U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

PRELIMINARY GEOLOGIC MAP OF THE SAN JOSE 30 X 60-MINUTE QUADRANGLE, CALIFORNIA: A DIGITAL DATABASE

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INTRODUCTION

This report presents the preliminary geologic map of the San Jose 30 x 60-minute quadrangle at a scale of 1:100,000, and consists of a spatial database of nine layers, two colored map sheets (geologic map and correlation diagram), and a descriptive text, as well as this pamphlet. The spatial database, map sheets, and descriptive text are all digital, and this pamphlet describes the digital files and how to obtain them by downloading across the Internet or ordering copies on magnetic tape.

The San Jose 30 x 60-minute quadrangle straddles the California Coast Ranges southeast of San Francisco, and extends from west of the San Andreas fault near Santa Cruz on the southwest (long. -122°, lat. 37°) to the San Joaquin River in the Central Valley on the northeast (long. -121°, lat. 37.5°). The map is a new geologic compilation that is based on extensive previous work by many authors and a great deal of new mapping, largely at 1:24,000, much of which is previously unpublished.

This report adds to a series of reports about the San Jose 30 x 60-minute quadrangle that includes summaries of macro- and microfossil localities (Elder and Miller, 1990; Elder and Miller, 1993; Sliter and others, 1993), a description of new radiometric ages and tephra correlations (Nakata and others, 1993), a map of isostatic residual gravity (Chuchel and Jachens, 1990), an aeromagnetic map (Roberts and Jachens, 1993), and a delineation of landform types (Pike and others, 1992).

This open-file pamphlet and the geologic description are provided in ASCII, PostScript, and PDF format for viewing and plotting. (The ASCII version of the geologic description contains no figures.)

The two map sheets (geologic map and correlation diagram) are presented as digital plot files in PostScript and PDF format (image sizes of 52 x 27 and 29 x 17 inches). The PostScript map images (96 and 1.5 MB) can be used for viewing or plotting in systems with sufficient capacity, and the considerably smaller PDF files (18 and 0.5 MB) can be viewed or plotted in full or in part from Adobe ACROBAT running on Mac, PC, or UNIX platforms. The appearance of the geologic map in plots (area and line colors and line weights) will depend on file type and the particular plotter that is used.

The nine layers in the spatial database are provided both as uncompressed ARC/INFO export files in Version 7 format and as ArcView Shape files. These include three geologic data layers (geology, tectonic blocks, and annotation [largely landslide arrows]), a 7.5-minute quadrangle index, and five topographic base layers (drainage, index and intermediate contours, culture, and township/range lines). The full versatility of the spatial database is obtained by importing the ARC export files into ARC/INFO or an equivalent GIS package. Other GIS packages, including MapInfo and ARCVIEW, may use either the ARC export or Shape files, although the Shape files do not retain the definition tables or text annotation. The information in the definition tables is repeated in this pamphlet (except geologic units) and in the geologic description (geologic units).

The geologic database was compiled in vector form over the past decade with versions 4 through 7.2.1 of ARC/INFO, a commercial Geographic Information System (Environmental Systems Research Institute [ESRI], Redlands, California), on UNIX computers using the menu interface ALACARTE (versions 1 through 3.5: Fitzgibbon and Wentworth, 1991; Fitzgibbon, 1991; Wentworth and Fitzgibbon, 1991). The topographic base layers are vectorized raster scans prepared on SCITEX equipment by D. S. Aitken from film-positive separations of the 1:100,000 printing negatives of the U.S. Geological Survey 1:100,000 San Jose, California, topographic map (1978). The geologic map was assembled as a graphics file in ARC/INFO from the spatial database, using standard ALACARTE procedures (Qs_plot), the ALACARTE lineset and lookup table, and a custom color set (shadeset).

DATABASE CONTENTS

The report consists of digital files representing the eight parts of the database, most of which are presented in more than one format. The names of the files are unique designators based on the report identifier, of98-795, followed by part numbers and an extension indicating file type. Some of the files have been bundled in tape archive files (tar files; .tar extension) and the larger ones have been compressed with gzip, yielding a final .gz extension (see Presentation, below). The files and their identities are as follows:

1. Revision List: A list of the parts of the report (including bundled packages of parts) and at what version number of the report each was last revised (if at all), followed by a chronologic list that describes any revisions (see REVISIONS, below).
   a. of98-795_1a.txt ASCII file

2. Open-File Pamphlet: The text of the open-file pamphlet (this text), which describes the database and how to obtain it.
   a. of98-795_2a.txt ASCII file, 0.04 MB.
   b. of98-795_2b.ps PostScript file, 0.2 MB
   c. of98-795_2c.pdf PDF file, 0.04 MB

3. Geologic Description: A 52-page text that describes the geology of the map area and the 136 map units.
   a. of98-795_3a.txt ASCII file, 0.2 MB.
   b. of98-795_3b.ps PostScript file, 1.2 MB
   c. of98-795_3c.pdf PDF file, 0.3 MB

4. Geologic Database: The data files representing the lines and polygons of the geology layer, the lines and text of the annotation layer, the points of the tectonic blocks layer, and the lines, polygons, and text of the quadrangle index (ARC export and ARCVIEW Shape formats). Note that the definition tables within the ARC coverages and text in the annotation layer are not retained in the Shape files.
   a. of98-795_4a.e00.gz -- Geology: compressed ARC export coverage containing both lines and polygons (6 MB, uncompresses to 32 MB). Import.aml will name this coverage sj-geol.
   b. of98-795_4b.e00 -- Tectonic blocks: ARC export coverage containing points (0.2 MB). Import.aml will name this coverage sj-blks.
   c. of98-795_4c.e00 -- Annotation: ARC export coverage containing lines (leaders and landslide arrows) and several labels (1.3 MB). Import.aml will name this coverage sj-anno.

d. of98-795_4d.tar.gz -- Geology: ARCVIEW line and polygon Shape files bundled as one compressed tar file (20 MB, uncompresses to 30 MB). When opened, the tar file yields:
- line files: sjglns.dbf, sjglns.shp, and sjglns.shx
- polygon files: sjgpys.dbf, sjgpys.shp, and sjgpys.shx

e. of98-795_4e.tar -- Tectonic blocks: ARCVIEW point Shape files bundled as one tar file (0.08 MB). When opened, the tar file yields:
- point files: sjbpts.dbf, sjbpts.shp, and sjbpts.shx

f. of98-795_4f.tar -- Annotation: ARCVIEW line Shape files bundled as one tar file (0.7 MB). When opened, the tar file yields:
- line files: sjalns.dbf, sjalns.shp, and sjalns.shx

5. Quadrangle Index Database: The data files representing the lines and polygons of the quadrangle index (ARC export and ARCVIEW Shape format). The ARC version also includes quadrangle names as annotation.

a. of98-795_5a.e00 -- ARC export coverage containing lines, polygons, and annotation (0.2 MB). Import.aml will name this coverage sj-qdgrid.

b. of98-795_5b.tar -- ARCVIEW line and polygon shape files bundled as one tar file (0.09 MB). When opened, the tar file yields:
- line files: sjqlns.dbf, sjqlns.shp, and sjqlns.shx
- polygon files: sjqpys.dbf, sjqpys.shp, and sjqpys.shx

6. Topographic Base Database: The data files representing the lines of the five topographic base layers drainage, index contours, intermediate contours, culture, and land lines (township/range) (ARC export and ARCVIEW Shape format).

a. of98-795_6a.e00 -- Drainage: ARC export coverage containing lines (14.2 MB). Import.aml will name this coverage sj-drain.

b. of98-795_6b.e00 -- Index contours: ARC export coverage containing lines (3.8 MB). Import.aml will name this coverage sj-index.

c. of98-795_6c.e00 -- Intermediate contours: ARC export coverage containing lines (14.9 MB). Import.aml will name this coverage sj-inter.

d. of98-795_6d.e00 -- Culture: ARC export coverage containing lines (19 MB). Import.aml will name this coverage sj-cult.

e. of98-795_6e.e00 -- Land: ARC export coverage containing lines (1 MB). Import.aml will name this coverage sj-land.

f. of98-795_6f.tar -- Drainage: ARCVIEW line Shape files bundled as one tar file (8.8 MB). When opened, the tar file yields:
- line files: sjdlns.dbf, sjdlns.shp, and sjdlns.shx

g. of98-795_6g.tar -- Index contours: ARCVIEW line Shape files bundled as one tar file (2.3 MB). When opened, the tar file yields:
- line files: sjilns.dbf, sjilns.shp, and sjilns.shx

h. of98-795_6h.tar -- Intermediate contours: ARCVIEW line Shape files bundled as one tar file (8.8 MB). When opened, the tar file yields:
- line files: sjnlns.dbf, sjnlns.shp, and sjnlns.shx

i. of98-795_6i.tar -- Culture: ARCVIEW line Shape files bundled as one tar file (15 MB). When opened, the tar file yields:
- line files: sjclns.dbf, sjclns.shp, and sjclns.shx

j. of98-795_6j.tar -- Land: ARCVIEW line Shape files bundled as one tar file (0.8 MB). When opened, the tar file yields:
- line files: sjllns.dbf, sjllns.shp, and sjllns.shx

7. Plot File of Geologic Map: image size 52 x 27 inches. The PostScript version is rotated so that the long axis plots in the Y direction.
a. of98-795_7a.ps.gz PostScript file, 19 MB, uncompresses to 96 MB
b. of98-795_7b.pdf PDF file, 18 MB

8. Plot File of Correlation Diagram: image size 29 x 17 inches
a. of98-795_8a.ps PostScript file, 1.5 MB
b. of98-795_8b.pdf PDF file, 0.5 MB

Presentation

The database files are provided individually (including Shape files packaged in tar files by equivalent ARC coverages) and some of these are also packaged together in larger tape archive files (.tar). Most of the larger files have been compressed with gzip (.gz).

Separate Text Files: The revision list (of98-795_1a.txt) and the three formats of the open-file text (of98-795_2) and the geologic description (of98-795_3) are provided separately, together with an abbreviated version of the ASCII text version as a README. These text files in all three formats are also bundled in the database package.

Separate Database Files: The geologic database (of98-795_4) and the quadrangle-index database (of98-795_5) are provided separately in both ARC export (.e00) and ARCVIEW shape (.tar) formats, as well as being bundled in the database package files (see below).

Separate Plot Files: The plot files for the geologic map and correlation diagram are provided separately in both PostScript and PDF format, as well as being bundled together in the plotfile package (see below).

Topographic Base Package: The five vector base layers (drainage, index and intermediate contours, culture, and land lines) are packaged together in both ARC export (a) and ARCVIEW shape (b) formats as gzip-compressed tar files:
of98-795_9a.tar.gz 10 MB, uncompresses to 53 MB
of98-795_9b.tar.gz 9 MB, uncompresses to 36 MB

Database Package: The geologic map layers (geology, blocks, and annotation - of98-795_4) and the quadrangle index (of98-795_5) are packaged together in a single gzip-compressed tar file in both ARC (a) and ARCVIEW shape (b) format.

of98-795_10a.tar.gz 7 MB, uncompresses to 36 MB

of98-795_10b.tar.gz 21 MB, uncompresses to 33 MB

Plotfile Package: Plotfiles of the geologic map and the correlation diagram are packaged together in a single gzip-compressed tar file in both PostScript (a) and PDF (b) format.

of98-795_11a.tar.gz 19 MB, uncompresses to 99 MB

of98-795_11b.tar 19 MB

OBTAINING THE DIGITAL FILES

The database and image files can be downloaded from the Western Region Geologic Information Web Server or by anonymous ftp over the Internet, or can be obtained by submitting a tape on which requested files will be copied and returned.

1. Send a tape with a request for the desired files to:

San Jose 100K Geologic Map
c/o Database Coordinator
U.S. Geological Survey
345 Middlefield Road, MS 975
Menlo Park, CA 94025

The file(s) will be returned on the tape. The acceptable tape types are:

4.3 or 5.0 GB, 8 mm Exabyte tape

In the request, be sure to include the Open-File Report number and the specific names of the file(s) that you want, using the names listed in the Report Contents section above. An Open-File Report number alone is not sufficient, because there are several parts to the report and they are available in different file types. If you are obtaining a plot file on tape to give to a vendor to plot, make sure that your vendor is capable of reading the tape type and file type (PostScript or PDF).

2. Anonymous ftp over the Internet

The files for this report are stored on the Western Region publication server of the U.S. Geological Survey. The Internet address of this server is:

wrgis.wr.usgs.gov

Connect to this address directly using ftp or through a browser, log in with the user name 'anonymous', and enter your e-mail address as the password. This will give you access to all the publications available from the server. The files for this report are stored in the subdirectory:

pub/open-file/of98-795

3. From the Western Region Geologic Information Web Server

The U.S. Geological Survey supports a set of graphical pages on the World Wide Web from which digital publications such as this one can be obtained. The Web server for digital publications from the Western Region is:

http://geology.wr.usgs.gov

PROCESSING THE FILES

The database files require initial processing before they are useable, both to open bundled and/or compressed files and to import ARC export files.

Opening Tar and Gzip Files

Some of the files are assembled as tape archive files (tar files), and the larger files containing the databases and images have been compressed with gzip. Thus gzip is required to uncompress the files, and a tar utility is required to open the tar files. Once extracted from the compressed tar files, the ARC export files can be imported into ARC/INFO using the utility import.aml that is included in the database package, or directly using the ARC import command.

The necessary utilities for uncompressing and extracting from tar format are available on-line:

gzip - This utility is available free of charge over the Internet from the gzip Home Page:

http://w3.teaser.fr/~jlgailly/gzip

or via links from the USGS Public Domain Software page:

http://edcwww.cr.usgs.gov/doc/edchome/ndcdb/public.html

tar - This utility is included in most UNIX systems. Tar utilities for PC and Macintosh can be obtained free of charge via the Internet from Internet Literacy's Common Internet File Formats Web Page:

http://www.matisse.net/files/formats.html

Winzip - This commercial package runs on PCs and can deal with both gzip and tar files. An evaluation copy of WinZip for Windows 3.1, 95 and NT can be downloaded from:

http://www.winzip.com/winzip/:

Importing the ARC Export Files

The ARC export files (__.e00) can be converted to ARC/INFO vector maps (coverages) and associated INFO files by running the import.aml that is included in the database package. This will import the export files, assign standard names (see below), build polygon topology where appropriate (if desired), and delete the export files once used (if desired). The 'build' and 'delete' options are enabled by answering YES to questions posed when the aml starts running. Rerunning the aml permits enabling those options previously rejected, but will not interfere with the results of earlier runs. The import routine checks for the presence of needed export files, for previously imported files, and for the need to build if that option is enabled. Run import.aml from the ARC prompt in the directory containing the export files:

ARC: &run import.aml	- run import.aml, answer YES/NO to the questions posed in the dialog area to choose options to import the export files, keep or delete the export files, and build the imported polygon coverages.

Note that the arc coverages will be given standard names:

of98-795_4a.e00	(Geology Layer)	is named	sj-geol
of98-795_4b.e00	(Blocks Layer)		sj-blks
of98-795_4c.e00	(Annotation Layer)		sj-anno
of98-795_5a.e00	(Quadrangle Index)		sj-qdgrid
of98-795_6a.e00	(Drainage Layer)		sj-drain
of98-795_6b.e00	(Index Contour Layer)		sj-index
of98-795_6c.e00	(Intermediate Contour Layer)		sj-inter
of98-795_6d.e00	(Culture Layer)		sj-cult
of98-795_6e.e00	(Land Line Layer)		sj-land

REVISIONS

Changes to any part of this report (parts are the numbered items described above in 'Report Contents' and listed in the revision list of98-795_1a.txt) may be made in the future if needed. This could involve, for example, fixing files that don't work, correcting geologic details, adding new file formats, or adding other components to the report.

The report begins at version 1.0. Any revisions will be specified in the revision list and will result in the recording of a new version number for the report. Small changes will be indicated by decimal increments and larger changes by integer increments in the version number. Revisions will be announced and maintained on the Web page for this report on the Western Region Geologic Information Web Server. Consult the revision list there to determine if a revision is significant for your purposes.

MAP COMPILATION

The geologic database was compiled digitally in vector form as individual 7.5-minute quadrangles from source materials ranging in scale from 1:12,000 to 1:62,500. Much of the material was initially fitted to 1:24,000 topography in polyconic or California State Plane (zone 4) projection. These were converted to UTM (see below), and the larger resulting departures from the 1:100,000 base then refitted to that base. Some of the most detailed areas, particularly in the Santa Cruz Mountains and the Del Puerto Ophiolite, were simplified for smaller scale presentation. The geology layers for the 32 individual quadrangles were assembled into a single layer for the 1:100,000 map area and interior quadrangle boundaries were removed. The locations and identities of tectonic blocks in the Diablo Range were similarly compiled, both from mapped points and from areas too small to show at scale (diameter less than 100 m) or representing aggregates of blocks. The resulting spatial database and standard symbol sets in ALACARTE were then used to prepare the colored geologic map image presented here. Some of the details in the spatial database, although retained in the 1:100,00 image, are too small for legible portrayal at that scale.

SPATIAL RESOLUTION

Uses of this digital database should not violate the spatial resolution of the data. Although the digital form of the data removes the physical constraint imposed by the scale of a paper map, the detail and accuracy inherent in map scale are also present in the digital data. The fact that this database was compiled from maps having scales ranging from 1:12,000 to 1:62,500 and then was selectively simplified for 1:100,000 presentation means that information of resolution higher than 1:100,000 cannot be ensured in any particular part of the database. Use of the database at larger scales may not yield greater real detail, although it may reveal fine-scale irregularities below the intended resolution of the database. Similarly, where this database is used in combination with other data of higher resolution, the resolution of the combined output will be limited by the lower resolution of this data.

DESCRIPTION OF THE SPATIAL DATABASE

The San Jose spatial database consists of three geologic layers (geology, tectonic blocks, and annotation) and five topographic base layers (drainage, index and intermediate contours, culture, and land lines), all in vector form. The geologic layers follow the ALACARTE data model, in which contacts, faults, and geologic-unit polygons are stored in a geology layer (including dangling faults), specialized points (here, tectonic blocks) are stored in a separate layer, and cartographic elements are stored in an annotation layer. (No structure layer is included in this database.) Furthermore, following the data model described by Gautier (1999) for single geologic maps, topical attributes are limited to a single primary attribute for each feature type in each layer and the different values of those database fields (items) are defined in definition tables included in each layer. The base layers have no topical attributes, although all include a line database (AAT).

The ARC layers (coverages) are stored in UTM projection (table 1), whereas the Shape files are in decimal degrees of longitude and latitude, prepared by projecting and converting the primary UTM coverages.

Table 1. Map Projection

Projection	utm	(Universal Transverse Mercator)
Units	meters	
Zone	10	
Datum	NAD27	
Spheroid	CLARKE1866	

The contents of the several database layers are described in terms of the lines, polygons, points, and text that compose them. Descriptions of the database fields (items) use the terms of table 2.

Table 2. Field Definition Terms

ITEM NAME	name of the database field (item)
WIDTH	maximum number of digits or characters stored
OUTPUT	output width
TYPE	B- binary integer, F- binary floating point number, N- ASCII floating point number, I- ASCII integer, C- ASCII character string
N.DEC	number of decimal places maintained for floating point numbers

Geology Layer

The complex geology layer contains attributed lines and polygons and requires polygon topology for effective use (ARC build poly). The line database (SJ-GEOL.AAT, table 3) contains the topical attribute field LTYPE, the 14 values of which are described in table 4 and in digital form as part of the sj-geol coverage in the INFO definition table SJ-GEOL.LN.

Table 3. Contents of the Geology Arc Attribute Table (SJ-GEOL.AAT)

ITEM NAME	WIDTH	OUTPUT	TYPE	N.DEC	
FNODE#	4	5	B	-	starting node of arc (from node)
TNODE#	4	5	B	-	ending node of arc (to node)
LPOLY#	4	5	B	-	polygon to the left of the arc
RPOLY#	4	5	B	-	polygon to the right of the arc
LENGTH	4	12	F	3	length of arc in meters
SJ-GEOL#	4	5	B	-	unique internal control number
SJ-GEOL-ID	4	5	B	-	unique identification number
LTYPE	35	35	C	-	line type

Table 4. Line Types Recorded in the Geology LTYPE Field

The geologic line types (exclusive of the various kinds of boundaries) are ALACARTE line types that correlate with geologic line symbols in the ALACARTE line set GEOLOGY.LIN according to the ALACARTE lines lookup table GEOLINE.LUT.

LTYPE	LDEF
contact, certain	unfaulted depositional or intrusive boundary between map units, confident identification and location
contact, approx. located	unfaulted depositional or intrusive boundary between map units, relatively confident identification, location approximate
contact, inferred	unfaulted depositional or intrusive boundary between map units, identification inferred, location approximate

contact, inferred, queried	unfaulted depositional or intrusive boundary between map units, identification inferred, location uncertain
contact, concealed	unfaulted depositional or intrusive boundary between map units, concealed beneath overlying map unit, identification and location dependant on adjacent control
fault, certain	fault showing mappable disruption of map units or separating coherent Franciscan rock from melange, confident identification and location
fault, approx. located	fault showing mappable disruption of map units or separating coherent Franciscan rock from melange, relatively confident identification, location approximate
fault, inferred	fault showing mappable disruption of map units or separating coherent Franciscan rock from melange, identification inferred, location uncertain
fault, inferred, queried	fault showing mappable disruption of map units or separating coherent Franciscan rock from melange, identification inferred, location uncertain
fault, concealed	fault showing mappable disruption of map units or separating coherent Franciscan rock from melange, concealed beneath overlying map unit, identification and location dependant on adjacent control
fault, concealed, queried	fault showing mappable disruption of map units or separating coherent Franciscan rock from melange, concealed beneath overlying map unit, identification and/or location uncertain
map boundary	boundary of San Jose 30 X 60-minute quadrangle
scratch boundary	boundary without geologic attribute, here used to close otherwise incomplete unit boundaries (largely narrow stream channels - Qa), assign no line symbol in plotting
water boundary	boundary of open water from 1:100,000 base

The geology polygon database (SJ-GEOL.PAT, table 5) contains the topical attribute field PTYPE, values of which are map-label representations of the geologic map units (such as Qt). The 136 map units (and 40 queried equivalents) are listed and described in the separate geologic description (part of98-795_2) and are listed and named in digital form as part of the sj-geol coverage in the INFO definition table SJ-GEOL.UN.

Table 5. Contents of the Geology Polygon Attribute Table (SJ-GEOL.PAT)

ITEM NAME	WIDTH	OUTPUT	TYPE	N.DEC	
AREA	4	12	F	3	area of polygon in square meters
PERIMETER	4	12	F	3	length of perimeter in meters
SJ-GEOL#	4	5	B	-	unique internal control number
SJ-GEOL-ID	4	5	B	-	unique identification number
PTYPE	35	35	C	-	geologic unit label

Tectonic Blocks Layer

Tectonic blocks of relatively high metamorphic grade in Franciscan melange that are too small to show at map scale (diameter less than 100 m) are represented as points in the blocks layer sj-blks (and shown as black diamonds on the geologic map), except in the Santa Cruz Mountains, where they are not distinguished. The blocks point database (SJ-BLKS.PAT, table 6) contains the topical attribute field BKTYPE, containing letter codes representing rock type. The 7 code values are defined in table 7 and in digital form as part of the sj-blks coverage in the INFO definition table SJ-BLKS.PT.

Table 6. Contents of the Blocks Point Attribute Table (SJ-BLKS.PAT)

ITEM NAME	WIDTH	OUTPUT	TYPE	N.DEC	
AREA	4	12	F	3	(unused for points)
PERIMETER	4	12	F	3	(unused for points)
SJ-BLKS#	4	5	B	-	unique internal control number
SJ-BLKS-ID	4	5	B	-	unique identification number
BKTYPE	2	2	C	-	code for type of block

Table 7. Types of Tectonic Blocks

BKTYPE	BDEF
a	amphibolite, garnet amphibolite
b	blueschist
e	eclogite
h	highgrade, undifferentiated
m	mica schist
t	greenschist
y	grayblack schist, Ward Creek terrane?

Annotation Layer

The annotation layer sj-anno contains cartographic elements that are designed for plotting with the geology layer. Text is limited to three unit labels (all other labels on the geologic map were created with the ArcPlot polygontext command) and the designation "SHEAR ZONE", which plots over the map unit PTYPE = sz (text size appropriate for 1:100,000-scale plots). Lines are leaders for the three labels and more than 1500 landslide arrows. These lines are distinguished by values of the LTYPE attribute field in the line database (SJ-ANNO.AAT, table 7), which are defined in table 8 and in digital form as part of the sj-anno coverage in the INFO table SJ-ANNO.LN. For the best effect in plotting, exclude the Qls PTYPE labels when including the landslide arrows.

Table 7. Contents of the Annotation Arc Attribute Table (SJ-ANNO.AAT)

ITEM NAME	WIDTH	OUTPUT	TYPE	N.DEC	
FNODE#	4	5	B	-	starting node of arc (from node)
TNODE#	4	5	B	-	ending node of arc (to node)
LPOLY#	4	5	B	-	polygon to the left of the arc
RPOLY#	4	5	B	-	polygon to the right of the arc
LENGTH	4	12	F	3	length of arc in meters
SJ-ANNO#	4	5	B	-	unique internal control number
SJ-ANNO-ID	4	5	B	-	unique identification number
LTYPE	35	35	C	-	line type

Table 8. Line Types Recorded in the Annotation LTYPE Field

LTYPE	LDEF
landslide arrow	landslide arrow, points down slope
leader	leader, connects unit label annotation with unit polygon

Quadrangle Index

The boundaries and names of the thirty-two 7.5-minute quadrangles in the San Jose 30 X 60-minute quadrangle are described in the quadrangle index sj-qdgrid. This layer distinguishes the outer from the internal quadrangle boundaries and names the 7.5-minute quadrangles both by polygon attribute and with text annotation. Quadrangle boundaries are distinguished by values of the LTYPE attribute field in the line database (SJ-QDGRID.AAT, table 9), which are defined in table 10 and in digital form as part of the sj-qdgrid coverage in the INFO table SJ-QDGRID.LN.

Table 9. Contents of the Quadrangle Index Arc Attribute Table (SJ-QDGRID.AAT)

ITEM NAME	WIDTH	OUTPUT	TYPE	N.DEC	
FNODE#	4	5	B	-	starting node of arc (from node)
TNODE#	4	5	B	-	ending node of arc (to node)
LPOLY#	4	5	B	-	polygon to the left of the arc
RPOLY#	4	5	B	-	polygon to the right of the arc
LENGTH	4	12	F	3	length of arc in meters
SJ-QDGRID#	4	5	B	-	unique internal control number
SJ-QDGRID-ID	4	5	B	-	unique identification number
LTYPE	35	35	C	-	line type

Table 10. Line Types Recorded in the Quadrangle Index LTYPE Field

LTYPE	LDEF
quadboundarys	boundary of 7.5-minute quadrangle, exclusive of outer boundary of 1:100,000 quadrangle
sheetboundary	outer boundary of 1:100,000 quadrangle

Quadrangle names are specified in the NAME attribute field of the the polygon database (table 10), as well as by text annotation in both diagonal (quad-centered, level 2) and horizontal (upper left of each quadrangle, level 3) orientation.

Table 10. Contents of the Quadrangle Index Polygon Attribute Table (SJ-QDGRID.PAT)

ITEM NAME	WIDTH	OUTPUT	TYPE	N.DEC	
AREA	4	12	F	3	(unused for points)
PERIMETER	4	12	F	3	(unused for points)
SJ-QDGRID#	4	5	B	-	unique internal control number
SJ-QDGRID-ID	4	5	B	-	unique identification number
NAME	35	35	C	-	name of 7.5-minute quadrangle

Topographic Base

The topographic base layers are unattributed vector representations of printing negative separations for the U.S. Geological Survey 1:100,000 San Jose, California, topographic map (1978) that have been aggregated or distinguished to produce the five layers of table 11. Distinction between the index and intermediate contours was accomplished by recognizing the difference in line widths during vectorization. No hand editing has been applied to the results of the automatic vectorization and, although the resulting vector representation of the separations is generally quite legible, artifacts and distortions did result, particularly from letters and numbers.

Table 11. Topographic Base Layers

Topic	Layer Name
Drainage	sj-drain
Index Contours	sj-index
Intermediate Contours	sj-inter
Culture	sj-cult
Township-Range Lines	sj-land

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