
Research Report
KTC-91-10

EVALUATION OF HEADWALLS AND
OUTLETS FOR GEOCOMPOSITE EDGE
DRAINS ON I-75 AND I-71

by

L. John Fleckenstein
Engineering Geologist

David L. Allen
Chief Research Engineer

and

Jack Harison
Graduate Research Assistant

Kentucky Transportation Center
College of Engineering
University of Kentucky
Lexington, Kentucky

and

in cooperation with
Transportation Cabinet
Commonwealth of Kentucky

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EXECUTIVE SUMMARY

Longitudinal, round, perforated pipe edge drains have been used along Kentucky roadways for approximately two decades. Panel (fin) edge drains were first used in Kentucky in 1984. Most of these edge drains were installed on the Interstate and Parkway systems.

Several problems related to the drains have been noted in the last seven years. A number of these problems have been observed to be related to flexible outlet pipes and headwalls.

A recent study was initiated to evaluate headwalls and outlets on I-75 from Lexington, Kentucky to Cincinnati, Ohio (approximately 70 miles) and on I-71 from Louisville, Kentucky to I-75 in Northern Kentucky (approximately 68 miles). This study was initiated as a first phase of a much more intensive study which will evaluate all edge drains and outlets on Interstates and Parkways in Kentucky.

This report documents findings of the investigation of 234 edge drain outlets. Of the 234 outlets investigated, approximately 43 percent of the edge drain outlets inspected were out of service. Approximately 50 percent of the outlet pipes had been damaged during installation. More significant problems were found at the headwall and outlet pipe connection than any other location in the drainage system.

It appears that a maintenance program should be established to clean the troughs of the headwalls and to check the screens for clogging and rust. The metal screens should be replaced with galvanized screens.

Positive flow should also be maintained from the headwalls. The buildup of grass and silt can eventually detour some of the flow. Headwalls located in cuts are more prone to become covered or ponded.

Edge drains and outlets should be inspected after they are installed.

Rigid outlet pipe should be precast into the headwalls. This should help eliminate problems occurring at the headwall connection. Currently, a rigid outlet pipe is connected to an approximately 2-foot long "pigtail" (4-inch flexible pipe) which is precast into the headwall.

Introduction

Longitudinal, round, perforated pipe edge drains have been used along Kentucky roadways for approximately two decades. Panel (fin) edge drains were first used in Kentucky in 1984. Most of these edge drains were installed on the Interstate and Parkway systems.

Several problems related to the drains have been noted in the last seven years. Several of these problems have apparently lead to premature pavement failures. These problems include panel drains being damaged during construction due to installation techniques and vertical flexibility of the panel core. Problems were also noted at edge drain outlets where they were not constructed to grade, and in addition, were partially crushed. The metal screens over the mouth of the outlet pipes in the headwalls permitted platelets of calcium carbonate (these form on the surface of the water in the edge drains and break up during heavy flow) to become lodged behind the screen decreasing flow and increasing siltation. Metal screens also rusted and disintegrated allowing animals to enter and build nests in the outlet pipes. Several guardrail posts were driven through outlets on one rehabilitation project. Several stained areas appeared on pavement surfaces throughout the state on rehabilitation projects where the old rigid pavement had been broken, seated, and overlaid. Calcium fines were being forced to the surface through the asphaltic concrete overlay. The drains were apparently being overcharged during heavy rains due to the distance between headwalls. Problems have

also been noted at median boxes where the edge drain outlet pipes were placed at the bottom of the box and eventually became buried by the accumulation of material in the bottom of the box. Separations have also been discovered between the mainline and the outlet pipe.

In the past seven years, several changes have been made in Kentucky design and installation procedures for highway edge drains. Kentucky currently specifies a four-inch trench for panel drains and a sand slurry backfill. The edge drains are also placed on the shoulder side of the trench. This permits the sand backfill to act as an additional filter medium to reduce blinding of the fabric and allows for another means for the water to travel if there is an installation problem with the panel. To date, no blinding has been observed at the sand-concrete interface.

Kentucky currently specifies a smooth-lined rigid outlet pipe which should decrease damage to outlets during installation, provide for smoother flow, and reduce siltation.

Edge drain outlets are no longer placed at the bottom of median boxes. The outlets are placed at a sufficient elevation to permit sedimentation in the bottom of the box, but still permit proper grade from the edge drain. In addition, headwalls are also used in the medians.

Edge drain headwall spacings are now specified. For a slope greater than two percent, the headwalls are spaced at 500-foot intervals; for slopes less than two percent, the headwalls are spaced at 250-foot intervals. Outlet pipes are now installed 90 degrees to the shoulder in order that they may easily be located during rehabilitation of guardrail sections.

Kentucky now specifies a larger mesh opening and galvanized coated rodent screens. This will decrease the buildup of calcium carbonate platelets that tend to

collect behind the screen.

Visual Inspection of Headwalls and Outlets on Interstate 75 and Interstate 71

Due to the number of outlet problems noted in the last seven years, a study was initiated to evaluate headwalls and outlets on I-75 from Lexington to Cincinnati (approximately 70 miles) and on I-71 from Louisville to I-75 (approximately 68 miles). This study was initiated as a first phase of a more intensive study which will evaluate all edge drains and outlets on Interstates and Parkways in Kentucky. Two inspection sheets were developed for the study in order that various features and distresses could be quickly noted (Appendix A). A computer program was written for entering the field data and to provide a statistical data base. A two-man crew conducted the inspections. Inspection equipment included a Cues Mini Camera with 300 feet of push cable, a VCR, input mike for comments, and two voice-activated, two-way radio's for communication.

Due to the time and budget constraints, only a portion of the headwalls could be evaluated on each of the routes. It was decided that one headwall and one outlet per mile would provide sufficient data for an analysis.

Edge Drain Headwall and Outlet Pipe Condition Survey on I-75 and I-71

Debris Accumulation in Headwalls

A total of 122 headwalls and outlets were inspected on I-75. Of the 122 headwalls inspected, 35 percent were clean (no debris in the trough of the headwall), 41 percent were partially covered (outlet was partially visible), nine percent were covered (outlet pipe not visible), and 15 percent were plugged (outlet pipe was completely filled with debris). A total of 127 headwalls and outlets were inspected on Interstate 71. Of the 127 headwalls, 43 percent were clean,

30 percent were partially covered, five percent were covered, and 22 percent were plugged. Averages for I-75 and I-71 were: 39 percent were open, 36 percent were partially covered, seven percent were covered, and 18 percent were plugged. Statistical information on the headwall conditions is contained in Table 1 (A detailed statistical summary and the field data base is contained in Appendix B for I-75, and in Appendix C for I-71).

Table 1. Statistical Data on Headwall Condition

| LOCATION-> | I-75 | I-71 | I-71 AND I-75 (AVG.) |
|---------------------|------|------|----------------------|
| % CLEAN | 34.7 | 42.5 | 38.5 |
| % PARTIALLY COVERED | 41.3 | 30.1 | 35.9 |
| % COVERED | 9.1 | 5.3 | 7.2 |
| % PLUGGED | 14.9 | 22.1 | 18.4 |

Condition of Rodent Screens

The rodent screens were visually inspected for signs of clogging and rusting. Averages for I-71 and I-75 were: 28 percent of the headwalls did not have screens; 42 percent of the screens were open, 15 percent were partially blocked, 15 percent were blocked, and 34 percent were severely rusted (Table 2). The galvanized screens now specified should aid in preventing corrosion.

Table 2. Screen Condition

| LOCATION-> | I-75 | I-71 | I-71 AND I-75 (AVG.) |
|-------------------|------|------|----------------------|
| % MISSING | 30.8 | 24.8 | 27.9 |
| % OPEN | 35.8 | 46.8 | 41.1 |
| % PARTIALLY OPEN | 16.7 | 14.2 | 15.5 |
| % BLOCK | 16.7 | 14.2 | 15.5 |
| % SEVERELY RUSTED | 35.0 | 33.0 | 34.3 |

Signs of Siltation

The headwalls were inspected for signs of siltation. It was difficult to quantify siltation since only 39 percent of the headwalls were free of gravel, grass, and soil that accumulated in many headwalls. Most of the drains and headwalls were relatively free of silt. There was some buildup of calcium carbonate in the corrugations which would break loose and become logged behind the screen. Table 3 indicates 83 percent of the headwalls had no signs of siltation. A significant amount of silt was observed inside the outlet pipes between milepost 145 and milepost 151.39 on Interstate 75. Further inspection should be conducted in this area to observe the condition of the filter fabric.

Table 3. Siltation at Headwall

| LOCATION-> | I-75 | I-71 | I-71 AND I-75 (AVG.) |
|------------|------|------|----------------------|
| % NONE | 65.0 | 81.4 | 83.2 |
| % SLIGHT | 6.0 | 11.5 | 8.8 |
| % MODERATE | 4.0 | 4.4 | 4.2 |
| % SEVERE | 5.0 | 3.8 | 3.8 |

Signs of Flow and Positive Drainage

Each outlet was inspected for signs of flow and to determine if positive drainage had been provided. On the average for both routes, 89 percent of the headwalls showed flow and 74 percent of the headwalls had been provided with a proper grade to drain water away from the headwalls. Approximately 27 percent of the outlets on I-75 were not properly drained (Table 4).

Table 4. Summary of Headwalls that were Flowing and Those with Positive Drainage.

| LOCATION | I-75 | I-71 | I-75 AND I-71 (AVG) |
|-----------------------------------|------|------|---------------------|
| INDICATIONS OF FLOW % | 84.0 | 94.7 | 89.2 |
| POSITIVE DRAINAGE FROM HEADWALL % | 63.0 | 85.0 | 74.0 |

Condition of Outlet Pipes

A total of 249 outlet pipes were inspected on I-71 and I-75. The pipes were inspected for sags, siltation, standing water, compression, rips, and other noticeable distress. Approximately 35 percent of the outlet pipes that were inspected were fully open, 16 percent were 60 to 80 percent open, 14 percent were 40 to 60 percent open, and 35 percent were less than 40 percent open (Table 5). Approximately 50 percent of the outlet pipes had failed in compression.

Table 5. Outlet Pipe Flow Information

| LOCATION-> | I-75 | I-71 | I-75 & I-71 (AVG.) |
|--------------------|------|------|--------------------|
| (%) OPEN | 25.6 | 46.0 | 36.5 |
| 60%-90% OPEN | 29.8 | 1.8 | 16.2 |
| 40%-60% OPEN | 8.3 | 19.5 | 13.7 |
| LESS THAN 40% OPEN | 36.3 | 13.7 | 34.6 |

In Table 6, the distress information is broken down into percentages for each of the assigned outlet pipe sections as shown in Figure 1. Table 6 indicates that for I-75 there were more significant problems at A than B, E, or F. More significant problems occurred on I-71 at B than A, E, or F. It

appears that more significant problems have occurred at location A which is located on the backside of the headwall. It also appears that pipes are better backfilled in the mainline than for the outlet pipes.

Figure 1. Assigned Outlet Pipe Sections

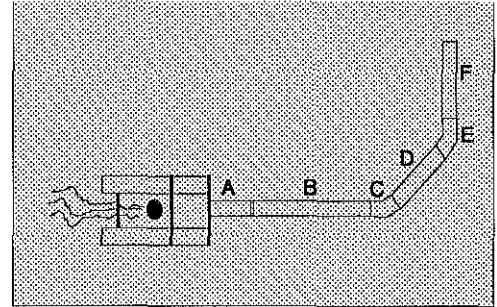


Table 6. Outlet Pipe Distress Information

| LOCATION | SAG (%) | COMPRESSED PIPE AND/OR COUPLING % | RIP, SEPARATION AT COUPLING AND/OR BACKFILL IN THE PIPE % |
|---------------|---------|-----------------------------------|---|
| I-75 | | | |
| A | 55.30 | 45.40 | 24.00 |
| B | 57.80 | 24.80 | 12.30 |
| E | 26.40 | 3.30 | 0.00 |
| F | 24.00 | 1.60 | 0.00 |
| I-71 | | | |
| A | 47.00 | 23.00 | 6.20 |
| B | 40.60 | 32.70 | 7.10 |
| E | 8.00 | 0.90 | 0.00 |
| F | 3.60 | 1.80 | 0.00 |
| I-75 AND I-71 | | | |
| A | 55.15 | 34.20 | 15.10 |
| B | 49.20 | 28.75 | 9.70 |
| E | 17.20 | 2.10 | 0.00 |
| F | 13.80 | 1.70 | 0.00 |

* Pipe Sections C and D are only applicable to rigid outlet pipe installations. Rigid outlet pipes were not included in this inspection.

Headwall and Outlet Condition

Table 7 indicates the working condition of each headwall and its associated outlet pipe. The outlet was considered fully in service if the headwall was clean and the outlet pipe was greater than 60 percent open. The outlet was considered partially open if the headwall was partially covered and/or the outlet was 40 percent to 60 percent open. The outlet was considered out of service if the headwall was plugged and/or if the outlet pipe was less than 40 percent open.

On the average for both routes, 43 percent of the outlets were out of service, and 22 percent of the outlets were fully in service with the remainder being partially in service (Table 7).

Table 7. Headwall and Outlet Condition

| LOCATION--> | I-75 | I-71 | I-75 AND I-71 (AVG.) |
|----------------------|-------|-------|-------------------------|
| FULLY IN SERVICE | 19.80 | 25.60 | 22.70 |
| PARTIALLY IN SERVICE | 37.20 | 31.00 | 34.10 |
| OUT OF SERVICE | 43.00 | 43.40 | 43.20 |

Conclusions

Approximately 43 percent of the edge drain outlets inspected were out of service. Approximately 50 percent of the outlet pipes had been damaged during installation. More significant problems were found at the headwall and outlet pipe connection than any other location in the drainage system.

It appears that a maintenance program should be established to clean the troughs of the headwalls and to check the screens for clogging and rust. The metal screens should be replaced with galvanized screens.

Positive flow should also be maintained from the headwalls. The buildup of grass and silt can eventually detour some of the flow. Headwalls located in cuts are more prone to become covered or ponded.

Edge drains and outlets should be inspected after they are installed.

Rigid outlet pipe should be precast into the headwalls. This should help eliminate problems occurring at the headwall connection. Currently, a rigid outlet pipe is connected to an approximately 2-foot long "pigtail" (4-inch flexible pipe) which is precast into the headwall.

APPENDIX A
FIELD DATA SHEETS

APPENDIX B
SUMMARY OF I-75

***** SUMMARY *****
 ***** PAVEMENT SUBDRAIN EVALUATION *****
 HEADWALL & OUTLET PIPE

ROUTE = I-75
 DIRECTION = SOUTH+NORTH
 INSP.DATE = MAY/JUNE 1991

| | NUMBER | PERCENTAGE |
|--|--------|------------|
| 1. CLEAN HEADWALL | 42 | 34.70 |
| * WITH OPEN OUTLET PIPE (> = 60% OPEN) | 24 | 19.80 |
| * WITH PARTIALLY OPEN OUTLET PIPE (40-60% OPEN) | 3 | 2.50 |
| * WITH BLOCKED OUTLET PIPE (< 40% OPEN) | 15 | 12.40 |
| 2. PT. COVERED HEADWALL | 50 | 41.30 |
| * WITH OPEN OUTLET PIPE (> = 60% OPEN) | 30 | 24.80 |
| * WITH PARTIALLY OPEN OUTLET PIPE (40-60% OPEN) | 5 | 4.10 |
| * WITH BLOCKED OUTLET PIPE (< 40% OPEN) | 15 | 12.40 |
| 3. COVERED HEADWALL | 11 | 9.10 |
| * WITH OPEN OUTLET PIPE (> = 60% OPEN) | 6 | 5.00 |
| * WITH PARTIALLY OPEN OUTLET PIPE (40-60% OPEN) | 1 | 0.80 |
| * WITH BLOCKED OUTLET PIPE (< 40% OPEN) | 4 | 3.30 |
| 4. PLUGGED HEADWALL | 18 | 14.90 |
| * WITH OPEN OUTLET PIPE (> = 60% OPEN) | 7 | 5.80 |
| * WITH PARTIALLY OPEN OUTLET PIPE (40-60% OPEN) | 1 | 0.80 |
| * WITH BLOCKED OUTLET PIPE (< 40% OPEN) | 10 | 8.30 |
| 5. HEADWALL & OUTLET PIPE CONDITION : | | |
| * INSPECTED HEADWALL & PIPE | 121 | |
| * FULLY IN SERVICE | 24 | 19.80 |
| * PT. IN SERVICE | 45 | 37.20 |
| * OUT OF SERVICE | 52 | 43.00 |

Note : -Fully in Service = headwall is clean with pipe > 60% open
 -PT. in service = clean headwall with pipe 40-60% open, or
 PT. covered/covered headwall with pipe 40%-60% open.
 -Out of service = Plugged headwall, or outlet with pipe <
 40% open

***** SUMMARY *****
 ***** PAVEMENT SUBDRAIN EVALUATION *****
 HEADWALL

ROUTE = I-75
 DIRECTION = SOUTH+NORTH
 INSP.DATE = MAY/JUNE 1991

| | NUMBER | PERCENTAGE |
|-------------------------|--------|------------|
| 1. INSPECTED HEADWALL | 121 | |
| 2. HEADWALL CONDITION : | | |
| CLEAN HEADWALL | 42 | 34.70 |
| PT. COVERED HEADWALL | 50 | 41.30 |
| COVERED HEADWALL | 11 | 9.10 |
| PLUGGED HEADWALL | 18 | 14.90 |
| 3. COVERING MATERIAL : | | |
| GRAVEL OR GRAVEL +... | 40 | 33.10 |
| DIRT. OR DIRT.+..... | 45 | 37.20 |
| VEG. OR VEG. + | 49 | 40.50 |
| CON. OR CON. + | 1 | 0.80 |
| 4. SCREEN : | | |
| NONE | 37 | 30.60 |
| OPEN | 43 | 35.50 |
| PARTIALLY OPEN | 20 | 16.50 |
| BLOCK | 20 | 16.50 |
| RUSTED SCREEN | 42 | 34.70 |
| 5. SILTATION : | | |
| NONE | 102 | 84.30 |
| SLIGHTLY | 7 | 5.70 |
| MODERATELY | 6 | 5.00 |
| SEVERLY | 6 | 5.00 |
| 6. FLOW : | | |
| YES | 102 | 84.30 |
| NO | 19 | 15.70 |
| 7. DRAINAGE : | | |
| GOOD | 76 | 62.80 |
| POOR | 45 | 37.20 |

***** SUMMARY *****
 ***** PAVEMENT SUBDRAIN EVALUATION *****
 ***** OUTLET PIPE *****

ROUTE = I-75
 DIRECTION = SOUTH+NORTH
 INSP.DATE = MAY/JUNE 1991

| | NUMBER | PERCENTAGE |
|---|--------|------------|
| I. INSPECTED OUTLET PIPE | 121 | |
| II. OPEN OUTLET PIPE (>80% OPEN) | 31 | 25.60 |
| III. COMPRESSED/BLOCKED OUTLET PIPE | 90 | 74.40 |
| * 60% - 80% OPEN | 36 | 29.80 |
| * 40% - 60% OPEN | 10 | 8.30 |
| * < 40 % OPEN OR BLOCKED | 44 | 36.30 |
| IV. OUTLET PIPE WITH PROBLEM AT/NEAR OUTLET/ HEADWALL (AT A) | 96 | 79.30 |
| 1. SAG | 19 | 15.70 |
| 2. SAG W/ STANDING WATER | 32 | 26.40 |
| 3. SAG W/ SILTATION | 16 | 13.20 |
| 4. COMPRESSED COUPLING | 30 | 24.80 |
| 5. COMPRESSED PIPE | 25 | 20.70 |
| 6. BACKFILL IN PIPE | 18 | 14.90 |
| 7. SEPARATION AT COUPLING | 4 | 3.30 |
| 8. RIP IN PIPE | 7 | 5.80 |
| 9. COMPRESSED PANEL | 0 | 0.00 |
| 10. COMPRESSED AND SILTED PANEL | 0 | 0.00 |
| V. OUTLET PIPE WITH PROBLEM AT B : | 83 | 68.60 |
| 1. SAG | 5 | 4.10 |
| 2. SAG W/ STANDING WATER | 42 | 37.20 |
| 3. SAG W/ SILTATION | 20 | 16.50 |
| 4. COMPRESSED COUPLING | 1 | 0.80 |
| 5. COMPRESSED PIPE | 29 | 24.00 |
| 6. BACKFILL IN PIPE | 9 | 7.40 |
| 7. SEPARATION AT COUPLING | 1 | 0.80 |
| 8. RIP IN PIPE | 5 | 4.10 |
| 9. COMPRESSED PANEL | 0 | 0.00 |
| 10. COMPRESSED AND SILTED PANEL | 0 | 0.00 |
| VI. OUTLET PIPE WITH PROBLEM AT E : | 32 | 26.40 |
| 1. SAG | 0 | 0.00 |
| 2. SAG W/ STANDING WATER | 27 | 22.30 |
| 3. SAG W/ SILTATION | 5 | 4.10 |
| 4. COMPRESSED COUPLING | 3 | 2.50 |
| 5. COMPRESSED PIPE | 1 | 0.80 |
| 6. BACKFILL IN PIPE | 0 | 0.00 |
| 7. SEPARATION AT COUPLING | 0 | 0.00 |
| 8. RIP IN PIPE | 0 | 0.00 |

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| | | | |
|------|---------------------------------|----|-------|
| 9. | COMPRESSED PANEL | 0 | 0.00 |
| 10. | COMPRESSED AND SILTED PANEL | 0 | 0.00 |
| VII. | OUTLET PIPE WITH PROBLEM AT F : | 24 | 19.80 |
| 1. | SAG | 0 | 0.00 |
| 2. | SAG W/ STANDING WATER | 22 | 18.20 |
| 3. | SAG W/ SILTATION | 7 | 5.80 |
| 4. | COMPRESSED COUPLING | 0 | 0.00 |
| 5. | COMPRESSED PIPE | 2 | 1.60 |
| 6. | BACKFILL IN PIPE | 0 | 0.00 |
| 7. | SEPARATION AT COUPLING | 0 | 0.00 |
| 8. | RIP IN PIPE | 0 | 0.00 |
| 9. | COMPRESSED PANEL | 0 | 0.00 |
| 10. | COMPRESSED AND SILTED PANEL | 0 | 0.00 |

***** SUMMARY*****
 ***** PAVEMENT SUBDRAIN EVALUATION *****
 HEADWALL & OUTLET PIPE

ROUTE = I-75
 DIRECTION = NORTH
 INSP.DATE = MAY/JUNE 1991

| | NUMBER | PERCENTAGE |
|--|--------|------------|
| 1. CLEAN HEADWALL | 22 | 45.00 |
| * WITH OPEN OUTLET PIPE (> = 60% OPEN) | 13 | 27.00 |
| * WITH PARTIALLY OPEN OUTLET PIPE (40-60% OPEN) | 1 | 2.00 |
| * WITH BLOCKED OUTLET PIPE (< 40% OPEN) | 8 | 16.00 |
| 2. PT. COVERED HEADWALL | 20 | 41.00 |
| * WITH OPEN OUTLET PIPE (> = 60% OPEN) | 10 | 20.00 |
| * WITH PARTIALLY OPEN OUTLET PIPE (40-60% OPEN) | 2 | 4.00 |
| * WITH BLOCKED OUTLET PIPE (< 40% OPEN) | 8 | 16.00 |
| 3. COVERED HEADWALL | 1 | 2.00 |
| * WITH OPEN OUTLET PIPE (> = 60% OPEN) | 1 | 2.00 |
| * WITH PARTIALLY OPEN OUTLET PIPE (40-60% OPEN) | 0 | 0.00 |
| * WITH BLOCKED OUTLET PIPE (< 40% OPEN) | 0 | 0.00 |
| 4. PLUGGED HEADWALL | 6 | 12.00 |
| * WITH OPEN OUTLET PIPE (> = 60% OPEN) | 1 | 2.00 |
| * WITH PARTIALLY OPEN OUTLET PIPE (40-60% OPEN) | 1 | 2.00 |
| * WITH BLOCKED OUTLET PIPE (< 40% OPEN) | 4 | 8.00 |
| 5. HEADWALL & OUTLET PIPE CONDITION : | | |
| * INSPECTED HEADWALL & PIPE | 49 | |
| * FULLY IN SERVICE | 13 | 27.00 |
| * PT. IN SERVICE | 14 | 29.00 |
| * OUT OF SERVICE | 22 | 45.00 |

Note : -Fully in Service = headwall is clean with pipe > 60% open
 -PT. in service = clean headwall with pipe 40-60% open, or
 PT. covered/covered headwall with pipe < 60% open.
 -Out of service = Plugged headwall, or outlet with pipe <
 40% open

***** SUMMARY*****
 ***** PAVEMENT SUBDRAIN EVALUATION *****
 HEADWALL

ROUTE = I-75
 DIRECTION = NORTH
 INSP.DATE = MAY/JUNE 1991

| | NUMBER | PERCENTAGE |
|-------------------------|--------|------------|
| 1. INSPECTED HEADWALL | 49 | |
| 2. HEADWALL CONDITION : | | |
| CLEAN HEADWALL | 22 | 45.00 |
| PT. COVERED HEADWALL | 20 | 41.00 |
| COVERED HEADWALL | 1 | 2.00 |
| PLUGGED HEADWALL | 6 | 12.00 |
| 3. COVERING MATERIAL : | | |
| GRAVEL OR GRAVEL +... | 19 | 39.00 |
| DIRT. OR DIRT.+..... | 10 | 20.00 |
| VEG. OR VEG. + | 11 | 22.00 |
| CON. OR CON. + | 0 | 0.00 |
| 4. SCREEN : | | |
| NONE | 21 | 43.00 |
| OPEN | 19 | 39.00 |
| PARTIALLY OPEN | 4 | 8.00 |
| BLOCK | 4 | 8.00 |
| RUSTED SCREEN | 19 | 39.00 |
| 5. SILTATION : | | |
| NONE | 43 | 88.00 |
| SLIGHTLY | 3 | 6.00 |
| MODERATELY | 0 | 0.00 |
| SEVERLY | 3 | 6.00 |
| 6. FLOW : | | |
| YES | 42 | 86.00 |
| NO | 7 | 14.00 |
| 7. DRAINAGE : | | |
| GOOD | 31 | 63.00 |
| POOR | 18 | 37.00 |

***** SUMMARY *****
 ***** PAVEMENT SUBDRAIN EVALUATION *****
 ***** OUTLET PIPE *****

ROUTE = I-75
 DIRECTION = NORTH
 INSP.DATE = MAY/JUNE 1991

| | NUMBER | PERCENTAGE |
|---|--------|------------|
| I. INSPECTED OUTLET PIPE | 49 | |
| II. OPEN OUTLET PIPE (>80% OPEN) | 13 | 27.00 |
| III. COMPRESSED/BLOCKED OUTLET PIPE | 36 | 73.00 |
| * 60% - 80% OPEN | 12 | 24.00 |
| * 40% - 60% OPEN | 4 | 8.00 |
| * < 40 % OPEN OR BLOCKED | 20 | 41.00 |
| IV. OUTLET PIPE WITH PROBLEM AT/NEAR OUTLET/ HEADWALL (AT A) | 36 | 73.00 |
| 1. SAG | 10 | 20.00 |
| 2. SAG W/ STANDING WATER | 12 | 24.00 |
| 3. SAG W/ SILTATION | 7 | 14.00 |
| 4. COMPRESSED COUPLING | 10 | 20.00 |
| 5. COMPRESSED PIPE | 8 | 16.00 |
| 6. BACKFILL IN PIPE | 5 | 10.00 |
| 7. SEPARATION AT COUPLING | 1 | 2.00 |
| 8. RIP IN PIPE | 2 | 4.00 |
| 9. COMPRESSED PANEL | 0 | 0.00 |
| 10. COMPRESSED AND SILTED PANEL | 0 | 0.00 |
| V. OUTLET PIPE WITH PROBLEM AT B : | 37 | 76.00 |
| 1. SAG | 0 | 0.00 |
| 2. SAG W/ STANDING WATER | 19 | 39.00 |
| 3. SAG W/ SILTATION | 9 | 18.00 |
| 4. COMPRESSED COUPLING | 0 | 0.00 |
| 5. COMPRESSED PIPE | 15 | 31.00 |
| 6. BACKFILL IN PIPE | 4 | 8.00 |
| 7. SEPARATION AT COUPLING | 0 | 0.00 |
| 8. RIP IN PIPE | 2 | 4.00 |
| 9. COMPRESSED PANEL | 0 | 0.00 |
| 10. COMPRESSED AND SILTED PANEL | 0 | 0.00 |
| VI. OUTLET PIPE WITH PROBLEM AT E : | 8 | 16.00 |
| 1. SAG | 0 | 0.00 |
| 2. SAG W/ STANDING WATER | 6 | 12.00 |
| 3. SAG W/ SILTATION | 2 | 4.00 |
| 4. COMPRESSED COUPLING | 0 | 0.00 |
| 5. COMPRESSED PIPE | 0 | 0.00 |
| 6. BACKFILL IN PIPE | 0 | 0.00 |
| 7. SEPARATION AT COUPLING | 0 | 0.00 |
| 8. RIP IN PIPE | 0 | 0.00 |

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| | | | |
|------|---------------------------------|---|-------|
| 9. | COMPRESSED PANEL | 0 | 0.00 |
| 10. | COMPRESSED AND SILTED PANEL | 0 | 0.00 |
| VII. | OUTLET PIPE WITH PROBLEM AT F : | 7 | 14.00 |
| 1. | SAG | 0 | 0.00 |
| 2. | SAG W/ STANDING WATER | 6 | 12.00 |
| 3. | SAG W/ SILTATION | 0 | 0.00 |
| 4. | COMPRESSED COUPLING | 0 | 0.00 |
| 5. | COMPRESSED PIPE | 1 | 2.00 |
| 6. | BACKFILL IN PIPE | 0 | 0.00 |
| 7. | SEPARATION AT COUPLING | 0 | 0.00 |
| 8. | RIP IN PIPE | 0 | 0.00 |
| 9. | COMPRESSED PANEL | 0 | 0.00 |
| 10. | COMPRESSED AND SILTED PANEL | 0 | 0.00 |

***** PAVEMENT SUBDRAIN EVALUATION *****
 *** ALL INSPECTED HEADWALL ***

ROUTE = I-75
 DIRECTION = NORTH
 INSP.DATE = MAY/JUNE 1991

| MILEPOST | OUTLET TYPE/LOC./COND | COVER MATR. | SCREEN | SILT. | FLOW | DRAINAGE |
|----------|--------------------------|----------------|-------------|--------|--------|----------|
| 120.000 | S-H / PT.COV. | | NONE | NONE | YES | GOOD |
| 122.020 | S-H / CLEAN | | OPEN | NONE | YES | GOOD |
| 122.500 | S-H / PT.COV. | | PT.OPEN | NONE | YES | GOOD |
| 132.100 | S-H / COVER. | | NONE | NONE | YES | GOOD |
| 133.100 | S-H / CLEAN | | OPEN RUSTED | NONE | YES | GOOD |
| 134.100 | S-B / CLEAN | | NONE | NONE | YES | GOOD |
| 136.100 | S-H / PT.COV. | | NONE | NONE | YES | GOOD |
| 137.247 | S-B / CLEAN | | NONE | NONE | YES | GOOD |
| 138.300 | S-H / CLEAN | | OPEN | NONE | YES | GOOD |
| 139.300 | S-H / PT.COV. | G | PT.OPEN | RUSTED | NONE | YES POOR |
| 140.867 | S-H / PLUGGED | G | BLOCK | RUSTED | NONE | YES GOOD |
| 141.278 | S-H / PLUGGED | G+V | BLOCK | | NONE | NO GOOD |
| 142.725 | S-H / CLEAN | | OPEN | RUSTED | NONE | YES GOOD |
| 143.000 | S-H / PLUGGED | G | BLOCK | RUSTED | NONE | NO POOR |
| 145.000 | S-H / PT.COV. | G | OPEN | RUSTED | NONE | YES GOOD |
| 146.500 | S-H / CLEAN | | NONE | NONE | YES | GOOD |
| 147.480 | S-H / CLEAN | | OPEN | RUSTED | NONE | YES GOOD |
| 148.150 | S-H / PT.COV. | G | OPEN | RUSTED | NONE | NO POOR |
| 149.090 | S-H / PT.COV. | G | NONE | | NONE | YES POOR |
| 150.430 | S-H / CLEAN | | NONE | | NONE | YES GOOD |
| 151.390 | S-H / PT.COV. | G | NONE | | NONE | YES GOOD |
| 152.290 | S-B / CLEAN | | NONE | | NONE | YES GOOD |
| 153.300 | S-H / CLEAN | | NONE | | NONE | YES GOOD |
| 154.800 | S-H / PT.COV. | G | OPEN | RUSTED | NONE | YES POOR |
| 155.900 | S-H / PT.COV. | | NONE | | SLIGHT | YES POOR |
| 156.080 | S-H / CLEAN | | OPEN | | NONE | YES GOOD |
| 157.270 | S-H / PT.COV. | G | OPEN | RUSTED | NONE | YES POOR |
| 158.630 | S-B / CLEAN | | NONE | | NONE | YES GOOD |
| 159.090 | S-H / CLEAN | | NONE | | NONE | YES POOR |
| 160.860 | S-H / PT.COV. | V | NONE | | NONE | YES POOR |
| 161.280 | S-H / PT.COV. | G | OPEN | RUSTED | NONE | YES GOOD |
| 162.130 | S-H / PT.COV. | G | NONE | | NONE | YES POOR |
| 163.040 | S-H / PT.COV. | G | OPEN | RUSTED | NONE | YES GOOD |
| 164.610 | S-H / PT.COV. | G | OPEN | RUSTED | NONE | YES POOR |
| 165.039 | S-H / CLEAN | | OPEN | RUSTED | NONE | YES GOOD |
| 166.440 | S-H / PT.COV. | G/D/V | PT.OPEN | RUSTED | NONE | YES GOOD |
| 167.560 | S-H / CLEAN | | NONE | | NONE | YES GOOD |
| 168.360 | S-H / PLUGGED | G+D | BLOCK | RUSTED | NONE | NO POOR |
| 169.700 | S-B / CLEAN | | OPEN | RUSTED | NONE | YES GOOD |
| 170.430 | S-H / CLEAN | G+V | OPEN | RUSTED | NONE | YES GOOD |
| 171.540 | S-B / CLEAN | | NONE | | NONE | YES POOR |
| 172.210 | S-H / CLEAN | | OPEN | | NONE | YES GOOD |

CONT' ED

..I-75 N

| | | | | | | | |
|--------------------|--------------------------|--------------|-----------------|--------|-------------------|----------------|-----------------|
| 173.250 | S-H / CLEAN | | OPEN | RUSTED | NONE | YES | GOOD |
| 174.300 | S-H / PT.COV. | V | OPEN | | SLIGHT | YES | POOR |
| 175.440 | S-H / PLUGGED | G/D/V | NONE | | SEV. | NO | POOR |
| 176.070 | S-H / CLEAN | | NONE | | NONE | YES | GOOD |
| 177.340 | S-H / PT.COV. | D | NONE | | SEV. | NO | POOR |
| 178.210 | S-H / PLUGGED | D | NONE | | SEV. | NO | POOR |
| 179.050 | S-H / PT.COV. | D+V | PT.OPEN | | SLIGHT | YES | POOR |

NOTE : COVER MATR --> G=GRAVEL; D=DIRT.; V=VEG.; C=CONCRETE

***** PAVEMENT SUBDRAIN EVALUATION *****

ROUTE = I-75
 DIRECTION = NORTH
 HEADWALL = CLEAN

| MILEPOST | OUTLET TYPE/LOC. | SCREEN | SILT. | FLOW | DRAINAGE |
|----------|---------------------|--------|--------|------|----------|
| 122.020 | S-H | OPEN | | YES | GOOD |
| 133.100 | S-H | OPEN | RUSTED | YES | GOOD |
| 134.100 | S-B | NONE | | YES | GOOD |
| 137.247 | S-B | NONE | | YES | GOOD |
| 138.300 | S-H | OPEN | | YES | GOOD |
| 142.725 | S-H | OPEN | RUSTED | YES | GOOD |
| 146.500 | S-H | NONE | | YES | GOOD |
| 147.480 | S-H | OPEN | RUSTED | YES | GOOD |
| 150.430 | S-H | NONE | | YES | GOOD |
| 152.290 | S-B | NONE | | YES | GOOD |
| 153.300 | S-H | NONE | | YES | GOOD |
| 156.080 | S-H | OPEN | | YES | GOOD |
| 158.630 | S-B | NONE | | YES | GOOD |
| 159.090 | S-H | NONE | | YES | POOR |
| 165.039 | S-H | OPEN | RUSTED | YES | GOOD |
| 167.560 | S-H | NONE | | YES | GOOD |
| 169.700 | S-B | OPEN | RUSTED | YES | GOOD |
| 170.430 | S-H | OPEN | RUSTED | YES | GOOD |
| 171.540 | S-B | NONE | | YES | POOR |
| 172.210 | S-H | OPEN | | YES | GOOD |
| 173.250 | S-H | OPEN | RUSTED | YES | GOOD |
| 176.070 | S-H | NONE | | YES | GOOD |

NUMBER OF CLEAN HEADWALL = 22
 % OF CLEAN HEADWALL = 44.9

***** PAVEMENT SUBDRAIN EVALUATION *****

ROUTE = I-75
 DIRECTION = NORTH
 HEADWALL = PT. COVER./COVER.

| MILEPOST | LOC./ TYPE | COVER MATER. | SCREEN | SILT. | FLOW | DRAINAGE | |
|----------|---------------|-----------------|---------|--------|--------|----------|------|
| 120.000 | S-H | G/D/V | NONE | | NONE | YES | GOOD |
| 122.500 | S-H | G/D/V | PT.OPEN | | NONE | YES | GOOD |
| 132.100 | S-H | G/D/V | NONE | | NONE | YES | GOOD |
| 136.100 | S-H | G/D/V | NONE | | NONE | YES | GOOD |
| 139.300 | S-H | G | PT.OPEN | RUSTED | NONE | YES | POOR |
| 145.000 | S-H | G | OPEN | RUSTED | NONE | YES | GOOD |
| 148.150 | S-H | G | OPEN | RUSTED | NONE | NO | POOR |
| 149.090 | S-H | G | NONE | | NONE | YES | POOR |
| 151.390 | S-H | G | NONE | | NONE | YES | GOOD |
| 154.800 | S-H | G | OPEN | RUSTED | NONE | YES | POOR |
| 155.900 | S-H | G/D/V | NONE | | SLIGHT | YES | POOR |
| 157.270 | S-H | G | OPEN | RUSTED | NONE | YES | POOR |
| 160.860 | S-H | V | NONE | | NONE | YES | POOR |
| 161.280 | S-H | G | OPEN | RUSTED | NONE | YES | GOOD |
| 162.130 | S-H | G | NONE | | NONE | YES | POOR |
| 163.040 | S-H | G | OPEN | RUSTED | NONE | YES | GOOD |
| 164.610 | S-H | G | OPEN | RUSTED | NONE | YES | POOR |
| 166.440 | S-H | G/D/V | PT.OPEN | RUSTED | NONE | YES | GOOD |
| 174.300 | S-H | V | OPEN | | SLIGHT | YES | POOR |
| 177.340 | S-H | D | NONE | | SEV. | NO | POOR |

NOTE : COVER MATR.--> G=GRAVEL; D= DIRT., V=VEG.; C=CONCRETE
 NUMBER OF PT.COVERED HEADWALL = 20
 % OF PT. COVERED HEADWALL = 40.8
 NUMBER OF COVERED HEADWALL = 1
 % OF COVERED HEADWALL = 2.0

***** PAVEMENT SUBDRAIN EVALUATION *****

ROUTE = I-75
 DIRECTION = NORTH
 INSP.DATE = MAY/JUNE 1991
 HEADWALL = PLUGGED

| MILEPOST | LOC./ TYPE | COVER MATER. | SCREEN | SILT. | FLOW | DRAINAGE | |
|----------|---------------|-----------------|--------|--------|------|----------|------|
| 140.867 | S-H | G | BLOCK | RUSTED | NONE | YES | GOOD |
| 141.278 | S-H | G+V | BLOCK | | NONE | NO | GOOD |
| 143.000 | S-H | G | BLOCK | RUSTED | NONE | NO | POOR |
| 168.360 | S-H | G+D | BLOCK | RUSTED | NONE | NO | POOR |
| 175.440 | S-H | G/D/V | NONE | | SEV. | NO | POOR |
| 178.210 | S-H | D | NONE | | SEV. | NO | POOR |

NOTE : COVER MATR.--> G=GRAVEL; D= DIRT., V=VEG.; C=CONCRETE
 NUMBER OF PLUGGED HEADWALL = 6
 % OF PLUGGED HEADWALL = 12.2

***** PAVEMENT SUBDRAIN EVALUATION *****

ROUTE = I-75
 DIRECTION = NORTH
 HEADWALL = S-H
 NO SCREEN/RUSTED

| MILEPOST | OUTLET | SCREEN | SILT. | FLOW | DRAINAGE |
|----------|-----------|----------------|--------|------|----------|
| 120.000 | PT.COVER. | NONE | NONE | YES | GOOD |
| 132.100 | COVER. | NONE | NONE | YES | GOOD |
| 133.100 | CLEAN | OPEN RUSTED | NONE | YES | GOOD |
| 136.100 | PT.COVER. | NONE | NONE | YES | GOOD |
| 137.247 | CLEAN | NONE | NONE | YES | GOOD |
| 139.300 | PT.COVER. | PT.OPEN RUSTED | NONE | YES | POOR |
| 140.867 | PLUGGED | BLOCK RUSTED | NONE | YES | GOOD |
| 142.725 | CLEAN | OPEN RUSTED | NONE | YES | GOOD |
| 143.000 | PLUGGED | BLOCK RUSTED | NONE | NO | POOR |
| 145.000 | PT.COVER. | OPEN RUSTED | NONE | YES | GOOD |
| 146.500 | CLEAN | NONE | NONE | YES | GOOD |
| 147.480 | CLEAN | OPEN RUSTED | NONE | YES | GOOD |
| 148.150 | PT.COVER. | OPEN RUSTED | NONE | NO | POOR |
| 149.090 | PT.COVER. | NONE | NONE | YES | POOR |
| 150.430 | CLEAN | NONE | NONE | YES | GOOD |
| 151.390 | PT.COVER. | NONE | NONE | YES | GOOD |
| 152.290 | CLEAN | NONE | NONE | YES | GOOD |
| 153.300 | CLEAN | NONE | NONE | YES | GOOD |
| 154.800 | PT.COVER. | OPEN RUSTED | NONE | YES | POOR |
| 155.900 | PT.COVER. | NONE | SLIGHT | YES | POOR |
| 157.270 | PT.COVER. | OPEN RUSTED | NONE | YES | POOR |
| 158.630 | CLEAN | NONE | NONE | YES | GOOD |
| 159.090 | CLEAN | NONE | NONE | YES | POOR |
| 160.860 | PT.COVER. | NONE | NONE | YES | POOR |
| 161.280 | PT.COVER. | OPEN RUSTED | NONE | YES | GOOD |
| 162.130 | PT.COVER. | NONE | NONE | YES | POOR |
| 163.040 | PT.COVER. | OPEN RUSTED | NONE | YES | GOOD |
| 164.610 | PT.COVER. | OPEN RUSTED | NONE | YES | POOR |
| 165.039 | CLEAN | OPEN RUSTED | NONE | YES | GOOD |
| 166.440 | PT.COVER. | PT.OPEN RUSTED | NONE | YES | GOOD |
| 167.560 | CLEAN | NONE | NONE | YES | GOOD |
| 168.360 | PLUGGED | BLOCK RUSTED | NONE | NO | POOR |
| 169.700 | CLEAN | OPEN RUSTED | NONE | YES | GOOD |
| 170.430 | CLEAN | OPEN RUSTED | NONE | YES | GOOD |
| 171.540 | CLEAN | NONE | NONE | YES | POOR |
| 173.250 | CLEAN | OPEN RUSTED | NONE | YES | GOOD |
| 175.440 | PLUGGED | NONE | SEV. | NO | POOR |
| 176.070 | CLEAN | NONE | NONE | YES | GOOD |
| 177.340 | PT.COVER. | NONE | SEV. | NO | POOR |
| 178.210 | PLUGGED | NONE | SEV. | NO | POOR |

NUMBER OF HEADWALL W/ NO OR RUSTED SCREEN = 40
 % = 81.6

***** PAVEMENT SUBDRAIN EVALUATION *****

** ALL INSPECTED OUTLET PIPE **

ROUTE = I-75

DIRECTION = NORTH

INSP. DATE= MAY/JUNE 1991

| MILEPOST | PIPE TYPE | PIPE CONDITION | | | | | | REMARK |
|----------|-----------|----------------|---------|---|---|---|---|----------------------|
| | | A | B | C | D | E | F | |
| 120.000 | FLEX. | | 2 | | | 2 | 2 | PIPE OPEN |
| 122.020 | FLEX. | | 2+5 | | | 2 | 2 | PIPE OPEN |
| 122.500 | FLEX. | 2+3+5 | | | | | | BLOCKED AT 5.0 |
| 132.100 | FLEX. | | | | | | 2 | PIPE OPEN |
| 133.100 | FLEX. | 1 | 2 | | | | | PIPE OPEN |
| 134.100 | RIGID | 5 | 2 | | | | | PIPE OPEN |
| 136.100 | FLEX. | 2+3 | 2 | | | | | PIPE OPEN |
| 137.247 | FLEX. | 1+4 | 5 | | | | | 20-40 % OPEN AT 5.0 |
| 138.300 | FLEX. | 2 | 5+6+8 | | | | | BLOCKED AT 4.0 |
| 139.300 | FLEX. | 2+3+7 | 5+6 | | | | | BLOCKED AT 4.0 |
| 140.867 | FLEX. | 4+6 | 3 | | | 2 | 2 | 40-60 % OPEN AT 10.0 |
| 141.278 | FLEX. | 1+4 | 5 | | | | | 10-20 % OPEN AT 6.0 |
| 142.725 | FLEX. | 2 | 5 | | | | | 40-60 % OPEN AT 5.0 |
| 143.000 | FLEX. | 2+3+4+5 | | | | | | 0 % OPEN AT 2.0 |
| 145.000 | FLEX. | 3 | 3 | | | | | PIPE OPEN |
| 146.500 | FLEX. | 5 | 3 | | | | | 60-80 % OPEN |
| 147.480 | FLEX. | 1 | 2 | | | 2 | | PIPE OPEN |
| 148.150 | FLEX. | | 5+6 | | | | | BLOCKED AT 2.5 |
| 149.090 | FLEX. | 2+3 | 3 | | | | | PIPE OPEN |
| 150.430 | FLEX. | 1 | 3 | | | 3 | | 60-80 % OPEN |
| 151.390 | FLEX. | 1 | 3 | | | | | 20-40 % OPEN AT 10.0 |
| 152.290 | FLEX. | 1+6+8 | | | | | | BLOCKED AT 1.0 |
| 153.300 | FLEX. | 1 | 2+5 | | | | | BLOCKED AT 5.0 |
| 154.800 | FLEX. | 5+6+8 | | | | | | BLOCKED AT 2.0 |
| 155.900 | FLEX. | | 2+5 | | | 2 | 2 | PIPE OPEN |
| 156.080 | FLEX. | 4 | 5 | | | | | 20-40 % OPEN AT 2.0 |
| 157.270 | FLEX. | 4 | | | | | | 40-60 % OPEN AT 1.0 |
| 158.630 | FLEX. | | 2+3+6+8 | | | | | BLOCKED AT 23.0 |
| 159.090 | FLEX. | 4 | 5 | | | | | 20-40 % OPEN AT 2.0 |
| 160.860 | FLEX. | | 2+3 | | | | | PIPE OPEN |
| 161.280 | FLEX. | 2 | 5 | | | | | 20-40 % OPEN AT 4.0 |
| 162.130 | FLEX. | 2 | 5 | | | | | 60-80 % OPEN |
| 163.040 | FLEX. | | 2 | | | | | PIPE OPEN |
| 164.610 | FLEX. | 5 | 5 | | | | | 40-60 % OPEN AT 2.0 |
| 165.039 | FLEX. | 4 | 2 | | | | | BLOCKED AT 6.0 |
| 166.440 | FLEX. | | 2 | | | | | 60-80 % OPEN |
| 167.560 | FLEX. | | 2 | | | | | 60-80 % OPEN |
| 168.360 | FLEX. | 2 | 2 | | | 3 | | 60-80 % OPEN |
| 169.700 | FLEX. | 1+4 | 5 | | | | | 60-80 % OPEN |
| 170.430 | FLEX. | 2+5 | | | | | | 60-80 % OPEN |
| 171.540 | FLEX. | | 2+3 | | | | 5 | 60-80 % OPEN |
| 172.210 | FLEX. | 3 | 2 | | | | | 60-80 % OPEN |
| 173.250 | FLEX. | 2 | 2 | | | 2 | 2 | 60-80 % OPEN |
| 174.300 | FLEX. | 4+5 | | | | | | 10-20 % OPEN AT 1.5 |
| 175.440 | FLEX. | | | | | | | BLOCKED AT 1.0 |
| 176.070 | RIGID | | | | | | | PIPE OPEN |
| 177.340 | RIGID | 6 | | | | | | BLOCKED AT 2.0 |
| 178.210 | FLEX. | 6 | | | | | | BLOCKED AT 1.5 |
| 179.050 | FLEX. | 1 | 2 | | | | | 60-80 % OPEN |

NUMBER OF OPEN OUTLET PIPE = 13
 % OF OPEN OUTLET PIPE = 27
 NUMBER OF COMPRESSED/BLOCKED OUTLET PIPE = 36
 % OF COMPRESSED/BLOCKED OUTLET PIPE = 73

***** PAVEMENT SUBDRAIN EVALUATION *****

** OPEN OUTLET PIPE **

ROUTE = T-75

DIRECTION = NORTH

INSP.DATE = MAY/JUNE 1991

| MILEPOST | PIPE TYPE | PIPE CONDITION | | | | | | AT | REMARK |
|----------|-----------|----------------|-----|---|---|---|---|----|--------|
| | | A | B | C | D | E | F | | |
| 120.000 | FLEX. | | 2 | | | | 2 | 2 | |
| 122.020 | FLEX. | | 2+5 | | | | 2 | 2 | |
| 132.100 | FLEX. | | | | | | | 2 | |
| 133.100 | FLEX. 1 | | 2 | | | | | | |
| 134.100 | RIGID 5 | | 2 | | | | | | |
| 136.100 | FLEX. 2+3 | | 2 | | | | | | |
| 145.000 | FLEX. 3 | | 3 | | | | | | |
| 147.480 | FLEX. 1 | | 2 | | | | 2 | | |
| 149.090 | FLEX. 2+3 | | 3 | | | | | | |
| 155.900 | FLEX. | | 2+5 | | | | 2 | 2 | |
| 160.860 | FLEX. | | 2+3 | | | | | | |
| 163.040 | FLEX. | | 2 | | | | | | |
| 176.070 | RIGID | | | | | | | | |

NUMBER OF OPEN OUTLET PIPE = 13
 % OF OPEN OUTLET PIPE = 26.5

***** PAVEMENT SUBDRAIN EVALUATION *****
 * COMPRESSED/BLOCKED OUTLET PIPE *
 ROUTE = I-75
 DIRECTION = NORTH
 INSP.DATE = MAY/JUNE 1991

| MILEPOST | PIPE TYPE | A | PIPE CONDITION | B | C | D | AT | E | F | REMARK |
|----------|-----------|---------|----------------|---------|---|---|----|---|---|----------------------|
| 122.500 | FLEX. | 2+3+5 | | | | | | | | BLOCKED AT 5.0 |
| 137.247 | FLEX. | 1+4 | | 5 | | | | | | 20-40 % OPEN AT 5.0 |
| 138.300 | FLEX. | 2 | | 5+6+8 | | | | | | BLOCKED AT 4.0 |
| 139.300 | FLEX. | 2+3+7 | | 5+6 | | | | | | BLOCKED AT 4.0 |
| 140.867 | FLEX. | 4+6 | | 3 | | | 2 | | 2 | 40-60 % OPEN AT 10.0 |
| 141.278 | FLEX. | 1+4 | | 5 | | | | | | 10-20 % OPEN AT 6.0 |
| 142.725 | FLEX. | 2 | | 5 | | | | | | 40-60 % OPEN AT 5.0 |
| 143.000 | FLEX. | 2+3+4+5 | | | | | | | | 0 % OPEN AT 2.0 |
| 146.500 | FLEX. | 5 | | 3 | | | | | | 60-80 % OPEN |
| 148.150 | FLEX. | | | 5+6 | | | | | | BLOCKED AT 2.5 |
| 150.430 | FLEX. | 1 | | 3 | | | 3 | | | 60-80 % OPEN |
| 151.390 | FLEX. | 1 | | 3 | | | | | | 20-40 % OPEN AT 10.0 |
| 152.290 | FLEX. | 1+6+8 | | | | | | | | BLOCKED AT 1.0 |
| 153.300 | FLEX. | 1 | | 2+5 | | | | | | BLOCKED AT 5.0 |
| 154.800 | FLEX. | 5+6+8 | | | | | | | | BLOCKED AT 2.0 |
| 156.080 | FLEX. | 4 | | 5 | | | | | | 20-40 % OPEN AT 2.0 |
| 157.270 | FLEX. | 4 | | | | | | | | 40-60 % OPEN AT 1.0 |
| 158.630 | FLEX. | | | 2+3+6+8 | | | | | | BLOCKED AT 23.0 |
| 159.090 | FLEX. | 4 | | 5 | | | | | | 20-40 % OPEN AT 2.0 |
| 161.280 | FLEX. | 2 | | 5 | | | | | | 20-40 % OPEN AT 4.0 |
| 162.130 | FLEX. | 2 | | 5 | | | | | | 60-80 % OPEN |
| 164.610 | FLEX. | 5 | | 5 | | | | | | 40-60 % OPEN AT 2.0 |
| 165.039 | FLEX. | 4 | | 2 | | | | | | BLOCKED AT 6.0 |
| 166.440 | FLEX. | | | 2 | | | | | | 60-80 % OPEN |
| 167.560 | FLEX. | | | 2 | | | | | | 60-80 % OPEN |
| 168.360 | FLEX. | 2 | | 2 | | | 3 | | | 60-80 % OPEN |
| 169.700 | FLEX. | 1+4 | | 5 | | | | | | 60-80 % OPEN |
| 170.430 | FLEX. | 2+5 | | | | | | | | 60-80 % OPEN |
| 171.540 | FLEX. | | | 2+3 | | | | | 5 | 60-80 % OPEN |
| 172.210 | FLEX. | 3 | | 2 | | | | | | 60-80 % OPEN |
| 173.250 | FLEX. | 2 | | 2 | | | 2 | | 2 | 60-80 % OPEN |
| 174.300 | FLEX. | 4+5 | | | | | | | | 10-20 % OPEN AT 1.5 |
| 175.440 | FLEX. | | | | | | | | | BLOCKED AT 1.0 |
| 177.340 | RIGID | 6 | | | | | | | | BLOCKED AT 2.0 |
| 178.210 | FLEX. | 6 | | | | | | | | BLOCKED AT 1.5 |
| 179.050 | FLEX. | 1 | | 2 | | | | | | 60-80 % OPEN |

NUMBER OF BLOCKED/COMPRESSED OUTLET PIPE = 36
 % OF BLOCKED/COMPRESSED OUTLET PIPE = 73.5

***** SUMMARY*****
 ***** PAVEMENT SUBDRAIN EVALUATION *****
 HEADWALL & OUTLET PIPE

ROUTE = I-75
 DIRECTION = SOUTH
 INSP.DATE = MAY/JUNE 1991

| | NUMBER | PERCENTAGE |
|--|--------|------------|
| 1. CLEAN HEADWALL | 20 | 28.00 |
| * WITH OPEN OUTLET PIPE (> = 60% OPEN) | 11 | 15.00 |
| * WITH PARTIALLY OPEN OUTLET PIPE (40-60% OPEN) | 2 | 3.00 |
| * WITH BLOCKED OUTLET PIPE (< 40% OPEN) | 7 | 10.00 |
| 2. PT. COVERED HEADWALL | 30 | 42.00 |
| * WITH OPEN OUTLET PIPE (> = 60% OPEN) | 20 | 28.00 |
| * WITH PARTIALLY OPEN OUTLET PIPE (40-60% OPEN) | 3 | 4.00 |
| * WITH BLOCKED OUTLET PIPE (< 40% OPEN) | 7 | 10.00 |
| 3. COVERED HEADWALL | 10 | 14.00 |
| * WITH OPEN OUTLET PIPE (> = 60% OPEN) | 5 | 7.00 |
| * WITH PARTIALLY OPEN OUTLET PIPE (40-60% OPEN) | 1 | 1.00 |
| * WITH BLOCKED OUTLET PIPE (< 40% OPEN) | 4 | 6.00 |
| 4. PLUGGED HEADWALL | 12 | 17.00 |
| * WITH OPEN OUTLET PIPE (> = 60% OPEN) | 6 | 8.00 |
| * WITH PARTIALLY OPEN OUTLET PIPE (40-60% OPEN) | 0 | 0.00 |
| * WITH BLOCKED OUTLET PIPE (< 40% OPEN) | 6 | 8.00 |
| 5. HEADWALL & OUTLET PIPE CONDITION : | | |
| * INSPECTED HEADWALL & PIPE | 72 | |
| * FULLY IN SERVICE | 11 | 15.00 |
| * PT. IN SERVICE | 31 | 43.00 |
| * OUT OF SERVICE | 30 | 42.00 |

Note : -Fully in Service = headwall is clean with pipe > 60% open
 -PT. in service = clean headwall with pipe 40-60% open, or
 PT. covered/covered headwall with pipe < 60% open.
 -Out of service = Plugged headwall, or outlet with pipe <
 40% open

***** SUMMARY *****
 ***** PAVEMENT SUBDRAIN EVALUATION *****
 HEADWALL

ROUTE = I-75
 DIRECTION = SOUTH
 INSP.DATE = MAY/JUNE 1991

| | NUMBER | PERCENTAGE |
|-------------------------|--------|------------|
| 1. INSPECTED HEADWALL | 72 | |
| 2. HEADWALL CONDITION : | | |
| CLEAN HEADWALL | 20 | 28.00 |
| PT. COVERED HEADWALL | 30 | 42.00 |
| COVERED HEADWALL | 10 | 14.00 |
| PLUGGED HEADWALL | 12 | 17.00 |
| 3. COVERING MATERIAL : | | |
| GRAVEL OR GRAVEL +... | 21 | 29.00 |
| DIRT. OR DIRT.+..... | 35 | 49.00 |
| VEG. OR VEG. + | 38 | 53.00 |
| CON. OR CON. + | 1 | 1.00 |
| 4. SCREEN : | | |
| NONE | 16 | 22.00 |
| OPEN | 24 | 33.00 |
| PARTIALLY OPEN | 16 | 22.00 |
| BLOCK | 16 | 22.00 |
| RUSTED SCREEN | 23 | 32.00 |
| 5. SILTATION : | | |
| NONE | 59 | 82.00 |
| SLIGHTLY | 4 | 6.00 |
| MODERATELY | 6 | 8.00 |
| SEVERLY | 3 | 4.00 |
| 6. FLOW : | | |
| YES | 60 | 83.00 |
| NO | 12 | 17.00 |
| 7. DRAINAGE : | | |
| GOOD | 45 | 63.00 |
| POOR | 27 | 38.00 |

***** SUMMARY *****
 ***** PAVEMENT SUBDRAIN EVALUATION *****
 ***** OUTLET PIPE *****

ROUTE = I-75
 DIRECTION = SOUTH
 INSP.DATE = MAY/JUNE 1991

| | NUMBER | PERCENTAGE |
|---|--------|------------|
| I. INSPECTED OUTLET PIPE | 72 | |
| II. OPEN OUTLET PIPE (>80% OPEN) | 18 | 25.00 |
| III. COMPRESSED/BLOCKED OUTLET PIPE | 54 | 75.00 |
| * 60% - 80% OPEN | 24 | 33.00 |
| * 40% - 60% OPEN | 6 | 8.00 |
| * < 40 % OPEN OR BLOCKED | 24 | 33.00 |
| IV. OUTLET PIPE WITH PROBLEM AT/NEAR OUTLET/ HEADWALL (AT A) | 60 | 83.00 |
| 1. SAG | 9 | 13.00 |
| 2. SAG W/ STANDING WATER | 20 | 28.00 |
| 3. SAG W/ SILTATION | 9 | 13.00 |
| 4. COMPRESSED COUPLING | 20 | 28.00 |
| 5. COMPRESSED PIPE | 17 | 24.00 |
| 6. BACKFILL IN PIPE | 13 | 18.00 |
| 7. SEPARATION AT COUPLING | 3 | 4.00 |
| 8. RIP IN PIPE | 5 | 7.00 |
| 9. COMPRESSED PANEL | 1 | 1.00 |
| 10. COMPRESSED AND SILTED PANEL | 0 | 0.00 |
| V. OUTLET PIPE WITH PROBLEM AT B : | 46 | 64.00 |
| 1. SAG | 5 | 7.00 |
| 2. SAG W/ STANDING WATER | 23 | 32.00 |
| 3. SAG W/ SILTATION | 11 | 15.00 |
| 4. COMPRESSED COUPLING | 1 | 1.00 |
| 5. COMPRESSED PIPE | 14 | 19.00 |
| 6. BACKFILL IN PIPE | 5 | 7.00 |
| 7. SEPARATION AT COUPLING | 1 | 1.00 |
| 8. RIP IN PIPE | 3 | 4.00 |
| 9. COMPRESSED PANEL | 0 | 0.00 |
| 10. COMPRESSED AND SILTED PANEL | 0 | 0.00 |
| VI. OUTLET PIPE WITH PROBLEM AT E : | 24 | 33.00 |
| 1. SAG | 0 | 0.00 |
| 2. SAG W/ STANDING WATER | 21 | 29.00 |
| 3. SAG W/ SILTATION | 3 | 4.00 |
| 4. COMPRESSED COUPLING | 3 | 4.00 |
| 5. COMPRESSED PIPE | 1 | 1.00 |
| 6. BACKFILL IN PIPE | 0 | 0.00 |
| 7. SEPARATION AT COUPLING | 0 | 0.00 |
| 8. RIP IN PIPE | 0 | 0.00 |

CONT'ED

... I-75 S

| | | | |
|-------|---------------------------------|----|-------|
| 9. | COMPRESSED PANEL | 0 | 0.00 |
| 10. | COMPRESSED AND SILTED PANEL | 0 | 0.00 |
| <hr/> | | | |
| VII. | OUTLET PIPE WITH PROBLEM AT F : | 17 | 24.00 |
| 1. | SAG | 0 | 0.00 |
| 2. | SAG W/ STANDING WATER | 16 | 22.00 |
| 3. | SAG W/ SILTATION | 7 | 10.00 |
| 4. | COMPRESSED COUPLING | 0 | 0.00 |
| 5. | COMPRESSED PIPE | 1 | 1.00 |
| 6. | BACKFILL IN PIPE | 0 | 0.00 |
| 7. | SEPARATION AT COUPLING | 0 | 0.00 |
| 8. | RIP IN PIPE | 0 | 0.00 |
| 9. | COMPRESSED PANEL | 0 | 0.00 |
| 10. | COMPRESSED AND SILTED PANEL | 0 | 0.00 |
| <hr/> | | | |

***** PAVEMENT SUBDRAIN EVALUATION *****
 *** ALL INSPECTED HEADWALL ***

ROUTE = I-75
 DIRECTION = SOUTH
 INSP.DATE = MAY/JUNE 1991

| MILEPOST | OUTLET | COVER | SCREEN | SILT. | FLOW | DRAINAGE |
|----------|----------------|-------|---------|--------|--------|----------|
| | TYPE/LOC./COND | MATR. | | | | |
| 119.150 | S-B / CLEAN | | NONE | RUSTED | NONE | YES GOOD |
| 119.300 | S-H / PT.COV. | | OPEN | | NONE | YES GOOD |
| 119.600 | S-H / PT.COV. | D+V | PT.OPEN | | NONE | YES POOR |
| 119.850 | S-H / COVER. | | BLOCK | | NONE | YES POOR |
| 120.500 | S-H / PLUGGED | | OPEN | | NONE | YES POOR |
| 120.650 | S-H / PLUGGED | G | OPEN | | NONE | YES POOR |
| 120.870 | S-H / CLEAN | | OPEN | | NONE | YES POOR |
| 120.980 | S-H / PT.COV. | | PT.OPEN | | NONE | YES GOOD |
| 121.230 | S-H / CLEAN | | OPEN | | NONE | YES GOOD |
| 121.500 | S-H / PT.COV. | | OPEN | | NONE | YES GOOD |
| 121.700 | S-H / COVER. | D+V | BLOCK | | NONE | YES GOOD |
| 121.810 | S-H / PT.COV. | | PT.OPEN | | NONE | YES POOR |
| 122.010 | S-H / PT.COV. | | PT.OPEN | | NONE | YES POOR |
| 122.270 | S-H / CLEAN | | OPEN | | NONE | YES GOOD |
| 122.670 | S-H / PT.COV. | D+V | PT.OPEN | | NONE | YES GOOD |
| 122.900 | S-H / PT.COV. | | PT.OPEN | | NONE | YES GOOD |
| 123.200 | S-H / COVER. | | BLOCK | | NONE | YES GOOD |
| 123.650 | S-B / CLEAN | | NONE | | NONE | YES GOOD |
| 125.900 | S-H / PT.COV. | D+V | OPEN | RUSTED | NONE | YES GOOD |
| 126.990 | S-H / PT.COV. | V | OPEN | RUSTED | NONE | YES POOR |
| 127.800 | S-H / PT.COV. | V | OPEN | RUSTED | NONE | YES GOOD |
| 128.800 | S-H / PLUGGED | G/D/V | BLOCK | | NONE | NO POOR |
| 129.920 | S-H / COVER. | G+D | PT.OPEN | | MOD. | YES POOR |
| 130.990 | S-H / PLUGGED | G+V | BLOCK | | NONE | NO GOOD |
| 131.250 | S-H / PLUGGED | G+V | BLOCK | | NONE | NO POOR |
| 132.700 | S-H / PT.COV. | D | OPEN | | MOD. | YES POOR |
| 133.980 | S-H / CLEAN | | OPEN | | NONE | YES GOOD |
| 134.900 | S-H / PT.COV. | V | PT.OPEN | RUSTED | MOD. | NO POOR |
| 135.800 | S-H / CLEAN | | OPEN | | NONE | YES GOOD |
| 136.300 | S-H / PT.COV. | G | PT.OPEN | RUSTED | NONE | YES GOOD |
| 137.900 | S-H / PT.COV. | V | PT.OPEN | RUSTED | NONE | YES POOR |
| 138.130 | S-H / PLUGGED | G/D/V | BLOCK | | NONE | NO GOOD |
| 139.800 | S-H / PLUGGED | G/D/V | BLOCK | | NONE | NO GOOD |
| 141.180 | S-H / CLEAN | | OPEN | RUSTED | NONE | YES GOOD |
| 143.630 | S-H / PLUGGED | D+V | BLOCK | RUSTED | NONE | YES GOOD |
| 144.200 | S-H / PT.COV. | G/D/V | PT.OPEN | RUSTED | SLIGHT | YES POOR |
| 145.847 | S-H / PT.COV. | | NONE | | MOD. | YES GOOD |
| 146.840 | S-H / PT.COV. | G+V | NONE | | NONE | YES POOR |
| 147.900 | S-H / PT.COV. | V | NONE | | MOD. | YES POOR |
| 148.153 | S-H / CLEAN | | NONE | | NONE | YES GOOD |
| 149.672 | S-H / COVER. | G | BLOCK | RUSTED | NONE | YES GOOD |

CONT'ED

| | | | | | | | |
|---------|---------------|-------|---------|--------|--------|-----|------|
| 150.870 | S-H / CLEAN | | NONE | | NONE | YES | GOOD |
| 151.280 | S-H / PT.COV. | V | NONE | | SEV. | YES | GOOD |
| 152.700 | S-H / PLUGGED | G/D/V | BLOCK | RUSTED | NONE | NO | GOOD |
| 153.900 | S-H / PT.COV. | G | OPEN | RUSTED | NONE | NO | GOOD |
| 154.810 | S-H / PLUGGED | G+D | BLOCK | | NONE | YES | GOOD |
| 155.160 | S-H / PT.COV. | G/D/C | PT.OPEN | RUSTED | NONE | YES | GOOD |
| 155.460 | S-H / PT.COV. | D | NONE | | NONE | YES | GOOD |
| 156.960 | S-H / PT.COV. | D+V | OPEN | RUSTED | NONE | YES | GOOD |
| 157.710 | S-H / COVER. | G/D/V | BLOCK | RUSTED | NONE | NO | GOOD |
| 158.850 | S-H / COVER. | G+D | BLOCK | RUSTED | NONE | NO | POOR |
| 159.930 | S-H / CLEAN | | OPEN | | NONE | YES | GOOD |
| 160.200 | S-H / CLEAN | | OPEN | RUSTED | NONE | YES | GOOD |
| 161.540 | S-H / CLEAN | | OPEN | | NONE | YES | GOOD |
| 162.750 | S-H / PT.COV. | V | PT.OPEN | | SEV. | YES | POOR |
| 163.590 | S-H / CLEAN | | OPEN | RUSTED | NONE | YES | POOR |
| 164.690 | S-H / CLEAN | | NONE | | NONE | YES | GOOD |
| 165.540 | S-H / PT.COV. | G/D/V | PT.OPEN | | NONE | NO | POOR |
| 166.700 | S-H / CLEAN | | OPEN | | NONE | YES | GOOD |
| 167.470 | S-H / CLEAN | | OPEN | | NONE | YES | GOOD |
| 168.720 | S-H / PT.COV. | D+V | PT.OPEN | RUSTED | NONE | YES | GOOD |
| 169.850 | S-H / PT.COV. | G+D | PT.OPEN | | NONE | YES | GOOD |
| 170.850 | S-H / PLUGGED | D+V | BLOCK | RUSTED | NONE | YES | GOOD |
| 171.730 | S-H / COVER. | D+V | BLOCK | RUSTED | SEV. | YES | POOR |
| 172.630 | S-H / PT.COV. | D+V | OPEN | RUSTED | NONE | YES | POOR |
| 173.430 | S-H / CLEAN | | NONE | | NONE | YES | GOOD |
| 174.740 | S-H / COVER. | D+V | NONE | | NONE | YES | GOOD |
| 175.740 | S-H / PLUGGED | G/D/V | NONE | | NONE | NO | POOR |
| 176.890 | S-H / PT.COV. | V | NONE | | MOD. | YES | POOR |
| 177.630 | S-H / CLEAN | | NONE | | SLIGHT | YES | GOOD |
| 178.510 | S-H / COVER. | D+V | NONE | | SLIGHT | YES | POOR |
| 179.690 | S-H / CLEAN | | OPEN | | SLIGHT | YES | POOR |

NOTE : COVER MATR --> G=GRAVEL; D=DIRT.; V=VEG.; C=CONCRETE

***** PAVEMENT SUBDRAIN EVALUATION *****

ROUTE = I-75
 DIRECTION = SOUTH
 HEADWALL = CLEAN

| MILEPOST | OUTLET TYPE/LOC. | SCREEN | SILT. | FLOW | DRAINAGE | |
|----------|---------------------|--------|--------|--------|----------|------|
| 119.150 | S-B | NONE | RUSTED | NONE | YES | GOOD |
| 120.870 | S-H | OPEN | | NONE | YES | POOR |
| 121.230 | S-H | OPEN | | NONE | YES | GOOD |
| 122.270 | S-H | OPEN | | NONE | YES | GOOD |
| 123.650 | S-B | NONE | | NONE | YES | GOOD |
| 133.980 | S-H | OPEN | | NONE | YES | GOOD |
| 135.800 | S-H | OPEN | | NONE | YES | GOOD |
| 141.180 | S-H | OPEN | RUSTED | NONE | YES | GOOD |
| 148.153 | S-H | NONE | | NONE | YES | GOOD |
| 150.870 | S-H | NONE | | NONE | YES | GOOD |
| 159.930 | S-H | OPEN | | NONE | YES | GOOD |
| 160.200 | S-H | OPEN | RUSTED | NONE | YES | GOOD |
| 161.540 | S-H | OPEN | | NONE | YES | GOOD |
| 163.590 | S-H | OPEN | RUSTED | NONE | YES | POOR |
| 164.690 | S-H | NONE | | NONE | YES | GOOD |
| 166.700 | S-H | OPEN | | NONE | YES | GOOD |
| 167.470 | S-H | OPEN | | NONE | YES | GOOD |
| 173.430 | S-H | NONE | | NONE | YES | GOOD |
| 177.630 | S-H | NONE | | SLIGHT | YES | GOOD |
| 179.690 | S-H | OPEN | | SLIGHT | YES | POOR |

NUMBER OF CLEAN HEADWALL = 20
 % OF CLEAN HEADWALL = 27.8

***** PAVEMENT SUBDRAIN EVALUATION *****

ROUTE = I-75
 DIRECTION = SOUTH
 HEADWALL = PT. COVER./COVER.

| MILEPOST | LOC./ TYPE | COVER MATER. | SCREEN | SILT. | FLOW | DRAINAGE | |
|----------|---------------|-----------------|---------|--------|--------|----------|------|
| 119.300 | S-H | G/D/V | OPEN | | NONE | YES | GOOD |
| 119.600 | S-H | D+V | PT.OPEN | | NONE | YES | POOR |
| 119.850 | S-H | G/D/V | BLOCK | | NONE | YES | POOR |
| 120.980 | S-H | G/D/V | PT.OPEN | | NONE | YES | GOOD |
| 121.500 | S-H | G/D/V | OPEN | | NONE | YES | GOOD |
| 121.700 | S-H | D+V | BLOCK | | NONE | YES | GOOD |
| 121.810 | S-H | G/D/V | PT.OPEN | | NONE | YES | POOR |
| 122.010 | S-H | G/D/V | PT.OPEN | | NONE | YES | POOR |
| 122.670 | S-H | D+V | PT.OPEN | | NONE | YES | GOOD |
| 122.900 | S-H | G/D/V | PT.OPEN | | NONE | YES | GOOD |
| 123.200 | S-H | G/D/V | BLOCK | | NONE | YES | GOOD |
| 125.900 | S-H | D+V | OPEN | RUSTED | NONE | YES | GOOD |
| 126.990 | S-H | V | OPEN | RUSTED | NONE | YES | POOR |
| 127.800 | S-H | V | OPEN | RUSTED | NONE | YES | GOOD |
| 129.920 | S-H | G+D | PT.OPEN | | MOD. | YES | POOR |
| 132.700 | S-H | D | OPEN | | MOD. | YES | POOR |
| 134.900 | S-H | V | PT.OPEN | RUSTED | MOD. | NO | POOR |
| 136.300 | S-H | G | PT.OPEN | RUSTED | NONE | YES | GOOD |
| 137.900 | S-H | V | PT.OPEN | RUSTED | NONE | YES | POOR |
| 144.200 | S-H | G/D/V | PT.OPEN | RUSTED | SLIGHT | YES | POOR |
| 145.847 | S-H | G/D/V | NONE | | MOD. | YES | GOOD |
| 146.840 | S-H | G+V | NONE | | NONE | YES | POOR |
| 147.900 | S-H | V | NONE | | MOD. | YES | POOR |
| 149.672 | S-H | G | BLOCK | RUSTED | NONE | YES | GOOD |
| 151.280 | S-H | V | NONE | | SEV. | YES | GOOD |
| 153.900 | S-H | G | OPEN | RUSTED | NONE | NO | GOOD |
| 155.160 | S-H | G+D+C | PT.OPEN | RUSTED | NONE | YES | GOOD |
| 155.460 | S-H | D | NONE | | NONE | YES | GOOD |
| 156.960 | S-H | D+V | OPEN | RUSTED | NONE | YES | GOOD |
| 157.710 | S-H | G/D/V | BLOCK | RUSTED | NONE | NO | GOOD |

NOTE : COVER MATR.--> G=GRAVEL; D= DIRT., V=VEG.; C=CONCRETE
 NUMBER OF PT.COVERED HEADWALL = 30
 % OF PT. COVERED HEADWALL = 41.7
 NUMBER OF COVERED HEADWALL = 10
 % OF COVERED HEADWALL = 13.9

***** PAVEMENT SUBDRAIN EVALUATION *****

ROUTE = I-75
 DIRECTION = SOUTH
 HEADWALL = PLUGGED

| MILEPOST | LOC./ TYPE | COVER MATER. | SCREEN | SILT. | FLOW | DRAINAGE |
|----------|---------------|-----------------|--------|-------|------|----------|
| 120.500 | S-H | G/D/V OPEN | | NONE | YES | POOR |
| 120.650 | S-H | G OPEN | | NONE | YES | POOR |
| 128.800 | S-H | G/D/V BLOCK | | NONE | NO | POOR |
| 130.990 | S-H | G+V BLOCK | | NONE | NO | GOOD |
| 131.250 | S-H | G+V BLOCK | | NONE | NO | POOR |
| 138.130 | S-H | G/D/V BLOCK | | NONE | NO | GOOD |
| 139.800 | S-H | G/D/V BLOCK | | NONE | NO | GOOD |
| 143.630 | S-H | D+V BLOCK | RUSTED | NONE | YES | GOOD |
| 152.700 | S-H | G/D/V BLOCK | RUSTED | NONE | NO | GOOD |
| 154.810 | S-H | G+D BLOCK | | NONE | YES | GOOD |
| 170.850 | S-H | D+V BLOCK | RUSTED | NONE | YES | GOOD |
| 175.740 | S-H | G/D/V NONE | | NONE | NO | POOR |

NOTE : COVER MATR.--> G=GRAVEL; D= DIRT., V=VEG.; C=CONCRETE
 NUMBER OF PLUGGED HEADWALL = 12
 % OF PLUGGED HEADWALL = 16.7

***** PAVEMENT SUBDRAIN EVALUATION *****

ROUTE = I-75
 DIRECTION = SOUTH
 HEADWALL = S-H
 NO SCREEN/RUSTED

| MILEPOST | OUTLET | SCREEN | SILT. | FLOW | DRAINAGE |
|----------|-----------|---------|--------|--------|----------|
| 119.150 | CLEAN | NONE | RUSTED | NONE | YES GOOD |
| 123.650 | CLEAN | NONE | | NONE | YES GOOD |
| 125.900 | PT.COVER. | OPEN | RUSTED | NONE | YES GOOD |
| 126.990 | PT.COVER. | OPEN | RUSTED | NONE | YES POOR |
| 127.800 | PT.COVER. | OPEN | RUSTED | NONE | YES GOOD |
| 134.900 | PT.COVER. | PT.OPEN | RUSTED | MOD. | NO POOR |
| 136.300 | PT.COVER. | PT.OPEN | RUSTED | NONE | YES GOOD |
| 137.900 | PT.COVER. | PT.OPEN | RUSTED | NONE | YES POOR |
| 141.180 | CLEAN | OPEN | RUSTED | NONE | YES GOOD |
| 143.630 | PLUGGED | BLOCK | RUSTED | NONE | YES GOOD |
| 144.200 | PT.COVER. | PT.OPEN | RUSTED | SLIGHT | YES POOR |
| 145.847 | PT.COVER. | NONE | | MOD. | YES GOOD |
| 146.840 | PT.COVER. | NONE | | NONE | YES POOR |
| 147.900 | PT.COVER. | NONE | | MOD. | YES POOR |
| 148.153 | CLEAN | NONE | | NONE | YES GOOD |
| 149.672 | COVER. | BLOCK | RUSTED | NONE | YES GOOD |
| 150.870 | CLEAN | NONE | | NONE | YES GOOD |
| 151.280 | PT.COVER. | NONE | | SEV. | YES GOOD |
| 152.700 | PLUGGED | BLOCK | RUSTED | NONE | NO GOOD |
| 153.900 | PT.COVER. | OPEN | RUSTED | NONE | NO GOOD |
| 155.160 | PT.COVER. | PT.OPEN | RUSTED | NONE | YES GOOD |
| 155.460 | PT.COVER. | NONE | | NONE | YES GOOD |
| 156.960 | PT.COVER. | OPEN | RUSTED | NONE | YES GOOD |
| 157.710 | COVER. | BLOCK | RUSTED | NONE | NO GOOD |
| 158.850 | COVER. | BLOCK | RUSTED | NONE | NO POOR |
| 160.200 | CLEAN | OPEN | RUSTED | NONE | YES GOOD |
| 163.590 | CLEAN | OPEN | RUSTED | NONE | YES POOR |
| 164.690 | CLEAN | NONE | | NONE | YES GOOD |
| 168.720 | PT.COVER. | PT.OPEN | RUSTED | NONE | YES GOOD |
| 170.850 | PLUGGED | BLOCK | RUSTED | NONE | YES GOOD |
| 171.730 | COVER. | BLOCK | RUSTED | SEV. | YES POOR |
| 172.630 | PT.COVER. | OPEN | RUSTED | NONE | YES POOR |
| 173.430 | CLEAN | NONE | | NONE | YES GOOD |
| 174.740 | COVER. | NONE | | NONE | YES GOOD |
| 175.740 | PLUGGED | NONE | | NONE | NO POOR |
| 176.890 | PT.COVER. | NONE | | MOD. | YES POOR |
| 177.630 | CLEAN | NONE | | SLIGHT | YES GOOD |
| 178.510 | COVER. | NONE | | SLIGHT | YES POOR |

NUMBER OF HEADWALL W/ NO OR RUSTED SCREEN = 38
 % = 52.8

***** PAVEMENT SUBDRAIN EVALUATION *****

** ALL INSPECTED OUTLET PIPE **

ROUTE = I-75

DIRECTION = SOUTH

INSP. DATE= MAY/JUNE 1991

| MILEPOST | PIPE TYPE | PIPE CONDITION AT | | | | | | REMARK |
|----------|-----------|-------------------|-------|---|---|-------|-------|----------------------|
| | | A | B | C | D | E | F | |
| 119.150 | FLEX. | 5+6+8+9 | | | | | | BLOCKED AT 1.0 |
| 119.300 | FLEX. | 4 | 5 | | 5 | 4 | | 20-40 % OPEN AT 16.0 |
| 119.600 | FLEX. | 4+5 | 2+3+5 | 5 | | | | BLOCKED AT 8.0 |
| 119.850 | FLEX. | 4+5 | | | | | | BLOCKED AT 1.0 |
| 120.500 | FLEX. | 1 | 2+3 | | | 2+3 | 2+3 | 60-80 % OPEN |
| 120.650 | FLEX. | 4+6 | 3 | | | 4 | | PIPE OPEN |
| 120.870 | FLEX. | 1+4 | 5 | | | 2 | 2 | 60-80 % OPEN |
| 120.980 | FLEX. | 2+6+7 | 6+7 | | | 2 | | 60-80 % OPEN |
| 121.230 | FLEX. | 1+4+7 | 1 | 3 | | | | PIPE OPEN |
| 121.500 | FLEX. | 1 | 1 | | | | | PIPE OPEN |
| 121.700 | FLEX. | 1 | 2+3 | | | 2 | | PIPE OPEN |
| 121.810 | FLEX. | 3 | 3 | | | 2 | | 60-80 % OPEN |
| 122.010 | FLEX. | 3 | | | | 2 | | PIPE OPEN |
| 122.270 | FLEX. | 1 | 3 | | | 2+4+5 | | 60-80 % OPEN |
| 122.670 | FLEX. | 4+5+6 | 4+5+6 | | | | | BLOCKED AT 3.0 |
| 122.900 | FLEX. | 2 | 3 | | | 2 | 2 | 60-80 % OPEN |
| 123.200 | FLEX. | 3 | | | 3 | 2 | 2 | 60-80 % OPEN |
| 123.650 | FLEX. | 2+5 | | | 2 | | | 60-80 % OPEN |
| 125.900 | FLEX. | 2 | 2 | | | 2 | | PIPE OPEN |
| 126.990 | FLEX. | 2+5 | | | | | | 60-80 % OPEN |
| 127.800 | FLEX. | 6+8 | 2 | | | | | PIPE OPEN |
| 128.800 | FLEX. | 2+4+5+6 | | | | 2+3 | 2+3 | 60-80 % OPEN |
| 129.920 | FLEX. | | 2+3 | | | | | PIPE OPEN |
| 130.990 | FLEX. | 4 | 1 | | | 2 | | PIPE OPEN |
| 131.250 | FLEX. | 4+5 | | | | | | BLOCKED AT 2.0 |
| 132.700 | FLEX. | 2 | 2 | | | 2 | 2 | 60-80 % OPEN |
| 133.980 | FLEX. | 2 | 2 | | | 2 | 2 | 60-80 % OPEN |
| 134.900 | FLEX. | | 5 | | | | | 10-20 % OPEN AT 6.0 |
| 135.800 | FLEX. | 1+7 | 2+3 | | | | 2+3 | 60-80 % OPEN |
| 136.300 | FLEX. | 2 | 2 | | | | 2+3 | 60-80 % OPEN |
| 137.900 | FLEX. | 4 | 2 | | | 2 | 2 | 60-80 % OPEN |
| 138.130 | FLEX. | 1 | 1+5 | | | | | 20-40 % OPEN AT 4.0 |
| 139.800 | FLEX. | 2 | 5+8 | | | | | 10-20 % OPEN AT 3.0 |
| 141.180 | FLEX. | 2+4+5+8 | | | | | | 20-40 % OPEN AT 2.0 |
| 143.630 | FLEX. | 6 | 5+6 | | | | | 0 % OPEN AT 4.0 |
| 144.200 | FLEX. | 2+3+6 | 5+6 | | | | | BLOCKED AT 5.0 |
| 145.847 | FLEX. | 3 | | | | | 2 | 60-80 % OPEN |
| 146.840 | FLEX. | 3 | | | | | 2+3 | 60-80 % OPEN |
| 147.900 | FLEX. | 2+3 | 2 | | | 2 | 3 | 60-80 % OPEN |
| 148.153 | FLEX. | 2 | 1 | | | | | PIPE OPEN |
| 149.672 | FLEX. | 3 | | | | | | 0 % OPEN AT 0.0 |
| 150.870 | FLEX. | 1+5 | | | | | | 40-60 % OPEN AT 2.5 |
| 151.280 | FLEX. | | 5+8 | | | | | 40-60 % OPEN AT 4.0 |
| 152.700 | FLEX. | | | | | | | PIPE OPEN |
| 153.900 | FLEX. | | | | | | | PIPE OPEN |
| 154.810 | FLEX. | 4+5 | | | | | | 20-40 % OPEN AT 1.0 |
| 155.160 | FLEX. | 4+5 | | | | | | 40-60 % OPEN AT 2.0 |
| 155.460 | FLEX. | 4+5 | | | | | | 40-60 % OPEN AT 1.5 |
| 156.960 | FLEX. | | 2 | | | 2 | 2+3+5 | 60-80 % OPEN |
| 157.710 | FLEX. | 5 | | | | | | 0 % OPEN AT 0.0 |
| 158.850 | FLEX. | 2 | 6+8 | | | | | 40-60 % OPEN AT 3.0 |
| 159.930 | FLEX. | | 2 | | | 2 | | PIPE OPEN |
| 160.200 | FLEX. | 4+5 | 5 | | | | | 40-60 % OPEN AT 3.0 |

CONT'ED

.... I-75 S

| | | | | | | |
|---------|-------|-------|-----|---|---|----------------------|
| 161.540 | FLEX. | 4+5+6 | | | | 0 % OPEN AT 2.0 |
| 162.750 | FLEX. | 6 | | | | 0 % OPEN AT 2.0 |
| 163.590 | FLEX. | 2 | 2 | 2 | 2 | PIPE OPEN |
| 164.690 | FLEX. | | 2 | | 2 | 60-80 % OPEN |
| 165.540 | FLEX. | 2+3 | 2+3 | | 3 | PIPE OPEN |
| 166.700 | FLEX. | 2 | 2 | | 2 | PIPE OPEN |
| 167.470 | FLEX. | 4 | | | | 20-40 % OPEN AT 3.5 |
| 168.720 | FLEX. | 2 | 2 | | | PIPE OPEN |
| 169.850 | FLEX. | | 2 | | | 60-80 % OPEN |
| 170.850 | FLEX. | 4 | | | | PIPE OPEN |
| 171.730 | FLEX. | | 2 | | | 60-80 % OPEN |
| 172.630 | FLEX. | | 2+3 | | | 60-80 % OPEN |
| 173.430 | FLEX. | 8 | 5 | | | BLOCKED AT 5.0 |
| 174.740 | FLEX. | 8 | 2 | | | 60-80 % OPEN |
| 175.740 | FLEX. | 6 | | | | BLOCKED AT 1.0 |
| 176.890 | FLEX. | 6 | | | | BLOCKED AT 1.0 |
| 177.630 | FLEX. | 2 | 5 | | | 10-20 % OPEN AT 5.0 |
| 178.510 | FLEX. | 4+5+6 | | | | BLOCKED AT 1.5 |
| 179.690 | RIGID | | 5 | | | 20-40 % OPEN AT 25.0 |

| | | |
|--|---|----|
| NUMBER OF OPEN OUTLET PIPE | = | 18 |
| % OF OPEN OUTLET PIPE | = | 25 |
| NUMBER OF COMPRESSED/BLOCKED OUTLET PIPE | = | 54 |
| % OF COMPRESSED/BLOCKED OUTLET PIPE | = | 75 |

***** PAVEMENT SUBDRAIN EVALUATION *****

** OPEN OUTLET PIPE **

ROUTE = I-75

DIRECTION = SOUTH

INSP.DATE = MAY/JUNE 1991

| MILEPOST | PIPE TYPE | PIPE CONDITION | | | | | | REMARK |
|----------|-------------|----------------|-----|---|---|---|---|--------|
| | | A | B | C | D | E | F | |
| 120.650 | FLEX. 4+6 | | 3 | | | | 4 | |
| 121.230 | FLEX. 1+4+7 | | 1 | 3 | | | | |
| 121.500 | FLEX. 1 | | 1 | | | | | |
| 121.700 | FLEX. 1 | | 2+3 | | | | 2 | |
| 122.010 | FLEX. 3 | | | | | | 2 | |
| 125.900 | FLEX. 2 | | 2 | | | | 2 | |
| 127.800 | FLEX. 6+8 | | 2 | | | | | |
| 129.920 | FLEX. | | 2+3 | | | | | |
| 130.990 | FLEX. 4 | | 1 | | | | 2 | |
| 148.153 | FLEX. 2 | | 1 | | | | | |
| 152.700 | FLEX. | | | | | | | |
| 153.900 | FLEX. | | | | | | | |
| 159.930 | FLEX. | | 2 | | | | 2 | |
| 163.590 | FLEX. 2 | | 2 | | | | 2 | 2 |
| 165.540 | FLEX. 2+3 | | 2+3 | | | | 3 | |
| 166.700 | FLEX. 2 | | 2 | | | | 2 | 2 |
| 168.720 | FLEX. 2 | | 2 | | | | | |
| 170.850 | FLEX. 4 | | | | | | | |

NUMBER OF OPEN OUTLET PIPE = 18
 % OF OPEN OUTLET PIPE = 25.0

***** PAVEMENT SUBDRAIN EVALUATION *****

* COMPRESSED/BLOCKED OUTLET PIPE *

ROUTE = I-75

DIRECTION = SOUTH

INSP.DATE = MAY/JUNE 1991

| MILEPOST | PIPE TYPE | PIPE CONDITION | | | | | | REMARK |
|----------|-----------|----------------|-------|---|---|-------|-------|----------------------|
| | | A | B | C | D | E | F | |
| 119.150 | FLEX. | 5+6+8+9 | | | | | | BLOCKED AT 1.0 |
| 119.300 | FLEX. | 4 | 5 | | 5 | 4 | | 20-40 % OPEN AT 16.0 |
| 119.600 | FLEX. | 4+5 | 2+3+5 | 5 | | | | BLOCKED AT 8.0 |
| 119.850 | FLEX. | 4+5 | | | | | | BLOCKED AT 1.0 |
| 120.500 | FLEX. | 1 | 2+3 | | | 2+3 | 2+3 | 60-80 % OPEN |
| 120.870 | FLEX. | 1+4 | 5 | | | 2 | 2 | 60-80 % OPEN |
| 120.980 | FLEX. | 2+6+7 | 6+7 | | | 2 | | 60-80 % OPEN |
| 121.810 | FLEX. | 3 | 3 | | | 2 | | 60-80 % OPEN |
| 122.270 | FLEX. | 1 | 3 | | | 2+4+5 | | 60-80 % OPEN |
| 122.670 | FLEX. | 4+5+6 | 4+5+6 | | | | | BLOCKED AT 3.0 |
| 122.900 | FLEX. | 2 | 3 | | | 2 | 2 | 60-80 % OPEN |
| 123.200 | FLEX. | 3 | | | 3 | 2 | 2 | 60-80 % OPEN |
| 123.650 | FLEX. | 2+5 | | | 2 | | | 60-80 % OPEN |
| 126.990 | FLEX. | 2+5 | | | | | | 60-80 % OPEN |
| 128.800 | FLEX. | 2+4+5+6 | | | | 2+3 | 2+3 | 60-80 % OPEN |
| 131.250 | FLEX. | 4+5 | | | | | | BLOCKED AT 2.0 |
| 132.700 | FLEX. | 2 | 2 | | | 2 | 2 | 60-80 % OPEN |
| 133.980 | FLEX. | 2 | 2 | | | 2 | 2 | 60-80 % OPEN |
| 134.900 | FLEX. | | 5 | | | | | 10-20 % OPEN AT 6.0 |
| 135.800 | FLEX. | 1+7 | 2+3 | | | | 2+3 | 60-80 % OPEN |
| 136.300 | FLEX. | 2 | 2 | | | | 2+3 | 60-80 % OPEN |
| 137.900 | FLEX. | 4 | 2 | | | 2 | 2 | 60-80 % OPEN |
| 138.130 | FLEX. | 1 | 1+5 | | | | | 20-40 % OPEN AT 4.0 |
| 139.800 | FLEX. | 2 | 5+8 | | | | | 10-20 % OPEN AT 3.0 |
| 141.180 | FLEX. | 2+4+5+8 | | | | | | 20-40 % OPEN AT 2.0 |
| 143.630 | FLEX. | 6 | 5+6 | | | | | 0 % OPEN AT 4.0 |
| 144.200 | FLEX. | 2+3+6 | 5+6 | | | | | BLOCKED AT 5.0 |
| 145.847 | FLEX. | 3 | | | | | 2 | 60-80 % OPEN |
| 146.840 | FLEX. | 3 | | | | | 2+3 | 60-80 % OPEN |
| 147.900 | FLEX. | 2+3 | 2 | | | 2 | 3 | 60-80 % OPEN |
| 149.672 | FLEX. | 3 | | | | | | 0 % OPEN AT 0.0 |
| 150.870 | FLEX. | 1+5 | | | | | | 40-60 % OPEN AT 2.5 |
| 151.280 | FLEX. | | 5+8 | | | | | 40-60 % OPEN AT 4.0 |
| 154.810 | FLEX. | 4+5 | | | | | | 20-40 % OPEN AT 1.0 |
| 155.160 | FLEX. | 4+5 | | | | | | 40-60 % OPEN AT 2.0 |
| 155.460 | FLEX. | 4+5 | | | | | | 40-60 % OPEN AT 1.5 |
| 156.960 | FLEX. | | 2 | | | 2 | 2+3+5 | 60-80 % OPEN |
| 157.710 | FLEX. | 5 | | | | | | 0 % OPEN AT 0.0 |
| 158.850 | FLEX. | 2 | 6+8 | | | | | 40-60 % OPEN AT 3.0 |
| 160.200 | FLEX. | 4+5 | 5 | | | | | 40-60 % OPEN AT 3.0 |
| 161.540 | FLEX. | 4+5+6 | | | | | | 0 % OPEN AT 2.0 |
| 162.750 | FLEX. | 6 | | | | | | 0 % OPEN AT 2.0 |
| 164.690 | FLEX. | | 2 | | | 2 | 2 | 60-80 % OPEN |
| 167.470 | FLEX. | 4 | | | | | | 20-40 % OPEN AT 3.5 |
| 169.850 | FLEX. | | 2 | | | | | 60-80 % OPEN |
| 171.730 | FLEX. | | 2 | | | | | 60-80 % OPEN |
| 172.630 | FLEX. | | 2+3 | | | | | 60-80 % OPEN |
| 173.430 | FLEX. | 8 | 5 | | | | | BLOCKED AT 5.0 |

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... I-75 S

| | | |
|---------------------|---|----------------------|
| 174.740 FLEX. 8 | 2 | 60-80 % OPEN |
| 175.740 FLEX. 6 | | BLOCKED AT 1.0 |
| 176.890 FLEX. 6 | | BLOCKED AT 1.0 |
| 177.630 FLEX. 2 | 5 | 10-20 % OPEN AT 5.0 |
| 178.510 FLEX. 4+5+6 | | BLOCKED AT 1.5 |
| 179.690 RIGID | 5 | 20-40 % OPEN AT 25.0 |

| | | |
|--|---|------|
| NUMBER OF BLOCKED/COMPRESSED OUTLET PIPE | = | 54 |
| % OF BLOCKED/COMPRESSED OUTLET PIPE | = | 75.0 |

APPENDIX C
SUMMARY OF I-71

***** SUMMARY*****
 ***** PAVEMENT SUBDRAIN EVALUATION *****
 HEADWALL & OUTLET PIPE

ROUTE = I-71
 DIRECTION = SOUTH+NORTH
 INSP.DATE = JULY 1991

| | NUMBER | PERCENTAGE |
|--|--------|------------|
| 1. CLEAN HEADWALL | 48 | 42.50 |
| * WITH OPEN OUTLET PIPE (> = 60% OPEN) | 29 | 25.70 |
| * WITH PARTIALLY OPEN OUTLET PIPE (40-60% OPEN) | 5 | 4.40 |
| * WITH BLOCKED OUTLET PIPE (< 40% OPEN) | 14 | 12.40 |
| 2. PT. COVERED HEADWALL | 34 | 30.10 |
| * WITH OPEN OUTLET PIPE (> = 60% OPEN) | 17 | 15.00 |
| * WITH PARTIALLY OPEN OUTLET PIPE (40-60% OPEN) | 9 | 8.00 |
| * WITH BLOCKED OUTLET PIPE (< 40% OPEN) | 8 | 7.00 |
| 3. COVERED HEADWALL | 6 | 5.30 |
| * WITH OPEN OUTLET PIPE (> = 60% OPEN) | 3 | 2.70 |
| * WITH PARTIALLY OPEN OUTLET PIPE (40-60% OPEN) | 1 | 0.90 |
| * WITH BLOCKED OUTLET PIPE (< 40% OPEN) | 2 | 1.80 |
| 4. PLUGGED HEADWALL | 25 | 22.10 |
| * WITH OPEN OUTLET PIPE (> = 60% OPEN) | 5 | 4.40 |
| * WITH PARTIALLY OPEN OUTLET PIPE (40-60% OPEN) | 7 | 6.20 |
| * WITH BLOCKED OUTLET PIPE (< 40% OPEN) | 13 | 11.50 |
| 5. HEADWALL & OUTLET PIPE CONDITION : | | |
| * INSPECTED HEADWALL & PIPE | 113 | |
| * FULLY IN SERVICE | 29 | 25.60 |
| * PT. IN SERVICE | 35 | 31.00 |
| * OUT OF SERVICE | 49 | 43.40 |

Note : -Fully in Service = headwall is clean with pipe > 60% open
 -PT. in service = clean headwall with pipe 40-60% open, or
 PT. covered/covered headwall with pipe 40%-60% open.
 -Out of service = Plugged headwall, or outlet with pipe <
 40% open

***** SUMMARY*****
 ***** PAVEMENT SUBDRAIN EVALUATION *****
 HEADWALL

ROUTE = I-71
 DIRECTION = SOUTH+NORTH
 INSP.DATE = JULY 1991

| | NUMBER | PERCENTAGE |
|-------------------------|--------|------------|
| 1. INSPECTED HEADWALL | 113 | |
| 2. HEADWALL CONDITION : | | |
| CLEAN HEADWALL | 48 | 42.50 |
| PT. COVERED HEADWALL | 34 | 30.10 |
| COVERED HEADWALL | 6 | 5.30 |
| PLUGGED HEADWALL | 25 | 22.10 |
| 3. COVERING MATERIAL : | | |
| GRAVEL OR GRAVEL +... | 44 | 38.90 |
| DIRT. OR DIRT.+..... | 33 | 29.20 |
| VEG. OR VEG. + | 26 | 23.00 |
| CON. OR CON. + | 10 | 9.00 |
| 4. SCREEN : | | |
| NONE | 28 | 24.80 |
| OPEN | 53 | 46.80 |
| PARTIALLY OPEN | 16 | 14.20 |
| BLOCK | 16 | 14.20 |
| RUSTED SCREEN | 37 | 33.00 |
| 5. SILTATION : | | |
| NONE | 92 | 81.40 |
| SLIGHTLY | 13 | 11.50 |
| MODERATELY | 5 | 4.40 |
| SEVERLY | 3 | 2.70 |
| 6. FLOW : | | |
| YES | 107 | 94.70 |
| NO | 6 | 5.30 |
| 7. DRAINAGE : | | |
| GOOD | 96 | 85.00 |
| POOR | 17 | 15.00 |

***** SUMMARY *****
 ***** PAVEMENT SUBDRAIN EVALUATION *****
 ***** OUTLET PIPE *****

ROUTE = I-71
 DIRECTION = SOUTH+NORTH
 INSP.DATE = JULY 1991

| | NUMBER | PERCENTAGE |
|---|--------|------------|
| I. INSPECTED OUTLET PIPE | 113 | |
| II. OPEN PIPE (>80% OPEN) | 52 | 46.00 |
| III. COMPRESSED/BLOCKED PIPE | 61 | 54.00 |
| * 60% - 80% OPEN | 2 | 1.80 |
| * 40% - 60% OPEN | 22 | 19.50 |
| * < 40 % OPEN OR BLOCKED | 37 | 32.70 |
| IV. OUTLET PIPE WITH PROBLEM AT/NEAR OUTLET/ HEADWALL (AT A) | 67 | 59.30 |
| 1. SAG | 28 | 24.80 |
| 2. SAG W/ STANDING WATER | 16 | 14.20 |
| 3. SAG W/ SILTATION | 9 | 8.00 |
| 4. COMPRESSED COUPLING | 5 | 4.40 |
| 5. COMPRESSED PIPE | 21 | 18.60 |
| 6. BACKFILL IN PIPE | 5 | 4.40 |
| 7. SEPARATION AT COUPLING | 0 | 0.00 |
| 8. RIP IN PIPE | 2 | 1.80 |
| 9. COMPRESSED PANEL | 0 | 0.00 |
| 10. COMPRESSED AND SILTED PANEL | 0 | 0.00 |
| V. OUTLET PIPE WITH PROBLEM AT B : | 80 | 70.80 |
| 1. SAG | 20 | 9.70 |
| 2. SAG W/ STANDING WATER | 25 | 22.10 |
| 3. SAG W/ SILTATION | 10 | 8.80 |
| 4. COMPRESSED COUPLING | 3 | 2.70 |
| 5. COMPRESSED PIPE | 34 | 30.00 |
| 6. BACKFILL IN PIPE | 6 | 5.30 |
| 7. SEPARATION AT COUPLING | 0 | 0.00 |
| 8. RIP IN PIPE | 2 | 1.80 |
| 9. COMPRESSED PANEL | 0 | 0.00 |
| 10. COMPRESSED AND SILTED PANEL | 0 | 0.00 |
| VI. OUTLET PIPE WITH PROBLEM AT E : | 10 | 8.80 |
| 1. SAG | 6 | 5.30 |
| 2. SAG W/ STANDING WATER | 1 | 0.90 |
| 3. SAG W/ SILTATION | 2 | 1.80 |
| 4. COMPRESSED COUPLING | 1 | 0.90 |
| 5. COMPRESSED PIPE | 0 | 0.00 |
| 6. BACKFILL IN PIPE | 0 | 0.00 |
| 7. SEPARATION AT COUPLING | 0 | 0.00 |
| 8. RIP IN PIPE | 0 | 0.00 |

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... I-71 N+S

| | | | |
|------|---------------------------------|---|------|
| 9. | COMPRESSED PANEL | 0 | 0.00 |
| 10. | COMPRESSED AND SILTED PANEL | 0 | 0.00 |
| VII. | OUTLET PIPE WITH PROBLEM AT F : | 6 | 5.30 |
| 1. | SAG | 1 | 0.90 |
| 2. | SAG W/ STANDING WATER | 2 | 1.80 |
| 3. | SAG W/ SILTATION | 1 | 0.90 |
| 4. | COMPRESSED COUPLING | 0 | 0.00 |
| 5. | COMPRESSED PIPE | 1 | 0.90 |
| 6. | BACKFILL IN PIPE | 1 | 0.90 |
| 7. | SEPARATION AT COUPLING | 0 | 0.00 |
| 8. | RIP IN PIPE | 0 | 0.00 |
| 9. | COMPRESSED PANEL | 0 | 0.00 |
| 10. | COMPRESSED AND SILTED PANEL | 0 | 0.00 |

***** SUMMARY*****
 ***** PAVEMENT SUBDRAIN EVALUATION *****
 HEADWALL & OUTLET PIPE

ROUTE = I-71
 DIRECTION = NORTH
 INSP.DATE = JULY 1991

| | NUMBER | PERCENTAGE |
|--|--------|------------|
| 1. CLEAN HEADWALL | 17 | 29.00 |
| * WITH OPEN OUTLET PIPE (> = 60% OPEN) | 11 | 19.00 |
| * WITH PARTIALLY OPEN OUTLET PIPE (40-60% OPEN) | 1 | 2.00 |
| * WITH BLOCKED OUTLET PIPE (< 40% OPEN) | 5 | 9.00 |
| 2. PT. COVERED HEADWALL | 21 | 36.00 |
| * WITH OPEN OUTLET PIPE (> = 60% OPEN) | 11 | 19.00 |
| * WITH PARTIALLY OPEN OUTLET PIPE (40-60% OPEN) | 3 | 5.00 |
| * WITH BLOCKED OUTLET PIPE (< 40% OPEN) | 7 | 12.00 |
| 3. COVERED HEADWALL | 5 | 9.00 |
| * WITH OPEN OUTLET PIPE (> = 60% OPEN) | 2 | 3.00 |
| * WITH PARTIALLY OPEN OUTLET PIPE (40-60% OPEN) | 1 | 2.00 |
| * WITH BLOCKED OUTLET PIPE (< 40% OPEN) | 2 | 3.00 |
| 4. PLUGGED HEADWALL | 15 | 26.00 |
| * WITH OPEN OUTLET PIPE (> = 60% OPEN) | 1 | 2.00 |
| * WITH PARTIALLY OPEN OUTLET PIPE (40-60% OPEN) | 5 | 9.00 |
| * WITH BLOCKED OUTLET PIPE (< 40% OPEN) | 9 | 16.00 |
| 5. HEADWALL & OUTLET PIPE CONDITION : | | |
| * INSPECTED HEADWALL & PIPE | 58 | |
| * FULLY IN SERVICE | 11 | 19.00 |
| * PT. IN SERVICE | 18 | 31.00 |
| * OUT OF SERVICE | 29 | 50.00 |

Note : -Fully in Service = headwall is clean with pipe > 60% open
 -PT. in service = clean headwall with pipe 40-60% open, or
 PT. covered/covered headwall with pipe < 60% open.
 -Out of service = Plugged headwall, or outlet with pipe <
 40% open

***** SUMMARY *****
 ***** PAVEMENT SUBDRAIN EVALUATION *****
 HEADWALL

ROUTE = I-71
 DIRECTION = NORTH
 DATE = JULY 1991

| | NUMBER | PERCENTAGE |
|-------------------------|--------|------------|
| 1. INSPECTED HEADWALL | 58 | |
| 2. HEADWALL CONDITION : | | |
| CLEAN HEADWALL | 17 | 29.00 |
| PT. COVERED HEADWALL | 21 | 36.00 |
| COVERED HEADWALL | 5 | 9.00 |
| PLUGGED HEADWALL | 15 | 26.00 |
| 3. COVERING MATERIAL : | | |
| GRAVEL OR GRAVEL +... | 30 | 52.00 |
| DIRT. OR DIRT.+..... | 17 | 29.00 |
| VEG. OR VEG. + | 13 | 22.00 |
| CON. OR CON. + | 6 | 10.00 |
| 4. SCREEN : | | |
| NONE | 12 | 21.00 |
| OPEN | 22 | 38.00 |
| PARTIALLY OPEN | 14 | 24.00 |
| BLOCK | 10 | 17.00 |
| RUSTED SCREEN | 21 | 36.00 |
| 5. SILTATION : | | |
| NONE | 49 | 84.00 |
| SLIGHTLY | 4 | 7.00 |
| MODERATELY | 3 | 5.00 |
| SEVERLY | 2 | 3.00 |
| 6. FLOW : | | |
| YES | 54 | 93.00 |
| NO | 4 | 7.00 |
| 7. DRAINAGE : | | |
| GOOD | 50 | 86.00 |
| POOR | 8 | 14.00 |

***** SUMMARY *****
 ***** PAVEMENT SUBDRAIN EVALUATION *****
 ***** OUTLET PIPE *****

ROUTE = I-71
 DIRECTION = NORTH
 INSP.DATE = JULY 1991

| | NUMBER | PERCENTAGE |
|---|--------|------------|
| I. INSPECTED OUTLET PIPE | 58 | |
| II. OPEN OUTLET PIPE (>80% OP | 25 | 43.00 |
| III. COMPRESSED/BLOCKED OUTLET PIPE | 33 | 57.00 |
| * 60% - 80% OPEN | 0 | 0.00 |
| * 40% - 60% OPEN | 10 | 17.00 |
| * < 40 % OPEN OR BLOCKED | 23 | 40.00 |
| IV. OUTLET PIPE WITH PROBLEM AT/NEAR OUTLET/ HEADWALL (AT A) | 29 | 50.00 |
| 1. SAG | 12 | 21.00 |
| 2. SAG W/ STANDING WATER | 8 | 14.00 |
| 3. SAG W/ SILTATION | 8 | 14.00 |
| 4. COMPRESSED COUPLING | 0 | 0.00 |
| 5. COMPRESSED PIPE | 5 | 9.00 |
| 6. BACKFILL IN PIPE | 1 | 2.00 |
| 7. SEPARATION AT COUPLING | 0 | 0.00 |
| 8. RIP IN PIPE | 1 | 2.00 |
| 9. COMPRESSED PANEL | 0 | 0.00 |
| 10. COMPRESSED AND SILTED PANEL | 0 | 0.00 |
| V. OUTLET PIPE WITH PROBLEM AT B : | 47 | 81.00 |
| 1. SAG | 14 | 24.00 |
| 2. SAG W/ STANDING WATER | 14 | 24.00 |
| 3. SAG W/ SILTATION | 6 | 10.00 |
| 4. COMPRESSED COUPLING | 0 | 0.00 |
| 5. COMPRESSED PIPE | 19 | 33.00 |
| 6. BACKFILL IN PIPE | 3 | 5.00 |
| 7. SEPARATION AT COUPLING | 0 | 0.00 |
| 8. RIP IN PIPE | 2 | 3.00 |
| 9. COMPRESSED PANEL | 0 | 0.00 |
| 10. COMPRESSED AND SILTED PANEL | 0 | 0.00 |
| VI. OUTLT PIPE WITH PROBLEM AT E : | 3 | 5.00 |
| 1. SAG | 3 | 5.00 |
| 2. SAG W/ STANDING WATER | 0 | 0.00 |
| 3. SAG W/ SILTATION | 0 | 0.00 |
| 4. COMPRESSED COUPLING | 0 | 0.00 |
| 5. COMPRESSED PIPE | 0 | 0.00 |
| 6. BACKFILL IN PIPE | 0 | 0.00 |
| 7. SEPARATION AT COUPLING | 0 | 0.00 |
| 8. RIP IN PIPE | 0 | 0.00 |

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....I-71 N

| | | | |
|------|---------------------------------|---|------|
| 9. | COMPRESSED PANEL | 0 | 0.00 |
| 10. | COMPRESSED AND SILTED PANEL | 0 | 0.00 |
| VII. | OUTLET PIPE WITH PROBLEM AT F : | 5 | 9.00 |
| 1. | SAG | 1 | 2.00 |
| 2. | SAG W/ STANDING WATER | 1 | 2.00 |
| 3. | SAG W/ SILTATION | 1 | 2.00 |
| 4. | COMPRESSED COUPLING | 0 | 0.00 |
| 5. | COMPRESSED PIPE | 1 | 2.00 |
| 6. | BACKFILL IN PIPE | 1 | 2.00 |
| 7. | SEPARATION AT COUPLING | 0 | 0.00 |
| 8. | RIP IN PIPE | 0 | 0.00 |
| 9. | COMPRESSED PANEL | 0 | 0.00 |
| 10. | COMPRESSED AND SILTED PANEL | 0 | 0.00 |

***** PAVEMENT SUBDRAIN EVALUATION *****
 *** ALL INSPECTED HEADWALL ***

ROUTE = I-71
 DIRECTION = NORTH

| MILEPOST | HEADWALL TYPE/LOC./COND | COVER MATR. | SCREEN | SILT. | FLOW | DRAINAGE | |
|----------|----------------------------|----------------|---------|--------|--------|----------|------|
| 16.040 | S-H / PLUGGED | G | BLOCK | NONE | YES | GOOD | |
| 17.210 | S-H / PLUGGED | G/D/V | BLOCK | NONE | NO | GOOD | |
| 18.060 | S-H / PLUGGED | G/D/V | BLOCK | NONE | YES | GOOD | |
| 19.090 | S-H / PT.COV. | G/D/V | PT.OPEN | NONE | YES | GOOD | |
| 20.270 | S-H / PLUGGED | G/D/V | BLOCK | NONE | YES | GOOD | |
| 21.020 | S-H / PT.COV. | G | PT.OPEN | SLIGHT | YES | GOOD | |
| 22.590 | S-H / PLUGGED | G/D/V | BLOCK | NONE | YES | POOR | |
| 23.250 | S-H / PLUGGED | G+V+C | PT.OPEN | RUSTED | NONE | YES | POOR |
| 24.490 | S-H / PT.COV. | | PT.OPEN | RUSTED | MOD. | YES | POOR |
| 25.670 | S-H / PLUGGED | C | OPEN | RUSTED | NONE | YES | GOOD |
| 26.200 | S-H / PLUGGED | C | OPEN | RUSTED | NONE | YES | GOOD |
| 27.100 | S-H / PLUGGED | C | BLOCK | | NONE | NO | POOR |
| 28.220 | S-H / PLUGGED | | OPEN | RUSTED | NONE | YES | POOR |
| 30.840 | S-H / COVER. | | PT.OPEN | | NONE | YES | GOOD |
| 31.410 | S-H / COVER. | | BLOCK | | NONE | NO | GOOD |
| 32.540 | S-H / PT.COV. | | OPEN | | NONE | YES | GOOD |
| 33.660 | S-H / CLEAN | | OPEN | | NONE | YES | GOOD |
| 34.110 | S-H / PLUGGED | D+V | BLOCK | RUSTED | NONE | YES | GOOD |
| 35.800 | S-H / PT.COV. | G | OPEN | RUSTED | NONE | YES | GOOD |
| 36.680 | S-H / COVER. | G | BLOCK | RUSTED | NONE | YES | GOOD |
| 37.660 | S-H / CLEAN | | OPEN | | NONE | YES | GOOD |
| 39.870 | S-H / CLEAN | | NONE | | NONE | YES | GOOD |
| 40.100 | S-H / CLEAN | | NONE | | NONE | YES | GOOD |
| 41.260 | S-H / CLEAN | | OPEN | RUSTED | NONE | YES | GOOD |
| 42.100 | S-H / CLEAN | | OPEN | | NONE | YES | GOOD |
| 43.230 | S-H / PT.COV. | D+V | NONE | | MOD. | YES | GOOD |
| 44.250 | S-H / CLEAN | | OPEN | | NONE | YES | GOOD |
| 45.110 | S-H / PT.COV. | G+V | OPEN | RUSTED | NONE | YES | GOOD |
| 46.130 | S-H / CLEAN | | OPEN | | NONE | YES | GOOD |
| 47.060 | S-H / CLEAN | | NONE | | NONE | YES | GOOD |
| 48.560 | S-H / CLEAN | | OPEN | RUSTED | NONE | YES | GOOD |
| 49.400 | S-H / PT.COV. | G | NONE | | NONE | YES | GOOD |
| 50.360 | S-H / CLEAN | | NONE | | NONE | YES | GOOD |
| 51.500 | S-H / PT.COV. | G | OPEN | | NONE | YES | GOOD |
| 52.230 | S-H / PT.COV. | G | OPEN | | NONE | YES | GOOD |
| 53.130 | S-H / CLEAN | | OPEN | RUSTED | NONE | YES | GOOD |
| 54.990 | S-H / PT.COV. | G | OPEN | RUSTED | SLIGHT | YES | POOR |
| 55.190 | S-H / PLUGGED | C | OPEN | RUSTED | NONE | YES | GOOD |
| 56.400 | S-H / CLEAN | | OPEN | RUSTED | NONE | YES | GOOD |
| 57.320 | S-H / PLUGGED | G+D | PT.OPEN | RUSTED | MOD. | YES | POOR |
| 58.410 | S-H / PT.COV. | G | OPEN | RUSTED | NONE | YES | GOOD |
| 59.330 | S-H / COVER. | G | PT.OPEN | RUSTED | SLIGHT | YES | GOOD |

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| | | | | | |
|--------|---------------|----------------|--------|-----|------|
| 60.420 | S-H / PT.COV. | PT.OPEN | SLIGHT | YES | GOOD |
| 61.910 | S-H / PLUGGED | PT.OPEN RUSTED | NONE | YES | GOOD |
| 62.680 | S-H / CLEAN | OPEN | NONE | YES | GOOD |
| 63.610 | S-H / PT.COV. | PT.OPEN RUSTED | NONE | YES | GOOD |
| 65.130 | S-H / PT.COV. | PT.OPEN RUSTED | NONE | YES | GOOD |
| 66.450 | S-H / CLEAN | OPEN | NONE | YES | GOOD |
| 67.090 | S-H / COVER. | PT.OPEN | NONE | YES | GOOD |
| 68.870 | S-H / PT.COV. | PT.OPEN | SEV. | YES | GOOD |
| 69.160 | S-H / PLUGGED | BLOCK | SEV. | NO | GOOD |
| 70.430 | S-H / PT.COV. | PT.OPEN | NONE | YES | POOR |
| 71.020 | S-H / PT.COV. | NONE | NONE | YES | GOOD |
| 72.360 | S-H / PT.COV. | NONE | NONE | YES | GOOD |
| 73.240 | S-H / CLEAN | NONE | NONE | YES | GOOD |
| 74.070 | S-H / PT.COV. | NONE | NONE | YES | GOOD |
| 75.210 | S-H / PT.COV. | NONE | NONE | YES | GOOD |
| 76.150 | S-H / CLEAN | NONE | NONE | YES | GOOD |

NOTE : COVER MATR --> G=GRAVEL; D=DIRT.; V=VEG.; C=CONCRETE

***** PAVEMENT SUBDRAIN EVALUATION *****

ROUTE = I-71
 DIRECTION = NORTH
 HEADWALL = CLEAN

| MILEPOST | HEADWALL TYPE/LOC. | SCREEN | SILT. | FLOW | DRAINAGE |
|----------------------------|-----------------------|--------|--------|------|----------|
| 33.660 | S-H | OPEN | NONE | YES | GOOD |
| 37.660 | S-H | OPEN | NONE | YES | GOOD |
| 39.870 | S-H | NONE | NONE | YES | GOOD |
| 40.100 | S-H | NONE | NONE | YES | GOOD |
| 41.260 | S-H | OPEN | RUSTED | YES | GOOD |
| 42.100 | S-H | OPEN | NONE | YES | GOOD |
| 44.250 | S-H | OPEN | NONE | YES | GOOD |
| 46.130 | S-H | OPEN | NONE | YES | GOOD |
| 47.060 | S-H | NONE | NONE | YES | GOOD |
| 48.560 | S-H | OPEN | RUSTED | YES | GOOD |
| 50.360 | S-H | NONE | NONE | YES | GOOD |
| 53.130 | S-H | OPEN | RUSTED | YES | GOOD |
| 56.400 | S-H | OPEN | RUSTED | YES | GOOD |
| 62.680 | S-H | OPEN | NONE | YES | GOOD |
| 66.450 | S-H | OPEN | NONE | YES | GOOD |
| 73.240 | S-H | NONE | NONE | YES | GOOD |
| 76.150 | S-H | NONE | NONE | YES | GOOD |
| NUMBER OF CLEAN HEADWALL = | | | 17 | | |
| % OF CLEAN HEADWALL = | | | 29.3 | | |

***** PAVEMENT SUBDRAIN EVALUATION *****

ROUTE = I-71
 DIRECTION = NORTH
 INSP.DATE = JULY 1991
 HWADWALL = PLUGGED

| MILEPOST | LOC./ TYPE | COVER MATER. | SCREEN | SILT. | FLOW | DRAINAGE |
|----------|---------------|-----------------|--------|-------|------|----------|
| 16.040 | S-H | G BLOCK | | NONE | YES | GOOD |
| 17.210 | S-H | G/D/V BLOCK | | NONE | NO | GOOD |
| 18.060 | S-H | G/D/V BLOCK | | NONE | YES | GOOD |
| 20.270 | S-H | G/D/V BLOCK | | NONE | YES | GOOD |
| 22.590 | S-H | G/D/V BLOCK | | NONE | YES | POOR |
| 23.250 | S-H | G+V+C PT.OPEN | RUSTED | NONE | YES | POOR |
| 25.670 | S-H | C OPEN | RUSTED | NONE | YES | GOOD |
| 26.200 | S-H | C OPEN | RUSTED | NONE | YES | GOOD |
| 27.100 | S-H | C BLOCK | | NONE | NO | POOR |
| 28.220 | S-H | G/D/V OPEN | RUSTED | NONE | YES | POOR |
| 34.110 | S-H | D+V BLOCK | RUSTED | NONE | YES | GOOD |
| 55.190 | S-H | C OPEN | RUSTED | NONE | YES | GOOD |
| 57.320 | S-H | G+D PT.OPEN | RUSTED | MOD. | YES | POOR |
| 61.910 | S-H | G/D/V PT.OPEN | RUSTED | NONE | YES | GOOD |
| 69.160 | S-H | G/D/V BLOCK | | SEV. | NO | GOOD |

NOTE : COVER MATR.--> G=GRAVEL; D= DIRT., V=VEG.; C=CONCRETE
 NUMBER OF PLUGGED HEADWALL = 15
 % OF PLUGGED HEADWALL = 25.9

***** PAVEMENT SUBDRAIN EVALUATION *****

ROUTE = I-71
 DIRECTION = NORTH
 HEADWALL = PT. COVER./COVER.

| MILEPOST | LOC./ TYPE | COVER MATER. | SCREEN | SILT. | FLOW | DRAINAGE | |
|----------|---------------|-----------------|---------|--------|--------|----------|------|
| 19.090 | S-H | G/D/V | PT.OPEN | | NONE | YES | GOOD |
| 21.020 | S-H | G | PT.OPEN | | SLIGHT | YES | GOOD |
| 24.490 | S-H | G/D/V | PT.OPEN | RUSTED | MOD. | YES | POOR |
| 30.840 | S-H | G/D/V | PT.OPEN | | NONE | YES | GOOD |
| 31.410 | S-H | G/D/V | BLOCK | | NONE | NO | GOOD |
| 32.540 | S-H | G/D/V | OPEN | | NONE | YES | GOOD |
| 35.800 | S-H | G | OPEN | RUSTED | NONE | YES | GOOD |
| 36.680 | S-H | G | BLOCK | RUSTED | NONE | YES | GOOD |
| 43.230 | S-H | D+V | NONE | | MOD. | YES | GOOD |
| 45.110 | S-H | G+V | OPEN | RUSTED | NONE | YES | GOOD |
| 49.400 | S-H | G | NONE | | NONE | YES | GOOD |
| 51.500 | S-H | G | OPEN | | NONE | YES | GOOD |
| 52.230 | S-H | G | OPEN | | NONE | YES | GOOD |
| 54.990 | S-H | G | OPEN | RUSTED | SLIGHT | YES | POOR |
| 58.410 | S-H | G | OPEN | RUSTED | NONE | YES | GOOD |
| 59.330 | S-H | G | PT.OPEN | RUSTED | SLIGHT | YES | GOOD |
| 60.420 | S-H | G/D/V | PT.OPEN | | SLIGHT | YES | GOOD |
| 63.610 | S-H | G/D/V | PT.OPEN | RUSTED | NONE | YES | GOOD |
| 65.130 | S-H | G/D/V | PT.OPEN | RUSTED | NONE | YES | GOOD |
| 67.090 | S-H | G/D/V | PT.OPEN | | NONE | YES | GOOD |
| 68.870 | S-H | G/D/V | PT.OPEN | | SEV. | YES | GOOD |

NOTE : COVER MATR.--> G=GRAVEL; D= DIRT., V=VEG.; C=CONCRETE
 NUMBER OF PT.COVERED HEADWALL = 21
 % OF PT. COVERED HEADWALL = 36.2
 NUMBER OF COVERED HEADWALL = 5
 % OF COVERED HEADWALL = 8.6

***** PAVEMENT SUBDRAIN EVALUATION *****

ROUTE = I-71
 DIRECTION = NORTH
 HEADWALL = S-H
 NO SCREEN/RUSTED

| MILEPOST | HEADWALL | SCREEN | SILT. | FLOW | DRAINAGE |
|----------|-----------|---------|--------|--------|----------|
| 23.250 | PLUGGED | PT.OPEN | RUSTED | NONE | YES POOR |
| 24.490 | PT.COVER. | PT.OPEN | RUSTED | MOD. | YES POOR |
| 25.670 | PLUGGED | OPEN | RUSTED | NONE | YES GOOD |
| 26.200 | PLUGGED | OPEN | RUSTED | NONE | YES GOOD |
| 28.220 | PLUGGED | OPEN | RUSTED | NONE | YES POOR |
| 34.110 | PLUGGED | BLOCK | RUSTED | NONE | YES GOOD |
| 35.800 | PT.COVER. | OPEN | RUSTED | NONE | YES GOOD |
| 36.680 | COVER. | BLOCK | RUSTED | NONE | YES GOOD |
| 39.870 | CLEAN | NONE | | NONE | YES GOOD |
| 40.100 | CLEAN | NONE | | NONE | YES GOOD |
| 41.260 | CLEAN | OPEN | RUSTED | NONE | YES GOOD |
| 43.230 | PT.COVER. | NONE | | MOD. | YES GOOD |
| 45.110 | PT.COVER. | OPEN | RUSTED | NONE | YES GOOD |
| 47.060 | CLEAN | NONE | | NONE | YES GOOD |
| 48.560 | CLEAN | OPEN | RUSTED | NONE | YES GOOD |
| 49.400 | PT.COVER. | NONE | | NONE | YES GOOD |
| 50.360 | CLEAN | NONE | | NONE | YES GOOD |
| 53.130 | CLEAN | OPEN | RUSTED | NONE | YES GOOD |
| 54.990 | PT.COVER. | OPEN | RUSTED | SLIGHT | YES POOR |
| 55.190 | PLUGGED | OPEN | RUSTED | NONE | YES GOOD |
| 56.400 | CLEAN | OPEN | RUSTED | NONE | YES GOOD |
| 57.320 | PLUGGED | PT.OPEN | RUSTED | MOD. | YES POOR |
| 58.410 | PT.COVER. | OPEN | RUSTED | NONE | YES GOOD |
| 59.330 | COVER. | PT.OPEN | RUSTED | SLIGHT | YES GOOD |
| 61.910 | PLUGGED | PT.OPEN | RUSTED | NONE | YES GOOD |
| 63.610 | PT.COVER. | PT.OPEN | RUSTED | NONE | YES GOOD |
| 65.130 | PT.COVER. | PT.OPEN | RUSTED | NONE | YES GOOD |
| 71.020 | PT.COVER. | NONE | | NONE | YES GOOD |
| 72.360 | PT.COVER. | NONE | | NONE | YES GOOD |
| 73.240 | CLEAN | NONE | | NONE | YES GOOD |
| 74.070 | PT.COVER. | NONE | | NONE | YES GOOD |
| 75.210 | PT.COVER. | NONE | | NONE | YES GOOD |
| 76.150 | CLEAN | NONE | | NONE | YES GOOD |

NUMBER OF HEADWALL W/ NO OR RUSTED SCREEN = 33
 % = 56.9

***** PAVEMENT SUBDRAIN EVALUATION *****

** ALL INSPECTED OUTLET PIPE **

ROUTE = I-71

DIRECTION = NORTH

INSP. DATE= JULY 1991

| MILEPOST | PIPE TYPE | PIPE CONDITION AT | | | | | | REMARK |
|----------|-------------|-------------------|-------|---|---|---|---|---------------------|
| | | A | B | C | D | E | F | |
| 16.040 | FLEX. | | 1+5 | | | | | 0 % OPEN AT 4.0 |
| 17.210 | FLEX. 2 | | 5+6+8 | | | | | 40-60 % OPEN AT10.0 |
| 18.060 | FLEX. 1 | | 5 | | | | | 40-60 % OPEN AT10.0 |
| 19.090 | FLEX. 2 | | 5 | | | | | 0 % OPEN AT 4.5 |
| 20.270 | FLEX. 5 | | 5 | | | | | 40-60 % OPEN AT 3.0 |
| 21.020 | FLEX. 3 | | 2 | | | | | PIPE OPEN |
| 22.590 | FLEX. 3 | | 5 | | | | | 40-60 % OPEN AT 3.5 |
| 23.250 | FLEX. | | | | | | | 20-40 % OPEN AT 0.0 |
| 24.490 | FLEX. | | | | | | | 20-40 % OPEN AT 0.0 |
| 25.670 | FLEX. | | | | | | | 20-40 % OPEN AT 0.0 |
| 26.200 | FLEX. | | | | | | | 10-20 % OPEN AT 0.0 |
| 27.100 | FLEX. 3 | | 2+5+8 | | | | | BLOCKED AT 7.0 |
| 28.220 | FLEX. | | | | | | | 20-40 % OPEN AT 0.0 |
| 30.840 | FLEX. 2+3 | | 5 | | | | | 40-60 % OPEN AT12.0 |
| 31.410 | FLEX. 2 | | 5 | | | | | 0 % OPEN AT 6.0 |
| 32.540 | FLEX. | | 6 | | | | | 10-20 % OPEN AT 2.0 |
| 33.660 | FLEX. 1 | | 2 | | | | | PIPE OPEN |
| 34.110 | FLEX. 2+3+5 | | 5 | | | | | 40-60 % OPEN AT 1.0 |
| 35.800 | FLEX. 3 | | 3+5+6 | | | | | BLOCKED AT 7.0 |
| 36.680 | FLEX. 3 | | 5 | | | | | 10-20 % OPEN AT 6.0 |
| 37.660 | FLEX. 1+5 | | 1 | | | | | PIPE OPEN |
| 39.870 | FLEX. 1 | | 1+5 | | | | | BLOCKED AT 5.0 |
| 40.100 | FLEX. 1+5 | | | | | | | BLOCKED AT 2.0 |
| 41.260 | FLEX. 2 | | 5 | | | | | 40-60 % OPEN AT 5.0 |
| 42.100 | FLEX. 1+5 | | 1+5 | | | | 3 | PIPE OPEN |
| 43.230 | FLEX. 1 | | 5 | | | | | 40-60 % OPEN AT 8.0 |
| 44.250 | FLEX. 3 | | 2+3 | | | | | PIPE OPEN |
| 45.110 | FLEX. 6 | | | | | | | 0 % OPEN AT 0.0 |
| 46.130 | FLEX. | | 2 | | | | 2 | PIPE OPEN |
| 47.060 | FLEX. | | 1 | | | | | PIPE OPEN |
| 48.560 | FLEX. | | 2 | | | | 5 | 10-20 % OPEN AT23.5 |
| 49.400 | FLEX. | | | | | | 6 | 40-60 % OPEN AT20.0 |
| 50.360 | FLEX. 2 | | 2 | | | | | PIPE OPEN |
| 51.500 | FLEX. | | 2 | | | | | PIPE OPEN |
| 52.230 | FLEX. 1 | | 5 | | | | | PIPE OPEN |
| 53.130 | FLEX. 1 | | 1 | | | | | BLOCKED AT 5.0 |
| 54.990 | FLEX. 1 | | 2 | | | | | BLOCKED AT 3.0 |
| 55.190 | FLEX. | | | | | | | BLOCKED AT 0.0 |
| 56.400 | FLEX.] | | 2 | | | | | BLOCKED AT 7.0 |
| 57.320 | FLEX. | | 3 | | | | | PIPE OPEN |
| 58.410 | FLEX. | | 1 | | | | 1 | PIPE OPEN |
| 59.330 | FLEX. | | 1 | | | | | PIPE OPEN |
| 60.420 | FLEX. | | 1 | | | | | PIPE OPEN |
| 61.910 | FLEX. 1 | | 5 | | | | | 10-20 % OPEN AT 6.0 |
| 62.680 | FLEX. | | 2 | | | | | PIPE OPEN |
| 63.610 | FLEX. | | 1 | | | | 1 | PIPE OPEN |
| 65.130 | FLEX. | | 3 | | | | | PIPE OPEN |
| 66.450 | FLEX. | | 3 | | | | | 80-100% OPEN |
| 67.090 | FLEX. | | 1 | | | | | 80-100% OPEN |
| 68.870 | FLEX. | | | | | | | BLOCKED AT 0.0 |
| 69.160 | FLEX. | | | | | | | BLOCKED AT 0.0 |
| 70.430 | FLEX. 2 | | 2+5 | | | | | 40-60 % OPEN AT14.0 |
| 71.020 | FLEX. | | 2 | | | | | PIPE OPEN |

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| | | | |
|------------------|---|---|-----------|
| 72.360 FLEX. | 2 | | PIPE OPEN |
| 73.240 FLEX. | 1 | | PIPE OPEN |
| 74.070 FLEX. | 1 | 1 | PIPE OPEN |
| 75.210 FLEX. 1+8 | 1 | | PIPE OPEN |
| 76.150 FLEX. | 3 | | PIPE OPEN |

| | | |
|--|---|----|
| NUMBER OF OPEN OUTLET PIPE | = | 23 |
| % OF OPEN OUTLET PIPE | = | 40 |
| NUMBER OF COMPRESSED/BLOCKED OUTLET PIPE | = | 35 |
| % OF COMPRESSED/BLOCKED OUTLET PIPE | = | 60 |

***** PAVEMENT SUBDRAIN EVALUATION *****

** OPEN OUTLET PIPE *

ROUTE = I-71

DIRECTION = NORTH

INSP.DATE = JULY 1991

| MILEPOST | PIPE TYPE | PIPE CONDITION | | | | | | REMARK |
|----------|-----------|----------------|-----|---|---|---|---|--------------|
| | | A | B | C | D | E | F | |
| 21.020 | FLEX. | 3 | 2 | | | | | |
| 33.660 | FLEX. | 1 | 2 | | | | | |
| 37.660 | FLEX. | 1+5 | 1 | | | | | |
| 42.100 | FLEX. | 1+5 | 1+5 | | | | 3 | |
| 44.250 | FLEX. | 3 | 2+3 | | | | | |
| 46.130 | FLEX. | | 2 | | | | 2 | |
| 47.060 | FLEX. | | 1 | | | | | |
| 50.360 | FLEX. | 2 | 2 | | | | | |
| 51.500 | FLEX. | | 2 | | | | | |
| 52.230 | FLEX. | 1 | 5 | | | | | |
| 57.320 | FLEX. | | 3 | | | | | |
| 58.410 | FLEX. | | 1 | | | 1 | | |
| 59.330 | FLEX. | | 1 | | | | | |
| 60.420 | FLEX. | | 1 | | | | | |
| 62.680 | FLEX. | | 2 | | | | | |
| 63.610 | FLEX. | | 1 | | | 1 | 1 | |
| 65.130 | FLEX. | | 3 | | | | | |
| 66.450 | FLEX. | | 3 | | | | | 80-100% OPEN |
| 67.090 | FLEX. | | 1 | | | | | 80-100% OPEN |
| 71.020 | FLEX. | | 2 | | | | | |
| 72.360 | FLEX. | | 2 | | | | | |
| 73.240 | FLEX. | | 1 | | | | | |
| 74.070 | FLEX. | | 1 | | | 1 | | |
| 75.210 | FLEX. | 1+8 | 1 | | | | | |
| 76.150 | FLEX. | | 3 | | | | | |

NUMBER OF OPEN OUTLET PIPE = 25
 % OF OPEN OUTLET PIPE = 43.1

***** PAVEMENT SUBDRAIN EVALUATION *****

* COMPRESSED/BLOCKED OUTLET PIPE *

ROUTE = I-71

DIRECTION = NORTH

INSP.DATE = JULY 1991

| MILEPOST | PIPE TYPE | PIPE CONDITION | | | | | | AT | REMARK |
|----------|-------------|----------------|-------|---|---|---|---|----|---------------------|
| | | A | B | C | D | E | F | | |
| 16.040 | FLEX. | | 1+5 | | | | | | 0 % OPEN AT 4.0 |
| 17.210 | FLEX. 2 | | 5+6+8 | | | | | | 40-60 % OPEN AT10.0 |
| 18.060 | FLEX. 1 | | 5 | | | | | | 40-60 % OPEN AT10.0 |
| 19.090 | FLEX. 2 | | 5 | | | | | | 0 % OPEN AT 4.5 |
| 20.270 | FLEX. 5 | | 5 | | | | | | 40-60 % OPEN AT 3.0 |
| 22.590 | FLEX. 3 | | 5 | | | | | | 40-60 % OPEN AT 3.5 |
| 23.250 | FLEX. | | | | | | | | 20-40 % OPEN AT 0.0 |
| 24.490 | FLEX. | | | | | | | | 20-40 % OPEN AT 0.0 |
| 25.670 | FLEX. | | | | | | | | 20-40 % OPEN AT 0.0 |
| 26.200 | FLEX. | | | | | | | | 10-20 % OPEN AT 0.0 |
| 27.100 | FLEX. 3 | | 2+5+8 | | | | | | BLOCKED AT 7.0 |
| 28.220 | FLEX. | | | | | | | | 20-40 % OPEN AT 0.0 |
| 30.840 | FLEX. 2+3 | | 5 | | | | | | 40-60 % OPEN AT12.0 |
| 31.410 | FLEX. 2 | | 5 | | | | | | 0 % OPEN AT 6.0 |
| 32.540 | FLEX. | | 6 | | | | | | 10-20 % OPEN AT 2.0 |
| 34.110 | FLEX. 2+3+5 | | 5 | | | | | | 40-60 % OPEN AT 1.0 |
| 35.800 | FLEX. 3 | | 3+5+6 | | | | | | BLOCKED AT 7.0 |
| 36.680 | FLEX. 3 | | 5 | | | | | | 10-20 % OPEN AT 6.0 |
| 39.870 | FLEX. 1 | | 1+5 | | | | | | BLOCKED AT 5.0 |
| 40.100 | FLEX. 1+5 | | | | | | | | BLOCKED AT 2.0 |
| 41.260 | FLEX. 2 | | 5 | | | | | | 40-60 % OPEN AT 5.0 |
| 43.230 | FLEX. 1 | | 5 | | | | | | 40-60 % OPEN AT 8.0 |
| 45.110 | FLEX. 6 | | | | | | | | 0 % OPEN AT 0.0 |
| 48.560 | FLEX. | | 2 | | | | 5 | | 10-20 % OPEN AT23.5 |
| 49.400 | FLEX. | | | | | | 6 | | 40-60 % OPEN AT20.0 |
| 53.130 | FLEX. 1 | | 1 | | | | | | BLOCKED AT 5.0 |
| 54.990 | FLEX. 1 | | 2 | | | | | | BLOCKED AT 3.0 |
| 55.190 | FLEX. | | | | | | | | BLOCKED AT 0.0 |
| 56.400 | FLEX.] | | 2 | | | | | | BLOCKED AT 7.0 |
| 61.910 | FLEX. 1 | | 5 | | | | | | 10-20 % OPEN AT 6.0 |
| 68.870 | FLEX. | | | | | | | | BLOCKED AT 0.0 |
| 69.160 | FLEX. | | | | | | | | BLOCKED AT 0.0 |
| 70.430 | FLEX. 2 | | 2+5 | | | | | | 40-60 % OPEN AT14.0 |

NUMBER OF BLOCKED/COMPRESSED OUTLET PIPE = 33

% OF BLOCKED/COMPRESSED OUTLET PIPE = 56.9

***** SUMMARY*****
 ***** PAVEMENT SUBDRAIN EVALUATION *****
 HEADWALL & OUTLET PIPE

ROUTE = I-71
 DIRECTION = SOUTH
 INSP.DATE = JULY 1991

| | NUMBER | PERCENTAGE |
|--|--------|------------|
| 1. CLEAN HEADWALL | 31 | 56.00 |
| * WITH OPEN OUTLET PIPE (> = 60% OPEN) | 18 | 33.00 |
| * WITH PARTIALLY OPEN OUTLET PIPE (40-60% OPEN) | 4 | 7.00 |
| * WITH BLOCKED OUTLET PIPE (< 40% OPEN) | 9 | 16.00 |
| 2. PT. COVERED HEADWALL | 13 | 24.00 |
| * WITH OPEN OUTLET PIPE (> = 60% OPEN) | 6 | 11.00 |
| * WITH PARTIALLY OPEN OUTLET PIPE (40-60% OPEN) | 6 | 11.00 |
| * WITH BLOCKED OUTLET PIPE (< 40% OPEN) | 1 | 2.00 |
| 3. COVERED HEADWALL | 1 | 2.00 |
| * WITH OPEN OUTLET PIPE (> = 60% OPEN) | 1 | 2.00 |
| * WITH PARTIALLY OPEN OUTLET PIPE (40-60% OPEN) | 0 | 0.00 |
| * WITH BLOCKED OUTLET PIPE (< 40% OPEN) | 0 | 0.00 |
| 4. PLUGGED HEADWALL | 10 | 18.00 |
| * WITH OPEN OUTLET PIPE (>= 60% OPEN) | 4 | 7.00 |
| * WITH PARTIALLY OPEN OUTLET PIPE (40-60% OPEN) | 2 | 4.00 |
| * WITH BLOCKED OUTLET PIPE (< 40% OPEN) | 4 | 7.00 |
| 5. HEADWALL & OUTLET PIPE CONDITION : | | |
| * INSPECTED HEADWALL & PIPE | 55 | |
| * FULLY IN SERVICE | 18 | 33.00 |
| * PT. IN SERVICE | 17 | 31.00 |
| * OUT OF SERVICE | 20 | 36.00 |

Note : -Fully in Service = headwall is clean with pipe > 60% open
 -PT. in service = clean headwall with pipe 40-60% open, or
 PT. covered/covered headwall with pipe < 60% open.
 -Out of service = Plugged headwall, or outlet with pipe <
 40% open

***** SUMMARY *****
 ***** PAVEMENT SUBDRAIN EVALUATION *****
 HEADWALL

ROUTE = I-71
 DIRECTION = SOUTH
 INSP. DATE = JULY 1991

| | NUMBER | PERCENTAGE |
|-------------------------|--------|------------|
| 1. INSPECTED HEADWALL | 55 | |
| 2. HEADWALL CONDITION : | | |
| CLEAN HEADWALL | 31 | 56.00 |
| PT. COVERED HEADWALL | 13 | 24.00 |
| COVERED HEADWALL | 1 | 2.00 |
| PLUGGED HEADWALL | 10 | 18.00 |
| 3. COVERING MATERIAL : | | |
| GRAVEL OR GRAVEL +... | 14 | 25.00 |
| DIRT. OR DIRT.+..... | 16 | 29.00 |
| VEG. OR VEG. + | 13 | 24.00 |
| CON. OR CON. + | 4 | 7.00 |
| 4. SCREEN : | | |
| NONE | 16 | 29.00 |
| OPEN | 31 | 56.00 |
| PARTIALLY OPEN | 2 | 4.00 |
| BLOCK | 6 | 11.00 |
| RUSTED SCREEN | 16 | 29.00 |
| 5. SILTATION : | | |
| NONE | 43 | 78.00 |
| SLIGHTLY | 9 | 16.00 |
| MODERATELY | 2 | 4.00 |
| SEVERLY | 1 | 2.00 |
| 6. FLOW : | | |
| YES | 53 | 96.00 |
| NO | 2 | 4.00 |
| 7. DRAINAGE : | | |
| GOOD | 46 | 84.00 |
| POOR | 9 | 16.00 |

***** SUMMARY *****
 ***** PAVEMENT SUBDRAIN EVALUATION *****
 ***** OUTLET PIPE *****

ROUTE = I-71
 DIRECTION = SOUTH
 INSP.DATE = JULY 1991

| | NUMBER | PERCENTAGE |
|---|--------|------------|
| I. INSPECTED OUTLET PIPE | 55 | |
| II. OPEN OUTLET PIPE (>80% OPEN) | 27 | 49.00 |
| III. COMPRESSED/BLOCKED OUTLET PIPE | 28 | 51.00 |
| * 60% - 80% OPEN | 2 | 4.00 |
| * 40% - 60% OPEN | 12 | 22.00 |
| * < 40 % OPEN OR BLOCKED | 14 | 25.00 |
| IV. OUTLET PIPE WITH PROBLEM AT/NEAR OUTLET/ HEADWALL (AT A) | 38 | 69.00 |
| 1. SAG | 16 | 29.00 |
| 2. SAG W/ STANDING WATER | 8 | 15.00 |
| 3. SAG W/ SILTATION | 1 | 2.00 |
| 4. COMPRESSED COUPLING | 5 | 9.00 |
| 5. COMPRESSED PIPE | 16 | 29.00 |
| 6. BACKFILL IN PIPE | 4 | 7.00 |
| 7. SEPARATION AT COUPLING | 0 | 0.00 |
| 8. RIP IN PIPE | 1 | 2.00 |
| 9. COMPRESSED PANEL | 0 | 0.00 |
| 10. COMPRESSED AND SILTED PANEL | 0 | 0.00 |
| V. OUTLET PIPE WITH PROBLEM AT B : | 33 | 60.00 |
| 1. SAG | 6 | 11.00 |
| 2. SAG W/ STANDING WATER | 11 | 20.00 |
| 3. SAG W/ SILTATION | 4 | 7.00 |
| 4. COMPRESSED COUPLING | 3 | 5.00 |
| 5. COMPRESSED PIPE | 15 | 27.00 |
| 6. BACKFILL IN PIPE | 3 | 5.00 |
| 7. SEPARATION AT COUPLING | 0 | 0.00 |
| 8. RIP IN PIPE | 0 | 0.00 |
| 9. COMPRESSED PANEL | 0 | 0.00 |
| 10. COMPRESSED AND SILTED PANEL | 0 | 0.00 |
| VI. OUTLET PIPE WITH PROBLEM AT E : | 7 | 13.00 |
| 1. SAG | 3 | 5.00 |
| 2. SAG W/ STANDING WATER | 1 | 2.00 |
| 3. SAG W/ SILTATION | 2 | 4.00 |
| 4. COMPRESSED COUPLING | 1 | 2.00 |
| 5. COMPRESSED PIPE | 0 | 0.00 |
| 6. BACKFILL IN PIPE | 0 | 0.00 |
| 7. SEPARATION AT COUPLING | 0 | 0.00 |
| 8. RIP IN PIPE | 0 | 0.00 |

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..I-71 S

| | | | |
|-------|---------------------------------|---|------|
| 9. | COMPRESSED PANEL | 0 | 0.00 |
| 10. | COMPRESSED AND SILTED PANEL | 0 | 0.00 |
| <hr/> | | | |
| VII. | OUTLET PIPE WITH PROBLEM AT F : | 1 | 2.00 |
| 1. | SAG | 0 | 0.00 |
| 2. | SAG W/ STANDING WATER | 1 | 2.00 |
| 3. | SAG W/ SILTATION | 0 | 0.00 |
| 4. | COMPRESSED COUPLING | 0 | 0.00 |
| 5. | COMPRESSED PIPE | 0 | 0.00 |
| 6. | BACKFILL IN PIPE | 0 | 0.00 |
| 7. | SEPARATION AT COUPLING | 0 | 0.00 |
| 8. | RIP IN PIPE | 0 | 0.00 |
| 9. | COMPRESSED PANEL | 0 | 0.00 |
| 10. | COMPRESSED AND SILTED PANEL | 0 | 0.00 |
| <hr/> | | | |

***** PAVEMENT SUBDRAIN EVALUATION *****
 *** ALL INSPECTED HEADWALL ***

ROUTE = I-71
 DIRECTION = SOUTH
 INSP.DATE = JULY 1991

| MILEPOST | OUTLET TYPE/LOC./COND | COVER MATR. | SCREEN | SILT. | FLOW | DRAINAGE |
|----------|--------------------------|----------------|----------------|--------|------|----------|
| 15.860 | S-H / PLUGGED | | NONE | NONE | YES | POOR |
| 16.720 | S-H / CLEAN | | OPEN RUSTED | NONE | YES | GOOD |
| 17.870 | S-H / CLEAN | | OPEN | NONE | YES | GOOD |
| 18.610 | S-H / CLEAN | | OPEN | NONE | YES | GOOD |
| 19.330 | S-H / PLUGGED | | BLOCK | NONE | YES | POOR |
| 20.730 | S-H / PT.COV. | | PT.OPEN | SLIGHT | YES | POOR |
| 21.990 | S-H / PT.COV. | | NONE | NONE | YES | GOOD |
| 22.870 | S-H / PLUGGED | | BLOCK | NONE | NO | POOR |
| 23.630 | S-H / CLEAN | | NONE | NONE | YES | GOOD |
| 24.860 | S-H / PT.COV. | | OPEN RUSTED | SLIGHT | YES | POOR |
| 25.780 | S-H / PT.COV. | | NONE | NONE | YES | GOOD |
| 26.890 | S-H / PLUGGED | | BLOCK RUSTED | SEV. | NO | GOOD |
| 28.340 | S-H / PT.COV. | | OPEN | SLIGHT | YES | GOOD |
| 29.840 | S-H / PT.COV. | | PT.OPEN RUSTED | SLIGHT | YES | GOOD |
| 30.820 | S-H / CLEAN | | OPEN | NONE | YES | GOOD |
| 31.710 | S-H / CLEAN | | NONE | NONE | YES | GOOD |
| 32.950 | S-H / CLEAN | | OPEN | NONE | YES | GOOD |
| 33.650 | S-H / CLEAN | | OPEN RUSTED | NONE | YES | GOOD |
| 34.850 | S-H / CLEAN | | OPEN RUSTED | NONE | YES | GOOD |
| 35.780 | S-H / CLEAN | | OPEN | NONE | YES | GOOD |
| 36.960 | S-H / CLEAN | | OPEN | NONE | YES | GOOD |
| 37.140 | S-H / PLUGGED | | BLOCK RUSTED | NONE | YES | GOOD |
| 38.820 | S-H / PT.COV. | | NONE RUSTED | SLIGHT | YES | GOOD |
| 40.440 | S-H / CLEAN | | OPEN RUSTED | NONE | YES | GOOD |
| 41.730 | S-H / PLUGGED | | OPEN | NONE | YES | GOOD |
| 42.010 | S-H / PT.COV. | | OPEN RUSTED | MOD. | YES | POOR |
| 44.640 | S-H / CLEAN | | OPEN RUSTED | NONE | YES | GOOD |
| 45.320 | S-H / CLEAN | | NONE | NONE | YES | GOOD |
| 46.510 | S-H / PT.COV. | | OPEN | NONE | YES | GOOD |
| 47.660 | S-H / CLEAN | | NONE RUSTED | NONE | YES | POOR |
| 48.840 | S-H / CLEAN | | OPEN | NONE | YES | GOOD |
| 49.320 | S-H / PT.COV. | | OPEN | NONE | YES | GOOD |
| 50.820 | S-H / CLEAN | | OPEN RUSTED | NONE | YES | GOOD |
| 51.740 | S-H / CLEAN | | OPEN | NONE | YES | GOOD |
| 53.610 | S-H / CLEAN | | OPEN RUSTED | NONE | YES | GOOD |
| 54.830 | S-H / CLEAN | | OPEN RUSTED | NONE | YES | GOOD |
| 55.650 | S-H / CLEAN | | OPEN | NONE | YES | GOOD |
| 56.870 | S-H / COVER. | G | OPEN | NONE | YES | GOOD |
| 57.890 | S-H / CLEAN | | OPEN | NONE | YES | GOOD |
| 58.950 | S-H / CLEAN | | OPEN | NONE | YES | GOOD |
| 59.790 | S-H / PLUGGED | G/D/V | BLOCK RUSTED | SLIGHT | YES | GOOD |
| 61.500 | S-H / PLUGGED | G/D/V | BLOCK | MOD. | YES | GOOD |

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| | | | | | | | |
|--------|-------|---------|-------|------|--------|-----|------|
| 62.600 | S-H / | PT.COV. | C | OPEN | NONE | YES | GOOD |
| 63.310 | S-H / | CLEAN | | OPEN | NONE | YES | GOOD |
| 64.670 | S-H / | PLUGGED | G | OPEN | SLIGHT | YES | POOR |
| 65.420 | S-H / | CLEAN | | OPEN | NONE | YES | GOOD |
| 66.970 | S-H / | PLUGGED | G/D/V | NONE | NONE | YES | GOOD |
| 67.950 | S-H / | PT.COV. | D | OPEN | SLIGHT | YES | POOR |
| 68.800 | S-H / | CLEAN | | NONE | NONE | YES | GOOD |
| 70.950 | S-H / | CLEAN | | NONE | NONE | YES | GOOD |
| 71.220 | S-H / | CLEAN | | NONE | NONE | YES | GOOD |
| 72.620 | S-H / | CLEAN | | NONE | NONE | YES | GOOD |
| 73.900 | S-H / | CLEAN | | NONE | NONE | YES | GOOD |
| 74.270 | S-H / | PT.COV. | D+V | NONE | SLIGHT | YES | GOOD |
| 75.930 | S-H / | CLEAN | | NONE | NONE | YES | GOOD |

NOTE : COVER MATR --> G=GRAVEL; D=DIRT.; V=VEG.; C=CONCRETE

***** PAVEMENT SUBDRAIN EVALUATION *****

ROUTE = I-71
 DIRECTION = SOUTH
 HEADWALL = CLEAN

| MILEPOST | OUTLET TYPE/LOC. | SCREEN | SILT. | FLOW | DRAINAGE | |
|----------|---------------------|--------|--------|------|----------|------|
| 16.720 | S-H | OPEN | RUSTED | NONE | YES | GOOD |
| 17.870 | S-H | OPEN | | NONE | YES | GOOD |
| 18.610 | S-H | OPEN | | NONE | YES | GOOD |
| 23.630 | S-H | NONE | | NONE | YES | GOOD |
| 30.820 | S-H | OPEN | | NONE | YES | GOOD |
| 31.710 | S-H | NONE | | NONE | YES | GOOD |
| 32.950 | S-H | OPEN | | NONE | YES | GOOD |
| 33.650 | S-H | OPEN | RUSTED | NONE | YES | GOOD |
| 34.850 | S-H | OPEN | RUSTED | NONE | YES | GOOD |
| 35.780 | S-H | OPEN | | NONE | YES | GOOD |
| 36.960 | S-H | OPEN | | NONE | YES | GOOD |
| 40.440 | S-H | OPEN | RUSTED | NONE | YES | GOOD |
| 44.640 | S-H | OPEN | RUSTED | NONE | YES | GOOD |
| 45.320 | S-H | NONE | | NONE | YES | GOOD |
| 47.660 | S-H | NONE | RUSTED | NONE | YES | POOR |
| 48.840 | S-H | OPEN | | NONE | YES | GOOD |
| 50.820 | S-H | OPEN | RUSTED | NONE | YES | GOOD |
| 51.740 | S-H | OPEN | | NONE | YES | GOOD |
| 53.610 | S-H | OPEN | RUSTED | NONE | YES | GOOD |
| 54.830 | S-H | OPEN | RUSTED | NONE | YES | GOOD |
| 55.650 | S-H | OPEN | | NONE | YES | GOOD |
| 57.890 | S-H | OPEN | | NONE | YES | GOOD |
| 58.950 | S-H | OPEN | | NONE | YES | GOOD |
| 63.310 | S-H | OPEN | | NONE | YES | GOOD |
| 65.420 | S-H | OPEN | | NONE | YES | GOOD |
| 68.800 | S-H | NONE | | NONE | YES | GOOD |
| 70.950 | S-H | NONE | | NONE | YES | GOOD |
| 71.220 | S-H | NONE | | NONE | YES | GOOD |
| 72.620 | S-H | NONE | | NONE | YES | GOOD |
| 73.900 | S-H | NONE | | NONE | YES | GOOD |
| 75.930 | S-H | NONE | | NONE | YES | GOOD |

NUMBER OF CLEAN HEADWALL = 31
 % OF CLEAN HEADWALL = 56.4

***** PAVEMENT SUBDRAIN EVALUATION *****

ROUTE = I-71
 DIRECTION = SOUTH
 HEADWALL = PT. COVER./COVER.

| MILEPOST | LOC./ TYPE | COVER MATER. | SCREEN | SILT. | FLOW | DRAINAGE | |
|----------|---------------|-----------------|---------|--------|--------|----------|------|
| 20.730 | S-H | G/D/V | PT.OPEN | | SLIGHT | YES | POOR |
| 21.990 | S-H | G/D/V | NONE | | NONE | YES | GOOD |
| 24.860 | S-H | G/D/V | OPEN | RUSTED | SLIGHT | YES | POOR |
| 25.780 | S-H | G/D/V | NONE | | NONE | YES | GOOD |
| 28.340 | S-H | G/D/V | OPEN | | SLIGHT | YES | GOOD |
| 29.840 | S-H | G/D/V | PT.OPEN | RUSTED | SLIGHT | YES | GOOD |
| 38.820 | S-H | G/D/V | NONE | RUSTED | SLIGHT | YES | GOOD |
| 42.010 | S-H | G/D/V | OPEN | RUSTED | MOD. | YES | POOR |
| 46.510 | S-H | G/D/V | OPEN | | NONE | YES | GOOD |
| 49.320 | S-H | G/D/V | OPEN | | NONE | YES | GOOD |
| 56.870 | S-H | G | OPEN | | NONE | YES | GOOD |
| 62.600 | S-H | C | OPEN | | NONE | YES | GOOD |
| 67.950 | S-H | D | OPEN | | SLIGHT | YES | POOR |

NOTE : COVER MATR.--> G=GRAVEL; D= DIRT., V=VEG.; C=CONCRETE
 NUMBER OF PT.COVERED HEADWALL = 13
 % OF PT. COVERED HEADWALL = 23.6
 NUMBER OF COVERED HEADWALL = 1
 % OF COVERED HEADWALL = 1.8

***** PAVEMENT SUBDRAIN EVALUATION *****

ROUTE = I-71
 DIRECTION = SOUTH
 INSP.DATE = JULY 1991
 HEADWALL = PLUGGED

| MILEPOST | LOC./ TYPE | COVER MATER. | SCREEN | SILT. | FLOW | DRAINAGE |
|----------|---------------|-----------------|--------|--------|------|----------|
| 15.860 | S-H | G/D/V NONE | | NONE | YES | POOR |
| 19.330 | S-H | G/D/V BLOCK | | NONE | YES | POOR |
| 22.870 | S-H | G/D/V BLOCK | | NONE | NO | POOR |
| 26.890 | S-H | G/D/V BLOCK | RUSTED | SEV. | NO | GOOD |
| 37.140 | S-H | G/D/V BLOCK | RUSTED | NONE | YES | GOOD |
| 41.730 | S-H | G/D/V OPEN | | NONE | YES | GOOD |
| 59.790 | S-H | G/D/V BLOCK | RUSTED | SLIGHT | YES | GOOD |
| 61.500 | S-H | G/D/V BLOCK | | MOD. | YES | GOOD |
| 64.670 | S-H | G OPEN | | SLIGHT | YES | POOR |
| 66.970 | S-H | G/D/V NONE | | NONE | YES | GOOD |

NOTE : COVER MATR.--> G=GRAVEL; D= DIRT., V=VEG.; C=CONCRETE
 NUMBER OF PLUGGED HEADWALL = 10
 % OF PLUGGED HEADWALL = 18.2

***** PAVEMENT SUBDRAIN EVALUATION *****

ROUTE = I-71
 DIRECTION = SOUTH
 OUTLET = S-H
 NO SCREEN/RUSTED

| MILEPOST | OUTLET | SCREEN | SILT. | FLOW | DRAINAGE | |
|----------|-----------|---------|--------|--------|----------|------|
| 15.860 | PLUGGED | NONE | NONE | YES | POOR | |
| 16.720 | CLEAN | OPEN | RUSTED | YES | GOOD | |
| 21.990 | PT.COVER. | NONE | NONE | YES | GOOD | |
| 23.630 | CLEAN | NONE | NONE | YES | GOOD | |
| 24.860 | PT.COVER. | OPEN | RUSTED | SLIGHT | YES | POOR |
| 25.780 | PT.COVER. | NONE | NONE | YES | GOOD | |
| 26.890 | PLUGGED | BLOCK | RUSTED | SEV. | NO | GOOD |
| 29.840 | PT.COVER. | PT.OPEN | RUSTED | SLIGHT | YES | GOOD |
| 31.710 | CLEAN | NONE | NONE | YES | GOOD | |
| 33.650 | CLEAN | OPEN | RUSTED | NONE | YES | GOOD |
| 34.850 | CLEAN | OPEN | RUSTED | NONE | YES | GOOD |
| 37.140 | PLUGGED | BLOCK | RUSTED | NONE | YES | GOOD |
| 38.820 | PT.COVER. | NONE | RUSTED | SLIGHT | YES | GOOD |
| 40.440 | CLEAN | OPEN | RUSTED | NONE | YES | GOOD |
| 42.010 | PT.COVER. | OPEN | RUSTED | MOD. | YES | POOR |
| 44.640 | CLEAN | OPEN | RUSTED | NONE | YES | GOOD |
| 45.320 | CLEAN | NONE | NONE | YES | GOOD | |
| 47.660 | CLEAN | NONE | RUSTED | NONE | YES | POOR |
| 50.820 | CLEAN | OPEN | RUSTED | NONE | YES | GOOD |
| 53.610 | CLEAN | OPEN | RUSTED | NONE | YES | GOOD |
| 54.830 | CLEAN | OPEN | RUSTED | NONE | YES | GOOD |
| 59.790 | PLUGGED | BLOCK | RUSTED | SLIGHT | YES | GOOD |
| 66.970 | PLUGGED | NONE | NONE | YES | GOOD | |
| 68.800 | CLEAN | NONE | NONE | YES | GOOD | |
| 70.950 | CLEAN | NONE | NONE | YES | GOOD | |
| 71.220 | CLEAN | NONE | NONE | YES | GOOD | |
| 72.620 | CLEAN | NONE | NONE | YES | GOOD | |
| 73.900 | CLEAN | NONE | NONE | YES | GOOD | |
| 74.270 | PT.COVER. | NONE | SLIGHT | YES | GOOD | |
| 75.930 | CLEAN | NONE | NONE | YES | GOOD | |

NUMBER OF HEADWALL W/ NO OR RUSTED SCREEN = 30
 % = 54.5

***** PAVEMENT SUBDRAIN EVALUATION *****

** ALL INSPECTED OUTLET PIPE **

ROUTE = I-71

DIRECTION = SOUTH

INSP. DATE= JULY 1991

| MILEPOST | PIPE TYPE | PIPE CONDITION AT | | | | | | REMARK |
|----------|-----------|-------------------|-----|---|---|---|---|---------------------|
| | | A | B | C | D | E | F | |
| 15.860 | FLEX. 2 | | 5+6 | | | | | 0 % OPEN AT 3.0 |
| 16.720 | FLEX. 2 | | 5 | | | | | 40-60 % OPEN AT 6.0 |
| 17.870 | FLEX. 2 | | 2 | | | 1 | | PIPE OPEN |
| 18.610 | FLEX. 1 | | 2 | | | | | PIPE OPEN |
| 19.330 | FLEX. 2 | | 2+5 | | | | | 40-60 % OPEN AT 7.0 |
| 20.730 | FLEX. 1 | | | | | | | 40-60 % OPEN AT 0.0 |
| 21.990 | RIGID | | | | | | | PIPE OPEN |
| 22.870 | FLEX. 5+6 | | | | | | | 10-20 % OPEN AT 2.5 |
| 23.630 | RIGID | | | | | | | PIPE OPEN |
| 24.860 | FLEX. | | 1+5 | | | | | 40-60 % OPEN AT11.0 |
| 25.780 | FLEX. 6 | | 6 | | | | | 0 % OPEN AT11.0 |
| 26.890 | FLEX. 5+6 | | | | | | | 10-20 % OPEN AT 3.0 |
| 28.340 | FLEX. 2 | | | | | | | PIPE OPEN |
| 29.840 | FLEX. 2 | | 2+3 | | | | | 40-60 % OPEN AT11.0 |
| 30.820 | FLEX. 5 | | 5 | | | | | 20-40 % OPEN AT 8.0 |
| 31.710 | FLEX. 1 | | | | | | | PIPE OPEN |
| 32.950 | FLEX. | | 5 | | | | | 20-40 % OPEN AT 7.5 |
| 33.650 | FLEX. 5 | | 5 | | | | | 0 % OPEN AT 4.0 |
| 34.850 | FLEX. 1 | | 5+6 | | | | | 10-20 % OPEN AT 8.0 |
| 35.780 | FLEX. 1 | | 5 | | | | | 20-40 % OPEN AT 6.0 |
| 36.960 | FLEX. 1+5 | | | | | | | 40-60 % OPEN AT 2.0 |
| 37.140 | FLEX. 5 | | | | | | | 10-20 % OPEN AT 2.0 |
| 38.820 | FLEX. | | 5 | | | | | 40-60 % OPEN AT 9.0 |
| 40.440 | FLEX. | | 5 | | | | | 10-20 % OPEN AT 4.0 |
| 41.730 | FLEX. | | 1+5 | | | | | 40-60 % OPEN AT 5.0 |
| 42.010 | FLEX. | | 2+4 | | | | | 80-100% OPEN |
| 44.640 | FLEX. 1 | | 3 | | | | | PIPE OPEN |
| 45.320 | FLEX. | | 2 | | | | | PIPE OPEN |
| 46.510 | FLEX. 1 | | 1 | | | | | PIPE OPEN |
| 47.660 | FLEX. 1 | | 1+3 | | | | | PIPE OPEN |
| 48.840 | FLEX. 1 | | 4 | | | | | PIPE OPEN |
| 49.320 | FLEX. 2 | | | | | 4 | | PIPE OPEN |
| 50.820 | FLEX. 1 | | | | | | | 40-60 % OPEN AT43.0 |
| 51.740 | FLEX. 5 | | | | | | | 40-60 % OPEN AT 2.0 |
| 53.610 | FLEX. | | | | | | | PIPE OPEN |
| 54.830 | FLEX. 4+5 | | 2 | | | | | PIPE OPEN |
| 55.650 | FLEX. 3 | | 3 | | | | 2 | 80-100% OPEN |
| 56.870 | FLEX. 1+5 | | | | | | | PIPE OPEN |
| 57.890 | FLEX. | | 2 | | | | | PIPE OPEN |
| 58.950 | FLEX. 4 | | 1 | | | 1 | | PIPE OPEN |
| 59.790 | FLEX. | | 2 | | | | | PIPE OPEN |
| 61.500 | FLEX. 4 | | | | | | | 60-80 % OPEN |
| 62.600 | FLEX. | | | | | | | 40-60 % OPEN AT 0.0 |
| 63.310 | FLEX. | | 5 | | | | | 0 % OPEN AT 5.0 |
| 64.670 | FLEX. 1+5 | | | | | 1 | | 80-100% OPEN |
| 65.420 | FLEX. 1+5 | | | | | | | 60-80 % OPEN |

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| | | | |
|--------------|-------|-----|---------------------|
| 66.970 FLEX. | 1+5 | 2 | 80-100% OPEN |
| 67.950 FLEX. | | 4+5 | 40-60 % OPEN AT 0.0 |
| 68.800 FLEX. | 1 | | PIPE OPEN |
| 70.950 FLEX. | 5+6+8 | | PIPE OPEN |
| 71.220 FLEX. | 4+5 | 5 | 0 % OPEN AT 7.0 |
| 72.620 FLEX. | | 2 | PIPE OPEN |
| 73.900 FLEX. | 5 | | 10-20 % OPEN AT 2.0 |
| 74.270 FLEX. | 2+4+5 | 1 | PIPE OPEN |
| 75.930 FLEX. | | | PIPE OPEN |

| | | |
|--|---|----|
| NUMBER OF OPEN OUTLET PIPE | = | 23 |
| % OF OPEN OUTLET PIPE | = | 42 |
| NUMBER OF COMPRESSED/BLOCKED OUTLET PIPE | = | 32 |
| % OF COMPRESSED/BLOCKED OUTLET PIPE | = | 58 |

***** PAVEMENT SUBDRAIN EVALUATION *****

** OPEN OUTLET PIPE **

ROUTE = I-71

DIRECTION = SOUTH

INSP.DATE = JULY 1991

| MILEPOST | PIPE TYPE | PIPE CONDITION AT | | | | | | REMARK |
|----------|-------------|-------------------|-----|---|---|---|--------------|--------|
| | | A | B | C | D | E | F | |
| 17.870 | FLEX. 2 | | 2 | | | 1 | | |
| 18.610 | FLEX. 1 | | 2 | | | | | |
| 21.990 | RIGID | | | | | | | |
| 23.630 | RIGID | | | | | | | |
| 28.340 | FLEX. 2 | | | | | | | |
| 31.710 | FLEX. 1 | | | | | | | |
| 42.010 | FLEX. | | 2+4 | | | | 80-100% OPEN | |
| 44.640 | FLEX. 1 | | 3 | | | | | |
| 45.320 | FLEX. | | 2 | | | | | |
| 46.510 | FLEX. 1 | | 1 | | | | | |
| 47.660 | FLEX. 1 | | 1+3 | | | | | |
| 48.840 | FLEX. 1 | | 4 | | | | | |
| 49.320 | FLEX. 2 | | | | | 4 | | |
| 53.610 | FLEX. | | | | | | | |
| 54.830 | FLEX. 4+5 | | 2 | | | | | |
| 55.650 | FLEX. 3 | | 3 | | | | | |
| 56.870 | FLEX. 1+5 | | | | | 2 | 80-100% OPEN | |
| 57.890 | FLEX. | | 2 | | | | | |
| 58.950 | FLEX. 4 | | 1 | | | 1 | | |
| 59.790 | FLEX. | | 2 | | | | | |
| 64.670 | FLEX. 1+5 | | | | | 1 | 80-100% OPEN | |
| 66.970 | FLEX. 1+5 | | 2 | | | | 80-100% OPEN | |
| 68.800 | FLEX. 1 | | | | | 2 | | |
| 70.950 | FLEX. 5+6+8 | | | | | | | |
| 72.620 | FLEX. | | 2 | | | 3 | | |
| 74.270 | FLEX. 2+4+5 | | 1 | | | | | |
| 75.930 | FLEX. | | | | | 3 | | |

NUMBER OF OPEN OUTLET PIPE = 27
 % OF OPEN OUTLET PIPE = 49.1

***** PAVEMENT SUBDRAIN EVALUATION *****

* COMPRESSED/BLOCKED OUTLET PIPE *

ROUTE = I-71

DIRECTION = SOUTH

INSP.DATE = JULY 1991

| MILEPOST | PIPE TYPE | PIPE CONDITION AT | | | | | | REMARK |
|----------|-----------|-------------------|-----|---|---|---|---|----------------------|
| | | A | B | C | D | E | F | |
| 15.860 | FLEX. 2 | | 5+6 | | | | | 0 % OPEN AT 3.0 |
| 16.720 | FLEX. 2 | | 5 | | | | | 40-60 % OPEN AT 6.0 |
| 19.330 | FLEX. 2 | | 2+5 | | | | | 40-60 % OPEN AT 7.0 |
| 20.730 | FLEX. 1 | | | | | | | 40-60 % OPEN AT 0.0 |
| 22.870 | FLEX. 5+6 | | | | | | | 10-20 % OPEN AT 2.5 |
| 24.860 | FLEX. | | 1+5 | | | | | 40-60 % OPEN AT 11.0 |
| 25.780 | FLEX. 6 | | 6 | | | | | 0 % OPEN AT 11.0 |
| 26.890 | FLEX. 5+6 | | | | | | | 10-20 % OPEN AT 3.0 |
| 29.840 | FLEX. 2 | | 2+3 | | | | | 40-60 % OPEN AT 11.0 |
| 30.820 | FLEX. 5 | | 5 | | | | | 20-40 % OPEN AT 8.0 |
| 32.950 | FLEX. | | 5 | | | | | 20-40 % OPEN AT 7.5 |
| 33.650 | FLEX. 5 | | 5 | | | | | 0 % OPEN AT 4.0 |
| 34.850 | FLEX. 1 | | 5+6 | | | | | 10-20 % OPEN AT 8.0 |
| 35.780 | FLEX. 1 | | 5 | | | | | 20-40 % OPEN AT 6.0 |
| 36.960 | FLEX. 1+5 | | | | | | | 40-60 % OPEN AT 2.0 |
| 37.140 | FLEX. 5 | | | | | | | 10-20 % OPEN AT 2.0 |
| 38.820 | FLEX. | | 5 | | | | | 40-60 % OPEN AT 9.0 |
| 40.440 | FLEX. | | 5 | | | | | 10-20 % OPEN AT 4.0 |
| 41.730 | FLEX. | | 1+5 | | | | | 40-60 % OPEN AT 5.0 |
| 50.820 | FLEX. 1 | | | | | | | 40-60 % OPEN AT 43.0 |
| 51.740 | FLEX. 5 | | | | | | | 40-60 % OPEN AT 2.0 |
| 61.500 | FLEX. 4 | | | | | | | 60-80 % OPEN |
| 62.600 | FLEX. | | | | | | | 40-60 % OPEN AT 0.0 |
| 63.310 | FLEX. | | 5 | | | | | 0 % OPEN AT 5.0 |
| 65.420 | FLEX. 1+5 | | | | | | | 60-80 % OPEN |
| 67.950 | FLEX. | | 4+5 | | | | | 40-60 % OPEN AT 0.0 |
| 71.220 | FLEX. 4+5 | | 5 | | | | | 0 % OPEN AT 7.0 |
| 73.900 | FLEX. 5 | | | | | | | 10-20 % OPEN AT 2.0 |

NUMBER OF BLOCKED/COMPRESSED OUTLET PIPE = 28
 % OF BLOCKED/COMPRESSED OUTLET PIPE = 50.9