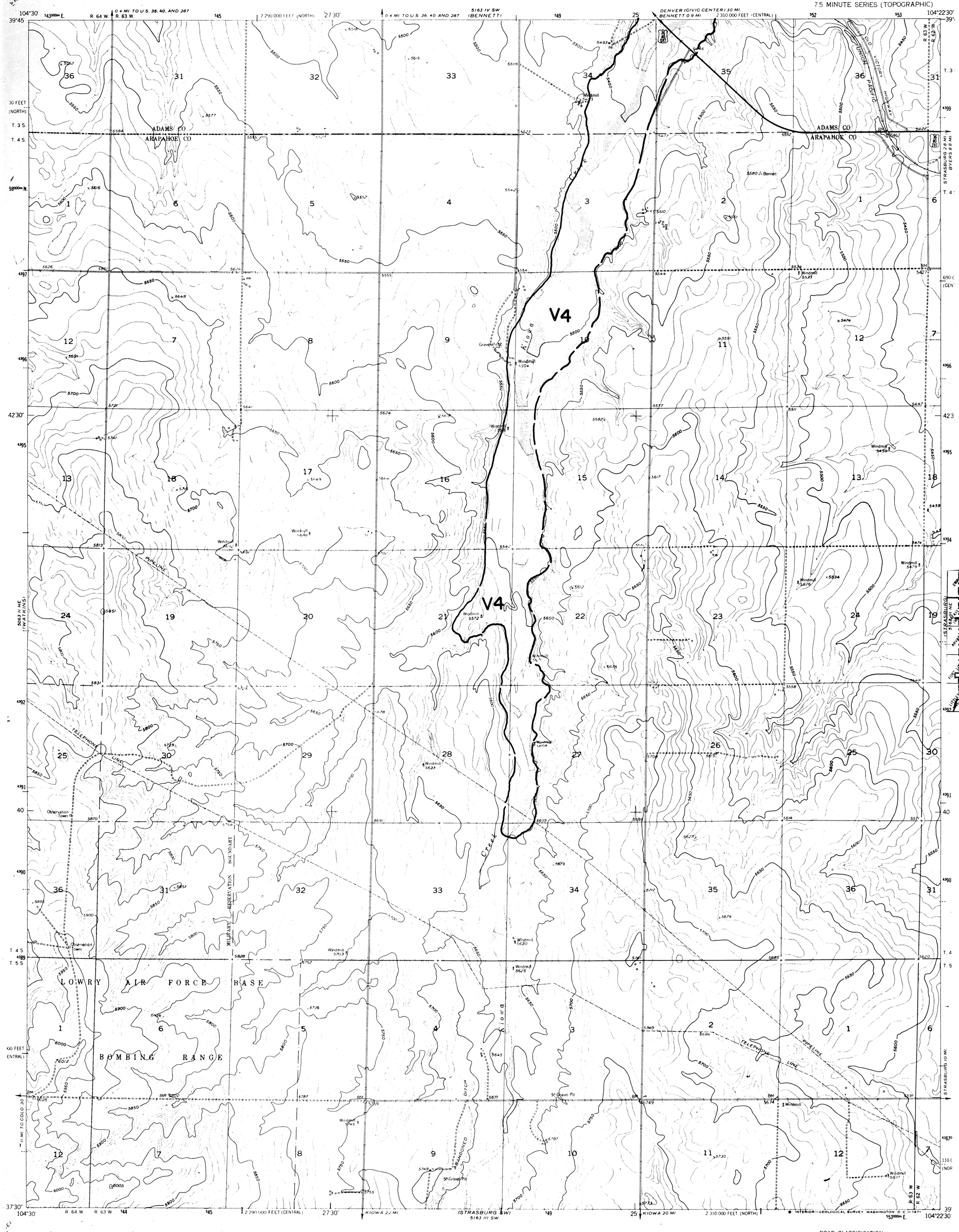
SAND, GRAVEL AND QUARRY AGGREGATE RESOURCES MAP

DEPARTMENT OF NATURAL RESOURCES
COLORADO GEOLOGICAL SURVEY
JOHN W. ROLD, DIRECTOR

STRASBURG NW QUADRANGLE
COLORADO
7.5 MINUTE SERIES (TOPOGRAPHIC)



EXPLANATION

F1 — Landform unit / Resource classification

LANDFORM UNITS

- F — Floodplain deposit
- T — Stream terrace deposit
- V — Valley fill (F & T)
- U — Upland deposits
- A — Alluvial fan
- E — Wind-deposited sand (eolian)
- M — Man-made deposits (slag, tailings, spoils....)

RESOURCE CLASSIFICATION

Coarse Aggregate
(at least 30% retained on #4 screen, visual estimation)

- 1 — Gravel: relatively clean and sound
- 2 — Gravel: significant fines, decomposed rock, calcium carbonate.

Fine Aggregate
(greater than 70% passing #4 screen, 60% retained on #200 screen, visual estimation

- 3 — Sand

Unevaluated Resource

- 4 — Probable aggregate resource

MAP SYMBOLS

- ● — Operating gravel and/or sand pit
- ▲ — Abandoned gravel and/or sand pit
- Operating stone quarry
- Abandoned stone quarry
- Potential quarry aggregate resource area
- Selected well or drill-hole location with over-burden thickness (ft) over sand/gravel resource thickness (ft), obtained from well logs.
  - "g" indicates gravel; "s" indicates sand
  - "x" in symbol denotes unevaluated or unknown property.
  - "WG" denotes Colorado Geological Survey Windsor/Sand and Gravel projects' drill hole
- Landform boundary, solid where known or observed; dashed where approximate or inferred.

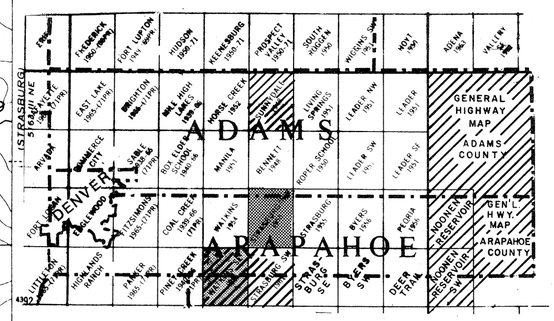
STATION, LOCATION AND GEOLOGICAL DESCRIPTION OF DEPOSIT

overburden thickness (ft)
sand/gravel resource thickness (ft)
percent sand and fines (passing #4 screen, 0.25 in.), visual estimation

5, 17, 40 (S S S)

significant amount of fines (passing #200 screen, 0.0059 in. or 0.074 mm.)
significant amount of decomposed or weak rock.
significant amount of calcium carbonate (caliche)

"x" in symbol denotes unevaluated or unknown property
"a" in symbol denotes property absent or insignificant



QUADRANGLE LOCATION

NON-RESOURCE OR WITHDRAWN AREA

Mapped by: Phillip C. Wicklein
Date: June 30, 1974

Base from U. S. Geological Survey
7-1/2 minute quadrangle

UTM GRID AND 1955 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

SCALE 1:24 000
1 MILE
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 KILOMETER
CONTOUR INTERVAL 10 FEET
DATUM IS MEAN SEA LEVEL

COLORADO
QUADRANGLE LOCATION

ROAD CLASSIFICATION
Heavy-duty — Light-duty
Medium-duty — Unimproved dirt
U. S. Route — State Route

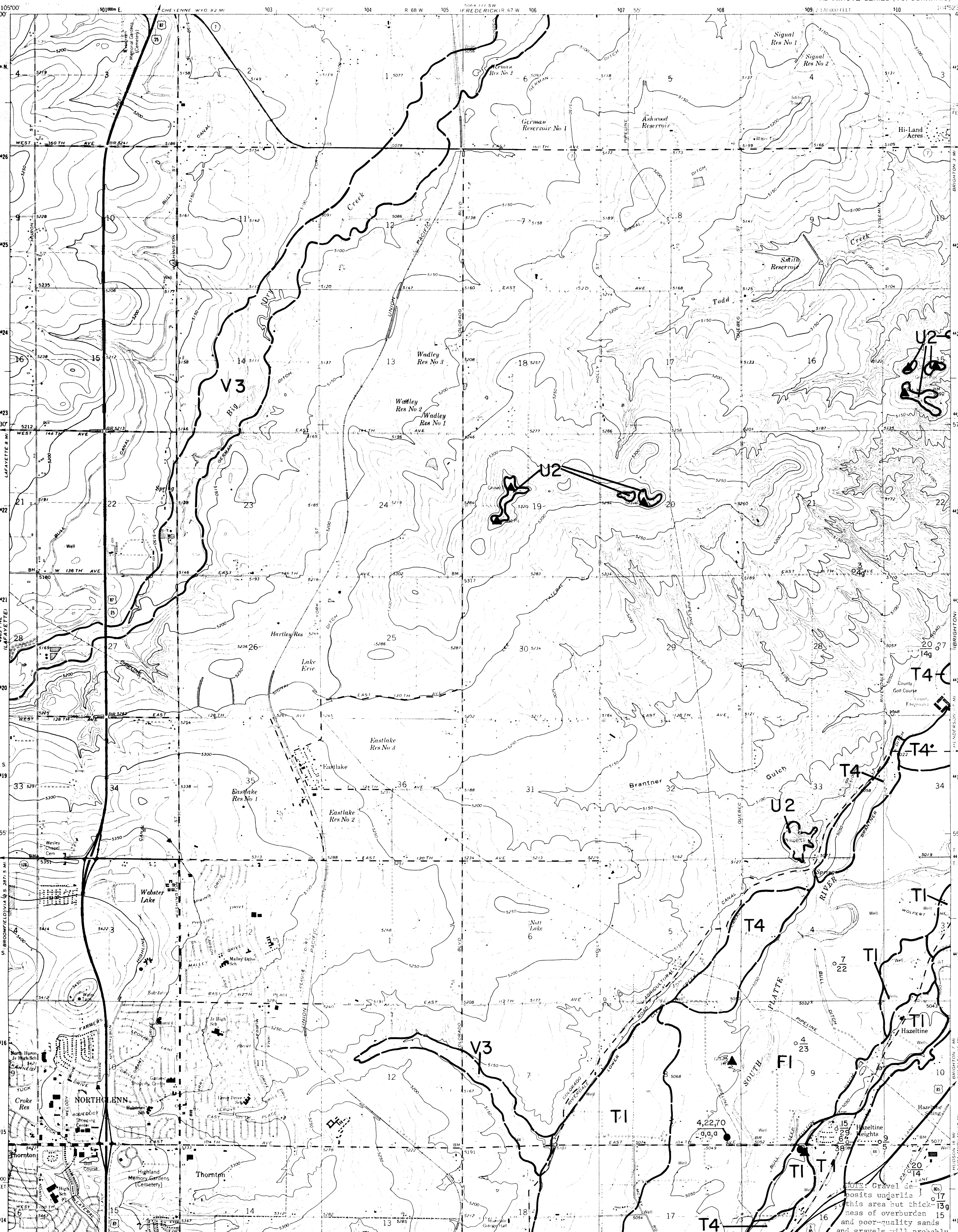
STRASBURG NW, COLO.
N3937.5—W10422.5/7.5
1955
AMS 5163 III NW—SERIES V877

INTERIOR—GEOLOGICAL SURVEY WASHINGTON, D. C.—1971

DEPARTMENT OF NATURAL RESOURCES
COLORADO GEOLOGICAL SURVEY
JOHN W. ROLD, DIRECTOR

SAND, GRAVEL AND QUARRY AGGREGATE RESOURCES MAP

EASTLAKE QUADRANGLE
COLORADO - ADAMS CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)



Base from U. S. Geological Survey
7-1/2 minute quadrangle

SCALE 1:24 000

CONTOUR INTERVAL 10 FEET
DATUM IS MEAN SEA LEVEL

UTM GRID AND 1971 MAGNETIC NORTH
DECLINATION AT CENTER OF SHEET

ROAD CLASSIFICATION
Heavy-duty — Light-duty
Medium-duty — Unimproved dirt
Interstate Route — U.S. Route — State Route

EASTLAKE, COLO.

EXPLANATION

F1 — Landform unit; Resource classification

LANDFORM UNITS

- F — Floodplain deposit
- T — Stream terrace deposit
- V — Valley fill (F & T)
- U — Upland deposits
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(at least 30% retained on #4 screen, visual estimation)

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Fine Aggregate
(greater than 70% passing #4 screen, 60% retained on #200 screen, visual estimation)

- 3 — Sand

Unevaluated Resource

- 4 — Probable aggregate resource

MAP SYMBOLS

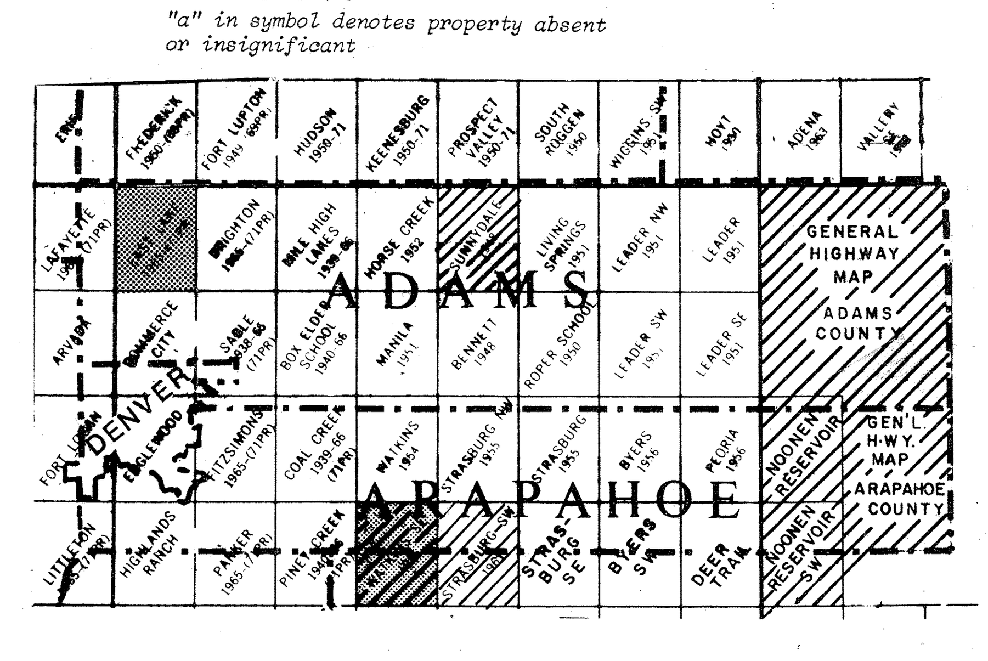
- Operating gravel and/or sand pit
- Abandoned gravel and/or sand pit
- Operating stone quarry
- Abandoned stone quarry
- Potential quarry aggregate resource area
- $\frac{2}{17g}$ Selected well or drill-hole location with overburden thickness (ft) over sand/gravel resource thickness (ft), obtained from well logs. "g" indicates gravel; "s" indicates sand. "x" in symbol denotes unevaluated or unknown property. "WG" denotes Colorado Geological Survey Windsor/Sand and Gravel projects' drill hole
- Landform boundary, solid where known or observed; dashed where approximate or inferred.

STATION, LOCATION AND GEOLOGICAL DESCRIPTION OF DEPOSIT

5, 17, 40
s s s

- *overburden thickness (ft)*
- *sand/gravel resource thickness (ft)*
- *percent sand and fines (passing #4 screen, 0.25 in.), visual estimation*
- *significant amount of fines (passing #200 screen, 0.0059 in. or 0.074 mm.)*
- *significant amount of decomposed or weak rock.*
- *significant amount of calcium carbonate (caliche)*

"x" in symbol denotes unevaluated or unknown property
"a" in symbol denotes property absent or insignificant



QUADRANGLE LOCATION

NON-RESOURCE OR WITHDRAWN AREA

References:

Schwochow, S.D., 1972, Surficial geology of the Eastlake quadrangle, Adams County, Colorado: Colorado School Mines Unpub. Master Sci. Thesis T-1465, pl. 2.

De Voto, R.H., 1968, Quaternary history of Rocky Mountain Arsenal and environs, Adams County, Colorado: Colorado School Mines Quart., v. 63, no. 1, pl. 1.

Hamilton, J.L., and Owens, W.G., 1972, Geologic aspects, soils and related foundation problems, Denver metropolitan area, Colorado: Colorado Geol. Survey Environmental Geology Rept. 1, pl. 1.

Inter-County Regional Planning Commission, 1961, Drainage course plan for the Denver region - Part 1, Sand and gravel resources: Denver, Colo., Inter-County Reg. Plan. Comm., pl. 1.

Chase, G.H., and McConaghy, J.A., 1972, Generalized surficial geologic map of the Denver area, Colorado: U.S. Geol. Survey Misc. Geol. Inv. Map I-731.

Smith, R.O., Schneider, P.A., Jr., and Petri, L.R., 1964, Ground-water resources of the South Platte River basin in western Adams and southwestern Weld Counties, Colorado: U.S. Geol. Survey Water-Supply Paper 1658, pl. 1.

Trimble, D.E., and Fitch, H.R., 1974, Map showing potential sources of gravel and crushed-rock aggregate in the Greater Denver Area, Front Range Urban Corridor, Colo.: U.S. Geol. Survey Misc. Geol. Inv. Map I-856-A.

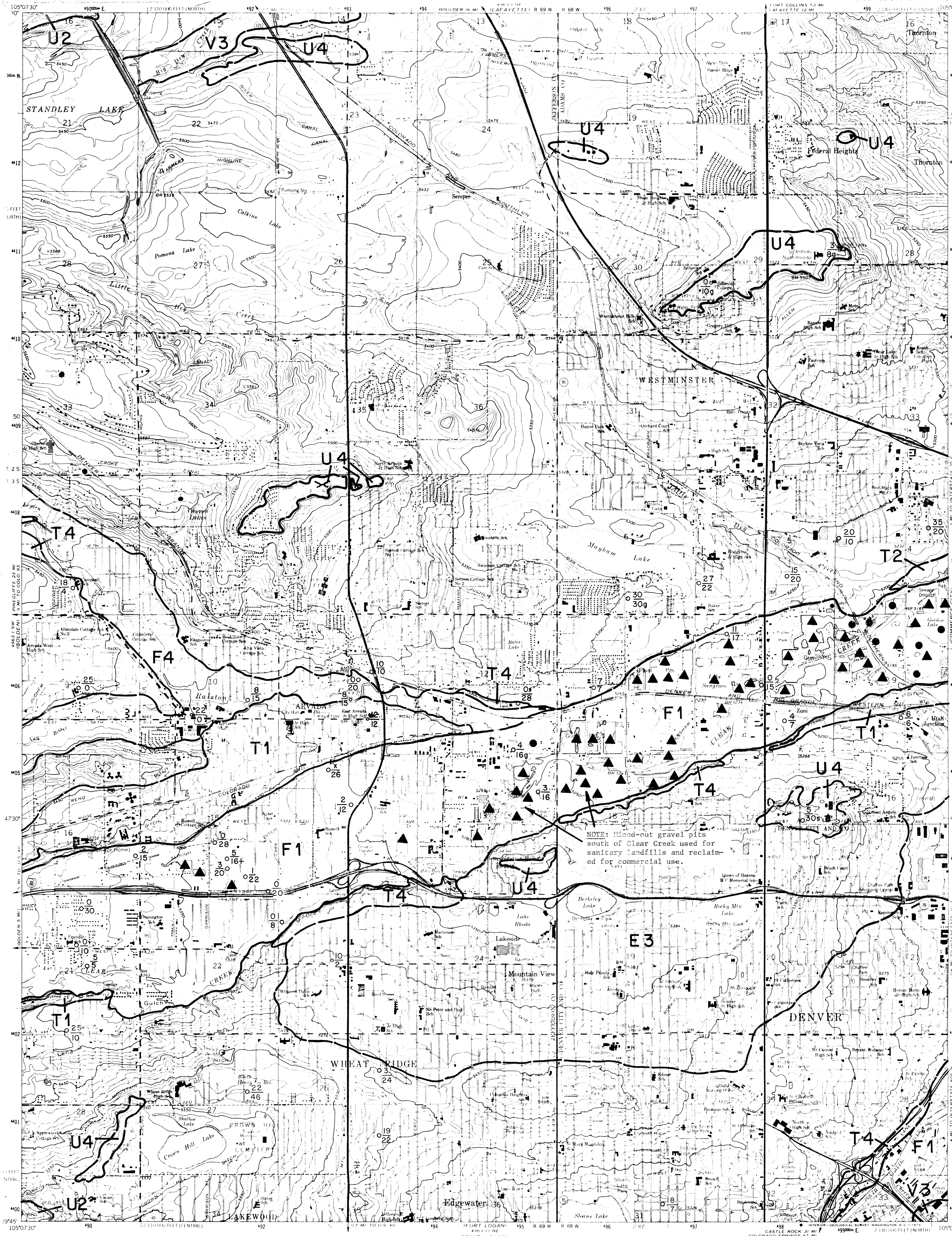
Mapped by: Stephen D. Schwochow
Date: June 30, 1974

Prepared in cooperation with the U. S. Geological Survey.

SAND, GRAVEL AND QUARRY AGGREGATE RESOURCES MAP

DEPARTMENT OF NATURAL RESOURCES
COLORADO GEOLOGICAL SURVEY
JOHN W. ROLD, DIRECTOR

ARVADA QUADRANGLE
COLORADO
7.5 MINUTE SERIES (TOPOGRAPHIC)



Base from U. S. Geological Survey
7-1/2 minute quadrangle

UTM GRID AND 1971 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

SCALE 1:24 000

CONTOUR INTERVAL 10 FEET
DATUM IS MEAN SEA LEVEL

ROAD CLASSIFICATION

Heavy-duty — Light-duty
Medium-duty — Unimproved dirt
Interstate Route — U.S. Route — State Route

ARVADA, COLO.

EXPLANATION

F1 — Landform unit / Resource classification

LANDFORM UNITS

- F Floodplain deposit
- T Stream terrace deposit
- V Valley fill (F & T)
- U Upland deposits
- A Alluvial fan
- E Wind-deposited sand (eolian)
- M Man-made deposits (slag, tailings, spoils....)

RESOURCE CLASSIFICATION

Coarse Aggregate
(at least 30% retained on #4 screen, visual estimation)

- 1 Gravel: relatively clean and sound
- 2 Gravel: significant fines, decomposed rock, calcium carbonate.

Fine Aggregate
(greater than 70% passing #4 screen, 60% retained on #200 screen, visual estimation)

- 3 Sand

Unevaluated Resource

- 4 Probable aggregate resource

MAP SYMBOLS

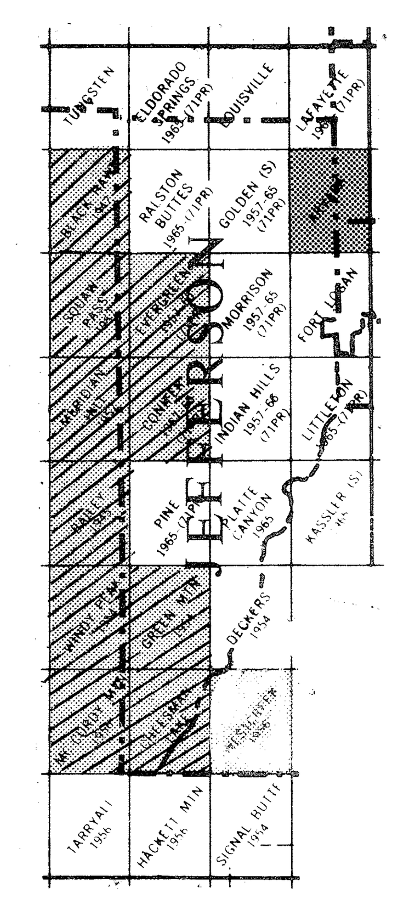
- ● Operating gravel and/or sand pit
- ▲ Abandoned gravel and/or sand pit
- Operating stone quarry
- Abandoned stone quarry
- ▨ Potential quarry aggregate resource area
- $\circ\frac{2}{17_g}$ Selected well or drill-hole location with overburden thickness (ft) over sand/gravel resource thickness (ft), obtained from well logs.
  "g" indicates gravel; "s" indicates sand
  "x" in symbol denotes unevaluated or unknown property.
  "WG" denotes Colorado Geological Survey Windsor/Sand and Gravel projects' drill hole
- Landform boundary, solid where known or observed; dashed where approximate or inferred.

STATION, LOCATION AND GEOLOGICAL DESCRIPTION OF DEPOSIT

5, 17, 40
s s s

- *overburden thickness (ft)*
- *sand/gravel resource thickness (ft)*
- *percent sand and fines (passing #4 screen, 0.25 in.), visual estimation*
- *significant amount of fines (passing #200 screen, 0.0059 in. or 0.074 mm.)*
- *significant amount of decomposed or weak rock.*
- *significant amount of calcium carbonate (caliche)*

"x" in symbol denotes unevaluated or unknown property
"a" in symbol denotes property absent or insignificant



▩ QUADRANGLE LOCATION

▨ NON-RESOURCE OR WITHDRAWN AREA

Geology modified after:
Lindvall, R.M., 1972, Geologic map of the Arvada quadrangle, Adams, Denver, and Jefferson Counties, Colorado: U.S. Geol. Survey Misc. Field Studies Map MF-348.
and
Hunt, C.B., 1954, Pleistocene and Recent deposits in the Denver area, Colorado: U.S. Geol. Survey Bull. 996-C, pl. 3.

Reference:
Chase, G.H. and McConaghy, J.A., 1972, Generalized surficial geologic map of the Denver area, Colorado: U.S. Geol. Survey Misc. Geol. Inv. Map I-731

Inter-County Regional Planning Commission, 1961, Drainage course plan for the Denver region - Part I, sand and gravel resources: Denver, Colo., Inter-County Reg. Plan. Comm. pl. 1.

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Mapped by: Stephen D. Schwochow
Date: June 30, 1974

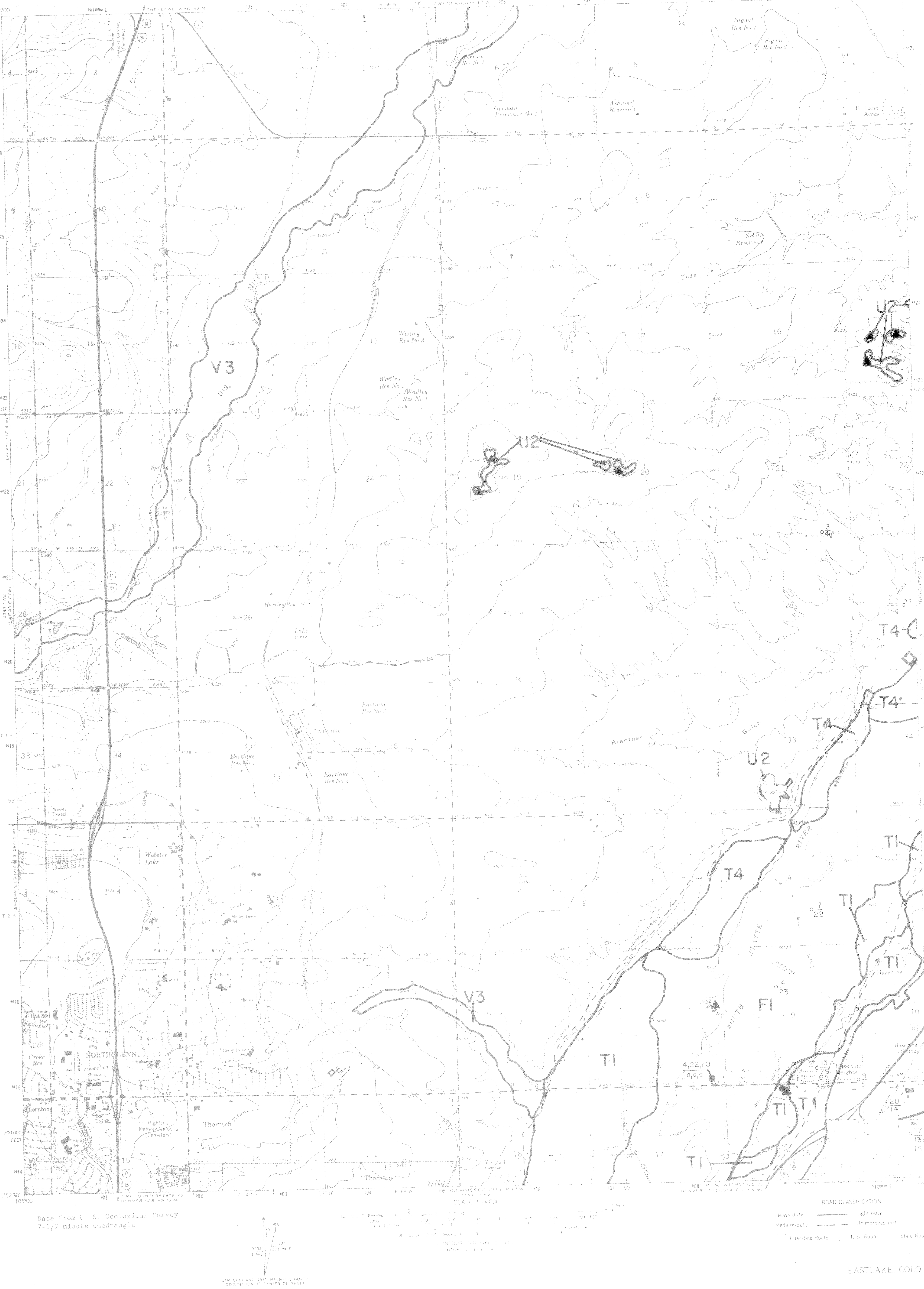
Prepared in cooperation with the U. S. Geological Survey.

SAND, GRAVEL AND QUARRY AGGREGATE

RESOURCES MAP

DEPARTMENT OF NATURAL RESOURCES
COLORADO GEOLOGICAL SURVEY
JOHN W. ROLD, DIRECTOR

EASTLAKE QUADRANGLE
COLORADO–ADAMS CO
7.5 MINUTE SERIES (TOPOGRAPHIC)



Base from U. S. Geological Survey
7-1/2 minute quadrangle

ROAD CLASSIFICATION
Heavy duty — Light duty
Medium duty — Unimproved dirt
Interstate Route — U.S. Route — State Route

EXPLANATION

F1 — Landform unit; Resource classification

LANDFORM UNITS

- F Floodplain deposit
- T Stream terrace deposit
- V Valley fill (F & T)
- U Upland deposits
- A Alluvial fan
- E Wind-deposited sand (eolian)
- M Man-made deposits (slag,tailings, spoils....)

RESOURCE CLASSIFICATION

Coarse Aggregate
(at least 30% retained on #4 screen, visual estimation)

- 1 Gravel: relatively clean and sound
- 2 Gravel: significant fines, decomposed rock, calcium carbonate.

Fine Aggregate
(greater than 70% passing #4 screen, 80% retained on #200 screen, visual estimation)

- 3 Sand

Unevaluated Resource

- 4 Probable aggregate resource

MAP SYMBOLS

- Operating gravel and/or sand pit
- Abandoned gravel and/or sand pit
- Operating stone quarry
- Abandoned stone quarry
- Potential quarry aggregate resource area
- $o\frac{2}{17g}$ Selected well or drill-hole location with overburden thickness (ft) over sand/gravel resource thickness (ft), obtained from well logs.
  "g" indicates gravel; "s" indicates sand
  "x" in symbol denotes unevaluated or unknown property.
  "WG" denotes Colorado Geological Survey Windsor/Sand and Gravel projects' drill hole
- Landform boundary, solid where known or observed; dashed where approximate or inferred.

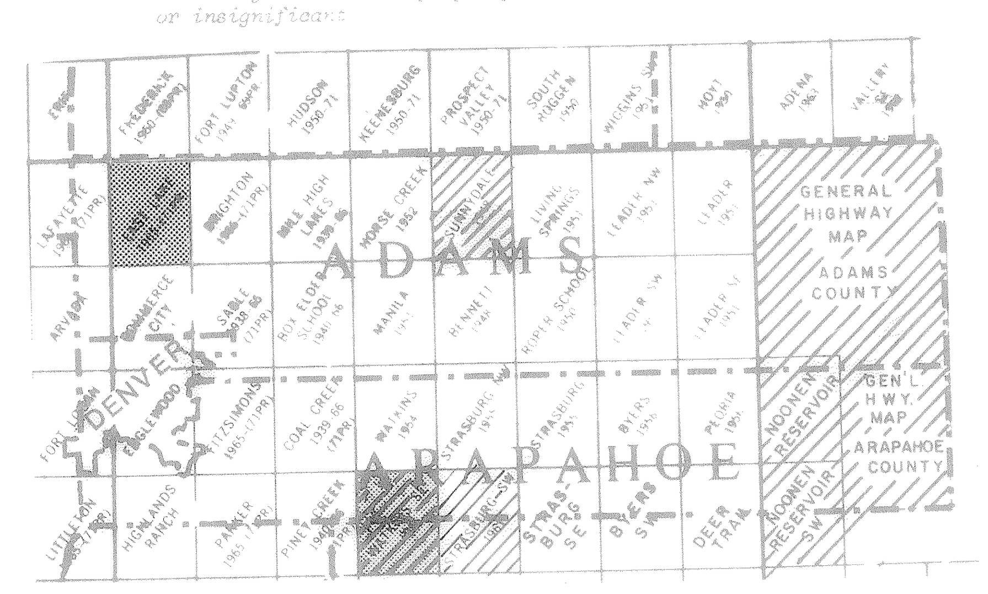
STATION, LOCATION AND GEOLOGICAL DESCRIPTION OF DEPOSIT

5, 17, 40
s s s

- overburden thickness (ft)
- sand/gravel resource thickness (ft)
- percent sand and fines (passing #4 screen, 0.25 in.), visual estimation
- significant amount of fines (passing #200 screen, 0.0059 in. or 0.074 mm.)
- significant amount of decomposed or weak rock.
- significant amount of calcium carbonate (caliche)

"x" in symbol denotes unevaluated or unknown property

"a" in symbol denotes property absent or insignificant



QUADRANGLE LOCATION

NON-RESOURCE OR WITHDRAWN AREA

References:

Schwochow, S.D., 1972, Surficial geology of the Eastlake quadrangle, Adams County, Colorado: Colorado School Mines Unpub. Master Sci. Thesis T-1465, pl. 2.

De Voto, R.H., 1963, Quaternary history of Rocky Mountain Arsenal and environs, Adams County, Colorado: Colorado School Mines Quart., v. 63, no. 1, pl. 1.

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Chase, G.H., and McConaghy, J.A., 1972, Generalized surficial geologic map of the Denver area, Colorado: U.S. Geol. Survey Misc. Geol. Inv. Map I-731.

Smith, R.O., Schneider, P.A., Jr., and Petri, L.R., 1964, Ground-water resources of the South Platte River basin in western Adams and southwestern Weld Counties, Colorado: U.S. Geol. Survey Water-Supply Paper 1658, pl. 1.

Trimble, D.E., and Fitch, H.R., 1974, Map showing potential sources of gravel and crushed rock aggregate in the Greater Denver area, Front Range Urban Corridor, Colo.: U.S. Geol. Survey Misc. Geol. Inv. Map I-856-A.

Mapped by: Stephen D. Schwochow
Date: June 30, 1974

Prepared in cooperation with the U. S. Geological Survey.

EASTLAKE, COLO.

SAND, GRAVEL AND QUARRY AGGREGATE RESOURCES MAP

DEPARTMENT OF NATURAL RESOURCES
COLORADO GEOLOGICAL SURVEY
JOHN W. ROLD, DIRECTOR

BRIGHTON QUADRANGLE
COLORADO - ADAMS CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)

NOTE: Boundary between F1 and F4 drawn just downstream from last gravel pits observed in flood-plain deposits. Lack of gravel further downstream may reflect decreasing size and percentage of flood-plain gravels.

NOTE: Gravel deposits underlie this area but thickness of overburden and poor-quality sands and gravels will probably prohibit their extraction.

Approximate boundary of buried valley.

Base from U. S. Geological Survey
7-1/2 minute quadrangle

SCALE 1:24000

CONTOUR INTERVAL 10 FEET
DATUM IS MEAN SEA LEVEL

UTM GRID AND 1971 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

ROAD CLASSIFICATION
Heavy-duty — Light-duty
Medium-duty — Unimproved dirt
Interstate Route — U.S. Route — State Route

BRIGHTON, COLO.

EXPLANATION

F1 — Landform unit / Resource classification

LANDFORM UNITS

- F Floodplain deposit
- T Stream terrace deposit
- V Valley fill (F & T)
- U Upland deposits
- A Alluvial fan
- E Wind-deposited sand (eolian)
- M Man-made deposits (slag,tailings, spoils....)

RESOURCE CLASSIFICATION

Coarse Aggregate
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Fine Aggregate
(greater than 70% passing #4 screen, 60% retained on #200 screen, visual estimation

- 3 Sand

Unevaluated Resource

- 4 Probable aggregate resource

MAP SYMBOLS

- Operating gravel and/or sand pit
- Abandoned gravel and/or sand pit
- Operating stone quarry
- Abandoned stone quarry
- Potential quarry aggregate resource area
- Selected well or drill-hole location with over-burden thickness (ft) over sand/gravel resource thickness (ft), obtained from well logs. "g" indicates gravel; "s" indicates sand
- "x" in symbol denotes unevaluated or unknown property.
- "wg" denotes Colorado Geological Survey Windsor/Sand and Gravel projects' drill hole
- Landform boundary, solid where known or observed; dashed where approximate or inferred.

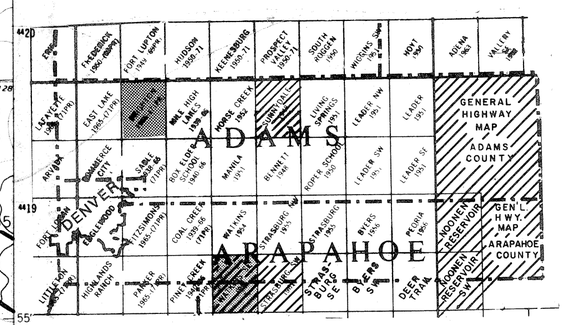
STATION, LOCATION AND GEOLOGICAL DESCRIPTION OF DEPOSIT

5, 17, 40 — overburden thickness (ft); sand/gravel resource thickness (ft); percent sand and fines (passing #4 screen, 0.25 in.), visual estimation

s s s — significant amount of fines (passing #200 screen, 0.0059 in. or 0.074 mm.); significant amount of decomposed or weak rock; significant amount of calcium carbonate (caliche)

"x" in symbol denotes unevaluated or unknown property

"a" in symbol denotes property absent or insignificant



QUADRANGLE LOCATION

NON-RESOURCE OR WITHDRAWN AREA

References:

De Voto, R.H., 1968, Quaternary history of Rocky Mountain Arsenal and environs, Adams County, Colorado: Colorado School Mines Quart. v. 63, no. 1, pl. 1.

Hamilton, J.L., and Owens, W.G., 1972, Geologic aspects, soils and related foundation problems, Denver metropolitan area, Colorado: Colorado Geol. Survey Environmental Geology Rept. 1, pl. 1.

Chase, G.H., and McConaghy, J.A., 1972, Generalized surficial geologic map of the Denver area, Colorado: U.S. Geol. Survey Misc. Geol. Inv. Map I-731.

Smith, R.O., Schneider, P.A., Jr., and Petri, L.R., 1964, Ground-water resources of the South Platte River basin in western Adams and southwestern Weld Counties, Colorado: U.S. Geol. Survey Water-Supply Paper 1658, pl. 1.

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Mapped by: Stephen D. Schwochow
Date: June 30, 1974

Prepared in cooperation with the U. S. Geological Survey.

INTERIOR—GEOLOGICAL SURVEY WASHINGTON, D.C.—1973

SAND, GRAVEL AND QUARRY AGGREGATE RESOURCES MAP

DEPARTMENT OF NATURAL RESOURCES
COLORADO GEOLOGICAL SURVEY
JOHN W. ROLD, DIRECTOR

COMMERCE CITY QUADRANGLE
COLORADO
7.5 MINUTE SERIES (TOPOGRAPHIC)

NOTE: Gravel deposits underlie this area but thickness of overburden and poor-quality sands and gravels will probably prohibit their extraction.

NOTE: Approximate boundaries of ancient Cherry Creek tributary valley (based on well-log interpretation). Valley fill contains about 23 ft of sand and gravel buried by more than 25 ft of wind-blown sand.

NOTE: Approximate boundaries of ancient Cherry Creek valley (based on well-log interpretation).

NOTE: Approximate boundaries of ancient Cherry Creek tributary valley (based on well-log interpretation). Valley fill contains 20 to 100 ft of sand and gravel buried by as much as 35 ft of wind-blown sand.

NOTE: Mined-out gravel pits used for sanitary landfills and reclaimed for industrial and railyard sites.

NOTE: Approximate boundaries of ancient Cherry Creek valley (based on well-log interpretation). Valley fill contains 15 to 80 ft of sand and gravel with as much as 40 ft of interbedded clay, all buried by 10 to 30 ft of wind-blown silt and sand.

NOTE: Approximate western boundary of ancient Sand Creek tributary valley (based on well-log interpretation). Valley fill contains 8 to 23 ft of sand and gravel buried by 8 to 30 ft of wind-blown silt and sand.

EXPLANATION

Landform unit
Resource classification

LANDFORM UNITS

- F Floodplain deposit
- T Stream terrace deposit
- V Valley fill (F & T)
- U Upland deposits
- A Alluvial fan
- E Wind-deposited sand (eolian)
- M Man-made deposits (slag,tailings, spoils....)

RESOURCE CLASSIFICATION

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Fine Aggregate
(greater than 70% passing #4 screen, 60% retained on #200 screen, visual estimatio

- 3 Sand

Unevaluated Resource

- 4 Probable aggregate resource

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- "WG" denotes Colorado Geological Survey Windsor/Sand and Gravel projects' drill hole
- Landform boundary, solid where known or observed; dashed where approximate or inferred.

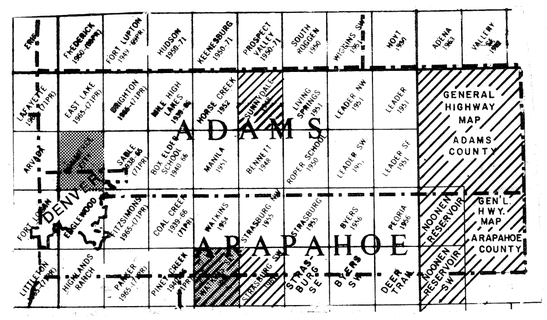
STATION, LOCATION AND GEOLOGICAL DESCRIPTION OF DEPOSIT

overburden thickness (ft)
sand/gravel resource thickness (ft)
percent sand and fines (passing #4 screen, 0.25 in.), visual estimation

3, 17, 40
s s s

significant amount of fines (passing #200 screen, 0.0059 in. or 0.074 mm.)
significant amount of decomposed or weak rock.
significant amount of calcium carbonate (caliche)

"x" in symbol denotes unevaluated or unknown property
"a" in symbol denotes property absent or insignificant



QUADRANGLE LOCATION

NON-RESOURCE OR WITHDRAWN AREA

Geology modified after
Hunt, C.B., 1954, Pleistocene and Recent deposits in the Denver area, Colorado: U.S. Geol. Survey Bull. 996-C, pl. 3.
and
DeVoto, R.H., 1968, Quaternary history of Rocky Mountain Arsenal and environs, Adams County, Colorado: Colorado School Mines Quart., v. 63, no. 1, pl. 1.

References:

Inter-county Regional Planning Commission, 1961, Drainage course plan for the Denver region - Part 1, Sand and gravel resources: Denver, Colo., Inter-County Reg. Plan. Comm., pl. 1.

Hamilton, J.L., and Owens, W.G. 1972, Geologic aspects, soils and related foundation problems, Denver metropolitan area, Colorado: Colorado Geol. Survey Environmental Geol. Rept. 1, pl. 1.

Chase, G.H., and McConaghy, J.A., 1972, Generalized surficial geologic map of the Denver area, Colorado: U.S. Geol. Survey Misc. Geol. Inv. Map I-731.

Smith R.O., Schneider, P.A., Jr. and Petri, L.R., 1964, Ground-water resources in the South Platte River basin in western Adams and southwestern Weld Counties, Colorado: U.S. Geol. Survey Water-Supply Paper 1658, pl. 1.

Trimble, D.E., and Fitch, H.R.,1974, Map showing potential sources of gravel and crushed-rock aggregate in the Greater Denver Area, Front Range Urban Corridor, Colo.: U. S. Geol. Survey Misc. Geol. Inv. Map I-856-A.

Prepared in cooperation with the U. S. Geological Survey.

Mapped by: Stephen D. Schwochow
Date: June 30, 1974

Base from U. S. Geological Survey
7-1/2 minute quadrangle

SCALE 1:24 000

CONTOUR INTERVAL 10 FEET
DATUM IS MEAN SEA LEVEL

UTM GRID AND 1971 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

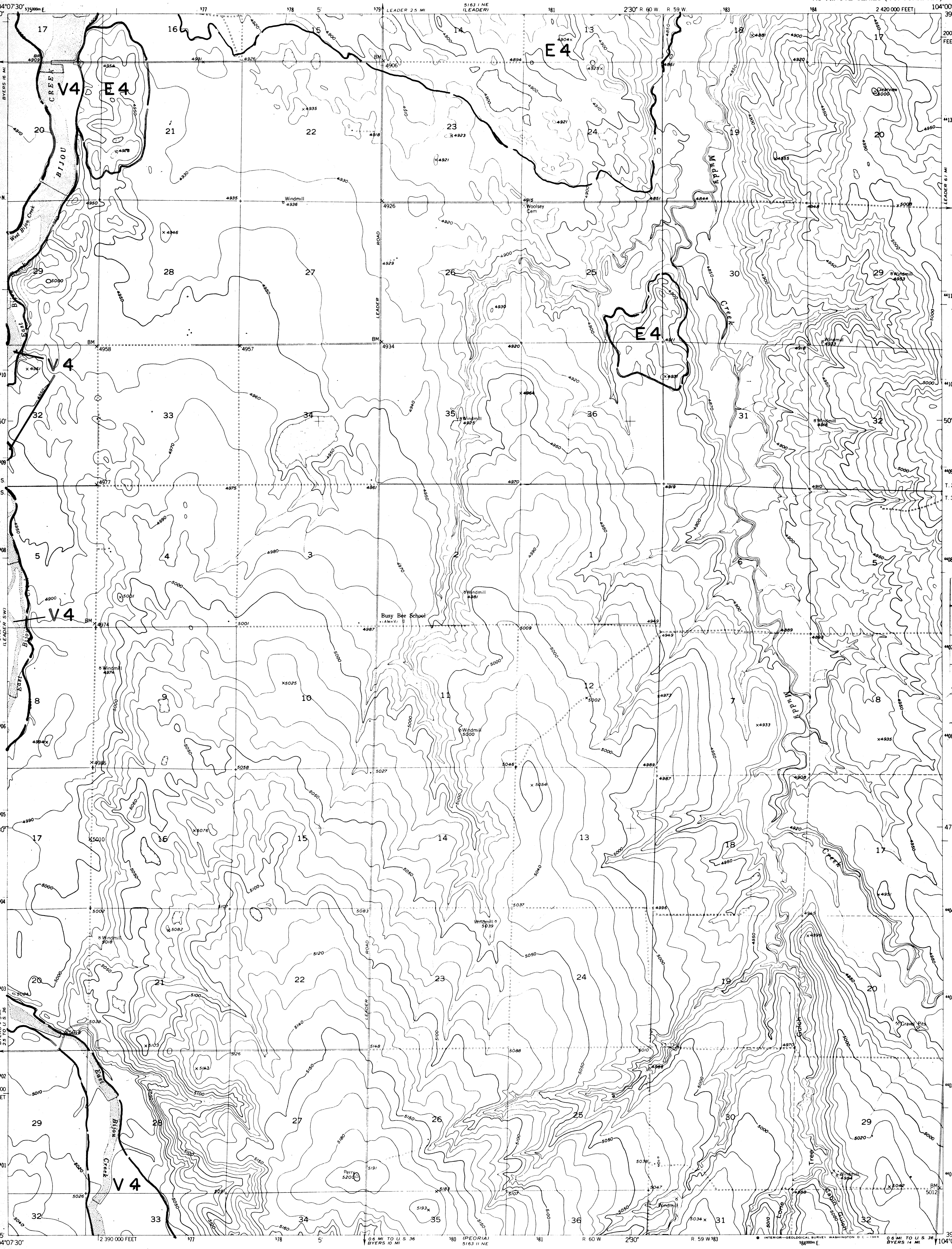
ROAD CLASSIFICATION
Heavy-duty — Light-duty
Medium-duty — Unimproved dirt
Interstate Route — U.S. Route — State Route

COMMERCE CITY, COLO

SAND, GRAVEL AND QUARRY AGGREGATE RESOURCES MAP

DEPARTMENT OF NATURAL RESOURCES
COLORADO GEOLOGICAL SURVEY
JOHN W. ROLD, DIRECTOR

LEADER SE QUADRANGLE
COLORADO-ADAMS CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)



EXPLANATION

F1 — Landform unit; Resource classification

LANDFORM UNITS

- F Floodplain deposit
- T Stream terrace deposit
- V Valley fill (F & T)
- U Upland deposits
- A Alluvial fan
- E Wind-deposited sand (eolian)
- M Man-made deposits (slag, tailings, spoils....)

RESOURCE CLASSIFICATION

Coarse Aggregate
(at least 30% retained on #4 screen, visual estimation)

1 Gravel: relatively clean and sound

2 Gravel: significant fines, decomposed rock, calcium carbonate.

Fine Aggregate
(greater than 70% passing #4 screen, 60% retained on #200 screen, visual estimation)

3 Sand

Unevaluated Resource

4 Probable aggregate resource

MAP SYMBOLS

- ● Operating gravel and/or sand pit
- ▲ Abandoned gravel and/or sand pit
- ⚒ Operating stone quarry
- ⚒ Abandoned stone quarry
- ▨ Potential quarry aggregate resource area
- ○ $\frac{2}{17_g}$ Selected well or drill-hole location with overburden thickness (ft) over sand/gravel resource thickness (ft), obtained from well logs.
  "g" indicates gravel; "s" indicates sand
  "x" in symbol denotes unevaluated or unknown property.
  "WG" denotes Colorado Geological Survey Windsor/Sand and Gravel projects' drill hole
- Landform boundary, solid where known or observed; dashed where approximate or inferred.

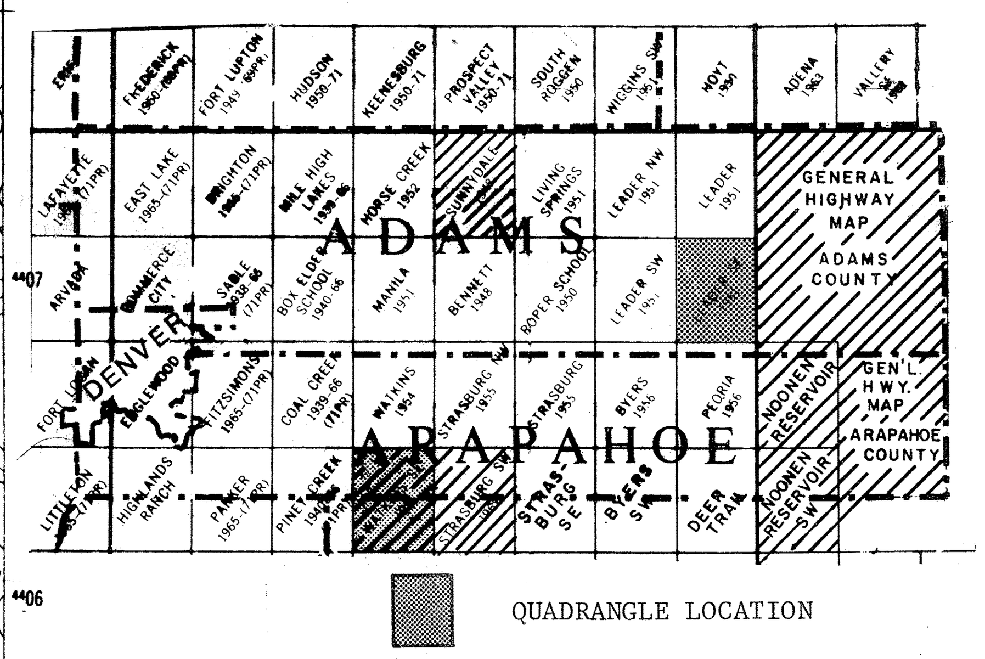
STATION, LOCATION AND GEOLOGICAL DESCRIPTION OF DEPOSIT

5, 17, 40
s s s

- overburden thickness (ft)
- sand/gravel resource thickness (ft)
- percent sand and fines (passing #4 screen, 0.25 in.), visual estimation
- significant amount of fines (passing #200 screen, 0.0059 in. or 0.074 mm.)
- significant amount of decomposed or weak rock.
- significant amount of calcium carbonate (caliche)

"x" in symbol denotes unevaluated or unknown property

"a" in symbol denotes property absent or insignificant



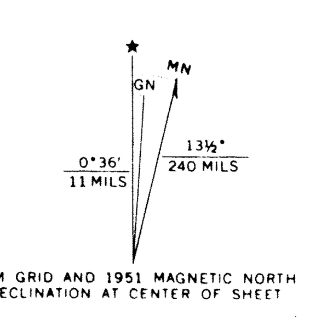
▩ QUADRANGLE LOCATION

▨ NON-RESOURCE OR WITHDRAWN AREA

REFERENCE:

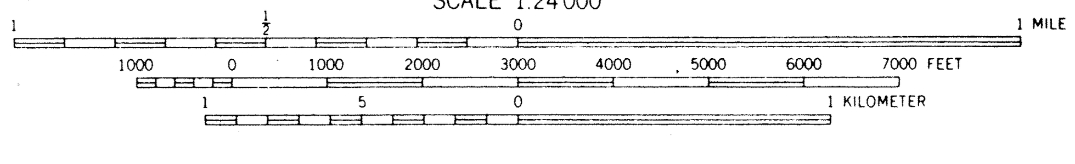
Shadul, S.A., 1971, The Bijou Creek Damsites and Reservoirs of Adams and Arapahoe Counties, Colorado; Colorado School of Mines: ER-1327.

Base from U. S. Geological Survey 7-1/2 minute quadrangle



UTM GRID AND 1951 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

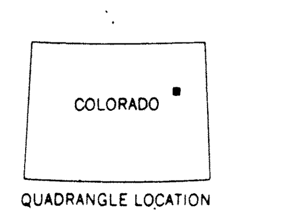
SCALE 1:24 000



CONTOUR INTERVAL 10 FEET
DATUM IS MEAN SEA LEVEL

ROAD CLASSIFICATION

Heavy-duty — 4 LANE | 6 LANE — Light-duty
Medium-duty — 4 LANE | 6 LANE — Unimproved dirt
U. S. Route — State Route



QUADRANGLE LOCATION

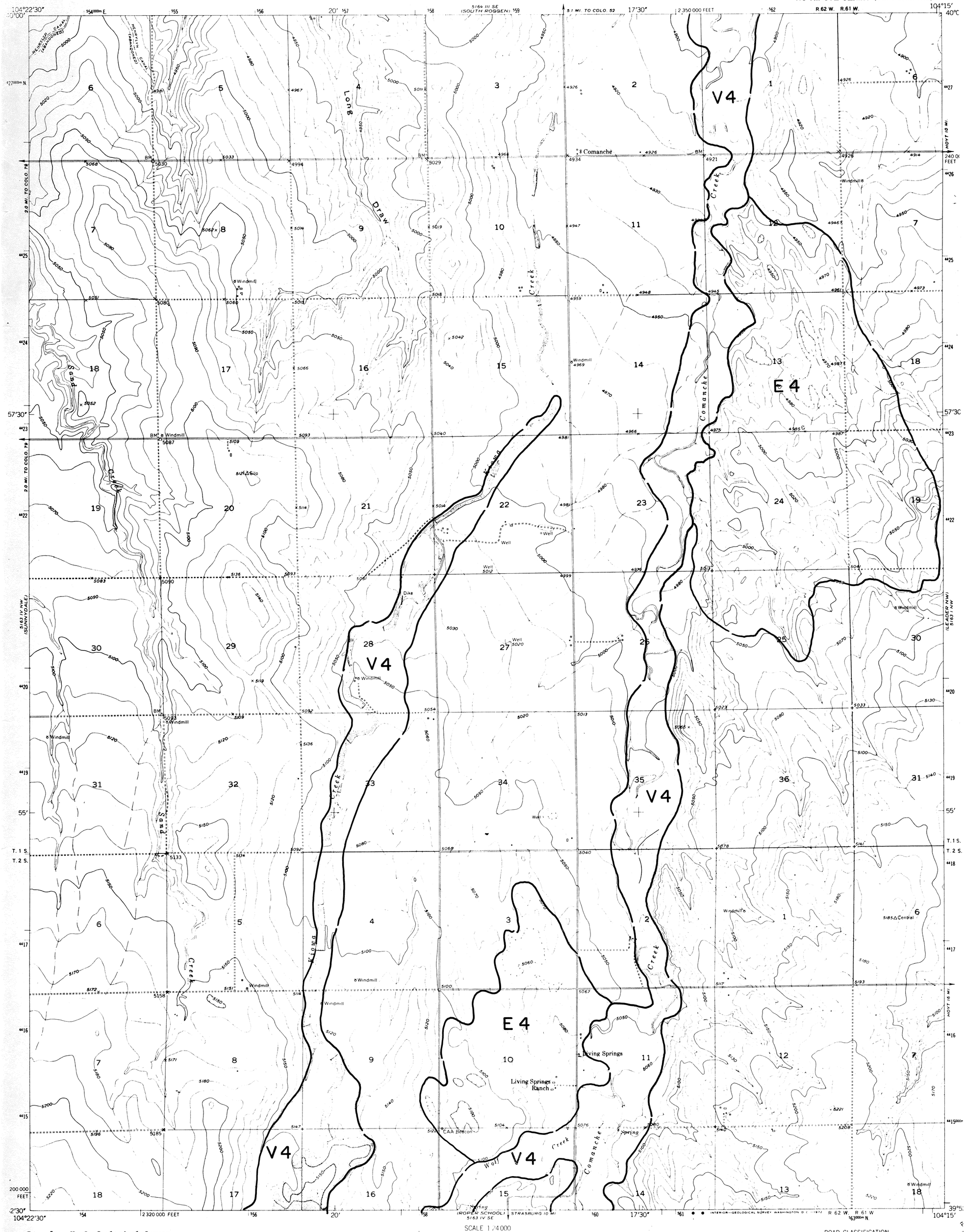
Mapped by: Phillip C. Wicklein
Date: June 30, 1974

LEADER SE, COLO.
N3945-W10400/7.5
1951
AMS 5163 I SE—SERIES V877

SAND, GRAVEL AND QUARRY AGGREGATE RESOURCES MAP

DEPARTMENT OF NATURAL RESOURCES
COLORADO GEOLOGICAL SURVEY
JOHN W. ROLD, DIRECTOR

LIVING SPRINGS QUADRANGLE
COLORADO-ADAMS CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)



EXPLANATION

Landform unit
F1
Resource classification

LANDFORM UNITS

- F — Floodplain deposit
- T — Stream terrace deposit
- V — Valley fill (F & T)
- U — Upland deposits
- A — Alluvial fan
- E — Wind-deposited sand (eolian)
- M — Man-made deposits (slag, tailings, spoils....)

RESOURCE CLASSIFICATION

Coarse Aggregate
(at least 30% retained on #4 screen, visual estimation)

- 1 — Gravel: relatively clean and sound
- 2 — Gravel: significant fines, decomposed rock, calcium carbonate.

Fine Aggregate
(greater than 70% passing #4 screen, 60% retained on #200 screen, visual estimation

- 3 — Sand

Unevaluated Resource

- 4 — Probable aggregate resource

MAP SYMBOLS

- ● Operating gravel and/or sand pit
- ▲ Abandoned gravel and/or sand pit
- Operating stone quarry
- Abandoned stone quarry
- Potential quarry aggregate resource area
- $\circ\frac{2}{17_g}$ Selected well or drill-hole location with overburden thickness (ft) over sand/gravel resource thickness (ft), obtained from well logs.
  "g" indicates gravel; "s" indicates sand
  "x" in symbol denotes unevaluated or unknown property.
  "WG" denotes Colorado Geological Survey Windsor/Sand and Gravel projects' drill hole
- Landform boundary, solid where known or observed; dashed where approximate or inferred.

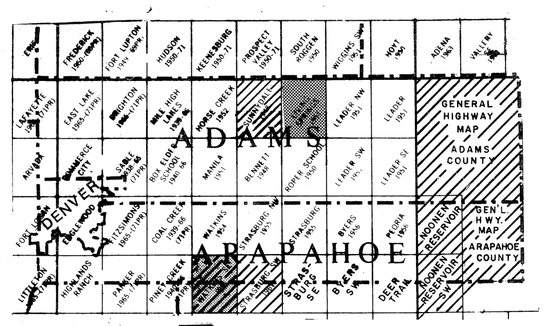
STATION, LOCATION AND GEOLOGICAL DESCRIPTION OF DEPOSIT

overburden thickness (ft)
sand/gravel resource thickness (ft)
percent sand and fines (passing #4 screen, 0.25 in.), visual estimation

5, 17, 40
S S S

significant amount of fines (passing #200 screen, 0.0059 in. or 0.074 mm.)
significant amount of decomposed or weak rock.
significant amount of calcium carbonate (caliche)

"x" in symbol denotes unevaluated or unknown property
"a" in symbol denotes property absent or insignificant



Mapped by: Phillip C. Wicklein
Date: June 30, 1974

Base from U. S. Geological Survey
7-1/2 minute quadrangle

SCALE 1:24000

CONTOUR INTERVAL 10 FEET
DATUM IS MEAN SEA LEVEL

UTM GRID AND 1951 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

ROAD CLASSIFICATION
Heavy-duty — Light-duty
Medium-duty — Unimproved dirt
U. S. Route — State Route

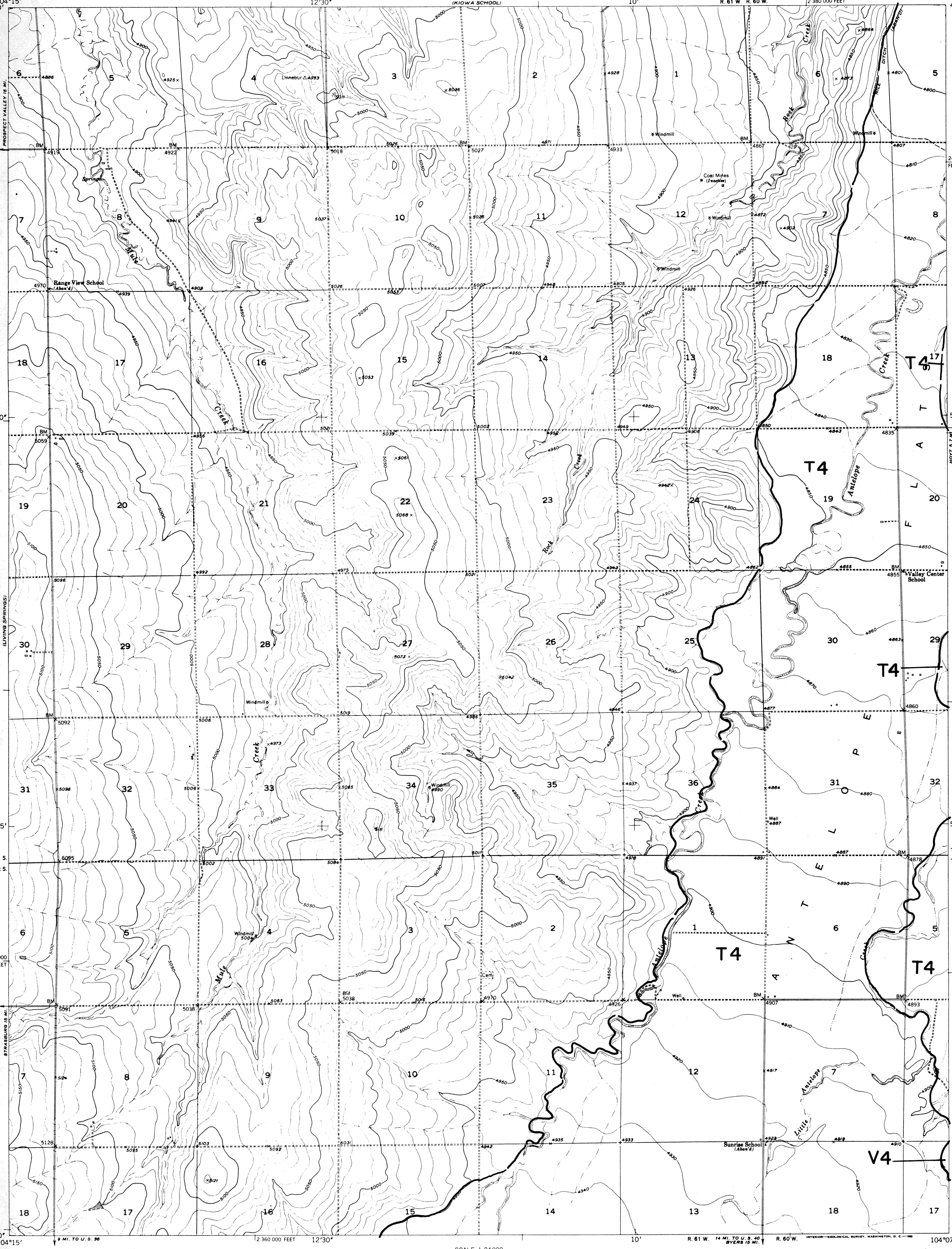
INTERIOR—GEOLOGICAL SURVEY WASHINGTON, D. C.—1972

LIVING SPRINGS, COLO.

SAND, GRAVEL AND QUARRY AGGREGATE RESOURCES MAP

DEPARTMENT OF NATURAL RESOURCES
COLORADO GEOLOGICAL SURVEY
JOHN W. ROLD, DIRECTOR

LEADER NW QUADRANGLE
COLORADO-ADAMS CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)



Base from U. S. Geological Survey
7-1/2 minute quadrangle

SCALE 1:24000

1 ½ 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 5 0 1 KILOMETER

CONTOUR INTERVAL 10 FEET
DATUM IS MEAN SEA LEVEL

TRUE NORTH
MAGNETIC NORTH
13½°
APPROXIMATE MEAN DECLINATION, 1951

ROAD CLASSIFICATION

Heavy-duty — 4 LANE | 6 LANE — Light-duty
Medium-duty — 4 LANE | 6 LANE — Unimproved dirt
U. S. Route — State Route

LEADER NW, COLO.

EXPLANATION

F1 — Landform unit / Resource classification

LANDFORM UNITS

- F Floodplain deposit
- T Stream terrace deposit
- V Valley fill (F & T)
- U Upland deposits
- A Alluvial fan
- E Wind-deposited sand (eolian)
- M Man-made deposits (slag, tailings, spoils....)

RESOURCE CLASSIFICATION

Coarse Aggregate
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- 1 Gravel: relatively clean and sound
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Fine Aggregate
(greater than 70% passing #4 screen, 60% retained on #200 screen, visual estimation)

- 3 Sand

Unevaluated Resource

- 4 Probable aggregate resource

MAP SYMBOLS

- ● Operating gravel and/or sand pit
- ▲ Abandoned gravel and/or sand pit
- ⊗ Operating stone quarry
- ⊗ Abandoned stone quarry
- ▨ Potential quarry aggregate resource area
- $\circ\frac{2}{17g}$ Selected well or drill-hole location with overburden thickness (ft) over sand/gravel resource thickness (ft), obtained from well logs.
  "g" indicates gravel; "s" indicates sand
  "x" in symbol denotes unevaluated or unknown property.
  "WG" denotes Colorado Geological Survey Windsor/Sand and Gravel projects' drill hole
- Landform boundary, solid where known or observed; dashed where approximate or inferred.

STATION, LOCATION AND GEOLOGICAL DESCRIPTION OF DEPOSIT

5, 17, 40
s s s

- *overburden thickness (ft)*
- *sand/gravel resource thickness (ft)*
- *percent sand and fines (passing #4 screen, 0.25 in.), visual estimation*
- *significant amount of fines (passing #200 screen, 0.0059 in. or 0.074 mm.)*
- *significant amount of decomposed or weak rock.*
- *significant amount of calcium carbonate (caliche)*

"x" in symbol denotes unevaluated or unknown property
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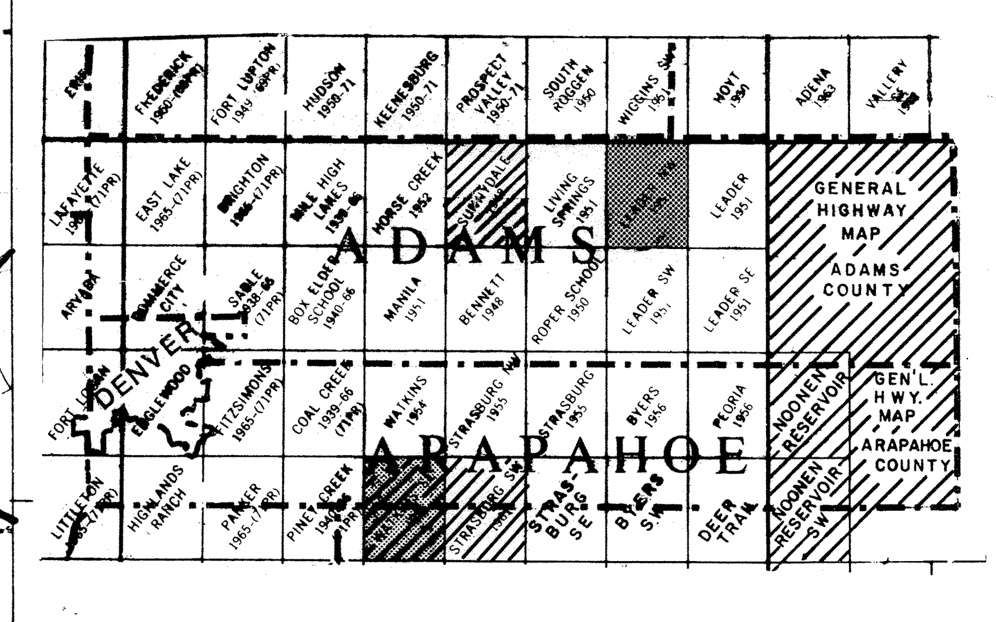


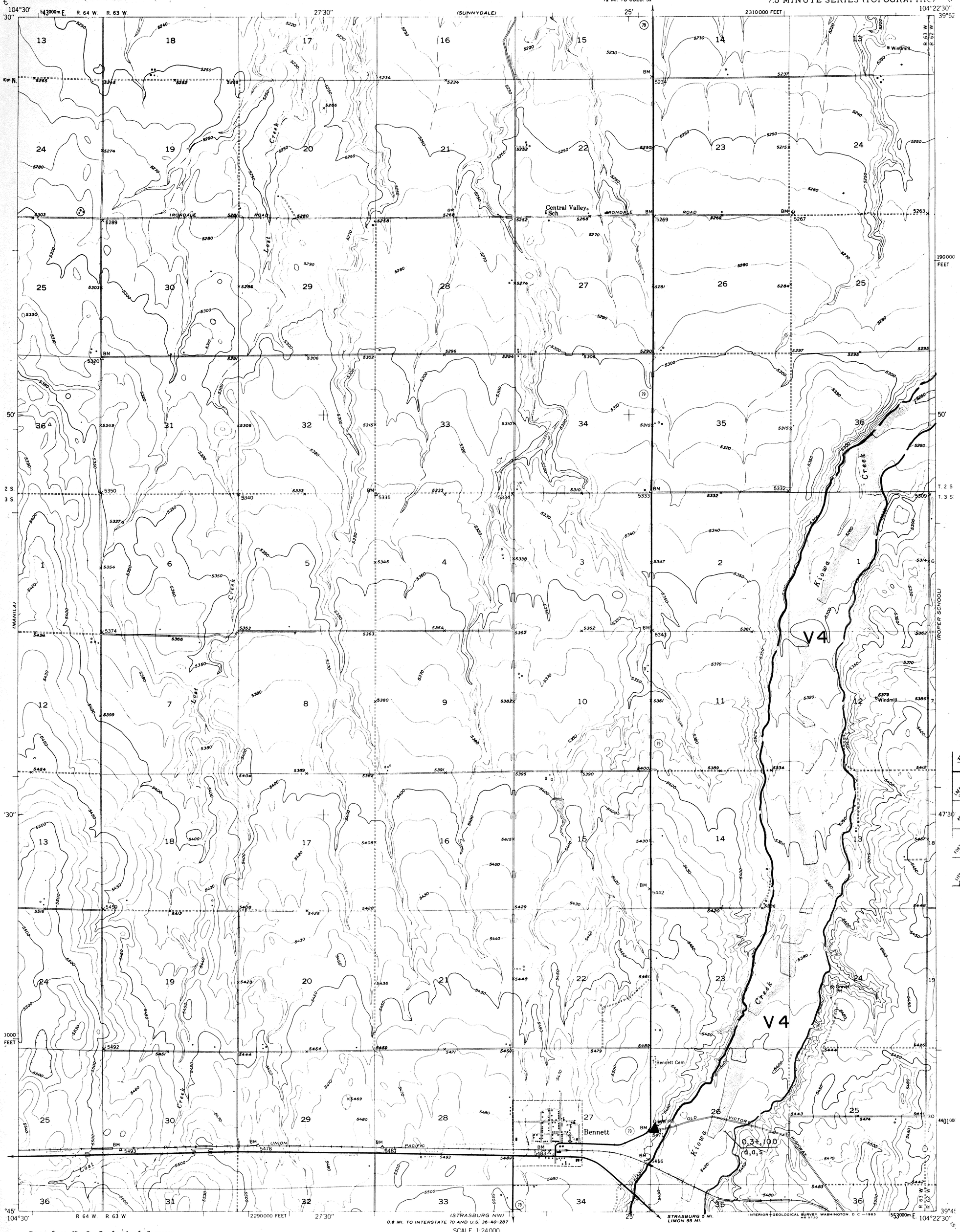
- ▩ QUADRANGLE LOCATION
- ▨ NON-RESOURCE OR WITHDRAWN AREA

Mapped by: Phillip C. Wicklein
Date: June 30, 1974

SAND, GRAVEL AND QUARRY AGGREGATE RESOURCES MAP

DEPARTMENT OF NATURAL RESOURCES
COLORADO GEOLOGICAL SURVEY
JOHN W. ROLD, DIRECTOR

BENNETT QUADRANGLE
COLORADO-ADAMS CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)



EXPLANATION

F1 — Landform unit / Resource classification

LANDFORM UNITS

F	Floodplain deposit
T	Stream terrace deposit
V	Valley fill (F & T)
U	Upland deposits
A	Alluvial fan
E	Wind-deposited sand (eolian)
M	Man-made deposits (slag, tailings, spoils....)

RESOURCE CLASSIFICATION

Coarse Aggregate
(at least 30% retained on #4 screen, visual estimation)

1	Gravel: relatively clean and sound
2	Gravel: significant fines, decomposed rock, calcium carbonate.

Fine Aggregate
(greater than 70% passing #4 screen, 60% retained on #200 screen, visual estimation

3	Sand

Unevaluated Resource

4	Probable aggregate resource

MAP SYMBOLS

- Operating gravel and/or sand pit
- Abandoned gravel and/or sand pit
- Operating stone quarry
- Abandoned stone quarry
- Potential quarry aggregate resource area
- Selected well or drill-hole location with overburden thickness (ft) over sand/gravel resource thickness (ft), obtained from well logs.
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  - "WG" denotes Colorado Geological Survey Windsor/Sand and Gravel projects' drill hole
- Landform boundary, solid where known or observed; dashed where approximate or inferred.

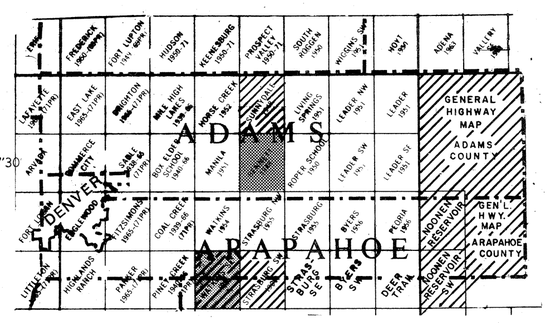
STATION, LOCATION AND GEOLOGICAL DESCRIPTION OF DEPOSIT

- *overburden thickness (ft)*
- *sand/gravel resource thickness (ft)*
- *percent sand and fines (passing #4 screen, 0.25 in.), visual estimation*

5, 17, 40
s s s

- *significant amount of fines (passing #200 screen, 0.0059 in. or 0.074 mm.)*
- *significant amount of decomposed or weak rock.*
- *significant amount of calcium carbonate (caliche)*

"x" in symbol denotes unevaluated or unknown property
"a" in symbol denotes property absent or insignificant



QUADRANGLE LOCATION

NON-RESOURCE OR WITHDRAWN AREA

Mapped by: Phillip C. Wicklein
Date: June 30, 1974

Base from U. S. Geological Survey
7-1/2 minute quadrangle

SCALE 1:24000

1 0 1 MILE
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 5 0 1 KILOMETER

CONTOUR INTERVAL 10 FEET
DATUM IS MEAN SEA LEVEL

APPROXIMATE MEAN DECLINATION, 1949
14° TRUE NORTH, MAGNETIC NORTH

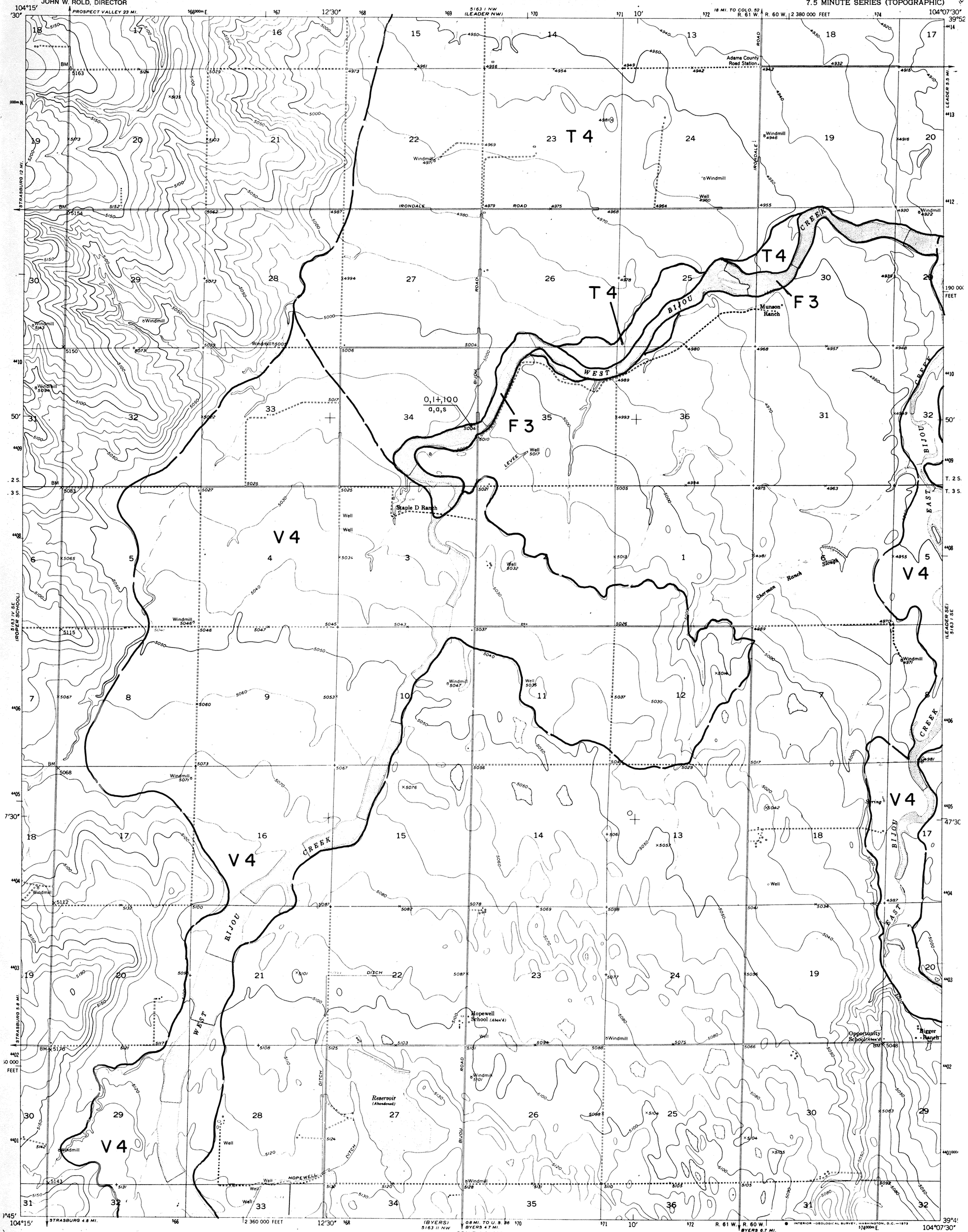
ROAD CLASSIFICATION 1963
Heavy-duty — Light-duty
Unimproved dirt
State Route

BENNETT, COLO.

SAND, GRAVEL AND QUARRY AGGREGATE RESOURCES MAP

DEPARTMENT OF NATURAL RESOURCES
COLORADO GEOLOGICAL SURVEY
JOHN W. ROLD, DIRECTOR

LEADER SW QUADRANGLE
COLORADO-ADAMS CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)



EXPLANATION

F — Landform unit
T — Resource classification

LANDFORM UNITS

F	Floodplain deposit
T	Stream terrace deposit
V	Valley fill (F & T)
U	Upland deposits
A	Alluvial fan
E	Wind-deposited sand (eolian)
M	Man-made deposits (slag,tailings, spoils....)

RESOURCE CLASSIFICATION

Coarse Aggregate
(at least 30% retained on #4 screen, visual estimation)

1	Gravel: relatively clean and sound
2	Gravel: significant fines, decomposed rock, calcium carbonate.

Fine Aggregate
(greater than 70% passing #4 screen, 60% retained on #200 screen, visual estimation

3	Sand

Unevaluated Resource

4	Probable aggregate resource

MAP SYMBOLS

- Operating gravel and/or sand pit
- Abandoned gravel and/or sand pit
- Operating stone quarry
- Abandoned stone quarry
- Potential quarry aggregate resource area
- Selected well or drill-hole location with overburden thickness (ft) over sand/gravel resource thickness (ft), obtained from well logs.
  - "g" indicates gravel; "s" indicates sand
  - "x" in symbol denotes unevaluated or unknown property.
  - "WG" denotes Colorado Geological Survey Windsor/Sand and Gravel projects' drill hole
- Landform boundary, solid where known or observed; dashed where approximate or inferred.

STATION, LOCATION AND GEOLOGICAL DESCRIPTION OF DEPOSIT

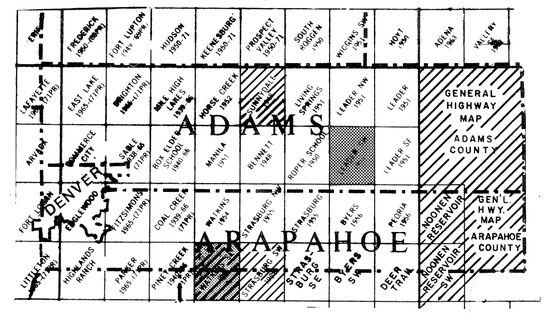
- *overburden thickness (ft)*
- *sand/gravel resource thickness (ft)*
- *percent sand and fines (passing #4 screen, 0.25 in.), visual estimation*

5, 17, 40 (s s s)

- *significant amount of fines (passing #200 screen, 0.0059 in. or 0.074 mm.)*
- *significant amount of decomposed or weak rock.*
- *significant amount of calcium carbonate (caliche)*

"x" in symbol denotes unevaluated or unknown property

"0" in symbol denotes property absent or insignificant



Mapped by: Phillip C. Wicklein
Date: June 30, 1974

Base from U. S. Geological Survey
7-1/2 minute quadrangle

SCALE 1:24 000
1 MILE
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 KILOMETER

CONTOUR INTERVAL 10 FEET
DATUM IS MEAN SEA LEVEL

UTM GRID AND 1952 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET
GN MN
0°31' 9 MILS
13½° 240 MILS

COLORADO
QUADRANGLE LOCATION

ROAD CLASSIFICATION
Heavy-duty — 4 LANE | 6 LANE — Light-duty
Medium-duty — 4 LANE | 6 LANE — Unimproved dirt
U. S. Route — State Route

LEADER SW, COLO.
N3945-W10407.5/7.5
1952
AMS 5163 I SW—SERIES V877

SAND, GRAVEL AND QUARRY AGGREGATE RESOURCES MAP

DEPARTMENT OF NATURAL RESOURCES
COLORADO GEOLOGICAL SURVEY
JOHN W. ROLD, DIRECTOR

ROPER SCHOOL QUADRANGLE
COLORADO-ADAMS CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)

EXPLANATION

F1 — Landform unit / Resource classification

LANDFORM UNITS

- F Floodplain deposit
- T Stream terrace deposit
- V Valley fill (F & T)
- U Upland deposits
- A Alluvial fan
- E Wind-deposited sand (eolian)
- M Man-made deposits (slag, tailings, spoils....)

RESOURCE CLASSIFICATION

Coarse Aggregate
(at least 30% retained on #4 screen, visual estimation)

- 1 Gravel: relatively clean and sound
- 2 Gravel: significant fines, decomposed rock, calcium carbonate.

Fine Aggregate
(greater than 70% passing #4 screen, 60% retained on #200 screen, visual estimation)

- 3 Sand

Unevaluated Resource

- 4 Probable aggregate resource

MAP SYMBOLS

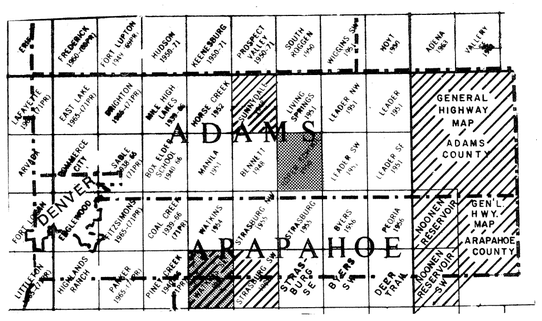
- ● Operating gravel and/or sand pit
- ▲ Abandoned gravel and/or sand pit
- Operating stone quarry
- Abandoned stone quarry
- Potential quarry aggregate resource area
- ○ 2/17g Selected well or drill-hole location with overburden thickness (ft) over sand/gravel resource thickness (ft), obtained from well logs.
  - "g" indicates gravel; "s" indicates sand
  - "x" in symbol denotes unevaluated or unknown property.
  - "WG" denotes Colorado Geological Survey Windsor/Sand and Gravel projects' drill hole
- Landform boundary, solid where known or observed; dashed where approximate or inferred.

STATION, LOCATION AND GEOLOGICAL DESCRIPTION OF DEPOSIT

5, 17, 40 / S S S
- 5 — overburden thickness (ft)
- 17 — sand/gravel resource thickness (ft)
- 40 — percent sand and fines (passing #4 screen, 0.25 in.), visual estimation
- S — significant amount of fines (passing #200 screen, 0.0059 in. or 0.074 mm.)
- S — significant amount of decomposed or weak rock.
- S — significant amount of calcium carbonate (caliche)

"x" in symbol denotes unevaluated or unknown property

"a" in symbol denotes property absent or insignificant



QUADRANGLE LOCATION

NON-RESOURCE OR WITHDRAWN AREA

Mapped by: Phillip C. Wicklein
Date: June 30, 1974

Base from U. S. Geological Survey
7-1/2 minute quadrangle

UTM GRID AND 1950 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

SCALE 1:24000

CONTOUR INTERVAL 10 FEET
DATUM IS MEAN SEA LEVEL

ROAD CLASSIFICATION

HARD-SURFACE ALL WEATHER ROADS	DRY WEATHER ROADS
Heavy-duty — 4 LANE IS LANE	Light-duty -----
Medium-duty — — 4 LANE IS LANE	Unimproved dirt =========

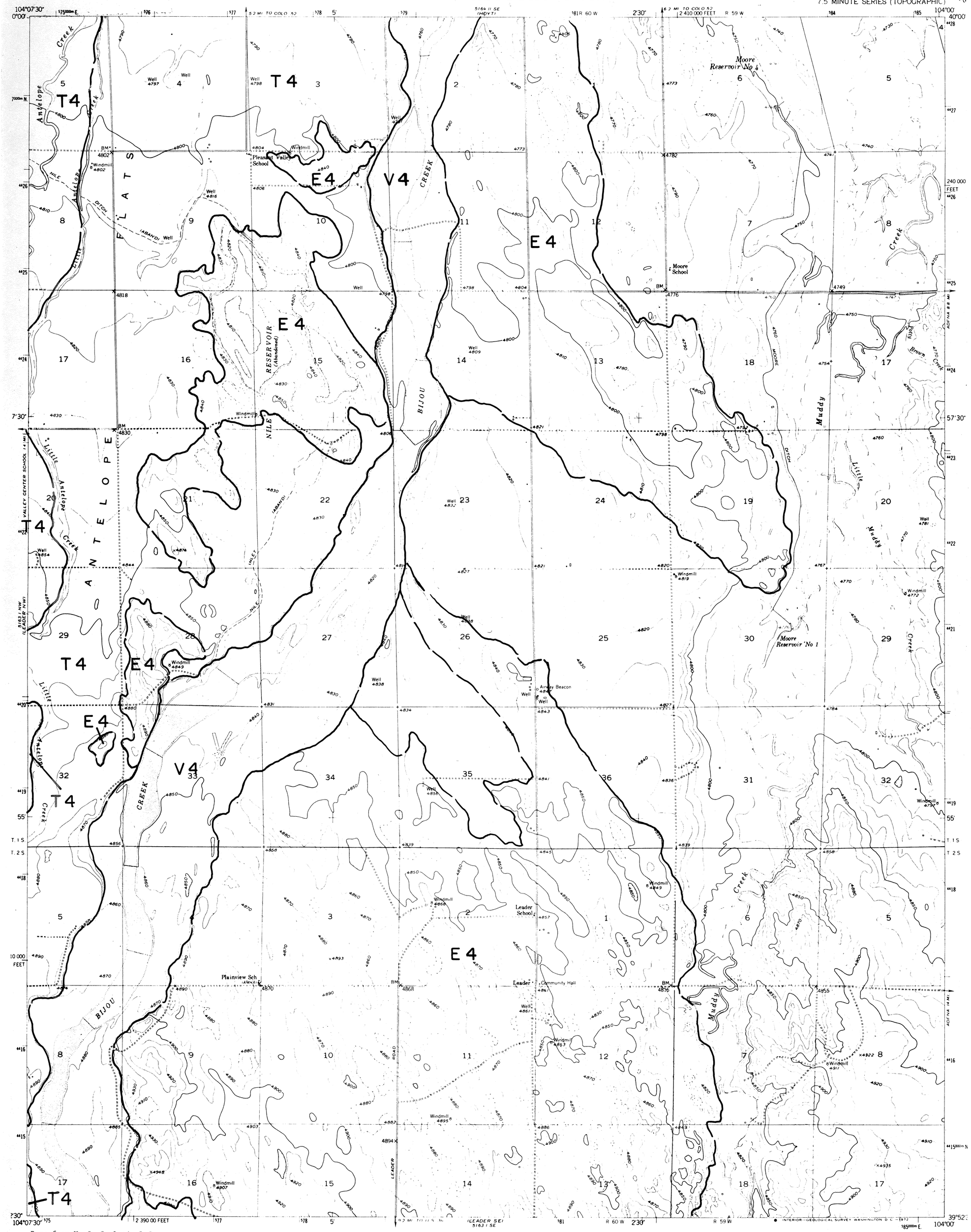
U. S. Route ⬡ State Route ○

ROPER SCHOOL, COLO.

SAND, GRAVEL AND QUARRY AGGREGATE RESOURCES MAP

DEPARTMENT OF NATURAL RESOURCES
COLORADO GEOLOGICAL SURVEY
JOHN W. ROLD, DIRECTOR

LEADER QUADRANGLE
COLORADO-ADAMS CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)



EXPLANATION

F1 — *Landform unit* / *Resource classification*

LANDFORM UNITS

- F — Floodplain deposit
- T — Stream terrace deposit
- V — Valley fill (F & T)
- U — Upland deposits
- A — Alluvial fan
- E — Wind-deposited sand (eolian)
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(at least 30% retained on #4 screen, visual estimation)

- 1 — Gravel: relatively clean and sound
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Fine Aggregate
(greater than 70% passing #4 screen, 60% retained on #200 screen, visual estimation)

- 3 — Sand

Unevaluated Resource

- 4 — Probable aggregate resource

MAP SYMBOLS

- ● Operating gravel and/or sand pit
- ▲ Abandoned gravel and/or sand pit
- Operating stone quarry
- Abandoned stone quarry
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STATION, LOCATION AND GEOLOGICAL DESCRIPTION OF DEPOSIT

overburden thickness (ft)
sand/gravel resource thickness (ft)
percent sand and fines (passing #4 screen, 0.25 in.), visual estimation

5, 17, 40
s s s

- *significant amount of fines (passing #200 screen, 0.0059 in. or 0.074 mm.)*
- *significant amount of decomposed or weak rock.*
- *significant amount of calcium carbonate (caliche)*

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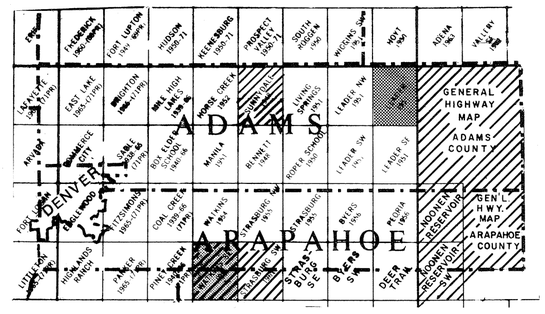


QUADRANGLE LOCATION

NON-RESOURCE OR WITHDRAWN AREA

Mapped by: Phillip C. Wicklein
Date: June 30, 1974

Base from U. S. Geological Survey
7-1/2 minute quadrangle

SCALE 1:24 000
1 MILE
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 KILOMETER

CONTOUR INTERVAL 10 FEET
DATUM IS MEAN SEA LEVEL

UTM GRID AND 1951 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET
GN MN
0°36' 11 MILS
14° 249 MILS

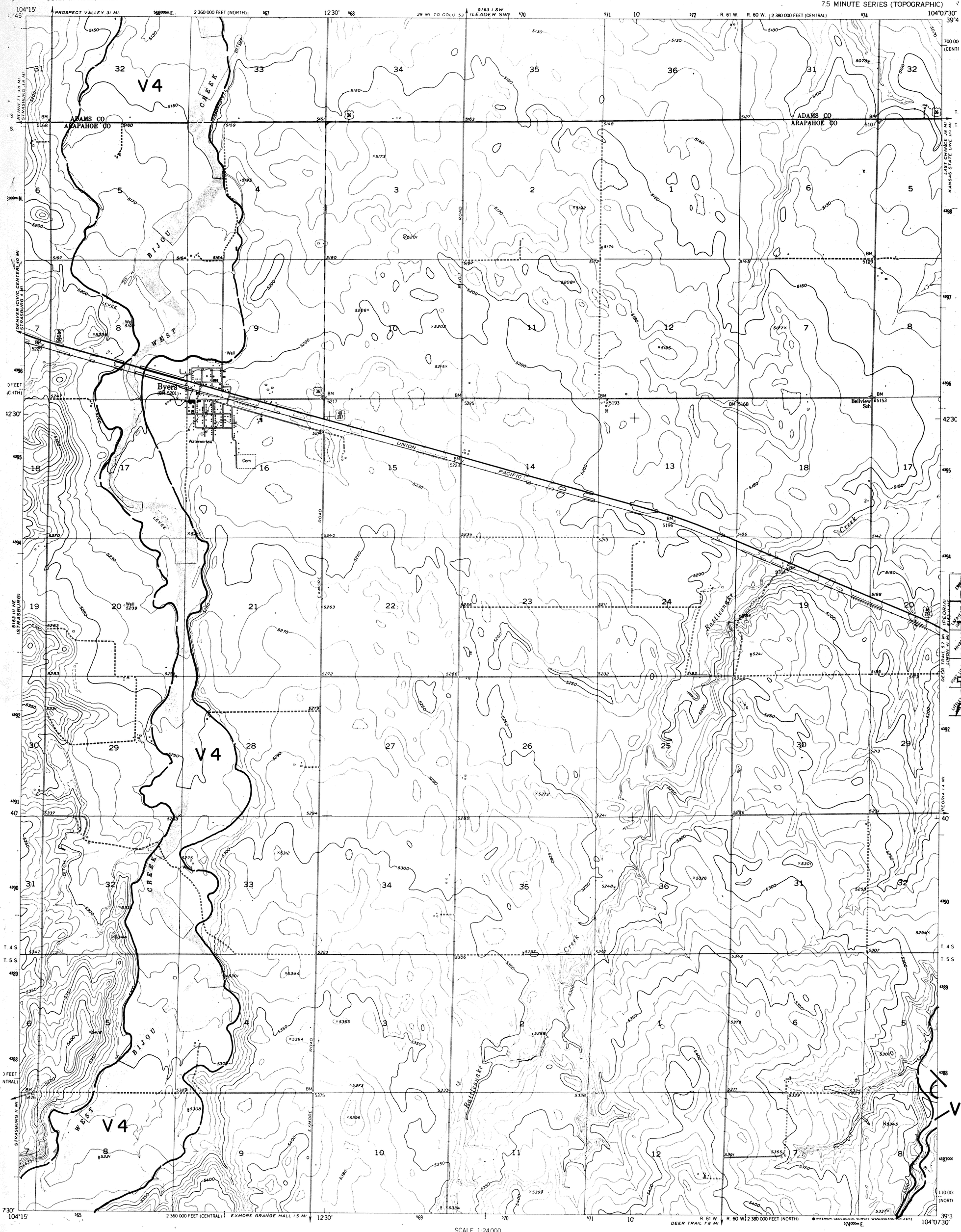
ROAD CLASSIFICATION
Heavy-duty — 4 LANE 6 LANE — Light duty
Medium-duty — 4 LANE 6 LANE — Unimproved dirt
U.S. Route — State Route

LEADER, COLO.

SAND, GRAVEL AND QUARRY AGGREGATE RESOURCES MAP

DEPARTMENT OF NATURAL RESOURCES
COLORADO GEOLOGICAL SURVEY
JOHN W. ROLD, DIRECTOR

BYERS QUADRANGLE
COLORADO
7.5 MINUTE SERIES (TOPOGRAPHIC)



EXPLANATION

Landform unit
F1
Resource classification

LANDFORM UNITS

- F Floodplain deposit
- T Stream terrace deposit
- V Valley fill (F & T)
- U Upland deposits
- A Alluvial fan
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Fine Aggregate
(greater than 70% passing #4 screen, 60% retained on #200 screen, visual estimatio

- 3 Sand

Unevaluated Resource

- 4 Probable aggregate resource

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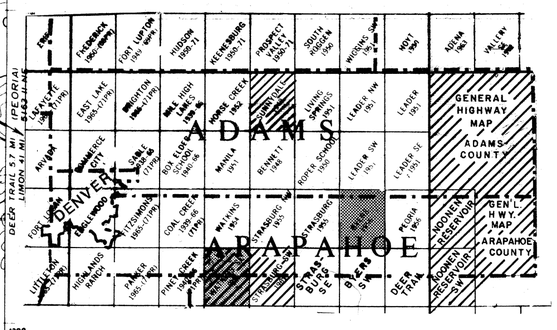
- Abandoned stone quarry
- Potential quarry aggregate resource area
- $\circ \frac{2}{17_g}$ Selected well or drill-hole location with over-burden thickness (ft) over sand/gravel resource thickness (ft), obtained from well logs.
  "g" indicates gravel; "s" indicates sand
  "x" in symbol denotes unevaluated or unknown property.
  "WG" denotes Colorado Geological Survey Windsor/Sand and Gravel projects' drill hole
- Landform boundary, solid where known or observed; dashed where approximate or inferred.

STATION, LOCATION AND GEOLOGICAL DESCRIPTION OF DEPOSIT

overburden thickness (ft)
sand/gravel resource thickness (ft)
percent sand and fines (passing #4 screen, 0.25 in.), visual estimation

5, 17, 40
s s s
significant amount of fines (passing #200 screen, 0.0059 in. or 0.074 mm.)
significant amount of decomposed or weak rock.
significant amount of calcium carbonate (caliche)

"x" in symbol denotes unevaluated or unknown property
"a" in symbol denotes property absent or insignificant



QUADRANGLE LOCATION

NON-RESOURCE OR WITHDRAWN AREA

Reference:

Shadul, S.A., 1971, The Bijou Creek Damsites and Reservoirs of Adams and Arapahoe Counties Colorado: Colo. Sch. Mines: ER-1327

Mapped by: Phillip C. Wicklein
Date: June 30, 1974

Base from U. S. Geological Survey
7-1/2-minute quadrangle

UTM GRID AND 1956 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET
0°31' 9 MILS
13½° 240 MILS

SCALE 1:24000
1 MILE
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 KILOMETER
CONTOUR INTERVAL 10 FEET
DATUM IS MEAN SEA LEVEL

COLORADO
QUADRANGLE LOCATION

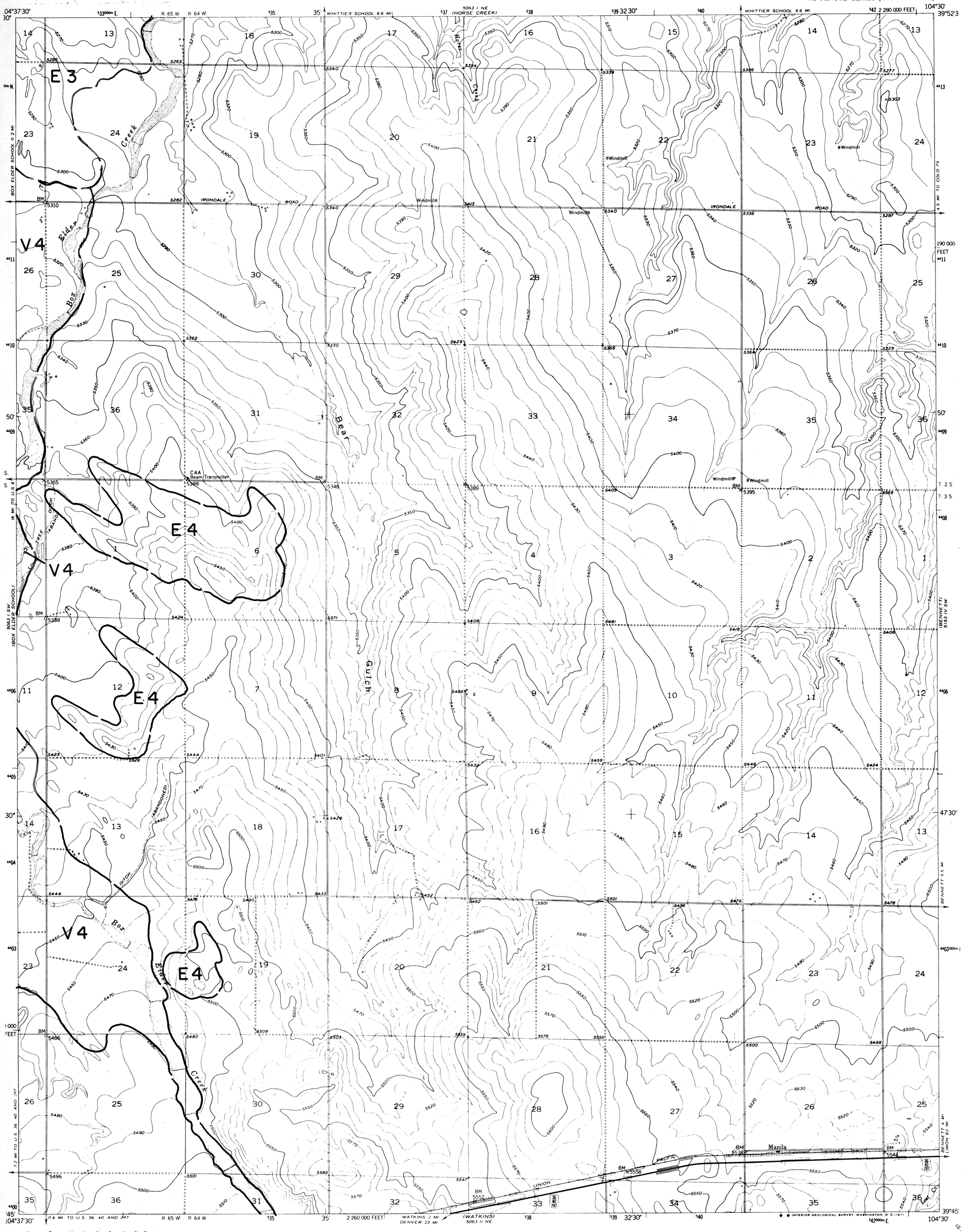
ROAD CLASSIFICATION
Heavy-duty
Medium-duty
Light-duty
Unimproved dirt
U.S. Route

BYERS, COLO.
N3937.5—W10407.5/7.5
1956

SAND, GRAVEL AND QUARRY AGGREGATE RESOURCES MAP

DEPARTMENT OF NATURAL RESOURCES
COLORADO GEOLOGICAL SURVEY
JOHN W. ROLD, DIRECTOR

MANILA QUADRANGLE
COLORADO-ADAMS CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)



EXPLANATION

F1 — Landform unit / Resource classification

LANDFORM UNITS

- F — Floodplain deposit
- T — Stream terrace deposit
- V — Valley fill (F & T)
- U — Upland deposits
- A — Alluvial fan
- E — Wind-deposited sand (eolian)
- M — Man-made deposits (slag, tailings, spoils....)

RESOURCE CLASSIFICATION

Coarse Aggregate
(at least 30% retained on #4 screen, visual estimation)

- 1 — Gravel: relatively clean and sound
- 2 — Gravel: significant fines, decomposed rock, calcium carbonate.

Fine Aggregate
(greater than 70% passing #4 screen, 60% retained on #200 screen, visual estimation)

- 3 — Sand

Unevaluated Resource

- 4 — Probable aggregate resource

MAP SYMBOLS

- ● Operating gravel and/or sand pit
- ▲ Abandoned gravel and/or sand pit
- Operating stone quarry
- Abandoned stone quarry
- Potential quarry aggregate resource area
- $0\frac{2}{17_g}$ Selected well or drill-hole location with overburden thickness (ft) over sand/gravel resource thickness (ft), obtained from well logs. "g" indicates gravel; "s" indicates sand
- "x" in symbol denotes unevaluated or unknown property.
- "WG" denotes Colorado Geological Survey Windsor/Sand and Gravel projects' drill hole
- Landform boundary, solid where known or observed; dashed where approximate or inferred.

STATION, LOCATION AND GEOLOGICAL DESCRIPTION OF DEPOSIT

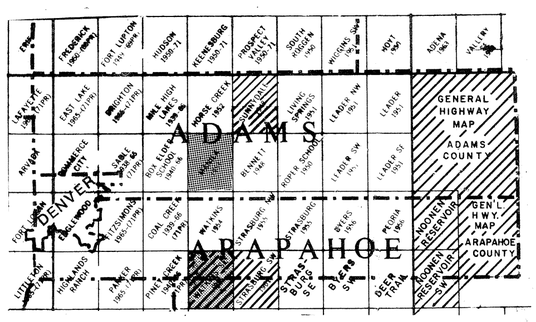
overburden thickness (ft)
sand/gravel resource thickness (ft)
percent sand and fines (passing #4 screen, 0.25 in.), visual estimation

5, 17, 40
s s s

- *significant amount of fines (passing #200 screen, 0.0059 in. or 0.074 mm.)*
- *significant amount of decomposed or weak rock.*
- *significant amount of calcium carbonate (caliche)*

"x" in symbol denotes unevaluated or unknown property

"a" in symbol denotes property absent or insignificant



QUADRANGLE LOCATION

NON-RESOURCE OR WITHDRAWN AREA

REFERENCE:

Smith, R.O., Schneider, P.A., Jr., and Petri, L.R., 1964, Ground-water resources of the South Platte River basin in western Adams and southwestern Weld Counties, Colorado: U. S. Geol. Survey Water-Supply Paper 1658, pl. 1.

Mapped by: Phillip C. Wicklein
Date: June 30, 1974

Base from U. S. Geological Survey
7-1/2 minute quadrangle

UTM GRID AND 1951 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET
GN MN
0°17' / 5 MILS
14° / 249 MILS

SCALE 1:24 000
1 MILE
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 5 0 1 KILOMETER

CONTOUR INTERVAL 10 FEET
DATUM IS MEAN SEA LEVEL

ROAD CLASSIFICATION
Heavy-duty — 4 LANE | 6 LANE — Light-duty
Medium-duty — 4 LANE | 6 LANE — Unimproved dirt
U. S. Route — State Route

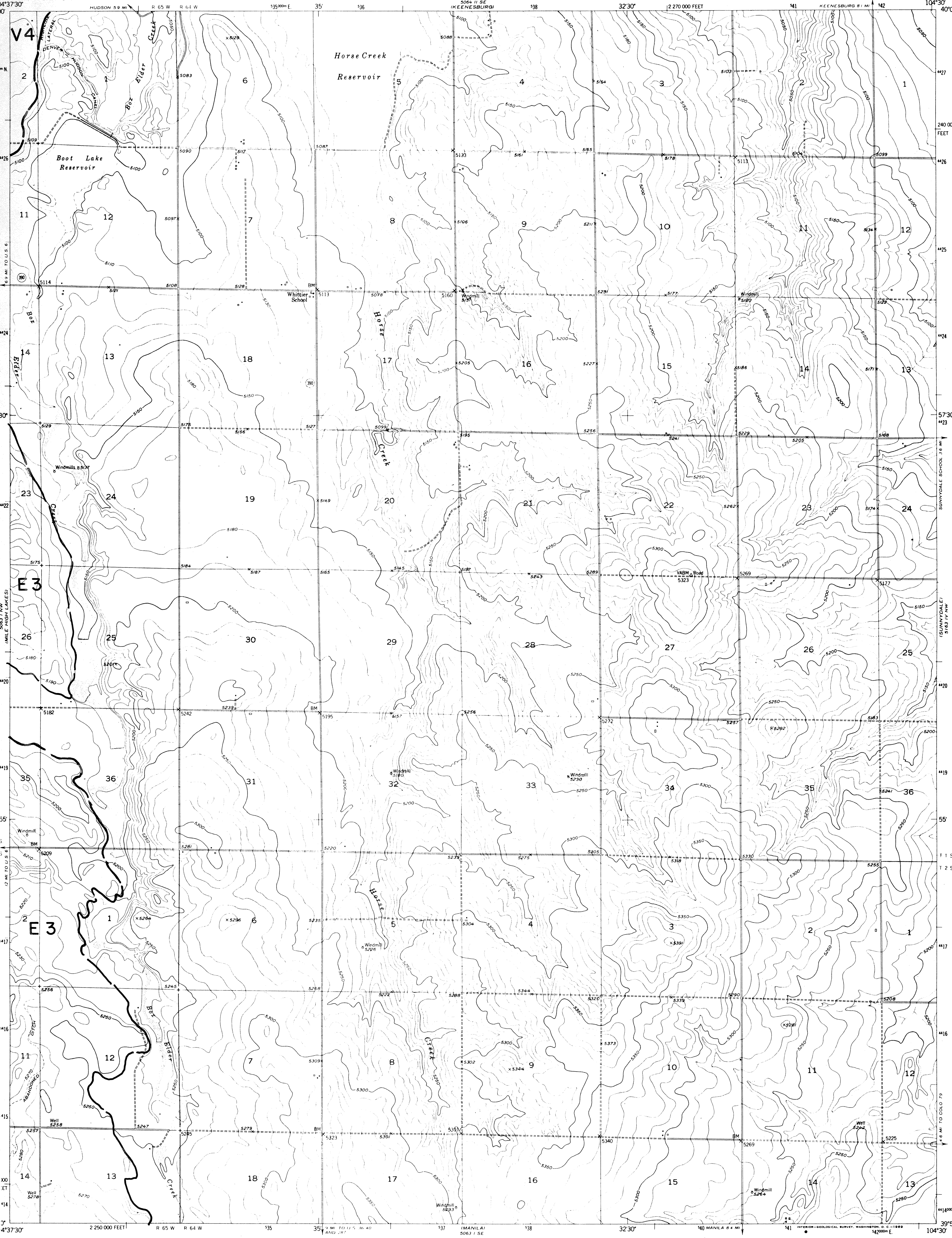
MANILA, COLO.

● ● INTERIOR GEOLOGICAL SURVEY WASHINGTON D C-1971

SAND, GRAVEL AND QUARRY AGGREGATE RESOURCES MAP

DEPARTMENT OF NATURAL RESOURCES
COLORADO GEOLOGICAL SURVEY
JOHN W. ROLD, DIRECTOR

HORSE CREEK QUADRANGLE
COLORADO–ADAMS CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)



Base from U. S. Geological Survey
7-1/2 minute quadrangle

UTM GRID AND 1952 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET
0°17' 5 MILS
14° 249 MILS

SCALE 1:24 000
1 MILE
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 KILOMETER

CONTOUR INTERVAL 10 FEET
DATUM IS MEAN SEA LEVEL

ROAD CLASSIFICATION
Heavy-duty — 4 LANE | 6 LANE — Light-duty
Medium-duty — 4 LANE | 6 LANE — Unimproved dirt
U. S. Route — State Route

HORSE CREEK, COLO.

EXPLANATION

F1 — Landform unit; Resource classification

LANDFORM UNITS

- F Floodplain deposit
- T Stream terrace deposit
- V Valley fill (F & T)
- U Upland deposits
- A Alluvial fan
- E Wind-deposited sand (eolian)
- M Man-made deposits (slag, tailings, spoils....)

RESOURCE CLASSIFICATION

Coarse Aggregate
(at least 30% retained on #4 screen, visual estimation)

- 1 Gravel: relatively clean and sound
- 2 Gravel: significant fines, decomposed rock, calcium carbonate.

Fine Aggregate
(greater than 70% passing #4 screen, 60% retained on #200 screen, visual estimation)

- 3 Sand

Unevaluated Resource

- 4 Probable aggregate resource

MAP SYMBOLS

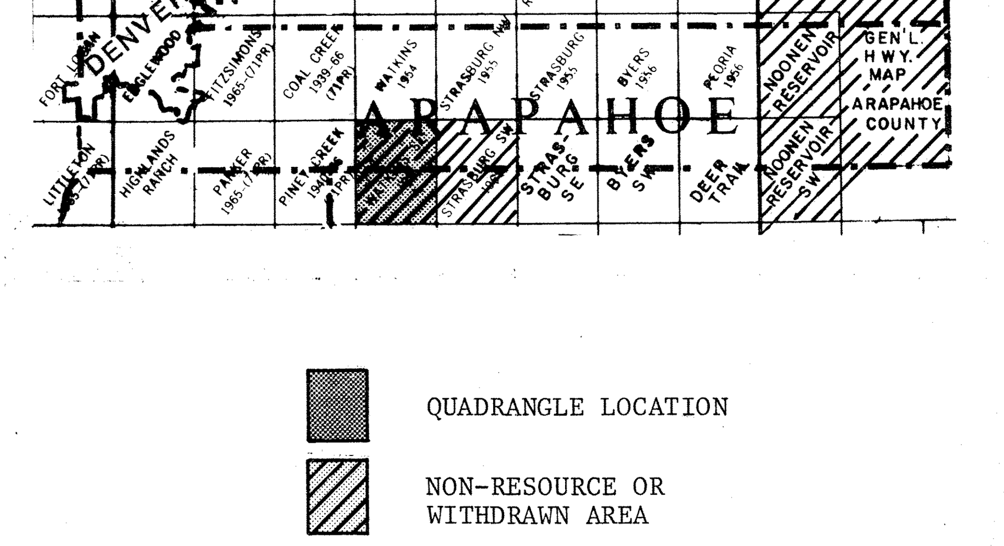
- Operating gravel and/or sand pit
- Abandoned gravel and/or sand pit
- Operating stone quarry
- Abandoned stone quarry
- Potential quarry aggregate resource area
- $\circ\frac{2}{17_g}$ Selected well or drill-hole location with over-burden thickness (ft) over sand/gravel resource thickness (ft), obtained from well logs.
  "g" indicates gravel; "s" indicates sand
  "x" in symbol denotes unevaluated or unknown property.
  "WG" denotes Colorado Geological Survey Windsor/Sand and Gravel projects' drill hole
- Landform boundary, solid where known or observed; dashed where approximate or inferred.

STATION, LOCATION AND GEOLOGICAL DESCRIPTION OF DEPOSIT

5, 17, 40
s s s

- 5 — *overburden thickness (ft)*
- 17 — *sand/gravel resource thickness (ft)*
- 40 — *percent sand and fines (passing #4 screen, 0.25 in.), visual estimation*
- *significant amount of fines (passing #200 screen, 0.0059 in. or 0.074 mm.)*
- *significant amount of decomposed or weak rock.*
- *significant amount of calcium carbonate (caliche)*

"x" in symbol denotes unevaluated or unknown property
"a" in symbol denotes property absent or insignificant



QUADRANGLE LOCATION

NON-RESOURCE OR WITHDRAWN AREA

REFERENCE:

Smith, R.O., Schneider, P.A., Jr., and Petri, L.R., 1964, Ground-water resources of the South Platte River basin in western Adams and southwestern Weld Counties, Colorado: U. S. Geol. Survey Water-Supply Paper 1658, pl. 1.

Mapped by: Phillip C. Wicklein
Date: June 30, 1974

SAND, GRAVEL AND QUARRY AGGREGATE RESOURCES MAP

DEPARTMENT OF NATURAL RESOURCES
COLORADO GEOLOGICAL SURVEY
JOHN W. ROLD, DIRECTOR

SABLE QUADRANGLE
COLORADO
7.5 MINUTE SERIES (TOPOGRAPHIC)

NOTE: Approximate boundaries of ancient Cherry Creek tributary valley (based on well-log interpretation). Valley fill contains about 23 ft of sand and gravel buried by more than 25 ft of wind-blown sand.

NOTE: Approximate boundaries of ancient Cherry Creek tributary valley (based on well-log interpretation). Valley fill contains 20 to 100 ft of sand and gravel buried by as much as 35 ft of wind-blown sand.

NOTE: Approximate eastern boundary of ancient Sand Creek tributary valley (based on well log interpretation). Valley fill contains 8 to 23 feet of sand and gravel buried by 2 feet to 30 feet of wind blown silt and sand.

Base from U. S. Geological Survey
7-1/2 minute quadrangle

UTM GRID AND 1971 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

SCALE 1:24000

CONTOUR INTERVAL 10 FEET
DATUM IS MEAN SEA LEVEL

ROAD CLASSIFICATION
Heavy-duty — Light-duty
Medium-duty — Unimproved dirt
Interstate Route — State Route
U.S. Route

SABLE, COLO.

EXPLANATION

Landform unit
F1
Resource classification

LANDFORM UNITS

F	Floodplain deposit
T	Stream terrace deposit
V	Valley fill (F & T)
U	Upland deposits
A	Alluvial fan
E	Wind-deposited sand (eolian)
M	Man-made deposits (slag, tailings, spoils....)

RESOURCE CLASSIFICATION

Coarse Aggregate
(at least 30% retained on #4 screen, visual estimation)

1 Gravel: relatively clean and sound
2 Gravel: significant fines, decomposed rock, calcium carbonate.

Fine Aggregate
(greater than 70% passing #4 screen, 60% retained on #200 screen, visual estimation

3 Sand

Unevaluated Resource

4 Probable aggregate resource

MAP SYMBOLS

- Operating gravel and/or sand pit
- Abandoned gravel and/or sand pit
- Operating stone quarry
- Abandoned stone quarry
- Potential quarry aggregate resource area
- $\circ \frac{2}{17_g}$ Selected well or drill-hole location with overburden thickness (ft) over sand/gravel resource thickness (ft), obtained from well logs.
  "g" indicates gravel; "s" indicates sand
  "x" in symbol denotes unevaluated or unknown property.
  "WG" denotes Colorado Geological Survey Windsor/Sand and Gravel projects' drill hole
- Landform boundary, solid where known or observed; dashed where approximate or inferred.

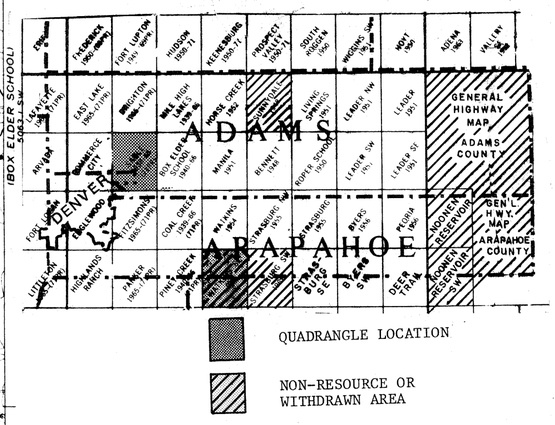
STATION, LOCATION AND GEOLOGICAL DESCRIPTION OF DEPOSIT

overburden thickness (ft)
sand/gravel resource thickness (ft)
percent sand and fines (passing #4 screen, 0.25 in.), visual estimation

5, 17, 40
S S S

significant amount of fines (passing #200 screen, 0.0059 in. or 0.074 mm.)
significant amount of decomposed or weak rock.
significant amount of calcium carbonate (caliche)

"x" in symbol denotes unevaluated or unknown property
"a" in symbol denotes property absent or insignificant



QUADRANGLE LOCATION

NON-RESOURCE OR WITHDRAWN AREA

References:

Inter-County Regional Planning Commission, 1961, Drainage course plan for the Denver region - Part 1, Sand and gravel resources: Denver, Colo., Inter-County Reg. Plan. Comm., pl. 1.

Hamilton, J.L., and Owens, W.G., 1972, Geologic aspects, soils and related foundation problems, Denver metropolitan area, Colorado: Colorado Geol. Survey Environmental Geology Rept. 1, pl. 1.

Chase, G.H., and McConaghy, J.A., 1972, Generalized surficial geologic map of the Denver area, Colorado: U.S. Geol. Survey Misc. Geol. Inv. Map I-731.

De Voto, R.H., 1968, Quaternary history of Rocky Mountain Arsenal and environs, Adams County, Colorado: Colorado School Mines Quart., v. 63, no. 1, pl. 1.

Trimble, D.E., and Fitch, H.R., 1974, Map showing potential sources of gravel and crushed-rock aggregate in the Greater Denver Area, Front Range Urban Corridor, Colo.: U.S. Geol. Survey Misc. Geol. Inv. Map I-856-A

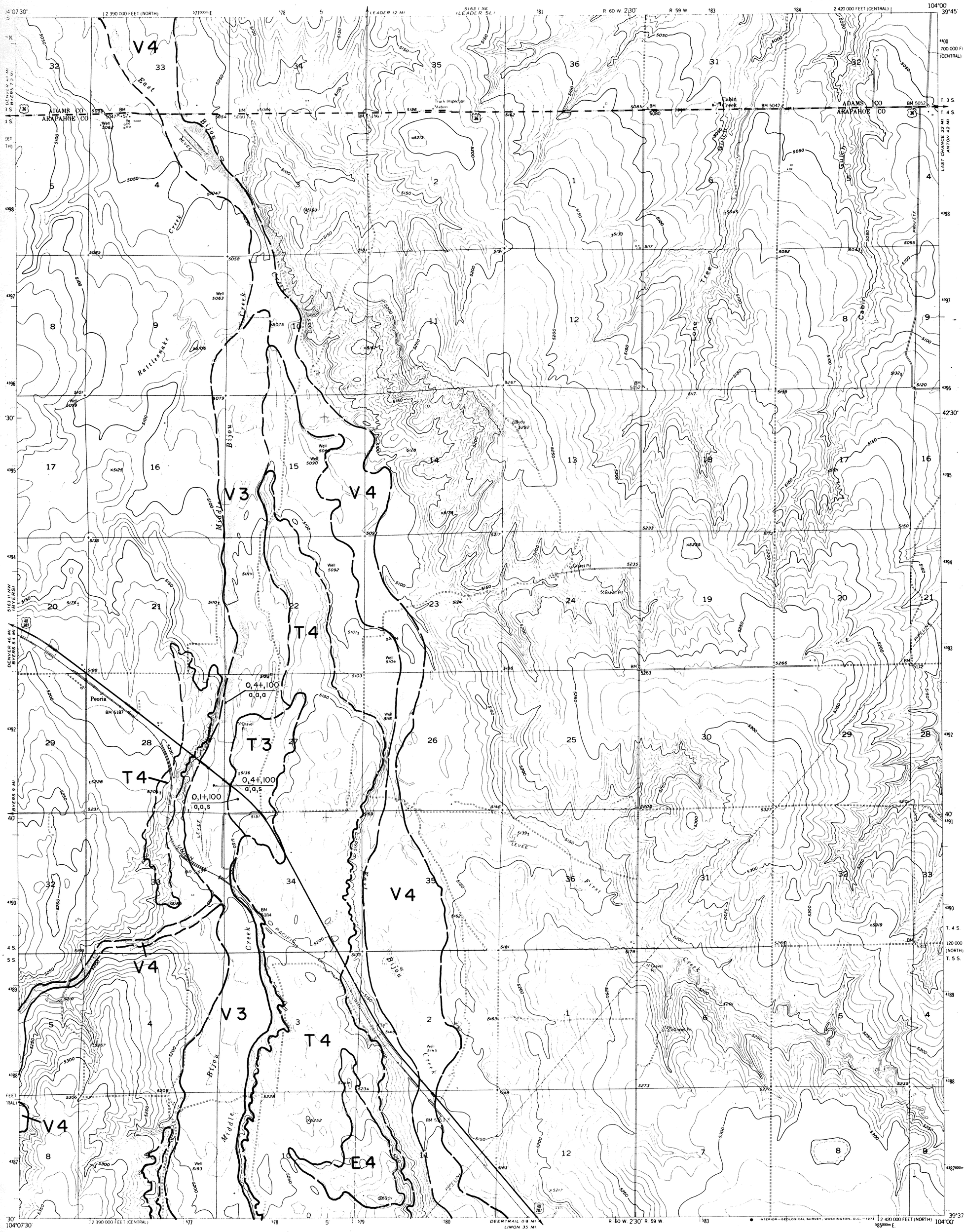
Mapped by: Stephen D. Schwochow
Date: June 30, 1974

Prepared in cooperation with the U. S. Geological Survey

SAND, GRAVEL AND QUARRY AGGREGATE RESOURCES MAP

DEPARTMENT OF NATURAL RESOURCES
COLORADO GEOLOGICAL SURVEY
JOHN W. ROLD, DIRECTOR

PEORIA QUADRANGLE
COLORADO
7.5 MINUTE SERIES (TOPOGRAPHIC)



EXPLANATION

Landform unit / Resource classification

LANDFORM UNITS

- F Floodplain deposit
- T Stream terrace deposit
- V Valley fill (F & T)
- U Upland deposits
- A Alluvial fan
- E Wind-deposited sand (eolian)
- M Man-made deposits (slag,tailings, spoils....)

RESOURCE CLASSIFICATION

Coarse Aggregate
(at least 30% retained on #4 screen, visual estimation)

- 1 Gravel: relatively clean and sound
- 2 Gravel: significant fines, decomposed rock, calcium carbonate.

Fine Aggregate
(greater than 70% passing #4 screen, 60% retained on #200 screen, visual estimatio

- 3 Sand

Unevaluated Resource

- 4 Probable aggregate resource

MAP SYMBOLS

- Operating gravel and/or sand pit
- Abandoned gravel and/or sand pit
- Operating stone quarry
- Abandoned stone quarry
- Potential quarry aggregate resource area
- Selected well or drill-hole location with over-burden thickness (ft) over sand/gravel resource thickness (ft), obtained from well logs.
  - "g" indicates gravel; "s" indicates sand
  - "x" in symbol denotes unevaluated or unknown property.
  - "WG" denotes Colorado Geological Survey Windsor/Sand and Gravel projects' drill hole
- Landform boundary, solid where known or observed; dashed where approximate or inferred.

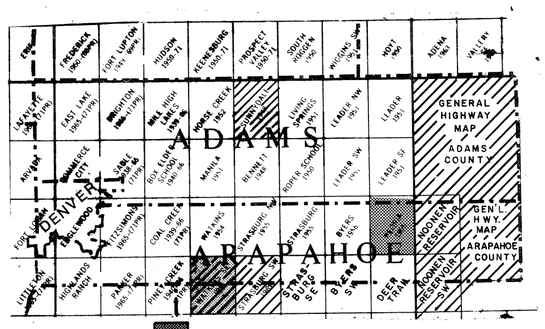
STATION, LOCATION AND GEOLOGICAL DESCRIPTION OF DEPOSIT

overburden thickness (ft)
sand/gravel resource thickness (ft)
percent sand and fines (passing #4 screen, 0.25 in.), visual estimation

5, 17, 40
s s s

- *significant amount of fines (passing #200 screen, 0.0059 in. or 0.074 mm.)*
- *significant amount of decomposed or weak rock.*
- *significant amount of calcium carbonate (caliche)*

"a" in symbol denotes unevaluated or unknown property
"a" in symbol denotes property absent or insignificant



Geology modified after
Scister, P. E., 1972,
Peoria Geologic Quadrangle:
U.S.G.S. GQ-875.

Mapped by: Phillip C. Wicklein
Date: June 30, 1974

Base from U. S. Geological Survey
7-1/2 minute quadrangle

UTM GRID AND 1956 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

SCALE 1:24000
1 MILE
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 KILOMETER
CONTOUR INTERVAL 10 FEET
DATUM IS MEAN SEA LEVEL

COLORADO
QUADRANGLE LOCATION

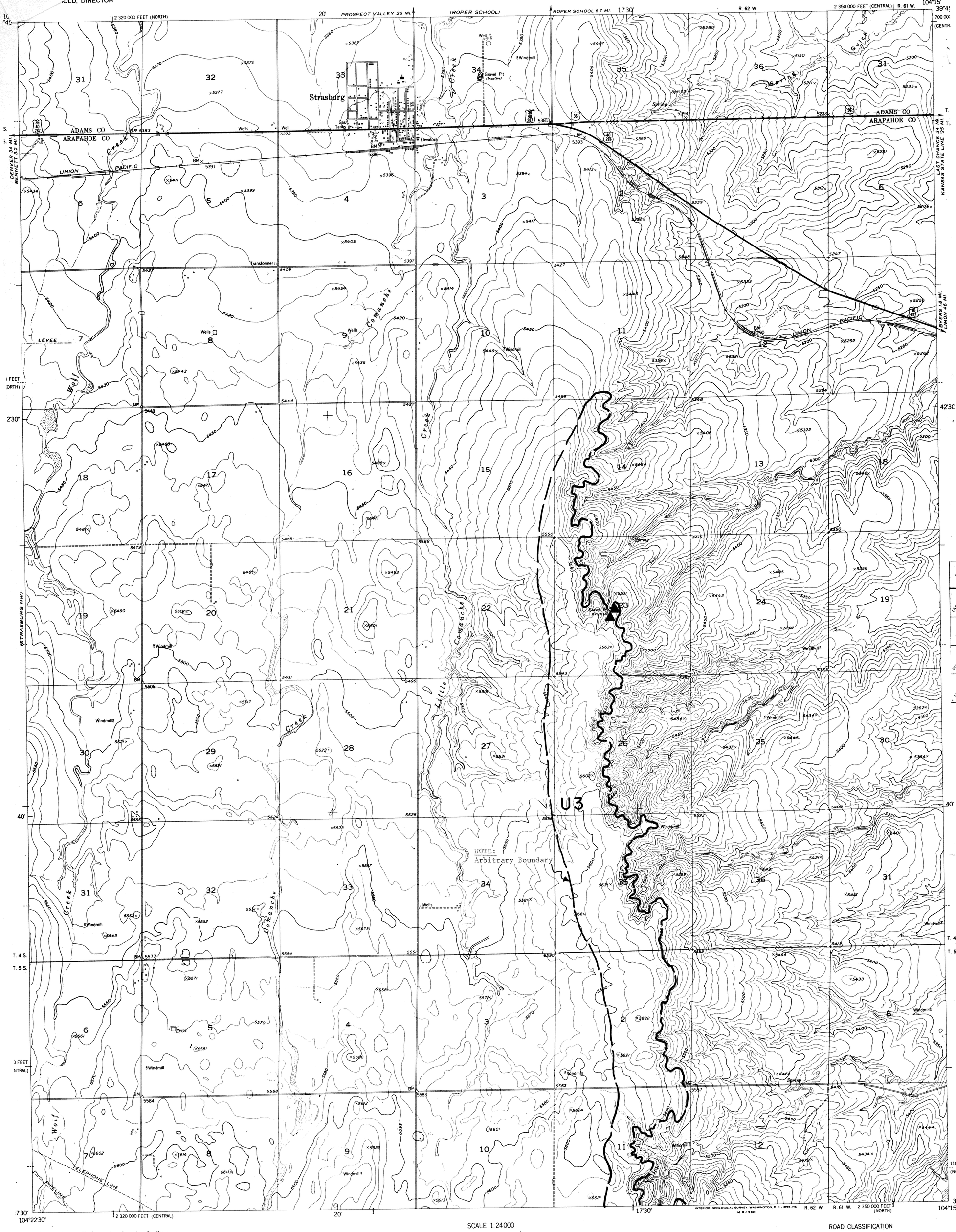
ROAD CLASSIFICATION
Heavy duty
Medium duty
Light duty
Unimproved dirt
U.S. Route

PEORIA, COLO.
N3937.5—W10400/7.5
1956
AMS 5163 II NE—SERIES V877

SAND, GRAVEL AND QUARRY AGGREGATE RESOURCES MAP

...NATURAL RESOURCES
...OLOGICAL SURVEY
...OLD, DIRECTOR

STRASBURG QUADRANGLE
COLORADO
7.5 MINUTE SERIES (TOPOGRAPHIC)



Base from U. S. Geological Survey
7-1/2 minute quadrangle

SCALE 1:24000

1 MILE
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 KILOMETER

CONTOUR INTERVAL 10 FEET
DATUM IS MEAN SEA LEVEL

APPROXIMATE MEAN DECLINATION, 1955
TRUE NORTH
MAGNETIC NORTH

COLORADO
QUADRANGLE LOCATION

ROAD CLASSIFICATION
Heavy-duty
Medium-duty
Light-duty
Unimproved dirt
U. S. Route
State Route

INTERIOR-GEOLOGICAL SURVEY, WASHINGTON, D. C.-1956-NS
M R 1380

EXPLANATION

F1 — Landform unit / Resource classification

LANDFORM UNITS

F	Floodplain deposit
T	Stream terrace deposit
V	Valley fill (F & T)
U	Upland deposits
A	Alluvial fan
E	Wind-deposited sand (eolian)
M	Man-made deposits (slag,tailings, spoils....)

RESOURCE CLASSIFICATION

Coarse Aggregate
(at least 30% retained on #4 screen, visual estimation)

1	Gravel: relatively clean and sound
2	Gravel: significant fines, decomposed rock, calcium carbonate.

Fine Aggregate
(greater than 70% passing #4 screen, 60% retained on #200 screen, visual estimation)

3	Sand

Unevaluated Resource

4	Probable aggregate resource

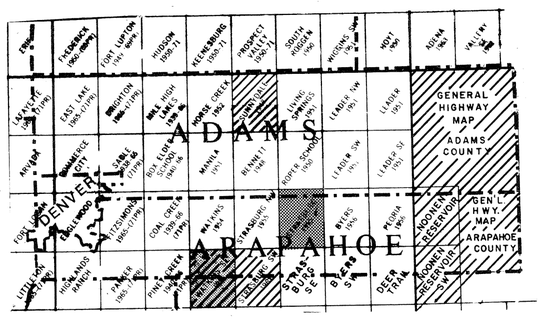
MAP SYMBOLS

- Operating gravel and/or sand pit
- Abandoned gravel and/or sand pit
- Operating stone quarry
- Abandoned stone quarry
- Potential quarry aggregate resource area
- 2/17g — Selected well or drill-hole location with overburden thickness (ft) over sand/gravel resource thickness (ft), obtained from well logs.
  - "g" indicates gravel; "s" indicates sand
  - "x" in symbol denotes unevaluated or unknown property.
  - "WG" denotes Colorado Geological Survey Windsor/Sand and Gravel projects' drill hole
- Landform boundary, solid where known or observed; dashed where approximate or inferred.

STATION, LOCATION AND GEOLOGICAL DESCRIPTION OF DEPOSIT

5, 17, 40 (S S S)
- 5 — overburden thickness (ft)
- 17 — sand/gravel resource thickness (ft)
- 40 — percent sand and fines (passing #4 screen, 0.25 in.), visual estimation
- S — significant amount of fines (passing #200 screen, 0.0059 in. or 0.074 mm.)
- S — significant amount of decomposed or weak rock.
- S — significant amount of calcium carbonate (caliche)

"x" in symbol denotes unevaluated or unknown property
"a" in symbol denotes property absent or insignificant



QUADRANGLE LOCATION

NON-RESOURCE OR WITHDRAWN AREA

Reference:
Shadule, S.A., 1971, The Bijou Creek Damsites and Reservoirs of Adams and Arapahoe Counties, Colorado: Colo. Sch. Mines. ER-1327.

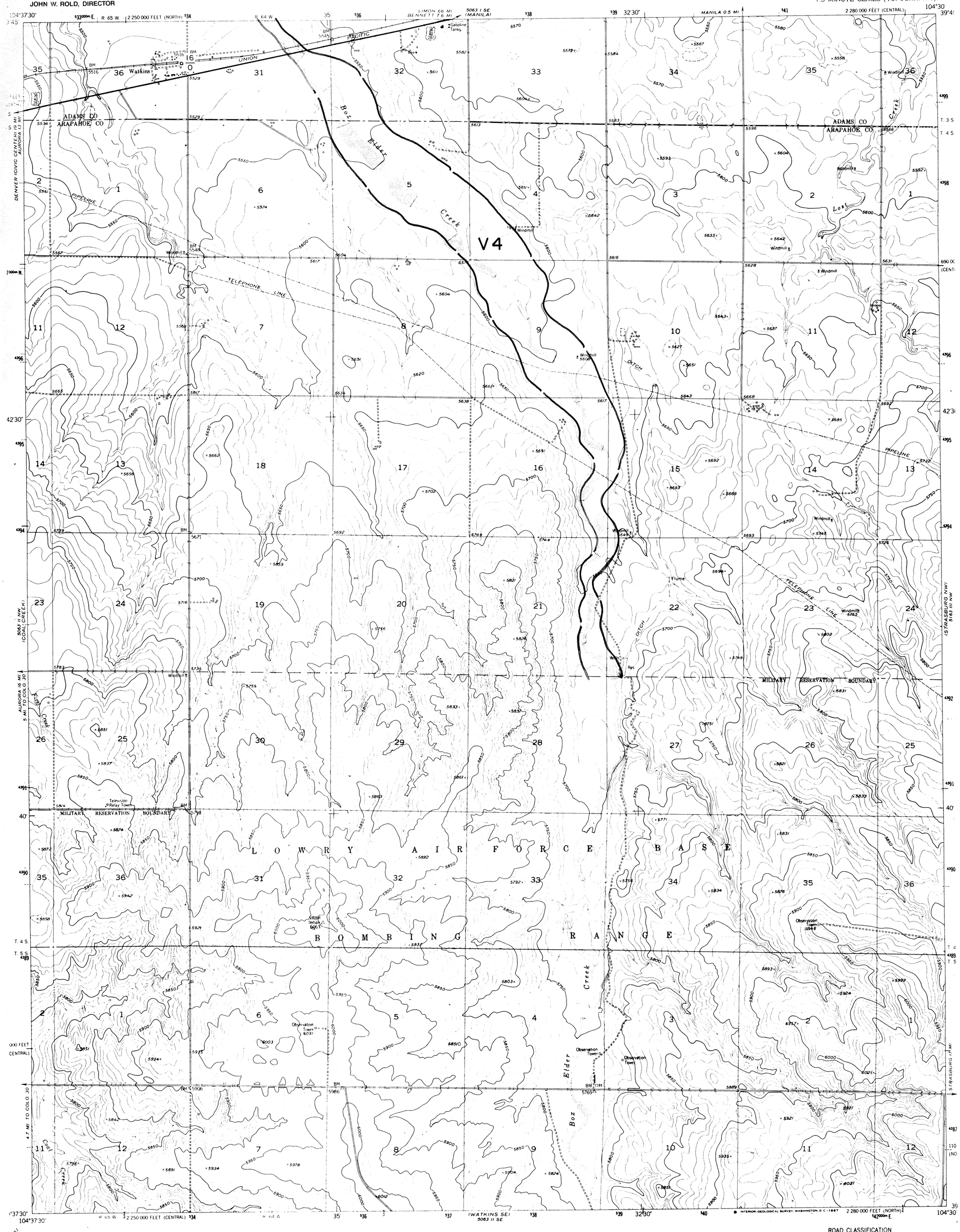
Mapped by: Phillip C. Wicklein
Date: June 30, 1974

STRASBURG, COLO.
N3937.5—W10415/7.5
1955

SAND, GRAVEL AND QUARRY AGGREGATE RESOURCES MAP

DEPARTMENT OF NATURAL RESOURCES
COLORADO GEOLOGICAL SURVEY
JOHN W. ROLD, DIRECTOR

WATKINS QUADRANGLE
COLORADO
7.5 MINUTE SERIES (TOPOGRAPHIC)



EXPLANATION

F1 — Landform unit / Resource classification

LANDFORM UNITS

- F — Floodplain deposit
- T — Stream terrace deposit
- V — Valley fill (F & T)
- U — Upland deposits
- A — Alluvial fan
- E — Wind-deposited sand (eolian)
- M — Man-made deposits (slag, tailings, spoils....)

RESOURCE CLASSIFICATION

Coarse Aggregate
(at least 30% retained on #4 screen, visual estimation)

- 1 — Gravel: relatively clean and sound
- 2 — Gravel: significant fines, decomposed rock, calcium carbonate.

Fine Aggregate
(greater than 70% passing #4 screen, 60% retained on #200 screen, visual estimation

- 3 — Sand

Unevaluated Resource

- 4 — Probable aggregate resource

MAP SYMBOLS

- ● — Operating gravel and/or sand pit
- ▲ — Abandoned gravel and/or sand pit
- Operating stone quarry
- Abandoned stone quarry
- Potential quarry aggregate resource area
- 2/17g — Selected well or drill-hole location with overburden thickness (ft) over sand/gravel resource thickness (ft), obtained from well logs.
  - "g" indicates gravel; "s" indicates sand
  - "x" in symbol denotes unevaluated or unknown property.
  - "WG" denotes Colorado Geological Survey Windsor/Sand and Gravel projects' drill hole
- Landform boundary, solid where known or observed; dashed where approximate or inferred.

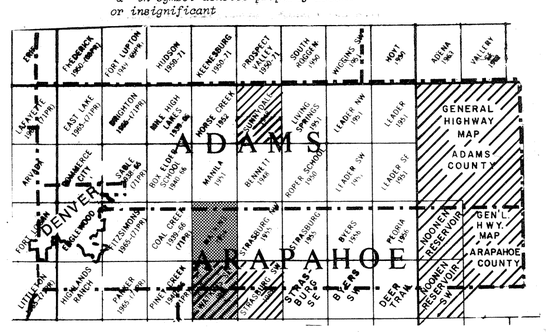
STATION, LOCATION AND GEOLOGICAL DESCRIPTION OF DEPOSIT

5, 17, 40 (S S S)

- 5 — overburden thickness (ft)
- 17 — sand/gravel resource thickness (ft)
- 40 — percent sand and fines (passing #4 screen, 0.25 in.), visual estimation
- S — significant amount of fines (passing #200 screen, 0.0059 in. or 0.074 mm.)
- S — significant amount of decomposed or weak rock.
- S — significant amount of calcium carbonate (caliche)

"x" in symbol denotes unevaluated or unknown property

"a" in symbol denotes property absent or insignificant



QUADRANGLE LOCATION

NON-RESOURCE OR WITHDRAWN AREA

Mapped by: Phillip C. Wicklein
Date: June 30, 1974

Base from U. S. Geological Survey
7-1/2 minute quadrangle

UTM GRID AND 1954 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

SCALE 1:24 000

1 MILE
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 KILOMETER

CONTOUR INTERVAL 10 FEET
DATUM IS MEAN SEA LEVEL

COLORADO
QUADRANGLE LOCATION

ROAD CLASSIFICATION

Heavy-duty — Light-duty
Medium-duty — Unimproved dirt
U. S. Route — State Route

WATKINS, COLO.
N3937.5—W10430/7.5
1954
AMS 5063 II NE—SERIES V877

INTERIOR-GEOLOGICAL SURVEY, WASHINGTON, D C.-1967

SAND, GRAVEL AND QUARRY AGGREGATE RESOURCES MAP

DEPARTMENT OF NATURAL RESOURCES
COLORADO GEOLOGICAL SURVEY
JOHN W. ROLD, DIRECTOR

FITZSIMONS QUADRANGLE
COLORADO
7.5 MINUTE SERIES (TOPOGRAPHIC)

NOTE: Approximate boundaries of ancient Sand Creek tributary valley (based on well-log interpretation). Valley fill contains 8 to 23 ft of sand and gravel buried by 8 to 30 ft of wind-blown silt and sand.

NOTE: Although only sand has been extracted along Cherry Creek, well logs indicate the presence of channel gravels at depth.

EXPLANATION

Landform unit
Resource classification

LANDFORM UNITS

F	Floodplain deposit
T	Stream terrace deposit
V	Valley fill (F & T)
U	Upland deposits
A	Alluvial fan
E	Wind-deposited sand (eolian)
M	Man-made deposits (slag,tailings, spoils....)

RESOURCE CLASSIFICATION

Coarse Aggregate
(at least 30% retained on #4 screen, visual estimation)

1	Gravel: relatively clean and sound
2	Gravel: significant fines, decomposed rock, calcium carbonate.

Fine Aggregate
(greater than 70% passing #4 screen, 60% retained on #200 screen, visual estimatior

3	Sand

Unevaluated Resource

4	Probable aggregate resource

MAP SYMBOLS

- Operating gravel and/or sand pit
- Abandoned gravel and/or sand pit
- Operating stone quarry
- Abandoned stone quarry
- Potential quarry aggregate resource area
- 2/17g — Selected well or drill-hole location with overburden thickness (ft) over sand/gravel resource thickness (ft), obtained from well logs.
  - "g" indicates gravel; "s" indicates sand
  - "x" in symbol denotes unevaluated or unknown property.
  - "WG" denotes Colorado Geological Survey Windsor/Sand and Gravel projects' drill hole
- Landform boundary, solid where known or observed; dashed where approximate or inferred.

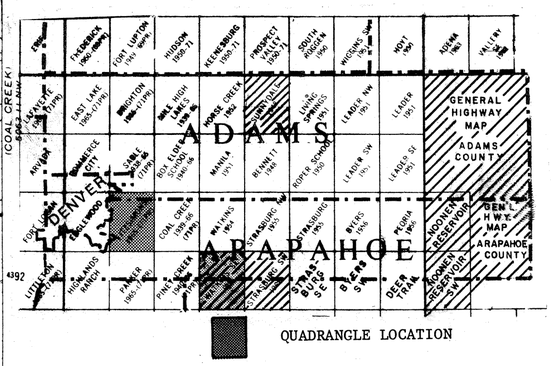
STATION, LOCATION AND GEOLOGICAL DESCRIPTION OF DEPOSIT

- overburden thickness (ft)
- sand/gravel resource thickness (ft)
- percent sand and fines (passing #4 screen, 0.25 in.), visual estimation

Example: 5, 17, 40
- s — significant amount of fines (passing #200 screen, 0.0059 in. or 0.074 mm.)
- s — significant amount of decomposed or weak rock.
- s — significant amount of calcium carbonate (caliche)

"x" in symbol denotes unevaluated or unknown property

"a" in symbol denotes property absent or insignificant



REFERENCE:

Trimble, D.E., and Fitch, H.R. 1974, Map showing potential sources of gravel and crushed-rock aggregate in the Greater Denver Area, Front Range Urban Corridor, Colo.: U. S. Geol. Survey Misc. Geol. Inv. Map I-856-A.

Chase, G.H., and McConaghy, J.A., 1972, Generalized surficial geologic map of the Denver area, Colorado: U.S. Geol. Survey Misc. Geol. Inv. Map I-731

Hamilton, J.L., and Owens, W.G., 1972, Geologic aspects, soils and related foundation problems, Denver metropolitan area, Colorado: Colorado Geol. Survey Environmental Geology Rept. 1, pl. 1.

Inter-County Regional Planning Commission, 1961, Drainage course plan for the Denver region - Part 1, Sand and gravel resources: Denver, Colo., Inter-County Reg. Plan. Comm., pl. 1.

Mapped by: Stephen D. Schwochow
Date: June 30, 1974

Prepared in cooperation with the U. S. Geological Survey.

Base from U. S. Geological Survey
7-1/2 minute quadrangle

SCALE 1:24 000

CONTOUR INTERVAL 10 FEET
DATUM IS MEAN SEA LEVEL

UTM GRID AND 1971 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

ROAD CLASSIFICATION
Heavy-duty — Light-duty
Medium-duty — Unimproved dirt
Interstate Route — U.S. Route — State Route

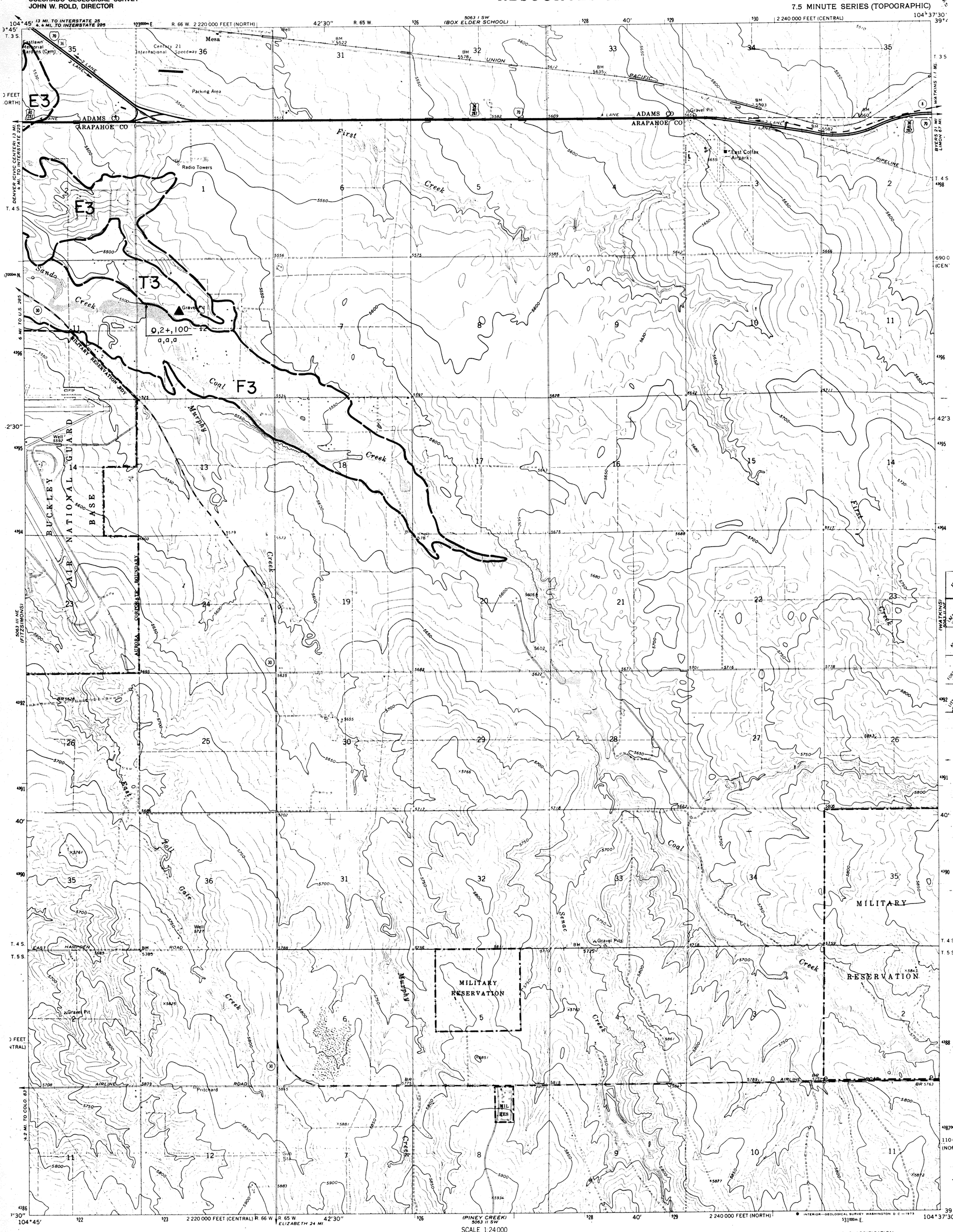
INTERIOR—GEOLOGICAL SURVEY WASHINGTON D C—1973

FITZSIMONS, COLO.

SAND, GRAVEL AND QUARRY AGGREGATE RESOURCES MAP

DEPARTMENT OF NATURAL RESOURCES
COLORADO GEOLOGICAL SURVEY
JOHN W. ROLD, DIRECTOR

COAL CREEK QUADRANGLE
COLORADO
7.5 MINUTE SERIES (TOPOGRAPHIC)



EXPLANATION

F1 — Landform unit / Resource classification

LANDFORM UNITS

- F — Floodplain deposit
- T — Stream terrace deposit
- V — Valley fill (F & T)
- U — Upland deposits
- A — Alluvial fan
- E — Wind-deposited sand (eolian)
- M — Man-made deposits (slag,tailings, spoils....)

RESOURCE CLASSIFICATION

Coarse Aggregate
(at least 30% retained on #4 screen, visual estimation)

- 1 — Gravel: relatively clean and sound
- 2 — Gravel: significant fines, decomposed rock, calcium carbonate.

Fine Aggregate
(greater than 70% passing #4 screen, 60% retained on #200 screen, visual estimation

- 3 — Sand

Unevaluated Resource

- 4 — Probable aggregate resource

MAP SYMBOLS

- ● — Operating gravel and/or sand pit
- ▲ — Abandoned gravel and/or sand pit
- Operating stone quarry
- Abandoned stone quarry
- Potential quarry aggregate resource area
- $\circ\frac{2}{17_g}$ — Selected well or drill-hole location with overburden thickness (ft) over sand/gravel resource thickness (ft), obtained from well logs.
  - "g" indicates gravel; "s" indicates sand
  - "x" in symbol denotes unevaluated or unknown property.
  - "WG" denotes Colorado Geological Survey Windsor/Sand and Gravel projects' drill hole
- Landform boundary, solid where known or observed; dashed where approximate or inferred.

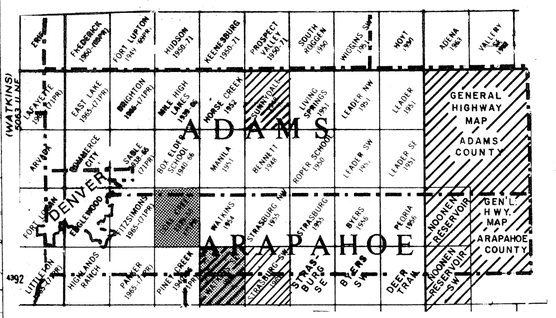
STATION, LOCATION AND GEOLOGICAL DESCRIPTION OF DEPOSIT

overburden thickness (ft)
sand/gravel resource thickness (ft)
percent sand and fines (passing #4 screen, 0.25 in.), visual estimation

5, 17, 40
s s s

- *significant amount of fines (passing #200 screen, 0.0059 in. or 0.074 mm.)*
- *significant amount of decomposed or weak rock.*
- *significant amount of calcium carbonate (caliche)*

"x" in symbol denotes unevaluated or unknown property
"a" in symbol denotes property absent or insignificant



Reference:
Chase, G.H., and McConaghy, J.A., 1972, Generalized surficial geologic map of the Denver area, Colorado: U.S. Geol. Survey Misc. Geol. Inv. Map I-731.

Trimble, D.E., and Fitch, H.R., 1974, Map showing potential sources of gravel and crushed-rock aggregate in the Greater Denver Area, Front Range Urban Corridor, Colo.: U.S. Geol. Survey Misc. Geol. Inv. Map I-856-A.

Mapped by: Stephen D. Schwochow
Date: June 30, 1974

Prepared in cooperation with the U. S. Geological Survey.

Base from U. S. Geological Survey
7-1/2 minute quadrangle

SCALE 1:24000
1 MILE
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 0 1 KILOMETER

CONTOUR INTERVAL 10 FEET
DATUM IS MEAN SEA LEVEL

UTM GRID AND 1971 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET
GN MN
0°12' 4 MILS
13° 231 MILS

ROAD CLASSIFICATION
Heavy-duty — Light-duty
Medium-duty — Unimproved dirt
Interstate Route — U.S. Route — State Route

INTERIOR—GEOLOGICAL SURVEY WASHINGTON D C—1973

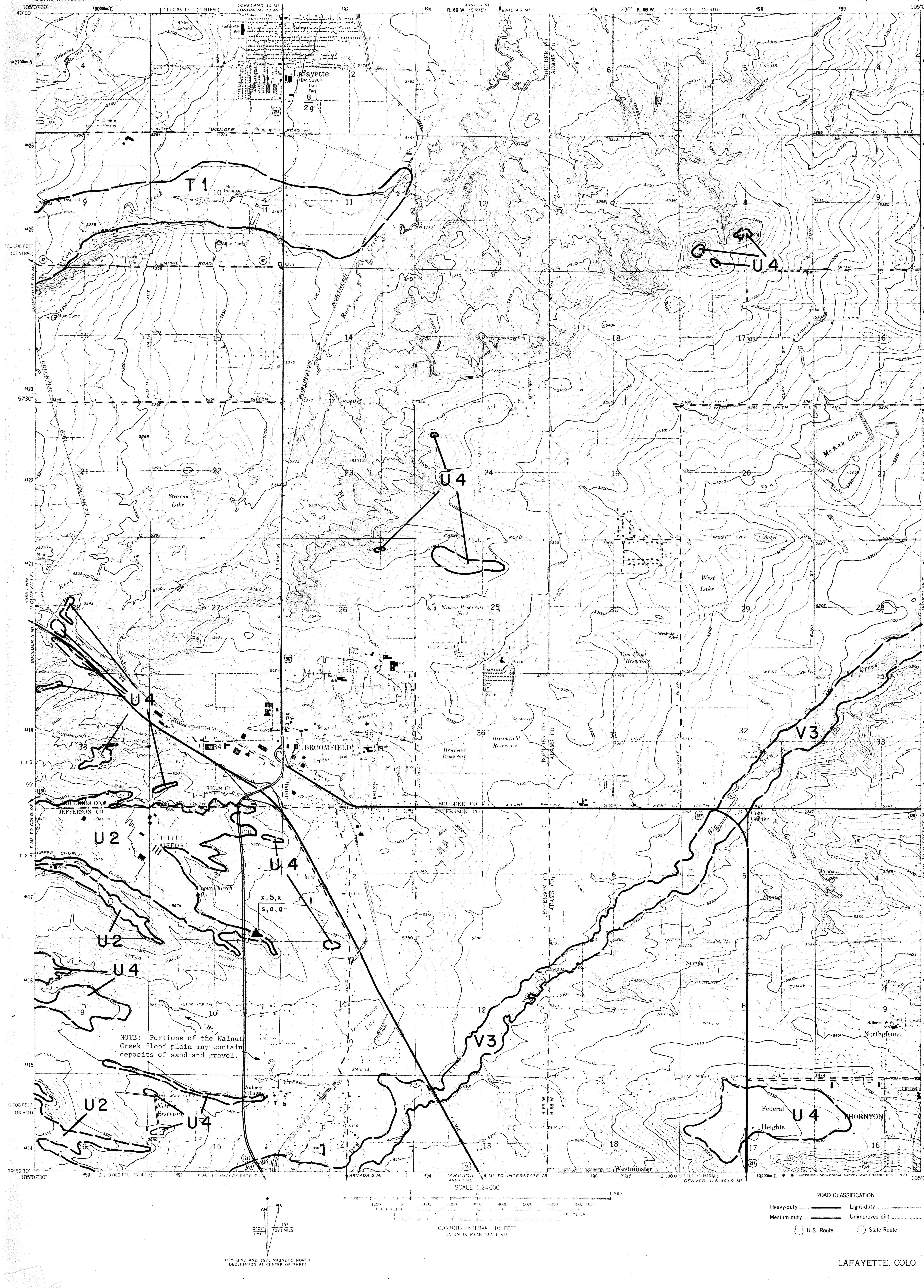
COAL CREEK, COLO.

SAND, GRAVEL AND QUARRY AGGREGATE

RESOURCES MAP

DEPARTMENT OF NATURAL RESOURCES
COLORADO GEOLOGICAL SURVEY
JOHN W. ROLD, DIRECTOR

LAFAYETTE QUADRANGLE
COLORADO
7.5 MINUTE SERIES (TOPOGRAPHIC)



LAFAYETTE, COLO.

EXPLANATION

F1 — Landform unit; Resource classification

LANDFORM UNITS

- F Floodplain deposit
- T Stream terrace deposit
- V Valley fill (F & T)
- U Upland deposits
- A Alluvial fan
- E Wind-deposited sand (eolian)
- M Man-made deposits (slag, tailings, spoils....)

RESOURCE CLASSIFICATION

Coarse Aggregate
(at least 30% retained on #4 screen, visual estimation)

- 1 Gravel: relatively clean and sound
- 2 Gravel: significant fines, decomposed roc calcium carbonate.

Fine Aggregate
(greater than 70% passing #4 screen, 60% retained on #200 screen, visual estimatio

- 3 Sand

Unevaluated Resource

- 4 Probable aggregate resource

MAP SYMBOLS

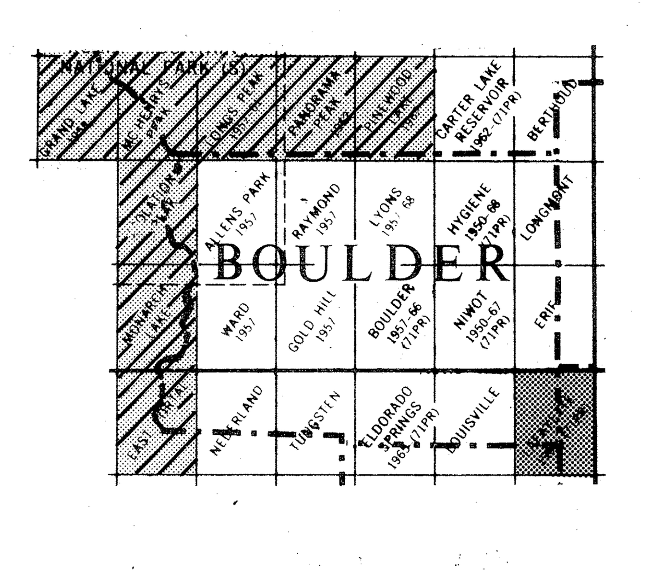
- Operating gravel and/or sand pit
- Abandoned gravel and/or sand pit
- Operating stone quarry
- Abandoned stone quarry
- Potential quarry aggregate resource area
- Selected well or drill-hole location with over-burden thickness (ft) over sand/gravel resource thickness (ft), obtained from well logs.
  "g" indicates gravel; "s" indicates sand
  "x" in symbol denotes unevaluated or unknown property.
- "WG" denotes Colorado Geological Survey Windsor/Sand and Gravel projects' drill hole
- Landform boundary, solid where known or observed; dashed where approximate or inferred.

STATION, LOCATION AND GEOLOGICAL DESCRIPTION OF DEPOSIT

5, 17, 40
s s s

- *overburden thickness (ft)*
- *sand/gravel resource thickness (ft)*
- *percent sand and fines (passing #4 screen, 0.25 in.), visual estimation*
- *significant amount of fines (passing #200 screen, 0.0059 in. or 0.074 mm.)*
- *significant amount of decomposed or weak rock.*
- *significant amount of calcium carbonate (caliche)*

"x" in symbol denotes unevaluated or unknown property
"a" in symbol denotes property absent or insignificant



QUADRANGLE LOCATION

NON-RESOURCE OR WITHDRAWN AREA

REFERENCE:

Chase, G.H., and McConaghy, J.A., 1972, Generalized surficial geologic map of the Denver area, Colorado: U. S. Geol. Survey Misc. Geol. Inv. Map I-731.

Machette, M. N. 1974, personal communication.

Geology modified after:

Trimble, D.E., and Fitch, H.R., Map showing potential sources of gravel and crushed-rock aggregate in the Greater Denver Area, Front Range Urban Corridor, Colo.: U. S. Geol. Survey Misc. Geol. Inv. Map I-856-A.

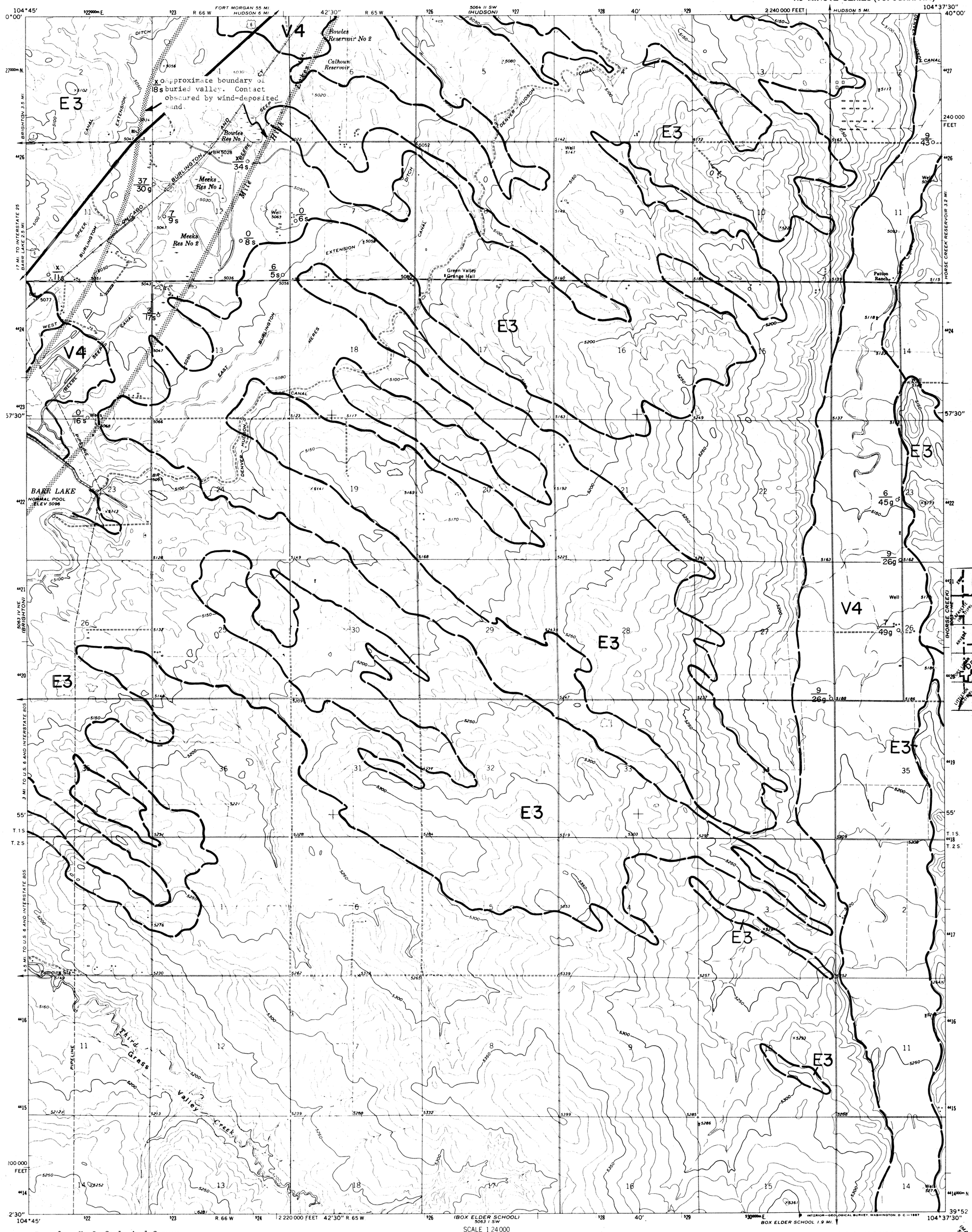
Mapped by: Ralph R. Shroba
Date: June 30, 1974

Prepared in cooperation with the U. S. Geological Survey.

SAND, GRAVEL AND QUARRY AGGREGATE RESOURCES MAP

DEPARTMENT OF NATURAL RESOURCES
COLORADO GEOLOGICAL SURVEY
JOHN W. ROLD, DIRECTOR

MILE HIGH LAKES QUADRANGLE
COLORADO—ADAMS CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)



Base from U. S. Geological Survey
7-1/2 minute quadrangle

SCALE 1:24000
1 MILE
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 KILOMETER
CONTOUR INTERVAL 10 FEET
DATUM IS MEAN SEA LEVEL

UTM GRID AND 1966 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET
GN MN 13° 231 MILS 0°12' 4 MILS

ROAD CLASSIFICATION
Heavy-duty — Light-duty
Medium-duty — Unimproved dirt
Interstate Route · U.S. Route · State Route

MILE HIGH LAKES, COLO.

EXPLANATION

F1 — Landform unit / Resource classification

LANDFORM UNITS

F	Floodplain deposit
T	Stream terrace deposit
V	Valley fill (F & T)
U	Upland deposits
A	Alluvial fan
E	Wind-deposited sand (eolian)
M	Man-made deposits (slag, tailings, spoils....)

RESOURCE CLASSIFICATION

Coarse Aggregate
(at least 30% retained on #4 screen, visual estimation)

1	Gravel: relatively clean and sound
2	Gravel: significant fines, decomposed rock, calcium carbonate.

Fine Aggregate
(greater than 70% passing #4 screen, 60% retained on #200 screen, visual estimation)

3	Sand

Unevaluated Resource

4	Probable aggregate resource

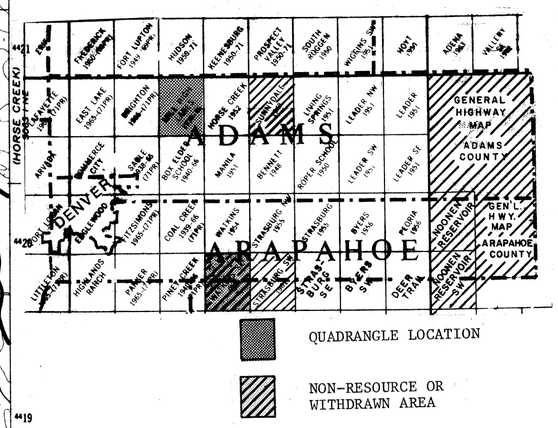
MAP SYMBOLS

- Operating gravel and/or sand pit
- Abandoned gravel and/or sand pit
- Operating stone quarry
- Abandoned stone quarry
- Potential quarry aggregate resource area
- Selected well or drill-hole location with overburden thickness (ft) over sand/gravel resource thickness (ft), obtained from well logs.
  - "g" indicates gravel; "s" indicates sand
  - "x" in symbol denotes unevaluated or unknown property.
  - "WG" denotes Colorado Geological Survey Windsor/Sand and Gravel projects' drill hole
- Landform boundary, solid where known or observed; dashed where approximate or inferred.

STATION, LOCATION AND GEOLOGICAL DESCRIPTION OF DEPOSIT

5, 17, 40 S S S
- overburden thickness (ft)
- sand/gravel resource thickness (ft)
- percent sand and fines (passing #4 screen, 0.25 in.), visual estimation
- significant amount of fines (passing #200 screen, 0.0058 in. or 0.074 mm.)
- significant amount of decomposed or weak rock.
- significant amount of calcium carbonate (caliche)

"x" in symbol denotes unevaluated or unknown property
"a" in symbol denotes property absent or insignificant



References:

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Smith, R.D., Schneider, P.A., Jr., and Petri, L.R., 1964, Ground-water resources of the southwestern Weld Counties, Colorado: U.S. Geol. Survey Water-Supply Paper 1658, pl. 1.

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Mapped by: Stephen D. Schwochow
Date: June 30, 1974

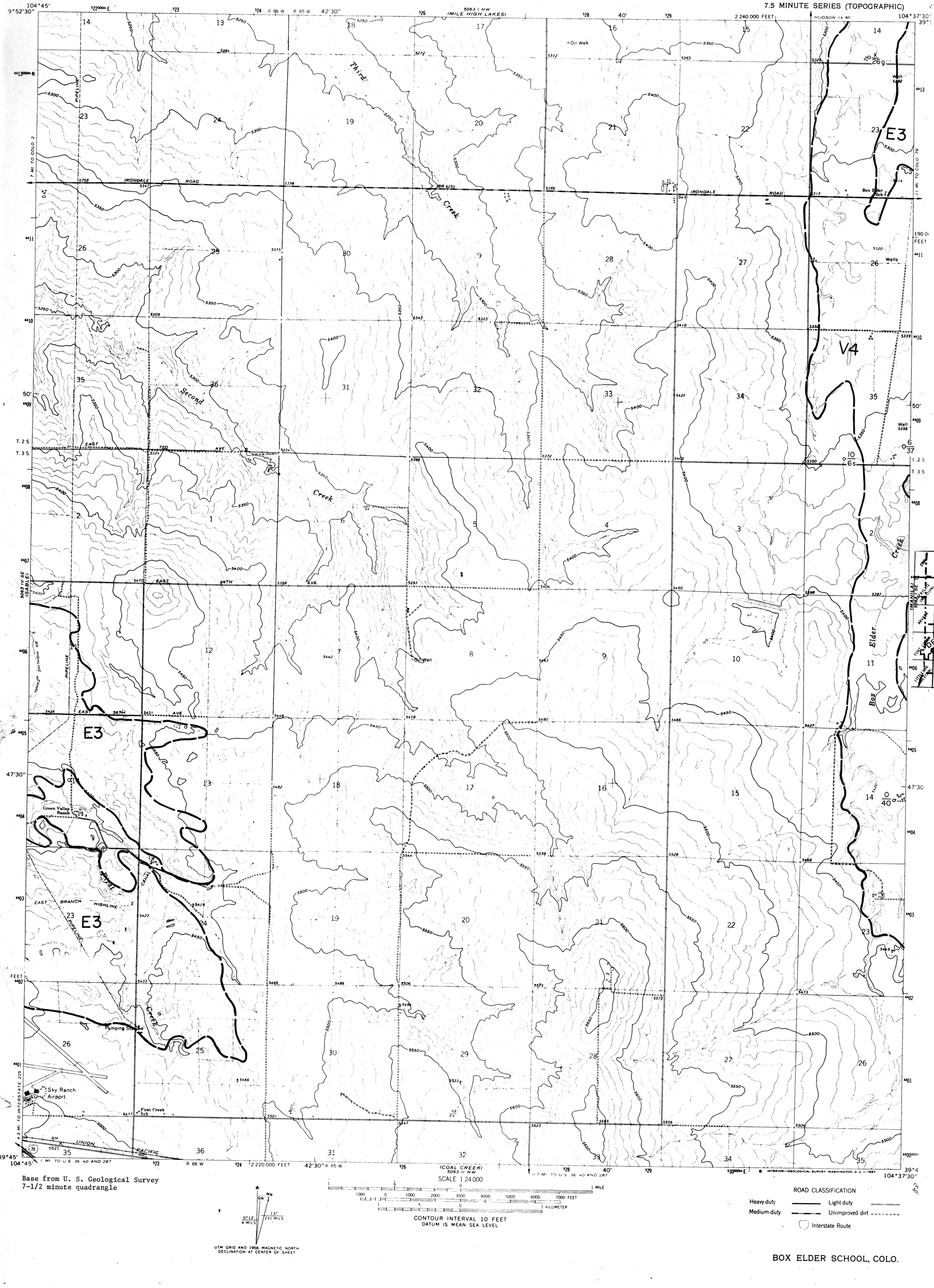
Prepared in cooperation with the U. S. Geological Survey

INTERIOR—GEOLOGICAL SURVEY, WASHINGTON, D. C.—1987

SAND, GRAVEL AND QUARRY AGGREGATE RESOURCES MAP

DEPARTMENT OF NATURAL RESOURCES
COLORADO GEOLOGICAL SURVEY
JOHN W. ROLD, DIRECTOR

BOX ELDER SCHOOL QUADRANGLE
COLORADO-ADAMS CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)



Base from U. S. Geological Survey
7-1/2 minute quadrangle

SCALE 1:24000

CONTOUR INTERVAL 10 FEET
DATUM IS MEAN SEA LEVEL

UTM GRID AND 1966 MAGNETIC NORTH
DECLINATION AT CENTER OF SHEET

ROAD CLASSIFICATION

Heavy-duty — Light-duty
Medium-duty — Unimproved dirt
Interstate Route

EXPLANATION

F — *Landform unit*
F — *Resource classification*

LANDFORM UNITS

F	Floodplain deposit
T	Stream terrace deposit
V	Valley fill (F & T)
U	Upland deposits
A	Alluvial fan
E	Wind-deposited sand (eolian)
M	Man-made deposits (slag,tailings, spoils....)

RESOURCE CLASSIFICATION

Coarse Aggregate
(at least 30% retained on #4 screen, visual estimation)

1 Gravel: relatively clean and sound
2 Gravel: significant fines, decomposed rock, calcium carbonate.

Fine Aggregate
(greater than 70% passing #4 screen, 60% retained on #200 screen, visual estimation

3 Sand

Unevaluated Resource

4 Probable aggregate resource

MAP SYMBOLS

- Operating gravel and/or sand pit
- Abandoned gravel and/or sand pit
- Operating stone quarry
- Abandoned stone quarry
- Potential quarry aggregate resource area
- 2/17g — Selected well or drill-hole location with overburden thickness (ft) over sand/gravel resource thickness (ft), obtained from well logs.
  "g" indicates gravel; "s" indicates sand
  "x" in symbol denotes unevaluated or unknown property.
  "WG" denotes Colorado Geological Survey Windsor/Sand and Gravel projects' drill hole
- Landform boundary, solid where known or observed; dashed where approximate or inferred.

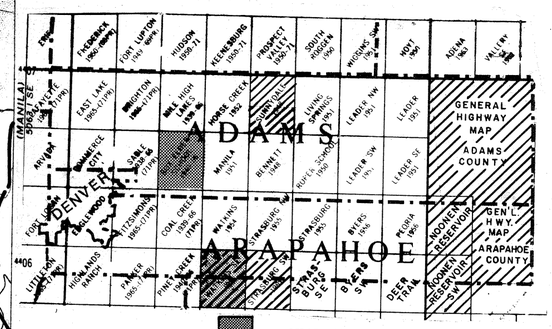
STATION, LOCATION AND GEOLOGICAL DESCRIPTION OF DEPOSIT

overburden thickness (ft)
sand/gravel resource thickness (ft)
percent sand and fines (passing #4 screen, 0.25 in.), visual estimation

5, 17, 40
N S S

significant amount of fines (passing #200 screen, 0.0059 in. or 0.074 mm.)
significant amount of decomposed or weak rock.
significant amount of calcium carbonate (caliche)

"x" in symbol denotes unevaluated or unknown property
"a" in symbol denotes property absent or insignificant



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BOX ELDER SCHOOL, COLO.