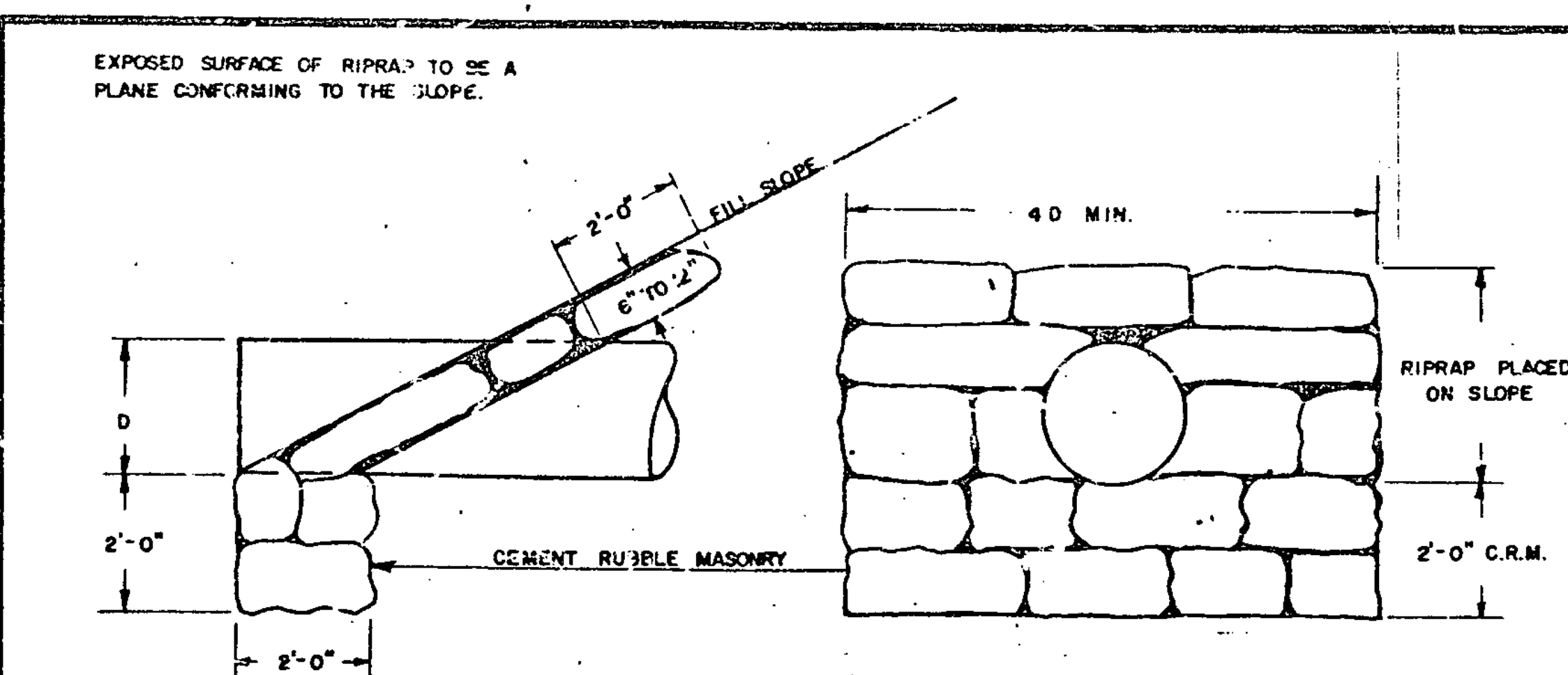


QUANTITY SCHEDULE FOR CEMENT RUBBLE MASONRY

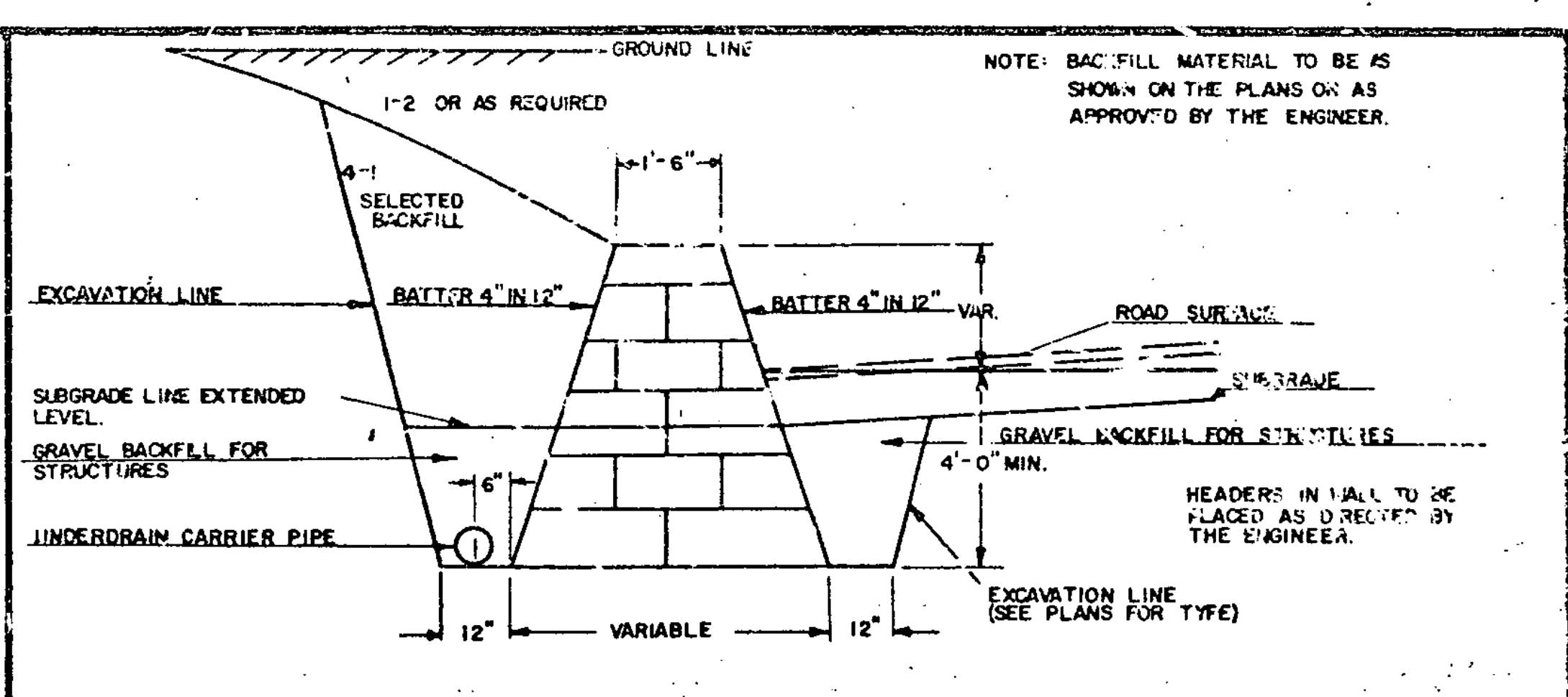
PIPE DIAMETER	12"	15"	18"	24"	30"	36"	42"	48"	54"	60"
C.R.M. QUANTITY	1.0	1.3	1.8	2.7	3.5	4.9	6.4	8.0	10.0	12.3

C.R.M. QUANTITIES EXCLUDE PIPE DIAMETERS FOR 30" AND OVER. SAME DEDUCTION MADE FOR CONCRETE PIPE AS IS FOR METAL PIPE.

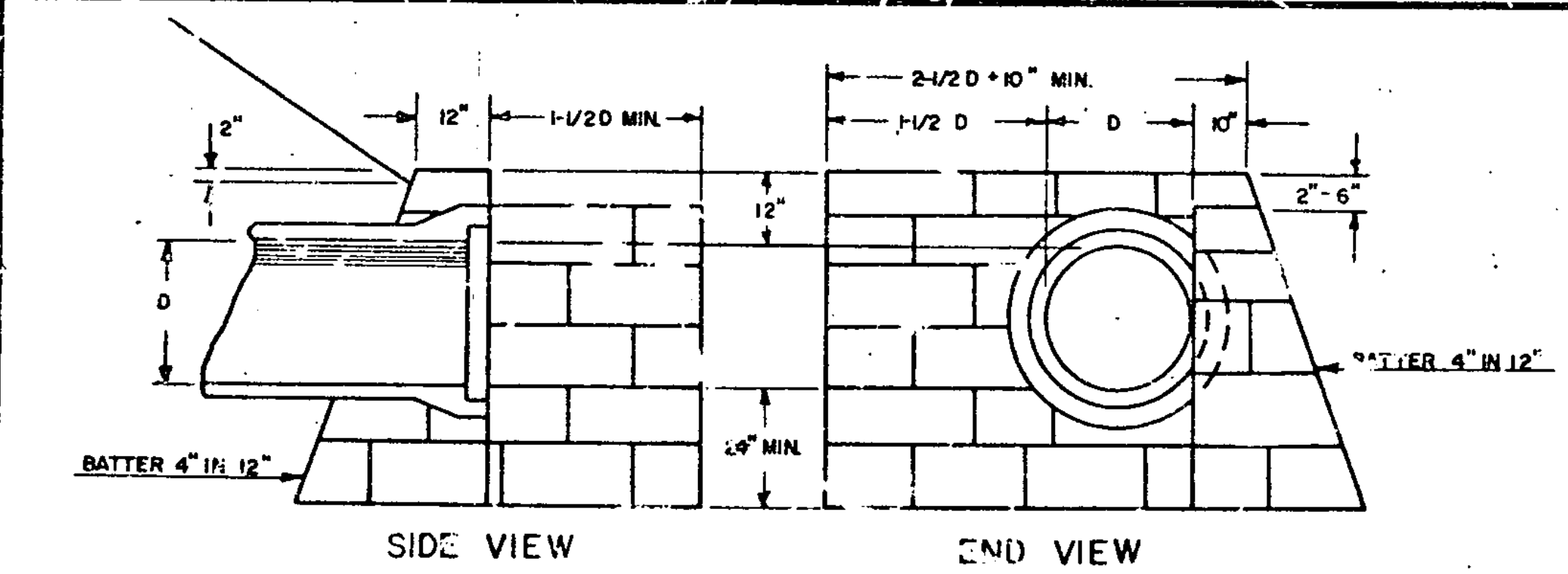
CEMENT RUBBLE MASONRY STRAIGHT HEADWALL



RIPRAP LIGHT TYPE SLOPE HEADWALL WITH CEMENT RUBBLE MASONRY FOOTING



CEMENT RUBBLE MASONRY RETAINING WALL

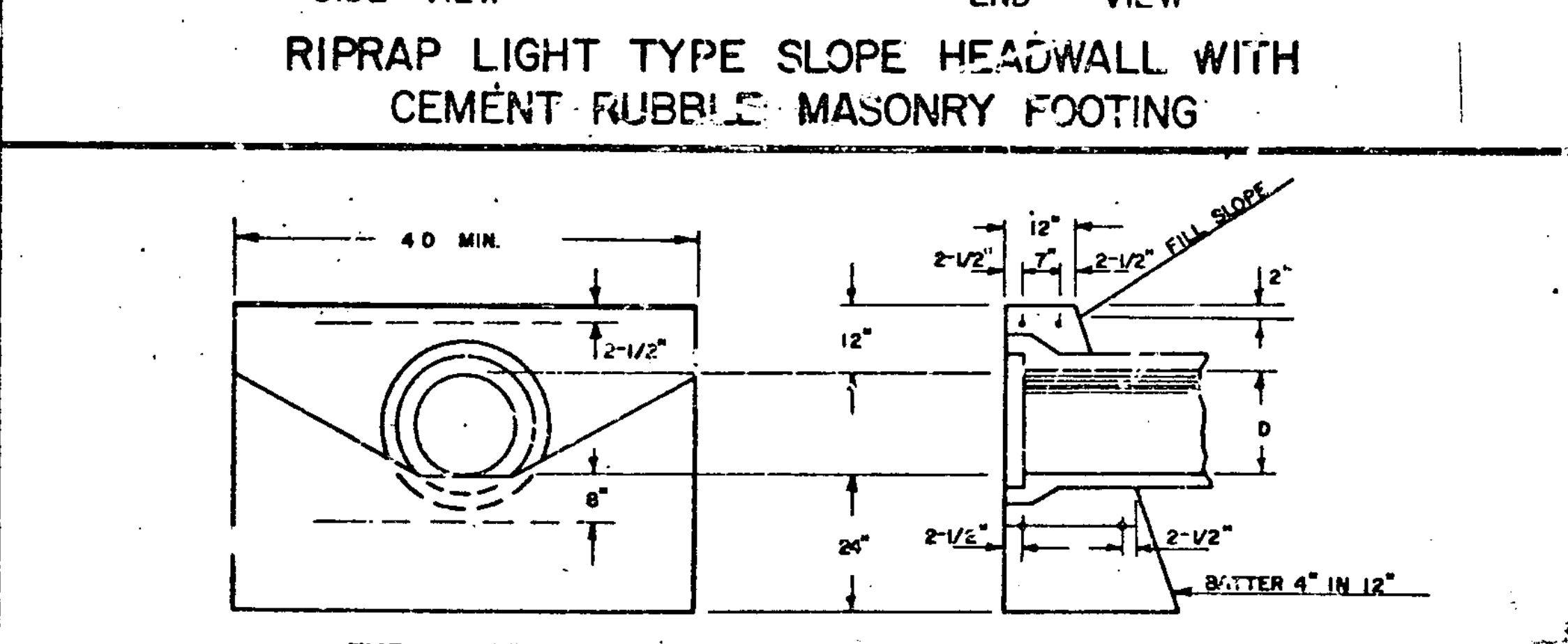


QUANTITY SCHEDULE FOR CEMENT RUBBLE MASONRY

PIPE DIAMETER	12"	15"	18"	24"	30"	36"	42"	48"
C.R.M. QUANTITY	1.3	1.7	2.1	3.2	4.1	5.5	7.1	8.9

C.R.M. QUANTITIES EXCLUDE PIPE DIAMETERS FOR 30" AND OVER. SAME DEDUCTION MADE FOR CONCRETE PIPE AS FOR METAL PIPE.

CEMENT RUBBLE MASONRY "L" TYPE HEADWALL



QUANTITY SCHEDULE FOR REINFORCED CONCRETE HEADWALL, CLASS B

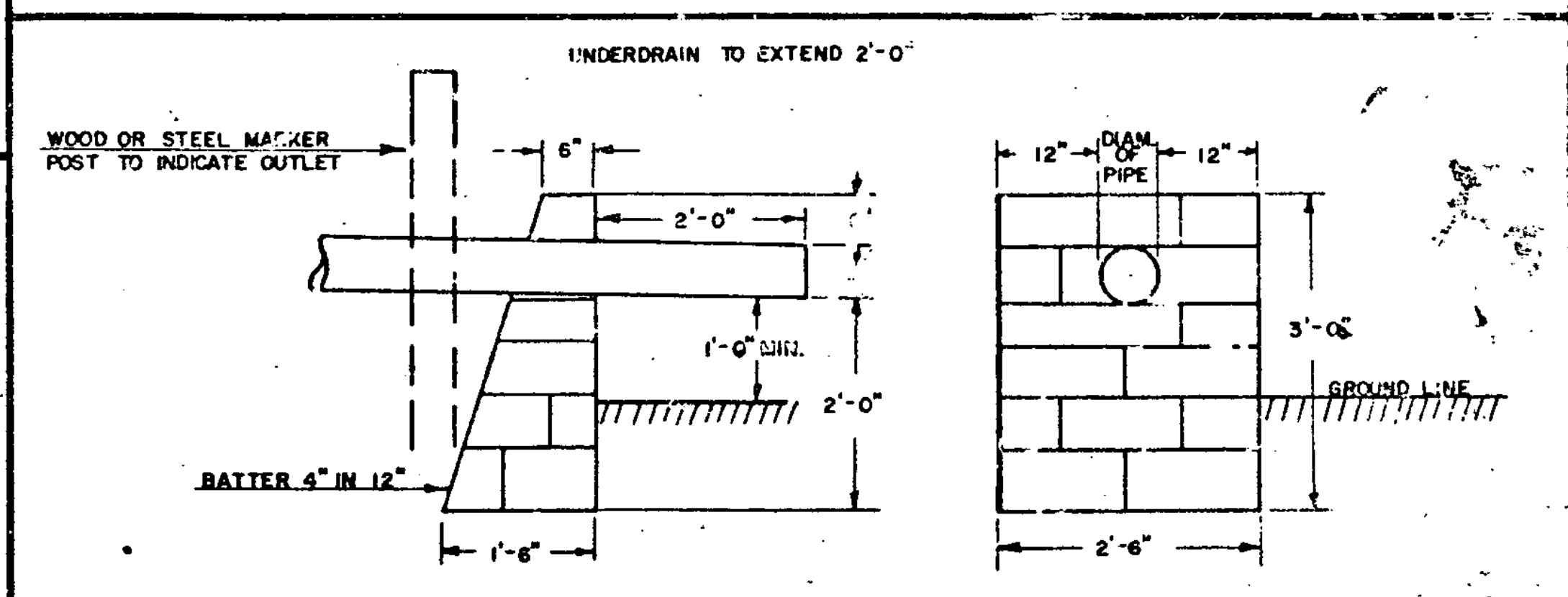
PIPE DIAMETER	12"	15"	18"	24"	30"	36"	42"	48"	54"	60"
CONCRETE QUANTITY	1.6	1.3	1.8	2.7	3.5	4.9	6.4	8.0	10.0	12.3

STEEL SCHEDULE FOR REINFORCED CONCRETE HEADWALL

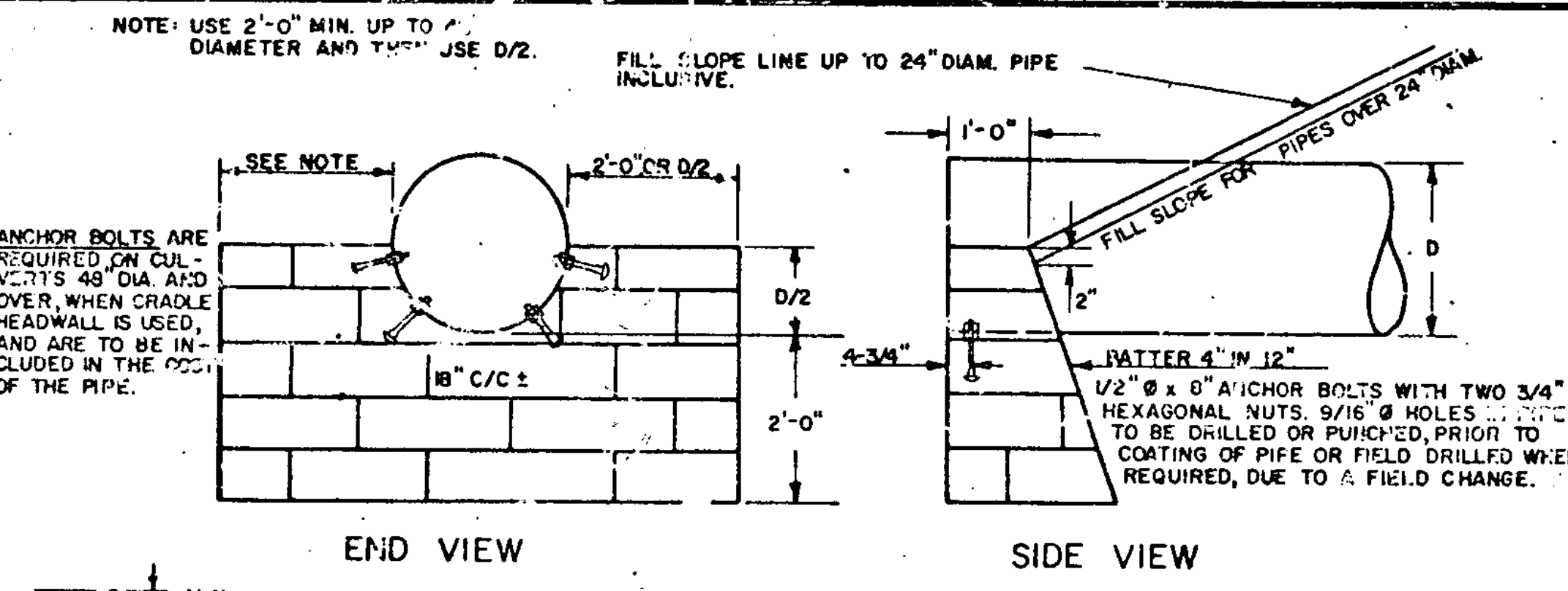
PIPE DIAMETER	12"	15"	18"	24"	30"	36"	42"	48"	54"	60"
NUMBER	4	4	4	4	4	4	4	4	4	4
LENGTH OF BARS	3'-0"	3'-0"	3'-0"	3'-0"	4'-0"	4'-0"	4'-0"	5'-0"	6'-0"	6'-0"

ALL REINFORCING STEEL TO BE 5/8" DIAMETER DEFORMED BARS. CONCRETE QUANTITIES EXCLUDE PIPE DIAMETERS FOR 30" AND OVER. SAME DEDUCTION MADE FOR CONCRETE PIPE AS IS MADE FOR METAL PIPE.

REINFORCED CONCRETE STRAIGHT HEADWALL



CEMENT RUBBLE MASONRY UNDERDRAIN OUTLET CONSTRUCTION



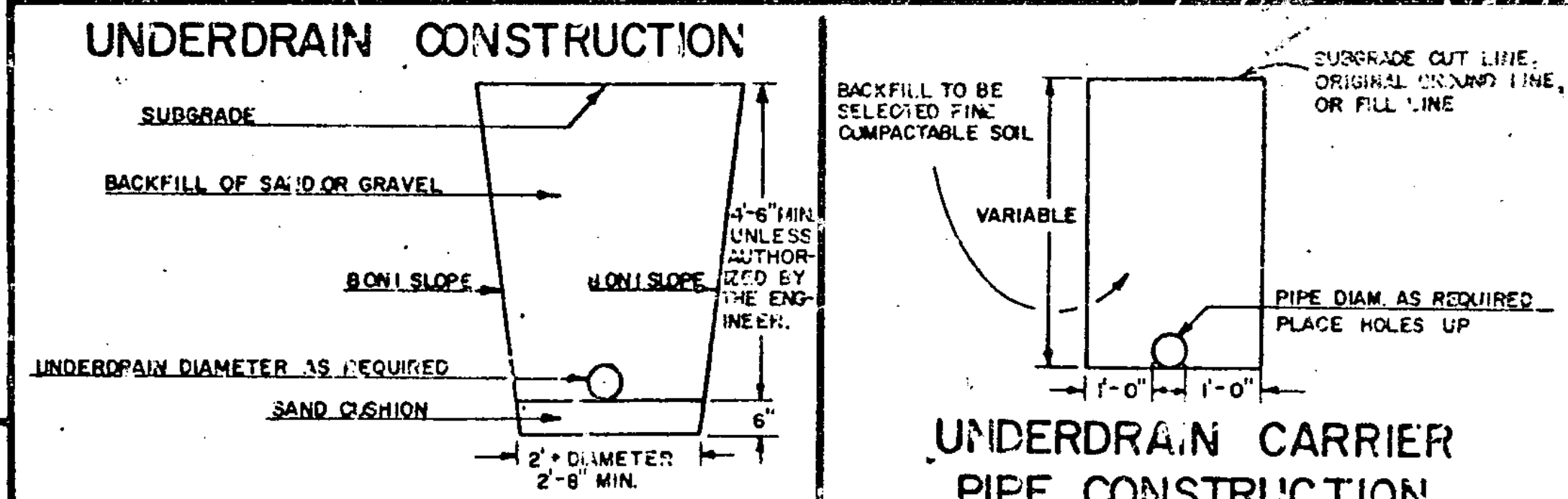
QUANTITY SCHEDULE FOR CEMENT RUBBLE MASONRY

PIPE DIAMETER	18"	24"	30"	36"	42"	48"	54"	60"	66"	72"
C.R.M. QUANTITY	0.8	1.0	1.2	1.4	1.5	1.7	2.0	2.4	2.8	3.3

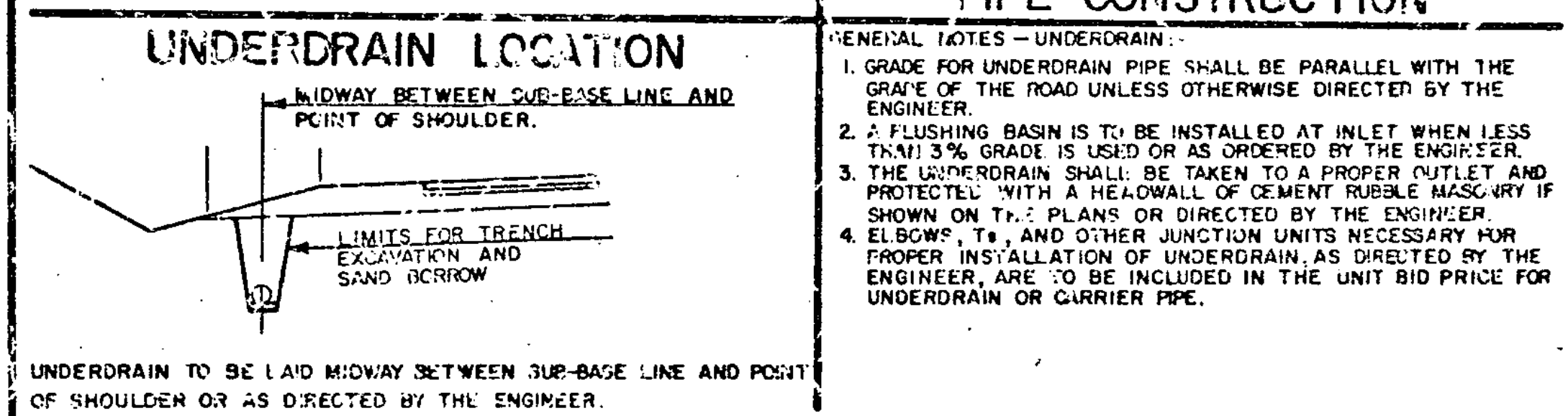
C.R.M. QUANTITIES ARE DEDUCTED WHEN PIPE DIAMETER 42" OR LARGER. SAME DEDUCTION MADE FOR CONCRETE PIPE AS FOR METAL PIPE.

CEMENT RUBBLE MASONRY CRADLE HEADWALL

- GENERAL NOTES - HEADWALLS:
1. THE HEIGHT OF HEADWALLS ON DRIVEWAY PIPES IS TO BE REDUCED TO 6" ABOVE THE TOP OF PIPE.
 2. BELL AND SPIGOT PIPE IS TO BE LAID WITH THE BELL UPSTREAM.
 3. HEADWALL QUANTITIES FOR THE SAME TYPE HEADWALLS ON PIPES OF EQUAL DIAMETER, ARE THE SAME FOR BOTH CONCRETE AND METAL PIPE. LENGTH OF HEADWALLS ARE BASED ON INSIDE DIAMETER OF PIPES.
 4. THE NECESSITY OF CONSTRUCTING A FLOOR AT THE ENTRANCE TO AN L TYPE HEADWALL SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER AND ANY INSTALLATION THEREOF SHALL BE AT HIS DIRECTION.



UNDERDRAIN CARRIER PIPE CONSTRUCTION



UNDERDRAIN LOCATION

REVISIONS AND CORRECTIONS

MAR 8, 1972 CHANGED ANCHOR BOLTS FROM 10" L TO 8" CARRIAGE BOLTS

DEC 15, 1976 NOTE ADDED ON REINFORCING STEEL FOR CRADLE HEADWALLS.

APPROVED: *R.W. Connolly* CHIEF ENGINEER

E.H. Stehney ASST. CHIEF ENGINEER

L.M. Lane HIGHWAY ENGINEER

CEMENT RUBBLE MASONRY HEADWALLS & RETAINING WALL
 RIPRAP LIGHT TYPE SLOPE HEADWALL
 REINFORCED CONCRETE HEADWALL
 UNDERDRAIN & CARRIER PIPE CONSTRUCTION DETAILS

VERMONT DEPARTMENT OF HIGHWAYS STANDARDS D-2