

Washington State Department of Transportation

**Materials Sampling, Field Testing
and Laboratory Testing Plan**

Strategic Highway Research Program

SPS-2 Experimental Project

Federal Aid Project No. ACDPS-0027 (001)

SR 395 - Lind to Ritzville

Washington

FINAL

February 1995

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SPS-2 Sampling and Testing

Summary of Material Sampling and Testing on SPS-2 Test Sections

Material sampling and testing on this project during construction includes the following measurements, tests and samples from the various pavement layers:

Natural Subgrade

- Bulk and moisture sampling of the natural subgrade.
- Thin walled tube sampling, if material is fine grained.
- If the natural subgrade is greater than four feet below the prepared subgrade or embankment surface, then no sampling is required.

Prepared Subgrade or Embankment

- Bulk and moisture sampling of the prepared subgrade surface.
- Thin walled tube sampling, if material is fine grained and the natural subgrade is greater than four feet below the finished surface.
- Nuclear moisture and density tests on the prepared surface.
- Auger probes through the shoulder to a depth of 20' below the prepared embankment surface.
- Base line elevation surveys on the surface of the prepared subgrade to use as a reference in determining layer thickness.
- Falling Weight Deflectometer (FWD) measurements on the prepared subgrade (optional).

Dense Graded Aggregate Base

- Bulk and moisture sampling of the Dense Graded Aggregate Base (DGAB).
- Nuclear moisture and density tests on the prepared DGAB surface.
- Elevation measurements on the prepared DGAB surface.
- FWD measurements on the prepared DGAB (optional).

Permeable Asphalt Treated Base

- Bulk sampling of the Permeable Asphalt Treated Base (PATB) material.
- Elevation measurements on the prepared PATB surface.

Asphalt Treated Base

- Bulk sampling of the Asphalt Treated Base (ATB) material.
- Bulk sampling of the asphalt cement used in the ATB.

- Density tests on compacted ATB.
- Coring of the ATB for laboratory testing.
- Elevation measurements on the prepared ATB surface.

Lean Concrete Base

- Bulk sampling and molding of cylindrical test specimens from the as-delivered Lean Concrete Base (LCB) material.
- Slump, air content and temperature measurements on the as-delivered LCB mix.
- Coring of the LCB for laboratory testing.
- Elevation measurements on the prepared LCB surface.

Portland Cement Concrete

- Bulk sampling and molding of PCC specimens for laboratory testing.
- Slump, air content and temperature measurements on the as-delivered PCC mix.
- Coring of the PCC surface for laboratory testing.
- Elevation measurements on the finished PCC surface.

Sampling for the Materials Reference Library (MRL)

- Bulk sampling of portland cement used in each mixture.
- Bulk sampling of fly ash used in each mixture.
- Bulk samples of liquid additives used in each mixture.
- Bulk sampling of fine aggregate used in each mixture.
- Bulk sampling of coarse aggregate used in each mixture.

The development of the materials sampling plan was based upon an assumed continuous construction sequence. Significant time delays between the construction of the test sections may require changes to this sampling plan.

Referenced Documents

In addition to the appropriate AASHTO and ASTM standard methods and tests referenced in this document, the following SHRP-LTPP documents serve as reference material which contain greater details on the sampling and testing requirements and data forms.

SHRP-LTPP Interim Guide for Laboratory Material Handling and Testing (PCC, Bituminous Materials, Aggregates and Soils), Operational Guide No. SHRP-LTPP-OG-004, Strategic Highway Research Program, November, 1989, (Revised and Amended July, 1993).

Specific Pavement Studies, Materials and Testing Requirements for Experiment SPS-2, Strategic Study of Structural Factors for Rigid Pavements, Operational Memorandum No. SHRP-LTPP-OM-022, Strategic Highway Research Program, Revised January, 1994.

SHRP-LTPP Guide for Field Materials Sampling, Testing and Handling, Version 2.0, Operational Guide No. SHRP-LTPP-OG-006, Strategic Highway Research Program, May 1990.

Specific Pavement Studies, Construction Guidelines for Experiment SPS-2, Strategic Study of Structural Factors for Rigid Pavements, Operational Memorandum No. SHRP-LTPP-OM-018, Strategic Highway Research Program, Revised December, 1993.

Data forms and instructions for all field sampling and measurements described in this document are contained in "**Specific Pavement Studies, Materials Sampling and Testing Requirements for Experiment SPS-2, Strategic Study of Structural factors for Rigid Pavements**" for the PCC surface test sections. These data forms must be completed at the time of the work. Completed forms shall be submitted to the designated LTPP representative.

Test Section Layout

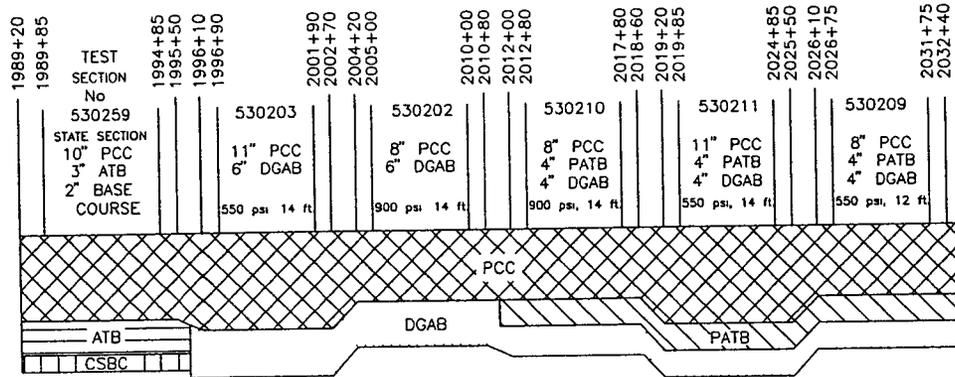
Figure 1 illustrates the ordering and combination of the experimental SPS-2 test section pavement structures to be constructed. Construction stations are shown in this figure. Stylized transitions in the pavement structure are shown between the test sections.

The construction stationing and LTPP test section stationing for the location of the SPS-2 test sections are shown in Table 1. Test section stationing refers to the method LTPP uses to reference locations within and adjacent to the ends of individual test sections. The LTPP test section stations are referenced to station 0+00 assigned to the beginning of the 500' monitoring portion of each test section, and station 5+00 at the end of the monitoring portion. In this table the six digit LTPP test section numbers are also shown. The six digit number is the official test section number for use on all data forms. The last two numbers of the six digit number correspond to the LTPP test section designation. The relevant design features of each test section are shown in this table.

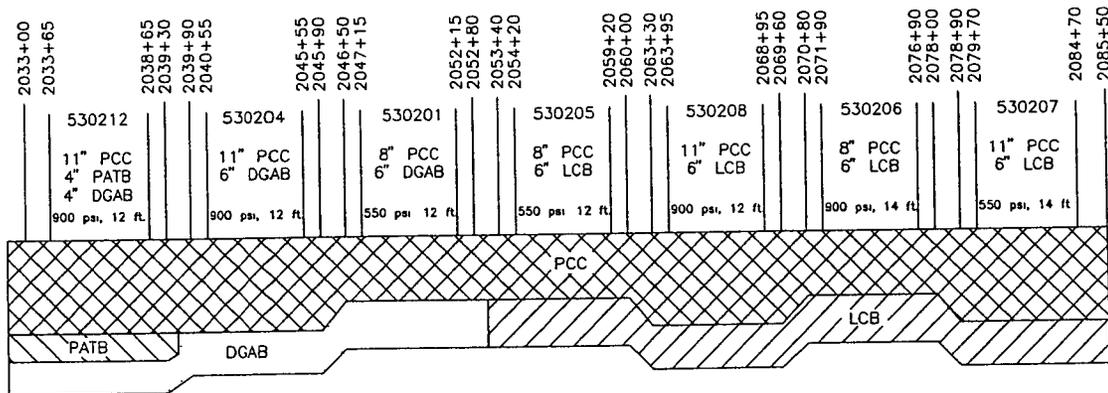
The limit of each test section is defined in Table 1 as the area between but including the destructive testing areas. Each test section consists of three portions, the destructive testing areas, the monitoring testing area and the transitions. The destructive sampling areas are located immediately before and after the monitoring portion. These locations are listed in Table 1, designated as the area between "begin destructive testing" and "begin monitoring" and between "end monitoring" and "end destructive testing." The monitoring area is a 500 foot length within which no destructive testing on the surfacing is allowed. This monitoring area is designated as the area between the "begin monitoring" and "end monitoring" stations in Table 1. Transition areas are those designated for the transition from differing materials, differing thicknesses or differing cross sections. No sampling, testing or monitoring will be performed within the transition areas. All changes in materials, thicknesses or properties should occur within the designated transition zones.

In general, all sampling of compacted material should occur outside of the monitoring portion but within the destructive testing portions of the test section. The only samples and tests performed within the 500 foot monitoring portion are sampling of the subgrade material, elevation measurements, nuclear moisture-density tests and plate bearing tests or FWD measurements, if performed.

Direction of Travel
Northbound →



Direction of Travel
Northbound →



PCC - Portland Cement Concrete Pavement
 PATB - Permeable Asphalt Treated Base
 DGAB - Dense Graded Aggregate Base
 LCB - Lean Concrete Base
 ATB - Asphalt Treated Base
 CSBC - Crushed Surfacing Base Course

NOT TO SCALE

Figure 1 Layout of experimental test sections, Washington SPS-2 project, SR 395

Table 1. Test section location table showing SPS-2 construction and project stations.

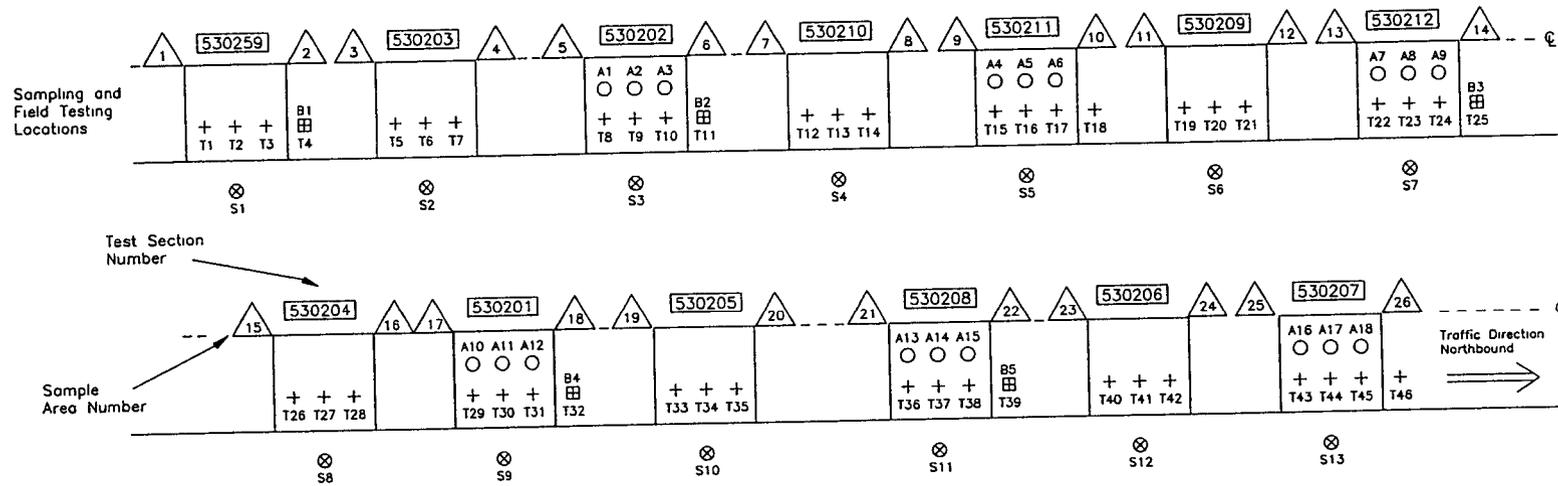
Site	Location	Construction Stationing	Test Section Stationing	Test Section	Notes
530259 WSDOT Test Section	Begin Destructive Testing	1989+20	0-65	WSDOT Standard Project Treatment 10" PCC, 3" ATB 2" Base Course	
	Begin Monitoring	1989+85	0+00		
	End Monitoring	1994+85	5+00		
	End Destructive Testing	1995+50	5+65		
Transition		1995+50 to 1996+10		60'	
530203	Begin Destructive Testing	1996+10	0-80	11" PCC, 6" DGAB 550 psi, 14 ft.	
	Begin Monitoring	1996+90	0+00		
	End Monitoring	2001+90	5+00		
	End Destructive Testing	2002+70	5+80		
Transition		2002+70 to 2004+20		150'	
530202	Begin Destructive Testing	2004+20	0-80	8" PCC, 6" DGAB 900 psi, 14 ft.	
	Begin Monitoring	2005+00	0+00		
	End Monitoring	2010+00	5+00		
	End Destructive Testing	2010+80	5+80		
Transition		2010+80 to 2012+00		120'	
530210	Begin Destructive Testing	2012+00	0-80	8" PCC, 4" PATB 4" DGAB 900 psi, 14 ft.	
	Begin Monitoring	2012+80	0+00		
	End Monitoring	2017+80	5+00		
	End Destructive Testing	2018+60	5+80		
Transition		2018+60 to 2019+20		60'	
530211	Begin Destructive Testing	2019+20	0-65	11" PCC, 4" PATB 4" DGAB 550 psi, 14 ft.	
	Begin Monitoring	2019+85	0+00		
	End Monitoring	2024+85	5+00		
	End Destructive Testing	2025+50	5+65		
Transition		2025+50 to 2026+10		60'	
530209	Begin Destructive Testing	2026+10	0-65	8" PCC, 4" PATB 4" DGAB 550 psi, 12 ft.	
	Begin Monitoring	2026+75	0+00		
	End Monitoring	2031+75	5+00		
	End Destructive Testing	2032+40	5+65		
Transition		2032+40 to 2033+00		60'	
530212	Begin Destructive Testing	2033+00	0-65	11" PCC, 4" PATB 4" DGAB 900 psi, 12 ft.	
	Begin Monitoring	2033+65	0+00		
	End Monitoring	2038+65	5+00		
	End Destructive Testing	2039+30	5+65		
Transition		2039+30 to 2039+90		60'	
530204	Begin Destructive Testing	2039+90	0-65	11" PCC, 6" DGAB 900 psi, 12 ft.	
	Begin Monitoring	2040+55	0+00		
	End Monitoring	2045+55	5+00		
	End Destructive Testing	2045+90	5+45		
Transition		2045+90 to 2046+50		60'	
530201	Begin Destructive Testing	2046+50	0-65	8" PCC, 6" DGAB 550 psi, 12 ft.	
	Begin Monitoring	2047+15	0+00		
	End Monitoring	2052+15	5+00		
	End Destructive Testing	2052+80	5+65		

Table 1. Test section location table showing SPS-2 construction and project stations (cont'd.)

Site	Location	Construction Stationing	Test Section Stationing	Test Section	Notes
Transition		2052+80 to 2053+40		60'	
530205	Begin Destructive Testing	2053+40	0-80	8" PCC, 6" LCB 550 psi, 12 ft.	
	Begin Monitoring	2054+20	0+00		
	End Monitoring	2059+20	5+00		
	End Destructive Testing	2060+00	5+80		
Transition		2060+00 to 2063+30		330'	
530208	Begin Destructive Testing	2063+30	0-65	11" PCC, 6" LCB 550 psi, 12 ft.	
	Begin Monitoring	2063+95	0+00		
	End Monitoring	2068+95	5+00		
	End Destructive Testing	2069+60	5+65		
Transition		2069+60 to 2070+80		120'	
530206	Begin Destructive Testing	2070+80	-1-10	8" PCC, 6" LCB 900 psi, 14 ft.	
	Begin Monitoring	2071+90	0+00		
	End Monitoring	2076+90	5+00		
	End Destructive Testing	2078+00	6+10		
Transition		2078+00 to 2078+90		90'	
530207	Begin Destructive Testing	2078+90	0-80	11" PCC, 6" LCB 550 psi, 14 ft.	
	Begin Monitoring	2079+70	0+00		
	End Monitoring	2084+70	5+00		
	End Destructive Testing	2085+50	5+80		

Overview of Sampling and Testing

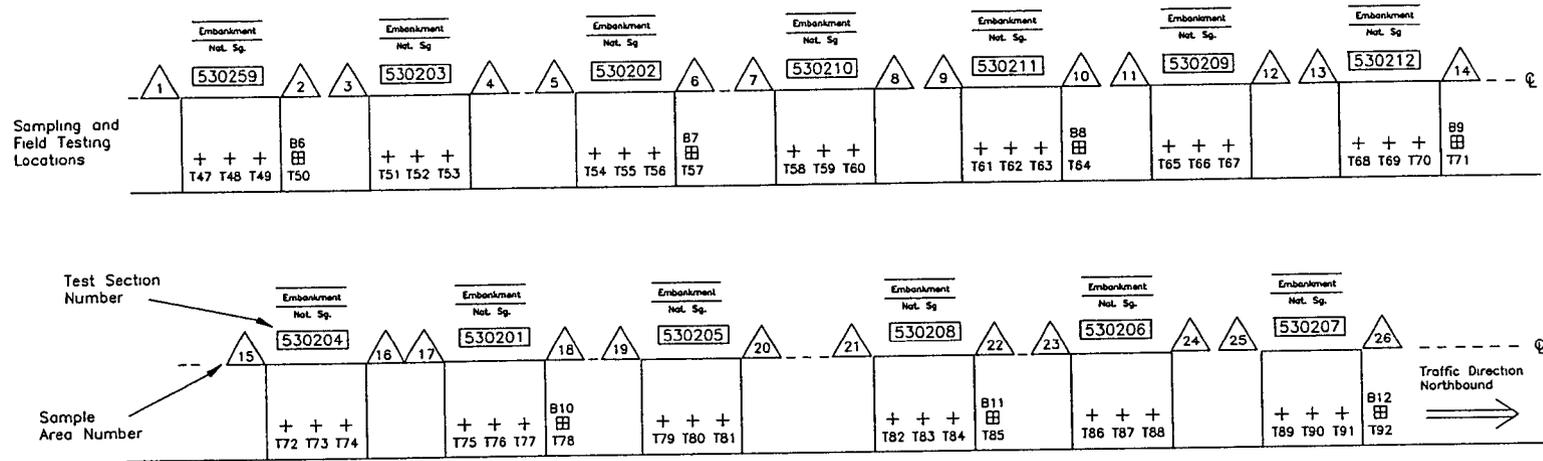
An overview of the material sampling and testing to be performed on all test sections is shown in Figures 2 through 6 for each pavement layer. In these figures, symbols are used to designate the locations for the various types of samples and tests. Bulk samples of materials, including DGAB, PATB, ATB, PCC, and LCB, are shown for the test sections from which the materials should be obtained during construction. These figures are further broken down into Figures 7 through 19. Figures 7 through 19 summarize the sampling required for each individual section.



NOT TO SCALE

- 2' x 2' bulk sampling location (B1–B5) to 12" below top of natural subgrade
- Shelby tube/splitspoon sampling to 4' below top of natural subgrade (A1–A18)
- ⊗ Shoulder probe (S1–S13)
- + Location of nuclear moisture–density tests (T1–T46)
- △ Sample areas

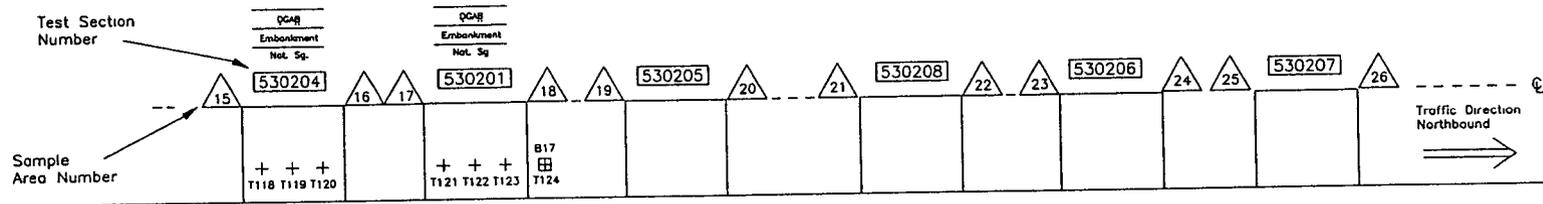
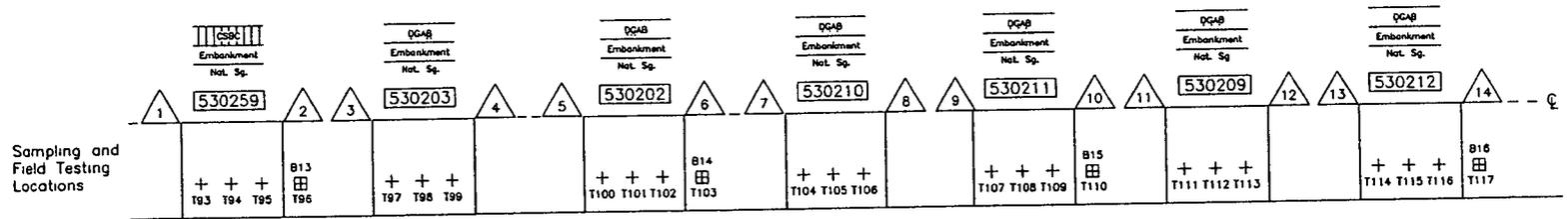
Figure 2 Overview of material sampling and testing on Natural Subgrade, SPS–2 Washington



NOT TO SCALE

- 2' x 2' bulk sampling location (B6–B12) to 12" below top of embankment
- + Location of nuclear moisture–density tests (T47–T92)
- △ Sample areas
- Nat Sg – Natural subgrade

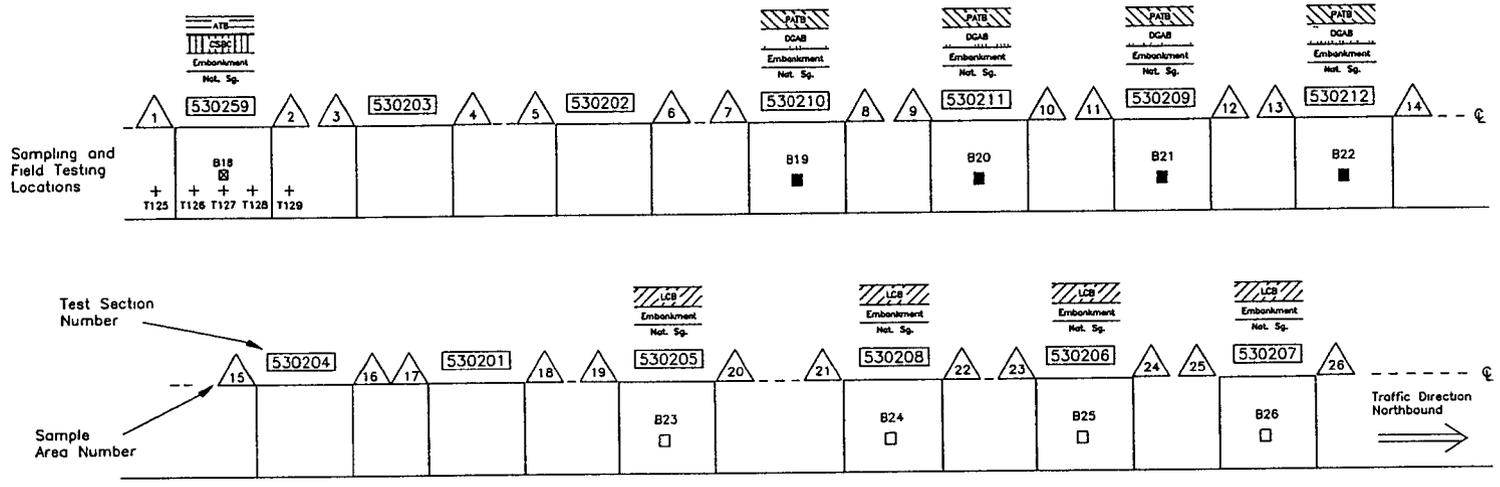
Figure 3 Overview of material sampling and testing on Prepared Subgrade or Embankment, SPS–2 Washington



NOT TO SCALE

- 2' x 2' bulk sampling location (B13-B17) to 12" below top of subgrade
- + Location of nuclear moisture-density tests (T93-T124)
- △ Sample areas
- Nat Sg - Natural Subgrade
- DGAB - Dense Graded Aggregate Base
- CSBC - Crushed Surfacing Base Course

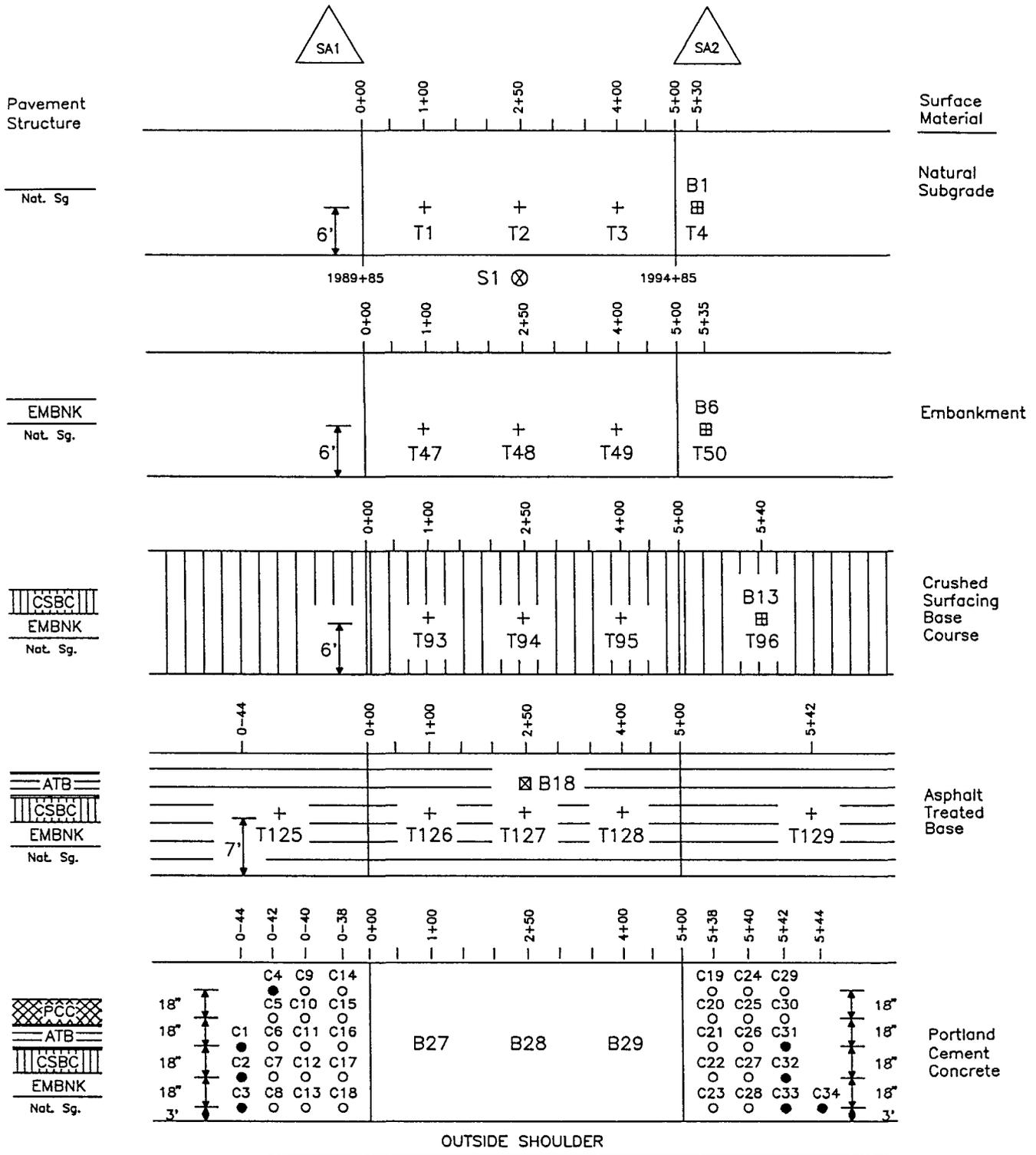
Figure 4 Overview of material sampling and testing on Dense Graded Aggregate Base and Crushed Surfacing Base Course, SPS-2 Washington



NOT TO SCALE

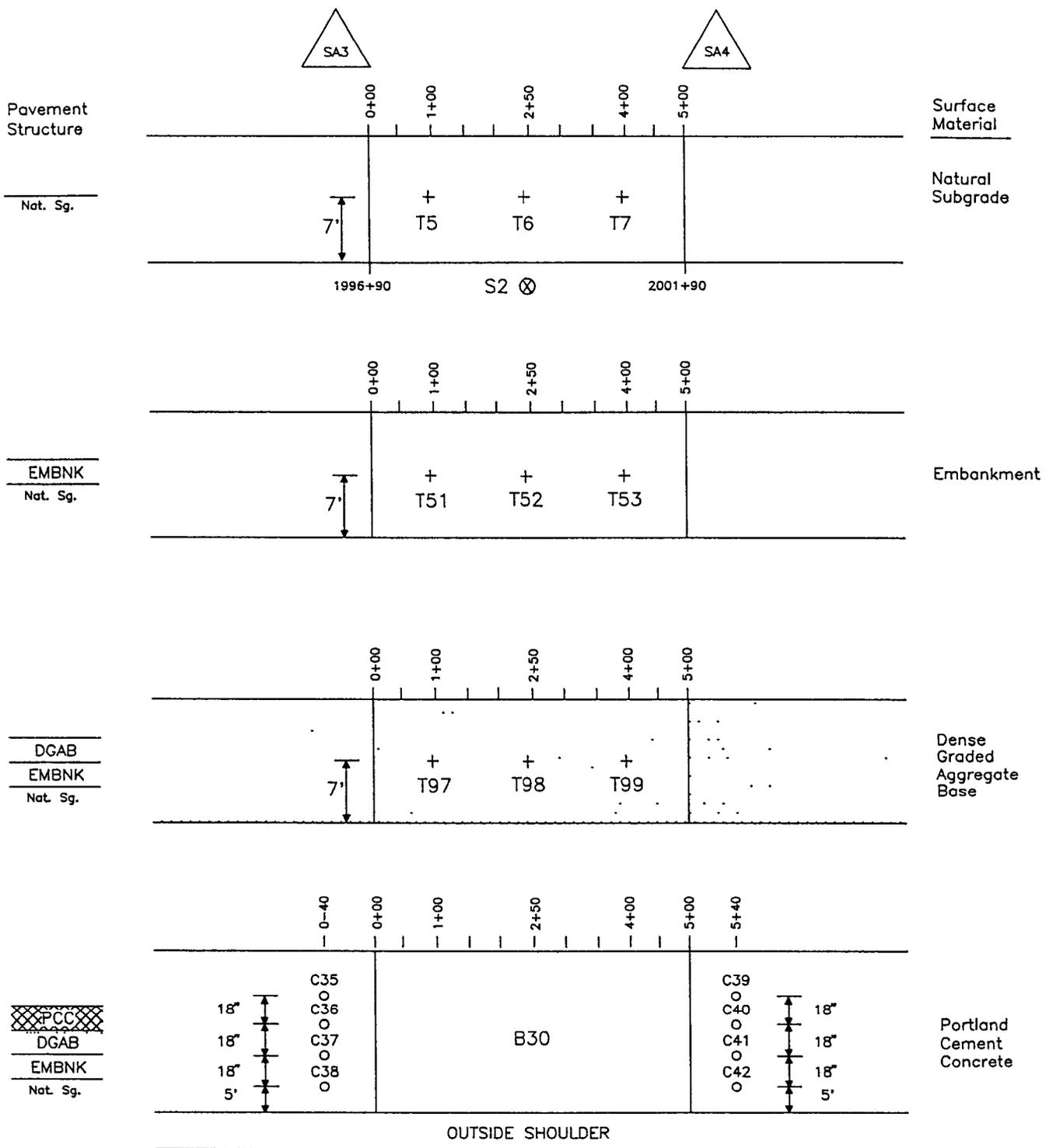
- ⊠ Bulk ATB samples (B18)
- Bulk PATB samples (B19–B22)
- Bulk LCB samples (B23–B26)
- + Location of nuclear moisture–density tests (T125–T129)
- △ Sample areas
- Nat. Sg – Natural Subgrade
- LCB – Lean Concrete Base
- DGAB – Dense Graded Aggregate Base
- PATB – Permeable Asphalt Treated Base
- ATB – Asphalt Treated Base
- CSBC – Crushed Surfacing Base Course

Figure 5 Overview of material sampling and testing on Asphalt Treated Base, Lean Concrete Base and Permeable Asphalt Treated Base, SPS–2 Washington



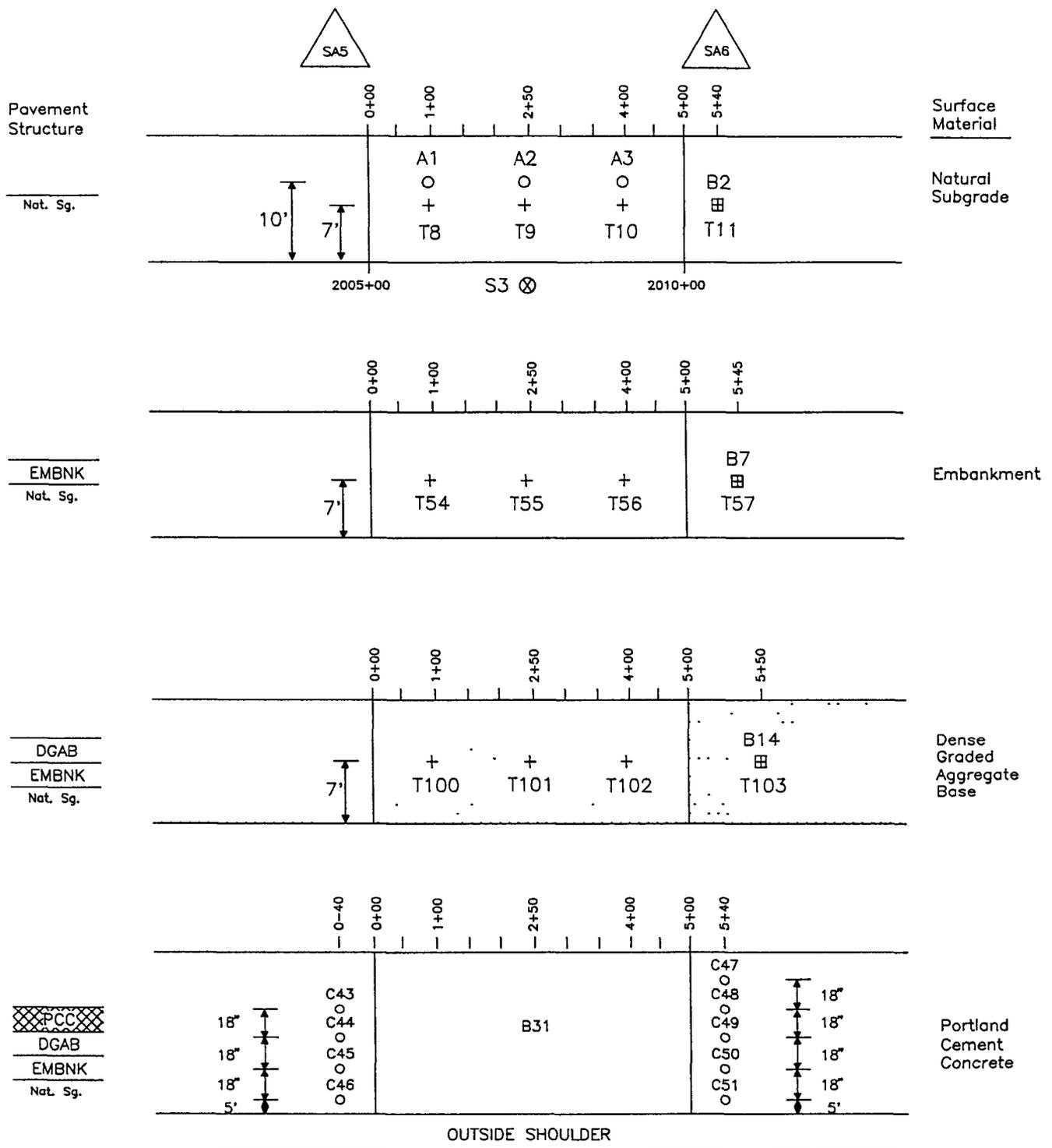
- ⊗ S1 - 20' Shoulder probe
- + T1-T4 - Nuclear moisture-density tests on Natural Subgrade
- B1 - Bulk sample of Natural Subgrade
- + T47-T50 - Nuclear moisture-density tests on Embankment
- B6 - Bulk sample of Embankment
- + T93-T96 - Nuclear moisture-density tests on CSBC
- B13 - Bulk sample of Crushed Surfacing Base Course
- + T125-T129 - Nuclear moisture-density tests on ATB
- ⊗ B18 - Bulk sample of ATB
- B27-B29 - Bulk samples of PCC
- C1-C4, C31-C34 - Cores of PCC surface and ATB layer
- C5-C30 - Cores of PCC surface

Figure 7. Sampling and test plan for test section 530259, SPS-2 Washington



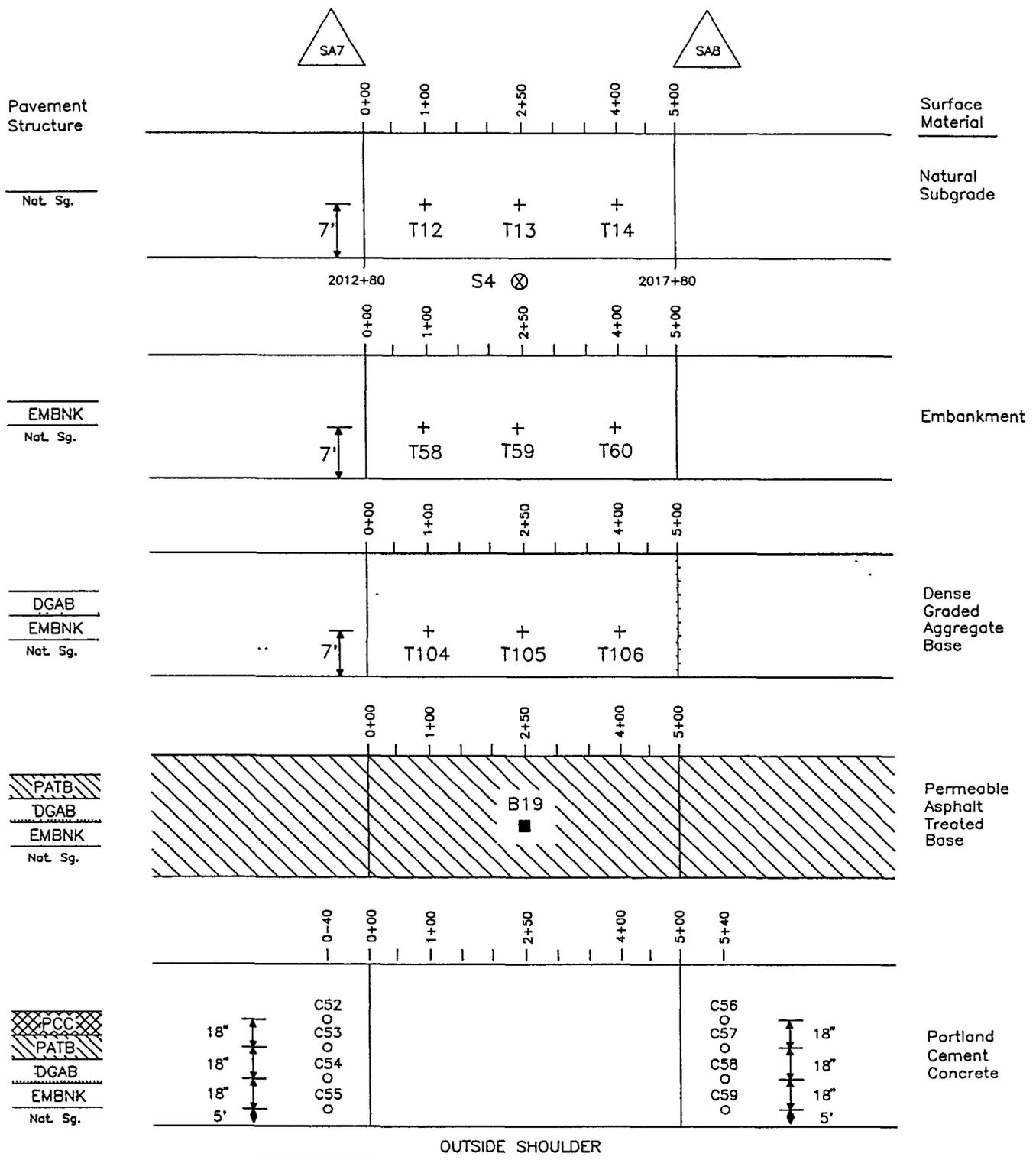
- ⊗ S2 - 20' Shoulder probe
- + T5-T7 - Nuclear moisture-density tests on Natural Subgrade
- + T51-T53 - Nuclear moisture-density tests on Embankment
- + T97-T99 - Nuclear moisture-density tests on DGAB
- B30 - Bulk sample of PCC
- o C35-C42 - Cores of PCC surface

Figure 8. Sampling and test plan for test section 530203, SPS-2 Washington



- ⊗ S3 - 20' Shoulder probe
- + T8-T11 - Nuclear moisture-density tests on Natural Subgrade
- A1-A3 - Thin wall sampling of Natural Subgrade
- B2 - Bulk sample of Natural Subgrade
- + T54-T57 - Nuclear moisture-density tests on Embankment
- B7 - Bulk sample of Embankment
- + T100-T103 - Nuclear moisture-density tests on DGAB
- B14 - Bulk sample of DGAB
- B31 - Bulk sample of PCC
- C43-C51 - Cores of PCC surface

Figure 9. Sampling and test plan for test section 530202, SPS-2 Washington



- ⊗ S4 - 20' Shoulder probe
- + T12-T14 - Nuclear moisture-density tests on Natural Subgrade
- + T58-T60 - Nuclear moisture-density tests on Embankment
- + T104-T106 - Nuclear moisture-density tests on DGAB
- B19 - Bulk sample of PATB
- C52-C59 - Cores of PCC surface

Figure 10. Sampling and test plan for test section 530210, SPS-2 Washington

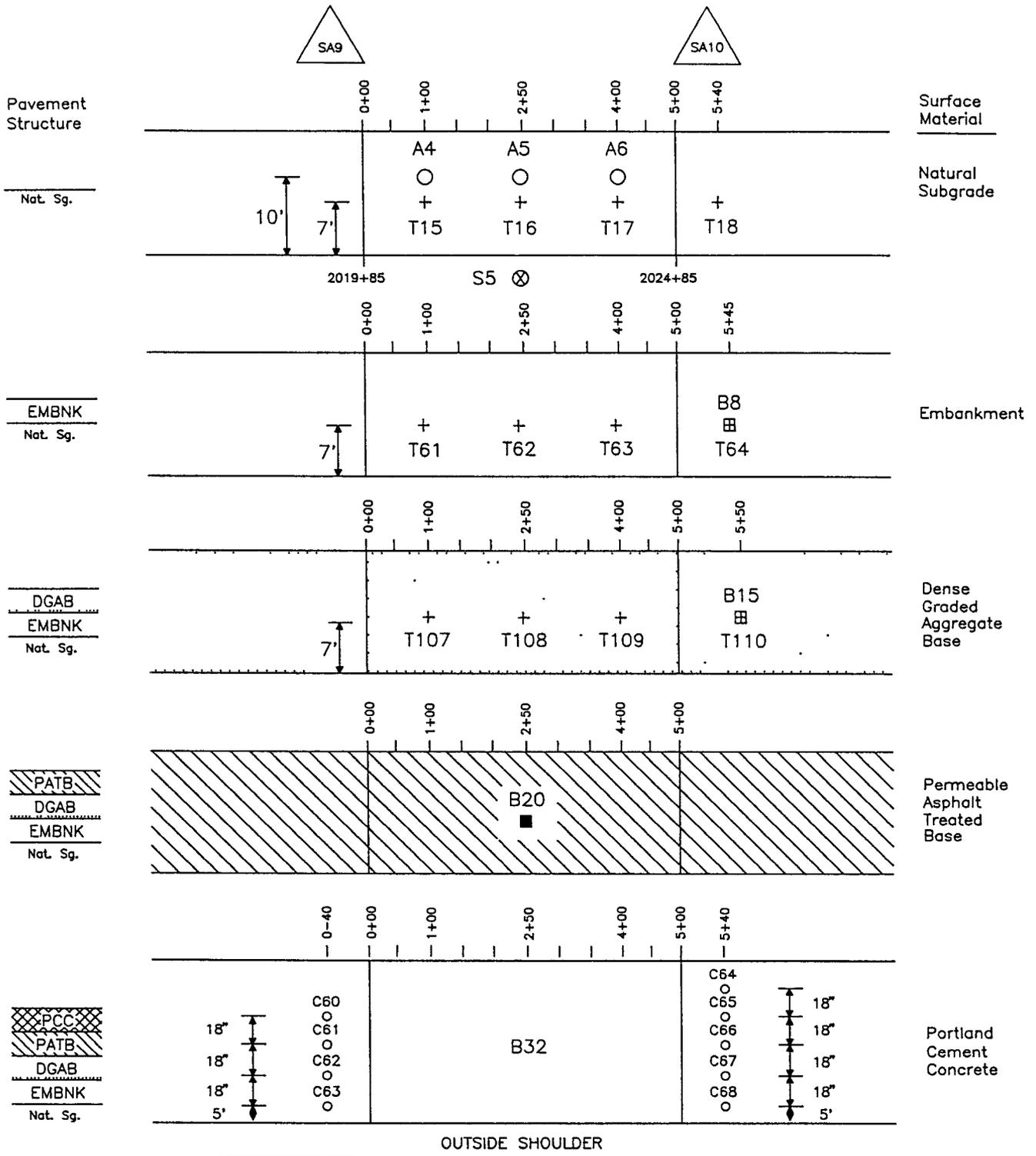


Figure 11. Sampling and test plan for test section 530211, SPS-2 Washington

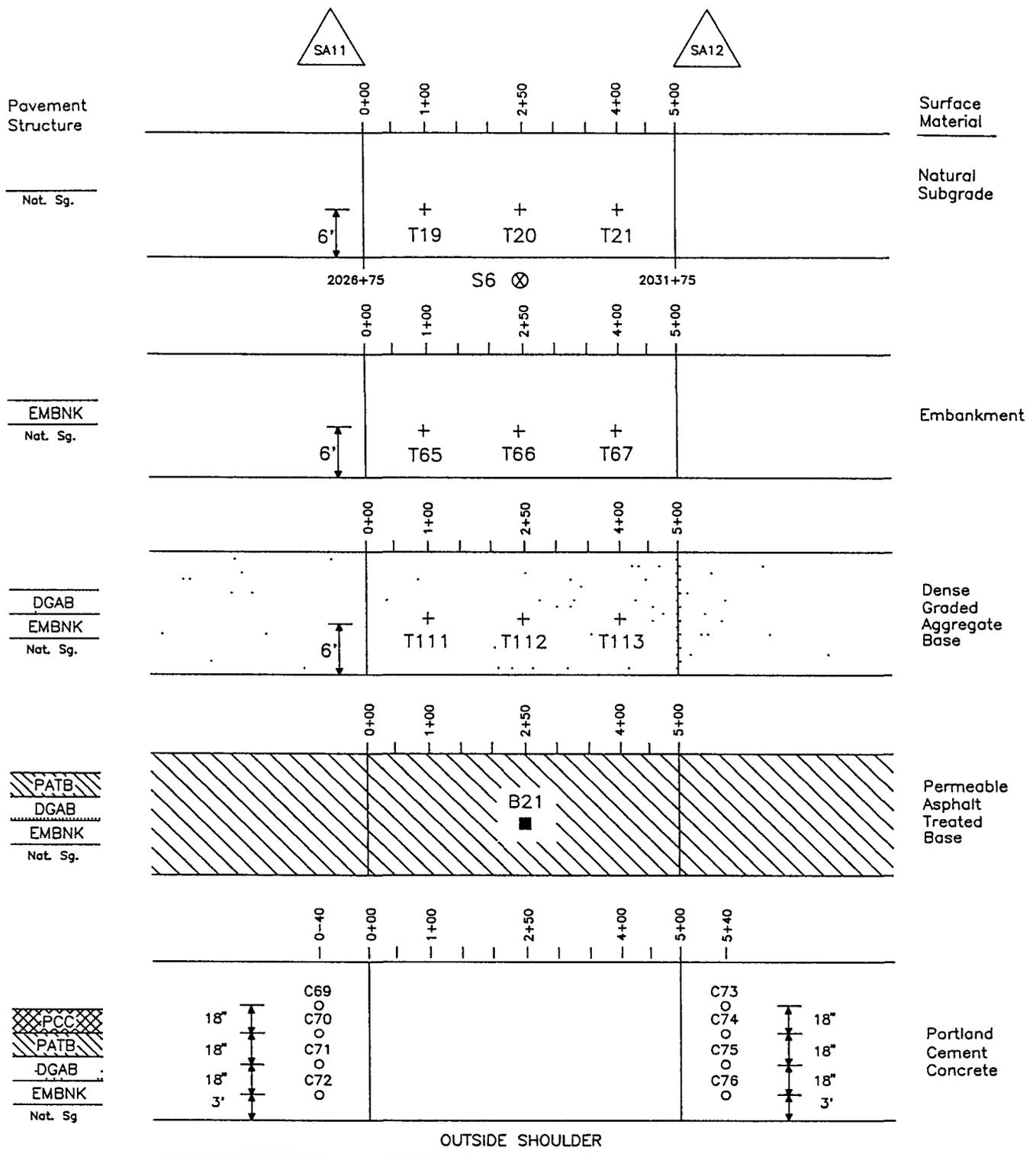
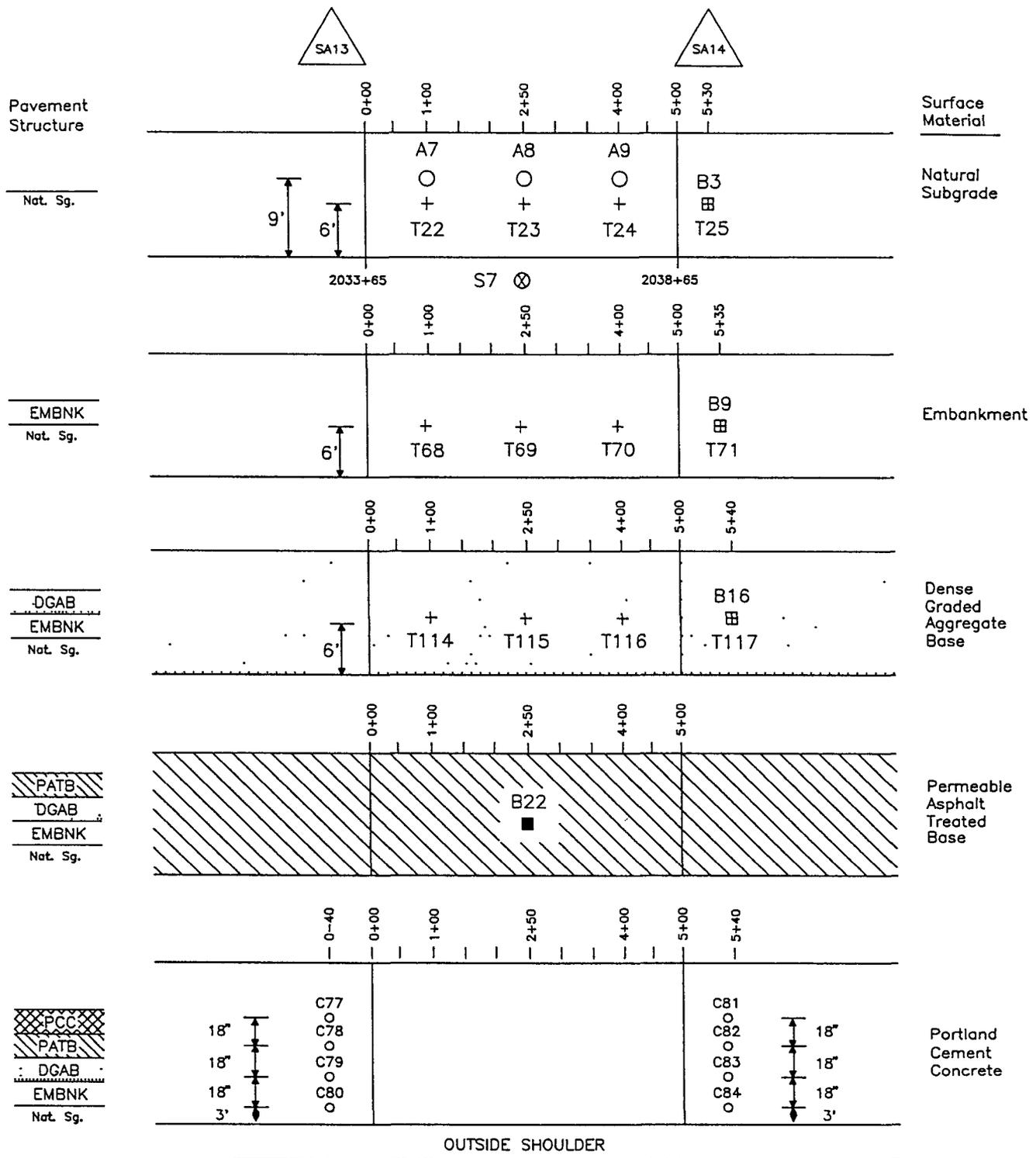


Figure 12. Sampling and test plan for test section 530209, SPS-2 Washington



- ⊗ S7 - 20' Shoulder probe
- + T22-T25 - Nuclear moisture-density tests on Natural Subgrade
- A7-A9 - Thin wall sampling of Natural Subgrade
- B3 - Bulk sample of Natural Subgrade
- + T68-T71 - Nuclear moisture-density tests on Embankment
- B9 - Bulk sample of Embankment
- + T114-T117 - Nuclear moisture-density tests on DGAB
- B16 - Bulk sample of DGAB
- B22 - Bulk sample of PATB
- C77-C84 - Cores of PCC surface

Figure 13. Sampling and test plan for test section 530212, SPS-2 Washington

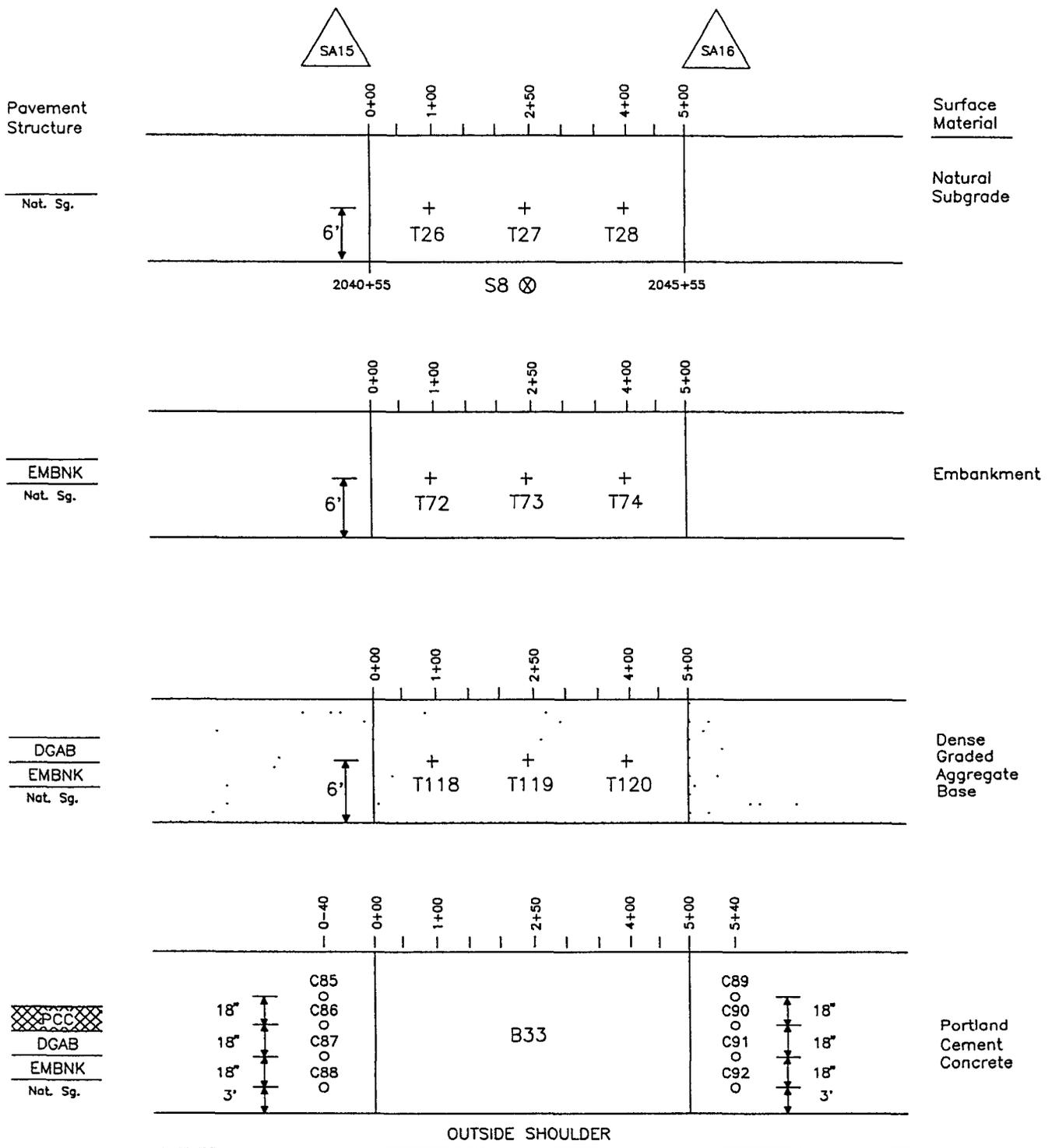
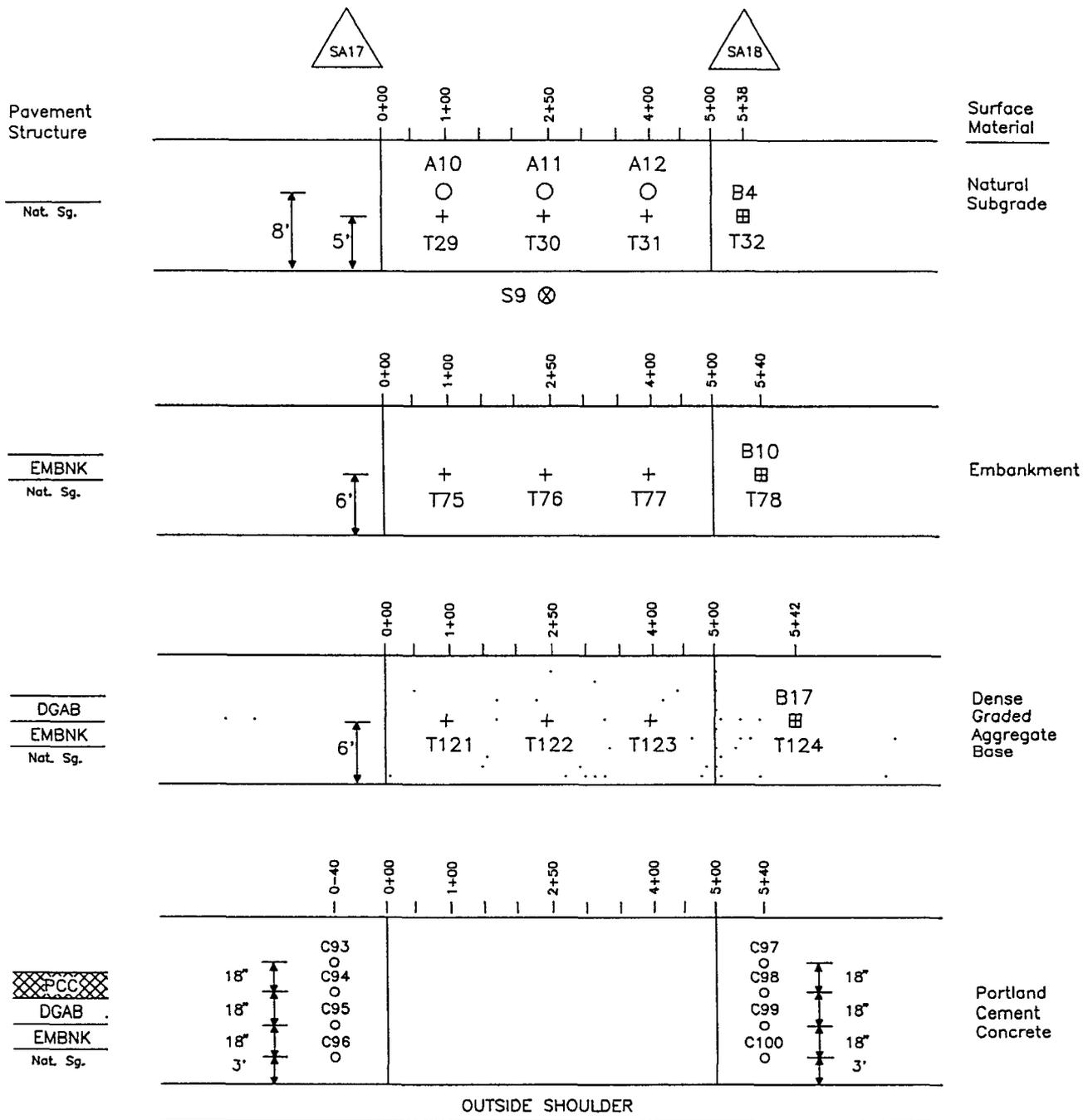
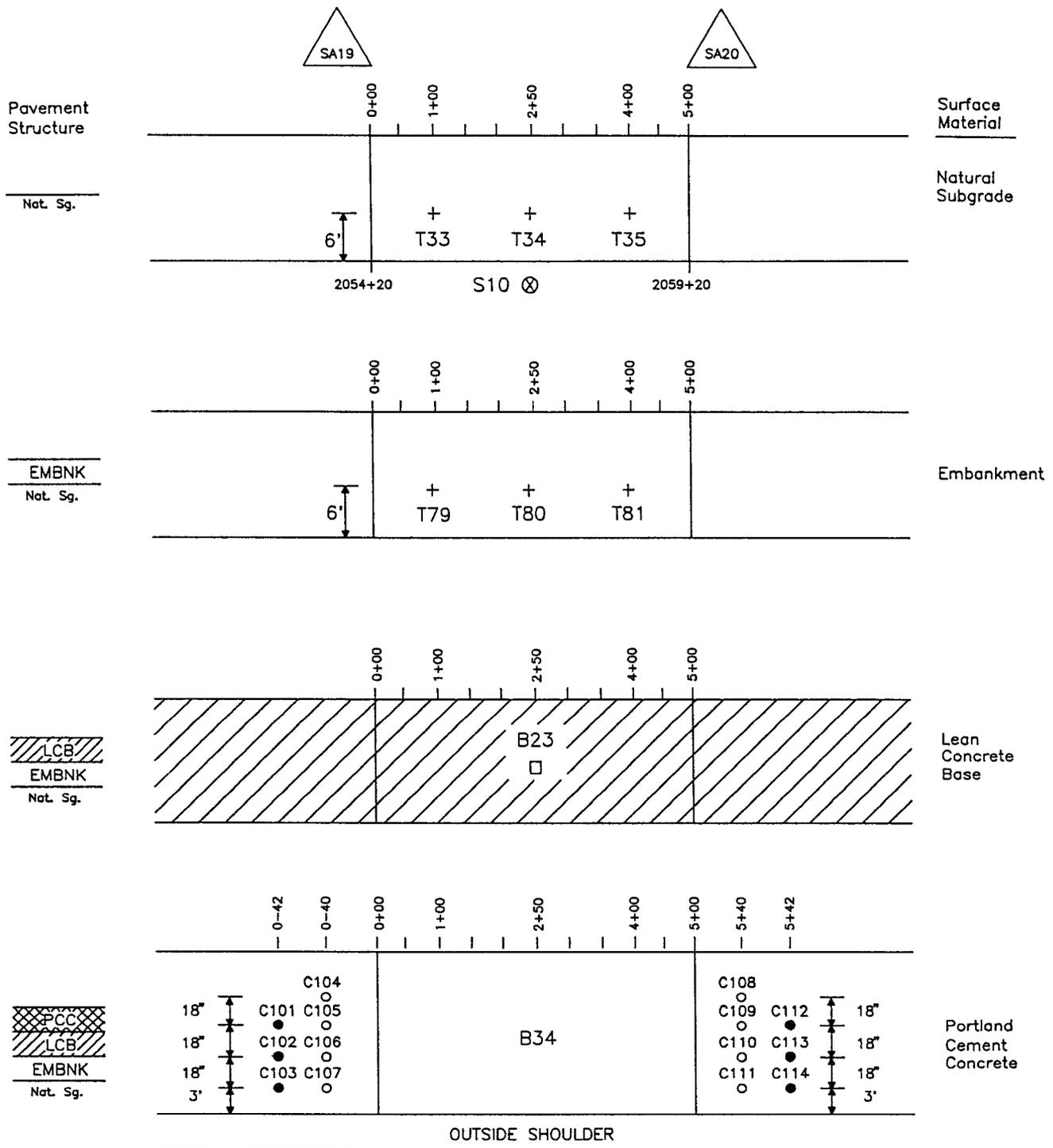


Figure 14. Sampling and test plan for test section 530204, SPS-2 Washington



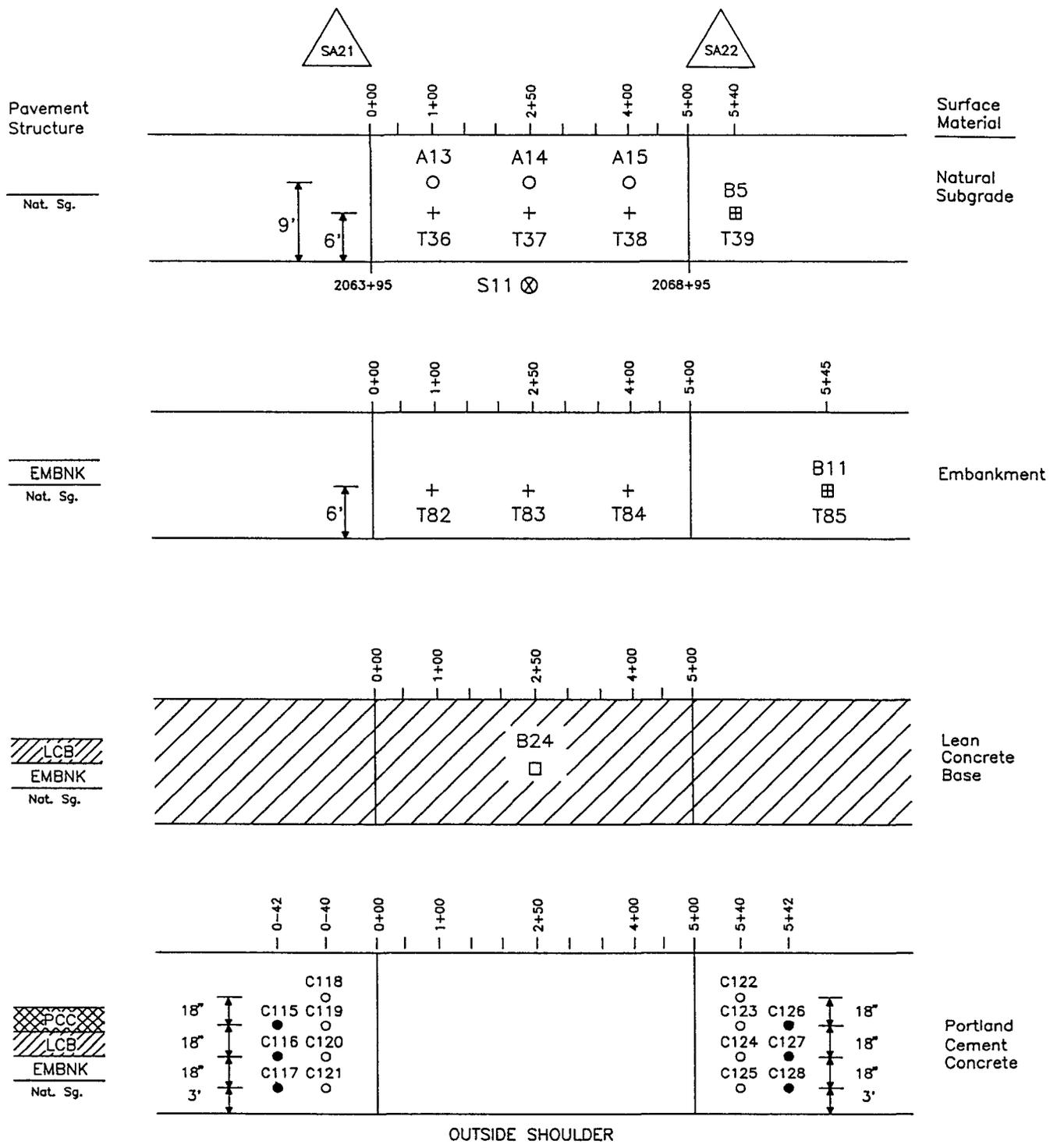
- ⊗ S9 - 20' Shoulder probe
- + T29-T32 - Nuclear moisture-density tests on Natural Subgrade
- A10-A12 - Thin wall sampling of on Natural Subgrade
- B4 - Bulk sample of Natural Subgrade
- + T75-T78 - Nuclear moisture-density tests on Embankment
- B10 - Bulk sample of Embankment
- + T121-T124 - Nuclear moisture-density tests on DGAB
- B17 - Bulk sample of DGAB
- C93-C100 - Cores of PCC surface

Figure 15. Sampling and test plan for test section 530201, SPS-2 Washington



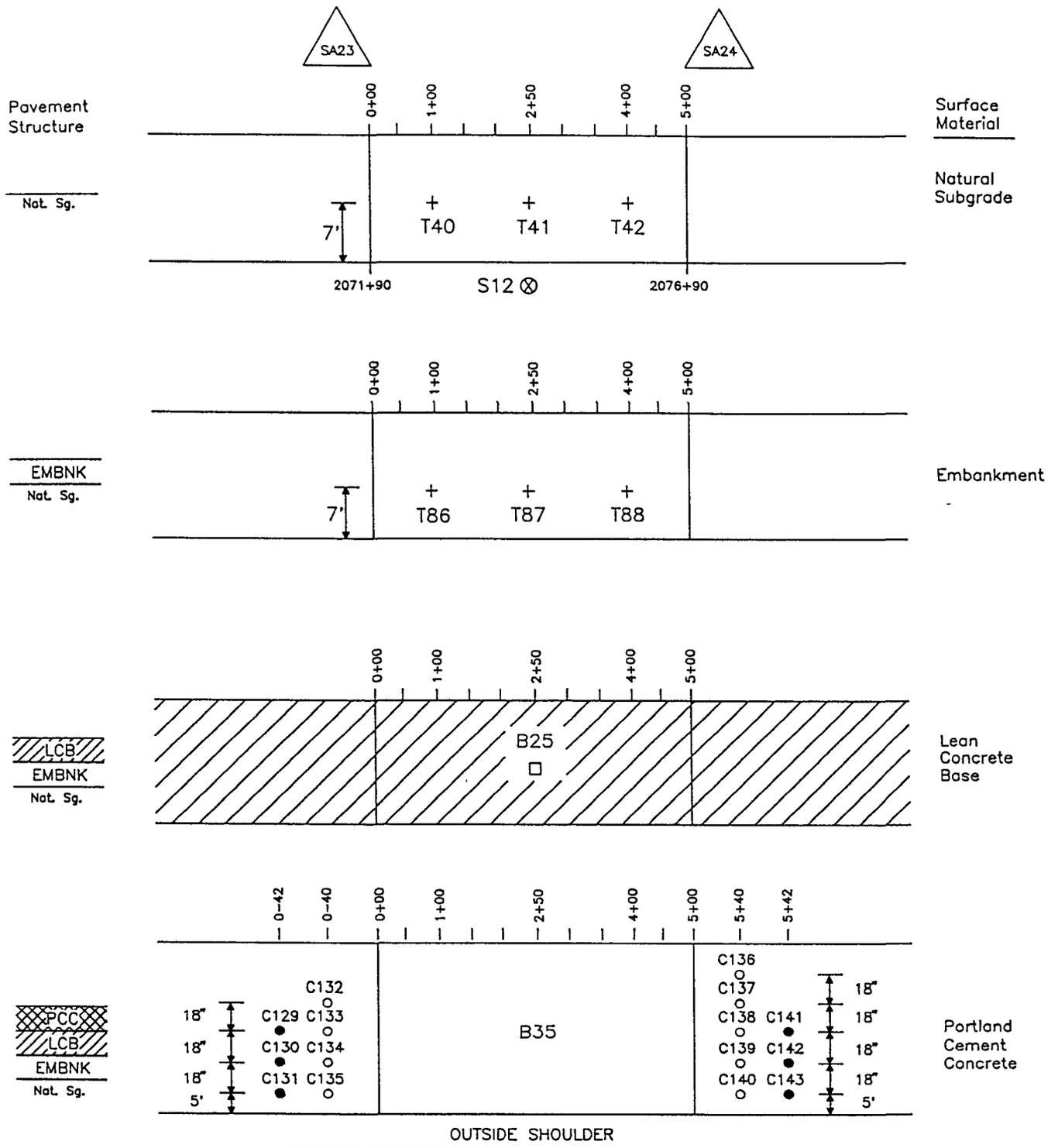
- ⊗ S10 - 20' Shoulder probe
- + T33-T35 - Nuclear moisture-density tests on Natural Subgrade
- + T79-T81 - Nuclear moisture-density tests on Embankment
- B23 - Bulk sample of LCB
- B34 - Bulk sample of PCC
- C101-C103, C112-C114 - Cores of PCC surface and LCB layer
- C104-C111 - Cores of PCC surface

Figure 16. Sampling and test plan for test section 530205, SPS-2 Washington



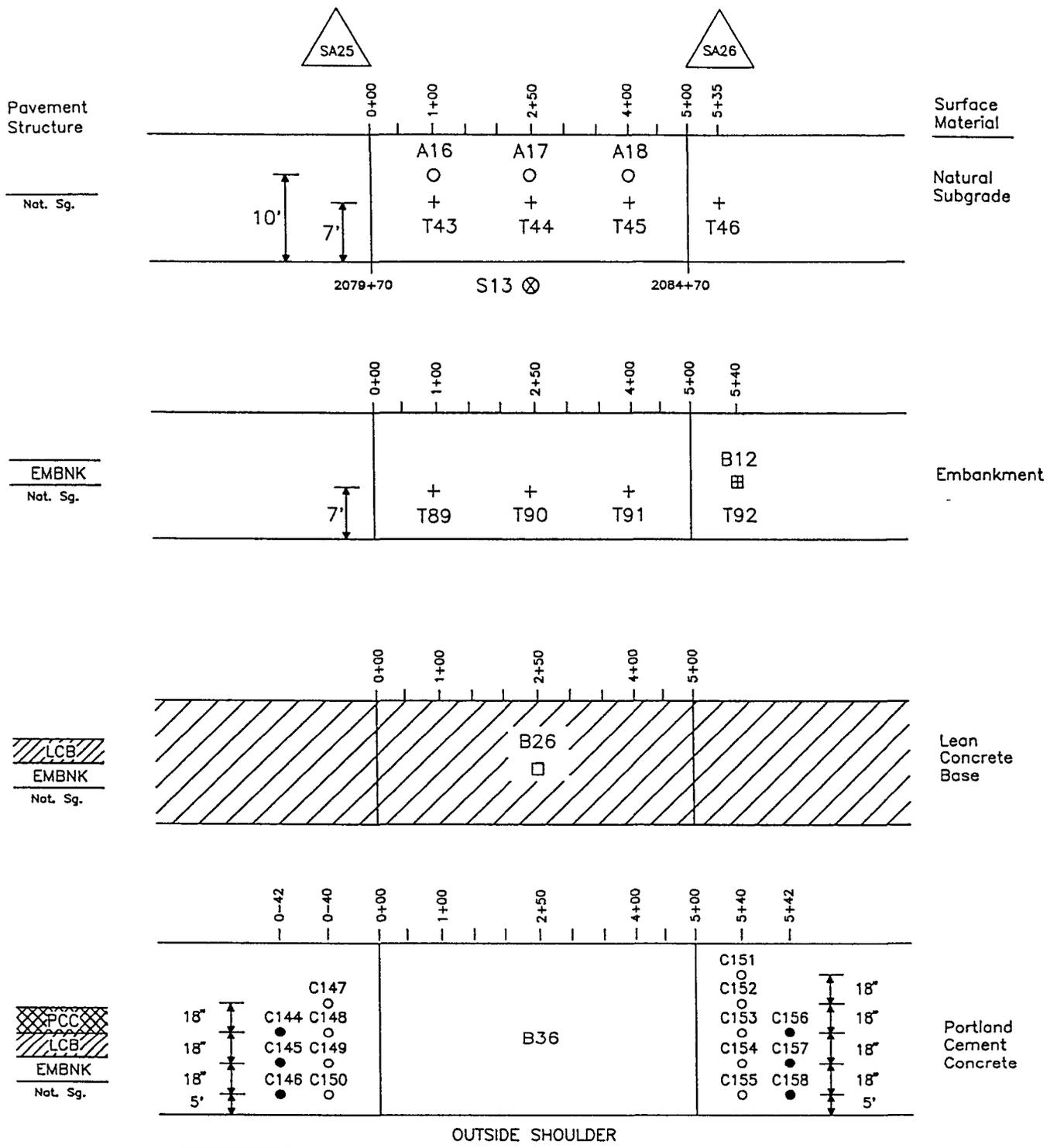
- ⊗ S11 - 20' Shoulder probe
- + T36-T39 - Nuclear moisture-density tests on Natural Subgrade
- A13-A15 - Thin wall sampling of Natural Subgrade
- B5 - Bulk sample of Natural Subgrade
- + T82-T85 - Nuclear moisture-density tests on Embankment
- B11 - Bulk sample of Embankment
- B24 - Bulk sample of LCB
- C115-C117, C126-C128 - Cores of PCC surface and LCB layer
- C118-C125 - Cores of PCC surface

Figure 17. Sampling and test plan for test section 530208, SPS-2 Washington



- ⊗ S12 - 20' Shoulder probe
- + T40-T42 - Nuclear moisture-density tests on Natural Subgrade
- + T86-T88 - Nuclear moisture-density tests on Embankment
- B25 - Bulk sampling of LCB
- B35 - Bulk sample of PCC
- C129-C131, C141-C143 - Cores of PCC surface and LCB layer
- C132-C140 - Cores of PCC surface

Figure 18. Sampling and test plan for test section 530206, SPS-2 Washington



- ⊗ S13 - 20' Shoulder probe
- + T43-T46 - Nuclear moisture-density tests on Natural Subgrade
- A16-A18 - Thin wall sampling of Natural Subgrade
- + T89-T92 - Nuclear moisture-density tests on Embankment
- ⊠ B12 - Bulk sampling of Embankment
- ⊠ B26 - Bulk sampling of LCB
- B36 - Bulk sample of PCC
- C144-C146, C156-C158 - Cores of PCC surface and LCB layer
- C147-C155 - Cores of PCC surface

Figure 19. Sampling and test plan for test section 530207, SPS-2 Washington

Natural Subgrade

The natural subgrade is defined as the natural existing material which underlies the embankment. Only clearing and grubbing normally occurs on this material. If the embankment is greater than four feet thick, then no samples or tests are required on the natural subgrade. However, if this material is within four feet of the prepared subgrade surface then samples are required. If possible, the bulk, moisture and thin wall tube sampling should be performed immediately after clearing and grubbing and just prior to embankment placement. However, if the embankment has already been placed, the sampling will need to be performed by digging test pits through the embankment material. If the depth to the natural subgrade is uncertain, but potentially within four feet, then several test pits or auger borings should be performed to quantify this depth.

A summary of the samples, laboratory and field tests on the natural subgrade materials is presented in Table 2. In this table, B-type samples are bulk samples and A-type samples are thin-wall (Shelby) tube samples of the natural subgrade materials. The T-type test locations are for nuclear moisture-density tests, and the S-type locations are for the 20 foot deep auger probes through the shoulder.

Bulk Samples

Bulk sampling of the natural subgrade material should be obtained from the locations listed in Table 3. In general, bulk sampling should consist of a single excavation, 2' by 2' in area and 12 inches deep. Approximately 400 lbs of material should be obtained from each sampling location. The sampling operation should be performed following the procedures contained in Section 3.5 of the SHRP-LTPP Guide for Field Materials Sampling, Testing and Handling as appropriate. **In-place density and moisture tests should be obtained at each bulk sampling location prior to sampling operations.** Separate jar samples for gravimetric moisture tests should be collected at each bulk sample location. These sampling locations must be repaired by placing and compacting similar material.

Thin-wall (Shelby) Tube Samples

Undisturbed samples of the natural subgrade shall be obtained to a depth of 4' below the top of the natural subgrade using thin-wall (Shelby) tube sampling at the locations listed in Table 4. Two samples should be obtained at each location. These operations shall be performed in accordance with **AASHTO T203 "Soil Investigation and Sampling by Auger Boring"** and **AASHTO M146 "Terms Relating to subgrade, Soil-Aggregate and Fill Materials"**. Shelby tube sampling shall be performed in accordance with **AASHTO T207**. These sampling locations must be repaired by placing and compacting similar material. If the natural subgrade is more than four feet below the top of prepared subgrade surfacing, then the thin wall tubes will be taken within the embankment.

Density and Moisture Measurements

In-place density and moisture measurements should be performed on the natural subgrade surface at the locations specified in Table 5. These tests shall be performed using a recently calibrated nuclear moisture-density gauge in accordance with the procedures in **AASHTO T238-86, Method B-Direct Transmission, AASHTO T239-86 and ASTM D2950-82**. Each measurement shall be the result of the average of four readings made during each 90° rotation of the nuclear gauge through a full 360°.

Table 2. Field and laboratory test plan for Natural Subgrade materials, SPS-2 Washington.

Test Name	LTPP Test Designation	LTPP Protocol	Number of Tests	Material Source / Test Location
Sieve Analysis	SS01	Ship to FHWA Lab	5	B1 - B5
Hydrometer to 0.01 mm	SS02	Ship to FHWA Lab	5	B1 - B5
Atterberg Limits	SS03	Ship to FHWA Lab	7	B1 - B5
Subgrade Classification and Type	SS04	Ship to FHWA Lab	11	B1 - B5 and A2,A5,A8,A11, A14,A17
Subgrade Classification and Type	SS04	P52	12	A1,A3,A4,A6,A7, A9,A10,A12,A13, A15,A16,A18 (Note 1)
Moisture-Density Relations	SS05	Ship to FHWA Lab	5	B1 - B5
Resilient Modulus	SS07	Ship to FHWA Lab	5 or 6	A2, A5, A8, A11, A14, A17 or B1-B5
Unit Weight	SS08	P56	6	A1,A4,A7,A10, A13,A16
Natural Moisture Content	SS09	Ship to FHWA Lab	5	B1 - B5
Unconfined Compressive Strength	SS10	P54	6	A1, A4, A7, A10, A13, A16
Hydraulic Conductivity	SS11 or UG09	P57 or P48	3	A6, A12, A18 or B1, B3, B5
In-Place Density		LTPP Method	46	T1-T46

Note 1. Visual-manual classification method only.

Table 3. Locations of **Natural Subgrade** bulk sampling, SPS-2 Washington.

Sample Location Designation	Station	Offset, feet		Test Section	Sample Area
		Center Line, Rt	Outside Lane Edge, Lt		
B1	1995+15	6	6	530259	2
B2	2010+40	7	7	530202	6
B3	2038+95	6	6	530212	14
B4	2052+45	6	6	530201	18
B5	2069+35	6	6	530211	22

Table 4. Locations for thin-wall (Shelby) tube sampling of **Natural Subgrade**, SPS-2 Washington.

Sample Location Designation	Station	Offset, feet		Test Section
		Center Line, Rt	Outside Lane Edge, Lt	
A1	2006+00	4	10	530202
A2	2007+50	4	10	530202
A3	2009+00	4	10	530202
A4	2020+85	4	10	530211
A5	2022+35	4	10	530211
A6	2023+85	4	10	530211
A7	2034+65	3	9	530212
A8	2036+15	3	9	530212
A9	2037+65	3	9	530212
A10	2048+15	3	9	530201
A11	2049+65	3	9	530201
A12	2051+15	3	9	530201
A13	2064+95	3	9	530208
A14	2066+45	3	9	530208
A15	2067+95	3	9	530208
A16	2080+70	4	10	530207
A17	2082+20	4	10	530207
A18	2083+70	4	10	530207

Table 5. Locations for in-place density and moisture tests on Natural Subgrade, SPS-2 Washington.

Sample Location Designation	Station	Offset, feet		Test Section
		Center Line, Rt	Outside Lane Edge, Lt	
T1	1990+85	6	6	530259
T2	1992+35	6	6	530259
T3	1993+85	6	6	530259
T4	1995+15	6	6	530209
T5	1997+90	7	7	530203
T6	1999+40	7	7	530203
T7	2000+90	7	7	530203
T8	2006+00	7	7	530202
T9	2007+50	7	7	530202
T10	2009+00	7	7	530202
T11	2010+40	7	7	530202
T12	2013+80	7	7	530210
T13	2015+30	7	7	530510
T14	2016+80	7	7	530210
T15	2020+85	7	7	530211
T16	2022+35	7	7	530211
T17	2023+85	7	7	530211
T18	2025+25	7	7	530211
T19	2027+75	6	6	530209
T20	2029+25	6	6	530209
T21	2030+75	6	6	530209
T22	2034+65	6	6	530212
T23	2036+15	6	6	530212
T24	2037+65	6	6	530212
T25	2038+95	6	6	530212
T26	2041+55	6	6	530204
T27	2043+05	6	6	530204
T28	2044+55	6	6	530204

Table 5. Locations for in-place density and moisture tests on Natural Subgrade, SPS-2 Washington (cont'd)

Sample Location Designation	Station	Offset, feet		Test Section
		Center Line, Rt	Outside Lane Edge, Lt	
T29	2048+15	6	6	530201
T30	2049+65	6	6	530201
T31	2051+15	6	6	530201
T32	2052+45	6	6	530201
T33	2055+20	6	6	530205
T34	2056+70	6	6	530205
T35	2058+20	6	6	530205
T36	2064+95	6	6	530208
T37	2066+45	6	6	530208
T38	2067+95	6	6	530208
T39	2069+35	6	6	530208
T40	2072+90	7	7	530206
T41	2074+40	7	7	530206
T42	2075+90	7	7	530206
T43	2080+70	7	7	530207
T44	2082+20	7	7	530207
T45	2083+70	7	7	530207
T46	2085+05	7	7	530207

Prepared Subgrade or Embankment

The prepared subgrade or embankment layer is either the material which has been processed on the roadway, i.e. re-mixed, moisture adjusted relaid and re-compacted, such as in a cut section or material which has been added as a fill to raise the profile grade. This material will always be sampled and tested. The prepared subgrade layer measurements, tests and sampling should be performed prior to placement of the base layers. The objective is to characterize the properties of the prepared subgrade surface or embankment fill material immediately prior to the time when the base layers are placed. It is therefore desired that the moisture-density tests, thin-walled tube samples (if available), bulk samples, and elevation measurement be performed just prior to the time when the base course is placed. This is important in instances when the prepared subgrade or embankment will be left exposed to the elements for a significant period, depending on climatic events which might influence the properties of the upper layers of the subgrade or embankment.

A summary of the samples, laboratory and field tests on the prepared subgrade or embankment materials is presented in Table 6.

Bulk Samples

Bulk sampling of the prepared subgrade or embankment material should be obtained from the locations listed in Table 7. In general, bulk sampling should consist of a single excavation, 2' by 2' in area and 12 inches deep. Approximately 400 lbs of material should be obtained from each sampling location. The sampling operation should be performed following the procedures contained in Section 3.5 of the SHRP-LTPP Guide for Field Materials Sampling, Testing and Handling as appropriate. **In-place density and moisture tests should be obtained at each bulk sampling location prior to sampling operations.** Separate jar samples for gravimetric moisture tests should be collected at each bulk sample location. These sampling locations must be repaired by placing and compacting similar material.

Density and Moisture Measurements

Nuclear density and moisture measurements shall be performed on the prepared subgrade or embankment material at the locations specified in Table 8. These measurements shall be performed following the same procedures used for natural subgrade soils.

FWD Measurements

FWD measurements should be performed on each test section following the procedures and at the locations contained in SHRP Protocol P59, "Deflection Testing of Subgrade and Base Layers." The FWD testing is optional, however, it is strongly encouraged.

Auger Probes

Auger probes to a depth of 20' from the surface of the prepared subgrade should be performed at the shoulder locations specified in Table 9. The primary purpose of these probes is to determine if bedrock or other significantly dense layers exist within 20 feet of the pavement surface elevation. General changes in the material stratum and the depth to ground water table can also be identified from these probes. Auguring shall be performed using a truck mounted drill rig using 4 or 6 inch, continuous flight, solid, helical augers.

Table 6. Field and laboratory test plan for Embankment materials, SPS-2 Washington.

Test Name	LTPP Test Designation	LTPP Protocol	Number of Tests	Material Source / Test Location
Sieve Analysis	SS01	Ship to FHWA Lab	7	B6 - B12
Hydrometer to 0.01 mm	SS02	Ship to FHWA Lab	7	B6 - B12
Atterberg Limits	SS03	Ship to FHWA Lab	7	B6 - B12
Subgrade Classification and Type	SS04	Ship to FHWA Lab	7	B6 - B12
Moisture-Density Relations	SS05	Ship to FHWA Lab	7	B6 - B12
Resilient Modulus	SS07	Ship to FHWA Lab	7	B6 - B12
Natural Moisture Content	SS09	Ship to FHWA Lab	7	B6 - B12
Hydraulic Conductivity	UG09	P48	3	B6, B9, B12
In-Place Density		LTPP Method	46	T47-T92
Depth to Rigid Layer		LTPP Method	13	S1-S13

Note 1. Visual-manual classification method only.

Table 7. Locations of **Embankment** bulk sampling, SPS-2 Washington.

Sample Location Designation	Station	Offset, feet		Test Section	Sample Area
		Center Line, Rt	Outside Lane Edge, Lt		
B6	1995+20	6	6	530259	2
B7	2010+45	7	7	530202	6
B8	2025+30	7	7	530211	10
B9	2039+00	6	6	530212	14
B10	2052+50	6	6	530201	18
B11	2069+40	6	6	530208	22
B12	2085+10	7	7	530207	26

Table 8. Locations for in-place density and moisture tests on **Embankment**, SPS-2 Washington.

Sample Location Designation	Station	Offset, feet		Test Section
		Center Line, Rt	Outside Lane Edge, Lt	
T47	1990+85	6	6	530259
T48	1992+35	6	6	530259
T49	1993+85	6	6	530259
T50	1995+20	6	6	530259
T51	1997+90	7	7	530203
T52	1999+40	7	7	530203
T53	2000+90	7	7	530203
T54	2006+00	7	7	530202
T55	2007+50	7	7	530202
T56	2009+00	7	7	530202
T57	2010+45	7	7	530202
T58	2013+80	7	7	530210
T59	2015+30	7	7	530510
T60	2016+80	7	7	530210
T61	2020+85	7	7	530211
T62	2022+35	7	7	530211
T63	2023+85	7	7	530211
T64	2025+30	7	7	530211
T65	2027+75	6	6	530209
T66	2029+25	6	6	530209
T67	2030+75	6	6	530209
T68	2034+65	6	6	530212
T69	2036+15	6	6	530212
T70	2037+65	6	6	530212
T71	2039+00	6	6	530212
T72	2041+55	6	6	530204
T73	2043+05	6	6	530204
T74	2044+55	6	6	530204

Table 8. Locations for in-place density and moisture tests on Embankment, SPS-2 Washington (cont'd)

Sample Location Designation	Station	Offset, feet		Test Section
		Center Line, Rt	Outside Lane Edge, Lt	
T75	2048+15	6	6	530201
T76	2049+65	6	6	530201
T77	2051+15	6	6	530201
T78	2052+50	6	6	530201
T79	2055+20	6	6	530205
T80	2056+70	6	6	530205
T81	2058+20	6	6	530205
T82	2064+95	6	6	530208
T83	2066+45	6	6	530208
T84	2067+95	6	6	530208
T85	2069+40	6	6	530208
T86	2072+90	7	7	530206
T87	2074+40	7	7	530206
T88	2075+90	7	7	530206
T89	2080+70	7	7	530207
T90	2082+20	7	7	530207
T91	2083+70	7	7	530207
T92	2085+10	7	7	530207

Table 9. Locations of 20' deep shoulder probes, SPS-2 Washington.

Sample Location Designation	Station	Offset, feet	Test Section
		Center Line, Rt.	
S1	1992+35	18	530259
S2	1999+40	18	530203
S3	2007+50	18	530202
S4	2015+30	18	530210
S5	2022+35	18	530211
S6	2029+25	18	530209
S7	2036+15	18	530212
S8	2043+05	18	530204
S9	2049+65	18	530201
S10	2056+70	18	530205
S11	2066+45	18	530208
S12	2074+40	18	530206
S13	2082+20	18	530207

Dense Graded Aggregate Base

The measurements, tests and samples on the Dense Graded Aggregate Base (DGAB) layer should be performed prior to placement of the next pavement layer. The objective is to characterize the properties of the prepared base at the time when the next pavement layer is placed. It is therefore desired that the moisture-density tests and elevation measurements be performed just prior to the time when the next pavement layer is placed. This is most important in instances when the aggregate base will be left exposed to the elements for a significant period, depending on climatic events which might influence the properties of the material.

A summary of the samples to be taken from the DGAB material and tests to be conducted is presented in Table 10. Sampling includes bulk and moisture samples of the DGAB material. Field tests include in-place density and moisture measurements and plate bearing or FWD tests.

Bulk Samples

Bulk samples of the DGAB material should be obtained at the approximate locations specified in Table 11. Sampling may be performed prior to compaction to avoid interruptions to construction activities. Uncontaminated 400 lbs samples shall be obtained from each location. A moisture jar sample of the prepared base immediately prior to placement of the next layer should be collected at each bulk sampling location. The procedures similar to those contained in section 3.5 of the SHRP-LTPP Guide for Field Materials Sampling, Testing and Handling should be followed. The bulk sampling locations must be repaired by placing and compacting similar material.

FWD Measurements

FWD measurements should be performed on each test section following the procedures and at the locations contained in SHRP Protocol P59, "Deflection Testing of Subgrade and Base Layers". The FWD testing is optional, however, it is strongly encouraged.

Density and Moisture Measurements

Nuclear density and moisture measurements shall be performed on top of the prepared DGAB at the location specified in Table 12. These measurements shall be performed following the same procedures used for subgrade soils.

Table 10. Field and laboratory test plan for **Dense Graded Aggregate Base** materials, SPS-2 Washington.

Test Name	LTPP Test Designation	LTPP Protocol	Number of Tests	Material Source / Test Location
Particle Size Analysis	UG01	Ship to FHWA Lab	5	B13-B17
Sieve Analysis (washed)	UG02	Ship to FHWA Lab	5	B13-B17
Atterberg Limits	UG04	Ship to FHWA Lab	5	B13-B17
Moisture-Density Relations	UG05	Ship to FHWA Lab	5	B13-B17
Resilient Modulus	UG07	Ship to FHWA Lab	5	B13-B17
Classification	UG08	Ship to FHWA Lab	5	B13-B17
Permeability	UG09	P48	5	B13-B17
Natural Moisture Content	UG10	Ship to FHWA Lab	5	B13-B17
In-Place Density		LTPP Method	32	T93-T124

Table 11. Bulk sampling of uncompacted Dense Graded Aggregate Base, SPS-2 Washington.

Sample Location Designation	Station	Offset, feet		Test Section	Sample Area
		Center Line, Rt	Outside Lane Edge, Lt		
B13	1995+25	6	6	530259	2
B14	2010+50	7	7	530202	6
B15	2025+35	7	7	530211	10
B16	2039+05	6	6	530212	14
B17	2052+65	6	6	530201	18

Table 12. Locations for in-place density and moisture tests on Dense Graded Aggregate Base, SPS-2 Washington.

Sample Location Designation	Station	Offset, feet		Test Section
		Center Line, Rt	Outside Lane Edge, Lt	
T93	1990+85	6	6	530259
T94	1992+35	6	6	530259
T95	1993+85	6	6	530259
T96	1995+20	6	6	530259
T97	1997+90	7	7	530203
T98	1999+40	7	7	530203
T99	2000+90	7	7	530203
T100	2006+00	7	7	530202
T101	2007+50	7	7	530202
T102	2009+00	7	7	530202
T103	2010+50	7	7	530202
T104	2013+80	7	7	530210
T105	2015+30	7	7	530210
T106	2016+80	7	7	530210
T107	2020+85	7	7	530201
T108	2022+35	7	7	530201
T109	2023+85	7	7	530201
T110	2025+35	7	7	530201
T111	2027+75	6	6	530209
T112	2029+25	6	6	530209
T113	2030+75	6	6	530209
T114	2034+65	6	6	530212
T115	2036+15	6	6	530212
T116	2037+65	6	6	530212
T117	2039+05	6	6	530212
T118	2041+55	6	6	530204
T119	2043+05	6	6	530204
T120	2044+55	6	6	530204
T121	2048+15	6	6	530201
T122	2049+65	6	6	530201
T123	2051+15	6	6	530201
T124	2052+55	6	6	530201

Permeable Asphalt Treated Base

The field and laboratory test plan for the Permeable Asphalt Treated Base (PATB) materials is presented in Table 13. Only bulk samples of the uncompacted mix should be obtained.

Bulk Samples

Bulk sampling of the uncompacted mix should be performed at the test site from the paver immediately prior to placement. Care should be taken to obtain the designated samples of the materials to be placed in the test sections shown in Figure 4. These samples should be obtained in accordance with **AASHTO T168** and shipped to the laboratory in suitable containers. If concerns about the uniformity of the PATB mix arise during construction, additional samples should be obtained. Each sample shall consist of 100 lbs of material.

Table 13. Field sampling and laboratory test plan for Permeable Asphalt Treated Base, SPS-2 Washington.

Test Name	SHRP Test Designation	SHRP Protocol	Number of Tests	Material Source/ Test Location
Asphalt Content (Extraction)	AC04	P04	4	B19-B22
Extracted Aggregate				
Aggregate Gradation	AG04	P14	4	B19-B22

Asphalt Treated Base

The field and laboratory test plan for the Asphalt Treated Base (ATB) materials is presented in Table 14. Sampling of the material includes bulk samples of the uncompacted mix, bulk asphalt cement samples, and cores obtained after placement of the PCC material. Field measurements of the density of the compacted mix should also be performed.

Bulk Samples

Bulk sampling of the uncompacted mix should be performed at the test site from the paver immediately prior to placement. Care should be taken to obtain the designated samples of the materials to be placed in the test sections shown in Figure 5. These samples should be obtained in accordance with **AASHTO T168** and shipped to the laboratory in suitable containers. Each sample shall consist of 100 lbs of material.

Samples of the asphalt cement used for the ATB mix should consist of one 5 gallon sample obtained from the mix plant. Collect sample from the mix plant after asphalt has been heated for mixing.

Cores

Cores of the ATB shall be obtained at the same time the PCC material is cored. The core locations are listed in Table 22. The cores of the ATB material designated for resilient modulus and indirect tensile strength tests must be shipped to the designated FHWA laboratory. The resilient modulus and indirect tensile strength tests will be performed under a separate contract with the Federal Highway Administration.

Density and Moisture Measurements

Nuclear density and moisture measurements shall be performed on top of the prepared ATB at the locations specified in Table 15. These measurements shall be performed using **AASHTO T238-86**, backscatter mode. As with unbound materials, each testing location shall have four readings with the density instrument rotated 90° between each reading.

Table 14. Field and laboratory test plan for Asphalt Treated Base materials, SPS-2 Washington.

Test Name	SHRP Test Designation	SHRP Protocol	Number of Tests	Material Source / Test Location
Core Examination/Thickness	AC01	Ship to FHWA Lab	8	C1-C4, C31-C34
Bulk Specific Gravity	AC02	Ship to FHWA Lab	8	C1-C4, C31-C34
Maximum Specific Gravity	AC03	P03	1	B18
Asphalt Content (Extraction)	AC04	P04	1	B18
Moisture Susceptibility	AC05	P05	1	B18
Resilient Modulus	AC07	Ship to FHWA Lab	6	C1-C3, C31-C33
Indirect Tensile Strength	AC07	Ship to FHWA Lab	8	C1-C4, C31-C34
In-Place Density		SHRP-LTPP Method	5	T125 - T129
Extracted Aggregate (from roadway)				
Specific Gravity Coarse Aggregate	AG01	P11	1	B18
Specific Gravity Fine Aggregate	AG02	P12	1	B18
Aggregate Gradation	AG04	P14	1	B18
NAA Test for Fine Aggregate Particle Shape	AG05	P14A	1	B18
Asphalt Cement (from roadway)				
Abson Recovery	AE01	P21	1	B18
Penetration @ 50F, 77F, 90F	AE02	P22	1	B18
Specific Gravity (60F)	AE03	P23	1	B18
Viscosity @ 77F	AE04	P24	1	B18
Viscosity @ 140F, 275F	AE05	P25	1	B18
Asphalt Cement (from plant)				
Penetration @ 50F, 77F, 90F	AE02	P22	1	B37
Specific Gravity (60F)	AE03	P23	1	B37
Viscosity @ 77F	AE04	P24	1	B37
Viscosity @ 104F, 275F	AE05	P25	1	B37

Notes

1. Core locations are shown in Table 22.
2. Bulk sampling locations are shown in Figures 5.

Table 15. Locations for in-place density measurements on compacted **Asphalt Treated Base**, SPS-2, Washington.

Sample Location Designation	Station	Offset, feet		Test Section
		Center Line, Rt	Outside Lane Edge, Lt	
T125	1889+41	5	7	530259
T126	1990+85	5	7	530259
T127	1992+35	5	7	530259
T128	1993+85	5	7	530259
T129	1995+27	5	7	530259

Lean Concrete Base

Sampling of the Lean Concrete Base (LCB) materials shall include cylinders molded from bulk samples of the as-delivered material, and cores obtained from the material as placed. In general, the applicable portion of the specifications for sampling, molding, curing and transportation of PCC materials shall apply to LCB materials. A summary of the field and laboratory test plan is given in Table 16.

As-Delivered

Sampling of the concrete used in the LCB shall be performed in the field, during or just before placement. The test sections from which the designated bulk samples should be obtained are shown in Figure 5. These samples shall be obtained in accordance with **AASHTO T141 "Sampling Fresh Concrete,"** molded into the specimens specified in Table 17, cured, packaged and shipped to the laboratory in time for the specified tests to be performed. Tests on the molded specimens are specified at 7 day, 28 day, and 1 year after placement. As shown in Table 17, six - 6" by 12" cylindrical specimens shall be molded from each bulk sample.

Field tests shall be performed on each bulk sample of fresh LCB material to determine mix temperature, slump, and air content (volumetric). Samples shall be obtained in accordance with **ASTM C172** and tests performed in accordance with **ASTM C1064 (temperature)**, **ASTM C231 (air content)**, and **ASTM C143 (slump)**.

As-Placed

Sampling of the as-placed LCB materials shall consist of 4 inch diameter cores. The cores shall be obtained at least 2 to 4 days **prior** to the specified age for conducting the laboratory tests. In Table 18, tests on the cores are specified at 14 days, 28 days, and 1 year after placement. The objective of these tests are to characterize the properties of the material after being subjected to in-place curing conditions. These cores shall be obtained during the following time periods:

Specified Test Age	Date After Placement to Obtain Cores
14 days	10 - 12 days
28 days	21 - 24 days
1 year	350 - 360 days

If the PCC surface layer is placed over the LCB prior to the coring date, coring of the LCB must be performed through the PCC surface layer. Prior to placement of the PCC layer,

the cores of the LCB can be obtained directly from the surface of the LCB and the core holes repaired with a portland cement concrete patching material. The locations of the LCB cores are shown in Table 22. After cores for the strength tests are taken they must be soaked in a lime water bath for a period of 40 hours immediately prior to testing. Coring operations shall be performed in accordance with **AASHTO T24 "Obtaining and Testing Drilled Cores and Sawed Beams of Concrete"** using equipment specified in the SHRP-LTPP Guide for Field Materials Sampling, Testing and Handling. Plugs shall not be inserted in cores intended for laboratory testing.

Care shall be taken to insure that cores are obtained at a 90° angle to the surface and that the edges are straight, intact, smooth and suitable for laboratory testing. Details on tolerances and quality control of coring operations are contained in Section 4 of the SHRP-LTPP Guide for Field Materials Sampling, Testing and Handling.

Table 16. Field and laboratory test plan for as-delivered **Lean Concrete Base** material, SPS-2 Washington.

Test Name	LTPP Test Designation	LTPP Protocol	No. of Tests	Material Source / Test Location
Lean Concrete Base - As Delivered				
Compressive Strength	PC01	P61		
7 Day			8	B23-B26 (Note 1)
28 Day			8	
1 Year			8	
Air Content	ASTM C231	LTPP Method	4	B23-B26
Slump	ASTM C143	LTPP Method	4	B23-B26
Temperature	ASTM C1064	LTPP Method	4	B23-B26

Note 1. A Total of 6 cylinder specimens are molded from each bulk sample, two specimens for each cure age.

Table 17. Bulk samples and molded specimens from Lean Concrete Base, SPS-2 Washington.

Material Source/Test Location	Sample Number	Test Age After Placement	Specimen Number 6x12" Cylinder Compression Test	Test Section
B23	BL1	7 days	LX01, LX02	530205
		28 days	LY01, LY02	
		1 year	LZ01, LZ02	
B24	BL2	7 days	LX03, LX04	530208
		28 days	LY03, LY04	
		1 year	LZ03, LZ04	
B25	BL3	7 days	LX05, LX06	530206
		28 days	LY05, LY06	
		1 year	LZ05, LZ06	
B26	BL4	7 days	LX07, LX08	530207
		28 days	LY07, LY08	
		1 year	LZ07, LZ08	

Table 18. Field and laboratory test plan for as-placed LCB material, SPS-2 Washington.

Test Name (Age)	LTPP Test Designation	LTPP Protocol	No. of Tests	Material Source/ Test Location
Lean Concrete Base - As Placed				
Compressive Strength	PC01	P61		
14 Day			8	C101, C112, C115, C126, C129, C141, C144, C156
28 Day			8	C102, C113, C116, C127, C130, C142, C145, C157
1 Year			8	C103, C114, C117, C128, C131, C143, C146, C158
Core Examination and Thickness	PC06	P66	24	All LCB Cores

Portland Cement Concrete

Sampling of the Portland Cement Concrete (PCC) materials shall include beams and cylinders molded from bulk samples of the as-delivered material, and cores obtained from the material as placed.

As-Delivered

Sampling of the PCC mix shall be performed in the field, during placement. A summary of the sampling and testing plan for the as-delivered PCC materials are shown in Table 19. The test sections from which the designated bulk samples should be obtained are shown in Figure 6. These samples shall be obtained in accordance with **AASHTO T141 "Sampling Fresh Concrete"**, molded into the specimens specified in Table 20, cured, packaged and shipped to the laboratory. All specimens shall be made and cured in the field in accordance with **AASHTO T23 "Making and Curing Concrete Specimens in the Field"** and **AASHTO T126 "Making and Curing Concrete Specimens in the Laboratory."** As shown in Table 20, six - 6" by 12" cylindrical specimens and three - 6" by 6" by 20" long beam specimens shall be molded from each bulk sample. Molded concrete samples shall be transported in accordance with **Section 10, "Transportation of Specimens to Laboratory"** of **ASTM C31**. Field tests shall be performed on the bulk samples of fresh concrete to determine mix temperature, slump, and air content (volumetric). Samples shall be obtained in accordance with **ASTM C172** and tests performed in accordance with **ASTM C1064 (temperature)**, **ASTM C231 (air content)**, and **ASTM C143 (slump)**.

As-Placed

A summary of the sampling and testing plan for the as-placed (PCC) materials is shown in Table 21. Sampling of the as-placed PCC materials shall consist of 4 inch diameter cores. The cores shall be obtained at least 2 to 4 days **prior** to the specified age for conducting the laboratory tests. This is to allow for a 40 hour lime water bath soak period immediately prior to testing the strength specimen. In Table 21, tests on the cores are specified at 14 days, 28 days, and 1 year after placement. The objective of these tests are to characterize the properties of the concrete after being subjected to in-place curing conditions. These cores shall be obtained during the following time periods:

Specified Test Age	Date After Placement to Obtain Cores
14 days	10 - 12 days
28 days	21 - 24 days
1 year	350 - 360 days

The locations of the PCC cores are specified in Table 22. Coring operations shall be performed in accordance with **AASHTO T24 "Obtaining and Testing Drilled Cores and Sawed Beams of Concrete"** using equipment specified in the SHRP-LTPP Guide for Field Materials Sampling, Testing and Handling. Plugs shall not be inserted in cores intended for laboratory testing. All cores shall be dried prior to packaging.

Care shall be taken to insure that cores are obtained at a 90° angle to the pavement surface and that the edges are straight, intact, smooth and suitable for laboratory testing. Details on tolerances and quality control of coring operations are contained in Section 4 of the SHRP-LTPP Guide for Field Materials Sampling, Testing and Handling.

Table 19. Field and laboratory test plan for as-delivered PCC material, SPS-2 Washington.

Test Name	LTPP Test Designation	LTPP Protocol	No. of Tests	Material Source / Test Location	
Compressive Strength	PC01	P61		550 psi PCC mix	900 psi PCC mix
14 Day			9	B27-B30, B32, B34, B36 (Note 1)	B31, B33, B35 (Note 1)
28 Day			9		
1 Year			9		
Splitting Tensile Strength	PC02	P62		550 psi PCC mix	900 psi PCC mix
14 Day			9	B27-B30, B32, B34, B36	B31, B33, B35
28 Day			9		
1 Year			9		
Flexural Strength	PC09	P69		550 psi PCC mix	900 psi PCC mix
14 Day			9	B27-B30, B32, B34, B36	B31, B33, B35
28 Day			9		
1 Year			9		
Air Content	ASTM C231	LTPP Method	9	B27-B36	
Slump	ASTM C143	LTPP Method	9	B29-B36	
Temperature	ASTM C1064	LTPP Method	9	B29-B36	

Note 1. A total of 6 cylinder specimens and 3 beam specimens are molded from each PCC bulk sample.

Table 20. Bulk samples and molded specimens from PCC mix, SPS-2 Washington.

Material Source/Test Location	Sample Number	Test Age After Placement	Specimen Number			Test Section
			6x12" Cylinder Compression	6x12" Cylinder Indirect Tensile	6x6x20" Beam Flexural Strength	
B27	BP01	14 days	GX01	GX02	FX01	530259
		28 days	GY01	GY02	FY01	
		1 year	GZ01	GZ02	FZ01	
B28	BP02	14 days	GX03	GX04	FX02	
		28 days	GY03	GY04	FY02	
		1 year	GZ03	GZ04	FZ02	
B29	BP03	14 days	GX05	GX06	FX03	
		28 days	GY05	GY06	FY03	
		1 year	GZ05	GZ06	FZ03	
B30	BP04	14 days	GX07	GX08	FX04	530203
		28 days	GY07	GY08	FY04	
		1 year	GZ07	GZ08	FZ04	
B31	BP05	14 days	GX09	GX10	FX05	530202
		28 days	GY09	GY10	FY05	
		1 year	GZ09	GZ10	FZ05	
B32	BP06	14 days	GX11	GX12	FX06	530211
		28 days	GY11	GY12	FY06	
		1 year	GZ11	GZ12	FZ06	
B33	BP07	14 days	GX13	GX14	FX07	530204
		28 days	GY13	GY14	FY07	
		1 year	GZ13	GZ14	FZ07	
B34	BP08	14 days	GX15	GX16	FX08	530205
		28 days	GY15	GY16	FY08	
		1 year	GZ15	GZ16	FZ08	
B35	BP09	14 days	GX17	GX18	FX09	530206
		28 days	GY17	GY18	FY09	
		1 year	GZ17	GZ18	FZ09	
B36	BP10	14 days	GX19	GX20	FX10	530207
		28 days	GY19	GY20	FY10	
		1 year	GZ19	GZ20	FZ10	

Table 21. Field and laboratory test plan for as-placed PCC material, SPS-2 Washington.

Test Name (Age)	LTPP Test Designation	LTPP Protocol	No. of Tests	Material Source/ Test Location
Portland Cement Concrete - As Placed				
Compressive Strength	PC01	P61		
14 Day			15	C5, C15, C23, C35, C43, C52, C60, C69, C77, C85, C93, C104, C118, C132, C147
28 Day			15	C6, C16, C24, C36, C44, C53, C61, C70, C78, C86, C94, C105, C119, C133, C148
1 Year			15	C7, C17, C25, C37, C45, C54, C62, C71, C79, C87, C95, C106, C120, C134, C149
Splitting Tensile Strength	PC02	P62		
14 Day			15	C8, C18, C26, C38, C46, C55, C63, C72, C80, C88, C46, C107, C121, C135, C150
28 Day			15	C9, C19, C27, C39, C47, C56, C64, C73, C81, C89, C97, C108, C122, C136, C151
1 Year			15	C10, C20, C28, C40, C48, C57, C65, C74, C82, C90, C98, C109, C123, C137, C152
PCC Unit Weight	PC05	P65	15	C11, C21, C29, C41, C49, C58, C66, C75, C83, C91, C99, C110, C124, C138, C153
Static Modulus of Elasticity	PC04	P64		
28 Day			15	C11, C21, C29, C41, C49, C58, C66, C75, C83, C91, C99, C110, C124, C138, C153
1 Year			15	C12, C22, C30, C42, C50, C59, C67, C76, C84, C92, C100, C111, C125, C139, C154
Core Examination and Thickness	PC06	P66	158	C1-C158
Air Content @ 28 Days	PC08	P68	3	C13, C51, C140
PCC Thermal Coef.		Ship to FHWA	3	C14, C68, C155

Table 22. Portland Cement Concrete and Asphalt Treated Base core locations, SPS-2 Washington.

Material Type	Sample Location Designation	Station	Offset, Feet		Test Section	Sample Area	Coring, Days After Placement
			Center Line, Rt	Outside Lane Edge, Lt			
PCC/ATB	C1	1889+41	6.0	6.0	530259	1	21-24
PCC/ATB	C2	1889+41	7.5	4.5	530259	1	21-24
PCC/ATB	C3	1889+41	9.0	3.0	530259	1	350-360
PCC/ATB	C4	1889+43	3.0	9.0	530259	1	350-360
PCC	C5	1889+43	4.5	7.5	530259	1	10-13
PCC	C6	1889+43	6.0	6.0	530259	1	21-24
PCC	C7	1889+43	7.5	4.5	530259	1	350-360
PCC	C8	1889+43	9.0	3.0	530259	1	10-13
PCC	C9	1889+45	3.0	9.0	530259	1	21-24
PCC	C10	1889+45	4.5	7.5	530259	1	350-360
PCC	C11	1889+45	6.0	6.0	530259	1	21-24
PCC	C12	1889+45	7.5	4.5	530259	1	350-360
PCC	C13	1889+45	9.0	3.0	530259	1	21-24
PCC	C14	1889+47	3.0	9.0	530259	1	21-24
PCC	C15	1889+47	4.5	7.5	530259	1	10-13
PCC	C16	1889+47	6.0	6.0	530259	1	21-24
PCC	C17	1889+47	7.5	4.5	530259	1	350-360
PCC	C18	1889+47	9.0	3.0	530259	1	10-13
PCC	C19	1995+23	3.0	9.0	530259	2	21-24
PCC	C20	1995+23	4.5	7.5	530259	2	350-360
PCC	C21	1995+23	6.0	6.0	530259	2	21-24
PCC	C22	1995+23	7.5	4.5	530259	2	350-360
PCC	C23	1995+23	9.0	3.0	530259	2	10-13
PCC	C24	1995+25	3.0	9.0	530259	2	21-24
PCC	C25	1995+25	4.5	7.5	530259	2	350-360
PCC	C26	1995+25	6.0	6.0	530259	2	10-13
PCC	C27	1995+25	7.5	4.5	530259	2	21-24
PCC	C28	1995+25	9.0	3.0	530259	2	350-360
PCC	C29	1995+27	3.0	9.0	530259	2	21-24
PCC	C30	1995+27	4.5	7.5	530259	2	21-24
PCC/ATB	C31	1995+27	6.0	6.0	530259	2	21-24
PCC/ATB	C32	1995+27	7.5	4.5	530259	2	21-24
PCC/ATB	C33	1995+27	9.0	3.0	530259	2	350-360
PCC/ATB	C34	1995+29	9.0	3.0	530259	2	350-360

Table 22. Portland Cement Concrete and Lean Concrete Base core locations, SPS-2 Washington (Cont'd)

Material Type	Sample Location Designation	Station	Offset, Feet		Test Section	Sample Area	Coring, Days After Placement
			Center Line, Rt	Outside Lane Edge, Lt			
PCC	C35	1996+50	4.5	9.5	530203	3	10-13
PCC	C36	1996+50	6.0	8.0	530203	3	21-24
PCC	C37	1996+50	7.5	6.5	530203	3	350-360
PCC	C38	1996+50	9.0	5.0	530203	3	10-13
PCC	C39	2002+30	4.5	9.5	530203	4	21-24
PCC	C40	2002+30	6.0	8.0	530203	4	350-360
PCC	C41	2002+30	7.5	6.5	530203	4	21-24
PCC	C42	2002+30	9.0	5.0	530203	4	350-360
PCC	C43	2004+60	4.5	9.5	530202	5	10-13
PCC	C44	2004+60	6.0	8.0	530202	5	21-24
PCC	C45	2004+60	7.5	6.5	530202	5	350-360
PCC	C46	2004+60	9.0	5.0	530202	5	10-13
PCC	C47	2010+40	3.0	11.0	530202	6	21-24
PCC	C48	2010+40	4.5	9.5	530202	6	350-360
PCC	C49	2010+40	6.0	8.0	530202	6	21-24
PCC	C50	2010+40	7.5	6.5	530202	6	350-360
PCC	C51	2010+40	9.0	5.0	530202	6	21-24
PCC	C52	2012+40	4.5	9.5	530210	7	10-13
PCC	C53	2012+40	6.0	8.0	530210	7	21-24
PCC	C54	2012+40	7.5	6.5	530210	7	350-360
PCC	C55	2012+40	9.0	5.0	530210	7	10-13
PCC	C56	2018+20	4.5	9.5	530210	8	21-24
PCC	C57	2018+20	6.0	8.0	530210	8	350-360
PCC	C58	2018+20	7.5	6.5	530210	8	21-24
PCC	C59	2018+20	9.0	5.0	530210	8	350-360
PCC	C60	2019+45	4.5	9.5	530211	9	10-13
PCC	C61	2019+45	6.0	8.0	530211	9	21-24
PCC	C62	2019+45	7.5	6.5	530211	9	350-360
PCC	C63	2019+45	9.0	5.0	530211	9	10-13

Table 22. Portland Cement Concrete and Lean Concrete Base core locations, SPS-2 Washington (Cont'd)

Material Type	Sample Location Designation	Station	Offset, Feet		Test Section	Sample Area	Coring, Days After Placement
			Center Line, Rt	Outside Lane Edge, Lt			
PCC	C64	2025+35	3.0	11.0	530211	10	21-24
PCC	C65	2025+35	4.5	9.5	530211	10	350-360
PCC	C66	2025+35	6.0	8.0	530211	10	21-24
PCC	C67	2025+35	7.5	6.5	530211	10	350-360
PCC	C68	2025+35	9.0	5.0	530211	10	21-24
PCC	C69	2026+35	4.5	7.5	530209	11	10-13
PCC	C70	2026+35	6.0	6.0	530209	11	21-24
PCC	C71	2026+35	7.5	4.5	530209	11	350-360
PCC	C72	2026+35	9.0	3.0	530209	11	10-13
PCC	C73	2032+15	4.5	7.5	530209	12	21-24
PCC	C74	2032+15	6.0	6.0	530209	12	350-360
PCC	C75	2032+15	7.5	4.5	530209	12	21-24
PCC	C76	2032+15	9.0	3.0	530209	12	350-360
PCC	C77	2033+25	4.5	7.5	530212	13	10-13
PCC	C78	2033+25	6.0	6.0	530212	13	21-24
PCC	C79	2033+25	7.5	4.5	530212	13	350-360
PCC	C80	2033+25	9.0	3.0	530212	13	10-13
PCC	C81	2039+05	4.5	7.5	530212	14	21-24
PCC	C82	2039+05	6.0	6.0	530212	14	350-360
PCC	C83	2039+05	7.5	4.5	530212	14	21-24
PCC	C84	2039+05	9.0	3.0	530212	14	350-360
PCC	C85	2040+15	4.5	7.5	530204	15	10-13
PCC	C86	2040+15	6.0	6.0	530204	15	21-24
PCC	C87	2040+15	7.5	4.5	530204	15	350-360
PCC	C88	2040+15	9.0	3.0	530204	15	10-13
PCC	C89	2046+05	4.5	7.5	530204	16	21-24
PCC	C90	2046+05	6.0	6.0	530204	16	350-360
PCC	C91	2046+05	7.5	4.5	530204	16	21-24
PCC	C92	2046+05	9.0	3.0	530204	16	350-360

Table 22. Portland Cement Concrete and Lean Concrete Base core locations, SPS-2 Washington (Cont'd.)

Material Type	Sample Location Designation	Station	Offset, Feet		Test Section	Sample Area	Coring, Days After Placement
			Center Line, Rt	Outside Lane Edge, Lt			
PCC	C93	2046+75	4.5	7.5	530201	17	10-13
PCC	C94	2046+75	6.0	6.0	530201	17	21-24
PCC	C95	2046+75	7.5	4.5	530201	17	350-360
PCC	C96	2046+75	9.0	3.0	530201	17	10-13
PCC	C97	2052+65	4.5	7.5	530201	18	21-24
PCC	C98	2052+65	6.0	6.0	530201	18	350-360
PCC	C99	2052+65	7.5	4.5	530201	18	21-24
PCC	C100	2052+65	9.0	3.0	530201	18	350-360
PCC/LCB	C101	2053+78	6.0	6.0	530205	19	10-13
PCC/LCB	C102	2053+78	7.5	4.5	530205	19	21-24
PCC/LCB	C103	2053+78	9.0	3.0	530205	19	350-360
PCC	C104	2053+80	4.5	7.5	530205	19	10-13
PCC	C105	2053+80	6.0	6.0	530205	19	21-24
PCC	C106	2053+80	7.5	4.5	530205	19	350-360
PCC	C107	2053+80	9.0	3.0	530205	19	10-13
PCC	C108	2059+60	4.5	7.5	530205	20	21-24
PCC	C109	2059+60	6.0	6.0	530205	20	350-360
PCC	C110	2059+60	7.5	4.5	530205	20	21-24
PCC	C111	2059+60	9.0	3.0	530205	20	350-360
PCC/LCB	C112	2059+62	6.0	6.0	530205	20	10-13
PCC/LCB	C113	2059+62	7.5	4.5	530205	20	21-24
PCC/LCB	C114	2059+62	9.0	3.0	530205	20	350-360
PCC/LCB	C115	2063+53	6.0	6.0	530208	21	10-13
PCC/LCB	C116	2063+53	7.5	4.5	530208	21	21-24
PCC/LCB	C117	2063+53	9.0	3.0	530208	21	350-360

Table 22. Portland Cement Concrete and Lean Concrete Base core locations, SPS-2 Washington (Cont'd).

Material Type	Sample Location Designation	Station	Offset, Feet		Test Section	Sample Area	Coring, Days After Placement
			Center Line, Rt	Outside Lane Edge, Lt			
PCC	C118	2063+55	4.5	7.5	530208	21	10-13
PCC	C119	2063+55	6.0	6.0	530208	21	21-24
PCC	C120	2063+55	7.5	4.5	530208	21	350-360
PCC	C121	2063+55	9.0	3.0	530208	21	10-13
PCC	C122	2069+35	4.5	7.5	530208	22	21-24
PCC	C123	2069+35	6.0	6.0	530208	22	350-360
PCC	C124	2069+35	7.5	4.5	530208	22	21-24
PCC	C125	2069+35	9.0	3.0	530208	22	350-360
PCC/LCB	C126	2069+37	6.0	6.0	530208	22	10-13
PCC/LCB	C127	2069+37	7.5	4.5	530208	22	21-24
PCC/LCB	C128	2069+37	9.0	3.0	530209	22	350-360
PCC/LCB	C129	2071+48	6.0	8.0	530206	23	10-13
PCC/LCB	C130	2071+48	7.5	6.5	530206	23	21-24
PCC/LCB	C131	2071+48	9.0	5.0	530206	23	350-360
PCC	C132	2071+50	4.5	9.5	530206	23	10-13
PCC	C133	2071+50	6.0	8.0	530206	23	21-24
PCC	C134	2071+50	7.5	6.5	530206	23	350-360
PCC	C135	2077+30	9.0	5.0	530206	23	10-13
PCC	C136	2077+30	3.0	11.0	530206	24	21-24
PCC	C137	2077+30	4.5	9.5	530206	24	350-360
PCC	C138	2077+30	6.0	8.0	530206	24	21-24
PCC	C139	2077+30	7.5	6.5	530206	24	350-360
PCC	C140	2077+30	9.0	5.0	530206	24	21-24
PCC/LCB	C141	2077+32	6.0	8.0	530206	24	10-13
PCC/LCB	C142	2077+32	7.5	6.5	530206	24	21-24

Table 22. Portland Cement Concrete and Lean Concrete Base core locations, SPS-2 Washington (Cont'd)

Material Type	Sample Location Designation	Station	Offset, Feet		Test Section	Sample Area	Coring, Days After Placement
			Center Line, Rt	Outside Lane Edge, Lt			
PCC/LCB	C143	2077+32	9.0	5.0	530206	24	350-360
PCC/LCB	C144	2079+28	6.0	8.0	530207	25	10-13
PCC/LCB	C145	2079+28	7.5	6.5	530207	25	21-24
PCC/LCB	C146	2079+28	9.0	5.0	530207	25	350-360
PCC	C147	2079+30	4.5	9.5	530207	25	10-13
PCC	C148	2079+30	6.0	8.0	530207	25	21-24
PCC	C149	2079+30	7.5	6.5	530207	25	350-360
PCC	C150	2079+30	9.0	5.0	530207	25	10-13
PCC	C151	2085+10	3.0	11.0	530207	26	21-24
PCC	C152	2085+10	4.5	9.5	530207	26	350-360
PCC	C153	2085+10	6.0	8.0	530207	26	21-24
PCC	C154	2085+10	7.5	6.5	530207	26	350-360
PCC	C155	2085+10	9.0	5.0	530207	26	21-24
PCC/LCB	C156	2085+10	6.0	8.0	530207	26	10-13
PCC/LCB	C157	2085+10	7.5	6.5	530207	26	21-24
PCC/LCB	C158	2085+10	9.0	5.0	530207	26	350-360

Materials Reference Library (MRL)

During pavement construction, additional sampling of the PCC layers is required. The samples obtained will be used as a record of the materials being used on the project and they will be sent to a special facility for long-term storage. The material to be obtained for this purpose shall consist of the following:

- 1 5 gallon pail of portland cement, approximately 50 lbs (sealed in a heavy plastic bag and placed into the pail)
- 1 5 gallon pail of flyash, approximately 50 lbs (sealed in a heavy plastic bag and placed into the pail)
- 1 1 qt. of each liquid additive (stored in glass containers suitably protected from breakage)
- 4 5 gallon pails fine aggregate (from the Plant)
- 4 5 gallon pails coarse aggregate (from the Plant)

If different types of any of these materials are used for the 550 psi and 900 psi concrete, then a separate sample shall be taken of each material.

Containers (barrels and buckets) for the storage of these samples will be provided to the participating state agencies by the LTPP Materials Reference Library (MRL) at no cost to the state. These containers are of special manufacture to accommodate long-term storage. It will be necessary that scheduling information be furnished to the LTPP Materials Reference Library contractor as soon as this information is available. This information should, at the minimum, contain: (1) date containers needed, (2) highway agency contact name, and (3) shipping address and (4) telephone number. The contact names and telephone numbers for the LTPP Materials Reference Library are as follows:

CONTACT NAME	AFFILIATION	PHONE NO.
Mr. Andrew Brigg	Nichols Consulting Engineers Chtd.	702-358-7574
Mr. Jim Nichols	Nichols Consulting Engineers Chtd.	702-329-4955
Mr. Cal Berge	FHWA LTPP Regional Engineer	702-329-5018

The SPS-2 samples to be shipped to the MRL will be by a common carrier and the cost will be borne by the MRL contractor (Nichols Consulting Engineers Chtd.). The participating agency should contact the MRL office for exact coordination and sample shipping details. Any of the three names listed above may be contacted but it is preferable that Mr. Andrew Brigg be the primary contact point for the participating agencies.

A copy of Field Operations Information Form 1 should be completed and included with the shipment and another copy of the form should be mailed separately. This will allow a trace of the shipment if it does not arrive in a timely manner.

Elevation Measurements

Elevation measurements shall be made on the surface of each pavement layer; prepared subgrade or embankment, base layers and surface layers. Measurements should be made at 5 points located transversely across the outside lane (outside lane edge, wheel path, center of the lane, inside wheel path and centerline). For test sections with 12' lane widths, these 5 transverse points should be at offsets from the center line of 0, 3', 6', 9', and 12'. For test sections with 14' lane widths, the 5 transverse points should be made at centerline offsets of 0, 3', 6', 9' and 14'. These measurements should be made at 50' intervals starting at test section station 0+00 and extending to test section station 5+00 (11 locations per test section). Test section station locations are specified in Figure 20. Measurements must be made to an accuracy of 0.01 feet. Care must be taken to re-establish the same points on the surface of each succeeding material layer to insure accurate determination of the thickness of each layer.

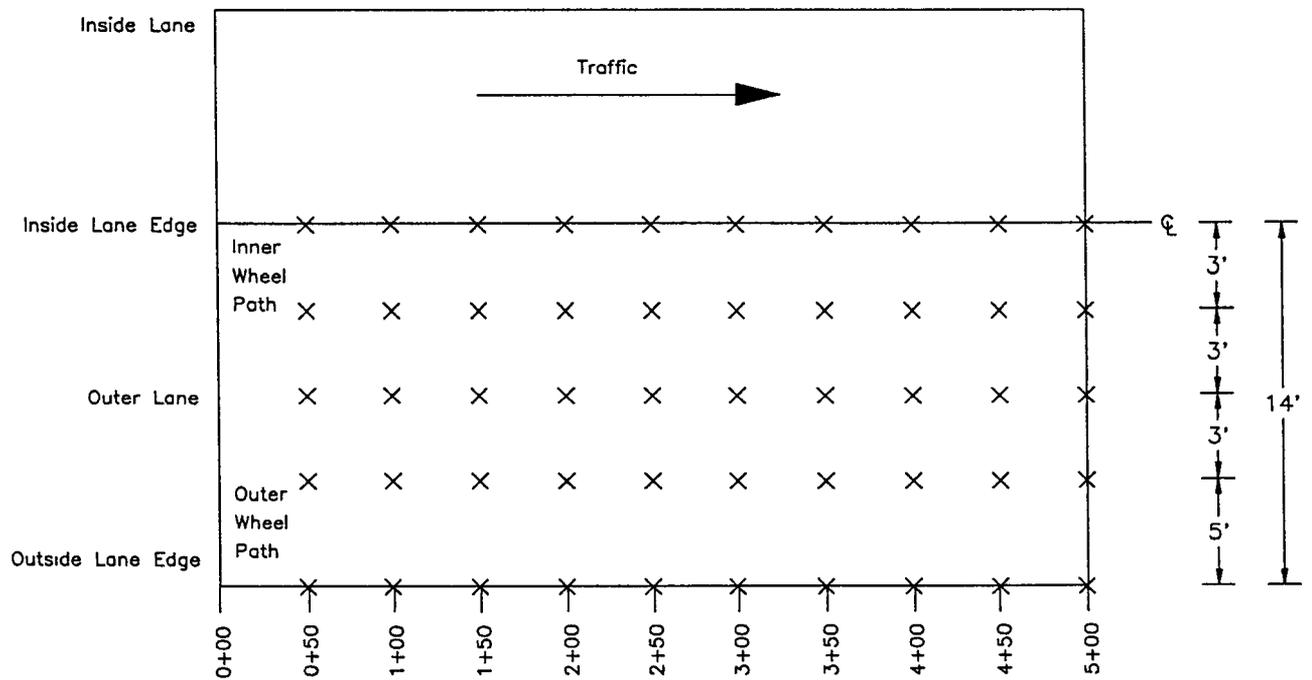
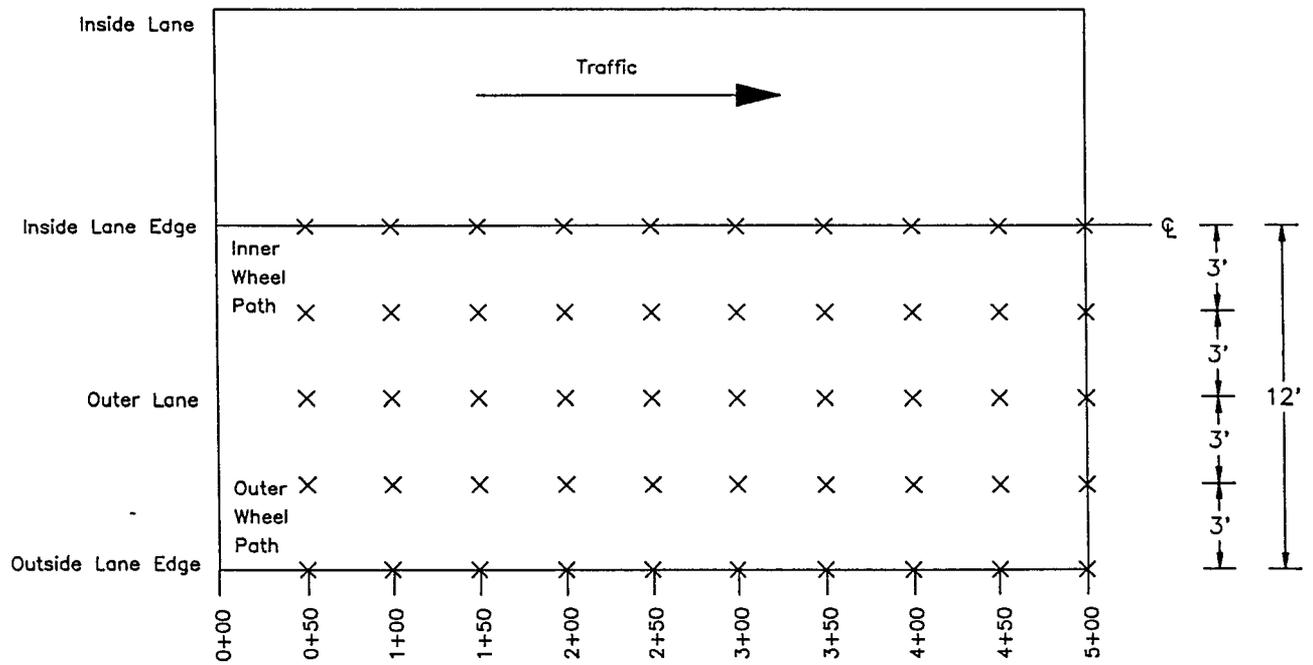


Figure 20. Test section elevation measurement location for SPS-2 Washington

Shipping Tracking Tables

This section contains shipping tracking tables which contains instructions for disposition of samples retrieved from the field. Using these tracking tables (Tables 23 and 24), sampling personnel can determine where each sample is supposed to be shipped and tested.

Each sample (core, bulk, moisture, Shelby tube, splitspoon) shall be assigned a four digit number that must be recorded on the data forms. The sample code number will consist of two letters on the left side and up to three numbers on the right side.

The first letter on the left identifies the sample type in one of the following categories:

- C - core sample
- B - bulk sample
- M - moisture sample
- T - thin wall tube sample
- J - splitspoon sample
- F - formed beams of Portland Cement Concrete surface
- G - formed cylinders of Portland Cement Concrete surface
- L - Formed cylinders of lean concrete base

The second letter from the left identifies the material type or designated curing time prior to testing of the sample. This designation can be identified as one of the following categories:

- P - portland cement concrete
- L - lean concrete
- T - treated, bound, or stabilized material (base/subbase)
- G - untreated, unbound granular material (base/subbase)
- S - subgrade soil or fill material
- X - molded specimens of PCC and LCB for tests at 14 days (PCC) and 7 days (LCB) after placement
- Y - molded specimens of PCC and LCB for tests at 28 days after placement
- Z - molded specimens of PCC and LCB for tests at 365 days after placement

The numbers on the right will designate the sample number. The numbers shall be assigned consecutively for each sample type. For example, samples taken at C-Type locations be designated CL01, CL02, CL03, etc. for the LCB material. Samples of subgrade material taken from location A1 by Shelby tube shall be designated TS01 and TS02. If a bulk sample

of one layer is contained in more than one bag, then the number of bags and the same bulk sample number should be recorded on each bag.

The following is a list of valid combinations of letters and numbers making up sample code numbers:

- FX01 Formed portland cement concrete beams for testing at 14 days. Assign numbers consecutively as samples are molded.
- FY01 Formed portland cement concrete beams for testing at 28 days. Assign numbers consecutively as samples are molded.
- FZ01 Formed portland cement concrete beams for testing at 365 days. Assign numbers consecutively as samples are molded.
- GX01 Formed portland cement concrete cylinders for testing at 14 days. Assign numbers consecutively as samples are obtained.
- GY01 Formed portland cement concrete cylinders for testing at 28 days. Assign numbers consecutively as samples are obtained.
- GZ01 Formed portland cement concrete cylinders for testing at 365 days. Assign numbers consecutively as samples are obtained.
- LX01 Formed lean concrete base concrete cylinders for testing at 7 days. Assign numbers consecutively as samples are molded.
- LY01 Formed lean concrete base concrete cylinders for testing at 28 days. Assign numbers consecutively as samples are molded.
- LZ01 Formed lean concrete base concrete cylinders for testing at 365 days. Assign numbers consecutively as samples are molded.
- CP01 Portland cement concrete cores obtained from the finished concrete surface. Assign numbers consecutively as the cores are obtained.
- CL01 Lean concrete base cores obtained from the finished LCB layer. Assign numbers consecutively as the cores are obtained.
- BG01 Bulk samples of granular base or subbase. Assign BG01-BG10 to represent embankment material and BG11-BG20 to represent aggregate base material.
- BT01 Bulk samples of uncompacted asphalt treated aggregate. Assign numbers consecutively as samples are obtained, BT01 through BT19 for permeable asphalt treated base.
- BS01 Bulk samples of subgrade material from different sampling areas within the test site. Assign sample numbers consecutively (BS01, BS02, etc.) as samples are obtained.
- MG01 Granular base samples obtained solely for determining natural moisture content.
- MS01 Subgrade samples obtained from bulk sampling locations for moisture content determination.
- TS04 Shelby tube samples from subgrade (two Shelby tubes from A-Type locations, as appropriate).
- IS01 Jar samples of subgrade from splitspoon sampler (two splitspoons from each A-Type location).

Table 23. Samples to be Shipped to the State Laboratory (or their designee), SPS-2 Washington.

Sample Location Number	Sample Number	Lab Test Number	Type of Sample
Portland Cement Concrete			
B27	GX01	3	6 in. x 12 in. cylinder
	GX02	3	6 in. x 12 in. cylinder
	GY01	3	6 in. x 12 in. cylinder
	GY02	3	6 in. x 12 in. cylinder
	GZ01	3	6 in. x 12 in. cylinder
	GZ02	3	6 in. x 12 in. cylinder
	FX01	3	6 x 6 x 20 in. beam
	FY01	3	6 x 6 x 20 in. beam
	FZ01	3	6 x 6 x 20 in. beam
B28	GX03	3	6 in. x 12 in. cylinder
	GX04	3	6 in. x 12 in. cylinder
	GY03	3	6 in. x 12 in. cylinder
	GY04	3	6 in. x 12 in. cylinder
	GZ03	3	6 in. x 12 in. cylinder
	GZ04	3	6 in. x 12 in. cylinder
	FX02	3	6 x 6 x 20 in. beam
	FY02	3	6 x 6 x 20 in. beam
	FZ02	3	6 x 6 x 20 in. beam
B29	GX05	3	6 in. x 12 in. cylinder
	GX06	3	6 in. x 12 in. cylinder
	GY05	3	6 in. x 12 in. cylinder
	GY06	3	6 in. x 12 in. cylinder
	GZ05	3	6 in. x 12 in. cylinder
	GZ06	3	6 in. x 12 in. cylinder
	FX03	3	6 x 6 x 20 in. beam
	FY03	3	6 x 6 x 20 in. beam
	FZ03	3	6 x 6 x 20 in. beam

Table 23. Samples to be Shipped to the State Laboratory (or their designee), SPS-2 Washington (continued).

Sample Location Number	Sample Number	Lab Test Number	Type of Sample
B30	GX07	3	6 in. x 12 in. cylinder
	GX08	3	6 in. x 12 in. cylinder
	GY07	3	6 in. x 12 in. cylinder
	GY08	3	6 in. x 12 in. cylinder
	GZ07	3	6 in. x 12 in. cylinder
	GZ08	3	6 in. x 12 in. cylinder
	FX04	3	6 x 6 x 20 in. beam
	FY04	3	6 x 6 x 20 in. beam
	FZ04	3	6 x 6 x 20 in. beam
B31	GX09	3	6 in. x 12 in. cylinder
	GX10	3	6 in. x 12 in. cylinder
	GY09	3	6 in. x 12 in. cylinder
	GY10	3	6 in. x 12 in. cylinder
	GZ09	3	6 in. x 12 in. cylinder
	GZ10	3	6 in. x 12 in. cylinder
	FX05	3	6 x 6 x 20 in. beam
	FY05	3	6 x 6 x 20 in. beam
	FZ05	3	6 x 6 x 20 in. beam
B32	GX11	3	6 in. x 12 in. cylinder
	GX12	3	6 in. x 12 in. cylinder
	GY11	3	6 in. x 12 in. cylinder
	GY12	3	6 in. x 12 in. cylinder
	GZ11	3	6 in. x 12 in. cylinder
	GZ12	3	6 in. x 12 in. cylinder
	FX06	3	6 x 6 x 20 in. beam
	FY06	3	6 x 6 x 20 in. beam
	FZ06	3	6 x 6 x 20 in. beam

Table 23. Samples to be Shipped to the State Laboratory (or their designee), SPS-2 Washington (continued).

Sample Location Number	Sample Number	Lab Test Number	Type of Sample
B33	GX13	3	6 in. x 12 in. cylinder
	GX14	3	6 in. x 12 in. cylinder
	GY13	3	6 in. x 12 in. cylinder
	GY14	3	6 in. x 12 in. cylinder
	GZ13	3	6 in. x 12 in. cylinder
	GZ14	3	6 in. x 12 in. cylinder
	FX07	3	6 x 6 x 20 in. beam
	FY07	3	6 x 6 x 20 in. beam
	FZ07	3	6 x 6 x 20 in. beam
B34	GX15	3	6 in. x 12 in. cylinder
	GX16	3	6 in. x 12 in. cylinder
	GY15	3	6 in. x 12 in. cylinder
	GY16	3	6 in. x 12 in. cylinder
	GZ15	3	6 in. x 12 in. cylinder
	GZ16	3	6 in. x 12 in. cylinder
	FX08	3	6 x 6 x 20 in. beam
	FY08	3	6 x 6 x 20 in. beam
	FZ08	3	6 x 6 x 20 in. beam
B35	GX17	3	6 in. x 12 in. cylinder
	GX18	3	6 in. x 12 in. cylinder
	GY17	3	6 in. x 12 in. cylinder
	GY18	3	6 in. x 12 in. cylinder
	GZ17	3	6 in. x 12 in. cylinder
	GZ18	3	6 in. x 12 in. cylinder
	FX09	3	6 x 6 x 20 in. beam
	FX09	3	6 x 6 x 20 in. beam
	FZ09	3	6 x 6 x 20 in. beam

Table 23. Samples to be Shipped to the State Laboratory (or their designee), SPS-2 Washington (continued).

Sample Location Number	Sample Number	Lab Test Number	Type of Sample
B36	GX19	3	6 in. x 12 in. cylinder
	GX20	3	6 in. x 12 in. cylinder
	GY19	3	6 in. x 12 in. cylinder
	GY20	3	6 in. x 12 in. cylinder
	GZ19	3	6 in. x 12 in. cylinder
	GZ20	3	6 in. x 12 in. cylinder
	FX10	3	6 x 6 x 20 in. beam
	FY10	3	6 x 6 x 20 in. beam
	FZ10	3	6 x 6 x 20 in. beam
C1	CP01	1	4 inch Core
C2	CP02	1	4 inch Core
C3	CP03	1	4 inch Core
C4	CP04	1	4 inch Core
C5	CP05	1	4 inch Core
C6	CP06	1	4 inch Core
C7	CP07	1	4 inch Core
C8	CP08	1	4 inch Core
C9	CP09	1	4 inch Core
C10	CP10	1	4 inch Core
C11	CP11	1	4 inch Core
C12	CP12	1	4 inch Core
C13	CP13	1	4 inch Core
C14	CP14	1	4 inch Core
C15	CP15	1	4 inch Core
C16	CP16	1	4 inch Core
C17	CP17	1	4 inch Core
C18	CP18	1	4 inch Core
C19	CP19	2	4 inch Core
C20	CP20	2	4 inch Core
C21	CP21	2	4 inch Core

Table 23. Samples to be Shipped to the State Laboratory (or their designee), SPS-2 Washington (continued).

Sample Location Number	Sample Number	Lab Test Number	Type of Sample
C22	CP22	2	4 inch Core
C23	CP23	2	4 inch Core
C24	CP24	2	4 inch Core
C25	CP25	2	4 inch Core
C26	CP26	2	4 inch Core
C27	CP27	2	4 inch Core
C28	CP28	2	4 inch Core
C29	CP29	2	4 inch Core
C30	CP30	2	4 inch Core
C31	CP31	2	4 inch Core
C32	CP32	2	4 inch Core
C33	CP33	2	4 inch Core
C34	CP34	2	4 inch Core
C35	CP35	1	4 inch Core
C36	CP36	1	4 inch Core
C37	CP37	1	4 inch Core
C38	CP38	1	4 inch Core
C39	CP39	2	4 inch Core
C40	CP40	2	4 inch Core
C41	CP41	2	4 inch Core
C42	CP42	2	4 inch Core
C43	CP43	1	4 inch Core
C44	CP44	1	4 inch Core
C45	CP45	1	4 inch Core
C46	CP46	1	4 inch Core
C47	CP47	2	4 inch Core
C48	CP48	2	4 inch Core
C49	CP49	2	4 inch Core
C50	CP50	2	4 inch Core
C51	CP51	2	4 inch Core

Table 23. Samples to be Shipped to the State Laboratory (or their designee), SPS-2 Washington (continued).

Sample Location Number	Sample Number	Lab Test Number	Type of Sample
C52	CP52	1	4 inch Core
C53	CP53	1	4 inch Core
C54	CP54	1	4 inch Core
C55	CP55	1	4 inch Core
C56	CP56	2	4 inch Core
C57	CP57	2	4 inch Core
C58	CP58	2	4 inch Core
C59	CP59	2	4 inch Core
C60	CP60	1	4 inch Core
C61	CP61	1	4 inch Core
C62	CP62	1	4 inch Core
C63	CP63	1	4 inch Core
C64	CP64	2	4 inch Core
C65	CP65	2	4 inch Core
C66	CP66	2	4 inch Core
C67	CP67	2	4 inch Core
C68	CP68	2	4 inch Core
C69	CP69	1	4 inch Core
C70	CP70	1	4 inch Core
C71	CP71	1	4 inch Core
C72	CP72	1	4 inch Core
C73	CP73	2	4 inch Core
C74	CP74	2	4 inch Core
C75	CP75	2	4 inch Core
C76	CP76	2	4 inch Core
C77	CP77	1	4 inch Core
C78	CP78	1	4 inch Core
C79	CP79	1	4 inch Core
C80	CP80	1	4 inch Core
C81	CP81	2	4 inch Core

Table 23. Samples to be Shipped to the State Laboratory (or their designee), SPS-2 Washington (continued).

Sample Location Number	Sample Number	Lab Test Number	Type of Sample
C82	CP82	2	4 inch Core
C83	CP83	2	4 inch Core
C84	CP84	2	4 inch Core
C85	CP85	1	4 inch Core
C86	CP86	1	4 inch Core
C87	CP87	1	4 inch Core
C88	CP88	1	4 inch Core
C89	CP89	2	4 inch Core
C90	CP90	2	4 inch Core
C91	CP91	2	4 inch Core
C92	CP92	2	4 inch Core
C93	CP93	1	4 inch Core
C94	CP94	1	4 inch Core
C95	CP95	1	4 inch Core
C96	CP96	1	4 inch Core
C97	CP97	2	4 inch Core
C98	CP98	2	4 inch Core
C99	CP99	2	4 inch Core
C100	CP100	2	4 inch Core
C101	CP101	1	4 inch Core
C102	CP102	1	4 inch Core
C103	CP103	1	4 inch Core
C104	CP104	1	4 inch Core
C105	CP105	1	4 inch Core
C106	CP106	1	4 inch Core
C107	CP107	1	4 inch Core
C108	CP108	2	4 inch Core
C109	CP109	2	4 inch Core
C110	CP110	2	4 inch Core
C111	CP111	2	4 inch Core

Table 23. Samples to be Shipped to the State Laboratory (or their designee), SPS-2 Washington (continued).

Sample Location Number	Sample Number	Lab Test Number	Type of Sample
C112	CP112	2	4 inch Core
C113	CP113	2	4 inch Core
C114	CP114	2	4 inch Core
C115	CP115	1	4 inch Core
C116	CP116	1	4 inch Core
C117	CP117	1	4 inch Core
C118	CP118	1	4 inch Core
C119	CP119	1	4 inch Core
C120	CP120	1	4 inch Core
C121	CP121	1	4 inch Core
C122	CP122	2	4 inch Core
C123	CP123	2	4 inch Core
C124	CP124	2	4 inch Core
C125	CP125	2	4 inch Core
C126	CP126	2	4 inch Core
C127	CP127	2	4 inch Core
C128	CP128	2	4 inch Core
C129	CP129	1	4 inch Core
C130	CP130	1	4 inch Core
C131	CP131	1	4 inch Core
C132	CP132	1	4 inch Core
C133	CP133	1	4 inch Core
C134	CP134	1	4 inch Core
C135	CP135	1	4 inch Core
C136	CP136	2	4 inch Core
C137	CP137	2	4 inch Core
C138	CP138	2	4 inch Core
C139	CP139	2	4 inch Core
C140	CP140	2	4 inch Core
C141	CP141	2	4 inch Core

Table 23. Samples to be Shipped to the State Laboratory (or their designee), SPS-2 Washington (continued).

Sample Location Number	Sample Number	Lab Test Number	Type of Sample
C142	CP142	2	4 inch Core
C143	CP143	2	4 inch Core
C144	CP144	1	4 inch Core
C145	CP145	1	4 inch Core
C146	CP146	1	4 inch Core
C147	CP147	1	4 inch Core
C148	CP148	1	4 inch Core
C149	CP149	1	4 inch Core
C150	CP150	1	4 inch Core
C151	CP151	2	4 inch Core
C152	CP152	2	4 inch Core
C153	CP153	2	4 inch Core
C154	CP154	2	4 inch Core
C155	CP155	2	4 inch Core
C156	CP156	2	4 inch Core
C157	CP157	2	4 inch Core
C158	CP158	2	4 inch Core
Lean Concrete Base			
B23	LX01	3	6 in. x 12 in. cylinder
	LX02	3	6 in. x 12 in. cylinder
	LY01	3	6 in. x 12 in. cylinder
	LY02	3	6 in. x 12 in. cylinder
	LZ01	3	6 in. x 12 in. cylinder
	LZ02	3	6 in. x 12 in. cylinder
B24	LX03	3	6 in. x 12 in. cylinder
	LX04	3	6 in. x 12 in. cylinder
	LY03	3	6 in. x 12 in. cylinder
	LY04	3	6 in. x 12 in. cylinder
	LZ03	3	6 in. x 12 in. cylinder
	LZ04	3	6 in. x 12 in. cylinder

Table 23. Samples to be Shipped to the State Laboratory (or their designee), SPS-2 Washington (continued).

Sample Location Number	Sample Number	Lab Test Number	Type of Sample
B25	LX05	3	6 in. x 12 in. cylinder
	LX06	3	6 in. x 12 in. cylinder
	LY05	3	6 in. x 12 in. cylinder
	LY06	3	6 in. x 12 in. cylinder
	LZ05	3	6 in. x 12 in. cylinder
	LZ06	3	6 in. x 12 in. cylinder
B26	LX07	3	6 in. x 12 in. cylinder
	LX08	3	6 in. x 12 in. cylinder
	LY07	3	6 in. x 12 in. cylinder
	LY08	3	6 in. x 12 in. cylinder
	LZ07	3	6 in. x 12 in. cylinder
	LZ08	3	6 in. x 12 in. cylinder
C101	CL102	1	4 inch Core
C102	CL102	1	4 inch Core
C103	CL103	1	4 inch Core
C112	CL112	2	4 inch Core
C113	CL113	2	4 inch Core
C114	CL114	2	4 inch Core
C115	CL115	1	4 inch Core
C116	CL116	1	4 inch Core
C117	CL117	1	4 inch Core
C126	CL126	2	4 inch Core
C127	CL127	2	4 inch Core
C128	CL128	2	4 inch Core
C129	CL129	1	4 inch Core
C130	CL130	1	4 inch Core
C131	CL131	1	4 inch Core
C141	CL141	2	4 inch Core
C142	CL142	2	4 inch Core
C143	CL143	2	4 inch Core

Table 23. Samples to be Shipped to the State Laboratory (or their designee), SPS-2 Washington (continued).

Sample Location Number	Sample Number	Lab Test Number	Type of Sample
C144	CL144	1	4 inch Core
C145	CL145	1	4 inch Core
C146	CL146	1	4 inch Core
C156	CL156	2	4 inch Core
C157	CL157	2	4 inch Core
C158	CL158	2	4 inch Core
Permeable Asphalt Treated Base			
B19	BT01	3	100 lb bulk sample
B20	BT02	3	100 lb bulk sample
B21	BT03	3	100 lb bulk sample
B22	BT04	3	100 lb bulk sample
Asphalt Treated Base			
B18	BT05	3	100 lb bulk sample
B37	BC01	3	Bulk Asphalt Cement - ATB
Unbound Granular Base			
B13	BG11	2	100 lb bulk sample
B14	BG12	2	100 lb bulk sample
B15	BG13	2	100 lb bulk sample
B16	BG14	2	100 lb bulk sample
B17	BG15	2	100 lb bulk sample
Natural Subgrade			
B1	BS01	2	100 lb bulk sample
B2	BS02	2	100 lb bulk sample
B3	BS03	2	100 lb bulk sample
B4	BS04	2	100 lb bulk sample
B5	BS05	2	100 lb bulk sample
A1	TS01	3	Thin wall tube sample
A1	TS02	3	Thin wall tube sample
A3	TS05	3	Thin wall tube sample
A3	TS06	3	Thin wall tube sample

Table 23. Samples to be Shipped to the State Laboratory (or their designee), SPS-2 Washington (continued).

Sample Location Number	Sample Number	Lab Test Number	Type of Sample
A4	TS07	3	Thin wall tube sample
A4	TS08	3	Thin wall tube sample
A6	TS11	3	Thin wall tube sample
A6	TS12	3	Thin wall tube sample
A7	TS13	3	Thin wall tube sample
A7	TS14	3	Thin wall tube sample
A9	TS17	3	Thin wall tube sample
A9	TS18	3	Thin wall tube sample
A10	TS19	3	Thin wall tube sample
A10	TS20	3	Thin wall tube sample
A12	TS23	3	Thin wall tube sample
A12	TS24	3	Thin wall tube sample
A13	TS25	3	Thin wall tube sample
A13	TS26	3	Thin wall tube sample
A15	TS29	3	Thin wall tube sample
A15	TS30	3	Thin wall tube sample
A16	TS31	3	Thin wall tube sample
A16	TS32	3	Thin wall tube sample
A18	TS35	3	Thin wall tube sample
A18	TS36	3	Thin wall tube sample
Prepared Subgrade or Embankment Material			
B6	BG01	2	100 lb bulk sample
B7	BG02	2	100 lb bulk sample
B8	BG03	2	100 lb bulk sample
B9	BG04	2	100 lb bulk sample
B10	BG05	2	100 lb bulk sample
B11	BG06	2	100 lb bulk sample
B12	BG07	2	100 lb bulk sample

Table 24. Samples to be Shipped to the FHWA-LTPP Testing Contractor Laboratory, SPS-2 Washington.

Sample Location Number	Sample Number	Lab Test Number	Type of Sample
Portland Cement Concrete			
No Testing to be Performed by FHWA-LTPP Contractor			
Lean Concrete Base			
No Testing to be Performed by FHWA-LTPP Contractor			
Permeable Asphalt Treated Base			
No Testing to be Performed by FHWA-LTPP Contractor			
Asphalt Treated Base			
C1	CT01	1	4 inch Core
C2	CT02	1	4 inch Core
C3	CT03	1	4 inch Core
C4	CT04	1	4 inch Core
C31	CT31	2	4 inch Core
C32	CT32	2	4 inch Core
C33	CT33	2	4 inch Core
C34	CT34	2	4 inch Core
Unbound Granular Base			
B13	BG11	2	300 lb Bulk Sample
B14	BG12	2	300 lb Bulk Sample
B15	BG13	2	300 lb Bulk Sample
B16	BG14	2	300 lb Bulk Sample
B17	BG15	2	300 lb Bulk Sample
B13	MG11	2	Moisture Content Jar Sample
B14	MG12	2	Moisture Content Jar Sample
B15	MG13	2	Moisture Content Jar Sample
B16	MG14	2	Moisture Content Jar Sample
B17	MG15	2	Moisture Content Jar Sample
Natural Subgrade			
B1	BS01	2	300 lb Bulk Sample
B2	BS02	2	300 lb Bulk Sample
B3	BS03	2	300 lb Bulk Sample
B4	BS04	2	300 lb Bulk Sample

Table 24. Samples to be Shipped to the FHWA-LTPP Testing Contractor Laboratory, SPS-2 Washington (continued).

Sample Location Number	Sample Number	Lab Test Number	Type of Sample
B5	BS05	2	300 lb Bulk Sample
B1	MS01	2	Moisture Content Jar Sample
B2	MS02	2	Moisture Content Jar Sample
B3	MS03	2	Moisture Content Jar Sample
B4	MS04	2	Moisture Content Jar Sample
B5	MS05	2	Moisture Content Jar Sample
A2	TS03	3	Thin wall tube sample
A2	TS04	3	Thin wall tube sample
A5	TS09	3	Thin wall tube sample
A5	TS10	3	Thin wall tube sample
A8	TS15	3	Thin wall tube sample
A8	TS16	3	Thin wall tube sample
A11	TS21	3	Thin wall tube sample
A11	TS22	3	Thin wall tube sample
A14	TS27	3	Thin wall tube sample
A14	TS28	3	Thin wall tube sample
A17	TS33	3	Thin wall tube sample
A17	TS34	3	Thin wall tube sample
Prepared Subgrade or Embankment			
B6	BG01	2	300 lb Bulk Sample
B7	BG02	2	300 lb Bulk Sample
B8	BG03	2	300 lb Bulk Sample
B9	BG04	2	300 lb Bulk Sample
B10	BG05	2	300 lb Bulk Sample
B11	BG06	2	300 lb Bulk Sample
B12	BG07	2	300 lb Bulk Sample
B6	MG01	2	Moisture Content Jar Sample
B7	MG02	2	Moisture Content Jar Sample
B8	MG03	2	Moisture Content Jar Sample
B9	MG04	2	Moisture Content Jar Sample

Table 24. Samples to be Shipped to the FHWA-LTPP Testing Contractor Laboratory, SPS-2 Washington (continued).

Sample Location Number	Sample Number	Lab Test Number	Type of Sample
B10	MG05	2	Moisture Content Jar Sample
B11	MG06	2	Moisture Content Jar Sample
B12	MG07	2	Moisture Content Jar Sample

Laboratory Tracking of Samples

This section contains Laboratory Sample Tracking Tables which contain instructions for sample handling and tracking throughout the laboratory testing process. Tables 25 through 30 detail the sample handling and testing for the state agency laboratory and Tables 31 through 33 detail the sample handling and testing for the FHWA-LTPP Laboratory Materials Testing Contractor.

These tables provide the laboratories with the following information and directions:

- tracking of samples as they are taken for the field and tested in the laboratory,
- laboratory test sequences for each pavement material type,
- dedicated sample(s) for each test,
- designation of extra samples for future use,
- instructions for sample storage, and
- special instructions and other remarks.

The following is a description of the column headings used for the tracking table:

- *Layer Number* - is assigned beginning with layer number 1. Layer number 1 is always assigned for the subgrade and the last layer number is always the pavement surface layer.
- *Layer Description Code* - is used to describe the material layer. Valid codes for this project are:
 - Original Surface Layer 03
 - AC Layer Below Surface (Binder Coarse) . . . 04
 - Base Coarse 05
 - Subgrade 07
 - Embankment (Fill) 11
- *Layer Type* - is used to classify the type of layer. Valid codes for this project are:
 - PC . for portland cement concrete layer,
 - TB for bound (treated) base layer,
 - GB . for unbound (granular) base layer,
 - GS for unbound (granular) subbase layer,
 - SS for subgrade layer.
- *Test Section Number* - is the number of the test section for which the sample pertains.
- *Sample Location Number* - is the location the sample was taken and should be shown on sample tags and labels.
- *Sample Number* - is the number identifying each individual sample and should be shown on sample tags and labels.

- *Lab Test Number* - shall be assigned as per the following:
 - a. Beginning of the Section (Station 0-): samples of each layer that are retrieved from areas in the approach end of the test section (stations preceding 0+00) shall be assigned Laboratory Test Number '1'.
 - b. End of the Section (Stations 5+): samples of each layer that are retrieved from areas in the leave end of the test section (stations after 5+00) shall be assigned Laboratory Test Number '2'.
 - c. Middle of the Section (Stations 0+00 to 5+00): samples of each layer that are retrieved from areas in the middle of the test section (from the paver) shall be assigned Laboratory Test Number '3'.
- *Required Laboratory Tests Per Layer* - order in which testing shall proceed.
- *Extra Sample* - is the sample to be saved as a backup for other tests? A "yes" in this column implies that this is a dedicated extra sample saved for future use. A "no" indicates that a sample can be discarded after use.
- *Sample Storage* - the following codes are used to specify the sample storage conditions for samples:
 - a. environmentally protected and controlled storeroom at 5-21°C (40-70°F).
 - b. environmentally protected and controlled storeroom at 5-38°C (40-100°F).
 - c. Thin-walled tube samples of the subgrade that should be stored in a fully supported condition and at temperatures between 5°C (40°F) and 21°C (70°F) in an environmentally protected storeroom. They shall be stored on their ends and shall always be stored in a vertical position with respect to the longitudinal axis of the tube in the same orientation as that retrieved from the field.
 - d. Moist room at 23±1.7°C (73.4±3°F). Specimens shall have free water maintained on the entire surface at all times. The moist room shall meet the requirements of AASHTO Specification M201. Specimens shall not be exposed to dripping or running water.
- *Sample Disposal?* - indicates whether or not a sample can be disposed of after testing. Generally all samples, or portions of samples that are not tested are saved until further notice.

Tables 25 through 33 should be completed (layer number), checked and modified as necessary to reflect the actual samples received and then submitted to Nichols Consulting Engineers for approval before any testing commences by the state testing lab and the FHWA-LTPP testing lab, respectively.

Table 25. Tracking Table of Subgrade/Embankment Testing in the State Laboratory (or their designee), SPS-2 Washington.

Layer Number (Note 1)	Layer Description Code	Layer Type	Test Section Number	Sample Location Number	Sample Number	Lab Test Number	Steps Involved in Laboratory Handling and Testing Sequence							
							Required Laboratory Tests Per Layer				Extra Sample	Sample Storage	Sample Disposed?	
							First	Second	Third	Fourth				
	07	SS	530259	B1	BS01	2	UG09/P48					No	(b)	No
	07	SS	530202	B2	BS02	2	No Testing - Samples stored				Yes	(b)	No	
	07	SS	530212	B3	BS03	2	UG09/P48					No	(b)	No
	07	SS	530201	B4	BS04	2	No Testing - Samples stored				Yes	(b)	No	
	07	SS	530208	B5	BS05	2	UG09/P48					No	(b)	No
	07	SS	530202	A1	TS01	3	SS04/P52	SS08/P56	SS10/P54			No	(c)	Yes
	07	SS	530202	A3	TS05	3	SS04/P52					No	(c)	Yes
	07	SS	530211	A4	TS07	3	SS04/P52	SS08/P56	SS10/P54			No	(c)	Yes
	07	SS	530211	A6	TS11	3	SS04/P52	SS11/P57				No	(c)	Yes
	07	SS	530212	A7	TS13	3	SS04/P52	SS08/P56	SS10/P54			No	(c)	Yes
	07	SS	530212	A9	TS17	3	SS04/P52					No	(c)	Yes
	07	SS	530201	A10	TS19	3	SS04/P52	SS08/P56	SS10/P54			No	(c)	Yes
	07	SS	530201	A12	TS23	3	SS04/P52	SS11/P57				No	(c)	Yes
	07	SS	530208	A13	TS25	3	SS04/P52	SS08/P56	SS10/P54			No	(c)	Yes
	07	SS	530208	A15	TS29	3	SS04/P52					No	(c)	Yes
	07	SS	530207	A16	TS31	3	SS04/P52	SS08/P56	SS10/P54			No	(c)	Yes
	07	SS	530207	A18	TS35	3	SS04/P52	SS11/P57				No	(c)	Yes
	07	SS	530206	A1	TS02	3						Yes	(c)	No

Note 1: Layer Number to be completed by testing lab after reviewing field sampling logs.

Table 25. Tracking Table of Subgrade/Embankment Testing in the State Laboratory (or their designee), SPS-2 Washington (continued).

Layer Number (Note 1)	Layer Description Code	Layer Type	Test Section Number	Sample Location Number	Sample Number	Lab Test Number	Steps Involved in Laboratory Handling and Testing Sequence						
							Required Laboratory Tests Per Layer				Extra Sample	Sample Storage	Sample Disposed?
							First	Second	Third	Fourth			
	07	SS	530202	A3	TS06	3					Yes	(c)	No
	07	SS	530211	A4	TS08	3					Yes	(c)	No
	07	SS	530211	A6	TS12	3					Yes	(c)	No
	07	SS	530212	A7	TS14	3					Yes	(c)	No
	07	SS	530212	A9	TS18	3					Yes	(c)	No
	07	SS	530207	A10	TS20	3					Yes	(c)	No
	07	SS	530201	A12	TS24	3					Yes	(c)	No
	07	SS	530208	A13	TS26	3					Yes	(c)	No
	07	SS	530208	A15	TS30	3					Yes	(c)	No
	07	SS	530207	A16	TS32	3					Yes	(c)	No
	07	SS	530207	A18	TS36	3					Yes	(c)	No
	06	GS	530259	B6	BG01	2	UG09/P48				No	(b)	Yes
	06	GS	530202	B7	BG02	2	No Testing - Samples Stored				Yes	(b)	No
	06	GS	530211	B8	BG03	2	No Testing - Samples Stored				Yes	(b)	No
	06	GS	530212	B9	BG04	2	UG09/P48				No	(b)	Yes
	06	GS	530201	B10	BG05	2	No Testing - Samples Stored				Yes	(b)	No
	06	GS	530208	B11	BG06	2	No Testing - Samples Stored				Yes	(b)	No
	06	GS	530207	B12	BG07	2	UG09/P48				No	(b)	Yes

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Note 1: Layer Number to be completed by testing lab after reviewing field sampling logs.

Table 28. Tracking Table of Asphalt Treated Base in the State Laboratory (or their designee), SPS-2 Washington.

Layer Number (Note 1)	Layer Description Code	Layer Type	Test Section Number	Sample Location Number	Sample Number	Lab Test Number	Steps Involved in Laboratory Handling and Testing Sequence						
							Required Laboratory Tests Per Layer				Extra Sample	Sample Storage	Sample Disposed?
							First	Second	Third	Fourth			
	05	TB	530259	B18	BT05	3	AC03/P03	AC04/P04	AC05/P05	Note 2	No	(a)	Yes
	05	TB	530259	B37	BC01	3	AE02/P22	AE03/P13	AE04/P24	AE05/P25	No	(a)	Yes

Note 1: Layer Number to be completed by testing lab after reviewing field sampling logs.

Note 2: Run tests AE01/P21 - AE05/P25 on recovered asphalt cement and tests AG01/P11 - AG06/P14B on extracted aggregate.

Table 29. Tracking Table of LCB Testing in the State Laboratory (or their designee), SPS-2 Washington.

Layer Number (Note 1)	Layer Description Code	Layer Type	Test Section Number	Sample Location Number	Sample Number	Lab Test Number	Steps Involved in Laboratory Handling and Testing Sequence					
							Required Laboratory Tests Per Layer			Extra Sample	Sample Storage	Sample Disposed?
							First	Second	Third			
	05	TB	530205	C101	CL101	1	PC06/P66	PC01 (14 days)		No	(b)	Yes
	05	TB	530205	C102	CL102	1	PC06/P66	PC01 (28 days)		No	(b)	Yes
	05	TB	530205	C103	CL103	1	PC06/P66	PC01 (1 year)		No	(b)	Yes
	05	TB	530205	C112	CL112	2	PC06/P66	PC01 (14 days)		No	(b)	Yes
	05	TB	530205	C113	CL113	2	PC06/P66	PC01 (28 days)		No	(b)	Yes
	05	TB	530205	C114	CL114	2	PC06/P66	PC01 (1 year)		No	(b)	Yes
	05	TB	530208	C115	CL115	1	PC06/P66	PC01 (14 days)		No	(b)	Yes
	05	TB	530208	C116	CL116	1	PC06/P66	PC01 (28 days)		No	(b)	Yes
	05	TB	530208	C117	CL117	1	PC06/P66	PC01 (1 year)		No	(b)	Yes
	05	TB	530208	C126	CL126	2	PC06/P66	PC01 (14 days)		No	(b)	Yes
	05	TB	530208	C127	CL127	2	PC06/P66	PC01 (28 days)		No	(b)	Yes
	05	TB	530208	C128	CL128	2	PC06/P66	PC01 (1 year)		No	(b)	Yes
	05	TB	530206	C129	CL129	1	PC06/P66	PC01 (14 days)		No	(b)	Yes
	05	TB	530206	C130	CL130	1	PC06/P66	PC01 (28 days)		No	(b)	Yes
	05	TB	530206	C131	CL131	1	PC06/P66	PC01 (1 year)		No	(b)	Yes
	05	TB	530206	C141	CL141	2	PC06/P66	PC01 (14 days)		No	(b)	Yes
	05	TB	530206	C142	CL142	2	PC06/P66	PC01 (28 days)		No	(b)	Yes
	05	TB	530206	C143	CL143	2	PC06/P66	PC01 (1 year)		No	(b)	Yes

Note 1: Layer Number to be completed by testing lab after reviewing field sampling logs.

Table 29. Tracking Table of LCB Testing in the State Laboratory (or their designee), SPS-2 Washington (continued).

Layer Number (Note 1)	Layer Description Code	Layer Type	Test Section Number	Sample Location Number	Sample Number	Lab Test Number	Steps Involved in Laboratory Handling and Testing Sequence					
							Required Laboratory Tests Per Layer			Extra Sample	Sample Storage	Sample Disposed?
							First	Second	Third			
	05	TB	530207	C144	CL144	1	PC06/P66	PC01 (14 days)		No	(b)	Yes
	05	TB	530207	C145	CL145	1	PC06/P66	PC01 (28 days)		No	(b)	Yes
	05	TB	530207	C146	CL146	1	PC06/P66	PC01 (1 year)		No	(b)	Yes
	05	TB	530207	C156	CL156	2	PC06/P66	PC01 (14 days)		No	(b)	Yes
	05	TB	530207	C157	CL157	2	PC06/P66	PC01 (28 days)		No	(b)	Yes
	05	TB	530207	C158	CL158	2	PC06/P66	PC01 (1 year)		No	(b)	Yes
	05	TB	530205	B23	LX01	3	PC01/P61 (7 days)			No	(d)	Yes
	05	TB	530205	B23	LX02	3	PC01/P61 (7 days)			No	(d)	Yes
	05	TB	530205	B23	LY01	3	PC01/P61 (28 days)			No	(d)	Yes
	05	TB	530205	B23	LY02	3	PC01/P61 (28 days)			No	(d)	Yes
	05	TB	530205	B23	LZ01	3	PC01/P61 (1 year)			No	(d)	Yes
	05	TB	530205	B23	LZ02	3	PC01/P61 (1 year)			No	(d)	Yes
	05	TB	530208	B24	LX03	3	PC01/P61 (7 days)			No	(d)	Yes
	05	TB	530208	B24	LX04	3	PC01/P61 (7 days)			No	(d)	Yes
	05	TB	530208	B24	LY03	3	PC01/P61 (28 days)			No	(d)	Yes
	05	TB	530208	B24	LY04	3	PC01/P61 (28 days)			No	(d)	Yes
	05	TB	530208	B24	LZ03	3	PC01/P61 (1 year)			No	(d)	Yes
	05	TB	530208	B24	LZ04	3	PC01/P61 (1 year)			No	(d)	Yes

Note 1: Layer Number to be completed by testing lab after reviewing field sampling logs.

Table 29. Tracking Table of LCB Testing in the State Laboratory (or their designee), SPS-2 Washington (continued).

Layer Number (Note 1)	Layer Description Code	Layer Type	Test Section Number	Sample Location Number	Sample Number	Lab Test Number	Steps Involved in Laboratory Handling and Testing Sequence					
							Required Laboratory Tests Per Layer			Extra Sample	Sample Storage	Sample Disposed?
							First	Second	Third			
	05	TB	530206	B25	LX05	3	PC01/P61 (7 days)			No	(d)	Yes
	05	TB	530206	B25	LX06	3	PC01/P61 (7 days)			No	(d)	Yes
	05	TB	530206	B25	LY05	3	PC01/P61 (28 days)			No	(d)	Yes
	05	TB	530206	B25	LY06	3	PC01/P61 (28 days)			No	(d)	Yes
	05	TB	530206	B25	LZ05	3	PC01/P61 (1 year)			No	(d)	Yes
	05	TB	530206	B25	LZ06	3	PC01/P61 1 (year)			No	(d)	Yes
	05	TB	530207	B26	LX08	3	PC01/P61 (7 days)			No	(d)	Yes
	05	TB	530207	B26	LX08	3	PC01/P61 (7 days)			No	(d)	Yes
	05	TB	530207	B26	LY07	3	PC01/P61 (28 days)			No	(d)	Yes
	05	TB	530207	B26	LY08	3	PC01/P61 (28 days)			No	(d)	Yes
	05	TB	530207	B26	LZ07	3	PC01/P61 (1 year)			No	(d)	Yes
	05	TB	530207	B26	LZ08	3	PC01/P61 (1 year)			No	(d)	Yes

Note 1: Layer Number to be completed by testing lab after reviewing field sampling logs.

Table 30. Tracking Table of PCC Testing in the State Laboratory (or their designee), SPS-2 Washington.

Layer Number (Note 1)	Layer Description Code	Layer Type	Test Section Number	Sample Location Number	Sample Number	Lab Test Number	Steps Involved in Laboratory Handling and Testing Sequence					
							Required Laboratory Tests Per Layer			Extra Sample	Sample Storage	Sample Disposed?
							First	Second	Third			
	03	PC	530259	C1	CP01	1	PC06/P66			Yes	(b)	No
	03	PC	530259	C2	CP02	1	PC06/P66			Yes	(b)	No
	03	PC	530259	C3	CP03	1	PC06/P66			Yes	(b)	No
	03	PC	530259	C4	CP04	1	PC06/P66			Yes	(b)	No
	03	PC	530259	C5	CP05	1	PC06/P66	PC01 (14 days)		No	(b)	Yes
	03	PC	530259	C6	CP06	1	PC06/P66	PC01 (28 days)		No	(b)	Yes
	03	PC	530259	C7	CP07	1	PC06/P66	PC01 (1 year)		No	(b)	Yes
	03	PC	530259	C8	CP08	1	PC06/P66	PC02 (14 days)		No	(b)	Yes
	03	PC	530259	C9	CP09	1	PC06/P66	PC02 (28 days)		No	(b)	Yes
	03	PC	530259	C10	CP10	1	PC06/P66	PC02 (1 year)		No	(b)	Yes
	03	PC	530259	C11	CP11	1	PC06/P66	PC05/P65	PC04 (28 days)	No	(b)	Yes
	03	PC	530259	C12	CP12	1	PC06/P66	PC04 (1 year)		No	(b)	Yes
	03	PC	530259	C13	CP13	1	PC06/P66	PC08 (28 days)		No	(b)	Yes
	03	PC	530259	C14	CP14	1	PC06/P66	Note 2		No	(b)	Yes
	03	PC	530259	C15	CP15	1	PC06/P66	PC01 (14 days)		No	(b)	Yes
	03	PC	530259	C16	CP16	1	PC06/P66	PC01 (28 days)		No	(b)	Yes
	03	PC	530259	C17	CP17	1	PC06/P66	PC01 (1 year)		No	(b)	Yes
	03	PC	530259	C18	CP18	1	PC06/P66	PC02 (14 days)		No	(b)	Yes
	03	PC	530259	C19	CP19	2	PC06/P66	PC02 (28 days)		No	(b)	Yes

Note 1: Layer Number to be completed by testing lab after reviewing field sampling logs.

Note 2: Ship core to FHWA, c/o Ms. Marcia Simon, TFHRC, HNR-20, 6300 Georgetown Pike, McLean, VA 22101-2296 for PCC thermal coefficient test.

Table 30. Tracking Table of PCC Testing in the State Laboratory (or their designee), SPS-2 Washington (continued).

Layer Number (Note 1)	Layer Description Code	Layer Type	Test Section Number	Sample Location Number	Sample Number	Lab Test Number	Steps Involved in Laboratory Handling and Testing Sequence					
							Required Laboratory Tests Per Layer			Extra Sample	Sample Storage	Sample Disposed?
							First	Second	Third			
	03	PC	530259	C20	CP20	2	PC06/P66	PC02 (1 year)		No	(b)	Yes
	03	PC	530259	C21	CP21	2	PC06/P66	PC05/P65	PC04 (28 days)	No	(b)	Yes
	03	PC	530259	C22	CP22	2	PC06/P66	PC04 (1 year)		No	(b)	Yes
	03	PC	530259	C23	CP23	2	PC06/P66	PC01 (14 days)		No	(b)	Yes
	03	PC	530259	C24	CP24	2	PC06/P66	PC01 (28 days)		No	(b)	Yes
	03	PC	530259	C25	CP25	2	PC06/P66	PC01 (1 year)		No	(b)	Yes
	03	PC	530259	C26	CP26	2	PC06/P66	PC02 (14 days)		No	(b)	Yes
	03	PC	530259	C27	CP27	2	PC06/P66	PC02 (28 days)		No	(b)	Yes
	03	PC	530259	C28	CP28	2	PC06/P66	PC02 (1 year)		No	(b)	Yes
	03	PC	530259	C29	CP29	2	PC06/P66	PC05/P65	PC04 (28 days)	No	(b)	Yes
	03	PC	530259	C30	CP30	2	PC06/P66	PC04 (1 year)		Yes	(b)	No
	03	PC	530259	C31	CP31	2	PC06/P66			Yes	(b)	No
	03	PC	530259	C32	CP32	2	PC06/P66			Yes	(b)	No
	03	PC	530259	C33	CP33	2	PC06/P66			Yes	(b)	No
	03	PC	530259	C34	CP34	2	PC06/P66			Yes	(b)	No
	03	PC	530203	C35	CP35	1	PC06/P66	PC01 (14 days)		No	(b)	Yes
	03	PC	530203	C36	CP36	1	PC06/P66	PC01 (28 days)		No	(b)	Yes
	03	PC	530203	C37	CP37	1	PC06/P66	PC01 (1 year)		No	(b)	Yes
	03	PC	530203	C38	CP38	1	PC06/P66	PC02 (14 days)		No	(b)	Yes

Note 1: Layer Number to be completed by testing lab after reviewing field sampling logs.

Table 30. Tracking Table of PCC Testing in the State Laboratory (or their designee), SPS-2 Washington (continued).

Layer Number (Note 1)	Layer Description Code	Layer Type	Test Section Number	Sample Location Number	Sample Number	Lab Test Number	Steps Involved in Laboratory Handling and Testing Sequence					
							Required Laboratory Tests Per Layer			Extra Sample	Sample Storage	Sample Disposed?
							First	Second	Third			
	03	PC	530203	C39	CP39	2	PC06/P66	PC02 (28 days)		No	(b)	Yes
	03	PC	530203	C40	CP40	2	PC06/P66	PC05/P65	PC04 (28 days)	No	(b)	Yes
	03	PC	530203	C41	CP41	2	PC06/P66	PC05 (14 days)		No	(b)	Yes
	03	PC	530203	C42	CP42	2	PC06/P66	PC04 (1 year)		No	(b)	Yes
	03	PC	530202	C43	CP43	1	PC06/P66	PC01 (14 days)		No	(b)	Yes
	03	PC	530202	C44	CP44	1	PC06/P66	PC01 (28 days)		No	(b)	Yes
	03	PC	530202	C45	CP45	1	PC06/P66	PC01 (1 year)		No	(b)	Yes
	03	PC	530202	C46	CP46	1	PC06/P66	PC02 (14 days)		No	(b)	Yes
	03	PC	530202	C47	CP47	2	PC06/P66	PC02 (28 days)		No	(b)	Yes
	03	PC	530202	C48	CP48	2	PC06/P66	PC02 (1 year)		No	(b)	Yes
	03	PC	530202	C49	CP49	2	PC06/P66	PC05/P65	PC04 (28 days)	No	(b)	Yes
	03	PC	530202	C50	CP50	2	PC06/P66	PC04 (1 year)		No	(b)	Yes
	03	PC	530202	C51	CP51	2	PC06/P66	PC08 (28 days)		No	(b)	Yes
	03	PC	530210	C52	CP52	1	PC06/P66	PC01 (14 days)		No	(b)	Yes
	03	PC	530210	C53	CP53	1	PC06/P66	PC01 (28 days)		No	(b)	Yes
	03	PC	530210	C54	CP54	1	PC06/P66	PC01 (1 year)		No	(b)	Yes
	03	PC	530210	C55	CP55	1	PC06/P66	PC02 (14 days)		No	(b)	Yes
	03	PC	530210	C56	CP56	2	PC06/P66	PC02 (28 days)		No	(b)	Yes
	03	PC	530210	C57	CP57	2	PC06/P66	PC02 (1 year)		No	(b)	Yes

Note 1: Layer Number to be completed by testing lab after reviewing field sampling logs.

Table 30. Tracking Table of PCC Testing in the State Laboratory (or their designee), SPS-2 Washington (continued).

Layer Number (Note 1)	Layer Description Code	Layer Type	Test Section Number	Sample Location Number	Sample Number	Lab Test Number	Steps Involved in Laboratory Handling and Testing Sequence					
							Required Laboratory Tests Per Layer			Extra Sample	Sample Storage	Sample Disposed?
							First	Second	Third			
	03	PC	530210	C58	CP58	2	PC06/P66	PC05/P65	PC04 (28 days)	No	(b)	Yes
	03	PC	530210	C59	CP59	2	PC06/P66	PC04 (1 year)		No	(b)	Yes
	03	PC	530211	C60	CP60	1	PC06/P66	PC01 (14 days)		No	(b)	Yes
	03	PC	530211	C61	CP61	1	PC06/P66	PC01 (28 days)		No	(b)	Yes
	03	PC	530211	C62	CP62	1	PC06/P66	PC01 (1 year)		No	(b)	Yes
	03	PC	530211	C63	CP63	1	PC06/P66	PC02 (14 days)		No	(b)	Yes
	03	PC	530211	C64	CP64	2	PC06/P66	PC02 (28 days)		No	(b)	Yes
	03	PC	530211	C65	CP65	2	PC06/P66	PC02 (1 year)		No	(b)	Yes
	03	PC	530211	C66	CP66	2	PC06/P66	PC05/P65	PC04 (28 days)	No	(b)	Yes
	03	PC	530211	C67	CP67	2	PC06/P66	PC04 (1 year)		No	(b)	Yes
	03	PC	530211	C68	CP68	2	PC06/P66	Note 2		Yes	(b)	No
	03	PC	530209	C69	CP69	1	PC06/P66	PC01 (14 days)		No	(b)	Yes
	03	PC	530209	C70	CP70	1	PC06/P66	PC01 (28 days)		No	(b)	Yes
	03	PC	530209	C71	CP71	1	PC06/P66	PC01 (1 year)		No	(b)	Yes
	03	PC	530209	C72	CP72	1	PC06/P66	PC02 (14 days)		No	(b)	Yes
	03	PC	530209	C73	CP73	2	PC06/P66	PC02 (28 days)		No	(b)	Yes
	03	PC	530209	C74	CP74	2	PC06/P66	PC02 (1 year)		No	(b)	Yes
	03	PC	530209	C75	CP75	2	PC06/P66	PC05/P65	PC04 (28 days)	No	(b)	Yes

Note 1: Layer Number to be completed by testing lab after reviewing field sampling logs.

Note 2: Ship core to FHWA, c/o Ms. Marcia Simon, TFHRC, HNR-20, 6300 Georgetown Pike, McLean, VA 22101-2296 for PCC thermal coefficient test.

Table 30. Tracking Table of PCC Testing in the State Laboratory (or their designee), SPS-2 Washington (continued).

Layer Number (Note 1)	Layer Description Code	Layer Type	Test Section Number	Sample Location Number	Sample Number	Lab Test Number	Steps Involved in Laboratory Handling and Testing Sequence					
							Required Laboratory Tests Per Layer			Extra Sample	Sample Storage	Sample Disposed?
							First	Second	Third			
	03	PC	530209	C76	CP76	2	PC06/P66	PC04 (1 year)		No	(b)	Yes
	03	PC	530212	C77	CP77	1	PC06/P66	PC01 (14 days)		No	(b)	Yes
	03	PC	530212	C78	CP78	1	PC06/P66	PC01 (28 days)		No	(b)	Yes
	03	PC	530212	C79	CP79	1	PC06/P66	PC01 (1 year)		No	(b)	Yes
	03	PC	530212	C80	CP80	1		PC02 (14 days)		No	(b)	Yes
	03	PC	530212	C81	CP81	2	PC06/P66	PC02 (28 days)		No	(b)	Yes
	03	PC	530212	C82	CP82	2	PC06/P66	PC02 (1 year)		No	(b)	Yes
	03	PC	530212	C83	CP83	2	PC06/P66	PC05/P65	PC04 (28 days)	No	(b)	Yes
	03	PC	530212	C84	CP84	2	PC06/P66	PC04 (1 year)		No	(b)	Yes
	03	PC	530204	C85	CP85	1	PC06/P66	PC01 (14 days)		No	(b)	Yes
	03	PC	530204	C86	CP86	1	PC06/P66	PC01 (28 days)		No	(b)	Yes
	03	PC	530204	C87	CP87	1	PC06/P66	PC01 (1 year)		No	(b)	Yes
	03	PC	530204	C88	CP88	1	PC06/P66	PC02 (14 days)		No	(b)	Yes
	03	PC	530204	C89	CP89	2	PC06/PC66	PC02 (28 days)		No	(b)	Yes
	03	PC	530204	C90	CP90	2	PC06/P66	PC02 (1 year)		No	(b)	Yes
	03	PC	530204	C91	CP91	2	PC06/P66	PC05/P65	PC04 (28 days)	No	(b)	Yes
	03	PC	530204	C92	CP92	2	PC06/P66	PC04 (1 year)		No	(b)	Yes
	03	PC	530201	C93	CP93	1	PC06/P66	PC01 (14 days)		No	(b)	Yes
	03	PC	530201	C94	CP94	1	PC06/P66	PC01 (28 days)		No	(b)	Yes
	03	PC	530201	C95	CP95	1	PC06/P66	PC01 (1 year)		No	(b)	Yes

Note 1: Layer Number to be completed by testing lab after reviewing field sampling logs.

Table 30. Tracking Table of PCC Testing in the State Laboratory (or their designee), SPS-2 Washington (continued).

Layer Number (Note 1)	Layer Description Code	Layer Type	Test Section Number	Sample Location Number	Sample Number	Lab Test Number	Steps Involved in Laboratory Handling and Testing Sequence					
							Required Laboratory Tests Per Layer			Extra Sample	Sample Storage	Sample Disposed?
							First	Second	Third			
	03	PC	530201	C96	CP96	1	PC06/P66	PC02 (14 days)		No	(b)	Yes
	03	PC	530201	C97	CP97	2	PC06/P66	PC02 (28 days)		No	(b)	Yes
	03	PC	530201	C98	CP98	2	PC06/P66	PC02 (1 year)		No	(b)	Yes
	03	PC	530201	C99	CP99	2	PC06/P66	PC05/P65	PC04 (28 days)	No	(b)	Yes
	03	PC	530201	C100	CP100	2	PC06/P66	PC04 (1 year)		No	(b)	Yes
	03	PC	530205	C101	CP101	1	PC06/P66			Yes	(b)	No
	03	PC	530205	C102	CP102	1	PC06/P66			Yes	(b)	No
	03	PC	530205	C103	CP103	1	PC06/P66			Yes	(b)	No
	03	PC	530205	C104	CP104	1	PC06/P66	PC01 (14 days)		No	(b)	Yes
	03	PC	530205	C105	CP105	1	PC06/P66	PC01 (28 days)		No	(b)	Yes
	03	PC	530205	C106	CP106	1	PC06/P66	PC01 (1 year)		No	(b)	Yes
	03	PC	530205	C107	CP107	1	PC06/P66	PC02 (14 days)		No	(b)	Yes
	03	PC	530205	C108	CP108	2	PC06/P66	PC02 (28 days)		No	(b)	Yes
	03	PC	530205	C109	CP109	2	PC06/P66	PC02 (1 year)		No	(b)	Yes
	03	PC	530205	C110	CP110	2	PC06/P66	PC05/P65	PC04 (28 days)	No	(b)	Yes
	03	PC	530205	C111	CP111	2	PC06/P66	PC01 (1 year)		No	(b)	Yes
	03	PC	530205	C112	CP112	2	PC06/P66	PC02 (14 days)		Yes	(b)	No
	03	PC	530205	C113	CP113	2	PC06/P66	PC02 (28 days)		Yes	(b)	No
	03	PC	530205	C114	CP114	2	PC06/P66	PC02 (1 year)		Yes	(b)	No

Note 1: Layer Number to be completed by testing lab after reviewing field sampling logs.

Table 30. Tracking Table of PCC Testing in the State Laboratory (or their designee), SPS-2 Washington (continued).

Layer Number (Note 1)	Layer Description Code	Layer Type	Test Section Number	Sample Location Number	Sample Number	Lab Test Number	Steps Involved in Laboratory Handling and Testing Sequence					
							Required Laboratory Tests Per Layer			Extra Sample	Sample Storage	Sample Disposed?
							First	Second	Third			
	03	PC	530208	C115	CP115	1	PC06/P66			Yes	(b)	No
	03	PC	530208	C116	CP116	1	PC06/P66			Yes	(b)	No
	03	PC	530208	C117	CP117	1	PC06/P66			Yes	(b)	No
	03	PC	530208	C118	CP118	1	PC06/P66	PC01 (14 days)		No	(b)	Yes
	03	PC	530208	C119	CP119	1	PC06/P66	PC01 (28 days)		No	(b)	Yes
	03	PC	530208	C120	CP120	1	PC06/P66	PC01 (1 year)		No	(b)	Yes
	03	PC	530208	C121	CP121	1	PC06/P66	PC02 (14 days)		No	(b)	Yes
	03	PC	530208	C122	CP122	2	PC06/P66	PC02 (28 days)		No	(b)	Yes
	03	PC	530208	C123	CP123	2	PC06/P66	PC02 (1 year)		No	(b)	Yes
	03	PC	530208	C124	CP124	2	PC06/P66	PC05/P65	PC04 (28 days)	No	(b)	Yes
	03	PC	530208	C125	CP125	2	PC06/P66	PC04 (1 year)		No	(b)	Yes
	03	PC	530208	C126	CP126	2	PC06/P66			Yes	(b)	No
	03	PC	530208	C127	CP127	2	PC06/P66			Yes	(b)	No
	03	PC	530208	C128	CP128	2	PC06/P66			Yes	(b)	No
	03	PC	530206	C129	CP129	1	PC06/P66			Yes	(b)	No
	03	PC	530206	C130	CP130	1	PC06/P66			Yes	(b)	No
	03	PC	530206	C131	CP131	1	PC06/P66			Yes	(b)	No
	03	PC	530206	C132	CP132	1	PC06/P66	PC01 (14 days)		No	(b)	Yes

Note 1: Layer Number to be completed by testing lab after reviewing field sampling logs.

Table 30. Tracking Table of PCC Testing in the State Laboratory (or their designee), SPS-2 Washington (continued).

Layer Number (Note 1)	Layer Description Code	Layer Type	Test Section Number	Sample Location Number	Sample Number	Lab Test Number	Steps Involved in Laboratory Handling and Testing Sequence					
							Required Laboratory Tests Per Layer			Extra Sample	Sample Storage	Sample Disposed?
							First	Second	Third			
	03	PC	530206	C133	CP133	1	PC06/P66	PC01 (28 days)		No	(b)	Yes
	03	PC	530206	C134	CP134	1	PC06/P66	PC01 (1 year)		No	(b)	Yes
	03	PC	530206	C135	CP135	1	PC06/P66	PC02 (14 days)		No	(b)	Yes
	03	PC	530206	C136	CP136	2	PC06/P66	PC02 (28 days)		No	(b)	Yes
	03	PC	530206	C137	CP137	2	PC06/P66	PC02 (1 year)		No	(b)	Yes
	03	PC	530206	C138	CP138	2	PC06/P66	PC05/P65	PC04 (28 days)	No	(b)	Yes
	03	PC	530206	C139	CP139	2	PC06/P66	PC04 (1 year)		No	(b)	Yes
	03	PC	530206	C140	CP140	2	PC06/P66	PC08/P68		No	(b)	Yes
	03	PC	530206	C141	CP141	2	PC06/P66			Yes	(b)	No
	03	PC	530206	C142	CP142	2	PC06/P66			Yes	(b)	No
	03	PC	530206	C143	CP143	1	PC06/P66			Yes	(b)	No
	03	PC	530207	C144	CP144	1	PC06/P66			Yes	(b)	No
	03	PC	530207	C145	CP145	1	PC06/P66			Yes	(b)	No
	03	PC	530207	C146	CP146	1	PC06/P66			Yes	(b)	No
	03	PC	530207	C147	CP147	1	PC06/P66	PC01 (14 days)		No	(b)	Yes
	03	PC	530207	C148	CP148	1	PC06/P66	PC01 (28 days)		No	(b)	Yes
	03	PC	530207	C149	CP149	1	PC06/P66	PC01 (1 year)		No	(b)	Yes
	03	PC	530207	C150	CP150	1	PC06/P66	PC02 (14 days)		No	(b)	Yes
	03	PC	530207	C151	CP151	2	PC06/P66	PC02 (28 days)		No	(b)	Yes
	03	PC	530207	C152	CP152	2	PC06/P66	PC02 (1 year)		No	(b)	Yes
	03	PC	530207	C153	CP153	2	PC06/P66	PC05/P65	PC04 (28 days)	No	(b)	Yes

Note 1: Layer Number to be completed by testing lab after reviewing field sampling logs.

Table 30. Tracking Table of PCC Testing in the State Laboratory (or their designee), SPS-2 Washington (continued).

Layer Number (Note 1)	Layer Description Code	Layer Type	Test Section Number	Sample Location Number	Sample Number	Lab Test Number	Steps Involved in Laboratory Handling and Testing Sequence					
							Required Laboratory Tests Per Layer			Extra Sample	Sample Storage	Sample Disposed?
							First	Second	Third			
	03	PC	530207	C154	CP154	2	PC06/P66	PC04 (1 year)		No	(b)	Yes
	03	PC	530207	C155	CP155	2	PC06/P66	Note 2		No	(b)	Yes
	03	PC	530207	C156	CP156	2	PC06/P66			Yes	(b)	No
	03	PC	530207	C157	CP157	2	PC06/P66			Yes	(b)	No
	03	PC	530207	C158	CP158	2	PC06/P66			Yes	(b)	No
	03	PC	530259	B27	GX01	3	PC01/P61 (14 days)			No	(d)	Yes
	03	PC	530259	B27	GX02	3	PC02/P62 (14 days)			No	(d)	Yes
	03	PC	530259	B27	GY01	3	PC01/P61 (28 days)			No	(d)	Yes
	03	PC	530259	B27	GY02	3	PC02/P62 (28 days)			No	(d)	Yes
	03	PC	530259	B27	GZ01	3	PC01/P61 (1 year)			No	(d)	Yes
	03	PC	530259	B27	GZ02	3	PC02/P62 (1 year)			No	(d)	Yes
	03	PC	530259	B27	FX01	3	PC09/P69 (14 days)			No	(d)	Yes
	03	PC	530259	B27	FY01	3	PC09/P69 (28 days)			No	(d)	Yes
	03	PC	530259	B27	FZ01	3	PC09/P69 (1 year)			No	(d)	Yes
	03	PC	530259	B28	GX03	3	PC01/P61 (14 days)			No	(d)	Yes
	03	PC	530259	B28	GX04	3	PC02/P62 (14 days)			No	(d)	Yes
	03	PC	530259	B28	GY03	3	PC01/P61 (28 days)			No	(d)	Yes
	03	PC	530259	B28	GY04	3	PC02/P62 (28 days)			No	(d)	Yes

Note 1: Layer Number to be completed by testing lab after reviewing field sampling logs.

Note 2: Ship core to FHWA, c/o Ms. Marcia Simon, TFHRC-20, 6300 Georgetown Pike, McLean, VA 22101-2296 for PCC thermal coefficient test.

Table 30. Tracking Table of PCC Testing in the State Laboratory (or their designee), SPS-2 Washington (continued).

Layer Number (Note 1)	Layer Description Code	Layer Type	Test Section Number	Sample Location Number	Sample Number	Lab Test Number	Steps Involved in Laboratory Handling and Testing Sequence					
							Required Laboratory Tests Per Layer			Extra Sample	Sample Storage	Sample Disposed?
							First	Second	Third			
	03	PC	530259	B28	GZ03	3	PC01/P61 (1 year)			No	(d)	Yes
	03	PC	530259	B28	GZ04	3	PC02/P62 (1 year)			No	(d)	Yes
	03	PC	530259	B28	FX02	3	PC09/P69 (14 days)			No	(d)	Yes
	03	PC	530259	B28	FY02	3	PC09/P69 (28 days)			No	(d)	Yes
	03	PC	530259	B28	FZ02	3	PC09/P69 (1 year)			No	(d)	Yes
	03	PC	530259	B29	GX05	3	PC01/P61 (14 days)			No	(d)	Yes
	03	PC	530259	B29	GX06	3	PC02/P62 (14 days)			No	(d)	Yes
	03	PC	530259	B29	GY05	3	PC01/P61 (28 days)			No	(d)	Yes
	03	PC	530259	B29	GY06	3	PC02/P62 (28 days)			No	(d)	Yes
	03	PC	530259	B29	GZ05	3	PC01/P61 (1 year)			No	(d)	Yes
	03	PC	530259	B29	GZ06	3	PC02/P62 (1 year)			No	(d)	Yes
	03	PC	530259	B29	FX03	3	PC09/P69 (14 days)			No	(d)	Yes
	03	PC	530259	B29	FY03	3	PC09/P69 (28 days)			No	(d)	Yes
	03	PC	530259	B29	FZ03	3	PC09/P69 (1 year)			No	(d)	Yes
	03	PC	530203	B30	GX07	3	PC01/P61 (14 days)			No	(d)	Yes
	03	PC	530203	B30	GX08	3	PC02/P62 (14 days)			No	(d)	Yes
	03	PC	530203	B30	GY07	3	PC01/P61 (28 days)			No	(d)	Yes
	03	PC	530203	B30	GY08	3	PC02/P62 (28 days)			No	(d)	Yes

Note 1: Layer Number to be completed by testing lab after reviewing field sampling logs.

Table 30. Tracking Table of PCC Testing in the State Laboratory (or their designee), SPS-2 Washington (continued).

Layer Number (Note 1)	Layer Description Code	Layer Type	Test Section Number	Sample Location Number	Sample Number	Lab Test Number	Steps Involved in Laboratory Handling and Testing Sequence					
							Required Laboratory Tests Per Layer			Extra Sample	Sample Storage	Sample Disposed?
							First	Second	Third			
	03	PC	530203	B30	GZ07	3	PC01/P61 (1 year)			No	(d)	Yes
	03	PC	530203	B30	GZ08	3	PC02/P62 (1 year)			No	(d)	Yes
	03	PC	530203	B30	FX04	3	PC09/P69 (14 days)			No	(d)	Yes
	03	PC	530203	B30	FY04	3	PC09/P69 (28 days)			No	(d)	Yes
	03	PC	530203	B30	FZ04	3	PC09/P69 (1 year)			No	(d)	Yes
	03	PC	530202	B31	GX09	3	PC01/P61 (14 days)			No	(d)	Yes
	03	PC	530202	B31	GX10	3	PC02/P62 (14 days)			No	(d)	Yes
	03	PC	530202	B31	GY09	3	PC01/P61 (28 days)			No	(d)	Yes
	03	PC	530202	B31	GY10	3	PC02/P62 (28 days)			No	(d)	Yes
	03	PC	530202	B31	GZ09	3	PC01/P61 (1 year)			No	(d)	Yes
	03	PC	530202	B31	GZ10	3	PC02/P62 (1 year)			No	(d)	Yes
	03	PC	530202	B31	FX05	3	PC09/P69 (14 days)			No	(d)	Yes
	03	PC	530202	B31	FY05	3	PC09/P69 (28 days)			No	(d)	Yes
	03	PC	530202	B31	FZ05	3	PC09/P69 (1 year)			No	(d)	Yes
	03	PC	530211	B32	GX11	3	PC01/P61 (14 days)			No	(d)	Yes
	03	PC	530211	B32	GX12	3	PC02/P62 (14 days)			No	(d)	Yes
	03	PC	530211	B32	GY11	3	PC01/P61 (28 days)			No	(d)	Yes
	03	PC	530211	B32	GY12	3	PC02/P62 (28 days)			No	(d)	Yes

Note 1: Layer Number to be completed by testing lab after reviewing field sampling logs.

Table 30. Tracking Table of PCC Testing in the State Laboratory (or their designee), SPS-2 Washington (continued).

Layer Number (Note 1)	Layer Description Code	Layer Type	Test Section Number	Sample Location Number	Sample Number	Lab Test Number	Steps Involved in Laboratory Handling and Testing Sequence					
							Required Laboratory Tests Per Layer			Extra Sample	Sample Storage	Sample Disposed?
							First	Second	Third			
	03	PC	530211	B32	GZ11	3	PC01/P61 (1 year)			No	(d)	Yes
	03	PC	53011	B32	GZ12	3	PC02/P62 (1 year)			No	(d)	Yes
	03	PC	530211	B32	FX06	3	PC09/P69 (14 days)			No	(d)	Yes
	03	PC	530211	B32	FY06	3	PC09/P69 (28 days)			No	(d)	Yes
	03	PC	530211	B32	FZ06	3	PC09/P69 (1 year)			No	(d)	Yes
	03	PC	530204	B33	GX13	3	PC01/P61 (14 days)			No	(d)	Yes
	03	PC	530204	B33	GX14	3	PC02/P62 (14 days)			No	(d)	Yes
	03	PC	530204	B33	GY13	3	PC01/P61 (28 days)			No	(d)	Yes
	03	PC	530204	B33	GY14	3	PC02/P62 (28 days)			No	(d)	Yes
	03	PC	530204	B33	GZ13	3	PC01/P61 (1 year)			No	(d)	Yes
	03	PC	530204	B33	GZ14	3	PC02/P62 (1 year)			No	(d)	Yes
	03	PC	530204	B33	FX07	3	PC09/P69 (14 days)			No	(d)	Yes
	03	PC	530204	B33	FY07	3	PC09/P69 (28 days)			No	(d)	Yes
	03	PC	530204	B33	FZ07	3	PC09/P69 (1 year)			No	(d)	Yes
	03	PC	530205	B34	GX15	3	PC01/P61 (14 days)			No	(d)	Yes
	03	PC	530205	B34	GX16	3	PC02/P62 (14 days)			No	(d)	Yes
	03	PC	530205	B34	GY15	3	PC01/P61 (28 days)			No	(d)	Yes
	03	PC	530205	B34	GY16	3	PC02/P62 (28 days)			No	(d)	Yes

Note 1: Layer Number to be completed by testing lab after reviewing field sampling logs.

Table 30. Tracking Table of PCC Testing in the State Laboratory (or their designee), SPS-2 Washington (continued).

Layer Number (Note 1)	Layer Description Code	Layer Type	Test Section Number	Sample Location Number	Sample Number	Lab Test Number	Steps Involved in Laboratory Handling and Testing Sequence					
							Required Laboratory Tests Per Layer			Extra Sample	Sample Storage	Sample Disposed?
							First	Second	Third			
	03	PC	530205	B34	GZ15	3	PC01/P61 (1 year)			No	(d)	Yes
	03	PC	530205	B34	GZ16	3	PC02/P62 (1 year)			No	(d)	Yes
	03	PC	530205	B34	FX08	3	PC09/P69 (14 days)			No	(d)	Yes
	03	PC	530205	B34	FY08	3	PC09/P69 (28 days)			No	(d)	Yes
	03	PC	530205	B34	FZ08	3	PC09/P69 (1 year)			No	(d)	Yes
	03	PC	530206	B35	GX17	3	PC01/P61 (14 days)			No	(d)	Yes
	03	PC	530206	B35	GX18	3	PC02/P62 (14 days)			No	(d)	Yes
	03	PC	530206	B35	GY17	3	PC01/P61 (28 days)			No	(d)	Yes
	03	PC	530206	B35	GY18	3	PC02/P62 (28 days)			No	(d)	Yes
	03	PC	530206	B35	GZ17	3	PC01/P61 (1 year)			No	(d)	Yes
	03	PC	530206	B35	GZ18	3	PC02/P62 (1 year)			No	(d)	Yes
	03	PC	530206	B35	FX09	3	PC09/P69 (14 days)			No	(d)	Yes
	03	PC	530206	B35	FY09	3	PC09/P69 (28 days)			No	(d)	Yes
	03	PC	530206	B35	FZ09	3	PC09/P69 (1 year)			No	(d)	Yes
	03	PC	530207	B36	GX19	3	PC01/P61 (14 days)			No	(d)	Yes
	03	PC	530207	B36	GX20	3	PC02/P62 (14 days)			No	(d)	Yes
	03	PC	530207	B36	GY19	3	PC01/P61 (28 days)			No	(d)	Yes
	03	PC	530207	B36	GY20	3	PC02/P62 (28 days)			No	(d)	Yes
	03	PC	530207	B36	GZ19	3	PC01/P61 (1 year)			No	(d)	Yes
	03	PC	530207	B36	GZ20	3	PC02/P62 (1 year)			No	(d)	Yes
	03	PC	530207	B36	FX10	3	PC09/P69 (15 days)			No	(d)	Yes
	03	PC	530207	B36	FY10	3	PC09/P69 (28 days)			No	(d)	Yes
	03	PC	530207	B36	FZ10	3	PC09/P69 (1 year)			No	(d)	Yes

Note 1: Layer Number to be completed by testing lab after reviewing field sampling logs.

Table 31 Tracking Table of Subgrade/Embankment Testing in the FHWA-LTPP Testing Contractor Laboratory, SPS-2 Washington.

Layer Number (Note 1)	Layer Description Code	Layer Type	Test Section Number	Sample Location Number	Sample Number	Lab Test Number	Steps Involved in Laboratory Handling and Testing Sequence									Extra Sample	Sample Storage	Sample Disposed ?			
							Required Laboratory Tests Per Layer						First	Second	Third				Fourth	Fifth	Sixth
	07	SS	530259	B1	BS01	2	SS01/P51	SS02/P42	SS03/P43	SS04/P52	SS05/P55	SS07/P46	No	(b)	Yes						
	07	SS	530202	B2	BS02	2	SS01/P51	SS02/P42	SS03/P43	SS04/P52	SS05/P55	SS07/P46	No	(b)	Yes						
	07	SS	530212	B3	BS03	2	SS01/P51	SS02/P42	SS03/P43	SS04/P52	SS05/P55	SS07/P46	No	(b)	Yes						
	07	SS	530201	B4	BS04	2	SS01/P51	SS02/P42	SS03/P43	SS04/P52	SS05/P55	SS07/P46	No	(b)	Yes						
	07	SS	530208	B5	BS05	2	SS01/P51	SS02/P42	SS03/P43	SS04/P52	SS05/P55	SS07/P46	No	(b)	Yes						
	07	SS	530259	B1	MS01	2	SS09/P49						No	(b)	Yes						
	07	SS	530202	B2	MS02	2	SS09/P49						No	(b)	Yes						
	07	SS	530212	B3	MS03	2	SS09/P49						No	(b)	Yes						
	07	SS	530201	B4	MS04	2	SS09/P49						No	(b)	Yes						
	07	SS	530208	B5	MS05	2	SS09/P49						No	(b)	Yes						
	07	SS	530202	A2	TS03	3	SS04/P52	SS07/P46					No	(c)	Yes						
	07	SS	530211	A5	TS09	3	SS04/P52	SS07/P46					No	(c)	Yes						
	07	SS	530212	A8	TS15	3	SS04/P52	SS07/P46					No	(c)	Yes						
	07	SS	530201	A11	TS21	3	SS04/P52	SS07/P46					No	(c)	Yes						
	07	SS	530208	A14	TS27	3	SS04/P52	SS07/P46					No	(c)	Yes						
	07	SS	530207	A17	TS33	3	SS04/P52	SS07/P46					No	(c)	Yes						

Note 1 Layer Number to be completed by testing lab after reviewing field sampling logs

Table 31. Tracking Table of Subgrade/Embankment Testing in the FHWA-LTPP Testing Contractor Laboratory, SPS-2 Washington (continued)

Layer Number (Note 1)	Layer Description Code	Layer Type	Test Section Number	Sample Location Number	Sample Number	Lab Test Number	Steps Involved in Laboratory Handling and Testing Sequence								
							Required Laboratory Tests Per Layer						Extra Sample	Sample Storage	Sample Disposed ?
							First	Second	Third	Fourth	Fifth	Sixth			
	07	SS	530202	A2	TS04	3							Yes	(c)	No
	07	SS	530211	A5	TS10	3							Yes	(c)	No
	07	SS	530212	A8	TS16	3							Yes	(c)	No
	07	SS	530201	A11	TS22	3							Yes	(c)	No
	07	SS	530208	A14	TS28	3							Yes	(c)	No
	07	SS	530207	A17	TS34	3							Yes	(c)	No
	06	GS	530259	B6	BG01	2	SS01/P51	SS02/P42	SS03/P43	SS04/P52	SS05/P55	SS07/P46	No	(b)	Yes
	06	GS	530202	B7	BG02	2	SS01/P51	SS02/P42	SS03/P43	SS04/P52	SS05/P55	SS07/P46	No	(b)	Yes
	06	GS	530211	B8	BG03	2	SS01/P51	SS02/P42	SS03/P43	SS04/P52	SS05/P55	SS07/P46	No	(b)	Yes
	06	GS	530212	B9	BG04	2	SS01/P51	SS02/P42	SS03/P43	SS04/P52	SS05/P55	SS07/P46	No	(b)	Yes
	06	GS	530201	B10	BG05	2	SS01/P51	SS02/P42	SS03/P43	SS04/P52	SS05/P55	SS07/P46	No	(b)	Yes
	06	GS	530208	B11	BG06	2	SS01/P51	SS02/P42	SS03/P43	SS04/P52	SS05/P55	SS07/P46	No	(b)	Yes
	06	GS	530207	B12	BG07	2	SS01/P51	SS02/P42	SS03/P43	SS04/P52	SS05/P55	SS07/P46	No	(b)	Yes
	06	GS	530259	B6	MG01	2	SS09/P49						No	(b)	Yes
	06	GS	530202	B7	MG02	2	SS09/P49						No	(b)	Yes
	06	GS	530211	B8	MG03	2	SS09/P49						No	(b)	Yes
	06	GS	530212	B9	MG04	2	SS09/P49						No	(b)	Yes
	06	GS	530201	B10	MG05	2	SS09/P49						No	(b)	Yes
	06	GS	530208	B11	MG06	2	SS09/P49						No	(b)	Yes
	06	GS	530207	B12	MG07	2	SS09/P49						No	(b)	Yes

Note 1. Layer Number to be completed by testing lab after reviewing field sampling logs

Table 32 Tracking Table of DGAB Testing in the FHWA-LTPP Testing Contractor Laboratory, SPS-2 Washington

Layer Number (Note 1)	Layer Description Code	Layer Type	Test Section Number	Sample Location Number	Sample Number	Lab Test Number	Steps Involved in Laboratory Handling and Testing Sequence								
							Required Laboratory Tests Per Layer						Extra Sample	Sample Storage	Sample Disposed ?
							First	Second	Third	Fourth	Fifth	Sixth			
	05	GB	530259	B13	BG11	2	UG01/P41	UG02/P41	UG04/P43	UG08/P47	UG05/P44	UG07/P46	No	(b)	Yes
	05	GB	530202	B14	BG12	2	UG01/P41	UG02/P41	UG04/P43	UG08/P47	UG05/P44	UG07/P46	No	(b)	Yes
	05	GB	530211	B15	BG13	2	UG01/P41	UG02/P41	UG04/P43	UG08/P47	UG05/P44	UG07/P46	No	(b)	Yes
	05	GB	530212	B16	BG14	2	UG01/P41	UG02/P41	UG04/P43	UG08/P47	UG05/P44	UG07/P46	No	(b)	Yes
	05	GB	530201	B17	BG15	2	UG01/P41	UG02/P41	UG04/P43	UG08/P47	UG05/P44	UG07/P46	No	(b)	Yes
	05	GB	530259	B13	MG11	2	UG10/P49						No	(b)	Yes
	05	GB	530202	B14	MG12	2	UG10/P49						No	(b)	Yes
	05	GB	530211	B15	MG13	2	UG10/P49						No	(b)	Yes
	05	GB	530212	B16	MG14	2	UG10/P49						No	(b)	Yes
	05	GB	530201	B17	MG15	2	UG10/P49						No	(b)	Yes

Note 1 Layer Number to be completed by testing lab after reviewing field sampling logs

Table 33. Tracking Table of Asphalt Treated Base in the FHWA-LTPP Testing Contractor Laboratory, SPS-2 Washington.

Layer Number (Note 1)	Layer Description Code	Layer Type	Test Section Number	Sample Location Number	Sample Number	Lab Test Number	Steps Involved in Laboratory Handling and Testing Sequence						
							Required Laboratory Tests Per Layer				Extra Sample	Sample Storage	Sample Disposed?
							First	Second	Third	Fourth			
	05	TB	530259	C1	CT01	1	AC01/P01	AC02/P02	AC07/P07	AC07/P07(ITS)	No	(a)	Yes
	05	TB	530259	C2	CT02	1	AC01/P01	AC02/P02	AC07/P07	AC07/P07(ITS)	No	(a)	Yes
	05	TB	530259	C3	CT03	1	AC01/P01	AC02/P02	AC07/P07	AC07/P07(ITS)	No	(a)	Yes
	05	TB	530259	C4	CT04	1	AC01/P01	AC02/P02	AC07/P07(ITS)		No	(a)	Yes
	05	TB	530259	C31	CT31	1	AC01/P01	AC02/P02	AC07/P07	AC07/P07(ITS)	No	(a)	Yes
	05	TB	530259	C32	CT32	1	AC01/P01	AC02/P02	AC07/P07	AC07/P07(ITS)	No	(a)	Yes
	05	TB	530259	C33	CT33	1	AC01/P01	AC02/P02	AC07/P07	AC07/P07(ITS)	No	(a)	Yes
	05	TB	530259	C34	CT34	1	AC01/P01	AC02/P02	AC07/P07(ITS)		No	(a)	Yes

Note 1: Layer Number to be completed by testing lab after reviewing field sampling logs.

Data Forms

Data forms and instructions for all field sampling and measurements described in this document are contained in "**Specific Pavement Studies, Materials Sampling and Testing Requirements for Experiment SPS-2, Strategic Study of Structural Factors for Rigid Pavements**". Copies of blank data forms are included in Attachment A. These data forms must be completed at the time of the work. Completed forms shall be submitted to the designated LTPP representative.

Sampling and Testing Quantities

The estimated quantities for materials sampling, field testing, and laboratory testing for the SPS-2 project are contained in Table 34. It should be noted that the SHRP sampling and test procedures referenced in these tables and in other portions of this document must be followed in conducting this work. This includes completion and submission of all required data forms.

Table 34. Estimated quantities of laboratory materials testing, SPS-2 Washington.

	LTPP TEST <u>Designation</u>	SHRP <u>Protocol</u>	<u>No.</u>
SUBGRADE/EMBANKMENT			
Sieve Analysis	SS01	Ship to FHWA Lab	12
Hydrometer to 0.01 mm	SS02	Ship to FHWA Lab	12
Atterberg Limits	SS03	Ship to FHWA Lab	12
Classification and Type of Subgrade	SS04	Ship to FHWA Lab	18
Classification and Type of Subgrade	SS04	P52	12
Moisture-Density Relations	SS05	Ship to FHWA Lab	12
Resilient Modulus	SS07	Ship to FHWA Lab	13
Unit Weight	SS08	P56	6
Natural Moisture Content	SS09	Ship to FHWA Lab	12
Unconfined Compressive Strength	SS10	P56	6
Permeability	SS11 or UG09	P57 or P48	6
In-Place Density		SHRP-LTPP Method	92
Depth to Rigid Layer		SHRP-LTPP Method	13
DENSE GRADED AGGREGATE BASE			
Particle Size Analysis	UG01	Ship to FHWA Lab	5
Sieve Analysis (Washed)	UG02	Ship to FHWA Lab	5
Atterberg Limits	UG04	Ship to FHWA Lab	5
Moisture-Density Relations	UG05	Ship to FHWA Lab	5
Resilient Modulus	UG07	Ship to FHWA Lab	5
Classification	UG08	Ship to FHWA Lab	5
Permeability	UG09	P48	5
Natural Moisture Content	UG10	Ship to FHWA Lab	5
In-Place Density		SHRP-LTPP Method	32
PERMEABLE ASPHALT TREATED BASE			
Asphalt Content (Extraction)	AC04	P04	4
Gradation of Extracted Aggregate	AG04	P14	4
ASPHALT TREATED BASE			
Core Examination/Thickness	AC01	Ship to FHWA Lab	8
Bulk Specific Gravity	AC02	Ship to FHWA Lab	8
Maximum Specific Gravity	AC03	P03	1
Asphalt Content (Extraction)	AC04	P04	1
Moisture Susceptibility	AC05	P05	1
Resilient Modulus	AC07	Ship to FHWA Lab	6
Indirect Tensile Strength	AC07	Ship to FHWA Lab	8
In-Place Density		SHRP-LTPP Method	5

Table 34. Estimated quantities of laboratory materials testing, SPS-2 Washington (continued).

	<u>LTPP TEST</u> <u>Designation</u>	<u>LTPP</u> <u>Protocol</u>	<u>No.</u>
Extracted Aggregate			
Specific Gravity of Coarse Aggregate	AG01	P11	1
Specific Gravity of Fine Aggregate	AG02	P12	1
Aggregate Gradation	AG04	P14	1
NAA Test for Fine Aggregate Particle Shape . . .	AG05	P14A	1
Asphalt Cement			
Abson Recovery	AE01	P21	1
Penetration @ 50F, 77F, 90F	AE02	P22	2
Specific Gravity (60F)	AE03	P23	2
Viscosity @ 77F	AE04	P24	2
Viscosity @ 140F, 275F	AE05	P25	2
LEAN CONCRETE BASE - AS DELIVERED			
Compressive Strength	PC01	P61	
7 day			8
28 day			8
1 year			8
Air Content	ASTM	C231	4
Slump	ASTM	C143	4
Temperature	ASTM	C1064	4
LEAN CONCRETE BASE - AS PLACED			
Compressive Strength	PC01	P61	
14 day			8
28 day			8
1 year			8
Core Examination and Thickness	PC06	P66	24

Table 34. Estimated quantities of laboratory materials testing, SPS-2 Washington (continued).

	<u>LTPP TEST</u> <u>Designation</u>	<u>SHRP</u> <u>Protocol</u>	<u>No.</u>
PORTLAND CEMENT CONCRETE - AS DELIVERED			
Compressive Strength	PC01	P61	
14 day			9
28 day			9
1 year			9
Splitting Tensile Strength	PC02	P62	
14 day			9
28 day			9
1 year			9
Flexural Strength	PC09	P69	
14 day			9
28 day			9
1 year			9
Air Content	ASTM	C231	9
Slump	ASTM	C143	9
Temperature	ASTM	C1064	9
PORTLAND CEMENT CONCRETE - AS PLACED			
Compressive Strength	PC01	P61	
14 day			15
28 day			15
1 year			15
Splitting Tensile Strength	PC02	P62	
14 day			15
28 day			15
1 year			15
PCC Unit Weight	PC05	P65	15
Static Modulus of Elasticity	PC04	P64	
28 day			15
1 year			15
Core Examination and Thickness	PC06	P66	158
Air Content @ 28 days	PC08	P68	3
PCC Coefficient of Thermal Expansion	PC03	Ship to FHWA	3

APPENDIX A

APPENDIX D
FIELD MATERIAL SAMPLING AND TESTING DATA FORMS

APPENDIX D - FIELD MATERIALS SAMPLING AND TESTING DATA FORMS

In general, the field materials sampling and testing should be performed following the guidelines provided in this document and the latest version of Operational Guide No. SHRP-LTPP-OG-006, "SHRP-LTPP Guide for Field Materials Sampling, Testing, and Handling." However, field data forms have been revised and data sheets have been included to report data for bulk sampling of subgrade, granular material, and asphalt and portland cement concrete materials performed during construction. These changes and/or additions have been made to accommodate the specific needs of the experiment.

It should be noted that all of the measurements in this document are presented in metric form. For the time being however, data will continue to be entered in the database in U.S. Customary Units. In the future, data will be collected and stored in metric form.

REVISED FIELD DATA FORMS

Due to differences between the sampling requirements for GPS and SPS projects, the field materials sampling and testing data forms used in the GPS program were modified. The primary change common to each form relates to test section number.

Test Section Number. The six digit test section identification numbers on the data forms have been subdivided into three, two digit fields representing the state code, SPS project code, and test section number.

Sample Location Reference System. All material sampling and field testing data forms which reference the location of a sample or test use a station and offset. The sampling numbers are developed as part of the materials sampling plan for the test site and should run in sequential order in the direction of traffic.

The station to be specified on these data forms is referenced from either the beginning or end of the test sections adjacent to the sampling area. For expediency in the field, the station number designated on the form is relative to the test section number designated on the data form. Thus, if the sampling area occurs after the referenced test section, the station number should be greater than 5+00. If the sampling area occurs in front of the designated test section, the station number should be negative. The offset distance is measured from the interface of the outside edge of the test section lane and the outside shoulder to the core location (measured from the outside edge of the pavement edge stripe).

LTPP-SPS MATERIAL SAMPLING AND FIELD TESTING DATA SHEETS

Material sampling and field testing data sheets used in the SPS experiments include Sampling Data Sheets and Field Operations Information Forms. The SPS-2 experiment requires completion of the following sheets and forms:

Sampling Data Sheet No.	Description
2	Pavement Core Log at C-Type Core Locations
4-1	A-Type Bore Hole Log
8-1	In-Situ Density and Moisture Tests
9	Shoulder Probe Log
10-1	Sampling Uncompacted Bituminous Paving Mixtures
11-1	Sampling Fresh Portland Cement Concrete
12	Bulk Sampling of Subgrade and Unbound Granular Materials
13	Plate Bearing Test Results

Field Operations Information Form No.	Description
1	Laboratory Shipment Samples Inventory
2-2	Summary of Material Samples Sent to Each Laboratory
3-1	Laboratory Shipment Samples Inventory - Molded Concrete

Most of the LTPP-SPS Material Sampling and Field Testing data sheets (Sampling Data Sheets and Field Operations Information Forms) use the same top block of information related to the test section and project.

SHEET NUMBER. Since multiple data sheets will be required for the samples and tests from the multiple sampling areas on the project, room is provided on all data forms to

sequentially order the data sheets. The first field is the sequential number of the data sheet and the second field is the total number of data sheets submitted.

LTPP REGION. Indicate the LTPP region in which the state or province is located: North Atlantic, North Central, Southern, or Western.

STATE. Indicate the name of the state, District of Columbia, Puerto Rico, or the Canadian Province the project is located.

STATE CODE. Enter the two-digit numeric code corresponding to the state or province as shown in Table C.1 of the SHRP-LTPP Guide for Field Materials Sampling, Testing and Handling.

SPS PROJECT CODE. The two digit SPS project code. The first digit (from the left) of this code should either be a 0 (zero), for the first project constructed in a state and province, or a letter starting with A, B, etc. for the second, third, etc. projects of the same SPS experiment constructed in the same state and province. The second digit corresponds to the SPS experiment number i.e. 2 for SPS-2 experiment.

TEST SECTION NO. The two digit number assigned to the test section. If a GPS project is co-located on the SPS project and the GPS data sheets are used for the material sampling and field testing, the four digit SHRP SECTION ID should be divided into two-two digit fields and the first two digits (from the left) should be entered as the SPS PROJECT CODE and the last two digits entered as the TEST SECTION NO. Enter the test section number marked on the project in the field.

SPS EXPERIMENT NO. The SPS experiment number for the project i.e. "SPS-2" for projects in the SPS-2 experiment, "Strategic Study of Structural Factors for Rigid Pavements."

ROUTE/HIGHWAY. Record the signed designation for the route or highway where the project is located.

Lane. Drilling and sampling shall always occur on the outside lane for the SPS program. Record a "1" for sampling occurring on the outside lane and a "2" for sampling on the inside lane.

Direction. Record the direction of travel at the project site. Use the following abbreviations:

- E for eastbound traffic direction
- W for westbound traffic direction
- N for northbound traffic direction
- S for southbound traffic direction

SAMPLE/TEST LOCATION. Check "Before Section" if the sampling location is before the beginning of the test section indicated under TEST SECTION NUMBER on the form (station 0-). Check "After Section" if the sampling location is after the end of the test section indicated on the form (station 5+). Check "Within Section" if the sampling is performed within the boundaries of the monitoring length.

FIELD SET NO. The field set number is a sequentially assigned number to indicate the different time periods in which material samples and field testing were conducted on the project. These time periods usually refer to different stages in the pavement construction or life, such as prior to overlay construction, after overlay construction, etc. A field set number can apply to more than one day since sampling of SPS test sections may require more than one day. As a general rule, the same field set number should be applied to all material samples and field tests conducted in a continuous 30 day period, unless a construction event occurs between the two sampling sessions. Enter 1 for the first time that material sampling and field testing conducted on the prepared subgrade and base during construction on the project. Enter 2, 3, etc. for the second, third and subsequent sampling and field testing on this project.

SAMPLING DATA SHEET 2. PAVEMENT CORE LOG AT C-TYPE CORE LOC.

This form is similar to Form S01A used for GPS test sections and is used to log data from the 102 mm (4-inch) diameter pavement cores extracted from C-Type core locations. Each sheet can be used to record data for cores taken from six different core hole locations in one sampling area. A separate sheet should be used to record core data from each sampling area. Space is provided in each column to record data for up to 4 layers from one core hole. The pavement surface layer core should be recorded first, followed by other layers in the column. The first column from the left should always start with the lowest numbered core hole in the sampling area.

OPERATOR. Record the coring equipment operator's name.

EQUIPMENT USED. Indicate the generic type of the coring equipment used.

CORING DATE. Record the month, date, and year the core was taken.

CORE BARREL SIZE. Record the rated inside diameter of the core barrel to the nearest tenth of an inch.

COOLING MEDIUM. Record the material used for cooling during the coring operation.

CORE HOLE NO. Enter the core hole sample code number following the sample coding system as specified in the materials sampling plan developed for the project.

LOCATION: STATION. This is the station number of the core, relative to the test section specified under TEST SECTION NO. on the form. This number should be greater than 5+00 for sampling locations that occur after the test section specified, and less than 0+00 for sampling locations which occur before the test section specified.

LOCATION: OFFSET. This is the distance from the interface of the pavement lane and the outside shoulder to the core location (generally measured from the outside edge of the white pavement edge stripe). This distance should be indicated to the nearest tenth of a foot.

CORE RECOVERED. Circle the appropriate response to indicate if an intact and suitable core was recovered from the indicated core hole.

REPLACEMENT CORE HOLE NO. Record the sample number of the core that will replace a core which was deemed unacceptable during field sampling operations. This entry should only be used when a "No" was recorded in the "Core Recovered" data entry space of this form.

CORE SAMPLE NO. Record the core sample number for the recovered core. Separate sample numbers should be assigned to PCC and bound base layers from the same core hole, even if the bound base adheres to the PCC surface layer.

DEPTH. Depth should be measured from the pavement surface to the bottom of the material interface in the core and expressed to the nearest tenth of an inch.

MATERIAL DESCRIPTION. Enter the appropriate material description based on the generic material type. These material descriptions are contained in Table C.2, Appendix C, of the SHRP-LTPP Guide for Field Materials Sampling, Handling and Testing.

MATERIAL CODE. Enter the appropriate material code number from Table C.2 in the SHRP-LTPP Guide for Field Materials Sampling, Handling and Testing corresponding to the described type of material.

SAMPLING DATA SHEET 4-1. A-TYPE BORE HOLE LOG

This form is similar to Form S02A used for GPS test sections and is designed to record logs of A-Type Shelby tube and splitspoon sampling. The following data is recorded on this form. -

OPERATOR. Record the boring equipment operator's name.

EQUIPMENT USED. Indicate the generic type of the drilling equipment used.

BORING DATE. Record the month, date, and year the operation was performed.

LOCATION: STATION. This is the station number of the bore, relative to the test section specified under TEST SECTION NO. on the form. This number should be greater than 5+00 for sampling locations that occur after the test section specified, and less than 0+00 for sampling locations which occur before the test section specified.

LOCATION: OFFSET. This is the distance from the interface of the pavement lane and the outside shoulder to the bore location (generally measured from the outside edge of the white pavement edge stripe). This distance should be indicated to the nearest tenth of a foot.

BORE HOLE NO. Enter the core hole sample code number following the sample coding system specified in the material sampling plan developed for the project.

BORE HOLE SIZE. Record the borehole size (diameter) in inches to the nearest inch.

STRATA CHANGE. Record the depth of strata changes to the nearest tenth of an inch. The depth of strata changes should always be measured from the top of the pavement surface. Draw a horizontal line across the form which indicates the depth of each strata change.

Also, record the depth of sampling for each sample taken. For example, if a thin-walled tube sample was obtained at a depth from 18 inches to 36 inches, a line should be drawn at the 18 inch mark and the 36 inch mark along with the appropriate sample code number, material description, etc. See example data sheets in the SHRP-LTPP Guide for Field Materials Sampling, Testing and Handling for further clarification.

SAMPLE NUMBER. Record the sample number for splitspoon or thin-walled tube samples obtained from the subgrade.

BLOWS. The next four columns (*# Blows, Refusal?, DLR (Driving Length to refusal, IOP (Inches of Penetration))*) shall be used only if a splitspoon sample recovery was attempted. Standard practice for recording the blow count for splitspoon samples requires the following format: A - B - C, where:

- A = number of blows for first 6 inches of penetration by the splitspoon sampler. This is considered a seating drive.
- B = number of blows for second 6 inches of penetration by the splitspoon sampler.
- C = number of blows for third 6 inches of penetration by the splitspoon sampler.

Record the blow count from the first 6 inches of seating penetration by the splitspoon sampler in the left most column under number of blows. ("A" from above example of blow count record). Record the blow count from the second 6 inches of penetration by the splitspoon sampler in the middle column under number of blows ("B" from above example of blow count record). Record the blow count from the third 6 inches of penetration by the splitspoon sampler in the right most column under number of blows. ("C" from above example of blow count record).

Refusal of the splitspoon sampler is defined as having advanced less than one inch with 100 blows (or no observed advance of the sampler during the application of 10 blows) or the test is aborted at the discretion of the LTPP Representative to avoid damage to the splitspoon sampler.

If the splitspoon sampler is "refused" in the first 6 inches indicate the blow count to refusal in the left most column, place a "Y" in the *Refusal?* column and indicate in the *DLR* (Driving Length to Refusal) column, the distance, measured to the nearest tenth of an inch, from the top of the pavement surface to refusal. Also, record the penetration depth of the splitspoon sampler in the *IOP* column (distance penetrated in "A").

If the splitspoon is refused during the second 6 inches of penetration, indicate the blow count to refusal in the middle column, place a "Y" in the *Refusal?* column and indicate in the *DLR* column the distance, measured to the nearest tenth of an inch, from the top of the pavement surface to refusal. Also, record the penetration depth of the splitspoon sampler in the *IOP* column (distance penetrated in "A" + "B").

If the total blow count ("A" + "B") reaches 100 before penetrating deeper than 12 inches, the splitspoon sampling procedure should be stopped and the blow count for the second 6 inch increment should be recorded in the middle column and the total depth of penetration recorded under the *IOP* column (the depth of penetration shall be measured from the beginning of penetration of the splitspoon sampler.)

In the case of refusal during the third 6 inch increment, the same instructions outlined previously for the left and middle columns will be followed. The penetration depth of the splitspoon sampler will be recorded in the *IOP* column (distance penetrated in "B" + "C").

If the second and third 6 inch increment blow count ("B" + "C" only) reaches 100 before prior to penetrating 18 inches, the splitspoon sampling procedure should be stopped and the blow count for the third 6 inch increment recorded in under number of blows. The total depth of penetration ("B" + "C" only) should be recorded under the *IOP* column (measured from the beginning of penetration of the splitspoon sampler minus the 6 inch seating drive).

(REF)USAL. Record a "Y" if splitspoon sampler is refused (see explanation under # *Blows* above). Record a "N" if the full 18 inch sample is recovered and the splitspoon is not refused. This column is only used if a splitspoon sampler is utilized.

Refusal is defined as occurring when the splitspoon sampler advances less than one inch in 100 blows (or no observed advance of the sampler during the application of 10 blows) or when the test is aborted at the discretion of the LTPP Representative to avoid damage to the splitspoon sampler.

DLR. Driving Length to Refusal - Record the penetration of the splitspoon sampler to refusal to the nearest tenth of an inch. This value is measured from the top of the pavement surface. This column is only used if a splitspoon sampler is utilized and refused. In the case of refusal, an entry is made in the *DLR* and *IOP* columns.

IOP. Inches of Penetration - Record the distance of penetration of the splitspoon sampler after 100 blows is reached in the first 6 inches ("A"), the first and second 6 inches of penetration ("A" and "B") or the second and third 6 inches of penetration ("B" and "C") (See explanation under # Blows above). This column is only used if a splitspoon sampler is utilized.

MATERIAL DESCRIPTION. Enter the appropriate material description for each strata based on the generic material type. These material descriptions are contained in Table C.2, Appendix C, of the SHRP-LTPP Guide for Field Materials Sampling, Testing and Handling.

MATERIAL CODE. Enter the appropriate material code number for each strata from Table C.2 in the SHRP-LTPP Guide for Field Materials Sampling, Testing and Handling corresponding to the described type of material.

SAMPLING DATA SHEET 8-1. IN SITU DENSITY AND MOISTURE TESTS

This sheet is similar to Form S04 used for GPS test sections and is designed to record data from the in situ density and moisture tests performed on all unbound layers and density tests performed on bound layers with a nuclear moisture and density gauge. The following data is recorded on this form.

OPERATOR. Record nuclear density gauge operator's name.

NUCLEAR DENSITY GAUGE I.D.. Record the identification number of the nuclear density gauge.

TEST DATE. Record the month, date, and year the test was performed.

LOCATION: STATION. This is the station number of the sampling area, relative to the test section specified under TEST SECTION NO. on the form. This number should be greater than 5+00 for sampling locations that occur after the test section specified, and less than 0+00 for sampling locations which occur before the test section specified.

LOCATION: OFFSET. This is the distance from the edge of the pavement lane and the outside shoulder to the location the test was performed (generally measured from the edge of the white pavement edge stripe). This distance should be indicated to the nearest tenth of a foot.

SAMPLING LOCATION NUMBER. Enter the sampling location number shown in the material sampling plan developed for the project.

DATE OF LAST MAJOR CALIBRATION. Record the date of the last major calibration of the nuclear density gauge. All dates should be recorded as mm-dd-yy. A major calibration is defined as that calibration/verification performed as directed in Section 4 of the SHRP-LTPP Guide for Field Materials Sampling, Handling and Testing. Daily calibrations performed in the field do not constitute a major calibration.

DEPTH FROM SURFACE TO THE TOP OF THE LAYER. This information is obtained from Sampling Data Sheet 5 for each unbound granular layer. Record to the nearest tenth of an inch and measure from the top of the pavement surface for each test performed.

LAYER NUMBER. Write in the project specified layer number for the layer being tested.

MATERIAL TYPE. Report a "G" if the material is unbound (granular); record "T" if the material is other than unbound (treated). In practice, all entries should be a "G" since nuclear density testing is not required on bound materials.

IN SITU DENSITY. For each unbound layer, record four nuclear density gauge results. These measurements should be taken at the top of each unbound layer using the direct transmission test method if possible. Record to one decimal place in pounds per cubic foot (pcf).

AVERAGE. Calculate and record the average in situ densities for each unbound layer. Record to one decimal place.

METHOD (A,B,or C). Record the test method used to perform the in situ density test as per AASHTO T238-86, "A" - Backscatter, "B" - Direct Transmission, or "C" - Air Gap. The direct transmission method ("B") should almost always be used. However, there may be some extenuating circumstances necessitating the use of methods "A" or "C".

ROD DEPTH. Record the depth of the nuclear density gauge probe to the nearest tenth of an inch.

IN SITU MOISTURE CONTENT. For each unbound layer, record four in situ moisture content test results. These tests should be conducted at the top of each layer. Record as a percentage moisture content to one decimal place. The backscatter method should always be used for this measurement.

AVERAGE. Calculate and record the average of the four in situ moisture content test results for each unbound layer. Record to one decimal place.

SAMPLING DATA SHEET 9. SHOULDER PROBE LOG

This data sheet is similar to Form S05 used for the GPS test sections and is used to record the results of the shoulder auger probe to determine the depth to a rigid layer.

OPERATOR. Record the auger equipment operator's name.

EQUIPMENT USED. Indicate the generic type of the auguring equipment used.

AUGURING DATE. Record the month, date, and year the operation was performed.

LOCATION: STATION. This is the station number of the bore, relative to the test section specified under TEST SECTION NO. on the form. This number should be greater than 5+00 for probes located after the test section, less than 0+00 for probes located before the test section, and between 0+00 and 5+00 for probe locations within the monitoring length.

LOCATION: OFFSET. This is the distance from the edge of the pavement lane and the outside shoulder to the auger location (generally measured from the outside edge of the white pavement edge stripe. For shoulder probes, this distance will be measured toward the outside edge of the shoulder. This distance should be indicated to the nearest tenth of a foot.

AUGER PROBE NUMBER. Record the auger probe number; an S1 for the first auger and increasing numbers for subsequent auger probes.

TOP OF ROCK BASED ON. Enter "Auger Refusal" if auger is refused. If the top of rock is based on some other observation, indicate the type of observation.

DEPTH FROM SURFACE. Record the depths of strata changes to the nearest tenth of a foot.

MATERIAL DESCRIPTION. Enter the appropriate material description for each strata based on the generic material type. These material descriptions are contained in Table C.2, Appendix C, of the SHRP-LTPP Guide for Field Materials Sampling, Handling and Testing.

MATERIAL CODE. Enter the appropriate material code number for each strata from Table C.2 in the SHRP-LTPP Guide for Field Materials Sampling, Handling and Testing corresponding to described type of material.

REFUSAL WITHIN 20 FEET (Y/N). Record a "yes" or a "no" as appropriate to indicate if a rigid layer was encountered within 20 feet from the pavement surface.

DEPTH TO REFUSAL. Record the depth to refusal to the nearest tenth of a foot if the auger refused.

SAMPLING DATA SHEET 10-1. SAMPLING UNCOMPACTED BITUMINOUS PAVING MIXTURES

This data sheet is used to record information concerning sampling of uncompacted bituminous paving mixtures (asphalt concrete and asphalt-treated materials) for LTPP material testing purposes. Sampling shall be performed according to AASHTO T-168, except that a 100-lb sample should be used.

PERSON PERFORMING SAMPLING. Record the name, title and affiliation of the person performing the sampling.

PLANT NAME. Record the common name or operator of the mix plant facility which produced the sampled material.

PLANT LOCATION. Record the location of the mix plant, including street address, town, and state.

PLANT TYPE. Indicate the general type of mix plant used to produce the mix. If a plant other than a batch or drum plant was used, indicate other and provide a description of the plant on the next line.

DESCRIPTION OF MIX PLANT. Provide a brief description of the type of mix plant noting any special features of traditional types of batch or drum plants, or a description of other mix plant types.

MANUFACTURER OF MIX PLANT. Enter the name of the mix plant manufacturer.

MODEL NUMBER. Enter the model number or model designation of the mix plant.

BATCH SIZE. Record the size of the batch the sample from which the sample was obtained.

SAMPLING LOCATION. Enter the code number shown on the data form corresponding to the location from which the sample was taken. If the sample was taken from the roadway prior to-compaction, indicate the station and offset of the sample and the respective test section number.

MIX TYPE. Enter the code number corresponding to the generic type of material (virgin asphalt concrete, recycled asphalt concrete, asphalt dense graded or permeable asphalt treated). For LTPP test sections, recycled asphalt concrete should not be used.

LAYER NUMBER. Enter the layer number for which the plant-sampled materials will be used (permeable asphalt treated).

LAYER TYPE. Enter the code number, as shown on the form, which corresponds to the type of layer in which the material is used.

SAMPLE TYPE DESIGNATOR. Enter the sample type designation for the sample. This is a 4 digit code which signifies the generic type of material, virgin or recycled, and a sequential number for each sample of each material type obtained. For materials incorporating all virgin materials, the sample type designation shall begin with the letters BV (Bulk Virgin). For materials incorporating recycled materials, the designator shall begin with BR (Bulk Recycled). These letter designations are followed with a two digit number sequentially assigned to each sample, for each type of material.

SAMPLE NUMBER. This is a 4 digit code starting with the letters BA (Bulk Asphalt Concrete) or BT (Bulk Asphalt Treated material) and followed with a sequentially assigned two digit number, which uniquely designates each bulk asphalt concrete sample.

APPROXIMATE SAMPLE SIZE. Enter the approximate weight of the sample obtained, to the nearest pound.

DATE SAMPLED. Enter the date the material sample was obtained.

LOCATION SAMPLE SHIPPED TO. Record the location the sample was shipped to from the field. In many cases this should be the laboratory which will perform the testing.

DATE SHIPPED. Enter the date the material was shipped to the location indicated on the form.

GENERAL REMARKS. Provide any general remarks concerning the obtained sample (is it representative), comments concerning the quality or uniformity of the mix, or any other pertinent miscellaneous comments.

SAMPLING DATA SHEET 11-1. SAMPLING FRESH PORTLAND CEMENT CONCRETE

This data sheet is used to record information concerning sampling of fresh portland cement concrete for LTPP material testing purposes. Sampling shall be performed according to AASHTO T-141, "Sampling Fresh Concrete".

PERSON PERFORMING SAMPLING. Record the name, title and employer of the person performing the sampling.

SAMPLING LOCATION. Enter the code number from the sampling and testing plan corresponding to the location from which the sample was taken.

SAMPLE NUMBER. This is a 4 digit code starting with the letters BC (bulk PCC) or BL (bulk lean concrete) and followed with a sequentially assigned two digit number, which uniquely designates each bulk portland cement concrete sample.

PCC MIX TEMPERATURE WHEN SAMPLED. Enter the PCC mix temperature in degrees Fahrenheit at the time the sample was obtained.

AMBIENT TEMPERATURE WHEN SAMPLED. Enter the ambient temperature in degrees Fahrenheit at the time the sample was obtained.

SPECIMEN NUMBER. This is a 4 digit code starting with the letters "F" (formed beams), "G" (formed cylinders of PCC), or "L" (formed cylinders of lean concrete) followed by a designator for curing interval prior to testing, "X", "Y", or "Z" for 14 day, 28 day and 365 day curing, respectively. This two letter combination is followed by a sequentially assigned two digit number, which uniquely designates each concrete beam or cylinder specimen.

TIME. Enter the time of day the corresponding specimen was formed.

TEMPERATURE. Enter the temperature of the PCC mix when the specimen was formed.

SLUMP. Enter the slump test results of the material sampled, if tested.

AIR CONTENT. Enter the air content of the material sampled, if tested.

DATE SHIPPED. Enter the date the material was shipped to the laboratory indicated on the form.

GENERAL REMARKS. Provide any general remarks concerning the obtained sample (is it representative), comments concerning the quality or uniformity of the mix, or any other pertinent miscellaneous comments.

SAMPLING DATA SHEET 12. BULK SAMPLING OF SUBGRADE AND UNBOUND GRANULAR MATERIALS

This form is similar to Form S03 used for GPS test sections and is designed to record data from the field sampling of materials from shallow excavations made in prepared subgrade and uncompacted graded layers during construction. The following data is recorded on this form:

TECHNICIAN. Record the name of the technician who retrieved the samples and recorded the information on the data form.

EQUIPMENT USED. Indicate the generic type of the equipment used to excavate the material.

EXPLORATION DATE. Record the month, date, and year the operation was performed.

LOCATION: STATION. This is the station number of the sampling area, relative to the test section specified under TEST SECTION NO. on the form. This number should be greater than 5+00 for sampling locations that occur after the test section specified, and less than 0+00 for sampling locations which occur before the test section specified.

LOCATION: OFFSET. This is the distance from the edge of the pavement lane and the outside shoulder to the outside edge of the sampling area (generally measured from the outside edge of the white pavement edge stripe). This distance should be indicated to the nearest tenth of a foot.

SAMPLING LOCATION NUMBER. Enter the sampling location number shown in the material sampling plan developed for the project.

EXCAVATION SIZE. Record the length and width of the excavation to the nearest half foot.

STRATA CHANGE. Record the depth of strata changes to the nearest tenth of an inch. The depth of strata changes should always be measured from the top of the pavement surface. Draw a line across the form to indicate strata changes.

MOISTURE SAMPLE NUMBER. Record sample numbers for samples taken from unbound base, subbase and subgrade for moisture content testing.

BULK SAMPLE NUMBER. Record the sample number for bulk samples taken from the unbound pavement layers and the subgrade.

MATERIAL DESCRIPTION. Enter the appropriate material description for each strata based on the generic material type. These material descriptions are contained in Table C.2, Appendix C, of the SHRP-LTPP Guide for Field Materials Sampling, Handling and Testing.

MATERIAL CODE. Enter the appropriate material code number for each strata from Table C.2 in the SHRP-LTPP Guide for Field Materials Sampling, Handling and Testing corresponding to the described type of material.

SAMPLING DATA SHEET 13. PLATE BEARING TEST RESULTS

This form is designed to record data from the field plate bearing tests made on prepared subgrade, compacted graded layers, and compacted permeable asphalt treated layers at locations within the monitoring length of test sections during construction. The following data is recorded on this form:

TECHNICIAN. Record the name of the technician who performed the testing and recorded the information on the data form.

TEST DATE. Record the month, date, and year the operation was performed.

LOCATION: STATION. This is the station number of the test location, relative to the test section specified under TEST SECTION NO. on the form. This number should be between 0+00 and 5+00.

LOCATION: OFFSET. This is the distance from the edge of the pavement lane (at the outside shoulder) to the test location. This distance should be indicated to the nearest tenth of a foot.

SAMPLING LOCATION NUMBER. Enter the sampling location number shown in the material sampling plan developed for the project.

MATERIAL DESCRIPTION. Enter the appropriate material description for surface on which the test is performed based on the material type. These material descriptions are contained in Table 5.

MATERIAL CODE. Enter the appropriate material code number for each strata from Table C.2 in the SHRP-LTPP Guide for Field Materials Sampling, Handling and Testing corresponding to the described type of material.

LAYER NUMBER. Enter the layer number of the material on which the test was performed.

AVERAGE DEFLECTION. Enter the average total movement resulting from the incremental pressure change.

UNCORRECTED MODULUS OF SOIL REACTION. Enter the quotient of the pressure increment divided by average deflection, in pounds per square inch per inch.

CORRECTED MODULUS OF SOIL REACTION. Enter the modulus of soil reaction corrected for plate bending in accordance with protocol P56.

FIELD OPERATION INFORMATION FORM 1. LABORATORY SHIPMENT SAMPLES INVENTORY

This form is intended to provide a record of field activity and no information from this form will be included in the data base. This form is similar to Form S06 used for GPS test sections and provides the necessary information on where each sample was shipped for testing. Also, it provides a detailed inventory of material samples shipped to each materials testing laboratory. At least one form should be completed for each sampling area on the project. The inventory should be made in the following sequence of sample location numbers, starting from the pavement surface layer in each case:

1. Samples from C-Type locations, starting from cores of pavement surface layers.
2. Samples from A-Type bore holes and any additional similar bore holes.
3. Samples from shallow excavations.

Sample location numbers, sample numbers and sampling area numbers should be obtained from the appropriate Sampling Data Sheets. "Sample size" should be used to record the number of bags of bulk samples or the number of jar samples bearing a single sample number in each case. The bulk sample from one layer can be placed in more than one bag, if necessary. However, the sample number should be the same on all of these bags with an indication of the number of bags on the labels and in the column of the "Sample size." For core samples, record only diameter of the core in the "Sample size" column in inches.

Enter core, bulk, moisture, tube or splitspoon in the "Sample type" column as appropriate. Enter AC, PCC, Base, Subbase or Subgrade in the "Sample material" column as appropriate. The "Sample condition" should indicate a brief description as to the overall quality of the sample - cores: good, poor, fractured; bulk samples: satisfactory, wet, insufficient quantity, contaminated.

Since more than one laboratory may be used to test samples in the SPS program, room is provided on this form to indicate up to three laboratories to receive samples from each sampling area. Enter the laboratory number, as noted at the bottom of the form, each sample is sent to under the LAB column.

Typically, samples will include:

- All PCC cores from C-Type locations.

- Bulk samples and jar samples of granular (untreated) layers and subgrade from B-Type locations and test pits.
- Thin-walled tube samples and splitspoon samples from the subgrade.

**FIELD OPERATION INFORMATION FORM 2-2
SUMMARY OF MATERIAL SAMPLES SENT TO EACH LABORATORY**

This form provides a summary of the information provided on Field Operations Information Form 1 by testing laboratory. It is similar to Form S06A used for GPS test sections. A separate form should be completed for each set of samples sent to each separate laboratory.

This form requires the samples to be aggregated into layers designated with a layer number. The layer number assigned to each layer (1 for subgrade, 2 for subbase, 3 for unbound base, etc.) is shown in the left hand column. A description of the pavement layer material and sample type is provided in the next column on the right, followed by the total number of samples by sample type.

**FIELD OPERATION INFORMATION FORM 3-1
LABORATORY SHIPMENT SAMPLES INVENTORY - MOLDED CONCRETE**

No information from this form will be included in the data base, it is intended to provide a record of fresh PCC sampling and molded PCC test specimens. It is used to provide a detailed inventory of material samples shipped to the materials testing laboratory. One form should be completed for all fresh PCC sampling areas within the experiment.

Sample location numbers, sample numbers and sampling area numbers should be obtained from Sampling Data Sheet 11-1.

The bottom portion of this form "MOLDED PCC SPECIMENS SENT TO LABORATORY" provides for the total number of molded cylinder and beams. This form requires the samples to be summarized according the layer number of their source. The layer number is assigned from the subgrade to the surface. A description of the specimen type is provided in the next column on the right, followed by the total number of samples by sample type.

OTHER GPS DATA FORMS

Other Field Materials Sampling and Testing data forms used for GPS test sections not referenced in this report should not be completed for the SPS activity. These forms include S07, S08, S09, S10, S11, S12, S13, S14A, S14B, S15A, S15B, S16A, and S16B.

LTPP-SPS MATERIAL SAMPLING AND FIELD TESTING
SAMPLING UNCOMPACTED BITUMINOUS PAVING MIXTURES
SAMPLING DATA SHEET 10

SHEET NUMBER _____ OF _____

LTPP REGION _____ STATE _____
SPS EXPERIMENT NUMBER _____
ROUTE/HIGHWAY _____ Lane _____ Direction _____

STATE CODE _____
SPS PROJECT CODE _____
TEST SECTION NO. _____
FIELD SET NO. _____

PERSON PERFORMING SAMPLING

NAME _____ EMPLOYER _____
TITLE _____

MIX PLANT

PLANT NAME _____
PLANT LOCATION _____
PLANT TYPE Batch..... 1 Drum..... 2 Other (Specify)..... 3 []

DESCRIPTION OF MIX PLANT _____

MANUFACTURER OF ASPHALT PLANT _____

MODEL NUMBER _____

BATCH SIZE _____

SAMPLING LOCATION []

Conveyor Belt..... 1 Stockpile..... 2 Haul Truck..... 3 Funnel Device..... 4
Roadway Prior to Compaction 5 Station __ __ + __ __ Offset ____ (feet from O/S)
Other..... 6 (specify) _____

MIX TYPE "Virgin" Asphalt Concrete .(BV).. 1 Recycled Asphalt Concrete.(BR)... 2 []
Asphalt Treated Dense Graded ...(BT).. 3 Permeable Asphalt Treated (BT)... 4

LAYER TYPE []

Rut Level-Up..... 1 Mill Replacement..... 2 Binder Course..... 3
Surface Course..... 4 Surface Friction Layer..... 5 Base Course..... 6

LOCATION NUMBER []

SAMPLE NUMBER []

APPROXIMATE SAMPLE SIZE (lbs) _____

DATE SAMPLED (Month-Day-Year) []

LOCATION SAMPLE SHIPPED TO _____

DATE SHIPPED (Month-Day-Year) []

GENERAL REMARKS: _____

CERTIFIED _____ VERIFIED AND APPROVED _____ DATE _____-_____-19____
Field Crew Chief _____ LTPP Representative _____
Affiliation: _____ Affiliation: _____
Month- Day- Yea

SAMPLING ASPHALT CEMENT AT THE MIX PLANT

SAMPLING DATA SHEET 10A

LTPP REGION _____ STATE _____
SPS EXPERIMENT NUMBER _____
ROUTE/HIGHWAY _____ Lane _____ Direction _____

STATE CODE _____
SPS PROJECT CODE _____
TEST SECTION NO. _____
FIELD SET NO. _____

PERSON PERFORMING SAMPLING

NAME _____ EMPLOYER _____
TITLE _____

MIX PLANT

PLANT NAME _____

PLANT LOCATION _____

PLANT TYPE Batch..... 1 Drum..... 2 Other (Specify)..... 3 [__]

DESCRIPTION OF MIX PLANT _____

MANUFACTURER OF ASPHALT PLANT _____

MODEL NUMBER _____

BATCH SIZE _____

SAMPLE INFORMATION

LOCATION NUMBER [B _____]

SAMPLE NUMBER [B C _____]

APPROXIMATE SAMPLE VOLUME (gallons) _____

DATE SAMPLED (Month-Day-Year) [__ - __ - __]

LOCATION SAMPLE SHIPPED TO _____

COMMENTS _____

DATE SHIPPED (Month-Day-Year) [__ - __ - __]

GENERAL REMARKS: _____

CERTIFIED _____
Field Crew Chief
Affiliation: _____

VERIFIED AND APPROVED _____
LTPP Representative
Affiliation: _____

DATE _____-_____-19____
Month- Day- Year

LTPP-SPS MATERIAL SAMPLING AND FIELD TESTING

SHEET NUMBER ____ OF ____

SAMPLING FRESH PORTLAND CEMENT CONCRETE

OR LEAN CONCRETE BASE MIXTURES

SAMPLING DATA SHEET 11

LTPP REGION _____ STATE _____ STATE CODE ____
SPS EXPERIMENT NUMBER _____ SPS PROJECT CODE ____
ROUTE/HIGHWAY _____ Lane _____ Direction _____ TEST SECTION NO. ____
FIELD SET NO. ____

PERSON PERFORMING SAMPLING
NAME _____ EMPLOYER _____
TITLE _____

LOCATION NUMBER (B#### for bulk sample) []

SAMPLING LOCATION []
Batch Plant 1 Hauling Truck before Paving 2
Hauling Truck during Paving 3 Paver 4
Other 5 (specify) _____

PCC MIX TEMPERATURE WHEN SAMPLED (+F) []

AMBIENT TEMPERATURE WHEN SAMPLED (-F) []

TIME SAMPLED (Military Time) []

DATE SAMPLED (Month - Day - Year) []

SPECIMENS FORMED FROM SAMPLE SPECIMEN NUMBER

CYLINDERS
1. []
2. []
3. []
4. []
5. []
6. []

BEAMS
1. []
2. []
3. []

AIR CONTENT (PERCENT) []

SLUMP (INCHES) []

LABORATORY ID CODE []

DATE SHIPPED []

NOTES : X as the second digit of the cylinder/beam sample number denotes 7 day cure for
LCB and 14 day cure for PCC, similarly
Y denotes a 28 day cure
Z denotes a 365 day cure

GENERAL REMARKS: _____

CERTIFIED VERIFIED AND APPROVED DATE

Field Crew Chief LTPP Representative -19
Affiliation: _____ Affiliation: _____ Month- Day- Year

PAVEMENT CORE LOG AT C-TYPE CORE LOCATIONS

SAMPLING DATA SHEET 2

LTPP REGION _____ STATE _____ STATE CODE _____
 SPS EXPERIMENT NO _____ SPS PROJECT CODE _____
 ROUTE/HIGHWAY _____ Lane _____ Direction _____ TEST SECTION NO. _____
 SAMPLE/TEST LOCATION: Before Section After Section FIELD SET NO. _____
 OPERATOR _____ EQUIPMENT USED _____ CORING DATE ____-____-____

CORE BARREL: Tip Type _____ Cooling Medium _____

Note: Record information for all cores extracted from each core hole in one column in the table below. Use a separate sheet for each sampling area. "Depth" should be measured from the pavement surface to the bottom of the core and recorded to the nearest tenth of an inch.

CORE HOLE NUMBER						
LOCATION: (a) STATION						
(b) OFFSET (Feet, O/S)						
Core Recovered?	YES/NO	YES/NO	YES/NO	YES/NO	YES/NO	YES/NO
Replacement Core Hole No.						
Core Size (inch Diam.)	4	4	4	4	4	4
Core Sample No.						
Depth (Inches)						
Material Description						
Material Code						
Core Size (inch Diam.)	4	4	4	4	4	4
Core Sample No.						
Depth (Inches)						
Material Description						
Material Code						
Core Size (inch Diam.)	4	4	4	4	4	4
Core Sample No.						
Depth (Inches)						
Material Description						
Material Code						
Core Size (inch Diam.)	4	4	4	4	4	4
Core Sample No.						
Depth (Inches)						
Material Description						
Material Code						
Remarks						

GENERAL REMARKS: _____

CERTIFIED

VERIFIED AND APPROVED

DATE

Field Crew Chief
 Affiliation: _____

LTPP Representative
 Affiliation: _____

____ - ____ - 19____
 Month- Day- Year

A-TYPE BORE HOLE LOG

SAMPLING DATA SHEET 4

LTPP REGION _____ STATE _____ STATE CODE _____
 SPS EXPERIMENT NO _____ SPS PROJECT CODE _____
 ROUTE/HIGHWAY _____ Lane _____ Direction _____ TEST SECTION NO. _____
 SAMPLE/TEST LOCATION: Before Section After Section FIELD SET NO. _____

OPERATOR _____ EQUIPMENT USED _____ BORING DATE ____-____-____
 LOCATION: STATION _____ OFFSET _____ feet from o/s
 BORE HOLE NUMBER: _____ BORE HOLE SIZE: _____ (inch Diam.)

Scale (Inches)	Strata Change (Inches)	Sample Number (1)	#Blows(2)			Ref? Y/N (3)	DLR (Inches) (4)	IOP (5)	Material Description	Material Code
			6"	6"	6"					
10.0										
20.0										
30.0										
40.0										
50.0										

- Record sample numbers for splitspoon/thin-walled tube samples taken from the subgrade.
- For splitspoon samples, record the number of blows for the first, second and third 6 inches of penetration.
- Refused* - If the splitspoon is refused, place a Y in the *REFUSAL* column and complete *Driving Length To Refusal* column. Refusal is defined as less than 1 inch of penetration with 100 blows.
- Driving Length To Refusal* - Record penetration to refusal of splitspoon from the top of the pavement surface.
- Inches Of Penetration* - Record from start of splitspoon sampling procedure if 100 blows is reached before one foot of penetration. If penetration exceeds 12 inches before 100 blows is reached, enter middle 6 inches plus depth of penetration into the last 6 inches when 100 blows was reached (not including seating drive); record to nearest tenth of an inch.

GENERAL REMARKS: _____
 CERTIFIED _____ VERIFIED AND APPROVED _____ DATE ____-____-____
 Field Crew Chief _____ LTPP Representative _____ -19
 Affiliation: _____ Affiliation: _____ Month- Day- Year

IN SITU DENSITY AND MOISTURE TESTS

SAMPLING DATA SHEET 8

LTPP REGION _____ STATE _____

STATE CODE _____

SPS EXPERIMENT NO _____

SPS PROJECT CODE _____

ROUTE/HIGHWAY _____ Lane _____ Direction _____

TEST SECTION NO. _____

SAMPLE/TEST LOCATION: Before Section After Section
 Within Section

FIELD SET NO. _____

OPERATOR _____ NUCLEAR DENSITY GAUGE I.D. _____ TEST DATE ____-____-____

LOCATION: STATION _____ OFFSET _____ feet from °/s

TEST PIT NO: _____ DATE OF LAST MAJOR CALIBRATION ____-____-____

Note: Use additional sheets if necessary

DEPTH FROM SURFACE TO THE TOP OF THE LAYER, INCHES (From plans)						
LAYER DESCRIPTION						
MATERIAL TYPE: (Unbound=G Other=T)						
IN SITU DENSITY, pcf (AASHTO T238-86)	1					
	2					
	3					
	4					
AVERAGE						
Method (A,B,or C)						
Rod Depth, inches						
IN SITU MOISTURE CONTENT, % (AASHTO T239-86)	1					
	2					
	3					
	4					
AVERAGE						

GENERAL REMARKS: _____

CERTIFIED _____
 Field Crew Chief
 Affiliation: _____

VERIFIED AND APPROVED _____
 LTPP Representative
 Affiliation: _____

DATE _____-____-19____
 Month- Day- Year

LTPP-SPS MATERIAL SAMPLING AND FIELD TESTING
 BULK SAMPLING OF SUBGRADE AND UNBOUND GRANULAR MATERIALS
 SAMPLING DATA SHEET 12

SHEET NUMBER _____ OF _____

LTPP REGION _____ STATE _____
 SPS EXPERIMENT NO _____
 ROUTE/HIGHWAY _____ Lane _____ Direction _____
 SAMPLE/TEST LOCATION: Before Section After Section

STATE CODE _____
 SPS PROJECT CODE _____
 TEST SECTION NO. _____
 FIELD SET NO. _____ 1

TECHNICIAN _____ EQUIPMENT _____ EXPLORATION DATE ____ - ____ - ____

LOCATION: STATION _____ OFFSET _____ feet from °/s

SAMPLING LOCATION NUMBER _____

PIT SIZE: (a) Length _____ feet (b) Width _____ feet

LAYER NUMBER: _____ (SUBGRADE _____ GRADED AGGREGATE BASE _____)

Scale (Inches)	Strata Change (Inches)	Moisture Sample No.	Bulk Sample No.	Material Description	Material Code
4					
8					
12					
16					

GENERAL REMARKS: _____

CERTIFIED

 Field Crew Chief
 Affiliation: _____

VERIFIED AND APPROVED

 LTPP Representative
 Affiliation: _____

DATE
 ____ - ____ - 19____
 Month- Day- Year

LTPP-SPS MATERIAL SAMPLING AND FIELD TESTING

SHEET NUMBER _____ OF _____

PLATE BEARING TEST RESULTS

SAMPLING DATA SHEET 13

LTPP REGION _____ STATE _____
SPS EXPERIMENT NO 2
ROUTE/HIGHWAY _____ Lane _____ Direction _____
SAMPLE/TEST LOCATION: Within Section

STATE CODE _____
SPS PROJECT CODE _____
TEST SECTION NO. _____
FIELD SET NO. 1

TECHNICIAN _____

TEST DATE ____ - ____ - ____

LOCATION: STATION _____ OFFSET _____ feet from °/s

LAYER NUMBER: (SUBGRADE _____ GRADED AGGREGATE BASE _____ PERMEABLE ASPHALT TREATED BASE _____)

- 1. AVERAGE-TOTAL DEFLECTION (INCHES) _____
- 2. UNCORRECTED MODULUS OF SOIL REACTION (PSI/INCH) _____
- 3. CORRECTED MODULUS OF SOIL REACTION (PSI/INCH) [_____]

NOTE: DATA SHEETS FOR THIS TEST PROTOCOL MUST BE COMPLETED AND ATTACHED TO THIS FORM.

GENERAL REMARKS: _____

CERTIFIED

Field Crew Chief
Affiliation: _____

VERIFIED AND APPROVED

LTPP Representative
Affiliation: _____

DATE
____ - ____ - 19____
Month- Day- Year

LTPP-SPS MATERIAL SAMPLING AND FIELD TESTING

SHEET NUMBER _____ OF _____

SUMMARY OF MATERIAL SAMPLES SENT TO EACH LABORATORY

FIELD OPERATIONS INFORMATION FORM 2-2

LTPP REGION _____ STATE _____
 SPS EXPERIMENT NO 2
 ROUTE/HIGHWAY _____ Lane _____ Direction _____

STATE CODE _____
 SPS PROJECT CODE _____
 TEST SECTION NO. _____
 FIELD SET NO. _____

LABORATORY _____ WORK COMPLETED ON ____ - ____ - ____

NOTE: This is a summary of material samples sent to each laboratory based on the information from Field Operations Information Form 1. Complete one form for each laboratory that material samples were sent.

LAYER NO. (From Subgrade)	MATERIAL/SAMPLE TYPE	TOTAL NUMBER OF SAMPLES
_____	PCC CORES:	4" Diameter _____
_____	PCC Molded Cylinders	_____
_____	PCC Molded Beams	_____
_____	LCB CORES:	4" Diameter _____
_____	LCB Molded Cylinders:	_____
_____	AC Treated BULK SAMPLES: 100 Pound Samples -PATB	_____
_____	UNBOUND BASE SAMPLES: (a) BAGS (BULK) _____ (b) JARS (MOISTURE) _____	_____
_____	EMBANKMENT SAMPLES: (a) BAGS (BULK) _____ (b) JARS (MOISTURE) _____	_____
1	SUBGRADE SAMPLES: (a) BAGS (BULK) _____ (b) JARS (MOISTURE) _____ (c) THIN-WALLED TUBES _____ (d) SPLITSPOON _____ JARS	_____

GENERAL REMARKS: _____

CERTIFIED	VERIFIED AND APPROVED	DATE
_____	_____	____ - ____ - 19____
Field Crew Chief	LTPP Representative	Month- Day- Year
Affiliation: _____	Affiliation: _____	

