 7, 2018, by and between John R. McPherson and Vulcan Materials Company, filed as Exhibit 10.1 to the Company's Current Report on Form 8-K filed on July 10, 2018</u> ^{1,2}
Exhibit 10(bb)	<u>Offer Letter, dated as of June 19, 2018, by and between Suzanne H. Wood and Vulcan Materials Company, filed as Exhibit 10.2 to the Company's Current report on Form 8-K filed on July 10, 2018</u> ^{1,2}
Exhibit 10(cc)	<u>Form of Performance Share Unit Award Agreement (2019) under the Vulcan Materials Company 2016 Omnibus Long-Term Incentive Plan, filed as Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q filed on May 3, 2019</u> ^{1,2}
Exhibit 10(dd)	<u>Letter Agreement, dated as of September 3, 2019, by and between Michael R. Mills and Vulcan Materials Company, filed as Exhibit 10.1 to the Company's Current Report on Form 8-K filed on September 6, 2019</u> ^{1,2}
Exhibit 21	<u>List of the Company's material subsidiaries as of December 31, 2019</u>
Exhibit 23	<u>Consent of Deloitte & Touche LLP, Independent Registered Public Accounting Firm</u>
Exhibit 24	<u>Powers of Attorney</u>

Exhibit 31(a)	<u>Certification of Chief Executive Officer pursuant to Section 302 of the Sarbanes-Oxley Act of 2002</u>
Exhibit 31(b)	<u>Certification of Chief Financial Officer pursuant to Section 302 of the Sarbanes-Oxley Act of 2002</u>
Exhibit 32(a)	<u>Certification of Chief Executive Officer pursuant to Section 906 of the Sarbanes-Oxley Act of 2002</u>
Exhibit 32(b)	<u>Certification of Chief Financial Officer pursuant to Section 906 of the Sarbanes-Oxley Act of 2002</u>
Exhibit 95	<u>MSHA Citations and Litigation</u>
Exhibit 101	The following financial information from this Annual Report on Form 10-K for the year ended December 31, 2019 are formatted in iXBRL (Inline eXtensible Business Reporting Language): (i) the Consolidated Statements of Comprehensive Income, (ii) the Consolidated Balance Sheets, (iii) the Consolidated Statements of Cash Flows, (iv) the Consolidated Statements of Equity and (v) the Notes to Consolidated Financial Statements.
Exhibit 104	Cover Page Interactive Data File – the cover page from this Annual Report on Form 10-K for the year ended December 31, 2019 is formatted in iXBRL (contained in Exhibit 101).

¹ *Incorporated by reference.*

² *Management contract or compensatory plan.*

³ *The schedules and exhibits to the Purchase Agreement have been omitted pursuant to Item 601(b)(2) of Regulation S-K.*

Our SEC file number for documents filed with the SEC pursuant to the Securities Exchange Act of 1934, as amended, is 001-33841.

We have chosen not to include an optional summary of the information required by this Form 10-K.

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized on February 26, 2020.

VULCAN MATERIALS COMPANY



J. Thomas Hill
Chairman, President and Chief Executive Officer

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the registrant and in the capacities and on the dates indicated.

Signature	Title	Date
 J. Thomas Hill	Chairman, President and Chief Executive Officer (Principal Executive Officer)	February 26, 2020
 Suzanne H. Wood	Senior Vice President and Chief Financial Officer (Principal Financial Officer)	February 26, 2020
 Randy L. Pigg	Vice President, Controller (Principal Accounting Officer)	February 26, 2020

The following directors:

Melissa H. Anderson	Director
Thomas A. Fanning	Director
O. B. Grayson Hall, Jr.	Director
Cynthia L. Hostetler	Director
Richard T. O'Brien	Director
James T. Prokopanko	Director
Kathleen L. Quirk	Director
David P. Steiner	Director
Lee J. Styslinger, III	Director
D. Michael Wilson	Director



Denson N. Franklin III
Attorney-in-Fact

February 26, 2020

Vulcan Materials Company (“Vulcan” or the “Company”) has one class of securities registered under Section 12 of the Securities Exchange Act of 1934, as amended (the “Exchange Act”). Vulcan’s common stock is registered under Section 12(b) of the Exchange Act and is listed on the New York Stock Exchange under the symbol “VMC”.

The following is a summary of the material terms of Vulcan’s capital stock. This summary is not complete and is qualified by reference to the Company’s Restated Certificate of Incorporation (the “Certificate of Incorporation”) and its Amended and Restated By-Laws (the “By-Laws”). The Certificate of Incorporation and the By-Laws are filed as exhibits to the Company’s most recent Annual Report on Form 10-K and are incorporated by reference herein.

Capital Stock

Vulcan’s authorized capital stock consists of 480,000,000 shares of common stock, \$1.00 par value (“Common Stock”), and 5,000,000 shares of preference stock, without par value (“Preference Stock”).

Common Stock

As of December 31, 2019, there were 132,371,469 shares of Common Stock issued and outstanding, which were held of record by 2,476 shareholders. Holders of Common Stock are entitled to one vote per share on all matters to be voted upon by the shareholders. Subject to preferences that may be applicable to any outstanding Preference Stock, the holders of Common Stock are entitled to receive ratably such dividends, if any, as may be declared from time to time by the Company’s board of directors out of funds legally available therefor. In the event of the Company’s liquidation, dissolution or winding up, holders of Common Stock are entitled to share ratably in all assets remaining after payment of liabilities, subject to prior liquidation rights of Preference Stock, if any, then outstanding. The Common Stock has no preemptive or conversion rights or other subscription rights. There are no redemption or sinking fund provisions applicable to the Common Stock. All outstanding shares of Common Stock are fully paid and non-assessable.

The Common Stock is listed on the New York Stock Exchange under the symbol “VMC.” The transfer agent for the Common Stock is Computershare Shareowner Services, LLC, 480 Washington Blvd, Jersey City, NJ 07310.

Preference Stock

Under the Certificate of Incorporation, the Company is authorized to issue up to 5,000,000 shares of Preference Stock. The Company’s board of directors has been authorized to provide for the issuance of shares of Preference Stock in multiple series without the approval of shareholders. With respect to each series of Preference Stock, Vulcan’s board of directors has the authority to fix the following terms:

- the designation of the series;
- the number of shares within the series;
- whether dividends are cumulative and, if cumulative, the dates from which dividends are cumulative;
- the rate of any dividends, any conditions upon which dividends are payable, and the dates of payment of dividends;
- whether the shares are redeemable, the redemption price and the terms of redemption;
- the establishment of a sinking fund, if any, for the purchase or redemption of shares;
- the amount payable to holders for each share they hold if the Company dissolves or liquidates;
- whether the shares are convertible or exchangeable, the price or rate of conversion or exchange, and the applicable terms and conditions;
- any restrictions on issuance of shares in the same series or any other series;

- any voting rights applicable to the series of Preference Stock;
- the seniority or parity of the dividends or assets of the series with respect to other series of Preference Stock;
- whether the holders will be entitled to any preemptive or preferential rights to purchase additional securities; and
- any other rights, preferences or limitations of such series.

Vulcan will file a copy of the amendment to the Certificate of Incorporation that contains the terms of each new series of Preference Stock with the Securities and Exchange Commission each time it establishes a new series of Preference Stock. Each such amendment to the Certificate of Incorporation will establish the number of shares included in a designated series and fix the designation, powers, privileges, preferences and rights of the shares of each series as well as any applicable qualifications, limitations or restrictions.

A holder's rights with respect to shares of Preference Stock held by such holder will be subordinate to the rights of Vulcan's general creditors. Shares of Preference Stock that the Company issues will be fully paid and nonassessable, and will not be entitled to preemptive rights unless specified in the applicable amendment to the Certificate of Incorporation.

Certain Provisions of the Certificate of Incorporation, By-Laws and New Jersey Law

Authorized but Unissued Shares

Authorized but unissued shares of Common Stock or Preference Stock can be reserved for issuance by Vulcan's board of directors from time to time, without shareholder action, for stock dividends or stock splits, to raise equity capital and to structure future corporate transactions, including acquisitions, as well as for other corporate purposes. This ability to issue shares, or rights to purchase shares of Preference Stock, could discourage an unsolicited acquisition proposal. In this regard, the Company could impede a business combination by issuing a series of Preference Stock containing class voting rights that would enable the holders of such Preference Stock to block a business combination transaction. Alternatively, the Company could facilitate a business combination transaction by issuing a series of Preference Stock having sufficient voting rights to provide a required percentage vote of the shareholders. Additionally, under certain circumstances, Vulcan's issuance of Preference Stock could adversely affect the voting power of the holders of Common Stock. Although Vulcan's board of directors is required to make any determination to issue any Preference Stock based on its judgment as to the best interests of the Company's shareholders, the board of directors could act in a manner that would discourage an acquisition attempt or other transaction that some, or a majority, of the Company's shareholders might believe to be in their best interests or in which shareholders might receive a premium for their stock over prevailing market prices of such stock. Vulcan's board of directors does not at present intend to seek shareholder approval prior to any issuance of currently authorized stock, unless otherwise required by law or applicable New York Stock Exchange requirements.

Classified Board of Directors

Under the Certificate of Incorporation and the By-Laws, Vulcan's board of directors is classified into three classes of directors, with the term of office of one class expiring each year and the number of directors in each class being as nearly equal as possible. Each class of directors serves a staggered three-year term. This classification increases the difficulty of replacing a majority of the directors and may discourage a third party from making a tender offer or otherwise attempting to gain control of the Company.

Advance Notice of Proposals and Nominations and Proxy Access

Under the By-Laws, shareholder proposals and nominations for election at Vulcan's annual meeting of shareholders or at a special meeting of shareholders (which may only be called by the board of directors, the chairman of the board of directors, or the chief executive officer and at which shareholders may only make nominations for director) may be made by any shareholder entitled to vote only if the shareholder gives timely written notice to the Secretary of the Company. In the case of an annual meeting of shareholders, notice will be considered timely if it is delivered to the Secretary of the Company at Vulcan's principal executive offices not earlier than the close of business on the 120th day and not later than the close of business on the 90th day prior to the first anniversary of the preceding year's annual meeting; provided, however, that if the date of the annual meeting is more than 30 days before or more than 60 days after such anniversary, notice will be considered timely if delivered not earlier than the close of business on the 120th day prior to the date of such annual meeting and not later than the close of business on 90th day prior to the date of such annual meeting or, if the first public announcement of the date of the annual meeting is less than 100 days prior to the meeting date, the 10th day following the date of the public announcement. In the case of a special meeting of shareholders, notice will be considered timely if it is delivered to the Secretary of the Company not earlier than the close of business on the 120th day and not later than the close of business on the 90th day prior to the meeting date or, if the first public announcement of the date of the special meeting is less than 100 days prior to the meeting date, the 10th day following the date of the public announcement of the meeting date and of the nominees proposed by Vulcan's board of directors.

In addition, under the By-Laws, shareholder nominations for election at Vulcan's annual meeting of shareholders may be made pursuant to the "proxy access" provisions included therein, which permit a shareholder, or a group of up to 20 shareholders, owning 3% or more of Vulcan's outstanding common stock continuously for at least three years, to nominate and include in Vulcan's annual meeting proxy materials director nominees constituting up to the greater of (a) two individuals and (b) 20% of the total number of directors serving on the board of directors on the last day on which a proxy access nomination may be submitted (rounded down to the nearest whole number), subject to certain limitations and provided that the requirements set forth in the By-Laws are satisfied, including that the shareholder gives timely written notice to the Secretary of the Company. Notice will generally be considered timely if it is delivered to the Secretary of the Company at Vulcan's principal executive offices not less than 120 days nor more than 150 days prior to the anniversary of the date that the corporation mailed its proxy statement for the prior year's annual meeting of shareholders.

Supermajority Voting Provisions

The Certificate of Incorporation contains a "fair price" provision that applies to certain business combination transactions involving any person that beneficially owns at least 10% of the aggregate voting power of Vulcan's outstanding capital stock ("Voting Stock") or that is an affiliate of the Company that has been the beneficial owner of at least 10% of the Voting Stock at any time in the past two years, or any assignee of Voting Stock from such a person, each of these an "Interested Shareholder." The "fair price" provision requires the affirmative vote of the holders of at least 80% of the Voting Stock to approve any such transaction.

This voting requirement will not apply to certain transactions, including:

- any transaction in which, among other requirements, the consideration to be received by the holders of each class of capital stock is equal to the highest of (1) the highest price per share paid by the Interested Shareholder on the date the person first became an Interested Shareholder; (2) the highest price per share the Interested Shareholder paid for a share of such class, which purchase was consummated in the past two years; (3) the fair market value per share of the same class on the day such transaction was announced; and (4) the fair market value per share of the same class on the day the person became an Interested Shareholder; or
- any transaction that is approved by Vulcan's continuing directors (as defined in the Certificate of Incorporation).

This provision could have the effect of delaying or preventing change in control in a transaction or series of transactions that did not satisfy the "fair price" criteria.

The provisions of the Certificate of Incorporation relating to the "fair price" provision may be amended only by the affirmative vote of the holders of at least 80% of the aggregate Voting Stock.

New Jersey Anti-Takeover Statute

New Jersey has adopted a type of anti-takeover statute known as a “business combination” statute. Subject to numerous qualifications and exceptions, the statute prohibits an interested shareholder of a corporation from effecting a business combination with the corporation for a period of five years unless, prior to the shareholder becoming an interested shareholder, (i) the corporation’s board approved the combination or (ii) the corporation’s board approved the transaction or series of transactions which caused the person to become an interested shareholder and any subsequent business combination with that interested shareholder is approved by independent members of the board and the holders of a majority of the voting stock not beneficially owned by the interested shareholder. In addition, but not in limitation of the five-year restriction, if applicable, corporations such as Vulcan covered by the New Jersey statute may not engage at any time in a business combination with any interested shareholder of that corporation unless the combination is approved by the board prior to the interested shareholder’s stock acquisition date, the combination receives the approval of two-thirds of the voting stock of the corporation not beneficially owned by the interested shareholder, or the combination meets minimum financial terms specified by the statute. An “interested shareholder” for this purpose is defined to include any beneficial owner of 10% or more of the voting power of the outstanding voting stock of the corporation or an affiliate or associate of the company who, within the prior five-year period, has at any time owned 10% or more of the voting power. The term “business combination” is defined broadly to include, among other things:

- the merger or consolidation of the corporation with the interested shareholder or any corporation that after the merger or consolidation would be an affiliate or associate of the interested shareholder;
- the sale, lease, exchange, mortgage, pledge, transfer or other disposition to an interested shareholder or any affiliate or associate of the interested shareholder of 10% or more of the corporation’s assets; or
- the issuance or transfer to an interested shareholder or any affiliate or associate of the interested shareholder of 5% or more of the aggregate market value of the stock of the corporation.

The application of the anti-takeover statute to Vulcan could delay, defer or prevent a change of control of the Company or discourage, impede or prevent a merger, tender offer, proxy contest or other transaction, even if such action would be favorable to the interests of Vulcan’s shareholders.

SUBSIDIARIES AS OF DECEMBER 31, 2019

	State or Other Jurisdiction of Incorporation or Organization	% Owned Directly or Indirectly by Vulcan
Aggregates USA, LLC	Delaware	100
Aggregates USA (Augusta), LLC	Delaware	100
Aggregates USA (Macon), LLC	Delaware	100
Aggregates USA (Savannah), LLC	Delaware	100
Aggregates USA (Sparta), LLC	Delaware	100
Arundel Company, LLC	Delaware	100
Atlantic Granite Company, LLC	South Carolina	100
Azusa Rock, LLC	Delaware	100
Black Point Aggregates, Inc.	Nova Scotia	100
Calhoun Asphalt Company, Inc.	Alabama	100
Calizas Industriales del Carmen, S.A. de C.V.	Mexico	100
CalMat Co.	Delaware	100
Chem-Marine of South Carolina	South Carolina	100
DMG Equipment Company, LLC	Delaware	100
Florida Rock Industries, Inc.	Florida	100
Freeport Aggregates Limited	Bahamas	100
FRI Bahamas Ltd.	Bahamas	100
Fulton Concrete Company, LLC	Delaware	100
Harper Brothers, LLC	Delaware	100
Heritage Logistics, LLC	Delaware	100
Legacy Vulcan, LLC	Delaware	100
Maryland Rock Industries, LLC	Delaware	100
Maryland Stone, LLC	Delaware	100
McCartney Construction Company, Inc.	Alabama	100
McCartney Construction Company, LLC	Alabama	100
Mideast Division Logistics, LLC	Delaware	100
Mountain West Logistics, LLC	Delaware	100
North American Recycling and Crushing, LLC	Delaware	100
Rancho Piedra Caliza, S.A. de C.V.	Mexico	100
Rapica Servicios Tecnicos Y Administrativos, S.A. de C.V.	Mexico	100
R. C. Smith Companies, LLC	Delaware	100
RECO Transportation, LLC	Delaware	100
S & G Concrete Company, LLC	Delaware	100
Salisbury Towing, LLC	Delaware	100
Servicios Integrales, Gestoria Y Administracion, S.A. de C. V.	Mexico	100
Shamrock Building Materials, LLC	Delaware	100
Soportes Tecnicos Y Administrativos, S.A. de C.V.	Mexico	100
Southeast Division Logistics, LLC	Delaware	100
Southern Gulf Coast Division Logistics, LLC	Delaware	100
Statewide Transport, LLC	Delaware	100
Stone Creek Mira Mesa LLC	California	100
TCS Materials, LLC	Delaware	100
Triangle Rock Products, LLC	Delaware	100
VGCM, B.V.	Netherlands	100
Virginia Concrete Company, LLC	Delaware	100
Vulcan Aggregates Company, LLC	Delaware	100
Vulcan Asphalt, LLC	Delaware	100
Vulcan Beaches, LLC	Delaware	100
Vulcan Concrete, LLC	Delaware	100
Vulcan Construction Materials, LLC	Delaware	100
Vulcan Gulf Coast Materials, LLC	North Carolina	100
Vulcan International, B.V.	Netherlands	100
Vulcan Lands, Inc.	New Jersey	100
Vulcan Logistics, LLC	Delaware	100
Vulca Shipping Company, Limited	Bahamas	100

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We consent to the incorporation by reference in Registration Statements No. 333-223626, 333-197519 and 333-196819 on Form S-3, Registration Statement No. 333-227903 on Form S-4 and Registration Statements No. 333-211349, 333-182498, 333-160302, 333-148993, 333-148238, 333-147450, and 333-147449 on Form S-8 of our reports dated February 26, 2020, relating to the consolidated financial statements of Vulcan Materials Company and subsidiaries (the "Company"), and the effectiveness of the Company's internal control over financial reporting appearing in this Annual Report on Form 10-K for the year ended December 31, 2019.

/s/ DELOITTE & TOUCHE LLP

Birmingham, Alabama

February 26, 2020

The undersigned director of Vulcan Materials Company, a New Jersey corporation, hereby nominates, constitutes and appoints Denson N. Franklin III and Elizabeth H. Townsend and each of them, the true and lawful attorneys of the undersigned to sign the name of the undersigned as director to the Annual Report on Form 10-K for the year ended December 31, 2019 of said corporation to be filed with the Securities and Exchange Commission under the Securities Exchange Act of 1934, as amended, and to any and all amendments to said report.

The undersigned hereby grants to said attorneys full power of substitution, resubstitution and revocation, all as fully as the undersigned could do if personally present, hereby ratifying all that said attorneys or their substitutes may lawfully do by virtue hereof.

IN WITNESS WHEREOF, the undersigned director of Vulcan Materials Company has executed this Power of Attorney this 14th day of February, 2020.

/s/ Melissa H. Anderson
Melissa H. Anderson

/s/ Thomas A. Fanning
Thomas A. Fanning

/s/ O. B. Grayson Hall, Jr.
O. B. Grayson Hall, Jr.

/s/ Cynthia L. Hostetler
Cynthia L. Hostetler

/s/ Richard T. O'Brien
Richard T. O'Brien

/s/ James T. Prokopanko
James T. Prokopanko

/s/ Kathleen L. Quirk
Kathleen L. Quirk

/s/ David P. Steiner
David P. Steiner

/s/ Lee J. Styslinger, III
Lee J. Styslinger, III

/s/ D. Michael Wilson
D. Michael Wilson

I, J. Thomas Hill, certify that:

1. I have reviewed this annual report on Form 10-K of Vulcan Materials Company;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for the periods presented in this report;
4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - a) Designed such disclosure controls and procedures or caused such disclosure controls and procedures to be designed under our supervision to ensure that material information relating to the registrant including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
 - a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date February 26, 2020



J. Thomas Hill
Chairman, President and Chief Executive Officer

I, Suzanne H. Wood, certify that:

1. I have reviewed this annual report on Form 10-K of Vulcan Materials Company;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for the periods presented in this report;
4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - a) Designed such disclosure controls and procedures or caused such disclosure controls and procedures to be designed under our supervision to ensure that material information relating to the registrant including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
 - a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date February 26, 2020



Suzanne H. Wood
Senior Vice President and Chief Financial Officer

CERTIFICATION OF CHIEF EXECUTIVE OFFICER
OF
VULCAN MATERIALS COMPANY
PURSUANT TO 18 U.S.C. SECTION 1350
AS ADOPTED PURSUANT TO SECTION 906 OF THE SARBANES OXLEY ACT OF 2002

I, J. Thomas Hill, Chairman, President and Chief Executive Officer of Vulcan Materials Company, certify that the Annual Report on Form 10-K (the "report") for the year ended December 31, 2019, filed with the Securities and Exchange Commission on the date hereof:

- (i) fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended, and
- (ii) the information contained in the report fairly presents, in all material respects, the financial condition and results of operations of Vulcan Materials Company.



J. Thomas Hill
Chairman, President and Chief Executive Officer
February 26, 2020

A signed original of this written statement required by Section 906, or other document authenticating, acknowledging, or otherwise adopting the signature that appears in typed form within the electronic version of this written statement required by Section 906, has been provided to Vulcan Materials Company and will be retained by Vulcan Materials Company and furnished to the Securities and Exchange Commission or its staff upon request.

CERTIFICATION OF CHIEF FINANCIAL OFFICER
OF
VULCAN MATERIALS COMPANY
PURSUANT TO 18 U.S.C. SECTION 1350
AS ADOPTED PURSUANT TO SECTION 906 OF THE SARBANES OXLEY ACT OF 2002

I, Suzanne H. Wood, Senior Vice President and Chief Financial Officer of Vulcan Materials Company, certify that the Annual Report on Form 10-K (the "report") for the year ended December 31, 2019, filed with the Securities and Exchange Commission on the date hereof:

- (i) fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended, and
- (ii) the information contained in the report fairly presents, in all material respects, the financial condition and results of operations of Vulcan Materials Company.



Suzanne H. Wood
Senior Vice President and Chief Financial Officer
February 26, 2020

A signed original of this written statement required by Section 906, or other document authenticating, acknowledging, or otherwise adopting the signature that appears in typed form within the electronic version of this written statement required by Section 906, has been provided to Vulcan Materials Company and will be retained by Vulcan Materials Company and furnished to the Securities and Exchange Commission or its staff upon request.

On July 21, 2010, the Dodd-Frank Wall Street Reform and Consumer Protection Act (the Dodd-Frank Act) was enacted. Section 1503 of the Dodd-Frank Act requires companies that are "operators" (as such term is defined in the Federal Mine Safety and Health Act of 1977 (the Mine Act)) to disclose certain mine safety information in each periodic report to the Securities and Exchange Commission. This information is related to the enforcement of the Mine Act by the Mine Safety and Health Administration (MSHA).

The Dodd-Frank Act and the subsequent implementing regulation issued by the SEC require disclosure of the following categories of violations, orders and citations: (1) Section 104 S&S Citations, which are citations issued for violations of mandatory health or safety standards that could significantly and substantially contribute to the cause and effect of a mine safety or health hazard; (2) Section 104(b) Orders, which are orders issued upon a follow up inspection where the inspector finds the violation previously cited has not been totally abated in the prescribed time period; (3) Section 104(d) Citations and Orders, which are issued upon violations of mandatory health or safety standards caused by an unwarrantable failure of the operator to comply with the standards; (4) Section 110(b)(2) Violations, which result from the reckless and repeated failure to eliminate a known violation; (5) Section 107(a) Orders, which are given when MSHA determines that an imminent danger exists and results in an order of immediate withdrawal from the area of the mine affected by the condition; and (6) written notices from MSHA of a pattern of violations of mandatory health or safety standards that are of such nature as could have significantly and substantially contributed to the cause and effect of mine health or safety hazards under Section 104(e). In addition, the Dodd-Frank Act requires the disclosure of the total dollar value of proposed assessments from MSHA under the Mine Act and the total number of mining related fatalities.

The following disclosures are made pursuant to Section 1503.

During the twelve months ended December 31, 2019, none of our operations: (i) received any orders under Section 104(b), which are issued upon a follow up inspection where the inspector finds the violation previously cited has not been totally abated in the prescribed time period; (ii) had any flagrant violations under Section 110(b)(2); or (iii) received notice from MSHA of a pattern of violations of mandatory health or safety standards under Section 104(e).

CALENDAR YEAR 2019

The table below sets forth, by mine, the total number of citations and/or orders issued by MSHA during the period covered by this report under the indicated provisions of the Mine Act, together with the total dollar value of proposed assessments, if any, from MSHA, received during the twelve months ended December 31, 2019. Of our 261 active MSHA-regulated facilities during the year, we received 500 federal mine safety inspections at 233 facilities during the reporting period. Of our inspected facilities, 197 did not receive any reportable citations or orders.

Name of Operation	Number of Inspections	Total Number of S&S Citations	Mine Act § 104(b) Orders	Mine Act § 104(d) Citations and Orders	Mine Act § 110(b)(2) Violations	Mine Act § 107(a) Orders	Total Dollar Value of Proposed MSHA Assessments (dollars in thousands)	Total Number of Mining Related Fatalities	Received Written Notice under Mine Act § 104(e) (yes/no)
1604 CLEAN, TX	3	2	0	0	0	0	0.0	0	No
AUGUSTA, VA	3	1	0	0	0	0	0.0	0	No
BACA, NM	2	2	0	0	0	1	1.3	0	No
BARTLETT, IL	4	1	0	0	0	0	1.2	0	No
BOLINGBROOK, IL	4	5	0	0	0	0	1.4	0	No
BOONE, NC	3	1	0	0	0	0	0.8	0	No
CHATTANOOGA, TN	3	1	0	0	0	0	0.0	0	No
CHULA VISTA, CA	2	1	0	0	0	0	0.0	0	No
CORONA, CA	3	1	0	0	0	0	0.0	0	No
DAHLONEGA, GA	3	1	0	0	0	0	0.3	0	No
FRANKLIN MSD, TN	4	1	0	0	0	0	0.4	0	No
FREDERICK, MD	3	4	0	0	0	0	2.7	0	No
GRAHAM VA, VA	2	2	0	0	0	0	5.5	0	No
GRAND RIVERS, KY	4	2	0	0	0	0	0.9	0	No
GRIFFIN, GA	2	1	0	0	0	0	0.1	0	No
HAVRE DE GRACE, MD	3	1	0	0	0	0	0.1	0	No
KANKAKEE, IL	2	2	0	0	0	0	1.0	0	No
KEUKA, FL	2	1	0	0	0	0	0.4	0	No
KNIPPA, TX	3	3	0	0	0	0	0.0	0	No
MACON CND, IL	2	2	0	0	0	0	0.0	0	No
MANTENO, IL	4	3	0	0	0	0	0.8	0	No
MICO, TX	2	1	0	0	0	0	0.0	0	No
MONTEREY SAND, TN	2	1	0	0	0	0	0.3	0	No
NORTH TROY, OK	3	2	0	0	0	0	0.0	0	No
PLACITAS, NM	2	1	0	0	0	0	0.2	0	No
RIVER ROAD, TN	2	1	0	1	0	0	54.4	1	No
RIVERSIDE DRIVE, TN	1	1	0	0	0	0	0.2	0	No
SPARTA, GA	3	1	0	0	0	0	0.5	0	No
STOKESDALE, NC	3	1	0	0	0	0	0.0	0	No
SUN CITY, AZ	2	3	0	0	0	0	1.6	0	No
SYCAMORE, IL	2	2	0	0	0	0	0.5	0	No
TAZEWELL, TN	3	0	0	0	0	0	0.0	1 ¹	No
TORRANCE, NM	1	2	0	0	0	0	3.0	0	No
TUSCUMBIA, AL	3	1	0	0	0	0	0.1	0	No
WEST 43 RD , AZ	2	3	0	0	0	0	2.5	0	No
WEST BROADWAY, AZ	5	2	0	0	0	0	0.5	0	No
OTHER OPERATIONS - 197	403	0	0	0	0	0	0.0	0	No
Total	500	60	0	1	0	1	80.8	2	

¹ This fatality relates to a foot injury sustained by a plant manager at our Tazewell, Tennessee quarry in July 2019. Following the end of the fiscal year, in January 2020, MSHA informed us of the decision by its Fatality Review Committee following MSHA's investigation of the incident. The Committee determined that the plant manager's death while undergoing preoperative procedures at the hospital should be charged to the mining industry because his death was due to complications from the foot injury sustained at the quarry.

The total dollar value of proposed assessments received during the twelve months ended December 31, 2019 for all other citations, as well as proposed assessments received during the reporting period for citations previously issued, is \$98,471.

The table below sets forth, by mine, category of legal action and number of legal actions pending before the Federal Mine Safety and Health Review Commission as of December 31, 2019.

Name of Operation	Number of Legal Actions		
	Contest Penalty	Contest Citations	Complaint of Discharge, Discrimination
BLAIRSVILLE QUARRY, GA	1	0	0

The table below sets forth, by mine, category of legal action and number of legal actions filed before the Federal Mine Safety and Health Review Commission during the twelve months ended December 31, 2019.

Name of Operation	Number of Legal Actions		
	Contest Penalty	Contest Citations	Complaint of Discharge, Discrimination
BOONE, NC	1	0	0
GRAHAM-VIRGINIA, VA	2	0	0
HANOVER QUARRY, PA	2	0	0
MIAMI QUARRY, FL	1	0	0
RIVER ROAD QUARRY, TN	1	0	0
SKIPPERS QUARRY, VA	1	0	0
SOUTH RUSSELLVILLE QUARRY, AL	1	0	0

The table below sets forth, by mine, category of legal action and number of legal actions resolved by the Federal Mine Safety and Health Review Commission during the twelve months ended December 31, 2019.

Name of Operation	Number of Legal Actions		
	Contest Penalty	Contest Citations	Complaint of Discharge, Discrimination
CHEROKEE QUARRY, AL	1	0	0
FORT MYERS MINE, FL	1	0	0
FORT PAYNE QUARRY, AL	1	0	0
HAVRE DE GRACE QUARRY, MD	1	0	0
HELOTES QUARRY, TX	1	0	1
KNIPPA QUARRY, TX	1	0	0
NORTH TROY, OK	2	0	0
PLACITAS, NM	3	0	0
QUEEN CREEK STONE, AZ	1	0	0
SPICEWOOD QUARRY, TX	1	0	0
STAFFORD MED, VA	1	0	0