WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
MATERIALS CONTROL, SOILS AND TESTING DIVISION

MATERIALS PROCEDURE

INSTRUCTIONS FOR COMPLETION OF HL-411 CONCRETE BATCH TICKET

1.0 INTRODUCTION

1.1 The mark sensing card system has been designed to provide data recording facilities that will serve both as a computer input medium and a usable record at the project level.

2.0 DESCRIPTION

2.1 The mark sensing card system for concrete batch tickets consists of two cards, one initiated at the plant (blue card, HL-411A) and one initiated at the project (red card, HL-411B). Both cards are linked together with certain identifiers and become the HL-411 record.

2.2 One hard copy and two flimsy copies are contained in each form. The hard, outside copy will be forwarded to the District Materials Section for mailing to the Materials Control, Soils and Testing (MCS&T) Division on a daily basis. One flimsy copy will be maintained at the project and the other copy is for the Contractor.

3.0 MARKING REQUIREMENTS

3.1 Marking Device

3.1.1 All marks will be made with a number two lead pencil. Marks made with any other type writing or marking instrument will not be acceptable.

3.2 Intensity

3.2.1 The mark must leave a dense and dark impression applied with sufficient force to penetrate to the last copy.

3.3 Size and Location

3.3.1 The mark will be centered between the top and bottom of the outline provided. The mark must not extend beyond the marked outline provided; however, it must fill at least two-thirds of the outlined area.

3.4 Alphabetical Characters

3.4.1 The method for entering alphabetical characters is contained in Attachment One.

4.0 DETAILED INSTRUCTIONS

4.1 Plant Card HL-411A

4.1.1 Item Number 1 - Sequence Number - Columns 2 and 4

This number will be assigned at the plant to each load of concrete dispatched to projects. The first load each day will be called Number One, the second Number Two, and so forth. This number is entered on the plant card under "SEQ.". For example, the fifth load sent to projects would be numbered 5 and the 5 marked in the right column. The twenty-fifth load that day would be numbered 25 and the 2 marked in the left column and the 5 in the right column. For loads one through nine, also mark 0 in the left column. In the event more than 99 loads are dispatched during a given day, the following shall apply: For 100 through 109, an "A" shall be marked in the left column to indicate the one hundred and the applicable digit marked in the right column. For 110 through 119 loads, a "B" shall be marked in the left column and the applicable digit marked in the right column; and so on.

4.1.2 Item Number 2 - Source Code - Columns 6 through 14

This code consists of five characters and is assigned by the MCS&T Division. It identifies the concrete plant producing the concrete.

4.1.3 Item Number 3 - Date - Columns 16 through 24

This entry is set up for the month, day, and year as follows:

Month - 2 Columns
Day - 2 Columns
Year - 1 Column for last digit

Examples: May 12, 1981 would be 05121
November 6, 1982 would be 11062

4.1.4 Item Number 4 - Time Batched - Columns 26 through 32

Enter the time batched using the 24 hour clock system. A few examples follows:

8:12 a.m. would be 0812
10:20 a.m. would be 1020
2:15 a.m. would be 1415
6:50 p.m. would be 1850

4.1.5 Item Number 5 - Class of Concrete - Column 34

Enter the following code to indicate the class of concrete.

Code	Class (Spec. Strength)
0	Special Designs
1	41,370 kPa
2	55,160 kPa
3	
4	A 24,132 kPa
5	B 20,685 kPa
6	B Deck 20,685 kPa
7	C 118,835 kPa
8	D 13,790 kPa
9	Pavement 20,685 kPa
F	Pavement w/Fly Ash 20,685 kPa
G	K 24,822 kPa
H	31,717 kPa
I	31,717 kPa
V	B Mod. 24,132 kPa
W	B Mod. 27,580 kPa
X	B Mod. 31,027 kPa
Y	B Mod. 34,475 kPa

4.1.6 Item Number 6 - Cubic Meters Per Load - Columns 36 through 40

Enter the total cubic yards in the load. Record this to the nearest hundredth. The decimal point is between Columns 36 and 38. As an example, a load of 4.25 cubic yards (c.y.) would be recorded by a mark in 4 of Column 36, a mark in 2 of Column 38, and a mark in 5 of Column 40. If the load is 10 c.y., mark 9.99.

4.1.7 Item Number 7 - Total Batch Weight of Cement - Columns 42 through 48

Enter the total weight of cement in the batch to the nearest pound. Right hand justify this entry; that is, Column 48 will be units, Column 46 will be tens, Column 44 will be hundreds, and Column 42 will be thousands. For designs with fly ash, enter weight of cement only. Never include weight of fly ash.

4.1.8 Item Number 8 - Water at Plant - Columns 50 through 54

Enter total water added at the plant to the nearest gallon. right hand justify this entry. The amount entered must include aggregate free moisture.

4.1.9 Item Number 9 - Total Water Allowed - Columns 56 through 60

Enter the total water allowed, in gallons, as set by the maximum gallons per bag of cement.

4.1.10 Item Number 10 - Initial Counter Reading - Columns 63 through 66

Enter the last three digits of counter reading. Right hand justify. This entry may be made either at the plant or job site depending on where mixing is initiated.

Note: At this point, the HL-411A is ready for delivery, along with the load, to the project. The person completing the card at the plant will sign in the space provided at the left hand edge of the card. By doing so, he is certifying that the approved mix design for that class of concrete has been complied with and the entries contained thereon are true and accurate. Place the HL-411A in an envelope for protection and send to the project with the driver.

4.1.11 Item Number 11 - Final Counter Reading - Columns 68 through 72

Enter the last three digits of counter reading when all mixing is completed. The initial and final counter readings should reflect mixing revolutions only, exclusive of agitating revolutions.

4.1.12 Item Number 12 - Temperature - Columns 74 and 76

Enter the temperature of the plastic concrete in °C when taken.

4.1.13 Item Number 13 - Cylinder I.D. - Columns 78 and 80

It concrete cylinders are made for acceptance testing, an entry will be made in these columns. This includes Contractor Quality Control cylinders which the Division designates as acceptance cylinders.

The cylinder identification must be entered on both the card and as the first entry on the T-702 Form under the space provided for field sample number.

The assignment of the cylinder identification number should be coordinated by the Division to ensure that no two sets of cylinders made on a project in any given day have the same identification number.

The cylinder identification number will start with 01 each day and subsequent sets, regardless of class of concrete, will be numbered consecutively throughout the day. The zero will be punched into Column 78 and the consecutive number into Column 80.

Other suitable numbering systems may be employed with strict observation of the following cautions. The cylinder identification as marked on the HL-411A must be the same as the first two entries on the T-702 under Field Sample Number, and the identification must not be repeated on any given day.

4.2 Project Initiated Card - (HL-411B) Columns 2 through 24

Upon receipt of completion of the plant card, the project will initiate the HL-411B by entering the exact same marks in Columns 2 through 24 as appears on the plant initiated card (HL-411A). This ensures that the two cards representing this load are linked.

4.2.1 Item Number 4 - Time Unloaded - Columns 26 through 32

Enter the time the material was unloaded using the 24 hour clock system as described in Section 4.1.4.

4.2.2 Item Number 5 - Project Number - Columns 34 through 54

Enter the project number beginning with Column 24 (left hand justify). Do not leave spaces within the project number or attempt to use special characters. As an example, Project Number I-77-3(28)43 would be I7732843. If a project number is too large for the space provided, drop those characters on the right which would overfill the space provided.

4.2.3 Item Number 6 - Contract Number - Column 56

Enter the contract number, if applicable.

4.2.4 Item Number 7 - Water at Job - Columns 58 through 62

Enter the water, to the nearest gallon, added to the project. Right hand justify this entry.

4.2.5 Item Number 8 - Consistency Test - Column 64

Mark a one (1) in this column whenever a slump test is conducted.

4.2.6 Item Number 9 - Target Consistency - Columns 66 through 70

Enter the optimum consistency specified by the Specifications for the portion of the structure (or use) being placed. Enter this to the nearest quarter inch expressed as a decimal, assuming the decimal to be between Columns 66 and 68.

4.2.7 Item Number 10 - Consistency - Columns 72 through 76

Enter the measured consistency to the nearest quarter inch expressed as a decimal, assuming the decimal to be between Columns 72 and 74.

4.2.8 Item Number 11 - Percent Air - Columns 78 through 80

Enter the percent air to the nearest tenth, assuming the decimal is to lie between Columns 78 and 80. Should air contents in excess of 9.9 be observed, proceed as follows: For air content of 10, enter "A" in Column 78 along with the observed tenths in Column 80. For air contents of 11, enter "B" in Column 78 and the observed tenths in Column 80, and so on.

4.3 Disposition of Cards

The project office should forward the hard copy of each card to the District Materials Section. The cards should be reviewed for obvious errors and any other disqualifying condition such as incomplete erasures, soiled, signatures, or other markings that enter a "bubble", etc. The cards should be expeditiously forwarded to the MCS&T Division in suitable envelopes or packages. Do not join cards with paper clips or staples.

Gary L. Robson, Director
Materials Control, Soils
and Testing Division

GLR:k

Attachment

METHOD FOR MARKING ALPHABETICAL CHARACTERS

In order to mark an alphabetical character, it requires two marks per column; one in the numbered rows (1-9) and another in one of the top three rows:

Alphabet	Mark In
A	Top Most Row Plus 1 in Numbered Row
B	" " 2 " "
C	" " 3 " "
D	" " 4 " "
E	" " 5 " "
F	" " 6 " "
G	" " 7 " "
H	" " 8 " "
I	" " 9 " "
J	Second Row From Top Plus 1 in Numbered Row
K	" " " 2 " "
L	" " " 3 " "
M	" " " 4 " "
N	" " " 5 " "
O	" " " 6 " "
P	" " " 7 " "
Q	" " " 8 " "
R	" " " 9 " "
S	Zero Row Plus 2 in Numbered Row
T	" " 3 " "
U	" " 4 " "
V	" " 5 " "
W	" " 6 " "
X	" " 7 " "
Y	" " 8 " "
Z	" " 9 " "