2—FAULTS

REF NO	DESCRIPTION	SYMBOL	CARTOGRAPHIC SPECIFICATIONS*	NOTES ON USAGE*
	2.1—Faults (generic; vertical, subvertical,	or high-angle; or unknov	vn or unspecified orientation or sen	se of slip)
2.1.1	Fault (generic; vertical, subvertical, or high-angle; or unknown or unspecified orientation or sense of slip) —Identity and existence certain, location accurate		lineweight .375 mm VHB-8	Use generic, nonspecific (non-ornamented) fault symbols when ori-
2.1.2	Fault (generic; vertical, subvertical, or high-angle; or unknown or unspecified orientation or sense of slip)—Identity or existence questionable, location accurate	 ?	→ .75 mm → 12.0 mm ←	entation or sense of slip is not known or not specified; use also on small-scale maps to
2.1.3	Fault (generic; vertical, subvertical, or high-angle; or unknown or unspecified orientation or sense of slip)—Identity and existence certain, location approximate		3.5 mm ≯ ≮	show regional fault pat- terns. If orientation or sense of
2.1.4	Fault (generic; vertical, subvertical, or high-angle; or unknown or unspecified orientation or sense of slip)—Identity or existence questionable, location approximate		— — ;— — — ≯k- ≯k- .75 mm	slip is known and if scale allows, use more specific types of orna-
2.1.5	Fault (generic; vertical, subvertical, or high-angle; or unknown or unspecified orientation or sense of slip) —Identity and existence certain, location inferred		1.5 mm → ←	mented fault symbols to indicate fault geometry and (or) relative motion.
2.1.6	Fault (generic; vertical, subvertical, or high-angle; or unknown or unspecified orientation or sense of slip)—Identity or existence questionable, location inferred	?		
2.1.7	Fault (generic; vertical, subvertical, or high-angle; or unknown or unspecified orientation or sense of slip) —Identity and existence certain, location concealed		.5 mm ≯k	
2.1.8	Fault (generic; vertical, subvertical, or high-angle; or unknown or unspecified orientation or sense of slip)—Identity or existence questionable, location concealed	2	⇒ ← → ← .75 mm .75 mm	

^{*}For more information, see general guidelines on pages A-i to A-v.

REF NO	DESCRIPTION	SYMBOL	CARTOGRAPHIC SPECIFICATIONS*	NOTES ON USAGE*
		2.2—Normal faults		
2.2.1	Normal fault—Identity and existence certain, location accurate. Ball and bar on downthrown block	· •	tick length 1.0 mm; .875 mm diameter lineweight .175 mm HB-8	Ball and bar symbols are placed along a fault to indicate its overall
2.2.2	Normal fault—Identity or existence questionable, location accurate. Ball and bar on downthrown block		lineweight .375 mm → 12.0 mm ←	fault type (normal fault). Ball and bar symbols may also be placed
2.2.3	Normal fault—Identity and existence certain, location approximate. Ball and bar on downthrown block		3.5 mm →	along other types of faults at specific locali- ties where observations of normal (or apparent
2.2.4	Normal fault—Identity or existence questionable, location approximate. Ball and bar on downthrown block	_3 <mark>↓ _3</mark>	:; → ← → ← .75 mm .75 mm	normal) offset have been made (see Sec- tion 2.11).
2.2.5	Normal fault—Identity and existence certain, location inferred. Ball and bar on downthrown block	1	1.5 mm ⇒ ←	Ball and bar symbols may be combined with paired arrows to show
2.2.6	Normal fault—Identity or existence questionable, location inferred. Ball and bar on downthrown block		→	oblique offset (see Sections 2.7, 2.11). In cross section, use paired arrows to show
2.2.7	Normal fault—Identity and existence certain, location concealed. Ball and bar on downthrown block	†	.5 mm ≯ ← 212	relative motion of normal faults (see Section 2.11).
2.2.8	Normal fault—Identity or existence questionable, location concealed. Ball and bar on downthrown block	àţà	≯k ≯k .75 mm .75 mm	,
2.2.9	Low-angle normal fault—Identity and existence certain, location accurate. Half-circles on downthrown block		lineweight .375 mm HB-8	Half-circles indicate overall fault type (low- angle normal fault); they
2.2.10	Low-angle normal fault—Identity or existence questionable, location accurate. Half-circles on downthrown block		.625 mm 75 mm radius	are not placed at specific localities where observations have been made.
2.2.11	Low-angle normal fault—Identity and existence certain, location approximate. Half-circles on downthrown block		3.5 mm → ←	In cross section, use paired arrows to show relative motion of low-
2.2.12	Low-angle normal fault—Identity or existence questionable, location approximate. Half-circles on downthrown block	- -	75 mm .75 mm	angle normal faults (see Section 2.11).
2.2.13	Low-angle normal fault—Identity and existence certain, location inferred. Half-circles on downthrown block		1.5 mm 2.5 mm ⇒	
2.2.14	Low-angle normal fault—Identity or existence questionable, location inferred. Half-circles on downthrown block		≯k ≯k .75 mm .75 mm	
2.2.15	Low-angle normal fault—Identity and existence certain, location concealed. Half-circles on downthrown block		.5 mm 2.5 mm ⇒ ← → ←	
2.2.16	Low-angle normal fault—Identity or existence questionable, location concealed. Half-circles on downthrown block		→ ← → ← .75 mm .75 mm	

REF NO	DESCRIPTION	SYMBOL	CARTOGRAPHIC SPECIFICATIONS*	NOTES ON USAGE*
		aults (unknown or unspe		
2.3.1	Low-angle fault (unknown or unspecified sense of slip)—Identity and existence certain, location accurate. Half-circles on upper plate		lineweight .375 mm HB-8	Use to show faults that exhibit low-angle geometry but for which rela-
2.3.2	Low-angle fault (unknown or unspecified sense of slip)—Identity or existence questionable, location accurate. Half-circles on upper plate		.625 mm .75 mm radius; > 12.0 mm le lineweight .2 mm	tive motion cannot be (or has not been) speci- fied. Half-circles indicate
2.3.3	Low-angle fault (unknown or unspecified sense of slip)—Identity and existence certain, location approximate. Half-circles on upper plate		3.5 mm → ←	overall fault type (low- angle fault, unknown or unspecified sense of
2.3.4	Low-angle fault (unknown or unspecified sense of slip)—Identity or existence questionable, location approximate. Half-circles on upper plate	— 	≯ ← ≯ ← .75 mm	slip); they are not placed at specific locali- ties where observations
2.3.5	Low-angle fault (unknown or unspecified sense of slip)—Identity and existence certain, location inferred. Half-circles on upper plate		1.5 mm 2.5 mm 	have been made.
2.3.6	Low-angle fault (unknown or unspecified sense of slip)—Identity or existence questionable, location inferred. Half-circles on upper plate		≯	
2.3.7	Low-angle fault (unknown or unspecified sense of slip)—Identity and existence certain, location concealed. Half-circles on upper plate	↔ ↔	.5 mm 2.5 mm → ← → ←	
2.3.8	Low-angle fault (unknown or unspecified sense of slip)—Identity or existence questionable, location concealed. Half-circles on upper plate	⊸?⊸	→ 	
		2.4—Reverse faults		
2.4.1	Reverse fault—Identity and existence certain, location accurate. Rectangles on upthrown block		lineweight .375 mm	Rectangles indicate overall fault type (reverse fault); they are
2.4.2	Reverse fault—Identity or existence questionable, location accurate. Rectangles on upthrown block		.75 mm + 12.0 mm -	not placed at specific localities where observations have been made.
2.4.3	Reverse fault—Identity and existence certain, location approximate. Rectangles on upthrown block		3.5 mm → ← 2	In cross section, use paired arrows to show relative motion of
2.4.4	Reverse fault—Identity or existence questionable, location approximate. Rectangles on upthrown block		≯k ≯k .75 mm	reverse faults (see Section 2.11).
2.4.5	Reverse fault—Identity and existence certain, location inferred. Rectangles on upthrown block		1.5 mm 2.5 mm → ← → ←	
2.4.6	Reverse fault—Identity or existence questionable, location inferred. Rectangles on upthrown block		7	
2.4.7	Reverse fault—Identity and existence certain, location concealed. Rectangles on upthrown block		.5 mm 2.5 mm → ← → ←	
2.4.8	Reverse fault—Identity or existence questionable, location concealed. Rectangles on upthrown block		→	

^{*}For more information, see general guidelines on pages A-i to A-v.

REF NO	DESCRIPTION	SYMBOL	CARTOGRAPHIC SPECIFICATIONS*	NOTES ON USAGE*
	2.:	5—Rotational or scisso	r faults	
2.5.1	Rotational or scissor fault, reverse-slip offset— Identity and existence certain, location accurate. Rectangles on upthrown block		lineweight .375 mm HB-8 → ★.5 mm	Rectangles indicate overall fault type (rotational or scissor fault,
2.5.2	Rotational or scissor fault, reverse-slip offset— Identity or existence questionable, location accurate. Rectangles on upthrown block	?	.75 mm → 12.0 mm → 12.0 mm → 12.0 mm	reverse-slip offset); they are not placed at specif- ic localities where observations have been
2.5.3	Rotational or scissor fault, reverse-slip offset— Identity and existence certain, location approxi- mate. Rectangles on upthrown block		3.5 mm ⇒ ←	made. In cross section, use paired arrows to show
2.5.4	Rotational or scissor fault, reverse-slip offset— Identity or existence questionable, location approximate. Rectangles on upthrown block		→ → ← .75 mm .75 mm	relative motion of rotational or scissor faults (see Section 2.11).
2.5.5	Rotational or scissor fault, reverse-slip offset— Identity and existence certain, location inferred. Rectangles on upthrown block		1.5 mm 2.5 mm → ←	
2.5.6	Rotational or scissor fault, reverse-slip offset— Identity or existence questionable, location infer- red. Rectangles on upthrown block	-	≯ ← ≯ ← .75 mm	
2.5.7	Rotational or scissor fault, reverse-slip offset— Identity and existence certain, location concealed. Rectangles on upthrown block		.5 mm 2.5 mm ≯k → k	
2.5.8	Rotational or scissor fault, reverse-slip offset— Identity or existence questionable, location con- cealed. Rectangles on upthrown block		≯ ← ≯ ← .75 mm .75 mm	
2.5.9	Rotational or scissor fault, normal-slip offset— Identity and existence certain, location accurate. Rectangles on downthrown block		lineweight .375 mm HB-8	Rectangles indicate overall fault type (rotational or scissor fault,
2.5.10	Rotational or scissor fault, normal-slip offset— Identity or existence questionable, location accurate. Rectangles on downthrown block	?	Iineweight	normal-slip offset); they are not placed at spe- cific localities where observations have been
2.5.11	Rotational or scissor fault, normal-slip offset— Identity and existence certain, location approxi- mate. Rectangles on downthrown block		3.5 mm → ←	made. In cross section, use paired arrows to show
2.5.12	Rotational or scissor fault, normal-slip offset— Identity or existence questionable, location approximate. Rectangles on downthrown block		→ -	relative motion of rotational or scissor faults (see Section 2.11).
2.5.13	Rotational or scissor fault, normal-slip offset— Identity and existence certain, location inferred. Rectangles on downthrown block		1.5 mm 2.5 mm 기ト 기ト	
2.5.14	Rotational or scissor fault, normal-slip offset— Identity or existence questionable, location infer- red. Rectangles on downthrown block	?	→ → - → - .75 mm .75 mm	
2.5.15	Rotational or scissor fault, normal-slip offset— Identity and existence certain, location concealed. Rectangles on downthrown block		.5 mm 2.5 mm ≯k → k	
2.5.16	Rotational or scissor fault, normal-slip offset— Identity or existence questionable, location con- cealed. Rectangles on downthrown block	=?=	→	

Z—FAOLIS (continued)					
REF NO	DESCRIPTION	SYMBOL	CARTOGRAPHIC SPECIFICATIONS*	NOTES ON USAGE*	
		2.6—Strike-slip faults	S		
2.6.1	Strike-slip fault, right-lateral offset—Identity and existence certain, location accurate. Arrows show relative motion		arrow lineweight 5.25 mm .2 mm HB-8	Paired arrows are placed along a fault to indicate its overall type	
2.6.2	Strike-slip fault, right-lateral offset—Identity or existence questionable, location accurate. Arrows show relative motion		lineweight	(strike-slip fault) and its relative motion. Paired arrows may also	
2.6.3	Strike-slip fault, right-lateral offset—Identity and existence certain, location approximate. Arrows show relative motion	<u></u> =	3.5 mm → 	be placed along other types of faults at spec- ific localities where observations of strike-	
2.6.4	Strike-slip fault, right-lateral offset—Identity or existence questionable, location approximate. Arrows show relative motion	-;- = -;-	→	slip (or apparent strike- slip) offset have been made (see Section	
2.6.5	Strike-slip fault, right-lateral offset—Identity and existence certain, location inferred. Arrows show relative motion		1.5 mm	2.11). Paired arrows may be combined with ball and	
2.6.6	Strike-slip fault, right-lateral offset—Identity or existence questionable, location inferred. Arrows show relative motion	;===;-	→	bar symbols to show oblique offset (see Sec- tions 2.7, 2.11). In cross section, use	
2.6.7	Strike-slip fault, right-lateral offset—Identity and existence certain, location concealed. Arrows show relative motion		.5 mm → *-	either A/T or +/- nota- tion to show relative motion of strike-slip	
2.6.8	Strike-slip fault, right-lateral offset—Identity or existence questionable, location concealed. Arrows show relative motion		ا الله الله الله الله الله الله الله ال	faults (see Section 2.11).	
2.6.9	Strike-slip fault, left-lateral offset—Identity and existence certain, location accurate. Arrows show relative motion		arrow lineweight 5.25 mm -2 mm HB-8		
2.6.10	Strike-slip fault, left-lateral offset—Identity or existence questionable, location accurate. Arrows show relative motion	-? <u></u>	lineweight		
2.6.11	Strike-slip fault, left-lateral offset—Identity and existence certain, location approximate. Arrows show relative motion	=	3.5 mm → ←		
2.6.12	Strike-slip fault, left-lateral offset—Identity or existence questionable, location approximate. Arrows show relative motion	-? - <u>∕</u> =;?	→		
2.6.13	Strike-slip fault, left-lateral offset—Identity and existence certain, location inferred. Arrows show relative motion		1.5 mm → ←		
2.6.14	Strike-slip fault, left-lateral offset—Identity or existence questionable, location inferred. Arrows show relative motion		→		
2.6.15	Strike-slip fault, left-lateral offset—Identity and existence certain, location concealed. Arrows show relative motion	<u>4</u>	.5 mm → - 		
2.6.16	Strike-slip fault, left-lateral offset—Identity or existence questionable, location concealed. Arrows show relative motion	\$ 4 .\$	≯ ← ≯ ← .75 mm .75 mm		

REF NO	DESCRIPTION	SYMBOL	CARTOGRAPHIC SPECIFICATIONS*	NOTES ON USAGE*
		2.7—Oblique-slip fault	is	
2.7.1	Oblique-slip fault, right-lateral offset—Identity and existence certain, location accurate. Arrows show relative motion; ball and bar on downthrown block	<u></u>	Inneweight 5.25 mm tick length 1.0 mm;	Sets of paired arrows and ball and bar sym- bols are placed along a
2.7.2	Oblique-slip fault, right-lateral offset—Identity or existence questionable, location accurate. Arrows show relative motion; ball and bar on downthrown block	<u>\$</u> <u></u> \$_	lineweight .75 mm 375 mm	fault to indicate its over- all type (oblique-slip fault) and its relative motion.
2.7.3	Oblique-slip fault, right-lateral offset—Identity and existence certain, location approximate. Arrows show relative motion; ball and bar on downthrown block	<u></u> <u></u> -	3.5 mm → ←	Sets of paired arrows and ball and bar sym- bols may also be placed
2.7.4	Oblique-slip fault, right-lateral offset—Identity or existence questionable, location approximate. Arrows show relative motion; ball and bar on downthrown block	<u>-š-≦,</u> jš-	→	along other types of faults at specific locali- ties where observations
2.7.5	Oblique-slip fault, right-lateral offset—Identity and existence certain, location inferred. Arrows show relative motion; ball and bar on downthrown block	-	1.5 mm → ←	of oblique-slip (or apparent oblique-slip) offset have been made (see Section 2.11).
2.7.6	Oblique-slip fault, right-lateral offset—Identity or existence questionable, location inferred. Arrows show relative motion; ball and bar on downthrown block	\$- -==- ; \$	→ k → k .75 mm .75 mm	In cross section, use paired arrows with either A/T or +/- nota-
2.7.7	Oblique-slip fault, right-lateral offset—Identity and existence certain, location concealed. Arrows show relative motion; ball and bar on downthrown block	<u>æ</u> 1	.5 mm → <	tion to show relative motion of oblique-slip faults (see Section
2.7.8	Oblique-slip fault, right-lateral offset—Identity or existence questionable, location concealed. Arrows show relative motion; ball and bar on downthrown block		→ k → k .75 mm .75 mm	2.11).
2.7.9	Oblique-slip fault, left-lateral offset—Identity and existence certain, location accurate. Arrows show relative motion; ball and bar on downthrown block	<u> </u>	.875 mm diameter tick length 5.25 mm lineweight 1.0 mm; 2 mm lineweight HB-8	
2.7.10	Oblique-slip fault, left-lateral offset—Identity or existence questionable, location accurate. Arrows show relative motion; ball and bar on downthrown block	<u>5↓</u>	.175 mm	
2.7.11	Oblique-slip fault, left-lateral offset—Identity and existence certain, location approximate. Arrows show relative motion; ball and bar on downthrown block	_ <u></u>	3.5 mm -> \(\)	
2.7.12	Oblique-slip fault, left-lateral offset—Identity or existence questionable, location approximate. Arrows show relative motion; ball and bar on downthrown block	<u>-;†</u> =_;-	→ 	
2.7.13	Oblique-slip fault, left-lateral offset—Identity and existence certain, location inferred. Arrows show relative motion; ball and bar on downthrown block	• 	1.5 mm → ←	
2.7.14	Oblique-slip fault, left-lateral offset—Identity or existence questionable, location inferred. Arrows show relative motion; ball and bar on downthrown block	- ÷₁ <= ÷ -	기 - 기	
2.7.15	Oblique-slip fault, left-lateral offset—Identity and existence certain, location concealed. Arrows show relative motion; ball and bar on downthrown block	! <u>:</u>	.5 mm ⇒ ≮ 3.13	
2.7.16	Oblique-slip fault, left-lateral offset—Identity or existence questionable, location concealed. Arrows show relative motion; ball and bar on downthrown block	a়¹ <u>-</u> a	≯k ≯k .75 mm	

REF NO	DESCRIPTION	SYMBOL	CARTOGRAPHIC SPECIFICATIONS*	NOTES ON USAGE*
		2.8—Thrust faults		
2.8.1	Thrust fault (1st option)—Identity and existence certain, location accurate. Sawteeth on upper (tectonically higher) plate		lineweight .375 mm HB-8	Sawteeth indicate over- all fault type (thrust fault); they are not
2.8.2	Thrust fault (1st option)—Identity or existence questionable, location accurate. Sawteeth on upper (tectonically higher) plate		.75 mm / 60 sawtooth height 1.5 mm	placed at specific localities where observations have been made.
2.8.3	Thrust fault (1st option)—Identity and existence certain, location approximate. Sawteeth on upper (tectonically higher) plate	- ▼▼-	3.5 mm →	In cross section, use paired arrows to show relative motion of thrust faults (see Section
2.8.4	Thrust fault (1st option)—Identity or existence questionable, location approximate. Sawteeth on upper (tectonically higher) plate	- ▼-?-▼-	→ → → → → → → → → → → → → → → → → → →	2.11). If desired, "2nd option" and "3rd option" sym-
2.8.5	Thrust fault (1st option)—Identity and existence certain, location inferred. Sawteeth on upper (tectonically higher) plate		1.5 mm 2.5 mm	bols may be used to show other types or generations of thrust
2.8.6	Thrust fault (1st option)—Identity or existence questionable, location inferred. Sawteeth on upper (tectonically higher) plate	-	→ ← → ← .75 mm .75 mm	faults.
2.8.7	Thrust fault (1st option)—Identity and existence certain, location concealed. Sawteeth on upper (tectonically higher) plate	▼	.5 mm 2.5 mm ≯ ← → ←	
2.8.8	Thrust fault (1st option)—Identity or existence questionable, location concealed. Sawteeth on upper (tectonically higher) plate	▼2▼	≯ ← ≯ ← .75 mm .75 mm	
2.8.9	Thrust fault (2nd option)—Identity and existence certain, location accurate. Sawteeth on upper (tectonically higher) plate		lineweight .375 mm HB-8	
2.8.10	Thrust fault (2nd option)—Identity or existence questionable, location accurate. Sawteeth on upper (tectonically higher) plate		.75 mm sawtooth height 1.5 mm; 12.0 mm - 60 lineweight 2.2 mm	
2.8.11	Thrust fault (2nd option)—Identity and existence certain, location approximate. Sawteeth on upper (tectonically higher) plate	- ▼ - -▼-	3.5 mm →	
2.8.12	Thrust fault (2nd option)—Identity or existence questionable, location approximate. Sawteeth on upper (tectonically higher) plate	- → -? - → -	→	
2.8.13	Thrust fault (2nd option)—Identity and existence certain, location inferred. Sawteeth on upper (tectonically higher) plate	~	1.5 mm 2.5 mm ⇒ <	
2.8.14	Thrust fault (2nd option)—Identity or existence questionable, location inferred. Sawteeth on upper (tectonically higher) plate		→	
2.8.15	Thrust fault (2nd option)—Identity and existence certain, location concealed. Sawteeth on upper (tectonically higher) plate		.5 mm 2.5 mm ≯k → k ····∇···?···∇···	
2.8.16	Thrust fault (2nd option)—Identity or existence questionable, location concealed. Sawteeth on upper (tectonically higher) plate		→	
2.8.17	Thrust fault (3rd option)—Identity and existence certain, location accurate. Sawteeth on upper (tectonically higher) plate		lineweight .375 mm HB-8	
2.8.18	Thrust fault (3rd option)—Identity or existence questionable, location accurate. Sawteeth on upper (tectonically higher) plate	——————————————————————————————————————	.75 mm sawtooth height 1.5 mm height 2.0 mm	
2.8.19	Thrust fault (3rd option)—Identity and existence certain, location approximate. Sawteeth on upper (tectonically higher) plate	— w — — w —	3.5 mm → ←	
2.8.20	Thrust fault (3rd option)—Identity or existence questionable, location approximate. Sawteeth on upper (tectonically higher) plate	— _W —?— _W —	→ -:	
2.8.21	Thrust fault (3rd option)—Identity and existence certain, location inferred. Sawteeth on upper (tectonically higher) plate	ww	1.5 mm 2.5 mm → ← → → ←	
2.8.22	Thrust fault (3rd option)—Identity or existence questionable, location inferred. Sawteeth on upper (tectonically higher) plate	_{\psi} ? _{\psi}	→ ♥ → :- → ♥ ≯	
2.8.23	Thrust fault (3rd option)—Identity and existence certain, location concealed. Sawteeth on upper (tectonically higher) plate	vv	.5 mm 2.5 mm ≯ k	
2.8.24	Thrust fault (3rd option)—Identity or existence questionable, location concealed. Sawteeth on upper (tectonically higher) plate		→ ∀ → ← .75 mm .75 mm	

REF NO	DESCRIPTION	SYMBOL	CARTOGRAPHIC SPECIFICATIONS*	NOTES ON USAGE*
		2.9—Overturned thrust	faults	
2.9.1	Overturned thrust fault (1st option)—Identity and existence certain, location accurate. Bars on tectonically higher plate (footwall); sawteeth in direction of dip	—	Ineweight HB-8 2.25 mm 2.25 mm 4.5 mm	Bars and sawteeth indi- cate overall fault type (overturned thrust fault);
2.9.2	Overturned thrust fault (1st option)—Identity or existence questionable, location accurate. Bars on tectonically higher plate (footwall); sawteeth in direction of dip		.75 mm 40 sawtooth height 1.5 mm	they are not placed at specific localities where observations have been made.
2.9.3	Overturned thrust fault (1st option)—Identity and existence certain, location approximate. Bars on tectonically higher plate (footwall); sawteeth in direction of dip		3.5 mm → ←	In cross section, use paired arrows to show relative motion of over-
2.9.4	Overturned thrust fault (1st option)—Identity or existence questionable, location approximate. Bars on tectonically higher plate (footwall); sawteeth in direction of dip	- 4 - ; - 4 -	→ ← → ← .75 mm .75 mm	turned thrust faults (see Section 2.11). If desired, "2nd option"
2.9.5	Overturned thrust fault (1st option)—Identity and existence certain, location inferred. Bars on tectonically higher plate (footwall); sawteeth in direction of dip	▼▼	1.5 mm 3.5 mm ⇒ ← → ←	and "3rd option" sym- bols may be used to show other types or
2.9.6	Overturned thrust fault (1st option)—Identity or existence questionable, location inferred. Bars on tectonically higher plate (footwall); sawteeth in direction of dip	▼?▼	→	generations of over- turned thrust faults.
2.9.7	Overturned thrust fault (1st option)—Identity and existence certain, location concealed. Bars on tectonically higher plate (footwall); sawteeth in direction of dip	▼	.5 mm 3.5 mm →	
2.9.8	Overturned thrust fault (1st option)—Identity or existence questionable, location concealed. Bars on tectonically higher plate (footwall); sawteeth in direction of dip	▼?▼	→ ← → ← .75 mm .75 mm	
2.9.9	Overturned thrust fault (2nd option)—Identity and existence certain, location accurate. Bars on tectonically higher plate (footwall); sawteeth in direction of dip	- ▼ ▼	Somm 3.0 mm 2.25 mm 3.75 mm 2.25 mm 2.5 mm 3.5 mm 3.6 mm 3.75 mm	
2.9.10	Overturned thrust fault (2nd option)—Identity or existence questionable, location accurate. Bars on tectonically higher plate (footwall); sawteeth in direction of dip		.75 mm 40 sawtooth height 1.5 mm lineweight .2 mm	
2.9.11	Overturned thrust fault (2nd option)—Identity and existence certain, location approximate. Bars on tectonically higher plate (footwall); sawteeth in direction of dip		3.5 mm → ←	
2.9.12	Overturned thrust fault (2nd option)—Identity or existence questionable, location approximate. Bars on tectonically higher plate (footwall); sawteeth in direction of dip	- > - ? − ? −	→	
2.9.13	Overturned thrust fault (2nd option)—Identity and existence certain, location inferred. Bars on tectonically higher plate (footwall); sawteeth in direction of dip		1.5 mm 3.5 mm ⇒ ← 3.5 mm	
2.9.14	Overturned thrust fault (2nd option)—Identity or existence questionable, location inferred. Bars on tectonically higher plate (footwall); sawteeth in direction of dip	-		
2.9.15	Overturned thrust fault (2nd option)—Identity and existence certain, location concealed. Bars on tectonically higher plate (footwall); sawteeth in direction of dip		.5 mm 3.5 mm → ← → ←	
2.9.16	Overturned thrust fault (2nd option)—Identity or existence questionable, location concealed. Bars on tectonically higher plate (footwall); sawteeth in direction of dip		→	
2.9.17	Overturned thrust fault (3rd option)—Identity and existence certain, location accurate. Bars on tectonically higher plate (footwall); sawteeth in direction of dip	-	Somm 3.0 mm 2.25 mm 3.75 mm 2.25 mm 2.5 mm 2.5 mm 3.5 mm	
2.9.18	Overturned thrust fault (3rd option)—Identity or existence questionable, location accurate. Bars on tectonically higher plate (footwall); sawteeth in direction of dip		.75 mm 40 sawtooth might 1.5 mm 60 lineight 1.2 mm	
2.9.19	Overturned thrust fault (3rd option)—Identity and existence certain, location approximate. Bars on tectonically higher plate (footwall); sawteeth in direction of dip	- ▼ - -▼-	3.5 mm → ←	
2.9.20	Overturned thrust fault (3rd option)—Identity or existence questionable, location approximate. Bars on tectonically higher plate (footwall); sawteeth in direction of dip	- ▼ -? - ▼ -	→ ▼ ▼ ⇒ k	
2.9.21	Overturned thrust fault (3rd option)—Identity and existence certain, location inferred. Bars on tectonically higher plate (footwall); sawteeth in direction of dip		1.5 mm 3.5 mm ⇒ ←	
2.9.22	Overturned thrust fault (3rd option)—Identity or existence questionable, location inferred. Bars on tectonically higher plate (footwall); sawteeth in direction of dip		→ → -: → → ← → ← .75 mm .75 mm	
2.9.23	Overturned thrust fault (3rd option)—Identity and existence certain, location concealed. Bars on tectonically higher plate (footwall); sawteeth in direction of dip	··· ▼ ····· ▼ ···	.5 mm 3.5 mm → ← → ←	
2.9.24	Overturned thrust fault (3rd option)—Identity or existence questionable, location concealed. Bars on tectonically higher plate (footwall); sawteeth in direction of dip	₩₩	≯ ← ≯ ← .75 mm .75 mm	

		Z—I AOLI 3 (COIIIIIII	·	
REF NO	DESCRIPTION	SYMBOL	CARTOGRAPHIC SPECIFICATIONS*	NOTES ON USAGE*
	2.10—Detac	hment faults (sense of s	lip unspecified)	
2.10.1	Detachment fault (sense of slip unspecified) (1st option)—Identity and existence certain, location accurate. Hachures on upper plate	- 11 - 11 -	lineweight .375 mm HB-8	May be used to show either normal (exten- sional) or thrust (com-
2.10.2	Detachment fault (sense of slip unspecified) (1st option)—Identity or existence questionable, location accurate. Hachures on upper plate	?	hachure Ineweight .75 mm 1.25 mm 1.25 mm	pressional) offset. Hachures indicate over- all fault type (detach-
2.10.3	Detachment fault (sense of slip unspecified) (1st option)—Identity and existence certain, location approximate. Hachures on upper plate		3.5 mm → ←	ment fault); they are not placed at specific localities where observations
2.10.4	Detachment fault (sense of slip unspecified) (1st option)—Identity or existence questionable, location approximate. Hachures on upper plate	— 	— 	have been made. In cross section, use paired arrows to show relative motion of
2.10.5	Detachment fault (sense of slip unspecified) (1st option)—Identity and existence certain, location inferred. Hachures on upper plate	ππ	1.5 mm 2.5 mm ⇒ ← → + ←	detachment faults (see Section 2.11). If desired, "2nd option"
2.10.6	Detachment fault (sense of slip unspecified) (1st option)—Identity or existence questionable, location inferred. Hachures on upper plate	п?п		and "3rd option" sym- bols may be used to show other types or generations of detach-
2.10.7	Detachment fault (sense of slip unspecified) (1st option)—Identity and existence certain, location concealed. Hachures on upper plate	п	.5 mm 2.5 mm ⇒ ← → ← π?π	ment faults.
2.10.8	Detachment fault (sense of slip unspecified) (1st option)—Identity or existence questionable, location concealed. Hachures on upper plate	п?п	→ k- → k- .75 mm .75 mm	
2.10.9	Detachment fault (sense of slip unspecified) (2nd option)—Identity and existence certain, location accurate. Boxes on upper plate		lineweight .375 mm HB-8	May be used to show either normal (extensional) or thrust (compressional) offset.
2.10.10	Detachment fault (sense of slip unspecified) (2nd option)—Identity or existence questionable, location accurate. Boxes on upper plate	?	box 12.5 mm 12.5 mm	Boxes indicate overall fault type (detachment fault); they are not
2.10.11	Detachment fault (sense of slip unspecified) (2nd option)—Identity and existence certain, location approximate. Boxes on upper plate		3.5 mm → k- — — — — — — —	placed at specific localities where observations have been made.
2.10.12	Detachment fault (sense of slip unspecified) (2nd option)—Identity or existence questionable, location approximate. Boxes on upper plate	— 	.75 mm .75 mm	In cross section, use paired arrows to show relative motion of
2.10.13	Detachment fault (sense of slip unspecified) (2nd option)—Identity and existence certain, location inferred. Boxes on upper plate		1.5 mm 2.5 mm 	detachment faults (see Section 2.11). If desired, "2nd option"
2.10.14	Detachment fault (sense of slip unspecified) (2nd option)—Identity or existence questionable, location inferred. Boxes on upper plate		.75 mm .75 mm	and "3rd option" sym- bols may be used to show other types or generations of detach-
2.10.15	Detachment fault (sense of slip unspecified) (2nd option)—Identity and existence certain, location concealed. Boxes on upper plate		.5 mm 2.5 mm →k- → k- □ □	ment faults.
2.10.16	Detachment fault (sense of slip unspecified) (2nd option)—Identity or existence questionable, location concealed. Boxes on upper plate	а?а	≯k ≯k .75 mm .75 mm	
2.10.17	Detachment fault (sense of slip unspecified) (3rd option)—Identity and existence certain, location accurate. Boxes on upper plate	— ш ш	lineweight .375 mm HB-8 √ 1.25 mm 7 1.25 mm 1.25 mm 1.25 mm	
2.10.18	Detachment fault (sense of slip unspecified) (3rd option)—Identity or existence questionable, location accurate. Boxes on upper plate	— — ? — ш	box W W W W W W W W W	
2.10.19	Detachment fault (sense of slip unspecified) (3rd option)—Identity and existence certain, location approximate. Boxes on upper plate		3.5 mm ⇒	
2.10.20	Detachment fault (sense of slip unspecified) (3rd option)—Identity or existence questionable, location approximate. Boxes on upper plate	— 	≯ € ≯ ¢ .75 mm .75 mm	
2.10.21	Detachment fault (sense of slip unspecified) (3rd option)—Identity and existence certain, location inferred. Boxes on upper plate		1.5 mm 2.5 mm 	
2.10.22	Detachment fault (sense of slip unspecified) (3rd option)—Identity or existence questionable, location inferred. Boxes on upper plate	ш?ш	→ k → k .75 mm .75 mm	
2.10.23	Detachment fault (sense of slip unspecified) (3rd option)—Identity and existence certain, location concealed. Boxes on upper plate	шш	.5 mm 2.5 mm ≯k → k	
2.10.24	Detachment fault (sense of slip unspecified) (3rd option)—Identity or existence questionable, location concealed. Boxes on upper plate	ш?ш	→	

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REF NO	DESCRIPTION	SYMBOL	CARTOGRAPHIC SPECIFICATIONS*	NOTES ON USAGE*
	2.10—Detachmen	t faults (sense of slip uns	specified) (continued)	
2.10.25	Master detachment fault (sense of slip unspecified) —Identity and existence certain, location accurate. Hachures on upper plate		lineweight .375 mm HB-8 1.25 mm 1.25 mm 1.25 mm	May be used to show either normal (extensional) or thrust (com-
2.10.26	Master detachment fault (sense of slip unspecified) —Identity or existence questionable, location accurate. Hachures on upper plate	?	hachure 1.25 mm 1.20 mm 625 mm 12.0 mm 625 mm	pressional) offset. Hachures indicate over- all fault type (master
2.10.27	Master detachment fault (sense of slip unspecified) —Identity and existence certain, location approximate. Hachures on upper plate	— m — — m —	3.5 mm → 2	detachment fault); they are not placed at spec- ific localities where observations have been
2.10.28	Master detachment fault (sense of slip unspecified) —Identity or existence questionable, location approximate. Hachures on upper plate	— ;—	→	made. In cross section, use paired arrows to show
2.10.29	Master detachment fault (sense of slip unspecified) —Identity and existence certain, location inferred. Hachures on upper plate	шш	1.5 mm 2.5 mm ⇒ k → k	relative motion of mas- ter detachment faults (see Section 2.11).
2.10.30	Master detachment fault (sense of slip unspecified) —Identity or existence questionable, location inferred. Hachures on upper plate	m? m	π? π ≯	
2.10.31	Master detachment fault (sense of slip unspecified) —Identity and existence certain, location concealed. Hachures on upper plate	···т···т	.5 mm 2.5 mm ⇒ k	
2.10.32	Master detachment fault (sense of slip unspecified) —Identity or existence questionable, location concealed. Hachures on upper plate	······································	π?π ≯ ← ≯ ← .75 mm	
2.10.33	Listric fault at head of detachment fault (sense of slip unspecified)—Identity and existence certain, location accurate. Ticks on upper plate	 	lineweight .375 mm HB-8	May be used to show either normal (exten- sional) or thrust (com-
2.10.34	Listric fault at head of detachment fault (sense of slip unspecified)—Identity or existence questionable, location accurate. Ticks on upper plate		tick T 1.25 T 1.25 T 1.25 T T 1.25 T T T T T T T T T	pressional) offset. Ticks indicate overall fault type (listric fault at
2.10.35	Listric fault at head of detachment fault (sense of slip unspecified)—Identity and existence certain, location approximate. Ticks on upper plate		3.5 mm → 	head of detachment fault); they are not placed at specific locali- ties where observations
2.10.36	Listric fault at head of detachment fault (sense of slip unspecified)—Identity or existence questionable, location approximate. Ticks on upper plate	— 	→	have been made. In cross section, use paired arrows to show
2.10.37	Listric fault at head of detachment fault (sense of slip unspecified)—Identity and existence certain, location inferred. Ticks on upper plate		1.5 mm 2.5 mm ⇒ k ⇒ k	relative motion of listric faults at head of detach- ment faults (see Section
2.10.38	Listric fault at head of detachment fault (sense of slip unspecified)—Identity or existence questionable, location inferred. Ticks on upper plate			2.11).
2.10.39	Listric fault at head of detachment fault (sense of slip unspecified)—Identity and existence certain, location concealed. Ticks on upper plate		.5 mm 2.5 mm ⇒ k-	
2.10.40	Listric fault at head of detachment fault (sense of slip unspecified)—Identity or existence questionable, location concealed. Ticks on upper plate	+	→ → → → → → → → → → → → → → → → → → →	

REF NO	DESCRIPTION	SYMBOL	CARTOGRAPHIC SPECIFICATIONS*	NOTES ON USAGE*
	2.11—Line-sy	mbol decorations and no		
2.11.1	Fault showing local normal offset (1st option)—Ball and bar on downthrown block		tick length 1.0 mm; lineweight .175 mm diameter lineweight .375 mm	Place line-symbol decorations where observations have been made.
2.11.2	Fault showing local normal offset (2nd option)—U, upthrown block; D, downthrown block	U	U ← H-7 D ← H-7	Line-symbol decora- tions may be added to any type or style of fault
2.11.3	Fault showing local reverse offset—Showing dip value and direction. U, upthrown block; D, down-thrown block	U ⁶⁵ D	05 ← HI-6 tick length U ← 1.75 mm:	to show local relative motion or geomorphic relations.
2.11.4	Fault showing local right-lateral strike-slip offset— Arrows show relative motion		arrow lineweight .2 mm	Line-symbol decora- tions may also be add- ed to faults in places where local geomorphic
2.11.5	Fault showing local left-lateral strike-slip offset— Arrows show relative motion		arrow lineweight .2 mm	features may indicate an apparent offset but where true sense of dis-
2.11.6	Fault showing local right-lateral oblique-slip offset— Arrows show relative motion; ball and bar on downthrown block	<u> </u>	.875 mm diameter tick length 1.0 mm; lineweight.175 mm	placement is unknown.
2.11.7	Fault showing local left-lateral oblique-slip offset— Arrows show relative motion; ball and bar on downthrown block	<u></u> †	.875 mm diameter tick length 1.0 mm; lineweight.175 mm	
2.11.8	Inclined fault (1st option)—Showing dip value and direction	<u>35</u>	tick length 35 ← HI-6 1.75 mm; Inneweight .225 mm	Place tick, arrow, or other line-symbol decoration where observation
2.11.9	Inclined fault (2nd option)—Showing dip value and direction	15 †	tick length 1.375 mm 1.375 mm Inneweight 225 mm 30°	was made. Add arrowhead or '90' to ticks showing dip if
2.11.10	Vertical or near-vertical fault (1st option)		tick length 2.5 mm; lineweight	necessary for clarity.
2.11.11	Vertical or near-vertical fault (2nd option)	90	90 ← HI-6	
2.11.12	Lineation on fault surface—Showing bearing and plunge	⁶⁵	6.0 mm \$65 \cup HI-6	
2.11.13	Lineation on inclined fault surface—Tick shows fault dip value and direction; arrow shows bearing and plunge of lineation	25 7 35	tick length HI-6→25 ▼ 35 1.75 mm; → 35 lineweight .225 mm	
2.11.14	Fault—Showing amount of local displacement	68	68 ← H-6	Place displacement val- ue where measurement was made.
2.11.15	Fault—Showing name	GOLDEN FAULT	GOLDEN FAULT ← H-8	Letter size or spacing may be increased on longer fault segments.
2.11.16	Normal fault (in cross section)—Arrows show relative motion		arrow lineweight .2 mm	
2.11.17	Thrust fault or reverse fault (in cross section)— Arrows show relative motion			
2.11.18	Detachment fault, movement of upper plate to left (in cross section)—Arrows show relative motion		arrow lineweight .2 mm	
2.11.19	Detachment fault, movement of upper plate to right (in cross section)—Arrows show relative motion		==	
2.11.20	Strike-slip fault (in cross section) (1st option)—A, away from observer; T, toward observer	А	H-7 → A T ← H-7	May be combined with paired arrows to show oblique-slip offset.
2.11.21	Strike-slip fault (in cross section) (2nd option)—minus, away from observer; plus, toward observer	Θ ⊕	incle diameters incle	
2.11.22	Normal fault (on small-scale maps or figures)—Tick on downthrown side	<u></u>	tick length .8 mm; lineweight .3 mm	Usually reserved for use on page-size illustrations or on maps at scales of
2.11.23	Reverse fault (on small-scale maps or figures)—R on upthrown block	#	H-6 (rotate parallel to fault)	1:1,000,000 or smaller.
2.11.24	Thrust fault (on small-scale maps or figures)—T on upper (tectonically higher) plate	4	H-6 (rotate parallel to fault)	

REF NO	DESCRIPTION	SYMBOL	CARTOGRAPHIC SPECIFICATIONS*	NOTES ON USAGE*
NEF NO	DESCRIPTION		CARTOGRAPHIC SPECIFICATIONS	NOTES ON USAGE
	Scarp on fault (generic; vertical, subvertical, or	2.12—Fault scarps		
2.12.1	high-angle; or unknown or unspecified orientation or sense of slip)—Identity and existence certain, location accurate. Hachures point downscarp		hachure lineweight .175 mm HB-8 A mm	
2.12.2	Scarp on fault (generic; vertical, subvertical, or high-angle; or unknown or unspecified orientation or sense of slip)—Identity or existence questionable, location accurate. Hachures point downscarp	· · · · · · · · · · · · · · · · · · ·	Ineweight 12.0 mm 12.0 mm 2.0 mm	
2.12.3	Scarp on fault (generic; vertical, subvertical, or high-angle; or unknown or unspecified orientation or sense of slip)—Identity and existence certain, location approximate. Hachures point downscarp		3.5 mm → ← 	
2.12.4	Scarp on fault (generic; vertical, subvertical, or high- angle; or unknown or unspecified orientation or sense of slip)—Identity or existence questionable, location approximate. Hachures point downscarp		.75 mm .75 mm	
2.12.5	Scarp on normal fault—Identity and existence certain, location accurate. Ball and bar on downthrown block. Hachures point downscarp	<u> </u>	hachure lineweight .175 mm tick length 1.0 mm; .875 mm diameter lineweight .175 mm .HB-8	
2.12.6	Scarp on normal fault—Identity or existence questionable, location accurate. Ball and bar on downthrown block. Hachures point downscarp	· · · · · · · · · · · · · · · · · · ·	Ineweight	
2.12.7	Scarp on normal fault—Identity and existence certain, location approximate. Ball and bar on downthrown block. Hachures point downscarp	-	3.5 mm →	
2.12.8	Scarp on normal fault—Identity or existence questionable, location approximate. Ball and bar on downthrown block. Hachures point downscarp	<u> </u>	사는 커는 .75 mm 75.	
2.12.9	Scarp on low-angle normal fault—Identity and existence certain, location accurate. Half-circles on downthrown block. Hachures point downscarp		hachure height 1.0 mm; lineweight .175 mm lineweight .375 mm HB-8 2.0 mm	
2.12.10	Scarp on low-angle normal fault—Identity or existence questionable, location accurate. Half-circles on downthrown block. Hachures point downscarp	 ?	75 .625 mm radius	
2.12.11	Scarp on low-angle normal fault—Identity and existence certain, location approximate. Half-circles on downthrown block. Hachures point downscarp		3.5 mm → ← 2_	
2.12.12	Scarp on low-angle normal fault—Identity or existence questionable, location approximate. Half-circles on downthrown block. Hachures point downscarp		≯ ← ≯ ← .75 mm	
2.12.13	Scarp on low-angle fault (unknown or unspecified sense of slip)—Identity and existence certain, location accurate. Half-circles on upper plate. Hachures point downscarp		hachure height 1.0 mm; lineweight .175 mm HB-8 2.0 mm	
2.12.14	Scarp on low-angle fault (unknown or unspecified sense of slip)—Identity or existence questionable, location accurate. Half-circles on upper plate. Hachures point downscarp		lineweight .375 mm 75 radius; lineweight .2 mm lineweight .2 mm	
2.12.15	Scarp on low-angle fault (unknown or unspecified sense of slip)—Identity and existence certain, location approximate. Half-circles on upper plate. Hachures point downscarp		3.5 mm ⇒	
2.12.16	Scarp on low-angle fault (unknown or unspecified sense of slip)—Identity or existence questionable, location approximate. Half-circles on upper plate. Hachures point downscarp		≯ ← ≯ ← .75 mm	
2.12.17	Scarp on reverse fault—Identity and existence certain, location accurate. Rectangles on upthrown block. Hachures point downscarp		hachure height 1.0 mm; lineweight .175 mm HB-8 2.0 mm LB-8 1.175	
2.12.18	Scarp on reverse fault—Identity or existence questionable, location accurate. Rectangles on upthrown block. Hachures point downscarp	· · · · · · · · · · · · · · · · · · ·	lineweight .75	
2.12.19	Scarp on reverse fault—Identity and existence certain, location approximate. Rectangles on upthrown block. Hachures point downscarp		3.5 mm → ←	
2.12.20	Scarp on reverse fault—Identity or existence questionable, location approximate. Rectangles on upthrown block. Hachures point downscarp		→ ← → ← .75 mm	

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REF NO	DESCRIPTION	SYMBOL 12—Fault scarps (contin	CARTOGRAPHIC SPECIFICATIONS*	NOTES ON USAGE*
		.12—Fault scarps (contir	· ·	
2.12.21	Scarp on rotational or scissor fault, reverse-slip offset— Identity and existence certain, location accurate. Rec- tangles on upthrown block. Hachures point downscarp		hachure height 1.0 mm; lineweight .175 mm HB-8 HB-8 2.0 mm ± .5	
2.12.22	Scarp on rotational or scissor fault, reverse-slip offset— Identity or existence questionable, location accurate. Rectangles on upthrown block. Hachures point downscarp	 ?	lineweight 7.5	
2.12.23	Scarp on rotational or scissor fault, reverse-slip offset— Identity and existence certain, location approximate. Rectangles on upthrown block. Hachures point downscarp		3.5 mm →	
2.12.24	Scarp on rotational or scissor fault, reverse-slip offset— Identity or existence questionable, location approximate. Rectangles on upthrown block. Hachures point downscarp		기는 기는 75 mm .75 mm	
2.12.25	Scarp on rotational or scissor fault, normal-slip offset— Identity and existence certain, location accurate. Rectan- gles on downthrown block. Hachures point downscarp	пешт	hachure height 1.0 mm; lineweight .175 mm lineweight .375 mm HB-8 2.0 mm	
2.12.26	Scarp on rotational or scissor fault, normal-slip offset— Identity or existence questionable, location accurate. Rec- tangles on downthrown block. Hachures point downscarp	· · · · · · · · · · · · · · · · · · ·	lineweight	
2.12.27	Scarp on rotational or scissor fault, normal-slip offset— Identity and existence certain, location approximate. Rec- tangles on downthrown block. Hachures point downscarp	пөппөп	3.5 mm →	
2.12.28	Scarp on rotational or scissor fault, normal-slip offset— Identity or existence questionable, location approximate. Rec- tangles on downthrown block. Hachures point downscarp		커논 커논 .75 mm	
2.12.29	Scarp on strike-slip fault, right-lateral offset—Identity and existence certain, location accurate. Arrows show relative motion. Hachures point downscarp		hachure height 1.0 mm; lineweight .175 mm arrow 5.25 mm HB-8 lineweight HB-8	
2.12.30	Scarp on strike-slip fault, right-lateral offset—Identity or existence questionable, location accurate. Arrows show relative motion. Hachures point downscarp	· · · · · · · · · · · · · · · · · · ·	lineweight .75 → .75 mm → 12.0 mm ← 2.0 mm	
2.12.31	Scarp on strike-slip fault, right-lateral offset—Identity and existence certain, location approximate. Arrows show relative motion. Hachures point downscarp	<u></u>	3.5 mm ⇒ ⊱	
2.12.32	Scarp on strike-slip fault, right-lateral offset—Identity or existence questionable, location approximate. Arrows show relative motion. Hachures point downscarp	<u> </u>	→ - - 	
2.12.33	Scarp on strike-slip fault, left-lateral offset—Identity and existence certain, location accurate. Arrows show relative motion. Hachures point downscarp		hachure height 1.0 mm; lineweight .175 mm arrow 5.25 mm HB-8 lineweight HB-8	
2.12.34	Scarp on strike-slip fault, left-lateral offset—Identity or existence questionable, location accurate. Arrows show relative motion. Hachures point downscarp	· · · · · · · · · · · · · · · · · · ·	lineweight .75	
2.12.35	Scarp on strike-slip fault, left-lateral offset—Identity and existence certain, location approximate. Arrows show relative motion. Hachures point downscarp		3.5 mm → ←	
2.12.36	Scarp on strike-slip fault, left-lateral offset—Identity or existence questionable, location approximate. Arrows show relative motion. Hachures point downscarp	<u> </u>	-:	
2.12.37	Scarp on oblique-slip fault, right-lateral offset— Identity and existence certain, location accurate. Arrows show relative motion; ball and bar on downthrown block. Hachures point downscarp	· · · · · · · · · · · · · · · · · · ·	hachure height 1.0 mm; lineweight 1.75 mm arrow 5.25 mm .875 mm lineweight Herman diameter .2 mm tick length	
2.12.38	Scarp on oblique-slip fault, right-lateral offset— Identity or existence questionable, location accu- rate. Arrows show relative motion; ball and bar on downthrown block. Hachures point downscarp	<u>──</u> ; <u></u> •	1.0 mm; 1.0 mm; 1.0 mm; 1.0 mm; 1.75 mm 1.75 mm 1.175 mm 1.2.0 mm	
2.12.39	Scarp on oblique-slip fault, right-lateral offset— Identity and existence certain, location approxi- mate. Arrows show relative motion; ball and bar on downthrown block. Hachures point downscarp	<u> </u>	3.5 mm ⇒ ←	
2.12.40	Scarp on oblique-slip fault, right-lateral offset— Identity or existence questionable, location approx- imate. Arrows show relative motion; ball and bar on downthrown block. Hachures point downscarp	<u> </u>	→ k → k .75 mm .75 mm	
2.12.41	Scarp on oblique-slip fault, left-lateral offset— Identity and existence certain, location accurate. Arrows show relative motion; ball and bar on downthrown block. Hachures point downscarp	111111111111111111111111111111111111111	hachure height 1.0 mm; lineweight .175 mm .875 mm 5.25 mm arrow diameter lineweight tick length 1.0 mm;	
2.12.42	Scarp on oblique-slip fault, left-lateral offset— Identity or existence questionable, location accu- rate. Arrows show relative motion; ball and bar on downthrown block. Hachures point downscarp	<u> </u>	1.0 mm; 1.0 mm; 1.0 mm; 1.75 mm 1.15 mm 1.15 mm 1.10 mm 2.0 mm 2.0 mm	
2.12.43	Scarp on oblique-slip fault, left-lateral offset— Identity and existence certain, location approxi- mate. Arrows show relative motion; ball and bar on downthrown block. Hachures point downscarp	<u> </u>	3.5 mm ⇒	
2.12.44	Scarp on oblique-slip fault, left-lateral offset— Identity or existence questionable, location approx- imate. Arrows show relative motion; ball and bar on downthrown block. Hachures point downscarp	<u> </u>	→ → → → → → → → → → → → → →	

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REF NO		SYMBOL	CARTOGRAPHIC SPECIFICATIONS*	NOTES ON USAGE*
		.12—Fault scarps (contin		
2.12.45	Scarp on thrust fault (1st option)—Identity and existence certain, location accurate. Sawteeth on upper (tectonically higher) plate. Hachures point downscarp		hachure lineweight .175 mm; height 1.0 mm HB-8 > 2.0 mm	
2.12.46	Scarp on thrust fault (1st option)—Identity or existence questionable, location accurate. Sawteeth on upper (tectonically higher) plate. Hachures point downscarp	· · · · · · · · · · · · · · · · · · ·	lineweight 75 mm / 60 sawtooth height 1.5 mm	
2.12.47	Scarp on thrust fault (1st option)—Identity and existence certain, location approximate. Sawteeth on upper (tectonically higher) plate. Hachures point downscarp		3.5 mm → ←	
2.12.48	Scarp on thrust fault (1st option)—Identity or existence questionable, location approximate. Sawteeth on upper (tectonically higher) plate. Hachures point downscarp		≯ ← ≯ ← .75 mm	
2.12.49	Scarp on thrust fault (2nd option)—Identity and existence certain, location accurate. Sawteeth on upper (tectonically higher) plate. Hachures point downscarp		hachure lineweight .175 mm; height 1.0 mm HB-8 2.0 mm	
2.12.50	Scarp on thrust fault (2nd option)—Identity or existence questionable, location accurate. Sawteeth on upper (tectonically higher) plate. Hachures point downscarp		lineweight .75 mm / 60 height 1.5 mm; 12.0 mm / 20 mm	
2.12.51	Scarp on thrust fault (2nd option)—Identity and existence certain, location approximate. Sawteeth on upper (tectonically higher) plate. Hachures point downscarp		3.5 mm ⇒ ←	
2.12.52	Scarp on thrust fault (2nd option)—Identity or existence questionable, location approximate. Sawteeth on upper (tectonically higher) plate. Hachures point downscarp	─ 	→	
2.12.53	Scarp on thrust fault (3rd option)—Identity and existence certain, location accurate. Sawteeth on upper (tectonically higher) plate. Hachures point downscarp		hachure lineweight .175 mm; height 1.0 mm HB-8 \(\frac{2}{2}\)0 mm	
2.12.54	Scarp on thrust fault (3rd option)—Identity or existence questionable, location accurate. Sawteeth on upper (tectonically higher) plate. Hachures point downscarp		lineweight 75 mm / sawtooth 1.375 mm / 60 height 1.5 mm; lineweight 2.2 mm	
2.12.55	Scarp on thrust fault (3rd option)—Identity and existence certain, location approximate. Sawteeth on upper (tectonically higher) plate. Hachures point downscarp	~ * ~ ~ ~ * ~	3.5 mm ⇒ ←	
2.12.56	Scarp on thrust fault (3rd option)—Identity or existence questionable, location approximate. Sawteeth on upper (tectonically higher) plate. Hachures point downscarp	т М т ∴ т М т	→	
2.12.57	Scarp on overturned thrust fault (1st option)— Identity and existence certain, location accurate. Bars on tectonically higher plate (footwall); saw- teeth in direction of dip. Hachures point downscarp		hachure lineweight .175 mm; height 1.0 mm 2.0 mm	
2.12.58	Scarp on overturned thrust fault (1st option)— Identity or existence questionable, location accurate. Bars on tectonically higher plate (footwall); saw- teeth in direction of dip. Hachures point downscarp	· · · · · · · · · · · · · · · · · · ·	lineweight .75 mm 40 60 height 1.5 mm	
2.12.59	Scarp on overturned thrust fault (1st option)— Identity and existence certain, location approximate. Bars on tectonically higher plate (footwall); saw- teeth in direction of dip. Hachures point downscarp		3.5 mm → -	
2.12.60	Scarp on overturned thrust fault (1st option)— Identity or existence questionable, location approximate. Bars on tectonically higher plate (footwall); sawteeth in direction of dip. Hachures point downscarp		≯k ≯k .75 mm .75 mm	
2.12.61	Scarp on overturned thrust fault (2nd option)— Identity and existence certain, location accurate. Bars on tectonically higher plate (footwall); saw- teeth in direction of dip. Hachures point downscarp		hachure lineweight 1.175 mm; height 1.0 mm 2.0 mm HB-8 2.25 mm ** 5.5 mm	
2.12.62	Scarp on overturned thrust fault (2nd option)— Identity or existence questionable, location accurate. Bars on tectonically higher plate (footwall); sawteeth in direction of dip. Hachures point downscarp		lineweight / sawtooth	
2.12.63	Scarp on overturned thrust fault (2nd option)— Identity and existence certain, location approximate. Bars on tectonically higher plate (footwall); saw- teeth in direction of dip. Hachures point downscarp	→ > → → → →	3.5 mm ⇒ ← →	
2.12.64	Scarp on overturned thrust fault (2nd option)— Identity or existence questionable, location approxi- mate. Bars on tectonically higher plate (footwall); saw- teeth in direction of dip. Hachures point downscarp		→	
2.12.65	Scarp on overturned thrust fault (3rd option)— Identity and existence certain, location accurate. Bars on tectonically higher plate (footwall); saw- teeth in direction of dip. Hachures point downscarp	<u> </u>	hachure lineweight .175 mm; height 1.0 mm 2.0 mm	
2.12.66	Scarp on overturned thrust fault (3rd option)— Identity or existence questionable, location accurate. Bars on tectonically higher plate (footwall); sawteeth in direction of dip. Hachures point downscarp		lineweight .75 mm 40 sawtooth .375 mm .75 mm 60 height 1.5 mm; lineweight .2 mm	
2.12.67	Scarp on overturned thrust fault (3rd option)— Identity and existence certain, location approximate. Bars on tectonically higher plate (footwall); saw- teeth in direction of dip. Hachures point downscarp	→ ♦ • • • • • • • • • • • • • • • • • • •	3.5 mm →	
2.12.68	Scarp on overturned thrust fault (3rd option)— Identity or existence questionable, location approxi- mate. Bars on tectonically higher plate (footwall); saw- teeth in direction of dip. Hachures point downscarp	 	→	

REF NO	DESCRIPTION	SYMBOL	CARTOGRAPHIC SPECIFICATIONS*	NOTES ON USAGE*	
	2	.12—Fault scarps (conti	nued)		
Scarp on detachment fault (sense of slip unspeci-					
2.12.69	fied) (1st option)—Identity and existence certain, lo- cation accurate. Long-hachure pairs on upper plate. Shorter, widely spaced hachures point downscarp		100		
2.12.70	Scarp on detachment fault (sense of slip unspecified) (1st option)—Identity or existence questionable, location accurate. Long-hachure pairs on upper plate. Shorter, widely spaced hachures point downscarp		lineweight .75 mm Height L.25 mm L.25 mm		
2.12.71	Scarp on detachment fault (sense of slip unspecified) (1st option)—Identity and existence certain, location approximate. Long-hachure pairs on upper plate. Shorter, widely spaced hachures point downscarp		3.5 mm ⇒ ← — — — — — — — — — — — — — — — — — — —		
2.12.72	Scarp on detachment fault (sense of slip unspecified) (1st option)—Identity or existence questionable, location approximate. Long-hachure pairs on upper plate. Shorter, widely spaced hachures point downscarp		→		
2.12.73	Scarp on detachment fault (sense of slip unspecified) (2nd option)—Identity and existence certain, location accurate. Boxes on upper plate. Hachures point downscarp		hachure height 1.0 mm; lineweight .175 mm HB-8 2.0 mm		
2.12.74	Scarp on detachment fault (sense of slip unspecified) (2nd option)—Identity or existence questionable, location accurate. Boxes on upper plate. Hachures point downscarp	· · · · · · · · · · · · · · · · · · ·	lineweight		
2.12.75	Scarp on detachment fault (sense of slip unspecified) (2nd option)—Identity and existence certain, location approximate. Boxes on upper plate. Hachures point downscarp		3.5 mm ⇒ ← → ↓ ↓ ↓ ↓ ↓ ↓		
2.12.76	Scarp on detachment fault (sense of slip unspecified) (2nd option)—Identity or existence questionable, location approximate. Boxes on upper plate. Hachures point downscarp		≯ ← ≯ ← .75 mm .75 mm		
2.12.77	Scarp on detachment fault (sense of slip unspecified) (3rd option)—Identity and existence certain, location accurate. Boxes on upper plate. Hachures point downscarp		hachure height 1.0 mm; lineweight .175 mm 1.25 MB-8 2.0 mm		
2.12.78	Scarp on detachment fault (sense of slip unspecified) (3rd option)—Identity or existence questionable, location accurate. Boxes on upper plate. Hachures point downscarp	· · · · · · · · · · · · · · · · · · ·	lineweight .75 mm		
2.12.79	Scarp on detachment fault (sense of slip unspecified) (3rd option)—Identity and existence certain, location approximate. Boxes on upper plate. Hachures point downscarp		3.5 mm →		
2.12.80	Scarp on detachment fault (sense of slip unspecified) (3rd option)—Identity or existence questionable, location approximate. Boxes on upper plate. Hachures point downscarp	<u> </u>	─────────────────────────────────────		
2.12.81	Scarp on master detachment fault (sense of slip un- specified)—Identity and existence certain, location accurate. Long-hachure triplets on upper plate. Shorter, widely spaced hachures point downscarp		hachure height 1.0 mm; lineweight .175 mm 1.25 MB-8 2.0 mm		
2.12.82	Scarp on master detachment fault (sense of slip un- specified)—Identity or existence questionable, loca- tion accurate. Long-hachure triplets on upper plate. Shorter, widely spaced hachures point downscarp	· · · · · · · · · · · · · · · · · · ·	Ineweight .75 mm .625 mm .75 mm .625 mm .75 mm .25 mm .25 mm .25 mm		
2.12.83	Scarp on master detachment fault (sense of slip un- specified)—Identity and existence certain, location approximate. Long-hachure triplets on upper plate. Shorter, widely spaced hachures point downscarp		3.5 mm ⇒ ← 		
2.12.84	Scarp on master detachment fault (sense of slip unspecified)—Identity or existence questionable, location approximate. Long-hachure triplets on upper plate. Shorter, widely spaced hachures point downscarp	<u> </u>			
2.12.85	Scarp on listric fault at head of detachment fault (sense of slip unspecified)—Identity and existence certain, location accurate. Single (longer) ticks on upper plate. Shorter, widely spaced hachures point downscarp		lineweight .375 mm HB-8 2.0 mm hachure height		
2.12.86	Scarp on listric fault at head of detachment fault (sense of slip unspecified)—Identity or existence questionable, location accurate. Single (longer) ticks on upper plate. Shorter, widely spaced hachures point downscarp	· · · · · · · · · · · · · · · · · · ·	1.0 mm, lineweight .75 mm tick height 1.25 mm; lineweight .25 mm		
2.12.87	Scarp on listric fault at head of detachment fault (sense of slip unspecified)—Identity and existence certain, location approximate. Single (longer) ticks on upper plate. Shorter, widely spaced hachures point downscarp		3.5 mm ⇒ k-		
2.12.88	Scarp on listric fault at head of detachment fault (sense of slip unspecified)—Identity or existence questionable, location approximate. Single (longer) ticks on upper plate. Shorter, widely spaced hachures point downscarp		→		

^{*}For more information, see general guidelines on pages A-i to A-v.

REF NO	DESCRIPTION	SYMBOL	CARTOGRAPHIC SPECIFICATIONS*	NOTES ON USAGE*		
2.13—Quaternary faulting						
2.13.1	Fault showing displacement during historic time (includes areas of known fault creep)		fault [lineweight .375 mm]	Although only shown here on "identity and existence certain, loca-		
2.13.2	Fault showing displacement during Holocene time	-	fault [lineweight .375 mm]	tion accurate," generic faults, color may be added to any type or style of fault to highlight		
2.13.3	Fault showing displacement during late Quaternary time		fault [lineweight .375 mm] lineweight 1.25 mm; color 100% green	where geomorphic evi- dence indicates dis- placement during Qua- ternary time.		
2.13.4	Fault showing displacement during Quaternary time (undifferentiated)		fault [lineweight .375 mm]			
	2.14—Shear zones; mylonite zones; fault-breccia zones					
2.14.1	Ductile shear zone or mylonite zone—May or may not be associated with mappable faults			Orient S-shaped symbols to indicate linear trend of zone; spacing		
2.14.2	Zone of sheared rock within fault		pattern 405-K (at ~45° lo fault trend)	may be varied to show intensity of shear. Width of zones may vary.		
2.14.3	Fault-breccia zone or zone of broken rock within fault		A A V A A S Pattern 401-K	Patterns may either overprint other map units or be used as		
2.14.4	Fault-breccia zone or zone of broken rock around fault	4	Δ Δ Δ Δ Δ Δ Δ Δ Δ Δ Δ Δ Δ Δ Δ Δ Δ Δ Δ	stand-alone map units (if zones have well- defined boundaries).		
2.15—Small, minor faults						
2.15.1	Small, minor inclined fault—Showing strike and dip	<u>35</u>		minor faults that are observed in outcrop but		
2.15.2	Small, minor vertical or near-vertical fault— Showing strike		2.5 mm +	that cannot be traced away from that outcrop.		
2.15.3	Small, minor shear fault—Showing dip. Arrow shows direction of relative horizontal displacement	85 1 ——	85 1 -> arrow lineweight .2 mm			

^{*}For more information, see general guidelines on pages A-i to A-v.