FINAL REPORT

SPS-7 PROJECT 2207: BONDED CONCRETE OVERLAY OF A CONCRETE PAVEMENT IH-10, EASTBOUND ASCENSION PARISH, LOUISIANA

FHWA/LTPP

SOUTHERN REGION COORDINATION OFFICE

April 1993

BRENT RAUHUT ENGINEERING INC.

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IH-10, EASTBOUND
ASCENSION PARISH, LOUISIANA

INTRODUCTION

A Strategic Highway Research Program (SHRP) Specific Pavement Study 7 (SPS-7) project was constructed on Interstate Highway 10 just south of Baton Rouge, Louisiana, March 25-April 30, 1992. This SPS-7 project was one of the first of its kind constructed in the United States. This report discusses coordination and monitoring activities before, during, and after construction, and is provided as the final report for Louisiana Project 2207. Photographs taken during the construction of the project are provided in Appendix D. It is not the intent of this document to report all of the various data collected for this project. The data will be entered into the LTPP data base, and is stored on-file at the Southern Region Coordination Office (SRCO) in Austin, Texas.

SPS-7 General Experiment Design

The SPS-7 experiment addresses the rehabilitation of portland cement concrete pavements. The experiment design factorial for the SPS-7 experiment is shown on Table 1. This table shows the variation of primary design factors, including climate, overlay thickness, surface preparation, bonding material, and existing pavement type for the nationwide SPS-7 experiment. The Louisiana project meets the requirements for one of the two replicate projects in the wet-no freeze environmental zone with fine subgrade over existing continuously reinforced concrete pavement. The objectives of this study are to measure the additional pavement life that results from the use of bonded concrete overlays, evaluate the effectiveness of surface preparation techniques, and investigate the influence of climate on the performance of bonded concrete overlays of concrete pavements. The proposed nationwide experiment encompasses overlays of jointed plain, jointed reinforced, and continuously reinforced concrete pavements. The standard SPS-7 experiment design consists of nine 500′ test sections, as listed in Table 2. The sections include four with milling prior to overlay versus four with shot-blasting, four utilizing grout as a bonding agent versus four without grout, and thin overlays (approximately 3″) versus thick overlays (approximately 5″). The eight test sections representing the combinations of these three features are placed adjacent to one control section (to which no treatments are applied) for comparison purposes.

For additional information on the general experiment design for SPS-7, please refer to "Specific Pavement Studies: Experimental Design and Research Plan for Experiment SPS-7, Bonded Portland Cement Concrete Overlays, February 1990".

TABLE 1. EXPERIMENTAL DESIGN FOR SPS-7, BONDED PORTLAND CEMENT CONCRETE OVERLAYS

PCC Overlay Factors Within Projects			Factors for Moisture, Temperature, and Type of PCC Pavement							
			Wet				Dry			
			Freeze		No Freeze		Freeze		No Freeze	
			Traffic Rate = 200 KESAL/Yr.							
Overlay Preparation	Grout Yes/No	PCC Overlay Thickness	JCP	CRCP	JCP	CRCP	JCP	CRCP	JCP	CRCP
Cold Milling Plus Sand Blasting	N	3″								
		5″								
	Y	3″								
		5″								
Shot Blasting	N	3″								
		5″								
	Y	3″								
		5″								

TABLE 2. TEST SECTION NUMBERING SCHEME

Section Number	Surface Preparation	Cement Grout	Overlay Thickness (Inches)
01	Control Section	-	-
02	Milling	Yes	3
03	Milling	No	3
04	Shot Blasting	No	3
05	Shot Blasting	Yes	3
06	Shot Blasting	Yes	5
07	Shot Blasting	No	5
08	Milling	No	5
09	Milling	Yes	5
10	Supplemental	Open	Open

Selection/Nomination of IH-10

The SPS-7 project on IH-10 in Ascension Parish, Louisiana was nominated on February 15, 1991. Appendix A includes the project identification and description forms which were used to nominate the project. This section of IH-10 is a 4-lane, divided interstate constructed in 1979.

The nominated project is one in a series of rehabilitation projects along IH-10 between Baton Rouge and New Orleans, Louisiana. Plans for several of these projects include bonded concrete overlay of the existing concrete pavement. The Louisiana Department of Transportation and Development (LA-DOTD) has been actively studying this rehabilitation strategy for some time, and as such were extremely interested in this experiment. The planned rehabilitation activity for the remainder of the project included placement of a bonded, 4" thick, fiber-reinforced concrete overlay. Surface preparation included routine patching of failed areas, and shot-blasting.

The flat south-Louisiana terrain prevented the need for consideration of cut/fill transitions, vertical grades, or other geometry-related limitations. There were a few large culverts that had to be avoided, but with careful planning sections were located so as not to encroach any culverts. The roadway is constructed over a relatively uniform embankment fill on the order of 7' deep consisting of silty clay borrow material.

Probably the most significant aspect of the selection and nomination of this project occurred on January 22, 1991, during coordination meetings with the LA-DOTD. It was during this meeting that an agreement was reached between the Louisiana FHWA Division Office and the LA-DOTD that the results of this study would benefit Louisiana and the pavement community in general, and as such should be supported. This series of projects was discussed and recognized as a suitable candidate for nomination. A clear commitment was made to support this project as a candidate for the SPS-7 study and proceed with the planning. It was also decided that provisions for traffic data collection could be included as part of the project construction, which satisfied one of the other primary concerns of the LA DOTD. As a direct result of this meeting, and the commitments made therein, planning for the SPS-7 project construction proceeded, and the official nomination of the project followed about two weeks later.

Specific Experiment Design for IH-10

The rehabilitation project selected for construction of the SPS-7 test sections met all of the desirable characteristics for traffic volume, planned rehabilitation, and existing pavement type. The LA-DOTD reviewed a number of potential candidates, and found this interstate rehabilitation project to be the best alternative meeting the project selection criteria. The area of the project selected from the plans as best meeting the experiment criteria for test section location was between the interchanges for LA Highway 22 and LA Highway 44. This section of the project is approximately 3 miles long.

A tentative layout was developed, after which representatives of the LA DOTD and the SHRP Southern Region Coordination Office visited the site to confirm the layout. This site

visit revealed a rest area in the center of the length chosen for the test sections that was not indicated clearly on the plans. The location of the rest area complicated the test section layout in a number of ways. First, a variation in traffic flow was anticipated due to vehicles entering and leaving the rest area, so a decision was made to locate test sections before and after the rest area, with no sections between the on-ramp and off-ramp of the area. This in turn significantly shortened the available project length between the interchanges. In order to avoid two large box culverts, and satisfy the experiment requirements for sufficient transition length to provide for material sampling areas, only eight of the nine experiment test sections could fit into the available length. The control section was omitted from the planned layout.

The resulting layout is shown on the plan/profile sheets provided in Attachment A. Test sections 220702 through 220705 are located west of the off-ramp to the rest area, while sections 220706 through 220709 are located east of the on-ramp from the rest area. Other than the omission of the control section, the project layout meets all stated experiment criteria.

PRECONSTRUCTION MONITORING

Data collection activities occurring prior to the commencement of construction of the test sections included pavement surface distress surveys, surface profile measurements, deflection testing, and materials sampling and field testing. The guidelines for timing of these activities as stated by SHRP are provided in Table 3. Dates and comments related to each of these activities are provided in Table 4. Specific information pertaining to each of these data collection efforts is provided in the following paragraphs.

Pavement Surface Distress

Pavement surface distress surveys were conducted both photographically (by PASCO) and manually. The PASCO unit filmed the test sections on March 30, 1992. Manual distress surveys were conducted during other preconstruction monitoring activities on April 2 and 3, 1992. In general, the pavement test sections were found to be relatively free of distress. Two punchouts were noted within the limits of section 220702, which were patched. Photographs of the patch are shown in Appendix D. Other indications of distress included transverse cracking (typical of CRCP), popouts, and some very localized longitudinal cracking.

Surface Profile

Two types of surface profile measurements were obtained prior to construction of the test sections. Longitudinal profile was measured with the regional profilometer on March 25, 1992, approximately one month prior to construction. Mean IRI values for sections west of the rest area were generally higher than those east of the rest area. For test sections 220702-220705, the mean IRI value was 137, while for test sections 220706-220709, the mean IRI value was 119.5.

Cross profiles were measured using both the PASCO and rod and level elevation measurements. The PASCO unit utilizes a hairline project method to determine the cross-section profile, while rod and level elevation measurements were taken at five locations across the width of the lane. Results of the rod and level survey are provided in Appendix B. As may be seen, these plots allow a comparison of the cross-profile before construction, after milling (for applicable test sections), and after overlay placement. In addition, the elevation survey allows accurate determination of variability in the overlay thickness.

Structural Capacity

Structural capacity prior to placement of the overlay was evaluated via non-destructive deflection testing using the regional FWD. As may be seen from Table 4, deflection testing was conducted the week of March 31-April 6, 1992.

Materials Sampling and Testing

Preconstruction materials sampling and field testing activities were conducted on April 6, 1992 by Southwestern Laboratories of Houston, Texas. These sampling activities, and the

TABLE 3. SUMMARY OF TIMING GUIDELINES FOR BEFORE AND AFTER MONITORING MEASUREMENTS

	Before	After
Deflection Measurements	< 3 mo.[1]	3 to 6 mo.[2,3]
Profile Measurements	< 3 mo.[4] (freeze) < 6 mo. (no-freeze)	< 2 mo. < 4 mo. (dry no-freeze)
Distress Surveys	< 6 mo.[5] (freeze) < 8 mo.[5] (no-freeze)	< 12 mo.[6]
Skid Measurements	< 12 mo.[7]	3 to 12 mo.

1. This can be extended to 6 months, if it is a dry no-freeze region where the moisture conditions of the pavement have not changed. For freeze regions, the average 24 hour air temperature should be above freezing for at least one week prior to testing; also, such testing should be after spring thaw recovery.

2. This should be shortened if winter freezing of the pavement structure is approaching.

3. If before measurements are made between 3 and 6 months, the after measurements should be 3 months.

4. This should be after spring thaw recovery.

5. For pavements with high severity of cracking, or exhibiting pumping, these times should be halved.

6. If the conditions of #5 apply, this time should be halved.

7. For pavements where low friction resistance is a consideration in placement of the overlay or surface treatment, this time should be halved.

TABLE 4. PRECONSTRUCTION ACTIVITIES

Task	Begin	End	Comments
Preconstruction Deflection Testing	3/31/92	4/06/92	Higher than normal load variation encountered.
Preconstruction Profile Measurements	3/25/92	3/26/92	
Preconstruction Manual Distress Surveys	4/02/92	4/03/92	Two punchouts noted on Section 220702 became full-depth patches.
Preconstruction Materials Sampling/Field Testing	4/06/92	4/06/92	Dark sand encountered in Test Pit #2 and A6 subgrade in addition to grey and tan clay. Test Pit #1 and A1-A5 only had grey and tan clay in subgrade.
Preconstruction Rod and Level Elevation Measurements	4/02/92	4/03/92	
PASCO Survey	3/30/92	3/30/92	
Milling Operations - Sections 02, 03, 08, 09	4/10/92	4/11/92	
Post-mill Elevation Measurements - Sections 02, 03, 08, 09	4/16/92	4/16/92	
Shot-blast Operations	4/22/92	4/29/92	Final shot-blasting passes done approximately one hour prior to overlay.

ensuing laboratory materials testing were conducted in accordance with the Materials Sampling and Testing Plan developed by the SRCO, as presented in Appendix C. The only real deviation from the "normal" sampling requirements as specified by SHRP in their guidelines for sampling for this experiment was the omission of shoulder probes. Coordination with SHRP's Technical Assistance Contractor revealed that the sole purpose of the shoulder probes was to evaluate the depth to a rigid layer beneath the section. Historical records for the project clearly indicated the lack of any such layer to great depths. Therefore the shoulder probes were removed from the plan. Otherwise the sampling and testing activities followed stated SHRP guidelines.

CONSTRUCTION

Construction activities (paving) began on test section 220709 on April 22, 1992, and were completed on test section 220702 on April 30, 1992. Photographs of the paving are provided in Appendix D. For the purposes of this discussion, we have included the milling activities as part of the preconstruction preparatory work. Comments pertaining to the construction activities are summarized in Table 5. A representative of the SRCO was on-site at all times during construction to observe, collect construction data, and answer any questions. Paving operations began at the east end of the project and proceeded to the west, so our discussion of the chronological paving operations will actually proceed in the reverse order of the test sections.

There were three occurrences or observations during construction that may be considered anomalous, and as such warrant discussion in this report. First, as a secondary surface cleaning technique after the milling, the contractor elected to water-blast the pavement surface. Section 220709 was water-blasted at 4:00 a.m. on April 22, and paving operations began at 7:00 a.m. After proceeding into the test section, it was decided by the state inspector that the pavement surface was too wet to proceed further. Paving was suspended at Station 4 + 29 in test section 220709. Because of the delay, it was necessary to form a construction joint in the new overlay, so the paver was moved 20′ and paving resumed. After completion of all paving, a "patch" was placed in the 20′ section which had been left unpaved. This patch exists between Stations 409 + 00 and 429 + 00 in test section 220709, which is shown on Photograph 9 in Appendix D.

Second, in order for the paving operations to proceed smoothly, it was necessary to spread grout for a distance of approximately 10′ in advance of the paver. As the trucks delivering the concrete backed to the paver, they rolled into the fresh grout. When they pulled away, fresh grout was tracked onto the clean concrete surface and dried. This is shown on Photograph 7 in Appendix D. Given the constant stream of trucks delivering concrete, there was a great deal of grout coverage that dried on the surface prior to paving. The shoulders were not paved, so there was no other avenue for the trucks to deliver concrete. Consideration should be given to this condition in the evaluation of bond effectiveness, to allow for the dried grout on the surface prior to paving.

Finally, the postconstruction rod and level survey revealed that the overlay thicknesses are thicker than they were intended. The rod and level survey data are shown in Appendix B. Table 6 provides an indication of the average thickness by station for each test section. As may be seen, the 3″ overlay sections actually range from 3.0″ to 4.2″, with an average thickness of about 3.6″. The 5″ overlay sections range from 5.1″ to 6.2″, with an average thickness of 5.7″. It is unclear why the overlay thicknesses are consistently greater than the intended thicknesses.

All other aspects of the construction seemed to go quite smoothly. The paving contractor, T.L. James worked diligently to construct the project in accordance with the experiment needs. Other than a couple of delays due to weather, there were no other problems that we observed during construction.

TABLE 5. CONSTRUCTION ACTIVITIES

Task	Begin	End	Comments
Paving 220709	4/22/92	4/22/92	Station 4+00 to 5+00 should be monitored closely. Station 4+29 to 5+00 was poured on a wet road. Station inspectors suspended paving until road dried. Equipment was then moved forward 20' and started again. Therefore, a patch exists in Section 220709 at 4+09 to 4+29. Sample taken at Station 2+50 during paving yielded a 1" slump and 3% air entrainment.
Paving 220708	4/24/92	4/24/92	Southwestern Labs (SwL) Concrete Technician recorded a 2" slump and 2.5% air entrainment at Station 1+00. T.L. James Quality Control Inspector recorded a 2" slump and 3% air entrainment at approximately the same location.
Paving 220707	4/24/92	4/24/92	T.L. James recorded a 2" slump and 3% air entrainment.
Paving 220706	4/24/92	4/24/92	Both SwL and T.L. James technicians took mix samples at 2+50. Both recorded a 1" slump and 3% air entrainment.
Paving 220705	4/29/92	4/29/92	Mechanical problems encountered with paver on Sample Area 17. Grout that was placed ahead of paver dried completely. Laborers worked it with stiff brooms and new grout prior to concrete pavement after paver was repaired. A very light drizzle was encountered for about 10 minutes; however, not enough to saturate the road surface. Mix sample taken at 2+50 yielded a 1" slump and 2.8% air entrainment.
Paving 220704	4/29/92	4/29/92	A slight drizzle was encountered for only a few minutes.
Paving 220703	4/29/92	4/29/92	Mix sample taken at 4+00 by SwL yielded a 1½" slump and 3% air entrainment.
Paving 220702	4/30/92	4/30/92	Mix sample taken at 2+50 by SwL yielded a 2¼" slump and 3% air entrainment. This was the "wettest" mix sample noted.

TABLE 6. AVERAGE OVERLAY THICKNESSES (INCHES)

Station	220702	220703	220704	220705	220706	220707	220708	220709
0+00	3.8	3.6	3.4	4.2	5.7	5.5	5.9	5.1
1+00	3.5	3.9	3.9	3.7	5.6	5.9	5.6	5.7
2+00	3.6	3.3	3.3	3.9	5.6	5.8	6.2	5.3
3+00	3.3	3.3	3.8	3.3	5.8	5.5	5.9	5.4
4+00	3.5	3.0	3.6	3.5	5.6	6.1	6.0	5.4
5+00	3.2	3.5	3.6	3.6	6.0	5.7	5.9	5.3

POSTCONSTRUCTION MONITORING

Monitoring after completion of construction included pavement surface distress observations, surface profile measurements, structural capacity determination, and materials sampling and testing. The timing requirements for postconstruction monitoring were provided previously in Table 3.

Pavement Surface Distress

Postconstruction observations of distress were obtained both manually and photographically. As with the preconstruction survey,manual distress surveys were conducted in conjunction with FWD testing, while traffic control was available. Photographic surveys were conducted by PASCO on March 18, 1993. Manual distress surveys were conducted on December 10, 1992.

The manual survey revealed a number of areas where the contractor had ground the pavement surface to satisfy profile requirements. Table 7 summarizes those areas where evidence of diamond grinding was noted. In general, typical distresses observed included numerous transverse cracks, reflected from the underlying CRCP. There is some concern about the rate at which these cracks seem to be appearing. The area of the project east of the rest area, particularly sections 220706, 220707, and 220708 seem to be the worst affected. These areas coincide with evidence of pumping observed at the lane edge joint. This condition is shown on Photograph 10 in Appendix D. It would appear that a loss of support condition as evidenced by the pumping is accelerating the propagation of the cracks through the CRCP into the new overlay.

Surface Profile

Longitudinal surface profile was measured for the new overlay sections on January 8, 1993. As might be expected, there was a marked improvement in the IRI values after construction. For those sections west of the rest area (220702 - 220705), the mean IRI was 74.3. For those sections east of the rest area (220706 - 220709), the mean IRI was 75.3. As a side note, profile measurements were obtained for the WIM (traffic data collection) installation as well. The mean measured IRI in the vicinity of the WIM system is 74.3. As may be seen, the overlay produced a much more uniform profile condition, as anticipated.

Cross-profile was measured by the PASCO (hairline projection) and by the rod and level survey. The cross-profile, as measured by the rod and level data, may be found in Appendix B.

Structural Capacity

Structural capacity of the newly overlaid sections was evaluated by means of the SRCO FWD from December 8-12, 1992. In reviewing the data, it was noted that for both the preconstruction and postconstruction deflection measurements, the maximum deflections were greater in the area west of the rest area (Sections 220702 - 220705) than east of the rest area (Sections 220706 - 220709). The 3″ overlay resulted in a 28-37 percent reduction

TABLE 7. OBSERVATIONS OF DIAMOND GRINDING

Test Section	Station	Comments
220705	0+85 to 1+05	Mid-lane to pavement edge.
	1+05 to 1+25	Full lane width.
	1+45 to 1+65	Mid-lane to inside lane edge.
220706	3+60 to 4+10	Along pavement edge.
220707	1+60 to 1+90	Full lane width.
220709	0+85 to 1+00	Inside wheel path to pavement edge.
	1+30 to 1+60	Inside wheel path to pavement edge.
	3+20 to 3+50	Full lane width.

in the maximum deflection. The 5″ overlay resulted in a 38-49 percent reduction in the maximum deflection. Plans include additional testing for this project, when the effects of the overlay on the deflection profile may again be reviewed.

Materials Sampling and Testing

Postconstruction materials sampling and testing includes coring of the new overlay materials at 14 days, 28 days, and 365 days for various testing. At the time of the preparation of this report, 14-day and 28-day testing had been completed. However, the LA-DOTD did not choose to leave the materials testing contract open for a full year, so separate provisions will have to be made for the 365-day coring and associated tests.

SUMMARY

An SPS-7 project (2207) was constructed in the eastbound lanes of the IH-10 between Baton Rouge and New Orleans, Louisiana in April, 1992. This work was accomplished through the coordinated efforts of the LA-DOTD, the FHWA, SHRP, the SRCO, and the construction contractor. Throughout the construction, representatives of the SRCO were on-site observing and collecting required data. This project is now complete, and this report provided a discussion of the monitoring and coordination activities before, during, and after construction.

All pertinent data gathered for this project are on file at the SRCO offices in Austin, Texas and have been input into the FHWA/LTPP Data base for future analyses of pavement performance.

The only notable exception from "ideal" construction conditions would be the "patch" in test section 220709, created as a result of the requirement to stop paving and wait for the roadway surface to dry. Otherwise, paving proceeded relatively smoothly, and few other problems of significance were encountered.

The only remaining construction-related data to be collected are the 365-day cores, and delamination detection for the new overlay. The SRCO will coordinate with the LA-DOTD to see that the final cores are taken and tested in accordance with the materials sampling and testing plans, as provided in Appendix C. Insufficient guidance exists for us to complete the delamination detection testing. This has been discussed with the LTPP Technical Assistance Contractor.

APPENDIX A

SITE NOMINATION INFORMATION

Brent Rauhut Engineering Inc.

February 15, 1991

Dr. Shiraz D. Tayabji
PCS/LAW Engineering
12240 Indian Creek Court, Suite 120
Beltsville, Maryland 20705-1242

Subject: Nomination of an SPS-7 Project in Louisiana.

Dear Dr. Tayabji:

With this transmittal, we are formally nominating a project for consideration in the SPS-7 experiment. The project is on IH-10, just south of Baton Rouge, Louisiana, between interchanges for LA-44 and LA-22, in the eastbound lanes. I have reviewed the project and feel it is a suitable candidate for study.

While in Louisiana, Steve Cumbaa (LTPP Contact for LA) and I reviewed the project plans and developed a preliminary test section layout. Attached you will find completed nomination forms and reduced copies of the plan/profile sheets showing the test section layout. The only deviation from the norm is that the LA DOTD does not feel comfortable including a control section in the middle of the project and wish to delete it from consideration. We were unable to develop any alternatives acceptable to the LA DOTD and SHRP that include a control section. Therefore, we omitted the control section from this project.

I apologize for the poor copies of the plan/profile sheets. I was given 24" x 36" originals to work from and had to reduce them significantly. Still, I believe you will see that the roadway is relatively straight, flat, and on uniform fill. The predominant feature on this portion of the project is a rest area, located between Sta. 945+00 and 985+00. We were concerned about variations in traffic loads, so we chose to locate the test sections either before or after the rest area, with none in-between.

There were also a few large box culverts we had to work around. At about Sta. 993+50, there is an overpass for LA-941. This overpass has no access to IH-10, so we felt safe in locating sections beneath it.

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I am mailing the originals of this document to you. In the interest of time, I thought it would be best to fax you a copy for review. The LA DOTD is anxious to begin preparation of plans and specifications for the SPS test sections. The project which this will be part of is already in design. Anything you can do to expedite the consideration of this project as a candidate for SPS-7 will be greatly appreciated.

Sincerely,

Mark P. Gardner, P.E.
Project Engineer, SRCO

Attachments: As stated.

cc.w/Attach: Amir Hanna, SHRP-DC
Homer Wheeler, RE-SRCO
Ed Breckwoldt, LA DOTD
Steve Cumbaa, LA DOTD

MPG:dmj

APPENDIX A

CANDIDATE PROJECT NOMINATION AND INFORMATION FORMS
FOR
SPS-7, BONDED PORTLAND CEMENT CONCRETE OVERLAYS

SHEET A. SPS-7 CANDIDATE PROJECT NOMINATION AND INFORMATION FORM

STATE Louisana

PROJECT LOCATION

ROUTE NUMBER I-10

ROUTE SIGNING [✓] Interstate [ ] U.S. [ ] State [ ] County

Other _____

PROJECT LOCATION Start Milepost 179± End Milepost 184

Start Station 812+00 End Station 1140+00

PROJECT LOCATION DESCRIPTION 1.0 mi East of La 30 to 3.0 mi West of US-61

COUNTY Ascension Parish

HIGHWAY AGENCY DISTRICT NUMBER 61

SHRP ENVIRONMENTAL ZONE

[ ] WET FREEZE [✓] WET NO-FREEZE [ ] DRY FREEZE [ ] DRY NO-FREEZE

SIGNIFICANT DATES

LATEST DATE OF APPROVAL NOTIFICATION FROM SHRP 3/1/91

CONTRACT LETTING DATE 10/91

ESTIMATED CONSTRUCTION START DATE 2/92

PROJECT DESCRIPTION

YEAR OPENED TO TRAFFIC 1979

NUMBER OF LANES (One Direction) 2

[✓] Divided [ ] Undivided

OUTSIDE LANE WIDTH (Feet) 12

OUTSIDE SHOULDER TYPE

[ ] Turf [ ] Granular [ ] Asphalt Concrete [ ] Surface Treatment

[ ] PCC [✓] Tied PCC [ ] Curb and Gutter Other _____

OUTSIDE SHOULDER WIDTH (Feet) 10

SUBSURFACE EDGE DRAINS [ ] Placed at initial construction [✓] Not Used

[ ] Retrofitted Retrofit Date _____

ASSESSMENT OF PRESENT PAVEMENT CONDITION [✓] Good [ ] Fair

PREDOMINATE DISTRESSES

[ ] D Cracking [ ] Other Cracking [ ] Faulting [ ] Pumping [ ] Joint Failure

[✓] Punchout [ ] Blowup

Comments _____

SHEET B. SPS-7 CANDIDATE PROJECT NOMINATION AND INFORMATION FORM

STATE Louisiana

PAVEMENT STRUCTURE DETAILS

PCC PAVEMENT TYPE [] Jointed Plain [] Jointed Reinforced
[✓] Continuously Reinforced

JOINT SPACING (Feet) N/A

JOINTS [] Perpendicular [] Skewed [] Doweled [] Other Load Transfer

PCC FLEXURAL STRENGTH (psi) UNK (Design Assumes 450)

MODULUS OF SUBGRADE REACTION (k) 400 (Design Standard)

PAVEMENT STRUCTURE LAYER DESCRIPTIONS

LAYER[1] NO.	LAYER[2] DESCRIPTION CODE	MATERIAL TYPE[3] CLASS CODE	THICKNESS[4] (INCHES)	
1	SUBGRADE (7)	53		
2	11	53	84.0	
3	06	25	2.0	select, untreated
4	06	42	6.0	select, lime treated
5	05	28	4.0	
6	03	06	8.0	
7				
8				
9				

NOTES

1. Layer 1 is the natural occurring subgrade soil. The existing surface will have the largest assigned layer number.
2. Layer description codes:

Overlay 01	Base Layer 05	Porous Friction Course . 09
Seal Coat 02	Subbase Layer 06	Surface Treatment 10
Original Surface . 03	Subgrade 07	Embankment (Fill) 11
Subsurface HMAC .. 04	Interlayer 08	

3. Refer to Tables 1 through 4 for material class codes.4. If subgrade depth to4. If a rigid layer is known, enter this depth for subgrade, otherwise leave blank for subgrade layer.

SHEET C. SPS-7 CANDIDATE PROJECT NOMINATION AND INFORMATION FORM

STATE Louisiana

TRAFFIC DATA

ANNUAL AVERAGE DAILY TRAFFIC (TWO DIRECTION)	24,000
% HEAVY TRUCKS AND COMBINATIONS (OF AADT)	15
COUNT YEAR OF AADT ESTIMATE	1989
TRAFFIC GROWTH RATE SINCE PROJECT OPENED TO TRAFFIC (%/YR)	3
18K ESAL RATE IN PROPOSED STUDY LANE (1,000 ESAL/YR)	550
YEAR OF ESAL RATE ESTIMATE	1989
ESTIMATED TOTAL 18K ESAL APPLICATIONS IN STUDY LANE[1]	

REHABILITATION INFORMATION[2]

PRIMARY CAUSE FOR REHABILITATION Originally underdesigned - rehab. planned prior to anticipated deterioration

ASPHALT CONCRETE OVERLAY	Thickness (Inches)	Material Type Class Code
Surface Course	N/A	N/A
Binder Course	N/A	N/A

Saw and Seal above joints? [ ] Yes [ ] No

PCC OVERLAY [✓] Bonded [ ] Unbonded Thickness (Inches) 4.0"

[ ] Fast Track Construction [✓] Normal Minimum Cure: ✓ (Hrs) _____ (psi)

SURFACE PREPARATION PRIOR TO OVERLAY

[ ] Joint Sealing [ ] Crack Sealing [ ] Undersealing [ ] Crack & Seat

[✓] Patching [ ] Joint Replacement [ ] Grinding [✓] Shotblasting

[ ] Mill & Sandblast [ ] Other (Specify) May Seal Long. Edge jt. along Shoulder

OTHER CONSTRUCTION ACTIVITIES DURING REHABILITATION

NOTES

1. Leave blank if estimate is not available.
2. This information concerns the planned rehabilitation work to be performed by the agency on the non-experimental portions of the project.

SHEET D. SPS-7 CANDIDATE PROJECT NOMINATION AND INFORMATION FORM

STATE Louisiana

TEST SECTION LAYOUT

NUMBER OF TEST SECTIONS ENTIRELY ON: FILL All CUT None

SHORTEST TRANSITION BETWEEN CONSECUTIVE TEST SECTIONS (Feet) 100'

COMMENTS ON DEVIATIONS FROM DESIRED SITE LOCATION CRITERIA There will not be a control (no overlay) test section. La DOTD will not put a control section in the middle of the project. Interchanges that significantly affect traffic (LA44 & LA22) cut down the available project length to work with. Test sections must be located between the interchanges. Decision made to forego the control section in order to retain the project as a candidate suitable to both SHRP and the LaDOTD.

OTHER SHRP TEST SECTIONS

DOES PROJECT CONFORM TO GPS-3, 4 or 5 PROJECT CRITERIA?	[✓] YES	[ ] NO
DOES AGENCY APPLIED TREATMENT QUALIFY FOR GPS-7B OR 9?	[ ] YES	[✓] NO
IS AGENCY INTERESTED IN USE OF PROJECT AS SPS-4 SITE?	[ ] YES	[✓] NO

DISTANCE TO NEAREST GPS TEST SECTION ON SAME ROUTE (Miles) None

NEAREST GPS TEST SECTION NUMBER None

SUPPLEMENTAL TEST SECTIONS

IF SUPPLEMENTAL EXPERIMENTAL TEST SECTIONS ARE PROPOSED, COMPLETE THE FOLLOWING

TOTAL NUMBER OF SUPPLEMENTAL TEST SECTIONS None

FACTORS TO BE INVESTIGATED

Table 1. Pavement surface material type classification codes.

MATERIAL TYPE	CODE
Hot Mixed, Hot Laid, Asphalt Concrete, Dense graded	01
Hot Mixed, Hot Laid, Asphalt Concrete, Open Graded (Porous Friction Course)	02
Sand Asphalt	03
Jointed Plain Portland Cement Concrete	04
Jointed Reinforced Portland Cement Concrete	05
Continuously Reinforced Portland Cement Concrete	06
Prestressed Portland Cement Concrete	07
Fiber Reinforced Portland Cement Concrete	08
Plant Mix, Cold Laid, Emulsified Asphalt Material	09
Plant Mix, Cold Laid, Cutback Asphalt Material	10
Single Surface Treatment	11
Double Surface Treatment	12
Hot Recycled, Central Plant Mix, Asphalt Concrete	13
Central Plant Mix, Cold Laid, Recycled Asphalt Concrete	14
Mixed-in-place, Cold Laid, Recycled Asphalt Concrete	15
Heater Scarification/Recompaction, Recycled Asphalt Concrete	16
Jointed Plain Recycled Portland Cement Concrete	17
Jointed Reinforced Recycled Portland Cement Concrete	18
Other	20

8" SHELL 6% CRUSH
TOP 6" TREATED PI < 11
PI > 11 14% LIME

STATE OF LOUISIANA
DEPARTMENT OF HIGHWAYS

PLANS OF PROPOSED
STATE HIGHWAY

FEDERAL AID PROJECT NOS. I-10-4(21)180 & S-284(9)

~~STATE PROJECT NOS. 450-11-08 & 265-01-19~~

DUTCHTOWN - SORRENTO
GONZALES - SORRENTO
ASCENSION PARISH
ROUTES I-10 & LA 14

F.A.P.	STATE PROJECT	PARISH	SHEET NO.
I-10-4(21)180 / S-284(9)	450-11-08 / 265-01-19	ASCENSION	[illegible]

INDEX TO SHEETS

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2, 2a-4	TYPICAL SECTIONS AND DETAILS
5, 5a-31	SUMMARY SHEETS
[illegible]	[illegible]
[illegible]	PLAN AND PROFILES
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	PLAN & PROFILES
13-20	RAMP PROFILES AT REST AREA
21	[illegible] DETAILS
22-28	PLAN & PROFILES
29-30	LA. 22 [illegible] PROFILES
31-33	LA. 22 DETAILS
34-35	DRAINAGE MAPS
[illegible]	[illegible]
37-40	SUBGRADE SOIL PROFILES
41-44	RIGHT OF WAY PLANS
101-159	BRIDGE PLANS

STANDARD PLANS

SHEET NO.	DESCRIPTION
[illegible]	C.C.S.M. [illegible] 90°, [illegible]
[illegible]	C.C.S.M. [illegible]
203	C.C.S.M. [illegible] 75°, [illegible]
204	C.C.S.M. [illegible]
205	C.C.S.M. 7-16 S.45°, [illegible]
206	SAM-1
207	CM 42
208	CM 95
209	CM 97
210	CM 198
211	CM 201
212	CM 216
213	R-CB-3-B
214 215	R-CB-3 Mod.
216	R-CB-15
217	R-CB-23 Mod.
218	R-CB-7X
219	R-F-3
220-221	R-F-6 (Rev.)
222	R-M-11 (Rev.)
223	[illegible] (Rev.)
224	[illegible]
225	R-P-3
226-229	R-W-26
230	R-S-21
231-232	R-S-24 (Rev.)
233	R-S-31
235	P-S-32
237	CS-214
401-484	ROADWAY CROSS-SECTIONS

TOTAL SHEETS WITHOUT CROSS-SECTIONS - 172
TOTAL SHEETS WITH CROSS-SECTIONS - 255

SCHEDULE OF REVISIONS

DATE	REVISION	DATE	RECOMMENDED	DATE	APPROVED
[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]	4-20-72			

PREPARED AND RECOMMENDED BY

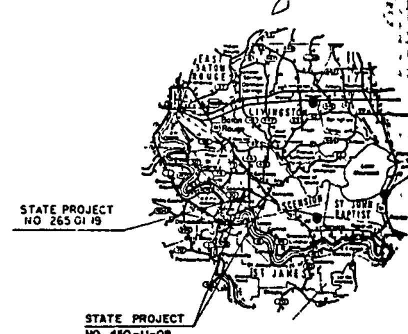
BARNARD AND BURK
HOWARD, NEEDLES, TAMMEN AND BERGENDOFF
JOINT VENTURE

CONSULTING ENGINEERS

BATON ROUGE, LOUISIANA

A. D. Kaufman

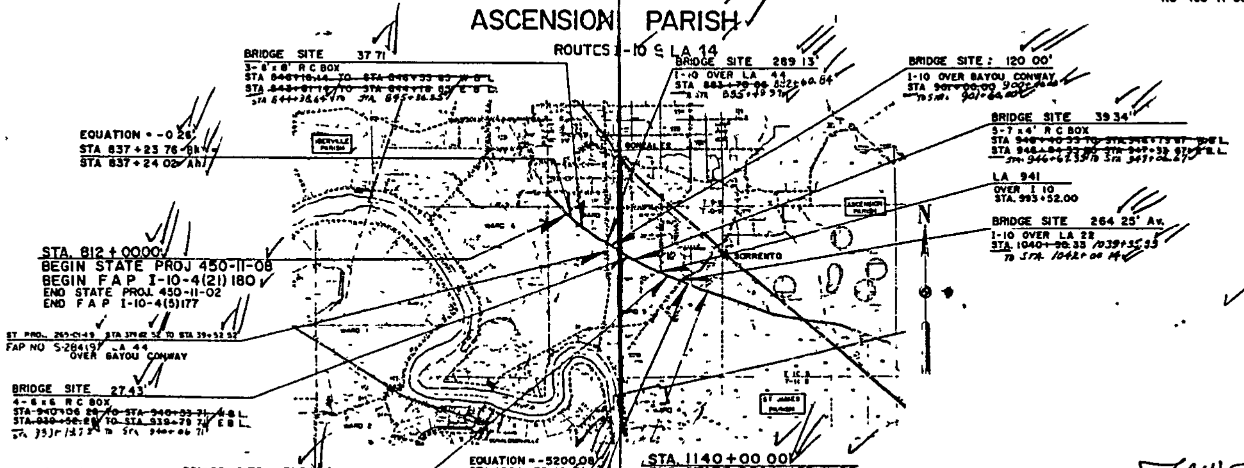
STATE OF LOUISIANA
A. D. KAUFMAN
Reg. No. 7611
REGISTERED PROFESSIONAL ENGINEER
IN CIVIL ENGINEERING



VICINITY MAP

NOTE STANDARD SPECIFICATIONS ADOPTED BY THE DEPARTMENT OF HIGHWAYS OCTOBER 1966, AND APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION, NOV. 4 1966 SHALL GOVERN THIS PROJECT EXCEPT AS AMENDED BY SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS

RECOMMENDED FOR APPROVAL
DATE 4/5/72
DATE 4/5/72
DATE 4/5/72
DATE 4/5/72



TRAFFIC 27,700
ADT (1992)
K = 10%
D = 60%
T = 9%
DHV = 2770
DESIGN SPEED 80 M.P.H.

TYPE OF CONSTRUCTION
~~PORTLAND CEMENT CONCRETE PAVEMENT~~
~~ASPHALTIC CONCRETE PAVEMENT~~
~~CONCRETE BRIDGE STRUCTURE~~
Grading, Base Course, Drainage Structures, Continuously Reinforced Concrete Pavement, [illegible]

DATUM USED M S L [illegible] GEODETIC
MAG. VAR
BEARINGS ARE TRUE
TRANSIT BOOKS 102-824, 102-825, 102-827 thru 102-829
LEVEL BOOKS 102-824 thru 102-829

SCALES	HOR.	VERT.
PLAN	1"=100'	—
PROFILE	1"=100'	1"=10'
CROSS SECTIONS	1"=10'	1"=10'

LAYOUT MAP
SCALE 1 INCH = 2 MILES

PROJECT ENGINEER

LENGTH OF PROJECT

DESCRIPTION		ALGEBRAIC SUM OF ALL EQUATIONS	GROSS LENGTH	EXCEPTION	BRIDGE LENGTH		ROADWAY LENGTH	
STA	STA	FEET	FEET	FEET	FEET	MILES	FEET	MILES
812 00.00	1140 00.00	5200 34	27 599.66		808.90	0 153	26 790.76	5.074
37+62 52	39+52 52		170				170	0 032
TOTAL LENGTH OF BRIDGES					808 90	0 153		
TOTAL LENGTH OF ROADWAY							26,960 76	5 106
TOTAL MILES								5 259

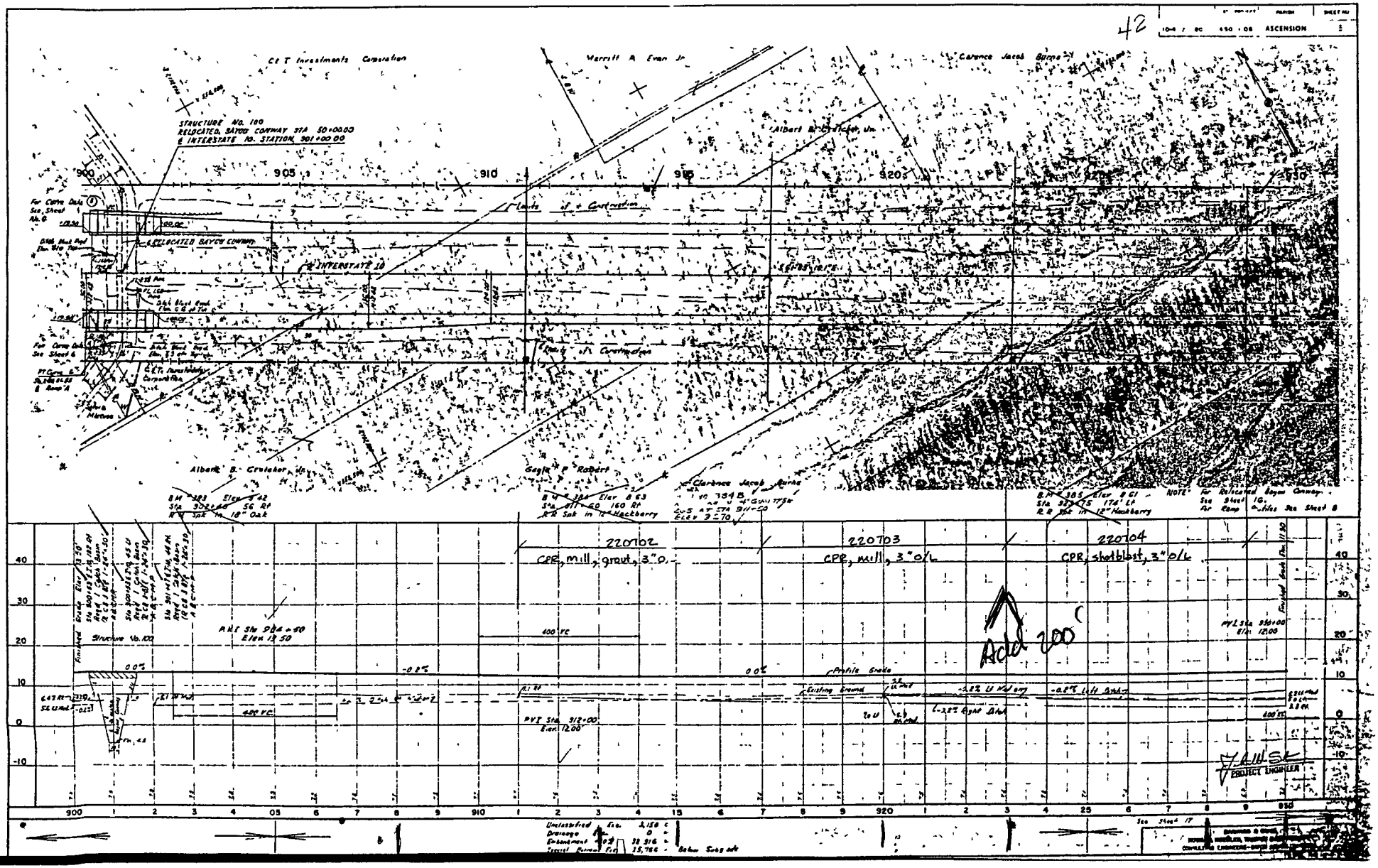
RECOMMENDED FOR APPROVAL DATE

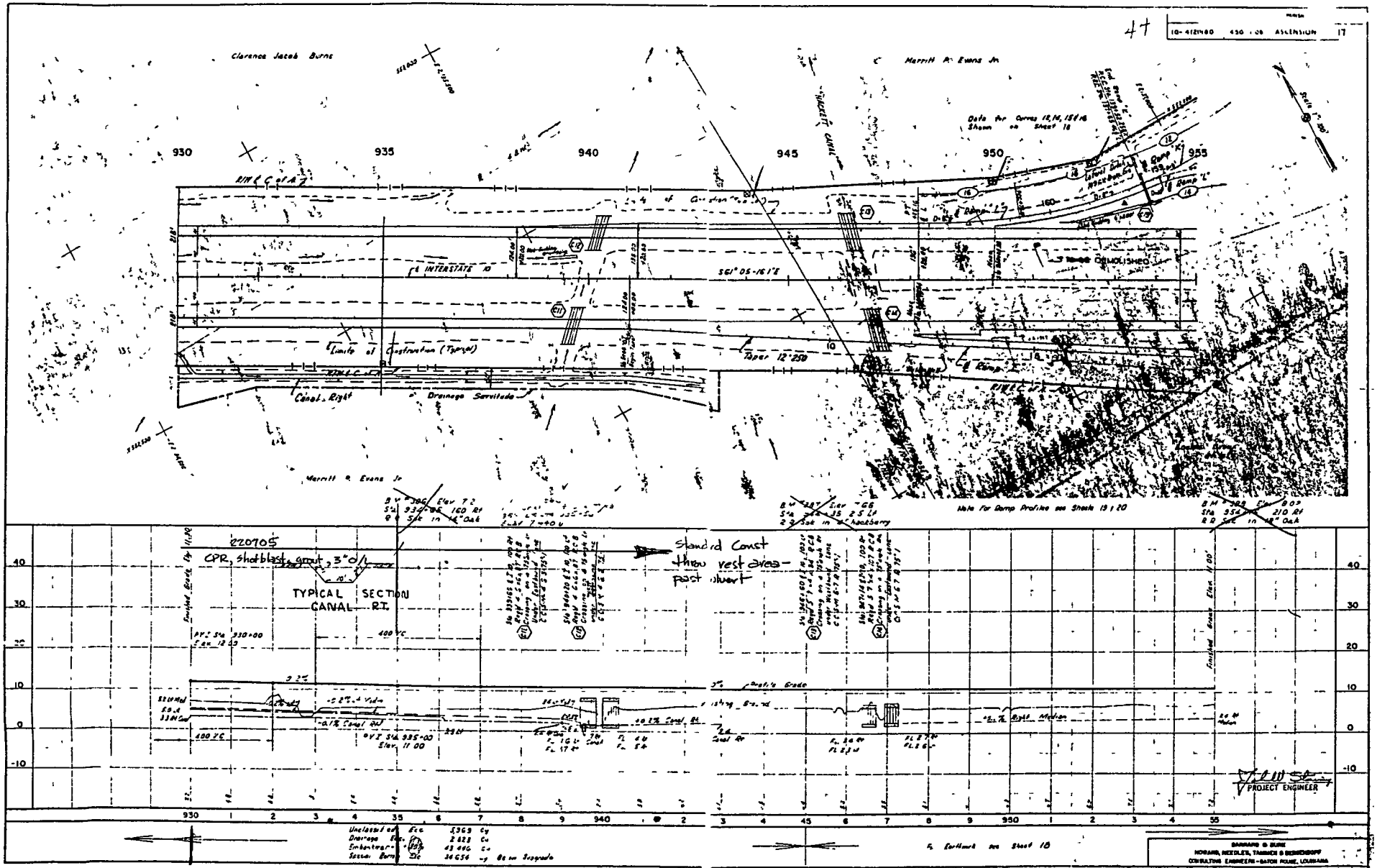
[redacted]

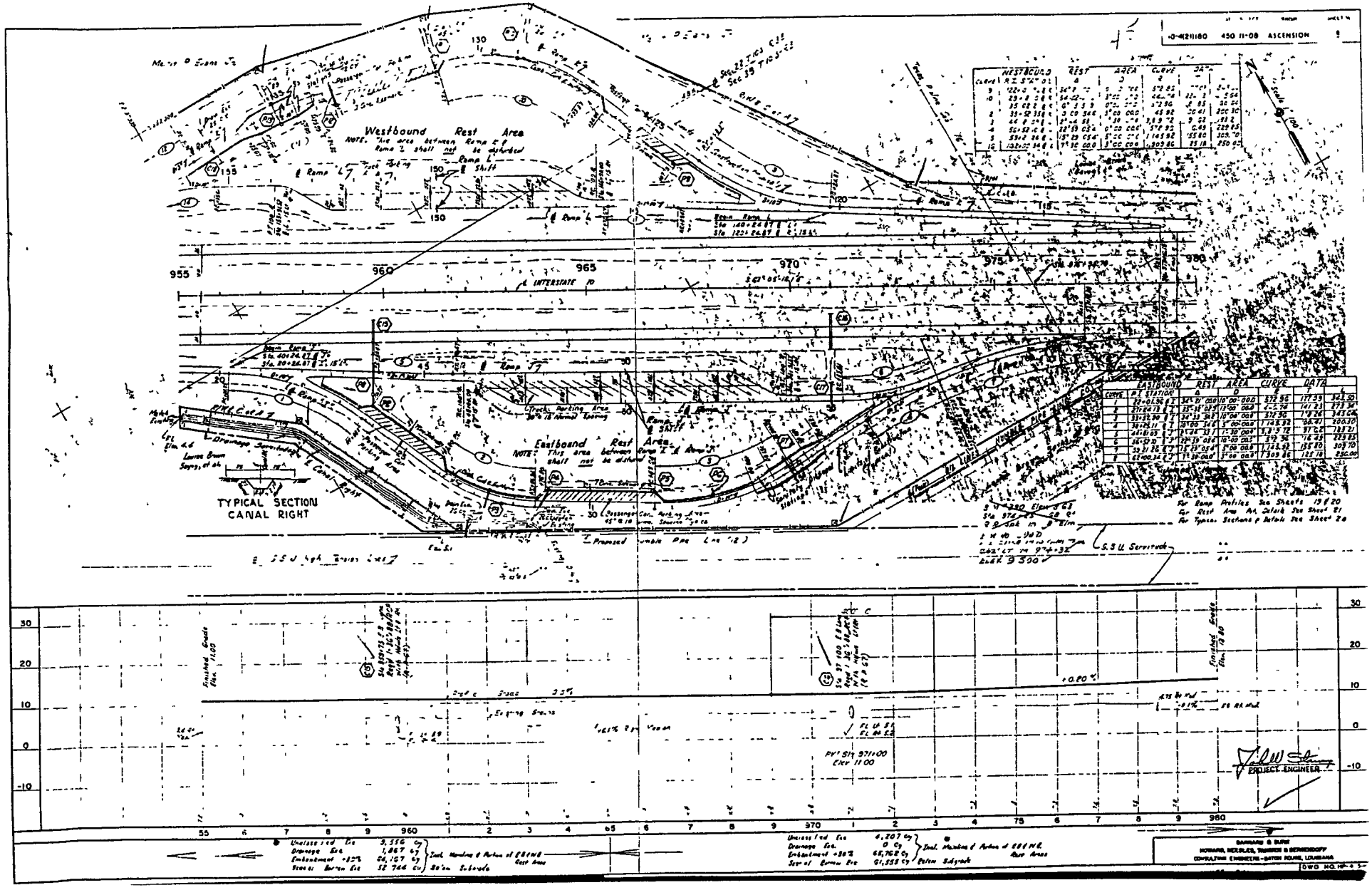
APPROVED DATE

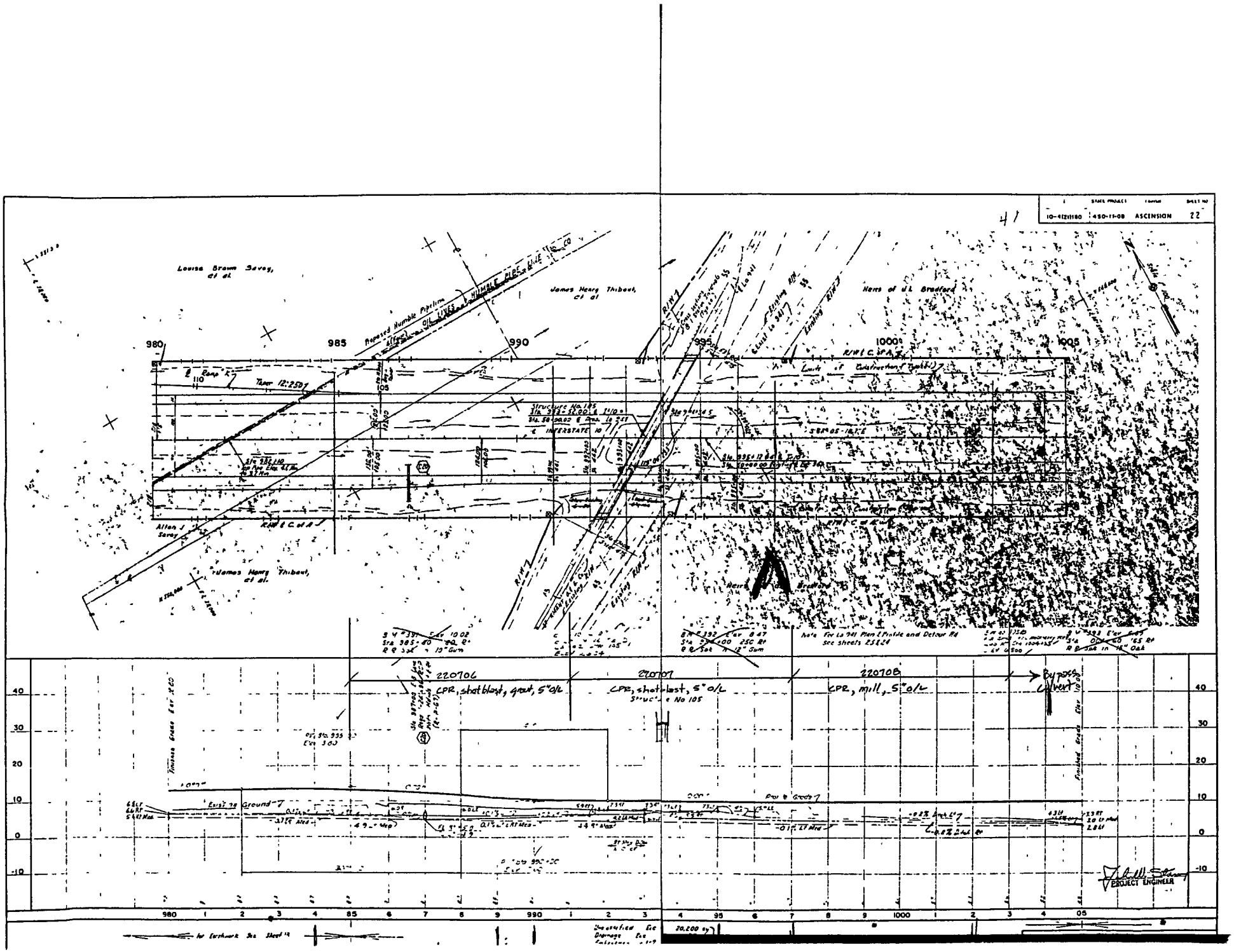
[redacted]

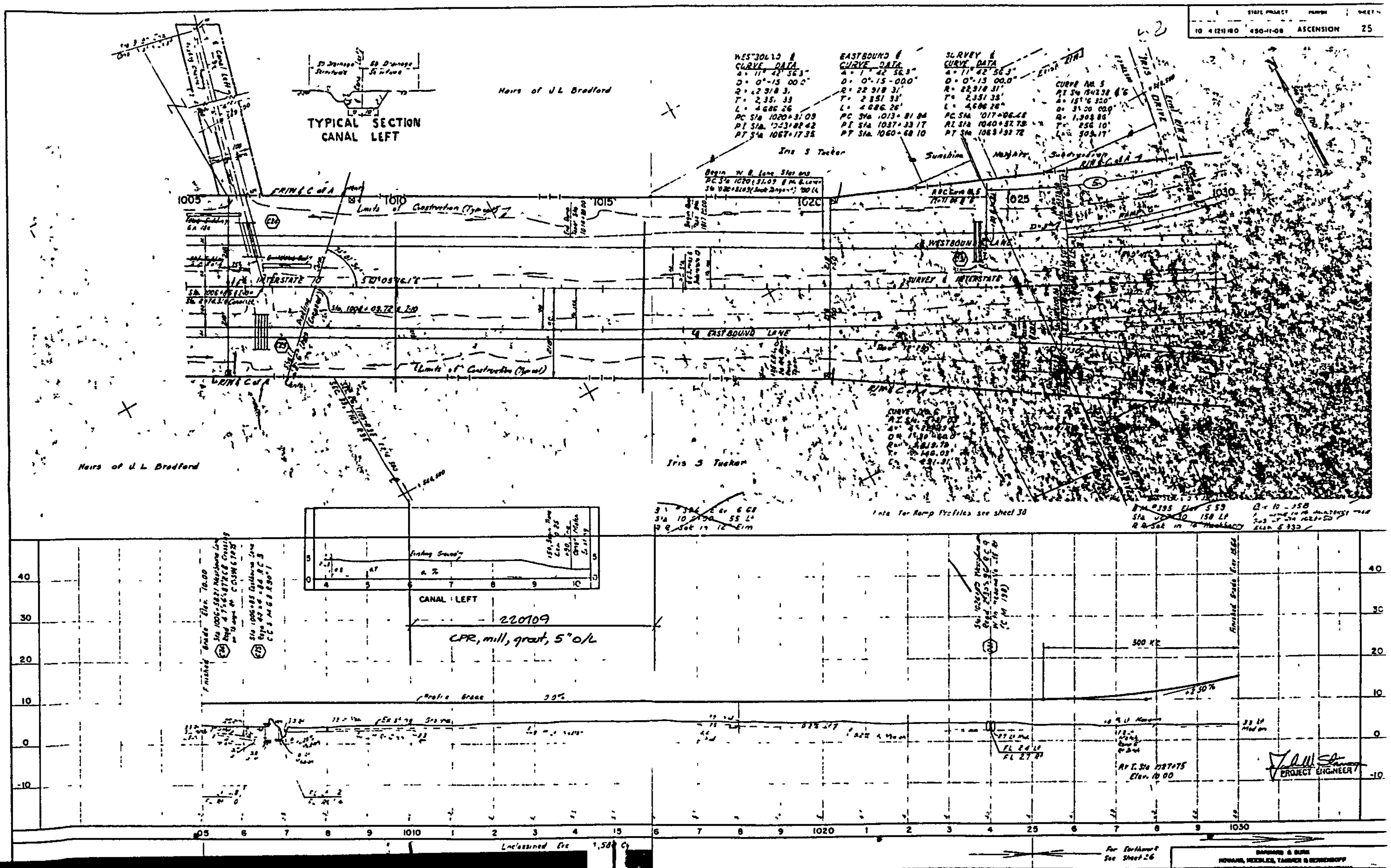
42


C & T Investments Corporation
Merritt A. Evan Jr.
Clarence Jacob Burns
STRUCTURE No. 180
RELOCATED BAYOU CONWAY STA 50+00.00
E INTERSTATE 10 STATION 901+00.00
900
905
910
915
920
925
930
RELOCATED BAYOU CONWAY
E INTERSTATE 10
Albert B. Crutcher
Gayle E. Robert
Clarence Jacob Burns
220102
CPR, mill, grout, 3" o/c
220103
CPR, mill, 3" o/c
220104
CPR, shotblast, 3" o/c
Structure No. 180
400' VC
Profile Grade
Existing Ground
PVI Sta 912+00
Elev 12.00
PVI Sta 930+00
Elev 12.00
Add 200'
PROJECT ENGINEER


47
Clarence Jacob Burns
Merritt R. Evans Jr.
930
935
940
945
950
955
℄ INTERSTATE 10
SEE DETAIL
Limits of Construction (Typical)
Taper 12:250
Canal, Right
Drainage Servitude
Data for Curves 12,14, 15 & 16 Shown on Sheet 18
Note for Ramp Profiles see Sheets 19 & 20
220705
CPR, shotblast, grout, 3"o/l
TYPICAL SECTION CANAL R.I.
Standard Const thru vest area - past culvert
PROJECT ENGINEER
Earthwork see Sheet 18
DWG NO


Westbound Rest Area
Eastbound Rest Area
INTERSTATE 10
TYPICAL SECTION
CANAL RIGHT
PROJECT ENGINEER
955
960
965
970
975
980


STATE PROJECT
10-412(11)80
450-11-08
ASCENSION
22
41
Louise Brown Savoy, et al
James Henry Thibaut, et al
Proposed Humble Pipeline
Heirs of A.L. Bradford
980
985
990
995
1000
1005
Tapers 12:250'
INTERSTATE 10
Allen J. Savoy
James Henry Thibaut, et al.
Heirs of A.L. Bradford
Note: For La 941 Plan & Profile and Detour Rd see sheets 25 & 26
220706
CPR, shotblast, grout, 5"o/L
220707
CPR, shotblast, 5"o/L
Structure No 105
220708
CPR, mill, 5"o/L
Bypass Culvert
Existing Ground
Finished Grade
PROJECT ENGINEER



ASCENSION
25
TYPICAL SECTION
CANAL LEFT
Heirs of J L Bradford
Iris S Tucker
INTERSTATE 10
WESTBOUND LANE
EASTBOUND LANE
SURVEY & INTERSTATE
Limits of Construction (Typical)
Sunshine Heights Subdivision
CANAL LEFT
220109
CPR, mill, grout, 5" O/L
PROJECT ENGINEER
For Earthwork See Sheet 26

[redacted]

STRATEGIC HIGHWAY RESEARCH PROGRAM

NATIONAL ACADEMY OF SCIENCES / NATIONAL RESEARCH COUNCIL
818 Connecticut Avenue, N.W., 4th Floor, Washington D.C 20006
SHRP Telecopier: (202) 223-2875 Verification: (202) 334-3774

MEMORANDUM

June 6, 1991

TO: Homer Wheeler, Southern Region

FROM: Amir N. Hanna

SUBJECT: Nomination for an SPS-7 in Louisiana

We have completed the review of the nominations for an SPS-7 site on I-10 in Ascension Parish County, Louisiana (BRE's submission of February 15. 1991, subsequent discussion with Mr. Gardner, and revised layout in BRE's submission of May 7, 1991). With a few tolerable exceptions, the site is a viable candidate for the SPS-7 experiment.

A concern about the test site is the existence of a rest area within the site boundaries. However, as the test sections are located at both sides of the rest area and the nearest test sections are located approximately 2,500 feet away from the rest area, the effect on traffic pattern should be minimal. Also, the intent of the Louisiana Department of Transportation and Development of not maintaining a "control section" is of a minor importance. Otherwise the proposed site meets the requirements for the SPS-7 experimental design for continuously reinforced concrete pavements in the "wet-no freeze" environmental zone.

Based on this review, the test site is considered acceptable and will be included in the experiment if no other discrepancies arise during site verification. Also, this approval stipulates the agreement of the Louisiana Department of Transportation and Development to conform to all design and participation requirements for this experiment.

Please inform the Louisiana Department of Transportation and Development of the acceptance of the proposed test site and proceed with coordination of the related activities. Also, we have reviewed the proposed plans for field sampling and testing forwarded with your letter of May 7, 1991 and found them to meet the requirements for this experiment. I commend BRE staff for their excellent work on this and other SPS activities.

cc: N.F. Hawks
D. Ooten
P-001B (S. Tayabji)

Lee. Mark L.

NATIONAL RESEARCH COUNCIL

STRATEGIC HIGHWAY RESEARCH PROGRAM

Southern Region, 8240 MoPac Expressway, Suite 250 Austin, TX 78759 Tel (512) 346-7477 Fax (512) 346-8750

HOMER G WHEELER
Regional Engineer

June 10, 1991

Mr. E. J. Breckwoldt
Support & Services Engineer
Louisiana Department of
Transportation & Development
P.O. Box 94245 - Room 213
Baton Rouge, Louisiana 70804-9245

Subject: SPS-7 Nomination.

Dear Ed,

We have just received word from SHRP-DC that their review of the SPS-7 project on I-10 in Ascension Parish, Louisiana, is complete.

A concern was expressed about the existence of a rest area within the test site boundaries. However, the effect on the traffic patterns should be minimal because the test sections are located at both sides of the rest area and the nearest test sections are approximately 2,500' away from the rest area. Another concern was expressed about not maintaining a control section; however, this also can be accommodated. The test site is considered acceptable and will be included in the overall SPS-7 experiment, if no other discrepancies that are insurmountable arise during the site verification. The proposed plans for field sampling and testing have also been reviewed and found to meet the requirements for this experiment. This approval stipulates the agreement of the Louisiana Department of Transportation and Development to conform to all design and participation requirements for this experiment.

Thank you for your continued cooperation and support.

Sincerely,

Homer G. Wheeler, P.E.
SHRP Regional Engineer, SRCO

cc: Steve Cumbaa, LA-TRC
Neil Hawks, SHRP-DC
Brent Rauhut, PM-SRCO
Amir Hanna, SHRP-DC
Mark Gardner, PE-SRCO

HGW:dmj

APPENDIX B

ELEVATION MEASUREMENTS

SECTION 220702 LOUSIANA

Trans. Offset		0'	Overlay Depth (IN.)	3'	Overlay Depth (IN.)	6'	Overlay Depth (IN.)	9'	Overlay Depth (IN.)	12'	Overlay Depth (IN.)
0+00	PRE	103.52	3.60	103.60	3.36	103.67	3.24	103.75	3.00	103.81	3.12
	MILLED	103.50		103.53		103.62		103.70		103.77	
	POST	103.82		103.88		103.94		104.00		104.07	
1+00	PRE	103.30	3.12	103.37	3.12	103.45	3.00	103.52	3.00	103.59	3.12
	MILLED	103.30		103.33		103.42		103.47		103.55	
	POST	103.56		103.63		103.70		103.77		103.85	
2+00	PRE	103.10	3.72	103.18	3.48	103.27	3.12	103.34	3.12	103.41	3.12
	MILLED	103.10		103.16		103.23		103.29		103.39	
	POST	103.41		103.47		103.53		103.60		103.67	
3+00	PRE	102.93	3.24	103.00	3.12	103.10	2.76	103.17	2.76	103.23	2.88
	MILLED	102.92		102.98		103.05		103.12		103.21	
	POST	103.20		103.26		103.33		103.40		103.47	
4+00	PRE	102.78	3.12	102.84	3.24	102.90	3.24	102.97	3.12	103.05	3.00
	MILLED	102.74		102.82		102.90		102.94		103.00	
	POST	103.04		103.11		103.17		103.23		103.30	
5+00	PRE	102.70	2.88	102.77	2.88	102.84	2.76	102.92	2.52	102.99	2.64
	MILLED	102.67		102.72		102.81		102.87		102.96	
	POST	102.94		103.01		103.07		103.13		103.21	

Elevation Readings and Overlay Thickness 29–Mar–93

SECTION 220703 LOUSIANA

Trans. Offset	0'	Overlay Depth (IN.)	3'	Overlay Depth (IN.)	6'	Overlay Depth (IN.)	9'	Overlay Depth (IN.)	12'	Overlay Depth (IN.)
0+00 PRE	102.75	3.12	102.82	2.88	102.89	2.76	102.96	2.76	103.02	3.00
MILLED	102.71		102.75		102.84		102.88		102.96	
POST	103.01		103.06		103.12		103.19		103.27	
1+00 PRE	102.75	3.36	102.80	3.48	102.88	3.36	102.95	3.24	103.02	3.36
MILLED	102.69		102.76		102.84		102.90		102.98	
POST	103.03		103.09		103.16		103.22		103.30	
2+00 PRE	102.73	2.88	102.80	2.76	102.87	2.76	102.94	2.64	103.01	2.76
MILLED	102.70		102.76		102.83		102.89		102.95	
POST	102.97		103.03		103.10		103.16		103.24	
3+00 PRE	102.73	3.00	102.81	2.88	102.88	2.88	102.94	2.88	103.01	3.00
MILLED	102.71		102.78		102.85		102.90		102.98	
POST	102.98		103.05		103.12		103.18		103.26	
4+00 PRE	102.75	2.76	102.82	2.64	102.90	2.52	102.96	2.52	103.03	2.64
MILLED	102.74		102.79		102.86		102.91		102.98	
POST	102.98		103.04		103.11		103.17		103.25	
5+00 PRE	102.74	2.88	102.81	3.00	102.89	2.76	102.95	2.76	103.01	3.00
MILLED	102.70		102.77		102.84		102.88		102.96	
POST	102.98		103.06		103.12		103.18		103.26	

Elevation Readings and Overlay Thickness 29–Mar–93

SECTION 220704 LOUSIANA

Trans. Offset		0'	Overlay Depth (IN.)	3'	Overlay Depth (IN.)	6'	Overlay Depth (IN.)	9'	Overlay Depth (IN.)	12'	Overlay Depth (IN.)
0+00	PRE	102.98	3.60	103.05	3.60	103.14	3.48	103.23	3.12	103.31	3.12
	POST	103.28		103.35		103.43		103.49		103.57	
1+00	PRE	102.98	3.84	103.05	3.96	103.13	3.84	103.19	3.84	103.26	3.96
	POST	103.30		103.38		103.45		103.51		103.59	
2+00	PRE	102.98	3.36	103.04	3.48	103.12	3.24	103.20	3.00	103.26	3.24
	POST	103.26		103.33		103.39		103.45		103.53	
3+00	PRE	102.93	3.72	102.98	3.96	103.07	3.72	103.12	3.72	103.19	3.72
	POST	103.24		103.31		103.38		103.43		103.50	
4+00	PRE	102.98	3.60	103.05	3.60	103.12	3.48	103.19	3.36	103.23	3.72
	POST	103.28		103.35		103.41		103.47		103.54	
5+00	PRE	102.99	3.60	103.05	3.72	103.13	3.48	103.19	3.60	103.25	3.72
	POST	103.29		103.36		103.42		103.49		103.56	

SECTION 220705 LOUSIANA

Trans. Offset		0'	Overlay Depth (IN.)	3'	Overlay Depth (IN.)	6'	Overlay Depth (IN.)	9'	Overlay Depth (IN.)	12'	Overlay Depth (IN.)
0+00	PRE	103.43	3.84	103.45	4.44	103.51	4.32	103.57	4.32	103.63	4.20
	POST	103.75		103.82		103.87		103.93		103.98	
1+00	PRE	103.27	3.60	103.31	3.72	103.38	3.48	103.44	3.60	103.48	3.96
	POST	103.57		103.62		103.67		103.74		103.81	
2+00	PRE	103.11	4.08	103.19	3.96	103.27	3.72	103.33	3.72	103.38	3.96
	POST	103.45		103.52		103.58		103.64		103.71	
3+00	PRE	102.98	3.36	103.04	3.36	103.11	3.24	103.17	3.12	103.23	3.24
	POST	103.26		103.32		103.38		103.43		103.50	
4+00	PRE	102.74	3.72	102.81	3.60	102.88	3.48	102.95	3.36	103.01	3.48
	POST	103.05		103.11		103.17		103.23		103.30	
5+00	PRE	102.62	3.72	102.68	3.60	102.77	3.48	102.82	3.48	102.88	3.48
	POST	102.93		102.98		103.06		103.11		103.17	

Elevation Readings and Overlay Thickness 29–Mar–93

SECTION 220706 LOUSIANA

Trans. Offset		0'	Overlay Depth (IN.)	3'	Overlay Depth (IN.)	6'	Overlay Depth (IN.)	9'	Overlay Depth (IN.)	12'	Overlay Depth (IN.)
0+00	PRE	104.83	5.40	104.88	5.88	104.95	5.64	105.01	5.76	105.06	6.00
	POST	105.28		105.37		105.42		105.49		105.56	
1+00	PRE	104.52	5.28	104.58	5.52	104.64	5.64	104.70	5.76	104.75	6.00
	POST	104.96		105.04		105.11		105.18		105.25	
2+00	PRE	104.06	8.88	104.16	6.72	104.20	5.52	104.25	4.08	104.30	2.64
	POST	104.80		104.72		104.66		104.59		104.52	
3+00	PRE	103.41	5.64	103.48	5.76	103.54	5.76	103.60	5.76	103.66	5.88
	POST	103.88		103.96		104.02		104.08		104.15	
4+00	PRE	102.71	5.64	102.78	5.64	102.84	5.64	102.90	5.52	102.97	5.64
	POST	103.18		103.25		103.31		103.36		103.44	
5+00	PRE	102.21	5.76	102.27	6.00	102.33	6.00	102.39	5.88	102.44	6.24
	POST	102.69		102.77		102.83		102.88		102.96	

SECTION 220707 LOUSIANA

Trans. Offset		0'	Overlay Depth (IN.)	3'	Overlay Depth (IN.)	6'	Overlay Depth (IN.)	9'	Overlay Depth (IN.)	12'	Overlay Depth (IN.)
0+00	PRE	101.88	5.52	101.96	5.52	102.04	5.52	102.10	5.40	102.15	5.64
	POST	102.34		102.42		102.50		102.55		102.62	
1+00	PRE	101.65	5.52	101.71	6.00	101.80	5.76	101.86	5.88	101.91	6.24
	POST	102.11		102.21		102.28		102.35		102.43	
2+00	PRE	101.60	5.52	101.66	5.76	101.72	5.76	101.78	5.76	101.83	6.12
	POST	102.06		102.14		102.20		102.26		102.34	
3+00	PRE	101.68	5.40	101.74	5.64	101.80	5.52	101.86	5.52	101.92	5.64
	POST	102.13		102.21		102.26		102.32		102.39	
4+00	PRE	101.65	6.00	101.71	6.24	101.77	6.12	101.83	6.12	101.89	6.24
	POST	102.15		102.23		102.28		102.34		102.41	
5+00	PRE	101.67	5.28	101.73	5.52	101.80	5.64	101.85	5.76	101.89	6.12
	POST	102.11		102.19		102.27		102.33		102.40	

Elevation Readings and Overlay Thickness 29–Mar–93

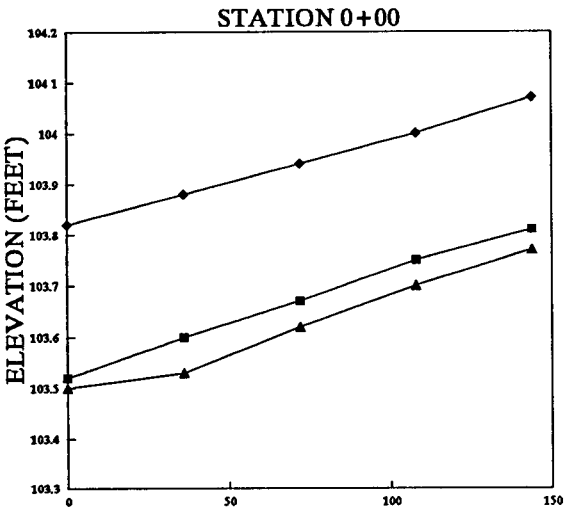
SECTION 220708 LOUSIANA

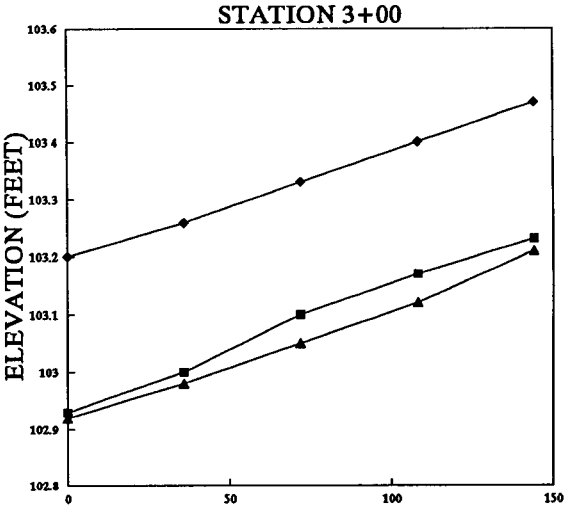
Trans. Offset		0'	Overlay Depth (IN.)	3'	Overlay Depth (IN.)	6'	Overlay Depth (IN.)	9'	Overlay Depth (IN.)	12'	Overlay Depth (IN.)
0+00	PRE	102.70	5.52	102.76	5.64	102.82	5.64	102.88	5.64	102.93	5.64
	MILLED	102.66		102.74		102.81		102.87		102.92	
	POST	103.16		103.23		103.29		103.35		103.40	
1+00	PRE	102.67	5.52	102.76	5.28	102.82	5.28	102.88	5.16	102.94	5.28
	MILLED	102.65		102.71		102.80		102.86		102.92	
	POST	103.13		103.20		103.26		103.31		103.38	
2+00	PRE	102.70	5.76	102.77	5.76	102.83	5.64	102.89	5.52	102.95	5.64
	MILLED	102.66		102.73		102.79		102.83		102.91	
	POST	103.18		103.25		103.30		103.35		103.42	
3+00	PRE	102.72	5.16	102.77	5.28	102.83	5.28	102.88	5.40	102.94	5.52
	MILLED	102.67		102.71		102.78		102.84		102.92	
	POST	103.15		103.21		103.27		103.33		103.40	
4+00	PRE	102.71	5.64	102.77	5.64	102.84	5.52	102.90	5.52	102.97	5.52
	MILLED	102.68		102.74		102.82		102.86		102.93	
	POST	103.18		103.24		103.30		103.36		103.43	
5+00	PRE	102.70	5.40	102.78	5.28	102.84	5.28	102.90	5.28	102.95	5.52
	MILLED	102.67		102.72		102.80		102.85		102.92	
	POST	103.15		103.22		103.28		103.34		103.41	

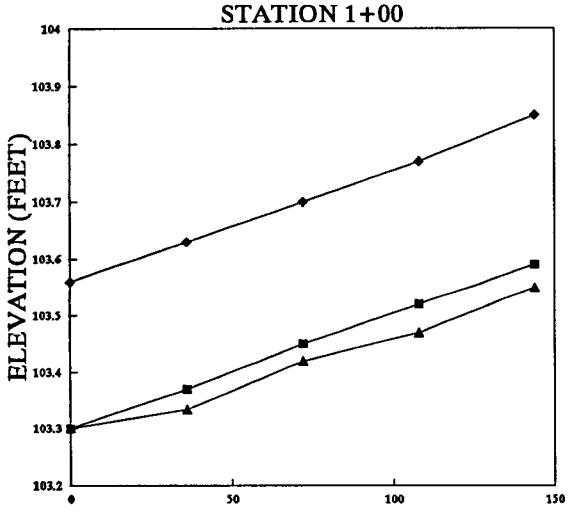
SECTION 220709 LOUSIANA

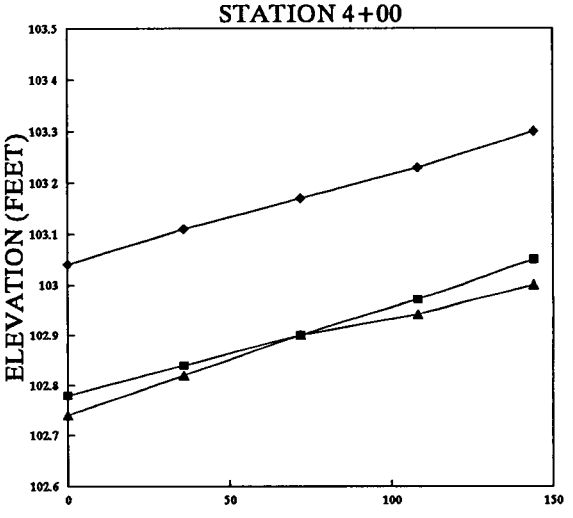
Trans. Offset		0'	Overlay Depth (IN.)	3'	Overlay Depth (IN.)	6'	Overlay Depth (IN.)	9'	Overlay Depth (IN.)	12'	Overlay Depth (IN.)
0+00	PRE	102.38	4.68	102.45	4.68	102.52	4.56	102.58	4.56	102.62	4.92
	MILLED	102.34		102.41		102.49		102.53		102.61	
	POST	102.77		102.84		102.90		102.96		103.03	
1+00	PRE	102.40	5.16	102.46	5.28	102.52	5.16	102.57	5.04	102.62	5.16
	MILLED	102.35		102.41		102.48		102.52		102.58	
	POST	102.83		102.90		102.95		102.99		103.05	
2+00	PRE	102.84	4.80	102.86	4.68	102.86	4.80	102.86	4.80	102.86	4.80
	MILLED	102.80		102.80		102.82		102.82		102.82	
	POST	103.24		103.25		103.26		103.26		103.26	
3+00	PRE	103.20	5.04	103.18	5.04	103.14	4.92	103.09	4.92	103.04	5.16
	MILLED	103.17		103.14		103.11		103.06		103.02	
	POST	103.62		103.60		103.55		103.50		103.47	
4+00	PRE	103.37	4.80	103.32	4.92	103.25	5.04	103.21	4.80	103.11	5.40
	MILLED	103.34		103.27		103.22		103.15		103.10	
	POST	103.77		103.73		103.67		103.61		103.56	
5+00	PRE	103.35	5.04	103.29	4.92	103.24	4.80	103.16	4.92	103.10	4.92
	MILLED	103.31		103.26		103.20		103.14		103.08	
	POST	103.77		103.70		103.64		103.57		103.51	

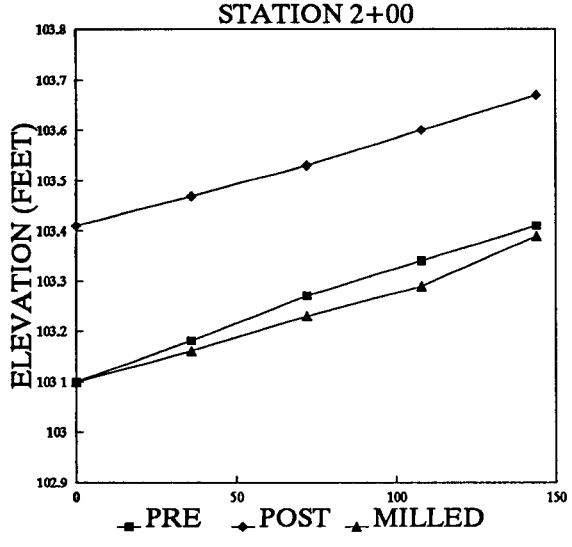
SECTION 220702



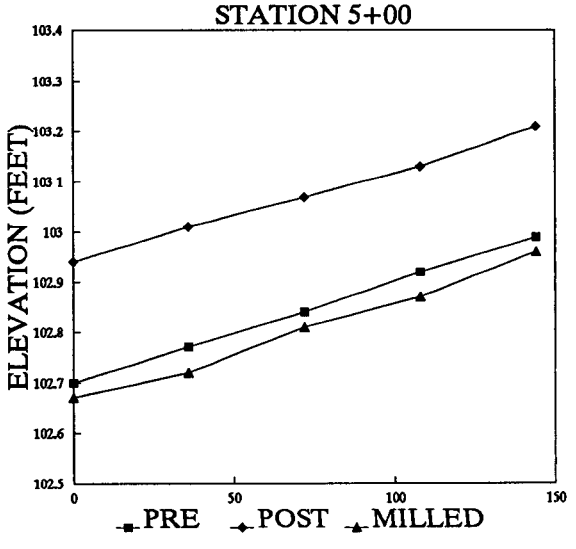






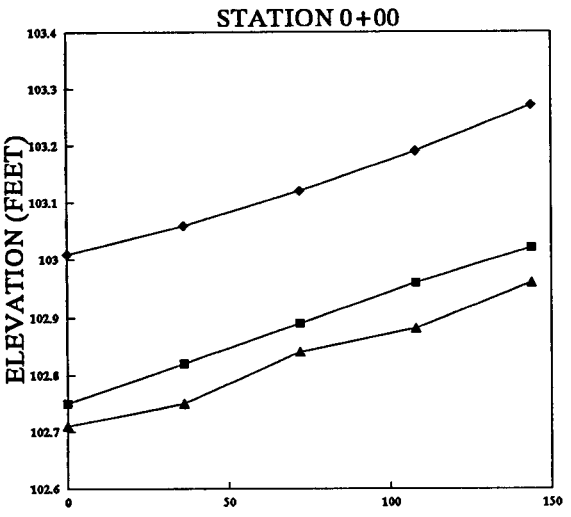


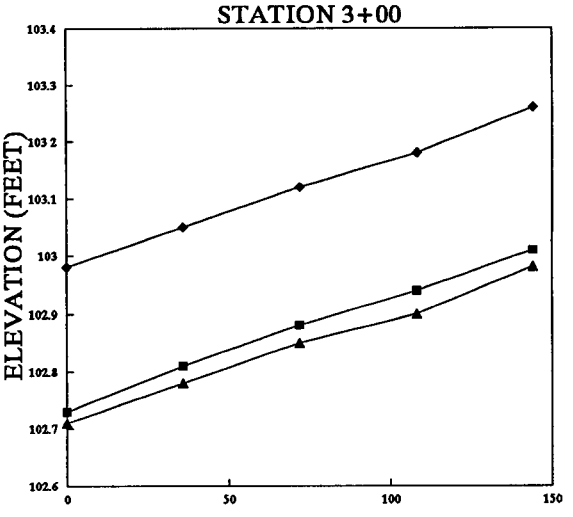
TRANSVERSE POSITION (INCHES)

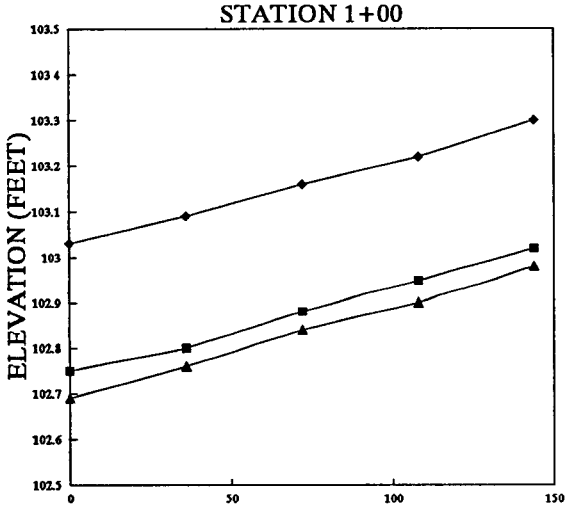


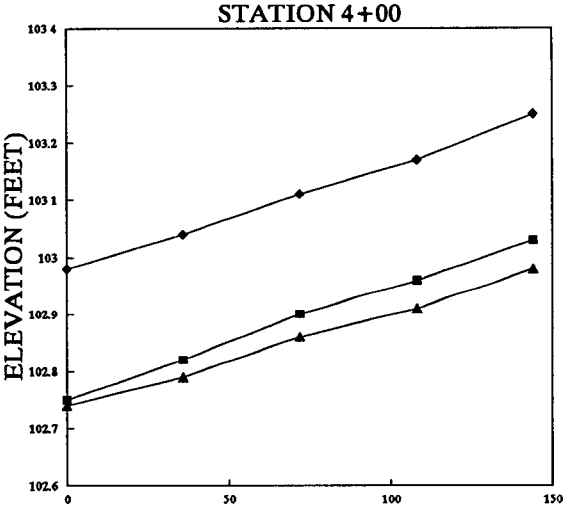
TRANSVERSE POSITION (INCHES)

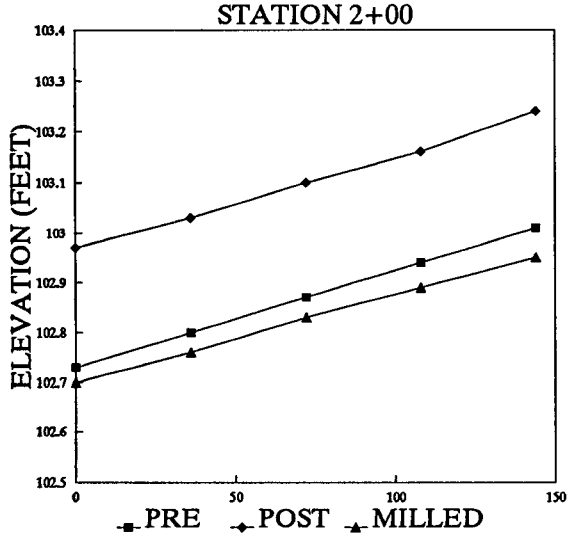
SECTION 220703











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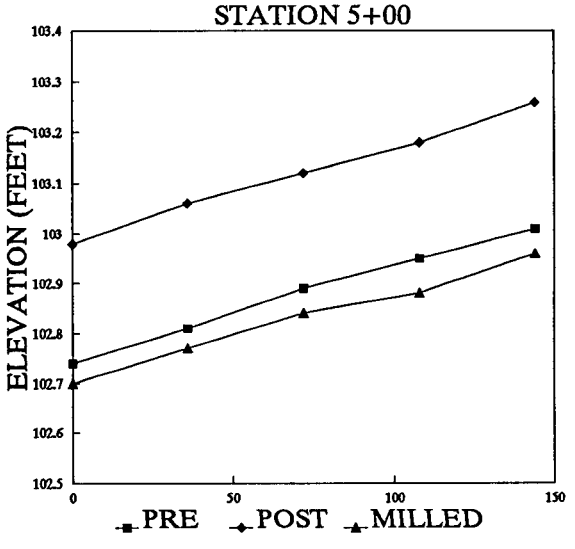
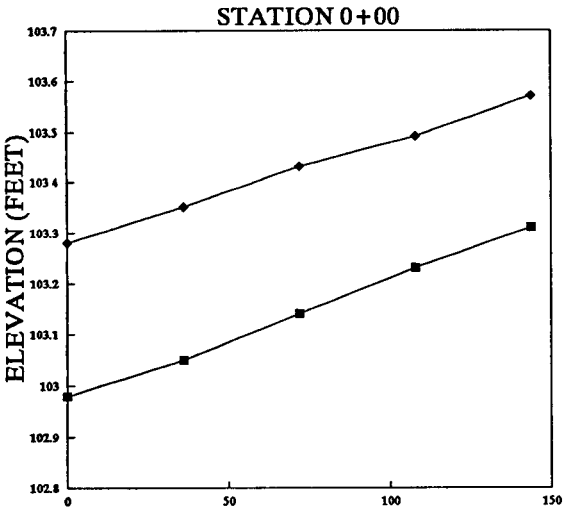
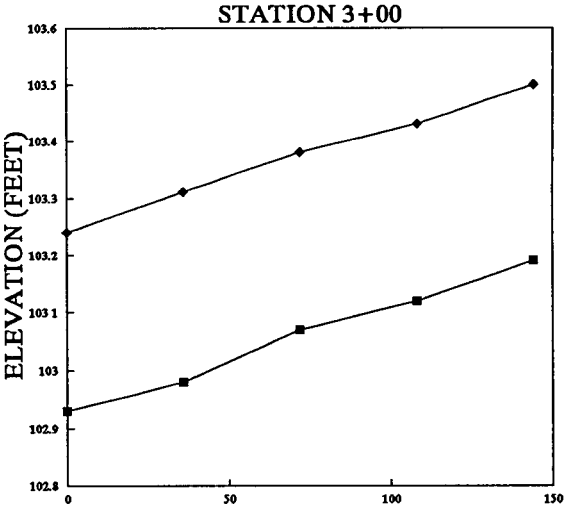
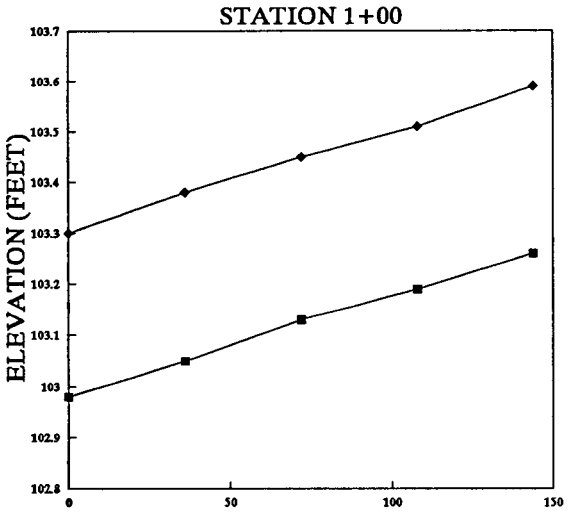


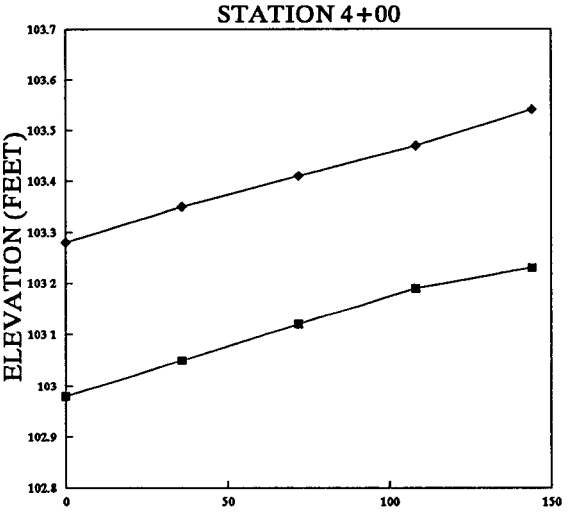
TRANSVERSE POSITION (INCHES)

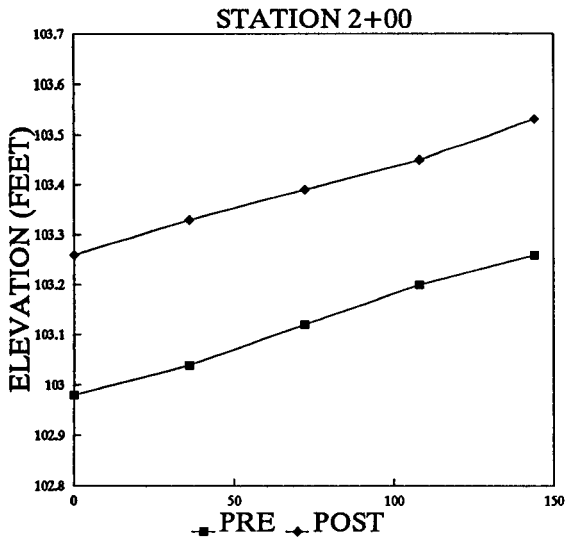
SECTION 220704











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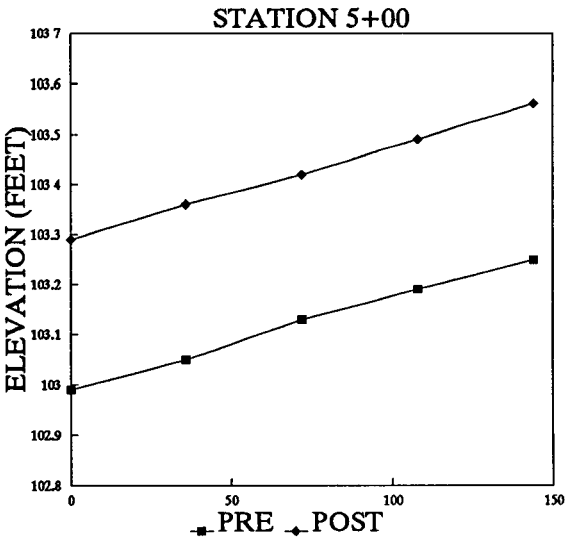
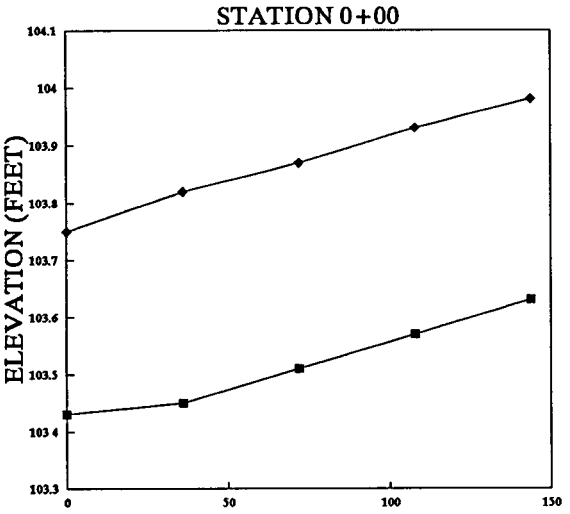
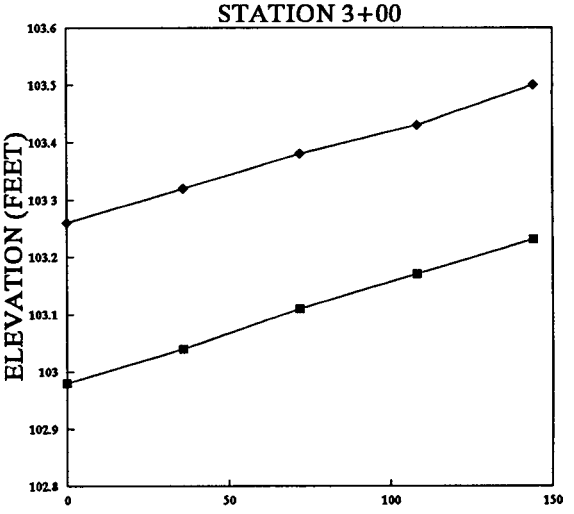
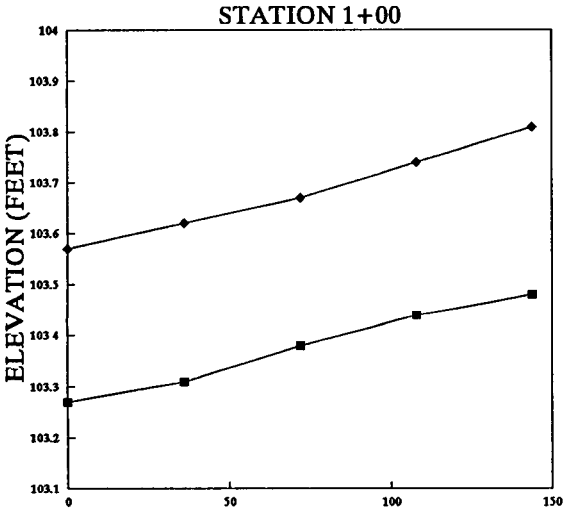


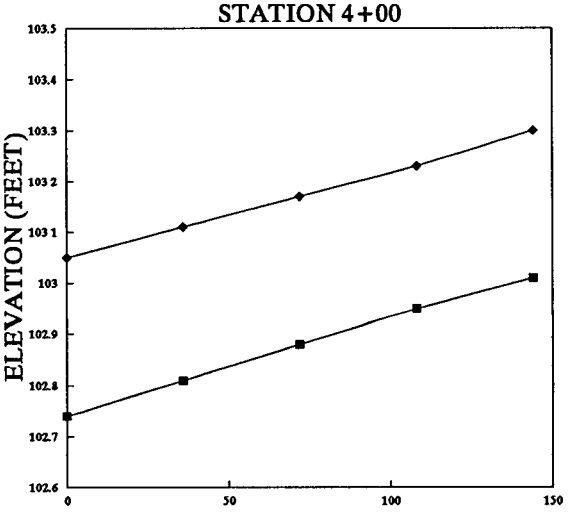
TRANSVERSE POSITION (INCHES)

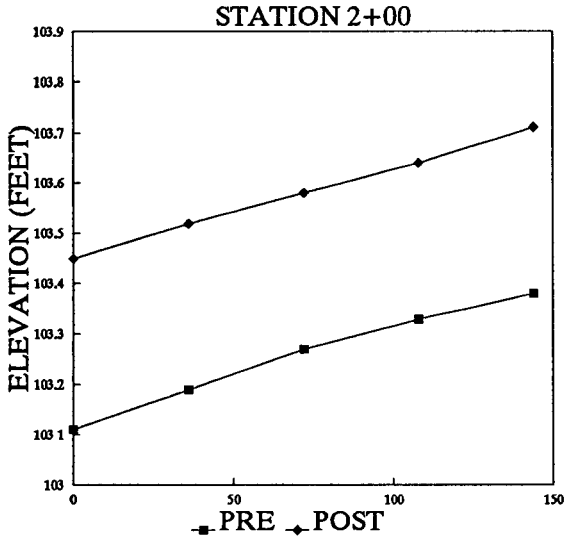
SECTION 220705











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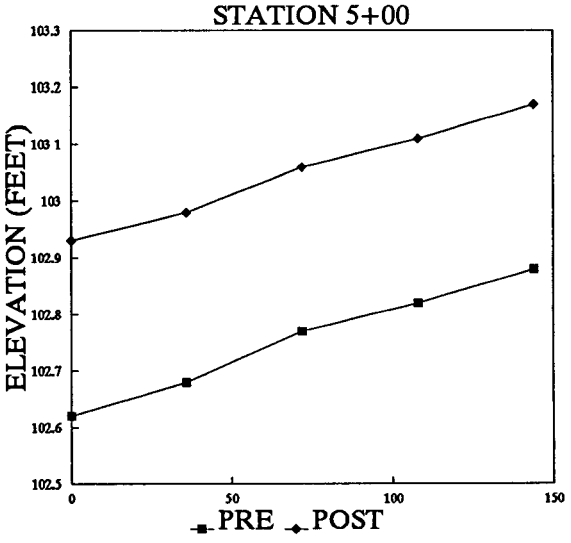
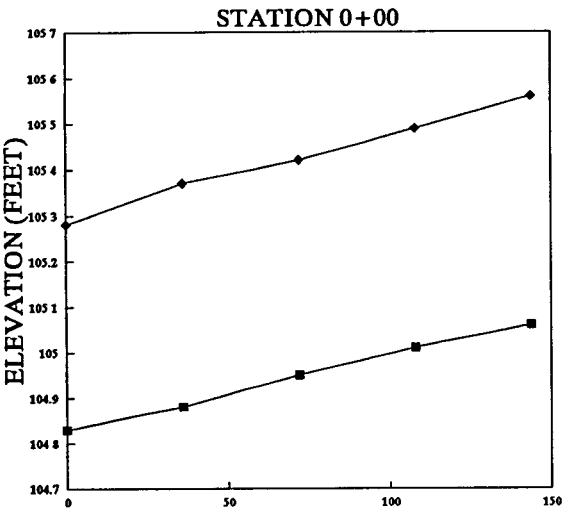
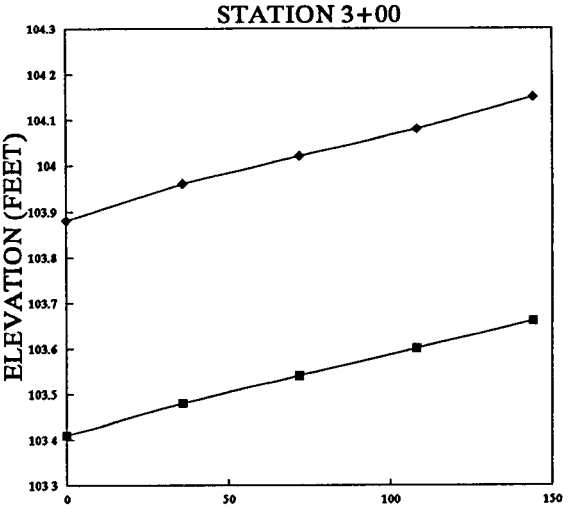
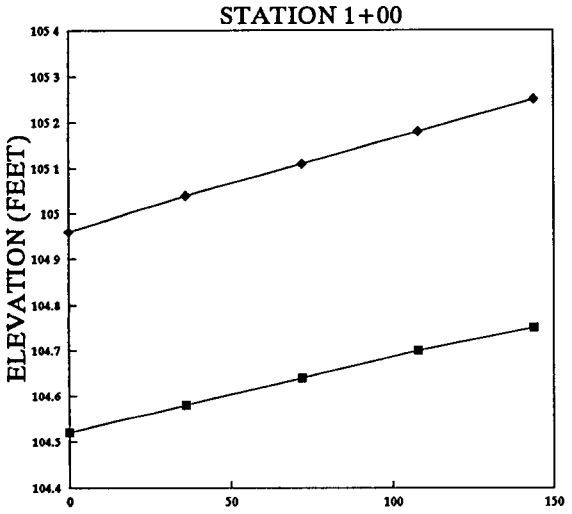


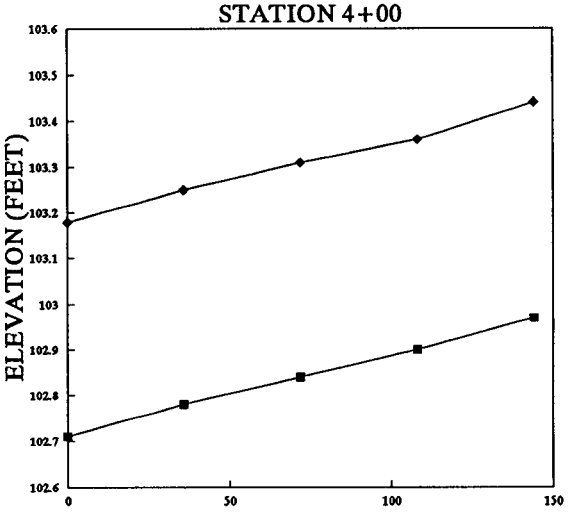
TRANSVERSE POSITION (INCHES)

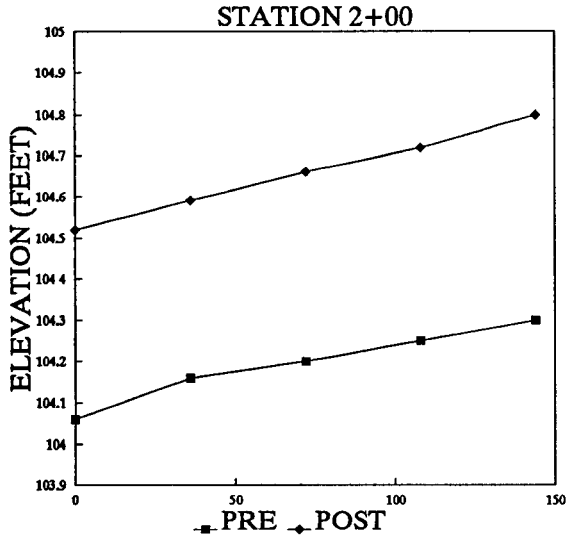
SECTION 220706











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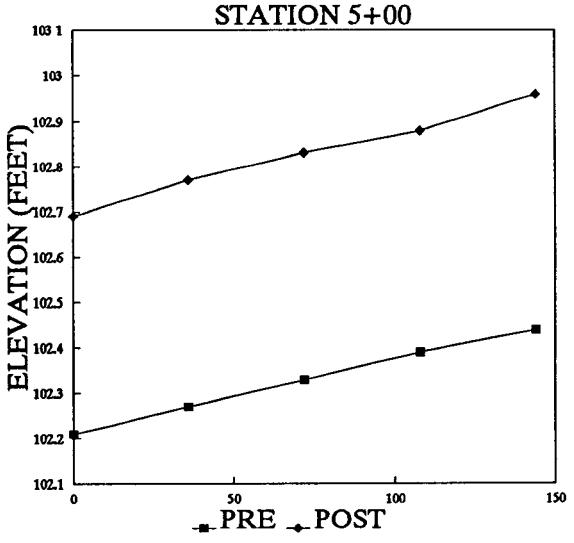
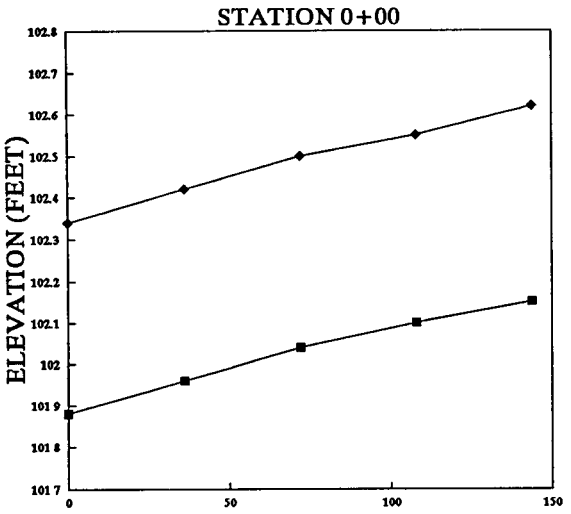
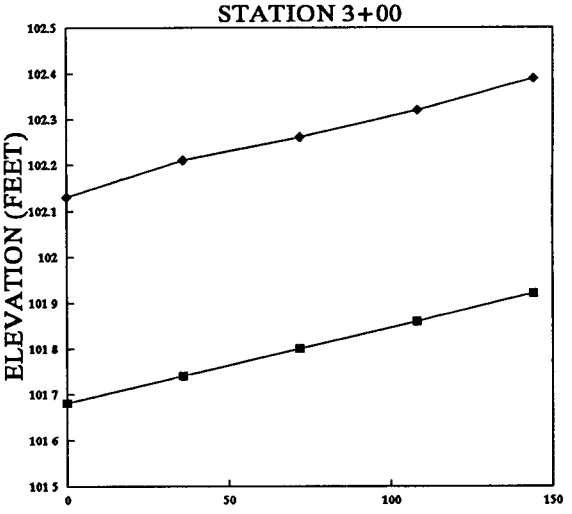
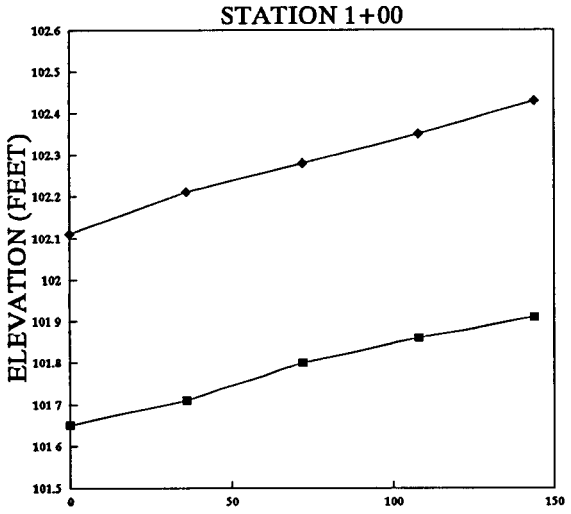


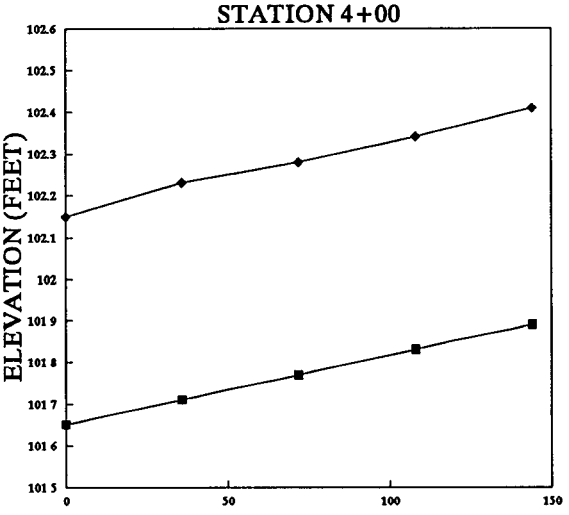
TRANSVERSE POSITION (INCHES)

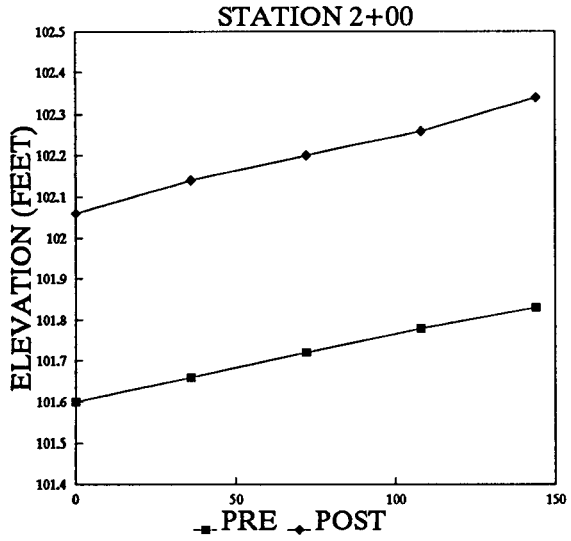
SECTION 220707











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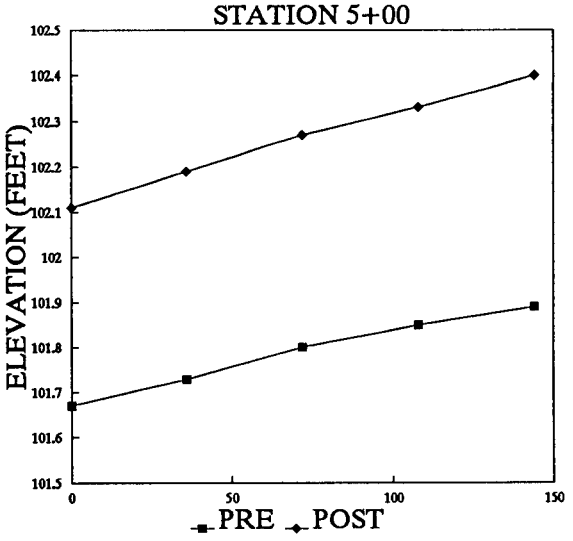
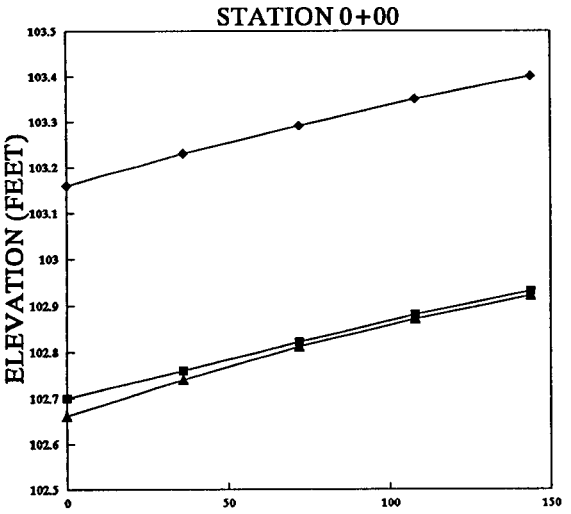
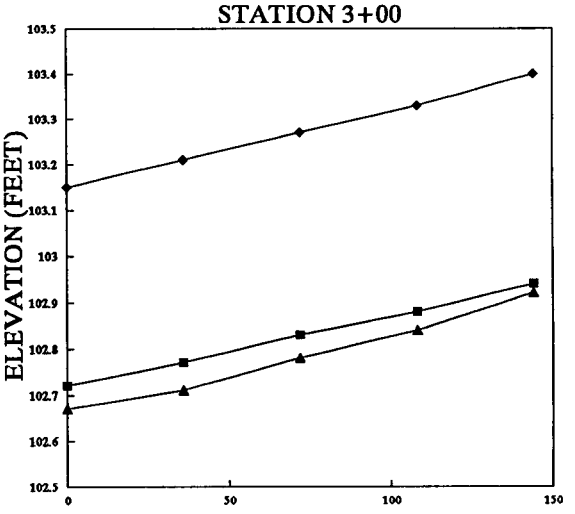
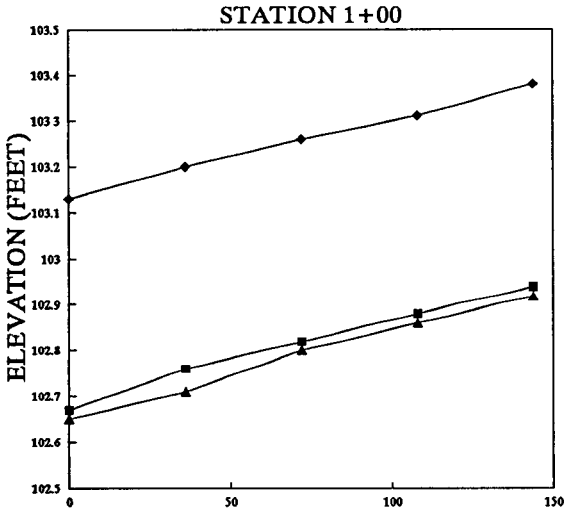


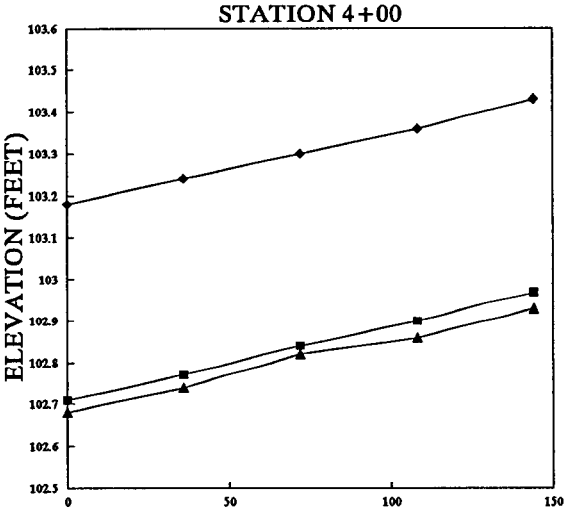
TRANSVERSE POSITION (INCHES)

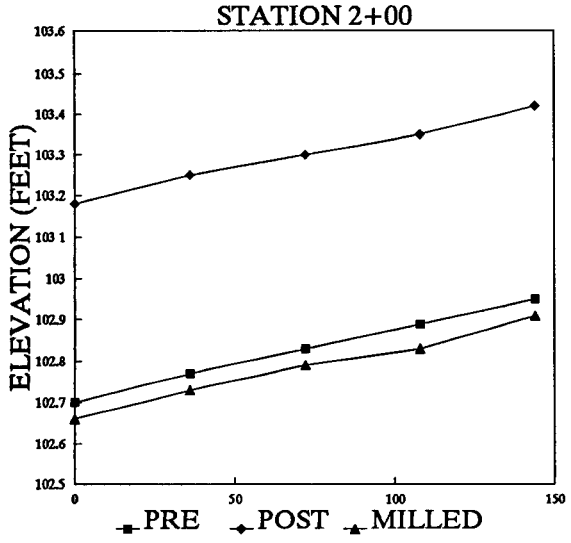
SECTION 220708

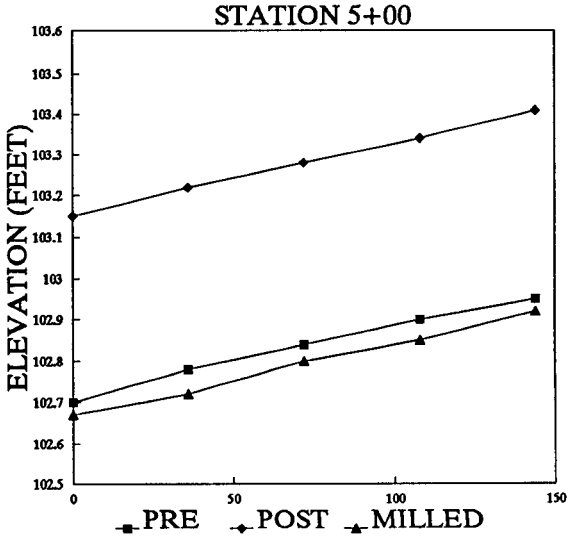








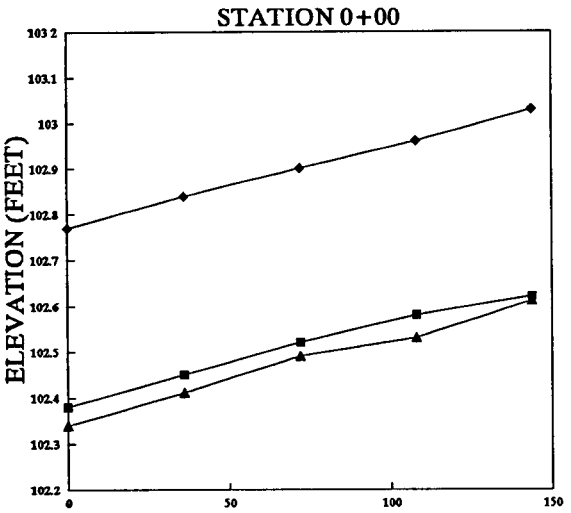


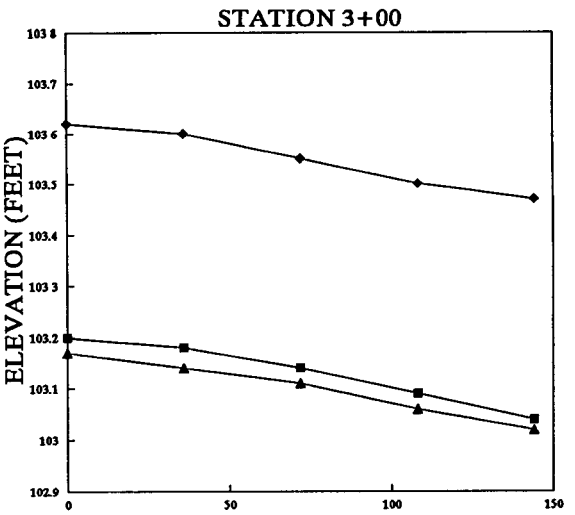


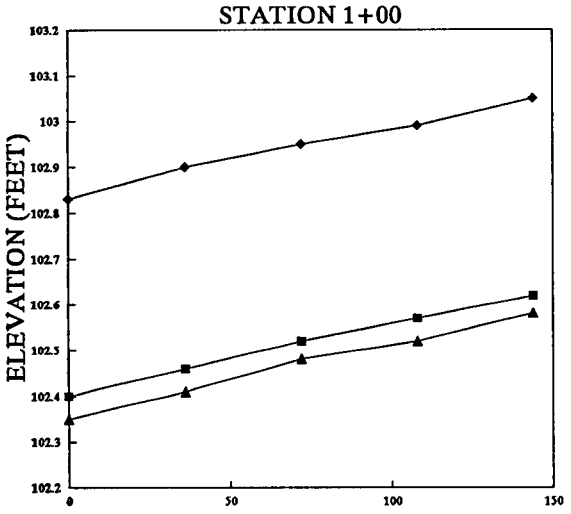
TRANSVERSE POSITION (INCHES)

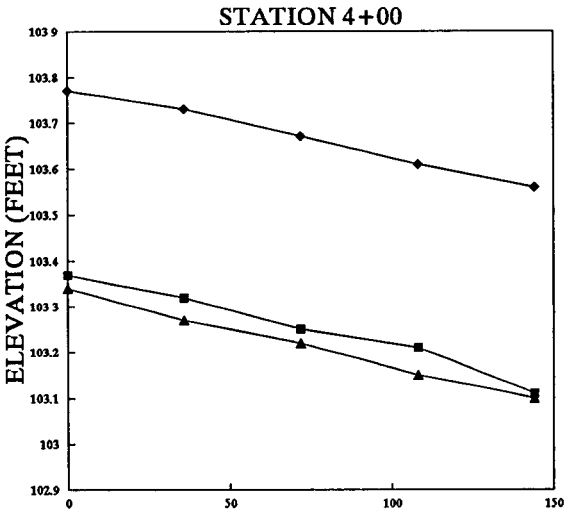
TRANSVERSE POSITION (INCHES)

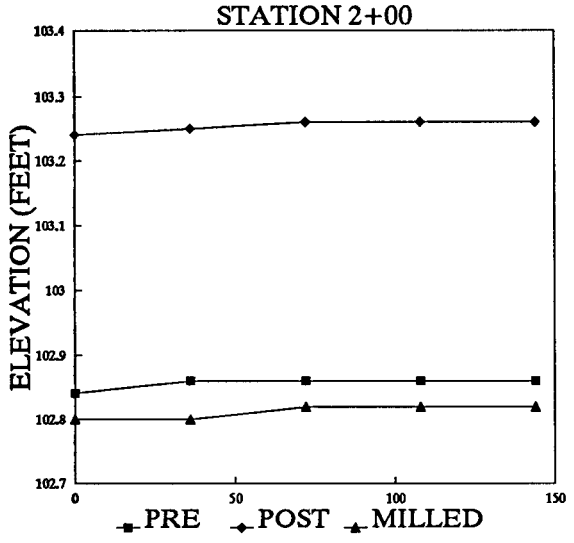
SECTION 220709



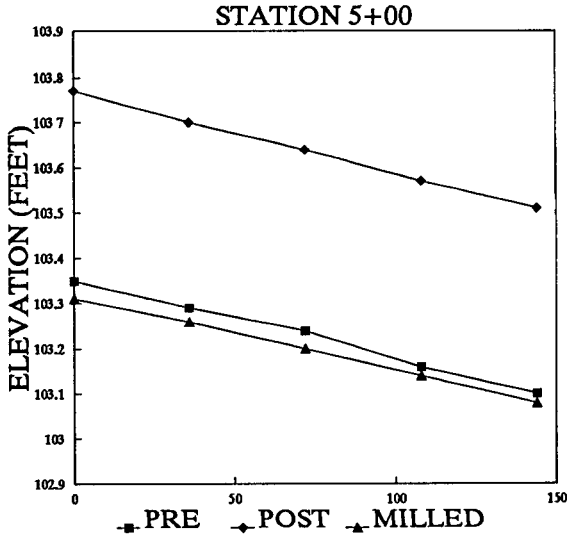








TRANSVERSE POSITION (INCHES)



TRANSVERSE POSITION (INCHES)

APPENDIX C

MATERIALS SAMPLING AND TESTING PLAN

NATIONAL RESEARCH COUNCIL

STRATEGIC HIGHWAY RESEARCH PROGRAM

Southern Region 8240 MoPac Expressway, Suite 250 Austin TX 78759 Tel (512) 346-7477 Fax (512) 346-8750

HOMER G WHEELER
Regional Engineer

May 7, 1991

Dr. Amir N. Hanna
Strategic Highway Research Program
818 Connecticut Avenue, N.W. - 4th Floor
Washington, DC 20006

Subject: Revised Materials Sampling and Field Testing Plan for SPS Section 2207 in Baton Rouge, Louisiana.

Dear Amir,

Mark Gardner has been working with Steve Cumbaa of the Louisiana DOTD to iron out the details for the Louisiana SPS-7 project. Changes in plans suggested by both SHRP and LA-DOTD have required modification of the Materials Sampling and Testing Plan.

Attached you will find the revised plan. Significant revisions to note include the following:

1. Station limits for test sections were revised to provide the maximum available transition lengths between test sections, as you suggested. Unfortunately, constraints in the available project length allowed only minor increases in transition lengths.

2. Shoulder probes were omitted from the sampling program. In talking with Mr. John Miller of PCS/LAW, it was determined that the shoulder probes are for evaluating the depth to a rigid layer, and characterizing soil profile at depth. Steve Cumbaa's experience in southern Louisiana led him to conclude that there is not a rigid layer within a reasonable depth of the surface, and the subgrade materials are quite consistent at depth. Therefore, there appears to be no reason to require the additional equipment and/or manpower to drill shoulder probes.

Please review the revised plan and provide any pertinent comments to the Southern Region Coordination Office. This sampling plan is to be incorporated as part of the contract documents for the SPS-7 construction project, which are currently being finalized. Anything you can do to expedite the review process will be greatly appreciated.

Sincerely,

Homer

Homer G. Wheeler, P.E.
SHRP Regional Engineer, SRCO

Attachment: As stated above.

cc.w/Attach: Shiraz Tayabji, PCS/LAW
Steve Cumbaa, LA-DOTD
Brent Rauhut, PM-SRCO
Ed Breckwoldt, LA-DOTD

HGW:dmj cc: Mark G

TABLE 1. SCOPE OF MATERIALS SAMPLING AND FIELD TESTING

MATERIAL & SAMPLING DESCRIPTION	NUMBER OF MATERIAL SAMPLES	SAMPLE TYPE DESIGNATION
PRE-CONSTRUCTION SAMPLING		
1. Concrete (Original Pavement)		
Coring - 4" diameter cores	9	C1-C9
Coring - 6" diameter cores	6	A1-A6
Coring - 12" diameter cores	3	BA1-BA3
2. Unbound Base/Subbase Layers (Per Layer)		
Augering 6" diameter holes	6	A1-A6
Bulk Sampling in 12" diameter holes	3	BA1-BA3
Bulk Sampling in Test Pit	2	TP1-TP2
In Situ Density & Moisture Content (Nuclear Gauge)	2	TP1-TP2
Moisture Content Samples	7	TP1-TP2, BA1-BA3
3. Bound Base/Subbase Layers (Per Layer)		
Coring - 4" diameter cores	9	C1-C9
4. Subgrade		
Thin-walled Tube Sampling (* 2 tubes per hole)	12*	A1-A6
Bulk Sampling in 12" diameter holes	3	BA1-BA3
Bulk Sampling in Test Pits	2	TP1-TP2
In Situ Density & Moisture Content (Nuclear Gauge)	2	TP1-TP2
Moisture Content Samples	7	TP1-TP2, BA1-BA3
AS-DELIVERED CONCRETE SAMPLING		
Bulk Sample - Concrete for 3" Overlays	3	FC1-FC3
Bulk Sample - Concrete for 5" Overlays	3	FC4-FC

TABLE 1. SCOPE OF MATERIALS SAMPLING AND FIELD TESTING

MATERIAL & SAMPLING DESCRIPTION	NUMBER OF MATERIAL SAMPLES	SAMPLE TYPE DESIGNATION
POST-CONSTRUCTION SAMPLING		
1. Concrete (Overlay)		
Coring - 4" diameter cores		
14 day	11	C10-C20
28 day	44	C21-C64
365 day	44	C65-C108
2. Concrete (Original Pavement)		
Coring - 4" diameter cores		
14 day	11	C10-C20
28 day	44	C21-C64
365 day	44	C65-C108

TABLE 2. BULK MATERIAL SAMPLING DURING CONSTRUCTION

LAYER	BULK SAMPLES FROM THREE 12" AUGER HOLES (BA1, BA2, AND BA3)	BULK SAMPLES FROM TEST PIT
Unbound Base	Maximum 200 lbs. (100 lbs. Minimum)	200 lbs.
Unbound Subbase	Maximum 200 lbs. (100 lbs. Minimum)	200 lbs.
Subgrade	• Coarse Grain 200 lbs. • Fine Grain 150 lbs.	200 lbs. 150 lbs.

TABLE 3. LA SPS-7 LABORATORY TESTING PLANS (PRECONSTRUCTION)

MATERIAL TYPE AND PROPERTIES	SHRP TEST DESIGNATION	SHRP PROTOCOL	NO. OF TESTS PER LAYER	MATERIAL SOURCE/[1] TEST LOCATIONS
I. BOUND (TREATED) BASE AND SUBBASE				
Type and Classification of Material and Treatment	TB01	P31	3	C1, C4, C7
Pozzolanic/Cementitious: Compressive Strength	TB02	P32	3	C1, C4, C7
Asphalt Treated: Resilient Modulus	TB03	P33	9	C1,C2,C3,C4,C5,C6,C7,C8,C9
HMAC: Resilient Modulus	AC07	P07	9	C1,C2,C3,C4,C5,C6,C7,C8,C9
II. UNBOUND GRANULAR BASE AND SUBBASE				
Particle Size Analysis	UG01	P41	3	TP1, [BA1-BA3], TP2
Sieve Analysis (Washed)	UG02	P41	3	TP1, [BA1-BA3], TP2
Atterberg Limits	UG04	P43	3	TP1, [BA1-BA3], TP2
Moisture-Density Relations	UG05	P44	3	TP1, [BA1-BA3], TP2
Resilient Modulus	UG07	P46	3	TP1, [BA1-BA3], TP2
Classification	UG08	P47	3	TP1, [BA1-BA3], TP2
Permeability	UG09	P48	3	TP1, [BA1-BA3], TP2
Natural Moisture Content	UG10	P49	3	TP1, [BA1-BA3], TP2
III. SUBGRADE				
Sieve Analysis	SS01	P51	3	TP1, [BA1-BA3], TP2
Hydrometer to 0.001mm	SS02	P42	3	TP1, [BA1-BA3], TP2
Atterberg Limits	SS03	P43	3	TP1, [BA1-BA3], TP2
Classification	SS04	P52	6	TP1, [BA1-BA3], TP2, A1, A3, A5
Moisture-Density Relations	SS05	P55	3	TP1, [BA1-BA3], TP2
Resilient Modulus	SS07	P46	3	A1, A3, A6
Unit Weight	SS08	P56	6	A1,A2,A3,A4,A5,A6
Natural Moisture Content	SS09	P49	3	TP1, [BA1-BA3], TP2

NOTE 1: Cores within brackets are from the same sampling location.

TABLE 3. LA SPS-7 LABORATORY TESTING PLANS (DURING CONSTRUCTION)

MATERIAL TYPE AND PROPERTIES	SHRP TEST DESIGNATION	SHRP PROTOCOL	NO. OF TESTS PER LAYER*	MATERIAL SOURCE/[1] TEST LOCATIONS	
				CONCRETE FOR 3" OVERLAYS	CONCRETE FOR 5" OVERLAYS
PORTLAND CEMENT CONCRETE OVERLAY					
Compressive Strength	PC01	P61	6	FC1, FC2, FC3	FC4, FC5, FC6
14-day	PC01	P61	6	FC1, FC2, FC3	FC4, FC5, FC6
28-day	PC01	P61	6	FC1, FC2, FC3	FC4, FC5, FC6
365-day					
Tensile Strength	PC02	P62	6	FC1, FC2, FC3	FC4, FC5, FC6
14-day	PC02	P62	6	FC1, FC2, FC3	FC4, FC5, FC6
28-day	PC02	P62	6	FC1, FC2, FC3	FC4, FC5, FC6
365-day					
Flexural Strength					
14-day	PC09	P69	6	FC1, FC2, FC3	FC4, FC5, FC6
28-day	PC09	P69	6	FC1, FC2, FC3	FC4, FC5, FC6
365-day	PC09	P69	6	FC1, FC2, FC3	FC4, FC5, FC6
Air Content	ASTM	TBA	2	FC1,OR FC2,OR FC3	FC4,OR FC5,OR FC6
Slump	ASTM	TBA	2	FC1,OR FC2,OR FC3	FC4,OR FC5,OR FC6

* Each set of 6 tests is made up of one specimen molded from each of the 6 fresh concrete samples (FC1-FC6).

TABLE 3. LA SPS-7 LABORATORY TESTING PLANS (POSTCONSTRUCTION)

MATERIAL TYPE AND PROPERTIES	SHRP TEST DESIGNATION	SHRP PROTOCOL	NO. OF TESTS PER LAYER	MATERIAL SOURCE/[1] TEST LOCATIONS
I. PORTLAND CEMENT CONCRETE OVERLAY:				
Compressive Strength				
14-day	PC01	P61	4	C12, C15, C17, C19
28-day	PC01	P61	4	C43, C50, C57, C64
365-day	PC01	P61	4	C86, C93, C100, C107
Splitting Tensile Strength				
14-day	PC02	P62	4	C13, C16, C18, C20
28-day	PC02	P62	4	C39, C46, C53, C60
365-day	PC02	P62	4	C87, C94, C101, C108
PCC Coefficient of Thermal Expansion*				
14-day	PC03	P63	1	C11
Static Modulus of Elasticity				
28-day	PC04	P64	4	C42, C49, C56, C63
365-day	PC04	P64	4	C83, C90, C97, C104
Interface Bond Strength				
28-day	PC07	P67	32	C21-36,C37-38,C40-41,C44-45,C47-48,C51-52,C54-55,C58-59,C61-62
365-day	PC07	P67	32	C65-80,C81-82,C85-86,C88-89,C92-93,C95-96,C99-100,C102-103,C106-107
Air Content of Hardened Concrete				
14-day	PC08	P68	2	C10, C14
PCC Unit Weight				
14-day	PC05	P65	4	C12, C15, C17, C19
28-day	PC05	P65	4	C43, C50, C57, C64
365-day	PC05	P65	4	C86, C93, C100, C107
Core Examination/Thickness	PC06	P66	99	C10-20, C21-64, C65-108
II. PORTLAND CEMENT CONCRETE ORIGINAL PAVEMENT:				
Compressive Strength	PC01	P61	8	C21,C25,C29,C33,C37,C44,C51,C58
Splitting Tensile Strength	PC02	P62	8	C23,C27,C31,C35,C40,C47,C54,C61
PCC Coefficient of Thermal Expansion*	PC03	P63	1	C11
Static Modulus of Elasticity	PC04	P64	8	C22,C25,C30,C34,C38,C45,C52,C59
PCC Unit Weight	PC05	P65	8	C21,C25,C29,C33,C37,C44,C51,C58
Core Examination/Thickness	PC06	P66	99	C10-20,C21-64,C65-108

* Test to be performed by FHWA.

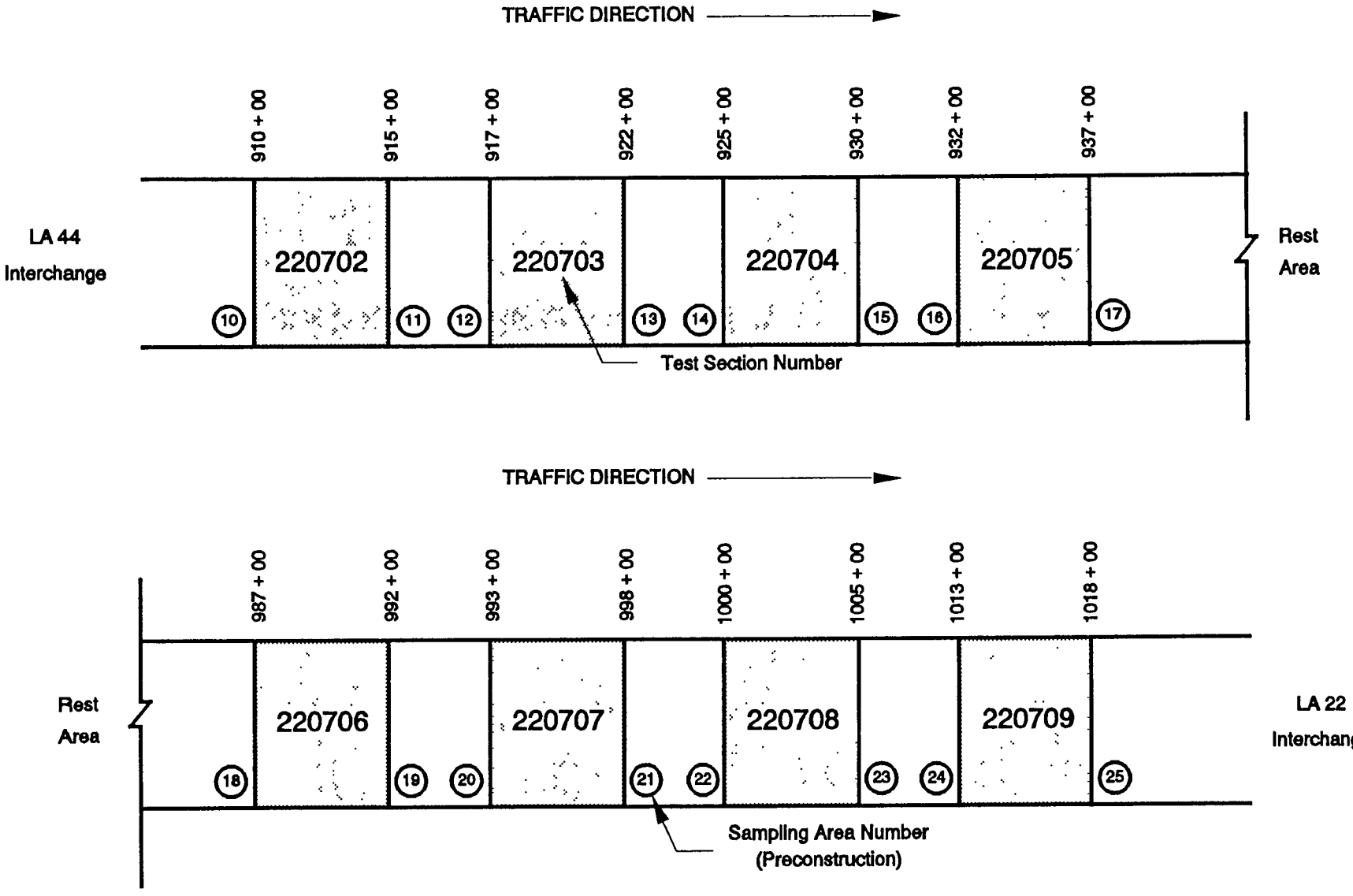
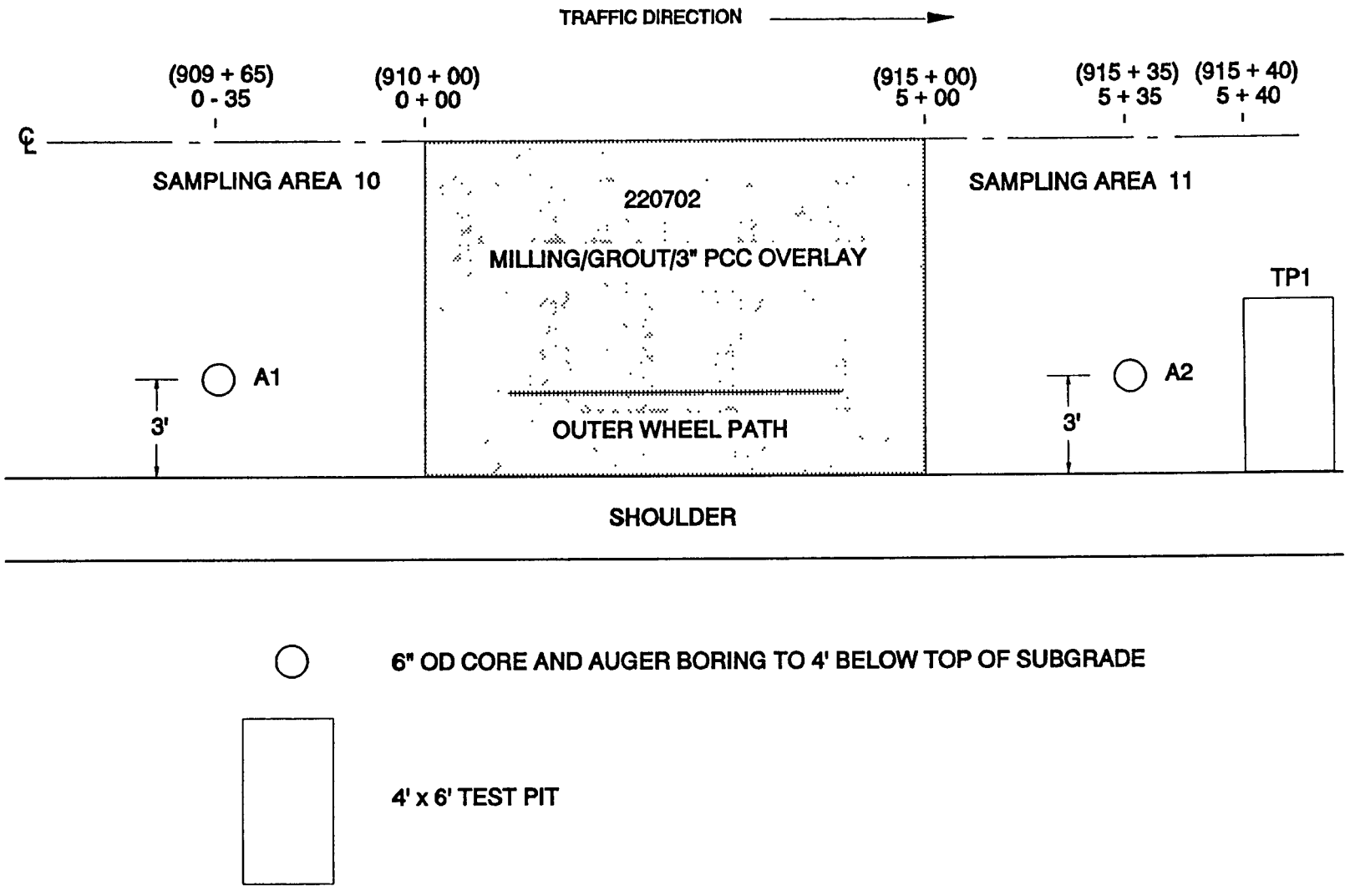


Figure 1. Preconstruction Sampling Area Plan for Louisiana SPS-7



6" OD CORE AND AUGER BORING TO 4' BELOW TOP OF SUBGRADE

4' x 6' TEST PIT

Figure 1.A Preconstruction Sampling Plan for Test Section 220702

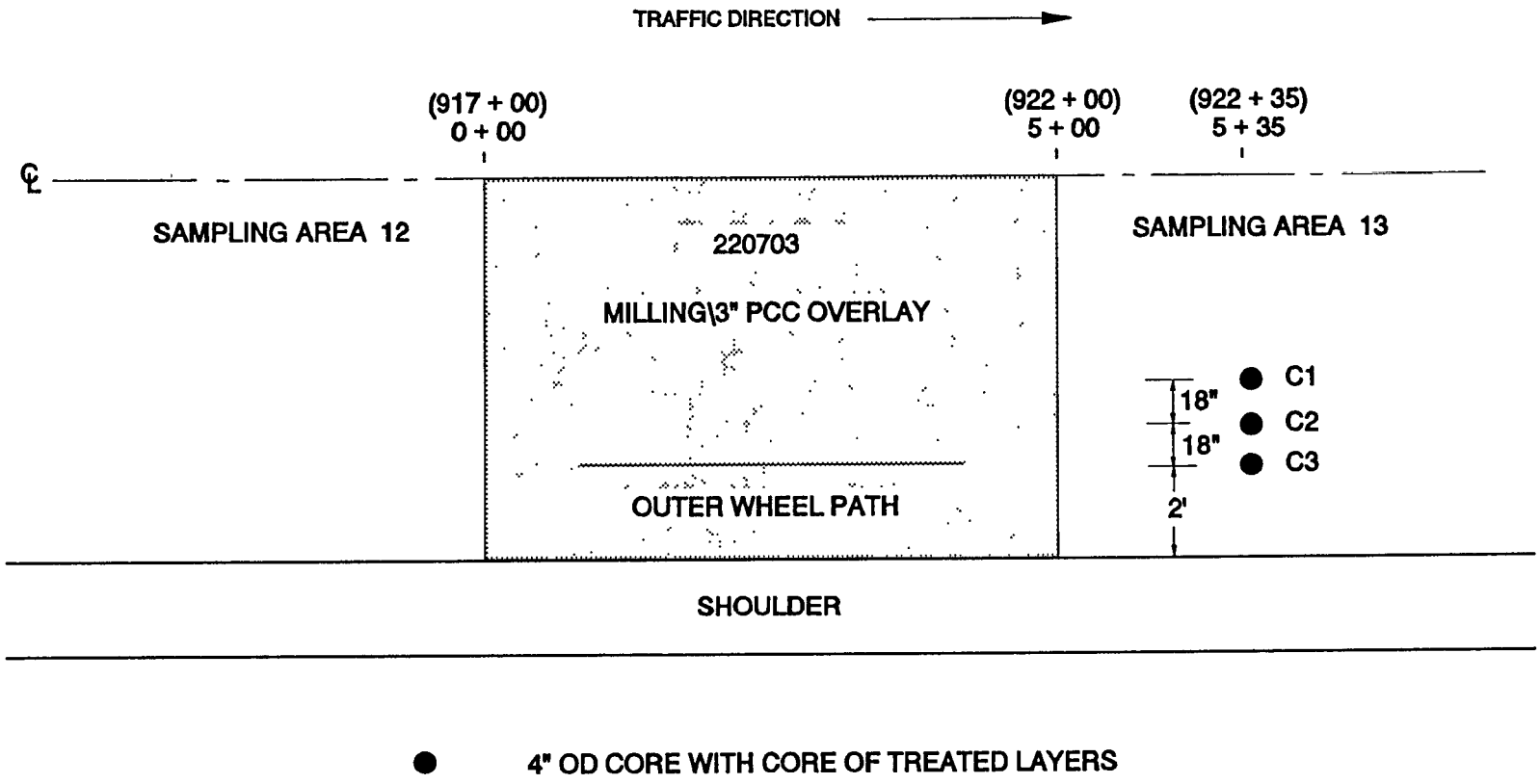
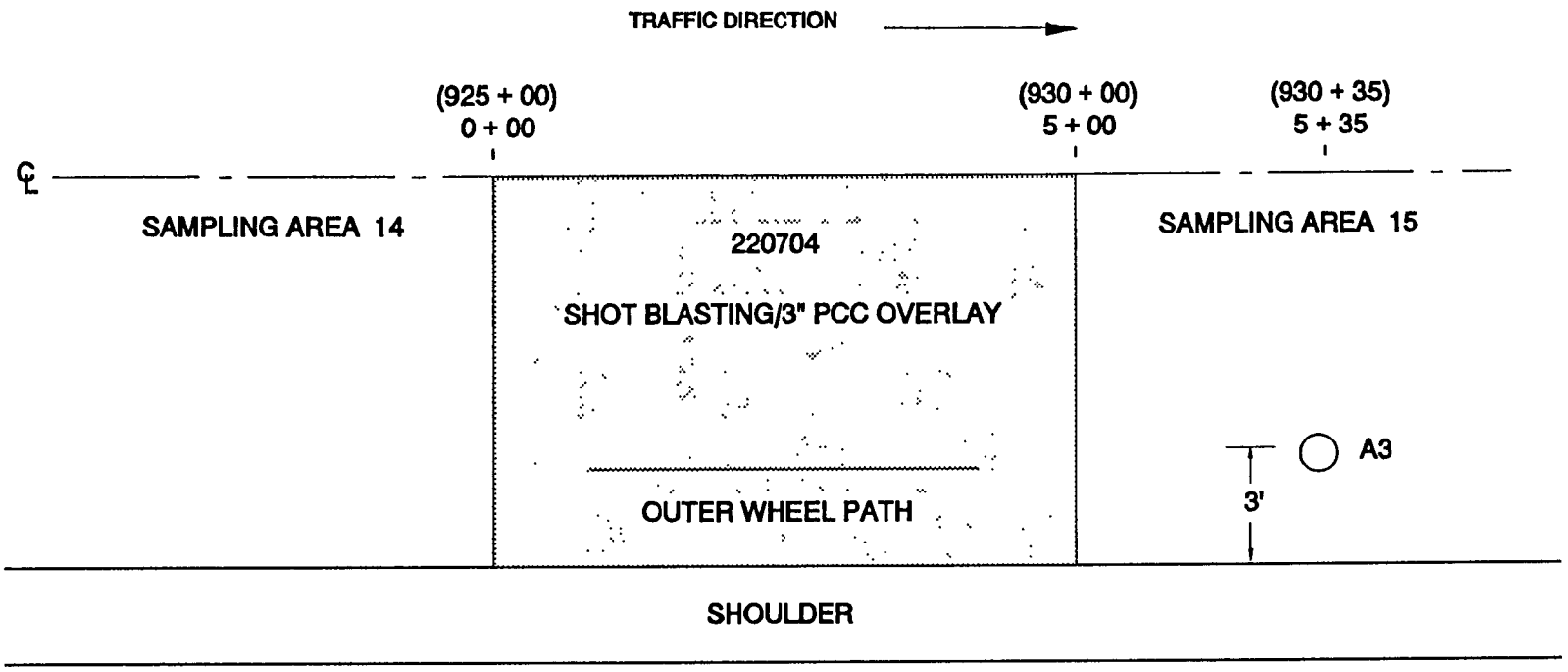
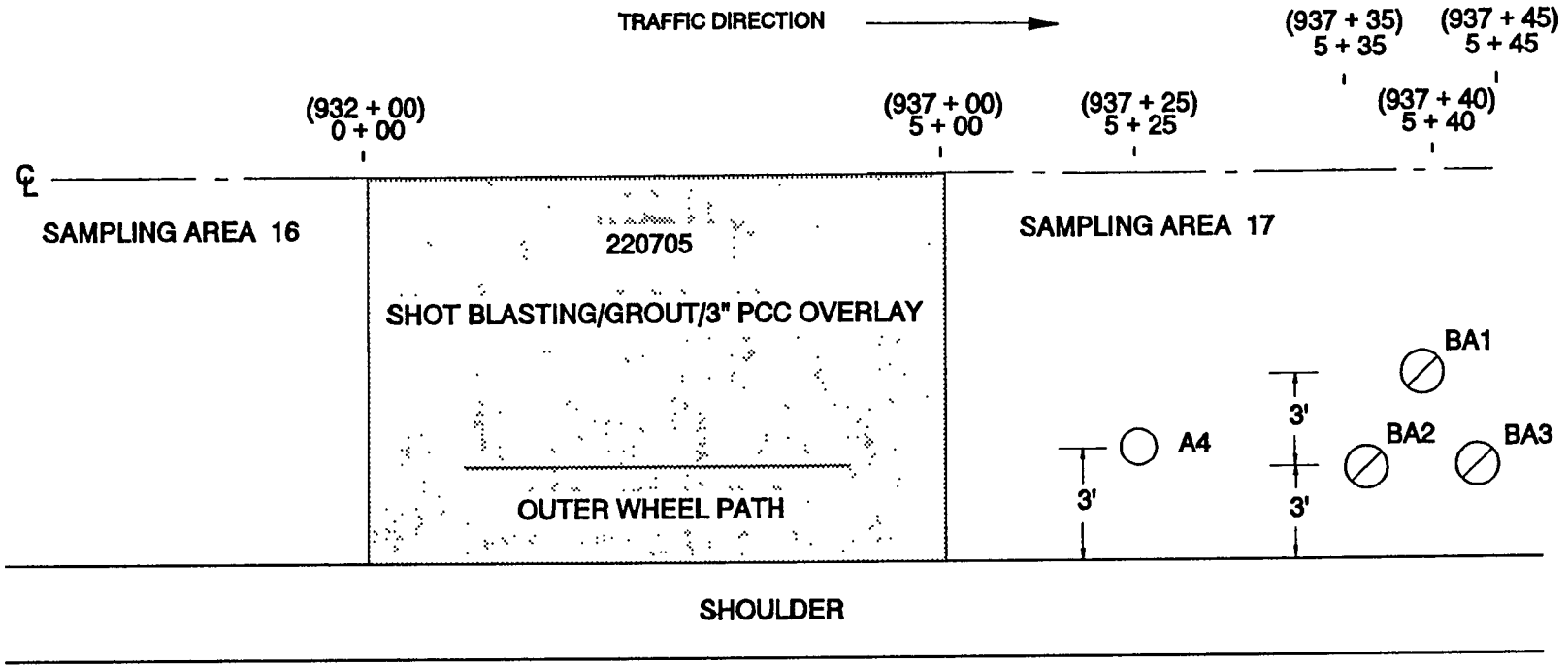


Figure 1.B Preconstruction Sampling Plan for Test Section 220703



○ 6" OD CORE AND AUGER BORING TO 4' BELOW TOP OF SUBGRADE

Figure 1.C Preconstruction Sampling Plan for Test Section 220704



○ 6" OD CORE AND AUGER BORING TO 4' BELOW TOP OF SUBGRADE

⊘ 12" OD CORE

Figure 1.D Preconstruction Sampling Plan for Test Section 220705

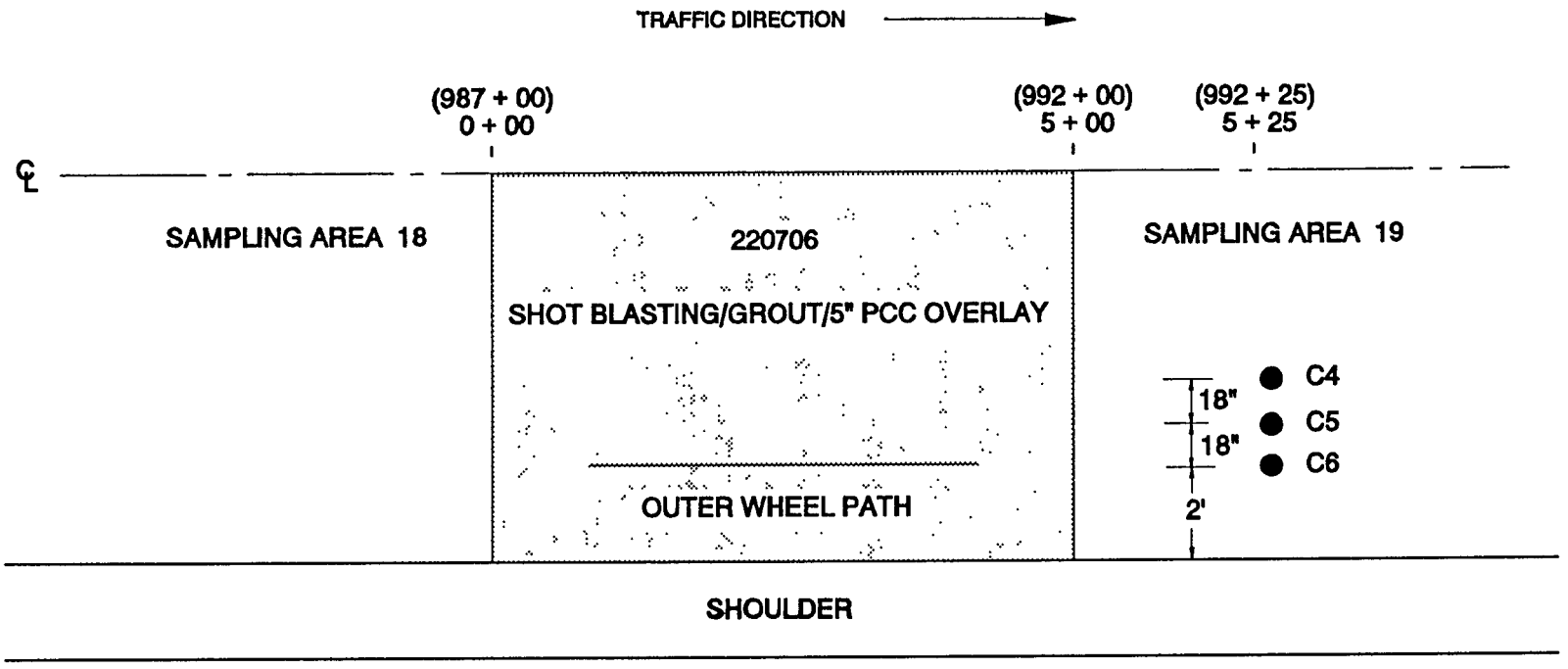
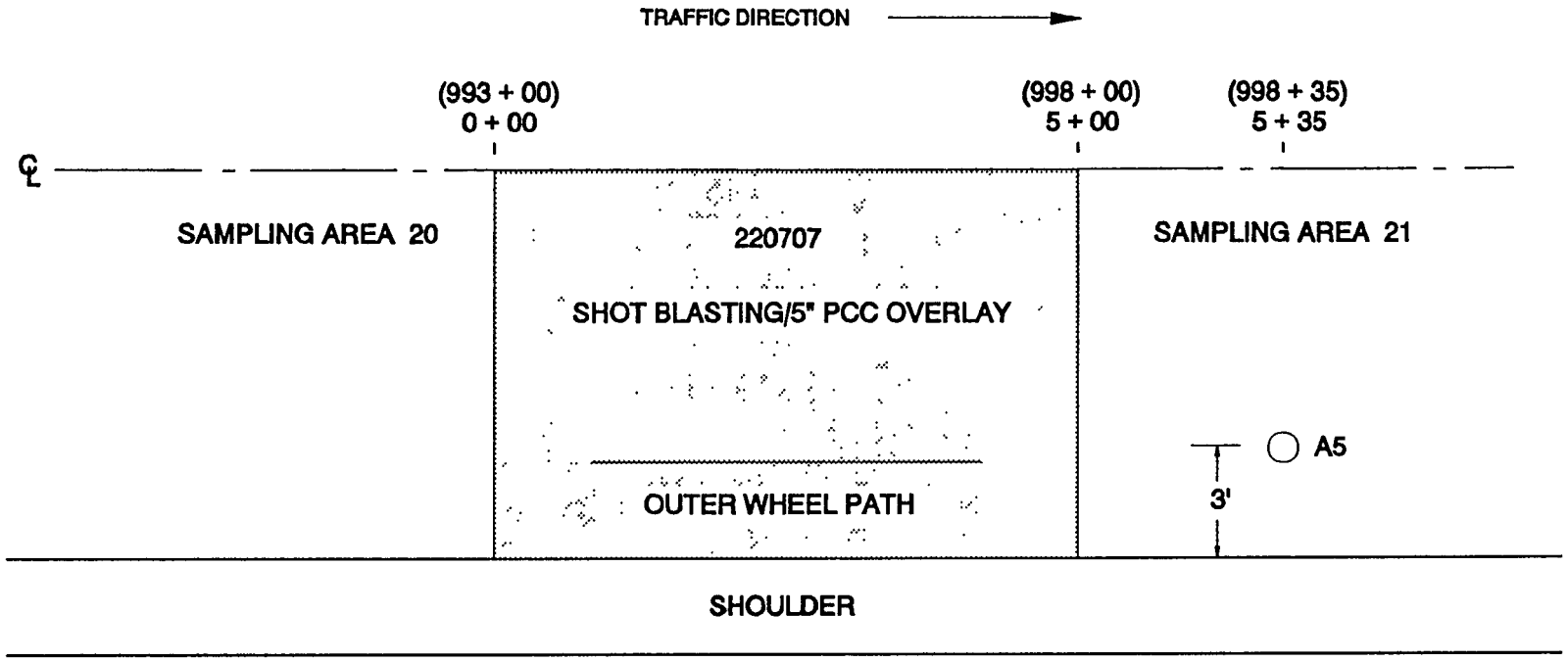


Figure 1.E Preconstruction Sampling Plan for Test Section 220706



○ 6" OD CORE AND AUGER BORING TO 4' BELOW TOP OF SUBGRADE

Figure 1.F Preconstruction Sampling Plan for Test Section 220707

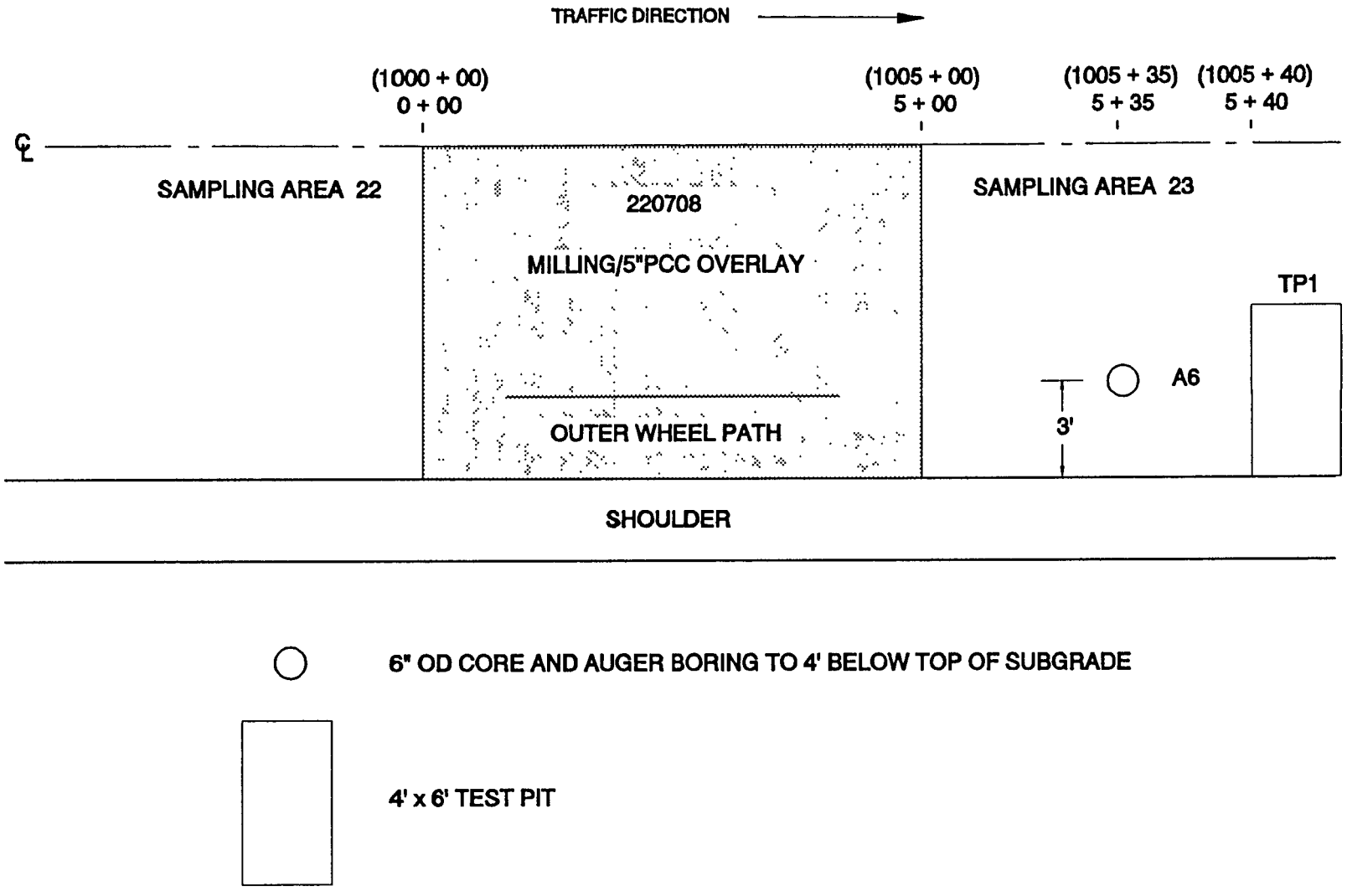


Figure 1.G Preconstruction Sampling Plan for Test Section 220708

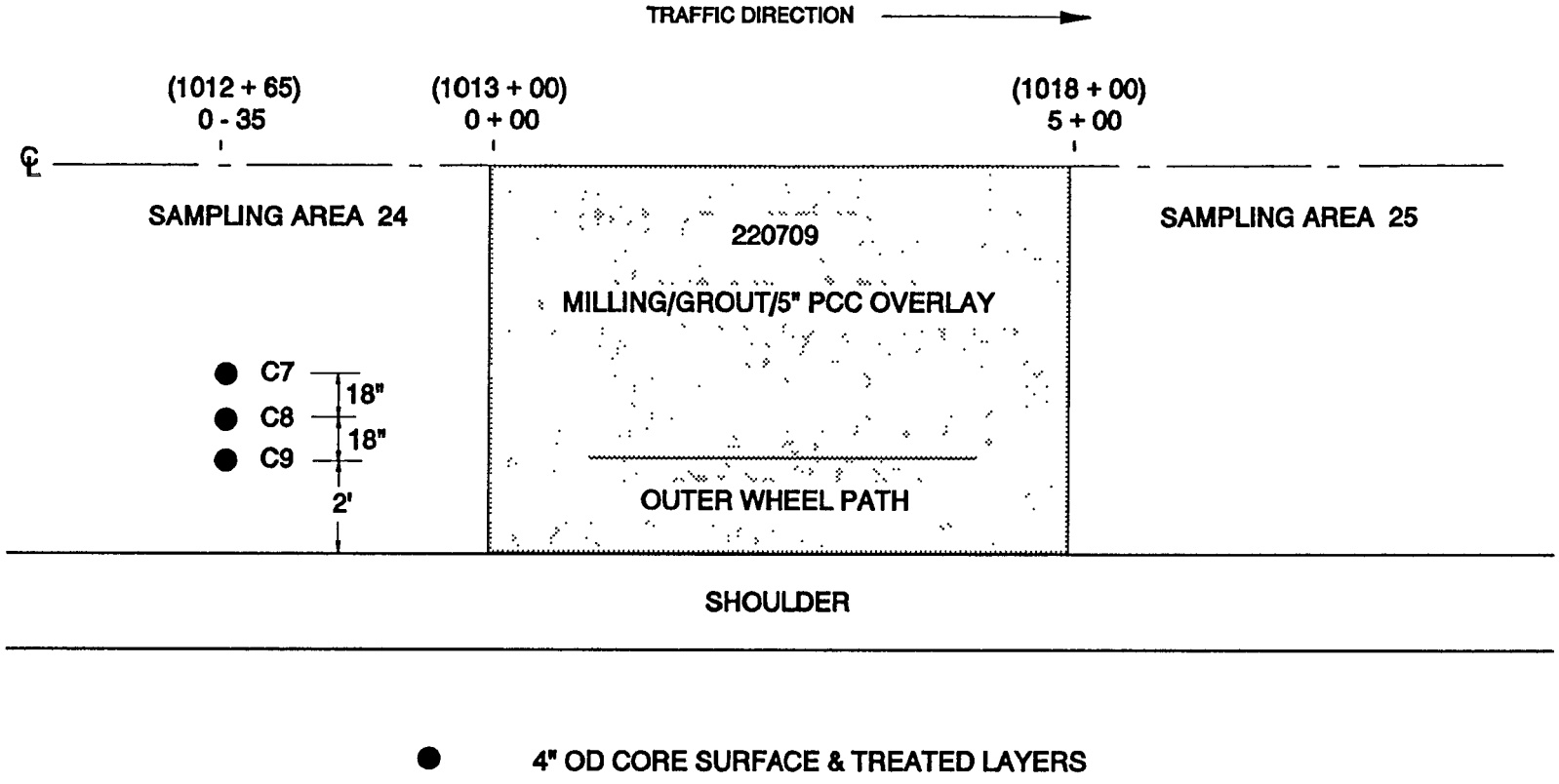
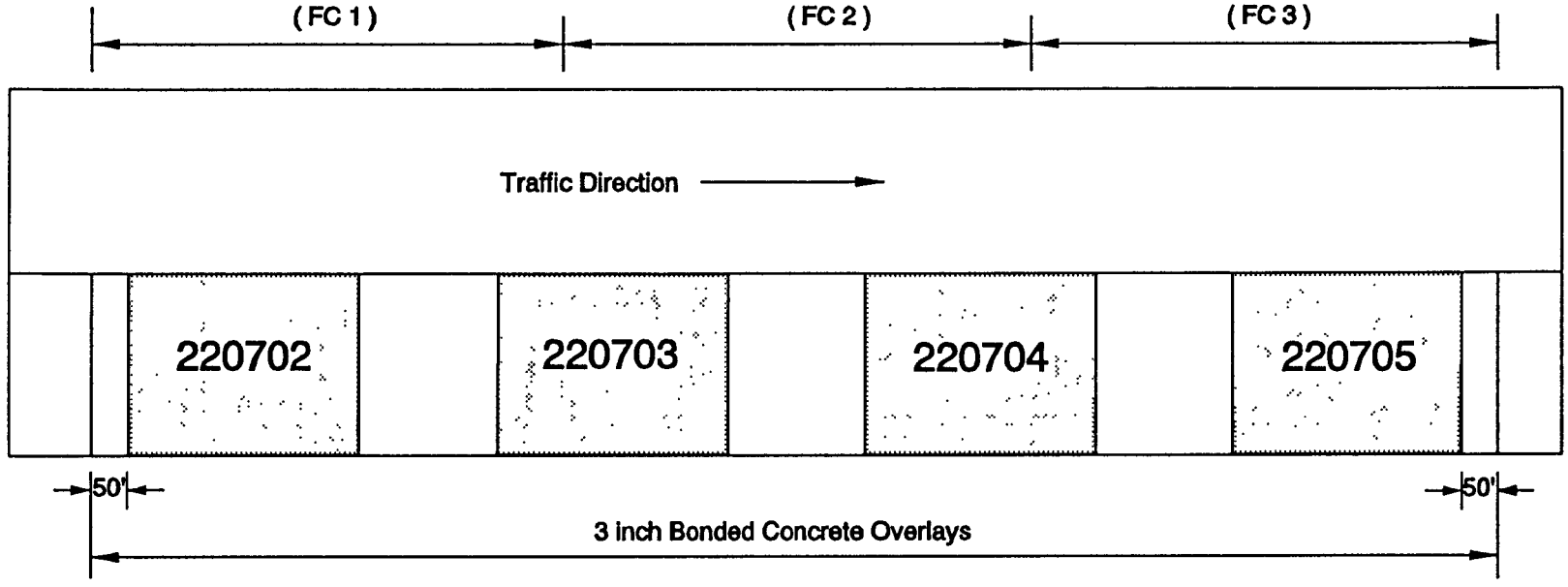


Figure 1.H Preconstruction Sampling Plan for Test Section 220709



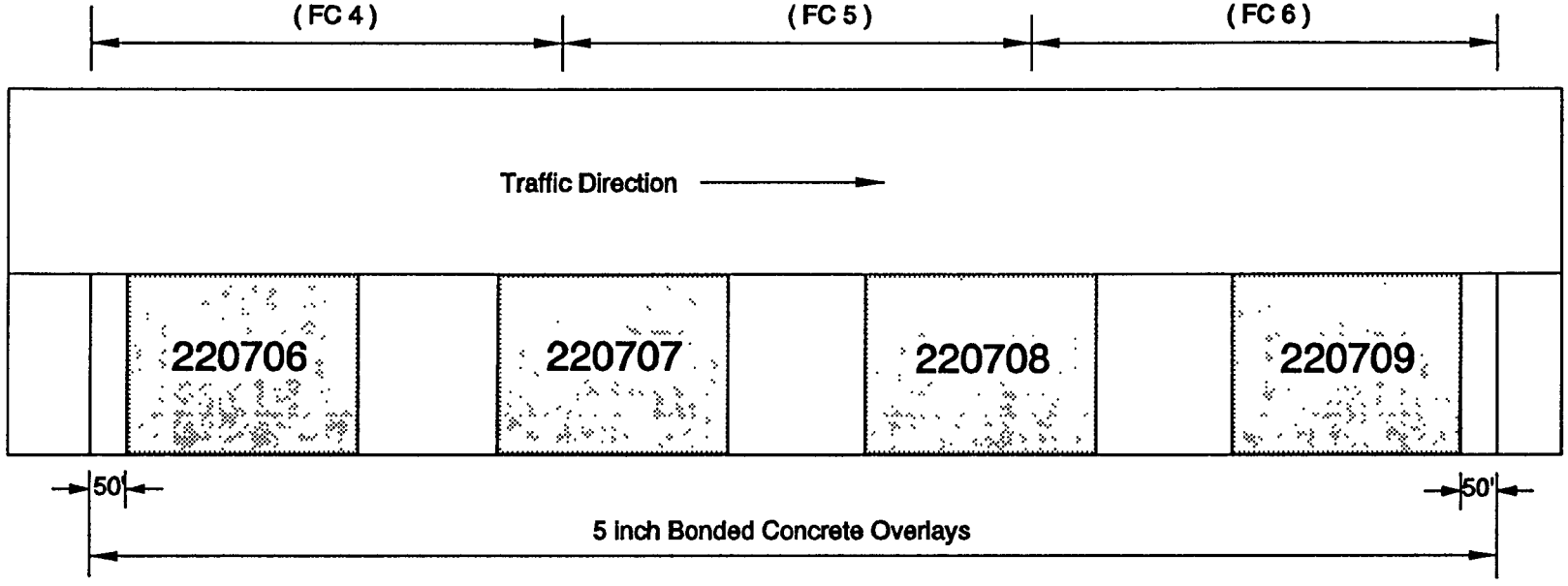
Bulk Sampling of Fresh Concrete Minimum Requirements

FC1 - Sample from Bulk Sampling Area 1, concrete for Test Sections 2/3

FC2 - Sample from Bulk Sampling Area 2, concrete for Test Sections 3/4

FC3 - Sample from Bulk Sampling Area 3, concrete for Test Sections 4/5

Figure 2.A As-Delivered Concrete Sampling Plan



Bulk Sampling of Fresh Concrete Minimum Requirements

FC4 - Sample from Bulk Sampling Area 4, concrete for Test Sections 6/7

FC5 - Sample from Bulk Sampling Area 5, concrete for Test Sections 7/8

FC6 - Sample from Bulk Sampling Area 6, concrete for Test Sections 8/9

Figure 2.B As-Delivered Concrete Sampling Plan (continued)

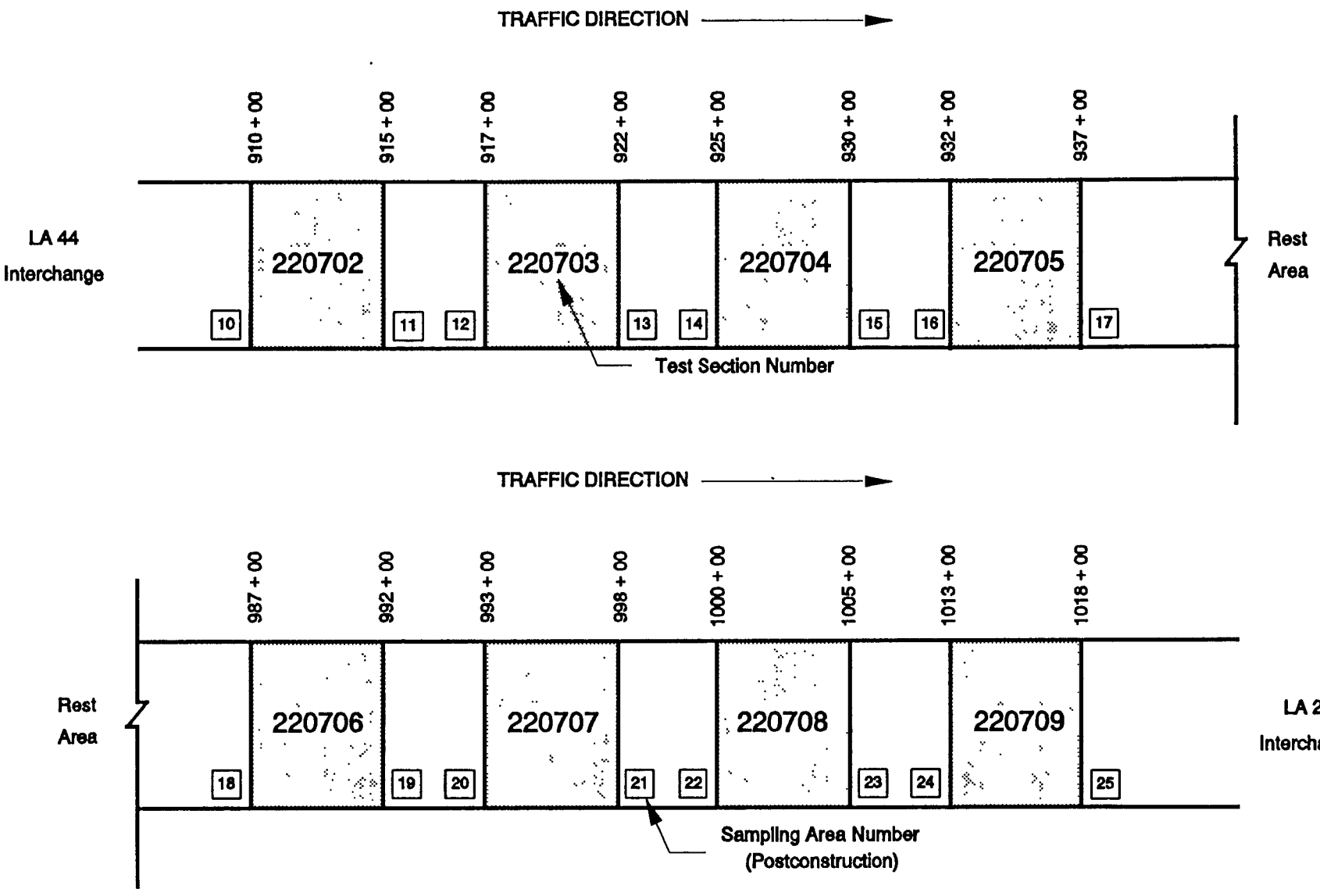
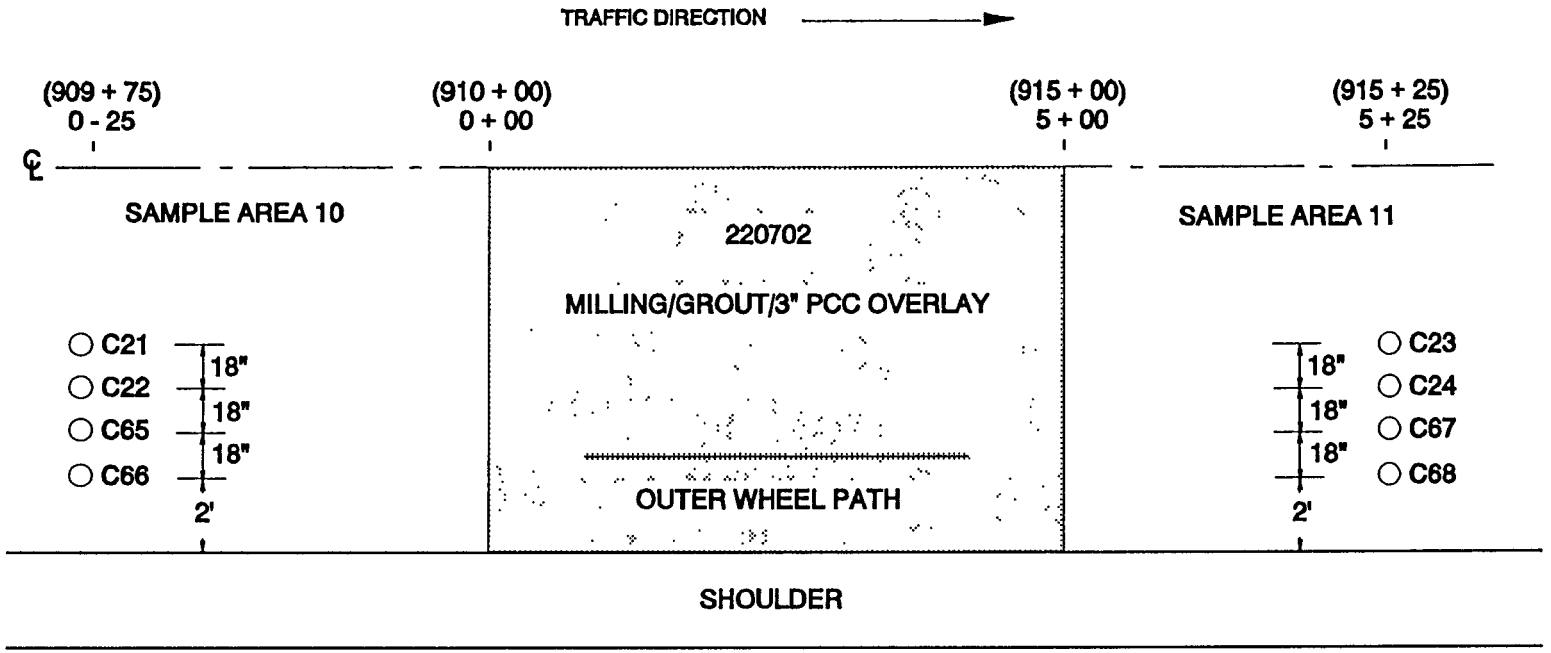


Figure 3. Postconstruction Sampling Area Plan for Louisiana SPS-7



Coring at 14 days After Placement

None for this section

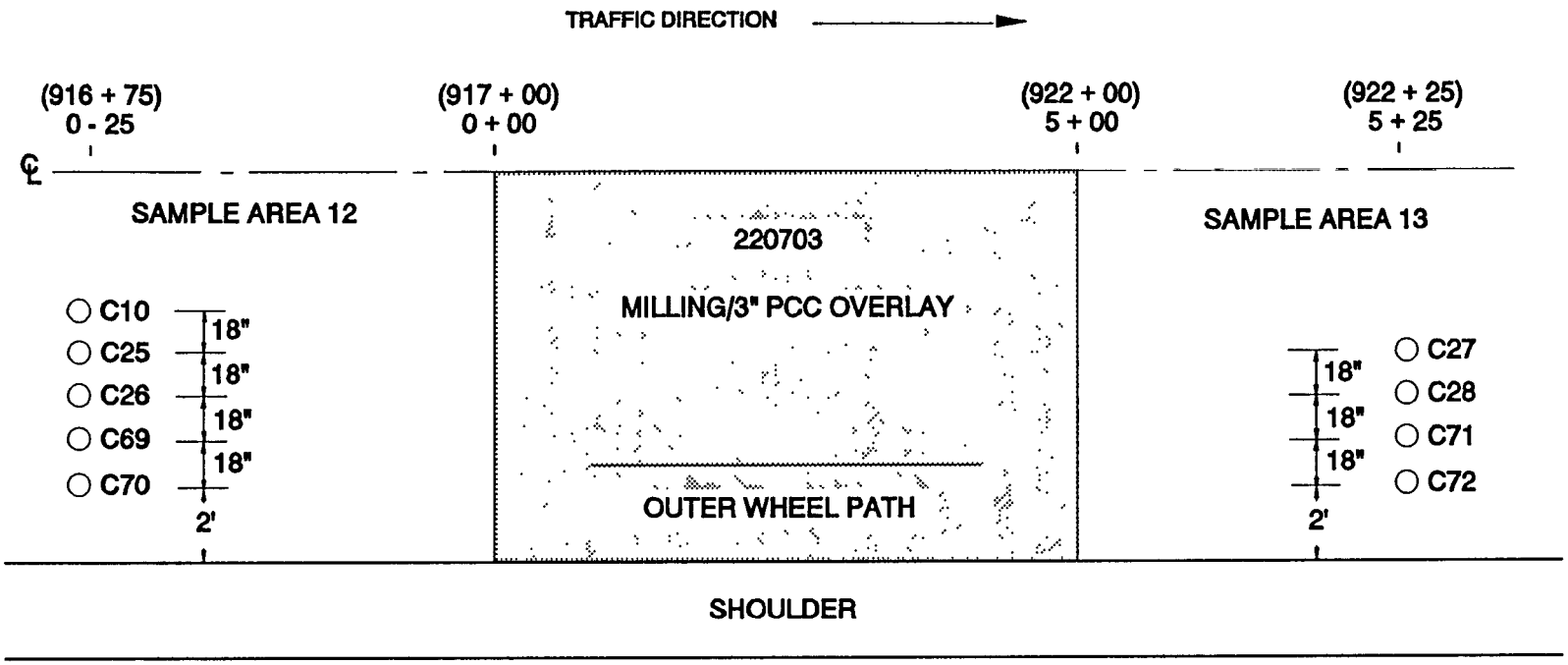
Coring at 28 days After Placement

C21, C22, C23, C24

Coring at 365 days After Placement

C65, C66, C67, C68

Figure 3.A Postconstruction Sampling Plan for Test Section 220702



○ 4" OD CORE

Coring at 14 days After Placement

C10

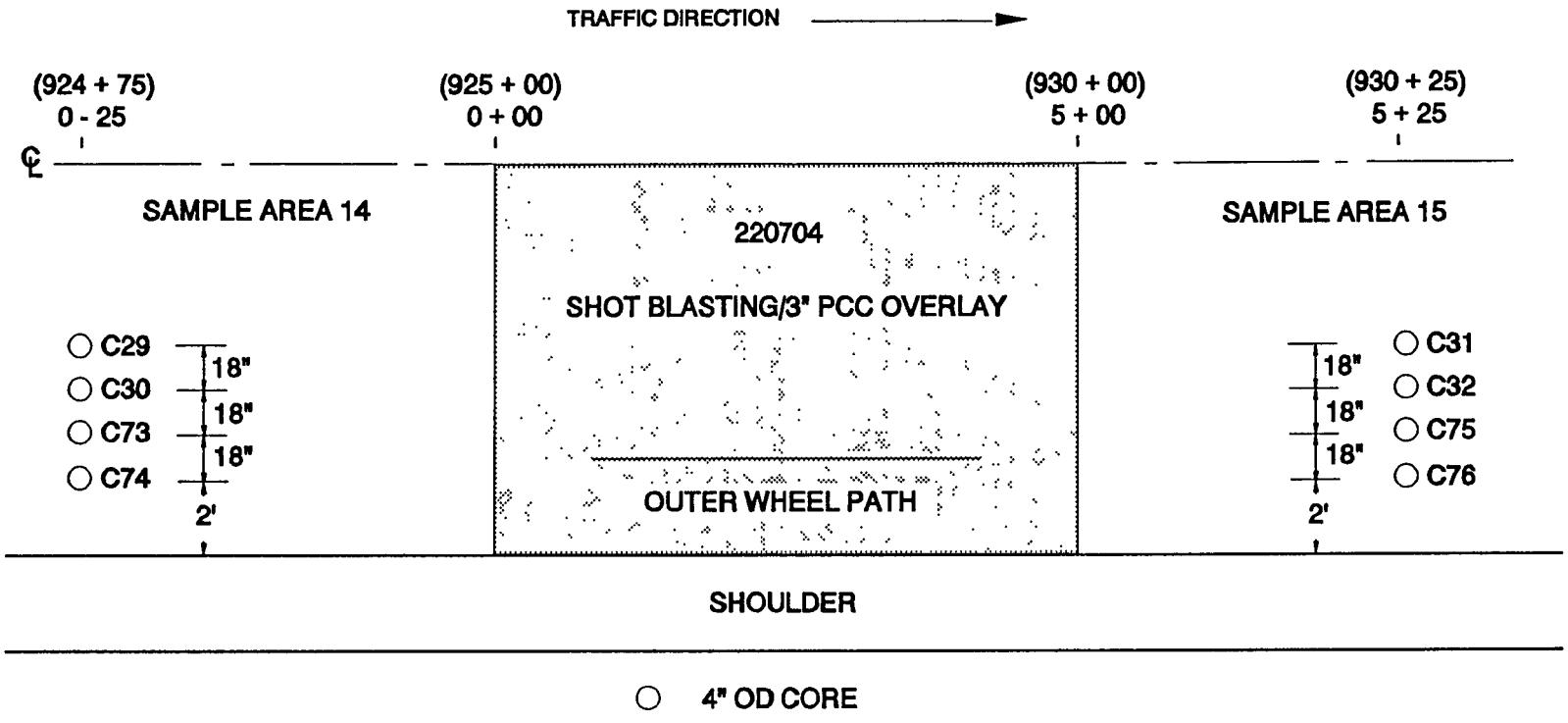
Coring at 28 days After Placement

C25, C26, C27, C28

Coring at 365 days After Placement

C69, C70, C71, C72

Figure 3.B Postconstruction Sampling Plan for Test Section 220703



Coring at 14 days After Placement

None for this section

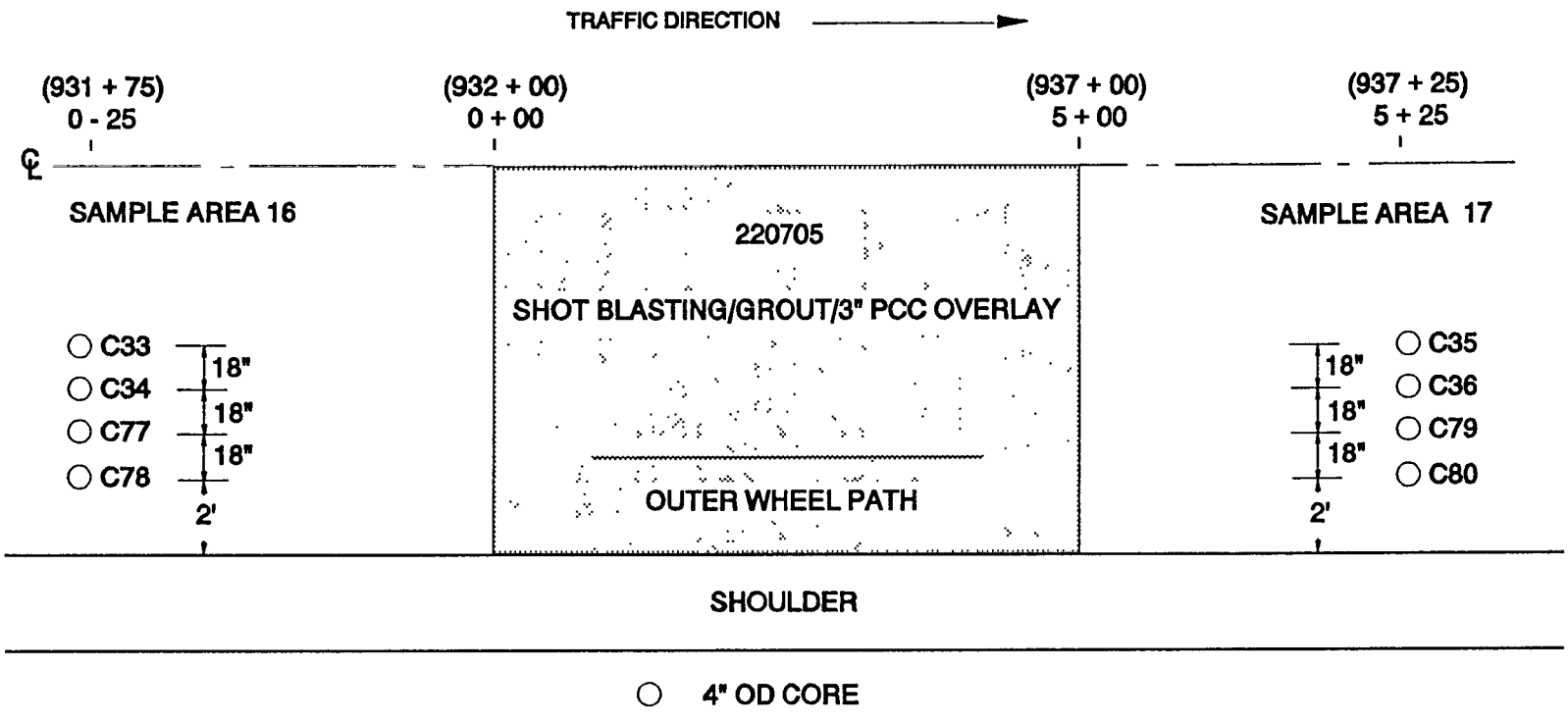
Coring at 28 days After Placement

C29, C30, C31, C32

Coring at 365 days After Placement

C73, C74, C75, C76

Figure 3.C Postconstruction Sampling Plan for Test Section 220704



Coring at 14 days After Placement

None for this section

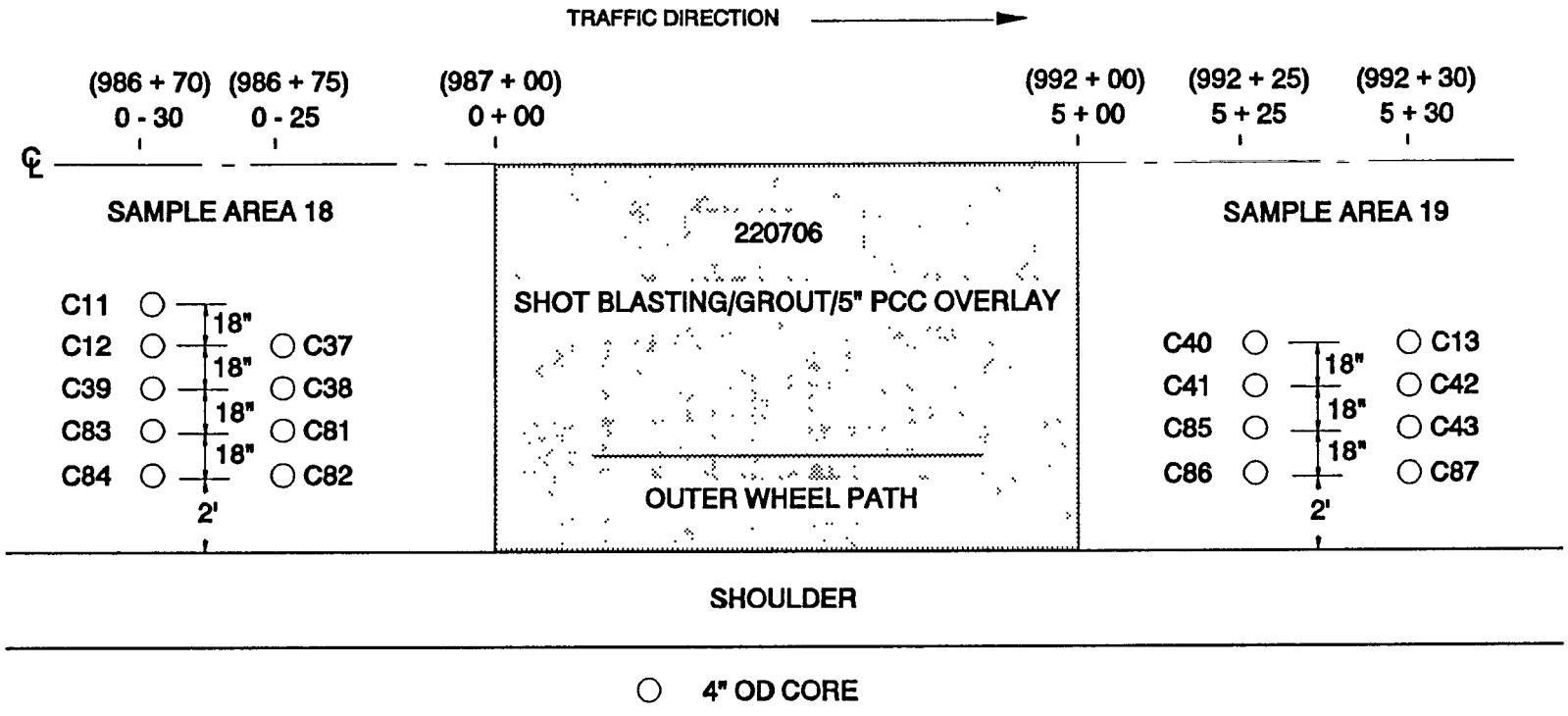
Coring at 28 days After Placement

C33, C34, C35, C36

Coring at 365 days After Placement

C77, C78, C79, C80

Figure 3.D Postconstruction Sampling Plan for Test Section 220705



○ 4" OD CORE

Coring at 14 days After Placement

C11, C12, C13

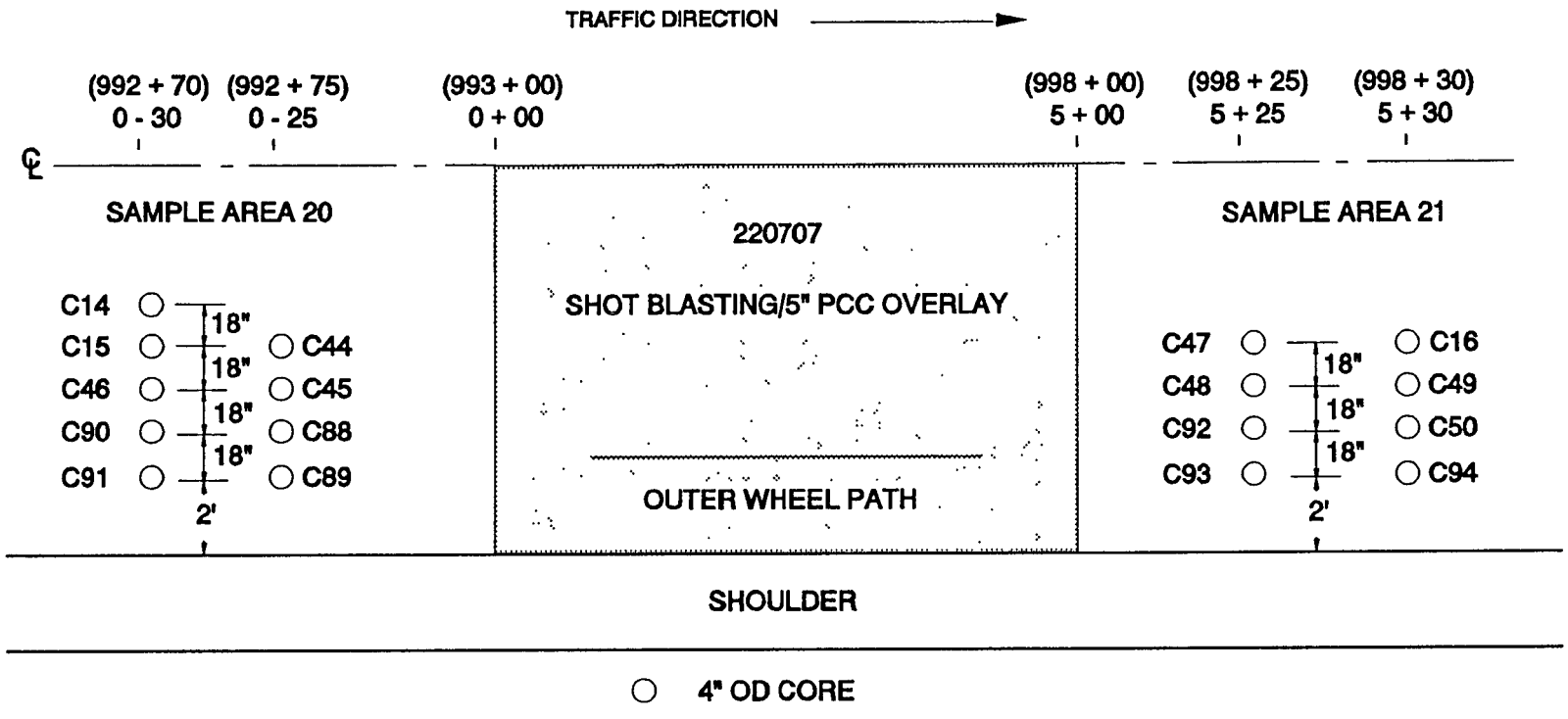
Coring at 28 days After Placement

C37, C38, C39, C40

Coring at 365 days After Placement

C81, C82, C83, C84

Figure 3.E Postconstruction Sampling Plan for Test Section 220706



Coring at 14 days After Placement

C14, C15, C16

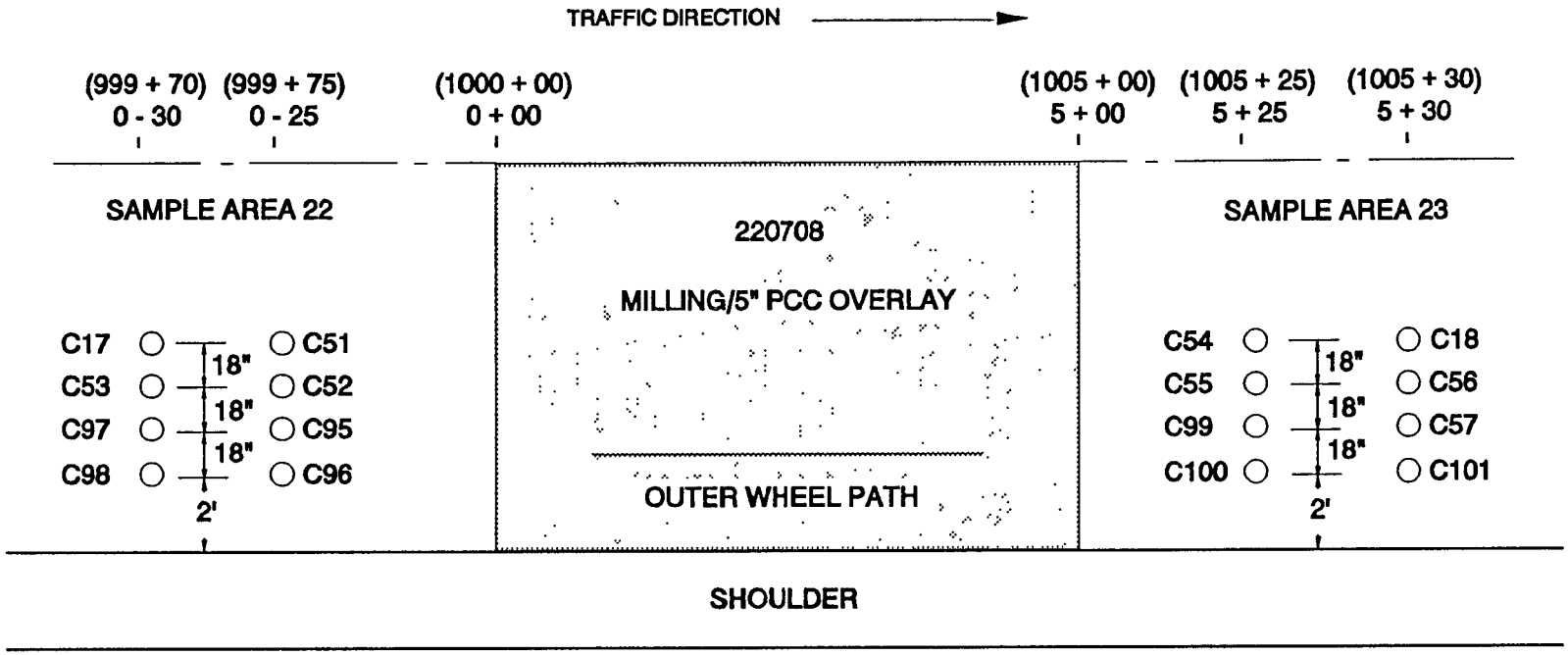
Coring at 28 days After Placement

C44, C45, C46, C47, C48, C49, C50

Coring at 365 days After Placement

C88, C89, C90, C91, C92, C93, C94

Figure 3.F Postconstruction Sampling Plan for Test Section 220707



Coring at 14 days After Placement

C17, C18

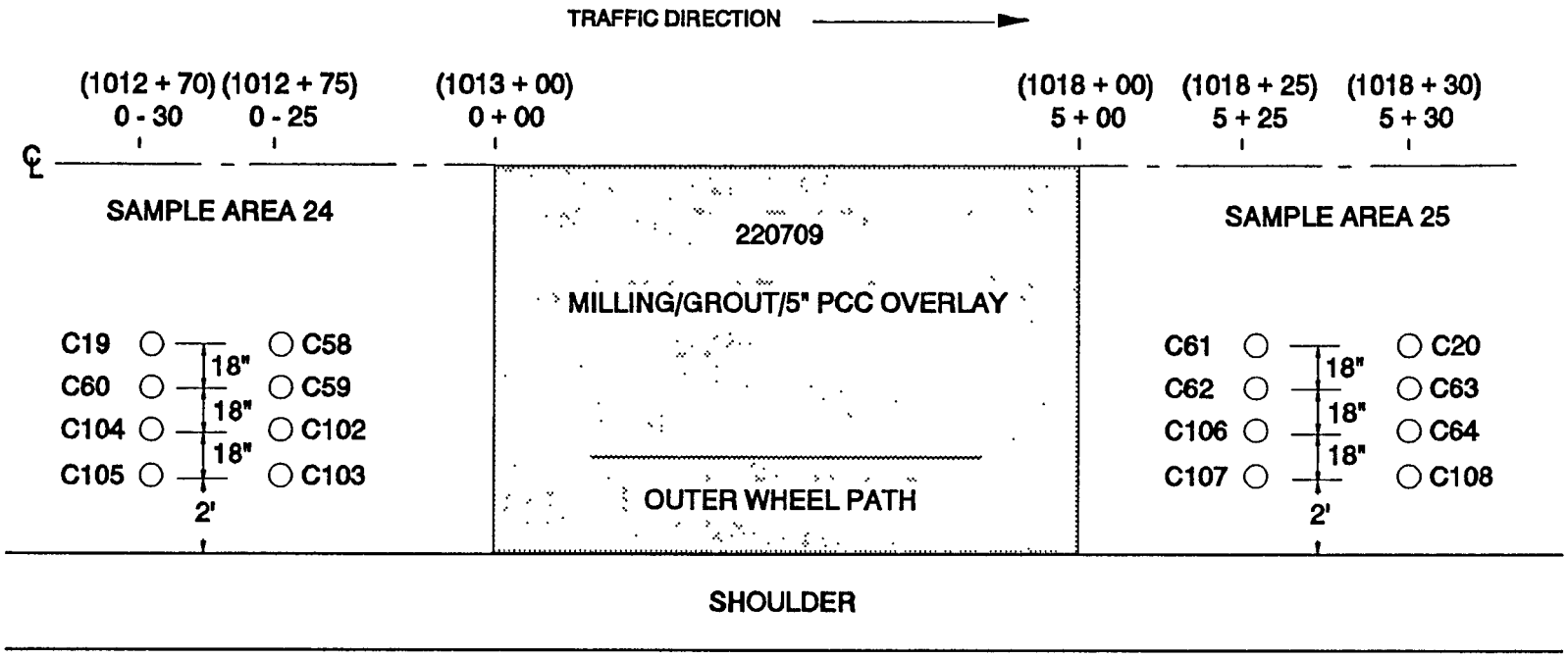
Coring at 28 days After Placement

C51, C52, C53, C54, C55, C56, C57

Coring at 365 days After Placement

C95, C96, C97, C98, C99, C100, C101

Figure 3.G Postconstruction Sampling Plan for Test Section 220708



Coring at 14 days After Placement

C19, C20

Coring at 28 days After Placement

C58, C59, C60, C61, C62, C63, C64

Coring at 365 days After Placement

C102, C103, C104, C105, C106, C107, C108

Figure 3.H Postconstruction Sampling Plan for Test Section 220709

APPENDIX D

PHOTOGRAPHS OF CONSTRUCTION

Photo 1) Preconstruction, Section 220702 -
Full Depth Patch of Punchout

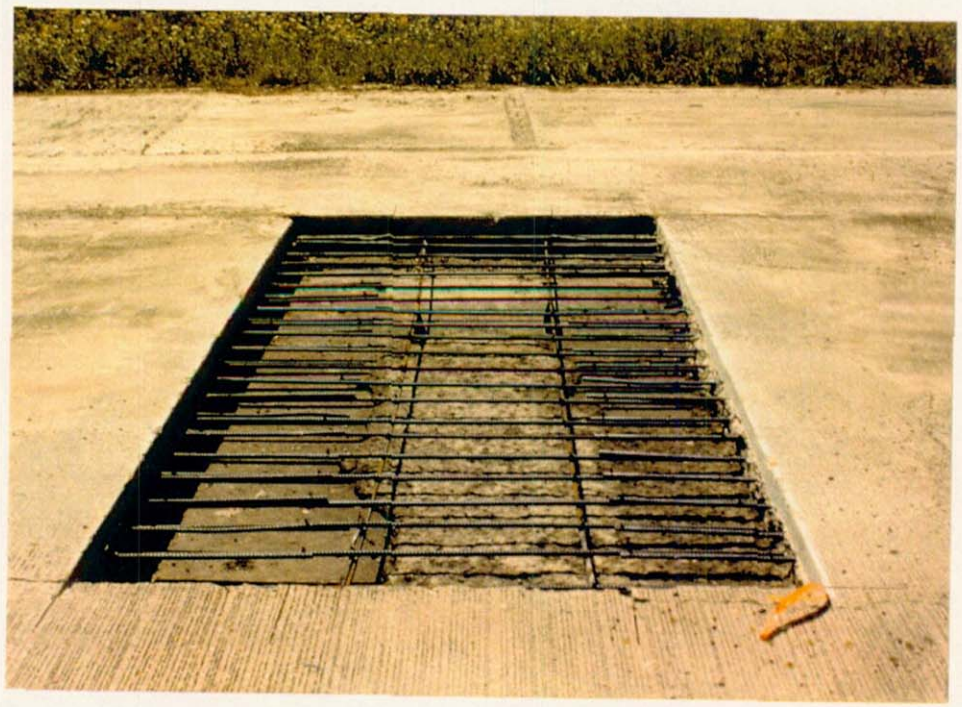


Photo 2) Preconstruction, Section 220702 -
Patch Ready to Pour Concrete

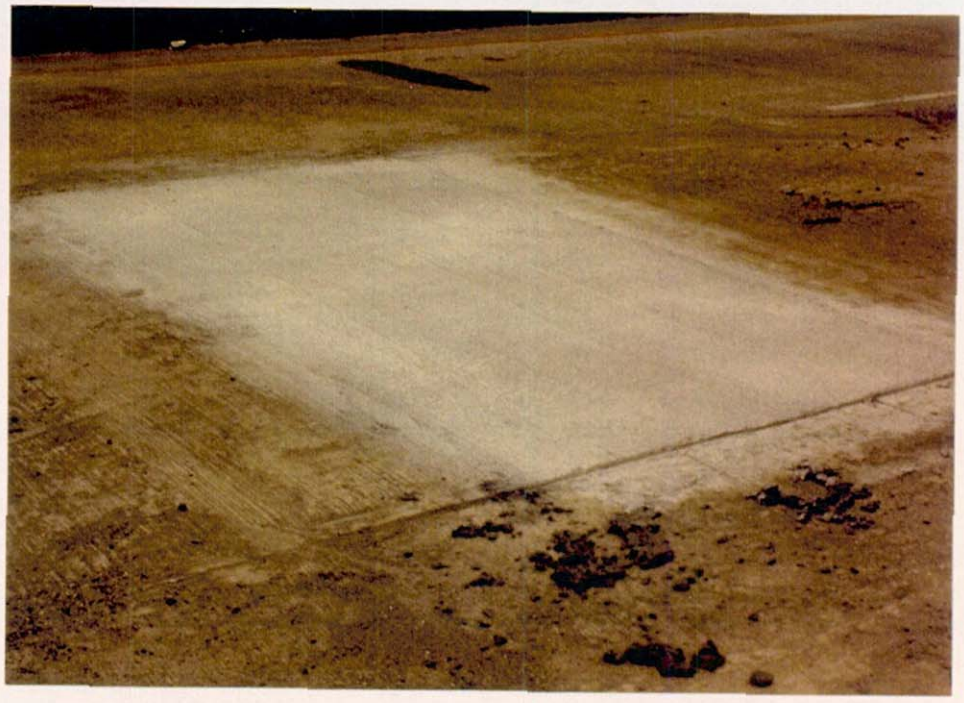


Photo 3) Preconstruction, Section 220702 -
Finished Patch

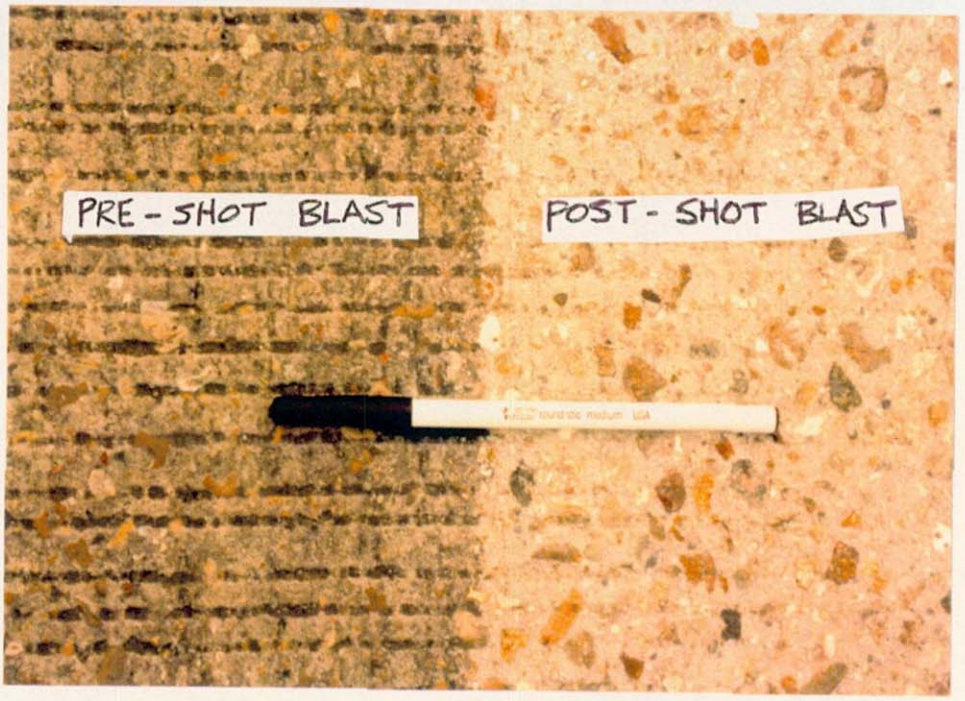


Photo 4) Preconstruction -
Surface Texture After Shot Blasting

Photo 5) Preconstruction -
Surface Texture After Milling

Photo 6) Construction -
Overview of Paving Operation

Photo 7) Construction -
Grout Placement in Front of Paver

Photo 8) Construction -
PCC Sampling and QA Testing

Photo 9) Construction -
PCC Sampling and QA Testing

Photo 10) Post Construction, Section 220709 - Area to be "Patched"

Photo 11) Post Construction, Section 220707 - Pumping Along Lane/Shoulder Joint