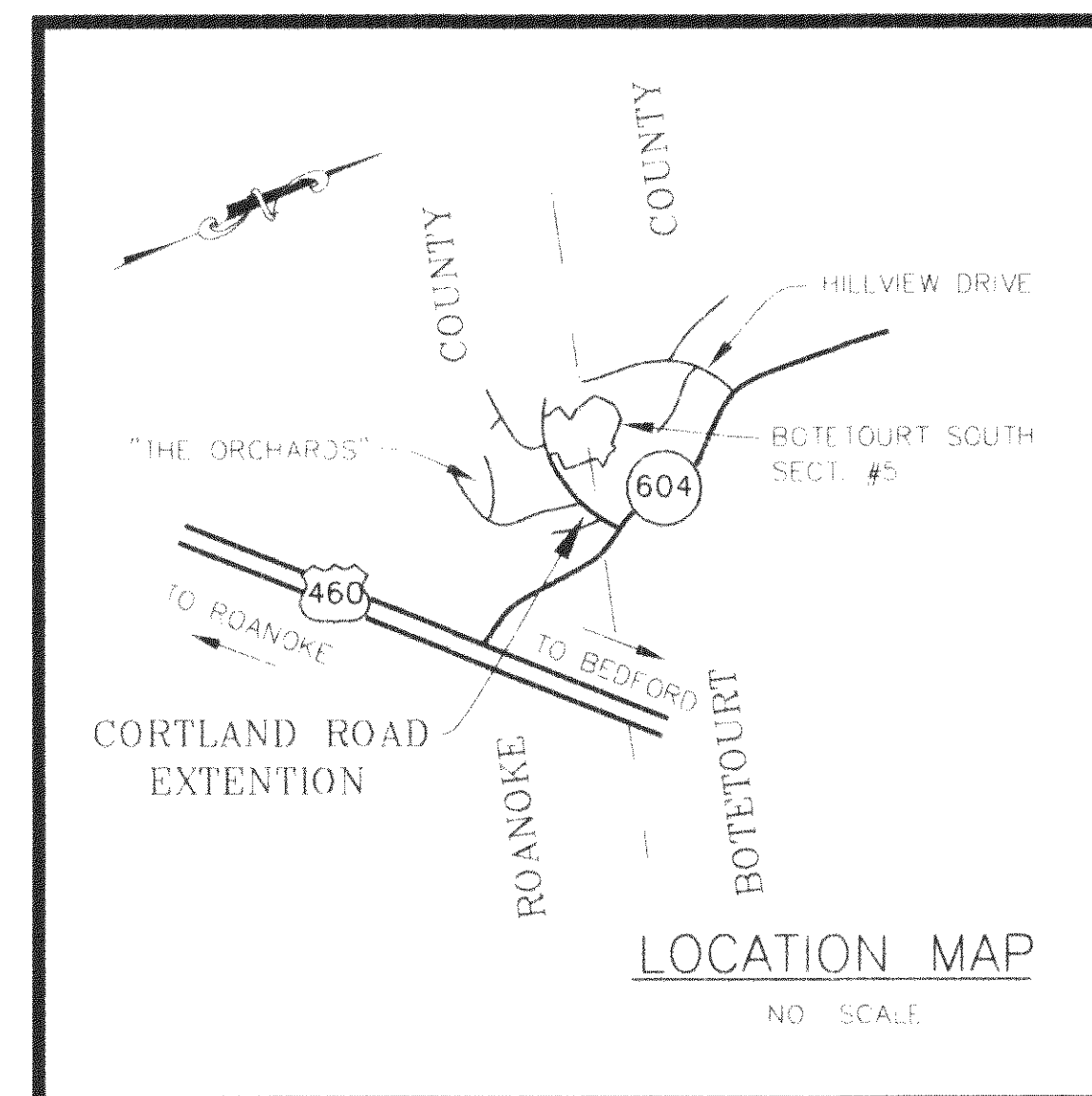


DEVELOPMENT PLAN
FOR
"CORTLAND ROAD EXTENTION"

SITUATED IN
HOLLINS MAGISTERIAL DISTRICT, ROANOKE COUNTY, VIRGINIA
VALLEY MAGISTERIAL DISTRICT, BOTETOURT COUNTY, VIRGINIA

DATE: JUNE 25, 1996

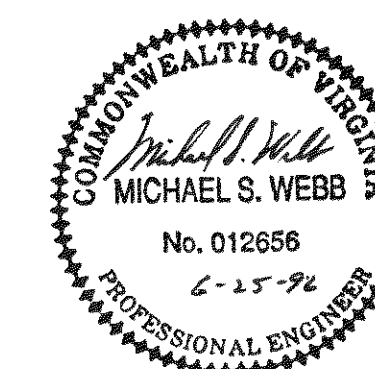
PREPARED FOR
F. & W. COMMUNITY DEVELOPMENT CORPORATION



INDEX OF DRAWINGS

SHEET No.	DESCRIPTION
1.	LUMSDEN ASSOCIATES COVER SHEET
2.	ROANOKE COUNTY STD. COVER SHEET
3.	RECORD PLAT
4.	NOTES AND DETAILS
5.	SITE PLAN
6.	ENTRANCE DETAIL AND PROFILES
7.	ROAD PROFILE
8.	SANITARY SEWER & STORM DRAIN PROFILES
9.	EROSION CONTROL PLAN
10.	ROANOKE CO. STD. EROSION CONTROL DETAIL SHEET
11.	ROANOKE CO. STD. SAN. SEWER DETAIL SHEET
12.	ROANOKE CO. STD. WATER DETAIL SHEET

LUMSDEN ASSOCIATES, P.C.
ENGINEERS—SURVEYORS—PLANNERS
ROANOKE, VIRGINIA



QUANTITY + COST ESTIMATE

ITEM	QUANTITY	UNIT	UNIT PRICE	COST	BONDABLE
CLEARING AND GRUBBING		ACRES			
EXCAVATION		C.Y.			
EMBANKMENT		C.Y.			
CURB INLET DI=3B, 6'	3	EACH	\$ 1,250.00	\$ 3,750.00	
CURB INLET DI=3B, 10'	1	EACH	1,750.00	1,750.00	
CURB INLET DI=3C, 8'	1	EACH	1,500.00	1,500.00	
CURB INLET DI=3C, 10'	1	EACH	1,750.00	1,750.00	
MANHOLE MH-		EACH			
MANHOLE MH-		EACH			
15 -IN. CONCRETE PIPE,	204	LIN. FT.	15.00	3,060.00	
36 -IN. CONCRETE PIPE,	83	LIN. FT.	65.00	5,395.00	
48 -IN. CONCRETE PIPE	160	LIN.FT.	160.00	25,600.00	
30 -IN. CONCRETE PIPE	8	LIN.FT.	55.00	3,520.00	
-IN. C.M. CULVERT		LIN. FT.			
-IN. C.M. CULVERT		LIN. FT.			
BOX CULVERT 10' X 8	2	LUMP SUM	22,000.00	44,000.00	
PAVED DITCH		LIN. FT.			
RIPRAP - CLASS I	1900	S.F.	15.00	28,500.00	
SODDED SWALE		S.Y.			
15-IN. CONCRETE ENGWALL EW-1	3	EACH	350.00	1,050.00	
36-IN. CONCRETE ENDWALL EW- 1	2	EACH	1,200.00	1,400.00	
48-IN. CONCRETE ENDWALL EW-7S	2	EACH	1,500.00	3,000.00	
72-IN. SLAB END TREATMENT	2	EACH	2,500.00	5,000.00	
HEADER CURB & GUTTER CG--		LIN. FT.			
CURB & GUTTER CG-6	816	LIN. FT.	8.50	6,936.00	
VALLEY GUTTER		EACH			
GRAVEL BASE		S.Y.			
CATEGORY V PAVEMENT	2,636	S.Y.	22.50	57,992.00	
GRAVEL SHOULDER		S.Y.			
SURFACE TREATMENT		S.Y.			
-IN. BIT. CONC.: TYPE B-		S.Y.			
-IN. BIT. CONC.: TYPE S-		S.Y.			
-IN. BASE MATERIAL		C.Y.			
-IN. SUBBASE MATERIAL		C.Y.			
TRAFFIC BARRICADE		EACH			
8" WATER LINE	132	LIN. FT.	20.00	2,640.00	
6" WATER LINE		LIN. FT.			
FIRE HYDRANT ASSEMBLIES		EACH			
BLOW OFFS W/VAULT, FRAME & COVER	1	EACH	500.00	500.00	
-IN. GATE VALVES, W/VAULT, FRAME & COVER		EACH			
-IN. GATE VALVES, W/VAULT, FRAME & COVER		EACH			
8" SANITARY SEWER	70	LIN. FT.	20.00	1,400.00	
STANDARD MANHOLE W/FRAME & COVER	1	EACH	1,200.00	1,200.00	
SAMPLING MANHOLE/PORT		EACH			
AS-BUILT PLANS		LUMP SUM			
STORMWATER MANAGEMENT		LUMP SUM			
SUB-TOTAL				200,383.00	
10% CONTINGENCY				20,038.00	
ESTIMATED TOTAL				\$220,421.00	

I HEREBY CERTIFY THAT THE FOREGOING ESTIMATE REFLECTS THE CURRENT IMPROVEMENT COSTS OF THIS PROJECT.

SIGNED:

DATE:

GENERAL NOTES

All construction methods and materials shall conform to the Construction Standards and Specifications of Roanoke County and/or the Virginia Department of Transportation.

The contractor or developer is required to notify the Roanoke County Engineering Division in writing at least three (3) days prior to any construction, including, but not limited to the following:

- A. Installation of approved erosion control devices
- B. Clearing and grubbing
- C. Subgrade excavation
- D. Installing storm sewers or culverts
- E. Setting curb and gutter forms
- F. Placing curb and gutter
- G. Placing other concrete
- H. Placing gravel base
- I. Placing any roadway surface
- J. Installing water lines
- K. Installing sanitary sewer lines

A pre-construction conference should be scheduled with the Roanoke County Engineering Division, to be held at least one (1) day prior to any construction.

Measures to control erosion and siltation must be provided prior to plan approval. Plan approval in no way relieves the developer or contractor of the responsibilities contained within the erosion and siltation control policies.

A permit must be obtained from the V.D.O.T. Residency Office, Roanoke County, prior to construction in the highway right-of-way.

Plan approval does not guarantee issuance of any permits by V.D.O.T.

An approved set of plans and all permits must be available at the construction site.

Field construction shall honor proposed drainage divides as shown on plans.

All unsuitable material shall be removed from the construction limits of the roadway before placing embankment.

Pavement sections on approved plans are based on a minimum CBR of 10. CBR tests are to be performed by the engineer and submitted to V.D.O.T. and to the Roanoke County Engineering Division prior to placement. CBR values < 10 will require revised pavement sections.

All roadside ditches or grades of more than 5 percent shall be paved with cement concrete to the limits as indicated on the plans and as required at the field inspection.

Location of guard rails shall be determined at a joint field inspection by the County and V.D.O.T.

All springs shall be capped and piped to the nearest storm sewer or natural watercourse. The pipe shall be 6 inch minimum diameter and conform to V.D.O.T. Standard SB-1.

Standard street and traffic control signs shall be erected at each intersection by the developer prior to final street acceptance.

Construction debris shall be containerized in accordance with the Virginia Litter Control Act. No less than one litter receptacle shall be provided on site.

The contractor shall provide adequate means of cleaning mud from trucks and/or other equipment prior to entering public streets. It is the contractors responsibility to insure that the streets are in a clean, mud and dust free condition at all times.

The developer and/or contractor shall supply all utility companies with copies of approved plans, advising them that all grading and installation shall conform to approved plans.

Contractors shall notify utilities of proposed construction at least two (2), but not more than ten (10) working days in advance. Area public utilities may be notified thru "Miss Utility": 1-800-552-7001.

The developer or contractor shall supply the county with correct As-Built plans before final acceptance.

All work shall be subject to inspection by Roanoke County and/or V.D.O.T. inspectors.

Field corrections shall be approved by the Roanoke County Engineering Division prior to such construction.

100 year floodway and floodplain information shall be shown where applicable.

Grade stakes shall be set for all curb and gutter, culver, sanitary sewer and storm sewer.

INDEX

SEE LUMSDEN ASSOCIATES, P. C. COVER SHEET

SEWER NOTES

A minimum cover of three (3) feet is required over proposed lines.

Contractor shall be responsible for locating and uncovering all manholes after paving. Manhole tops shall be adjusted to grade if necessary.

All existing utilities may not be shown or may not be shown in the exact location. The contractor shall comply with State Water Works Regulations, Section 12.05.03, where lines cross.

House connections are to be made with 4" pipe installed at a minimum grade of 1/4 inch to 1 foot in R/W.

Laterals from manholes shall be PVC or Ductile Iron of sufficient length to provide two (2) feet of bearing on natural ground. The transition from ductile iron to asbestos cement or concrete pipe shall be made with an adapter coupling in R/W.

All trenches in existing or future rights-of-way shall be compacted according to V.D.O.T. standards.

Lines shall be staked prior to construction.

WATER NOTES

A minimum cover of three (3) feet is required over proposed lines.

Contractor shall be responsible for locating and uncovering valve vaults after paving and adjustment to final grade if necessary.

All existing utilities may not be shown or may not be shown in the exact location. The contractor shall comply with the State Water Works Regulations, Section 12.05.03, where lines cross.

All trenches in existing or future highway right-of-ways shall be compacted according to V.D.O.T. standards.

Lines shall be staked prior to construction.

Water main shall be minimum Class 52 Ductile Iron in accordance to AWWA C151 or DR-14 PVC in accordance with AWWA C-900.

Availability number 93-188

LEGEND

Property Line	---
Right-of-way	--- R/W ---
Centerline	---
Minimum Building Line	--- M.B.L. ---
Existing Storm Sewer	--- 18" S.D. --- 18" S.D. ---
Existing Sanitary Sewer	--- 8" SAN. --- 8" SAN. ---
Existing Water Main	--- 4" W --- 4" W ---
Existing Contour	--- 1045 ---
Proposed Contour	--- 1045 ---
Proposed Drainage Divide	<--- 24" S.D. --->
Proposed Limits of Clearing	---
Proposed Storm Sewer	--- 8" M.H. ---
Proposed Sanitary Sewer	---
Proposed Water Main	---
HYDRANT	HYDRANT
VALVE	VALVE
BLOWOFF	BLOWOFF

COUNTY OF ROANOKE

NAME OF DEVELOPMENT CORTLAND ROAD EXTENSION

MAGISTERIAL DISTRICT(S) HOLLINS, ROANOKE COUNTY
VALLEY, BOTETOURT COUNTY

OWNER (name, address, telephone) F & W DEVELOPMENT CORP.
P.O. BOX 20069 (703) 774-4415
ROANOKE, VIRGINIA 24018

DEVELOPER (name, address, telephone) SAME AS ABOVE

ENGINEER, ARCHITECT OR SURVEYOR (name, address, telephone) LUMSDEN ASSOCIATES, P.C.
P.O. BOX 20669 (703) 774-4411
ROANOKE, VIRGINIA 24018

TAX MAP NO(S) 40.01 BLOCK NO(S) 1
107 A PARCEL NO(S) 4
254

SEE LUMSDEN ASSOCIATES, P. C. COVER SHEET

VICINITY MAP

SURVEY INFORMATION

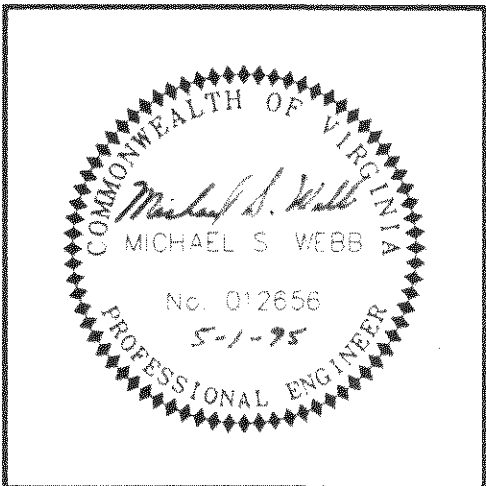
Horizontal and vertical control surveys were performed in (year) 1985
by LUMSDEN ASSOCIATES, P.C.

All elevations must be referenced to the National Geodetic Vertical Datum of 1929.

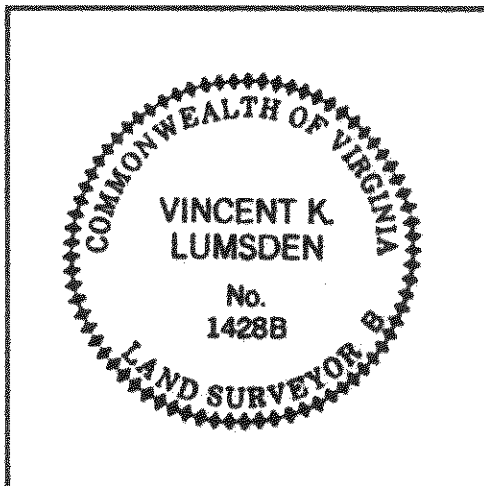
Source of topographic mapping is AERIAL PHOTOGRAPHY
dated 1985

Boundary was performed by LUMSDEN ASSOCIATES, P.C.
dated 1995

The professional seal and signature below certifies the boundary survey and topographic mapping to be accurate and correct.



PROFESSIONAL ENGINEER
SEAL AND SIGNATURE



CERTIFIED LAND SURVEYOR
SEAL AND SIGNATURE

I, Michael S. Webb, OWNER/DEVELOPER, AM AWARE OF THE SITE DESIGN REQUIREMENTS IMPOSED BY THIS SITE DEVELOPMENT PLAN AND OTHER APPLICABLE COUNTY CODES. I HEREBY CERTIFY THAT I AGREE TO COMPLY WITH THESE REQUIREMENTS, UNLESS MODIFIED IN ACCORDANCE WITH LOCAL LAW.

KNOW ALL MEN BY THESE PRESENTS, TO WIT:

THAT F & W COMMUNITY DEVELOPMENT CORPORATION IS THE FEE SIMPLE OWNER AND PROPRIETOR OF THE LAND SHOWN HEREON TO BE SUBDIVIDED, BOUNDED BY OUTSIDE CORNERS 1 THROUGH 12 TO 1, INCLUSIVE, WHICH COMPRISES PART OF THE LAND CONVEYED TO SAID OWNER BY DEED FROM MAX A. MURRAY AND DOROTHY G. MURRAY, DATED JANUARY 9, 1985, AND RECORDED IN THE CLERK'S OFFICE OF THE CIRCUIT COURT OF BOTETOURT COUNTY, VIRGINIA, IN DEED BOOK 300, PAGE 691 AND COMPRISES A PORTION OF THE LAND CONVEYED TO SAID OWNER BY DEED FROM J. MORRIS CRUMPACKER, ET UX, RECORDED IN THE CLERK'S OFFICE OF THE CIRCUIT COURT OF ROANOKE COUNTY, VIRGINIA IN DEED BOOK 962, PAGE 651.

THE SAID OWNER CERTIFIES THAT IT HAS SUBDIVIDED THIS LAND, AS SHOWN HEREON, ENTIRELY WITH ITS OWN FREE WILL AND CONSENT AND PURSUANT TO AND IN COMPLIANCE WITH THE VIRGINIA CODE OF 1950, AS AMENDED TO DATE, AND FURTHER PURSUANT TO AND IN COMPLIANCE WITH THE COUNTY OF BOTETOURT LAND SUBDIVISION ORDINANCES.

THE SAID OWNER DOES BY VIRTUE OF THE RECORDATION OF THIS PLAT, DEDICATE IN FEE SIMPLE TO THE COUNTY OF BOTETOURT ALL OF THE STREETS AND EASEMENTS WITHIN THE BOUNDARY AND OUTSIDE THE BOUNDARY, LOCATED WITHIN BOTETOURT COUNTY, ARE HEREBY DEDICATED FOR PUBLIC USE.

THE SAID OWNER DOES AS A CONDITION PRECEDENT TO THE APPROVAL OF THIS PLAT AND SUBDIVISION AND THE ACCEPTANCE OF THE DEDICATION OF THE STREETS SHOWN HEREON BY THE BOARD OF SUPERVISORS OF BOTETOURT COUNTY, VIRGINIA, ON ITS BEHALF AND FOR AND ON ACCOUNT OF ITS HEIRS, DEVISEES, SUCCESSORS AND ASSIGNS, SPECIFICALLY RELEASES THE COUNTY OF BOTETOURT, VIRGINIA, AND THE VIRGINIA DEPARTMENT OF TRANSPORTATION FROM ANY OR ALL CLAIM OR CLAIMS FOR DAMAGES WHICH SAID OWNER, ITS SUCCESSORS, DEVISEES AND ASSIGNS, MAY OR MIGHT HAVE AGAINST THE COUNTY OF BOTETOURT OR THE VIRGINIA DEPARTMENT OF TRANSPORTATION BY REASON OF ESTABLISHING PROPER GRADE LINES ON OR ALONG SUCH STREETS AS SHOWN ON THIS PLAT OF SUBDIVISION (OR SUCH CHANGED STREETS AS MAY BE AGREED UPON IN THE FUTURE) AND BY REASON OF DOING NECESSARY GRADING, CUTTING OR FILLING FOR THE PURPOSE OF PLACING SUCH STREETS UPON PROPER GRADE AS MAY FROM TIME TO TIME BE ESTABLISHED BY SAID COUNTY OR VIRGINIA DEPARTMENT OF TRANSPORTATION AND SAID COUNTY OR VIRGINIA DEPARTMENT OF TRANSPORTATION SHALL NOT BE REQUIRED TO CONSTRUCT ANY RETAINING WALL OR WALLS ALONG THE STREETS AND PROPERTY LINES THEREOF OR MAINTAIN ANY EASEMENTS AS SHOWN HEREON.

IN WITNESS THEREOF IS HEREBY PLACED THE FOLLOWING SIGNATURES AND SEALS ON THIS _____ DAY OF _____, 1995.

F & W COMMUNITY DEVELOPMENT CORPORATION

BY: _____

NAME: _____, TITLE: _____

STATE OF VIRGINIA

_____ OF _____

I, _____, A NOTARY PUBLIC IN AND FOR THE AFORESAID _____ AND STATE DO HEREBY CERTIFY THAT

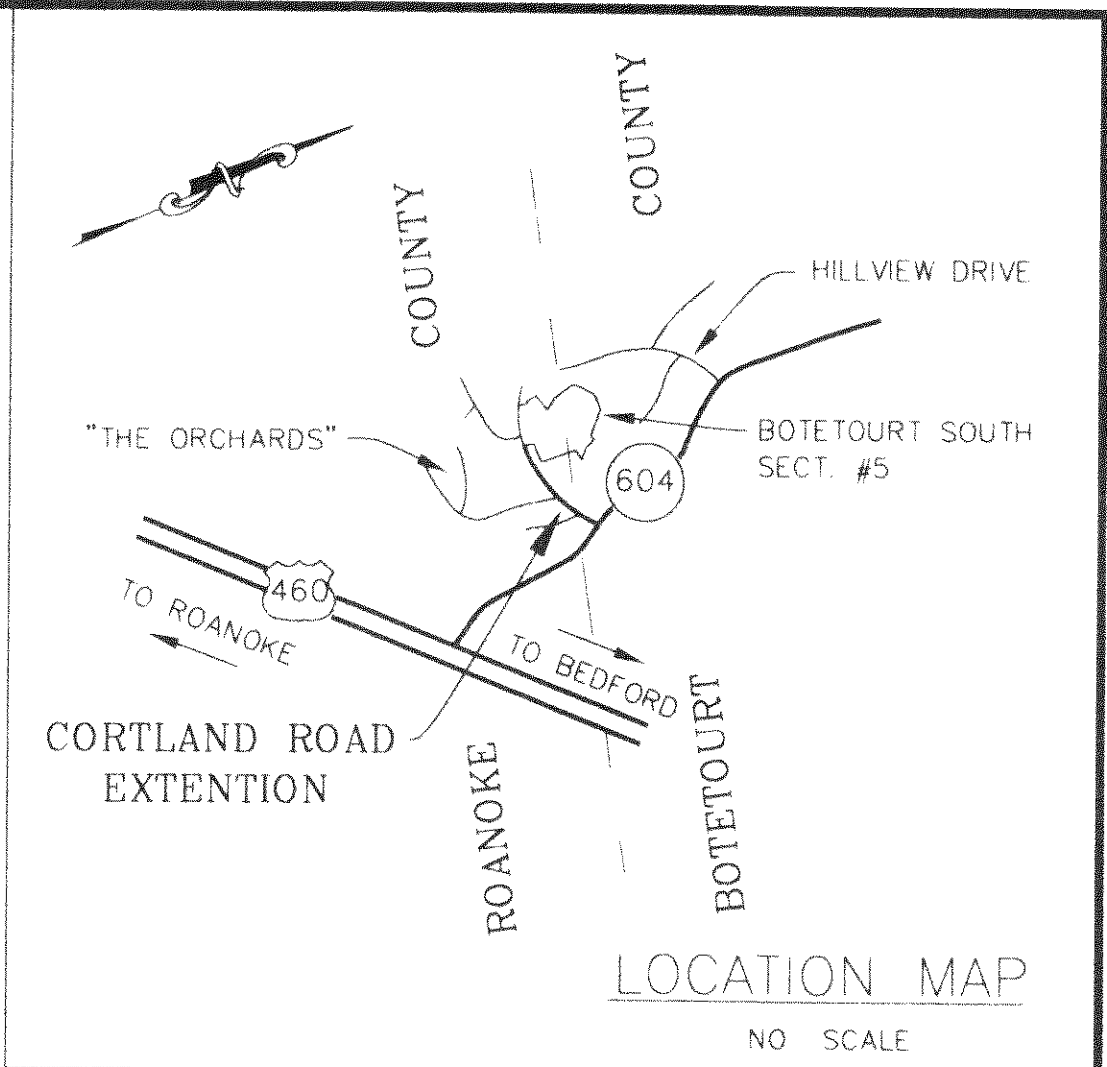
_____ HAS PERSONALLY APPEARED BEFORE ME IN MY AFORESAID _____ AND STATE AND ACKNOWLEDGED THE SAME ON _____, 1995.

MY COMMISSION EXPIRES _____

NOTARY PUBLIC

NOTES:

1. THIS PROPERTY IS NOT LOCATED WITHIN THE LIMITS OF A 100 YEAR FLOOD BOUNDARY AS DESIGNATED BY FEMA. THIS OPINION IS BASED ON AN INSPECTION OF THE FLOOD INSURANCE RATE MAP AND HAS NOT BEEN VERIFIED BY ACTUAL FIELD ELEVATIONS.
2. THIS PLAT WAS PREPARED WITHOUT THE BENEFIT OF A CURRENT TITLE REPORT AND THERE MAY EXIST ENCUMBRANCES WHICH AFFECT THIS PROPERTY NOT SHOWN HEREON.
3. IRON PINS SET AT ALL CORNER UNLESS OTHERWISE NOTED.
4. THIS PLAT IS BASED ON A CURRENT FIELD SURVEY.
5. TOTAL AREA OF RIGHT-OF-WAY IN BOTETOURT COUNTY = 0.286 ACRES
TOTAL AREA OF RIGHT-OF-WAY IN ROANOKE COUNTY = 1.961 ACRES



IN THE CLERK'S OFFICE FOR THE CIRCUIT COURT OF BOTETOURT COUNTY, VIRGINIA, THIS PLAT WAS PRESENTED AND WITH THE CERTIFICATE OF ACKNOWLEDGEMENT THERETO ANNEXED, IS ADMITTED TO RECORD AT _____ O'CLOCK ON THIS _____ DAY OF _____, 1995.

ATTEST: TOMMY MOORE, CLERK

DEPUTY CLERK

APPROVED:

BOTETOURT COUNTY, SUBDIVISION AGENT

DATE

... PLAT SHOWING
"CORTLAND ROAD EXTENSION"
BEING DEDICATED TO
THE COUNTY OF BOTETOURT

BY

F & W COMMUNITY DEVELOPMENT
CORPORATION

LOCATED IN

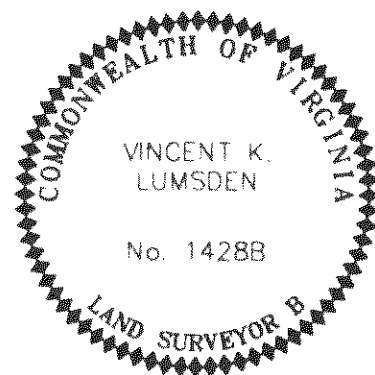
VALLEY MAGISTERIAL DISTRICT
BOTETOURT COUNTY, VIRGINIA

AND

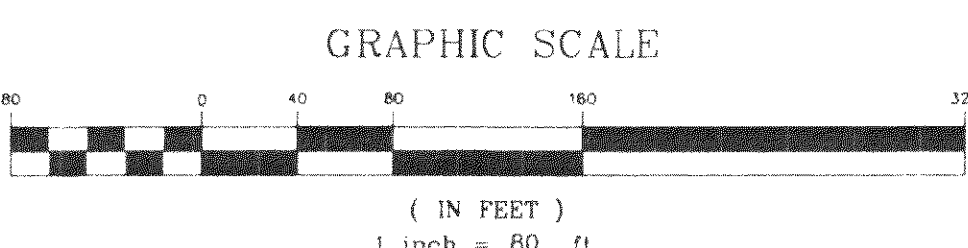
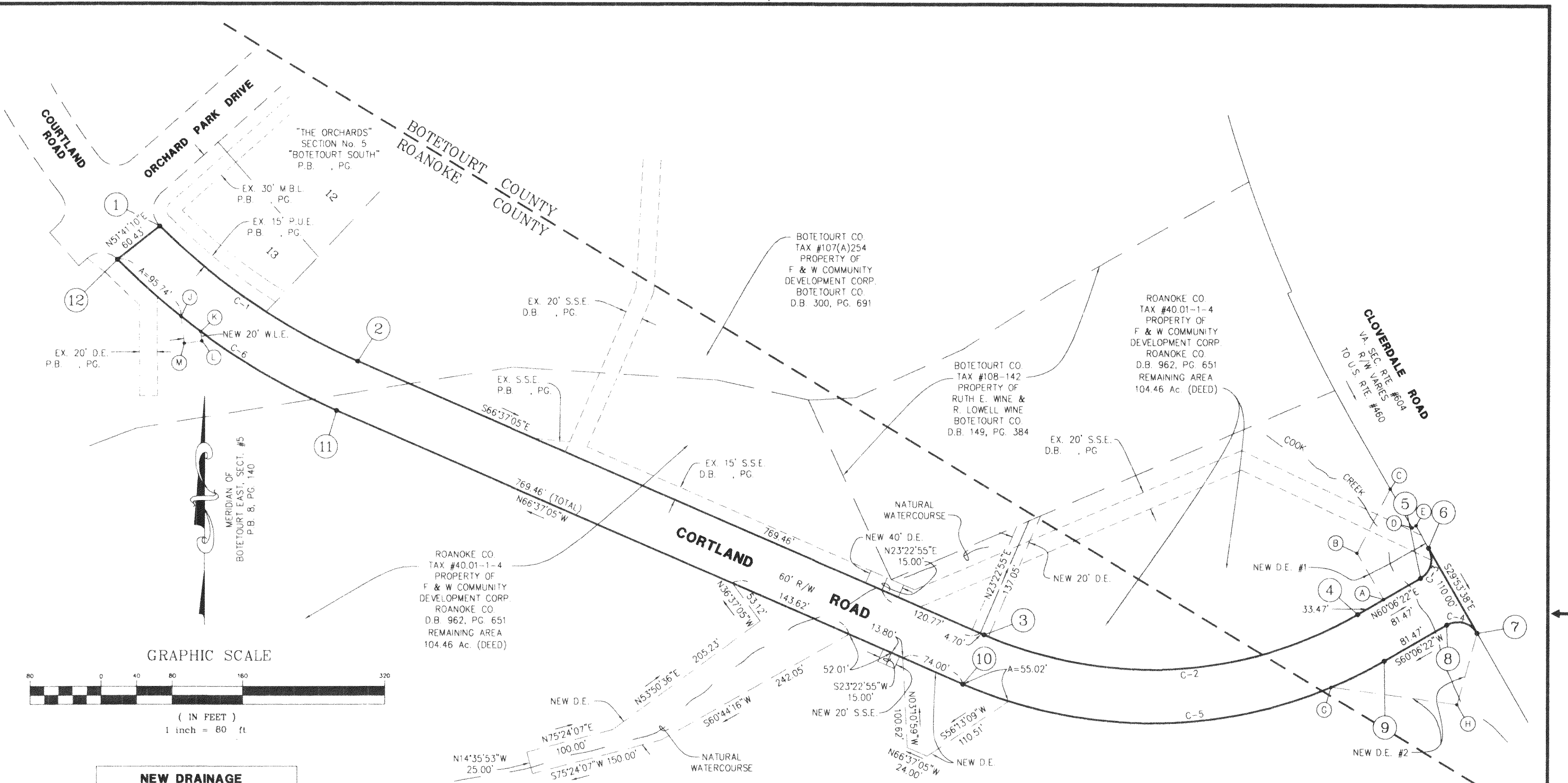
HOLLINS MAGISTERIAL DISTRICT
ROANOKE COUNTY, VIRGINIA

SCALE: 1"=80' DATE: 25 JUNE 1996

LUMSDEN ASSOCIATES, P.C.
ENGINEERS-SURVEYORS-PLANNERS
ROANOKE, VIRGINIA



SHEET 1 of 2
COMM. #85-016CR



NEW DRAINAGE EASEMENT #1		
LINE	DIRECTION	DISTANCE
A-B	N29°53'38\"W	60.00'
B-C	N27°18'45\"E	80.89'
C-D	S29°53'38\"E	50.00'
D-E	S60°06'22\"W	5.00'
E-F	S29°53'38\"E	28.81'
F-G	S15°06'22\"W	35.36'CH
G-H	S60°06'22\"W	48.00'

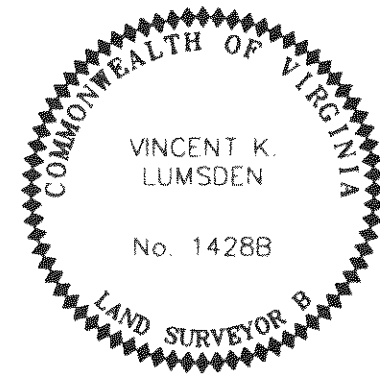
NEW DRAINAGE EASEMENT #2		
LINE	DIRECTION	DISTANCE
G-9	N63°42'18\"E	66.54'CH
9-8	N60°06'22\"E	81.47'
8-7	S74°53'38\"E	35.36'CH
7-H	S15°45'45\"W	83.00'
H-G	N82°22'01\"W	143.14'

LEGEND	
EX.	EXISTING
D.B.	DEED BOOK
P.B.	PLAT BOOK
P.C.	PAGE
D.E.	DRAINAGE EASEMENT
S.S.E.	SANITARY SEWER EASEMENT
S.F.	SQUARE FEET
W.L.E.	WATER LINE EASEMENT

CURVE TABLE						
CURVE	RADIUS	LENGTH	TANGENT	CHORD	BEARING	DELTA
C-1	735.00'	271.32'	137.22'	269.78'	S56°02'35\"E	21°09'01\"
C-2	470.00'	437.02'	235.75'	421.45'	N86°44'39\"E	53°16'33\"
C-3	25.00'	39.27'	25.00'	35.36'	N15°06'22\"E	90°00'00\"
C-4	25.00'	39.27'	25.00'	35.36'	N74°53'38\"W	90°00'00\"
C-5	530.00'	492.81'	265.84'	475.25'	S86°44'39\"W	53°16'33\"
C-6	795.00'	300.99'	152.32'	299.20'	N55°46'18\"W	21°41'33\"

BOUNDARY COORDINATES		
ORIGIN OF COORDINATES ARE ASSUMED		
CORNER	NORTHING	EASTING
1	11475.87014	8396.72207
2	11325.17897	8620.49298
3	11019.81150	9326.76693
4	11043.74847	9747.53590
5	11084.35248	9818.16595
6	11118.48611	9827.37984
7	11023.12159	9882.20327
8	11032.33548	9848.06964
9	10991.73146	9777.43959
10	10964.73870	9302.95543
11	11270.10617	8596.68149
12	11438.40245	8349.30323
1	11475.87014	8396.72207
TOTAL AREA = 2.247 Ac		

NEW WATER LINE EASEMENT		
LINE	DIRECTION	DISTANCE
J-K	S 52°50'02\" E Chd. Brg.	27.99' Chd.
K-L	S 07°13'28\" E	10.42'
L-M	S 82°46'32\" W	20.00'
M-J	N 07°13'28\" W	30.00'



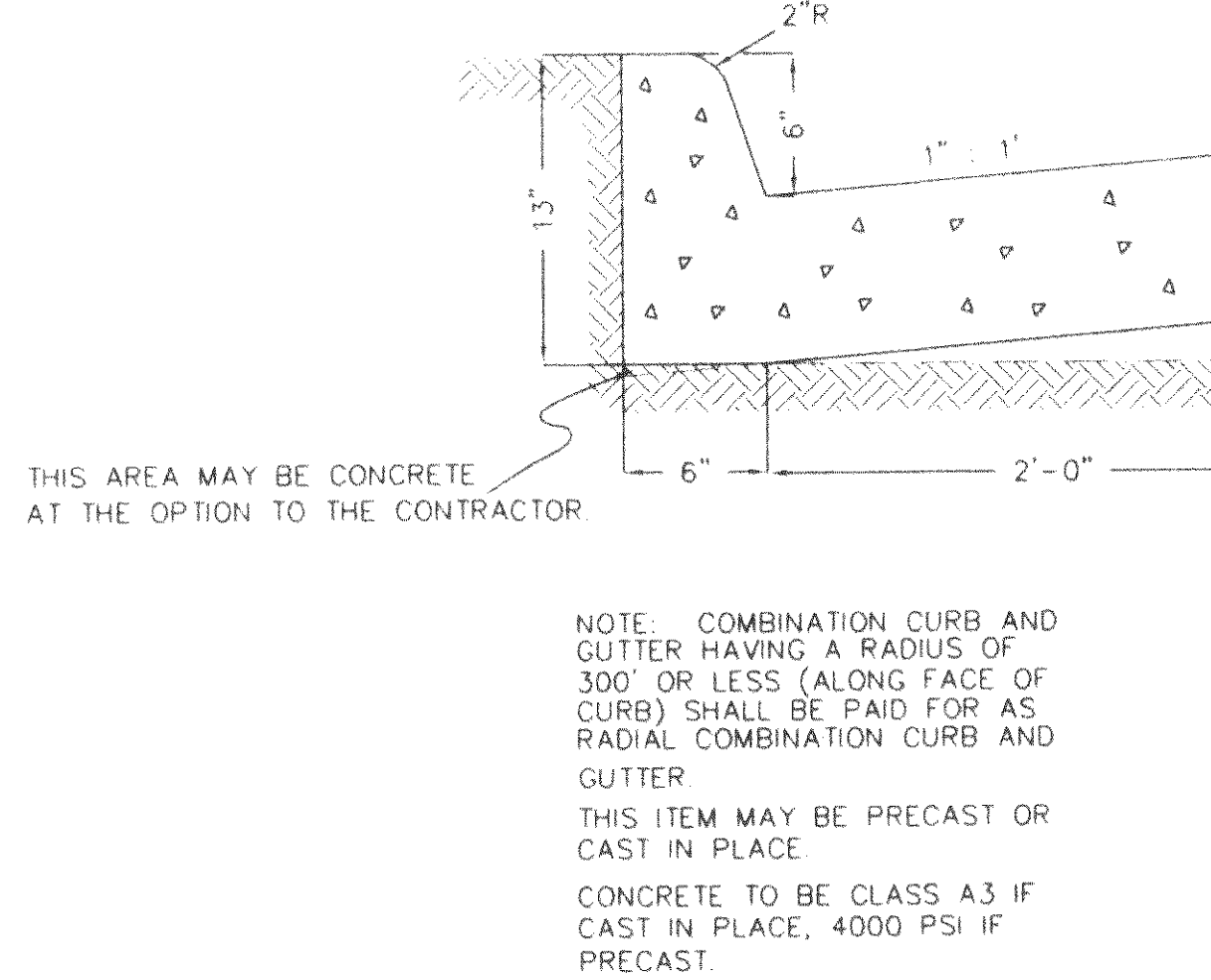
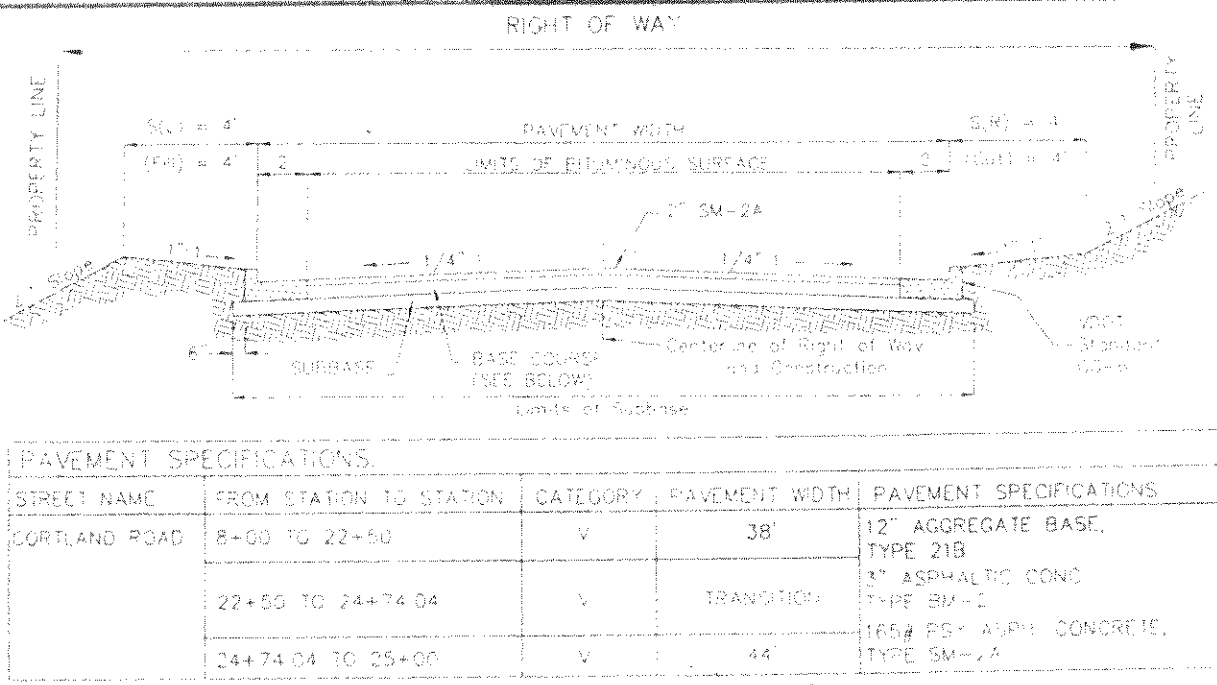
PLAT SHOWING
"CORTLAND ROAD EXTENSION"
BEING DEDICATED TO
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LOCATED IN
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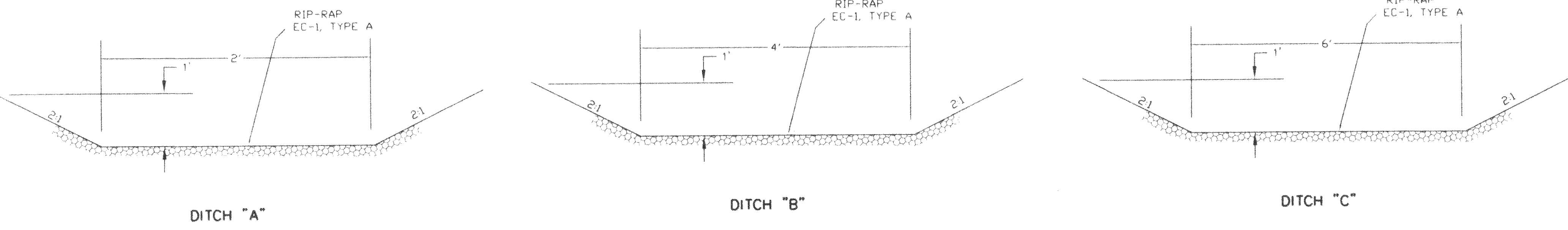
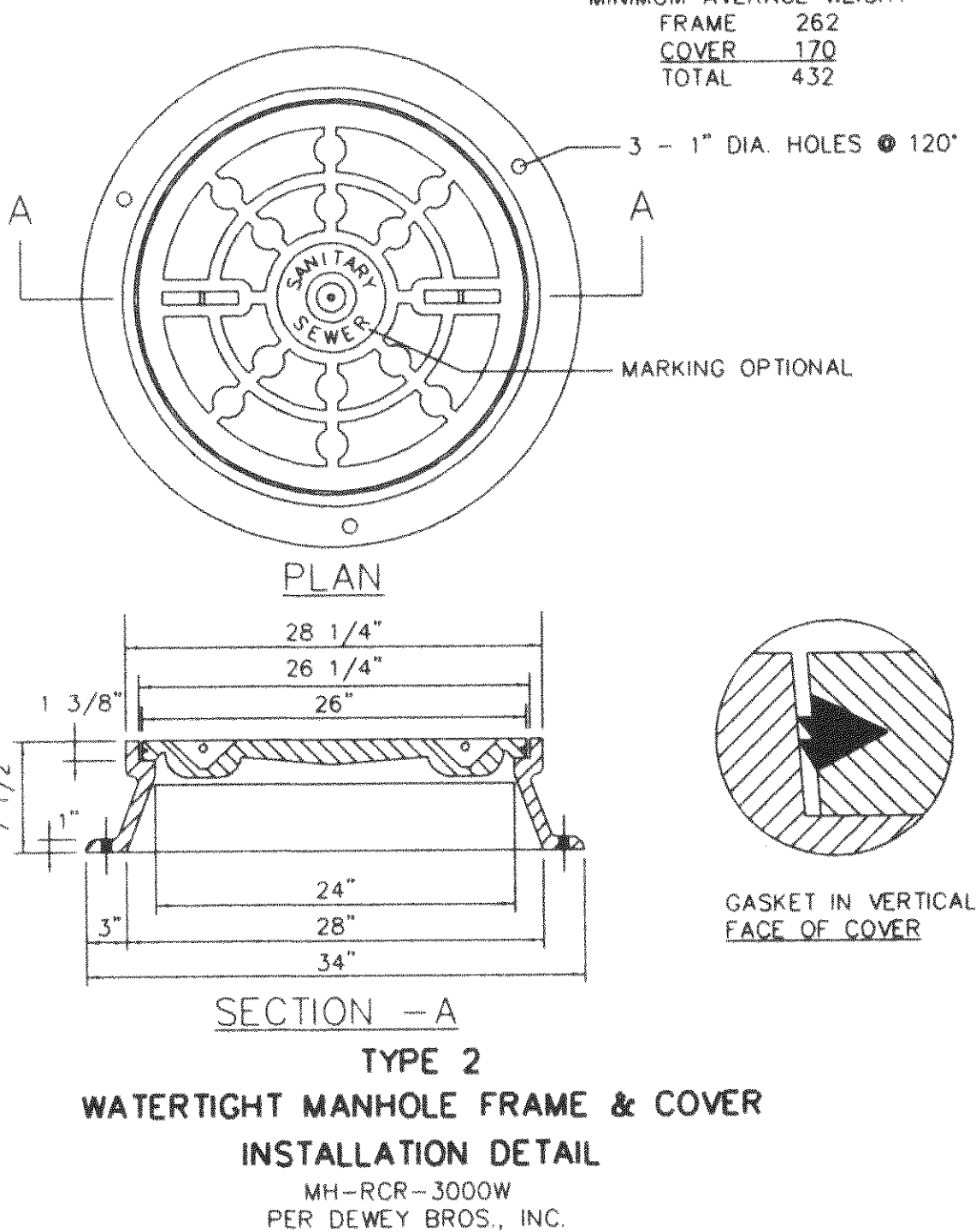
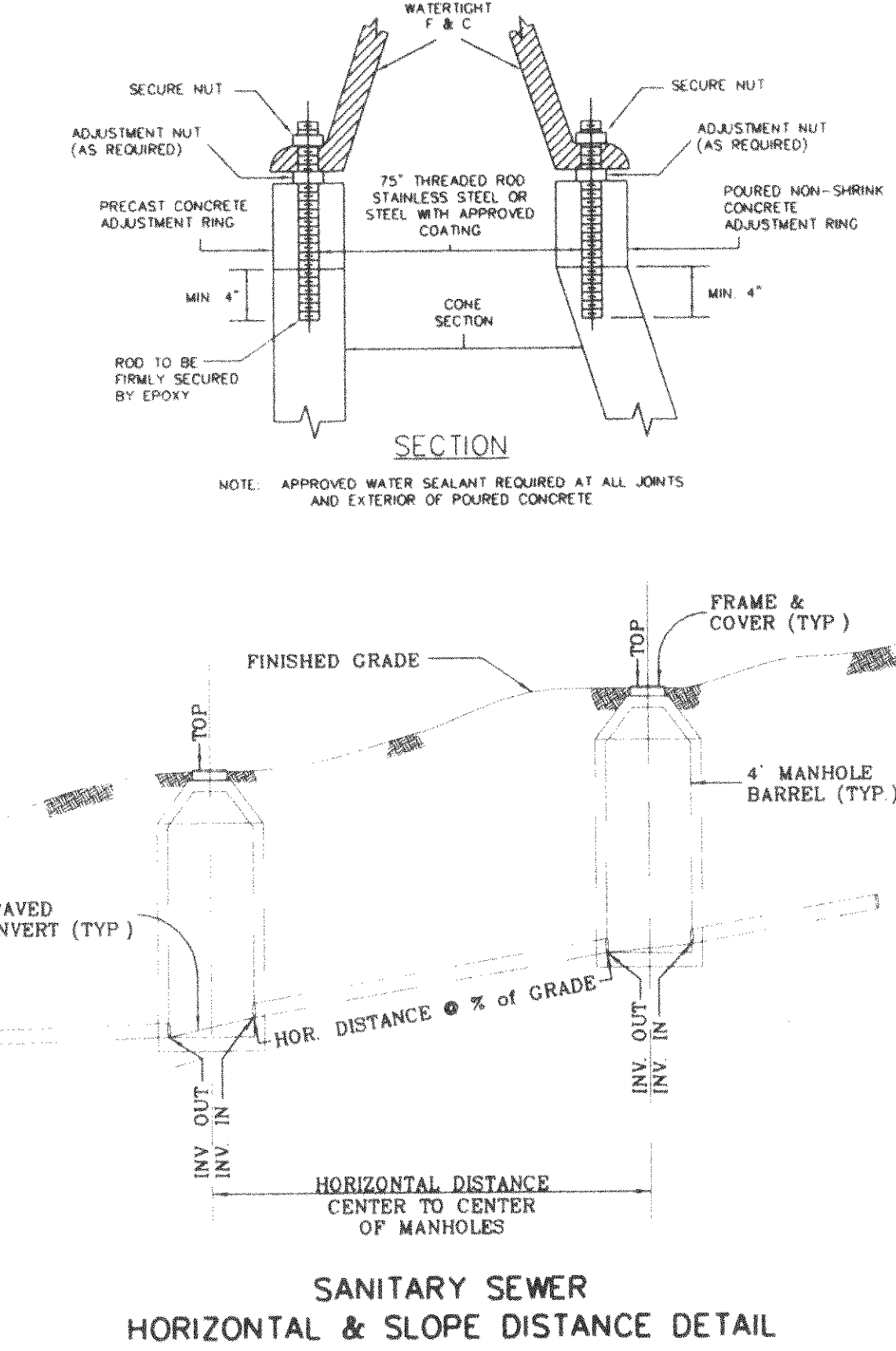
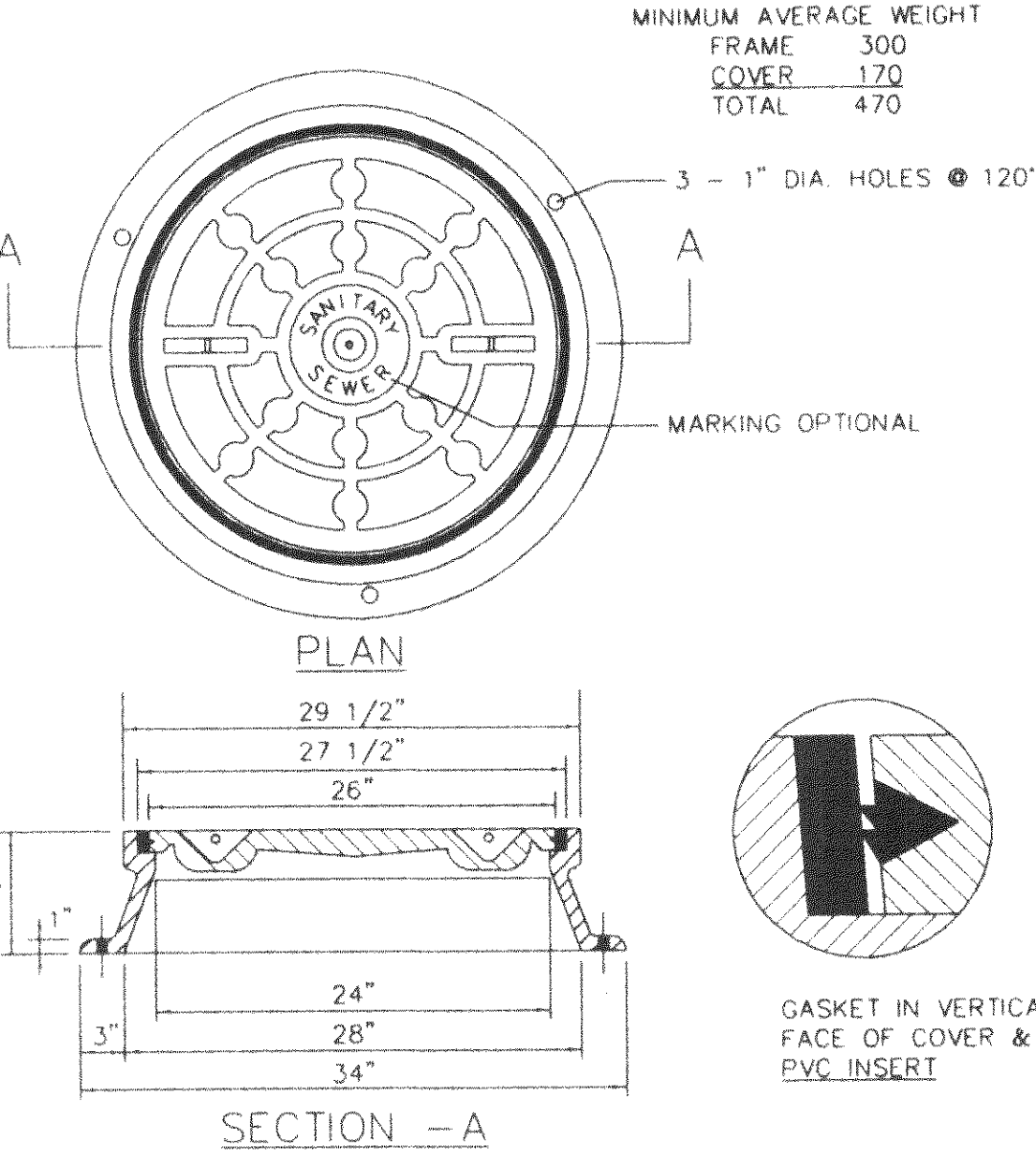
LUMSDEN ASSOCIATES, P.C.
ENGINEERS-SURVEYORS-PLANNERS
ROANOKE, VIRGINIA

VIRGINIA DEPARTMENT OF TRANSPORTATION NOTES:

1. QUALITY CONTROL
STREETS TO BE GRADED, PAVED AND ALL STRUCTURAL COMPONENTS ERECTED IN ACCORDANCE WITH CURRENT VIRGINIA DEPARTMENT OF TRANSPORTATION ROAD AND BRIDGE SPECIFICATIONS AND ROAD DESIGN STANDARDS AND ROANOKE COUNTY DESIGN STANDARDS AND SPECIFICATIONS. ALL MATERIALS USED SHALL BE TESTED IN ACCORDANCE WITH STANDARD POLICIES. THE DEVELOPER MUST CONTACT THE OFFICE OF THE RESIDENT ENGINEER, PRIOR TO BEGINNING ANY CONSTRUCTION AT WHICH TIME AN INSPECTION AND TESTING PROCEDURE POLICY WILL BE DRAWN. THE DEVELOPER WILL PRODUCE TEST REPORTS FROM APPROVED INDEPENDENT LABORATORIES AT THE DEVELOPER'S EXPENSE.
- THE PAVEMENT DESIGNS SHOWN ARE BASED ON A SUBGRADE CBR VALUE OF 10 OR GREATER. THE SUBGRADE SOIL IS TO BE TESTED BY AN INDEPENDENT LABORATORY AND THE RESULTS SUBMITTED TO THE VIRGINIA DEPARTMENT OF TRANSPORTATION PRIOR TO BASE CONSTRUCTION SHOULD THE SUBGRADE CBR VALUES BE LESS THAN 10, THEN ADDITIONAL BASE MATERIAL WILL BE REQUIRED IN ACCORDANCE WITH DEPARTMENTAL SPECIFICATIONS.
- THE SUBGRADE MUST BE APPROVED BY VIRGINIA DEPARTMENT OF TRANSPORTATION PRIOR TO PLACEMENT OF THE BASE. BASE MUST BE APPROVED BY VIRGINIA DEPARTMENT OF TRANSPORTATION FOR DEPTH, TEMPLATE AND COMPACTION BEFORE SURFACE IS APPLIED.
2. UTILITIES
ALL NECESSARY UTILITY LATERALS ALONG WITH PROVISIONS FOR CONDUITS (I.E. WATER, SEWER, STORM, GAS AND TELEPHONE) WILL BE CONSTRUCTED PRIOR TO PLACEMENT OF BASE MATERIAL.
- GAS OR PETROLEUM TRANSMISSION LINES WILL NOT BE PERMITTED WITHIN THE PAVEMENT OR SHOULDER ELEMENT (BACK OF CURB TO BACK OF CURB) OF THIS DEVELOPMENT. SERVICE LATERALS CROSSING AND PIPE LINES LOCATED OUTSIDE THE PAVEMENT BUT INSIDE THE RIGHT OF WAY WILL BE CONSTRUCTED IN CONFORMITY WITH ASA B 31.8 SPECIFICATIONS AND SAFETY REGULATIONS. DISTRIBUTION LINES WITH PRESSURES LESS THAN 120 LBS. ARE UNAFFECTED BY THE ABOVE.
- PERMITS WILL BE REQUIRED FOR ALL UTILITIES WITHIN STREET RIGHT OF WAY PRIOR TO ACCEPTANCE INTO THE SECONDARY HIGHWAY SYSTEM. ANY EASEMENTS GRANTED TO A UTILITY COMPANY FOR PLACEMENT OF POWER, TELEPHONE, ETC. MUST BE RELEASED PRIOR TO ACCEPTANCE.
3. PRIVATE ENTRANCES
MODIFIED CG-9D GUTTER WILL BE PROVIDED AT ALL ENTRANCES TO PRIVATE LOTS WHERE STANDARD CG-6 CURB AND GUTTER IS APPROVED FOR USE.
- DRIVEWAYS CONNECTING TO ROADS WITHOUT CURB & GUTTER SHALL CONFORM TO THE PAVEMENT, SHOULDER & SLOPE.
- PERMITS WILL BE REQUIRED FOR ALL PRIVATE ENTRANCES CONSTRUCTED ON STREET RIGHTS OF WAY AFTER ACCEPTANCE INTO THE SECONDARY HIGHWAY SYSTEM.
4. EROSION CONTROL AND LANDSCAPING
CARE MUST BE TAKEN DURING CONSTRUCTION TO PREVENT EROSION, DUST AND MUD FROM DAMAGING ADJACENT PROPERTY, CLOGGING DITCHES, TRACKING PUBLIC STREETS AND OTHERWISE CREATING A PUBLIC OR PRIVATE NUISANCE TO SURROUNDING AREAS.
- THE ENTIRE CONSTRUCTION AREA INCLUDING DITCHES, CHANNELS, BACK OF CURBS AND OR PAVEMENT ARE TO BE BACKFILLED AND SEEDED AT THE EARLIEST POSSIBLE TIME AFTER FINAL GRADING.
- DRAINAGE EASEMENTS MUST BE DEFINED BY EXCAVATED DITCHES OR CHANNELS FOR THEIR FULL LENGTH TO WELL DEFINED EXISTING NATURAL WATERCOURSES.
- THE ROAD WILL BE REVIEWED DURING CONSTRUCTION FOR THE NEED OF PAVED DITCHES. IF EROSION IS ENCOUNTERED IN ANY DRAINAGE EASEMENT, IT WILL BE THE RESPONSIBILITY OF THE DEVELOPER TO SOD, RIP RAP, GROUT, PAVE OR TO DO WHATEVER IS NECESSARY TO CORRECT THE PROBLEM.
- ALL VEGETATION AND OVERBURDEN TO BE REMOVED FROM SHOULDER TO SHOULDER PRIOR TO THE CONDITIONING (CUTTING AND/OR PREPARATION) OF THE SUBGRADE.
5. INTERSECTION PAVEMENT RADIUS
MINIMUM PAVEMENT RADIUS OF 25 FEET IS REQUIRED AT ALL STREET INTERSECTION.
6. CONNECTIONS TO STATE-MAINTAINED ROADS
WHILE THESE PLANS HAVE BEEN APPROVED, SUCH APPROVAL DOES NOT EXEMPT CONNECTIONS WITH EXISTING STATE-MAINTAINED ROADS FROM CRITICAL REVIEW AT THE TIME PERMIT APPLICATIONS ARE MADE. THIS IS NECESSARY IN ORDER THAT THE PREVAILING CONDITIONS BE TAKEN INTO CONSIDERATION REGARDING SAFETY ACCOMPANIMENTS SUCH AS TURNING LANES.
7. GUARDRAILS
STANDARD GUARDRAIL WITH SAFETY END SECTIONS MAY BE REQUIRED ON FILLS AS DEEMED NECESSARY BY THE RESIDENT ENGINEER. AFTER COMPLETION OF ROUGH GRADING OPERATIONS, THE OFFICE OF THE RESIDENT ENGINEER, SHALL BE NOTIFIED SO THAT A FIELD REVIEW MAY BE MADE OF THE PROPOSED LOCATIONS.
- WHERE GUARDRAILS ARE TO BE INSTALLED THE SHOULDER WIDTH SHALL BE INCREASED IN ACCORDANCE WITH VDOT ROAD AND BRIDGE STANDARDS.
8. STORM DRAINAGE
FIELD REVIEW WILL BE MADE DURING CONSTRUCTION TO DETERMINE THE NEED AND LIMITS OF PAVED DITCHES AND/OR DITCH STABILIZATION TREATMENTS, AND TO DETERMINE THE NEED AND LIMITS OF ADDITIONAL DRAINAGE EASEMENTS. ALL DRAINAGE EASEMENTS MUST BE CUT AND MADE TO FUNCTION TO A NATURAL WATERCOURSE. ANY EROSION PROBLEMS ENCOUNTERED IN AN EASEMENT MUST BE CORRECTED BY WHATEVER MEANS NECESSARY PRIOR TO SUBDIVISION ACCEPTANCE.
- DITCH SLOPES ARE TO BE FOUR TO ONE (4:1) FOR SHOULDER WIDTHS OF SIX FEET (6') OR GREATER AND THREE TO ONE (3:1) FOR SHOULDER WIDTHS OF FOUR FEET (4') OR FIVE FEET (5'). UNLESS OTHERWISE SPECIFIED IN THE PLANS.
9. ENTRANCE PERMIT
CONTRACTOR SHALL OBTAIN ENTRANCE PERMIT TO THE EXISTING VIRGINIA DEPARTMENT OF TRANSPORTATION RIGHT OF WAY FROM RESIDENT ENGINEER PRIOR TO ROAD CONSTRUCTION.
10. INSPECTION
AN INSPECTOR WILL NOT BE FURNISHED EXCEPT FOR PERIODIC PROGRESS INSPECTION, THE ABOVE MENTIONED FIELD REVIEWS AND CHECKING FOR REQUIRED STONE DEPTHS. THE DEVELOPER WILL BE REQUIRED TO POST A SURETY TO GUARANTEE THE ROAD FREE OF DEFECTS FOR ONE YEAR AFTER ACCEPTANCE BY THE DEPARTMENT OF TRANSPORTATION.
11. STREET MAINTENANCE
THE STREETS MUST BE PROPERLY MAINTAINED UNTIL ACCEPTANCE. AT SUCH TIME AS ALL REQUIREMENTS HAVE BEEN MET FOR ACCEPTANCE, ANOTHER INSPECTION WILL BE MADE TO DETERMINE THAT THE STREET HAS BEEN PROPERLY MAINTAINED.
12. UNDERGROUND UTILITIES
CONTRACTOR SHALL VERIFY LOCATION AND ELEVATION OF ALL UNDERGROUND UTILITIES SHOWN ON THE PLANS IN AREAS OF CONSTRUCTION PRIOR TO STARTING WORK BY CONTACTING MS. UTILITY. CONTACT SITE ENGINEER IMMEDIATELY IF LOCATION OR ELEVATION IS DIFFERENT FROM THAT SHOWN ON THE PLANS. IF THERE APPEARS TO BE A CONFLICT, AND UPON DISCOVERY OF ANY UTILITY NOT SHOWN ON THIS PLAN, CALL "MISS UTILITY" OF CENTRAL VIRGINIA AT 1-800-552-7001.
13. REVISIONS OF SPECIFICATIONS AND STANDARDS
APPROVAL OF THESE PLANS WILL BE BASED ON SPECIFICATIONS AND STANDARDS IN EFFECT AT THE TIME OF APPROVAL AND WILL BE SUBJECT, UNTIL COMPLETION OF THE ROADWAY AND ACCEPTANCE BY THE DEPARTMENT, TO FUTURE REVISIONS OF THE SPECIFICATIONS AND STANDARDS.



CONCRETE CURB & GUTTER (CG-6)



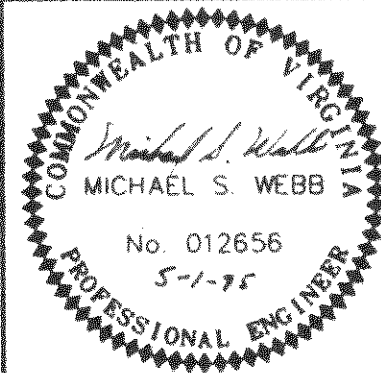
- NOTES:
1. THE PROPERTY SHOWN ON THESE PLANS IS LOCATED AT ROANOKE COUNTY TAX ASSESSMENT MAP 40.01-1-4
 2. THE PROPERTY SHOWN ON THESE PLANS IS ZONED C-1C, R-3, & R-2
 3. DEVELOPER: F & W COMMUNITY DEVELOPMENT CORPORATION
P. O. BOX 20069
ROANOKE, VIRGINIA 24018
 4. NO TITLE REPORT FURNISHED FOR THIS PROPERTY.
 5. THE DEVELOPMENT SHOWN ON THESE PLANS SHALL BE ACCESSED BY PUBLIC ROADS.
 6. PLANIMETRIC DATA PROVIDED BY PHOTOGRAMMETRIC DATA SERVICES IN STERLING, VIRGINIA. CONTOUR INTERVAL = 2'
 7. THE PROPERTY ON THESE PLANS DOES NOT FALL WITHIN THE 100 YEAR FLOOD PLAIN AS DESIGNATED BY FEDERAL INSURANCE RATE MAP, COMMUNITY PANEL #5100180150A
 8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING THE OWNER AND THE ENGINEER OF ANY CHANGES OR CONDITIONS ATTACHED TO PERMITS OBTAINED FROM ROANOKE COUNTY, BOTETOURT COUNTY AND VIRGINIA DEPARTMENT OF TRANSPORTATION OR ANY OTHER AUTHORITY ISSUING PERMITS.
 9. NO SUBSOIL INVESTIGATIONS HAVE BEEN MADE BY THE DESIGNING ENGINEER.
 10. THE CONTRACTOR SHALL VISIT THE SITE AND VERIFY EXISTING CONDITIONS PRIOR TO STARTING CONSTRUCTION.
 11. LUMSDEN ASSOCIATES, P.C. DOES NOT CERTIFY TO THE LOCATION OF OR TO THE EXISTENCE OF ANY EXISTING UNDERGROUND UTILITIES. THE UNDERGROUND UTILITIES SHOWN ARE FROM RECORDS. THIS DOES NOT CONSTITUTE A GUARANTEE OF THEIR ACTUAL LOCATION OR THAT THEY HAVE ALL BEEN SHOWN. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DIGGING OF TEST HOLES PRIOR TO THE BEGINNING OF ANY CONSTRUCTION. THESE TEST HOLES WILL BE MADE TO VERIFY ALL CROSSINGS BETWEEN NEW AND EXISTING FACILITIES AND AT CRITICAL GRADE CHANGES IF CONDITIONS ARE FOUND IN THE FIELD WHICH ARE MATERIALLY DIFFERENT FROM THE PLANS. THE CONTRACTOR SHALL NOTIFY LUMSDEN ASSOCIATES, P.C., SO THAT APPROPRIATE REVISIONS WILL BE MADE TO THE PLANS. THE CONTRACTOR SHALL VERIFY LOCATIONS OF ALL EXISTING UTILITIES PRIOR TO STARTING CONSTRUCTION.
 12. THE PAVEMENT DESIGN IS BASED ON A CBR VALUE OF 10, TAKEN AT THE SUBGRADE ELEVATION.
 13. THE DEDICATED ACREAGE OF PHEASANT RIDGE ROAD IS 2.247 ACRES.
 14. ALL CONSTRUCTION SHALL CONFORM TO THE CURRENT COUNTY OF ROANOKE AND COUNTY OF BOTETOURT STANDARDS AND SPECIFICATIONS.
 15. ALL SANITARY SEWER CONNECTIONS TO EXISTING LINES SHALL BE COORDINATED WITH AND PERFORMED BY ROANOKE COUNTY UTILITY DEPARTMENT.
 16. SEE VDOT ROAD AND BRIDGE STANDARDS FOR CONCRETE CURB AND STORM DRAINAGE DETAILS.

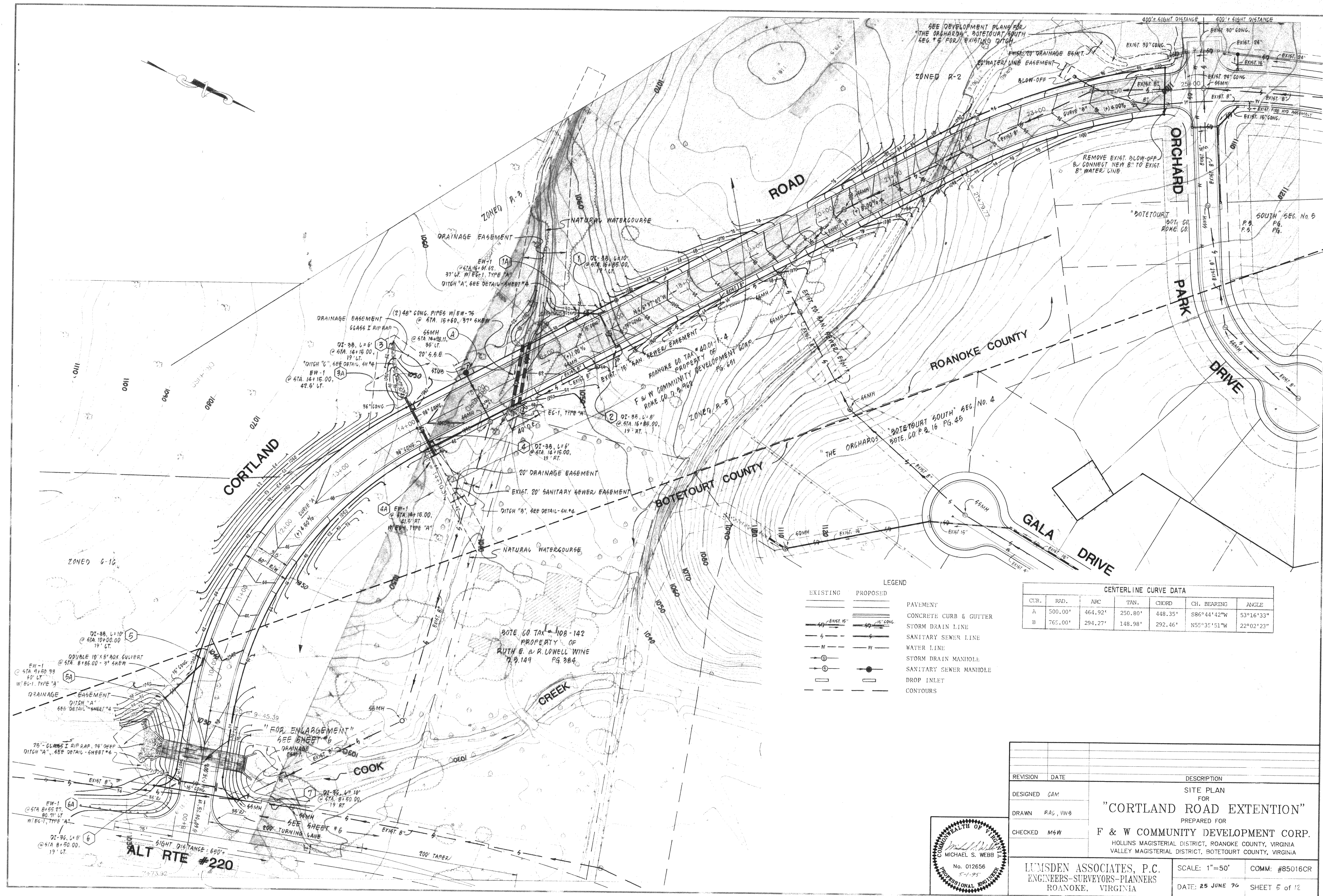
REVISION	DATE	DESCRIPTION
DESIGNED	CAM	
DRAWN	PVR	
CHECKED	MSW	

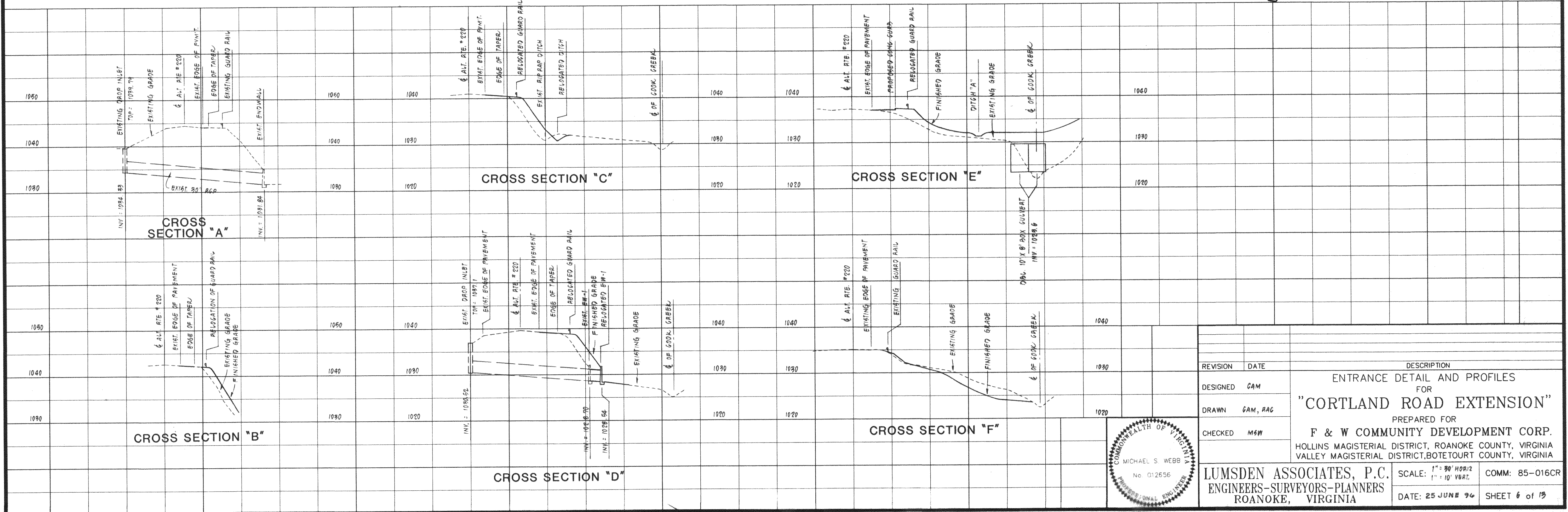
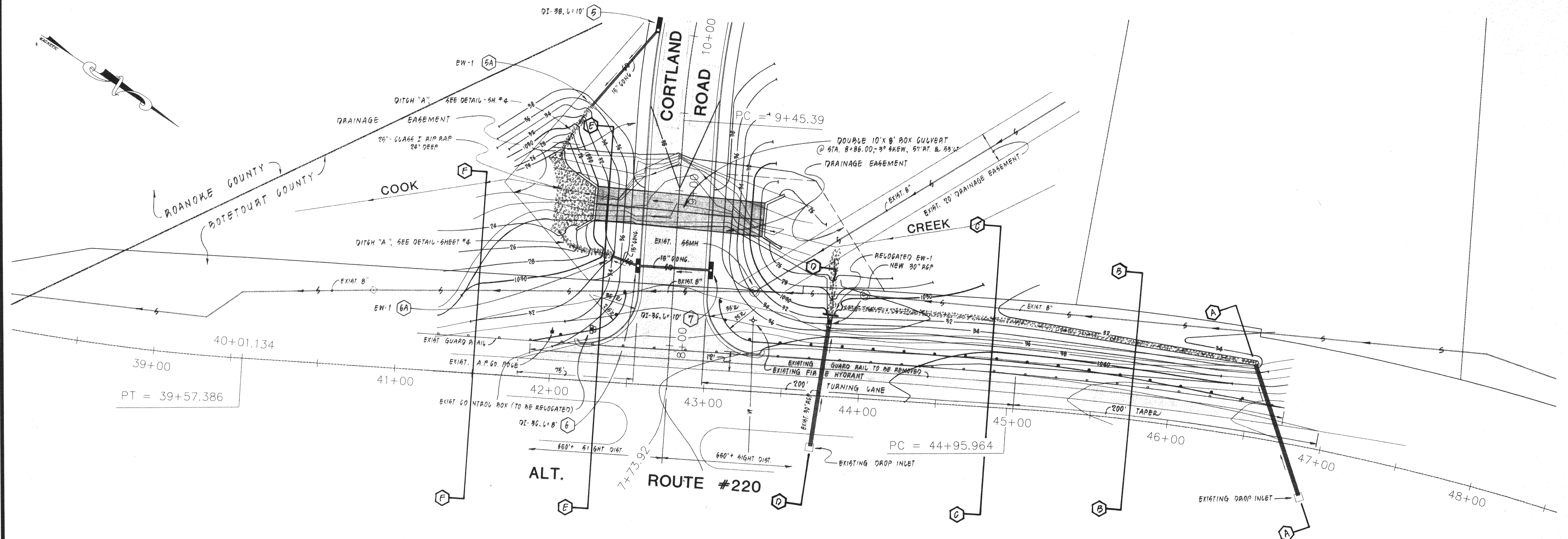
NOTES AND DETAILS
FOR
"CORTLAND ROAD EXTENTION"
PREPARED FOR
F & W COMMUNITY DEVELOPMENT CORP.
HOLLINS MAGISTERIAL DISTRICT, ROANOKE COUNTY, VIRGINIA
VALLEY MAGISTERIAL DISTRICT, BOTETOURT COUNTY, VIRGINIA

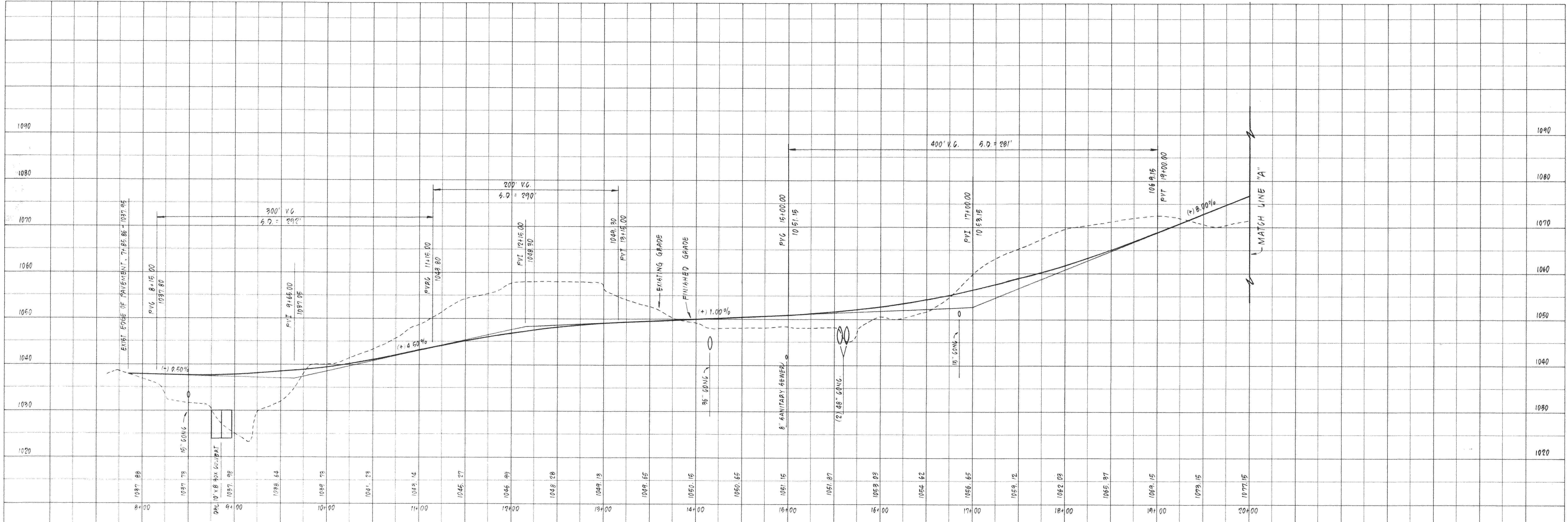
LUMSDEN ASSOCIATES, P.C.
ENGINEERS-SURVEYORS-PLANNERS
ROANOKE, VIRGINIA

SCALE: N.T.S. COMM: 85-16CR
DATE: 25 JUNE 96 SHEET 4 of 12

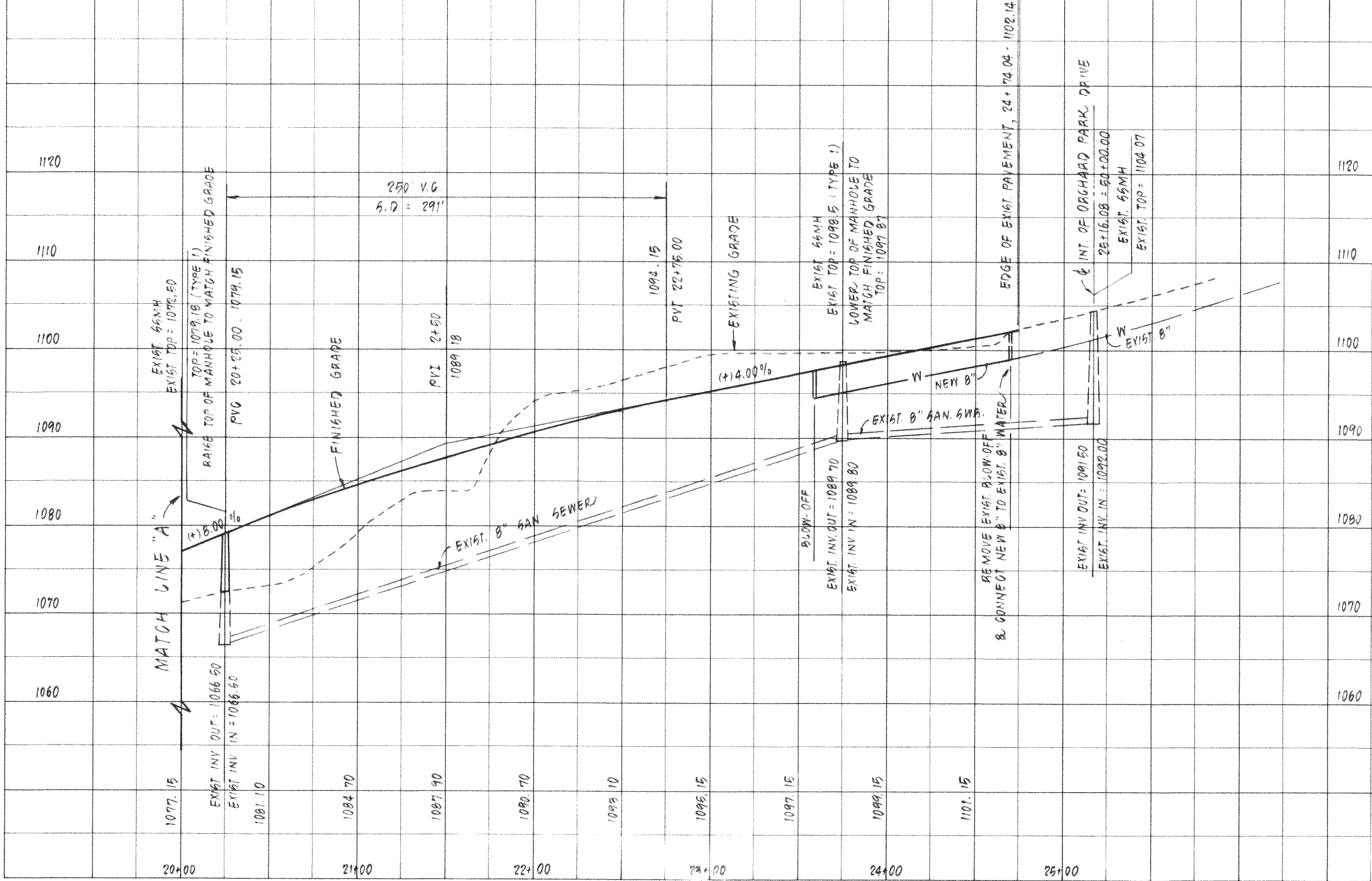








CORTLAND ROAD



- NOTES:
1. ALL SANITARY SEWER MANHOLES DEPICTED WILL BE EITHER TYPE 1 OR TYPE 2 AS DEFINED BELOW. SEE PAGE 4 OF 12 FOR DETAIL.
 - TYPE 1: SSMH WITH WATERTIGHT FRAME & COVER, 3000EC
 - TYPE 2: SSMH WITH WATERTIGHT FRAME & COVER, RCR 3000W

REVISION		DATE	DESCRIPTION
DESIGNED	GAM		ROAD PROFILES FOR "CORTLAND ROAD EXTENSION"
DRAWN	RAG		PREPARED FOR F & W COMMUNITY DEVELOPMENT CORP.
CHECKED	M&W		HOLLINS MAGISTERIAL DISTRICT, ROANOKE COUNTY, VIRGINIA VALLEY MAGISTERIAL DISTRICT, BOTETOURT COUNTY, VIRGINIA

COMMONWEALTH OF VIRGINIA

Michael S. Webb

No. 012656

5-1-95

PROFESSIONAL ENGINEER

LUMSDEN ASSOCIATES, P.C.

ENGINEERS-SURVEYORS-PLANNERS

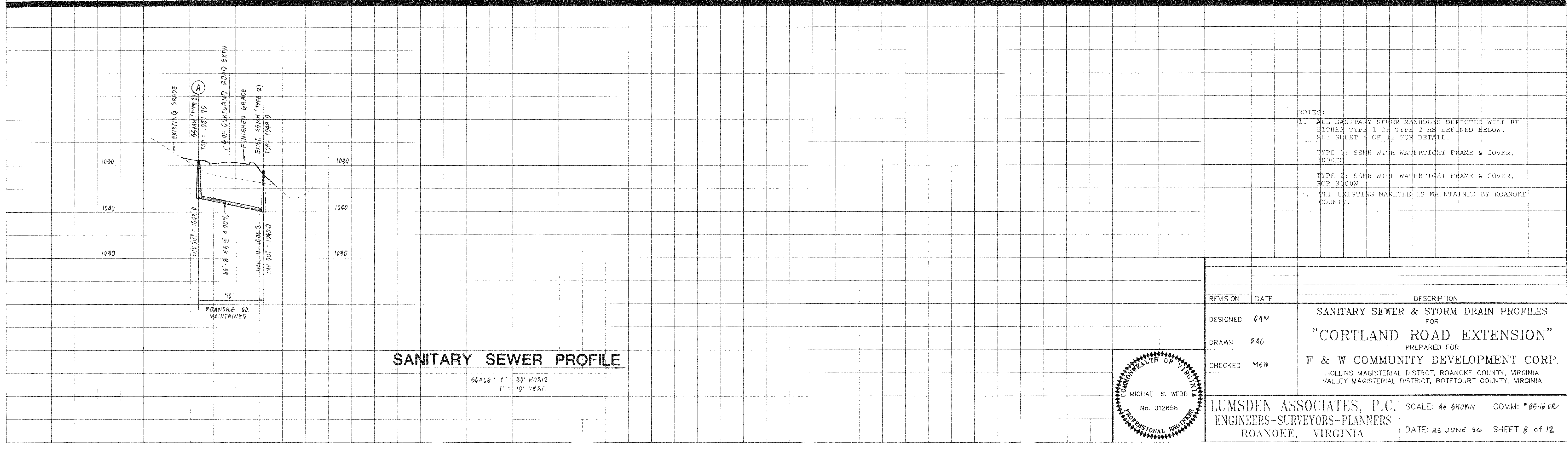
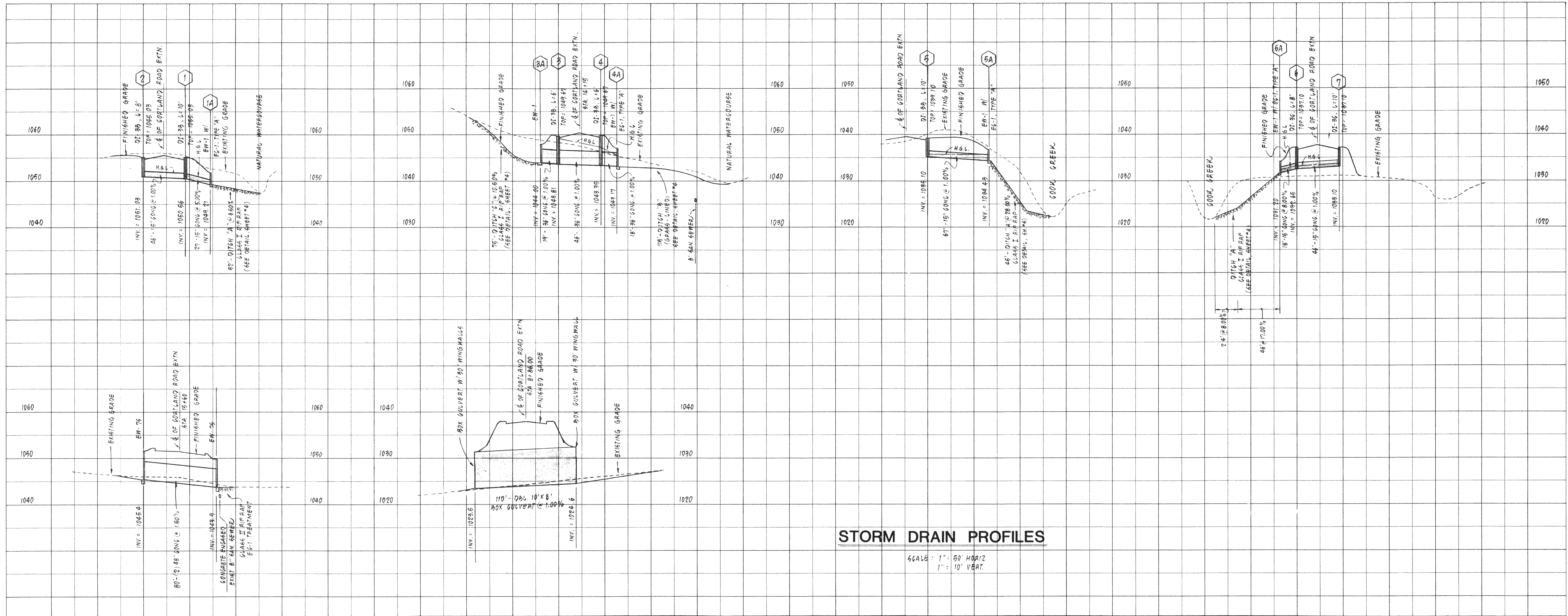
ROANOKE, VIRGINIA

SCALE: 1" = 50' HORIZ.
1" = 10' VERT.

DATE: 25 JUNE 96

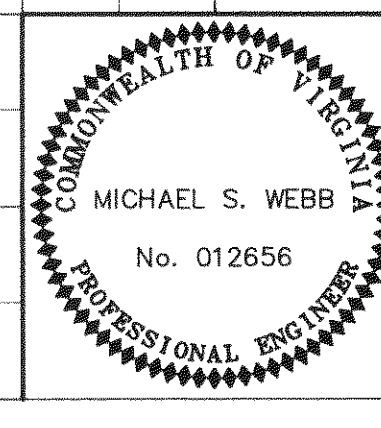
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SHEET 7 of 12



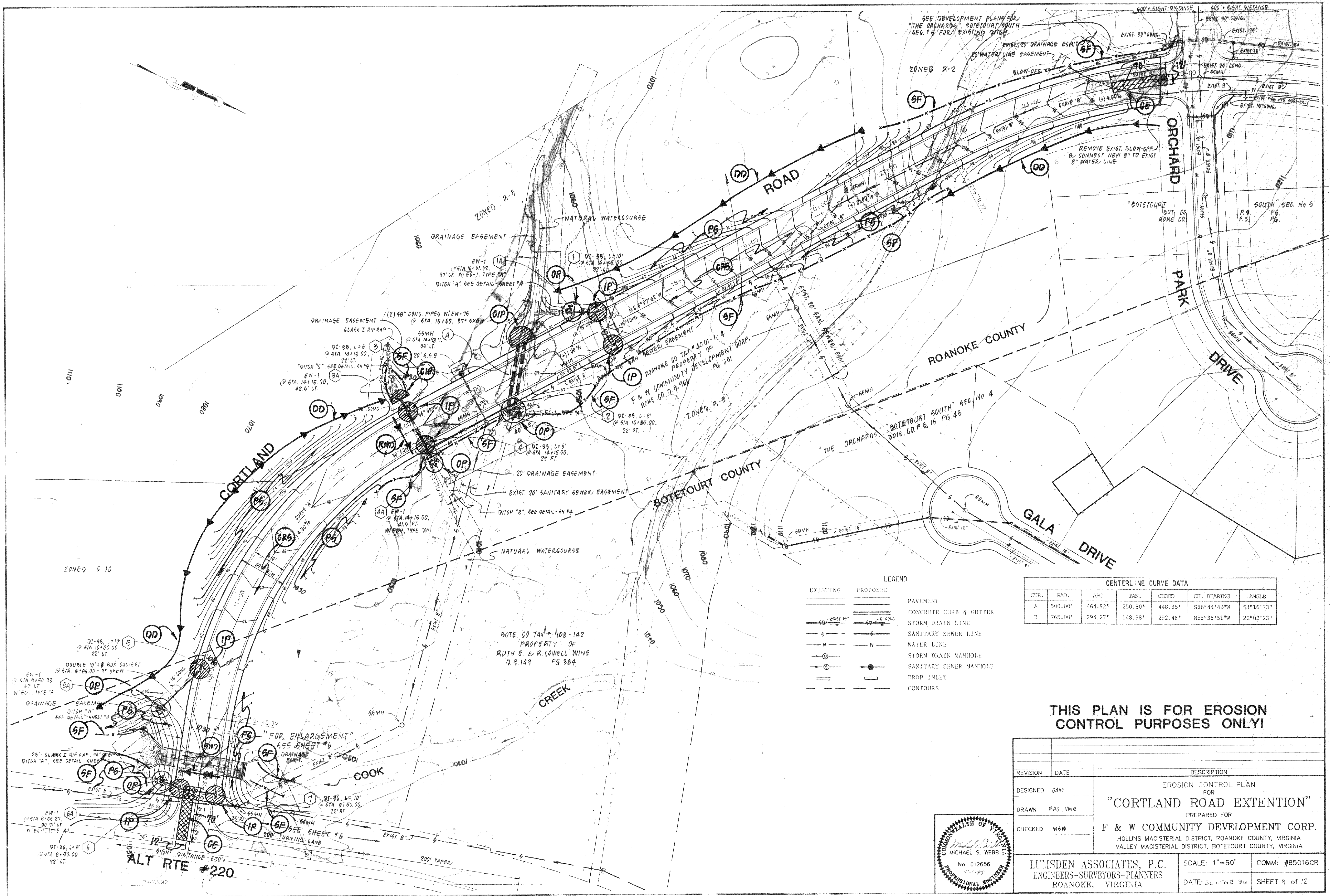
- NOTES:
- ALL SANITARY SEWER MANHOLES DEPICTED WILL BE EITHER TYPE 1 OR TYPE 2 AS DEFINED BELOW. SEE SHEET 4 OF 12 FOR DETAIL.
 - TYPE 1: SSMH WITH WATERTIGHT FRAME & COVER, 3000EC
 - TYPE 2: SSMH WITH WATERTIGHT FRAME & COVER, RCR 3000W
 - THE EXISTING MANHOLE IS MAINTAINED BY ROANOKE COUNTY.

REVISION	DATE	DESCRIPTION
DESIGNED	GAM	SANITARY SEWER & STORM DRAIN PROFILES FOR "CORTLAND ROAD EXTENSION"
DRAWN	RAC	PREPARED FOR F & W COMMUNITY DEVELOPMENT CORP.
CHECKED	MSW	HOLLINS MAGISTERIAL DISTRICT, ROANOKE COUNTY, VIRGINIA VALLEY MAGISTERIAL DISTRICT, BOTETOURT COUNTY, VIRGINIA



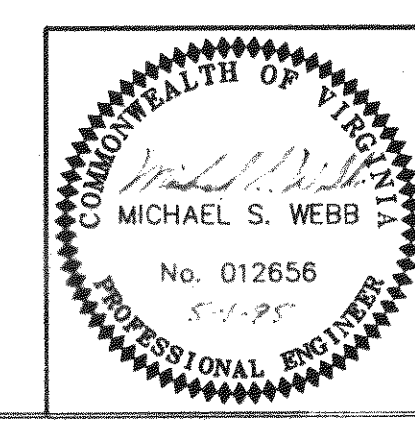
LUMSDEN ASSOCIATES, P.C.
ENGINEERS-SURVEYORS-PLANNERS
ROANOKE, VIRGINIA

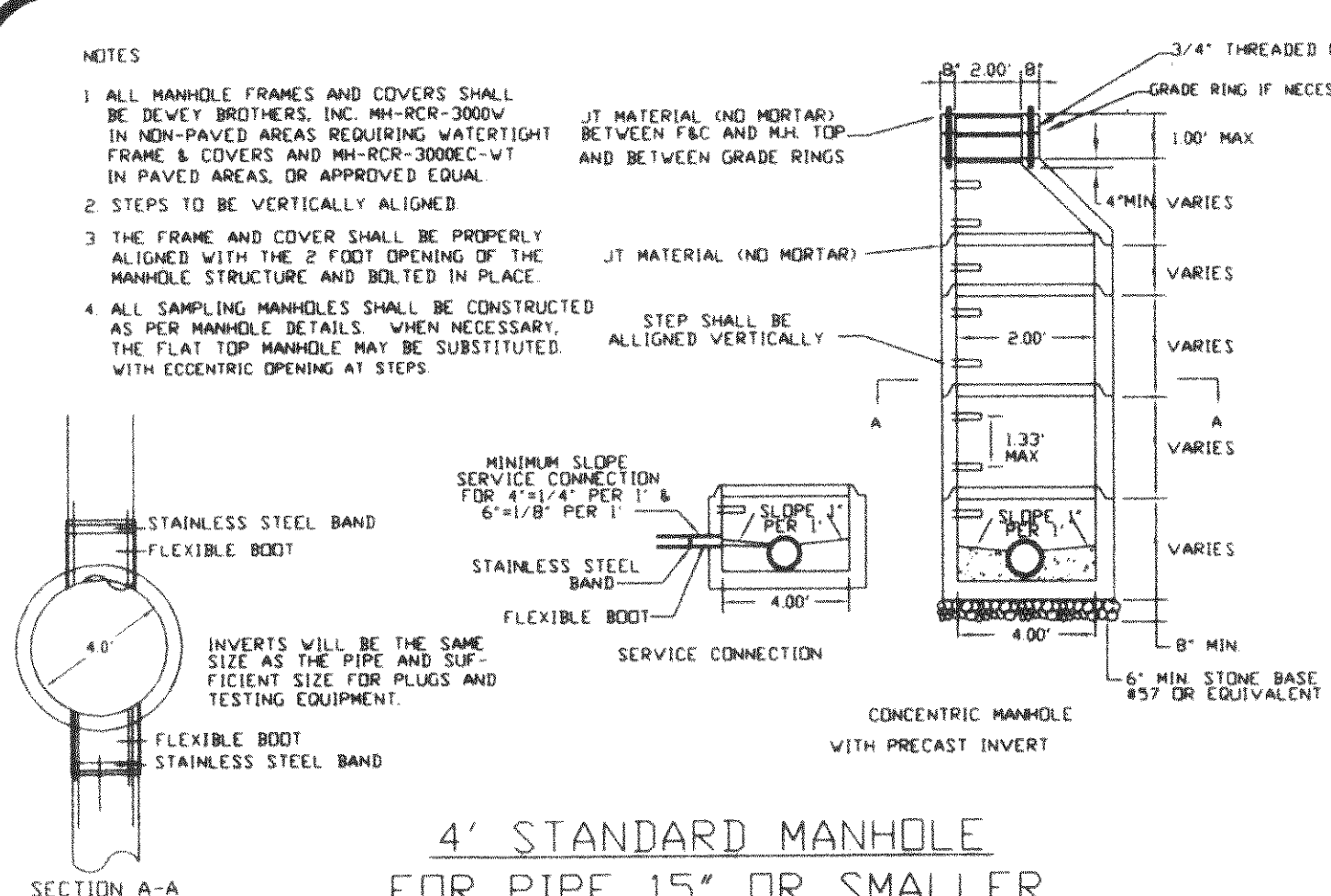
SCALE: AS SHOWN
DATE: 25 JUNE 96
COMM: #85-16 CR
SHEET 8 of 12



THIS PLAN IS FOR EROSION
CONTROL PURPOSES ONLY!

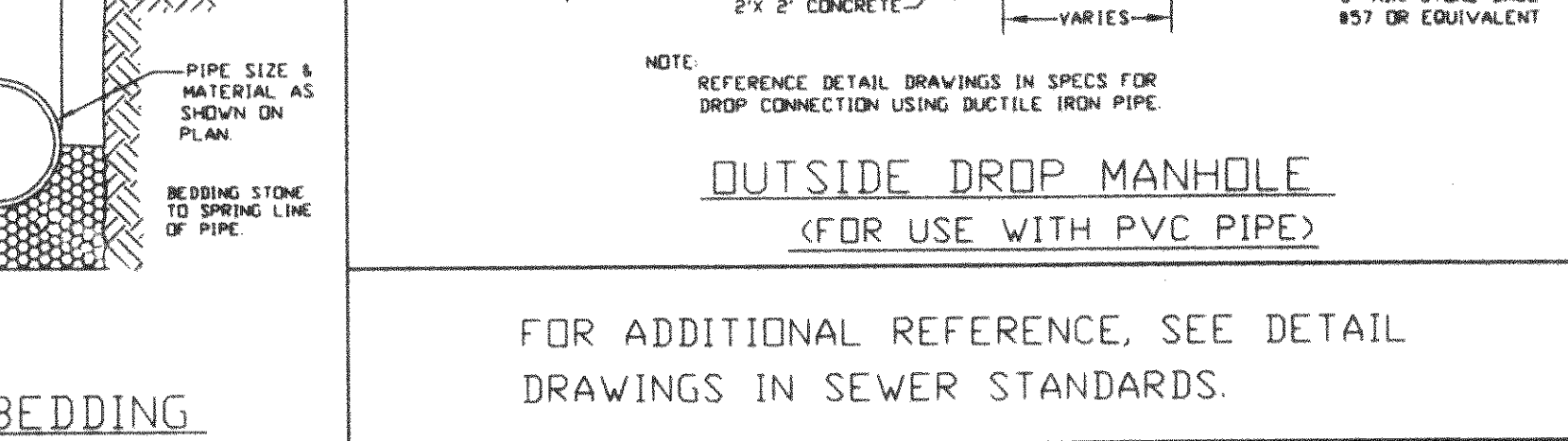
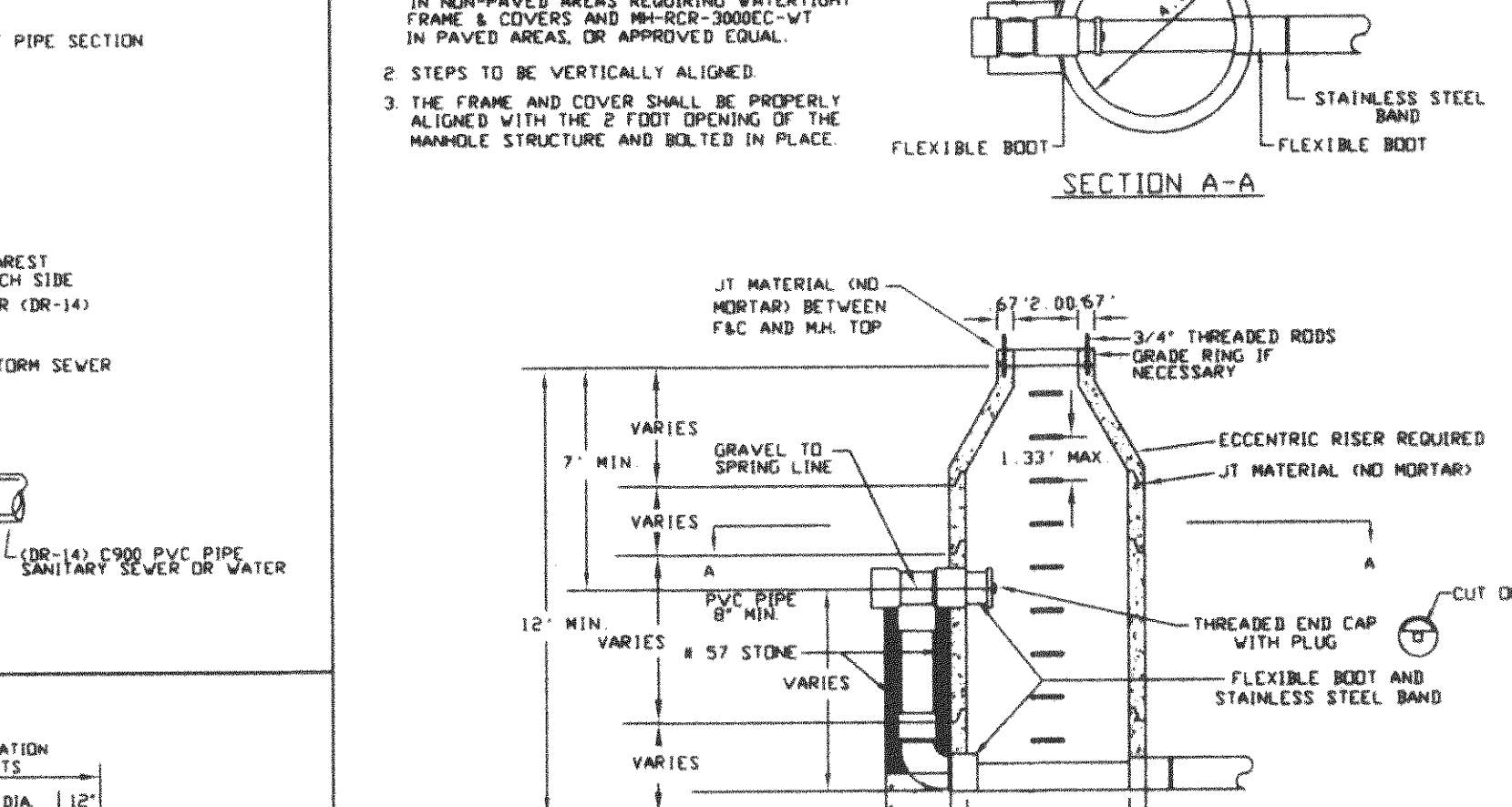
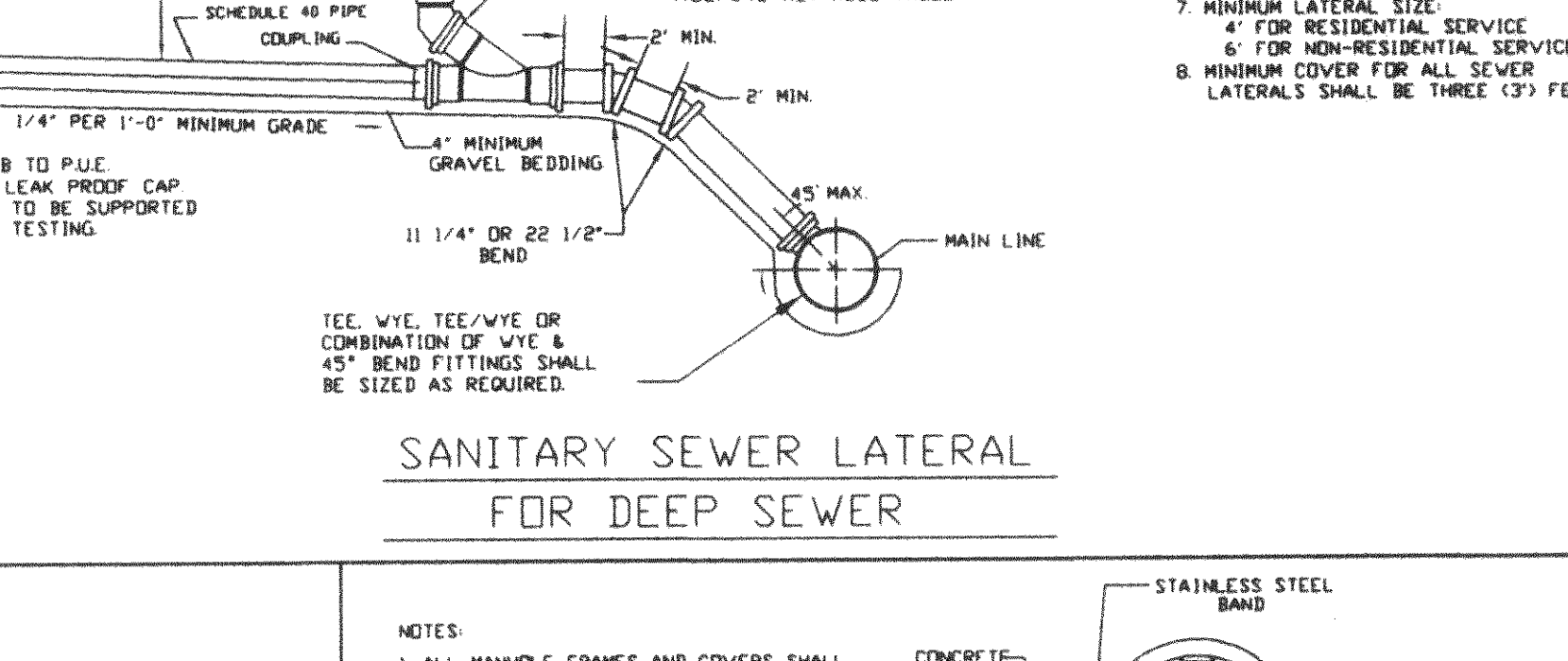
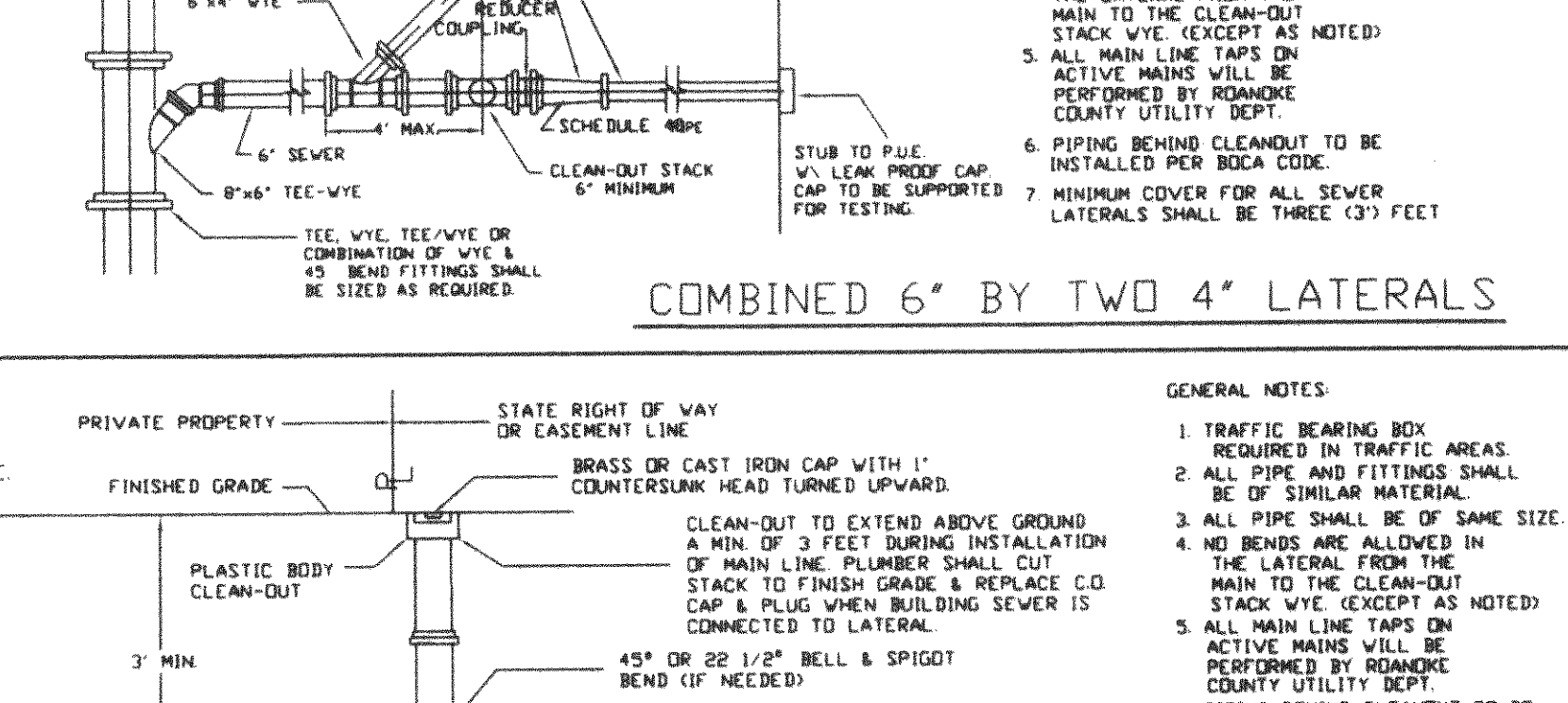
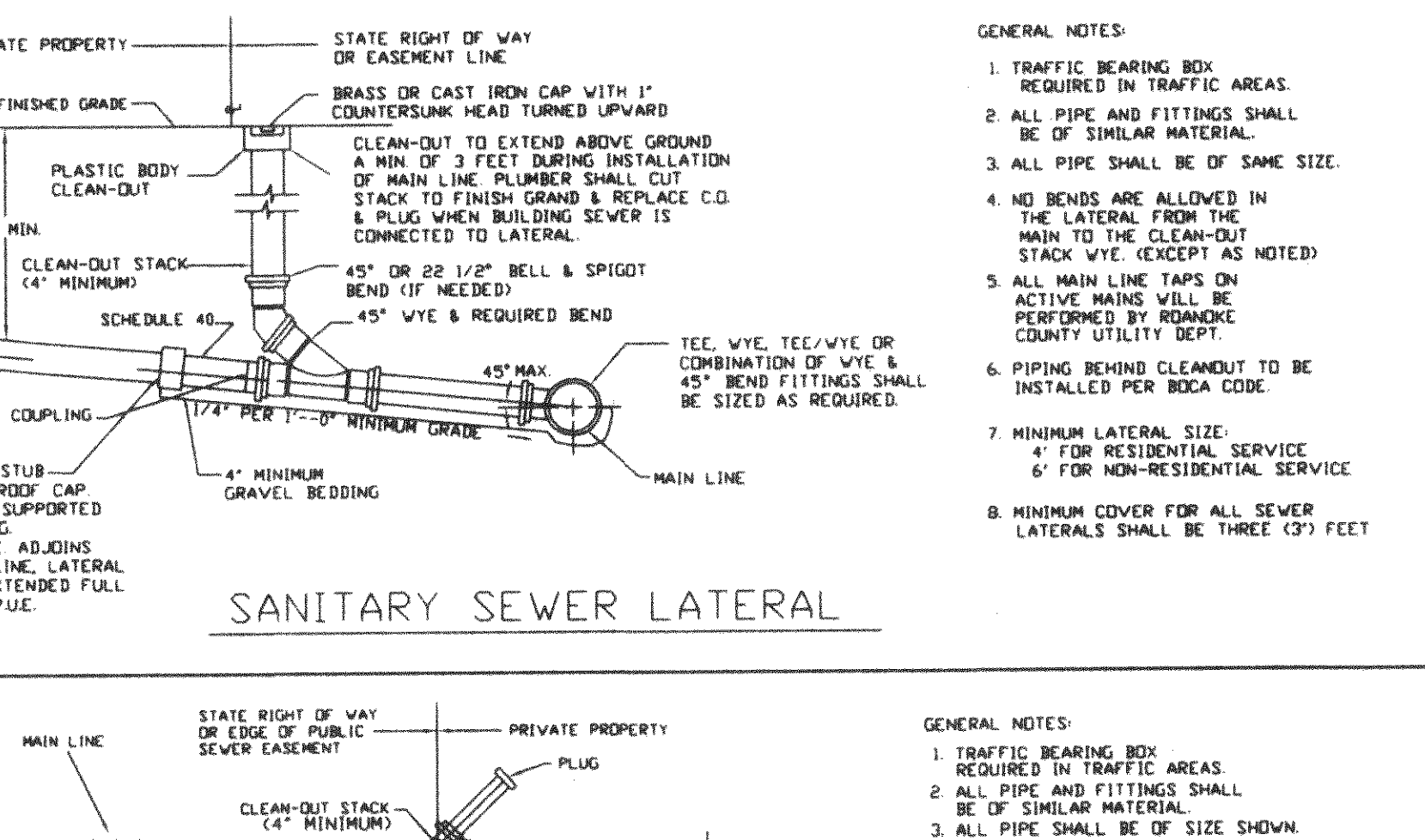
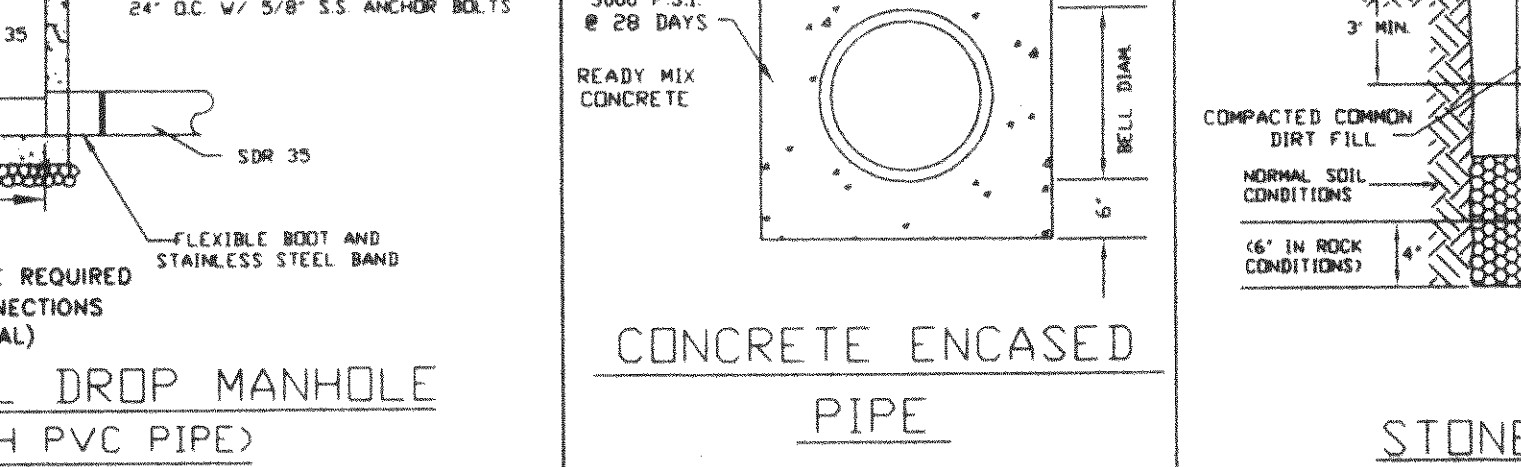
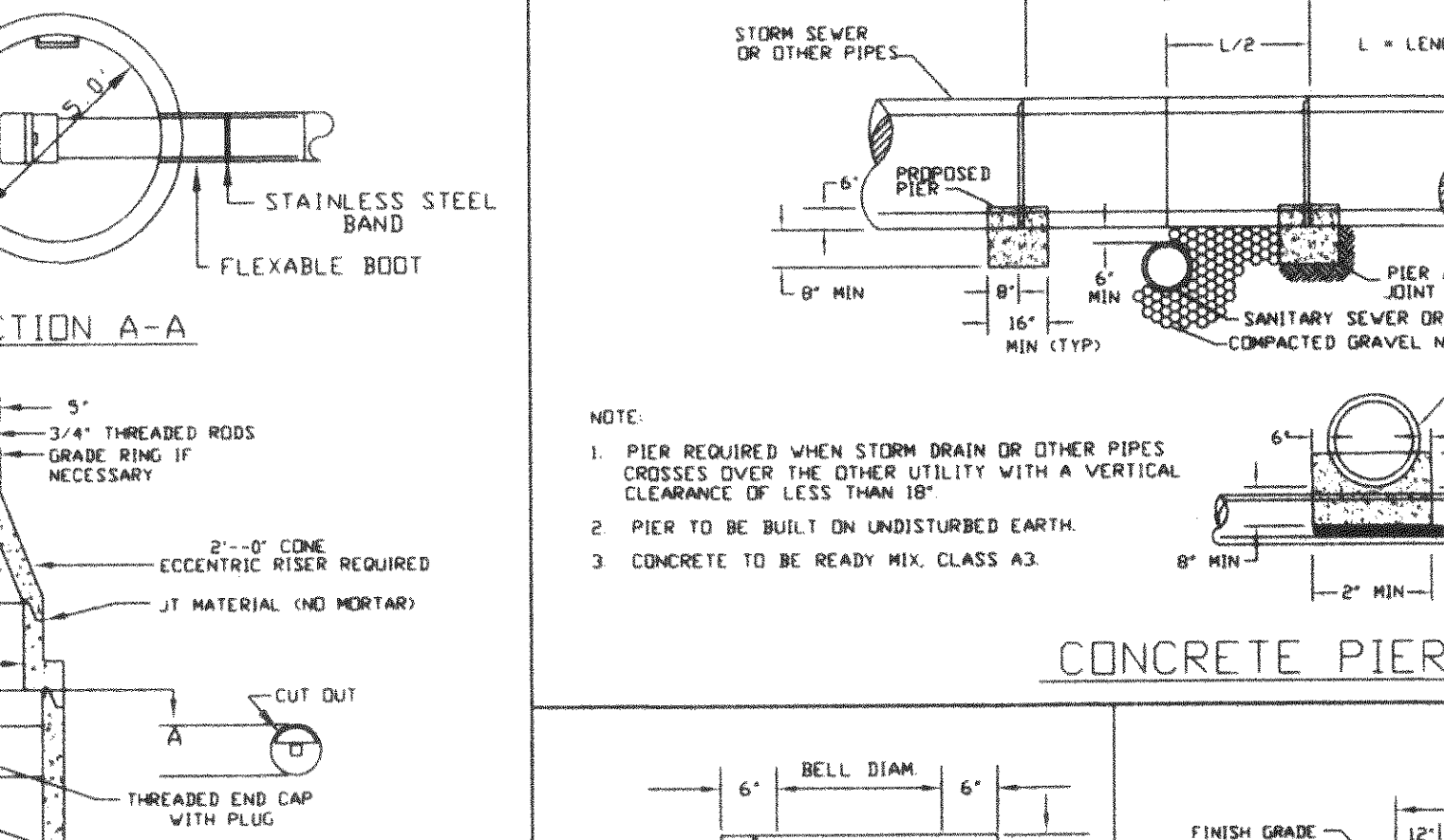
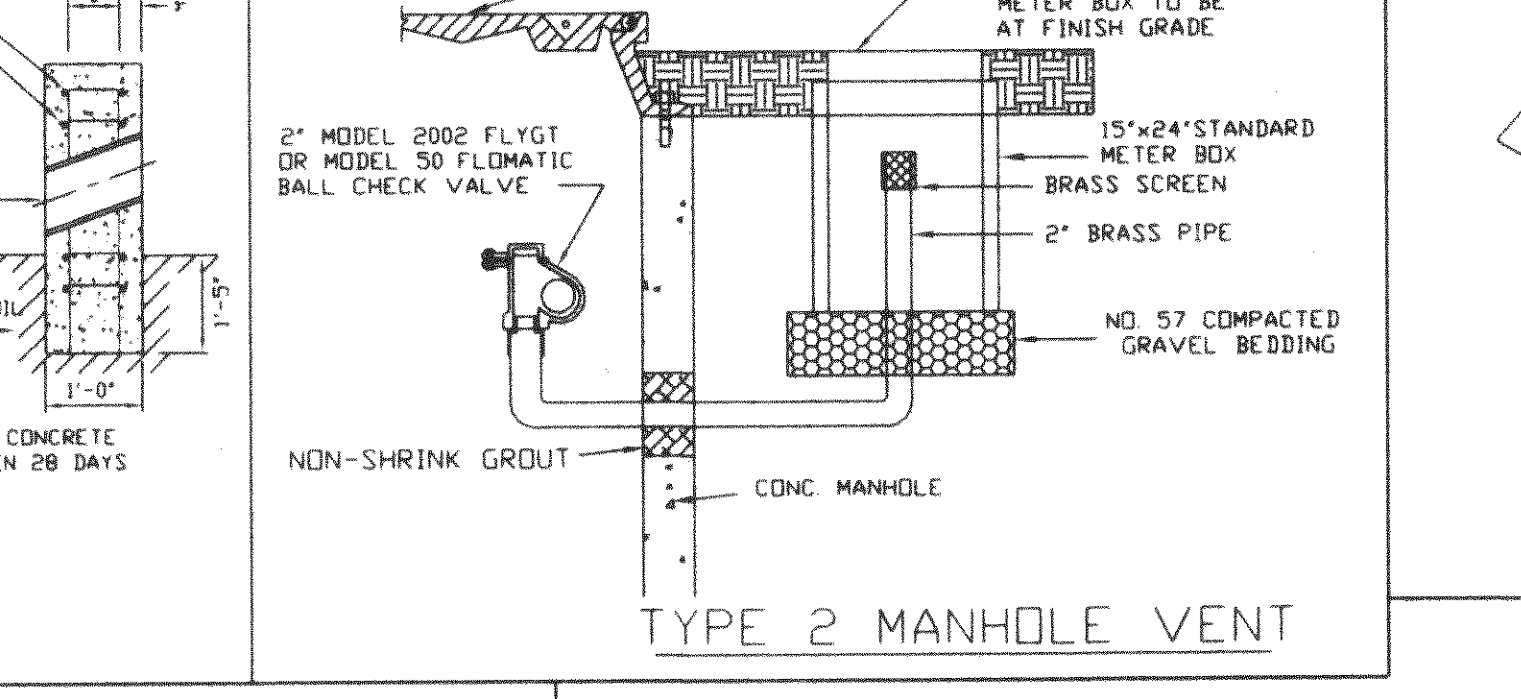
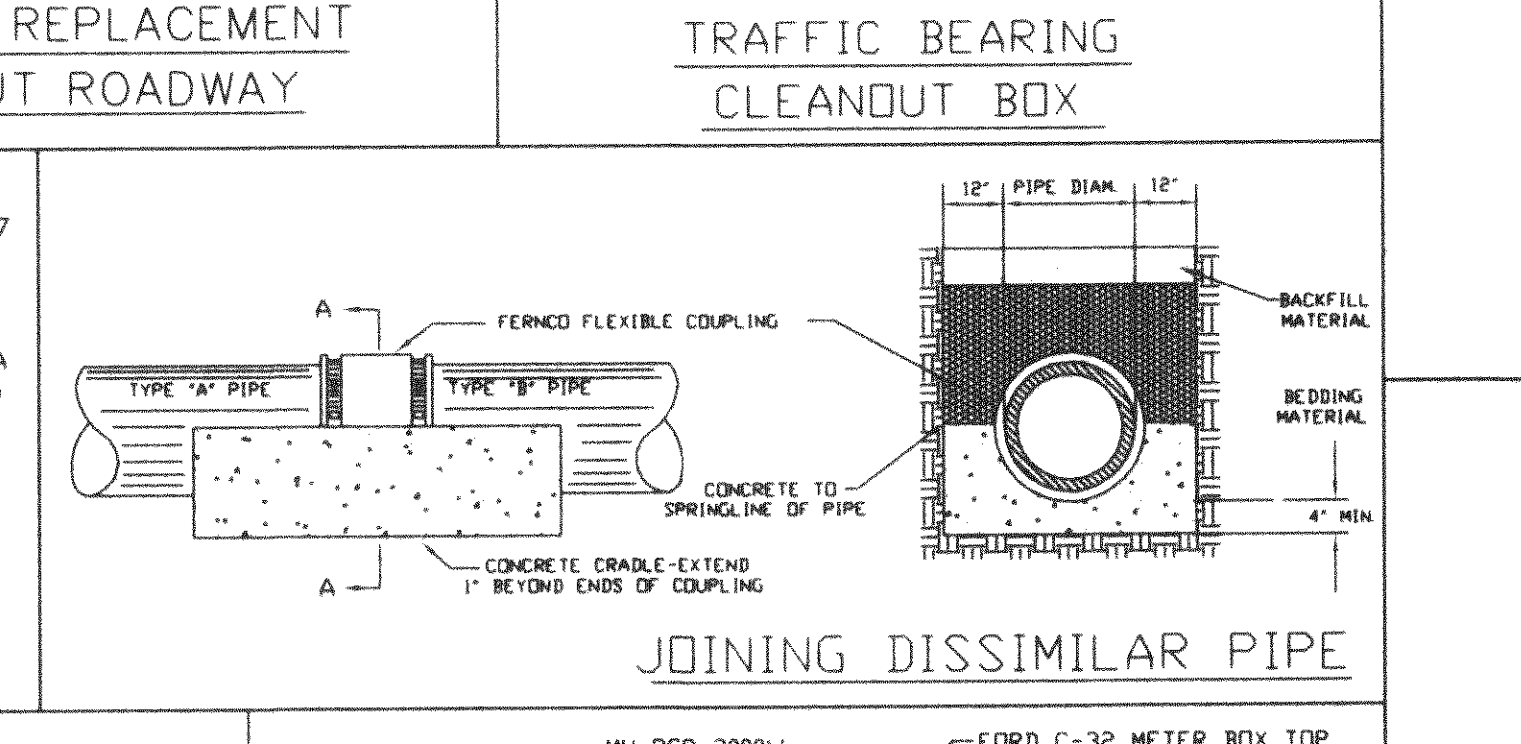
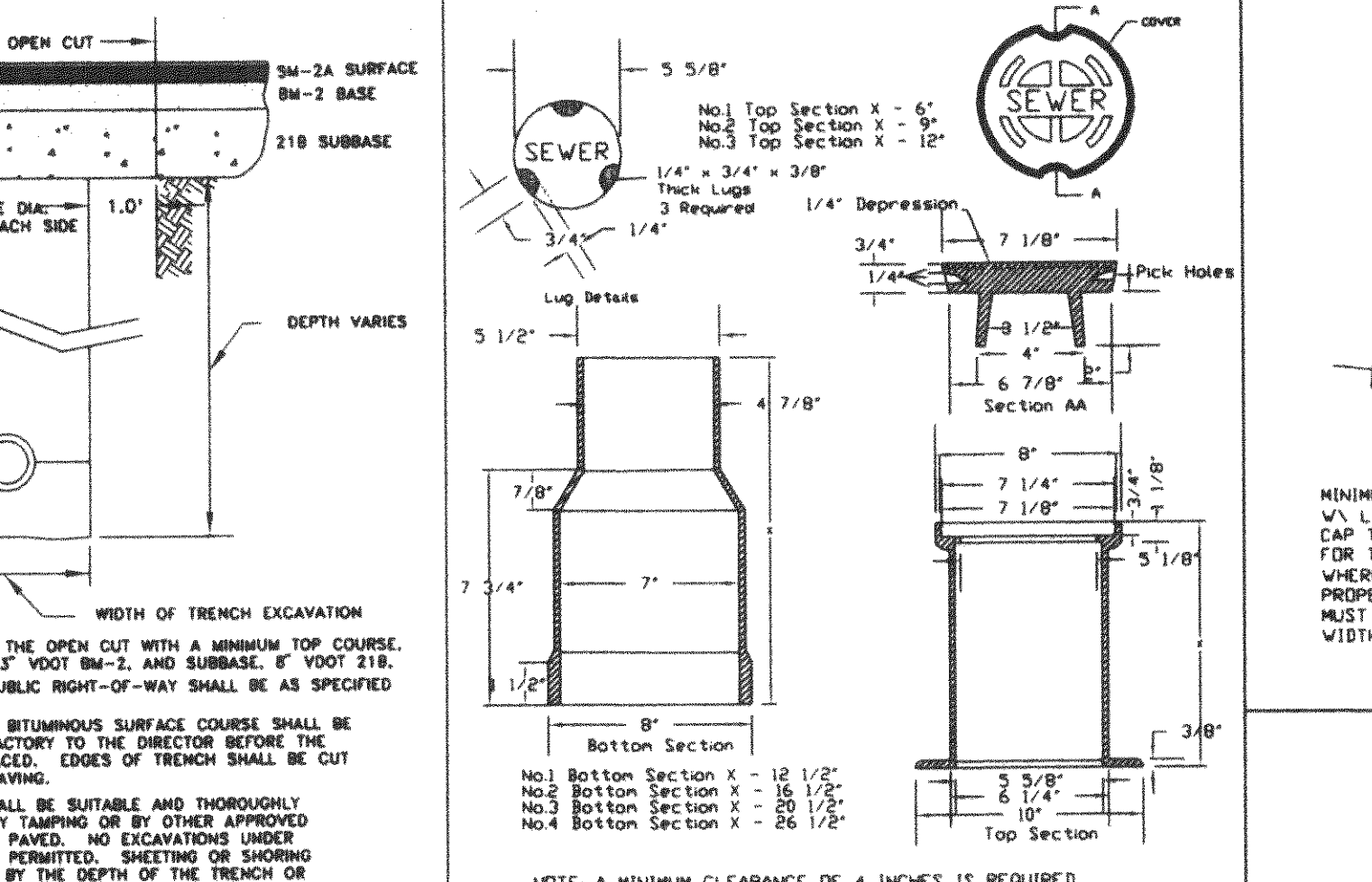
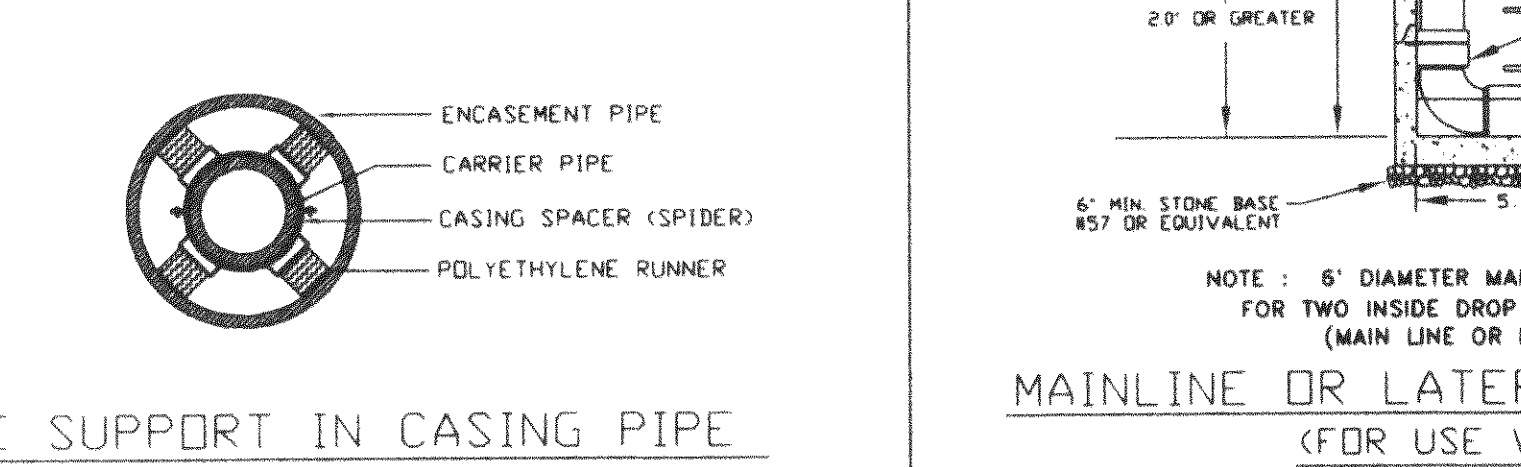
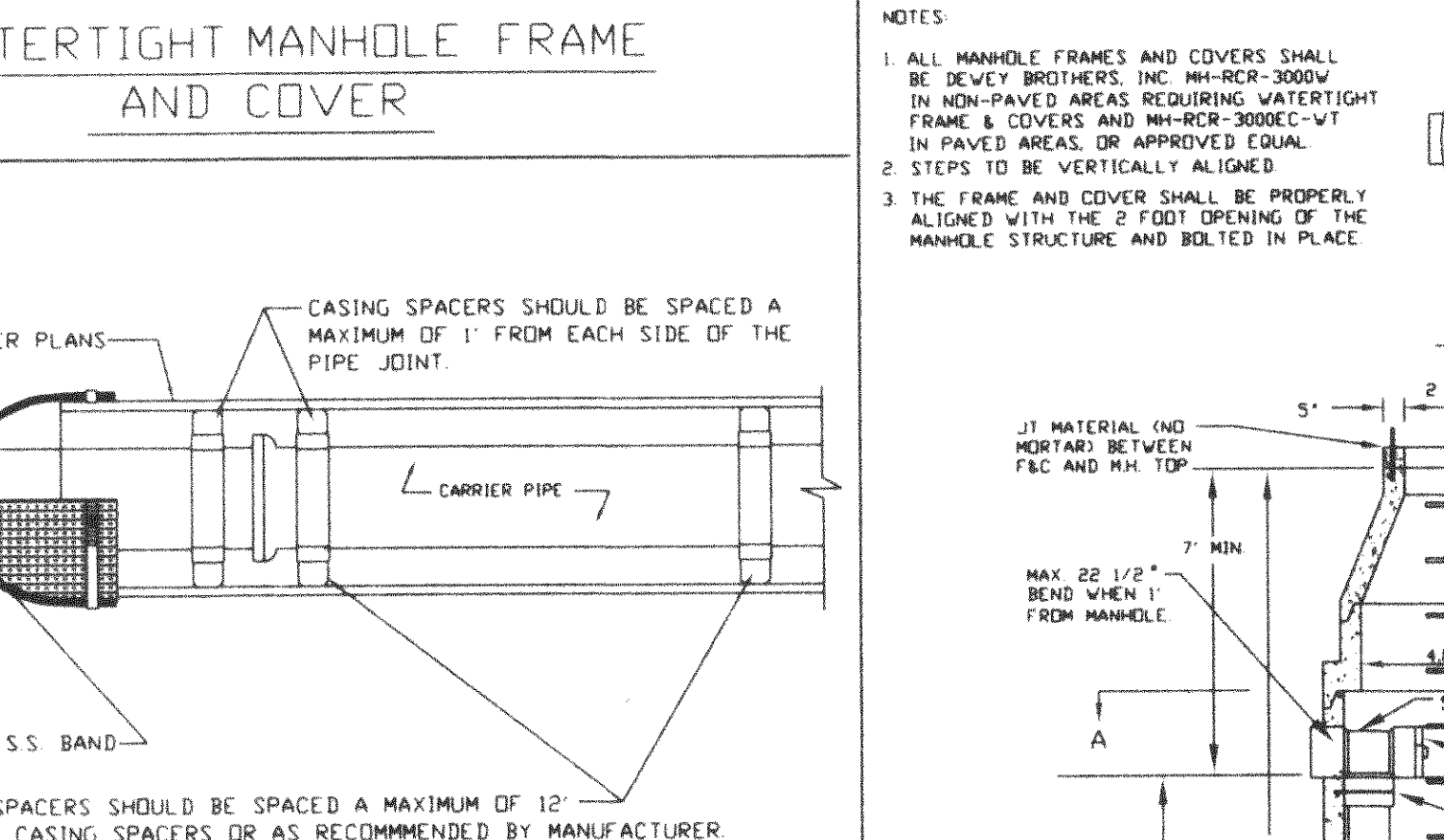
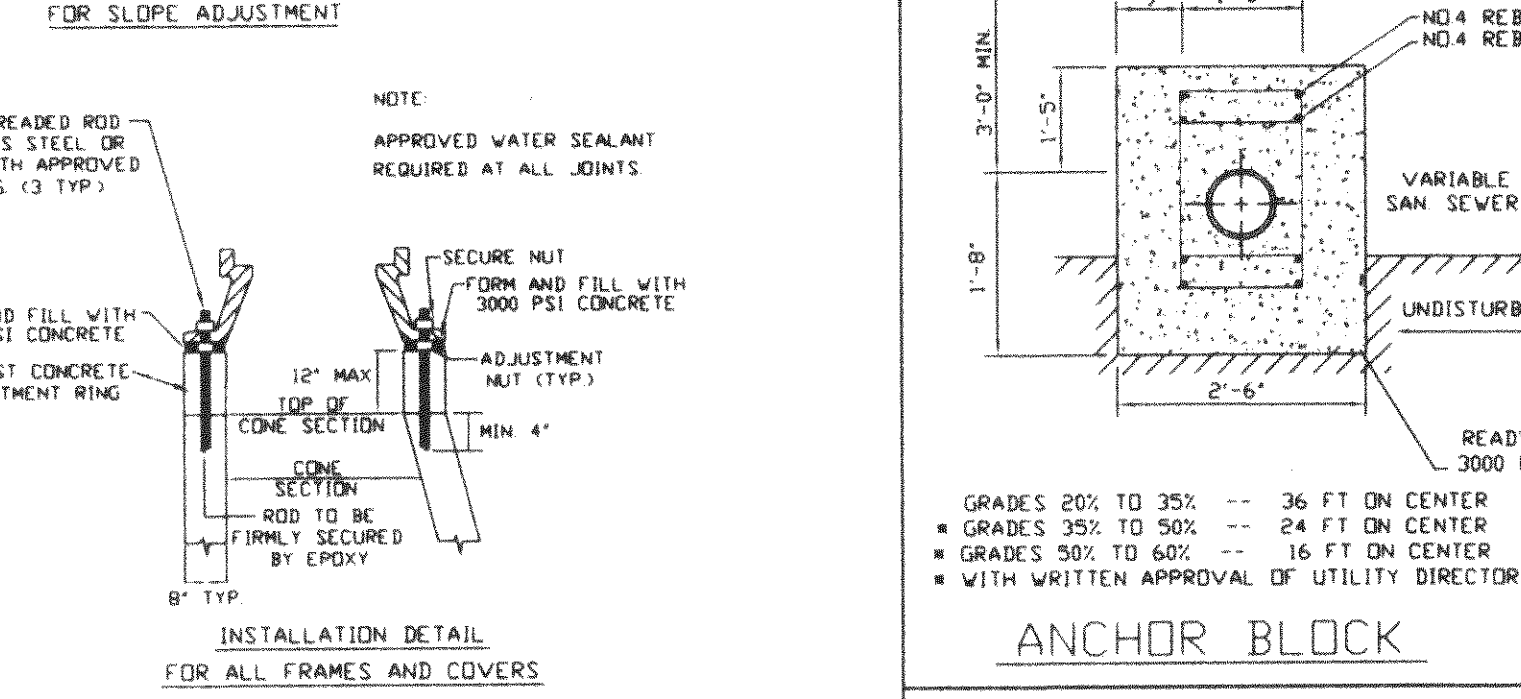
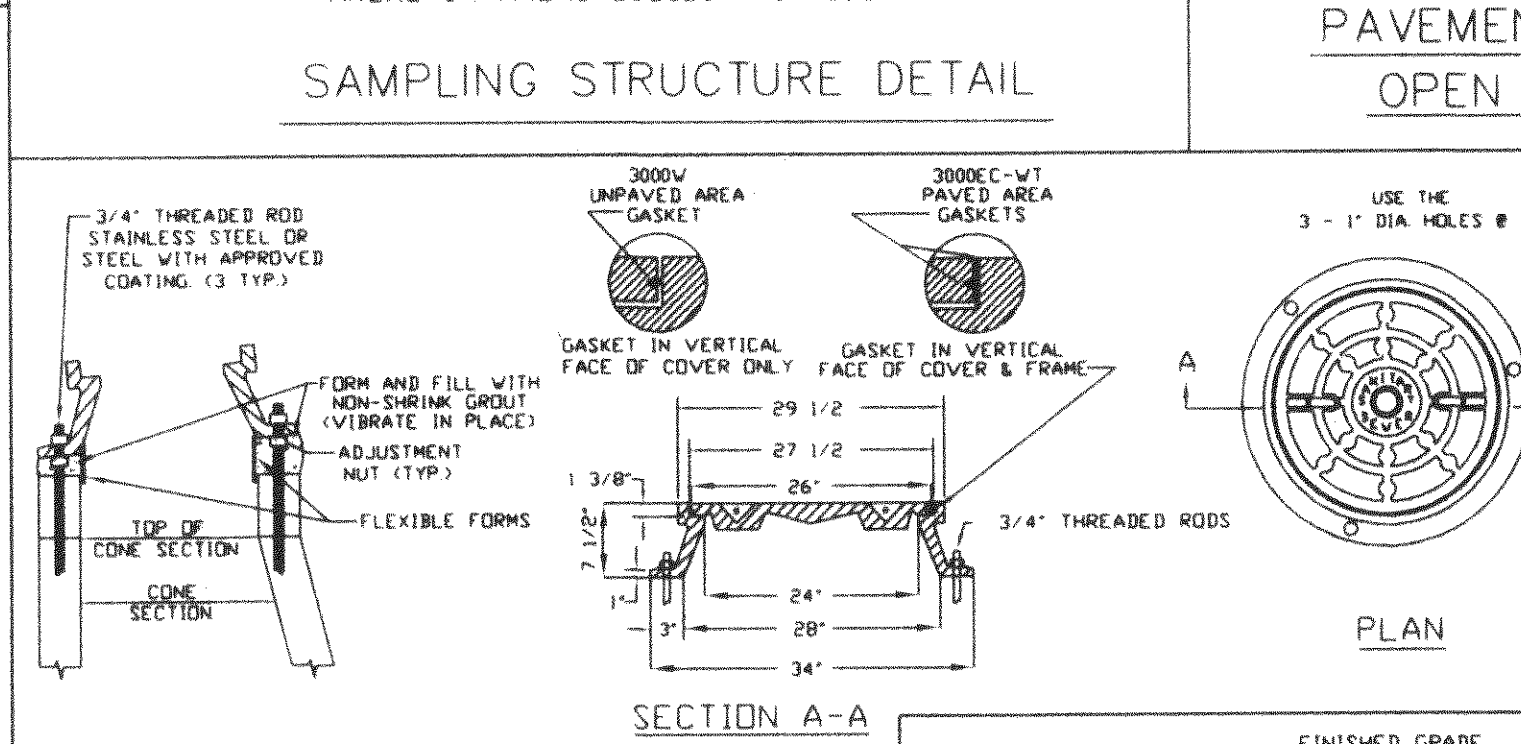
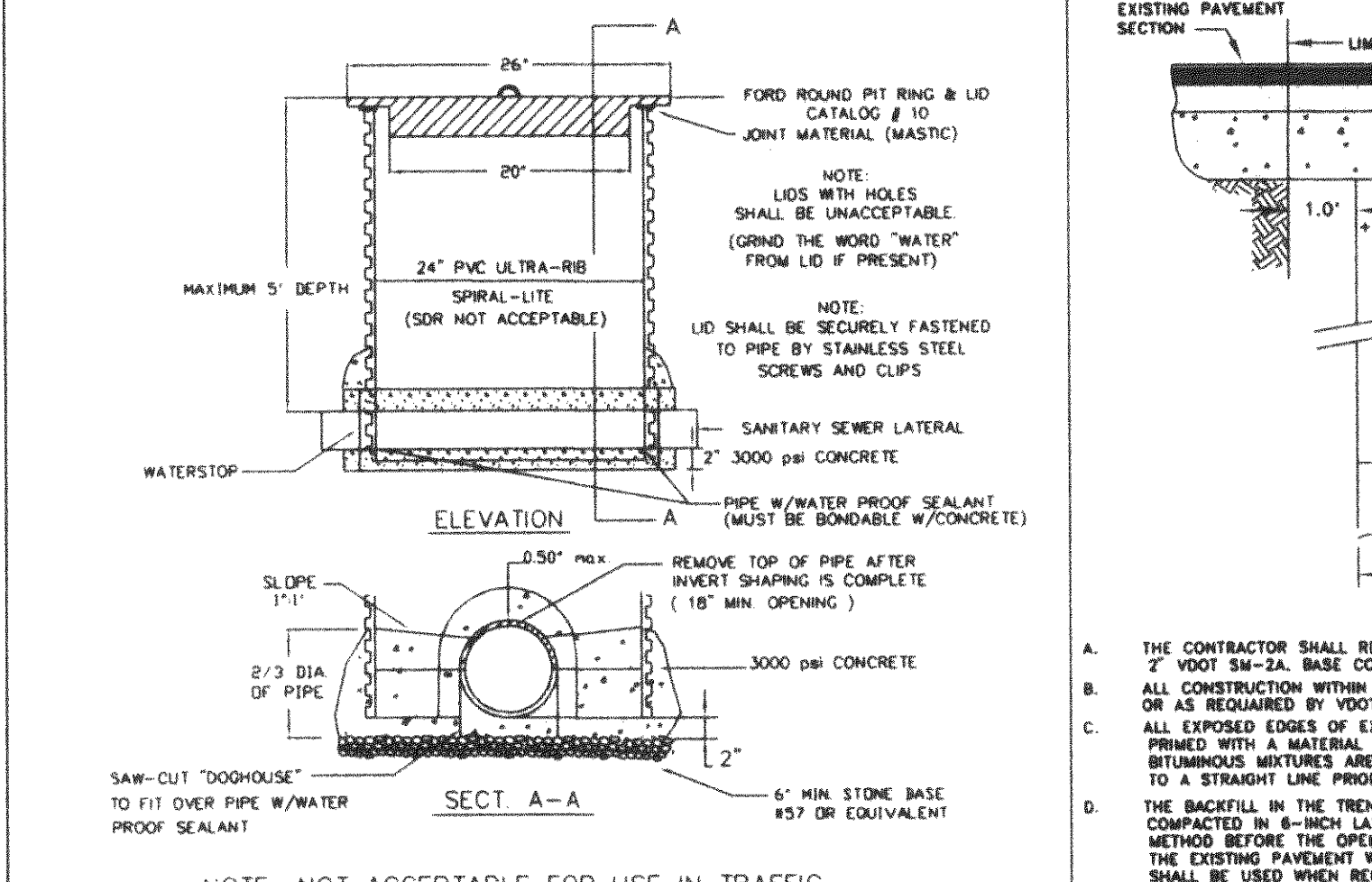
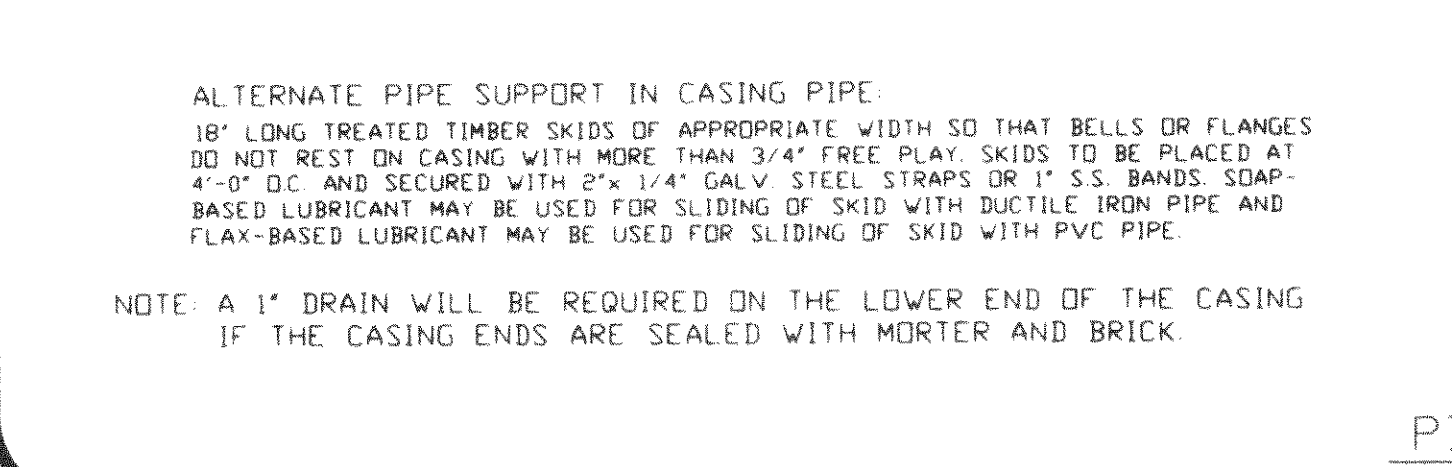
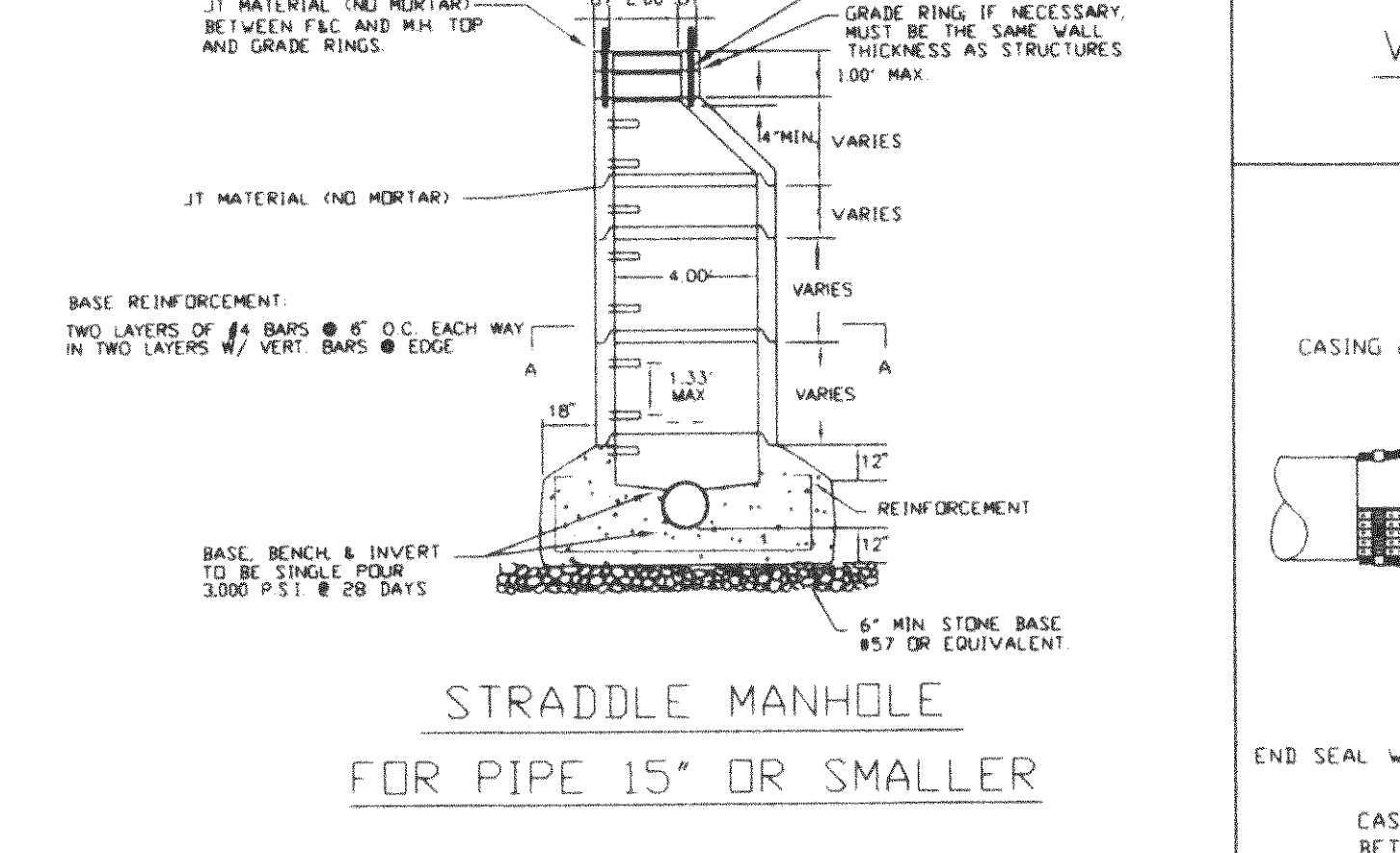
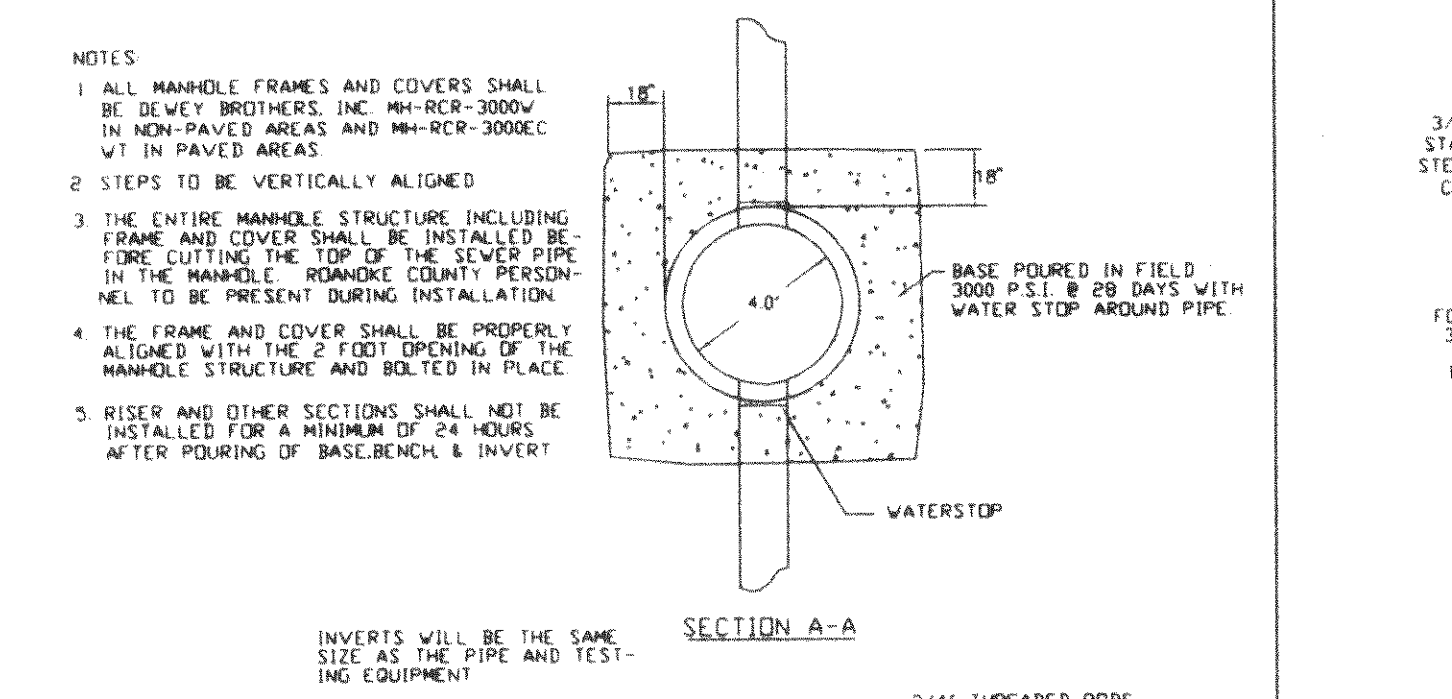
REVISION		DATE	DESCRIPTION
DESIGNED	GAM		EROSION CONTROL PLAN FOR "CORTLAND ROAD EXTENSION"
DRAWN	BAR, VNB		PREPARED FOR F & W COMMUNITY DEVELOPMENT CORP.
CHECKED	MSW		HOLLINS MAGISTERIAL DISTRICT, ROANOKE COUNTY, VIRGINIA VALLEY MAGISTERIAL DISTRICT, BOTETOURT COUNTY, VIRGINIA
LUMSDEN ASSOCIATES, P.C. ENGINEERS-SURVEYORS-PLANNERS ROANOKE, VIRGINIA			SCALE: 1"=50' DATE: 12/14/94 SHEET 9 of 12

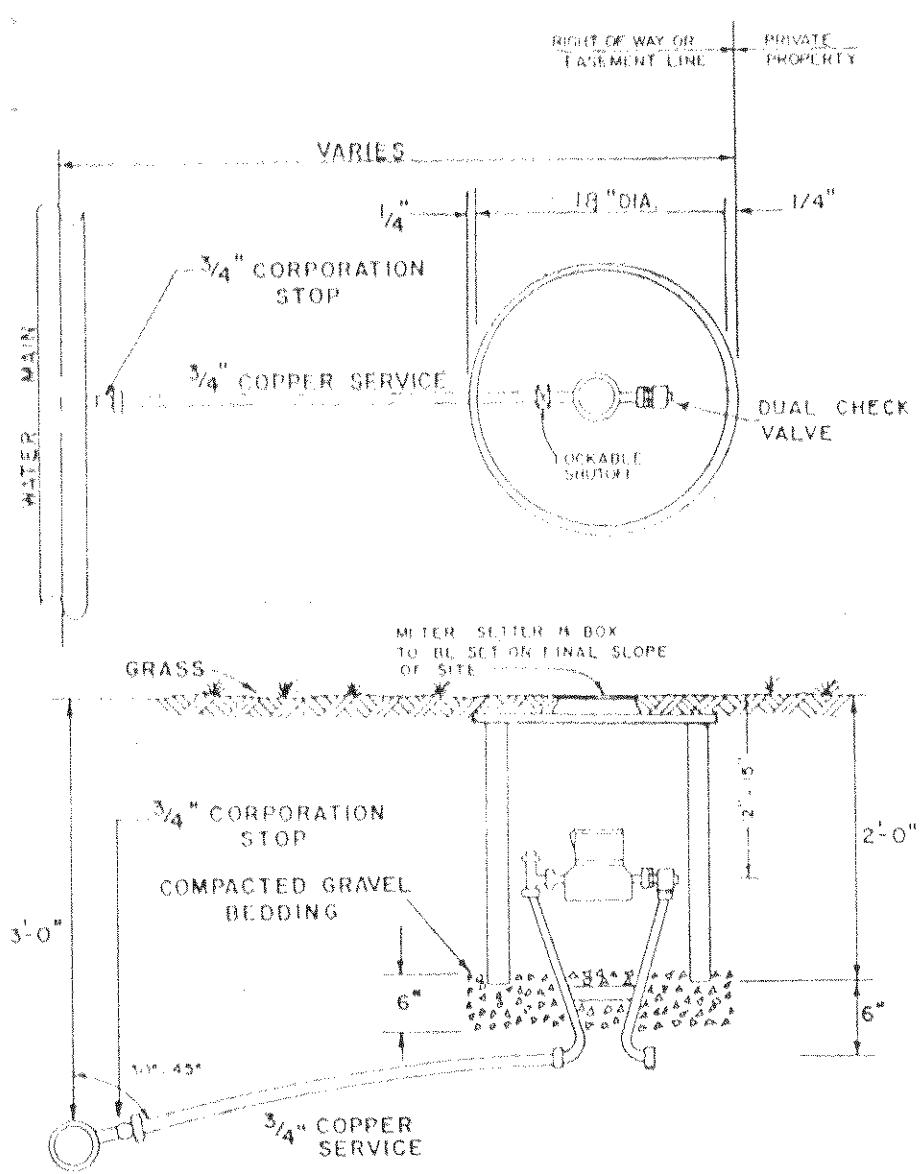




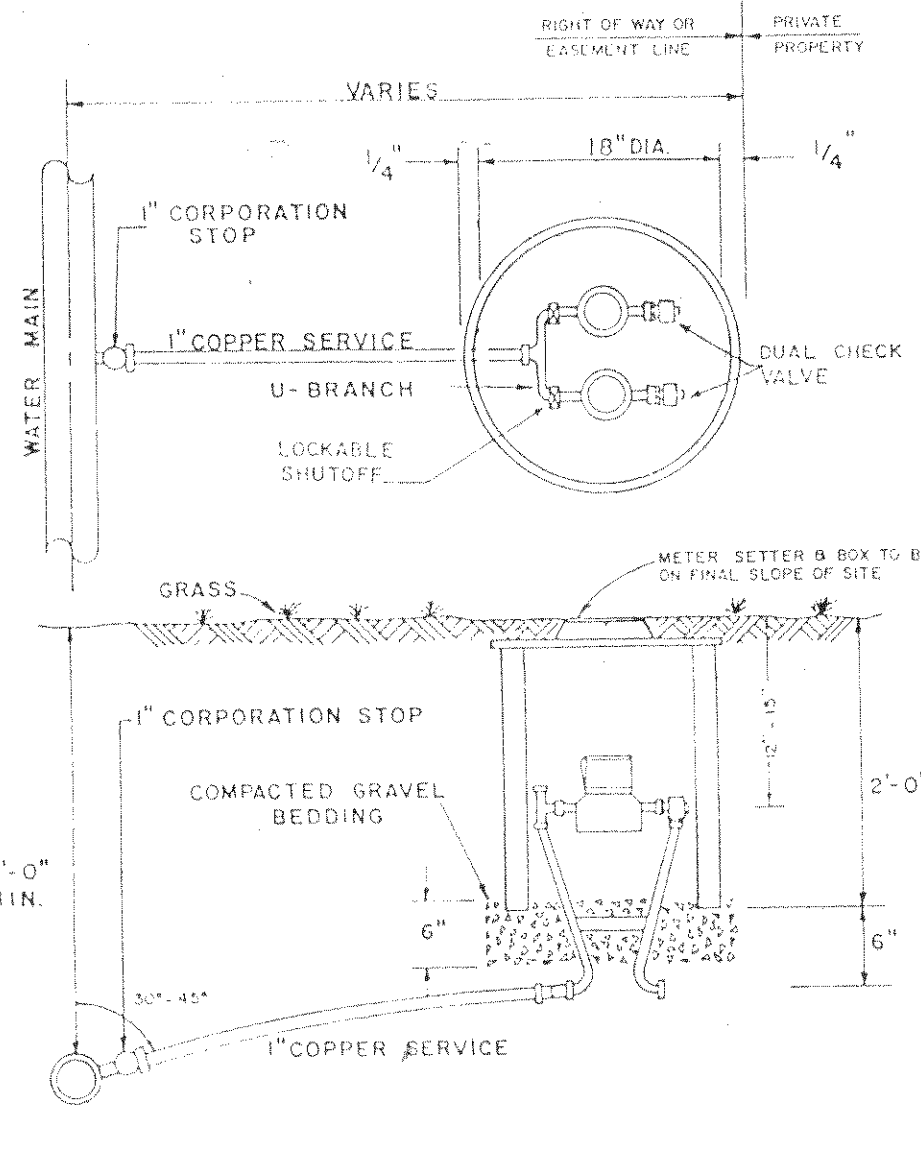
Pipe Diameter (in.)	Min. Time (min-sec)	Length for Min. Time (ft)	Time for Longer Length (sec)	Specified Time for Length (L) Shown (min-sec)							
				100 ft	150 ft	200 ft	250 ft	300 ft	350 ft	400 ft	450 ft
4	3.48	597	380 L	3.48	3.48	3.48	3.48	3.48	3.48	3.48	3.48
6	5.40	398	854 L	5.40	5.40	5.40	5.40	5.40	5.40	5.42	6.24
8	7.34	298	1520 L	7.34	7.34	7.34	7.34	7.36	8.52	10.08	11.24
10	9.28	239	2374 L	9.28	9.28	9.28	9.53	11.52	13.51	15.49	17.48
12	11.20	199	3418 L	11.20	11.20	11.20	11.24	14.15	17.05	19.56	22.47
15	14.10	159	5342 L	14.10	14.10	14.10	14.18	22.15	26.42	31.09	35.36
18	17.00	133	7692 L	17.00	17.00	17.00	17.13	25.38	30.27	34.27	44.52
21	19.50	114	10470 L	19.50	19.50	19.50	19.60	28.33	36.27	41.21	51.18
24	22.40	99	13674 L	22.40	22.40	22.40	22.44	34.56	42.98	51.10	102.33
27	25.30	88	17308 L	25.30	25.30	25.30	25.41	37.07	46.32	55.12	129.48
30	28.20	80	21368 L	28.20	28.20	28.20	28.35	39.02	48.50	57.24	160.15
33	31.10	72	25852 L	31.10	31.10	31.10	31.23	40.43	50.16	58.43	172.21
36	34.00	66	30768 L	34.00	34.00	34.00	34.12	42.34	51.53	59.29	230.46

MINIMUM SPECIFIED TIME REQUIRED FOR A 1.0 PSIG PRESSURE DROP FOR SIZE A LENGTH OF PIPE INDICATED FOR Q = 0.001

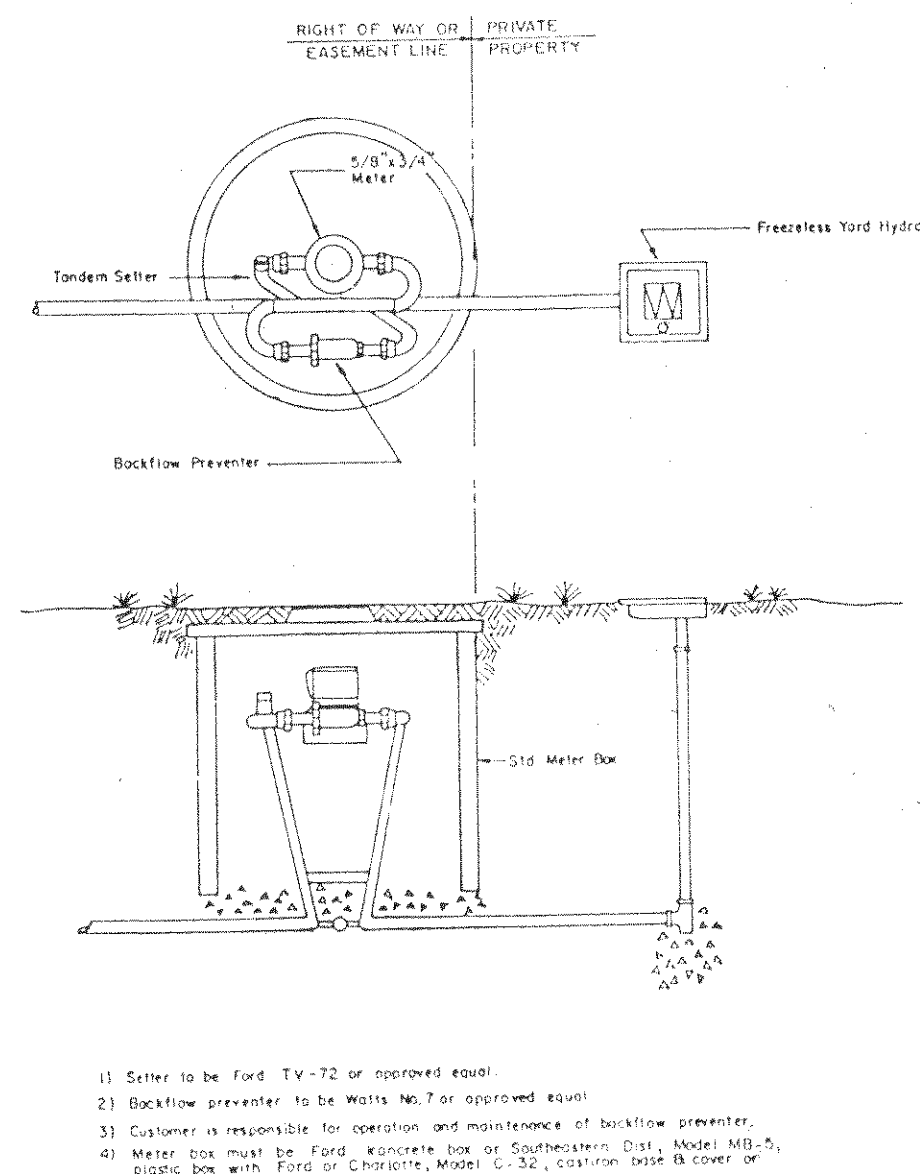




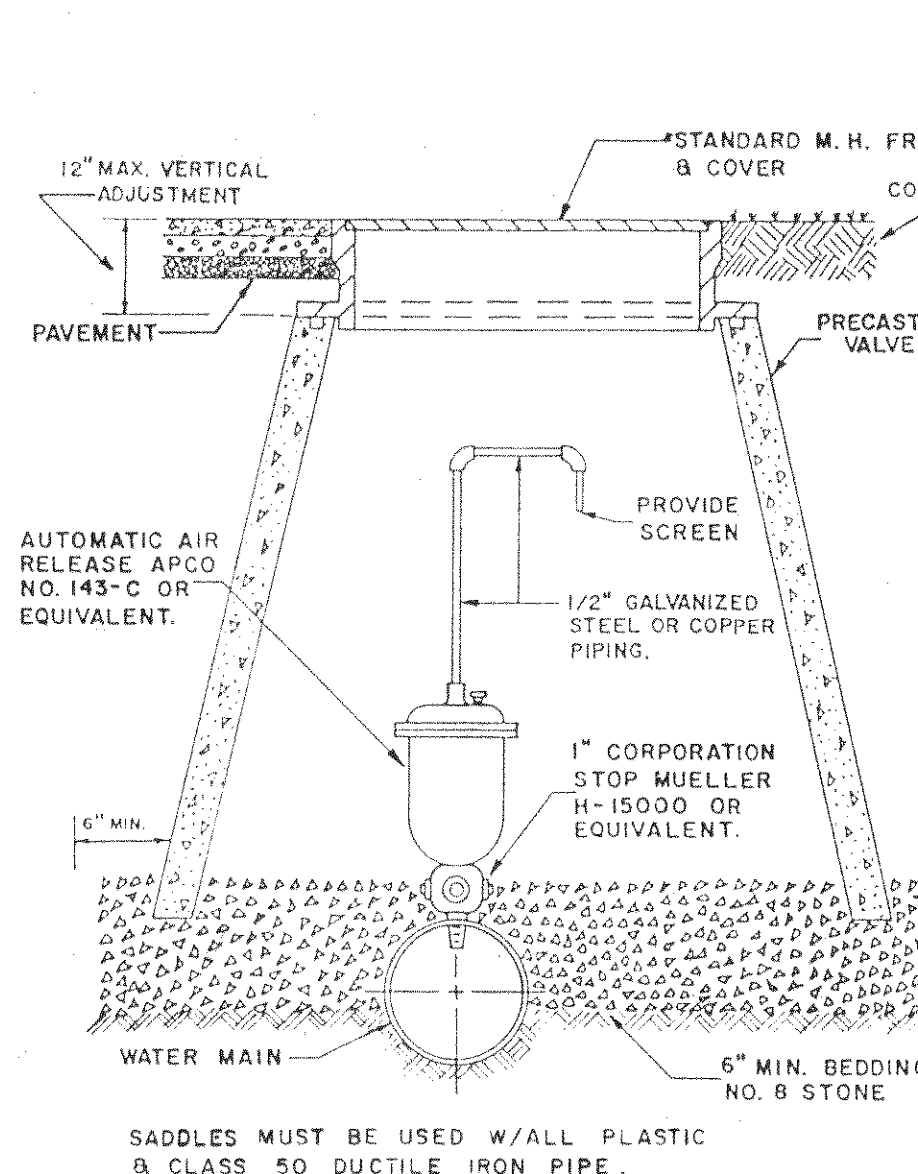
SINGLE RESIDENTIAL WATER SERVICE



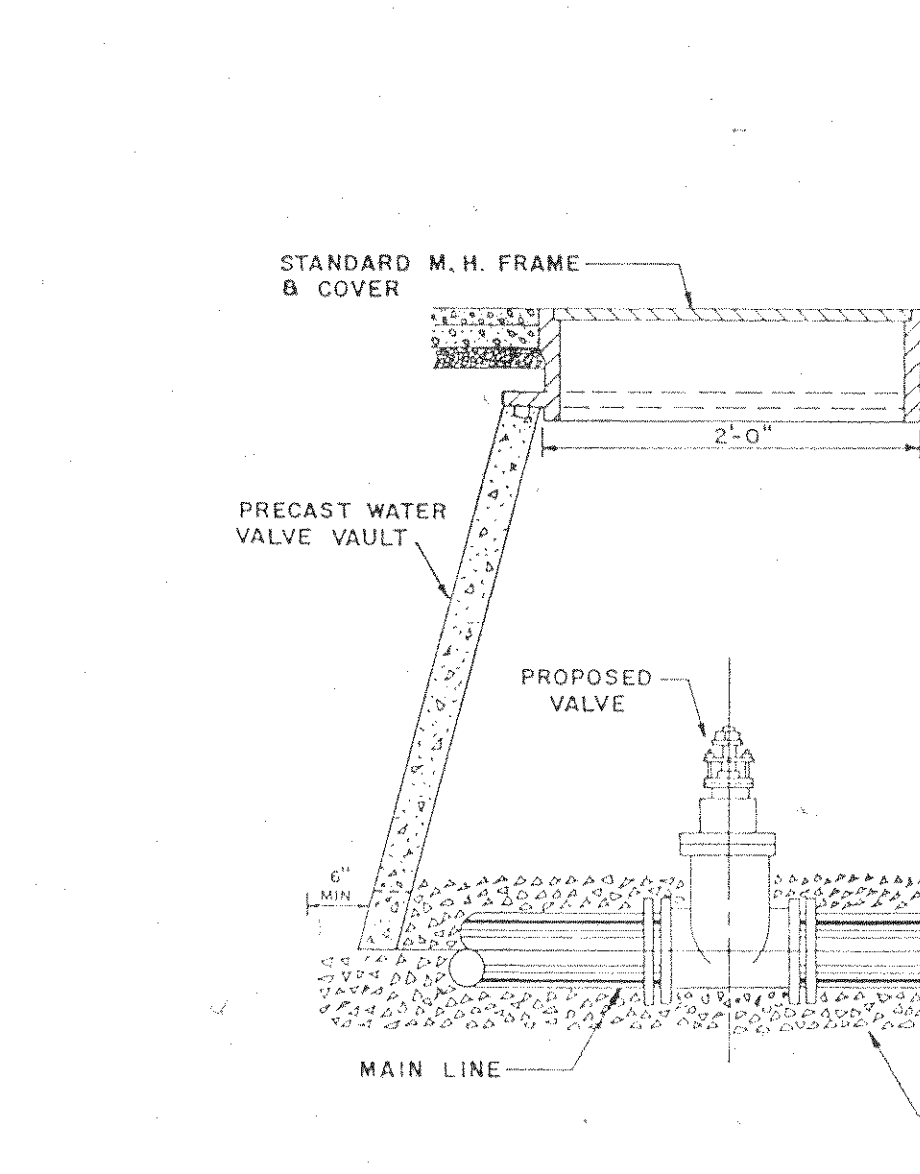
DOUBLE RESIDENTIAL WATER SERVICE



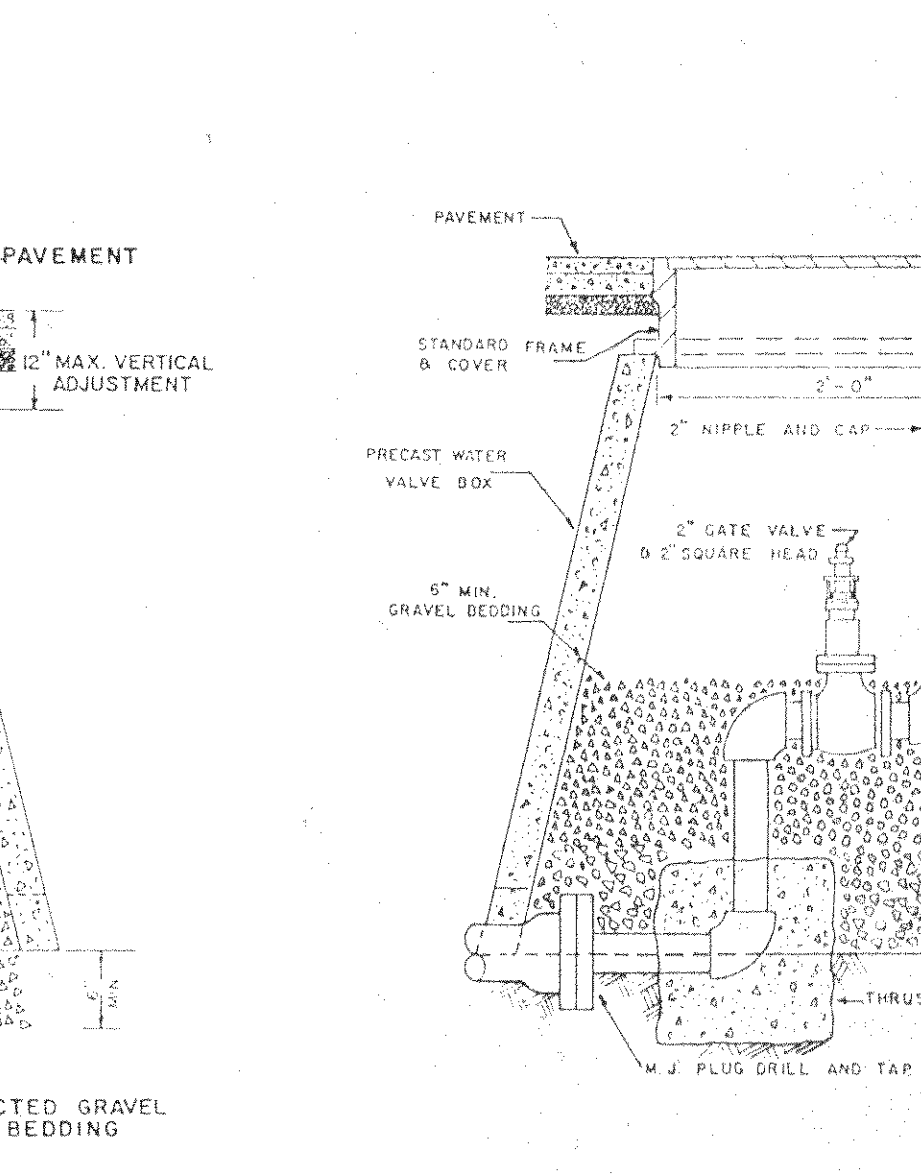
TYPICAL SPRINKLER SERVICE



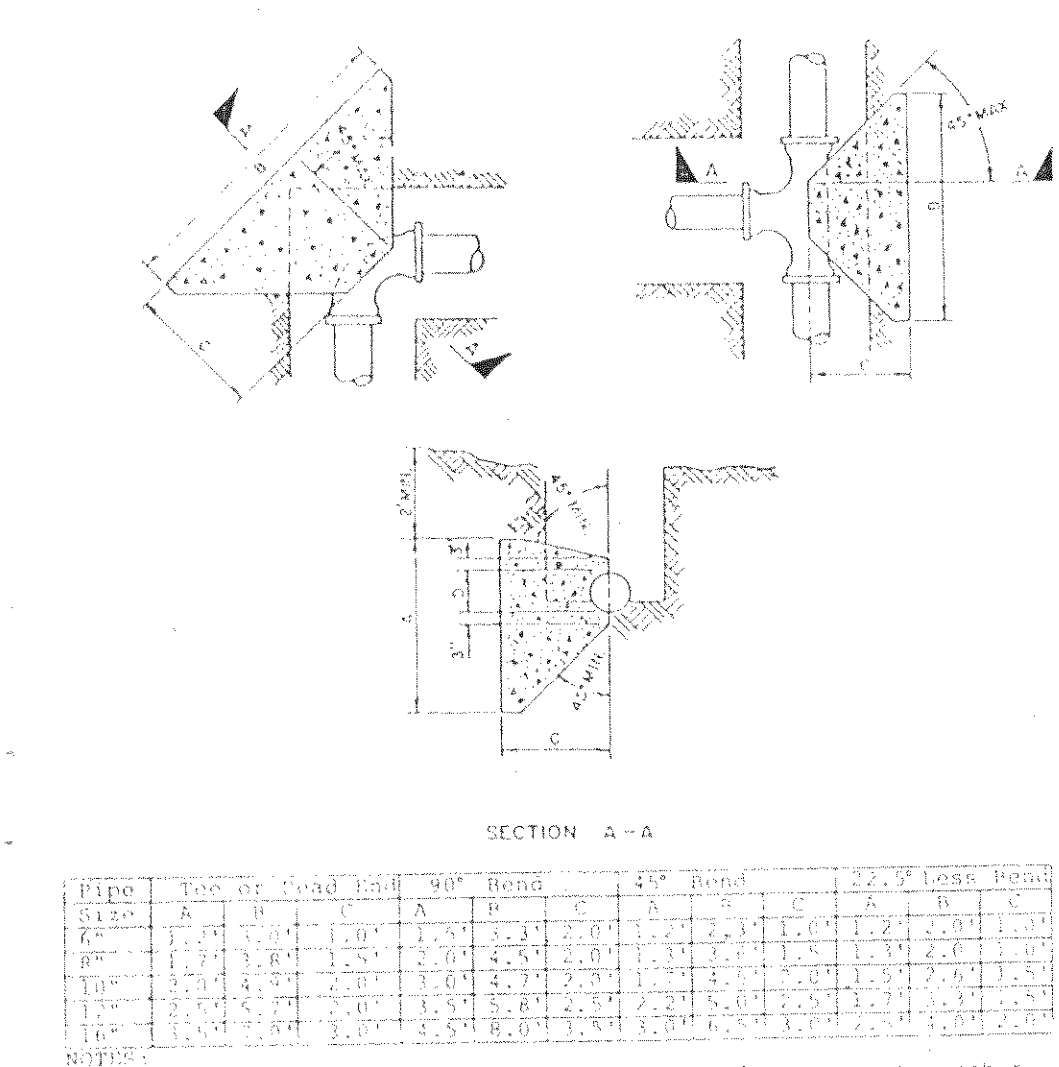
AUTOMATIC AIR RELEASE ASSEMBLY



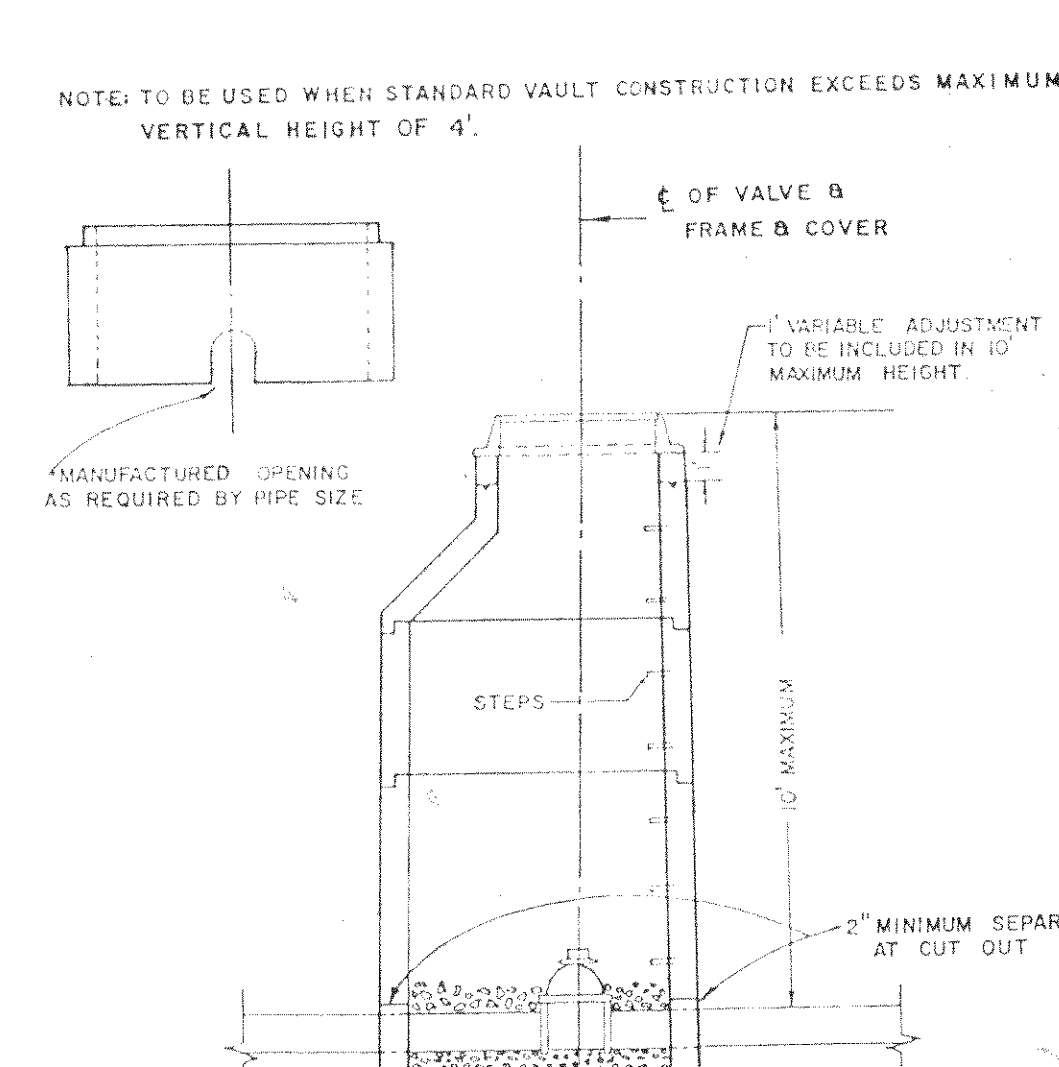
WATER LINE VALVE INSTALLATION



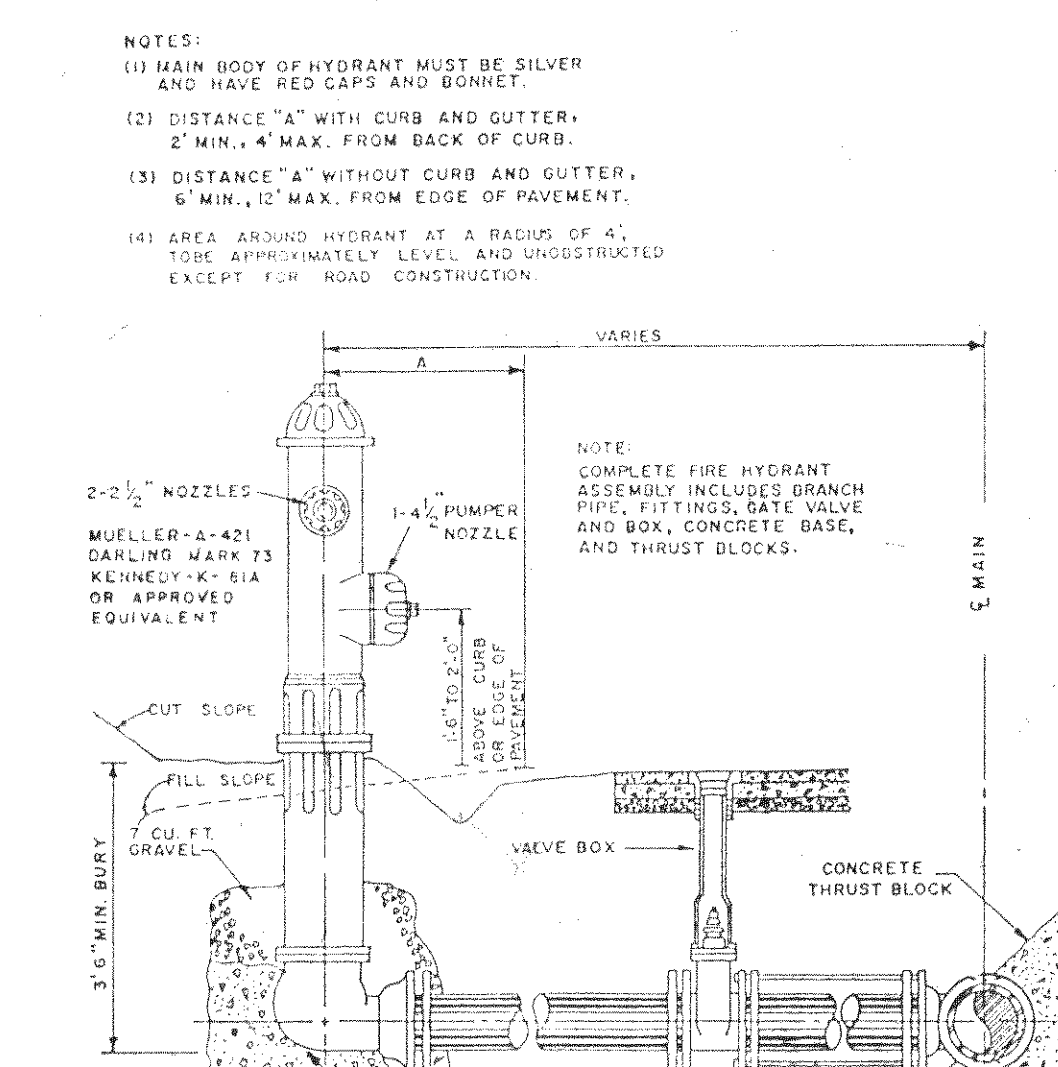
PERMANENT END OF LINE



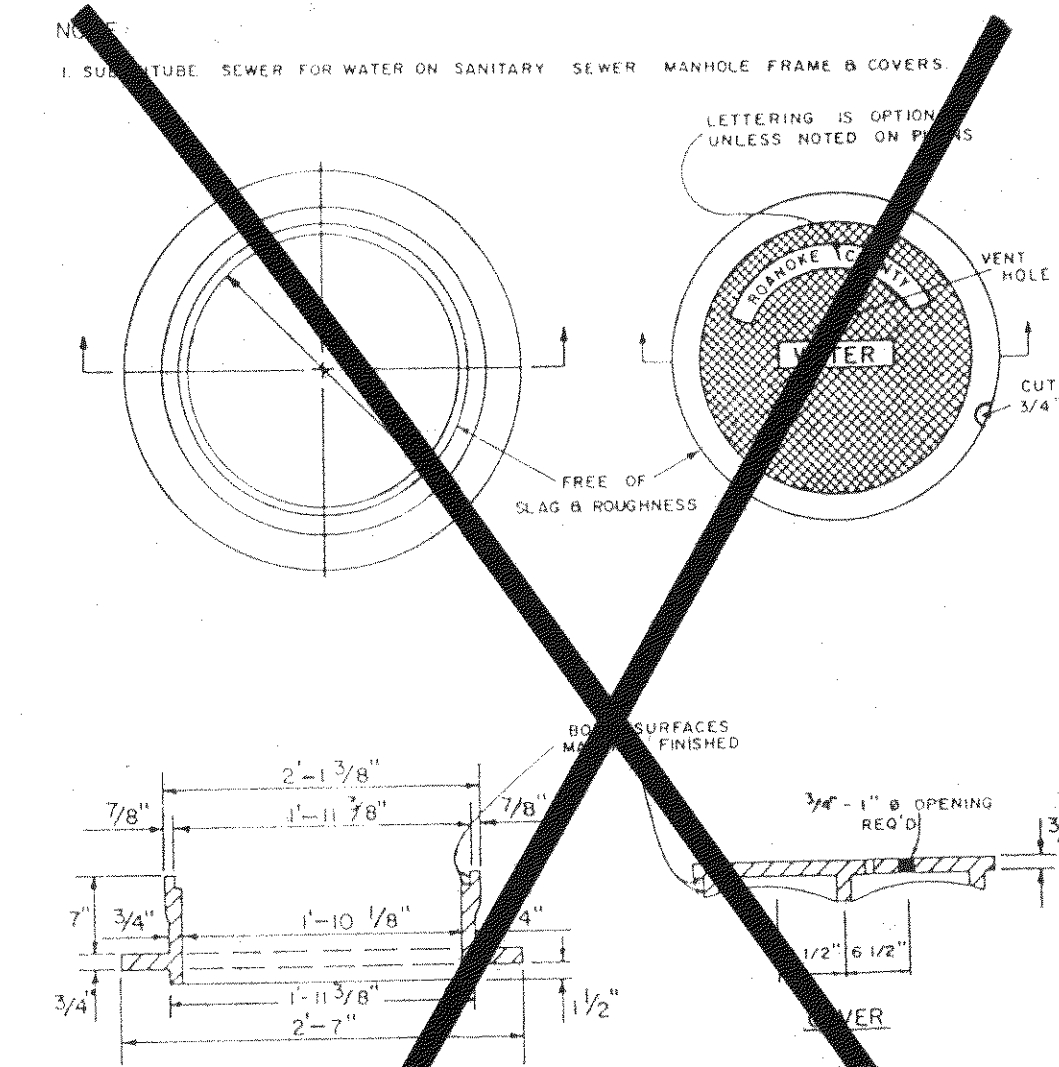
THRUST BLOCK FOR HORIZONTAL & LOWER VERTICAL BENDS



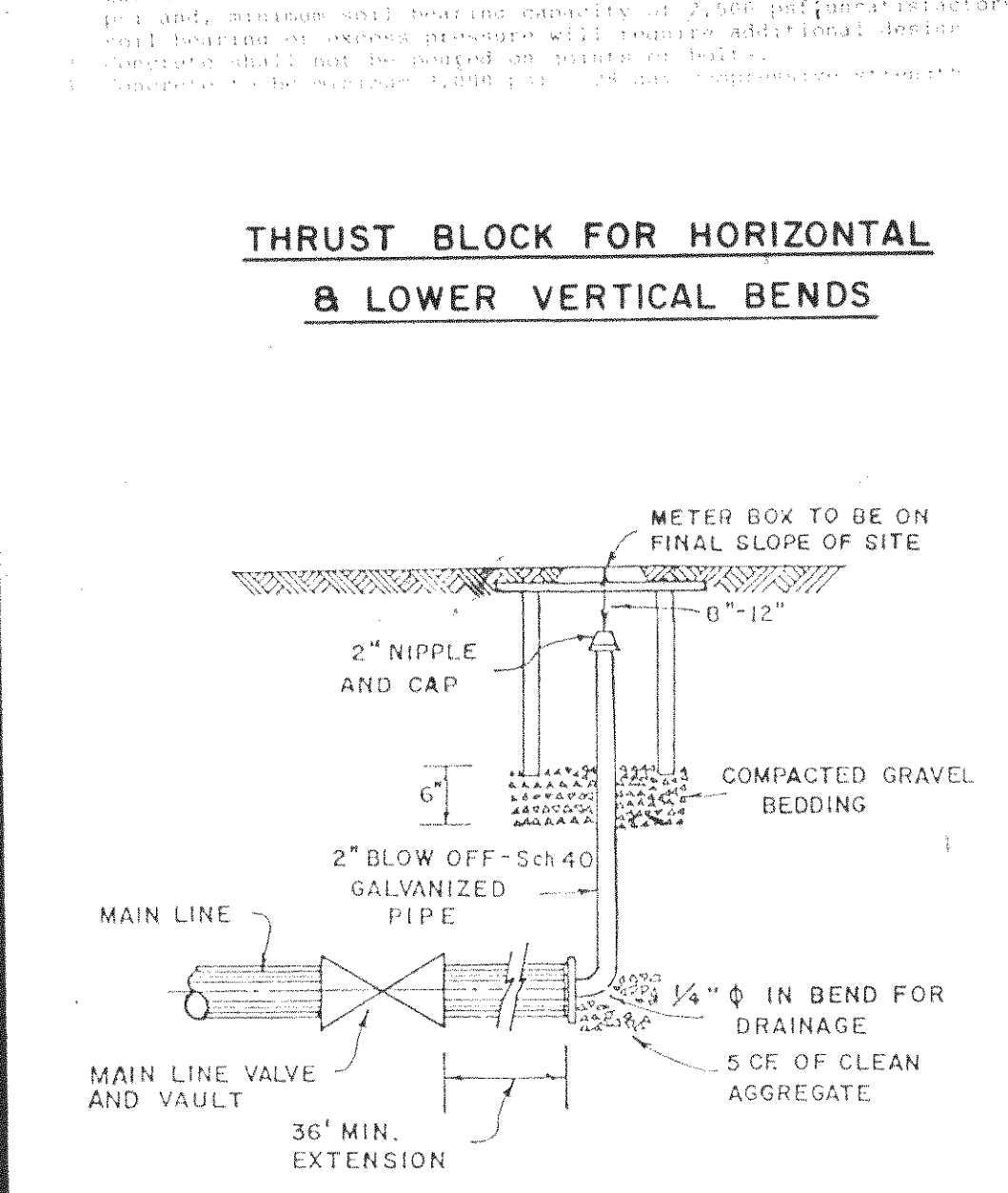
ALTERNATE VALVE VAULT (MANHOLE)



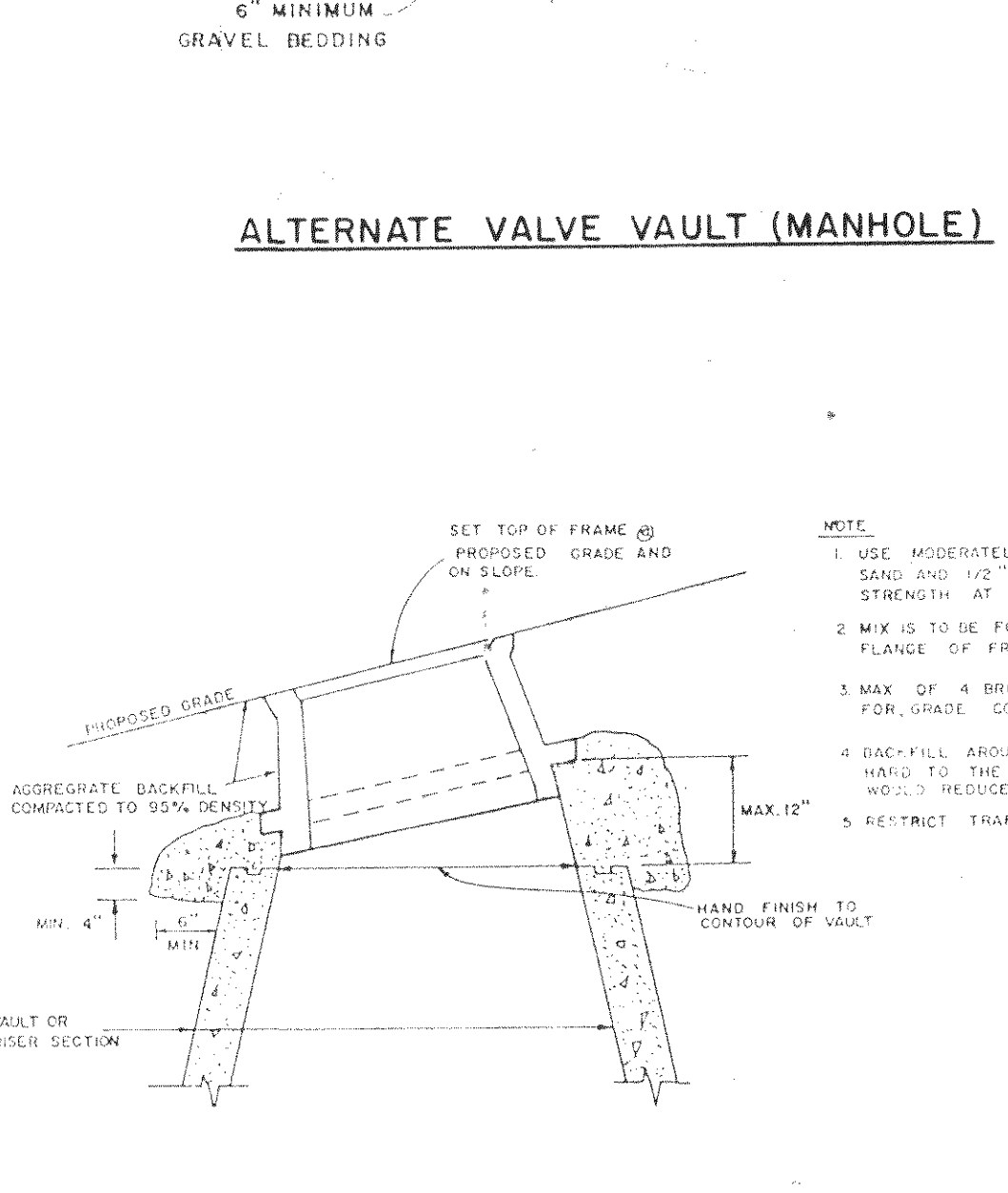
FIRE HYDRANT SETTING



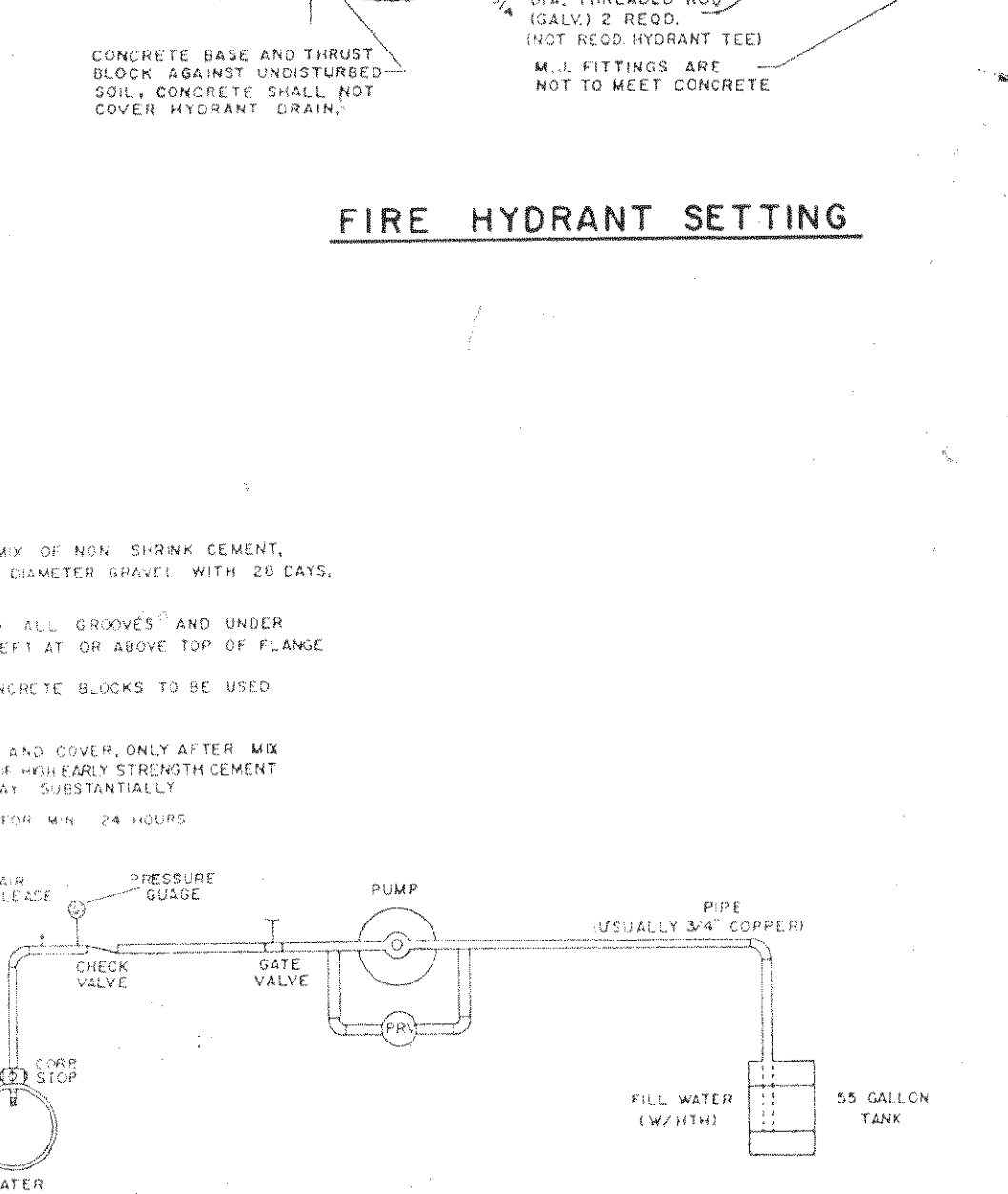
MANHOLE FRAME AND COVER



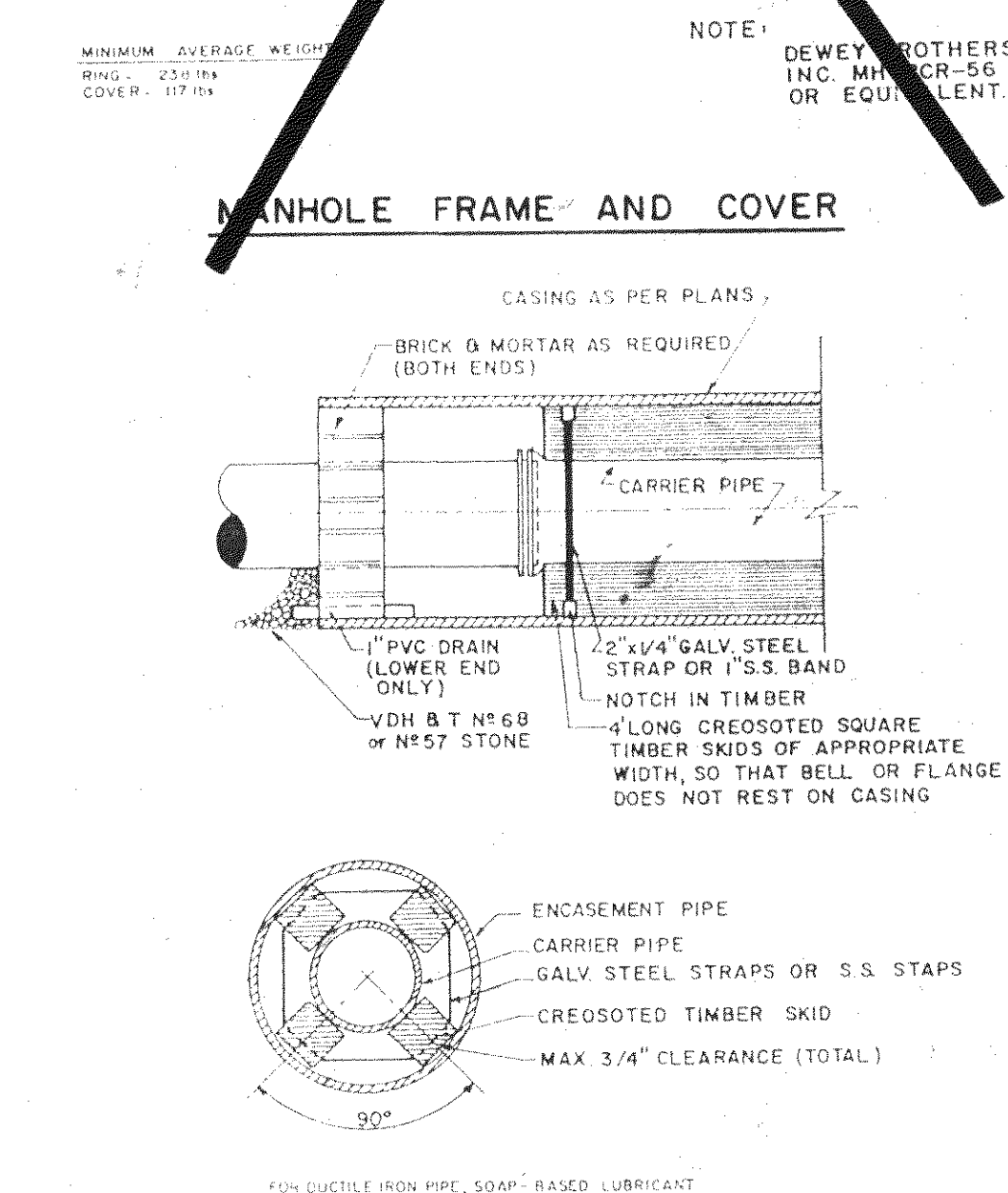
BLOW OFF ASSEMBLY FOR MAIN LINE TEMPORARY TERMINATION



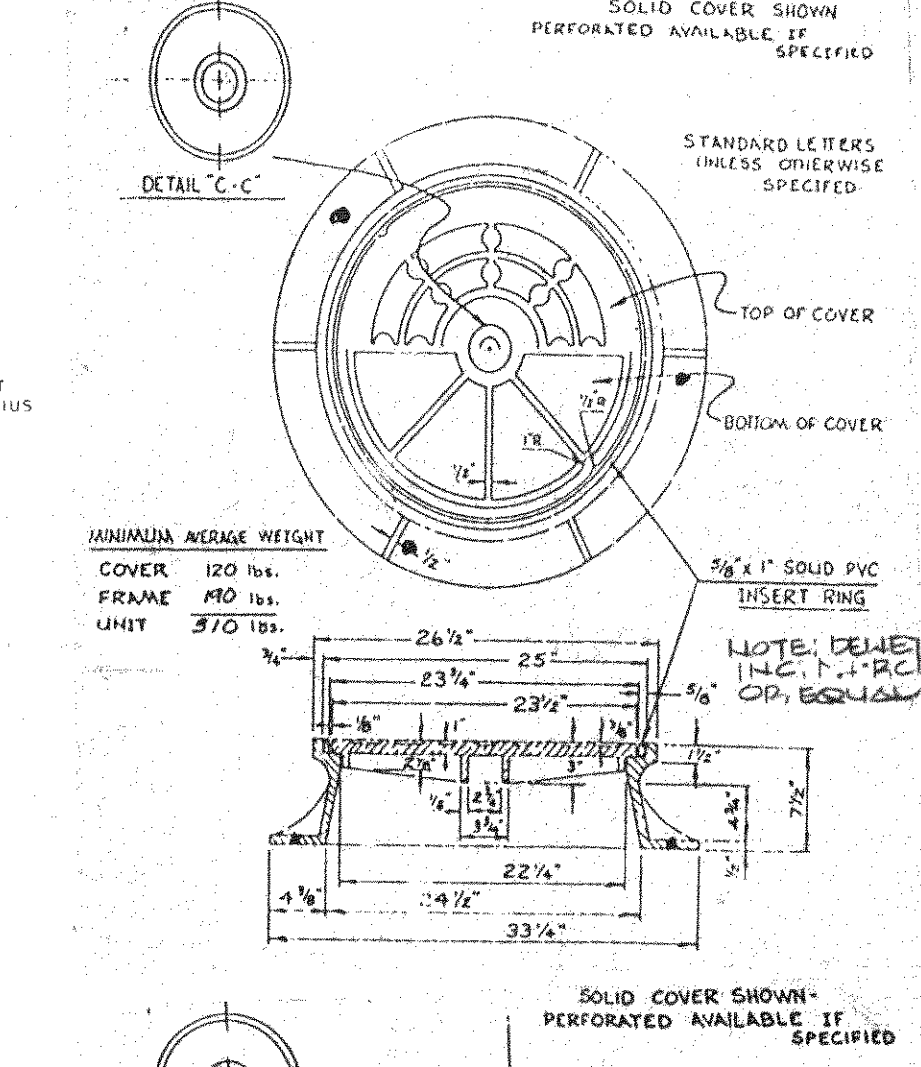
MANHOLE FRAME & COVER ADJUSTMENT



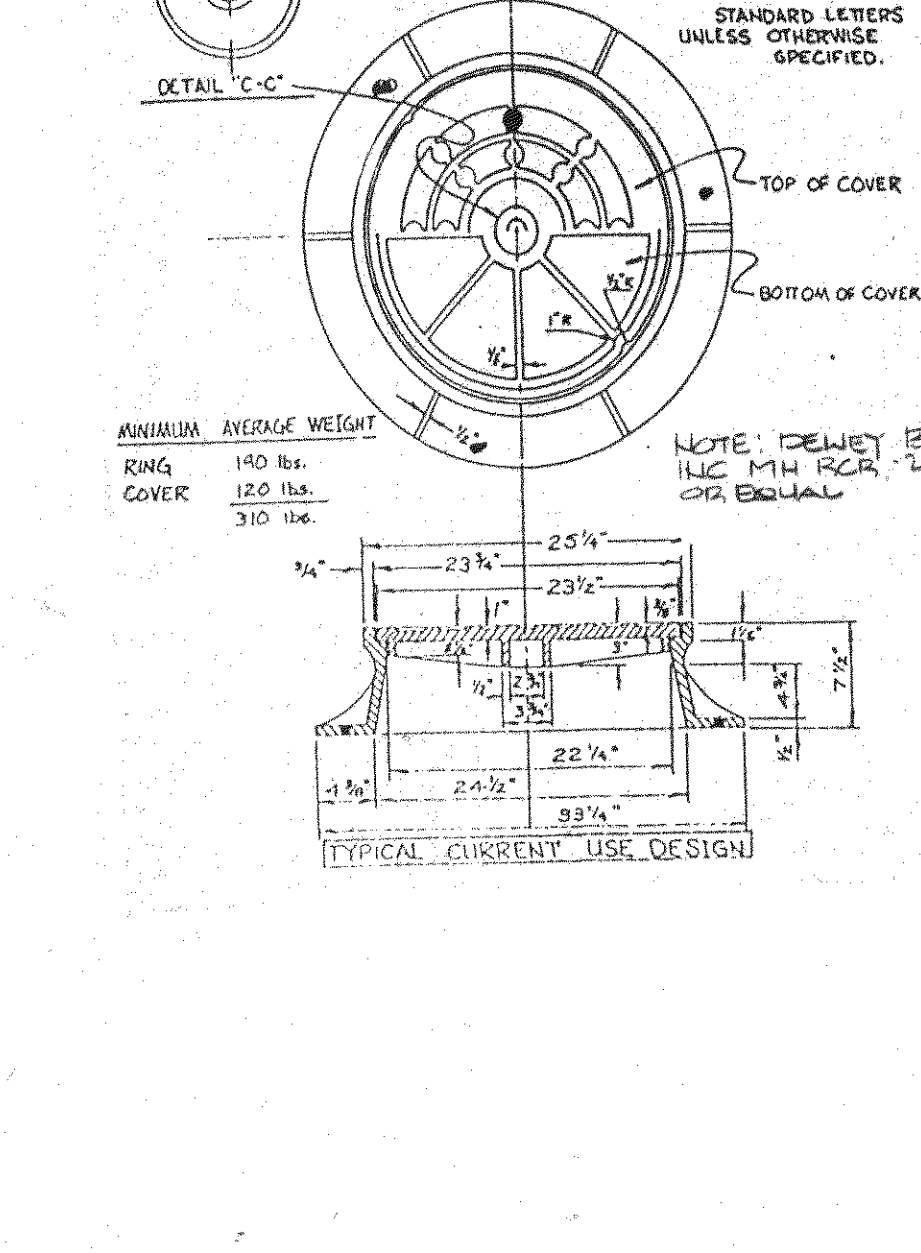
TYPICAL WATER PRESSURE TEST RIG



PIPE SUPPORT IN CASING PIPE



- Vaults, manhole bases, risers, tapers and grade rings shall be precast reinforced concrete manufactured in accordance to Virginia Department of Transportation, Road and Bridge Specifications, Section 501.
- Manhole base and riser sections construction shall be vertical with maximum 1" in 4' tilt.
- A maximum of 2 construction grade rings or maximum of 1' of grade rings and frame and cover adjustment are allowable.
- Final adjustment of frame and cover shall be in accordance to frame and cover adjustment detail using non shrink concrete with maximum of 4 bricks or concrete blocks for grade control. Frame and cover are to be set at finish grade or 1/4" above finish grade in pavement and yard areas and minimum 6" above finish grade in other areas. Manhole frames and covers are not to be set in drainage swale, valley gutter, etc.
- Joints and openings in manhole units shall be made watertight by using butyl sealants, 70" ring gaskets or mastic. The concrete surface shall be cleaned prior to use of sealant.
- Frame and Covers
 - Dewey Brothers Inc. MH - RCR - 1 & 2001EC
 - Approved equal.
- All lift holes, openings around pipe, etc. shall be filled from inside and outside to thickness of structure.
- All units used in manhole and vault construction shall be securely connected by interlocking between units, concrete collars or other approved methods.
- Area around meter box at a radius of 4' to be on finish grade and unobstructed except for road construction.



- Meter Boxes
 - Ford Troncrete meter box with No. 2 ironcrete top or approved equal.
 - Southeastern Distributor Model MB-5 Plastic box with Ford or Charlotte Model C-32 cast iron base and cover (Not approved for roadway area).
 - Approved equal.
- Meter Setter (including inlet riser valve and double check valve on outlet)
 - Ford V8H 72-15-WD
 - Approved equal.
- Meter Setter Extender or Riser
 - Not allowed unless approved by the Utility Director.
- Corporation Stop
 - Mueller Model H-1500.
 - Ford Model F-600.
 - Approved equal.
- U-Branch
 - Ford Model U28-43.
 - Mueller Model H 15362.
 - Approved equal.
- Service Saddles (for PVC Pipe)
 - Ford Model FS 202 and FC 202 with stainless steel band and bolts.
 - Approved equal.