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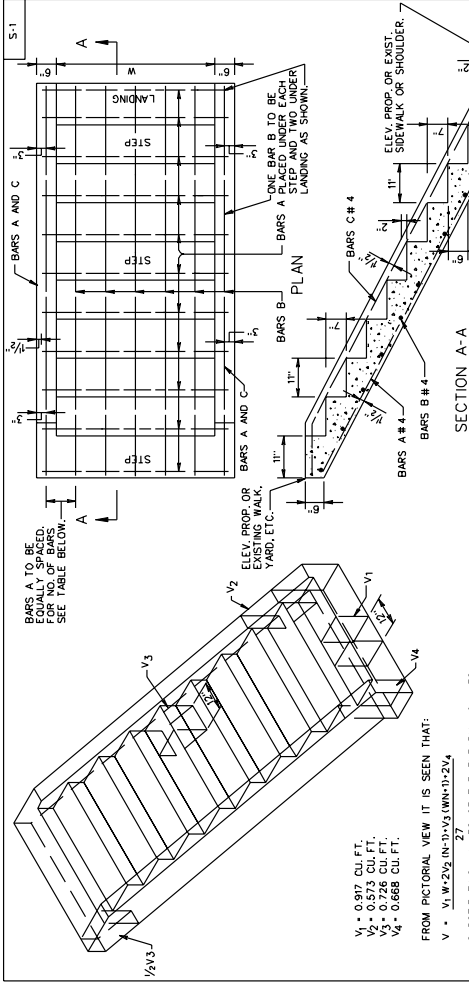
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SURVEYED BY _____
SUPERVISED BY _____
DESIGNED BY _____

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

NO.	DATE	REVISION	BY	CHKD.	APP'D.
1					



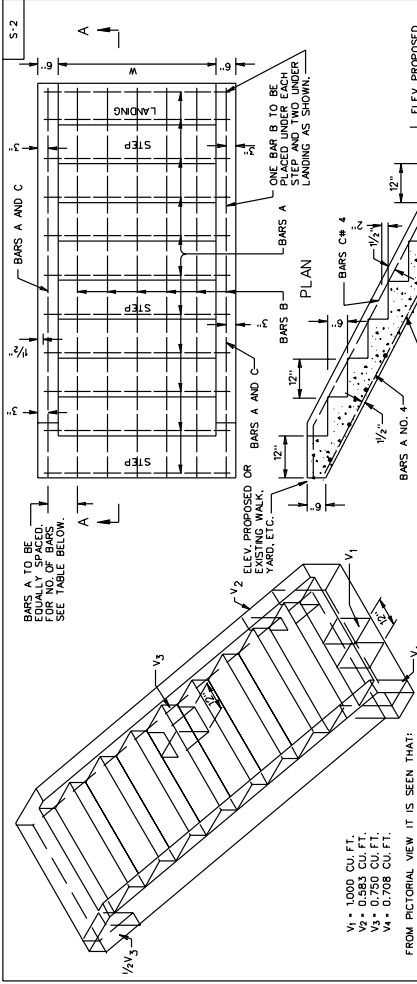
	N=1-5	N=6	N=7	N=8	N=9	N=10	N=11	N=12	N=13-25
W - 3'	4	5	5	6	6	7	7	8	
W - 4'	5	6	7	7	8	8	9	10	
W - 5'	6	7	8	9	9	10	11	12	

V - INDICATES TOTAL VOLUME OF STEPS IN CUBIC YARDS.
 V₁, V₂, V₃ & V₄ - INDICATE ELEMENTARY VOLUMES
 W - INDICATES CLEAR WIDTH OF STEPS, IN FEET, BETWEEN SIDEWALLS.
 N - INDICATES NUMBER OF STEPS IN INSTALLATION EXCLUSIVE OF LANDING.
 L₁ - INDICATES LENGTH OF BARS A, IN INCHES.
 L₂ - INDICATES LENGTH OF BARS B, IN INCHES.
 L₃ - INDICATES LENGTH OF BARS C, IN INCHES.
 L₄ - INDICATES LENGTH OF BARS 4, IN INCHES.
 A - LANDING IS TO BE PROVIDED WHERE 12 OR MORE STEPS ARE RECD. MINIMUM SIZE OF LANDING TO BE W * 1 FOOT X 4 FEET.
 THIS ITEM MAY BE PRECAST OR CAST IN PLACE.
 CONCRETE TO BE CLASS A3 IF CAST IN PLACE, 4000 PSI IF PRECAST.
 FOR OTHER WIDTHS THE APPROXIMATE SPACING OF BARS A, IN INCHES, REINFORCING BARS TO BE USED IN INSTALLATIONS OF 6 OR MORE STEPS, FOR TABULATION OF CONCRETE AND STEEL QUANTITIES SEE SHEET 2.

FROM PICTORIAL VIEW IT IS SEEN THAT:
 V₁ = 0.917 CU. FT.
 V₂ = 0.573 CU. FT.
 V₃ = 0.726 CU. FT.
 V₄ = 0.668 CU. FT.
 V = V₁ + V₂ + V₃ + V₄ (WN-D)-2V₄
 27
 SUBSTITUTING VALUES OF ELEMENTARY VOLUMES:
 V = 0.917W+1.146(N-D)-0.726(WN-D)-1.336
 27

SPECIFICATION REFERENCE
 105
 504
 VIRGINIA DEPARTMENT OF TRANSPORTATION
 REV. 7/02
 60101
STANDARD CONCRETE STEPS FOR 1/2:1 SLOPE

SHEET 1 OF 2



	N=1-5	N=6	N=7	N=8	N=9	N=10	N=11	N=12	N=13-25
W - 3'	4	5	6	6	7	7	8		
W - 4'	5	6	7	7	8	8	9	10	
W - 5'	6	7	8	9	9	10	11	12	

V - INDICATES TOTAL VOLUME OF STEPS IN CUBIC YARDS.
 V₁, V₂, V₃ & V₄ - INDICATE ELEMENTARY VOLUMES
 W - INDICATES CLEAR WIDTH OF STEPS, IN FEET, BETWEEN SIDEWALLS.
 N - INDICATES NUMBER OF STEPS IN INSTALLATION EXCLUSIVE OF LANDING.
 L₁ - INDICATES LENGTH OF BARS A, IN INCHES.
 L₂ - INDICATES LENGTH OF BARS B, IN INCHES.
 L₃ - INDICATES LENGTH OF BARS C, IN INCHES.
 L₄ - INDICATES LENGTH OF BARS 4, IN INCHES.
 A - LANDING IS TO BE PROVIDED WHERE 12 OR MORE STEPS ARE RECD. MINIMUM SIZE OF LANDING TO BE W * 1 FOOT X 4 FEET.
 THIS ITEM MAY BE PRECAST OR CAST IN PLACE.
 CONCRETE TO BE CLASS A3 IF CAST IN PLACE, 4000 PSI IF PRECAST.
 FOR OTHER WIDTHS THE APPROXIMATE SPACING OF BARS A, IN INCHES WILL BE EQUAL TO BOTH WITH A MINIMUM SPACING OF 6".
 REINFORCING BARS TO BE USED IN INSTALLATIONS OF 6 OR MORE STEPS, FOR TABULATION OF CONCRETE AND STEEL QUANTITIES SEE SHEET 2.

FROM PICTORIAL VIEW IT IS SEEN THAT:
 V₁ = 1.000 CU. FT.
 V₂ = 0.583 CU. FT.
 V₃ = 0.726 CU. FT.
 V₄ = 0.726 CU. FT.
 V = V₁ + V₂ + V₃ + V₄ (WN-D)-2V₄
 27
 SUBSTITUTING VALUES OF ELEMENTARY VOLUMES:
 V = 1.000W+1.866(N-D)-0.750(WN-D)-1.416
 27

SPECIFICATION REFERENCE
 105
 504
 VIRGINIA DEPARTMENT OF TRANSPORTATION
 REV. 7/02
 60103
STANDARD CONCRETE STEPS FOR 2:1 SLOPE

SHEET 1 OF 2

DATE	PROJECT	FILE	NO.	SCALE	NO.