

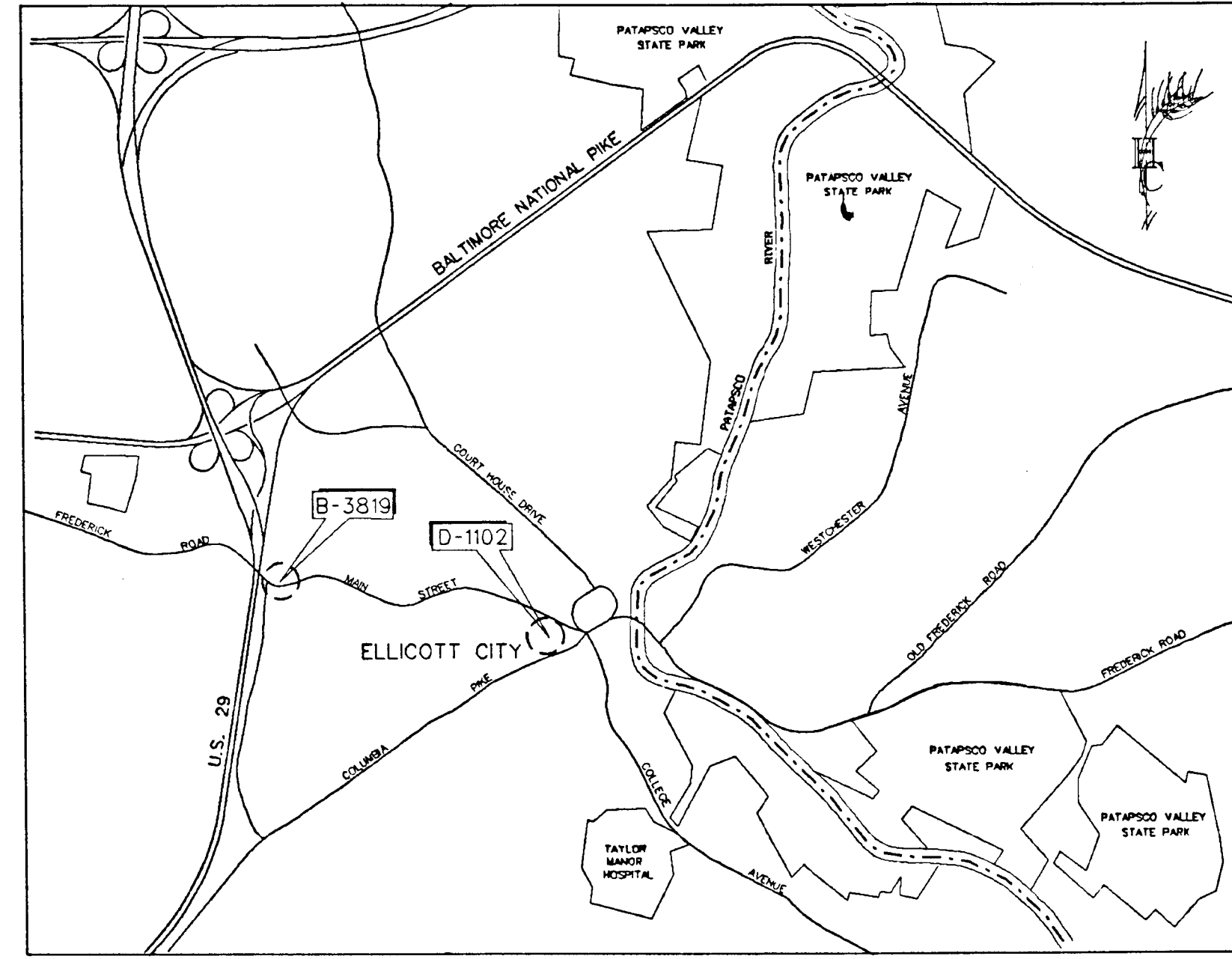
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS

INDEX OF SHEETS

* D-1102 DETAILS

NOTE: SEE PROPOSAL BOOK FOR DETAILS OF B-3819



VICINITY MAP
SCALE: 1"=2000'

REPAIR OF STRUCTURAL PLATE PIPE ARCH CULVERTS

**12'-8" x 8'-1" SPPA
ON FREDERICK ROAD
CARRING HUDSON BRANCH
CAPITAL PROJECT NO. B-3819**

**9'-4" x 6'-3" SPPA
IN THE ELLICOTT CITY PARKING LOT
CARRING CAT ROCK RUN
CAPITAL PROJECT NO. D-1102**

CERTIFICATION 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 AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD COUNTY SOIL CONSERVATION DISTRICT.
William J. Malone Jr. 4/29/94
SIGNATURE DATE

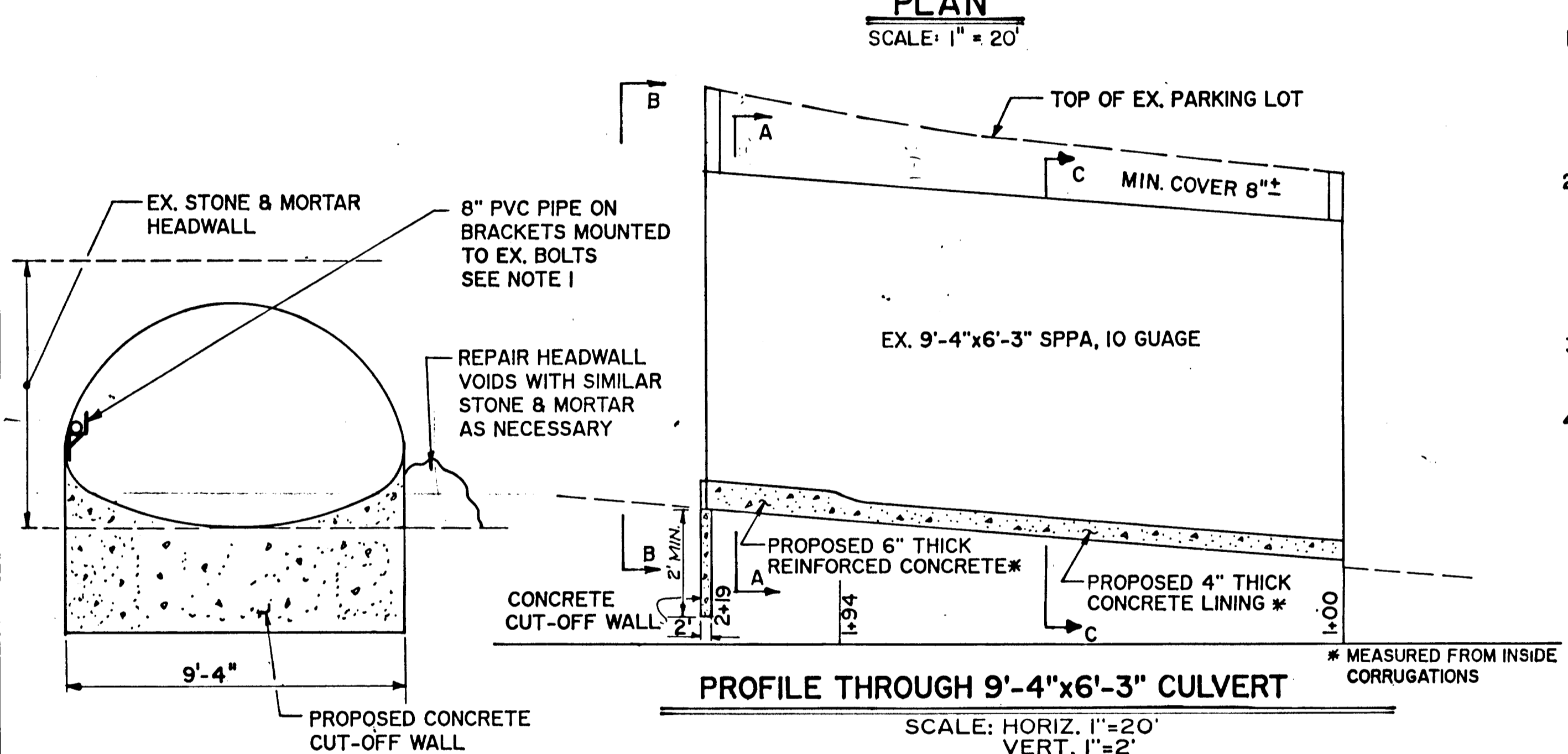
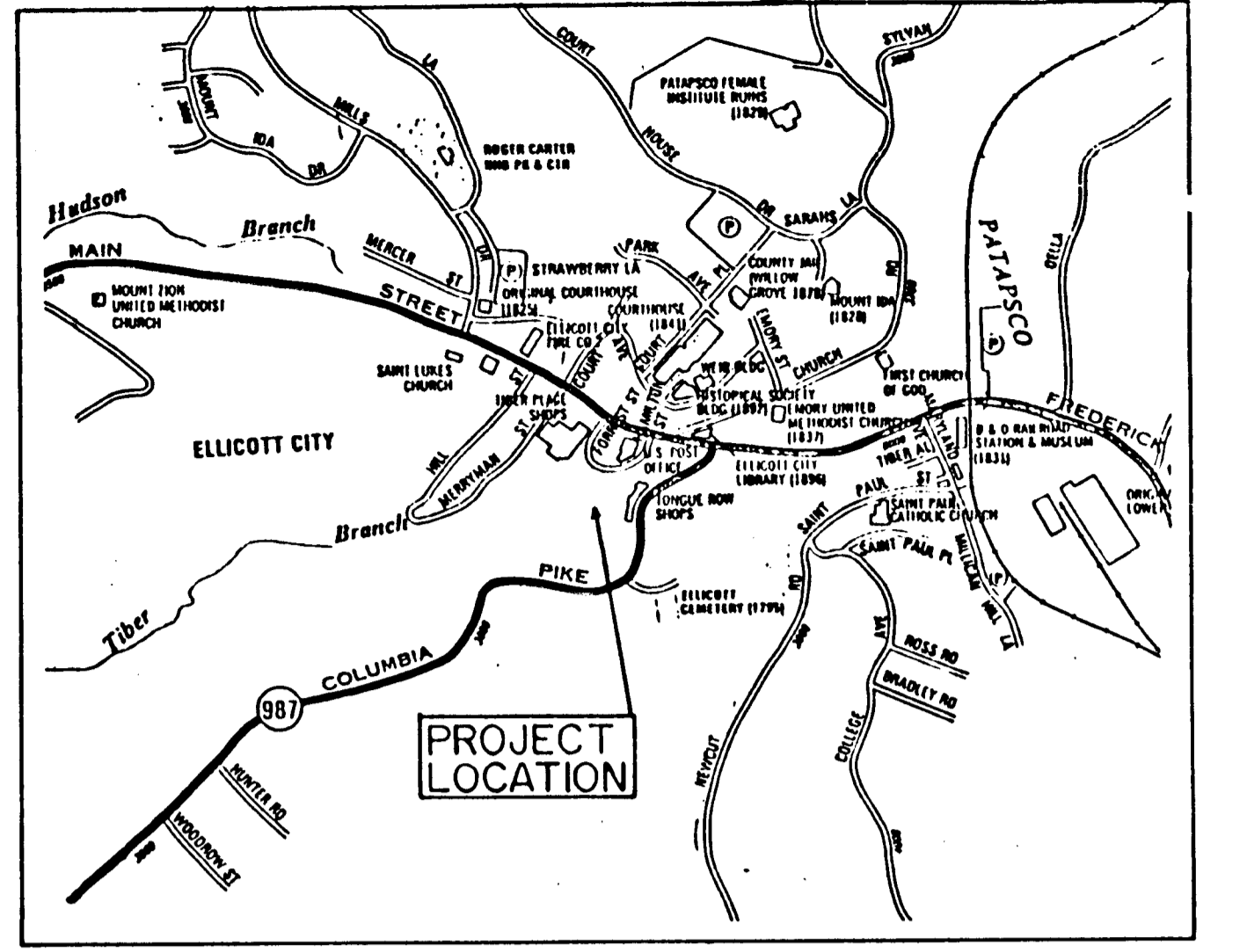
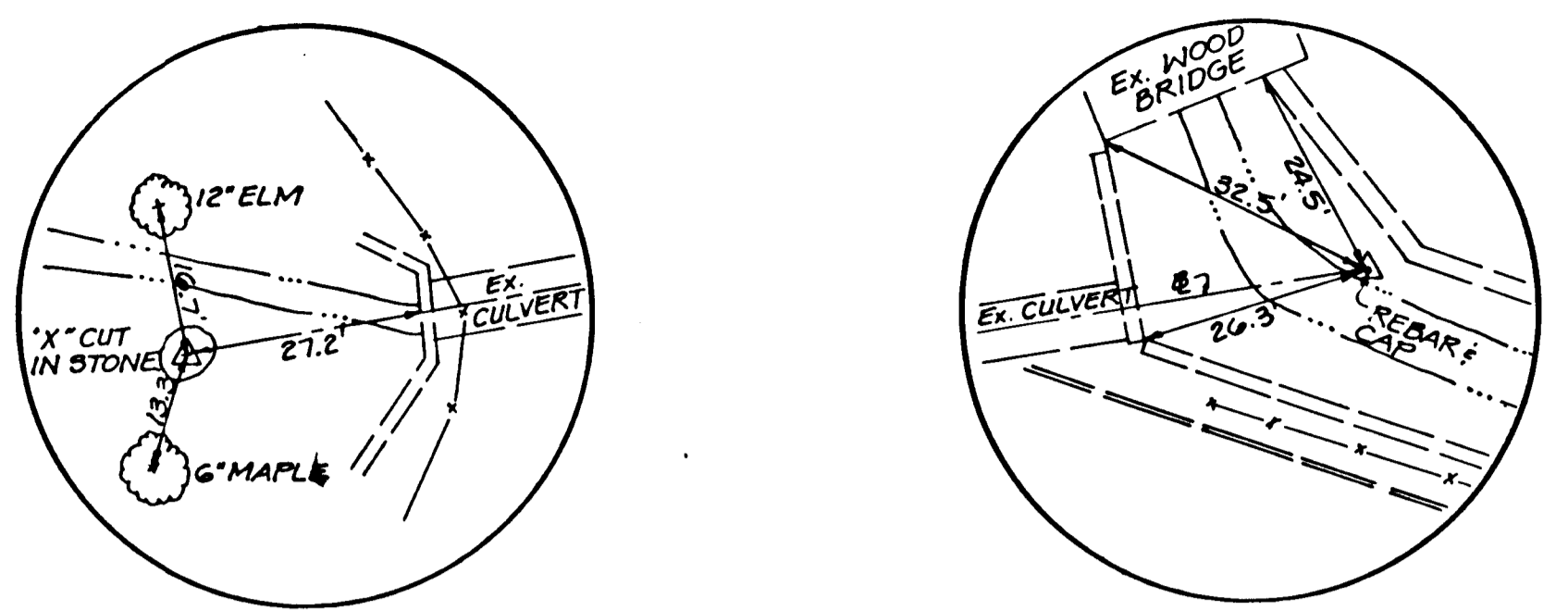
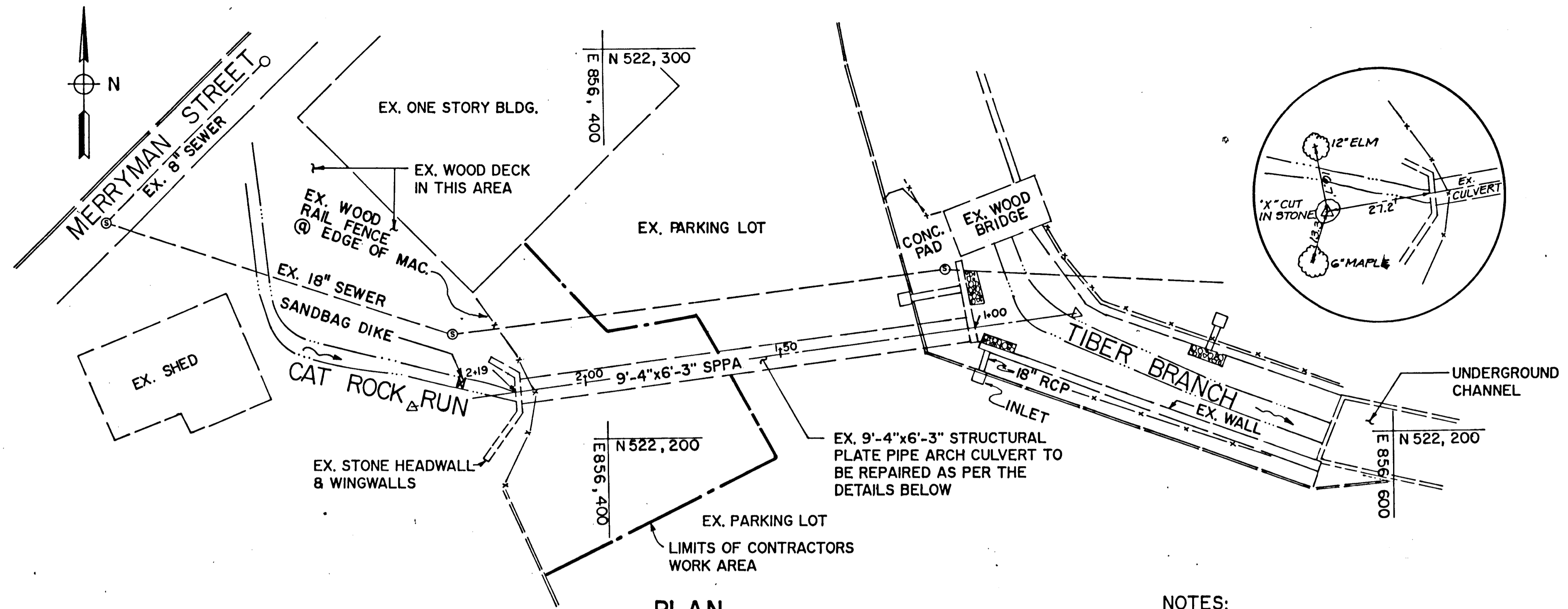
CERTIFICATION BY THE OWNER/DEVELOPER
I HAVE CERTIFIED THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN AND THAT THE RESPONSIBLE PERSONNEL INVOLVED IN THIS CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT THE DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD COUNTY SOIL CONSERVATION DISTRICT.
William J. Malone Jr. 4/29/94
SIGNATURE OF OWNER/DEVELOPER DATE

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.

RIGHT-OF-WAY LINES AS SHOWN ON THESE PLANS ARE FOR ASSISTANCE IN INTERPRETING THE PLANS. THESE LINES DO NOT REPRESENT THE OFFICIAL, PROPERTY ACQUISITION LINES. FOR OFFICIAL, FEE RIGHT-OF-WAY AND EASEMENT INFORMATION REFER TO THE APPROPRIATE RIGHT-OF-WAY PLATS.

C1077E01

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND. <i>William J. Malone Jr.</i> 5/3/94 DIRECTOR OF PUBLIC WORKS DATE <i>William J. Malone Jr.</i> 5/3/94 CHIEF, BUREAU OF HIGHWAYS DATE <i>William J. Malone Jr.</i> 4/29/94 CHIEF, BUREAU OF ENGINEERING DATE		PREPARED BY: TRANSPORTATION PROJECTS AND WATERSHED MANAGEMENT DIVISION D.P.W. / BUREAU OF ENGINEERING HOWARD COUNTY, MARYLAND.		DES : WFM DRN : RAD CHK : WFM DATE:	BY NO. REVISION DATE	TITLE SHEET	SCALE AS SHOWN SHEET 1 OF 2
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NOTES:

1. THE CONTRACTOR SHALL PROVIDE A DETAIL FOR THE BRACKETS TO HOLD THE 8" PVC PIPE ON THE INSIDE OF THE 9'-4"x6'-3" SPPA CULVERT DESIGNED AND STAMPED BY A PROFESSIONAL ENGINEER REGISTERED IN MARYLAND AND SUBMITTED FOR A SHOP DRAWING REVIEW AND APPROVAL BY THE COUNTY
2. A SUGGESTED DETAIL FOR TEMPORARY SUPPORT OF THE SPPA IS SHOWN ON SECTION A-A. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR A TEMPORARY SUPPORT SYSTEM DESIGNED AND STAMPED BY A PROFESSIONAL ENGINEER REGISTERED IN MARYLAND AND SUBMIT FOR SHOP DRAWING REVIEW AND APPROVAL BY THE COUNTY.
3. OVER EXCAVATE TO ONE EXTRA FOOT WIDTH FROM THE LIMIT OF PLATE REMOVAL ON EACH SIDE, AND ONE FOOT DEPTH FROM INVERT.
4. FOR CONSTRUCTION PLANS FOR THE EXISTING 12'-8"x8'-1" SPPA ON FREDERICK ROAD CARRYING HUDSON BRANCH, SEE THE PROPOSAL BOOK.

GENERAL NOTES

Existing Structures: All dimensions affected by the geometrics, and/or location of the existing structure are to be checked in the field by the Contractor, before any construction is done, and before any material is ordered or fabricated. It shall be the responsibility of the Contractor to supply the Engineer with all field dimensions required to check detail drawings.

Reinforcing Steel: Reinforcing steel shall conform to ASTM A-615 Grade 60. Minimum cover for any bar shall be 2" unless otherwise noted. Reinforcing steel shall not extend through construction joints.

Concrete: Concrete shall be Mix No. 2. Portland Cement shall be Type I, with Type A Admixture. All concrete shall meet sections 602.03.08, 608.03.05 and 608.03.08 of the SHA Standard Specifications for construction materials.

Finish: Exposed finished concrete surfaces to have a "float" finish.

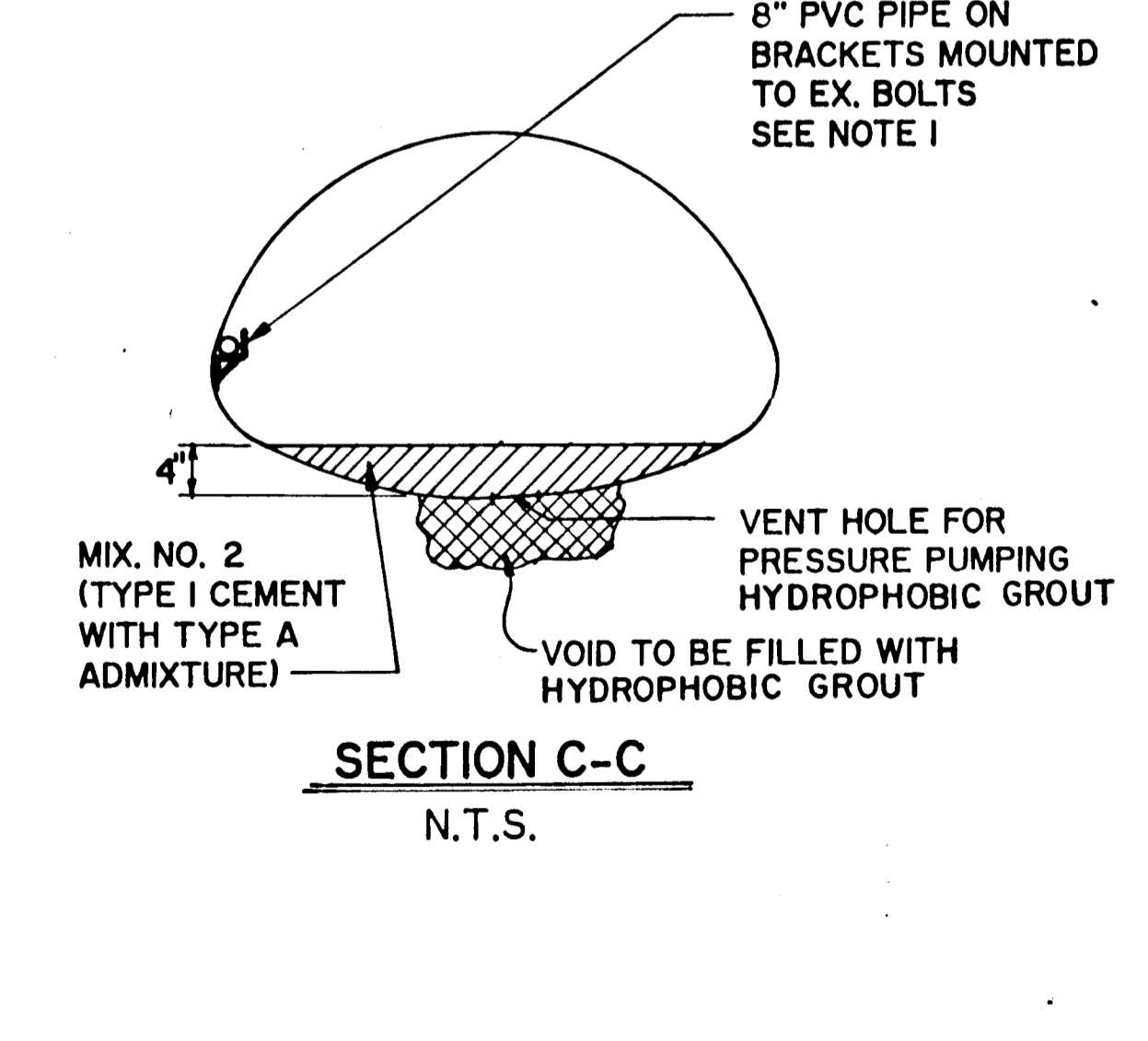
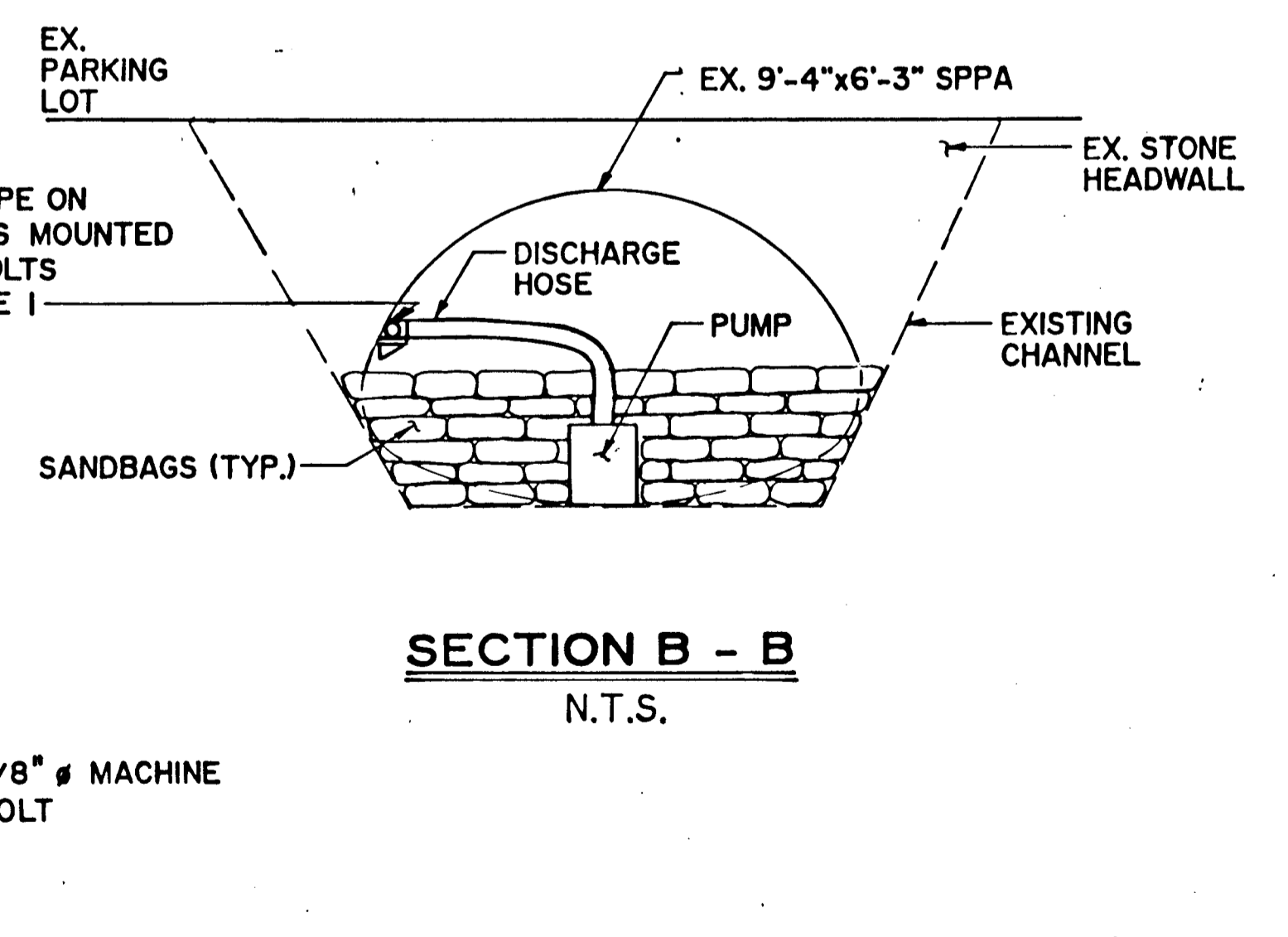
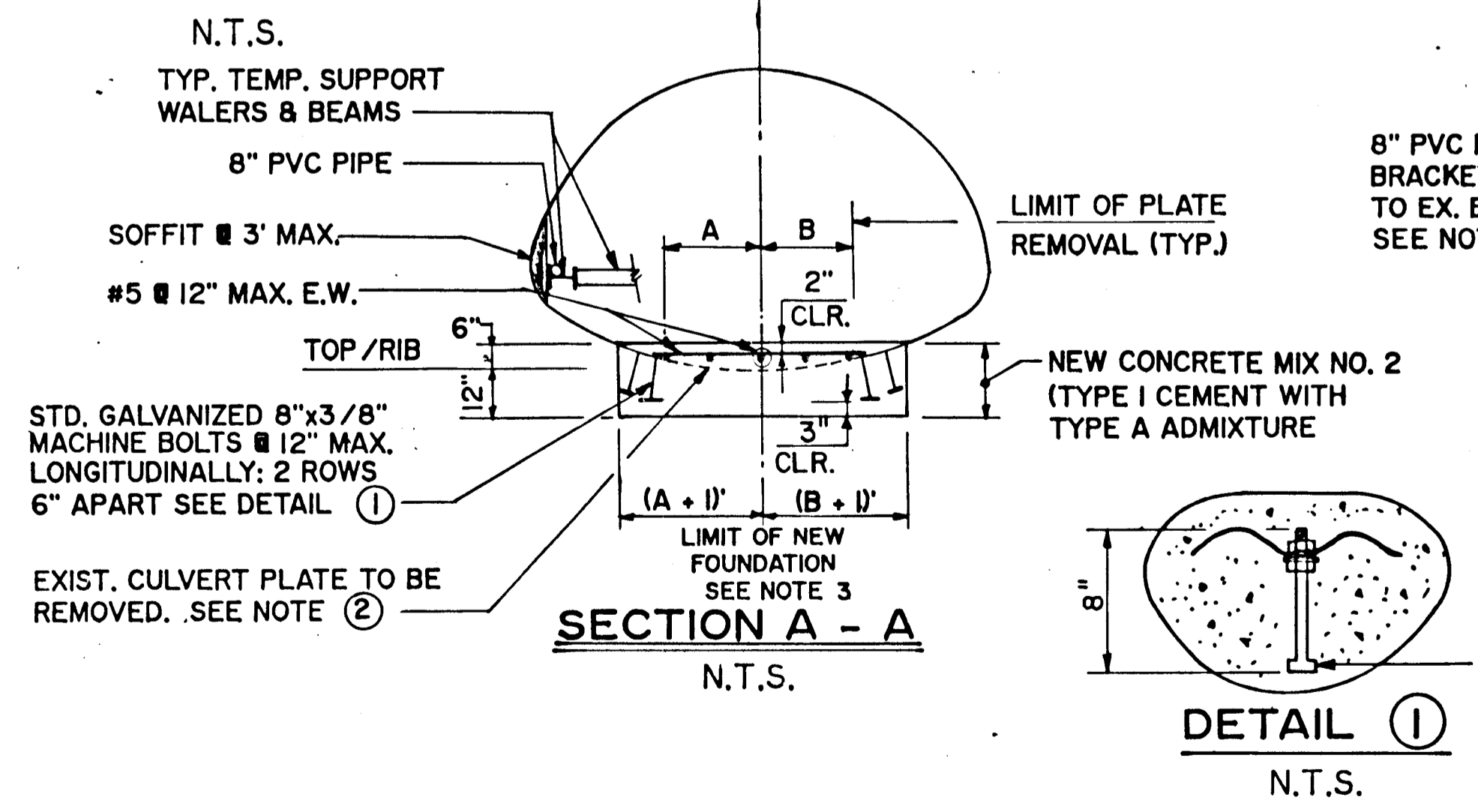
Epoxy Bonding Compound: All existing concrete that will be in contact with new concrete shall be coated with an approved epoxy bonding compound.

Parking Lot Area: No vehicles will be allowed within 10' of the culvert from Sta. 1 + 94 to Sta. 2 + 19 while undergoing repair. Traffic shall be detoured from that portion of the road as directed by the Engineer.

SEQUENCE OF CONSTRUCTION

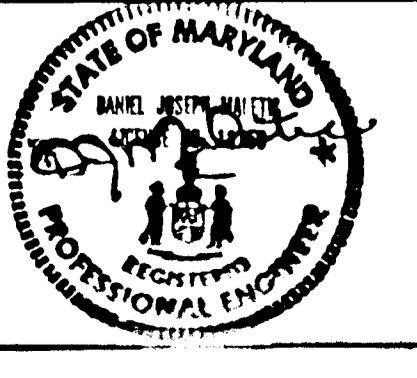
1. This repair scheme can only be completed during low flow. This is classified as Use I Waters. No in-stream work may be done between March 1 and June 15.
2. Sandbag the channel constriction upstream of the culvert.
3. Install brackets and 8" PVC pipe inside of culvert.
4. Place pump and run hose to 8" PVC pipe.
5. Remove any deleterious material from the area to be repaired. Culvert bottom to be cleaned of all sediment, rock and debris.
6. Cut and remove corroded pipe invert within from Sta. 1 + 94 to Sta. 2 + 19. The plate pipe to be removed shall include all rusted/corroded material plus at least two inches of adjacent plate to a maximum limit of two feet from the centerline of the culvert as approved by the Engineer.
7. Place reinforcing steel machine bolts and pour concrete from Sta. 1 + 94 to Sta. 2 + 19 in one pour.
8. Pressure pump Grout into voids beneath the pipe at 10' intervals or as directed by the Engineer from Sta. 1 + 00 to Sta. 1 + 94.
9. Patch invert with concrete and let cure for 12 hours. No water shall be allowed to flow over this concrete during cure time. A construction joint shall be located at the end of each pour, and at 6' intervals.
10. Install concrete cut off wall and patch headwall voids with similar stone and mortar. (May be done concurrently with Steps 6 and 7.)
11. Remove pump(s), sandbags, pipe and brackets.

CULVERT ENTRANCE



DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
DIRECTOR OF PUBLIC WORKS
DATE 4/29/04
CHIEF, BUREAU OF ENGINEERING

gpi Greenman-Pedersen, Inc.
ENGINEERS/ARCHITECTS/PLANNERS
LAUREL, MARYLAND



DES: D.J.					
DRN: N.B.					
CHK: B.D.					
DATE: 6/1/93	BY	NO	REVISION	DATE	

ELLCOTT CITY PARKING LOT IMPROVEMENTS
CAT ROCK RUN CULVERT REPAIR
PART OF CAPITAL PROJECT D-1102

LANDSCAPING ELLICOTT CITY PARKING LOT

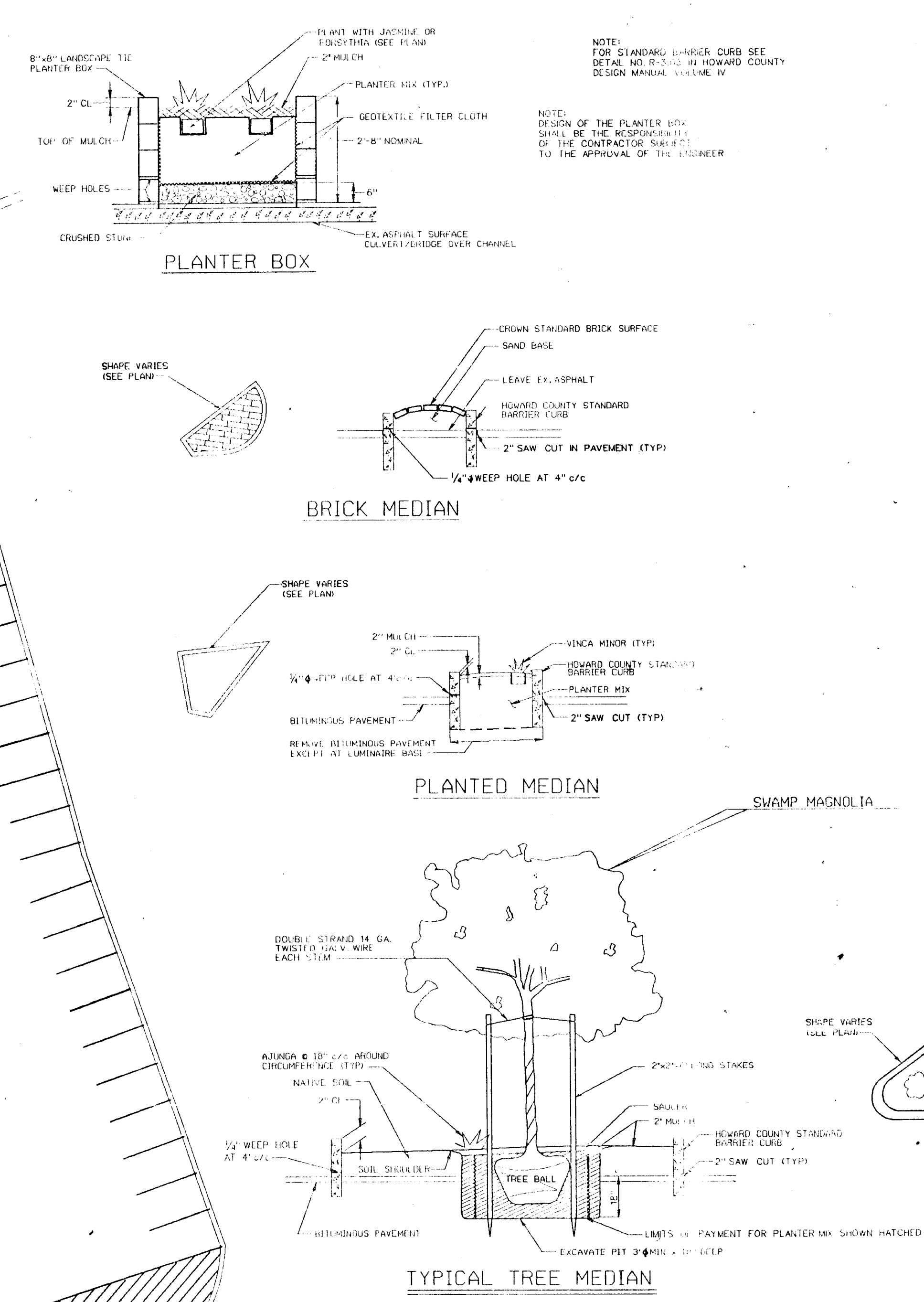
SCALE: 1"=20'

LEGEND

QUANTITY	LATIN NAME	COMMON NAME	SIZE/COMMENTS
28	MAGNOLIA VIRGINIANA	SWAMP MAGNOLIA	EACH 4'-6" TALL TRIMMED WITH 3 STEMS MAX
30	JASMINUM NUDIFLORUM	JASMINE	1 GAL @ 36" c/c
30	FORSYTHIA SUSPENS A	WEeping FORSYTHIA	1 GAL @ 36" c/c
125	VINCA MINOR	MYRTLE	2" POTS @ 24" c/c
170	AJUGA	BUGLE FLOWER	2" POTS @ 18" c/c AROUND CIRCUMFERENCE OF TREES

SOIL

PLANTER AND TREE WELL MIX
 1/3 COMPOSTED SLUDGE (COMPRO OR EQUAL)
 1/3 SAND
 1/3 NATIVE SOIL



NOTE: FOR STANDARD BARRIER CURB SEE DETAIL NO. R-302 IN HOWARD COUNTY DESIGN MANUAL VOLUME IV

NOTE: DESIGN OF THE PLANTER BOX SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR SUBJECT TO THE APPROVAL OF THE ENGINEER

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND. Director of Public Works: <i>James G. ...</i> DATE: <i>6/8/94</i> Chief, Division of Construction Projects and Watershed Management: <i>Charles Anderson ...</i> DATE: <i>6/8/94</i>		PREPARED BY: TRANSPORTATION PROJECTS AND WATERSHED MANAGEMENT UNIT D.P.W. / BUREAU OF ENGINEERING ENGINEER: <i>James ...</i> DATE: <i>6/8/94</i>		APPROVED BY: SUPERVISOR: <i>James ...</i> DATE: <i>6/8/94</i>		PROJECT NO. 2174 SHEET NO. 2 OF 2	
CAPITAL PROJECT D-1102 LANDSCAPING ELLICOTT CITY PARKING LOT				SCALE AS SHOWN SHEET 2A OF 2			

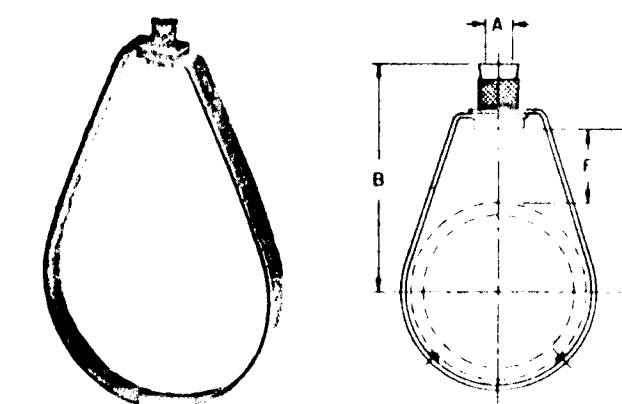
BILL OF MATERIALS

NO. PIECES	PIECE MARK	SHAPE	LENGTH		REMARKS
			FT.	IN.	
9		C 12 x 25	9	0 1/2	
16		Ring Hanger			Fig. 70
16		Bracket			Fig. 194
16		3/4" Rod w/ Hex Nut & Beveled Washer	0	8	Threaded

Grinnell
pipe rings

Grinnell
steel brackets

adjustable swivel ring
fig. 70
-temped per NEPA standards-
fig. 69



SIZE RANGE: Fig. 69 1/2" - 8"
Fig. 70 2 1/2" - 8"

MATERIAL: Carbon steel.

FINISH: Plated.

SERVICE: Recommended for suspension of non-insulated, stationary pipe line.

MAXIMUM TEMPERATURE: 650°F.

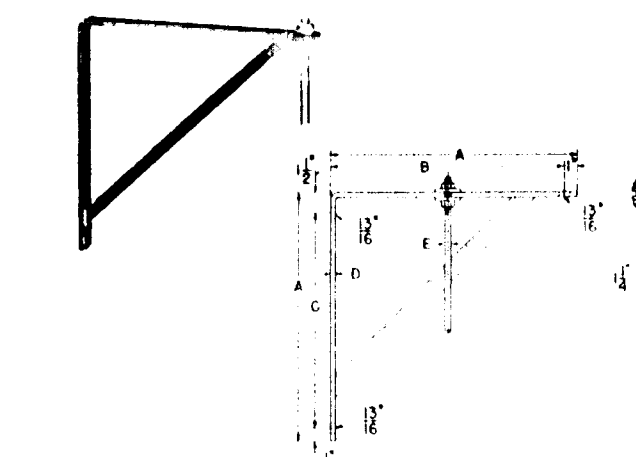
APPROVALS: Fig. 69 Underwriters' Laboratories listed and Factory Mutual approved 1/2" thru 8". Complies with Federal Specification WW-H-171E (Type 10) and Manufacturers Standardization Society SP-69 (Type 10).

FEATURES:

- Threads are countersunk so that they cannot become burred or damaged.
- Knurled swivel nut provides vertical adjustment after piping is in place.
- Captured swivel nut in the 1/2 through 2 inch sizes will not fall out.

ORDERING: Specify size, figure number, name.

light welded steel bracket
bracket: fig. 194



MAXIMUM RECOMMENDED LOAD: 750 lbs.

MATERIAL: Carbon steel bracket.

FINISH: Black or primed, furnished black unless otherwise specified.

SERVICE: Recommended for support from below.

APPROVALS: Factory Mutual approved for the support of up to 2" pipe with 3/8" rod, up to 3 1/2" pipe with 1/2" rod, up to 5" pipe with 3/4" rod and up to 6" pipe with 1" rod, on the Fig. 194 Bracket. Complies with Federal Specification WW-H-171E (Type 32) and Manufacturers Standardization Society SP-69 (Type 31).

HOW TO SIZE: Determine bracket size by dimension of standard bracket most suitable to the installation.

INSTALLATION: Attached by bolting to wall. A backing plate may be required.

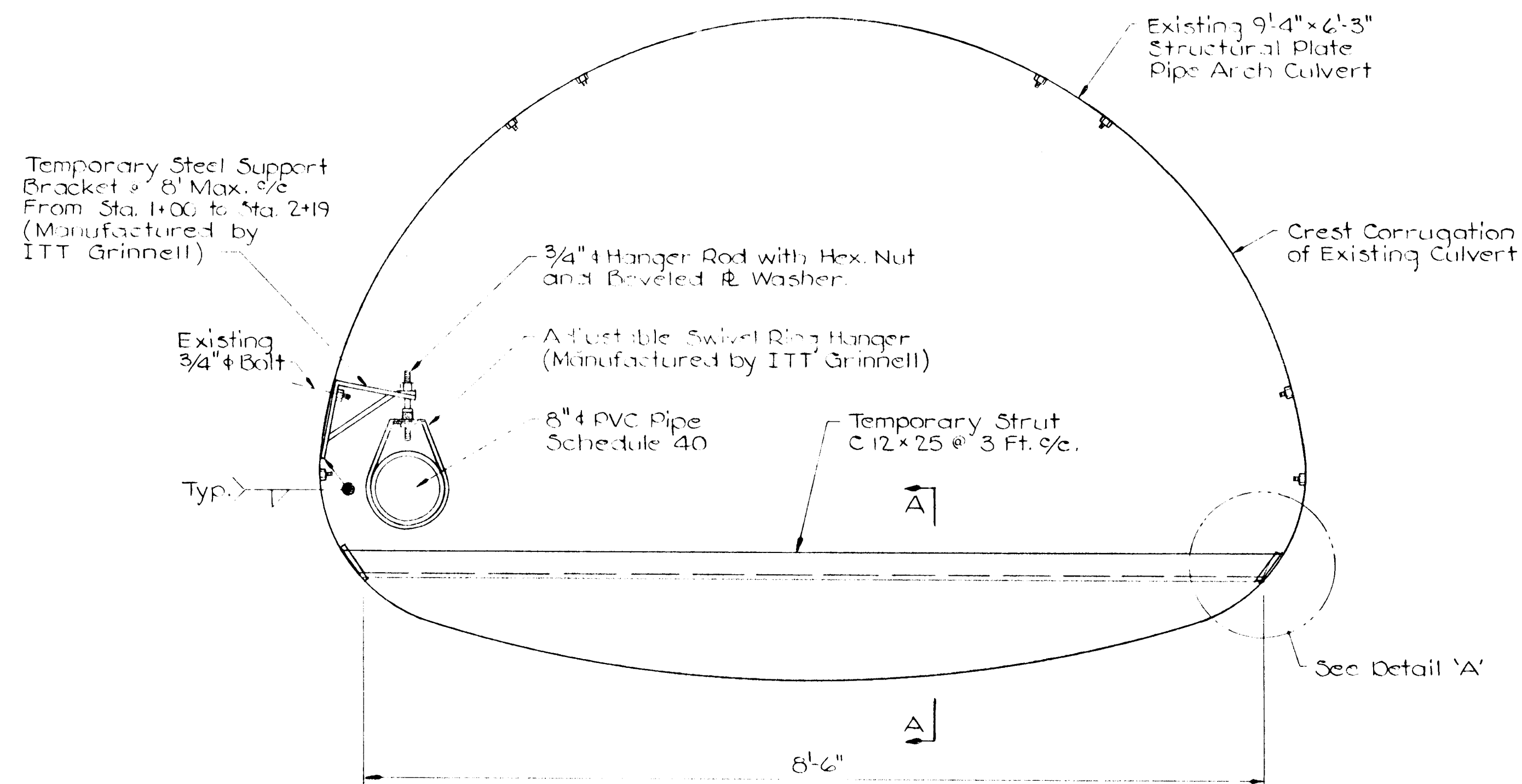
FEATURES:

- Bracket may be installed either in position illustrated or reversed.
- Ends of bracket are drilled to take hanger rods up to 3/4 inch.

ORDERING: Specify bracket number, figure number, name. Order hanger rods and hex nuts separately.

weights • dimensions (inches)

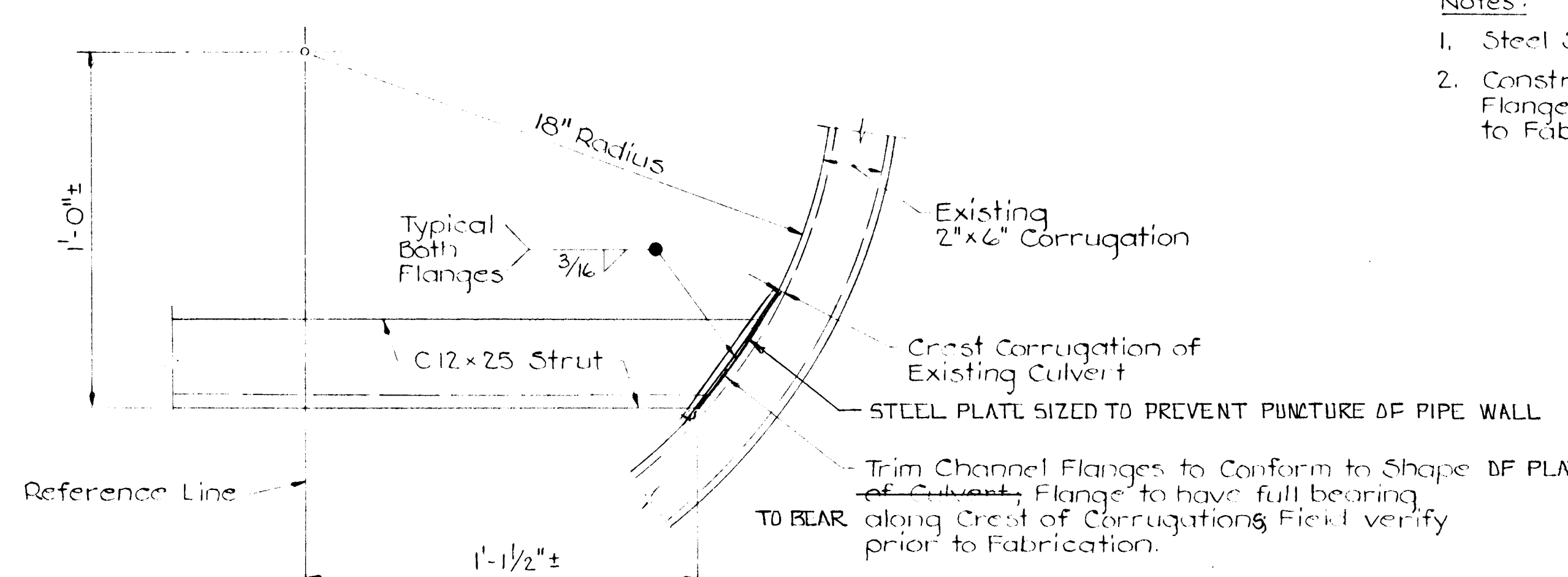
bracket no.	wgt (approx) lbs each	A	B	C	D
1	3.1	9	8	8 1/2	3 1/2
2	7.2	18	14	14 1/2	4 1/2
3	14.8	18	18	18 1/2	4 1/2



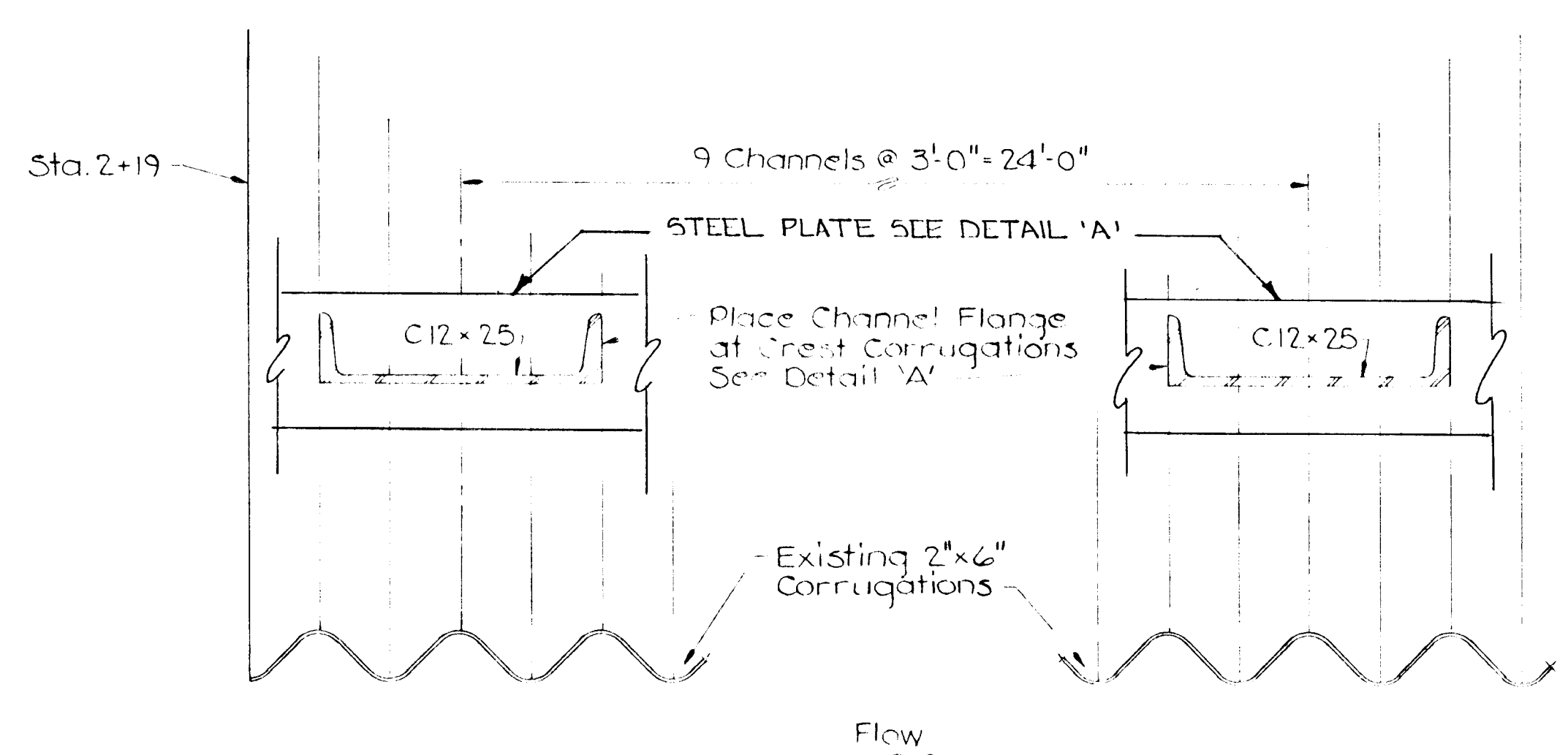
LOOKING DOWNSTREAM
TYPICAL SECTION THRU REPAIR
(STA. 1+94 TO STA. 2+19)

loads • weights • dimensions (inches)

pipe size	max recom load, lb		weight (approx) lbs each		thread size UNC		Fig. 69 A	Fig. 69 B	Fig. 69 C	Fig. 69 F	Fig. 70
	Fig. 69	Fig. 70	Fig. 69	Fig. 70	Fig. 69	Fig. 70					
1/2"	300	300	09	09	1/4"	2 1/4"	1 1/4"	1 1/4"	1 1/4"	1 1/4"	1 1/4"
3/4"	300	300	09	09	1/4"	2 1/4"	1 1/4"	1 1/4"	1 1/4"	1 1/4"	1 1/4"
1"	300	300	10	10	1/2"	2 1/4"	1 1/4"	1 1/4"	1 1/4"	1 1/4"	1 1/4"
1 1/4"	300	300	10	10	1/2"	2 1/4"	1 1/4"	1 1/4"	1 1/4"	1 1/4"	1 1/4"
1 1/2"	300	300	10	10	1/2"	2 1/4"	1 1/4"	1 1/4"	1 1/4"	1 1/4"	1 1/4"
2"	300	300	11	11	3/4"	3 1/4"	2 1/4"	2 1/4"	2 1/4"	2 1/4"	2 1/4"
2 1/2"	525	1000	25	83	1"	3 1/4"	2 1/4"	2 1/4"	2 1/4"	2 1/4"	2 1/4"
3"	525	1000	27	86	1 1/4"	4 1/4"	3 1/4"	3 1/4"	3 1/4"	3 1/4"	3 1/4"
4"	650	1100	48	56	1 1/2"	5 1/4"	4 1/4"	4 1/4"	4 1/4"	4 1/4"	4 1/4"
5"	1000	1100	53	62	1 3/4"	5 1/4"	4 1/4"	4 1/4"	4 1/4"	4 1/4"	4 1/4"
6"	1000	1250	1.0	1.2	2"	6 1/4"	5 1/4"	5 1/4"	5 1/4"	5 1/4"	5 1/4"
8"	1000	1250	1.0	1.4	2 1/4"	8 1/4"	7 1/4"	7 1/4"	7 1/4"	7 1/4"	7 1/4"



DETAIL 'A'



SECTION A-A

- Notes:
1. Steel Shall Conform to ASTM A-36.
 2. Construct Template for C12x25 Flange Cut and Field Verify prior to Fabrication.

Approval, construction or contract shall be on the shop drawings. The contractor shall be responsible for the construction, installation and maintenance of the structure and shall be responsible for the design and construction of the structure. The contractor shall be responsible for the design and construction of the structure. The contractor shall be responsible for the design and construction of the structure.

Greenman - Podjarsen, Inc.
CONSULTING ENGINEERS
14504 Greenview Drive, Suite 103
Lauri, Maryland 20708
Wash., (301) 470-2772 FAX: (301) 683-3055
Annap. 869-6333

Date: 9/2/94 By: [Signature]

HOWARD COUNTY BUREAU OF ENGINEERING
ROADS, BRIDGES & STORM DRAINAGE DIVISION

APPROVED
 APPROVED AS NOTED
 DISAPPROVED
 RESUBMIT

The contractor shall be responsible for the design, application and construction of the structure and shall be responsible for the design and construction of the structure.

By: [Signature]
Date: 9/2/94

NORTHEAST ENGINEERING, INC.
BALTIMORE, MARYLAND

C10774φ1

REVISIONS	HOWARD COUNTY, MARYLAND DEPARTMENT OF PUBLIC WORKS
	SUPPORT DETAILS FOR REPAIR OF STRUCTURAL PLATE PIPE ARCH CULVERT ELLICOTT CITY PARKING LOT
	CONTRACTOR MARYLAND DIVING SERVICE, INC.
	F.A.P. NO. _____
	STATE CONTR. NO. _____
	LOCAL CONTR. NO. B-3619
	PROJECT NO. _____
	DATE: AUG 1994 SHEET 1 OF 1

[Professional Engineer Seal]

[Signature]