

30— TOPOGRAPHIC AND HYDROGRAPHIC FEATURES







REF NO	DESCRIPTION	SYMBOL	CARTOGRAPHIC SPECIFICATIONS*	NOTES ON USAGE*
30.1— Topographic, bathymetric, and glacier contours				
30.1.1	Index topographic contour (1st option)		lineweight .25 mm line and text color 100% brown HI-6	On most maps, every fourth or fifth contour is an index contour. Usually only index and supplementary contours are labeled. Negative values must be preceded by a minus (–) sign.
30.1.2	Index topographic contour (1st option)— Approximate or indefinite		1.75 mm tick length .5 mm HI-6	
30.1.3	Intermediate topographic contour (1st option)		lineweight .15 mm line color 100% brown	
30.1.4	Intermediate topographic contour (1st option)— Approximate or indefinite		1.75 mm tick length .5 mm	
30.1.5	Supplementary topographic contour (1st option)		lineweight .2 mm line and text color 100% brown HI-6	
30.1.6	Supplementary topographic contour (1st option)— Approximate or indefinite		1.75 mm tick length .5 mm HI-6	
30.1.7	Index topographic depression contour (1st option)		tick lineweight .15 mm; length .5 mm; spacing 3.0 mm contour lineweight .25 mm line color 100% brown	Hachures are added to indicate closed areas of low values.
30.1.8	Intermediate topographic depression contour (1st option)		tick length .5 mm; spacing 3.0 mm all lineweights .15 mm line color 100% brown	
30.1.9	Supplementary topographic depression contour (1st option)		tick lineweight .15 mm; length .5 mm; spacing 3.0 mm contour lineweight .2 mm line color 100% brown	
30.1.10	Topographic depression contours (1st option)— Showing tick spacing of adjacent contours		tick spacing 1.0 mm on lowest contour; on next contour, 2.0 mm; on all others, 3.0 mm (lineweights, etc., are given above)	
30.1.11	Index topographic contour (2nd option)		lineweight .25 mm line and text color 50% black HI-6	On most maps, every fourth or fifth contour is an index contour. Usually only index and supplementary contours are labeled. Negative values must be preceded by a minus (–) sign.
30.1.12	Index topographic contour (2nd option)— Approximate or indefinite		1.75 mm tick length .5 mm HI-6	
30.1.13	Intermediate topographic contour (2nd option)		lineweight .15 mm line color 50% black	
30.1.14	Intermediate topographic contour (2nd option)— Approximate or indefinite		1.75 mm tick length .5 mm	
30.1.15	Supplementary topographic contour (2nd option)		lineweight .2 mm line and text color 50% black HI-6	
30.1.16	Supplementary topographic contour (2nd option)— Approximate or indefinite		1.75 mm tick length .5 mm HI-6	
30.1.17	Index topographic depression contour (2nd option)		tick lineweight .15 mm; length .5 mm; spacing 3.0 mm contour lineweight .25 mm line color 50% black	Hachures are added to indicate closed areas of low values.
30.1.18	Intermediate topographic depression contour (2nd option)		tick length .5 mm; spacing 3.0 mm all lineweights .15 mm line color 50% black	
30.1.19	Supplementary topographic depression contour (2nd option)		tick lineweight .15 mm; length .5 mm; spacing 3.0 mm contour lineweight .2 mm line color 50% black	
30.1.20	Topographic depression contours (2nd option)— Showing tick spacing of adjacent contours		tick spacing 1.0 mm on lowest contour; on next contour, 2.0 mm; on all others, 3.0 mm (lineweights, etc., are given above)	

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

30—TOPOGRAPHIC AND HYDROGRAPHIC FEATURES (continued)

REF NO	DESCRIPTION	SYMBOL	CARTOGRAPHIC SPECIFICATIONS*	NOTES ON USAGE*
30.1—Topographic, bathymetric, and glacier contours (continued)				
30.1.21	Index primary bathymetric contour		lineweight .275 mm 	On most maps, every fourth or fifth contour is an index contour. Do not break contours for contour values. Bathymetric contour values are always given in "below sea-level" units, so they are not preceded by a minus (-) sign.
30.1.22	Index primary bathymetric contour—Approximate			
30.1.23	Primary bathymetric contour		lineweight .175 mm 	
30.1.24	Primary bathymetric contour—Approximate			
30.1.25	Supplementary bathymetric contour		lineweight .2 mm 	
30.1.26	Supplementary bathymetric contour—Approximate		line color 40% black 	
30.1.27	Index bathymetric contour		lineweight .25 mm 	
30.1.28	Index bathymetric contour—Approximate		line color 100% cyan 	
30.1.29	Intermediate bathymetric contour		lineweight .15 mm 	
30.1.30	Intermediate bathymetric contour—Approximate		line color 100% cyan 	
30.1.31	Index primary bathymetric depression contour		tick lineweight .175 mm; length .375 mm (spacing varies) 	Hachures are added to the lowest contour(s) to indicate a closed area of low values (depression) and also an area of higher value (rise) inside a depression.
30.1.32	Index primary bathymetric rise contour (inside depression)			
30.1.33	Primary bathymetric depression contour		tick length .375 mm (spacing varies) 	
30.1.34	Primary bathymetric rise contour (inside depression)			
30.1.35	Supplementary bathymetric depression contour		tick lineweight .175 mm; length .375 mm (spacing varies) 	
30.1.36	Supplementary bathymetric rise contour (inside depression)		line color 40% black 	
30.1.37	Index bathymetric depression contour		tick lineweight .175 mm; length .375 mm (spacing varies) 	
30.1.38	Index bathymetric rise contour (inside depression)		line color 100% cyan 	
30.1.39	Intermediate bathymetric depression contour		tick length .375 mm (spacing varies) 	
30.1.40	Intermediate bathymetric rise contour (inside depression)		line color 100% cyan 	
30.1.41	Bathymetric rise contour (inside depression)—Showing hachure spacing for closed contours less than 12.7 mm in circumference		tick spacing 1.0 mm 	
30.1.42	Bathymetric depression contours—Showing hachure spacing for closed contours less than 12.7 mm in circumference		tick spacing 1.0 mm 	
30.1.43	Bathymetric depression or rise contours—Showing hachure spacing for closed contours between 12.7 mm and 76.2 mm in circumference		tick spacing 2.0 mm 	
30.1.44	Bathymetric depression or rise contours—Showing hachure spacing for closed contours more than 76.2 mm in circumference		tick spacing 2.5 mm 	

30—TOPOGRAPHIC AND HYDROGRAPHIC FEATURES (continued)

REF NO	DESCRIPTION	SYMBOL	CARTOGRAPHIC SPECIFICATIONS*	NOTES ON USAGE
30.1 — Topographic, bathymetric, and glacier contours (continued)				
30.1.45	Index contour on glacier or permanent snowfield		lineweight .225 mm line color 100% cyan	On most maps, every fourth or fifth contour is an index contour.
30.1.46	Index contour on glacier or permanent snowfield—Approximate or indefinite		2.5 mm tick length .5 mm line color 100% cyan	
30.1.47	Intermediate contour on glacier or permanent snowfield		lineweight .125 mm line color 100% cyan	
30.1.48	Intermediate contour on glacier or permanent snowfield—Approximate or indefinite		2.5 mm tick length .5 mm line color 100% cyan	
30.1.49	Index depression contour on glacier or permanent snowfield		tick lineweight .15 mm; length .5 mm; spacing 3.0 mm contour lineweight .225 mm line color 100% cyan	Hachures are added to indicate closed areas of low values.
30.1.50	Intermediate depression contour on glacier or permanent snowfield—Approximate or indefinite		tick length .5 mm; spacing 3.0 mm all lineweights .125 mm line color 100% cyan	

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30—TOPOGRAPHIC AND HYDROGRAPHIC FEATURES (continued)

REF NO	DESCRIPTION	SYMBOL	CARTOGRAPHIC SPECIFICATIONS*	NOTES ON USAGE*
30.2—Drainage features				
30.2.1	Perennial river, stream, or creek (single-line drainage)		 line weight .2 mm line color 100% cyan TI-8 (100% black)	Letter size and spacing may be increased along longer features.
30.2.2	Intermittent river, stream, creek, or wash (single-line drainage)		 line weight .2 mm long dash length 4.3 mm; very short dash .2 mm; spacing .6 mm color 100% cyan	
30.2.3	Perennial river, stream, or creek (double-line drainage)		 TI-8 (100% black) Yuba River color fill 20% cyan spacing may vary all line weights .2 mm	Letter size and spacing may be increased along wider features.
30.2.4	River mileage marker		 line weight .2 mm H-6	
30.2.5	Intermittent river, stream, creek, or wash (double-line drainage)		 pattern 132-C	
30.2.6	Braided river, stream, or creek		 all line weights .2 mm color 100% cyan	
30.2.7	Canal or ditch (single-line drainage)		 line weight .2 mm HI-6 (100% cyan)	
30.2.8	Canal or ditch (double-line drainage)		 ERIE CANAL color fill 20% cyan spacing may vary all line weights .2 mm	
30.2.9	Canal lock (single-line drainage) (1st option)		 Lock 1.25 mm H-6 (100% black) line weight .325 mm	
30.2.10	Canal lock (single-line drainage) (2nd option)		 Lock line weight .325 mm H-6 (100% black)	
30.2.11	Canal lock (double-line drainage)		 Lock line weight .325 mm width may vary H-6 (100% black)	
30.2.12	Floodgate		 Floodgate line weight .325 mm H-6 (100% black)	
30.2.13	Tidegate		 Tidegate line weight .325 mm H-6 (100% black)	
30.2.14	Sluice gate		 Sluice Gate line weight .325 mm H-6 (100% black)	
30.2.15	Fish ladder		 Fish Ladder line weight .5 mm length may vary H-6 (100% black)	
30.2.16	Aqueduct (single-line drainage)		 AQUEDUCT line weight .2 mm HI-6 (100% cyan)	
30.2.17	Aqueduct (double-line drainage)		 AQUEDUCT color fill 20% cyan spacing may vary all line weights .2 mm	
30.2.18	Underground or underwater aqueduct		 AQUEDUCT dash length 1.25 mm; spacing .5 mm	
30.2.19	Aboveground water pipeline		 ABOVEGROUND PIPELINE line weight .2 mm HI-6 (100% cyan)	
30.2.20	Underground or submerged water pipeline		 PIPELINE dash length 1.25 mm; spacing .5 mm HI-6 (100% cyan)	
30.2.21	Elevated water pipeline		 ELEVATED wing length .575 mm; angle 45° all line weights .2 mm HI-6 (100% cyan)	
30.2.22	Flume		 FLUME line weight .2 mm HI-6 (100% cyan)	
30.2.23	Siphon		 SIPHON dash length 1.25 mm; spacing .5 mm HI-6 (100% cyan)	
30.2.24	Penstock		 PENSTOCK line weight .2 mm HI-6 (100% cyan)	

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REF NO	DESCRIPTION	SYMBOL	CARTOGRAPHIC SPECIFICATIONS*	NOTES ON USAGE*
30.2—Drainage features (continued)				
30.2.25	Falls (single-line drainage)		TBI-7 (100% black) → line color 100% cyan all line weights .2 mm 1.25 mm	
30.2.26	Falls (double-line drainage)		 line weights .125 mm	
30.2.27	Rapids (single-line drainage)		 line weight .2 mm 6 mm	
30.2.28	Rapids (double-line drainage)		 line weights .125 mm	
30.2.29	Shoreline—Showing open water		 line color 100% cyan line weight .2 mm color fill 20% cyan	
30.2.30	Indefinite or unsurveyed shoreline		 dash length 1.75 mm; spacing .5 mm	
30.2.31	Approximate mean low water line		 line weight .15 mm	
30.2.32	Perennial lake or pond—Showing name		TI-8 (100% black) → line color 100% cyan color fill 20% cyan line weight .2 mm	Letter size and spacing may be increased within larger features.
30.2.33	Intermittent lake or pond		 line weight .2 mm; dash length 1.75 mm; spacing .5 mm pattern 132-C line color 100% cyan	
30.2.34	Dry lake or pond		 pattern 132-B	
30.2.35	Land subject to inundation		 pattern 231-C (@ 90%)	
30.2.36	Reservoir with natural shoreline		 line color 100% cyan color fill 20% cyan line weight .3 mm	
30.2.37	Dammed reservoir		 pattern 132-C	
30.2.38	Area to be submerged behind dam		 pattern 132-C	
30.2.39	Reservoir (uncovered) with man-made shoreline		 line weight .15 mm color fill 20% cyan	
30.2.40	Covered water storage reservoir		 pattern 214-K (@ 45°) [pattern overprints 20% cyan color fill] line weight .15 mm	
30.2.41	Salt flat		H-7 → line color 100% cyan line weight .2 mm	
30.2.42	Carolina bay		 dash length 1.75 mm; spacing .5 mm line color 100% cyan line weight .2 mm	
30.2.43	Tailings pond		H-7 → line color 100% brown pattern 232-B dash length 1.75 mm; spacing .5 mm; line weight .2 mm	
30.2.44	Outline of glacier or permanent snowfield		 line weight .2 mm dash length 1.75 mm; spacing .5 mm	
30.2.45	Outline of glacier or permanent snowfield—Form lines show glacial trend		 pattern 522-C (rotated perpendicular to glacial trend)	
30.2.46	Marsh, wetland, swamp, or bog		 pattern 420-C	
30.2.47	Mangrove area		 pattern 424-C	
30.2.48	Rice field		 pattern 423-C	

30—TOPOGRAPHIC AND HYDROGRAPHIC FEATURES (continued)

REF NO	DESCRIPTION	SYMBOL	CARTOGRAPHIC SPECIFICATIONS*	NOTES ON USAGE*
30.3—Miscellaneous topographic and hydrographic features				
30.3.1	Open pit mine or quarry, as shown on topographic maps or on general-purpose or smaller scale maps	Quarry	H-7 → Quarry draft as shown	
30.3.2	Gravel, sand, clay, or borrow pit, as shown on topographic maps or on general-purpose or smaller scale maps	Gravel Pit	H-7 → Gravel Pit 2.235 mm .75 mm lineweight .15 mm	
30.3.3	Adit or mine tunnel entrance, as shown on topographic maps or on general-purpose or smaller scale maps	Mine	H-7 → Mine all lineweights .15 mm 2.225 mm 1.175 mm 1.75 mm 55°	Rotate symbol so that long line points in direction of cave or mine entrance.
30.3.4	Cave entrance, as shown on topographic maps or on general-purpose or smaller scale maps	Cave	H-7 → Cave	
30.3.5	Prospect, as shown on topographic maps or on general-purpose or smaller scale maps	Prospect	H-7 → Prospect lineweight .15 mm 1.75 mm 45°	
30.3.6	Mine shaft, as shown on topographic maps or on general-purpose or smaller scale maps—Showing name	Garnet Mine	lineweight .15 mm 1.0 mm Garnet Mine ← H-7	
30.3.7	Landmark object, as shown on topographic maps or on general-purpose or smaller scale maps	Lookout	H-7 → Lookout dot diameter .225 mm lineweight .15 mm circle diameter 1.0 mm	Add label for type of object (as is shown for example of "lookout").
30.3.8	Windmill, as shown on topographic maps or on general-purpose or smaller scale maps	Windmill	H-7 → Windmill 1.125 mm 1.25 mm windmill arm angles 110°, 70° .675 mm lineweight .15 mm	
30.3.9	Oil or gas well, as shown on topographic maps or on general-purpose or smaller scale maps	Well	H-7 → Well circle diameter 1.0 mm lineweight .15 mm	
30.3.10	Water well, as shown on topographic maps or on general-purpose or smaller scale maps	Well	H-7 → Well circle diameter 1.0 mm line color 100% cyan lineweight .2 mm	
30.3.11	Geothermal well, as shown on topographic maps or on general-purpose or smaller scale maps	Geothermal	H-7 → Geothermal circle diameter 1.0 mm line color 100% cyan lineweight .2 mm	
30.3.12	Spring, as shown on topographic maps or on general-purpose or smaller scale maps	Spring	circle diameter 1.0 mm H-7 → Spring draft "tail" as shown line color 100% cyan lineweight .2 mm	
30.3.13	Geyser, fumarole, mud pot, or thermal spring, as shown on topographic maps or on general-purpose or smaller scale maps	Geyser	H-7 → Geyser circle diameter 1.0 mm line color 100% cyan lineweight .2 mm	
30.3.14	Gaging station, as shown on topographic maps or on general-purpose or smaller scale maps	Gaging Station	H-7 → Gaging Station circle diameter 1.25 mm lineweight .15 mm	
30.3.15	Pumping station, as shown on topographic maps or on general-purpose or smaller scale maps	Pumping Station	H-7 → Pumping Station 1.125 mm .875 mm	
30.3.16	Rock	Rock	H-7 → Rock 60° lineweight .2 mm 1.25 mm	
30.3.17	Exposed wreck		lineweight .15 mm draft as shown	
30.3.18	Coral reef	Coral	H-7 → Coral lineweight .15 mm	
30.3.19	Shoal	Shoal	dash length .2 mm; spacing .425 mm Shoal ← H-7 lineweight .2 mm	
30.3.20	Ruins	Ruins	dash length 1.0 mm; spacing .5 mm Ruins ← H-7 lineweight .15 mm	
30.3.21	Power transmission line		lineweight .125 mm dot diameter .425 mm .825 mm 4.25 mm	
30.3.22	Telephone line	TELEPHONE	lineweight .125 mm TELEPHONE ← HI-5 dash length 2.5 mm; space .5 mm	
30.3.23	Underground gas or oil pipeline	PIPELINE	PIPELINE ← HI-5 lineweight .125 mm	
30.3.24	Aboveground gas or oil pipeline	ABOVEGROUND PIPELINE	ABOVEGROUND PIPELINE ← HI-5 lineweight .125 mm	