PAVEMENT
MANAGEMENT
SYSTEMS

ON SPS-9A

July 30, 1996
50451231-13.13.9

Mr. Twiab Khan
Provincial Coordinator for Technical Transfer
Ontario Ministry of Transportation
Research and Development Branch
1201 Wilson Avenue
Downsview, Ontario M3M 1J8

RE: SPS-9A Project 870900, Hwy. 17 WB, Petawawa, ON

Dear Mr. Khan:

Forwarded enclosed are updated revised Materials Sampling and Testing Plans for the SPS-9A project on Hwy. 17 WB, Petawawa, ON.

The revisions are station locations and removal of testing of binder course mixes. As discussed at our last meeting, testing of surface course mixes by the Superpave Regional Test Center (SRTC) is an agency responsibility.

Please let us know where you wish to have the sample containers from the Materials Reference Library (MRL) to be shipped to. We may need to make arrangements for inspection of aggregates which are to be sent back to the MRL.

Enclosed are:-

⇒ Figures 1-8 showing site location, test section layout, materials sampling locations.

⇒ Table 1 listing structure layers.

⇒ Tables 2-11 listing tests which are to be carried out and source of materials to be tested.

⇒ Laboratory Tracking Tables 12-23 showing sequences of tests on each material sample.

⇒ Table 24, a summary of Gyratory Compacted specimen.

⇒ Notes on sampling for Gyratory Compacted specimen.

415 LAWRENCE BELL DRIVE
UNIT #3
AMHERST, N Y 14221
TEL (716) 632-0804
FAX (716) 632-4808

Should you need clarification or have questions, please do not hesitate to call me at (716) 632-0804.

Yours Sincerely,

William A. Phang

William A. Phang
Principal Investigator
Pavement Management Systems Limited

WAP/tf

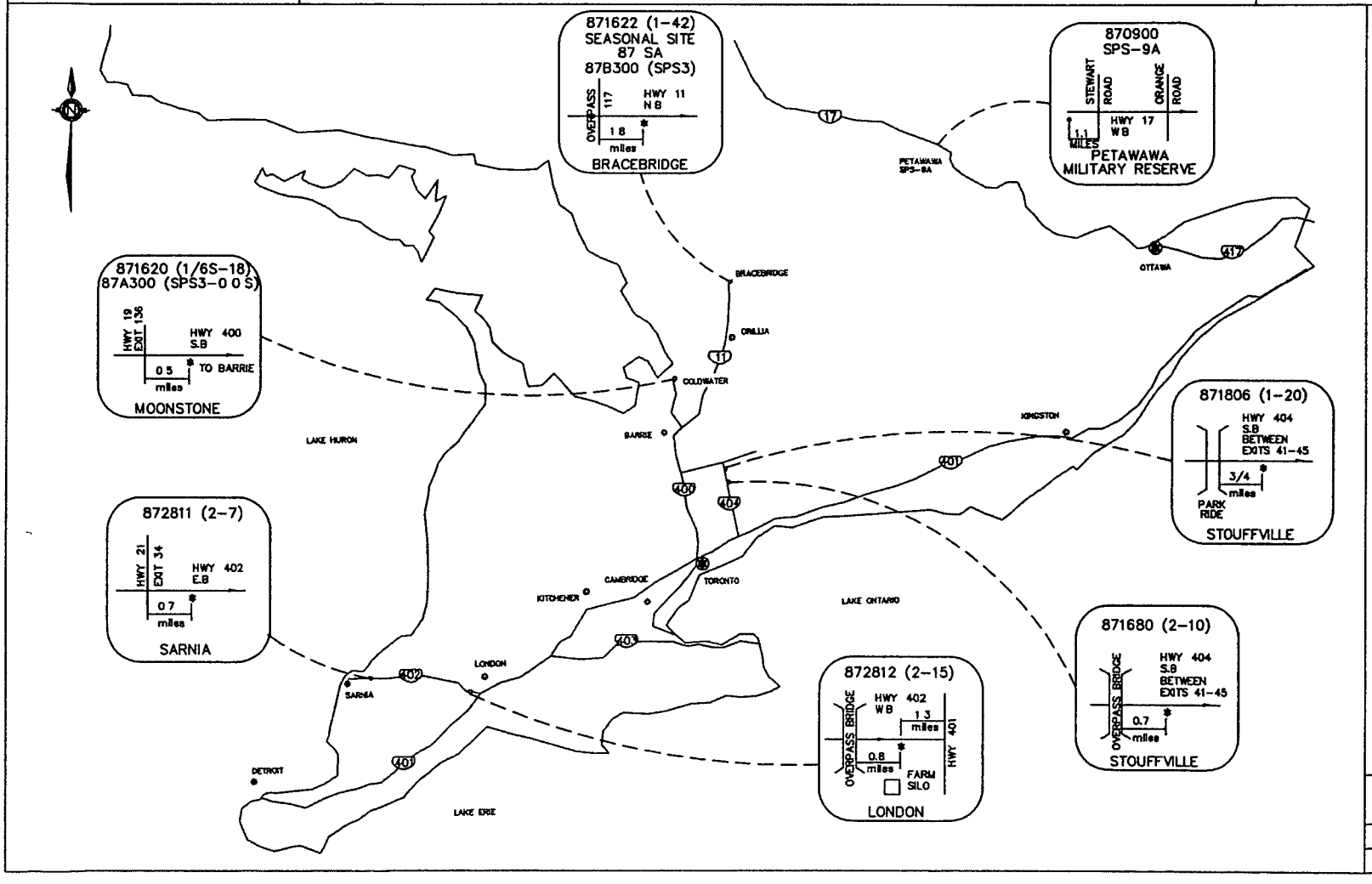
enclosures

C.C. I.J. Pecnik, P.E., RE NARO, w/enclosures
A. Virani, ON MTO, w/enclosures
E. Lesswing, NARO, w/enclosures
B. Abukhater, NARO, w/enclosures
A. Rutka, NARO, w/enclosures
M. Symons, FHWA-LTPP, w/enclosures
G. Rada, PCS/Law, w/enclosures

FHWA–LTPP ONTARIO TEST SITE LOCATIONS
GPS–SPS PAVEMENT STUDIES

shrp

PMS ™ PAVEMENT MANAGEMENT SYSTEMS LIMITED

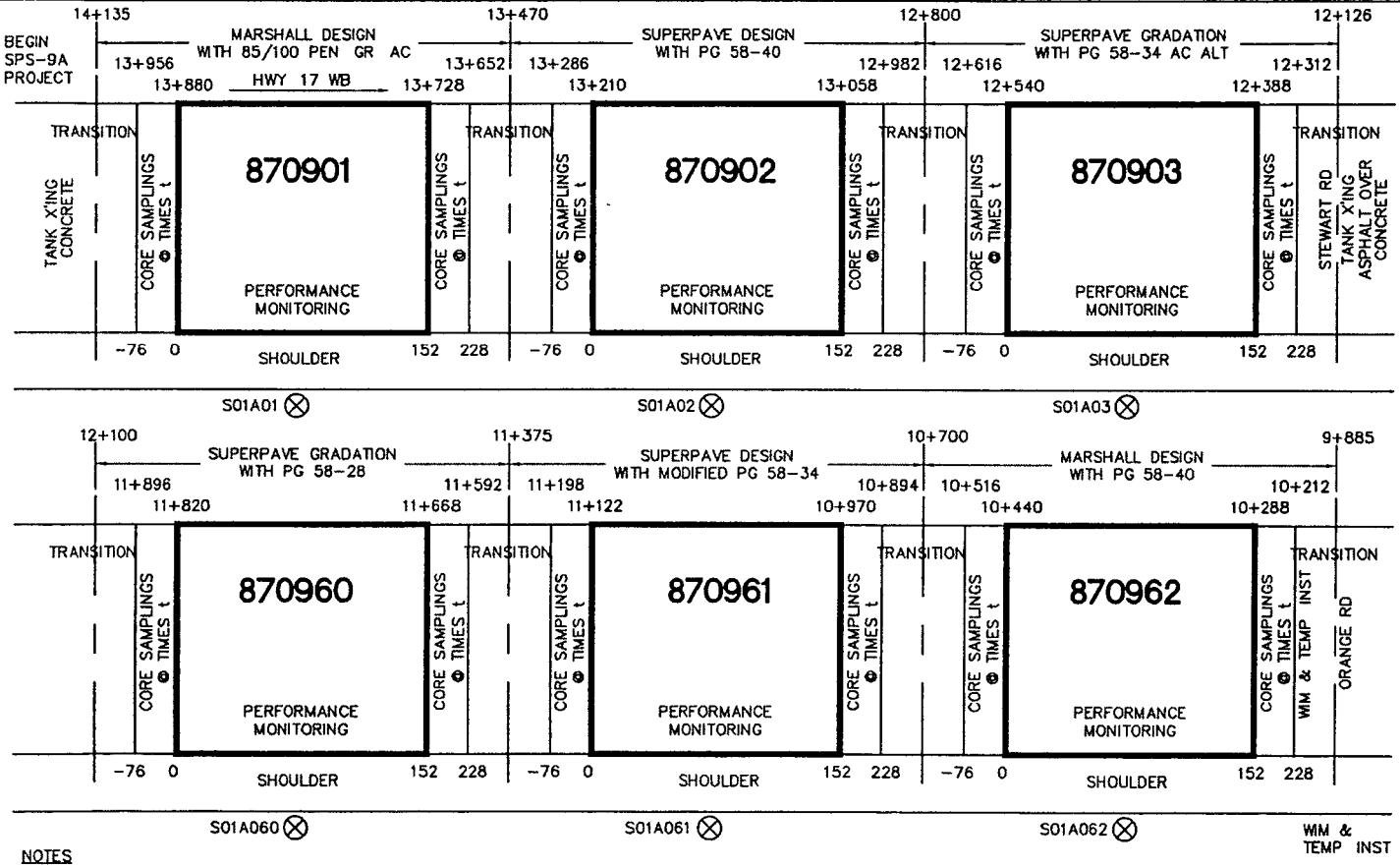


ONT.dwg PLOTDATE: DEC. 11/95

FHWA–LTPP SPS 9A PETAWAWA ON DESIGN SCHEMATIC

VALIDATION OF SHRP ASPHALT SPECIFICATIONS AND MIX DESIGN AND INNOVATIONS IN ASPHALT PAVEMENTS

PAVEMENT MANAGEMENT SYSTEMS LIMITED



NOTES

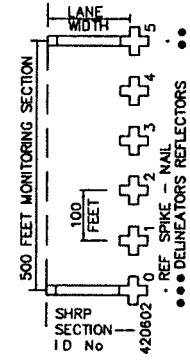
* POLYMER MODIFICATION OF THE A/C IN 870961 AND/OR 870962 IS A CONTRACTOR/SUPPLIER OPTION

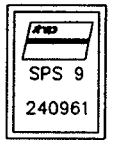
t 152mm DIAMETER CORES SAMPLED @ TIMES

A = 0, IMMEDIATELY AFTER CONSTRUCTION
B = 6 MONTHS AFTER CONSTRUCTION
C = 12 MONTHS AFTER CONSTRUCTION
D = 18 MONTHS AFTER CONSTRUCTION
E = 24 MONTHS AFTER CONSTRUCTION
F = 48 MONTHS AFTER CONSTRUCTION

⊗ SHOULDER PROBES TO 6m (S1–S6)

TYPICAL SITE SIGNING & MARKING





MARSHALL + SUPERPAVE ASPHALT MIXES WITH PENETRATION AND PG ASPHALT CEMENTS

MOT ON SPS–9A, HWY 17 WB, PETAWAWA, ON

PLOTDATE JAN 11/96

SPS–9A–02

FHWA SPS–9A TEST SECTIONS ONLY
DIMENSIONAL DETAILS ONLY
DRAWING NOT TO SCALE

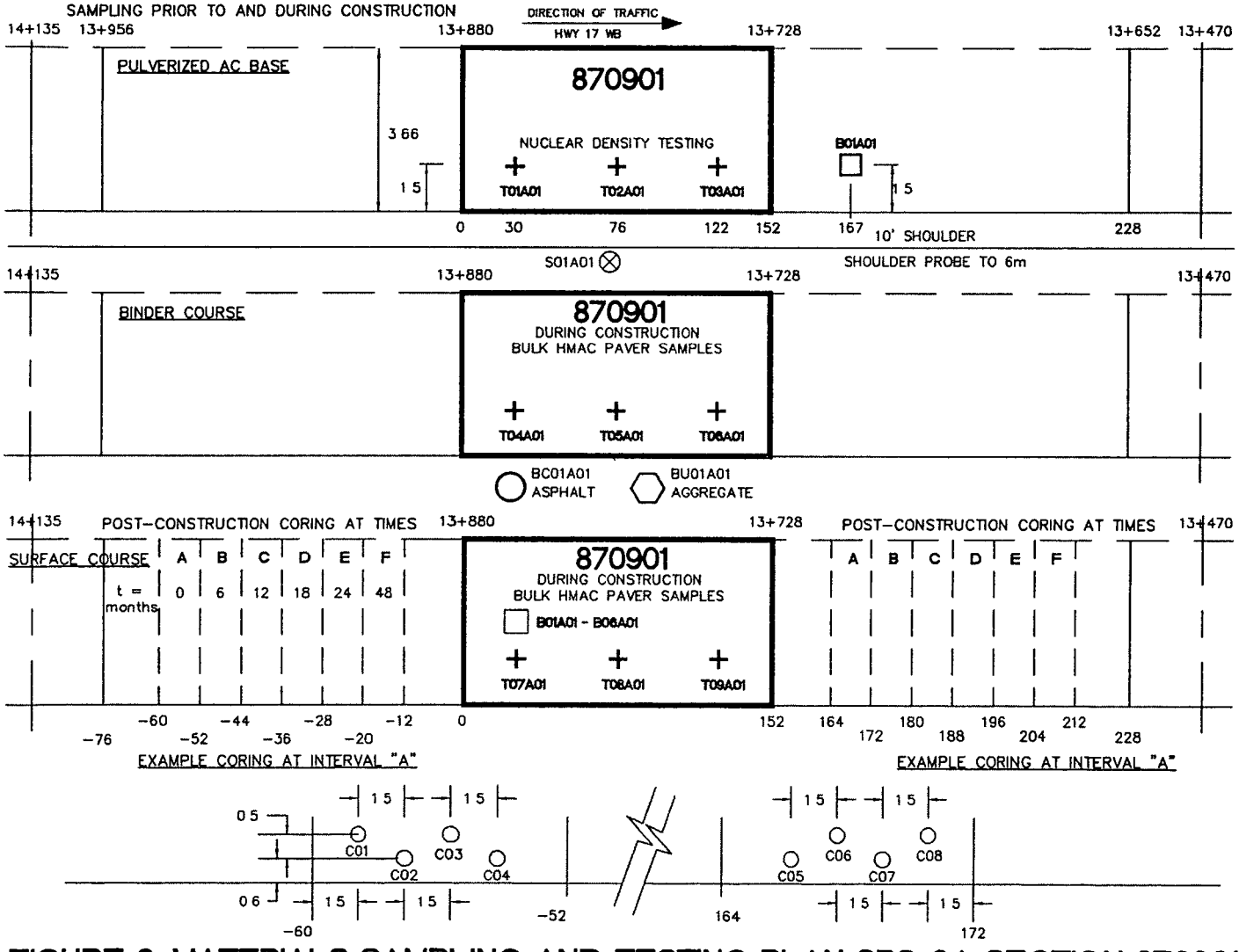
FIGURE 2–MOT ON. SPS–9A, HWY. 17 NB, PETAWAWA, ON.–TEST SECTION LAYOUT

SPS9A–2

FHWA–LTPP SPS 9A PETAWAWA ON DESIGN SCHEMATIC

VALIDATION OF SHRP ASPHALT SPECIFICATIONS AND MIX DESIGN AND INNOVATIONS IN ASPHALT PAVEMENTS

PAVEMENT MANAGEMENT SYSTEMS LIMITED



PRIOR TO PAVING

- BULK SAMPLE LOCATIONS B01A01
  FOR SUBGRADE– BS01A01
  PULVERIZED AC– BG01A01
  GRANULAR SUBBASE BG02A01
- NUCLEAR DENSITY TESTS T01A01–T03A01
- SHOULDER AUGER PROBE TO 6m S01A01

DURING PAVING

- BULK PAVER SAMPLES
  SURFACE COURSE–BA01A01–BA06A01
- NUCLEAR DENSITY TESTS
  BINDER– T04A01–T06A01
  SURFACE– T07A01–T09A01
- ASPHALT CEMENT PLANT SAMPLE BC01A01
- COMBINED AGGREGATE PLANT SAMPLE BU01A01

POST CONSTRUCTION

- 152mm CORE SPECIMEN
  CA01A01–CA08A01
  CA01B01–CA08B01
  CA01C01–CA08C01
  CA01D01–CA08D01
  CA01E01–CD08E01
  CA01F01–CA08F01

SPS 9
240961

ROAD TEST

MARSHALL DESIGN WITH 85-100 PEN. GRADE A/C

MOT ON SPS–9A HWY 17 WB
PETAWAWA, ON

PLOTDATE: DEC 11/95

SPS–9A–03

FHWA SPS–9A TEST SECTIONS ONLY
DIMENSIONAL DETAILS ONLY
DRAWING NOT TO SCALE

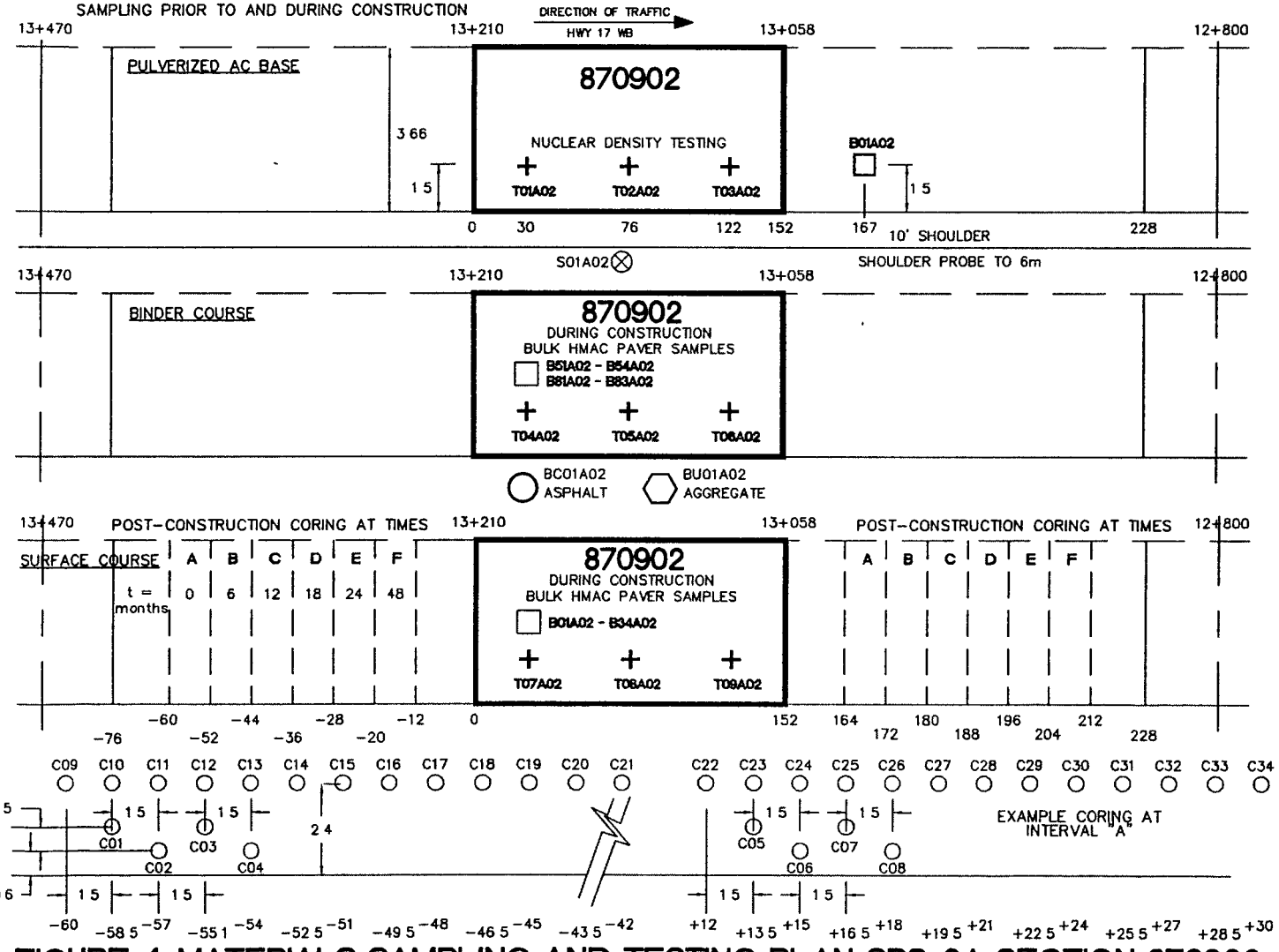
FIGURE 3–MATERIALS SAMPLING AND TESTING PLAN SPS–9A SECTION 870901

SPS–9A–03

FHWA–LTPP SPS 9A PETAWAWA ON DESIGN SCHEMATIC

VALIDATION OF SHRP ASPHALT SPECIFICATIONS AND MIX DESIGN AND INNOVATIONS IN ASPHALT PAVEMENTS

PAVEMENT MANAGEMENT SYSTEMS LIMITED



PRIOR TO PAVING

- □ BULK SAMPLE LOCATIONS B01A02
  FOR SUBGRADE– BS01A02
  PULVERIZED AC– BG01A02
  GRANULAR SUBBASE BG02A02
- + NUCLEAR DENSITY TESTS
  T01A02–T03A02
- ⊗ SHOULDER AUGER PROBE TO 6m
  S01A02

DURING PAVING

- □ BULK PAVER SAMPLES
  BINDER COURSE–BA51A02–BA54A02
  –BA81A02–BA83A02
  SURFACE COURSE–BA01A02–BA34A02
- + NUCLEAR DENSITY TESTS
  BINDER– T04A02–T06A02
  SURFACE– T07A02–T09A02
- ○ ASPHALT CEMENT PLANT SAMPLE
  BC01A02
- ⬡ COMBINED AGGREGATE PLANT
  SAMPLE BU01A02

POST CONSTRUCTION

- ○ 152mm CORE SPECIMEN
  CA01A02–CA34A02
  CA01B02–CA08B02
  CA01C02–CA08C02
  CA01D02–CA08D02
  CA01E02–CD08E02
  CA01F02–CA08F02

SPS 9
240961

ROAD TEST

SUPERPAVE WITH PG 58-40

MOT ON SPS–9A HWY 17 WB
PETAWAWA, ON

PLOTDATE: DEC 11/95

SPS–9A–04

FHWA SPS–9A TEST SECTIONS ONLY
DIMENSIONAL DETAILS ONLY
DRAWING NOT TO SCALE

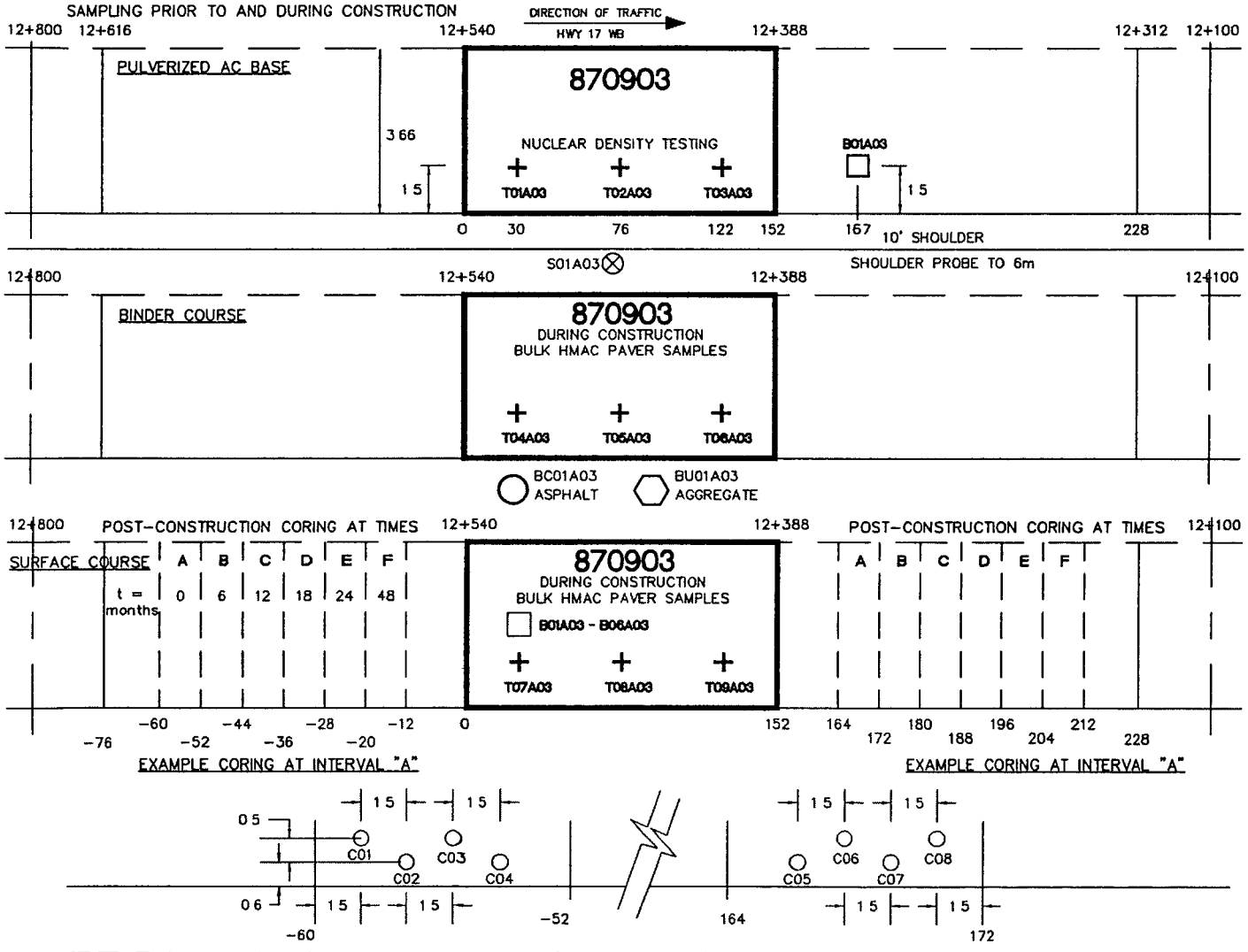
FIGURE 4-MATERIALS SAMPLING AND TESTING PLAN SPS-9A SECTION 870902

SPS–9A–04

FHWA–LTPP SPS 9A PETAWAWA ON DESIGN SCHEMATIC

VALIDATION OF SHRP ASPHALT SPECIFICATIONS AND MIX DESIGN AND INNOVATIONS IN ASPHALT PAVEMENTS

PAVEMENT MANAGEMENT SYSTEMS LIMITED



PRIOR TO PAVING

- BULK SAMPLE LOCATIONS B01A03
  FOR SUBGRADE– BS01A03
  PULVERIZED AC– BG01A03
  GRANULAR SUBBASE BG02A03
- NUCLEAR DENSITY TESTS T01A03–T03A03
- SHOULDER AUGER PROBE TO 6m S01A03

DURING PAVING

- BULK PAVER SAMPLES
  SURFACE COURSE–BA01A03–BA06A03
- NUCLEAR DENSITY TESTS
  BINDER– T04A03–T06A03
  SURFACE– T07A03–T09A03
- ASPHALT CEMENT PLANT SAMPLE BC01A03
- COMBINED AGGREGATE PLANT SAMPLE BU01A03

POST CONSTRUCTION

- 152mm CORE SPECIMEN
  CA01A03–CA08A03
  CA01B03–CA08B03
  CA01C03–CA08C03
  CA01D03–CA08D03
  CA01E03–CD08E03
  CA01F03–CA08F03

SPS 9
240961

ROAD TEST

SUPERPAVE GRADATION WITH PG 58-34 ALTERNATIVE

MOT ON SPS–9A HWY 17 WB
PETAWAWA, ON

PLOTDATE: DEC 11/93

SPS–9A–05

FHWA SPS–9A TEST SECTIONS ONLY
DIMENSIONAL DETAILS ONLY
DRAWING NOT TO SCALE

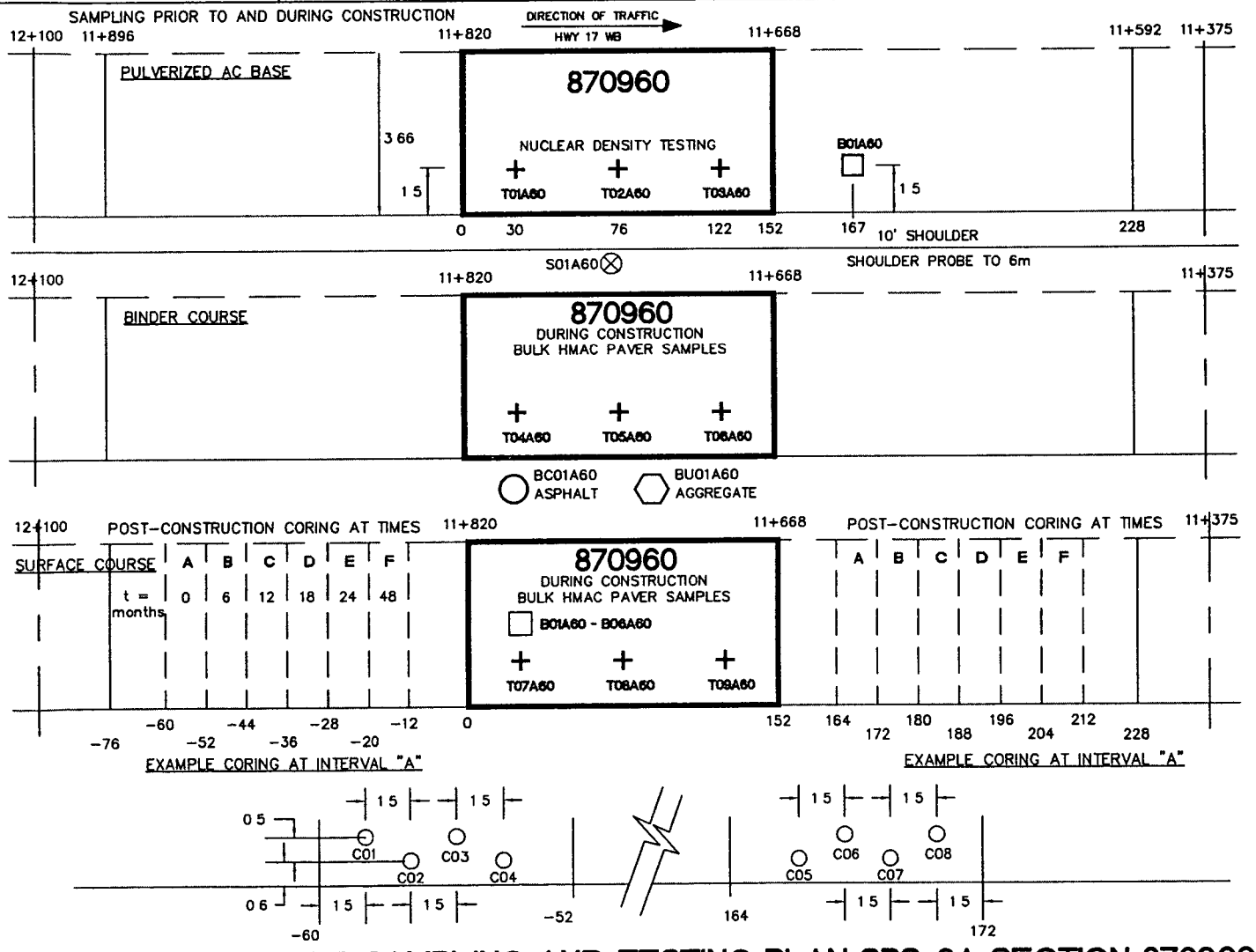
FIGURE 5–MATERIALS SAMPLING AND TESTING PLAN SPS–9A SECTION 870903

SPS–9A–05

FHWA–LTPP SPS 9A PETAWAWA ON DESIGN SCHEMATIC

VALIDATION OF SHRP ASPHALT SPECIFICATIONS AND MIX DESIGN AND INNOVATIONS IN ASPHALT PAVEMENTS

PAVEMENT MANAGEMENT SYSTEMS LIMITED



PRIOR TO PAVING

- BULK SAMPLE LOCATIONS B01A60
  FOR SUBGRADE– BS01A60
  PULVERIZED AC– BG01A60
  GRANULAR SUBBASE BG02A60
- NUCLEAR DENSITY TESTS T01A60–T03A60
- SHOULDER AUGER PROBE TO 6m S01A60

DURING PAVING

- BULK PAVER SAMPLES
  SURFACE COURSE–BA01A60–BA06A60
- NUCLEAR DENSITY TESTS
  BINDER– T04A60–T06A60
  SURFACE– T07A60–T09A60
- ASPHALT CEMENT PLANT SAMPLE BC01A60
- COMBINED AGGREGATE PLANT SAMPLE BU01A60

POST CONSTRUCTION

- 152mm CORE SPECIMEN
  CA01A60–CA08A60
  CA01B60–CA08B60
  CA01C60–CA08C60
  CA01D60–CA08D60
  CA01E60–CD08E60
  CA01F60–CA08F60

SPS 9
240961

ROAD TEST

SUPERPAVE GRADATION WITH PG 58-28

MOT ON SPS–9A HWY 17 WB
PETAWAWA, ON

PLOTDATE: DEC 11/95

SPS–9A–06

FHWA SPS–9A TEST SECTIONS ONLY
DIMENSIONAL DETAILS ONLY
DRAWING NOT TO SCALE

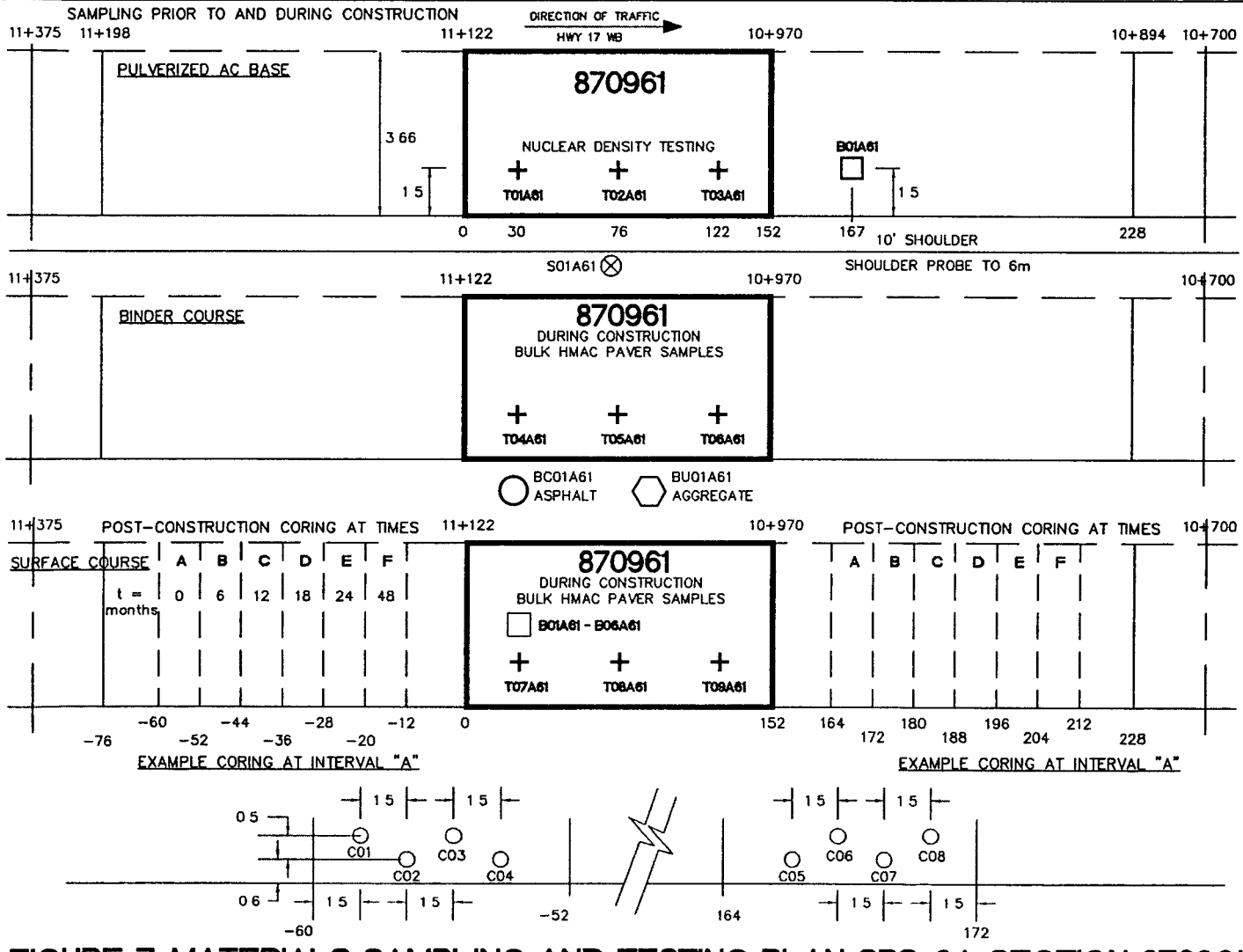
FIGURE 6-MATERIALS SAMPLING AND TESTING PLAN SPS-9A SECTION 870960

SPS–9A–06

FHWA–LTPP SPS 9A PETAWAWA ON DESIGN SCHEMATIC

VALIDATION OF SHRP ASPHALT SPECIFICATIONS AND MIX DESIGN AND INNOVATIONS IN ASPHALT PAVEMENTS

PAVEMENT MANAGEMENT SYSTEMS LIMITED



PRIOR TO PAVING

- BULK SAMPLE LOCATIONS B01A61
  FOR SUBGRADE– BS01A61
  PULVERIZED AC– BG01A61
  GRANULAR SUBBASE BG02A61
- NUCLEAR DENSITY TESTS T01A61–T03A61
- SHOULDER AUGER PROBE TO 6m S01A61

DURING PAVING

- BULK PAVER SAMPLES
  SURFACE COURSE–BA01A61–BA06A61
- NUCLEAR DENSITY TESTS
  BINDER– T04A61–T06A61
  SURFACE– T07A61–T09A61
- ASPHALT CEMENT PLANT SAMPLE BC01A61
- COMBINED AGGREGATE PLANT SAMPLE BU01A61

POST CONSTRUCTION

- 152mm CORE SPECIMEN
  CA01A61–CA08A61
  CA01B61–CA08B61
  CA01C61–CA08C61
  CA01D61–CA08D61
  CA01E61–CD08E61
  CA01F61–CA08F61

SPS 9
240961

ROAD TEST

SUPERPAVE WITH PG 58-34

MOT ON SPS–9A HWY 17 WB
PETAWAWA, ON

PLOTDATE: JAN 11/98

SPS–9A–07

FHWA SPS–9A TEST SECTIONS ONLY
DIMENSIONAL DETAILS ONLY
DRAWING NOT TO SCALE

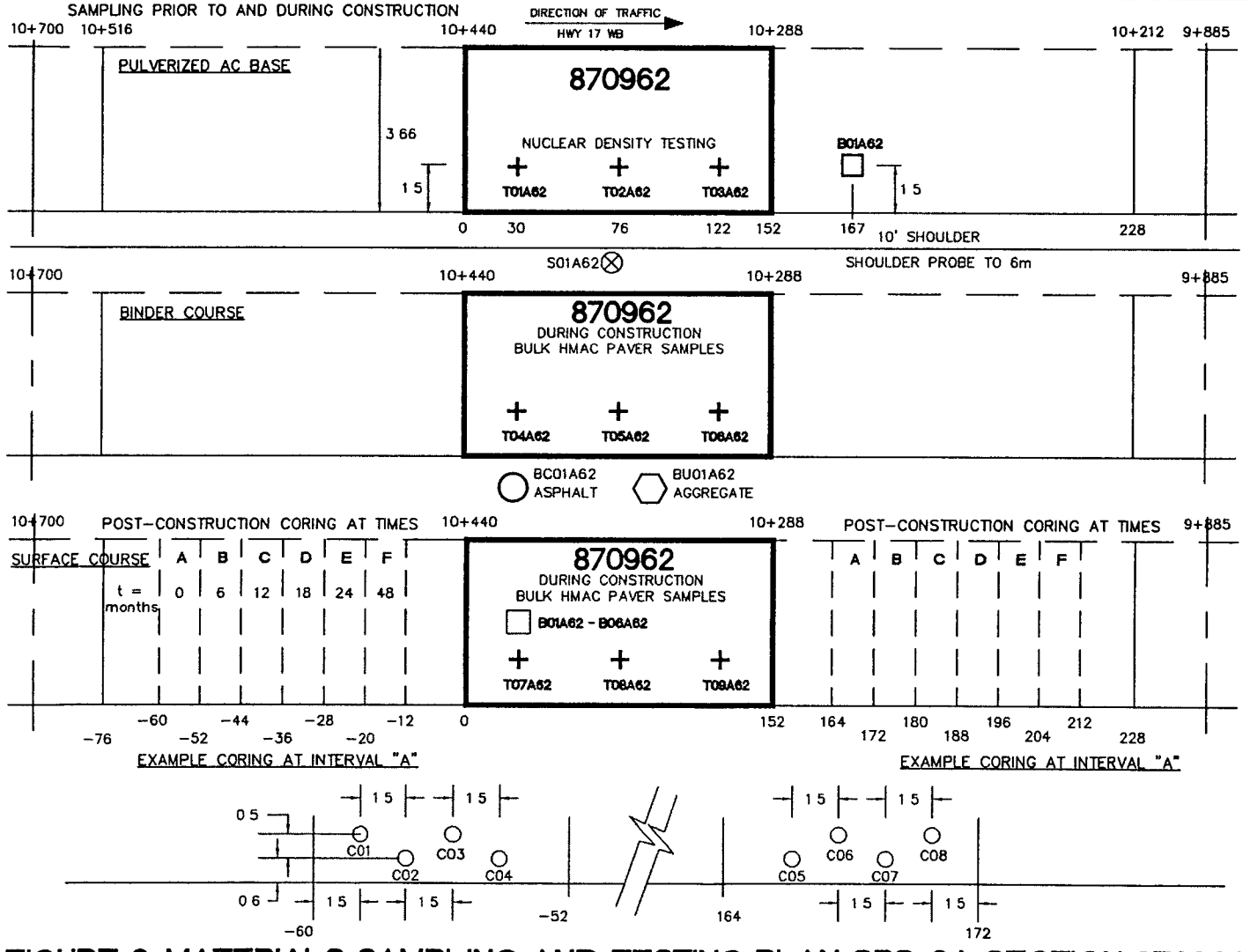
FIGURE 7-MATERIALS SAMPLING AND TESTING PLAN SPS-9A SECTION 870961

SPS–9A–07

FHWA–LTPP SPS 9A PETAWAWA ON DESIGN SCHEMATIC

VALIDATION OF SHRP ASPHALT SPECIFICATIONS AND MIX DESIGN AND INNOVATIONS IN ASPHALT PAVEMENTS

PAVEMENT MANAGEMENT SYSTEMS LIMITED



PRIOR TO PAVING

- BULK SAMPLE LOCATIONS B01A62 FOR SUBGRADE– BS01A62 PULVERIZED AC– BG01A62 GRANULAR SUBBASE BG02A62
- NUCLEAR DENSITY TESTS T01A62–T03A62
- SHOULDER AUGER PROBE TO 6m S01A62

DURING PAVING

- BULK PAVER SAMPLES SURFACE COURSE–BA01A62–BA06A62
- NUCLEAR DENSITY TESTS BINDER– T04A62–T06A62 SURFACE– T07A62–T09A62
- ASPHALT CEMENT PLANT SAMPLE BC01A62
- COMBINED AGGREGATE PLANT SAMPLE BU01A62

POST CONSTRUCTION

- 152mm CORE SPECIMEN CA01A62–CA08A62 CA01B62–CA08B62 CA01C62–CA08C62 CA01D62–CA08D62 CA01E62–CD08E62 CA01F62–CA08F62

SPS 9 240961

ROAD TEST

MARSHALL DESIGN WITH PG 58-40

MOT ON SPS–9A HWY 17 WB PETAWAWA, ON

PLOTDATE DEC 11/93

SPS–9A–08

FHWA SPS–9A TEST SECTIONS ONLY DIMENSIONAL DETAILS ONLY DRAWING NOT TO SCALE

FIGURE 8–MATERIALS SAMPLING AND TESTING PLAN SPS–9A SECTION 870962

SPS–9A–08

TABLE 1
ON MTO SPS-9A, Project 870900, Hwy 17 WB, Petawawa, ON
Pavement Structure

Layer No.	Project Layer Code	Layer Thickness mm	Material Code	Material Description/Comments	Depth to Rock m
1	A	---	204	Subgrade - Poorly Graded Sand	
2	B	150	304	Subbase - Crushed Gravel	
3	C	150	319	Base - Pulverized existing AC pavement mixed with underlying granular	
4	D	65	01	Binder Course - HMAC, 19mm Max. Size	
5	E	65	01	Surface Course - HMAC, 12.5mm Max. Size	

TABLE 2
ON MTO SPS-9A PROJECT 870900, HIGHWAY 17 WB, PETAWAWA, ON
Agency Field Testing

Field Tests	Test	No. of Tests	Test Location (Identifier)
Pre-Construction			**Monitoring**
Depth to Rigid Layer	shoulder auger probe to 6m or refusal	1 per section	Sta 0+076 at edge of shoulder (S01AXX)
Recompacted Pulverized AC Surface			
Nuclear Density Tests	AASHTO T238-86 backscatter	3 per section	Sta 0+030, 0+076, and 0+122, 1m from pavement edge (T01AXX-T03AXX)
Establish TBM's and Baseline Levels	rod and level	55 per section	5 transverse locations (pavement edges, mid-lane, wheel tracks) at 15m intervals
Post-Construction			
Nuclear Density Tests Binder and Surface	AASHTO T238-86 backscatter	3 per section per layer	Sta 0+030, 0+076, and 0+122, 1m from pavement edge (T04AXX-T09AXX)
Finished Surface Levels and on Top of Intermediate Layers where Desired	rod and level	55 per section	Above points located in baseline survey

Note: XX Last two digits of location identifiers is the section number (01, 02, 03, 60, 61, and 62)
Stationing is in metres

TABLE 2A
ON MTO SPS-9A, Project 870900, HWY 17 WB, PETAWAWA, ON
Agency Field Sampling

PRE-CONSTRUCTION

Section	Description	Sample Numbers
870901	granular base samples granular subbase sample subgrade sample	BG02A01, MG02A01 BG01A01, MG01A01 BS01A01, BS02A01, MS01A01, MS02A01
870902	granular base samples granular subbase sample subgrade sample	BG02A02, MG02A02 BG01A02, MG01A02 BS01A02, BS02A02, MS01A02, MS02A02
870903	granular base samples granular subbase sample subgrade sample	BG02A03, MG02A03 BG01A03, MG01A03 BS01A03, BS02A03, MS01A03, MS02A03
870960	granular base samples granular subbase sample subgrade sample	BG02A60, MG02A60 BG01A60, MG01A60 BS01A60, BS02A60, MS01A60, MS02A60
870961	granular base samples granular subbase sample subgrade sample	BG02A61, MG02A61 BG01A61, MG01A61 BS01A61, BS02A61, MS01A61, MS02A61
870962	granular base samples granular subbase sample subgrade sample	BG02A62, MG02A62 BG01A62, MG01A62 BS01A62, BS02A62, MS01A62, MS02A62

TABLE 2A (Cont.)
ON MTO SPS-9A, Project 870900, HWY 17 WB, PETAWAWA, ON
Agency Field Sampling

DURING-CONSTRUCTION

Section	Description	Sample Numbers
870901	2-19 litre pails of 85-100 pen AC 5-19 litre pails of combined aggregate 6-split-off GC samples of surface course HMAC	BC01A01 (Agency & MRL) BU01A01 (MRL) BA01A01-BA06A01 (Agency QC/QA)
870902	2-19 litre pails of PG 58-40 5-19 litre pails of combined aggregate - Superpave surface course mix 34-split-off GC samples of surface course mix 6-split-off GC samples of binder course mix 12-6"dia x 12" cylindrical molds filled with binder course hot mix	BC01A02 (Agency & MRL) BU01A02 (MRL) BA01A02-BA34A02 (Agency GC Specimen) BA52A02-BA54A02, BA81A02-BA83A02 (Agency QC/QA) BA50A02 (MRL)
870903	2-19 litre pails of PG 58-34 6-split-off GC samples of surface course mix	BC01A03 (Agency & MRL) BA01A03-BA06A03 (Agency QC/QA)
870960	2-19 litre pails of PG 58-28 6-split-off GC samples of surface course mix	BC01A60 (Agency & MRL) BA01A60-BA06A60 (Agency QC/QA)
870961	2-19 litre pails of PG 58-34 (polymer modified) 6-split-off GC samples of surface course mix	BC01A61 (Agency & MRL) BA01A61-BA06A61 (Agency QC/QA)
870962	6-split-off GC samples of surface course mix	BA01A62-BA06A62 (Agency QC/QA)

TABLE 2A (Cont.)
ON MTO SPS-9A, Project 870900, HWY 17 WB, PETAWAWA, ON
Agency Field Sampling, Cores

POST-CONSTRUCTION

Section	Description	A=0 Months	B=6 Months	C=12 Months	D=18 Months	E=24 Months	F=48 Months
870901	152mm dia cores	CA01A01-CA08A01	CA01B01-CA08B01	CA01C01-CA08C01	CA01D01-CA08D01	CA01E01-CA08E01	CA01F01-CA08F01
870902	152mm dia cores	CA01A02-CA34A02	CA01B02-CA08B02	CA01C02-CA08C02	CA01D02-CA08D02	CA01E02-CA08E02	CA01F02-CA08F02
870903	152mm dia cores	CA01A03-CA08A03	CA01B03-CA08B03	CA01C03-CA08C03	CA01D03-CA08D03	CA01E03-CA08E03	CA01F03-CA08F03
870960	152mm dia cores	CA01A60-CA08A60	CA01B60-CA08B60	CA01C60-CA08C60	CA01D60-CA08D60	CA01E60-CA08E60	CA01F60-CA08F60
870961	152mm dia cores	CA01A61-CA08A61	CA01B61-CA08B61	CA01C61-CA08C61	CA01D61-CA08D61	CA01E61-CA08E61	CA01F61-CA08F61
870962	152mm dia cores	CA01A62-CA08A62	CA01B62-CA08B62	CA01C62-CA08C62	CA01D62-CA08D62	CA01E62-CA08E62	CA01F62-CA08F62

TABLE 3
ON MTO SPS-9A PROJECT 870900, HWY 17 WB, PETAWAWA, ON
Agency Laboratory Testing Summary

Laboratory Test	LTPP Test	LTPP Protocol	No. of Tests	Source of Material
EXISTING PAVEMENT				
Subgrage				**10kg Bulk Samples and Jar Samples**
Sieve Analysis	SS01	P51	6	BS01A01, BS01A02, BS01A03, BS01A60, BS01A61, BS01A62
Atterberg Limits	SS03	P43	6	BS01A01, BS01A02, BS01A03, BS01A60, BS01A61, BS01A62
Classification	SS04	P52	6	BS01A01, BS01A02, BS01A03, BS01A60, BS01A61, BS01A62
Natural Moisture Content	SS09	P49	6	BS01A01, BS01A02, BS01A03, BS01A60, BS01A61, BS01A62
Unbound Subbase and Base				**25kg Bulk Samples**
Particle Size Analysis	UG01	P41	12	BG01A01, BG02A01, BG01A02, BG02A02, BG01A03, BG02A03 BG01A60, BG02A60, BG01A61, BG02A61, BG01A62, BG02A62
Sieve Analysis (washed)	UG02	P41	12	BG01A01, BG02A01, BG01A02, BG02A02, BG01A03, BG02A03 BG01A60, BG02A60, BG01A61, BG02A61, BG01A62, BG02A62
Atterberg Limits	UG04	P43	12	BG01A01, BG02A01, BG01A02, BG02A02, BG01A03, BG02A03 BG01A60, BG02A60, BG01A61, BG02A61, BG01A62, BG02A62
Classification	UG08	P47	12	BG01A01, BG02A01, BG01A02, BG02A02, BG01A03, BG02A03 BG01A60, BG02A60, BG01A61, BG02A61, BG01A62, BG02A62
Natural Moisture Content	UG10	P49	12	MG01A01, MG02A01, MG01A02, MG02A02, MG01A03, MG02A03 MG01A60, MG02A60, MG01A61, MG02A61, MG01A62, MG02A62

BG01AXX and BG02AXX are Pulverized AC Base and Unbound Granular Subbase respectively

TABLE 4
ON MTO SPS-9A PROJECT 870900, HWY 17 WB, PETAWAWA, ON

Agency Laboratory Tests on Mix Components

Laboratory Test	LTPP Test	LTPP Protocol	No. of Tests	Source of Material **				
Aggregates				**Marshall Aggregates**	**Superpave Aggregates**			
Combined Aggregate Gradation	AG04	P14	2	BU01A01	BU01A02			
Specific Gravity of Co Agg	AG01	P11	2	BU01A01	BU01A02			
Specific Gravity of Fine Agg	AG02	P12	2	BU01A01	BU01A02			
Specific Gravity of Pass 200		AASHTO T100	2	BU01A01	BU01A02			
Coarse Agg Angularity		PA DOT TM621	2	BU01A01	BU01A02			
Fine Agg Angularity		ASTM C1252	2	BU01A01	BU01A02			
Toughness		AASHTO T96	2	BU01A01	BU01A02			
Soundness		AASHTO T104	2	BU01A01	BU01A02			
Deleterious Material		AASHTO T112	2	BU01A01	BU01A02			
Clay Content		AASHTO T176	2	BU01A01	BU01A02			
Thin, Elongated Particles		ASTM D4791	2	BU01A01	BU01A02			
Asphalt Cement*				85-100 Penetration Grade	PG58-40	PG58-34 Modified	PG58-34	PG58-28
Penetration @ 5 deg C		AASHTO T49	5	BC01A01	BC01A02	BC01A61	BC01A03	BC01A60
Penetration @ 25 deg , 46 deg C	AE02	P22	10	BC01A01	BC01A02	BC01A61	BC01A03	BC01A60
Viscosity @ 60 deg , 135 deg C	AE05	P25	10	BC01A01	BC01A02	BC01A61	BC01A03	BC01A60
Specific Gravity @ 16 deg C	AE03	P23	10	BC01A01	BC01A02	BC01A61	BC01A03	BC01A60
Dynamic Shear @ 3 Temps.		AASHTO TP5	10	BC01A01	BC01A02	BC01A61	BC01A03	BC01A60
Brookfield Viscosity 135 deg , 165 deg. C		ASTM D4402	5	BC01A01	BC01A02	BC01A61	BC01A03	BC01A60
Rolling Thin Film (RTFOT)*		AASHTO T240	10+	BC01A01	BC01A02	BC01A61	BC01A03	BC01A60
Dynamic Shear on RTFOT Residue @ 3 Temps		AASHTO TP5	5	BC01A01	BC01A02	BC01A61	BC01A03	BC01A60
Pressure Aging (PAV) of RTFOT Residue*		AASHTO PP1	10+	BC01A01	BC01A02	BC01A61	BC01A03	BC01A60
Creep Stiffness of PAV Residue - 24h Conditioning		AASHTO TP1	5	BC01A01	BC01A02	BC01A61	BC01A03	BC01A60
Creep Stiffness of PAV Residue (2 Temps)		AASHTO TP1	10	BC01A01	BC01A02	BC01A61	BC01A03	BC01A60
Dynamic Shear on PAV Residue (3 Temps)		AASHTO TP5	10	BC01A01	BC01A02	BC01A61	BC01A03	BC01A60
Direct Tension on PAV Residue (2 Temps)		AASHTO TP3	10	BC01A01	BC01A02	BC01A61	BC01A03	BC01A60

* Consult SPS-9A Sampling & Testing Guidelines, February 1996 for Quantities and Temperatures

** If aggregates used in the Marshall Design Mixes are from the same source as Superpave Mixes, there is no need to repeat testing on Marshall Aggregates

TABLE 5
ON MTO SPS-9A PROJECT 870900, HWY 17 WB, PETAWAWA, ON
Level 1 Mix Design Testing for MTO and Superpave Alternative Laboratory Prepared Mixes

Laboratory Test	LTPP Test	LTPP Protocol	No. of Tests	Source of Material (Specimen)
Gyratory Compacted Test Specimen for Sections 870901, 870903, 870960, 870961, and 870962				
@ Design % AC and N_{Max} % AC Binder (19mm max) % AC Wearing Course (12 5mm max)		AASHTO M-002	3	NA01AXX-NA03AXX (LA01AXX-LA03AXX)
@ Design % AC and 7% Air Voids % AC Binder (19mm max) % AC Wearing Course (12 5mm max)		AASHTO M-002	6	NA04AXX-NA09AXX (LA04AXX-LA09AXX)
Moisture Susceptibility	AC05	AASHTO T-238	1	LA04AXX-LA09AXX
Bulk Specific Gravity	AC02	P02	9	LA01AXX-LA09AXX
Maximum Specific Gravity	AC03	P03	1	NA03AXX
Volumetrics (calculations)*				
Volume Percent of Air Voids		AASHTO PP19	3	LA01AXX-LA03AXX
Percent Voids in Mineral Aggregate		AASHTO PP19	3	LA01AXX-LA03AXX
Voids Filled with Asphalt		AASHTO PP19	3	LA01AXX-LA03AXX

Note 1) For Project 870900 N_{init} = 7, N_{Design} = 86, N_{MAX} = 134

Note 2) Section 03, 60, and 61 use same aggregate gradation as in section 02, Superpave Mix Design but with alternative binders PG58-34, PG58-28, and Polymer modified PG 58-34 (Contractor/Supplier option) respectively

Note 3) Section 62 uses same aggregate gradation as in the MOT design section 01, but with PG 58-40 Superpave binder

* Use estimated bulk specific gravity at N_{Design} from Density vs Gyration curves @ N_{Max} in voumetric calculations

TABLE 5A
ON MTO SPS-9A PROJECT 870900, HWY 17 WB, PETAWAWA, ON
Quality Control Field Laboratory Testing of Paver Samples other than Superpave AC Mixes

Laboratory Test	LTPP Test	LTPP Protocol	No. of Tests	Source of Material (Specimen)
Gyratory Compaction @ N_{Max} (Paver Samples) 870900 N_{Max} = 134		AASHTO M-002 115mm high specimen	6 per mix per test section	B01AXX-B06AXX (DA01AXX-DA06AXX)
Bulk Specific Gravity - G_{mb}	AC02	P02	6 per mix per test section	DA01AXX-DA06AXX
Asphalt Content (Extraction)	AC04	P04	2 per mix per test section	B01AXX, B06AXX
Aggregate Gradation (Extracted Aggregate)	AG04	P14	2 per mix per test section	B01AXX, B06AXX
Maximum Specific Gravity - G_{mm}	AC03	P03	2 per mix per test section	B01AXX, B06AXX
Volumetrics Volume Percent of Air Voids Percent Voids in Mineral Agg Voids Filled with Asphalt		 AASHTO PP19 AASHTO PP19 AASHTO PP19	 2 per mix per test section	 B01AXX, B06AXX B01AXX, B06AXX B01AXX, B06AXX

Note: Gmb @ N_{Max} <98% Gmm, XX - section numbers 01, 03, 60, 61, and 62

TABLE 6
ON MTO SPS-9A PROJECT 870900, HWY 17 WB, PETAWAWA, ON - Section 870902
Superpave Level 3 Mix Testing, Agency Laboratory

Laboratory Test	LTPP Test	LTPP Protocol	No. of Tests	Source of Material (Specimen)
Gyratory Compactor @ N_{Max} (Lab Samples)		AASHTO M-002	6	NA01A02-NA06A02 (LA01A02-LA06A02)
Gyratory Compactor @ 3% AV (Lab Samples)		AASHTO M-002	2	NA07A02-NA08A02 (LA07A02-LA08A02)
Gyratory Compactor @ 7% AV (Lab Samples)		AASHTO M-002	32	NA09A02-NA40A02 (LA09A02-LA40A02)
Gyratory Compactor @ 3% AV (Field Samples)		AASHTO M-002	2	BA01A02, BA34A02 (DA01A02, DA34A02)
Gyratory Compactor @ 7% AV (Field Samples)		AASHTO M-002	26	BA05A02-BA30A02 (DA05A02-DA30A02)
Gyratory Compactor @ N_{Max} (Field Samples)		AASHTO M-002	6	BA02A02-BA04A02, BA31A02-BA33A02 (DA02A02-DA04A02, DA31A02-DA33A02)
Bulk Specific Gravity	AC02	P02	24	LA01A02-LA06A02, LA09A02-LA14A02, DA02A02-DA04A02, DA31A02-DA33A02, [LA07A02, LA15A02, LA38A02, DA06A02, DA16A02, DA22A02]
Asphalt Content (Extraction)	AC04	P04	3	BA05A02-BA06A02, BA34A02
Aggregate Gradation (Extracted Aggregate)	AG04	P14	3	BA05A02-BA06A02, BA34A02
Maximum Specific Gravity	AC03	P03	4	NA15A02, BA05A02, BA06A02, BA34A02
Moisture Susceptibility	AC05	P05	1	LA09A02-LA14A02
Volumetrics**				Same Specimen for all Volumetrics
Volume Percent of Air Voids		AASHTO PP19	12	LA01A02-LA06A02, DA02A02-DA04A02, DA31A02-DA33A02
Percent Voids in Mineral Aggregate		AASHTO PP19	12	Same
Voids Filled with Asphalt		AASHTO PP19	12	Same

[ ] These specimen are then included in the shipment with other gyratory compacted samples to the LTPP Contractor Laboratory, PCS/Law Engineering, Atlanta, GA and the Superpave Regional Test Center

** The corrected bulk density at N_{Design} shall be estimated from the gyratory compaction curves, Density vs Gyrations to N_{Max} for calculation of the volumetric properties

TABLE 7
ON MTO SPS-9A PROJECT 870900, HWY 17 WB, PETAWAWA, ON - SECTION 870902
Superpave Level 3 Mix Testing, LTPP Contractor Laboratory

Laboratory Test	LTPP Test	LTPP Protocol	No. of Tests	Source of Material
Creep Compliance	AC06	P06	12	LA19A02-LA22A02 DA15A02, DA16A02, DA18A02, DA30A02 CA03A02, CA14A02, CA23A02, CA32A02
Indirect Tensile Strength	AC07	P07	12	LA15A02-LA18A02 DA05A02, DA09A02, DA17A02, DA29A02 CA07A02, CA16A02, CA21A02, CA31A02
Resilient Modulus	AC07	P07	3	LA16A02-LA18A02 DA09A02, DA17A02, DA29A02 CA16A02, CA21A02, CA31A02

Note: 100mm dia test specimen will be cored from the 152mm dia specimen and cores

TABLE 8
ON MTO SPS-9A PROJECT 870900, HWY 17 WB, PETAWAWA, ON - SECTION 870902
Superpave Level 3 Mix Testing, Superpave Regional Test Center

Laboratory Test	LTPP Protocol	No. of Tests	Source of Material
Frequency Sweep at Constant Height	AASHTO M-003, P-005 **SST-1**	10	LA23A02-LA26A02 DA06A02, DA10A02, DA24A02, DA28A02 CA04A02, CA30A02
Simple Shear at Constant Height	AASHTO M-003, P-005 **SST-1**		
Uniaxial Strain	AASHTO M-003, P-005 **SST-2**	10	LA27A02-LA30A02 DA07A02, DA11A02, DA23A02, DA27A02 CA12A02, CA22A02
Volumetric Test	AASHTO M-003, P-005 **SST-2**		
Repeated Shear at Constant Stress Ratio	AASHTO M-003, P-005 **SST-3**	6	LA07A02, LA08A02 DA01A02, DA34A02 CA09A02, CA26A02
Indirect Tensile Creep Compliance	AASHTO M-005 **SP-IT**	30	LA31A02-LA40A02 DA08A02, DA12A02-DA14A02, DA19A02-DA22A02 DA25A02-DA26A02 CA01A02, CA08A02, CA10A02, CA13A02 CA17A02-CA18A02, CA20A02 CA27A02, CA29A02, CA34A02
Indirect Tensile Strength	AASHTO M-005 **SP-IT**		

TABLE 9
Bulk Material Samples to be Shipped to the LTPP Materials Reference Library (MRL) 1625 Crane Way, Sparks, NV, 89431 from Project 870900

Material	Number
Asphalt cement collected from the plant in 19-litre pails	1 for each type of binder
Combined coarse and fine aggregate obtained from the plant and stored in 19-litre pails	5 for each aggregate combination
HMAC binder course mix in 12-6" dia x 12" high cylinders	mount on plywood pallet approx. 350 lbs

Notes:

The MRL will provide 19 litre containers and will pay for shipping costs.

Contact the MRL @ (702) 358-7574 prior to construction to make arrangements for sample containers and to receive specific shipping instructions Contacts are Mr Jim Nichols/Rodney Soule or Mr Cal Berge.

Only one sample of each unique asphalt binder used in the SPS-9A mixes is needed. If the same binder is used in more than one mix, then only one sample of that binder should be obtained

A copy of LTPP Field Operations Information Form 1 should be completed and attached to all MRL shipments. A copy of the form should be mailed separately to the MRL. Mail other completed copy to Mr. Alfred Lip at the LTPP Regional office, 415 Lawrence Bell Drive, Suite 3, Amherst, NY, 14221 - telephone (716) 632-0804

TABLE 10
ON MTO SPS-9A PROJECT 870900, HWY 17 WB, PETAWAWA, ON
Agency Laboratory Tests on Cores Taken at Time A=O

Laboratory Test	LTPP Test	LTPP Protocol	No. of Tests/ Per Layer	Source of Material
Core Examination/Thickness	AC01	P01	74	All Cores
Bulk Specific Gravity	AC02	P02	74	All Cores*
Max Specific Gravity	AC03	P03	12	CA11A02, CA24A02, CA01AXX, CA08AXX
Asphalt Content (Extraction)	AC04	P04	48	CA02A02, CA06A02, CA11A02, CA15A02 CA19A02, CA24A02, CA28A02, CA33A02 and All A Cores from Sections 01, 03, 60, 61, 62
Aggregate Gradation (Extracted Agg)	AG04	P14	12	CA11A02, CA24A02 and CA01AXX, CA08AXX
Volumetrics				
Volume Percent of Air Voids		AASHTO PP19	12	CA11A02, CA24A02 and CA01AXX, CA08AXX
Percent Voids in Mineral Aggregate		AASHTO PP19	12	CA11A02, CA24A02 and CA01AXX, CA08AXX
Voids Filled with Asphalt		AASHTO PP19	12	CA11A02, CA24A02 and CA01AXX, CA08AXX
Recovered Asphalt Cement				
Abson Recovery	AE01	P21	48	CA02A02, CA06A02, CA11A02, CA15A02 CA19A02, CA24A02, CA28A02, CA33A02 CA01AXX-CA08AXX
Penetration @ 5 deg C		AASHTO T49	6	Combined Sample from Each Test Section
Penetration @ 25 deg C and 46 deg C	AE02	P22	12	Combined Sample from Each Test Section
Viscosity @ 60 deg C and 135 deg C	AE05	P25	12	Combined Sample from Each Test Section
Specific Gravity @ 16 deg C	AE03	P23	6	Combined Sample from Each Test Section
Dynamic Shear @ 3 Temperatures		AASHTO TP5	18	Combined Sample from Each Test Section
Creep Stiffness @ 2 Temperatures		AASHTO TP1	12	Combined Sample from Each Test Section
Direct Tension @ 2 Temperatures		AASHTO TP3	12	Combined Sample from Each Test Section

XX are for test sections 01, 03, 60, 61, and 62

* Cores CA01A02, CA04A02, CA08A02-CA10A02, CA12A02, CA13A02, CA17A02, CA18A02, CA20A02, CA22A02M CA26A02, CA27A02, CA29A02, CA30A02, CA34A02 are packaged and sent to the Superpave Regional Test Center (SRTC)

Cores CA03A02, CA07A02, CA14A02, CA16A02, CA21A02, CA23A02, CA31A02, CA32A02 are sent to the LTPP Contractor Laboratory (LCB)

TABLE 11
ON MTO SPS-9A PROJECT 870900, HWY 17 WB, PETAWAWA, ON
Post Construction Monitoring Tests on All Sections - Agency Laboratory Tests on Cores Taken at Time Intervals B Through F (6, 12, 18, 24, 48 Months)

Laboratory Test	LTPP Test	LTPP Protocol	No. of Tests/Per Layer	Source of Material
Core Examination/Thickness	AC01	P01	48 tests per time interval	All Cores from All Sections
Bulk Specific Gravity	AC02	P02	48	All Cores from All Sections
Maximum Specific Gravity	AC03	P03	12	CA01tXX, CA08tXX (All Sections)
Asphalt Content (Extraction)	AC04	P04	48	All Cores from All Sections
Aggregate Gradation (Extracted Agg)	AG04	P14	12	(CA01t01, CA08t01), (CA01t02, CA08t02), (CA01t03, CA08t03), (CA01t60, CA08t60) (CA01t61, CA08t61), (CA01t62, CA08t62)
Volumetrics				
Volume Percent of Air Voids		AASHTO PP19	48	All Cores
Percent Voids in Mineral Aggregate		AASHTO PP19	48	All Cores
Voids Filled with Asphalt		AASHTO PP19	48	All Cores
Recovered Asphalt Cement				
Abson Recovery	AE01	P21	48	All Cores
Penetration @ 5 deg. C		AASHTO T49	6	Combined Recovered AC from Each Section
Penetration @ 25 deg C and 46 deg. C	AE02	P22	12	Combined Recovered AC from Each Section
Viscosity @ 60 deg C and 135 deg. C	AE05	P25	12	Combined Recovered AC from Each Section
Specific Gravity @ 16 deg C	AE03	P23	6	Combined Recovered AC from Each Section
Dynamic Shear @ 3 Temperatures**		AASHTO TP5	18	Combined Recovered AC from Each Section
Creep Stiffness @ 2 Temperatures**		AASHTO TP1	12	Combined Recovered AC from Each Section
Direct Tension @ 2 Temperatures**		AASHTO TP3	12	Combined Recovered AC from Each Section

** The test temperatures should be the same as those used for the tests on the RTFOT-PAV conditioned samples performed during the initial binder grading

TABLE 12
ON MTO SPS-9A PROJECT 870900, HWY 17 WB, PETAWAWA, ON
Laboratory Tracking Table for Subgrade
Laboratory: Agency

Sample Location No.	Constr. Sta.	Offset m	Sample No.	Lab Test No.	Description of Sample	Laboratory Handling & Test Sequencing					
						First	Second	Third	Fourth	Fifth	Sixth
Subgrade											
B01A01	13+713	1.5	BS01A01	2	10kg Bulk Sample	SS01/P51	SS03/P43	SS04/P52			
B01A02	13+043	1 5	BS01A02	2	10kg Bulk Sample	SS01/P51	SS03/P43	SS04/P52			
B01A03	12+373	1.5	BS01A03	2	10kg. Bulk Sample	SS01/P51	SS03/P43	SS04/P52			
B01A60	11+653	1 5	BS01A60	2	10kg Bulk Sample	SS01/P51	SS03/P43	SS04/P52			
B01A61	10+955	1 5	BS01A61	2	10kg. Bulk Sample	SS01/P51	SS03/P43	SS04/P52			
B01A62	10+273	1.5	BS01A62	2	10kg. Bulk Sample	SS01/P51	SS03/P43	SS04/P52			
B01A01	13+713	1.5	MS01A01	2	Moisture Jar Sample	SS09/P49					
B01A02	13+043	1 5	MS01A02	2	Moisture Jar Sample	SS09/P49					
B01A03	12+373	1 5	MS01A03	2	Moisture Jar Sample	SS09/P49					
B01A60	11+653	1.5	MS01A60	2	Moisture Jar Sample	SS09/P49					
B01A61	10+955	1 5	MS01A61	2	Moisture Jar Sample	SS09/P49					
B01A62	10+273	1 5	MS01A62	2	Moisture Jar Sample	SS09/P49					

TABLE 13
ON MTO SPS-9A PROJECT 870900, HWY 17 WB, PETAWAWA, ON
Laboratory Tracking Table for Subbase and Base
Laboratory: Agency

Sample Location No.	Constr. Sta.	Offset m	Sample No.	Lab Test No.	Description of Sample	Laboratory Handling & Test Sequencing					
						First	Second	Third	Fourth	Fifth	Sixth
B01A01	13+713	1 5	BG01A01	2	25kg Bulk Sample	UG01/P41	UG02P41	UG04/P43	UG08/P47		
			BG02A01	2	25kg Bulk Sample	UG01/P41	UG02P41	UG04/P43	UG08/P47		
B01A02	13+043	1.5	BG01A02	2	25kg Bulk Sample	UG01/P41	UG02P41	UG04/P43	UG08/P47		
			BG02A02	2	25kg Bulk Sample	UG01/P41	UG02P41	UG04/P43	UG08/P47		
B01A03	12+373	1 5	BG01A03	2	25kg Bulk Sample	UG01/P41	UG02P41	UG04/P43	UG08/P47		
			BG02A03	2	25kg Bulk Sample	UG01/P41	UG02P41	UG04/P43	UG08/P47		
B01A60	11+653	1 5	BG01A60	2	25kg Bulk Sample	UG01/P41	UG02P41	UG04/P43	UG08/P47		
			BG02A60	2	25kg Bulk Sample	UG01/P41	UG02P41	UG04/P43	UG08/P47		
B01A61	10+955	1 5	BG01A61	2	25kg Bulk Sample	UG01/P41	UG02P41	UG04/P43	UG08/P47		
			BG02A61	2	25kg Bulk Sample	UG01/P41	UG02P41	UG04/P43	UG08/P47		
B01A62	10+273	1 5	BG01A62	2	25kg Bulk Sample	UG01/P41	UG02P41	UG04/P43	UG08/P47		
			BG02A62	2	25kg Bulk Sample	UG01/P41	UG02P41	UG04/P43	UG08/P47		
B01A01	13+713	1 5	MG01A01	2	Moisture Jar Sample	UG10/P49					
			MG02A01	2	Moisture Jar Sample	UG10/P49					
B01A02	13+043	1 5	MG01A02	2	Moisture Jar Sample	UG10/P49					
			MG02A02	2	Moisture Jar Sample	UG10/P49					
B01A03	12+373	1 5	MG01A03	2	Moisture Jar Sample	UG10/P49					
			MG02A03	2	Moisture Jar Sample	UG10/P49					
B01A60	11+653	1 5	MG01A60	2	Moisture Jar Sample	UG10/P49					
			MG02A60	2	Moisture Jar Sample	UG10/P49					
B01A61	10+955	1 5	MG01A61	2	Moisture Jar Sample	UG10/P49					
			MG02A61	2	Moisture Jar Sample	UG10/P49					
B01A62	10+273	1 5	MG01A62	2	Moisture Jar Sample	UG10/P49					
			MG02A62	2	Moisture Jar Sample	UG10/P49					

BG01AXX is a Pulverized Base Uncompacted Sample
BG02AXX is an Unbound Granular Subbase Sample

TABLE 14
ON MTO SPS-9A PROJECT 870900, HWY 17 WB, PETAWAWA, ON
Laboratory Tracking Table for Combined Aggregate Samples
Laboratory: Agency

Sample Location No.	Constr. Sta.	Offset m	Sample No.	Lab Test No.	Description of Sample	Laboratory Handling & Test Sequencing					
						First	Second	Third	Fourth	Fifth	Sixth
	Plant		BU01A01		400kg Combined Agg Sample MTO Class 1	AG04/P14	AG01/P11 AG02/P12 AASHTO T100	PA DOT T621 ASTM C1252	AASHTO T96 AASHTO T104	AASHTO T112 AASHTO T176 ASTM D4791	
	Plant		BU01A02		400kg Combined Agg Sample Superpave	AG04/P14	AG01/P11 AG02/P12 AASHTO T100	PA DOT T621 ASTM C1252	AASHTO T96 AASHTO T104	AASHTO T112 AASHTO T176 ASTM D4791	

TABLE 15
ON MTO SPS-9A PROJECT 870900, HWY 17 WB, PETAWAWA, ON
Laboratory Tracking Table for Asphalt Binder Samples
Laboratory: Agency

Sample Location No.	Constr. Sta.	Offset m	Sample No.	Lab Test No.	Description of Sample	Laboratory Handling & Test Sequencing					
						First	Second	Third	Fourth	Fifth	Sixth
	Plant		BC01A01		20 Litre Sample of 85-100 pen grade a c	AASHTO T49 AE02/P22 AE05/P25 AE03/P23	ASTM D4402 AASHTO TP5	AASHTO T240 AASHTO TP5	AASHTO PP1 AASHTO TP5 AASHTO TP1 AASHTO TP1	AASHTO TP3	
	Plant		BC01A02		20 Litre Sample of PG 58-40	AASHTO T49 AE02/P22 AE05/P25 AE03/P23	ASTM D4402 AASHTO TP5	AASHTO T240 AASHTO TP5	AASHTO PP1 AASHTO TP5 AASHTO TP1 AASHTO TP1	AASHTO TP3	
	Plant		BC01A03		20 Litre Sample of PG 58-34	AASHTO T49 AE02/P22 AE05/P25 AE03/P23	ASTM D4402 AASHTO TP5	AASHTO T240 AASHTO TP5	AASHTO PP1 AASHTO TP5 AASHTO TP1 AASHTO TP1	AASHTO TP3	
	Plant		BC01A60		20 Litre Sample of PG 58-28	AASHTO T49 AE02/P22 AE05/P25 AE03/P23	ASTM D4402 AASHTO TP5	AASHTO T240 AASHTO TP5	AASHTO PP1 AASHTO TP5 AASHTO TP1 AASHTO TP1	AASHTO TP3	
	Plant		BC01A61		20 Litre Sample of Polymermodified* PG 58-34 *Contractor/Supplier option	AASHTO T49 AE02/P22 AE05/P25 AE03/P23	ASTM D4402 AASHTO TP5	AASHTO T240 AASHTO TP5	AASHTO PP1 AASHTO TP5 AASHTO TP1 AASHTO TP1	AASHTO TP3	

TABLE 16
ON MTO SPS-9A PROJECT 870900, HWY 17 WB, PETAWAWA, ON
Laboratory Tracking Table for Other Than Superpave Laboratory Prepared Mixes
Laboratory: Agency
Surface Course Mixes at Design % AC

Sample Preparation No.	Gyratory Compaction At	Specimen Height mm.	Approx. Batch g.	Compacted Sample No.	Laboratory Handling & Test Sequencing First	Second	Third	Fourth
NA01A01	N_{Max}	115	4700	LA01A01	AC02/P02	PP-19*		
NA02A01	N_{Max}	115	4700	LA02A01	AC02/P02	PP-19*		
NA03A01	N_{Max}	115	4700	LA03A01	AC02/P02	PP-19*		
NA03A01	---	---	2000	---	AC03/P03			
NA04A01	7 % AV	140	5700	LA04A01	AC02/P02	AC05/P05		
NA05A01	7 % AV	140	5700	LA05A01	AC02/P02	AC05/P05		
NA06A01	7 % AV	140	5700	LA06A01	AC02/P02	AC05/P05		
NA07A01	7 % AV	140	5700	LA07A01	AC02/P02	AC05/P05		
NA08A01	7 % AV	140	5700	LA08A01	AC02/P02	AC05/P05		
NA09A01	7 % AV	140	5700	LA09A01	AC02/P02	AC05/P05		
NA01A03	N_{Max}	115	4700	LA01A03	AC02/P02	PP-19*		
NA02A03	N_{Max}	115	4700	LA02A03	AC02/P02	PP-19*		
NA03A03	N_{Max}	115	4700	LA03A03	AC02/P02	PP-19*		
NA03A03	---	---	2000	---	AC03/P03			
NA04A03	7 % AV	140	5700	LA04A03	AC02/P02	AC05/P05		
NA05A03	7 % AV	140	5700	LA05A03	AC02/P02	AC05/P05		
NA06A03	7 % AV	140	5700	LA06A03	AC02/P02	AC05/P05		
NA07A03	7 % AV	140	5700	LA07A03	AC02/P02	AC05/P05		
NA08A03	7 % AV	140	5700	LA08A03	AC02/P02	AC05/P05		
NA09A03	7 % AV	140	5700	LA09A03	AC02/P02	AC05/P05		

* Use bulk specific gravity N_{Design} estimated from gyrations vs density plots Mark the top of GC specimen with a 'T', label the specimen

TABLE 16 (Cont.)
ON MTO SPS-9A PROJECT 870900, HWY 17 WB, PETAWAWA, ON
Laboratory Tracking Table for Other Than Superpave Laboratory Prepared Mixes
Laboratory: Agency
Surface Course Mixes at Design % AC

Sample Preparation No.	Gyratory Compaction At	Specimen Height mm.	Approx. Batch g.	Compacted Sample No.	Laboratory Handling & Test Sequencing First	Second	Third	Fourth
NA01A60	N_{Max}	115	4700	LA01A60	AC02/P02	PP-19*		
NA02A60	N_{Max}	115	4700	LA02A60	AC02/P02	PP-19*		
NA03A60	N_{Max}	115	4700	LA03A60	AC02/P02	PP-19*		
NA03A60	---	---	2000	---	AC03/P03			
NA04A60	7 % AV	140	5700	LA04A60	AC02/P02	AC05/P05		
NA05A60	7 % AV	140	5700	LA05A60	AC02/P02	AC05/P05		
NA06A60	7 % AV	140	5700	LA06A60	AC02/P02	AC05/P05		
NA07A60	7 % AV	140	5700	LA07A60	AC02/P02	AC05/P05		
NA08A60	7 % AV	140	5700	LA08A60	AC02/P02	AC05/P05		
NA09A60	7 % AV	140	5700	LA09A60	AC02/P02	AC05/P05		
NA01A61	N_{Max}	115	4700	LA01A61	AC02/P02	PP-19*		
NA02A61	N_{Max}	115	4700	LA02A61	AC02/P02	PP-19*		
NA03A61	N_{Max}	115	4700	LA03A61	AC02/P02	PP-19*		
NA03A61	---	---	2000	---	AC03/P03			
NA04A61	7 % AV	140	5700	LA04A61	AC02/P02	AC05/P05		
NA05A61	7 % AV	140	5700	LA05A61	AC02/P02	AC05/P05		
NA06A61	7 % AV	140	5700	LA06A61	AC02/P02	AC05/P05		
NA07A61	7 % AV	140	5700	LA07A61	AC02/P02	AC05/P05		
NA08A61	7 % AV	140	5700	LA08A61	AC02/P02	AC05/P05		
NA09A61	7 % AV	140	5700	LA09A61	AC02/P02	AC05/P05		
NA01A62	N_{Max}	115	4700	LA01A62	AC02/P02	PP-19		
NA02A62	N_{Max}	115	4700	LA02A62	AC02/P02	PP-19		
NA03A62	N_{Max}	115	4700	LA03A62	AC02/P02	PP-19		
NA03A62	---	---	2000	---	AC03/P03			
NA04A62	7 % AV	140	5700	LA04A62	AC02/P02	AC05/P05		
NA05A62	7 % AV	140	5700	LA05A62	AC02/P02	AC05/P05		
NA06A62	7 % AV	140	5700	LA06A62	AC02/P02	AC05/P05		
NA07A62	7 % AV	140	5700	LA07A62	AC02/P02	AC05/P05		
NA08A62	7 % AV	140	5700	LA08A62	AC02/P02	AC05/P05		
NA09A62	7 % AV	140	5700	LA09A62	AC02/P02	AC05/P05		

TABLE 17
ON MTO SPS-9A PROJECT 870900, HWY 17 WB, PETAWAWA, ON - Section 870902
Laboratory Tracking Table for Superpave Laboratory Prepared Mixes
Laboratory: Agency
Surface Course Mixes at Design % AC

Sample Preparation No.	Gyratory Compaction At	Specimen Height mm.	Approx. Batch g.	Compacted Sample No.	Laboratory Handling & Test Sequencing First	Second	Third	Fourth
NA01A02	N_{Max}	115	4700	LA01A02	AC02/P02	PP-19		
NA02A02	N_{Max}	115	4700	LA02A02	AC02/P02	PP-19		
NA03A02	N_{Max}	115	4700	LA03A02	AC02/P02	PP-19		
NA04A02	N_{Max}	115	4700	LA04A02	AC02/P02	PP-19		
NA05A02	N_{Max}	115	4700	LA05A02	AC02/P02	PP-19		
NA06A02	N_{Max}	115	4700	LA06A02	AC02/P02	PP-19		
NA07A02	3 % AV	140	5700	LA07A02	AC02/P02	SRTC		
NA08A02	3 % AV	140	5700	LA08A02	SRTC			
NA09A02	7 % AV	140	5700	LA09A02	AC02/P02	AC05/P05		
NA10A02	7 % AV	140	5700	LA10A02	AC02/P02	AC05/P05		
NA11A02	7 % AV	140	5700	LA11A02	AC02/P02	AC05/P05		
NA12A02	7 % AV	140	5700	LA12A02	AC02/P02	AC05/P05		
NA13A02	7 % AV	140	5700	LA13A02	AC02/P02	AC05/P05		
NA14A02	7 % AV	140	5700	LA14A02	AC02/P02	AC05/05		
NA15A02	7 % AV	140	5700	LA15A02	AC02/P02	LCL		
NA15A02	---	---	2000	---	AC03/P03			
NA16A02	7 % AV	140	5700	LA16A02	LCL			
NA17A02	7 % AV	140	5700	LA17A02	LCL			
NA18A02	7 % AV	140	5700	LA18A02	LCL			
NA19A02	7 % AV	140	5700	LA19A02	LCL			
NA20A02	7 % AV	140	5700	LA20A02	LCL			
NA21A02	7 % AV	140	5700	LA21A02	LCL			
NA22A02	7 % AV	140	5700	LA22A02	LCL			
NA23A02	7 % AV	140	5700	LA23A02	SRTC			
NA24A02	7 % AV	140	5700	LA24A02	SRTC			
NA25A02	7 % AV	140	5700	LA25A02	SRTC			
NA26A02	7 % AV	140	5700	LA26A02	SRTC			

LCL - Package and send to LTPP Contractor Laboratory
SRTC - Package and send to Superpave Regional Test Center

TABLE 17 (Cont.)
ON MTO SPS-9A PROJECT 870900, HWY 17 WB, PETAWAWA, ON - Section 870902
Laboratory Tracking Table for Superpave Laboratory Prepared Mixes
Laboratory: Agency
Surface Course Mixes at Design % AC

Sample Preparation No.	Gyratory Compaction			Compacted Sample No.	Laboratory Handling & Test Sequencing			
	At	Specimen Height mm.	Approx. Batch g.		First	Second	Third	Fourth
NA27A02	7 % AV	140	5700	LA27A02	SRTC			
NA28A02	7 % AV	140	5700	LA28A02	SRTC			
NA29A02	7 % AV	140	5700	LA29A02	SRTC			
NA30A02	7 % AV	140	5700	LA30A02	SRTC			
NA31A02	7 % AV	140	5700	LA31A02	SRTC			
NA32A02	7 % AV	140	5700	LA32A02	SRTC			
NA33A02	7 % AV	140	5700	LA33A02	SRTC			
NA34A02	7 % AV	140	5700	LA34A02	SRTC			
NA35A02	7 % AV	140	5700	LA35A02	SRTC			
NA36A02	7 % AV	140	5700	LA36A02	SRTC			
NA37A02	7 % AV	140	5700	LA37A02	SRTC			
NA38A02	7 % AV	140	5700	LA38A02	AC02/P02	SRTC		
NA39A02	7 % AV	140	5700	LA39A02	SRTC			
NA40A02	7 % AV	140	5700	LA40A02	SRTC			

TABLE 18
ON MTO SPS-9A PROJECT 870900, HWY 17 WB, PETAWAWA, ON
Laboratory Tracking Table for Quality Control other than Superpave - AC Mixes
Laboratory: Agency/Contractor (Field)

Sample Location No.	Constr. Sta.	Offset Ft.	Sample No.	Lab Test No.	Description of Sample	Laboratory Handling & Testing Sequencing					
						First	Second	Third	Fourth	Fifth	Sixth
B01A01	13+850	1	DA01A01	3	Gyratory Compactor @ N_{Max}	AASHTO M-002	AC04/P02	PP19			
B02A01			DA02A01	3	Gyratory Compactor @ N_{Max}	AASHTO M-002	AC04/P02	PP19			
B03A01	13+810	1	DA03A01	3	Gyratory Compactor @ N_{Max}	AASHTO M-002	AC04/P02	PP19			
B04A01			DA04A01	3	Gyratory Compactor @ N_{Max}	AASHTO M-002	AC04/P02	PP19			
B05A01	13+790	1	DA05A01	3	Gyratory Compactor @ N_{Max}	AASHTO M-002	AC04/P02	PP19			
B06A01			DA06A01	3	Gyratory Compactor @ N_{Max}	AASHTO M-002	AC04/P02	PP19			
B01A03	12+510	1	DA01A03	3	Gyratory Compactor @ N_{Max}	AASHTO M-002	AC02/P02	PP19			
B02A02			DA02A03	3	Gyratory Compactor @ N_{Max}	AASHTO M-002	AC02/P02	PP19			
B03A03	12+470	1	DA03A03	3	Gyratory Compactor @ N_{Max}	AASHTO M-002	AC02/P02	PP19			
B04A03			DA04A03	3	Gyratory Compactor @ N_{Max}	AASHTO M-002	AC02/P02	PP19			
B05A03	12+450	1	DA05A03	3	Gyratory Compactor @ N_{Max}	AASHTO M-002	AC02/P02	PP19			
B06A03			DA06A03	3	Gyratory Compactor @ N_{Max}	AASHTO M-002	AC02/P02	PP19			
B01A60	11+790	1	DA01A60	3	Gyratory Compactor @ N_{Max}	AASHTO M-002	AC02/P02	PP19			
B02A60			DA02A60	3	Gyratory Compactor @ N_{Max}	AASHTO M-002	AC02/P02	PP19			
B03A60	11+760	1	DA03A60	3	Gyratory Compactor @ N_{Max}	AASHTO M-002	AC02/P02	PP19			
B04A60			DA04A60	3	Gyratory Compactor @ N_{Max}	AASHTO M-002	AC02/P02	PP19			
B05A60	11+740	1	DA05A60	3	Gyratory Compactor @ N_{Max}	AASHTO M-002	AC02/P02	PP19			
B06A60			DA06A60	3	Gyratory Compactor @ N_{Max}	AASHTO M-002	AC02/P02	PP19			

TABLE 18 (Cont.)
ON MTO SPS-9A PROJECT 870900, HWY 17 WB, PETAWAWA, ON
Laboratory Tracking Table for Quality Control other than Superpave - AC Mixes
Laboratory: Agency/Contractor (Field)

Sample Location No.	Constr. Sta.	Offset Ft.	Sample No.	Lab Test No.	Description of Sample	Laboratory Handling & Testing Sequencing					
						First	Second	Third	Fourth	Fifth	Sixth
B01A61	11+100	1	DA01A61	3	Gyratory Compactor @ N_{Max}	AASHTO M-002	AC02/P02	PP19			
B02A61			DA02A61	3	Gyratory Compactor @ N_{Max}	AASHTO M-002	AC02/P02	PP19			
B03A61	11+070	1	DA03A61	3	Gyratory Compactor @ N_{Max}	AASHTO M-002	AC02/P02	PP19			
B04A61			DA04A61	3	Gyratory Compactor @ N_{Max}	AASHTO M-002	AC02/P02	PP19			
B05A61	11+040	1	DA05A61	3	Gyratory Compactor @ N_{Max}	AASHTO M-002	AC02/P02	PP19			
B06A61			DA06A61	3	Gyratory Compactor @ N_{Max}	AASHTO M-002	AC02/P02	PP19			
B01A62	10+410	1	DA01A62	3	Gyratory Compactor @ N_{Max}	AASHTO M-002	AC02/P02	PP19			
B02A62			DA02A62	3	Gyratory Compactor @ N_{Max}	AASHTO M-002	AC02/P02	PP19			
B03A62	10+380	1	DA03A62	3	Gyratory Compactor @ N_{Max}	AASHTO M-002	AC02/P02	PP19			
B04A62			DA04A62	3	Gyratory Compactor @ N_{Max}	AASHTO M-002	AC02/P02	PP19			
B05A62	10+360	1	DA05A62	3	Gyratory Compactor @ N_{Max}	AASHTO M-002	AC02/P02	PP19			
B06A62			DA06A62	3	Gyratory Compactor @ N_{Max}	AASHTO M-002	AC02/P02	PP19			

TABLE 19
ON MTO SPS-9A PROJECT 870900, HWY 17 WB, PETAWAWA, ON - Section 870902
Laboratory Tracking Table for Superpave Mixes (Field Samples)
Laboratory: Agency

SURFACE COURSE MIX

Sample Location No.	Sample No.	Lab Test No.	Description of Sample	Laboratory Handling & Test Sequencing					
				Specimen Height mm.	Approx. Batch g.	First	Second	Third	Fourth
B01A02	DA01A02	3	GCS field sample @ 3% AV	140	5700	AASHTO-M002	SRTC		
B02A02	DA02A02	3	GCS field sample @ N_{Max}	115	4700	AASHTO-M002	AC02/P02	PP-19	
B03A02	DA03A02	3	GCS field sample @ N_{Max}	115	4700	AASHTO-M002	AC02/P02	PP-19	
B04A02	DA04A02	3	GCS field sample @ N_{Max}	115	4700	AASHTO-M002	AC02/P02	PP-19	
B05A02	DA05A02	3	GCS field sample @ 7% AV	140	5700	AASHTO-M002	LCL		
B06A02	DA06A02	3	GCS field sample @ 7% AV	140	5700	AASHTO-M002	AC02/P02	SRTC	
B07A02	DA07A02	3	GCS field sample @ 7% AV	140	5700	AASHTO-M002	SRTC		
B08A02	DA08A02	3	GCS field sample @ 7% AV	140	5700	AASHTO-M002	SRTC		
B09A02	DA09A02	3	GCS field sample @ 7% AV	140	5700	AASHTO-M002	LCL		
B05A02	BA05A02	3	Uncompacted Plant Mix	---	2000	AC03/P03	AC04/P04	AG04/P14	
B06A02	BA06A02	3	Uncompacted Plant Mix	---	2000	AC03/P03	AC04/P04	AG04/P14	
B10A02	DA10A02	3	GCS field sample @ 7% AV	140	5700	AASHTO-M002	SRTC		
B11A02	DA11A02	3	GCS field sample @ 7% AV	140	5700	AASHTO-M002	SRTC		
B12A02	DA12A02	3	GCS field sample @ 7% AV	140	5700	AASHTO-M002	SRTC		
B13A02	DA13A02	3	GCS field sample @ 7% AV	140	5700	AASHTO-M002	SRTC		
B14A02	DA14A02	3	GCS field sample @ 7% AV	140	5700	AASHTO-M002	SRTC		
B15A02	DA15A02	3	GCS field sample @ 7% AV	140	5700	AASHTO-M002	LCL		
B16A02	DA16A02	3	GCS field sample @ 7% AV	140	5700	AASHTO-M002	AC02/P02	LCL	
B17A02	DA17A02	3	GCS field sample @ 7% AV	140	5700	AASHTO-M002	LCL		
B18A02	DA18A02	3	GCS field sample @ 7% AV	140	5700	AASHTO-M002	LCL		

TABLE 19 (Cont.)
ON MTO SPS-9A PROJECT 870900, HWY 17 WB, PETAWAWA, ON - Section 870902
Laboratory Tracking Table for Superpave Mixes (Field Samples)
Laboratory: Agency

SURFACE COURSE MIX

Sample Location No.	Sample No.	Lab Test No.	Description of Sample	Laboratory Handling & Test Sequencing					
				Specimen Height mm.	Approx. Batch g.	First	Second	Third	Fourth
B19A02	DA19A02	3	GCS field sample @ 7% AV	140	5700	AASHTO-M002	SRTC		
B20A02	DA20A02	3	GCS field sample @ 7% AV	140	5700	AASHTO-M002	SRTC		
B21A02	DA21A02	3	GCS field sample @ 7% AV	140	5700	AASHTO-M002	SRTC		
B22A02	DA22A02	3	GCS field sample @ 7% AV	140	5700	AASHTO-M002	AC02/P02	SRTC	
B23A02	DA23A02	3	GCS field sample @ 7% AV	140	5700	AASHTO-M002	SRTC		
B24A02	DA24A02	3	GCS field sample @ 7% AV	140	5700	AASHTO-M002	SRTC		
B25A02	DA25A02	3	GCS field sample @ 7% AV	140	5700	AASHTO-M002	SRTC		
B26A02	DA26A02	3	GCS field sample @ 7% AV	140	5700	AASHTO-M002	SRTC		
B27A02	DA27A02	3	GCS field sample @ 7% AV	140	5700	AASHTO-M002	SRTC		
B28A02	DA28A02	3	GCS field sample @ 7% AV	140	5700	AASHTO-M002	SRTC		
B29A02	DA29A02	3	GCS field sample @ 7% AV	140	5700	AASHTO-M002	LCL		
B30A02	DA30A02	3	GCS field sample @ 7% AV	140	5700	AASHTO-M002	LCL		
B31A02	DA31A02	3	GCS field sample @ N_{Max}	115	4700	AASHTO-M002	AC02/P02	PP-19	
B32A02	DA32A02	3	GCS field sample @ N_{Max}	115	4700	AASHTO-M002	AC02/P02	PP-19	
B33A02	DA33A02	3	GCS field sample @ N_{Max}	115	4700	AASHTO-M002	AC02/P02	PP-19	
B34A02	DA34A02	3	GCS field sample @ 3% AV	140	5700	AASHTO-M002	SRTC		
B34A02	BA34A02	3	Uncompacted Plant Mix	---	2000	AC03/P03	AC04/P04	AG04/P14	

Note: QC/QA specimen DA02A02-DA04A02, DA31A02-DA33A02
are compacted in the field from field samples stored in insulated containers
Other specimen are split-off to size in the field while still hot They are reheated as needed for compaction
GCS - Gyratory Compacted Specimen
SRTC - Superpave Regional Test Center
LCL - LTPP Contractor Laboratory

TABLE 20.1
ON MTO SPS-9A PROJECT 870900, HWY 17 WB, PETAWAWA ON
Superpave Regional Test Center - Tracking Table
Laboratory Prepared Specimen

GCS #	Test Sequence	
	First	Second
LA07A02	AC02/P02	SST-3, Repeated Shear @ Constant Stress Ratio
LA08A02	AC02/P02	SST-3, Repeated Shear @ Constant Stress Ratio
LA23A02	AC02/P02	SST-1, Frequency Sweep and Simple Shear
LA24A02	AC02/P02	SST-1, Frequency Sweep and Simple Shear
LA25A02	AC02/P02	SST-1, Frequency Sweep and Simple Shear
LA26A02	AC02/P02	SST-1*
LA27A02	AC02/P02	SST-2, Volumetric and Uniaxial Strain
LA28A02	AC02/P02	SST-2, Volumetric and Uniaxial Strain
LA29A02	AC02/P02	SST-2, Volumetric and Uniaxial Strain
LA30A02	AC02/P02	SST-2*
LA31A02	AC02/P02	SP-IT, Indirect Tensile Strength & Creep Compliance
LA32A02	AC02/P02	SP-IT, Indirect Tensile Strength & Creep Compliance
LA33A02	AC02/P02	SP-IT, Indirect Tensile Strength & Creep Compliance
LA34A02	AC02/P02	SP-IT, Indirect Tensile Strength & Creep Compliance
LA35A02	AC02/P02	SP-IT, Indirect Tensile Strength & Creep Compliance
LA36A02	AC02/P02	SP-IT, Indirect Tensile Strength & Creep Compliance
LA37A02	AC02/P02	SP-IT, Indirect Tensile Strength & Creep Compliance
LA38A02	AC02/P02	SP-IT, Indirect Tensile Strength & Creep Compliance
LA39A02	AC02/P02	SP-IT, Indirect Tensile Strength & Creep Compliance
LA40A02	AC02/P02	SP-IT*

* Extra Sample, DO NOT DISCARD

Note: The 140mm SPECIMEN are to be cut into two replicate specimen and labeled 'A' for the top and 'B' for the bottom of the specimen Mount the bottom of A and the top of B to the moveable top platen of the Shear Tester

TABLE 20.1 (Cont.)
ON MTO SPS-9A PROJECT 870900, HWY 17 WB, PETAWAWA ON
Superpave Regional Test Center - Tracking Table
Plant Mix Specimen

GCS #	Test Sequence	
	First	Second
DA01A02	AC02/P02	SST-3, Repeated Shear @ Constant Stress Ratio
DA34A02	AC02/P02	SST-3, Repeated Shear @ Constant Stress Ratio
DA06A02	AC02/P02	SST-1, Frequency Sweep and Simple Shear
DA10A02	AC02/P02	SST-1, Frequency Sweep and Simple Shear
DA24A02	AC02/P02	SST-1, Frequency Sweep and Simple Shear
DA28A02	AC02/P02	SST-1, Frequency Sweep and Simple Shear
DA07A02	AC02/P02	SST-2, Volumetric and Uniaxial Strain
DA11A02	AC02/P02	SST-2, Volumetric and Uniaxial Strain
DA23A02	AC02/P02	SST-2, Volumetric and Uniaxial Strain
DA27A02	AC02/P02	SST-2, Volumetric and Uniaxial Strain
DA08A02	AC02/P02	SP-IT, Indirect Tensile Strength & Creep Compliance
DA12A02	AC02/P02	SP-IT, Indirect Tensile Strength & Creep Compliance
DA13A02	AC02/P02	SP-IT, Indirect Tensile Strength & Creep Compliance
DA14A02	AC02/P02	SP-IT, Indirect Tensile Strength & Creep Compliance
DA19A02	AC02/P02	SP-IT, Indirect Tensile Strength & Creep Compliance
DA20A02	AC02/P02	SP-IT, Indirect Tensile Strength & Creep Compliance
DA21A02	AC02/P02	SP-IT, Indirect Tensile Strength & Creep Compliance
DA22A02	AC02/P02	SP-IT, Indirect Tensile Strength & Creep Compliance
DA25A02	AC02/P02	SP-IT, Indirect Tensile Strength & Creep Compliance
DA26A02	AC02/P02	SP-IT, Indirect Tensile Strength & Creep Compliance

TABLE 20.2
ON MTO SPS-9A PROJECT 870900, HWY 17 WB, PETAWAWA ON
Superpave Regional Test Center - Tracking Table
Core At Time A=O

Core Location #	Core Sample #	Lab Test #	Handling and Testing Sequence			
			First	Second	Third	Disposal
C01A02	CA01A02	1	AC01/P01	AC02/P02	SP-IT	No
C08A02	CA08A02	2	AC01/P01	AC02/P02	SP-IT	No
C10A02	CA10A02	1	AC01/P01	AC02/P02	SP-IT	No
C13A02	CA13A02	1	AC01/P01	AC02/P02	SP-IT	No
C17A02	CA17A02	1	AC01/P01	AC02/P02	SP-IT	No
C18A02	CA18A02	1	AC01/P01	AC02/P02	SP-IT	No
C20A02	CA20A02	1	AC01/P01	AC02/P02	SP-IT	No
C27A02	CA27A02	2	AC01/P01	AC02/P02	SP-IT	No
C29A02	CA29A02	2	AC01/P01	AC02/P02	SP-IT	No
C34A02	CA34A02	2	AC01/P01	AC02/P02	SP-IT	No
C04A02	CA04A02	1	AC01/P01	AC02/P02	SST-1	No
C30A02	CA30A02	2	AC01/P01	AC02/P02	SST-1	No
C12A02	CA12A02	1	AC01/P01	AC02/P02	SST-2	No
C22A02	CA22A02	2	AC01/P01	AC02/P02	SST-2	No
C09A02	CA09A02	1	AC01/P01	AC02/P02	SST-3	No
C26A02	CA26A02	2	AC01/P01	AC02/P02	SST-3	No

Notes: The core specimen shall be tested in the following order:-
- core examination and thickness measurements
- trim and cut core to testing geometry
- determine bulk density
- prepare and mount the sized specimen for noted test

SP-IT - Superpave Indirect Tensile Strength and Creep Compliance
SST-1 - Frequency Sweep and Simple Shear
SST-2 - Volumetric and Uniaxial Strain
SST-3 - Repeated Shear @ Constant Stress Ratio

TABLE 21.1
ON MTO SPS-9A PROJECT 870900, HWY 17 WB, PETAWAWA ON
LTPP Contractor Laboratory Tracking Table for
Gyratory Compacted Laboratory & Field Superpave Mixes

GCS #	Test Sequence		
	First	Second	
LA15A02	AC02/P02	AC07/P07	
LA16A02	AC02/P02	AC07/P07	
LA17A02	AC02/P02	AC07/P07	
LA18A02	AC02/P02	AC07/P07	ITS
LA19A02	AC02/P02	AC06/P06	
LA20A02	AC02/P02	AC06/P06	
LA21A02	AC02/P02	AC06/P06	
LA22A02	AC02/P02	AC06/P06	
DA05A02	AC02/P02	AC07/P07	ITS
DA09A02	AC02/P02	AC07/P07	
DA15A02	AC02/P02	AC06/P06	
DA16A02	AC02/P02	AC06/P06	
DA17A02	AC02/P02	AC07/P07	
DA18A02	AC02/P02	AC06/P06	
DA29A02	AC02/P02	AC07/P07	
DA30A02	AC02/P02	AC06/P06	

Note: Trim the 150mm dia. x 140mm height specimen to 100mm diameter x 65mm height (central portion of specimen)

TABLE 21.2
ON MTO SPS-9A PROJECT 870900, HWY 17 WB, PETAWAWA ON
LTPP Contractor Laboratory - Tracking Table for Cores
Core At Time A=O

Core Location #	Core Sample #	Lab Test #	Test Sequence First	Second	Third
C03A02	CA03A02	1	AC01/P01	AC02/P02	AC06/P06
C07A02	CA07A02	2	AC01/P01	AC02/P02	AC07/P07
C14A02	CA14A02	1	AC01/P01	AC02/P02	AC06/P06
C16A02	CA16A02	1	AC01/P01	AC02/P02	AC07/P07 ITS
C21A02	CA21A02	1	AC01/P01	AC02/P02	AC07/P07
C23A02	CA23A02	2	AC01/P01	AC02/P02	AC06/P06
C31A02	CA31A02	2	AC01/P01	AC02/P02	AC07/P07
C32A02	CA32A02	2	AC01/P01	AC02/P02	AC06/P06

* The visual examination and thickness measurement and bulk density determinations are included in the LTPP Contractor Laboratory Procedures for ACO6/P06 and AC07/P07 Only the top surface layer is tested for Creep Compliance, Resilient Modulus and Indirect Tensile Strength

TRIM CORES TO FORM TEST SPECIMEN 100mm dia x 65mm HEIGHT

TABLE 22.1
ON MTO SPS-9A PROJECT 870900, HWY 17 WB, PETAWAWA, ON
Laboratory Tracking Table for AC Cores (Mixes other than Superpave)
Laboratory: Agency - at Interval A

Core Location No.	Constr. Sta.	Offset m	Core Sample No.	Lab Test No.	Description of Sample	Laboratory Handling & Testing Sequencing					
						First	Second	Third	Fourth	Fifth	Sixth
C01A01	13+938 5	1 1	CA01A01	1	152mm Diameter Core	AC01/P01	AC02/P02	AC04/P04	AE01/P21	AG04/P14	PP19
C02A01	13+937	0 6	CA02A01	1	152mm Diameter Core	AC01/P01	AC02/P02	AC04/P04	AE01/P21	Blend	T49
C03A01	13+935 5	1 1	CA03A01	1	152mm Diameter Core	AC01/P01	AC02/P02	AC04/P04	AE01/P21	Recovered	AE02/P22
C04A01	13+934	0 6	CA04A01	1	152mm Diameter Core	AC01/P01	AC02/P02	AC04/P04	AE01/P21	Asphalt	AE05/P25
C05A01	13+714	0 6	CA05A01	2	152mm Diameter Core	AC01/P01	AC02/P02	AC04/P04	AE01/P21	For	TP5
C06A01	13+712 5	1 1	CA06A01	2	152mm Diameter Core	AC01/P01	AC02/P02	AC04/P04	AE01/P21	Binder	TP1, TP3
C07A01	13+711	0 6	CA07A01	2	152mm Diameter Core	AC01/P01	AC02/P02	AC04/P04	AE01/P21	Testing	AE03/P23
C08A01	13+709 5	1 1	CA08A01	2	152mm Diameter Core	AC01/P01	AC02/P02	AC04/P04	AE01/P21	AG04/P14	PP19
C01A03	12+598 5	1 1	CA01A03	1	152mm Diameter Core	AC01/P01	AC02/P02	AC04/P04	AE01/P21	AG04/P14	PP19
C02A03	12+597	0 6	CA02A03	1	152mm Diameter Core	AC01/P01	AC02/P02	AC04/P04	AE01/P21	Blend	T49
C03A03	12+595.5	1 1	CA03A03	1	152mm Diameter Core	AC01/P01	AC02/P02	AC04/P04	AE01/P21	Recovered	AE02/P22
C04A03	12+594	0 6	CA04A03	1	152mm Diameter Core	AC01/P01	AC02/P02	AC04/P04	AE01/P21	Asphalt	AE05/P25
C05A03	12+374	0 6	CA05A03	2	152mm Diameter Core	AC01/P01	AC02/P02	AC04/P04	AE01/P21	For	TP5
C06A03	12+372.5	1 1	CA06A03	2	152mm Diameter Core	AC01/P01	AC02/P02	AC04/P04	AE01/P21	Binder	TP1, TP3
C07A03	12+371	0 6	CA07A03	2	152mm Diameter Core	AC01/P01	AC02/P02	AC04/P04	AE01/P21	Testing	AE03/P23
C08A03	12+369.5	1.1	CA08A03	2	152mm Diameter Core	AC01/P01	AC02/P02	AC04/P04	AE01/P21	AG04/P14	PP19
C01A60	11+878.5	1 1	CA01A60	1	152mm Diameter Core	AC01/P01	AC02/P02	AC04/P04	AE01/P21	AG04/P14	PP19
C02A60	11+877	0 6	CA02A60	1	152mm Diameter Core	AC01/P01	AC02/P02	AC04/P04	AE01/P21	Blend	T49
C03A60	11+875.5	1.1	CA03A60	1	152mm Diameter Core	AC01/P01	AC02/P02	AC04/P04	AE01/P21	Recovered	AE02/P22
C04A60	11+874	0 6	CA04A60	1	152mm Diameter Core	AC01/P01	AC02/P02	AC04/P04	AE01/P21	Asphalt	AE05/P25
C05A60	11+654	0 6	CA05A60	2	152mm Diameter Core	AC01/P01	AC02/P02	AC04/P04	AE01/P21	For	TP5
C06A60	11+652 5	1.1	CA06A60	2	152mm Diameter Core	AC01/P01	AC02/P02	AC04/P04	AE01/P21	Binder	TP1, TP3
C07A60	11+651	0 6	CA07A60	2	152mm Diameter Core	AC01/P01	AC02/P02	AC04/P04	AE01/P21	Testing	AE03/P23
C08A60	11+649 5	1.1	CA07A60	2	152mm Diameter Core	AC01/P01	AC02/P02	AC04/P04	AE01/P21	AG04/P14	PP19

TABLE 22.1 (Cont.)
ON MTO SPS-9A PROJECT 870900, HWY 17 WB, PETAWAWA, ON
Laboratory Tracking Table for AC Cores (Mixes other than Superpave)
Laboratory: Agency - at Interval A

Core Location No.	Constr. Sta.	Offset m	Core Sample No.	Lab Test No.	Description of Sample	Laboratory Handling & Testing Sequencing					
						First	Second	Third	Fourth	Fifth	Sixth
C01A61	11+180 5	1 1	CA01A61	1	152mm Diameter Core	AC01/P01	AC02/P02	AC04/P04	AE01/P21	AG04/P14	PP19
C02A61	11+179	0 6	CA02A61	1	152mm Diameter Core	AC01/P01	AC02/P02	AC04/P04	AE01/P21	Blend	T49
C03A61	11+177 5	1 1	CA03A61	1	152mm Diameter Core	AC01/P01	AC02/P02	AC04/P04	AE01/P21	Recovered	AE02/P22
C04A61	11+176	0 6	CA04A61	1	152mm Diameter Core	AC01/P01	AC02/P02	AC04/P04	AE01/P21	Asphalt	AE05/P25
C05A61	10+956	0 6	CA05A61	2	152mm Diameter Core	AC01/P01	AC02/P02	AC04/P04	AE01/P21	For	TP5
C06A61	10+954 5	1 1	CA06A61	2	152mm Diameter Core	AC01/P01	AC02/P02	AC04/P04	AE01/P21	Binder	TP1, TP3
C07A61	10+953	0 6	CA07A61	2	152mm Diameter Core	AC01/P01	AC02/P02	AC04/P04	AE01/P21	Testing	AE03/P23
C08A61	10+951 5	1 1	CA08A61	2	152mm Diameter Core	AC01/P01	AC02/P02	AC04/P04	AE01/P21	AG04/P14	PP19
C01A62	10+498 5	1 1	CA01A62	1	152mm Diameter Core	AC01/P01	AC02/P02	AC04/P04	AE01/P21	AG04/P14	PP19
C02A62	10+497	0 6	CA02A62	1	152mm Diameter Core	AC01/P01	AC02/P02	AC04/P04	AE01/P21	Blend	T49
C03A62	10+495 5	1 1	CA03A62	1	152mm Diameter Core	AC01/P01	AC02/P02	AC04/P04	AE01/P21	Recovered	AE02/P22
C04A62	10+494	0 6	CA04A62	1	152mm Diameter Core	AC01/P01	AC02/P02	AC04/P04	AE01/P21	Asphalt	AE05/P25
C05A62	10+274	0 6	CA05A62	2	152mm Diameter Core	AC01/P01	AC02/P02	AC04/P04	AE01/P21	For	TP5
C06A62	10+272.5	1 1	CA06A62	2	152mm Diameter Core	AC01/P01	AC02/P02	AC04/P04	AE01/P21	Binder	TP1, TP3
C07A62	10+271	0 6	CA07A62	2	152mm Diameter Core	AC01/P01	AC02/P02	AC04/P04	AE01/P21	Testing	AE03/P23
C08A62	10+269.5	1 1	CA08A62	2	152mm Diameter Core	AC01/P01	AC02/P02	AC04/P04	AE01/P21	AG04/P14	PP19

TABLE 22.2
ON MTO SPS-9A PROJECT 870900, HWY 17 WB, PETAWAWA, ON
Laboratory Tracking Table for AC Cores (Superpave)
Laboratory: Agency - at Interval A

Core Location No.	Constr. Sta.	Offset m	Core Sample No.	Lab Test No.	Laboratory Handling & Testing Sequencing						
					First	Second	Third	Fourth	Fifth	Sixth	Seventh
C02A02	13+267	0 6	CA02A02	1	AC01/P01	AC02/P02	AC04/P04	P21		Blend	
C06A02	13+043	0 6	CA06A02	2	AC01/P01	AC02/P02	AC04/P04	P21		Recovered	
C11A02	13+267	2 4	CA11A02	1	AC01/P01	AC02/P02	AC03/P03	AC04/P04	P21	Asphalts	P14
C15A02	13+261	2 4	CA15A02	1	AC01/P01	AC02/P02	AC04/P04	P21		From	
C19A02	13+255	2 4	CA19A02	1	AC01/P01	AC02/P02	AC04/P04	P21		Ten (10)	
C24A02	13+043	2 4	CA24A02	2	AC01/P01	AC02/P02	AC03/P03	AC04/P04	P21	Cores	P14
C28A02	13+037	2 4	CA28A02	2	AC01/P01	AC02/P02	AC04/P04	P21		Run	
C33A02	13+029 5	2 4	CA33A02	2	AC01/P01	AC02/P02	AC04/P04	P21		Following	
C05A02	13+044 5	1.1	CA05A02	2	AC01/P01	AC02/P02	Spare			Tests	
C25A02	13+041.5	2 4	CA25A02	2	AC01/P01	AC02/P02	Spare			T49	
										AE02/P22	
										AE05/P25	
										TP5	
										TP1, TP3	
										AE03/P23	

TABLE 23
ON MTO SPS-9A PROJECT 870900, HWY 17 WB, PETAWAWA, ON
Laboratory Tracking Table for AC Cores at Intervals t (B through F)
Laboratory: Agency

Sample Location No.	Constr. Sta.	Offset Ft.	Sample No.	Lab Test No.	Description of Sample	Laboratory Handling & Testing Sequencing						
						First	Second	Third	Fourth	Fifth	Sixth	Seventh
C01tXX	Varies	1 1	CA01tXX	1	152mm Diameter Core	AC01/P01	AC02/P02	AC03/P03	AC04/P04	AE01/P21	AG04/P14	PP19
C02tXX	with	0 6	CA02tXX	1	152mm Diameter Core	AC01/P01	AC02/P02	AC04/P04	AE01/P21	Blend	T49	
C03tXX	t=B,	1 1	CA03tXX	1	152mm Diameter Core	AC01/P01	AC02/P02	AC04/P04	AE01/P21	Recovered	AE02/P22	
C04tXX	C,	0 6	CA04tXX	1	152mm Diameter Core	AC01/P01	AC02/P02	AC04/P04	AE01/P21	Asphalt	AE05/P25	
C05tXX	D,	0 6	CA05tXX	2	152mm Diameter Core	AC01/P01	AC02/P02	AC04/P04	AE01/P21	For	TP5	
C06tXX	E,	1 1	CA06tXX	2	152mm Diameter Core	AC01/P01	AC02/P02	AC04/P04	AE01/P21	Binder	TP1, TP3	
C07tXX	F	0 6	CA07tXX	2	152mm Diameter Core	AC01/P01	AC02/P02	AC04/P04	AE01/P21	Testing	AE03/P23	
C08tXX		1 1	CA08tXX	2	152mm Diameter Core	AC01/P01	AC02/P02	AC03/P03	AC04/P04	AE01/P21	AG04/P14	PP19

Construction Stations, m

@ t =	B	C	D	E	F
C01	-50 5	-42 5	-34 5	-26 5	-18 5
C02	-49	-41	-33	-25	-17
C03	-47 5	-39 5	-31 5	-23 5	-15 5
C04	-46	-38	-30	-22	-14
C05	174	182	190	198 0	206
C06	175 5	183 5	191.5	200	207 5
C07	177	185	193	201	209
C08	178 5	186 5	194 5	203	210 5

Note XX - Test Section Numbers 01, 02, 03, 60, 61, and 62

TABLE 24
ON MTO SPS-9A PROJECT 870900, HWY 17 WB, PETAWAWA, ON
Summary of Gyratory Compaction Specimen ID's

Other than Superpave Mixes

Material Description	Project Designation	Laboratory Mixes and Paver Samples	Agency Laboratory		SRTC	LCL
			Gyratory Compacted Specimen ID			
			QC/QA, Volumetrics @ N_{Max}	For Moisture Susceptibility @ 7% AV	For Performance Testing @ 7% AV and 3% AV	For Mix Characterization @ 7% AV
AC Surface Course	HDS 19mm Max	NA01AXX-NA09AXX BA01AXX-BA06AXX	LA01AXX-LA03AXX DA01AXX-DA06AXX	LA04AXX-LA09AXX	Note: XX Represents Test Section Numbers 01, 03, 60, 61 and 62	
SUPERPAVE MIXES - TEST SECTION 02						
AC Binder Course	HDB 25mm Max	BA50A02 (MRL)				
AC Surface Course	HDS 19mm Max	NA01A02-NA40A02 BA01A02-BA34A02	LA01A02-LA06A02 DA02A02-DA04A02 DA31A02-DA33A02	LA09A02-LA14A02 ---	LA07A02-LA08A02 (3% AV) LA23A02-LA40A02 (7% AV) DA01A02, DA34A02 (3% AV) DA06A02-DA08A02 (7% AV) DA10A02-DA14A02 (7% AV) DA19A02-DA28A02 (7% AV)	LA15A02-LA22A02 DA05A02, DA09A02 DA15A02-DA18A02 DA29A02-DA30A02

SRTC - SUPERPAVE REGIONAL TEST CENTER, **LCL** - LTPP CONTRACTOR LABORATORY, MRL - MATERIALS REFERENCE LIBRARY

SPS-9A Notes

Suggestions for Bulk Field HMA Mix Sampling

The sampling of hot mix in the field from plant or paver and the subsequent handling and preparation of gyratory compacted specimen at the required compaction temperature can pose problems. There is a need for consistency in the temperature regime experienced by the mix until compaction, particularly for the 34 Gyratory Compacted Specimen (GCS) which are intended for performance testing.

It is suggested that for simplicity and consistency that sampling containers can be the same shallow flat pan about (9" x 12" x 2") used in the laboratory to short-term age and to bring the mix to compaction temperature. The tare weight of each pan should be known before the hot mix sample is placed in the pan. A sample of about 6 to 6.5 kilograms should be placed in each pan. (The truck that is used to collect the sample for conveyance to the field laboratory may be equipped with a field balance and pre-determined counterweight).

The 6 samples for AC purposes should be immediately placed into an insulated container and delivered to the field laboratory for GCS compaction. At the laboratory, the weight of mix in the pan can be adjusted to the quantity needed to manufacture the 150mm diameter by 115mm height specimen. The amount of mix removed from the pan is available for maximum specific gravity testing and asphalt content determination.

The 34 samples for gyratory compaction and performance testing can be transported to the laboratory (field or designated agency laboratory) for the immediate compaction. The samples likely need to be re-heated. The weight of material in the pan should be adjusted for the GC specimen with are 150mm diameter x 140mm height. Each sample should be treated in the same way as the next with respect to time and temperature while being brought up to compaction temperature. An interval of about 20 minutes should be allowed between treatment of samples to permit completion of compaction of the previous sample.

Five (5) additional samples should be obtained for maximum specific gravity, asphalt content and aggregate gradation determinations.

Naming these Bulk Samples

Each 'split-off' bulk sample should be identified by placing a label in each pan. For main study test sections 01, 03 and supplemental sections 60, 61 and 62, the samples are identified as BA01AXX through BA06AXX. For the Superpave test section 02, the samples are identified as BA01A02 through BA34A02.

The binder course bulk samples for shipping to the Materials Reference Library (MRL) may also be collected as 'split-off' samples, but are all named BA50AXX. If the same binder course mix is used in all test sections, XX can be assigned as 02.

It is intended in the ON MTO project to use only one binder course for all of the test sections. This could be a Superpave mix binder course design, and plant mix samples will be obtained from Section 02 and shipped to the Materials Reference Library (MRL). Should performance of the test sections indicate an influence of the binder course, the MRL samples will be available for Superpave performance testing.

The MRL samples of binder course mix should be 'split-off' samples conveniently packaged so that individual samples can be withdrawn without need for heating. Consider using 6" dia. x 12" high metal cylinders used for forming PCC test specimen. Each cylinder (coated with a soap solution inside for easy extraction) of tamped hot-mix when extruded and sawn in half has enough material (about 2 x 6.5kg) to make two gyratory compacted GC specimen, each 140mm in height. The bulk sample, identified as BA50A02, would consist of 12 cylinders banded together on one plywood pallet.

July 29, 1996

Notes on Preparation of Gyratory Compacted Test Specimen (AASHTO M-002)

1) Number of Gyrations - (Table V-1 pg. 70, FHWA-SA-95-003, Feb. 1995)

NARO Project Location	Highest/Mean 7-day	Design ESAL's	N_{ini}	$N_{Des.}$	N_{Max}
Colchester CT -	34 deg. C / 30 deg. C	0.185×10^6	7	68	104
Petawawa ON -	34 deg C / 30 deg. C	2.65×10^6	7	86	134
Moncure NC -	39 deg. C / 36 deg. C	3.32×10^6	8	96	152
Allentown NJ -	37 deg. C / 33 deg. C	39.0×10^6	9	126	204

2) Densification Criteria - G_{mm} is measured AC03/P03

N_{ini} Observed % G_{mm} < 89 0%

N_{Des} Observed % G_{mm} approx 96.0%

N_{Max} Observed % G_{mm} < 98 0%