National Mapping Program
Technical Instructions

Part 4
Publication Symbols

Standards for 1:100,000-Scale Quadrangle Maps

Department of the Interior
U.S. Geological Survey
National Mapping Division

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4. PUBLICATION SYMBOLS

These symbol specifications are to be used for final scribing 1:100,000-scale quadrangle maps prepared in a 30- by 60-minute format.

Publication symbols for 1:50,000- and 1:100,000-scale maps prepared in a county format are given in *Standards for 1:50,000- and 1:100,000-Scale County Maps*.

The map symbols are organized according to the feature separation on which they are scribed. The symbols are further grouped under subheadings within the listing for each feature separation.

Features whose symbols include a pattern screen are noted in the specifications column. Descriptions and specifications for the pattern screens are given in Appendix 4-A.

Features whose symbols include a name or label, or for which minimum symbol sizes have been established, are noted in the remarks columns. Type styles and sizes for naming or labelling mapped features are given in Part 5.

Definitions of the map features as well as complete qualifying criteria that determine when to select a feature for symbolization are found in Part 3. Content of the combined negatives used for lithographic reproduction is also given in Part 3.

Plate: **111** Feature Separate: **PROJECTION** CN: **1-BLACK**

NO.	FEATURE	SYMBOL	SPECIFICATIONS	REMARKS
	PROJECTION			
1	**NEATLINE**	38°00′ 87°30′	Lineweight .005″	Label corners on plate 114.
2	**GRATICULE TICK**	15′	Lineweight .005″ Tick length .10″	Interval 7.5 minutes. Label on plate 114.
3	**GRATICULE INTERSECTION**		Lineweight .005″ Cross size .20″ x .20″	Interval 7.5 minutes.
4				
	STATE PLANE GRID			
5	**STATE PLANE COORDINATE TICK (PRIMARY)**	625 000 FEET	Lineweight .003″ Overall length .12″ Inside neatline .02″ Outside neatline .10″	Interval 25,000 feet. Use for major grid zone of map. Label on plate 114.
6	**STATE PLANE COORDINATE TICK (SECONDARY)**	725 000 FEET	Lineweight .003″ Dash length .03″ Space .015″ Overall length .12″ Inside neatline .02″ Outside neatline .10″	Interval 25,000 feet. Label on plate 114.
7	**STATE PLANE COORDINATE TICK (TERTIARY)**	225 000 FEET	Lineweight .003″ Dash length .035″ Space .05″ Dot diameter .006″ Overall length .12″ Inside neatline .02″ Outside neatline .10″	Center dot in .05″ space between dashes. Interval 25,000 feet. Label on plate 114.

Plate: **111** Feature Separate: **PROJECTION** CN: **1-BLACK**

NO.	FEATURE	SYMBOL	SPECIFICATIONS	REMARKS
	STATE PLANE GRID			
8	**STATE PLANE COORDINATE TICK (QUATERNARY)**	425 000 FEET	Dot diameter .006″ Overall length .12″ Inside neatline .02″ Outside neatline .10″ Scribe six equally-spaced dots	Interval 25,000 feet. Label on plate 114.
9	**STATE PLANE COORDINATE TICK (QUINTARY)**	525 000 FEET	Lineweight .003″ Dash length .03″ Space .06″ Dot diameter .006″ Overall length .12″ Inside neatline .02″ Outside neatline .10″	Space dots evenly between dashes. Interval 25,000 feet. Label on plate 114.
10				

Plate: **112** Feature Separate: **MISCELLANEOUS CULTURE AND BATHYMETRY** CN: **1-BLACK**

NO.	FEATURE	SYMBOL	SPECIFICATIONS	REMARKS
	BUILDINGS AND RELATED FEATURES			
1	**LANDMARK BUILDING**	Fairfax Hospital ▪Hosp	Scribe solid to scale	Minimum size .02" x .02". Show only landmark buildings. Name/label installations such as universities, colleges, and hospitals on plate 114. Do not name/label buildings such as ranches, schools, or churches.
2	**TANK** **TANK FARM**	• Water Tank Tank Farm	Scribe solid dot to scale	Minimum diameter .03". Label "Water Tank" if water. "Tank" if other but not in oil field. Label "Oil Refinery" "Tank Farm". Show only landmark tanks and tank farms. Show representative pattern in congested tank farms. Show labels on plate 114.
3	**WINDMILL** **WIND GENERATOR**	Generator	Lineweight .003" Triangle height .05" Triangle angles 75°, 30°, 75° Arms .045" Arm angles 70°, 110°	Show landmark windmills and wind generators only. Center arms on feature. Label on plate 114.
4	**RADIO TOWER** **BEACON** **SMALL HELIPORT** **LOOKOUT TOWER** **OTHER LANDMARK OBJECT**	○ Lookout	Lineweight .003" Circle diameter .04"	Show landmark features only. Label on plate 114. Use label "Lookout" for lookout tower. Show heliports large enough to scribe to scale on plate 116.
5	**SEWAGE DISPOSAL PLANT** **WATER FILTRATION PLANT**	Filtration Plant	Lineweight .003" Scribe to scale	Minimum size .12" in shortest dimension. If important, may be shown smaller. Label on plate 114. Show fill on plate 147.
6	**MASONRY RESERVOIR** **FISH HATCHERY**	Fish Hatchery	Lineweight .003" Scribe to scale	Minimum size .06" in shortest dimension. Label on plate 114. Show fill on plate 145.
7	**PUMPING STATION**	▪ Pumping Station	Scribe solid .02" x .02"	Show major pumping stations only. Label on plate 114.

Plate: **112** Feature Separate: **MISCELLANEOUS CULTURE AND BATHYMETRY** CN: **1-BLACK**

NO.	FEATURE	SYMBOL	SPECIFICATIONS	REMARKS
	BUILDINGS AND RELATED FEATURES			
8	**STADIUM**	Kennedy Stadium	Scribe to scale	Do not show stadiums at schools, grades K-12. Name/label on plate 114.
9				
10				
	RAILROADS AND RELATED FEATURES			
11	**STANDARD GAUGE RAILROAD, SINGLE TRACK** **RAPID TRANSIT, SINGLE TRACK**	*CONRAIL* *RAPID TRANSIT*	Lineweight .005″ Tie lineweight .003″ Tie length .04″ Tie spacing .40″	Name railroad; label "RAPID TRANSIT" on plate 114.
12	**STANDARD GAUGE RAILROAD, MULTIPLE TRACKS** **RAPID TRANSIT, MULTIPLE TRACKS**	*CONRAIL* 4 TRACKS *RAPID TRANSIT* 4 TRACKS	Lineweight .005″ Tie lineweight .003″ Tie length .04″ Tie spacing .40″ Double crosstie width .017″	Name railroad; label "RAPID TRANSIT" on plate 114. Label number of tracks on plate 114 if more than two.
13	**NARROW GAUGE RAILROAD, SINGLE TRACK**	*WHITE PASS & YUKON*	Lineweight .005″ Tie lineweight .003″ Tie length .02″ Tie spacing .40″	Alternate ties. Name railroad on plate 114.
14	**NARROW GAUGE RAILROAD, MULTIPLE TRACKS**		Lineweight .005″ Tie lineweight .003″ Tie length .02″ Tie spacing .40″ Double crosstie width .017″	Alternate ties. Name railroad on plate 114.

Plate: **112** Feature Separate: **MISCELLANEOUS CULTURE AND BATHYMETRY** CN: **1-BLACK**

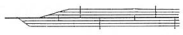
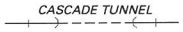
NO.	FEATURE	SYMBOL	SPECIFICATIONS	REMARKS
	RAILROADS AND RELATED FEATURES			
15	**RAILROAD YARD**		Main line lineweight .005″ Other tracks lineweight .003″ Tie lineweight .003″ Tie length .04″ Tie spacing .40″ Minimum space between tracks .011″	Show representative pattern. Maintain outline limits.
16	**RAILROAD SIDING**		Main line lineweight .005″ Siding lineweight .003″ Tie lineweight .003″ Tie length .04″ Tie spacing .40″ Minimum space between tracks .011″	Minimum length .12″. Show minimum of one crosstie. Do not align crossties on siding with crossties on main line.
17	**RAILROAD BRIDGE**		Lineweight .005″ Cross and wing tick lineweight lineweight .003″ Cross tick length .035″ minimum Wing tick length .023″ Wing tick angle 45°	Minimum length .12″. Do not show crossties on bridges less than .40″ long. Show no crosstie closer than .20″ to bridge ticks. Name on plate 114 if of regional significance.
18	**RAILROAD STATION**		Scribe solid .02″ x .04″	Use for landmark stations only when no siding, building, or other identifying feature is shown.
19	**RAILROAD TUNNEL**		Lineweight .005″ Dash length .05″ Space .02″ Wing and cross tick lineweight .003″ Wing tick length .023″ Cross tick length .035″ Wing tick angle 45° Overall width .017″	Show all landmark tunnels and tunnels .12″ or longer. Minimum symbol length .12″. No crossties through tunnel. Name on plate 114 if of regional significance.
20	**RAILROAD UNDERPASS** **RAILROAD OVERPASS**		Break space .02″	

Plate: **112** Feature Separate: **MISCELLANEOUS CULTURE AND BATHYMETRY** CN: **1-BLACK**

NO.	FEATURE	SYMBOL	SPECIFICATIONS	REMARKS
	RAILROADS AND RELATED FEATURES			
21	**RAILROAD FERRY**	FERRY	Lineweight .003″ Dash length .05″ Space .02″	Show symbol only if .12″ or longer. Label on plate 114. Do not show crossties on ferry symbol.
22	**ROUNDHOUSE**		Scribe solid to scale	Show all. Do not show turntable.
23	**INCLINE RAILWAY** **COG RAILWAY**	COG RAILWAY	Lineweight .005″ Dash length .10″ Space .02″	Show landmark lines only. Label on plate 114.
24	~~**ABANDONED RAILROAD**~~	~~ABANDONED~~	~~Dash length .35″~~ ~~Space .05″~~	~~Lineweight and ties same as operating railroad. Do not name. Label "ABANDONED" on plate 114.~~
25	**RAILROAD IN ROAD OR STREET**		Lineweight .003″ Tie lineweight .003″ Tie length .04″ Tie spacing .40″	Center railroad in road or street.
26	**RAILROAD SNOWSHED**		Outline lineweight .003″ Hatch lineweight .003″ Hatch line spacing, center to center .02″	Minimum length .12″; width same as cross tick. Hatch 45° NE-SW to outline.
27	**CARLINE**		Lineweight .005″ Tie lineweight .003″ Tie length .04″ Tie spacing .20″	Show landmark carlines only.
28				
29				

Plate: **112** Feature Separate: **MISCELLANEOUS CULTURE AND BATHYMETRY** CN: **1-BLACK**

NO.	FEATURE	SYMBOL	SPECIFICATIONS	REMARKS
	RAILROADS AND RELATED FEATURES			
30				
31				
32				
	RUINS AND SITES			
33	**RUINS** **ARCHAEOLOGICAL SITE**	Ruins Ruins	Lineweight .003″ Dash length .05″ Space .02″	Minimum size .02″ x .02″. If less than .10″ x .10″ use solid outline. Show landmark protected sites only. Name/label on plate 114.
34	**CLIFF DWELLING**	Palace Cliff Dwelling	Lineweight .003″ Rectangle .02″ x .03″ Base length .06″	Show landmark protected sites only. Align with contours, base downhill. Name/label on plate 114.
	CAVES, MINES, OIL AND GAS FIELDS			
35	**CAVE** **MINE TUNNEL ENTRANCE**	Bound Cave	Lineweight .003″ Arm length .033″ Shaft length .067″ Angle 90°	Show named, landmark mines and caves only. Place intersection of arms at portal. ~~Align shaft in direction of tunnel~~. Name on plate 114. with shaft pointing upslope. Orient shaft perpendicular to the contours.
36	**MINE SHAFT**	Witt Mine	Lineweight .003″ Square .04″ x .04″ Scribe NW half solid	Show named, landmark mines only. Name on plate 114.

Plate: **112** Feature Separate: **MISCELLANEOUS CULTURE AND BATHYMETRY** CN: **1-BLACK**

NO.	FEATURE	SYMBOL	SPECIFICATIONS	REMARKS
	CAVES, MINES, OIL AND GAS FIELDS			
37	**QUARRY** **OPEN PIT MINE**	Quarry Quarry	Lineweight .003″ Overall length .10″ Length of arc .05″	Use symbol alone when quarry or mine is less than .24″ in shortest dimension. If quarry or mine is wider than .24″ show symbol on plate 112 and tint on plate 135. Label on plate 114.
38	**GRAVEL PIT** **SANDPIT** **CLAYPIT**	Sandpit Sandpit	Lineweight .003″ Overall length .10″ Triangle side .03″	Use symbol alone when pit is less than .24″ in shortest dimension. If pit is wider than .24″, show symbol on plate 112, and tint on plate 135. Label on plate 114.
39	**OIL FIELD** **GAS FIELD**	Gas Field		Do not symbolize. Place name or label over location. Name important fields on plate 114. Label "Oil Field", "Gas Field", or "Oil and Gas Field" on plate 114.
40				
	OTHER FEATURES			
41	**SPOT ELEVATION**	·198	Dot diameter .01″	Space approximately 2″ to 3″ apart. Show elevation to nearest meter when basic contour interval is 5 meters or larger; to nearest .5 meter when basic contour interval is less than 5 meters.
42	**TOWN** **VILLAGE** **SETTLEMENT**	• Reston	Dot diameter .035″	Use for localities not shown by street pattern or road intersection. Center on road. Name on plate 114.
43	**PORT OF ENTRY**	▪ Port of Entry	Scribe solid square to scale	Minimum size .02″ x .02″. Label on plate 114.
44	**CORRAL**	Corral	Lineweight .003″ Circle diameter .05″ Gate length .05″	Show all corrals appearing on USGS 7.5- and 15-minute maps. Label on plate 114.

Plate: **112** Feature Separate: **MISCELLANEOUS CULTURE AND BATHYMETRY** CN: **1-BLACK**

NO.	FEATURE	SYMBOL	SPECIFICATIONS	REMARKS
	OTHER FEATURES			
45	**GAGING STATION**	Gaging Sta	Lineweight .003″ Circle diameter .05″ Scribe NW and SE sections solid	Divide into four equal sections. Show all stations appearing on USGS 7.5- and 15-minute maps. Label on plate 114.
46	**U.S. MINERAL OR LOCATION MONUMENT**	▲ USMM 438	Scribe solid triangle Base .06″ Height .04″	Show monuments appearing on USGS source maps. Label "USLM" or "USMM" and number on plate 114.
47	**PICNIC AREA**	Picnic Area	Lineweight .003″ Top length .05″ Leg length .025″ Legs angle 60°	Show landmark sites from USGS maps only. Label on plate 114 as necessary to clarify.
48	**CAMPGROUND**	Campground	Scribe solid Lineweight .003″ Base .04″ Overall height .08″ Triangle height .05″	Show landmark sites from USGS maps only. Label on plate 114 as necessary to clarify.
49				
50				
51				
52				
53				

Plate: **112** Feature Separate: **MISCELLANEOUS CULTURE AND BATHYMETRY** CN: **1-BLACK**

NO.	FEATURE	SYMBOL	SPECIFICATIONS	REMARKS
	TRANSMISSION LINES, PIPELINES, AND RELATED FEATURES			
54	**TELEPHONE LINE** **TELEGRAPH LINE**	*TELEPHONE*	Lineweight .003″ Scribe solid square .017″ x .017″ Spacing of squares .50″	Show only landmark lines in remote areas. Place squares at turns by local adjustment of spacing where necessary. Label on plate 114.
55	**POWER TRANSMISSION LINE**		Lineweight .003″ Scribe solid square .017″ x .017″ Spacing of squares .50″	Show landmark lines only. Place squares at turns by local adjustment of spacing where necessary. Where closely paralleled on copy, show only one line.
56	**POWER SUBSTATION**	Substation Substa	Scribe to scale Lineweight .003″ Dash length .04″ Space .02″	Show landmark stations only. Do not dash if less than .05″ x .05″. Label "Substation" on plate 114. Minimum size .02″ × .02″
57	**ABOVEGROUND PIPELINE**	*ABOVEGROUND PIPELINE*	Lineweight .005″	Show landmark lines only. Label "ABOVEGROUND PIPELINE" on plate 114.
58	**UNDERGROUND PIPELINE** **SUBMERGED PIPELINE**		Lineweight .005″ Dash length .10″ Space .02″	Show landmark lines only. Show submerged pipelines on topo-bathy maps on plate 116.
59	**TRAMWAY** **SKI LIFT** **MONORAIL**	*SKI LIFT*	Lineweight .005″ Dash length .10″ Space .02″	Show landmark lines only. Label on plate 114.
60				
61				
62				

Plate: **112** Feature Separate: **MISCELLANEOUS CULTURE AND BATHYMETRY** CN: **1-BLACK**

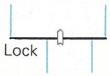
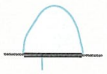
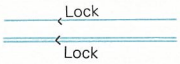
NO.	FEATURE	SYMBOL	SPECIFICATIONS	REMARKS
	DAMS AND LOCKS			
63	**WEIR** **MASONRY DAM**		Lineweight .012″	Minimum length .12″. Name on plate 114 if of regional significance.
64	**DAM WITH LOCK (NAVIGABLE WATERWAYS)**		Lineweight .003″ Lock .075″ x .033″ Angles 45°	Point lock upstream. Label on plate 114.
65	**DAM CARRYING ROAD**		Lineweight .005″	Minimum length .12″. Position on both sides of road.
66	**CANAL LOCK** **SLUICE GATE**		Lineweight .007″ Tick length .023″ Tick angle 45°	Project ticks a minimum of .02″ beyond double-line canal edge. Point upstream. Label on plate 114.
67				
	PIERS AND DOCKS			
68	**DRYDOCK**		Lineweight .005″ Tick lineweight .007″ Tick length .023″ Tick angle 45°	Label on plate 114.
69	**BREAKWATER** **PIER** **WHARF** **SEAWALL** **JETTY** **CAUSEWAY**		Lineweight .005″	Minimum length .12″. Show all landmark features.

Plate: **112** Feature Separate: **MISCELLANEOUS CULTURE AND BATHYMETRY** CN: **1-BLACK**

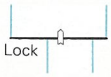
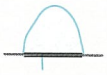
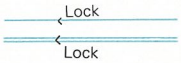
NO.	FEATURE	SYMBOL	SPECIFICATIONS	REMARKS
	DAMS AND LOCKS			
63	**WEIR** **MASONRY DAM**		Lineweight .012″	Minimum length .12″. Name on plate 114 if of regional significance.
64	**DAM WITH LOCK (NAVIGABLE WATERWAYS)**		Lineweight .003″ Lock .075″ x .033″ Angles 45°	Point lock upstream. Label on plate 114.
65	**DAM CARRYING ROAD**		Lineweight .005″	Minimum length .12″. Position on both sides of road.
66	**CANAL LOCK** **SLUICE GATE**		Lineweight .007″ Tick length .023″ Tick angle 45°	Project ticks a minimum of .02″ beyond double-line canal edge. Point upstream. Label on plate 114.
67				
	PIERS AND DOCKS			
68	**DRYDOCK**		Lineweight .005″ Tick lineweight .007″ Tick length .023″ Tick angle 45°	Label on plate 114.
69	**BREAKWATER** **PIER** **WHARF** **SEAWALL** **JETTY** **CAUSEWAY**		Lineweight .005″	Minimum length .12″. Show all landmark features.

Plate: **112** Feature Separate: **MISCELLANEOUS CULTURE AND BATHYMETRY** CN: **1-BLACK**

NO.	FEATURE	SYMBOL	SPECIFICATIONS	REMARKS
	PIERS AND DOCKS			
70	**PIER OR WHARF RUIN**		Lineweight .005″ Dash length .02″ Space .01″	Increase space to .02″ for longer features.
71				
	CEMETERIES			
72	**NATIONAL CEMETERY**	Arlington National Cemetery	Lineweight .003″ Dash length .04″ Space .02″	Show all. Minimum symbol size .02″ x .02″. Name on plate 114.
73	**OTHER CEMETERY**	Cem	Lineweight .003″ Dash length .04″ Space .02″	Minimum size .10″ in shortest dimension. Name/label "Cem" on plate 114. If space permits, place name or label inside.
	BOUNDARIES			
74	**NATIONAL BOUNDARY**		Lineweight .016″ Dash lengths .25″ and .07″ Space .033″	If symbol coincides with a road, reduce lineweight of boundary to .005″.
75	**STATE BOUNDARY** **TERRITORIAL BOUNDARY**		Lineweight .012″ Dash lengths .25″ and .07″ Space .033″	If symbol coincides with a road, reduce lineweight of boundary to .005″.

Plate: **112** Feature Separate: **MISCELLANEOUS CULTURE AND BATHYMETRY** CN: **1-BLACK**

NO.	FEATURE	SYMBOL	SPECIFICATIONS	REMARKS
	BOUNDARIES			
76	**COUNTY BOUNDARY** **PARISH BOUNDARY** **ALASKA BOROUGH BOUNDARY** **MUNICIPIO BOUNDARY** **JUDICIAL DIVISION BOUNDARY**		Lineweight .010″ Dash lengths .25″ and .07″ Space .033″	If symbol coincides with a road, reduce lineweight of boundary to .005″.
77	**CIVIL TOWNSHIP BOUNDARY** **TOWN BOUNDARY** **DISTRICT BOUNDARY** **PRECINCT BOUNDARY** **BARRIO BOUNDARY**		Lineweight .007″ Dash length .17″ Space .033″	If symbol coincides with a road, reduce lineweight of boundary to .003″
78	**NATIONAL OR STATE FOREST, MONUMENT, PARK, OR RESERVATION BOUNDARY** **HAWAII FOREST RESERVE BOUNDARY** **HAWAII HOMESTEAD BOUNDARY**		Lineweight .007″ Dash length .25″ Space .10″ Dot diameter .01″	Minimum size .10″. Use for category 1, 2, or 3 Indian reservation. Name/label on plate 114. If symbol coincides with a road, reduce lineweight of boundary to .003″. Show Federal lands boundary enhancement on plate 127.
79	**COUNTY OR CITY PARK BOUNDARY**	Park	Lineweight .003″ Dash length .04″ Space .02″	Minimum size .10″. Label on plate 114.
80	**INDEFINITE BOUNDARY**	INDEFINITE BOUNDARY		Use half the normal lineweight for county and higher order boundaries. Use normal lineweight for all others. Label "INDEFINITE BOUNDARY" on plate 114.
81				

Plate: **112** Feature Separate: **MISCELLANEOUS CULTURE AND BATHYMETRY** CN: **1-BLACK**

NO.	FEATURE	SYMBOL	SPECIFICATIONS	REMARKS
	BOUNDARIES			
82				
	HIGHWAY- AND ROAD-RELATED FEATURES			
83	**HIGHWAY OR ROAD BRIDGE AND TUNNEL WING TICK**		Cross and wing tick lineweight .003″ Cross tick length .035″ Wing tick length .023″ Wing tick angle 45°	Use this symbol for all mapped bridges and tunnels.
84	**HIGHWAY FERRY** **ROAD FERRY**	FERRY	Lineweight .003″ Dash length .05″ Space .02″	If .12″ or longer, symbolize and label; if less than .12″, label only. Label on plate 114.
85	**HIGHWAY OR ROAD SNOWSHED**		Outline lineweight .003″ Hatch lineweight .003″ Hatch line spacing, center to center .02″	Minimum length .12″. Minimum width .04″ Hatch 45° NE-SW to outline.
86				
	BATHYMETRIC CONTOURS			
87	**INDEX PRIMARY CONTOUR**	250	Lineweight .010″	Label on plate 114.
88	**PRIMARY CONTOUR**	100	Lineweight .004″	Label on plate 114.

Plate: **112** Feature Separate: **MISCELLANEOUS CULTURE AND BATHYMETRY** CN: **1-BLACK**

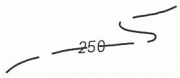
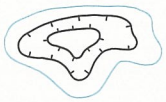
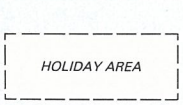
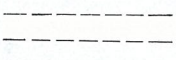
NO.	FEATURE	SYMBOL	SPECIFICATIONS	REMARKS
	BATHYMETRIC CONTOURS			
89	**APPROXIMATE PRIMARY CONTOUR**		Dash length .20″ Space .06″	Use lineweight of index primary, or primary contour. Label on plate 114.
90	**DEPRESSION PRIMARY CONTOUR**		Tick lineweight .008″ Tick length .015″	Show ticks on bottom contour only. Use lineweight of index primary or primary contour. On contours up to .50″ in circumference, space ticks .04″ apart; contours .50″–3.0″ in circumference, space ticks .08″ apart; contours over 3.0″ in circumference, space ticks .10″ apart. Label on plate 114.
91	**RISE PRIMARY CONTOUR (INSIDE DEPRESSION)**		Tick lineweight .008″ Tick length .015″	Show ticks on bottom contour only. Use lineweight of index primary or primary contour. On contours up to .50″ in circumference, space ticks .04″ apart; contours .50″–3.0″ in circumference, space ticks .08″ apart; contours over 3.0″ in circumference, space ticks .10″ apart. Label on plate 114.
92				
	BATHYMETRIC FEATURES			
93	**INADEQUATE SURVEY AREA AND HOLIDAY AREA**		Lineweight .007″ Dash length .10″ Space .02″	Drop water fill inside outline. Retain water fill when area is not outlined. Label type of area on plate 114.
94	**CHANNEL AREA**		Lineweight .007″ Dash length .10″ Space .02″	Drop water fill inside channel. Do not label.

Plate: **112** Feature Separate: **MISCELLANEOUS CULTURE AND BATHYMETRY** CN: **1-BLACK**

NO.	FEATURE	SYMBOL	SPECIFICATIONS	REMARKS
	BATHYMETRIC FEATURES			
95	**SPOIL AREA**	SPOIL AREA	Lineweight .007″ Dash length .10″ Space .02″	Drop water fill inside outline. Label "Spoil Area" on plate 114.
96	**SUBMERGED JETTY**	SUBMERGED JETTY	Lineweight .008″ Dash length .08″ Space .04″	Label "SUBMERGED JETTY" on plate 114.
97	**ROCK, BARE OR AWASH**	*	Lineweight .003″ Length .05″ Angles 60°	
98	**GROUP OF ROCKS, BARE OR AWASH**	* * * * *	Lineweight .003″ Length .05″ Angles 60° ~~Dot diameter .006″~~ ~~Dot spacing .017″~~	Delete dot outline
99	**SUNKEN ROCK**	+	Lineweight .003″ Cross size .05″ x .05″ Angles 90°	
100	**ROCK REEF** **CORAL REEF**	Coral	Lineweight .003″	Scribe limits as compiled. Show brown tint over reefs that uncover at low tide on plate 135. Label on plate 114.
101	**OIL WELL** **GAS WELL**	Oil Well	Lineweight .003″ Circle diameter .04″	Label "Oil Well" or "Gas Well" on plate 114.
102	**LIGHT**	Light	Lineweight .003″ Circle diameter .04″ Dot diameter .006″	Label "Light" on plate 114.
103				

Plate: **112** Feature Separate: **MISCELLANEOUS CULTURE AND BATHYMETRY** CN: **1-BLACK**

NO.	FEATURE	SYMBOL	SPECIFICATIONS	REMARKS
	BATHYMETRIC FEATURES			
104				
105				

Plate: **112A** Feature Separate: **BATHYMETRIC SUPPLEMENTARY CONTOURS** CN: **1 – BLACK**

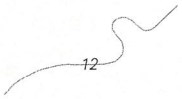
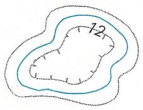
NO.	FEATURE	SYMBOL	SPECIFICATIONS	REMARKS
	BATHYMETRIC SUPPLEMENTARY CONTOURS			
1	**SUPPLEMENTARY CONTOUR**		Lineweight .006″ Screen 30%, 150-line biangle	Label on plate 114.
2	**SUPPLEMENTARY DEPRESSION CONTOUR**		Lineweight .006″ Tick lineweight .008″ Tick length .015″ Screen 30%, 150-line biangle	Show ticks on bottom contour only. On contours up to .50″ in circumference, space ticks .04″ apart; contours .50″–3.0″ in circumference, space ticks .08″ apart; contours over 3.0″ in circumference, space ticks .10″ apart. Label on plate 114.
3	**SUPPLEMENTARY RISE CONTOUR (INSIDE DEPRESSION)**		Lineweight .006″ Tick lineweight .008″ Tick length .015″ Screen 30%, 150-line biangle	Show ticks on bottom contour only. On contours up to .50″ in circumference, space ticks .04″ apart; contours .50″–3.0″ in circumference, space ticks .08″ apart; contours over 3.0″ in circumference, space ticks .10″ apart. Label on plate 114.
4	**APPROXIMATE SUPPLEMENTARY CONTOUR**		Lineweight .006″ Dash length .20″ Space .06″ Screen 30%, 150-line biangle	Label on plate 114.
5				

Plate: **113** Feature Separate: **UTM GRID** CN: **1 – BLACK**

NO.	FEATURE	SYMBOL	SPECIFICATIONS	REMARKS
	UTM GRID			
1	**UTM GRID**	430	Lineweight .002"	Show full-line grid, 10,000-meter interval. Label on plate 114.

Plate: **114** Feature Separate: **TYPE FOR INTERIOR AND MARGIN LABELS** CN: **1 – BLACK**

NO.	FEATURE	SYMBOL	SPECIFICATIONS	REMARKS
	INTERIOR NAMES AND LABELS			
1	**INTERIOR NAMES AND LABELS**	Hospital *CONRAIL* Hughesville		Include place names, and names and labels for buildings, highways and roads, and railways.
2	**BATHYMETRIC CONTOUR LABELS**	12		Do not break contour line.
	MARGIN TYPE			
3	**MARGIN TYPE**	39°00′ $^{2}5^{0000m}$E 2 450 000 FEET		Include graticule and grid tick and line numbers. Show collar and side panel type as indicated on style sheet.

Plate: **114A** Feature Separate: **TYPE FOR CIVIL TOWNSHIPS AND BATHYMETRIC FEATURES** CN: **1 – BLACK**

NO.	FEATURE	SYMBOL	SPECIFICATIONS	REMARKS
	CIVIL TOWNSHIP NAMES			
1	**CIVIL TOWNSHIP NAME** **TOWN NAME** **DISTRICT NAME** **PRECINCT NAME** **BARRIO NAME**	GRANT	Screen 50%, 150-line biangle	
	BATHYMETRIC FEATURE NAMES			
2	**BATHYMETRIC FEATURE NAMES**	*Horseshoe Shoal*	Screen 50%, 150-line biangle	Includes names of banks, shoals, ledges, and other submarine features. Show bathymetric contour values on plate 114.

Plate: **115** Feature Separate: **BUILT-UP AREA TINT** CN: **1 – BLACK**

NO.	FEATURE	SYMBOL	SPECIFICATIONS	REMARKS
	BUILT-UP AREA			
1	**BUILT-UP AREA**		Screen 8%, 120-line 105°	Minimum size is .75″ by .75″ or its equivalent area, provided the shortest dimension exceeds .50″. Adjacent islands are shown if they exceed .25″ in the shortest dimension.

Plate: **116** Feature Separate: **ROADS, AIRPORTS, AND BATHYMETRIC FEATURES** CN: **1 – BLACK**

NO.	FEATURE	SYMBOL	SPECIFICATIONS	REMARKS
	ROADS AND RELATED FEATURES			
1	**CLASS 3 ROAD** **LIGHT DUTY ROAD: HARD, IMPROVED SURFACE**		Lineweight .012″ Screen 50%, 150-line biangle	Include principal through roads in built-up areas, and roads connecting towns or major features.
2	**CLASS 4 ROAD** **UNIMPROVED ROAD**		Lineweight .007″ Screen 50%, 150-line biangle	Show all fourth class connecting roads and those leading to mapped features. Show dead-end roads .24″ and longer.
3	**CLASS 5 ROAD** **TRAIL** **DISMANTLED RAILROAD**	4WD OLD RAILROAD GRADE	Lineweight .007″ Dash length .05″ Space .02″ Screen 50%, 150-line biangle	Minimum length .63″. Name/label on plate 114 when necessary to clarify. When used primarily by four-wheel-drive vehicles, label "4WD". Label dismantled railroad "OLD RAILROAD GRADE".
4	**ROAD UNDERPASS** **ROAD OVERPASS**		Break space .02″	
5	**ROAD TUNNEL**		Scribe to scale Dash length .05″ Space .02″ Screen 50%, 150-line biangle	Show all landmark tunnels and all tunnels .12″ or longer. Minimum symbol length .12″. Show wing ticks on plate 112. Name on plate 114 if of regional significance.
6	**ROAD BRIDGE**		Screen 50%, 150-line biangle	Minimum length .12″. Show wing ticks on plate 112. Name on plate 114 if of regional significance.
7	**STREET IN BUILT-UP AREA**		Lineweight .007″ Screen 50%, 150-line biangle	Show entire street pattern. Minimum length of dead-end streets .06″. Class 1 and 2 roads and principal through roads retain standard lineweight. Show built-up area tint on plate 115.
8	**SERVICE, REST, OR OTHER PULLOFF AREA ON CLASS 3 OR 4 ROAD**		Lineweight .007″ Screen 50%, 150-line biangle	Do not label.
9	**RACETRACK** **RACEWAY**	Racetrack	Lineweight .005″ Scribe to scale Screen 50%, 150-line biangle	Show landmark racetracks and raceways only. Name/label on plate 114.

Plate: **116** Feature Separate: **ROADS, AIRPORTS, AND BATHYMETRIC FEATURES** CN: **1-BLACK**

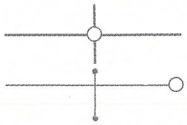
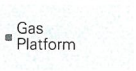
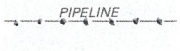
NO.	FEATURE	SYMBOL	SPECIFICATIONS	REMARKS
	ROADS AND RELATED FEATURES			
10	**TRAFFIC CIRCLE** **CUL-DE-SAC**		Lineweight .007″ Scribe to scale Screen 50%, 150-line biangle	Show circle solid if inner circle diameter would be less than .02″ or no island exists. Use classification of **highest** class road entering circle. Do not show cul-de-sacs less than .025″.
	OFFSHORE PLATFORMS AND PIPELINES			
11	**OIL OR GAS PLATFORM**		Scribe solid square to scale Screen 50%, 150-line biangle	Minimum size .02″ x .02″. Label "Oil Platform", "Gas Platform", or "Oil and Gas Platform" on plate ~~114~~ 114A if known.
12	**SUBMERGED PIPELINE**		Lineweight .006″ Dash length .10″ Space .02″ Screen 50%, 150-line biangle	Label "PIPELINE" on plate 114A. Add pinhead dots to indicate direction of flow.
13	**SUBMERGED SEWERLINE**		Lineweight .006″ Dash length .04″ Space .02″ Screen 50%, 150-line biangle	Label "SEWERLINE" on plate 114A as necessary to clarify. Add pinhead dots to indicate direction of flow.
14				
	AIRPORTS			
15	**LARGE HELIPORT**		Scribe as built Screen 50%, 150-line biangle	Show as located object on plate 112 if not large enough to scribe to scale.
16	**AIRPORT** **LANDING FIELD** **LANDING STRIP**		Scribe as built Screen 50%, 150-line biangle	Show all landing facilities. Minimum symbol length .24″. Use .010″ lineweight for runways less than .010″ wide. Show runways wider than .010″ to scale. Name/label on plate 114.

Plate: **121** Feature Separate: **HIGHWAYS AND RELATED FEATURES** CN: **1 – BLACK**

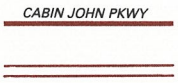
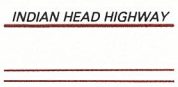
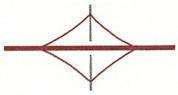
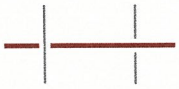
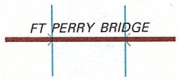
NO.	FEATURE	SYMBOL	SPECIFICATIONS	REMARKS
	HIGHWAYS			
1	**CLASS 1 HIGHWAY** **PRIMARY HIGHWAY, HARD SURFACE**		Lineweight .025″ Screen 30%, 150-line biangle	Separate into two lines when median width exceeds .024″, use .012″ lineweight for each roadway. Name on plate 114 if of regional significance. Name/label toll roads on plate 114.
2	**CLASS 2 HIGHWAY** **SECONDARY HIGHWAY, HARD SURFACE**		Lineweight .015″ Screen 30%, 150-line biangle	Separate into two lines when median width exceeds .024″, use .008″ lineweight for each roadway. Name on plate 114 if of regional significance. Name/label toll roads on plate 114.
3	**HIGHWAY UNDER CONSTRUCTION**		Lineweight .025″ Screen 30%, 150-line biangle	Use for Class 1 highways only. Label "UNDER CONSTRUCTION" on plate 114.
4				
	HIGHWAY-RELATED FEATURES			
5	**HIGHWAY INTERCHANGE**		Lineweight .007″ Screen 30%, 150-line biangle	Break highway under overpass. Use classification of highest class road at interchange for ramps
6	**HIGHWAY UNDERPASS** **HIGHWAY OVERPASS**		Break space .02″	
7	**HIGHWAY TUNNEL**		Dash length .05″ Space .02″ Screen 30%, 150-line biangle	Show all landmark tunnels and all tunnels .12″ or longer. Minimum symbol length .12″. Show wing ticks on plate 112. Name on plate 114 if of regional significance.
8	**HIGHWAY BRIDGE**		Highway lineweight Screen 30%, 150-line biangle	Minimum length .12″. Show wing ticks on plate 112. Name on plate 114 if of regional significance.

Plate: **121** Feature Separate: **HIGHWAYS AND RELATED FEATURES** CN: **1 – BLACK**

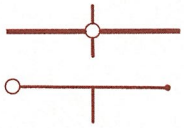
NO.	FEATURE	SYMBOL	SPECIFICATIONS	REMARKS
	HIGHWAY-RELATED FEATURES			
9	**SERVICE, REST, OR OTHER PULLOFF AREA ON CLASS 1 OR 2 HIGHWAY**		Lineweight .007″ Scribe to scale Screen 30%, 150-line biangle	Show landmark areas only.
10	**TRAFFIC CIRCLE** **CUL-DE-SAC**		Lineweight .007″ Scribe to scale Screen 30%, 150-line biangle	Show circle solid if inner circle diameter would be less than .02″ or no island exists. Use classification of highest class road entering circle. Do not show cul-de-sacs less than .025″.

Plate: **121** Feature Separate: **HIGHWAYS AND RELATED FEATURES** CN: **2-RED**

NO.	FEATURE	SYMBOL	SPECIFICATIONS	REMARKS
	HIGHWAYS			
1	**CLASS 1 HIGHWAY** **PRIMARY HIGHWAY HARD SURFACE**	*CABIN JOHN PKWY*	Lineweight .025″	Separate into two lines when median width exceeds .024″, use .012″ lineweight for each roadway. Name on plate 114 if of regional significance. Name/label toll roads on plate 114.
2	**CLASS 2 HIGHWAY** **SECONDARY HIGHWAY HARD SURFACE**	*INDIAN HEAD HIGHWAY*	Lineweight .015″	Separate into two lines when median width exceeds .024″, use .008″ lineweight for each roadway. Name on plate 114 if of regional significance. Name/label toll roads on plate 114.
3	**HIGHWAY UNDER CONSTRUCTION**	*UNDER CONSTRUCTION*	Lineweight .025″	Use for Class 1 highways only. Label "UNDER CONSTRUCTION" on plate 114.
4				
	HIGHWAY-RELATED FEATURES			
5	**HIGHWAY INTERCHANGE**		Lineweight .007″	Break highway under overpass. Use classification of highest class road at interchange for ramps
6	**HIGHWAY UNDERPASS** **HIGHWAY OVERPASS**		Break space .02″	
7	**HIGHWAY TUNNEL**	*CASCADE TUNNEL*	Dash length .05″ Space .02″	Show all landmark tunnels and all tunnels .12″ or longer. Minimum symbol length .12″. If less than .12″ exaggerate to .12″. Show wing ticks on plate 112. Name on plate 114 if of regional significance.
8	**HIGHWAY BRIDGE**	*FT PERRY BRIDGE*	Use highway lineweight	Minimum length .12″. Show wing ticks on plate 112. Name on plate 114 if of regional significance.

Plate: **121** Feature Separate: **HIGHWAYS AND RELATED FEATURES** CN: **2-RED**

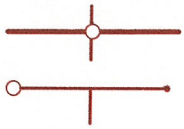
NO.	FEATURE	SYMBOL	SPECIFICATIONS	REMARKS
	HIGHWAY-RELATED FEATURES			
9	**SERVICE, REST, OR OTHER PULLOFF AREA ON CLASS 1 OR 2 HIGHWAY**		Lineweight .007″ Scribe to scale	Show landmark areas only.
10	**TRAFFIC CIRCLE** **CUL-DE-SAC**		Lineweight .007″ Scribe to scale	Show circle solid if inner circle diameter would be less than .02″ or no island exists. Use classification of highest class road entering circle. Do not show cul-de-sacs less than .025″.

Plate: **123** Feature Separate: **LAND NET** CN: **2 – RED**

NO.	FEATURE	SYMBOL	SPECIFICATIONS	REMARKS
	PUBLIC LAND SURVEY SYSTEM			
1	**SURVEYED RANGE OR TOWNSHIP LINE**	BASE LINE	Lineweight .010″ Screen 50%, 150-line biangle	Include privately surveyed lines accepted by Bureau of Land Management (BLM). Label on plate 124. Name base line or principal meridian on plate 124.
2	**SURVEYED SECTION LINE**		Lineweight .005″ Screen 50%, 150-line biangle	Include privately surveyed lines accepted by BLM. Do not show meander breaks under 300′. Label sections 1, 6, 31, and 36 and additional sections if necessary to clarify on plate 124.
3	**PROTRACTED RANGE OR TOWNSHIP LINE**		Lineweight .010″ Dash length .10″ Space .02″ Screen 50%, 150-line biangle	Do not connect surveyed and protracted lines. Minimum length of leg at protracted landline corners .02″. Adjust dashes locally to meet these conditions. Label on plate 124.
4	**PROTRACTED SECTION LINE**		Lineweight .005″ Dash length .10″ Space .02″ Screen 50%, 150-line biangle	Do not connect surveyed and protracted lines. Minimum length of leg at protracted landline corners .02″. Adjust dashes locally to meet these conditions. Label sections 1, 6, 31, 36 and additional sections if necessary to clarify on plate 124.
	OTHER LAND LINES			
5	**LAND GRANT LINE** **DONATION LAND CLAIM**		Lineweight .005″ Dash length .25″ Dot diameter .008″ Space .10″ Screen 50%, 150-line biangle	Show exterior lines and a representative pattern if too congested to show all. Name on plate 124.
6	**OLD INDIAN TREATY LINE** **OLD INDIAN RESERVATION BOUNDARY**	OLD INDIAN RES BDY	Lineweight .005″ Screen 50%, 150-line biangle	Show entire boundary when any portion is reflected in the public land survey or other land survey systems. Use this symbol only when not coincident with stream or other boundary. Label on plate 124.

Plate: **124** Feature Separate: **TYPE FOR HIGHWAYS, ROADS, AND LAND NET** CN: **2-RED**

NO.	FEATURE	SYMBOL	SPECIFICATIONS	REMARKS
	HIGHWAY AND ROAD ROUTE MARKERS			
1	HIGHWAY AND ROAD ROUTE MARKERS	66 50 123		
	LAND NET NAMES AND LABELS			
2	LAND NET NAMES AND LABELS	1 6 31 36 T 8 S R 15 W		Include names and labels for Public Land Survey System and other land net base lines, principal meridians, townships and section numbers.

Plate: **125** Feature Separate: **OFFSHORE PROTRACTIONS** CN: **2-RED**

NO.	FEATURE	SYMBOL	SPECIFICATIONS	REMARKS
	OFFSHORE PROTRACTION SURVEY LINES			
1	OFFSHORE PROTRACTION SURVEY		Lineweight .005″ Screen 50%, 150-line biangle	Label on plate 126.
2	LIMIT OF OFFSHORE PROTRACTION SURVEY		Lineweight .020″ Screen 50%, 150-line biangle	Label on plate 126.

In disputed areas along the international boundary with Canada, show the offshore protraction survey lines using current specifications except dash the protraction limit line where dashed on the official protraction diagram. The dash is 0.25 inch and the space is 0.03 inch.

Plate: **126** Feature Separate: **TYPE FOR OFFSHORE PROTRACTIONS** CN: **2 – RED**

NO.	FEATURE	SYMBOL	SPECIFICATIONS	REMARKS
	OFFSHORE PROTRACTION SURVEY DATA			
1	**OFFSHORE PROTRACTION SURVEY LABELS**	516	Screen 50%, 150-line biangle	

Plate: **127** Feature Separate: **BOUNDARY ENHANCEMENT** CN: **2-RED**

NO.	FEATURE	SYMBOL	SPECIFICATIONS	REMARKS
	BOUNDARY ENHANCEMENT			
1	BOUNDARY ENHANCEMENT		Enhancement width for exterior boundaries of Federal lands .10" Enhancement width for interior Federal lands boundaries .05" Screen 20%, 150-line biangle	Show boundary on plate 112.

Plate: **132** Feature Separate: **CONTOURS** CN: **3-BROWN**

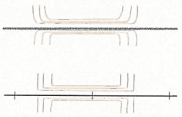
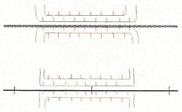
NO.	FEATURE	SYMBOL	SPECIFICATIONS	REMARKS
	CONTOURS			
1	**INDEX CONTOUR**		Lineweight .007″	Include underwater contours for inland water bodies shown on existing quadrangles. Do not show contours through areal strip mines; show contours through linear strip mines. Label on plate 136.
2	**INTERMEDIATE CONTOUR**		Lineweight .003″	Include underwater contours for inland water bodies shown on existing quadrangles. Do not show contours through areal strip mines; show contours through linear strip mines. Label on plate 136.
3	**APPROXIMATE CONTOUR**		Dash length .07″ Space .02″	Use lineweight of index or intermediate contour. Label on plate 136.
4	**FEATHERING-OUT TREATMENT**			Delete intermediate contours; feather ends, space remaining contours evenly; maintain at least .005″ space between contours.
5	**CARRYING CONTOUR**		Lineweight .007″ or .003″	Use lineweight of index or intermediate contour, as appropriate. Show at cliffs, embankments, rims, and bluffs where contours merge.
6	**DEPRESSION CONTOUR**		Lineweight .007″ or .003″ Tick lineweight .003″ Tick length .02″ Tick spacing .12″	Decrease tick spacing for small depressions. Adjust tick spacing when included with other depression contours.
7	**ADJACENT DEPRESSION CONTOUR**		Tick lineweight .003″ Tick length .02″ Tick spacing .04″	Tick spacing .04″ on lowest contour. Increase space to .08″, then .12″, on two succeeding contours. Use .12″ space on all others.
8	**ROAD CUT** **RAILROAD CUT**		Lineweight .007″ or .003″	Use lineweight of index or intermediate contour. Plot contours in correct position. Space contours .005″ from road or railroad (line).
9	**ROAD FILL** **RAILROAD FILL**		Lineweight .007″ or .003″ Tick lineweight .003″ Tick length .02″ Tick spacing .05″	Use lineweight of index or intermediate contour. Plot contours in correct position. Space contours .005″ from road or railroad (line).

Plate: **132** Feature Separate: **CONTOURS** CN: **3-BROWN**

NO.	FEATURE	SYMBOL	SPECIFICATIONS	REMARKS
	CONTOURS			
10				
11				
12				
	CONTOUR-RELATED FEATURES			
13	**LEVEE** **DIKE**	*LEVEE* *ROAD ON LEVEE*	Lineweight .015″	Minimum length .24″. Do not symbolize levee when carrying linear feature such as road or railroad. Name/label "LEVEE", "ROAD ON LEVEE" or "RAILROAD ON LEVEE" as appropriate on plate 114.
14	**EARTH DAM**	Mary Dam	Lineweight .015″	Minimum size .12″. If shorter, show as shoreline on plate 141. For dam carrying road, use lineweight .015″ or road lineweight if greater. Name on plate 114 if of regional significance.
15	**CONTINENTAL DIVIDE** **TENNESSEE VALLEY DIVIDE**	*CONTINENTAL DIVIDE*	Lineweight .012″ Dash length .40″ Space .10″	Omit symbol when coincident with boundary or road. Label on plate 114.
16	**TAILINGS POND SHORELINE**	Tailings Pond	Lineweight .003″	Minimum size .06″ in shortest dimension. Show fill on plate 134. Label on plate 114.
17				

Plate: **133** Feature Separate: **SUPPLEMENTARY CONTOURS** CN: **3-BROWN**

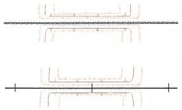
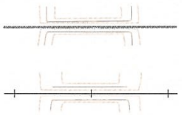
NO.	FEATURE	SYMBOL	SPECIFICATIONS	REMARKS
	SUPPLEMENTARY CONTOURS			
1	**SUPPLEMENTARY CONTOUR**		Lineweight .005″ Screen 30%, 150-line biangle	Label on plate 136.
2	**SUPPLEMENTARY DEPRESSION CONTOUR**		Lineweight .005″ Tick lineweight .003″ Tick length .02″ Tick spacing .12″ Screen 30%, 150-line biangle	Decrease tick spacing for small depressions. Adjust tick spacing when included with other depression contours. Label on plate 136.
3	**SUPPLEMENTARY CONTOUR AT ROAD OR RAILROAD FILL**		Lineweight .005″ Tick lineweight .003″ Tick length .02″ Tick spacing .12″ Screen 30%, 150-line biangle	Plot contours in correct position. Space .005″ from road or railroad (line).
4	**SUPPLEMENTARY CONTOUR AT ROAD OR RAILROAD CUT**		Lineweight .005″ Screen 30%, 150-line biangle	Plot contours in correct position. Space .005″ from road or railroad (line).
5				

Plate: **134** Feature Separate: **SAND AND GRAVEL AREAS** CN: **3-BROWN**

NO.	FEATURE	SYMBOL	SPECIFICATIONS	REMARKS
	SAND AND GRAVEL AREAS			
1	**WIDE WASH**		Pattern screen USGS 17	Minimum length .63". Show wash less than .06" wide on plate 141.
2	**TAILINGS POND**	Tailings Pond	Pattern screen USGS 17	Minimum size .06" in shortest dimension. Show outline on plate 132. Label on plate 114.
3	**SAND AREA** **MUD**	Sand	Pattern screen USGS 17	Minimum size .24" in shortest dimension. Label on plate 114.
4	**GLACIAL MORAINE**		Pattern screen USGS 17	Minimum size .12" in shortest dimension.
5	**SAND BEACH** **GRAVEL BEACH**		Pattern screen USGS 17	Minimum size .12" in shortest dimension.
6	**SHIFTING SAND** **DUNE AREA**	Sand Dunes	Pattern screen USGS 17	Minimum size .24" in shortest dimension. Label "Sand Dunes" on plate 114.
7	**DRY LAKE** **DRY POND**		Pattern screen USGS 17	Minimum size .12" in shortest dimension. Show outline on plate 141.
8				
9				

Plate: **135** Feature Separate: **DISTURBED SURFACES AND BATHYMETRY** CN: **3-BROWN**

NO.	FEATURE	SYMBOL	SPECIFICATIONS	REMARKS
	MINES, PITS, AND LAVA FLOWS			
1	**STRIP MINE**	Strip Mine Strip Mine	Screen 13%, 120-line at 105°	Show all strip mines at least .24″ long to scale. Strip mines less than .036″ wide will be shown with a pattern .036″ wide. Label on plate 114.
2	**QUARRY** **OPEN PIT MINE**	Quarry	Screen 13%, 120-line at 105°	Show tint if at least .24″ in shortest dimension. Show symbol on plate 112. Label on plate 114.
3	**TAILINGS** **MINE DUMP**	Mine Dump	Screen 13%, 120-line at 105°	Minimum size .12″ in shortest dimension. Label on plate 114.
4	**GRAVEL PIT** **SANDPIT** **CLAYPIT**	Gravel Pit	Screen 13%, 120-line at 105°	Show tint if minimum size is at least .24″ in shortest dimension. Show symbol on plate 112. Label on plate 114.
5	**LAVA**	Lava	Screen 13%, 120-line at 105°	Minimum size .24″ in shortest dimension. Label on plate 114.
6				
	INTERTIDAL ZONE			
7	**AREA BETWEEN SHORELINE AND SOUNDING DATUM LINE**		Screen 13%, 120-line at 105°	Show on topo-bathy maps only. Show shoreline and sounding datum line on plate 141.

Plate: **135** Feature Separate: **DISTURBED SURFACES AND BATHYMETRY** CN: **3-BROWN**

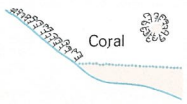
NO.	FEATURE	SYMBOL	SPECIFICATIONS	REMARKS
	REEF FILL			
8	**ROCK REEF** **CORAL REEF**		Screen 13%, 120-line at 105°	Use for reefs which uncover at sounding datum. Show outline on plate 112. Label on plate 114.

Plate: **135** Feature Separate: **DISTURBED SURFACES AND BATHYMETRY** CN: **3-BROWN**

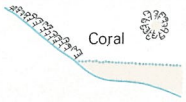
NO.	FEATURE	SYMBOL	SPECIFICATIONS	REMARKS
	REEF FILL			
8	**ROCK REEF** **CORAL REEF**		Screen 13%, 120-line at 105°	Use for reefs which uncover at sounding datum. Show outline on plate 112. Label on plate 114.

Plate: **136** Feature Separate: **TYPE FOR CONTOUR VALUES AND QUADRANGLE NAME** CN: **3-BROWN**

NO.	FEATURE	SYMBOL	SPECIFICATIONS	REMARKS
	CONTOUR VALUES			
1	CONTOUR VALUE	100		Include values for supplementary contours. Mask contours for labels.
	QUADRANGLE NAME			
2	QUADRANGLE NAME (TITLE PANEL)			

Plate: **141** Feature Separate: **DRAINAGE AND BATHYMETRIC CONTOURS** CN: **4-BLUE**

NO.	FEATURE	SYMBOL	SPECIFICATIONS	REMARKS
	STREAMS AND SHORELINES			
1	**SHORELINE**		Lineweight .008″	Show islands at least .036″ in longest dimension.
2	**APPARENT SHORELINE**		Lineweight .004″	Show on topographic-bathymetric maps only.
3	**INDEFINITE SHORELINE** **UNSURVEYED SHORELINE**		Lineweight .004″ Dash length .07″ Space .02″	
4	**PERENNIAL STREAM (SINGLE AND DOUBLE LINE)**		Lineweight .008″	Minimum length .63″. Show double line when at least .024″ wide. Show water fill on plate 145.
5	**UNSURVEYED PERENNIAL STREAM**		Lineweight .008″ Dash length .07″ Space .02″	
6	**INTERMITTENT STREAM (SINGLE AND DOUBLE LINE)** **NARROW WASH** **EPHEMERAL DRAIN**		Lineweight .004″	Minimum length .63″. Show double line intermittent stream when at least .024″ wide. Show dry washes over .06″ wide on plate 134.
7	**CAROLINA BAY**		Lineweight .008″ Dash length .07″ Space .02″	
8	**STREAM DISAPPEARING AT A DEFINITE POINT**		Lineweight .008″ Length of "Y" .04″ Angle 90°	Do not use for streams entering culvert, pipe, etc. Show only on perennial stream.

Plate: **141** Feature Separate: **DRAINAGE AND BATHYMETRIC CONTOURS** CN: **4-BLUE**

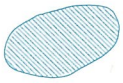
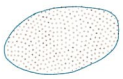
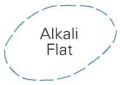
NO.	FEATURE	SYMBOL	SPECIFICATIONS	REMARKS
	STREAMS AND SHORELINES			
9	Boat trails are distinguishable paths through vegetation caused by airboats traveling through swamps and marsh lands, such as the Everglades. Show all boat trails at least 0.63 inch long. Show boat trials as dashed lines with a lineweight of 0.008 inch, dash of 0.05 inch and a space of 0.02 inch. Label and name boat trails if they are important.			
10				
11				
	LAKES AND PONDS			
12	PERENNIAL LAKE OR POND PERENNIAL SALT LAKE OR POND		Lineweight .008″	Minimum size .06″ in shortest dimension. Show islands at least .036″ in longest dimension. Show fill on plate 145. Label on plate 142 if salt.
13	INTERMITTENT LAKE INTERMITTENT POND		Lineweight .004″	Minimum size 0.6″ in shortest dimension. Show fill on plate 147.
14	DRY LAKE DRY POND		Lineweight .004″	Minimum size .12″ in shortest dimension. Show fill on plate 134.
15	SALT EVAPORATOR		Lineweight .004″	Minimum size .12″ in shortest dimension. Show major separations. Label on plate 114.
16	ALKALI FLAT		Lineweight .004″ Dash length .07″ Space .02″	Minimum size .24″ in shortest dimension. Label "Alkali Flat" on plate 114.

Plate: **141** Feature Separate: **DRAINAGE AND BATHYMETRIC CONTOURS** CN: **4-BLUE**

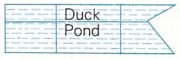
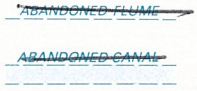
NO.	FEATURE	SYMBOL	SPECIFICATIONS	REMARKS
	LAKES AND PONDS			
17	**DUCK POND**		Lineweight .004″	Minimum size .12″ in shortest dimension. Show major separations. Show fill on plate 146. Label on plate 114.
18				
	CANALS AND AQUEDUCTS			
19	**CANAL** **FLUME** **AQUEDUCT** **DITCH** **ABOVEGROUND WATER PIPELINE**		Lineweight .008″ or .004″	Use lineweight consistent with classification. Minimum length .63″. Minimum width for double line .024″. Label on plate 142. Name on plate 142 if important.
20	~~**ABANDONED CANAL**~~ ~~**ABANDONED FLUME**~~ ~~**ABANDONED AQUEDUCT**~~		~~Lineweight .004″~~ ~~Dash length .10″~~ ~~Space .02″~~	~~Minimum length .63″. Minimum width for double line .024″. Label on plate 142. Name on plate 142 if important.~~
21	**UNDERGROUND FLUME, PENSTOCK, OR SIPHON** **UNDERGROUND WATER PIPELINE** **UNDERGROUND AQUEDUCT**		Lineweight .008″ or .004″ Dash length .05″ Space .02″ Wing tick lineweight .004″ Wing tick length .023″ Wing tick angle 45°	Use lineweight consistent with classification. Show landmark features only. Label on plate 142. Show wing ticks if necessary to clarify extent.
22	**ELEVATED AQUEDUCT** **ELEVATED FLUME** **ELEVATED CONDUIT**		Lineweight .008″ or .004″ Wing tick lineweight .004″ Wing tick length .023″ Wing tick angle 45°	Use lineweight consistent with classification. Minimum length .63″. Minimum width for double line .024″. Label "ELEVATED" on plate 142.

Plate: **141** Feature Separate: **DRAINAGE AND BATHYMETRIC CONTOURS** CN: **4-BLUE**

NO.	FEATURE	SYMBOL	SPECIFICATIONS	REMARKS
	CANALS AND AQUEDUCTS			
23	**AQUEDUCT TUNNEL**		Lineweight .004″ Overall width .017″ Dash length .04″ Space .02″ Cross tick length .017″ Wing tick length .023″ Wing tick angle 45°	
24				
	WELLS AND SPRINGS			
25	**SPRING**	*Raven Spring*	Lineweight .004″ Circle diameter .033″ Tail length .08″	Name on plate 142. Do not show tails for springs in drains. Do not clear woodland from circle.
26	**WATER WELL** **GEYSER**	*Flowing Well*	Lineweight .003″ Circle diameter .033″	Name on plate 142. Label "Flowing Well" if artesian well. Label "Geyser" if appropriate or name if important.
	GLACIERS AND PERMANENT SNOWFIELDS			
27	**GLACIER OR PERMANENT SNOWFIELD (CONTOURS)**		Outline lineweight .005″ Dash length .07″ Space .02″ Contour lineweight .007″ and .003″	Minimum size .12″ in shortest dimension.
28	**GLACIER OR PERMANENT SNOWFIELD (FORMLINES)**		Outline lineweight .005″ Dash length .07″ Space .02″ Formline lineweight .003″ Formline length .04″ to .20″	Minimum size .12″ in shortest dimension. Use this symbol when data for contouring are weak. Do not show formlines as continuations of contours.

Plate: **141** Feature Separate: **DRAINAGE AND BATHYMETRIC CONTOURS** CN: **4-BLUE**

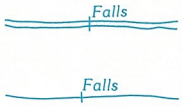
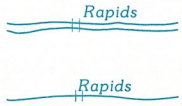
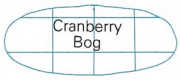
NO.	FEATURE	SYMBOL	SPECIFICATIONS	REMARKS
	RAPIDS AND WATERFALLS			
29	**WATERFALL ON WIDE DOUBLE-LINE STREAM**		Lineweight .004″ Tick length .033″ Tick space .017″	Use this symbol on double-line streams at least .12″ wide. Label "Falls" on plate 142. Name if important.
30	**WATERFALL ON NARROW DOUBLE-LINE STREAM** **WATERFALL ON SINGLE-LINE STREAM**		Lineweight .008″ Minimum tick length .05″	Use this symbol on double-line streams less than .12″ wide and on all single-line streams. Extend tick .01″ outside double-line stream. Label "Falls" on plate 142. Name if important.
31	**RAPIDS ON WIDE DOUBLE-LINE STREAM**		Lineweight .004″ Tick length .02″ to .04″ Tick space .017″	Use this symbol on double-line streams at least .12″ wide. Label "Rapids" on plate 142. Name if important.
32	**RAPIDS ON NARROW DOUBLE-LINE STREAM** **RAPIDS ON SINGLE-LINE STREAM**		Lineweight .004″ Minimum tick length .05″ Tick space .03″	Use this symbol on double-line streams less than .12″ wide and on all single-line streams. Extend tick .01″ outside double-line stream. Label "Rapids" on plate 142. Name if important.
33				
	SUBMERGED AREAS AND BOGS			
34	**CHANNEL IN WATER AREA**		Lineweight .004″ Dash length .07″ Space .02″	Show in impounded rivers. Use for Intracoastal Waterway where necessary to clarify. Label "Intracoastal Waterway" on plate 142.
35	**SUBMERGED SWAMP**		Lineweight .008″	Show swamp pattern on plate 143. Show water fill on plate 145. If wooded, show woodland on plate 152. If less than .24″ but more than .06″ wide, show as pond.
36	**CRANBERRY BOG**		Lineweight .004″	Minimum size .12″ in shortest dimension. Show major separations. Label on plate 114.

Plate: **141** Feature Separate: **DRAINAGE AND BATHYMETRIC CONTOURS** CN: **4-BLUE**

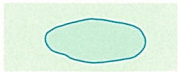
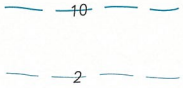
NO.	FEATURE	SYMBOL	SPECIFICATIONS	REMARKS
	SUBMERGED AREAS AND BOGS			
37	**SUBMERGED WOODS**		Lineweight .008″	Show water fill on plate 145. Show woodland on plate 152.
	LAND SUBJECT TO INUNDATION			
38	**LAND SUBJECT TO INUNDATION**		Lineweight .004″	Minimum size .24″ in shortest dimension, .12″ when paralleling shoreline. Show fill on plate 146. When known, label elevation on plate 142 for area subject to controlled inundation.
39	**AREA TO BE SUBMERGED**		Lineweight .008″	Minimum size .06″ in shortest dimension. For areas behind dams under construction. Show fill on plate 147.
	BATHYMETRIC CONTOURS			
40	**SOUNDING DATUM LINE**		Dot diameter .01″ Space .01″	
41	**INDEX CONTOUR** / Intermediate contour Supplementary Contour		Lineweight .008″	Label on plate 114.
42	**INTERMEDIATE CONTOUR** / Supplementary Contour		Lineweight .004″	Label on plate 114.
43	**APPROXIMATE CONTOUR**		Dash length .20″ Space .06″	Use lineweight of index or intermediate contour. Label on plate 114.

Plate: **141** Feature Separate: **DRAINAGE AND BATHYMETRIC CONTOURS** CN: **4-BLUE**

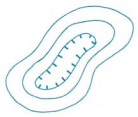
NO.	FEATURE	SYMBOL	SPECIFICATIONS	REMARKS
	BATHYMETRIC CONTOURS			
44	**DEPRESSION CONTOUR**		Tick lineweight .008″ Tick length .015″	Show ticks on bottom contour only. Use lineweight of index or intermediate contour. On contours up to .50″ in circumference, space ticks .04″ apart; contours .50″–3.0″ in circumference, space ticks .08″ apart; contours over 3.0″ in circumference, space ticks .10″ apart. Label on plate 114.
45	**RISE CONTOUR (INSIDE DEPRESSION)**		Tick lineweight .008″ Tick length .015″	Show ticks on bottom contour only. Use lineweight of index or intermediate contour. On contours up to .50″ in circumference, space ticks .04″ apart; contours .50″–3.0″ in circumference, space ticks .08″ apart; contours over 3.0″ in circumference, space ticks .10″ apart. Label on plate 114.
46				
47				

Plate: **142** Feature Separate: **TYPE FOR HYDROGRAPHIC FEATURES** CN: **4-BLUE**

NO.	FEATURE	SYMBOL	SPECIFICATIONS	REMARKS
	HYDROGRAPHIC NAMES AND LABELS			
1	HYDROGRAPHIC FEATURE NAMES AND LABELS	*Lake Anne* *Difficult Run* *POTOMAC RIVER*		Include names and labels for hydrographic features and water surface elevations.

Boat trails are distinguishable paths through vegetation caused by airboats traveling through swamps and marsh lands, such as the Everglades. Show all boat trails at least 0.63 inch long. Show boat trials as dashed lines with a lineweight of 0.008 inch, dash of 0.05 inch and a space of 0.02 inch. Label and name boat trails if they are important.

Plate: **143** Feature Separate: **MARSH AND SWAMP FILL** CN: **4-BLUE**

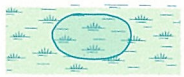
NO.	FEATURE	SYMBOL	SPECIFICATIONS	REMARKS
	MARSH AND SWAMP FILL			
1	**MARSH** **SWAMP**		Pattern screen USGS 2	Minimum size .24" in shortest dimension. Clear pattern from all Class land 2 highways, and Class 3 roads.
2	**SUBMERGED MARSH** **SUBMERGED SWAMP**		Pattern screen USGS 2	Show shoreline on plate 141. Show water fill on plate 145. Clear pattern from all Class 1 and 2 highways, and Class 3 roads.
3	**WOODED SWAMP**		Pattern screen USGS 2	Show woodland fill on plate 152. Clear pattern from all Class 1 and 2 highways, and Class 3 roads.
4	**SUBMERGED WOODED SWAMP**		Pattern screen USGS 2	Show shoreline on plate 141. Show water fill on plate 145. Show woodland fill on plate 152. Clear pattern from all Class 1 and 2 highways, and Class 3 roads.
5				
	Note: Marsh and swamp may be shown on plate 141 when expedient.			

Plate: **144** Feature Separate: **MANGROVE FILL** CN: **4-BLUE**

NO.	FEATURE	SYMBOL	SPECIFICATIONS	REMARKS
	MANGROVE FILL			
1	MANGROVE		Pattern screen USGS 25	Minimum size .15″ in shortest dimension. Show woodland on plate 152.
		Note: Mangrove fill may be shown on plate 141 when expedient.		

Plate: **145** Feature Separate: **PERENNIAL WATER FILL** CN: **4-BLUE**

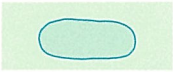
NO.	FEATURE	SYMBOL	SPECIFICATIONS	REMARKS
	PERENNIAL WATER FILL			
1	**PERENNIAL OPEN WATER AREA**		Screen 8%, 120-line at 105°	Show outline on plate 141.
2	**MASONRY RESERVOIR** **FISH HATCHERY**		Screen 8%, 120-line at 105°	Show outline on plate 112.
3	**SUBMERGED MARSH** **SUBMERGED SWAMP**		Screen 8%, 120-line at 105°	Show shoreline on plate 141. Show swamp pattern on plate 143.
4	**SUBMERGED WOODED SWAMP**		Screen 8%, 120-line at 105°	Show shoreline on plate 141. Show swamp pattern on plate 143. Show woodland on plate 152.
5	**SUBMERGED WOODS**		Screen 8%, 120-line at 105°	Show shoreline on plate 141. Show woodland on plate 152.

Plate: **145A** Feature Separate: **BATHYMETRIC GRADIENT TINT #1** CN: **4-BLUE**

NO.	FEATURE	SYMBOL	SPECIFICATIONS	REMARKS
	GRADIENT TINT #1			
1	FIRST WATER TINT		Screen 8%, 120-line at 105°	Show green overprint on plate 157.
	Note: All features on plate 145 may be shown on this plate on topographic-bathymetric maps.			

Plate: **145B** Feature Separate: **BATHYMETRIC GRADIENT TINT #2** CN: **4-BLUE**

NO.	FEATURE	SYMBOL	SPECIFICATIONS	REMARKS
	GRADIENT TINT #2			
1	**SECOND WATER TINT**		Screen 13%, 120-line at 105°	Show green overprint on plate 157.

Plate: **145C** Feature Separate: **BATHYMETRIC GRADIENT TINT #3** CN: **4-BLUE**

NO.	FEATURE	SYMBOL	SPECIFICATIONS	REMARKS
	GRADIENT TINT #3			
1	THIRD WATER TINT		Screen 20%, 120-line at 45°	Show green overprint on plate 157.

Plate: **145D** Feature Separate: **BATHYMETRIC GRADIENT TINT #4** CN: **4-BLUE**

NO.	FEATURE	SYMBOL	SPECIFICATIONS	REMARKS
	GRADIENT TINT #4			
1	**FOURTH WATER TINT**		Screen 30%, 120-line at 45°	Show green overprint on plate 157.

Plate: **145D** Feature Separate: **BATHYMETRIC GRADIENT TINT #4** CN: **4-BLUE**

NO.	FEATURE	SYMBOL	SPECIFICATIONS	REMARKS
	GRADIENT TINT #4			
1	FOURTH WATER TINT		Screen 30%, 120-line at 45°	Show green overprint on plate 157.

Plate: **145E** Feature Separate: **BATHYMETRIC GRADIENT TINT #5** CN: **4-BLUE**

NO.	FEATURE	SYMBOL	SPECIFICATIONS	REMARKS
	GRADIENT TINT #5			
1	FIFTH WATER TINT		Screen 40%, 120-line at 75°	Show green overprint on plate 157.

Plate: **145F** Feature Separate: **BATHYMETRIC GRADIENT TINT #6** CN: **4-BLUE**

NO.	FEATURE	SYMBOL	SPECIFICATIONS	REMARKS
	GRADIENT TINT #6			
1	SIXTH WATER TINT		Screen 50%, 120-line at 60°	Show green overprint on plate 157.

Plate: **145G** Feature Separate: **BATHYMETRIC GRADIENT TINT #7** CN: **4-BLUE**

NO.	FEATURE	SYMBOL	SPECIFICATIONS	REMARKS
	GRADIENT TINT #7			
1	SEVENTH WATER TINT		Screen 60%, 120-line at 45°	Show green overprint on plate 157.

Plate: **146** Feature Separate: **INUNDATION FILL** CN: **4-BLUE**

NO.	FEATURE	SYMBOL	SPECIFICATIONS	REMARKS
	INUNDATION FILL			
1	**LAND SUBJECT TO INUNDATION**		Pattern screen AP-9B	Show outline on plate 141.
2	**DUCK POND**		Pattern screen AP–9B	Show outline on plate 141. Label on plate 114.

Plate: **147** Feature Separate: **INTERMITTENT WATER FILL** CN: **4-BLUE**

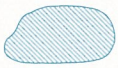
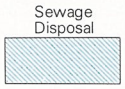
NO.	FEATURE	SYMBOL	SPECIFICATIONS	REMARKS
	INTERMITTENT WATER FILL			
1	**INTERMITTENT LAKE** **INTERMITTENT POND**		Pattern screen LP-8B	Show outline on plate 141.
2	**AREA TO BE SUBMERGED**		Pattern screen LP-8B	Show outline on plate 141.
3	**SEWAGE DISPOSAL PLANT** **WATER FILTRATION PLANT**		Pattern screen LP-8B	Show outline on plate 112. Label on plate 114.
4				

Plate: **152** Feature Separate: **WOODS AND MANGROVE** CN: **5-GREEN**

NO.	FEATURE	SYMBOL	SPECIFICATIONS	REMARKS
	WOODS AND MANGROVE			
1	**WOODS** **BRUSHWOOD**		Screen 40%, 120-line at 75°	Minimum size .10" in shortest dimension for woods and/or clearing.
2	**WOODED SWAMP**		Screen 40%, 120-line at 75°	Show swamp pattern on plate 143.
3	**SUBMERGED WOODED SWAMP**		Screen 40%, 120-line at 75°	Show shoreline on plate 141. Show swamp pattern on plate 143. Show water fill on plate 145.
4	**MANGROVE**		Screen 40%, 120-line at 75°	Minimum size .15" in shortest dimension. Show pattern on plate 144.
5	**SUBMERGED WOODS**		Screen 40%, 120-line at 75°	Show shoreline on plate 141. Show water fill on plate 145.
	Note: Plates 152, 154, 155, and 156 may be prepared as separates, or, when expedient to do so, two or more of the plates may be combined.			

Plate: **154** Feature Separate: **SCRUB** CN: **5-GREEN**

NO.	FEATURE	SYMBOL	SPECIFICATIONS	REMARKS
	SCRUB			
1	SCRUB		Pattern screen USGS 20B	Minimum size .10" in shortest dimension for feature or clearing.
	Note: Plates 152, 154, 155, and 156 may be prepared as separates, or, when expedient to do so, two or more of the plates may be combined.			

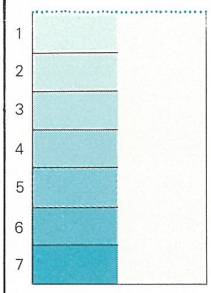
Plate: **155** Feature Separate: **ORCHARD** CN: **5-GREEN**

NO.	FEATURE	SYMBOL	SPECIFICATIONS	REMARKS
	ORCHARD			
1	ORCHARD		Pattern screen USGS 26B	Minimum size .10″ in shortest dimension for feature or clearing.
Note: Plates 152, 154, 155, and 156 may be prepared as separates, or, when expedient to do so, two or more of the plates may be combined.				

Plate: **156** Feature Separate: **VINEYARD** CN: **5-GREEN**

NO.	FEATURE	SYMBOL	SPECIFICATIONS	REMARKS
	VINEYARD			
1	VINEYARD		Pattern screen USGS 7B	Minimum size .10" in shortest dimension for feature or clearing.
Note: Plates 152, 154, 155, and 156 may be prepared as separates, or, when expedient to do so, two or more of the plates may be combined.				

Plate: **157** Feature Separate: **BATHYMETRIC OVERPRINT** CN: **5-GREEN**

NO.	FEATURE	SYMBOL	SPECIFICATIONS	REMARKS
	BATHYMETRIC OVERPRINT			
1	**WATER TINT**		Screen 8%, 120-line at 60°	Use for water areas from chart sounding datum line to maximum depth. Show blue fill on plates 145A–145G.

FEATURE	PLATE	NO.	PAGE
-A-			
Airport	116	16	25
Alkali flat	141	16	42
Aqueduct	112	19	43
~~abandoned~~	~~141~~	~~20~~	~~43~~
elevated	141	22	43
tunnel	141	23	44
underground	141	21	43
Archaeological site	112	33	8
Area between shorline and sounding datum line	135	7	38
Area to be submerged	147	2	60
	141	39	46
-B-			
Barrio name	114A	1	22
Bathymetric contour			
index	141	41	46
intermediate	141	42	46
approximate	141	43	46
depression	141	44	47
rise, inside depression	141	45	47
Bathymetric contour, primary	112	88	15
index	112	87	15
approximate	112	89	16
depression	112	90	16
rise, inside depression	112	91	16
Bathymetric contour, supplementary	112A	1	16
approximate	112A	4	19
depression	112A	2	19
rise, inside depression	112A	3	19
Bathymetric contour value label	114	2	21
Bathymetric feature names	114A	2	22
Bathymetric gradient tint			
first	145A	1	52
second	145B	1	53
third	145C	1	54
fourth	145D	1	55
fifth	145E	1	56
sixth	145F	1	57
seventh	145G	1	58
overprint	147	1	65
Beach			
gravel	134	5	37
sand	134	5	37
Beacon	112	4	4
Boat trails	141	9	42
Bog, cranberry	141	36	45

FEATURE	PLATE	NO.	PAGE
Boundary enhancement	127	1	33a
Boundary			
Alaska borough	112	76	14
barrio	112	77	14
city park	112	79	14
civil township	112	77	14
county	112	76	14
county park	112	79	14
district	112	77	14
Hawaii forest reserve	112	78	14
Hawaii homestead	112	78	14
indefinite	112	80	14
judicial division	112	76	14
municipio	112	76	14
national	112	74	13
national forest	112	78	14
national monument	112	78	14
national park	112	78	14
national reservation	112	78	14
old Indian reservation	123	6	30
old Indian treaty line	123	6	30
parish	112	76	14
precinct	112	77	14
State	112	75	13
State forest	112	78	14
State monument	112	78	14
State park	112	78	14
State reservation	112	78	14
territorial	112	75	13
town	112	77	14
Breakwater	112	69	12
Bridge			
highway	121	8	26
	121	8	28
highway or road wing tick	112	83	15
railroad	112	17	6
Brushwood	152	1	61
Building, landmark	112	1	4
Built-up area	115	1	23
-C-			
Campground	112	48	10
Canal	141	19	43
~~abandoned~~	~~141~~	~~20~~	~~43~~
Canal lock	112	66	12

FEATURE	PLATE	NO.	PAGE
Carline	112	27	7
Carolina bay	141	7	41
Causeway	112	69	12
Cave	112	35	8
Cemetery			
National	112	72	13
other	112	73	13
Channel area	112	94	16
Channel in water area	141	34	45
ivil township name	114A	1	22
Claim, donation land	123	5	30
Class 1 (primary) highway	121	1	26
	121	1	28
under construction	121	3	28
	121	3	26
Class 2 (secondary) highway	121	2	26
	121	2	28
Class 3 road	116	1	24
Class 4 road	116	2	24
Class 5 road	116	3	24
Claypit	135	4	38
	112	38	9
Cliff dwelling	112	34	8
Cog railway	112	23	7
Conduit, elevated	141	22	43
Continental Divide	132	15	35
Contour			
adjacent depression	132	7	34
approximate	132	3	34
bathymetric (see bathymetric contour)			
carrying	132	5	34
depression	132	6	34
feathering out treatment	134	4	34
glacier or permanent snowfield			
contour	141	27	44
formline	141	28	44
index	132	1	34
intermediate	132	2	34
supplementary	133	1	36
supplementary depression	133	2	36
value label	136	1	40
Coral reef	135	8	39
	112	100	17
Corral	112	44	9
Cranberry bog	141	36	45
Cul-de-sac	116	10	25
	121	10	27
	121	10	29

FEATURE	PLATE	NO.	PAGE
Cut			
railroad	132	8	34
	133	4	36
road	132	8	34
	133	4	36
-D-			
Dam			
carrying road	112	65	12
earth	132	14	35
masonry	112	63	12
with lock (navigable waterways)	112	64	12
Dike	132	13	35
Dismantled railroad	116	3	24
District name	114A	1	22
Ditch	141	19	43
Donation land claim	123	5	30
Drain, ephemeral	141	6	41
Drydock	112	68	12
Dry lake	141	14	42
Dry pond	141	14	42
Duck pond	141	17	43
	146	2	59
Dune area	134	6	37
-E-			
Ephemeral drain	141	6	41
Evaporator, salt	141	15	42
-F-			
Ferry			
highway	112	84	15
railroad	112	21	7
road	112	84	15
Fill			
railroad	132	9	34
	133	3	36
road	132	9	34
	133	3	36
Fish hatchery	145	2	51
	112	6	4

FEATURE	PLATE	NO.	PAGE
Flume	141	19	43
~~abandoned~~	~~141~~	~~20~~	~~43~~
elevated	141	22	43
underground	141	21	43
Formline, glacier or permanent snowfield	141	28	44
-G-			
Gaging station	112	45	10
Gas field	112	39	9
Gas platform	116	11	25
Gas well (offshore)	112	101	17
Geyser	141	26	44
Glacial moraine	134	4	37
Glacier			
contour	141	27	44
formline	141	28	44
Graticule			
intersection	111	3	2
neatline	111	1	2
tick	111	2	2
Gravel pit	135	4	38
	112	38	9
Grid, State plane			
primary tick	111	5	2
secondary tick	111	6	2
tertiary tick	111	7	2
quaternary tick	111	8	3
quintary tick	111	9	3
Grid, Universal Transverse Mercator (UTM)	113	1	20
-H-			
Heliport			
large	116	15	25
small	112	4	4
Highway (see specific item listings for related features)			
primary	121	1	26
	121	1	28
	121	3	26
primary, under construction	121	3	28
	121	2	26
secondary	121	2	28
	114	1	21
Highway and road names	124	1	31
Highway and road route markers	112	93	16
Holiday area (bathymetric)	142	1	48
Hydrographic feature names			

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FEATURE	PLATE	NO.	PAGE
-I-			
Inadequate survey area (bathymetric)	112	93	16
Incline railway	112	23	7
Interchange, highway	121	5	26
	121	5	28
Interior names and labels	114	1	21
Inundation, land subject to	146	1	59
-J-			
Jetty	112	69	12
submerged	112	96	17
-L-			
Label			
bathymetric contour value	114	2	21
contour value	136	1	40
highway	114	1	21
hydrographic feature	142	1	48
interior	114	1	21
land net	124	2	31
offshore protraction survey	126	1	33
road	114	1	21
Lake			
dry	134	7	37
	141	14	42
intermittent	147	1	60
	141	13	42
perennial	141	12	42
	145	1	51
perennial salt	141	12	42
	145	1	51
Land grant line	123	5	30
Land net names and labels	124	2	31
Land subject to inundation	141	38	46
	146	1	59
Landing field	116	16	25
Landing strip	116	16	25
Landmark building	112	1	4
Landmark object	112	4	4
Lava	135	5	38
Levee	132	13	35
Light	112	102	17
Limit of offshore protraction survey	125	2	32
Location monument, U.S.	112	46	10

FEATURE	PLATE	NO.	PAGE
Lock			
canal	112	66	12
dam	112	64	12
Lookout tower	112	4	4
-M-			
Mangrove	152	4	61
	144	1	50
Margin type	114	3	21
Marsh	143	1	49
submerged	143	2	49
	145	3	51
Mine			
dump	135	3	38
open pit	112	37	9
	135	2	38
shaft	112	36	8
strip	135	1	38
tailings	135	3	38
tunnel entrance	112	35	8
Mineral monument, U.S.	112	46	10
Monorail	112	59	11
Moraine, glacial	134	4	37
Mud	134	3	37
-N-			
Name			
barrio	114A	1	22
bathymetric feature	114A	2	22
civil township	114A	1	22
district	114A	1	22
highway and road	114	1	21
hydrographic feature	142	1	48
interior	114	1	21
land net	124	2	31
precinct	114A	1	22
quadrangle (title panel)	136	2	40
town	114A	1	22
Narrow wash	141	6	41
Neatline	111	1	2
-O-			
Oil field	112	39	9
Oil platform	116	11	25

FEATURE	PLATE	NO.	PAGE
Oil well (offshore)	112	101	17
Offshore protraction survey	125	1	32
Offshore protraction survey limit	125	2	32
Open water area, perennial	145	1	51
Orchard	155	1	63
Overpass			
highway	121	6	28
	121	6	26
railroad	112	20	6
road	116	4	24
-P-			
Penstock	141	21	43
Perennial open water area	145	1	51
Picnic area	112	47	10
Pier	112	69	12
ruin	112	70	13
Pipeline			
aboveground	112	57	11
submerged	112	58	11
	116	12	25
underground	112	58	11
water, aboveground	141	19	43
water, underground	141	21	43
Platform			
gas	116	11	25
oil	116	11	25
Pond			
dry	141	14	42
	134	7	37
intermittent	147	1	60
	141	13	42
perennial	141	12	42
	145	1	51
perennial salt	141	12	42
	145	12	42
tailings	134	2	37
	132	16	35
Port of entry	112	43	9
Power transmission line	112	55	11
Precinct name	114A	1	22
Projection			
graticule intersection	111	3	2
graticule tick	111	2	2
neatline	111	1	2
Pulloff area			
class 1 or 2 highway	121	9	27
	121	9	29
class 3 or 4 road	116	8	24

FEATURE	PLATE	NO.	PAGE
Pumping station	112	7	4
-Q-			
Quadrangle name (title panel)	136	2	40
Quarry	135	2	38
	112	37	9
-R-			
Racetrack	116	9	24
Raceway	116	9	24
Radio Tower	112	4	4
Railroad (see specific item listings for related features)			
~~abandoned~~	~~112~~	~~24~~	~~7~~
abandoned	112	23	7
cog	116	3	24
dismantled	112	23	7
inclined	112	25	7
in road or street			
narrow gauge			
multiple tracks	112	14	5
single track	112	13	6
siding	112	16	6
standard gauge			
multiple tracks	112	12	5
single track	112	11	5
yard	112	15	6
Range line			
protracted	123	3	30
surveyed	123	1	30
Rapid transit			
multiple tracks	112	12	5
single track	112	11	5
Rapids			
on narrow double-line stream	141	32	45
on single-line stream	141	32	45
on wide double-line stream	141	31	45
Reef			
coral	112	100	17
	135	8	39
	112	100	17
rock	135	8	39
	145	2	51
Reservoir, masonry	112	6	4
Rest area			
class 1 or 2 highway	121	9	27
	121	9	29
	116	8	24
class 3 or 4 road			

FEATURE	PLATE	NO.	PAGE
Road (see specific item listings for related features)			
class 3	116	1	24
class 4	116	2	24
class 5	116	3	24
Rock			
bare or awash	112	97	17
group, bare or awash	112	98	17
sunken	112	99	17
Rock reef	135	8	39
	112	100	17
Roundhouse	112	22	7
Route markers, highway and road	124	1	31
Ruins	112	33	8
pier	112	70	13
wharf	112	70	13
-S-			
Salt evaporator	141	15	42
Sand			
area	134	3	37
beach	134	5	37
dune area	134	6	37
shifting	134	6	37
Sandpit	135	4	38
	112	38	9
Scrub	154	1	62
Seawall	112	69	12
Section line			
protracted	123	4	30
surveyed	123	2	30
Service area			
class 1 or 2 highway	121	9	27
	121	9	29
class 3 or 4 road	116	8	24
Settlement	112	42	9
Sewage disposal plant	147	3	60
	112	5	4
Sewerline, submerged	116	13	25
Shoreline	141	1	41
apparent	141	2	41
indefinite	141	3	41
tailings pond	132	16	35
unsurveyed	141	3	41
Siding, railroad	112	16	6
Siphon, underground	141	21	43
Site, archaeological	112	33	8
Ski lift	112	59	11
Sluice gate	112	66	12

FEATURE	PLATE	NO.	PAGE
Snowfield, permanent			
contours	141	27	44
formlines	141	28	44
Snowshed			
highway	112	85	15
railroad	112	26	7
road	112	85	15
Sounding datum line	141	40	46
Spoil area	112	95	17
Spot elevation	112	41	9
Spring	141	25	44
Stadium	112	8	5
State plane grid tick			
primary	111	5	2
secondary	111	6	2
tertiary	111	7	2
quaternary	111	8	3
quintary	111	9	3
Station, railroad	112	18	6
Stream			
disappearing	141	8	41
intermittent	141	6	41
perennial	141	4	41
unsurveyed perennial	141	5	41
Street in built-up area	116	7	24
Substation, power	112	56	11
Swamp	143	1	49
submerged	141	35	45
	143	2	49
	145	3	51
submerged wooded	143	4	49
	152	3	61
	145	4	51
wooded	152	2	61
	143	3	49
-T-			
Tailings	135	3	38
Tailings pond	134	2	37
shoreline	132	16	35
Tank	112	2	4
Tank farm	112	2	4
Telegraph line	112	54	11
Telephone line	112	54	11
Tennessee Valley Divide	132	15	35
Tower			
lookout	112	4	4
radio	112	4	4

FEATURE	PLATE	NO.	PAGE
Town	112	42	9
Town name	114A	1	22
Township line			
protracted	123	1	30
surveyed	123	1	30
Traffic circle	116	10	25
	121	10	27
	121	10	29
Trail	116	3	24
Tramway	112	59	11
Tunnel			
aqueduct	141	23	44
highway	121	7	26
	121	7	28
highway or road wing tick	112	83	15
railroad	112	19	6
road	116	5	24
Type			
bathymetric contour value	114	2	21
bathymetric feature names	114A	2	22
civil township names	114A	1	22
contour value	136	1	40
highway and road route markers	124	1	31
hydrographic feature names	142	1	48
interior names and labels	114	1	21
land net names and labels	124	2	31
margin	114	3	21
offshore protraction survey	126	1	33
quadrangle name (title panel)	136	2	40
-U-			
U.S. location monument	112	46	10
U.S. mineral monument	112	46	10
Underpass			
highway	121	6	28
	121	6	26
railroad	112	20	6
road	116	4	24
Universal Transverse Mercator (UTM) grid	113	1	20
-V-			
Village	112	42	9
Vineyard	156	1	64

FEATURE	PLATE	NO.	PAGE
-W-			
Wash			
narrow	141	6	41
wide	134	1	37
Water fill			
bathymetric (see bathymetric gradient tint)	145	1	51
perennial	147	1	60
intermittent	147	3	60
Water filtration plant	112	5	4
Waterfall			
on narrow double-line stream	141	30	45
on single-line stream	141	30	45
on wide double-line stream	141	29	45
Weir	112	63	12
Well			
gas (offshore)	112	101	17
oil (offshore)	112	101	17
water	141	26	44
Wharf	112	69	12
ruin	112	70	13
Wind generator	112	3	4
Windmill	112	3	4
Wing tick, highway or road tunnel	112	84	15
Woods	152	1	61
submerged	145	5	51
	152	5	61
	141	37	46

APPENDIX 4-A

USGS STANDARD PATTERN SCREENS

The following table lists the pattern screens which are used on standard topographic maps. The alphanumeric designation, given in the left column, identifies the pattern. When "USGS" precedes the pattern number, it means that the pattern was developed by the Geological Survey; when the number is preceded by either an "AP" or a "LP", the pattern was obtained from the Defense Mapping Agency.

If the pattern is always printed with solid ink, as opposed to being screened, then the prefix and the number alone identifies the pattern. An example is USGS 2.

If, however, the pattern is sometimes screened, then an "A" is added to identify the pattern as being solid and a "B" is used to indicate that the pattern is screened. Examples are USGS 7A and USGS 7B.

Appendix 4-A
USGS standard pattern screens

PATTERN	DESCRIPTION		PRINCIPLE USE
USGS 2	Irregularly spaced tufts and lines	Solid pattern	Marsh or swamp
USGS 6	Uniformly spaced rectangles Width: .006" Height: .009" Space between rectangles: .009" Space between rows: .011"	Solid pattern	Perennial water fill for Photo-revised maps
USGS 7A	Uniformly spaced rectangles Width: .014" Height: .019" Space between rectangles: .006" Space between rows: .010"	Solid pattern	Vineyard
USGS 7B		Screened 40% 120-line at 75°	
USGS 8A	NW-SE 39-line rule Lineweight: .008" Space .017"	Solid pattern	Intermittent water fill for 7.5- x 7.5-minute format maps
USGS 8B		Screened .70 density biangle	
LP-8A	NW-SE 57-line rule Lineweight: .006" Space .012"	Solid pattern	Intermittent water fill for 7.5- x 15-minute, 30- x 60-minute and county format maps
LP-8B		Screened 40% 150-line biangle	

Appendix 4-A--continued

PATTERN	DESCRIPTION		PRINCIPLE USE
USGS 17	Irregularly spaced dots Average diameter: .007"	Solid pattern	Sand
USGS 19A	Dashed, horizontal 43-line rule Lineweight: .006" Length of dash: .045" Space between dashes: .012"	Solid pattern	Inundation fill for 7.5- x 7.5-minute format maps
USGS 19B		Screened .54 density biangle	
AP-9A	Dashed, horizontal 41-line rule Lineweight: 006" Length of dash: .055" Space between dashes: .011"	Solid pattern	Inundation fill for 7.5- x 15-minute, 30- x 60-minute, and county format maps
AP-9B		Screened 40% 150-line biangle	
USGS 20A	Irregularly spaced and shaped daubs Average diameter: .020"	Solid pattern	Scrub
USGS 20B		Screened 40% 120-line at 75°	
USGS 21A	Wide, wavy, irregularly connected lines	Solid pattern	Intricate surface
USGS 21B		Screened .30 density mezzotint	

Appendix 4-A--continued

PATTERN	DESCRIPTION		PRINCIPLE USE
USGS 22	Irregularly spaced dots interspersed with larger dots Diameter: (small dots): .004" Diameter: (large dots): .007"	Solid pattern	Gravel beach and glacial moraine
USGS 23	Uniformly spaced two-pronged tufts	Solid pattern	Rice
USGS 25	Open-leaf drawing Lineweight: .005"	Solid pattern	Mangrove
AP-44	Open-leaf sketch drawing	Solid pattern	Scattered trees
USGS 26A	Uniformly spaced, solid circles Diameter: .036" Space: .017"	Solid pattern	Orchard
USGS 26B		Screened 40% 120-line at 75°	