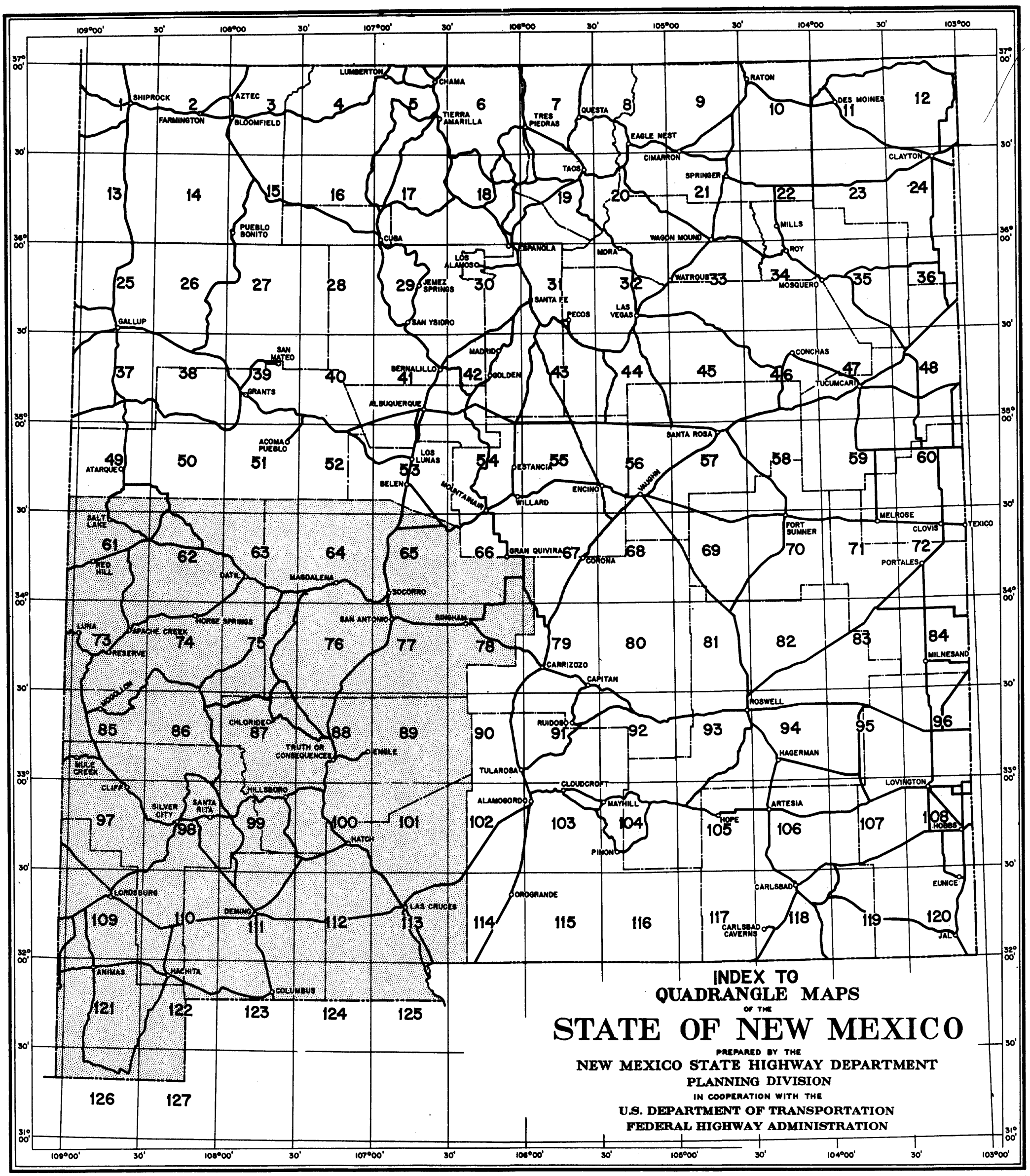
New Mexico State Highway Department
Geology & Aggregate Resources
District 1

Prepared by
Geology Section
New Mexico State Highway Department
Materials Laboratory Bureau

in cooperation with
U.S. Department of Transportation
Federal Highway Administration



INDEX TO QUADRANGLE MAPS OF THE STATE OF NEW MEXICO

PREPARED BY THE
NEW MEXICO STATE HIGHWAY DEPARTMENT
PLANNING DIVISION
IN COOPERATION WITH THE
U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

Preface

Personnel of the Geology Unit, NMSHD, continue mapping the surface geology of New Mexico as it applies to the availability of suitable road building aggregates. This project was initiated in its present form in 1968 and has been carried on as a Research Project by use of Federal Highway Planning and Research funds through the Planning Division of the New Mexico State Highway Department in cooperation with the United States Department of Transportation, Federal Highway Administration.

The fundamental purpose behind the use of geology to locate suitable deposits for any road-building project is one of basic economics. The length of haul (pit to job-site) is a critical economic factor on any construction job. For every mile of haul that can be eliminated, the resultant savings of tax dollars varies from 5 to 10 cents per ton mile. It can readily be seen that eliminating one mile of haul on a job requiring 500,000 tons, which is not an unusual amount, will result in an immediate cost reduction between 25,000 to 50,000 tax dollars. Since New Mexico is the fifth largest state of the conterminous United States and its highway network must of necessity be expanded, it is obvious that the long-term savings generated by this project could approach astronomical proportions. Because of the potential enormity of such savings, this mapping program will ultimately pay great dividends to the beleagurered taxpayer. It is hoped that it will also result in new and additional geological information for the professional geologist as well as the layman and that it will create a renewed interest in the Quaternary geology from a scientific and academic viewpoint. Increased knowledge of aggregate science and a general knowledge of the characteristics of the rocks upon which a road foundation is to be built should also improve the quality of our future highway network.

The approach to locating road-building aggregate is no different than the search for other natural resources. A working hypothesis that will show why suitable aggregate can or cannot be found and having a reasonable understanding of the risk involved is necessary. Most reconnaissance efforts are nothing more than common-sense attempts to establish some predictability as to what should be expected when a test hole is dug. Delineating various pediment or terrace levels regarding age continuity, material type and a myriad of other characteristics, easily eliminates useless prospecting where a particular hypothesis suggests that no suitable aggregate will be found. Carrying this approach further, a working hypothesis can be developed to locate aggregate accumulations that are totally obscured from view, such as hidden, buried stream channels. Riskwise, easily delineated geomorphic or bedrock surfaces can be classed as probable resources, whereas those that are totally obscured from view would be classed as probable or exploratory. Landforms with developed and tested pits would, of course, be classed as proven sites. It is not the purpose of this study to show all of the locations where material pits may be placed. The purpose is to show the prospector a reasonable cross-section of the type of materials he may be able to locate in a particular landform or bedrock formation. Most aggregate prospecting will be and has been done on diagnostic landforms and are medium to low-risk ventures. Exploratory sites will be higher risk ventures and usually will not be attempted except in circumstances of last resort.

This publication should help the prospector establish a workable approach in locating materials pits and be an improvement over the somewhat fortuitous approach that has been used in the past. We are aware that pit sites located from photographic interpretation of geology do not guarantee success, and the results provided by test holes ultimately prove or disprove an aggregate source. However, over a long term, the use of practical geology for aggregate prospecting will be of great benefit to the construction industry.

The geology and aggregate resources maps are presented in color on the regular N.M.S.H.D. base maps, 30 minute quadrangles, one inch equals 3 miles. They are placed in numerical order as the state numbering system pertains to N.M.S.H.D. District 1. Each map has an explanation of the rock units mapped and other symbols used that do not appear on the standard legend for the base maps. Most of the symbols used are self-explanatory; however, in order not to confuse the reader, the pit symbols and numbering system probably deserve some additional explanation.

The solid black circle denotes an existing pit or quarry; the half-black circle denotes a prospective site that has been sampled and tested; and the asterick indicates a prospective site that has not been sampled or tested. The numbers beside the circles refer directly to the material pit summary charts and the charts are placed directly behind the geology and aggregate resource maps. All numbers preceded by a zero represent prospective pit sites. Numbers not preceded by a zero represent the year and numerical sequence in which the pit was explored, i.e., pit 6457 is the fifty-seventh pit explored by the laboratory crews in 1964.

The greatest single difficulty encountered in mapping Quaternary deposits is establishing continuity of map units and symbols over reasonably long distances. Since Quaternary stratigraphy is morphostratigraphic (both geomorphic and stratigraphic) and this work done by several geologists, the reader will find some discontinuity of map units or stratigraphic nomenclature from one quadrangle to another in the Quaternary and Tertiary systems. In this event each map should be studied individually since the purpose of this study is to aid the prospector in choosing the best possible source of aggregate in a particular area.

If this and the following publications benefit the taxpayers of New Mexico through a systematic approach in developing and conserving another of the state's natural resources, then its primary objective will have been accomplished. And if it is utilized by those within and without the geological profession to further the knowledge of New Mexico geology then the subsidiary objectives will also have been accomplished.

DISTRICT ONE

CONTENTS

ACKNOWLEDGEMENTS

Many people have contributed to this mapping project. The authors wish to express their thanks to these persons and firms, and others too numerous to mention here, who have contributed to the production of this book.

Offset	:	Duplicating Services, N.M.S.H.D.
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Material Investigation Crews	:	N.M.S.H.D.
Personnel of the Testing Lab	:	N.M.S.H.D.
Geology Section Personnel	:	Warren T. Bennet, Geotechnical Engr., Editor; Arlon D. Lovelace, Chief Geologist, Author and Editor; James B. Yarbrough, Geologist, Mapping; Daniel D. Sowle, Geologist, Mapping; Richard D. Lueck, Geologist, Mapping; William Kingsley, Geotechnical Engr.,Mapping; Robert C. Newberry, Geologist, Mapping; William A. Gonzales, E.T. III, Drafting and Artwork; Ray Salazar, E.T. II, Drafting and Artwork

LEGEND FOR BASE MAP UNITS

Roads
- Primitive
- Unimproved
- Graded and Drained
- Gravel or Stone-not Graded and Drained
- Gravel or Stone-Graded and Drained
- Bituminous Surfaced
- Paved
- Divided Highway
- Road or Street in congested area
- Mileage indicated thus
- Highway Interchange
- Federal Aid Interstate Highway Number — FAI 25
- Federal Aid Primary Highway Number — FAP 41
- Federal Aid Secondary Highway Number — FAS 1441
- End of Federal Aid Route — FAP 4
- Federal Aid Interstate Highway Number — 10
- U.S. Highway Number — 84
- State Highway Number — 30
- National or State Line
- County Line
- Indian Reservation, Military Reservation, National Park, National Monument, National Forest, State Park and Game or Bird Refuge Line
- Land Grant Line
- City Limit Line
- Township Line

Boundaries and Monuments
- Section Line-Surveyed
- Boundary Monuments
- Triangulation Station
- Identical Lookout and Triangulation Station
- Identical Airway Beacon and Triangulation Station
- Identical Church and Triangulation Station
- Identical Schoolhouse and Triangulation Station
- Identical Building and Triangulation Station
- Permanent Bench Mark and Elevation — BM 1155
- Prominent Elevation — 7520'
- Township Corner in Place
- Section Corner in Place
- State Capital
- County Seat
- Other City, Town or Village

City, Town or Village
- City, Town or Village (Incorporated)
- Town or Village (Dashed Line denotes limits of Supplementary Vicinity Map)
- Dwelling or Farm Unit
- Group of Dwellings (Figure denotes number of units) — 12
- Hotel
- Store or Small Business House
- Post Office
- Business and Post Office

Farms, Dwellings, Industrial Units, etc.
- City Hall
- Schoolhouse
- Church
- Cemetery
- Hospital
- Factory or Industrial Plant
- Electric Power Station
- Radio Station
- Correctional Institution
- Sawmill
- Drive-in Theater
- Fire Station
- Historic Ruin
- Vacant Units are shown by open symbols, thus:
- Figure denotes number of units of like kind — 2
- Mine
- Corral
- Windmill
- Well or Water Tank
- Artesian Wells
- Oil or Gas Wells
- Forest Ranger Station, District
- Forest Ranger Station, Yearlong
- Forest Ranger Station, Seasonal
- Permanent Lookout Station
- Camping Ground

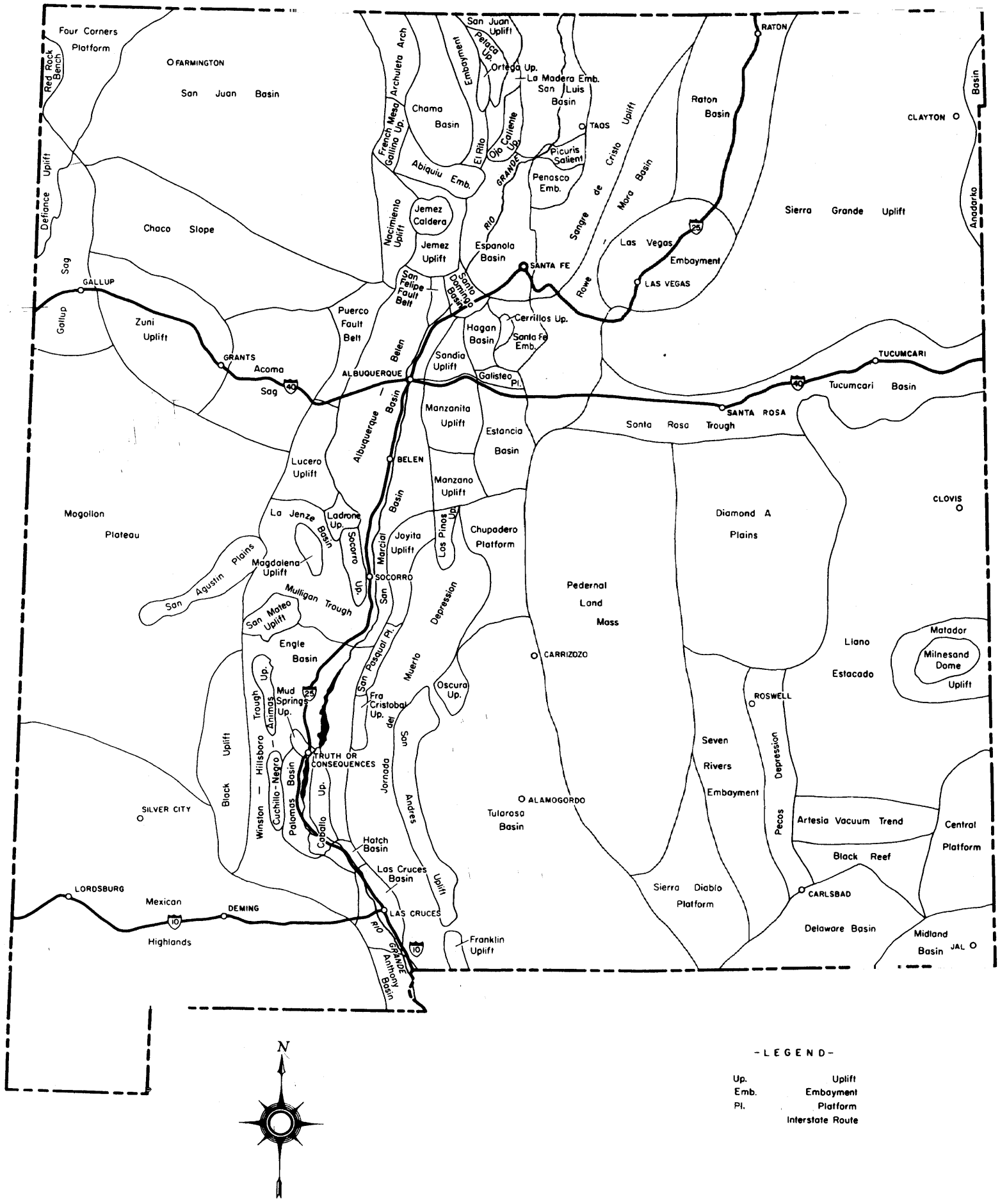
Railroad Crossings
- Railroad
- Narrow Gauge Railroad
- Railroad Tunnel
- Railroad Station (Local Agent)
- Railroad Station (Prepay)
- Grade
- Railroad above
- Railroad below

Bridges
- Railroad
- Highway (over 20' span)
- Ford
- Dam on Large River
- Dam on Small Stream
- Reservoir and Dam
- Ditch or Canal
- Flume
- Syphon
- Pipe Line or Conduit
- Tramway
- Telephone or Telegraph Line
- Telephone or Telegraph Line along road
- Transmission Line
- Fence (any type)
- Spring
- River
- Stream
- Intermittent Stream
- Large Intermittent Stream
- Marsh or Swamp
- Levee or Dike
- Mountain Range, Mesa or Butte
- Sink or Depression

Air Navigation
- Air Route
- Army, Navy or Marine Corps Field
- Commercial or Municipal Airport
- Intermediate Field
- Landing Area or Strip
- Airway Light Beacon

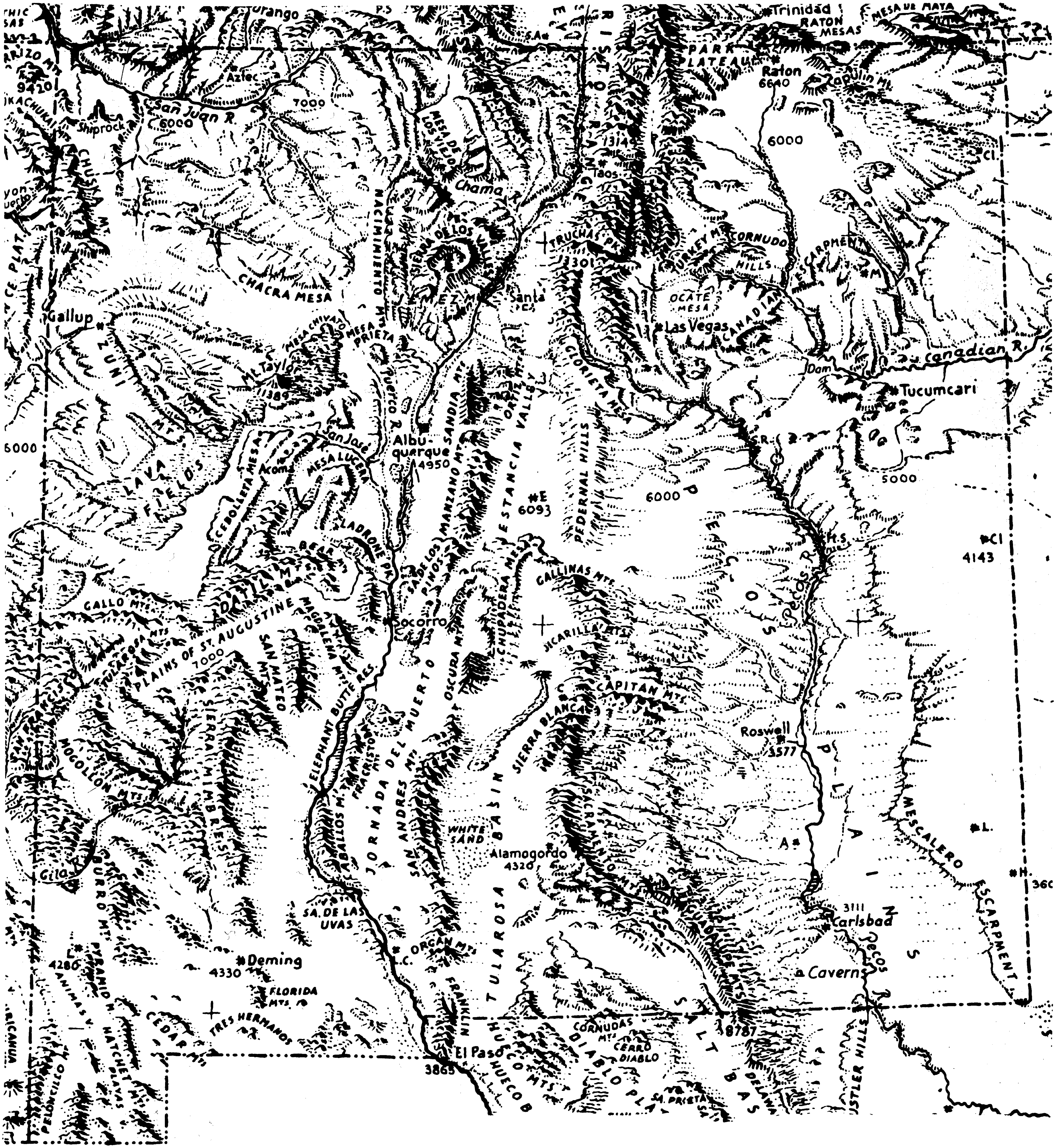
AGGREGATE RESOURCES AND GEOLOGY
NEW MEXICO STATE HIGHWAY DEPARTMENT

STRUCTURAL UNITS OF NEW MEXICO



GEOLOGIC TIME CHART

ERAS	PERIODS (of time) or SYSTEMS (of rock)	EPOCHS or SERIES	APPROXIMATE TIME IN YEARS SINCE BEGINNING OF EACH	PHYSICAL AND BIOLOGICAL FEATURES
CENOZOIC	QUATERNARY	Recent	10,000-15,000	Development of man.
		Pleistocene	1,000,000	Ice sheets over Europe and North America; appearance of early man.
	TERTIARY	Pliocene	11,000,000	Development of modern plants and animals; formation of mountains in western America.
		Miocene	25,000,000	Highest development of larger mammals; formation of mountains, including the Alps, Andes, and Himalayas.
		Oligocene	40,000,000	Development of higher mammals.
		Eocene & Paleocene	70,000,000	Rise to dominance of mammals; appearance of ancestral horse and primates.
MESOZOIC	CRETACEOUS		135,000,000	Extinction of dinosaurs; development of early mammals and flowering plants; deposit of chalk beds.
	JURASSIC		180,000,000	Appearance of flying reptiles and birds; dominance of dinosaurs; appearance of primitive mammals; abundance of coniferous trees.
	TRIASSIC		230,000,000	Appearance of dinosaurs; dominance of reptiles; appearance of cycadaceous trees.
PALEOZOIC	PERMIAN		280,000,000	Development of reptiles; decline of huge plants of the Mississippian and Pennsylvanian.
	PENNSYLVANIAN		310,000,000	Age of coal; formation of coal beds from luxuriant plant life in warm, swampy forests; great fernlike trees; appearance of primitive conifers; abundance of insect life; first appearance of reptiles; development of amphibians.
	MISSISSIPPIAN		345,000,000	
	DEVONIAN		400,000,000	Age of fish; appearance of primitive amphibians; development of primitive plant life on dry continents.
	SILURIAN		425,000,000	Appearance of scorpions, the first animals to live on dry land; extensive coral reefs.
	ORDOVICIAN		500,000,000	Floods and recessions of shallow seas; deposits of limestone, lead, and zinc ores; abundance of marine invertebrate life; appearance of a few primitive fishlike vertebrates.
	CAMBRIAN		600,000,000	Shallow seas over much of the land; formation of sedimentary rocks; development of marine invertebrate life, including brachiopods, snails, sponges, and trilobites.
PRECAMBRIAN	PROTEROZOIC		1,500,000,000	Formation of mountains; deposits of iron ore; abundance of lime secreting algae; appearance of sponges.
	ARCHEOZOIC		2,000,000,000+	Great volcanic activity; formation of igneous rocks; some microscopic algae; probably some protozoa.



Durango
Trinidad
RATON MESAS
MESA DE MAYA
PARK PLATEAU
Raton
6640
Capulin Mt.
Aztec
7000
San Juan R.
6000
Shiprock
9420
CHUSKA MTS.
Chama R.
MESA DE LOS VIEJOS
NACIMIENTO MTS.
SIERRA DE LOS VALLES
13144
Taos
TRUCHAS PK.
13101
TURKEY MT.
CORNUDO HILLS
OCATE MESA
ESCARPMENT
CHACRA MESA
JEMEZ MTS.
Santa Fe
Gallup
ZUNI MTS.
MESA CHIVATO
MESA PRIETA
Mt. Taylor
11389
Las Vegas
CANADIAN
Canadian R.
Dam
Tucumcari
GLORIETA MESA
San José
Puerco R.
Albuquerque
4950
SANDIA MTS.
ORTIZ MTS.
ESTANCIA VALLEY
PEDERNAL HILLS
6000
LAVA FIELDS
Acoma
MESA LUCERO
CEBOLLETA MESA
MANZANO MTS.
6093
6000
5000
PECOS
Pecos R.
LADRONE PK.
BEAR MTS.
DATIL MTS.
SIERRA DE LOS PINOS
CHUPADERA MESA
GALLINAS MTS.
4143
GALLO MTS.
PLAINS OF ST AUGUSTINE
MAGDALENA MTS.
Socorro
JICARILLA MTS.
TULAROSA MTS.
7000
SAN MATEO MTS.
OSCURA MTS.
CAPITAN MTS.
SIERRA MIMBRES
ELEPHANT BUTTE RES.
FRA CRISTOBAL
JORNADA DEL MUERTO
SAN ANDRES MTS.
SIERRA BLANCA
Roswell
3577
MOGOLLON MTS.
CABALLOS MTS.
WHITE SAND
TULAROSA BASIN
SACRAMENTO MTS.
MESCALERO
PLAINS
Gila R.
BURRO MTS.
Alamogordo
4320
SA. DE LAS UVAS
3111
Carlsbad
SCARPMENT
ORGAN MTS.
Deming
4330
4280
Caverns
PYRAMID MTS.
FLORIDA MTS.
FRANKLIN
GUADALUPE MTS.
TRES HERMANOS
CEDAR MTS.
ANIMAS V.
HATCHET MTS.
PLAYAS
PELONCILLO
CORNUDAS MTS.
CERRO DIABLO
8787
SALT BASIN
El Paso
3865
HUECO MTS.
DIABLO PLAT.
SA. PRIETA
DELAWARE
RUSTLER HILLS

EXPLANATION

QUAD No. 49

QUATERNARY

- Qal — Alluvium
- Qe — Eolian deposits
- Ql — Landslide Debris
- Qt — Terrace deposits (Post Glacial)
- Qp — Pediment deposits
- Qb_3 — Basalt (Oldest)
- QTg — Older gravel deposits

TERTIARY

- Ti — Intrusive rocks undivided
- Tb — Basalt
- Tdvs — Datil Sedimentary series

CRETACEOUS

- Kcc — Crevasse Canyon Formation
- Kg — Gallup Sandstone
- Kmv — Mesa Verde Group
- Km — Mancos Shale
- Kd — Dakota Sandstone

JURASSIC

- J — Jurassic rocks undivided

TRIASSIC

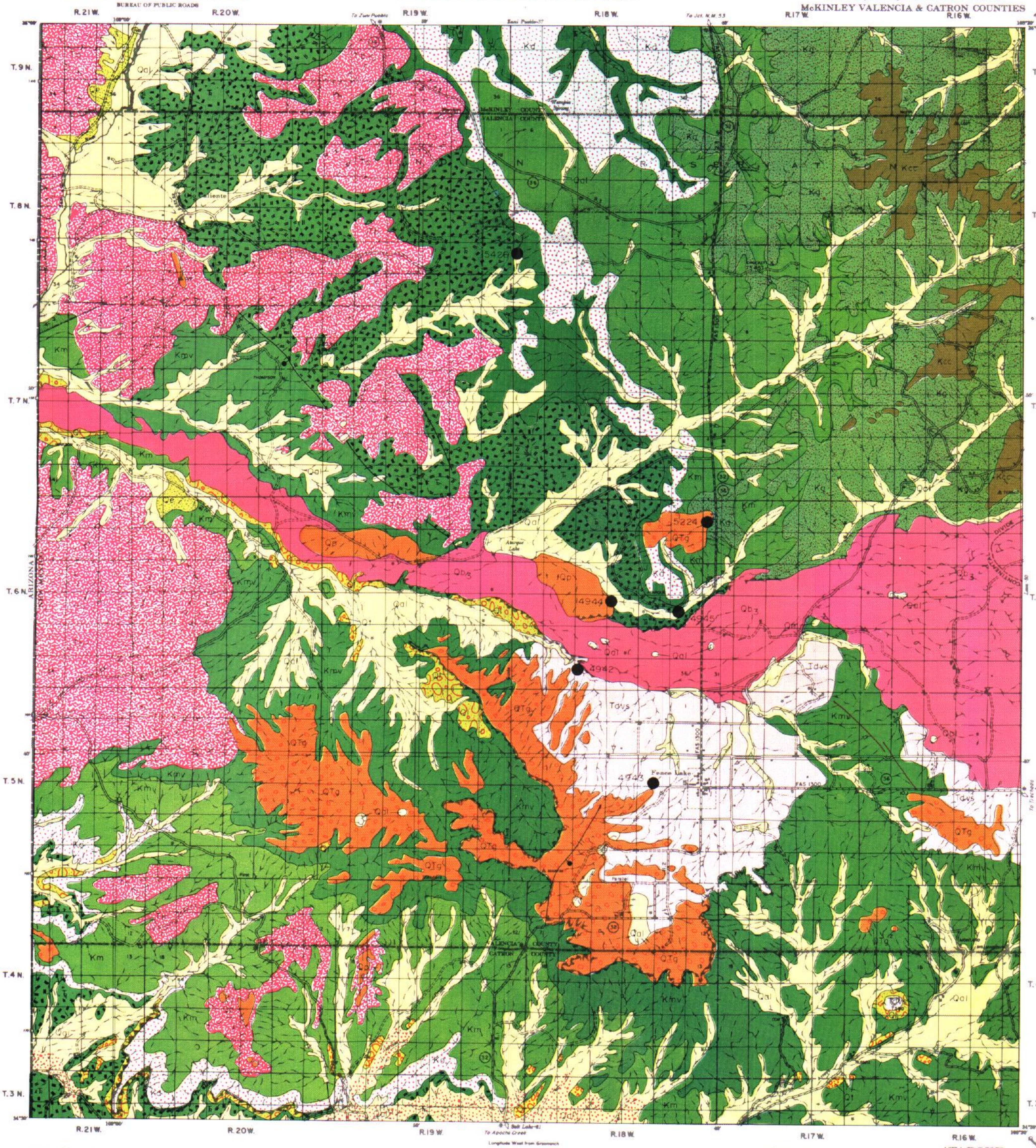
- R — Triassic rocks undivided

- Established pit or quarry
- Prospect pit or quarry
- Fault — downthrown side
- Anticline
- Syncline

NEW MEXICO STATE HIGHWAY DEPARTMENT
PLANNING AND PROGRAMMING DIVISION
BUREAU OF PUBLIC ROADS

GEOLOGY and AGGREGATE RESOURCES

ATARQUE QUADRANGLE-49
McKINLEY VALENCIA & CATRON COUNTIES



Control by U.S. Coast and Geodetic Survey, U.S. Geological Survey, U.S. Forest Service, Bureau of Land Management and Planning Division—Modified Conic Projection Standard Parallel 34° North American Datum

DATE OF INVENTORY
GEOLOGY SEPT 1977
AGGREGATE RESOURCES SEPT 1977

Scale $\frac{1}{190080}$ or 1 Inch = 3 Miles

STATUTE MILES

DATE OF INVENTORY
CATRON COUNTY 1963
McKINLEY COUNTY 1964
VALENCIA COUNTY 1962

ATARQUE QUADRANGLE
49

CONSTRUCTION MATERIALS INVENTORY

MATERIAL PIT SUMMARY

Pit Number		4942	4943	4944	4945
Location	Section	W½ Sec. 33	South Center Sec. 14	NW¼ Sec. 22	Section 24
	Township & Range	6N 18W	5N 18W	6N 18W	6N 18W
	County	Valencia	Valencia	Valencia	Valencia
Formation		Tdvs	Tdvs	Qp	Qal
Rock Type		sand & gravel	sand & gravel	sand & gravel	sand
Source Rock (Gravel)					
Quality of Material					
Thickness of Material					
Thickness of Cap (Caliche)					
Material Underlying Formation					
Vegetation					
Local Terrain					
Thickness of Overburden					
P. I. (Overburden)					
Estimated Quantity (cu. yds)					
Los Angeles Wear					
Soundness Loss					
Average Maximum Size					
% Retained on 2" Sieve					
Pit Average % Passing	Crushed to:				
	2"				
	1"				
	½"				
	No. 4				
	No. 10				
	No. 200				
Plasticity Index					
Remarks:					

Pit Number		5224	5426
Location	Section	NW¼ Sec. 6	NE¼ NW¼ Sec. 30
	Township & Range	6N 17W	8N 18W
	County	Valencia	Valencia
Formation		Qtg	Qal
Rock Type		sand & gravel	conglomerate, sand & gravel
Source Rock (Gravel)			
Quality of Material			
Thickness of Material			
Thickness of Cap (Caliche)			
Material Underlying Formation			
Vegetation			
Local Terrain			
Thickness of Overburden			
P. I. (Overburden)			
Estimated Quantity (cu. yds.)			
Los Angeles Wear			
Soundness Loss			
Average Maximum Size			
% Retained on 2" Sieve			
Pit Average % Passing	Crushed to:		
	2"		
	1"		
	½"		
	No. 4		
	No. 10		
	No. 200		
Plasticity Index			
Remarks:			

EXPLANATION

QUAD No. 50

QUATERNARY

- Qal — Alluvium
- Qp — Pediment deposits
- Ql — Landslide Debris
- Qe — Eolian deposits
- Qb — Basalt (Youngest or undiff.)
- Qb_2 — Basalt (Intermediate)
- Qb_3 — Basalt (Oldest)
- Qc — Cinders and Scoria
- QTb — Basalt
- QTg — Older gravel deposits

TERTIARY

- Tdvs — Datil Sedimentary series
- Ti — Intrusive rocks undivided
- Tbc — Baca Formation

CRETACEOUS

- Kcc — Crevasse Canyon Formation
- Kg — Gallup Sandstone
- Kmv — Mesa Verde Group
- Km — Mancos Shale
- Kd — Dakota Sandstone

JURASSIC

- J — Jurassic rocks undivided

PERMIAN

- Pg — Glorieta Sandstone
- Py — Yeso Formation
- Pa — Abo Formation

PRECAMBRIAN

- p€ — Precambrian undivided

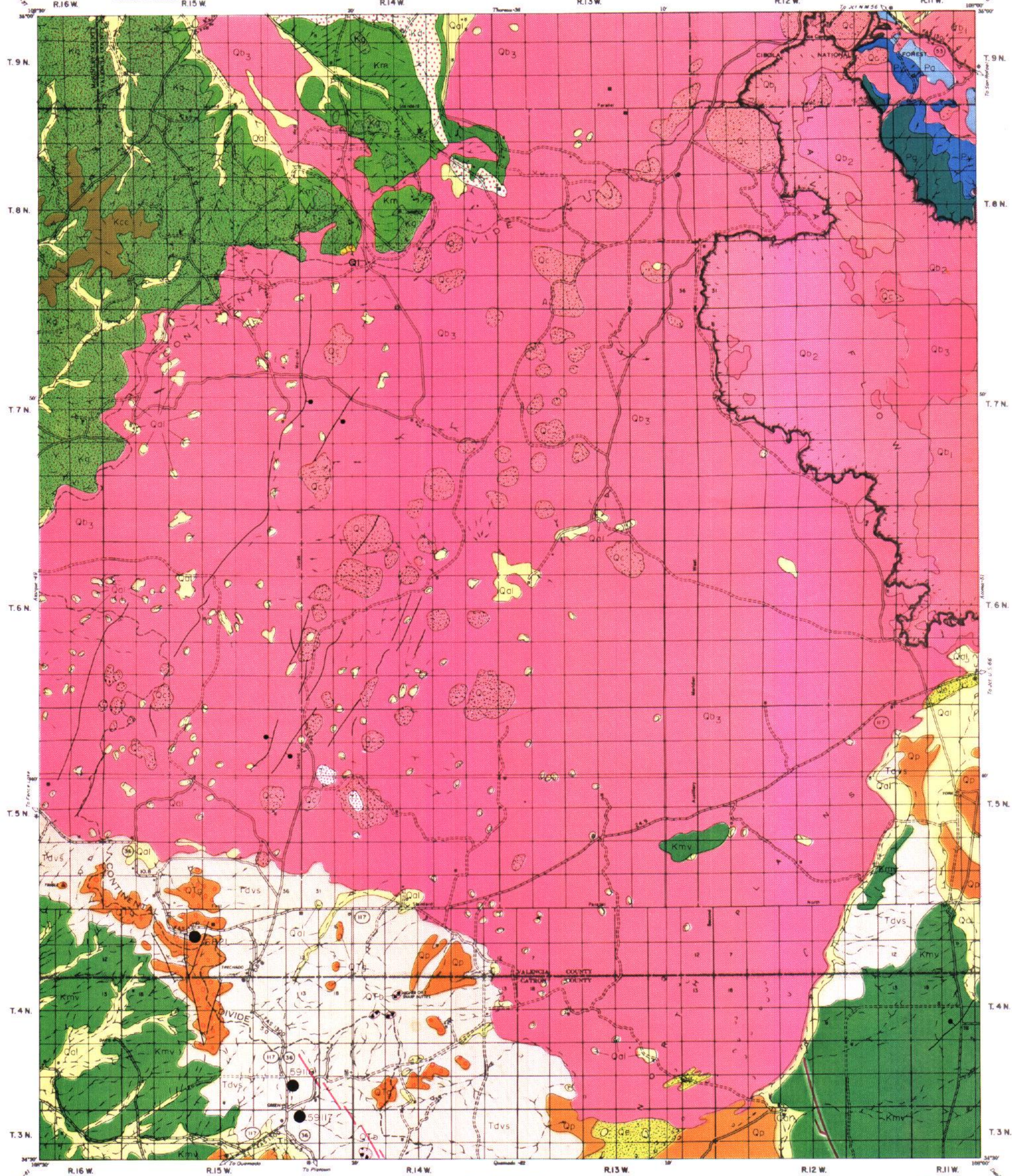
- Established pit or quarry
- Prospect pit or quarry
- Fault — downthrown side
- Anticline
- Syncline

NEW MEXICO STATE HIGHWAY DEPARTMENT
PLANNING AND PROGRAMMING DIVISION
BUREAU OF PUBLIC ROADS

GEOLOGY and AGGREGATE RESOURCES

LAVA QUADRANGLE - 50

McKINLEY VALENCIA & CATRON COUNTIES



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DATE OF INVENTORY
GEOLOGY OCT. 1977
AGGREGATE RESOURCES OCT. 1977

Longitude West from Greenwich

Scale $\frac{1}{190,080}$ or 1 Inch = 3 Miles

1 1/2 0 1 2 3 4
STATUTE MILES

DATE OF INVENTORY
CATRON COUNTY 1963
MCKINLEY COUNTY 1964
VALENCIA COUNTY 1962

LAVA
QUADRANGLE
50

CONSTRUCTION MATERIALS INVENTORY

MATERIAL PIT SUMMARY

Pit Number		59117	59118	6821
Location	Section	N½ 1	NW¼ Sec. 36	SW¼ Sec. 4
	Township & Range	3N 15W	4N 15W	Valencia
	County	Catron	Catron	
Formation		Tdvs	Tdvs	Qtg
Rock Type		sand & gravel	sand & gravel	
Source Rock (Gravel)				
Quality of Material				
Thickness of Material				6-12' plus
Thickness of Cap (Caliche)				
Material Underlying Formation				
Vegetation		pinon & trees		grass, cedar & pinon
Local Terrain		hill		small ridge
Thickness of Overburden				2-3'
P. I. (Overburden)				
Estimated Quantity (cu. yds)				
Los Angeles Wear				24.0
Soundness Loss				17.7
Average Maximum Size				
% Retained on 2" Sieve				
Pit Average % Passing	Crushed to:			as received
	2"			43
	1"			30
	½"			26
	No. 4			19
	No. 10			14
	No. 200			2
Plasticity Index				N.P.
Remarks:				

Pit Number		
Location	Section	
	Township & Range	
	County	
Formation		
Rock Type		
Source Rock (Gravel)		
Quality of Material		
Thickness of Material		
Thickness of Cap (Caliche)		
Material Underlying Formation		
Vegetation		
Local Terrain		
Thickness of Overburden		
P. I. (Overburden)		
Estimated Quantity (cu. yds.)		
Los Angeles Wear		
Soundness Loss		
Average Maximum Size		
% Retained on 2" Sieve		
Pit Average % Passing	Crushed to:	
	2"	
	1"	
	½"	
	No. 4	
	No. 10	
	No. 200	
Plasticity Index		
Remarks:		

EXPLANATION

QUAD No. 51

QUATERNARY

- Qal — Alluvium
- Qe — Eolian deposits
- Ql — Landslide Debris
- Qt — Terrace deposits (Post Glacial)
- Qp — Pediment deposits
- Qb — Basalt (Youngest or undiff.)
- Qb_2 — Basalt (Intermediate)
- Qb_3 — Basalt (Oldest)
- QTb — Basalt
- QTb_2 — Older Basalt

TERTIARY

- Tc — Older Cinders
- Tb — Basalt
- Td — Datil Volcanics undifferentiated

CRETACEOUS

- Kmv — Mesa Verde Group
- Km — Mancos Shale
- Kmth — Tres Hermanos S.S. Mbr. & Mancos Shale
- Kd — Dakota Sandstone

JURASSIC

- J — Jurassic rocks undivided
- Jm — Morrisone Formation
- Jbs — Bluff and Summerville Fm.
- Jet — Entrada and Todilto undivided

TRIASSIC

- TR — Triassic rocks undivided

PERMIAN

- Psa — San Andres Limestone
- Pg — Glorieta Sandstone
- Py — Yeso Formation
- Pa — Abo Formation

PRECAMBRIAN

- pC — Precambrian undivided

- Established pit or quarry
- Prospect pit or quarry
- Fault — downthrown side
- Anticline
- Syncline

NEW MEXICO STATE HIGHWAY DEPARTMENT

PLANNING AND PROGRAMMING DIVISION

BUREAU OF PUBLIC ROADS

GEOLOGY and AGGREGATE RESOURCES

ACOMA QUADRANGLE-51

SOCORRO VALENCIA & CATRON COUNTIES

R.11 W. R.10 W. R.9 W. R.8 W. R.7 W.

T.9 N. T.8 N. T.7 N. T.6 N. T.5 N. T.4 N. T.3 N.

Control by U.S. Coast and Geodetic Survey, U.S. Geological Survey, U.S. Forest Service, Bureau of Land Management and Planning Division—Modified Conic Projection Standard Parallel 34½° North American Datum

DATE OF INVENTORY

GEOLOGY JAN. 1977

AGGREGATE RESOURCES JAN. 1977

Longitude West from Greenwich

Scale $\frac{1}{126720}$ or 1 Inch = 3 Miles

DATE OF INVENTORY

CATRON COUNTY 1963

SOCORRO COUNTY 1962

VALENCIA COUNTY 1962

ACOMA QUADRANGLE 51

CONSTRUCTION MATERIALS INVENTORY

MATERIAL PIT SUMMARY

Pit Number		5562	5563	5564
Location	Section	S½ Sec. 37	Section 36	SW¼ Sec. 34
	Township & Range	9N 10W	9N 11W	9N 10W
	County	Valencia	Valencia	Valencia
Formation		Psa	Pe	Pe
Rock Type		limestone	granite	weathered granite
Source Rock (Gravel)				
Quality of Material				
Thickness of Material				7-10'
Thickness of Cap (Caliche)				
Material Underlying Formation				
Vegetation			cedar & pine	
Local Terrain			hill	
Thickness of Overburden				0-5'
P. I. (Overburden)				8
Estimated Quantity (cu. yds)		unlimited	unlimited	unlimited
Los Angeles Wear		31.2		61.6
Soundness Loss				
Average Maximum Size				
% Retained on 2" Sieve				
Pit Average % Passing	Crushed to:	3/4"		3/4"
	2"			
	1"	(3/4")100	(3/4")	100
	½"	67		93
	No. 4	27		68
	No. 10	16		47
	No. 200	2		18
Plasticity Index		N.P.		N.P.

Remarks:

Pit Number		
Location	Section	
	Township & Range	
	County	
Formation		
Rock Type		
Source Rock (Gravel)		
Quality of Material		
Thickness of Material		
Thickness of Cap (Caliche)		
Material Underlying Formation		
Vegetation		
Local Terrain		
Thickness of Overburden		
P. I. (Overburden)		
Estimated Quantity (cu. yds.)		
Los Angeles Wear		
Soundness Loss		
Average Maximum Size		
% Retained on 2" Sieve		
Pit Average % Passing	Crushed to:	
	2"	
	1"	
	½"	
	No. 4	
	No. 10	
	No. 200	
Plasticity Index		

Remarks:

EXPLANATION

QUAD No. 52

QUATERNARY

- Qal — Alluvium
- Qaa — Alluvial Aprons
- Qab — Bolson deposits
- Qe — Eolian deposits
- Qt — Terrace deposits (Post Glacial)
- Qp — Pediment deposits
- Ql — Landslide Debris
- Qt_2 — Terrace deposits (Pinedale)
- Qt_3 — Terrace deposits (Late Bull Lake)
- Qip — Intermediate Pediment deposits
- Qb — Basalt (Youngest or undiff.)
- Qv — Volcanics undivided
- Qc — Cinders and Scoria
- Qs — Spring deposits
- Qb_2 — Basalt (Intermediate)
- Qb_3 — Basalt (Oldest)
- Qop — Older Pediment deposits
- QTsf — Santa Fe Formation

QUATERNARY-TERTIARY

- QTb — Basalt

TERTIARY

- Ti — Intrusive rocks undivided
- Tb — Basalt

CRETACEOUS

- Kmv — Mesa Verde Group
- Kg — Gallup Sandstone
- Km — Mancos Shale
- Kd — Dakota Sandstone

JURASSIC

- Jm — Morrison Formation
- Jbs — Bluff and Summerville Formation
- Jt — Todilto Formation
- Je — Entrada Formation

TRIASSIC

- R — Triassic rocks undivided

PERMIAN

- Psa — San Andres Limestone
- Pg — Glorieta Sandstone
- Py — Yeso Formation
- Pa — Abo Formation

PENNSYLVANIAN

- Pm — Madera Limestone

PRECAMBRIAN

- p€ — Precambrian undivided

- Established pit or quarry
- Prospect pit or quarry
- Fault — downthrown side
- Anticline
- Syncline

NEW MEXICO STATE HIGHWAY DEPARTMENT

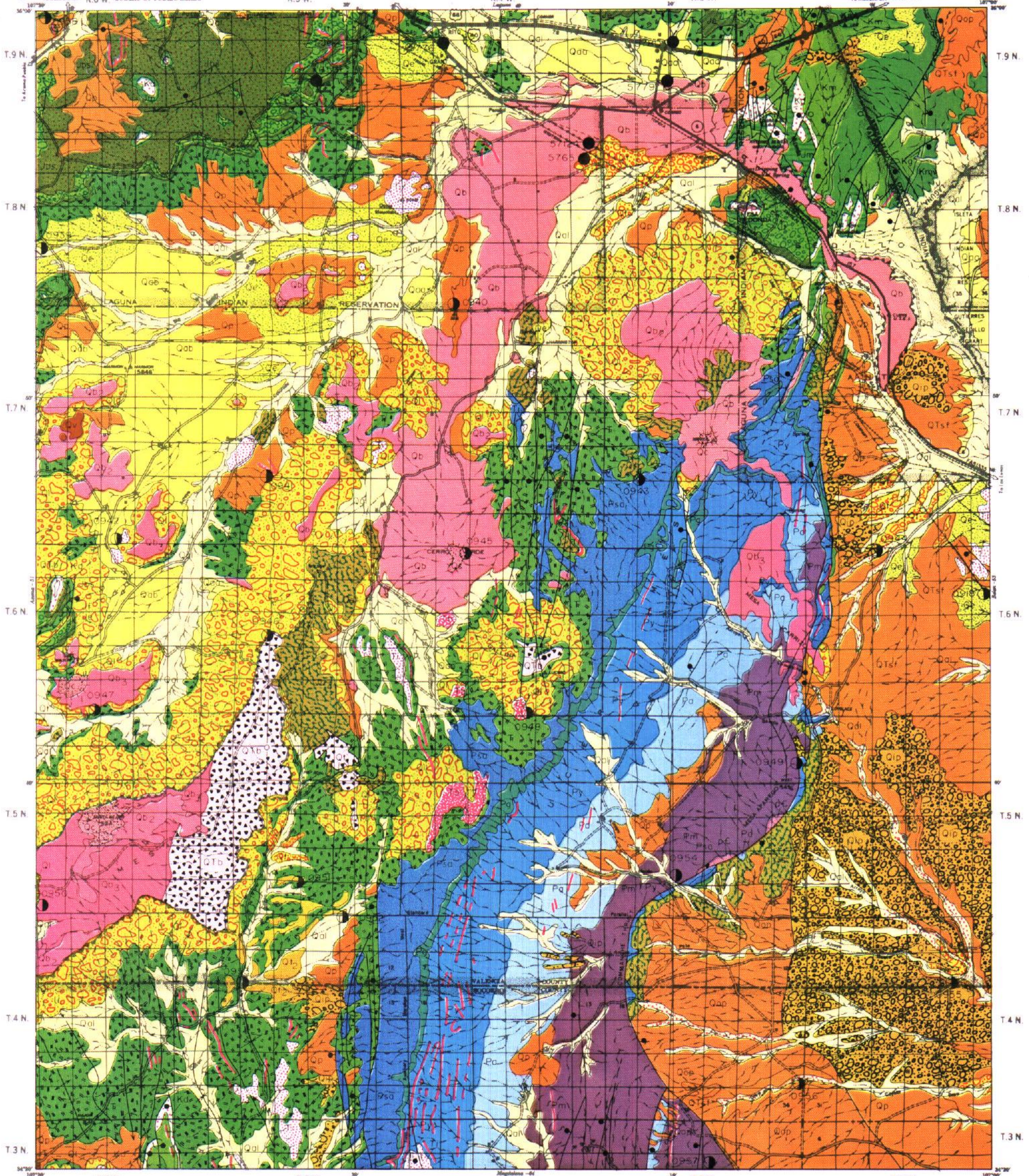
PLANNING AND PROGRAMMING DIVISION

BUREAU OF PUBLIC ROADS

GEOLOGY and AGGREGATE RESOURCES

SUWANEE QUADRANGLE-52

BERNALILLO SOCORRO & VALENCIA COUNTIES



Control by U.S. Coast and Geodetic Survey; U.S. Geological Survey, U.S. Forest Service, Bureau of Land Management and Planning Division—Modified Conic Projection Standard Parallel 35½° North American Datum

DATE OF INVENTORY

GEOLOGY DEC. 1977

AGGREGATE RESOURCES DEC. 1977

Longitude West from Greenwich

Scale $\frac{1}{126720}$ or 1 Inch = 3 Miles

DATE OF INVENTORY

BERNALILLO COUNTY	1964
SOCORRO COUNTY	1982
VALENCIA COUNTY	1982

SUWANEE QUADRANGLE 52

MATERIAL PIT SUMMARY

Pit Number		5765		5776	5779		5780
Location	Section	E½ 12		NW¼ 29	NE¼ 33		NW¼ 28
	Township & Range	8N 4W		9N 4W	9N 3W		9N 3W
	County	Valencia		Valencia	Valencia		Valencia
Formation		Qt		Qe	Qb		Qaa
Rock Type		sand & gravel		dune sand	basalt		silty sand
Source Rock (Gravel)		basalt & various					
Quality of Material		good		good	poor		poor
Thickness of Material		16' plus		10-15'	20'		5' plus
Thickness of Cap (Caliche)							
Material Underlying Formation		silt		shale	clay		sandstone
Vegetation		grass		grass	grass		grass
Local Terrain		rolling		rolling	rolling		sloping plain
Thickness of Overburden		1-6'		0-2'	0-3'		0-2'
P. I. (Overburden)		7		S,N,P,	6		S,N,P,
Estimated Quantity (cu. yds)		150,000 plus		50,000 plus	150,000 plus		250,000 plus
Los Angeles Wear		29.2			40.8		
Soundness Loss		20.4		S,E,: 42	9.9		S,E,: 36
Average Maximum Size		4"					
% Retained on 2" Sieve		10					
Pit Average % Passing	Crushed to:	as received		as received	2"		as received
	2"	94			100		
	1"	91			40		
	½"	83	No. 10:	100	22	No. 10:	100
	No. 4	59	No. 40:	99	12	No. 40:	93
	No. 10	42	No. 80:	89	8	No. 80:	83
	No. 200	7	No. 200:	13	2	No. 200:	31
Plasticity Index		N,P.		N,P,	N,P,		N,P,
Remarks:							

Pit Number		57124
Location	Section	E½ 12
	Township & Range	8N 4W
	County	Valencia
Formation		Qt
Rock Type		sand & gravel
Source Rock (Gravel)		basalt & various
Quality of Material		good
Thickness of Material		15' plus
Thickness of Cap (Caliche)		
Material Underlying Formation		silt
Vegetation		grass
Local Terrain		rolling
Thickness of Overburden		2-4'
P. I. (Overburden)		N.P.
Estimated Quantity (cu. yds.)		300,000 plus
Los Angeles Wear		22.8
Soundness Loss		20.4
Average Maximum Size		4"
% Retained on 2" Sieve		8
Pit Average % Passing	Crushed to:	as received
	2"	90
	1"	81
	½"	72
	No. 4	53
	No. 10	35
	No. 200	2
Plasticity Index		N.P.
Remarks:		

EXPLANATION

QUAD No. 53

QUATERNARY

- Qal — Alluvium
- Qfp — Floodplain deposits
- Qaa — Alluvial Aprons
- Qe — Eolian deposits
- Qp — Pediment deposits
- Qt — Terrace deposits (Post Glacial)
- Qaf — Alluvial fan deposits
- Qc — Cinders and Scoria
- Qb — Basalt (Youngest or undiff.)
- Qip — Intermediate Pediment deposits
- Qop — Older Pediment deposits
- QTsf — Santa Fe Formation

TER-TIARY

- Ti — Intrusive rocks undivided

CRETA-CEOUS

- Kmv — Mesa Verde Group

JUR-ASSIC

- Je — Entrada Formation

TRI-ASSIC

- R — Triassic rocks undivided
- Psa — San Andres Limestone

PERMIAN

- Pg — Glorieta Sandstone
- Py — Yeso Formation
- Pa — Abo Formation

PENNSYLVANIAN

- ℙm — Madera Limestone

PRECAMBRIAN

- p€g — Granite
- p€q — Quartzite
- p€m — Metamorphic rocks undivided

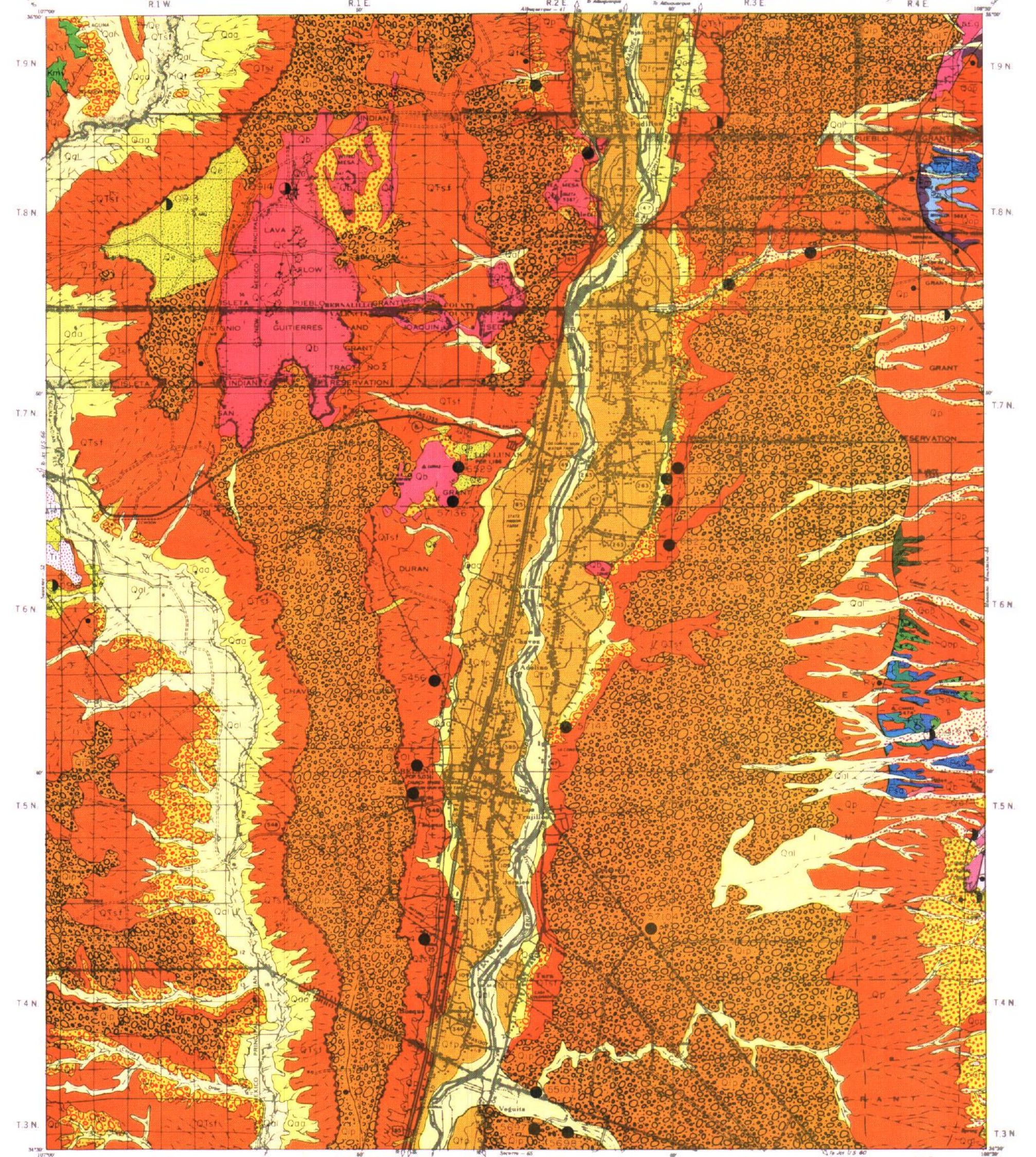
- Established pit or quarry
- Prospect pit or quarry
- Fault — downthrown side
- Anticline
- Syncline

NEW MEXICO STATE HIGHWAY DEPARTMENT
PLANNING AND PROGRAMMING DIVISION
BUREAU OF PUBLIC ROADS

GEOLOGY and AGGREGATE RESOURCES

BELEN QUADRANGLE 53

BERNALILLO SOCORRO & VALENCIA COUNTIES



Control by U.S. Coast and Geodetic Survey, U.S. Geological Survey, U.S. Forest Service, Bureau of Land Management and Planning Division—Modified Conic Projection Standard Parallel 34°20' North American Datum

DATE OF INVENTORY
GEOLOGY JAN. 1978
AGGREGATE RESOURCES JAN. 1978

Scale 1/126720 or 1 Inch = 2 Miles

BELEN QUADRANGLE 53

CONSTRUCTION MATERIALS INVENTORY

MATERIAL PIT SUMMARY

Pit Number		5455	5456	55103	55104
Location	Section	not sectionalized	not sectionalized	not sectionalized	not sectionalized
	Township & Range	Belen Grant	Nicolas Duran de Chavez Grant	Casa Colorado Grant	Belen Grant
	County	Valencia	Valencia	Valencia	Valencia
Formation		QTsf	Qt	Qt	QTsf
Rock Type		sand and gravel	sand and gravel	sand and gravel	sand and gravel
Source Rock (Gravel)		various	limestone and various	various	various
Quality of Material		fair	good	good	fair
Thickness of Material		76' plus	10' plus	8'	12'
Thickness of Cap (Caliche)			-	-	-
Material Underlying Formation		silt and clay	sandstone	gravel and sand	clay
Vegetation		cacti and grass	grass and greasewood	grass	greasewood and grass
Local Terrain		dissected slope	mesa slope	hilly	slope
Thickness of Overburden		3'	0-2'	0-3'	0-6'
P. I. (Overburden)		N.P.	N.P.	N.P.	N.P.
Estimated Quantity (cu. yds)		500,000	150,000 plus	200,000	200,000
Los Angeles Wear		29.4	28.0	26.2	26.0
Soundness Loss		6.1	8.6	3.5	15.0
Average Maximum Size		2"	2"	4"	2"
% Retained on 2" Sieve		1	6	11	3
Pit Average % Passing	Crushed to:	1"	as received	as received	as received
	2"	-	97	100	100
	1"	100	90	84	98
	½"	98	79	62	92
	No. 4	68	59	45	74
	No. 10	45	42	38	57
	No. 200	5	5	10	3
Plasticity Index		N.P.	N.P.	N.P.	N.P.
Remarks:					

Pit Number		5697	5698	5704	57104
Location	Section	not sectionalized	not sectionalized	NE 26	not sectionalized
	Township & Range	Casa Colorado Grant	Casa Colorado Grant	8N 3E	Tome claim
	County	Socorro	Socorro	Valencia	Valencia
Formation		Qt	Qt	QTsf	Qe
Rock Type		sand and gravel	sand and gravel	sand and gravel	sand
Source Rock (Gravel)		various	various	limestone	-
Quality of Material		fair	fair	good	good
Thickness of Material		12'	13' plus	10' plus	6'
Thickness of Cap (Caliche)		-	-	-	-
Material Underlying Formation		clay	silt and clay	clay	sandstone @ depth
Vegetation		cacti and grass	cacti and grass	grass	grass
Local Terrain		hilly	dissected terraces	slope	rolling
Thickness of Overburden		1-4'	1-6'	1-5'	0-2'
P. I. (Overburden)		8	6	N.P.	N.P.
Estimated Quantity (cu. yds.)		100,000	100,000	200,000	100,000
Los Angeles Wear		28.8	29.0	24.4	S.E. = 49.0
Soundness Loss		1.1	3.0	0.5	-
Average Maximum Size		3"	3"	16"	-
% Retained on 2" Sieve		18	15	25	-
Pit Average % Passing	Crushed to:	1"	1"	2"	as received
	2"	-	-	100	-
	1"	100	100	71	-
	½"	68	81	53	10:100
	No. 4	47	57	37	40:96
	No. 10	31	38	31	80:67
	No. 200	2	3	2	200:25
Plasticity Index		N.P.	N.P.	N.P.	N.P.
Remarks:					

CONSTRUCTION MATERIALS INVENTORY

MATERIAL PIT SUMMARY

Pit Number		57133	57136	57143	6401
Location	Section	SW31	Not sectionalized	Not sectionalized	Not sectionalized
	Township & Range	7N 3E	San Clemente Grant	Tome claim	Belen Grant
	County	Valencia	Valencia	Valencia	Valencia
Formation		Qt	Qb	QTsf	QTsf
Rock Type		sand and gravel	basalt and dacite	sand and gravel	sand and gravel
Source Rock (Gravel)		various	-	various	various
Quality of Material		good	good	good	good
Thickness of Material		10' plus	70' plus	12' plus	20' plus
Thickness of Cap (Caliche)		-	-	-	-
Material Underlying Formation		silt	silt	clay	clay
Vegetation		sage and grass	tumble weed and grass	grass	grass
Local Terrain		dissected terrace	side hill	dissected terrace	slope
Thickness of Overburden		2'	none	none	2'
P. I. (Overburden)		N.P.	-	-	N.P.
Estimated Quantity (cu. yds)		150,000	150,000	100,000	250,000
Los Angeles Wear		25.6	31.2	27.2	29.4
Soundness Loss		1.5	1.5	-	-
Average Maximum Size		6"	8'	3"	2"
% Retained on 2" Sieve		7	95	7	3
Pit Average % Passing	Crushed to:	2"	2"	2"	as received
	2"	100	100	93	100
	1"	70	54	90	96
	½"	40	28	69	88
	No. 4	31	15	51	68
	No. 10	26	10	10	50
	No. 200	1	2	0	6
Plasticity Index		N.P.	N.P.	N.P.	N.P.
Remarks:					

Pit Number		6468	6529	6739	6741
Location	Section	NW33	Not sectionalized	Not sectionalized	NE10
	Township & Range	8N 3E	San Clemente Grant	Pajarito Grant	8N 2E
	County	Valencia	Valencia	Bernalillo	Bernalillo
Formation		Qal	Qb	QTsf	Qp(2)
Rock Type		sand and gravel	dacite	sand and gravel	sand and gravel
Source Rock (Gravel)		various	-	various	limestone and various
Quality of Material		good	good	good	good
Thickness of Material		12' plus	12' plus	12' plus	14'
Thickness of Cap (Caliche)		-	-	-	-
Material Underlying Formation		clay and sand	-	clay	clay
Vegetation		grass	grass	grass	grass
Local Terrain		canyon bottom	mountainous	slope	mesa top
Thickness of Overburden		2-4'	6'	1-6'	2'
P. I. (Overburden)		5	N.P.	N.P.	6
Estimated Quantity (cu. yds.)		100,000	500,000	250,000	250,000
Los Angeles Wear		20.0	21.2	24.4	25.2
Soundness Loss		1.2	7.4	2.8	3.6
Average Maximum Size		3"	6"	3"	2"
% Retained on 2" Sieve		9	18	7	2
Pit Average % Passing	Crushed to:	as received	as received	as received	as received
	2"	86	52	89	86
	1"	82	37	79	69
	½"	74	32	68	55
	No. 4	57	27	58	41
	No. 10	43	24	51	34
	No. 200	6	11	1	3
Plasticity Index		N.P.	N.P.	N.P.	N.P.
Remarks:					

MATERIAL PIT SUMMARY

Pit Number		6822	7208	7301	0913
Location	Section	NE7	NW31	SE30	SW15
	Township & Range	6N 3E	7N 3E	7N 3E	8N 1W
	County	Valencia	Valencia	Valencia	Bernalillo
Formation		Qt	Qt	QTsf	Qe
Rock Type		sand and gravel	sand and gravel	sand and gravel	sand
Source Rock (Gravel)		various	various	various	-
Quality of Material		excellent	excellent	good	fair
Thickness of Material		10' plus	15'	14' plus	1-3'
Thickness of Cap (Caliche)		-	-	-	-
Material Underlying Formation		sandstone	sand	clay	siltstone
Vegetation		grass	grass	grass	grass
Local Terrain		hilly	rolling	rolling	hilly
Thickness of Overburden		0-3'	0-2'	0-2'	0-2'
P. I. (Overburden)		N.P.	N.P.	N.P.	N.P.
Estimated Quantity (cu. yds)		250,000	100,000	175,000	150,000
Los Angeles Wear		21.2	24.0	23.9	S.E. = 79
Soundness Loss		3.6	2.8	1.9	-
Average Maximum Size		3"	4"	4"	-
% Retained on 2" Sieve		6	10	10	-
Pit Average % Passing	Crushed to:	as received	as received	as received	as received
	2"	94	88	87	
	1"	75	86	77	
	½"	65	77	61	10:100
	No. 4	57	65	43	40:98
	No. 10	53	53	20	80:58
	No. 200	4	4	4	200:10
Plasticity Index		N.P.	N.P.	N.P.	N.P.

Remarks:

Pit Number		0914	0915	0916	0917
Location	Section	NE18	SE32	NW12	Not sectionalized
	Township & Range	8N 1E	9N 3E	8N 4E	La de Padilla Grant
	County	Bernalillo	Bernalillo	Bernalillo	Valencia
Formation		Qc	QTsf	Psa	Qal
Rock Type		scoria and cinders	coarse sand	limestone	gravel
Source Rock (Gravel)		-	various	-	various
Quality of Material		good	good	good	poor
Thickness of Material		50'plus	6-10'	10'	5' plus
Thickness of Cap (Caliche)		-	-	-	-
Material Underlying Formation		dacite @ depth	clay	shale	clay
Vegetation		-	grass	grass and trees	sage and grass
Local Terrain		mountainous	dissected slope	mountainous	sloping plain
Thickness of Overburden		-	0-2'	-	6'
P. I. (Overburden)		-	N.P.	-	N.P.
Estimated Quantity (cu. yds.)		300,000	300,000	500,000	15,000 plus
Los Angeles Wear		48.4	25.2	37.8	26.4
Soundness Loss		5.7	-	12.9	-
Average Maximum Size		-	3/4"	-	6"
% Retained on 2" Sieve		-	none	-	30
Pit Average % Passing	Crushed to:	1"	as received	2"	as received
	2"	-	-	100	65
	1"	100	100	58	54
	½"	51	94	26	45
	No. 4	30	79	12	34
	No. 10	22	66	7	21
	No. 200	3	1	1	8
Plasticity Index		N.P.	N.P.	N.P.	17

Remarks:

MATERIAL PIT SUMMARY

Pit Number		0918	0919	0920	0921
Location	Section	SE12	Not sectionalized	Not sectionalized	Not sectionalized
	Township & Range	6N 2W	Tome claim	Tome Claim	Tome claim
	County	Valencia	Valencia	Valencia	Valencia
Formation		Ti	Psa	p€q	Oaf
Rock Type		diorite w/basalt	limestone	quartzite	gravel
Source Rock (Gravel)		-	-	-	granite and various
Quality of Material		good	good	good	good
Thickness of Material		2-10'	10' plus	75'	25' plus
Thickness of Cap (Caliche)		-	-	-	-
Material Underlying Formation		sandstone	shale	-	-
Vegetation		grass	greasewood	trees	grass and trees
Local Terrain		hilly	hilly	mountainous	mountainous
Thickness of Overburden		0-2'	0-2'	-	0-2'
P. I. (Overburden)		N.P.	6 plus	-	N.P.
Estimated Quantity (cu. yds)		175,000	200,000	500,000	175,000
Los Angeles Wear		15.1	35.2	19.2	19.7
Soundness Loss		2.5	25.8	3.8	6.1
Average Maximum Size		-	-	-	6"
% Retained on 2" Sieve		-	-	-	15
Pit Average % Passing	Crushed to:	1"	1"	1"	2"
	2"	-	-	-	100
	1"	100	100	100	57
	½"	48	65	94	25
	No. 4	19	23	17	11
	No. 10	9	13	9	6
	No. 200	2	3	1	2
Plasticity Index		N.P.	N.P.	N.P.	N.P.

Remarks:

Pit Number		
Location	Section	
	Township & Range	
	County	
Formation		
Rock Type		
Source Rock (Gravel)		
Quality of Material		
Thickness of Material		
Thickness of Cap (Caliche)		
Material Underlying Formation		
Vegetation		
Local Terrain		
Thickness of Overburden		
P. I. (Overburden)		
Estimated Quantity (cu. yds.)		
Los Angeles Wear		
Soundness Loss		
Average Maximum Size		
% Retained on 2" Sieve		
Pit Average % Passing	Crushed to:	
	2"	
	1"	
	½"	
	No. 4	
	No. 10	
	No. 200	
Plasticity Index		

Remarks:

EXPLANATION

QUAD No. 61

QUATERNARY

- Qal — Alluvium
- Qld — Lake deposits
- Qe — Eolian deposits
- Qaa — Alluvial Aprons
- Ql — Landslide Debris
- Qp — Pediment deposits
- Qip — Intermediate Pediment deposits
- Qop — Older Pediment deposits

QUATERNARY -TERTIARY

- Qb_1 — Basalt
- Qb_2 — Basalt
- Qc — Cinders and Scoria
- QTb — Basalt
- QTg — Older gravel deposits

TERTIARY

- Ti — Intrusive rocks undivided
- Tda — Datil Andesite
- Tdvs — Datil Sedimentary series
- Tbc — Baca Formation

CRETACEOUS

- Kmv — Mesa Verde Group
- Km — Mancos Shale
- Kd — Dakota Sandstone

TRIASSIC

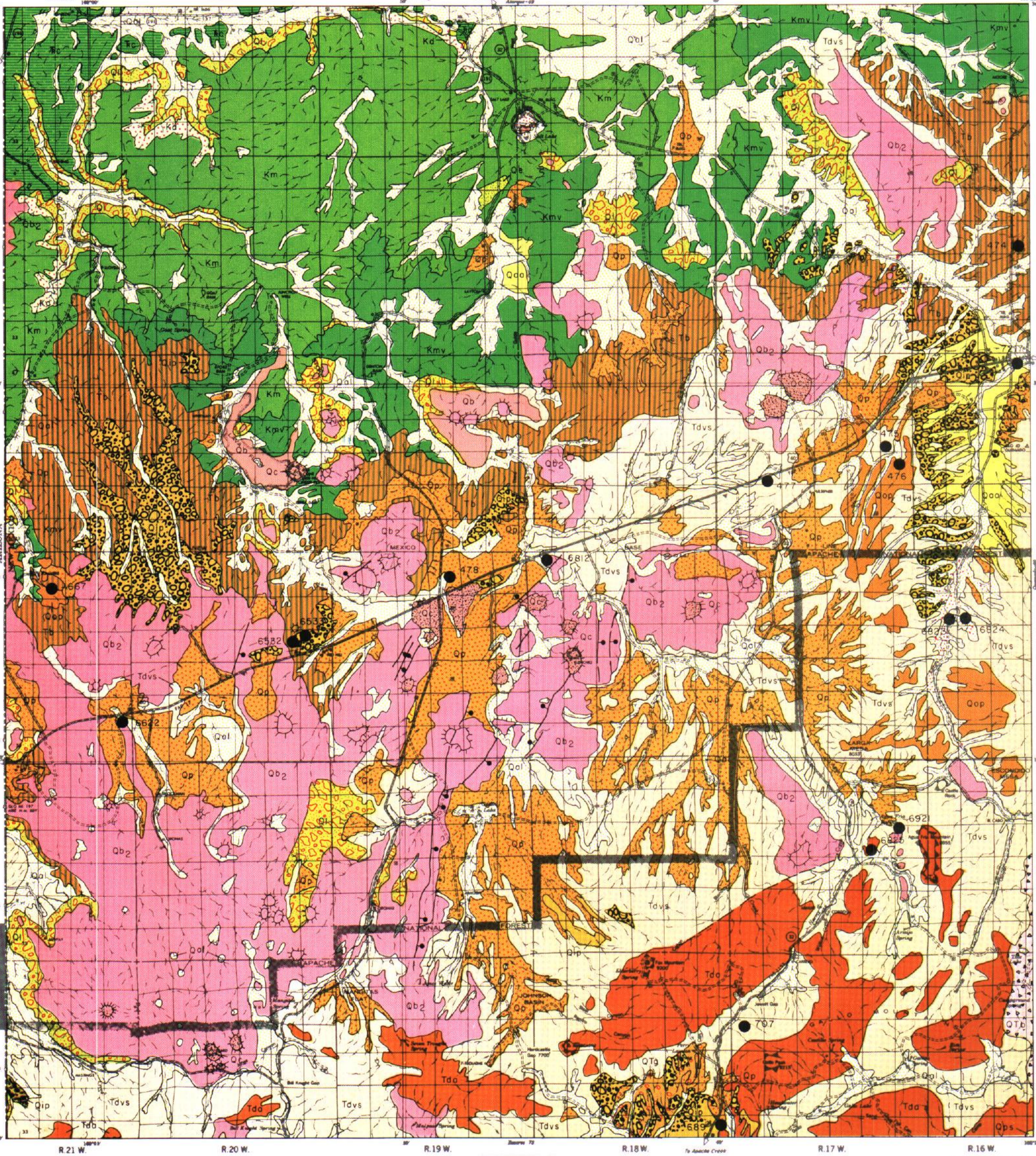
- Trc — Chinle Formation

- Established pit or quarry
- Prospect pit or quarry
- Fault — downthrown side
- Anticline
- Syncline

NEW MEXICO STATE HIGHWAY DEPARTMENT
PLANNING AND PROGRAMMING DIVISION
FEDERAL HIGHWAY ADMINISTRATION

GEOLOGY and AGGREGATE RESOURCES

SALT LAKE QUADRANGLE-61
CATRON COUNTY



Control by National Geodetic Survey; U.S. Geological Survey; U.S. Forest Service; Bureau of Land Management and Planning Division. Modified Conic Projection Standard Parallel North American Datum

DATE OF INVENTORY
GEOLOGY JUNE 1979
AGGREGATE RESOURCES JUNE 1979

Longitude West from Greenwich
Scale or 1 Inch = 3 Miles

SALT LAKE
QUADRANGLE
61

CONSTRUCTION MATERIALS INVENTORY

MATERIAL PIT SUMMARY

Pit Number		4704	4705	4706	4707
Location	Section	SW 15	SW 13	NW 24	S 20
	Township & Range	2N 16W	1N 17W	1N 17W	1N 17W
	County	Catron	Catron	Catron	Catron
Formation		Tbc	Qop	Qop	Qc
Rock Type		gravel	sand and gravel	sand and gravel	basalt & cinders
Source Rock (Gravel)		volcanic	volcanic	volcanic	volcanic
Quality of Material		poor	good	fair	good
Thickness of Material		3' plus	5'	5' plus	10'
Thickness of Cap (Caliche)		-	-	-	-
Material Underlying Formation		volcanics & silt	ash	sandstone	volcanic sediments
Vegetation		juniper & grass	juniper & pinon	juniper & pinon	juniper & pinon
Local Terrain		hilly	hill	hill	hilly
Thickness of Overburden		0-1'	0-2'	0-2'	
P. I. (Overburden)		10 plus			
Estimated Quantity (cu. yds)		20,000	75,000	100,000	200,000
Los Angeles Wear		-			
Soundness Loss		-			
Average Maximum Size		3"	3"	3"	
% Retained on 2" Sieve		5	8	10	
Pit Average % Passing	Crushed to:				
	2"				
	1"				
	½"				
	No. 4				
	No. 10				
	No. 200				
Plasticity Index					

Remarks:

Pit Number		4708	6532	6533	6607
Location	Section	SE 8	NE 14	NW 13	NW 3
	Township & Range	1S 19W	1S 20W	1S 20W	1S 21W
	County	Catron	Catron	Catron	Catron
Formation		Qp	Qp	Qp	Qop
Rock Type		sand and gravel	sand and gravel	sand and gravel	sand and gravel
Source Rock (Gravel)		igneous	volcanic	igneous	igneous
Quality of Material		good	fair	good	good
Thickness of Material		6' plus	12' plus	12' plus	6' plus
Thickness of Cap (Caliche)		-	-	-	-
Material Underlying Formation		silt	volcanic sediments	volcanic sediments	volcanic sediments
Vegetation		grass	grass	grass	grass
Local Terrain		rolling	hilly	rolling	hilly
Thickness of Overburden		0-2'	2-5'	3-6'	0-2'
P. I. (Overburden)			15	14	10 plus
Estimated Quantity (cu. yds.)		100,000	250,000	250,000	250,000
Los Angeles Wear			17.2	19.2	
Soundness Loss			12.8	7.7	
Average Maximum Size		4"	2"	4"	5"
% Retained on 2" Sieve		10	15	10	12
Pit Average % Passing	Crushed to:		as received	as received	-
	2"		81	86	
	1"		61	62	
	½"		45	38	
	No. 4		33	27	
	No. 10		30	23	
	No. 200		7	6	
Plasticity Index			12	13	

Remarks:

CONSTRUCTION MATERIALS INVENTORY

MATERIAL PIT SUMMARY

Pit Number		6622	6809	6812	6823
Location	Section	SE 25	SE 36	NE 6	SE 7
	Township & Range	1S 21W	3S 18W	1S 18W	1S 16W
	County	Catron	Catron	Catron	Catron
Formation		Qb2	Tda	Qc	Qop
Rock Type		basalt	andesite	basalt	sand and gravel
Source Rock (Gravel)		-	-	-	volcanic
Quality of Material		good	good	good	good
Thickness of Material		12' plus	12' plus	12' plus	6' plus
Thickness of Cap (Caliche)		-	-	-	-
Material Underlying Formation		volcanic sediments	volcanic sediments	volcanic sediments	volcanic sediments
Vegetation		juniper	cedar & pinon	juniper & pinon	juniper & grass
Local Terrain		hill top	mountainous	hill top	hilly
Thickness of Overburden		1-2'	3'	1'	0-1'
P. I. (Overburden)		10	20	10	6 plus
Estimated Quantity (cu. yds)		300,000 plus	100,000 plus	200,000	150,000
Los Angeles Wear		17.2	24.4	15.9	
Soundness Loss		3.1	1.7	8.2	
Average Maximum Size		-	-	-	4"
% Retained on 2" Sieve		-	0	-	4
Pit Average % Passing	Crushed to:	2"	as received	2"	
	2"	100	100	100	
	1"	80	80	73	
	½"	32	44	34	
	No. 4	17	23	14	
	No. 10	10	14	7	
	No. 200	3	6	1	
Plasticity Index		N.P.	19	N.P.	
Remarks:					

Pit Number		6824	6825	6921	7007
Location	Section	SW 8	SW 14	NW 13	NW 18
	Township & Range	1S 16W	2S 17W	2S 17W	3S 17W
	County	Catron	Catron	Catron	Catron
Formation		Qe	QTb	Qc	Qc
Rock Type		basalt	andesite	sand	sand
Source Rock (Gravel)		-	-	igneous	igneous
Quality of Material		poor	good	good	good
Thickness of Material		5'	12' plus	12'	6' plus
Thickness of Cap (Caliche)		-	-	-	-
Material Underlying Formation		volcanic sediments	volcanic sediments	silt, sand & gravel	volcanic sediments
Vegetation		grass & juniper	pinon & juniper	sage & juniper	grass
Local Terrain		hilly	mountainous	hilly	mountain valley
Thickness of Overburden		0-1'	-	0-1'	0-1'
P. I. (Overburden)		6 plus	-	N.P.	N.P.
Estimated Quantity (cu. yds.)		150,000 plus	350,000	100,000	200,000
Los Angeles Wear			15.4		
Soundness Loss			3.5		
Average Maximum Size			-	No. 10 Screen	No. 10 Screen
% Retained on 2" Sieve			-	0	0
Pit Average % Passing	Crushed to:		2"	as received	as received
	2"		100		
	1"		84		
	½"		33		No. 10:100
	No. 4		12	100	No. 40:90
	No. 10		6	100	No. 80:29
	No. 200		2	36	9
Plasticity Index			N.P.	N.P.	N.P.
Remarks:					

QUADRANGLE PAGE 61

CONSTRUCTION MATERIALS INVENTORY

MATERIAL PIT SUMMARY

Pit Number		7217
Location	Section	NW 3
	Township & Range	1N 16W
	County	Catron
Formation		Qaa
Rock Type		sand
Source Rock (Gravel)		
Quality of Material		good
Thickness of Material		10'
Thickness of Cap (Caliche)		-
Material Underlying Formation		sand
Vegetation		grass & sage
Local Terrain		flat
Thickness of Overburden		0-2'
P. I. (Overburden)		N.P.
Estimated Quantity (cu. yds)		100,000 plus
Los Angeles Wear		
Soundness Loss		
Average Maximum Size		
% Retained on 2" Sieve		
Pit Average % Passing	Crushed to:	
	2"	
	1"	
	½"	
	No. 4	
	No. 10	
	No. 200	
Plasticity Index		
Remarks:		

Pit Number		
Location	Section	
	Township & Range	
	County	
Formation		
Rock Type		
Source Rock (Gravel)		
Quality of Material		
Thickness of Material		
Thickness of Cap (Caliche)		
Material Underlying Formation		
Vegetation		
Local Terrain		
Thickness of Overburden		
P. I. (Overburden)		
Estimated Quantity (cu. yds.)		
Los Angeles Wear		
Soundness Loss		
Average Maximum Size		
% Retained on 2" Sieve		
Pit Average % Passing	Crushed to:	
	2"	
	1"	
	½"	
	No. 4	
	No. 10	
	No. 200	
Plasticity Index		
Remarks:		

CONSTRUCTION MATERIALS INVENTORY

QUADRANGLE PAGE

MATERIAL PIT SUMMARY

Pit Number		
Location	Section	
	Township & Range	
	County	
Formation		
Rock Type		
Source Rock (Gravel)		
Quality of Material		
Thickness of Material		
Thickness of Cap (Caliche)		
Material Underlying Formation		
Vegetation		
Local Terrain		
Thickness of Overburden		
P. I. (Overburden)		
Estimated Quantity (cu. yds)		
Los Angeles Wear		
Soundness Loss		
Average Maximum Size		
% Retained on 2" Sieve		
Pit Average % Passing	Crushed to:	
	2"	
	1"	
	½"	
	No. 4	
	No. 10	
	No. 200	
Plasticity Index		

Remarks:

Pit Number		
Location	Section	
	Township & Range	
	County	
Formation		
Rock Type		
Source Rock (Gravel)		
Quality of Material		
Thickness of Material		
Thickness of Cap (Caliche)		
Material Underlying Formation		
Vegetation		
Local Terrain		
Thickness of Overburden		
P. I. (Overburden)		
Estimated Quantity (cu. yds.)		
Los Angeles Wear		
Soundness Loss		
Average Maximum Size		
% Retained on 2" Sieve		
Pit Average % Passing	Crushed to:	
	2"	
	1"	
	½"	
	No. 4	
	No. 10	
	No. 200	
Plasticity Index		

Remarks:

EXPLANATION

QUAD No. 62

QUATERNARY

- Qal — Alluvium
- Qaa — Alluvial Aprons
- Qab — Bolson deposits
- Qe — Eolian deposits
- Ql — Landslide Debris
- Qaf — Alluvial fan deposits
- Qps — Piedmont slope deposits
- Qp — Pediment deposits

QUATERNARY -TERTIARY

- Qip — Intermediate Pediment
- Qop — Older Pediment deposits
- QTb — Basalt

TERTIARY

- Ti — Intrusive rocks undivided
- Tdr — Datil Rhyolite flows
- Tda — Datil Andesite
- Tdl — Datil Latite Breccias
- Tdvs — Datil Sedimentary series
- Tb — Baca Formation

CRETACEOUS

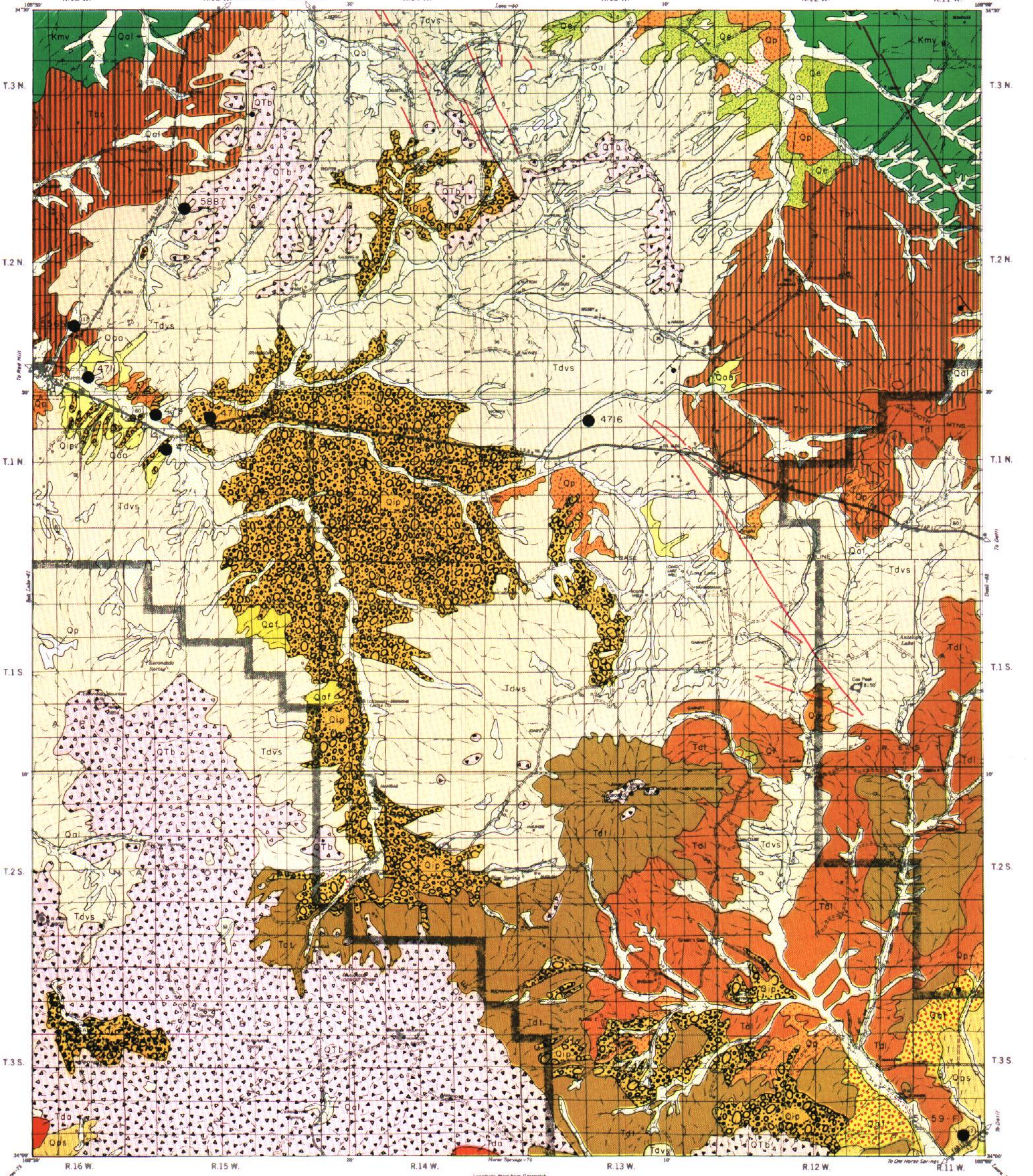
- Kmv — Mesa Verde Group

- Established pit or quarry
- Prospect pit or quarry
- Fault — downthrown side
- Anticline
- Syncline

NEW MEXICO STATE HIGHWAY DEPARTMENT
PLANNING AND PROGRAMMING DIVISION
FEDERAL HIGHWAY ADMINISTRATION

GEOLOGY and AGGREGATE RESOURCES

QUEMADO QUADRANGLE-62
CATRON COUNTY



Longitude West from Greenwich
Scale 1/190080 or 1 Inch = 3 Miles
STATUTE MILES

Control by National Geodetic Survey, U.S. Geological Survey, U.S. Forest Service, Bureau of Land Management and Planning Division. Modified Conic Projection Standard Parallel 34½° North American Datum

DATE OF INVENTORY
GEOLOGY MAY 1979
AGGREGATE RESOURCES MAY 1979

QUEMADO QUADRANGLE 62

QUADRANGLE PAGE 62

CONSTRUCTION MATERIALS INVENTORY

MATERIAL PIT SUMMARY

Pit Number		4709	4710	4711	4712
Location	Section	Section 17	Section 9	W1/2 Sec. 1	Section 17
	Township & Range	1N 15W	1N 15W	1N 16W	1N 15W
	County	Catron	Catron	Catron	Catron
Formation		Qal	Tdvs	Qal	Qip
Rock Type		sand & gravel	sand & gravel	sand & gravel	sand & gravel
Source Rock (Gravel)		volcanics	igneous	igneous & various	volcanics
Quality of Material		poor	good	fair	fair
Thickness of Material		8'	10' plus	8'	8'
Thickness of Cap (Caliche)		-	-	-	-
Material Underlying Formation		silt	sandstone	sand	igneous
Vegetation		grass & sage	grass	grass	sage
Local Terrain		valley floor	hilly	flat	hillside
Thickness of Overburden		2-5'	3-7'	1-3'	1-2'
P. I. (Overburden)		6-10	N.P.	10-20	6-15
Estimated Quantity (cu. yds)		100,000	30,000	200,000	60,000
Los Angeles Wear					
Soundness Loss					
Average Maximum Size		1"	6"	2"	5"
% Retained on 2" Sieve		3	11	10	8
Pit Average % Passing	Crushed to:				
	2"				
	1"				
	½"				
	No. 4				
	No. 10				
	No. 200				
Plasticity Index					
Remarks:					

Pit Number		4716	5159	5565	5887
Location	Section	Section 9	NW1/4 Sec, 36	SW 1/4 Sec.25	SW 9
	Township & Range	1N 13W	3S 11W	2N 16W	2N 15W
	County	Catron	Catron	Catron	Catron
Formation		Tdvs	Qps	Qal	Tdvs
Rock Type		sand, gravel, cgl.	sand & minor gravel	sand & gravel	sand & gravel
Source Rock (Gravel)		igneous	igneous	volcanic	volcanic
Quality of Material		good	good	fair	good
Thickness of Material		10'	6' plus	0-30'	15'
Thickness of Cap (Caliche)		-	-	-	-
Material Underlying Formation		igneous	sand	conglomerate	igneous
Vegetation		juniper	grass	juniper & pinon	juniper & pinon
Local Terrain		hilly	rolling	hilly	mountainous
Thickness of Overburden			0-3'	0	1-3.5'
P. I. (Overburden)			N.P.	-	-
Estimated Quantity (cu. yds.)		300,000 plus	250,000	100,000 plus	100,000 plus
Los Angeles Wear				31.2	21.6
Soundness Loss					4.0
Average Maximum Size		6"	5"	4"	8"
% Retained on 2" Sieve		15	10	20	14
Pit Average % Passing	Crushed to:			3/4"	as received
	2"				60
	1"				53
	½"			82	47
	No. 4			42	37
	No. 10			23	29
	No. 200			3	5
Plasticity Index				N.P.	N.P.
Remarks:					

CONSTRUCTION MATERIALS INVENTORY

QUADRANGLE PAGE

MATERIAL PIT SUMMARY

Pit Number		
Location	Section	
	Township & Range	
	County	
Formation		
Rock Type		
Source Rock (Gravel)		
Quality of Material		
Thickness of Material Thickness of Cap (Caliche)		
Material Underlying Formation		
Vegetation Local Terrain		
Thickness of Overburden P. I. (Overburden) Estimated Quantity (cu. yds) Los Angeles Wear Soundness Loss Average Maximum Size % Retained on 2" Sieve		
Pit Average % Passing	Crushed to:	
	2"	
	1"	
	½"	
	No. 4	
	No. 10	
	No. 200	
Plasticity Index		
Remarks:		

Pit Number		
Location	Section	
	Township & Range	
	County	
Formation Rock Type		
Source Rock (Gravel)		
Quality of Material		
Thickness of Material		
Thickness of Cap (Caliche)		
Material Underlying Formation		
Vegetation		
Local Terrain		
Thickness of Overburden		
P. I. (Overburden)		
Estimated Quantity (cu. yds.)		
Los Angeles Wear		
Soundness Loss		
Average Maximum Size		
% Retained on 2" Sieve		
Pit Average % Passing	Crushed to:	
	2"	
	1"	
	½"	
	No. 4	
	No. 10	
	No. 200	
Plasticity Index		
Remarks:		

EXPLANATION

QUAD No. 63

QUATERNARY

- Qal — Alluvium
- Qld — Lake deposits
- Qaa — Alluvial Aprons
- Qab — Bolson deposits
- Qbd — Beach deposits
- Qt — Terrace deposits
- Qe — Eolian deposits
- Qsa — Eolian and Alluvium sand deposits
- Ql — Landslide Debris
- Qps — Piedmont Slope deposits
- Qaf — Alluvial fan deposits
- Qp — Pediment deposits
- Qoaf — Older Alluvial fan deposits
- Qop — Older Pediment deposits

QUATERNARY –TERTIARY

- QTgr — Older Gravel deposits
- QTb — Basalt

TERTIARY

- Td — Datil Volcanics undifferentiated
- Tdr — Datil Rhyolite flows
- Tdl — Datil Latite breccias
- Tdvs — Datil Sedimentary series
- Tb — Basalt

CRETACEOUS

- Kmv — Mesa Verde Group
- Km — Mancos Shale
- Kmth — Tres Hermanos Sandstone Member of Mancos Shale
- Kd — Dakota Sandstone

TRIASSIC

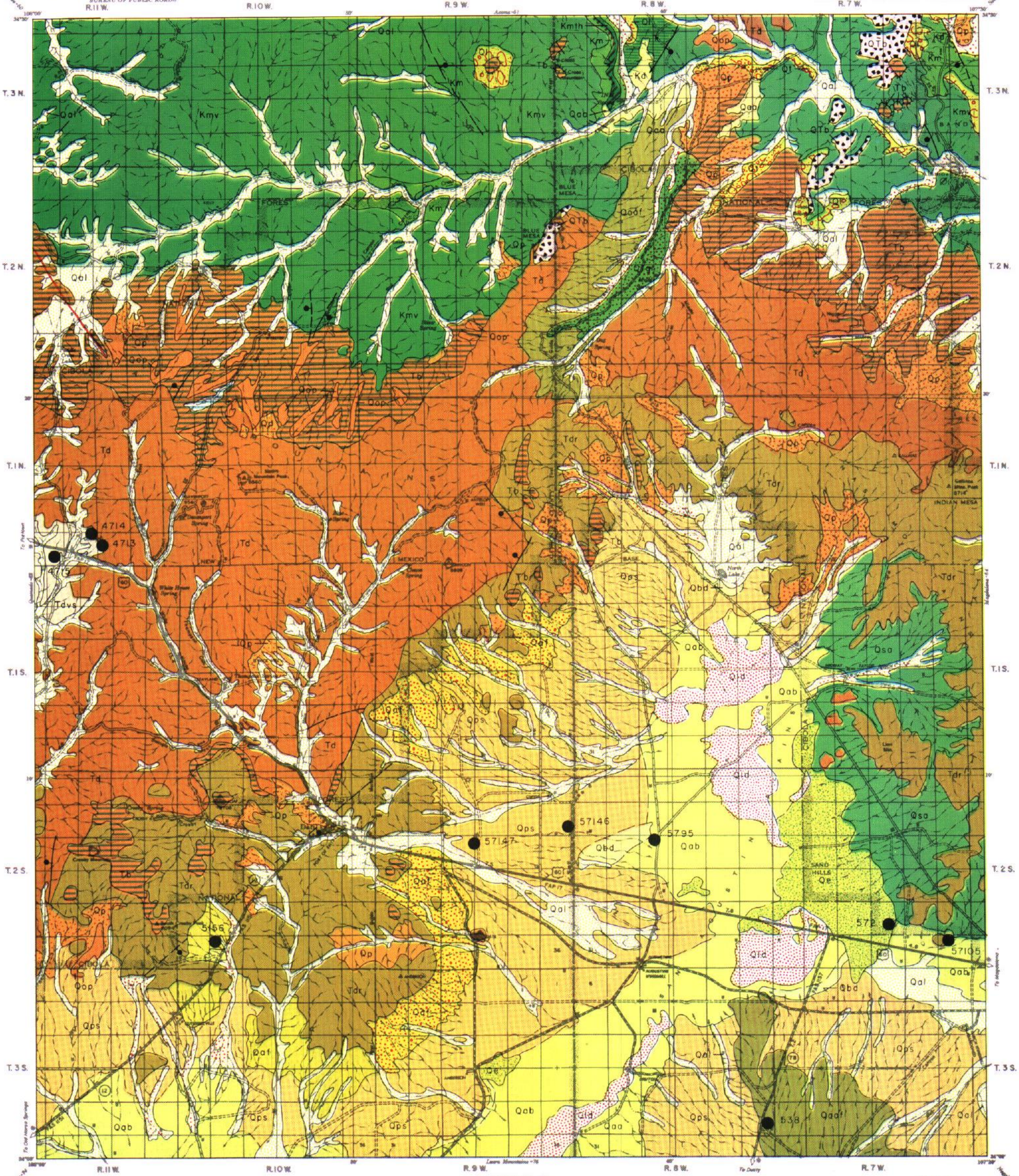
- TR — Chinle Formation

- Established pit or quarry
- Prospect pit or quarry
- Fault — downthrown side
- Anticline
- Syncline

NEW MEXICO STATE HIGHWAY DEPARTMENT
PLANNING AND PROGRAMMING DIVISION
BUREAU OF PUBLIC ROADS

GEOLOGY and AGGREGATE RESOURCES

DATIL QUADRANGLE-63
CATRON & SOCORRO COUNTIES



Control by U.S. Coast and Geodetic Survey; U.S. Geological Survey; U.S. Forest Service; Bureau of Land Management and Planning Division—Modified Conic Projection Standard Parallel 34½° North American Datum

DATE OF INVENTORY
GEOLOGY JUNE 1979
AGGREGATE RESOURCES JUNE 1979

Longitude West from Greenwich
Scale 1/190080 or 1 Inch = 3 Miles

DATIL QUADRANGLE
63

QUADRANGLE PAGE 63

CONSTRUCTION MATERIALS INVENTORY

MATERIAL PIT SUMMARY

Pit Number		4713	4714	4715	5156
Location	Section	Section 35	Section 34	Section 33	NW 1/4 Sec. 5
	Township & Range	1N 11W	1N 11W	1N 11W	2S 10W
	County	Catron	Catron	Catron	Catron
Formation		Tdvs	Tdvs	Tdvs	Qaf
Rock Type		volcanics	volcanics	volcanics	gravel
Source Rock (Gravel)		igneous	igneous	igneous	volcanic
Quality of Material		fair	poor	poor	fair
Thickness of Material		12' plus	10' plus	10' plus	12'
Thickness of Cap (Caliche)		-	-	-	-
Material Underlying Formation		igneous	igneous	igneous	volcanics
Vegetation		pine	pine	forest	pine & pinon
Local Terrain		mountainous	mountainous	mountainous	mountainous
Thickness of Overburden		-	-	-	0-2'
P. I. (Overburden)		-	-	-	-
Estimated Quantity (cu. yds)		250,000 plus	300,000 plus	200,000 plus	250,000 plus
Los Angeles Wear					
Soundness Loss					
Average Maximum Size					7"
% Retained on 2" Sieve					12
Pit Average % Passing	Crushed to:				
	2"				
	1"				
	½"				
	No. 4				
	No. 10				
	No. 200				
Plasticity Index					
Remarks:					

Pit Number		5308.	5702	5795	57105
Location	Section	SE 1/4 Sec. 25	SW 1/4 SE 1/4 S. 27	N1/2 Sec. 16	NW 1/4 Sec. 36
	Township & Range	3S 8W	2S 7W	2S 8W	2S 7W
	County	Socorro	Socorro	Socorro	Socorro
Formation		Qoaf	Qe	Qbd	Tdr
Rock Type		sand and gravel	sand	sand & gravel	rhyolite
Source Rock (Gravel)		igneous	various	various	igneous
Quality of Material		good	fair	good	good
Thickness of Material		6' plus	5-7'	6-10'	9'
Thickness of Cap (Caliche)		-	-	-	-
Material Underlying Formation		sand	silt	soil & gravel	silt
Vegetation		grass	grass and sage	grass	grass
Local Terrain		rolling	rolling	flat	rolling
Thickness of Overburden		0-2'	0	1-2'	1-1.5'
P. I. (Overburden)		N.P.	-	5	-
Estimated Quantity (cu. yds.)		250,000	unlimited	200,000 plus	500,000 plus
Los Angeles Wear		-	-	32.	20.8
Soundness Loss		-	-	-	-
Average Maximum Size		4"		2"	
% Retained on 2" Sieve		7		5	-
Pit Average % Passing	Crushed to:			as received	1"
	2"			100	
	1"			93	53
	½"			75	26
	No. 4			51	13
	No. 10			37	8
	No. 200			1	2
Plasticity Index				N.P.	N.P.
Remarks:					

CONSTRUCTION MATERIALS INVENTORY

MATERIAL PIT SUMMARY

Pit Number		57146	57147
Location	Section	SE 1/4 Sec. 12	NW 1/4 S-15 & NE 1/4 S-16
	Township & Range	2S 9W	2S 9W
	County	Catron	Catron
Formation		Qps	Qps
Rock Type		sand & gravel	sand & gravel
Source Rock (Gravel)		igneous	igneous
Quality of Material		good	good
Thickness of Material		5-9'	5-10'
Thickness of Cap (Caliche)		-	-
Material Underlying Formation		soil & sand	soil & gravel
Vegetation		grass	grass
Local Terrain		flat	flat
Thickness of Overburden		1'	1-3'
P. I. (Overburden)		5	N.P.
Estimated Quantity (cu. yds)		500,000 plus	500,000 plus
Los Angeles Wear		32.8	34.4
Soundness Loss		-	-
Average Maximum Size		2"	2"
% Retained on 2" Sieve		8	10
Pit Average % Passing	Crushed to:	as received	as received
	2"		
	1"	86	85
	½"	66	60
	No. 4	43	36
	No. 10	32	26
	No. 200	6	1
Plasticity Index		N.P.	N.P.
Remarks:			

Pit Number	
Location	Section
	Township & Range
	County
Formation	
Rock Type	
Source Rock (Gravel)	
Quality of Material	
Thickness of Material	
Thickness of Cap (Caliche)	
Material Underlying Formation	
Vegetation	
Local Terrain	
Thickness of Overburden	
P. I. (Overburden)	
Estimated Quantity (cu. yds.)	
Los Angeles Wear	
Soundness Loss	
Average Maximum Size	
% Retained on 2" Sieve	
Pit Average % Passing	Crushed to:
	2"
	1"
	½"
	No. 4
	No. 10
	No. 200
Plasticity Index	
Remarks:	

EXPLANATION

QUAD No. 64

QUATERNARY

- Qal — Alluvium
- Qaa — Alluvial Aprons
- Ql — Landslide Debris
- Qta — Talus
- Qab — Bolson deposits
- Qe — Eolian deposits
- Qsa — Eolian and Alluvium sand deposits
- Qt — Terrace deposits
- Qaf — Alluvial fan deposits
- Qp — Pediment deposits
- Qps — Piedmont slope deposits
- Qs — Spring deposits
- Qg — Gravel deposits
- Qb — Basalt
- Qip — Intermediate Pediment deposits
- Qop — Older Pediment deposits

QUATERNARY -TERTIARY

- QTpc — Older Pediment deposits
- QTb — Basalt
- QTsf — Santa Fe Formation
- QTsv — Santa Fe Volcanics

TERTIARY

- Ti — Intrusive rocks undivided
- Tpt — Popatosa Volcanics
- Tb — Basalt
- Tdr — Datil Rhyolite flows
- Tdt — Datil Rhyolite tuff
- Tdl — Datil Latite Breccia
- Ta — Older Andesite
- Tbc — Baca Formation

CRETACEOUS

- Kmv — Mesa Verde Group
- Kmth — Tres Hermanos Sandstone Member of Mancos Shale
- Km — Mancos Shale
- Kd — Dakota Sandstone

TRIASSIC

- Tr — Chinle Formation

PERMIAN

- Psal — San Andres Limestone
- Psag — San Andres Gypsum
- Psa — San Andres Limestone
- Pg — Glorieta Sandstone
- Py — Yeso Limestone
- Pa — Abo Formation

PENN.

- PPm — Madera Limestone
- PPs — Sandia Formation

MISS.

- M — Mississippian undivided

PRE -CAMB.

- p€q — Quartzite
- p€m — Metamorphic rocks undivided

- Established pit or quarry
- Prospect pit or quarry
- Fault — downthrown side
- Anticline
- Syncline

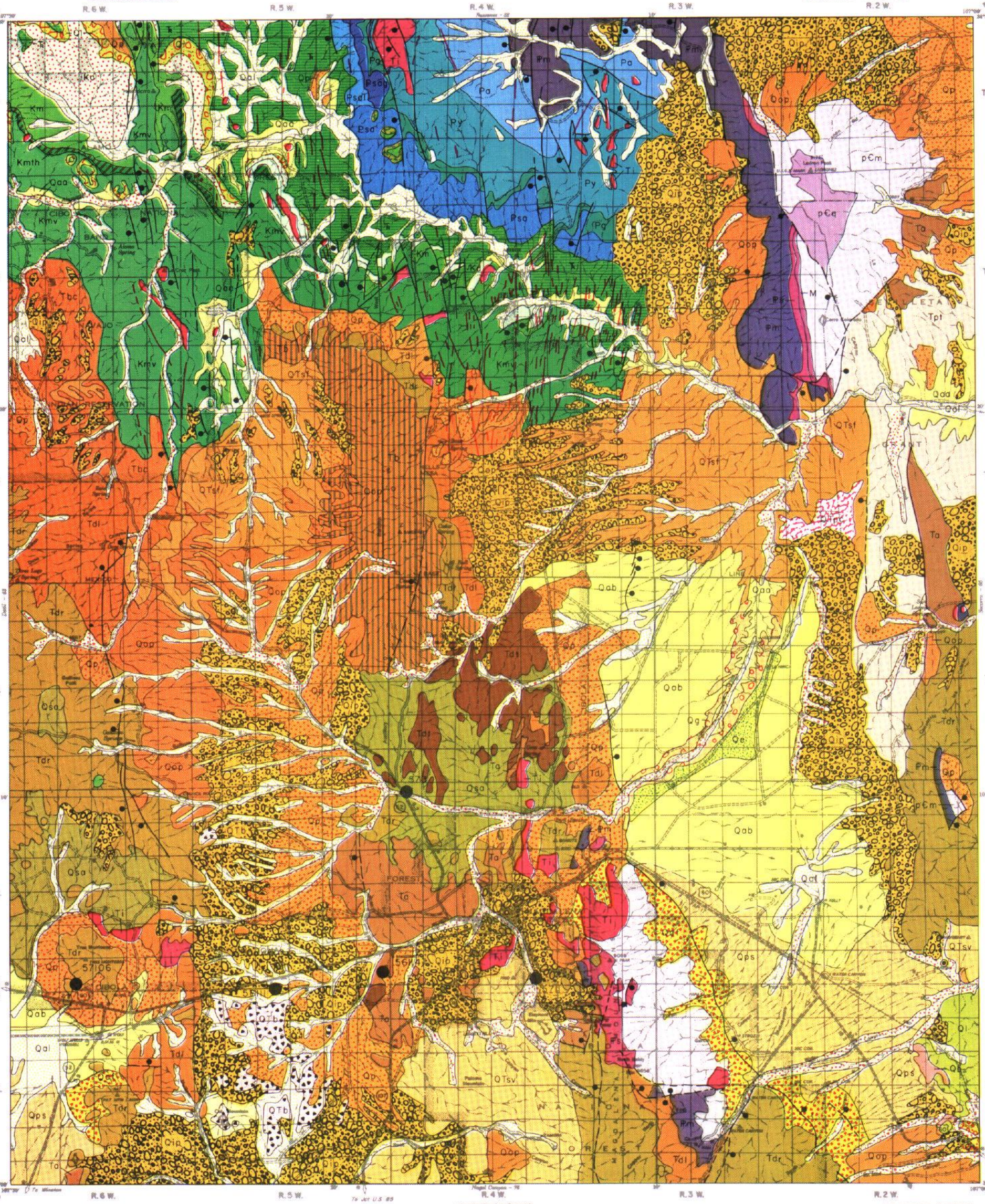
NEW MEXICO STATE HIGHWAY DEPARTMENT
PLANNING AND PROGRAMMING DIVISION
BUREAU OF PUBLIC ROADS

GEOLOGY and AGGREGATE RESOURCES

MAGDALENA QUADRANGLE - 64
SOCORRO COUNTY

R. 6 W. R. 5 W. R. 4 W. R. 3 W. R. 2 W.

T. 3 N. T. 2 N. T. 1 N. T. 1 S. T. 2 S. T. 3 S.



Control by U.S. Coast and Geodetic Survey, U.S. Geological Survey, U.S. Forest Service, Bureau of Land Management and Wyoming Division—Modified Conic Projection Standard Parallel 34°N North American Datum

DATE OF INVENTORY
GEOLOGY JUNE 1979
AGGREGATE RESOURCES JUNE 1979

Scale 1/250,000 or 1 Inch = 3 Miles

1962

MAGDALENA QUADRANGLE 64

CONSTRUCTION MATERIALS INVENTORY

MATERIAL PIT SUMMARY

Pit Number		56111	56114	5703	5711
Location	Section	SW1/4 S-33 NW1/4 S-4	NE1/4 Sec. 36	NE 1/4 Sec. 6	SW 1/4 S-35
	Township & Range	3 & 2S 6W	2S 5W	2S 4W	2S 4W
	County	Socorro	Socorro	Socorro	Socorro
Formation		Qip	Ta	Qal	Qal
Rock Type		sand & gravel	andesite	sand & gravel	mill tailings
Source Rock (Gravel)		igneous	igneous	igneous	igneous
Quality of Material		fair	excellent	good	fair
Thickness of Material		4' plus	25' plus	16'	12'
Thickness of Cap (Caliche)		-	-	-	-
Material Underlying Formation		shale	-	gravel	gravel
Vegetation		grass	cedar & trees	juniper & grass	juniper
Local Terrain		hill	hill	arroyo bottom	mountainous
Thickness of Overburden		0-1'	-	0-6'	0-2'
P. I. (Overburden)		N.P.	-	N.P.	-
Estimated Quantity (cu. yds.)		200,000 plus	unlimited	500,000 plus	16,000
Los Angeles Wear		-	-	24.0	
Soundness Loss		-	-	-	-
Average Maximum Size		5"	-	5"	1"
% Retained on 2" Sieve		10		5	0
Pit Average % Passing	Crushed to:			as received	
	2"			97	
	1"			89	
	½"			78	
	No. 4			53	
	No. 10			36	
	No. 200			2	
Plasticity Index				N.P.	

Remarks:

Pit Number		57106
Location	Section	S 1/2 33, N 1/2 4
	Township & Range	2S 6W & 3S 6W
	County	Socorro
Formation		Tdr
Rock Type		rhyolite
Source Rock (Gravel)		igneous
Quality of Material		fair
Thickness of Material		50'
Thickness of Cap (Caliche)		-
Material Underlying Formation		igneous
Vegetation		pinon, cedar, pine
Local Terrain		mountains
Thickness of Overburden		0
P. I. (Overburden)		
Estimated Quantity (cu. yds.)		500,000 plus
Los Angeles Wear		
Soundness Loss		
Average Maximum Size		
% Retained on 2" Sieve		
Pit Average % Passing	Crushed to:	
	2"	
	1"	
	½"	
	No. 4	
	No. 10	
	No. 200	
Plasticity Index		

Remarks:

CONSTRUCTION MATERIALS INVENTORY

MATERIAL PIT SUMMARY

QUADRANGLE PAGE _____

Pit Number

Location
- Section
- Township & Range
- County

Formation

Rock Type

Source Rock (Gravel)

Quality of Material

Thickness of Material

Thickness of Cap (Caliche)

Material Underlying Formation

Vegetation

Local Terrain

Thickness of Overburden

P. I. (Overburden)

Estimated Quantity (cu. yds)

Los Angeles Wear

Soundness Loss

Average Maximum Size

% Retained on 2" Sieve

Pit Average % Passing
- Crushed to:
- 2"
- 1"
- ½"
- No. 4
- No. 10
- No. 200

Plasticity Index

Remarks:

Pit Number

Location
- Section
- Township & Range
- County

Formation

Rock Type

Source Rock (Gravel)

Quality of Material

Thickness of Material

Thickness of Cap (Caliche)

Material Underlying Formation

Vegetation

Local Terrain

Thickness of Overburden

P. I. (Overburden)

Estimated Quantity (cu. yds.)

Los Angeles Wear

Soundness Loss

Average Maximum Size

% Retained on 2" Sieve

Pit Average % Passing
- Crushed to:
- 2"
- 1"
- ½"
- No. 4
- No. 10
- No. 200

Plasticity Index

Remarks:

EXPLANATION

QUAD No. 65

QUATERNARY

- Qal — Alluvium
- Qfp — Floodplain deposits
- Qe — Eolian deposits
- Qab — Bolson deposits
- Qaa — Alluvial Aprons
- Qp — Pediment deposits
- Qip — Intermediate Pediment deposits
- Qop — Older Pediment deposits
- Qaf — Alluvial fan deposits
- Ql — Landslide Debris
- Qb — Basalt (Youngest or undiff.)
- QTsf — Santa Fe Formation
- QTsv — Santa Fe Volcanics

TERTIARY

- Td — Datil Volcanics undifferentiated
- Tb — Basalt
- Tpt — Popatosa Volcanics
- Ti — Intrusive rocks undivided

TRIASSIC

- TR — Triassic rocks undivided

CRETACEOUS

- Kd — Dakota Sandstone
- K — Cretaceous undifferentiated

PERMIAN

- Psa — San Andres Limestone
- Py — Yeso Formation
- Pa — Abo Formation
- P — Lower Permian undivided

PENNSYLVANIAN

- IP — Pennsylvanian rock undivided

PRECAMBRIAN

- p€ — Precambrian undivided
- p€q — Quartzite

- Established pit or quarry
- Prospect pit or quarry
- Fault — downthrown side
- Anticline
- Syncline

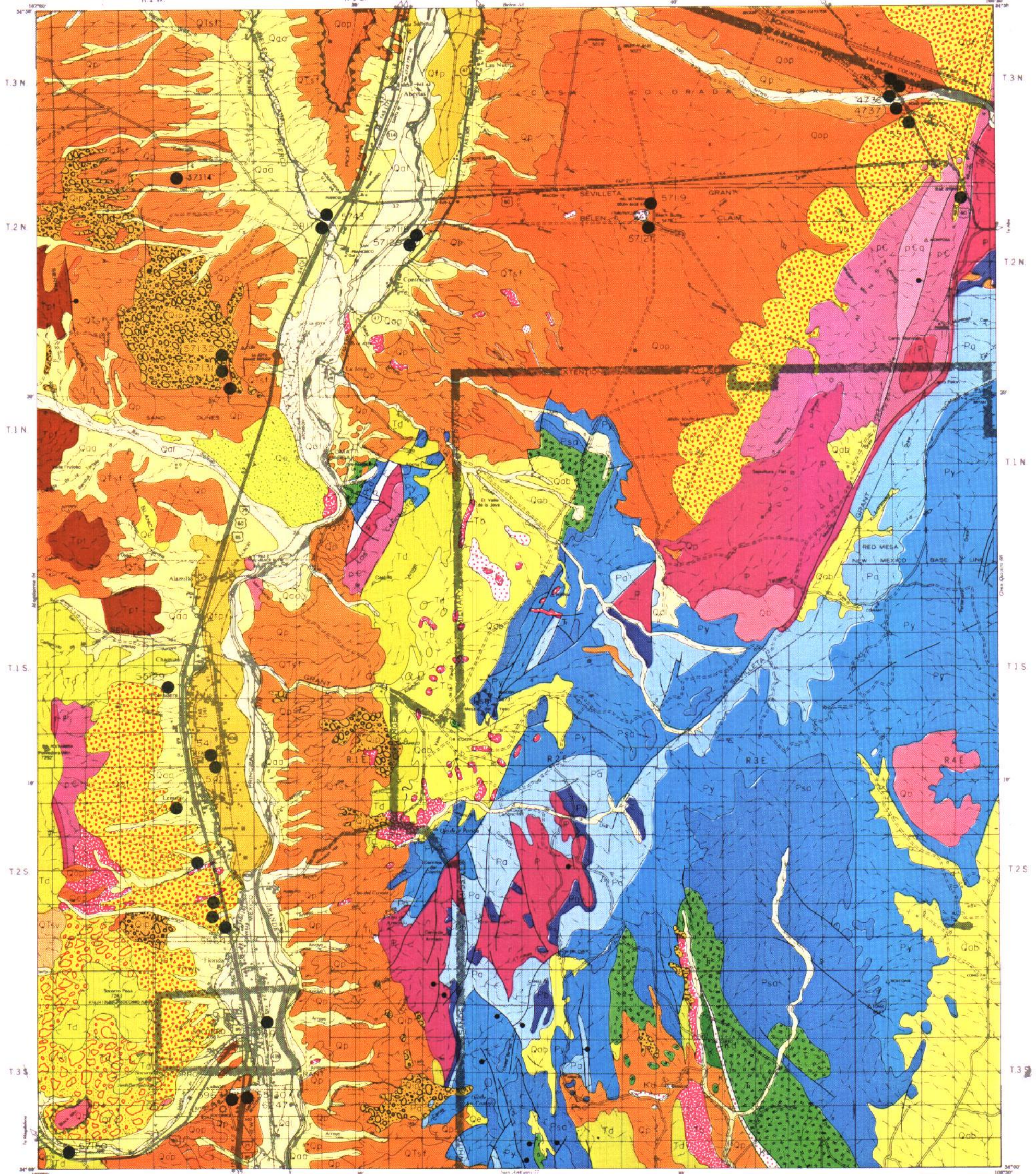
NEW MEXICO STATE HIGHWAY DEPARTMENT
PLANNING AND PROGRAMMING DIVISION
FEDERAL HIGHWAY ADMINISTRATION

GEOLOGY and AGGREGATE RESOURCES

SOCORRO QUADRANGLE-65
VALENCIA & SOCORRO COUNTIES

R1W. R1E. R2E. R3E. R4E.

T.3N. T.2N. T.1N. T.1S. T.2S. T.3S.



R1W R1E R2E R3E R4E

Control by National Geodetic Survey, U.S. Geological Survey, U.S. Forest Service, Bureau of Land Management and Planning Division
Modified Conic Projection Standard Parallel 34°N North American Datum

DATE OF INVENTORY
GEOLOGY NOV. 1977
AGGREGATE RESOURCES NOV. 1977

Longitude West from Greenwich

Scale 1/126,720 or 1 Inch = 3 Miles

DATE OF INVENTORY
SOCORRO COUNTY 1968
VALENCIA COUNTY 1969

SOCORRO QUADRANGLE 65

CONSTRUCTION MATERIALS INVENTORY

QUADRANGLE PAGE 65(1)

MATERIAL PIT SUMMARY

Pit Number		4736	4737	4738	5401
Location	Section	Not Sectionalized	Not Sectionalized	Not Sectionalized	SW1/4 Sec. 35
	Township & Range	3N 4E	3N 4E	3N 4E	1S 1W
	County	Socorro	Socorro	Socorro	Socorro
Formation		Qal	Qal	Qp	Qfp
Rock Type		sand & gravel	sand	sand & gravel	sand & gravel
Source Rock (Gravel)		limestone & various			various
Quality of Material		good			good
Thickness of Material		6'			5'
Thickness of Cap (Caliche)					
Material Underlying Formation		sand			sand
Vegetation		grass			grass
Local Terrain		rolling			river bottom
Thickness of Overburden		0-2'			0-2'
P. I. (Overburden)		N.P.			N.P.
Estimated Quantity (cu. yds)		150,000			100,000
Los Angeles Wear					
Soundness Loss					
Average Maximum Size		8"			2"
% Retained on 2" Sieve		20			0
Pit Average % Passing	Crushed to:				
	2"				
	1"				
	½"				
	No. 4				
	No. 10				
	No. 200				
Plasticity Index					

Remarks:

Pit Number		5402	55112	55127	55129
Location	Section	SW1/4 Sec. 35	Not Sectionalized	Sec. 23 & 26	S1/2 Sec. 22
	Township & Range	1S 1W	3N 4E	2S 1W	1S 1W
	County	Socorro	Socorro	Socorro	Socorro
Formation		Qfp	Qaf	Qaf	Qaa
Rock Type		sand & gravel	sand	sand & gravel	sand & gravel
Source Rock (Gravel)		various	various	various	various
Quality of Material		good	good	good	good
Thickness of Material		6'	10'	6-12	6' plus
Thickness of Cap (Caliche)					
Material Underlying Formation		sand	sand	silt, sand & gravel	sand
Vegetation		grass	grass	grass & greaswood	grass & greasewood
Local Terrain		river bottom	slope	rolling	rolling
Thickness of Overburden		0-2'	0-2'	1-6'	0-2'
P. I. (Overburden)		N.P.	N.P.	10	0-10
Estimated Quantity (cu. yds.)		100,000	200,000	500,000 plus	100,000
Los Angeles Wear				22.8	
Soundness Loss					
Average Maximum Size		2"	4"	5"	6"
% Retained on 2" Sieve		3	12	8	13
Pit Average % Passing	Crushed to:			as received	
	2"			72	
	1"			45	
	½"			32	
	No. 4			21	
	No. 10			16	
	No. 200			4	
Plasticity Index				N.P.	

Remarks:

CONSTRUCTION MATERIALS INVENTORY

QUADRANGLE PAGE 65 (2)

MATERIAL PIT SUMMARY

Pit Number		55130	5673	5717	5759
Location	Section	Not Sectionalized	NE1/4 Sec. 10	Not Sectionalized	Not Sectionalized
	Township & Range	City of Socorro Grant	2S 1W	1N 1W	Las Vegas Grant
	County	Socorro	Socorro	Socorro	Socorro
Formation		Qp	Qaf	Qp	Qfp
Rock Type		sand & gravel	sand & gravel	sand & gravel	sand & gravel
Source Rock (Gravel)		various	various	various	various
Quality of Material		good	excellent	good	good
Thickness of Material		9-10'	4-12'	2-8'	10'
Thickness of Cap (Caliche)					
Material Underlying Formation		sand, soil, gravel	sand & gravel	sand	sand & gravel
Vegetation		grass & greasewood	grass & greaswood	grass & greasewood	grass
Local Terrain		arroyo bank	rolling	rolling	hill
Thickness of Overburden		0-1'	1.6-2.5	5-3'	0-2'
P. I. (Overburden)		N.P.	9	N.P.	0-10
Estimated Quantity (cu. yds)		300,000 plus	200,000 plus	100,000	50,000 plus
Los Angeles Wear		19.2	25.6	32.0	
Soundness Loss			4.3		
Average Maximum Size		6"	5"	5"	3"
% Retained on 2" Sieve		11	8	10	6
Pit Average % Passing	Crushed to:	3/4"	as received	as received	
	2"		90	93	
	1"		81	85	
	½"	72	68	79	
	No. 4	40	49	67	
	No. 10	26	33	55	
	No. 200	6	7	12	
Plasticity Index		N.P.	8	N.P.	
Remarks:					

Pit Number		5743	5786	5789	57114
Location	Section	Not Sectionalized	Not Sectionalized	NW1/4 Sec. 16	SE1/4 Sec. 3
	Township & Range	Sevilleta Grant	Sevilleta Grant	9S 32E	2N 1W
	County	Socorro	Socorro	Socorro	Socorro
Formation		Qaa	Qaf	Qop	Qp
Rock Type		sandy silt	sand & gravel	sand	sand & gravel
Source Rock (Gravel)		various	various	various	quartzite
Quality of Material		fair	good	good	good
Thickness of Material		6'	4-12'	0-6'	2-14'
Thickness of Cap (Caliche)					
Material Underlying Formation		silt	rock, clay, gravel	sand	soil & gravel
Vegetation		grass	grass & greasewood	grass & greasewood	grass
Local Terrain		flat	mountainous	hilly	hilly
Thickness of Overburden		1-3'	0-1.7'	0	2-4'
P. I. (Overburden)		N.P.	N.P. - 10		6
Estimated Quantity (cu. yds.)		5,000	250,000	150,000	150,000 plus
Los Angeles Wear			30.8		27.6
Soundness Loss					
Average Maximum Size		No. 10 screen	1.5"	No. 4 screen	4"
% Retained on 2" Sieve		0	0	0	11
Pit Average % Passing	Crushed to:		as received		as received
	2"		100		92
	1"		93		81
	½"		84		72
	No. 4		51		62
	No. 10		31		51
	No. 200		5		18
Plasticity Index			N.P.		8
Remarks:					

CONSTRUCTION MATERIALS INVENTORY

MATERIAL PIT SUMMARY

Pit Number		5963	5964	6247	6810
Location	Section	Not Sectionalized	SW1/4 Sec. 26	SW1/4 Sec. 27	S1/2 Sec. 14
	Township & Range	Socorro Grant	2S 1W	Socorro Grant	2S 1W
	County	Socorro	Socorro	Socorro	Socorro
Formation		Qp	Qaa	Qp	Qaa
Rock Type		sand & gravel	sand & gravel	sand & gravel	silty sand & gravel
Source Rock (Gravel)		various	various	various	various
Quality of Material		excellent	good	excellent	excellent
Thickness of Material		8-11'	10'	11'	10'
Thickness of Cap (Caliche)					
Material Underlying Formation		sand & gravel	silt	sand & gravel	silt
Vegetation		greasewood	greasewood	greasewood	grass & greasewood
Local Terrain		hill	hill	hill	arroyo bottom
Thickness of Overburden		0	2'	0	1-2'
P. I. (Overburden)		0	N.P.	0	N.P.
Estimated Quantity (cu. yds)		150,000 plus	250,000	300,000 plus	400,000 plus
Los Angeles Wear		20.0		16.9	
Soundness Loss				2.0	
Average Maximum Size		5"	7"	5"	6"
% Retained on 2" Sieve		30	25	30	21
Pit Average % Passing	Crushed to:	as received		as received	
	2"	63		57	
	1"	45		42	
	½"	34		31	
	No. 4	24		23	
	No. 10	18		19	
	No. 200	2		2	
Plasticity Index		N.P.		N.P.	
Remarks:					

Pit Number		6811
Location	Section	Sec. 26
	Township & Range	2S 1W
	County	Socorro
Formation		Qaf
Rock Type		silt, rock, gravel
Source Rock (Gravel)		various
Quality of Material		good
Thickness of Material		8-12'
Thickness of Cap (Caliche)		
Material Underlying Formation		silt & gravel
Vegetation		greesewood
Local Terrain		gravel ridge
Thickness of Overburden		2-3'
P. I. (Overburden)		N.P.
Estimated Quantity (cu. yds.)		500,000 plus
Los Angeles Wear		18.8
Soundness Loss		
Average Maximum Size		7"
% Retained on 2" Sieve		25
Pit Average % Passing	Crushed to:	as received
	2"	78
	1"	68
	½"	57
	No. 4	39
	No. 10	28
	No. 200	2
Plasticity Index		N.P.
Remarks:		

CONSTRUCTION MATERIALS INVENTORY

QUADRANGLE PAGE 65(4)

MATERIAL PIT SUMMARY

Pit Number		57118	57119	57120	57121
Location	Section	Not Sectionalized	Not Sectionalized	Not Sectionalized	Not Sectionalized
	Township & Range	2N 1E	2N 2E	2N 1E	2N 1E
	County	Socorro	Socorro	Socorro	Socorro
Formation		Qal	Ti	Qal	Ti
Rock Type		sand & gravel		sand	
Source Rock (Gravel)		various		various	
Quality of Material		good	good	good	good
Thickness of Material		5'	20' plus	4'	50' plus
Thickness of Cap (Caliche)					
Material Underlying Formation		silt & sand		sand	
Vegetation		grass	grass & greasewood	grass	grass & greasewood
Local Terrain		arroyo bottom	mountainous	river bank	mountain
Thickness of Overburden		0-3'		0-2'	
P. I. (Overburden)		N.P.		N.P.	
Estimated Quantity (cu. yds)		100,000 plus	250,000 plus	100,000 plus	500,000
Los Angeles Wear					
Soundness Loss					
Average Maximum Size		2"		2"	
% Retained on 2" Sieve		3		3	
Pit Average % Passing	Crushed to:				
	2"				
	1"				
	½"				
	No. 4				
	No. 10				
	No. 200				
Plasticity Index					
Remarks:					

Pit Number		57131	57132	57150	5817
Location	Section	Not Sectionalized	Not Sectionalized	N1/2 Sec. 31	Not Sectionalized
	Township & Range	Sevilleta Grant	Sevilleta Grant	3S 1W	Sevilleta Grant
	County	Socorro	Socorro	Socorro	Socorro
Formation		Qip	Qip	Qt	Qaa
Rock Type		sand & gravel	sand & gravel	gravel	silt
Source Rock (Gravel)		various	various	igneous & various	various
Quality of Material		good	good	good	fair
Thickness of Material		12-16'	12-14'	6-10'	6'
Thickness of Cap (Caliche)					
Material Underlying Formation		clay & sandstone	sand & gravel	soil & gravel	silt
Vegetation		grass	grass	grass	grass
Local Terrain		hilly	hilly	arroyo bank	flat
Thickness of Overburden		1-3'	2-4'	0-4'	1-3'
P. I. (Overburden)		N.P - 10	9	N.P.	N.P.
Estimated Quantity (cu. yds.)		300,000 plus	300,000 plus	300,000 plus	10,000
Los Angeles Wear		26.0	28.0	23.2	
Soundness Loss				2.2	
Average Maximum Size		2"	2"	10"	2"
% Retained on 2" Sieve		0	0	35	0
Pit Average % Passing	Crushed to:	as received	as received	as received	
	2"	100	95	48	
	1"	92	84	37	
	½"	84	76	30	
	No. 4	67	63	23	
	No. 10	54	52	18	
	No. 200	6	10	2	
Plasticity Index		N.P.	N.P.	N.P.	
Remarks:					

EXPLANATION

QUAD No. 66

QUATERNARY

- Qal — Alluvium
- Qe — Eolian deposits
- Qab — Bolson deposits
- Qbd — Beach deposits
- Qt — Terrace deposits
- Qp — Pediment deposits
- Qop — Older Pediment deposits

TRIASSIC TERTIARY

- Ti — Intrusive rocks undivided
- TR — Triassic rocks undivided

PERMIAN

- Pb — Bernal Formation
- Psa — San Andres Limestone
- Psal — San Andres Limestone
- Pg — Glorieta Sandstone
- Py — Yeso Formation
- Pyl — Yeso Limestone
- Pym — Mesita Blanca member
- Pa — Abo Formation

PERMIAN PENNSYLVANIAN

- PPb — Bursum Formation
- PPms — Sandia and Madera Formations

p€

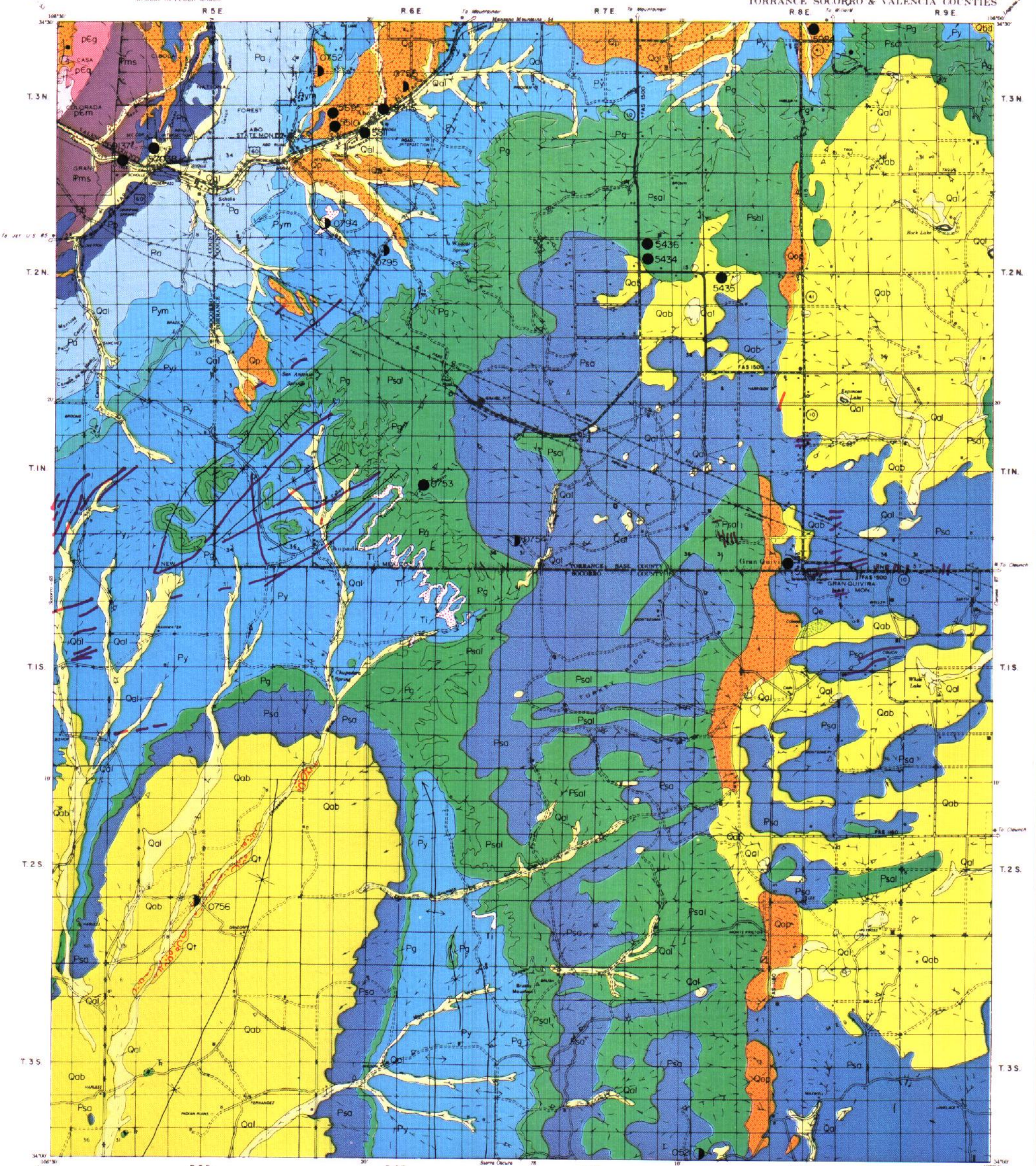
- p€g — Granite
- p€q — Quartzite
- p€m — Metamorphic rocks undivided

- Established pit or quarry
- Prospect pit or quarry
- Fault — downthrown side
- Anticline
- Syncline

NEW MEXICO STATE HIGHWAY DEPARTMENT
PLANNING AND PROGRAMMING DIVISION
BUREAU OF PUBLIC ROADS

GEOLOGY and AGGREGATE RESOURCES

GRAN QUIVERA QUADRANGLE – 66
TORRANCE SOCORRO & VALENCIA COUNTIES



Control by U.S. Coast and Geodetic Survey, U.S. Geological Survey, U.S. Forest Service, Bureau of Land Management and Planning Division. Modified Conic Projection Standard Parallel 34° North American Datum

DATE OF INVENTORY
GEOLOGY APRIL 1975
AGGREGATE RESOURCES APRIL 1974

Longitude West from Greenwich

Scale 1/126720 or 1 Inch = 3 Miles

DATE OF INVENTORY
TORRANCE COUNTY 1961
SOCORRO COUNTY 1962
VALENCIA COUNTY 1962

GRAN QUIVERA QUADRANGLE
66

CONSTRUCTION MATERIALS INVENTORY

MATERIAL PIT SUMMARY

Pit Number		5436	5435	5695	57115
Location	Section	SW 1/4 14	NE 1/4 19	SE 1/4 30	NW 1/4 28
	Township & Range	2N 7E	2N 8E	3N 6E	3N 6E
	County	Torrance	Torrance	Torrance	Torrance
Formation		Psa	Psa	Qp	Qp
Rock Type		caliche & limestone	sand	gravel & soil	gravel
Source Rock (Gravel)		-	-	various	quartzite & various
Quality of Material		good	fair	fair	good
Thickness of Material		8' plus	2-5'	4' plus	6' plus
Thickness of Cap (Caliche)		0-2'	-	-	-
Material Underlying Formation		-	limestone	-	conglomerate & s.s.
Vegetation		juniper	grass	grass	juniper
Local Terrain		hilly	rolling	hilly	hilly
Thickness of Overburden		0-2'	1'	3-8'	0-6'
P. I. (Overburden)		S.N.P. - 10	S.N.P.	S.N.P. - 7	0-11
Estimated Quantity (cu. yds)		unlimited	50,000	-	50,000
Los Angeles Wear		38.8	-	31.6	28.8
Soundness Loss		10.1	-	7.3	2.0
Average Maximum Size		-	-	8"	12"
% Retained on 2" Sieve		-	-	23	20
Pit Average % Passing	Crushed to:	1"	as received	as received	as received
	2"	-	-	78	80
	1"	100	-	55	67
	½"	27	no.10: 100	41	54
	No. 4	12	no.40: 96	30	38
	No. 10	7	no.80: 80	27	22
	No. 200	1	no.200: 21	11	4
Plasticity Index		N.P.	N.P.	12	8 - 16

Remarks:

#5436: pit 5434 in the area
#5695: pit no. 55100 in the area immediately south

Pit Number		57137	57138	5984	5989
Location	Section	SE 1/4 31	NW 1/4 32	SW 1/4 10	SE 1/4 33
	Township & Range	3N 5E	3N 5E	3N 8E	IN 8E
	County	Socorro	Socorro	Torrance	Torrance
Formation		₱	Qal	Qp	Psa
Rock Type		limestone	soil & gravel	gravel	sand
Source Rock (Gravel)		-	limestone & various	limestone & various	-
Quality of Material		excellent	good	good	good
Thickness of Material		30 -35'	14' plus	10' plus	5' plus
Thickness of Cap (Caliche)		-	-	-	-
Material Underlying Formation		shale	limestone	sandstone & silt	limestone
Vegetation		grass, pinon	juniper	grass & juniper	juniper
Local Terrain		gently rolling	hilly	rolling	hilly
Thickness of Overburden		0-2'	2-4'	1-3'	1'
P. I. (Overburden)		-	9	7	S.N.P.
Estimated Quantity (cu. yds.)		unlimited	25,000	25,000 plus	50,000
Los Angeles Wear		19.4	27.6	39.6	-
Soundness Loss		1.7	-	6.6	-
Average Maximum Size		-	6"	7"	-
% Retained on 2" Sieve		-	12	24	-
Pit Average % Passing	Crushed to:	1"	as received	as received	as received
	2"	-	84	71	-
	1"	100	72	54	-
	½"	54	61	42	no.10: 100
	No. 4	22	48	29	no.40: 97
	No. 10	11	32	21	no.80: 56
	No. 200	2	8	5	no.200: 8
Plasticity Index		N.P.	N.P.	5	N.P.

Remarks:

CONSTRUCTION MATERIALS INVENTORY

QUADRANGLE PAGE 66 (2)

MATERIAL PIT SUMMARY

Pit Number		0521	0752	0753	0754
Location	Section	SW 1/4 31	NE 1/4 24	22	N 1/2 31
	Township & Range	3S 8E	3N 5E	1N 6E	1N 7E
	County	Socorro	Socorro	Torrance	Torrance
Formation		Psa	Qp	Psa	Psa
Rock Type		limestone	gravel	limestone	limestone
Source Rock (Gravel)		-	quartzitic schist	-	-
Quality of Material		good	fair	excellent	good
Thickness of Material		8'	2-3'	5' plus	10' plus
Thickness of Cap (Caliche)		-	-	-	-
Material Underlying Formation		gypsum	silt	unknown	-
Vegetation		juniper & grass	grass & pinon	pinon - juniper	pinon & juniper
Local Terrain		hilly	flat	flat - rolling	rolling
Thickness of Overburden		1'	0-1'	0-1'	0-2'
P. I. (Overburden)		S.N.P.	-	-	7
Estimated Quantity (cu. yds)		100,000	unlimited	unlimited	unlimited
Los Angeles Wear		22.8	31.8	26.0	upper: 26.4 lower:22.4
Soundness Loss		-	3.6	4.2	4.6
Average Maximum Size		-	7"	-	-
% Retained on 2" Sieve		-	28	-	-
Pit Average % Passing	Crushed to:	1"	as received	1"	1"
	2"	-	50	-	-
	1"	100	31	100	100
	½"	79	24	58	57
	No. 4	32	19	25	21
	No. 10	16	15	15	11
	No. 200	4	11	4	2
Plasticity Index		N.P.	11	N.P.	N.P.

Remarks:

Pit Number		0755	0756	0794	0795
Location	Section	SW 1/4 21	SW 1/4 22	SW 1/4 7	NW 1/4 16
	Township & Range	3N 6E	2S 5E	2N 6E	2N 6E
	County	Torrance	Socorro	Torrance	Torrance
Formation		Qp	Qal	Ti	Py
Rock Type		gravel	gravel	metaintrusives	limestone
Source Rock (Gravel)		quartzite & shist	ls, ss, igneous	-	-
Quality of Material		good	fair	fair	good
Thickness of Material		2-3' variable	5'	12' plus	4' plus
Thickness of Cap (Caliche)		-	-	-	0-1'
Material Underlying Formation		red silt	sand & silt	sandstone	sandstone
Vegetation		grass	grass & pinon	juniper	juniper
Local Terrain		flat - rolling	rolling	hilly	hilly
Thickness of Overburden		-	2-10'	0-2'	0-2'
P. I. (Overburden)		-	-	9	8
Estimated Quantity (cu. yds.)		unlimited	100,000	75,000 plus	100,000
Los Angeles Wear		31.0	27.2	24.2	27.0
Soundness Loss		2.1	-	8.9	3.5
Average Maximum Size		4"	-	-	-
% Retained on 2" Sieve		18	-	-	-
Pit Average % Passing	Crushed to:	as received	as received	1"	1"
	2"	47	73	-	-
	1"	22	58	100	100
	½"	12	34	54	54
	No. 4	7	20	23	21
	No. 10	6	15	13	13
	No. 200	4	2	4	3
Plasticity Index		8	N.P.	S.N.P.	N.P.

Remarks:

CONSTRUCTION MATERIALS INVENTORY

MATERIAL PIT SUMMARY

Pit Number		5436	5435	5695	57115
Location	Section	SW 1/4 14	NE 1/4 19	SE 1/4 30	NW 1/4 28
	Township & Range	2N 7E	2N 8E	3N 6E	3N 6E
	County	Torrance	Torrance	Torrance	Torrance
Formation		Psa	Psa	Qp	Qp
Rock Type		caliche & limestone	sand	gravel & soil	gravel
Source Rock (Gravel)		-	-	various	quartzite & various
Quality of Material		good	fair	fair	good
Thickness of Material		8' plus	2-5'	4' plus	6' plus
Thickness of Cap (Caliche)		0-2'	-	-	-
Material Underlying Formation		-	limestone	-	conglomerate & s.s.
Vegetation		juniper	grass	grass	juniper
Local Terrain		hilly	rolling	hilly	hilly
Thickness of Overburden		0-2'	1'	3-8'	0-6'
P. I. (Overburden)		S.N.P. - 10	S.N.P.	S.N.P. - 7	0-11
Estimated Quantity (cu. yds)		unlimited	50,000	-	50,000
Los Angeles Wear		38.8	-	31.6	28.8
Soundness Loss		10.1	-	7.3	2.0
Average Maximum Size		-	-	8"	12"
% Retained on 2" Sieve		-	-	23	20
Pit Average % Passing	Crushed to:	1"	as received	as received	as received
	2"	-	-	78	80
	1"	100	-	55	67
	½"	27	no.10: 100	41	54
	No. 4	12	no.40: 96	30	38
	No. 10	7	no.80: 80	27	22
	No. 200	1	no.200: 21	11	4
Plasticity Index		N.P.	N.P.	12	8 - 16

Remarks:

#5436: pit 5434 in the area
#5695: pit no. 55100 in the area immediately south

Pit Number		57137	57138	5984	5989
Location	Section	SE 1/4 31	NW 1/4 32	SW 1/4 10	SE 1/4 33
	Township & Range	3N 5E	3N 5E	3N 8E	1N 8E
	County	Socorro	Socorro	Torrance	Torrance
Formation		₱	Qal	Qp	Psa
Rock Type		limestone	soil & gravel	gravel	sand
Source Rock (Gravel)		-	limestone & various	limestone & various	-
Quality of Material		excellent	good	good	good
Thickness of Material		30 -35'	14' plus	10' plus	5' plus
Thickness of Cap (Caliche)		-	-	-	-
Material Underlying Formation		shale	limestone	sandstone & silt	limestone
Vegetation		grass, pinon	juniper	grass & juniper	juniper
Local Terrain		gently rolling	hilly	rolling	hilly
Thickness of Overburden		0-2'	2-4'	1-3'	1'
P. I. (Overburden)		-	9	7	S.N.P.
Estimated Quantity (cu. yds.)		unlimited	25,000	25,000 plus	50,000
Los Angeles Wear		19.4	27.6	39.6	-
Soundness Loss		1.7	-	6.6	-
Average Maximum Size		-	6"	7"	-
% Retained on 2" Sieve		-	12	24	-
Pit Average % Passing	Crushed to:	1"	as received	as received	as received
	2"	-	84	71	-
	1"	100	72	54	-
	½"	54	61	42	no.10: 100
	No. 4	22	48	29	no.40: 97
	No. 10	11	32	21	no.80: 56
	No. 200	2	8	5	no.200: 8
Plasticity Index		N.P.	N.P.	5	N.P.

Remarks:

EXPLANATION

QUAD No. 73

QUATERNARY

- Qal — Alluvium
- Qaf — Alluvial fan deposits
- Qps — Piedmont slope deposits
- Qt — Terrace deposits
- Ql — Landslide Debris
- Qp — Pediment deposits
- Qoaf — Older Alluvial fan deposits
- Qop — Older Pediment deposits

QUATERNARY -TERTIARY

- Qb — Basalt
- QTg — Older gravel deposits
- QTb — Basalt
- QTr — Rhyolite flows

TERTIARY

- Tdr — Datil Rhyolite flows
- Tdt — Datil Rhyolite tuff
- Tdl — Datil Latite Breccias
- Tdc — Datil Conglomerate
- Tda — Datil Andesite
- Tdvs — Datil Sedimentary series

PENN.

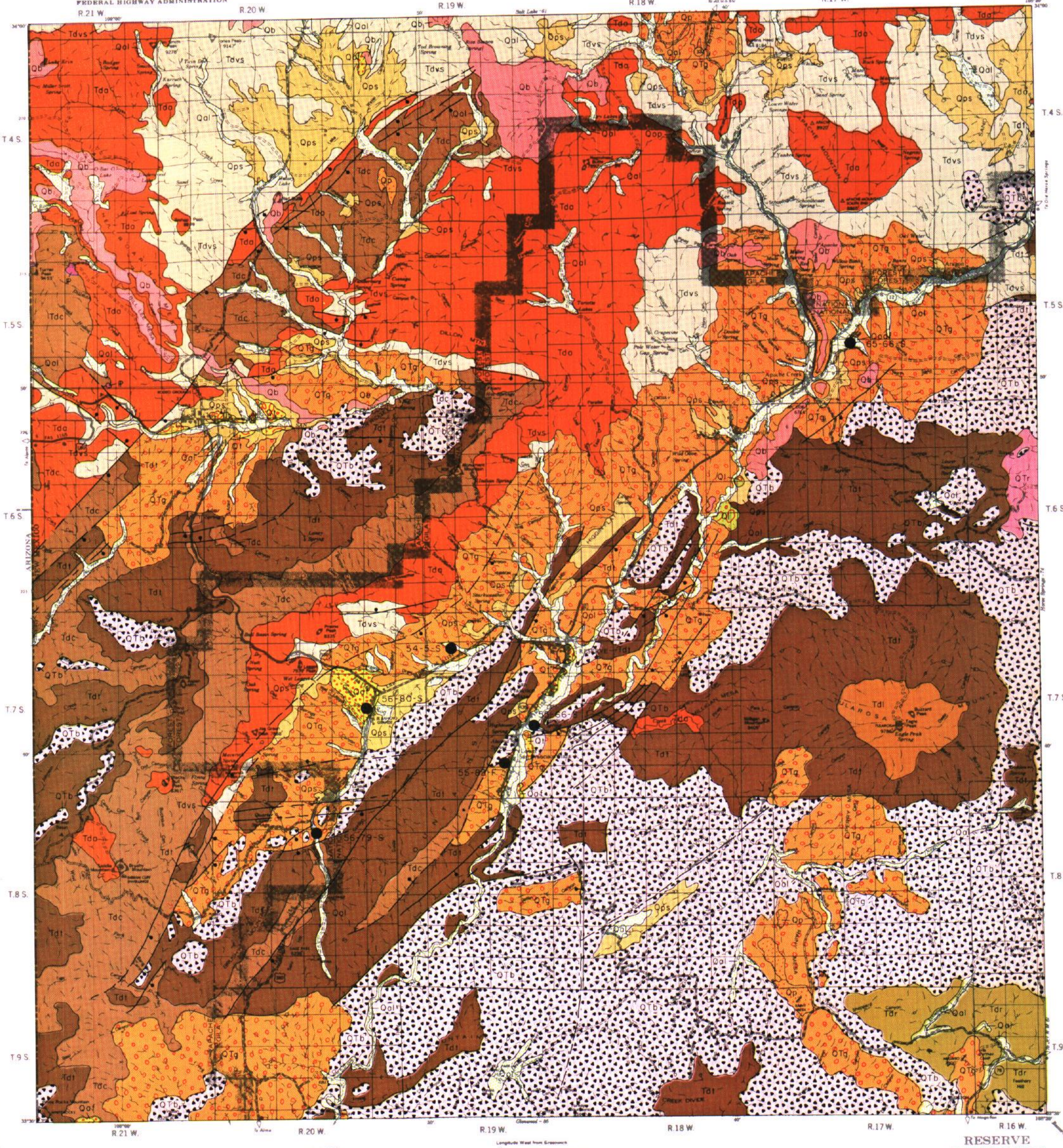
- P — Pennsylvanian rock undivided

- Established pit or quarry
- Prospect pit or quarry
- Fault — downthrown side
- Anticline
- Syncline

NEW MEXICO STATE HIGHWAY DEPARTMENT
PLANNING AND PROGRAMMING DIVISION
FEDERAL HIGHWAY ADMINISTRATION

GEOLOGY and AGGREGATE RESOURCES

RESERVE QUADRANGLE 73
CATRON COUNTY



Control by National Geodetic Survey, U.S. Geological Survey, U.S. Forest Service, Bureau of Land Management and Planning Division
Modified Conic Projection Standard Parallel 33½° North American Datum

DATE OF INVENTORY
GEOLOGY SEPT. 1979
AGGREGATE RESOURCES SEPT. 1979

RESERVE
QUADRANGLE
73

QUADRANGLE PAGE 73

CONSTRUCTION MATERIALS INVENTORY

MATERIAL PIT SUMMARY

Pit Number		5404	5566	5582	5679
Location	Section	NE 8	SE 23	S 27	NW 10
	Township & Range	7S 19W	7S 19W	7S 19W	8S 20W
	County	Catron	Catron	Catron	Catron
Formation		Qal	Qal	Qal	Qal
Rock Type		sand & gravel	sand & gravel	sand & gravel	sand & gravel
Source Rock (Gravel)		various volcanic	various	volcanics	various
Quality of Material		good	good	good	good
Thickness of Material		3-6'	9'	8'	4-6'
Thickness of Cap (Caliche)		-	-	-	-
Material Underlying Formation		soil	volcanics & water	sand	sand & gravel
Vegetation		grass, bushes & pine	trees pine & cedar	grass & pine	grass
Local Terrain		arroyo bottom	river bottom	mountain canyon	hilly (arroyo bottom)
Thickness of Overburden		0 - 3'	0 - 3'	0 - 2'	0-2'
P. I. (Overburden)		6 plus	6 plus	N.P.	10 plus
Estimated Quantity (cu. yds)		30,000 plus	30,000 plus	150,000	20,000
Los Angeles Wear		-	24.4		24.8
Soundness Loss		-	-	-	-
Average Maximum Size		8"	6"	2"	10"
% Retained on 2" Sieve		14	12	4	22
Pit Average % Passing	Crushed to:		3/4"		as received
	2"				67
	1"		100		54
	½"		87		43
	No. 4		74		28
	No. 10		69		19
	No. 200		17		1
Plasticity Index			N.P.		N.P.

Remarks:

Pit Number		5680	6566
Location	Section	NW 24	NW 27
	Township & Range	7S 20W	5S 17W
	County	Catron	Catron
Formation		Qaf	Qaaf
Rock Type		soil & gravel	sand & gravel
Source Rock (Gravel)		various	various
Quality of Material		good	good
Thickness of Material		4-10'	3-11'
Thickness of Cap (Caliche)		-	-
Material Underlying Formation		soil & gravel	silt
Vegetation		pine & grass	grass & juniper
Local Terrain		hilly	hilly
Thickness of Overburden		0-2'	1-4'
P. I. (Overburden)		10 plus	6 plus
Estimated Quantity (cu. yds.)		50,000 plus	50,000 +
Los Angeles Wear		23.6	18.8
Soundness Loss			9.4
Average Maximum Size		4"	8"
% Retained on 2" Sieve		11	20
Pit Average % Passing	Crushed to:	as received	as received
	2"	59	70
	1"	42	53
	½"	34	42
	No. 4	26	31
	No. 10	21	26
	No. 200	1	4
Plasticity Index		N.P.	N.P.

Remarks:

CONSTRUCTION MATERIALS INVENTORY

QUADRANGLE PAGE _____

MATERIAL PIT SUMMARY

Pit Number		
Location	Section	
	Township & Range	
	County	
Formation		
Rock Type		
Source Rock (Gravel)		
Quality of Material		
Thickness of Material		
Thickness of Cap (Caliche)		
Material Underlying Formation		
Vegetation		
Local Terrain		
Thickness of Overburden		
P. I. (Overburden)		
Estimated Quantity (cu. yds)		
Los Angeles Wear		
Soundness Loss		
Average Maximum Size		
% Retained on 2" Sieve		
Pit Average % Passing	Crushed to:	
	2"	
	1"	
	½"	
	No. 4	
	No. 10	
	No. 200	
Plasticity Index		

Remarks:

Pit Number		
Location	Section	
	Township & Range	
	County	
Formation		
Rock Type		
Source Rock (Gravel)		
Quality of Material		
Thickness of Material		
Thickness of Cap (Caliche)		
Material Underlying Formation		
Vegetation		
Local Terrain		
Thickness of Overburden		
P. I. (Overburden)		
Estimated Quantity (cu. yds.)		
Los Angeles Wear		
Soundness Loss		
Average Maximum Size		
% Retained on 2" Sieve		
Pit Average % Passing	Crushed to:	
	2"	
	1"	
	½"	
	No. 4	
	No. 10	
	No. 200	
Plasticity Index		

Remarks:

EXPLANATION

QUAD No. 74

QUATERNARY

- Qal — Alluvium
- Qld — Lake deposits
- Qbd — Beach deposits
- Qab — Bolson deposits
- Qps — Piedmont slope deposits
- Qaf — Alluvial fan deposits
- Ql — Landslide Debris

QUATERNARY -TERTIARY

- QTg — Older gravel deposits
- QTb — Basalt
- QTr — Rhyolite flows

TERTIARY

- Tdlr — Datil Latite and Rhyolite
- Tdt — Datil Rhyolite tuff
- Tdr — Datil Rhyolite flows
- Tdvs — Datil Sedimentary series
- Tda — Datil Andesite
- Tdl — Datil Latite breccias

PERMIAN

- P — Lower Permian undivided

- Established pit or quarry
- Prospect pit or quarry
- Fault — downthrown side
- Anticline
- Syncline

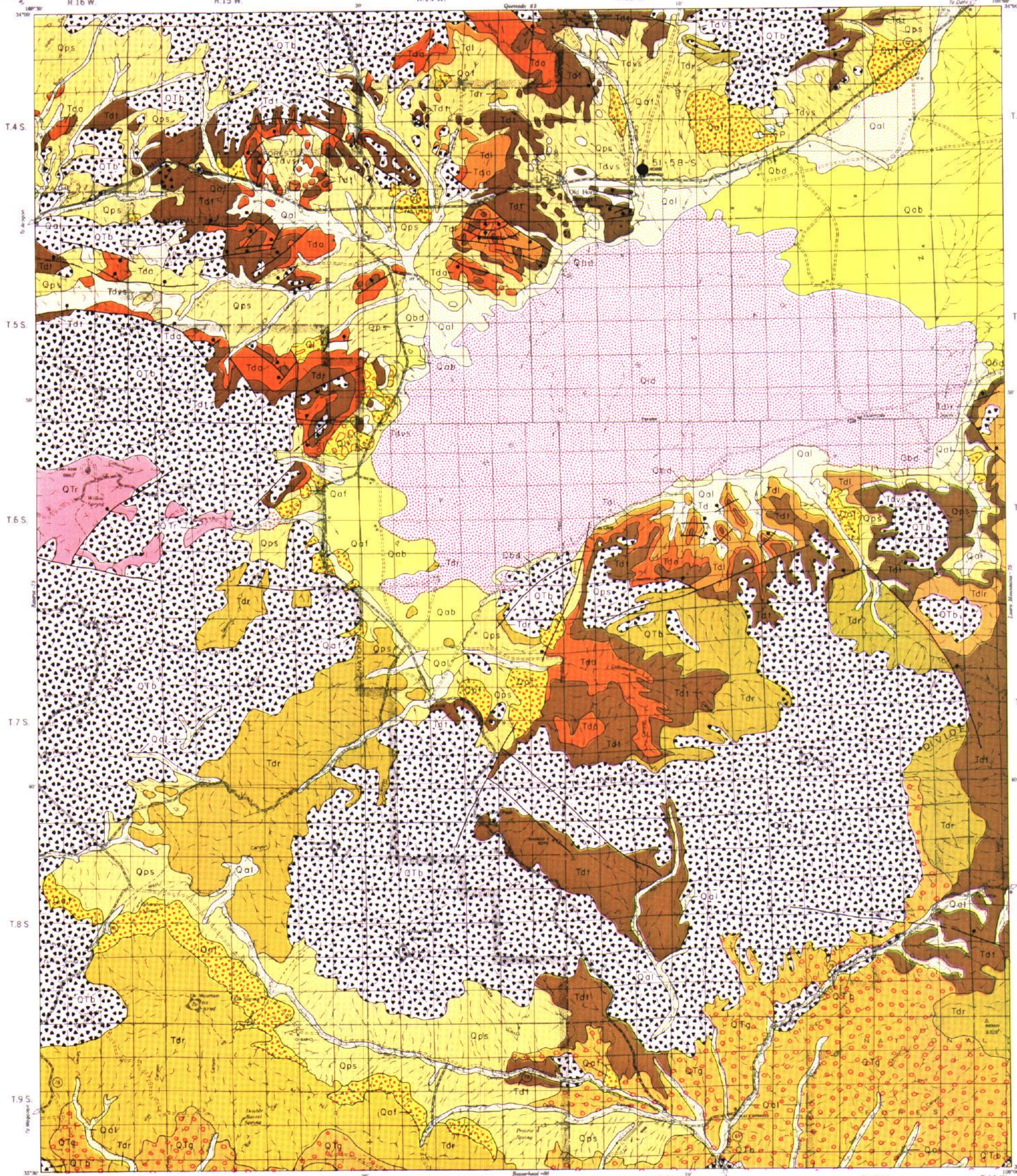
NEW MEXICO STATE HIGHWAY DEPARTMENT
PLANNING AND PROGRAMMING DIVISION
FEDERAL HIGHWAY ADMINISTRATION

GEOLOGY and AGGREGATE RESOURCES

HORSE SPRINGS QUADRANGLE-74
CATRON COUNTY

R.16 W. R.15 W. R.14 W. R.13 W. R.12 W. R.11 W.

T.4 S. T.5 S. T.6 S. T.7 S. T.8 S. T.9 S.



Control by National Geodetic Survey; U.S. Geological Survey; U.S. Forest Service; Bureau of Land Management and Planning Division
Modified Conic Projection Standard Parallel 34°N° North American Datum

DATE OF INVENTORY
GEOLOGY MAY 1979
AGGREGATE RESOURCES MAY 1979

Longitude West from Greenwich
Scale 1/126720 or 1 Inch = 3 Miles
1 ½ 0 1 2 3 4
KILOMETERS
STATUTE MILES

HORSE SPRINGS
QUADRANGLE
74

EXPLANATION

QUAD No. 75

QUATERNARY

- Qal — Alluvium
- Qab — Bolson deposits
- Qt — Terrace deposits
- Qps — Piedmont slope deposits
- Qaa — Alluvial Aprons
- Qbd — Beach deposits
- Qaf — Alluvial fan deposits
- Qld — Lake deposits
- Qp — Pediment deposits

QUATERNARY -TERTIARY

- QTg — Older gravel deposits
- QTsf — Santa Fe Formation
- QTb — Basalt

TERTIARY

- Tdr — Datil Rhyolite flows
- Tdt — Datil Rhyolite tuff
- Tdlr — Datil Latite and Rhyolite
- Tda — Datil Andesite
- Ta — Older Andesite

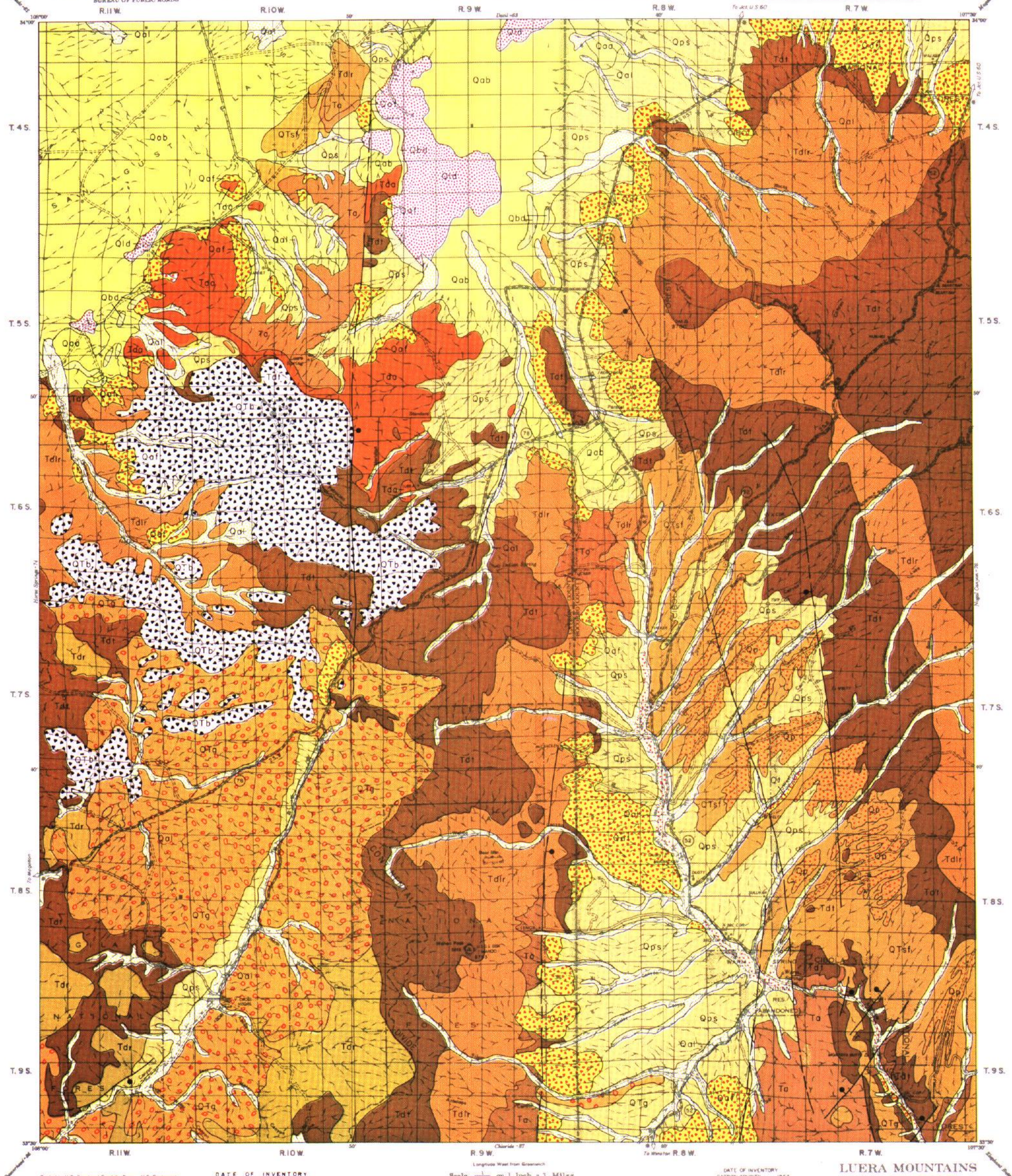
- Established pit or quarry
- Prospect pit or quarry
- Fault — downthrown side
- Anticline
- Syncline

NEW MEXICO STATE HIGHWAY DEPARTMENT
PLANNING AND PROGRAMMING DIVISION
BUREAU OF PUBLIC ROADS

GEOLOGY and AGGREGATE RESOURCES

LUERA MOUNTAINS QUADRANGLE-75

CATRON & SOCORRO COUNTIES



Control by U.S. Coast and Geodetic Survey; U.S. Geological Survey; U.S. Forest Service; Bureau of Land Management and Planning Division—Modified Conic Projection Standard Parallel 34½° North American Datum

DATE OF INVENTORY
GEOLOGY JUNE 1979
AGGREGATE RESOURCES JUNE 1979

Scale 1/190080 or 1 Inch = 3 Miles

DATE OF INVENTORY
CATRON COUNTY 1963
SOCORRO COUNTY 1962

LUERA MOUNTAINS
QUADRANGLE
75

EXPLANATION

QUAD No. 76

QUATERNARY

- Qal — Alluvium
- Qat — Arroyo Terrace
- Qe — Eolian deposits
- Qaa — Alluvial Aprons
- Qad — Arroyo Deltas
- Qop — Older Pediment deposits
- Qip — Intermediate Pediment deposits
- Qp — Pediment deposits

QUATERNARY -TERTIARY

- Qb — Basalt
- QTsf — Santa Fe Formation
- QTb — Basalt

TERTIARY

- Td — Datil Volcanics undifferentiated
- Tdt — Datil Rhyolite tuff
- Tdlr — Datil Latite and Rhyolite
- Ta — Older Andesite
- Tdr — Datil Rhyolite flows
- Tlb — Latite Breccias

PENN.

- PP — Pennsylvanian rock undivided

SIL.-ORD. CAMB.

- SO€ — Devonian, Ordivician and Cambrian undivided

PRECAMB.

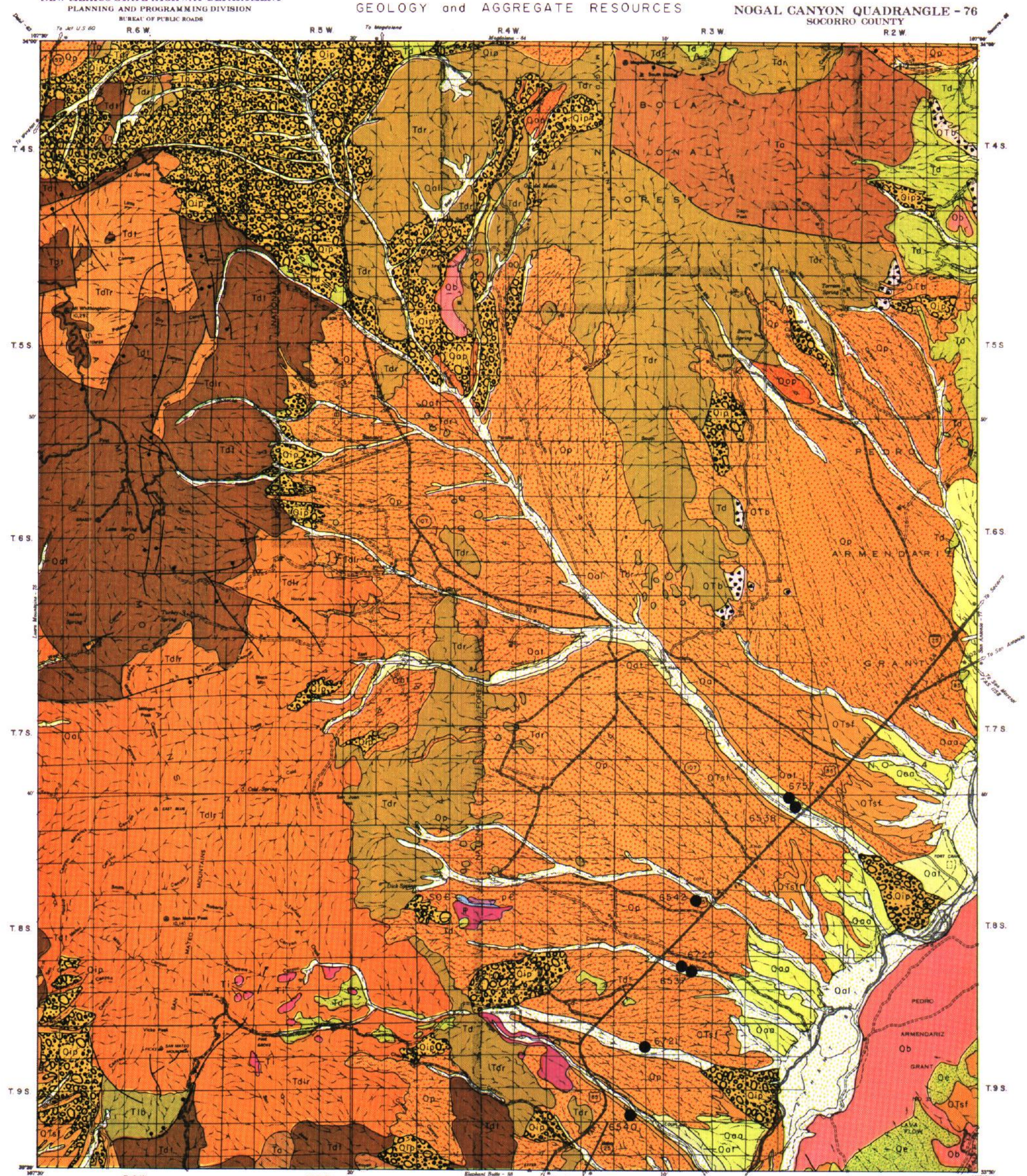
- p€ — Precambrian undivided

- Established pit or quarry
- Prospect pit or quarry
- Fault — downthrown side
- Anticline
- Syncline

NEW MEXICO STATE HIGHWAY DEPARTMENT
PLANNING AND PROGRAMMING DIVISION
BUREAU OF PUBLIC ROADS

GEOLOGY and AGGREGATE RESOURCES

NOGAL CANYON QUADRANGLE - 76
SOCORRO COUNTY



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DATE OF INVENTORY
GEOLOGY DEC. 1979
AGGREGATE RESOURCES DEC. 1979

Longitude West from Greenwich
Scale 1/190,080 or 1 Inch = 3 Miles
STATUTE MILES

INTERSTATE REVISED 11-67

NOGAL CANYON QUADRANGLE
76

1962

QUADRANGLE PAGE 76

CONSTRUCTION MATERIALS INVENTORY

MATERIAL PIT SUMMARY

Pit Number		6537	6538	6540	6542
Location	Section	Section 28	Section 36	NW ¼ SE ¼ Sec. 18	Section 16
	Township & Range	8S 3W	7S 3W	9S 3W	8S 3W
	County	Socorro	Socorro	Socorro	Socorro
Formation		Qal	Qal	Qal	Qp
Rock Type		sand and gravel	sand and gravel	sand and gravel	sand and gravel
Source Rock (Gravel)		igneous & various	various	various	igneous
Quality of Material		good	excellent	excellent	good
Thickness of Material		10'	12'	10'	6' plus
Thickness of Cap (Caliche)		-	-	-	-
Material Underlying Formation		sand	sand	sand	silt
Vegetation		greasewood	greasewood	greasewood & grass	greasewood
Local Terrain		arroyo	arroyo bottom	flat arroyo bottom	hilly
Thickness of Overburden		0-2'	0-2'	0-3'	0-2'
P. I. (Overburden)		N.P.	N.P.	N.P.	N.P.
Estimated Quantity (cu. yds)		300,000	400,000	600,000	250,000
Los Angeles Wear					
Soundness Loss					
Average Maximum Size		5"	5"	6"	6"
% Retained on 2" Sieve		10	15	16	16
Pit Average % Passing	Crushed to:	as received	as received	as received	as received
	2"				
	1"				
	½"				
	No. 4				
	No. 10				
	No. 200				
Plasticity Index					
Remarks:					

Pit Number		6720	6721
Location	Section	NE¼ Sec. 29	Sec. 5 & Sec. 4
	Township & Range	8S 3W	9S 3W
	County	Socorro	Socorro
Formation		Qal	Qal
Rock Type		sand & gravel	sand & gravel
Source Rock (Gravel)		various	various
Quality of Material		excellent	good
Thickness of Material		10-13'	6' plus
Thickness of Cap (Caliche)		-	-
Material Underlying Formation		clay, silt, sand	sand & gravel
Vegetation		greasewood	greasewood
Local Terrain		arroyo	arroyo
Thickness of Overburden		0-1'	0-2'
P. I. (Overburden)		N.P.	N.P.
Estimated Quantity (cu. yds.)		400,000	350,000
Los Angeles Wear		22.0	
Soundness Loss		9.0	
Average Maximum Size		8"	4"
% Retained on 2" Sieve		18	16
Pit Average % Passing	Crushed to:	as received	as received
	2"	79	
	1"	57	
	½"	47	
	No. 4	21	
	No. 10	13	
	No. 200	2	
Plasticity Index		N.P.	
Remarks:			

CONSTRUCTION MATERIALS INVENTORY

QUADRANGLE PAGE _____

MATERIAL PIT SUMMARY

Pit Number

Location: Section / Township & Range / County

Formation

Rock Type

Source Rock (Gravel)

Quality of Material

Thickness of Material

Thickness of Cap (Caliche)

Material Underlying Formation

Vegetation

Local Terrain

Thickness of Overburden

P. I. (Overburden)

Estimated Quantity (cu. yds)

Los Angeles Wear

Soundness Loss

Average Maximum Size

% Retained on 2" Sieve

Pit Average % Passing: Crushed to: / 2" / 1" / ½" / No. 4 / No. 10 / No. 200

Plasticity Index

Remarks:

Pit Number

Location: Section / Township & Range / County

Formation

Rock Type

Source Rock (Gravel)

Quality of Material

Thickness of Material

Thickness of Cap (Caliche)

Material Underlying Formation

Vegetation

Local Terrain

Thickness of Overburden

P. I. (Overburden)

Estimated Quantity (cu. yds.)

Los Angeles Wear

Soundness Loss

Average Maximum Size

% Retained on 2" Sieve

Pit Average % Passing: Crushed to: / 2" / 1" / ½" / No. 4 / No. 10 / No. 200

Plasticity Index

Remarks:

EXPLANATION

QUAD No. 77

QUATERNARY

- Qal — Alluvium
- Qld — Lake deposits
- Qfp — Floodplain deposits
- Qaa — Alluvial Aprons
- Qe — Eolian deposits
- Ql — Landslide debris
- Qab — Bolson deposits
- Qaf — Alluvial fan deposits
- Qiaf — Intermediate Alluvial Fan deposits
- Qoaf — Older Alluvial Fan deposits
- Qt — Terrace deposits
- Qps — Piedmont slope deposits
- Qp — Pediment deposits
- Qop — Older Pediment deposits
- Qb — Basalt

QUATERNARY -TERTIARY

- QTsf — Santa Fe Formation
- QTb — Basalt

TERTIARY

- Ti — Intrusive rocks undivided
- Td — Datil Volcanics undifferentiated
- Tb — Baca Formation

CRETACEOUS

- Kmv — Mesa Verde Group
- Km — Mancos Shale
- Kd — Dakota Sandstone

TRIASSIC

- Trd — Dockum Formation

PERMIAN

- Psa — San Andres Limestone
- Pg — Glorieta Sandstone
- Py — Yeso Formation
- Pa — Abo Formation

PENN.

- PPm — Madera Limestone
- PP — Pennsylvanian rock undivided

MISS.

- M — Mississippian rock

PRECAM.

- p€g — Granite
- p€m — Metamorphic rock undivided

- Established pit or quarry
- Prospect pit or quarry
- Fault — downthrown side
- Anticline
- Syncline

NEW MEXICO STATE HIGHWAY DEPARTMENT

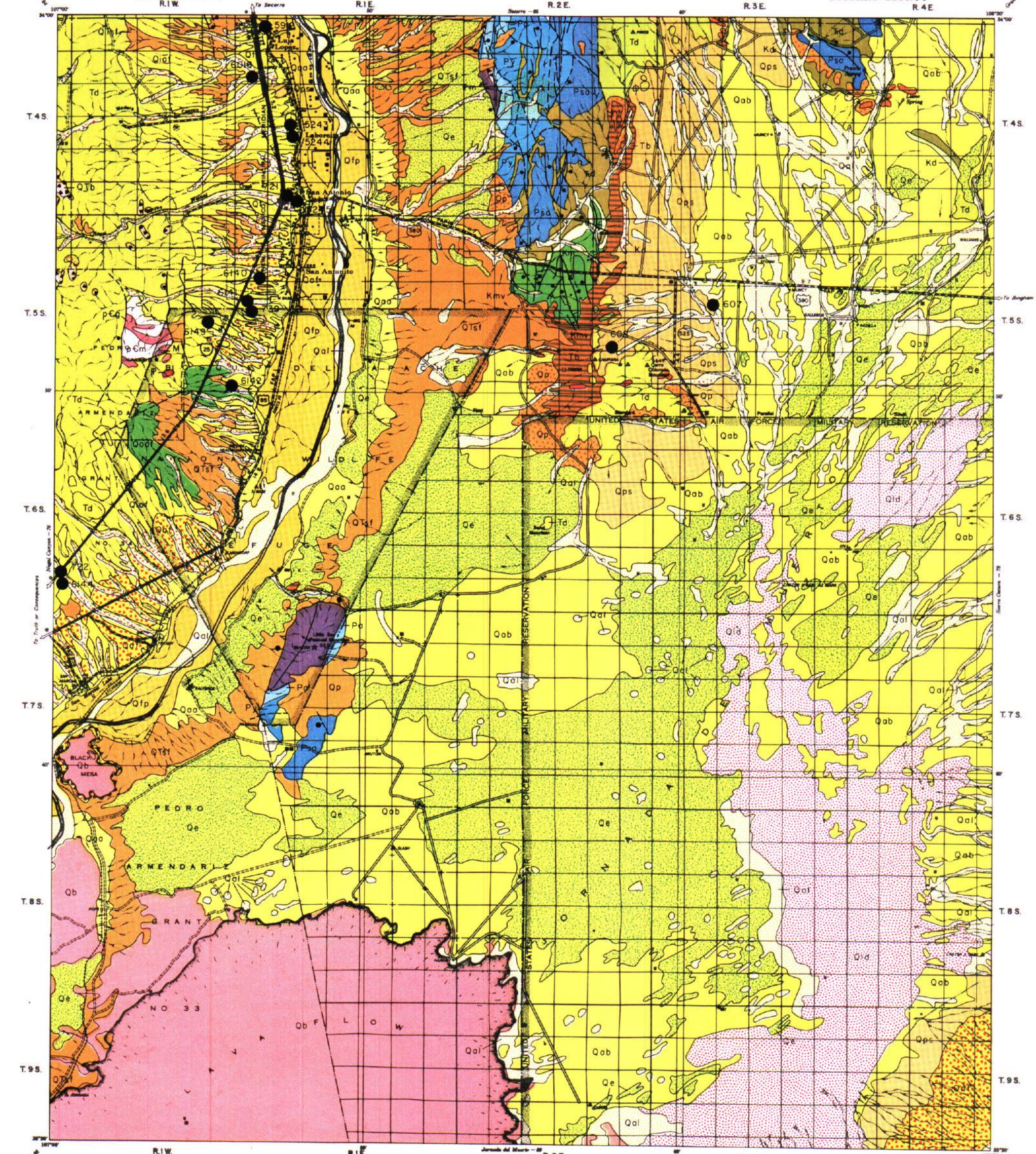
PLANNING AND PROGRAMMING DIVISION

BUREAU OF PUBLIC ROADS

GEOLOGY and AGGREGATE RESOURCES

SAN ANTONIO QUADRANGLE - 77

SOCORRO COUNTY



Control by U.S. Coast and Geodetic Survey, U.S. Geological Survey, U.S. Forest Service, Bureau of Land Management and Planning Division—Modified Conic Projection Standard Parallel 34°N° North American Datum

DATE OF INVENTORY

GEOLOGY MAY 1979

AGGREGATE RESOURCES MAY 1979

Scale 1/126720 or 1 Inch = 3 Miles

1962

SAN ANTONIO QUADRANGLE 77

CONSTRUCTION MATERIALS INVENTORY

MATERIAL PIT SUMMARY

Pit Number		5244	5245	5912
Location	Section	NW¼ Sec. 19	Section 31	N½ Sec. 1
	Township & Range	4S 1E	4S 1E	4S 1E
	County	Socorro	Socorro	Socorro
Formation		Qaa	Qaa	Qaa
Rock Type		sand and gravel	sand and gravel	sand
Source Rock (Gravel)		igneous	igneous	-
Quality of Material		good	good	good
Thickness of Material		6' plus	10'	7-12'
Thickness of Cap (Caliche)		-	-	-
Material Underlying Formation		sand and silt	sand	sand
Vegetation		greasewood	greasewood	greasewood
Local Terrain		hilly	hilly	rolling
Thickness of Overburden		0-2'	0-2'	3-4'
P. I. (Overburden)		N.P.	N.P.	N.P.
Estimated Quantity (cu. yds)		400,000	150,000	10,000
Los Angeles Wear				
Soundness Loss				
Average Maximum Size		5"	4"	1"
% Retained on 2" Sieve		15	13	0
Pit Average % Passing	Crushed to:			as received
	2"			100
	1"			91
	½"			80
	No. 4			62
	No. 10			49
	No. 200			7
Plasticity Index				N.P.

Remarks:

Pit Number		6007	6008	6019	6140
Location	Section	S½ Sec. 17	23	E½ NW¼ Sec. 12	SW¼ Sec. 12
	Township & Range	5S 3E	5S 2E	4S 1W	5S 1W
	County	Socorro	Socorro	Socorro	Socorro
Formation		Qps	Td	Qt	Qaf
Rock Type		sand & gravel	rhyolite	sand & gravel	sand & gravel
Source Rock (Gravel)		limestone and various	igneous	igneous	various
Quality of Material		good	good	excellent	excellent
Thickness of Material		5'	25' plus	9-13'	10'
Thickness of Cap (Caliche)		0-1'	-	-	-
Material Underlying Formation		soil	-	soil & gravel	sand
Vegetation		grass	grass, greasewood	greasewood	greasewood
Local Terrain		flat	hill	hilly	arroyo bottom
Thickness of Overburden		3-6'	-	0-4'	0-2'
P. I. (Overburden)		N.P.	-	N.P.	N.P.
Estimated Quantity (cu. yds.)		50,000 plus	135,000 plus	200,000 plus	250,000
Los Angeles Wear		30.4		21.2	
Soundness Loss		4.4		2.1	
Average Maximum Size		3"		5"	4"
% Retained on 2" Sieve		6		25	11
Pit Average % Passing	Crushed to:	as received		as received	
	2"	92		68	
	1"	81		55	
	½"	72		47	
	No. 4	58		39	
	No. 10	47		32	
	No. 200	4		3	
Plasticity Index		N.P.		N.P.	

Remarks:

CONSTRUCTION MATERIALS INVENTORY

MATERIAL PIT SUMMARY

Pit Number		6141	6142	6143
Location	Section	Section 13	Not sectionalized Bosque Del Apache Nat'l	Bosque Del Apache Refuge
	Township & Range	5S 1W	5S 1W Wild Life Refuge	5S 1W
	County	Socorro	Socorro	Socorro
Formation		Qt	Qal	Qal
Rock Type		sand and gravel	sand and gravel	sand and gravel
Source Rock (Gravel)		igneous	igneous	various
Quality of Material		excellent	excellent	excellent
Thickness of Material		10'	12'	7-10'
Thickness of Cap (Caliche)		-	-	-
Material Underlying Formation		sand	silt	gravel
Vegetation		greasewood	greasewood	greasewood
Local Terrain		arroyo bottom	arroyo	arroyo bottom
Thickness of Overburden		0-2'	0-3'	3-6'
P. I. (Overburden)		N.P.	N.P.	N.P.
Estimated Quantity (cu. yds)		200,000	250,000	300,000 plus
Los Angeles Wear				26.5
Soundness Loss				2.0
Average Maximum Size		5"	6"	6"
% Retained on 2" Sieve		9	13	14
Pit Average % Passing	Crushed to:			as received
	2"			74
	1"			66
	½"			52
	No. 4			33
	No. 10			22
	No. 200			5
Plasticity Index				N.P.

Remarks:

Pit Number		6144 Pedro Armendaris Grant	7201	7202	7309
Location	Section	not sectionalized	E½ Sec. 31	Pedro Armendaris Grant	NE¼ SE¼ S. 13
	Township & Range	6S 1W	4S 1E	6S 1W	5S 1W
	County	Socorro	Socorro	Socorro	Socorro
Formation		Qal	Qal	Qal	Qt
Rock Type		sand & gravel	sand & gravel	sand & gravel	Sand & gravel
Source Rock (Gravel)		igneous & various	igneous	igneous & various	various
Quality of Material		excellent	excellent	excellent	excellent
Thickness of Material		10-12'	12' plus	5-15'	8-12'
Thickness of Cap (Caliche)		-	-	-	-
Material Underlying Formation		gravel	silt	gravel	silt, sand, gravel
Vegetation		greasewood	greasewood	greasewood	grass & greasewood
Local Terrain		arroyo	hilly	arroyo bottom	terrace
Thickness of Overburden		0-2'	0-3'	0-2'	1-3'
P. I. (Overburden)		N.P.	N.P.	N.P.	N.P.
Estimated Quantity (cu. yds.)		350,000	230,000 plus	350,000	300,000 plus
Los Angeles Wear		22.4	23.8	20.0	22.9/24.8
Soundness Loss		2.8	7.3	2.2	8.8/11.5
Average Maximum Size		6"	4"	6"	3"
% Retained on 2" Sieve		17	15	17	3
Pit Average % Passing	Crushed to:	as received	as received	as received	as received
	2"	81	86	88	99
	1"	66	70	75	95
	½"	54	56	66	87
	No. 4	34	37	50	61
	No. 10	23	25	37	38
	No. 200	3	3	4	7
Plasticity Index		N.P.	N.P.	N.P.	N.P.

Remarks:

NEW MEXICO STATE HIGHWAY DEPARTMENT
PLANNING AND PROGRAMMING DIVISION
BUREAU OF PUBLIC ROADS

AGGREGATE RESOURCES and GEOLOGY

SIERRA OSCURA QUADRANGLE 78
LINCOLN & SOCORRO COUNTIES

EXPLANATION

QUATERNARY

- **Qal** — Alluvium
  Poorly to well-sorted gravel, sand, silt and clay; stippled where granular
- **Qe** — Eolian deposits
  Wind-borne sand; primarily active or recently active dune areas
- **Qls** — Landslide debris
  Large sandstone blocks and boulders mixed with shale and clay; frequently water saturated
- **Qab** — Alluvium and bolson deposits
  Silt, sand and clay with local braided deposits of fine grained gravel
- **Qaf** — Alluvial fan deposits
  Poorly-sorted, sub-angular gravel with sand, silt and clay; frequently have large boulders
- **Qps** — Piedmont slope deposits
  Silt, sand, clay and gravel representing a transitional zone of alluviation between fan and valley floor deposits
- **Qt** — Terrace deposits
  Well-sorted gravel and sand with lenses of silt and clay

TERTIARY

- **Qb** — Basalt
  Recent flow of black, vesicular basalt of Little Black Peak
- **Qp 1 2 3** — Pediment deposits
  Recent heterogeneous deposits of gravel, silt, clay and sand(1); older deposits slightly more decomposed(2); deposits derived primarily from the Sierra Blanca volcanic series(3)
- **QTb** — Basalt
  Partly decomposed, black, olivine basalt of the Brokenback Crater flow
- **QTc** — Cinders
  Black, basaltic cinders of Brokenback Crater
- **Ti** — Intrusive rock
  Dikes and sills of various composition; usually deeply weathered

CRETACEOUS

- **Kmv** — Mesa Verde Formation
  Interbedded, white to buff sandstone and gray shale with minor coal beds
- **Km** — Mancos Shale
  Dark-gray to black fissile shale
- **Kd** — Dakota Sandstone
  Massive, buff to red and white sandstone

TRIASSIC

- **Tr** — Triassic rocks undivided
  Maroon sandstone, siltstone and shale

PERMIAN

- **Pat** — Artesia Group
  Orange-red siltstone, shale and white gypsum
- **Psa / Psam / Psal** — San Andres Formation
  Massive, gray limestone and white gypsum, in the Chupadera Mesa area divided into a thick, lower limestone sequence (Psal); a thick middle gypsum member (Psam); and a thin upper limestone member (Psau)
- **Py / Pyl** — Yeso Formation
  Variegated, soft sandstone and siltstone, pink and yellow shale, thin-bedded limestone and white gypsum (Py); limestone member (Pyl)
- **Pa** — Abo Formation
  Interbedded dark, reddish-brown shale, siltstone, arkosic sandstone and conglomerate
- **Pbm** — Bursum Formation
  Drab calcareous shale; thin argillaceous limestone; quartz sandstone; and limestone conglomerate

PENNSYLVANIAN

- **IP** — Pennsylvanian rocks undivided
  Sandstone and limestone; may include rocks of Mississippian and Devonian Age

PRE-CAMBRIAN

- **p€** — Precambrian rocks undivided
  Granite, gneiss, quartzite and other metamorphic rocks

- Developed pit or quarry
- Prospect pit or quarry
- * Selected exploration site
- Fault — downthrown side
- Anticline
- Syncline

R.4E. R.5E. R.6E. R.7E. R.8E. R.9E.
T.4S. T.5S. T.6S. T.7S. T.8S. T.9S.

0518 0519 0520 0521 0522 0523 0524 0525 0526 0527 0528 0529 0530 0531 0532 0609 0610

Contract by U.S. Coast and Geodetic Survey; U.S. Geological Survey; U.S. Forest Service; Bureau of Land Management and Planning Division—Modified Conic Projection Standard Parallel 36°0' North American Datum

DATE OF INVENTORY
GEOLOGY AUGUST 1971
AGGREGATE RESOURCES AUGUST 1971

Longitude West from Greenwich
Scale 1/250000 or 1 Inch = 3 Miles
STATUTE MILES

DATE OF INVENTORY
LINCOLN COUNTY 1961
SOCORRO COUNTY 1962

SIERRA OSCURA QUADRANGLE 78

CONSTRUCTION MATERIALS INVENTORY

MATERIAL PIT SUMMARY

Pit Number		0518	0519	0520	0521
Location	Section	NE 1/4 14	SW 1/4 6	SE 1/4 11	SW 1/4 31
	Township & Range	5S 4E	5S 6E	4S 6E	3S 8E
	County	Socorro	Socorro	Socorro	Socorro
Formation		Qe	Qp	Py	Psa
Rock Type		filler sand	sand & gravel	limestone	limestone
Source Rock (Gravel)		eolian	polygenetic		
Quality of Material		fair	excellent	good	good
Thickness of Material		8' plus	10'	8'	8'
Thickness of Cap (Caliche)			0-1'		
Material Underlying Formation			sandstone	gypsum	gypsum
Vegetation		grass & sage	grass	juniper	juniper & grass
Local Terrain		rolling	rolling	hilly	hilly
Thickness of Overburden		1'	1'	1'	1'
P. I. (Overburden)		N.P.	N.P.	N.P.	N.P.
Estimated Quantity (cu. yds)		100,000 plus	100,000	150,000	100,000
Los Angeles Wear			20.4	25.0	22.8
Soundness Loss			4.7		
Average Maximum Size			6"		
% Retained on 2" Sieve			25		
Pit Average % Passing	Crushed to:	as received	as received	1"	1"
	2"		70		
	1"		62	100	100
	½"		49	77	79
	No. 4	100	30	30	32
	No. 10	100	21	16	16
	No. 200	4	5	3	4
Plasticity Index		N.P.	N.P.	N.P.	N.P.

Remarks:

Pit Number		0522	0523	0524	0525
Location	Section	SW 1/4 29	NE 1/4 24	NW 1/4 33	SW 1/4 9
	Township & Range	4S 8E	5S 7E	5S 7E	6S 7E
	County	Socorro	Socorro	Socorro	Socorro
Formation		Psa	Ti	Qal	Ti
Rock Type		limestone	metamorphics	gravel	diabase
Source Rock (Gravel)				limestone & sandstone	
Quality of Material		fair	fair	good	fair
Thickness of Material		4'	10'	4' plus	5' plus
Thickness of Cap (Caliche)					
Material Underlying Formation		gypsum	limestone & gypsum	gypsum & limestone	limestone & gypsum
Vegetation		juniper	juniper	grass & cactii	grass & juniper
Local Terrain		hilly	mountainous	mountainous	hilly
Thickness of Overburden		0-2'	0-1'	1'	0-20'
P. I. (Overburden)		N.P.	5	N.P.	N.P.
Estimated Quantity (cu. yds.)		75,000	75,000	100,000	100,000
Los Angeles Wear		24.6	63.2	28.8	33.6
Soundness Loss			24.7		
Average Maximum Size		6"		7"	
% Retained on 2" Sieve		50		26	
Pit Average % Passing	Crushed to:	as received	1"	as received	1"
	2"	89		80	
	1"	86	100	59	100
	½"	79	84	40	73
	No. 4	67	41	20	28
	No. 10	61	28	12	16
	No. 200	38	12	3	5
Plasticity Index		N.P.	N.P.	N.P.	N.P.

Remarks:

MATERIAL PIT SUMMARY

Pit Number		0526	0527	0528	0529
Location	Section	NE 1/4 1	NE 1/4 29	NE 1/4 32	NE 1/4 34
	Township & Range	6S 8E	6S 8E	6S 9E	7S 8E
	County	Socorro	Socorro	Lincoln	Socorro
Formation		Qtc	Qal	Psa	Qal
Rock Type		cinders	gravel	limestone	gravel
Source Rock (Gravel)			limestone		limestone
Quality of Material		good	excellent	good	good
Thickness of Material		150'	5' plus	25' plus	3' plus
Thickness of Cap (Caliche)					
Material Underlying Formation			gravel/limestone/gypsum	siltstone & gypsum	
Vegetation		grass & cactii	grass	grass	grass & greasewood
Local Terrain		mountainous	mountainous	mountainous	canyon bottom
Thickness of Overburden		none	none	1'	1'
P. I. (Overburden)				10	N.P.
Estimated Quantity (cu. yds)		1,475,000	100,000	500,000	30,000
Los Angeles Wear		39.0	25.0	16.8	23.0
Soundness Loss		9.5			
Average Maximum Size			9"		8"
% Retained on 2" Sieve			30		31
Pit Average % Passing	Crushed to: 2"	1"	as received 86	1"	as received 79
	1"	100	76	100	67
	½"	54	58	73	54
	No. 4	33	32	28	38
	No. 10	24	21	15	26
	No. 200	5	4	2	5
Plasticity Index		N.P.	N.P.	N.P.	N.P.

Remarks:

Pit Number		0530	0531	0532	0609
Location	Section	E 1/2 26	NE 1/4 11	NE 1/4 20	N 1/2 31
	Township & Range	8S 8E	9S 8E	9S 9E	8S 5E
	County	Lincoln	Lincoln	Lincoln	Socorro
Formation		Qb	Qvp	Qal	Qop
Rock Type		basalt	gravel	gravel	cemented sand & gravel
Source Rock (Gravel)			igneous & various	igneous	limestone & various
Quality of Material		good	good	fair	very good
Thickness of Material		10' plus	4' plus	3'	12'
Thickness of Cap (Caliche)					
Material Underlying Formation		basalt	sandstone	sand & silt	
Vegetation		cactii	mesquite & greasewood	grass & mesquite	cresote
Local Terrain		rough	hilly	arroyo bottom	alluvial slope
Thickness of Overburden		none	1'	2-5'	1'
P. I. (Overburden)			N.P.	7	N.P.
Estimated Quantity (cu. yds.)		unlimited	100,000 plus	25,000	unlimited
Los Angeles Wear		15.2	23.0	25.6	22.5
Soundness Loss					26.9
Average Maximum Size			10"	7"	12"
% Retained on 2" Sieve			21	20	30
Pit Average % Passing	Crushed to: 2"	1"	as received 89	as received 93	as received 58
	1"	100	77	84	44
	½"	59	62	73	30
	No. 4	22	43	52	18
	No. 10	12	33	37	10
	No. 200	3	13	9	3
Plasticity Index		N.P.	N.P.	N.P.	9

Remarks:

EXPLANATION

QUAD No. 85

QUATERNARY

- Qal — Alluvium
- Qaf — Alluvial fan deposits
- Qt — Terrace deposits
- Qfp — Floodplain deposits
- Qps — Piedmont slope deposits
- Qp — Pediment deposits

QUATERNARY -TERTIARY

- QTg — Older gravel deposits
- QTb — Basalt

TERTIARY

- Tdt — Datil Rhyolite tuff
- Tdr — Datil Rhyolite flows
- Tdc — Datil Conglomerate
- Tdl — Datil Latite Breccias
- Tda — Datil Andesite
- Tdal — Datil Andesite and Latite

- Established pit or quarry
- Prospect pit or quarry
- Fault — downthrown side
- Anticline
- Syncline

NEW MEXICO STATE HIGHWAY DEPARTMENT

PLANNING AND PROGRAMMING DIVISION

BUREAU OF PUBLIC ROADS

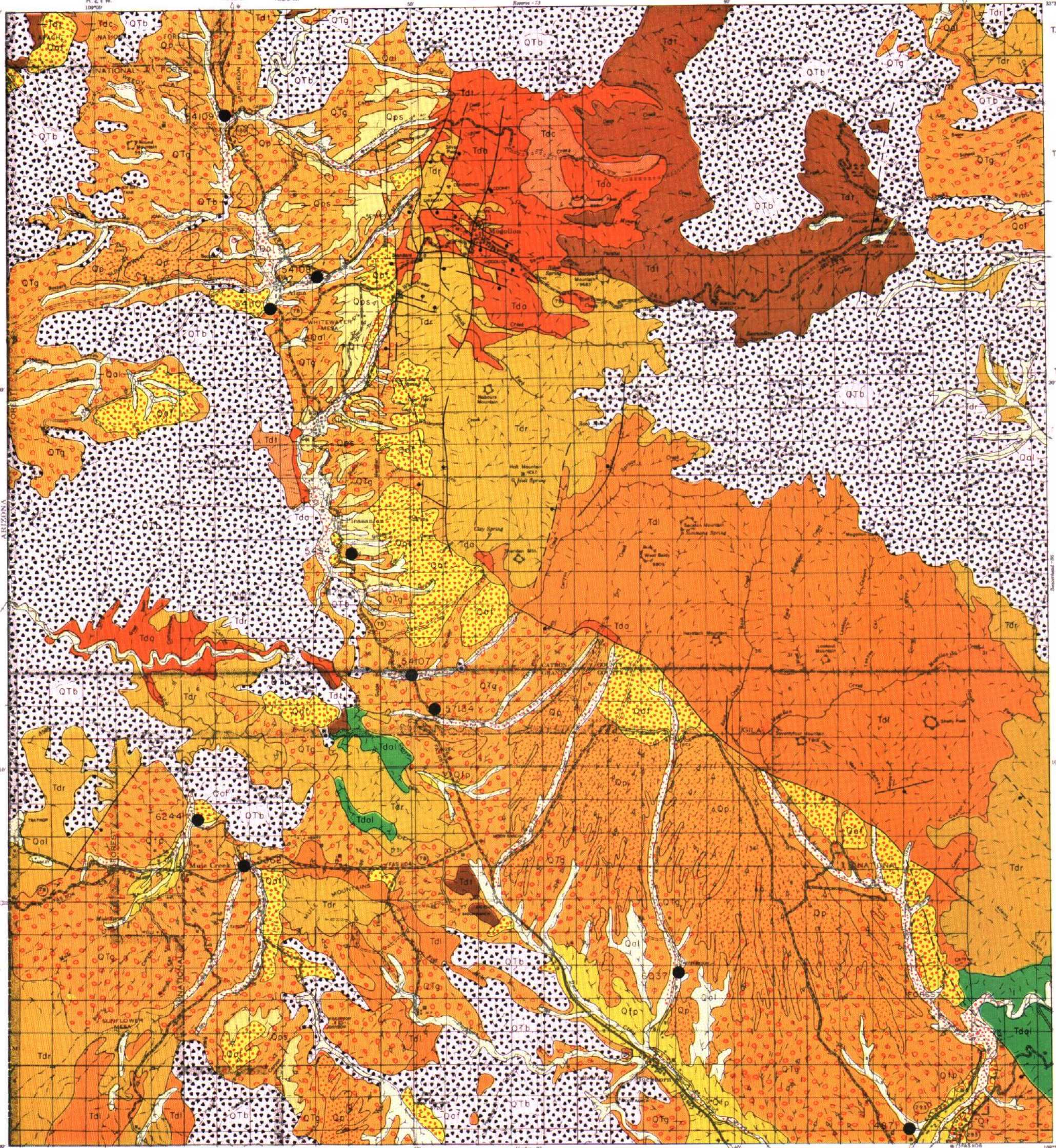
GEOLOGY and AGGREGATE RESOURCES

GLENWOOD QUADRANGLE-85

CATRON & GRANT COUNTIES

R.21W. R.20W. R.19W. R.18W. R.17W. R.16W.

T.9S. T.10S. T.11S. T.12S. T.13S. T.14S. T.15S.



Control by U.S. Coast and Geodetic Survey, U.S. Geological Survey, U.S. Forest Service, Bureau of Land Management and Planning Division—Modified Conic Projection Standard Parallel 34°N North American Datum

DATE OF INVENTORY

GEOLOGY MAY 1979

AGGREGATE RESOURCES MAY 1979

Longitude West from Greenwich

Scale 1/126720 or 1 Inch = 3 Miles

STATUTE MILES

DATE OF INVENTORY

CATRON COUNTY 1965

GRANT COUNTY 1962

GLENWOOD QUADRANGLE 85

QUADRANGLE PAGE 85

CONSTRUCTION MATERIALS INVENTORY

MATERIAL PIT SUMMARY

Pit Number		54107	54108	54109	54110
Location	Section	NE¼ S. 6	NW¼ S. 2	SW¼ S. 8	SE¼ S. 4.
	Township & Range	13S 19W	11S 20W	10S 20W	11S 20W
	County	Grant	Catron	Catron	Catron
Formation		Qal	Qal	Qal	Qal
Rock Type		sand & gravel	sand & gravel	sand & gravel	sand
Source Rock (Gravel)					
Quality of Material					
Thickness of Material		8'	5-10'		2-11'
Thickness of Cap (Caliche)					
Material Underlying Formation		sand & gravel			
Vegetation					
Local Terrain					
Thickness of Overburden			1.5-2'	0	
P. I. (Overburden)					
Estimated Quantity (cu. yds)			60,000	80,000	12,000
Los Angeles Wear		20.4	26.4		
Soundness Loss					
Average Maximum Size					
% Retained on 2" Sieve					
Pit Average % Passing	Crushed to:			3/4"	
	2"				
	1"				
	½"	84	83	83	
	No. 4	47	49	48	
	No. 10	33	35	34	
	No. 200	5	5	5	
Plasticity Index		N.P.	N.P.	N.P.	

Remarks:

Pit Number		
Location	Section	
	Township & Range	
	County	
Formation		
Rock Type		
Source Rock (Gravel)		
Quality of Material		
Thickness of Material		
Thickness of Cap (Caliche)		
Material Underlying Formation		
Vegetation		
Local Terrain		
Thickness of Overburden		
P. I. (Overburden)		
Estimated Quantity (cu. yds.)		
Los Angeles Wear		
Soundness Loss		
Average Maximum Size		
% Retained on 2" Sieve		
Pit Average % Passing	Crushed to:	
	2"	
	1"	
	½"	
	No. 4	
	No. 10	
	No. 200	
Plasticity Index		

Remarks:

CONSTRUCTION MATERIALS INVENTORY

MATERIAL PIT SUMMARY

Pit Number		57134	6037	6244
Location	Section	N 8	NW 22	Section 30
	Township & Range	13S 19W	14S 18W	13S 20W
	County	Grant	Grant	Grant
Formation		QTg	Qal	Qal
Rock Type		gravel	gravel	sand & gravel
Source Rock (Gravel)		various	various	various
Quality of Material		good	good	good
Thickness of Material		3-11'	3-16'	3-9'
Thickness of Cap (Caliche)		-	-	-
Material Underlying Formation		clay, gravel	gravel	gravel
Vegetation		grass & juniper	grass	grass
Local Terrain		hilly	creek bank	hilly
Thickness of Overburden		0-4.5'	0	1.5-2.2'
P. I. (Overburden)		6-10	-	N.P.
Estimated Quantity (cu. yds)		100,000	60,000 plus	75,000 plus
Los Angeles Wear		21.6	24.0	27.2
Soundness Loss			1.5	.84
Average Maximum Size		6"	5"	6"
% Retained on 2" Sieve		14	13	20
Pit Average % Passing	Crushed to:	as received	as received	as received
	2"	76	65	67
	1"	60	46	56
	½"	47	36	45
	No. 4	34	28	32
	No. 10	26	23	22
	No. 200	3	2	2
Plasticity Index		N.P.	N.P.	N.P.
Remarks:				

Pit Number		5362	4871	5494
Location	Section	SE¼ Sec. 32	SW¼ Sec. 11	SE¼ NE¼ & NE¼ SE¼ S. 14 SW¼ NW¼ & NW¼ SW¼ S. 13
	Township & Range	13S 20W	15S 17W	12S 20W
	County	Grant	Grant	Catron
Formation				Qns
Rock Type				sand & gravel
Source Rock (Gravel)				
Quality of Material				
Thickness of Material				5-15'
Thickness of Cap (Caliche)				
Material Underlying Formation				sand & gravel
Vegetation				
Local Terrain				0
Thickness of Overburden				
P. I. (Overburden)				
Estimated Quantity (cu. yds.)				
Los Angeles Wear				22.4
Soundness Loss				
Average Maximum Size				
% Retained on 2" Sieve				
Pit Average % Passing	Crushed to:			
	2"			
	1"			
	½"			89
	No. 4			56
	No. 10			36
	No. 200			5
Plasticity Index				N.P.
Remarks:				

EXPLANATION

QUAD No. 86

QUATERNARY

- Qal — Alluvium
- Qp — Pediment deposits
- Qaf — Alluvial fan deposits
- Qps — Piedmont slope deposits

QUATERNARY -TERTIARY

- QTg — Older gravel deposits
- QTb — Basalt

TERTIARY

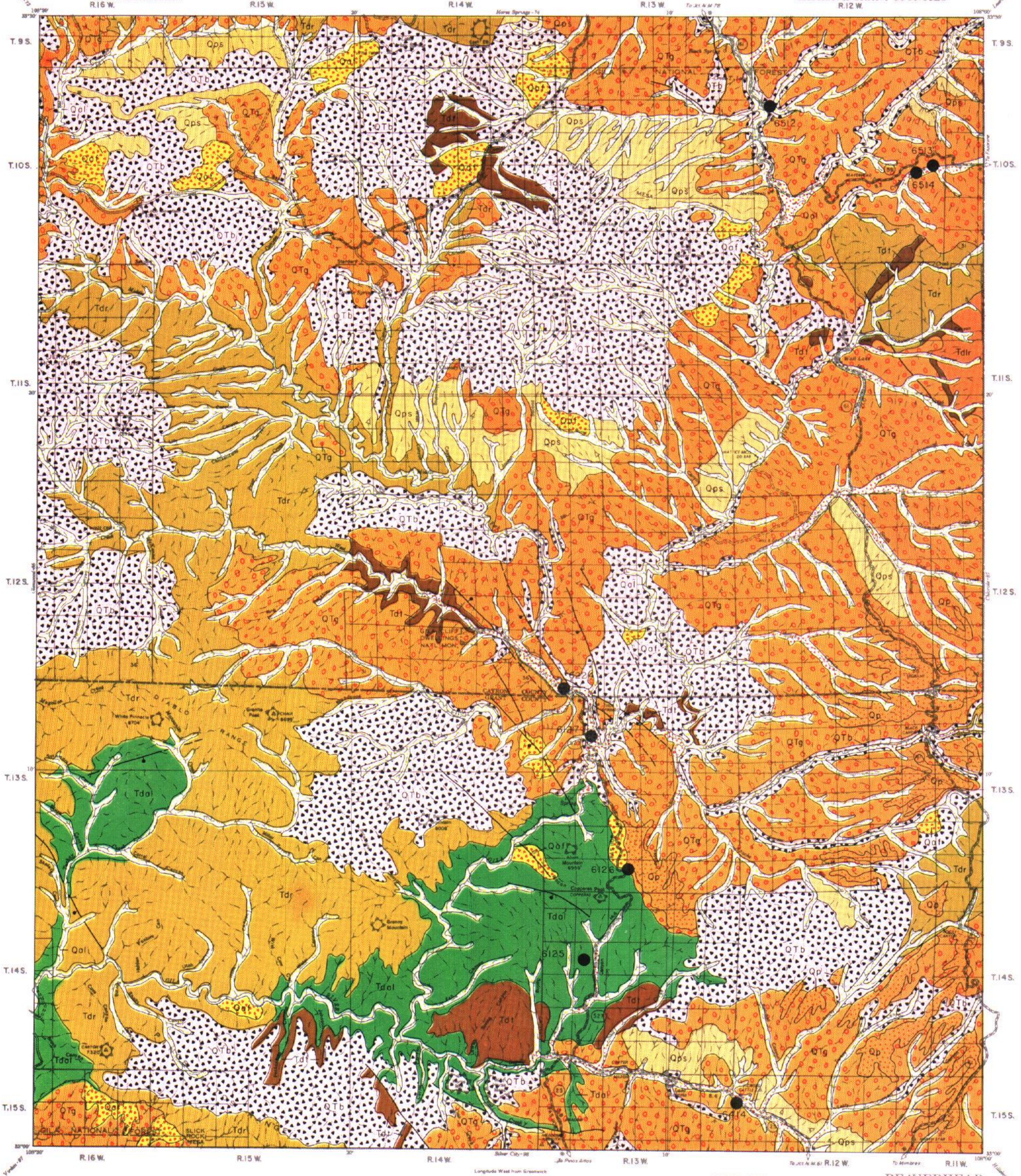
- Tb — Basalt
- Tdt — Datil Rhyolite tuff
- Tdr — Datil Rhyolite flows
- Tdal — Datil Andesite and Latite
- Tdlr — Datil Latite and Rhyolite

- Established pit or quarry
- Prospect pit or quarry
- Fault — downthrown side
- Anticline
- Syncline

NEW MEXICO STATE HIGHWAY DEPARTMENT
PLANNING AND PROGRAMMING DIVISION
BUREAU OF PUBLIC ROADS

GEOLOGY and AGGREGATE RESOURCES

BEAVERHEAD QUADRANGLE-86
CATRON & GRANT COUNTIES



Control by U.S. Coast and Geodetic Survey; U.S. Geological Survey; U.S. Forest Service; Bureau of Land Management and Planning Division—Modified Conic Projection Standard Parallel North American Datum

DATE OF INVENTORY
GEOLOGY MAY 1979
AGGREGATE RESOURCES MAY 1979

Longitude West from Greenwich

Scale 1/190080 or 1 Inch = 3 Miles

STATUTE MILES

DATE OF INVENTORY
CATRON COUNTY 1963
GRANT COUNTY 1962

BEAVERHEAD
QUADRANGLE
86

CONSTRUCTION MATERIALS INVENTORY

MATERIAL PIT SUMMARY

Pit Number		6125	6126	6127	6224
Location	Section	W 17	N 33	N 8	SE 31
	Township & Range	14S 13W	13S 13W	13S 13W	12S 13W
	County	Grant	Grant	Grant	Catron
Formation		Tdal	Qp	Qal	Qal
Rock Type		latite	gravel	sand & gravel	sand & gravel
Source Rock (Gravel)		-	volcanic	igneous	igneous
Quality of Material		fair	good	good	good
Thickness of Material		12'	6' plus	2-11'	3-12'
Thickness of Cap (Caliche)		-	-	-	-
Material Underlying Formation		volcanic sediments	volcanic sediments	sand & gravel	sand & gravel
Vegetation		forest	forest	forest	forest
Local Terrain		mountainous	mountainous	mountainous	canyon
Thickness of Overburden		1-3'	0-2'	0-2'	0-2'
P. I. (Overburden)		10 plus	6 plus	6 plus	6 plus
Estimated Quantity (cu. yds.)		150,000	75,000 plus	300,000 plus	200,000 plus
Los Angeles Wear				30.0	27.8
Soundness Loss				11.9	19.0
Average Maximum Size			6"	8"	8"
% Retained on 2" Sieve			18	16	16
Pit Average % Passing	Crushed to:			as received	2"
	2"			66	100
	1"			49	91
	½"			34	50
	No. 4			23	29
	No. 10			17	18
	No. 200			3	3
Plasticity Index				N.P.	N.P.
Remarks:					

Pit Number		6414	6512	6513	6514
Location	Section	SW 6	NE 7	SE 13	Section 24
	Township & Range	15S 12W	10S 12W	10S 12W	10S 12W
	County	Grant	Catron	Catron	Catron
Formation		Qal	Tb	Qal	Qal
Rock Type		sand & gravel	basalt	sand & gravel	gravel
Source Rock (Gravel)		igneous	-	igneous	igneous & various
Quality of Material		good	good	fair	poor
Thickness of Material		11-12'	20' plus	10'	6' plus
Thickness of Cap (Caliche)		-	-	-	-
Material Underlying Formation		volcanic sediments	volcanic sediments	volcanic sediments	volcanic sediments
Vegetation		grass & pine	brush	pine trees	pine trees
Local Terrain		mountain canyon	50' cliff	creek bottom	slope
Thickness of Overburden		0-2'	0-1'	0-2'	0-2'
P. I. (Overburden)		6 plus	10 plus	6 plus	6 plus
Estimated Quantity (cu. yds)		100,000 plus	300,000 plus	unlimited	100,000 plus
Los Angeles Wear		20.8			
Soundness Loss					
Average Maximum Size		7"		10"	10"
% Retained on 2" Sieve		20		22	22
Pit Average % Passing	Crushed to:	as received			
	2"	74			
	1"	61			
	½"	52			
	No. 4	43			
	No. 10	37			
	No. 200	13			
Plasticity Index		N.P.			
Remarks:					

CONSTRUCTION MATERIALS INVENTORY

QUADRANGLE PAGE _____

MATERIAL PIT SUMMARY

Pit Number		
Location	Section	
	Township & Range	
	County	
Formation		
Rock Type		
Source Rock (Gravel)		
Quality of Material		
Thickness of Material		
Thickness of Cap (Caliche)		
Material Underlying Formation		
Vegetation		
Local Terrain		
Thickness of Overburden		
P. I. (Overburden)		
Estimated Quantity (cu. yds)		
Los Angeles Wear		
Soundness Loss		
Average Maximum Size		
% Retained on 2" Sieve		
Pit Average % Passing	Crushed to:	
	2"	
	1"	
	½"	
	No. 4	
	No. 10	
	No. 200	
Plasticity Index		
Remarks:		

Pit Number		
Location	Section	
	Township & Range	
	County	
Formation		
Rock Type		
Source Rock (Gravel)		
Quality of Material		
Thickness of Material		
Thickness of Cap (Caliche)		
Material Underlying Formation		
Vegetation		
Local Terrain		
Thickness of Overburden		
P. I. (Overburden)		
Estimated Quantity (cu. yds.)		
Los Angeles Wear		
Soundness Loss		
Average Maximum Size		
% Retained on 2" Sieve		
Pit Average % Passing	Crushed to:	
	2"	
	1"	
	½"	
	No. 4	
	No. 10	
	No. 200	
Plasticity Index		
Remarks:		

EXPLANATION

QUAD No. 87

QUATERNARY

- Qal — Alluvium
- Qaf — Alluvial fan deposits
- Qps — Piedmont slope deposits
- Qfg — Fanglomerate

QUATERNARY –TERTIARY

- Qb — Basalt
- QTb — Basalt
- QTg — Older gravel deposits
- QTsf — Santa Fe Formation

TERTIARY

- Tdr — Datil Rhyolite flows
- Tdlr — Datil Latite and Rhyolite
- Tdt — Datil Rhyolite tuff
- Tdl — Datil Latite breccias
- Td — Datil Volcanics undifferentiated
- Ta — Older Andesite
- Tv — Volcanic rocks undivided
- Ti — Intrusive rocks undivided

TER.–CRET.

- TKi — Intrusive, predominantly monzonite

CRET.

- K — Cretaceous undifferentiated

PERMIAN

- Psy — San Andres Limestone and Yeso Formation undivided
- Py — Yeso Formation
- Pa — Abo Formation

PENN.

- IP — Pennsylvanian rocks undivided
- IPms — Magdalena Group

PENN.–MISS.–DEV.

- IPMD — Pennsylvanian, Miss. and Dev. undivided

MISS.–DEV.

- MD — Miss. and Dev. undivided

SIL.–ORD.–CAMB.

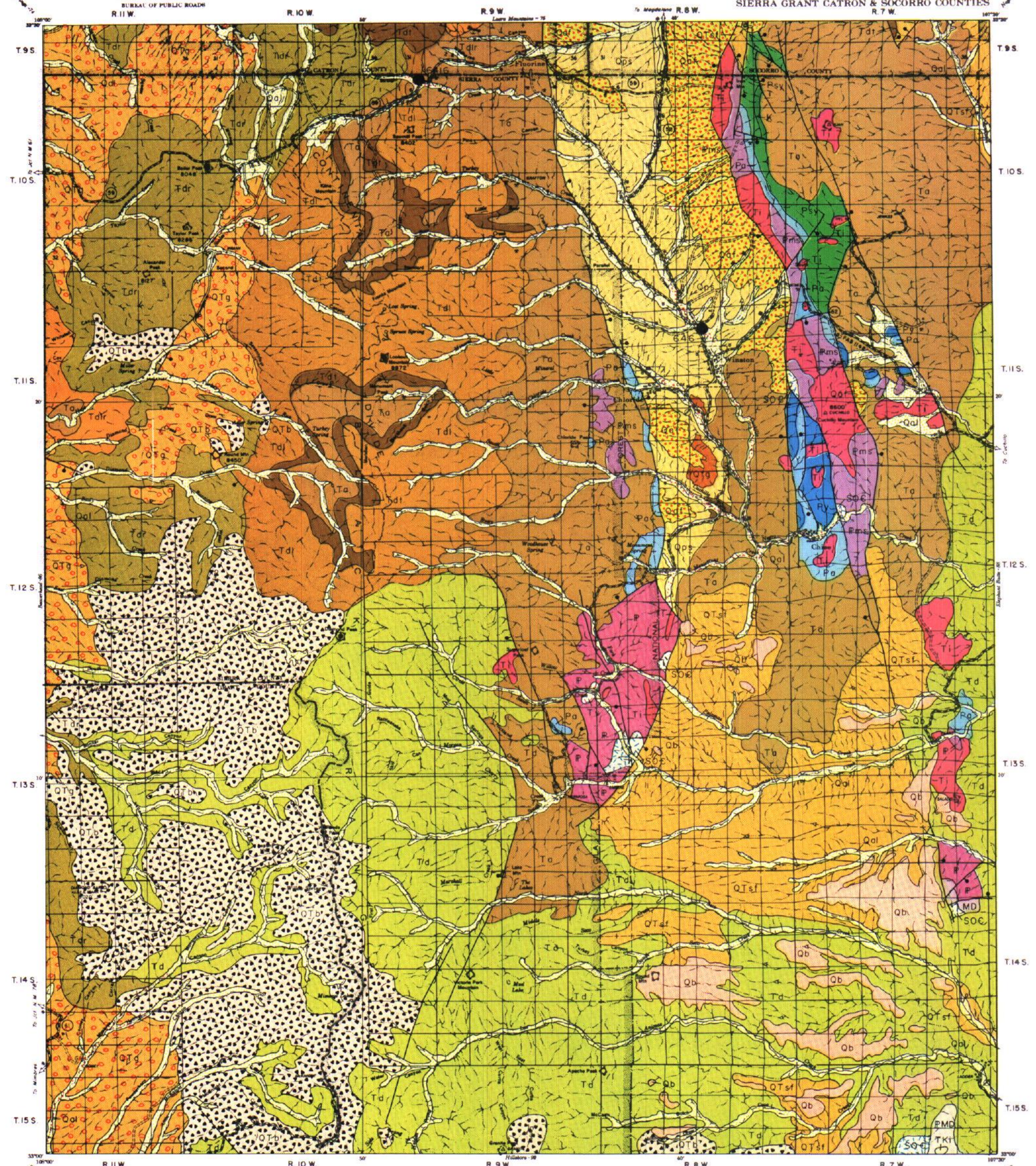
- SO€ — Dev., Ord. and Camb. undivided

- Established pit or quarry
- Prospect pit or quarry
- Fault — downthrown side
- Anticline
- Syncline

GEOLOGY and AGGREGATE RESOURCES

CHLORIDE QUADRANGLE-87

SIERRA GRANT CATRON & SOCORRO COUNTIES



Control by U.S. Coast and Geodetic Survey; U.S. Geological Survey; U.S. Forest Service, Bureau of Land Management and Planning Division—Modified Conic Projection Standard Parallel 34½° North American Datum

DATE OF INVENTORY
GEOLOGY MAY 1979
AGGREGATE RESOURCES MAY 1979

Scale $\frac{1}{190080}$ or 1 Inch = 3 Miles

STATUTE MILES

DATE OF INVENTORY	
SIERRA COUNTY	1960
GRANT COUNTY	1956
CATRON COUNTY	1956
SOCORRO COUNTY	1953

QUADRANGLE PAGE 87

CONSTRUCTION MATERIALS INVENTORY

MATERIAL PIT SUMMARY

Pit Number		6406	6416
Location	Section	N½ SW¼ Sec. 10	NW¼ NE¼ Sec. 6
	Township & Range	11S 8W	10S 9W
	County	Sierra	Sierra
Formation		Qal	Qal
Rock Type		sand & gravel	sand & gravel
Source Rock (Gravel)		various	various
Quality of Material		good	good
Thickness of Material		5'	5-8'
Thickness of Cap (Caliche)		-	-
Material Underlying Formation		sand	silt & clay
Vegetation		grass	grass
Local Terrain		arroyo	arroyo
Thickness of Overburden		0-2'	1-3'
P. I. (Overburden)		N.P.	N.P.
Estimated Quantity (cu. yds.)		100,000 plus	50,000 plus
Los Angeles Wear		24.4	31.2
Soundness Loss			
Average Maximum Size		3"	10"
% Retained on 2" Sieve		7	26
Pit Average % Passing	Crushed to:	as received	as received
	2"	92	49
	1"	83	38
	½"	71	31
	No. 4	51	21
	No. 10	32	14
	No. 200	6	2
Plasticity Index		N.P.	N.P.

Remarks:

Pit Number		
Location	Section	
	Township & Range	
	County	
Formation		
Rock Type		
Source Rock (Gravel)		
Quality of Material		
Thickness of Material		
Thickness of Cap (Caliche)		
Material Underlying Formation		
Vegetation		
Local Terrain		
Thickness of Overburden		
P. I. (Overburden)		
Estimated Quantity (cu. yds.)		
Los Angeles Wear		
Soundness Loss		
Average Maximum Size		
% Retained on 2" Sieve		
Pit Average % Passing	Crushed to:	
	2"	
	1"	
	½"	
	No. 4	
	No. 10	
	No. 200	
Plasticity Index		

Remarks:

CONSTRUCTION MATERIALS INVENTORY

QUADRANGLE PAGE _____

MATERIAL PIT SUMMARY

Pit Number

Location: Section / Township & Range / County

Formation

Rock Type

Source Rock (Gravel)

Quality of Material

Thickness of Material

Thickness of Cap (Caliche)

Material Underlying Formation

Vegetation

Local Terrain

Thickness of Overburden

P. I. (Overburden)

Estimated Quantity (cu. yds)

Los Angeles Wear

Soundness Loss

Average Maximum Size

% Retained on 2" Sieve

Pit Average % Passing — Crushed to:
- 2"
- 1"
- ½"
- No. 4
- No. 10
- No. 200

Plasticity Index

Remarks:

Pit Number

Location: Section / Township & Range / County

Formation

Rock Type

Source Rock (Gravel)

Quality of Material

Thickness of Material

Thickness of Cap (Caliche)

Material Underlying Formation

Vegetation

Local Terrain

Thickness of Overburden

P. I. (Overburden)

Estimated Quantity (cu. yds.)

Los Angeles Wear

Soundness Loss

Average Maximum Size

% Retained on 2" Sieve

Pit Average % Passing — Crushed to:
- 2"
- 1"
- ½"
- No. 4
- No. 10
- No. 200

Plasticity Index

Remarks:

EXPLANATION

QUAD No. 88

QUATERNARY

- Qal — Alluvium
- Qe — Eolian deposits
- Qfp — Floodplain deposits
- Qab — Bolson deposits
- Qld — Lake deposits
- Qp — Pediment deposits
- Qaf — Alluvial fan deposits
- Qt — Terrace deposits
- Qps — Piedmont Slope deposits
- Qc — Cinders and Scoria
- Qfg — Fanglomerate
- Qb — Basalt

QUATERNARY -TERTIARY

- QTsf — Santa Fe Formation
- Td — Datil Volcanics undifferentiated
- Tdt — Datil Rhyolite tuff

TERTIARY

- Ta — Andesite
- Tr — Rhyolite

TER.-CRET.

- Tv — Volcanic rocks undivided
- Ti — Intrusive rocks undivided
- TKm — McRae Formation

CRET.

- Kmv — Mesa Verde Group
- Km — Mancos Shale
- Kd — Dakota Sandstone

PERMIAN

- Psa — San Andres Limestone
- Py — Yeso Formation
- Pa — Abo Formation

PENN.-MISS. -DEV.

- PMD — Penn., Miss. and Dev. undivided

SIL.

- SO — Silurian and Ordivician undivided

PRECAMB.

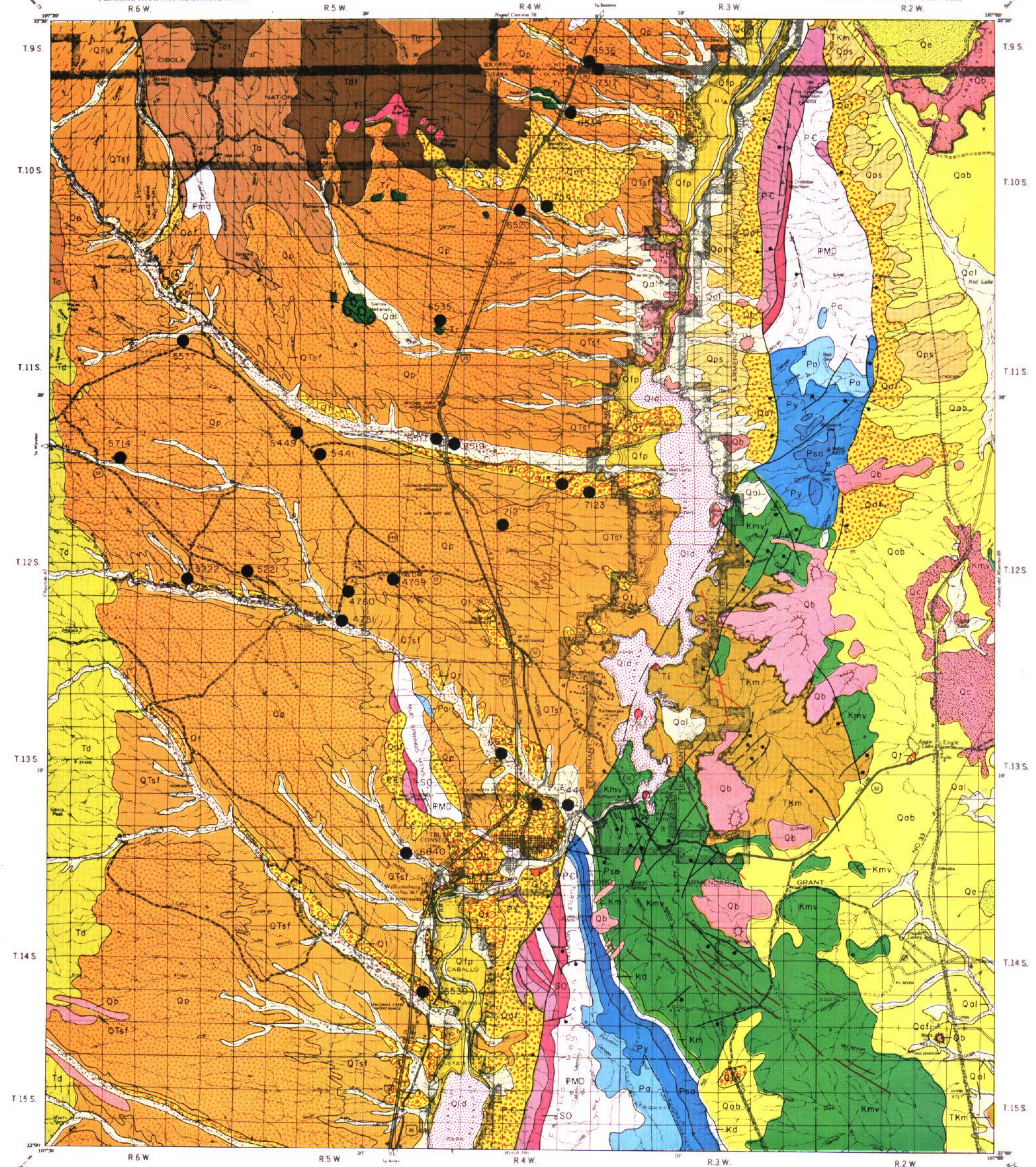
- p€ — Precambrian undivided

- Established pit or quarry
- Prospect pit or quarry
- Fault — downthrown side
- Anticline
- Syncline

NEW MEXICO STATE HIGHWAY DEPARTMENT
PLANNING AND PROGRAMMING DIVISION
FEDERAL HIGHWAY ADMINISTRATION

GEOLOGY and AGGREGATE RESOURCES

ELEPHANT BUTTE QUADRANGLE - 88
SOCORRO & SIERRA COUNTIES



Control by National Geodetic Survey, U.S. Geological Survey, U.S. Forest Service, Bureau of Land Management and Planning Division
Modified Conic Projection Standard Parallel 34½° North American Datum

DATE OF INVENTORY
GEOLOGY MAY 1979
AGGREGATE RESOURCES MAY 1979

Scale or 1 Inch = 3 Miles
STATUTE MILES

DATE OF INVENTORY
SOCORRO COUNTY 1968
SIERRA COUNTY 1967

ELEPHANT BUTTE
QUADRANGLE

CONSTRUCTION MATERIALS INVENTORY

MATERIAL PIT SUMMARY

Pit Number		4751	4759	4760	5221
Location	Section	SW¼ Sec. 27	E½ Sec. 23	NE¼ Sec. 22	NW¼ Sec. 19
	Township & Range	12S 5W	12S 5W	12S 5W	12S 5W
	County	Sierra	Sierra	Sierra	Sierra
Formation		Qal	Qp	Qp	Qp
Rock Type		sand & gravel	sand & gravel	sand & gravel	sand & gravel
Source Rock (Gravel)		various	various	various	various
Quality of Material		excellent	good	good	good
Thickness of Material		10'	5' plus	5' plus	6'
Thickness of Cap (Caliche)		-	-	-	-
Material Underlying Formation		sand	silt	silt	silt
Vegetation		greasewood	greasewood	greasewood	greasewood
Local Terrain		river bottom	hill	hill	flat
Thickness of Overburden		0-3'	0-2'	0-3'	0-1'
P. I. (Overburden)		N.P.	N.P.	N.P.	N.P.
Estimated Quantity (cu. yds)		150,000	100,000	100,000	220,000
Los Angeles Wear					
Soundness Loss					
Average Maximum Size		3"	4"	4"	6"
% Retained on 2" Sieve		8	11	11	15
Pit Average % Passing	Crushed to:				
	2"				
	1"				
	½"				
	No. 4				
	No. 10				
	No. 200				
Plasticity Index					
Remarks:					

Pit Number		5222	5441	5448	5449
Location	Section	Sec. 23 Center	NW¼ SE¼ Sec. 33	Section 23	NE¼ Sec. 32
	Township & Range	12S 6W	11S 5W	13S 4W	11S 5W
	County	Sierra	Sierra	Sierra	Sierra
Formation		Qal	Qp	Qal	Qp
Rock Type		sand & gravel	sand & gravel	sand & gravel	sand & gravel
Source Rock (Gravel)		various	various	various	various
Quality of Material		good	good	good	good
Thickness of Material		10'	8'	12'	8'
Thickness of Cap (Caliche)		-	-	-	-
Material Underlying Formation		sand	sand	sand	sand
Vegetation		greasewood	greasewood	greasewood	brush
Local Terrain		arroyo	arroyo	arroyo	plain
Thickness of Overburden		0-2'	0-2'	0-2'	0-2'
P. I. (Overburden)		N.P.	N.P.	N.P.	N.P.
Estimated Quantity (cu. yds.)		350,000	500,000 plus	500,000 plus	500,000 plus
Los Angeles Wear			20.0	20.0	
Soundness Loss					
Average Maximum Size		5"	7"	4"	7"
% Retained on 2" Sieve		14	20	10	20
Pit Average % Passing	Crushed to:				
	2"				
	1"				
	½"				
	No. 4				
	No. 10				
	No. 200				
Plasticity Index					
Remarks:					

CONSTRUCTION MATERIALS INVENTORY

MATERIAL PIT SUMMARY

Pit Number		5577	5714	6072	6517
Location	Section	Section 14	S½ Sec. 33	NW¼ Sec. 27	SE¼ Sec. 31
	Township & Range	11S 6W	11S 6W	13S 4W	11S 4W
	County	Sierra	Sierra	Sierra	Sierra
Formation		Qp	Qp	Qt	Qal
Rock Type		sand & gravel	sand & gravel	gravel	sand & gravel
Source Rock (Gravel)		various	various	various	various
Quality of Material		good	good	excellent	excellent
Thickness of Material		7-10'	3-10'	3-11'	6-10'
Thickness of Cap (Caliche)		-	-	-	-
Material Underlying Formation		clay, sand, gravel	clay & gravel	sand	silt & clay
Vegetation		greasewood	greasewood	greasewood	mesquite
Local Terrain		hilly	hilly	arroyo	hilly
Thickness of Overburden		0-2'	0-6'	0-2'	1-4'
P. I. (Overburden)		N.P.	N.P.	N.P.	N.P.
Estimated Quantity (cu. yds)		350,000	200,000 plus	500,000 plus	200,000 plus
Los Angeles Wear		24.0	26.0	20.0	18.4
Soundness Loss				2.5	3.8
Average Maximum Size		6"	6"	5"	6"
% Retained on 2" Sieve		8	18	12	20
Pit Average % Passing	Crushed to:	1"	as received	as received	as received
	2"	-	71	84	77
	1"	100	58	67	57
	½"	86	51	47	40
	No. 4	51	40	29	23
	No. 10	37	30	20	12
	No. 200	3	1	6	5
Plasticity Index		N.P.	N.P.	10	N.P.

Remarks:

Pit Number		6519	6520	6534	6535
Location	Section	SE¼ Sec. 31	E½ Sec. 28	Section 11	SW¼ Sec. 7
	Township & Range	11S 4W	10S 4W	10S 4W	11S 4W
	County	Sierra	Sierra	Sierra	Sierra
Formation		Qal	Qal	Qal	Qp
Rock Type		sand & gravel	sand & gravel	sand & gravel	sand & gravel
Source Rock (Gravel)		various	various	various	various
Quality of Material		excellent	good	good	good
Thickness of Material		10'	4-12'	3-10'	6-10'
Thickness of Cap (Caliche)		-	-	-	-
Material Underlying Formation		silt, clay, gravel	sand	sand	sand
Vegetation		greasewood	greasewood	greasewood	greasewood
Local Terrain		river bottom	arroyo bank	arroyo	hilly
Thickness of Overburden		2'	0-2'	0-2'	0-2'
P. I. (Overburden)		N.P.	N.P.	N.P.	N.P.
Estimated Quantity (cu. yds.)		200,000 plus	150,000 plus	100,000	150,000
Los Angeles Wear		18.4	24.4		
Soundness Loss		3.8	15.7		
Average Maximum Size		8"	8"	6"	4"
% Retained on 2" Sieve		12	11	20	14
Pit Average % Passing	Crushed to:	as received	as received		
	2"	77	80		
	1"	57	67		
	½"	40	50		
	No. 4	23	32		
	No. 10	12	13		
	No. 200	5	3		
Plasticity Index		N.P.	N.P.		

Remarks:

QUADRANGLE PAGE 88

CONSTRUCTION MATERIALS INVENTORY

MATERIAL PIT SUMMARY

Pit Number		6536	6539	6652	6640
Location	Section	SE¼ Sec. 38	SE¼ Sec. 24, NE¼ Sec. 25	SW¼ Sec. 16	S½ S 36
	Township & Range	9S 4W	14S 5W	13S 4W	13S 5W
	County	Socorro	Sierra	Sierra	Sierra
Formation		Qal	Qt	Qal	Qal
Rock Type		sand & gravel	sand & gravel	sand & gravel	sand & gravel
Source Rock (Gravel)		various	various	various	various
Quality of Material		excellent	excellent	good	excellent
Thickness of Material		10-13'	5-12'	12-15'	8'
Thickness of Cap (Caliche)		-	-	-	-
Material Underlying Formation		clay, silt, gravel	sand & gravel	sand & gravel	sand & gravel
Vegetation		greasewood	grass and greasewood	greasewood	mesquite
Local Terrain		arroyo	river bottom	stream bank	flat
Thickness of Overburden		0-2'	.5-3.5'	0-2.5'	1-2'
P. I. (Overburden)		N.P.	N.P.	N.P.	N.P.
Estimated Quantity (cu. yds)		200,000 plus	500,000 plus	300,000 plus	300,000 plus
Los Angeles Wear		24.4	24.6	18.8	20.0
Soundness Loss		12.9	5.4	5.6	6.8
Average Maximum Size		6"	7"	6"	6"
% Retained on 2" Sieve		15	20	15	10
Pit Average % Passing	Crushed to:	as received	as received	as received	as received
	2"	96	85	83	91
	1"	87	55	58	78
	½"	69	36	45	59
	No. 4	35	20	26	35
	No. 10	19	14	18	25
	No. 200	6	3	3	5
Plasticity Index		N.P.	N.P.	N.P.	N.P.
Remarks:					

Pit Number		7102	7103	7123	7317
Location	Section	SW¼ S. 9	W½ S. 2 E½ S. 3	SE¼ Sec. 2	SW¼ S 36. SE¼ Sec. 35
	Township & Range	12S 4W	12S 4W	12S 4W	9S 4W
	County	Sierra	Sierra	Sierra	Socorro
Formation		Qp	Qt	Qt	Qal
Rock Type		silty, sand & gravel	sand & gravel	sand & gravel	sand & gravel
Source Rock (Gravel)		various	various	various	various
Quality of Material		good	good	good	excellent
Thickness of Material		10'	7-11'	7-12'	12-14'
Thickness of Cap (Caliche)		-	-	-	-
Material Underlying Formation		sand	silt, sand, gravel	sand	silt & clay
Vegetation		greasewood	greasewood	greasewood	greasewood
Local Terrain		arroyo edge	arroyo bank	arroyo bank	arroyo
Thickness of Overburden		0-2'	1-5'	1-5.5'	0-2'
P. I. (Overburden)		N.P.	N.P.	N.P.	N.P.
Estimated Quantity (cu. yds.)		300,000 plus	350,000 plus	400,000 plus	200,000 plus
Los Angeles Wear		-	20.6	17.0	23.9
Soundness Loss		-	10.0	4.8	11.0
Average Maximum Size		5"	6"	7"	6"
% Retained on 2" Sieve		10	12	10	15
Pit Average % Passing	Crushed to:		as received	as received	as received
	2"		78	80	96
	1"		69	58	92
	½"		54	34	74
	No. 4		30	18	38
	No. 10		16	12	20
	No. 200		3	3	4
Plasticity Index			N.P.	10	N.P.
Remarks:					

QUADRANGLE PAGE 88

CONSTRUCTION MATERIALS INVENTORY

MATERIAL PIT SUMMARY

Pit Number		7504
Location	Section	NE¼ S. 27
	Township & Range	10S 4W
	County	Sierra
Formation		Qaf
Rock Type		sand and gravel
Source Rock (Gravel)		various
Quality of Material		good
Thickness of Material		10'
Thickness of Cap (Caliche)		-
Material Underlying Formation		sand
Vegetation		greasewood
Local Terrain		hilly
Thickness of Overburden		0-3'
P. I. (Overburden)		N.P.
Estimated Quantity (cu. yds)		250,000
Los Angeles Wear		
Soundness Loss		
Average Maximum Size		6"
% Retained on 2" Sieve		15
Pit Average % Passing	Crushed to:	
	2"	
	1"	
	½"	
	No. 4	
	No. 10	
	No. 200	
Plasticity Index		

Remarks:

Pit Number		
Location	Section	
	Township & Range	
	County	
Formation		
Rock Type		
Source Rock (Gravel)		
Quality of Material		
Thickness of Material		
Thickness of Cap (Caliche)		
Material Underlying Formation		
Vegetation		
Local Terrain		
Thickness of Overburden		
P. I. (Overburden)		
Estimated Quantity (cu. yds.)		
Los Angeles Wear		
Soundness Loss		
Average Maximum Size		
% Retained on 2" Sieve		
Pit Average % Passing	Crushed to:	
	2"	
	1"	
	½"	
	No. 4	
	No. 10	
	No. 200	
Plasticity Index		

Remarks:

EXPLANATION

QUAD No. 89

QUATERNARY

- Qal — Alluvium
- Qld — Lake deposits
- Qg — Gravel deposits
- Qe — Eolian deposits
- Qab — Bolson deposits
- Ql — Landslide Debris
- Qps — Piedmont slope deposits
- Qc — Cinders and Scoria
- Qaf — Alluvial fan deposits
- Qp — Pediment deposits
- Qb — Basalt

CRET. TER.-CRET. TERTIARY

- Ti — Intrusive rocks undivided
- Tr — Older Rhyolite
- TKm — McRae Formation
- Kmv — Mesa Verde Group
- Kd — Dakota Sandstone

PERMIAN

- Pat — Artesia Group undivided
- Psal — San Andres limestone
- Py — Yeso Formation
- Pa — Abo Formation

PER.-PENN.

- PIP — Permian and Penn. rocks undivided

MISS.-DEV. ORD.-CAM.

- MDOC — Miss., Dev., Ord. and Camb. undivided

PRECAMB.

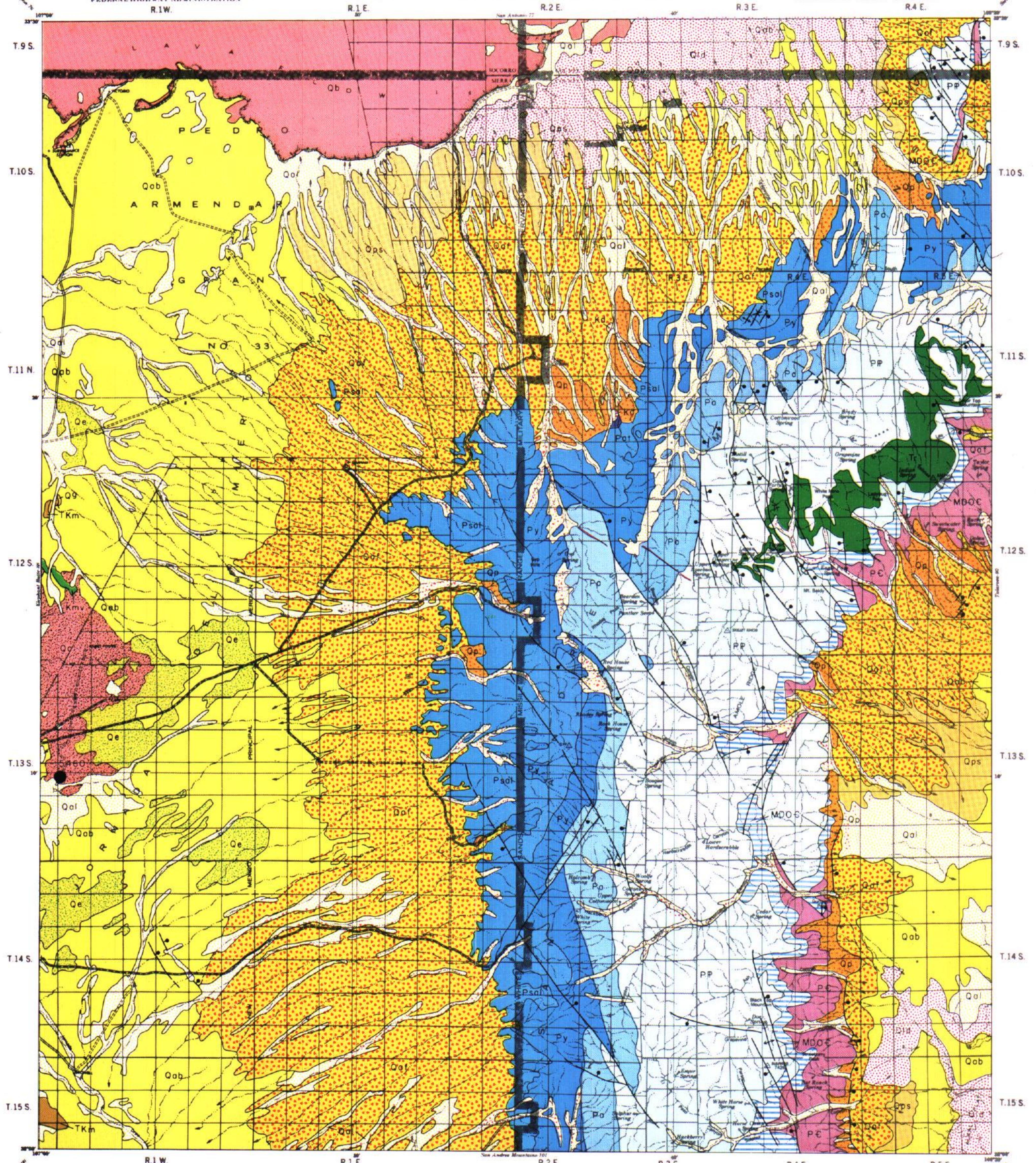
- pC — Precambrian undivided

- Established pit or quarry
- Prospect pit or quarry
- Fault — downthrown side
- Anticline
- Syncline

NEW MEXICO STATE HIGHWAY DEPARTMENT
PLANNING AND PROGRAMMING DIVISION
FEDERAL HIGHWAY ADMINISTRATION

GEOLOGY and AGGREGATE RESOURCES

JORNADA DEL MUERTO QUADRANGLE - 89
SOCORRO & SIERRA COUNTIES



Control by National Geodetic Survey, U.S. Geological Survey
U.S. Forest Service, Bureau of Land Management and Planning Division
Modified Conic Projection Standard Parallel 34½° North American Datum

DATE OF INVENTORY
GEOLOGY MAY 1979
AGGREGATE RESOURCES MAY 1979

Scale 1:190,080 or 1 Inch = 3 Miles
STATUTE MILES

DATE OF INVENTORY
SOCORRO COUNTY 1980
SIERRA COUNTY 1987

JORNADA DEL MUERTO
QUADRANGLE
89

QUADRANGLE PAGE 89

CONSTRUCTION MATERIALS INVENTORY

MATERIAL PIT SUMMARY

Pit Number		5460
Location	Section	S½ of NW¼ N½ of SW¼ Sec. 19
	Township & Range	13S 1W
	County	Sierra
Formation		Qcq
Rock Type		caliche*
Source Rock (Gravel)		-
Quality of Material		good
Thickness of Material		3-6'
Thickness of Cap (Caliche)		2-3'
Material Underlying Formation		silt
Vegetation		-
Local Terrain		flat
Thickness of Overburden		-
P. I. (Overburden)		-
Estimated Quantity (cu. yds)		100,000 plus
Los Angeles Wear		26,8
Soundness Loss		-
Average Maximum Size		-
% Retained on 2" Sieve		-
Pit Average % Passing	Crushed to:	
	2"	
	1"	
	½"	
	No. 4	
	No. 10	
	No. 200	
Plasticity Index		

Remarks:

*caliche covers a broad area

Pit Number		
Location	Section	
	Township & Range	
	County	
Formation		
Rock Type		
Source Rock (Gravel)		
Quality of Material		
Thickness of Material		
Thickness of Cap (Caliche)		
Material Underlying Formation		
Vegetation		
Local Terrain		
Thickness of Overburden		
P. I. (Overburden)		
Estimated Quantity (cu. yds.)		
Los Angeles Wear		
Soundness Loss		
Average Maximum Size		
% Retained on 2" Sieve		
Pit Average % Passing	Crushed to:	
	2"	
	1"	
	½"	
	No. 4	
	No. 10	
	No. 200	
Plasticity Index		

Remarks:

CONSTRUCTION MATERIALS INVENTORY

QUADRANGLE PAGE

MATERIAL PIT SUMMARY

Pit Number		
Location	Section	
	Township & Range	
	County	
Formation		
Rock Type		
Source Rock (Gravel)		
Quality of Material		
Thickness of Material		
Thickness of Cap (Caliche)		
Material Underlying Formation		
Vegetation		
Local Terrain		
Thickness of Overburden		
P. I. (Overburden)		
Estimated Quantity (cu. yds)		
Los Angeles Wear		
Soundness Loss		
Average Maximum Size		
% Retained on 2" Sieve		
Pit Average % Passing	Crushed to:	
	2"	
	1"	
	½"	
	No. 4	
	No. 10	
	No. 200	
Plasticity Index		
Remarks:		

Pit Number		
Location	Section	
	Township & Range	
	County	
Formation		
Rock Type		
Source Rock (Gravel)		
Quality of Material		
Thickness of Material		
Thickness of Cap (Caliche)		
Material Underlying Formation		
Vegetation		
Local Terrain		
Thickness of Overburden		
P. I. (Overburden)		
Estimated Quantity (cu. yds.)		
Los Angeles Wear		
Soundness Loss		
Average Maximum Size		
% Retained on 2" Sieve		
Pit Average % Passing	Crushed to:	
	2"	
	1"	
	½"	
	No. 4	
	No. 10	
	No. 200	
Plasticity Index		
Remarks:		

NEW MEXICO STATE HIGHWAY DEPARTMENT
PLANNING DIVISION
BUREAU OF PUBLIC ROADS

AGGREGATE RESOURCES and GEOLOGY

TULAROSA QUADRANGLE-90

SIERRA OTERO DOÑA ANA SOCORRO & LINCOLN COUNTIES

EXPLANATION

QUATERNARY

Qal — Alluvium
Poorly to well-sorted gravel, sand, silt and clay; stipple denotes granular material

Qe 1 2 — Eolian deposits
Wind-borne gypsum dunesands(1); wind-borne quartzose dune sands(2)

Qld — Lacustrine deposits
Alkaline sills, cloys and sands

Qab — Alluvium and bolson deposits
Silt, sand and clay with local buried deposits of channel gravels; stipple denotes more coarse grained material

Qaf — Alluvial fan deposits
Poorly-sorted, sub-angular gravel with sand, silt and clay; frequently have large boulders

Qps — Piedmont slope deposits
Silt, clay, sand and gravel representing a transitional zone of alluviation between fan and valley floor deposits

Qp 1 2 3 — Pediment deposits
Recent heterogeneous deposits of gravel, silt, clay and sand (1), older deposits slightly more decomposed (2) deposits derived primarily from the Sierra Blanca volcanic series

Qb — Basalt
Recent flow of black vesicular basalt of Little Black Peak

TERTIARY

Ti — Intrusive rocks undivided
Dikes and sills of various composition

Tv — Extrusive rocks undivided
Andesite, latite, rhyolite and associated tuff and ash of the Sierra Blanca volcanic series

CRETACEOUS

Kmv — Mesa Verde Formation
Interbedded, white to buff sandstone and gray shale with minor coal beds

Km — Mancos Shale
Dark-gray to black fissile shale

Kd — Dakota Sandstone
Massive, buff to red and white sandstone

TRIASSIC

TrP — Triassic and Permian rocks undivided
Maroon sandstone, siltstone and shale; includes orange-red siltstone of the Artesia Group

PERMIAN

Psa — San Andres Formation
Massive, gray limestone and white gypsum

Py — Yeso Formation
Variegated, soft sandstone and siltstone; pink and yellow shale; thin bedded limestone and white gypsum

Pa — Abo Formation
Interbedded dark, reddish-brown shale, siltstone, arkosic sandstone and conglomerate

Pbm — Bursum Formation
Drab, calcareous shale; thin argillaceous limestone; quartzose sandstone; and limestone conglomerate

PENNSYLVANIAN

PP — Permian and Pennsylvanian rocks undivided
Gray and red mudstone, gray limestone, sandstone and conglomerate of Lower Permian age and a complex sequence of shales, mudstones, marl, limestones and sandstones of Pennsylvanian age

MISS - DEV.-ORD.

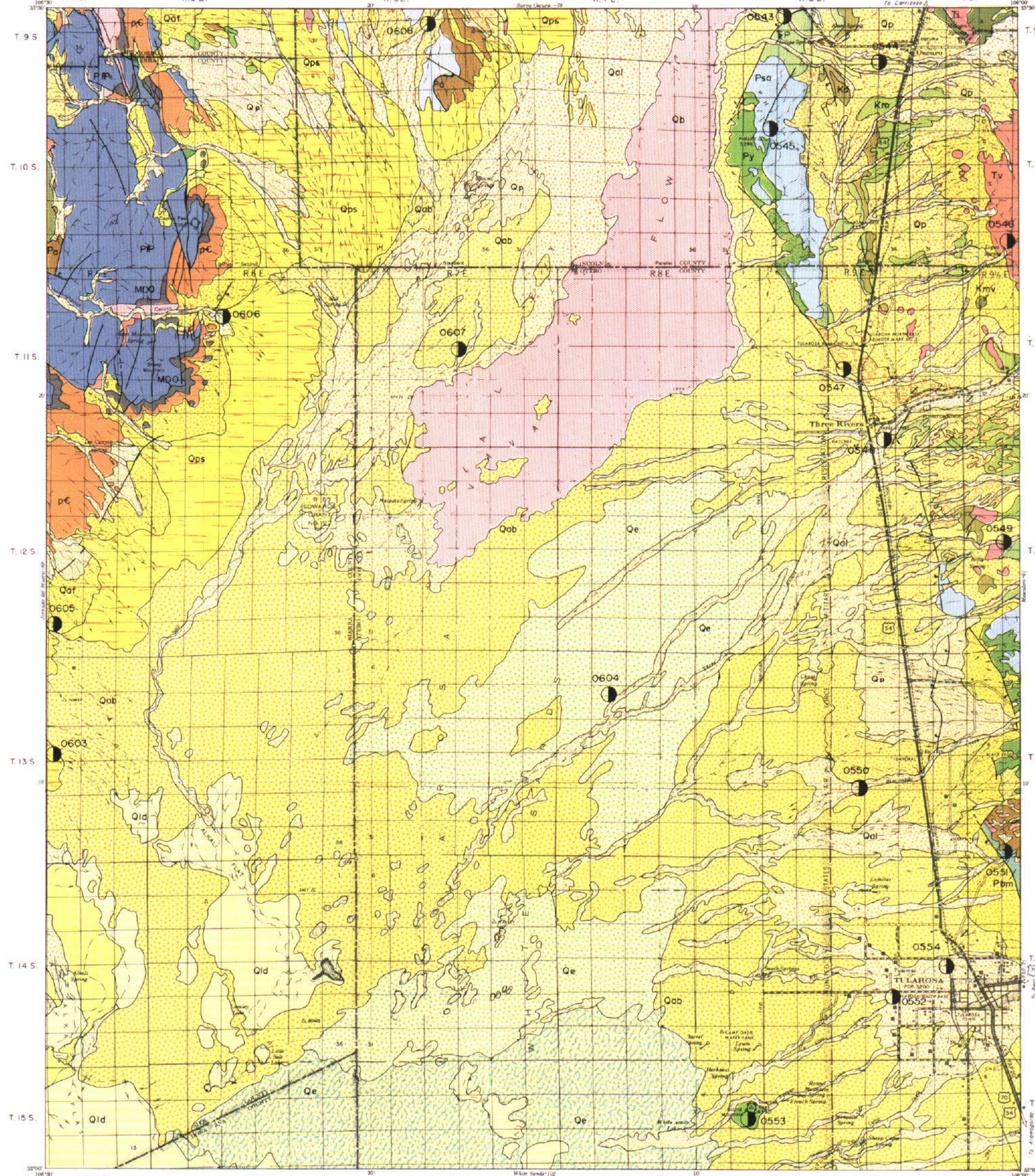
MDO — Mississippian, Devonian and Ordivician rocks undivided
Primarily limestone and dolomite with interbeds of sandstone and shale of variable thickness

PRE-CAMBRIAN

pC — Precambrian rocks undivided
Granite, gneiss, schist, quartzite etc.

Prospect pit or quarry

Fault, ball on downthrown side



Control by U.S. Coast and Geodetic Survey, U.S. Geological Survey, U.S. Forest Service, Bureau of Land Management and Planning Division--Modified Conic Projection Standard Parallel Most North American Datum

DATE OF INVENTORY
GEOLOGY AUGUST 1971
AGGREGATE RESOURCES AUGUST 1971

Longitude West from Greenwich
Scale 1/180,360 or 1 Inch = 3 Miles
1 1/2 0 1 2 3 4
KILOMETERS
STATUTE MILES

DATE OF INVENTORY:
SIERRA COUNTY - 1960
OTERO COUNTY - 1966
DOÑA ANA COUNTY - 1960
SOCORRO COUNTY - 1962
LINCOLN COUNTY - 1961

TULAROSA
QUADRANGLE
90

CONSTRUCTION MATERIALS INVENTORY

QUADRANGLE PAGE 90

MATERIAL PIT SUMMARY

Pit Number		0543	0544	0545	0546
Location	Section	W 1/2 28	SW 1/4 36	SE 1/4 8	E 1/2 33
	Township & Range	9S 8E	9S 8E	10S 8E	10S 9E
	County	Lincoln	Lincoln	Lincoln	Lincoln
Formation		Qal	Qal & Qp	Psa	Tv
Rock Type		gravel & sand	sand & gravel	limestone	volcanics
Source Rock (Gravel)		lime/sandstone,igneous	limestone, igneous		
Quality of Material		good	good	excellent	good
Thickness of Material		10' plus	16'	10'	100' plus
Thickness of Cap (Caliche)					
Material Underlying Formation			sandstone	gypsum & limestone	
Vegetation		chamisa	chamisa	greasewood, cactii	grass & mesquite
Local Terrain		hilly	rolling	mountainous	mountainous
Thickness of Overburden			6'		
P. I. (Overburden)			7		
Estimated Quantity (cu. yds)		100,000	75,000	150,000	1,500,000 plus
Los Angeles Wear		22.4	18.4	18.4	18.8
Soundness Loss		11.8			2.3
Average Maximum Size		8"	7"		
% Retained on 2" Sieve		20	17		
Pit Average % Passing	Crushed to:	as received	as received	1"	1"
	2"	83	67		
	1"	73	60	100	100
	½"	61	53	62	61
	No. 4	45	44	22	22
	No. 10	35	36	11	11
	No. 200	10	16	3	1
Plasticity Index		N.P.	5	N.P.	N.P.
Remarks:					

Pit Number		0547	0548	0549	0550
Location	Section	SE 1/4 21	SE 1/4 34	SW 1/4 17	SE 1/4 21
	Township & Range	11S 9E	11S 9E	12S 10E	13S 9E
	County	Otero	Otero	Otero	Otero
Formation		Qvp	Qal	Qal	Qal
Rock Type		gravel	gravel	sand & gravel	sand & gravel
Source Rock (Gravel)		igneous	igneous, various	polygenetic	polygenetic
Quality of Material		excellent	excellent	good	excellent
Thickness of Material		15' plus	12' plus	5' plus	6' plus
Thickness of Cap (Caliche)					0-2'
Material Underlying Formation			siltstone & shale	sandstone & shale	
Vegetation		greasewood	greasewood	greasewood	grass, weeds, greasewood
Local Terrain		rolling	mountainous	mountainous	flat
Thickness of Overburden		0-2'	0-2'	0-2'	0-10'
P. I. (Overburden)		N.P.	N.P.	N.P.	8
Estimated Quantity (cu. yds.)		260,000	135,000	110,000	unlimited
Los Angeles Wear		18.4	23.0	22.0	19.6
Soundness Loss		5.3	17.2	2.3	2.6
Average Maximum Size		11"	18"	21"	20"
% Retained on 2" Sieve		40	37	29	31
Pit Average % Passing	Crushed to:	as received	as received	as received	as received
	2"	68	68	94	68
	1"	56	54	87	56
	½"	44	43	69	44
	No. 4	31	31	44	34
	No. 10	23	23	32	30
	No. 200	7	5	4	5
Plasticity Index		N.P.	N.P.	N.P.	N.P.
Remarks:					

CONSTRUCTION MATERIALS INVENTORY

MATERIAL PIT SUMMARY

Pit Number		0551	0552	0553	0554
Location	Section	SW 1/4 32	NE 1/4 27	NE 1/4 12	NW 1/4 24
	Township & Range	13S 10E	14S 9E	15S 8E	14S 9E
	County	Otero	Otero	Otero	Otero
Formation		Qal	Qal	Py	Qal
Rock Type		sand & gravel	gravel	limestone	gravel
Source Rock (Gravel)		polygenetic	limestone		limestone
Quality of Material		excellent	good	excellent	good
Thickness of Material		13'	6' plus	20' plus	4' plus
Thickness of Cap (Caliche)					
Material Underlying Formation		sandstone & shale		siltstone & gypsum	gypsiferous silt
Vegetation		greasewood	greasewood	grass	grass
Local Terrain		mountain front	flat	isolated hill	stream bottom
Thickness of Overburden		0-3'	5'		0-5'
P. I. (Overburden)		N.P.	3		N.P.
Estimated Quantity (cu. yds)		150,000	75,000	100,000	30,000
Los Angeles Wear		31.0	21.9	22.4	24.0
Soundness Loss		4.9			
Average Maximum Size		23"	4"		10"
% Retained on 2" Sieve		12	19		25
Pit Average % Passing	Crushed to:	as received	as received	1"	1"
	2"	88	94		
	1"	67	71	100	100
	½"	51	44	52	64
	No. 4	42	27	20	35
	No. 10	37	23	10	23
	No. 200	6	13	2	5
Plasticity Index		N.P.	5	N.P.	N.P.

Remarks:

Pit Number		0603	0604	0605	0606
Location	Section	SW 1/4 15	N 1/2 8	NW 1/4 34	NW 1/4 16
	Township & Range	13S 5E	13S 8E	12S 5E	11S 6E
	County	Sierra	Otero	Sierra	Sierra
Formation		Qps	Qe	Qaf	Qal
Rock Type		sand & gravel	blowsand	gravel & sand	sand & gravel
Source Rock (Gravel)		polygenetic		mixed	various
Quality of Material		excellent	good	good	excellent
Thickness of Material		25' plus	4'	6' plus	25' plus
Thickness of Cap (Caliche)					
Material Underlying Formation			silty caliche		
Vegetation		greasewood	mesquite	creosote & mesquite	greasewood
Local Terrain		sloping	flat	sloping	mountainous
Thickness of Overburden				0-1'	4'
P. I. (Overburden)				N.P.	N.P.
Estimated Quantity (cu. yds.)		unlimited	unlimited	unlimited	unlimited
Los Angeles Wear		19.0		23.0	21.6
Soundness Loss		4.5		6.4	3.2
Average Maximum Size		9"		10"	18"
% Retained on 2" Sieve		30		90	40
Pit Average % Passing	Crushed to:	as received		as received	as received
	2"	79		76	70
	1"	65		55	55
	½"	46		37	41
	No. 4	26		24	29
	No. 10	18	100	18	22
	No. 200	8	11	4	5
Plasticity Index		N.P.	N.P.	N.P.	N.P.

Remarks:

CONSTRUCTION MATERIALS INVENTORY

MATERIAL PIT SUMMARY

Pit Number		0607	0608
Location	Section	NW 1/4 22	NE 1/4 34
	Township & Range	11S 7E	9S 6E
	County	Otero	Lincoln
Formation		Qab	Qal
Rock Type		sandy silt	sand & gravel
Source Rock (Gravel)			limestone
Quality of Material		good	excellent
Thickness of Material		6'	6'
Thickness of Cap (Caliche)			
Material Underlying Formation			
Vegetation		none	creosote
Local Terrain		flat	flat
Thickness of Overburden			1'
P. I. (Overburden)			N.P.
Estimated Quantity (cu. yds)		10,000	300,000
Los Angeles Wear			18.0
Soundness Loss			1.36
Average Maximum Size			8"
% Retained on 2" Sieve			40
Pit Average % Passing	Crushed to:		as received
	2"		74
	1"		59
	½"		41
	No. 4		23
	No. 10	100	17
	No. 200	27	4
Plasticity Index		N.P.	N.P.

Remarks:

Pit Number		
Location	Section	
	Township & Range	
	County	
Formation		
Rock Type		
Source Rock (Gravel)		
Quality of Material		
Thickness of Material		
Thickness of Cap (Caliche)		
Material Underlying Formation		
Vegetation		
Local Terrain		
Thickness of Overburden		
P. I. (Overburden)		
Estimated Quantity (cu. yds.)		
Los Angeles Wear		
Soundness Loss		
Average Maximum Size		
% Retained on 2" Sieve		
Pit Average % Passing	Crushed to:	
	2"	
	1"	
	½"	
	No. 4	
	No. 10	
	No. 200	
Plasticity Index		

Remarks:

EXPLANATION

QUAD No. 97

QUATERNARY

- Qal — Alluvium
- Qfp — Floodplain deposits
- Qld — Lake deposits
- Qe — Eolian deposits
- Qab_1 — Bolson deposits
- Qab_2 — Bolson deposits
- Qab_3 — Bolson deposits
- Qt — Terrace deposits
- Qp — Pediment deposits
- Qaf — Alluvial fan deposits
- Qps — Piedmont slope deposits
- Qop — Older Pediment deposits

QUATERNARY -TERTIARY

- QTg — Older gravel deposits
- QTb — Basalt

- Tr — Rhyolite
- Ti — Intrusive rocks undivided

TERTIARY

- Td — Datil Volcanics undifferentiated
- Tda — Datil Andesite
- Tdr — Datil Rhyolite
- Tdal — Datil Andesite and Latite
- Tcg — Gila Conglomerate

TER.-CRET.

- TKi — Intrusives, predominantly monzonite

CRET.

- Kc — Colorado Shale
- Kb — Beartooth Quartzite
- Kvi — Virden Formation
- Kva — Volcanics, predominantly Andesite
- Kvd — Volcanics, predominantly Diorite
- Kvr — Volcanics, predominantly Rhyolite

PRECAMB.

- p€g — Granite
- p€m — Metamorphic rocks undivided

- Established pit or quarry
- Prospect pit or quarry
- Fault — downthrown side
- Anticline
- Syncline

NEW MEXICO STATE HIGHWAY DEPARTMENT

PLANNING AND PROGRAMMING DIVISION

BUREAU OF PUBLIC ROADS

GEOLOGY and AGGREGATE RESOURCES

VIRDEN QUADRANGLE 97

GRANT & HIDALGO COUNTIES

R. 21 W. R. 20 W. R. 19 W. R. 18 W. R. 17 W. R. 16 W.

T. 15 S. T. 16 S. T. 17 S. T. 18 S. T. 19 S. T. 20 S. T. 21 S.

NATIONAL FOREST

GILA

GRANT COUNTY

HIDALGO COUNTY

BEDROCK BASIN

To Duncan Ariz.

To Lordsburg

To Silver City

To Alt. U.S. 70

Control by U.S. Coast and Geodetic Survey, U.S. Geological Survey, U.S. Forest Service, Bureau of Land Management and Planning Division—Modified Conic Projection Standard Parallel 36°N North American Datum

DATE OF INVENTORY

GEOLOGY MAY 1979

Scale 1/126720 or 1 Inch = 2 Miles

Longitude West from Greenwich

DATE OF INVENTORY

GRANT COUNTY 1962

HIDALGO COUNTY 1962

VIRDEN QUADRANGLE 97

CONSTRUCTION MATERIALS INVENTORY

MATERIAL PIT SUMMARY

Pit Number		4619	4620	5123	5605
Location	Section	SW¼ 18	NE¼ 12	W½ 31	S½ 36
	Township & Range	19S 20W	19S 21W	20S 16W	19S 19W
	County	Hidalgo	Hidalgo	Grant	Grant
Formation		Qabʒ	Qt	Qal	Qps
Rock Type		sand and gravel	conglomerate	sand and gravel	sand and gravel
Source Rock (Gravel)		igneous and volcanic	igneous and volcanic	granite	igneous
Quality of Material		good	good	poor	good
Thickness of Material		4-8'	10' plus	10' plus	11' plus
Thickness of Cap (Caliche)		-	-	-	-
Material Underlying Formation		sand and silt	sand and silt	granite	silt
Vegetation		greasewood	greasewood	trees	grass
Local Terrain		hilly	hilly	mountainous	rolling
Thickness of Overburden		0-2'	0-2'	0-1	1-5'
P. I. (Overburden)		-	-	-	SNP-8
Estimated Quantity (cu. yds)		60,000 plus	50,000 plus	50,000	100,000 plus
Los Angeles Wear					26.0
Soundness Loss					
Average Maximum Size		3"	5"	2"	2"
% Retained on 2" Sieve		7	35		10
Pit Average % Passing	Crushed to:				3/4"
	2"				
	1"				100
	½"				85
	No. 4				54
	No. 10				38
	No. 200				4
Plasticity Index					SNP

Remarks:

Pit Number		5799	58105	6011	6012
Location	Section	NW¼ 6	SE¼ 31	SW¼ 21	SE¼ 35
	Township & Range	19S 18W	18S 18W	19S 21W	20S 20W
	County	Grant	Grant	Hidalgo	Hidalgo
Formation		Qal	Qt	Qabʒ	Qps
Rock Type		sand & gravel	sand & gravel	gravel	gravel
Source Rock (Gravel)		igneous	igneous	igneous	igneous
Quality of Material		good	good	good	good
Thickness of Material		12' plus	10'	6-14'	14' plus
Thickness of Cap (Caliche)		-	-	0-1'	-
Material Underlying Formation		sand	sand	silt	silt
Vegetation		grass	cottonwoods	greasewood	grass
Local Terrain		hilly	river bottom	flat	flat
Thickness of Overburden		0-4'	1'	1-2'	4-9'
P. I. (Overburden)		6	S.N.P.	12	18
Estimated Quantity (cu. yds.)		100,000 plus	100,000 plus	100,000 plus	100,000 plus
Los Angeles Wear		20.4	19.6	22.0	22.4
Soundness Loss		-	-	9.6	4.3
Average Maximum Size		5"	5"	3"	3"
% Retained on 2" Sieve		35	25	18	10
Pit Average % Passing	Crushed to:	as received	as received	as received	as received
	2"	65	79	86	79
	1"	45	66	73	64
	½"	33	36	56	50
	No. 4	23	24	36	35
	No. 10	17	18	27	23
	No. 200	3	4	8	2
Plasticity Index		6	S.N.P.	14	14

Remarks:

CONSTRUCTION MATERIALS INVENTORY

MATERIAL PIT SUMMARY

Pit Number		6311	6310	6130	6073
Location	Section	SE¼ 34	NE¼ 16	NW¼ 14	NW¼ 2
	Township & Range	15S 17W	17S 16W	19S 21W	21S 20W
	County	Grant	Grant	Hidalgo	Hidalgo
Formation		Qal	QTg	Qab3	Qps
Rock Type		sand and gravel	sand and gravel	sand and gravel	gravel
Source Rock (Gravel)		various	igneous and volcanic	igneous and volcanic	igneous
Quality of Material		good	good	excellent	good
Thickness of Material		6' plus	10' plus	9-11'	14' plus
Thickness of Cap (Caliche)		-	-	-	-
Material Underlying Formation		sand	sand and gravel	sand and gravel	silt
Vegetation		grass	grass	grass	grass
Local Terrain		river bottom	hilly	hilly	flat
Thickness of Overburden		0-2'	0-2'	0-3'	1-8'
P. I. (Overburden)				10	15
Estimated Quantity (cu. yds)		60,000 plus	60,000 plus	100,000 plus	100,000 plus
Los Angeles Wear		18.5		gravel: 20.4, cql; 25.6	23.6
Soundness Loss		11.1		2.9	6.8
Average Maximum Size		8"	6"	6"	3"
% Retained on 2" Sieve			10	25	12
Pit Average % Passing	Crushed to:			as received	as received
	2"			88	89
	1"			68	68
	½"			52	47
	No. 4			34	27
	No. 10			24	18
	No. 200			8	2
Plasticity Index				10	20

Remarks:

Pit Number		6523	6413	6312
Location	Section	N½ 21	SW 27	SW¼ 10
	Township & Range	16S 17W	15S 17W	16S 17W
	County	Grant	Grant	Grant
Formation		Qal	Qal	Op
Rock Type		sand and gravel	sand and gravel	sand and gravel
Source Rock (Gravel)		igneous	igneous	igneous and volcanic
Quality of Material		good	good	good
Thickness of Material		11'	8'	3-12'
Thickness of Cap (Caliche)		-	-	-
Material Underlying Formation		gravel	sand and gravel	sand
Vegetation		trees	cottonwood and grass	grass
Local Terrain		river bottom	river bottom	hilly
Thickness of Overburden		0-5'	0-2'	2-12'
P. I. (Overburden)		0-8	N.P.-10	10
Estimated Quantity (cu. yds.)		100,000 +	75,000 plus	75,000 plus
Los Angeles Wear		25.2	22.6	24.4
Soundness Loss		9.4	6.7	12.9
Average Maximum Size		3"	4"	6"
% Retained on 2" Sieve		30	20	15
Pit Average % Passing	Crushed to:	as received	as received	as received
	2"	64	86	65
	1"	48	69	42
	½"	36	59	26
	No. 4	27	50	14
	No. 10	21	46	9
	No. 200	4	7	2
Plasticity Index		N.P.	N.P.	S.N.P.

Remarks:

EXPLANATION

QUAD No. 98

QUATERNARY

- Qal — Alluvium
- Ql — Landslide Debris
- Qmd — Mine Dump
- Qab — Alluvium and bolson deposits
- Qip — Intermediate Pediment deposits
- Qt — Terrace deposits
- Qp — Pediment deposits
- Qaf — Alluvial fan deposits
- Qps — Piedmont slope deposits
- Qop — Older pediment deposits

QUATERNARY -TERTIARY

- QTb — Basalt
- QTg — Gila conglomerate
- Ttu — Tuff
- Tr — Rhyolite
- Ti — Intrusives
- Ta — Andesite and Latite

TERTIARY

- Tb — Basalt and Basaltic Andesite

TER.-CRET.

- Td — Datil Formation undivided
- Tdal — Datil Andesite
- Tdlr — Datil Rhyolite
- Tdt — Datil Tuff
- TKi — Intrusives
- Kv — Volcanics undivided

CRET.

- Kc — Colorado Shale
- Kb — Beartooth Quartzite

PER.

- Pa — Abo Formation

PENN.

- IP — Pennsylvanian undifferentiated

MISS.

- Mlv — Lake Valley Limestone

DEV.

- Dp — Percha Shale

SIL.-ORD. -CAMB.

- SO — Silurian Ordovician undivided
- O€b — Bliss Sandstone

PRECAMB.

- p€g — Granite
- p€m — Metamorphics

- Established pit or quarry
- Prospect pit or quarry
- Fault — downthrown side
- Anticline
- Syncline

NEW MEXICO STATE HIGHWAY DEPARTMENT

PLANNING AND PROGRAMMING DIVISION

BUREAU OF PUBLIC ROADS

GEOLOGY and AGGREGATE RESOURCES

SILVER CITY QUADRANGLE 98

GRANT & LUNA COUNTIES

R.16 W. R.15 W. R.14 W. R.13 W. R.12 W. R.11 W

T.15 S. T.16 S. T.17 S. T.18 S. T.19 S. T.20 S. T.21 S.

Control by U.S. Coast and Geodetic Survey; U.S. Geological Survey, U.S. Forest Service, Bureau of Land Management and Planning Division--Modified Conic Projection Standard Parallel 34° North American Datum

DATE OF INVENTORY
GEOLOGY NOV. 1979

Longitude West from Greenwich

Scale 1/125,000 or 1 Inch = 3 Miles

STATUTE MILES

DATE OF INVENTORY
GRANT COUNTY 1962
LUNA COUNTY 1960

SILVER CITY QUADRANGLE 98

CONSTRUCTION MATERIALS INVENTORY

MATERIAL PIT SUMMARY

Pit Number		5798	5980	59102	6035 (& 6038)
Location	Section	NW 25	25	NW 19	SW 22
	Township & Range	18S 13W	18S 13W	18S 15W	17S 16W
	County	Grant	Grant	Grant	Grant
Formation		Qp	Qop	Qal	Qal
Rock Type		gravel	gravel	sand	gravel
Source Rock (Gravel)		igneous	various	igneous	various
Quality of Material		good	good	good	good
Thickness of Material		13' plus	8'	7' plus	10-20'
Thickness of Cap (Caliche)		0-1'	0-1'	-	-
Material Underlying Formation		gravel	sand and gravel	sand	silt and gravel
Vegetation		grass	grass	grass	grass
Local Terrain		hilltop	hilltop	valley floor	arroyo bottom
Thickness of Overburden		0-2'	0-2'	0-1'	0-5'
P. I. (Overburden)		6	6	S.N.P.	-
Estimated Quantity (cu. yds)		75,000 plus	75,000 plus	50,000	100,000 plus
Los Angeles Wear		20.4	24.0	-	20.1
Soundness Loss		9.8	9.8	-	4.9
Average Maximum Size		5"	5"	1"	5"
% Retained on 2" Sieve		15	16	-	22
Pit Average % Passing	Crushed to:	as received	as received	as received	as received
	2"	66	93	-	94
	1"	56	62	-	83
	½"	46	45	100	65
	No. 4	34	34	91	38
	No. 10	24	28	80	28
	No. 200	5	9	10	7
Plasticity Index		S.N.P.	S.N.P.	S.N.P.	6

Remarks:

Pit Number		6036	6074	6129	6407
Location	Section	NE 11	SE 19	NW 4	SW 19
	Township & Range	18S 15W	19S 14W	18S 14W	16S 13W
	County	Grant	Grant	Grant	Grant
Formation		QTg	Qal	P	Qal
Rock Type		sand and gravel	sand	limestone	sand and gravel
Source Rock (Gravel)		various	various	-	volcanics
Quality of Material		good	fair	good	fair
Thickness of Material		3-7'	10'	10' plus	10'
Thickness of Cap (Caliche)		0-2'	-	-	-
Material Underlying Formation		gravel	sand	shale	volcanics
Vegetation		grass	grass	grass & pinon	pine
Local Terrain		hilly	gulch	mountainous	mountainous
Thickness of Overburden		0-1'	0-2'	1-2'	0-2'
P. I. (Overburden)		S.N.P.	S.N.P.	-	S.N.P.
Estimated Quantity (cu. yds.)		50,000 plus	50,000 plus	100,000 plus	20,000 plus
Los Angeles Wear		36.0	-	23.2	
Soundness Loss		14.3	-	4.4	
Average Maximum Size		6"	1"	-	
% Retained on 2" Sieve		25	5	-	
Pit Average % Passing	Crushed to:	as received	as received	2"	
	2"	86	-	100	
	1"	76	100	76	
	½"	66	81	32	
	No. 4	48	69	14	
	No. 10	32	38	8	
	No. 200	3	15	4	
Plasticity Index		N.P.	S.N.P.	12	

Remarks:

CONSTRUCTION MATERIALS INVENTORY

MATERIAL PIT SUMMARY

Pit Number		6408	6415	6903	6904
Location	Section	NW 17	SW 8	NW 17	E½ 6
	Township & Range	15S 13W	16S 11W	18S 15W	19S 13W
	County	Grant	Grant	Grant	Grant
Formation		QTg	Qal	Qal	Qip
Rock Type		sand and gravel	sand and gravel	sand and gravel	gravel
Source Rock (Gravel)		volcanics	volcanics	various	igneous
Quality of Material		good	good	good	good
Thickness of Material		15' plus	8' plus	7-18'	14'+
Thickness of Cap (Caliche)		-	-	-	-
Material Underlying Formation		andesitic basalt	conglomerate	sand	gravel
Vegetation		juniper - pinon	cottonwoods	grass	grass
Local Terrain		mountainous	river bottom	arroyo bottom	hilly
Thickness of Overburden		0-1'	0-?'	0-4'	0-4'
P. I. (Overburden)		S.N.P.	N.P.	-	N.P.-10
Estimated Quantity (cu. yds)		50,000 plus	100,000 plus	50,000 plus	100,000+
Los Angeles Wear		25.1	19.6	28.8	25.0
Soundness Loss		7.5	-	9.3	5.6
Average Maximum Size		5"	4"	7"	4"
% Retained on 2" Sieve		30	23	23	20
	Crushed to:	as received	as received	as received	as received
	2"	61	67	80	74
Pit	1"	51	55	76	65
Average	½"	41	46	68	53
% Passing	No. 4	28	35	51	41
	No. 10	20	28	31	30
	No. 200	6	5	3	8
Plasticity Index		N.P.	N.P.	S.N.P.	N.P.
Remarks:					

Pit Number		7214
Location	Section	NW 25
	Township & Range	18S 13W
	County	Grant
Formation		Qp
Rock Type		sand and gravel
Source Rock (Gravel)		various igneous
Quality of Material		good
Thickness of Material		13' plus
Thickness of Cap (Caliche)		0-1'
Material Underlying Formation		gravel
Vegetation		grass
Local Terrain		hilltop
Thickness of Overburden		0-2'
P. I. (Overburden)		6
Estimated Quantity (cu. yds.)		75,000 plus
Los Angeles Wear		19.2
Soundness Loss		9.8
Average Maximum Size		5"
% Retained on 2" Sieve		16
	Crushed to:	as received
	2"	80
Pit	1"	74
Average	½"	65
% Passing	No. 4	52
	No. 10	39
	No. 200	12
Plasticity Index		S.N.P.
Remarks:		

EXPLANATION

QUAD No. 99

QUATERNARY

- Qal — Alluvium
- Qab — Bolson deposits
- Qtl — Terrace deposits (lower level)
- Qpc — Pediment deposits
- Qt — Terrace deposits
- Qps — Piedmont slope deposits
- Qaf — Alluvial fan deposits
- Qaa — Alluvial Aprons
- Qop — Older Pediment deposits
- Qip — Intermediate Pediment deposits

QUATERNARY -TERTIARY

- QTp — Pediment deposits
- QTg — Older gravel deposits
- QTb — Basalt
- QTsf — Santa Fe Formation

TERTIARY

- Tvu — Upper volcanics
- Tdlr — Datil Latite and Rhyolite
- Td — Datil Formation undivided
- Ti — Intrusive rocks undivided
- Tvl — Lower volcanics

CRET.

- K — Cretaceous undifferentiated
- Kb — Beartooth Quartzite

PERMIAN

- Pa — Abo Formation

PENN.

- IP — Pennsylvanian rock undivided

PENN.-MISS. -DEV.

- IPMD — Penn., Miss. and Dev. undivided

MISS. DEV.

- Mvl — Mississippian Lake Valley Limestone
- Dp — Petche Shale

SIL.-ORD.

- SO — Silurian Ordovician undivided

SIL.-ORD. -CAMB.

- SO€ — Dev., Ord. and Camb. undivided

PRECAMB.

- p€ — Precambrian undivided

- Established pit or quarry
- Prospect pit or quarry
- Fault — downthrown side
- Anticline
- Syncline

NEW MEXICO STATE HIGHWAY DEPARTMENT

PLANNING DIVISION

BUREAU OF PUBLIC ROADS

GEOLOGY and AGGREGATE RESOURCES

HILLSBORO QUADRANGLE-99

SIERRA GRANT & LUNA COUNTIES

R.11W. R.10W. R.9W. R.8W. R.7W.

T.15S. T.16S. T.17S. T.18S. T.19S. T.20S. T.21S.

Control by U.S. Coast and Geodetic Survey, U.S. Geological Survey, U.S. Forest Service, Bureau of Land Management and Planning Division—Modified Conic Projection Standard Parallel 34½° North American Datum

DATE OF INVENTORY

GEOLOGY DEC. 1979

AGGREGATE RESOURCES DEC. 1979

Scale $\frac{1}{126720}$ or 1 Inch = 3 Miles

1 ½ 0 1 2 3 4

STATUTE MILES

DATE OF INVENTORY

SIERRA COUNTY	1980
GRANT COUNTY	1956
LUNA COUNTY	1960

HILLSBORO QUADRANGLE 99

CONSTRUCTION MATERIALS INVENTORY

MATERIAL PIT SUMMARY

Pit Number		58117	58118	58119	58120
Location	Section	SW¼ 6	NW¼ 27	SE¼ 28	SE 6
	Township & Range	20S 10W	19S 10W	19S 10W	20S 10W
	County	Luna	Grant	Grant	Luna
Formation		Qal	Qal	Qal	Qal
Rock Type		sand & gravel	sand & gravel	sand & gravel	sand & gravel
Source Rock (Gravel)		volcanic	igneous	various	igneous
Quality of Material		good	good	excellent	excellent
Thickness of Material		10-13'	3-7'	6'	12' plus
Thickness of Cap (Caliche)		-	-	-	-
Material Underlying Formation		soil & gravel	sand & gravel	sand	sand
Vegetation		grass	grass	grass	grass
Local Terrain		streambed	streambank	river bottom	river bottom
Thickness of Overburden		0	2-4'	.5-1'	3'
P. I. (Overburden)		-	N.P.	N.P.	N.P.
Estimated Quantity (cu. yds)		100,000	75,000	100,000	200,000
Los Angeles Wear		22.0	22.0	18.0	22.0
Soundness Loss		-	-	-	-
Average Maximum Size		5"	5"	4"	4"
% Retained on 2" Sieve		25	15	20	25
Pit Average % Passing	Crushed to:	as received	as received	as received	as received
	2"	32	82	75	46
	1"	23	60	64	28
	½"	18	44	56	20
	No. 4	14	31	50	15
	No. 10	12	26	45	12
	No. 200	2	3	2	1
Plasticity Index		N.P.	N.P.	N.P.	N.P.
Remarks:					

Pit Number		5969	59100	6223	6313
Location	Section	N½ 18	Section 20	N½ 15	Not Sectionalized
	Township & Range	16S 7W	17S 10W	16S 8W	Gila National Forest
	County	Sierra	Grant	Sierra	Grant
Formation		Qal	Qal	Qal	P
Rock Type		sand & gravel	sand & gravel	gravel	limestone
Source Rock (Gravel)		igneous and various	limestone and various	various	-
Quality of Material		excellent	excellent	good	good
Thickness of Material		7-9'	5'	5-11'	25-29'
Thickness of Cap (Caliche)		-	-	-	-
Material Underlying Formation		sand & gravel	sand	rock	limestone
Vegetation		sage	-	sage, pinon	pine
Local Terrain		river bottom	river bottom	mountain stream bottom	mountainous
Thickness of Overburden		0	0	0	0-1'
P. I. (Overburden)		-	-		-
Estimated Quantity (cu. yds.)		175,000	200,000	150,000	500,000
Los Angeles Wear		20.4	28.0	22.8	31.2
Soundness Loss		-	18.7	14.8	top: 2.0, bottom: 16.2
Average Maximum Size		8"	5"	10"	-
% Retained on 2" Sieve		23	29	28	-
Pit Average % Passing	Crushed to:	as received	as received	as received	2"
	2"	70	59	70	100
	1"	45	51	49	85
	½"	33	45	33	30
	No. 4	24	36	19	10
	No. 10	19	28	13	5
	No. 200	5	3	2	1
Plasticity Index		N.P.	N.P.	N.P.	5
Remarks:					

QUADRANGLE PAGE 99

CONSTRUCTION MATERIALS INVENTORY

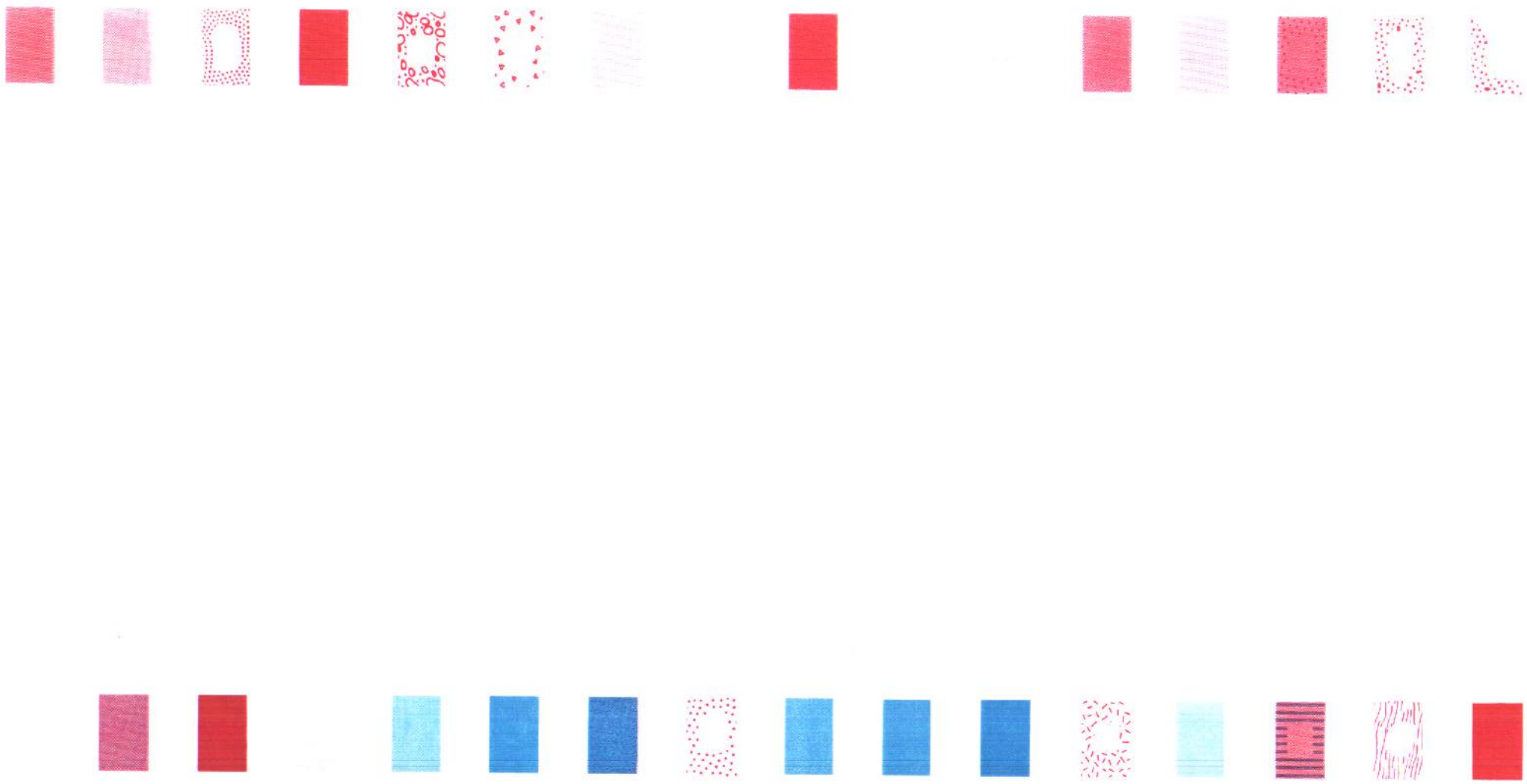
MATERIAL PIT SUMMARY

Pit Number		6650
Location	Section	SW¼ 30
	Township & Range	17S 10W
	County	Grant
Formation		Qt
Rock Type		gravel
Source Rock (Gravel)		various
Quality of Material		excellent
Thickness of Material		6-18'
Thickness of Cap (Caliche)		-
Material Underlying Formation		gravel
Vegetation		grass and cottonwoods
Local Terrain		river bank
Thickness of Overburden		1-5.5'
P. I. (Overburden)		N.P.
Estimated Quantity (cu. yds)		100,000
Los Angeles Wear		19.6
Soundness Loss		4.9
Average Maximum Size		7"
% Retained on 2" Sieve		30
Pit Average % Passing	Crushed to:	as received
	2"	55
	1"	41
	½"	28
	No. 4	17
	No. 10	12
	No. 200	2
Plasticity Index		N.P.

Remarks:

Pit Number		
Location	Section	
	Township & Range	
	County	
Formation		
Rock Type		
Source Rock (Gravel)		
Quality of Material		
Thickness of Material		
Thickness of Cap (Caliche)		
Material Underlying Formation		
Vegetation		
Local Terrain		
Thickness of Overburden		
P. I. (Overburden)		
Estimated Quantity (cu. yds.)		
Los Angeles Wear		
Soundness Loss		
Average Maximum Size		
% Retained on 2" Sieve		
Pit Average % Passing	Crushed to:	
	2"	
	1"	
	½"	
	No. 4	
	No. 10	
	No. 200	
Plasticity Index		

Remarks:



NEW MEXICO STATE HIGHWAY DEPARTMENT

PLANNING AND PROGRAMMING DIVISION

BUREAU OF PUBLIC ROADS

GEOLOGY and AGGREGATE RESOURCES

HATCH QUADRANGLE-100

DOÑA ANA LUNA & SIERRA COUNTIES

R.6 W. R.5 W. R.4 W. R.3 W. R.2 W.

T.15 S. T.16 S. T.17 S. T.18 S. T.19 S. T.20 S. T.21 S.

Control by U.S. Coast and Geodetic Survey, U.S. Geological Survey, U.S. Forest Service, Bureau of Land Management and Planning Division—Modified Conic Projection Standard Parallel (NW) North American Datum

DATE OF INVENTORY

GEOLOGY DEC. 1979

AGGREGATE RESOURCES DEC. 1979

Longitude West from Greenwich

Scale 1/126720 or 1 Inch = 2 Miles

DATE OF INVENTORY

DONA ANA COUNTY 1967

LUNA COUNTY 1960

SIERRA COUNTY 1960

HATCH QUADRANGLE 100

QUADRANGLE PAGE 100

CONSTRUCTION MATERIALS INVENTORY

MATERIAL PIT SUMMARY

Pit Number		5712	6215	6216
Location	Section	NW¼ 26	11	SW¼ 4
	Township & Range	18S 4W	19S 2W	19S 2W
	County	Dona Ana	Dona Ana	Dona Ana
Formation		Qaa	QTsf	Ttr
Rock Type		sand & gravel	sand & gravel	rhyolite & quartzite
Source Rock (Gravel)		various	various	-
Quality of Material		good	excellent	fair
Thickness of Material		10' plus	10' plus	10' plus
Thickness of Cap (Caliche)		-	0-2'	-
Material Underlying Formation		sand	sand & gravel	shale
Vegetation		grass & greasewood	grass, greasewood	greasewood
Local Terrain		rolling	hilly	hill
Thickness of Overburden		1-2'	0	-
P. I. (Overburden)		N.P.	N.P.	-
Estimated Quantity (cu. yds)		25,000	250,000 plus	500,000 plus
Los Angeles Wear			19.2	
Soundness Loss			5.9	
Average Maximum Size		6"	3"	
% Retained on 2" Sieve		8	6	
Pit Average % Passing	Crushed to:		as received	
	2"		97	
	1"		91	
	½"		85	
	No. 4		77	
	No. 10		68	
	No. 200		6	
Plasticity Index			N.P.	
Remarks:				

Pit Number		6301	6302	6323	6411
Location	Section	SW¼ 32	SW¼ 4	23	NE¼ 25
	Township & Range	18S 3W	19S 3W	18S 4W	16S 5W
	County	Dona Ana	Dona Ana	Dona Ana	Sierra
Formation		Qp	Qal	Qp	Qaa
Rock Type		sand & gravel	sand & gravel	sand & gravel	sand & gravel
Source Rock (Gravel)		various	various	various	various
Quality of Material		excellent	excellent	excellent	good
Thickness of Material		4-9'	4-11'	7-12'	1-12'
Thickness of Cap (Caliche)		-	-	-	-
Material Underlying Formation		silt	sand & gravel	sand & gravel	sand & gravel
Vegetation		grass, greasewood	grass, greasewood	grass, greasewood	grass
Local Terrain		hilly	rolling	rolling	rolling
Thickness of Overburden		5-7'	.5-4.3'	0-5'	.5-11'
P. I. (Overburden)		N.P.	N.P.	N.P.	N.P.
Estimated Quantity (cu. yds.)		300,000 plus	50,000 plus	200,000 plus	200,000 plus
Los Angeles Wear		17.6	16.0	20.0	22.4
Soundness Loss		3.1	2.4	6.9	2.4
Average Maximum Size		4"	5"	6"	4"
% Retained on 2" Sieve		9	15	11	10
Pit Average % Passing	Crushed to:	as received	as received	as received	as received
	2"	85	78	69	85
	1"	66	66	54	77
	½"	45	49	44	66
	No. 4	25	30	30	56
	No. 10	18	24	23	46
	No. 200	3	1	3	4
Plasticity Index		N.P.	N.P.	N.P.	N.P.
Remarks:					

CONSTRUCTION MATERIALS INVENTORY

MATERIAL PIT SUMMARY

Pit Number		6429	6515	6565	6735
Location	Section	SW¼ 11	E½ 23	NE¼ 15	2
	Township & Range	16S 5W	15S 5W	18S 4W	18S 4W
	County	Sierra	Sierra	Dona Ana	Dona Ana
Formation		QTsf	Qop	Qaa	Qp
Rock Type		sand & gravel	sand & gravel	sand & gravel	sand & gravel
Source Rock (Gravel)		various	various	various	various
Quality of Material		excellent	excellent	good	excellent
Thickness of Material		4-10'	9-14'	4-12'	6-12'
Thickness of Cap (Caliche)		-	-	-	-
Material Underlying Formation		sand & gravel	sand & gravel	soil & rock	clay, sand, gravel
Vegetation		grass, greasewood	grass, greasewood	grass	grass
Local Terrain		hilly	hilly	hilly	rolling
Thickness of Overburden		2-8'	.5-3'	1-9'	0-1'
P. I. (Overburden)				N.P.	N.P.
Estimated Quantity (cu. yds)		300,000 plus	500,000 plus	200,000 plus	200,000 plus
Los Angeles Wear		18.8	20.8	19.6	18.8
Soundness Loss		8.5	6.4	3.8	5.1
Average Maximum Size		5"	5"	4"	6"
% Retained on 2" Sieve		11	10	12	10
Pit Average % Passing	Crushed to:	as received	as received	as received	as received
	2"	87	86	75	83
	1"	68	67	61	65
	½"	49	48	45	53
	No. 4	33	33	28	42
	No. 10	26	25	21	36
	No. 200	6	2	4	10
Plasticity Index		7	N.P.	N.P.	N.P.
Remarks:					

Pit Number		6817	6818
Location	Section	SW¼ 17	17
	Township & Range	20S 5W	19S 3W
	County	Dona Ana	Dona Ana
Formation		Qaf	Qaa
Rock Type		sand & gravel	sand & gravel
Source Rock (Gravel)		various	various
Quality of Material		excellent	good
Thickness of Material		11-12'	6' plus
Thickness of Cap (Caliche)		-	-
Material Underlying Formation		gravel	silt
Vegetation		grass	grass, greasewood
Local Terrain		rolling	hilly
Thickness of Overburden		1-1.5'	-
P. I. (Overburden)		N.P.	-
Estimated Quantity (cu. yds.)		100,000 plus	25,000
Los Angeles Wear		14.0	
Soundness Loss		4.0	
Average Maximum Size		3"	5"
% Retained on 2" Sieve		10	15
Pit Average % Passing	Crushed to:	as received	as received
	2"	85	
	1"	81	
	½"	66	
	No. 4	40	
	No. 10	28	
	No. 200	8	
Plasticity Index		N.P.	
Remarks:			

EXPLANATION

QUAD No. 101

QUATERNARY

- Qal — Alluvium
- Qe — Eolian deposits
- Qc — Cinder and Scoria
- Qab — Bolson deposits
- Qld — Lake deposits
- Qaf — Alluvial fan deposits
- Qps — Piedmont slope deposits
- Qop — Older Pediment deposits

QUATERNARY -TERTIARY

- QTb — Basalt
- QTsf — Santa Fe Formation

TERTIARY

- Ta — Andesite
- Ti — Intrusive rocks undivided
- Tt — Tschicoma Formation
- Tlr — Love Ranch Formation
- Tpl — Palm Park Formation

TER.-CRET.

- TKm — McRae Formation

CRET.

- K — Cretaceous undifferentiated

PERMIAN

- Psa — San Andres Limestone
- Py — Yeso Formation
- Pa — Abo Formation
- Ph — Hueco Limestone

PENN.

- IP — Pennsylvanian rock undivided

MISS.-DEV.-SIL.-ORD.-CAMB.

- MDSOC — Miss., Dev., Sil., Ord. and Camb. undivided

PRECAMB.

- pC — Precambrian undivided

- Established pit or quarry
- Prospect pit or quarry
- Fault — downthrown side
- Anticline
- Syncline

NEW MEXICO STATE HIGHWAY DEPARTMENT
PLANNING AND PROGRAMMING DIVISION
BUREAU OF PUBLIC ROADS

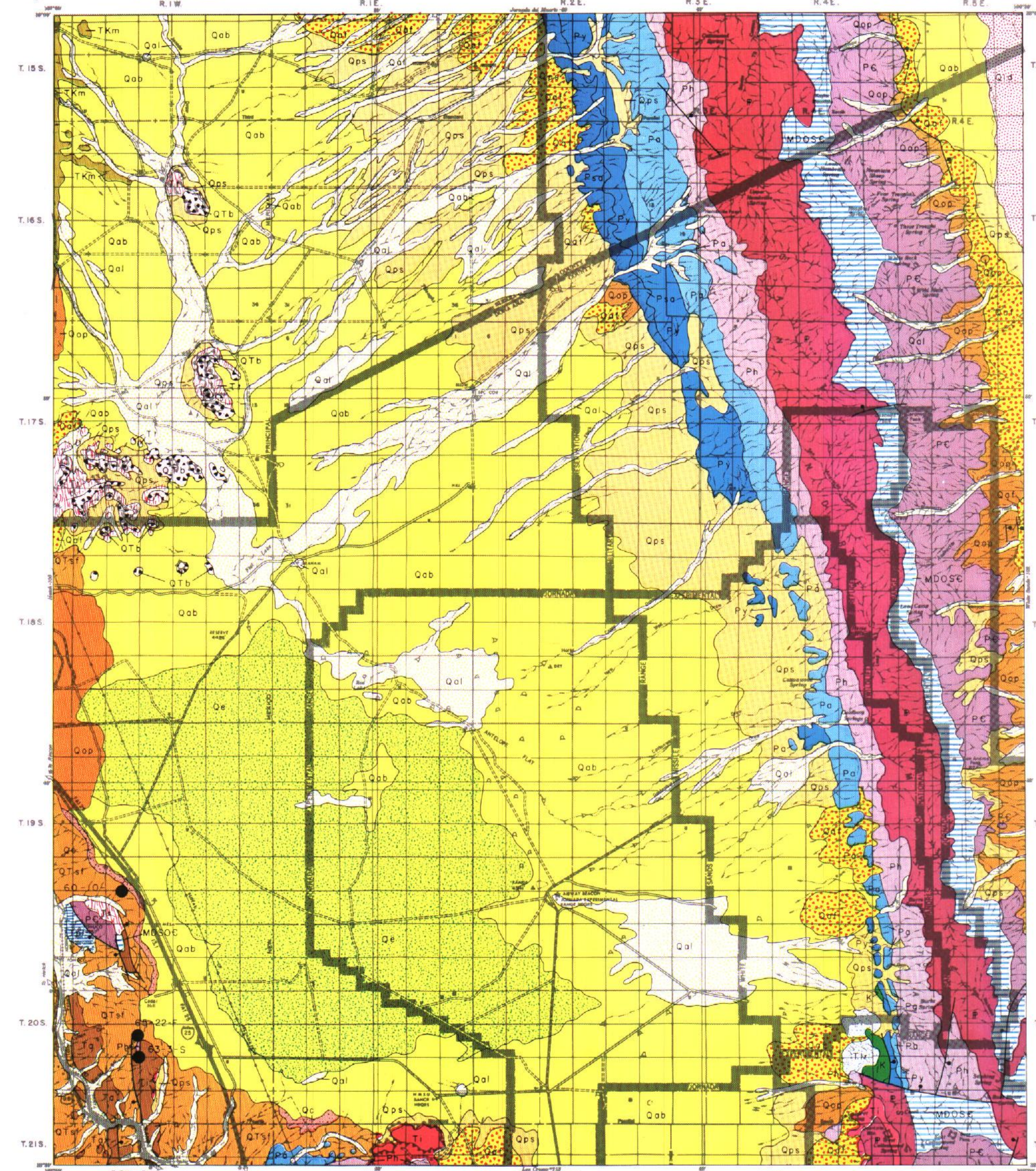
GEOLOGY and AGGREGATE RESOURCES

SAN ANDRES MOUNTAINS QUADRANGLE-101

SIERRA & DOÑA ANA COUNTIES

R.1W. R.1E. R.2E. R.3E. R.4E. R.5E.

T.15S. T.16S. T.17S. T.18S. T.19S. T.20S. T.21S.



Control by U.S. Coast and Geodetic Survey; U.S. Geological Survey; U.S. Forest Service; Bureau of Land Management and Planning Division—Modified Conic Projection Standard Parallel 30½° North American Datum

DATE OF INVENTORY
GEOLOGY MAY 1979
AGGREGATE RESOURCES MAY 1979

Longitude West from Greenwich

Scale 1 inch = 1 mile or 1 inch = 3 Miles

DATE OF INVENTORY
SIERRA COUNTY 1980
DOÑA ANA COUNTY 1967

SAN ANDRES MOUNTAINS QUADRANGLE 101

QUADRANGLE PAGE 101

CONSTRUCTION MATERIALS INVENTORY

MATERIAL PIT SUMMARY

Pit Number		6010	6303	6522
Location	Section	Sec. 29 & 32	SE¼ Sec. 20	NW¼ Sec. 17
	Township & Range	19S 1W	20S 1W	20S 1W
	County	Dona Ana	Dona Ana	Dona Ana
Formation		Qtsf	Ph	Qtsf
Rock Type		sand and gravel	limestone	sand and silt
Source Rock (Gravel)		various		
Quality of Material		good	excellent	fair
Thickness of Material		10' plus	20' plus	12' plus
Thickness of Cap (Caliche)				
Material Underlying Formation		silt		silt
Vegetation		mesquite	mesquite	mesquite
Local Terrain		flat	flat	flat
Thickness of Overburden			0	0-2'
P. I. (Overburden)				N.P.
Estimated Quantity (cu. yds)		150.000	200.000	50.000 plus
Los Angeles Wear			22.0	
Soundness Loss		13.9	6.4	
Average Maximum Size		5"		No. 40 sieve
% Retained on 2" Sieve		10		
Pit Average % Passing	Crushed to:		2"	
	2"			
	1"		85	
	½"		33	
	No. 4		13	
	No. 10		6	100
	No. 200		2	9
Plasticity Index			N.P.	N.P.
Remarks:				

Pit Number	
Location	Section
	Township & Range
	County
Formation	
Rock Type	
Source Rock (Gravel)	
Quality of Material	
Thickness of Material	
Thickness of Cap (Caliche)	
Material Underlying Formation	
Vegetation	
Local Terrain	
Thickness of Overburden	
P. I. (Overburden)	
Estimated Quantity (cu. yds.)	
Los Angeles Wear	
Soundness Loss	
Average Maximum Size	
% Retained on 2" Sieve	
Pit Average % Passing	Crushed to:
	2"
	1"
	½"
	No. 4
	No. 10
	No. 200
Plasticity Index	
Remarks:	

CONSTRUCTION MATERIALS INVENTORY

QUADRANGLE PAGE _____

MATERIAL PIT SUMMARY

Pit Number		
Location	Section	
	Township & Range	
	County	
Formation		
Rock Type		
Source Rock (Gravel)		
Quality of Material		
Thickness of Material		
Thickness of Cap (Caliche)		
Material Underlying Formation		
Vegetation		
Local Terrain		
Thickness of Overburden		
P. I. (Overburden)		
Estimated Quantity (cu. yds)		
Los Angeles Wear		
Soundness Loss		
Average Maximum Size		
% Retained on 2" Sieve		
Pit Average % Passing	Crushed to:	
	2"	
	1"	
	½"	
	No. 4	
	No. 10	
	No. 200	
Plasticity Index		

Remarks:

Pit Number		
Location	Section	
	Township & Range	
	County	
Formation		
Rock Type		
Source Rock (Gravel)		
Quality of Material		
Thickness of Material		
Thickness of Cap (Caliche)		
Material Underlying Formation		
Vegetation		
Local Terrain		
Thickness of Overburden		
P. I. (Overburden)		
Estimated Quantity (cu. yds.)		
Los Angeles Wear		
Soundness Loss		
Average Maximum Size		
% Retained on 2" Sieve		
Pit Average % Passing	Crushed to:	
	2"	
	1"	
	½"	
	No. 4	
	No. 10	
	No. 200	
Plasticity Index		

Remarks:

NEW MEXICO STATE HIGHWAY DEPARTMENT
PLANNING DIVISION
BUREAU OF PUBLIC ROADS

AGGREGATE RESOURCES and GEOLOGY

WHITE SANDS QUADRANGLE-102

SIERRA OTERO & DOÑA ANA COUNTIES

EXPLANATION

QUATERNARY

- **Qal** — Alluvium
  Poorly to well-sorted gravel, sand, silt and clay; stippled where granular
- **Qe 1/2/3** — Eolian deposits
  Wind-borne gypsum sand(1); Wind-borne quartzose sand(2); wind-borne silts and clays(3)
- **Qld** — Lacustrine deposits
  Alkaline silts, sand and clay
- **Qab 1/2/3** — Alluvium and bolson deposits
  Relatively thin wind-borne sand cover(1); sand, silt, clay and gypsum(2); sand, silt and clay with local, braided gravel deposits(3)
- **Qaf** — Alluvial fan deposits
  Poorly-sorted braided deposits of sub-angular gravel, sand, silt and clay; boulder size gravel common
- **Qps** — Piedmont slope deposits
  Silt, sand, clay and gravel representing a zone of alluviation between fan and valley floor deposits
- **Qp 1/2** — Pediment deposits
  Heterogeneous deposits of gravel, sand, silt and clay(1); older, higher-level, decomposed gravel, sand, silt and clay(2)

TERTIARY

- **QTb** — Basalt
  Black vesicular basalt
- **Ti** — Intrusive rocks undivided
  Dikes, sills and plugs of various composition

PERMIAN

- **Psa** — San Andres Formation
  Massive, gray limestone
- **Py** — Yeso Formation
  Variegated, soft sandstone and siltstone; pink and yellow shale; thin-bedded, gray limestone and sandstone
- **Ph** — Hueco Limestone
  Massive, gray limestone

PENNSYLVANIAN

- **IP** — Pennsylvanian rocks undivided
  Massive to thin-bedded, gray limestone and sandstone

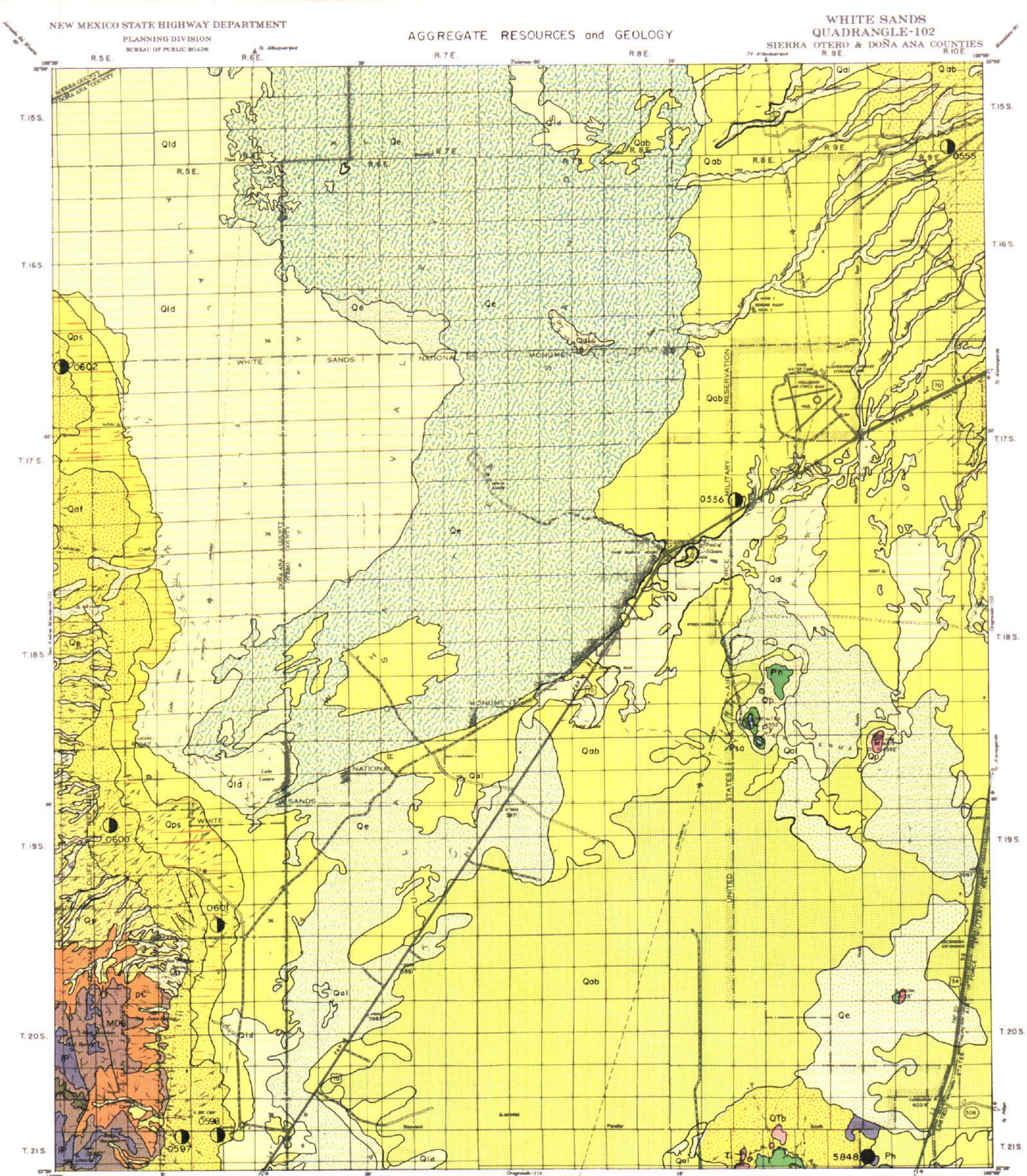
MISS.-DEV.

- **MDC** — Mississippian and Devonian rocks undivided
  Primarily gray limestone and dolomite

PRE-CAMBRIAN

- **pC** — Precambrian rocks undivided
  Granite, gneiss, schist, quartzite, etc.

- Developed pit or quarry
- Prospect pit or quarry
- Fault, downthrown side



Control by U.S. Coast and Geodetic Survey, U.S. Geological Survey, U.S. Forest Service, Bureau of Land Management and Planning Division—Modified Conic Projection Standard Parallel 34°N North American Datum

DATE OF INVENTORY
GEOLOGY AUGUST 1971
AGGREGATE RESOURCES AUGUST 1971

Scale 1 : 100000 or 1 Inch = 3 Miles

DATE OF INVENTORY
DOÑA ANA COUNTY 1980
OTERO COUNTY 1980

WHITE SANDS QUADRANGLE 102

CONSTRUCTION MATERIALS INVENTORY

QUADRANGLE PAGE 102

MATERIAL PIT SUMMARY

Pit Number		5848	5850	0555	0556
Location	Section	SW 1/4 6	SW 1/4 8	S 1/2 31	SW 1/4 28
	Township & Range	21S 9E	20S 9E	15S 10E	17S 8E
	County	Otero	Otero	Otero	Otero
Formation		Pennsylvanian	Ph	Qab	Ph
Rock Type		limestone	limestone	sand & gravel	limestone
Source Rock (Gravel)				limestone	
Quality of Material		excellent	excellent	excellent	good
Thickness of Material		25' plus	8' plus	14' plus	10' plus
Thickness of Cap (Caliche)			0-1'		
Material Underlying Formation			intrusive sill	sand & gravel	
Vegetation		greasewood	mesquite & grass	greasewood	grass
Local Terrain		hilly	rolling	flat	rolling
Thickness of Overburden		1'	0-4'	6'	
P. I. (Overburden)		N.P.	N.P.	N.P.	
Estimated Quantity (cu. yds)		75,000	100,000	225,000	20,000
Los Angeles Wear		23.2	14.7	17.6	21.2
Soundness Loss			1.9		
Average Maximum Size				6"	
% Retained on 2" Sieve				15	
Pit Average % Passing	Crushed to:	1"	1"	as received	1"
	2"			94	
	1"	100	100	80	100
	½"	48	67	47	81
	No. 4	18	23	26	33
	No. 10	10	11	21	18
	No. 200	1	2	5	4
Plasticity Index		N.P.	N.P.	N.P.	N.P.

Remarks:

Pit Number		0597	0598	0599
Location	Section	NE 1/4 4	NE 1/4 3	E 1/2 5
	Township & Range	21S 5E	21S 5E	20S 5E
	County	Dona Ana	Dona Ana	Dona Ana
Formation		Qaf	Qaf	Qop
Rock Type		gravel	sand & gravel	caliche, gravel & sand
Source Rock (Gravel)		limestone & various	various	limestone
Quality of Material		good	excellent	excellent
Thickness of Material		20' plus	25' plus	50'
Thickness of Cap (Caliche)				
Material Underlying Formation				
Vegetation		greasewood	greasewood	creosote
Local Terrain		mountain slope	flat	hilly
Thickness of Overburden				0-2'
P. I. (Overburden)				
Estimated Quantity (cu. yds.)		unlimited	unlimited	unlimited
Los Angeles Wear		23.2	20.4	Cal Grvl: 17.4 Snd & Grvl: 19.0
Soundness Loss			2.0	10.1
Average Maximum Size		7	12"	8" 16"
% Retained on 2" Sieve		35	34	35 40
Pit Average % Passing	Crushed to:	as received	as received	as received as received
	2"	66	87	80 60
	1"	53	66	58 43
	½"	43	43	34 28
	No. 4	31	28	20 20
	No. 10	24	21	15 15
	No. 200	8	2	5 3
Plasticity Index		N.P.	N.P.	N.P. N.P.

Remarks:

CONSTRUCTION MATERIALS INVENTORY

QUADRANGLE PAGE 102

MATERIAL PIT SUMMARY

Pit Number		0600	0601	0602
Location	Section	SW 1/4 18	SE 1/4 34	NE 1/4 2
	Township & Range	19S 5E	19S 5E	17S 4E
	County	Dona Ana	Dona Ana	Dona Ana
Formation		Qaf	Qps	Qaf
Rock Type		sand & gravel	silty sand & gravel	gravel
Source Rock (Gravel)		limestone		limestone
Quality of Material		very good	good	good
Thickness of Material		10' plus	7' plus	8'
Thickness of Cap (Caliche)				
Material Underlying Formation				
Vegetation		creosote	greasewood	creosote, mesquite
Local Terrain		flat	rolling	flat
Thickness of Overburden		0-1'	0-4'	
P. I. (Overburden)				
Estimated Quantity (cu. yds)		unlimited	unlimited	unlimited
Los Angeles Wear		20.0	17.5	26.4
Soundness Loss				
Average Maximum Size		6"	6"	4"
% Retained on 2" Sieve		40	20	30
Pit Average % Passing	Crushed to:	as received	as received	as received
	2"	89	86	63
	1"	70	73	41
	½"	51	51	27
	No. 4	36	31	17
	No. 10	28	23	13
	No. 200	5	4	2
Plasticity Index		N.P.	10	N.P.

Remarks:

Pit Number		
Location	Section	
	Township & Range	
	County	
Formation		
Rock Type		
Source Rock (Gravel)		
Quality of Material		
Thickness of Material		
Thickness of Cap (Caliche)		
Material Underlying Formation		
Vegetation		
Local Terrain		
Thickness of Overburden		
P. I. (Overburden)		
Estimated Quantity (cu. yds.)		
Los Angeles Wear		
Soundness Loss		
Average Maximum Size		
% Retained on 2" Sieve		
Pit Average % Passing	Crushed to:	
	2"	
	1"	
	½"	
	No. 4	
	No. 10	
	No. 200	
Plasticity Index		

Remarks:

EXPLANATION

QUAD No. 109

QUATERNARY

- Qal — Alluvium
- Qe — Eolian deposits
- Qb — Basalt
- Qp — Pediment deposits
- Qaf — Alluvial fan deposits
- Qps — Piedmont slope deposits
- Qab — Bolson deposits
- Qld — Lake deposits
- Qg — Gravel deposits
- Qbd — Beach deposits

QUATERNARY -TERTIARY

- QTb — Basalt
- QTgr — Quaternary-Tertiary gravels
- QTp — Pediment deposits
- QTg — Older gravel deposits

TERTIARY

- Twt — Welded tuff
- Tp — Tertiary Pyroclastic rocks
- Tb — Basalt
- Tv — Volcanic rocks undivided
- Ta — Andesite
- Tr — Older Rhyolite

CRET.

- K — Cretaceous rocks undivided
- Kv — Volcanics undivided
- Kb — Basalt
- Ki — Intrusives

PER.-PENN.

- PP — Permian-Pennsylvanian rocks undivided

MISS.-DEV.

- MD — Mississippian and Devonian undivided

ORD.-CAMB.

- O€ — Ordovician-Cambrian rocks undivided

PRECAMB.

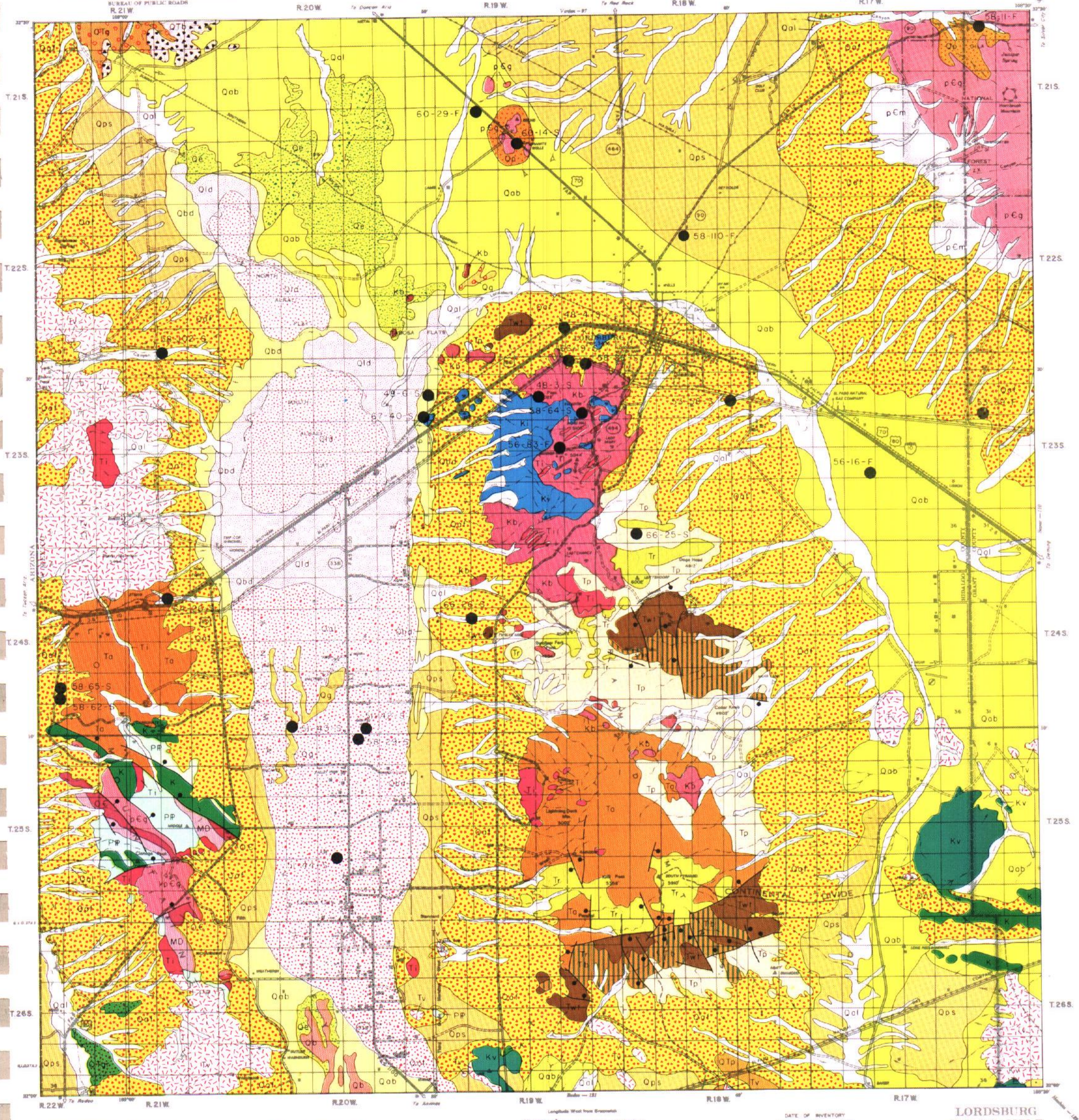
- p€g — Granite
- p€m — Metamorphic rocks undivided

- Established pit or quarry
- Prospect pit or quarry
- Fault — downthrown side
- Anticline
- Syncline

NEW MEXICO STATE HIGHWAY DEPARTMENT
PLANNING AND PROGRAMMING DIVISION
BUREAU OF PUBLIC ROADS

GEOLOGY and AGGREGATE RESOURCES

LORDSBURG QUADRANGLE - 109
GRANT & HIDALGO COUNTIES



Control by U.S. Coast and Geodetic Survey, U.S. Geological Survey, U.S. Forest Service, Bureau of Land Management and Planning Division—Modified Conic Projection Standard Parallel 33°1/2 North American Datum

DATE OF INVENTORY
GEOLOGY DEC 1979
AGGREGATE RESOURCES DEC 1979

DATE OF INVENTORY
GRANT COUNTY 1962
HIDALGO COUNTY 1962

LORDSBURG
QUADRANGLE
109

QUADRANGLE PAGE 109

CONSTRUCTION MATERIALS INVENTORY

MATERIAL PIT SUMMARY

Pit Number		4803	4804	4806	5143
Location	Section	11	36	7	33
	Township & Range	23S 19W	22S 19W	23S 19W	24S 20W
	County	Hidalgo	Hidalgo	Hidalgo	Hidalgo
Formation		Kb	Qaf	Qbd	Qal
Rock Type		basalt	gravel	gravel	sand & gravel
Source Rock (Gravel)		-	various	igneous & various	various
Quality of Material		fair	fair	good	fair
Thickness of Material		15'	5-10'	5-10'	5-10'
Thickness of Cap (Caliche)		-	-	-	-
Material Underlying Formation		shale	sandy soil	silt	silt
Vegetation		greasewood	greasewood	grass & yucca	mesquite
Local Terrain		hilly	hilly	flat	flat
Thickness of Overburden		0-4'	0-4'	0-2'	2-5'
P. I. (Overburden)		10 plus	6 plus	N.P.	10 plus
Estimated Quantity (cu. yds)		100,000 plus	50,000 plus	100,000 plus	100,000 plus
Los Angeles Wear		-	-	-	-
Soundness Loss		-	-	-	-
Average Maximum Size			2"	2"	1½"
% Retained on 2" Sieve			3	7	0
Pit Average % Passing	Crushed to:				
	2"				
	1"				
	½"				
	No. 4				
	No. 10				
	No. 200				
Plasticity Index					

Remarks:

Pit Number		5144	5339	5358	5616
Location	Section	22 & 27	7 & 18	11	SE 21
	Township & Range	25S 20W	23S 16W	23S 18W	23S 17W
	County	Hidalgo	Grant	Hidalgo	Hidalgo
Formation		Qal	Qaf	Qal	Qab
Rock Type		sand & gravel	sand	sand & gravel	sand
Source Rock (Gravel)		various	various	various	various
Quality of Material		good	good	good	good
Thickness of Material		5' plus	5-10'	10' plus	2-9'
Thickness of Cap (Caliche)		-	-	-	-
Material Underlying Formation		silt	sand	silt & sand	sand
Vegetation		grass	grass	grass & mesquite	grass
Local Terrain		flat	hilly	flat	flat
Thickness of Overburden		0-2'	0-2'	0-3'	0-2'
P. I. (Overburden)		6 plus	N.P.	6 plus	N.P.
Estimated Quantity (cu. yds.)		30,000 plus	20,000 plus	200,000	15,000 plus
Los Angeles Wear					
Soundness Loss					
Average Maximum Size		1"		2"	
% Retained on 2" Sieve		0		2	
Pit Average % Passing	Crushed to:				
	2"				
	1"				
	½"				
	No. 4				
	No. 10				
	No. 200				
Plasticity Index					

Remarks:

CONSTRUCTION MATERIALS INVENTORY

MATERIAL PIT SUMMARY

Pit Number		5683	5826	5829	5862
Location	Section	14 & 23	1	N.25	SE 30, SW 29
	Township & Range	23S 19W	23S 19W	25S 20W	24S 21W
	County	Hidalgo	Hidalgo	Hidalgo	Hidalgo
Formation		Qab	Kb	Qal	Qaf
Rock Type		sand	basalt	sand & gravel	sand & gravel
Source Rock (Gravel)		igneous & various	-	various	volcanic & limestone
Quality of Material		fair	good	fair	excellent
Thickness of Material		5' plus	10' plus	3-11'	12-14'
Thickness of Cap (Caliche)		-	-	-	0-2'
Material Underlying Formation		shale	shale	soil & silt	gravel
Vegetation		greasewood	greasewood	mesquite	greasewood
Local Terrain		hilly	hilly	flat	slope
Thickness of Overburden		0-2'	0-2'	2.5-5'	0
P. I. (Overburden)		N.P.	10 plus	10 plus	-
Estimated Quantity (cu. yds)		25,000 plus	300,000 plus	160,000 plus	150,000 plus
Los Angeles Wear				24.0	18.8
Soundness Loss				-	-
Average Maximum Size				1½"	2-4"
% Retained on 2" Sieve				0	11
Pit Average % Passing	Crushed to:			as received	as received
	2"			100	85
	1"			96	71
	½"			80	56
	No. 4			52	36
	No. 10			36	23
	No. 200			3	2
Plasticity Index				N.P.	N.P.
Remarks:					

Pit Number		5864	5865	58102	58110
Location	Section	SE12	S30	W34 & E35	NE 16
	Township & Range	23S 19W	24S 21W	22S 21W	22S 18W
	County	Hidalgo	Hidalgo	Hidalgo	Hidalgo
Formation		Kb	Qaf	Qal	Qps
Rock Type		basalt	sand & gravel	sand & gravel	sand
Source Rock (Gravel)		-	peloncillo fanglomerate	rhyolite & basalt	various
Quality of Material		fair	excellent	excellent	fair
Thickness of Material		12' plus	10-14'	15'	3-4.5'
Thickness of Cap (Caliche)		-	0-2'	-	-
Material Underlying Formation		shale	sand & gravel	sand & gravel	silty soil
Vegetation		greasewood	greasewood	mesquite & willow	grass & yucca
Local Terrain		hilly	slope	fan out-wash	hilly
Thickness of Overburden		0-2'	0	0-2'	0-2'
P. I. (Overburden)		10 plus	0	N.P.	N.P.
Estimated Quantity (cu. yds.)		100,000 plus	200,000	10,000 plus	60,000 plus
Los Angeles Wear			14.8		
Soundness Loss			5.9		
Average Maximum Size			3-4"	4"	No. 40 screen
% Retained on 2" Sieve			15	16	0
Pit Average % Passing	Crushed to:		as received		
	2"		82		
	1"		61		
	½"		44		
	No. 4		31		
	No. 10		25		
	No. 200		7		
Plasticity Index			4		
Remarks:					

EXPLANATION

QUAD No. 110

QUATERNARY

- Qal — Alluvium
- Qaf — Alluvial fan deposits
- Qps — Piedmont slope deposits
- Qab — Bolson deposits
- Qta — Quaternary Talus
- Qp — Pediment deposits
- Qip — Intermediate Pediment deposits
- Qoaf — Older alluvial fans

QUATERNARY -TERTIARY

- Qb — Basalt
- QTgr — Older gravel deposits
- QTg — Older gravel deposits
- QTb — Basalt

TERTIARY

- Tag — Agglomerate
- Ta — Abiquiu Tuff
- Tr — Older Rhyolite
- Trp — Tertiary, Rubio Peak Formation

- Tv — Volcanic rocks undivided
- Ti — Intrusive rocks undivided

CRET.

- K — Cretaceous undifferentiated
- Kv — Volcanics undivided

PENN.

- PP — Pennsylvanian rock undivided

PENN.-MISS.

- PPM — Pennsylvanian, Mississippian rocks undivided

MISS.

- M — Mississippian undivided

SIL.-ORD. -CAMB.

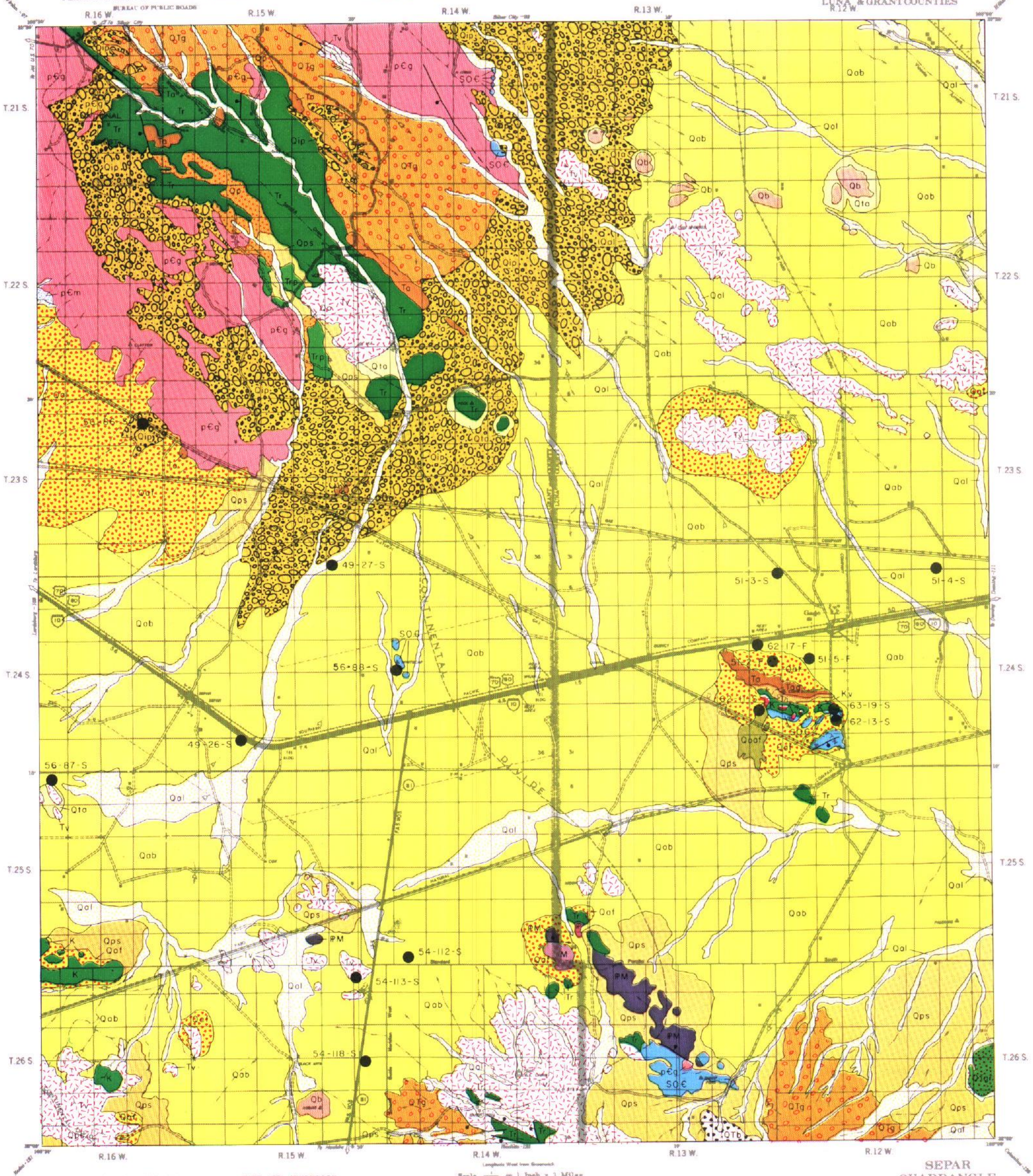
- SOC — Devonian, Ordivician and Cambrian undivided

PRECAMB.

- pCm — Metamorphic rocks undivided
- pCg — Granite

- Established pit or quarry
- Prospect pit or quarry
- Fault — downthrown side
- Anticline
- Syncline

GEOLOGY and AGGREGATE RESOURCES



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DATE OF INVENTORY
GEOLOGY SEPT 1979
AGGREGATE RESOURCES SEPT 1979

Scale or 1 Inch = 3 Miles

QUADRANGLE PAGE 110

CONSTRUCTION MATERIALS INVENTORY

MATERIAL PIT SUMMARY

Pit Number		4926	4927	5102	5103
Location	Section	33	36	18	6
	Township & Range	24S 15W	23S 15W	24S 12W	24S 12W
	County	Grant	Grant	Luna	Luna
Formation		Qab	Qal	Qaf	Qab
Rock Type		sand & gravel	sand & gravel	sand	sand & gravel
Source Rock (Gravel)		various	various	-	various
Quality of Material		fair	good	good	fair
Thickness of Material		5-10'	10' plus	6'	5-10'
Thickness of Cap (Caliche)		-	-	-	-
Material Underlying Formation		silty soil	sandy soil	silt & sand	silt
Vegetation		grass	grass	sage & yucca	yucca
Local Terrain		flat	hilly	flat	flat
Thickness of Overburden		0-2'	0-5'	0-2'	0-4'
P. I. (Overburden)		N.P.		N.P.	N.P. to 10
Estimated Quantity (cu. yds)		25,000	100,000 plus	30,000	50,000 plus
Los Angeles Wear					
Soundness Loss					
Average Maximum Size		2"	3"		1½"
% Retained on 2" Sieve		6	10		0
Pit Average % Passing	Crushed to: 2"				
	1"				
	½"				
	No. 4				
	No. 10				
	No. 200				
Plasticity Index					

Remarks:

Pit Number		5104	5105	54112	54113
Location	Section	1 & 12	17	SW 32	SW 1 SE 2
	Township & Range	24S 12W	24S 12W	25S 14W	26S 15W
	County	Luna	Luna	Grant	Grant
Formation		Qab	Qab	Qab	TV
Rock Type		sand & gravel	sand	soil & rock	rhyolite
Source Rock (Gravel)		various	-	various	-
Quality of Material		good	fair	good	fair
Thickness of Material		5-10'	5' plus	9-14'	12' plus
Thickness of Cap (Caliche)		-	-	-	-
Material Underlying Formation		silty sand	silty sand	clay sand soil rock	shale
Vegetation		grass	grass & yucca	grass	grass
Local Terrain		flat	flat	slope	hill
Thickness of Overburden		0-2'	0-2'	1-13'	-
P. I. (Overburden)		N.P. to 10	N.P.	-	-
Estimated Quantity (cu. yds.)		75,000	50,000 plus	15,000 plus	30,000
Los Angeles Wear				27.6	
Soundness Loss					
Average Maximum Size		1½"		2"	
% Retained on 2" Sieve		0		10	
Pit Average % Passing	Crushed to: 2"			1"	
	1"			-	
	½"			100	
	No. 4			84	
	No. 10			51	
	No. 200			35	
Plasticity Index				6	
				N.P.	

Remarks:

CONSTRUCTION MATERIALS INVENTORY

MATERIAL PIT SUMMARY

Pit Number		54118	5686	5687	5688
Location	Section	NW 24	NW 12	4	SW 17
	Township & Range	26S 15W	23S 16W	25S 16W	24S 14W
	County	Grant	Grant	Grant	Grant
Formation		Qab	Qip	TV	SOG
Rock Type		sandy soil & rock	soil & gravel	volcanics	dolomite
Source Rock (Gravel)		various	various	-	Montoya Dolomite
Quality of Material		fair	good	good	good
Thickness of Material		10-14'	10' plus	20'	2-16'
Thickness of Cap (Caliche)		-	-	-	-
Material Underlying Formation		clay soil & gravel	shale & gravel	rock	limestone
Vegetation		grass	yucca	grass & cacti	grass
Local Terrain		hilly	hill	hilly	hill
Thickness of Overburden		1-4'	0-2'	-	0-1'
P. I. (Overburden)		6 plus	N.P.	-	-
Estimated Quantity (cu. yds)		60,000 plus	200,000 plus	200,000 plus	40,000 plus
Los Angeles Wear		26.0		28.0	23.6
Soundness Loss					
Average Maximum Size		2"	4"		
% Retained on 2" Sieve		5	11		
Pit Average % Passing	Crushed to:	1"		2"	2"
	2"	-			
	1"	100		44	40
	½"	83		18	18
	No. 4	49		8	7
	No. 10	33		5	3
	No. 200	26		1	0
Plasticity Index		N.P.		N.P.	N.P.
Remarks:					

Pit Number		6211	6213	6217	6319
Location	Section	30	N 28	18	28
	Township & Range	24S 12W	24S 12W	24S 12W	24S 12W
	County	Luna	Luna	Luna	Luna
Formation		Qoaf	SOG	Qab	SOG
Rock Type		gravel	limestone	sand	limestone
Source Rock (Gravel)		limestone & various	El Paso limestone	-	El Paso limestone
Quality of Material		good	excellent	fair	excellent
Thickness of Material		10-15'	200' plus	5' plus	50-100'
Thickness of Cap (Caliche)		-	-	-	-
Material Underlying Formation		shale & sand	shale	silty sand	shale
Vegetation		grass	grass	grass & yucca	grass
Local Terrain		slope	hilly	flat	hilly
Thickness of Overburden		0-4'	-	0-2'	0
P. I. (Overburden)		-	-	N.P.	-
Estimated Quantity (cu. yds.)		200,000 plus	150,000 plus	25,000 plus	100,000 plus
Los Angeles Wear			12.2		
Soundness Loss			2.0		
Average Maximum Size		6"	-		
% Retained on 2" Sieve		16	-		
Pit Average % Passing	Crushed to:		3/4"		
	2"		-		
	1"		100		
	½"		92		
	No. 4		43		
	No. 10		23		
	No. 200		6		
Plasticity Index			N.P.		
Remarks:					

EXPLANATION

QUAD No. 111

QUATERNARY

- Qal — Alluvium
- Qoa — Older Alluvium
- Qt — Terrace deposits
- Qe — Eolian deposits
- Qg — Gravel deposits
- Qab — Bolson deposits
- Qps — Piedmont slope deposits
- Qaf — Alluvial fan deposits
- Qp — Pediment deposits
- Qop — Older Pediment deposits
- Qiaf — Intermediate Alluvial fan
- Qoaf — Older Alluvial fans
- Qpc — Pediment deposits

QUATERNARY -TERTIARY

- Qb — Basalt
- QTgr — Older gravel deposits
- Tfg — Fanglomerate
- Ti — Intrusive rocks undivided

TERTIARY

- Tag — Agglomerate
- Tv — Volcanic rocks undivided
- Ta — Abiquiu Tuff
- Tlo — Lobo Formation

CRET.

- K — Cretaceous undifferentiated
- Ks — Sarten sandstone

PERMIAN

- Pa — Abo Formation

PENN.

- ℙ — Pennsylvanian rock undivided

MISS.-DEV.-SIR.-ORD.-CAMB.

- MDSO€ — Miss., Dev., Sil., Ord. and Camb. undivided

SILURIAN

- Sf — Fusselman Dolomite

SIL.-ORD.

- SO — Silurian and Ordivician undivided

ORD.

- O — Ordivician rocks

ORD.-CAMB.

- O€ — Ordivician and Cambrian rocks undivided

PRECAMB.

- p€u — Diamictite, igneous, metamorphic and sedimentary boulders
- p€ — Precambrian undivided

- Established pit or quarry
- Prospect pit or quarry
- Fault — downthrown side
- Anticline
- Syncline

NEW MEXICO STATE HIGHWAY DEPARTMENT

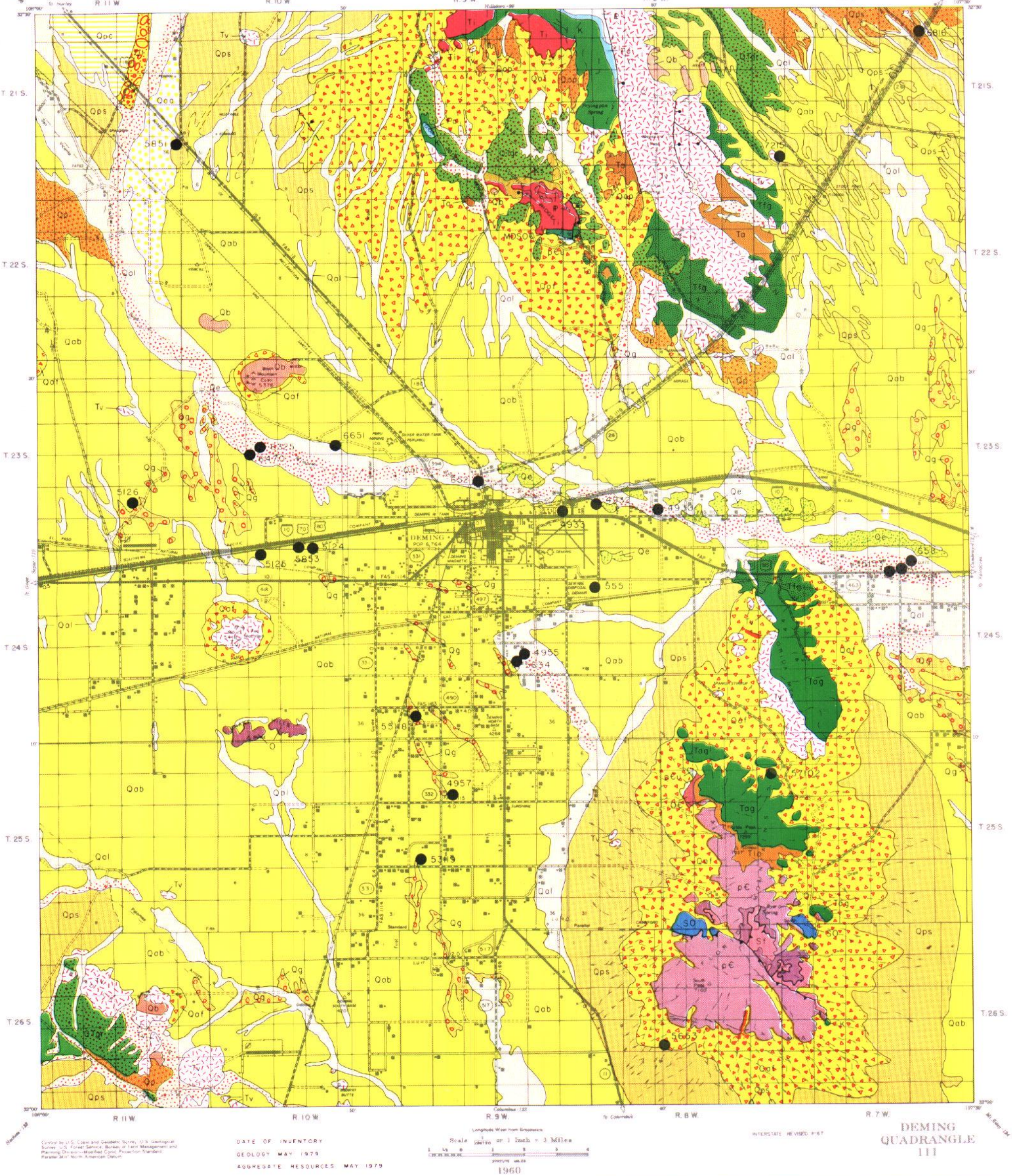
PLANNING AND PROGRAMMING DIVISION

BUREAU OF PUBLIC ROADS

GEOLOGY and AGGREGATE RESOURCES

DEMING QUADRANGLE-111

LUNA COUNTY



QUADRANGLE PAGE 111

CONSTRUCTION MATERIALS INVENTORY

MATERIAL PIT SUMMARY

Pit Number		4930	4932	4933	4955 & 5634
Location	Section	Sec. 28	Sec. 30	Sec. 25	Sec. 23
	Township & Range	23S 8W	23S 8W	23S 9W	24S 9W
	County	Luna	Luna	Luna	Luna
Formation		Qal	Qal	Qab	Qal
Rock Type		sand & fine gravel	sand & gravel	sand & gravel	sand & gravel
Source Rock (Gravel)		various	various	various	various
Quality of Material		good	fair.	fair	good
Thickness of Material		15' plus	10' plus.	10' plus	15' plus
Thickness of Cap (Caliche)		-	-	-	-
Material Underlying Formation		-	-	-	silt, sand, gravel
Vegetation		brush	greasewood	greasewood	brush
Local Terrain		relatively flat	flat	flat	flat
Thickness of Overburden		0-5'	3-6'	3-10'	0-5'
P. I. (Overburden)		SNP	N.P.	N.P.	-
Estimated Quantity (cu. yds)		Unlimited	100,000 plus	150,000 plus	Unlimited
Los Angeles Wear		-	-	-	-
Soundness Loss		-	-	-	-
Average Maximum Size		3"	1"	2"	3"
% Retained on 2" Sieve		-	3	6	7
Pit Average % Passing	Crushed to:	-	-	-	-
	2"	-	-	-	-
	1"	-	-	-	-
	½"	-	-	-	-
	No. 4	-	-	-	-
	No. 10	-	-	-	-
	No. 200	-	-	-	-
Plasticity Index		-	-	-	-

Remarks:

Pit Number		4957	5124	5125	5126
Location	Section	SW¼ Sec. 9	Sec. 34	Sec. 4	Sec. 26
	Township & Range	25S 9W	23S 10W	24S 10W	23S 11W
	County	Luna	Luna	Luna	Luna
Formation		Qg	Qab	Qab	Qg
Rock Type		gravel	sand and gravel	sand	clay, silt, sand & gravel
Source Rock (Gravel)		various	various	-	various
Quality of Material		good	fair	good	poor
Thickness of Material		5' plus	15' plus	8'	5-10'
Thickness of Cap (Caliche)		-	-	-	-
Material Underlying Formation		sand & silt	sand & silt	silt	silt
Vegetation		mesquite	greasewood	greasewood	greasewood
Local Terrain		flat	flat	flat	flat
Thickness of Overburden		0-3'	8-10'	0-3'	2-6'
P. I. (Overburden)		N.P.	-	N.P.	-
Estimated Quantity (cu. yds.)		50,000 plus	200,000 plus	50,000 plus	100,000 plus
Los Angeles Wear		-	20.0	-	-
Soundness Loss		-	-	-	-
Average Maximum Size		2"	3"	-	-
% Retained on 2" Sieve		6	9	-	-
Pit Average % Passing	Crushed to:	-	as received	-	-
	2"	-	86	-	-
	1"	-	71	-	-
	½"	-	59	-	-
	No. 4	-	43	-	-
	No. 10	-	31	-	-
	No. 200	-	3	-	-
Plasticity Index		-	N.P.	-	-

Remarks:

EXPLANATION

QUAD No. 112

QUATERNARY

- Qal — Alluvium
- Qfp — Floodplain deposits
- Qg — Gravel deposits
- Qps — Piedmont slope deposits
- Qaf — Alluvial fan deposits
- Qab — Bolson deposits
- Qe — Eolian deposits
- Qpc — Pediment deposits
- Qpcg — Pediment deposits
- Qb — Basalt

QUATERNARY -TERTIARY

- QTsf — Santa Fe Formation
- QTb — Basalt

TERTIARY

- Tb — Basalt
- Tv — Volcanic rocks undivided
- Ta — Older Andesite

- Established pit or quarry
- Prospect pit or quarry
- Fault — downthrown side
- Anticline
- Syncline

NEW MEXICO STATE HIGHWAY DEPARTMENT

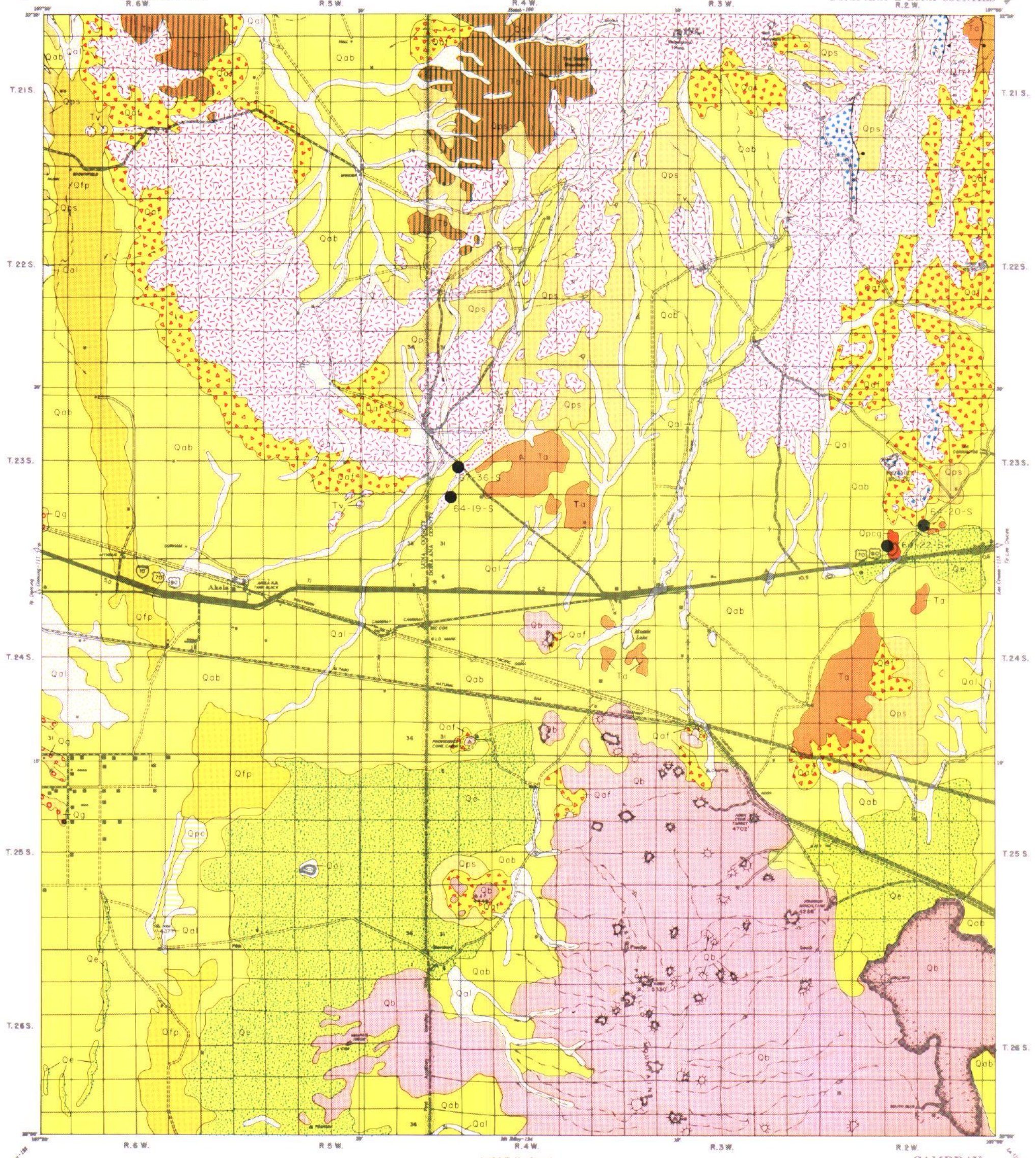
PLANNING AND PROGRAMMING DIVISION

BUREAU OF PUBLIC ROADS

GEOLOGY and AGGREGATE RESOURCES

CAMBRAY QUADRANGLE-112

DOÑA ANA & LUNA COUNTIES



Control by U.S. Coast and Geodetic Survey; U.S. Geological Survey; U.S. Forest Service; Bureau of Land Management and Planning Division—Modified Conic Projection Standard Parallel 34th° North Azimuthal Datum

DATE OF INVENTORY

GEOLOGY MAY 1979

AGGREGATE RESOURCES MAY 1979

Longitude West from Greenwich

Scale 1/250,000 or 1 Inch = 3 Miles

CAMBRAY QUADRANGLE 112

CONSTRUCTION MATERIALS INVENTORY

MATERIAL PIT SUMMARY

Pit Number		5205	6419	6420	6422
Location	Section	Section 32	SE¼ Sec. 19	N½ S. 27 & S½ S. 22	E½ SW¼ S. 33
	Township & Range	23S 2W	23S 4W	23S 2W	23S 2W
	County	Dona Ana	Dona Ana	Dona Ana	Dona Ana
Formation		Qpcg	Qal	Ta	Qpcg
Rock Type		caliche-capped sand & gravel	gravel	andesite	caliche-capped sand & gravel
Source Rock (Gravel)		basalt & various	igneous	-	igneous
Quality of Material		good	fair	good	good
Thickness of Material		8'	4-10'	10' plus	11-25'
Thickness of Cap (Caliche)		0-1'	-	-	0-2'
Material Underlying Formation		sand	sand	igneous	caliche & sand
Vegetation		greasewood	greasewood	greasewood	greasewood
Local Terrain		rolling to flat	flat	hilly	rolling
Thickness of Overburden		0-2'	1-8'	-	0-1.6
P. I. (Overburden)		N.P.	-	-	-
Estimated Quantity (cu. yds)		100,000 plus	300,000 plus	75,000 plus	300,000 plus
Los Angeles Wear		-	22.8	-	Cal Cap: 26.4 21.2
Soundness Loss		-	2.3	-	Cal Cap: 27.0 4.8
Average Maximum Size		5"	6"	-	5"
% Retained on 2" Sieve		15	11	-	20
Pit Average % Passing	Crushed to:	-	as received	-	as received
	2"	-	72	-	68
	1"	-	58	-	49
	½"	-	49	-	32
	No. 4	-	42	-	13
	No. 10	-	36	-	7
	No. 200	-	3	-	2
Plasticity Index		-	N.P.	-	15
Remarks:		5205: Basaltic boulders, cobbles & pebbles in a matrix of soft caliche, capped by caliche.	6419: Poorly sorted material consisting of boulders to pebbles, sand, silt & clay, primarily andesite.		6422: Basaltic boulders, cobbles, and pebbles in a matrix of soft caliche, capped by 8-10' of caliche.

Pit Number		6736
Location	Section	NW 20 & NE 19
	Township & Range	23S 4W
	County	Dona Ana
Formation		Qal
Rock Type		sand & gravel
Source Rock (Gravel)		volcanic
Quality of Material		good
Thickness of Material		5-11'
Thickness of Cap (Caliche)		-
Material Underlying Formation		silt, sand & gravel
Vegetation		greasewood
Local Terrain		hilly
Thickness of Overburden		2-7'
P. I. (Overburden)		N.P.
Estimated Quantity (cu. yds.)		200,000 plus
Los Angeles Wear		24.8
Soundness Loss		7.8
Average Maximum Size		6"
% Retained on 2" Sieve		13
Pit Average % Passing	Crushed to:	as received
	2"	70
	1"	55
	½"	45
	No. 4	32
	No. 10	25
	No. 200	8
Plasticity Index		N.P.
Remarks:		

CONSTRUCTION MATERIALS INVENTORY

QUADRANGLE PAGE _____

MATERIAL PIT SUMMARY

Pit Number		
Location	Section	
	Township & Range	
	County	
Formation		
Rock Type		
Source Rock (Gravel)		
Quality of Material		
Thickness of Material		
Thickness of Cap (Caliche)		
Material Underlying Formation		
Vegetation		
Local Terrain		
Thickness of Overburden		
P. I. (Overburden)		
Estimated Quantity (cu. yds)		
Los Angeles Wear		
Soundness Loss		
Average Maximum Size		
% Retained on 2" Sieve		
Pit Average % Passing	Crushed to:	
	2"	
	1"	
	½"	
	No. 4	
	No. 10	
	No. 200	
Plasticity Index		
Remarks:		

Pit Number		
Location	Section	
	Township & Range	
	County	
Formation		
Rock Type		
Source Rock (Gravel)		
Quality of Material		
Thickness of Material		
Thickness of Cap (Caliche)		
Material Underlying Formation		
Vegetation		
Local Terrain		
Thickness of Overburden		
P. I. (Overburden)		
Estimated Quantity (cu. yds.)		
Los Angeles Wear		
Soundness Loss		
Average Maximum Size		
% Retained on 2" Sieve		
Pit Average % Passing	Crushed to:	
	2"	
	1"	
	½"	
	No. 4	
	No. 10	
	No. 200	
Plasticity Index		
Remarks:		

EXPLANATION

QUAD No. 113

QUATERNARY

- Qal — Alluvium
- Qe — Eolian deposits
- Qaa — Alluvial Aprons
- Qfp — Floodplain deposits
- Qab — Bolson deposits
- Qta — Quaternary Talus
- Qaf — Alluvial fan deposits
- Qps — Piedmont slope deposits
- Qp — Pediment deposits
- Qt_1 — Terrace deposits
- Qt_3 — Terrace deposits
- Qb — Basalt

QUATERNARY -TERTIARY

- QTsf — Santa Fe Formation

TERTIARY

- Tv — Volcanic rocks undivided
- Ta — Older Andesite
- Ti — Intrusive rocks undivided
- Tr — Older Rhyolite
- Tlr — Love Ranch Formation

PERMIAN

- Pa — Abo Formation
- Ph — Hueco limestone

PENN.

- PP — Pennsylvanian rock undivided

MISS.-DEV.-SIR. -ORD.-CAMB.

- MDSO€ — Miss., Dev., Sil., Ord. and Camb. undivided

PRECAMB.

- p€ — Precambrian undivided

- Established pit or quarry
- Prospect pit or quarry
- Fault — downthrown side
- Anticline
- Syncline

NEW MEXICO STATE HIGHWAY DEPARTMENT
PLANNING AND PROGRAMMING DIVISION
BUREAU OF PUBLIC ROADS

GEOLOGY and AGGREGATE RESOURCES

LAS CRUCES QUADRANGLE—113

DOÑA ANA COUNTY

R.1 W. R.1 E. R.2 E. R.3 E. R.4 E.

T.21 S. T.22 S. T.23 S. T.24 S. T.25 S. T.26 S.

Qal Qae Qaf Qaa Qab Qbo Qbl Qbm Qbu Qbs Qbb Qbc Qbd Qbe Qbf Qbg Qbh Qbi Qbj Qbk Qbl Qbm Qbn Qbo Qbp Qbq Qbr Qbs Qbt Qbu Qbv Qbw Qbx Qby Qbz Qca Qcb Qcc Qcd Qce Qcf Qcg Qch Qci Qcj Qck Qcl Qcm Qcn Qco Qcp Qcq Qcr Qcs Qct Qcu Qcv Qcw Qcx Qcy Qcz Qda Qdb Qdc Qdd Qde Qdf Qdg Qdh Qdi Qdj Qdk Qdl Qdm Qdn Qdo Qdp Qdq Qdr Qds Qdt Qdu Qdv Qdw Qdx Qdy Qdz Qea Qeb Qec Qed Qee Qef Qeg Qeh Qei Qej Qek Qel Qem Qen Qeo Qep Qeq Qer Qes Qet Qeu Qev Qew Qex Qey Qez Qfa Qfb Qfc Qfd Qfe Qff Qfg Qfh Qfi Qfj Qfk Qfl Qfm Qfn Qfo Qfp Qfq Qfr Qfs Qft Qfu Qfv Qfw Qfx Qfy Qfz Qga Qgb Qgc Qgd Qge Qgf Qgg Qgh Qgi Qgj Qgk Qgl Qgm Qgn Qgo Qgp Qgq Qgr Qgs Qgt Qgu Qgv Qgw Qgx Qgy Qgz Qha Qhb Qhc Qhd Qhe Qhf Qhg Qhh Qhi Qhj Qhk Qhl Qhm Qhn Qho Qhp Qhq Qhr Qhs Qht Qhu Qhv Qhw Qhx Qhy Qhz Qia Qib Qic Qid Qie Qif Qig Qih Qii Qij Qik Qil Qim Qin Qio Qip Qiq Qir Qis Qit Qiu Qiv Qiw Qix Qiy Qiz Qja Qjb Qjc Qjd Qje Qjf Qjg Qjh Qji Qjj Qjk Qjl Qjm Qjn Qjo Qjp Qjq Qjr Qjs Qjt Qju Qjv Qjw Qjx Qjy Qjz Qka Qkb Qkc Qkd Qke Qkf Qkg Qkh Qki Qkj Qkk Qkl Qkm Qkn Qko Qkp Qkq Qkr Qks Qkt Qku Qkv Qkw Qkx Qky Qkz Qla Qlb Qlc Qld Qle Qlf Qlg Qlh Qli Qlj Qlk Qll Qlm Qln Qlo Qlp Qlq Qlr Qls Qlt Qlu Qlv Qlw Qlx Qly Qlz Qma Qmb Qmc Qmd Qme Qmf Qmg Qmh Qmi Qmj Qmk Qml Qmm Qmn Qmo Qmp Qmq Qmr Qms Qmt Qmu Qmv Qmw Qmx Qmy Qmz Qna Qnb Qnc Qnd Qne Qnf Qng Qnh Qni Qnj Qnk Qnl Qnm Qnn Qno Qnp Qnq Qnr Qns Qnt Qnu Qnv Qnw Qnx Qny Qnz Qoa Qob Qoc Qod Qoe Qof Qog Qoh Qoi Qoj Qok Qol Qom Qon Qoo Qop Qoq Qor Qos Qot Qou Qov Qow Qox Qoy Qoz Qpa Qpb Qpc Qpd Qpe Qpf Qpg Qph Qpi Qpj Qpk Qpl Qpm Qpn Qpo Qpp Qpq Qpr Qps Qpt Qpu Qpv Qpw Qpx Qpy Qpz Qqa Qqb Qqc Qqd Qqe Qqf Qqg Qqh Qqi Qqj Qqk Qql Qqm Qqn Qqo Qqp Qqq Qqr Qqs Qqt Qqu Qqv Qqw Qqx Qqy Qqz Qra Qrb Qrc Qrd Qre Qrf Qrg Qrh Qri Qrj Qrk Qrl Qrm Qrn Qro Qrp Qrq Qrr Qrs Qrt Qru Qrv Qrw Qrx Qry Qrz Qsa Qsb Qsc Qsd Qse Qsf Qsg Qsh Qsi Qsj Qsk Qsl Qsm Qsn Qso Qsp Qsq Qsr Qss Qst Qsu Qsv Qsw Qsx Qsy Qsz Qta Qtb Qtc Qtd Qte Qtf Qtg Qth Qti Qtj Qtk Qtl Qtm Qtn Qto Qtp Qtq Qtr Qts Qtt Qtu Qtv Qtw Qtx Qty Qtz Qua Qub Quc Qud Que Quf Qug Quh Qui Quj Quk Qul Qum Qun Quo Qup Quq Qur Qus Qut Quu Quv Quw Qux Quy Quz Qva Qvb Qvc Qvd Qve Qvf Qvg Qvh Qvi Qvj Qvk Qvl Qvm Qvn Qvo Qvp Qvq Qvr Qvs Qvt Qvu Qvv Qvw Qvx Qvy Qvz Qwa Qwb Qwc Qwd Qwe Qwf Qwg Qwh Qwi Qwj Qwk Qwl Qwm Qwn Qwo Qwp Qwq Qwr Qws Qwt Qwu Qwv Qww Qwx Qwy Qwz Qxa Qxb Qxc Qxd Qxe Qxf Qxg Qxh Qxi Qxj Qxk Qxl Qxm Qxn Qxo Qxp Qxq Qxr Qxs Qxt Qxu Qxv Qxw Qxx Qxy Qxz Qya Qyb Qyc Qyd Qye Qyf Qyg Qyh Qyi Qyj Qyk Qyl Qym Qyn Qyo Qyp Qyq Qyr Qys Qyt Qyu Qyv Qyw Qyx Qyy Qyz Qza Qzb Qzc Qzd Qze Qzf Qzg Qzh Qzi Qzj Qzk Qzl Qzm Qzn Qzo Qzp Qzq Qzr Qzs Qzt Qzu Qzv Qzw Qzx Qzy Qzz

Ph To Tr Tl Tlr Ti Tf Tb Ta Tu Tv Tw Tx Ty Tz Ra Rb Rc Rd Re Rf Rg Rh Ri Rj Rk Rl Rm Rn Ro Rp Rq Rr Rs Rt Ru Rv Rw Rx Ry Rz Sa Sb Sc Sd Se Sf Sg Sh Si Sj Sk Sl Sm Sn So Sp Sq Sr Ss St Su Sv Sw Sx Sy Sz Ta Tb Tc Td Te Tf Tg Th Ti Tj Tk Tl Tm Tn To Tp Tq Tr Ts Tt Tu Tv Tw Tx Ty Tz Ua Ub Uc Ud Ue Uf Ug Uh Ui Uj Uk Ul Um Un Uo Up Uq Ur Us Ut Uu Uv Uw Ux Uy Uz Va Vb Vc Vd Ve Vf Vg Vh Vi Vj Vk Vl Vm Vn Vo Vp Vq Vr Vs Vt Vu Vv Vw Vx Vy Vz Wa Wb Wc Wd We Wf Wg Wh Wi Wj Wk Wl Wm Wn Wo Wp Wq Wr Ws Wt Wu Wv Ww Wx Wy Wz Xa Xb Xc Xd Xe Xf Xg Xh Xi Xj Xk Xl Xm Xn Xo Xp Xq Xr Xs Xt Xu Xv Xw Xx Xy Xz Ya Yb Yc Yd Ye Yf Yg Yh Yi Yj Yk Yl Ym Yn Yo Yp Yq Yr Ys Yt Yu Yv Yw Yx Yy Yz Za Zb Zc Zd Ze Zf Zg Zh Zi Zj Zk Zl Zm Zn Zo Zp Zq Zr Zs Zt Zu Zv Zw Zx Zy Zz

P€ WHITE SANDS MISSILE RANGE MILITARY RESERVATION FORT BLISS MDSO

Jornada Range Reserve Butterfield Park Hacienda Acres Mesquite Vado Berino Chamberino Anthony La Union Las Cruces University Park Mesilla Picacho Old Picacho Old Mesilla Old Mesilla Plaza Old Mesilla Hall Old Mesilla Jail Old Mesilla Guard House Old Mesilla Church Old Mesilla Plaza Old Mesilla Hall Old Mesilla Jail Old Mesilla Guard House Old Mesilla Church

Lava Flow Qb Lava Butte Lava Mesa Lava Mesa South Mesa

Centered by U.S. Coast and Geodetic Survey; U.S. Geological Survey; U.S. Forest Service; Bureau of Land Management and Planning Division—Modified Conic Projection Standard Parallel (SW) North American Datum

DATE OF INVENTORY
GEOLOGY MAY 1979
AGGREGATE RESOURCES MAY 1979

Longitude West from Greenwich
Scale 1/126720 or 1 inch = 2 Miles
1 0 1 2 3 4
KILOMETRE MILES

1967

LAS CRUCES QUADRANGLE 113

QUADRANGLE PAGE 113

CONSTRUCTION MATERIALS INVENTORY

MATERIAL PIT SUMMARY

Pit Number	5206	5269	5407	5411
Location: Section	Section 20	Section 31	SE¼ Sec. 29	S. 22
Location: Township & Range	23S 1E	26S 4E	22S 1E	23S 2E
Location: County	Dona Ana	Dona Ana	Dona Ana	Dona Ana
Formation	Qt sf	Qal	Qal	Qal
Rock Type	sand and gravel	sand and gravel	sand and gravel	sand and gravel
Source Rock (Gravel)	various	various	various	various
Quality of Material				
Thickness of Material			4-8'	
Thickness of Cap (Caliche)				
Material Underlying Formation			conglomerate	
Vegetation				mesquite
Local Terrain				creek bed
Thickness of Overburden			0	
P. I. (Overburden)				
Estimated Quantity (cu. yds)			25,000 plus	30,000 plus
Los Angeles Wear			22.0	
Soundness Loss				
Average Maximum Size				
% Retained on 2" Sieve				
Pit Average % Passing: Crushed to:				
2"				
1"				
½"			79	
No. 4			44	
No. 10			27	
No. 200			5	
Plasticity Index			9	
Remarks:		5269: Rest area constructed on this pit site.		5407: Zoned area and houses constructed on this site.

Pit Number	5412	5439	5440	5458
Location: Section	Univ. Pk. not sectnlzd	NW¼ of NE¼ S. 10	SW¼ S. 19	SW¼ S. 30
Location: Township & Range	23S 2E	26S 3E	26S 4E	24S 3E
Location: County	Dona Ana	Dona Ana	Dona Ana	Dona Ana
Formation	Qal	Qaa	Qal	Qtsf
Rock Type	sand and gravel	sand and gravel	sand and gravel	sand and gravel
Source Rock (Gravel)	various	various	limestone	various
Quality of Material				good
Thickness of Material		11-2 4'	1-28'	1-20'
Thickness of Cap (Caliche)				
Material Underlying Formation		sand and gravel	sand and limestone	
Vegetation			greasewood	brush
Local Terrain			arroyo	gravel ridge
Thickness of Overburden		0	0-4.4	
P. I. (Overburden)				
Estimated Quantity (cu. yds.)		30,000 plus	50,000 plus	100,000 plus
Los Angeles Wear		18.4	21.6	
Soundness Loss				
Average Maximum Size				
% Retained on 2" Sieve				
Pit Average % Passing: Crushed to:		3/4"	3/4"	
2"				
1"		81	87	
½"		58	64	
No. 4		50	55	
No. 10		16	4	
No. 200		N.P.	N.P.	
Plasticity Index				
Remarks:				

QUADRANGLE PAGE 113

CONSTRUCTION MATERIALS INVENTORY

MATERIAL PIT SUMMARY

Pit Number		5459	5462	5496	5498
Location	Section	Not Sectionized	SE¼ Sec. 30	Not Sectionized	Not Sectionized
	Township & Range	24S 2E	21S 1E	24S 12E	2E 23S
	County	Dona Ana	Dona Ana	Dona Ana	Dona Ana
Formation		Qaa	Qal	Qal	Santa Fe fm.
Rock Type		sand and gravel	sand and gravel	sand and gravel	sand and gravel
Source Rock (Gravel)		various	various	various	various
Quality of Material					
Thickness of Material			8-21.9'	5-12'	
Thickness of Cap (Caliche)					
Material Underlying Formation			fine sand	sand and gravel	
Vegetation					
Local Terrain					
Thickness of Overburden			0	1-4'	
P. I. (Overburden)					
Estimated Quantity (cu. yds)		80,000 plus	30,000	100,000 plus	
Los Angeles Wear		18.0	16.8	19.6	
Soundness Loss					
Average Maximum Size					
% Retained on 2" Sieve					
Pit Average % Passing	Crushed to:			3/4"	
	2"				
	1"				
	½"		72	92	
	No. 4		37	62	
	No. 10		26	43	
	No. 200		2	5	
Plasticity Index			N.P.	N.P.	
Remarks:					

Pit Number		54117	5524	5528	5555
Location	Section	NE½ Sec. 20	Section 16	Not Sectionized	NE 16
	Township & Range	23S 1E	25S 3E	25S 3E	25S 3E
	County	Dona Ana	Dona Ana	Dona Ana	Dona Ana
Formation		Qtsf	Qta	Ta	Ia
Rock Type		sand	broken rock & soil	gravel	rock quarry
Source Rock (Gravel)		various	andesite	andesite	andesite
Quality of Material					
Thickness of Material		5-9'	2.5-10'	50 plus	
Thickness of Cap (Caliche)					
Material Underlying Formation			silt and clay		
Vegetation					greasewood
Local Terrain			hill	hill	hill
Thickness of Overburden		0	0-5'		
P. I. (Overburden)					
Estimated Quantity (cu. yds.)		100,000 plus	unlimited	unlimited	75,000
Los Angeles Wear			30.0		21.6
Soundness Loss					.6
Average Maximum Size					
% Retained on 2" Sieve					
Pit Average % Passing	Crushed to:		3/4"		2"
	2"				100
	1"				63
	½"		83		23
	No. 4		47		10
	No. 10		31		6
	No. 200		12		2
Plasticity Index			9		N.P.
Remarks:					

QUADRANGLE PAGE 113

CONSTRUCTION MATERIALS INVENTORY

MATERIAL PIT SUMMARY

Pit Number		5575	5576	55124	569
Location	Section	SW¼ Sec. 28	NE¼ Sec. 17	SW¼ NE¼ S. 17	N½ NE¼ Sec. 26
	Township & Range	22S 2E	22S 2E	22S 2E	21S 3E
	County	Dona Ana	Dona Ana	Dona Ana	Dona Ana
Formation		Santa Fe fm.	Qta	Qal	Qaf
Rock Type		sand and gravel	conglomerate & rock	sand	sand and gravel
Source Rock (Gravel)		various	rhyolite	various	various
Quality of Material					
Thickness of Material		5-10'	7-30'	2-8'	3-13'
Thickness of Cap (Caliche)		sand and gravel			
Material Underlying Formation					
Vegetation					
Local Terrain					
Thickness of Overburden		1-3'	1-8'		1-6'
P. I. (Overburden)					
Estimated Quantity (cu. yds)		100,000	100,000	5,000	
Los Angeles Wear		24.0	20.		21.2
Soundness Loss					
Average Maximum Size					
% Retained on 2" Sieve					
Pit Average % Passing	Crushed to:	3/4"	3/4"		as received
	2"				84
	1"				74
	½"	85	94		64
	No. 4	59	38		53
	No. 10	46	22		47
	No. 200	2	8		20
Plasticity Index		N.P.	8		10
Remarks:					

Pit Number		5619	5622	5707	5708
Location	Section	1	NE¼ S. 33	NE¼ Sec. 22	NE¼ Sec. 23
	Township & Range	22S 3E	21S 4E	23S 2E	23S 2E
	County	Dona Ana	Dona Ana	Dona Ana	Dona Ana
Formation		Qaf	Qaf	Qal	Ph
Rock Type		gravel	sand and gravel	sand and gravel	limestone
Source Rock (Gravel)		limestone & monzonite	various	various	
Quality of Material					
Thickness of Material			5-13'	3-13'	10'
Thickness of Cap (Caliche)					
Material Underlying Formation			sand and gravel	sand and gravel	limestone
Vegetation		greasewood			greasewood
Local Terrain		hill			hill
Thickness of Overburden			.6-1.5'	0-2'	0
P. I. (Overburden)					
Estimated Quantity (cu. yds.)		50,000	75,000	200,000	50,000
Los Angeles Wear			30.0	16.0	17.2
Soundness Loss				2.6	.5
Average Maximum Size					
% Retained on 2" Sieve					
Pit Average % Passing	Crushed to:		as received	as received	2"
	2"		87	93	
	1"		77	84	
	½"		71	75	25
	No. 4		64	48	13
	No. 10		53	25	8
	No. 200		5	3	2
Plasticity Index			N.P.	N.P.	N.P.
Remarks:					

CONSTRUCTION MATERIALS INVENTORY

MATERIAL PIT SUMMARY

Pit Number		5710	5791	5792	5834
Location	Section	NE¼ Sec. 26	SW¼ Sec. 19	SE¼ Sec. 20	SE¼ S. 33
	Township & Range	21S 3E	26S 4E	26S 4E	21S 1E
	County	Dona Ana	Dona Ana	Dona Ana	Dona Ana
Formation		Qaf	Qal	Qps	Tr
Rock Type		sand and gravel	sand and gravel	soil and gravel	
Source Rock (Gravel)		various	limestone	various	
Quality of Material			good		
Thickness of Material		5-13'	3-29'	6-14'	
Thickness of Cap (Caliche)					
Material Underlying Formation			sand	soil and gravel	
Vegetation			mesquite & salt cedar	greasewood	mesquite
Local Terrain			arroyo	hills	hill
Thickness of Overburden		0-5.4'	2-7.5'	0-8'	
P. I. (Overburden)					
Estimated Quantity (cu. yds)		100,000	unlimited	150,000	
Los Angeles Wear		26.0	22.0	22.4	
Soundness Loss		81	2.1		
Average Maximum Size			1¼"		
% Retained on 2" Sieve			10%		
Pit Average % Passing	Crushed to:	as received	as received	as received	
	2"	88	96	84	
	1"	70	61	59	
	½"	49	43	43	
	No. 4	30	39	30	
	No. 10	19	37	24	
	No. 200	2	2	8	
Plasticity Index		N.P.	N.P.	N.P.	
Remarks:					

Pit Number		5835	5836	5838	58100
Location	Section	NW¼ Sec. 33	SE¼ S. 3	SE¼ Sec. 3	N½ Sec. 26
	Township & Range	21S 1E	24S 2E	24S 2E	21S 3E
	County	Dona Ana	Dona Ana	Dona Ana	Dona Ana
Formation		Santa Fe fm.	Qal	Qal	Qaf
Rock Type		sand and gravel	silt	silt	sand and gravel
Source Rock (Gravel)		various	various	various	andesite
Quality of Material					
Thickness of Material		8-15'	4-10'		2-7'
Thickness of Cap (Caliche)					
Material Underlying Formation		sand and gravel			
Vegetation		greasewood	greasewood	mesquite	
Local Terrain		hill	arroyo	arroyo	
Thickness of Overburden		0			0-2'
P. I. (Overburden)					
Estimated Quantity (cu. yds.)			2,000	2,000	25,000
Los Angeles Wear		20.0			28.8
Soundness Loss					
Average Maximum Size					
% Retained on 2" Sieve					
Pit Average % Passing	Crushed to:	as received			as received
	2"				78
	1"	94			60
	½"	75			42
	No. 4	46			25
	No. 10	33			15
	No. 200	6			2
Plasticity Index		N.P.			N.P.
Remarks:					

QUADRANGLE PAGE 113

CONSTRUCTION MATERIALS INVENTORY

MATERIAL PIT SUMMARY

Pit Number		5918	5919	5999	6046
Location	Section	Section 30	SE¼ Sec. 16	SW¼ Sec. 11	NW¼ Sec. 24
	Township & Range	24S 3E	25S 3E	21S 1W	23S 2E
	County	Dona Ana	Dona Ana	Dona Ana	Dona Ana
Formation		Qal	Qal	Qt	Ph
Rock Type		gravel	sand	sand and gravel	limestone
Source Rock (Gravel)		various	various	various	
Quality of Material				good	good
Thickness of Material		10-24'	7-12'	3-11'	10'
Thickness of Cap (Caliche)					
Material Underlying Formation		sand and gravel		sand and gravel	limestone
Vegetation		greasewood		mesquite & salt cedar	greasewood
Local Terrain		arroyo		flat	hill
Thickness of Overburden		0	0	2-9'	0
P. I. (Overburden)					none
Estimated Quantity (cu. yds)		60,000 plus	90,000	150,000 plus	200,000 plus
Los Angeles Wear		20.0		21.2	18.0
Soundness Loss				2.9	.5
Average Maximum Size				1½"	
% Retained on 2" Sieve				5	
	Crushed to:	as received	as received	as received	2"
	2"			76	
Pit	1"	95	98	53	58
Average	½"	77	95	39	18
% Passing	No. 4	57	88	25	7
	No. 10	44	79	20	4
	No. 200	4	6	2	1
Plasticity Index		N.P.	N.P.	N.P.	N.P.
Remarks:					

Pit Number		6047	6105	6132	6324
Location	Section	N½ Sec. 14	SW¼ of NW¼ & NW¼ of SW¼ S11	SW¼ Sec. 28	NW¼ Sec. 3
	Township & Range	23S 2E	21S 1W	24S 3E	22S 1E
	County	Dona Ana	Dona Ana	Dona Ana	Dona Ana
Formation		Qal	Qt	Qal	Qal
Rock Type		sand and gravel	sand and gravel	sand and gravel	sand and gravel
Source Rock (Gravel)		various	various	various	various
Quality of Material				good	
Thickness of Material		4-12'	5-14'		8-13'
Thickness of Cap (Caliche)					
Material Underlying Formation		sand	sand and gravel		sand and gravel
Vegetation		greasewood	greasewood	greasewood	greasewood
Local Terrain		arroyo	flat	arroyo	hill
Thickness of Overburden		0-8'	1.7-6.7'		0
P. I. (Overburden)					
Estimated Quantity (cu. yds.)		200,000 plus	20,000		50,000 plus
Los Angeles Wear		17.6	21.6		22.0
Soundness Loss		6.1	2.0		
Average Maximum Size					
% Retained on 2" Sieve					
	Crushed to:	as received	as received		as received
	2"				93
Pit	1"	88	88		90
Average	½"	74	63		84
% Passing	No. 4	48	40		58
	No. 10	35	33		40
	No. 200	6	7		14
Plasticity Index		N.P.	N.P.		4
Remarks:					

QUADRANGLE PAGE 113

CONSTRUCTION MATERIALS INVENTORY

MATERIAL PIT SUMMARY

Pit Number		6425	6437	6504	6505
Location	Section	SW¼ Sec. 16	N½ Sec. 28	SW¼ Sec. 32	Section 13
	Township & Range	23S 10W	24S 3E	22S 1E	21S 1W
	County	Dona Ana	Dona Ana	Dona Ana	Dona Ana
Formation		Qtsf	Qal	Qal	Ph
Rock Type		sand and gravel	silt, sand, gravel	sand and gravel	limestone
Source Rock (Gravel)		various	various	various	
Quality of Material			good	good	
Thickness of Material		4-13'	12'	6-18'	
Thickness of Cap (Caliche)					
Material Underlying Formation		silt, sand, gravel	silt and gravel		
Vegetation		greasewood	greasewood	mesquite & salt cedar	greasewood
Local Terrain		hill	arroyo	arroyo	hills
Thickness of Overburden		1.5-5'	0	1-5'	
P. I. (Overburden)					
Estimated Quantity (cu. yds)		200,000	100,000	500,000	140,000
Los Angeles Wear		19.6	20.0	22.8	
Soundness Loss		2.4	5.0	6.4	
Average Maximum Size				2"	
% Retained on 2" Sieve			50	80	
Pit Average % Passing	Crushed to:	as received	as received	as received	
	2"	87	85	81	
	1"	66	75	68	
	½"	52	56	51	
	No. 4	36	34	33	
	No. 10	26	24	25	
	No. 200	3	8	6	
Plasticity Index		N.P.	N.P.	7	

Remarks:

Pit Number		6507	6653	6901
Location	Section	N½ of NW¼ Sec. 14	NE¼ SW¼ & SW¼ Sec. 32	SW¼ Sec. 11
	Township & Range	21S 1W	22S 1E	21S 1W
	County	Dona Ana	Dona Ana	Dona Ana
Formation		Qt	Qal	Qt
Rock Type		sand and gravel	gravel	sand and gravel
Source Rock (Gravel)		various	various	various
Quality of Material		good		
Thickness of Material		1-15'	3-17'	4-14'
Thickness of Cap (Caliche)				
Material Underlying Formation		sand and gravel	gravel	sand and gravel
Vegetation		grass	greasewood	
Local Terrain		flat	arroyo	
Thickness of Overburden		.8-13'	6-11'	4-9'
P. I. (Overburden)				
Estimated Quantity (cu. yds.)		100,000	75,000	100,000
Los Angeles Wear		19.6	24.0	19.6
Soundness Loss		1.8	5.3	2.3
Average Maximum Size		1½"		
% Retained on 2" Sieve		5		
Pit Average % Passing	Crushed to:	as received	as received	as received
	2"	94	85	76
	1"	68	78	67
	½"	53	64	59
	No. 4	41	44	48
	No. 10	35	33	42
	No. 200	4	7	3
Plasticity Index		N.P.	N.P.	N.P.

Remarks:

6901: Pit unworked with Rest Area constructed on site.

EXPLANATION

QUATERNARY

Symbol	Unit	Description
Qal	Alluvium	Stream and terrace deposits of well to poorly-sorted gravel, sand, silt and clay
Qe 1 / 2	Eolian deposits	Wind-borne quartzitic sand (1); Wind-borne gypsiferous silt and clay (2)
Qaf	Alluvial fan deposits	Poorly-sorted, braided deposits of sub-angular gravel, sand, silt and clay
Qld	Lacustrine deposits	Alkaline, fine-grained sand, silt and clay
Qab 1 / 2	Alluvium and bolson deposits	Relatively thin, wind-borne sand cover (1); Sand, silt, clay and gypsum (2)
Qt	Terrace deposits	Well-sorted, relatively fine-grained gravel and sand with local silt lenses; may represent the Camp Rice facies of the Santa Fe Formation
Qp	Pediment deposits	Older deposits of fan gravel, sand, silt and clay in various stages of dissection

TERTIARY

Symbol	Unit	Description
Ti	Intrusive rocks undivided	Stocks, dikes, sills and laccoliths of various composition, including monzonite, syenite and rhyolite

PERMIAN

Symbol	Unit	Description
Ph	Hueco Limestone	Massive, gray, fossiliferous limestone with local beds of shale and sandstone
Pbm	Bursum Formation	Thin-bedded, gray limestone; lenticular, calcareous sandstone and shale

PENNSYLVANIAN

Symbol	Unit	Description
IP	Pennsylvanian rocks undivided	Dark-gray, fossiliferous limestone with interbedded marls and shales; includes thermally metamorphosed limestones in the Jarilla Mountains

MISS-CAMB.

Symbol	Unit	Description
MC	Lower Paleozoic rocks undivided	Gray limestone and dolomite; black, calcareous shale; buff quartzose sandstone

PRE-CAMB.

Symbol	Unit	Description
pC	Precambrian rocks undivided	Granite, pegmatite and aplite dikes

● Developed pit or quarry

◑ Prospect pit or quarry

Fault ● downthrown side

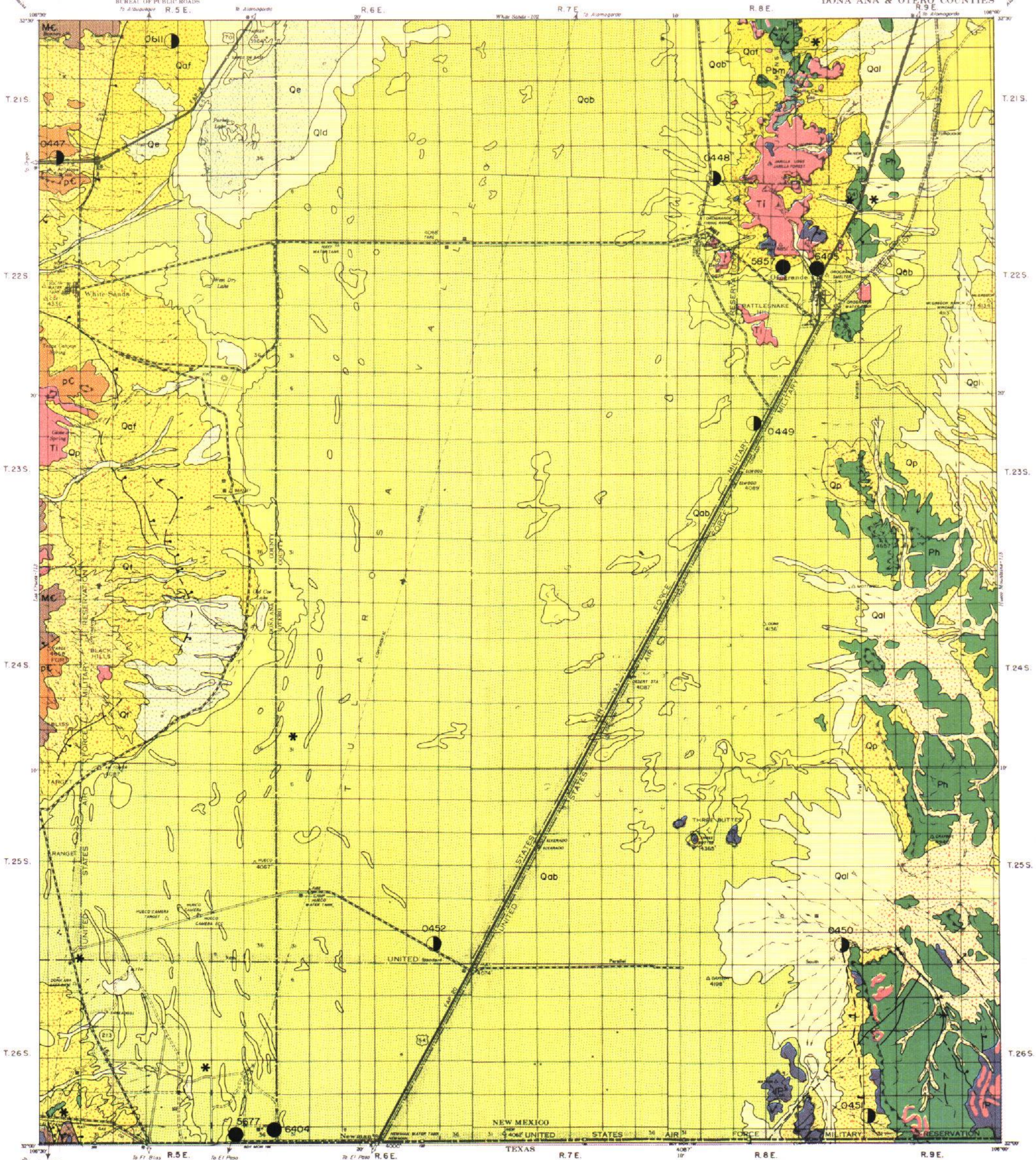
Anticline Syncline

* Selected exploration site

NEW MEXICO STATE HIGHWAY DEPARTMENT
PLANNING DIVISION
BUREAU OF PUBLIC ROADS

AGGREGATE RESOURCES and GEOLOGY

OROGRANDE QUADRANGLE-114
DONA ANA & OTERO COUNTIES



DATE OF INVENTORY
GEOLOGY SEPTEMBER 1971
AGGREGATE RESOURCES SEPTEMBER 1971

Scale 1/190080 or 1 Inch = 3 Miles

DATE OF INVENTORY
DONA ANA COUNTY 1960
OTERO COUNTY 1960

OROGRANDE QUADRANGLE
114

EXPLANATION

QUAD No. 121

QUATERNARY

- Qal — Alluvium
- Qab — Bolson deposits
- Qps — Piedmont slope deposits
- Qaf — Alluvial fan deposits
- Qop — Older Pediment deposits
- Qb — Basalt

QUAT.-TER.

- QTp — Pediment deposits
- Qld — Lake deposits

TER.

- Tfg — Fanglomerate
- Tob — OK-Bar conglomerate
- Tv — Volcanic rocks undivided
- Ti — Intrusive rocks undivided

CRET.

- Km — Mancos Shale
- Kl — Lewis Shale
- Kv — Volcanics undivided

PER.

- P — Lower Permian undivided

PER.-PENN.

- PP — Permian and Penn. rocks undivided

MISS.

- M — Mississippian undivided

DEV.-ORD.-CAMB.

- DO€ — Dev., Ord. and Camb. undivided

PRECAMB.

- p€ — Precambrian undivided

- Established pit or quarry
- Prospect pit or quarry
- Fault — downthrown side
- Anticline
- Syncline

NEW MEXICO STATE HIGHWAY DEPARTMENT

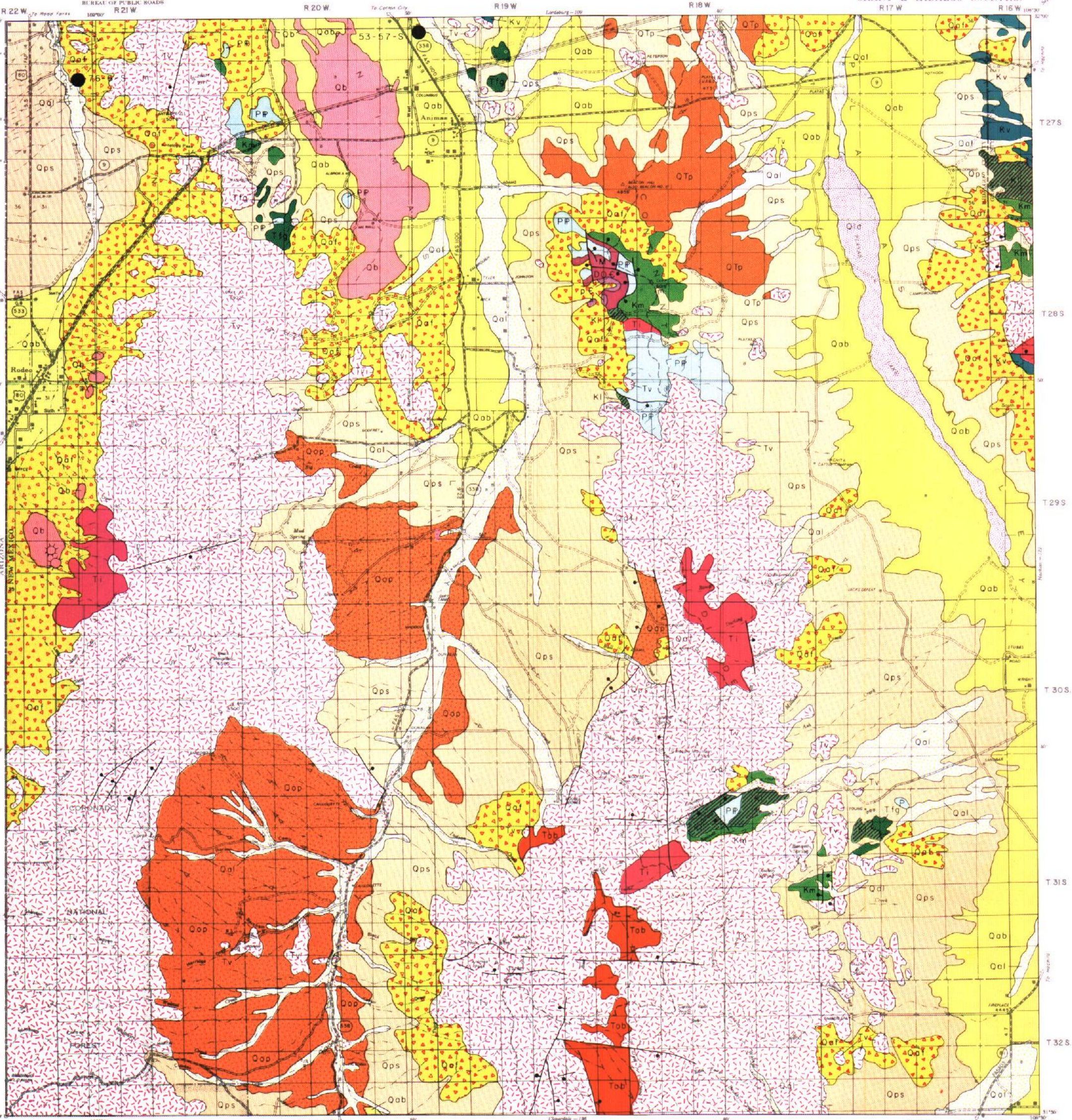
PLANNING AND PROGRAMMING DIVISION

BUREAU OF PUBLIC ROADS

GEOLOGY and AGGREGATE RESOURCES

RODEO QUADRANGLE – 121

GRANT & HIDALGO COUNTIES



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DATE OF INVENTORY

GEOLOGY DEC. 1979

AGGREGATE RESOURCES DEC. 1979

Longitude West from Greenwich

Scale 1/126720 or 1 Inch = 2 Miles

DATE OF INVENTORY

GRANT COUNTY 1962

HIDALGO COUNTY 1962

RODEO QUADRANGLE 121

QUADRANGLE PAGE 121

CONSTRUCTION MATERIALS INVENTORY

MATERIAL PIT SUMMARY

Pit Number		5357	7606
Location	Section	6	NW 8
	Township & Range	27S 19W	27S 21W
	County	Hidalgo	Hidalgo
Formation		Qab	Qaf
Rock Type		sand & gravel	sand & gravel
Source Rock (Gravel)		various	various
Quality of Material		fair	good
Thickness of Material		5-10 ft.	10-15 ft.
Thickness of Cap (Caliche)		-	-
Material Underlying Formation		sandy soil	sandy soil
Vegetation		grass	grass & mesquite
Local Terrain		flat	hilly
Thickness of Overburden		0-3 ft.	0-2 ft.
P. I. (Overburden)		8	-
Estimated Quantity (cu. yds)		20,000 plus	100,000 plus
Los Angeles Wear			19.2, 19.6
Soundness Loss			3.9
Average Maximum Size		1½"	10"
% Retained on 2" Sieve		0	30
Pit Average % Passing	Crushed to:		1½"
	2"		100
	1"		84
	½"		62
	No. 4		38
	No. 10		25
	No. 200		5
Plasticity Index			N.P.

Remarks:

Pit Number	
Location	Section
	Township & Range
	County
Formation	
Rock Type	
Source Rock (Gravel)	
Quality of Material	
Thickness of Material	
Thickness of Cap (Caliche)	
Material Underlying Formation	
Vegetation	
Local Terrain	
Thickness of Overburden	
P. I. (Overburden)	
Estimated Quantity (cu. yds.)	
Los Angeles Wear	
Soundness Loss	
Average Maximum Size	
% Retained on 2" Sieve	
Pit Average % Passing	Crushed to:
	2"
	1"
	½"
	No. 4
	No. 10
	No. 200
Plasticity Index	

Remarks:

CONSTRUCTION MATERIALS INVENTORY

QUADRANGLE PAGE _____

MATERIAL PIT SUMMARY

Pit Number		
Location	Section	
	Township & Range	
	County	
Formation		
Rock Type		
Source Rock (Gravel)		
Quality of Material		
Thickness of Material		
Thickness of Cap (Caliche)		
Material Underlying Formation		
Vegetation		
Local Terrain		
Thickness of Overburden		
P. I. (Overburden)		
Estimated Quantity (cu. yds)		
Los Angeles Wear		
Soundness Loss		
Average Maximum Size		
% Retained on 2" Sieve		
Pit Average % Passing	Crushed to:	
	2"	
	1"	
	½"	
	No. 4	
	No. 10	
	No. 200	
Plasticity Index		

Remarks:

Pit Number		
Location	Section	
	Township & Range	
	County	
Formation		
Rock Type		
Source Rock (Gravel)		
Quality of Material		
Thickness of Material		
Thickness of Cap (Caliche)		
Material Underlying Formation		
Vegetation		
Local Terrain		
Thickness of Overburden		
P. I. (Overburden)		
Estimated Quantity (cu. yds.)		
Los Angeles Wear		
Soundness Loss		
Average Maximum Size		
% Retained on 2" Sieve		
Pit Average % Passing	Crushed to:	
	2"	
	1"	
	½"	
	No. 4	
	No. 10	
	No. 200	
Plasticity Index		

Remarks:

EXPLANATION

QUAD No. 122

QUATERNARY

- Qal — Alluvium
- Qps — Piedmont slope deposits
- Qaf — Alluvial fan deposits
- Qab — Bolson deposits
- Qt — Terrace deposits
- Qop — Older Pediment deposits

QUAT.-TER.

- QTb — Basalt
- QTg — Older gravel deposits

TER.

- Tfg — Fanglomerate
- Tv — Volcanic rocks undivided
- Ti — Intrusive rocks undivided

CRETACEOUS

- K — Cretaceous undifferentiated
- Kr — Ringbone Formation
- Km — Mancos Shale
- Kh — Hell to Finish Formation
- Kl — Lewis Shale
- Kv — Volcanics undivided

PER.

- P — Lower Permian undivided

PER.-PENN.

- PPh — Horquilla Limestone

PENN.

- PP — Pennsylvanian rock undivided

MISS.

- M — Mississippian undivided

DEV.

- Dp — Petche Shale

ORD.-CAMB.

- O€ — Ordivician and Cambrian undivided

PRECAMB.

- p€ — Precambrian undivided

- Established pit or quarry
- Prospect pit or quarry
- Fault — downthrown side
- Anticline
- Syncline

NEW MEXICO STATE HIGHWAY DEPARTMENT

PLANNING AND PROGRAMMING DIVISION

BUREAU OF PUBLIC ROADS

GEOLOGY and AGGREGATE RESOURCES

HACHITA QUADRANGLE-122

LUNA GRANT & HIDALGO COUNTIES

R.16 W. R.15 W. R.14 W. R.13 W. R.12 W.

T.27 S. T.28 S. T.29 S. T.30 S. T.31 S. T.32 S.

CONTINENTAL DIVIDE

HACHITA VALLEY

LITTLE HATCHET MOUNTAINS

APACHE HILLS

NEW MEXICO

CHIHUAHUA

R E P U B L I C

O F

M E X I C O

Control by U.S. Coast and Geodetic Survey, U.S. Geological Survey; U.S. Forest Service; Bureau of Land Management and Planning Division—Modified Conic Projection Standard Parallel 34½° North American Datum

DATE OF INVENTORY

GEOLOGY DEC. 1979

AGGREGATE RESOURCES DEC. 1979

Scale 1/126720 or 1 Inch = 2 Miles

DATE OF INVENTORY

LUNA COUNTY 1960

GRANT COUNTY 1962

HIDALGO COUNTY 1962

HACHITA QUADRANGLE 122

QUADRANGLE PAGE 122

CONSTRUCTION MATERIALS INVENTORY

MATERIAL PIT SUMMARY

Pit Number		54119	7803
Location	Section	SW 1	NE 15
	Township & Range	27S 15W	28S 14W
	County	Grant	Grant
Formation		Qps	Qop
Rock Type		sand and qravel	sand and qravel
Source Rock (Gravel)		volcanics	volcanics
Quality of Material		qood	qood
Thickness of Material		10-15'	10-12'
Thickness of Cap (Caliche)		2-3' soft	-
Material Underlying Formation		sandy soil & qravel	cemented sand & qravel
Vegetation		qrass	qrass
Local Terrain		hilly	hilly
Thickness of Overburden		0-3'	0-2'
P. I. (Overburden)		-	-
Estimated Quantity (cu. yds)		50,000 plus	100,000 plus
Los Angeles Wear		40.6; 22.8	28.6, 21.6
Soundness Loss		-	27.8
Average Maximum Size		5"	4"
% Retained on 2" Sieve		15	80
Pit Average % Passing	Crushed to:	1"	1½"
	2"	-	100
	1"	100	90
	½"	85	62
	No. 4	50	37
	No. 10	35	22
	No. 200	9	3
Plasticity Index		N.P.	11
Remarks:			

Pit Number	
Location	Section
	Township & Range
	County
Formation	
Rock Type	
Source Rock (Gravel)	
Quality of Material	
Thickness of Material	
Thickness of Cap (Caliche)	
Material Underlying Formation	
Vegetation	
Local Terrain	
Thickness of Overburden	
P. I. (Overburden)	
Estimated Quantity (cu. yds.)	
Los Angeles Wear	
Soundness Loss	
Average Maximum Size	
% Retained on 2" Sieve	
Pit Average % Passing	Crushed to:
	2"
	1"
	½"
	No. 4
	No. 10
	No. 200
Plasticity Index	
Remarks:	

CONSTRUCTION MATERIALS INVENTORY

QUADRANGLE PAGE _____

MATERIAL PIT SUMMARY

Pit Number		
Location	Section	
	Township & Range	
	County	
Formation		
Rock Type		
Source Rock (Gravel)		
Quality of Material		
Thickness of Material		
Thickness of Cap (Caliche)		
Material Underlying Formation		
Vegetation		
Local Terrain		
Thickness of Overburden		
P. I. (Overburden)		
Estimated Quantity (cu. yds)		
Los Angeles Wear		
Soundness Loss		
Average Maximum Size		
% Retained on 2" Sieve		
Pit Average % Passing	Crushed to:	
	2"	
	1"	
	½"	
	No. 4	
	No. 10	
	No. 200	
Plasticity Index		
Remarks:		

Pit Number		
Location	Section	
	Township & Range	
	County	
Formation		
Rock Type		
Source Rock (Gravel)		
Quality of Material		
Thickness of Material		
Thickness of Cap (Caliche)		
Material Underlying Formation		
Vegetation		
Local Terrain		
Thickness of Overburden		
P. I. (Overburden)		
Estimated Quantity (cu. yds.)		
Los Angeles Wear		
Soundness Loss		
Average Maximum Size		
% Retained on 2" Sieve		
Pit Average % Passing	Crushed to:	
	2"	
	1"	
	½"	
	No. 4	
	No. 10	
	No. 200	
Plasticity Index		
Remarks:		

EXPLANATION

QUAD No. 123

QUATERNARY

- Qal — Alluvium
- Qe — Eolian deposits
- Qab — Bolson deposits
- Qg — Gravel deposits
- Qp — Pediment deposits
- Qps — Piedmont slope deposits
- Qaf — Alluvial fan deposits
- Qc — Cinders and Scoria
- Qoaf — Older Alluvial fans

QUATERNARY -TERTIARY

- QTg — Older gravel deposits
- QTb — Basalt

TERTIARY

- Trl — Rhyolite and Latite flow
- Ti — Intrusive rocks undivided
- Ta — Older Andesite
- Tl — Tertiary Latite
- Tv — Volcanic rocks undivided

CRET.

- Kl — Lewis Shale

PERM.

- Ph — Hueco limestone

PENN.

- IP — Pennsylvanian rocks undivided

MISS.

- M — Mississippian undivided

SIL.

- Sf — Silurian, Fusselman Dolomite

- Established pit or quarry
- Prospect pit or quarry
- Fault — downthrown side
- Anticline
- Syncline

NEW MEXICO STATE HIGHWAY DEPARTMENT

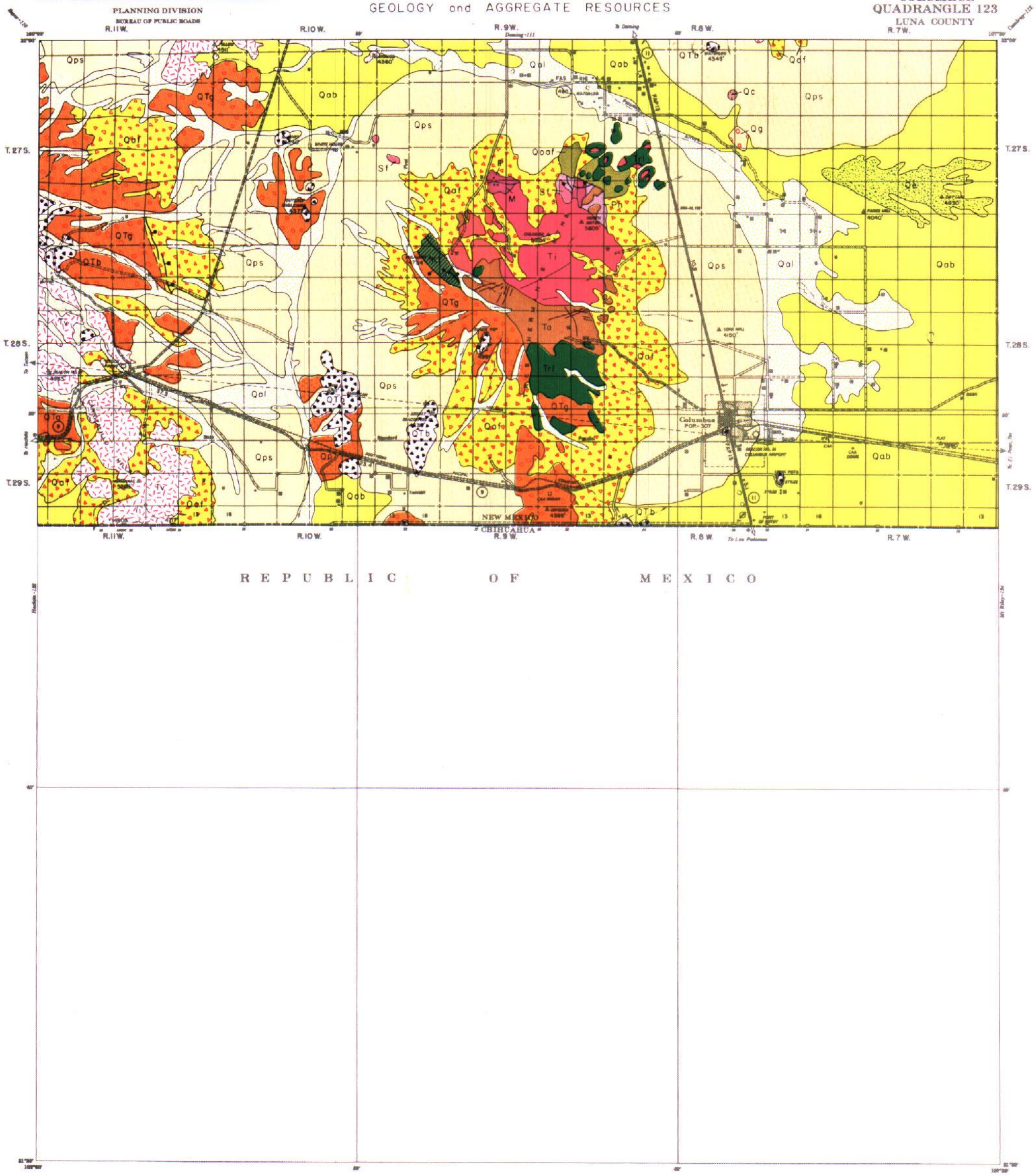
PLANNING DIVISION

BUREAU OF PUBLIC ROADS

GEOLOGY and AGGREGATE RESOURCES

COLUMBUS QUADRANGLE 123

LUNA COUNTY



REPUBLIC OF MEXICO

Control by U.S. Coast and Geodetic Survey; U.S. Geological Survey; U.S. Forest Service; Bureau of Land Management and Planning Division—Modified Conic Projection Standard Parallel 34°n North American Datum

DATE OF INVENTORY

GEOLOGY MAY 1979

AGGREGTE RESOURCES MAY 1979

Longitude West from Greenwich

Scale $\frac{1}{126720}$ or 1 Inch = 2 Miles

1960

COLUMBUS QUADRANGLE 123

EXPLANATION

QUAD No. 124

QUATERNARY

- Qal — Alluvium
- Qab — Bolson deposits
- Qfp — Quaternary alluvium and Bolson deposits
- Qe — Eolian deposits
- Qps — Piedmont slope
- Qaf — Alluvial fan deposits
- Qpc — Pediment deposits
- Qb — Basalt

QUAT.-TER.

- QTsf — Santa Fe Formation

TERTIARY

- Tv — Volcanic rocks undivided
- Ti — Intrusive rocks undivided

CRET.

- K — Cretaceous undifferentiated

PENN.

- Ph — Hueco limestone

SIL.

- Sf — Silurian, Fusselman Dolomite

- Established pit or quarry
- Prospect pit or quarry
- Fault — downthrown side
- Anticline
- Syncline

NEW MEXICO STATE HIGHWAY DEPARTMENT

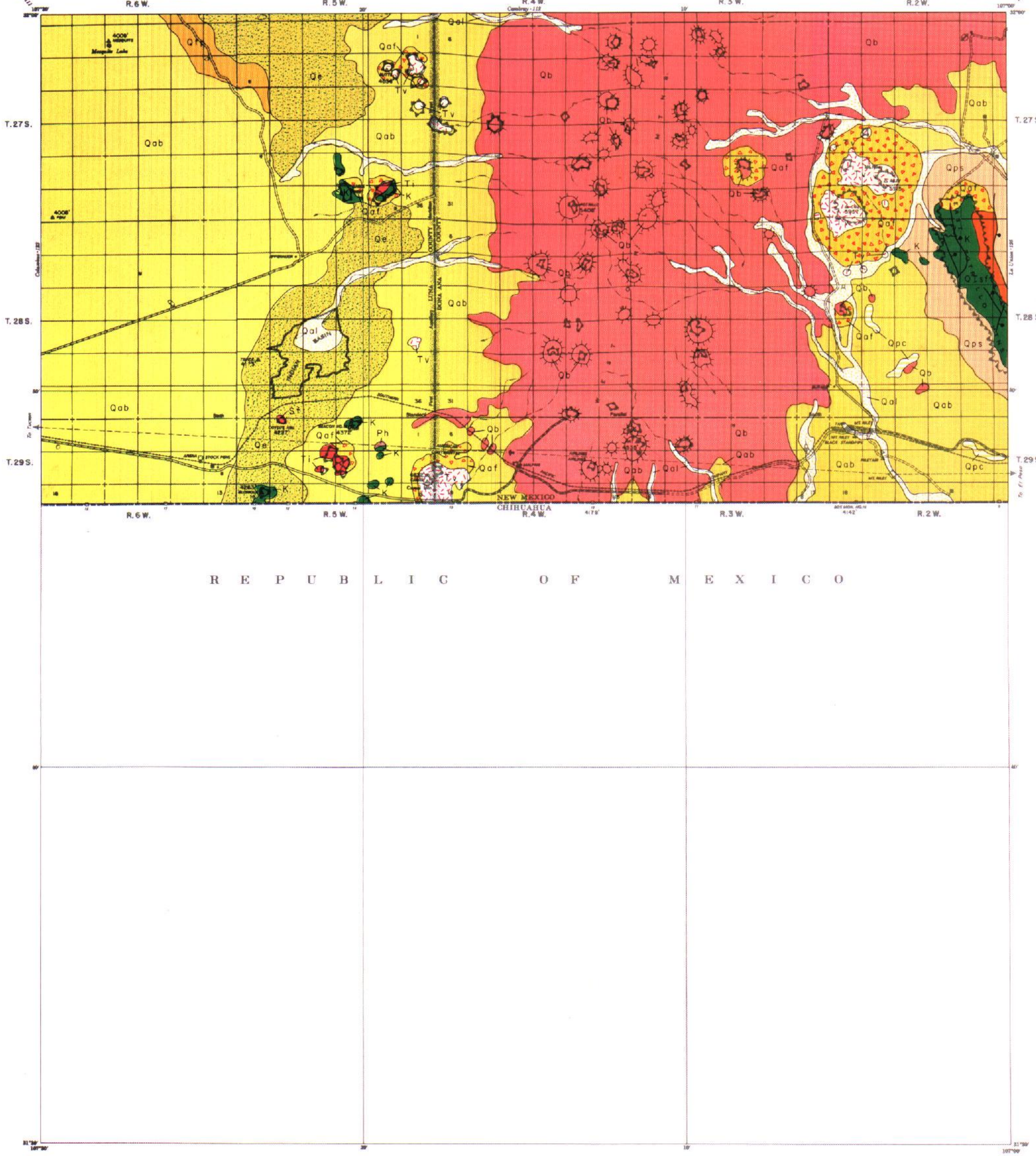
PLANNING DIVISION

BUREAU OF PUBLIC ROADS

GEOLOGY and AGGREGATE RESOURCES

MT RILEY QUADRANGLE-124

DOÑA ANA & LUNA COUNTIES



R E P U B L I C O F M E X I C O

Control by U.S. Coast and Geodetic Survey; U.S. Geological Survey; U.S. Forest Service; Bureau of Land Management and Planning Division—Modified Conic Projection Standard Parallel 34°47' North American Datum

DATE OF INVENTORY

GEOLOGY MAY 1979

AGGREGATE RESOURCES MAY 1979

Longitude West from Greenwich

Scale $\frac{1}{126720}$ or 1 Inch = 2 Miles

1 La 0 1 2 3 4

STATUTE MILES

DATE OF INVENTORY

DOÑA ANA COUNTY 1980

LUNA COUNTY 1980

MT. RILEY QUADRANGLE 124

EXPLANATION

QUAD No. 125

QUATERNARY

- Qal — Alluvium
- Qe — Eolian deposits
- Qfp — Floodplain deposits
- Qab — Bolson deposits
- Qps — Piedmont slope deposits
- Qb — Basalt

QUAT.-TER.

- QTsf — Santa Fe Formation

TER.

- Ti — Intrusive rocks undivided

CRET.

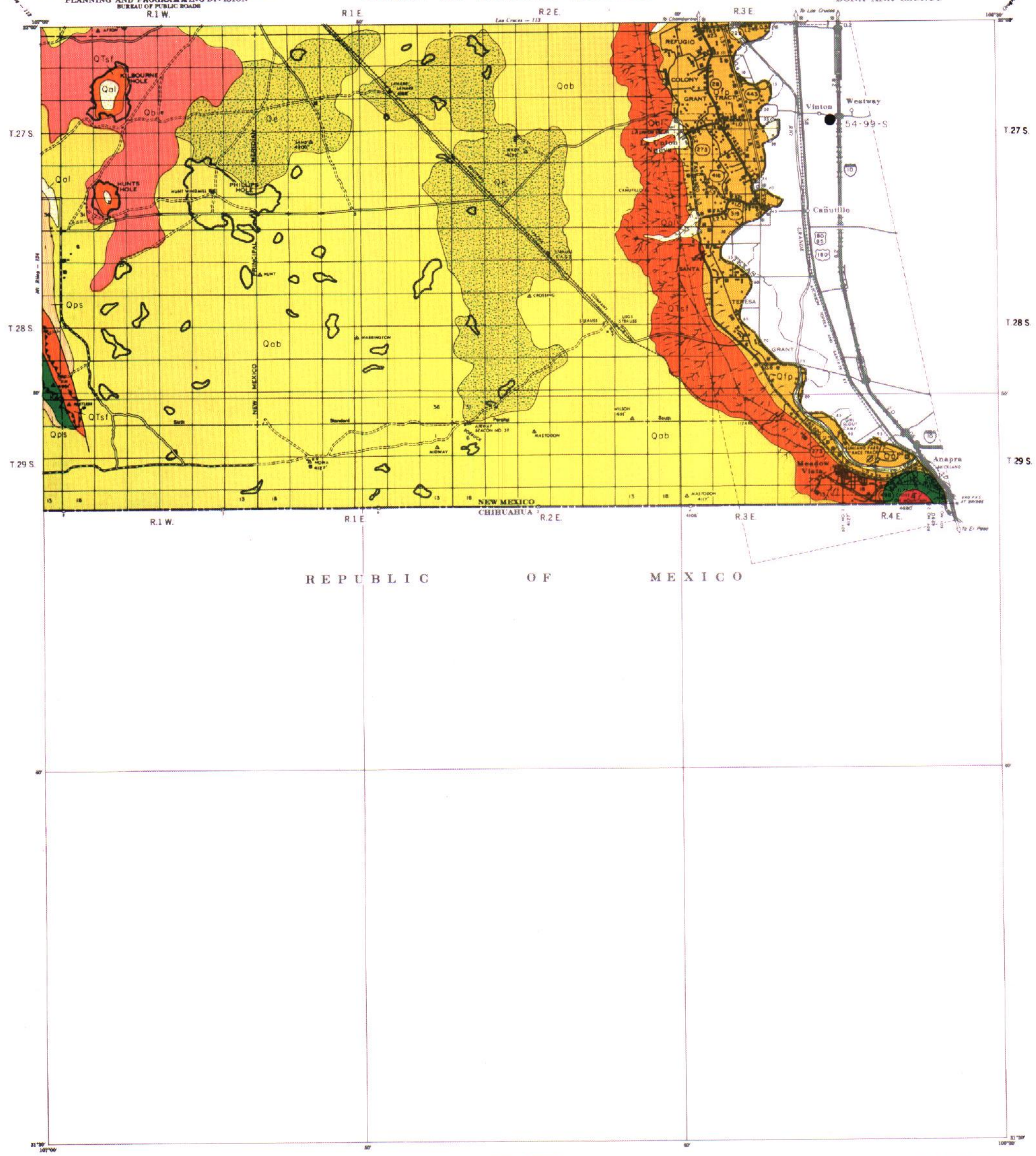
- K — Cretaceous undifferentiated

- Established pit or quarry
- Prospect pit or quarry
- Fault — downthrown side
- Anticline
- Syncline

NEW MEXICO STATE HIGHWAY DEPARTMENT
PLANNING AND PROGRAMMING DIVISION
BUREAU OF PUBLIC ROADS

GEOLOGY and AGGREGATE RESOURCES

LA UNION QUADRANGLE 125
DOÑA ANA COUNTY



Control by U.S. Coast and Geodetic Survey; U.S. Geological Survey; U.S. Forest Service; Bureau of Land Management and Planning Division—Modified Conic Projection Standard Parallel 34°N North American Datum

DATE OF INVENTORY
GEOLOGY MAY 1979
AGGREGATE RESOURCES MAY 1979

Longitude West from Greenwich

Scale $\frac{1}{126720}$ or 1 Inch = 3 Miles

1 ½ 0 1 2 3 4
STATUTE MILES

DATE OF INVENTORY
DOÑA ANA COUNTY 1967

LA UNION
QUADRANGLE
125

CONSTRUCTION MATERIALS INVENTORY

MATERIAL PIT SUMMARY

Pit Number		5499
Location	Section	Not Sectionalized
	Township & Range	East of 27S 3E
	County	El Paso County, Texas
Formation		Qaa
Rock Type		Sand & Gravel
Source Rock (Gravel)		Various
Quality of Material		Good
Thickness of Material		10' plus
Thickness of Cap (Caliche)		-
Material Underlying Formation		Sand & Clay
Vegetation		Greasewood
Local Terrain		Rolling
Thickness of Overburden		0-3'
P. I. (Overburden)		N.P.
Estimated Quantity (cu. yds)		50,000 Plus
Los Angeles Wear		21.2
Soundness Loss		-
Average Maximum Size		3"
% Retained on 2" Sieve		8
Pit Average % Passing	Crushed to:	-
	2"	-
	1"	-
	½"	-
	No. 4	-
	No. 10	-
	No. 200	-
Plasticity Index		-

Remarks:

Pit Number		
Location	Section	
	Township & Range	
	County	
Formation		
Rock Type		
Source Rock (Gravel)		
Quality of Material		
Thickness of Material		
Thickness of Cap (Caliche)		
Material Underlying Formation		
Vegetation		
Local Terrain		
Thickness of Overburden		
P. I. (Overburden)		
Estimated Quantity (cu. yds.)		
Los Angeles Wear		
Soundness Loss		
Average Maximum Size		
% Retained on 2" Sieve		
Pit Average % Passing	Crushed to:	
	2"	
	1"	
	½"	
	No. 4	
	No. 10	
	No. 200	
Plasticity Index		

Remarks:

CONSTRUCTION MATERIALS INVENTORY

MATERIAL PIT SUMMARY

QUADRANGLE PAGE _____

Pit Number

Location: Section / Township & Range / County

Formation

Rock Type

Source Rock (Gravel)

Quality of Material

Thickness of Material

Thickness of Cap (Caliche)

Material Underlying Formation

Vegetation

Local Terrain

Thickness of Overburden

P. I. (Overburden)

Estimated Quantity (cu. yds)

Los Angeles Wear

Soundness Loss

Average Maximum Size

% Retained on 2" Sieve

Pit Average % Passing: Crushed to: / 2" / 1" / ½" / No. 4 / No. 10 / No. 200

Plasticity Index

Remarks:

Pit Number

Location: Section / Township & Range / County

Formation

Rock Type

Source Rock (Gravel)

Quality of Material

Thickness of Material

Thickness of Cap (Caliche)

Material Underlying Formation

Vegetation

Local Terrain

Thickness of Overburden

P. I. (Overburden)

Estimated Quantity (cu. yds.)

Los Angeles Wear

Soundness Loss

Average Maximum Size

% Retained on 2" Sieve

Pit Average % Passing: Crushed to: / 2" / 1" / ½" / No. 4 / No. 10 / No. 200

Plasticity Index

Remarks:

EXPLANATION

QUAD No. 126

QUATERNARY

- Qal — Alluvium
- Qaf — Alluvial fan deposits
- Qps — Piedmont slope deposits
- Qab — Bolson deposits
- Qld — Lake deposits
- Qbd — Beach deposits
- Qop — Older Pediment deposits

TERTIARY

- Tob — OK-Bar conglomerate
- Tv — Volcanic rocks undivided

- Established pit or quarry
- Prospect pit or quarry
- Fault — downthrown side
- Anticline
- Syncline

NEW MEXICO STATE HIGHWAY DEPARTMENT

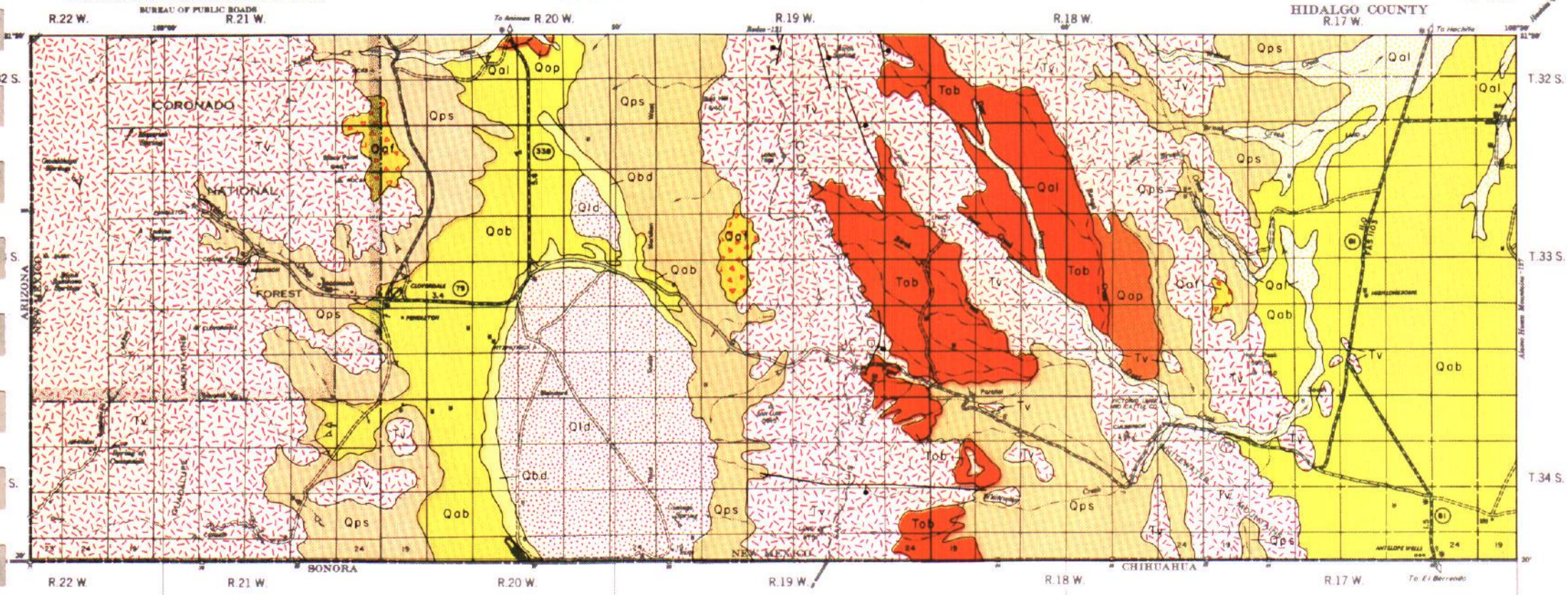
PLANNING AND PROGRAMMING DIVISION

BUREAU OF PUBLIC ROADS

GEOLOGY and AGGREGATE RESOURCES

CLOVERDALE QUADRANGLE-126

HIDALGO COUNTY



REPUBLIC OF MEXICO

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DATE OF INVENTORY

GEOLOGY DEC. 1979

AGGREGATE RESOURCES DEC. 1979

Longitude West from Greenwich

Scale $\frac{1}{126720}$ or 1 Inch = 2 Miles

STATUTE MILES

1962

CLOVERDALE QUADRANGLE 126

EXPLANATION

QUAD No. 127

QUATERNARY

- Qal — Alluvium
- Qaf — Alluvial fan deposits
- Qps — Piedmont slope deposits
- Qab — Bolson deposits
- Qop — Older Pediment deposits

TER.

- Tfg — Fanglomerate
- Tv — Volcanic rocks undivided

CRET.

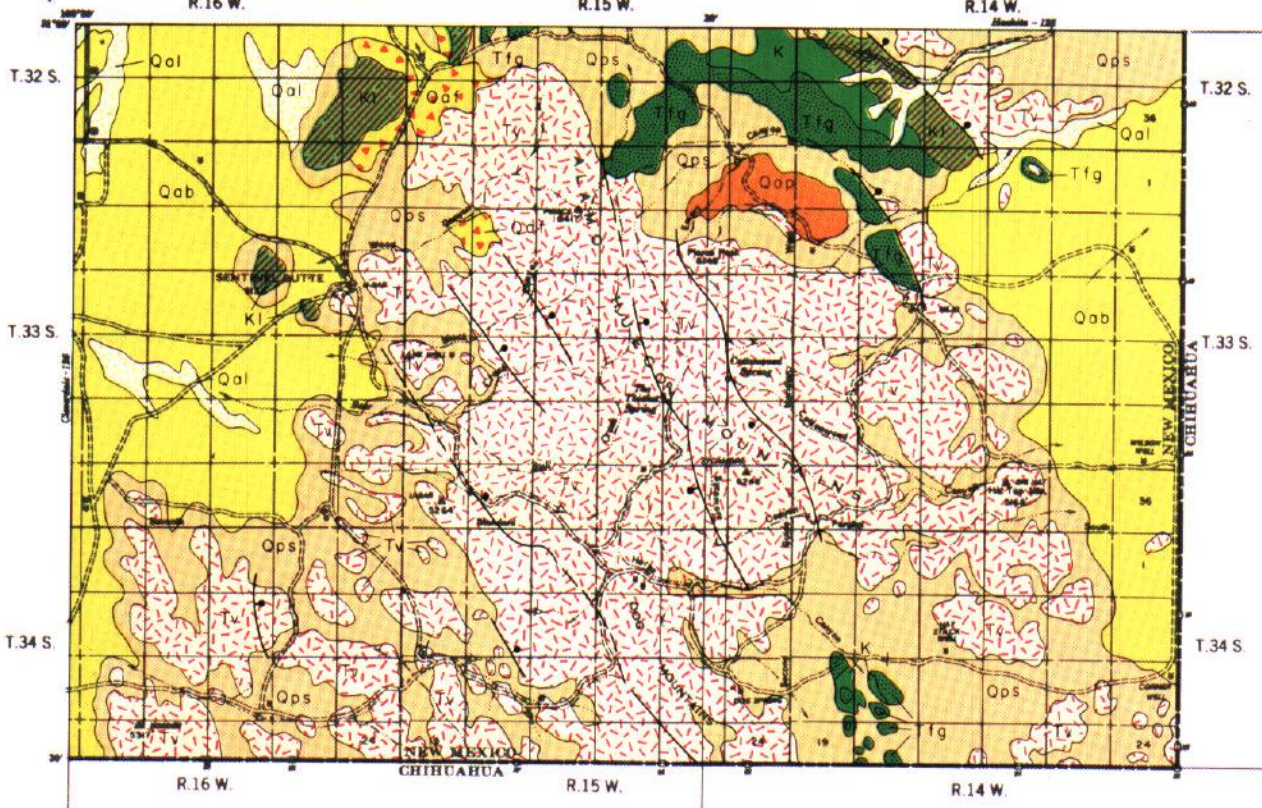
- K — Cretaceous undifferentiated
- Kl — Lewis Shale

- Established pit or quarry
- Prospect pit or quarry
- Fault / downthrown side
- Anticline
- Syncline

NEW MEXICO STATE HIGHWAY DEPARTMENT
PLANNING AND PROGRAMMING DIVISION
BUREAU OF PUBLIC ROADS

GEOLOGY and AGGREGATE RESOURCES

ALAMO HUECO MOUNTAINS QUADRANGLE-127
HIDALGO COUNTY



REPUBLIC OF MEXICO

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DATE OF INVENTORY
GEOLOGY DEC. 1979
AGGREGATE RESOURCES DEC. 1979

Longitude West from Greenwich
Scale 1/190720 or 1 Inch = 3 Miles
1 ½ 0 1 2 3 4
STATUTE MILES

1962

ALAMO HUECO MOUNTAINS
QUADRANGLE
127