7.01 PORTLAND CEMENT CONCRETE

It is the intent of these specifications that all Portland Cement Concrete furnished for use on this contract (or on any City of Midland project) meet the full requirements of Section 7 of the Standard Specifications for Highway Construction as published by the Michigan Department of Transportation, for the grade of concrete called for in the work, except as modified hereinafter:

A. Prior to the use of any concrete on the project, the Contractor shall furnish to the Engineer such mix designs as will reflect changes for different grades of concrete, aggregate, water reducing or retarding admixtures, various air contents and required consistencies.

B. The concrete supplier (through the Contractor) shall furnish to the Engineer a list of all transit mixers to be used on the project, and shall make available, at a mutually agreeable time, said transit trucks in a condition suitable for an internal inspection of the drum in order that the Engineer may satisfy himself as to the condition of the mixers. No other mixers are to be used except those listed, inspected and found to be satisfactory to the Engineer.

C. The concrete supplier (through the Contractor) shall make available to the Engineer specimens of concrete for testing that will demonstrate to the satisfaction of the Engineer that the design mixes submitted and the transit mixers proposed for use are indeed capable of producing the concrete mixes called for in the specifications. The concrete for testing purposes shall be furnished at no cost to the Engineer. By mutual agreement, the concrete furnished for testing purposes may be provided from other projects using the same basic design mix as that required for testing purposes.

D. Air Content - All concrete shall contain 6.5 ±1.5 percent entrained air unless otherwise specified.

CONCRETE MIXTURES

GRADE OF CONCRETE	CEMENT CONTENT		CLASS OF COURSE AGGREGATE REQUIRED OR PERMITTED	CONSISTENCY (SLUMP) MAXIMUM, INCHES	MODULUS OF RUPTURE, DESIGN MINIMUM, PSI				COMPRESSIVE STRENGTH, DESIGN MINIMUM AT 28 DAYS, PSI
	POUNDS PER CUBIC YARD	SACKS (94 LB.) PER CUBIC YARD			AT 3 DAYS	AT 7 DAYS	AT 14 DAYS	AT 28 DAYS	
40S	611	6.5	6A, 17A	5	-	600	650	700	4000
	611	6.5	6AA	3 1/2	-	600	650	700	4000
35P-HE	658	7.0	6A	3	550	-	700	725	4500
	564 (a)	6.0 (a)	6A	3	550	-	600	650	3500
35T	611	6.5	6A	7	-	550	600	650	3500
35P	564	6.0	6A	3	-	550	600	650	3500
35S	564	6.0	6AA, 6A	3 1/2	-	550	600	650	3500
	564	6.0	6A, 17A	3	-	550	600	650	3500
30P	517	5.5	6A	3	-	500	550	600	3000
30M	COMMERCIAL GRADE CONCRETE CONTAINING 517 LBS. (5.5 SACKS) OF CEMENT PER CUBIC YARD			4					
X	AS SPECIFIED ON THE PLANS OR IN THE PROPOSAL BUT NOT LESS THAN 282 LBS. (3 SACKS) OF CEMENT PER CUBIC YARD								

(a) FOR THIS GRADE 35P-HE CONCRETE, TYPE IIIA CEMENT SHALL BE USED