



**UNITED STATES GEOLOGICAL SURVEY
DEFENSE MAPPING AGENCY**



**SYMBOLS
FOR
1:50,000-SCALE
15-MINUTE QUADRANGLE
TOPOGRAPHIC MAPS
OF
THE UNITED STATES**

OCTOBER 1977

In Reply Refer To:
EGS-Mail Stop 510

FEB 22 1983

Memorandum

To: Chief, Eastern Mapping Center
Chief, Mid-Continent Mapping Center
Chief, Rocky Mountain Mapping Center
Chief, Western Mapping Center

From: Assistant Division Chief for Research

Subject: New symbol book for DMA 1:50,000-scale 15-minute maps

A new edition of the joint USGS-DMA publication "Symbols for 1:50,000-Scale 15-Minute Quadrangle Topographic Maps of the United States" has been printed by DMA. Although the date on the bottom of the cover remains October 1977, the book was reissued in July 1980 as Appendix II of "Defense Mapping Agency Product Specifications for 1:50,000-Scale Topographic Maps of Foreign Areas." Two copies of the new symbol book are attached and 10 additional copies are being shipped to you under separate cover.

Numerous changes have been made to symbols, specifications, or remarks in the new edition. In order to aid you in finding these changes, a copy of the new book, annotated to highlight these changes, is also attached. Most of the differences represent corrections to the first edition. However, several changes to the "Miscellaneous Culture" listing should be especially noted:

- o Symbol No. 12 Drive-in theater. The projection screen has been erroneously deleted from the symbol illustration and should be retained as illustrated in the old edition.
- o Symbol No. 47 Power substation. An outline has been added.
- o Symbol No. 75 Military reservation boundary. The symbol is unchanged. However, because U.S. Coast Guard reservations are not military reservations, they are to be shown by the dash-dot symbol without the red enhancement tint.

The "Drainage" section has been modified extensively. The lineweight for both perennial and intermittent hydrographic features has been changed from .20mm and .10mm to .15mm and broken line patterns are specified for intermittent features. These new specifications are not compatible with standard USGS specifications for metric topographic map series. For maps of the United States, present USGS symbolization for hydrographic features on metric unit maps is acceptable by DMA and; therefore, the drainage symbolization in the old edition will be retained. Please ensure that all Mapping Center personnel annotate pages II-19 through II-21 of the new symbol book accordingly or retain pages 19 through 21 of the old book.

Any questions relating to the interpretation or application of these specifications should be referred to the Branch of Technical Management, Mail Stop 510, Attention: Bill Jones, FTS 928-6301.



Lowell E. Starr







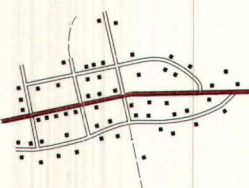



3 Attachments
 Separate Cover
 Symbol Book (10 copies)



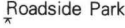



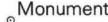





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



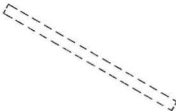
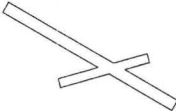


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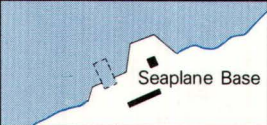



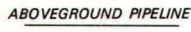







METRIC EQUIVALENTS

Inches	Millimetres	Inches	Millimetres
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.004	0.10	.075	1.90
.006	0.15	.080	2.00
.007	0.17	.090	2.25
.008	0.20	.10	2.50
.010	0.25	.12	3.00
.012	0.30	.15	3.75
.014	0.35	.16	4.00
.016	0.40	.17	4.25
.018	0.45	.18	4.50
.020	0.50	.20	5.00
.022	0.55	.23	5.80
.024	0.60	.24	6.00
.026	0.65	.30	7.50
.030	0.75	.40	10.00
.033	0.80	.50	12.50
.035	0.85	.63	16.00
.040	1.00	.65	16.50
.045	1.10	.75	19.00
.048	1.20	.80	20.00
.050	1.25	.85	21.50
.060	1.50	.90	22.50
.064	1.60	.95	23.50
.067	1.70	1.00	25.00

MISCELLANEOUS CULTURE				
FEATURE	SYMBOL	SPECIFICATIONS	REMARKS	SYMB. NO.
Building		TO SCALE OR SHOW MINIMUM SIZE 0.50mm x 0.50mm SOLID IF LESS THAN 2.50mm LARGER-CROSS HATCH SPACED 0.45mm ϵ to ϵ	CLASS 1: DWELLINGS, PLACES OF EMPLOYMENT, ETC.	1
Building		TO SCALE OR SHOW MINIMUM SIZE 0.65mm x 0.65mm. WHEN WIDTH EXCEEDS 1.50mm, HATCH AT 45° ANGLE.	CLASS 2: BARNs, GREENHOUSES, WAREHOUSES, ETC. SHOW LANDMARK ONLY.	2
Destroyed building		0.50mm SQUARE	PLOT TO SCALE WHEN BUILDING EXCEEDS 0.50mm. LABEL	3
Ruins and archeological site		LINEWEIGHT 0.10mm DASH 1.25mm SPACE 0.50mm SIZE 1.25mm X 1.25mm	LANDMARK, PROTECTED. IF LESS THAN 1.25mm X 1.25mm, USE SOLID OUTLINE. LABEL	4
School		TO SCALE OR SHOW MINIMUM SIZE 0.65mm X 0.65mm	SIZE MAY BE REDUCED TO 0.50 mm X 0.50 mm IN CONGESTED AREAS	5
Church		TO SCALE OR SHOW MINIMUM SIZE 0.65mm X 0.65mm	SIZE MAY BE REDUCED TO 0.50 mm X 0.50 mm IN CONGESTED AREAS	6
Town, village, settlement				7
Boardwalk		LINEWEIGHT 0.10mm	OVERALL WIDTH TO SCALE WITH MINIMUM 0.50mm	8
Port of entry		TO SCALE	MINIMUM SIZE 0.50mm X 0.50mm LABEL	9
Cliff dwelling		LINEWEIGHT 0.10mm RECTANGLE 0.50mm X 0.75mm BASE LENGTH 1.50mm	LANDMARK, PROTECTED	10






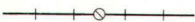


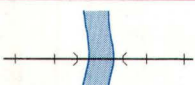
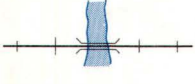
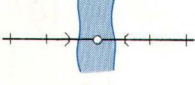

MISCELLANEOUS CULTURE				
FEATURE	SYMBOL	SPECIFICATIONS	REMARKS	SYMB. NO.
Parking area		LINEWEIGHT 0.10mm	250' (1.50mm) IN SHORTEST DIMENSION	11
Drive-in theater		LINEWEIGHT 0.10mm DASH 1.25mm, SPACE 0.50mm BUILDING SIZE 0.50mm X 0.50mm SCREEN 0.20mm	LABEL	12
Picnic area, roadside park		LINEWEIGHT 0.10 mm TOP LENGTH 1.25 mm LEG LENGTH 0.75 mm SPACE BETWEEN LEGS 0.75 mm	SELECTED; ONLY THOSE AREAS WHICH INCLUDE PARKING AREA, FIREPLACES, TABLES, OR SHELTERS LABEL	13
Fairgrounds		LINEWEIGHT 0.10mm DASH 1.25mm SPACE 0.50mm	TO SCALE; LABEL	14
Public campgrounds, campsites		LINEWEIGHT 0.10 mm TRIANGLE ALTITUDE 1.90 mm TRIANGLE BASE 1.0 mm TICK LENGTH 0.65 mm	LABEL	15
Fort			LANDMARK OR NAMED HISTORICAL SITE POSICUT 976	16
Monument		OUTSIDE DIAMETER 1.0mm LINEWEIGHT 0.10mm DOT 0.20mm	LANDMARK; LABEL	17
Lookout tower		OUTSIDE DIAMETER 1.0mm LINEWEIGHT 0.10mm DOT 0.20mm	LANDMARK; LABEL	18
Windmill		LINEWEIGHT 0.10 mm TRIANGLE ALTITUDE 1.25 mm; ANGLES 30°, 75°, 75° ARMS (LENGTH) 1.10 mm ANGLES 70° X 110° CENTER CROSS ON FEATURE	LABEL IF DRY OR SALT WELL	19
Radio tower, mast			POSICUT NO. 1304 (REV) LABEL: RADIO TOWER ADD RADIO CALL LETTERS, IF KNOWN	20
Landmark object		OUTSIDE DIAMETER 1.0mm LINEWEIGHT 0.10mm DOT 0.20mm	LANDMARK OBJECT NOT OTHERWISE SYMBOLIZED. LABEL	21
Lighthouse			POSICUT NO. 976	22

MISCELLANEOUS CULTURE				
FEATURE	SYMBOL	SPECIFICATIONS	REMARKS	SYMB. NO.
Tollgate		TICK LINEWEIGHT 0.20mm	PROJECT 0.50mm BEYOND ROAD EDGE. LABEL	23
Gaging station	 Gaging Station	LINEWEIGHT 0.10mm CIRCLE OUTSIDE DIAM 1.25mm	DIVIDE IN 4 EQUAL SECTORS. LABEL	24
Coke ovens	 Coke Ovens	CASING LINEWEIGHT 0.10mm WIDTH 0.50mm FILL DASH 0.75mm SPACE 0.50mm	LABEL	25
Race track		LINEWEIGHT 0.10mm DISTANCE BETWEEN LINES 0.50mm	TO SCALE IF LONGER THAN 1000' (6.0 mm)	26
Stadium	 Stadium	LINEWEIGHT 0.10mm DASH 1.25mm SPACE 0.50mm	TO SCALE; LABEL	27
Watermill			POSICUT NO. 976; LABEL	28
Pumping station	 Pumping Station	SOLID SQUARE TO SCALE	MAJOR, MINIMUM SIZE 0.50mm X 0.50mm LABEL	29
Airfield, loose surface runways		LINEWEIGHT 0.10mm DASH 1.25mm SPACE 0.50mm	TO SCALE OR WITH MINIMUM WIDTH 0.50mm. MINIMUM LENGTH 1000' (6.0mm) NO BOUNDARY OR TINT.	30
Airfield, hard surface runway		LINEWEIGHT 0.10mm AS BUILT	TO SCALE OR WITH MINIMUM WIDTH 0.50mm. MINIMUM LENGTH 1000' (6.0mm) NO BOUNDARY OR TINT.	31
Airfield, runway information not available			POSICUT NO. 976	32
Heliport			POSICUT NO. 976	33










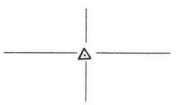
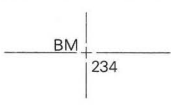

MISCELLANEOUS CULTURE				
FEATURE	SYMBOL	SPECIFICATIONS	REMARKS	SYMB. NO.
Seaplane base		LINEWEIGHT 0.10mm DASH 1.25mm, SPACE 0.50mm	SHOW BUILDINGS AND RAMPS. LABEL	34
Seaplane base, information not available			POSCUT NO. 976	35
Seaplane anchorage, information not available			POSCUT NO. 976	36
Power transmission line		LINEWEIGHT 0.20mm	PLACE PYLONS AT ANGLE POINTS. SPACING BETWEEN PYLONS 12.50 mm PYLONS POSCUT NO. 879A	37
Pipeline, above ground		LINEWEIGHT 0.15mm	LABEL	38
Pipeline underground		LINEWEIGHT 0.15mm DASH 2.50mm SPACE 0.50mm	LABEL	39
Wall		LINEWEIGHT 0.15mm ABUTMENT 0.25mm HIGH; 0.40mm LONG. SPACE BETWEEN ABUTMENTS 2.0mm.		40
Stone fence		LINEWEIGHT 0.15mm 33% DIANGLE		41
Telephone or telegraph line		LINEWEIGHT 0.10mm SQUARES SOLID, 0.45mm X 0.45mm. SPACING 12.50mm.	LABEL	42
Well: oil, gas		DIAMETER 0.80mm LINEWEIGHT 0.10mm	POSCUT NO. 976. CAN BE SCRIBED LABEL AS TO TYPE	43
Oil or gas field		DIAMETER 0.80mm LINEWEIGHT 0.10mm	POSCUT NO. 976. CAN BE SCRIBED SHOW REPRESENTATIVE PATTERN. LABEL	44
Tank		SOLID DOT	MINIMUM DIAMETER 0.75mm LABEL	45

MISCELLANEOUS CULTURE				
FEATURE	SYMBOL	SPECIFICATIONS	REMARKS	SYMB. NO.
Cavern, Mine Tunnel		LINEWEIGHT 0.10mm ARM LENGTH 0.80mm SHAFT LENGTH 1.70mm ANGLE 90°	LABEL	46
Power sub station		LINEWEIGHT 0.10 mm DASH 1.25 mm SPACE 0.50 mm	POSICUT NO. 976 OR OUTLINE TO SCALE IF LARGER THAN 400' (2.50 mm). LABEL	47
Oil sump or sludge pit		OUTLINE LINEWEIGHT 0.10mm FILL-USGS 17	USE OUTLINE IF CONSTRUCTED OF MATERIALS OTHER THAN EARTH. LANDMARK. LABEL	48
Open oil reservoir		TO SCALE LINEWEIGHT 0.10mm MINIMUM SIZE 0.50mm X 0.50mm	LABEL	49
Railroad, standard gauge single track		BASE WEIGHT 0.20mm TICK WEIGHT 0.10mm TICK LENGTH 1.50mm TICK SPACING 5.0mm		50
Railroad, standard gauge multiple track		BASE LINEWEIGHT 0.10 mm TICK WEIGHT 0.10 mm TICK LENGTH 1.50 mm TICK SPACING 5.0 mm OVERALL WIDTH 0.45 mm	LABEL CHANGE	51
Railroad, standard gauge, single track, nonoperating		SPACE BETWEEN SEGMENTS 0.50mm- ALL OTHER DIMENSIONS SAME AS OPERATING SINGLE TRACK	LABEL	52
Railroad standard gauge, multiple track, nonoperating		SPACE BETWEEN SEGMENTS 0.50mm- ALL OTHER DIMENSIONS SAME AS OPERATING SINGLE TRACK	LABEL	53
Railroad, narrow gauge, single track		BASE WEIGHT 0.20mm TICK WEIGHT 0.10mm TICK LENGTH 0.75mm TICK SPACING 5.0mm	TIES ALTERNATED	54
Railroad, narrow gauge, multiple track		LINEWEIGHT 0.20mm TICK WEIGHT 0.10mm TICK LENGTH 0.75mm SPACING BETWEEN SETS OF TICKS 5.0 mm. SPACING BETWEEN TICKS IN EACH PAIR 0.50mm	TIES ALTERNATED	55
Railroad, dismantled		LINEWEIGHT 0.10mm DASH 1.25mm SPACE 0.50mm	LABEL	56
Narrow gauge, abandoned		DIMENSIONS SAME AS OPERATING RAILROAD. SPACE BETWEEN SEGMENTS 0.50mm.	LABEL	57




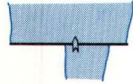

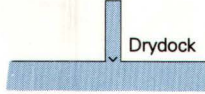


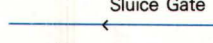



MISCELLANEOUS CULTURE


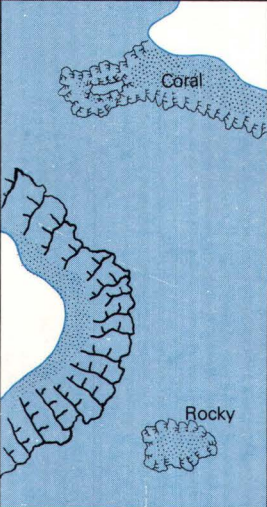
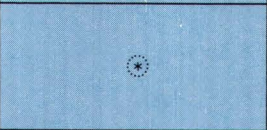
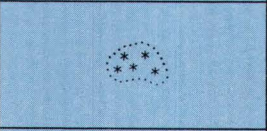
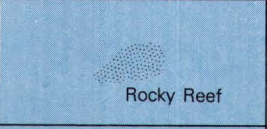
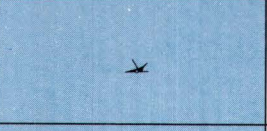

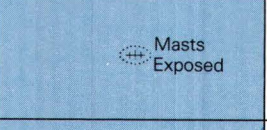
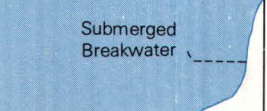
FEATURE	SYMBOL	SPECIFICATIONS	REMARKS	SYMB. NO.
Railroad siding		LINEWEIGHT 0.10 mm TICK WEIGHT 0.10 mm TICK LENGTH 1.50 mm TICK SPACING 5.0 mm MINIMUM SPACE BETWEEN TRACK 0.30 mm	MINIMUM LENGTH 500' (3.0); SHOW MINIMUM OF ONE CROSSTIE.	58
Railroad yard		LINEWEIGHT 0.10 mm TICK WEIGHT 0.10 mm TICK LENGTH 1.0 mm TICK SPACING 5.0 mm MAXIMUM TICK LENGTH TO TOUCH 6 TRACKS MINIMUM SPACE BETWEEN TRACK 0.30 mm	SHOW MAIN THROUGH LINE AND SHOW LIMITING SIDINGS TO SCALE.	59
Railroad in road		TICK WEIGHT 0.10mm SPACING 5.0mm		60
Car line		LINEWEIGHT 0.15mm TICK WEIGHT 0.10mm TICK LENGTH 1.50mm TICK SPACING 2.50mm		61
Roundhouse		TO SCALE		62
Turntable		TO SCALE LINEWEIGHT 0.10mm DIAMETER 1.50mm DIAGONAL LINE 45° TO TRACK.	MINIMUM CIRCLE 1.50mm OVERALL.	63
Railroad station, location known		BUILDING SYMBOL 0.50mm X 0.50mm MINIMUM, WHERE POSITION IS KNOWN; ADD LABEL "STATION"	SHOW SYMBOL WHEN NO SIDING, BUILDING OR OTHER IDENTIFYING FEATURE SHOWN.	64
Railroad station, location unknown		WHERE POSITION IS NOT KNOWN, CENTER 0.50mm X 1.0mm SOLID BLACK RECTANGLE ON TRACK WITH LONG DIMENSION PERPENDICULAR TO THE TRACK.	SHOW SYMBOL WHEN NO SIDING, BUILDING OR OTHER IDENTIFYING FEATURE SHOWN.	65
Railroad bridge, without superstructure		LINEWEIGHT 0.20mm. CROSS TICK 0.85mm WING TICKS (45°) 0.60mm LINE WEIGHT 0.10mm	MINIMUM LENGTH 500' (3.0mm). NO CROSS TIES ON BRIDGES LESS THAN 5.0mm IN LENGTH, NONE CLOSER THAN 2.50mm TO BRIDGE TICKS.	66
Railroad bridge, with superstructure		BRIDGE WEIGHT 0.15mm WINGTICK LENGTH 0.60mm ANGLE 45°. DISTANCE FROM CENTER LINE OF RAILROAD 0.25mm EACH SIDE.	MINIMUM LENGTH 500' (3.0mm). NO CROSS TIES ON BRIDGE.	67
Drawbridge, railroad		LINEWEIGHT OF CIRCLE 0.10mm DIAMETER 1.10mm OVERALL	CLEAR TINT FROM CIRCLE	68
Railroad tunnel		LINEWEIGHT 0.20mm DASH 1.25mm, SPACE 0.50mm CROSS TICK 0.85mm, WINGTICK 45° WINGTICK LINEWEIGHT 0.10mm WINGTICK LENGTH 0.60mm	SHOW ACTUAL SIZE; MINIMUM LENGTH 500' (3.0mm). SHOW ALL LANDMARK TUNNELS. NO CROSSTIES THROUGH TUNNEL.	69


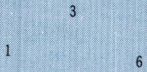
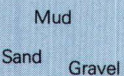

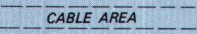

MISCELLANEOUS CULTURE				
FEATURE	SYMBOL	SPECIFICATIONS	REMARKS	SYMB. NO.
Railroad underpass, overpass		SPACE 0.50mm		70
Railroad ferry		LINEWEIGHT 0.20mm DASH 1.25mm SPACE 0.50mm	MINIMUM LENGTH 500' (3.0mm). NO CROSSTIES ON FERRY SYMBOL LABEL	71
Snowshed		LINEWEIGHT 0.10mm MINIMUM SHED WIDTH 1.50mm PLOT SHED LENGTH TO SCALE. DIAGONAL LINES 45°, SPACE 0.50mm.		72
Tramway, ski lift, incline railway, etc.		LINEWEIGHT 0.15mm. DASH 2.50mm SPACE 0.50mm.	LABEL	73
National, state forest reservation boundary		LINEWEIGHT 0.20mm. DASH 6.0mm, SPACE BETWEEN DASHES 2.40mm. DOT 0.25mm.	MINIMUM SIZE 1000' (6.0mm) IN SHORTEST DIMENSION. LABEL	74
Military reservation boundary		LINEWEIGHT 0.20mm. DASH 6.0mm, SPACE BETWEEN DASHES 2.44mm. DOT 0.25mm. OVERPRINT 2.0mm WIDE. 21°-1200-45°	LABEL "MILITARY RESERVATION" OR "MIL RES"	75
National cemetery		LINEWEIGHT 0.10mm DASH 1.0mm SPACE 0.50mm	SHOW ALL NATIONAL CEMETERIES LABEL	76
Other cemeteries		LINEWEIGHT 0.10mm DASH 1.25mm SPACE 0.50mm	MINIMUM SIZE 250' (1.50mm) IN SHORTEST DIMENSION. LABEL. IF LARGER THAN 2.50 mm X 2.50mm ADD CROSS. CROSS BAR LENGTH 2/3 OF UPRIGHT, PLACED 1/3 UPRIGHT FROM TOP. SPACE PERMITTING, OMIT CROSS, LABEL INSIDE.	77
Isolated grave			POSICUT NO. 976	78
Spot elevation		DOT 0.50mm	DOT NOT SHOWN FOR MAP IDENTIFIABLE FEATURES	79
Horizontal control station 3rd order or better, permanent mark		LINEWEIGHT 0.10mm TRIANGLE 1.75mm SIDE DOT 0.15mm	NO LINES OR TINTS INSIDE TRIANGLE	80
Horizontal control station, elevation 3rd order or better		LINEWEIGHT 0.10mm TRIANGLE 1.75mm SIDE DOT 0.15mm	NO LINES OR TINTS INSIDE TRIANGLE	81

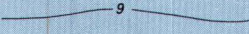
MISCELLANEOUS CULTURE				
FEATURE	SYMBOL	SPECIFICATIONS	REMARKS	SYMB. NO.
Horizontal control station vertical angle elevation	VABM  324	LINEWEIGHT 0.10mm TRIANGLE 1.75mm SIDE DOT 0.15mm	NO LINES OR TINTS INSIDE TRIANGLE	82
Vertical control station, marked with tablet: elevation 3rd order or better	BM  972	LINEWEIGHT 0.10mm CROSS LENGTH 2.0mm ANGLE 90°		83
Vertical station recoverable mark, no tablet: elevation 3rd order or better	 1246	LINEWEIGHT 0.10mm CROSS LENGTH 2.0mm ANGLE 90°		84
Boundary monument with tablet: elevation 3rd order or better	BM  1208	LINEWEIGHT 0.10mm SIZE 1.0mm X 1.0mm DOT 0.15mm		85
Boundary monument without tablet: elevation 3rd order or better	 628	LINEWEIGHT 0.10mm SIZE 1.0mm X 1.0mm DOT 0.15mm		86
Horizontal control station: checked spot elevation	 168	LINEWEIGHT 0.10mm TRIANGLE SIDE 1.75mm DOT 0.15mm	NO LINES OR TINTS INSIDE TRIANGLE	87
Mineral or location monument		TRIANGLE, SOLID BASE 1.50mm HEIGHT 1.0mm		88
Boundary monument with number and elevation	57  988	LINEWEIGHT 0.10mm SIZE 1.0mm X 1.0mm DOT 0.15mm		89
Reference monument		LINEWEIGHT 0.10mm SIZE 1.0mm X 1.0mm DOT 0.15mm		90
Horizontal control station coincident with section corner		LINEWEIGHT 0.10mm TRIANGLE LENGTH 1.0mm DOT 0.15mm SPACE 0.80mm	SHOW TRIANGLE, OMIT SECTION CORNER. NO LINES OR TINTS INSIDE TRIANGLE	91
Bench mark coincident with found section corner	BM  234			92
Open pit mine or quarry		LINEWEIGHT 0.10 mm OVERALL LENGTH 2.0 mm ARC LENGTH 1.0 mm	LABEL	93






MISCELLANEOUS CULTURE









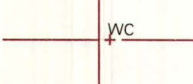


FEATURE	SYMBOL	SPECIFICATIONS	REMARKS	SYMB. NO.
Gravel, sand or clay pits	 Gravel Pit	LINEWEIGHT 0.10mm OVERALL LENGTH 2.0mm TRIANGLE 0.65mm X 0.65mm X 0.75mm	LABEL	94
Mine shaft		LINEWEIGHT 0.10mm 1.0mm X 1.0mm		95
Dam masonry		LINEWEIGHT 0.30mm	MINIMUM LENGTH 500' (3.0mm) SHOW ACTUAL SIZE IF LARGER.	96
Dam with lock (navigable waterways)		LINEWEIGHT 0.10mm LOCK 1.90mm X 0.80mm	POINT UPSTREAM. 45° ANGLE.	97
Dam carrying road		A. ROAD ON DAM (PLOT TO SCALE) MINIMUM WIDTH ON EACH SIDE OF ROAD 0.4mm. B. TRACK OR TRAIL ON DAM (PLOT DAM TO SCALE) MINIMUM WIDTH 0.4mm.	MINIMUM LENGTH 500' (3.0mm)	98
Drydock		LINEWEIGHT 0.10mm TICK WEIGHT 0.20mm TICK LENGTH 5.80mm TICK ANGLE 45°	LABEL	99
Lock, shipping canal		LINEWEIGHT 0.20mm ANGLE 45°	TICK TO PROJECT 0.50mm BEYOND CANAL EDGE. POINT UPSTREAM. LABEL.	100
Seawall		LINEWEIGHT 0.20mm DASH 0.80mm SPACE 0.40mm	MINIMUM LENGTH 500' (3.0mm). LABEL	101
Canal, lock or sluice gate		LINEWEIGHT 0.20mm TICKS: 0.60mm LENGTH ANGLE 45°	POINT UPSTREAM. LABEL.	102
Fish hatchery		LINEWEIGHT 0.10mm	MINIMUM SIZE 250' (1.5 mm) IN SHORTEST DIMENSION. LABEL LP-8 33% BIANGLE	103
Sewage disposal, filtration plant		LINEWEIGHT 0.10mm	MINIMUM SIZE 250' (3.0 mm) IN SHORTEST DIMENSION. LABEL LP-8 33% BIANGLE	104
Breakwater, pier, etc.		LINEWEIGHT 0.20mm	MINIMUM LENGTH 500' (3.0mm)	105








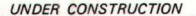

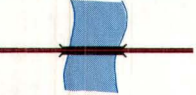
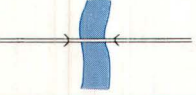
MISCELLANEOUS CULTURE				
FEATURE	SYMBOL	SPECIFICATIONS	REMARKS	SYMB. NO.
Foreshore flat			LABEL SAND, GRAVEL, MUD, ETC. IF UNKNOWN, LABEL "TIDAL FLAT". AP-95	106
Rock or coral reef		REEF LIMITS IRREGULAR LINE-AVOID SHARP ANGLES AND POINTS. MAIN TICK LENGTH 0.75mm TO 0.25mm SPACING 0.75mm TO 2.0mm AT REEF LINE. TICKS IRREGULAR ALIGNMENT WITH SHARP ANGLES AVOIDED. SECONDARY TICKS TICKS TO EMANATE FROM RIGHT OF MAIN TICKS AS VIEWED FROM REEF LIMITS. LENGTH VARIES, MUST NOT EXCEED THREE-FOURTHS DISTANCE BETWEEN MAIN TICKS. SMALLEST NEAR END OF MAIN TICK. SPACE BETWEEN TICKS APPROXIMATELY 0.60mm.	LABEL "ROCKY" OR "CORAL" IF KNOWN. AP 95	107
Rock, bare or awash, dangerous to navigation		LINEWEIGHT 0.10mm LENGTH 1.25mm ANGLES 60° DOTS 0.20mm SPACE 0.45mm	POSICUT 672	108
Group of rocks		LINEWEIGHT 0.10mm LENGTH 1.25mm ANGLES 60°	POSICUT 672	109
Small rock or coral reef		DOTS 0.20mm SPACE 0.45mm	MINIMUM SIZE 250' (1.50mm) IN SHORTEST DIMENSION. LABEL.	110
Exposed wreck			USGS 24 POSICUT 672	111
Exposed wreckage		DOTS 0.20mm SPACE 0.45mm	LABEL	112
Masts Exposed		OUTLINE DOTS 0.20mm SPACE 0.45mm.	USGS 24 POSICUT 672 LABEL.	113
Submerged breakwater		LINEWEIGHT 0.15mm DASH 0.80mm SPACE 0.40mm	LABEL	114

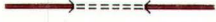
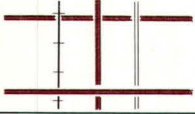


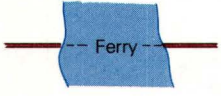
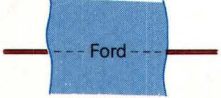

MISCELLANEOUS CULTURE				
FEATURE	SYMBOL	SPECIFICATIONS	REMARKS	SYMB. NO.
Dolphins, pilings	 Piling		LABEL	115
Soundings				116
Bottom characteristics				117
Anchorage			ALIGN BASE WITH SOUTH NEATLINE POSICUT 672	118
Area limits		LINEWEIGHT 0.10mm DASH 2.50mm, SPACE 0.50mm	LABEL	119
Shoal		DOTS 0.20mm SPACE 0.45mm	LABEL	120

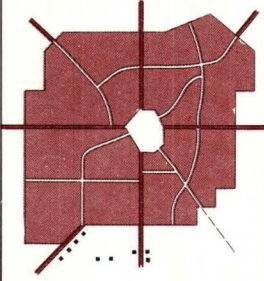
BATHYMETRIC CONTOURS				
FEATURE	SYMBOL	SPECIFICATIONS	REMARKS	SYMB NO.
Bathymetric contour		LINEWEIGHT 0.05mm		1






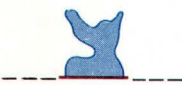
CIVIL BOUNDARIES				
FEATURE	SYMBOL	SPECIFICATIONS	REMARKS	SYMB. NO.
National		LINEWEIGHT 0.40mm LONG DASH 6.0mm SHORT DASH 1.75mm SPACE 0.80mm OVERPRINT 2.0mm 21°-120°-45°	REDUCE SYMBOL LINEWEIGHT TO 0.10mm IN ROAD. OMIT SYMBOL WHEN COINCIDENT WITH RAILROAD. SHOW OVERPRINT.	1
State or territorial		LINEWEIGHT 0.30mm LONG DASH 6.0mm SHORT DASH 1.75mm SPACE 0.80mm	REDUCE SYMBOL LINEWEIGHT TO 0.10mm IN ROAD. OMIT SYMBOL WHEN COINCIDENT WITH RAILROAD. ADD LABEL IF NECESSARY FOR CLARITY.	2
County, parish, Alaska borough		LINEWEIGHT 0.25mm LONG DASH 6.0mm SHORT DASH 1.75mm SPACE 0.80mm	REDUCE SYMBOL LINEWEIGHT TO 0.10mm IN ROAD. OMIT SYMBOL WHEN COINCIDENT WITH RAILROAD. ADD LABEL IF NECESSARY FOR CLARITY.	3
Civil township, town, etc.		LINEWEIGHT 0.20mm DASH 4.25mm SPACE 0.80mm	REDUCE SYMBOL LINEWEIGHT TO 0.10mm IN ROAD. OMIT SYMBOL WHEN COINCIDENT WITH RAILROAD. ADD LABEL IF NECESSARY FOR CLARITY.	4
Incorporated city, village, town, etc.		LINEWEIGHT 0.20mm LONG DASH 2.0mm SHORT DASH 1.0mm SPACE 0.50mm	REDUCE SYMBOL LINEWEIGHT TO 0.10mm IN ROAD. OMIT SYMBOL WHEN COINCIDENT WITH RAILROAD. ADD LABEL IF NECESSARY FOR CLARITY.	5



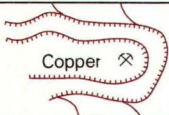
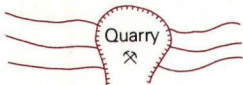

PUBLIC-LAND SURVEY				
FEATURE	SYMBOL	SPECIFICATIONS	REMARKS	SYMB. NO.
Range, township lines (surveyed)		LINEWEIGHT 0.25mm	INCLUDING PRIVATE SURVEYS ACCEPTED BY BLM	1
Section lines (surveyed)		LINEWEIGHT 0.15mm	LABEL EACH SECTION	2
Land grant lines		LINEWEIGHT 0.15 DASH 6.0mm DOTS 0.20mm SPACE BETWEEN DASHES 2.50mm	LABEL	3
Indian treaty lines	<u>OLD INDIAN TREATY LINE</u>	LINEWEIGHT 0.15mm	LABEL	4
Range, township lines location doubtful		LINEWEIGHT 0.25mm DASH 2.50mm SPACE 0.50mm	LEAVE SPACE BETWEEN SOLID AND DASHED LANDLINES.	5
Section lines location doubtful		LINEWEIGHT 0.15mm DASH 2.50mm SPACE 0.50mm		6
Base line, principal meridian		LINEWEIGHT 0.25mm	LABEL	7
Section corner: found		LINEWEIGHT 0.25mm LENGTH 1.50mm SPACE 0.80mm		8
				9
Closing corner: found		LINEWEIGHT 0.25mm LENGTH 0.75mm-1.50mm SPACE 0.80mm		10
				11
Witness corner		LINEWEIGHT 0.25mm LENGTH 1.50mm SPACE 0.80mm	LABEL	12
Meander corner		LINEWEIGHT 0.25mm LENGTH 0.75mm-1.50mm SPACE 0.80mm	LABEL	13
Grant monument		LINEWEIGHT 0.10mm LENGTH SIDE 1.0mm DOT 0.15mm		14







ROADS				
FEATURE	SYMBOL	SPECIFICATIONS	REMARKS	SYMB. NO.
Primary highway, all weather, hard surface (class 1)		MINIMUM WIDTH OVERALL 0.50mm CASING WEIGHT 0.10mm		1
Secondary highway, all weather, hard surface (class 2)		MAXIMUM WIDTH OVERALL 0.50 mm CASING WEIGHT 0.10 mm FILL 3.0 mm, SPACE 3.0 mm		2
Light duty road, all weather, hard or improved surface (class 3)		MINIMUM WIDTH OVERALL 0.50mm CASING WEIGHT 0.10 mm		3
Unimproved road, fair or dry-weather (class 4)		MINIMUM WIDTH 0.50mm CASING WEIGHT 0.10mm DASH 1.25mm SPACE 0.50mm	SHOW ALL 4TH CLASS CONNECTING ROADS AND OTHERS MEASURING 500' (3.0 mm) OR LONGER. (3 DASHES)	4
Trail (class 5)		LINEWEIGHT 0.15mm DASH 1.25mm SPACE 0.50mm	LABEL IF OTHER THAN FOOT TRAIL MINIMUM LENGTH, .5 MILE (16.0mm)	5
Divided Highway, with median strip		MINIMUM WIDTH OVERALL 1.0mm OUTSIDE CASING WEIGHT 0.10mm CENTERLINE WEIGHT 0.10mm	SHOW APPROPRIATE FILL	6
Divided highway, with median strip 0.25mm or wider		MINIMUM MEDIAN SPACE 0.25mm EACH ROAD SEGMENT MINIMUM WIDTH OVERALL 0.50mm OUTSIDE CASING WEIGHT 0.10mm INSIDE CASING WEIGHT 0.10mm	SHOW APPROPRIATE FILL	7
Road under construction		CASING WEIGHT 0.10 mm DASH 2.5 mm SPACE 0.50 mm	CLASS 1 AND 2 ONLY	8
Interchange (example only)		DRAFT ACCESS ROADS 0.50mm LINEWEIGHT 0.075mm	WIDTH OF RAMPS MAY BE DECREASED TO 0.35 mm IF NECESSARY TO PRESERVE INTEGRITY OF INTERCHANGE	9
Bridge, with superstructure		BRIDGE WEIGHT 0.25mm WINGTICK LENGTH 0.60mm ANGLE 45°	MINIMUM LENGTH 500' (3.0mm).	10
Bridge, without superstructure		LINEWEIGHT 0.10mm. CROSS TICK SAME AS ROAD WIDTH WINGTICK LENGTH 0.60mm WINGTICK ANGLE 45°	MINIMUM LENGTH 500' (3.0mm)	11


ROADS				
FEATURE	SYMBOL	SPECIFICATIONS	REMARKS	SYMB. NO.
Tunnel		TUNNEL WEIGHT 0.10mm WIDTH 0.50mm WINGTICK LENGTH 0.60mm ANGLE 45° DASH 1.0mm, SPACE 0.50mm	SHOW ACTUAL SIZE MINIMUM LENGTH 500' (3.0mm) SHOW ALL LANDMARK TUNNELS.	12
Overpass, underpass		ROADS OR RAILROADS UNDERPASSING OTHER ROADS OR RAILROADS ARE BROKEN 0.50 mm FROM CENTERLINE OF RAILROAD OR EDGE OF ROAD CASING.		13
Service, rest area		MINIMUM ROAD WIDTH 0.50 mm CASING 0.075mm	LANDMARK TO SCALE	14
Traffic circle		MINIMUM INNER CIRCLE DIAMETER 1.0 mm ROAD WIDTH OF CIRCLE SAME AS WIDEST ROAD ENTERING CIRCLE.		15
Ferry		LINEWEIGHT 0.10mm DASH 1.25mm, SPACE 0.50mm		16
Ford		LINEWEIGHT 0.10mm DASH 1.25mm,SPACE 0.50mm	FOR STREAMS LESS THAN 500' (3.0 mm) LABEL ADJACENT TO STREAM	17
Route markers			USGS PLATES 9, 9A, 9K POSICUT NO. 462A, 19A-29A	18

URBAN AREA				
FEATURE	SYMBOL	SPECIFICATIONS	REMARKS	SYMB. NO.
Urban area		LIMITING LINEWEIGHT 0.10 mm SCREEN 54%-120D-45°	CLEAR TINT FROM ROADS	1







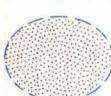





CONTOURS				
FEATURE	SYMBOL	SPECIFICATIONS	REMARKS	SYMB. NO.
Index contour		LINEWEIGHT 0.17mm	INCLUDES UNDERWATER CONTOURS SHOWN ON EXISTING QUADRANGLES.	1
Intermediate contour		LINEWEIGHT 0.05 mm	INCLUDES UNDERWATER CONTOURS SHOWN ON EXISTING QUADRANGLES.	2
Supplementary contour, one-half interval		LINEWEIGHT 0.05 mm	33% BIANGLE	3
Levees, rims, dike		LINEWEIGHT 0.10 mm TICK LENGTH 0.50 mm SPACE 0.45 mm CENTER TO CENTER	MINIMUM LENGTH 1000' (6.0mm)	4
Bluffs, cliffs		TICK LINEWEIGHT 0.15mm LENGTH OF TICK 0.50mm SPACE BETWEEN TICKS 0.75mm	MINIMUM LENGTH 1000' (6.0mm)	5
Earthen dam		LINEWEIGHT 0.35mm	MINIMUM LENGTH 1000' (6.0mm)	6
Continental divide	<u>CONTINENTAL DIVIDE</u>	LINEWEIGHT 0.30mm DASH 10.0mm SPACE 2.50mm	LABEL	7





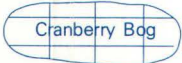







INTRICATE SURFACE AREA				
FEATURE	SYMBOL	SPECIFICATIONS	REMARKS	SYMB. NO.
Strip mine	 Strip Mine	PATTERN	SHOW ALL STRIP MINES 1000' (6.0mm) OR MORE IN LENGTH TO SCALE. STRIP MINES LESS THAN 150' WIDE WILL BE SHOWN WITH AP 104 PATTERN 0.85mm WIDE. LABEL	1
Tailings, mine dumps	 Tailings	LINEWEIGHT 0.15mm MINIMUM LENGTH OF TICKS 0.40mm SPACE 0.40mm	MINIMUM SIZE 1000' (6.0mm) IN SHORTEST DIMENSION. LABEL	2
Open pit mine	 Copper	TICKS: LINEWEIGHT 0.15mm LENGTH 0.40mm SPACE 0.40mm	LABEL	3
Quarry	 Quarry	TICKS: LINEWEIGHT 0.15mm LENGTH 0.40mm SPACE 0.40mm	LABEL	4
Gravel, sand, or clay pit	 Gravel Pit	TICKS: LINEWEIGHT 0.15mm LENGTH 0.40mm SPACE 0.40mm	LABEL	5

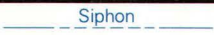



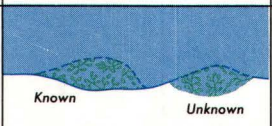
SAND AREAS				
FEATURE	SYMBOL	SPECIFICATIONS	REMARKS	SYMB. NO.
Ephemeral drainage			MINIMUM LENGTH .5 MILE (16.0mm); MINIMUM WIDTH 250' (1.50mm). AP 95	1
Tailings pond		LINEWEIGHT 0.10 mm	MINIMUM SIZE 250' (1.50mm) IN SHORTEST DIMENSION. AP 95 LABEL	2
Sand areas, mud, washes			MINIMUM SIZE 1000' (6.0mm) IN SHORTEST DIMENSION. AP 95 LABEL	3
Glacial moraine		HAND DRAFT DOTS 0.15mm IN DIAMETER	MINIMUM SIZE 500' (3.0mm) IN SHORTEST DIMENSION. AP 95	4
Gravel			MINIMUM SIZE 500' (3.0mm) IN SHORTEST DIMENSION. AP 99	5
Shifting sand or dune area			MINIMUM SIZE 500' (3.0mm) IN SHORTEST DIMENSION. AP 95	6


LAVA				
FEATURE	SYMBOL	SPECIFICATIONS	REMARKS	SYMB. NO.
Lava		12%-1200-45°	MINIMUM SIZE 1000' (6.0mm) IN SHORTEST DIMENSION. LABEL	1



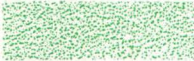

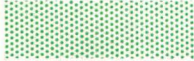
DRAINAGE

FEATURE	SYMBOL	SPECIFICATIONS	REMARKS	SYMB. NO.
Perennial stream, single and double line		LINEWEIGHT 0.15 mm	MINIMUM LENGTH .5 MILE (16.0 mm) WHEN 80' (0.5 mm) OR WIDER, SHOW AS DOUBLE LINE WITH WATER TINT. SCREEN 31%-120D-45°	1
Intermittent stream		LINEWEIGHT 0.15 mm DASH 4.50 mm SPACE BETWEEN DASHES 3.0 mm DOTS 0.2 mm	MINIMUM LENGTH 0.75 MILE (23.75 mm)	2
Unsurveyed perennial stream		LINEWEIGHT 0.15 mm DASH 1.75 mm SPACE 0.50 mm	SCREEN 31%-120D-45°	3
Shoreline		LINEWEIGHT 0.15 mm	SCREEN 31%-120D-45°	4
Lake or pond, perennial		LINEWEIGHT 0.15 mm	MINIMUM SIZE 150' (1.0 mm) IN SHORTEST DIMENSION. SCREEN 31%-120D-45°	5
Lake or pond, intermittent		LINEWEIGHT 0.15 mm DASH 1.75 mm, SPACE 0.50 mm	MINIMUM SIZE 150' (1.0 mm) IN SHORTEST DIMENSION. SCREEN LP-8 33% BIANGLE	6
Dry lake or pond		LINEWEIGHT 0.15 mm DASH 1.75 mm, SPACE 0.50 mm	MINIMUM SIZE 150' (1.0 mm) IN SHORTEST DIMENSION. AP-95	7
Land subject to controlled inundation		LINEWEIGHT 0.15 mm DASH 1.75 mm, SPACE 0.50 mm	MINIMUM SIZE 1000' (6.0mm) IN SHORTEST DIMENSION UNLESS PARALLELING SHORELINE, THEN 500' (3.0mm) MINIMUM WIDTH. AP 10. 33% BIANGLE	8
Canal, flume, aqueduct, or perennial ditch		LINEWEIGHT 0.15 mm	MINIMUM LENGTH .5 MILE (16.0mm). LABEL	9
Intermittent ditch, canal		LINEWEIGHT 0.15 mm DASH 4.50 mm, SPACE BETWEEN DASHES 3.0 mm DOTS 0.20 mm	MINIMUM LENGTH 0.75 MILE (23.75 mm). LABEL	10
Underground flume, penstock, aqueduct		LINEWEIGHT 0.15 mm DASH 1.25 mm SPACE 0.50 mm	MINIMUM LENGTH .5 MILE (16.0 mm) LANDMARK ONLY. LABEL USE SYMBOL NO. 2 WITH LABEL IF FEATURE IS INTERMITTENT	11
Elevated aqueduct, flume, conduit		LINEWEIGHT 0.15 mm WINGTICKS: LINEWEIGHT 0.10 mm AT 45° ANGLE LENGTH 0.60 mm STOP OVERPASS FEATURES 0.50 mm FROM CONDUIT	MINIMUM LENGTH .5 MILE (16.0 mm) LABEL ELEVATED WHEN LONG. USE SYMBOL NO. 2 WITH LABEL IF FEATURE IS INTERMITTENT	12

DRAINAGE				
FEATURE	SYMBOL	SPECIFICATIONS	REMARKS	SYMB. NO.
Water well		LINEWEIGHT 0.10mm CIRCLE DIAMETER 0.80mm	LABEL	13
Spring		LINEWEIGHT 0.10mm CIRCLE DIAMETER 0.80mm TAIL LENGTH 2.0mm	LABEL	14
Glacier or permanent snow field		OUTLINE LINEWEIGHT 0.15 mm DASH 1.75 mm SPACE 0.50 mm CONTOUR LINEWEIGHT 0.20 mm-0.10 mm	MINIMUM SIZE 500' (3.0mm) IN SHORTEST DIMENSION	15
Glacier or permanent snow field		OUTLINE LINEWEIGHT 0.15 mm DASH 1.75 mm SPACE 0.50 mm FORMLINE LINEWEIGHT 0.10 mm FORMLINE LENGTH 1.0 mm-5.0 mm	MINIMUM SIZE 500' (3.0mm) IN SHORTEST DIMENSION. USE THIS SYMBOL ONLY WHEN DATA FOR CONTOURING IS WEAK OR UNAVAILABLE	15a
Cranberry bog		LINEWEIGHT 0.15 mm	MINIMUM SIZE 1000' (6.0mm) IN SHORTEST DIMENSION. SHOW MAJOR SEPARATIONS. LABEL	16
Salt evaporator		LINEWEIGHT 0.15 mm	MINIMUM SIZE 1000' (6.0mm) IN SHORTEST DIMENSION. SHOW MAJOR SEPARATIONS. LABEL. AP 95	17
Large waterfalls		TICKS: LINEWEIGHT 0.10mm LENGTH 0.80mm SPACE 0.45mm	USE THIS SYMBOL ON RIVERS 500' (3.0mm) OR WIDER.	18
Small waterfalls		TICKS: LINEWEIGHT 0.15 mm MINIMUM LENGTH 1.25 mm	USE THIS SYMBOL ON SINGLE LINE STREAMS AND DOUBLE LINE STREAMS LESS THAN 500' (3.0mm) WIDE. LABEL	19
Large rapids		TICKS: LINEWEIGHT 0.10mm SPACE 0.45mm LENGTH VARIES FROM 0.50mm TO 1.0mm	USE ON RIVERS 500' (3.0mm) OR WIDER	20
Small rapids		TICKS: LINEWEIGHT 0.15 mm MINIMUM LENGTH 1.25 mm SPACE 0.75 mm	USED ON SINGLE LINE STREAMS AND DOUBLE LINE STREAMS LESS THAN 500' (3.0mm) WIDE. LABEL	21
Channels in water area		LINEWEIGHT 0.15 mm DASH 1.75 mm SPACE 0.50 mm	SHOW ONLY IMPOUNDED RIVERS AND INTRACOASTAL WATERWAY	22
Area to be submerged		LINEWEIGHT 0.15 mm DASH 1.75 mm, SPACE 0.50 mm	LP-8 33% BIANGLE	23

DRAINAGE				
FEATURE	SYMBOL	SPECIFICATIONS	REMARKS	SYMB. NO.
Siphon	 	LINEWEIGHT 0.15 mm DASH 1.75 mm SPACE 0.50 mm	SELECTED. MINIMUM LENGTH 500' (3.0mm). LABEL	24
Siphon		LINEWEIGHT 0.15 mm TICK LENGTH 1.75 mm	SIPHONS LESS THAN 500' (3.0mm) IN LENGTH. LABEL	25
Flow arrow			SHOW ARROW WHEN DIRECTION OF FLOW IS NOT APPARENT. POSICUT 132A	26
Mangrove		LINEWEIGHT 0.15 mm DASH 1.0 mm SPACE 0.50 mm 31% 120D-45° (BLUE) AP-8 (GREEN)	SHORELINE IS DELINEATED AS THE HIGH WATER LINE WHEN KNOWN	27

MARSH, SWAMP				
FEATURE	SYMBOL	SPECIFICATIONS	REMARKS	SYMB. NO.
Marsh, swamp			MINIMUM SIZE 1000' (6.0mm) IN SHORTEST DIMENSION. AP-12.	1

VEGETATION				
FEATURE	SYMBOL	SPECIFICATIONS	REMARKS	SYMB. NO.
Woodland			21% 1200 45°	1
Scattered trees			AP 44	2
Scrub			AP 68	3
Orchard, plantation			LABEL IF KNOWN AP 74	4
Vineyard			AP 77	5