

Base from U.S. Geological Survey
State base map, 1956

SCALE 1:500 000

CONTOUR INTERVAL 500 FEET
DATUM IS MEAN SEA LEVEL
1974 MAGNETIC DECLINATION VARIES FROM 13°30' TO 12°30' EAST

EXPLANATION

COMMODITY	I	II
Actinolite-tremolite		▲
Alunite	■	
Barite	■	■
Fluorite	■	■
Gypsum	●	●
Jasper	●	●
Marble, onyx	▲	▲
Silica (industrial)	■	■

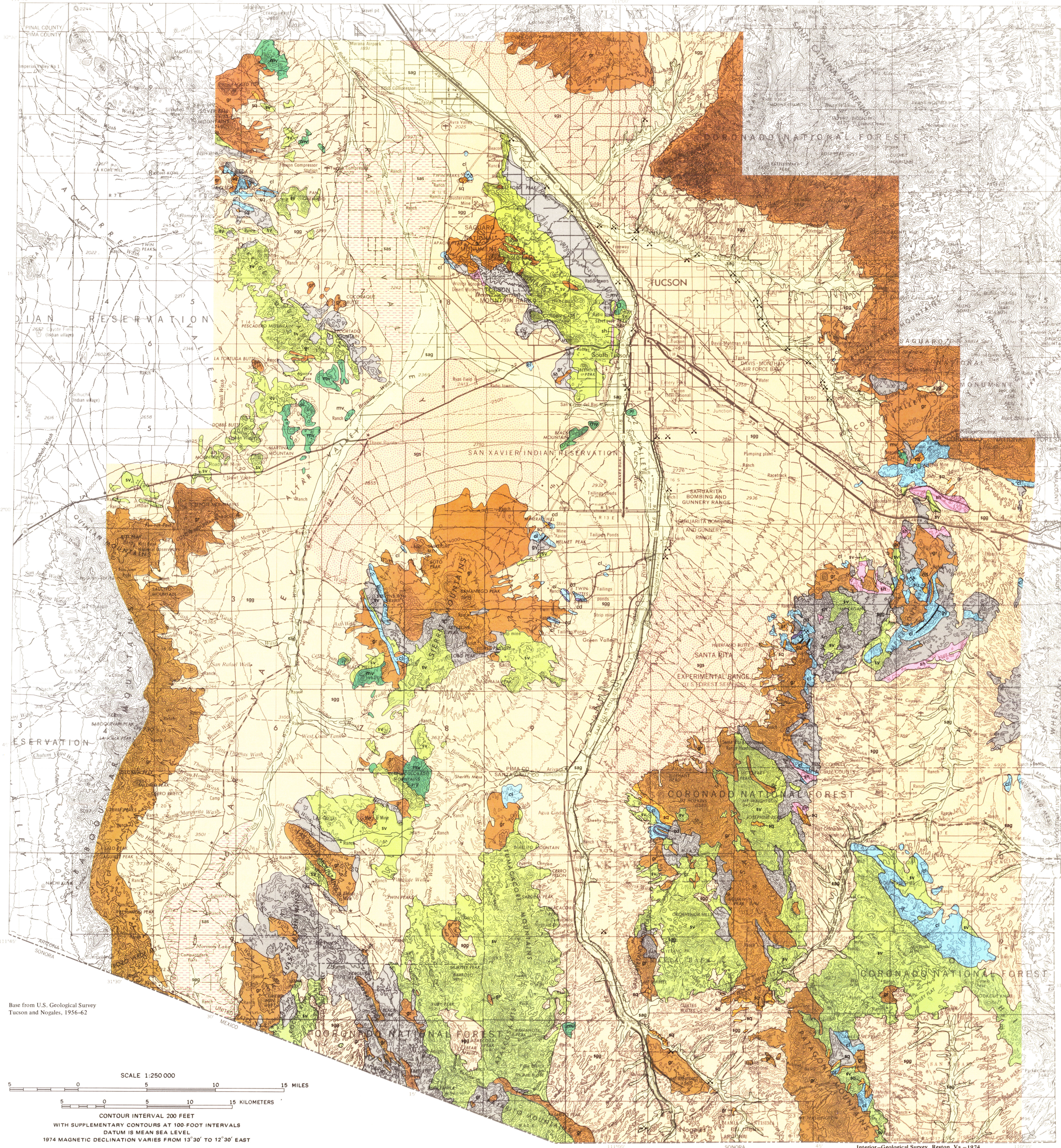
I. Deposit with known production, or prospect; includes deposits that are economically marginal to profitable for development

II. Occurrence presently cannot be economically developed; includes some reported but unverified occurrences

- Specific locality (as indicated by dot)
- General locality
- △ Metamorphic deposit
- Sedimentary deposit
- Igneous deposit
- Gangue minerals associated with metalliferous ore deposits

OCCURRENCES OF COMMERCIALY IMPORTANT NONMETALLIFEROUS MINERALS IN THE TUCSON AREA, ARIZONA

Compiled by
John W. Peterson, William C. Jones, and Richard T. Moore



Base from U.S. Geological Survey
Tucson and Nogales, 1956-62

SCALE 1:250 000

CONTOUR INTERVAL 200 FEET
WITH SUPPLEMENTARY CONTOURS AT 100 FOOT INTERVALS
DATUM IS MEAN SEA LEVEL
1974 MAGNETIC DECLINATION VARIES FROM 13°30' TO 12°30' EAST

MINERAL CONSTRUCTION MATERIALS IN THE TUCSON AREA, ARIZONA

Compiled by
Richard T. Moore and William C. Jones

MAPS SHOWING NONMETALLIC MINERAL DEPOSITS IN THE TUCSON AREA, ARIZONA

Compiled by
Richard T. Moore, William C. Jones, and John W. Peterson
Arizona Bureau of Mines
1974

CONSTRUCTION MATERIALS EXPOSED AT THE GROUND SURFACE

Sand, silt, and gravel
Unconsolidated to moderately consolidated silt and sand, usually with less than 25 percent gravel and cobble sizes; moderately well sorted within the sand-sized fraction. Grains subangular to subrounded; coatings generally absent, few soft particles. Coarse sand and gravel fraction dominantly of crystalline intrusive, metamorphic, or volcanic rocks, depending upon source area. Occurs primarily along stream channels and their flood plains
sas: stream-channel deposits, dominantly sand and gravel
sas: flood-plain deposits, dominantly fine sand and silt

Sand, gravel, and boulders
Moderately to firmly consolidated, poorly sorted deposits of angular to subrounded mineral grains and rock fragments in a matrix of silt and sand; grain size decreases and rounding increases with distance from source. Commonly cemented with calcite and locally with clay. Character of the deposits primarily dependent on source rocks and secondarily on distance from source. Competency of the fragments is variable, but where crystalline rocks dominate, the fragments are normally too weathered and friable for use as construction material. Principal surficial deposits in intermontane areas
sas: fan and terrace deposits, dominantly coarse sand, gravel, and boulders
sas: local pockets and thin cover deposits, dominantly fine sand and gravel

Carbonate rocks
Mainly limestone and marble. Limestone: Light- to dark-gray, massive to thin-bedded, dense to finely crystalline. Commonly sandy and silty; irregular bands and nodules of chert are common; local thin seams of gypsum. Some siltstone and shale interbeds. Found along the flanks of mountain ranges in gently to steeply dipping beds. Marble: White to gray, coarsely crystalline; locally contains small amounts of disseminated silicate and sulfide minerals

Carbonate rocks
Mainly dolomite. Dark-gray to pink-gray, commonly fine-grained but generally is coarsely crystalline in thicker beds. Interbedded with limestone, siltstone, and shale

Sandstone and quartzite
Mainly quartz; reddish-brown to white, generally well-sorted, fine- to medium-grained and well-rounded grains, commonly cross-bedded; mostly well cemented. Found interbedded with limestone and shale, and as lenses associated with conglomerate and volcanic units. Includes quartzitic conglomerate

Shale, mudstone, and clay
Red to green-gray. Commonly calcareous or gypsiferous. Some shale may be usable for facing stone. Found in moderately to steeply dipping beds associated with carbonate rocks (cl) and siliceous and intermediate volcanic rocks (sv)

Gypsum and anhydrite
Lenses and discontinuous, thin to thick beds, generally associated with carbonate rocks (cl, cl)

Siliceous and intermediate volcanic rocks
Light-gray to reddish-brown, dense to very fine-grained crystalline. Some units contain scattered feldspar crystals that are 1/8 inch to as much as 1 inch long. Rock ranges from brittle to soft and is commonly highly jointed. There is considerable variation in physical properties of rocks included within this unit

Mafic volcanic rocks
Dark-brown to black, vesicular to massive; generally fine-grained crystalline, rarely contains scattered crystals of larger size. Usually has a high compressive strength

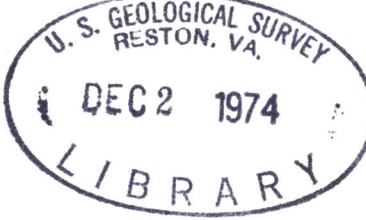
Granitic rocks
Mainly composed of quartz and feldspar; typically dark- to light-gray; fine- to coarse-grained crystalline; generally has a high compressive strength. In some of these rocks thin bands of light-colored dense to very fine-grained rock give the units a layered appearance. Banding or layering of dark minerals in the rock generally indicates lower strength

Considered unusable for construction

Contact
Dashed where approximate
Sand and gravel pits
Limestone quarry

USES	MATERIAL										
	sas	sas	sas	cl	cd	sd	sh	gy	iv	mv	gr
Sand and gravel	a ¹	b	c	b							
Crushed stone					a	a	b				b
Granules					a	a	b				
Aggregate											
Portland cement concrete	a		b								b
Bituminous concrete	a		b		a	a				c	b
Light weight							c		c		
Road metal ²	a		b	b	b	b				c	b
Riprap		c	b	b	b	b				c	b
Building stone ³				b	b	b	c				b
Cement											
Portland				a			b	c			
Pozzolan									c		
Plaster and wallboard								a			
Lime					a						
Structural clay	c	b		c			a				
Adobe	c	a	c								

¹a: Excellent potential source.
²b: Potential source of secondary importance.
³c: Potential source, but probably not exploitable under present economic conditions.
⁴Includes material for base course, select, and surfacing of vehicular roadways, and ballast for railroads.
⁵Irregular blocks for use in buildings and walls; will only rarely meet standards for dimension stone.



Arizona (Tucson area) Minerals 1:250,000 1973
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