Howard County, Maryland – Department of Public Works

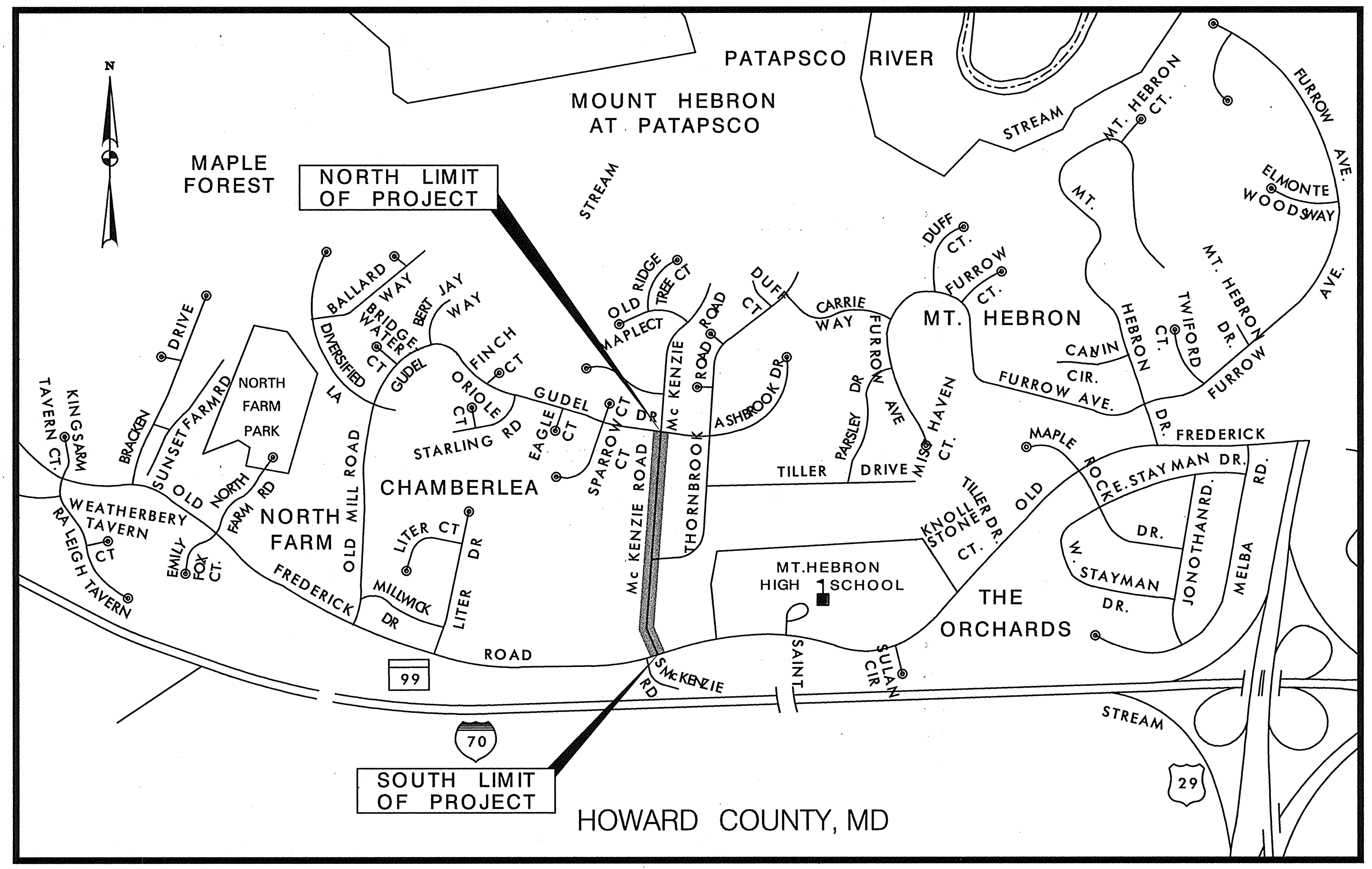
McKENZIE ROAD
ROADWAY AND STORMDRAIN IMPROVEMENTS

CAPITAL PROJECT NO. J-4164-10

INDEX OF SHEETS

NOTE:

"EROSION AND SEDIMENT CONTROL WILL BE STRICTLY ENFORCED"



PROJECT LENGTH: 0.40 MILES

SCALE: 1" = 1000'

1000 0 1000 2000

CONVENTIONAL SIGNS

PROPOSED MEDIAN BARRIER
ELECTRICAL HAND BOX - SIGNALS (H.B.)
BURIED UTILITY LINES & NO. OF CABLES
STATE, COUNTY OR CITY LINES
PROPOSED TRAFFIC BARRIER
EXISTING TRAFFIC BARRIER
FENCE LINE
RIGHT OF WAY LINE
EXISTING ROADWAY
RAILROAD
BASE OR SURVEY LINE
FIRE HYDRANT (F.H.)
PROPOSED CULVERT
EXISTING CULVERT
EXISTING DROP INLET
UTILITY POLE
MARSH
HEDGE
GROUND ELEVATION (DATUM LINE)
GRADE ELEVATION (DATUM LINE)
CUT LIMIT
FILL LIMIT

GENERAL NOTES

1. ALL STATIONING AND DIMENSIONING ARE TO BE FIELD VERIFIED BE THE CONTRACTOR.
2. APPROXIMATE LOCATIONS 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 HOWARD COUNTY ENGINEER BY THE CONTRACTOR AND AT THE CONTRACTORS EXPENSE. CONTRACTOR SHALL NOTIFY THE FOLLOWING UTILITIES OR AGENCIES AT LEAST FIVE WORKING DAYS BEFORE STARTING WORK SHOWN ON THESE PLANS:

   MISS UTILITY 1-800-257-7777
   CONSTRUCTION INSPECTION DIVISION, HOWARD COUNTY 410-313-1880
   STATE HIGHWAY ADMINISTRATION DISTRICT 7- 301-624-8100
   BALTIMORE GAS & ELECTRIC COMPANY - UNDERGROUND ELECTRIC 410-855-6958
   BALTIMORE GAS & ELECTRIC COMPANY - GAS ENGINEERING AND CONSTRUCTION 410-291-5834
   DISTRUBUTION CUSTOMER SERVICE 685-0123
   ENGINEERING DAMAGE CONTROL 234-5621
   BELL ATLANTIC TELEPHONE 1-800-870-0000
   AMERICAN TELEPHONE & TELEGRAPH CABLE LOCATION DIVISION 393-3553
   COLONIAL PIPELINE COMPANY 781-4641
   BUREAU OF UTILITIES, HOWARD COUNTY 410-313-4900
   COMCAST CABLE 888-793-1800

   THE CONTRACTOR SHALL CONTACT THE HOWARD COUNTY CONSTRUCTION INSPECTION DIVISION OF ENGINEERING FOR VERIFICATION AND/OR INFORMATION REGARDING:
   A. EXISTING/PROPOSED RIGHT-OF-WAY
   B. UTILITY RELOCATION
   C. MAINTENANCE OF TRAFFIC DURING CONSTRUCTION
   D. EROSION/SEDIMENT CONTROL CERTIFICATION AND PERMIT
   E. HORIZONTAL/VERTICAL CONTROL
   F. GRADING PERMIT
3. PLACE REGULATION "ROAD WORK" AND WARNING SIGNS AS REQUIRED TO COMPLY WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) FOR HIGHWAY CONSTRUCTION AND MAINTENANCE OPERATIONS AT LIMIT OF WORK ALONG COUNTY ROADWAYS. COMPLY WITH HOWARD COUNTY STANDARD SPECIFICATIONS AND DETAILS.
4. ALL GRADING SHALL BE LIMITED TO EXISTING R.O.W. AND EASEMENTS INCLUDING SIDE SLOPES AND STABILIZATION. FOLLOWING INITIAL SOIL DISTURBANCE OR REDISTURBANCE, PERMENENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED IN ACCORDANCE WITH THE SEDIMENT CONTROL NOTES AND DETAILS.
5. FOR DETAILS NOT SHOWN ON THESE DRAWINGS, AND FOR MATERIALS AND CONSTRUCTION METHODS, THE CONTRACTOR SHALL ABIDE BY THE HOWARD COUNTY STANDARDS AND SPECIFICATIONS, THE PROJECT INVITATION FOR BID BOOKLET, THE SPECIAL PROVISIONS AND THE MARYLAND STATE HIGHWAY ADMINISTRATION'S "BOOK OF STANDARDS FOR HIGHWAY AND INCIDENTAL STRUCTURES" AND "STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS." IN THE EVENT OF ANY DISCREPANCY BETWEEN THESE SOURCES, THE SPECIAL PROVISIONS SHALL GOVERN.
6. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MD SHA STANDARDS AND SPECIFICATIONS.
7. STAGING AND STOCKPILE AREA WILL BE DETERMINED BY CONTRACTOR, AND AS APPROVED BY THE RESIDENT ENGINEER.
8. COORDINATES SHOWN HEREON ARE BASED ON MARYLAND STATE REFERENCE SYSTEM NAD 83' AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATION NO. 17EA AND NO. 17EB.
9. HORIZONTAL SITE CONTROL IS NAD88 , VERTICAL SITE CONTROL IS NGVD29.
10. SITE SURVEY WAS PERFORMED BY URS ON OCTOBER 1999.

9/15/03

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS	9/29/03 DATE	CHIEF, BUREAU OF ENGINEERING	9/22/03 DATE
CHIEF, TRANSPORTATION AND SPECIAL PROJECTS DIVISION	9/22/03 DATE	CHIEF, BUREAU OF HIGHWAYS	9-24-03 DATE

URS
HUNT VALLEY, MARYLAND

RJM ENGINEERING, INC.
CONSULTING ENGINEERS
COLUMBIA, MARYLAND
TELE:(410)730-1001 FAX:(410)730-5403

DES:				
DRN:				
CHK:				
DATE:	BY	NO.	REVISION	DATE

TITLE SHEET

NO.: ____ DATE: 9/03

McKENZIE ROAD ROADWAY AND STORMDRAIN IMPROVEMENTS

HOWARD COUNTY, MARYLAND
CAPITAL PROJECT NO. J-4164-10

SCALE AS SHOWN

SHEET 1 OF 24

09/13/03
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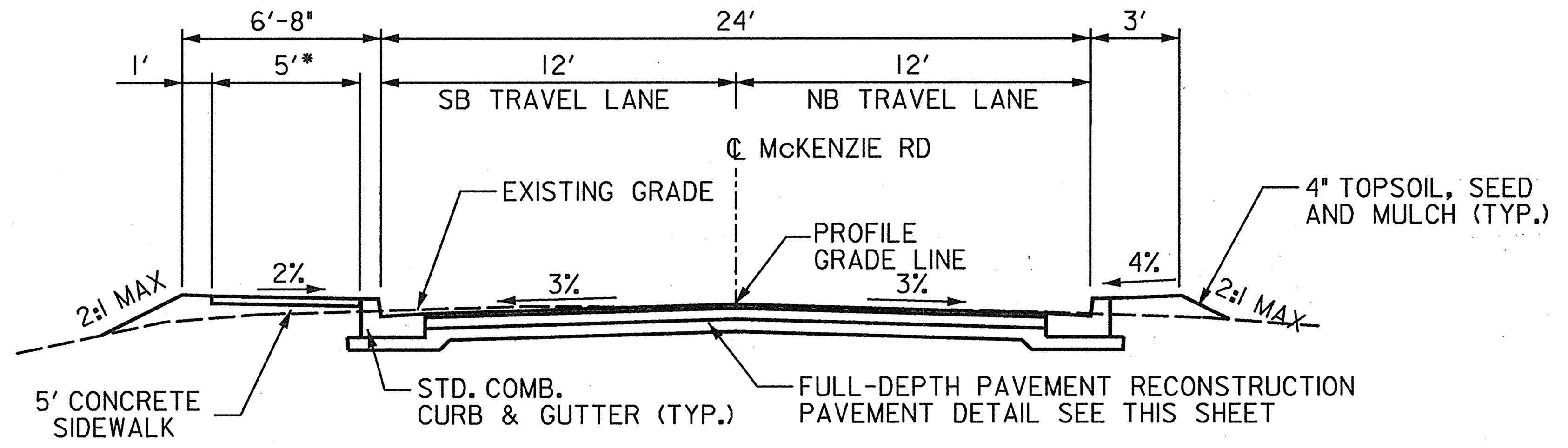
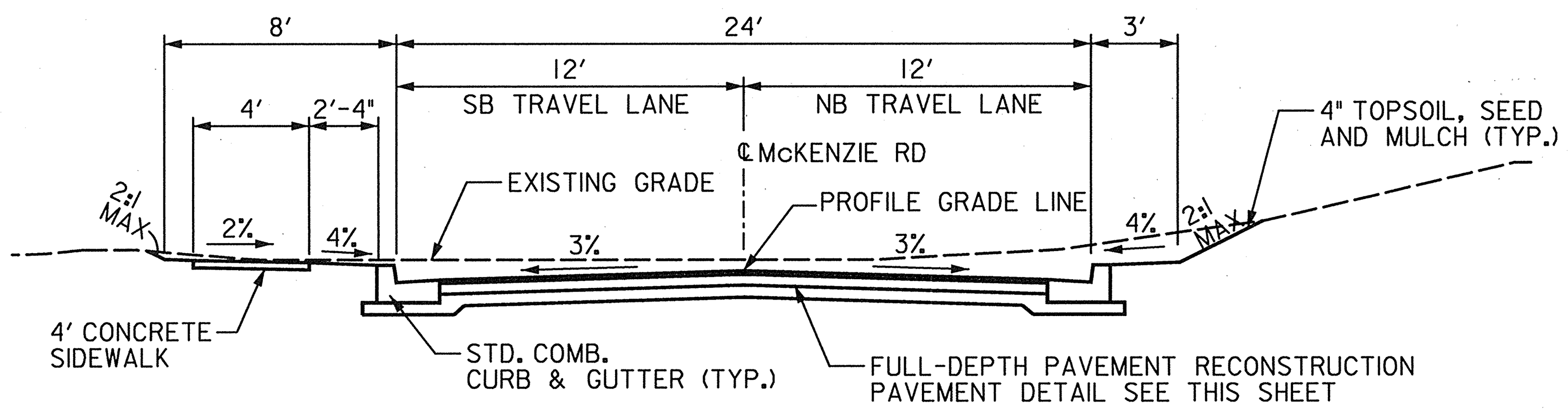
EP-01-13



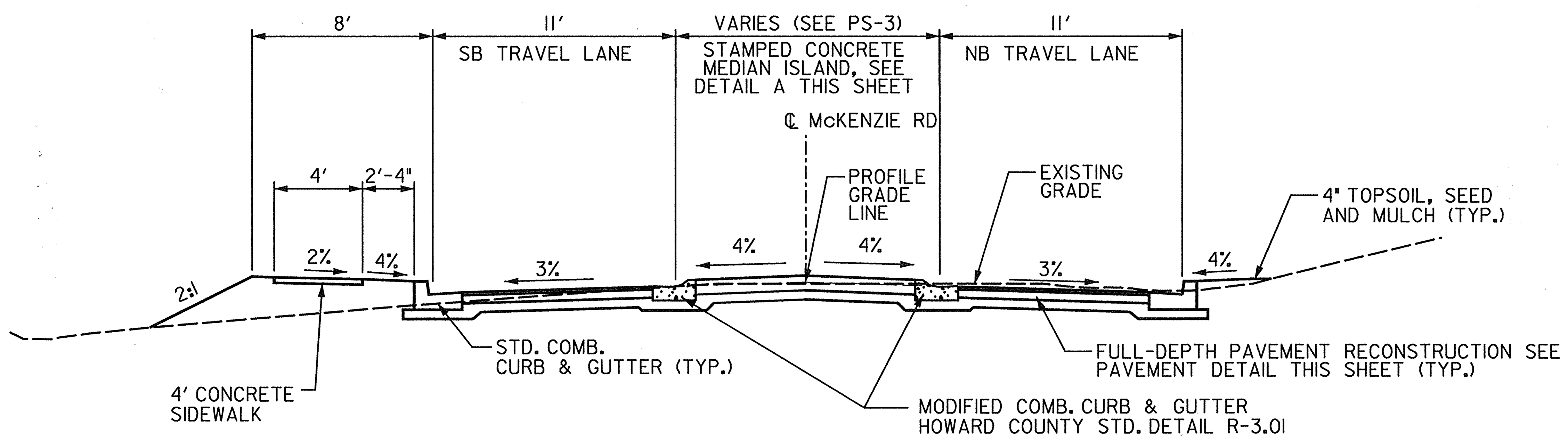
TYPICAL SECTION

STA. 100+85.00 TO 109+6.10
*STA. 109+6.10 TO 109+27.22:
TRANSITION FROM 5' TO 4' SIDEWALK AND
TRANSITION FROM 0' TO 2'-4" OPEN SPACE

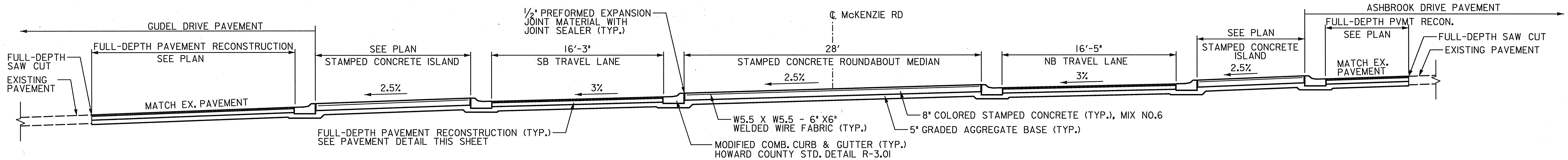


TYPICAL SECTION

STA. 109+27.22 TO 115+54.38
STA. 116+41.27 TO 120+56.02

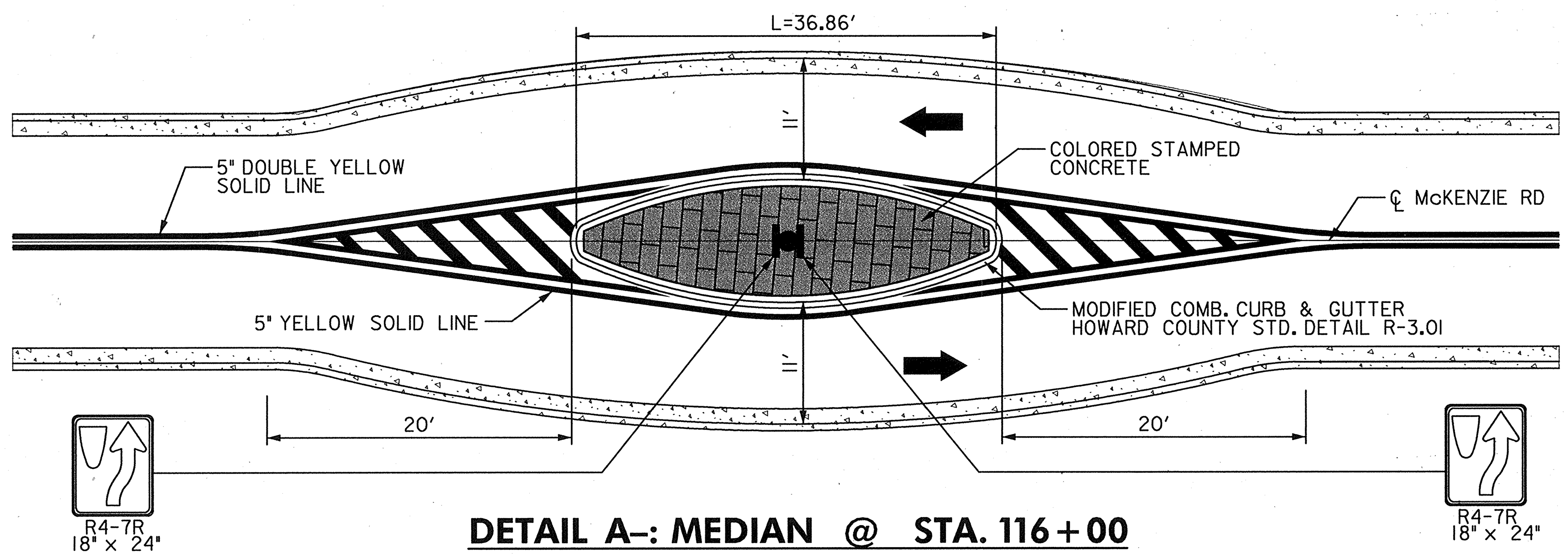


TYPICAL SECTION – MEDIAN ISLAND AT STA. 116+00



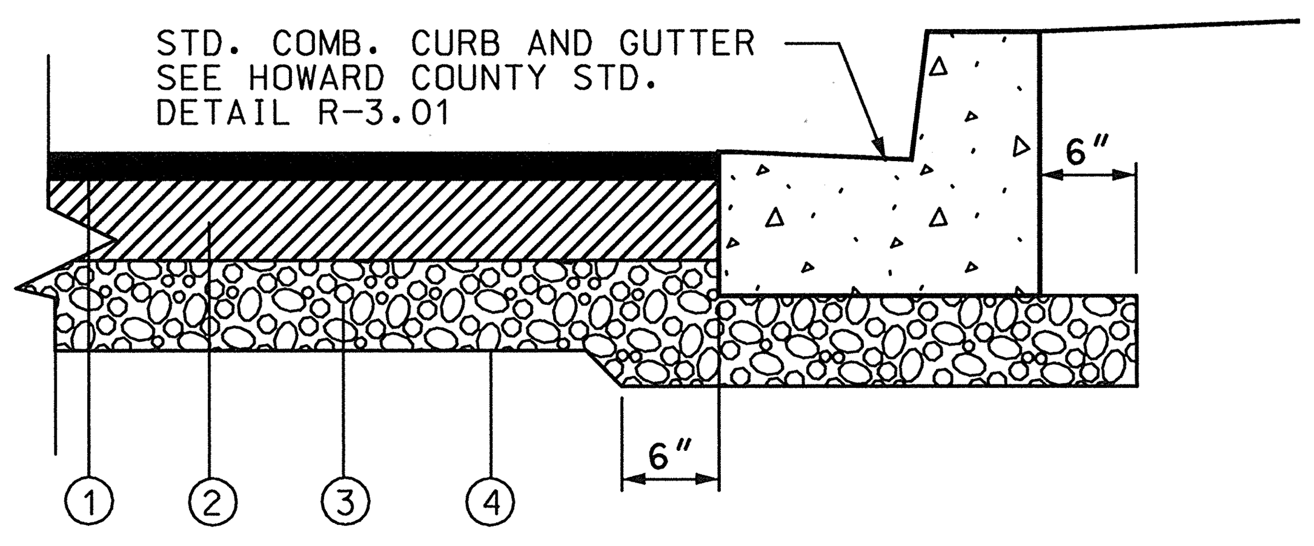
CROSS SECTION THROUGH ROUNDABOUT AT ASHBROOK INTERSECTION

STA. 121+30.85



DETAIL A–: MEDIAN @ STA. 116+00

NOT TO SCALE



PAVEMENT DETAILS

1. 1 1/2" HOT MIX ASPHALT SUPERPAVE 9.5 MM, PG 64-22, SURFACE COURSE
2. 4 1/2" HOT MIX ASPHALT SUPERPAVE 19 MM, PG 64-22, BASE COURSE
3. 5" GRADED AGGREGATE BASE
4. TOP OF SUBGRADE AND LIMIT OF CLASS I EXCAVATION

PAVEMENT DETAIL

NTS

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

9/24/03 DEPARTMENT OF PUBLIC WORKS DATE
9/22/03 CHIEF, BUREAU OF ENGINEERING DATE
9/22/03 CHIEF, TRANSPORTATION AND SPECIAL PROJECTS DIVISION DATE
9-24-03 CHIEF, BUREAU OF HIGHWAYS DATE

GRAPHIC SCALE 0 5 10
SCALE: 1"=5'-0"

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TYPICAL SECTIONS AND DETAILS SHEET

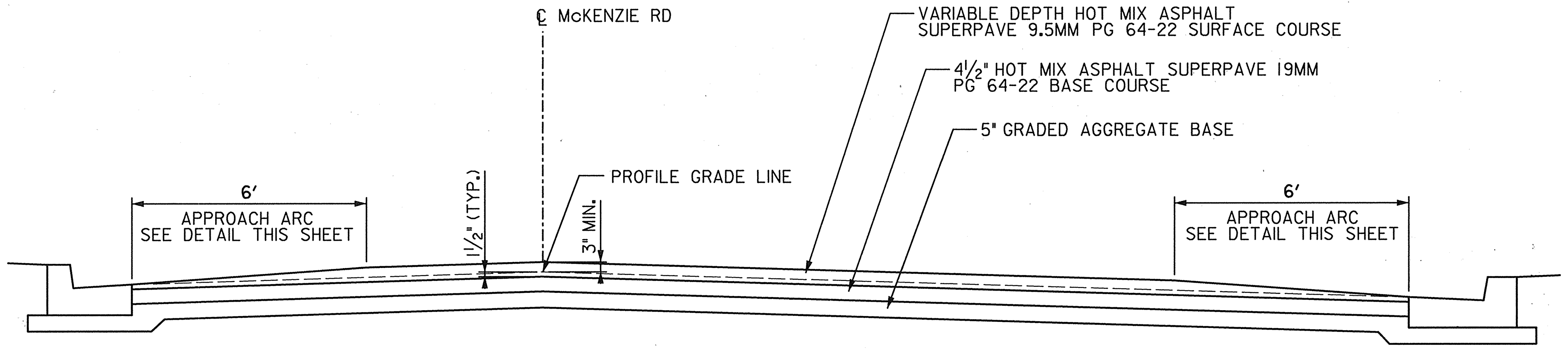
NO.:____ DATE: 9/03

McKENZIE ROAD ROADWAY AND STORMDRAIN IMPROVEMENTS

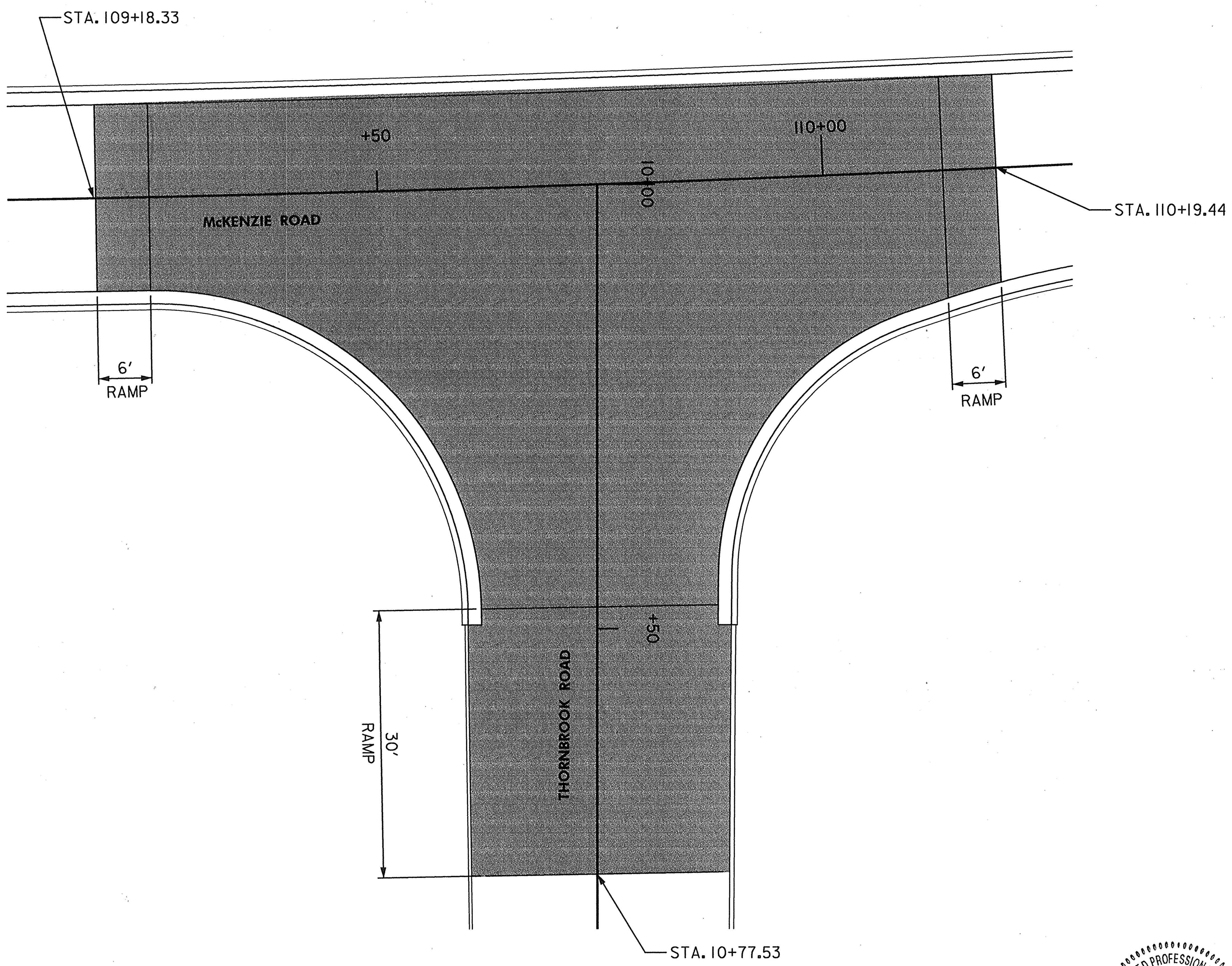
HOWARD COUNTY, MARYLAND
CAPITAL PROJECT NO. J-4164-10

SCALE AS SHOWN

SHEET 2 OF 24

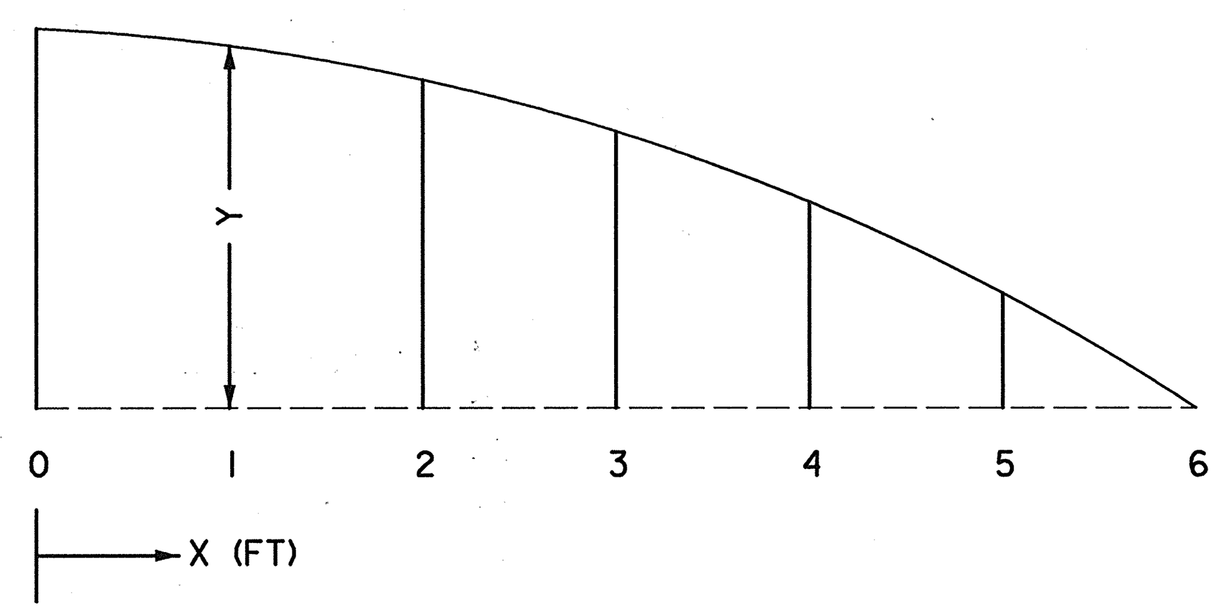


TYPICAL SECTION – SPEED TABLE



THREE LEGGED SPEED TABLE LOCATIONS (INTERSECTION OF McKENZIE ROAD AND THORNBROOK ROAD)

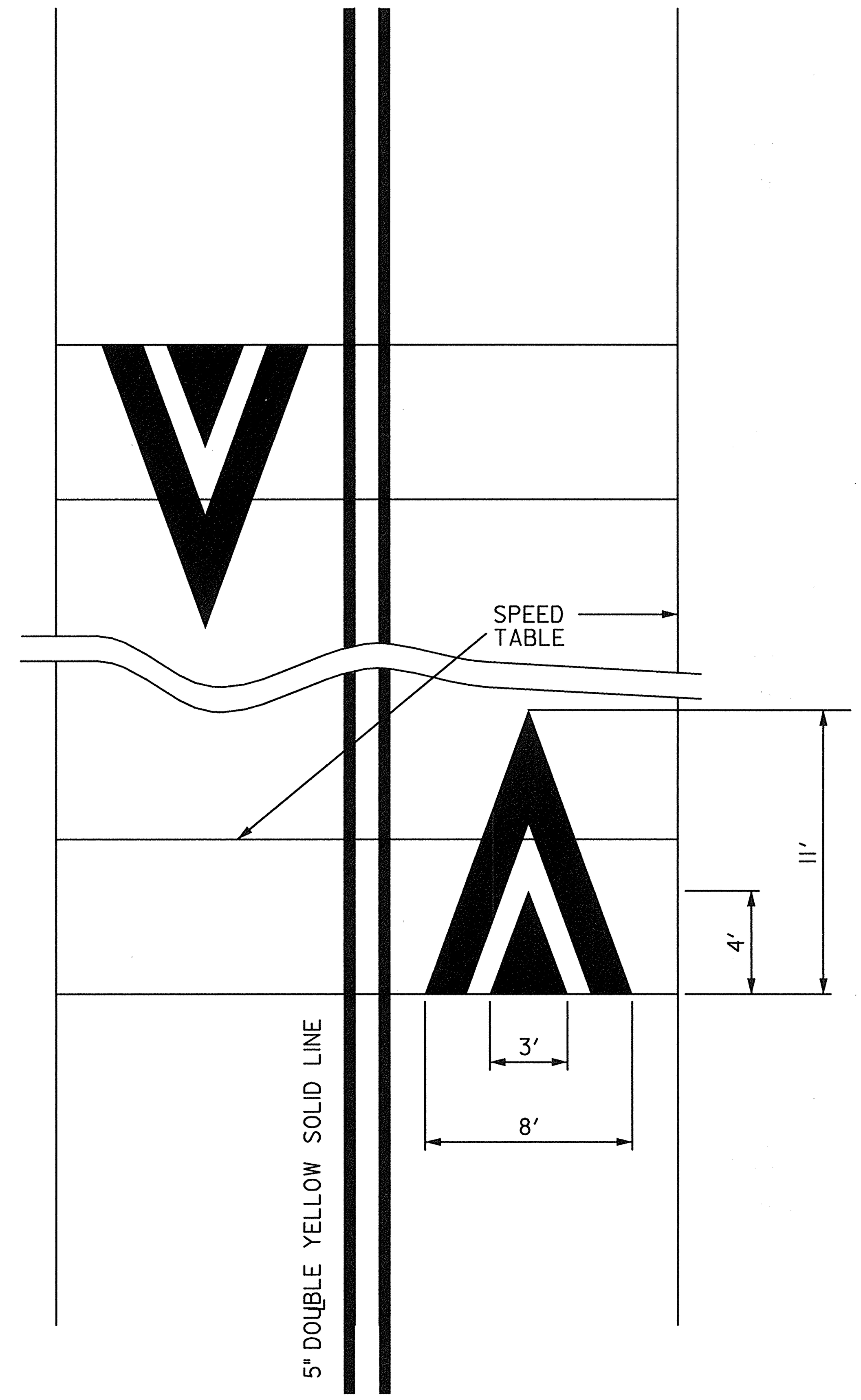
SCALE: NOT TO SCALE



APPROACH ARC DETAIL

NOT TO SCALE

X (FT)	Y (FT)	Y (IN)
0	0.25	3.0
1	0.243	2.92
2	0.222	2.64
3	0.188	2.25
4	0.139	1.67
5	0.077	0.92
6	0	0



TYPICAL MARKING DETAIL

NOT TO SCALE

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS 9/29/03 DATE
CHIEF, BUREAU OF ENGINEERING 9/22/03 DATE
CHIEF, TRANSPORTATION AND SPECIAL PROJECTS DIVISION 9/22/03 DATE
CHIEF, BUREAU OF HIGHWAYS 9-24-03 DATE

URS
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DES:				
DRN:				
CHK:				
DATE:	BY	NO.	REVISION	DATE

SPEED TABLE

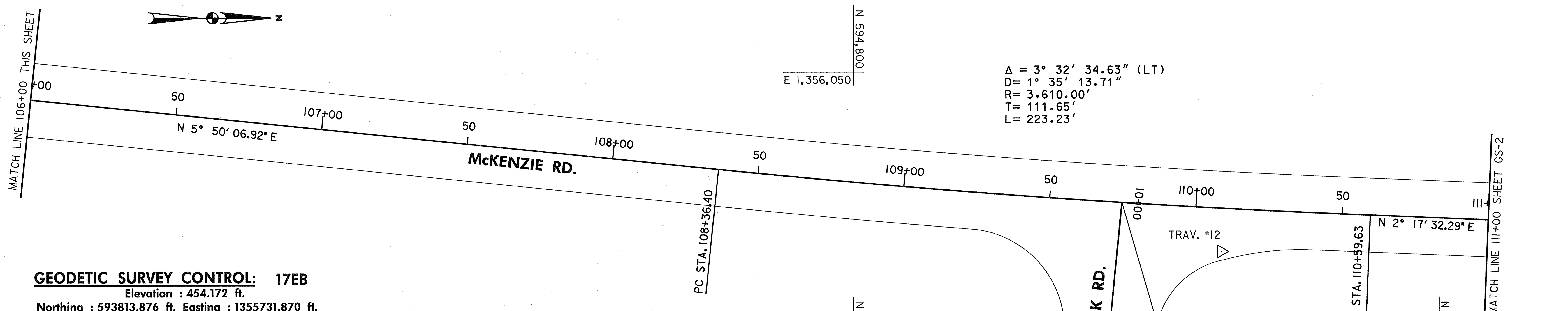
NO.: ____ DATE: 9/03

McKENZIE ROAD ROADWAY AND STORMDRAIN IMPROVEMENTS
HOWARD COUNTY, MARYLAND
CAPITAL PROJECT NO. J-4164-10

SCALE AS SHOWN

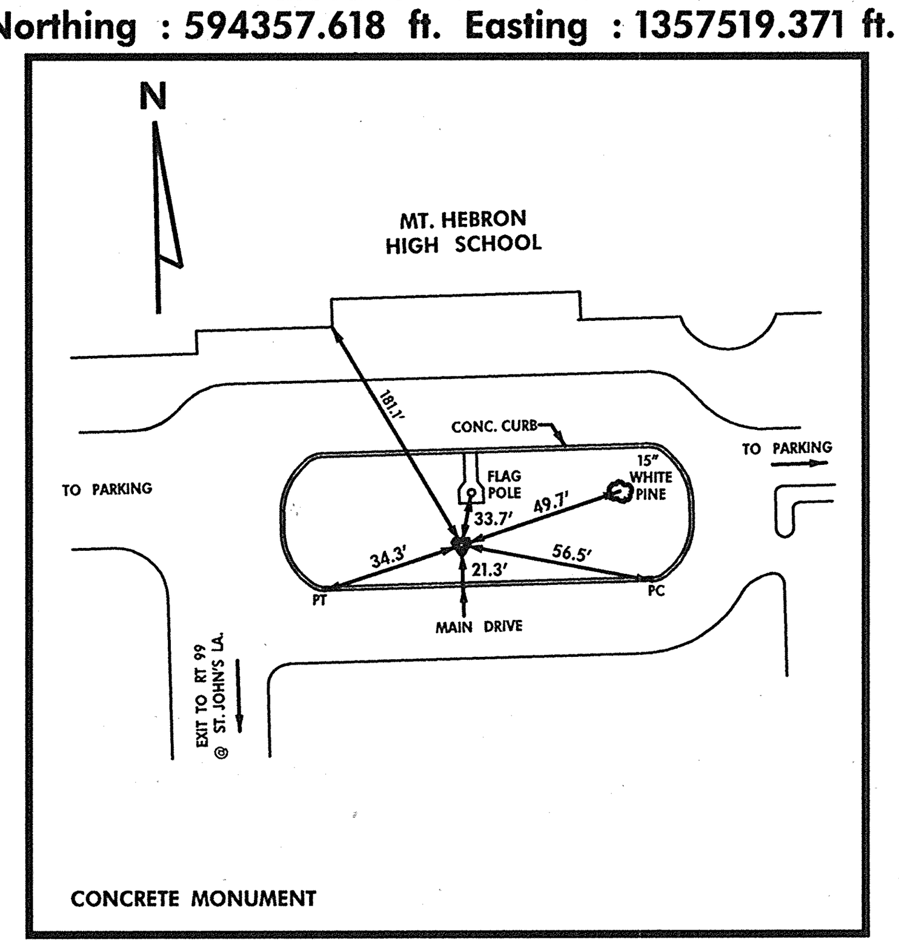
SHEET 3 OF 24

McKENZIE ROAD BASELINE CONTROL COORDINATES		
CONTROL POINT	NORTH	EAST
POT STA. 100+00.00	593,941.8730	1,356,169.7020
PC STA. 101+97.24	594,122.9760	1,356,091.5580
PI STA. 103+45.58	594,259.1769	1,356,032.7897
PT STA. 104+87.48	594,406.7470	1,356,047.8710
PC STA. 108+36.40	594,753.8530	1,356,083.3440
PI STA. 109+48.05	594,864.9244	1,356,094.6953
PT STA. 110+59.63	594,976.4850	1,356,099.1610



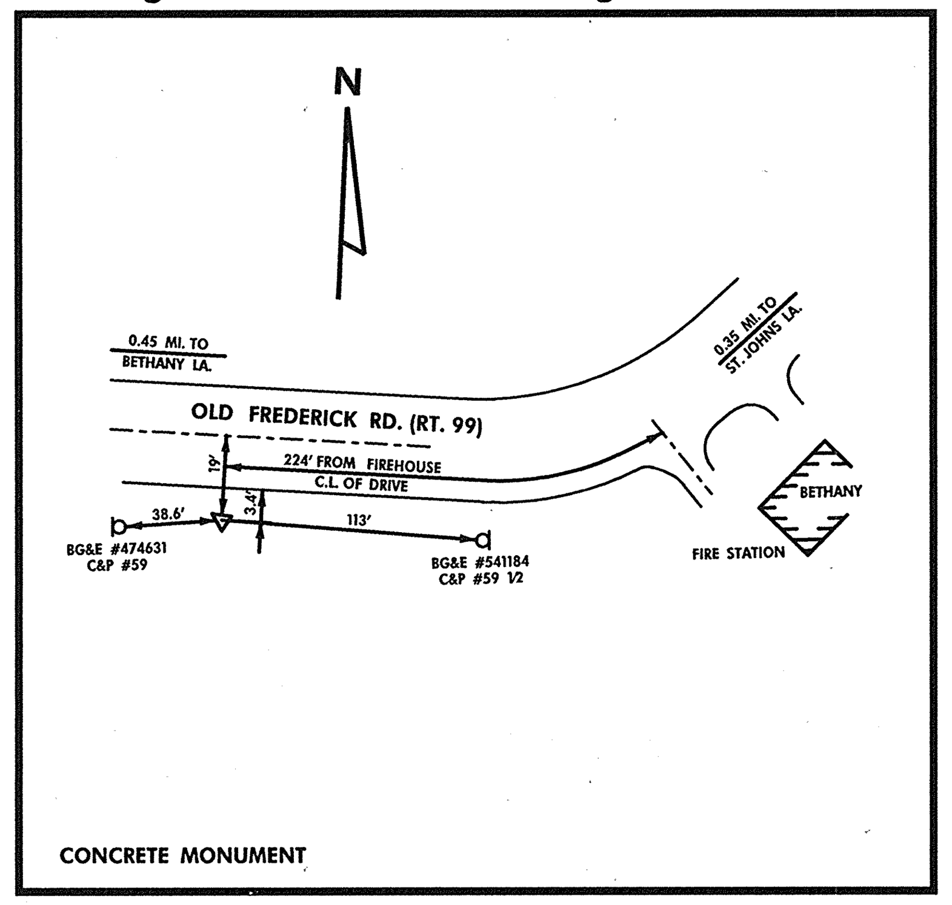
GEODETIC SURVEY CONTROL: 17EA

Elevation : 479.462 ft.
Northing : 594357.618 ft. Easting : 1357519.371 ft.



GEODETIC SURVEY CONTROL: 17EB

Elevation : 454.172 ft.
Northing : 593813.876 ft. Easting : 1355731.870 ft.



CONTROL POINTS		
CONTROL POINT	NORTH	EAST
TRAV 10	593,953.5717	1,356,120.9294
TRAV 11	594,445.9143	1,356,039.3153
TRAV 12	594,925.5961	1,356,111.5476
TRAV 13	595,317.6345	1,356,107.0275
TRAV 14	595,661.7865	1,356,146.0366
TRAV 15	596,041.1278	1,356,212.9679

GRAPHIC SCALE
0 20 40
SCALE: 1"=20'-0"

THORNBROOK ROAD BASELINE CONTROL COORDINATES		
CONTROL POINT	NORTH	EAST
POT STA. 10+00.00	594,891.6298	1,356,094.7628
POT STA. 11+12.80	594,880.6093	1,356,207.0269

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS — DATE 4/29/03
CHIEF, BUREAU OF ENGINEERING — DATE 9/22/03
CHIEF, TRANSPORTATION AND SPECIAL PROJECTS DIVISION — DATE 9/22/03
CHIEF, BUREAU OF HIGHWAYS — DATE 9-24-03

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HUNT VALLEY, MARYLAND

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DES:	BY	NO.	REVISION	DATE
DRN:				
CHK:				
DATE:				

GEOMETRIC LAYOUT SHEET GS-1

NO.:____ DATE: 9/03

McKENZIE ROAD ROADWAY AND STORMDRAIN IMPROVEMENTS

HOWARD COUNTY, MARYLAND
CAPITAL PROJECT NO. J-4164-10

SCALE AS SHOWN

SHEET 4 OF 24

MATCH LINE 111+00 SEE SHEET GS-1

E 1,356,050 N 595,200

PC STA. 111+34.42

00 50 112+00 50 113+00 50 114+00 50 115+00 50 116+00

N 2° 17' 32.19" E

Δ = 3° 59' 12.02" (RT)
D= 1° 15' 20.00"
R= 4,563.38'
T= 158.83'
L= 317.52'

E 1,356,150 N 595,200

TRAV. #13

McKENZIE RD.

E 1,356,050 N 595,400

PT STA. 114+52.81

N 6° 17' 02.55" E

MATCH LINE 116+50 THIS SHEET

MATCH LINE 116+50 THIS SHEET

0 50 117+00 50 118+00 50 119+00 50 120+00 50 121+00

TRAV. #14

N 6° 17' 02.55" E

McKENZIE RD.

E 1,356,200 N 595,800

E 1,356,200 N 595,900

PC STA. 120+97.20

TRAV. #15

9+00

LIMIT OF WORK
CONT. NO. J-4164-10
McKENZIE ROAD
STA. 122+45.28

PT STA. 122+03.77

PC STA. 121+62.54

Δ = 19° 57' 40.94" (LT)
D= 31° 49' 51.56"
R= 180.00'
T= 31.68'
L= 62.71'

10+00 50 PT STA. 121+59.91 122+00

Δ = 5° 54' 20.20" (LT)
D= 14° 19' 26.20"
R= 400.00'
T= 20.63'
L= 41.23'

POT STA. 122+45.28

N 13° 40' 37.41" W

ASHBROOK DR.

+50

11+00

E 1,356,250 N 596,150

STA. 10+00 ASHBROOK DR. =
STA. 121+30.85 McKENZIE RD.

McKENZIE ROAD BASELINE CONTROL COORDINATES		
CONTROL POINT	NORTH	EAST
PC STA. 111+34.42	595,051.2220	1,356,102.1530
PI STA. 112+93.68	585,210.3537	1,356,108.5229
PT STA. 114+52.81	595,368.6560	1,356,125.9550
PC STA. 120+97.20	596,009.1710	1,356,196.4890
PI STA. 121+28.87	596,040.6570	1,356,199.9561
PT STA. 121+59.91	596,071.4350	1,356,192.4660
PC STA. 121+62.54	596,073.9910	1,356,191.8440
PI STA. 121+83.17	596,094.0387	1,356,186.9654
PT STA. 122+03.77	596,113.4780	1,356,180.0500
POT STA. 122+45.28	595,579.7360	1,356,255.1980

ASHBROOK DR. BASELINE CONTROL COORDINATES		
CONTROL POINT	NORTH	EAST
POT STA. 9+00.00	596,052.3320	1,356,097.4920
POT STA. 11+16.26	596,031.6440	1,356,312.7630

REGISTERED PROFESSIONAL ENGINEER 11019 JOHN M. PANNELL STATE OF MARYLAND

9/18/02

GRAPHIC SCALE
0 20 40
SCALE: 1"=20'-0"

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS — DATE 9/29/03

CHIEF, BUREAU OF ENGINEERING — DATE 9/22/03

CHIEF, TRANSPORTATION AND SPECIAL PROJECTS DIVISION — DATE 9/22/03

CHIEF, BUREAU OF HIGHWAYS — DATE 9-24-03

STATE OF MARYLAND DAVID THOMAS THOMPSON 21616 REGISTERED PROFESSIONAL ENGINEER 9/19/03

URS
HUNT VALLEY, MARYLAND

RJM ENGINEERING, INC.
CONSULTING ENGINEERS
COLUMBIA, MARYLAND
TELEX(410)730-1001 FAX(410)730-5403

DES:
DRN:
CHK:
DATE:

BY	NO.	REVISION	DATE

GEOMETRIC LAYOUT
SHEET GS-2

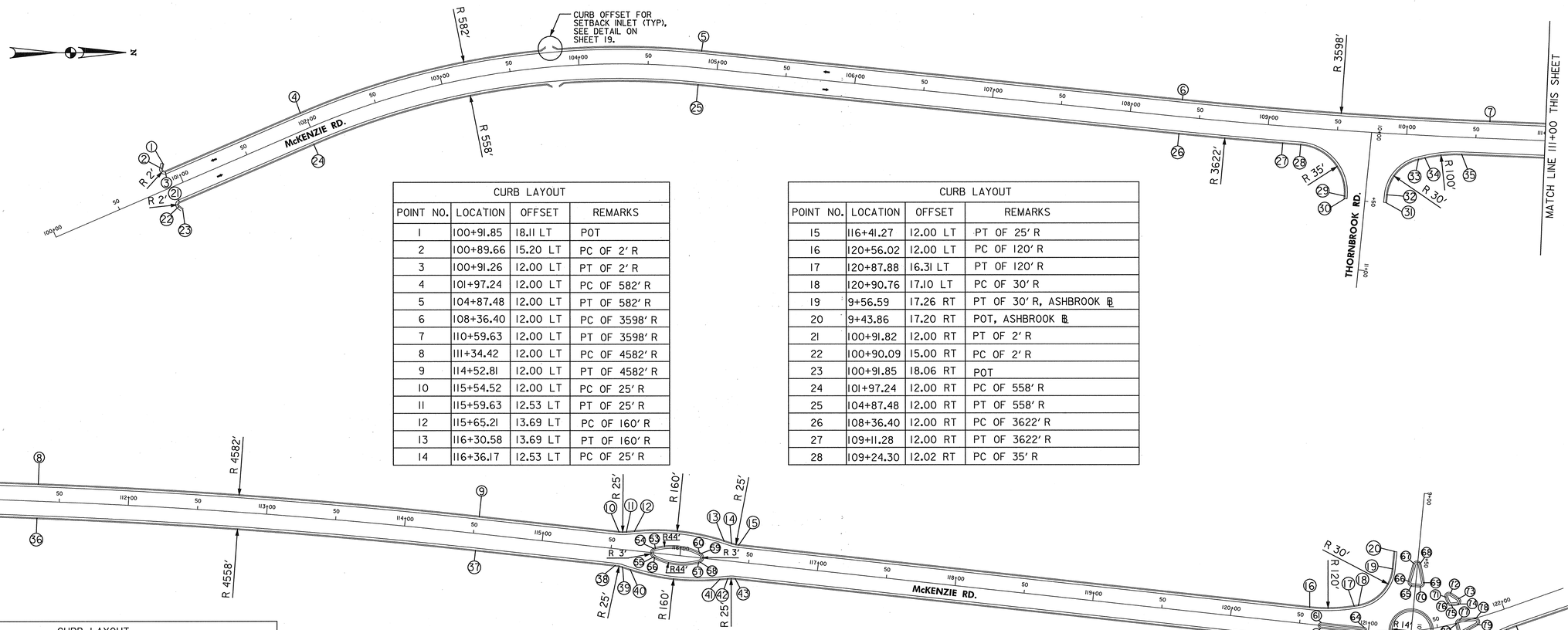
NO.:____ DATE: 9/03

McKENZIE ROAD ROADWAY AND STORMDRAIN IMPROVEMENTS

HOWARD COUNTY, MARYLAND
CAPITAL PROJECT NO. J-4164-10

SCALE AS SHOWN

SHEET 5 OF 24



CURB LAYOUT			
POINT NO.	LOCATION	OFFSET	REMARKS
1	100+91.85	18.11 LT	POT
2	100+89.66	15.20 LT	PC OF 2' R
3	100+91.26	12.00 LT	PT OF 2' R
4	101+97.24	12.00 LT	PC OF 582' R
5	104+87.48	12.00 LT	PT OF 582' R
6	108+36.40	12.00 LT	PC OF 3598' R
7	110+59.63	12.00 LT	PT OF 3598' R
8	111+34.42	12.00 LT	PC OF 4582' R
9	114+52.81	12.00 LT	PT OF 4582' R
10	115+54.52	12.00 LT	PC OF 25' R
11	115+59.63	12.53 LT	PT OF 25' R
12	115+65.21	13.69 LT	PC OF 160' R
13	116+30.58	13.69 LT	PT OF 160' R
14	116+36.17	12.53 LT	PC OF 25' R

CURB LAYOUT			
POINT NO.	LOCATION	OFFSET	REMARKS
15	116+41.27	12.00 LT	PT OF 25' R
16	120+56.02	12.00 LT	PC OF 120' R
17	120+87.88	16.31 LT	PT OF 120' R
18	120+90.76	17.10 LT	PC OF 30' R
19	9+56.59	17.26 RT	PT OF 30' R, ASHBROOK ℄
20	9+43.86	17.20 RT	POT, ASHBROOK ℄
21	100+91.82	12.00 RT	PT OF 2' R
22	100+90.09	15.00 RT	PC OF 2' R
23	100+91.85	18.06 RT	POT
24	101+97.24	12.00 RT	PC OF 558' R
25	104+87.48	12.00 RT	PT OF 558' R
26	108+36.40	12.00 RT	PC OF 3622' R
27	109+11.28	12.00 RT	PT OF 3622' R
28	109+24.30	12.02 RT	PC OF 35' R

CURB LAYOUT			
POINT NO.	LOCATION	OFFSET	REMARKS
29	10+47.81	14.51 RT	PT OF 35' R, THORNBROOK RD ℄
30	10+49.57	14.51 RT	POT, THORNBROOK RD ℄
31	10+49.57	15.05 LT	POT, THORNBROOK RD ℄
32	10+43.91	15.09 LT	PC OF 30' R, THORNBROOK RD ℄
33	110+9.45	17.12 RT	PT OF 30' R
34	110+13.90	15.83 RT	PC OF 100' R
35	110+40.13	12.05 RT	PT OF 100' R
36	111+34.42	12.00 RT	PC OF 4558' R
37	114+52.81	12.00 RT	PT OF 4558' R
38	115+54.52	12.00 RT	PC OF 25' R
39	115+59.63	12.53 RT	PT OF 25' R
40	115+65.21	13.69 RT	PC OF 160' R
41	116+30.58	13.69 RT	PT OF 160' R
42	116+36.17	12.53 RT	PC OF 25' R
43	116+41.27	12.00 RT	PT OF 25' R
44	120+75.44	12.00 RT	PC OF 40' R
45	10+53.62	15.97 RT	PT OF 40' R, ASHBROOK DR ℄
46	10+54.38	15.96 RT	POT, ASHBROOK DR ℄
47	10+54.38	14.07 LT	POT, ASHBROOK DR ℄
48	10+52.92	14.05 LT	PC OF 45' R, ASHBROOK DR ℄
49	121+58.25	22.97 RT	PT OF 45' R
50	121+88.03	15.60 RT	PC OF 100' R

CURB LAYOUT			
POINT NO.	LOCATION	OFFSET	REMARKS
51	122+4.11	14.07 RT	PT OF 100' R
52	122+45.28	14.54 RT	POT
53	115+81.91	3.00 LT	PT OF 44' R
54	115+81.38	2.79 LT	PC OF 3' R
55	115+81.38	2.79 LT	PT OF 3' R
56	115+81.91	3.00 RT	PC OF 44' R
57	116+13.89	3.00 RT	PT OF 44' R
58	116+14.42	2.79 RT	PC OF 3' R
59	116+14.42	2.79 RT	PT OF 3' R
60	116+13.89	3.00 RT	PC OF 44' R
61	120+65.64	2.00 LT	PC OF 2' R
62	120+65.64	2.00 RT	PT OF 2' R
63	120+96.69	2.00 RT	PC OF 2' R
64	120+96.69	2.00 LT	PT OF 2' R
65	9+66.88	2.65 RT	PC OF 2' R, ASHBROOK DR ℄
66	9+64.53	4.62 RT	PT OF 2' R, ASHBROOK DR ℄
67	9+51.61	2.32 RT	PC OF 2' R, ASHBROOK DR ℄
68	9+51.41	1.57 LT	PT OF 2' R, ASHBROOK DR ℄
69	9+64.32	5.28 LT	PC OF 2' R, ASHBROOK DR ℄
70	9+66.88	3.36 LT	PT OF 2' R, ASHBROOK DR ℄
71	121+61.35	20.06 LT	PC OF 2' R

CURB LAYOUT			
POINT NO.	LOCATION	OFFSET	REMARKS
72	121+64.91	21.74 LT	PT OF 2' R
73	121+69.76	16.78 LT	PC OF 2' R
74	121+67.88	13.45 LT	PT OF 2' R
75	121+63.73	14.09 LT	PC OF 2' R
76	121+62.02	15.77 LT	PT OF 2' R
77	121+66.60	1.49 LT	PC OF 2' R
78	121+78.06	0.54 RT	PT OF 2' R
79	121+78.12	4.46 RT	PC OF 2' R
80	121+66.74	7.21 RT	PT OF 2' R
81	121+64.28	5.27 RT	PC OF 2' R
82	121+64.28	0.48 RT	PT OF 2' R
83	10+33.26	0.49 RT	PC OF 2' R, ASHBROOK DR ℄
84	10+35.41	1.51 LT	PT OF 2' R, ASHBROOK DR ℄
85	10+44.16	0.81 LT	PC OF 2' R, ASHBROOK DR ℄
86	10+44.38	3.15 RT	PT OF 2' R, ASHBROOK DR ℄
87	10+35.63	4.83 RT	PC OF 2' R, ASHBROOK DR ℄
88	10+33.26	2.87 RT	PT OF 2' R, ASHBROOK DR ℄

REGISTERED PROFESSIONAL ENGINEER 11019 JAMES M. PANNELL STATE OF MARYLAND
James M. Pannell 9/18/03

GRAPHIC SCALE 0 40 80
SCALE: 1"=40'-0"

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS — DATE 9/29/03
CHIEF, BUREAU OF ENGINEERING — DATE 9/22/03
CHIEF, TRANSPORTATION AND SPECIAL PROJECTS DIVISION — DATE 9/22/03
CHIEF, BUREAU OF HIGHWAYS — DATE 9-24-03

STATE OF MARYLAND DAVID THOMAS TIDDARD 21711 REGISTERED PROFESSIONAL ENGINEER

URS
HUNT VALLEY, MARYLAND

RJM ENGINEERING, INC.
CONSULTING ENGINEERS
COLUMBIA, MARYLAND
TELEx(410)730-1001 FAX(410)730-5403

DES:
DRN:
CHK:
DATE:

BY	NO.	REVISION	DATE

CURB GEOMETRY SHEET

NO.:____ DATE: 9/03

McKENZIE ROAD ROADWAY AND STORMDRAIN IMPROVEMENTS

HOWARD COUNTY, MARYLAND
CAPITAL PROJECT NO. J-4164-10

SCALE AS SHOWN

SHEET 6 OF 24

SOUTH FILES

RELOCATE EX. MAILBOX (SEE DETAIL A THIS SHEET)	
STATION	OFFSET
103+26	15.83' LT
104+70	13.02' LT
105+12	11.72' RT

RECONSTRUCT CONCRETE DRIVEWAY	
STATION	QUANTITY (SY)
102+95.67 LT	35.23
104+89.34 LT	18.18

RECONSTRUCT ASPHALT DRIVEWAY	
STATION	QUANTITY (SY)
102+79.12 RT	27.73
103+16.20 RT	25.52
104+39.69 RT	22.16
104+98.17 RT	9.42

RELOCATE EXISTING SIGN	
STATION	OFFSET
103+20.16	17.79 LT
104+66.84	13.59 LT
104+75.70	12.34 RT

ROTATE SANITARY MANHOLE	
STATION	OFFSET
105+64	12' LT

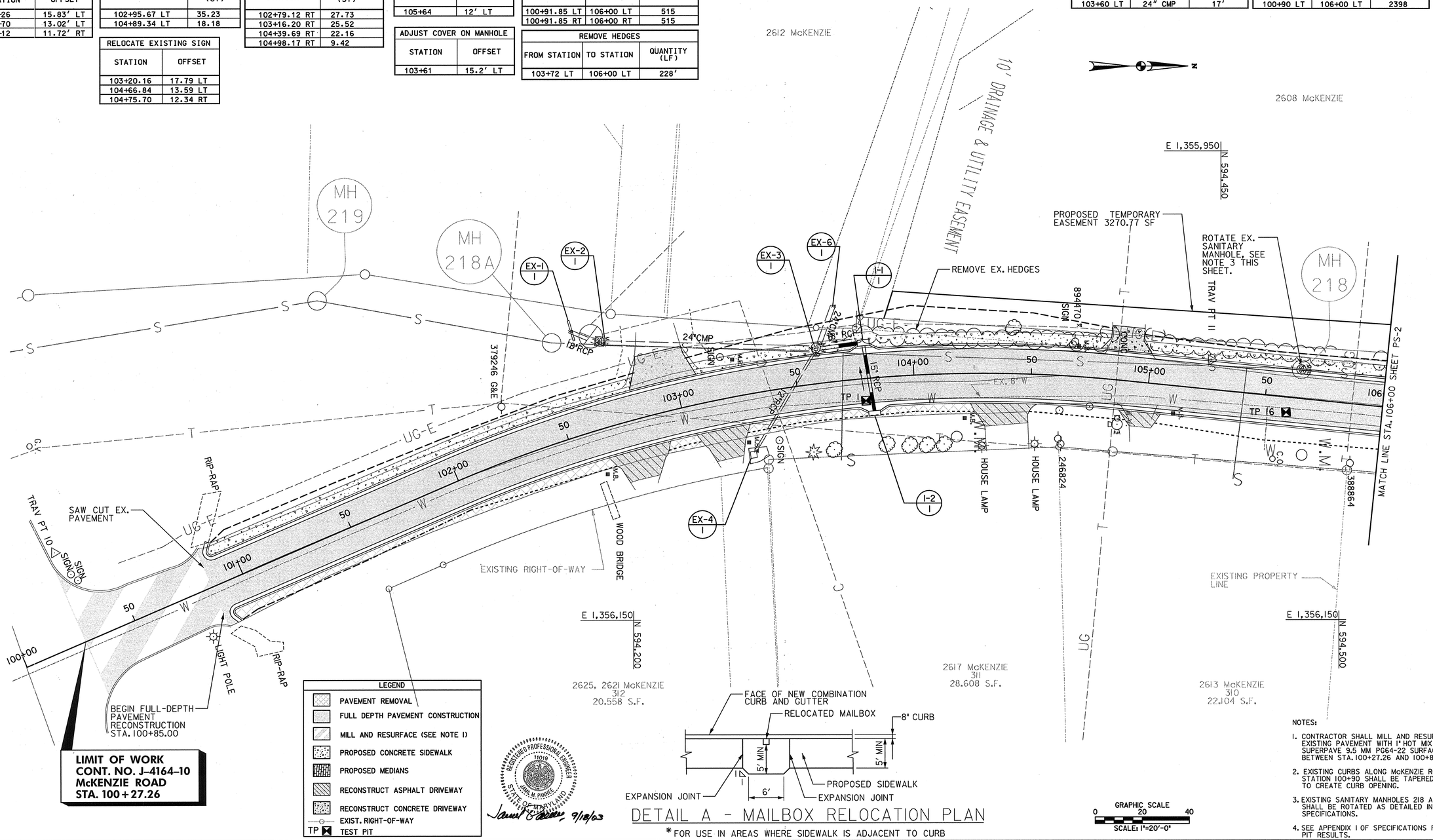
ADJUST COVER ON MANHOLE	
STATION	OFFSET
103+61	15.2' LT

CONSTRUCT STD. COMB. CURB AND GUTTER		
FROM STATION	TO STATION	QUANTITY (LF)
100+91.85 LT	106+00 LT	515
100+91.85 RT	106+00 RT	515

REMOVE HEDGES		
FROM STATION	TO STATION	QUANTITY (LF)
103+72 LT	106+00 LT	228'

CLEAN EXISTING PIPE CULVERT		
STATION	SIZE/TYPE	QUANTITY (LF)
103+60 LT	24" CMP	17'

CONSTRUCT 4" CONCRETE SIDEWALK		
FROM STATION	TO STATION	QUANTITY (SF)
100+90 LT	106+00 LT	2398



LIMIT OF WORK
CONT. NO. J-4164-10
McKENZIE ROAD
STA. 100+27.26

BEGIN FULL-DEPTH PAVEMENT RECONSTRUCTION STA. 100+85.00

LEGEND	
	PAVEMENT REMOVAL
	FULL DEPTH PAVEMENT CONSTRUCTION
	MILL AND RESURFACE (SEE NOTE 1)
	PROPOSED CONCRETE SIDEWALK
	PROPOSED MEDIANS
	RECONSTRUCT ASPHALT DRIVEWAY
	RECONSTRUCT CONCRETE DRIVEWAY
	EXIST. RIGHT-OF-WAY
TP	TEST PIT

DETAIL A - MAILBOX RELOCATION PLAN

*FOR USE IN AREAS WHERE SIDEWALK IS ADJACENT TO CURB

GRAPHIC SCALE
0 20 40
SCALE: 1"=20'-0"

NOTES:

1. CONTRACTOR SHALL MILL AND RESURFACE 1" EXISTING PAVEMENT WITH 1" HOT MIX ASPHALT SUPERPAVE 9.5 MM PG64-22 SURFACE COURSE BETWEEN STA. 100+27.26 AND 100+85.00.
2. EXISTING CURBS ALONG McKENZIE ROAD AT STATION 100+90 SHALL BE TAPERED DOWN TO CREATE CURB OPENING.
3. EXISTING SANITARY MANHOLES 218 AND 216 SHALL BE ROTATED AS DETAILED IN THE SPECIFICATIONS.
4. SEE APPENDIX 1 OF SPECIFICATIONS FOR TEST PIT RESULTS.

REGISTERED PROFESSIONAL ENGINEER 11019 JAMES M. PANNONE STATE OF MARYLAND
9/18/03

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS — DATE 9/22/03
CHIEF, BUREAU OF ENGINEERING — DATE 9/22/03
CHIEF, TRANSPORTATION AND SPECIAL PROJECTS DIVISION — DATE 9/22/03
CHIEF, BUREAU OF HIGHWAYS — DATE 9-24-03

STATE OF MARYLAND DAVID THOMAS MORRIS 22107 REGISTERED PROFESSIONAL ENGINEER
9/19/03

URS
HUNT VALLEY, MARYLAND

RJM ENGINEERING, INC.
CONSULTING ENGINEERS
COLUMBIA, MARYLAND
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DES:				
DRN:				
CHK:				
DATE:	BY	NO.	REVISION	DATE

PLAN SHEET PS-1

NO.:____ DATE: 9/03

McKENZIE ROAD ROADWAY AND STORMDRAIN IMPROVEMENTS

HOWARD COUNTY, MARYLAND
CAPITAL PROJECT NO. J-4164-10

SCALE AS SHOWN

SHEET 7 OF 24

&DATE*
&FILE*

RELOCATE EX. MAILBOX	
STATION	OFFSET
106+35	10.50' RT
107+39	11.57' RT
108+70	12.38' LT
109+12	14.17' LT
110+21	12.22' RT
110+23	12.68' LT

CONSTRUCT CONCRETE DRIVEWAY	
STATION	QUANTITY (SY)
107+46 LT	18.93
108+54 LT	25.97
109+35 LT	14.90
110+53 LT	17.35

CONSTRUCT ASPHALT DRIVEWAY	
STATION	QUANTITY (SY)
106+59 RT	12.58
107+57 RT	15.73

CONSTRUCT STD. COMB. CURB AND GUTTER		
FROM STATION	TO STATION	QUANTITY (LF)
106+00 LT	111+00 LT	500.0
106+00 RT	109+59 RT	381.0
109+88 RT	111+00 RT	134.0

ADJUST COVER ON MANHOLE	
STATION	OFFSET
109+67	16.82' LT

REMOVE FENCE			
FROM STATION	TO STATION	OFFSET	QUANTITY (LF)
107+51 LT	107+56 LT	193' LT	93

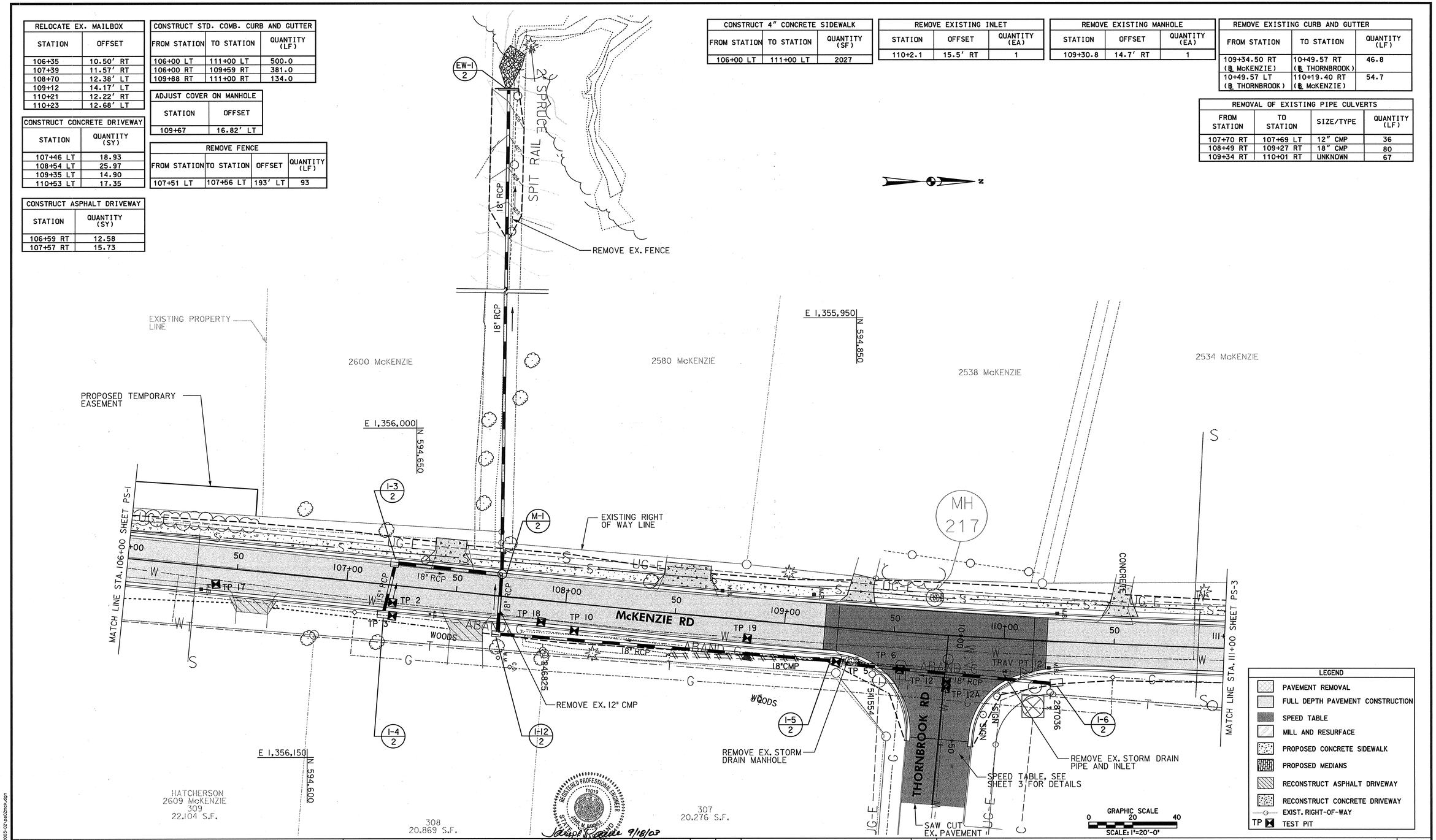
CONSTRUCT 4" CONCRETE SIDEWALK		
FROM STATION	TO STATION	QUANTITY (SF)
106+00 LT	111+00 LT	2027

REMOVE EXISTING INLET		
STATION	OFFSET	QUANTITY (EA)
110+2.1	15.5' RT	1

REMOVE EXISTING MANHOLE		
STATION	OFFSET	QUANTITY (EA)
109+30.8	14.7' RT	1

REMOVE EXISTING CURB AND GUTTER		
FROM STATION	TO STATION	QUANTITY (LF)
109+34.50 RT (℄ McKENZIE)	10+49.57 RT (℄ THORNBROOK)	46.8
10+49.57 LT (℄ THORNBROOK)	110+19.40 RT (℄ McKENZIE)	54.7

REMOVAL OF EXISTING PIPE CULVERTS			
FROM STATION	TO STATION	SIZE/TYPE	QUANTITY (LF)
107+70 RT	107+69 LT	12" CMP	36
108+49 RT	109+27 RT	18" CMP	80
109+34 RT	110+01 RT	UNKNOWN	67



LEGEND

- PAVEMENT REMOVAL
- FULL DEPTH PAVEMENT CONSTRUCTION
- SPEED TABLE
- MILL AND RESURFACE
- PROPOSED CONCRETE SIDEWALK
- PROPOSED MEDIANS
- RECONSTRUCT ASPHALT DRIVEWAY
- RECONSTRUCT CONCRETE DRIVEWAY
- EXIST. RIGHT-OF-WAY
- TP TEST PIT

REGISTERED PROFESSIONAL ENGINEER 11019 JOHN M. RAMEE STATE OF MARYLAND 9/18/03

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS — DATE 9/22/03
CHIEF, BUREAU OF ENGINEERING — DATE 9/22/03
CHIEF, TRANSPORTATION AND SPECIAL PROJECTS DIVISION — DATE
CHIEF, BUREAU OF HIGHWAYS — DATE 9-24-03

STATE OF MARYLAND DAVID THOMAS HOUSTON 21435 REGISTERED PROFESSIONAL ENGINEER

URS
HUNT VALLEY, MARYLAND

RJM ENGINEERING, INC.
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COLUMBIA, MARYLAND
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DES:					
DRN:					
CHK:					
DATE:	BY	NO.	REVISION	DATE	

PLAN SHEET PS-2

NO.:____ DATE: 9/03

McKENZIE ROAD ROADWAY AND STORMDRAIN IMPROVEMENTS

HOWARD COUNTY, MARYLAND
CAPITAL PROJECT NO. J-4164-10

SCALE AS SHOWN

SHEET 8 OF 24

09/3/03
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RELOCATE EX. MAILBOX	
STATION	OFFSET
111+51.0	10.8′ LT
111+84.5	9.85′ LT
112+46.5	12.5′ LT
113+79.2	17.4′ LT
114+29.0	17.0′ LT
115+19.1	19.0′ LT
115+52.6	17.9′ LT
112+48.9	11.7′ RT
113+9.2	12.0′ RT
116+35.1	12.6′ RT

ADJUST COVER ON MANHOLE	
STATION	OFFSET
111+8.4	17′ LT

ROTATE SANITORY MANHOLE	
STATION	OFFSET
113+54	12′ LT

CONSTRUCT STD. COMB. CURB & GUTTER		
FROM STATION	TO STATION	QUANTITY (LF)
111+00 RT	117+00 RT	601
111+00 LT	117+00 LT	601

CONSTRUCT 4″ CONCRETE SIDEWALK		
FROM STATION	TO STATION	QUANTITY (SF)
111+00 LT	117+00 LT	2062

CONSTRUCT ASPHALT DRIVEWAY	
STATION	QUANTITY (SY)
112+31 RT	20.0
113+27 RT	10.0
114+23 RT	16.8
115+11 RT	18.6
116+51 RT	11.6

CONSTRUCT CONCRETE DRIVEWAY	
STATION	QUANTITY (SY)
111+69.7 LT	16.8
112+58.8 LT	18.7
113+87.4 LT	19.6
114+36.8 LT	20.8
115+30.6 LT	24.1
115+62.4 LT	18.9

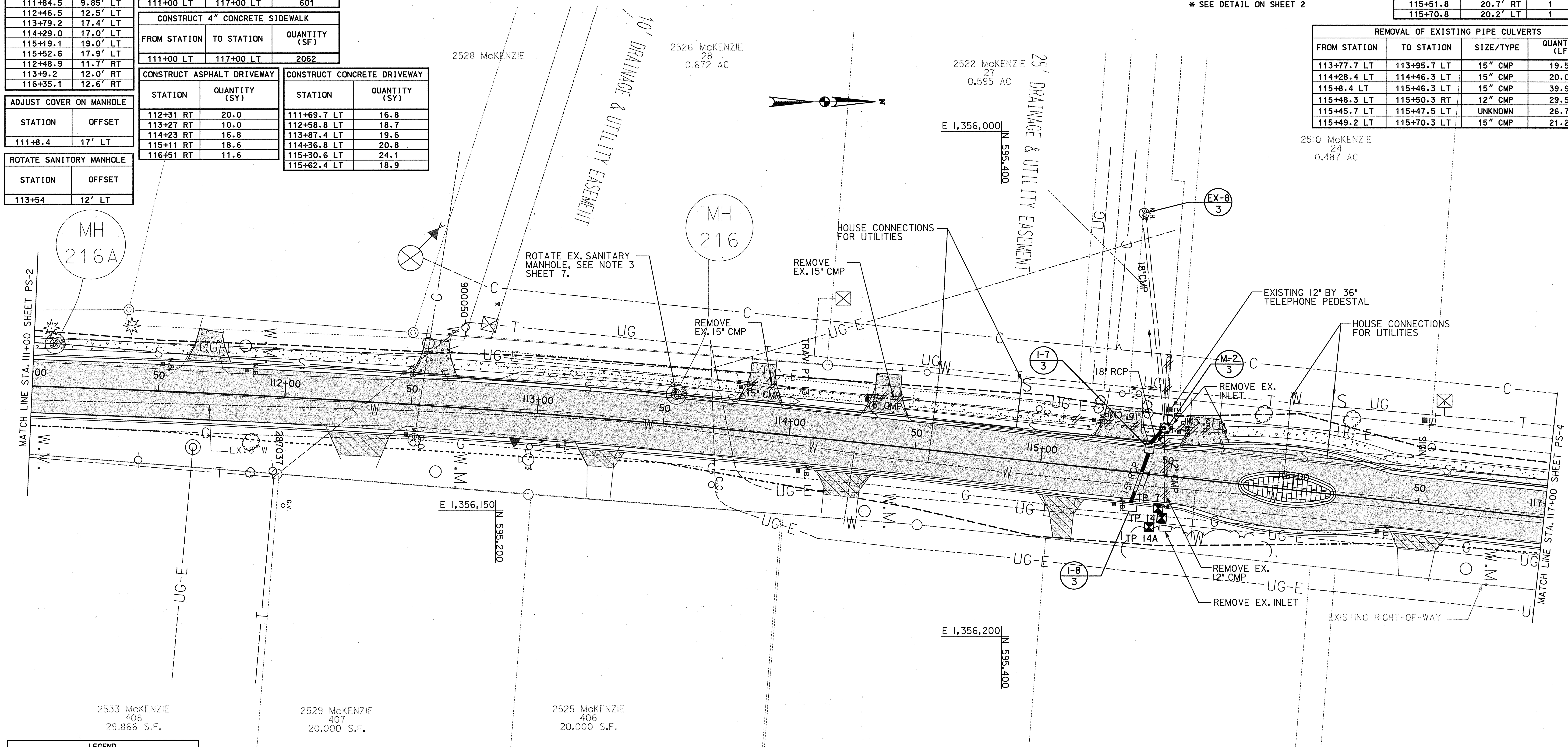
CONSTRUCT MODIFIED COMB. CURB & GUTTER		
FROM STATION	TO STATION	QUANTITY (LF)
115+79.5	116+16.3	82.1

CONSTRUCT COLORED STAMPED CONCRETE *		
FROM STATION	TO STATION	QUANTITY (SF)
115+80.5	116+15.3	256.0

* SEE DETAIL ON SHEET 2

REMOVAL OF EXISTING INLET		
STATION	OFFSET	QUANTITY (EA)
115+48.0	18.7′ LT	1
115+51.8	20.7′ RT	1
115+70.8	20.2′ LT	1

REMOVAL OF EXISTING PIPE CULVERTS			
FROM STATION	TO STATION	SIZE/TYPE	QUANTITY (LF)
113+77.7 LT	113+95.7 LT	15″ CMP	19.5
114+28.4 LT	114+46.3 LT	15″ CMP	20.0
115+8.4 LT	115+46.3 LT	15″ CMP	39.9
115+48.3 LT	115+50.3 RT	12″ CMP	29.5
115+45.7 LT	115+47.5 LT	UNKNOWN	26.7
115+49.2 LT	115+70.3 LT	15″ CMP	21.2



LEGEND	
▨	PAVEMENT REMOVAL
▨	FULL DEPTH PAVEMENT CONSTRUCTION
▨	PROPOSED CONCRETE SIDEWALK
▨	PROPOSED MEDIANS
▨	RECONSTRUCT ASPHALT DRIVEWAY
▨	RECONSTRUCT CONCRETE DRIVEWAY
—○—	EXIST. RIGHT-OF-WAY
TP ☒	TEST PIT

REGISTERED PROFESSIONAL ENGINEER STATE OF MARYLAND JAMIL M. PANNEE 9/18/03

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS 9/29/03 DATE
CHIEF, BUREAU OF ENGINEERING 9/22/03 DATE
CHIEF, TRANSPORTATION AND SPECIAL PROJECTS DIVISION 9/22/03 DATE
CHIEF, BUREAU OF HIGHWAYS 9-24-03 DATE

STATE OF MARYLAND DAVID THOMAS FERRETTI REGISTERED PROFESSIONAL ENGINEER 9/18/03

URS
HUNT VALLEY, MARYLAND

RJM ENGINEERING, INC.
CONSULTING ENGINEERS
COLUMBIA, MARYLAND
TELE:(410)730-1001 FAX:(410)730-5403

DES:				
DRN:				
CHK:				
DATE:	BY	NO.	REVISION	DATE

PLAN SHEET PS-3

NO.: ____ DATE: 9/03

McKENZIE ROAD ROADWAY AND STORMDRAIN IMPROVEMENTS

HOWARD COUNTY, MARYLAND
CAPITAL PROJECT NO. J-4164-10

SCALE AS SHOWN

SHEET 9 OF 24

RELOCATE EX. MAILBOX	
STATION	OFFSET
117+49	20.4' LT
117+54	20.2' LT
117+75	19.3' LT
117+82	18.6' LT
119+56	14.8' LT
120+54	19.8' LT
117+85	12.3' RT
118+93	10.3' RT
119+93	12.7' RT

RELOCATE EXISTING SIGN	
STATION	OFFSET
121+4.6	27.5' LT

ADJUST COVER ON MANHOLE	
STATION	OFFSET
117+54	16' LT
121+30	2' RT

CONSTRUCT STD. COMB. CURB AND GUTTER		
FROM STATION	TO STATION	QUANTITY (LF)
117+00 LT (℄ McKENZIE)	9+43.86 RT (℄ ASHBROOK)	443
117+00 RT (℄ McKENZIE)	10+54.38 RT (℄ ASHBROOK)	438
10+54.38 LT (℄ ASHBROOK)	122+45.28 RT (℄ McKENZIE)	136

CONSTRUCT 4" CONCRETE SIDEWALK *		
FROM STATION	TO STATION	QUANTITY (SF)
117+00 LT (℄ McKENZIE)	9+56.58 RT (℄ ASHBROOK)	1400
SIDEWALK EXTENSION		2400

* SIDEWALK RAMPS WILL BE INCIDENTAL TO SIDEWALK.

CONSTRUCT ASPHALT DRIVEWAY	
STATION	QUANTITY (SY)
117+63 RT	12.00
117+64 LT	20.35
118+74 RT	11.54
119+79 RT	21.60

CONSTRUCT CONCRETE DRIVEWAY	
STATION	QUANTITY (SY)
117+29 LT	26.52
118+69 LT	18.93
119+65 LT	20.72

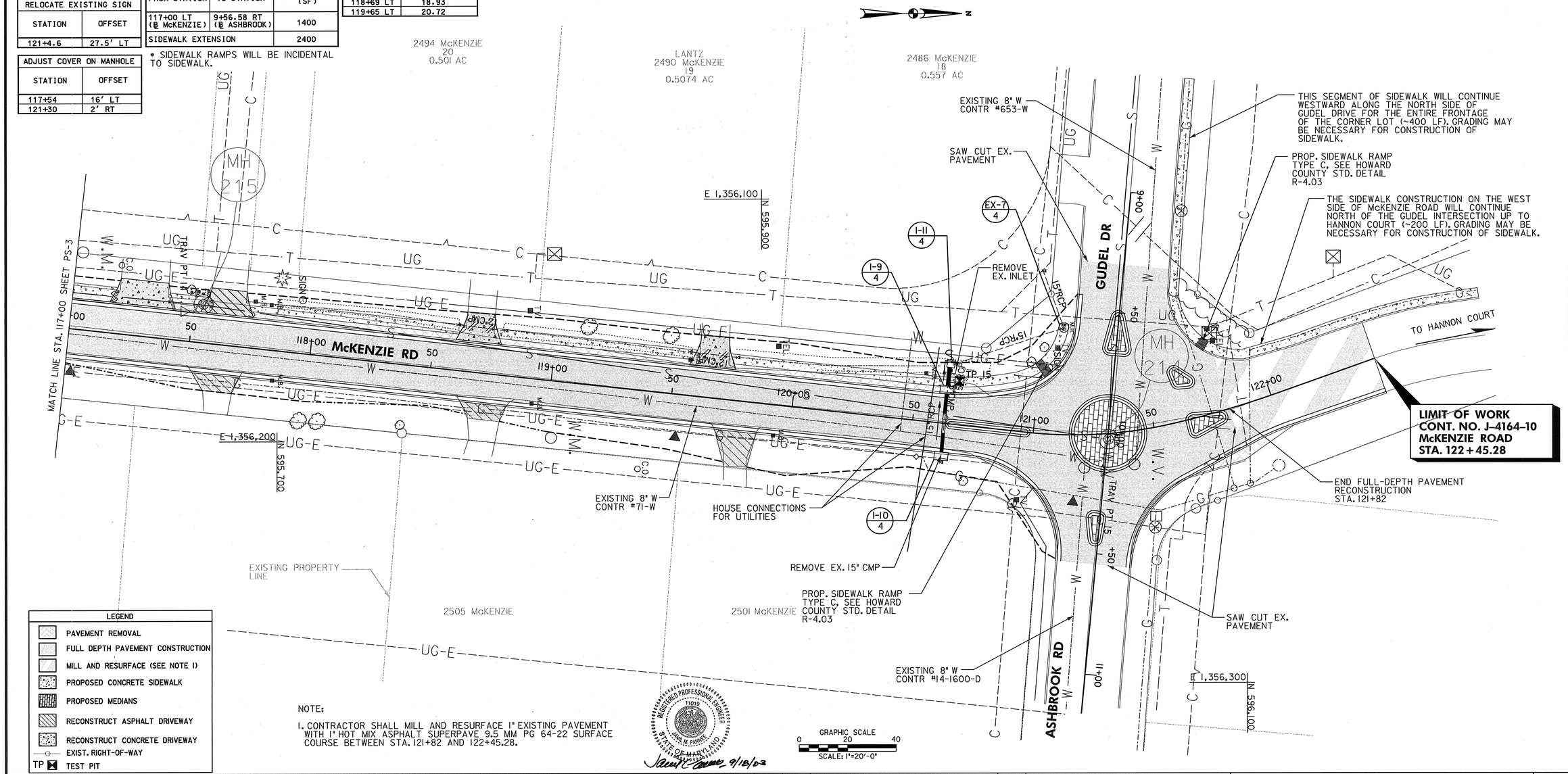
CONSTRUCT MODIFIED COMB. CURB AND GUTTER		
FROM STATION	TO STATION	QUANTITY (LF)
120+64	120+98	69
121+16	121+46	95
121+61	121+72	28
121+66	121+80	41
9+50	9+67	45
10+33	10+46	33

CONSTRUCT COLORED STAMPED CONCRETE		
FROM STATION	TO STATION	QUANTITY (SF)
121+17	121+45	615.7
121+62	121+71	24.5
121+67	121+79	55.4
9+51	9+66	70.5
10+34	10+45	30.9

REMOVAL OF EXISTING PIPE CULVERTS			
FROM STATION	TO STATION	SIZE/TYPE	QUANTITY (LF)
118+59.3 LT	118+79.0 LT	12" CMP	19.7
119+55.4 LT	119+75.2 LT	12" CMP	19.8
120+63 RT	120+63 LT	15" CMP	38.0

REMOVAL OF EXISTING INLET		
STATION	OFFSET	QUANTITY (EA)
120+63	23.4' LT	1

REMOVE EXISTING CURB AND GUTTER		
FROM STATION	TO STATION	QUANTITY (SY)
120+96 RT	10+54 RT	41.1
120+83 LT	9+44 RT	62.6
10+54 LT	121+81 RT	72.0



LEGEND
PAVEMENT REMOVAL
FULL DEPTH PAVEMENT CONSTRUCTION
MILL AND RESURFACE (SEE NOTE 1)
PROPOSED CONCRETE SIDEWALK
PROPOSED MEDIANS
RECONSTRUCT ASPHALT DRIVEWAY
RECONSTRUCT CONCRETE DRIVEWAY
EXIST. RIGHT-OF-WAY
TP TEST PIT

NOTE:

1. CONTRACTOR SHALL MILL AND RESURFACE 1" EXISTING PAVEMENT WITH 1" HOT MIX ASPHALT SUPERPAVE 9.5 MM PG 64-22 SURFACE COURSE BETWEEN STA. 121+82 AND 122+45.28.

REGISTERED PROFESSIONAL ENGINEER 11019 JOHN M. PINNIX STATE OF MARYLAND

9/18/03

GRAPHIC SCALE
0 20 40
SCALE: 1"=20'-0"

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS — DATE 9/29/03
CHIEF, BUREAU OF ENGINEERING — DATE 9/22/03
CHIEF, TRANSPORTATION AND SPECIAL PROJECTS DIVISION — DATE 9/22/03
CHIEF, BUREAU OF HIGHWAYS — DATE 9-24-03

STATE OF MARYLAND DAVID THOMAS BOSWELL 21705 REGISTERED PROFESSIONAL ENGINEER — 9/19/03

URS
HUNT VALLEY, MARYLAND

RJM ENGINEERING, INC.
CONSULTING ENGINEERS
COLUMBIA, MARYLAND
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DES:					
DRN:					
CHK:					
DATE:	BY	NO.	REVISION	DATE	

PLAN SHEET PS-4

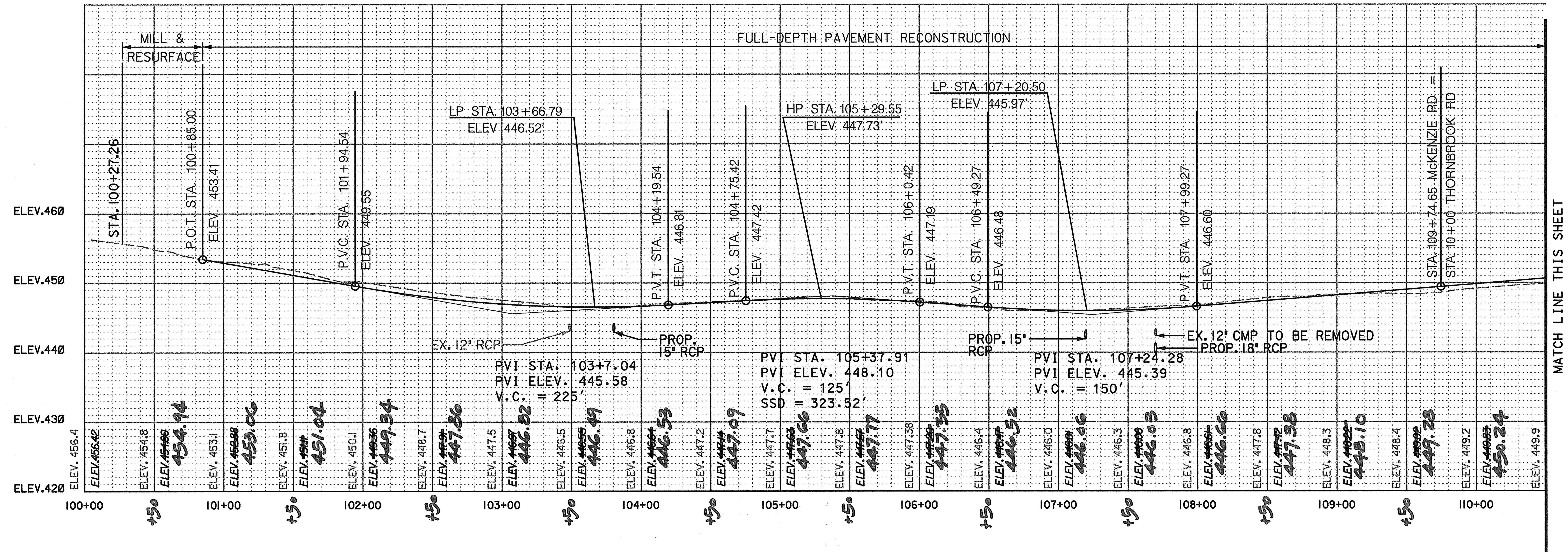
NO.:____ DATE: 9/03

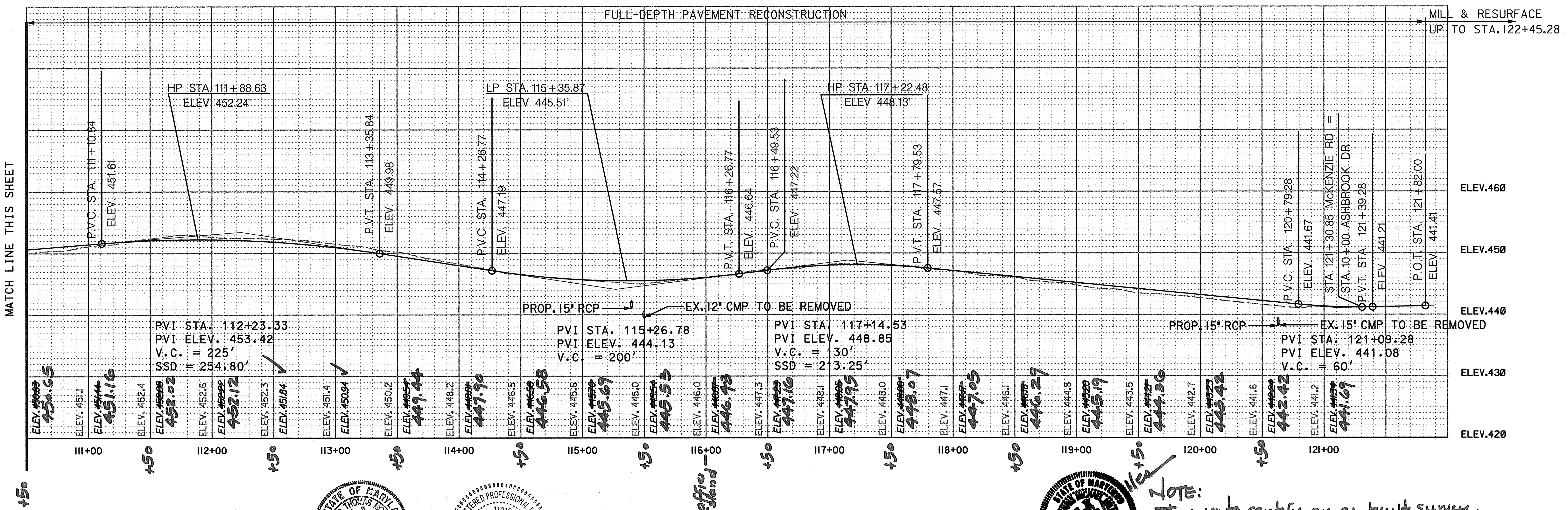
McKENZIE ROAD ROADWAY AND STORMDRAIN IMPROVEMENTS

HOWARD COUNTY, MARYLAND
CAPITAL PROJECT NO. J-4164-10

SCALE AS SHOWN

SHEET 10 OF 24





NOTE:
This is to certify an as-built survey of the centerline profile was made in November 2004
* As-built remarks are shown in red!

JANA M. PANNEE – 9/18/03

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND DEPARTMENT OF PUBLIC WORKS 9/29/03 DATE CHIEF, TRANSPORTATION AND SPECIAL PROJECTS DIVISION 9/22/03 DATE CHIEF, BUREAU OF ENGINEERING 9/22/03 DATE CHIEF, BUREAU OF HIGHWAYS 9-24-03 DATE	GRAPHIC SCALE 0 50 100 HOR. SCALE: 1"=50'-0" 0 10 20 VERT. SCALE: 1"=10'-0"	URS HUNT VALLEY, MARYLAND	RJM ENGINEERING, INC. CONSULTING ENGINEERS COLUMBIA, MARYLAND TELE:(410)730-1001 FAX:(410)730-5403	DES: DRN: CHK: DATE:	BY | NO. | REVISION | DATE

PROFILE SHEET

NO.: ____ DATE: 9/03

McKENZIE ROAD ROADWAY AND STORMDRAIN IMPROVEMENTS

HOWARD COUNTY, MARYLAND
CAPITAL PROJECT NO. J-4164-10

SCALE AS SHOWN

SHEET 11 OF 24

Pipe Conduits

All pipes shall be circular in cross section.

Corrugated Metal Pipe

All of the following criteria shall apply for corrugated metal pipe:

1. Materials - (Steel Pipe) - This pipe and its appurtenances shall be galvanized and conform to the requirements of AASHTO Specifications M-36 and M-218. It shall be fully bituminous coated and shall conform to the requirements of AASHTO Specification M-190 Type A with watertight coupling bands or flanges. Any bituminous coating damaged or otherwise removed shall be replaced with cold applied bituminous coating compound.

   Materials - (Polymer Coated Steel Pipe) - Steel pipes with polymeric coatings shall have a minimum coating thickness of 0.01 inch (10 mil) on both sides of the pipe. This pipe and its appurtenances shall conform to the requirements of AASHTO Specifications M-245 and M-246 with watertight coupling bands or flanges.

   Materials - (Aluminum Coated Steel Pipe) - This pipe and its appurtenances shall conform to the requirements of AASHTO Specification M-274 with watertight coupling bands or flanges. Aluminum coated steel pipe when used with flowable fill shall be fully bituminous coated per requirements of AASHTO Specification M-190 Type A. Any aluminum coating damaged or otherwise removed shall be replaced with cold applied bituminous coating compound. Aluminum surfaces that are to be in contact with concrete shall be painted with one coat of zinc chromate primer.

   Materials - (Aluminum Pipe) - This pipe and its appurtenances shall conform to the requirements of AASHTO Specification M-196 or M-211 with watertight coupling bands or flanges. Aluminum pipe, when used with flowable fill, shall be fully bituminous coated per requirements of AASHTO Specification M-190 Type A. Aluminum surfaces that are to be in contact with concrete shall be painted with one coat of zinc chromate primer. Hot-dip galvanized bolts may be used for connection. The pH of the surrounding soils shall be between 4 and 9.

2. Coupling bands, anti-seep collars, end sections, etc. must be composed of the same material as the pipe. Metals must be insulated from dissimilar materials with use of rubber or plastic insulating materials at least 24 mils in thickness.

3. Connections - All connections with pipes must be completely watertight. The drain pipe or barrel connection to the riser shall be welded all around when the pipe and riser are metal. Anti-seep collars shall be connected to the pipe in such a manner as to be completely watertight. Dimple bands are not considered to be watertight.

   All connections shall use a rubber or neoprene gasket when joining pipe sections. The end of each pipe shall be rerolled an adequate number of corrugations to accommodate the band width. The following type connections are acceptable for pipes less than 24 inches in diameter, flanges on both ends of the pipe with a circular gasket, pre-punched to the flange bolt circle sandwiched between adjacent flanges; a 12-inch wide standard lap type band with 12-inch wide by 3/8-inch thick closed cell circular neoprene gasket; and a 12-inch wide hugger type band with O-ring gaskets having a minimum diameter of 1/2-inch greater than the corrugation depth. Pipes 24 inches in diameter and larger shall be connected by a 24-inch long annular corrugated band using a minimum of four (4) rods and lugs, two on each connecting pipe end. A 24-inch wide by 3/8-inch thick closed cell circular neoprene gasket will be installed with 12 inches on the end of each pipe. Flanged joints with gaskets are also acceptable.

   Helically corrugated pipe shall have either continuously welded seams or have lock seams with internal caulking or a neopene bead.

4. Bedding - The pipe shall be firmly and uniformly bedded throughout its entire length. Where rock or soft, spongy or other unstable soil is encountered, all such material shall be removed and replaced with suitable earth compacted to provide adequate support.

5. Backfilling shall conform to "Structure Backfill."

6. Other details (anti-seep collars, valves, etc.) shall be as shown on the drawings.

Reinforced Concrete Pipe

All of the following criteria shall apply for reinforced concrete pipe:

1. Materials - Reinforced concrete pipe shall have bell and spigot joints with rubber gaskets and shall equal or exceed ASTM C 361.

2. Bedding - All reinforced concrete pipe conduits shall be laid in a concrete bedding for their entire length. This bedding shall consist of high slump concrete placed under the pipe and up the sides of the pipe at least 50 percent of its outside diameter with a minimum thickness of 6 inches, or as shown on the drawings.

3. Laying Pipe: Bell and spigot pipe shall be placed with the bell end upstream. Joints shall be made in accordance with recommendations of the manufacturer of the material. After the joints are sealed for the entire line, the bedding shall be placed so that all spaces under the pipe are filled. Care shall be exercised to prevent any deviation from the original line and grade of the pipe. The first joint must be located within 2 feet from the riser.

4. Backfilling shall conform to "Structure Backfill."

5. Other details (anti-seep collars, valves, etc.) shall be as shown on the drawings.

Polyvinyl Chloride (PVC) Pipe

All of the following criteria shall apply for polyvinyl chloride (PVC) pipe:

1. Materials - PVC pipe shall be PVC-1120 or PVC-1220 conforming to ASTM D 1785 or ASTM D 2241.

2. Joints and connections to anti-seep collars shall be completely watertight.

3. Bedding - The pipe shall be firmly and uniformly bedded throughout its entire length. Where rock or soft, spongy or other unstable soil is encountered, all such material shall be removed and replaced with suitable earth compacted to provide adequate support.

4. Backfilling shall conform to "Structure Backfill."

5. Other details (anti-seep collars, valves, etc.) shall be as shown on the drawings.

Concrete

Concrete shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 414, Mix No. 3.

Rock Riprap

Rock riprap shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 901.

Filter cloth shall be placed under all riprap and shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 921.09, Class C.

Care of Water During Construction

All work on permanent structures shall be carried out in areas free from water. The Contractor shall construct and maintain all temporary dikes, levees, cofferdams, drainage channels, and stream diversions necessary to protect the areas to be occupied by the permanent works. The Contractor shall also furnish, install, operate, and maintain all necessary pumping and other equipment required for removal of water from various parts of the work and for maintaining the excavations, foundation, and other parts of the work free from water as required or directed by the Engineer for constructing each part of the work. After having served their purpose, all temporary protective measures shall be removed or leveled and graded to the extent required to prevent obstruction in any degree whatsoever of the flow of water to the spillway or outlet and so as not to interfere in any way with the operation or maintenance of the structure. Stream diversions shall be maintained until the full flow can be passed through the permanent structure. The removal of water from the required excavation and the foundation shall be accomplished in a manner and to the extent that will maintain stability of the excavated slopes and bottom of required excavations and will allow satisfactory performance of all construction operations. During the placing and compacting of material in required excavations, the water level at the locations being refilled shall be maintained below the bottom of the excavation at such locations which may require draining the water sumps from which the water shall be pumped.

Stabilization

All borrow areas shall be graded to provide proper drainage and left in a sightly condition. All exposed surfaces of the embankment, spillway, spoil, and borrow areas. berms shall be stabilized by seeding, liming, fertilizing, and mulching in accordance with the Maryland Soil Conservation Service Standards and Specifications for Critical Area Planting (MD-342) or as shown on the accompanying drawings.

Erosion and Sediment Control

Construction operations will be carried out in such a manner that erosion will be controlled and water and air pollution minimized. State and local laws concerning pollution abatement will be followed. Construction plans shall detail erosion and sediment control measures.

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: in lieu of soil test recommendations, use one of the following schedules:

1) Preferred - apply 2 tons per acre dolomitic limestone (92 lbs. per 1,000 square feet) and 600 lbs. per acre 10-10-10 fertilizer (14 lbs. per 1,000 square feet) before seeding. Harrow or disc into upper 3 inches of soil. At time of seeding, apply 400 lbs. per acre 30-0-0 ureaform fertilizer (9 lbs. per 1,000 square feet).

2) Acceptable - apply 2 tons per acre dolomitic limestone (92 lbs. per 1,000 square feet) and 1,000 lbs. per acre 10-10-10 fertilizer (23 lbs. per 1,000 square feet) before seeding. Harrow or disc into upper 3 inches of soil.

Seeding: for the period march 1 through April 30 and from august 1 through October 15, seed with 50 lbs. per acre (1.4 lbs. per 1,000 square feet) of Kentucky 31 tall fescue. For the period may 1 through July 31, seed with 60 lbs. Kentucky 31 tall fescue per acre and 2 lbs. per acre (0.05 lbs. per 1,000 square feet) of weeping lovegrass. During the period October 16 through February 28, protect site by one of the following options:

1) 2 tons per acre of well-anchored mulch straw and seed as soon as possible in the spring.

2) Use sod.

3) Seed with 60 lbs. per acre Kentucky 31 tall fescue and mulch with 2 tons per acre well anchored straw.

Mulching: apply 1 2¾ to 2 tons per acre (70 to 90 lbs. per 1,000 square feet) of unrotted small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 218 gallons per acre (5 gallons per 1,000 square feet) of emulsified asphalt on flat areas, on slopes, 8 feet or higher, use 347 gallons per acre (8 gallons per 1,000 square feet) for anchoring.

Maintenance: inspect all seeded areas and make needed repairs, replacements, and reseedings.

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 3 inches of soil by raking, discing, or other acceptable means before seeding.

Soil amendments: apply 600 lbs. per acre 10-10-10 fertilizer (14 lbs. per 1,000 square feet).

Seeding: for periods march 1 through April 30 and from august 15 through November 15, seed with 2½ bushels per acre of annual rye (3.2 lbs. per 1,000 square feet). for the period may 1 through august 14, seed with 2 lbs. per acre of weeping lovegrass (0.07 lbs. per 1,000 square feet). For the period November 16 through 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 2¾ to 2 tons per acre (70 to 90 lbs. per 1,000 square feet) of unrotted small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 218 gallons per acre (5 gallons per 1,000 square feet) of emulsified asphalt on flat areas, on slopes, 8 feet or higher, use 347 gallons per acre (8 gallons per 1,000 square feet) for anchoring.

Refer to the 1994 Maryland standards and specifications for soil erosion and sediment control for rate and methods not covered.

STANDARD SEDIMENT CONTROL NOTES

1. A minimum of 48 hours notice must be given to the Howard County department of inspections, licenses and permits, sediment control division prior to the start of any construction (313-1855).
2. All vegetative and structural practices are to be installed according to the provisions of this plan and are to be in conformance with the 1994 Maryland standards and specifications for soil erosion and sediment control and revisions thereto.
3. Following initial soil disturbance or redisturbance, permanent or temporary stabilization shall be completed within:
   a) 7 calendar days for all perimeter sediment control structures, dikes, perimeter slopes, and all slopes steeper 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 the perimeter in accordance with volume 1, chapter 7, of the Howard County design manual, storm drainage.
5. All disturbed areas must be stabilized within the time period specified above in accordance with the 1994 Maryland standards and specifications for soil erosion and sediment control for permanent seeding, sod, temporary seeding, and mulching (section g). temporary stabilization with mulch alone shall only be done when recommended seeding dates do not allow for 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 there removal has been obtained from the Howard county sediment control inspector.
7. Site analysis:

   Area disturbed - 2.25 acres
   Areas to be roofed or paved - 1.64 acres
   Area to be vegetatively stabilized - 0.61 acres
   Total cut - 850 cubic yards
   Total fill - 1243 cubic yards
   Off-site waste site - Howard County landfill
   Off-site borrow site - approved site with current and active grading permit
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 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. Trenches for the construction of utilities is limited to three pipe lengths or that which shall be backfilled and stabilized within one working day, whichever is shorter.
12. Site grading will begin only after all perimeter sediment control measures have been installed and are in a functioning condition.
13. Sediment will be removed from traps when its depth reaches clean out elevation shown on the plans.
14. Cut and fill quantities provided under site analysis do not represent bid quantities. These quantities do not distinguish between topsoil, structural fill or embankment material, nor do they reflect consideration of undercutting or removal of unsuitable material. the contractor shall familiarize himself with site conditions which may affect the work.

DEVELOPER'S CERTIFICATION

"I/WE CERTIFY THAT ALL DEVELPOMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT"

by [illegible] (Acting Chief) DATE 9/26/03

SIGNATURE OF DEVELOPMENT

ENGINEER'S CERTIFICATION

"I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

DATE 9/25/03

RJM ENGINEERING, INC
5525 TWIN KNOLLS ROAD
SUITE 332
COLUMBIA, MD 21045
(410)730-1001

REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS

U.S. NATURAL RESOURCES CONSERVATION SERVICE 9/29/03 DATE

THIS DEVELOPMENT IS APPROVED FOR EROSION AND SEDIMENT CONTROL BY HOWARD SOIL CONSERVATION DISTRICT.

HOWARD SOIL CONSERVATION DISTRICT 9/29/03 DATE

REGISTERED PROFESSIONAL ENGINEER 11019 JAMES M. PANNONE STATE OF MARYLAND

9/25/03

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS 9/29/03 DATE

CHIEF, BUREAU OF ENGINEERING 9/25/03 DATE

CHIEF, TRANSPORTATION AND SPECIAL PROJECTS DIVISION 9/25/03 DATE

CHIEF, BUREAU OF HIGHWAYS 9-26-03 DATE

URS
HUNT VALLEY, MARYLAND

RJM ENGINEERING, INC.
CONSULTING ENGINEERS
COLUMBIA, MARYLAND
TELEX(410)730-1001 FAX(410)730-5403

DES:					
DRN:					
CHK:					
DATE:	BY	NO.	REVISION	DATE	

NO.:____ DATE: 9/03

EROSION AND SEDIMENT CONTROL GENERAL NOTES 1

McKENZIE ROAD ROADWAY AND STORMDRAIN IMPROVEMENTS

HOWARD COUNTY, MARYLAND
CAPITAL PROJECT NO. J-4164-10

SCALE AS SHOWN

SHEET 12 OF 24

09/25/2003
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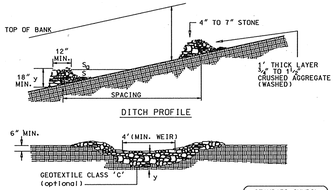
DETAIL 7 – STONE CHECK DAM



STANDARD STONE CHECK DAM DESIGN

SLOPE	SPACING
2% or less	80'
2.1% to 4%	40'
4.1% to 7%	25'
7.1% to 10%	15'
over 10%	use lined waterway design

Construction Specifications

1. Swales and ditches shall be prepared in accordance with the construction specifications described in Section A-2. Standards and Specifications for Temporary Swale.

2. The check dam shall be constructed of 4"-7" stone. The stone shall be placed so that it completely covers the width of the channel and keyed into the channel banks.

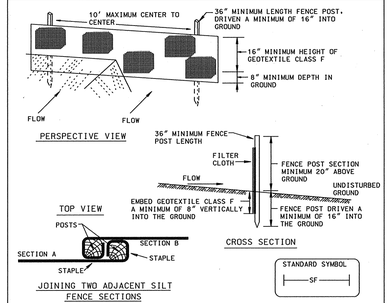
3. The top of the check dam shall be constructed so the the center is approximately 6" lower than the outer edges, forming a weir that water can flow across.

4. The maximum height of the check dam at the center shall not exceed 2'.

5. The upstream sideof the check dam shall be lined with approximately 1" of ¾" to 1½" crushed aggregate.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE B – 8 – 5	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 22 – SILT FENCE



Construction Specifications

1. Fence posts shall be a minimum of 36" long driven 16" minimum into the ground. Wood posts shall be 1½" x 1½" square (minimum) cut, or 1¾" diameter (minimum) round and shall be of sound quality hardwood. Steel posts will be standard T or U section weighting not less than 1.00 pond per linear foot.

2. Geotextile shall be fastened securely to each fence post with wire ties or staples at top and mid-section and shall meet the following requirements for Geotextile Class F:

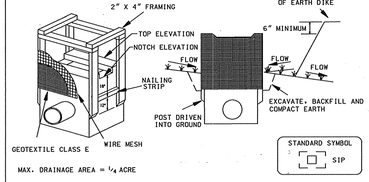
Tensile Strength	50 lbs/in (min.)	Test: MSMT 509
Tensile Modulus	20 lbs/in (min.)	Test: MSMT 509
Flow Rate	0.3 gal/ft²/minute (max.)	Test: MSMT 322
Filtering Efficiency	75% (min.)	Test: MSMT 322

3. Where ends of geotextile fabric come together, they shall be overlapped, folded and stapled to prevent sediment bypass.

4. Silt Fence shall be inspected after each rainfall event and maintained when bulges occur or when sediment accumulation reached 50% of the fabric height.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE E – 16 – 3	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 23A – STANDARD INLET PROTECTION



MAX. DRAINAGE AREA = ¼ ACRE

Construction Specifications

1. Excavate completely around the inlet to a depth of 18" below the notch elevation.

2. Drive the 2" x 4" construction grade lumber posts 1' into the ground at each corner of the inlet. Place nail strips between the posts on the ends of the inlet. Assemble the top portion of the 2" x 4" frame using the overlap joint shown on Detail 23A. The top of the frame (weir) must be 6" below adjacent roadways where flooding and safety issues may arise.

3. Stretch the 1/2" x 1/2" wire mesh tightly around the frame and fasten securely. The ends must meet and overlap at a post.

4. Stretch the Geotextile Class E tightly over the wire mesh with the geotixtile extending from the top of the frame to 18" below the inlet notch elevation. Fasten the geotextile firmly to the frame. The ends of the geotextile must meet at a post, be overlapped and folded, then fastened down.

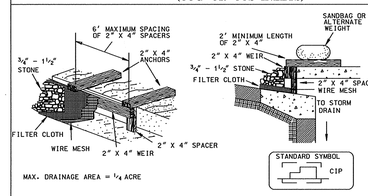
5. Backfill around the inlet in compacted 6" layers until the layer of earth is level with the notch elevation on the ends and top elevation on the sides.

6. If the inlet is not in a sump, construct a compacted earth dike across the ditch line directly below it. The top of the earth dike should be at least 6" higher than the top of the frame.

7. The structure must be inspected periodically and after each rain and the geotextile replaced when it becomes clogged.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE E – 16 – 5	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 23C – CURB INLET PROTECTION (COG OR COS INLETS)



MAX. DRAINAGE AREA = ¼ ACRE

Construction Specifications

1. Attach a continuous piece of wire mesh (30" minimum width by throat length, plus 4') to the 2" x 4" weir (measuring throat length plus 2') as shown on the standard drawing.

2. Place a continuous piece of Geotextile Class E the same dimensions as the wire mesh over the wire mesh and securely attach it to the 2" x 4" weir.

3. Securely nail the 2" X 4" weir to a 9" long vertical spacer to be located between the weir and the inlet face (max. 4' apart).

4. 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.

5. The assembly shall be placed so that the end spacers are a minimum 1' beyond both ends of the throat opening.

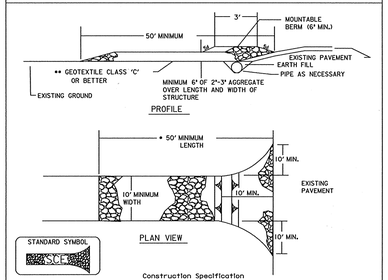
6. Form the ¾" x 1½" wire mesh and the geotextile fabric to the concrete gutter and against the face of the curb on both sides of the inlet. Place clean ¾" x 1½" stone over the wire mesh and geotextile in such a manner to prevent water from entering the inlet under or around the geotextile.

7. This type of protection must be inspected frequently and the filter cloth and stone replaced when clogged with sediment.

8. Assure that storm flow does not bypass the inlet by installing a temporary earth or asphalt dike to direct the flow to the inlet.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE E – 16 – 6B	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 24 – STABILIZED CONSTRUCTION ENTRANCE



Construction Specifications

1. Length – minimum of 50' (*30' for single residence lot).

2. Width – 10' minimum, should be flared at the existing road to provide a turning radius.

3. Geotextile fabric (filter cloth) shall be placed over the existing ground prior to placing stone. **The plan approval authority may not require single family residences to use geotextile.

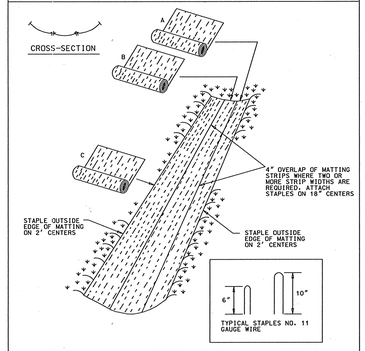
4. Stone – crushed aggregate (2" to 3") or reclaimed or recycled concrete equivalent shall be placed at least 6" deep over the length and width of the entrance.

5. Surface Water – all surface water flowing to or diverted toward construction entrances shall be piped through the entrance, maintaining positive drainage. Pipe installed through the stabilized construction entrance shall be protected with a mountable berm with 5:1 slopes and a minimum of 6" of stone over the pipe. Pipe has to be sized according to the drainage. When the SCE is located at a high spot and has no drainage to convey a pipe will not be necessary. Pipe should be sized according to the amount of runoff to be conveyed. A 6" minimum will be required.

6. Location – A stabilized construction entrance shall be located at every point where construction traffic enters or leaves a construction site. Vehicles leaving the site must travel over the entire length of the stabilized construction entrance.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE F – 17 – 3	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 30 – EROSION CONTROL MATTING



U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE G – 22 – 2	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

EROSION CONTROL MATTING

Construction Specifications

1. Key-in the matting by placing the top ends of the matting in a narrow trench, 6" in depth. Backfill the trench and tamp firmly to conform to the channel cross-section. Secure with a row of staples about 4" down slope from the trench. Spacing between staples is 6".

2. Staple the 4" overlap in the channel center using an 18" spacing between staples.

3. Before stapling the outer edges of the matting, make sure the matting is smooth and in firm contact with the soil.

4. Staples shall be placed 2' apart with 4 rows for each strip, 2 outer rows, and 2 alternating rows down the center.

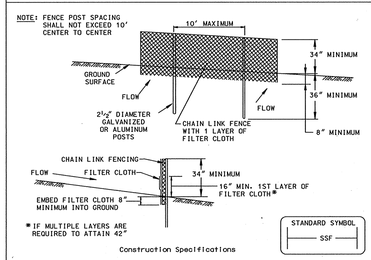
5. Where one roll of matting ends and another begins, the end of the top strip shall overlap the upper end of the lower strip by 4", shiplap fashion. Reinforce the overlap with a double row of staples spaced 6" apart in a staggered pattern on either side.

6. The discharge end of the matting liner should be similarly secured with 2 double rows of staples.

Note: If flow will enter from the edge of the matting then the area effected by the flow must be keyed-in.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE G – 22 – 3A	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 33 – SUPER SILT FENCE



Construction Specifications

1. Fencing shall be 42" in height and constructed in accordance with the latest Maryland State Highway Details for Chain Link Fencing. The specification for a 6' fence shall be used, substituting 42" fabric and 6' length posts.

2. Chain link fence shall be fastened securely to the fence posts with wire ties. The lower tension wire, brace and truss rods, drive anchors and post caps are not required except on the ends of the fence.

3. Filter cloth shall be fastened securely to the chain link fence with ties spaced every 24" at the top and mid section.

4. Filter cloth shall be embedded a minimum of 8" into the ground.

5. When two sections of filter cloth adjoin each other, they shall be overlapped by 6" and folded.

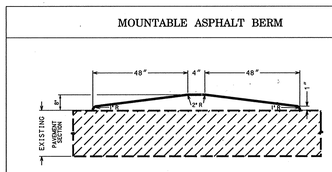
6. Maintenance shall be performed as needed and silt buildups removed when "bulges" develop in the silt fence, or when silt reaches 50% of fence height

7. Filter cloth shall be fastened securely to each fence post with wire ties or staples at top and mid section and shall meet the following requirements for Geotextile Class F:

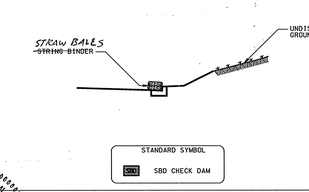
Tensile Strength	50 lbs/in (min.)	Test: MSMT 509
Tensile Modulus	20 lbs/in (min.)	Test: MSMT 509
Flow Rate	0.3 gal/ft²/minute (max.)	Test: MSMT 322
Filtering Efficiency	75% (min.)	Test: MSMT 322

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE H – 36 – 3	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

MOUNTABLE ASPHALT BERM



SBD CHECK DAM



SEQUENCE OF CONSTRUCTION
EROSION AND SEDIMENT CONTROL

DURATION (DAYS)	STEP	ACTION
--	1.	THE CONTRACTOR SHALL OBTAIN A GRADING PERMIT BEFORE ANY TYPE OF CONSTRUCTION IS TO START.
--	2.	THE CONTRACTOR SHALL NOTIFY THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS AT LEAST SEVEN (7) DAYS PRIOR TO INITIATION OF THE PROJECT AND FIVE (5) DAYS AFTER WORK ENDS.
--	3.	UTILITIES AND STORM DRAINS SHOWN ON THE EROSION AND SEDIMENT CONTROL PLANS ARE FOR THE GUIDANCE OF THE CONTRACTOR ONLY. ALL UTILITIES SHALL BE CONSTRUCTED AS SHOWN ON THE ROADWAY PLANS.
--	4.	MAINTAIN ALL SEDIMENT CONTROL PRACTICES ACCORDING TO THE MARYLAND 1994 STANDARDS AND COUNTY REGULATIONS UNTIL THE ENTIRE SITE IS STABILIZED.
--	5.	THE EROSION AND SEDIMENT CONTROL MEASURES MUST BE IN PLACE AND FUNCTIONING PRIOR TO THE CLEARING, CLEAR AND GRUB FOR EROSION AND SEDIMENT CONTROL MEASURES OR DEVICES ONLY.
15	6.	INSTALL PERIMETER CONTROLS AS REQUIRED FOR CONSTRUCTION.
60	7.	GRADE ALL DISTURBED SLOPES TO DRAIN AS INDICATED ON THE PLANS. CONSTRUCT STORM DRAINS AS SHOWN. INSTALL INLET PROTECTION AS REQUIRED.
120	8.	CONSTRUCT PAVEMENT, CURBS AND GUTTERS, SIDEWALKS, TRAFFIC CIRCLES AS SHOWN. CONSTRUCT ONLY THOSE AREAS THAT CAN BE STABILIZED IN THE SAME WORKING DAY. INSTALL STRAW BALE DIKE CHECK DAMS AS REQUIRED.
10	9.	PLACE TOPSOIL, SEED AND MULCH ON ALL UNPAVED AREAS CONSTRUCTED AS DIRECTED BY THE ENGINEER. INSTALL EROSION CONTROL MATTING AS SHOWN.
--	10.	SEDIMENT CONTROL DEVICES ARE TO REMAIN IN PLACE UNTIL ALL DISTURBED AREAS ARE STABILIZED WITH GROWTH AND HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS APPROVES THEIR REMOVAL.
--	11.	REMOVE EROSION AND SEDIMENT CONTROL DEVICES. STABILIZE ALL REMAINING DISTURBED AREAS.

AS-BUILT CERTIFICATION

I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS.

PE NO. _____

DATE _____

CERTIFY MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED UPON ONSITE INSPECTIONS AND MATERIAL TESTS WHICH ARE CONDUCTED DURING CONSTRUCTION. THE ONSITE INSPECTIONS AND MATERIAL TESTS ARE THOSE INSPECTIONS AND TESTS DEEMED SUFFICIENT AND APPROPRIATE BY COMMONLY ACCEPTED ENGINEERING STANDARDS. DOES NOT MEAN OR IMPLY A GUARANTEE BY THE ENGINEER NOR DOES AN ENGINEER'S CERTIFICATION RELIEVE ANY OTHER PARTY FROM MEETING REQUIREMENTS IMPOSED BY CONTRACT, EMPLOYMENT, OR OTHER MEANS, INCLUDING MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.

BY THE ENGINEER:

I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

ENGINEER _____ DATE 9/15/03

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SOIL EROSION AND SEDIMENT CONTROL.

NATURAL RESOURCES CONSERVATION SERVICE _____ DATE 9/29/03

THESE PLANS FOR SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

HOWARD SOIL CONSERVATION DISTRICT _____ DATE 9/29/03

REGISTERED PROFESSIONAL ENGINEER — 11019 — JAMES M. PANNELL — STATE OF MARYLAND

9/8/03

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS _____ DATE 9/22/03

CHIEF, BUREAU OF ENGINEERING _____ DATE 9/22/03

CHIEF, TRANSPORTATION AND SPECIAL PROJECTS DIVISION _____ DATE 9-24-03

CHIEF, BUREAU OF HIGHWAYS _____ DATE

STATE OF MARYLAND — DAVID THOMAS THOMSON — 22161 — REGISTERED PROFESSIONAL ENGINEER — 9/11/03

URS
HUNT VALLEY, MARYLAND

RJM ENGINEERING, INC.
CONSULTING ENGINEERS
COLUMBIA, MARYLAND
TELEX(410)730-1001 FAX(410)730-5403

	BY	NO.	REVISION	DATE
DES:				
DRN:				
CHK:				
DATE:				

EROSION AND SEDIMENT CONTROL GENERAL NOTES 2

NO.:____ DATE: 9/03

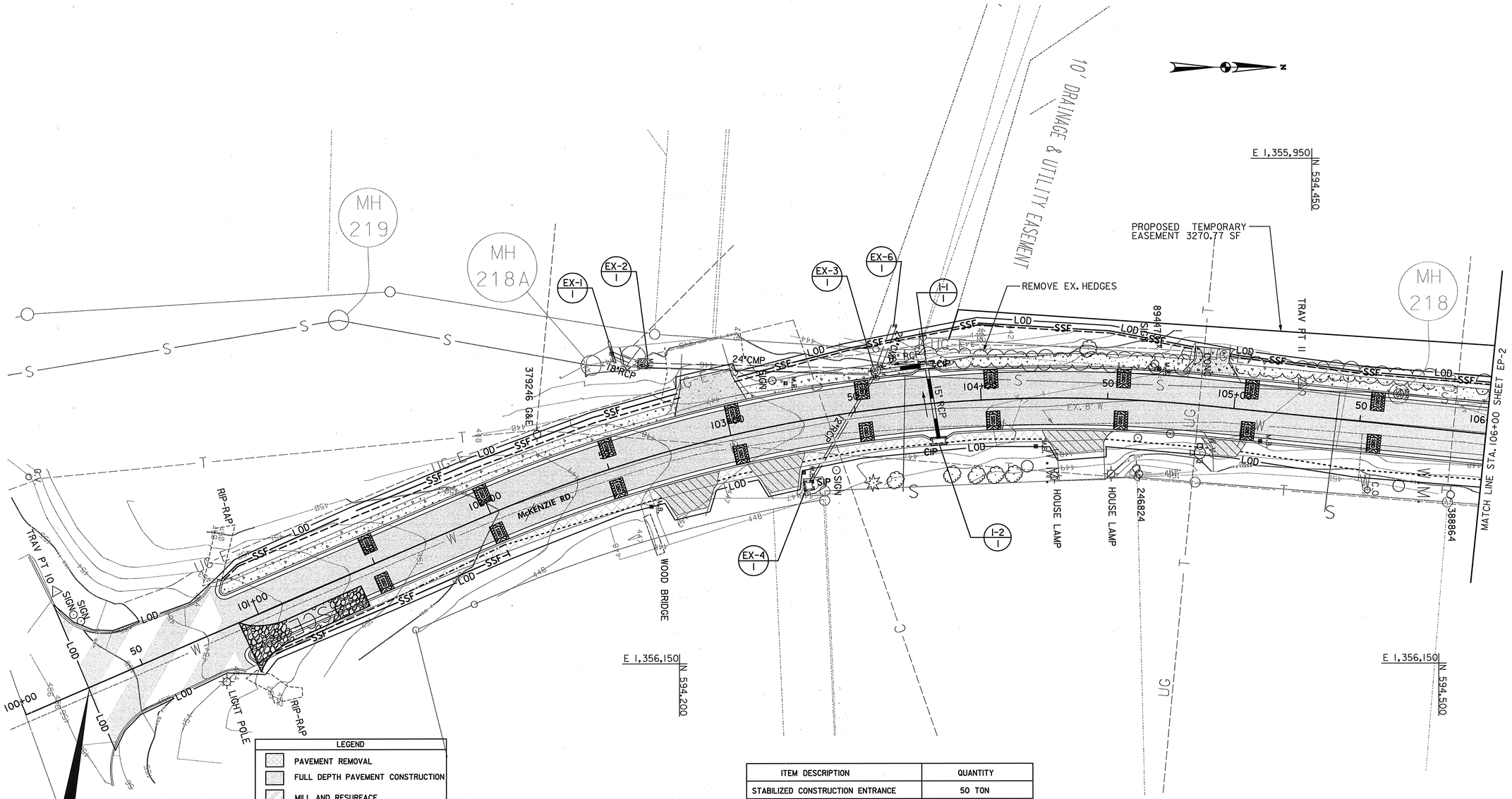
McKENZIE ROAD ROADWAY AND STORMDRAIN IMPROVEMENTS

HOWARD COUNTY, MARYLAND
CAPITAL PROJECT NO. J-4164-10

SCALE AS SHOWN

SHEET 13 OF 24

$DATE$
$FILES$



LEGEND
PAVEMENT REMOVAL
FULL DEPTH PAVEMENT CONSTRUCTION
MILL AND RESURFACE
PROPOSED CONCRETE SIDEWALK
PROPOSED MEDIANS
RECONSTRUCT ASPHALT DRIVEWAY
RECONSTRUCT CONCRETE DRIVEWAY
EXIST. RIGHT-OF-WAY

ITEM DESCRIPTION	QUANTITY
STABILIZED CONSTRUCTION ENTRANCE	50 TON
SUPER SILT FENCE	665 LF
SBD CHECK DAM	18 EA
CURB INLET PROTECTION (CIP)	2 EA
STANDARD INLET PROTECTION (SIP)	1 EA

GRAPHIC SCALE
0 20 40
SCALE: 1"=20'-0"

NOTES:

1. ALL EROSION AND SEDIMENT CONTROL DEVICES SHALL BE PLACED WITHIN THE RIGHT OF WAY OR EASEMENT. THE LINES FOR SSF AND LOD ARE IN THE SAME LOCATION, HOWEVER, THEY ARE SEPARATED ON THE PLAN FOR CLARITY.

2. SBD CHECK DAMS SHALL BE PLACED PERPENDICULAR TO THE CURBS, SPACED AT APPROXIMATELY 50' AS DIRECTED BY THE ENGINEER.

REGISTERED PROFESSIONAL ENGINEER 21019 JOHN M. PANNEE STATE OF MARYLAND
9/18/03

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS — DATE 9/22/03
CHIEF, BUREAU OF ENGINEERING — DATE 9/22/05
CHIEF, TRANSPORTATION AND SPECIAL PROJECTS DIVISION — DATE 9/22/03
CHIEF, BUREAU OF HIGHWAYS — DATE 9-24-03

STATE OF MARYLAND DAVID THOMAS TOOKEN 21019 REGISTERED PROFESSIONAL ENGINEER
9/18/03

URS
HUNT VALLEY, MARYLAND

RJM ENGINEERING, INC.
CONSULTING ENGINEERS
COLUMBIA, MARYLAND
TELEX(410)730-1001 FAX(410)730-5403

DES:
DRN:
CHK:
DATE:

BY	NO.	REVISION	DATE

EROSION AND SEDIMENT CONTROL PLAN SHEET EP-1

NO.:____ DATE: 9/03

McKENZIE ROAD ROADWAY AND STORMDRAIN IMPROVEMENTS

HOWARD COUNTY, MARYLAND
CAPITAL PROJECT NO. J-4164-10

SCALE AS SHOWN

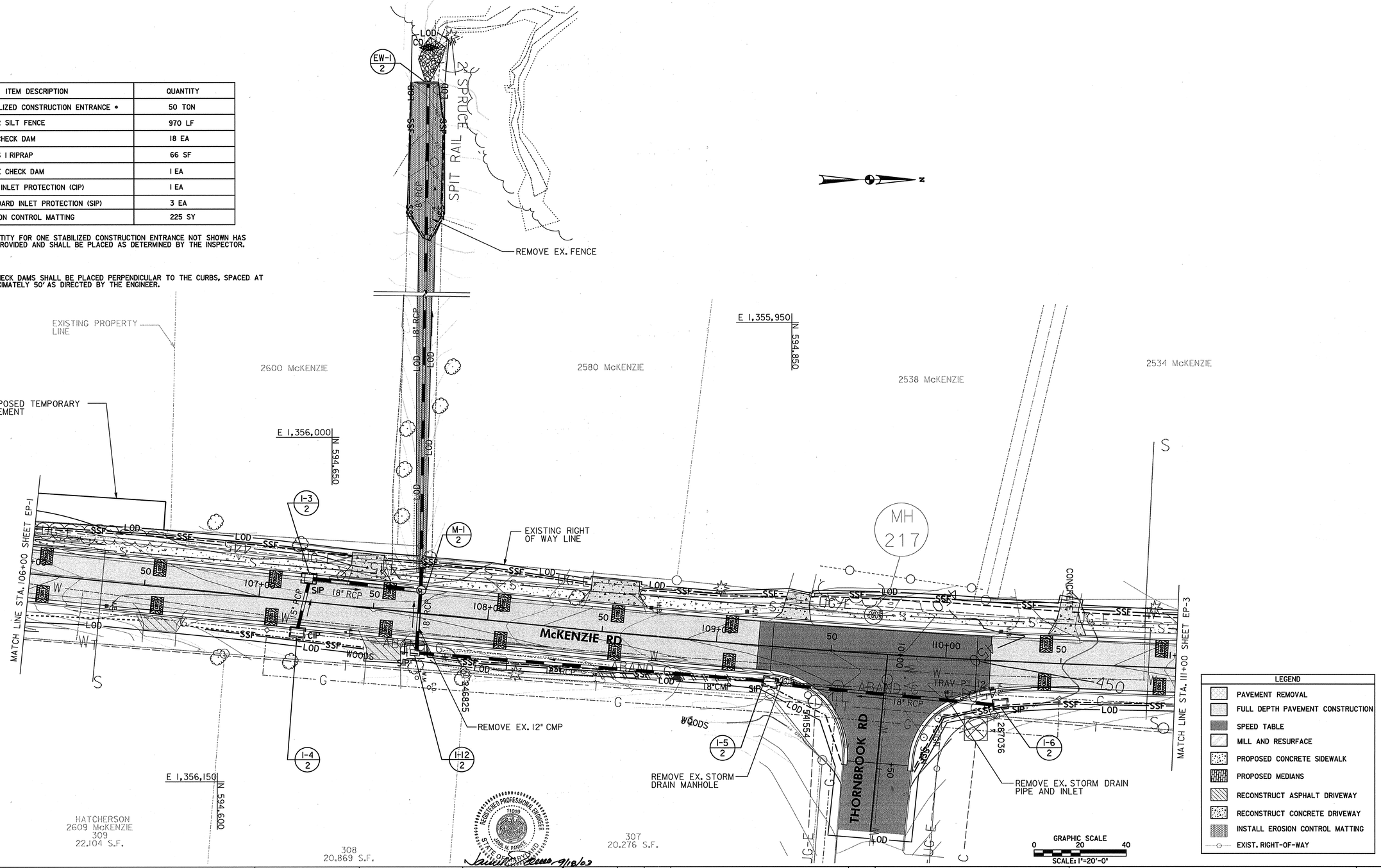
SHEET 14 OF 24

ITEM DESCRIPTION	QUANTITY
STABILIZED CONSTRUCTION ENTRANCE •	50 TON
SUPER SILT FENCE	970 LF
SBD CHECK DAM	18 EA
CLASS I RIPRAP	66 SF
STONE CHECK DAM	1 EA
CURB INLET PROTECTION (CIP)	1 EA
STANDARD INLET PROTECTION (SIP)	3 EA
EROSION CONTROL MATTING	225 SY

• QUANTITY FOR ONE STABILIZED CONSTRUCTION ENTRANCE NOT SHOWN HAS BEEN PROVIDED AND SHALL BE PLACED AS DETERMINED BY THE INSPECTOR.

NOTE:

SBD CHECK DAMS SHALL BE PLACED PERPENDICULAR TO THE CURBS, SPACED AT APPROXIMATELY 50' AS DIRECTED BY THE ENGINEER.



LEGEND

- PAVEMENT REMOVAL
- FULL DEPTH PAVEMENT CONSTRUCTION
- SPEED TABLE
- MILL AND RESURFACE
- PROPOSED CONCRETE SIDEWALK
- PROPOSED MEDIANS
- RECONSTRUCT ASPHALT DRIVEWAY
- RECONSTRUCT CONCRETE DRIVEWAY
- INSTALL EROSION CONTROL MATTING
- EXIST. RIGHT-OF-WAY

REGISTERED PROFESSIONAL ENGINEER — STATE OF MARYLAND — 11019 — JOHN W. PANNELL — 9/18/03

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS	9/29/03 DATE
CHIEF, BUREAU OF ENGINEERING	9/22/03 DATE
CHIEF, TRANSPORTATION AND SPECIAL PROJECTS DIVISION	9/22/03 DATE
CHIEF, BUREAU OF HIGHWAYS	9-24-03 DATE

STATE OF MARYLAND — DONALD THOMAS TUDOR — 21631 — REGISTERED PROFESSIONAL ENGINEER — 9/18/03

URS
HUNT VALLEY, MARYLAND

RJM ENGINEERING, INC.
CONSULTING ENGINEERS
COLUMBIA, MARYLAND
TELEx(410)730-1001 FAX(410)730-5403

DES:
DRN:
CHK:
DATE:

BY	NO.	REVISION	DATE

EROSION AND SEDIMENT CONTROL PLAN SHEET EP-2

NO.:____ DATE: 9/03

McKENZIE ROAD ROADWAY AND STORMDRAIN IMPROVEMENTS

HOWARD COUNTY, MARYLAND
CAPITAL PROJECT NO. J-4164-10

SCALE AS SHOWN

SHEET 15 OF 24

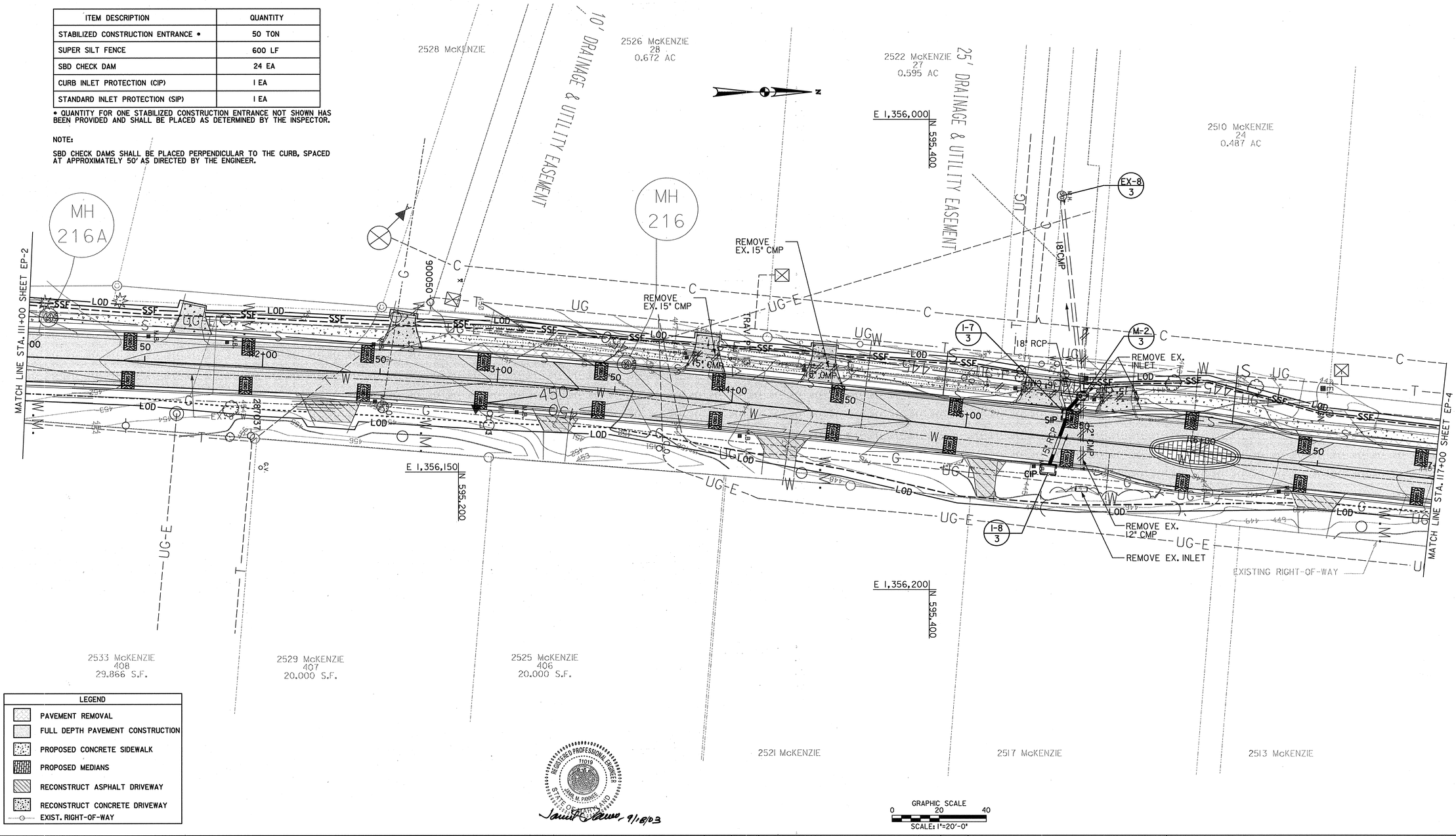
09/13/03
W:\Projects\Jobs\Vol4\McKenzie\2003-02\EP02mck.dgn

ITEM DESCRIPTION	QUANTITY
STABILIZED CONSTRUCTION ENTRANCE •	50 TON
SUPER SILT FENCE	600 LF
SBD CHECK DAM	24 EA
CURB INLET PROTECTION (CIP)	1 EA
STANDARD INLET PROTECTION (SIP)	1 EA

• QUANTITY FOR ONE STABILIZED CONSTRUCTION ENTRANCE NOT SHOWN HAS BEEN PROVIDED AND SHALL BE PLACED AS DETERMINED BY THE INSPECTOR.

NOTE:

SBD CHECK DAMS SHALL BE PLACED PERPENDICULAR TO THE CURB, SPACED AT APPROXIMATELY 50' AS DIRECTED BY THE ENGINEER.



LEGEND

- PAVEMENT REMOVAL
- FULL DEPTH PAVEMENT CONSTRUCTION
- PROPOSED CONCRETE SIDEWALK
- PROPOSED MEDIANS
- RECONSTRUCT ASPHALT DRIVEWAY
- RECONSTRUCT CONCRETE DRIVEWAY
- EXIST. RIGHT-OF-WAY

REGISTERED PROFESSIONAL ENGINEER 11019 DIANA M. PANNILL STATE OF MARYLAND
9/18/03

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS — DATE 9/29/03
CHIEF, BUREAU OF ENGINEERING — DATE 9/22/03
CHIEF, TRANSPORTATION AND SPECIAL PROJECTS DIVISION — DATE 9/22/03
CHIEF, BUREAU OF HIGHWAYS — DATE 9.24.03

STATE OF MARYLAND DAVID THOMAS FERGUSON 21019 REGISTERED PROFESSIONAL ENGINEER
9/18/03

URS
HUNT VALLEY, MARYLAND

RJM ENGINEERING, INC.
CONSULTING ENGINEERS
COLUMBIA, MARYLAND
TELE:(410)730-1001 FAX:(410)730-5403

DES:					
DRN:					
CHK:					
DATE:	BY	NO.	REVISION	DATE	

EROSION AND SEDIMENT CONTROL PLAN SHEET EP-3

NO.:____ DATE: 9/03

McKENZIE ROAD ROADWAY AND STORMDRAIN IMPROVEMENTS

HOWARD COUNTY, MARYLAND
CAPITAL PROJECT NO. J-4164-10

SCALE AS SHOWN

SHEET 16 OF 24

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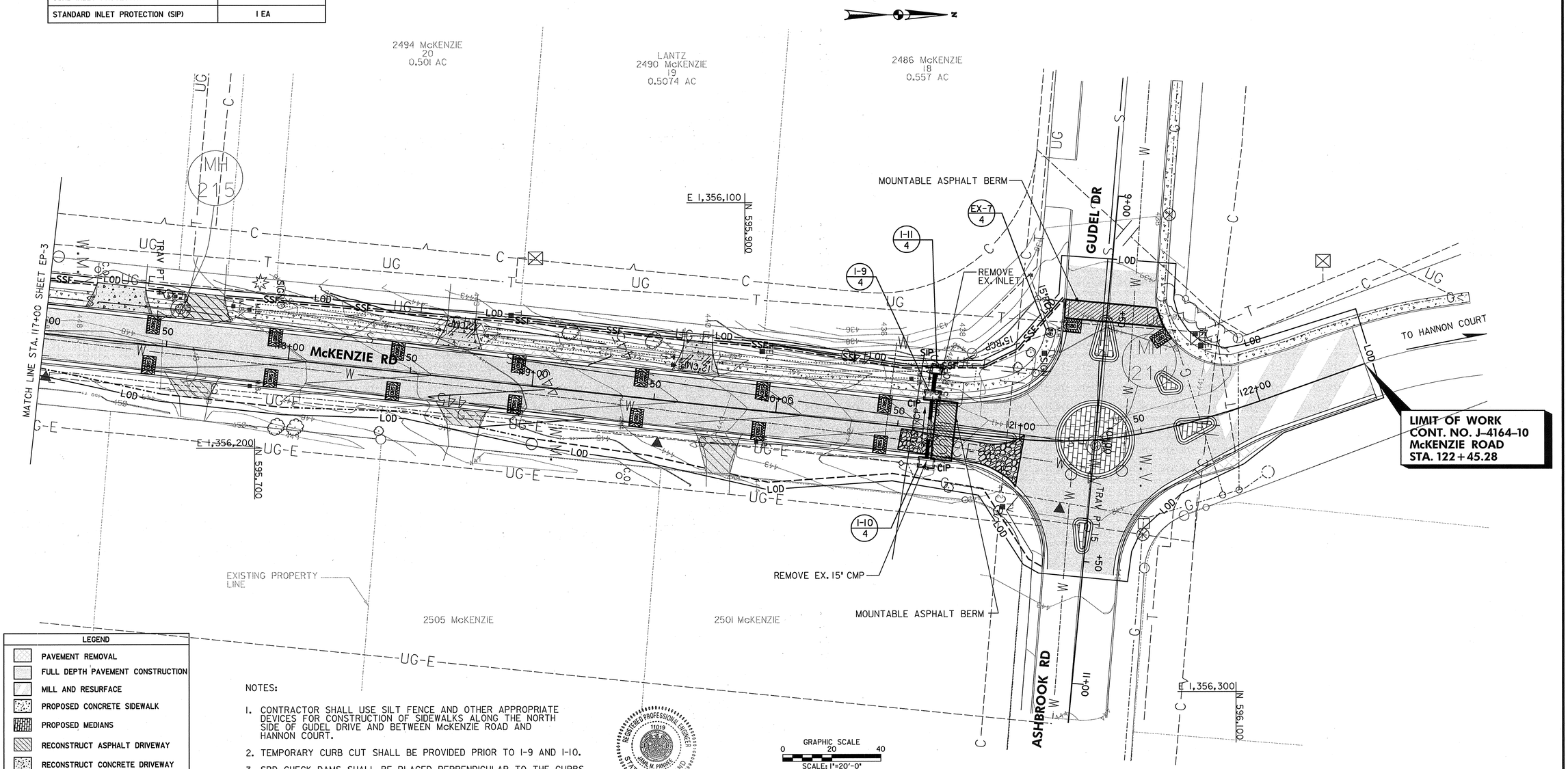
ITEM DESCRIPTION	QUANTITY
STABILIZED CONSTRUCTION ENTRANCE	50 TON
SUPER SILT FENCE	425 LF
SBD CHECK DAM	16 EA
ASPHALT BERM	64 LF
CURB INLET PROTECTION (CIP)	2 EA
STANDARD INLET PROTECTION (SIP)	1 EA



LEGEND

- PAVEMENT REMOVAL
- FULL DEPTH PAVEMENT CONSTRUCTION
- MILL AND RESURFACE
- PROPOSED CONCRETE SIDEWALK
- PROPOSED MEDIANS
- RECONSTRUCT ASPHALT DRIVEWAY
- RECONSTRUCT CONCRETE DRIVEWAY
- EXIST. RIGHT-OF-WAY

NOTES:

1. CONTRACTOR SHALL USE SILT FENCE AND OTHER APPROPRIATE DEVICES FOR CONSTRUCTION OF SIDEWALKS ALONG THE NORTH SIDE OF GUDEL DRIVE AND BETWEEN McKENZIE ROAD AND HANNON COURT.
2. TEMPORARY CURB CUT SHALL BE PROVIDED PRIOR TO I-9 AND I-10.
3. SBD CHECK DAMS SHALL BE PLACED PERPENDICULAR TO THE CURBS, SPACED AT APPROXIMATELY 50' AS DIRECTED BY THE ENGINEER.

REGISTERED PROFESSIONAL ENGINEER
STATE OF MARYLAND
11019
JAMES M. PANNEL
9/18/03

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS	9/22/03 DATE
CHIEF, BUREAU OF ENGINEERING	9/22/03 DATE
CHIEF, TRANSPORTATION AND SPECIAL PROJECTS DIVISION	9/22/03 DATE
CHIEF, BUREAU OF HIGHWAYS	9.24.03 DATE

STATE OF MARYLAND
DAVID THOMAS TORGOW
21627
PROFESSIONAL ENGINEER
9/18/03

URS
HUNT VALLEY, MARYLAND

RJM ENGINEERING, INC.
CONSULTING ENGINEERS
COLUMBIA, MARYLAND
TELE:(410)730-1001 FAX:(410)730-5403

DES:					
DRN:					
CHK:					
DATE:	BY	NO.	REVISION	DATE	NO.:____ DATE: 9/03

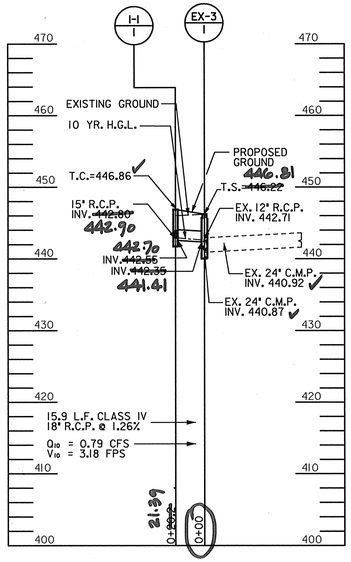
EROSION AND SEDIMENT CONTROL PLAN SHEET EP-4

McKENZIE ROAD ROADWAY AND STORMDRAIN IMPROVEMENTS

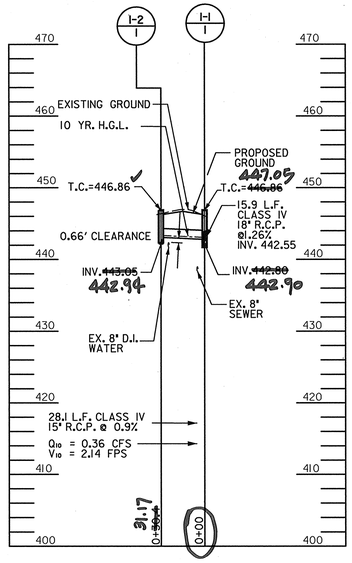
HOWARD COUNTY, MARYLAND
CAPITAL PROJECT NO. J-4164-10

SCALE AS SHOWN

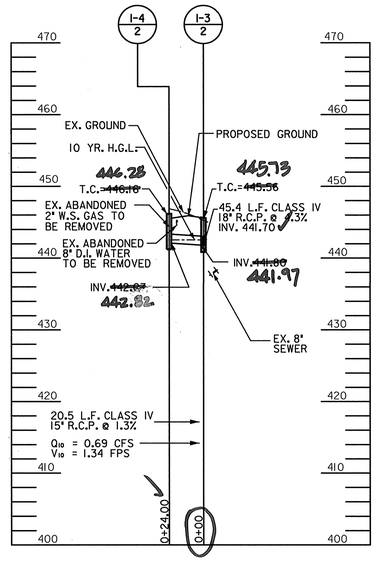
SHEET 17 OF 24



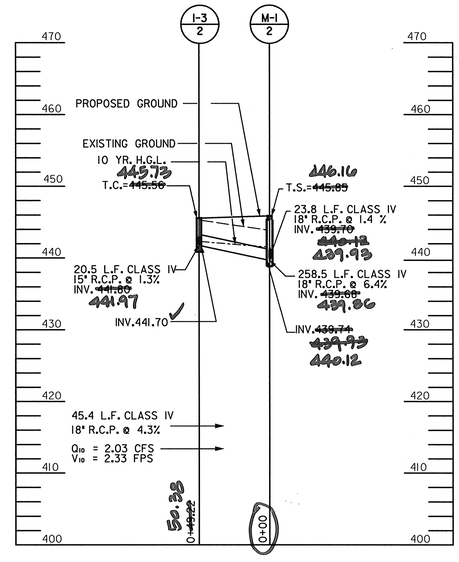
STA. 103+59.96 LT



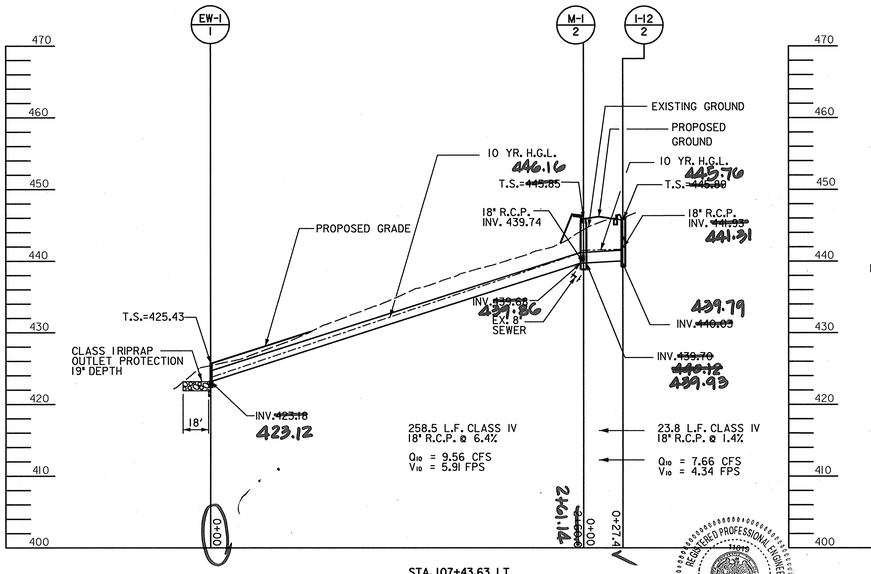
STA. 103+79.52 LT



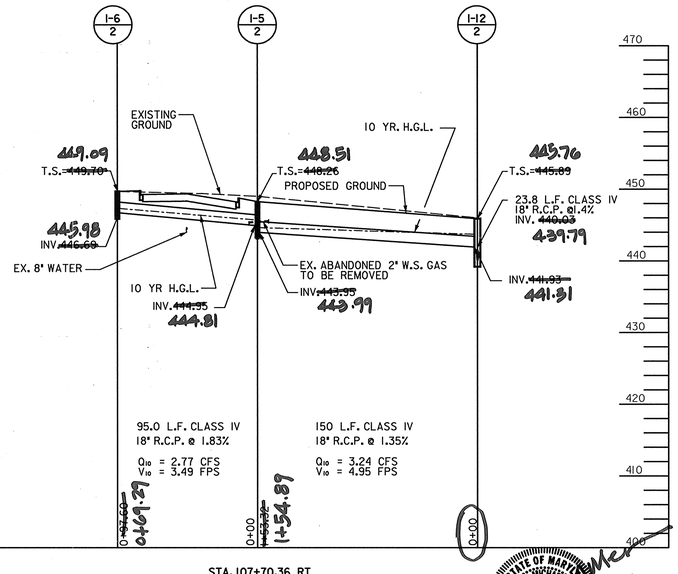
STA. 107+20.87 LT



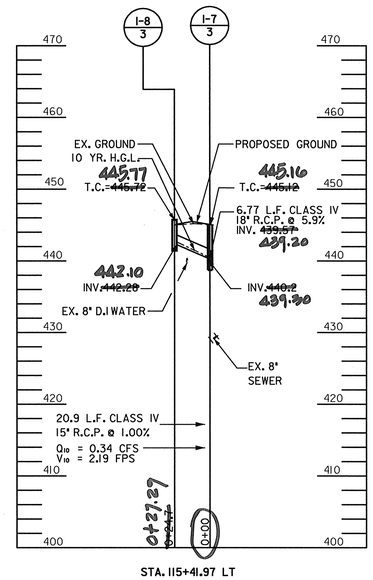
STA. 107+69.53 LT



STA. 107+43.63 LT



STA. 107+70.36 RT



STA. 115+41.97 LT

REGISTERED PROFESSIONAL ENGINEER
JOHN M. PINNEY
10879
STATE OF MARYLAND
9/25/03

STATE OF MARYLAND
DENNIS MICHAEL MILLER
21547
REGISTERED
PROPERTY LINE SURVEYOR
9-25-03

Note:
This is to certify an as-built survey of stormdrain structures and inverts was made in November 2004 *As-built remarks are shown in red!

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS — DATE 9/24/03
CHIEF, BUREAU OF ENGINEERING — DATE 9/25/03
CHIEF, TRANSPORTATION AND SPECIAL PROJECTS DIVISION — DATE 9/25/03
CHIEF, BUREAU OF HIGHWAYS — DATE 9-26-03

GRAPHIC SCALE
0 50 100
HOR. SCALE: 1"=50'-0"
0 10 20
VERT. SCALE: 1"=10'-0"

URS
HUNT VALLEY, MARYLAND

RJM ENGINEERING, INC.
CONSULTING ENGINEERS
COLUMBIA, MARYLAND
TELE:(410)730-1001 FAX:(410)730-5403

DES:
DRN:
CHK:
DATE:

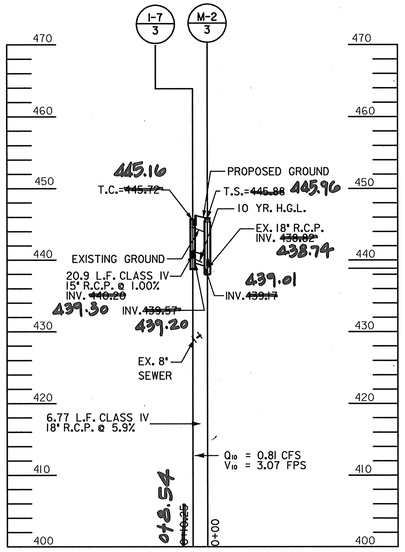
BY	NO.	REVISION	DATE

STORMDRAIN PROFILE
PP-1
NO.:____ DATE: 9/03

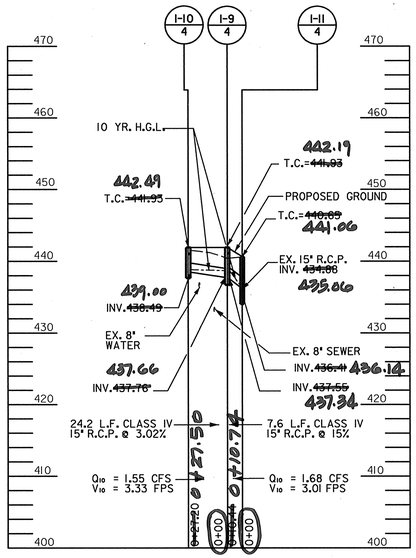
McKENZIE ROAD ROADWAY AND STORMDRAIN IMPROVEMENTS
HOWARD COUNTY, MARYLAND
CAPITAL PROJECT NO. J-4164-10

SCALE AS SHOWN
SHEET 18 OF 24

DATE PLOTTED: 09/25/2003 09:36:10 AM



STA. 115+47.53 LT



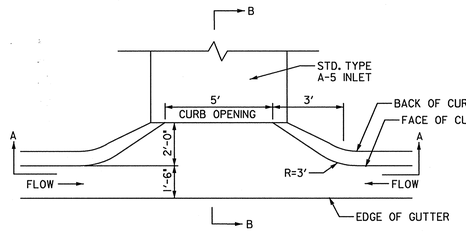
STA. 120+63.19 LT

PIPE SCHEDULE

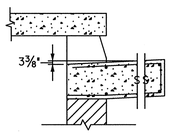
PIPE SCHEDULE				
FROM	TO	SIZE	TYPE	LENGTH
I-1	EX-3	18"	RCP, CL 4	15.9'
I-2	I-1	15"	RCP, CL 4	28.1'
I-4	I-3	15"	RCP, CL 4	20.5'
I-3	M-1	18"	RCP, CL 4	45.4'
M-1	EW-1	18"	RCP, CL 4	258.5'
I-6	I-5	18"	RCP, CL 4	95'
I-5	I-12	18"	RCP, CL 4	150'
I-12	M-1	18"	RCP, CL 4	23.8'
I-8	I-7	15"	RCP, CL 4	20.9'
I-7	M-2	18"	RCP, CL 4	6.77'
I-10	I-9	15"	RCP, CL 4	24.2
I-9	I-11	15"	RCP, CL 4	7.6'

DRAINAGE STRUCTURE SCHEDULE				
STRUCTURE NO.	STATION	OFFSET	TYPE	REF.
I-1	103+80	16' LT.	STD. 'A-5' INLET (SETBACK INLET)	SD-4.01, DETAIL THIS SHEET
I-2	103+79	16' RT.	STD. 'A-5' INLET (SETBACK INLET)	SD-4.01, DETAIL THIS SHEET
I-3	107+21	10' LT.	STD. WR INLET	SD-4.37
I-4	107+22	12' RT.	STD. 'A-10' INLET	SD-4.02
I-5	109+25	14' RT.	STD. WR INLET	SD-4.37
I-6	110+24	17' RT	STD. OPEN END GRATE INLET	SD-4.36
I-12	107+70	17' RT	STD.TYPE 'E' INLET	SD-4.21
M-1	107+69	15' LT.	STD. 48" DIA. MANHOLE	G-5.12
EW-1	107+51	209' LT.	STD TYPE 'C' ENDWALL	SD-5.51
I-7	115+42	10' LT.	STD. WR INLET	SD-4.37
I-8	115+39	12' RT.	STD. 'A-5' INLET	SD-4.01
I-9	120+63	12' LT.	STD. 'A-10' INLET	SD-4.02
I-10	120+63	12' RT.	STD. 'A-10' INLET	SD-4.02
I-11	120+63	25' LT.	STD. 'S' INLET	SD-4.22
M-2	115+47	19' LT	STD. 48" DIA. MANHOLE	G-5.12

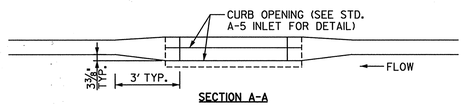
NOTE: THE OFFSET TO THE DRAINAGE STRUCTURES IS MEASURED TO THE FACE OF THE CURB (WHERE APPLICABLE), OR TO THE CENTER OF THE STRUCTURES.



PLAN VIEW



SECTION B-B



SECTION A-A

DETAIL – CURB OFFSET AND MODIFIED SETBACK TYPE A-5 INLET

SCALE: N.T.S.

STATE OF MARYLAND — JAMES MICHAEL PANNEE — 21019 — REGISTERED PROFESSIONAL ENGINEER — PROPERTY LINE SURVEYOR

Note:
This is to certify an as-built survey of storm drain structures and inverts was made in November 2004. * As-built remarks are shown in red!

STATE OF MARYLAND — JAMES M. PANNEE — 21019 — REGISTERED PROFESSIONAL ENGINEER

9/25/03

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS — DATE 9/24/03
CHIEF, TRANSPORTATION AND SPECIAL PROJECTS DIVISION — DATE 9/25/03
CHIEF, BUREAU OF ENGINEERING — DATE 9/25/03
CHIEF, BUREAU OF HIGHWAYS — DATE 9-26-03

GRAPHIC SCALE
0 50 100
HOR. SCALE: 1"=50'-0"
0 10 20
VERT. SCALE: 1"=10'-0"

URS
HUNT VALLEY, MARYLAND

RJM ENGINEERING, INC.
CONSULTING ENGINEERS
COLUMBIA, MARYLAND
TELE:(410)730-1001 FAX:(410)730-5403

DES:
DRN:
CHK:
DATE:

BY	NO.	REVISION	DATE

STORMDRAIN PROFILE
PP-2
NO.:____ DATE: 9/03

McKENZIE ROAD ROADWAY AND STORMDRAIN IMPROVEMENTS
HOWARD COUNTY, MARYLAND
CAPITAL PROJECT NO. J-4164-10

SCALE AS SHOWN
SHEET 10 OF 24

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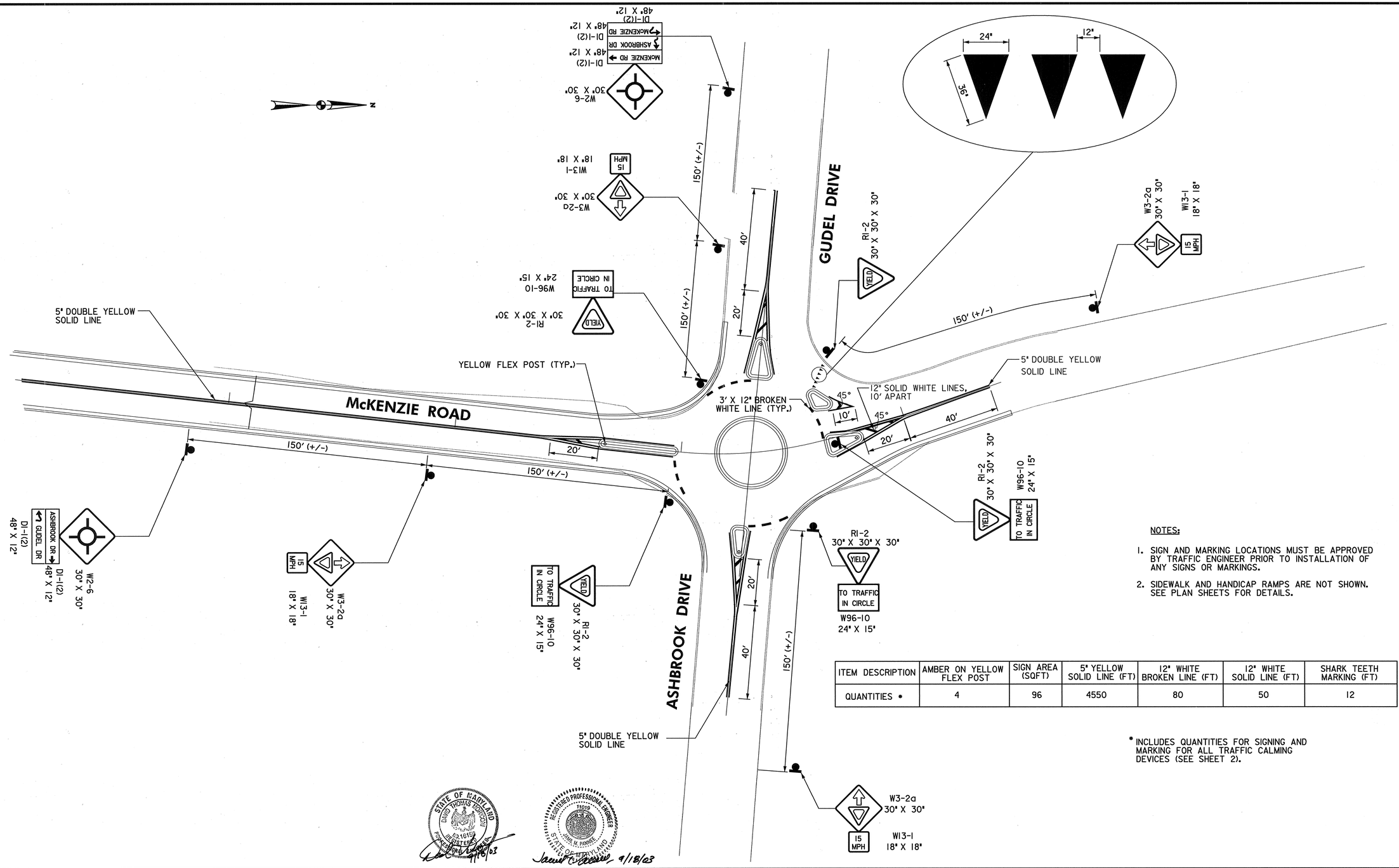


NOTES:

1. SIGN AND MARKING LOCATIONS MUST BE APPROVED BY TRAFFIC ENGINEER PRIOR TO INSTALLATION OF ANY SIGNS OR MARKINGS.
2. SIDEWALK AND HANDICAP RAMPS ARE NOT SHOWN. SEE PLAN SHEETS FOR DETAILS.

ITEM DESCRIPTION	AMBER ON YELLOW FLEX POST	SIGN AREA (SQFT)	5" YELLOW SOLID LINE (FT)	12" WHITE BROKEN LINE (FT)	12" WHITE SOLID LINE (FT)	SHARK TEETH MARKING (FT)
QUANTITIES •	4	96	4550	80	50	12

• INCLUDES QUANTITIES FOR SIGNING AND MARKING FOR ALL TRAFFIC CALMING DEVICES (SEE SHEET 2).

STATE OF MARYLAND — DAVID THOMAS HICKSON — 21615 — REGISTERED PROFESSIONAL ENGINEER — 9/18/03

REGISTERED PROFESSIONAL ENGINEER — 11019 — JOHN M. PANNELL — STATE OF MARYLAND — 9/18/03

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS — 9/29/03 DATE
CHIEF, BUREAU OF ENGINEERING — 9/22/03 DATE
CHIEF, TRANSPORTATION AND SPECIAL PROJECTS DIVISION — 9/22/03 DATE
CHIEF, BUREAU OF HIGHWAYS — 9.24.03 DATE

GRAPHIC SCALE 0 20 40 — SCALE: 1"=20'-0"

URS — HUNT VALLEY, MARYLAND

RJM ENGINEERING, INC. CONSULTING ENGINEERS COLUMBIA, MARYLAND
TELE:(410)730-1001 FAX:(410)730-5403

DES:
DRN:
CHK:
DATE:

BY	NO.	REVISION	DATE

MINI- ROUNDABOUT MARKING AND SIGNING PLAN AT ASHBROOK DRIVE

NO.:____ DATE: 9/03

McKENZIE ROAD ROADWAY AND STORMDRAIN IMPROVEMENTS

HOWARD COUNTY, MARYLAND
CAPITAL PROJECT NO. J-4164-10

SCALE AS SHOWN

SHEET 2 OF 24

GENERAL NOTES

1. ALL STANDARD REGULATORY AND WARNING SIGNS USED FOR MAINTENANCE OF TRAFFIC SHALL BE IN ACCORDANCE WITH LATEST APPROVED EDITIONS OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", THE MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION (SHA) "STANDARD SIGN BOOK", AND THE HOWARD COUNTY "STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION". THE MARYLAND STATE HIGHWAY ADMINISTRATION'S TEMPORARY TRAFFIC CONTROL REFERENCE MANUAL STANDARDS SHALL BE USED WHEN REFERENCED. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PROCURE AND UTILIZE THE LATEST EDITION AND SUPPLEMENTS OF EACH OF THE PUBLICATIONS.

2. DURING CONSTRUCTION OF STAGE I AND 2, ACCESS TO McKENZIE ROAD FOR LOCAL TRAFFIC SHALL BE PROVIDED.

3. ALL EXISTING SIGNS IN CONFLICT WITH THE PROPOSED MAINTENANCE OF TRAFFIC SCHEME SHALL BE COVERED. AFTER EACH STAGE OF WORK IS COMPLETE, THE CONTRACTOR SHALL UNCOVER EXISTING SIGNS AS SOON AS POSSIBLE OR AS DIRECTED BY THE ENGINEER TO IMPROVE OVERALL PROJECT SAFETY. NO SECTION OF ROADWAY SHALL BE OPEN TO TRAFFIC UNTIL ALL EXISTING SIGNS AND PERMANENT MARKINGS ARE RESTORED

4. ALL WORK ZONE SIGNS SHALL BE FIELD LOCATED AND APPROVED BY TRAFFIC ENGINEER PRIOR TO INSTALLATION OF ANY SIGNS

5. DETOUR PLAN FOR STAGE I IS IN EFFECT DURING WORK HOURS. AFTER EACH WORK DAY, ALL DETOUR SIGNS SHALL BE REMOVED, COVERED, OR TURNED AWAY FROM INCOMING TRAFFIC.

6. ALL EXISTING TRAFFIC SIGNAL SUPPORT STRUCTURES AND SIGNS SHALL BE MAINTAINED DURING CONSTRUCTION.

7. ALL PLASTIC DRUMS SHALL BE WEIGHTED WITH SAND BAGS OR OTHER APPROVED MATERIALS TO WITHSTAND WIND LOADS.

8. CONTRACTOR SHALL MONITOR ALL TRAFFIC CONTROL DEVICES (DRUMS, SIGNS, ETC.) 24 HOURS A DAY AND 7 DAYS A WEEK AND IMMEDIATELY CORRECT ANY DAMAGE DUE TO TRAFFIC OR WEATHER RELATED CONDITIONS. THE CONTRACTOR WILL NEED A CERTIFIED TRAFFIC CONTROL MANAGER FOR THE PROJECT.

ROAD CLOSED AHEAD — W20-3, 36" x 36"
FOLLOW DETOUR — 24" X 18"
SIGN (A)

30" x 12"
McKENZIE RD (5" LETTERS BLACK/WHITE)
DETOUR — M4-9, 30" X 24"
SIGN (B)

30" x 12"
McKENZIE RD (5" LETTERS BLACK/WHITE)
DETOUR — M4-9R, 30" X 24"
SIGN (C)

30" x 12"
McKENZIE RD (5" LETTERS BLACK/WHITE)
DETOUR — M4-9, 30" X 24"
SIGN (D)

30" x 12"
McKENZIE RD
DETOUR — M4-9L, 30" X 24"
SIGN (E)

30" x 12"
McKENZIE RD (5" LETTERS BLACK/WHITE)
DETOUR — M4-9, 30" X 24"
SIGN (F)

END DETOUR — M4-8A, 24" X 18"
SIGN (G)

R11-4, 48" x 30"
ROAD CLOSED TO THRU TRAFFIC (MOUNT ON TYPE III BARRICADES WITH TYPE B FLASHING LIGHTS, 24 HOURS/DAY)
SIGN (R)

DETOUR — M4-10R, 48" X 18"
SIGN (S)

DETOUR — M4-10L, 48" X 18"
SIGN (T)

ROAD WORK AHEAD — W20-1, 36" X 36"
SIGN (H)

R11-4, 48" x 30"
ROAD CLOSED 1/4 MILES AHEAD LOCAL TRAFFIC ONLY (MOUNT ON TYPE III BARRICADES)
SIGN (P)

BLACK/YELLOW	NOTICE	48" X 12", 7" LETTERS
	McKENZIE ROAD	6" LETTERS
BLACK/WHITE	CLOSED	48" X 30", 8" LETTERS
	AT ROUTE 99	6" LETTERS
BLACK/ORANGE	DETOUR AHEAD	48" X 12", 6" LETTERS

SIGN (K)

SIGN LEGEND

SCALE: N.T.S.

REGISTERED PROFESSIONAL ENGINEER 11010 JOHN M. PANNELL STATE OF MARYLAND
9/18/03

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS — DATE 9/29/03
CHIEF, BUREAU OF ENGINEERING — DATE 9/22/03
CHIEF, TRANSPORTATION AND SPECIAL PROJECTS DIVISION — DATE 9/22/03
CHIEF, BUREAU OF HIGHWAYS — DATE 9.24.03

STATE OF MARYLAND DAVID THOMAS FOSDICK 21615 REGISTERED PROFESSIONAL ENGINEER
9/18/03

URS
HUNT VALLEY, MARYLAND

RJM ENGINEERING, INC.
CONSULTING ENGINEERS
COLUMBIA, MARYLAND
TELEx(410)730-1001 FAX(410)730-5403

DES: DRN: CHK: DATE:

BY	NO.	REVISION	DATE

TRAFFIC CONTROL GENERAL NOTES AND SIGN LEGEND

NO.:____ DATE: 9/03

McKENZIE ROAD ROADWAY AND STORMDRAIN IMPROVEMENTS

HOWARD COUNTY, MARYLAND
CAPITAL PROJECT NO. J-4164-10

SCALE AS SHOWN

SHEET 2 OF 24

$DATE$
$FILES$

MOUNT HEBRON

AT PATAPSCO

N

LANE

CARR CT

BALLARD WAY

DIVERSIFIED LA

BRIDGE-WATER CT

ROBERT JAY WAY

GUDEL DR

FINCH CT

RIDGE TREE CT

OLD MAPLE

Mc KENZIE ROAD

DUFF CT

CARRIE WAY

DUFF CT.

FURROW CT.

MT.

MT. HEBRON

CAL VIN CIR.

FURROW AVE

FURROW AVE.

FARM

PARK

RD

ORIOLE CT

RD

STARLING

EAGLE CT

SPARROW CT

HAWK CT

GUDEL DR

ASHBROOK DR

PARSLEY DR

MIST HAVEN CT.

MAPLE ROCK

99

MILL ROAD

NORTH FARM

CHAMBERLEA

LITER CT

LITER DR

MILLWICK DR

THORNBROOK

TILLER DRIVE

KNOLL STONE CT.

MT.HEBRON HIGH SCHOOL

OLD FREDERICK ROAD

99

S McKENZIE RD

SAINT SULAN CIR

THE ORCHARDS

DR.

70

NOTES:

1. CONSTRUCT PAVEMENT, CURB AND GUTTER, SIDEWALK, AND DRAINAGE STRUCTURES FROM STATION 109+97 TO STATION 121+20 ON McKENZIE ROAD WITH THIS ROAD CLOSURE SETUP. PERFORM PAVEMENT RECONSTRUCTION, MILL AND RESURFACE, AND CONSTRUCT THE FOUR ISLANDS AND THE ROUNDABOUT NORTH OF STATION 121+20 UNDER FLAGGER OPERATION.
2. SEE TRAFFIC CONTROL PLAN SHEET TP-3 FOR DETAILED CONSTRUCTION SEQUENCE AT THORNBROOK ROAD.
3. THIS TRAFFIC CONTROL SET UP IS ONLY FOR WORKING HOURS BETWEEN 9 AM AND 4 PM. CONTRACTOR SHALL OPEN ROADS TO TRAFFIC DURING NON-WORKING HOURS.

SIGNS AREA (SQFT)	226
TYPE III BARRICADE (EA)	4
TRAFFIC DRUMS (EA)	8

TRAFFIC CONTROL - LEGEND

PROPOSED CONSTRUCTION

STATE OF MARYLAND — DAVID THOMAS HOBSON — 21615 — REGISTERED PROFESSIONAL ENGINEER — 9/18/03

REGISTERED PROFESSIONAL ENGINEER — 11019 — JOHN M. PANNELL — STATE OF MARYLAND — 9/18/03

STAGE 1

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS — DATE 9/22/03

CHIEF, BUREAU OF ENGINEERING — DATE 9/22/03

CHIEF, TRANSPORTATION AND SPECIAL PROJECTS DIVISION — DATE 9/22/03

CHIEF, BUREAU OF HIGHWAYS — DATE 9.24.03

GRAPHIC SCALE 0 300 600 SCALE: 1"=300'

URS — HUNT VALLEY, MARYLAND

RJM ENGINEERING, INC. CONSULTING ENGINEERS COLUMBIA, MARYLAND
TELE:(410)730-1001 FAX:(410)730-5403

DES: DRN: CHK: DATE:

BY	NO.	REVISION	DATE

TRAFFIC CONTROL PLAN SHEET TP-1

NO.:____ DATE: 9/03

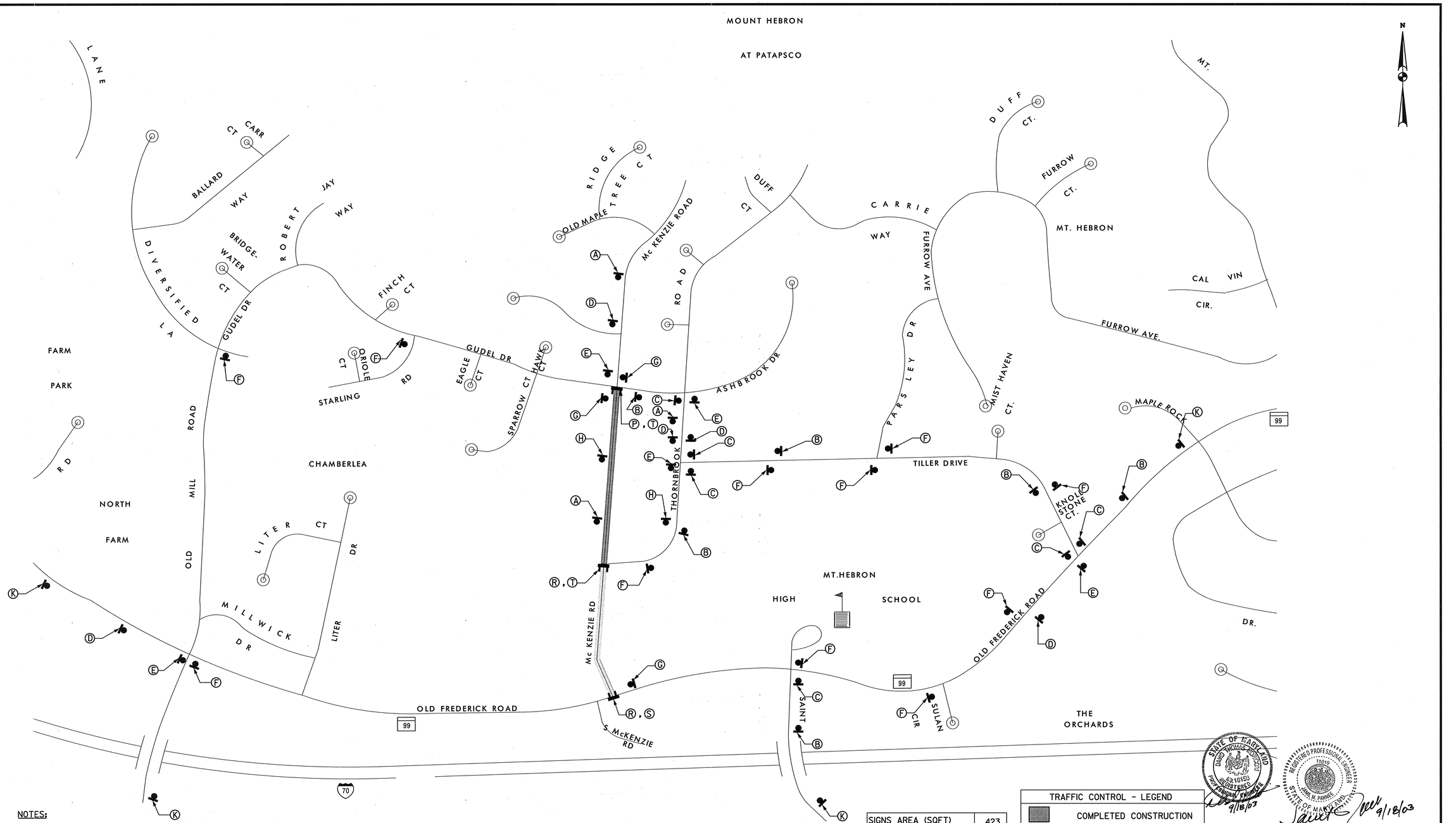
McKENZIE ROAD ROADWAY AND STORMDRAIN IMPROVEMENTS

HOWARD COUNTY, MARYLAND
CAPITAL PROJECT NO. J-4164-10

SCALE AS SHOWN

SHEET 22 OF 24

ROUTE 9 FILES



NOTES:

1. CONSTRUCT PAVEMENT, CURB AND GUTTER, SIDEWALK, AND DRAINAGE STRUCTURES FROM STATION 100+27 TO STATION 109+73 ON McKENZIE ROAD DURING THIS STAGE.
2. SEE TRAFFIC CONTROL PLAN SHEET TP-3 FOR DETAILED CONSTRUCTION SEQUENCE AT THORNBROOK ROAD.

SIGNS AREA (SQFT)	423
TYPE III BARRICADE (EA)	5
TRAFFIC DRUMS (EA)	10

TRAFFIC CONTROL - LEGEND

- COMPLETED CONSTRUCTION
- PROPOSED CONSTRUCTION

STATE OF MARYLAND — DAVID THOMAS DOWNEY — REGISTERED PROFESSIONAL ENGINEER — 9/18/03

REGISTERED PROFESSIONAL ENGINEER — 11010 — JAMES M. PANNELL — STATE OF MARYLAND — 9/18/03

STAGE 2

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS — DATE 9/29/03
CHIEF, BUREAU OF ENGINEERING — DATE 9/22/03
CHIEF, TRANSPORTATION AND SPECIAL PROJECTS DIVISION — DATE 9/22/03
CHIEF, BUREAU OF HIGHWAYS — DATE 9.24.03

GRAPHIC SCALE 0 300 600
SCALE: 1"=300'

URS
HUNT VALLEY, MARYLAND

RJM ENGINEERING, INC.
CONSULTING ENGINEERS
COLUMBIA, MARYLAND
TELEx(410)730-1001 FAX#(410)730-5403

	BY	NO.	REVISION	DATE
DES:				
DRN:				
CHK:				
DATE:				

TRAFFIC CONTROL PLAN SHEET TP-2

NO.:____ DATE: 9/03

McKENZIE ROAD ROADWAY AND STORMDRAIN IMPROVEMENTS

HOWARD COUNTY, MARYLAND
CAPITAL PROJECT NO. J-4164-10

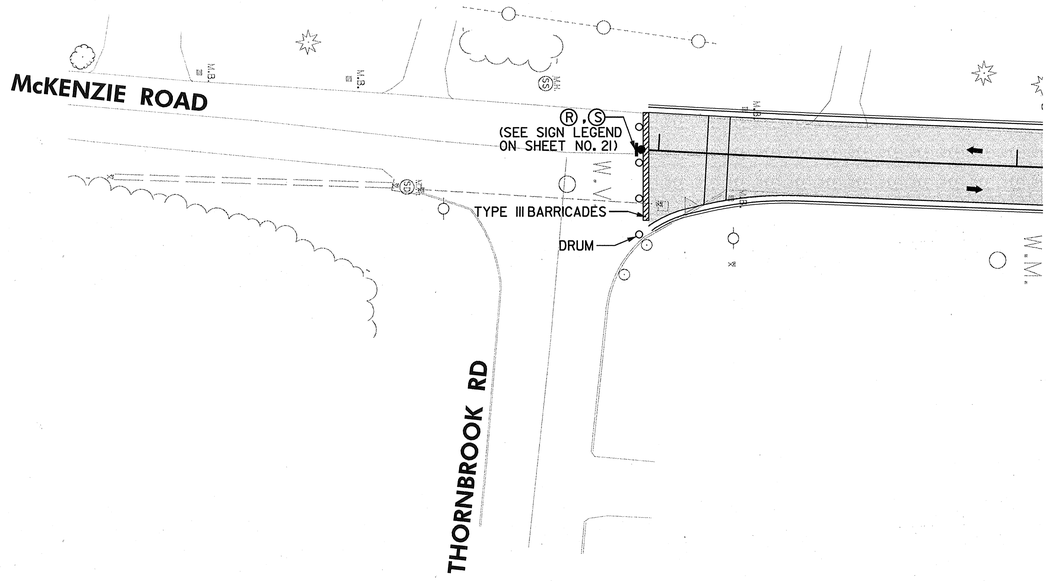
SCALE AS SHOWN

SHEET 23 OF 24

TRAFFIC CONTROL - LEGEND

S MAX — PLASTIC DRUM SPACING EQUALS TO 10 FEET UNLESS NOTED OTHERWISE OR AS DIRECTED BY THE ENGINEER.

PROPOSED CONSTRUCTION



STAGE 1

NOTES:

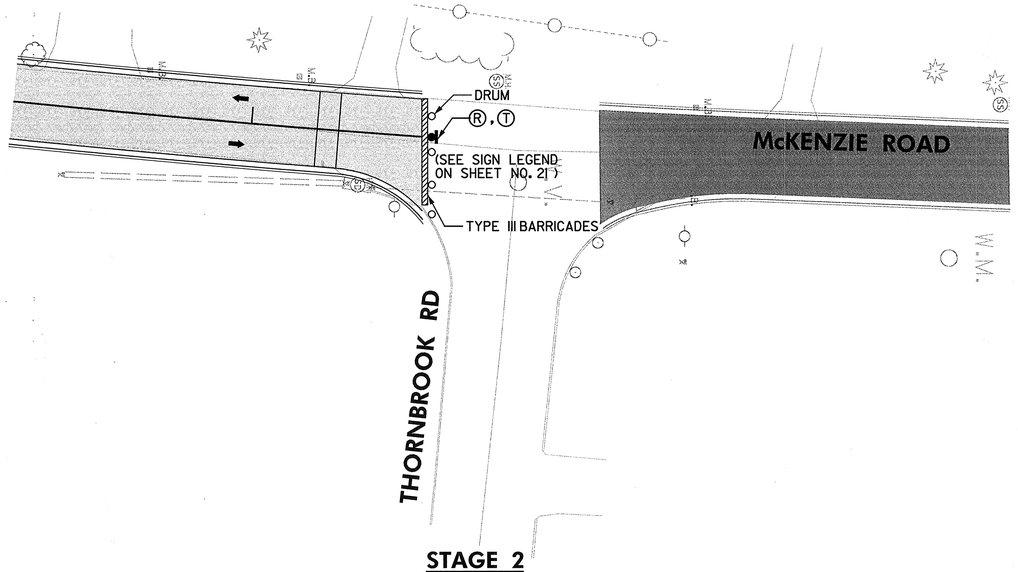
1. CONSTRUCT PAVEMENT, CURB AND GUTTER, SIDEWALK AND DRAINAGE STRUCTURES FROM STA 109+97 TO STA. 121+20 ON McKENZIE ROAD.
2. SEE TRAFFIC CONTROL PLAN SHEET TP-1 FOR SIGNS AND LOCATIONS. SEE ALSO THE GENERAL NOTES ON SHEET NO. 21.
3. USE FLAGGER OPERATION FOR CONSTRUCTION OF THE AREA BETWEEN STA. 109+73 AND 109+97.

TRAFFIC CONTROL - LEGEND

S MAX — PLASTIC DRUM SPACING EQUALS TO 10 FEET UNLESS NOTED OTHERWISE OR AS DIRECTED BY THE ENGINEER.

COMPLETED CONSTRUCTION

PROPOSED CONSTRUCTION



STAGE 2

NOTES:

1. CONSTRUCT PAVEMENT, CURB AND GUTTER, SIDEWALK AND DRAINAGE STRUCTURES FROM STA. 100+23 TO STA 109+73 ON McKENZIE ROAD.
2. SEE TRAFFIC CONTROL PLAN SHEET TP-2 FOR SIGNS AND LOCATIONS. SEE ALSO THE GENERAL NOTES ON SHEET NO. 21.

STATE OF MARYLAND — DAVID THOMAS TERRANOVA — 21016 — REGISTERED PROFESSIONAL ENGINEER — 9/10/03

REGISTERED PROFESSIONAL ENGINEER — 11010 — JAMES M. PANNO — STATE OF MARYLAND — 9/18/03

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS — DATE 9/29/03
CHIEF, BUREAU OF ENGINEERING — DATE 9/22/03
CHIEF, TRANSPORTATION AND SPECIAL PROJECTS DIVISION — DATE 9/22/03
CHIEF, BUREAU OF HIGHWAYS — DATE 9.24.03

GRAPHIC SCALE 0 20 40
SCALE: 1"=20'-0"

URS — HUNT VALLEY, MARYLAND

RJM ENGINEERING, INC.
CONSULTING ENGINEERS
COLUMBIA, MARYLAND
TELEx(410)730-1001 FAX(410)730-5403

DES:
DRN:
CHK:
DATE:

BY	NO.	REVISION	DATE

TRAFFIC CONTROL PLAN SHEET 3

NO.:____ DATE: 9/03

McKENZIE ROAD ROADWAY AND STORMDRAIN IMPROVEMENTS

HOWARD COUNTY, MARYLAND
CAPITAL PROJECT NO. J-4164-10

SCALE AS SHOWN

SHEET 24 OF 24

SOLTS# 8FILES