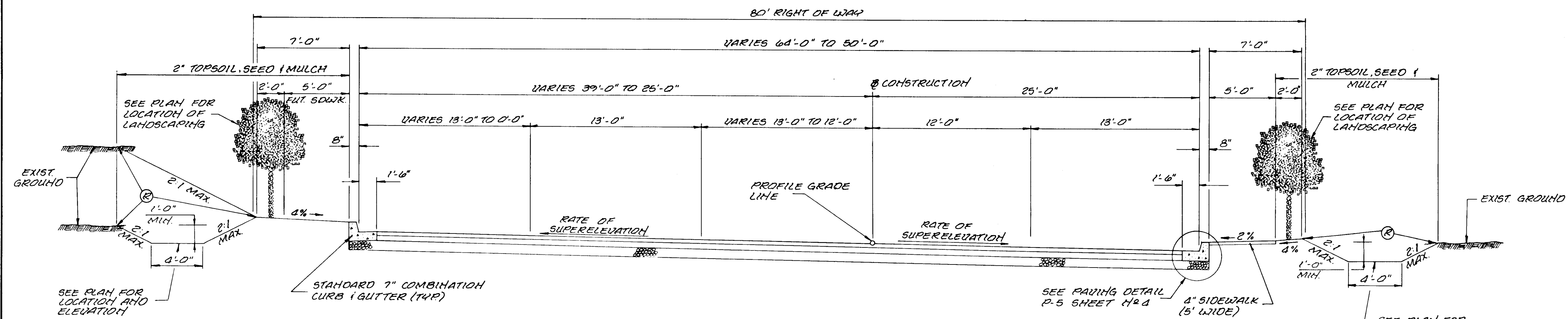


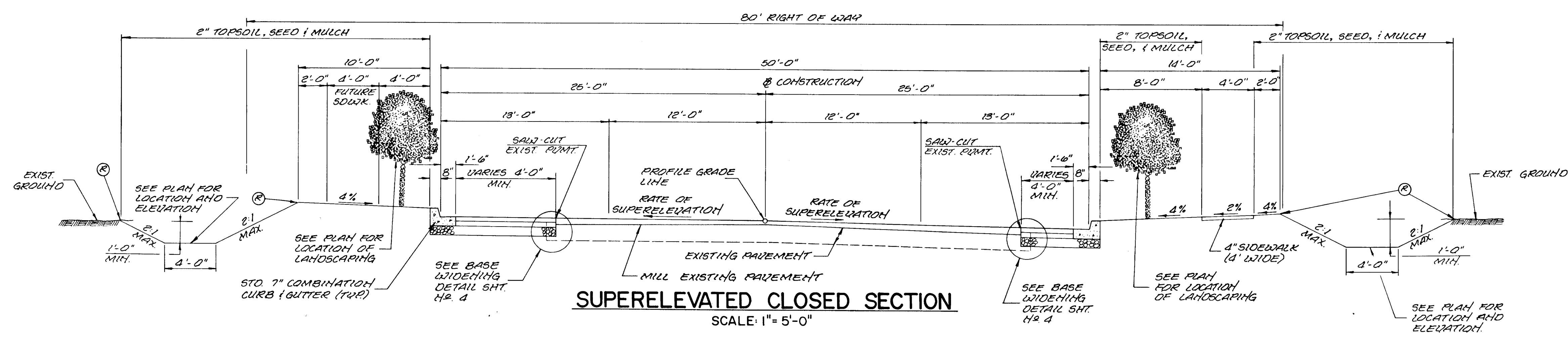
NORMAL CLOSED SECTION
SCALE: 1" = 5'-0"

STA. 0+50 TO STA. 1+59.34



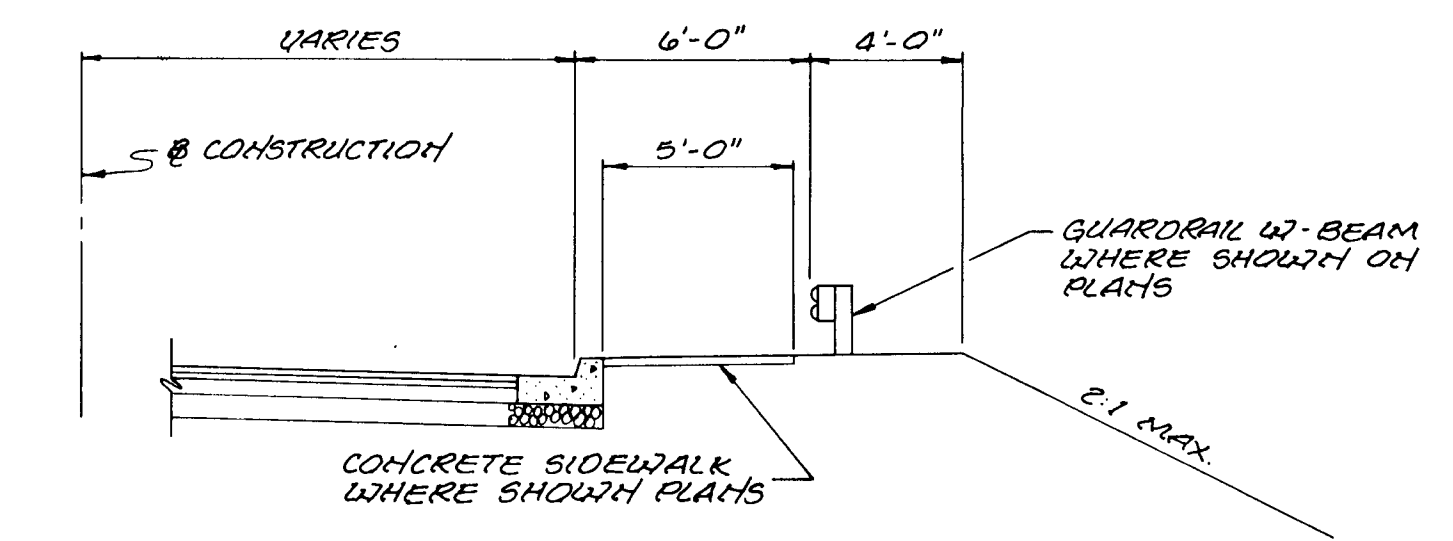
SUPERELEVATED CLOSED SECTION
SCALE: 1" = 5'-0"

STA. 1+59.34 TO STA. 8+58.33



SUPERELEVATED CLOSED SECTION
SCALE: 1" = 5'-0"

STA. 8+58.33 TO STA. 11+08.33



TYPICAL GUARDRAIL W-BEAM PLACEMENT DETAIL
NTS

REFERENCES

1. SEE STRIPING LEGEND SHEET # 32
2. FOR ROUNDING DETAIL SEE SHEET # 4
3. FOR SURFACE OVERLAY & BASE WIDENING NOTES SEE SHEET # 4
4. FOR SIDE DITCH TREATMENT, SEE SIDE DITCH STABILIZATION SCHEDULE, SHT. # 18a.

⊙ DENOTES ROUNDING

- GENERAL NOTES**
1. Right of way lines shown on these Plans are shown for assistance in interpreting the plans. For any Fee right of Way and Easement Information, See Right of Way Plans.
 2. Endwalls are not to be constructed until grading is completed.
 3. Existing Private Sidewalks disturbed by the work shall be reconstructed. Steps shall be provided where necessary as a result of grading.
 4. All Pipe Elevations are invert Elevations.
 5. All Slopes and or Disturbed Areas shall receive Solid Sodding on lawn areas and Seeding and Mulching for areas around trees and bushes except where otherwise indicated on the plans or as directed by the Engineer.
 6. The Contractor shall install and maintain all temporary Sediment Control Measures as shown on the drawings. However, any Sediment Control Measures not Specifically indicated in the Contract Documents, but required as a result of the Contractor's Excavations or activities shall not be cause for Extra Payment.
 7. Location Points for Inlets, Manholes and Structures

Item	Horizontal Location	Vertical Location
Curb Type Inlets	Center Face of Curb	Top of Curb
Grate Type Inlets	Center of Grate	Top of Grate
Manholes	Center of Structure	Top of Structure
Structures w/Stack	Center of Structure	Top of Structure
Endwalls	Center of Wall	Top of Wall
 8. Approximate location of existing utilities are shown. The Contractor shall take all necessary precautions to protect existing utilities and to maintain uninterrupted service. Any damage incurred shall be repaired immediately to the satisfaction of the Engineer by the Contractor at the Contractor's expense.
 9. The Contractor shall locate Existing Utilities a minimum of two weeks in advance of Construction operations in vicinity of utilities. Costs for locating existing utilities and for adjusting utility appurtenances to meet finished grades will be included in other items of the Contract.
 10. Contractor shall notify Property Owners 48 hours in advance when relocating water meter vaults. All relocations of fire hydrant and water meter vaults shall be coordinated with the Bureau of Utilities a minimum of 48 hours in advance.
 11. Contractor shall notify the following utilities or agencies at least five (5) days before starting work shown on these plans.
 - Miss Utility (Collect) 257-7777
 - Baltimore Gas & Electric Company - Underground Electric Distribution Engineering "Damage Control" 234-6313.
 - Baltimore Gas & Electric Company Underground Gas Distribution Engineering 234-5533.
 - Chesapeake and Potomac Telephone Company 597-8585
 - State Highway Administration 531-5533
 - Howard County Bureau of Utilities 313-4900
 - Howard Cable TV 461-1156
 - Howard County Division of Traffic Engineering 313-2430
 12. All manholes shall be 4'-0" inside diameter.
 13. Standard Details for this Contract shall be the Howard County Standard Details as Supplemented by the Maryland State Highway Administration Standard Details, Maryland State Standards & Specifications, for Soil Erosion & Sediment Control and Manual on Uniform Traffic Control Devices of the U.S. Department of Transportation.
 14. Trees are to be protected from damage to the maximum extent.
 15. Contractor shall remove trees, stumps and roots, along line of excavation as directed by the Engineer. Payment for such removal shall be included in the lump sum price bid for Clearing and Grubbing.
 16. Place regulation "Men Working" and warning signs as required to comply with Maryland State Highway Administration Manual of Traffic Control for Highway Construction and Maintenance Operations.
 17. Top Elevations of structures shall be adjusted in the field to meeting existing conditions as directed by the Engineer.
 18. Grading shall be done in such a manner so as to insure positive drainage to the proposed Inlet Structures.
 19. Horizontal and Vertical controls are based on the Maryland State Grid Coordinate System.
 20. Clearance between existing and proposed utilities shall be a minimum of 6'. Clearance between all utility poles and proposed utilities shall be a minimum of 2'-0". Cost of bracing at poles shall be included in the bid for Storm Drain Items.
 21. Size and type of pipe utilized for through-wall connections between all Inlets. Installations will be equivalent to the outlet pipe.
 22. See Plan Sheet Nos. 8-11 and Special Provisions for Maintenance of Traffic Information.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

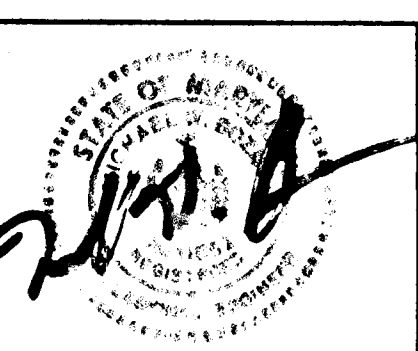
Samuel W. ... 9/5/91
DIRECTOR OF PUBLIC WORKS DATE

William W. ... 9/5/91
CHIEF, BUREAU OF HIGHWAYS DATE

James ... 8/28/91
CHIEF DIVISION OF ROADS, BRIDGES & STORM DRAINAGE DATE

JOHN E. HARMS, JR. & ASSOCIATES, INC.

CONSULTING ENGINEERS
90 GOV. RITCHIE HIGHWAY
PASADENA, MARYLAND



DES: R.L.S.
DRN: J.R.R.
CHK: E.C.H.
DATE: 7/91

J.R.R. BY NO. REVISION

REVISOR: REVISED ROGERS AVE., U.S. ROUTE 40 INTERSECTION
DATE: 1-2-92

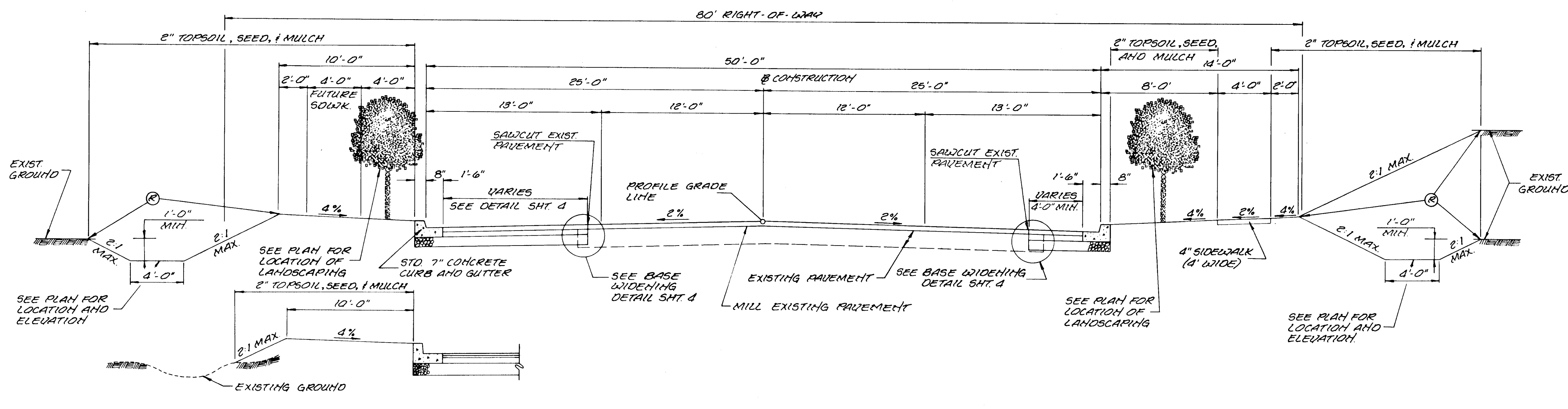
TYPICAL SECTIONS & GENERAL NOTES

600' SCALE MAP NO. _____ BLOCK NO. _____

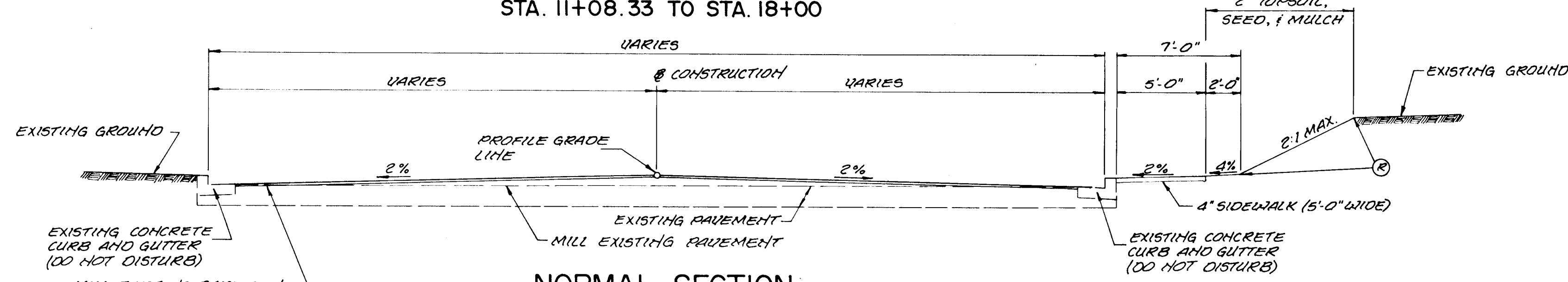
ROGERS AVENUE

CAPITAL PROJECT No. J-4097

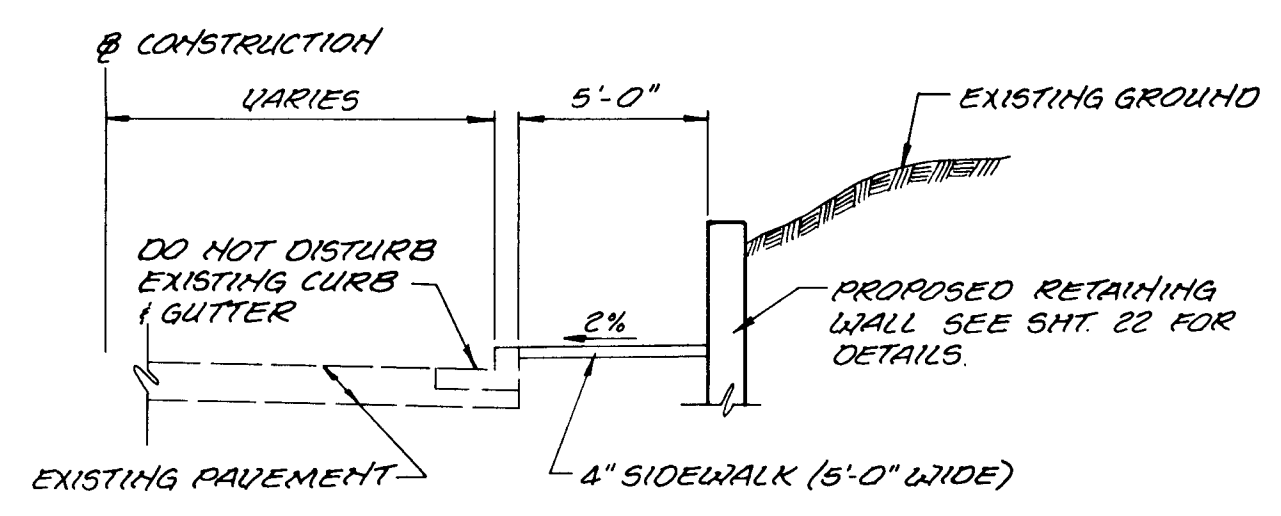
SCALE AS SHOWN
SHEET 2 OF 36



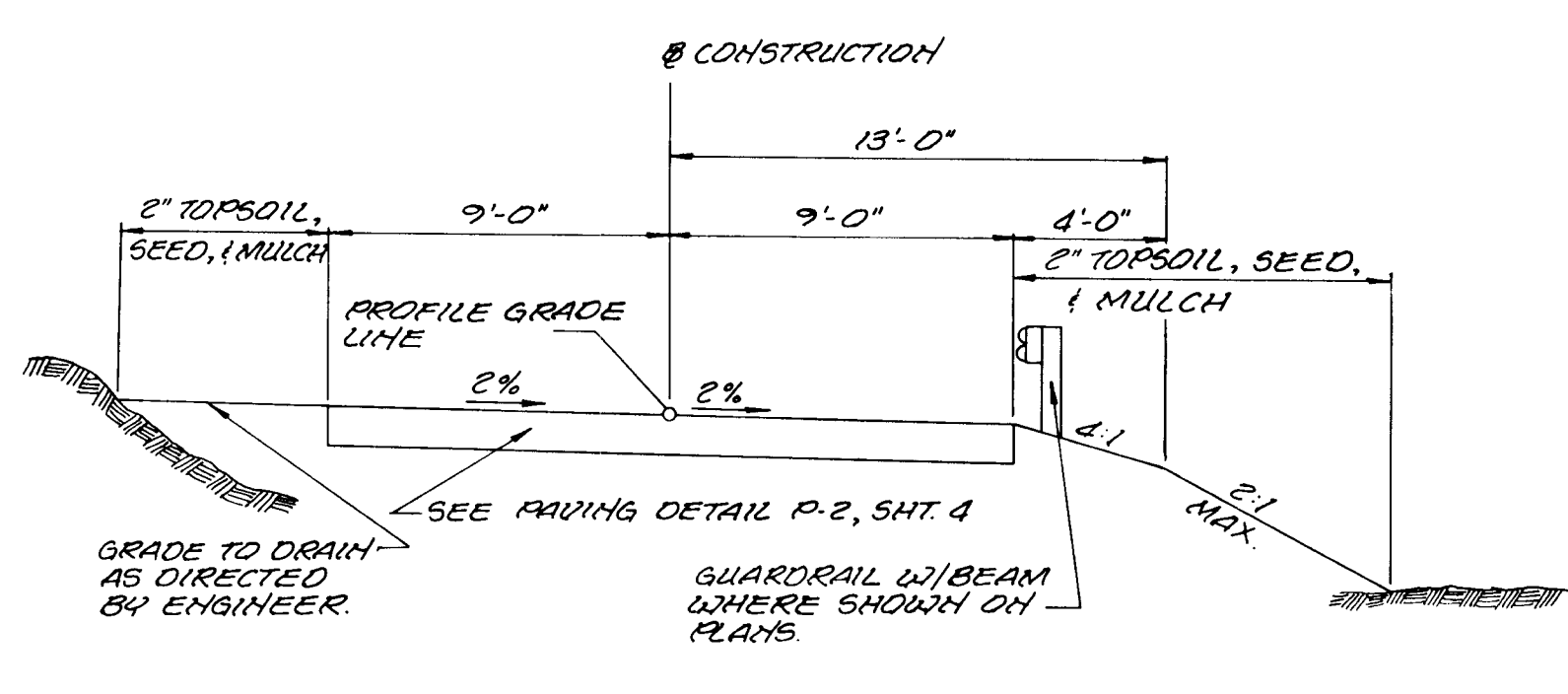
NORMAL CLOSED SECTION
SCALE: 1"=5'-0"



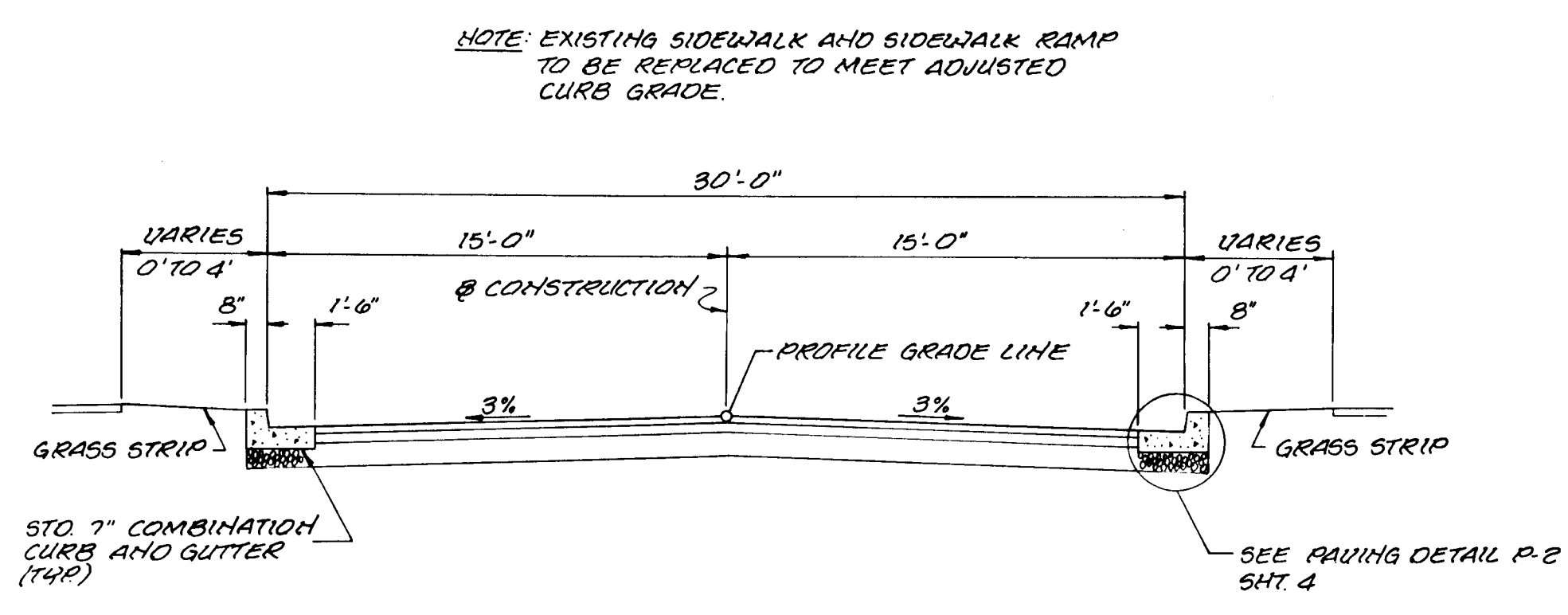
NORMAL SECTION
N.T.S.



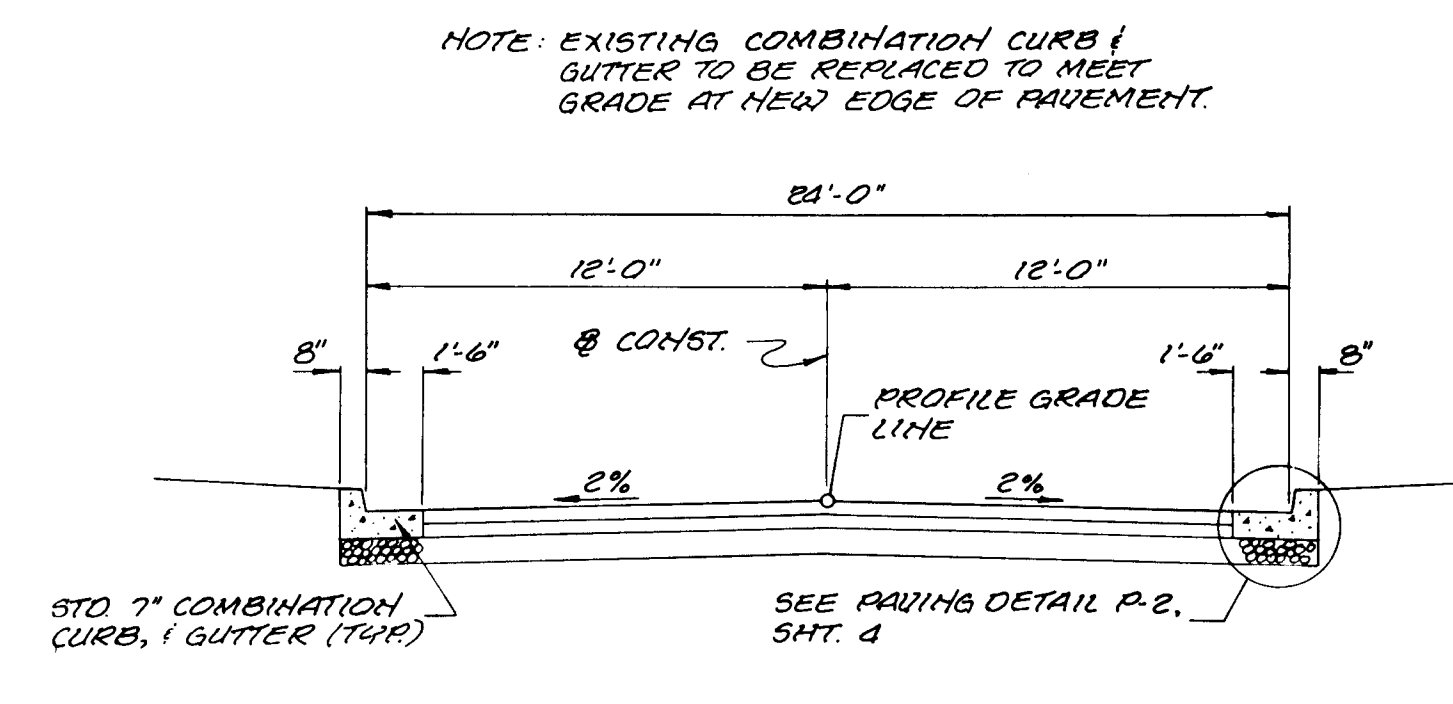
NORMAL SECTION
N.T.S.



TYPICAL SECTION
OUR LADY OF HOPE ENTRANCE
SCALE: 1"=5'-0"



NORMAL CLOSED SECTION
OAK WEST DRIVE
SCALE: 1"=5'-0"



NORMAL CLOSED SECTION
LINWOOD DRIVE
SCALE: 1"=5'-0"

REFERENCES

1. SEE STRIPING LEGEND SHEET H-2, 32
 2. FOR ROUNDING DETAIL SEE SHEET H-2, 4
 3. FOR SURFACE OVERLAY & BASE WIDENING NOTES SEE SHEET H-2, 4
 4. FOR SIDE DITCH TREATMENT, SEE SIDE DITCH STABILIZATION SCHEDULE, SHT. H-2, 18a
- Ⓢ DENOTES ROUNDING

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

James P. Lane 9/5/91
DIRECTOR OF PUBLIC WORKS DATE

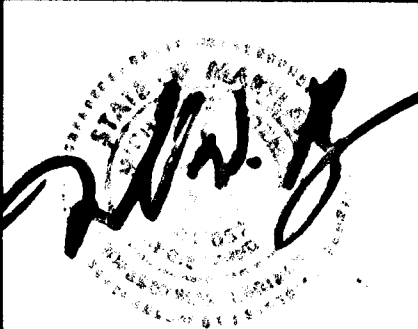
William W. Heiland 9/5/91
CHIEF, BUREAU OF HIGHWAY DATE

William W. Heiland 8/28/91
CHIEF, BUREAU OF ENGINEERING DATE

William W. Heiland 8/28/91
CHIEF, DIVISION OF ROADS, BRIDGES & STORM DRAINAGE DATE

JOHN E. HARMS, JR. & ASSOCIATES, INC.

CONSULTING ENGINEERS
90 GOV. RITCHIE HIGHWAY
PASADENA, MARYLAND



DES: R.L.S			
DRN: J.R.R			
CHK: E.C.H			
DATE: 7/91			
BY	NO.	REVISION	DATE
J.R.R	1	REVISED ROGERS AVE. W/S ROUTE 40 INTERSECTION	7-2-92

TYPICAL SECTIONS

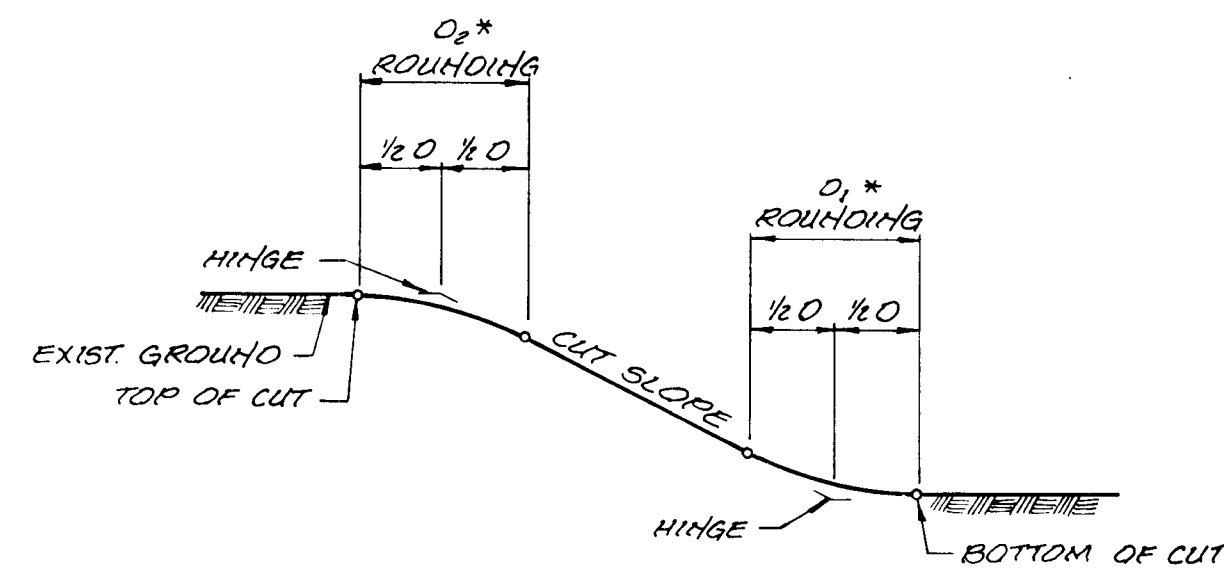
600' SCALE MAP NO. _____ BLOCK NO. _____

ROGERS AVENUE

CAPITAL PROJECT No. J-4097

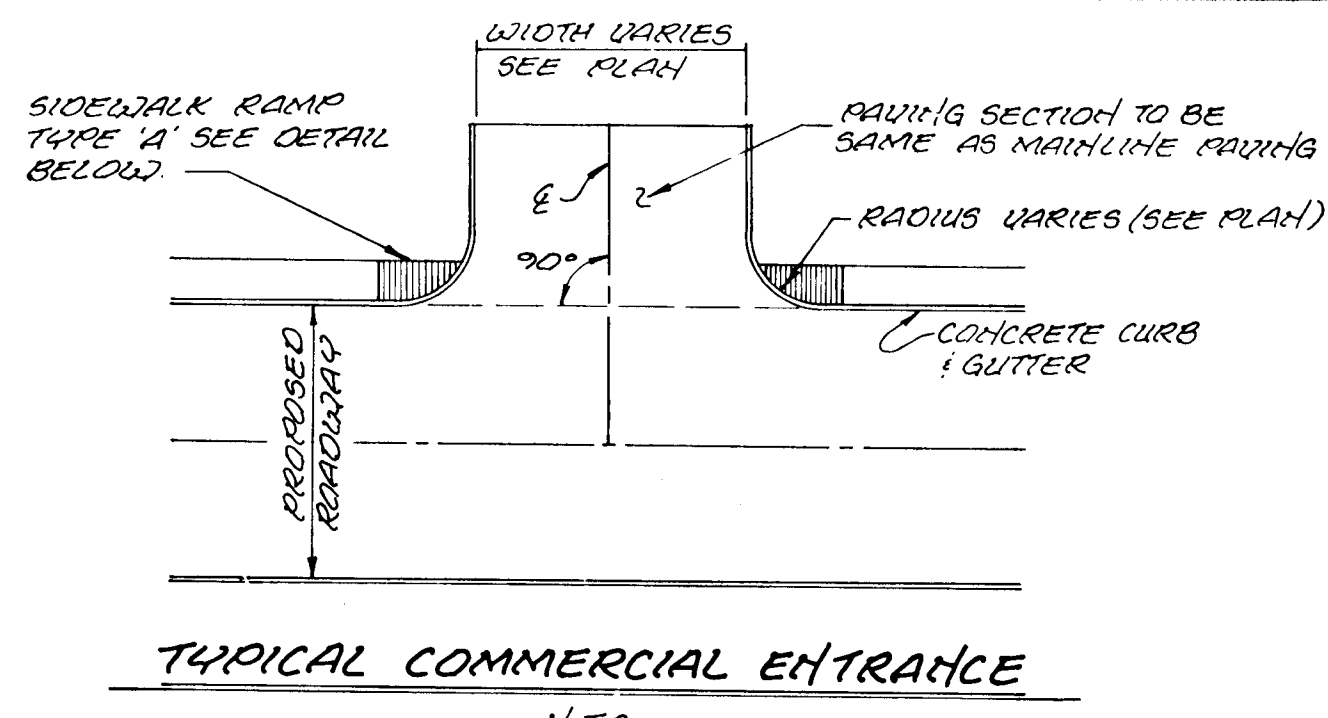
SCALE AS SHOWN

SHEET 3 OF 36

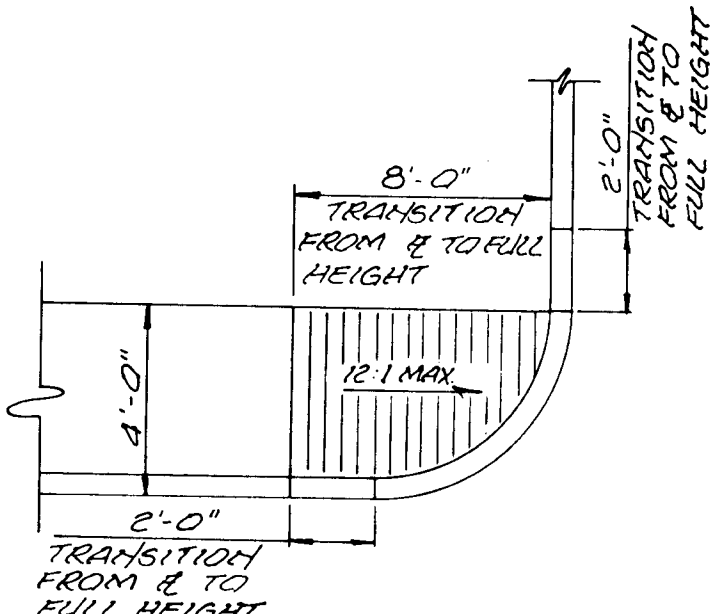


$D_1 = 3'$ ALONG ROGERS AVE.
 $D_1 = 2'$ ALONG LINWOOD DR. & OUR LADY'S DRIVEWAY
 $D_1 = 10'$ ALONG ROGERS AVE.
 $D_1 = 5'$ ALONG LINWOOD DR. & OUR LADY'S DRIVEWAY

ROUNDOFF DETAIL
H.T.S.



TYPICAL COMMERCIAL ENTRANCE
H.T.S.

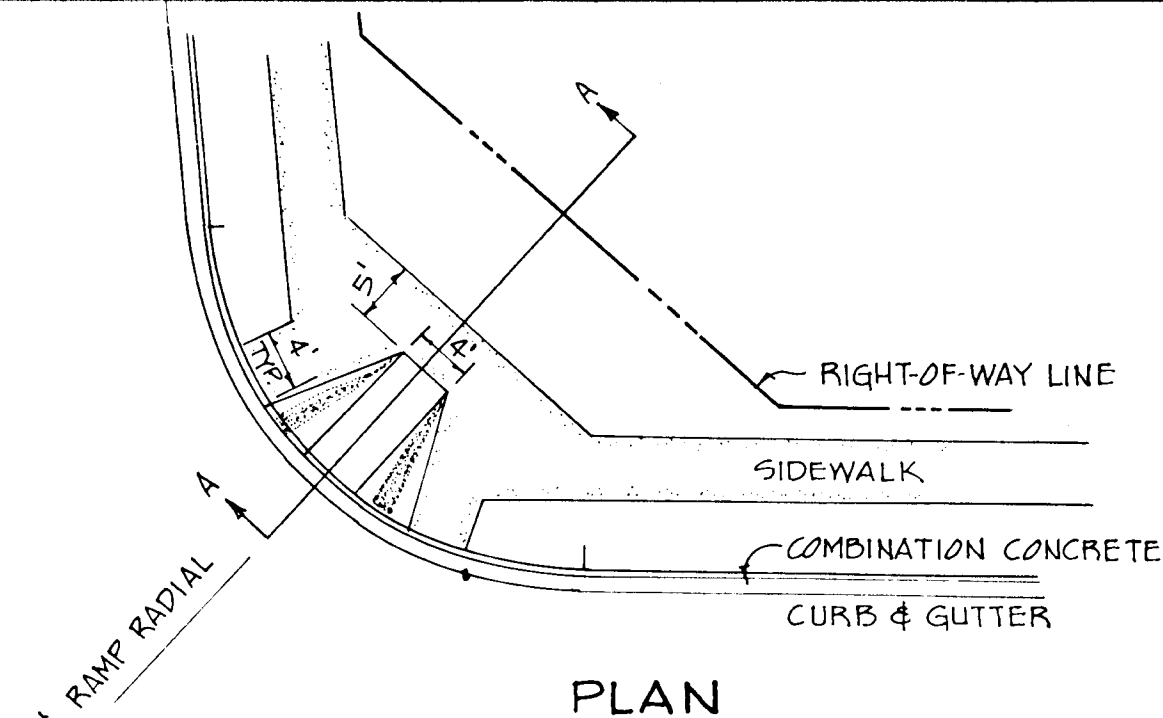


SIDEWALK RAMP - TYPE "A"
H.T.S.

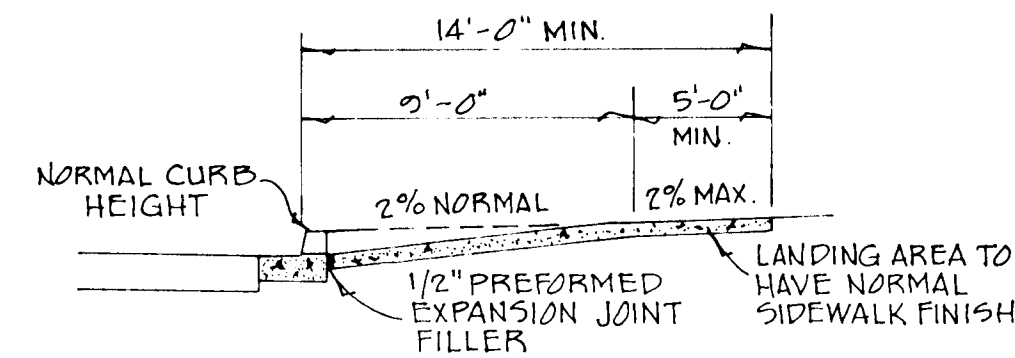
STD 7" COMBINATION CURB & GUTTER (R-3.01)

- (A) 1 1/2" BITUMINOUS CONCRETE SURFACE (SF)
- (B) 2 1/2" BITUMINOUS CONCRETE BASE (B1)
- (C) 8" CRUSHER RUN BASE COURSE, (2 COURSES - 4" EACH)

LINWOOD DR & OAKWEST DR., APPROACHES
PAVING DETAIL P-2
NOT TO SCALE



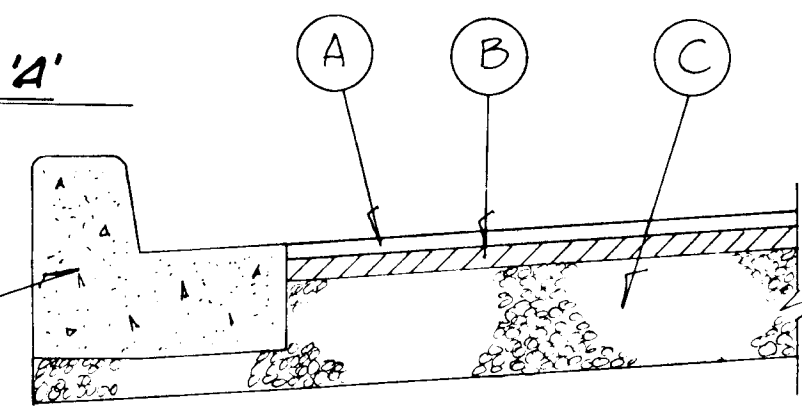
PLAN



NOTE: SEE STD DETAIL R-4.01

SECTION A-A
MODIFIED SIDEWALK RAMP

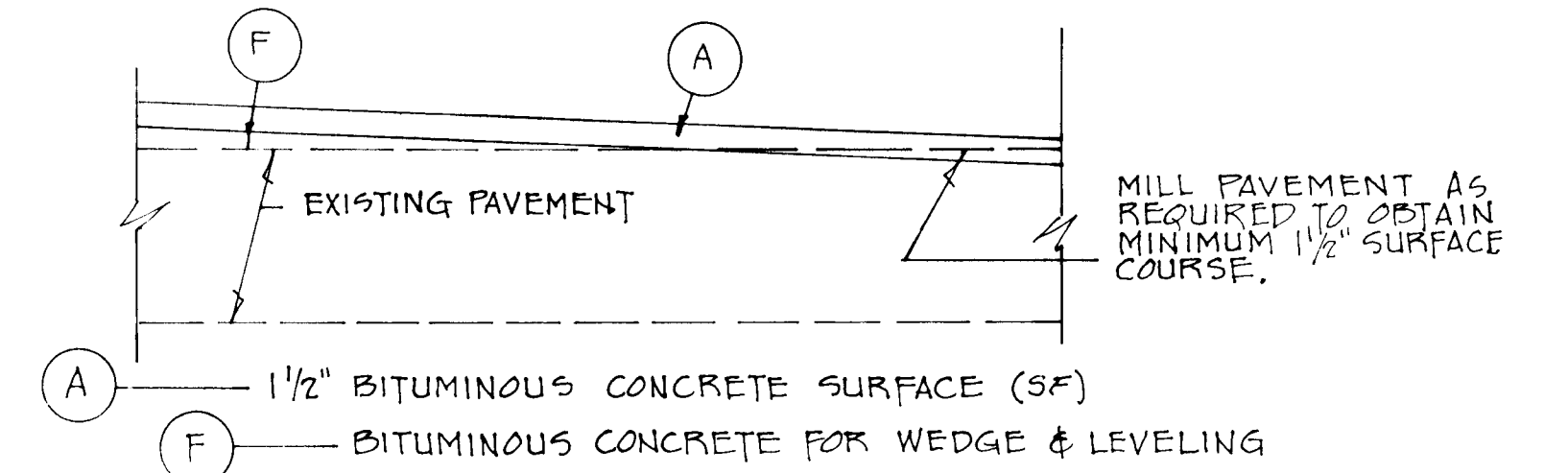
NOT TO SCALE
STA 10+50 LT
STA 11+00 LT



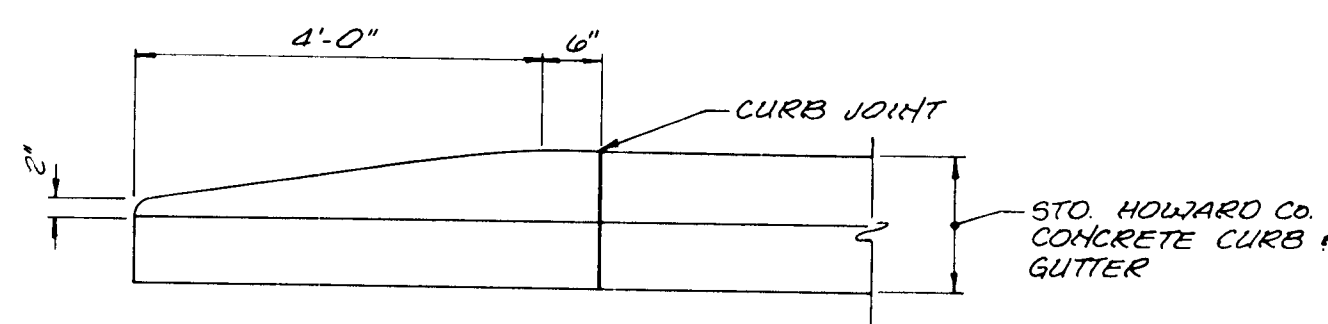
ROADWAY CONSTRUCTION LEGEND

- SURFACE OVERLAY (SEE PAVING OVERLAY DETAIL, THIS SHEET)
- ROGERS AVE FULL DEPTH PAVEMENT (SEE PAVING DETAIL THIS SHEET & TYP SECTION, SHEETS)
- CURB & GUTTER (SEE STANDARD R-301)
- PROPOSED CONCRETE SIDEWALK
- STORM DRAINS
- INLETS

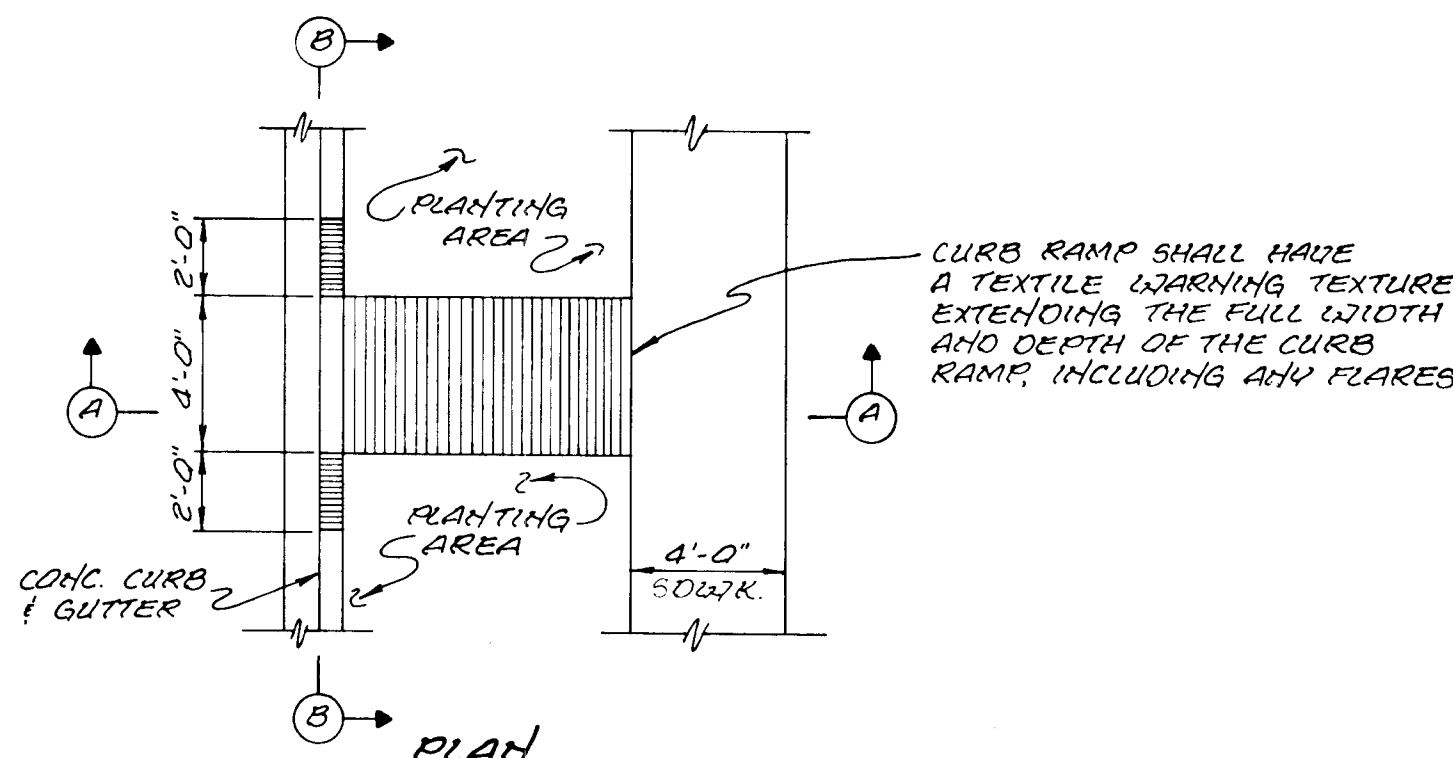
-C-----C- DENOTES CUT LINE
 -F-----F- DENOTES FILL LINE



ROGERS AVE. - OVERLAY DETAIL
NOT TO SCALE

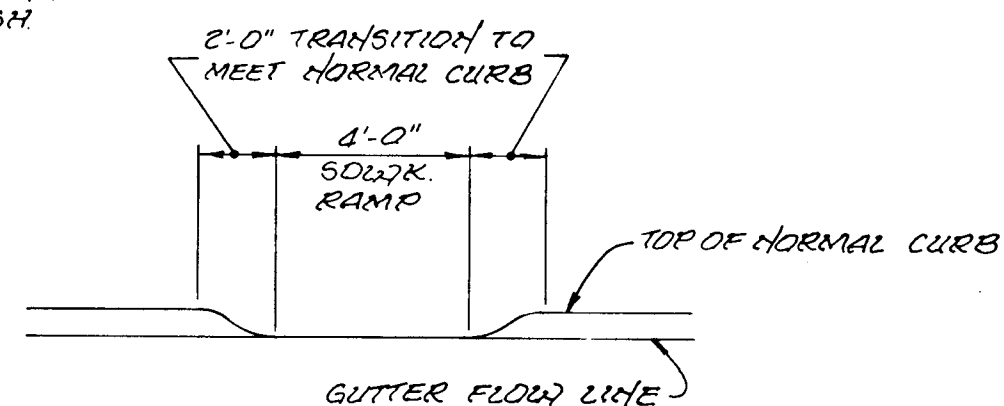


HOSE DOWN CURB DETAIL
H.T.S.



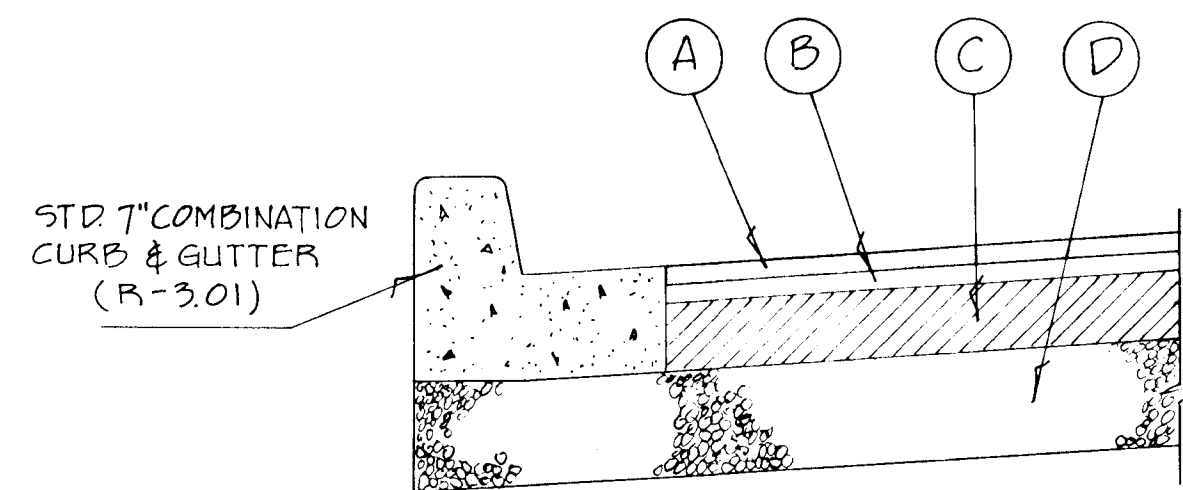
SURFACE TEXTURE OF CONCRETE RAMP SHALL BE COURSE BRIDGING OR OTHER HOY-SKID TYPE FINISH

SECTION A-A



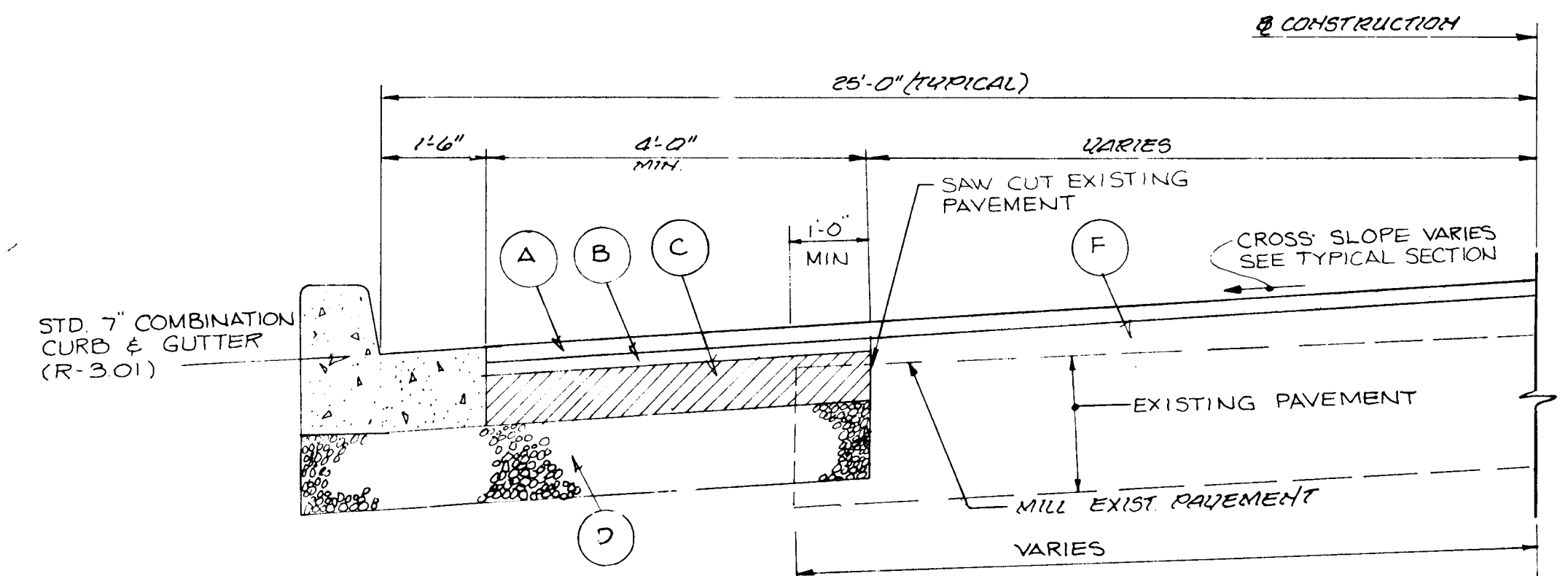
SECTION B-B

SIDEWALK RAMP STA. 10+25 RT.
H.T.S.



- (A) 1 1/2" BITUMINOUS CONCRETE SURFACE (SF)
- (B) 1 1/2" BITUMINOUS CONCRETE BASE (B1)
- (C) 5" BITUMINOUS CONCRETE BASE (B1)
- (D) 6 1/2" CRUSHER RUN BASE COURSE, (2 COURSES - 6" MAX DEPTH PER COURSE)

ROGERS AVENUE
PAVING DETAIL P-5
NOT TO SCALE



- (A) 1 1/2" BITUMINOUS CONCRETE SURFACE (SF)
- (B) 1 1/2" BITUMINOUS CONCRETE BASE (B1)
- (C) 5" BITUMINOUS CONCRETE BASE (B1)
- (D) 9 1/2" CRUSHER RUN BASE COURSE, (2 COURSES - 6" MAX DEPTH PER COURSE)
- (F) BITUMINOUS CONCRETE FOR WEDGE/LEVELING

NOTE-A: WHEN EXISTING TRAVEL LANE IS LESS THAN THE REQUIRED 12' LANE CONTRACTOR SHALL REMOVE ENOUGH OF THE EXISTING ROAD BED TO PROVIDE A MINIMUM BASE WIDENING OF 4'.

NOTE-C: SURFACE OVERLAY COURSE TO BE MINIMUM OF SURFACE COURSE OF TYPICAL PAVING SECTION.

BASE WIDENING DETAIL
NOT TO SCALE

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

JOHN E. HARMS, JR. & ASSOCIATES, INC.

CONSULTING ENGINEERS
90 GOV. RITCHIE HIGHWAY
PASADENA, MARYLAND

DES: DLS			
DN: FAL			
CHK: ECH			
DATE: 7/91	J.R.R.	7-2-92	REVISION
	BY	NO	

PAVING LEGEND &
MISCELLANEOUS DETAILS

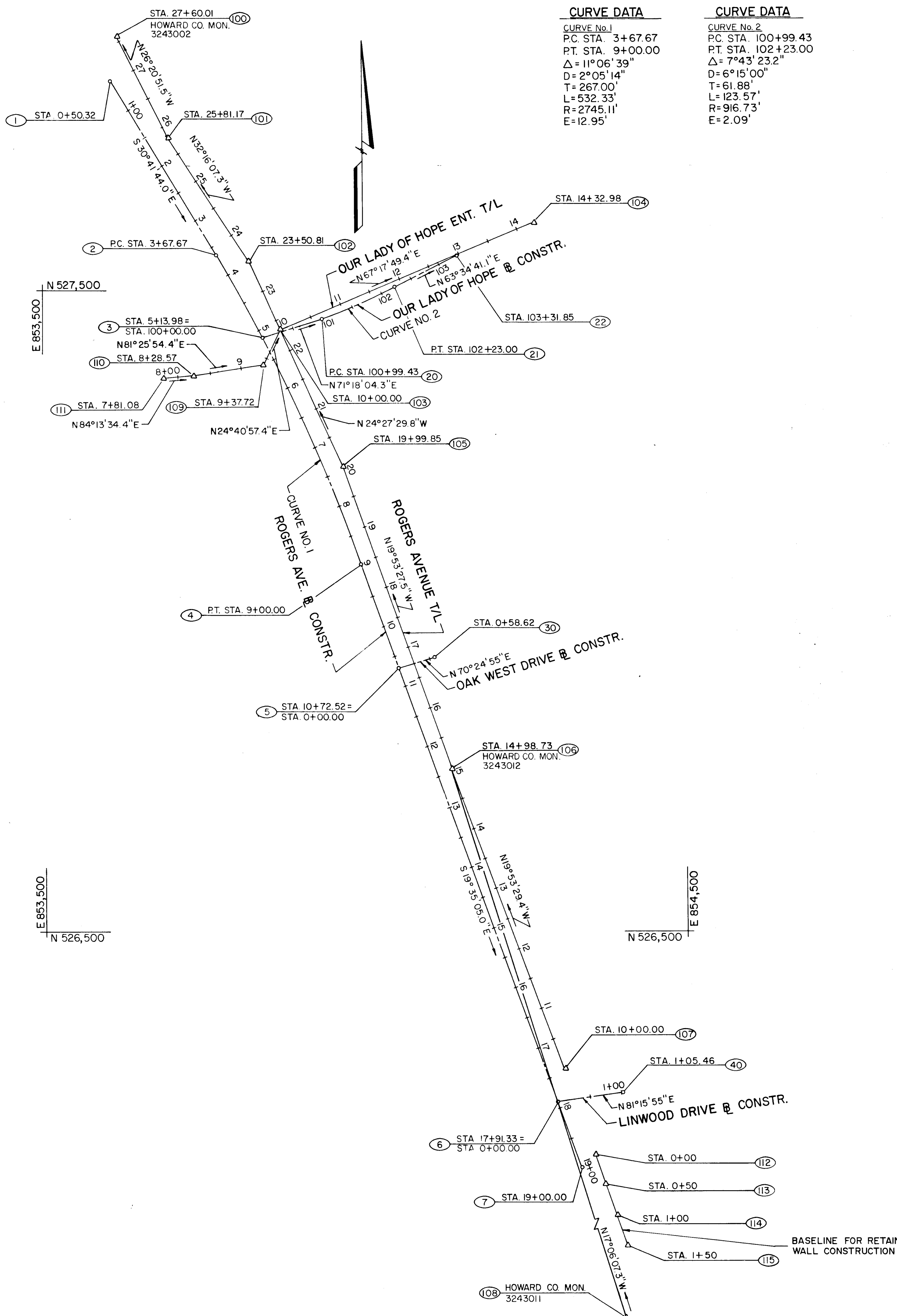
ROGERS AVENUE

SCALE
AS
SHOWN

SHEET
4 OF 36

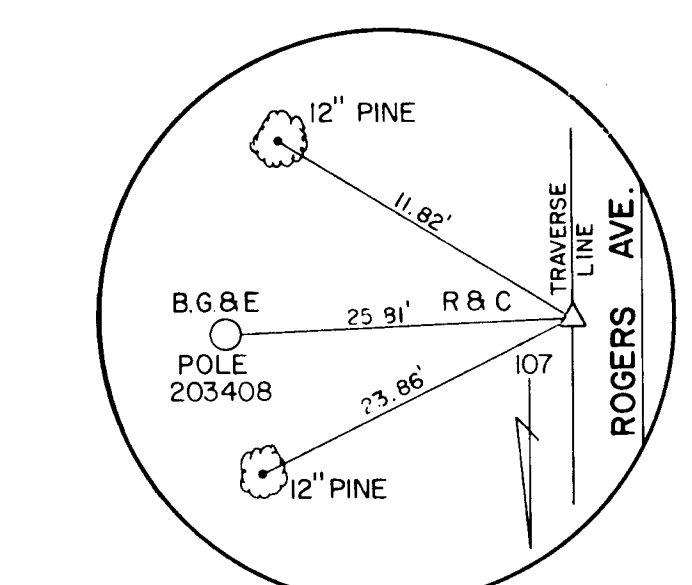
CAPITAL PROJECT No. J-4097

Director of Public Works: *James P. ...* DATE: 8-29-91
 Chief, Bureau of Engineering: *...* DATE: 8/28/91
 Chief, Division of Roads, Bridges & Storm Drainage: *...* DATE: 8/28/91

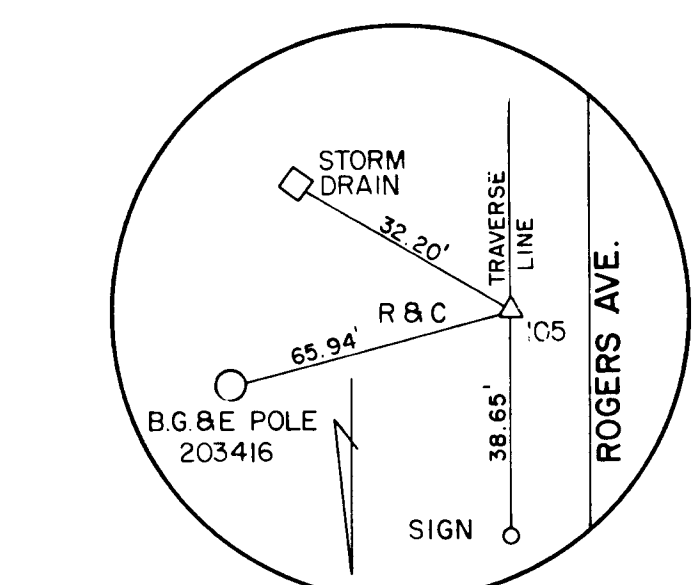


CURVE DATA		CURVE DATA	
CURVE No. 1	PC STA. 3+67.67	CURVE No. 2	PC STA. 100+99.43
PT. STA. 9+00.00		PT. STA. 102+23.00	
$\Delta = 11^{\circ}06'39''$		$\Delta = 7^{\circ}43'23.2''$	
$D = 2^{\circ}05'14''$		$D = 6^{\circ}15'00''$	
$T = 267.00'$		$T = 61.88'$	
$L = 532.33'$		$L = 123.57'$	
$R = 2745.11'$		$R = 916.73'$	
$E = 12.95'$		$E = 2.09'$	

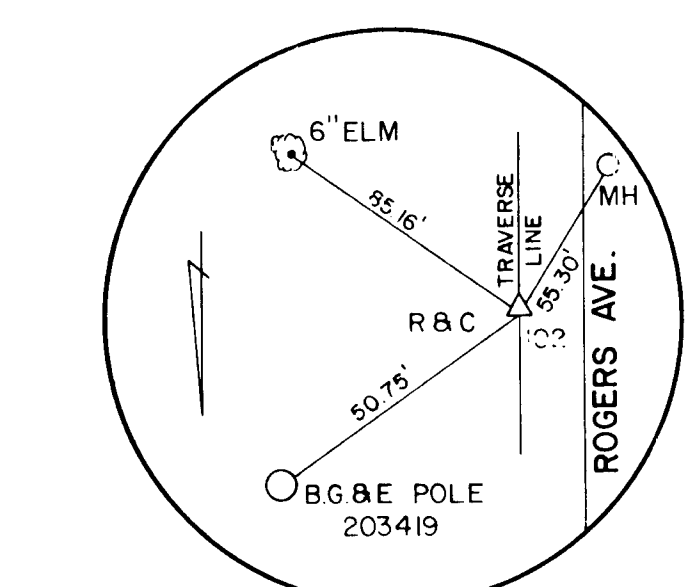
LIST OF COORDINATES		
PT. #	NORTH	EAST
1	527,826.8830	853,609.0444
2	527,554.0009	853,771.0413
3	527,426.2545	853,842.3445
4	527,072.8510	853,996.8396
5	526,910.3118	854,054.6684
6	526,233.0872	854,295.6138
7	526,130.7041	854,332.0400
20	527,458.1316	853,936.5278
21	527,505.5041	854,050.5552
22	527,553.9403	854,148.0356
30	526,929.9613	854,109.8970
40	526,249.1024	854,399.8506
100	527,899.393	853,619.674
101	527,739.1329	853,699.0453
102	527,544.3536	853,822.0307
103	527,439.9993	853,870.5082
104	527,607.1094	854,269.9402
105	527,224.8862	853,967.3395
106	526,753.663	854,137.836
107	526,284.6879	854,307.5238
108	525,808.490	854,428.646
109	527,383.4096	853,844.5006
110	527,367.1477	853,736.5688
111	527,362.3701	853,689.3197
112	526,150.4330	854,352.9444
113	526,103.2877	854,369.5973
114	526,056.1424	854,386.2503
115	526,008.9971	854,402.9032



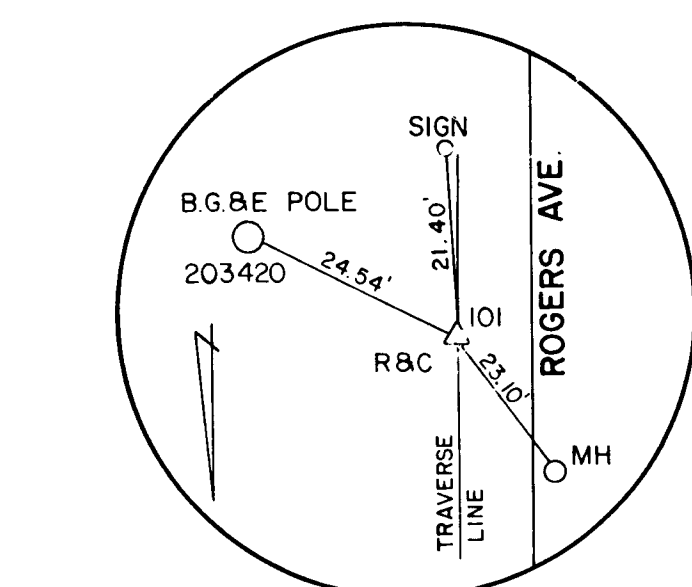
STA. 10+00
TRAVERSE LINE - ROGERS AVE.



STA. 19+99.85
TRAVERSE LINE - ROGERS AVE.



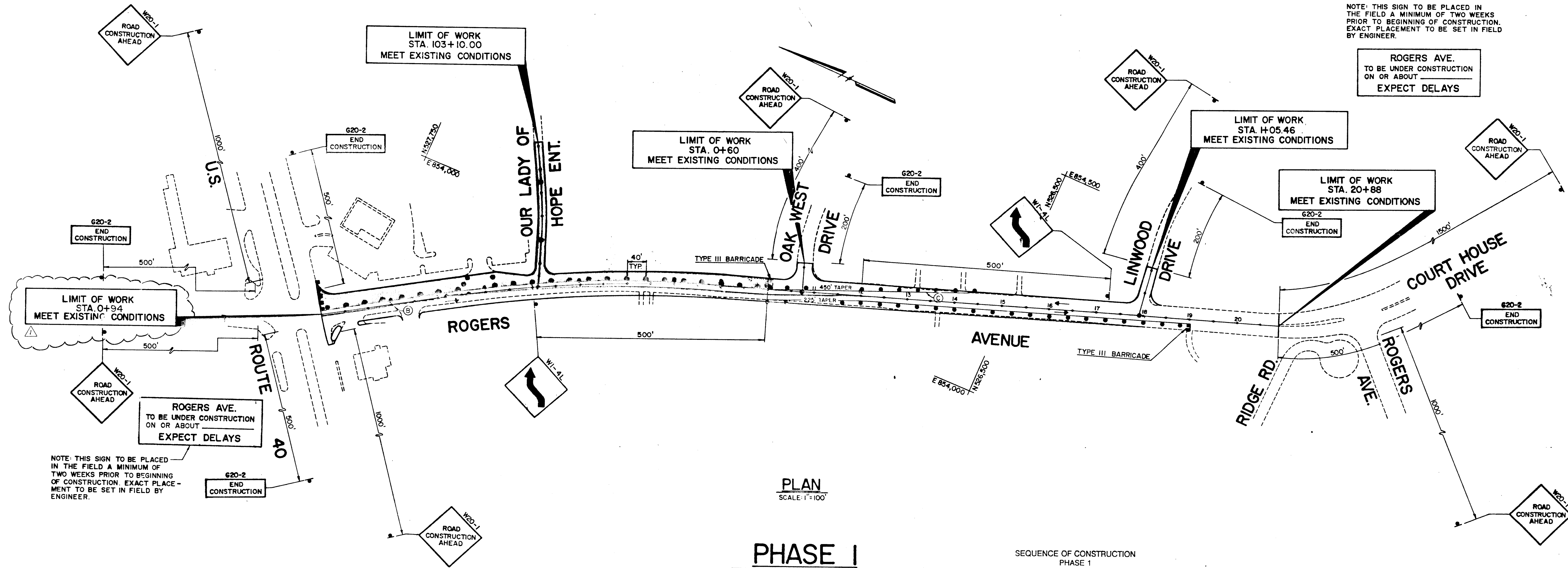
STA. 23+50.81
TRAVERSE LINE - ROGERS AVE.



STA. 25+81.17
TRAVERSE LINE - ROGERS AVE.

<p>DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND</p> <p><i>James P. Lee</i> 9/5/91 DIRECTOR OF PUBLIC WORKS DATE</p> <p><i>Diannelle W. Welton</i> 9/5/91 CHIEF, BUREAU OF HIGHWAYS DATE</p>	<p>JOHN E. HARMS, JR. & ASSOCIATES, INC. CONSULTING ENGINEERS 90 GOV. RITCHIE HIGHWAY PASADENA, MARYLAND</p> <p><i>John E. Harms, Jr.</i></p>	<p>DES: R.L.S. DRN: J.R.R. CHK: E.C.H. DATE: 7/91</p> <p>J.R.R. Δ REVISED ROGERS AVE., U.S. ROUTE 40 INTERSECTION 7/91</p>	<p>GEOMETRY SHEET</p> <p>ROGERS AVENUE</p> <p>CAPITAL PROJECT No. J-4097</p>
		<p>SCALE AS SHOWN</p> <p>SHEET 6 OF 36</p>	

NOTE: THIS SIGN TO BE PLACED IN THE FIELD A MINIMUM OF TWO WEEKS PRIOR TO BEGINNING OF CONSTRUCTION. EXACT PLACEMENT TO BE SET IN FIELD BY ENGINEER.



PLAN
SCALE: 1"=100'

PHASE I

SEQUENCE OF CONSTRUCTION PHASE 1

- 1) PLACE AND MAINTAIN ALL TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES FOR THIS PHASE OF CONSTRUCTION AS SHOWN ON SHEET 25A, 26, AND 27.
- 2) PLACE AND MAINTAIN ALL TEMPORARY SIGNS IN ACCORDANCE WITH THIS PLAN THROUGHOUT THIS CONSTRUCTION PHASE.
- 3) CONSTRUCT TEMPORARY CHANNEL DIVERSION AS SHOWN ON SHEET 25A.
- 4) CONSTRUCT 72" CULVERT EXTENSION AND CHANNEL IMPROVEMENTS.
- 5) REMOVE TEMPORARY DIVERSION PIPE.
- 6) PLACE ALL TEMPORARY PAVEMENT STRIPING TAPE FROM STA. 0+50± TO STA. 19+00 AS SHOWN ON PLAN. PLACE AND MAINTAIN TEMPORARY PLASTIC DRUMS AND BARRICADES, LOCATIONS AS SHOWN.
- 7) CONSTRUCT INLETS I-13 AND I-14 AND DITCH FROM 13+00± TO STA. 19+00 RT. CONSTRUCT INLET I-36 AND CONNECT TO EXISTING I-29. CONSTRUCT DRAINAGE STRUCTURES, PIPES AND DITCHES FROM STA. 5+50± TO STA. 10+00± LT.
- 8) REMOVE TEMPORARY DIVERSION CHANNEL.
- 9) CONSTRUCT CURB AND GUTTER, GUARDRAIL AND ROADWAY CONSTRUCTION FROM STA. 0+50± TO STA. 10+00±, AS SHOWN ON PLAN.
- 10) USING FLAGGERS, MAINTAIN ALTERNATING ONE LANE TRAFFIC, COMPLETE NEW PAVEMENT, CURB AND GUTTER, GUARDRAIL, AND ROADWAY CONSTRUCTION STA. 100+00± TO STA. 103+10± OUR LADY OF HOPE ENTRANCE, AS SHOWN ON PLAN.
- 11) MAINTAIN ACCESS TO ALL ENTRANCES AT ALL TIMES THROUGHOUT THIS CONSTRUCTION PHASE.

TEMPORARY PAVEMENT STRIPING TAPE

- (A) SINGLE 4" SOLID YELLOW STRIPE
- (B) DOUBLE 4" SOLID YELLOW STRIPE
- (C) SINGLE 4" SOLID WHITE STRIPE

LEGEND

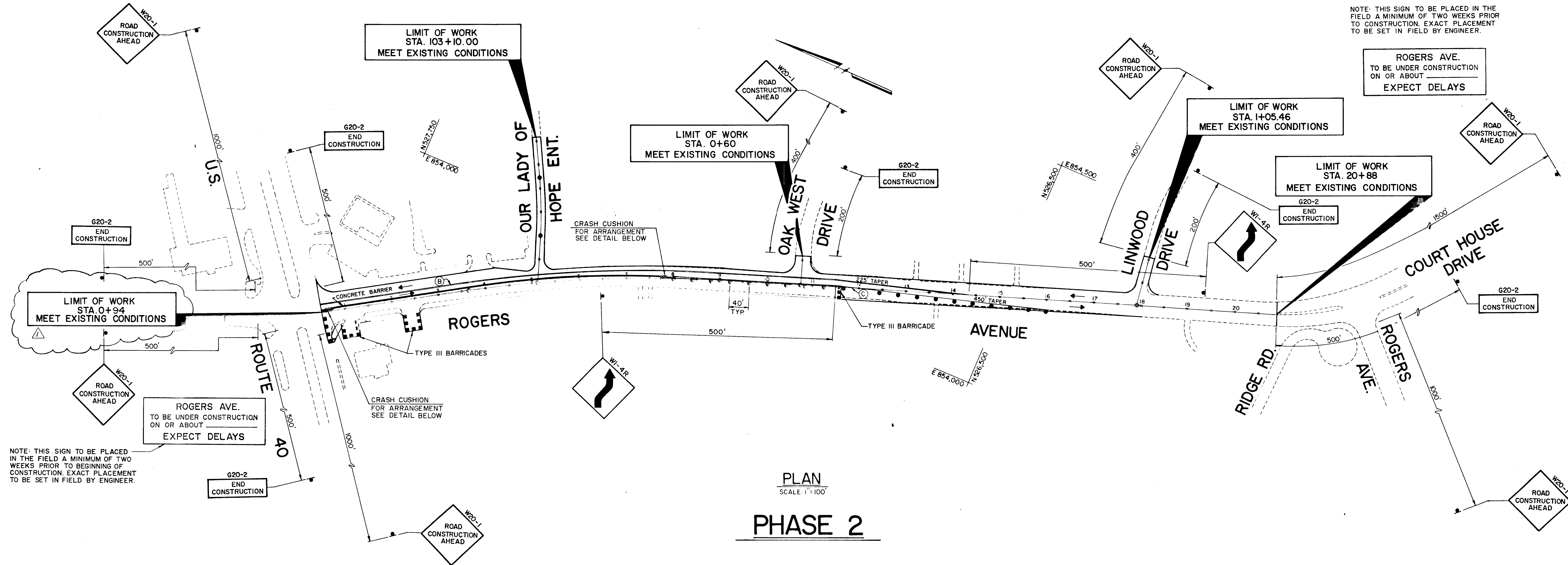
- DIRECTION OF TRAVEL
- CHANNELIZING DEVICE
- ▬ BARRICADE
- ⊕ CRASH CUSHION
- ⊣ TRAFFIC SIGN AND SUPPORT
- FLAG PERSON
- ▬ CONSTRUCTION TO BE COMPLETED DURING THIS PHASE

MAINTENANCE OF TRAFFIC - GENERAL NOTES

- 1) ALL CONSTRUCTION AND MATERIALS FOR THE TRAFFIC CONTROL DEVICES SHALL BE IN ACCORDANCE WITH THE STANDARDS CONTAINED IN THE 1988 MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, AND ANY SUBSEQUENT ADDENDA.
- 2) NO WORK SHALL BE PERFORMED IN THE ROADWAY FROM 7:00 AM TO 9:00 AM AND/OR FROM 4:00 PM TO 5:00 PM.
- 3) ACCESS TO CROSS STREETS SHALL BE MAINTAINED AT ALL TIMES.
- 4) ACCESS TO ALL PRIVATE DRIVEWAYS SHALL BE MAINTAINED AT ALL TIMES BETWEEN THE HOURS OF 3:00 PM AND 9:00 AM. BETWEEN THE HOURS OF 9:00 AM AND 3:00 PM, ACCESS SHALL BE MAINTAINED EXCEPT WHEN PROHIBITED BY AN OPEN TRENCH. ALL AFFECTED RESIDENTS SHALL BE NOTIFIED AT LEAST ONE (1) HOUR PRIOR TO CLOSING OF ANY DRIVEWAY.
- 5) TRAVEL LANES SHALL BE A MINIMUM OF TEN FEET IN WIDTH. WHEN ONLY ONE LANE IS OPEN, FLAGMEN AND THE APPROPRIATE SIGNING SHALL BE PROVIDED. THE ROADWAY SHOULD BE REOPENED TO TWO LANES AT NIGHT.
- 6) IF A DROPOFF MEASURES GREATER THAN 4", A BARRIER OR 2:1 SLOPE OF COMPACTED CRUSHER-RUN GRAVEL WILL BE REQUIRED.
- 7) ALL OPEN TRENCHES SHALL BE CLOSED AT THE END OF EACH DAY. IF STEEL PLATES ARE TO BE USED, APPROPRIATE SIGNING WILL BE REQUIRED.
- 8) ALL SIGNS THAT DO NOT APPLY SHALL BE COVERED.
- 9) ALL CONES AND FLAGMEN SHALL BE MOVED ACCORDINGLY AS CONSTRUCTION PROGRESSES.
- 10) ALL CONSTRUCTION SIGNING SHALL BE IN ACCORDANCE WITH THE TYPICAL SIGN PLACEMENT SHOWN ON THESE PLANS AND SHALL NOT OBSTRUCT EXISTING TRAFFIC CONTROL DEVICES.
- 11) CONSTRUCTION AND WORKMENS VEHICLES SHALL NOT BE PARKED IN MANNER THAT WILL IMPEDE TRAFFIC OR IMPAIR SIGHT DISTANCE.
- 12) WHERE TRAFFIC IS BEING MAINTAINED ON ONE SIDE OF THE ROAD WHILE CONSTRUCTION TAKES PLACE ON THE OTHER, APPROPRIATE BARRIERS, BARRICADES OR DRUMS SHALL BE PLACED BETWEEN THE TRAVELED WAY AND THE CONSTRUCTION AREA. APPROVED TYPE A LOW INTENSITY FLASHING WARNING LIGHTS SHALL BE USED DURING HOURS OF DARKNESS. BOTH TRAVEL DIRECTIONS WILL BE POSTED WITH A SEQUENCE OF TRAFFIC CONTROL SIGNS AS INDICATED ON THE TRAFFIC CONTROL PLANS. ANY CROSSOVERS SHALL BE MARKED WITH APPROVED CHANNELIZATION DEVICES AND SIGNS.
- 13) FOR ADDITIONAL MAINTENANCE OF TRAFFIC REQUIREMENTS, SEE SHEETS NOS. 8 THROUGH 11.

FOR MAINTENANCE OF TRAFFIC USE ONLY

<p>DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND</p> <p><i>[Signature]</i> 9/5/91 DIRECTOR OF PUBLIC WORKS DATE</p> <p><i>[Signature]</i> 8/27/91 CHIEF, BUREAU OF ENGINEERING DATE</p> <p><i>[Signature]</i> 9/5/91 CHIEF, DIVISION OF ROADS, BRIDGES & STORM DRAINAGE DATE</p>	<p>JOHN E. HARMS, JR. & ASSOCIATES, INC.</p> <p>CONSULTING ENGINEERS 90 GOV. RITCHIE HIGHWAY PASADENA, MARYLAND</p> <p><i>[Signature]</i></p>	<p>DES: R.L.S.</p> <p>DRN: J.R.R.</p> <p>CHK: E.C.H.</p> <p>DATE: 7/91</p>	<p style="text-align: center;">PHASE I MAINTENANCE OF TRAFFIC</p> <p style="text-align: center;">ROGERS AVENUE</p> <p>600' SCALE MAP NO. _____ BLOCK NO. _____</p>	<p>SCALE AS SHOWN</p> <p>SHEET 8 OF 36</p>								
			<p>REVISION</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>BY</td> <td>NO.</td> <td>REVISION</td> <td>DATE</td> </tr> <tr> <td>J.R.R.</td> <td>1</td> <td>REVISED ROGERS AVE., U.S. ROUTE 40 INTERSECTION</td> <td>7/2/92</td> </tr> </table>	BY	NO.	REVISION	DATE	J.R.R.	1	REVISED ROGERS AVE., U.S. ROUTE 40 INTERSECTION	7/2/92	<p>CAPITAL PROJECT NO. J-4097</p>
BY	NO.	REVISION	DATE									
J.R.R.	1	REVISED ROGERS AVE., U.S. ROUTE 40 INTERSECTION	7/2/92									



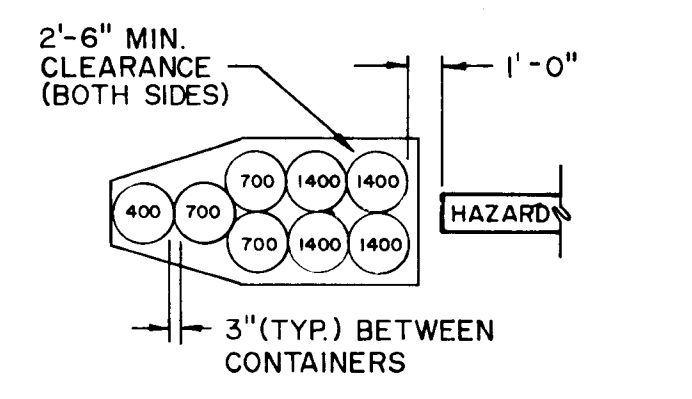
NOTE: THIS SIGN TO BE PLACED IN THE FIELD A MINIMUM OF TWO WEEKS PRIOR TO CONSTRUCTION. EXACT PLACEMENT TO BE SET IN FIELD BY ENGINEER.

NOTE: THIS SIGN TO BE PLACED IN THE FIELD A MINIMUM OF TWO WEEKS PRIOR TO BEGINNING OF CONSTRUCTION. EXACT PLACEMENT TO BE SET IN FIELD BY ENGINEER.

PLAN
SCALE 1"=100'
PHASE 2

SEQUENCE OF CONSTRUCTION
PHASE II

- 1) PLACE AND MAINTAIN ALL TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES FOR THIS PHASE OF CONSTRUCTION, AS SHOWN ON SHEETS 28 & 29.
- 2) PLACE AND MAINTAIN ALL TEMPORARY SIGNS IN ACCORDANCE WITH THIS PLAN THROUGHOUT THIS CONSTRUCTION PHASE.
- 3) PLACE ALL TEMPORARY STRIPING TAPE FROM STA. 0+50± TO STA. 16+00± AS SHOWN ON PLAN. SET CONCRETE BARRIER AND PLACE TEMPORARY CRASH CUSHIONS STA. 0+50± TO STA. 8+00± AS SHOWN ON PLAN. RESET TEMPORARY PLASTIC DRUMS STA. 8+00± TO STA. 11+50± AS SHOWN ON PLAN. DIVERT EXISTING NORTHBOUND AND SOUTHBOUND TRAFFIC TO ACCOMMODATE THIS PHASE OF CONSTRUCTION. MAINTAIN (MIN. 2-10 FT. LANES EACH DIRECTION).
- 4) CONSTRUCT PROPOSED DRAINAGE STRUCTURES & DITCHES FROM STA. 0+50± TO STA. 11+50± RT.
- 5) CONSTRUCT ROGERS AVENUE PROPOSED ROADWAY CONSTRUCTION, BASE WIDENING, WEDGE & LEVELING, CURB & GUTTER, SIDEWALKS, AND GUARDRAIL FROM STA. 0+50± TO STA. 11+50±, AS SHOWN ON PLAN.
- 6) MAINTAIN ACCESS TO ALL ENTRANCES AT ALL TIMES THROUGHOUT THIS CONSTRUCTION PHASE.
- 7) REMOVE TEMPORARY DIVERSION CHANNEL.



CRASH CUSHION
CONTAINER ARRANGEMENT
N.T.S.

TEMPORARY PAVEMENT STRIPING TAPE

- (A) SINGLE 4" SOLID YELLOW STRIPE
- (B) DOUBLE 4" SOLID YELLOW STRIPE
- (C) SINGLE 4" SOLID WHITE STRIPE

LEGEND

- DIRECTION OF TRAVEL
- CHANNELIZING DEVICE
- ▬ BARRICADE
- ⊗ CRASH CUSHION
- ⊣ TRAFFIC SIGN AND SUPPORT
- ⊢ FLAG PERSON
- ▭ CONSTRUCTION TO BE COMPLETED DURING THIS PHASE

FOR MAINTENANCE OF TRAFFIC USE ONLY

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
James A. ... 9/15/91
 DIRECTOR OF PUBLIC WORKS DATE
Francis W. ... 9/15/91
 CHIEF, BUREAU OF HIGHWAYS DATE
Elizabeth A. ... 9/23/91
 CHIEF, DIVISION OF ROADS, BRIDGES & STORM DRAINAGE DATE

JOHN E. HARMS, JR. & ASSOCIATES, INC.
CONSULTING ENGINEERS
90 GOV. RITCHIE HIGHWAY
PASADENA, MARYLAND

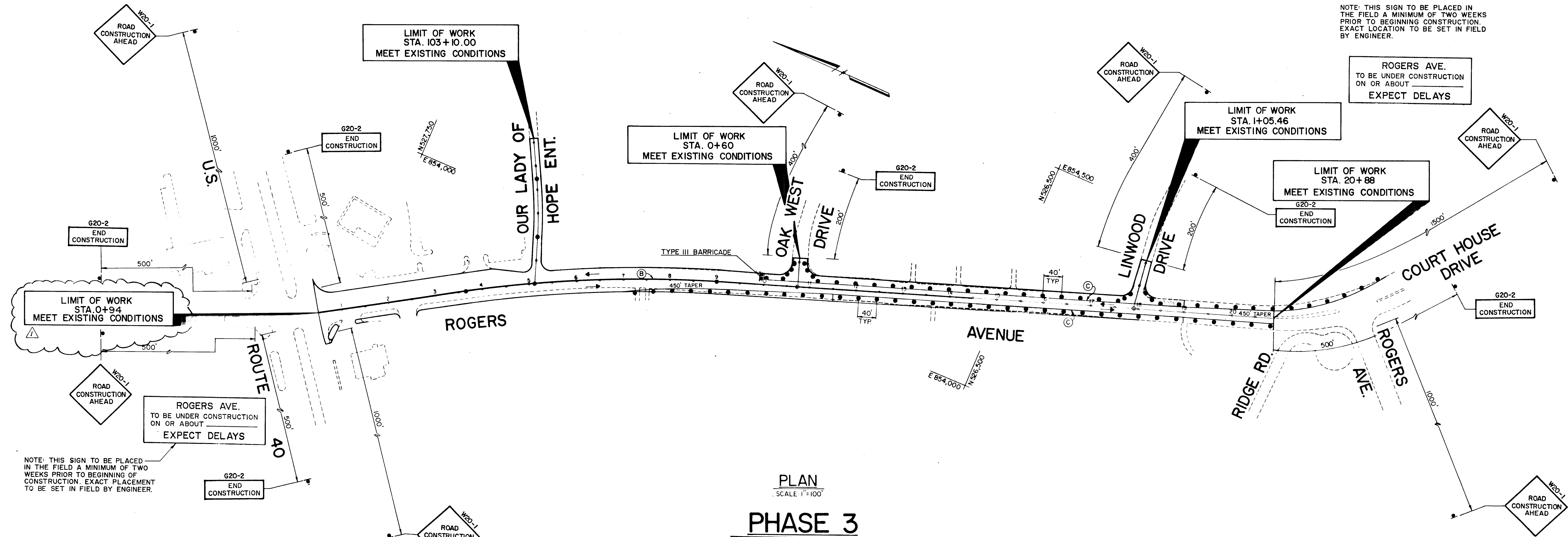
DES: R.L.S.
DRN: J.R.R.
CHK: E.C.H.
DATE: 7/91

BY	NO.	REVISION	DATE
		REVISED ROGERS AVE., U.S. ROUTE 40 INTERSECTION	7/91

PHASE 2
MAINTENANCE OF TRAFFIC

ROGERS AVENUE
SCALE AS SHOWN
SHEET 9 OF 36
CAPITAL PROJECT NO. J-4097

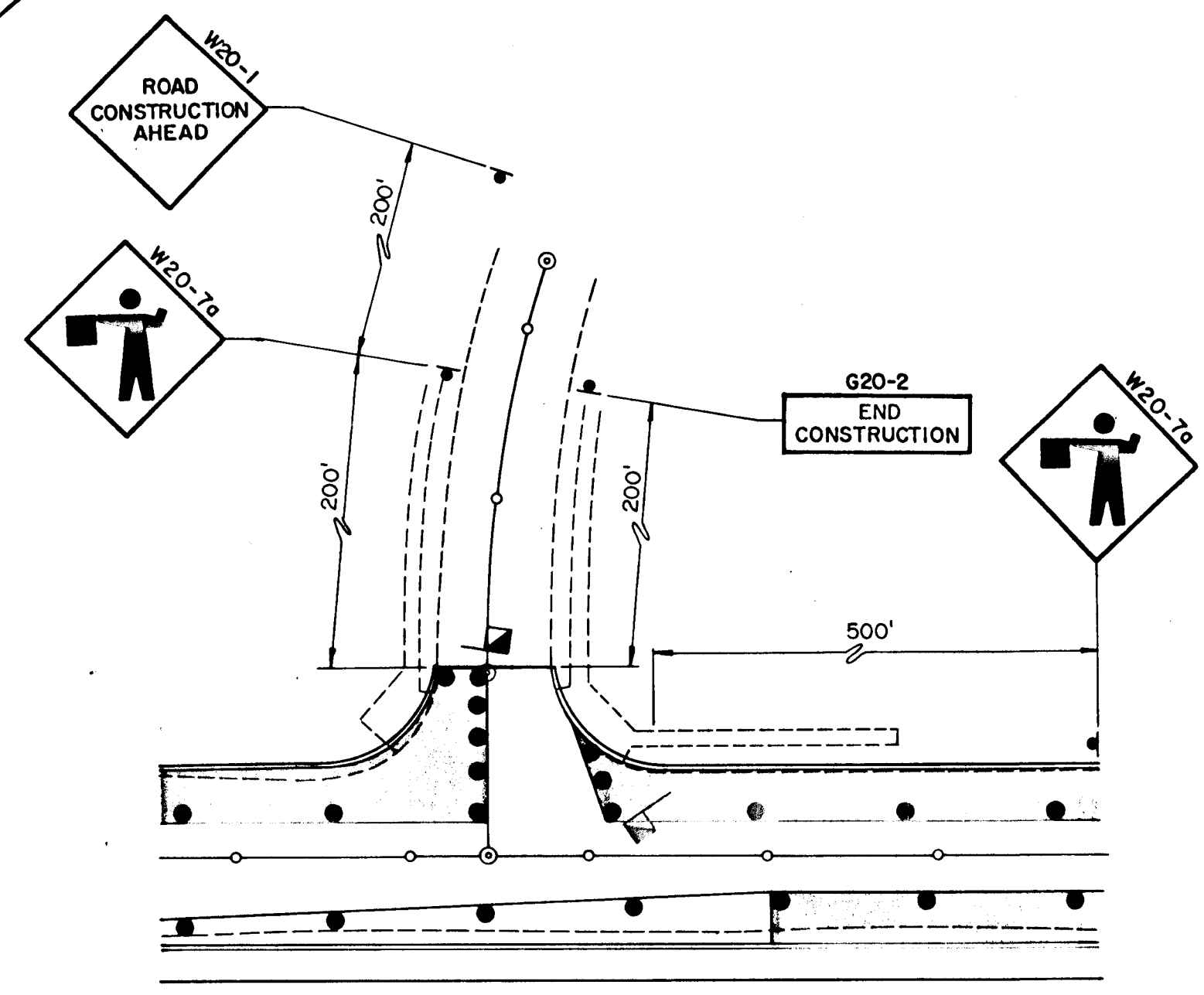
NOTE: THIS SIGN TO BE PLACED IN THE FIELD A MINIMUM OF TWO WEEKS PRIOR TO BEGINNING CONSTRUCTION. EXACT LOCATION TO BE SET IN FIELD BY ENGINEER.



PLAN
SCALE: 1"=100'
PHASE 3

SEQUENCE OF CONSTRUCTION
PHASE III

- 1) PLACE AND MAINTAIN ALL TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES FOR THIS PHASE OF CONSTRUCTION, AS SHOWN ON SHEETS 30 & 31.
- 2) PLACE AND MAINTAIN ALL TEMPORARY SIGNS IN ACCORDANCE WITH THIS PLAN THROUGHOUT THIS CONSTRUCTION PHASE.
- 3) PLACE ALL TEMPORARY PAVEMENT STRIPING TAPE FROM STA. 9+50± TO STA. 21+50±, AS SHOWN ON PLAN. RESET TEMPORARY PLASTIC DRUMS WITH WARNING LIGHTS, LOCATIONS AS SHOWN ON PLAN. DIVERT EXISTING NORTHBOUND AND SOUTHBOUND TRAFFIC TO ACCOMMODATE THIS PHASE OF CONSTRUCTION. MAINTAIN (MIN. 2-10 FT. LANES EACH DIRECTION).
- 4) CONSTRUCT DRAINAGE STRUCTURES AND DITCHES FROM STA. 10+00± TO STA. 21+00±.
- 5) CONSTRUCT ROGERS AVENUE PROPOSED BASE WIDENING, WEDGE AND LEVELING, CURB AND GUTTER, SIDEWALKS, AND RETAINING WALL FROM STA. 10+00± TO STA. 21+00±, AS SHOWN ON PLAN.
- 6) USING FLAGGERS, MAINTAIN ALTERNATING ONE LANE TRAFFIC, COMPLETE NEW PAVEMENT AND CURB AND GUTTER CONSTRUCTION FROM STA. 0+25± TO STA. 0+60± OAK WEST DRIVE, AS SHOWN ON PLAN. SEE FLAGGING OPERATION DETAIL THIS SHEET.
- 7) USING FLAGGERS, MAINTAIN ALTERNATING ONE LANE TRAFFIC, COMPLETE NEW PAVEMENT AND CURB AND GUTTER CONSTRUCTION FROM STA. 0+25± TO STA. 1+05± LINWOOD DRIVE, AS SHOWN ON PLAN. SEE FLAGGING OPERATION DETAIL THIS SHEET.
- 8) WHEN CONSTRUCTION IS COMPLETED IN THIS PHASE REMOVE ALL TEMPORARY FLAGGER SIGNS AS SHOWN ON PLAN.
- 9) MAINTAIN ACCESS TO ALL ENTRANCES AT ALL TIMES THROUGHOUT THIS CONSTRUCTION PHASE.



FLAGGING OPERATIONS FOR OAKWEST DR. AND LINWOOD DR. CONSTRUCTION
N.T.S.

TEMPORARY PAVEMENT STRIPING TAPE

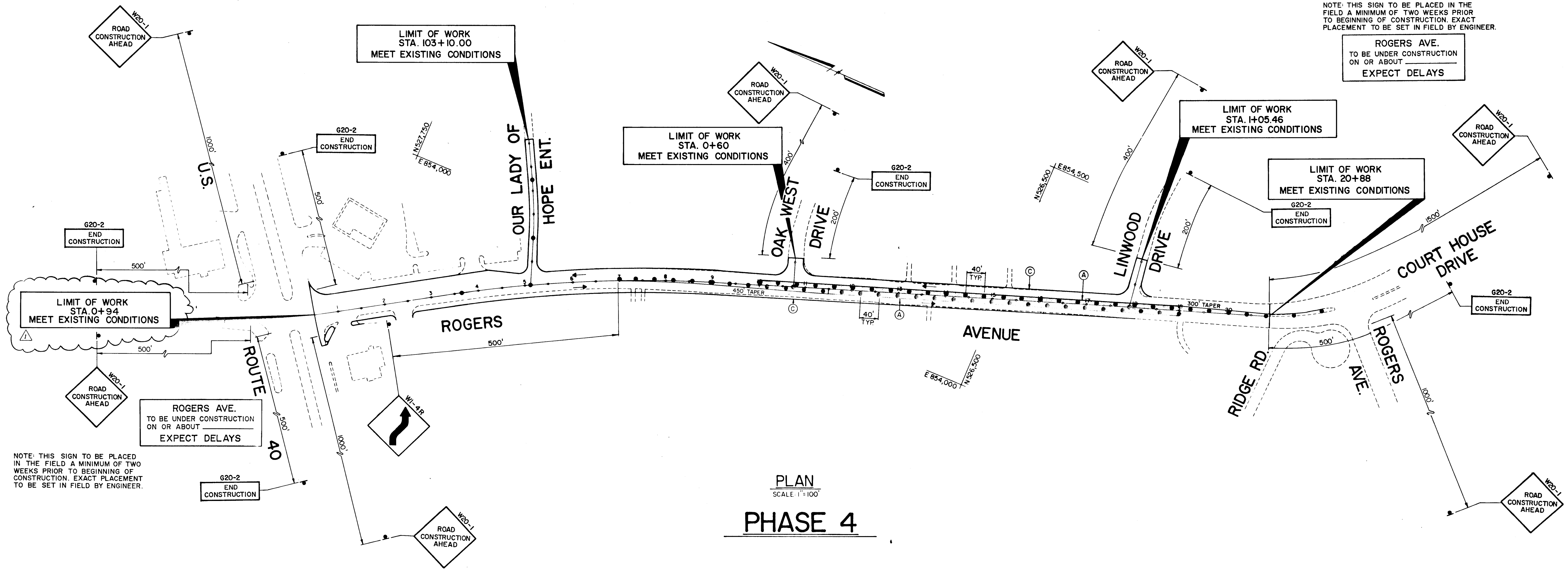
- (A) SINGLE 4" SOLID YELLOW STRIPE
- (B) DOUBLE 4" SOLID YELLOW STRIPE
- (C) SINGLE 4" SOLID WHITE STRIPE

LEGEND

- DIRECTION OF TRAVEL
- CHANNELIZING DEVICE
- BARRICADE
- ⊗ CRASH CUSHION
- ⊕ TRAFFIC SIGN AND SUPPORT
- FLAG PERSON
- ▭ CONSTRUCTION TO BE COMPLETED DURING THIS PHASE

FOR MAINTENANCE OF TRAFFIC USE ONLY

<p>DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND</p> <p><i>James A. Lewis</i> 9/15/91 DIRECTOR OF PUBLIC WORKS DATE</p> <p><i>William W. Williams</i> 9/15/91 CHIEF, BUREAU OF HIGHWAYS DATE</p>	<p>JOHN E. HARMS, JR. & ASSOCIATES, INC.</p> <p>CONSULTING ENGINEERS 90 GOV. RITCHIE HIGHWAY PASADENA, MARYLAND</p> <p><i>[Signature]</i></p>	<p>DR: R.L.S.</p> <p>DRN: J.R.R.</p> <p>CHK: E.C.H.</p> <p>DATE: 7/91</p> <p>J.R.R. REVISED ROGERS AVE., US ROUTE 40 INTERSECTION 7/2/92</p> <p>BY NO. REVISION DATE</p>	<p style="text-align: center;">PHASE 3 MAINTENANCE OF TRAFFIC</p> <p style="text-align: center;">ROGERS AVENUE</p> <p style="text-align: center;">CAPITAL PROJECT NO. J-4097</p>	<p>SCALE AS SHOWN</p> <p>SHEET 10 OF 36</p>
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PLAN
SCALE: 1"=100'
PHASE 4

NOTE: THIS SIGN TO BE PLACED IN THE FIELD A MINIMUM OF TWO WEEKS PRIOR TO BEGINNING OF CONSTRUCTION. EXACT PLACEMENT TO BE SET IN FIELD BY ENGINEER.

NOTE: THIS SIGN TO BE PLACED IN THE FIELD A MINIMUM OF TWO WEEKS PRIOR TO BEGINNING OF CONSTRUCTION. EXACT PLACEMENT TO BE SET IN FIELD BY ENGINEER.

SEQUENCE OF CONSTRUCTION
PHASE IV

- 1) PLACE AND MAINTAIN ALL TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES FOR THIS PHASE OF CONSTRUCTION, AS SHOWN ON SHEETS 30 & 31.
- 2) PLACE AND MAINTAIN ALL TEMPORARY SIGNS IN ACCORDANCE WITH THIS PLAN THROUGHOUT THIS CONSTRUCTION PHASE.
- 3) PLACE ALL EXISTING TEMPORARY PAVEMENT STRIPING TAPE FROM STA. 9+50± TO STA. 22+00± AS SHOWN ON PLAN. RESET TEMPORARY PLASTIC DRUMS WITH WARNING LIGHTS. LOCATIONS AS SHOWN ON PLAN. DIVERT EXISTING NORTHBOUND AND SOUTHBOUND TRAFFIC TO ACCOMMODATE THIS PHASE ON CONSTRUCTION. MAINTAIN (MIN. 2-10 FT. LANES EACH DIRECTION).
- 4) CONSTRUCT ROGERS AVENUE WEDGE AND LEVELING FROM STA. 10+00± TO STA. 19+00± AS SHOWN ON PLANS.
- 5) AFTER ALL CONSTRUCTION IS COMPLETED, REMOVE ALL TEMPORARY STRIPING TAPE, TEMPORARY PLASTIC DRUMS, AND TEMPORARY SIGNS.
- 6) DIVERT TRAFFIC ONTO COMPLETED NEW CONSTRUCTED ROGERS AVENUE.

TEMPORARY PAVEMENT STRIPING TAPE

- (A) SINGLE 4" SOLID YELLOW STRIPE
- (B) DOUBLE 4" SOLID YELLOW STRIPE
- (C) SINGLE 4" SOLID WHITE STRIPE

LEGEND

- DIRECTION OF TRAVEL
- CHANNELIZING DEVICE
- ▬ BARRICADE
- ⊗ CRASH CUSHION
- ⊣ TRAFFIC SIGN AND SUPPORT
- FLAG PERSON
- ▭ CONSTRUCTION TO BE COMPLETED DURING THIS PHASE

FOR MAINTENANCE OF TRAFFIC USE ONLY

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND Director of Public Works: <i>Roman</i> 9/15/91 Chief, Bureau of Engineering: <i>McCaslin</i> 8-29-91 Chief, Bureau of Highways: <i>Draville W. Wellons</i> 9/15/91 Chief, Division of Roads, Bridges & Storm Drainage: <i>Shubert & Collier</i> 8/22/91	JOHN E. HARMS, JR. & ASSOCIATES, INC. CONSULTING ENGINEERS 90 GOV. RITCHIE HIGHWAY PASADENA, MARYLAND <i>J.E.H.</i>	DES: R.L.S. DRN: J.R.R. CHK: E.C.H. DATE: 7/91 BY: [] NO. [] REVISION [] DATE []	PHASE 4 MAINTENANCE OF TRAFFIC ROGERS AVENUE CAPITAL PROJECT NO. J-4097 600' SCALE MAP NO. [] BLOCK NO. []	SCALE AS SHOWN SHEET 11 OF 36
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REMOVE & SALVAGE EXIST. GUARDRAIL
DELIVER TO BUREAU OF HIGHWAYS, MAYFIELD
AVE. SHOP
STA 2+65 TO STA. 5+00 235 L.F.

CONSTRUCT GUARDRAIL Q-BEAM
STA 2+75 TO STA 5+00 RT. 187.5 L.F.
TYPE I END FLARE 1EA.

REMOVE EXIST. PIPE CULVERT
STA 2+55 TO 5+00 45 L.F.

REMOVE EXIST. HEADWALL
STA 2+55 45' RT.

CURVE DATA
CURVE #1
PC STA 3+57.67
PT STA 3+20.00
Δ = 11° 06' 39"
D = 2° 00' 14"
T = 267.00'
L = 582.93'
R = 2745.11'
E = 17.95'

BENCHMARKS
BENCHMARK #3 ELEV. 352.36
RAILROAD SPIKE IN TELEPHONE
POLE # 20820

RELOCATE EXIST. WATER METER & VAULT
3'-0" BEHIND FACE OF CURB
STA. 1+98 LT.

CONSTRUCT CLASS I RIPRAP
STA. 3+50 TO STA. 4+50 RT. 95.54
STA. 4+20 RT. 15.54

FOR SIDE DITCH STABILIZATION
SEE SIDE DITCH STABILIZATION
SCHEDULE SHEET 18A

FOR DETAIL OF THIS
AREA SEE GRADING
& CHANNEL WIDENING.
(SHEET 21 OF 84)

CONSTRUCT CONCRETE CURB &
GUTTER HOWARD CO. STD. R-3.01
STA 0+50 TO STA. 3+08 LT. 930 L.F.
STA 0+28 TO STA 5+00 LT. 72 L.F.
STA 0+18 TO STA 0+88 RT. 64 L.F.
STA 1+35 TO STA. 2+21 RT. 119 L.F.
STA 2+50 TO STA. 5+00 RT. 250 L.F.

CONSTRUCT 5'-0" WIDE CONCRETE
SIDEWALK HOWARD CO. STD. R-3.05
STA 1+35 TO STA. 2+21 RT. 430.6 F.
STA 2+50 TO STA. 5+00 RT. 1220.5 F.

NOSE DOWN CURB (SEE DETAIL, SHEET 4)
STA 2+21 36' RT.
STA 2+50 35' RT.

CONSTRUCT SIDEWALK RAMPS
STA 1+35 RT.
STA 2+21 RT.
STA 2+50 RT.

CONSTRUCT ENTRANCE, SEE DETAIL
TYPICAL COMM. ENTRANCE, SHT. 4
STA 1+00 RT. W: 47' L: 89'
STA 2+39 RT. W: 55' L: 44'

RELOCATE THE FOLLOWING FIRE HYDRANTS
TO 7' FROM FACE OF PROPOSED CONCRETE
CURB AND GUTTER PER HOWARD CO. STD.
DETAILS: W1.11, W2.11
STA 2+11 RT. BURY LINE ELEV. 350.05

LIMIT OF WORK
STA. 0+79
MEET EXISTING

U.S.

ROUTE 40

ROGERS AVE.

ROGERS AVE.

CATHERINE M. &
JOHN C. BUTLER
511/500

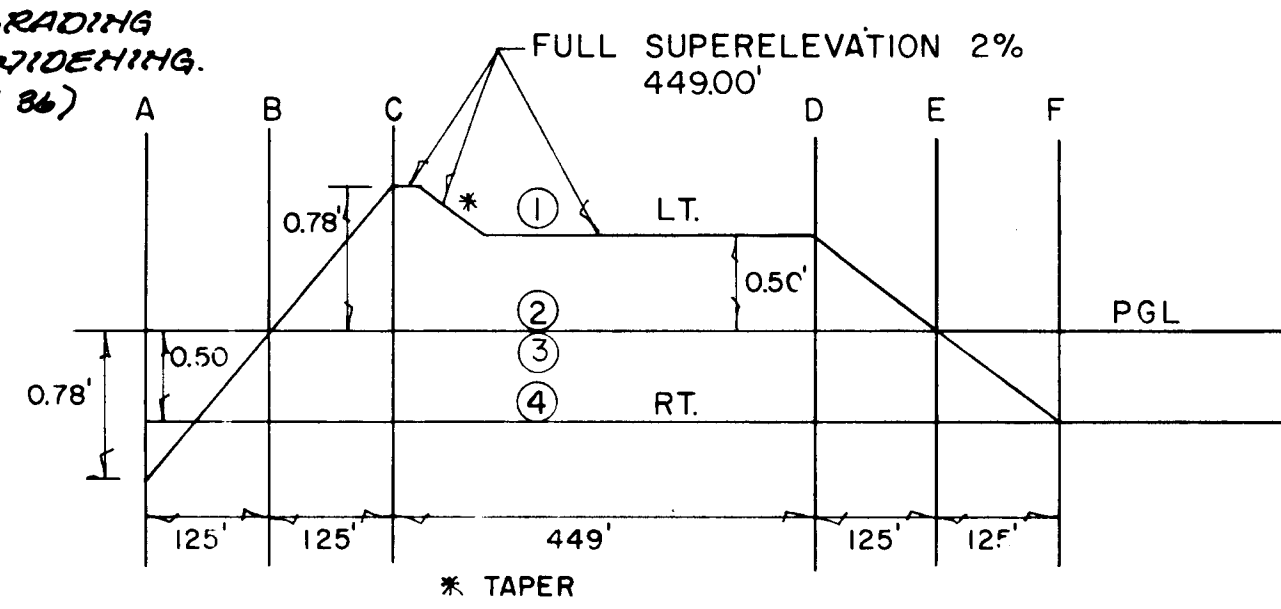
W. RUSSELL &
MILDRED L.
FLEMING
438/366

EZKIEL R. MOXLEY &
CATHERINE M. BUTLER
511/544

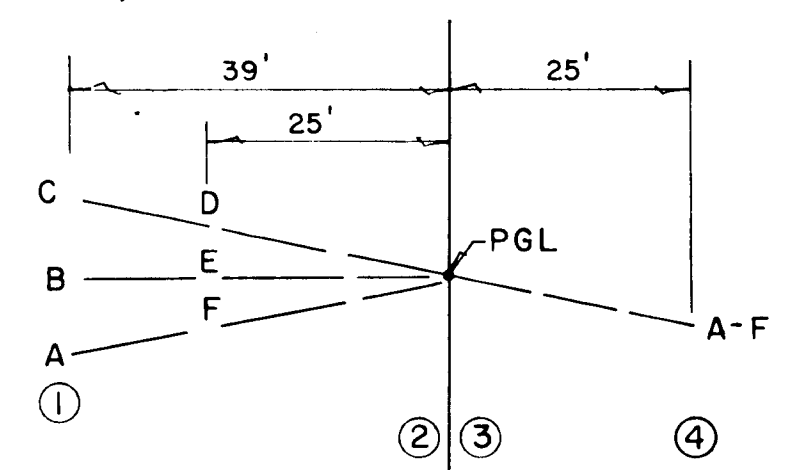
J. NORMAN & LENAD C.
HOBBS
446/667
(LEASED TO COMMERCIAL)

GERTRUDE BUELL
501/650
MEET EXIST. PAVEMENT
69' RT.

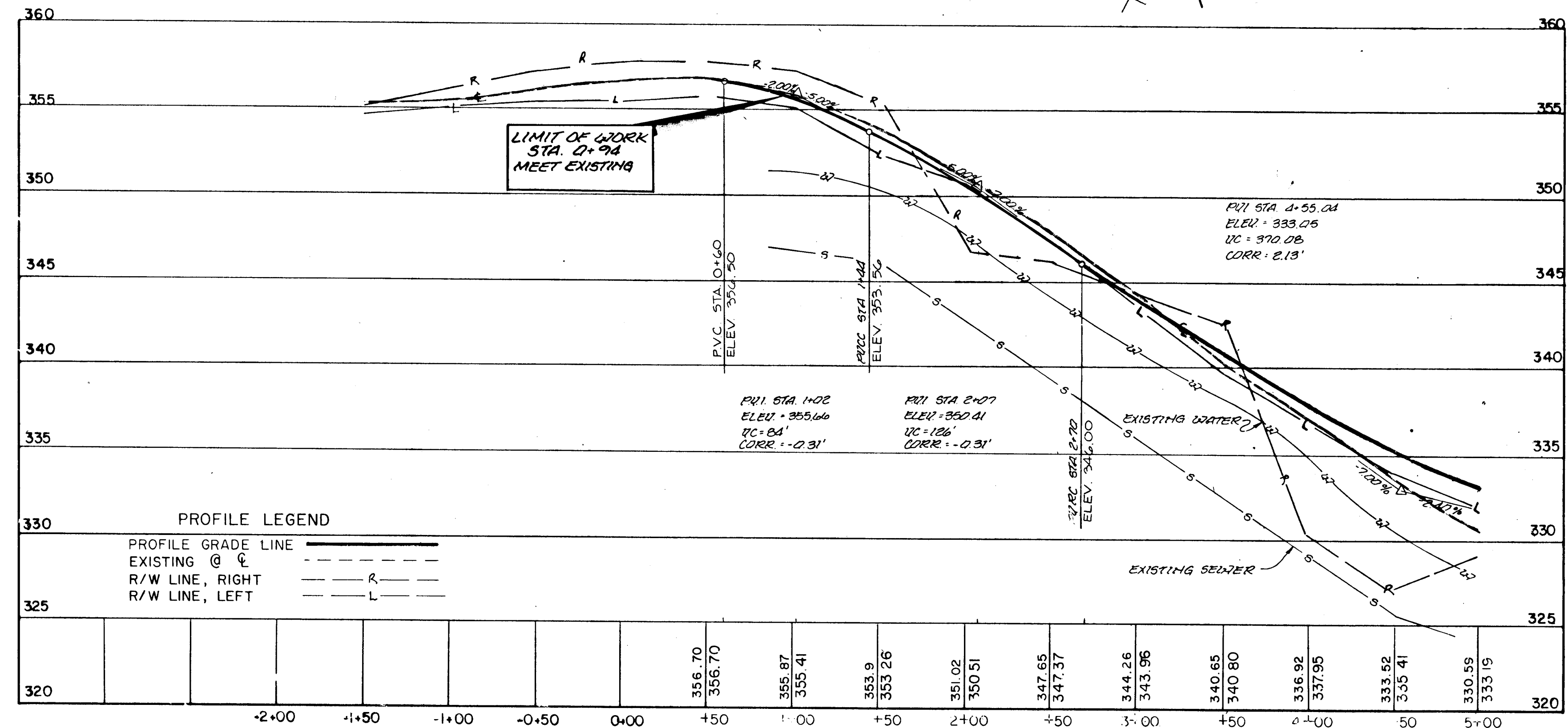
40-29
ASSOCIATES
906/266



DIAGRAMMATIC PROFILE
SCALE: HORIZ. 1" = 200'
VERT. 1" = 1'



PAVEMENT CROSS SECTION
SCALE: HORIZ. 1" = 20'
VERT. 1" = 2'



PROFILE LEGEND
PROFILE GRADE LINE ———
EXISTING @ ———
R/W LINE, RIGHT ——— R ———
R/W LINE, LEFT ——— L ———

SCALE: HORIZ. 1" = 50'
VERT. 1" = 5'

SUPERELEVATION TRANSITION TABLE					
STA. 1+59.34 TO STA. 11+08.33					
D.C. = 2° 05' 14"					
NORMAL CROSS SLOPE = 2.00%					
S.E. CROSS SLOPE = 2.00%					
STATION	37.5' LT.	23.5' LT.	PGL ELEV.	23.5' LT.	REMARKS
1 + 59.34	352.02	352.30	352.77	352.30	A BEGIN TRANSITION
2 + 84.34	345.01	345.01	345.01	344.54	B LEVEL SECTION (LT.)
3 + 67.67	340.25	340.06	339.75	339.28	P.C.
4 + 09.34	338.21	337.93	337.46	336.99	C END TRANSITION, BEGIN FULL S.E.
FULL, SUP. RELEVATION					
8 + 58.33	—	331.50	331.03	330.56	D ENL FULL S.E., BEGIN TRANSITION
9 + 00.00	—	333.01	332.70	332.23	P.T.
9 + 83.33	—	335.87	335.87	336.40	E LEVEL SECTION, LT.
11 + 08.33	—	342.65	343.12	342.65	F END TRANSITION, NORMAL SECTION

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

JOHN E. HARMS, JR. & ASSOCIATES, INC.

Director of Public Works: *James M. Lee* 9/2/91
Chief, Bureau of Engineering: *W. Carson & Reddy* 8/27/91
Chief, Bureau of Highways: *Braville & Welleau* 9/5/91
Chief, Division of Roads, Bridges & Storm Drainage: *Shaboth & Cole* 8/28/91

CONSULTING ENGINEERS
90 GOV. RITCHIE HIGHWAY
PASADENA, MARYLAND
301-647-6000

J. W. B.

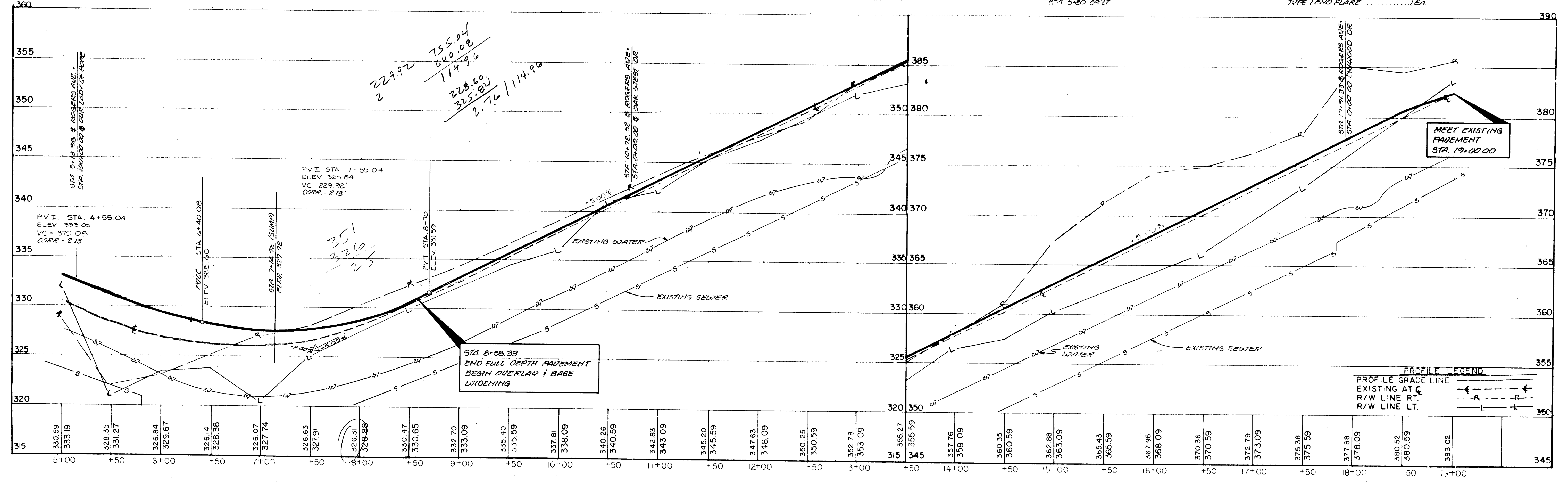
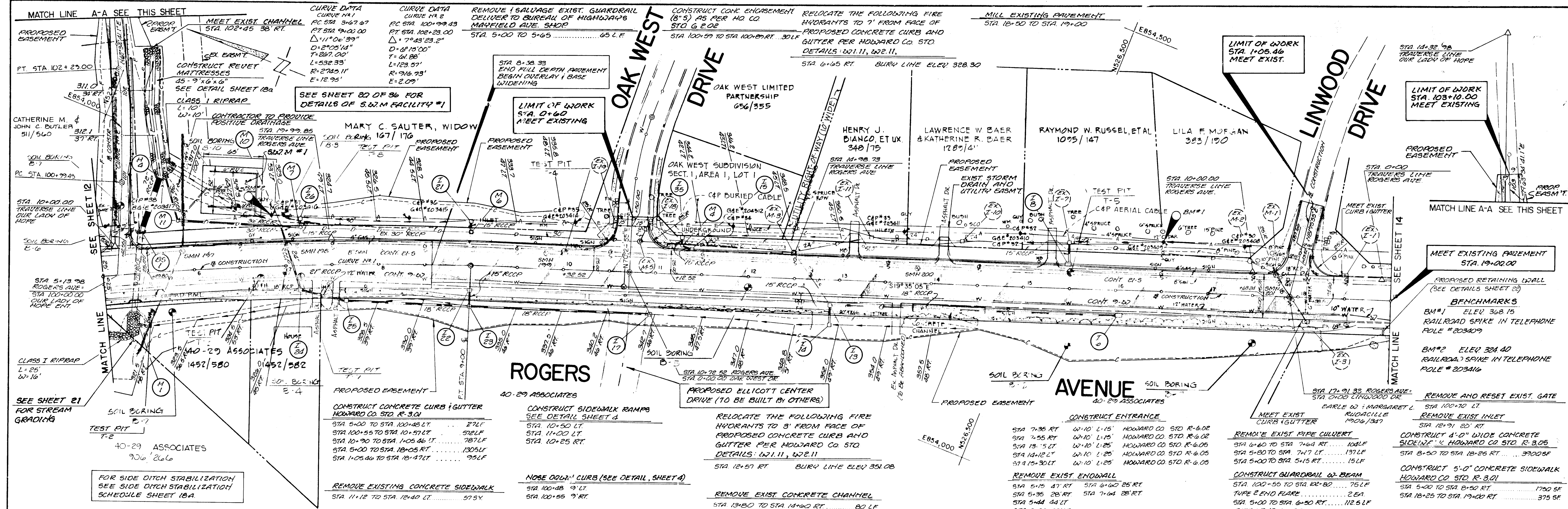
DES: R.L.S.
DRN: FAL
CHK: ECH
DATE: 7/91
JRR
BY NO. REVISION
DATE 600' SCALE MAP NO. BLOCK NO.

PLAN & PROFILE

ROGERS AVENUE

CAPITAL PROJECT No. J-4097

SCALE AS SHOWN
SHEET 12 OF 39



DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND

JOHN E. HARMS, JR. & ASSOCIATES, INC.
 CONSULTING ENGINEERS
 90 GOV. RITCHIE HIGHWAY
 PASADENA, MARYLAND

DES: RJS
DRN: FAL
CHK: ELH
DATE: 7/91

DATE: 9/5/91
DATE: 8-22-91
DATE: 2/22/91

PLAN & PROFILE

ROGERS AVENUE

SCALE AS SHOWN

SHEET 13 OF 36

REVISION
 REVISED ROGERS AVE., US ROUTE 40 INTERSECTION 7/6/91

600' SCALE MAP NO. _____ BLOCK NO. _____

CAPITAL PROJECT No. J-4097

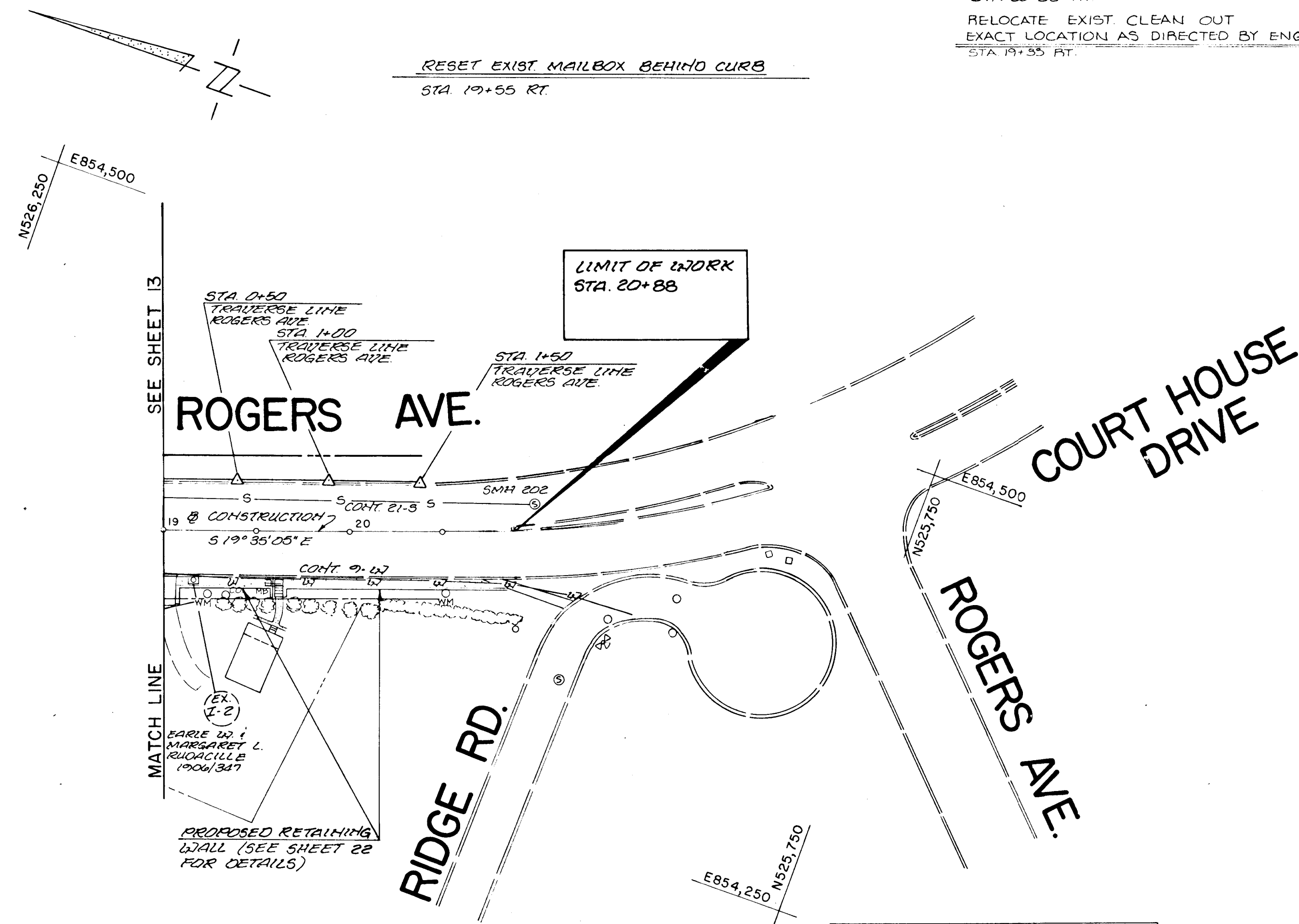
CONSTRUCT 5'-0" WIDE CONCRETE SIDEWALK
 HOWARD Co STD R-3.01
 STA. 19+00 TO STA. 20+88 240 SF

RELOCATE EXIST. WATER METER & VAULT
 EXACT LOCATION AS DIRECTED BY ENGINEER

STA 19+24 FT
 STA 20+52 FT

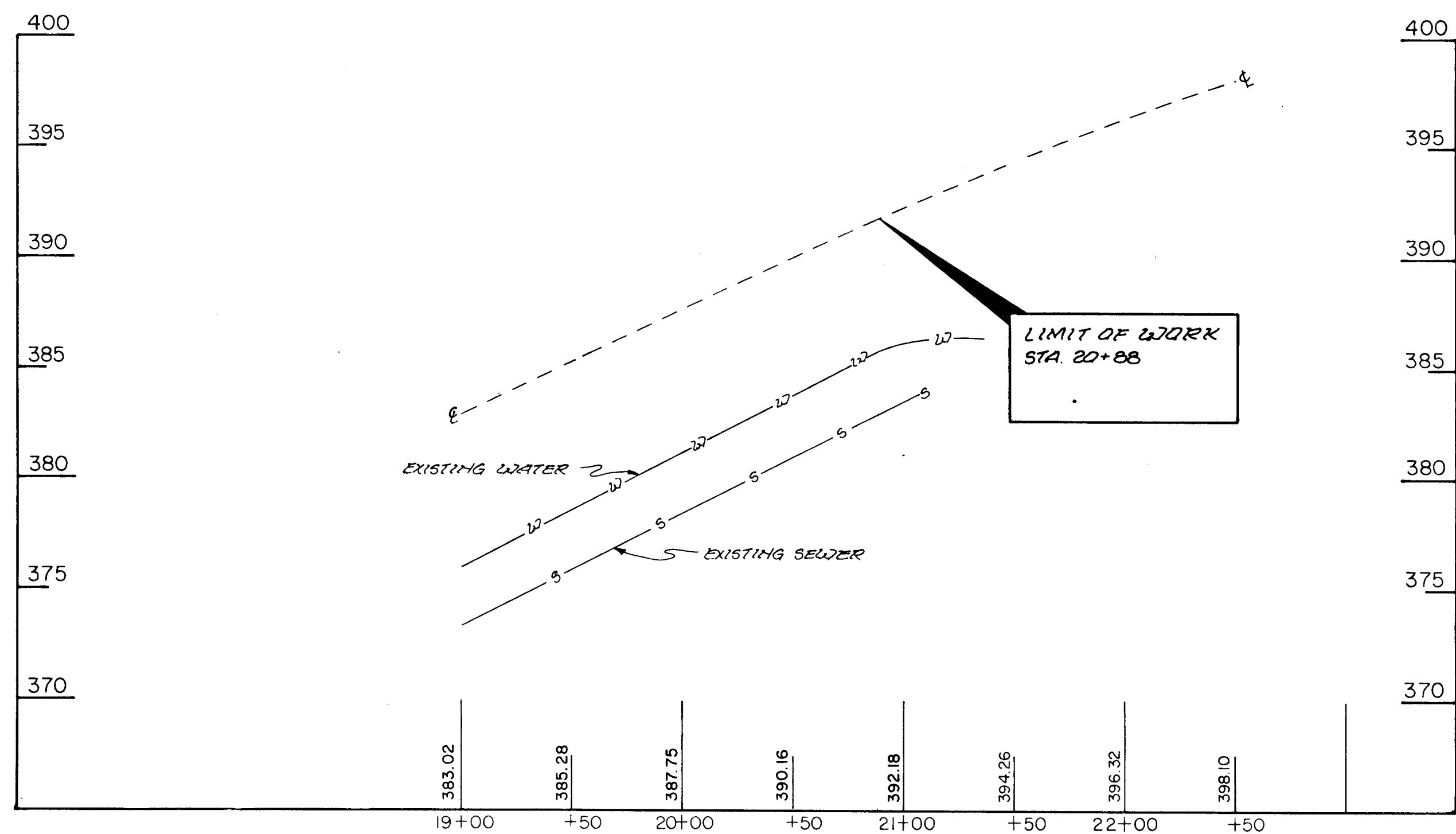
RELOCATE EXIST. CLEAN OUT
 EXACT LOCATION AS DIRECTED BY ENGINEER
 STA 19+35 FT

RESET EXIST. MAILBOX BEHIND CURB
 STA. 19+55 RT.



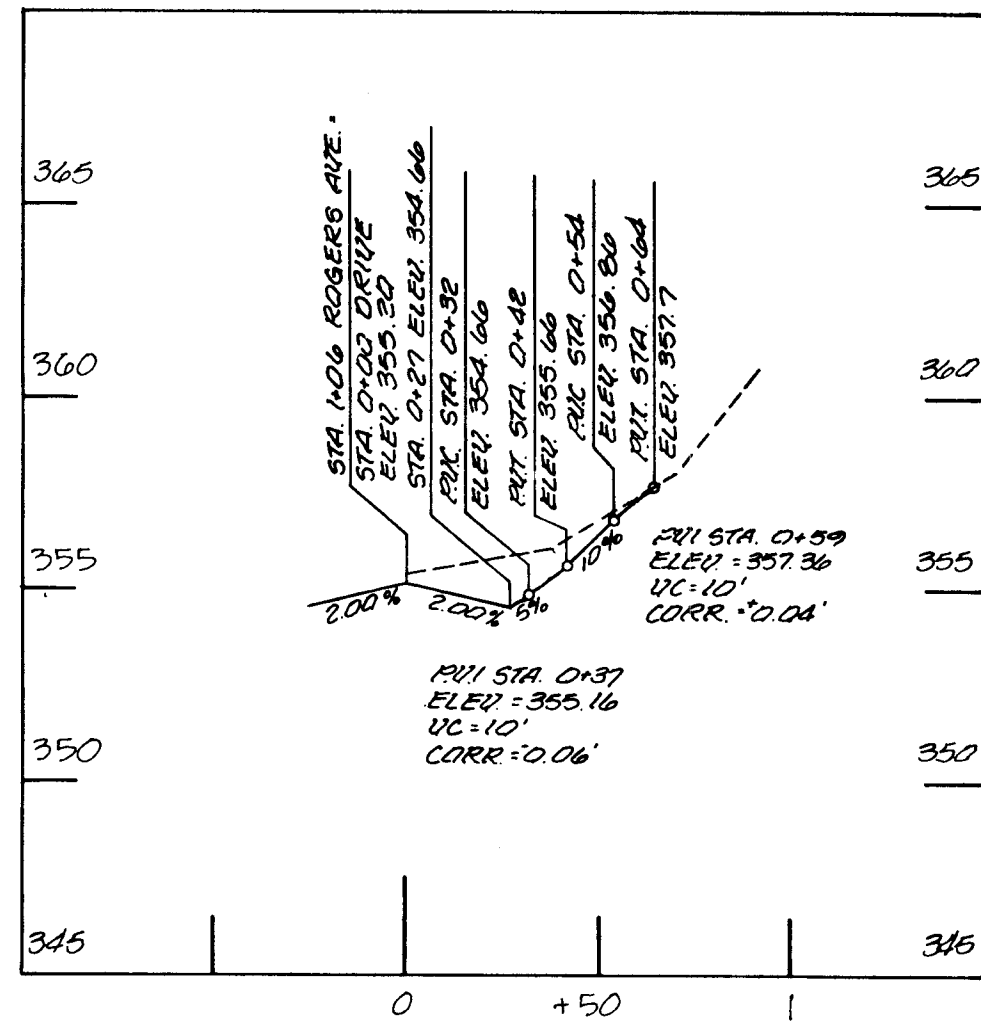
FOR SIDE DITCH STABILIZATION
 SEE SIDE DITCH STABILIZATION
 SCHEDULE SHEET 18A.

PLAN
 SCALE: 1" = 50'

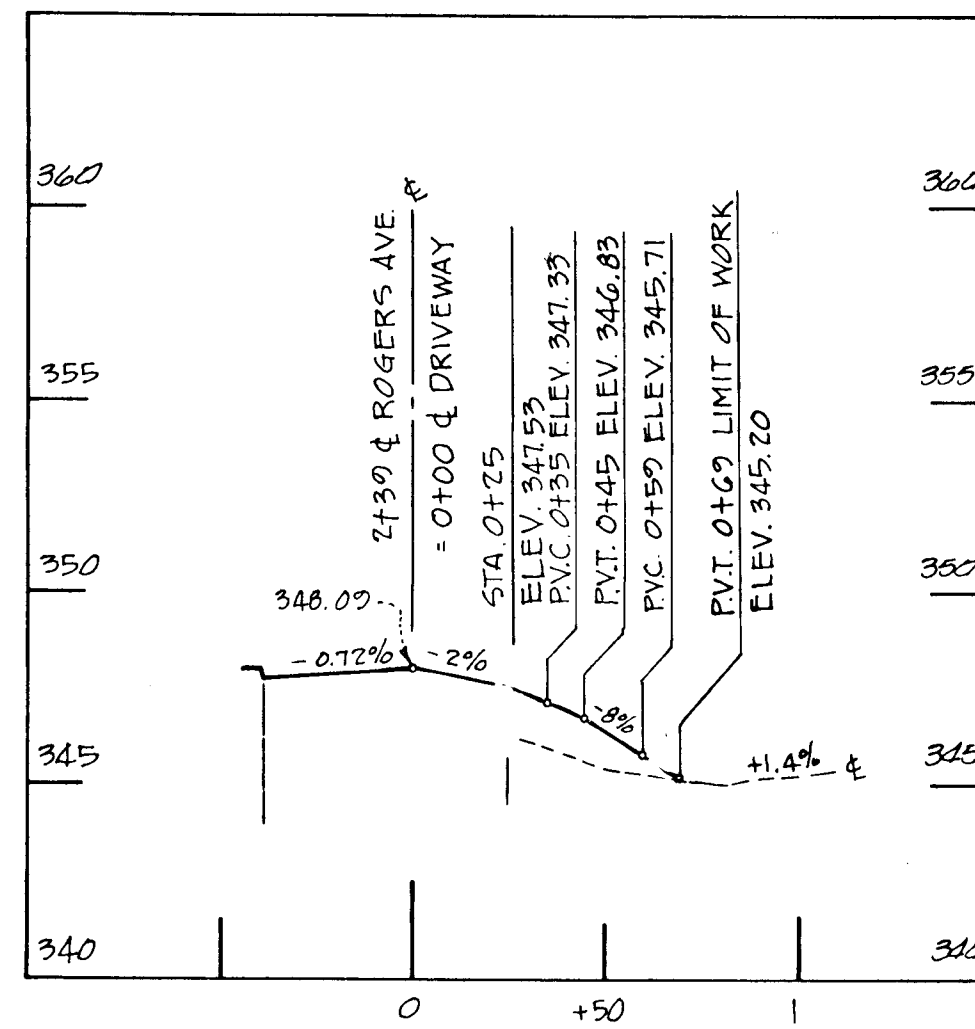


PROFILE
 SCALE: HORIZ. 1" = 50'
 VERT. 1" = 5'

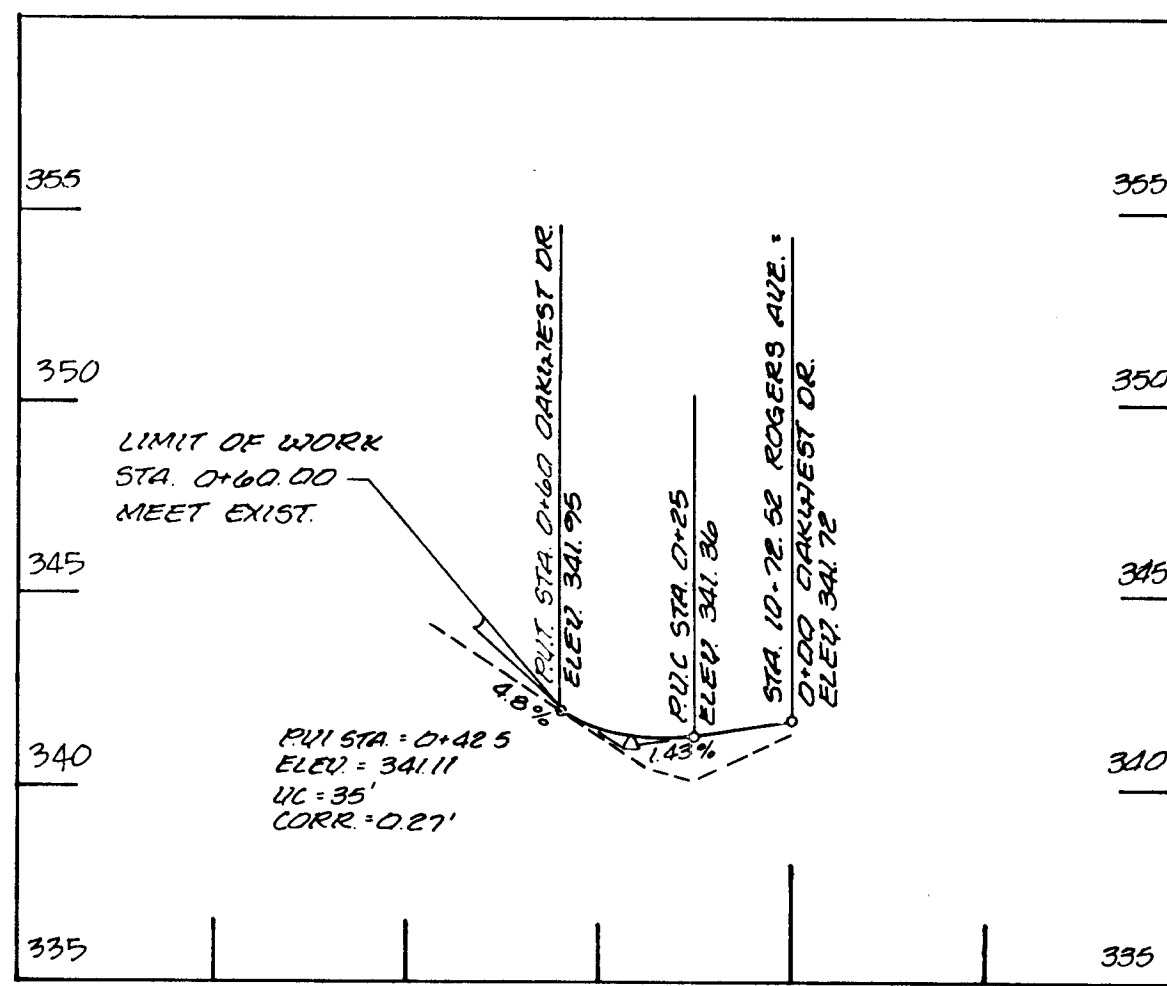
DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND James M. Lewis, 9/5/91, DIRECTOR OF PUBLIC WORKS Travis W. McLeod, 9/5/91, CHIEF, BUREAU OF HIGHWAYS		John E. Harms, Jr. & Associates, Inc. CONSULTING ENGINEERS 90 GOV. RITCHIE HIGHWAY PASADENA, MARYLAND 301-647-6000		R.L.S. J.R.R. E.C.H. DATE: 7/91		PLAN & PROFILE		ROGERS AVENUE		SCALE AS SHOWN SHEET 14 OF 36	
8-29-91, K. Keenan & R. R. R. Chief, Bureau of Engineering 8/28/91, S. D. D. Chief, Division of Roads, Bridges & Storm Drainage		REVISIONS: 1. REVISED ROGERS AVE., U.S. ROUTE 40 INTERSECTION 7/12/92		CAPITAL PROJECT No. J-4097		600' SCALE MAP NO. _____ BLOCK NO. _____					



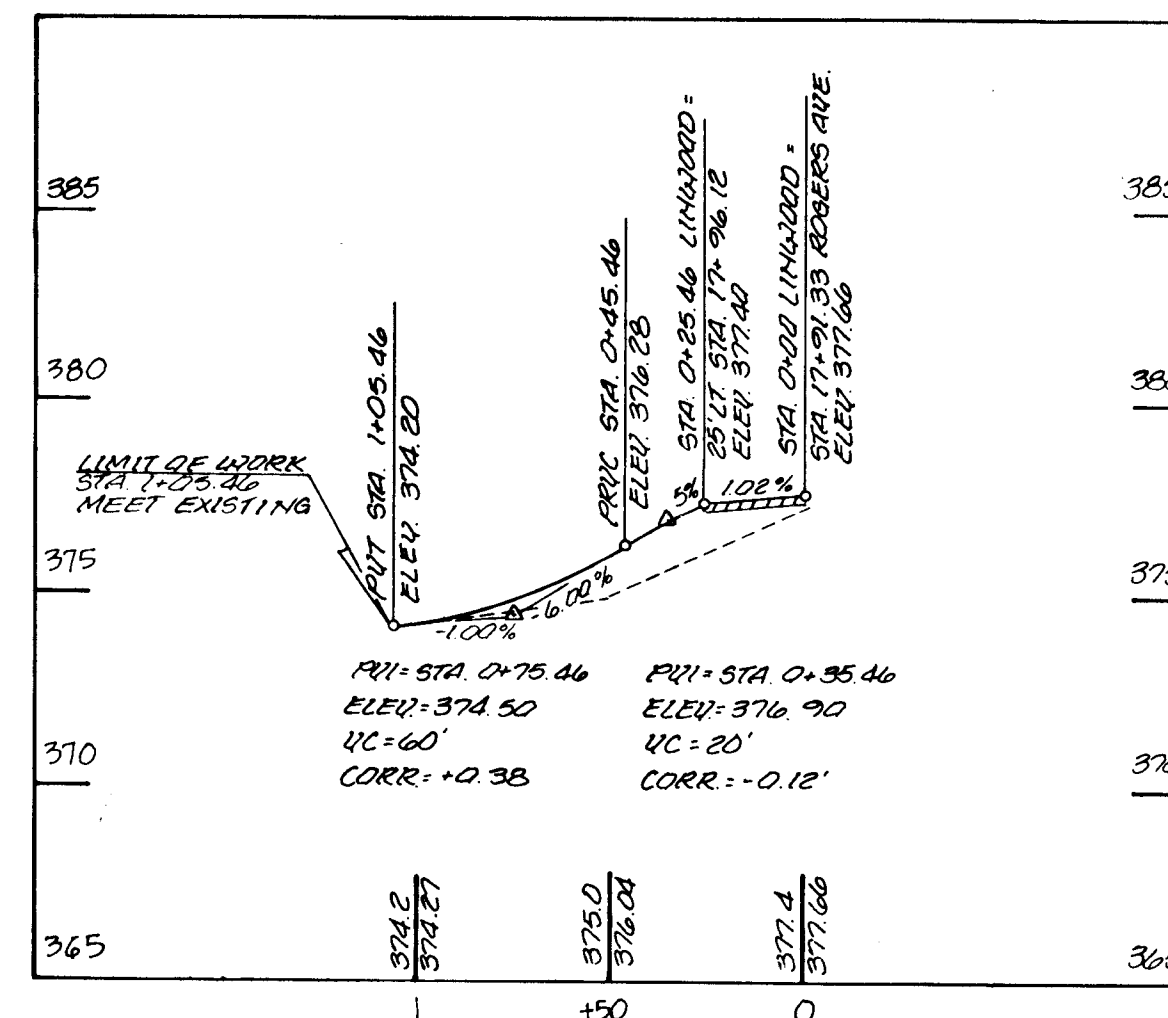
STA 1+06, RT. DRIVEWAY ENTRANCE
BUELL'S RESTAURANT



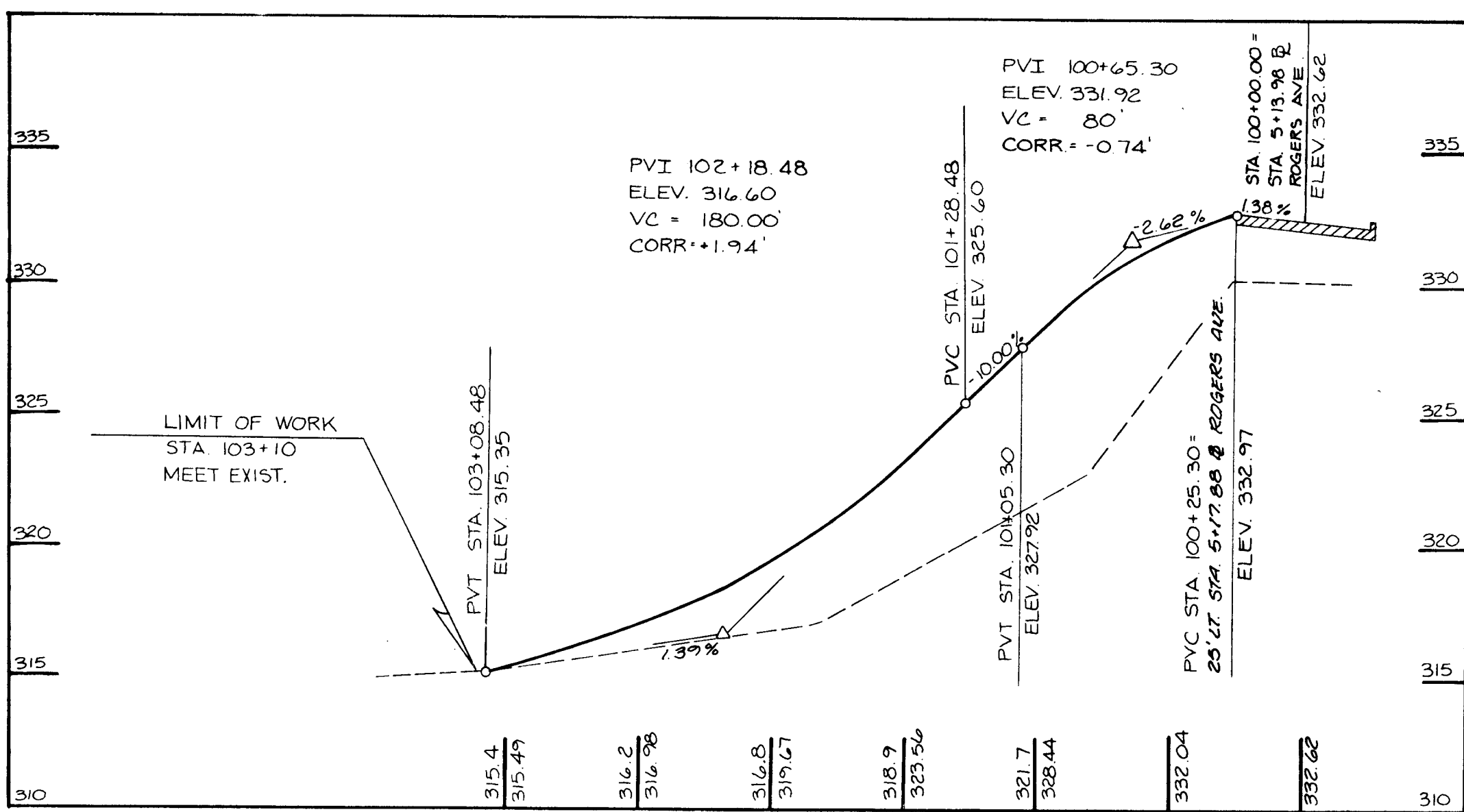
STA 2+39, RT. DRIVEWAY ENTRANCE
BUELL'S RESTAURANT



STA 10+72.52 & OAK WEST DRIVE



STA 17+91.33, LT. & LINWOOD DR.



STA 5+13.98 DRIVEWAY ENTRANCE OUR LADY OF HOPE

SCALE: 1"=5' VERTICAL
1"=50' HORIZONTAL

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

JOHN E. HARMS, JR. & ASSOCIATES, INC.

James M. Lewis 9/5/91
DIRECTOR OF PUBLIC WORKS DATE
Francis W. Wilkerson 9/5/91
CHIEF, BUREAU OF HIGHWAYS DATE

2500002000 8-27-91
CHIEF, BUREAU OF ENGINEERING DATE
Sheela D. Lalor 8/27/91
CHIEF, DIVISION OF ROADS, BRIDGES & STORM DRAINAGE DATE

CONSULTING ENGINEERS
90 GOV. RITCHIE HIGHWAY
PASADENA, MARYLAND

J. W. B.

DES: J.S.			
DRN: FAL			
CHK: ECH			
DATE: 11/21	J.R.R.	REVISOR	DATE
BY: NO.	NO.	REVISION	DATE

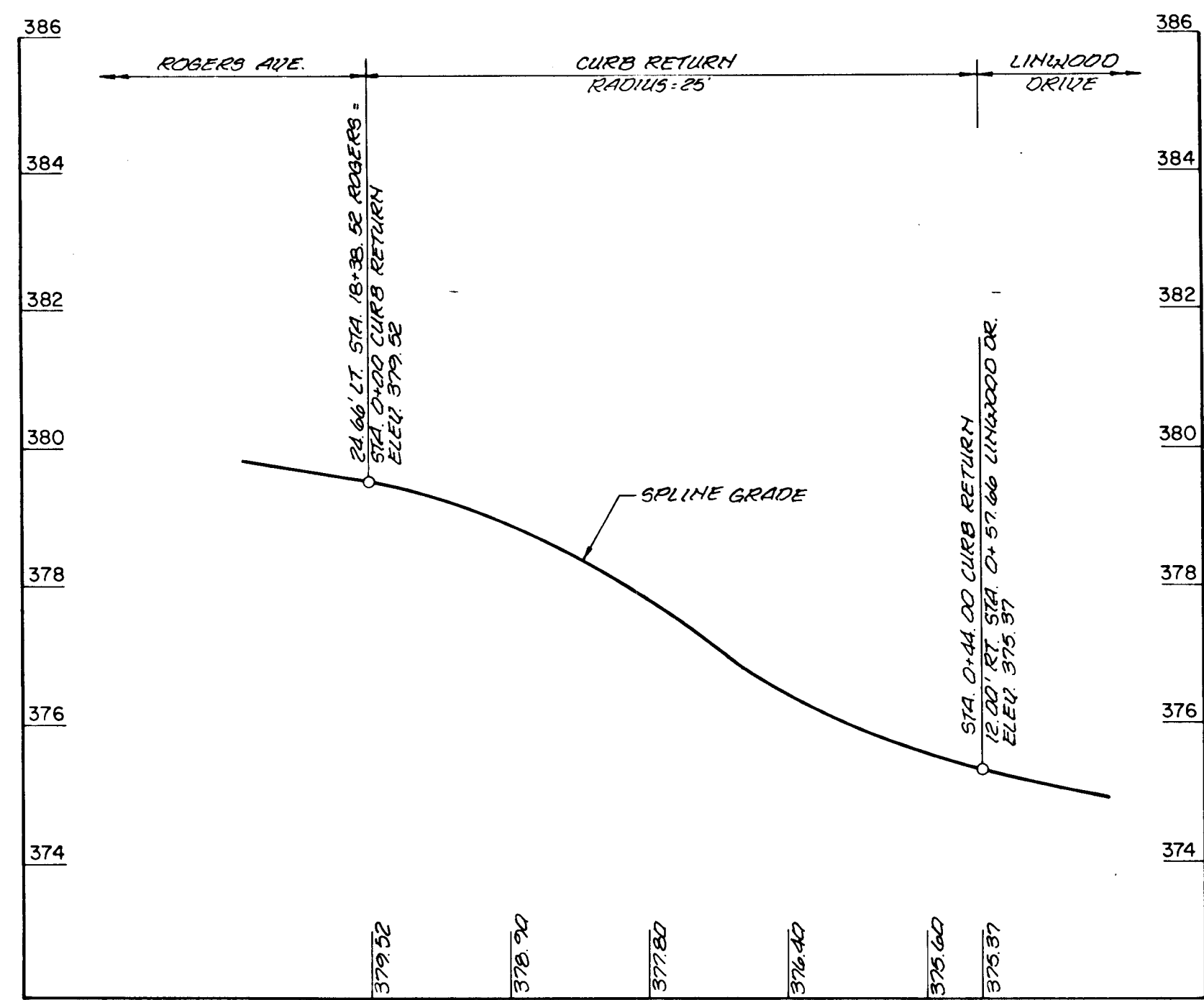
CROSS STREET &
DRIVEWAY PROFILES

ROGERS AVENUE

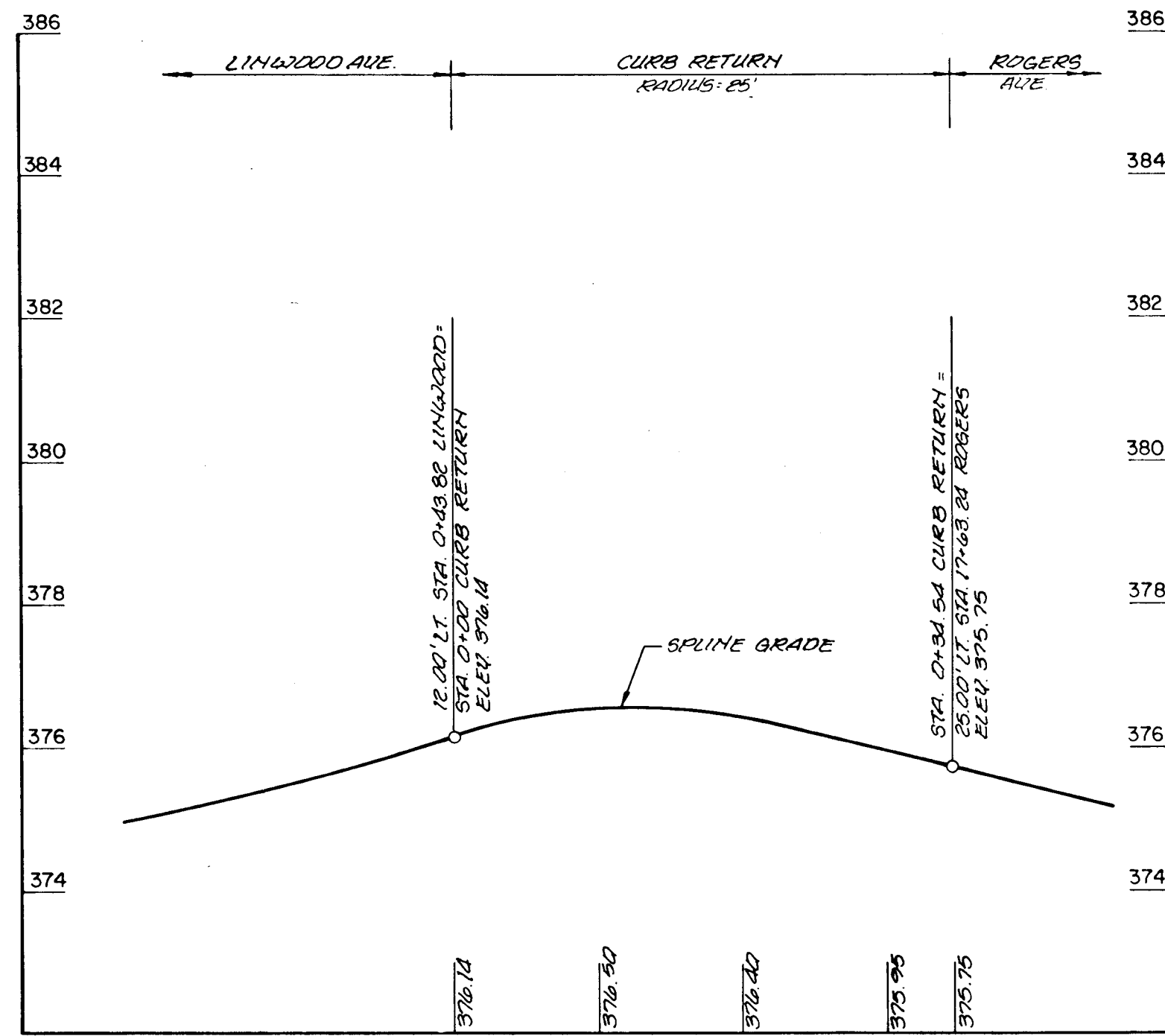
SCALE
AS
SHOWN

SHEET
15 OF 36

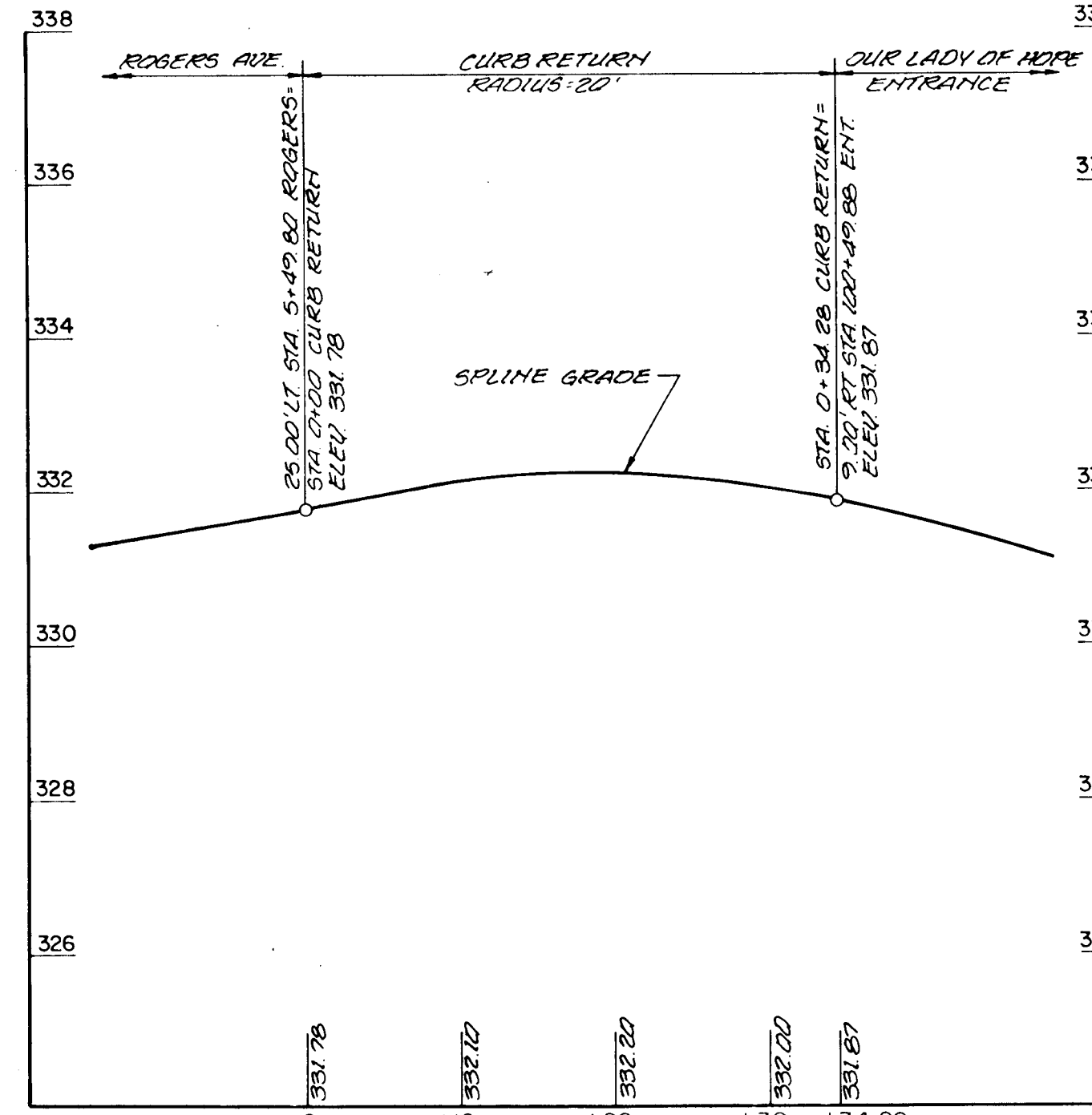
CAPITAL PROJECT No. J-4097



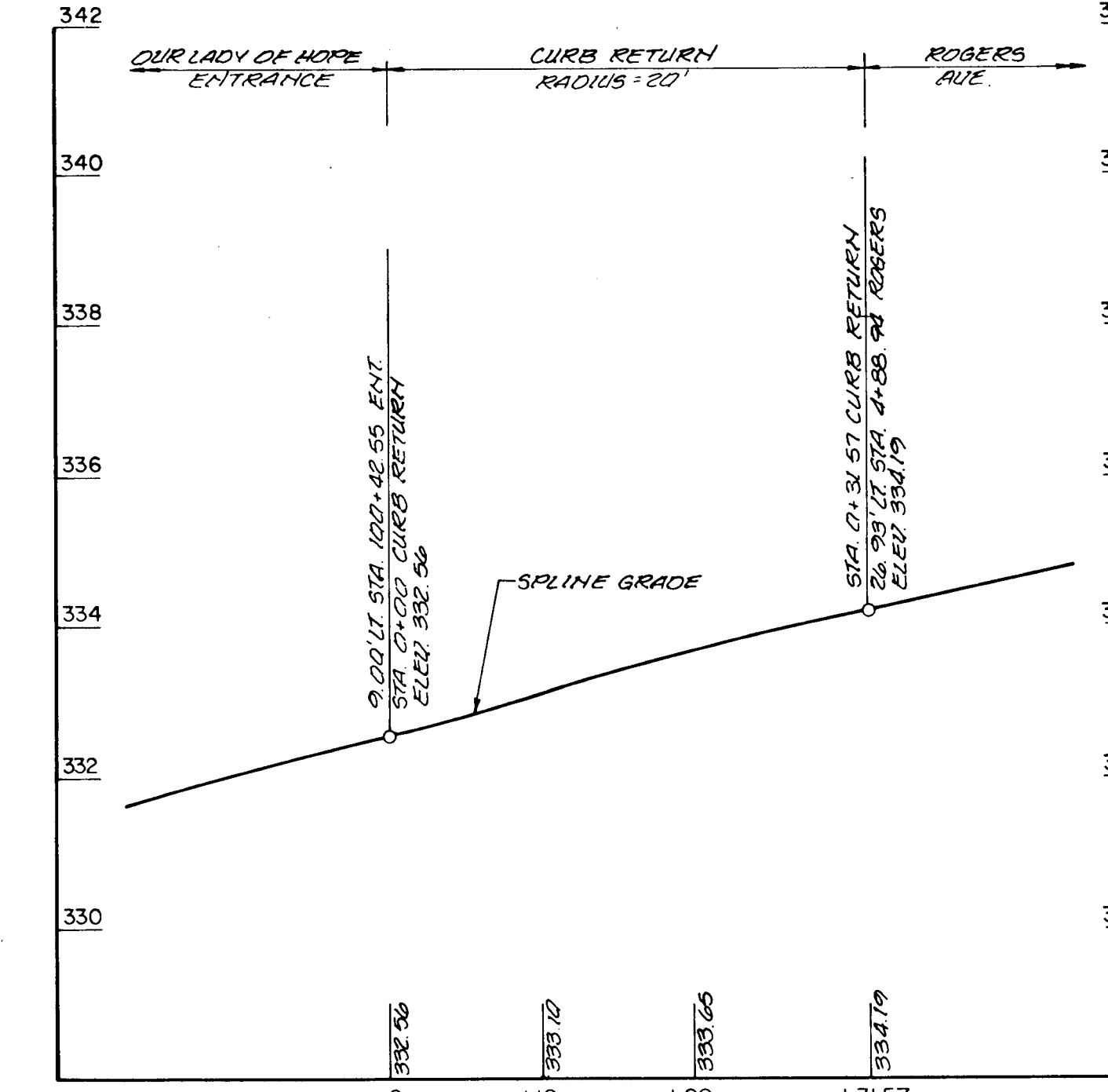
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LINWOOD DR. & ROGERS AVE.



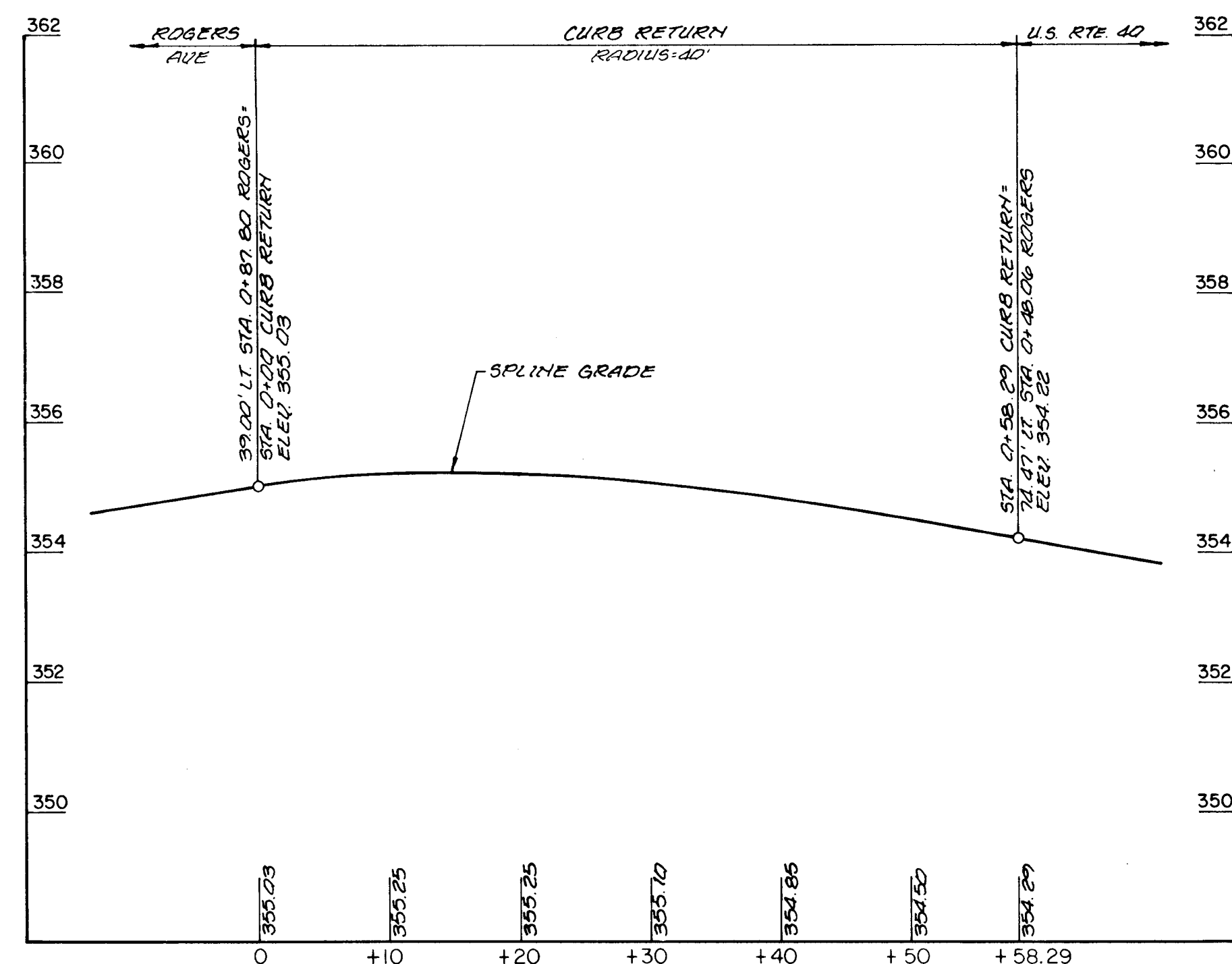
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LINWOOD DR. & ROGERS AVE.



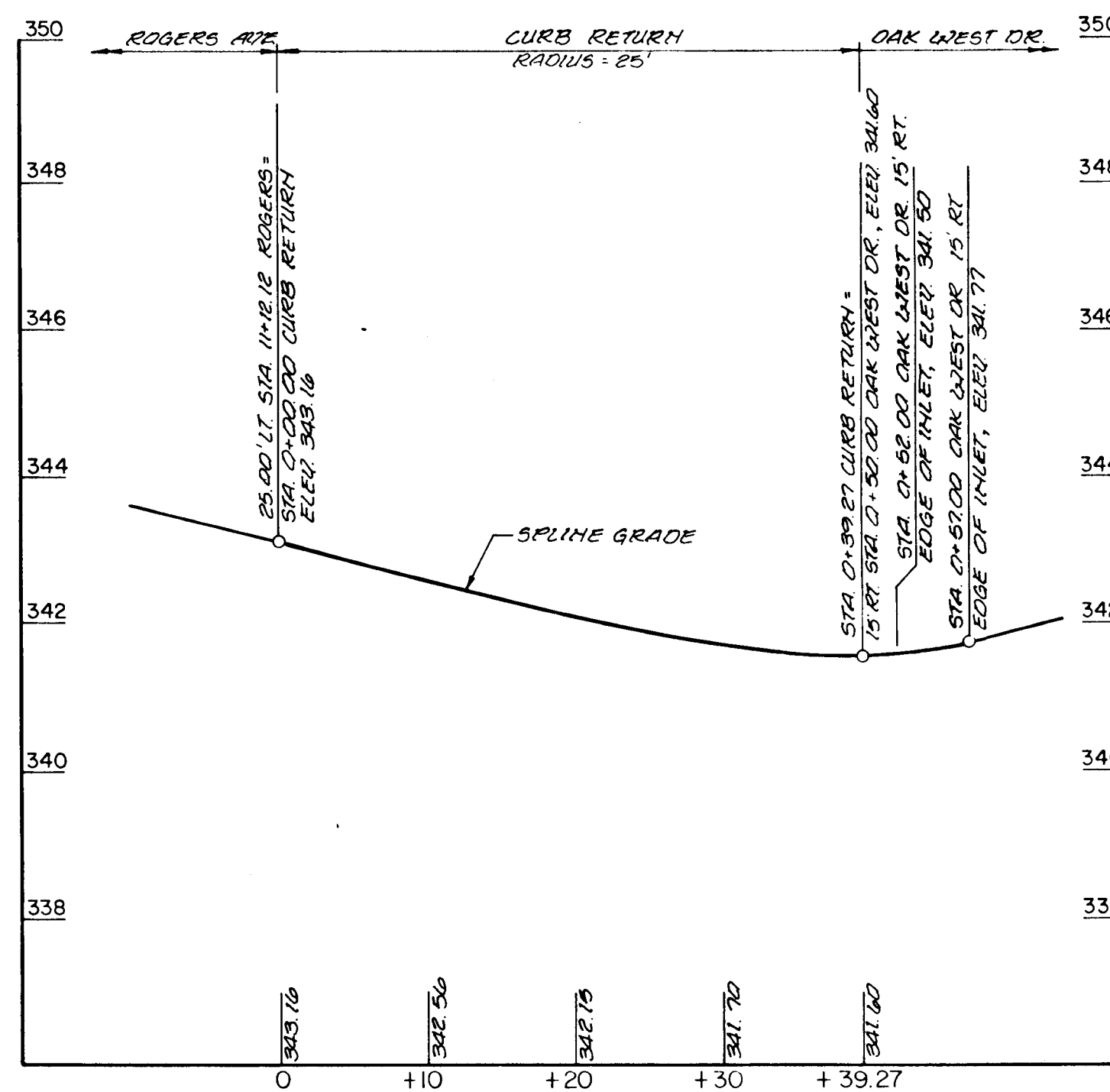
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OUR LADY OF HOPE ENT. & ROGERS AVE.



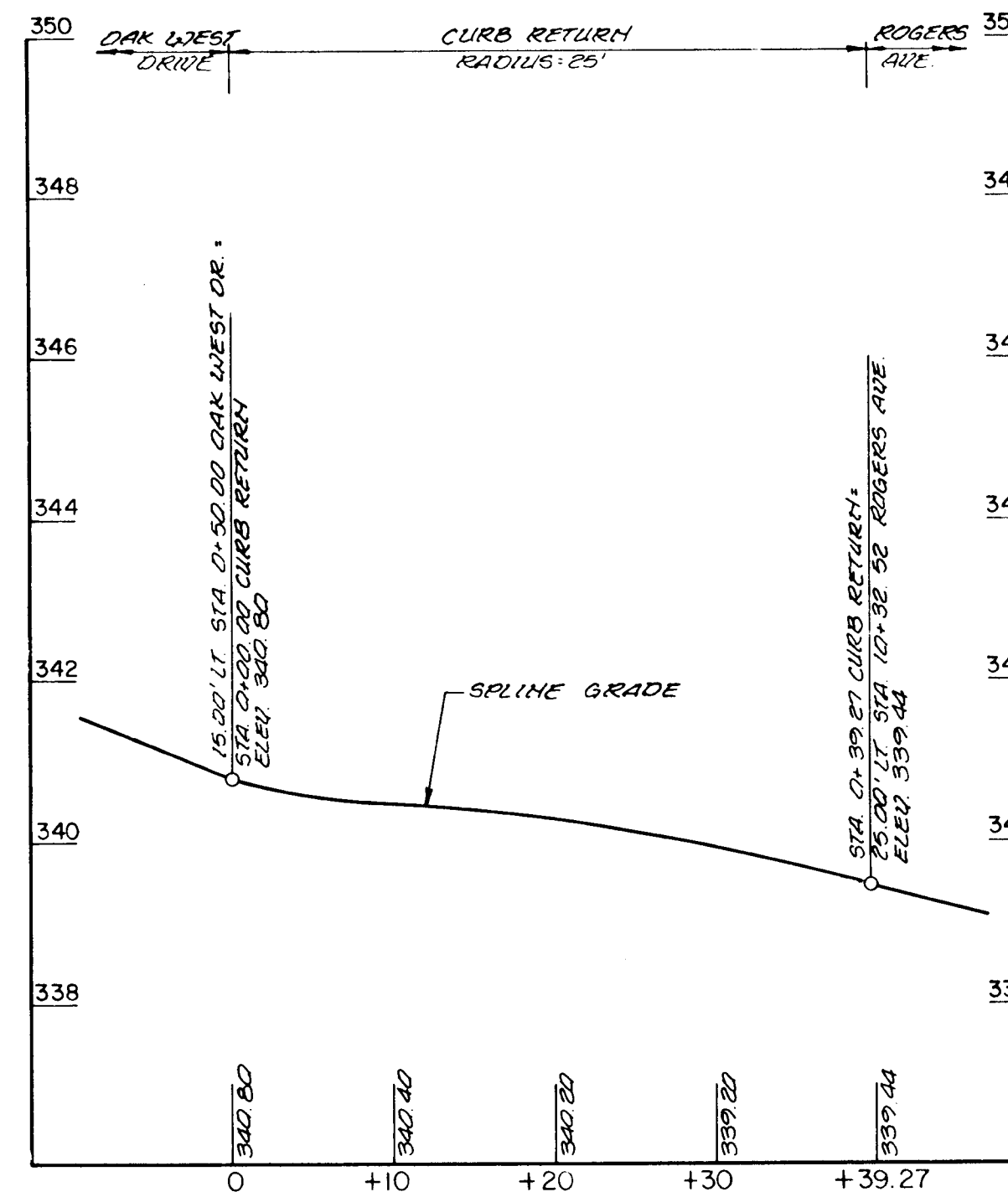
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OUR LADY OF HOPE ENT. & ROGERS AVE.



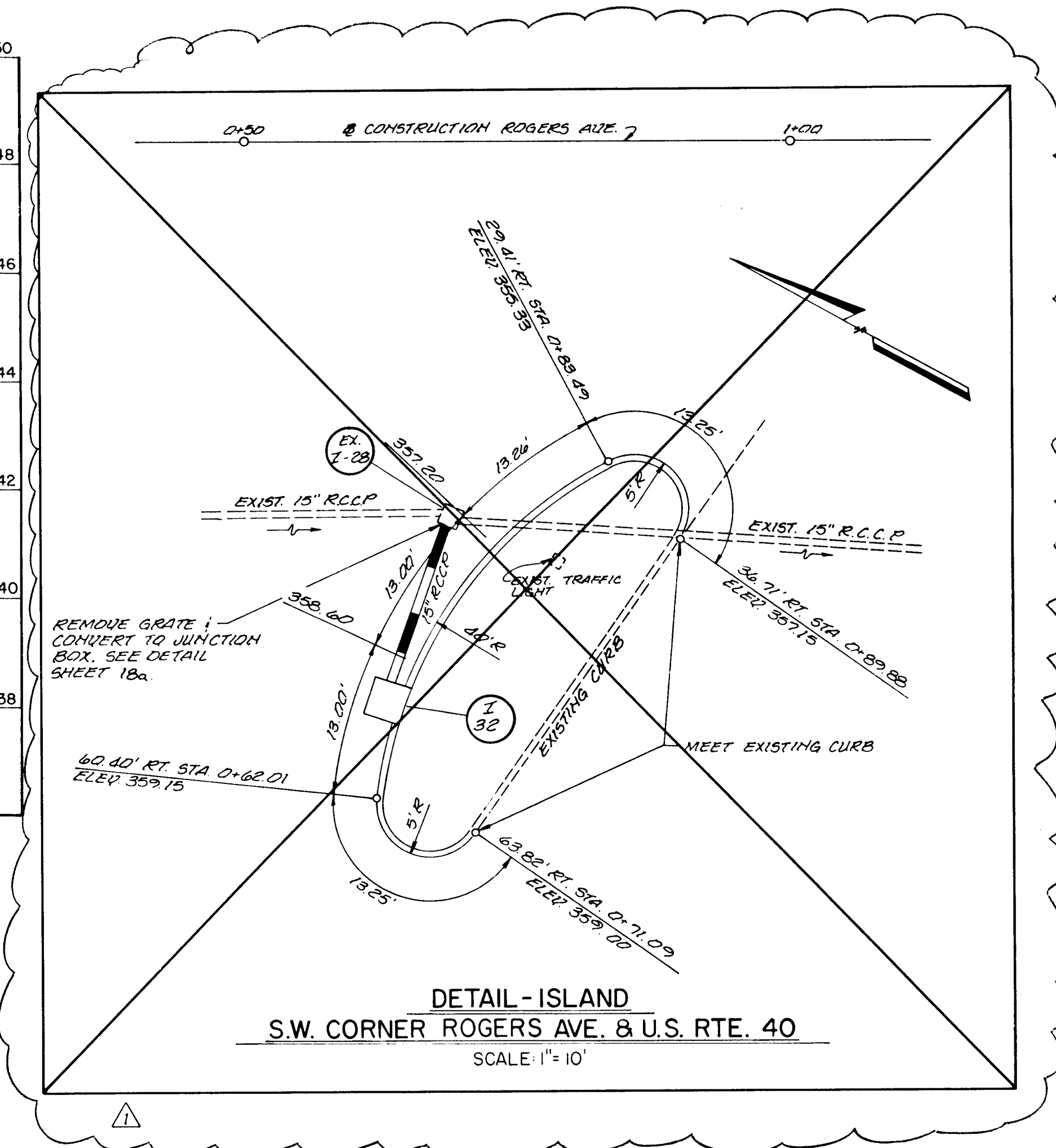
S.E. CORNER
ROGERS AVE. & U.S. RTE. 40



S.E. CORNER
OAK WEST DR. & ROGERS AVE.



N.E. CORNER
OAK WEST DR. & ROGERS AVE.

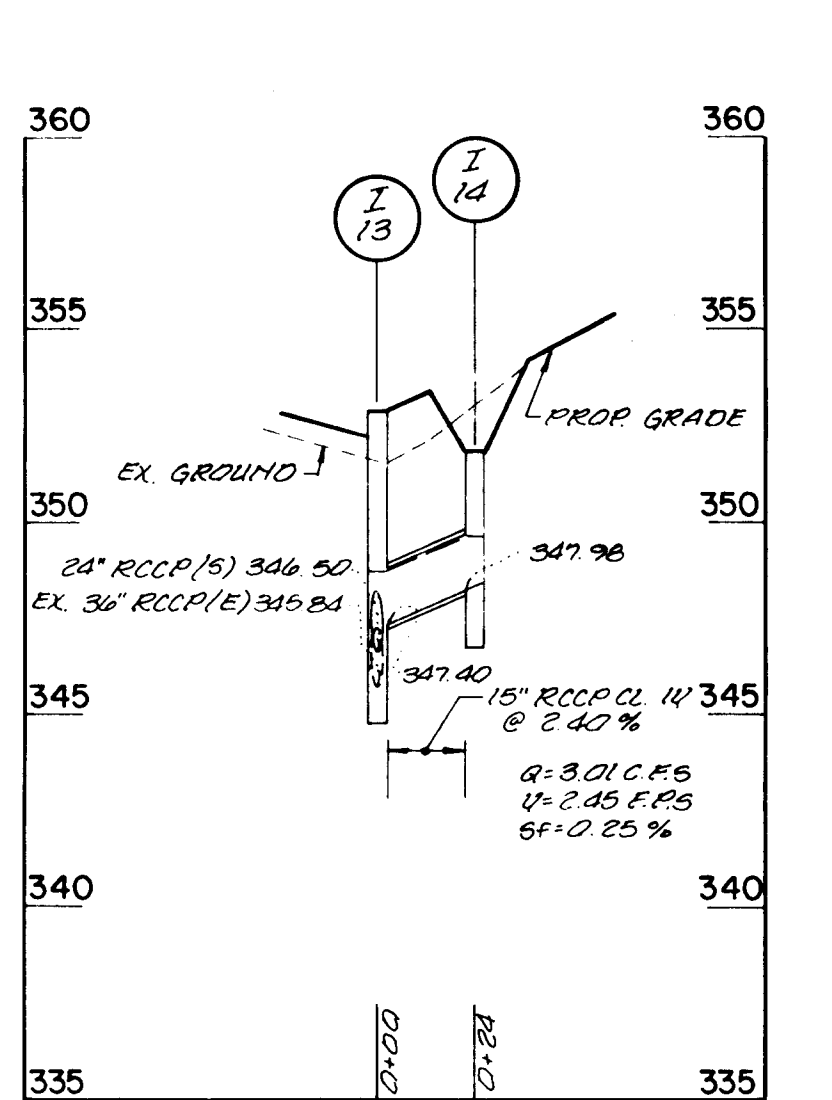
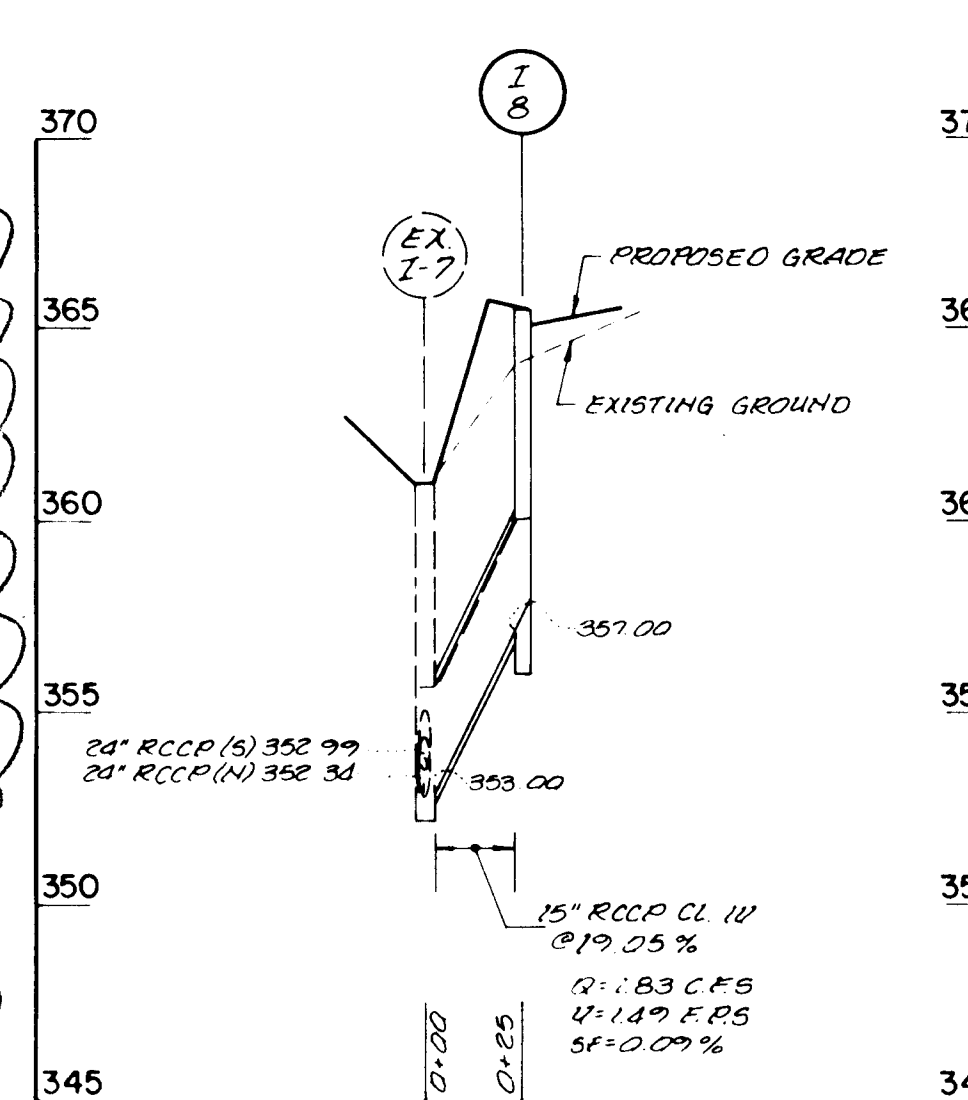
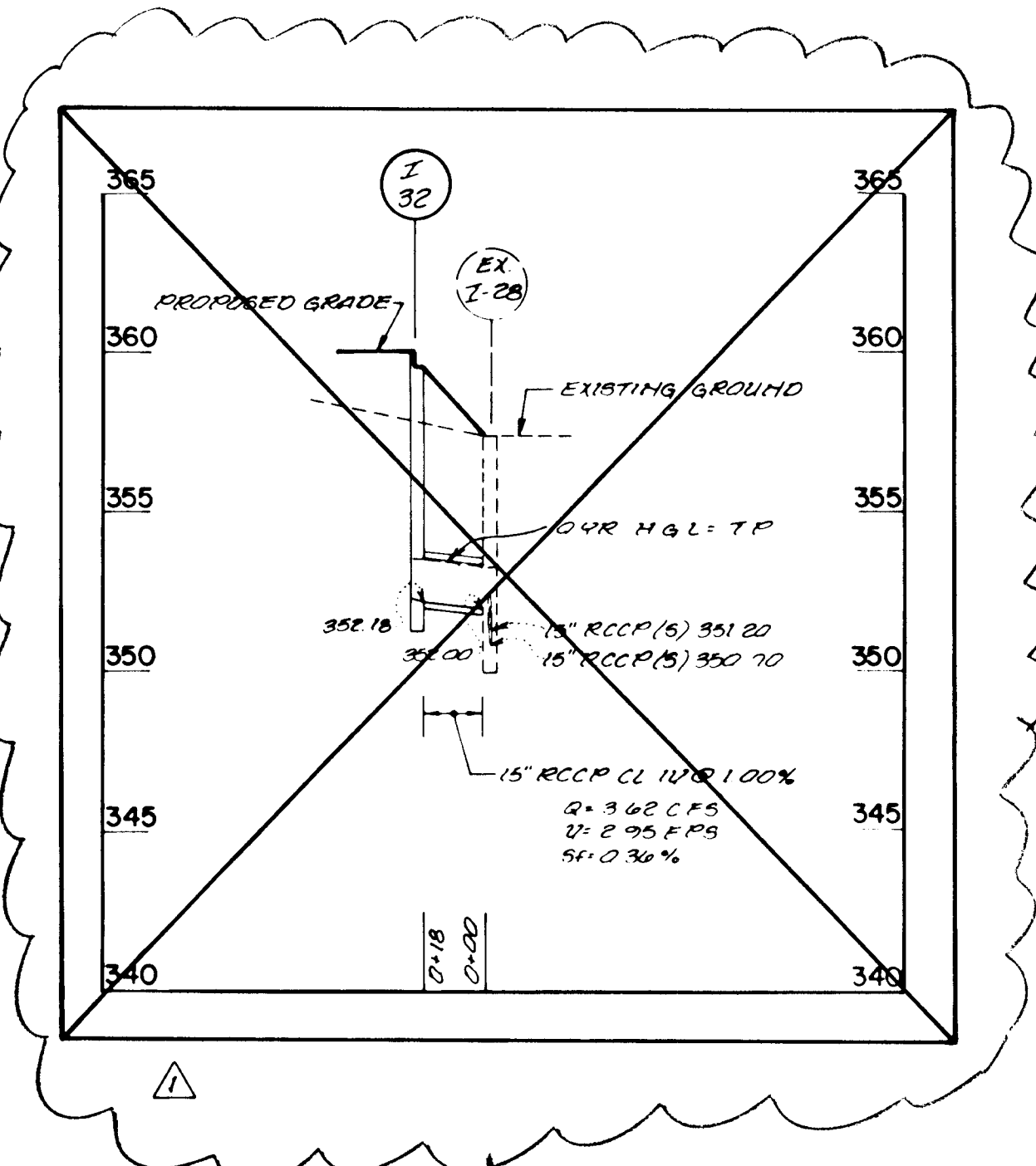
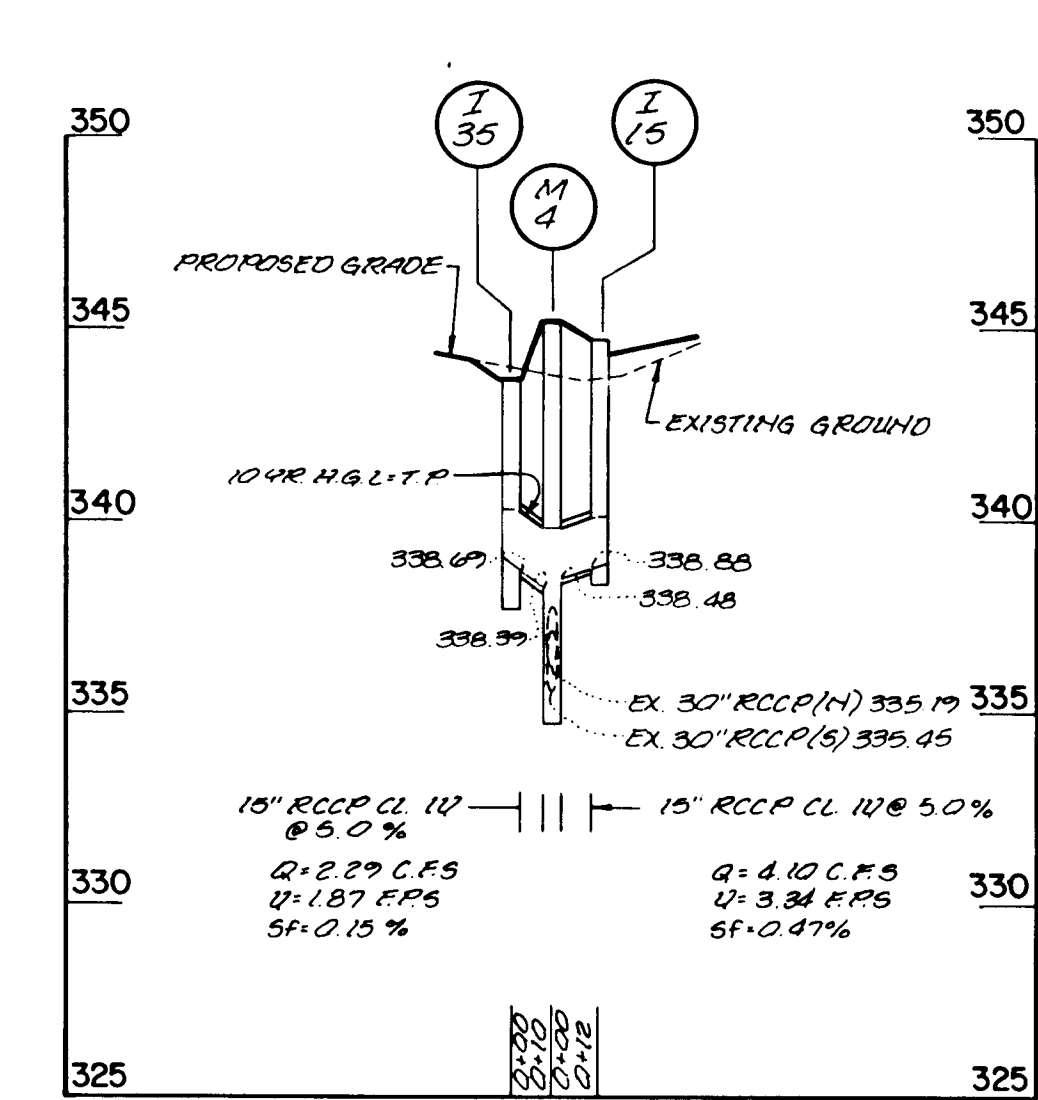
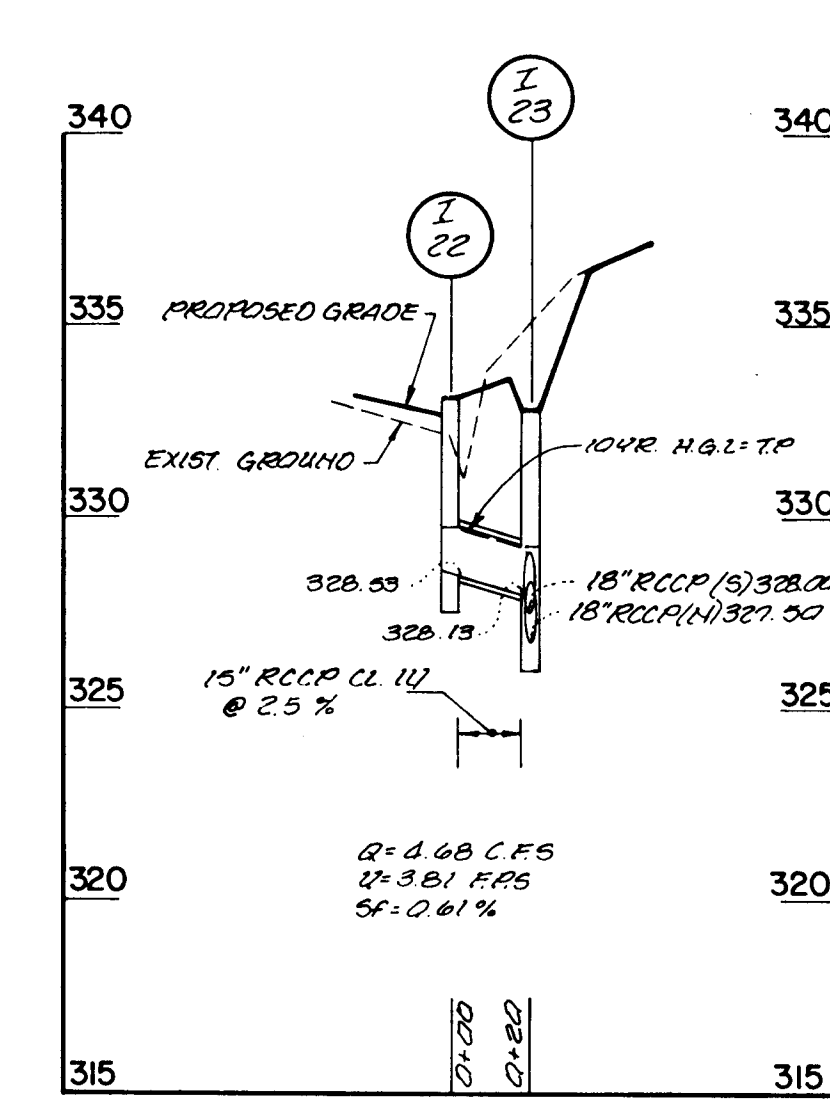
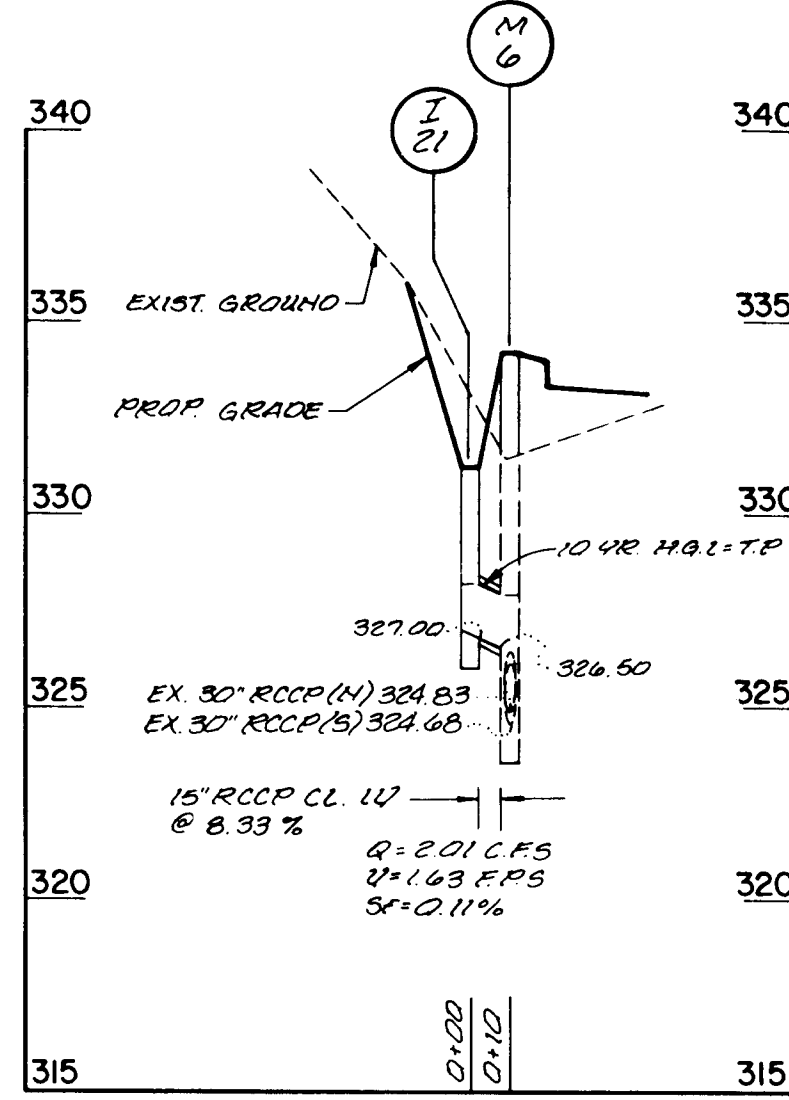
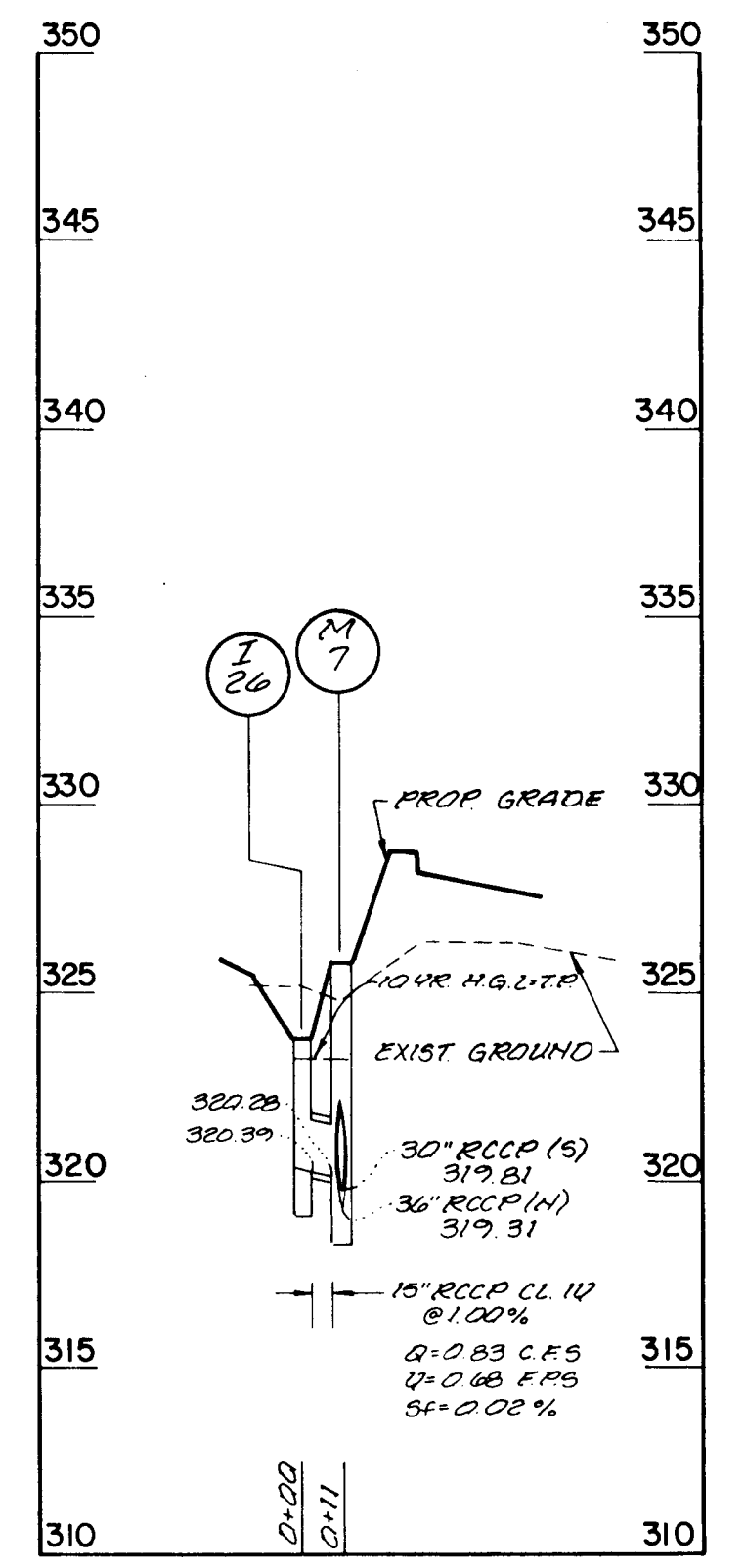
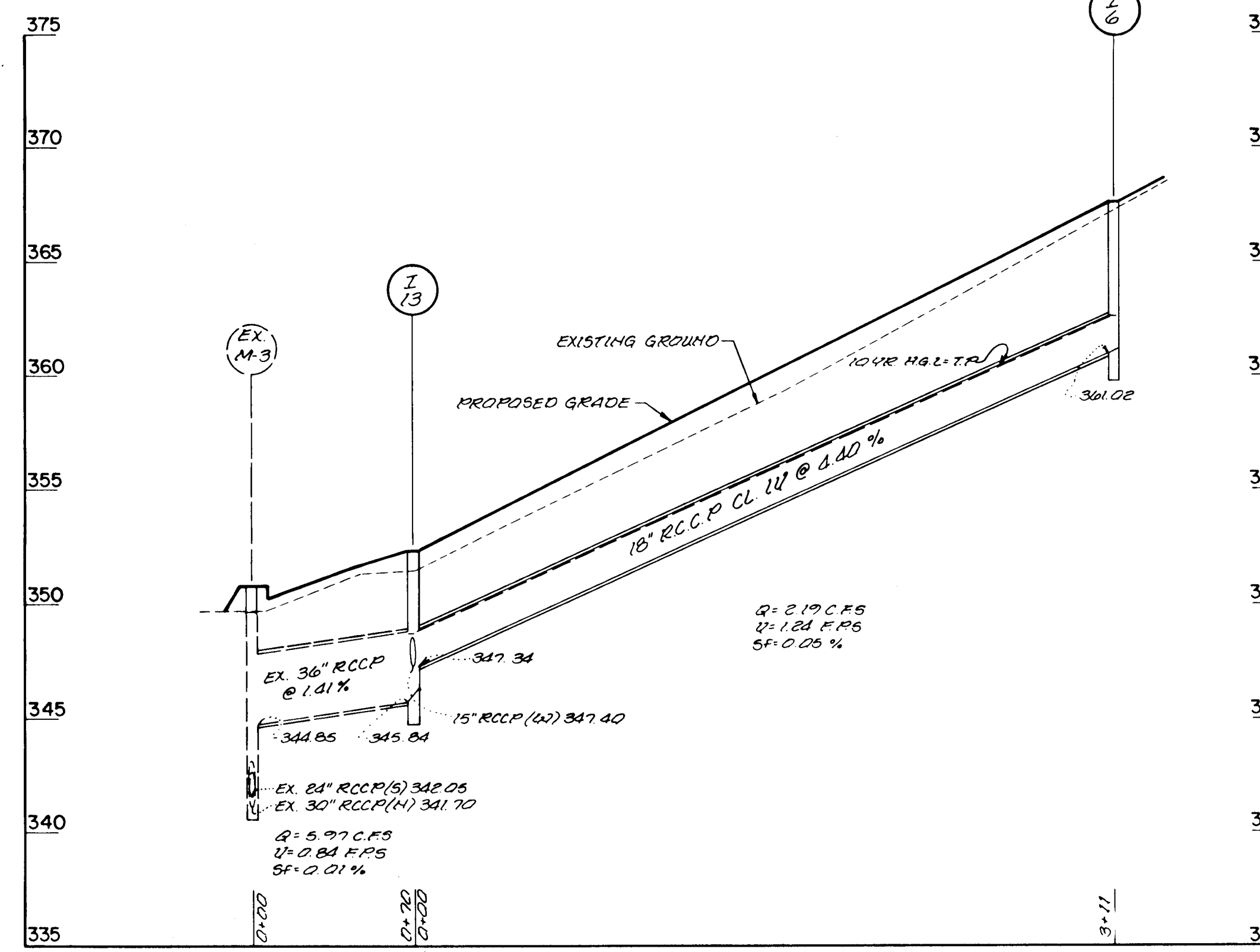
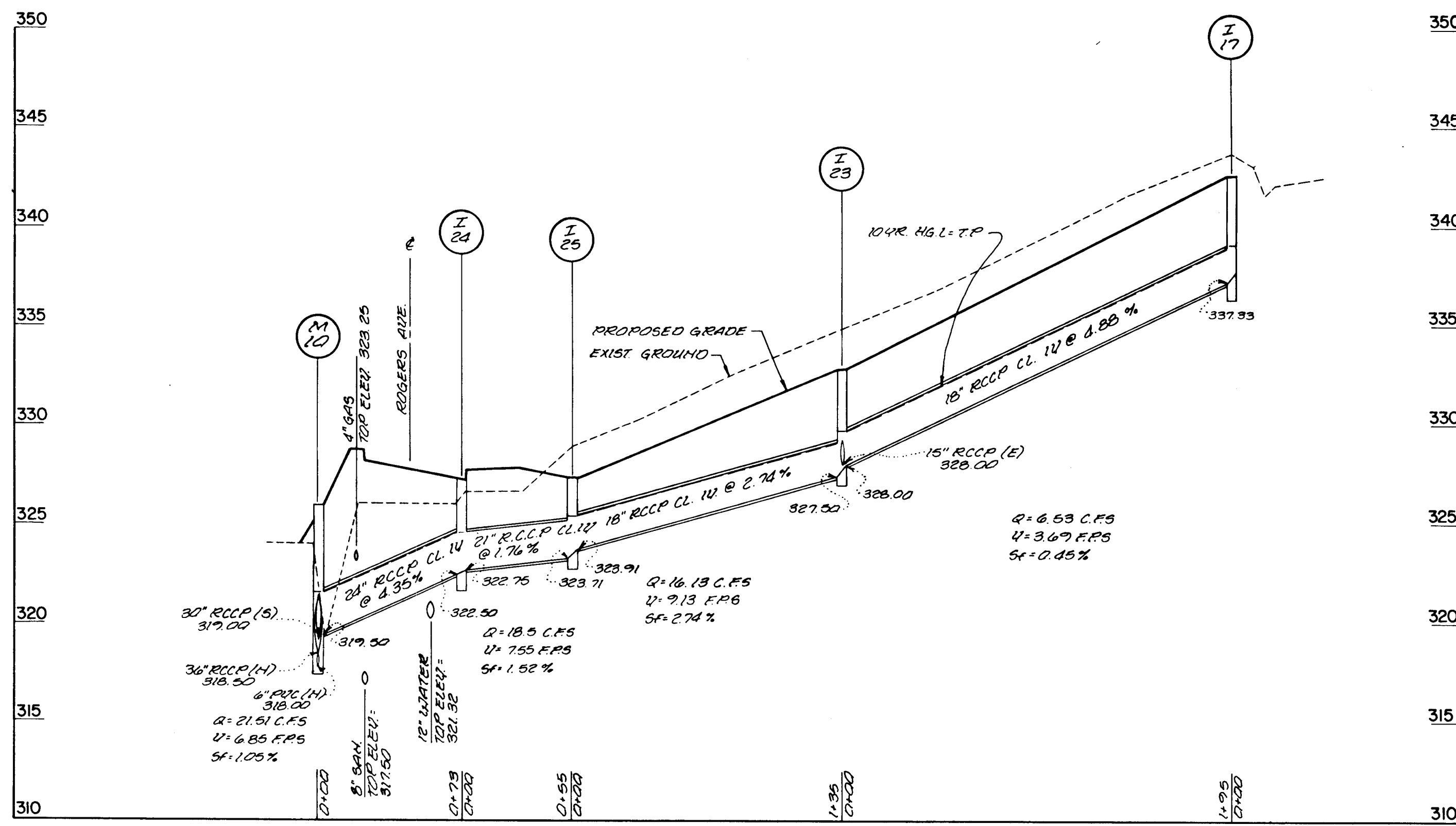


DETAIL - ISLAND
S.W. CORNER ROGERS AVE. & U.S. RTE. 40
SCALE: 1" = 10'

NOTE: ALL ELEVATIONS SHOWN ARE TO FLOW LINE

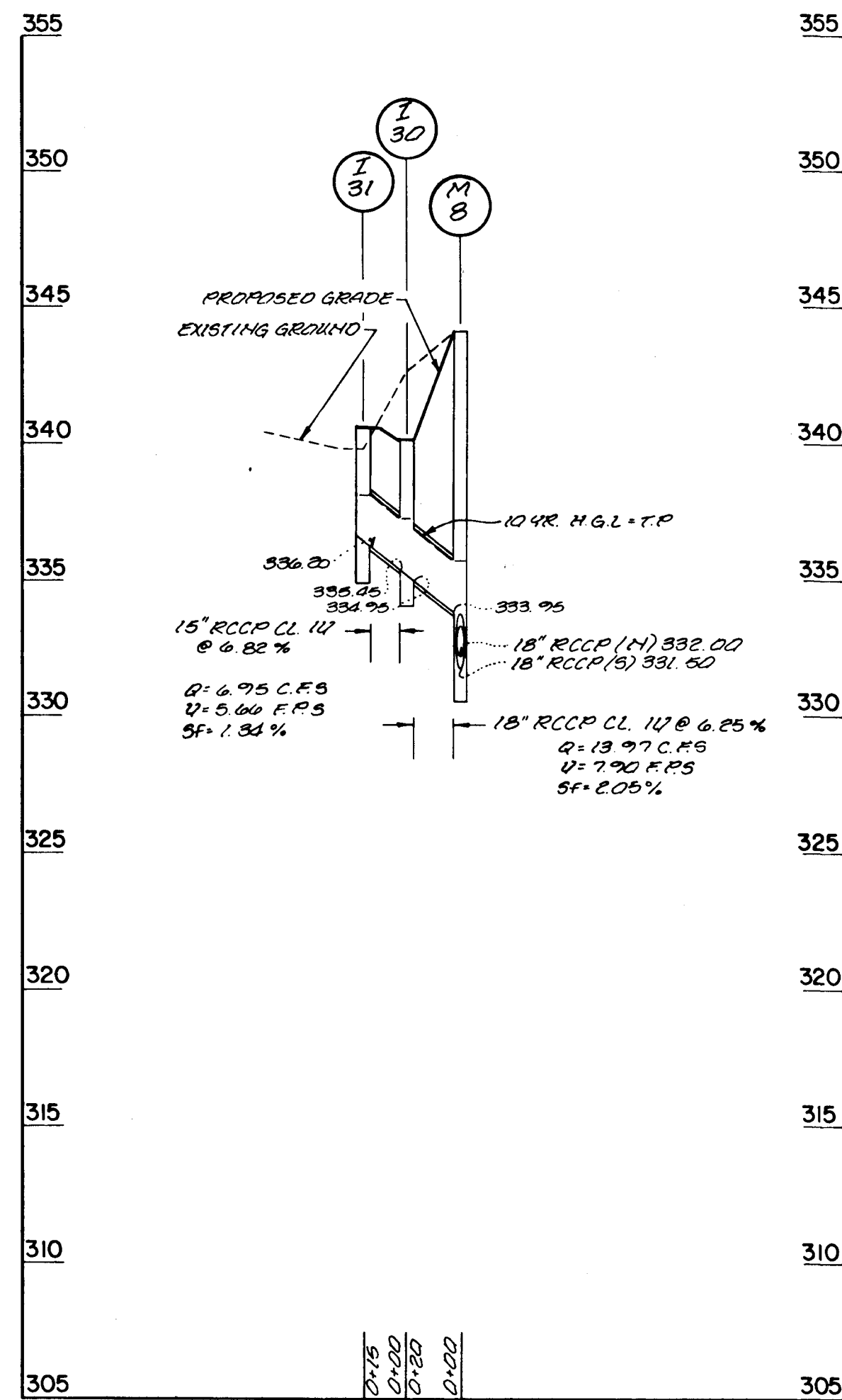
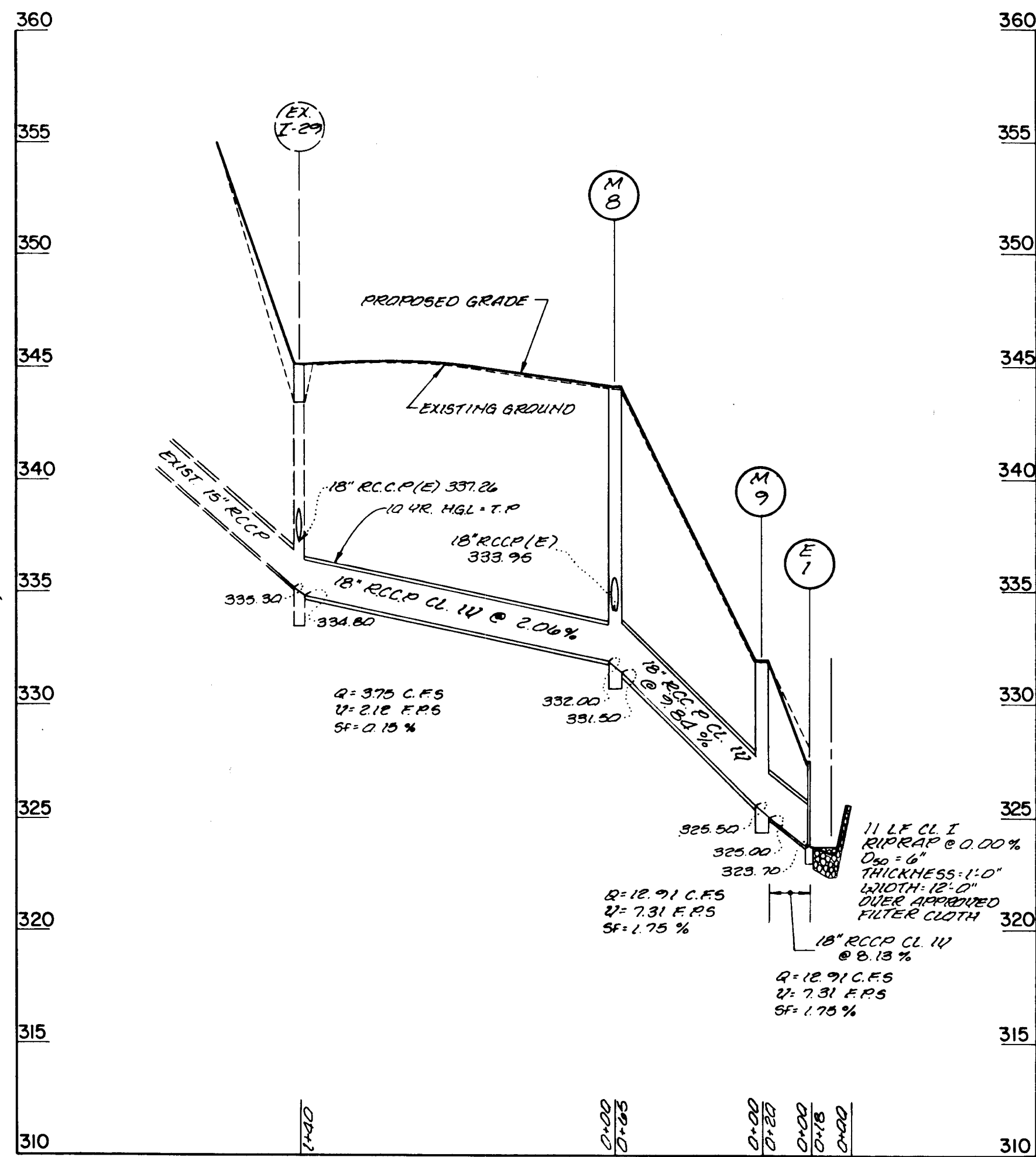
SCALE: 1" = 2' VERTICAL
1" = 10' HORIZONTAL

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND Director of Public Works: <i>James M. Shaw</i> 9/5/91 Chief, Bureau of Highways: <i>Franklin W. Wells</i> 9/5/91		JOHN E. HARMS, JR. & ASSOCIATES, INC. CONSULTING ENGINEERS 90 GOV. RITCHIE HIGHWAY PASADENA, MARYLAND Chief, Bureau of Engineering: <i>John E. Harms, Jr.</i> 8/29/91 Chief, Division of Roads, Bridges & Storm Drainage: <i>Abraham Baker</i> 8/20/91		DES: RLS DRN: J.R.R. CHK: M.W.B. DATE: 7/91	REVISED ROGERS AVE., U.S. ROUTE 40 INTERSECTION 7/12/92 REVISION: _____ DATE: _____	CURB RETURN PROFILES ROGERS AVENUE	SCALE AS SHOWN SHEET 16 OF 36 CAPITAL PROJECT No. J-4097
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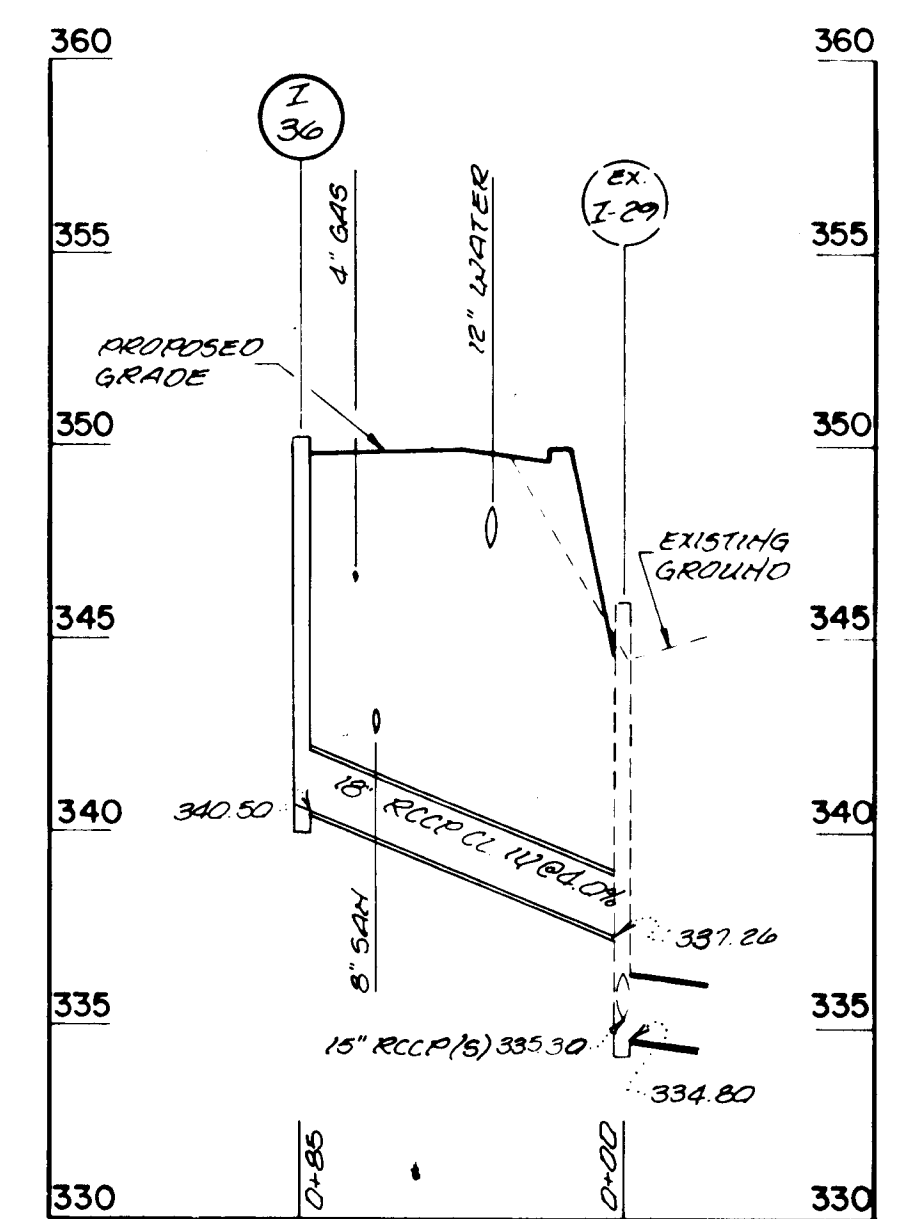
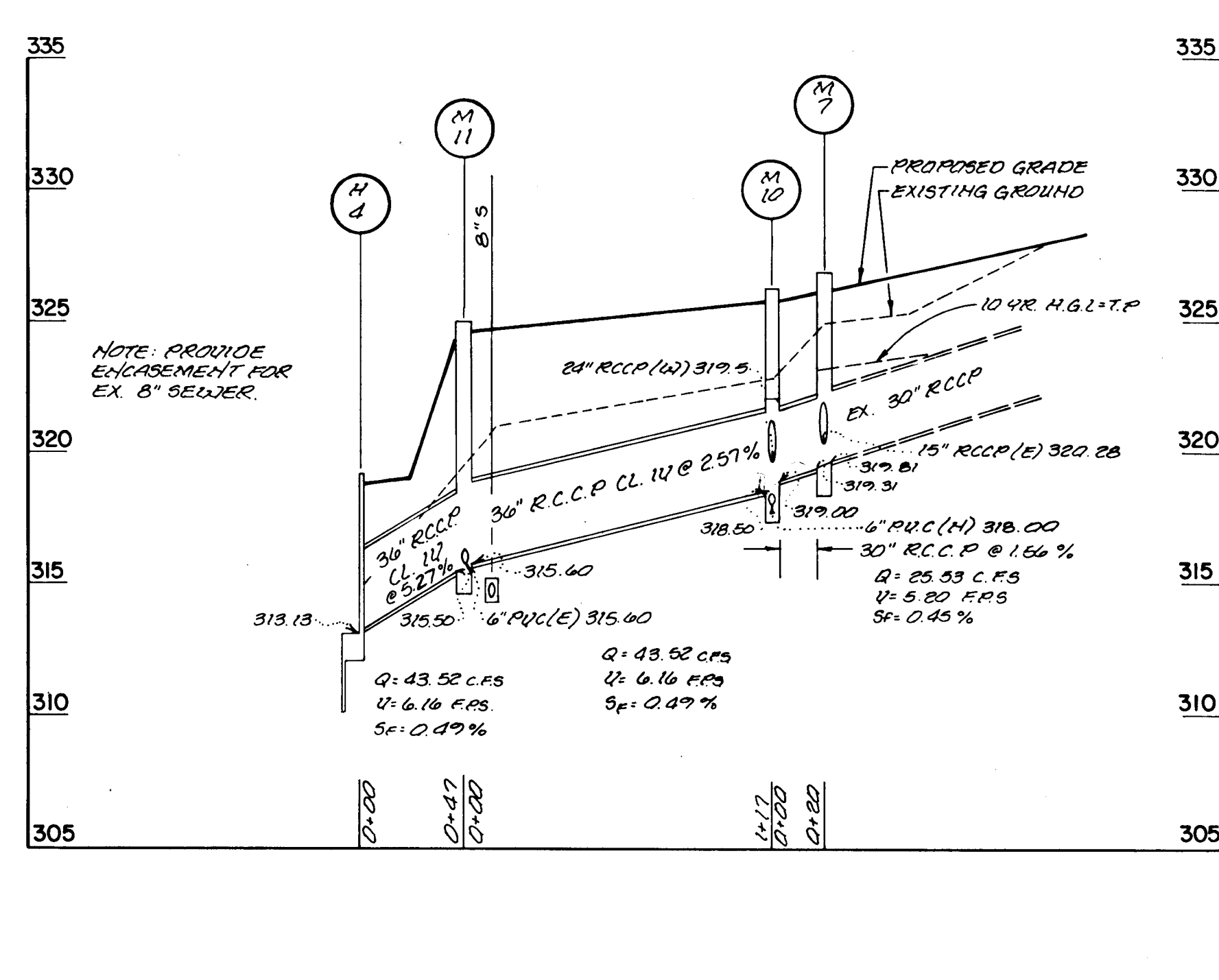
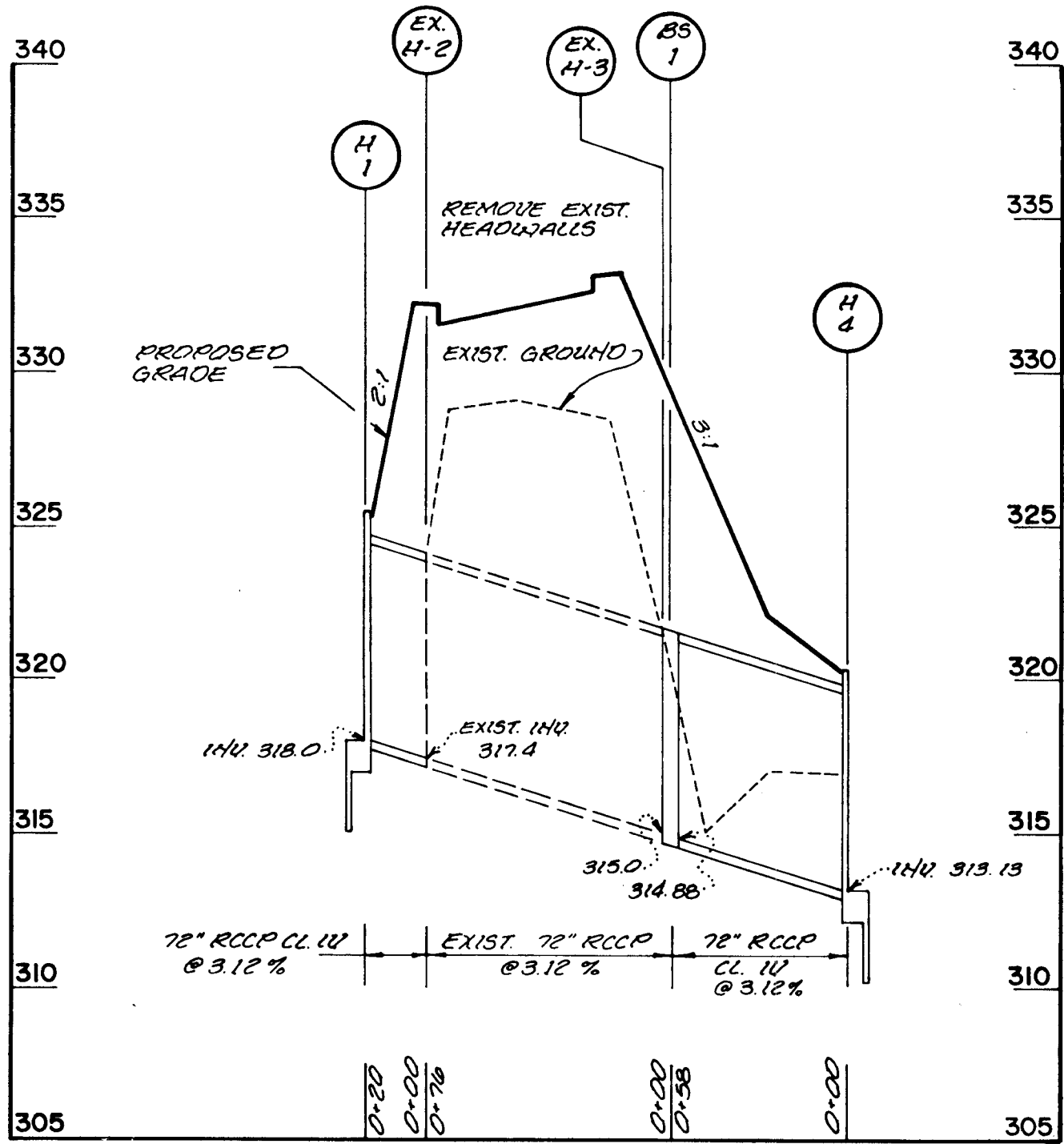
SCALE: HORIZ: 1" = 50'
VERT: 1" = 5'

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND James M. [Signature] 9/5/91 DIRECTOR OF PUBLIC WORKS DATE		JOHN E. HARMS JR. & ASSOCIATES INC. CONSULTING ENGINEERS 90 GOV RITCHIE HIGHWAY PASADENA, MARYLAND [Signature]		RES: D.L.S. DRN: J.R.R. CHK: E.C.H. DATE: 7/91		STORM DRAIN PROFILES ROGERS AVENUE CAPITAL PROJECT No. J-4097		SCALE AS SHOWN SHEET 17 OF 36
[Signature] 9/5/91 CHIEF, BUREAU OF HIGHWAYS DATE		[Signature] 8/27/91 CHIEF, BUREAU OF ENGINEERING DATE		[Signature] 8/28/91 CHIEF, DIVISION OF ROADS, BRIDGES & STORM DRAINAGE DATE		REVISED ROGERS AVE., U.S. ROUTE 40 INTERSECTION 7/8/92 BY NO. REVISION DATE		600' SCALE MAP NO. BLOCK NO.



FROM	TO	SIZE	TYPE	LENGTH
I-6	I-13	18"	RCCP CL IV	311'
I-14	I-13	15"	RCCP CL IV	20'
I-8	EX I-7	15"	RCCP CL IV	21'
I-15	M-4	15"	RCCP CL IV	8'
I-35	M-4	15"	RCCP CL IV	6'
M-10	M-11	36"	RCCP CL IV	113'
I-17	I-23	18"	RCCP CL IV	191'
I-23	I-25	18"	RCCP CL IV	131'
I-25	I-24	21"	RCCP CL IV	51'
I-24	M-10	24"	RCCP CL IV	69'
M-7	I-26	15"	RCCP CL IV	7'
I-21	M-6	15"	RCCP CL IV	6'
I-22	I-23	15"	RCCP CL IV	16'
EX I-29	M-8	18"	RCCP CL IV	136'
M-8	M-9	18"	RCCP CL IV	61'
M-9	E-1	18"	RCCP CL IV	16'
I-31	I-30	15"	RCCP CL IV	11'
I-30	M-8	18"	RCCP CL IV	16'
H-1	EX H-2	72"	RCCP CL IV	20'
M-7	M-10	30"	RCCP CL IV	16'
I-32	EX I-29	18"	RCCP CL IV	18'
I-36	EX I-29	18"	RCCP CL IV	81'
BS-1	H-4	72"	RCCP CL IV	56'
M-11	H-4	36"	RCCP CL IV	45'

STRUCTURE SCHEDULE							
NO.	TYPE	BASELINE	STA.	OFFSET	TOP OF STRUCTURE	INV. OUT	REMARKS
EX I-1	Ex. Inlet	Rogers Avenue	18+50	25' Lt.	380.48		
EX I-2	Ex. Inlet	Rogers Avenue	19+15	25' Lt.	382.82		
EX I-3	Ex. Inlet	Rogers Avenue	18+10	26' Rt.	378.20		
I-6	A-5 w/Deflector	Rogers Avenue	16+02	25' Rt.	368.21	361.02	Howard County Std. SD 4.01
EX I-7	Ex. Inlet	Rogers Avenue	15+49	50' Lt.	360.65	352.34	
I-8	A-5 w/Deflector	Rogers Avenue	15+49	25' Lt.	365.56	357.00	Howard County Std. SD 4.01
EX I-10	Ex. Inlet	Rogers Avenue	14+32	47' Lt.	356.66		
EX I-11	Ex. Inlet	Rogers Avenue	13+33	48' Lt.	352.10	344.76	
I-13	A-5 w/Deflector	Rogers Avenue	12+91	25' Rt.	352.94	345.84	Howard County Std. SD 4.01
I-14	D	Rogers Avenue	12+91	49' Rt.	352.81	347.98	Howard County Std. SD 4.11
I-15	A-10 w/Deflector	Rogers Avenue	11+37	25' Lt.	344.96	338.88	Howard County Std. SD 4.02
I-17	D	Rogers Avenue	10+95	46' Rt.	343.37	337.33	Howard County Std. SD 4.11
EX I-18	Ex. Inlet	Rogers Avenue	10+93	57' Lt.	342.14		
EX I-19	Ex. Inlet	Rogers Avenue	10+55	57' Rt.	342.14		
I-21	D	Rogers Avenue	8+99	47' Lt.	332.08	327.00	Howard County Std. SD 4.11
I-22	A-10 w/Deflector	Rogers Avenue	9+00	25' Rt.	333.11	328.53	Howard County Std. SD 4.02
I-23	D	Rogers Avenue	9+00	45' Rt.	333.69	327.50	Howard County Std. SD 4.11
I-24	A-10 w/Deflector	Rogers Avenue	7+15	25' Rt.	327.71	322.50	Howard County Std. SD 4.02
I-25	D	Rogers Avenue	7+65	39' Rt.	328.24	323.71	Howard County Std. SD 4.11
I-26	D	Rogers Avenue	7+17	50' Lt.	324.47	320.39	Howard County Std. SD 4.11
EX I-28	Ex. Inlet	Rogers Avenue	0+66	32' Rt.	TO BE DIRECTED BY FIELD BY ENGINEER		Convert to Junction Box - See Detail Sheet 5
EX I-29	Ex. Inlet	Rogers Avenue	2+11	44' Rt.	346.01	334.80	Raise Ex. Inlet to Elev. 346.01
I-30	D	Rogers Avenue	3+50	39' Rt.	340.41	334.95	Howard County Std. SD 4.11
I-31	A-10 w/Deflector	Rogers Avenue	3+50	25' Rt.	340.84	336.20	Howard County Std. SD 4.01
EX M-1	Ex. MH	Rogers Avenue	17+71	23' Lt.	376.14	369.59	Raise Ex. MH to Elev. 376.14
EX M-2	Ex. MH	Rogers Avenue	17+44	34' Lt.	375.63	366.44	Raise Ex. MH to Elev. 375.63
M-4	Std. MH	Rogers Avenue	11+27	30' Lt.	344.62	335.19	Howard County Std. G 5.02
EX M-3	Ex. MH	Rogers Avenue	12+50	28' Lt.	350.83	341.70	Raise Ex. MH to Elev. 350.83
EX M-5	Ex. MH	Rogers Avenue	10+82	34' Lt.	341.70	332.60	Raise Ex. MH to Elev. 341.70
M-6	Ex. Inlet	Rogers Avenue	8+99	35' Lt.	334.25	324.68	Convert Ex. Inlet to Manhole
M-7	Ex. Inlet	Rogers Avenue	7+17	41' Lt.	326.93	319.31	Convert Ex. Inlet to Manhole
M-8	Std. MH	Rogers Avenue	3+50	60' Rt.	344.13	331.50	Howard County Std. G 5.01
M-9	Std. MH	Rogers Avenue	4+07	90' Rt.	332.10	325.00	Howard County Std. G 5.01
M-10	Std. MH	Rogers Avenue	6+97	42.5' Lt.	326.35	318.00	Howard County Std. G 5.02
E-1	Endwall	Rogers Avenue	4+17	74' Rt.	325.95	323.70	Howard County Std. SD 5.21
H-1	Headwall	Rogers Avenue	5+26	48' Rt.		318.00	Howard County Std. SD 5.11
I-35	D	Rogers Avenue	11+27	40' Lt.	344.52	338.69	Howard County Std. SD 4.11
I-32	S. Comb Inlet (Dep)	Rogers Avenue	0+64	52' Rt.	359.37	352.18	Howard County Std. SD 4.32
I-36	A-5 w/Deflector	Rogers Avenue	2+00	39' Lt.	350.31	340.50	Howard County Std. SD 4.01
H-4	HEADWALL	ROGERS AVE.	5+67	100' Lt.		313.13	MODIFIED HOWARD COUNTY STD. SD 5.11*
BS-1	BEND STR.	ROGERS AVE.	5+43	48' Lt.	329.00	314.88	HOWARD COUNTY STD. SD. 1.01
M-11	STD. MH	ROGERS AVE.	5+84	54' Lt.	325.00	315.50	HOWARD COUNTY STD. G 5.02



SCALE: 1"=50' HORIZONTAL
1"=5' VERTICAL

* Type 'A' Headwall Modified to Allow 36" RCCP Through South Wingwall.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

James M. Lewis 9/5/91
DIRECTOR OF PUBLIC WORKS DATE

Praville W. Cheaney 9/15/91
CHIEF, BUREAU OF HIGHWAYS DATE

JOHN E. HARMS JR. & ASSOCIATES, INC.
CONSULTING ENGINEERS
90 GOV. RITCHIE HIGHWAY
PASADENA, MARYLAND

DRN: J.R.R.
CHK: E.C.H.
DATE: 7/91

DES: D.L.S.
REVISED ROGERS AVE., U.S. ROUTE 40 INTERSECTION 7/2/92

STORM DRAIN
PROFILES & SCHEDULES

ROGERS AVENUE

SCALE AS SHOWN

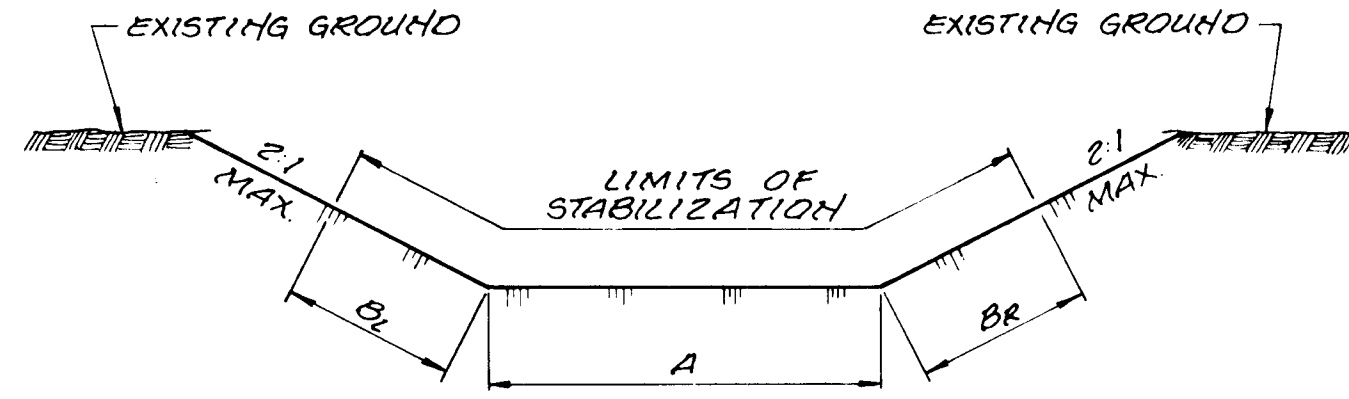
SHEET 18 OF 36

CAPITAL PROJECT NO. J-4097

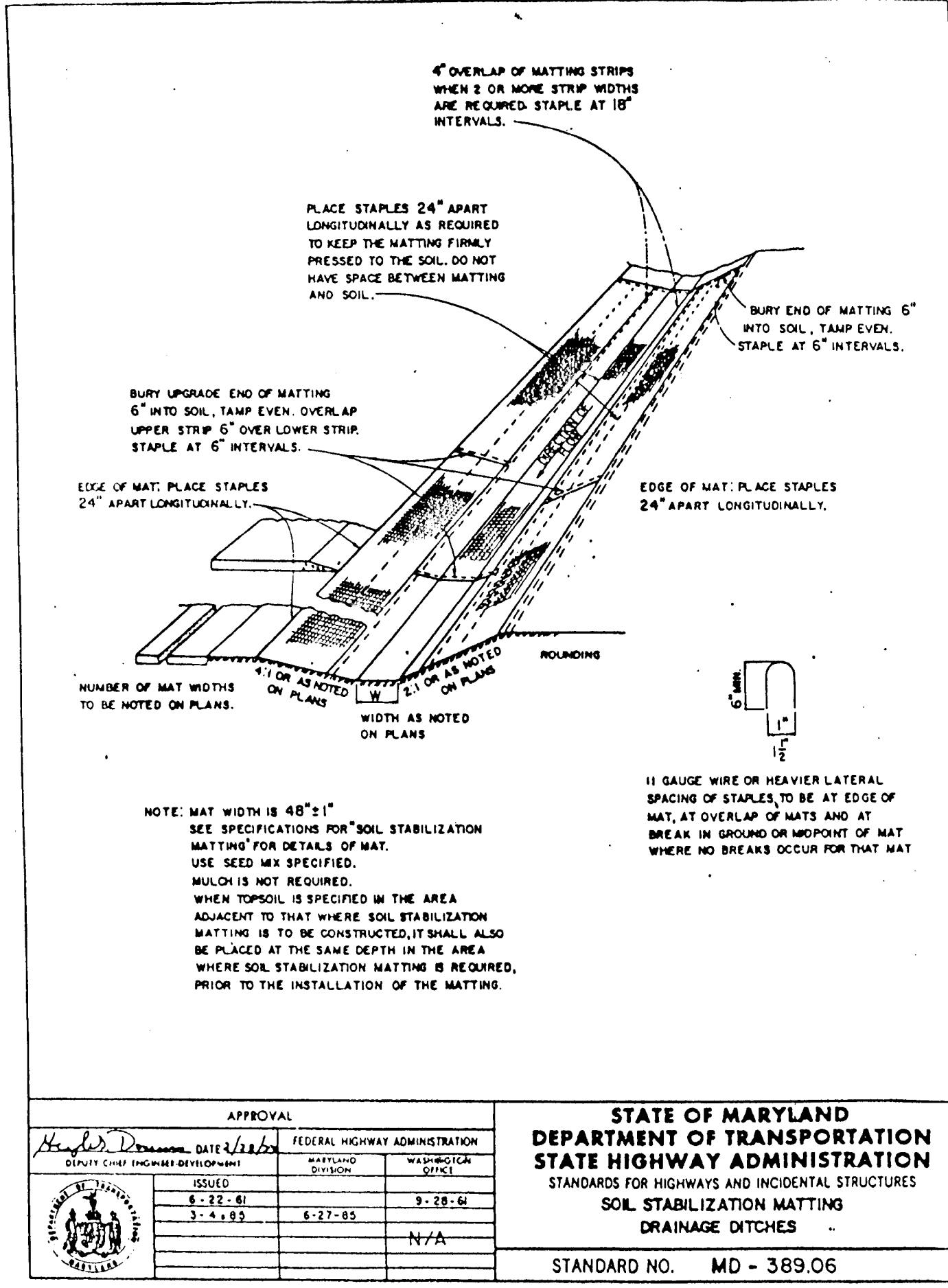
SIDE DITCH STABILIZATION SCHEDULE

STATION TO STATION		SIDE	B ₁ *	A*	B ₂ *	LENGTH	SOIL STABILIZATION MATTING NO MATTINGS ** WIDTHS (4')	AREA(SY)	CLASS	AREA(SY)
2+60	3+50	RT.	4	4	4	90'	4	160	-	-
3+50	4+50	RT.	2	4	2	105'	-	-	1	99
5+00	5+20	RT.	4	4	4	20'	-	-	1	40
5+85	8+50	LT.	3	4	3	290'	3	390	-	-
8+50	10+33	LT.	3	4	3	183'	3	245	-	-
10+33	10+50	LT.	0	4	2	27'	2	25	-	-
11+25	11+40	LT.	1	4	1	15'	2	15	-	-
11+40	13+05	LT.	3	4	3	165'	3	220	-	-
13+05	13+10	LT.	0	4	2	5'	2	5	-	-
13+20	14+05	LT.	0	0	2	95'	1	45	-	-
14+15	15+25	LT.	0	0	2	115'	1	50	-	-
15+40	17+90	LT.	0	0	2	315'	1	140	-	-
5+35	5+65	RT.	3	4	3	30'	-	-	1	40
5+65	7+25	RT.	4	4	4	160'	4	285	-	-
7+35	7+55	RT.	4	4	4	10'	4	20	-	-
7+55	8+50	RT.	4	4	4	95'	4	170	-	-
8+50	10+10	RT.	4	4	4	560'	4	1000	-	-
10+10	10+25	RT.	3	4	3	15'	3	20	-	-
14+25	14+40	RT.	1	4	1	15'	2	15	-	-
14+40	14+50	RT.	0	4	0	10'	1	5	-	-
5+75	5+85	LT.	3	4	3	10'	-	-	1	11
100+60	101+40	RT.	4	4	4	95'	4	170	-	-
5+07	5+30	RT.	4	4	4	40'	4	75	-	-

* SEE PROPOSED DITCH DETAIL THIS SHEET
 ** SEE DETAIL - SOIL STABILIZATION MATTING DRAINAGE DITCHES, THIS SHEET
 *** TO BE PLACED IN TEMPORARY DIVERSION CHANNEL

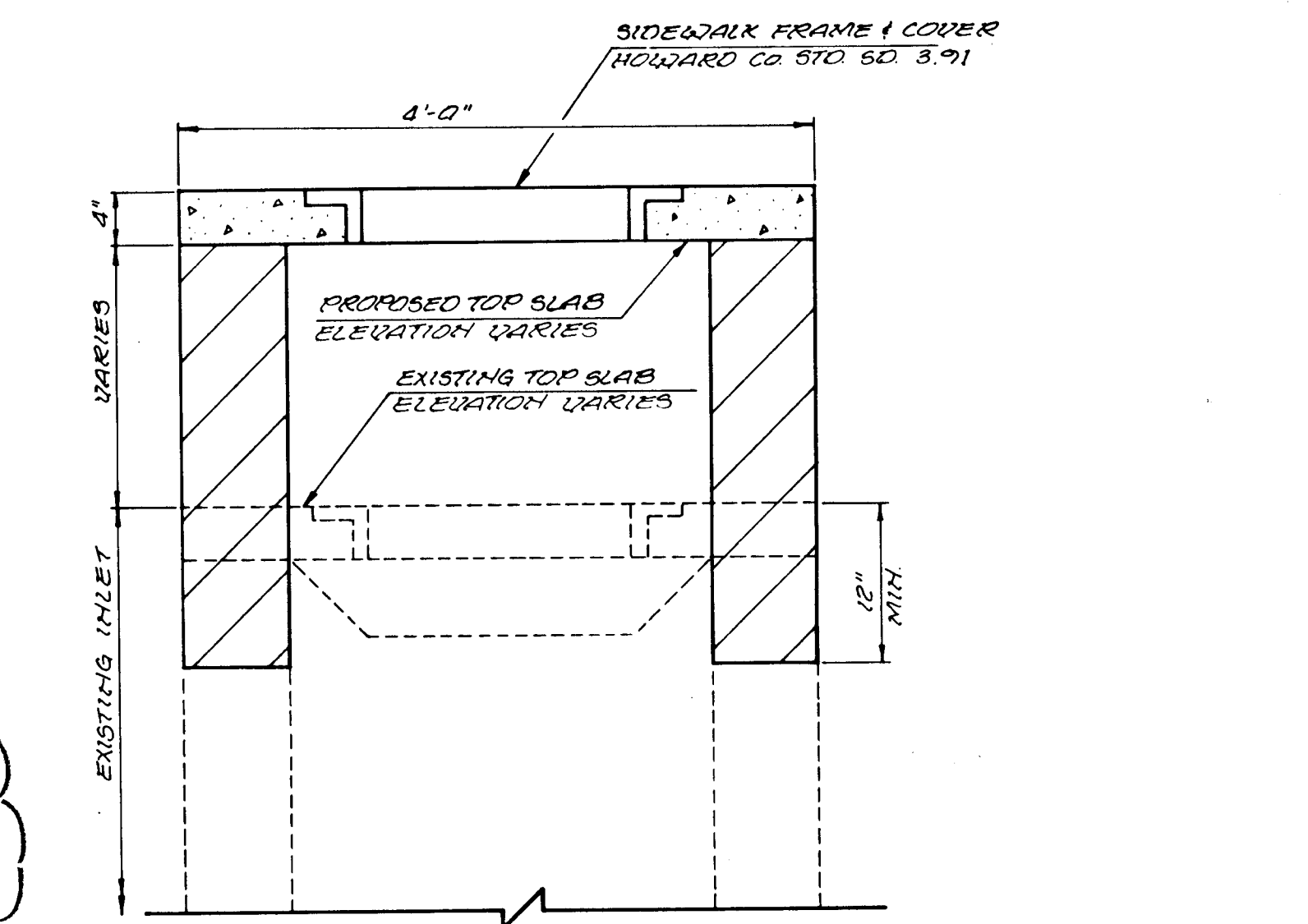
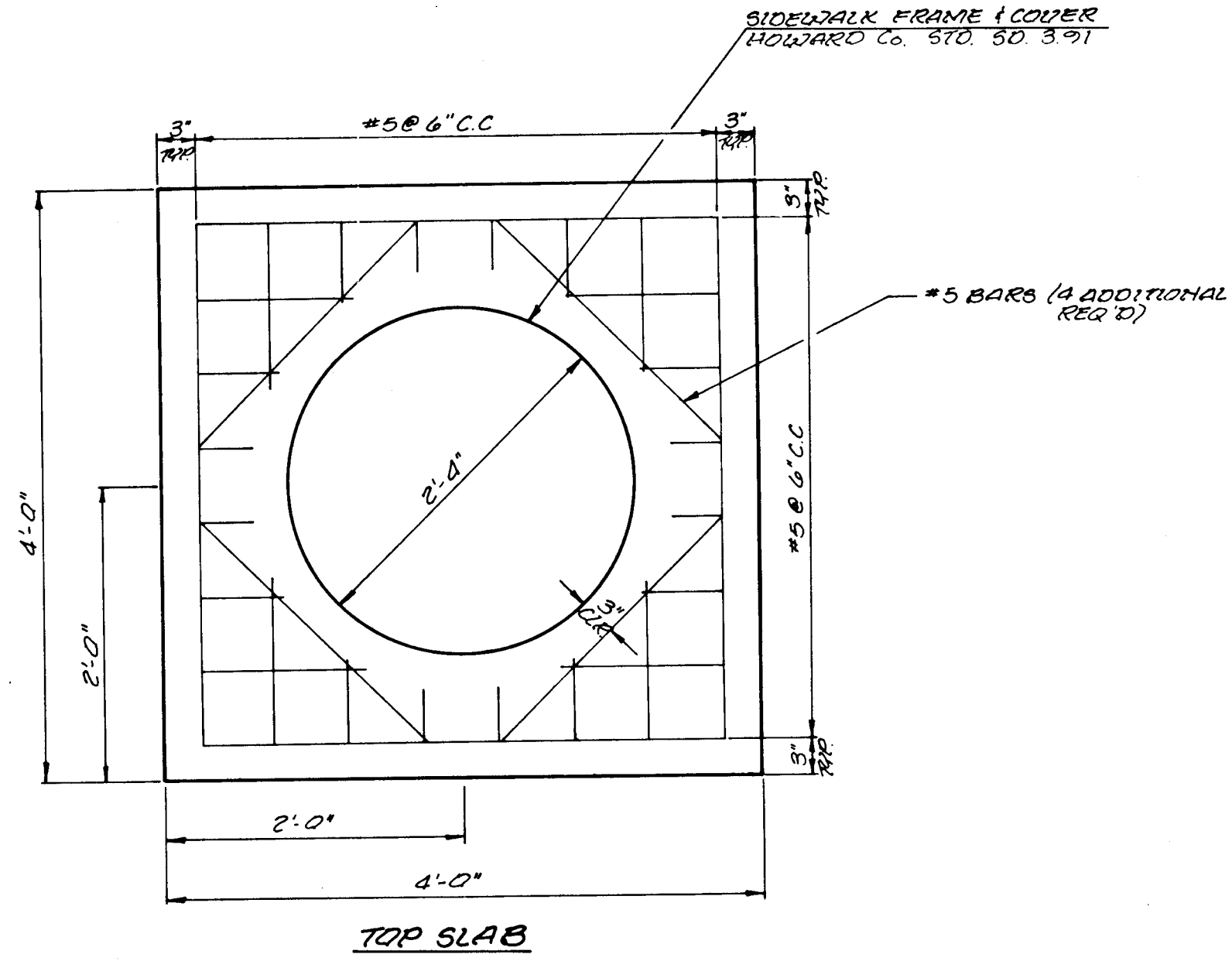


* SEE SIDE DITCH STABILIZATION SCHEDULE FOR TYPE OF STABILIZATION TO BE USED
PROPOSED SIDE DITCH
 H.T.S.



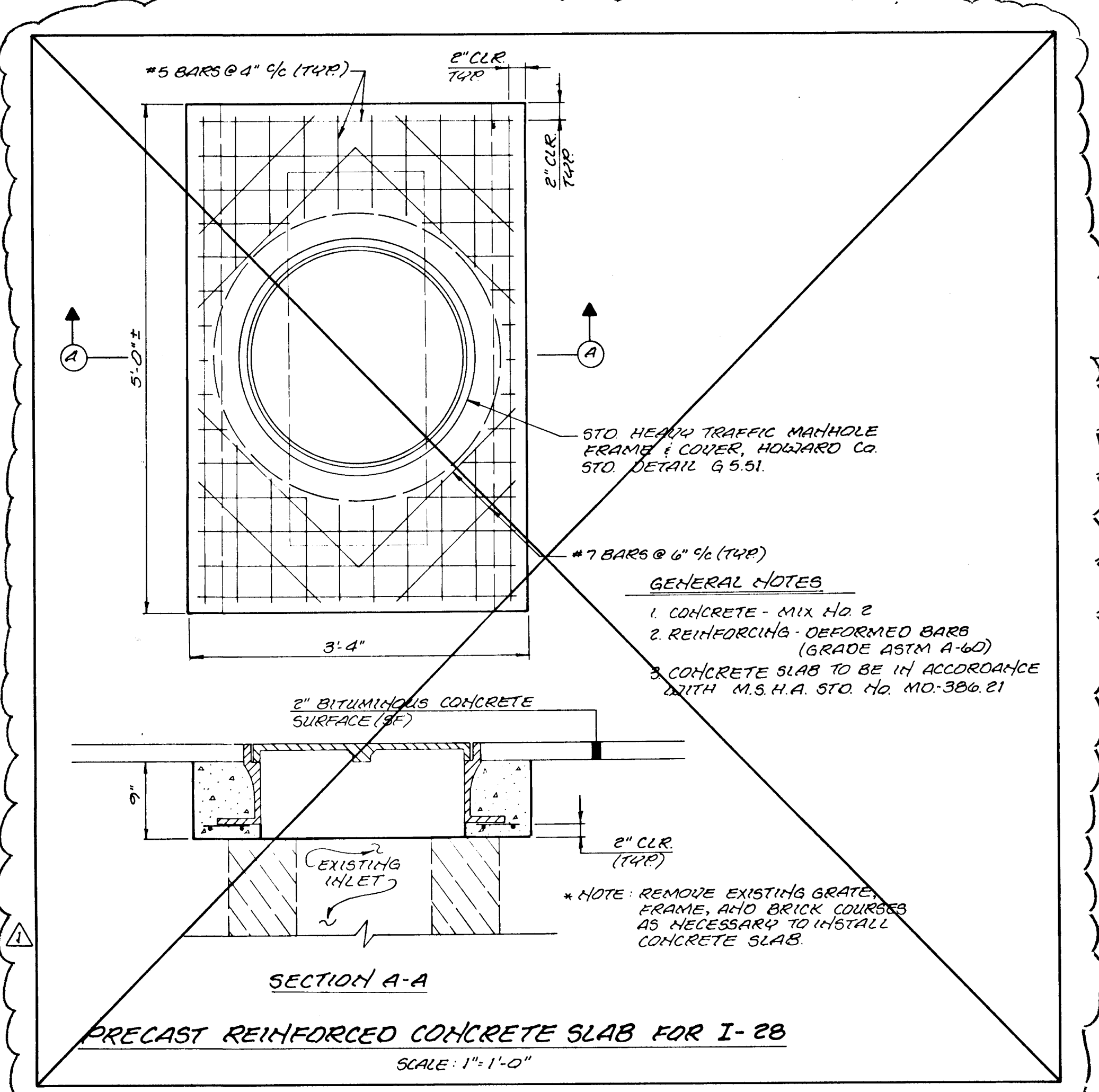
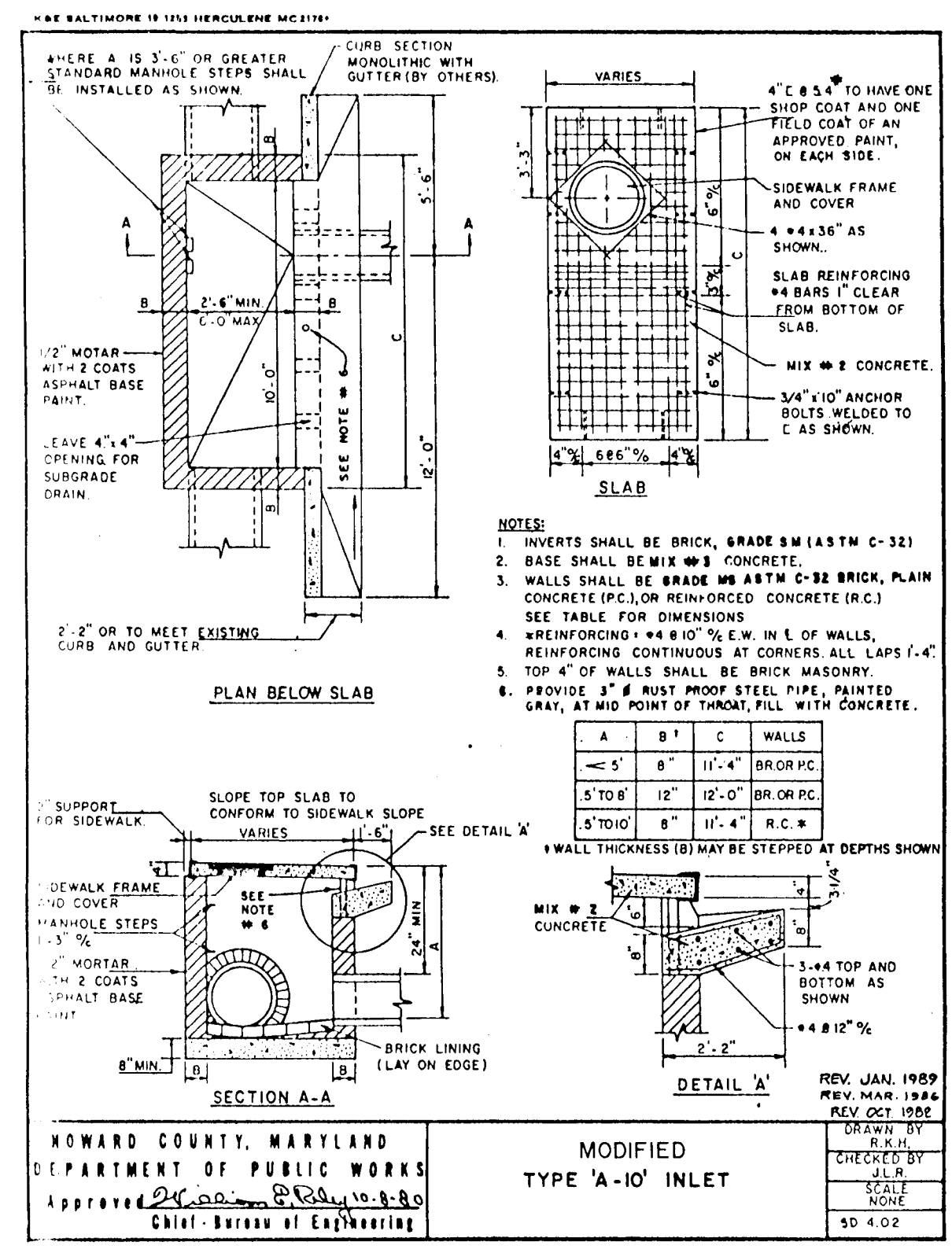
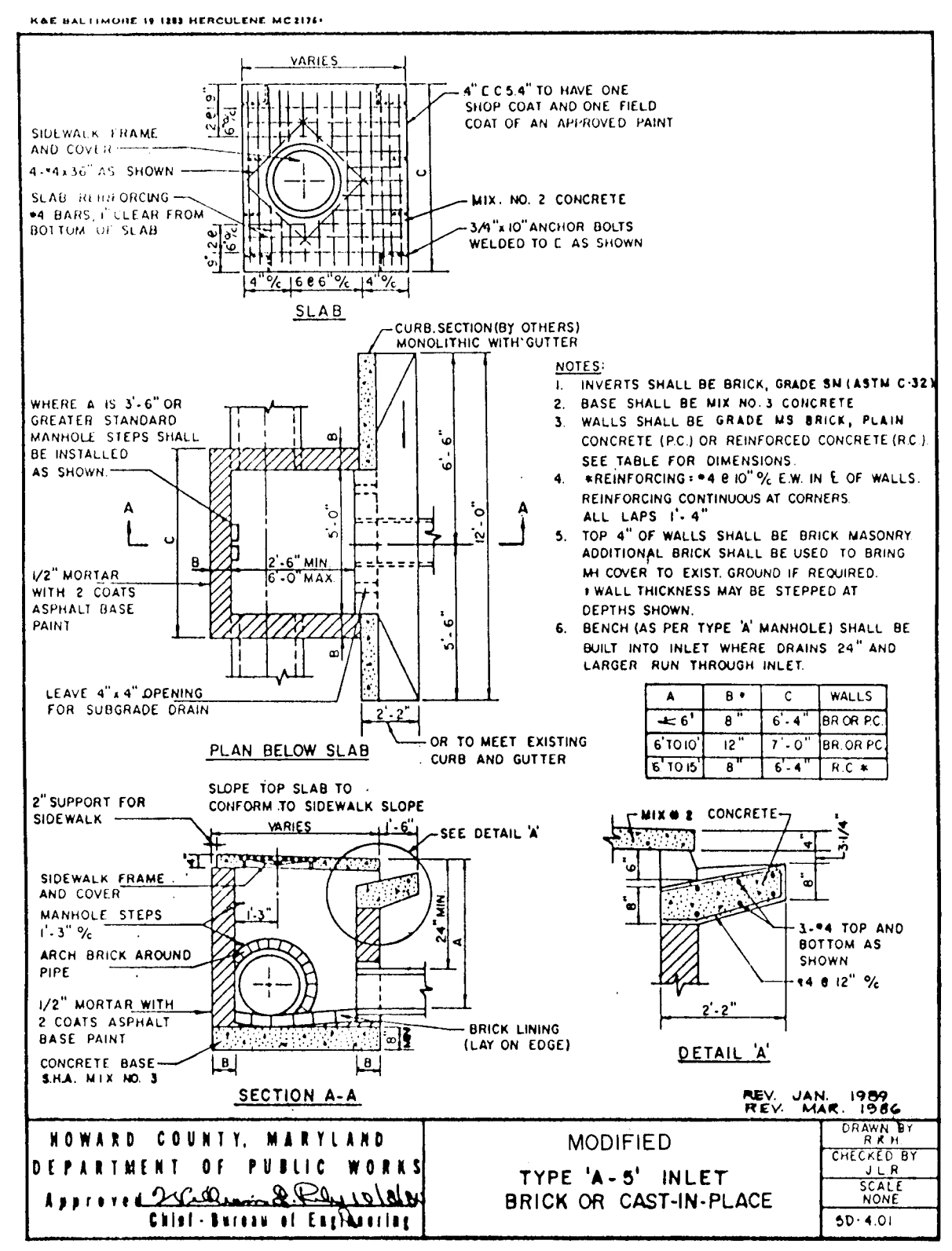
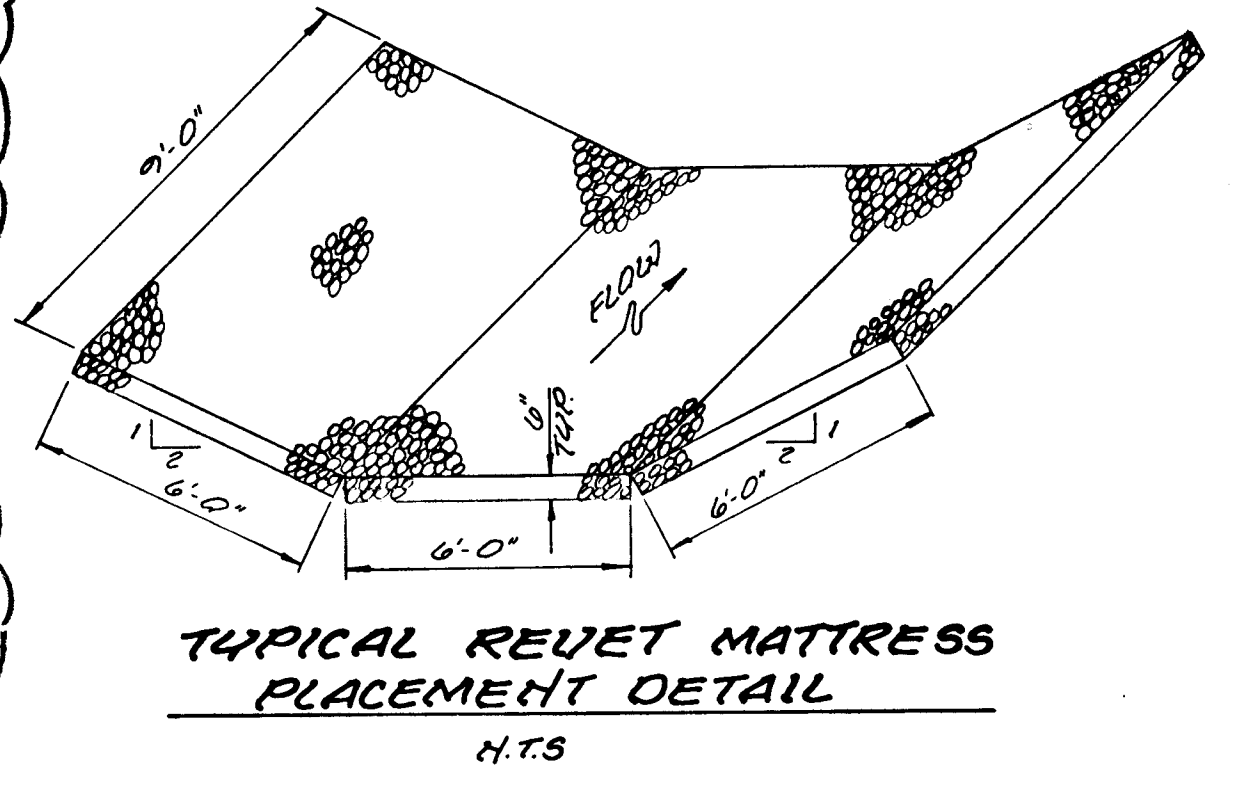
APPROVAL

STATE OF MARYLAND
 DEPARTMENT OF TRANSPORTATION
 STATE HIGHWAY ADMINISTRATION
 STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
 SOIL STABILIZATION MATTING
 DRAINAGE DITCHES
 STANDARD NO. MD - 389.06



- GENERAL NOTES:**
1. REMOVE TOP SLAB AND BRICKS AS NECESSARY (1/2\"/>

- DETAIL - INLET CONVERSION TO MANHOLE**
 SCALE: 1\"/>
 1. CONCRETE - MIX NO. 2
 2. REINFORCING - DEFORMED BARS (GRADE ASTM A-60)
 3. CONCRETE SLAB TO BE IN ACCORDANCE WITH M.S.H.A. STD. NO. MO-386.21



DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND

Director of Public Works: *Conrad W. Wene* DATE: 9/5/91
 Chief, Bureau of Highways: *Conrad W. Wene* DATE: 9/5/91

Chief, Bureau of Engineering: *James R. Ray* DATE: 8/29/91
 Chief, Division of Roads, Bridges & Storm Drainage: *Theresa A. Cava* DATE: 8/29/91

JOHN E. HARMS, JR. & ASSOCIATES, INC.
 CONSULTING ENGINEERS
 90 GOV. FITCHES HIGHWAY
 PASADENA, MARYLAND
 301-647-6000

DESIGNED BY: R.L.S.
 DRAWN BY: J.R.R.
 CHECKED BY: E.C.H.
 DATE: 7/91

MISCELLANEOUS DRAINAGE DETAILS

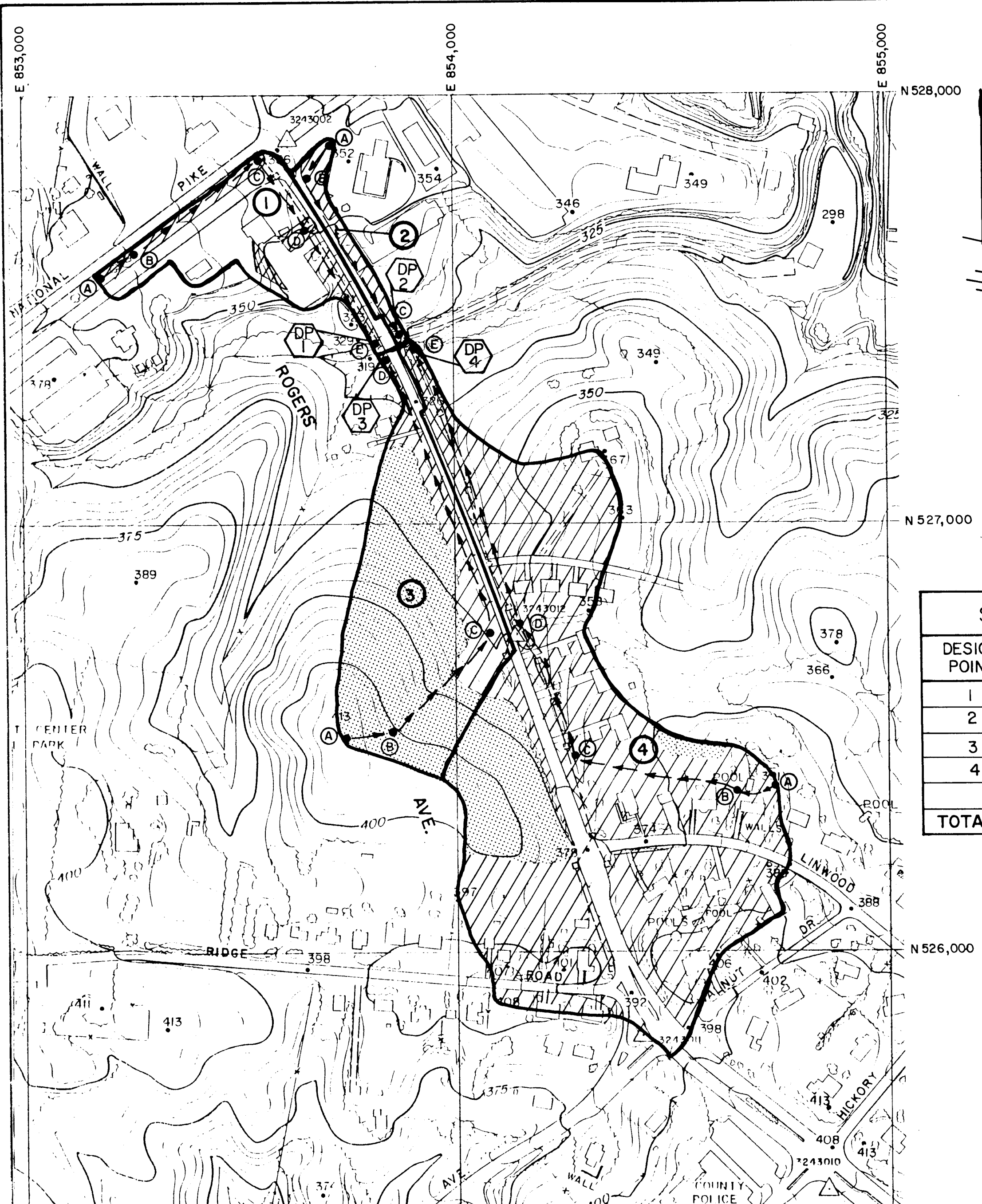
ROGERS AVENUE

600 SCALF MAP NO. _____ BLOCK NO. _____

SCALE AS SHOWN

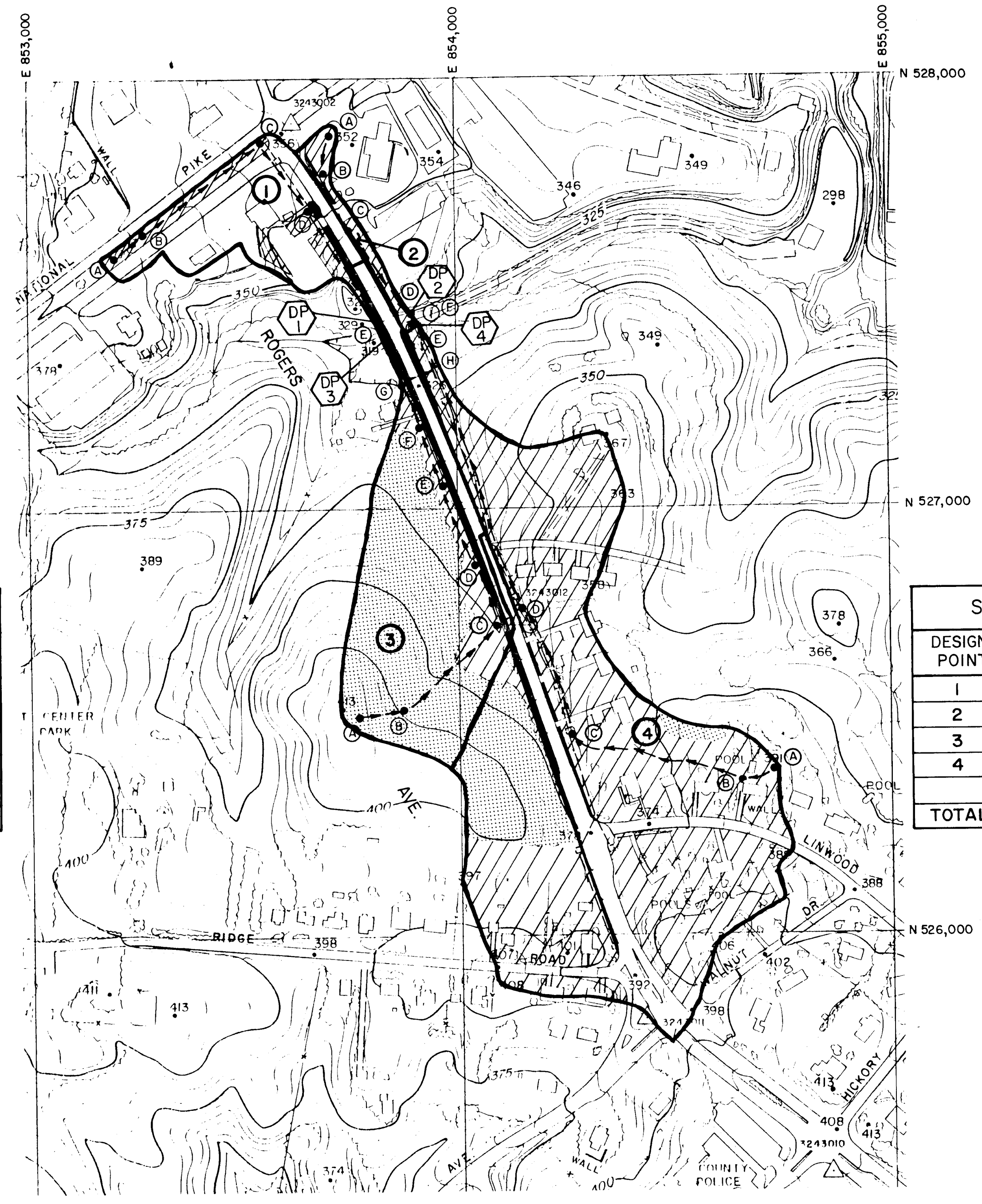
SHEET 18 OF 36

CAPITAL PROJECT No. J-4097



EXISTING CONDITIONS
SCALE: 1" = 200'

DESIGN POINT	CONTRIBUTING AREA (ACRES)	DISCHARGE (CFS)		
		Q2	Q10	Q100
1	2.78	7.48	12.73	
2	0.51	1.12	2.02	
3	4.23	5.81	13.07	
4	15.23	22.64	49.78	
TOTAL	22.75	37.00	77.25	



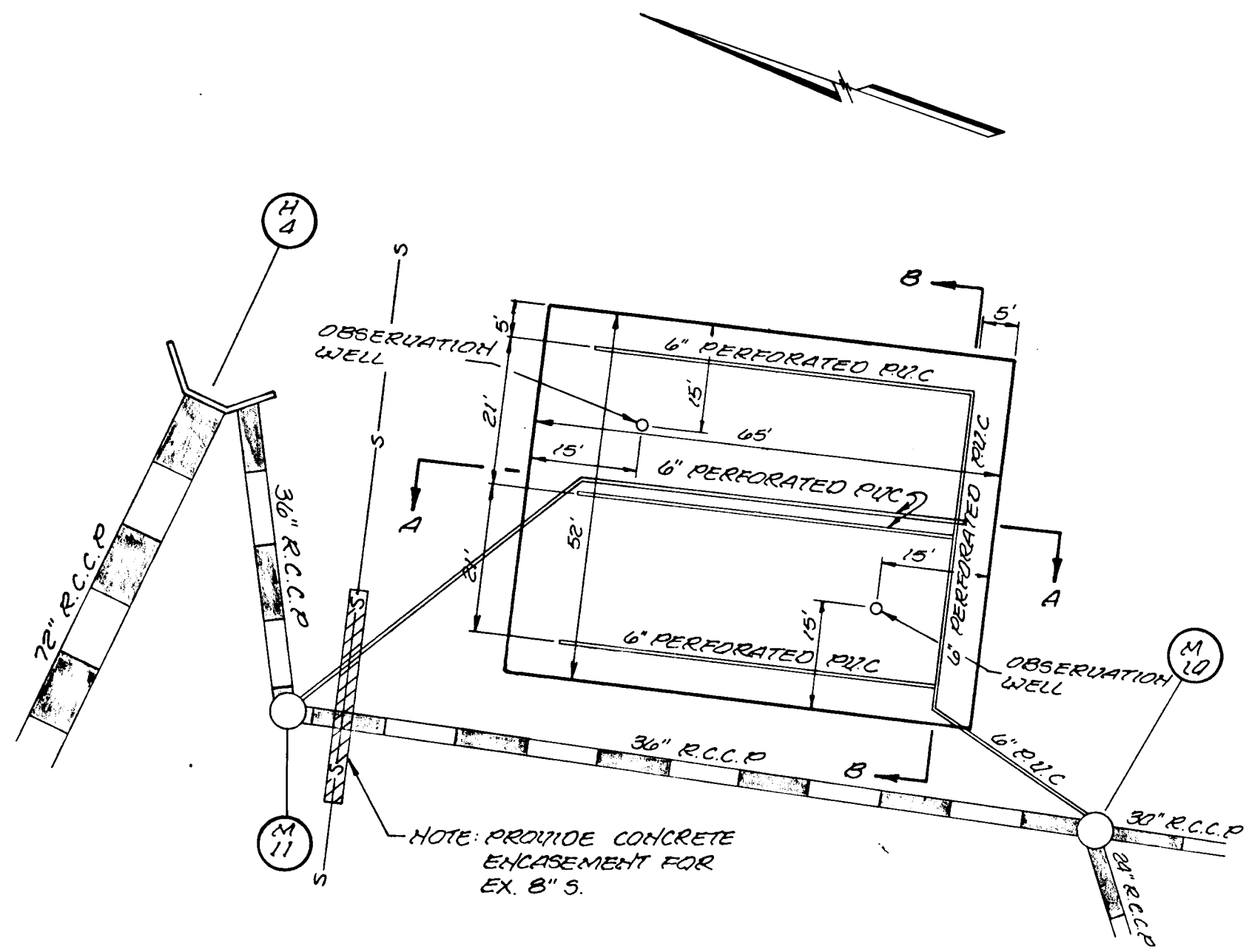
PROPOSED CONDITIONS
SCALE: 1" = 200'

DESIGN POINT	CONTRIBUTING AREA (ACRES)	DISCHARGE (CFS)		
		Q2	Q10	Q100
1	2.75	7.69	12.74	
2	0.35	0.63	1.24	
3	4.62	7.23	15.58	
4	15.03	22.34	49.12	
TOTAL	22.75	37.91	78.62	

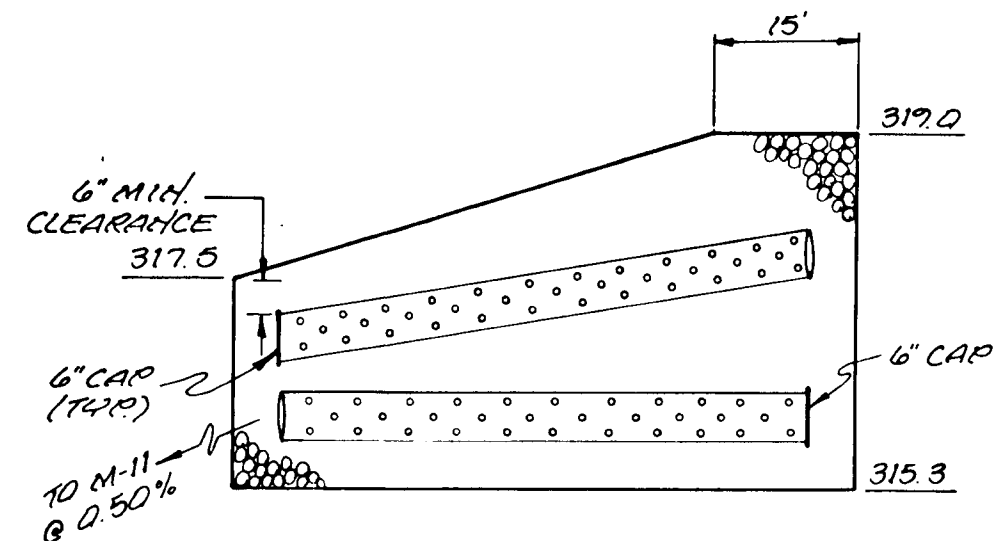
LEGEND

- DRAINAGE AREA BOUNDARY
- SUBAREA DRAINAGE BOUNDARY
- ② DRAINAGE AREA OR SUBAREA NUMBER
- Ⓐ ——— Ⓑ TIME OF CONCENTRATION PATH
- DP 1 ● DESIGN POINT NUMBER
- SOIL BOUNDARY
- Ⓑ SOIL TYPE
- 24" RCP EXISTING PIPE
- 24" RCP PROPOSED PIPE
- EXISTING DRAINAGE DITCH
- ▭ IMPERVIOUS
- ▨ GRASS
- ▨ WOODED AREA
- ▭ NEW IMPERVIOUS

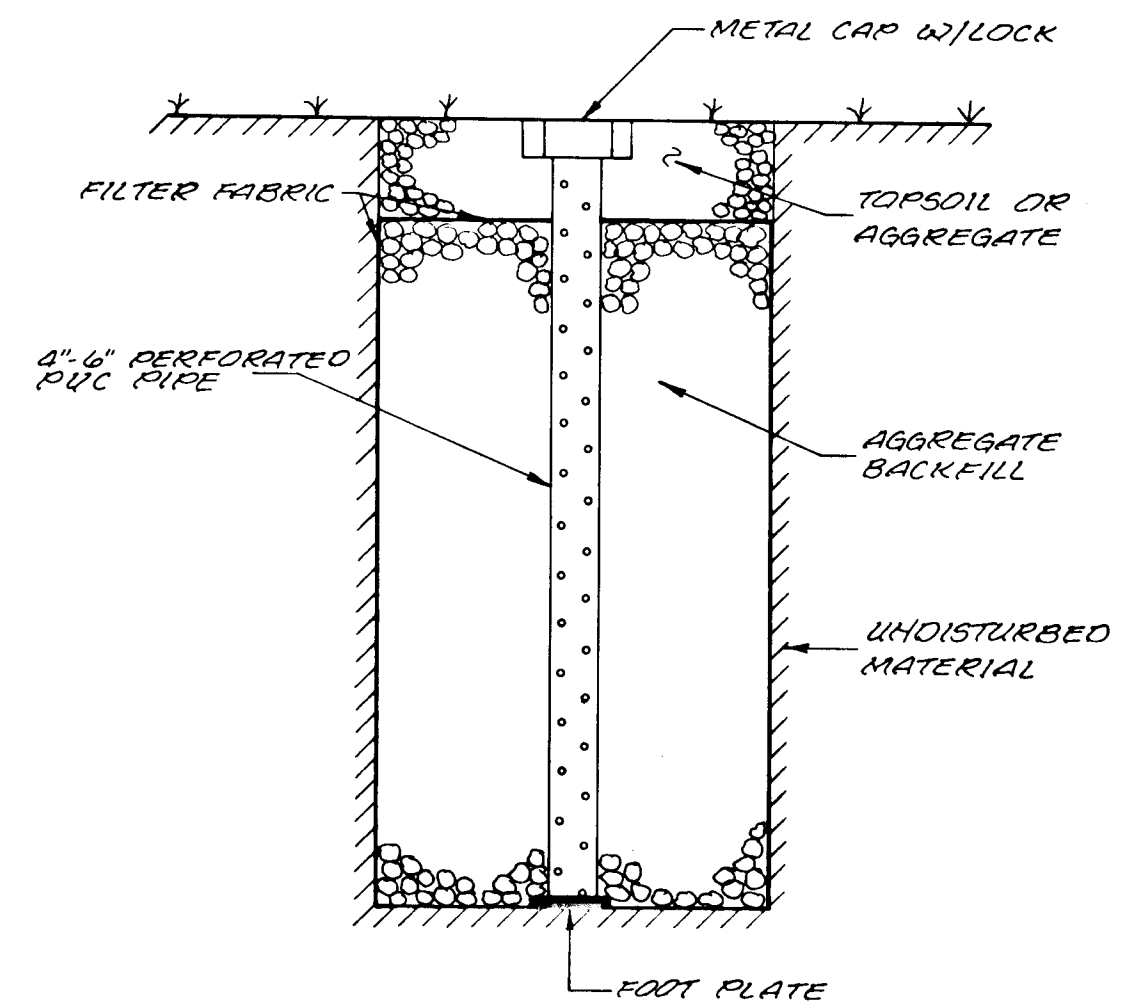
<p>DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND</p> <p><i>Thomas W. Weber</i> 9/15/91 DIRECTOR OF PUBLIC WORKS DATE</p> <p><i>Braxton W. Weiland</i> 9/15/91 CHIEF, BUREAU OF HIGHWAY DATE</p>	<p>JOHN E. HARMS, JR. & ASSOCIATES, INC.</p> <p>CONSULTING ENGINEERS 90 GOV. RITCHIE HIGHWAY PASADENA, MARYLAND</p> <p><i>J. E. Harms, Jr.</i></p>	<p>DEP. R.L.S.</p> <p>DRN: T.E.W.</p> <p>CHK: M.W.B.</p> <p>DATE: 7/91</p>	<p>J.R.R. <input checked="" type="checkbox"/> REVISION</p> <p>BY NO. DATE</p> <p>REVISOR: <i>J.R.R.</i> REVISION: <i>REVISED ROGERS AVE. & U.S. ROUTE 40 INTERSECTION</i> DATE: <i>7/91</i></p>	<p>DRAINAGE AREA MAP EXISTING AND PROPOSED CONDITIONS</p>	<p>ROGERS AVENUE</p>	<p>SCALE AS SHOWN</p> <p>SHEET 19 OF 36</p>
<p>CAPITAL PROJECT NO. J-4097</p>				<p>600' SCALE MAP NO. _____ BLOCK NO. _____</p>		



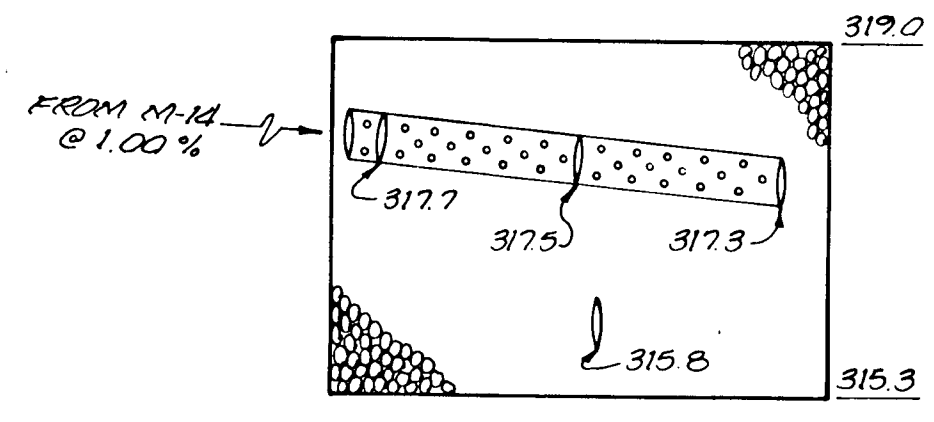
S.W.M. FACILITY #1
SCALE: 1" = 20'



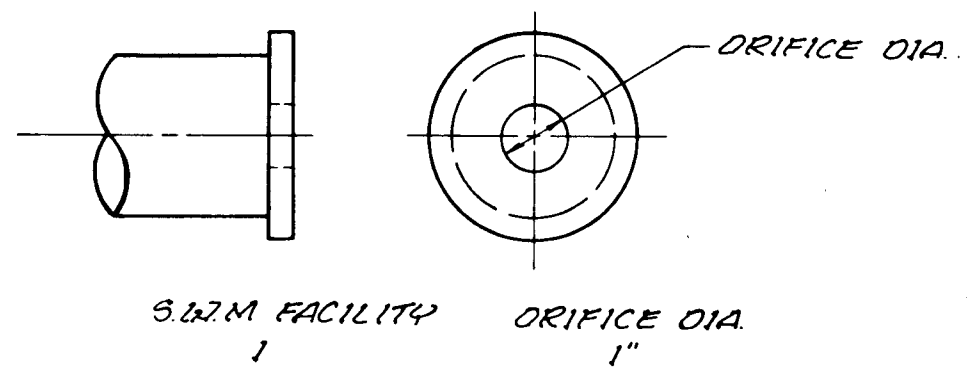
SECTION A-A
SCALE: 1" = 20' H
1" = 2' V



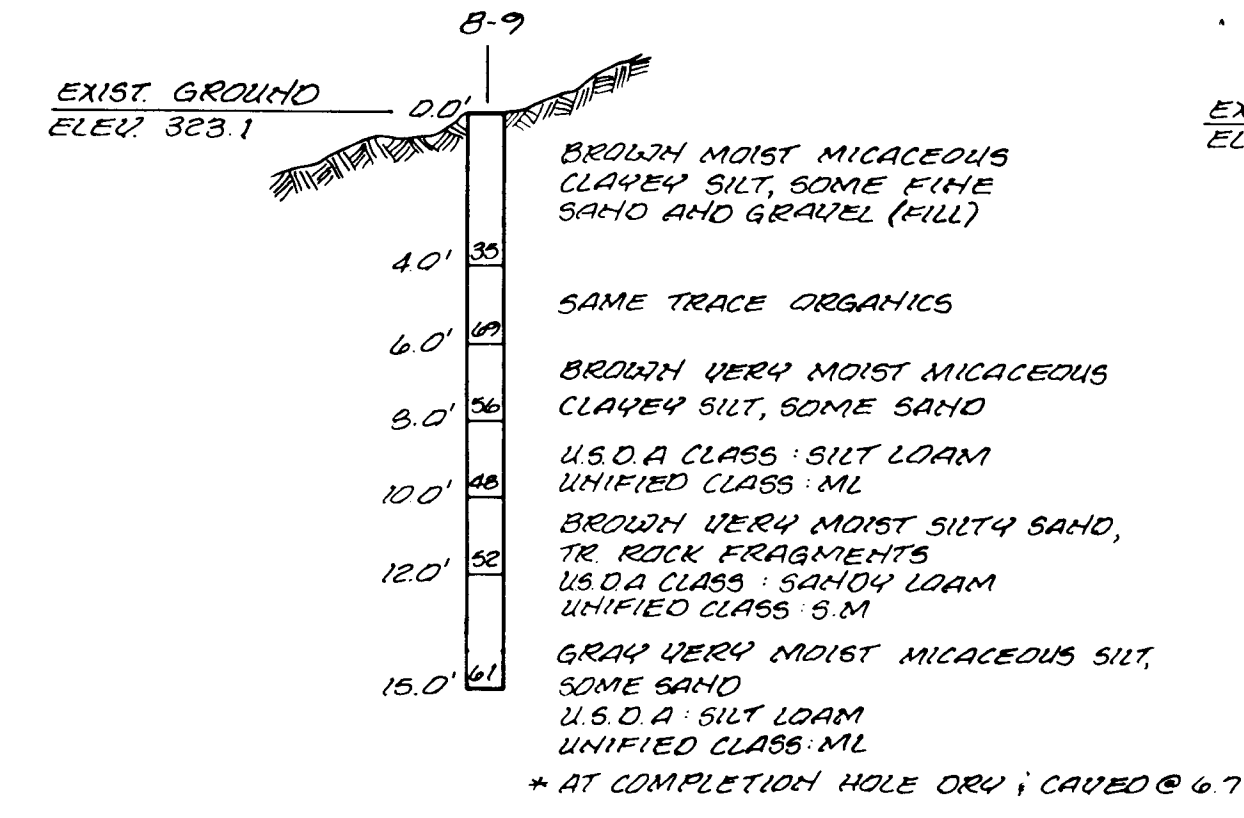
OBSERVATION WELL
H.T.S



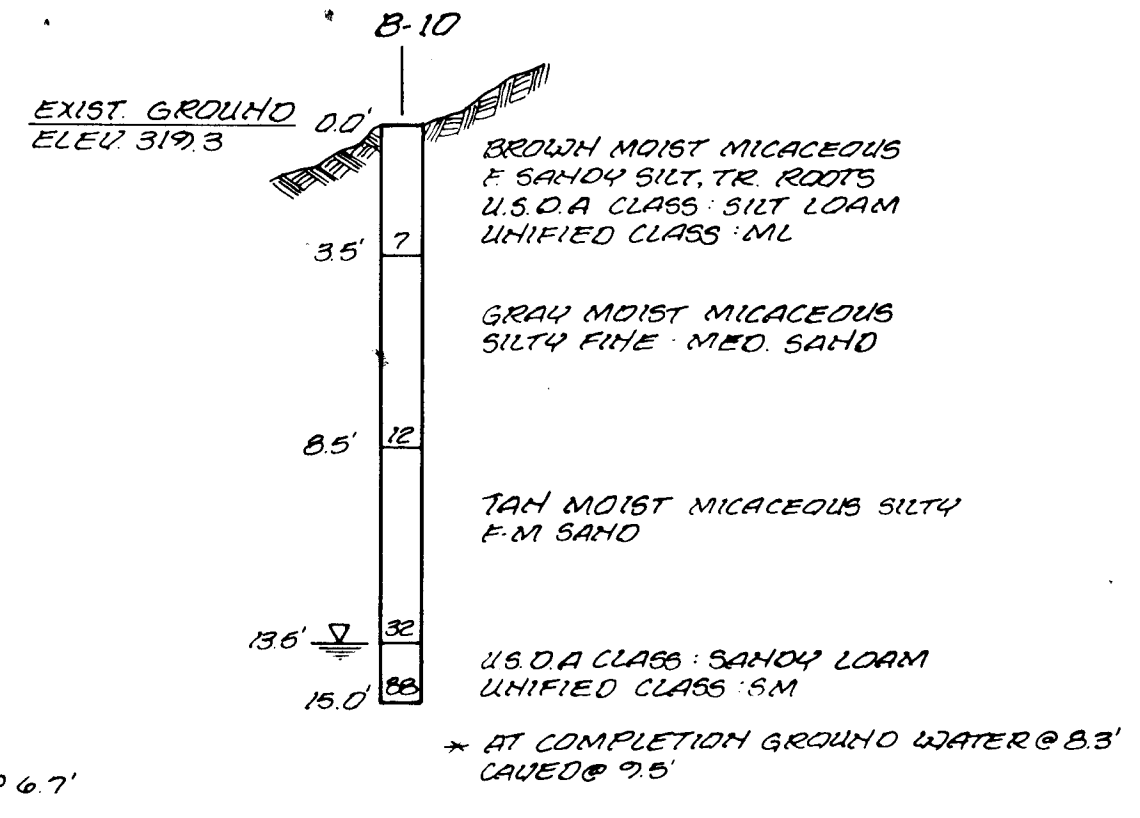
SECTION B-B
SCALE: 1" = 20' H
1" = 2' V



6" P.V.C. CAP W/ ORIFICE
H.T.S
* CAP W/ ORIFICE TO BE PLACED IN END OF PIPE @ M-11

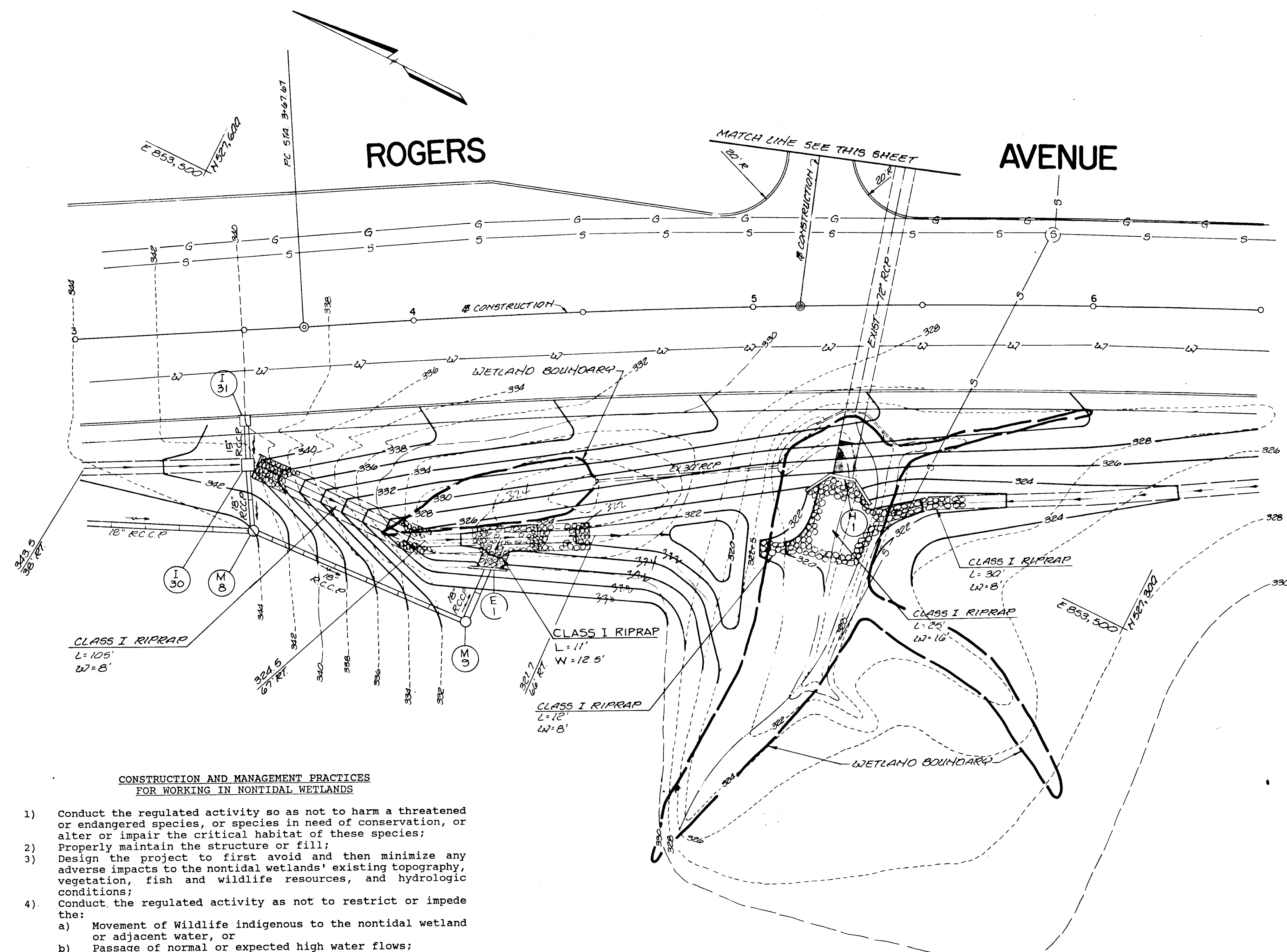


SOIL BORINGS
H.T.S

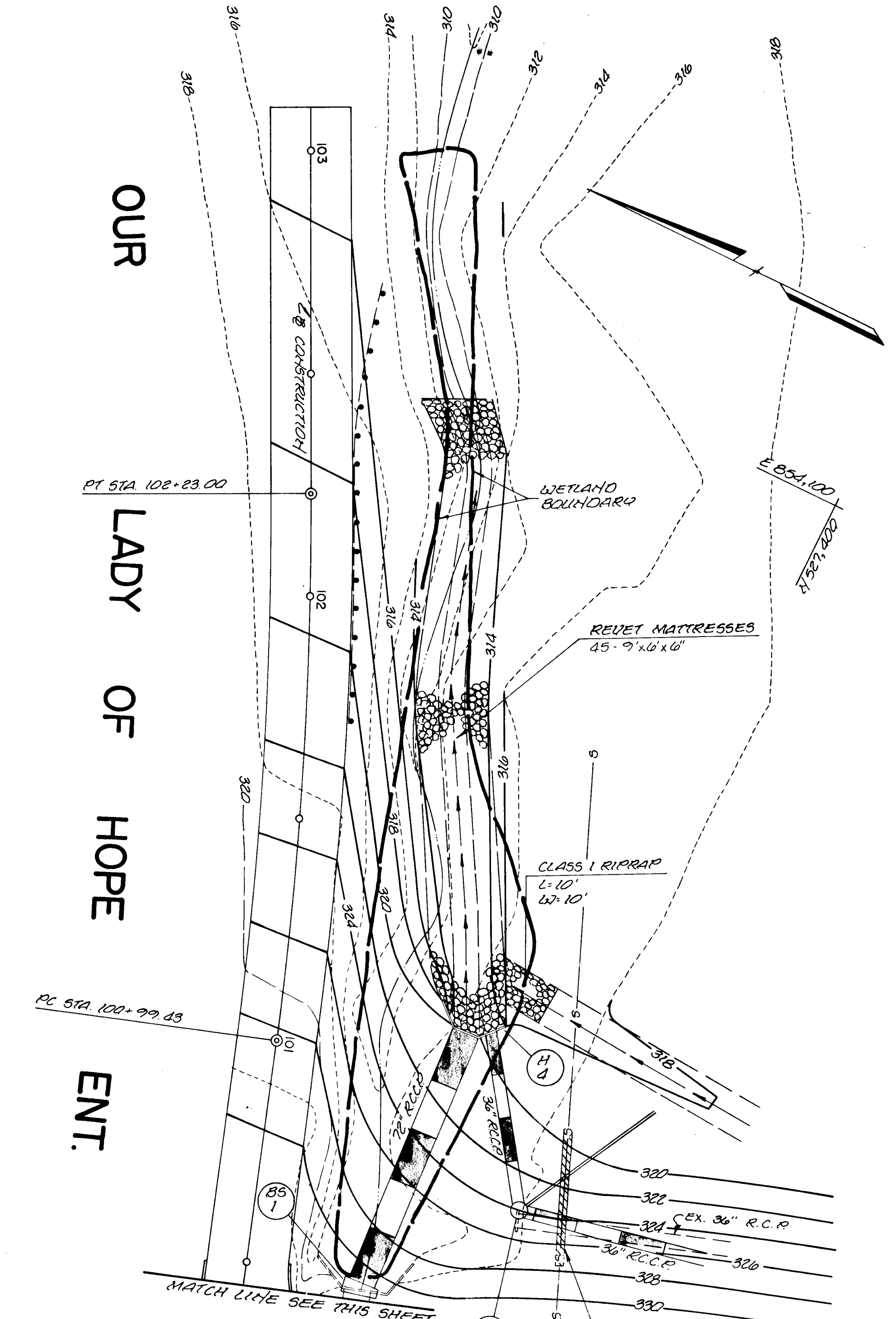


*NOTE LIMITS OF PAYMENT ARE TO THE NEAR VERTICAL LINES AS SHOWN IN THE DETAILS. NO ADDITIONAL PAYMENT WILL BE MADE FOR LAYING BACK THE SIDE SLOPES

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND Director of Public Works: <i>Ramon M. Lewis</i> 9/5/91 Chief, Bureau of Highways: <i>Lawrence W. Welstead</i> 9/5/91		JOHN E. HARMS, JR. & ASSOCIATES, INC. CONSULTING ENGINEERS 90 GOV. RITCHIE HIGHWAY PASADENA, MARYLAND Chief, Division of Roads, Bridges & Storm Drainage: <i>Edward A. Polva</i> 6/26/91		DES: J.G.H. DRN: J.R.R. CHK: M.W.B. DATE: 7/91		SW.M. DETAILS ROGERS AVENUE CAPITAL PROJECT NO. J-4097		SCALE AS SHOWN SHEET 20 OF 36
DATE: 7/91		REVISION: BY NO.		DATE: 7/91		600' SCALE MAP NO. BLOCK NO.		



PLAN
Scale: 1" = 20'



PLAN
Scale: 1" = 20'

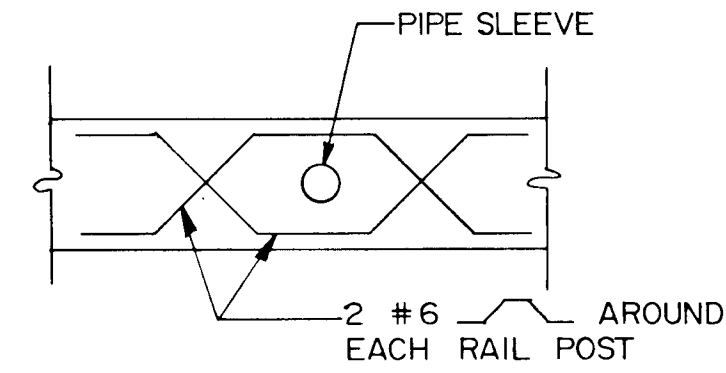
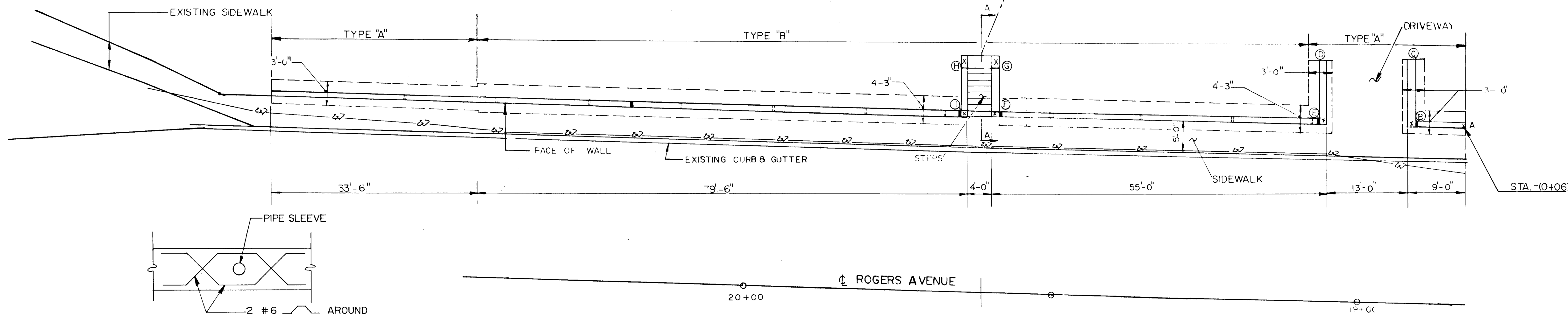
- CONSTRUCTION AND MANAGEMENT PRACTICES FOR WORKING IN NONTIDAL WETLANDS**
- 1) Conduct the regulated activity so as not to harm a threatened or endangered species, or species in need of conservation, or alter or impair the critical habitat of these species;
 - 2) Properly maintain the structure or fill;
 - 3) Design the project to first avoid and then minimize any adverse impacts to the nontidal wetlands' existing topography, vegetation, fish and wildlife resources, and hydrologic conditions;
 - 4) Conduct the regulated activity as not to restrict or impede the:
 - a) Movement of Wildlife indigenous to the nontidal wetland or adjacent water, or
 - b) Passage of normal or expected high water flows;
 - 5) Adhere to time-of-year restrictions as required by the Maryland Department of the Environment under COMAR 26.08.02.; to protect important aquatic species, in-stream work is prohibited as determined by the classification of the stream as follows:
Class I Waters. In-stream work may not be conducted during the period March 1 through June 15, inclusive during any year.
 - 6) Avoid any disturbances in breeding areas for migratory waterfowl;
 - 7) Maintain the hydrologic regime of the nontidal wetlands upstream, downstream or adjacent to the regulated activity;
 - 8) Remove excess fill or construction material or debris to an upland disposal area;
 - 9) Place materials in a location and manner which does not adversely impact surface or subsurface flow into or out of the nontidal wetland;
 - 10) If backfill is obtained from sources other than the originally excavated material, use clean material free of waste metal products, unsightly debris, toxic material, or any other deleterious substance;
 - 11) Place heavy equipment on mats or suitably design the equipment to prevent damage to the nontidal wetlands;
 - 12) Repair and maintain any serviceable structures or fills so as not to result in a substantial deviation from the plans or specifications of the original structure or fill, although minor deviations due to changes in materials or construction techniques, and which are necessary for repair and maintenance are permitted;
 - 13) Rectify any nontidal wetlands temporarily impacted by any proposed repair and maintenance activity;
 - 14) Repair and maintain any serviceable structure or fills so there is no permanent loss of nontidal wetlands in excess of nontidal wetlands lost under the original construction or fill;
 - 15) Conduct the activity so as not to cause or contribute to a degradation of water quality as determined by the Maryland Department of the Environment;

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND Director of Public Works: <i>James P. Lee</i> 9/15/91 Chief, Bureau of Engineering: <i>William E. Ray</i> 8-27-91 Chief, Bureau of Highways: <i>Drayville W. Wehner</i> 9/15/91 Chief, Division of Roads, Bridges & Storm Drainage: <i>Martha A. Pava</i> 8/10/91		JOHN E. HARMS, JR. & ASSOCIATES, INC. CONSULTING ENGINEERS 50 GOV. RITCHIE HIGHWAY PASADENA, MARYLAND <i>[Signature]</i>		DES: R.L.S. DRN: J.R.R. CHK: M.E.B. DATE: 7/91		GRADING & CHANNEL WIDENING ROGERS AVENUE CAPITAL PROJECT No. J-4097		SCALE AS SHOWN SHEET 21 OF 36
REVISION: REVISED ROGERS AVE., U.S. ROUTE 40 INTERSECTION 7/2/92 BY: J.R.R. NO. NO. REVISION DATE				600' SCALE MAP NO. BLOCK NO.		600' SCALE MAP NO. BLOCK NO.		

NOTE: STAIRWAY + DRIVEWAY WALLS ARE NORMAL TO BASELINE.

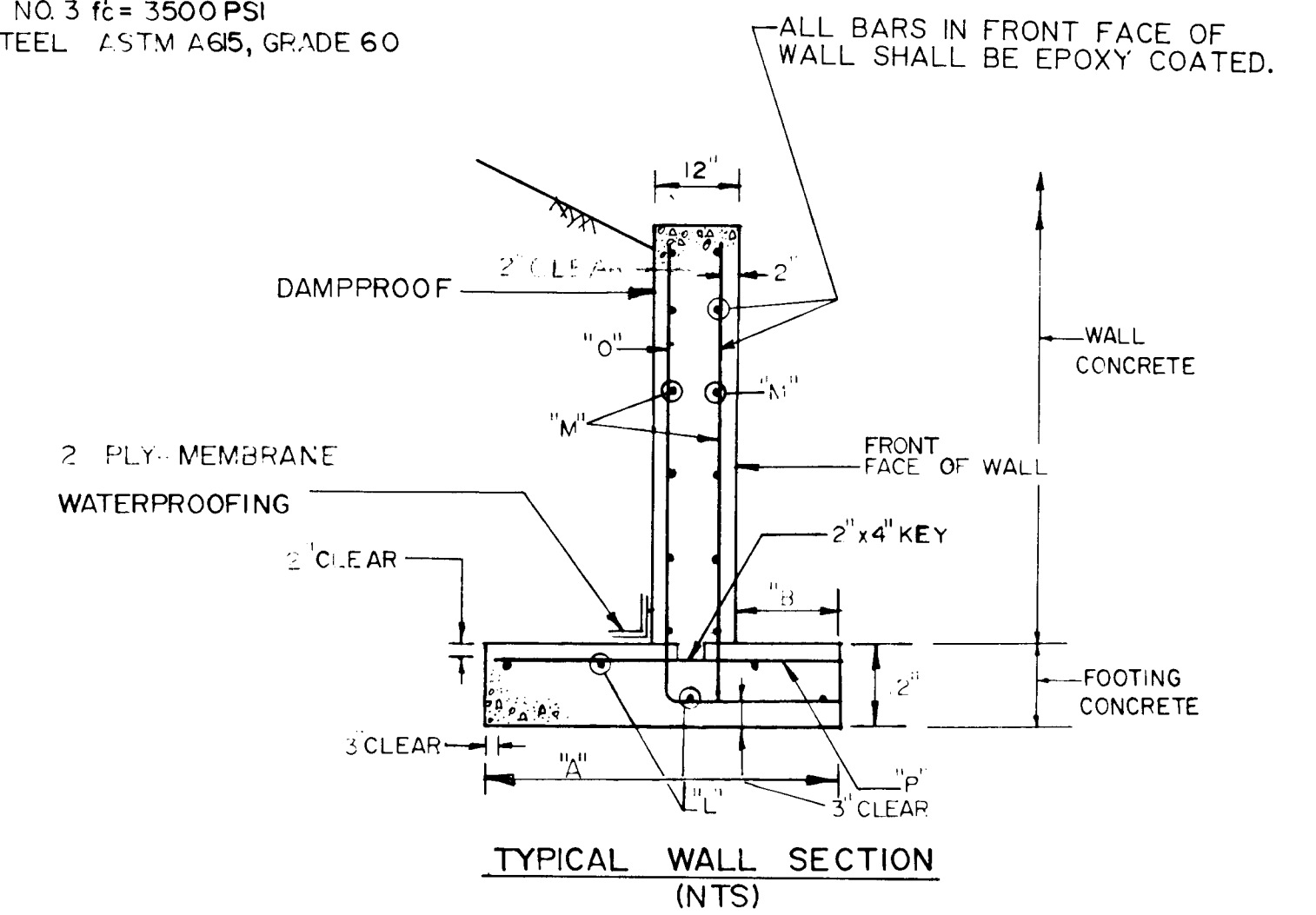
GENERAL NOTES:

1. MATERIALS AND CONSTRUCTION SHALL BE IN ACCORDANCE HOWARD COUNTY DESIGN MANUAL - VOLUME IV
2. CONCRETE: MIX NO 3 FC = 3500 PSI
3. REINFORCING STEEL ASTM A65, GRADE 60

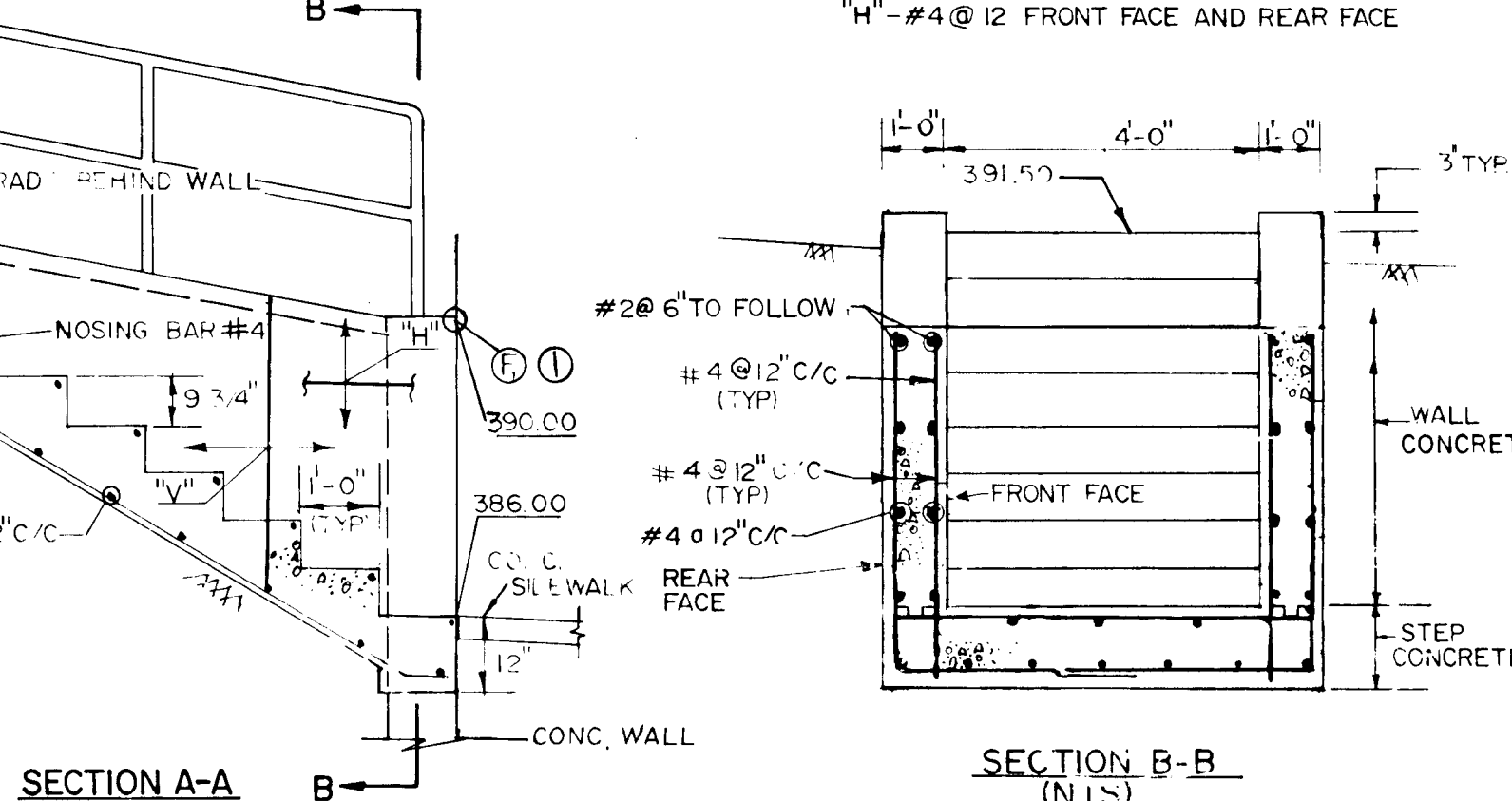
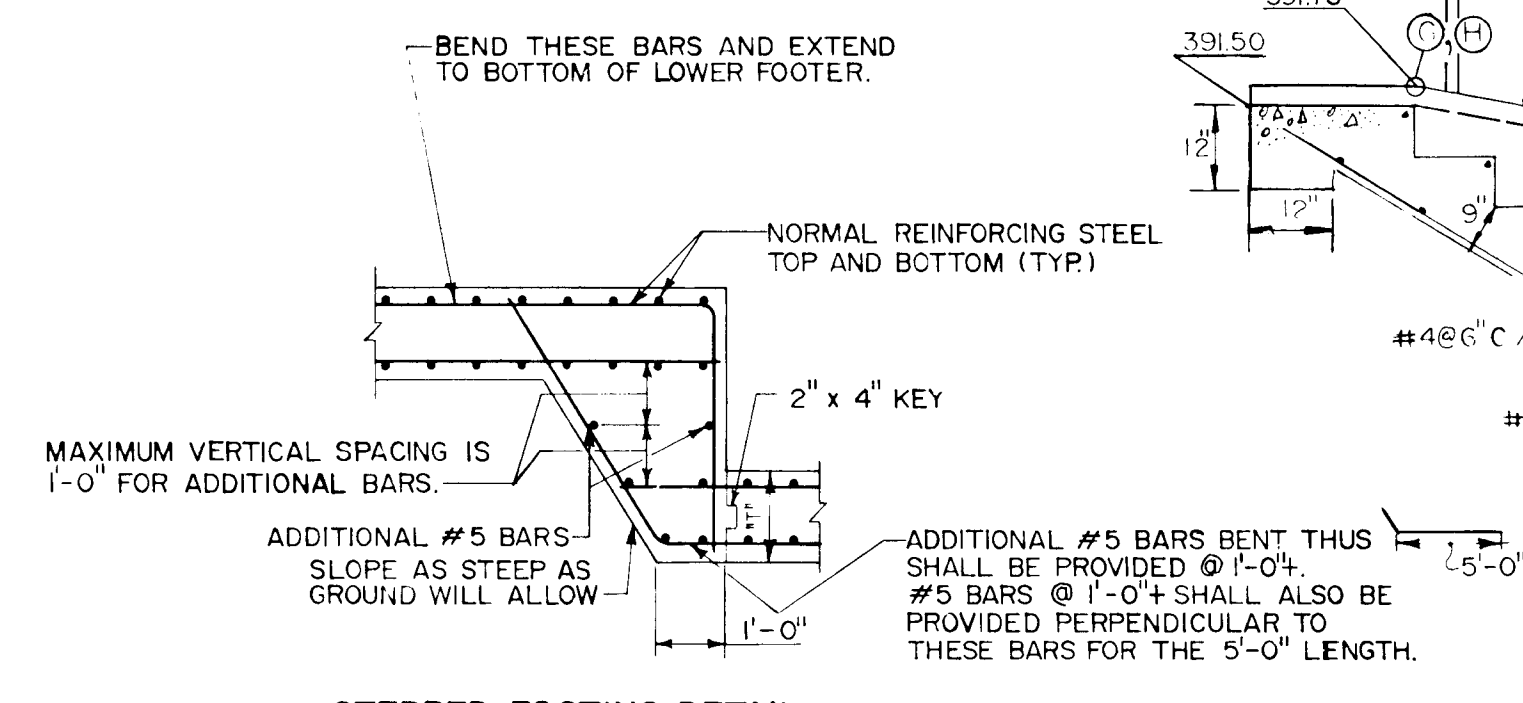
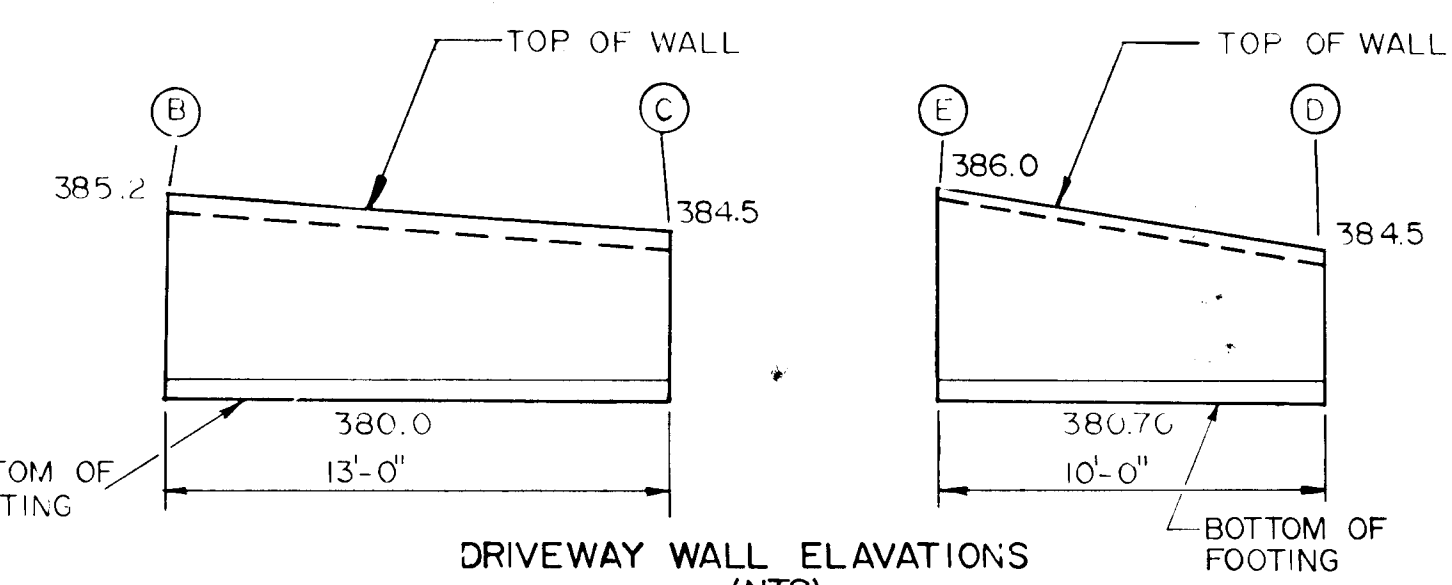
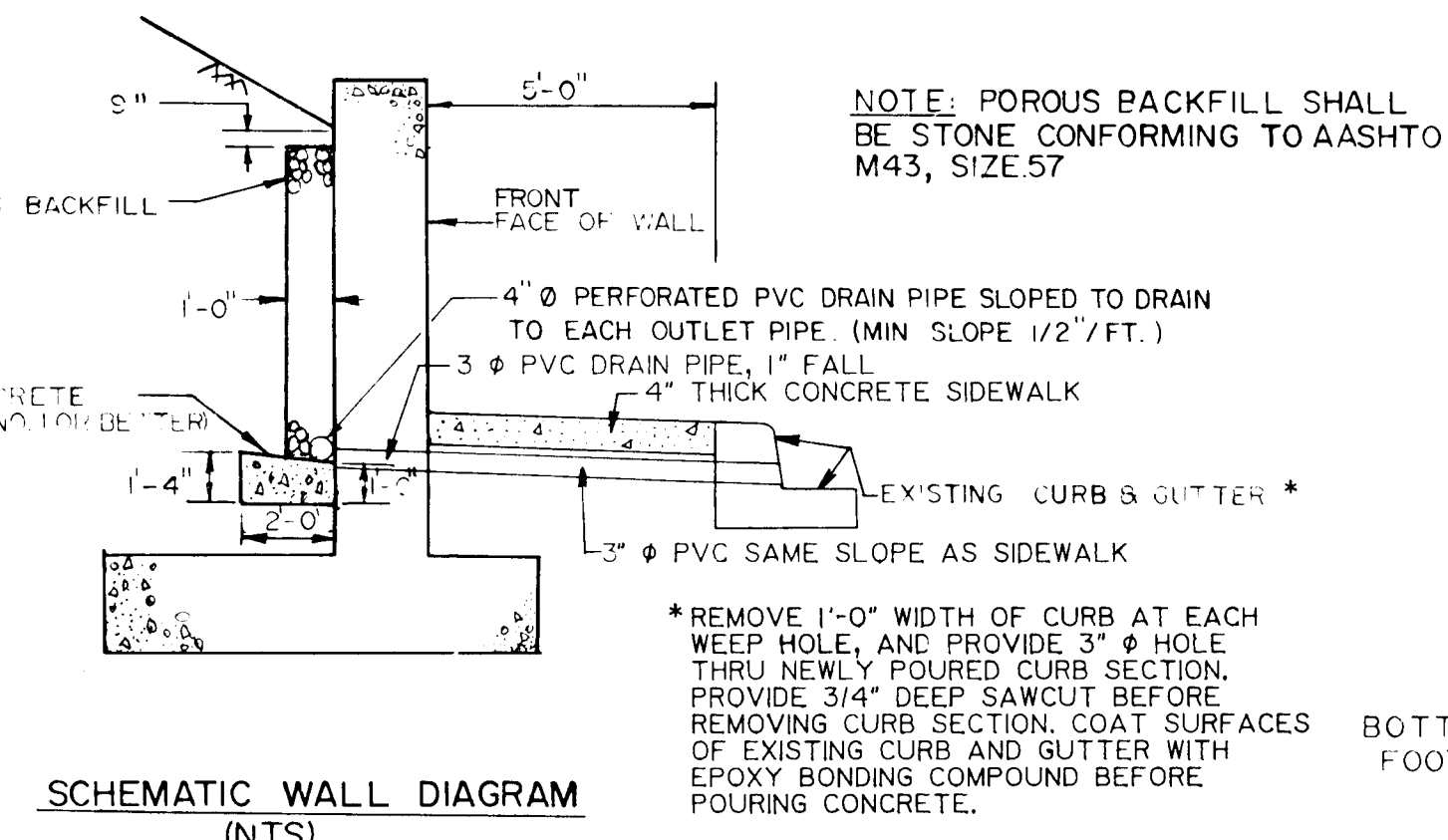
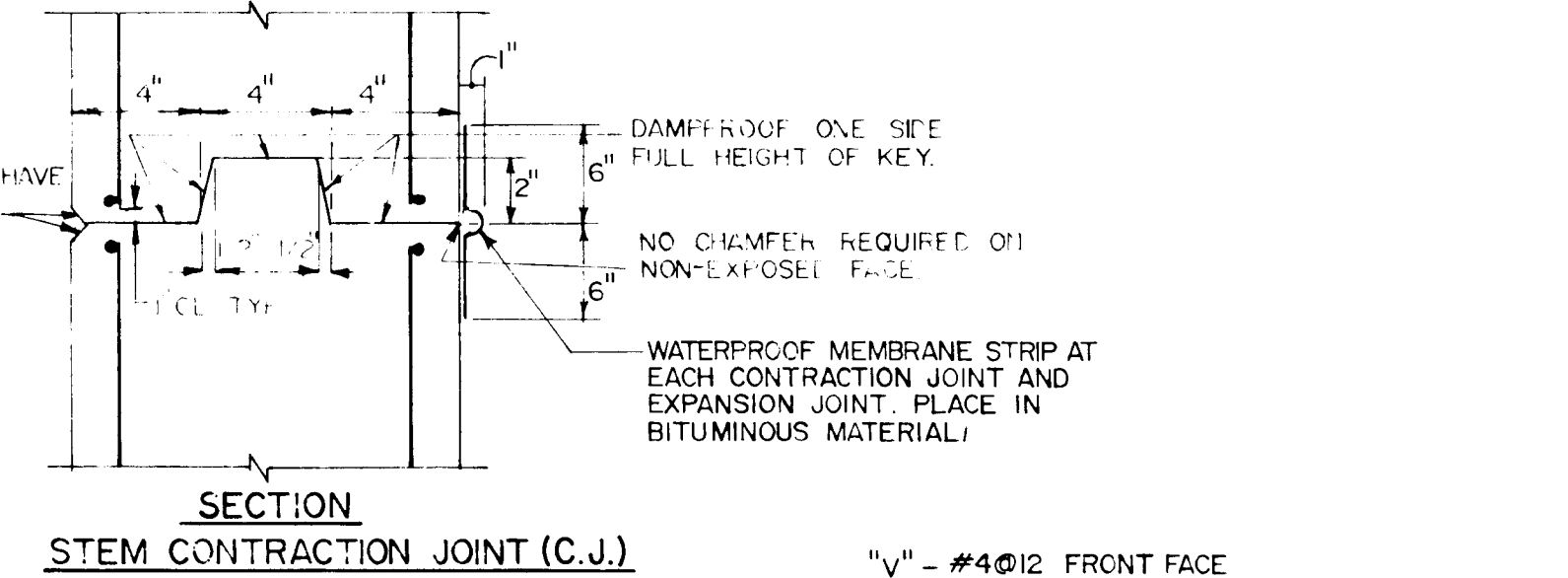
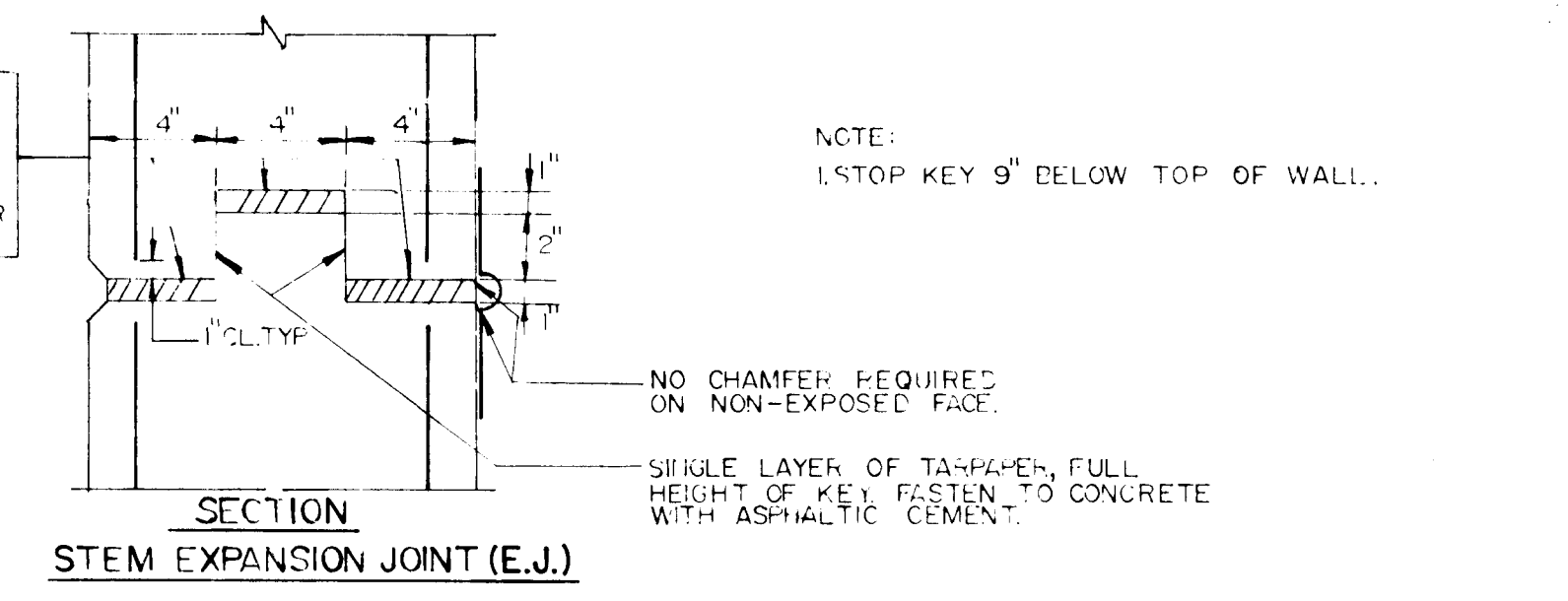
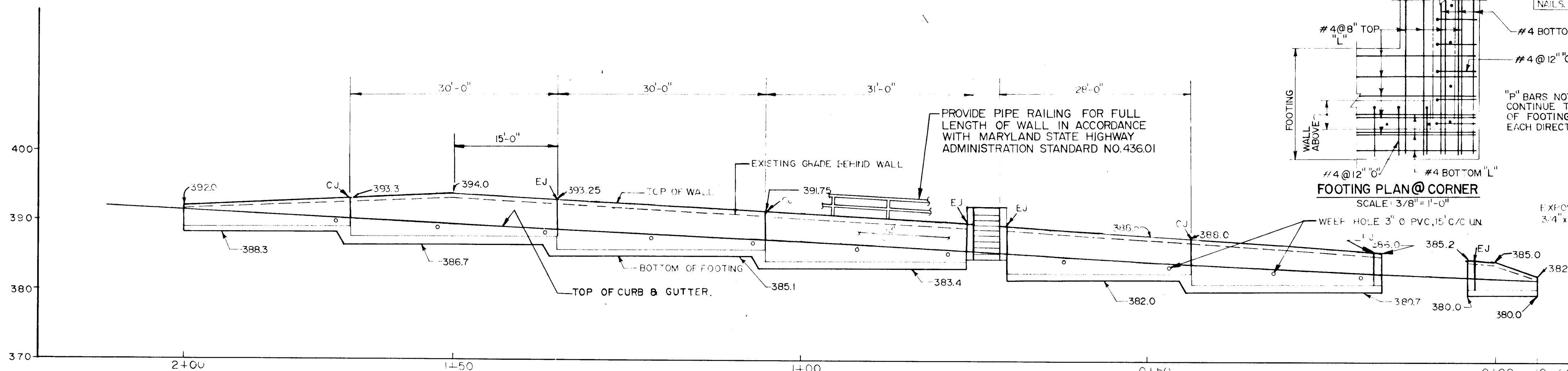
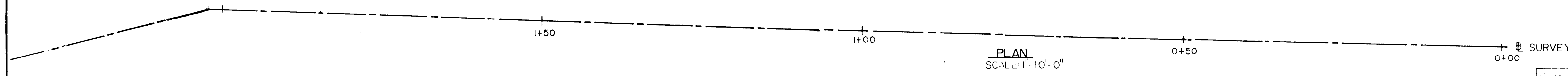


DETAIL AT TOP OF WALL
NOT TO SCALE

NOTE: APPLY FX-441 ANTI-GRAFFITI SYSTEM BY FOX INDUSTRIES OF BALTIMORE, MD. OR APPROVED EQUAL TO TOP AND EXPOSED FRONT FACE OF WALL IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.



TYPE	"A"	"B"	"O"	"P"	"L"	"M"
"A"	3'-0"	1'-0"	#4 @ 12"	#4 @ 12"	#4 @ 8"	#4 @ 12"
"B"	4'-3"	1'-3"	#4 @ 12"	#4 @ 12"	#4 @ 8"	#4 @ 12"



DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DATE 9/5/91
DIRECTOR OF PUBLIC WORKS
David H. Helms

DATE 8/28/91
CHIEF BUREAU OF ENGINEERING
Charles D. Palmer

DATE 8/28/91
CHIEF DIVISION OF ROADS, BRIDGES & STORM DRAINAGE

PROGRESSIVE ENGINEERING CONSULTANTS
1506 JOH AVENUE
BALTIMORE MARYLAND 21227

DATE 10-15-90

DES. AMP
DRN. DPV
CHK. EPR
DATE 10-15-90

REVISOR: REVISED ROGERS AVE. & ROUTE 40 INTERSECTION
DATE 7/2/92

RETAINING WALL
STA-(0+06) RT TO 1+88 RT.

ROGERS AVENUE

SCALE AS SHOWN
SHEET 22 OF 36

CAPITAL PROJECT NO. J-4097

SEDIMENT CONTROL NOTES

1. A minimum of 24 hours notice must be given to the Howard County Office of Inspection and Permits prior to the start of any construction (313-2437).
2. All vegetation and structural practices are to be installed according to the provisions of this plan and are to be in conformance with the 1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL.
3. Following initial soil disturbance or redistribution, permanent or temporary stabilization shall be completed within: (a) 7 calendar days for all perimeter sediment control structures, dikes, perimeter slopes, and all slopes greater than 3:1, (b) 14 days as to all other disturbed or graded areas on the project site.
4. All sediment traps/basins shown must be fenced and warning signs posted around their perimeter in accordance with Vol. 1, Chapter 12, Storm Drainage, of the HOWARD COUNTY DESIGN MANUAL.
5. All disturbed areas must be stabilized within the time period specified above in accordance with the 1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for permanent seeding (Sec. 51), sod (Sec. 54), temporary seeding (Sec. 50), and mulching (Sec. 52). Temporary stabilization with mulch alone can only be done when recommended seeding dates do not allow proper germination and establishment of grasses.
6. All sediment control structures are to remain in place and are to be maintained in operative condition until permission for their removal has been obtained from the Howard County Sediment Control Inspector.
7. Site Analysis:

Total area of site R/W and Easements	5.0 acres
Area disturbed	4.5 acres
Area to be roofed or paved	2.8 acres
Area to be vegetatively stabilized	1.7 acres
Total Cut	5335 cu. yds.
Total Fill	7845 cu. yds.

 Offsite waste/borrow area location To be determined by the contractor, with pre-approval by the Sediment Control Inspector.
8. Any sediment control practice which is disturbed by grading activity for placement of utilities must be repaired on the same day of disturbance.
9. Additional sediment controls must be provided, if deemed necessary by the Howard County DFW Sediment Control Inspector.
10. On all sites with disturbed areas in excess of 2 acres, approval of the inspection agency shall be requested upon completion of installation of perimeter erosion and sediment controls, but before proceeding with any other earth disturbance or grading. Other building or grading inspection approvals may not be authorized until this initial approval by the inspection agency is made.
11. See Sheet Nos. 25-31 for additional Sediment and Erosion Control Notes and Details.

PERMANENT SEEDING NOTES

Apply to graded or cleared areas not subject to immediate further disturbance where a permanent, long-lived vegetative cover is needed.

Seedbed Preparation: Loosen upper 3 inches of soil by raking, discing, or other acceptable means before seeding, if not previously loosened.

Soil Amendments: Use one of the following schedules:

- 1) Preferred - Apply 2 tons per acre dolomitic limestone (92 lbs./1000 sq. ft.) and 600 lbs per acre 10-10-10 fertilizer (14 lbs./1000 sq. ft.) before seeding. Harrow or disc into upper three inches of soil. At time of seeding, apply 400 lbs. per acre 30-0-0 ureaform fertilizer (9 lbs./1000 sq. ft.).
- 2) Acceptable - Apply 2 tons per acre dolomitic limestone (92 lbs./1000 sq. ft.) and 1000 lbs. per acre 10-10-10 fertilizer (23 lbs./1000 sq. ft.) before seeding. Harrow or disc into upper three inches of soil.

Seeding: For the periods March 1 thru April 30 and August 1 thru October 15, seed with 60 lbs. per acre (1.4 lbs./1000 sq. ft.) of Kentucky 31 Tall Fescue. For the period May 1 thru July 31, seed with 60 lbs. of Kentucky 31 Tall Fescue per acre and 2 lbs per acre (.05 lbs./1000 sq. ft.) of weeping lovegrass. During the period of October 16 thru February 28, protect site by: Option 1 - 2 tons per acre of well-anchored straw mulch, and seed as soon as possible in the spring. Option 2 - Use sod. Option 3 - Seed with 60 lbs. per acre Kentucky 31 Tall Fescue, and mulch with 2 tons per acre well-anchored straw.

Mulching: Apply 1 1/2 to 2 tons per acre (70 to 90 lbs./1000 sq. ft.) of unrotted small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 218 gallons per acre (5 gal./1000 sq. ft.) of emulsified asphalt on flat areas. On slopes 8 feet or higher, use 348 gallons per acre (8 gal./1000 sq. ft.) for anchoring.

Maintenance: Inspect all seeded areas, and make needed repairs, replacements, and reseeding.

TRAP SCHEDULE												
TRAP NO.	TYPE	BASELINE STA/AT END	REQUIRED STORAGE	STORAGE PROVIDED	AVERAGE DEPTH	BOTTOM DIMENSION	BOTTOM ELEVATION	CLEANOUT ELEVATION	CREST ELEVATION	EMBANKMENT ELEVATION	WEIR LENGTH /ELEVATION	DRAINAGE AREA
2	STONE OUTLET SEDIMENT TRAP	5+60+	2406 CF	2412 CF	3 FT.	67 X 12	317.50	319.00	321.50	322.50	6 FT/321.50	1.34 AC.
3	SWALE SEDIMENT TRAP	11+03+	1790 CF	2500 CF	2.5 FT.	100 X 10	340.20	341.45	342.70	—	—	0.99 AC.
4	STONE OUTLET SEDIMENT TRAP	6+25+	1074 CF	1184 CF	2.5 FT.	20 X 20	314.00	315.00	317.00	318.00	4 FT/317.00	0.60 AC.
5	STONE OUTLET SEDIMENT TRAP	4+85+	1570 CF	1600 CF	2.0 FT.	40 X 20	321.00	322.00	324.00	325.00	4 FT/324.00	0.67 AC.
6	SWALE SEDIMENT TRAP	12+07+	1520 CF	2300 CF	2.5 FT.	90 X 10	348.50	349.75	351.00	—	—	0.84 AC.

SEDIMENT CONTROL NOTES

All vegetative and structural practices are to be installed according to the provisions of this plan and are to be in conformance with the 1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL.

Any sediment control practice which is disturbed by grading activity for placement of utilities must be repaired on the same day of disturbance.

Additional sediment controls must be provided, if deemed necessary by the Howard County DFW sediment control inspector.

TEMPORARY SEEDING NOTES

Apply to graded or cleared areas likely to be redistributed where a short-term vegetative cover is needed.

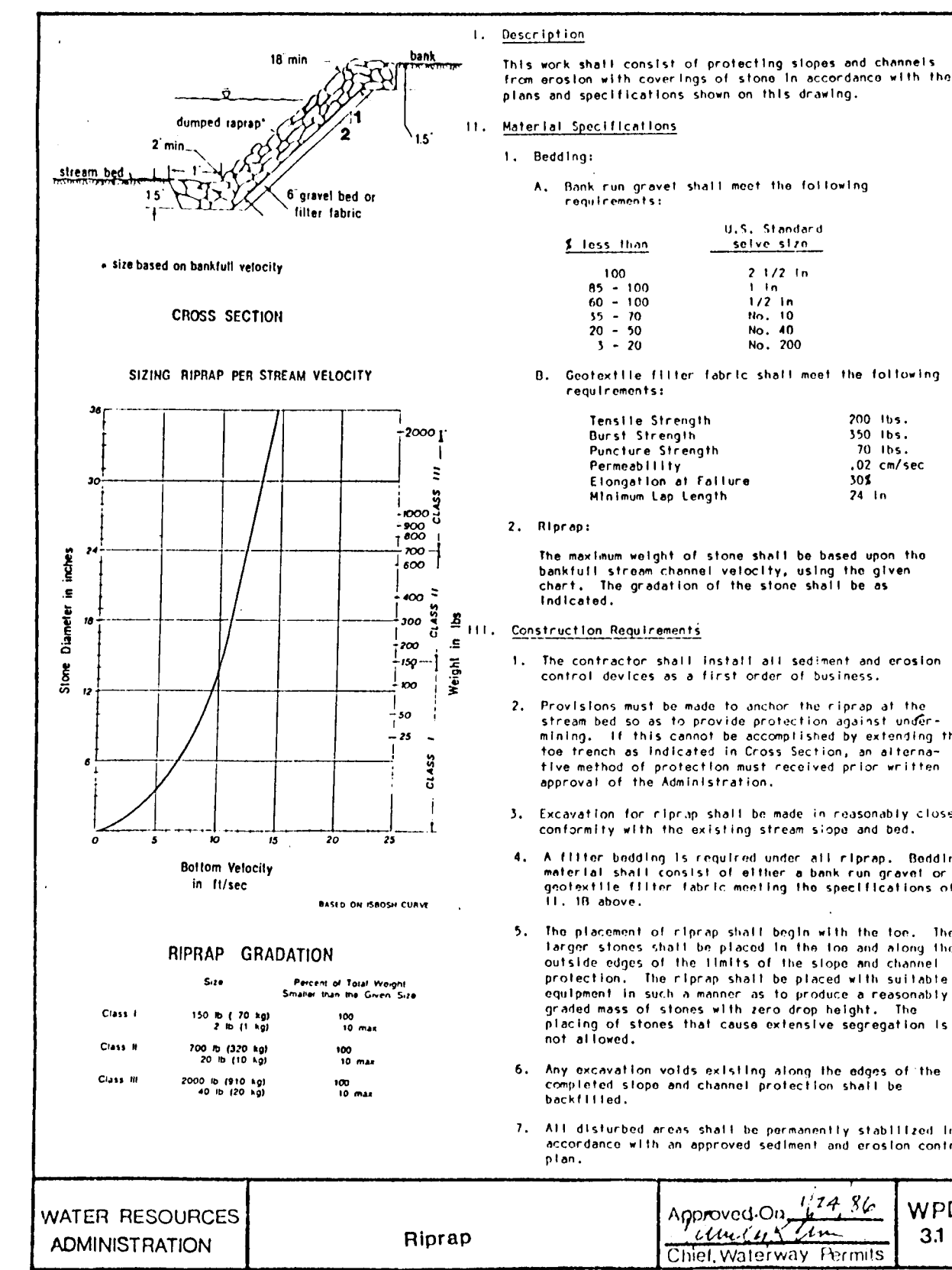
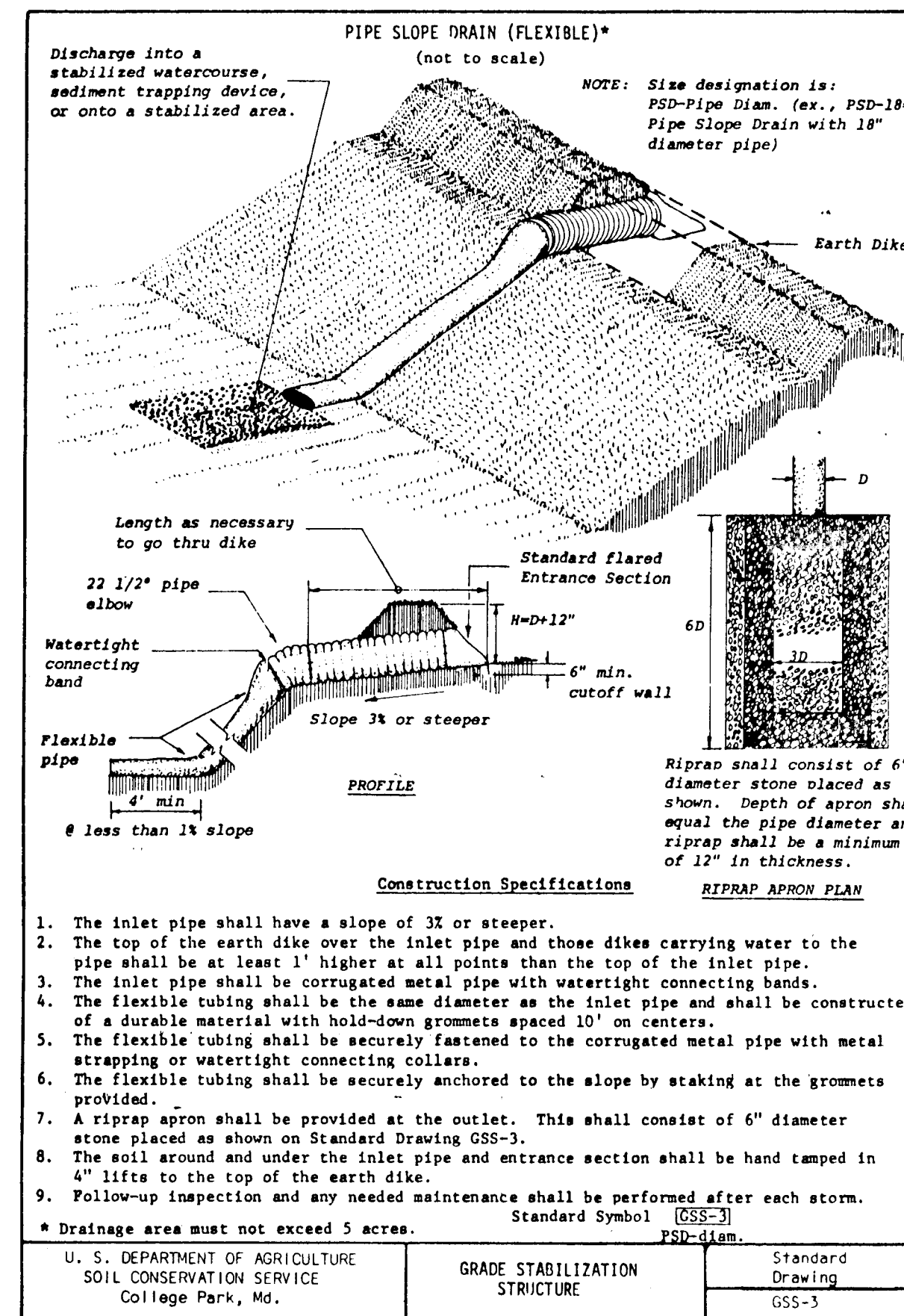
Seedbed Preparation: Loosen upper three inches of soil by raking, discing, or other acceptable means before seeding, if not previously loosened.

Soil Amendments: Apply 600 lbs. per acre 10-10-10 fertilizer (14 lbs./1000 sq. ft.).

Seeding: For periods March 1 thru April 30 and from August 15 thru November 15, seed with 2 1/2 bushel per acre of annual rye (3.2 lbs./1000 sq. ft.). For the period May 1 thru August 14, seed with 3 lbs. per acre of weeping lovegrass (.07 lbs./1000 sq. ft.). For the period November 16 thru February 28, protect site by applying 2 tons per acre of well-anchored straw mulch, and seed as soon as possible in the spring, or use sod.

Mulching: Apply 1 1/2 to 2 tons per acre (70 to 90 lbs./1000 sq. ft.) of unrotted small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 218 gal. per acre (5 gal./1000 sq. ft.) of emulsified asphalt on flat areas. On slopes 8 feet or higher, use 348 gal. per acre (8 gal./1000 sq. ft.) for anchoring.

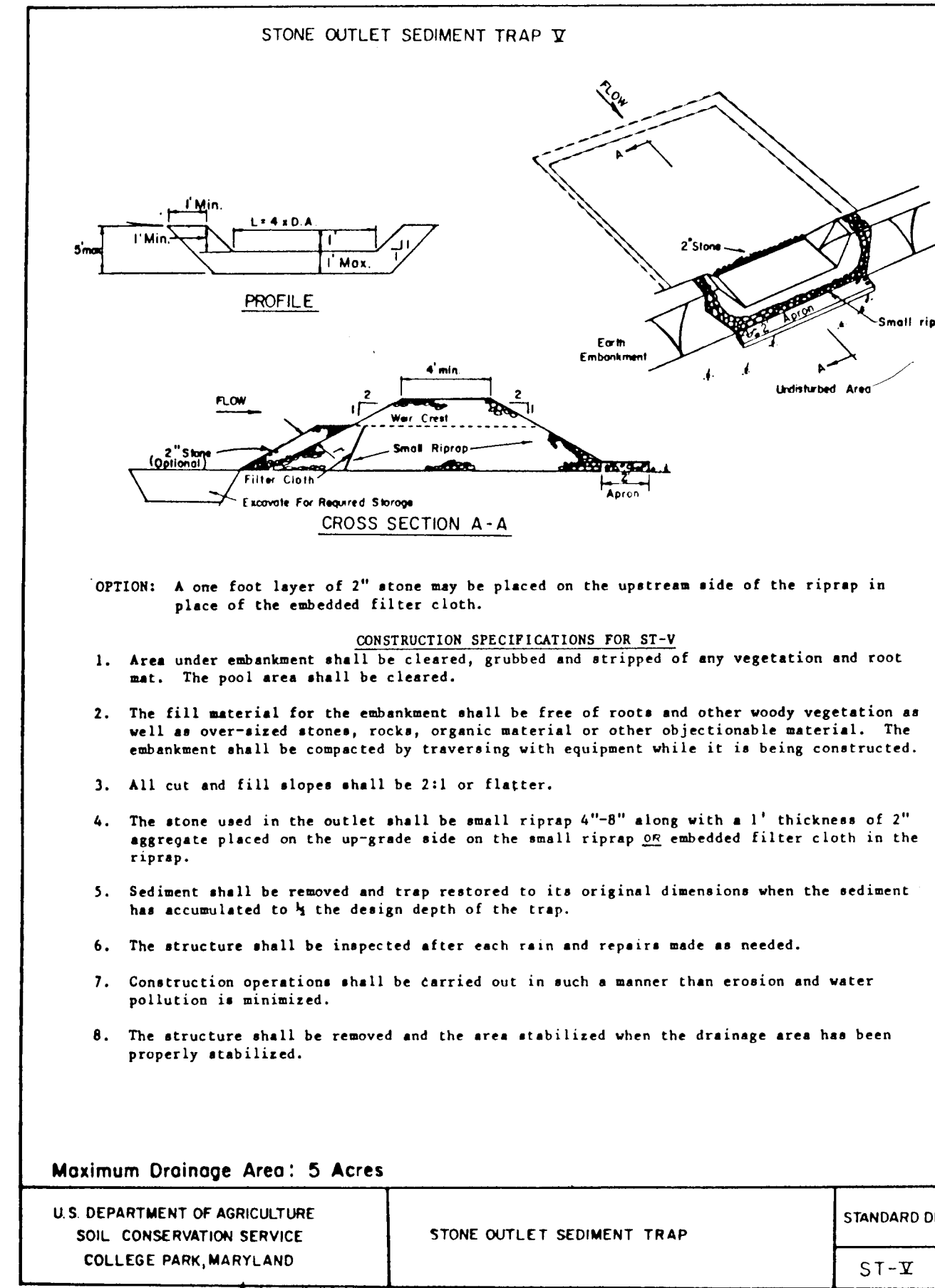
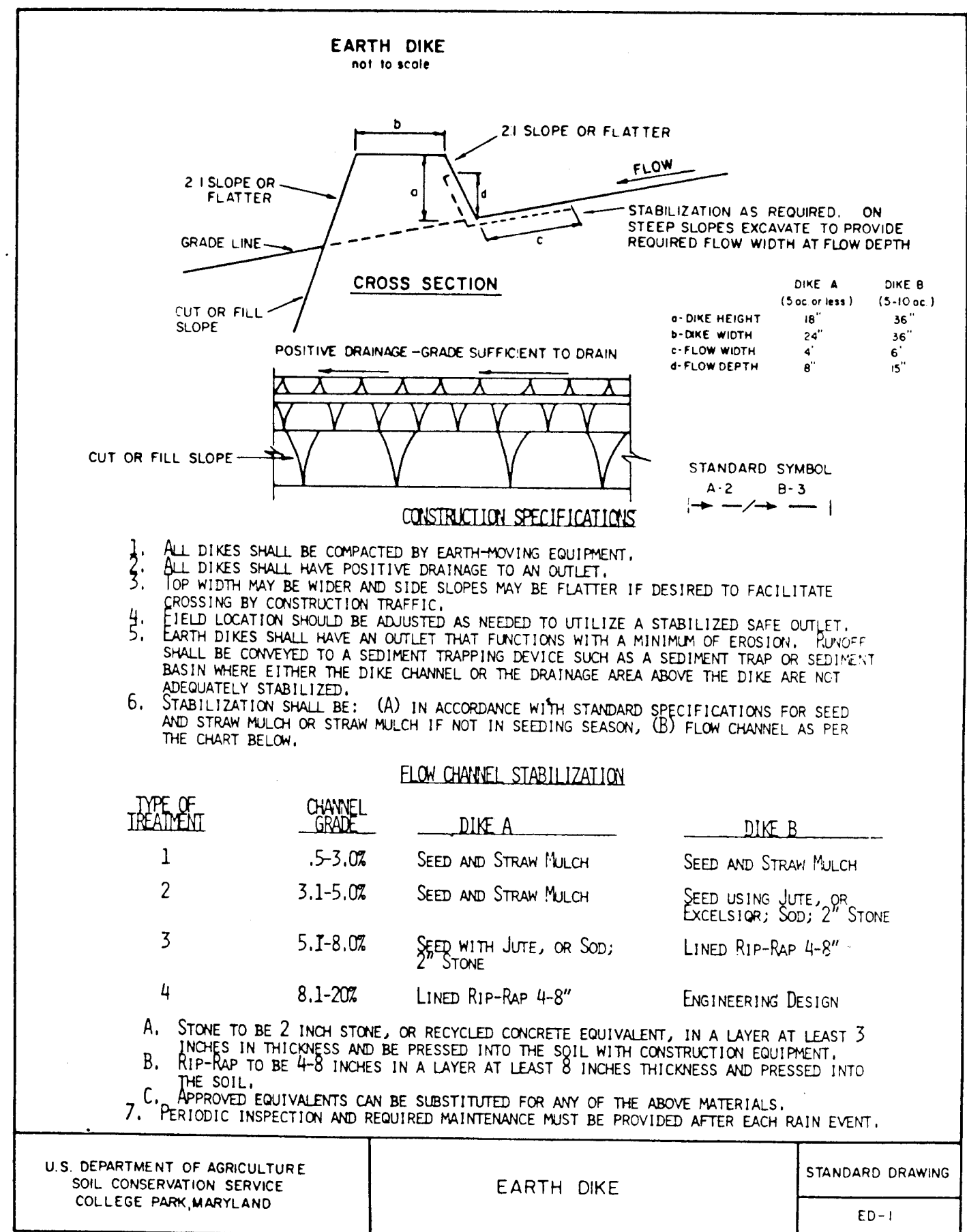
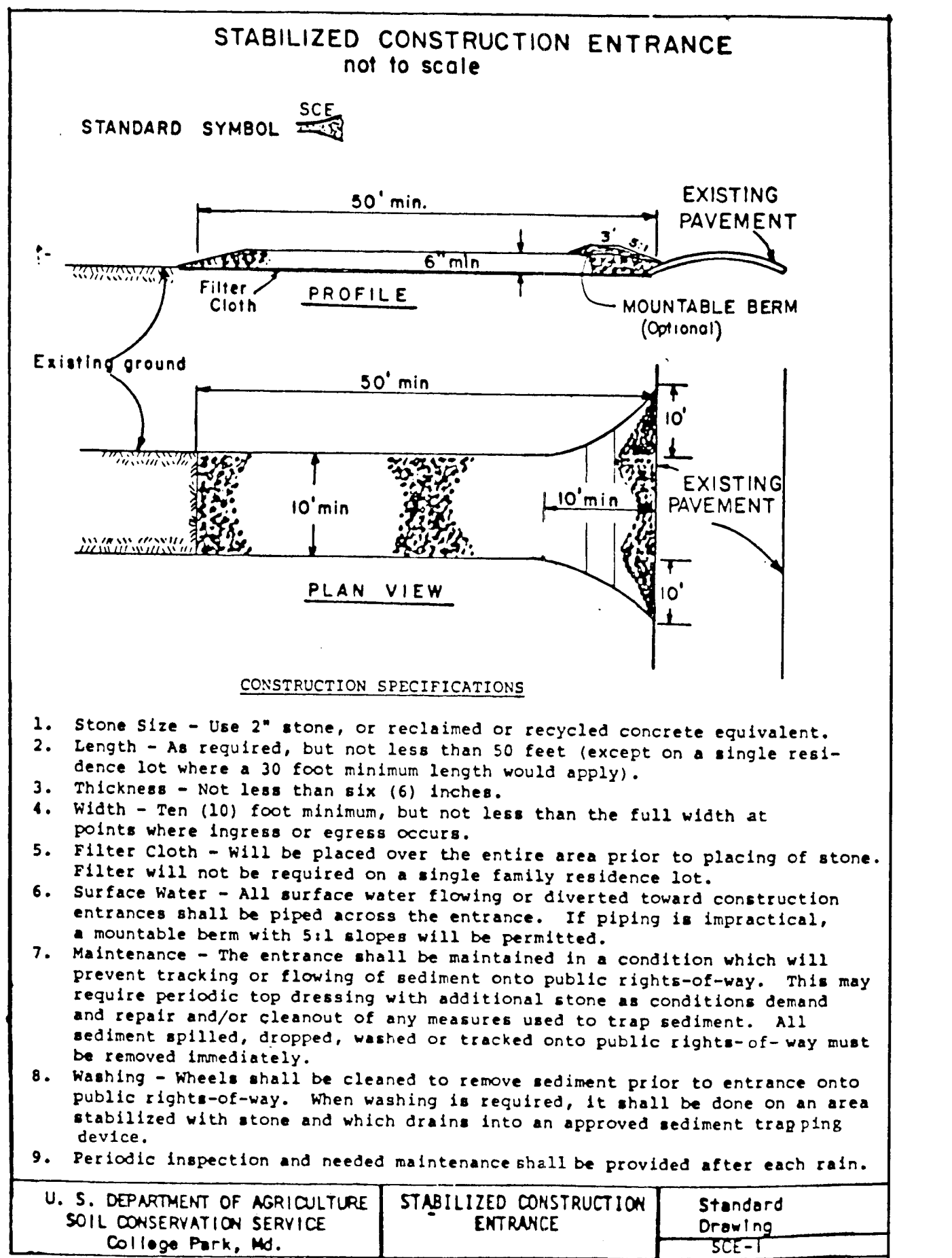
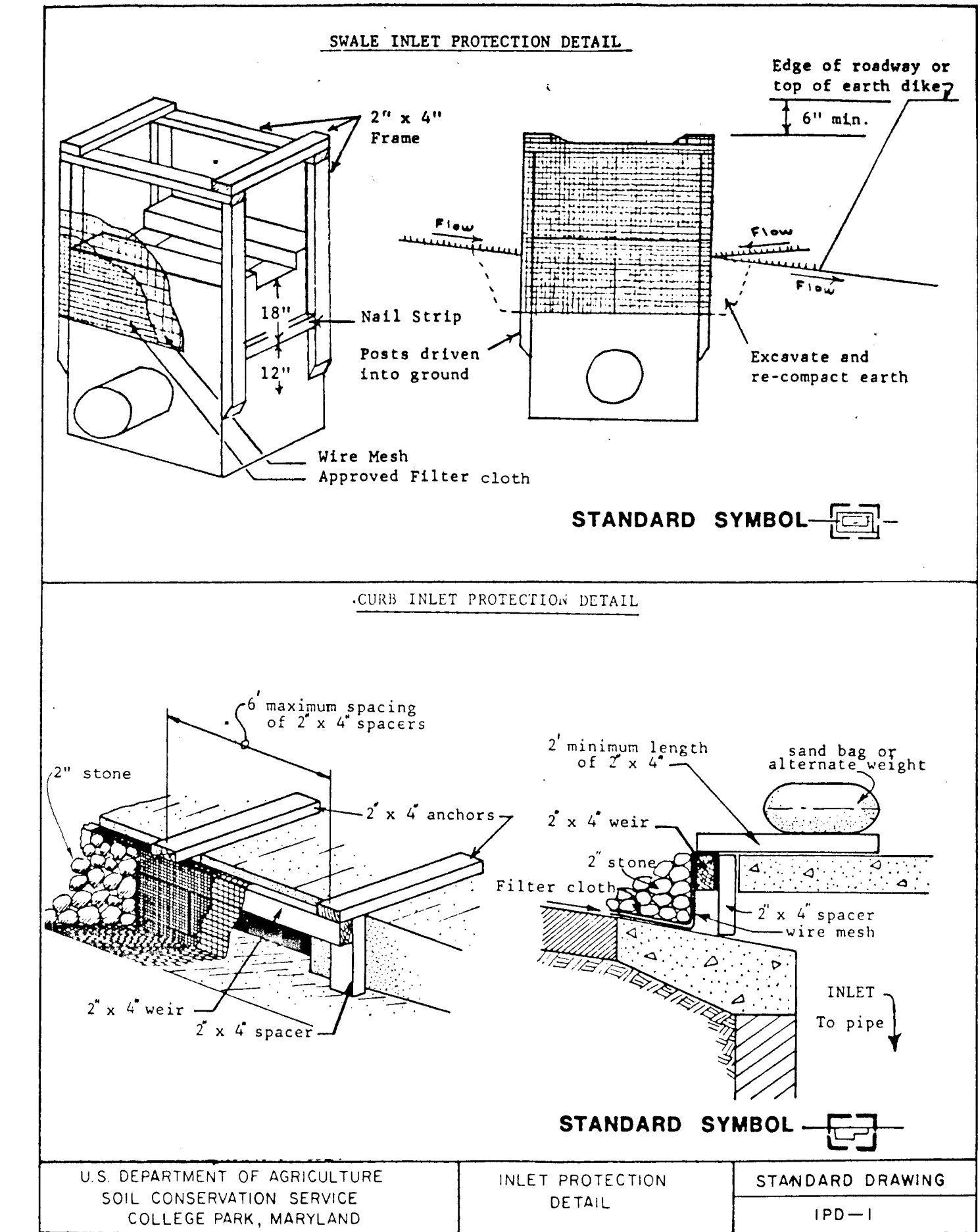
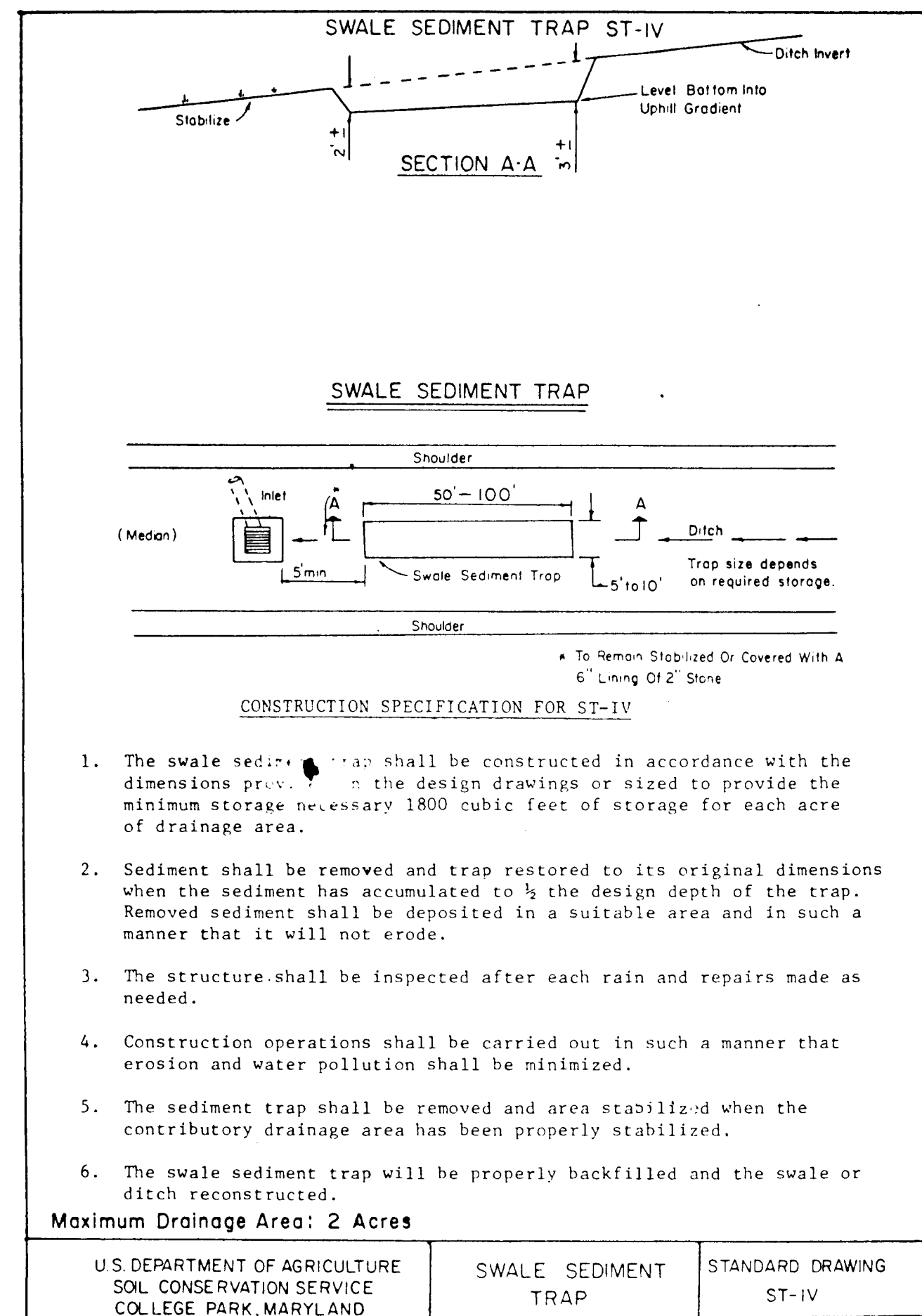
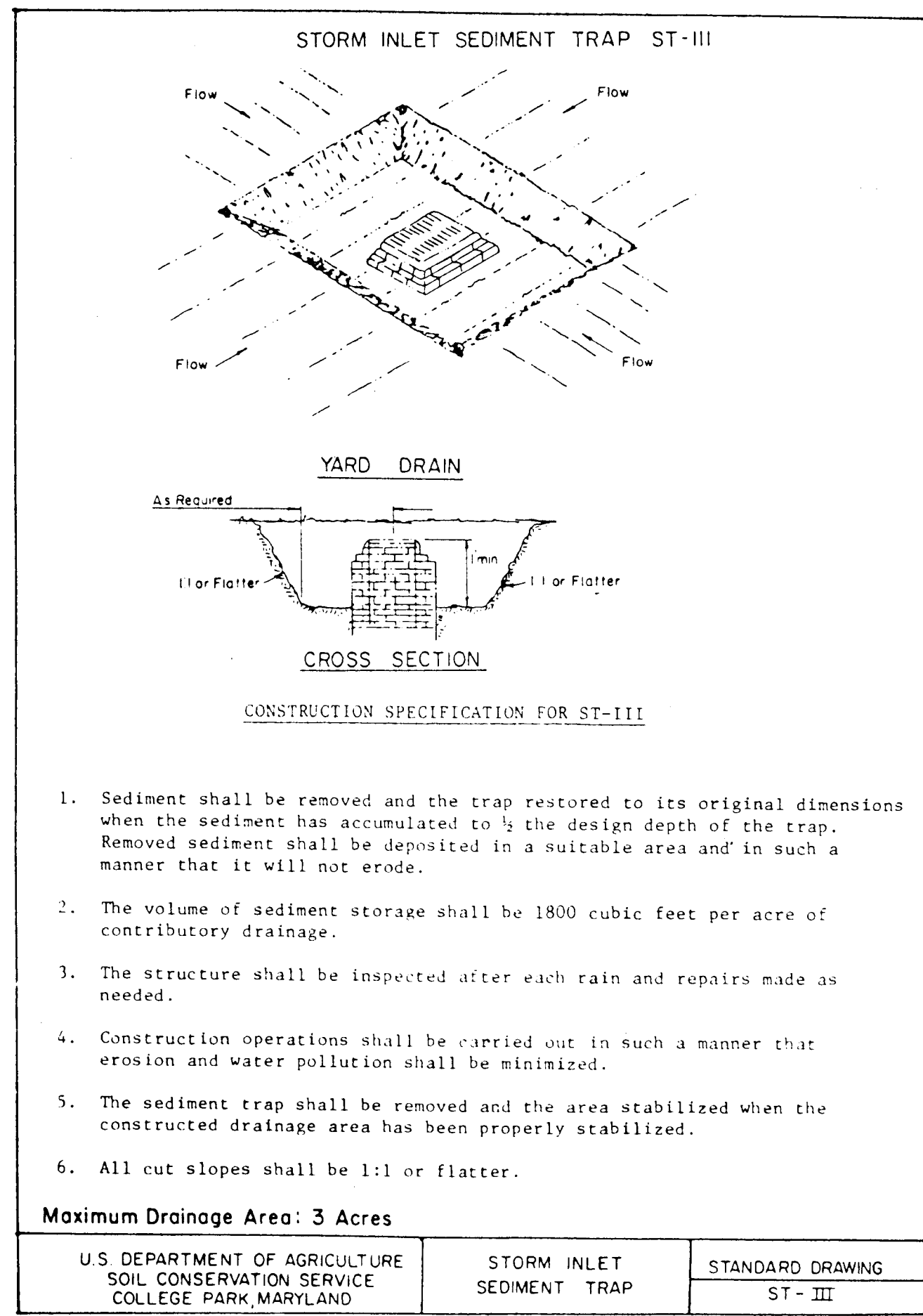
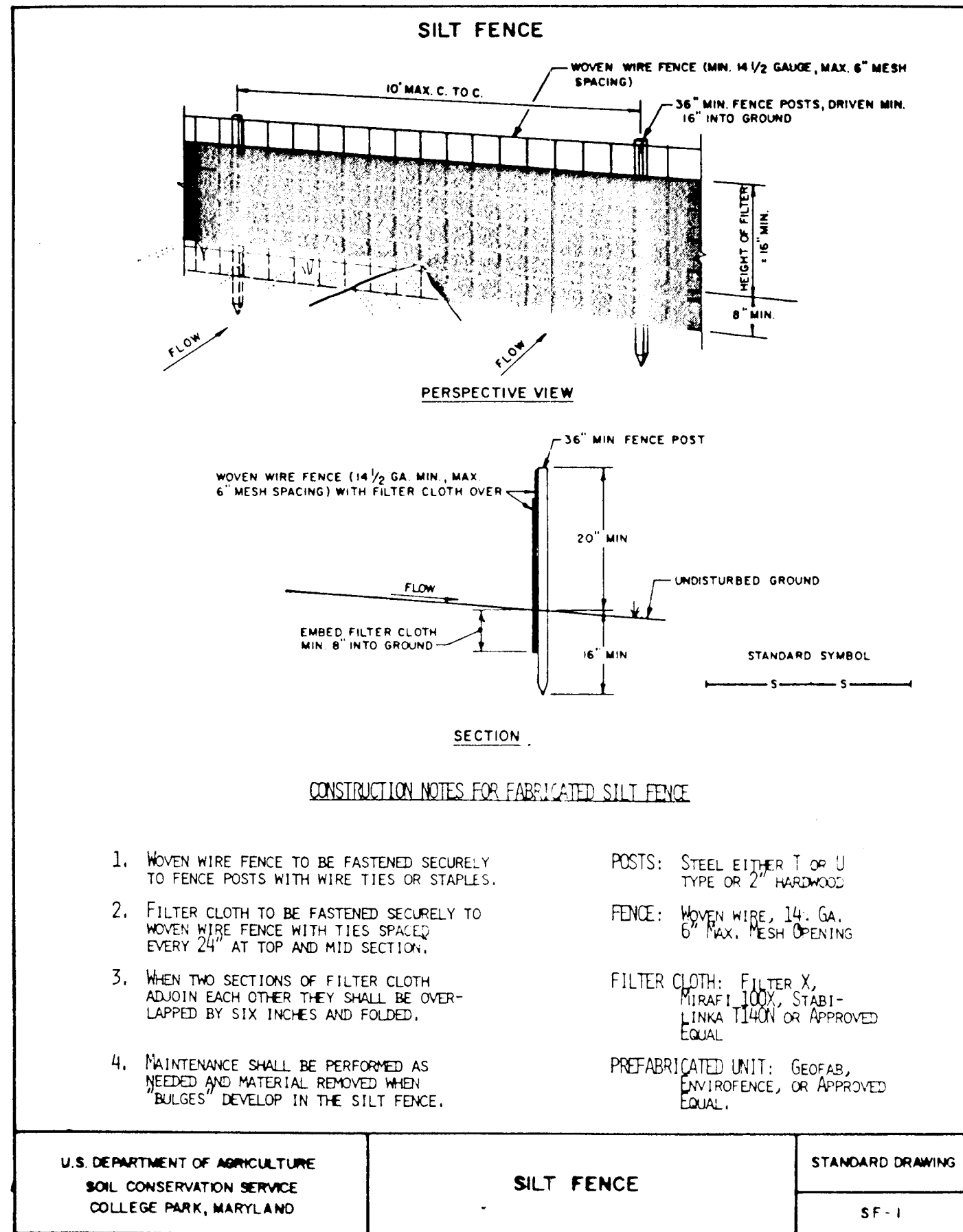
Refer to the 1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for rate and methods not covered.



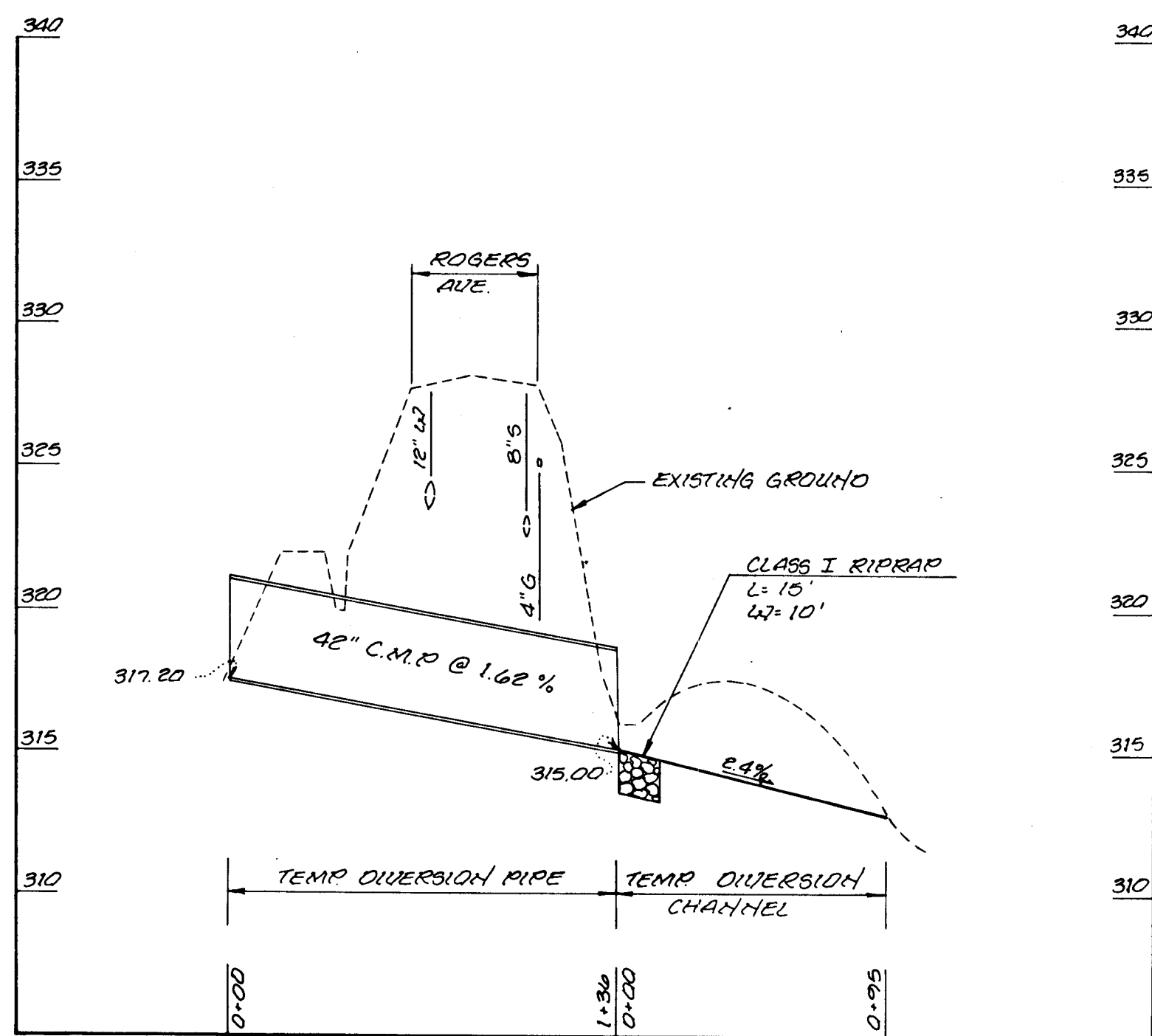
SEDIMENT & EROSION CONTROL SEQUENCE OF CONSTRUCTION

1. OBTAIN GRADING PERMITS
2. CLEAR AND GRUB FOR SEDIMENT CONTROL MEASURES AND DEVICES.
3. INSTALL PIPES AND DITCHES AS OUTLINED IN MAINTENANCE OF TRAFFIC SEQUENCE OF CONSTRUCTION FOR THE VARIOUS PHASES OF CONSTRUCTION, (SHEETS 8-11).
4. INSTALL PHASE 1 SEDIMENT CONTROL MEASURES AND DEVICES (SEE SHEETS 26 AND 27).
5. NOTIFY HOWARD COUNTY SEDIMENT CONTROL INSPECTOR UPON COMPLETING INSTALLATION OF PERIMETER CONTROLS.
6. CLEAR & GRUB.
7. PERFORM PHASE 1 CONSTRUCTION AS OUTLINED ON SHEET 8.
8. STABILIZE DISTURBED AREAS AND INSTALL THE ROAD SIDE DITCH CHANNEL LINING FROM STA. 10+00 TO STA. 14+50 RT.
9. INSTALL PHASE 2 SEDIMENT CONTROL MEASURES AND DEVICES. (SEE SHEETS 28 AND 29).
10. NOTIFY HOWARD COUNTY SEDIMENT CONTROL INSPECTOR UPON COMPLETING INSTALLATION OF PERIMETER CONTROLS.
11. PERFORM PHASE 2 CONSTRUCTION AS OUTLINED ON SHEET 9.
12. STABILIZED DISTURBED AREAS, INSTALL THE ROAD SIDE DITCH CHANNEL LINING FROM STA. 2+60 TO STA. 10+00 RT. AND WATER QUALITY FACILITY.
13. INSTALL PHASE 3 & 4 SEDIMENT CONTROL MEASURES AND DEVICES, (SEE SHEETS 30 AND 31).
14. NOTIFY HOWARD COUNTY SEDIMENT CONTROL INSPECTOR UPON COMPLETING INSTALLATION OF PERIMETER CONTROLS.
15. PERFORM PHASE 3 CONSTRUCTION AS OUTLINED ON SHEET 10.
16. STABILIZE ALL DISTURBED AREAS. SEE PERMANENT SEEDING NOTES THIS SHEET.
17. CONSTRUCT INFILTRATION TRENCH AT STA. 6+50 LT. SEE DETAILS SHEET 20.
18. PERFORM PHASE 4 CONSTRUCTION AS OUTLINED ON SHEET 11.
19. REMOVE SEDIMENT CONTROL MEASURES AND DEVICES WITH PERMISSION FROM HOWARD COUNTY SEDIMENT CONTROL INSPECTOR AND STABILIZE ANY REMAINING AREAS.

<p>DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND</p> <p>James W. Lewis, Director of Public Works, DATE 9/15/91</p> <p>William E. Reed, Chief, Bureau of Engineering, DATE 8-29-91</p> <p>Craville W. McKeand, Chief, Division of Highway, DATE 9/15/91</p> <p>Shubell A. Colva, Chief, Storm Drainage, DATE 8/26/91</p>	<p>JOHN E. HARMS, JR. & ASSOCIATES, INC.</p> <p>CONSULTING ENGINEERS 90 GOV. RITCHIE HIGHWAY PASADENA, MARYLAND</p> <p>DES: J.G.H. DRN: J.R.R. CHK: M.G.B. DATE: 7/91</p>	<p>U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE College Park, Md.</p> <p>GRADE STABILIZATION STRUCTURE Standard Drawing GSS-3</p> <p>Approved On 11/2/96 Drawing 00000000 Chief, Waterway Permits</p> <p>WATER RESOURCES ADMINISTRATION</p>	<p>SEDIMENT & EROSION CONTROL DETAILS</p> <p>ROGERS AVENUE</p> <p>REVISIONS: 1. REVISED ROGERS AVE., U.S. ROUTE 40 INTERSECTION 7/12/92</p> <p>600' SCALE MAP NO. _____ BLOCK NO. _____</p>	<p>SCALE AS SHOWN</p> <p>SHEET 24 of 36</p>
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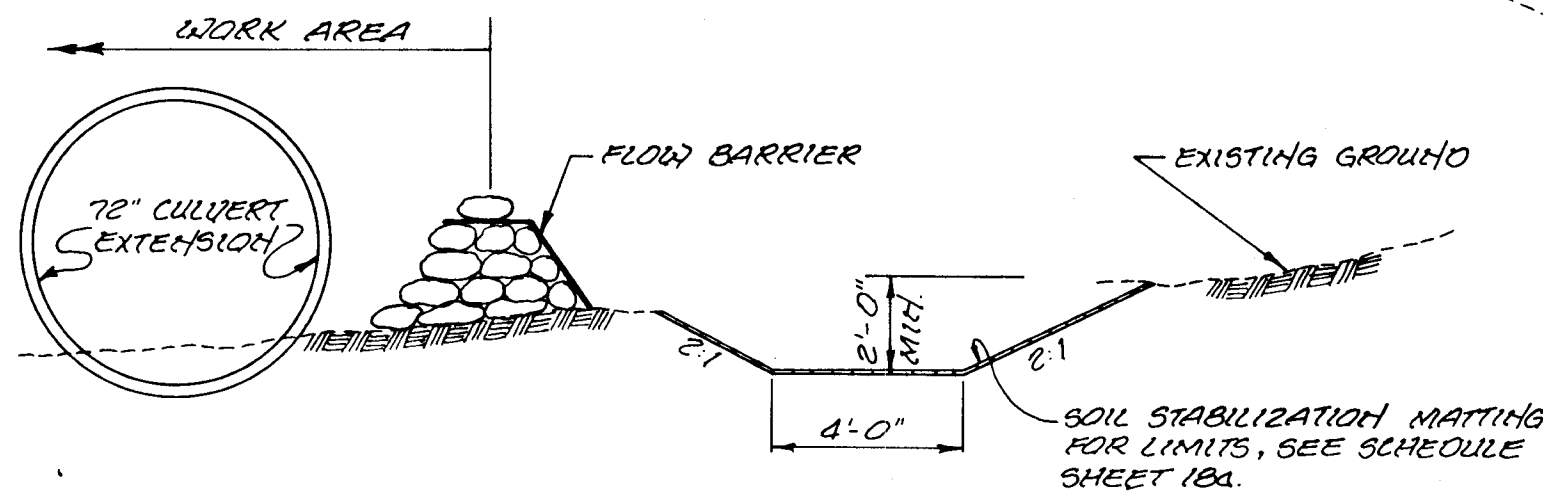
- A swale, ditchline or yard inlet protection.
 - Excavate completely around inlet to a depth of 18" below notch elevation.
 - Drive 2 x 4 post 1' into ground at four corners of inlet. Place nail strips between posts on ends of inlet. Assemble top portion of 2 x 4 frame using overlap joint shown. Top of frame (weir) must be 6" below edge of roadway adjacent to inlet.
 - Stretch wire mesh tightly around frame and fasten securely. Ends must meet at post.
 - Stretch filter cloth tightly over wire mesh, the cloth must extend from top of frame to 18" below inlet notch elev. Fasten securely to frame. Ends must meet at post, be overlapped and folded, then fastened down.
 - Backfill around inlet in compacted 6" layers until layer of earth is even with notch elevation on ends and top elevation on sides.
 - If the inlet is not in a low point, construct a compacted earth dike in the ditchline below it. The top of this dike is to be at least 6" higher than the top of frame (weir).
 - This structure must be inspected frequently and the filter fabric replaced when clogged.
- Curb Inlet Protection.
 - Attach a continuous piece of wire mesh (30" min. width by throat length plus 4") to the 2" x 4" weir (measuring throat length plus 2") as shown on the standard drawing.
 - Place a piece of approved filter cloth (40-85 sieve) of the same dimensions as the wire mesh over the wire mesh and securely attach to the 2" x 4" weir.
 - Securely nail the 2" x 4" weir to 9" long vertical spacers to be located between the weir and inlet face (max. 6' apart).
 - Place the assembly against the inlet throat and nail (minimum 2' lengths of 2" x 4" to the top of the weir at spacer locations. These 2" x 4" anchors shall extend across the inlet top and be held in place by sandbags or alternate weight.
 - The assembly shall be placed so that the end spacers are a minimum 1' beyond both ends of the throat opening.
 - Form the wire mesh and filter cloth to the concrete gutter and against the face of curb on both sides of the inlet. Place clean 2" stone over the wire mesh and filter fabric in such a manner as to prevent water from entering the inlet under or around the filter cloth.
 - This type of protection must be inspected frequently and the filter cloth and stone replaced when clogged with sediment.
 - Assure that storm flow does not bypass inlet by installing temporary earth or asphalt dikes directing flow into inlet.



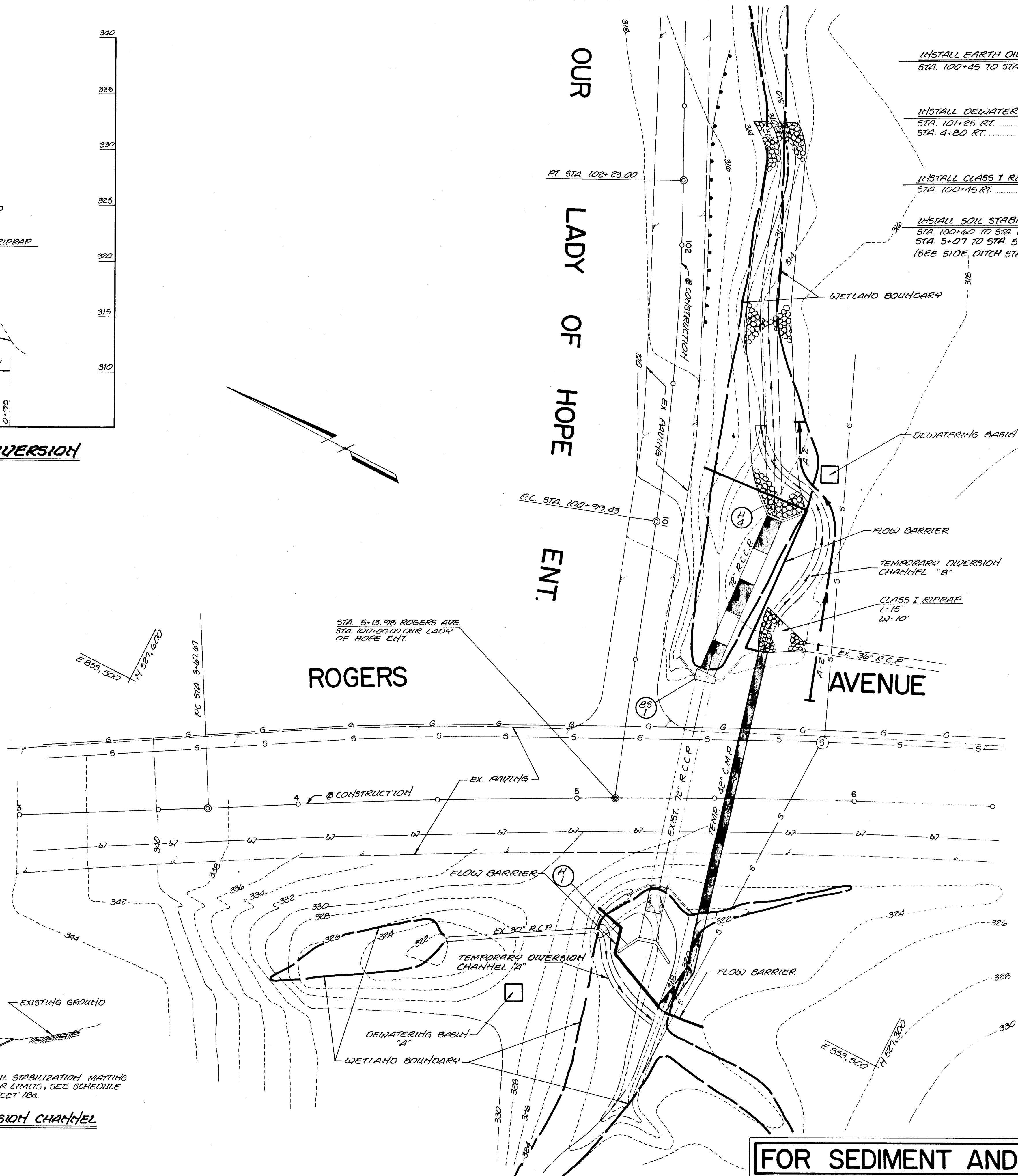
PROFILE ALONG TEMPORARY DIVERSION
SCALE: 1"=50' HOR.
1"=5' VERT.

SEQUENCE OF CONSTRUCTION FOR CULVERT INSTALLATION

1. INSTALL SEDIMENT CONTROL DEVICES AS NECESSARY. (SEE MARYLAND STANDARDS AND SPECIFICATION FOR SEDIMENT CONTROL.)
2. CONSTRUCT TEMPORARY DIVERSION IN CONJUNCTION WITH WPD.1 AND THIS PLAN.
3. BUILD DEWATERING BASINS AS NEEDED. (WPD.1.1)
4. INSTALL CULVERT EXTENSIONS AFTER RECEIVING A MINIMUM 4 DAY CLEAR WEATHER FORECAST FOR EACH EXTENSION SITE.
5. AFTER CULVERT EXTENSIONS ARE COMPLETE REMOVE TEMPORARY DIVERSION PIPE REMOVE FLOW BARRIER ON EAST SIDE OF ROGERS AVE. ADJUST FLOW BARRIER ON WEST SIDE OF ROGERS AVE. TO ALLOW WATER TO FLOW INTO NEWLY CONSTRUCTED CULVERT EXTENSION.
6. STABILIZE THE DISTURBED SLOPES WITH METHODS ACCEPTED BY THE ADMINISTRATION (WPD.3.1)
7. CONSTRUCT DRAINAGE FACILITIES AS OUTLINED IN SEQUENCE OF CONSTRUCTION PHASE 1, SHEET 8, NOTE 7.
8. REMOVE TEMPORARY DIVERSION CHANNEL "B" AFTER WORK IS COMPLETED.
9. STABILIZE THE DISTURBED SLOPES AND STREAM BED WITH METHODS ACCEPTED BY THE ADMINISTRATION (WPD 3.1).
10. SEED AND MULCH ANY REMAINING DISTURBANCES.
11. RESTORE THE DEWATERING BASIN "B" TO THE ORIGINAL GRADE.
12. COMPLETE PHASE 1 CONSTRUCTION.
13. CONSTRUCT DRAINAGE FACILITIES AS OUTLINED IN SEQUENCE OF CONSTRUCTION PHASE 2, SHEET 9, NOTE.
14. REMOVE TEMPORARY DIVERSION CHANNEL "A" AFTER WORK IS COMPLETED.
15. STABILIZE THE DISTURBED SLOPES AND STREAM BED WITH METHODS ACCEPTED BY THE ADMINISTRATION (WPD 3.1).
16. SEED AND MULCH ANY REMAINING DISTURBANCES.
17. RESTORE THE DEWATERING BASIN "A" TO THE ORIGINAL GRADE.
18. REMOVE ANY SEDIMENT AND EROSION CONTROL MEASURES AND DEVICES WITH THE PERMISSION OF THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR AND STABILIZE ANY REMAINING AREAS.



TYPICAL SECTION - DIVERSION CHANNEL
H.T.S



- INSTALL EARTH DIVERSION DIKE - TYPE A-2
STA. 100+45 TO STA. 101+40 RT. 105 LF
- INSTALL DEWATERING BASIN
STA. 101+25 RT. 1EA.
STA. 4+80 RT. 1EA.
- INSTALL CLASS I RIPRAP
STA. 100+45 RT. 17 54'
- INSTALL SOIL STABILIZATION MATTING
STA. 100+60 TO STA. 101+40 RT. 170 54'
STA. 5+07 TO STA. 5+30 RT. 75 54'
(SEE SIDE DITCH STABILIZATION SCHEDULE SHT. 18a)

PLAN & PROFILE

- Description**
The work shall consist of installing a flow diversion structure in conjunction with a temporary culvert crossing during in-stream construction such as utility crossings.
- Construction Requirements**
 1. All erosion and sediment control devices shall be installed as the first order of business.
 2. Pipes must be sized to accommodate normal stream flow.
 3. The flow barrier shall be constructed of sandbags, washed riprap, or other approved material as per WPD.3. The materials shall be sized to withstand normal stream flow velocities.
 4. All dewatering of the construction area shall be pumped to a dewatering basin (WPD.1.1) prior to re-entering the stream.
 5. The temporary culvert crossing shall be constructed in accordance with Standard Detail (TAC-1), 1983 Maryland Standards and Specifications for Sediment and Erosion Control.
 6. Sediment control devices shall remain in place until all disturbed areas have been stabilized in accordance with an approved sediment and erosion control plan and the inspecting authority approves their removal.

WATER RESOURCES ADMINISTRATION	Culvert Pipe with Access Road	Approved On: 12/14/91 By: [Signature] Chief, Waterway Permits	WPD 2.1
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PLAN VIEW

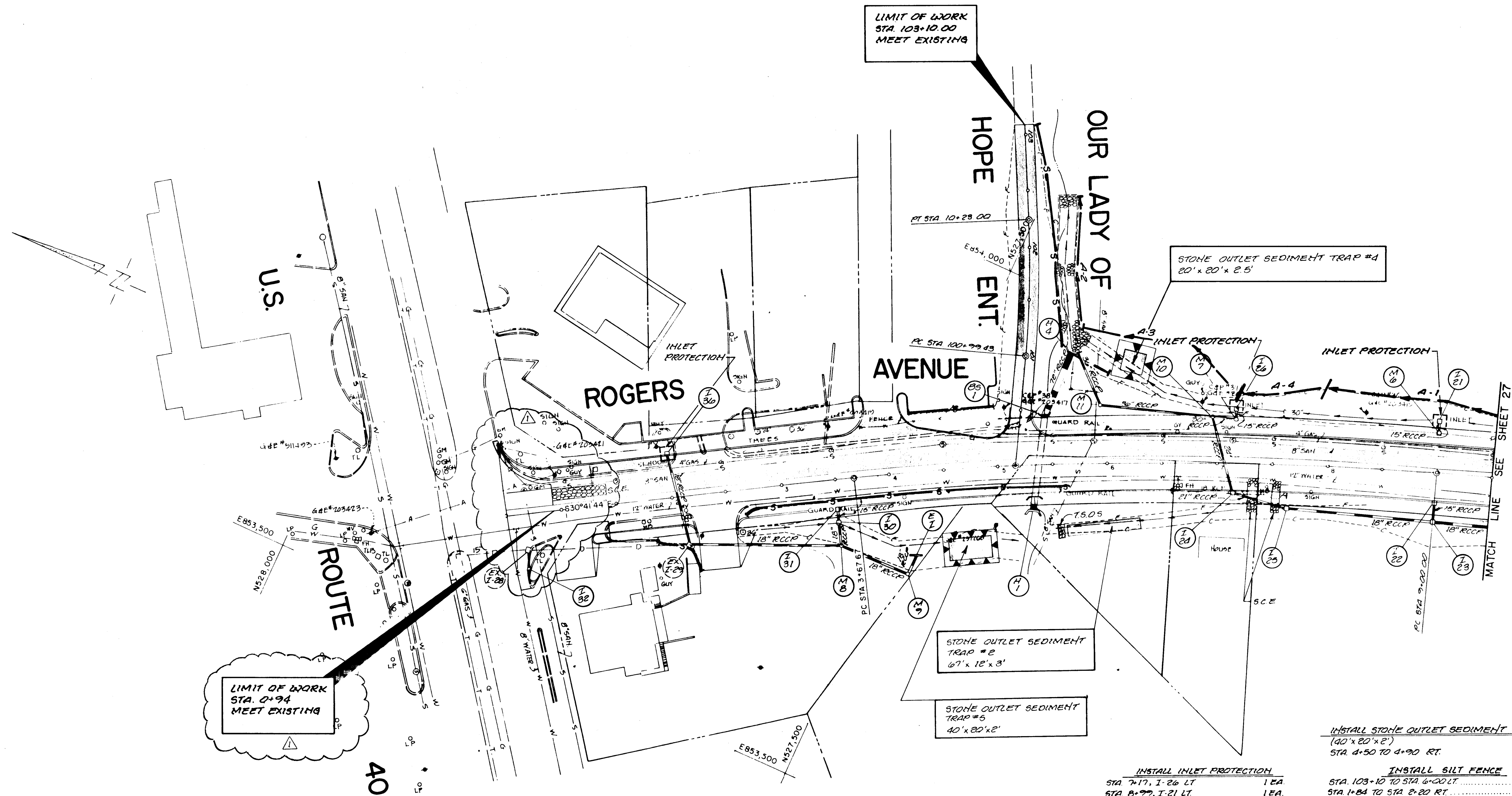
SECTION AA

SECTION BB

- Description**
The work shall consist of the construction of a dewatering basin for the purpose of receiving sediment-laden water pumped from a construction site to allow filtration before the water re-enters the waterway.
- Material Specifications**
 1. Riprap: Riprap shall consist of 4-8 inch washed stone or gravel.
 2. Filter Fabric: The filter cloth shall be a woven or nonwoven fabric consisting of continuous chain polymeric filaments or yarns of polyester. The fabric shall be inert to commonly encountered chemicals, hydrocarbons, aldehydes, and rot resistant. No. 6 stone (MSH10 57) may be used on the inner-face for filtering instead of fabric.
 3. Strawbales: Strawbales shall meet the criteria as specified in the Maryland Standards and Specifications for Soil Erosion and Sediment Control.
- Construction Requirements**
 1. The contractor shall install all sediment and erosion control devices as the first order of business.
 2. Excavated materials shall be stored such that sediments are prevented from entering the waterway. I.e., sediment perimeter controls may be necessary.
 3. Excavated subsoil and topsoil shall be kept separate and replaced in their natural order.
 4. Any dewatering of the construction area shall be filtered through a dewatering basin prior to entering the waterway.
 5. The dewatering basin shall be excavated to a minimum depth of 3 feet.
 6. Once the dewatering basin becomes filled to 1/2 of the excavated depth, accumulated sediment shall be removed and disposed of in a 500 approved disposal area outside the 100-year floodplain unless otherwise approved on the plan by the WPA.
 7. Sediment control devices are to remain in place until all disturbed areas are stabilized and the inspecting authority approves their removal. All ground contours shall be returned to their original condition unless specifically approved otherwise by the Administration.

WATER RESOURCES ADMINISTRATION	Dewatering Basins	Approved On: 12/14/91 By: [Signature] Chief, Waterway Permits	WPD 1.1
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FOR SEDIMENT AND EROSION CONTROL ONLY



PLAN
SCALE 1"=50'

PHASE I

- INSTALL STONE OUTLET SEDIMENT TRAP #5 (40' x 20' x 2')
- STA 4+50 TO 4+90 RT.
- INSTALL SILT FENCE
- STA 103+10 TO STA 6+00 LT. 260 LF
- STA 1+84 TO STA 2+20 RT. 55 LF
- STA 4+21 TO STA. 5+00 LT. 79 LF
- STA 2+66 TO STA. 5+55 RT. 290 LF
- INSTALL STONE OUTLET SEDIMENT TRAP #2 (67' x 12' x 3')
- STA 5+65 TO STA 6+32 RT.
- INSTALL STONE OUTLET SEDIMENT TRAP #4 (20' x 20' x 2.5')
- STA 6+25 TO STA 6+45 LT.
- INSTALL STABILIZED CONSTRUCTION ENTRANCE
- STA 0+94 TO STA 1+44
- INSTALL EARTH DIVERSION DIKE - TYPE A-2
- STA 10+25 TO STA 102+45 120 LF
- INSTALL EARTH DIVERSION DIKE - TYPE A-1
- STA 7+95 TO STA 7+50 LT. 160 LF
- INSTALL EARTH DIVERSION DIKE - TYPE A-3
- STA 5+85 TO STA 7+17 LT. 160 LF
- INSTALL EARTH DIVERSION DIKE - TYPE A-4
- STA 7+17 TO STA 7+95 LT. 80 LF

■ DENOTES CONSTRUCTION THIS PHASE
NOTE: SEE PHASE I MAINTENANCE OF TRAFFIC FOR SEQUENCE OF CONSTRUCTION THIS PHASE (SHEET B)

FOR SEDIMENT AND EROSION CONTROL ONLY

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

James P. [Signature] 9/5/91
DIRECTOR OF PUBLIC WORKS DATE

Michael S. [Signature] 8-27-91
CHIEF, BUREAU OF ENGINEERING DATE

Pravara W. [Signature] 9/5/91
CHIEF, BUREAU OF HIGHWAY DATE

Shirley A. [Signature] 8/20/91
CHIEF, DIVISION OF ROADS, BRIDGES & STORM DRAINAGE DATE

JOHN E. HARMS, JR. & ASSOCIATES, INC.
CONSULTING ENGINEERS
90 GOV. RITCHIE HIGHWAY
PASADENA, MARYLAND

[Signature]

DES: J.G.H.				
DRN: J.R.R.				
CHK: M.W.B.				
DATE: 7/91				
J.R.R.	Δ	REVISED ROGERS AVE, U.S. ROUTE 40 INTERSECTION	7/2/92	
BY	NO.	REVISION	DATE	

PHASE I
SEDIMENT & EROSION
CONTROL PLAN

600' SCALE MAP NO. _____ BLOCK NO. _____

SCALE AS SHOWN

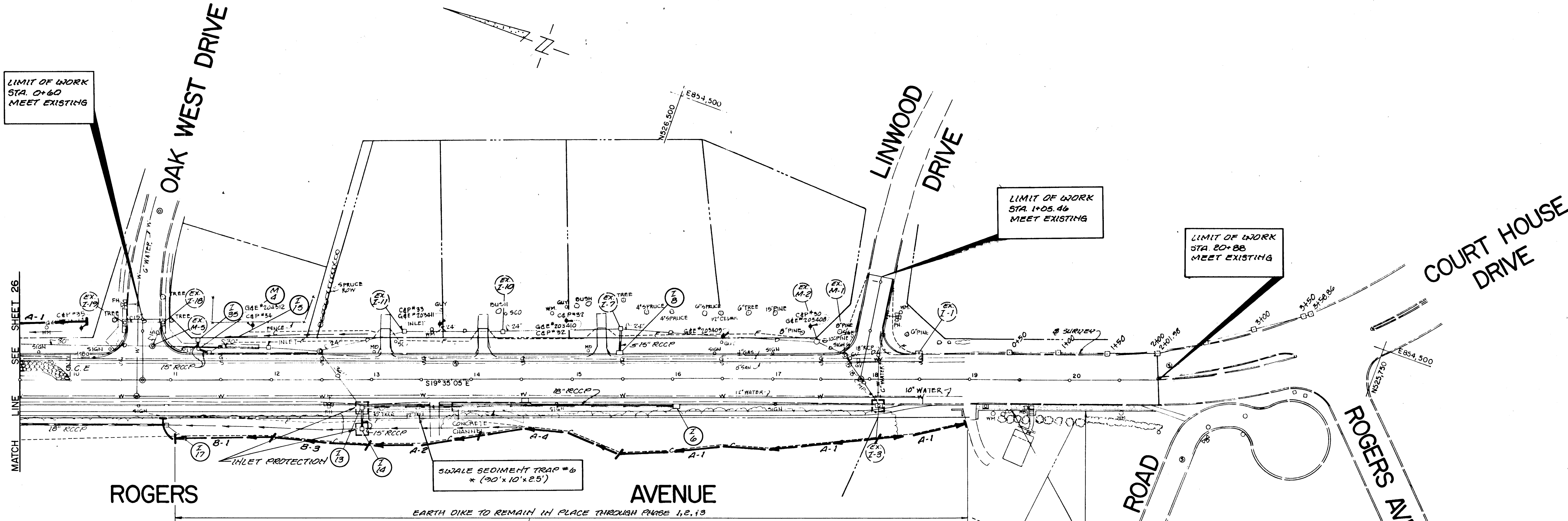
SHEET 26 OF 36

CAPITAL PROJECT No. J-4097

LIMIT OF WORK
STA. 0+60
MEET EXISTING

LIMIT OF WORK
STA. 1+05.46
MEET EXISTING

LIMIT OF WORK
STA. 20+88
MEET EXISTING



INSTALL INLET PROTECTION
STA. 12+91, I-13 RT. 1 EA.
STA. 12+91, I-14 RT. 1 EA.
STA. 18+10, EX. I-3 RT. 1 EA.

INSTALL SWALE SEDIMENT TRAP #6
(90' x 10' x 2.5')
STA. 12+97 TO STA. 13+87 RT.

INSTALL EARTH DIVERSION DIKE - TYPE A-1
STA. 9+50 TO STA. 10+20 LT. 70 LF.
STA. 15+48 TO STA. 18+95 RT. 347 LF.

* SEDIMENT TRAP #6 TO REMAIN
IN PLACE THROUGH PHASES 1, 2
& 3.

INSTALL EARTH DIVERSION DIKE - TYPE A-2
STA. 12+95 TO STA. 14+10 RT. 115 LF.

■ DENOTES CONSTRUCTION DURING THIS PHASE

INSTALL EARTH DIVERSION DIKE - TYPE A-4
STA. 14+10 TO STA. 15+48 RT. 137 LF.

INSTALL EARTH DIVERSION DIKE - TYPE B-1
STA. 11+05 TO STA. 12+00 RT. 95 LF.

INSTALL EARTH DIVERSION DIKE - TYPE B-3
STA. 12+00 TO STA. 12+95 RT. 95 LF.

INSTALL STABILIZED CONSTRUCTION ENTRANCE
W/MOUNTABLE BERM
STA. 9+50 TO STA. 10+00 LT.

PLAN
SCALE: 1"=50'

PHASE I

NOTE: SEE PHASE I MAINTENANCE OF TRAFFIC FOR SEQUENCE OF CONSTRUCTION THIS PHASE (SHEET B).

FOR SEDIMENT & EROSION CONTROL ONLY

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

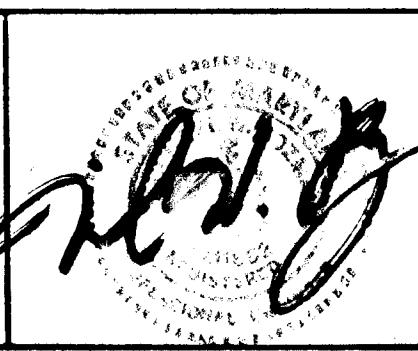
James M. Lewis 9/5/91
DIRECTOR OF PUBLIC WORKS DATE

Drayville W. Welstead 9/22/91
CHIEF, BUREAU OF HIGHWAY DATE

Michael J. Kelly 8-27-91
CHIEF, BUREAU OF ENGINEERING DATE

Robert A. Galia 9/22/91
CHIEF, DIVISION OF ROADS, BRIDGES & STORM DRAINAGE DATE

JOHN E. HARMS, JR. & ASSOCIATES, INC.
CONSULTING ENGINEERS
90 GOV. RITCHIE HIGHWAY
PASADENA, MARYLAND



DES: J.G.H.			
DRN: J.R.R.			
CHK: M.W.B.			
DATE: 7/91			
J.R.R.	REVISION	ROGERS AVE., U.S. ROUTE 40 INTERSECTION	7/91
BY	NO.	REVISION	DATE

PHASE I
SEDIMENT & EROSION
CONTROL PLAN

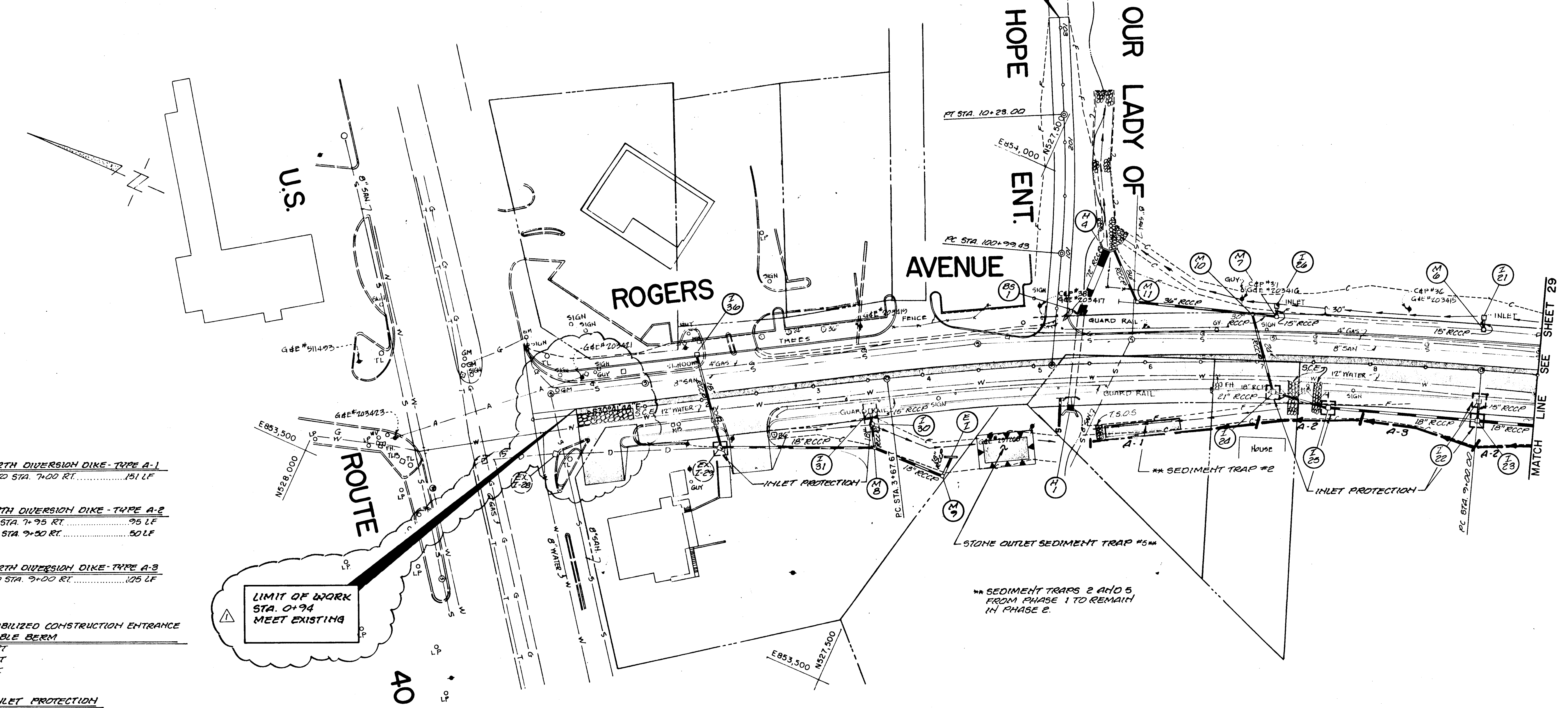
ROGERS AVENUE

CAPITAL PROJECT No. J-4097

SCALE AS SHOWN

SHEET 27 OF 36

LIMIT OF WORK
STA. 103+10.00
MEET EXISTING



INSTALL EARTH DIVERSION DIKE - TYPE A-1
STA. 5+49 TO STA. 7+00 RT. 151 LF

INSTALL EARTH DIVERSION DIKE - TYPE A-2
STA. 7+00 TO STA. 7+95 RT. 95 LF
STA. 7+00 TO STA. 7+50 RT. 50 LF

INSTALL EARTH DIVERSION DIKE - TYPE A-3
STA. 7+95 TO STA. 9+00 RT. 105 LF

INSTALL STABILIZED CONSTRUCTION ENTRANCE
W/ MOUNTABLE BERM
STA. 7+35 RT
STA. 7+35 RT
STA. 0+94 RT

INSTALL INLET PROTECTION
STA. 2+11, EX. I-29 RT. 1EA.
STA. 3+50, I-31, RT. 1EA.
STA. 7+18, I-24, RT. 1EA.
STA. 7+65, I-25, RT. 1EA.
STA. 9+00, I-22, RT. 1EA.
STA. 9+00, I-23, RT. 1EA.
STA. 3+50, I-30, RT. 1EA.

PLAN
SCALE: 1"=50'

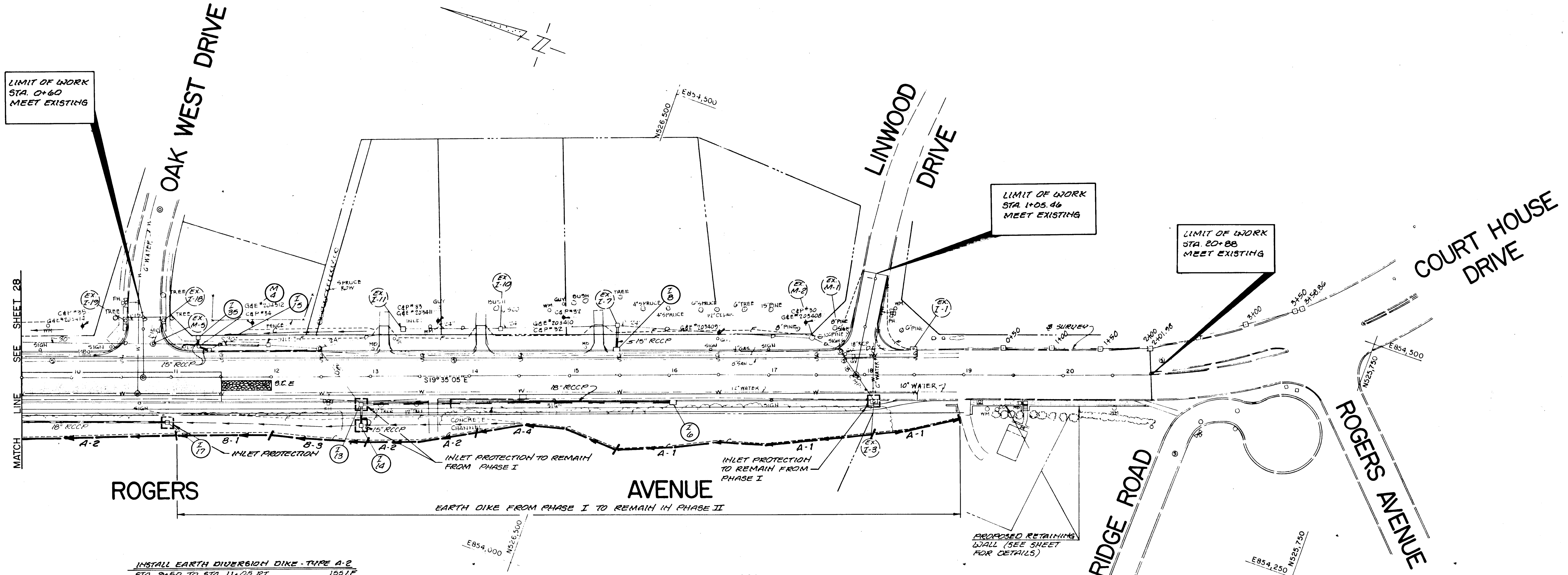
PHASE 2

■ DENOTES CONSTRUCTION DURING THIS PHASE

NOTE: SEE PHASE 2 MAINTENANCE OF TRAFFIC FOR SEQUENCE OF CONSTRUCTION THIS PHASE (SHEET 9).

FOR SEDIMENT AND EROSION CONTROL ONLY

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND Director of Public Works: <i>Ronald W. ...</i> 9/5/91 Chief, Bureau of Highway: <i>Lawrence W. ...</i> 7/5/91		JOHN E. HARMS, JR. & ASSOCIATES, INC. CONSULTING ENGINEERS 90 GOV. RITCHIE HIGHWAY PASADENA, MARYLAND Chief, Bureau of Engineering: <i>James ...</i> 8/29/91 Chief, Division of Roads, Bridges & Storm Drainage: <i>Elizabeth ...</i> 8/29/91		DES: J.G.H. DRN: J.R.R. CHK: M.G.B. DATE: 7/91		PHASE 2 SEDIMENT & EROSION CONTROL PLAN REVISION: REVISED ROGERS AVE., U.S. ROUTE 40 INTERSECTION 7/14/92		ROGERS AVENUE CAPITAL PROJECT No. J-4097		SCALE AS SHOWN SHEET 28 OF 36
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- INSTALL EARTH DIVERSION DIKE - TYPE A-2
STA. 9+50 TO STA. 11+05 RT. 165 LF
- INSTALL INLET PROTECTION
STA. 10+95, I-17, RT. 1 EA.
- INSTALL STABILIZED CONSTRUCTION ENTRANCE
W/ MOUNTABLE BERM
STA. 11+80 TO STA. 12+00 RT.
- * SEDIMENT AND EROSION CONTROL MEASURES
FROM STA. 11+00 TO STA. 18+95 RT. TO REMAIN
FROM PHASE I UNTIL AREA IS STABILIZED.

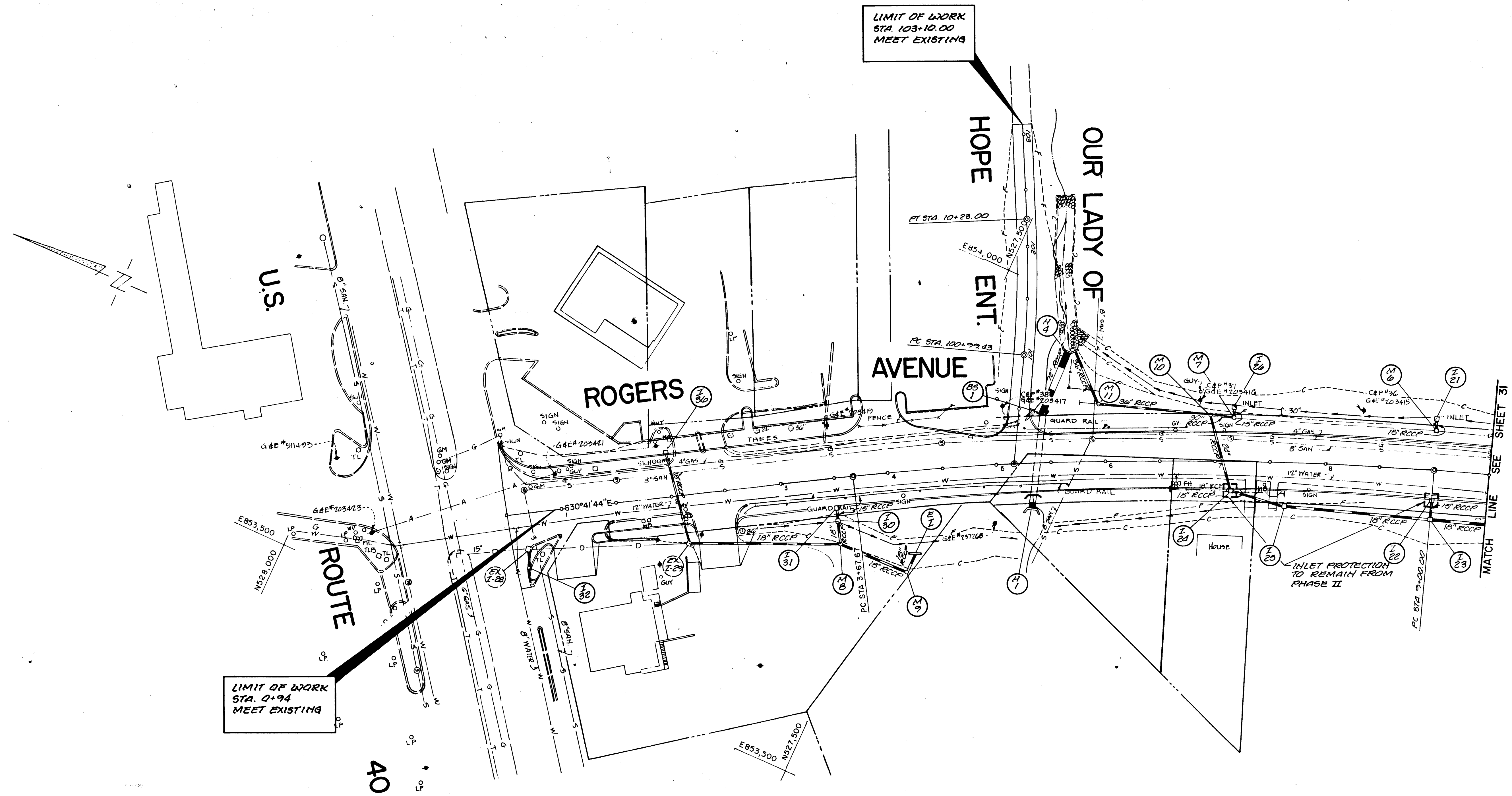
☐ DENOTES CONSTRUCTION THIS PHASE

PLAN
SCALE: 1"=50'
PHASE 2

NOTE: SEE PHASE 2 MAINTENANCE OF TRAFFIC FOR SEQUENCE OF CONSTRUCTION THIS PHASE (SHEET 9).

FOR SEDIMENT & EROSION CONTROL ONLY

<p>DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND</p> <p><i>Roman M. Lewis</i> 9/5/91 DIRECTOR OF PUBLIC WORKS DATE</p> <p><i>Dravville W. Wassand</i> 9/6/91 CHIEF, BUREAU OF HIGHWAY DATE</p>	<p>JOHN E. HARMS, JR. & ASSOCIATES, INC.</p> <p>CONSULTING ENGINEERS 90 GOV. RITCHIE HIGHWAY PASADENA, MARYLAND</p> <p><i>J. Harms</i></p>	<p>DES: J.G.H.</p> <p>DRN: J.R.R.</p> <p>CHK: M.W.B.</p> <p>J.R.R. Δ REVISED ROGERS AVE., U.S. ROUTE 40 INTERSECTION 7/14/92</p> <p>DATE: 7/91</p>	<p>PHASE 2 SEDIMENT & EROSION CONTROL PLAN</p> <p>ROGERS AVENUE</p> <p>CAPITAL PROJECT No. J-4097</p>	<p>SCALE AS SHOWN</p> <p>SHEET 29 OF 36</p>
---	--	--	---	---



LIMIT OF WORK
STA. 0+94
MEET EXISTING

LIMIT OF WORK
STA. 103+10.00
MEET EXISTING

INLET PROTECTION @ I-21
AND I-22 TO REMAIN FROM
PHASE II.

PLAN
SCALE: 1"=50'

PHASE 3 & 4

■ DENOTES CONSTRUCTION THIS PHASE

NOTE: SEE PHASES 3 & 4 MAINTENANCE OF TRAFFIC FOR SEQUENCE OF CONSTRUCTION THIS PHASE (SHEET 10/11).

FOR SEDIMENT & EROSION CONTROL ONLY

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

James M. Lewis 9/5/91
DIRECTOR OF PUBLIC WORKS DATE

Strawville W. Weathers 9/5/91
CHIEF, BUREAU OF HIGHWAY DATE

Michael B. Kelly 8/27/91
CHIEF, BUREAU OF ENGINEERING DATE

Elizabeth B. Colvin 8/28/91
CHIEF, DIVISION OF ROADS, BRIDGES & STORM DRAINAGE DATE

JOHN E. HARMS, JR. & ASSOCIATES, INC.
CONSULTING ENGINEERS
90 GOV. RITCHIE HIGHWAY
PASADENA, MARYLAND

J.E.H.

DES: J.E.H.			
DRN: J.R.R.			
CHK: M.W.B.			
DATE: 7/91	J.R.R.	REVISOR	DATE
	BY	NO.	REVISION

PHASE 3 & 4
SEDIMENT & EROSION
CONTROL PLAN

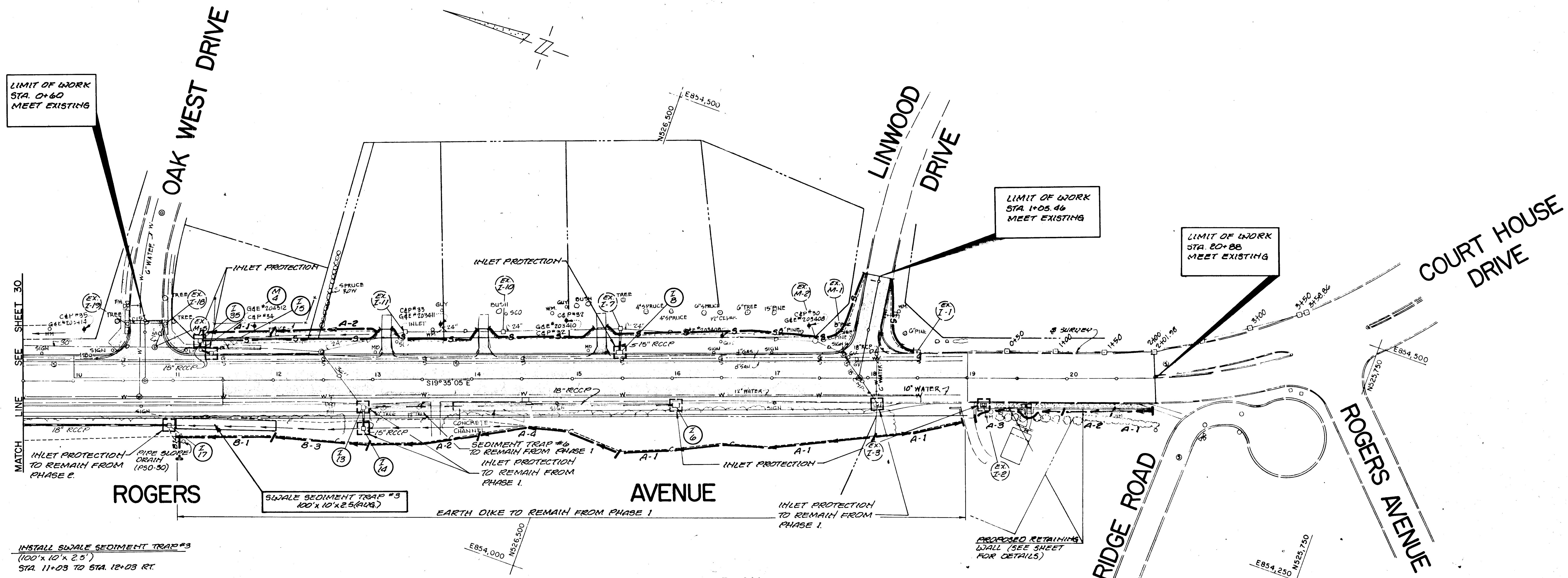
600' SCALE MAP NO. _____ BLOCK NO. _____

ROGERS AVENUE

CAPITAL PROJECT No. J-4097

SCALE AS SHOWN

SHEET 30 OF 36



PLAN
SCALE: 1"=50'

PHASE 3 & 4

- INSTALL SWALE SEDIMENT TRAP #3
(100' x 10' x 2.5')
STA. 11+03 TO STA. 12+03 RT.
- INSTALL INLET PROTECTION
STA. 11+27, I-35 LT. 1EA.
STA. 11+37, I-15 LT. 1EA.
STA. 15+49, I-B LT. 1EA.
STA. 16+02, I-G RT. 1EA.
STA. 19+17, EX. I-2 RT. 1EA.
- INSTALL PIPE SLOPE DRAIN
STA. 11+05 RT. (P50.30)

- INSTALL EARTH DIVERSION DIKE - TYPE A-3
STA. 19+08 TO STA. 19+96 RT. 28 LF
- INSTALL EARTH DIVERSION DIKE - TYPE B-1
STA. 11+05 RT. 20 LF

- INSTALL SILT FENCE
STA. 11+30 TO STA. 13+08 LT. 185 LF
STA. 13+19 TO STA. 14+06 LT. 105 LF
STA. 14+18 TO STA. 15+22 LT. 115 LF
STA. 15+35 TO STA. 1+05 LT. 305 LF
STA. 1+05 TO STA. 18+46 LT. 70 LF

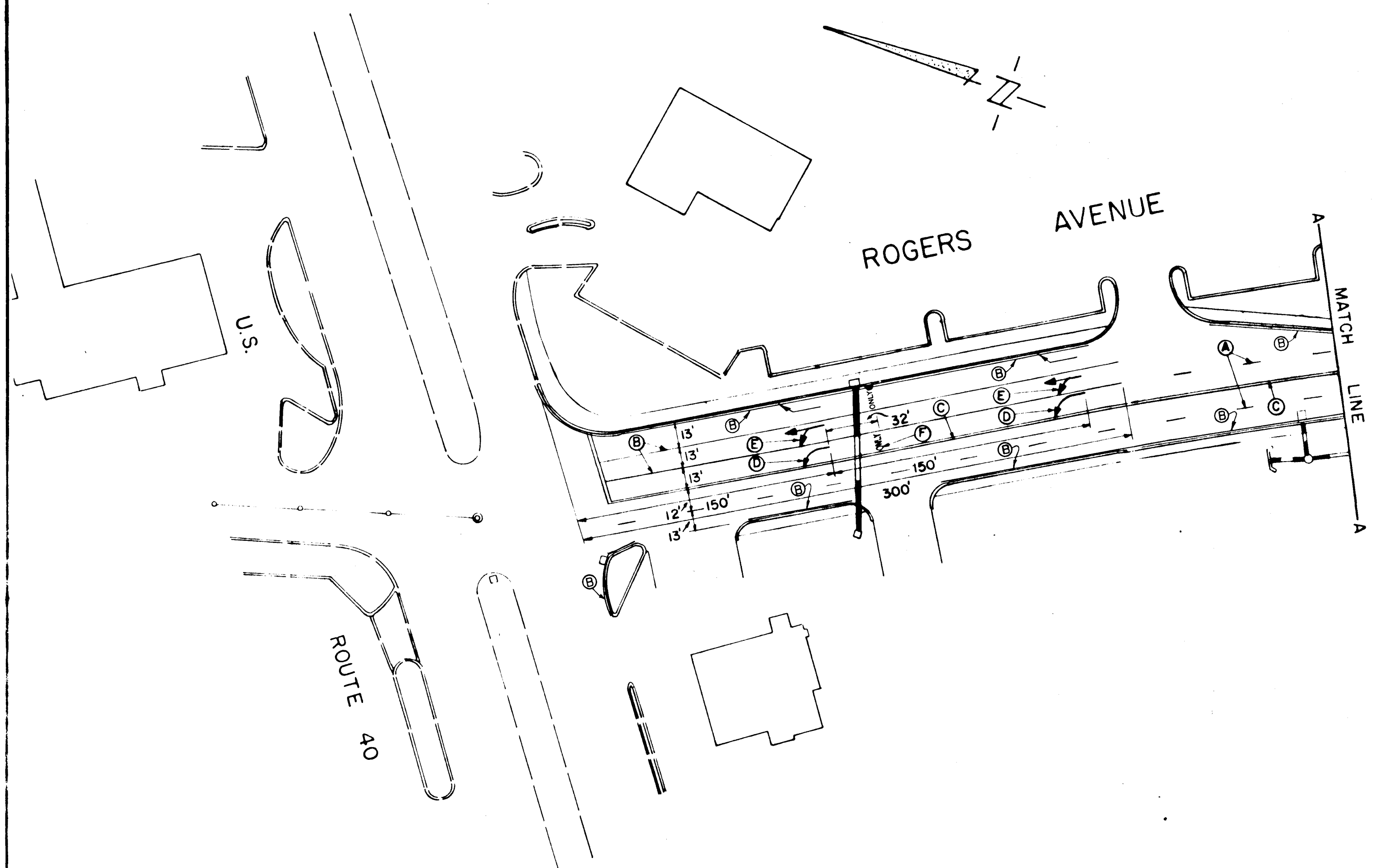
- INSTALL EARTH DIVERSION DIKE - TYPE A-1
STA. 20+50 TO STA. 20+88 RT. 38 LF
STA. 11+30 TO STA. 12+00 LT. 70 LF
- INSTALL EARTH DIVERSION DIKE - TYPE A-2
STA. 19+96 TO STA. 20+50 RT. 54 LF
STA. 12+00 TO STA. 13+04 LT. 104 LF

□ DENOTES CONSTRUCTION THIS PHASE

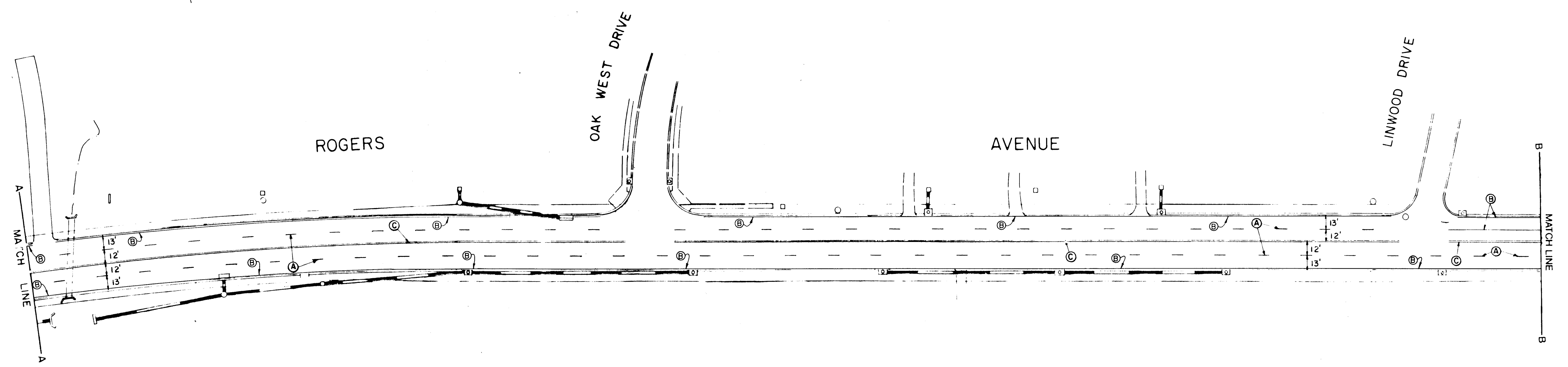
NOTE: SEE PHASES 3 & 4 MAINTENANCE OF TRAFFIC FOR SEQUENCE OF CONSTRUCTION THIS PHASE (SHEET 10/11).

FOR SEDIMENT & EROSION CONTROL ONLY

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND Director of Public Works: <i>Ramon M. Lee</i> 9/5/91 Chief, Bureau of Highway: <i>Shawanda H. Welleand</i> 8/28/91		JOHN E. HARMS, JR. & ASSOCIATES, INC. CONSULTING ENGINEERS 90 GOV. RITCHIE HIGHWAY PASADENA, MARYLAND Chief, Bureau of Engineering: <i>John E. Harms, Jr.</i> 8-27-91 Chief, Division of Roads, Bridges & Storm Drainage: <i>Shawanda H. Welleand</i> 8/28/91		DESIGNED: _____ DRN: J.R.R. CHK: M.O.B. DATE: 7/91		PHASE 3 & 4 SEDIMENT & EROSION CONTROL PLAN		ROGERS AVENUE CAPITAL PROJECT No. J-4097		SCALE AS SHOWN SHEET 31 OF 36
		REVISED ROGERS AVE., U.S. ROUTE 40 INTERSECTION 7/6/91		DATE: 600' SCALE MAP NO. _____ BLOCK NO. _____						



- PAVEMENT MARKING DETAILS**
- A. Install 10' stripe with 30' gap painted white pavement marking (4" width) from the intersection of US 40 and Rogers Avenue south to Linwood Drive as shown.
 - B. Install painted white pavement marking (4" width) as shown.
 - C. Install painted yellow pavement markings (4" width - centerlines) as shown.
 - D. Install curved arrow (symbol) preformed pavement marking (left) see SP-55 in Special Provisions.
 - E. Install combination curved arrow (left) and thru arrow (symbol) preformed pavement marking. See SP-55 in Special Provisions.
 - F. Install "ONLY" (word) preformed pavement marking, see SP-55 in Special Provisions.

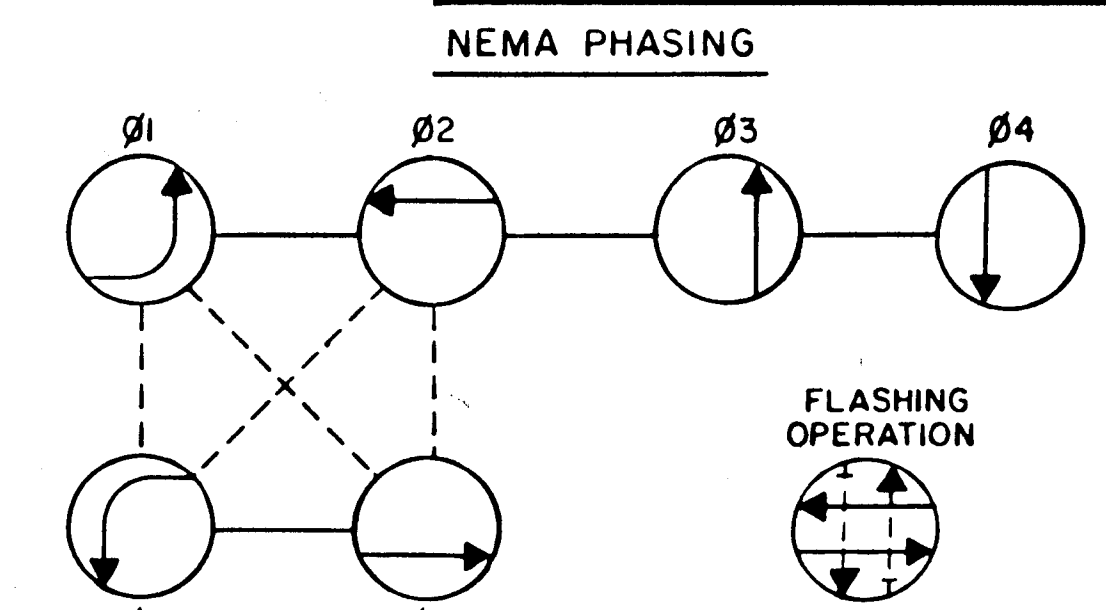
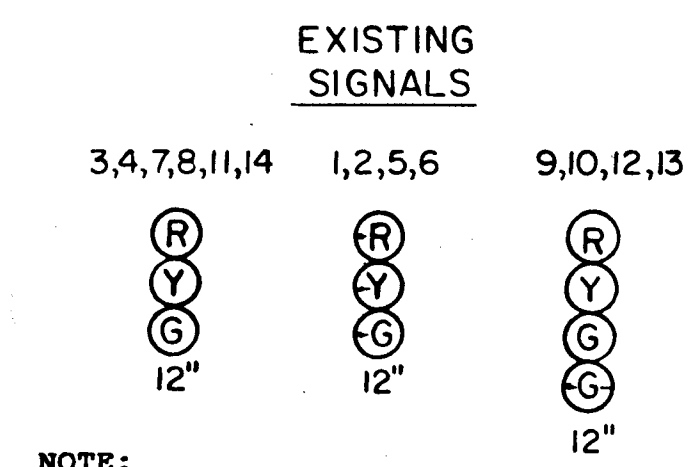
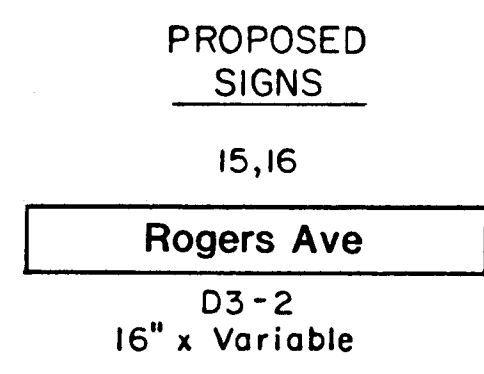
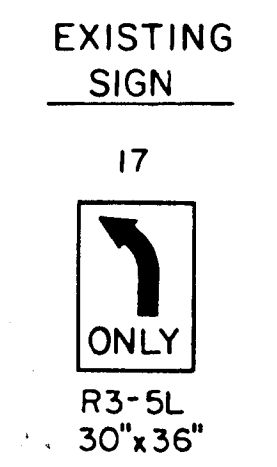


NOTE: THIS PLAN FOR PAVEMENT MARKINGS ONLY
SEE SHEETS 12-14 FOR CONSTRUCTION DETAILS.

S.H.A. CONTRACT NO. BW-414-802-712

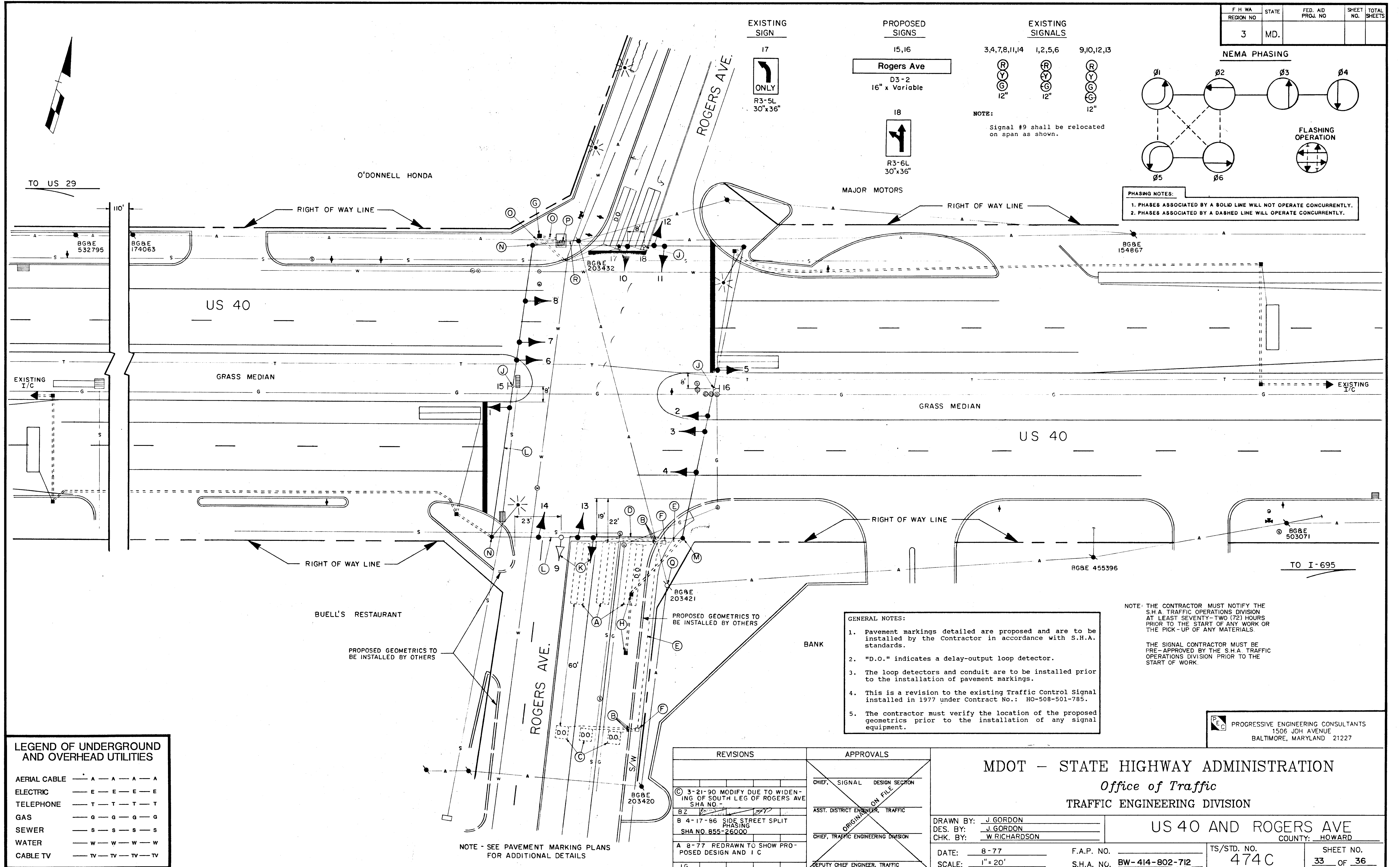
<p>DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND</p> <p><i>James P. ...</i> 7/5/91 DIRECTOR OF P. BLIC WORKS DATE</p> <p><i>Praville W. Weland</i> CHIEF, BUREAU OF HIGHWAYS DATE 7/5/91</p>	<p>JOHN E. HARMS, JR. & ASSOCIATES, INC.</p> <p>CONSULTING ENGINEERS 90 GOV RITCHIE HIGHWAY PASADENA, MARYLAND</p> <p><i>J.E.H.</i></p>	<p>DES: BZ</p> <p>DRN: BZ</p> <p>CHK: BZ</p> <p>DATE: 7/91</p>	<p>REVISION</p> <p>1. REVISED ROGERS AVE, U.S. ROUTE 40 INTERSECTION 7/12/91</p>	<p>PAVEMENT MARKING PLAN</p>	<p>ROGERS AVENUE</p>	<p>SCALE 1"=100'</p> <p>32 OF 36</p>
				CAPITAL PROJECT No. J-4097		

F H WA REGION NO	STATE	FED. AID PROJ. NO	SHEET NO.	TOTAL SHEETS
3	MD.			



NOTE:
Signal #9 shall be relocated on span as shown.

PHASING NOTES:
1. PHASES ASSOCIATED BY A SOLID LINE WILL NOT OPERATE CONCURRENTLY.
2. PHASES ASSOCIATED BY A DASHED LINE WILL OPERATE CONCURRENTLY.



GENERAL NOTES:

- Pavement markings detailed are proposed and are to be installed by the Contractor in accordance with S.H.A. standards.
- "D.O." indicates a delay-output loop detector.
- The loop detectors and conduit are to be installed prior to the installation of pavement markings.
- This is a revision to the existing Traffic Control Signal installed in 1977 under Contract No.: HO-508-501-785.
- The contractor must verify the location of the proposed geometrics prior to the installation of any signal equipment.

NOTE: THE CONTRACTOR MUST NOTIFY THE S.H.A. TRAFFIC OPERATIONS DIVISION AT LEAST SEVENTY-TWO (72) HOURS PRIOR TO THE START OF ANY WORK OR THE PICK-UP OF ANY MATERIALS.

THE SIGNAL CONTRACTOR MUST BE PRE-APPROVED BY THE S.H.A. TRAFFIC OPERATIONS DIVISION PRIOR TO THE START OF WORK.

LEGEND OF UNDERGROUND AND OVERHEAD UTILITIES

AERIAL CABLE	— A — A — A — A
ELECTRIC	— E — E — E — E
TELEPHONE	— T — T — T — T
GAS	— G — G — G — G
SEWER	— S — S — S — S
WATER	— W — W — W — W
CABLE TV	— TV — TV — TV — TV

NOTE - SEE PAVEMENT MARKING PLANS FOR ADDITIONAL DETAILS

REVISIONS	APPROVALS
© 3-21-90 MODIFY DUE TO WIDENING OF SOUTH LEG OF ROGERS AVE SHA NO. - BZ B 4-17-86 SIDE STREET SPLIT PHASING SHA NO. 855-26000 A 8-77 REDRAWN TO SHOW PROPOSED DESIGN AND I C JG	CHIEF, SIGNAL DESIGN SECTION ASST. DISTRICT ENGINEER, TRAFFIC CHIEF, TRAFFIC ENGINEERING DIVISION DEPUTY CHIEF ENGINEER, TRAFFIC

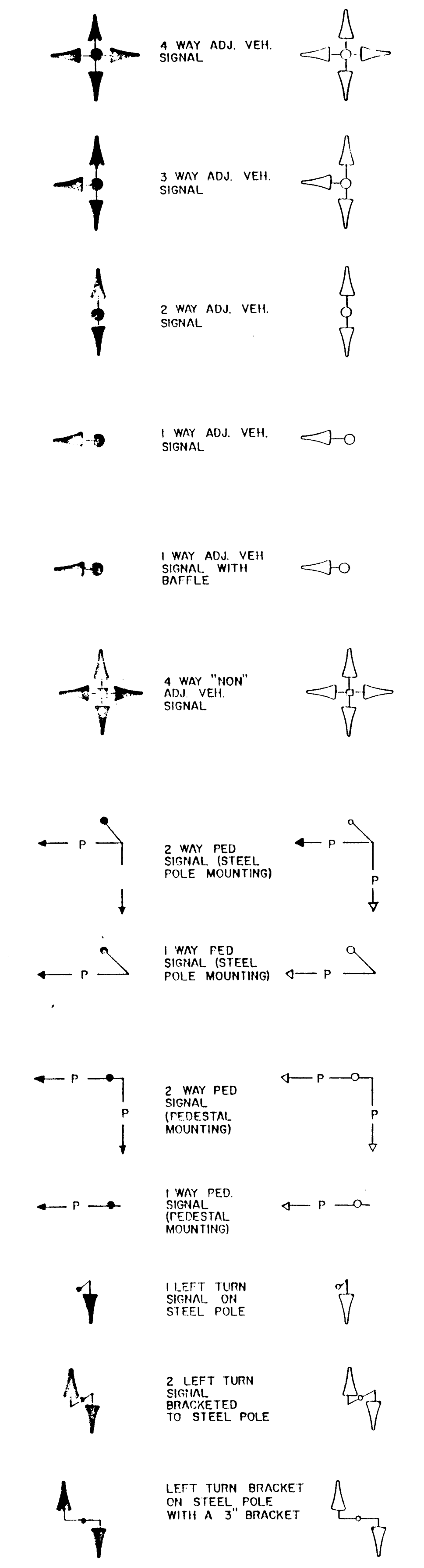
MDOT - STATE HIGHWAY ADMINISTRATION
Office of Traffic
TRAFFIC ENGINEERING DIVISION

US 40 AND ROGERS AVE
COUNTY: HOWARD

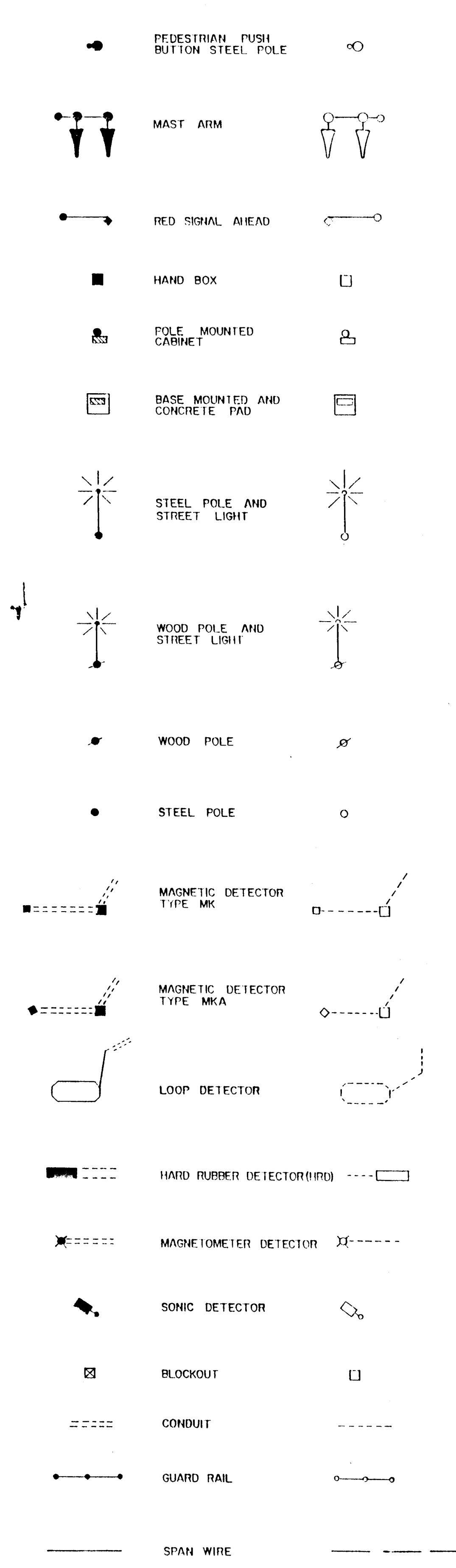
DRAWN BY: J GORDON	F.A.P. NO.	TS/STD. NO.	SHEET NO.
DES. BY: J GORDON		474C	33 OF 36
CHK. BY: W RICHARDSON	S.H.A. NO. BW-414-802-712		

PROGRESSIVE ENGINEERING CONSULTANTS
1506 JOH AVENUE
BALTIMORE, MARYLAND 21227

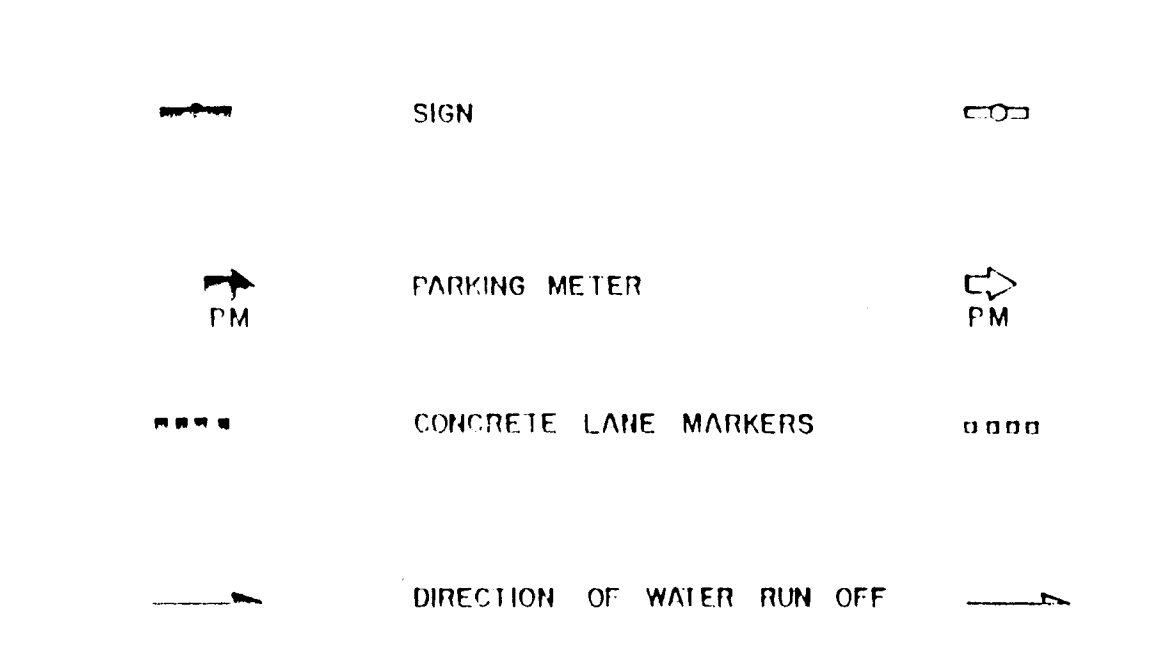
EXISTING PROPOSED



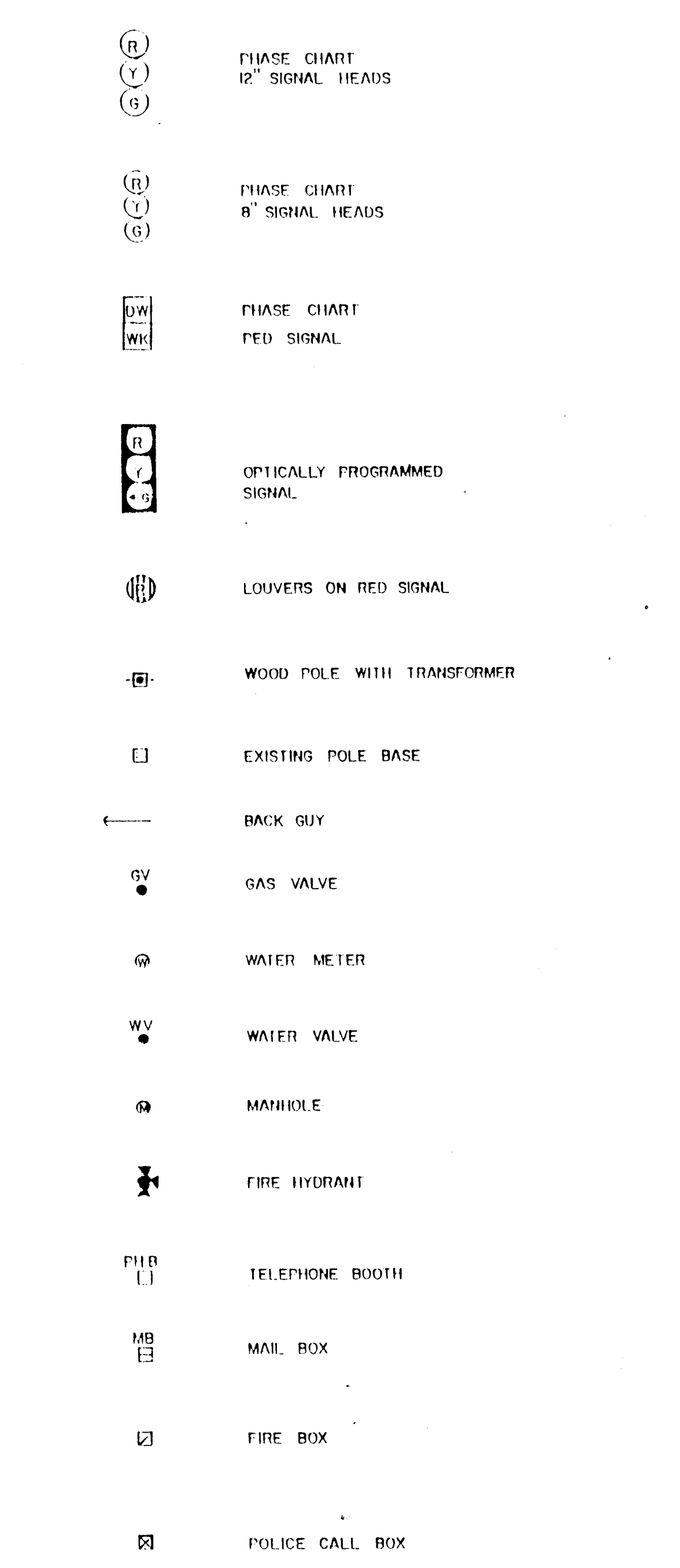
EXISTING PROPOSED



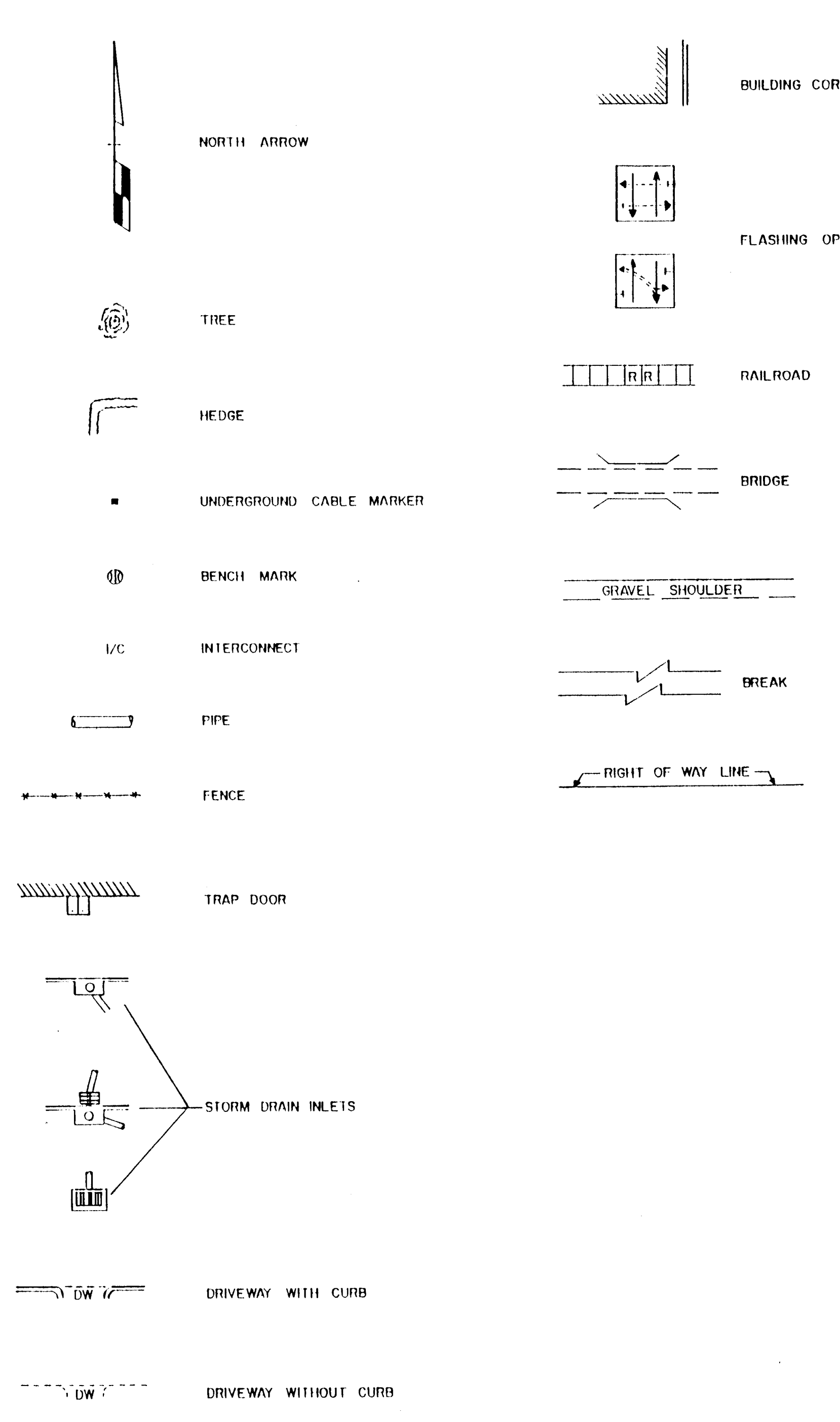
EXISTING PROPOSED



DESIGN STANDARD SYMBOLS

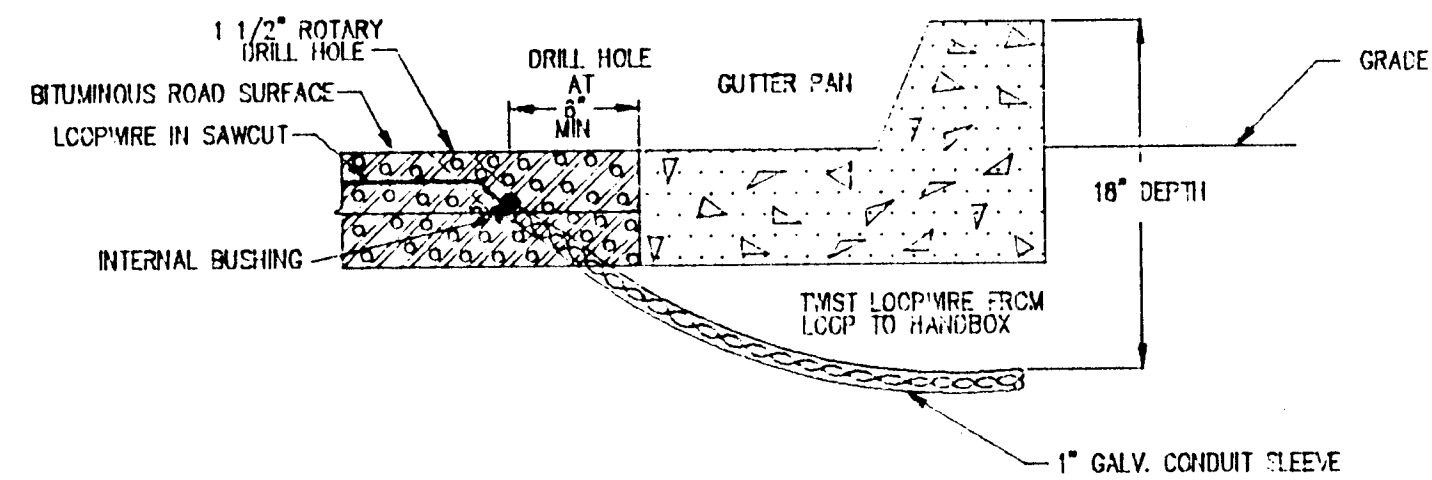


DESIGN STANDARD SYMBOLS



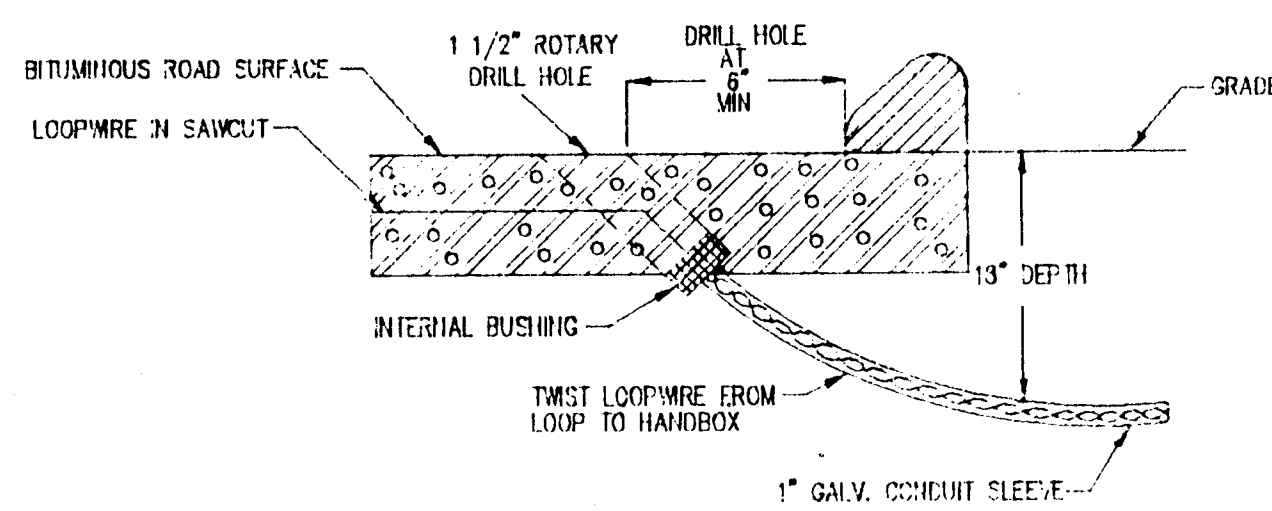
APPROVAL: CHIEF SIGNAL DESIGN SECTION APPROVAL: DISTRICT TRAFFIC ENGINEER APPROVAL: CHIEF BUREAU OF TRAFFIC ENGINEERING APPROVAL: DEPUTY CHIEF ENGINEER OFFICE OF TRAFFIC		REVISIONS C 8-6-85 RE-DRAWN B 7-15-83 RE-DRAWN A 8-2-79 REVISED TO INCLUDE UPDATED SYMBOLS	STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION BUREAU OF TRAFFIC ENGINEERING OFFICE OF TRAFFIC SYMBOL SHEET SCALE _____ DATE _____ CONTRACT NO. _____ DRAWN BY: M. SCHNEIDER COUNTY: _____ DESIGNED BY: _____ SIGNAL NO.: _____ CHECKED BY: _____
		MBS _____ JBB _____ NPW _____	DRAWING NO. TS-525L SHEET 33a OF 36

TYPE 'A' CURB AND GUTTER DETAIL



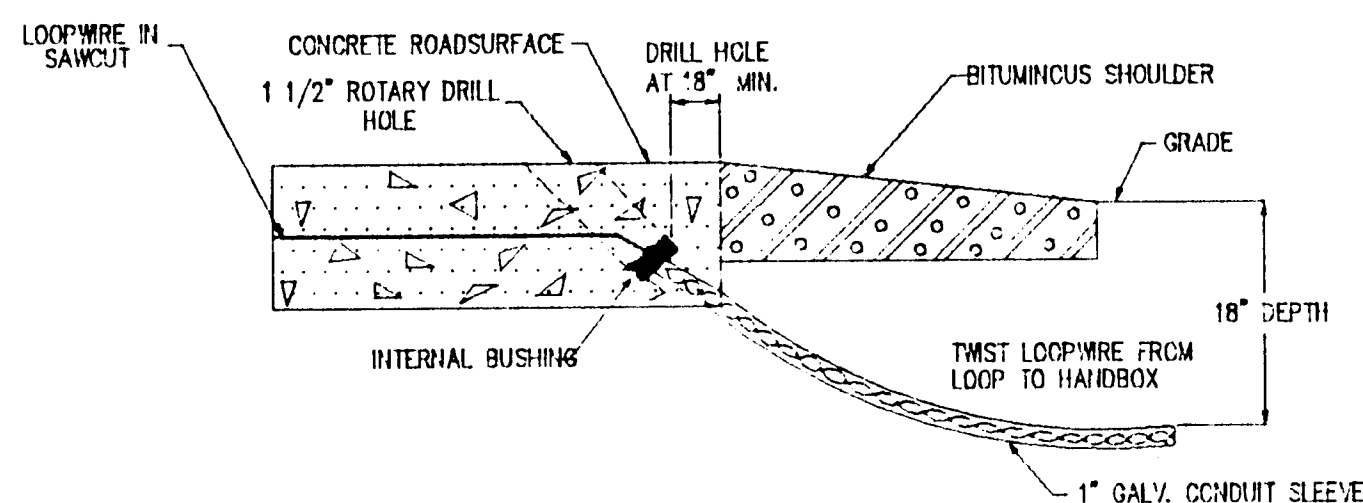
NOTE: INSTALL DUCT SEAL IN CONDUIT END FROM ROAD/SHOULDER SURFACE

TYPE 'B' CURB ONLY - DETAIL



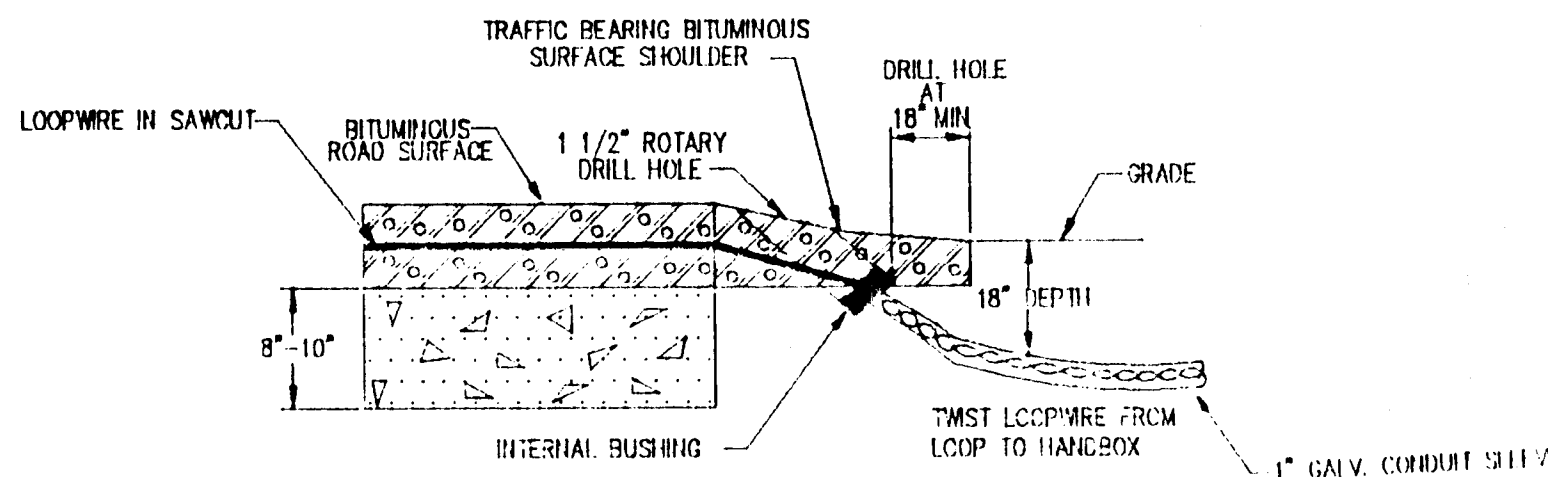
NOTE: INSTALL DUCT SEAL IN CONDUIT END FROM ROAD/SHOULDER SURFACE

CONCRETE ROAD SURFACE WITH BITUMINOUS DETAIL



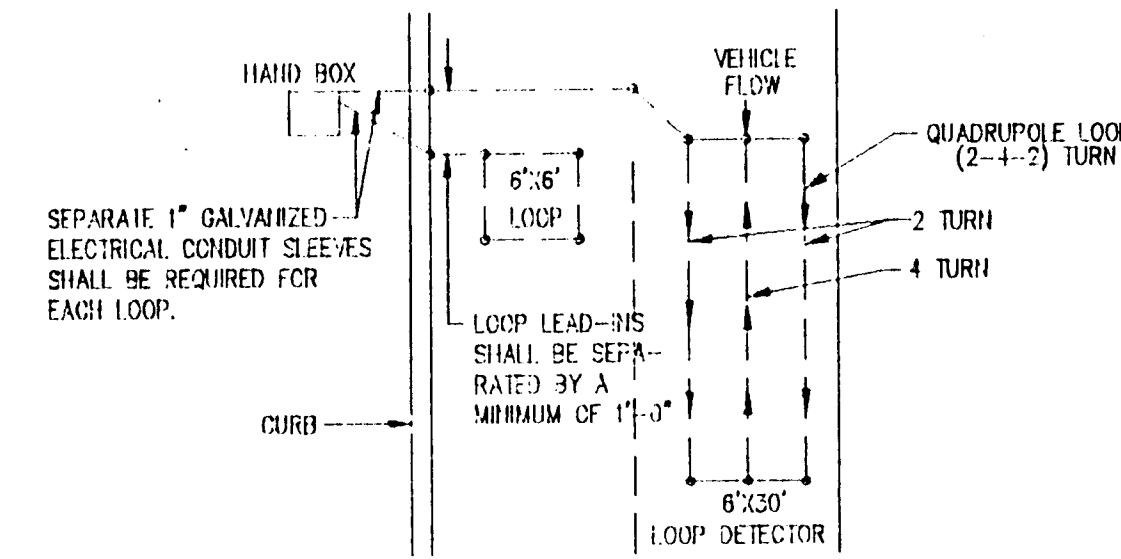
NOTE: INSTALL DUCT SEAL IN CONDUIT END FROM ROAD/SHOULDER SURFACE

BITUMINOUS ROAD SURFACE AND SHOULDER DETAIL



NOTE: INSTALL DUCT SEAL IN CONDUIT END FROM ROAD/SHOULDER SURFACE

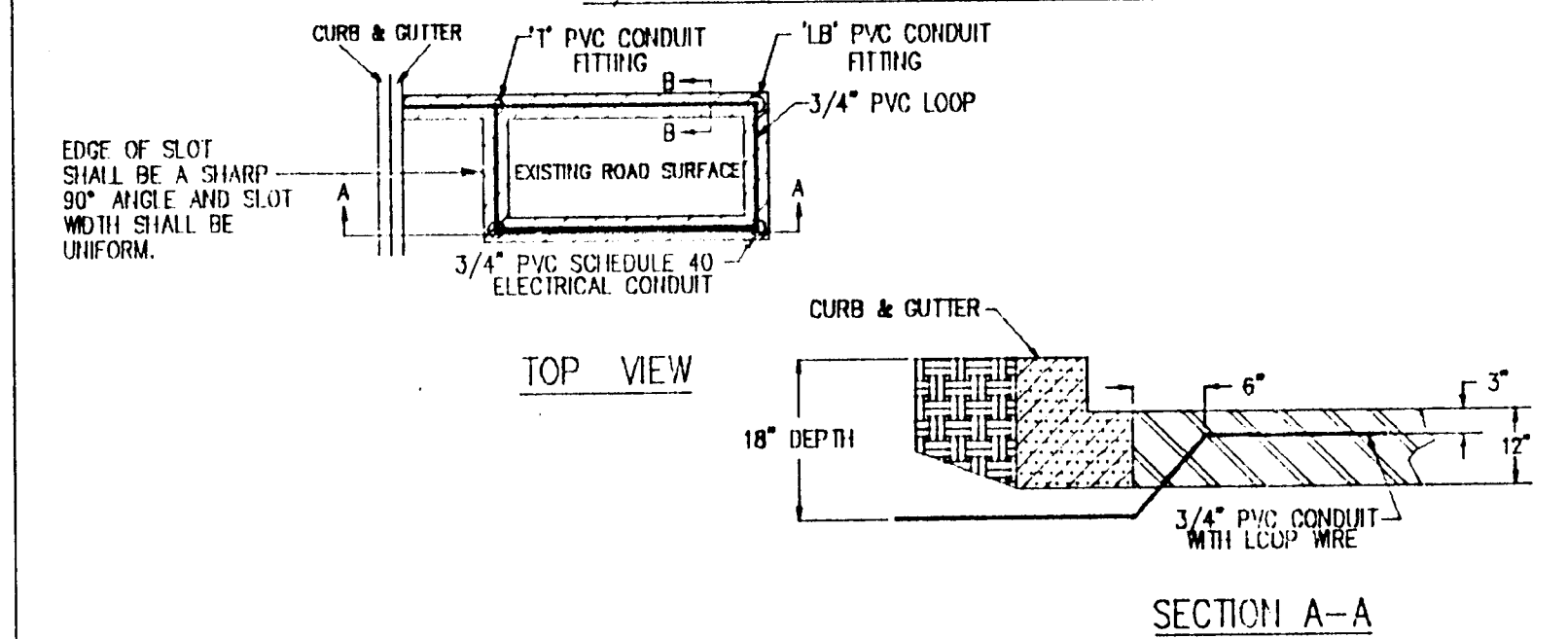
LOOP PLACEMENT



NOTES:

1. WHEN A PROPOSED LOOP CROSSES A ROADWAY JOINT, THE LOOP SHALL BE PLACED IN TWO SECTIONS.
2. THE LOOPS ARE TO BE PLACED IN THE CENTER OF THE LANE UNLESS OTHERWISE NOTED ON PLANS.
3. PRE-EXISTING LOOP DETECTORS ARE TO BE PLACED 12" TO 18" BEHIND THE EXISTING OR PROPOSED STOP LINE.
4. SAW CUTTING OF GUTTER PANS IS NOT ALLOWED.
5. SAW CUT AT LEAD-IN SHALL BE 5/8".

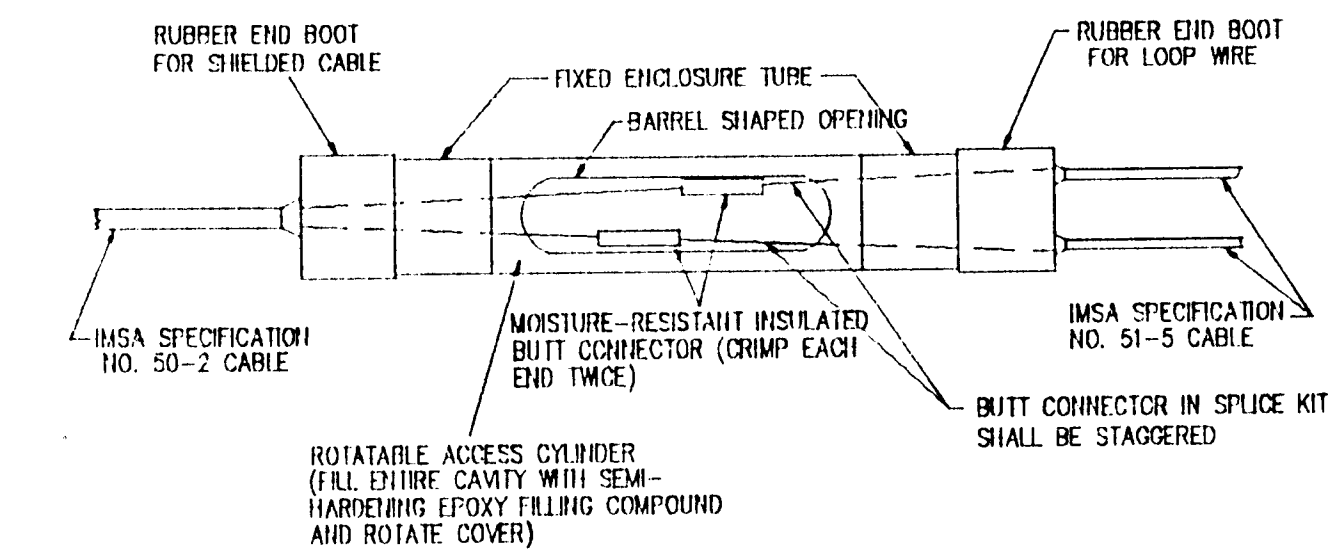
3/4" P.V.C. LOOP PLACEMENT



NOTES:

1. FILL ENTIRE SLOT WITH CONCRETE MIX #6 WITH HIGH EARLY STRENGTH ADDITIVE IF EXISTING ROAD SURFACE IS CONCRETE.
2. IF EXISTING ROAD SURFACE IS BITUMINOUS CONCRETE, FILL SLOT WITH CONCRETE MIX #6 TO WITHIN 1 1/2" OF ROAD SURFACE THEN FILL REMAINING SLOT WITH TEMPORARY COLD PATCH BITUMINOUS CONCRETE UNTIL CONCRETE HAS CURED. THEN PLACE ANTI STRIP COMPOUND AND 1 1/2" HOT MIX 5F CAP TO ROAD GRADE AFTER REMOVAL OF TEMPORARY COLD PATCH.
3. FROM LOOP DETECTOR TO ROAD EDGE SHALL BE FULLY EXCAVATED WITH SLOT.

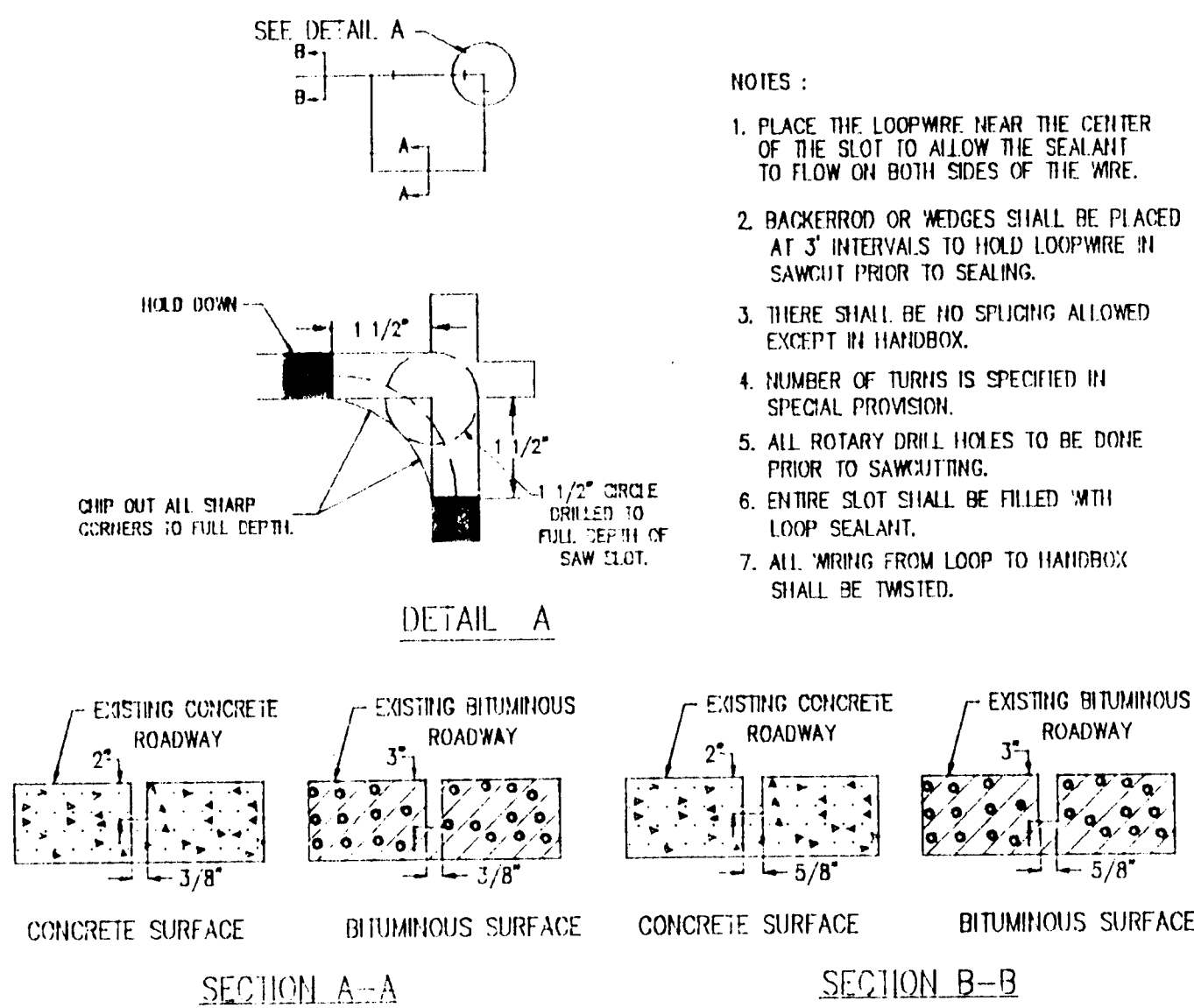
LOOP DETECTOR WIRE/SHIELDED CABLE SPLICE KIT



1. ENCLOSURE TO BE 3M TYPE 3822 WITH 3M TYPE 4403-B SEMI-HARDENING EPOXY FILLING COMPOUND OR EQUIVALENT.
2. INSULATED BUTT CONNECTORS TO BE 3M TYPE MNG14CM-SEALANT FILLED TYPE WITH INSULATION GRIP.

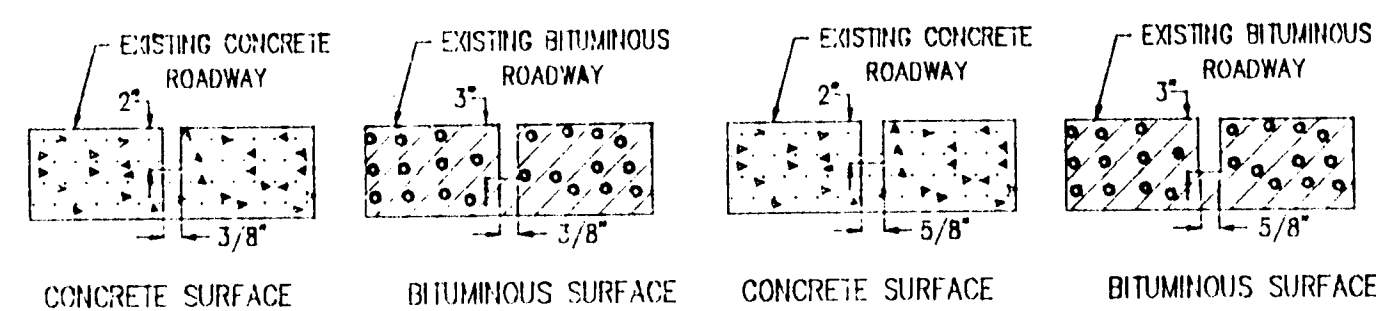
ROTATABLE ACCESS CYLINDER (FILL ENTIRE CAVITY WITH SEMI-HARDENING EPOXY FILLING COMPOUND AND ROTATE COVER)

SAWCUT DETAIL

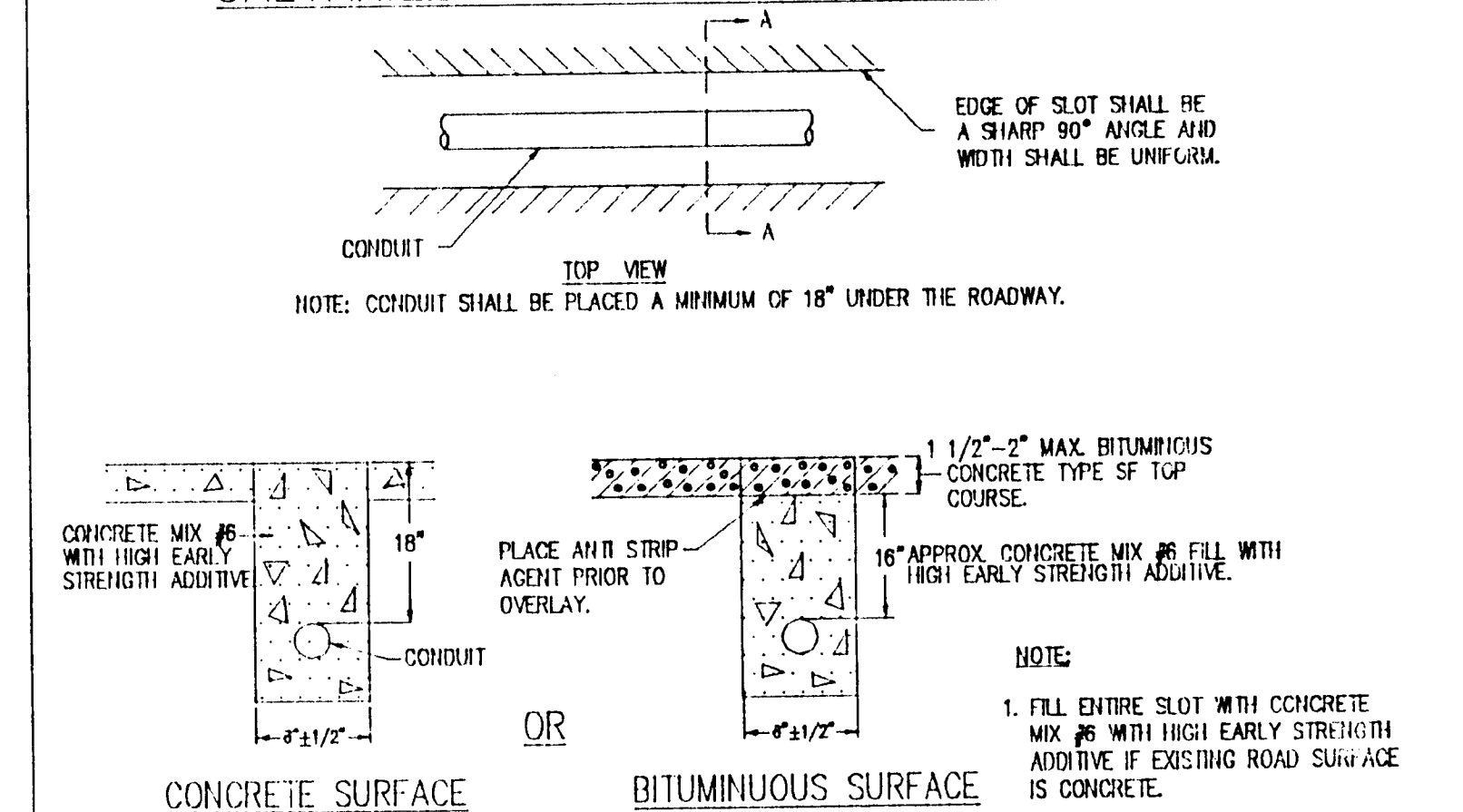


NOTES:

1. PLACE THE LOOPWIRE NEAR THE CENTER OF THE SLOT TO ALLOW THE SEALANT TO FLOW ON BOTH SIDES OF THE WIRE.
2. BACKERROD OR WEDGES SHALL BE PLACED AT 3" INTERVALS TO HOLD LOOPWIRE IN SAWCUT PRIOR TO SEALING.
3. THERE SHALL BE NO SPLICING ALLOWED EXCEPT IN HANDBOX.
4. NUMBER OF TURNS IS SPECIFIED IN SPECIAL PROVISION.
5. ALL ROTARY DRILL HOLES TO BE DONE PRIOR TO SAWCUTTING.
6. ENTIRE SLOT SHALL BE FILLED WITH LOOP SEALANT.
7. ALL WIRING FROM LOOP TO HANDBOX SHALL BE TWISTED.



GALVANIZED CONDUIT IN SLOTTED PAVEMENT



NOTE:

1. FILL ENTIRE SLOT WITH CONCRETE MIX #6 WITH HIGH EARLY STRENGTH ADDITIVE IF EXISTING ROAD SURFACE IS CONCRETE.
2. IF EXISTING ROAD SURFACE IS BITUMINOUS CONCRETE, FILL SLOT WITH CONCRETE MIX #6 TO WITHIN 1 1/2" OF ROAD SURFACE, THEN FILL REMAINING SLOT WITH TEMPORARY COLD PATCH BITUMINOUS CONCRETE UNTIL CONCRETE HAS CURED. UPON CONCRETE CURING REMOVE TEMPORARY COLD PATCH AND PLACE ANTI STRIP COMPOUND AND 1 1/2" HOT MIX 5F CAP TO ROAD GRADE.

APPROVED *[Signature]* 10/5/89
DEPUTY CHIEF ENGINEER - TRAFFIC

MDOT - STATE HIGHWAY ADMINISTRATION
Office of Traffic
TRAFFIC ENGINEERING DIVISION

LOOP DETECTOR LEAD-IN INSTALLATION

Section: SIGNAL DESIGN Date: 8/89 Std no: 1

APPROVED *[Signature]* 10/5/89
DEPUTY CHIEF ENGINEER - TRAFFIC

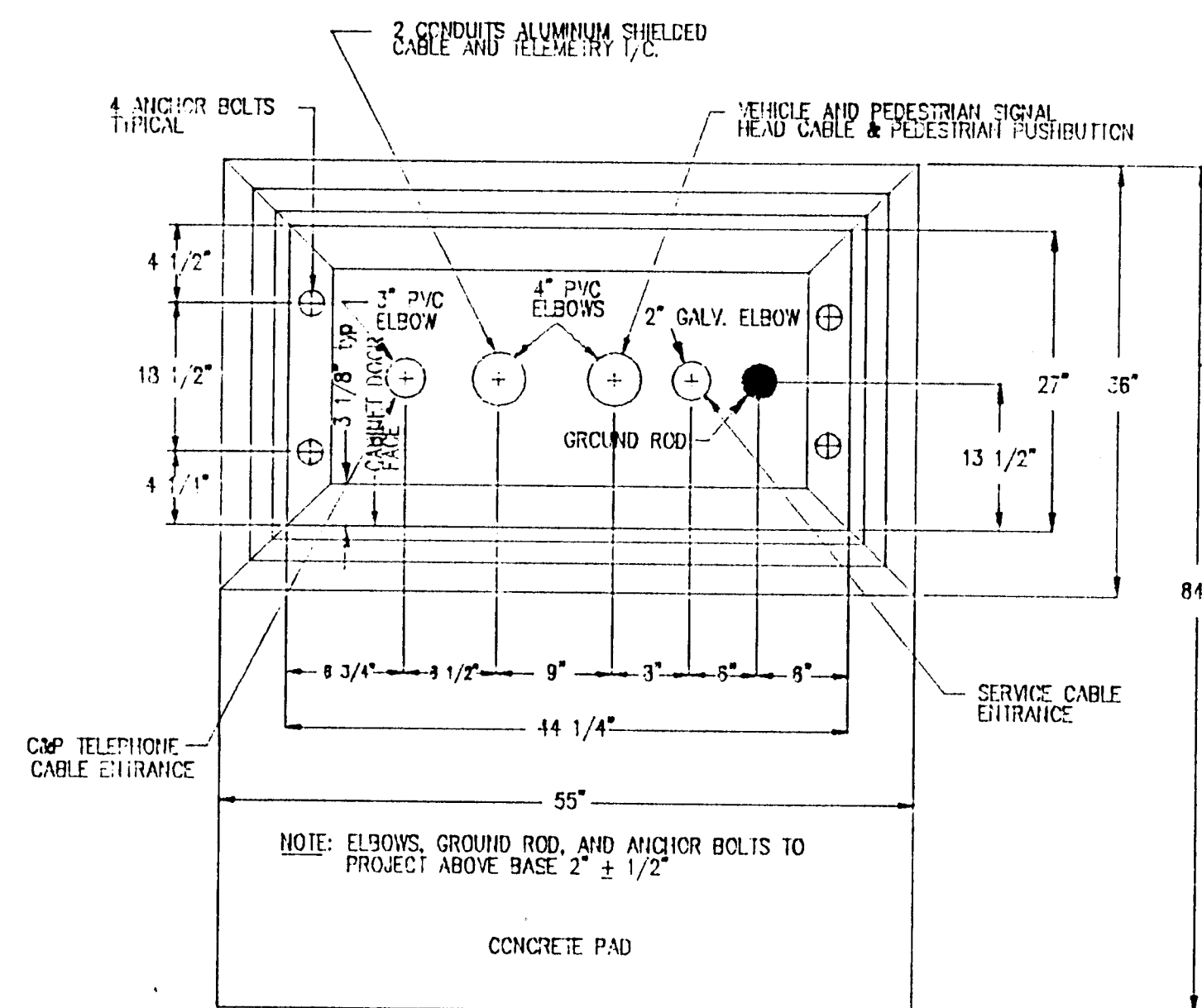
MDOT - STATE HIGHWAY ADMINISTRATION
Office of Traffic
TRAFFIC ENGINEERING DIVISION

LOOP PLACEMENT

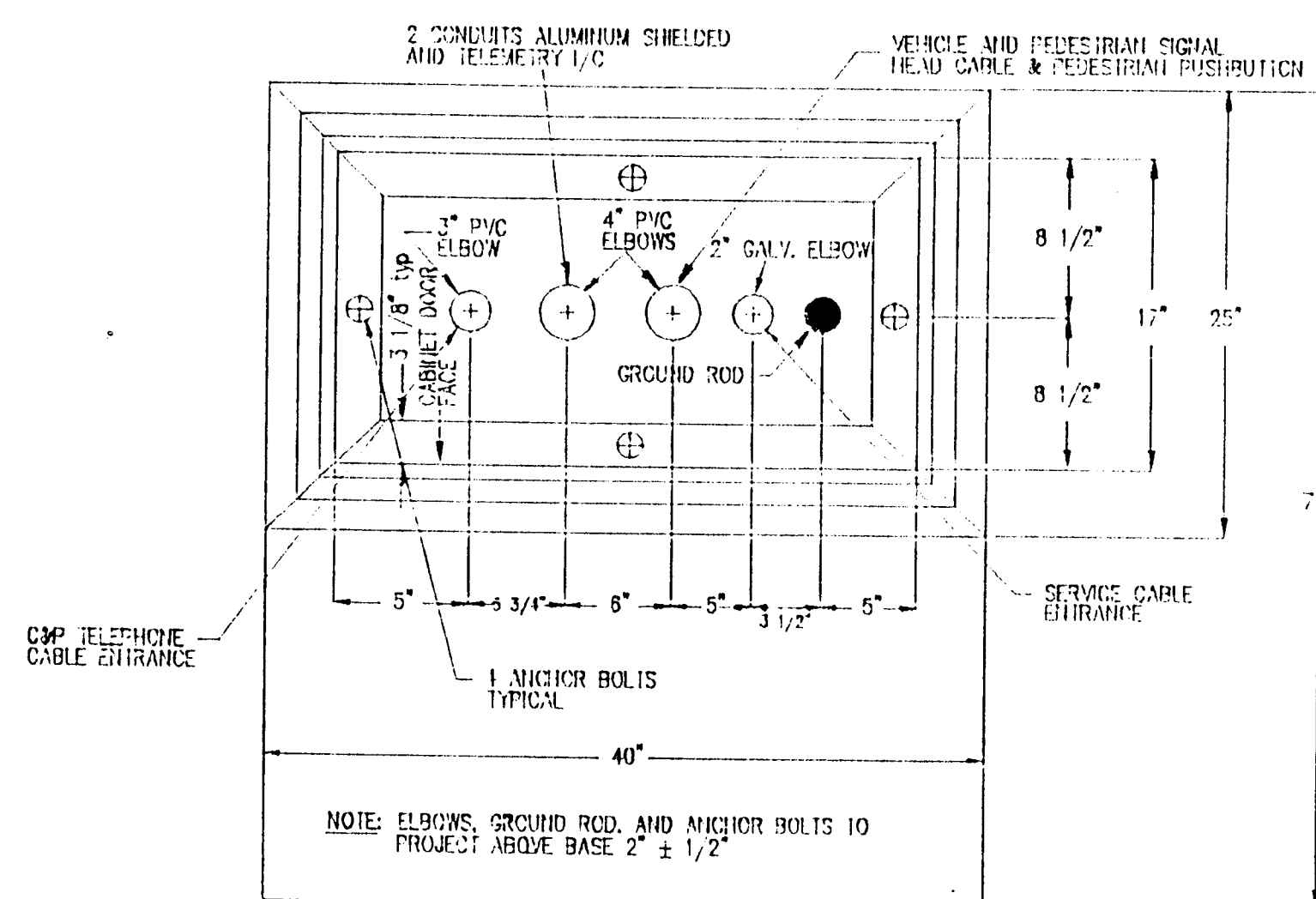
Section: SIGNAL DESIGN Date: 8/89 Std no: 2

SHEET
33b OF 36

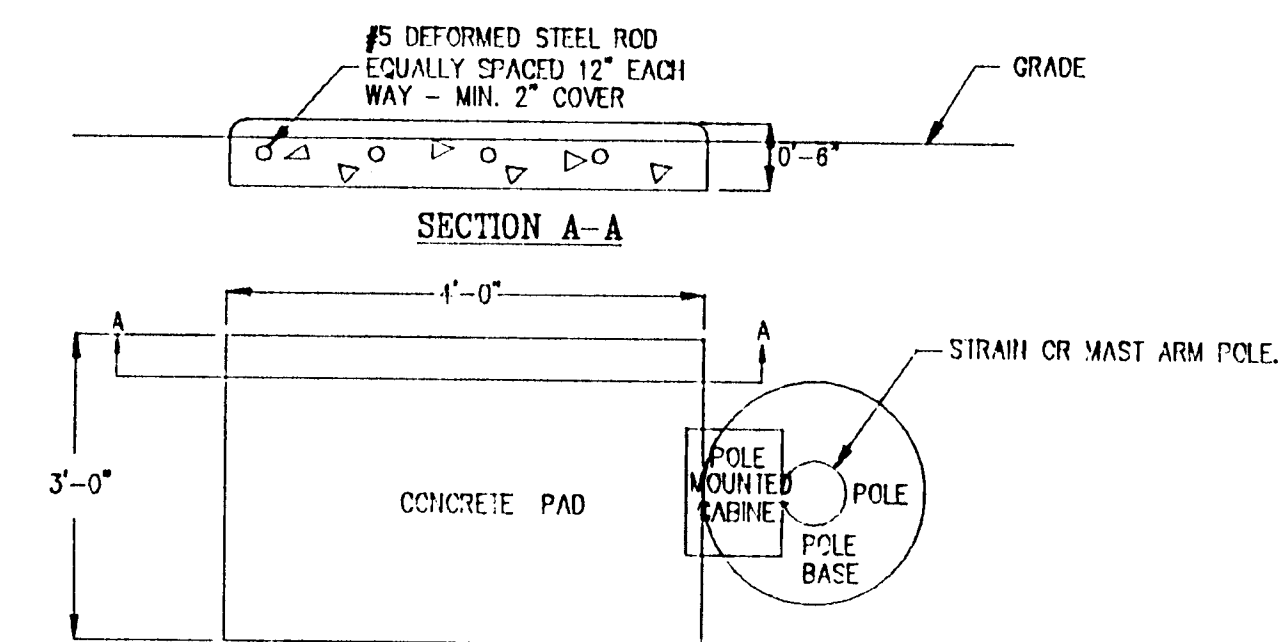
P - SIZE BASE MOUNTED
CABINET LAYOUT



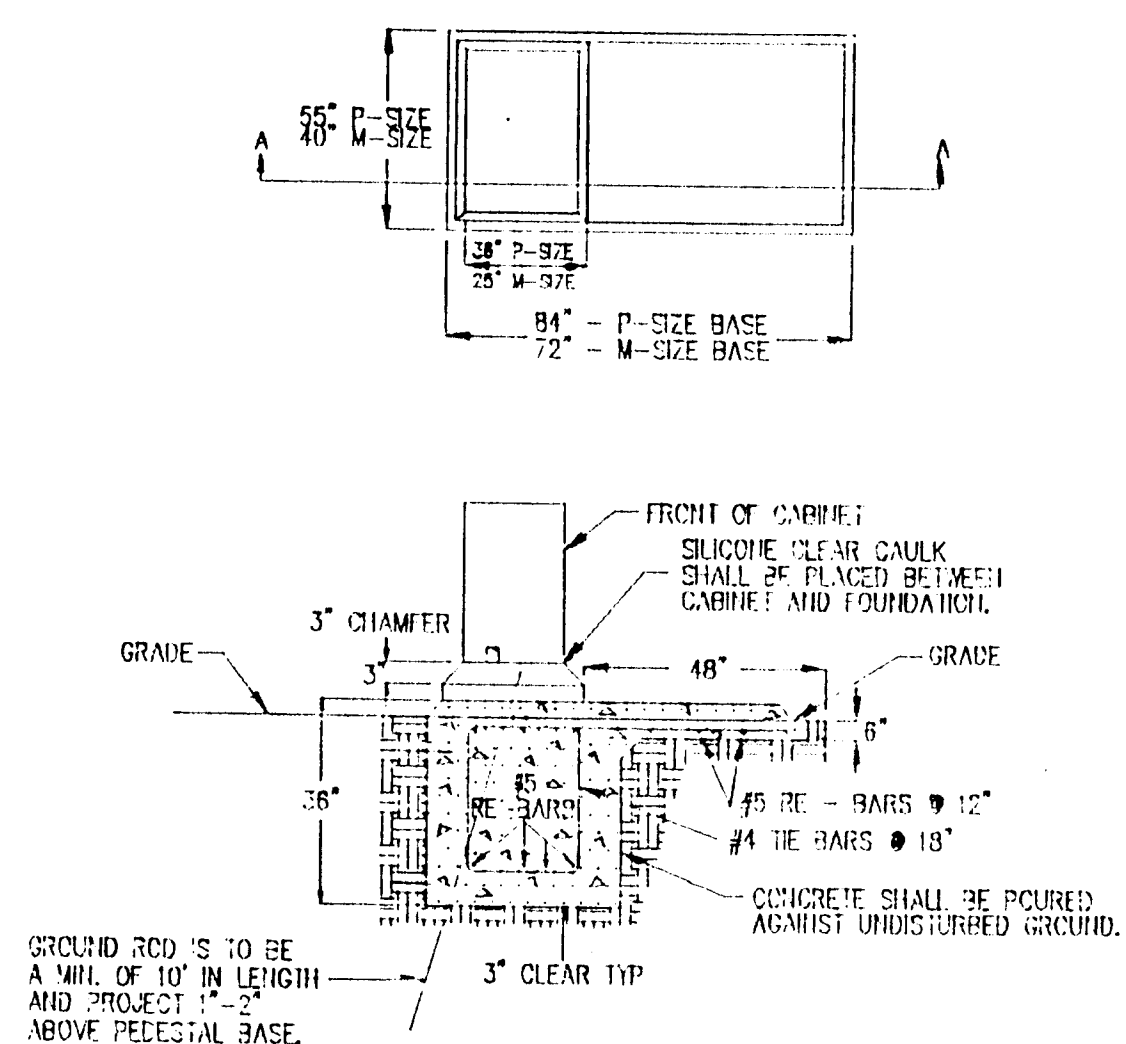
M - SIZE BASE MOUNTED
CABINET LAYOUT



POLE MOUNTED CABINET



BASE MOUNTED CABINET



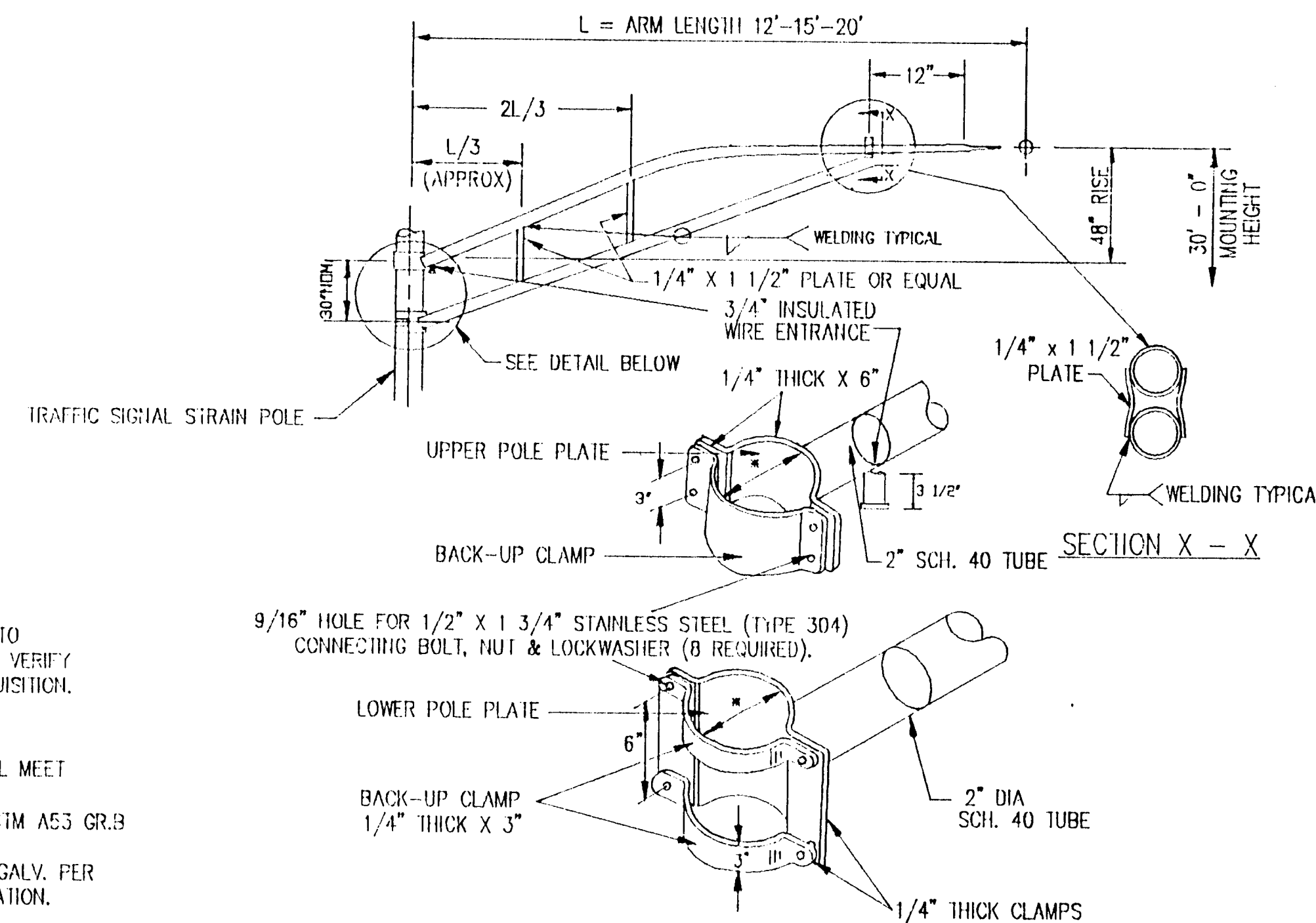
SECTION A - A

APPROVED	<i>[Signature]</i> 10/5/89	DEPUTY CHIEF ENGINEER - TRAFFIC
APPROVAL - SHA REVISIONS		APPROVAL - FEDERAL HIGHWAY ADMINISTRATION

MDOT - STATE HIGHWAY ADMINISTRATION
Office of Traffic
TRAFFIC ENGINEERING DIVISION
BASE/POLE MOUNTED CABINET

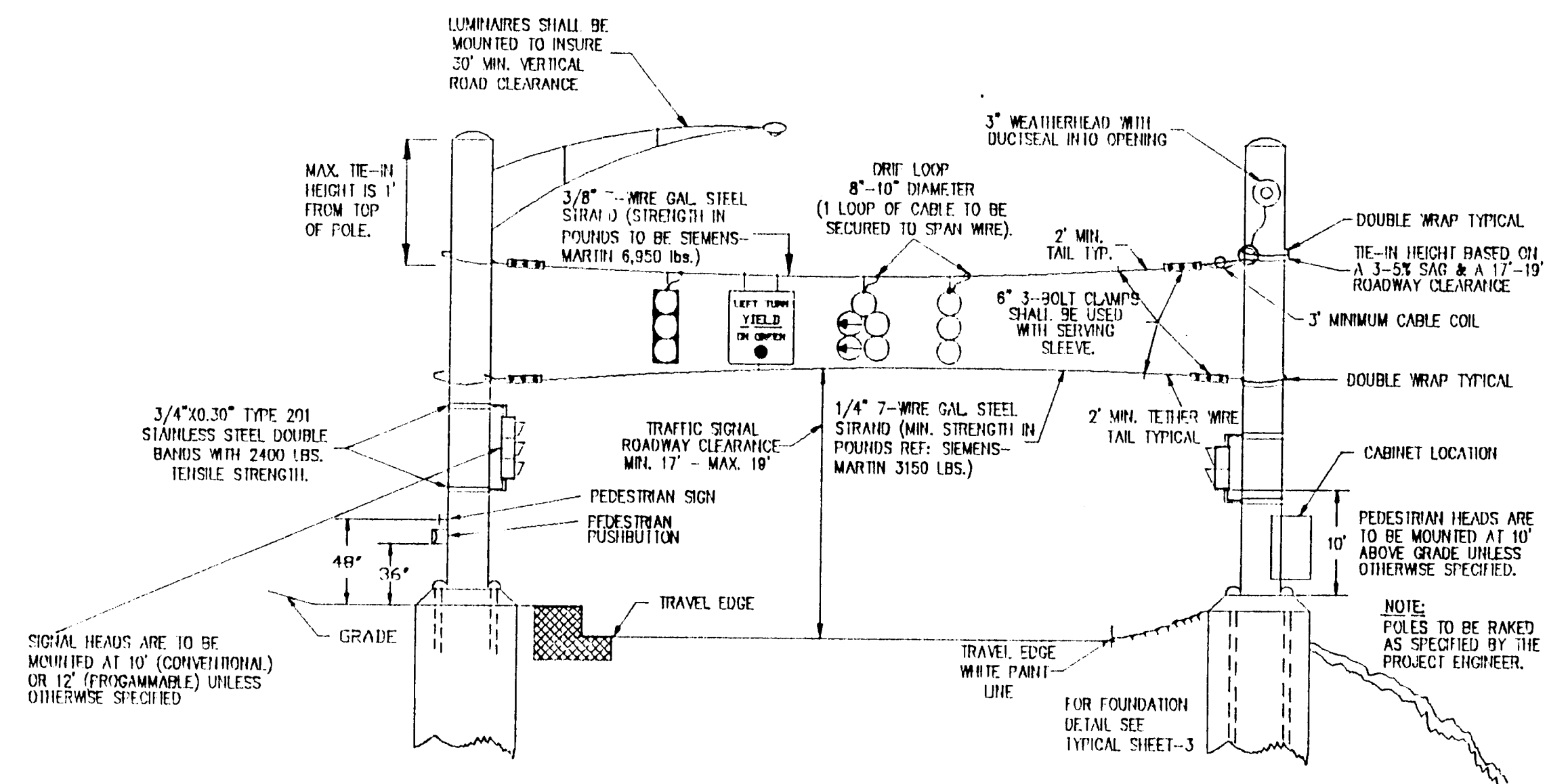
Section: SIGNAL DESIGN Date: 8/89 Std no: 3

LIGHTING ARM AND LUMINAIRE PLACED ON TRAFFIC SIGNAL STRAIN POLES



NOTE: DIMENSIONS VARY FROM 8" TO 12". CONTRACTOR TO FIELD VERIFY PRIOR TO APPROVAL & REQUISITION.

- MATERIALS
- ALL CLAMPS & BARS SHALL MEET ASTM A36
 - ALL TUBES SHALL MEET ASTM A53 GR.B OR A501
 - ARM ASSEMBLY SHALL BE GALV. PER ASTM A123. AFTER FABRICATION.



NOTES:

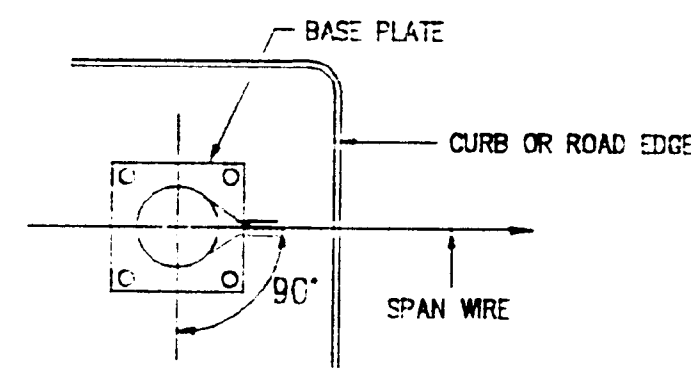
- SPAN WIRE DRIPS SHALL BE 3" MIN. DIA. OR MAX 50% FILL WHICHEVER IS LARGER AND 10" MAX. SPACING.
- ALL THREE (3) BOLT SPAN WIRE CLAMPS FURNISHED SHALL CONFORM TO THE NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA) PUBLICATION NUMBER PH23-1984 REVISED 1977 AND AS HEREIN INDICATED.
 - SPAN WIRE CLAMPS SHALL CONFORM TO NEMA PH23-1984 REVISED 1977; DATA SHEET NUMBER 2.
 - THREE (3) BOLT SPAN WIRE CLAMPS SHALL CONFORM TO NEMA PH23-1984, REVISED 1977, SUBSECTIONS 3.2.2, 4.1(B), AND 7.1 FOR 1/2"-13 TYPE II BOLTS.
- SPAN WIRE MOUNTED OPTICALLY PROGRAMMED SIGNAL HEADS, 5 SECTION SIGNAL HEADS, AND SIGNS GREATER THAN 36"x42" ARE TO BE BOTTOM TETHERED WITH 1/4" SPAN WIRE.
- CABINET TO BE MOUNTED AT FOLLOWING HEIGHTS (MEASURED FROM GRADE TO BOTTOM OF CABINET):
 - M-CABINET - 30" 3" DIA CONDUIT BODY.
 - P-CABINET - 36" 2" DIA CONDUIT BODY.
- POLE PLACEMENT FOR:
 - CLOSED SECTION - A MIN. OF 2' IS REQUIRED BETWEEN POLE FACE AND FACE OF THE CURB.
 - OPEN SECTION - A MIN. OF 6' IS REQUIRED BETWEEN FACE OF POLE AND TRAVEL EDGE WHITE PAINT LINE.

APPROVED	<i>[Signature]</i> 10/5/89	DEPUTY CHIEF ENGINEER - TRAFFIC
APPROVAL - SHA REVISIONS		APPROVAL - FEDERAL HIGHWAY ADMINISTRATION

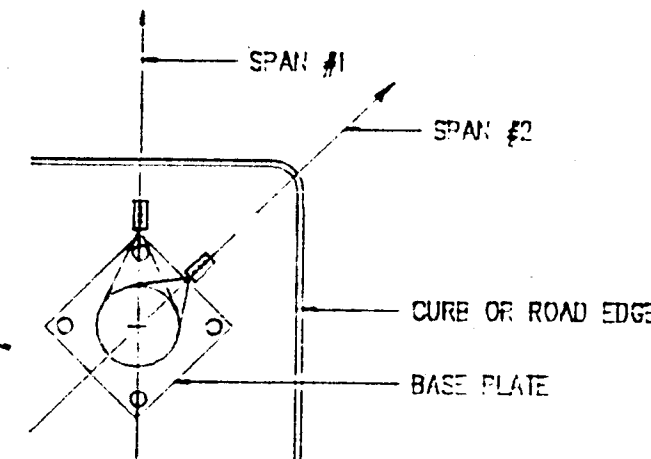
MDOT - STATE HIGHWAY ADMINISTRATION
Office of Traffic
TRAFFIC ENGINEERING DIVISION
PLACEMENT OF STRAIN POLE AND INCIDENTAL HARDWARE

Section: SIGNAL DESIGN Date: 8/89 Std no: 4

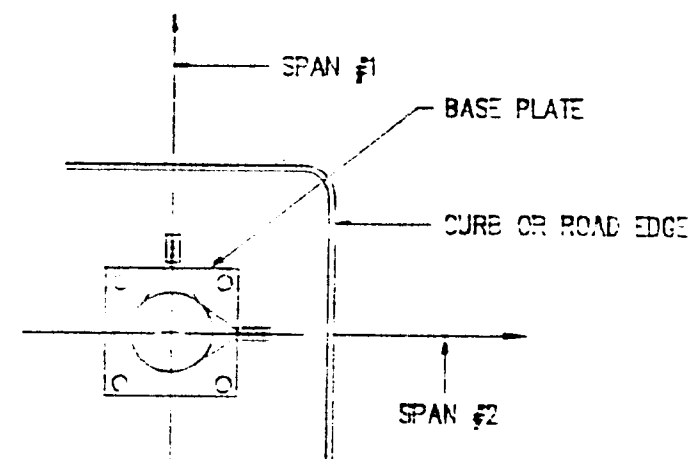
ORIENTATION OF STRAIN POLE WITH RESPECT TO SPAN WIRE ATTACHMENT(S)



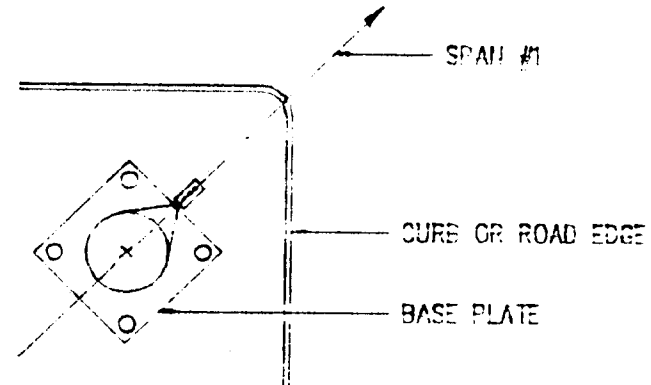
CASE I. RIGHT ANGLE SINGLE SPAN



CASE III. MODIFIED 'Z' DOUBLE SPAN

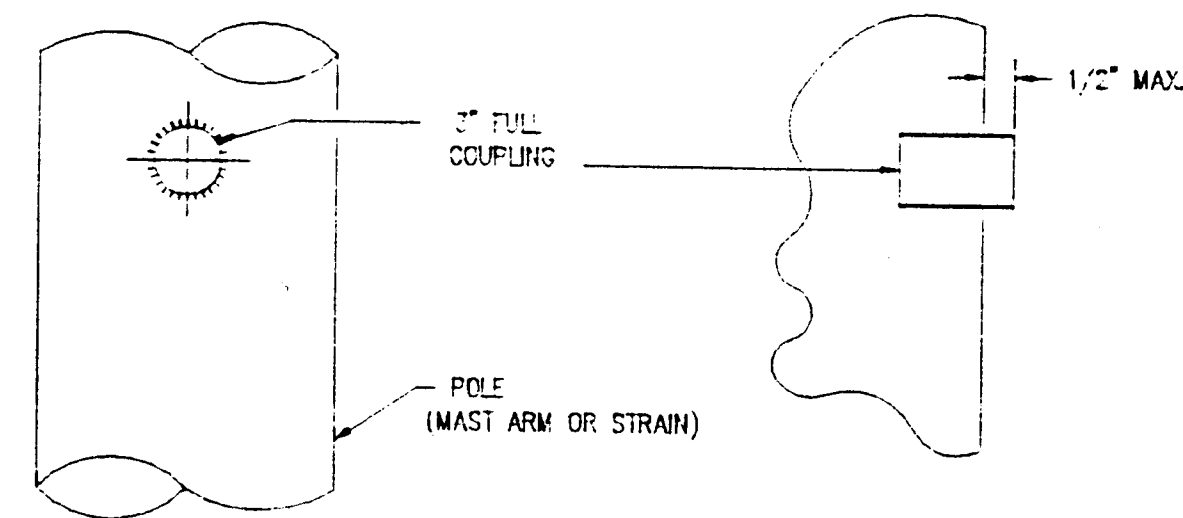


CASE II. BOX SPAN OR STANDARD 'Z' SPAN

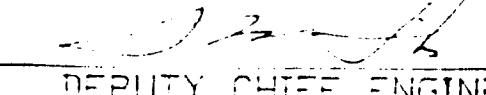


CASE IV. DIAGONAL SINGLE SPAN

FIELD DRILLED POLE/ARM DETAIL



- NOTES:
- DRILL HOLE IN THE POLE TO FIT STANDARD PIPE COUPLING. FIELD WELD COUPLING TO MEET AWS WELDING SPECIFICATIONS.
 - WELDING TO BE PERFORMED BY A CERTIFIED WELDER.
 - ALL WELDING SHALL BE INSPECTED AND APPROVED BY SHA LAB PERSONNEL.
 - THE AFFECTED AREA SHALL BE CLEANED WITH METAL WIRE BRUSH AND SPRAYED WITH COLD GALVANIZED COMPOUND.
 - A HOLE MAY BE DRILLED WITHOUT WELDING A BUND COUPLING FOR 3/4" THRU 1 1/2" SIZE, PROVIDED THERE IS NO OTHER HOLE WITHIN 12". AFTER DRILLING THE HOLE FOLLOW NOTE #4.
 - 3" FULL COUPLING SHALL HAVE INSIDE CHASE NIPPLE.
 - FOR COUPLING DETAILS SEE SPECIFICATIONS (SF-31A, SF-31B) FOR MASTARM.

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DEPUTY CHIEF ENGINEER - TRAFFIC

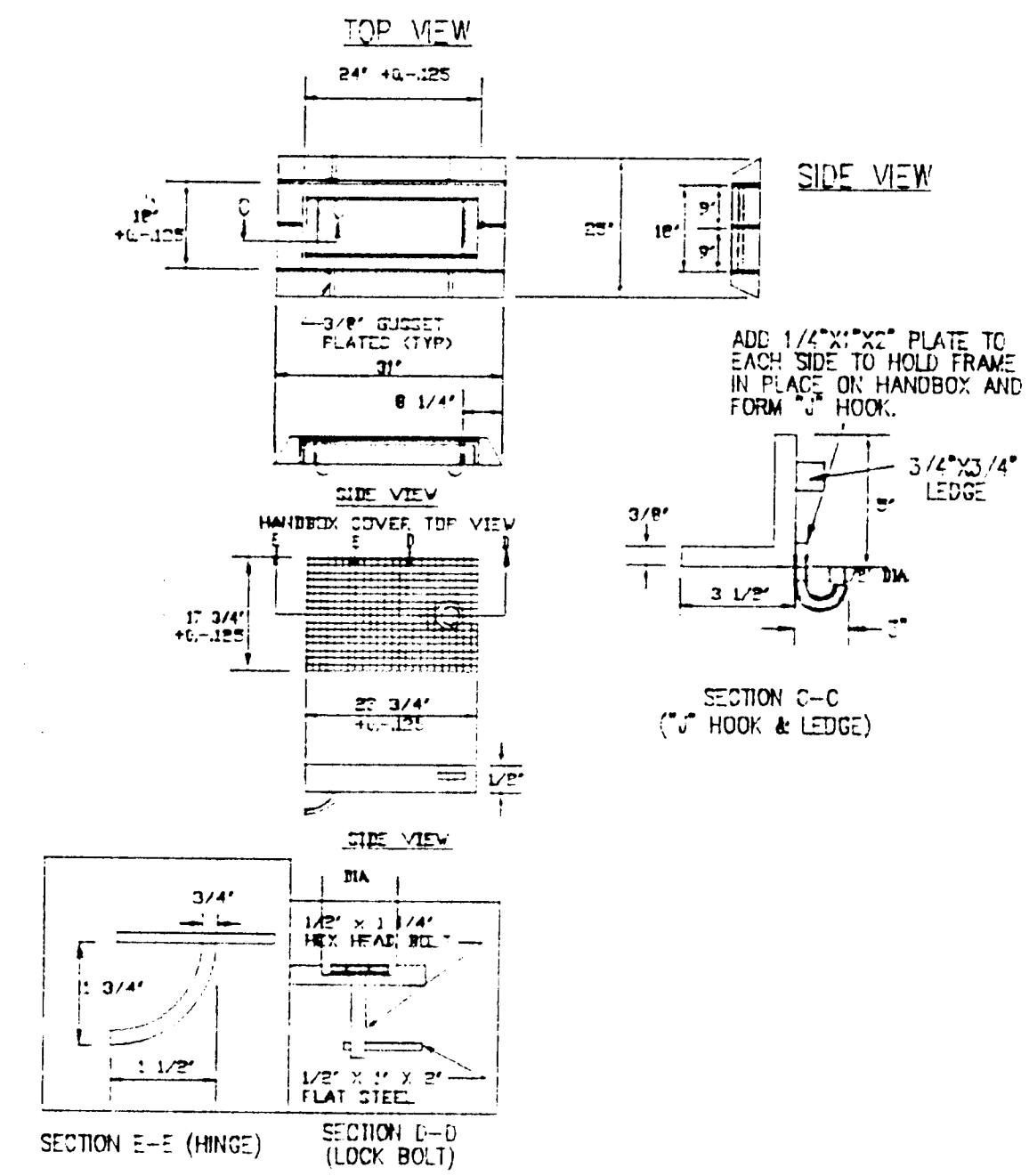


APPROVAL - SHA REVISIONS	APPROVAL - FEDERAL HIGHWAY ADMINISTRATION

MDOT - STATE HIGHWAY ADMINISTRATION
Office of Traffic
TRAFFIC ENGINEERING DIVISION
ORIENTATION OF STRAIN POLE &
FIELD DRILLED POLE/ARM DETAIL

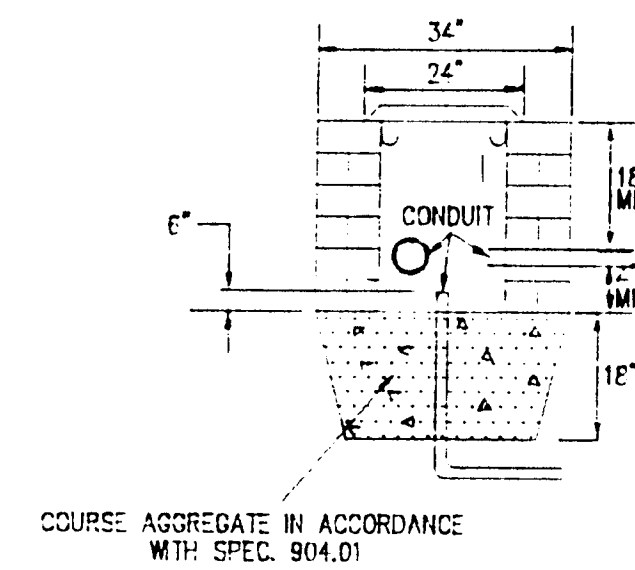
Section: SIGNAL DESIGN Date: 8/89 Std no: 5

HANDBOX FRAME AND COVER

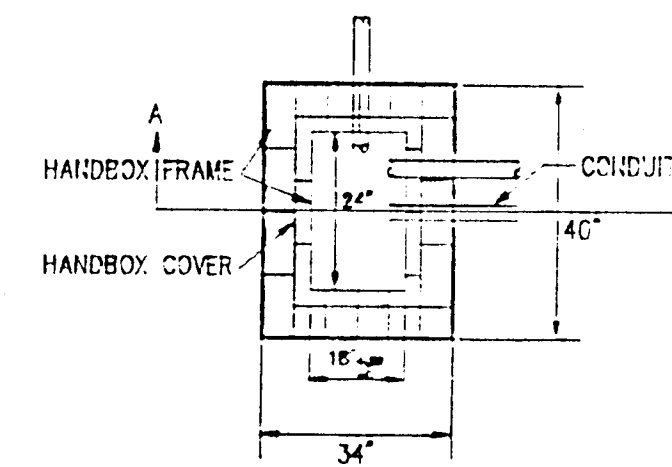


SECTION E-E (HINGE) SECTION E-B (LOCK BOLT)

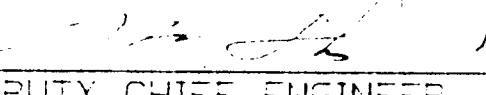
ALTERNATE HANDBOX CONSTRUCTION



SECTION A-A



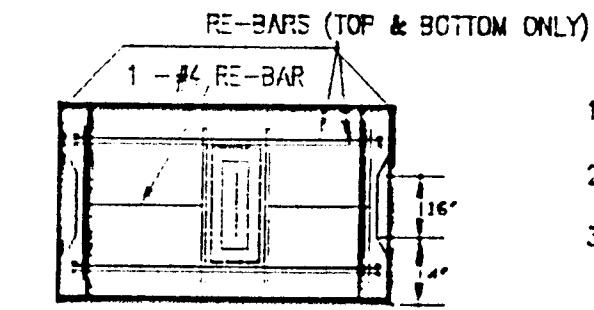
PLAN VIEW

APPROVED  10/5/89
DEPUTY CHIEF ENGINEER - TRAFFIC

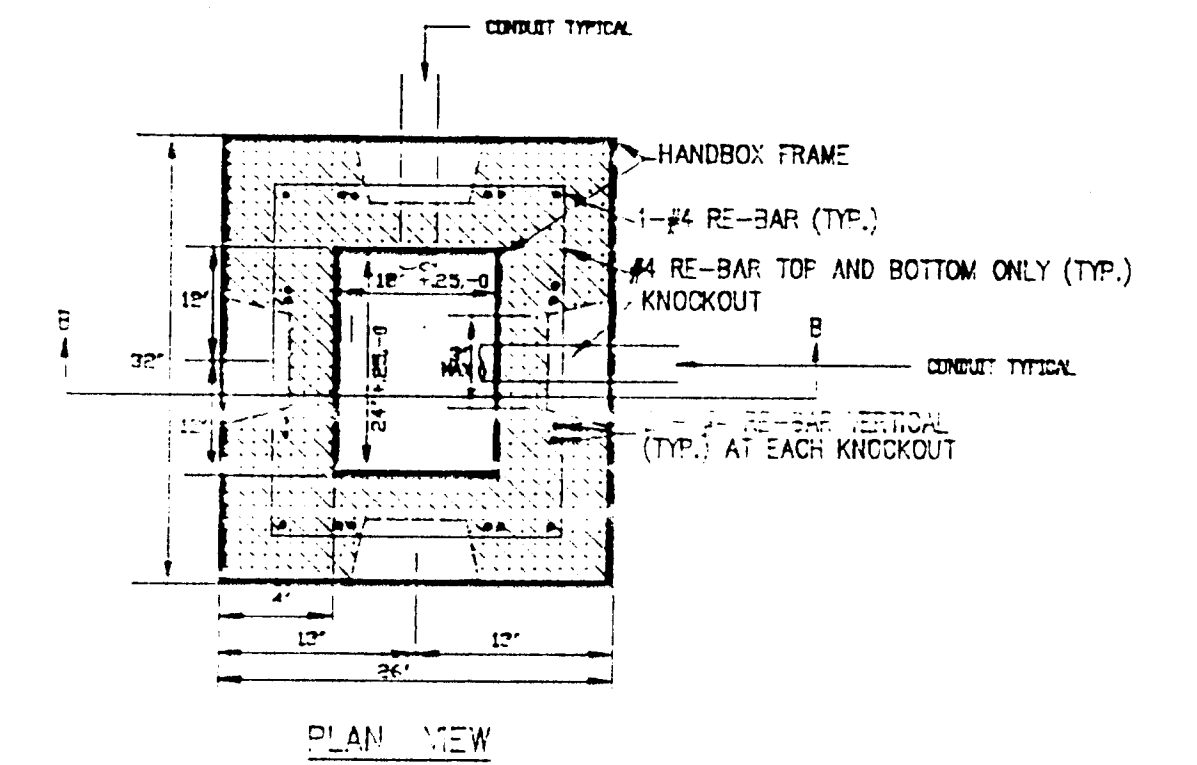


APPROVAL - SHA REVISIONS	APPROVAL - FEDERAL HIGHWAY ADMINISTRATION

STANDARD PRECAST HANDBOX



SECTION E-B



PLAN VIEW

- NOTES:
- CONCRETE IS TO BE 5000 PSI.
 - NO RE-BAR IN KNOCKOUTS.
 - FULL CONCRETE DIMENSIONS ARE REQUIRED. ANY AIR POCKETS MUST BE PATCHED BEFORE SHIPMENT.
 - ALL RE-BAR IS TO BE IN THE CENTER OF WALLS.
 - MINIMUM CONCRETE COVER FOR RE-BAR IS 1 1/2\".

- NOTES ON HANDBOX CONSTRUCTION
- ANY SPACES BETWEEN THE CONDUIT AND THE HANDBOX WALL SHALL BE PATCHED WITH MORTAR AS APPROVED BY THE ENGINEER.
 - ALL METAL CONDUIT ENDS SHALL BE BONDED WITH OTHER CONDUIT ENDS USING BONDING BUSHINGS AND NO. 6 AWG SOLID BORE COPPER WIRE.
 - ALL ELECTRICAL CABLES ARE REQUIRED TO HAVE 2" MIN. SLACK IN HANDBOX. THIS WIRE IS TO BE SECURED IN THE HANDBOX SO IT DOES NOT LIE ON THE BOTTOM OF THE HANDBOX.
 - ALL LOOP DETECTOR WIRE TO LEAD-IN CABLE SPLICES IN THE HANDBOX SHALL BE IN ACCORDANCE WITH THE STANDARD SHOWN ON STANDARD NO. 2.
 - WHEN ALL CONDUIT AND ELECTRICAL WIRE IS IN PLACE, THE END OF THE CONDUIT SHALL BE SEALED WITH DUCT SEALER OR OTHER PLIABLE MATERIAL AS APPROVED BY THE ENGINEER.
 - ALTERNATE HAND BUILT BRICK HANDBOX SHALL BE USED FOR CONDUIT SIZES LARGER THAN 3" AS DIRECTED BY THE ENGINEER.
 - HANDBOX FRAME & COVER SHALL BE GALVANIZED PER ASTM A-123 & A-153.
 - HANDBOX TO BE INSTALLED AT FINAL GRADE.
 - HANDBOX FRAME TO BE PLACED INTO MORTAR BED ON HANDBOX TOP AND PARGED.
 - ALL CONDUITS ENTERING FROM HANDBOX SUMP INTO HANDBOX SHALL PROJECT 6" ABOVE SUMP TOP.
 - ALL CONDUIT ENTERING FROM HANDBOX SIDE WALL SHALL PROJECT 2" MAX.

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Office of Traffic
TRAFFIC ENGINEERING DIVISION

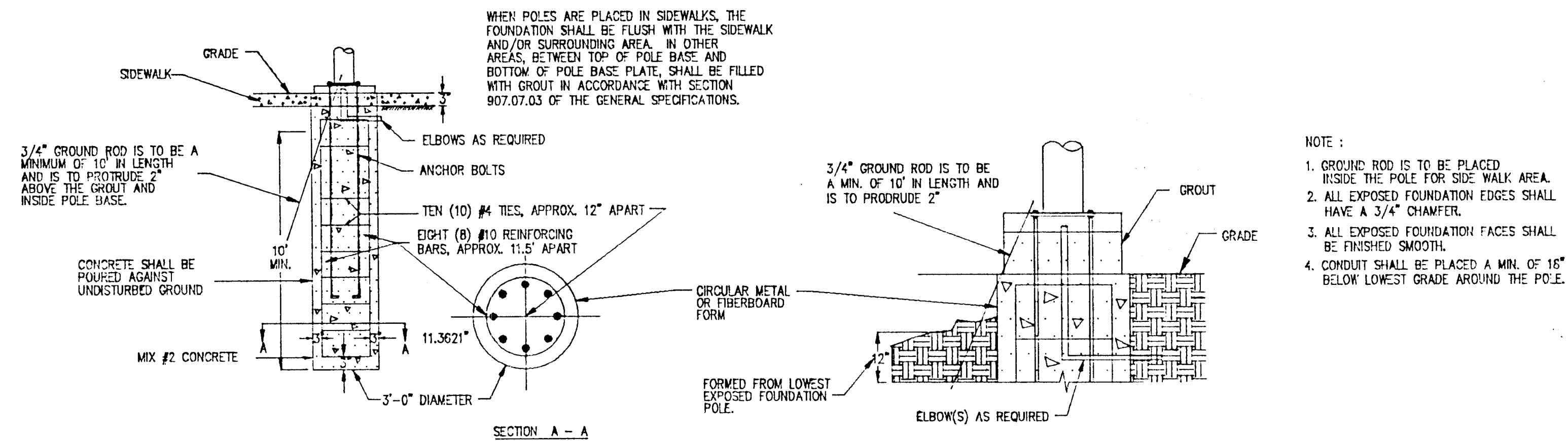
STANDARD PRECAST HANDBOX

Section: SIGNAL DESIGN Date: 8/89 Std no: 6

SHEET
33d OF 36

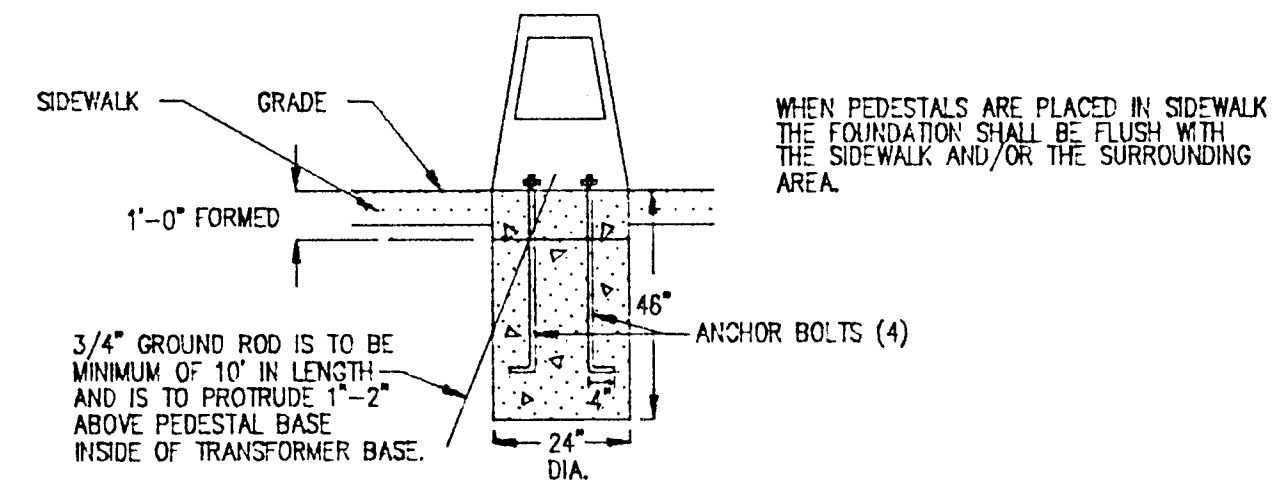
FOUNDATIONS

FOUNDATIONS FOR STRAIN POLE AND MAST ARM POLE

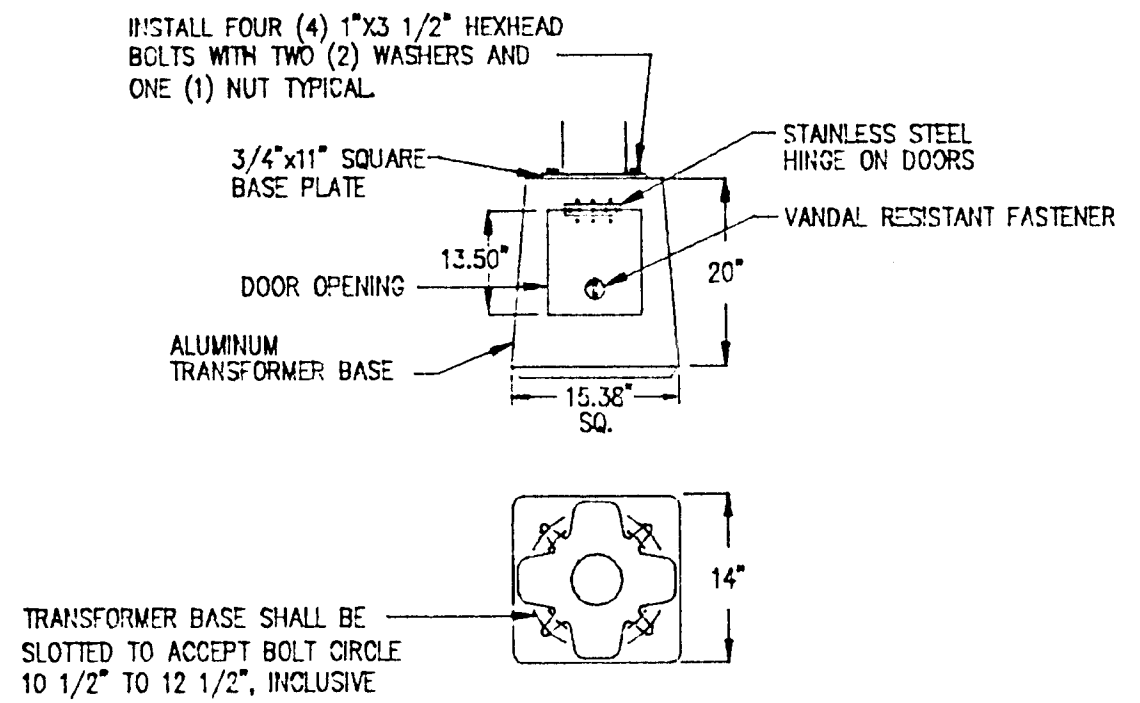


POLE PLACEMENT IN SIDEWALK AREA

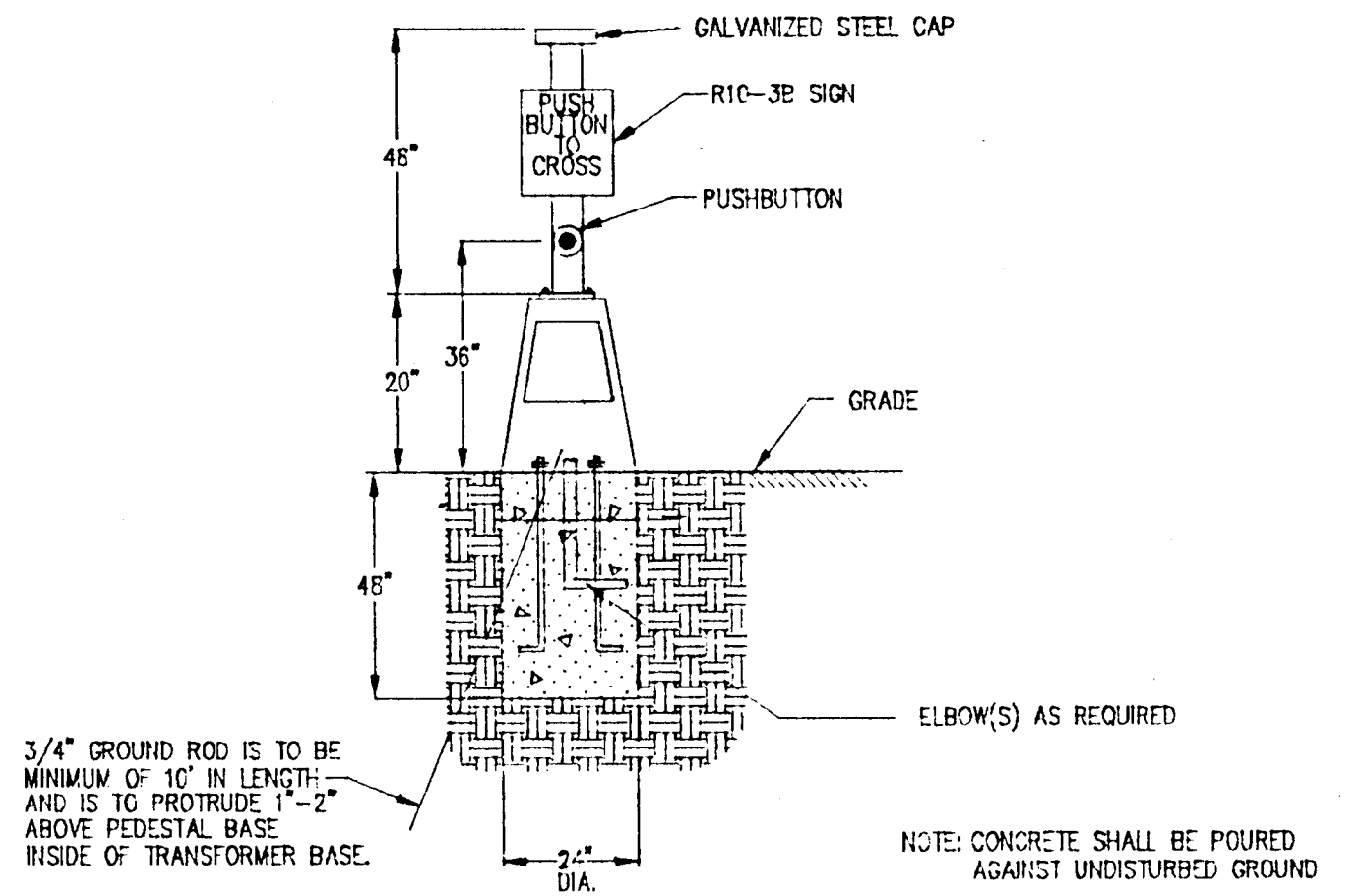
POLE PLACEMENT IN NON-SIDEWALK AREA



BREAKAWAY PEDESTAL POLE



TRANSFORMER BASE



PUSH-BUTTON POLE INSTALLATION

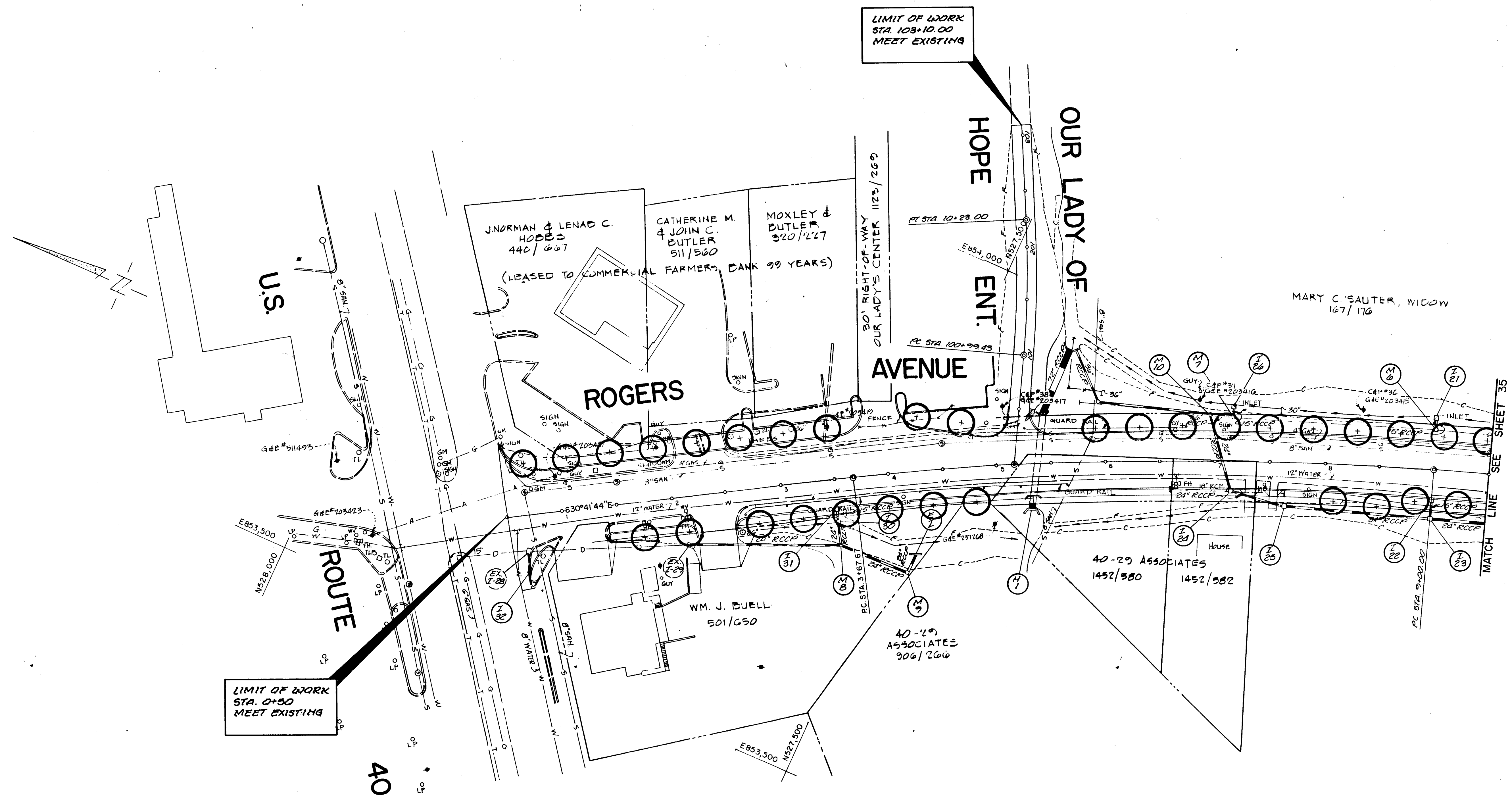
APPROVED	10/5/89	
	DEPUTY CHIEF ENGINEER - TRAFFIC	
	APPROVAL - SHA REVISIONS	APPROVAL - FEDERAL HIGHWAY ADMINISTRATION

MDOT - STATE HIGHWAY ADMINISTRATION
Office of Traffic
TRAFFIC ENGINEERING DIVISION

FOUNDATIONS

SHEET
33e OF 36

Section: SIGNAL DESIGN Date: 8/89 Std no: 7

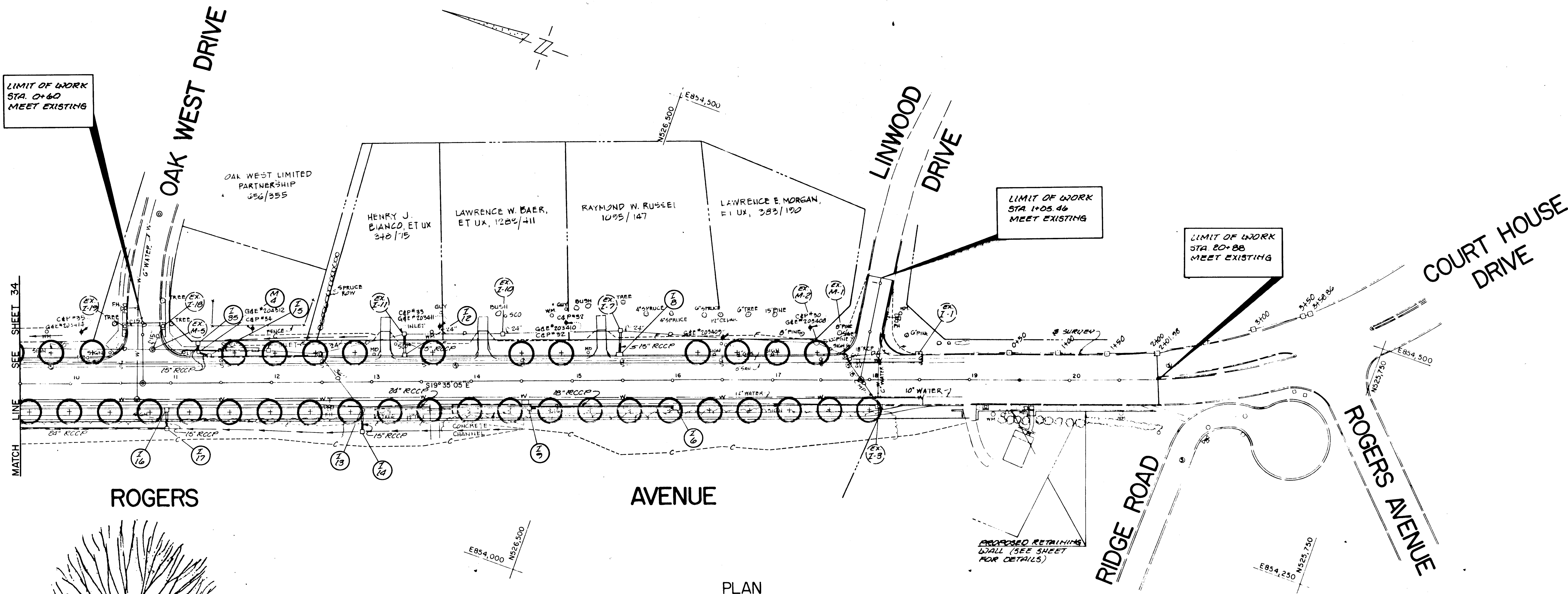


PLAN
SCALE: 1"=50'

⊙ DENOTES TYPICAL TREE LOCATION.

FOR LANDSCAPING USE ONLY

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND <i>James W. ...</i> 9/5/91 DIRECTOR OF PUBLIC WORKS DATE <i>Charles A. ...</i> 9/5/91 CHIEF, BUREAU OF HIGHWAY DATE		JOHN E. HARMS, JR. & ASSOCIATES, INC. CONSULTING ENGINEERS 90 GOV. RITCHIE HIGHWAY PASADENA, MARYLAND <i>John E. Harms, Jr.</i>		DES: D.L.S. DRN: J.R.R. CHK: E.C.H. DATE: 7/91	REVISION 1. REVISED ROGERS AVE. - U.S. ROUTE 40 INTERSECTION 7/8/92 BY NO. REVISION DATE	LANDSCAPE PLAN ROGERS AVENUE CAPITAL PROJECT No. J-4097	SCALE AS SHOWN SHEET 34 OF 36
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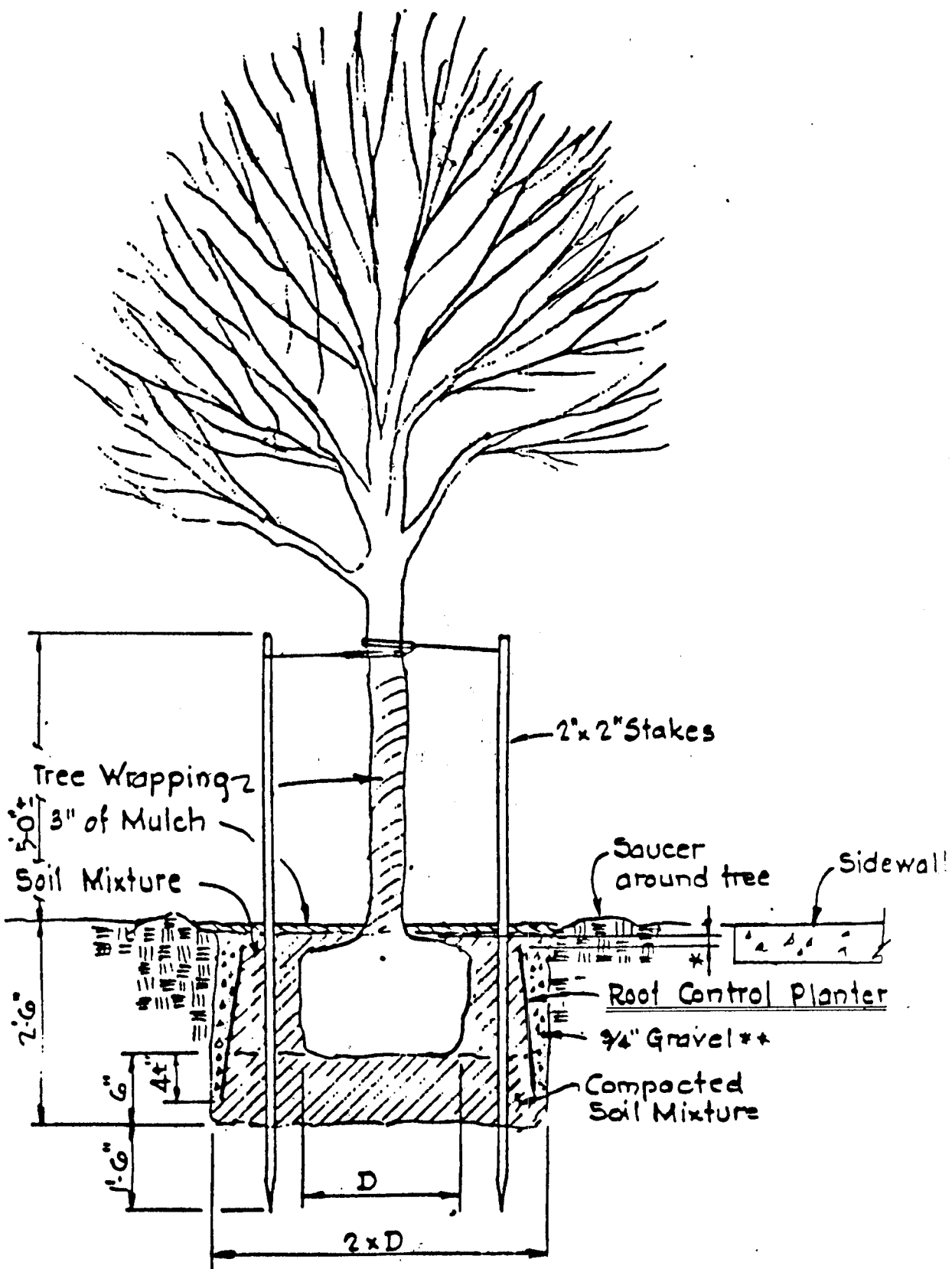
PLAN
SCALE: 1"=50'

PLANT LIST			
QTY	TYPE	SIZE	REMARKS
67	TILIA AMERICANA	2" 2 1/2" CAL., 11'-14" HT.	B1B, FULL HEAD

STA	DISTANCE FROM TREE TO FACE OF CURB
0+60 - 8+00 RT.	7'
0+60 - 8+00 LT.	7'
8+00 - 18+00 RT.	4'
8+00 - 18+00 LT.	6'

- NOTES:
- CONTRACTOR TO VERIFY UNDERGROUND UTILITIES BEFORE DIGGING
 - LOCATIONS OF TREES MAY VARY SLIGHTLY TO ACCOMMODATE FIELD CONDITIONS.
 - SEE SPECIFICATIONS FOR GENERAL PLANTING REQUIREMENTS.

⊕ DENOTES TYPICAL TREE LOCATION.



TYPICAL TREE PLANTING DETAIL
* Set Root Control Planter so that top of planter is 1/2" below top of root ball.
4.02

FOR LANDSCAPING USE ONLY

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND Director of Public Works: <i>James W. Velleau</i> 2/5/91 Chief, Bureau of Highway: <i>James W. Velleau</i> 1/15/91		JOHN E. HARMS, JR. & ASSOCIATES, INC. CONSULTING ENGINEERS 90 GOV. RITCHIE HIGHWAY PASADENA, MARYLAND Chief, Bureau of Engineering: <i>John E. Harms, Jr.</i> 8/21/91 Chief, Division of Roads, Bridges & Storm Drainage: <i>John E. Harms, Jr.</i> 8/21/91		P.E. D.L.S. DRN: J.R.R. CHK: E.C.H. DATE: 7/91	REVISED ROGERS AVE., U.S. ROUTE 40 INTERSECTION 1/6/92 BY NO. REVISION DATE	LANDSCAPE PLAN ROGERS AVENUE CAPITAL PROJECT No. J-4097	SCALE AS SHOWN SHEET 35 OF 36
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GRADING SUMMARY

EXCAVATION

CLASS 1 EXCAVATION

CUT	2068 CY
TOTAL CLASS 1 EXCAVATION	2068 CY

CLASS 2 EXCAVATION

CUT	2963 CY
TOTAL CLASS 2 EXCAVATION	2963 CY

CLASS 3 EXCAVATION

CUT	270 CY
TOTAL CLASS 3 EXCAVATION	270 CY

EROSION & SEDIMENT CONTROL EXCAVATION

CUT	1278 CY
TOTAL EROSION & SEDIMENT CONTROL EXCAVATION	1278 CY

EXCAVATION AVAILABLE FOR EMBANKMENT

CLASS 1 EXCAVATION	2068 CY
TOP SOIL IN CUT	- 262 CY
	1806 CY
LOSS DUE TO DENSIFICATION (-10%)	- 181 CY
TOTAL CLASS 1 EXCAVATION AVAILABLE	1625 CY

CLASS 2 EXCAVATION

LOSS DUE TO DENSIFICATION (-25%)	- 741 CY
TOTAL CLASS 2 EXCAVATION AVAILABLE	2222 CY

EROSION & SEDIMENT CONTROL EXCAVATION

LOSS DUE TO DENSIFICATION & HANDLING (-50%)	- 639 CY
TOTAL EROSION & SEDIMENT CONTROL EXC. AVAILABLE	639 CY

TOTAL EXCAVATION AVAILABLE FOR EMBANKMENT 4486 CY

EMBANKMENT

REFILL FOR TOPSOIL	7243 CY
	+ 262 CY
TOTAL EMBANKMENT REQUIRED	7505 CY

EXCAVATION AVAILABLE FOR EMBANKMENT

BORROW	4486 CY
	3019 CY

BORROW DENSIFICATION (+15%)

TOTAL TYPE II BORROW EXCAVATION REQUIRED	+ 453 CY
	3472 CY

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

JOHN E. HARMS, JR. & ASSOCIATES, INC.
CONSULTING ENGINEERS
90 GOV. RITCHIE HIGHWAY
PASADENA, MARYLAND

James H. ... 9/5/91 *Excavation & ...* 8-29-91
 DIRECTOR OF PUBLIC WORKS CHIEF, BUREAU OF ENGINEERING
Francis W. ... 9/5/91 *Elizabeth ...* 8/28/91
 CHIEF, BUREAU OF HIGHWAY CHIEF, DIVISION OF ROADS, BRIDGES & STORM DRAINAGE

CH-11-B

DES: R.L.S			
DRN: J.R.R			
CHK: M.W.B			
J.R.R	△	REVISED ROGERS AVE., U.S. ROUTE 40 INTERSECTION	7/2/92
DATE: 7/91	BY	NO.	REVISION

GRADING TABLE

ROGERS AVENUE

600' SCALE MAP NO. _____ BLOCK NO. _____

CAPITAL PROJECT NO. J-4097

SCALE AS SHOWN
SHEET 36 OF 36