## INDEX OF SHEETS

| SHEET NO. | DESCRIPTION |
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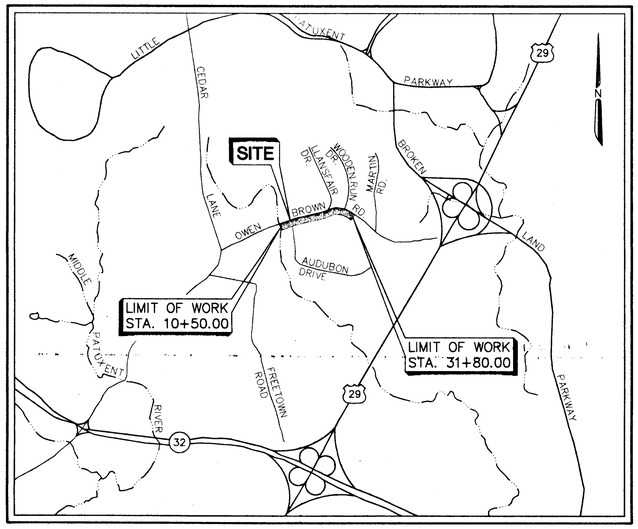
| 5 | STORM DRAIN PROFILE |
| 6–12 | CROSS SECTIONS |

## *SEDIMENT CONTROL NOTES:*

1) A MINIMUM OF 24 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY OFFICE OF INSPECTIONS AND PERMITS 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.
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 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, 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 SEEDINGS (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 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 THEIR REMOVAL HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
7) SITE ANALYSIS:

| | |
|---|---|
| TOTAL AREA OF SITE | 1.92 ACRES |
| AREA DISTURBED | 0.97 ACRES |
| AREA TO BE ROOFED OR PAVED | 0.69 ACRES |
| AREA TO BE VEGETATIVELY STABILIZED | 0.28 ACRES |
| TOTAL CUT | 650.00 CU. YDS. |
| TOTAL FILL | 345.00 CU. YDS. |
| OFFSITE WASTE/BORROW AREA LOCATION | TO BE DETERMINED |

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 DPW 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.




**LOCATION MAP**
SCALE 1" = 2000'

## GENERAL NOTES

1. ALL INFORMATION AND DETAILS ON THESE DRAWINGS SHALL BE AS DIRECTED BY THE HOWARD COUNTY ENGINEER.
2. ALL STATIONING AND DIMENSIONING ARE TO BE FIELD VERIFIED BY HOWARD COUNTY ENGINEER.
3. STORM DRAINAGE SLOPES ARE TO BE AS DIRECTED BY HOWARD COUNTY ENGINEER UNLESS OTHERWISE SHOWN ON PLANS.
4. 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. CONTRACTOR SHALL NOTIFY THE FOLLOWING UTILITIES OR AGENCIES AT LEAST FIVE (5) DAYS BEFORE STARTING WORK SHOWN ON THESE PLANS.

   MISS UTILITY 1–800–257–7777
   Baltimore Gas & Electric Company – Gas Distribution
   Engineering 234–5533

   THE CONTRACTOR SHALL CONTACT THE HOWARD COUNTY CONSTRUCTION INSPECTION DIVISION OF ENGINEERING FOR VERIFICATION AND/OR INFORMATION REGARDING:
   A. PROPOSED/EXISTING RIGHT–OF–WAY.
   B. UTILITY RELOCATION.
   C. MAINTENANCE OF TRAFFIC DURING CONSTRUCTION.
   D. EROSION/SEDIMENT CONTROL CERTIFICATION AND PERMIT
   E. HORIZONTAL/VERTICAL SURVEY CONTROL.
5. SEE HOWARD COUNTY STANDARD DETAILS NO'S G–1.01 & G–1.02 FOR STANDARD SYMBOLS.
6. ALL COORDINATES ARE BASED ON MARYLAND GRID.
7. MAINTENANCE OF TRAFFIC SHALL BE HANDELED BY STANDARD MD–104.108 MARYLAND DEPARTMENT OF TRANSPORTATION – WORK ZONE TRAFFIC CONTROL TYPICAL – SHOULDER WORK.
8. MAINTENANCE AND PROTECTION OF TRAFFIC DURING CONSTRUCTION AT AUDUBON DRIVE SHALL BE STANDARD MD 104.105 MARYLAND DEPARTMENT OF TRANSPORTATION AND WORK ZONE TRAFFIC CONTROL TYPICAL INTERSECTION FLAGGING OPERATION.

CAPITAL PROJECT NO. K–5023B

# Owen Brown Road Sidewalk

HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS

REVIEWED FOR HOWARD COUNTY SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.

U.S. Natural Resources Conservation Service — Date

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

Howard Soil Conservation District — Date

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT AND PLAN FOR EROSION AND SEDIMENT CONTROL AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES 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 OR THEIR AUTHORIZED AGENTS, AS ARE DEEMED NECESSARY."

SIGNATURE OF DEVELOPER — DATE

APPROVED: FOR STORM DRAINAGE SYSTEMS AND PUBLIC ROADS. HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.

CHIEF, DIVISION OF TRANSPORTATION PROJECTS AND WATERSHED MANAGEMENT. — DATE

C135BZ01

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS — DATE
CHIEF, BUREAU OF ENGINEERING — DATE
CHIEF, TRANSPORTATION PROJECTS AND WATERSHED MANAGEMENT DIVISION — DATE
CHIEF, BUREAU OF HIGHWAYS — DATE


A/E GROUP, INC.
ENGINEERS • PLANNERS
11409 Cronhill Drive
Owings Mills, Maryland 21117
A/E Job No. 93–259–017


DES: S.R.H.
DRN: M.J.G.
CHK: S.R.H.
DATE: 7/96

| BY | NO. | REVISION | DATE |
|---|---|---|---|

CAPITAL PROJECT NO.
K–5023B
600' SCALE MAP NO. _____ DATE: _____

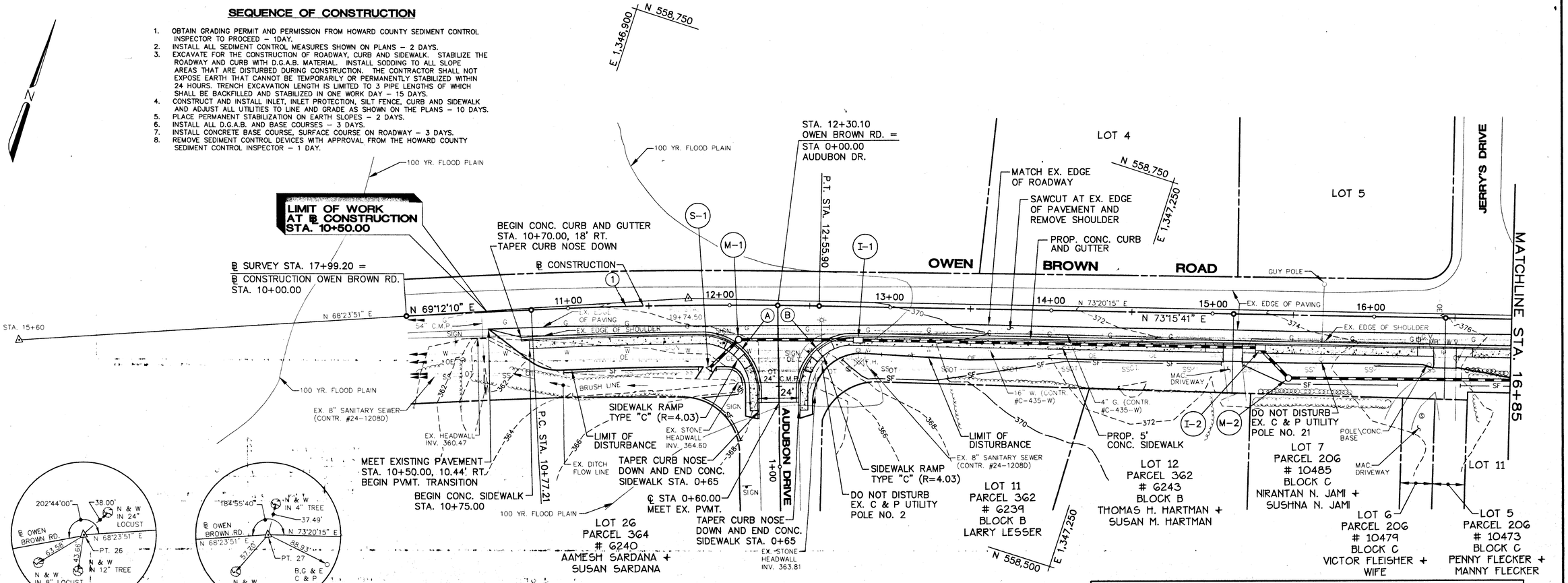
TITLE SHEET
**Owen Brown Road**

SCALE AS SHOWN

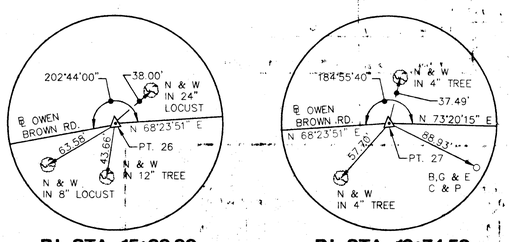
SHEET 1 OF 12

## SEQUENCE OF CONSTRUCTION

1. OBTAIN GRADING PERMIT AND PERMISSION FROM HOWARD COUNTY SEDIMENT CONTROL INSPECTOR TO PROCEED – 1DAY.
2. INSTALL ALL SEDIMENT CONTROL MEASURES SHOWN ON PLANS – 2 DAYS.
3. EXCAVATE FOR THE CONSTRUCTION OF ROADWAY, CURB AND SIDEWALK. STABILIZE THE ROADWAY AND CURB WITH D.G.A.B. MATERIAL. INSTALL SODDING TO ALL SLOPE AREAS THAT ARE DISTURBED DURING CONSTRUCTION. THE CONTRACTOR SHALL NOT EXPOSE EARTH THAT CANNOT BE TEMPORARILY OR PERMANENTLY STABILIZED WITHIN 24 HOURS. TRENCH EXCAVATION LENGTH IS LIMITED TO 3 PIPE LENGTHS OF WHICH SHALL BE BACKFILLED AND STABILIZED IN ONE WORK DAY – 15 DAYS.
4. CONSTRUCT AND INSTALL INLET, INLET PROTECTION, SILT FENCE, CURB AND SIDEWALK AND ADJUST ALL UTILITIES TO LINE AND GRADE AS SHOWN ON THE PLANS – 10 DAYS.
5. PLACE PERMANENT STABILIZATION ON EARTH SLOPES – 2 DAYS.
6. INSTALL ALL D.G.A.B. AND BASE COURSES – 3 DAYS.
7. INSTALL CONCRETE BASE COURSE, SURFACE COURSE ON ROADWAY – 3 DAYS.
8. REMOVE SEDIMENT CONTROL DEVICES WITH APPROVAL FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR – 1 DAY.



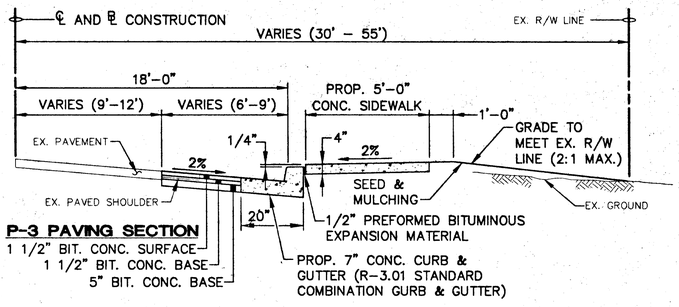

## PLAN
SCALE: 1" = 30'




**P.I. STA. 15+60.00**
NOT TO SCALE




**P.I. STA. 19+74.50**
NOT TO SCALE




**P-3 PAVING SECTION**
1 1/2" BIT. CONC. SURFACE
1 1/2" BIT. CONC. BASE
5" BIT. CONC. BASE

## TYPICAL SECTION
## OWEN BROWN RD. 10+50.00 TO 32+00.93
NOT TO SCALE

### CURVE DATA

| CURVE NO. | P.C. STA. | P.C.C. STA. | P.T. STA. | Δ | Dc | R | T | L | E |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 10+77.21 | ------ | 12+55.90 | 4°03'31" | 2°16'17" | 2522.57' | 89.38' | 178.69' | 1.58' |
| A | 11+82.81 | ------ | 0+52.44 | 89°50'09" | ---- | 35.00' | ---- | 47.04' | ---- |
| B | 0+54.30 | ------ | 12+79.10 | 71°40'44" | ---- | 35.00' | ---- | 56.00' | ---- |

REMOVE AND RESET EX. MAILBOX
STA. 16+30 RT. ---------- 1 EA.

REMOVE AND RESET EX. SIGN
STA. 11+58 RT. ---------- 1 EA.
STA. 11+94 RT. ---------- 2 EA.
STA. 0+60 RT. (AUDBON DR.)------ 1 EA.
STA. 12+50 RT. ---------- 1 EA.

EX. GAS VALVE ADJUST TO GRADE
STA. 16+28 RT. ---------- 1 EA.

EX. WATER VALVE ADJUST TO GRADE
STA. 16+44 RT. ---------- 1 EA.

### DRIVEWAY TABLE

| ℄ STATION | WIDTH | STD. DETAIL |
|---|---|---|
| 15+13.02 RT. | 12' | R-6.02 |
| 16+44.17 RT. | 14' | R-6.02 |

### PIPE SCHEDULE

| FROM | TO | TYPE | SIZE | LENGTH | SLOPE | INV. FROM | INV. TO | Q (cfs) | V (fps) |
|---|---|---|---|---|---|---|---|---|---|
| S-1 | M-1 | R.C.P. CL. IV | 18" | 18 LF. | 2.00% | 364.00 | 364.50 | 3.90 | 8.00 |
| M-1 | I-1 | R.C.P. CL. IV | 18" | 70 LF. | 1.60% | 364.75 | 366.15 | 3.90 | 7.07 |
| I-1 | I-2 | R.C.P. CL. IV | 18" | 245 LF. | 1.05% | 366.40 | 370.31 | 2.93 | 6.01 |
| I-2 | M-2 | R.C.P. CL. IV | 18" | 22 LF. | 1.05% | 370.56 | 370.79 | 2.40 | 5.38 |
| M-2 | M-3 | R.C.P. CL. IV | 18" | 303 LF. | 1.92% | 371.04 | 376.85 | 2.40 | 6.04 |

### STRUCTURE SCHEDULE

| STRUCTURE NO. | TYPE | TOP ELEV. | WIDTH | INV. IN | INV. OUT | REMARKS | STATION/OFFSET |
|---|---|---|---|---|---|---|---|
| I-1 | A-5 | 369.90 | 3' | 366.40 | 366.15 | SD-4.40 | 12+80.5 18' R. |
| I-2 | A-5 | 374.06 | 3' | 370.56 | 370.31 | SD-4.40 | 15+30 18' R. |
| M-1 | STD. PRECAST SHALLOW MH | 368.25 | N/A | 364.75 | 364.50 | G-5.12 | 12+05.55 21.3' R. |
| S-1 | STD. CONC. END SECT. | 367.03 | N/A | 364.00 | 364.00 | SD-5.22 | 11+87 38' R. |
| M-2 | STD. PRECAST SHALLOW MH | 374.04 | N/A | 371.04 | 370.79 | SD-5.12 | 15+47.7 38.87' R. |

### NOTES:

1. SEE SHEET 3 FOR SILT FENCE DETAIL.
2. THE LOCATIONS OF UTILITIES SHOWN ON THE PLANS ARE FOR INFORMATION AND GUIDANCE ONLY. NO GUARANTEE IS MADE AS TO THE ACCURACY OF SAID LOCATIONS.
3. RIGHT-OF-WAY LINES AS SHOWN ON THESE PLANS ARE FOR ASSISITANCE IN INTERPRETING THE PLANS. THESE LINES DO NOT REPRESENT THE OFFICIAL PROPERTY AQUISTION LINES. FOR OFFICIAL RIGHT-OF-WAY AND EASEMENT INFORMATION REFER TO THE APPROPRIATE RIGHT-OF-WAY PLATS.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS DATE
CHIEF, BUREAU OF ENGINEERING DATE
CHIEF, TRANSPORTATION PROJECTS AND WATERSHED MANAGEMENT DIVISION DATE
CHIEF, BUREAU OF HIGHWAYS DATE


A/E GROUP, INC.
ENGINEERS • PLANNERS
11409 Cronhill Drive
Owings Mills, Maryland 21117
A/E Job No. 93-259-017


DES: S.R.H.
DRN: M.J.G.
CHK: S.R.H.
DATE: 7/96

| BY | NO. | REVISION | DATE |
|---|---|---|---|

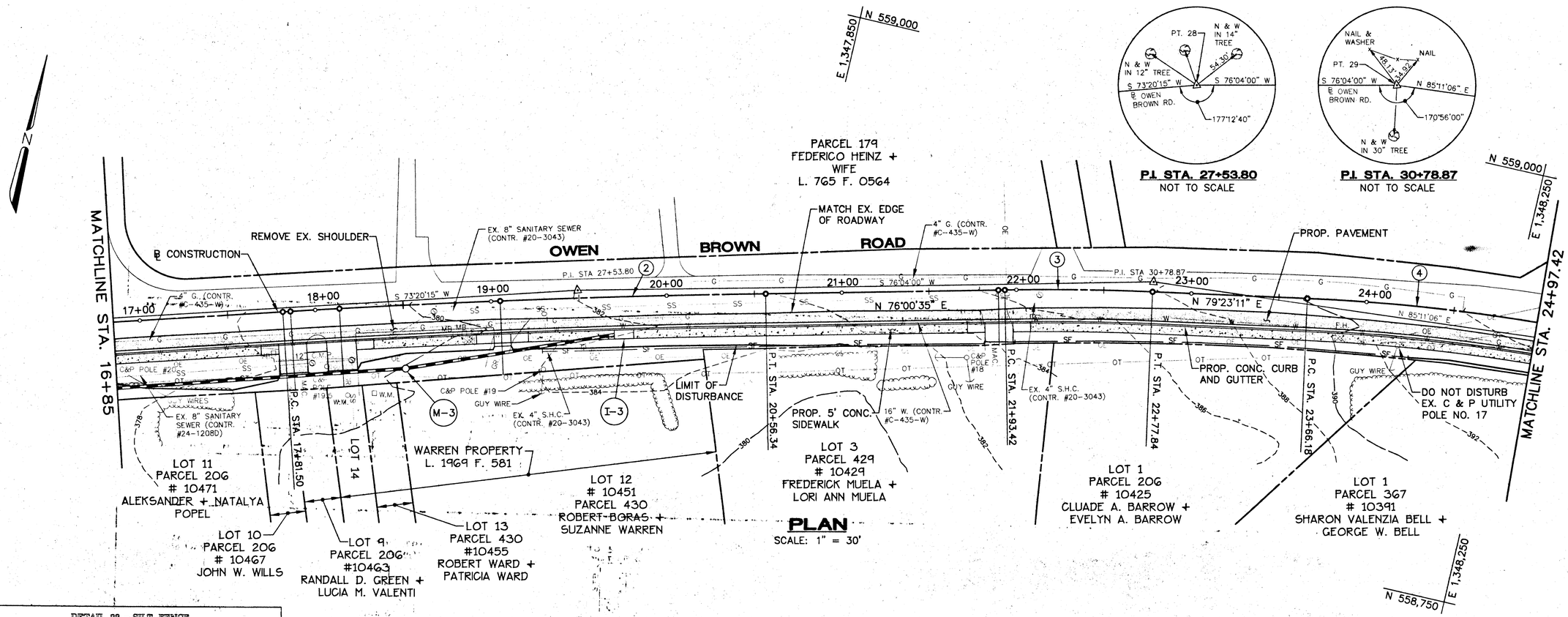
CAPITAL PROJECT NO.
K-5023B

600' SCALE MAP NO. _____ DATE: _____

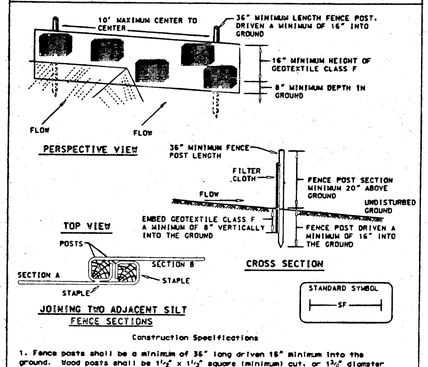
PLAN SHEET
**Owen Brown Road**

SCALE AS SHOWN

SHEET 2 OF 12




## 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 - 15 - 3 | MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION |
|---|---|---|

## CURVE DATA

| CURVE NO. | P.C. STA. | P.C.C. STA. | P.T. STA. | Δ | Dc | R | T | L | E |
|---|---|---|---|---|---|---|---|---|---|
| 2 | 17+81.50 | ----- | 20+56.34 | 2°44'55" | 1°00'00" | 5729.58' | 137.45' | 274.85' | 1.65' |
| 3 | 21+93.42 | ----- | 22+77.84 | 3°22'36" | 4°00'00" | 1432.39' | 42.22' | 84.42' | 0.62' |
| 4 | 23+66.18 | 26+00.53 | ----- | 12°33'20" | 5°21'27" | 1069.44' | 117.65' | 234.35' | 6.41' |

REMOVE AND RESET EX. MAILBOX
STA. 17+74 RT. ---------- 1 EA.
STA. 18+78 RT. ---------- 1 EA.
STA. 18+84 RT. ---------- 1 EA.
STA. 22+09 RT. ---------- 1 EA.
STA. 22+12 RT. ---------- 1 EA.

RELOCATE EX. FIRE HYDRANT (BY OTHERS)
STA. 18+86 RT. ---------- 1 EA.
STA. 23+86 RT. ---------- 1 EA.

EX. SAN. SEWER ADJUST TO GRADE
STA. 22+13 RT. ---------- 1 EA.
STA. 18+20 RT. ---------- 1 EA.

## DRIVEWAY TABLE

| ℄ STATION | WIDTH | STD. DETAIL |
|---|---|---|
| 17+85.86 RT. | 16' | R-6.02 |
| 18+13.81 RT. | 16.5' | R-6.02 |
| 19+05.20 RT. | 12' | R-6.02 |
| 21+89.74 RT. | 16' | R-6.02 |

## PIPE SCHEDULE

| FROM | TO | TYPE | SIZE | LENGTH | SLOPE | INV. FROM | INV. TO | Q (cfs) | V (fps) |
|---|---|---|---|---|---|---|---|---|---|
| M-2 | M-3 | R.C.P. CL. IV | 18" | 303 LF. | 1.92% | 371.04 | 376.85 | 2.40 | 6.04 |
| M-3 | I-3 | R.C.P. CL. IV | 18" | 119 LF. | 1.72% | 377.10 | 379.15 | 2.40 | 5.86 |

## STRUCTURE SCHEDULE

| STRUCTURE NO. | TYPE | TOP ELEV. | WIDTH | INV. IN | INV. OUT | REMARKS | STATION/OFFSET |
|---|---|---|---|---|---|---|---|
| I-3 | A-10 | 382.65 | 5' | ----- | 379.15 | SD-4.41 | 19+70 18' R. |
| M-3 | STD. PRECAST SHALLOW MH | 379.85 | N/A | 377.10 | 376.85 | SD-5.12 | 18+50 36' R. |

**NOTE:**

1. THE LOCATIONS OF UTILITIES SHOWN ON THE PLANS ARE FOR INFORMATION AND GUIDANCE ONLY. NO GUARANTEE IS MADE AS TO THE ACCURACY OF SAID LOCATIONS.
2. RIGHT-OF-WAY LINES AS SHOWN ON THESE PLANS ARE FOR ASSISITANCE IN INTERPRETING THE PLANS. THESE LINES DO NOT REPRESENT THE OFFICIAL PROPERTY AQUISTION LINES. FOR OFFICIAL RIGHT-OF-WAY AND EASEMENT INFORMATION REFER TO THE APPROPRIATE RIGHT-OF-WAY PLATS.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS — DATE
CHIEF, BUREAU OF ENGINEERING — DATE
CHIEF, TRANSPORTATION PROJECTS AND WATERSHED MANAGEMENT DIVISION — DATE
CHIEF, BUREAU OF HIGHWAYS — DATE

A/E GROUP, INC.
ENGINEERS • PLANNERS
11409 Cronhill Drive
Owings Mills, Maryland 21117
A/E Job No. 93-259-017

DES: S.R.H.
DRN: M.J.G.
CHK: S.R.H.
DATE: 7/96

| BY | NO. | REVISION | DATE |
|---|---|---|---|

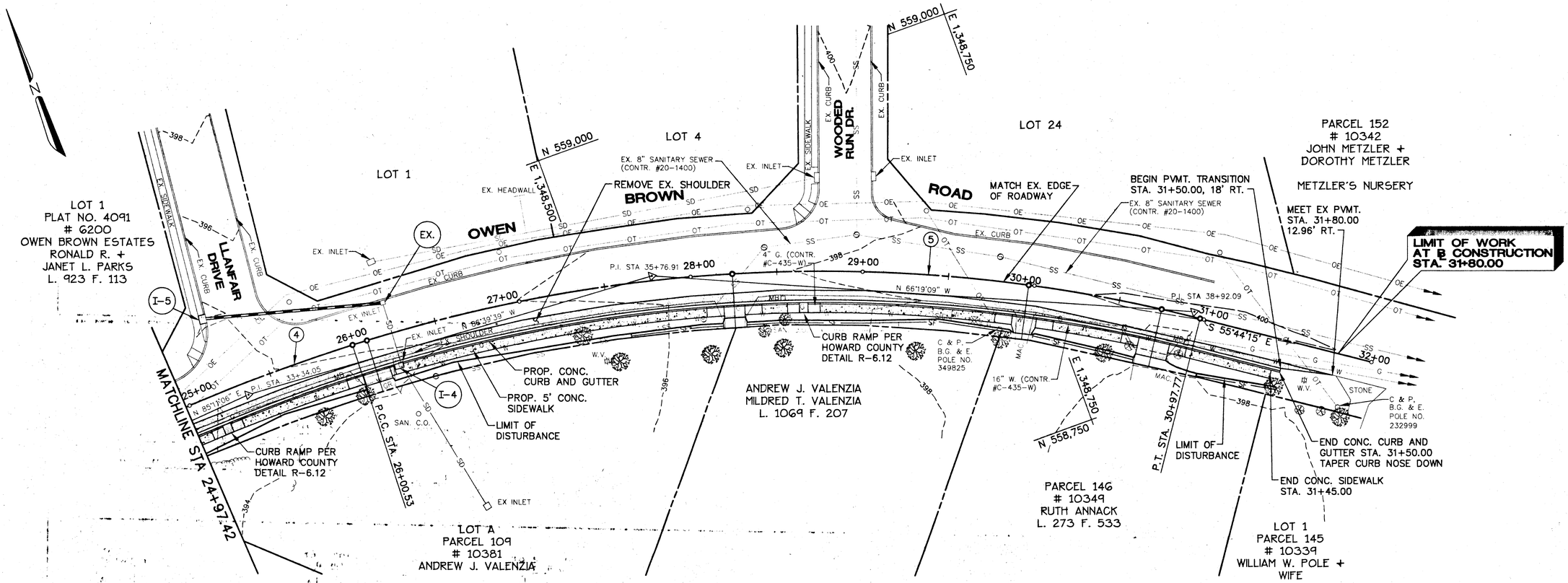
CAPITAL PROJECT NO.
K-5023B

600' SCALE MAP NO. _____ DATE: _____

PLAN SHEET
**Owen Brown Road**

SCALE AS SHOWN

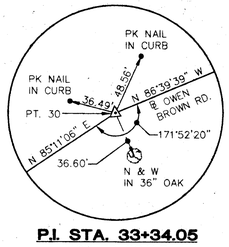
SHEET 3 OF 12



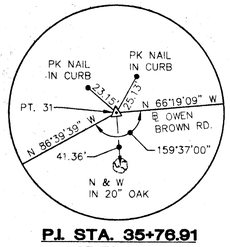

## PLAN
SCALE: 1" = 30'

| CURVE DATA | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| CURVE NO. | P.C. STA. | P.C.C. STA. | P.T. STA. | Δ | Dc | R | T | L | E |
| 4 | 23+66.18 | 26+00.53 | ----- | 12°33'20" | 5°21'27" | 1069.44' | 117.65' | 234.35' | 6.41' |
| 5 | ----- | 26+00.53 | 30+97.77 | 32°19'14" | 6°30'00" | 881.47' | 255.43' | 497.24' | 34.88' |

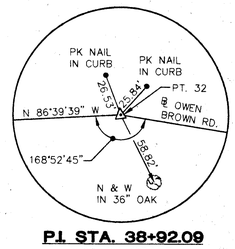
| PIPE SCHEDULE | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| FROM | TO | TYPE | SIZE | LENGTH | SLOPE | INV. FROM | INV. TO | ℚ (cfs) | V (fps) |
| I-5 | EX. | R.C.P. CL. IV | 15" | 103 LF. | 1.00% | 392.06 | 391.03 | 1.16 | 3.93 |




**P.I. STA. 33+34.05**
NOT TO SCALE




**P.I. STA. 35+76.91**
NOT TO SCALE




**P.I. STA. 38+92.09**
NOT TO SCALE

REMOVE AND RESET EX. MAILBOXES
STA. 25+92 RT. ---------- 1 EA.
STA. 28+54 RT. ---------- 1 EA.
STA. 30+93 RT. ---------- 1 EA.

REMOVE AND RESET EX. SIGN
STA. 29+54 RT. ---------- 1 EA.

EX. FIRE HYDRANT ADJUST TO GRADE
STA. 29+67 RT. ---------- 1 EA.

REMOVE EX. INLET
STA. 26+25 RT. ---------- 1 EA.

| DRIVEWAY TABLE | | |
|---|---|---|
| ℄ STATION | WIDTH | STD. DETAIL |
| 26+09.22 RT. | 16' | R-6.02 |
| 26+24.20 RT. | 12' | R-6.02 |
| 29+96.78 RT. | 10' | R-6.02 |
| 30+74.88 RT. | 18' | R-6.02 |

| STRUCTURE SCHEDULE | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| STRUCTURE NO. | TYPE | TOP ELEV. | WIDTH | INV. IN | INV. OUT | REMARKS | STATION/OFFSET | |
| I-4 | A-5 | 395.37 | 3' | 390.41 | 390.16 | SD-4.40 | 26+23.5 | 18' R. |
| I-5 | A-5 | 395.13 | 3' | ----- | 392.06 | SD-4.40 | 25+24 | 43' L. |
| EX. | A-5 EX. INLET | 394.53 | 3' | 391.03 | 390.78 | SD-4.40 | 26+23.5 | 18' L. |

**NOTES:**

1. SEE SHEET 3 FOR SILT FENCE DETAIL.
2. THE LOCATIONS OF UTILITIES SHOWN ON THE PLANS ARE FOR INFORMATION AND GUIDANCE ONLY. NO GUARANTEE IS MADE AS TO THE ACCURACY OF SAID LOCATIONS.
3. RIGHT-OF-WAY LINES AS SHOWN ON THESE PLANS ARE FOR ASSISITANCE IN INTERPRETING THE PLANS. THESE LINES DO NOT REPRESENT THE OFFICIAL PROPERTY AQUISTION LINES. FOR OFFICIAL RIGHT-OF-WAY AND EASEMENT INFORMATION REFER TO THE APPROPRIATE RIGHT-OF-WAY PLATS.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS — DATE
CHIEF, BUREAU OF ENGINEERING — DATE
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CHK: S.R.H.
DATE: 7/96

| BY | NO. | REVISION | DATE |
|---|---|---|---|

CAPITAL PROJECT NO.
K-5023B
600' SCALE MAP NO. _____ DATE: _____

PLAN SHEET
**Owen Brown Road**

SCALE AS SHOWN

SHEET 4 OF 12

Section I – Vegetative Stabilization Methods and Materials

A. Site Preparation
   i. Install erosion and sediment control structures (either temporary or permanent) such as diversions, grade stabilization structures, berms, waterways, or sediment control basins.
   ii. Perform all grading operations at right angles to the slope. Final grading and shaping is not usually necessary for temporary seeding.
   iii. Schedule required soil tests to determine soil amendment composition and application rates for site having disturbed area over 5 acres.

B. Soil Amendments (Fertilizer and Lime Specifications)
   i. Soil tests must be performed to determine the exact ratios and application rates for both lime and fertilizer on sites having disturbed areas over 5 acres. Soil analysis may be performed by the University of Maryland or a recognized commercial laboratory. Soil samples taken for engineering purposes may also be used for chemical analyses.
   ii. Fertilizers shall be uniform in composition, free flowing and suitable for accurate application by approved equipment. Manure may be substituted for fertilizer with prior approval from the appropriate approval authority. Fertilizers shall all be delivered to the site fully labeled according to the applicable state fertilizer laws and shall bear the name, trade name or trademark and warrantee of the producer.
   iii. Lime materials shall be ground limestone (hydrated or burnt lime may be substituted) which contains at least 50% total oxides (calcium oxide plus magnesium oxide). Limestone shall be ground to such fineness that at least 50% will pass through a #100 mesh sieve and 98–100% will pass through a #20 mesh sieve.
   iv. Incorporate lime and fertilizer into the top 3–5" of soil by disking or other suitable means.

C. Seedbed Preparation
   i. Temporary Seeding
      a. Seedbed preparation shall consist of loosening soil to a depth of 3" to 5" by means of suitable agricultural or construction equipment, such as disc harrows or chisel plows or rippers mounted on construction equipment. After the soil is loosened it should not e rolled or dragged smooth but left in the roughened condition. Sloped areas (greater than 3:1) should be tracked leaving the surface in an irregular condition with ridges running parallel to the contour of the slope.
      b. Apply fertilizer and lime as prescribed on the plans.
      c. Incorporate lime and fertilizer into the top 3 – 5" of soil by disking or other suitable means.
   ii. Permanent Seeding
      a. Minimum soil conditions required for permanent vegetative establishment:
         1. Soil pH shall be between 6.0 and 7.0.
         2. Soluble salts shall be less than 500 parts per million (ppm).
         3. The soil shall contain less than 40% clay but enough fine grained material (>30% split plus clay) to provide the capacity to hold a moderate amount of moisture. An exception is if lovegrass or sericia lespedeza is to be planted, then a sandy soil (<30% silt plus clay) would be acceptable.
         4. Soil shall contain 1.5% minimum organic matter by weight.
         5. Soil must contain sufficient pore space to permit adequat root penetration.
         6. If these conditions cannot be met by soils on site, adding topsoil is required in accordance with Section 21 Standard and Specification for Topsoil.
      b. Areas previously graded in conformance with the drawings shall be maintained in a true and even grade, then scarified or otherwise loosened to a depth of 3 – 5" to permit bonding of the topsoil to the surface area and to create horizontal erosion check slots to prevent topsoil from sliding down a slope.
      c. Apply soil amendments as per soil test or as included on the plans.
      d. Mix soil amendments into the top 3 – 5" of topsoil by disking or other suitable mans. Lawn areas should be raked to smooth the surface, remove large objects like stones and branches, and ready the area for seed application. Where site conditions will not permit normal seedbed preparation, loosen surface soil by dragging with a heavy chain or other equipment to roughen the surface. Steep slopes (steeper than 3:1) should be tracked by a dozer leaving the soil in an irregular condition with ridges running parallel to the contour of the slope. The top 1 – 3" of soil should be loose and friable. Seedbed loosening may not be necessary on newly disturbed areas.

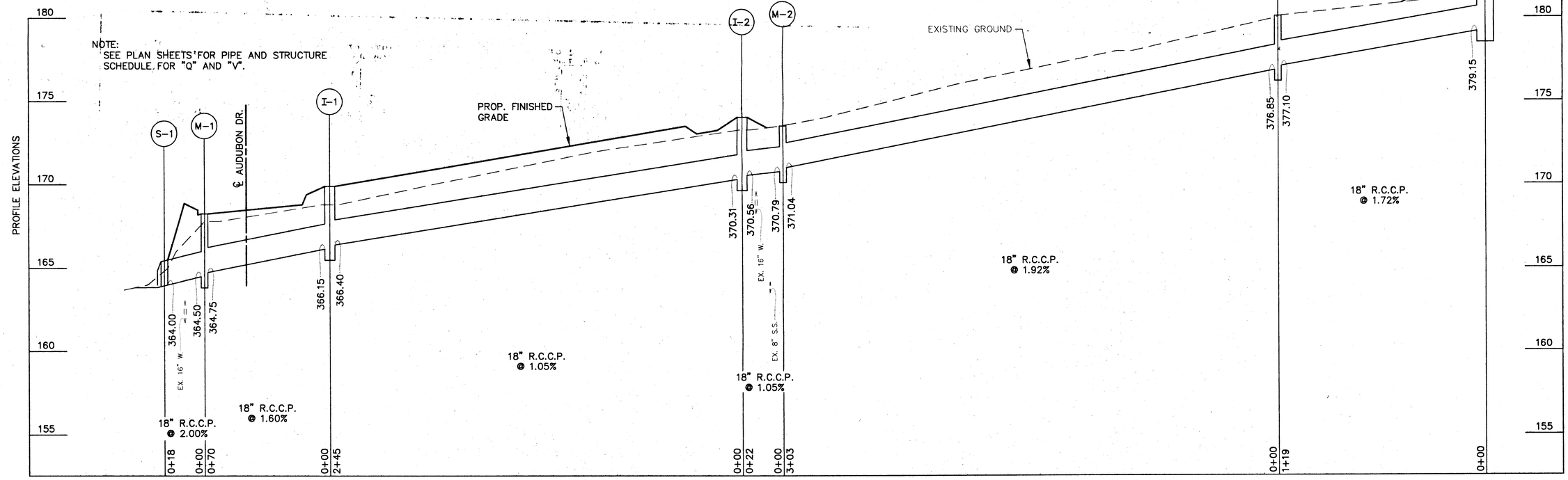
D. Seed Specifications
   i. All seed must meet the requirements of the Maryland State Seed Law. All seed shall be subject to re–testing by a recognized seed laboratory. All seed used shall have been tested within the 6 months immediately preceding the date of sowing such material on this job. Note: Seed tags shall be made available to the inspector to verify type and rate of seed used.
   ii. Inoculant – The inoculant for treating legume seed in the seed mixtures shall be a pure culture of nitrogen–fixing bacteria prepared specifically for the species. Inoculant shall not be used later than the date indicated on the container. Add fresh inoculant as directed on package. Use four times the recommended rate when hydroseeding.
   Note: It is very important to keep inoculant as cool as possible until used. Temperatures above 75–80 F. can weaken bacteria and make the inoculant less effective.

E. Methods of Seeding
   i. Hydroseeding: Apply seed uniformly with hydroseeder (slurry includes seed and fertilizer), broadcast or drop seeder, or a cultipacker seeder.
      a. If fertilizer is being applied at the time of seeding, the application rates amounts will not exceed the following: nitrogen; maximum of 100 lbs. per acre total of soluble nitrogen; P205 (phosphorous): 200 lbs/ac; K20 (potassium): 200 lbs/ac.
      b. Lime – use only ground agricultural limestone, (Up to 3 tons per acre may be applied by hydroseeding). Normally, not more than 2 tons are applied by hydroseeding at any one time. Do not use burnt or hydrated lime when hydroseeding.
      c. Seed and fertilizer shall be mixed on site and seeding shall be done immediately and without interruption.
   ii. Dry Seeding: This includes use of conventional drop or broadcast spreaders.
      a. Seed spread dry shall be incorporated into the subsoil at the rates prescribed on the Temporary or Permanent Seeding Summaries or Tables 25 or 26. The seeded area shall then be rolled with a weighted roller to provide good seed to soil contact.
      b. Where practical, seed should be applied in two directions perpendicular to each other. Apply half the seeding rate in each direction.
   iii. Drill or Cultipacker Seeding: Mechanized seeders that apply and cover seed with soil.
      a. Cultipacking seeders are required to bury the seed in such a fashion as to provided at least 1/4 inch of soil covering. Seedbed must be firm after planting.
      b. Where practical, seed should be applied in two directions perpendicular to each other. Apply half the seeding rate in each direction.

F. Mulch Specifications (In order of preference)
   i. Straw shall consist of thoroughly threshed wheat, rye or oat straw, reasonably bright in color, and shall not be musty, moldy, caked, decayed, or excessively dusty and shall be free of noxious weed seeds as specified in the Maryland Seed Law.
   ii. Wood Cellulose Fiber Mulch (WCFM).
      a. WCFM shall consist of specially prepared wood cellulose processed into a uniform fibrous physical state.
      b. WCFM shall be dyed green or contain a green dye in the package that will provide an appropriate color to facilitate visual inspection of the uniformly spread slurry.
      c. WCFM, including dy, shall contain no germination or growth inhibiting factors.
      d. WCFM materials shall be manufactured and processed in such a manner that the wood cellulose fiber mulch will remain in uniform suspension in water under agitation and will blend with seed, fertilizer and other additives to form a homogeneous slurry. The mulch material shall form a blotter–like ground cover, on application, having moisture absorption and percolation properties and shall cover and hold grass seed in contact with the soil without inhibiting the growth of the grass seedings.
      e. WCFM material shall contain no elements or compounds at concentration levels that will be phyto–toxic.
      f. WCFM must conform to the following physical requirements: fiber length to approximately 10 mm., diameter approximately 1 mm., pH range of 4.0 to 8.5, ash content of 1.6% maximum and water holding capacity of 90% minimum.
      Note: Only sterile straw mulch should be used in areas where one species of grass is desired.

G. Mulching Seeded Areas Mulch shall be applied to all seeded areas immediately after seeding.
   i. If grading is completed outside of the seeding season, mulch alone shall be applied as prescribed in this section and maintained until the seeding season returns and seeding can be performed in accordance with these specifications.
   ii. When straw mulch is used, it shall be spread over all seeded areas at the rate of 2 tons/acre. Mulch shall be applied to a uniform loose depth of between 1" and 2". Mulch applied shall achieve a uniform distribution and depth so that the soil surface is not exposed. If a mulch anchoring tool is to be used, the rate should be increased to 2.5 tons/acre.
   iii. Wood cellulose fiber used as a mulch shall be applied at a net dry weight of 1,500 lbs. per acre. The wood cellulose fiber shall be mixed with water, and the mixture shall contain a maximum of 50 lbs. of wood cellulose fiber per 100 gallons of water.

H. Securing Straw Mulch (Mulch Anchoring): Mulch anchoring shall be performed immediately following mulch application to minimize loss by wind or water. This may be done by one of the following methods (listed by preference), depending upon size of area and erosion hazard:
   i. A mulch anchoring tool is a tractor drawing implement designed to punch and anchor mulch into the soil surface a minimum of two (2) inches. The practice is most effective on large areas, but is limited to flatter slopes where equipment can operate safely. If used on sloping land, this practice should be used on the contour if possible.
   ii. Wood cellulose fiber may be used for anchoring straw. The fiber binder shall be applied at a net dry weight of 750 pounds/acre. The wood cellulose fiber shall e mixed with water and the mixture shall contain a maximum of 50 pounds of wood cellulose fiber per 100 gallons of water.
   iii. Application of liquid binders should be heavier at the edges where wind catches mulch, such as in valleys and on crests of banks. The remainder of area should appear to e uniform after binder application. Synthetic binders – such as Acrylic DLR (Agro–Tack), DCA–70, Petroset, Terra Tax II, Terra Tack AR or other approved equal may be used at rates recommended by the manufacturer to anchor mulch.




## STORM DRAIN PROFILE

SCALE: HORZ. 1" = 30'
VERT. 1" = 3'

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS DATE
CHIEF, BUREAU OF ENGINEERING DATE
CHIEF, TRANSPORTATION PROJECTS AND WATERSHED MANAGEMENT DIVISION DATE
CHIEF, BUREAU OF HIGHWAYS DATE

A/E GROUP, INC.
ENGINEERS • PLANNERS
11409 Cronhill Drive
Owings Mills, Maryland 21117
A/E Job No. 93–259–017

DES: S.R.H.
DRN: J.N.W.
CHK: S.R.H.
DATE: 7/96

| BY | NO. | REVISION | DATE |
|---|---|---|---|

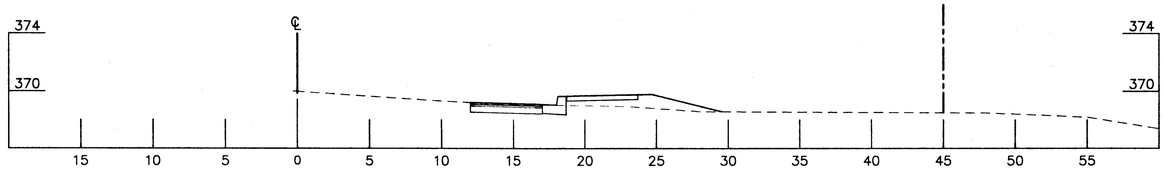
CAPITAL PROJECT NO.
K–5023B

600' SCALE MAP NO. _____ DATE: _____

STORM DRAIN PROFILE
**Owen Brown Road**

SCALE AS SHOWN

SHEET 5 OF 12

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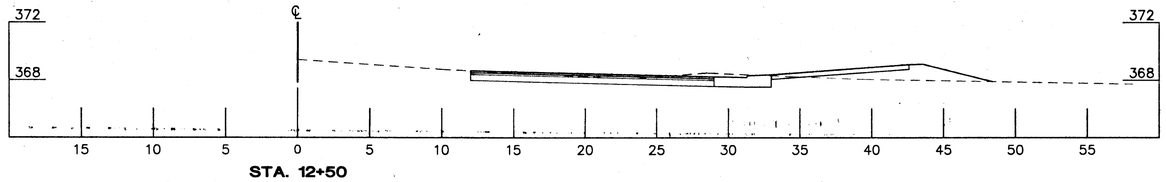


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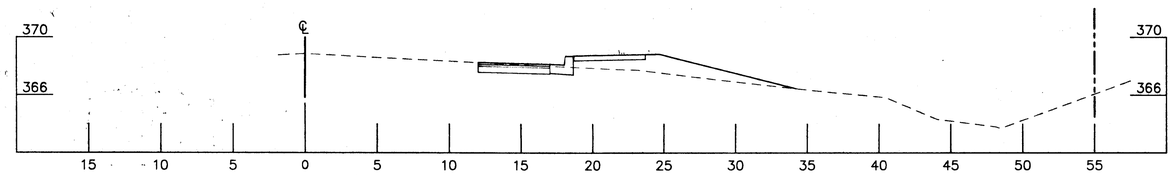


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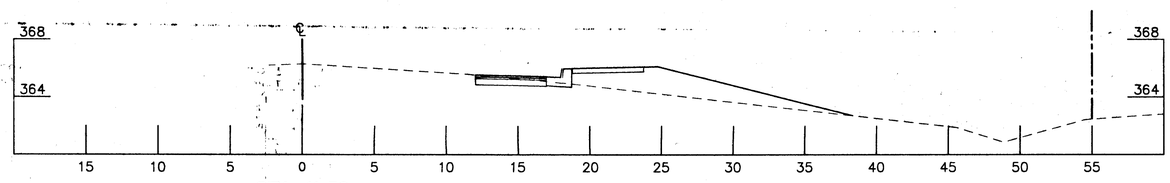


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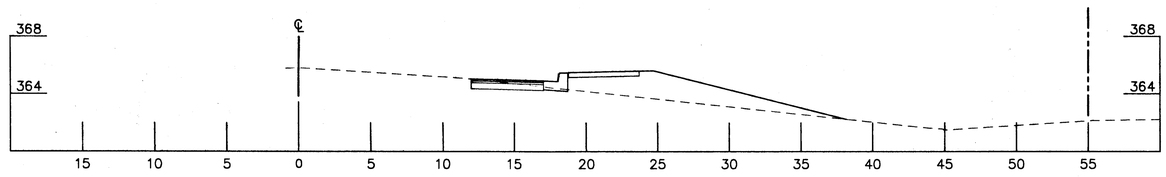


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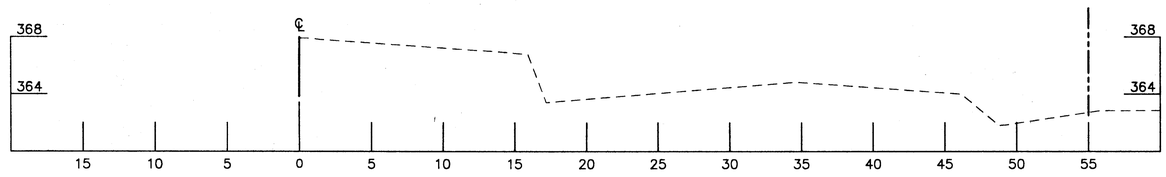



**STA. 10+50**

## CROSS SECTION

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

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS DATE
CHIEF, BUREAU OF ENGINEERING DATE
CHIEF, TRANSPORTATION PROJECTS AND WATERSHED MANAGEMENT DIVISION DATE
CHIEF, BUREAU OF HIGHWAYS DATE

A/E GROUP, INC.
ENGINEERS • PLANNERS
11409 Cronhill Drive
Owings Mills, Maryland 21117
A/E Job No. 93-259-017

DES: S.R.H.
DRN: M.J.G.
CHK: S.R.H.
DATE: 7/96

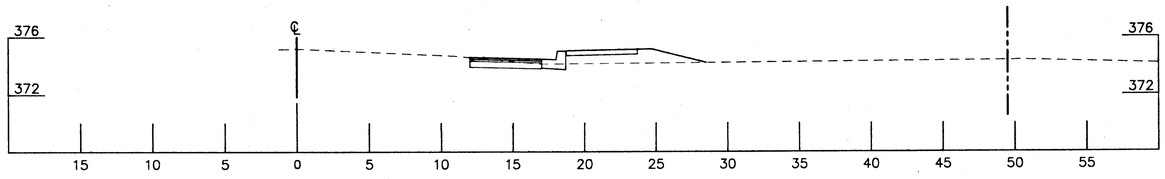
| BY | NO. | REVISION | DATE |
|---|---|---|---|

CAPITAL PROJECT NO.
K-5023B
600' SCALE MAP NO. _____ DATE: _____

CROSS SECTIONS
**Owen Brown Road**

SCALE AS SHOWN

SHEET 6 OF 12

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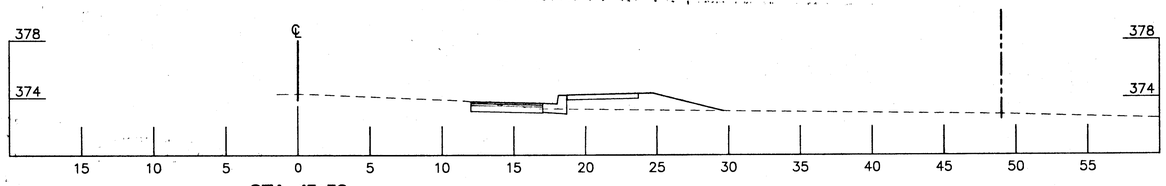


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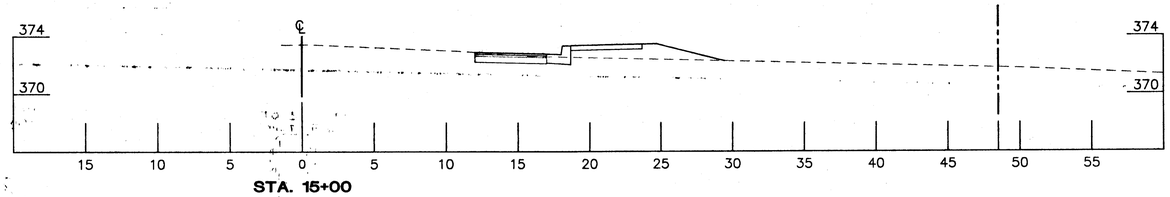


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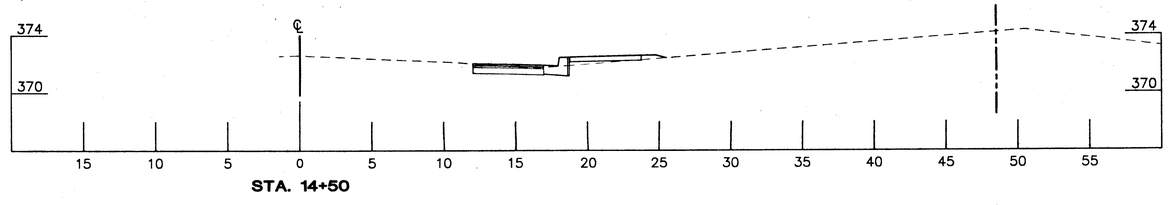


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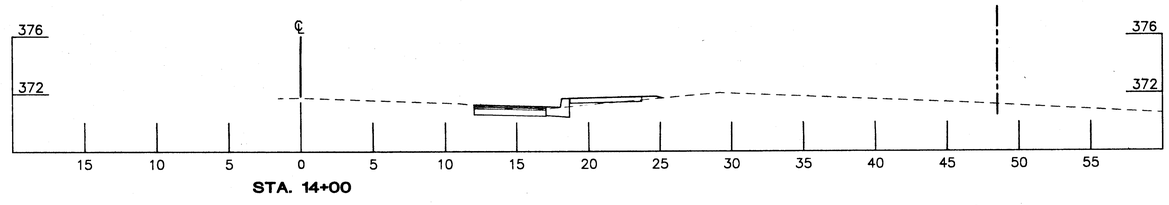


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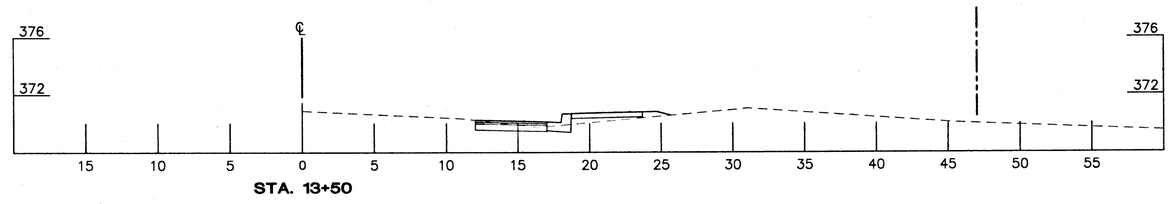


**STA. 13+50**

## CROSS SECTION

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

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS DATE
CHIEF, BUREAU OF ENGINEERING DATE
CHIEF, TRANSPORTATION PROJECTS AND WATERSHED MANAGEMENT DIVISION DATE
CHIEF, BUREAU OF HIGHWAYS DATE

A/E GROUP, INC.
ENGINEERS • PLANNERS
11409 Cronhill Drive
Owings Mills, Maryland 21117
A/E Job No. 93-259-017

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DATE: 7/96

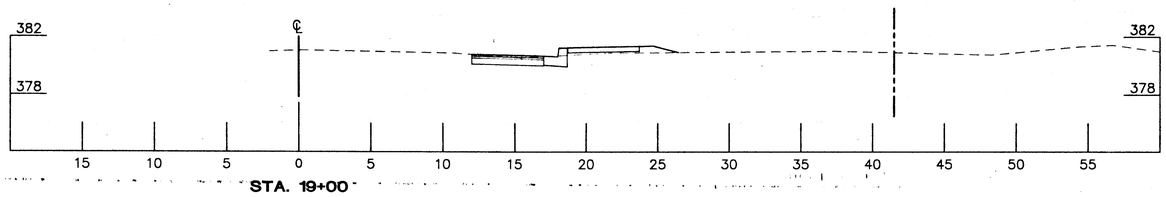
| BY | NO. | REVISION | DATE |
|---|---|---|---|

CAPITAL PROJECT NO.
K-5023B
600' SCALE MAP NO. _____ DATE: _____

CROSS SECTIONS -
**Owen Brown Road**

SCALE AS SHOWN

SHEET 7 OF 12

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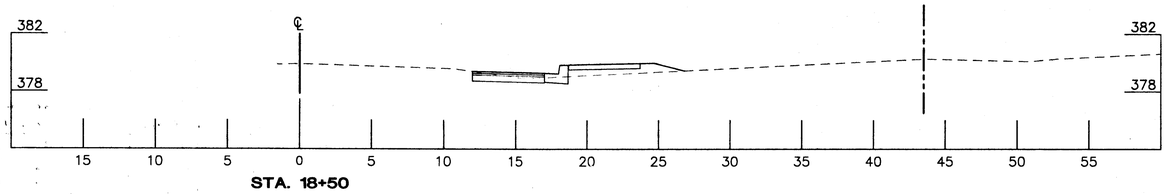


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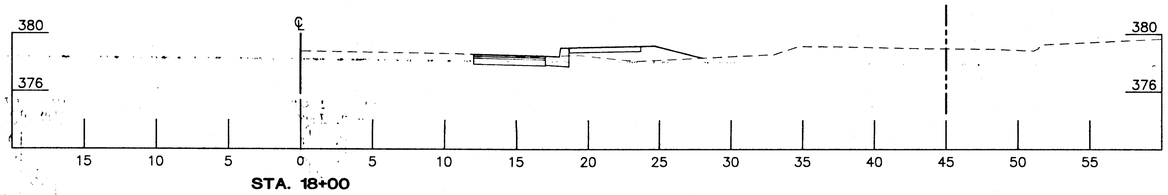


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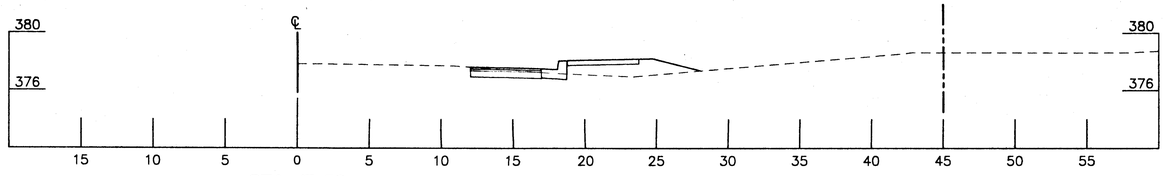


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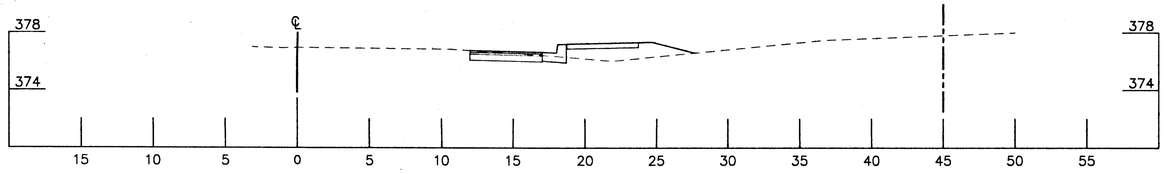


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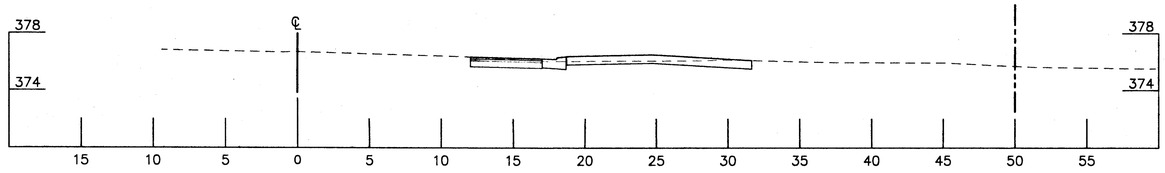


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## CROSS SECTION

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

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS DATE
CHIEF, BUREAU OF ENGINEERING DATE
CHIEF, TRANSPORTATION PROJECTS AND WATERSHED MANAGEMENT DIVISION DATE
CHIEF, BUREAU OF HIGHWAYS DATE

A/E GROUP, INC.
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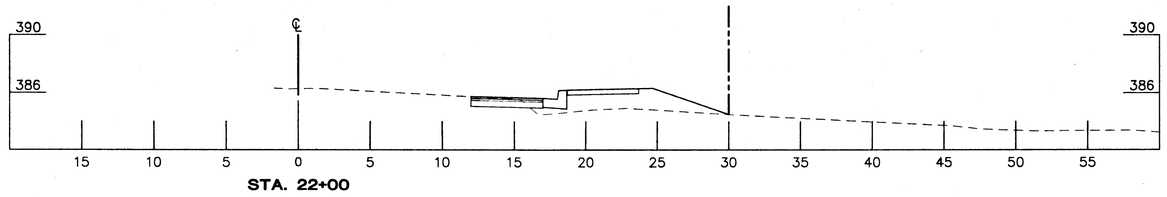
|---|---|---|---|

CAPITAL PROJECT NO.
K-5023B
600' SCALE MAP NO. _____ DATE: _____

CROSS SECTIONS
**Owen Brown Road**

SCALE AS SHOWN

SHEET 8 OF 12

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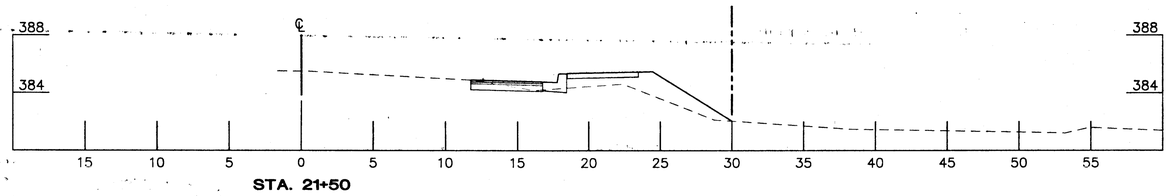


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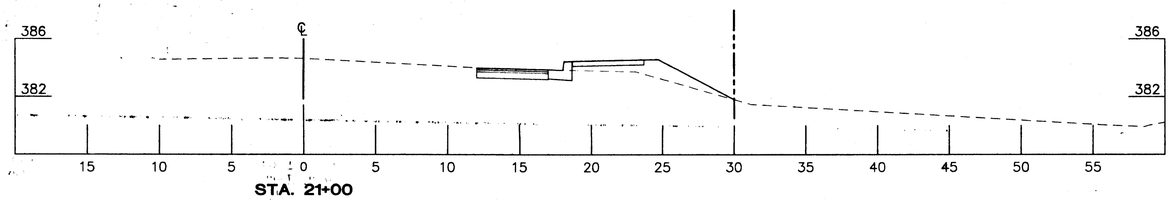


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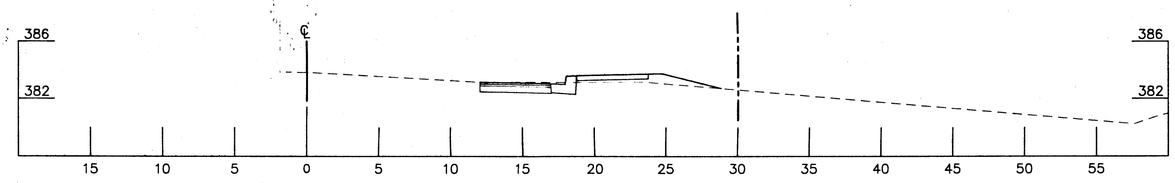


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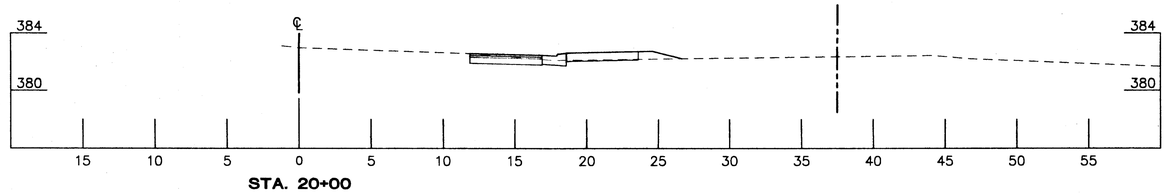


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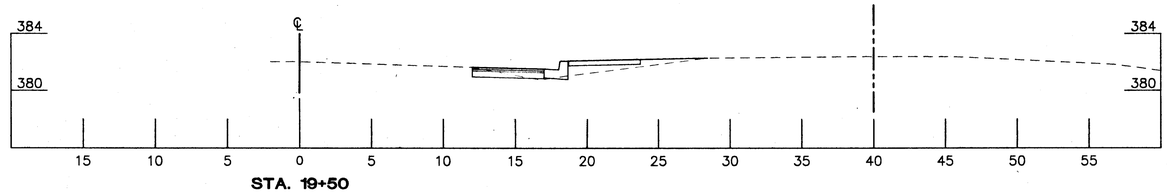


STA. 19+50

## CROSS SECTION

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

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS DATE
CHIEF, BUREAU OF ENGINEERING DATE
CHIEF, TRANSPORTATION PROJECTS AND WATERSHED MANAGEMENT DIVISION DATE
CHIEF, BUREAU OF HIGHWAYS DATE

A/E GROUP, INC.
ENGINEERS • PLANNERS
11409 Cronhill Drive
Owings Mills, Maryland 21117
A/E Job No. 93-259-017

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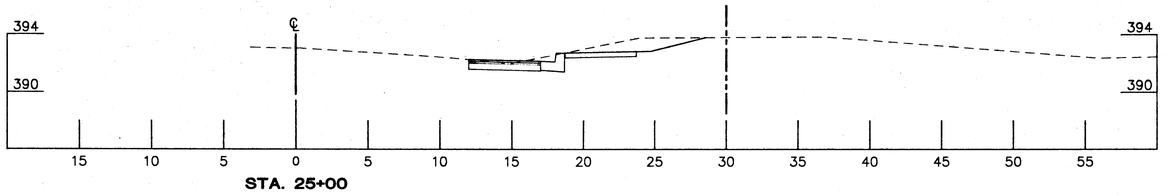
| BY | NO. | REVISION | DATE |
|---|---|---|---|

CAPITAL PROJECT NO.
K-5023B
600' SCALE MAP NO. _____ DATE: _____

CROSS SECTIONS
**Owen Brown Road**

SCALE AS SHOWN

SHEET 9 OF 12

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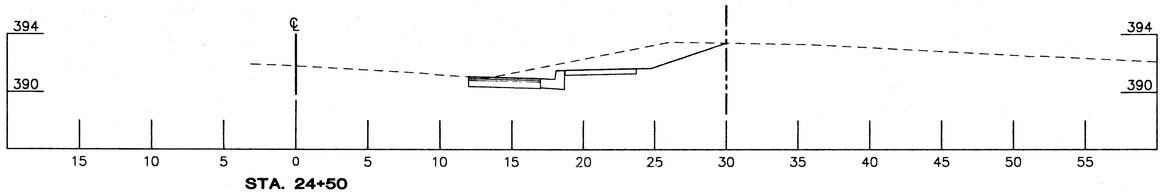


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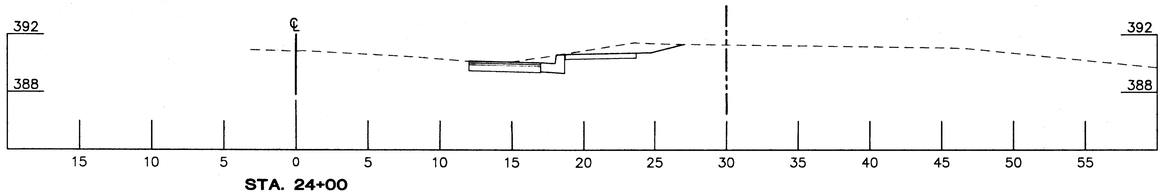


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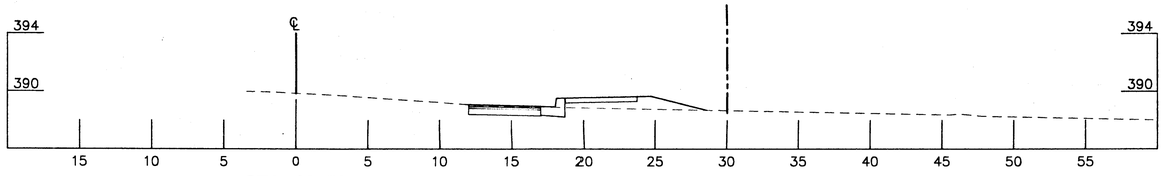


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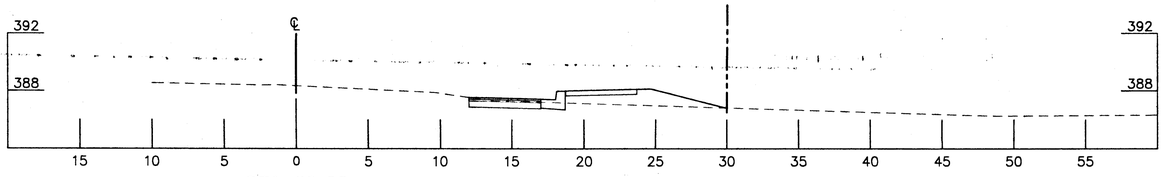


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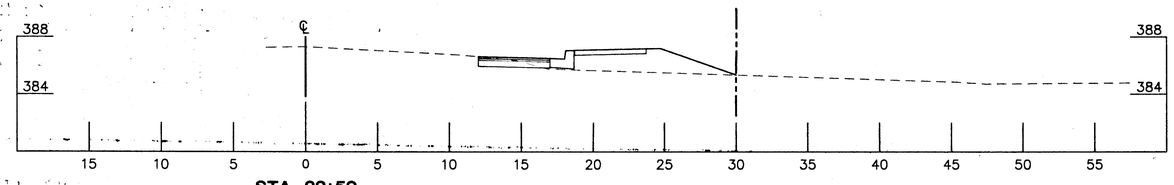



**STA. 22+50**

## CROSS SECTION

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

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS — DATE
CHIEF, BUREAU OF ENGINEERING — DATE
CHIEF, TRANSPORTATION PROJECTS AND WATERSHED MANAGEMENT DIVISION — DATE
CHIEF, BUREAU OF HIGHWAYS — DATE

A/E GROUP, INC.
ENGINEERS • PLANNERS
11409 Cronhill Drive
Owings Mills, Maryland 21117
A/E Job No. 93-259-017

DES: S.R.H.
DRN: M.J.G.
CHK: S.R.H.
DATE: 7/96

| BY | NO. | REVISION | DATE |
|---|---|---|---|

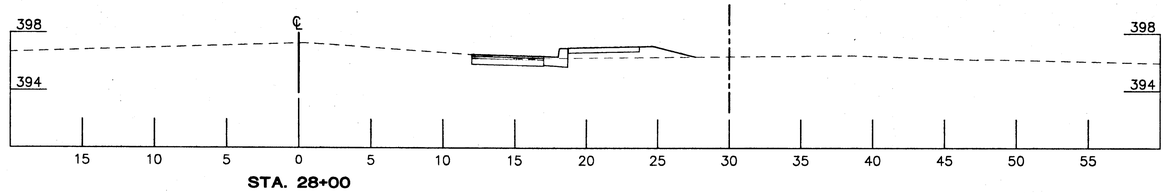
CAPITAL PROJECT NO.
K-5023B

600' SCALE MAP NO. _____ DATE: _____

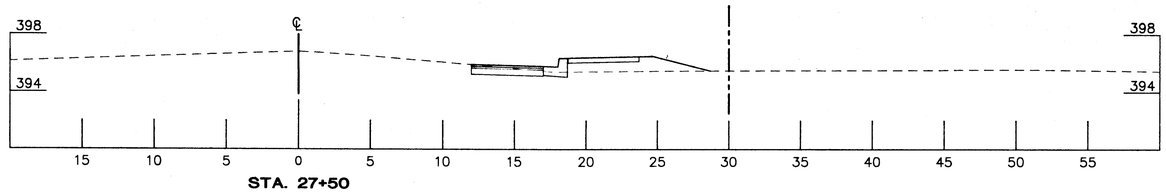
CROSS SECTIONS
**Owen Brown Road**

SCALE AS SHOWN

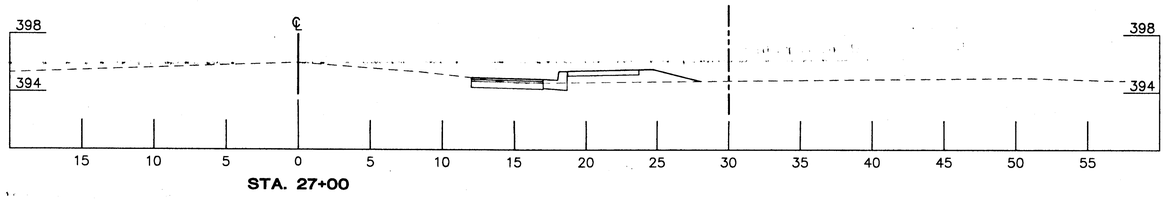
SHEET 10 OF 12




**STA. 28+00**




**STA. 27+50**

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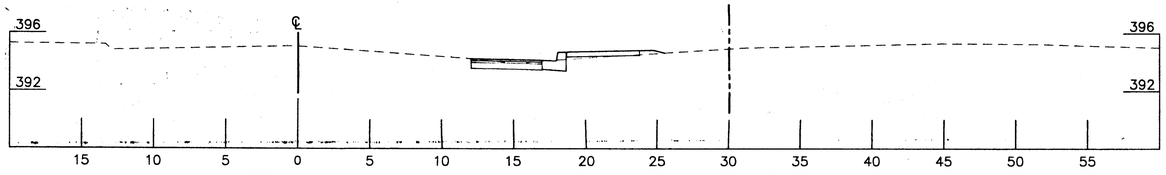
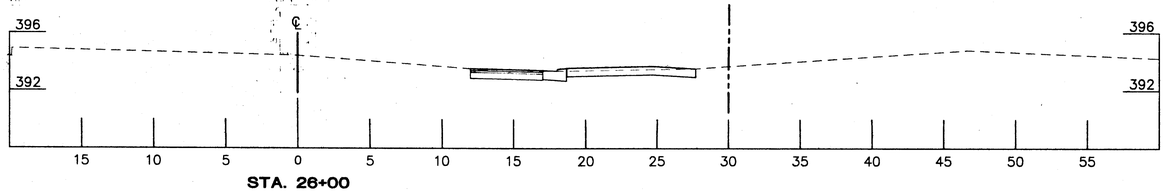



**STA. 26+50**

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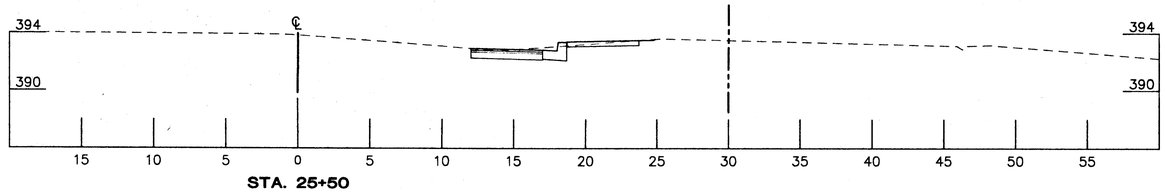


**STA. 25+50**

## CROSS SECTION

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

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS DATE
CHIEF, BUREAU OF ENGINEERING DATE
CHIEF, TRANSPORTATION PROJECTS AND WATERSHED MANAGEMENT DIVISION DATE
CHIEF, BUREAU OF HIGHWAYS DATE

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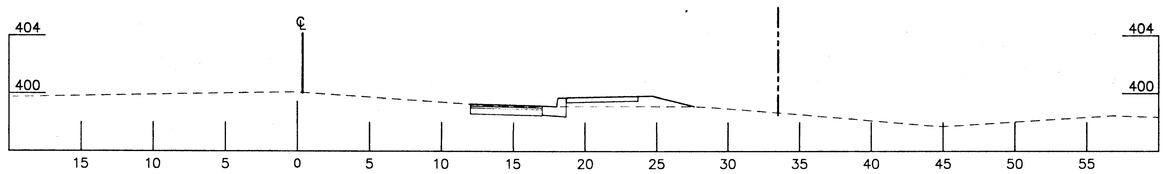
CAPITAL PROJECT NO.
K-5023B
600' SCALE MAP NO. _____ DATE: _____

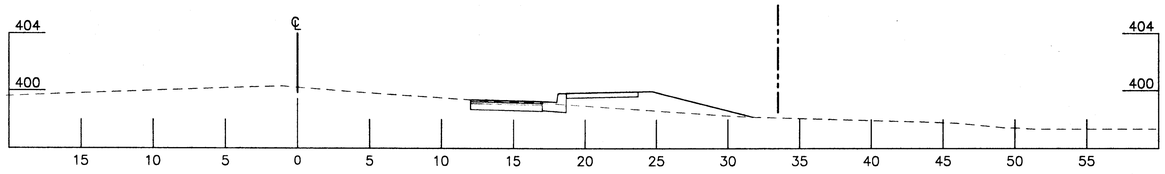
CROSS SECTIONS
**Owen Brown Road**

SCALE AS SHOWN

SHEET 11 OF 12




STA. 31+50

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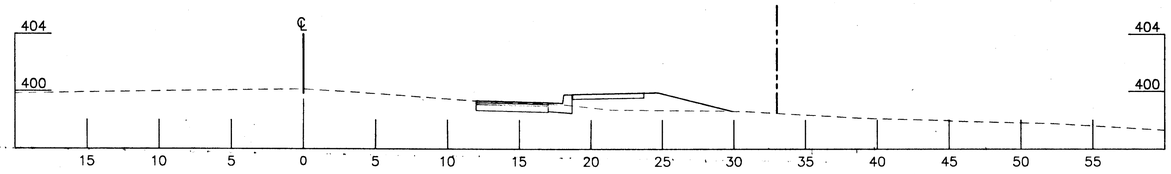
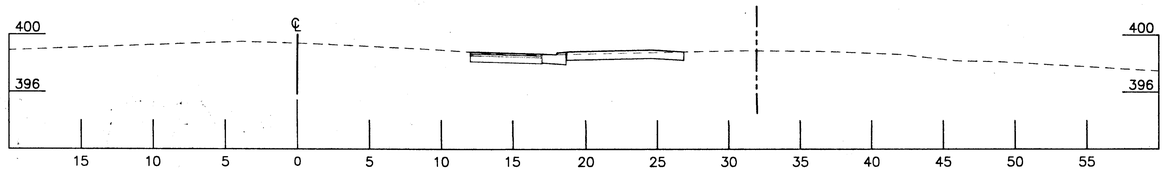
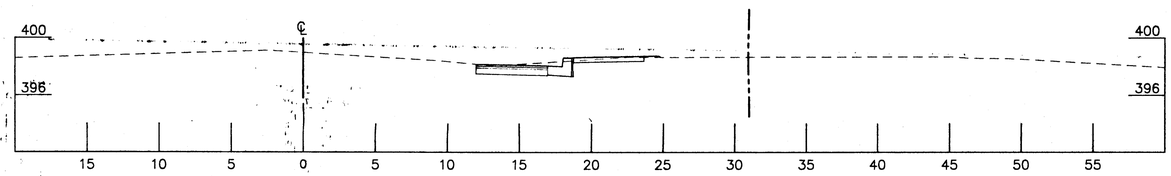


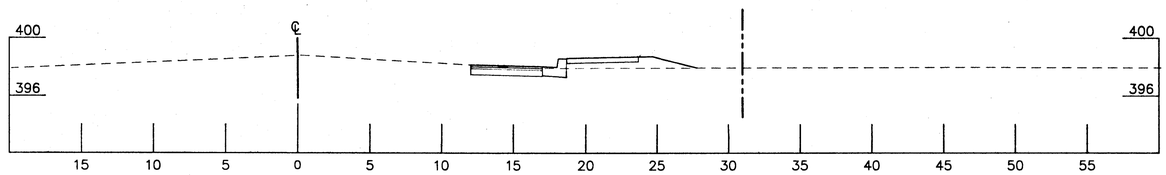

STA. 30+50



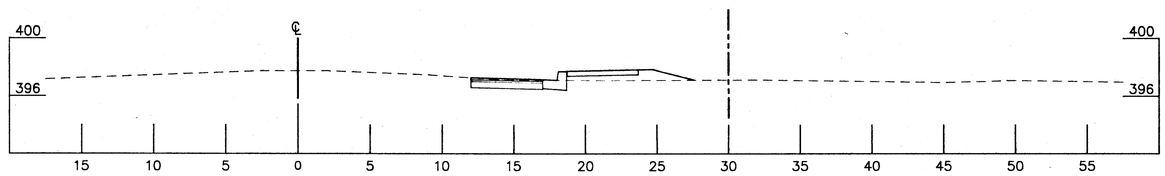

STA. 30+00




STA. 29+50




STA. 29+00




STA. 28+50

## CROSS SECTION

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

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS — DATE
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CAPITAL PROJECT NO.
K-5023B

600' SCALE MAP NO. _____ DATE: _____

CROSS SECTIONS
**Owen Brown Road**

SCALE AS SHOWN

SHEET 12 OF 12