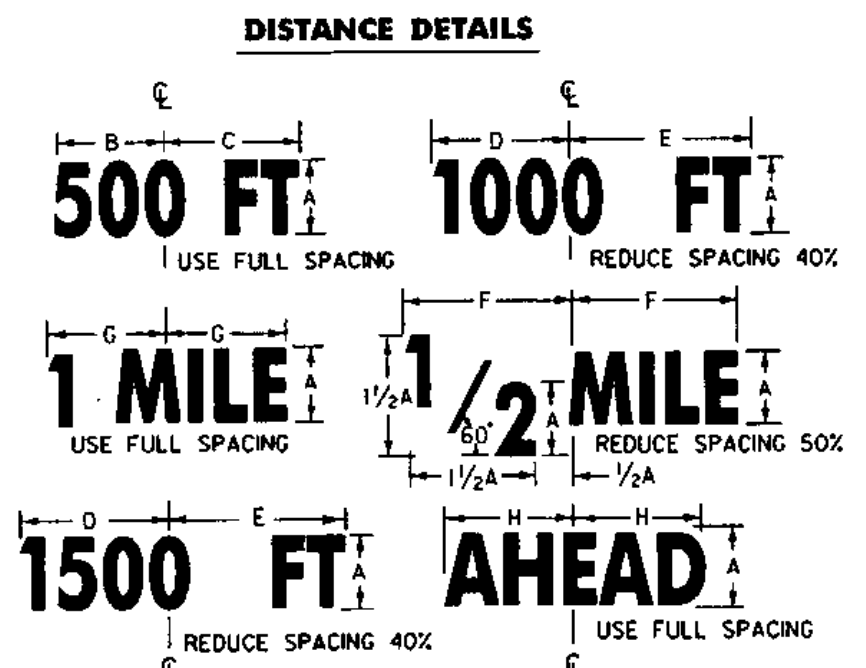


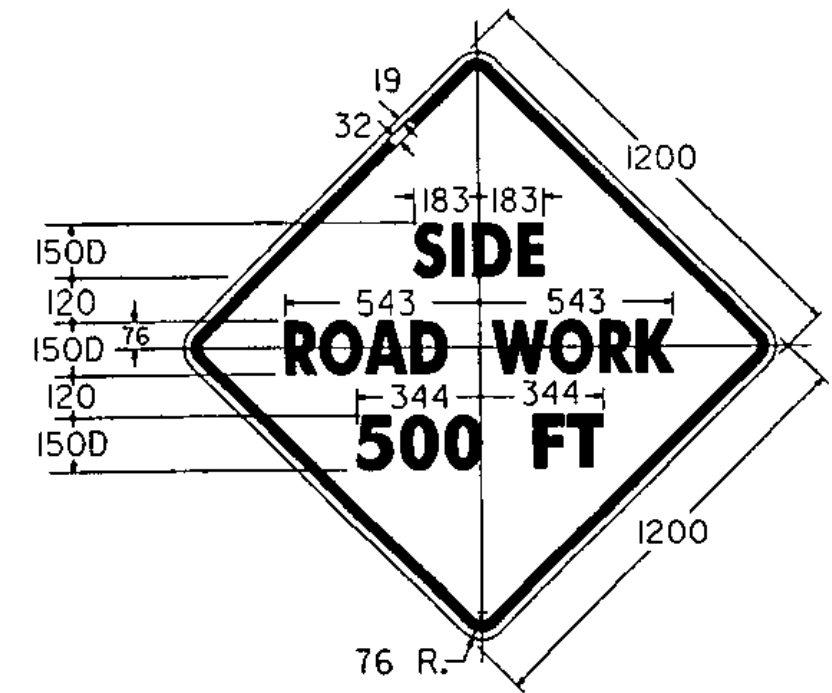
W21-4
SEE DISTANCE DETAILS

TEXT AND BORDER - BLACK (NON-REFL.)
BACKGROUND - ORANGE (REFL.)

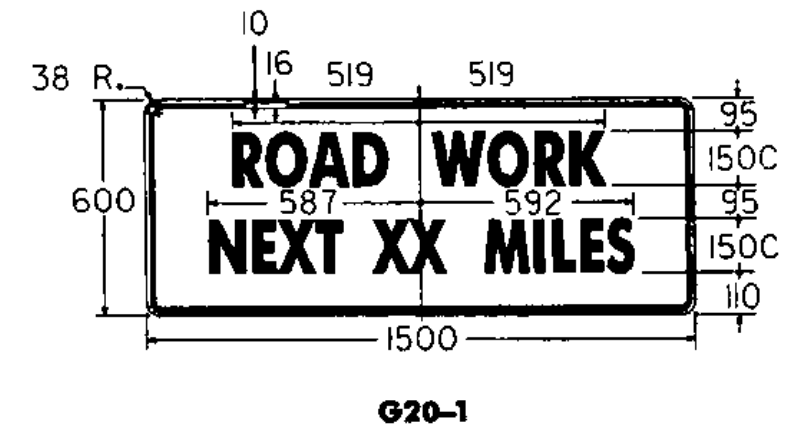
SIGN	DIMENSIONS (mm)										
	A	B	C	D	E	F	G	H	J	K	
MIN.	750	13	19	1880	73	67	171	178	183	48	
STD.	900	16	22	1250	89	83	213	225	229	57	
SPECIAL	1200	19	32	1750	121	114	297	316	321	76	



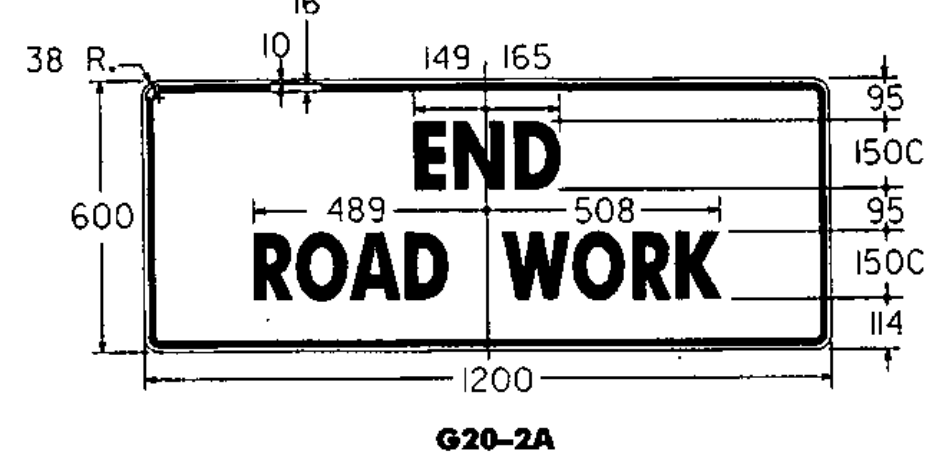
DIMENSIONS (mm)								
A	B	C	D	E	F	G	H	
150C	264	267	286	305	318	232	267	
175C	305	310	333	356	370	270	310	
125D	259	275	295	286	286	241	276	
150D	310	329	324	343	343	300	333	
175D	362	384	378	400	400	332	394	
200D	415	438	432	457	457	365	443	



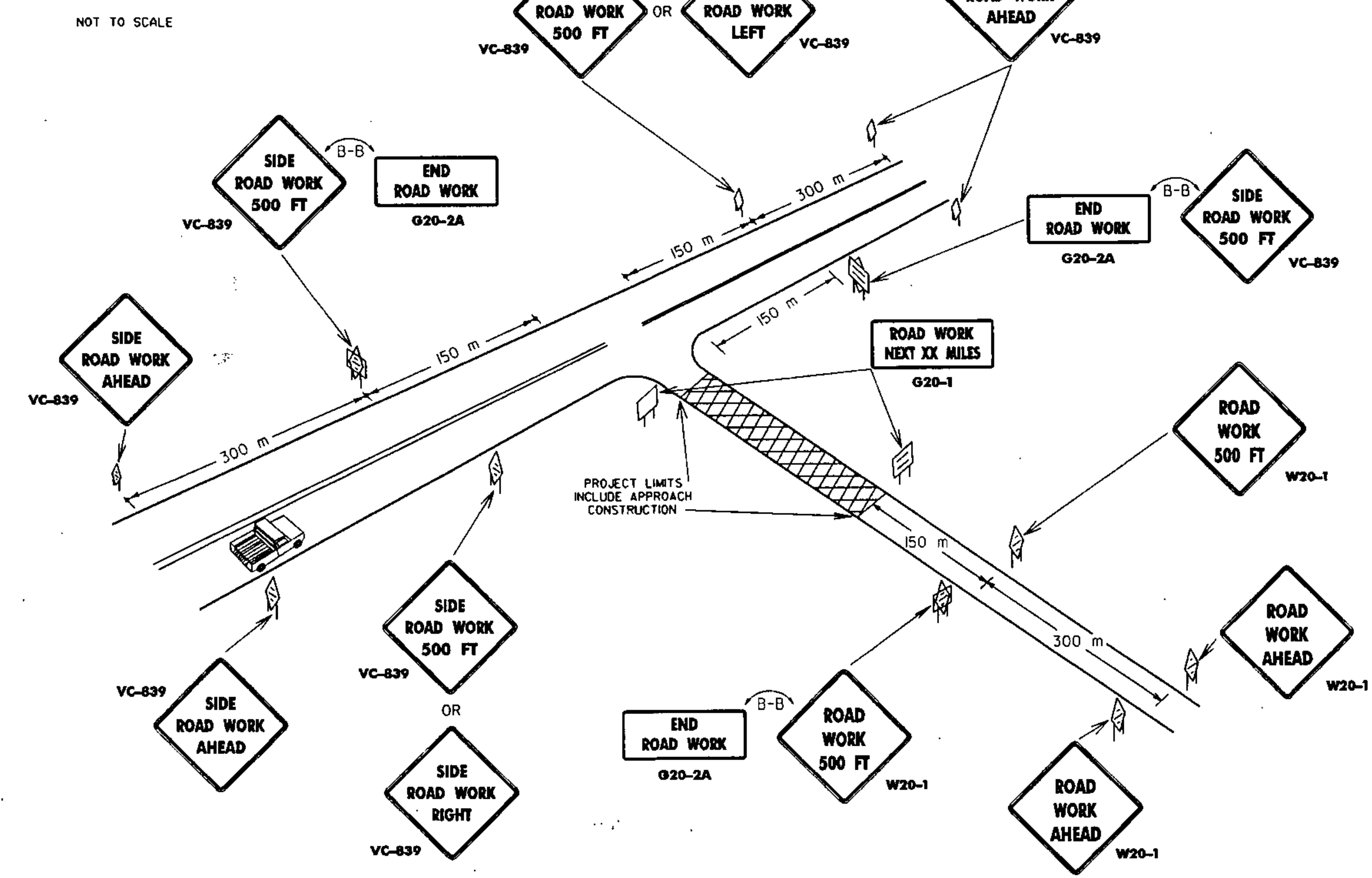
OR LEFT - 451
RIGHT - 559
500 FT - 375
FT - 205



THIS SIGN TO BE USED WHEN PROJECT LENGTH EXCEEDS 3 km OR AS REQUESTED BY THE RESIDENT ENGINEER. SHOW MILEAGE TO NEAREST 1/4 MILE USING FRACTIONS, NOT DECIMALS. HAND LETTERING OF MILEAGE WILL NOT BE ALLOWED.



ALL DISTANCES ARE DESIRABLE MINIMUMS. FIELD CONDITION SHALL CONTROL THE ACTUAL PLACEMENT



SIDE ROAD CONSTRUCTION APPROACH SIGNING (TO BE USED WHEN CONSTRUCTION IS UP TO 300m FROM THE INTERSECTION)

NOTES

THE SIGNS SHOWN ON THIS SHEET ARE INTENDED FOR USE IN PROVIDING ADVANCE WARNING AND INFORMATION ON CONSTRUCTION PROJECTS OVER WHICH TRAFFIC WILL BE MAINTAINED. WHEN ADDITIONAL APPROACH SIGNS OR OTHER TYPES OF ADVANCE SIGNING OR CONTROL ARE NECESSARY, THE PLANS AND/OR THE SPECIFICATIONS FOR THAT PROJECT WILL GIVE THE DETAILS OF THE SIGNS AND DEVICES REQUIRED. FOR ON-PROJECT CONSTRUCTION SIGNS, REFER TO APPROPRIATE STANDARD SHEETS.

APPLICATION OF STANDARDS

SINCE IT IS NOT POSSIBLE TO PRESCRIBE DETAILED STANDARDS OF APPLICATION FOR ALL OF THE SITUATIONS THAT MAY CONCEIVABLY ARISE ON A CONSTRUCTION PROJECT, REFERENCE SHALL BE MADE TO THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" FOR THE PRINCIPLES, PROCEDURES, AND STANDARDS THAT WILL BE REQUIRED IN CONNECTION WITH ADVANCED WARNING AND ON-PROJECT CONSTRUCTION SIGNS AND BARRICADES. THE SIGNS SHOWN IN E-101M AND E-102M REPRESENT A SAMPLE OF THOSE MORE COMMONLY USED.

LOCATION

THE SIGNS SHALL BE LOCATED AS DETAILED ON THIS SHEET OR AS OTHERWISE SHOWN ON THE PLANS. THEY SHALL APPEAR AT EACH END OF THE HIGHWAY UNDER CONSTRUCTION AND ON ALL INTERSECTING PUBLIC HIGHWAYS. THE EXACT PLACEMENT OF ANY SIGN WILL DEPEND UPON THE ALIGNMENT INTENDED TO INDICATE THE SEQUENCE TO BE FOLLOWED, AND THE APPROXIMATE SPACING TO BE OBSERVED. THE ENGINEER SHALL DETERMINE THE EXACT LOCATIONS.

DESIGN

LETTERS, DIGITS, ARROWS SPACING AND TEXT DIMENSIONS SHALL CONFORM WITH THE "STANDARD ALPHABET FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS" AND DESIGNS PRESCRIBED IN THE STANDARD HIGHWAY SIGNS AS SPECIFIED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES ADOPTED BY THE U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMIN.

MATERIALS

THE SIGN BASE MATERIAL USED FOR THE SIGNS ON THIS SHEET MAY BE ANY OF THE FOLLOWING, WITH MINIMUM THICKNESS AS NOTED.

FLAT SHEET ALUMINUM	3.18 mm
HIGH DENSITY OVERLAYERED PLYWOOD	13mm, 16mm OR 19mm
GALVANIZED SHEET STEEL	2.77 mm

REFLECTORIZATION

ALL REFLECTORIZED MATERIAL SHALL CONSIST OF TYPE 11B OR TYPE 111 SHEETING.

COLORS

THE COLORS SHALL CONFORM WITH THE STANDARD COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND APPROVED BY THE U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION. COLORS SHOWN ON THIS SHEET CONSIST OF BLACK TEXT AND BORDER ON A REFLECTORIZED ORANGE BACKGROUND.

INSTALLATION

THE SIGNS SHALL BE ERECTED BEFORE THE START OF ANY WORK AND SHALL BE COVERED UNTIL WORK COMMENCES, DURING PERIODS OF INACTIVITY, OR UPON COMPLETION OF THE WORK. SIGNS MAY BE REMOVED UPON COMPLETION OF THE WORK AT THE DISCRETION OF THE ENGINEER. EACH SIGN SHALL BE ERECTED IN A NEAT AND WORKMANLIKE MANNER ON POSTS SET SECURELY IN THE GROUND. THE BOTTOM OF A SIGN SHALL BE AT LEAST 2100 mm ABOVE THE EDGE OF PAVEMENT, AND THE NEAREST EDGE OF A SIGN SHALL BE AT LEAST 1800 mm OUTSIDE THE SHOULDER POINT, 1200 mm OUTSIDE GUARD RAIL, OR 600 mm OUTSIDE CURBING OR SIDEWALK. THE INSTALLATION OF SIGNS SHALL BE SUBJECT TO APPROVAL OF THE ENGINEER. IN URBAN AREAS, THE BOTTOM OF THE SIGN SHALL BE AT LEAST 2100 mm ABOVE THE SIDEWALK.

MAINTENANCE

SIGNS SHALL BE MAINTAINED IN A CLEAN AND LEGIBLE CONDITION SATISFACTORY TO THE ENGINEER. THEY SHALL BE COMPLETELY VISIBLE TO APPROACHING TRAFFIC AT ALL TIMES. THEY SHALL BE KEPT PLUMB AND LEVEL, AND ALWAYS PRESENT A NEAT APPEARANCE. DAMAGED, DEFACED, OR DIRTY SIGNS SHALL BE REPAIRED, CLEANED OR REPLACED AS ORDERED BY THE ENGINEER.

GENERAL

THE COST OF FURNISHING, INSTALLING, MAINTAINING AND REMOVING ALL CONSTRUCTION APPROACH SIGNS WILL BE CONSIDERED SUBSIDIARY WORK PERTAINING TO THE PROJECT AS A WHOLE AND SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE BID FOR VARIOUS ITEMS INVOLVED IN THE CONTRACT. DURING ALL PHASES OF CONSTRUCTION THE REQUIREMENTS SET FORTH IN THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" SHALL BE MET. WHEN THE PROJECT IS CLOSED DOWN FOR TEMPORARY PERIODS THE SIGNS SHALL BE COVERED IN A WORKMANLIKE MANNER.

SIGN COVERS

SIGN COVERS SHALL CONSIST OF A PANEL PAINTED FLAT BLACK. THE SAME SIZE AS THE SIGN IT COVERS. THE PANEL SHALL BE OF WOOD, PLYWOOD, HARDBOARD OR ANY OTHER YIELDING MATERIAL SATISFACTORY TO THE ENGINEER. NO MATERIAL SHALL BE USED THAT WILL DETERIORATE BY EXPOSURE TO THE WEATHER DURING THE PROJECT. MOUNTING OF THE PANEL SHALL BE DONE IN SUCH A WAY AS NOT TO DAMAGE THE SIGN FACE MATERIAL. CONTRACTORS SHALL COORDINATE THEIR SIGNING ACTIVITIES WITH OTHER CONTRACTORS WITHIN THE PROJECT LIMITS, AS DIRECTED BY THE REGIONAL CONSTRUCTION ENGINEER.

SIGN POSTS

WHERE CONSTRUCTION SIGN INSTALLATIONS ARE NOT PROTECTED BY GUARD RAIL OR OTHER APPROVED TRAFFIC BARRIERS, THE POSTS ON WHICH THE SIGNS ARE MOUNTED SHALL BE YIELDING METAL POSTS AS DESIGNATED IN THE E SERIES OF STANDARD DRAWINGS OR YIELDING WOODEN POSTS IN ACCORDANCE WITH THE FOLLOWING REQUIREMENTS. WOODEN POSTS ARE ACCEPTABLE FOR USE WITH CONSTRUCTION SIGNS. THESE POSTS SHALL HAVE A UNIFORM CROSS-SECTION AND SHALL BE MADE FROM GRADE 2, AIR-DRYED SOUTHERN YELLOW PINE OR ANOTHER EQUIVALENT SOFTWOOD. AN ACCEPTABLE EQUIVALENT SOFTWOOD SHALL HAVE AN EXTREME FIBER IN BENDING "Fb" DESIGN VALUE NOT TO EXCEED 9700 KPa AND HORIZONTAL SHEAR "Fv" DESIGN VALUE NOT TO EXCEED 620 KPa. SPECIFICATION: "DESIGN VALUES FOR WOOD CONSTRUCTION" AND RELATED SUPPLEMENT, DATED 1986.

AS ESTABLISHED BY THE NATIONAL FOREST PRODUCTS ASSOCIATION IN THEIR NATIONAL DESIGN THE FOLLOWING ARE CONSIDERED TO BE ACCEPTABLE WOODEN POSTS:

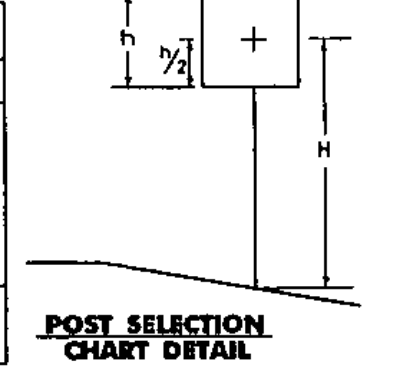
- 100 x 100 (ACTUAL DIMENSIONS ARE 90 x 90)
 - a) ACCEPTABLE FOR SINGLE OR DUAL POSTS INSTALLATION WITH NO MODIFICATIONS.
- 100 x 150 (ACTUAL DIMENSIONS ARE 90 x 140)
 - a) ACCEPTABLE FOR SINGLE POST INSTALLATIONS ONLY WHEN MODIFIED BY DRILLING TWO 38 mm DIAMETER HOLES, ONE AT 100 mm AND THE OTHER AT 460 mm ABOVE THE GROUND LINE AND PERPENDICULAR TO THE ROADWAY CENTERLINE.
- 150 x 150 (ACTUAL DIMENSIONS ARE 140 x 140)
 - a) ACCEPTABLE FOR SINGLE POST INSTALLATIONS ONLY WHEN MODIFIED BY DRILLING TWO 51 mm DIAMETER HOLES, ONE AT 100 mm AND THE OTHER AT 450 mm ABOVE THE GROUND LINE AND PERPENDICULAR TO ROADWAY CENTERLINE.
- 150 x 200 (ACTUAL DIMENSIONS ARE 140 x 190)
 - a) ACCEPTABLE FOR SINGLE POST INSTALLATIONS ONLY WHEN MODIFIED BY DRILLING TWO 76 mm DIAMETER HOLES, ONE AT 100 mm AND THE OTHER AT 460 mm ABOVE THE GROUND LINE AND PERPENDICULAR TO THE ROADWAY CENTERLINE.

ADDITIONAL DESIGN CRITERIA

THE LONGER DIMENSION OF THE POST(S), SUCH AS THE 150 mm DIMENSION OF THE 100 x 150 POST, SHALL BE PLACED PARALLEL TO THE ROADWAY CENTERLINE. ALL WOODEN POSTS SHALL HAVE AN EMBEDMENT DEPTH OF 1200 mm. NO CROSS-BRACING OR BACK-BRACING TO KEEP THE POSTS PLUMB WILL BE ALLOWED. CONCRETE FOUNDATIONS COLLARS OR SOIL BEARING PLATES ARE NOT PERMITTED. CONSTRUCTION SIGNS SHALL BE PLACED ON TWO OR MORE POSTS WHEN ANY OF THE FOLLOWING CONDITIONS GOVERN:

- a) THE SIGN WIDTH (HORIZONTAL DIMENSIONS FOR DIAMOND SHAPED SIGNS) EXCEEDS 1050 mm.
- b) THE EXPOSED SIGN AREA OF ANY SINGLE SIGN OR ASSEMBLY EXCEEDS 1.125 m².
- c) THE Sv OF A SINGLE POST IS EXCEEDED. (SEE THE POST SELECTION CHART BELOW)

WOOD POST SELECTION CHART		
SIGN AREA (m ²) X HEIGHT (m) < Sv (SELECTION VALUE)	Sv	DESIGN CRITERIA
100 X 100	1.54	WIND SPEED = 100km/h (10-YEAR MEAN OCCURENCE INTERVAL)
100 X 150	3.51	WIND PRESSURE = 740 Pa
150 X 150	5.17	ALLOWABLE BENDING STRESS F _b = 9700 KPa
150 X 200	9.30	



OTHER STDS. REQUIRED:

NOTE: ALL DIMENSIONS ARE IN MILLIMETERS (mm) EXCEPT WHERE NOTED.

REVISIONS AND CORRECTIONS
FEB 2, 1998 - DATE OF ORIGINAL ISSUE

APPROVED

[Signature]
DIRECTOR OF PROJECT DEVELOPMENT

[Signature]
DIRECTOR OF CONSTRUCTION AND MAINTENANCE

SIDE ROAD CONSTRUCTION APPROACH SIGNS