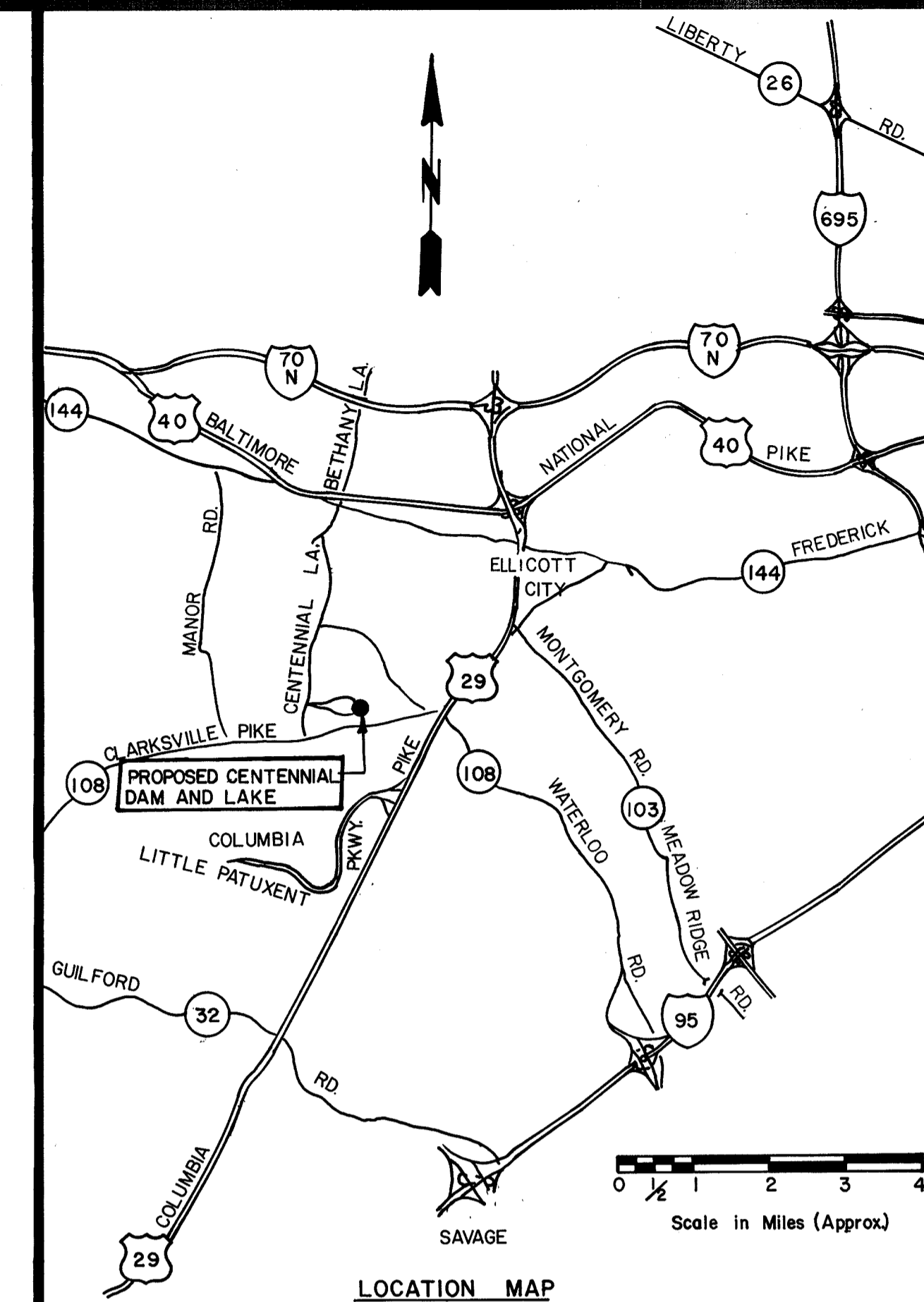


CENTENNIAL PARK CAPITAL PROJECT NO. N-4-3014 DAM, LAKE AND LAKESHORE SOUTH AREA

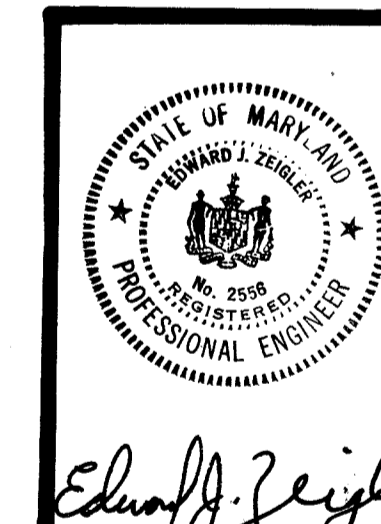
DEPT. OF PUBLIC WORKS FOR THE DEPT. OF RECREATION AND PARKS HOWARD COUNTY, MARYLAND



LEGEND

- Monument or Survey Control Point
- ⊕ Piezometer (Proposed)
- ▣ R K & K Test Pit
- ⊙ R K & K Test Boring
- △ S C S Test Pit
- ⊙ S C S Test Boring
- Existing Contours
- - - Proposed Contours
- ⊙ Existing Trees
- ▨ Existing Brush
- ▨ Lakeside Grading
- ▨ Proposed Riprap
- ▨ Trees Over 6" in Diameter to be Left Standing with Tops Cut Off at Elev. 339.0
- Normal Pool Edge, Elev. 345.0.
- - - Property Line
- - - Limit of Grading
- - - Existing Stream
- * * * Existing Fence
- - - Existing Sanitary Sewer
- - - Limit of Bank Protection
- - - Contract Limit Line

NOTE: THESE DRAWINGS INCLUDE SHEETS 1 OF 26 THROUGH 26 OF 26 FOR DAM AND LAKE CONSTRUCTION AND SHEETS 1 OF 81 THROUGH 81 OF 81 FOR LAKESHORE SOUTH AREA CONSTRUCTION. SEE SHEET 1 OF 81 FOR INDEX OF LAKESHORE SOUTH AREA DRAWINGS.



APPROVED:
HOWARD COUNTY DEPARTMENT OF RECREATION AND PARKS
Walter W. Haddock
DIRECTOR 12-14-83
DATE

APPROVED: For Public Water, Public Sewerage and Storm Drainage Systems and Roads
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Walter F. Nemes
DIRECTOR 11-9-83
DATE
William B. Reay
CHIEF, BUREAU OF ENGINEERING 10-28-83
DATE

APPROVED: For Public/Private Water and Public/Private Sewerage Systems
HOWARD COUNTY HEALTH DEPARTMENT

COUNTY HEALTH OFFICER _____ DATE _____

APPROVED: Howard County Office of Planning and Zoning
PLANNING DIRECTOR _____ DATE _____

CHIEF, DIVISION OF LAND DEVELOPMENT _____ DATE _____

RK & K RUMMEL, KLEPPER & KAHL
CONSULTING ENGINEERS
BALTIMORE, MARYLAND

CENTENNIAL PARK DAM AND LAKE TITLE SHEET

DATE	6-1-83	REVISIONS:	DRAWING NO.	SHEET NO.
SCALE	None		A-1	1
DRAWN BY	D.L.K.			
CHECKED BY	R.C.D.			OF 26

ENGINEER'S CERTIFICATE

SIGNATURE OF ENGINEER _____ DATE _____

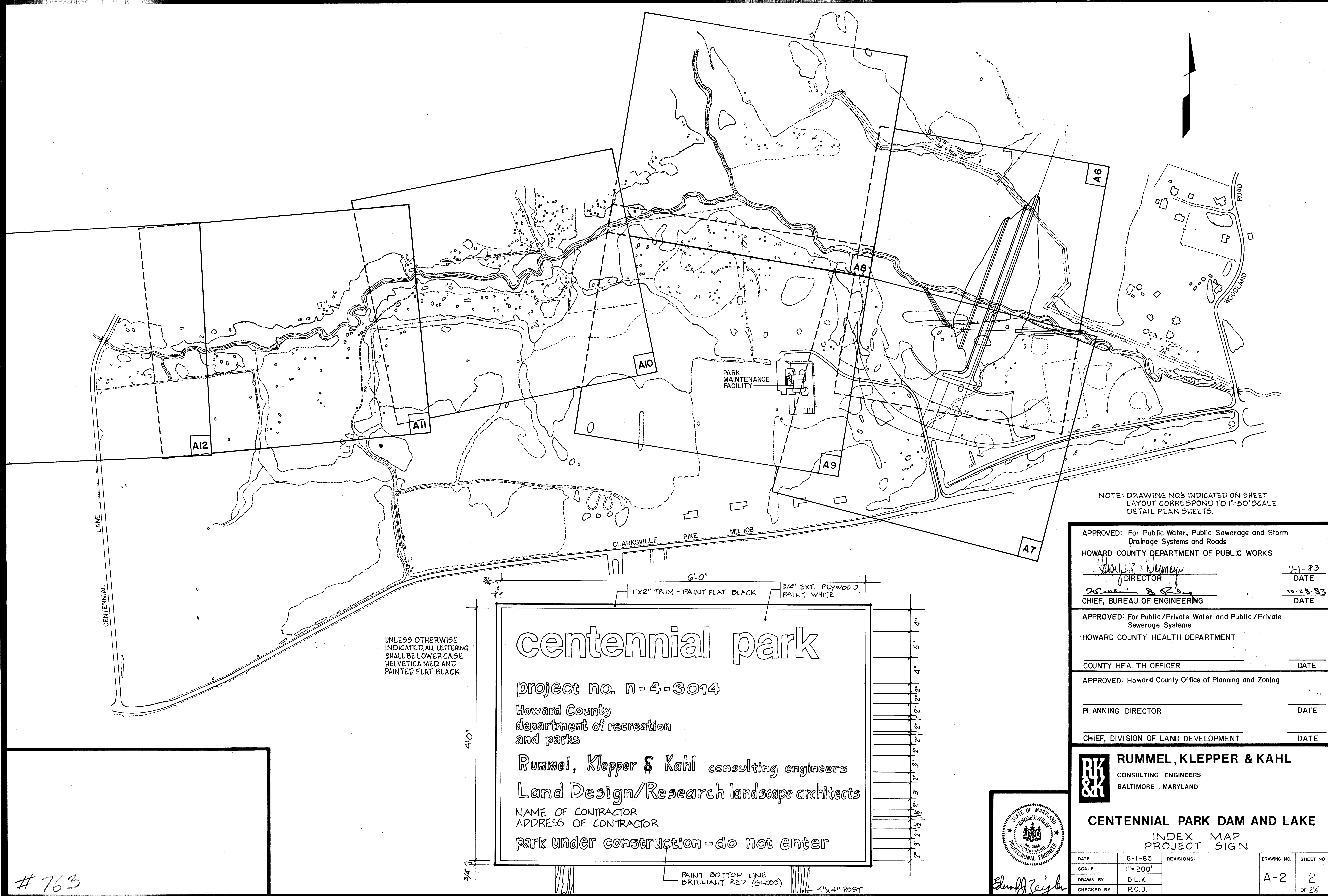
DEVELOPER'S CERTIFICATE

William B. Reay
SIGNATURE OF DEVELOPER 10-28-83
DATE

SHEET INDEX FOR DAM AND LAKE

Sheet No.	Dwg. No.	Sheet Title	Sheet No.	Dwg. No.	Sheet Title
1	A-1	TITLE SHEET	17	E-1	SEDIMENTATION AND EROSION CONTROL PLAN FOR DAM AND LAKE
2	A-2	INDEX MAP	18	E-2	SEDIMENTATION AND EROSION CONTROL PLAN FOR DAM AND LAKE, DETAILS
3	A-3	GENERAL PLAN - BORING & TEST PIT LOCATIONS	19	S-1	RISER STRUCTURE - PLAN, ELEV., & SECTIONS
4	A-4	GENERAL PLAN - BORING & TEST PIT LOCATIONS	20	S-2	RISER STRUCTURE - BASE UNIT SECTIONS & DETAILS
5	A-5	GENERAL PLAN - BORING & TEST PIT LOCATIONS	21	S-3	RISER STRUCTURE - COVER SLAB & ENDWALL DETAILS
6	A-6	DETAIL PLAN - DAM & PRINCIPAL SPILLWAY	22	S-4	RISER STRUCTURE - TRASH RACK & SLIDE GATE
7	A-7	DETAIL PLAN - EMERGENCY SPILLWAY	23	S-5	RESERVOIR DRAIN INLET DETAILS
8	A-8	DETAIL PLAN - LAKESIDE GRADING	24	S-6	IMPACT BASIN PLAN, ELEV., & SECTIONS
9	A-9	DETAIL PLAN - LAKESIDE GRADING	25	S-7	IMPACT BASIN SECTION & DETAILS
10	A-10	DETAIL PLAN - LAKESIDE GRADING	26	S-8	IMPACT BASIN AND MISCELLANEOUS DETAILS
11	A-11	DETAIL PLAN - LAKESIDE GRADING			
12	A-12	DETAIL PLAN - LAKESIDE GRADING			
13	A-13	SPILLWAY PROFILES & DAM CROSS SECTION			
14	A-14	DAM PROFILE & DETAILS			
15	A-15	DETAILS			
16	A-16	GEOMETRIC LAYOUT OF PATHWAY AND SPUR			

#763



NOTE: DRAWING NO'S INDICATED ON SHEET LAYOUT CORRESPOND TO 1"=50' SCALE DETAIL PLAN SHEETS.

APPROVED: For Public Water, Public Sewerage and Storm Drainage Systems and Roads
 HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
John C. Neimey 11-9-83
 DIRECTOR DATE
William B. Rea 10-28-83
 CHIEF, BUREAU OF ENGINEERING DATE

APPROVED: For Public/Private Water and Public/Private Sewerage Systems
 HOWARD COUNTY HEALTH DEPARTMENT
 COUNTY HEALTH OFFICER DATE

APPROVED: Howard County Office of Planning and Zoning
 PLANNING DIRECTOR DATE
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

RUMMEL, KLEPPER & KAHL
 CONSULTING ENGINEERS
 BALTIMORE, MARYLAND

CENTENNIAL PARK DAM AND LAKE
 INDEX MAP
 PROJECT SIGN

DATE	6-1-83	REVISIONS:	DRAWING NO.	SHEET NO.
SCALE	1"= 200'		A-2	2
DRAWN BY	D.L.K.			of 26
CHECKED BY	R.C.D.			

UNLESS OTHERWISE INDICATED, ALL LETTERING SHALL BE LOWER CASE HELVETICA MED AND PAINTED FLAT BLACK

centennial park

project no. n-4-3014

Howard County
department of recreation
and parks

Rummel, Klepper & Kahl consulting engineers
Land Design/Research landscape architects

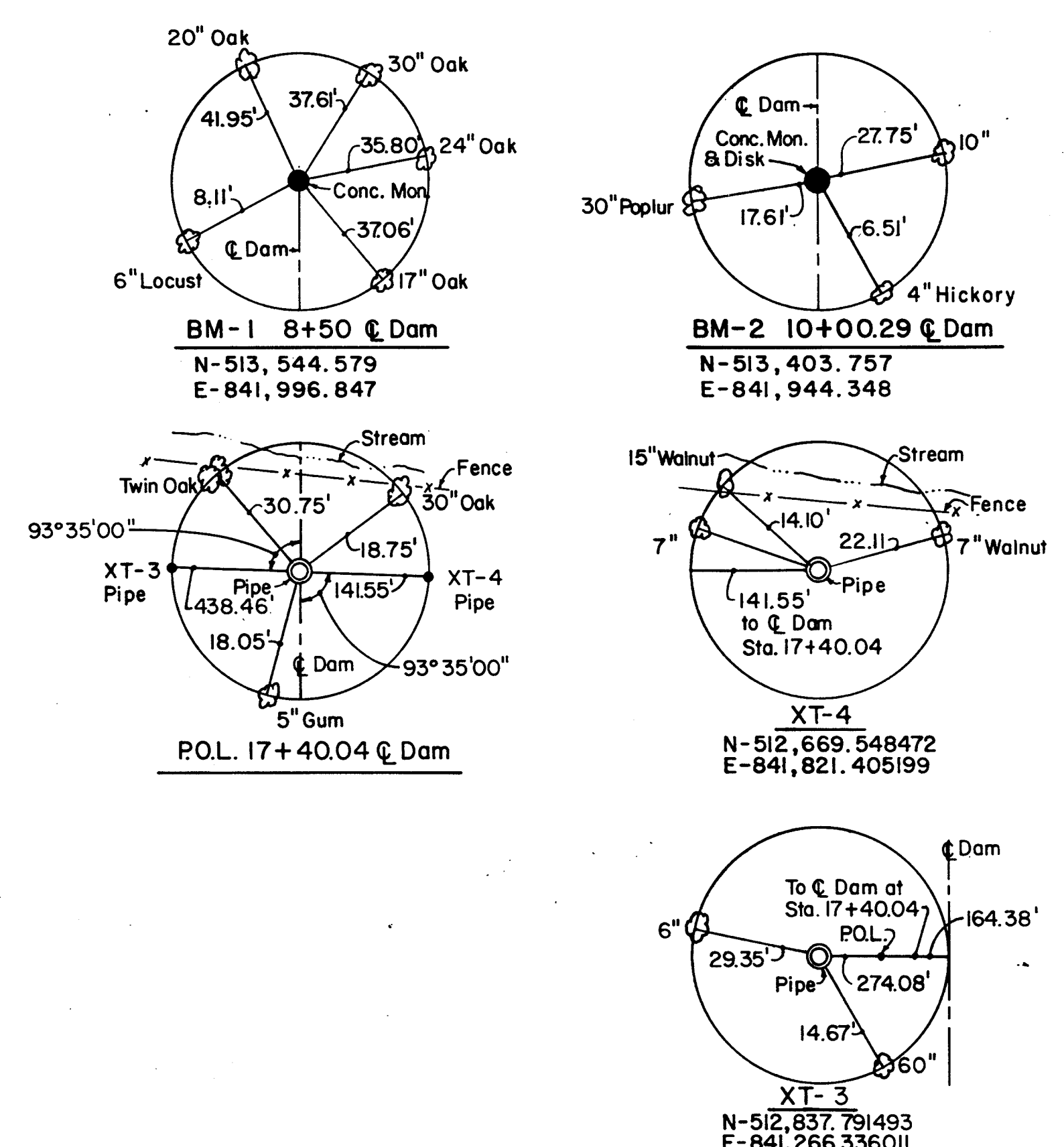
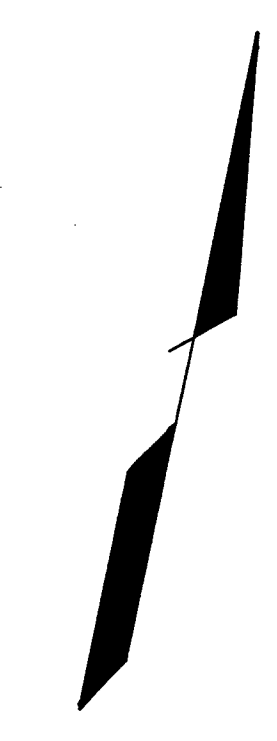
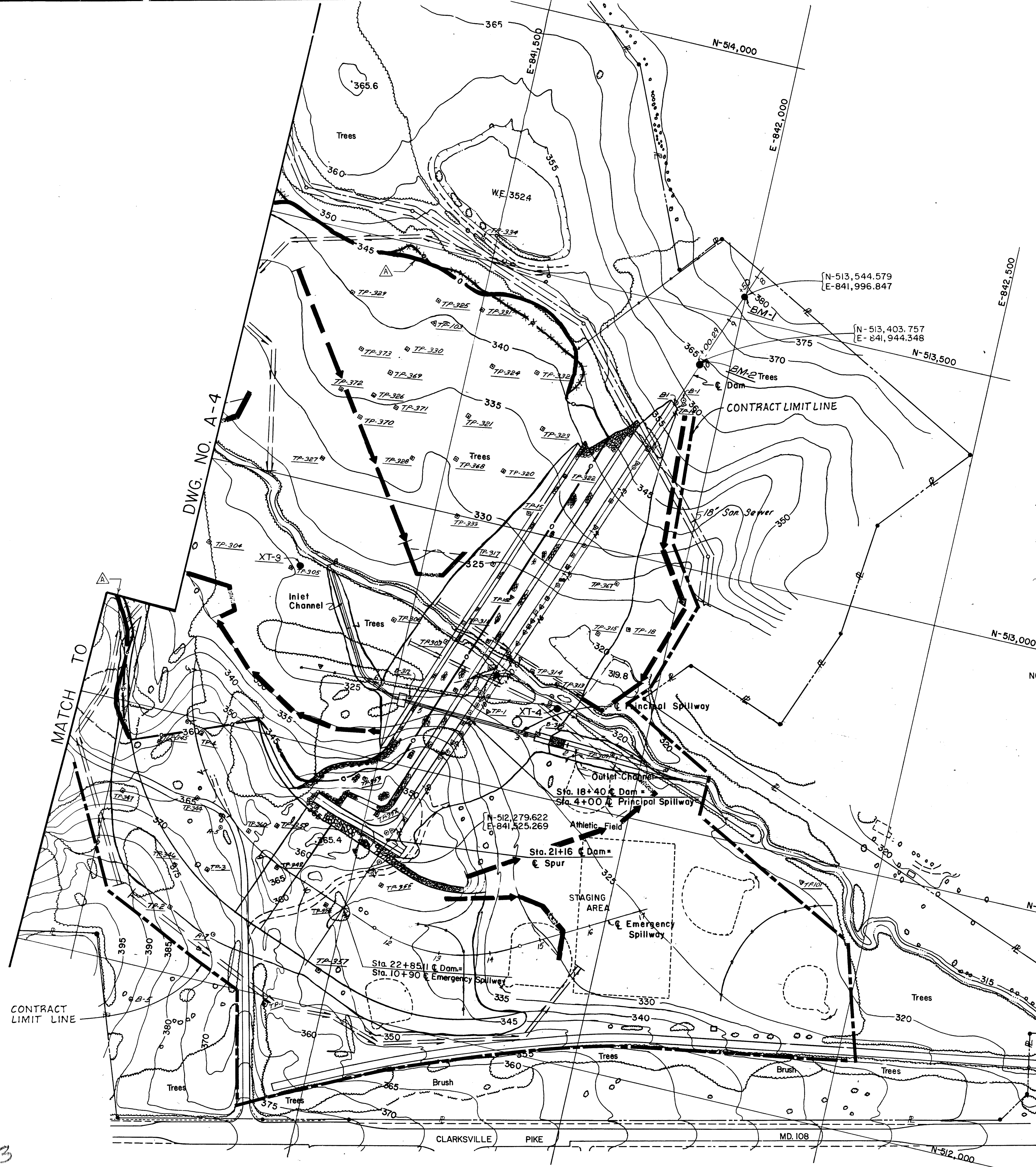
NAME OF CONTRACTOR
ADDRESS OF CONTRACTOR

park under construction - do not enter

PAINT BOTTOM LINE BRILLIANT RED (GLOSS)
 4"x4" POST



763



- BM-1** Conc. Mon. Set @ Sta. 8+50 Elev. 378.60
N-513,544.579
E-841,996.847
- BM-2** Conc. Mon. Set @ Sta. 10+00.29 Elev. 364.88
N-513,403.757
E-841,944.348
- XT-3** Iron Pipe
N-512,837.791493
E-841,266.336011
- XT-4** Iron Pipe
N-512,669.548472
E-841,821.405199

NOTE: Location of Borings and Test Pits in Vicinity of Dam Also Shown on Dwg. No's. A-6 & A-7.
Logs of Borings and Test Pits Are Bound Separately As Appendix of Specifications for Construction
For Description of Temporary Sediment and Erosion Control Devices, See Dwg. No's. E-1 & E-2.

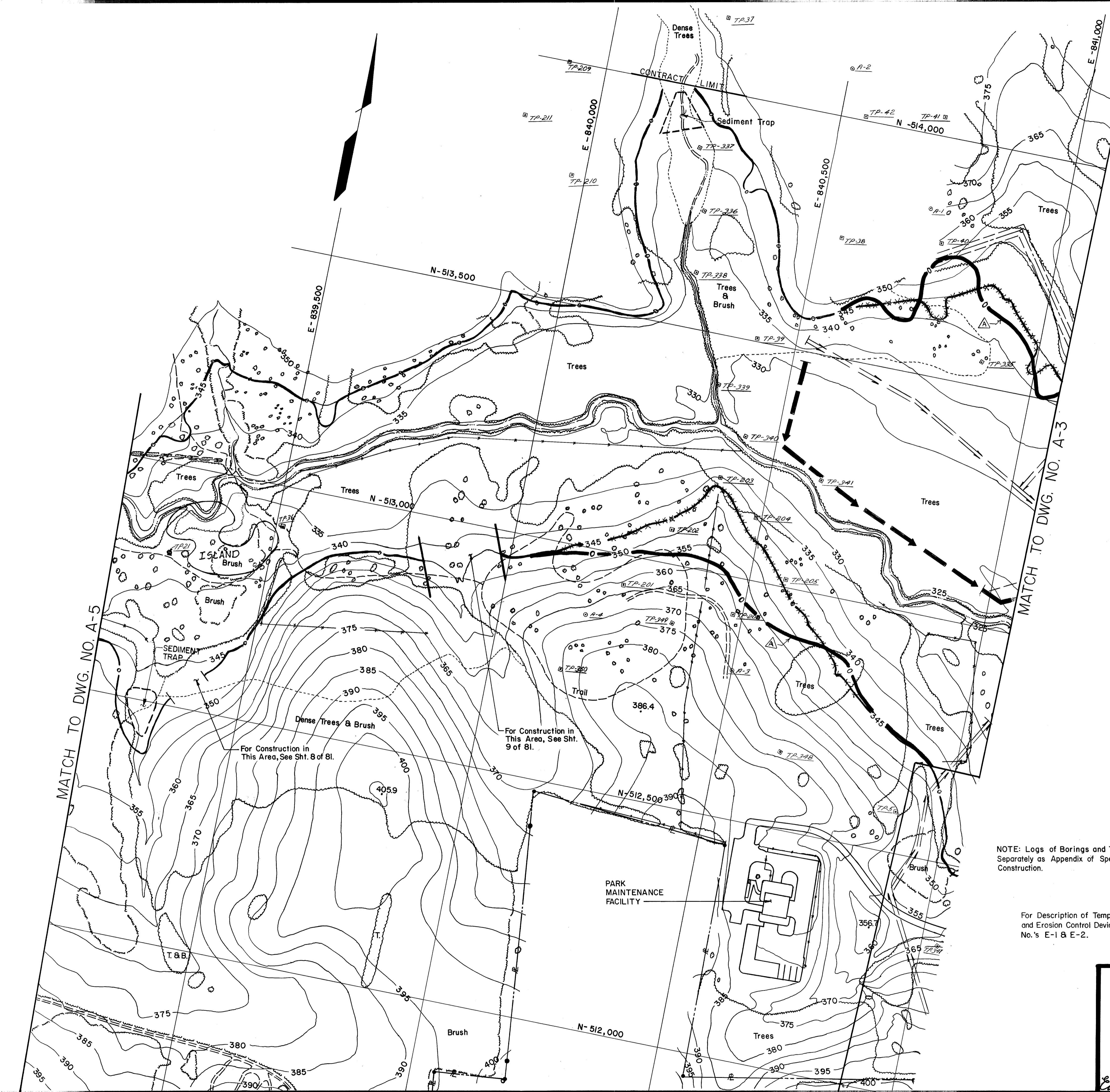
APPROVED: For Public Water, Public Sewerage and Storm Drainage Systems and Roads	
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS	
<i>Henry F. Nemy</i> DIRECTOR	11-9-83 DATE
<i>William B. Edm</i> CHIEF, BUREAU OF ENGINEERING	10-28-83 DATE
APPROVED: For Public Private Water and Public/Private Sewerage Systems	
HOWARD COUNTY HEALTH DEPARTMENT	
_____ COUNTY HEALTH OFFICER	_____ DATE
APPROVED: Howard County Office of Planning and Zoning	
_____ PLANNING DIRECTOR	_____ DATE
_____ CHIEF, DIVISION OF LAND DEVELOPMENT	

RUMMEL, KLEPPER & KAHL
CONSULTING ENGINEERS
BALTIMORE, MARYLAND

**CENTENNIAL PARK DAM AND LAKE
GENERAL PLAN
BORING & TEST PIT LOCATIONS**

DATE	6-1-83	REVISIONS:	As Built Elevation +34.5 Contour 4-9-85	DRAWING NO.	SHEET NO.
SCALE	1"=100'			A-3	3
DRAWN BY	D.L.K.				OF 26
CHECKED BY	R.C.D.				

#763



MATCH TO DWG. NO. A-5

MATCH TO DWG. NO. A-3

For Construction in This Area, See Sht. 8 of Bl.

For Construction in This Area, See Sht. 9 of Bl.

NOTE: Logs of Borings and Test Pits Are Bound Separately as Appendix of Specifications for Construction.

For Description of Temporary Sediment and Erosion Control Devices, See Dwg. No.'s E-1 & E-2.

#763

Edwin J. Reish

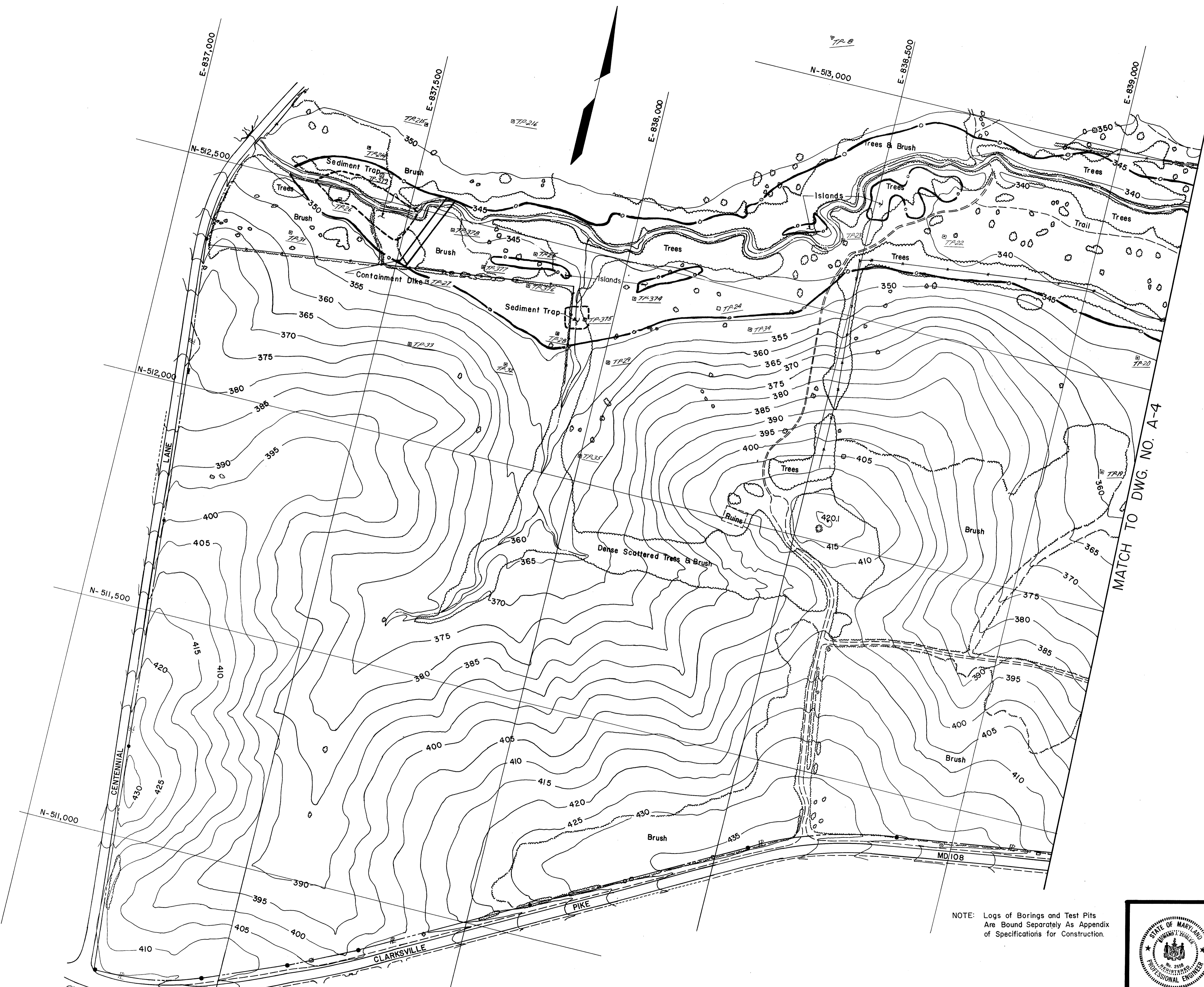
APPROVED: For Public Water, Public Sewerage and Storm Drainage Systems and Roads		HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS	
<i>W. F. Neumeier</i>	DIRECTOR	11-9-83	DATE
<i>Richard E. Ray</i>	CHIEF, BUREAU OF ENGINEERING	10-28-83	DATE
APPROVED: For Public/Private Water and Public/Private Sewerage Systems		HOWARD COUNTY HEALTH DEPARTMENT	
_____	COUNTY HEALTH OFFICER	_____	DATE
APPROVED: Howard County Office of Planning and Zoning		_____	
_____	PLANNING DIRECTOR	_____	DATE
_____		CHIEF, DIVISION OF LAND DEVELOPMENT	
_____	_____	_____	DATE

RK & K RUMMEL, KLEPPER & KAHL
 CONSULTING ENGINEERS
 BALTIMORE, MARYLAND

CENTENNIAL PARK DAM AND LAKE GENERAL PLAN BORING & TEST PIT LOCATIONS			
DATE	6-1-83	REVISIONS:	DRAWING NO.
SCALE	1" = 100'	▲ As Built Elevation +345 Contour 4-9-85	SHEET NO.
DRAWN BY	D. L. K.		A-4 4
CHECKED BY	R. C. D.		OF 26

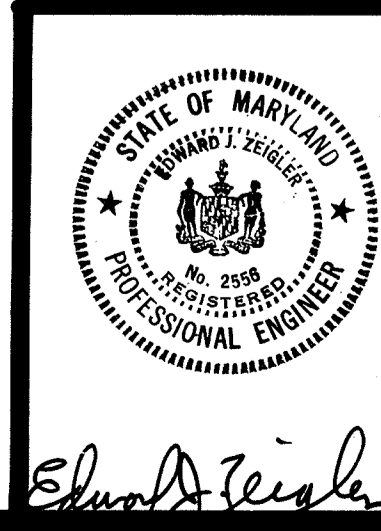


XXCE-83-A004



#763

NOTE: Logs of Borings and Test Pits
Are Bound Separately As Appendix
of Specifications for Construction.



MATCH TO DWG. NO. A-4

APPROVED: For Public Water, Public Sewerage and Storm Drainage Systems and Roads HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS		<i>Henry F. Neuman</i> DIRECTOR	11-9-83 DATE
APPROVED: For Public/Private Water and Public/Private Sewerage Systems HOWARD COUNTY HEALTH DEPARTMENT		<i>William R. King</i> CHIEF, BUREAU OF ENGINEERING	10-28-83 DATE
COUNTY HEALTH OFFICER			DATE
APPROVED: Howard County Office of Planning and Zoning			DATE
PLANNING DIRECTOR			DATE
CHIEF, DIVISION OF LAND DEVELOPMENT			DATE

RK & K RUMMEL, KLEPPER & KAHL
CONSULTING ENGINEERS
BALTIMORE, MARYLAND

**CENTENNIAL PARK DAM AND LAKE
GENERAL PLAN
BORING & TEST PIT LOCATIONS**

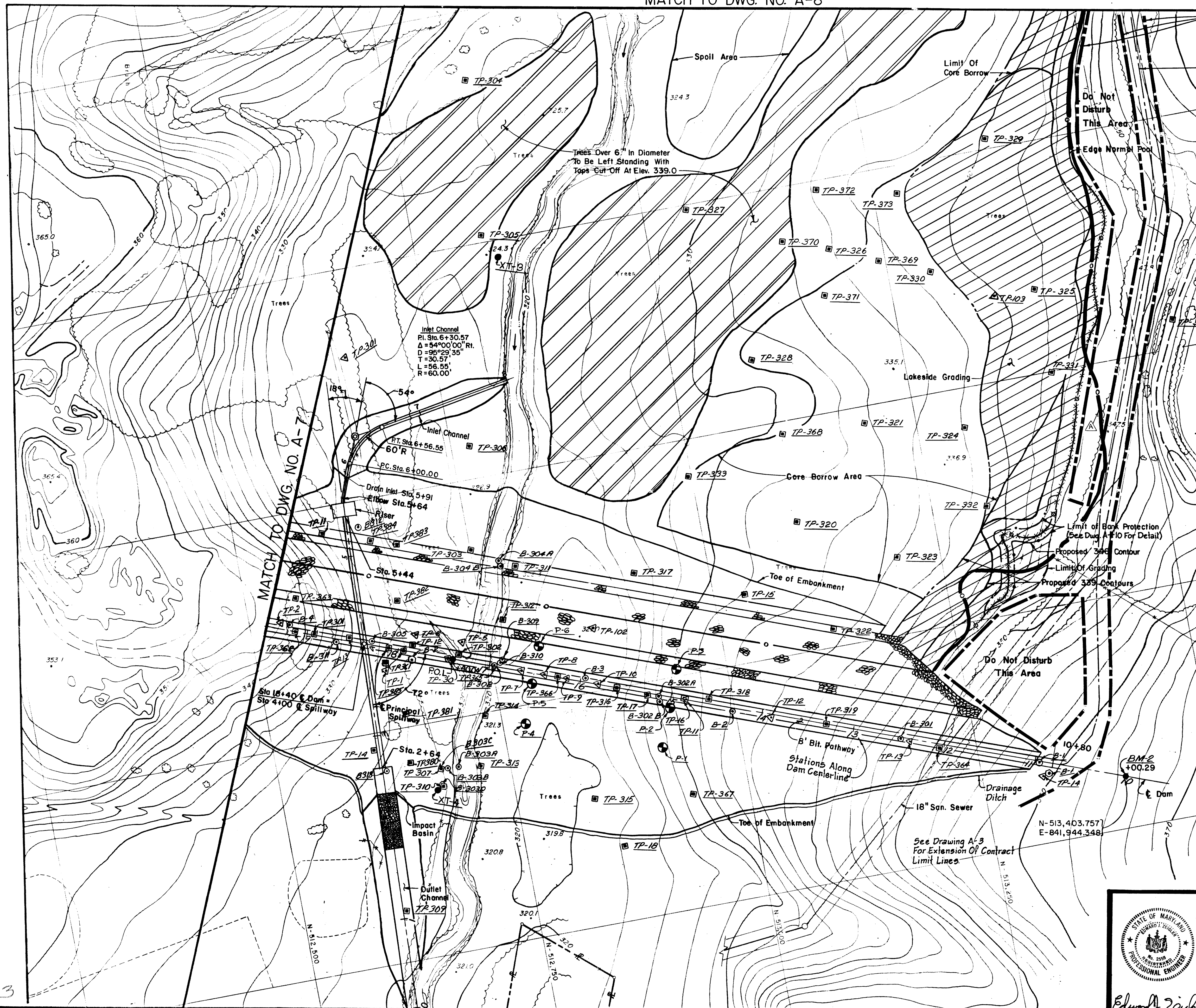
DATE	6-1-83	REVISIONS:	DRAWING NO.	SHEET NO.
SCALE	1"=100'		A-5	5
DRAWN BY	D.L.K.			OF 26
CHECKED BY	R.C.D.			

MATCH TO DWG. NO. A-8

CONTRACT LIMIT LINE

Approximate Centerline Of Bituminous Concrete Pathway (To Be Staked In Field)

- For Typical Section of Bank Protection See Dwg. No. A-10.
- For Profile @ Dam See Dwg. No. A-14.
- For Profile Principal Spillway See Dwg. No. A-13.
- For Profile & Typical Section, Inlet & Outlet Channel See Dwg. No. A-14.
- For Typical Section of Dam See Dwg. No. A-13.
- For Lakeside Grading Details See Dwg. No. A-13.
- For Encasement of Exist. San. Sewer Detail See Dwg. No. A-15
- For Pavement Section 8' Bit. Pathway See Sheet 23 of 81.



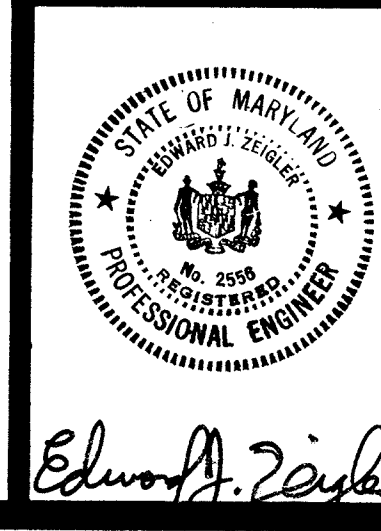
APPROVED: For Public Water, Public Sewerage and Storm Drainage Systems and Roads
 HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Shirley F. Neuma DIRECTOR 11-9-83 DATE
William S. Re... CHIEF, BUREAU OF ENGINEERING 10-28-83 DATE

APPROVED: For Public Private Water and Public/Private Sewerage Systems
 HOWARD COUNTY HEALTH DEPARTMENT
 COUNTY HEALTH OFFICER _____ DATE
 APPROVED: Howard County Office of Planning and Zoning
 PLANNING DIRECTOR _____ DATE
 CHIEF, DIVISION OF LAND DEVELOPMENT _____ DATE

RUMMEL, KLEPPER & KAHL
 CONSULTING ENGINEERS
 BALTIMORE, MARYLAND

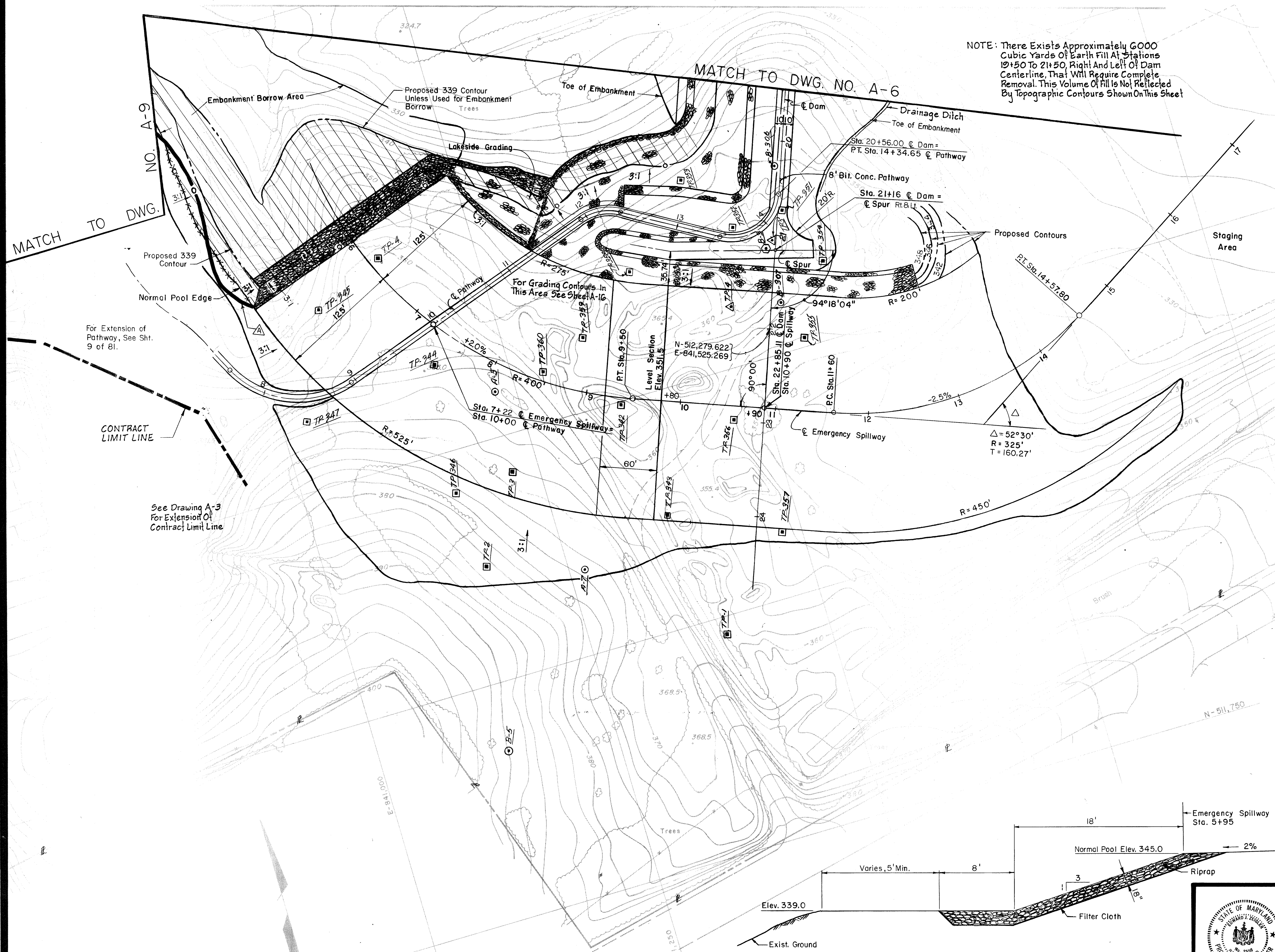
**CENTENNIAL PARK DAM AND LAKE
 DETAIL PLAN
 DAM & PRINCIPAL SPILLWAY**

DATE	6-1-83	REVISIONS:	DRAWING NO.	SHEET NO.
SCALE	1" = 50'	As Built Elevation +345 Contour 4-9-85	A-6	6
DRAWN BY	D.L.K.			OF 26
CHECKED BY	R.C.D.			

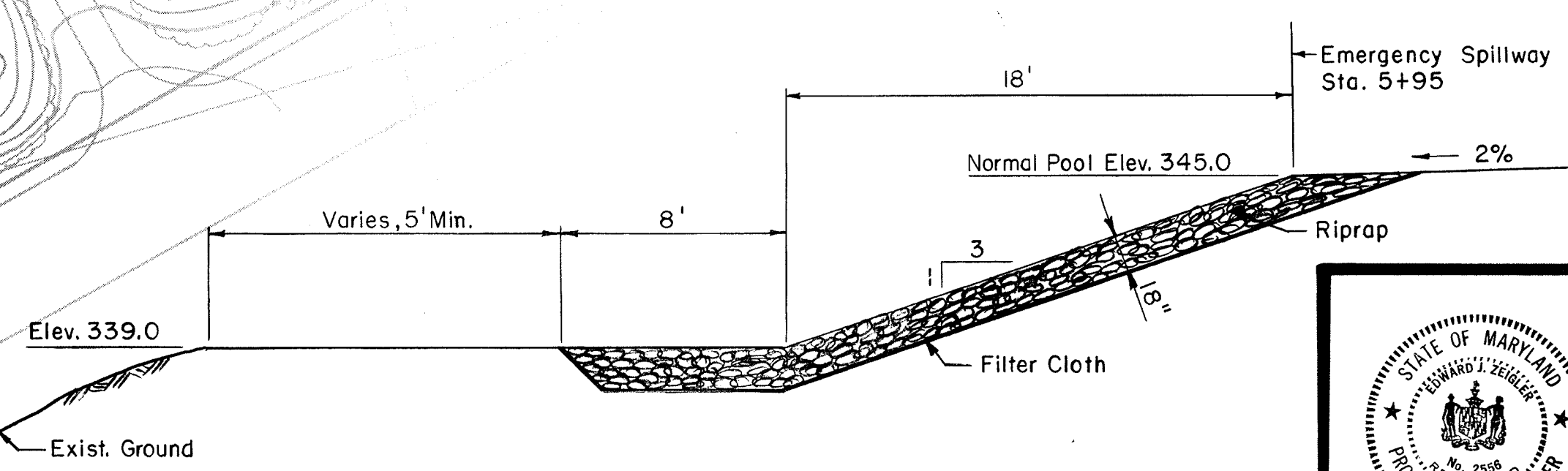


#763

For Profile @ Dam, See Dwg. No. A-14.
 For Profile Emergency Spillway, See Dwg. No. A-13.
 For Profile Pathway, See Dwg. No. A-15.
 For Typical Section Pathway, Spur & Emergency Spillway, See Dwg. No. A-15.
 For Geometric Layout Pathway & Spur, See Dwg. No. A-16.
 For Typical Section of Dam, See Dwg. No. A-13.
 For Lakeside Grading Details, See Dwg. No. A-13.
 For Pavement Section of 8' Bit. Pathway, See Sht. 23 of 81.



NOTE: There Exists Approximately 6000 Cubic Yards of Earth Fill At Stations 10+50 To 21+50, Right And Left Of Dam Centerline, That Will Require Complete Removal. This Volume Of Fill Is Not Reflected By Topographic Contours Shown On This Sheet



SECTION AT EMERGENCY SPILLWAY
 Scale: 1" = 5'

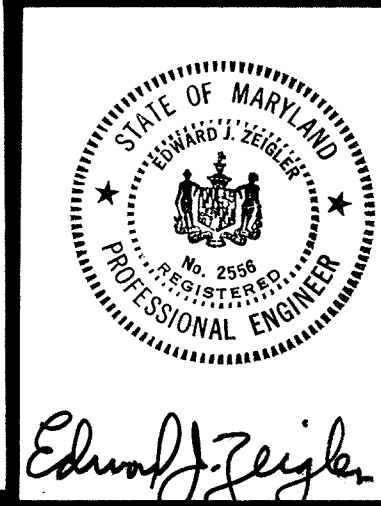
APPROVED: For Public Water, Public Sewerage and Storm Drainage Systems and Roads
 HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
George F. Newmy DIRECTOR 11-9-82 DATE
William B. Roy CHIEF, BUREAU OF ENGINEERING 10-23-83 DATE

APPROVED: For Public/Private Water and Public/Private Sewerage Systems
 HOWARD COUNTY HEALTH DEPARTMENT
 COUNTY HEALTH OFFICER _____ DATE _____

APPROVED: Howard County Office of Planning and Zoning
 PLANNING DIRECTOR _____ DATE _____

CHIEF, DIVISION OF LAND DEVELOPMENT _____ DATE _____

RK & K
RUMMEL, KLEPPER & KAHL
 CONSULTING ENGINEERS
 BALTIMORE, MARYLAND



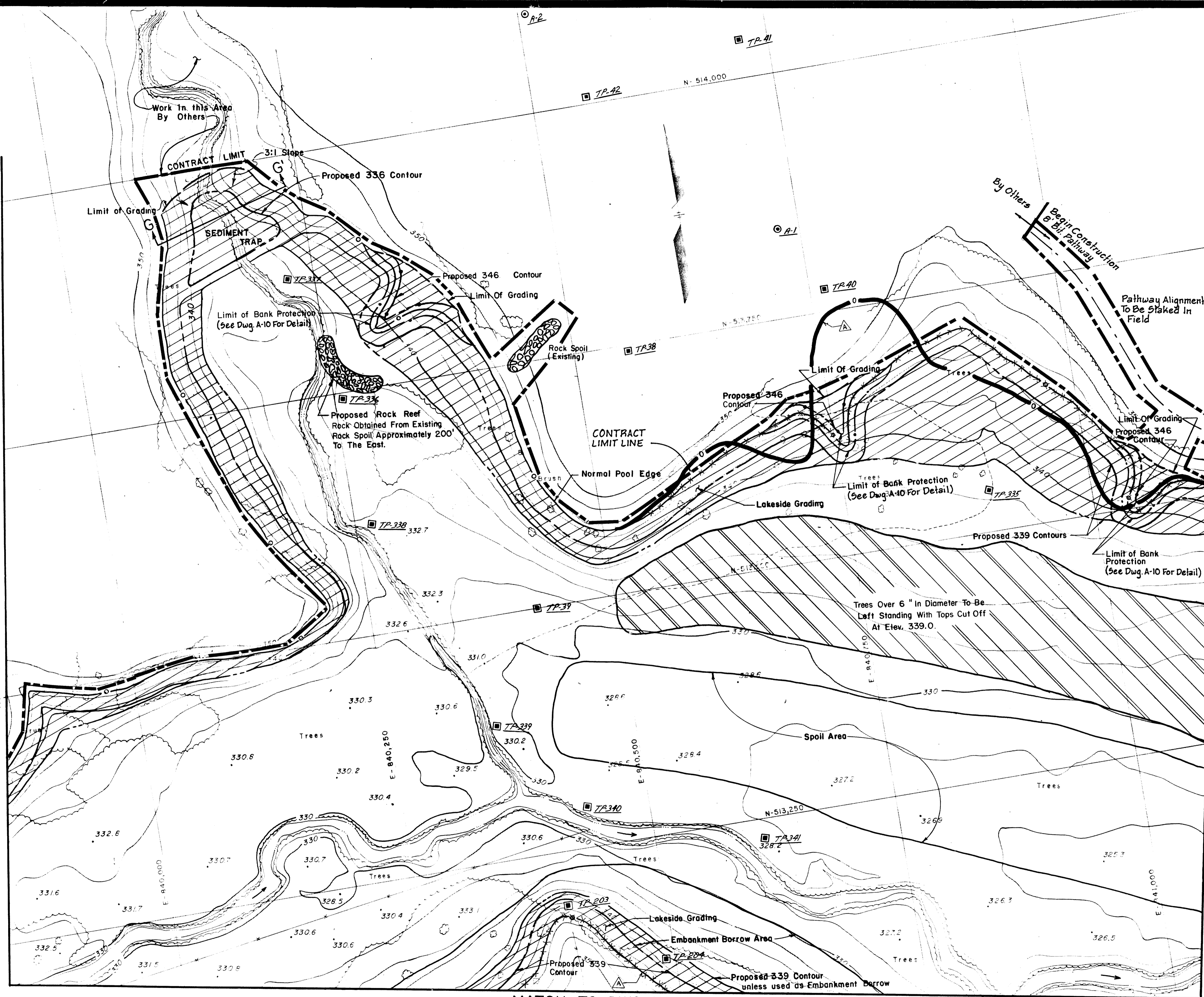
**CENTENNIAL PARK DAM AND LAKE
 DETAIL PLAN
 EMERGENCY SPILLWAY**

DATE	6-1-83	REVISIONS:	DRAWING NO.	SHEET NO.
SCALE	1" = 50'	As Built Elevation +345 Contour 4-9-85	A-7	7
DRAWN BY	D.L.K.			OF 26
CHECKED BY	R.C.D.			

763

MATCH TO DWG. NO. A-10

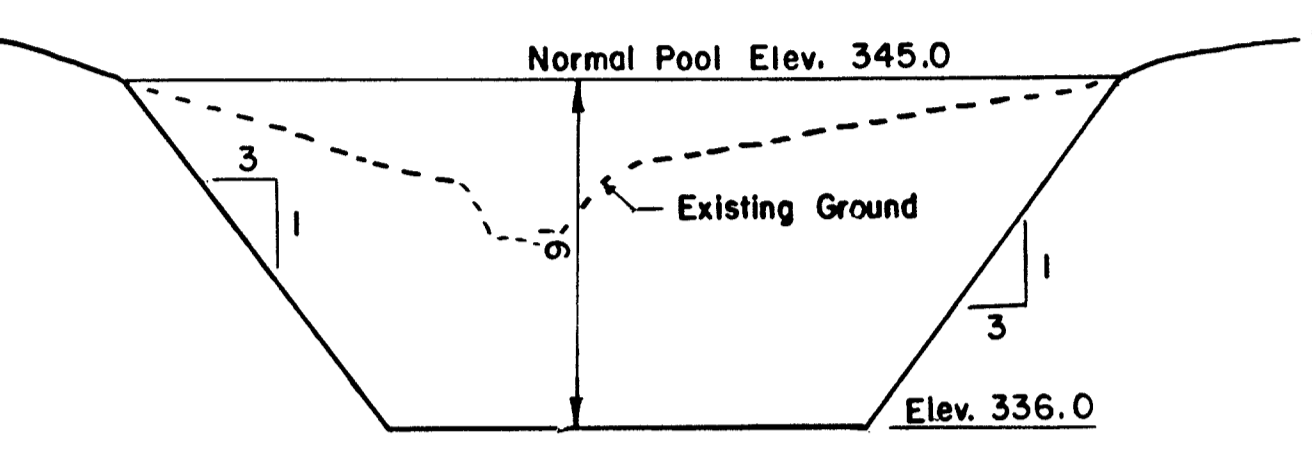
MATCH TO DWG. NO. A-6



MATCH TO DWG. NO. A-9

PLAN Scale: 1"=50'

For Lakeside Grading Details See Dwg. No. A-13.
For Typical Section - Bank Protection See Dwg. No. A-10.



Section G-G'
Scale: 1"=5' Vert.
1"=20' Hor.
SEDIMENT TRAP

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
Approved: *[Signature]* Date: 10-26-83
Howard S.C.D.

Reviewed for Howard County Department of Public Works
Name: *[Signature]*
Date: 10-27-83
Signature: *[Signature]*
U.S. Soil Conservation Service

APPROVED: For Public Water, Public Sewerage and Storm Drainage Systems and Roads
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
[Signature] 11-9-85
DIRECTOR DATE

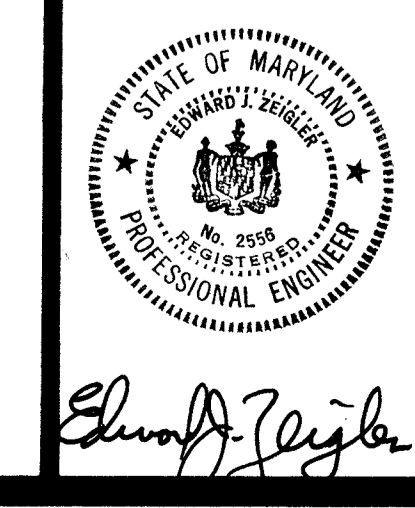
APPROVED: For Public/Private Water and Public/Private Sewerage Systems
HOWARD COUNTY HEALTH DEPARTMENT
COUNTY HEALTH OFFICER DATE

APPROVED: Howard County Office of Planning and Zoning
PLANNING DIRECTOR DATE
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

RUMMEL, KLEPPER & KAHL
CONSULTING ENGINEERS
BALTIMORE, MARYLAND

**CENTENNIAL PARK DAM AND LAKE
DETAIL PLAN
LAKESIDE GRADING**

DATE	6-1-83	REVISIONS:	DRAWING NO.	SHEET NO.
SCALE	As Shown	As Built Elevations +345 Contour 4-7-85	A-8	8
DRAWN BY	D. L. K.			of 26
CHECKED BY	R.C.D.			



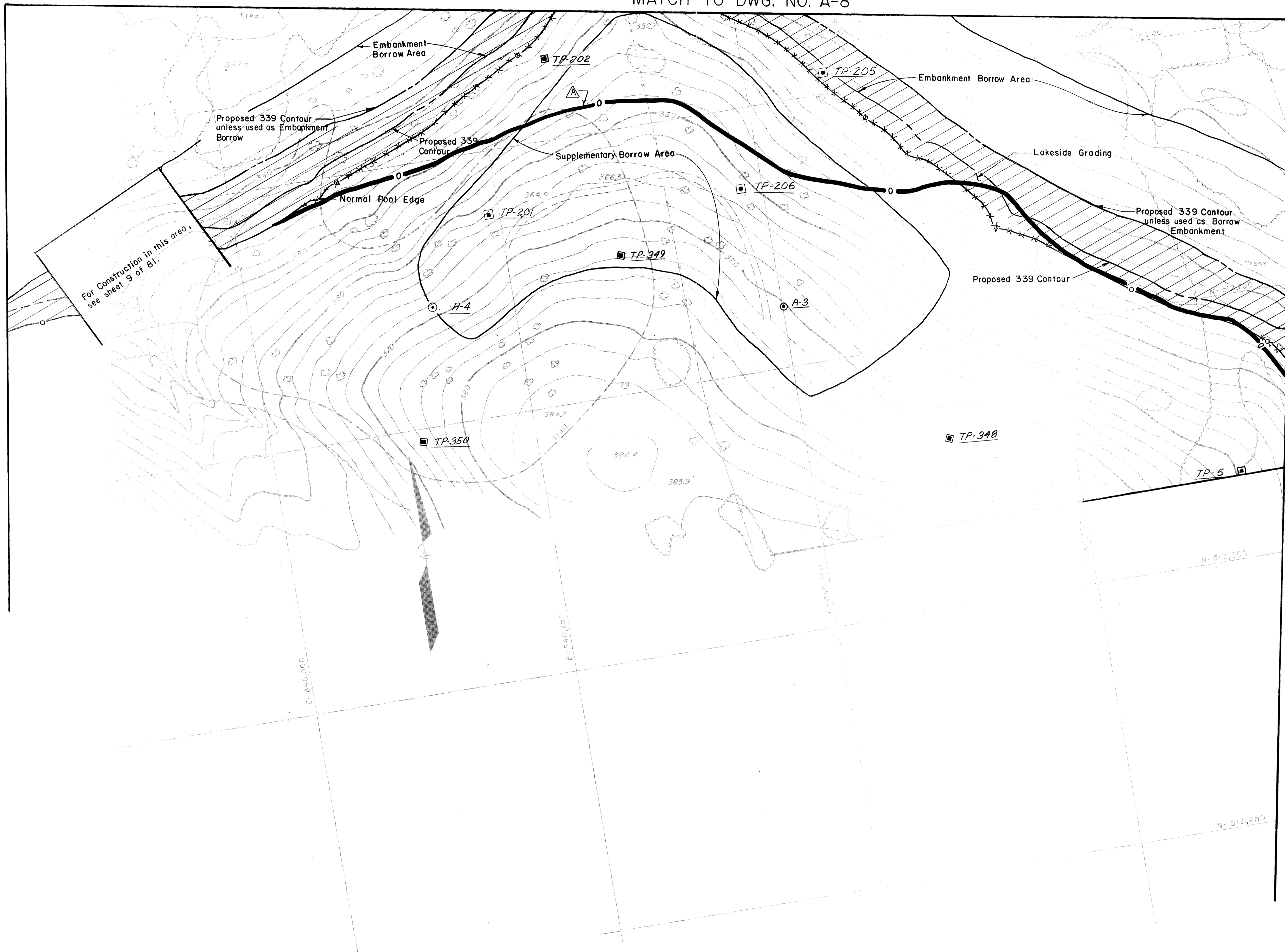
#763

MATCH TO DWG. NO. A-8

MATCH TO DWG. NO. A-10

MATCH TO DWG. NO. A-6

MATCH TO DWG. NO. A-7



THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
 Approved *[Signature]* Date *10-26-83*
 Howard S.C.D.

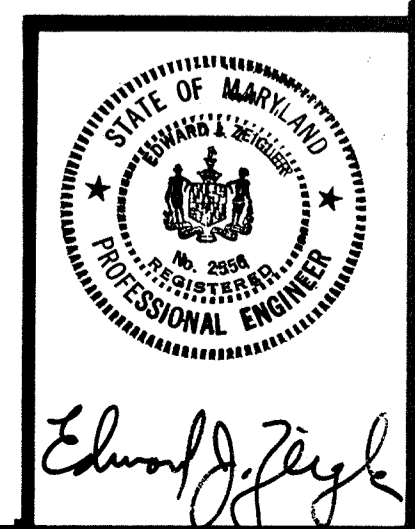
Reviewed for *Howard* S.C.D. Name
 and meets Technical Requirements
[Signature] Date *10/17/83*
 Signature
 U.S. Soil Conservation Service

APPROVED: For Public Water, Public Sewerage and Storm Drainage Systems and Roads
 HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
[Signature] DATE *11-9-83*
 DIRECTOR
[Signature] DATE *10-28-83*
 CHIEF, BUREAU OF ENGINEERING

APPROVED: For Public/Private Water and Public/Private Sewerage Systems
 HOWARD COUNTY HEALTH DEPARTMENT
 COUNTY HEALTH OFFICER DATE

APPROVED: Howard County Office of Planning and Zoning
 PLANNING DIRECTOR DATE
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

For Lakeside Grading Details See Dwg. No. A-13.

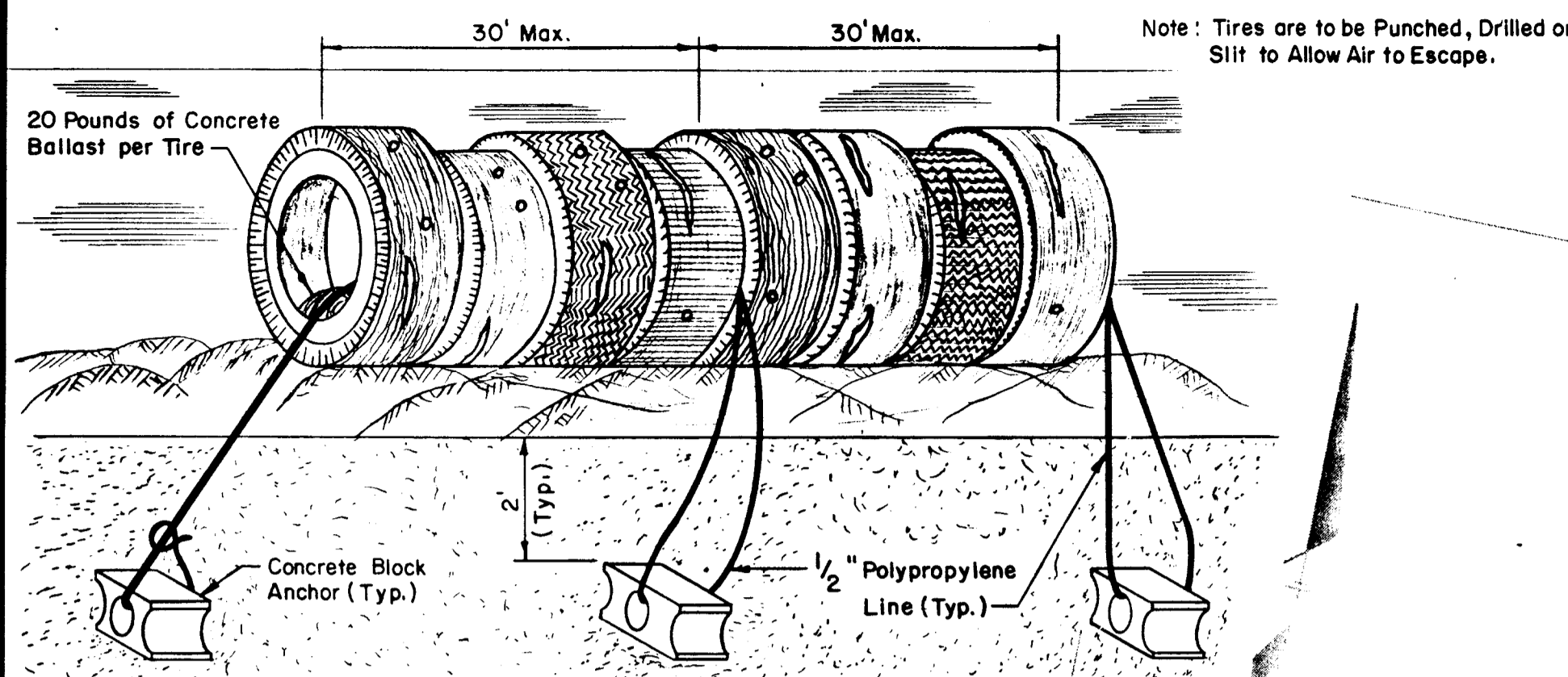


RUMMEL, KLEPPER & KAHL
 CONSULTING ENGINEERS
 BALTIMORE, MARYLAND

**CENTENNIAL PARK DAM AND LAKE
 DETAIL PLAN
 LAKESIDE GRADING**

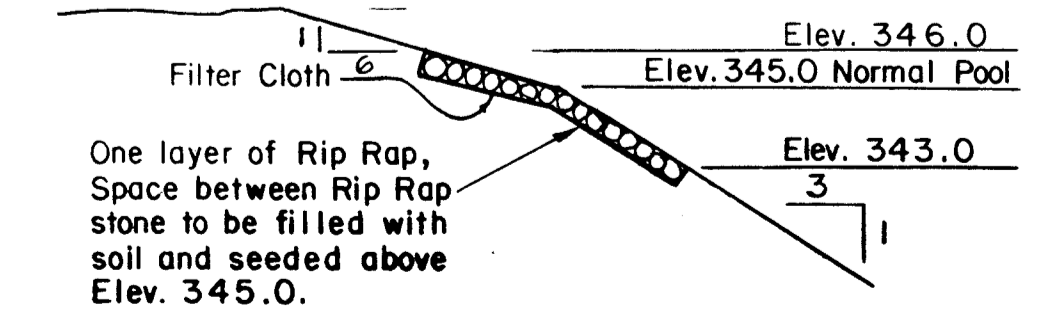
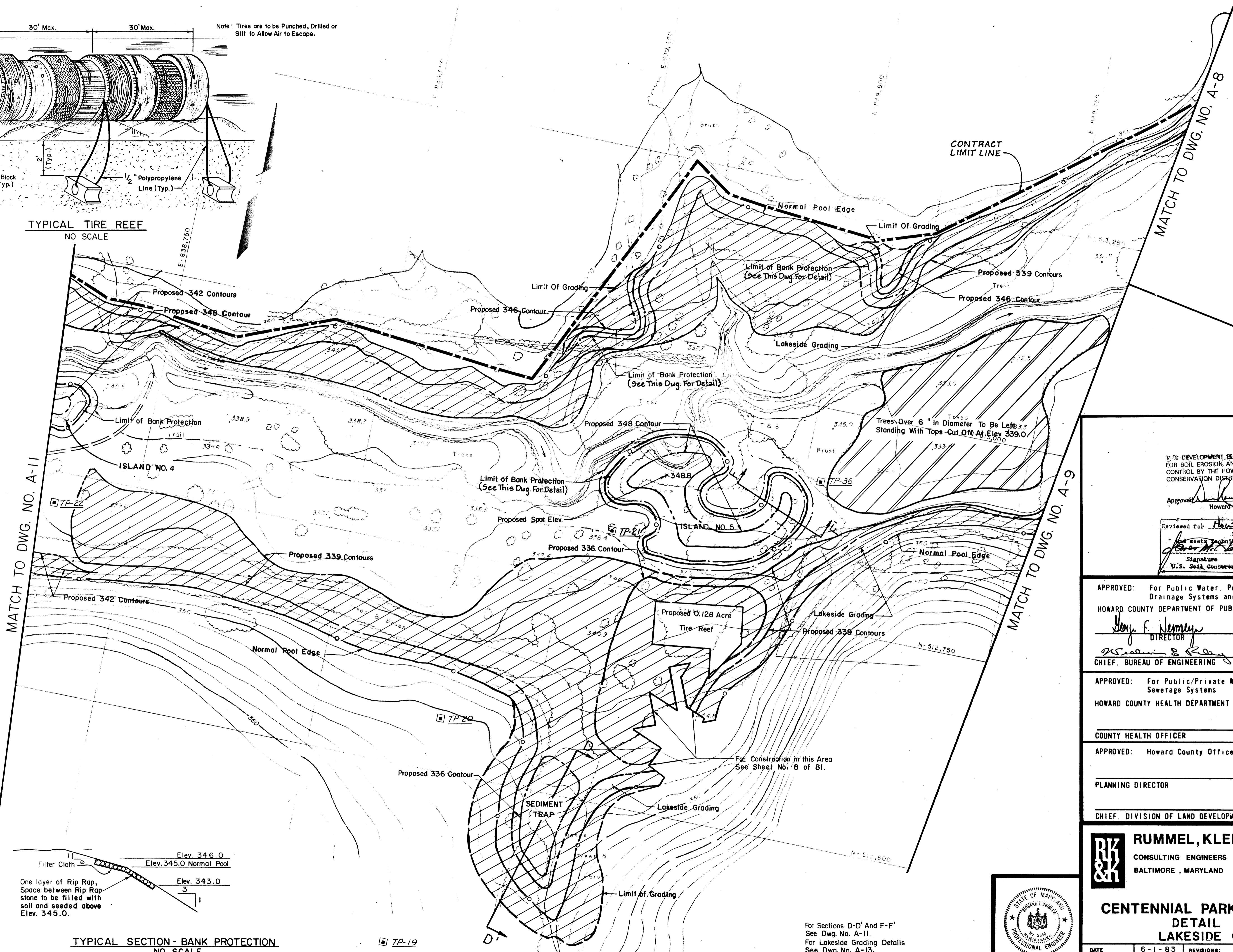
DATE	6-1-83	REVISIONS:	DRAWING NO.	SHEET NO.
SCALE	1" = 50'	▲ As Built Elevation +34.5 Contour 4-9-85	A-9	9
DRAWN BY	D. L. K.			OF 26
CHECKED BY	R. C. D.			

#763



TYPICAL TIRE REEF
NO SCALE

Note: Additional Rows to be Placed Touching Adjacent Row to Cover Indicated Area.



TYPICAL SECTION - BANK PROTECTION
NO SCALE

TP-19

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

Approved: *[Signature]* Date: 10-21-83
Howard S.C.D.

Reviewed For: *[Signature]* Name: Howard S.C.D.
Date: 10-27-83
U.S. Soil Conservation Service

APPROVED: For Public Water, Public Sewerage and Storm Drainage Systems and Road's
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

[Signature] Director Date: 11-9-83

[Signature] Chief, Bureau of Engineering Date: 10-28-83

APPROVED: For Public/Private Water and Public/Private Sewerage Systems
HOWARD COUNTY HEALTH DEPARTMENT

County Health Officer _____ Date _____

APPROVED: Howard County Office of Planning and Zoning

Planning Director _____ Date _____

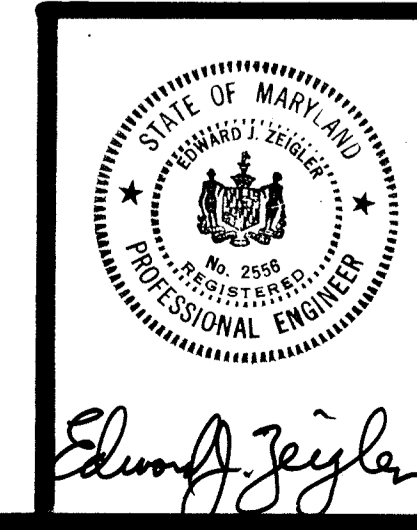
Chief, Division of Land Development _____ Date _____

RUMMEL, KLEPPER & KAHL
CONSULTING ENGINEERS
BALTIMORE, MARYLAND

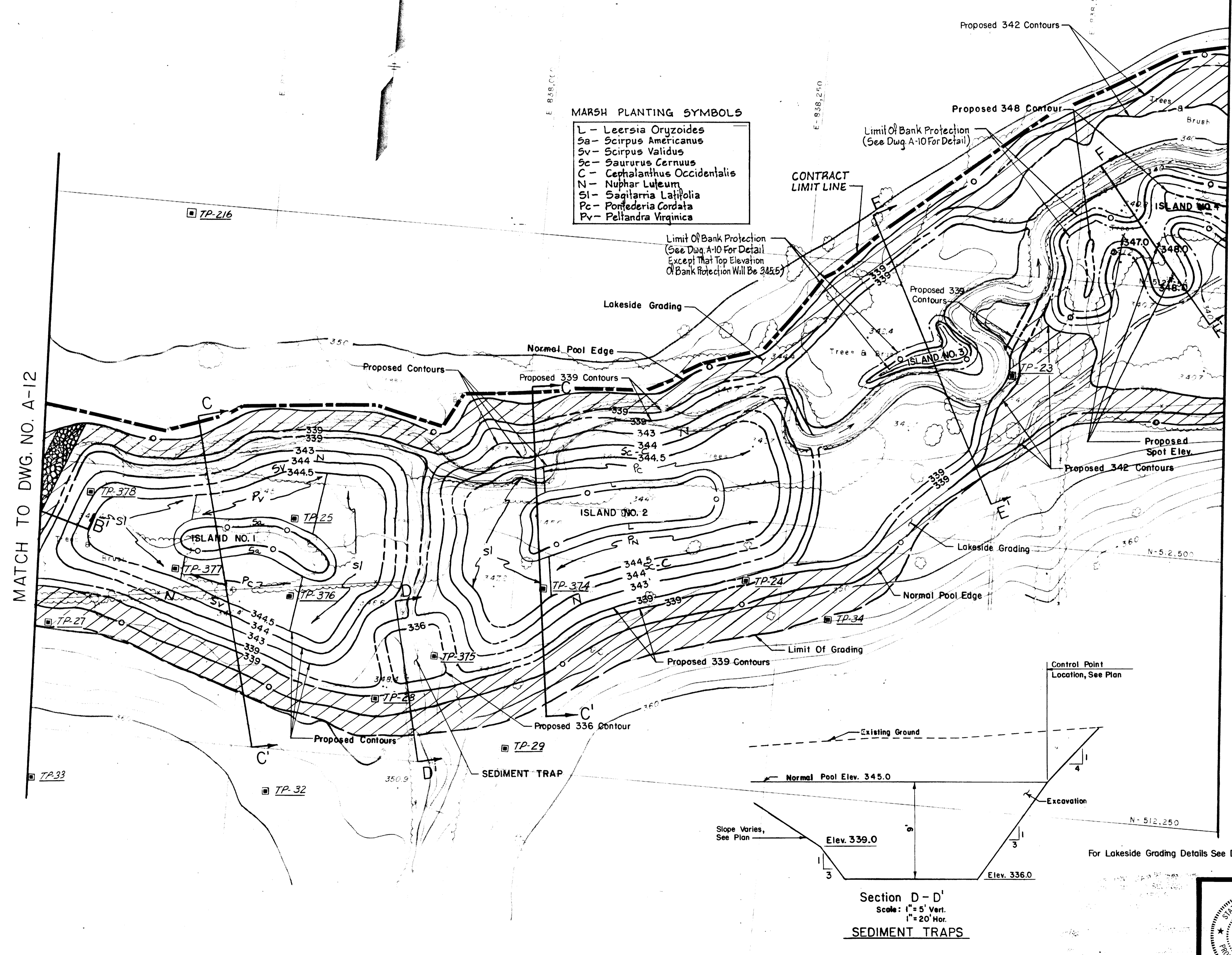
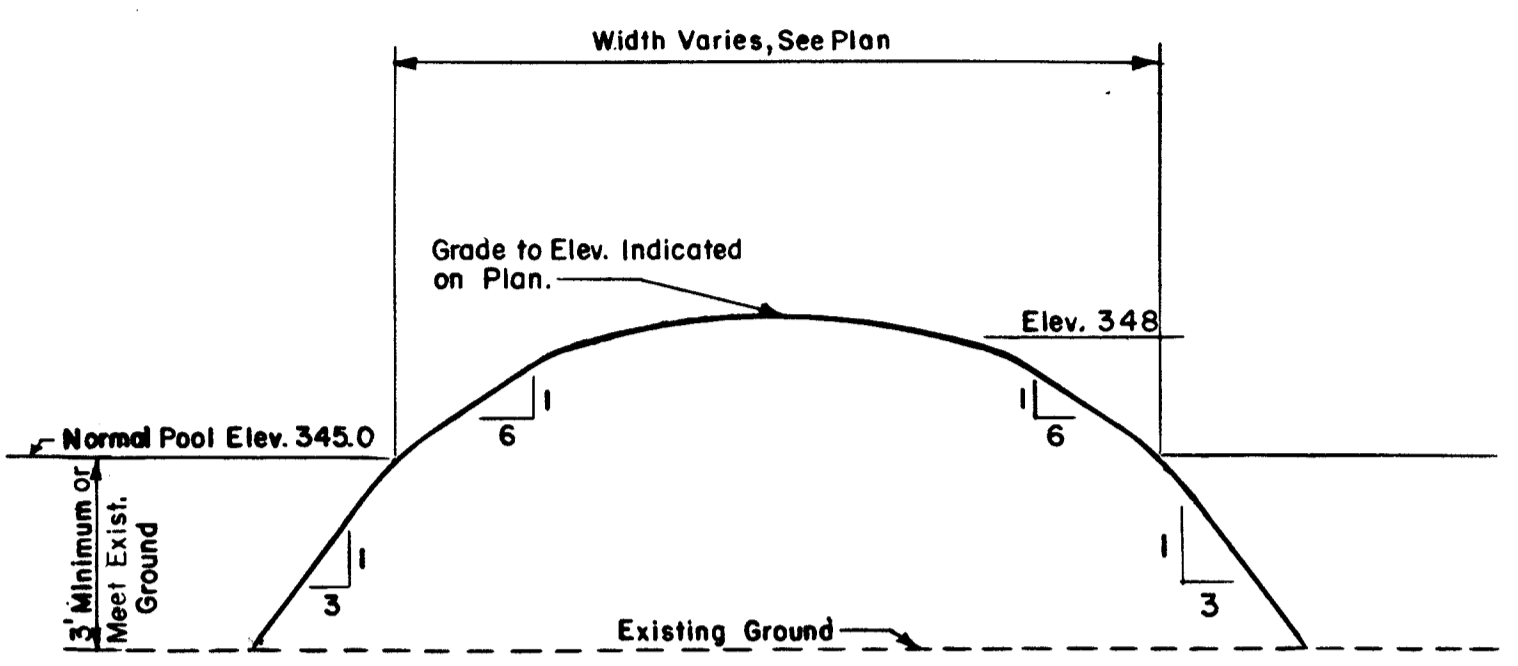
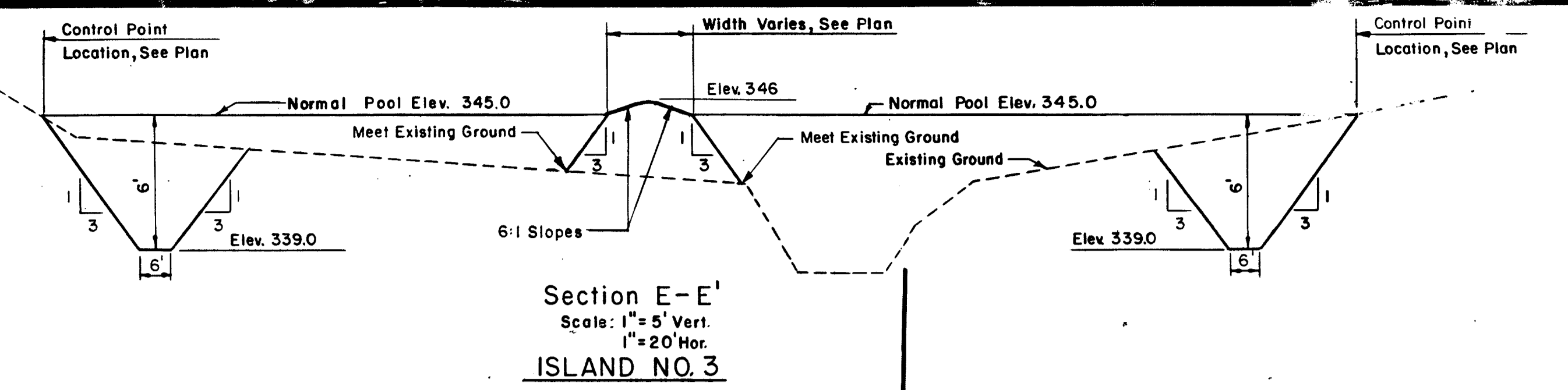
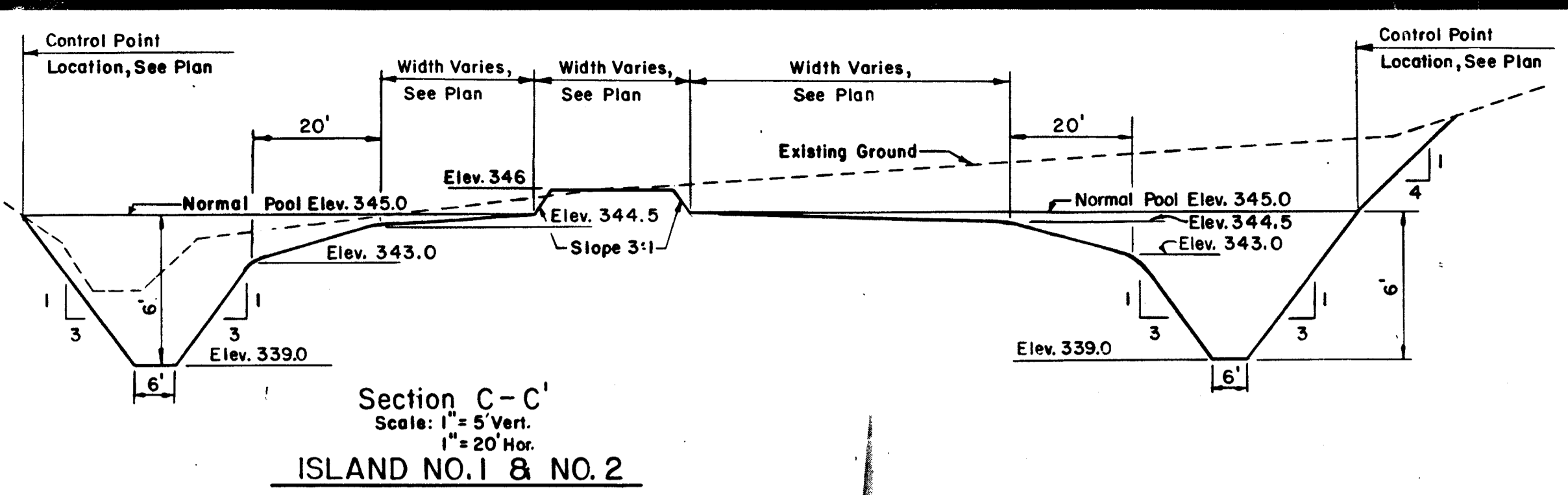
**CENTENNIAL PARK DAM AND LAKE
DETAIL PLAN
LAKESIDE GRADING**

DATE	6-1-83	REVISIONS:	DRAWING NO.	SHEET NO.
SCALE	1" = 50'		A-10	10
DRAWN BY	D.L.K.			OF 26
CHECKED BY	R.C.D.			

For Sections D-D' and F-F'
See Dwg. No. A-11.
For Lakeside Grading Details
See Dwg. No. A-13.



#763



MATCH TO DWG. NO. A-12

MATCH TO DWG. NO. A-10

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

Approved: _____ Date: 6-26-83
Howard S.B.D.

Reviewed for Maryland S.C.S. Name: _____ Date: 6-27-83
Signature: _____
U.S. Soil Conservation Service

APPROVED: For Public Water, Public Sewerage and Storm Drainage Systems and Roads
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

DIRECTOR
11-9-83
DATE

CHIEF, BUREAU OF ENGINEERING
10-28-83
DATE

APPROVED: For Public/Private Water and Public/Private Sewerage Systems
HOWARD COUNTY HEALTH DEPARTMENT

COUNTY HEALTH OFFICER
DATE

APPROVED: Howard County Office of Planning and Zoning

PLANNING DIRECTOR
DATE

CHIEF, DIVISION OF LAND DEVELOPMENT
DATE

RUMMEL, KLEPPER & KAHL
CONSULTING ENGINEERS
BALTIMORE, MARYLAND

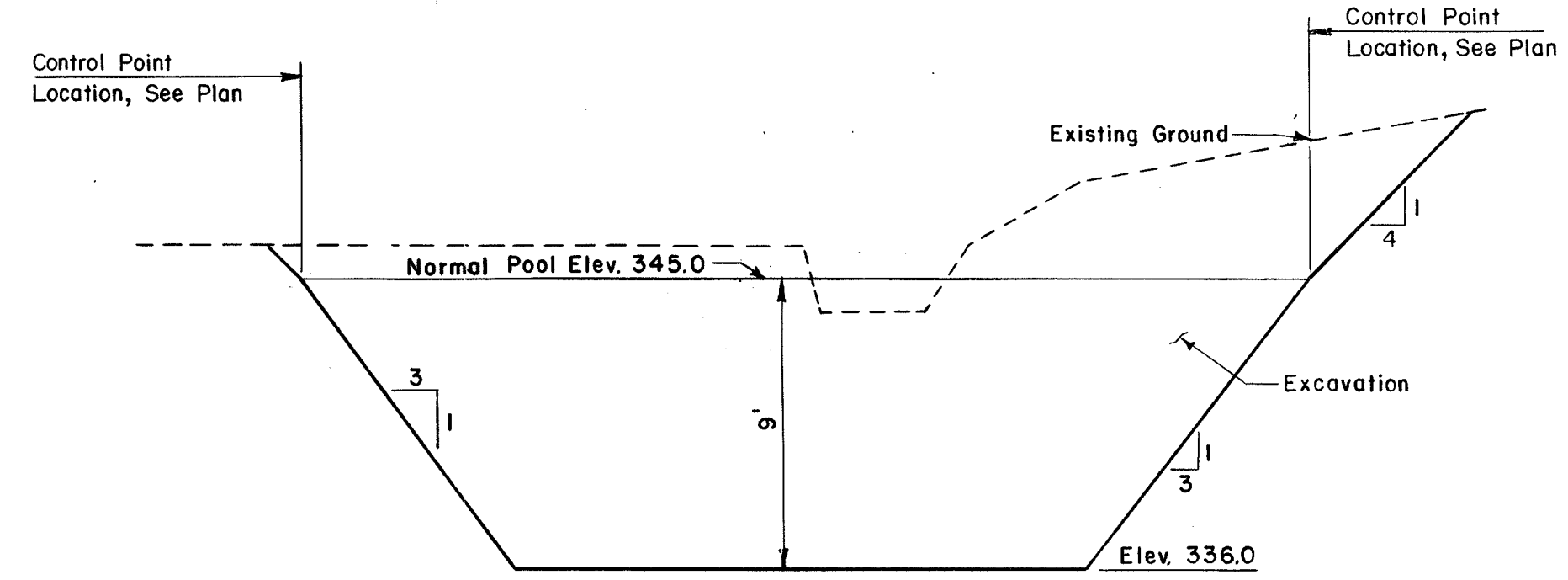
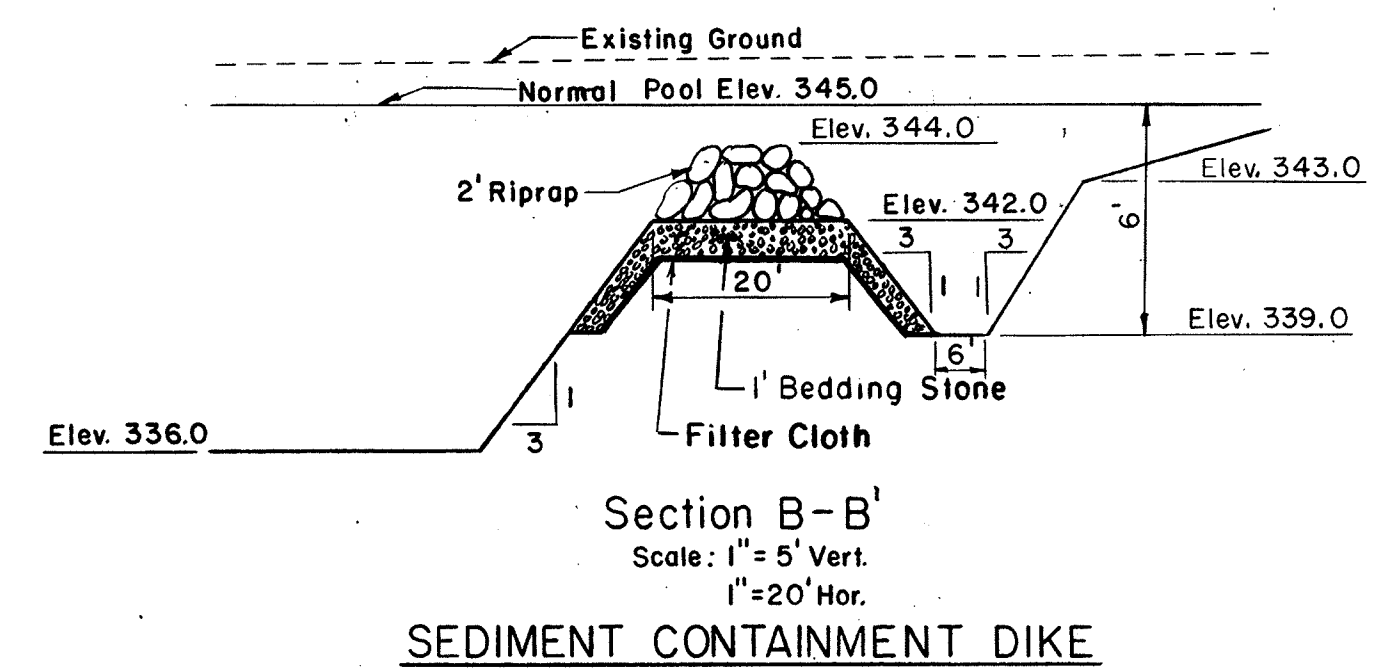
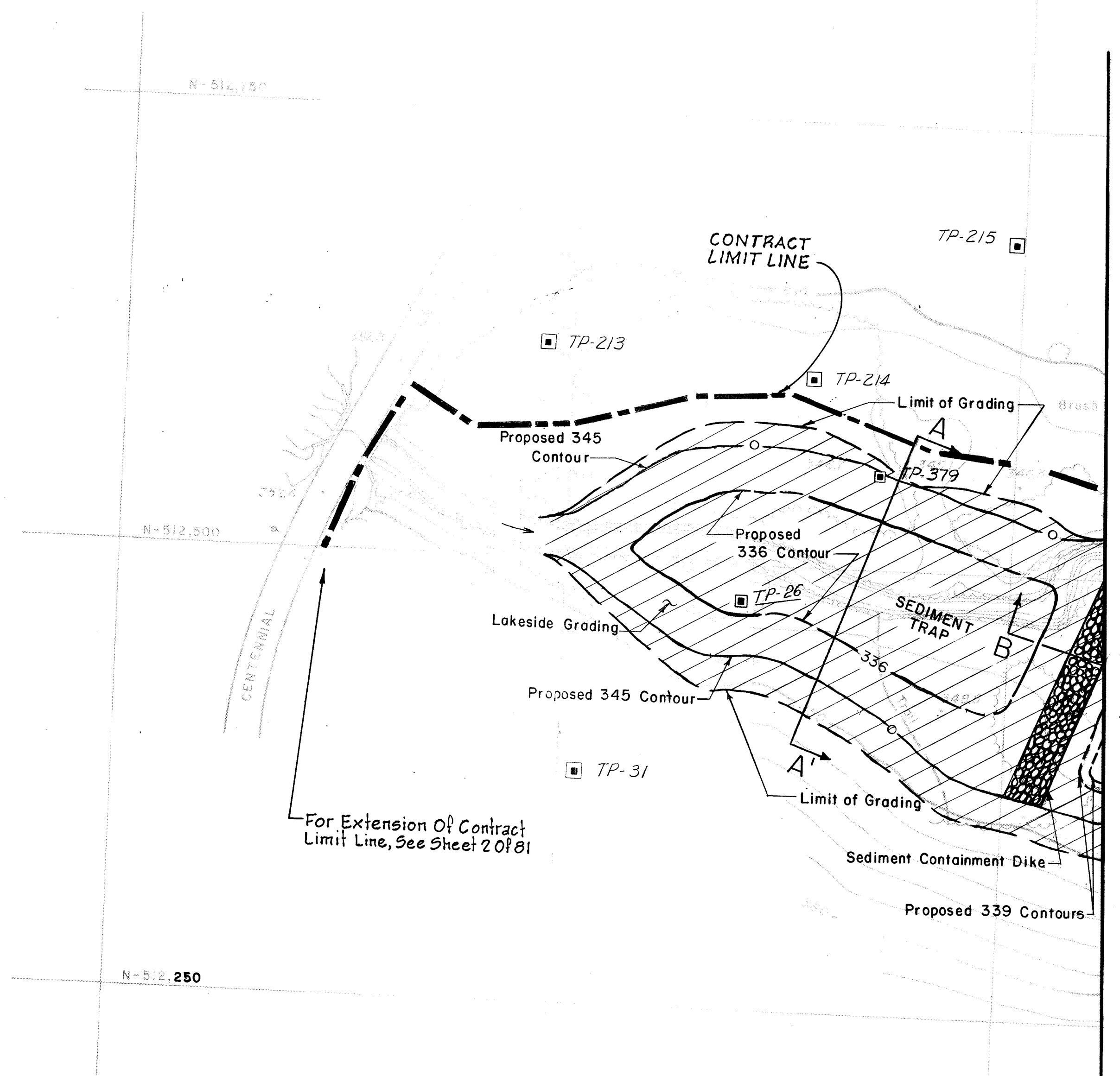
**CENTENNIAL PARK DAM AND LAKE
DETAIL PLAN
LAKESIDE GRADING**

DATE	6-1-83	REVISIONS:	DRAWING NO.	SHEET NO.
SCALE	AS SHOWN		A-11	11
DRAWN BY	D.L.K.			
CHECKED BY	R.C.D.			of 26

EDWARD J. ZEIGL
PROFESSIONAL ENGINEER

Plan Scale: 1" = 50'

#763



Section A-A'
Scale 1" = 5' Vert
1" = 20' Hor
SEDIMENT TRAP

Plan Scale: 1" = 50'
For Lakeside Grading Details See Dwg. No. A-13.

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
Approved: *[Signature]* Date: *[Date]*
Howard S.S.D.

Reviewed for *Howard* Name: *[Name]*
and meets Technical Requirements Date: *[Date]*
Signature: *[Signature]*
U.S. Soil Conservation Service



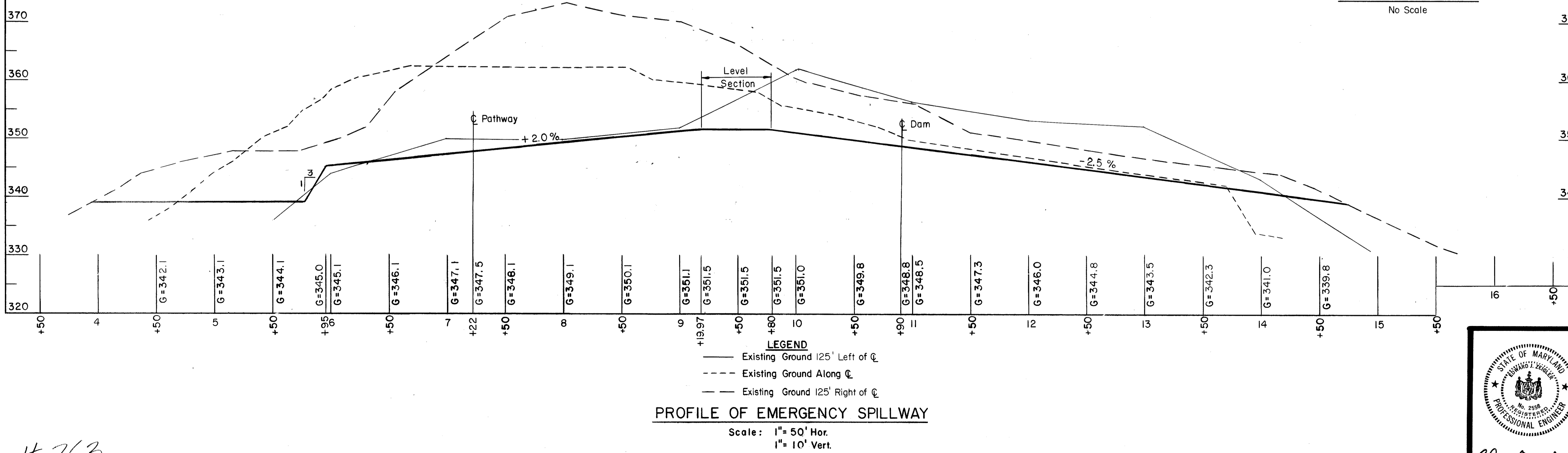
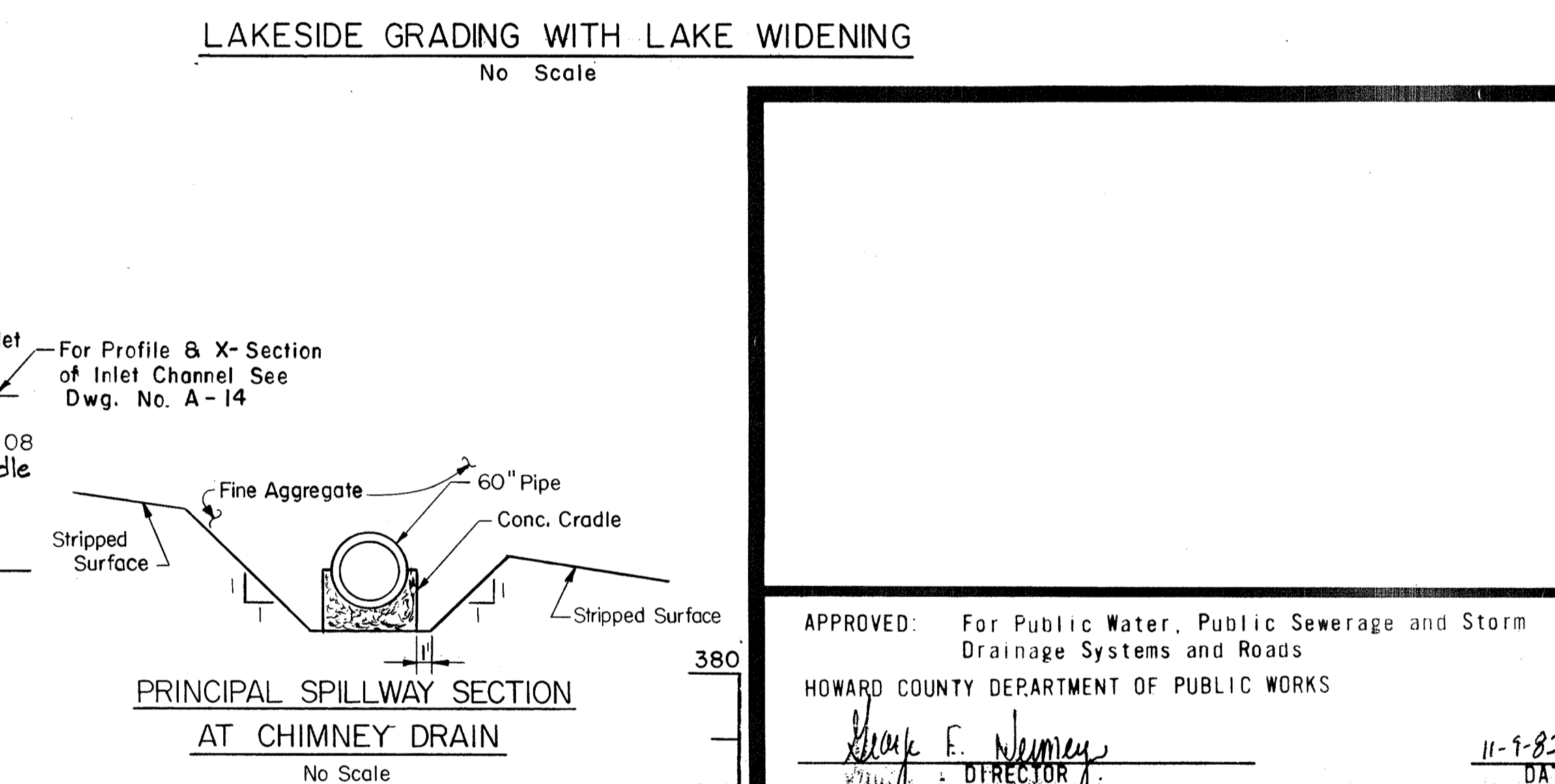
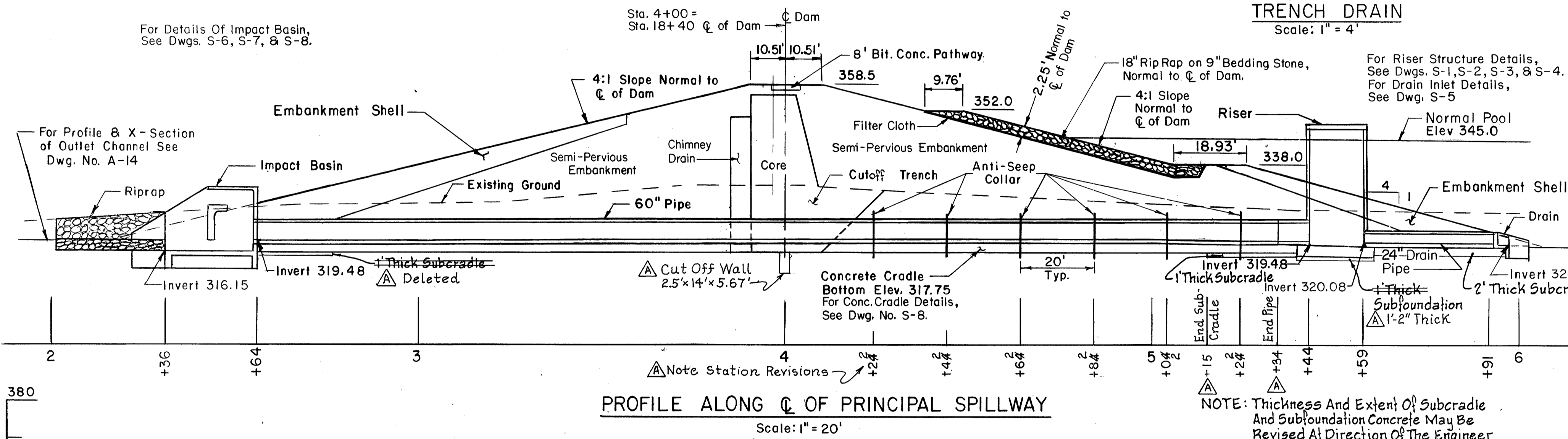
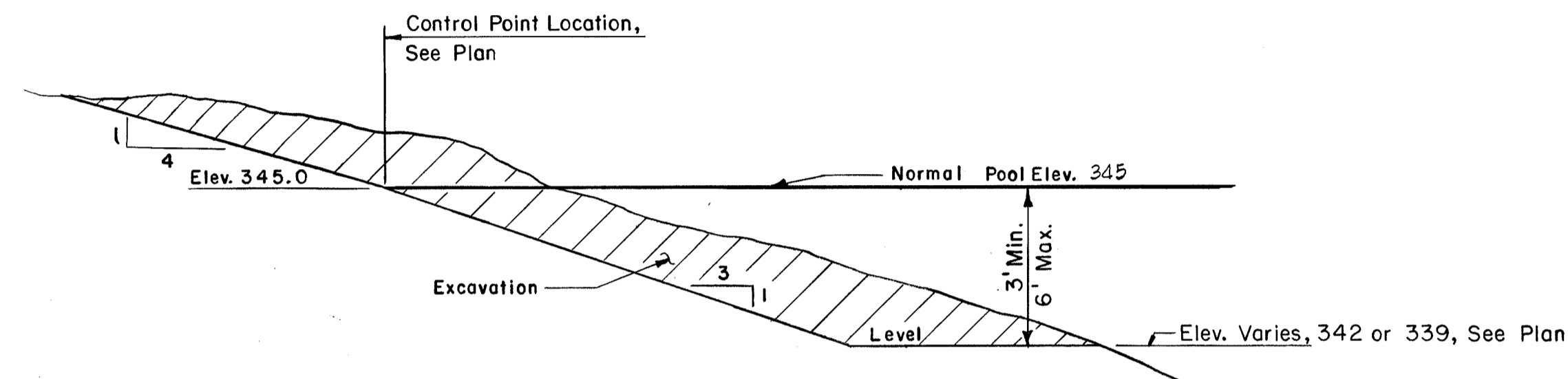
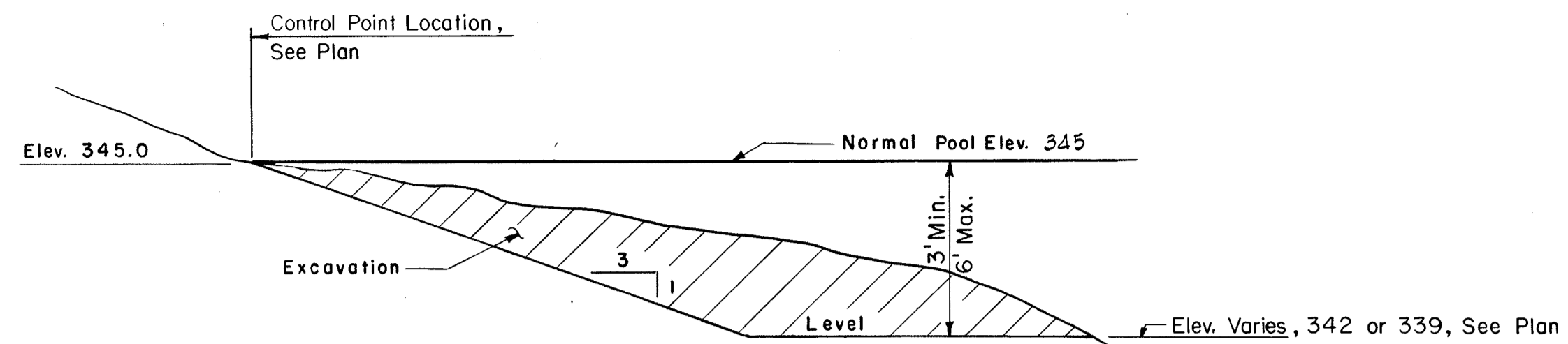
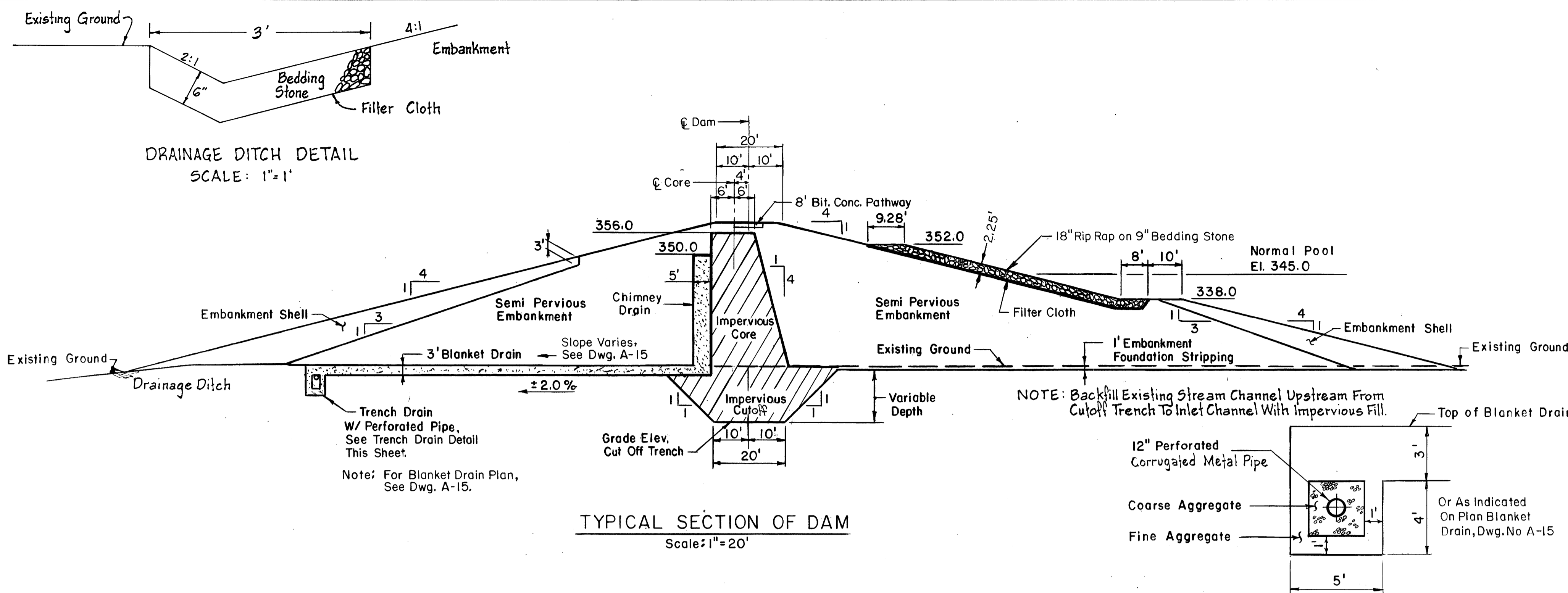
APPROVED: For Public Water, Public Sewerage and Storm Drainage Systems and Roads HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS <i>[Signature]</i> DIRECTOR 11-9-83 DATE
APPROVED: For Public/Private Water and Public/Private Sewerage Systems HOWARD COUNTY HEALTH DEPARTMENT <i>[Signature]</i> CHIEF, BUREAU OF ENGINEERING 10-28-83 DATE
APPROVED: For Public/Private Water and Public/Private Sewerage Systems HOWARD COUNTY HEALTH DEPARTMENT COUNTY HEALTH OFFICER _____ DATE _____
APPROVED: Howard County Office of Planning and Zoning PLANNING DIRECTOR _____ DATE _____
CHIEF, DIVISION OF LAND DEVELOPMENT _____ DATE _____

RUMMEL, KLEPPER & KAHL
CONSULTING ENGINEERS
BALTIMORE, MARYLAND

**CENTENNIAL PARK DAM AND LAKE
DETAIL PLAN
LAKESIDE GRADING**

DATE	6-1-83	REVISIONS:	DRAWING NO.	SHEET NO.
SCALE	AS SHOWN		A-12	12
DRAWN BY	D.L.K.			OF 26
CHECKED BY	R.C.D.			

#763



APPROVED: For Public Water, Public Sewerage and Storm Drainage Systems and Roads
 HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Frank E. Naimy 11-9-83
 DIRECTOR DATE
William S. Kelly 10-28-83
 CHIEF, BUREAU OF ENGINEERING DATE

APPROVED: For Public/Private Water and Public/Private Sewerage Systems
 HOWARD COUNTY HEALTH DEPARTMENT
 COUNTY HEALTH OFFICER DATE

APPROVED: Howard County Office of Planning and Zoning
 PLANNING DIRECTOR DATE

CHIEF, DIVISION OF LAND DEVELOPMENT DATE

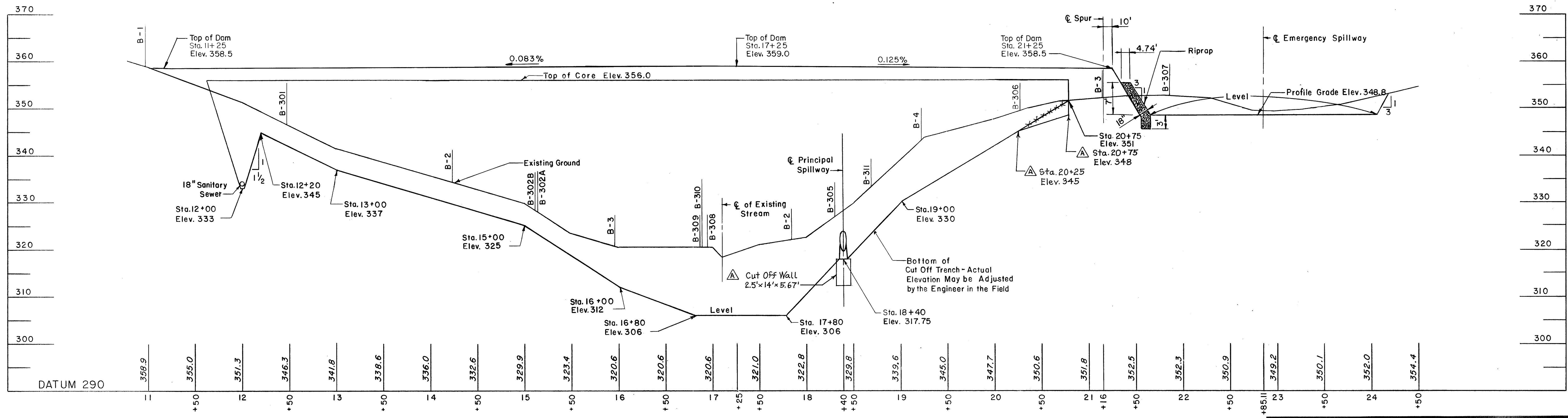
RUMMEL, KLEPPER & KAHL
 CONSULTING ENGINEERS
 BALTIMORE, MARYLAND

CENTENNIAL PARK DAM AND LAKE SPILLWAY PROFILES & DAM CROSS SECTION

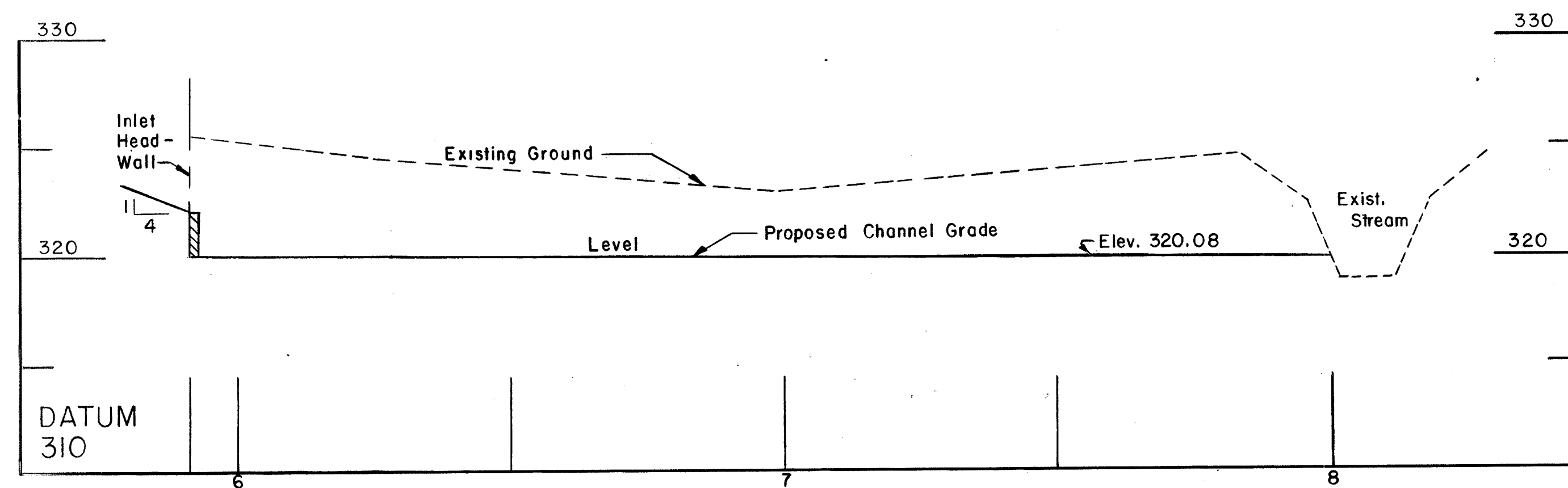
DATE	G-1-83	REVISIONS:	DRAWING NO.	SHEET NO.
SCALE	AS SHOWN	As Built Cut Off Wall, Subcradle, Subfound.	A-13	13
DRAWN BY	D.L.K.	Conc. & Anti-Seep Collars 4-8-85		OF 26
CHECKED BY	R.C.D.			

#763

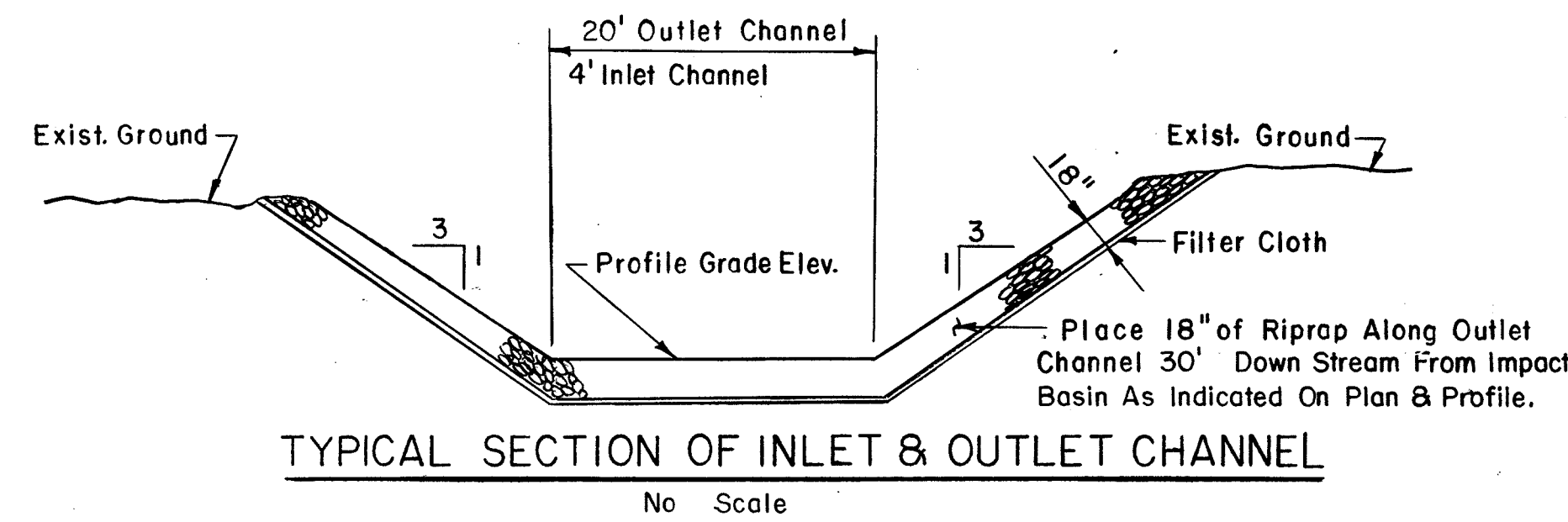




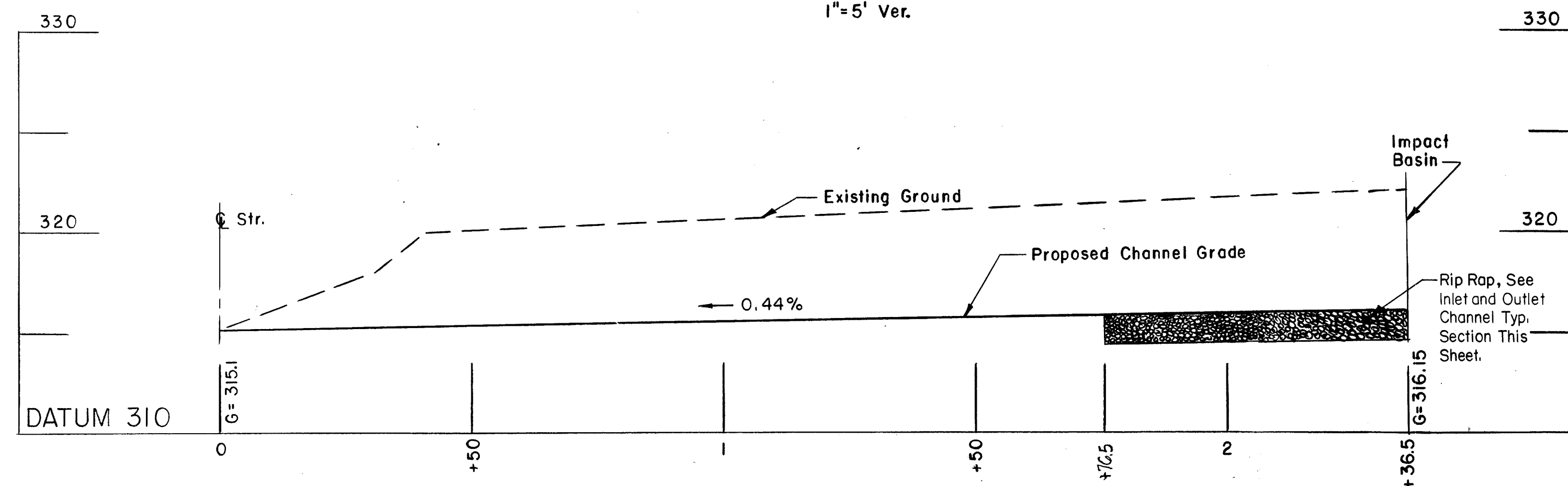
PROFILE AT \odot OF DAM
 Scale: 1"=50' Hor.
 1"=10' Vert.



PROFILE AT \odot OF INLET CHANNEL
 Scale: 1"=20' Hor.
 1"=5' Ver.



TYPICAL SECTION OF INLET & OUTLET CHANNEL



PROFILE AT \odot OF OUTLET CHANNEL
 Scale: 1"=20' Hor.
 1"=5' Ver.

APPROVED For Public Water, Public Sewerage and Storm Drainage Systems and Roads
 HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 Director
 DATE 11-9-83

APPROVED For Public Private Water and Public/Private Sewerage Systems
 HOWARD COUNTY HEALTH DEPARTMENT
 COUNTY HEALTH OFFICER
 DATE

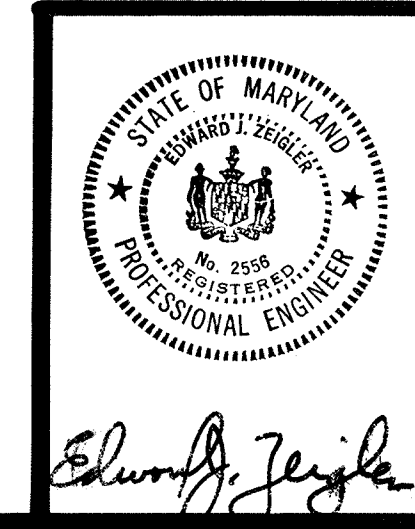
APPROVED Howard County Office of Planning and Zoning
 PLANNING DIRECTOR
 DATE

CHIEF, DIVISION OF LAND DEVELOPMENT
 DATE

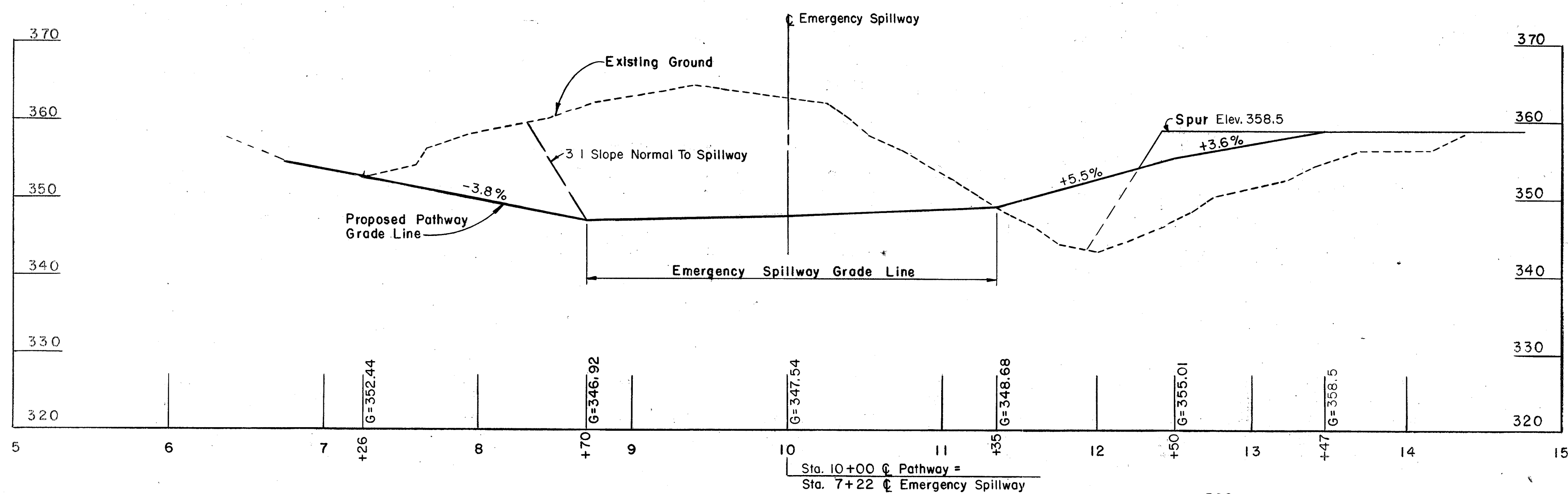
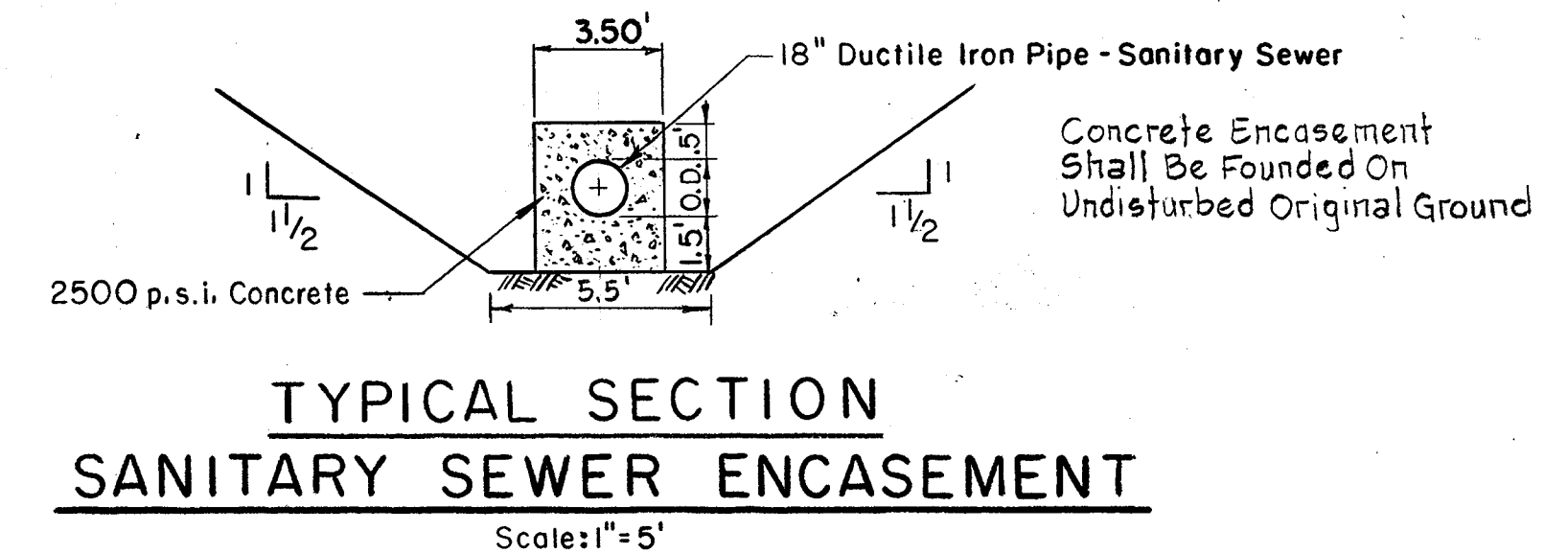
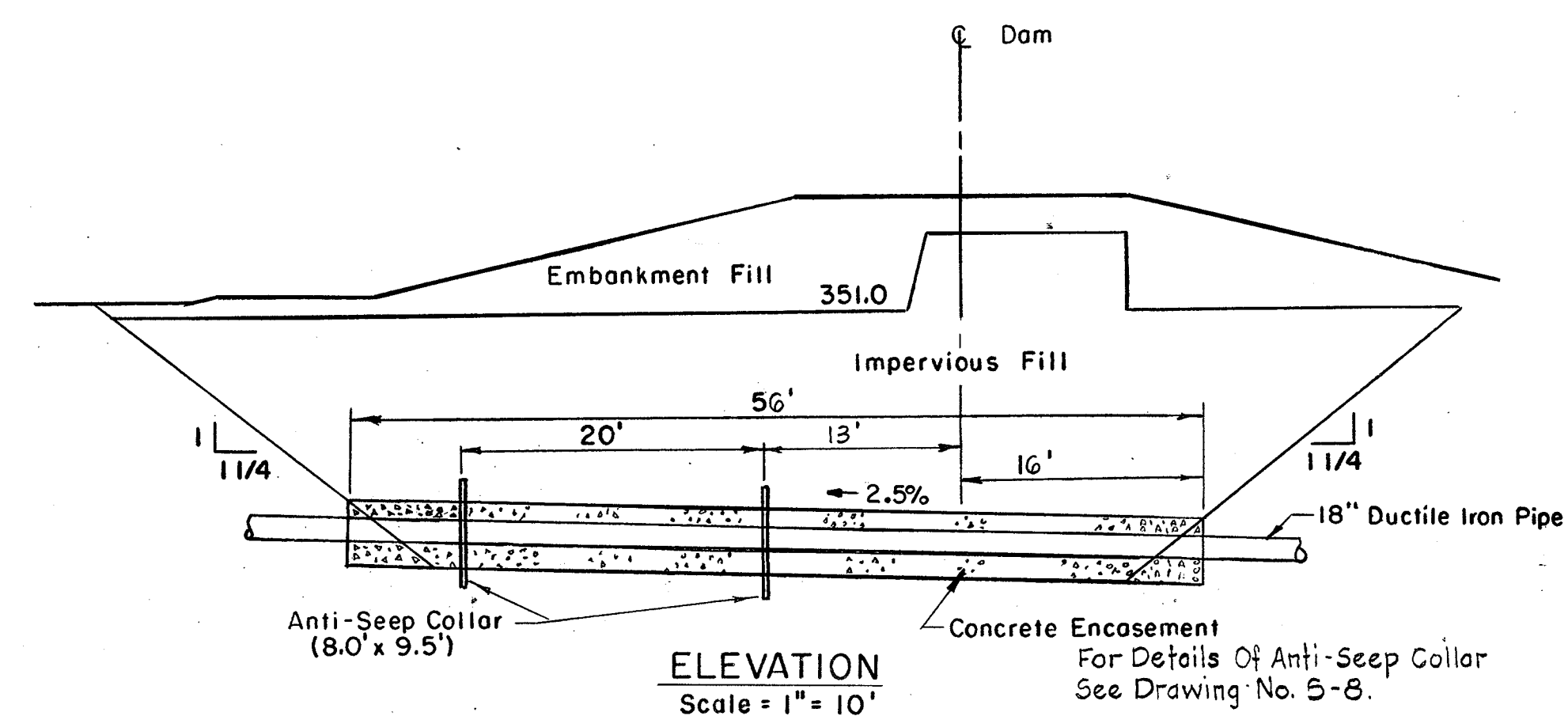
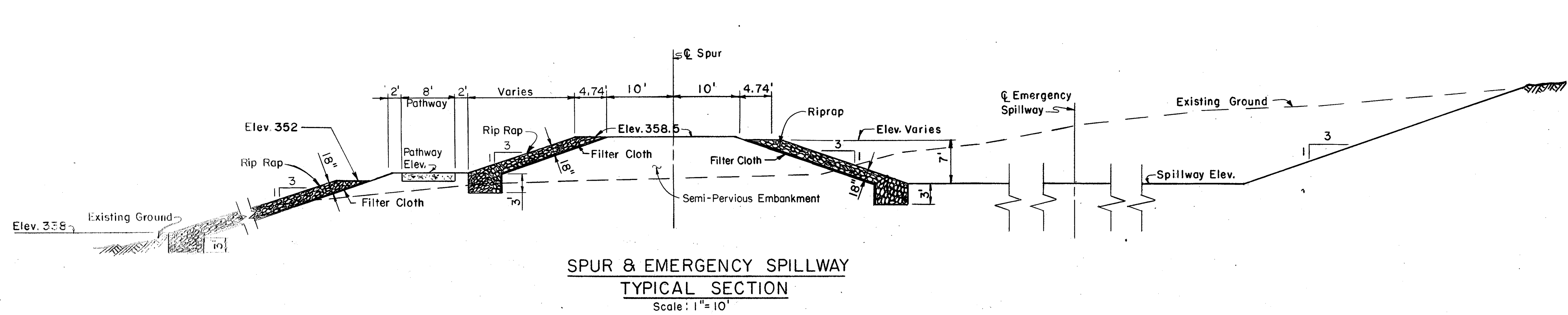
RUMMEL, KLEPPER & KAHL
 CONSULTING ENGINEERS
 BALTIMORE, MARYLAND

**CENTENNIAL PARK DAM AND LAKE
 DAM PROFILE &
 DETAILS**

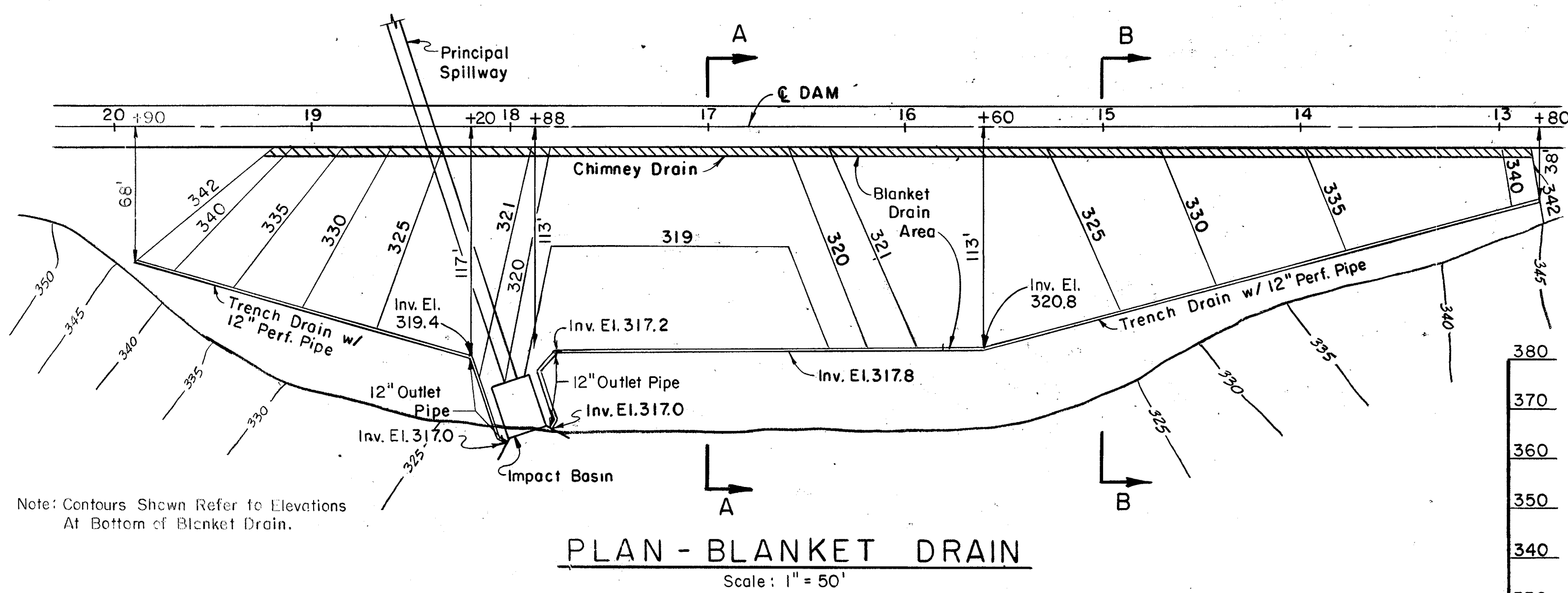
DATE	6-1-83	REVISIONS:	DRAWING NO.	SHEET NO.
SCALE	AS SHOWN	As Built Cut Off Wall & Cut Off Trench 4-8-85	A-14	14
DRAWN BY	D.L.K.			of 26
CHECKED BY	R.C.D.			



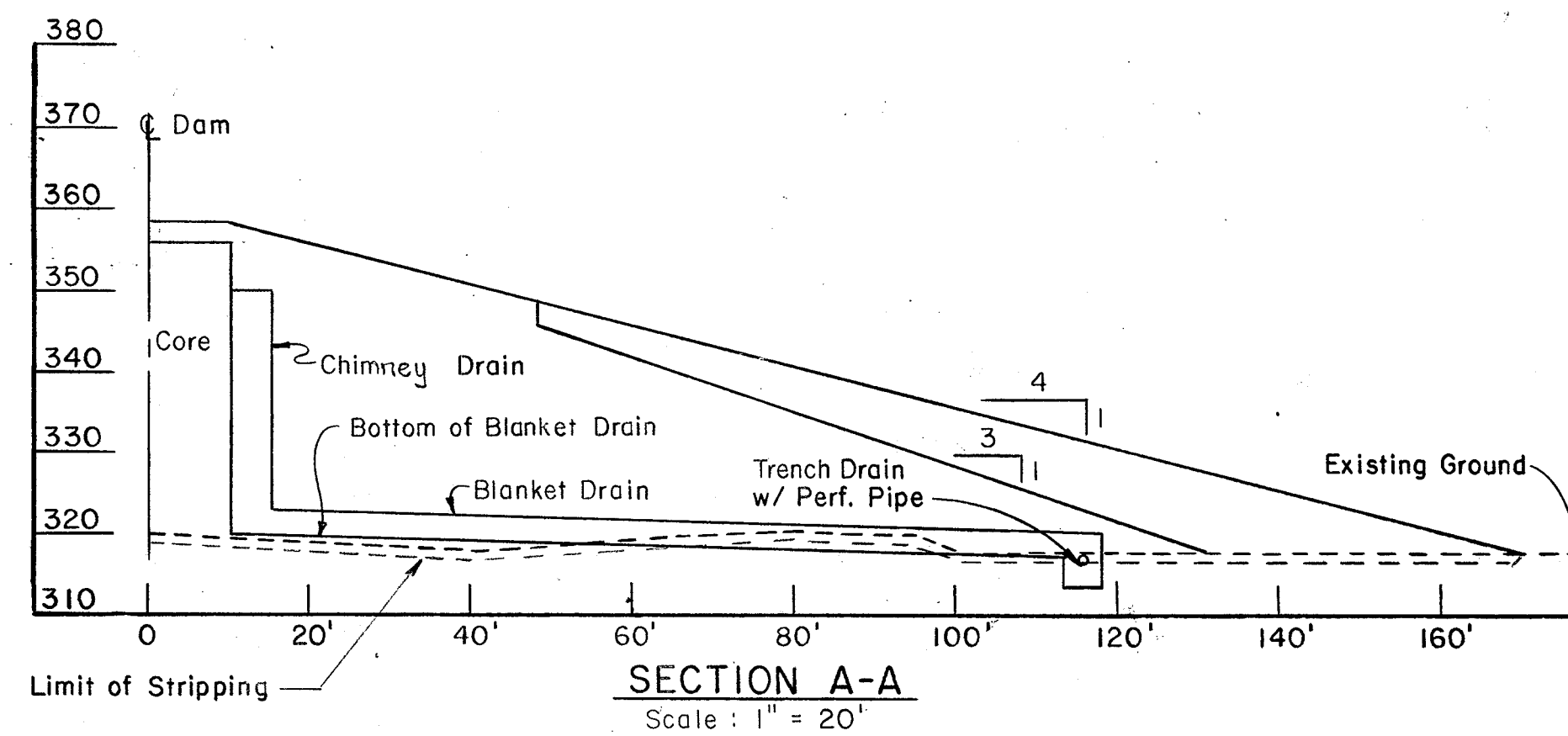
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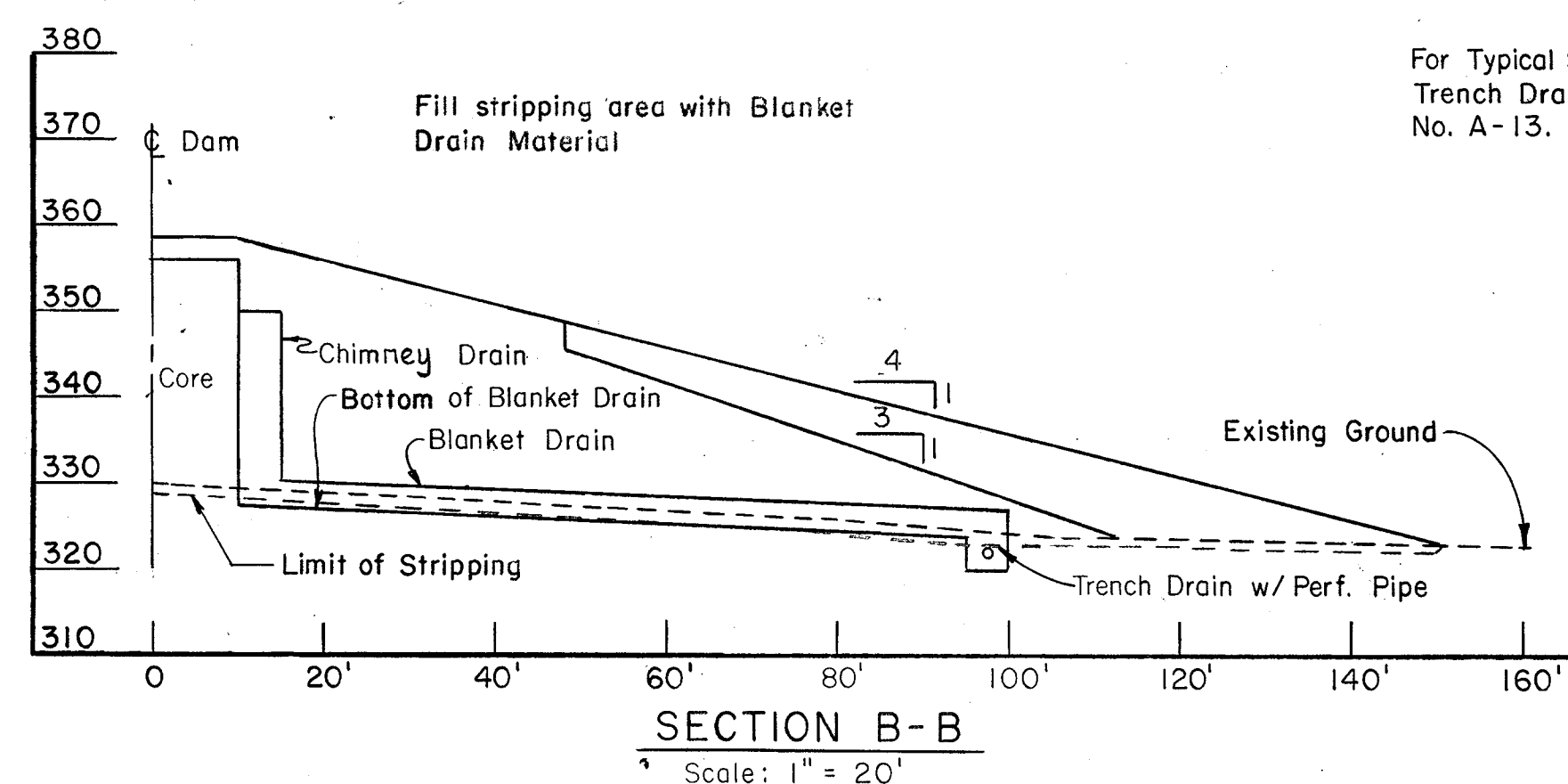
For Geometric Layout, Pathway & Spur,
See Dwg. No. A-16.



NOTE: Backfill Existing Stream Channel Downstream From Cutoff Trench To Outlet Channel With Semi-pervious Embankment To Elevations Shown Here.



For Typical Section of Dam & Trench Drain Detail, See Dwg. No. A-13.



APPROVED: For Public Water, Public Sewerage and Storm Drainage Systems and Roads
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Steve J. Stump DIRECTOR 11-9-83 DATE
William S. Ryan CHIEF, BUREAU OF ENGINEERING 10-28-83 DATE

APPROVED: For Public/Private Water and Public/Private Sewerage Systems
HOWARD COUNTY HEALTH DEPARTMENT

COUNTY HEALTH OFFICER DATE

APPROVED: Howard County Office of Planning and Zoning

PLANNING DIRECTOR DATE

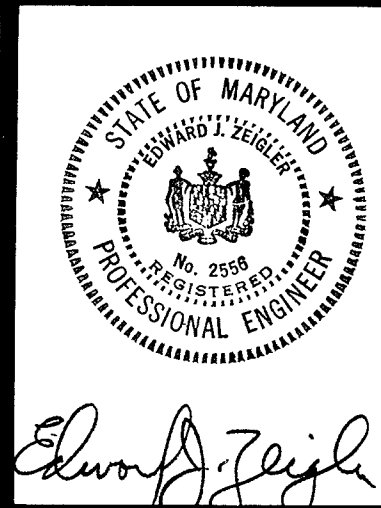
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

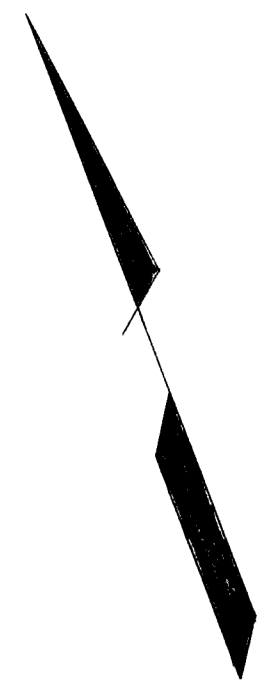
RUMMEL, KLEPPER & KAHL
CONSULTING ENGINEERS
BALTIMORE, MARYLAND

CENTENNIAL PARK DAM AND LAKE DETAILS

DATE	6-1-83	REVISIONS:	DRAWING NO.	SHEET NO.
SCALE	As Shown		A-15	15
DRAWN BY	D. L. K.			OF 26
CHECKED BY	R. C. D.			

#763





PATHWAY
 P.I. Sta. 12+17.26
 $\Delta = 50^\circ 34' 07''$ Rt.
 $D = 114^\circ 35' 30''$ (Arc)
 $T = 23.62'$
 $L = 44.13'$
 $R = 50.00'$
 $E = 5.30'$

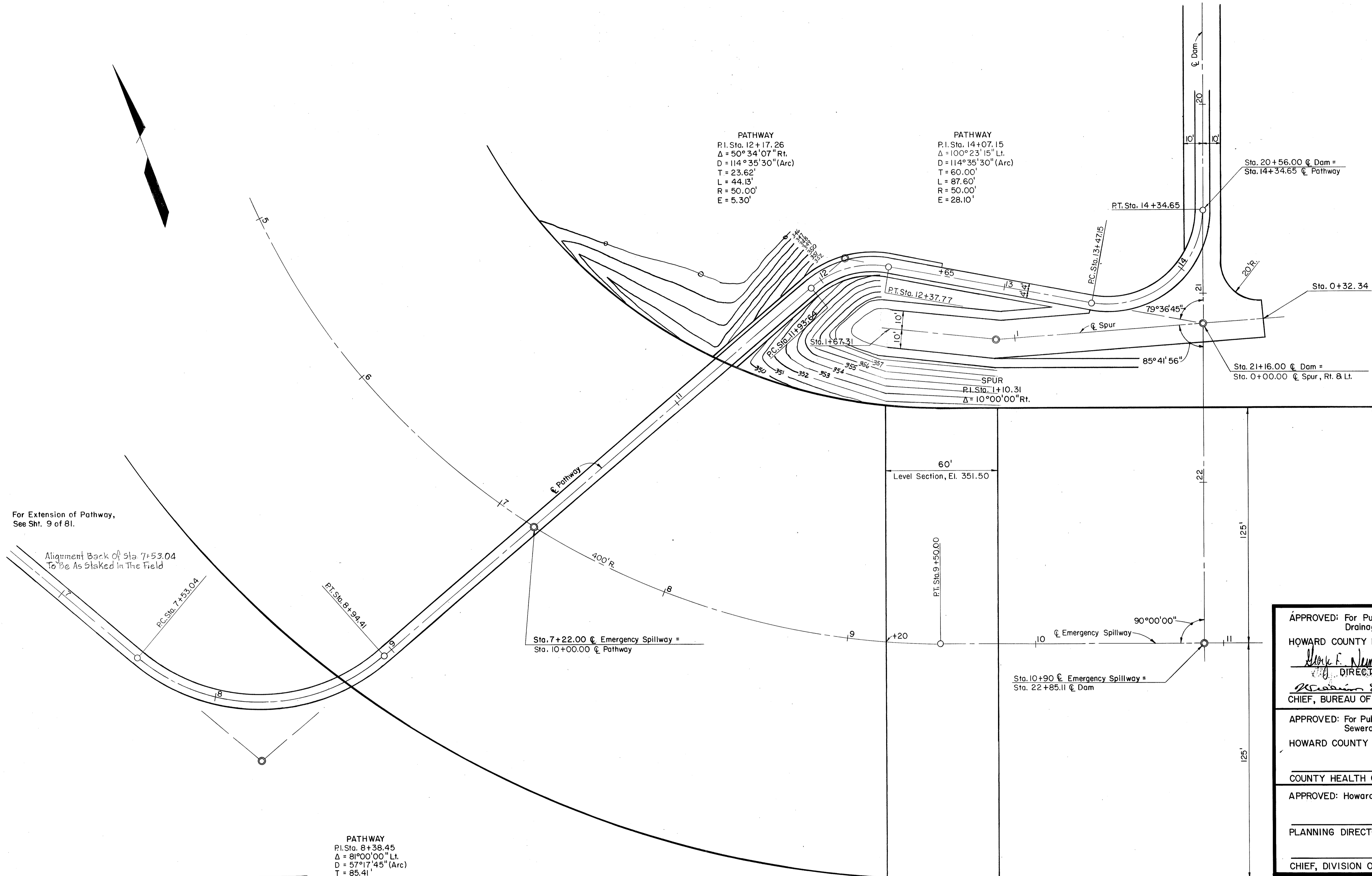
PATHWAY
 P.I. Sta. 14+07.15
 $\Delta = 100^\circ 23' 15''$ Lt.
 $D = 114^\circ 35' 30''$ (Arc)
 $T = 60.00'$
 $L = 87.60'$
 $R = 50.00'$
 $E = 28.10'$

SPUR
 P.I. Sta. 1+10.31
 $\Delta = 10^\circ 00' 00''$ Rt.

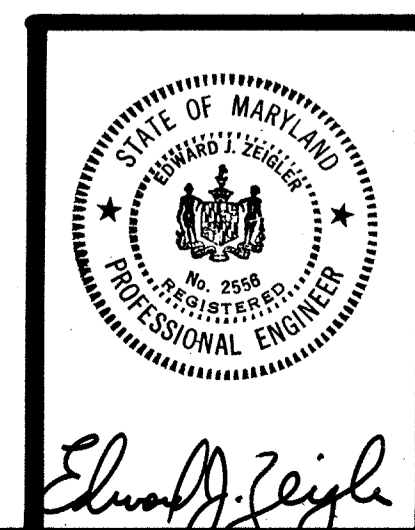
PATHWAY
 P.I. Sta. 8+38.45
 $\Delta = 81^\circ 00' 00''$ Lt.
 $D = 57^\circ 17' 45''$ (Arc)
 $T = 85.41'$
 $L = 141.37'$
 $R = 100.00'$
 $E = 31.51'$

For Extension of Pathway,
 See Sht. 9 of 81.

Alignment Back of Sta 7+53.04
 To Be As Staked in The Field



For Profile Emergency Spillway, See Dwg. No. A-13.
 For Profile C. Dam , See Dwg. No. A-14.
 For Profile C. Pathway , See Dwg. No. A-15.
 For Typical Section Pathway, Spur and Emergency Spillway, See Dwg. No. A-15.
 For Pathway Pavement Section, See Sht. 23 of 81.



APPROVED: For Public Water, Public Sewerage and Storm Drainage Systems and Roads	
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS	
<i>Walter F. Neuman</i> DIRECTOR	11-9-83 DATE
<i>William D. Ryan</i> CHIEF, BUREAU OF ENGINEERING	10-28-83 DATE
APPROVED: For Public/Private Water and Public/Private Sewerage Systems	
HOWARD COUNTY HEALTH DEPARTMENT	
COUNTY HEALTH OFFICER	DATE
APPROVED: Howard County Office of Planning and Zoning	
PLANNING DIRECTOR	DATE
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE

RUMMEL, KLEPPER & KAHL
 CONSULTING ENGINEERS
 BALTIMORE, MARYLAND

**CENTENNIAL PARK DAM AND LAKE
 GEOMETRIC LAYOUT OF PATHWAY
 AND SPUR**

DATE	6-1-83	REVISIONS:	DRAWING NO.	SHEET NO.
SCALE	1" = 25'		A-16	16
DRAWN BY	D. L. K.			OF 26
CHECKED BY	R. C. D.			

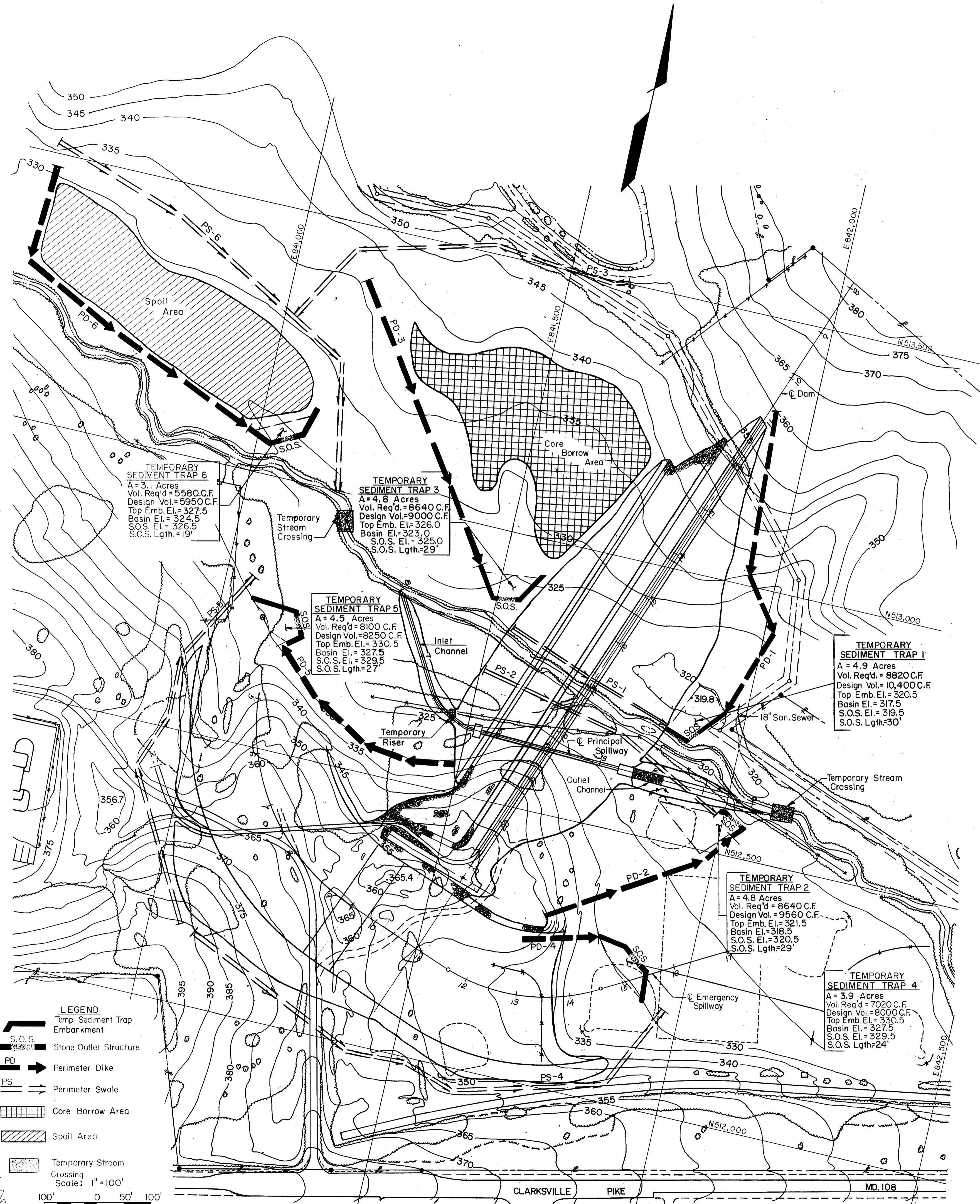
#763

GENERAL NOTES

SEQUENCE OF OPERATIONS

- All Sediment Control Structures, And/Or Devices Shall Be Constructed And Maintained In Accordance With The "Standards And Specifications For Soil Erosion And Sediment Control In Developing Areas" As Distributed By Howard County Soil Conservation District.
- Upon Initiation Of Any Construction Phase Appropriate Ditches And Temporary Sediment Control Devices Shall Be Constructed In Order To Retain Sedimentation On Site. All Temporary Ditches Shall Be Stabilized By Seeding And Mulching Unless Otherwise Noted.
- The Contractor Shall Be Responsible For Any Damage To Existing Utilities During These Work Operations.
- Continuous Inspection And Maintenance Of All Sediment Control Devices And Appurtenances Shall Be Provided To Insure That The Intended Purpose Are Accomplished During The Life Of The Construction Contract.
- The Contractor Shall Stabilize The Primary Inflow Points Of All Sediment Control Devices, To Prevent Excessive Erosion, To The Satisfaction Of The Sediment Control Inspector.
- Modification To Sediment Control Measures Shown On These Plans May Be Ordered By The Engineer To Suit Field Conditions Encountered Throughout The Life Of The Construction Contract.
- It Shall Be The Contractor's Responsibility To Prevent Sediment, Resulting From His Construction Contract, From Entering Any Adjacent Property Or Sanitary Sewer System.
- All Sedimentation Control Devices Are Temporary And Shall Be Used Only During The Life Of The Construction Contract. It Shall Be The Contractor's Responsibility To Remove All Temporary Sedimentation Control Devices And Work Those Areas Of Placement To Originally Existing Or Proposed Conditions.
- Temporary Seeding Shall Be Placed By The Contractor At The Locations Stated Below:
 - Temporary Sediment Trap
 - Perimeter Swale
 - Perimeter Dike

- Construct All Temporary Sediment Traps (TST) Nos. 1, 2, 3, 4, 5 And 6; Perimeter Dikes (PD) Nos. 1, 2, 3, 4, 5 And 6; And Perimeter Swales (PS) Nos. 1, 2, 3, 4, 5 And 6.
 - Construct Principal Spillway, Complete, Including Inlet And Outlet Channels, Impact Basin, Riser, Drain Pipe And Drain Pipe Headwall. Temporary Openings Are To Be Left In The Riser Structure. Excavated Areas Are To Be Dewatered By Pumps And Discharged Into TST-2. Inlet And Outlet Channel Slopes Shall Be Stabilized By Vegetative Planting And/Or Rip Rap. Stream Flow Shall Be Maintained In Existing Channel.
 - Upon Completion Divert The Stream Flow Thru The Principal Spillway, Construct Cutoff Trench And Backfill With Material From The "Core Borrow Area." Strip Dam Area; Construct Blanket Drain, Trench Drain And Pipe Drainage System. Suitable Material Excavated In Cutoff Trench May Be Utilized In Filling The Existing Stream Channel And The Initial Phases Of The Dam Embankment. Unsuitable Excavated Material Is To Be Deposited In The "Spoil Area."
 - After Completion Of Cutoff Trench, Construct Temporary Riser Pipe And Begin Excavation Of Emergency Spillway. All Suitable Material Excavated In The Emergency Spillway Will Be Incorporated Into The Semi-Pervious Zone Of The Dam, Completing The Dam To At Least Elevation 335.0 As Rapidly As Possible. Stream Flow Will Be Maintained Thru The Temporary Riser Pipe And The Temporary Openings In The Riser Structure During Periods Of Peak Flow.
 - When The Construction Of The Dam Has Reached Elevation 335.0 The Lakeside Grading, Construction Of The Marsh And The Lakeshore South Construction Can Be Initiated And Completed Simultaneously With The Completion Of The Dam Embankment. Sediment And Erosion Control For The Upstream Construction Will Be Accomplished Using The Permanent Dam Embankment And The Temporary Riser Pipe.
 - Upon Completion Of All Grading, Excavation And Embankment Construction All Disturbed Or Graded Areas Shall Be Stabilized With Either Vegetative Cover Or Rip Rap And The Temporary Sediment Control Structures Removed.
- Note: The Temporary Riser Pipe Shall Not Be Constructed Until The Dam Embankment Is Completed To Elevation 325.0. Material Used For Construction Of The Embankment Below Elevation 325.0 Shall Be Excavated From The Downstream Portion Of The Emergency Spillway.



By the Developer:

"I/We certify that all development 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 Natural Resources Approved Training Program for the Control of Sediment and Erosion before beginning the project."

Signature of Developer _____ Date _____
 Print name below signature

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 Soil Conservation District."

Signature of Engineer _____ Date _____
 Print name below signature

Reviewed for Howard S.C.D.
 Name
 and meets Technical Requirements.
James M. Nelson 7-15-83
 U.S. Soil Conservation Date
 Service

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
Howard 7-15-83
 Howard S.C.D. Date

APPROVED: For Public Water, Public Sewerage and Storm Drainage Systems and Roads
 HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
[Signature] 11-9-83
 DIRECTOR DATE
[Signature] 10-28-83
 CHIEF, BUREAU OF ENGINEERING DATE

APPROVED: For Public/Private Water and Public/Private Sewerage Systems
 HOWARD COUNTY HEALTH DEPARTMENT

COUNTY HEALTH OFFICER _____ DATE _____

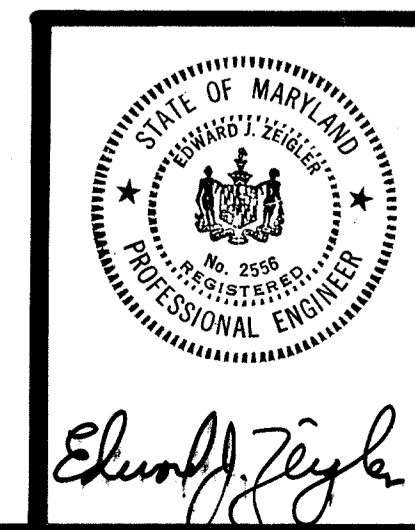
APPROVED: Howard County Office of Planning and Zoning

PLANNING DIRECTOR _____ DATE _____
 CHIEF, DIVISION OF LAND DEVELOPMENT _____ DATE _____

RUMMEL, KLEPPER & KAHL
 CONSULTING ENGINEERS
 BALTIMORE, MARYLAND

**CENTENNIAL PARK DAM AND LAKE
 SEDIMENTATION AND EROSION CONTROL PLAN**

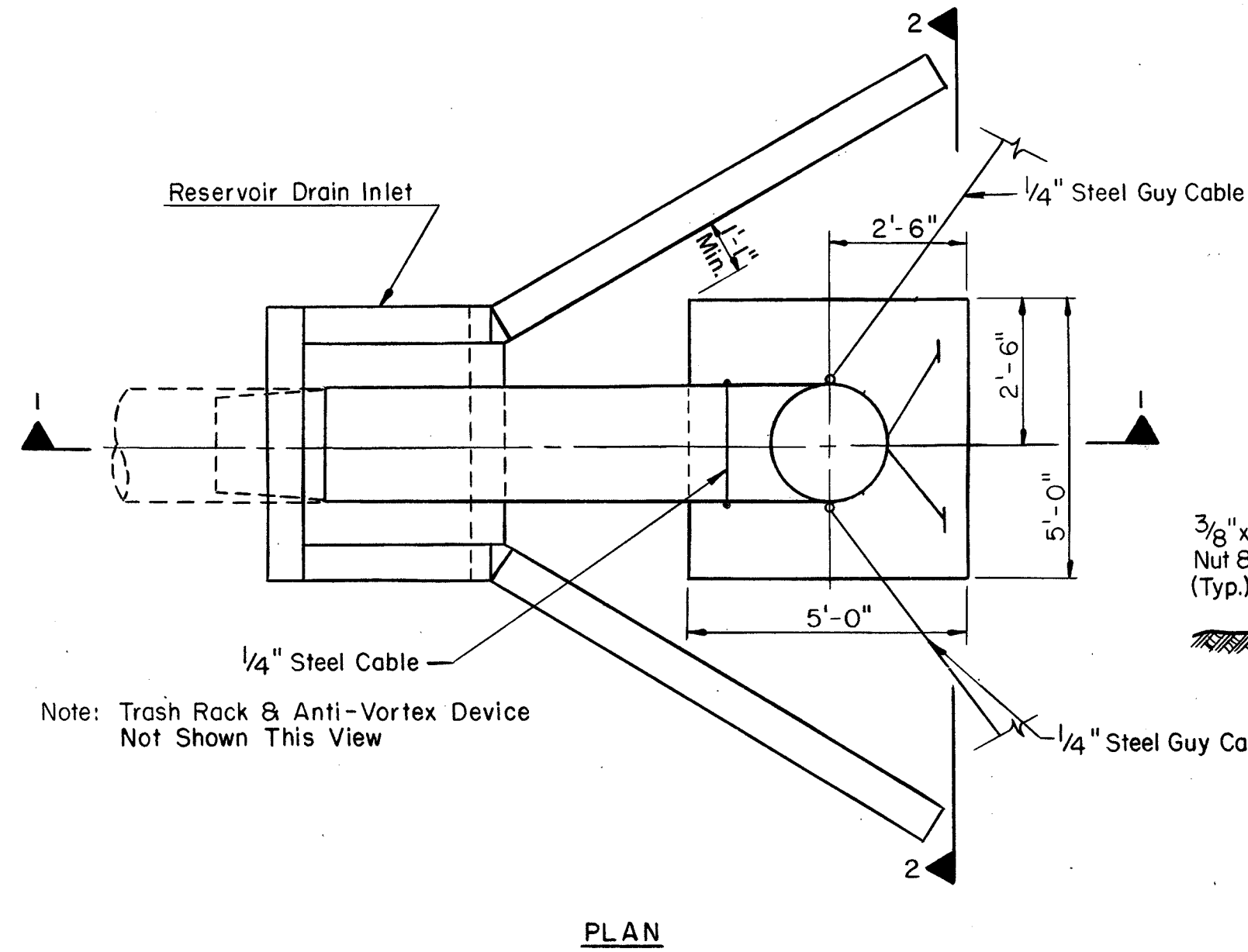
DATE	6-1-83	REVISIONS:	DRAWING NO.	SHEET NO.
SCALE	As Shown		E-1	17
DRAWN BY	D.L.K.			OF 26
CHECKED BY	R.C.D.			



**CONSTRUCTION SPECIFICATION FOR
SEDIMENT AND EROSION CONTROL STRUCTURES**

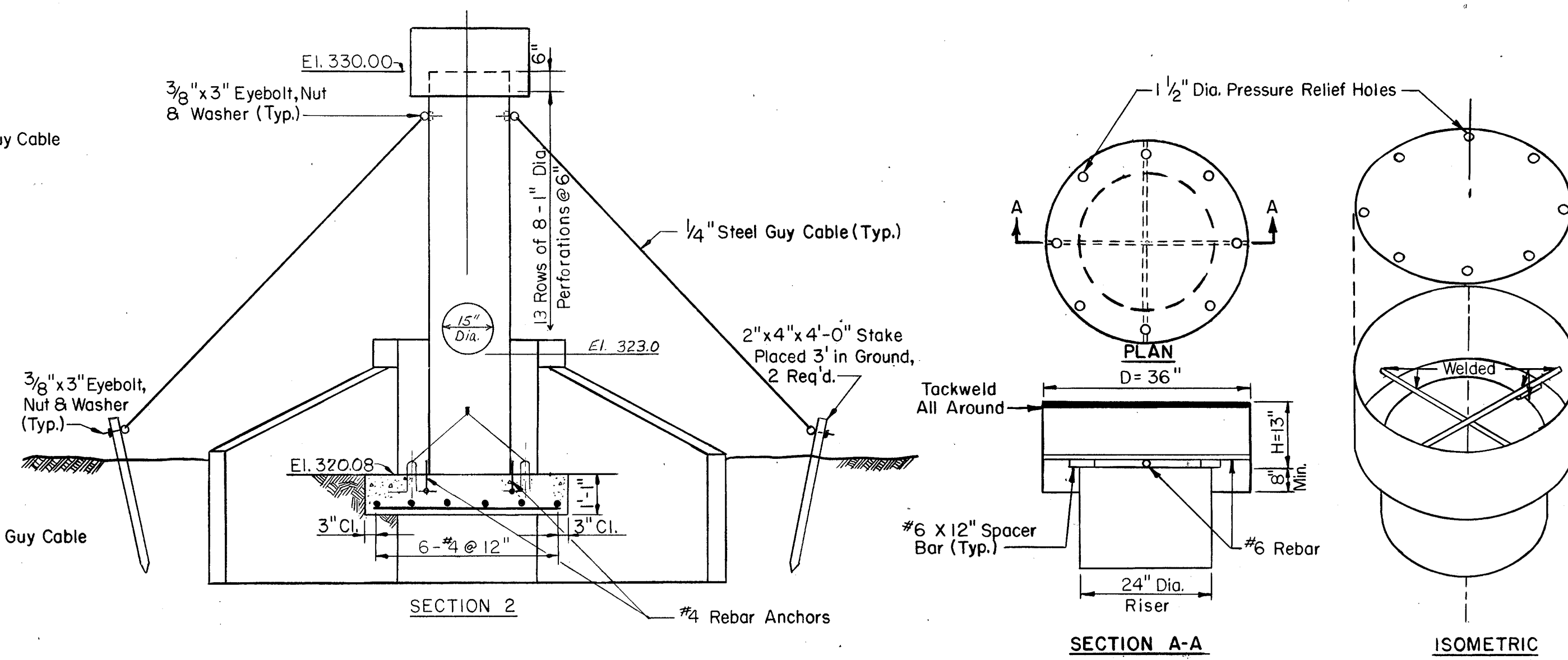
STONE OUTLET SEDIMENT TRAP

1. Area Under Embankment Shall Be Cleared, Grubbed And Stripped Of Any Vegetation And Root Mat. The Pool Area Shall Be Cleared.
2. The Fill Material For The Embankment Shall Be Free Of Roots Or Other Woody Vegetation As Well As Oversized Stones, Rocks, Organic Material Or Other Objectional Material. The Embankment Shall Be Compacted By Traversing With Equipment While It Is Being Constructed.
3. Sediment Shall Be Removed And Trap Restored To Its Original Dimension When The Sediment Has Accumulated To 1/2 The Design Depth Of The Trap. Removed Sediment Shall Be Deposited In A Suitable Area And In Such A Manner That It Will Not Erode.
4. The Structure Shall Be Inspected After Each Rain And Repaired As Needed.
5. Construction Operations Shall Be Carried Out In Such A Manner That Erosion And Water Pollution Is Minimized.
6. The Structure Shall Be Removed And The Area Stabilized When The Drainage Area Has Been Properly Stabilized.
7. All Cut And Fill Slopes Shall Be 2:1 Or Flatter.
8. Gabion Stone Shall Meet MSHA Designation Stone For Gabions, 4in.-7in. Filter Aggregate Shall Meet AASHTO Designation M-43, Size No. 57.



Note: Trash Rack & Anti-Vortex Device Not Shown This View

PLAN



Top is 14 gage corrugated metal or 1/8" steel plate. Pressure relief holes may be omitted, if ends of corrugations are left fully open when corrugated is welded to cylinder.
Cylinder is 16 gage corrugated metal pipe or fabricated from 1/8" steel plate.

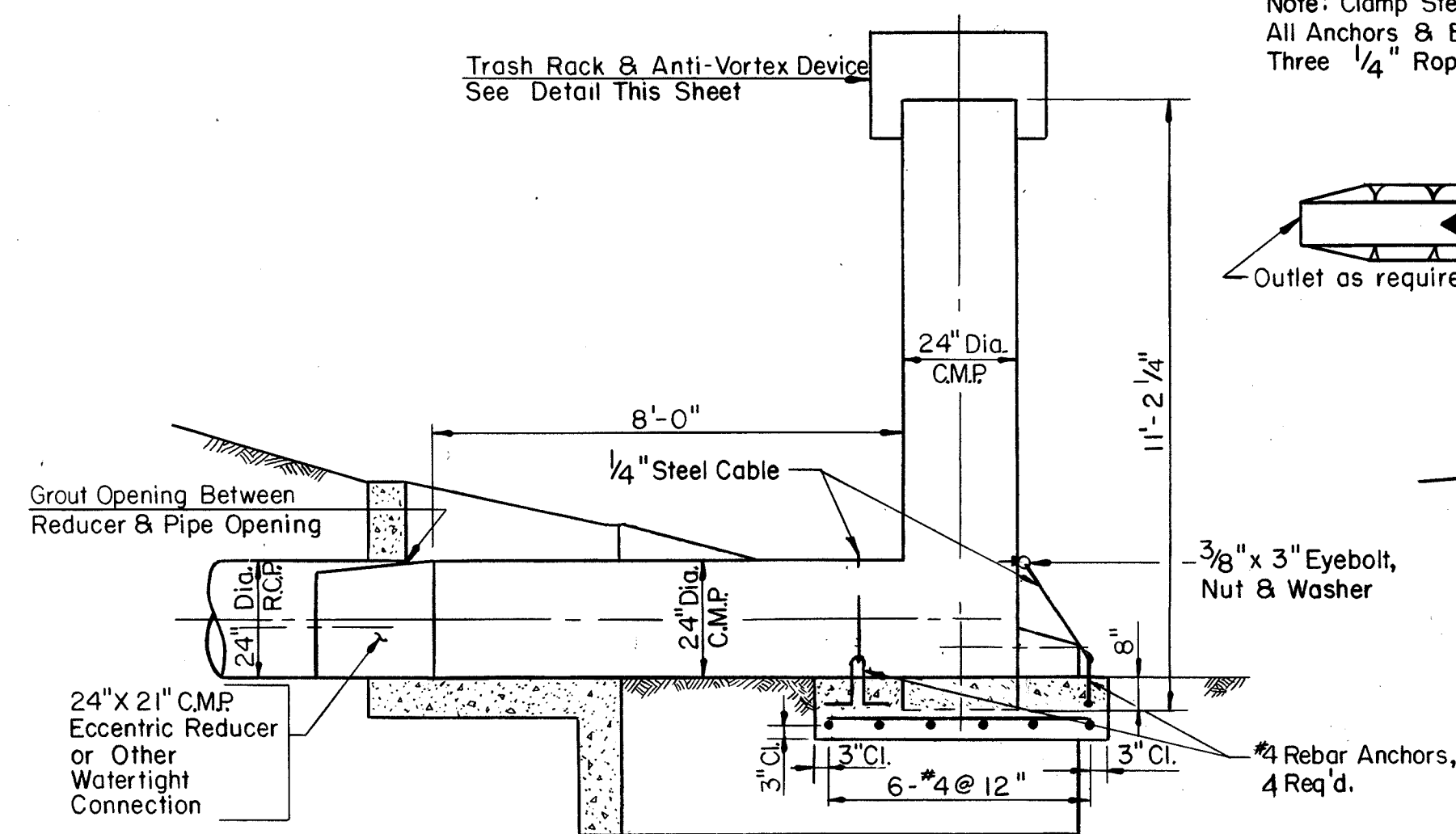
- Notes:
- 1) The cylinder must be firmly fastened to the top of the riser.
 - 2) Support bars are welded to the top of the riser or attached by strips bolted to top of riser.

CONCENTRIC TRASH RACK AND ANTI-VORTEX DEVICE

(Not to Scale)

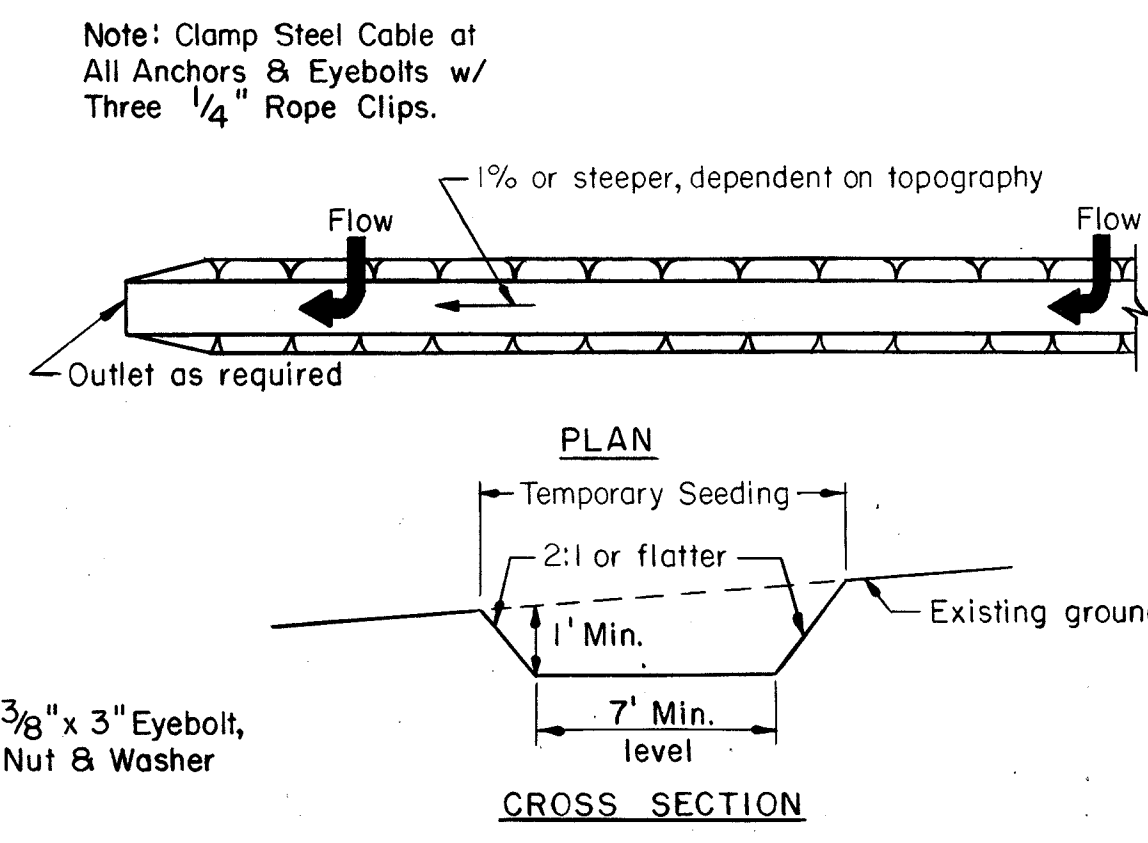
PERIMETER SWALE AND PERIMETER DIKE

1. A. Diverted Runoff From A Protected Or Stabilized Upland Area Shall Outlet Directly Onto An Undisturbed Stabilized Area, Level Spreader Or Into A Grade Stabilization Structure.
B. Diverted Runoff From A Disturbed Or Exposed Upland Area Shall Be Conveyed To A Sediment Trapping Device Such As A Sediment Trap Or A Sediment Basin Or Within An Area Protected By Any Of These Practices.
2. Periodic Inspection And Required Maintenance Shall Be Provided.

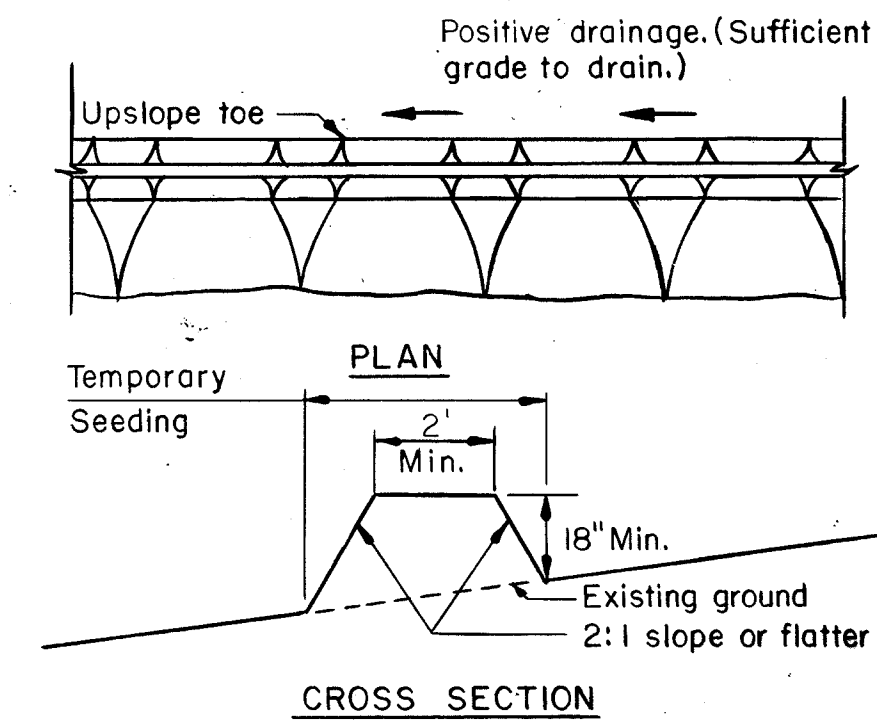


Note: Install Inlet Trash Rack Upon Removal Of Temporary Riser At Completion Of Project (See Dwg. S-5)

SECTION 1
TEMPORARY RISER
Scale: 3/8"=1'-0"



PLAN
CROSS SECTION
PERIMETER SWALE
(Not to Scale)



PLAN
CROSS SECTION
PERIMETER DIKE
(Not to Scale)

PERIMETER SWALE

1. All Trees, Brush, Stumps, Obstructions, And Other Objectionable Material Shall Be Removed And Disposed Of So As Not To Interfere With The Proper Functioning Of The Swale.
2. The Swale Shall Be Excavated Or Shaped To Line, Grade, And Cross Section As Required To Meet The Criteria Specified Herein And Be Free Of Bank Projections Or Other Irregularities Which Will Impede Normal Flow.
3. Fills Shall Be Compacted As Needed To Prevent Unequal Settlement That Would Cause Damage In The Completed Swale.
4. All Earth Removed And Not Needed In Construction Shall Be Spread Or Disposed Of So That It Will Not Interfere With The Functioning Of The Swale.
5. Perimeter Swales Shall Have A Minimum Grade Of One Percent And The Bottom Shall Be Level.

PERIMETER DIKE

1. All Dikes Shall Be Machine Compacted.
2. All Perimeter Dikes Shall Have Positive Drainage To An Outlet.

TEMPORARY SEEDING

TEMPORARY SEDIMENT TRAP

1. See Sections 50.01 Through 50.05 Of The "Standard And Specifications For Soil Erosion And Sediment Control In Developing Areas" For Applicable Standards And Specifications For Vegetative Practices.

PERIMETER SWALE AND PERIMETER DIKE

1. See Sections 36.01 Through 36.08 Of The "Standard And Specifications For Soil Erosion And Sediment Control In Developing Areas" For Applicable Standards And Specifications For Grassed Waterway.

TEMPORARY STREAM CROSSINGS

1. See Sections 65.01, 65.02, And 65.06-65.08 "Standard And Specification For Temporary Access Waterway Crossing" Maryland Water Resources Administration. Only One Stream Crossing Will Be Permitted Until The Dam Embankment Is Constructed To Elevation 335.0

By the Developer:

"I certify that all development 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 Natural Resources Approved Training Program for the Control of Sediment and Erosion before beginning the project."

Signature of Developer _____ Date _____
Print name below signature

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 Soil Conservation District."

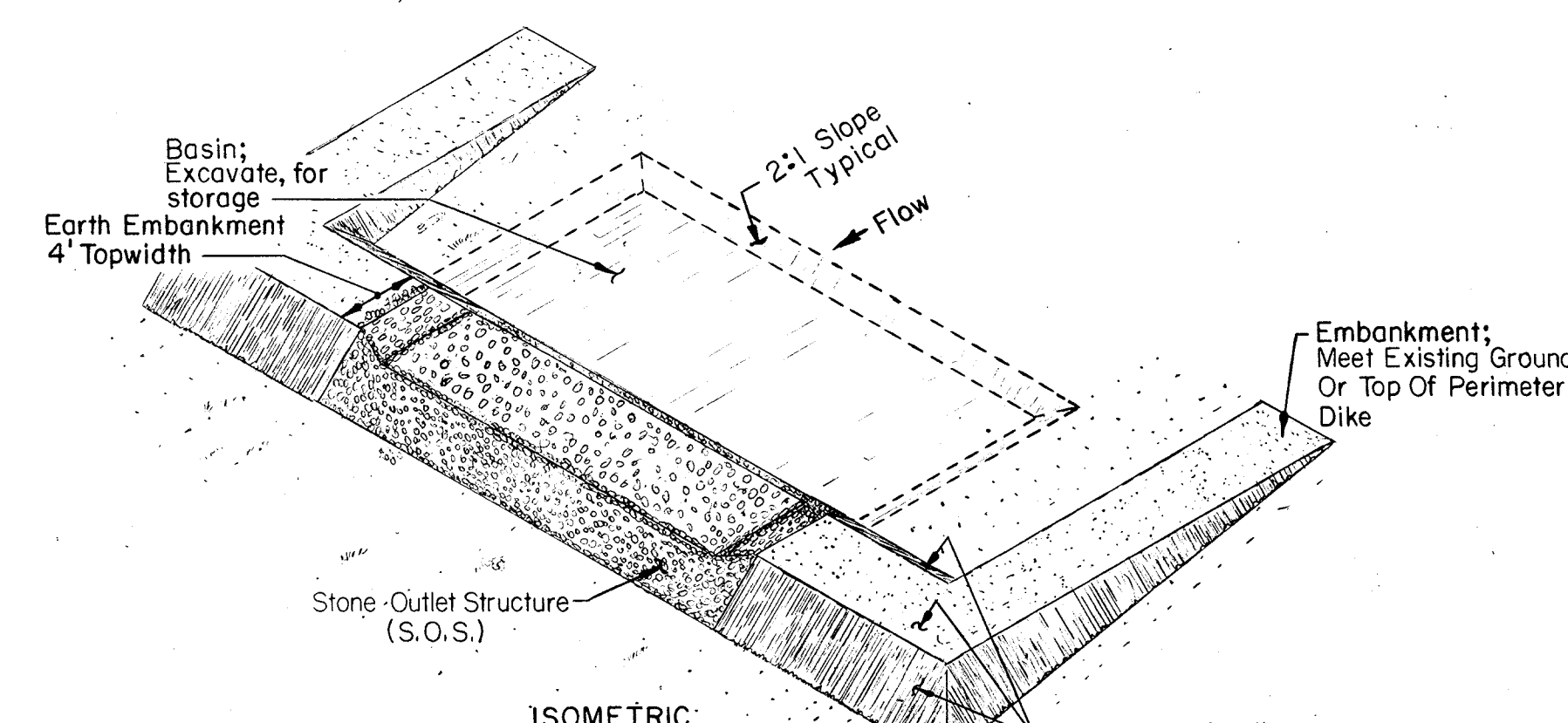
Signature of Engineer _____ Date _____
Print name below signature

Reviewed for Howard S.C.D. Name _____
and meets Technical Requirements.

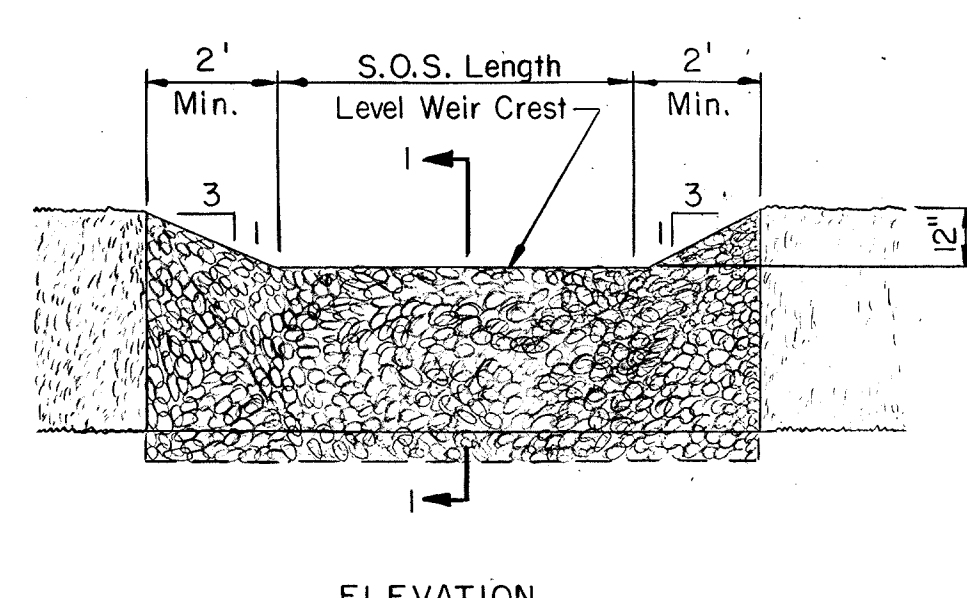
James M. Nelson 7-15-83 Date
U.S. Soil Conservation Service

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

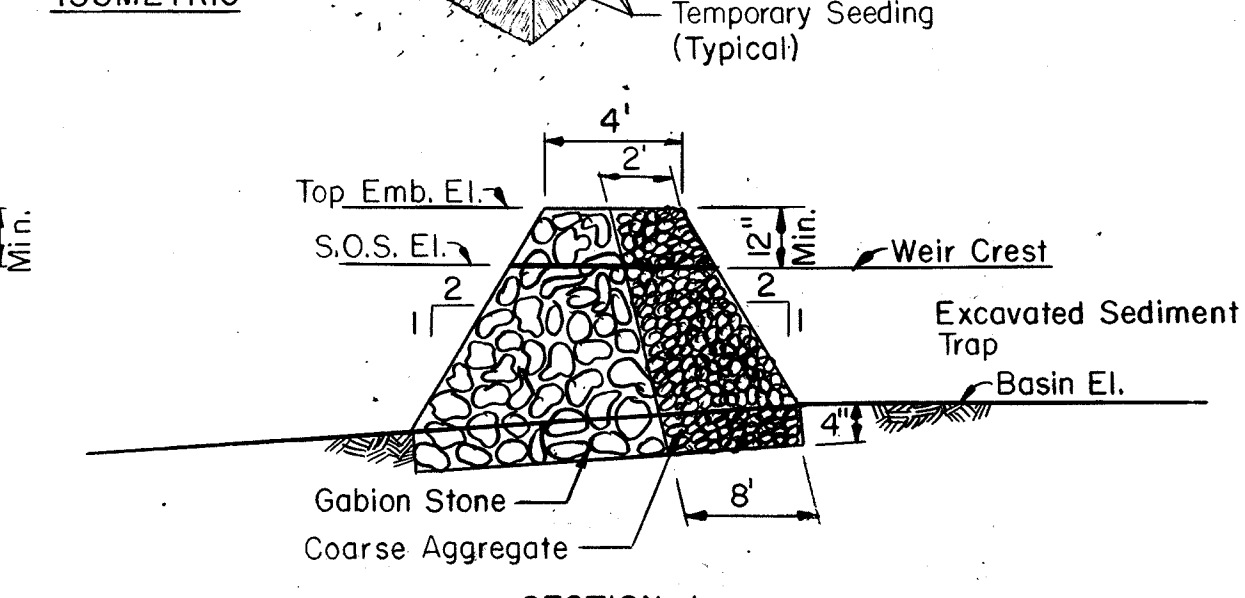
Wendell 7-15-83 Date
Howard S.C.D.



ISOMETRIC



ELEVATION



SECTION 1

TEMPORARY SEDIMENT TRAP
(Not to Scale)

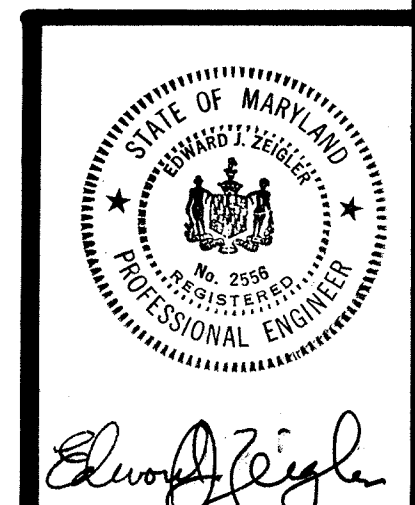
APPROVED: For Public Water, Public Sewerage and Storm Drainage Systems and Roads
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Howard F. ... 11-9-83 DATE
DIRECTOR

APPROVED: For Public/Private Water and Public/Private Sewerage Systems
HOWARD COUNTY HEALTH DEPARTMENT
... .. 10-28-83 DATE
CHIEF, BUREAU OF ENGINEERING

APPROVED: Howard County Office of Planning and Zoning
... .. DATE
PLANNING DIRECTOR

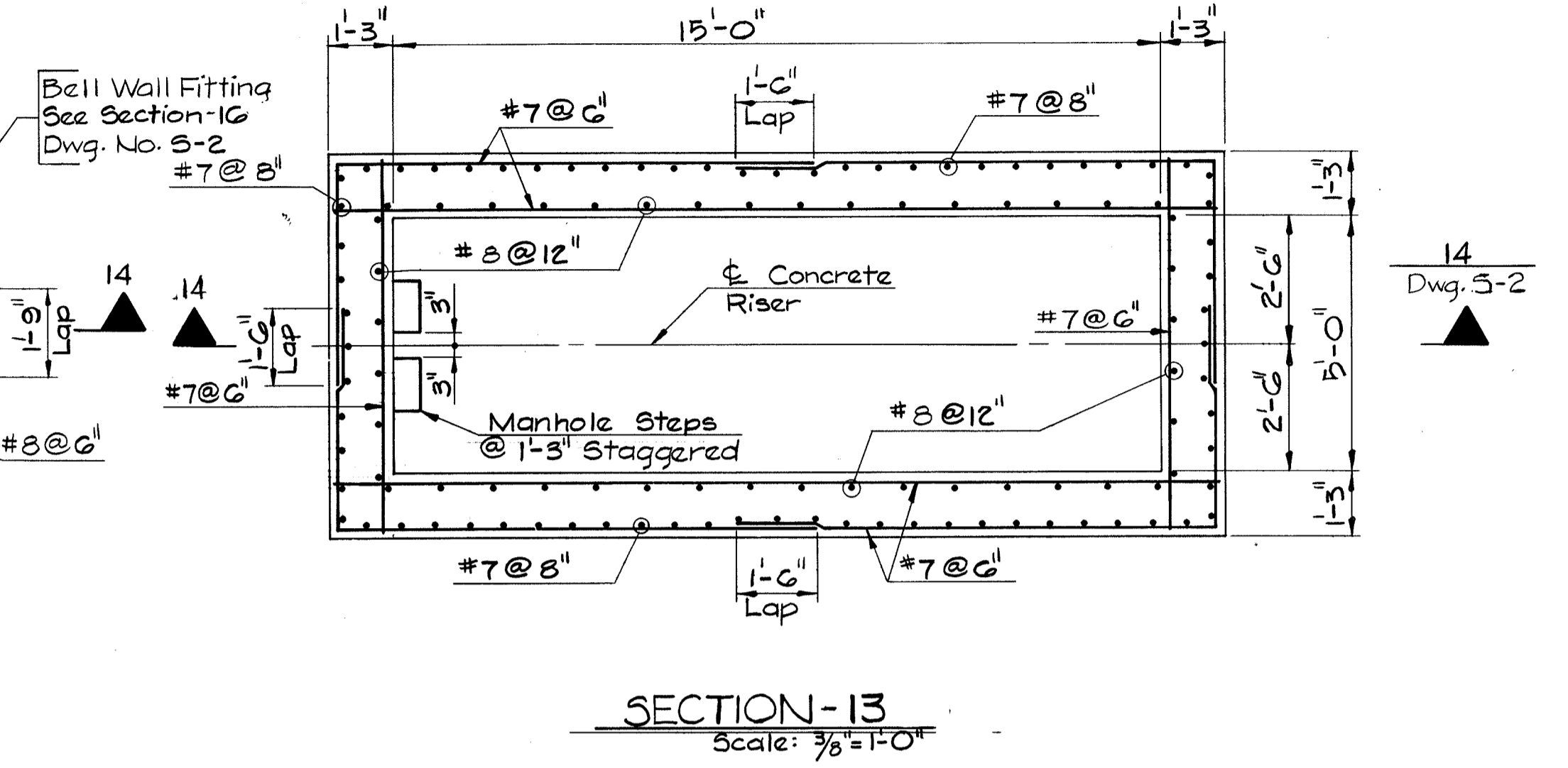
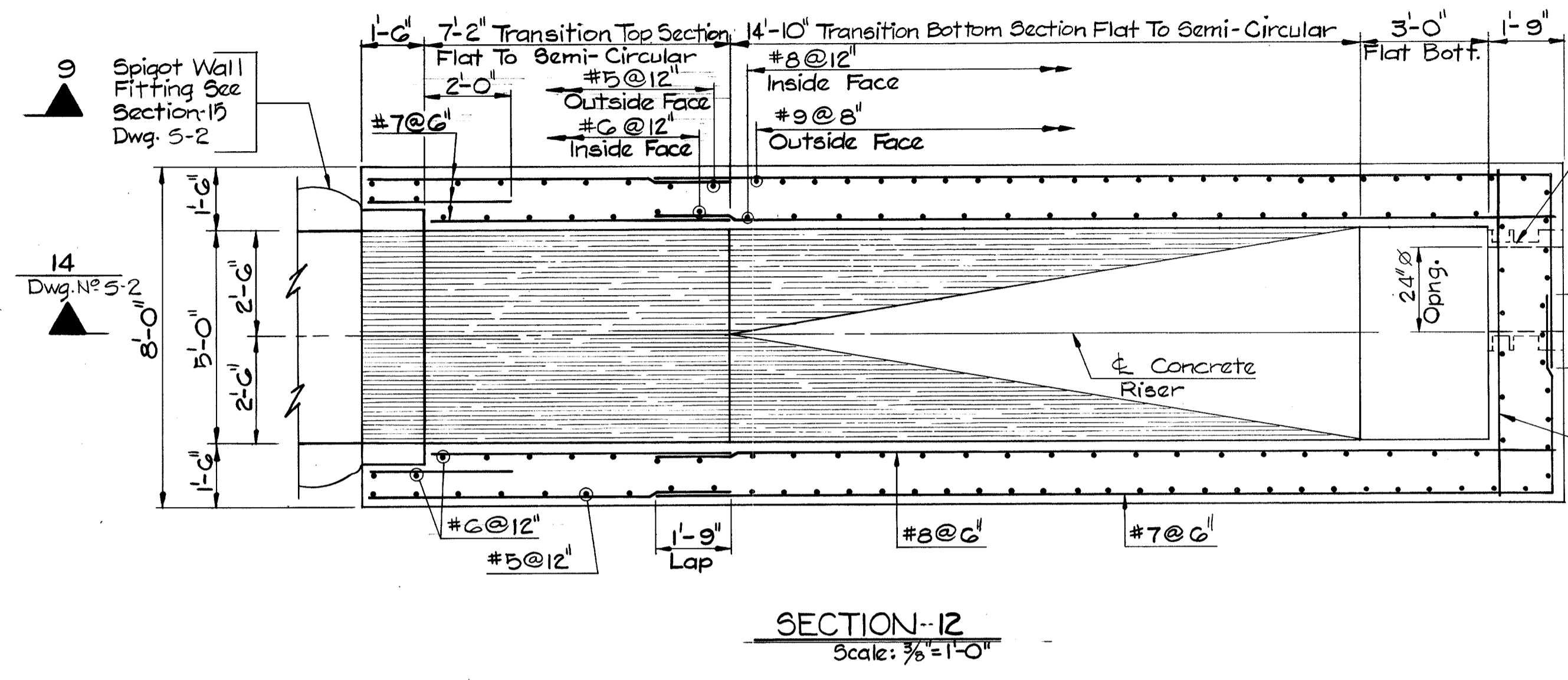
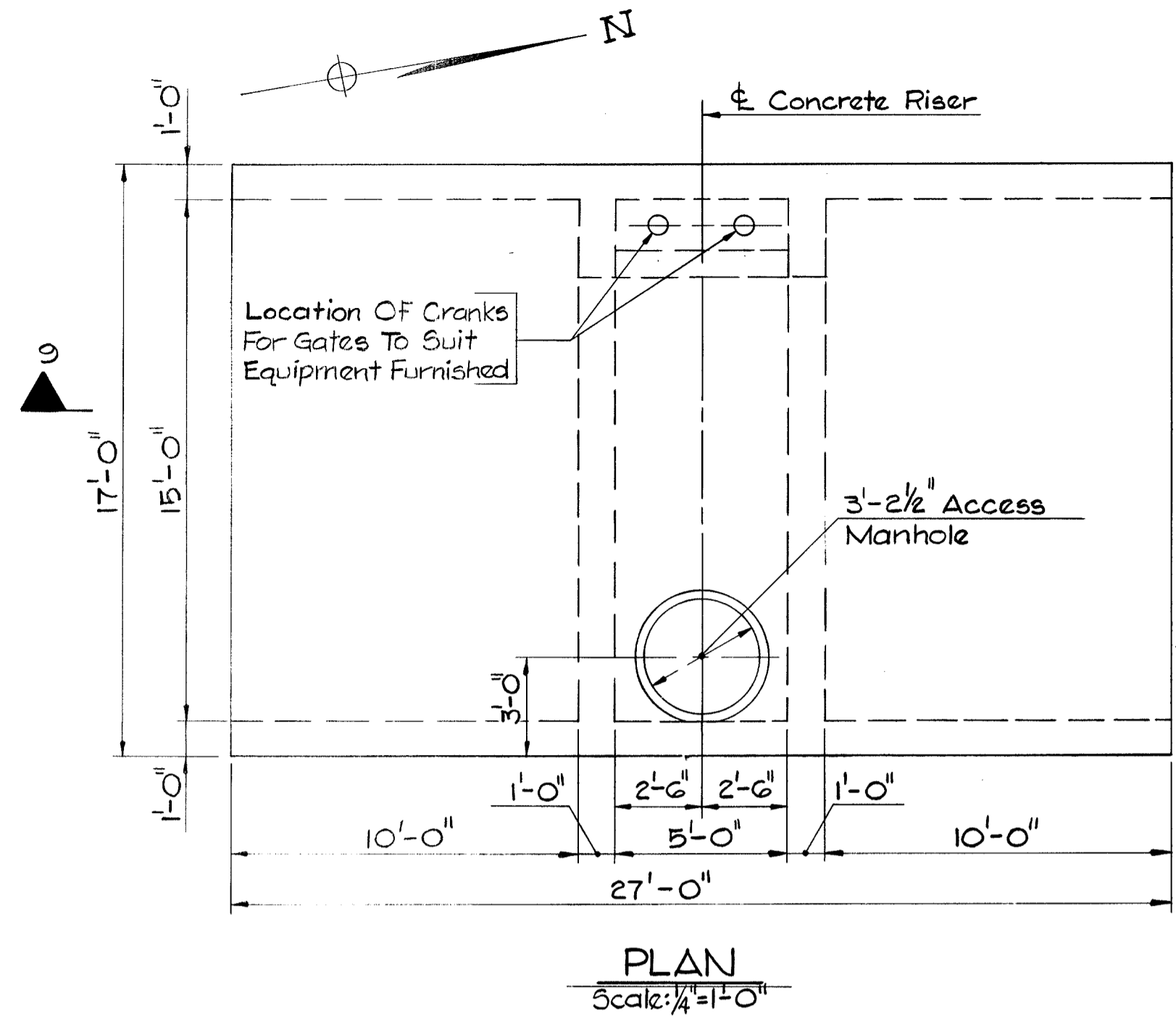
... .. DATE
CHIEF, DIVISION OF LAND DEVELOPMENT

RUMMEL, KLEPPER & KAHL
CONSULTING ENGINEERS
BALTIMORE, MARYLAND

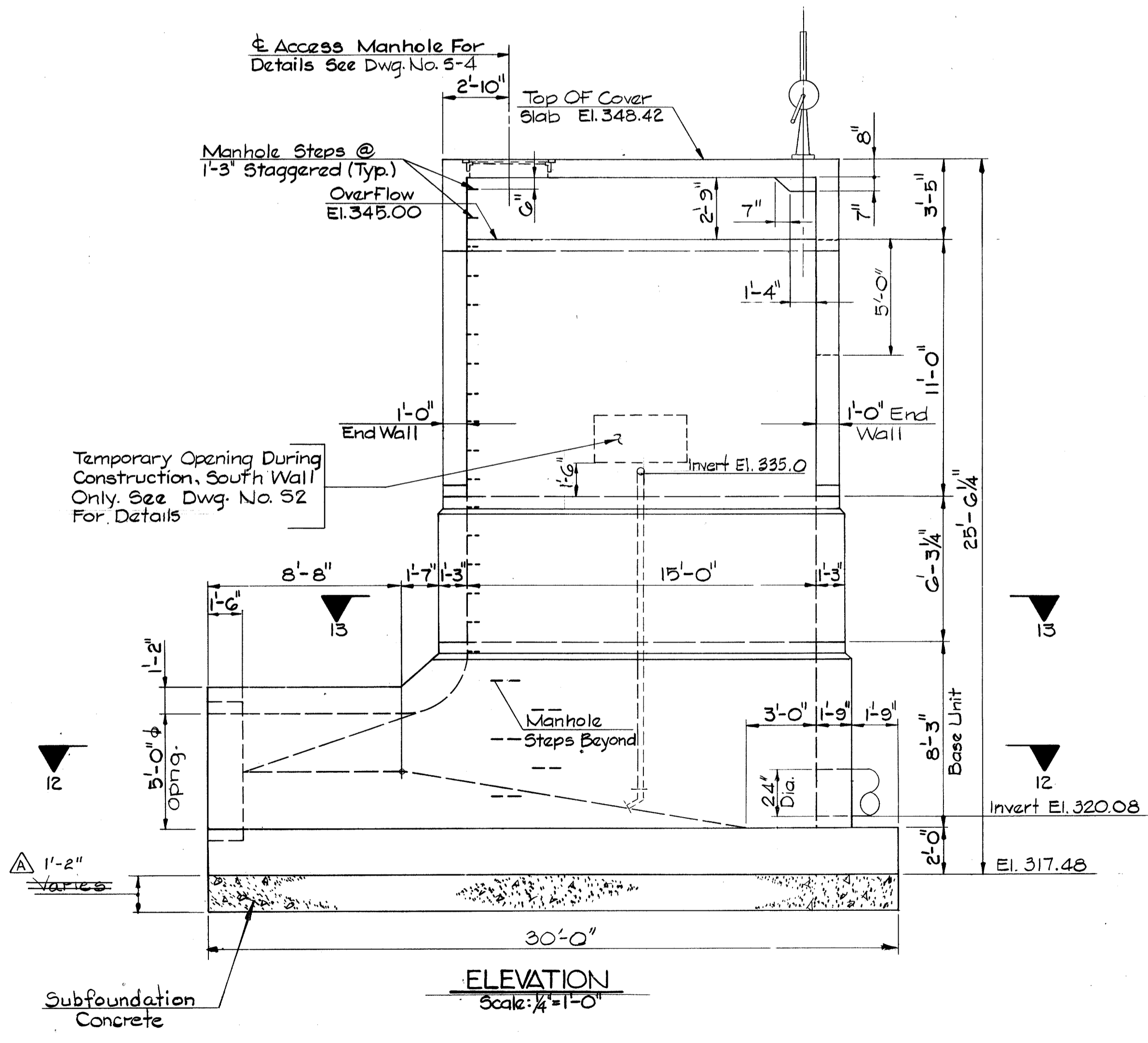
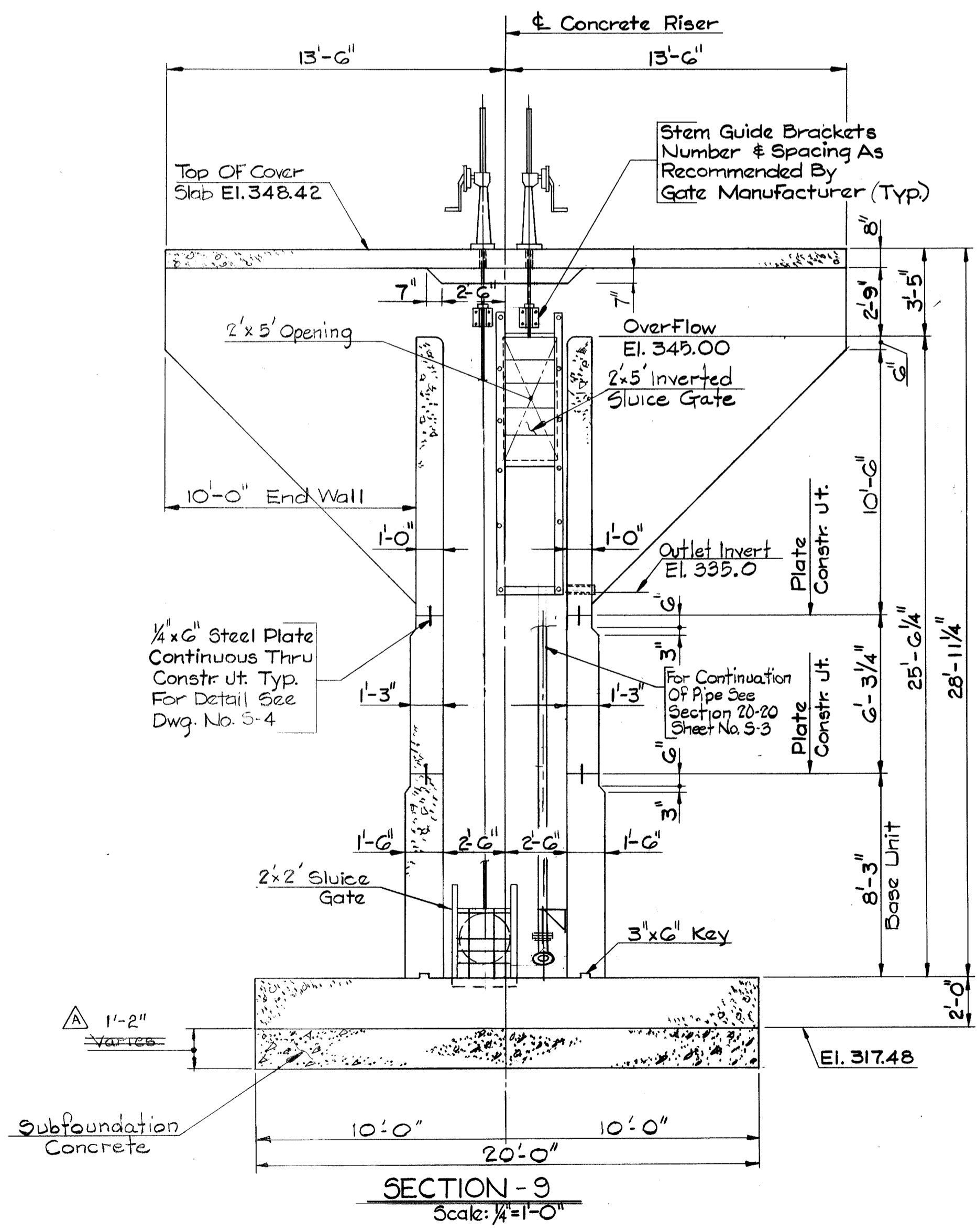


DATE	6-1-83	REVISIONS:	DRAWING NO.	SHEET NO.
SCALE	As Shown		E-2	18
DRAWN BY	D.L.K.			
CHECKED BY	R.C.D.			OF 26

763



Notes: For Structural General Notes See Dwg. No. 5-4.
For Manhole Step Detail See Dwg. No. 5-3.

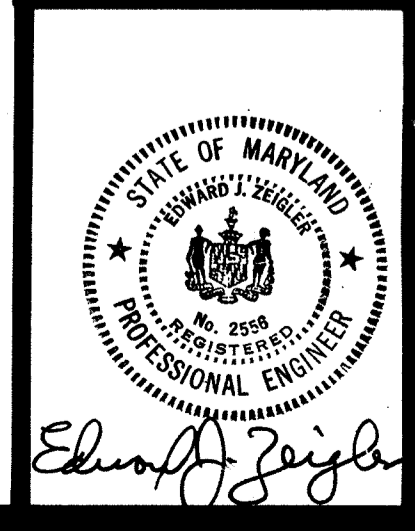


APPROVED:	For Public Water, Public Sewerage and Storm Drainage Systems and Roads	HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Director	<i>Henry F. Nemeny</i>	11-9-83 DATE
Chief, Bureau of Engineering	<i>D. S. ...</i>	10-28-83 DATE
APPROVED:	For Public Private Water and Public/Private Sewerage Systems	HOWARD COUNTY HEALTH DEPARTMENT
County Health Officer		DATE
APPROVED:	Howard County Office of Planning and Zoning	
Planning Director		DATE
Chief, Division of Land Development		DATE

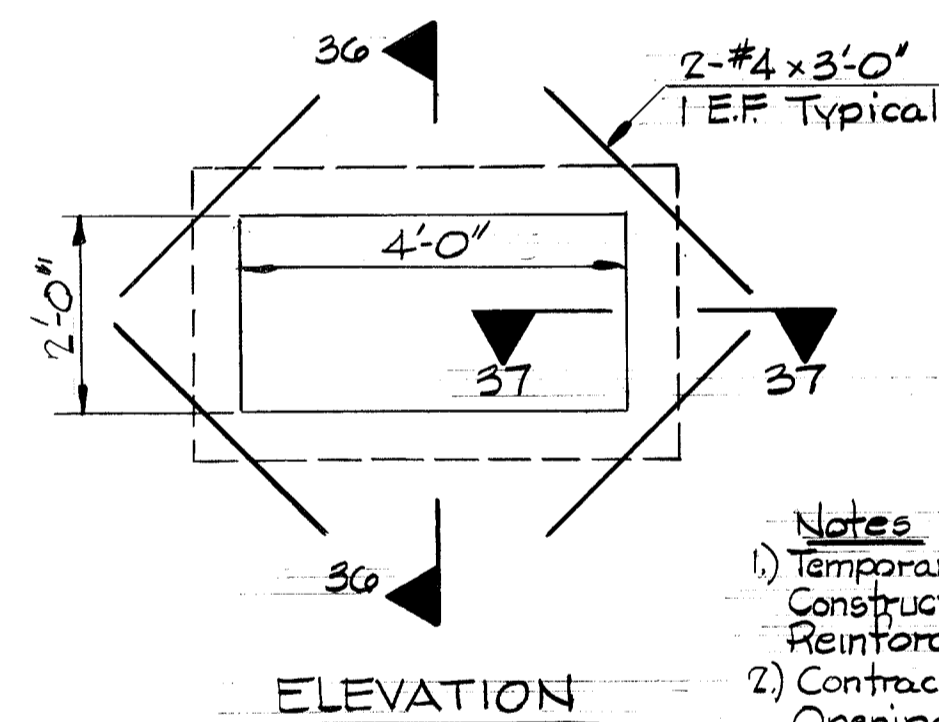
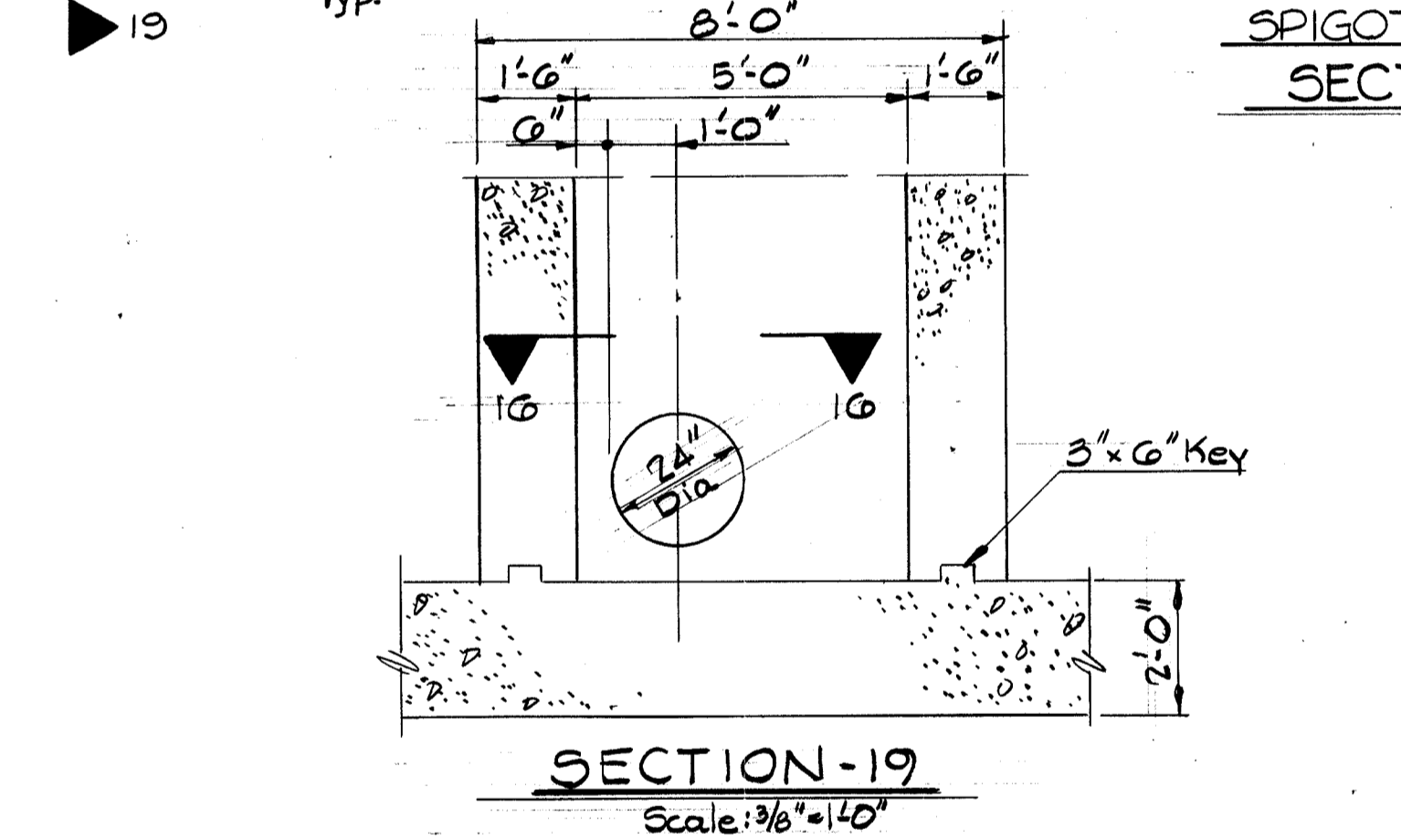
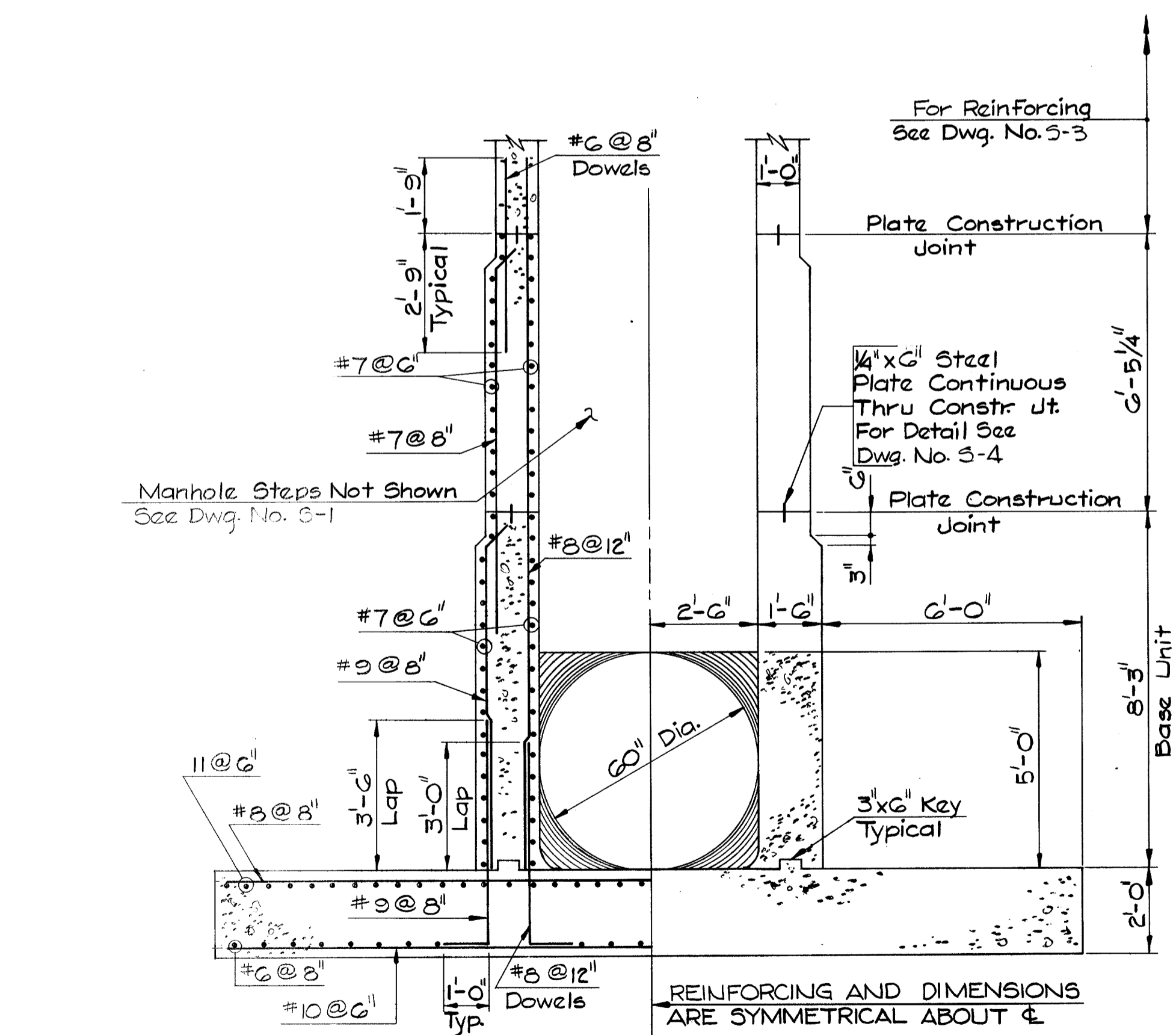
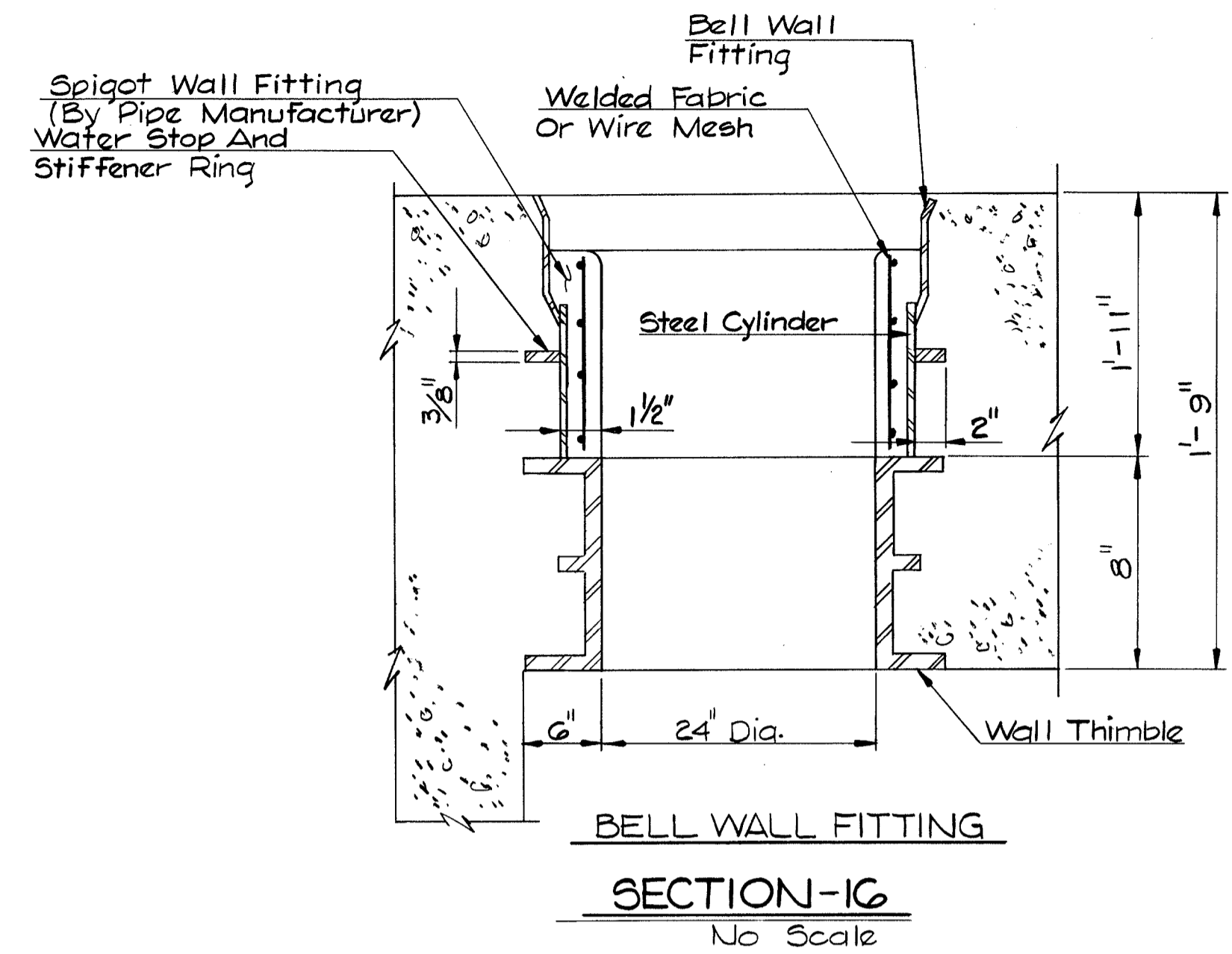
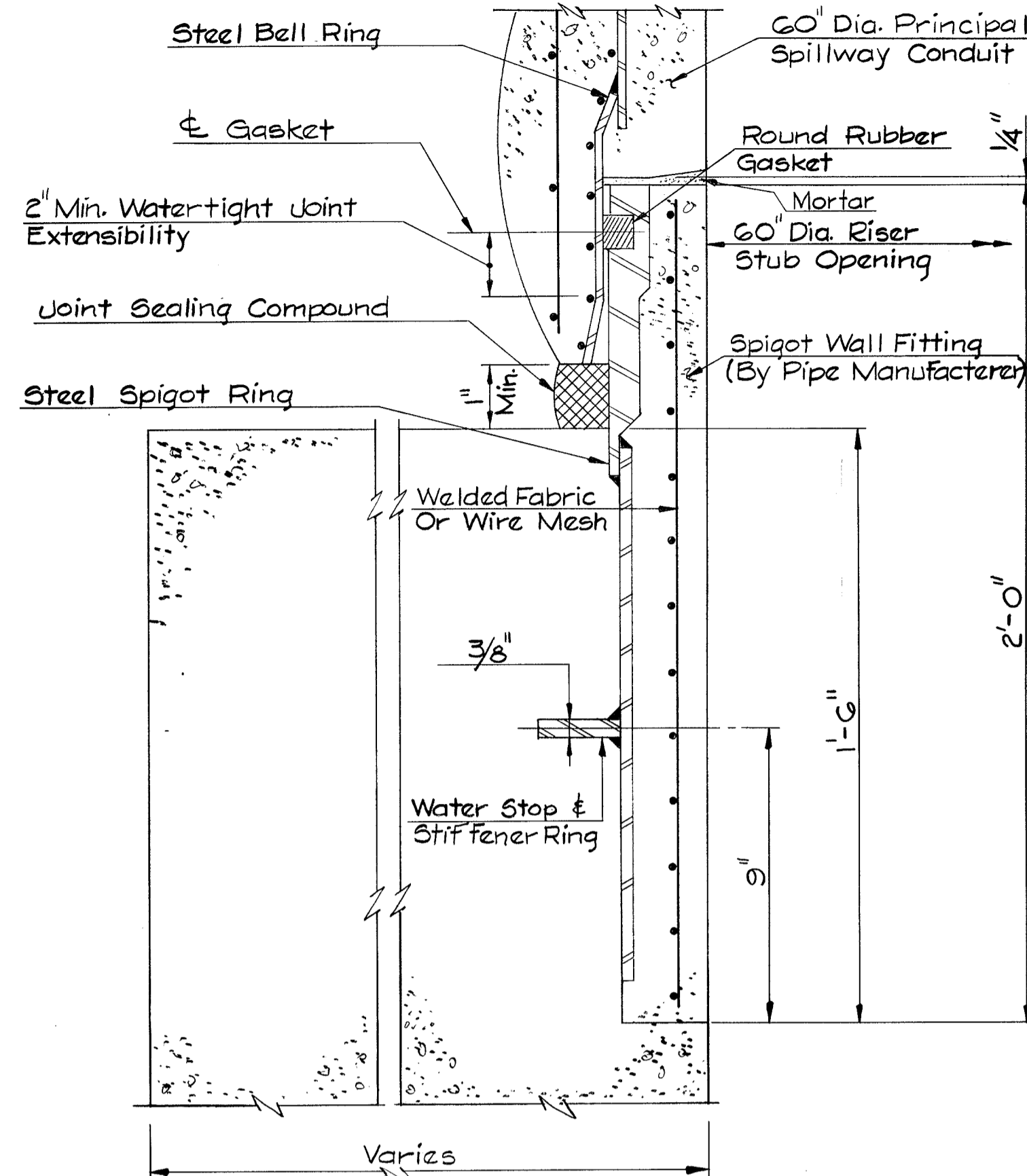
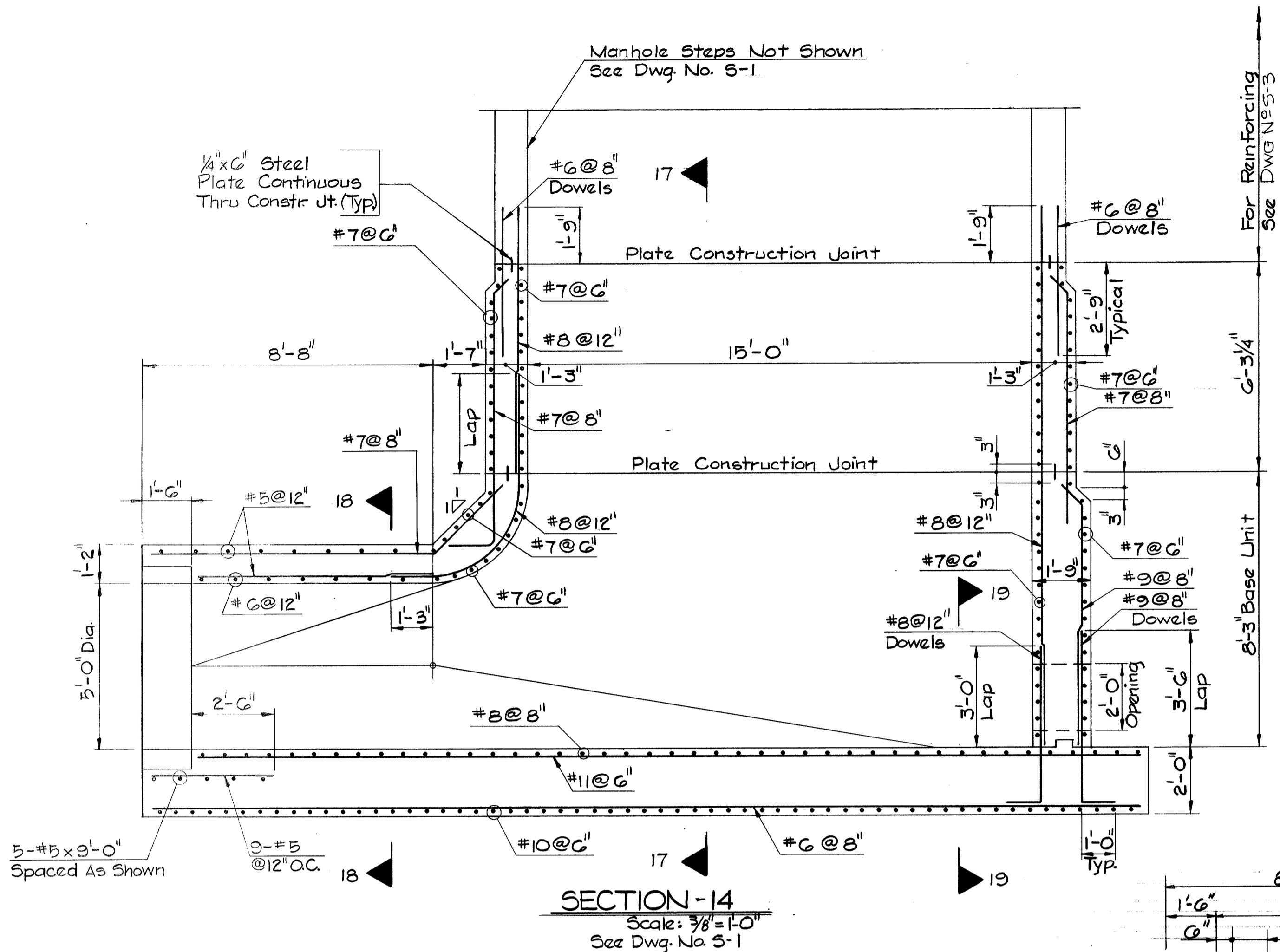
RUMMEL, KLEPPER & KAHL
CONSULTING ENGINEERS
BALTIMORE, MARYLAND

CENTENNIAL PARK DAM AND LAKE
RISER STRUCTURE
PLAN, ELEVATION & SECTIONS

DATE	June 1, 1983	REVISIONS:	DWG. NO.	SHEET NO.
SCALE	AS NOTED	As Built Subfoundation Concrete 4-9-85	5-1	19
DRAWN BY	T.E.T.			OF 26
CHECKED BY	C.M.E.			

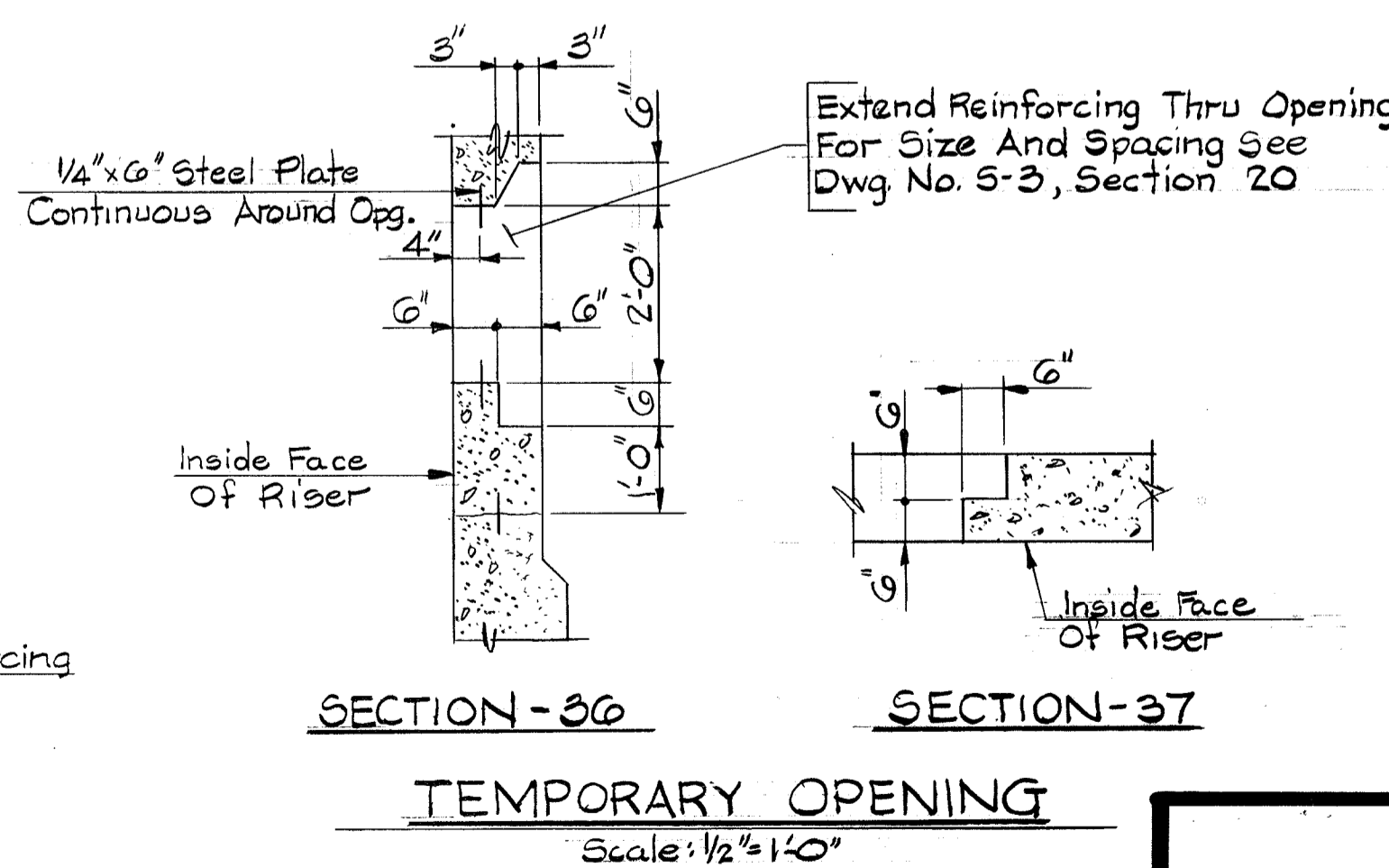


#763



Notes:

- Temporary Opening During Dam Construction, Place Additional Reinforcing As Shown
- Contractor To Fill Temporary Opening With Concrete When Directed By The Engineer



APPROVED: For Public Water, Public Sewerage and Storm Drainage Systems and Roads
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Henry F. Womack DIRECTOR 11-9-83 DATE

William S. Blay CHIEF, BUREAU OF ENGINEERING 10-28-83 DATE

APPROVED: For Public/Private Water and Public/Private Sewerage Systems
HOWARD COUNTY HEALTH DEPARTMENT

COUNTY HEALTH OFFICER _____ DATE _____

APPROVED: Howard County Office of Planning and Zoning

PLANNING DIRECTOR _____ DATE _____

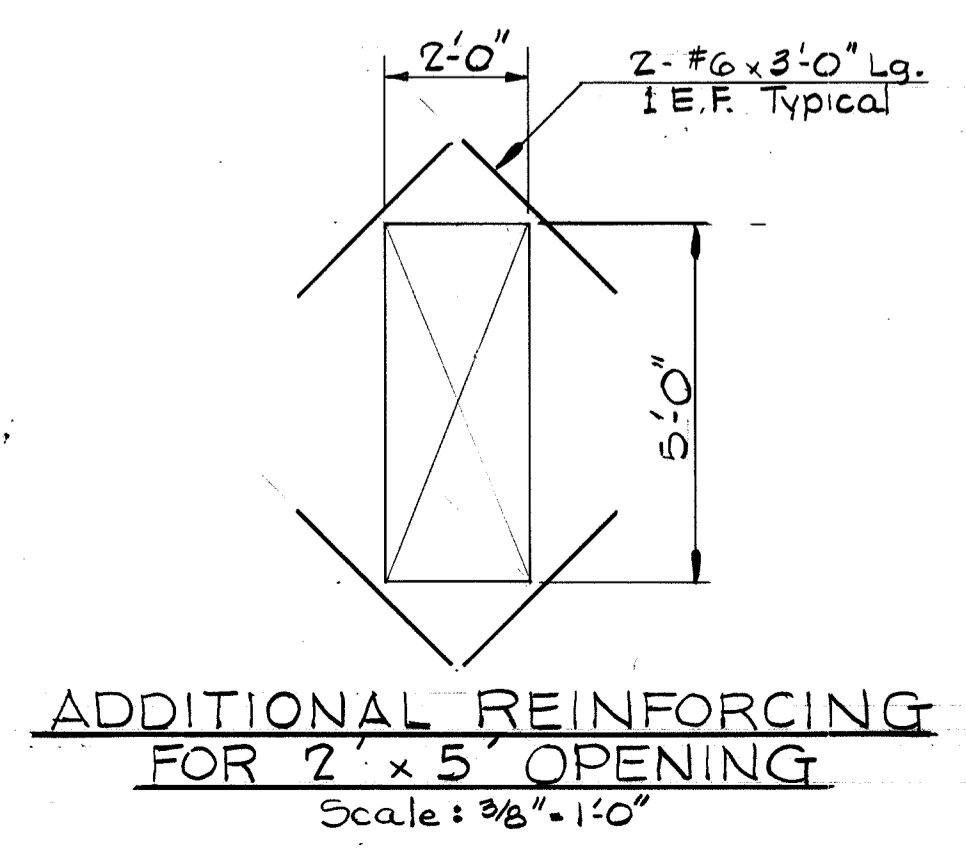
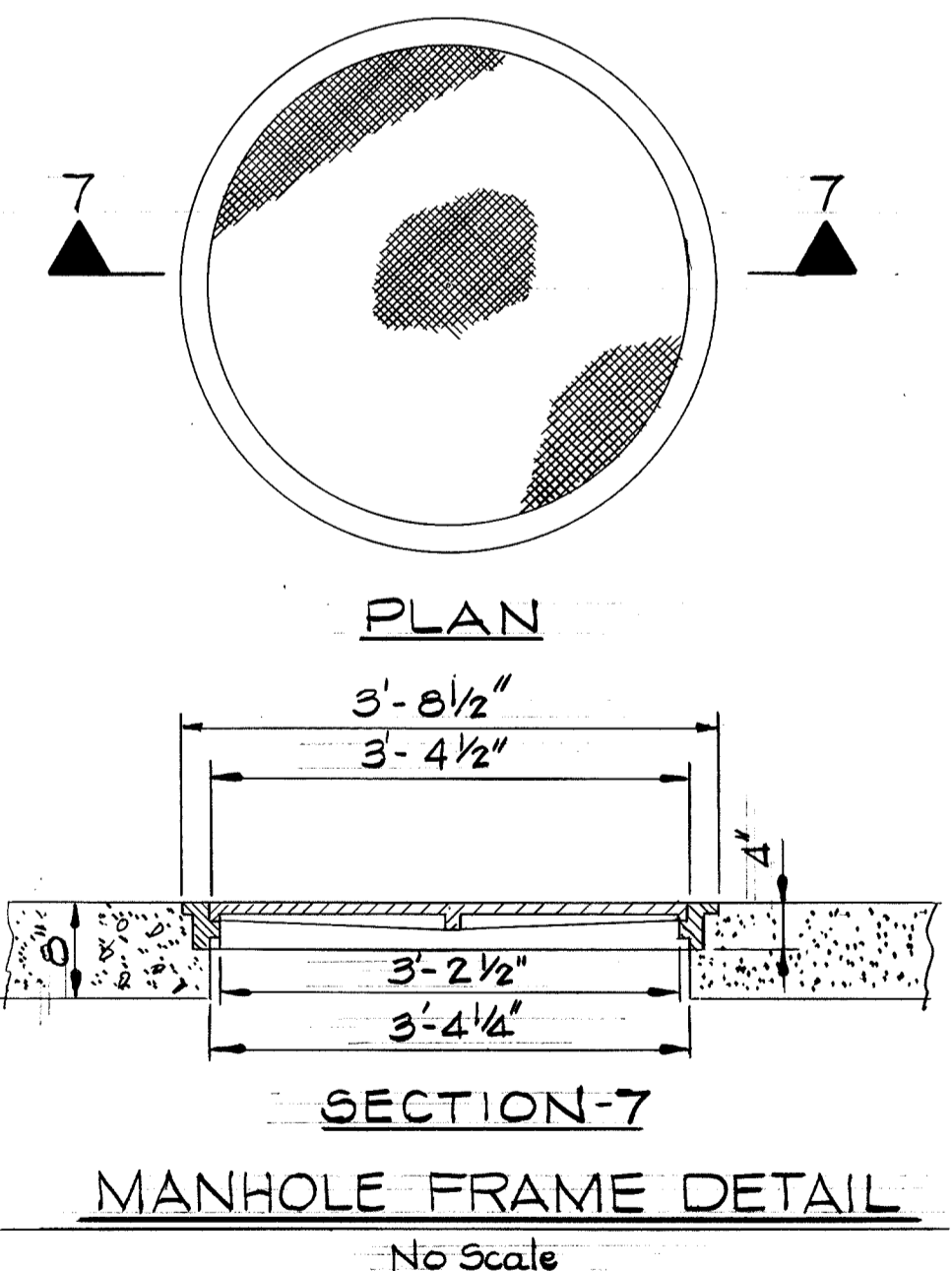
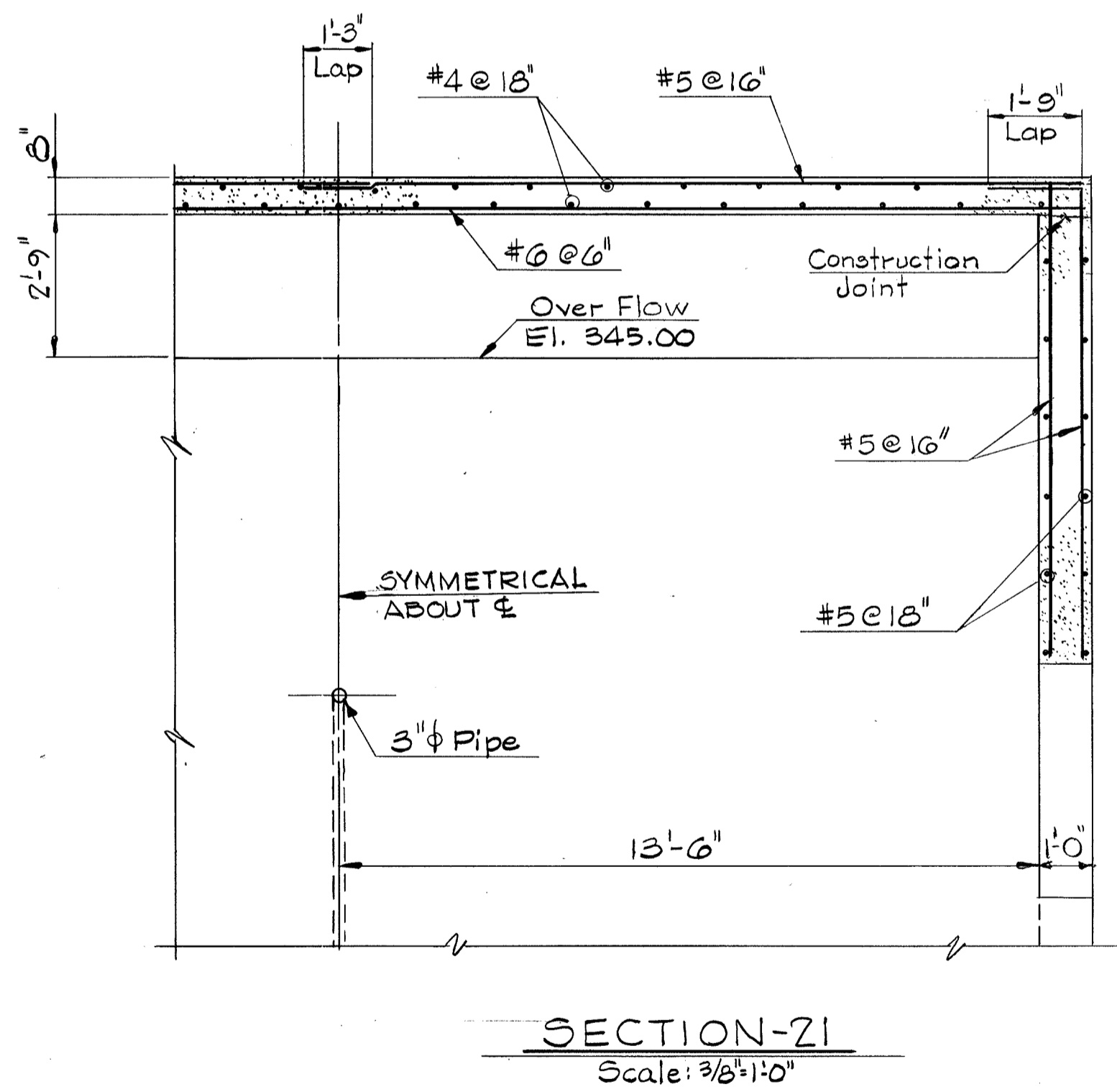
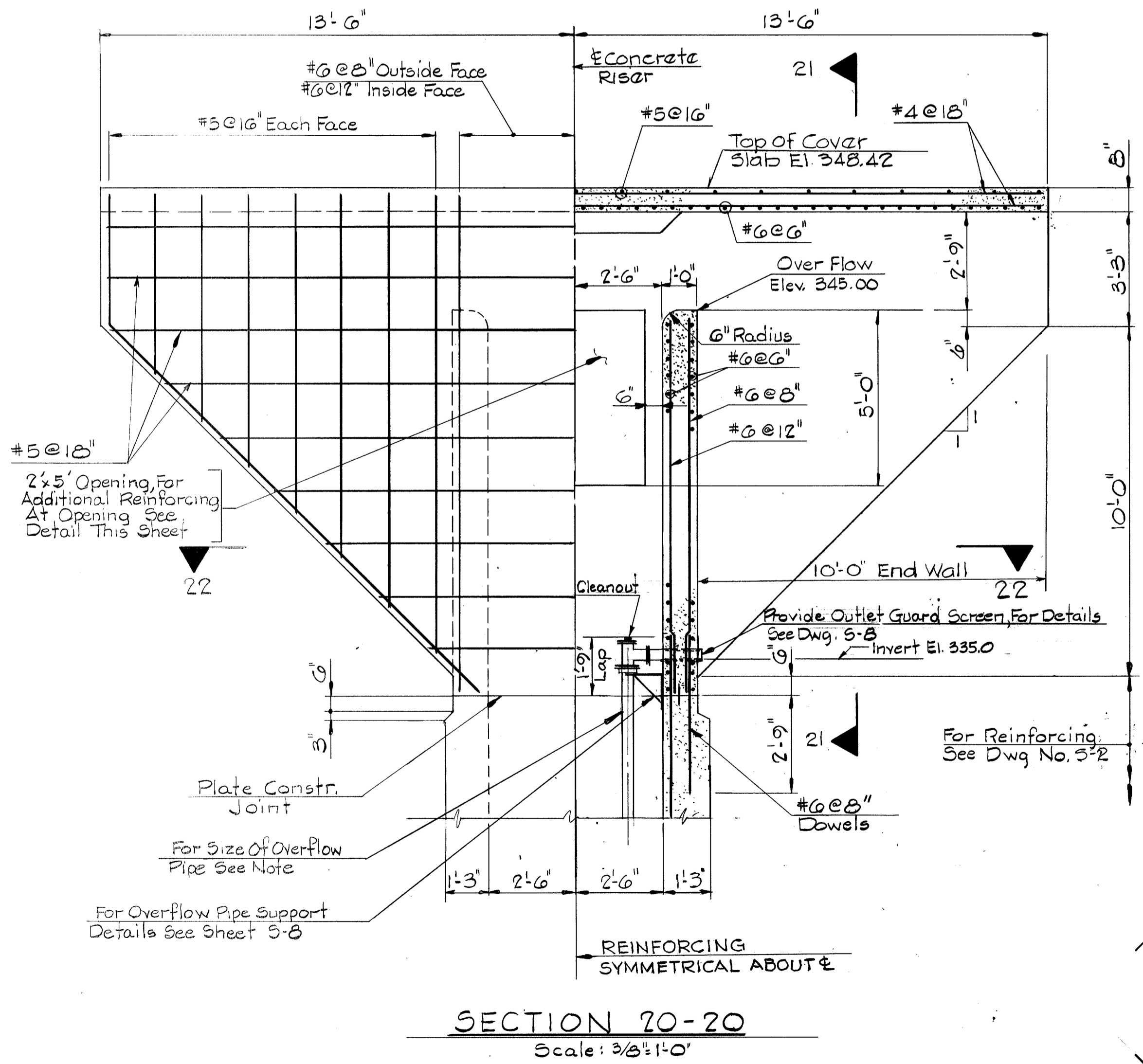
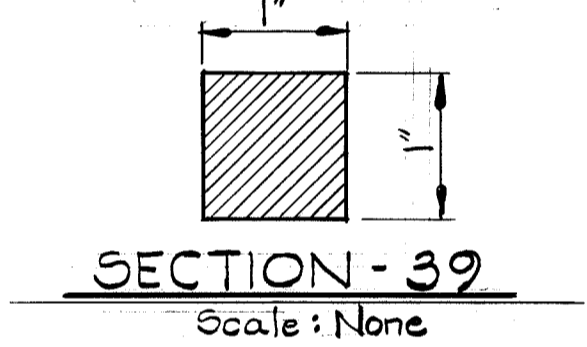
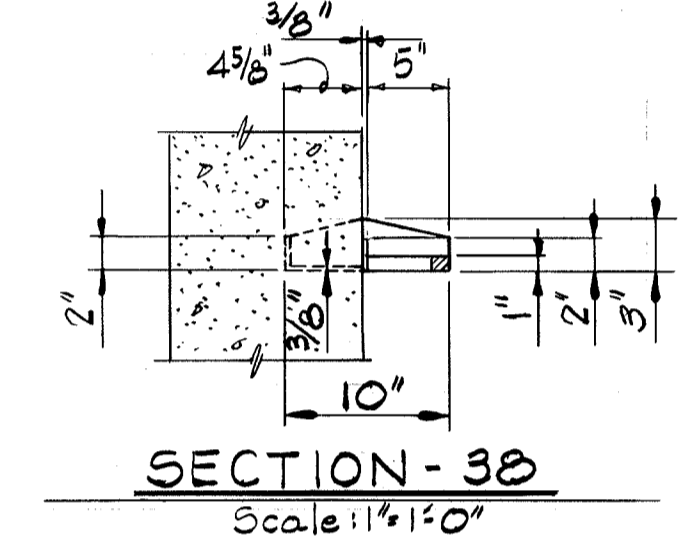
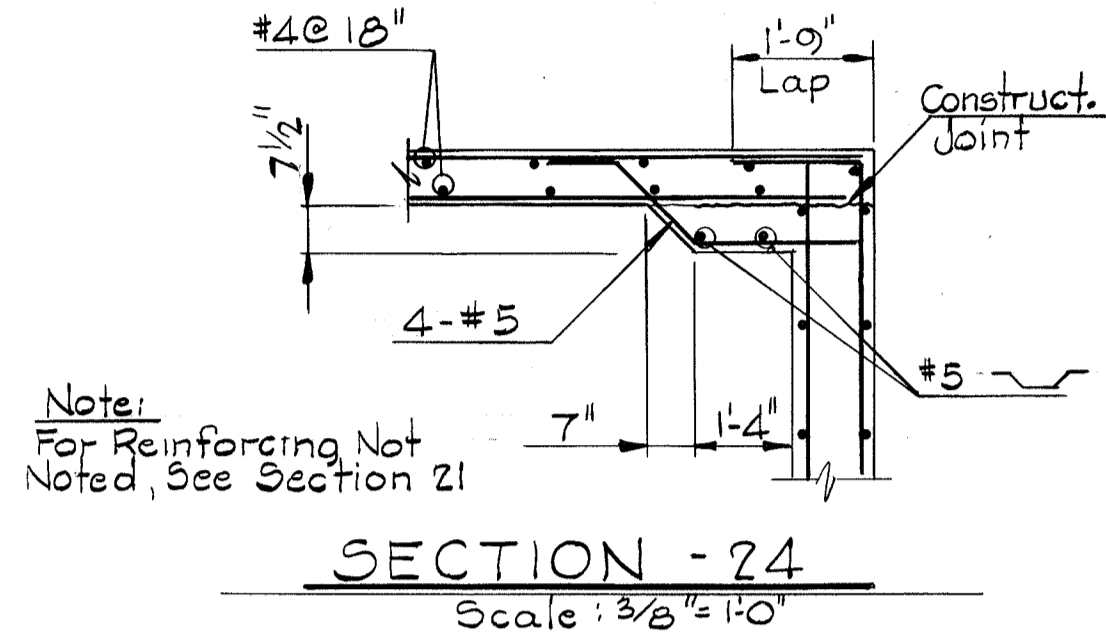
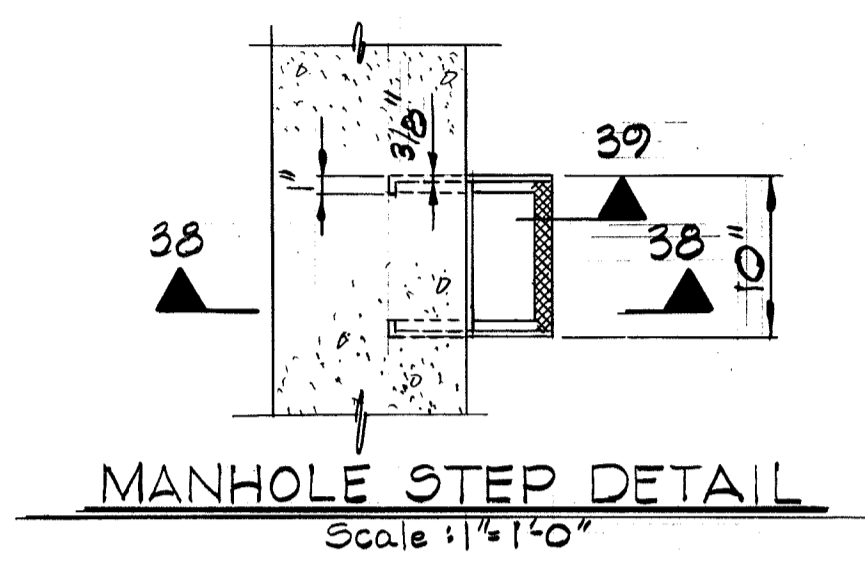
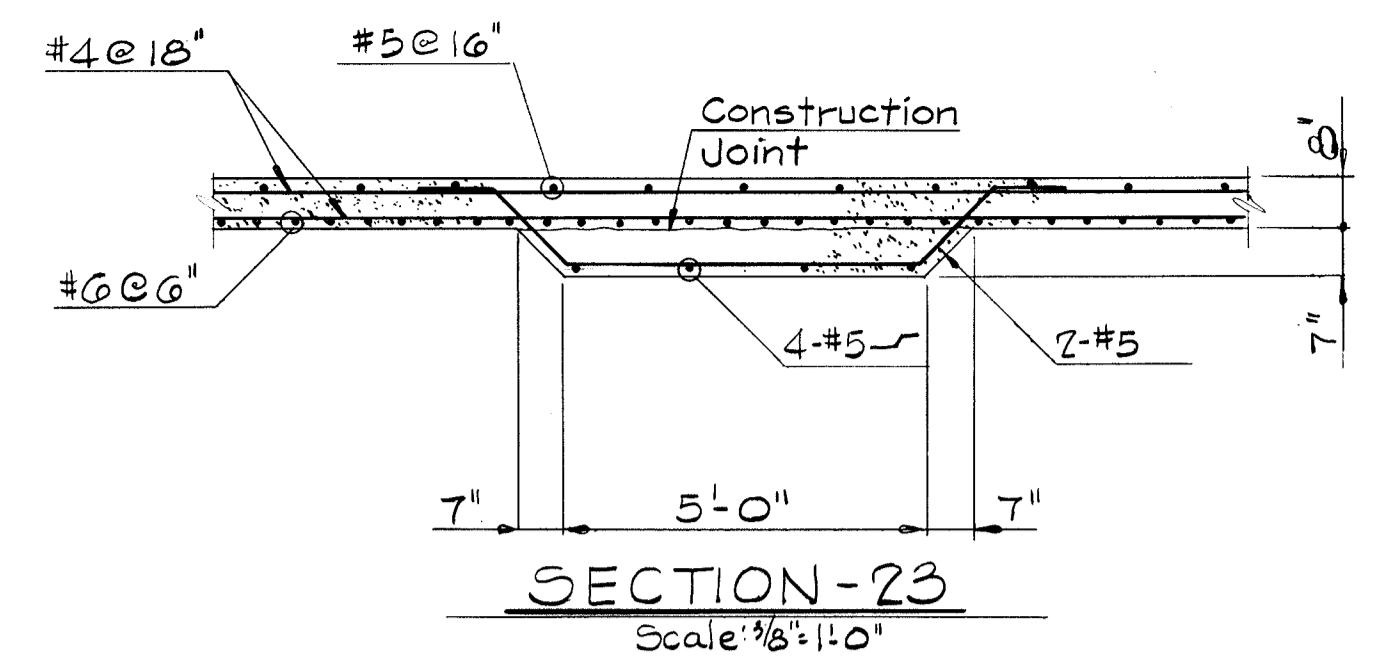
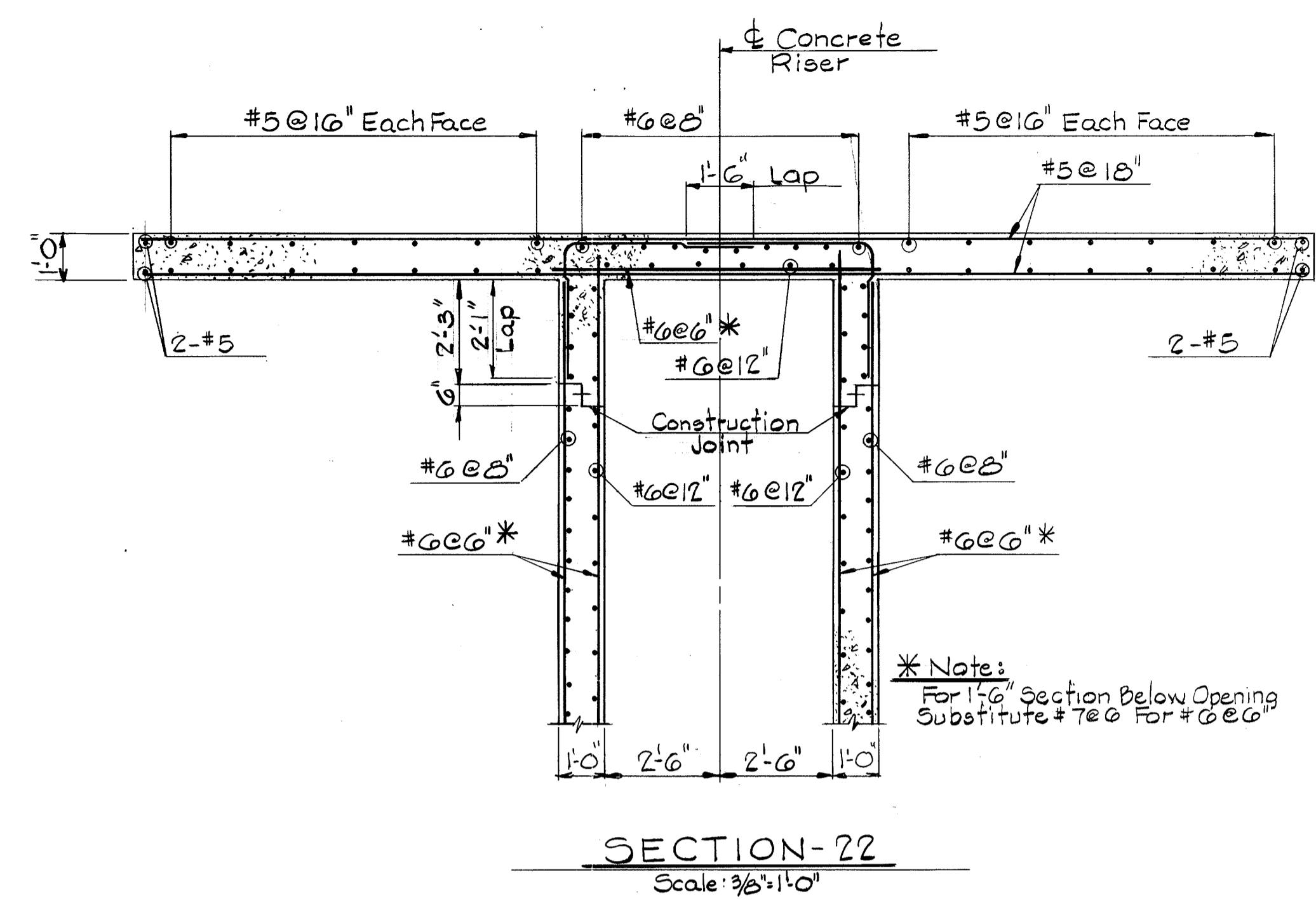
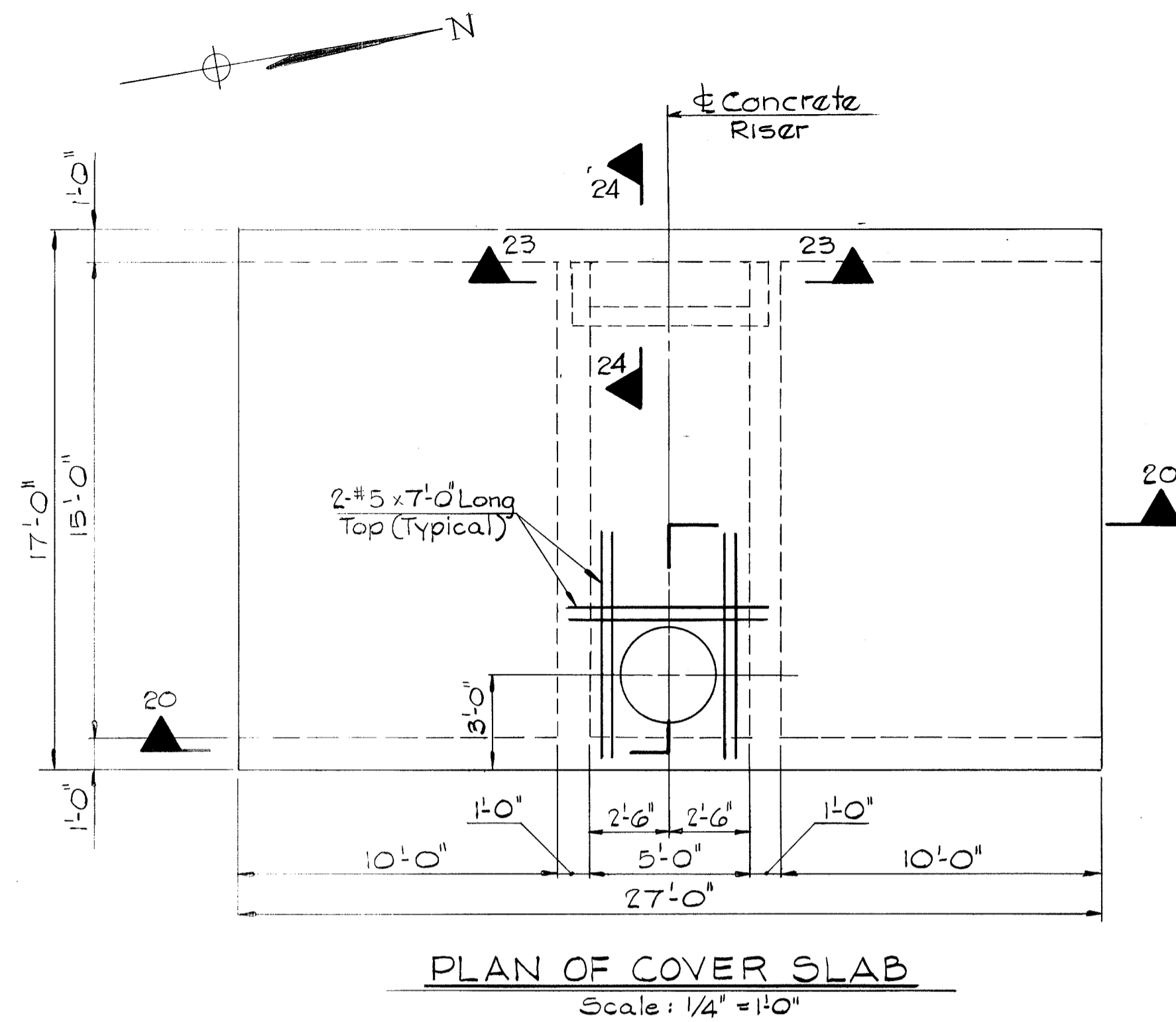
CHIEF, DIVISION OF LAND DEVELOPMENT _____ DATE _____

RUMMEL, KLEPPER & KAHL
CONSULTING ENGINEERS
BALTIMORE, MARYLAND



CENTENNIAL PARK DAM AND LAKE
RISER STRUCTURE
BASE UNIT SECTIONS AND DETAILS

DATE	SCALE	REVISIONS:	DWG. NO.	SHEET NO.
June 1, 1983	AS NOTED		5-2	20
DRAWN BY	T.E.T.			
CHECKED BY	C.M.E.			OF 26

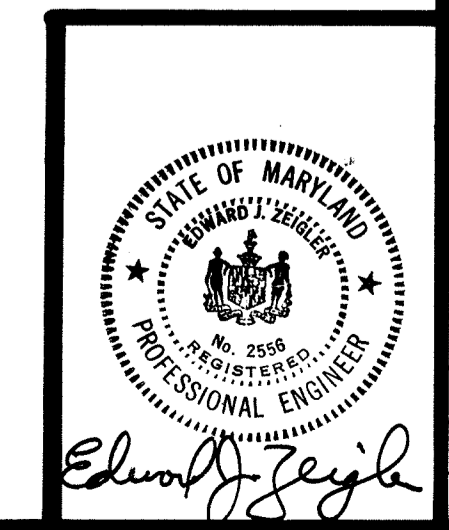


Note: Horizontal Section of Overflow Pipe 3"φ
Vertical Section of Overflow Pipe 4"φ

763

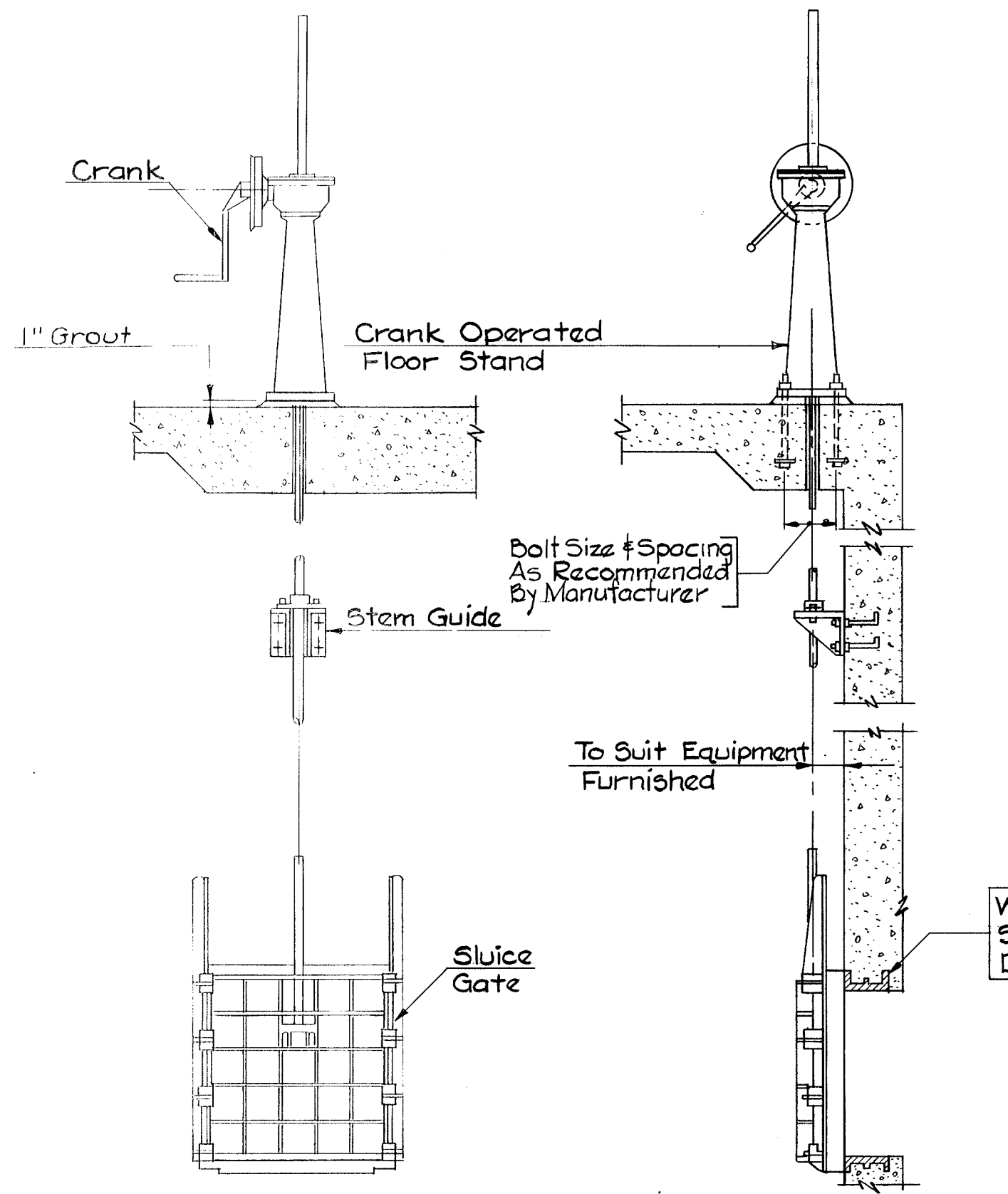
APPROVED: For Public Water, Public Sewerage and Storm Drainage Systems and Roads HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS <i>[Signature]</i> DIRECTOR 10-28-83 DATE	APPROVED: For Public Sewerage Water and Public/Private Sewerage Systems HOWARD COUNTY HEALTH DEPARTMENT COUNTY HEALTH OFFICER DATE	APPROVED: Howard County Office of Planning and Zoning PLANNING DIRECTOR DATE	CHIEF, DIVISION OF LAND DEVELOPMENT DATE
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RUMMEL, KLEPPER & KAHL
CONSULTING ENGINEERS
BALTIMORE, MARYLAND

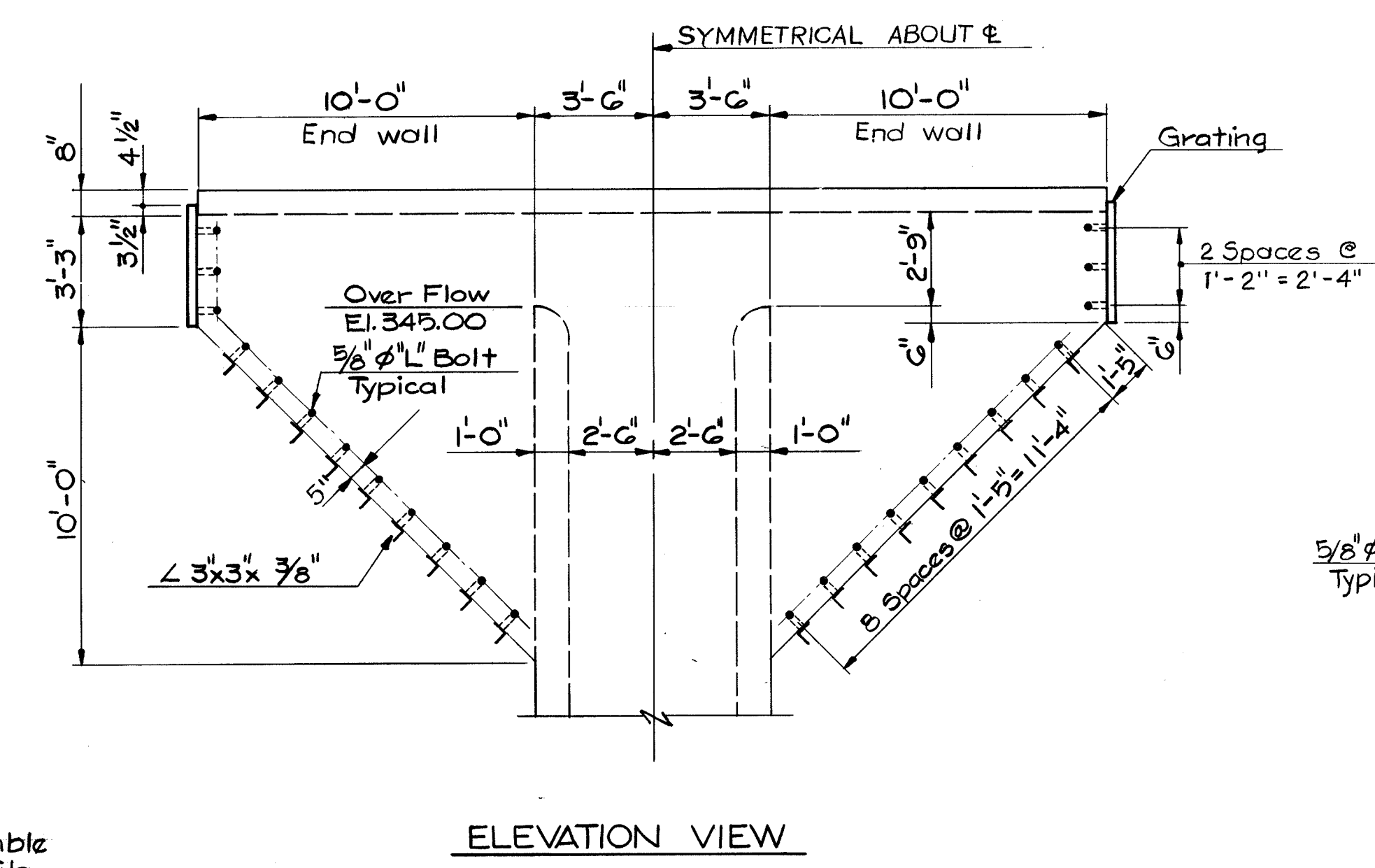


CENTENNIAL PARK DAM AND LAKE
RISER STRUCTURE
COVER SLAB & ENDWALL DETAILS

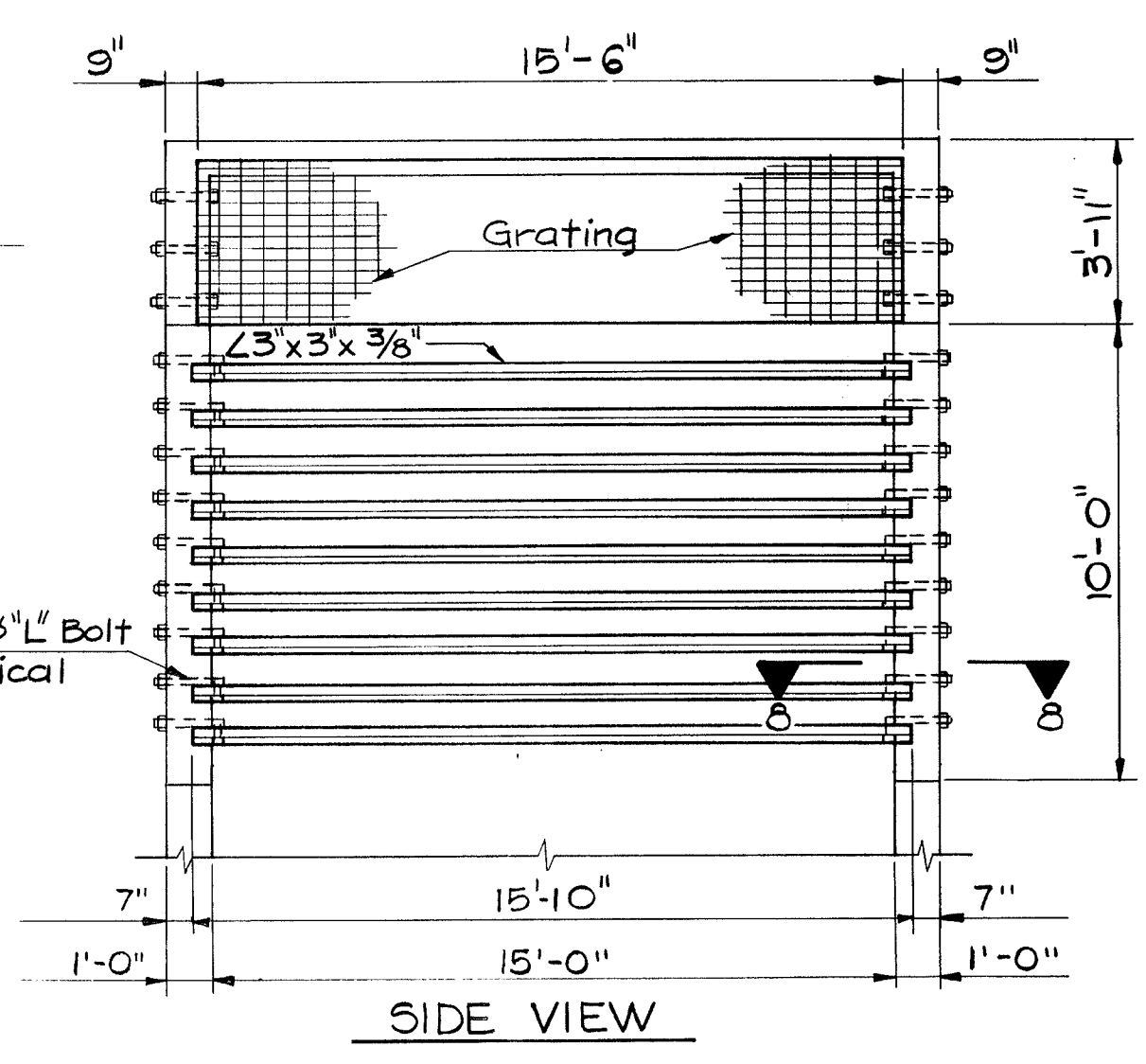
DATE	June 1, 1983	REVISIONS:	DWG. NO.	SHEET NO.
SCALE	As NOTED		3-3	21
DRAWN BY	TET			OF 26
CHECKED BY	CME			



ELEVATION VIEW SECTION VIEW
SLUCE GATE DETAILS
 No Scale



ELEVATION VIEW
END WALL TRASH RACK DETAILS
 Scale: 1/4" = 1'-0"



SIDE VIEW

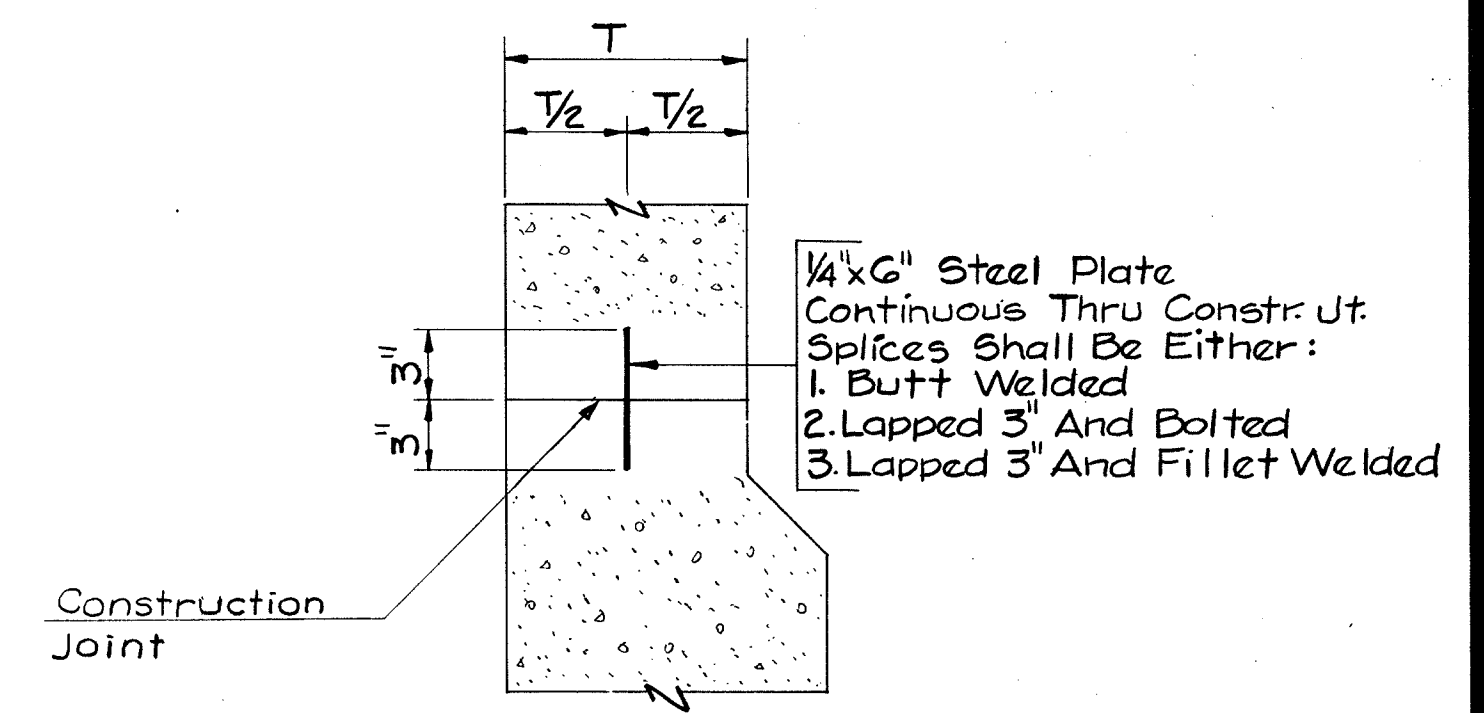
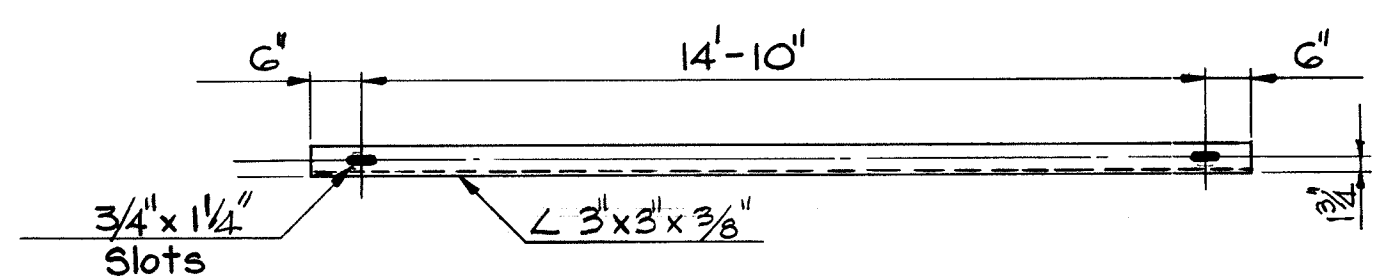
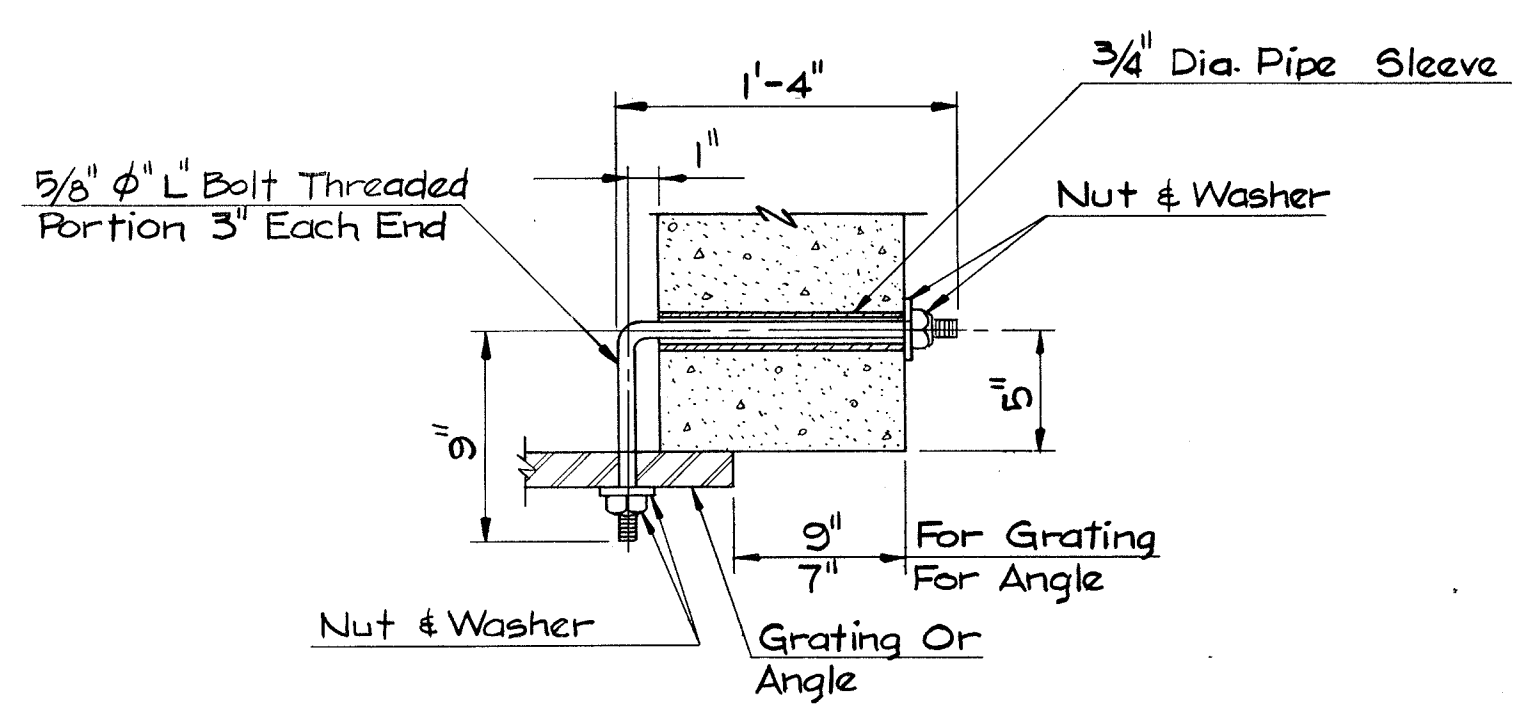


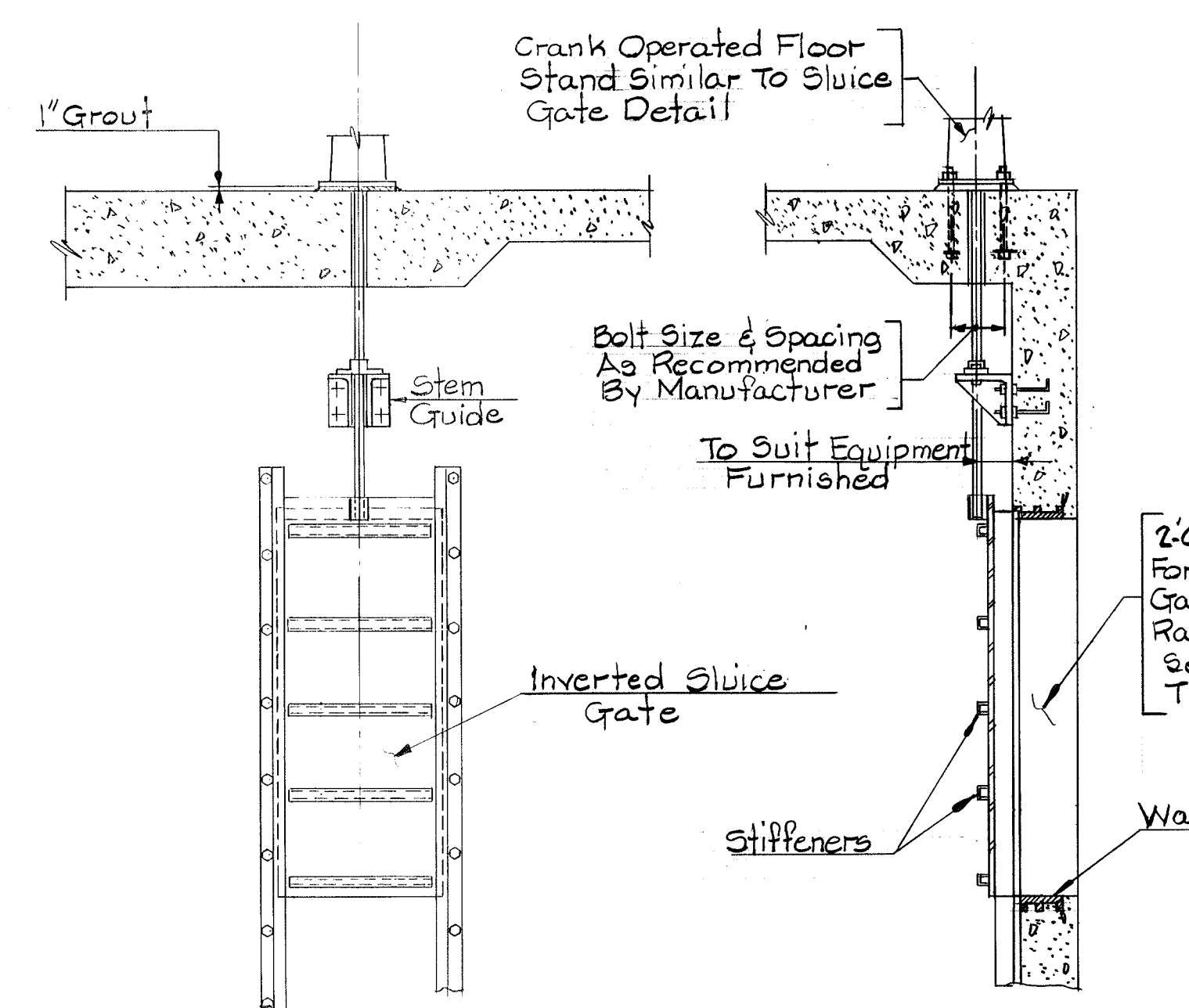
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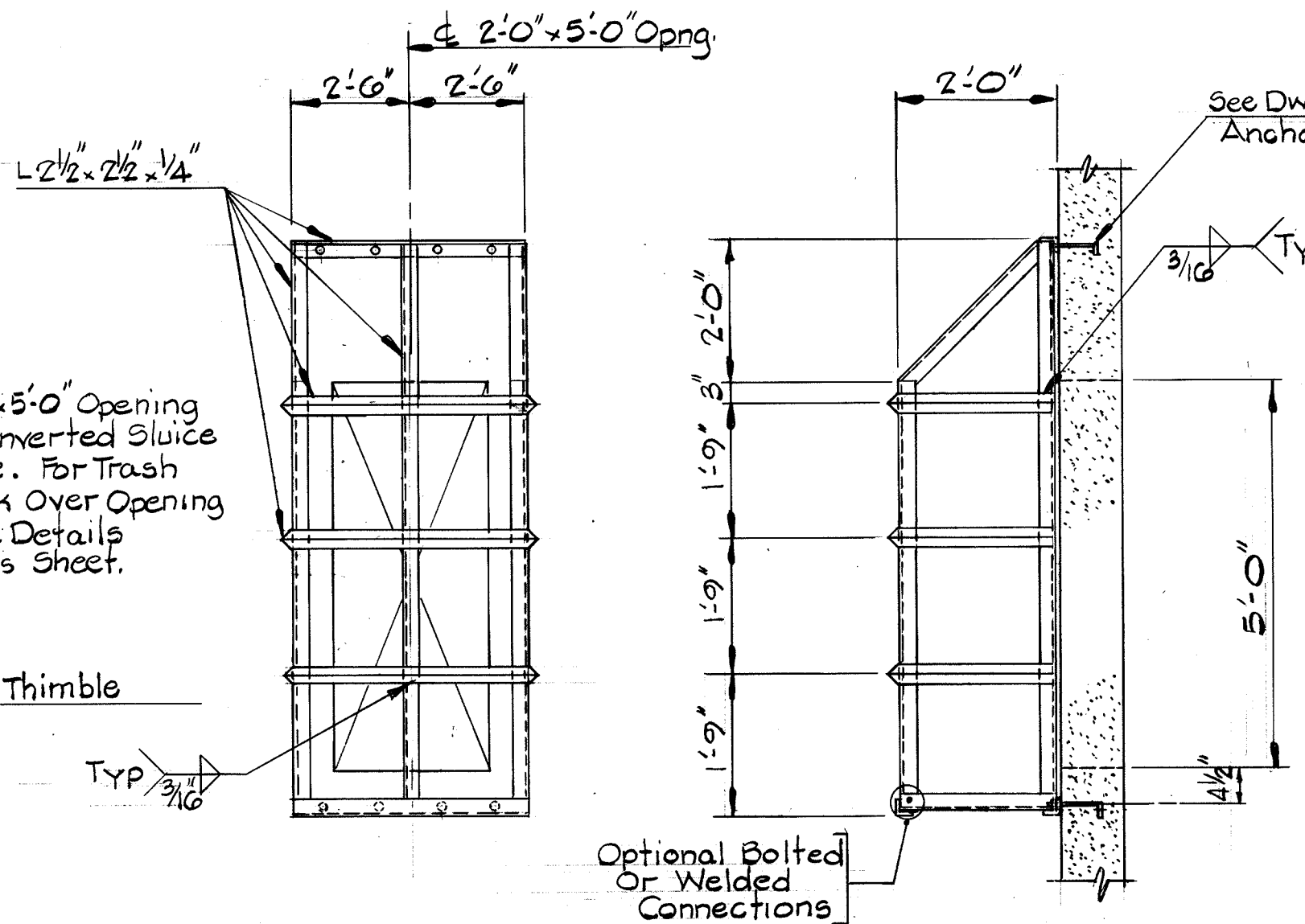
ANGLE DETAIL
 No Scale



SECTION-8
 No Scale



ELEVATION SECTION
INVERTED SLUCE GATE DETAILS
 No Scale



ELEVATION SIDE VIEW
TRASH RACK FOR INVERTED SLUCE GATE
 No Scale

GENERAL NOTES

SPECIFICATIONS
 M.S.H.A. Specifications Dated January, 1982 For Materials And Construction.

DESIGN CRITERIA
 Concrete Structures - Designed In Accordance With Soil Conservation Service Engineering Handbook For Structural Design And Related Technical Releases.
 Miscellaneous Steel Structures - American Institute Of Steel Construction Specification For The Design, Fabrication And Erection Of Structural Steel For Buildings.

MATERIALS
 Structural Concrete - M.S.H.A. Mix No. 6 (4500 P.S.I.).
 Subfoundation Concrete - M.S.H.A. Mix No. 1 (2500 P.S.I.).
 Steel Bar Reinforcement - A.S.T.M. A-615 Grade 60
 Structural Steel - A.S.T.M. A-36

Detailing Of Steel Bar Reinforcement Shall Be In Accordance With A.C.I. Manual Of Standard Practice For Detailing Reinforced Concrete Structures (A.C.I. 315-74)
 Construction Joints In Concrete Structures Other Than Shown On The Plans Will Not Be Permitted Unless Authorized By The Engineer.
 Concrete Cover For Steel Reinforcement Shall Be Provided As Follows: (Except As Noted On Detailed Drawings).
 Bottom Of Footings - 3"
 Top Of Riser Structure Cover Slab - 1-1/2"
 All Other Concrete (Unless Otherwise Noted) - 2"

DIMENSIONS
 All Dimensions Are Measured Horizontally And Vertically Unless Otherwise Noted.

WATER CONTROL GATES
 The Contractor Shall Coordinate Construction Of The Intake Structure With The Type Of Gates Provided. The Inverted Sluce Gate Shall Be Designed For An Unseating Head Of 12 Feet And The Lower Sluce Gate Shall Be Designed For An Unseating Head Of 32 Feet.

DAMPPOOFING
 Impact Basin - Dampproofing Shall Be Applied To Those Portions Of The Outside Surface Of Sidewalls And Wingwalls That Will Be In Contact With Earth.

APPROVED: For Public Water, Public Sewerage and Storm Drainage Systems and Roads
 HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 Director: *James S. Neasey* 11-9-83
 Chief: *William E. Remy* 10-28-83

APPROVED: For Public Private Water and Public/Private Sewerage Systems
 HOWARD COUNTY HEALTH DEPARTMENT
 COUNTY HEALTH OFFICER _____ DATE _____

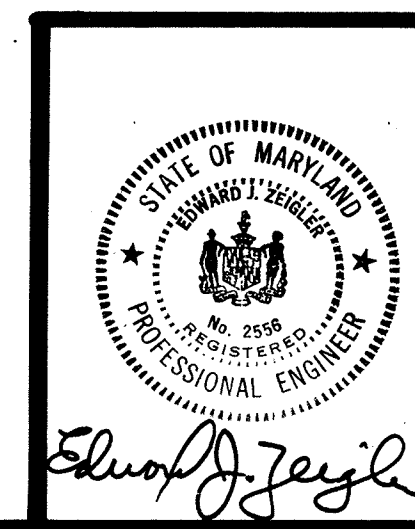
APPROVED: Howard County Office of Planning and Zoning
 PLANNING DIRECTOR _____ DATE _____

CHIEF, DIVISION OF LAND DEVELOPMENT _____ DATE _____

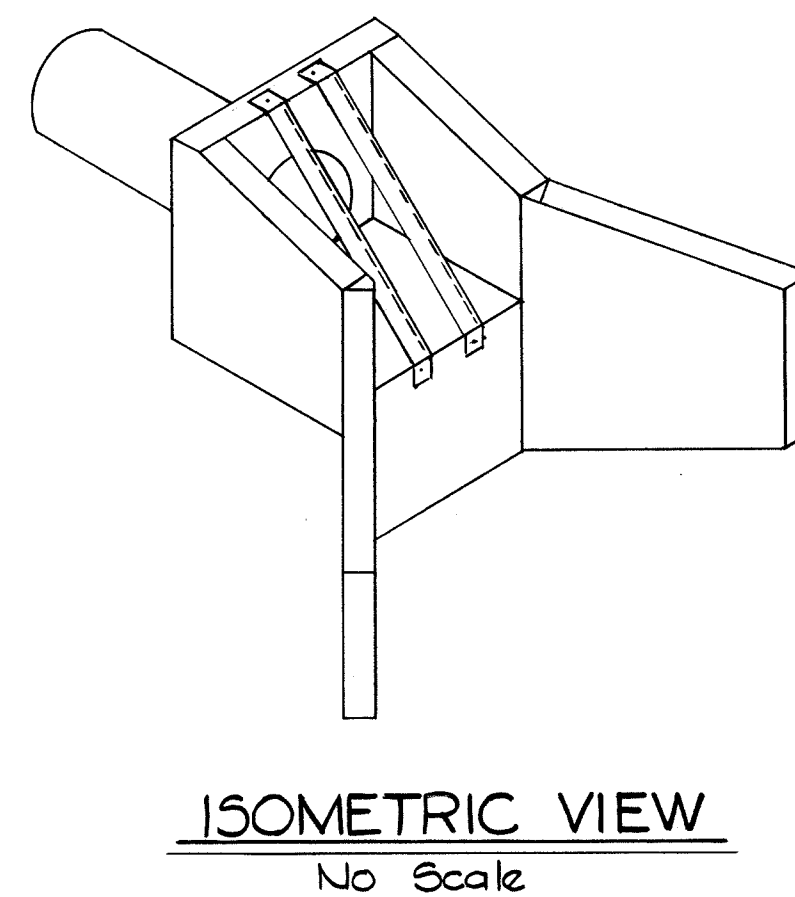
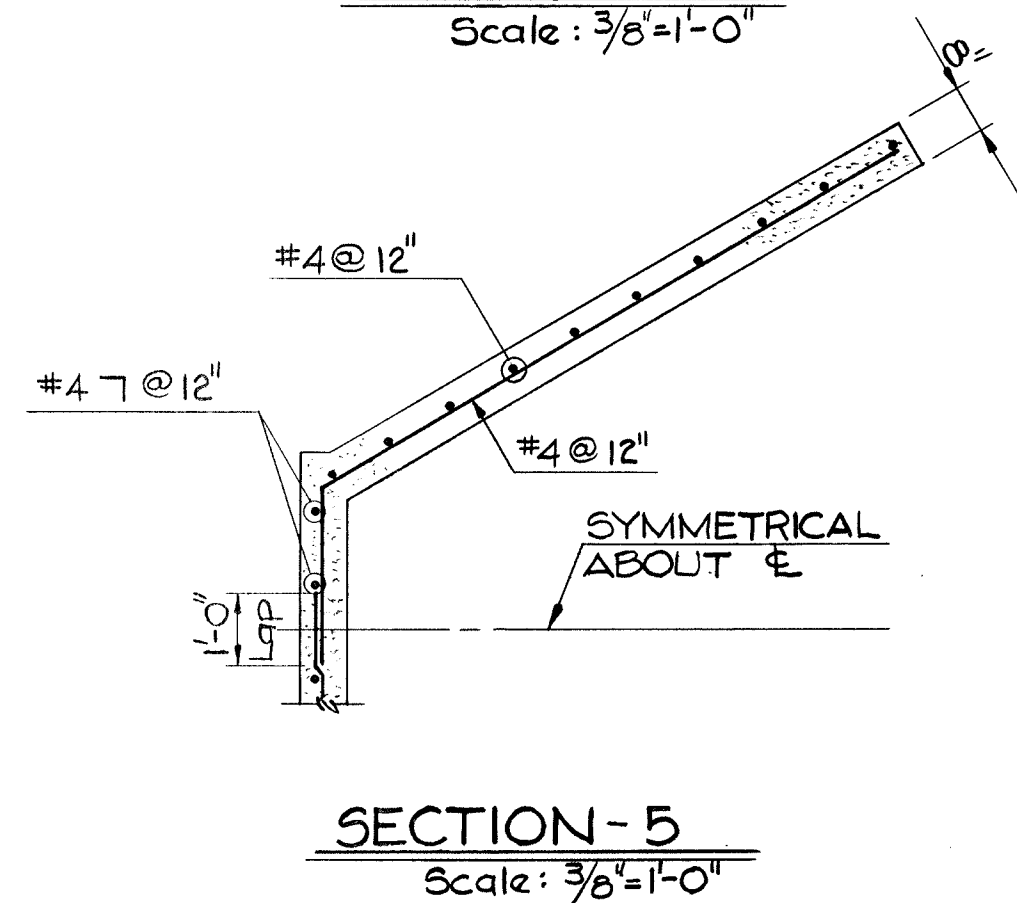
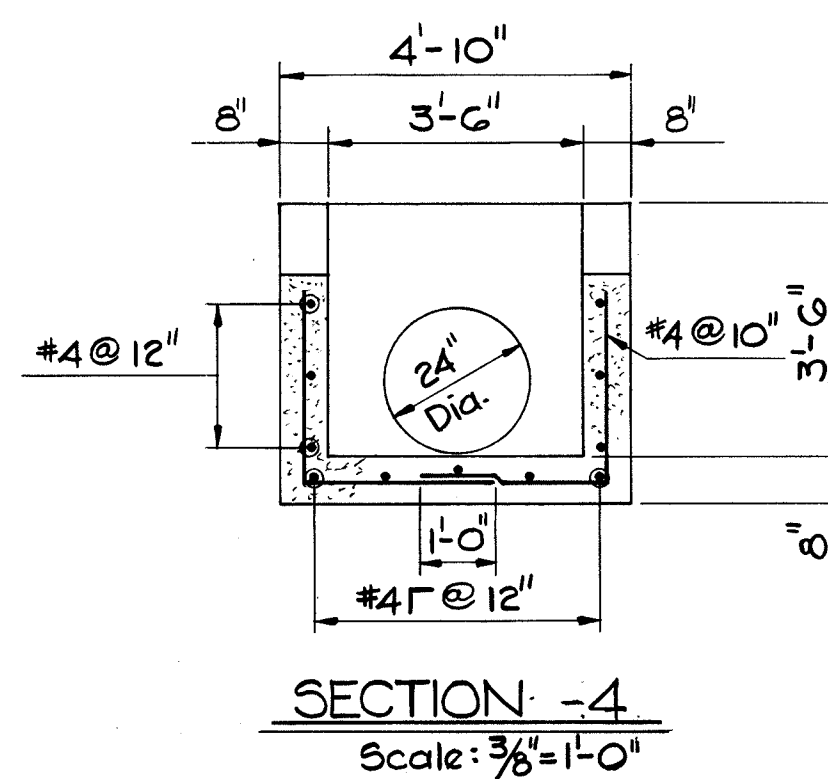
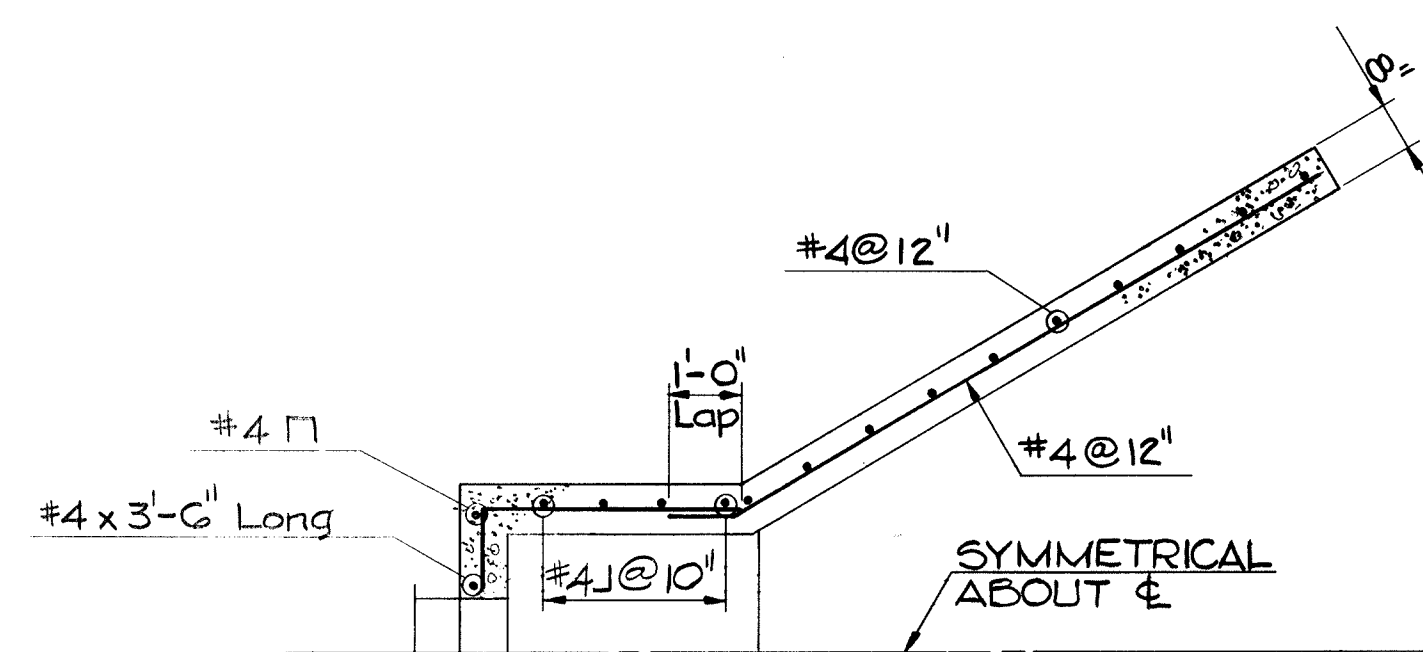
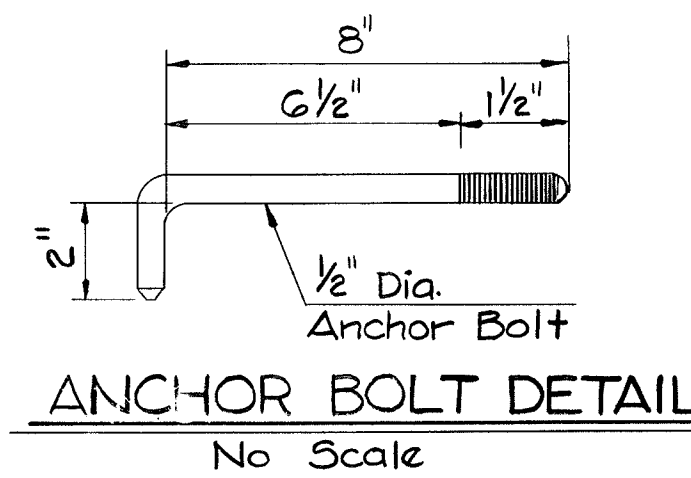
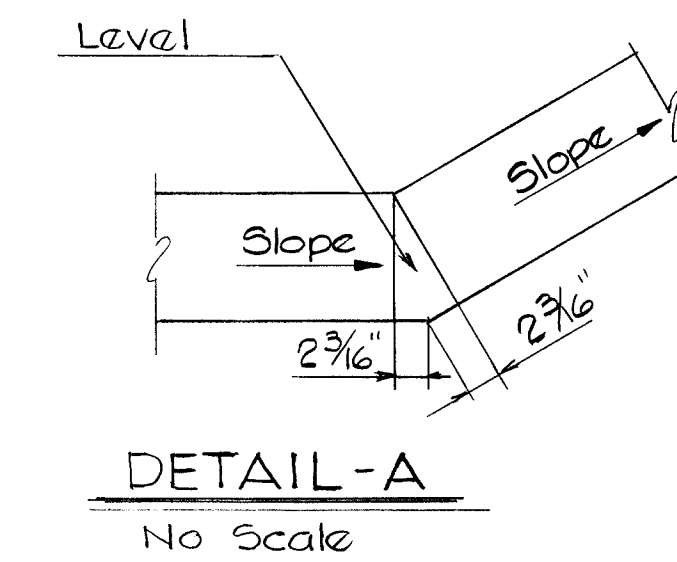
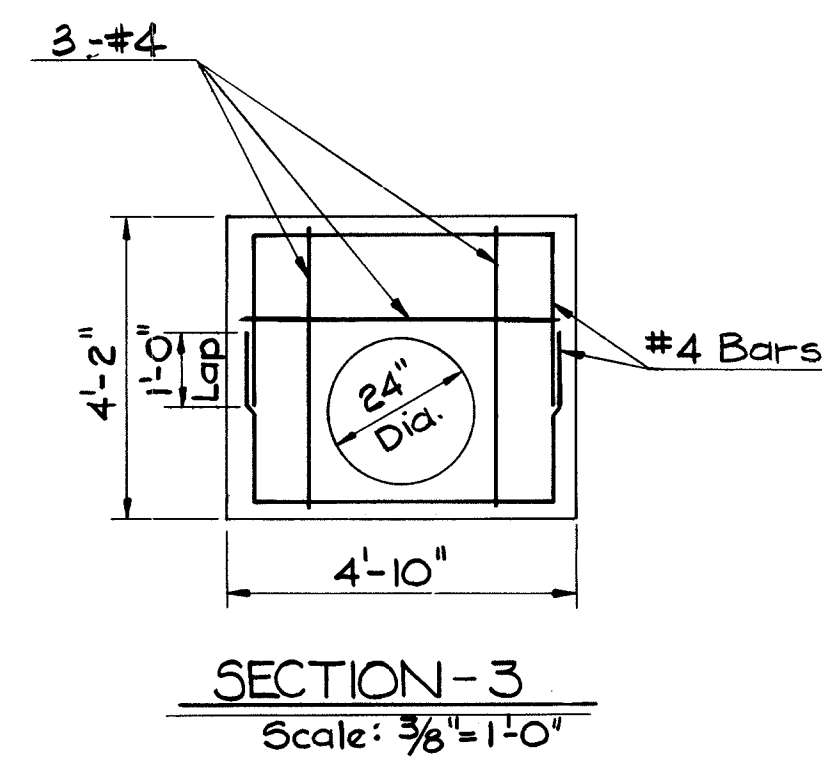
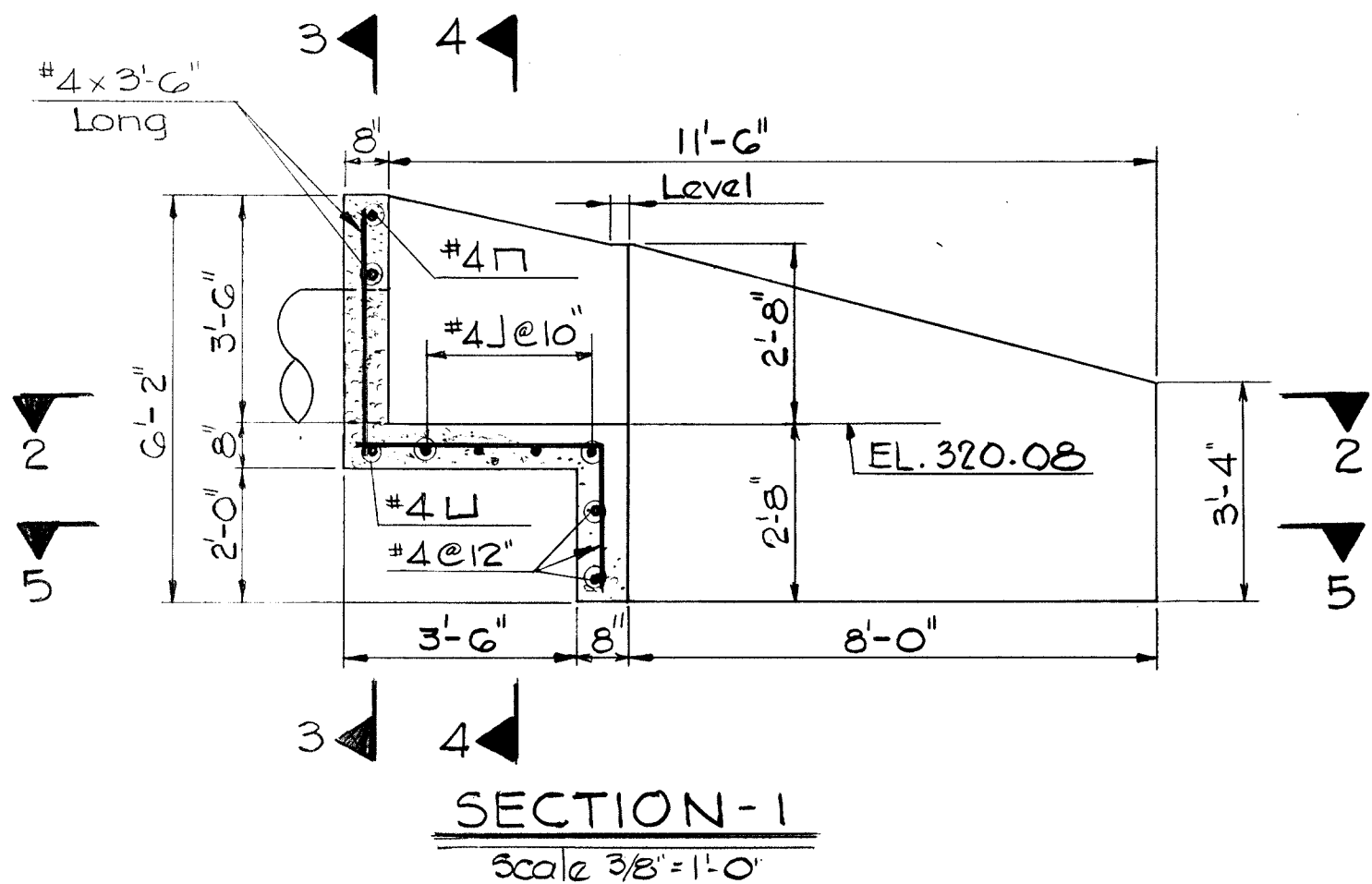
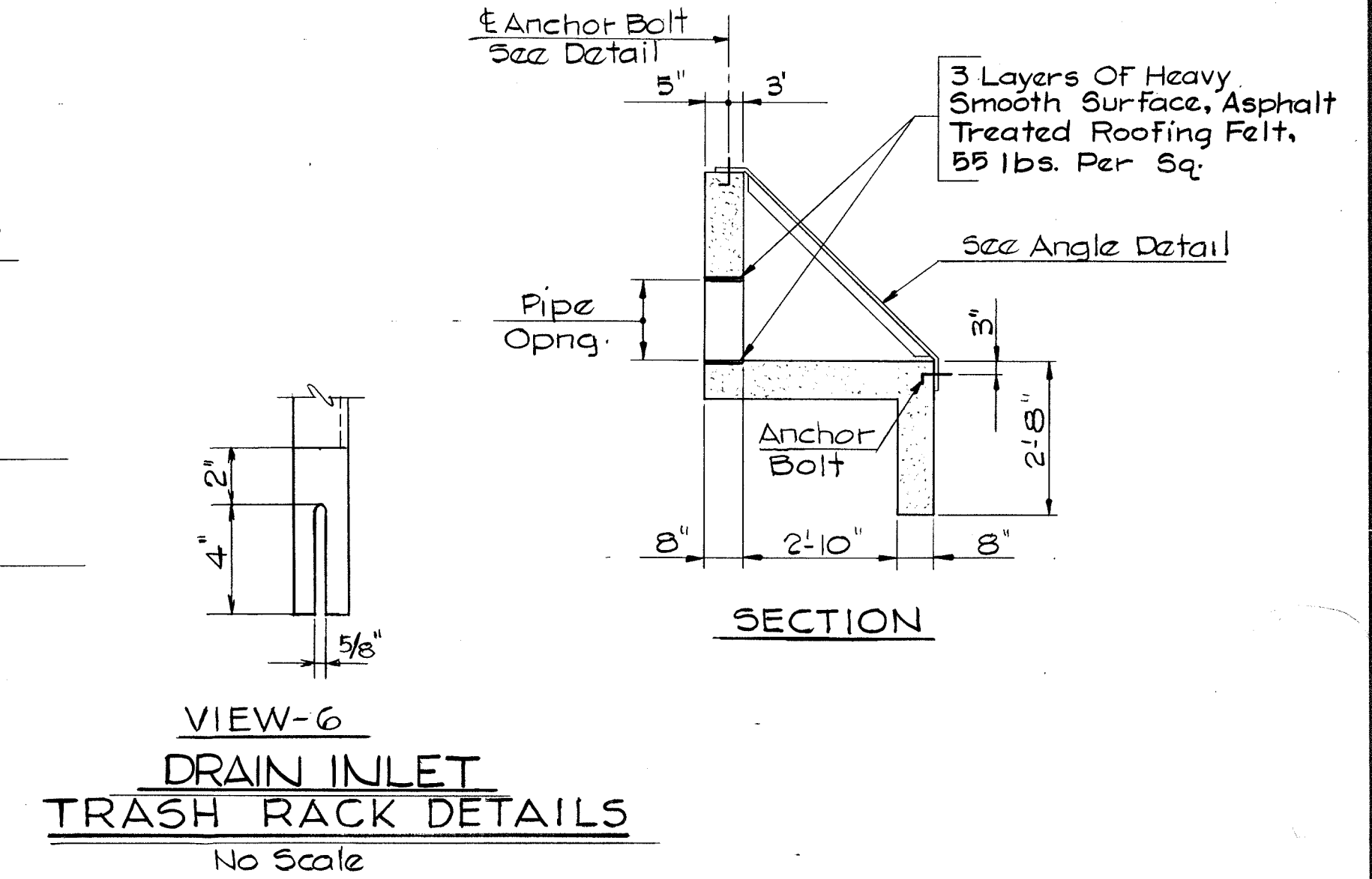
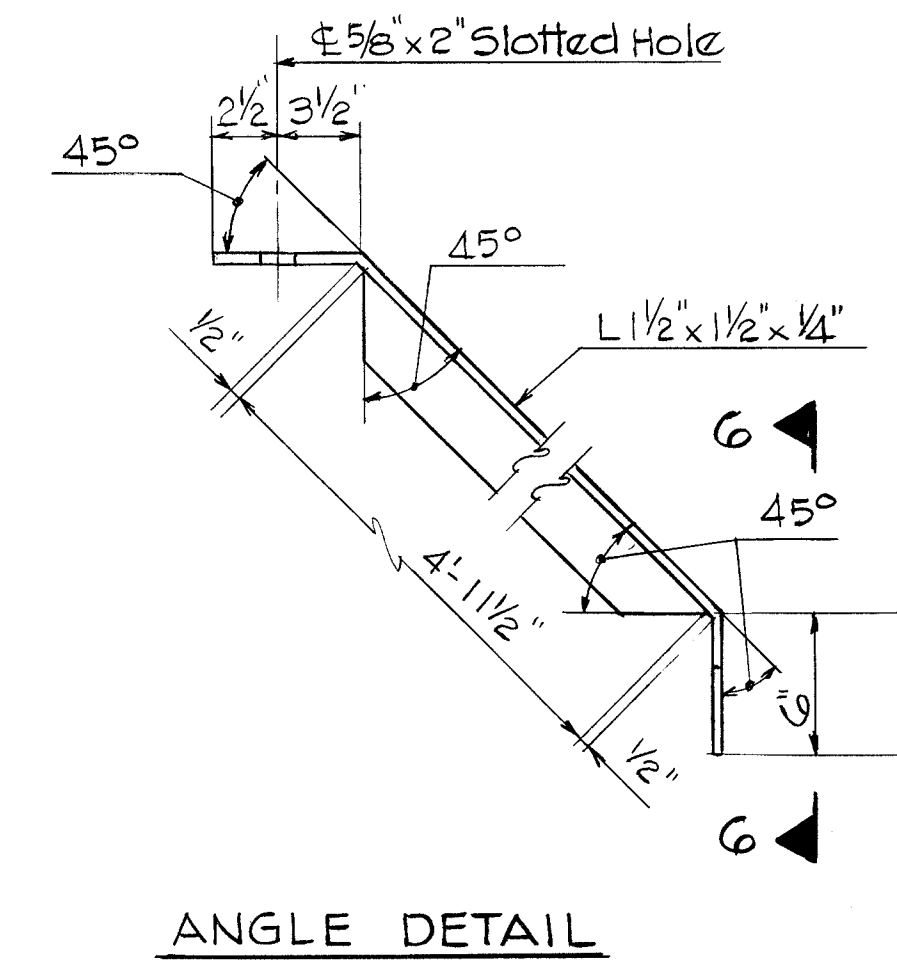
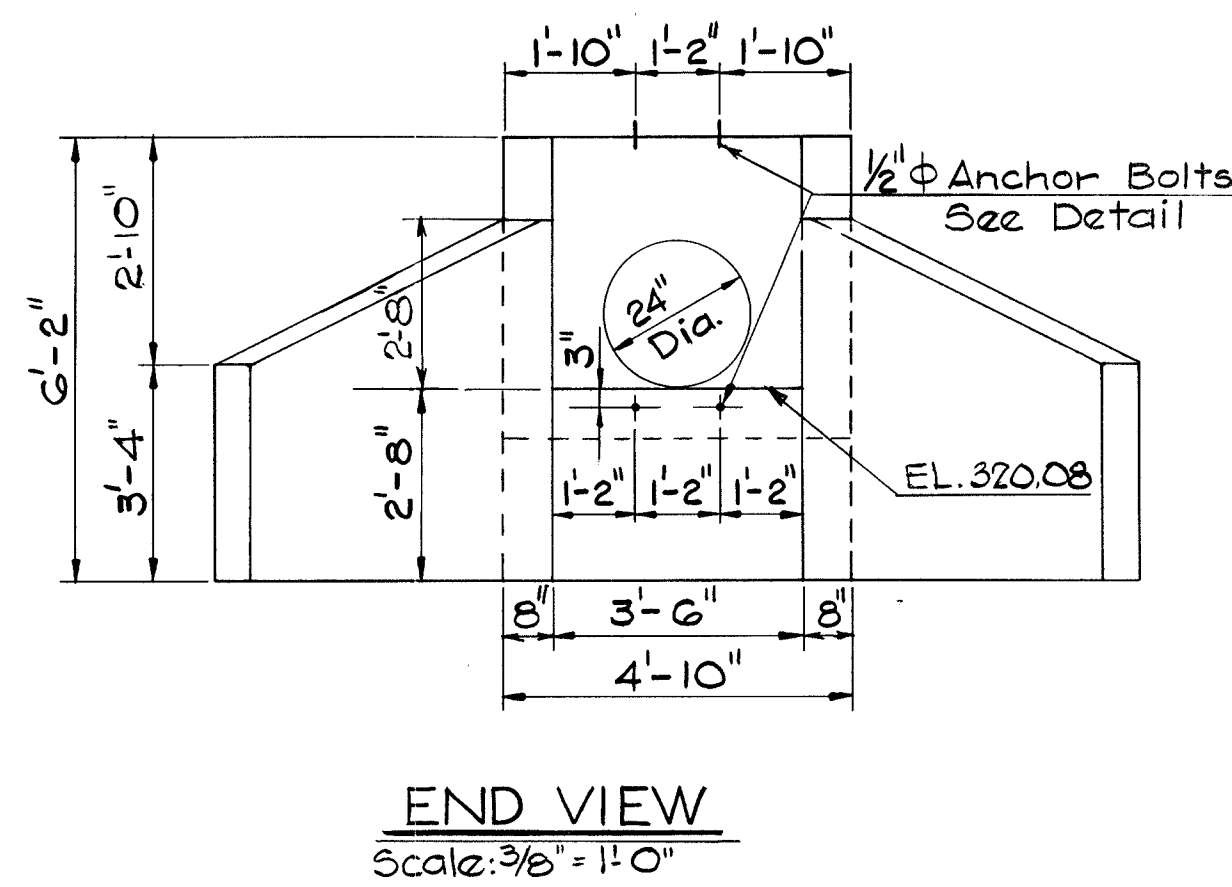
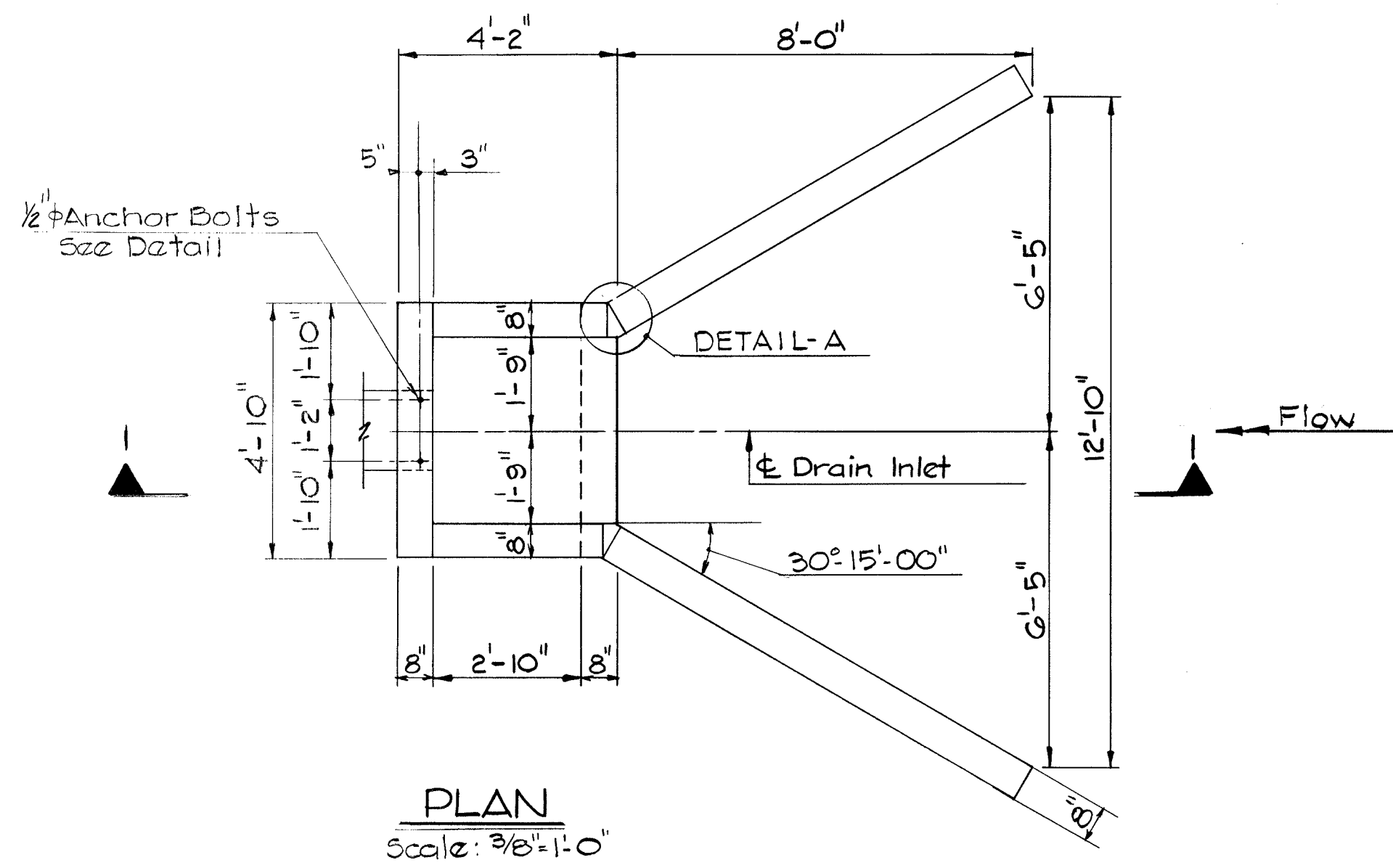
RUMMEL, KLEPPER & KAHL
 CONSULTING ENGINEERS
 BALTIMORE, MARYLAND

CENTENNIAL PARK DAM AND LAKE
 RISER STRUCTURE
 TRASH RACK AND SLIDE GATE DETAILS

DATE	June 1, 1983	REVISIONS:	DWG. NO.	SHEET NO.
SCALE	AS NOTED		S-4	22
DRAWN BY	TET			OF 26
CHECKED BY	CME			



#763



APPROVED: For Public Water, Public Sewerage and Storm Drainage Systems and Roads	
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS	
<i>Mark F. Nancey</i> DIRECTOR	11-9-83 DATE
<i>William S. Ray</i> CHIEF, BUREAU OF ENGINEERING	10-28-83 DATE
APPROVED: For Public/Private Water and Public/Private Sewerage Systems	
HOWARD COUNTY HEALTH DEPARTMENT	
_____ COUNTY HEALTH OFFICER	_____ DATE
APPROVED: Howard County Office of Planning and Zoning	
_____ PLANNING DIRECTOR	_____ DATE
_____ CHIEF, DIVISION OF LAND DEVELOPMENT	_____ DATE

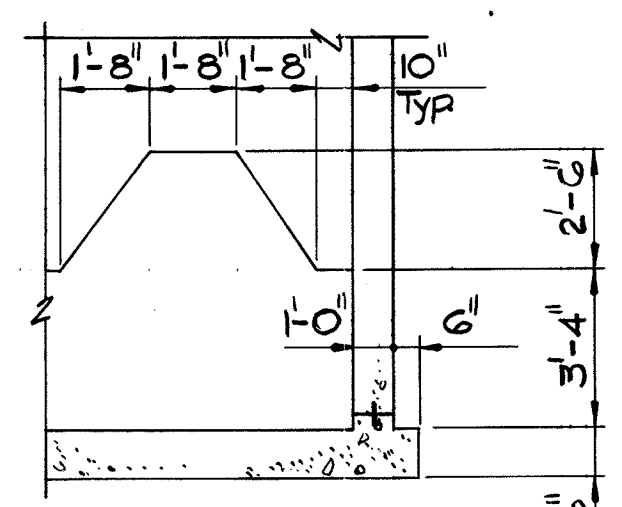
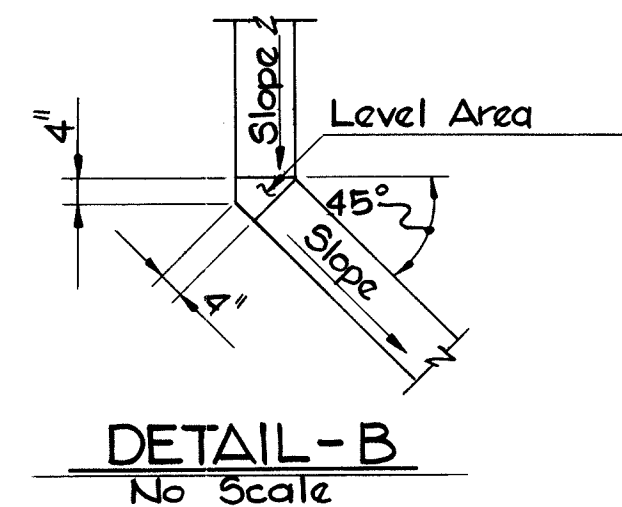
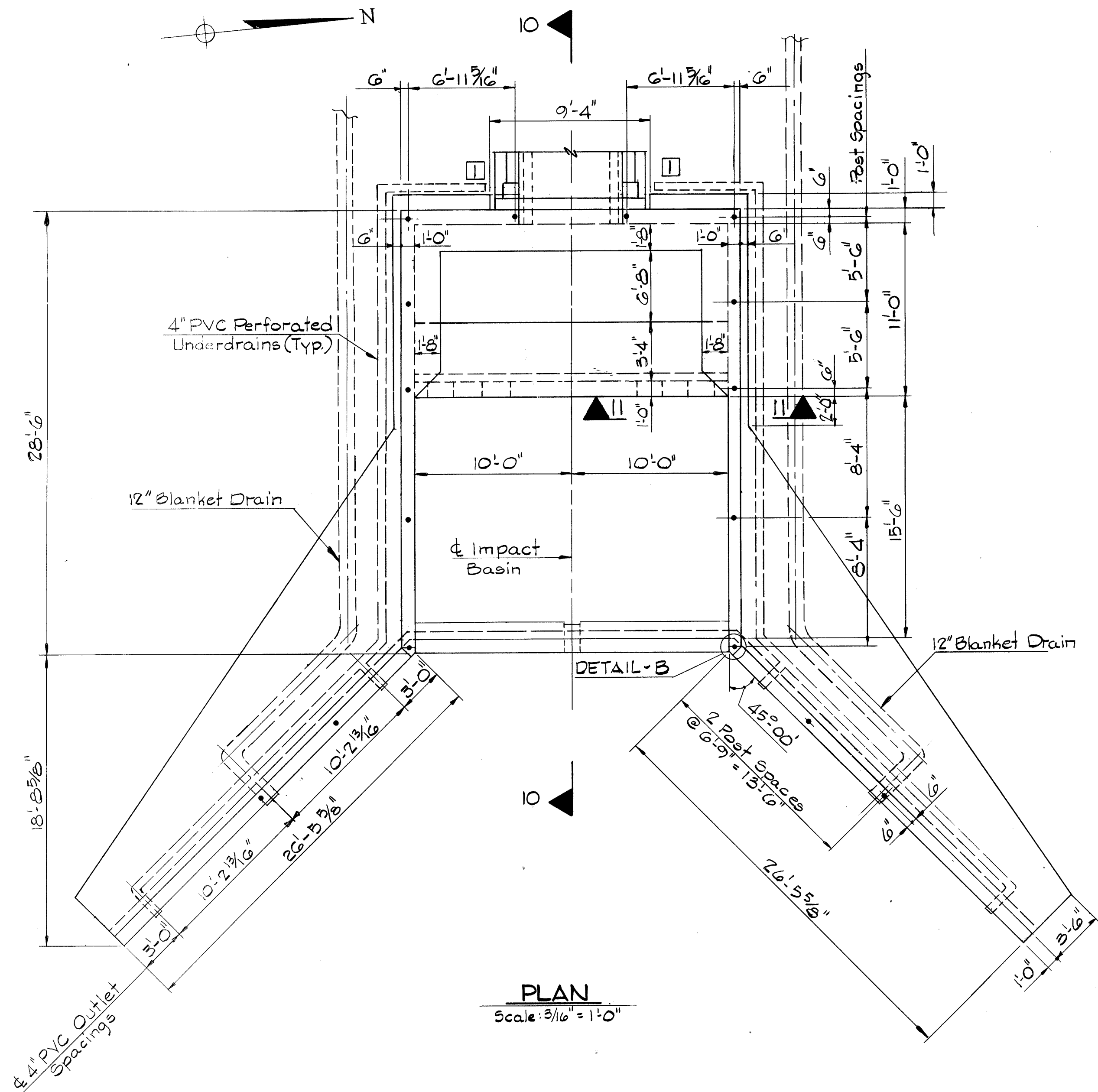
RUMMEL, KLEPPER & KAHL
CONSULTING ENGINEERS
BALTIMORE, MARYLAND

CENTENNIAL PARK DAM AND LAKE
RESERVOIR DRAIN INLET DETAILS

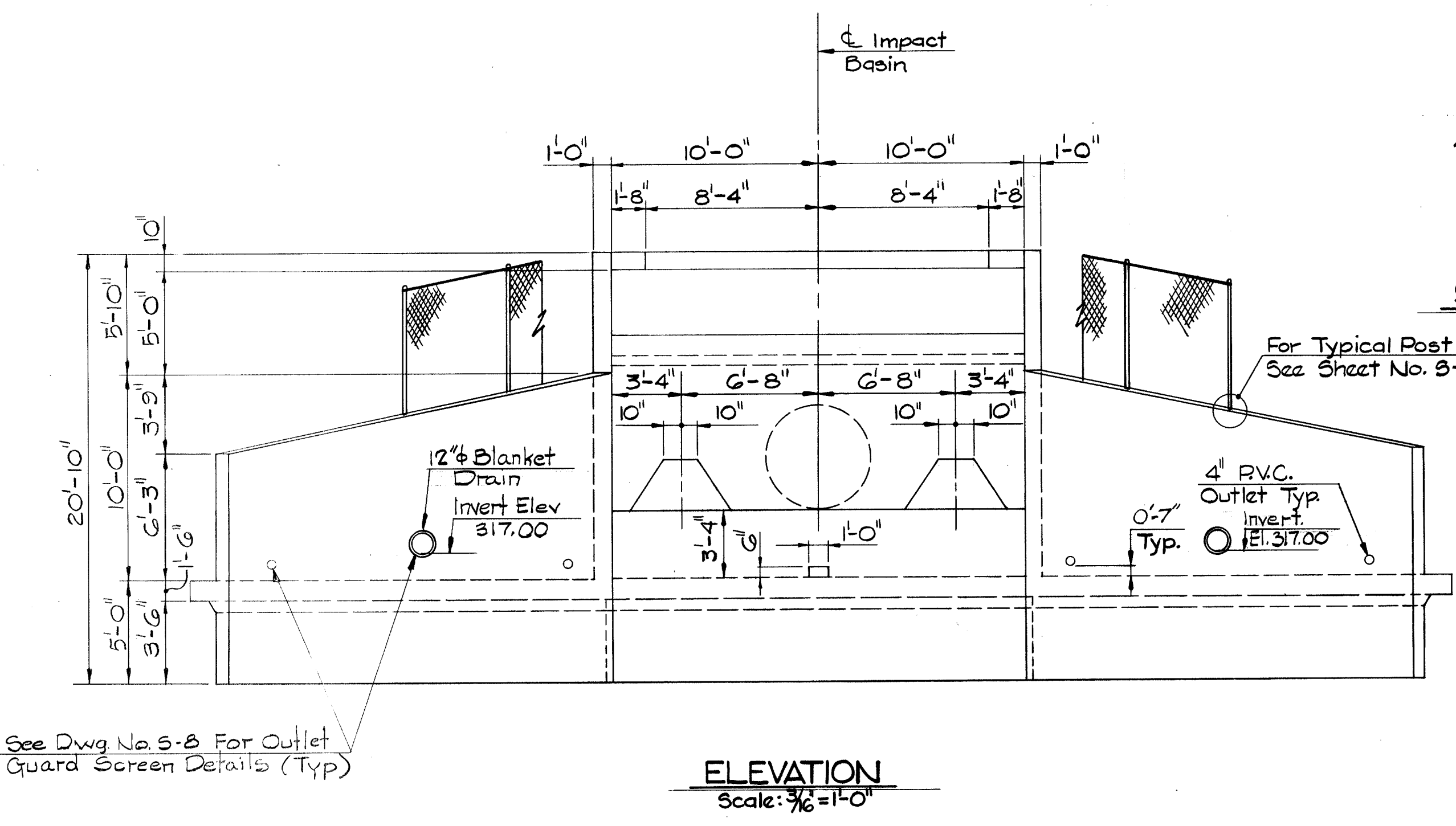
DATE	June 1, 1983	REVISIONS:	DWG. NO.	SHEET NO.
SCALE	AS NOTED		S-5	23
DRAWN BY	T.E.T.			OF 26
CHECKED BY	C.M.E.			



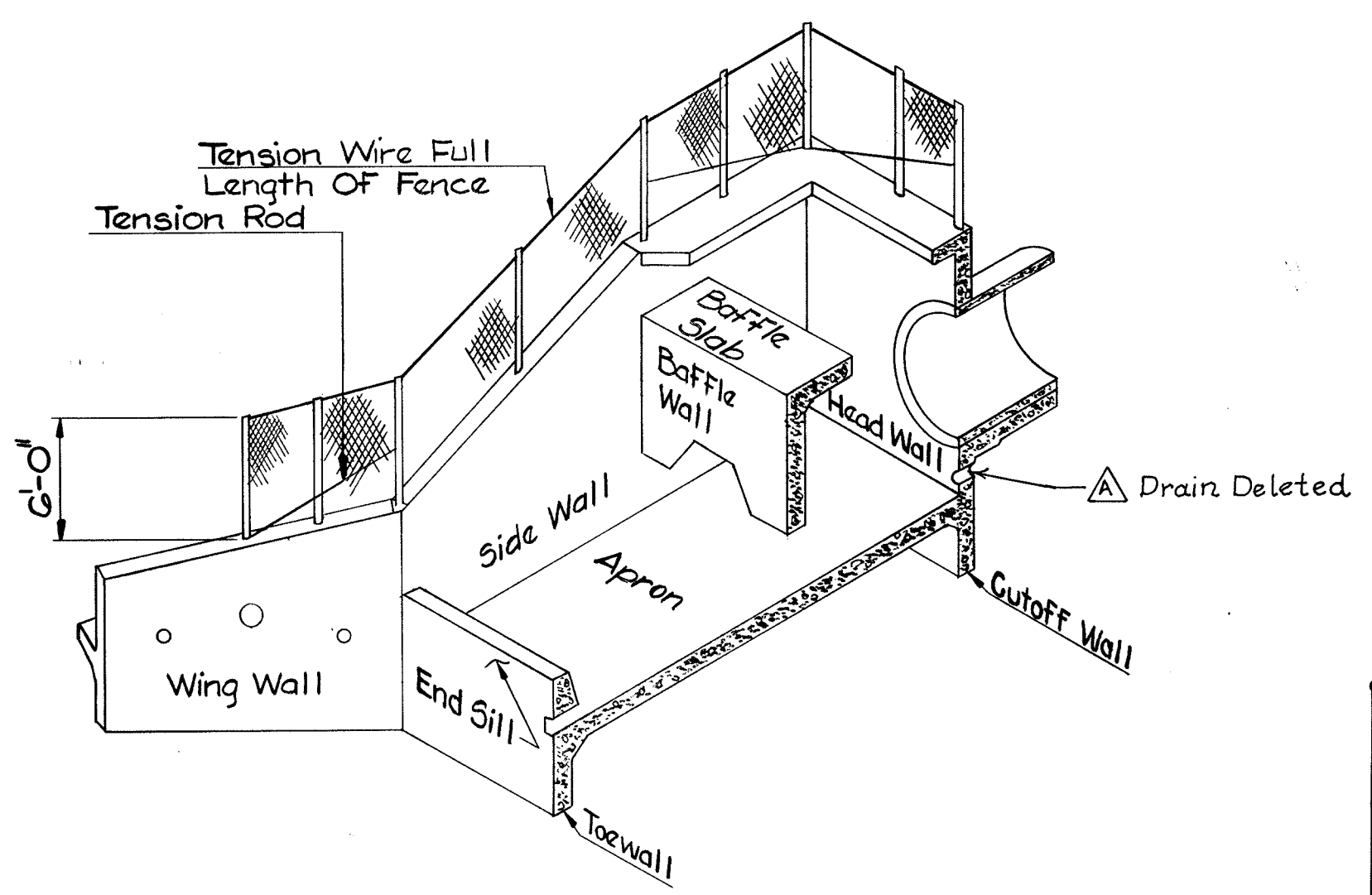
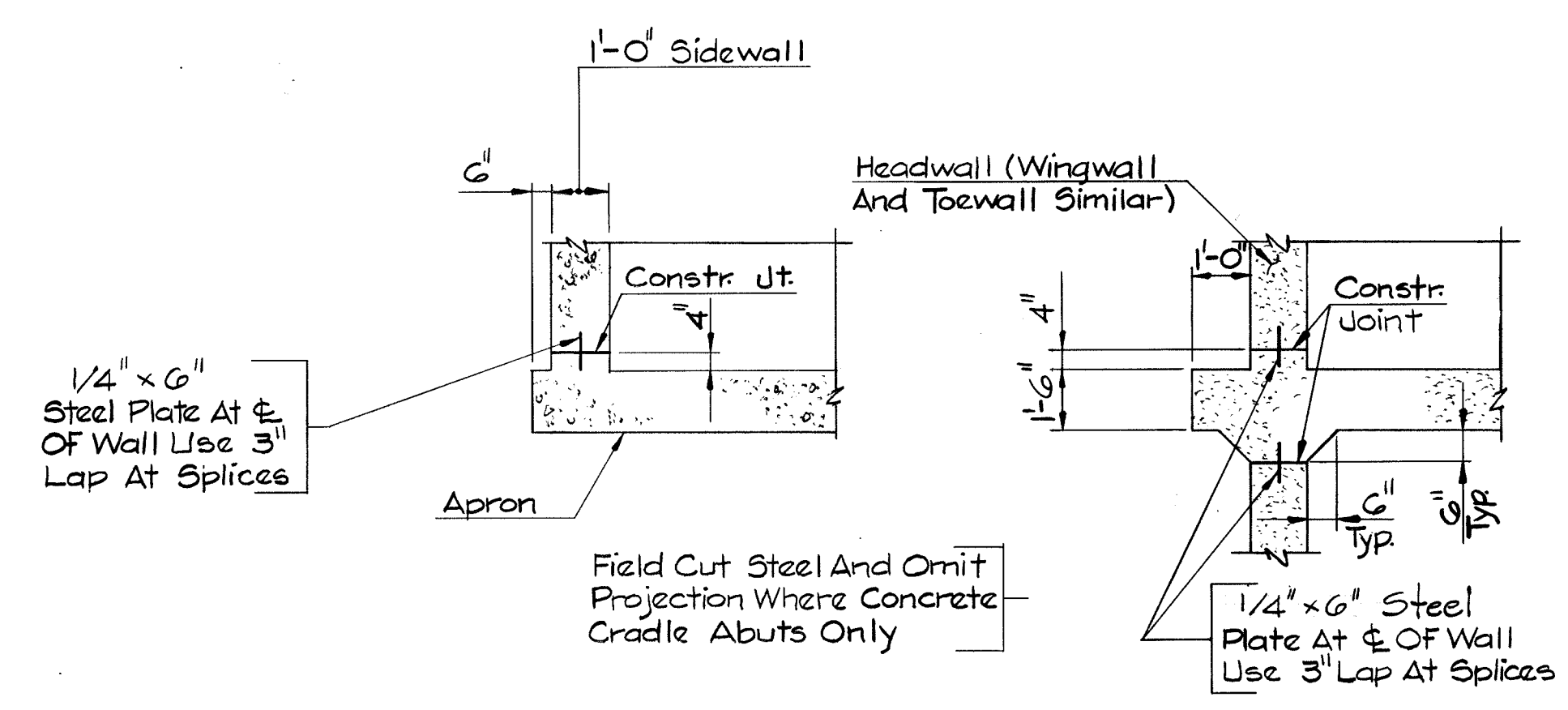
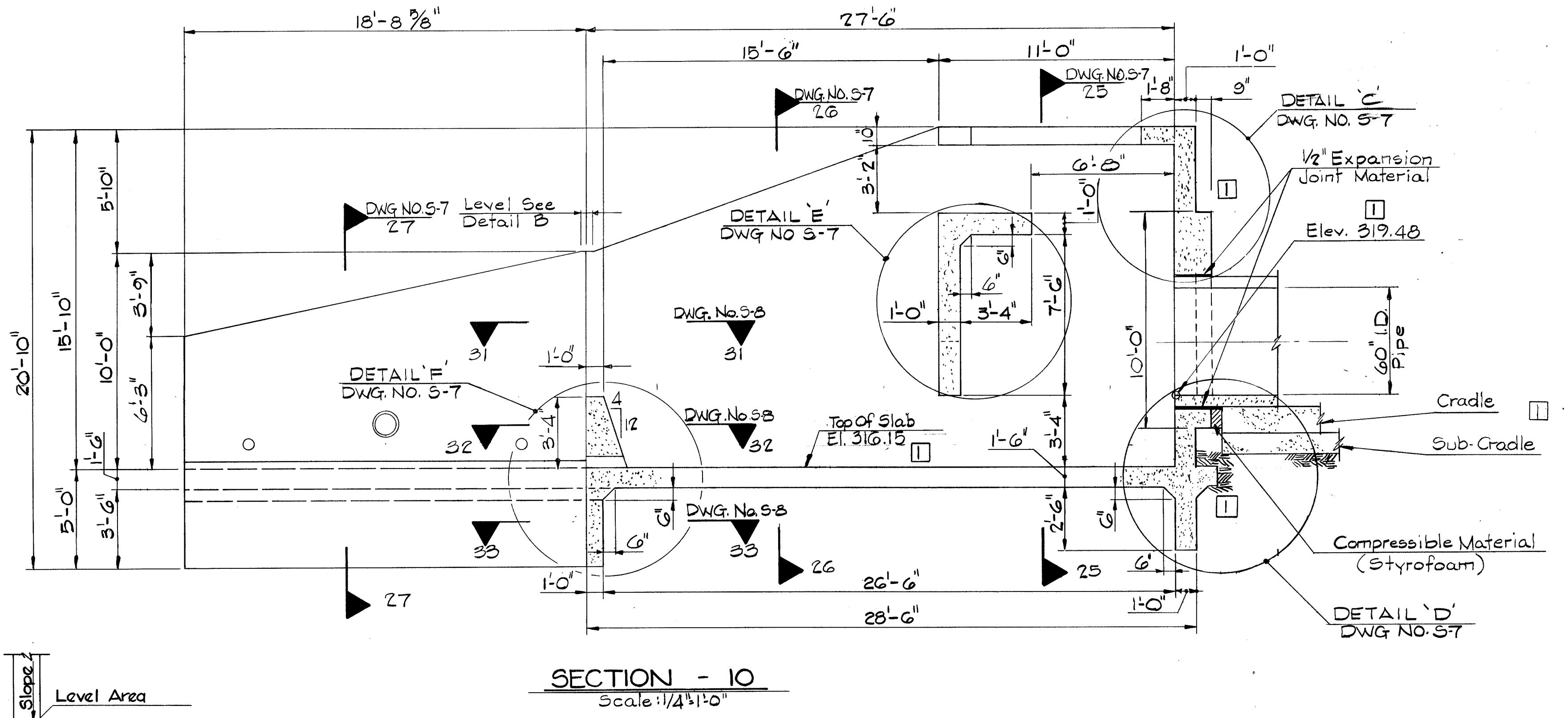
#763



For Typical Post Detail See Sheet No. 3-B



See Dwg No. S-8 For Outlet Guard Screen Details (Typ)



APPROVED For Public Water, Public Sewerage and Storm Drainage Systems and Roads
 HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 Director: *John F. Neimey* 11-9-83
 DATE: 11-9-83
 Chief: *William S. King* 10-28-83
 DATE: 10-28-83

APPROVED: For Public Private Water and Public/Private Sewerage Systems
 HOWARD COUNTY HEALTH DEPARTMENT

COUNTY HEALTH OFFICER _____ DATE _____

APPROVED: Howard County Office of Planning and Zoning
 PLANNING DIRECTOR _____ DATE _____

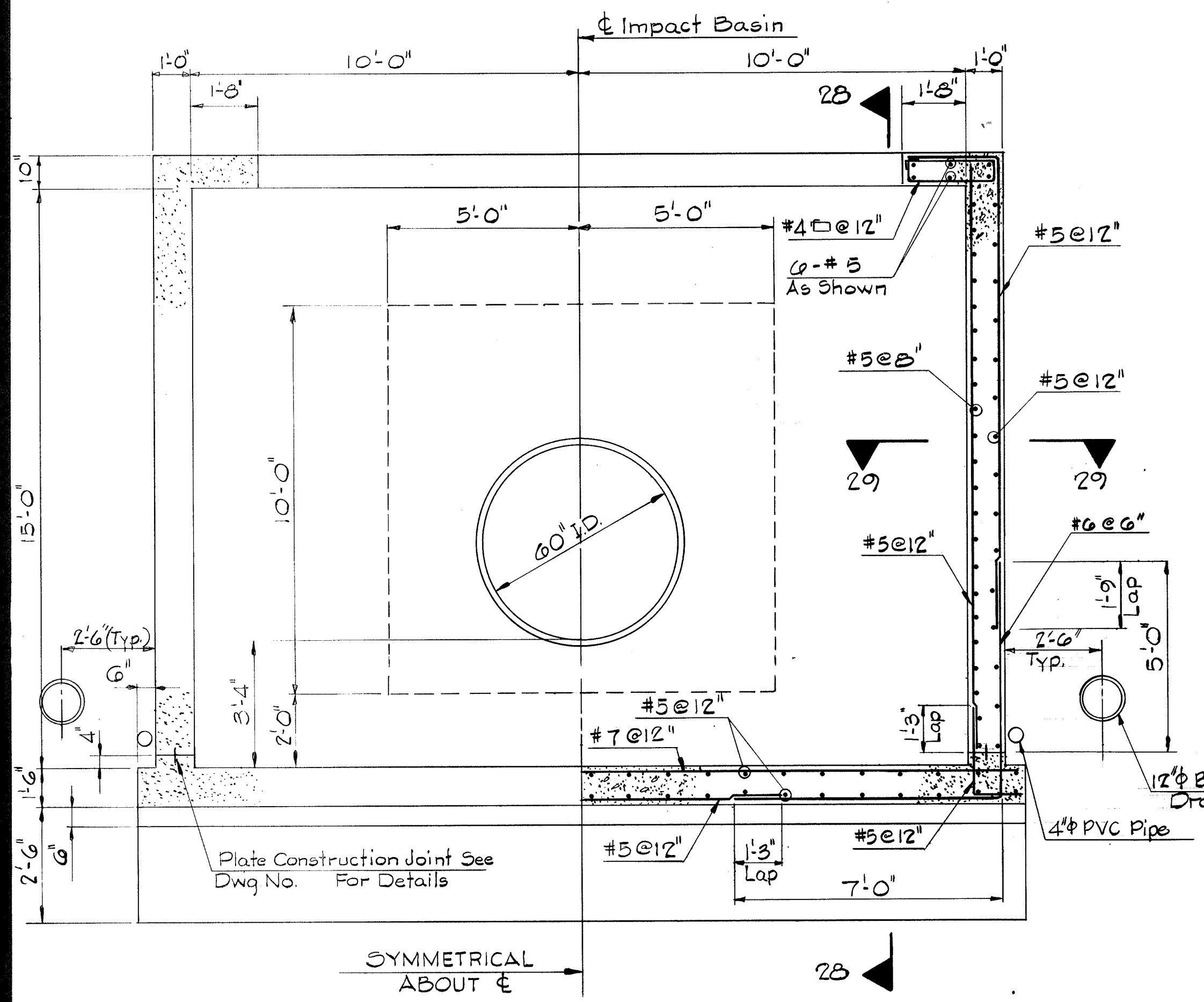
CHIEF, DIVISION OF LAND DEVELOPMENT _____ DATE _____

RUMMEL, KLEPPER & KAHL
 CONSULTING ENGINEERS
 BALTIMORE, MARYLAND

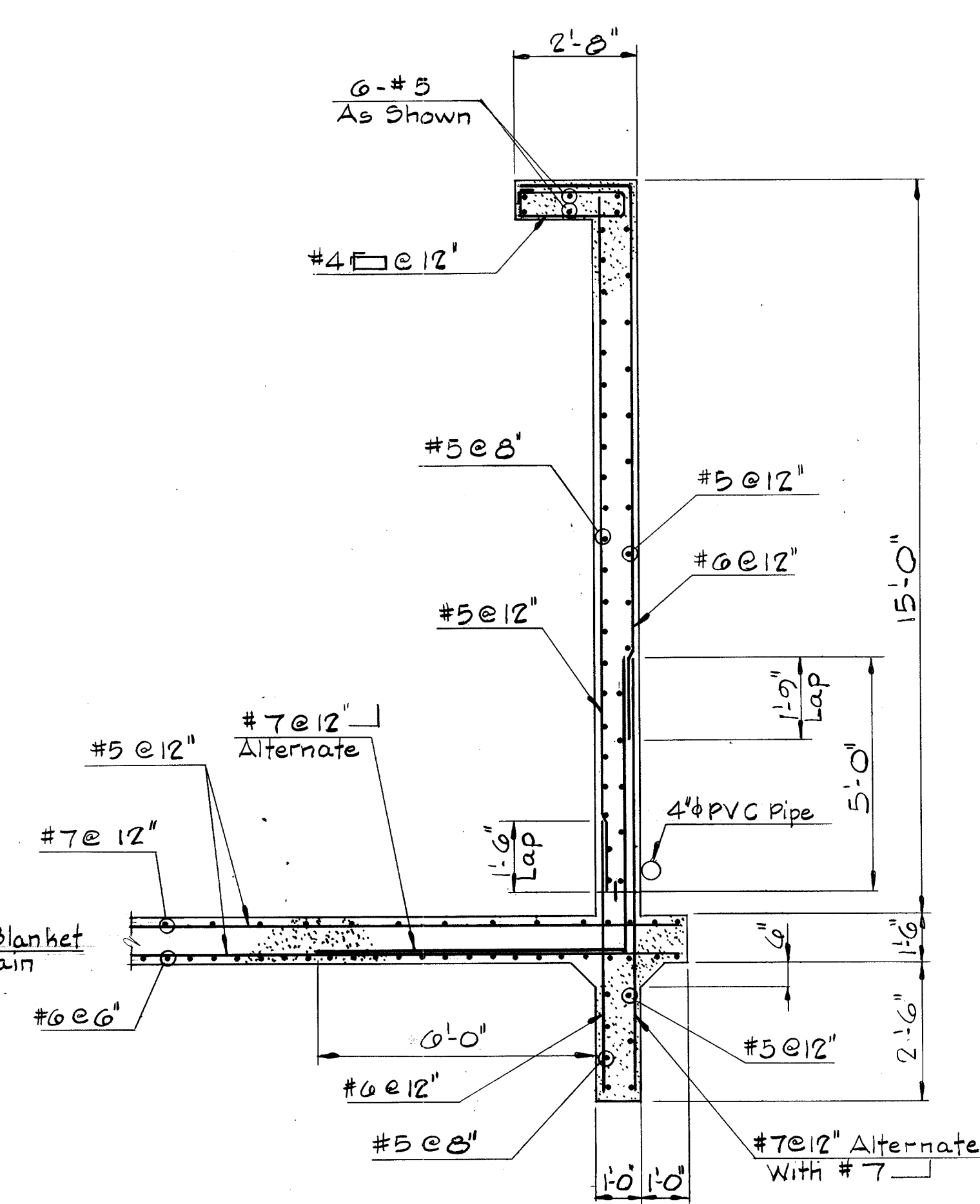
CENTENNIAL PARK DAM AND LAKE
 IMPACT BASIN
 PLAN, ELEVATION AND SECTIONS

DATE	June 1, 1983	REVISIONS:	DWG. NO.	SHEET NO.
SCALE	AS NOTED	1) Revision To Plan And Section 10 J.M. 2-28-84	3-6	24
DRAWN BY	T.E.T.	2) As Built 4-8-85		OF 26
CHECKED BY	C.M.E.			

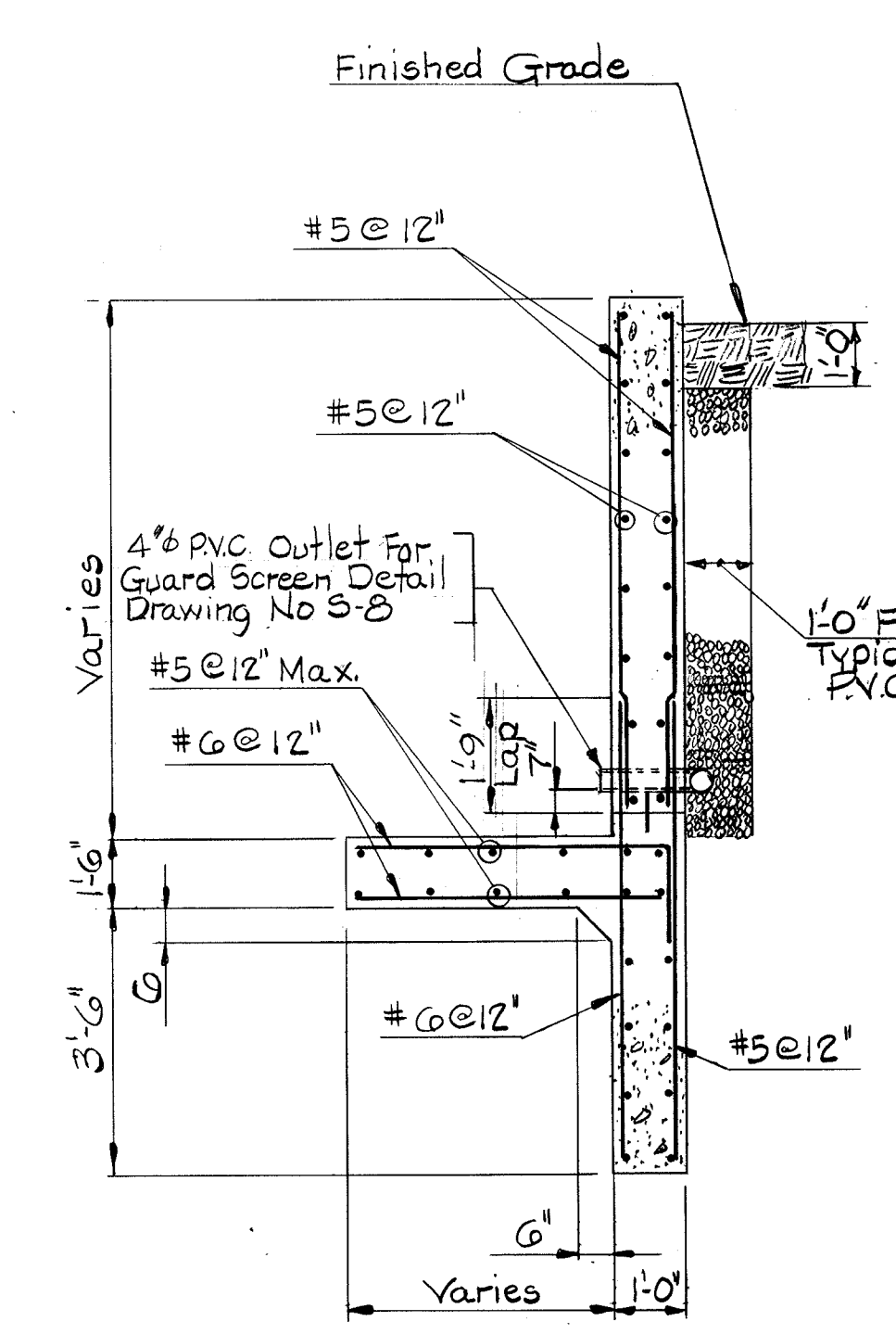




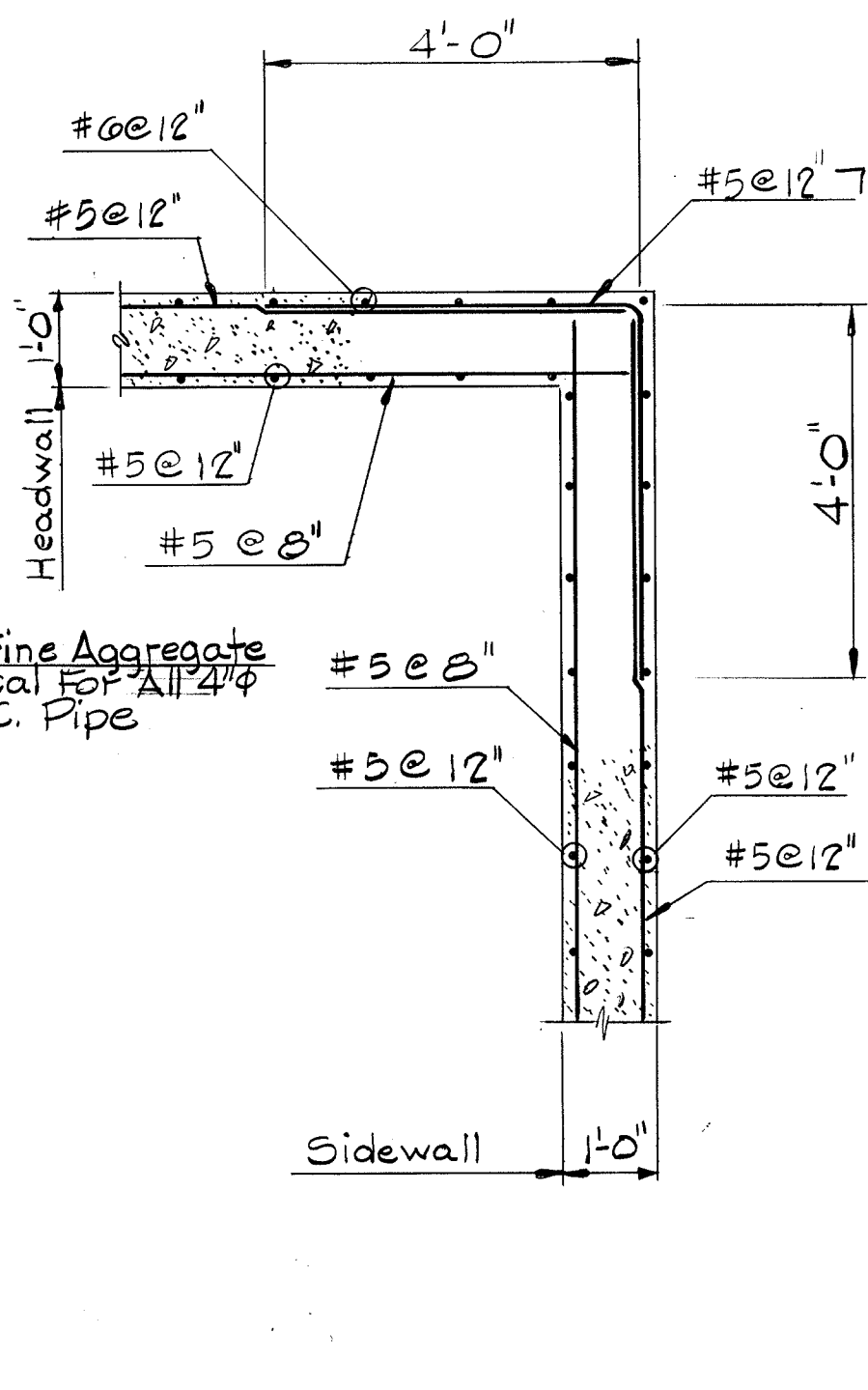
SECTION 25
Scale: 3/8" = 1'-0"
See Dwg. 5-6



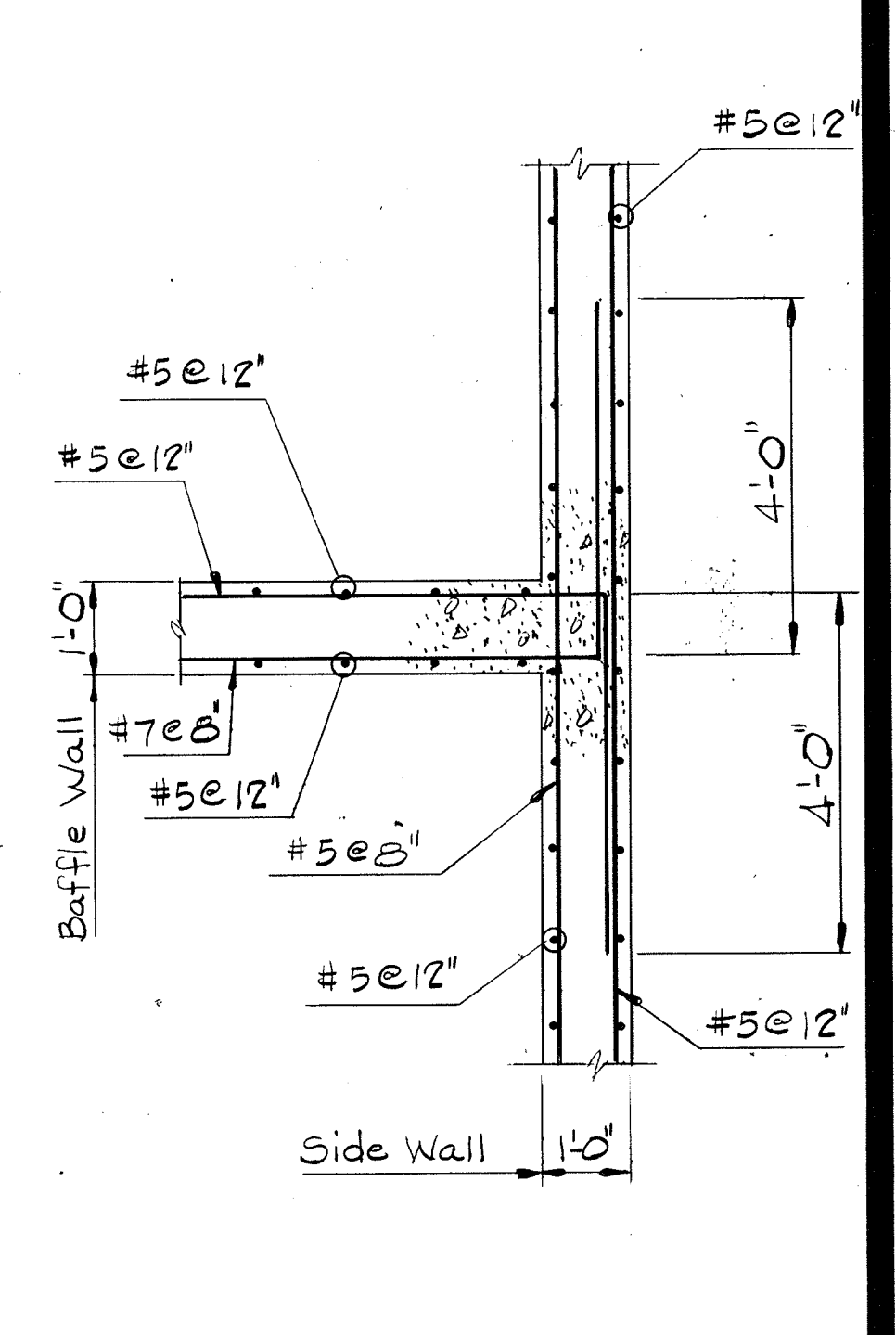
SECTION 28
Scale: 3/8" = 1'-0"



SECTION 27
Scale: 3/8" = 1'-0"
See Dwg. 5-6

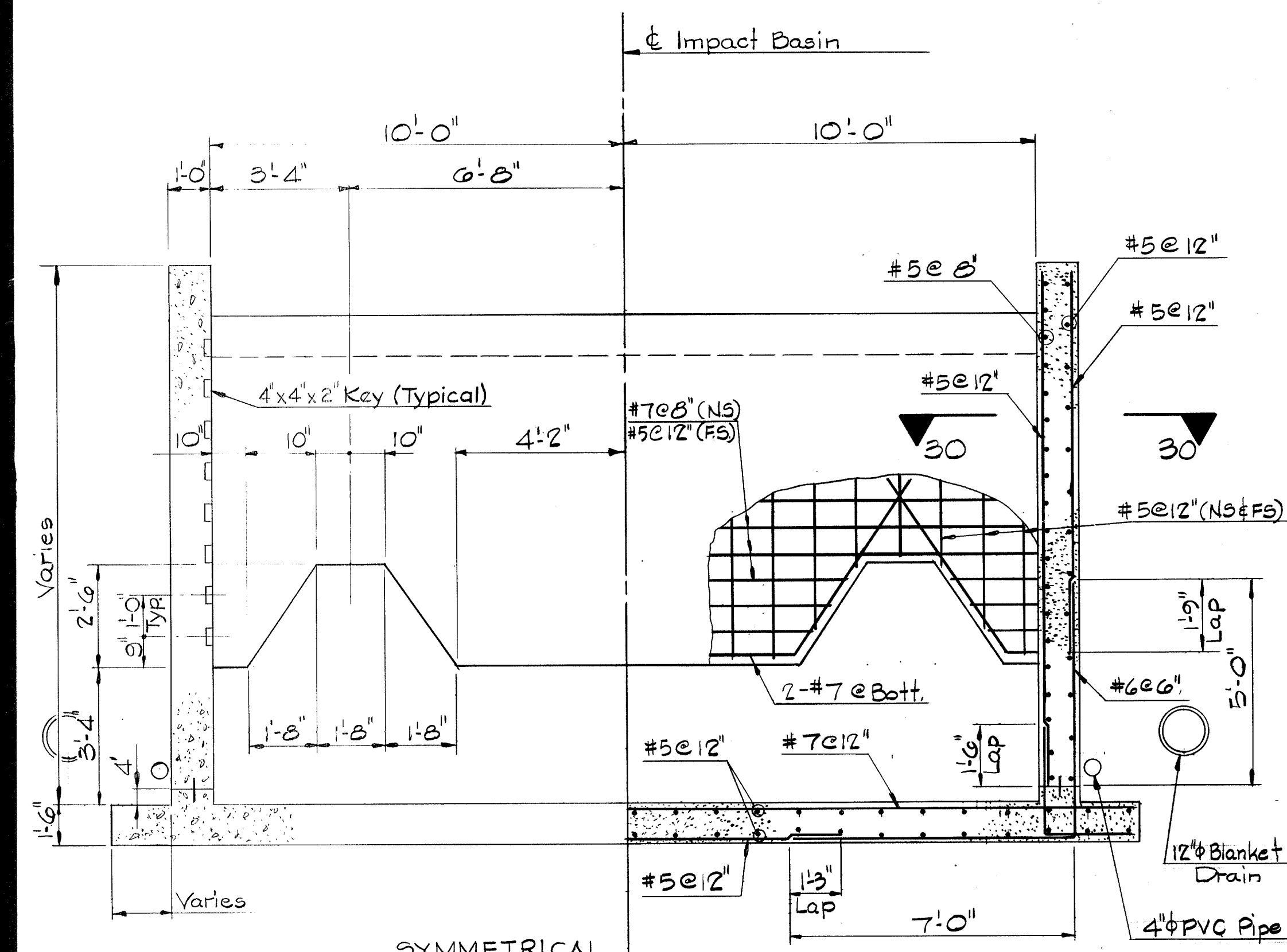


SECTION 29
Scale: 1/2" = 1'-0"

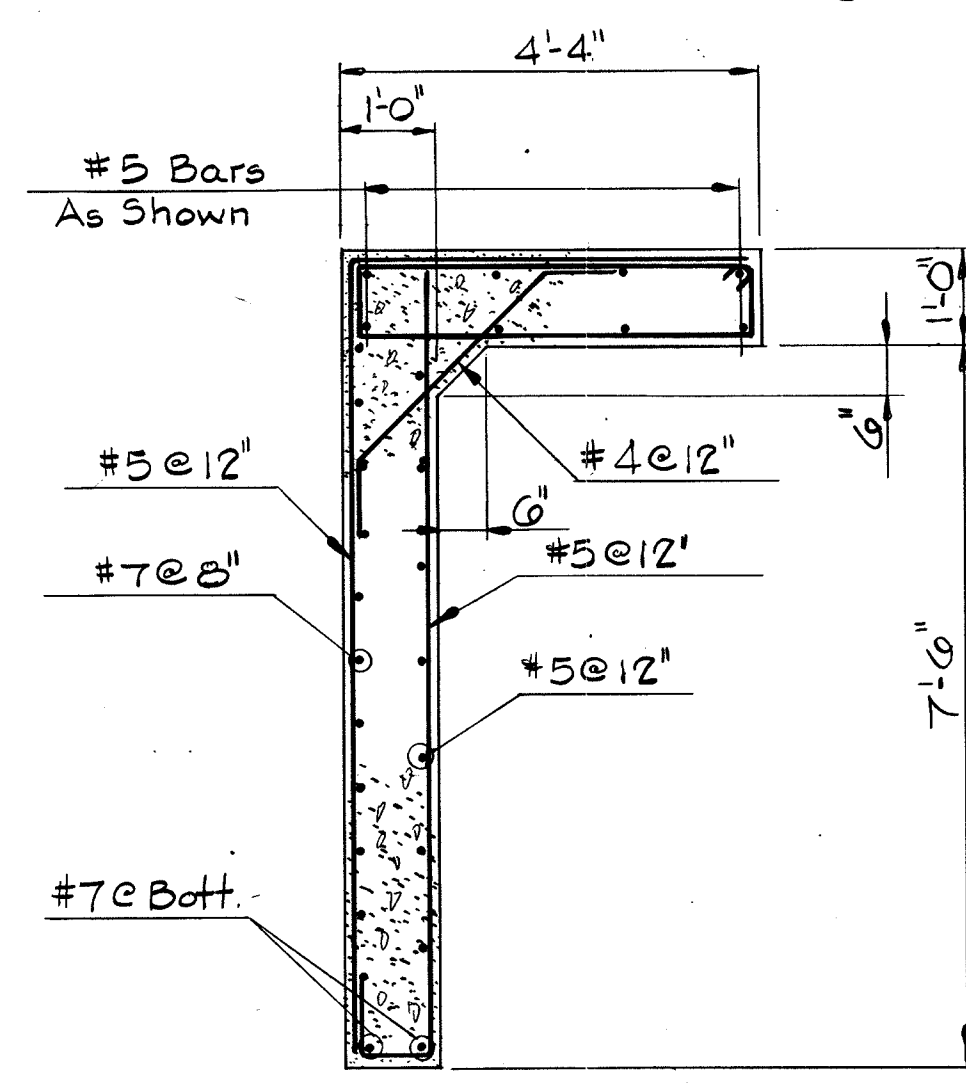


SECTION 30
Scale: 1/2" = 1'-0"

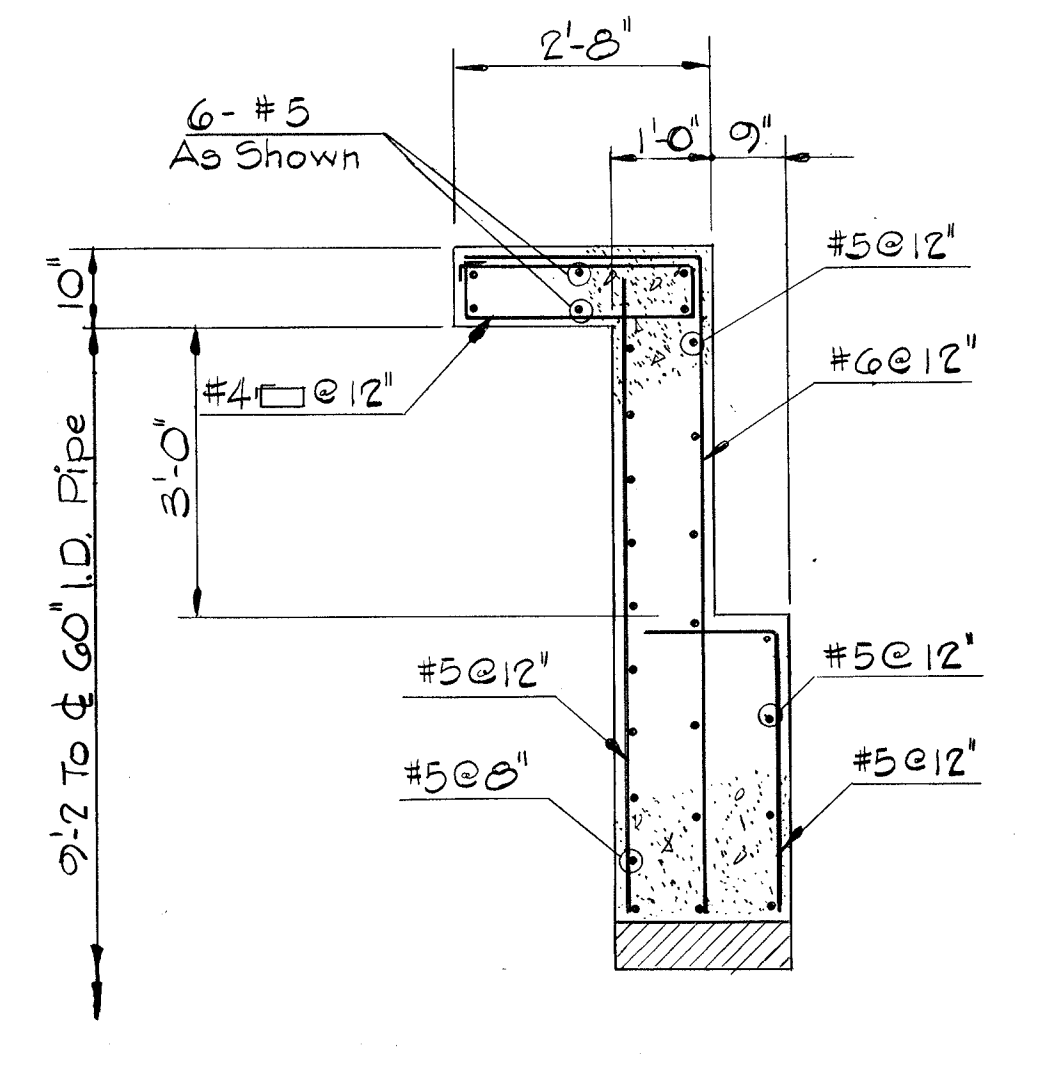
NOTE:
Cut-Off Walls, Toe Walls And Apron Are To Be Excavated Into And Poured Against Undisturbed Material.



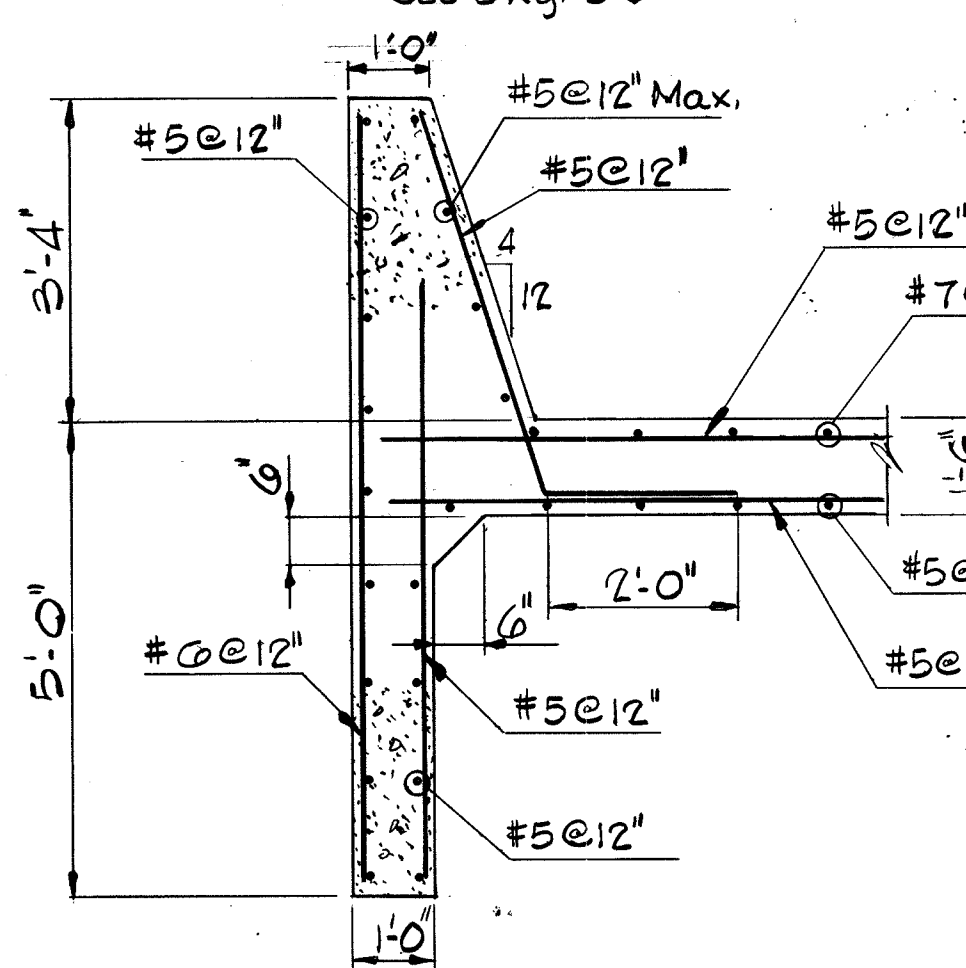
SECTION 26
Scale: 3/8" = 1'-0"
See Dwg. 5-6



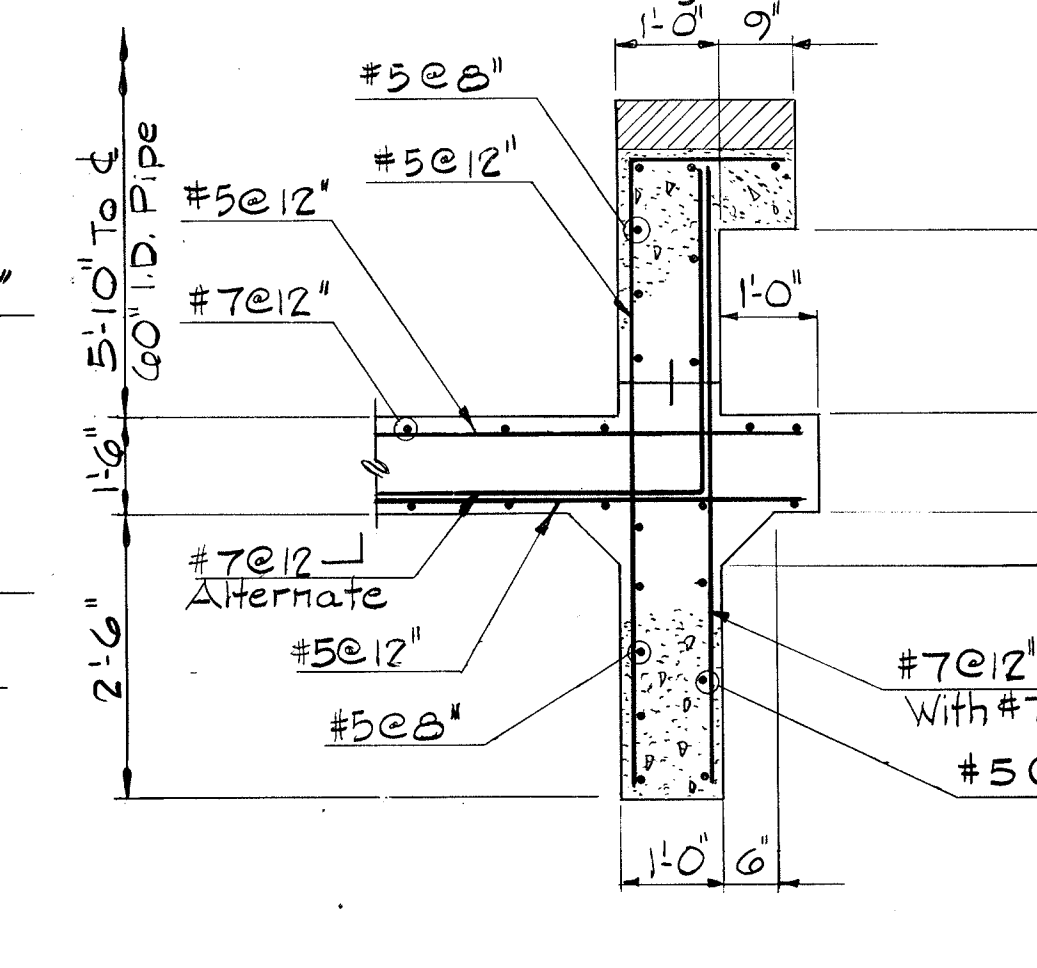
DETAIL E
Scale: 1/2" = 1'-0"
See Dwg. 5-6



DETAIL C
Scale: 1/2" = 1'-0"
See Dwg. 5-6



DETAIL F
Scale: 1/2" = 1'-0"
See Dwg. 5-6



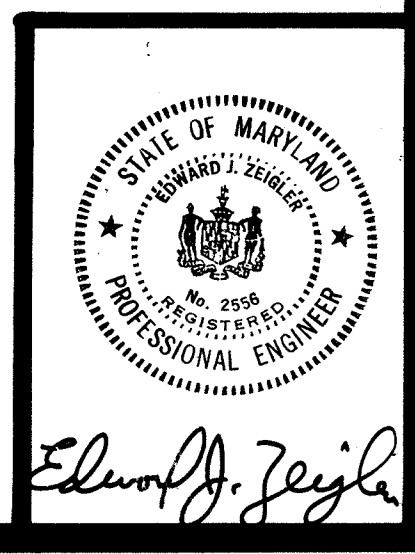
DETAIL D
Scale: 1/2" = 1'-0"
See Dwg. 5-6

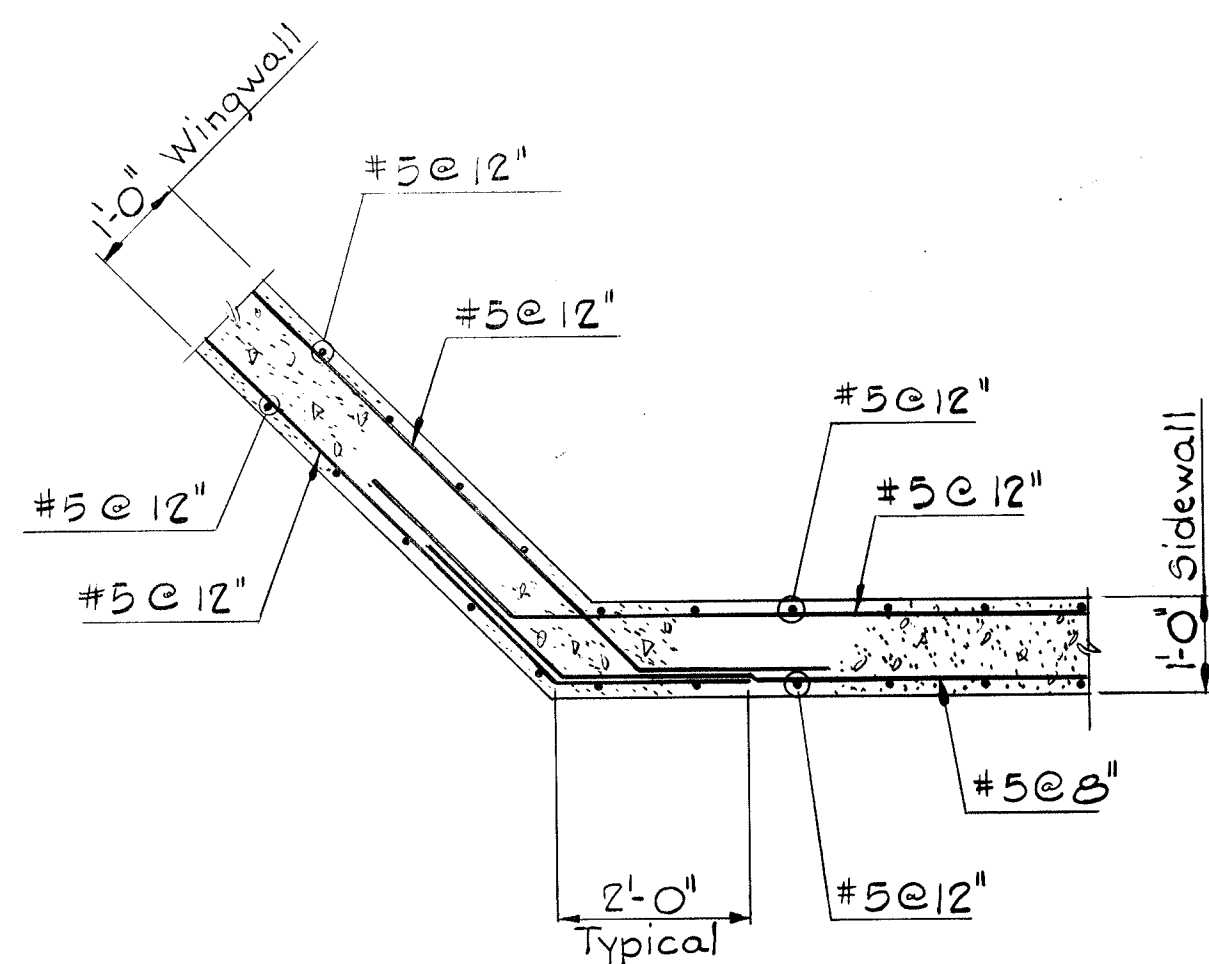
#763

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CONSULTING ENGINEERS
BALTIMORE, MARYLAND

CENTENNIAL PARK DAM AND LAKE
IMPACT BASIN
SECTIONS & DETAILS

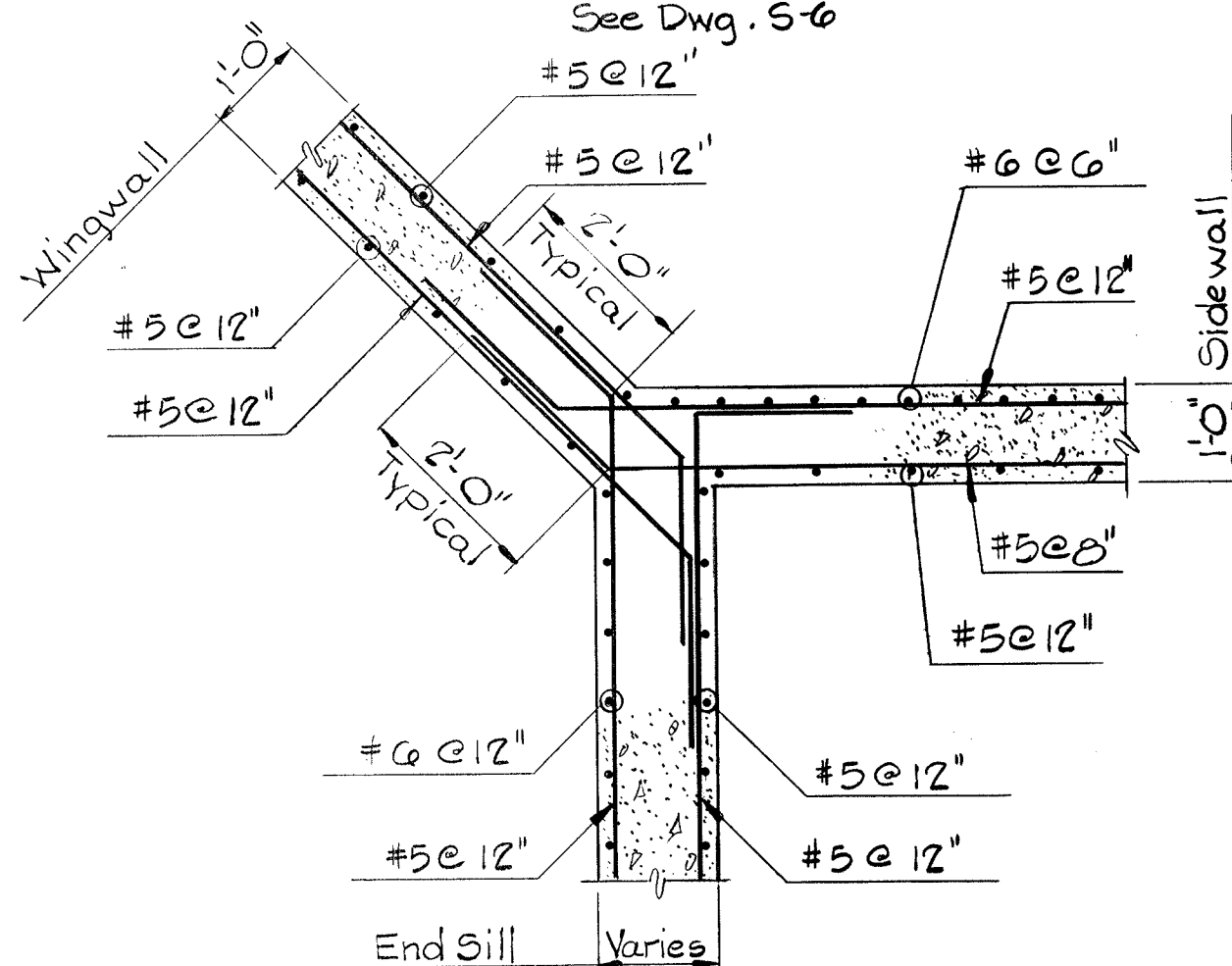
DATE	June 1, 1983	REVISIONS:	DWG. NO.	SHEET NO.
SCALE	As NOTED		5-7	25
DRAWN BY	TET			OF 26
CHECKED BY	CME			





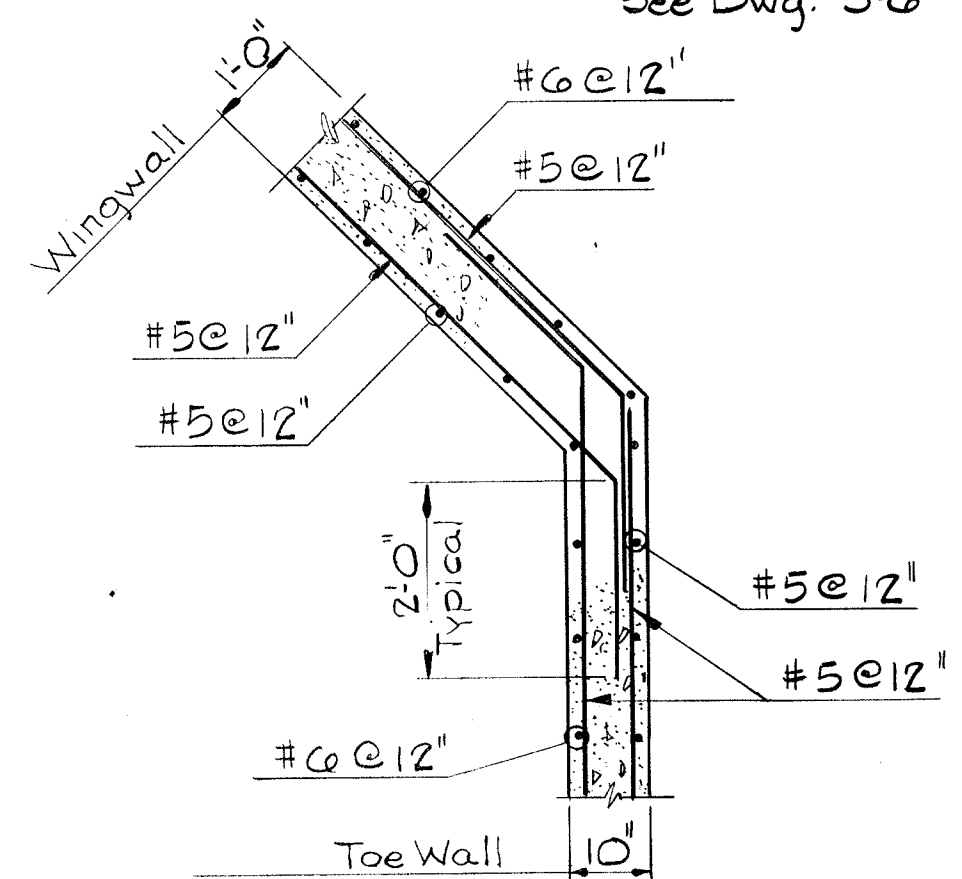
SECTION-31

Scale: 1/2" = 1'-0"
See Dwg. 5-6



SECTION-32

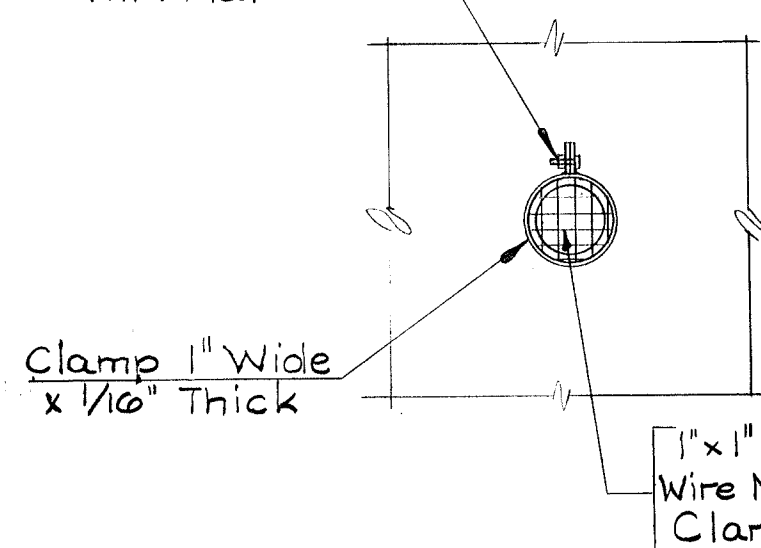
Scale: 1/2" = 1'-0"
See Dwg. 5-6



SECTION-33

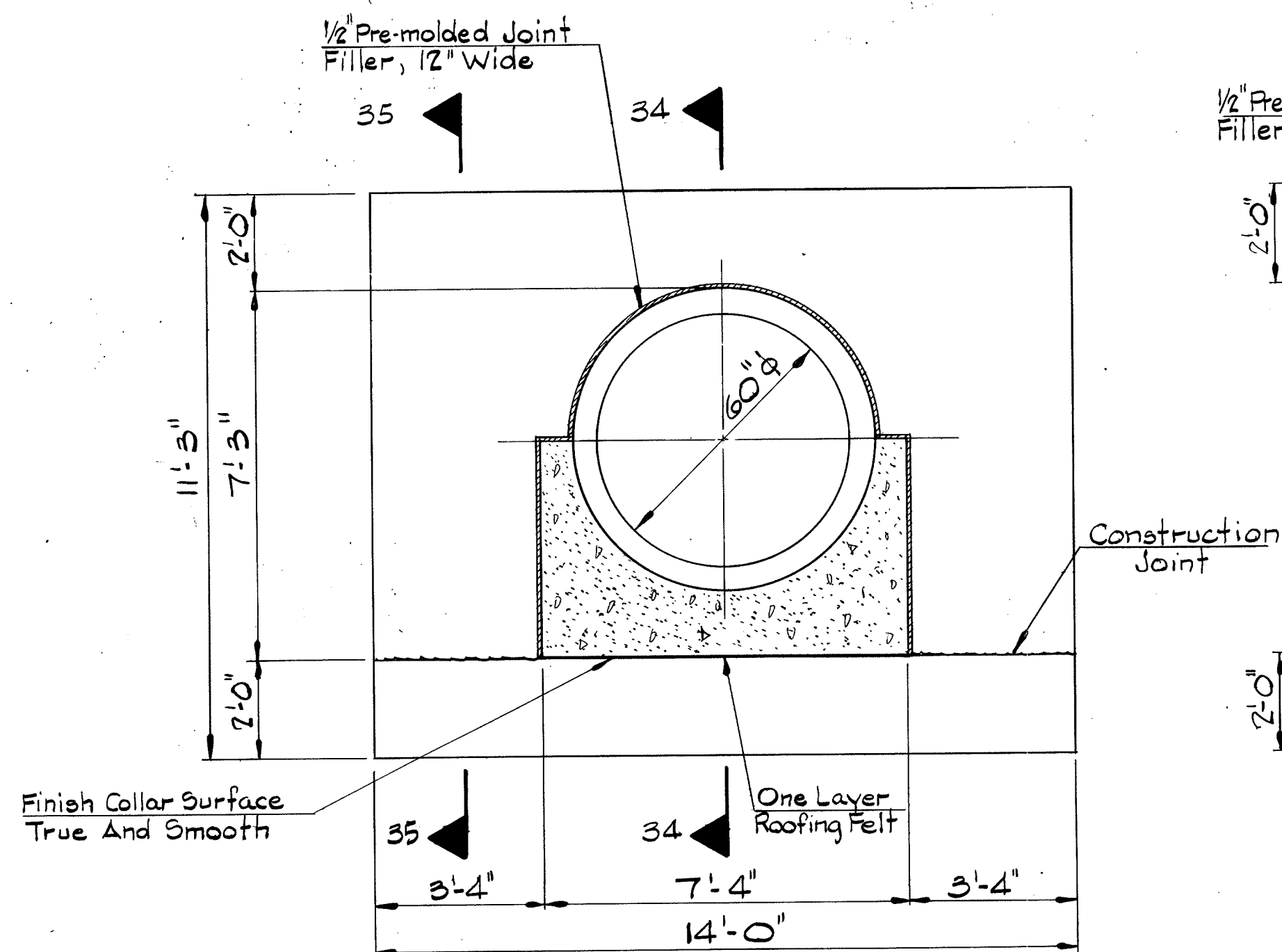
Scale: 1/2" = 1'-0"
See Dwg. 5-6

1/4" Bolt x 1 1/4" Long
With Flat Washer



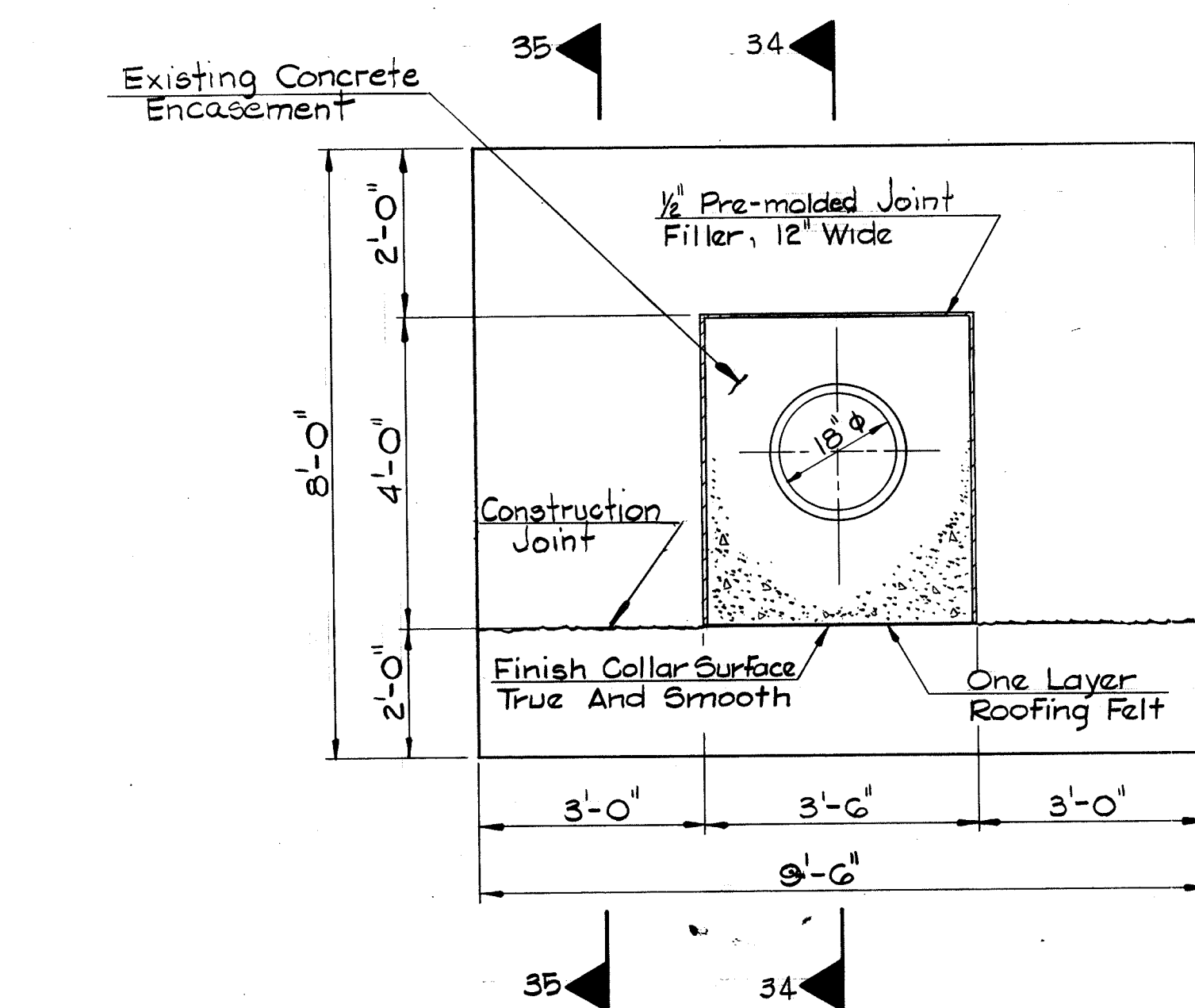
OUTLET GUARD SCREEN DETAIL

Scale: 1" = 1'-0"



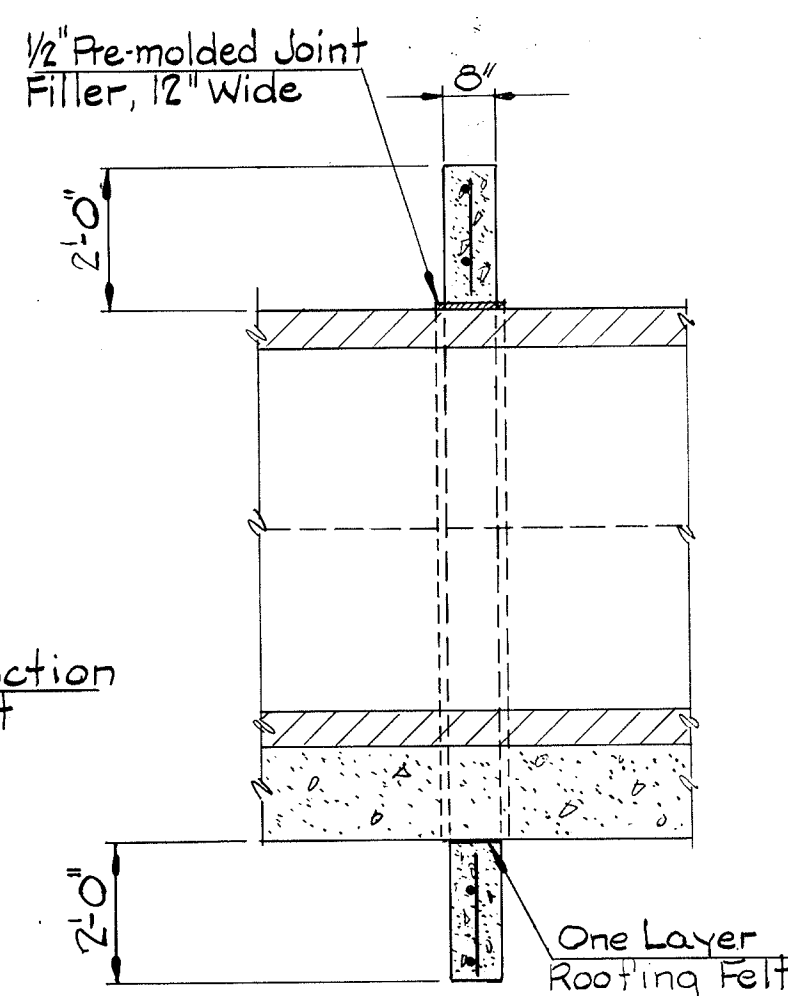
ELEVATION - ANTI-SEEP COLLAR
60" DIAMETER PIPE

Scale: 3/8" = 1'-0"



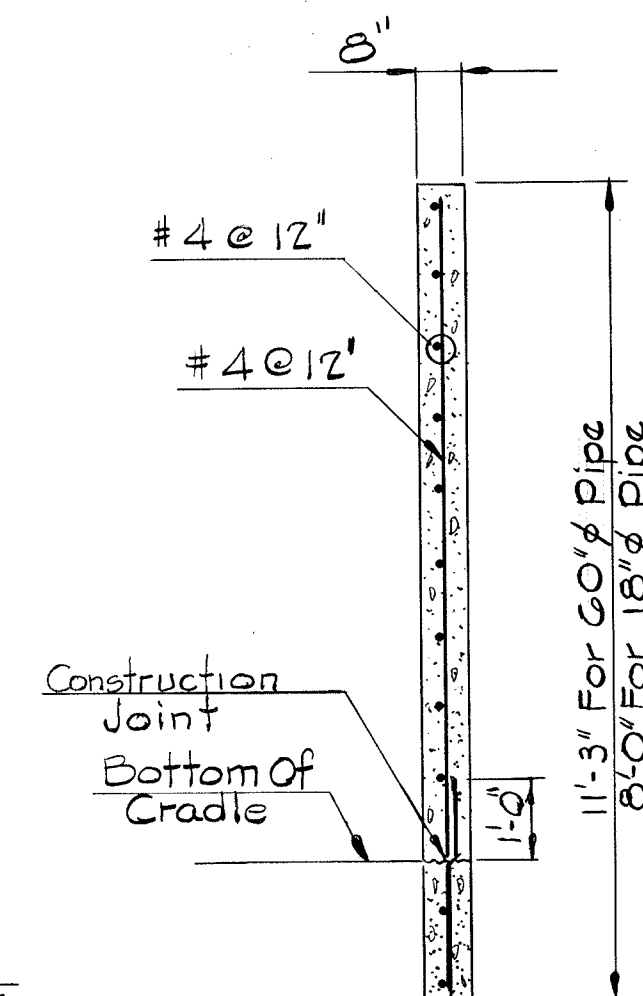
ELEVATION - ANTI-SEEP COLLAR
18" DIAMETER PIPE

Scale: 1/2" = 1'-0"



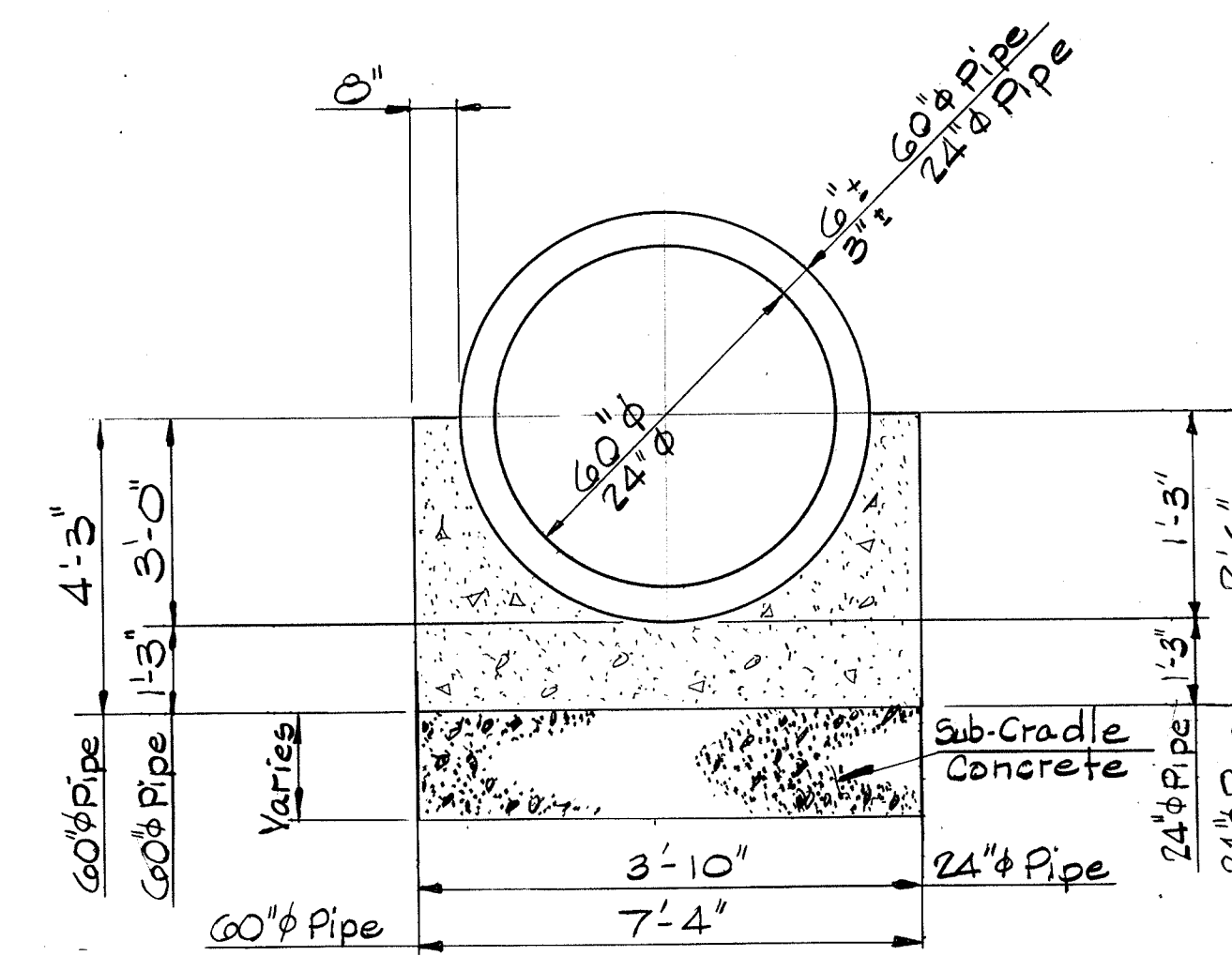
SECTION-34

Scale: 3/8" = 1'-0"



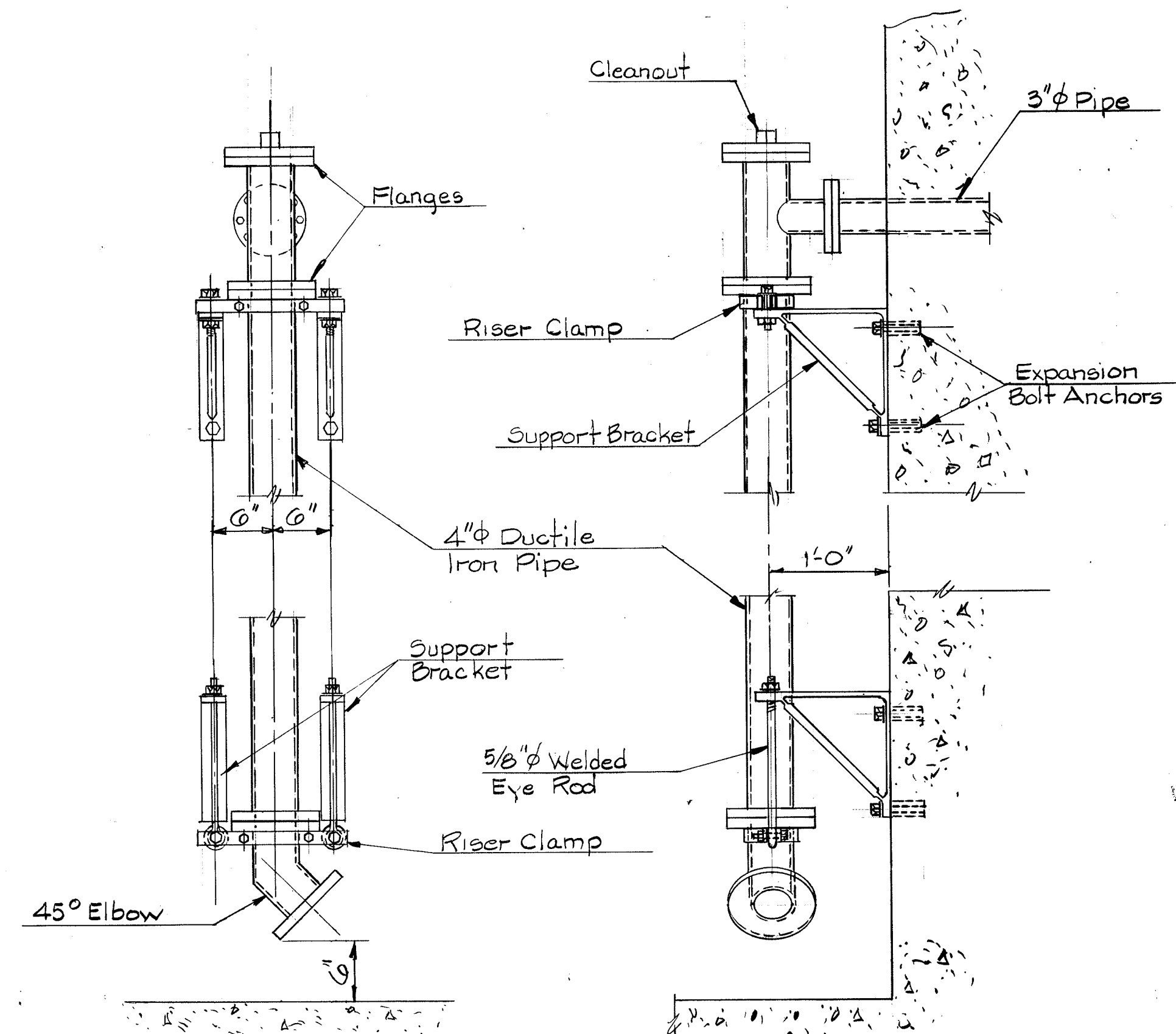
SECTION-35

No Scale



CRADLE DETAIL

Scale: 3/8" = 1'-0"

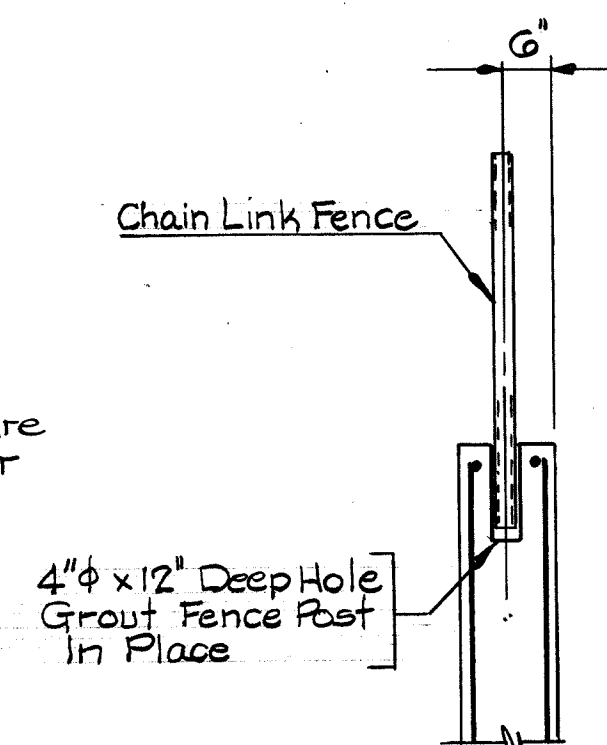


ELEVATION

SIDE VIEW

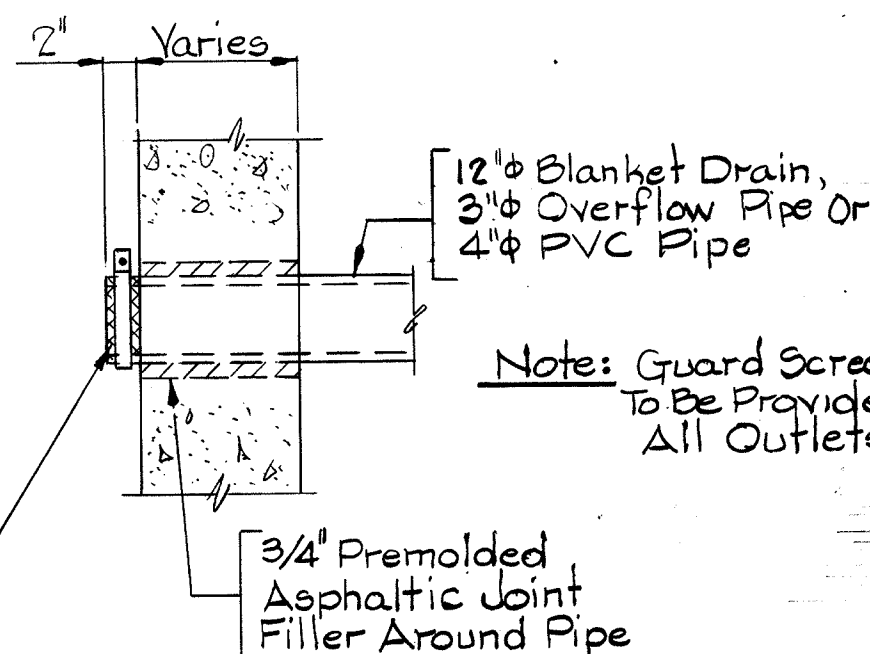
OVERFLOW PIPE SUPPORT DETAILS

Scale: 1" = 1'-0"



CHAIN LINK FENCE POST DETAIL

No Scale



Note: Guard Screens Are to be Provided for All Outlets.

3/4" Pre-molded Asphaltic Joint Filler Around Pipe

1" x 1" Woven Galv. Wire Mesh No. 12 Gauge Clamped To Pipe

Clamp 1" Wide x 1/16" Thick

RK & K
RUMMEL, KLEPPER & KAHL
CONSULTING ENGINEERS
BALTIMORE, MARYLAND

CENTENNIAL PARK DAM AND LAKE
IMPACT BASIN
MISCELLANEOUS DETAILS

DATE	June 1, 1983	REVISIONS:	DWG. NO.	SHEET NO.
SCALE	As Noted		5-8	26
DRAWN BY	T.E.T.			OF 26
CHECKED BY	C.M.E.			

