

INTRODUCED: February 13, 2023

AN ORDINANCE No. 2023-054

To authorize the Chief Administrative Officer, for and on behalf of the City of Richmond, to execute an Agreement between City of Richmond and Commonwealth of Virginia, Department of Transportation for Adjustment of Water and Sanitary Sewer Facilities, for the purpose of setting forth the water and sanitary sewer facilities adjustments associated with improvements to the intersection located at U.S. Route 1 and Hopkins Road.

\_\_\_\_\_  
Patrons – Mayor Stoney and Ms. Robertson

\_\_\_\_\_  
Approved as to form and legality  
by the City Attorney  
\_\_\_\_\_

PUBLIC HEARING: FEB 27 2023 AT 6 P.M.

THE CITY OF RICHMOND HEREBY ORDAINS:

§ 1. That the Chief Administrative Officer, for and on behalf of the City of Richmond, be and is hereby authorized to execute an Agreement between City of Richmond and Commonwealth of Virginia, Department of Transportation for Adjustment of Water and Sanitary Sewer Facilities, for the purpose of setting forth the water and sanitary sewer facilities adjustments associated with improvements to the intersection located at U.S. Route 1 and Hopkins Road. The Agreement between City of Richmond and Commonwealth of Virginia, Department of Transportation for Adjustment of Water and Sanitary Sewer Facilities shall be approved as to form

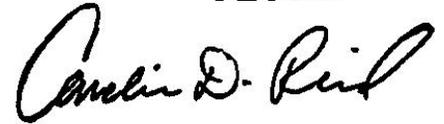
AYES: 9 NOES: 0 ABSTAIN: \_\_\_\_\_

ADOPTED: FEB 27 2023 REJECTED: \_\_\_\_\_ STRICKEN: \_\_\_\_\_

by the City Attorney and shall be substantially in the form of the document attached to this ordinance.

§ 2. This ordinance shall be in force and effect upon adoption.

**A TRUE COPY:  
TESTE:**

A handwritten signature in black ink, appearing to read "Carolin D. Reed". The signature is written in a cursive style with a large initial 'C'.

**City Clerk**



# City of Richmond

## Intracity Correspondence

**O&R REQUEST**

**DATE:** November 28, 2022

**EDITION:** 1

**TO:** The Honorable Members of City Council

**THROUGH:** The Honorable Levar M. Stoney, Mayor

**THROUGH:** J.E. Lincoln Saunders, Chief Administrative Officer

**THROUGH:** Robert C. Steidel, Deputy Chief Administrative Officer, Operations

**THROUGH:** April N. Bingham, Director, Department of Public Utilities

**FROM:** Jonathan M. Cosby, Interim Engineering Manager, Department of Public Utilities

12/12/22

**RE:** City of Richmond – Virginia Department of Transportation Adjustment of Water and Sanitary Sewer Facilities Agreement

**ORD. OR RES. No.** \_\_\_\_\_

**PURPOSE:** To authorize the Chief Administrative Officer to execute an agreement with the Virginia Department of Transportation (“VDOT”) concerning water and sewer utility improvements associated with a project to improve the Route 1 & Hopkins Road intersection.

**REASON:** VDOT is proposing to construct a section of highway designated as the Route 1 Jefferson Davis Highway, Project: 0001-127-108, C-501 (UPC#15955). This project will require changes in the City’s water and sanitary sewer facilities. VDOT, through its contractor, will relocate and adjust the City’s water and sanitary sewer facilities according to plans attached to the Agreement. The City needs to execute the Agreement in order to enable VDOT to make these changes.

**RECOMMENDATION:** Approval of the Agreement.

**BACKGROUND:** As part of the Route 1 Jefferson Davis Highway project, existing water and sewer facilities impacted by the proposed roadway project must be adjusted to accommodate the proposed roadway improvements. Additionally, betterment will be performed by VDOT’s contractor to replace existing aging cast-iron water mains.

**FISCAL IMPACT / COST:** The City is responsible to pay the actual cost of the utility betterment work plus 10% for construction oversight. The actual cost of the utility betterment work is calculated as follows: The City shall pay 96.6% of the cost of the water adjustments and 10% for construction oversight. The City shall pay 0% of the cost of the sanitary sewer adjustments. The estimated betterment portion is \$1,916,995.00, and the construction oversight portion is \$191,699.50 for a total of \$2,108,694.50 which is funded in the FY23 Water Utility Capital Improvement budget.

**FISCAL IMPLICATIONS:** Performing the betterment work as part of the VDOT project will reduce the overall project cost to the Water Utility as well as the impact to the surrounding area.

**BUDGET AMENDMENT NECESSARY:** N/A.

**REVENUE TO CITY:** N/A.

**DESIRED EFFECTIVE DATE:** Upon adoption.

**REQUESTED INTRODUCTION DATE:** January 9, 2022.

**CITY COUNCIL PUBLIC HEARING DATE:** January 23, 2023.

**REQUESTED AGENDA:** Consent.

**RECOMMENDED COUNCIL COMMITTEE:** Land Use, Housing, and Transportation; Government Operations.

**CONSIDERATION BY OTHER GOVERNMENTAL ENTITIES:** N/A.

**AFFECTED AGENCIES:** Department of Public Utilities.

**RELATIONSHIP TO EXISTING ORD. OR RES.:** N/A.

**REQUIRED CHANGES TO WORK PROGRAM(S):** N/A.

**ATTACHMENTS:** City of Richmond – Virginia Department of Transportation Adjustment of Water and Sanitary Sewer Facilities Agreement.

**STAFF:** Jonathan Cosby, Interim Engineering Manager, Department of Public Utilities, 804-646-7849.

AGREEMENT  
between  
CITY OF RICHMOND  
and  
COMMONWEALTH OF VIRGINIA, DEPARTMENT OF TRANSPORTATION  
for  
ADJUSTMENT OF WATER and SANITARY SEWER FACILITIES

THIS AGREEMENT, made and entered into as of the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_, by and between the CITY OF RICHMOND (hereinafter called MUNICIPALITY), and the COMMONWEALTH OF VIRGINIA, DEPARTMENT OF TRANSPORTATION, (hereinafter called the STATE), acting by its Commissioner;

WITNESSETH

WHEREAS, the STATE is proposing to construct a section of highway designated as, Route 1 Jefferson Davis Highway, Project: 0001-127-108, C-501 (UPC#15955), which will necessitate changes in the MUNICIPALITY'S water and sanitary sewer facilities: and,

WHEREAS, the MUNICIPALITY appropriated funds for its costs described in SECTION II of this Agreement in the City of Richmond, Virginia, Fiscal Year 2023 Water Utility Capital Budget;

WHEREAS, the STATE and MUNICIPALITY wish to agree upon the terms and conditions under which the necessary changes will be made as hereinafter set forth:

NOW THEREFORE, for and in consideration of the premises and of the mutual covenants herein contained, the parties hereto agree as follows:

SECTION I

(a) It will be to the best interest of the STATE and the MUNICIPALITY to have the adjustment of the water and sanitary sewer facilities included in the highway contract to be adjusted by the highway contractor.

(b) The STATE through its highway contractor, will relocate and adjust the MUNICIPALITY'S water and sanitary sewer facilities in accordance with attached plans and the STATE'S Road and Bridge Specifications; said plans being identified as Sixteen (16) one-half size plans sheets numbered 10(1) through 10(15) of the STATE'S construction plans for Project: 0001- 127-108, C-501, as attached.

## SECTION II

- (a) It has been determined that the project is responsible for bearing 3.4% of the cost of the water adjustments indicated in SECTION I(b).
- (b) It has been determined that the MUNICIPALITY is responsible for bearing 96.6% of the project cost of the water adjustments.
- (c) It has been determined that the project is responsible for bearing 100% of the cost of the sanitary sewer adjustments indicated in SECTION I(b).
- (d) It has been determined that the MUNICIPALITY is responsible for bearing 0.0% of the project cost of the sanitary sewer adjustments.
- (e) Appendix A attached to this Agreement is hereby incorporated into this Agreement.

## SECTION III

In the event, at any time hereafter that the water and sanitary sewer facilities indicated in SECTION I (b) be altered, rebuilt or relocated due to highway construction, the applicable cost incurred by the MUNICIPALITY in connection with such alteration, rebuilding or relocation of its facilities will be paid in accordance with the prevailing laws or rules and regulations in effect at the time the work is performed.

## SECTION IV

The MUNICIPALITY agrees that the existing facilities, which are to be abandoned, will become the property of the STATE's highway contractor with exceptions as noted in the attached plans. Any salvage value derived therefrom will accrue to the STATE'S highway contractor.

In WITNESS WHEREOF, each party has caused this agreement to be executed in duplicate in its name and on its behalf by its duly authorized officer as of the day and year first written.

## SECTION V

Nothing in this Agreement shall obligate the parties hereto to expend or provide any funds in excess of funds agreed upon in this Agreement or as shall have been included in an annual or other lawful appropriation.

SIGNATURES

In the presence of:

CITY OF RICHMOND

\_\_\_\_\_  
As to the City of Richmond

By: \_\_\_\_\_  
Title: \_\_\_\_\_

In the presence of:

COMMONWEALTH OF VIRGINIA  
DEPARTMENT OF  
TRANSPORTATION

\_\_\_\_\_  
As to the Commonwealth

By: \_\_\_\_\_  
State Right of Way & Utilities Director

APPROVED AS TO FORM

  
\_\_\_\_\_  
Assistant City Attorney

## Appendix A

This Appendix A is a part of the agreement for utility adjustment work for Project 0001-127-108. C-501, UPC#15955, dated \_\_\_\_\_, 20 between the CITY OF RICHMOND and the COMMONWEALTH OF VIRGINIA, DEPARTMENT OF TRANSPORTATION.

The parties further agree that the cost of utility betterment work will be paid by the MUNICIPALITY to the STATE based on the actual cost plus 10% for construction oversight. The actual cost shall be determined by:

- The pro-rated percentage of 96.6% representing the MUNICIPALITY'S portion of additional water installation applied to the unit bid prices received for the contract award by the STATE plus 10% for construction oversight. The estimated betterment portion is \$1,916,995.00 and construction oversight is \$191,699.50 for a total of \$2,108,694.50.

Payment by MUNICIPALITY to the STATE shall be promptly made in accordance with the following schedule:

- Lump Sum payments of the estimated cost in the amount described above with reconciliation between estimated and actual cost upon completion of the project. Payment shall be due within 30 days upon execution of this agreement by all parties.

Whenever the MUNICIPALITY'S payment is backed on unit bid process a final cost will be determined based upon the actual quantities of each unit paid to the contractor by the STATE. The STATE will provide the MUNICIPALITY with the final unit quantities and final cost with its final bill to the Utility. The cost of construction oversight will be applied as described above.

In the event the betterment work requires a construction change order during the life of the contract this reimbursement and payment plan shall be adjusted to reflect the change in costs.





THIS SHEET FOR UTILITY ADJUSTMENT/RELOCATION ONLY

DATE	5/20/20
BY	VA
PROJECT NO.	0004-127-406 PE-00A (013)
REV.	0004-127-406 PE-00A (013)
DATE	6/16/20
BY	VA
PROJECT NO.	0004-127-406 PE-00A (013)



DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC SHALL BE SHOWN ON SEPARATE SHEETS NECESSARY TO THE COMMITMENT.

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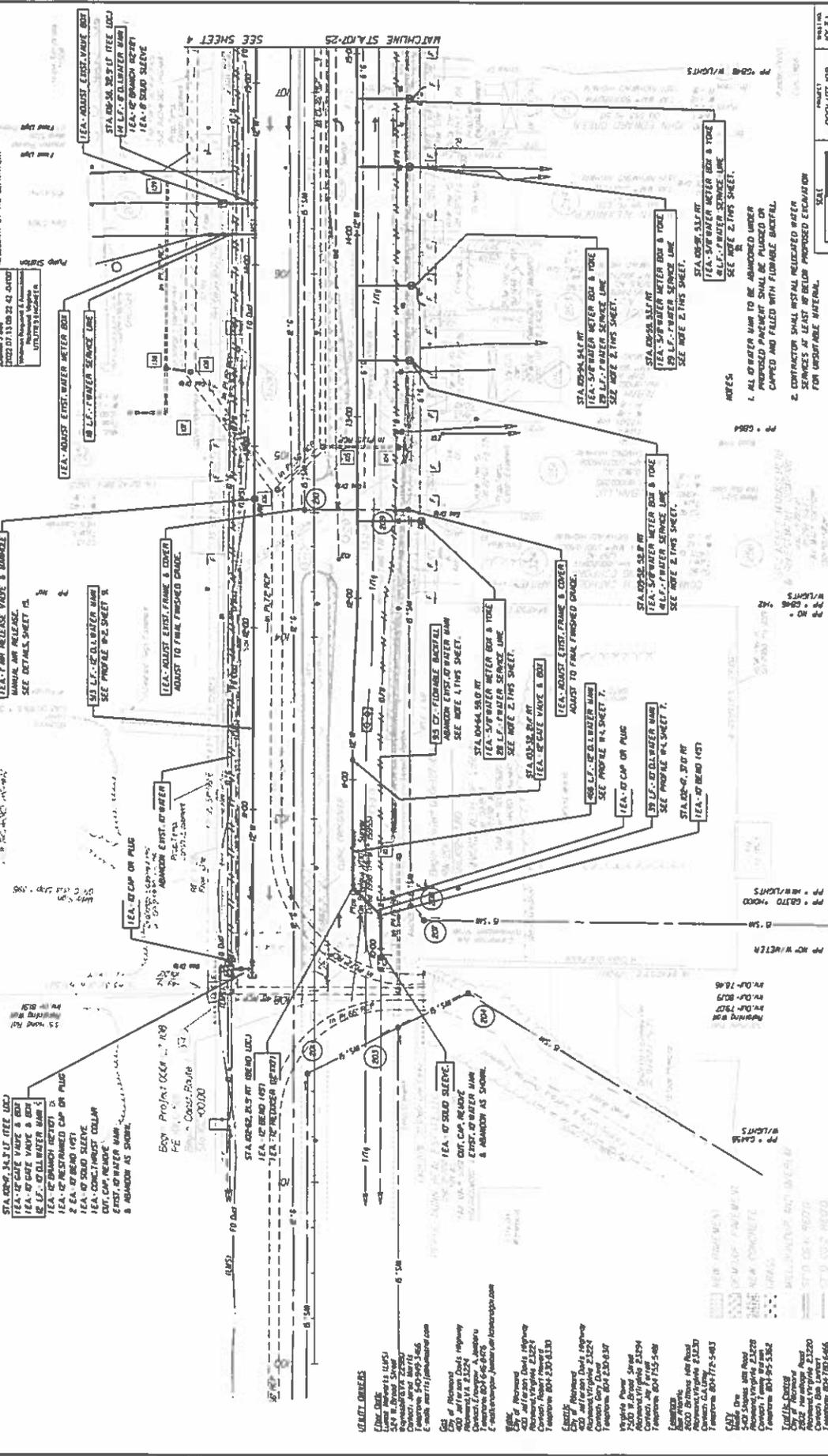
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- UTILITY OWNERS**
- City of Richmond
  - Richmond Water Works
  - Richmond Sewerage Authority
  - Richmond Electric Light & Power Company
  - Richmond Gas Company
  - Richmond Telephone Company
  - Richmond Cablevision
  - Richmond Fiber Optic Network
  - Richmond Electric Light & Power Company
  - Richmond Gas Company
  - Richmond Telephone Company
  - Richmond Cablevision
  - Richmond Fiber Optic Network

**NOTES**

- ALL UTILITY MAINS TO BE ADJUSTED UNDER PROPOSED PAVEMENT SHALL BE PLACED ON CAPPED AND FILLED WITH FIBRILBLE BITUMUL.
- CONTRACTOR SHALL INSTALL REDUCED WATER SERVICES AT LEAST 30" BELOW PROPOSED EXCAVATION FOR UNSATURABLE MATERIAL.

**SCALE**

1" = 20'

**DATE**

0004-127-406

**PROJECT NO.**

0004-127-406

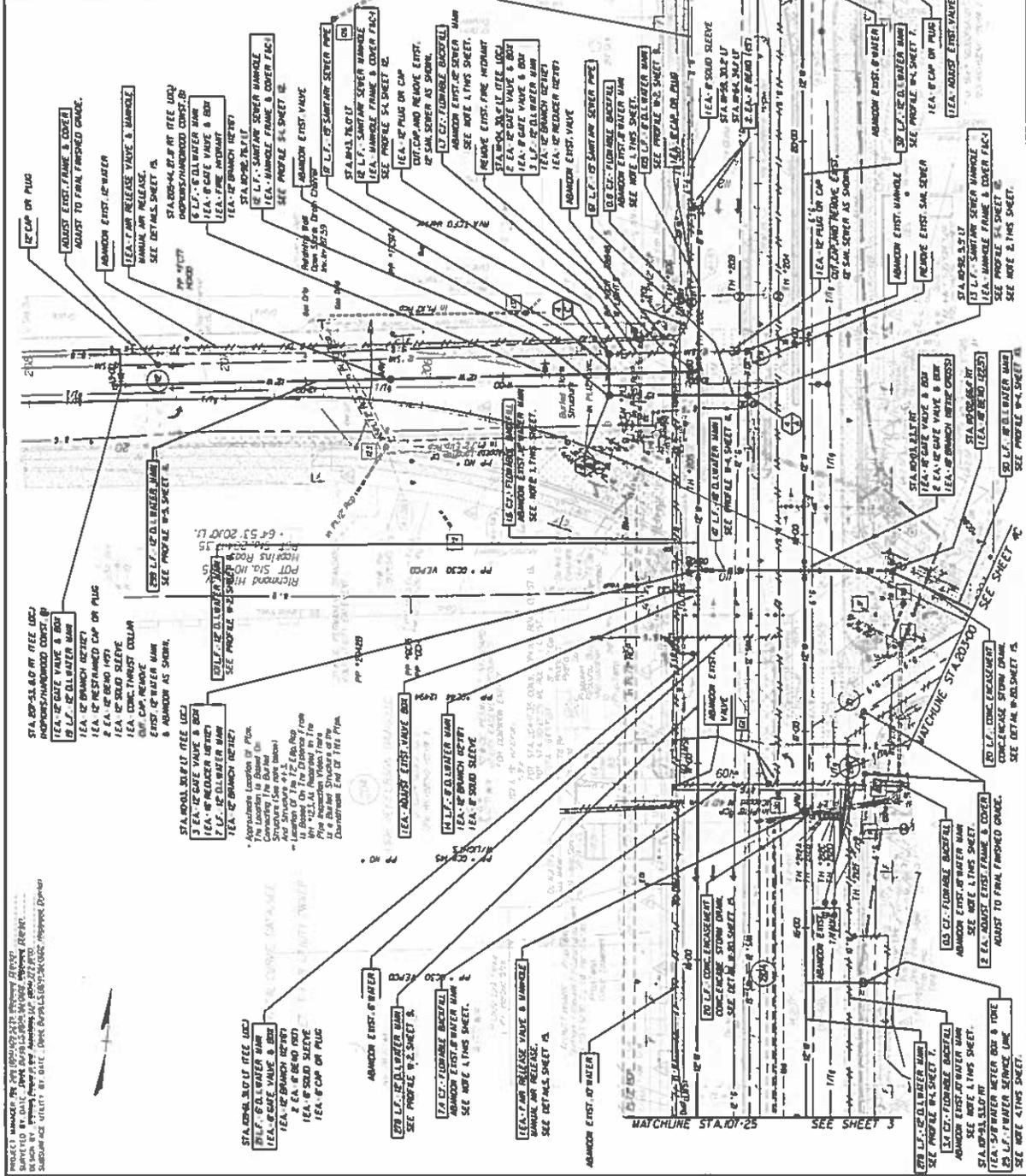
THIS SHEET FOR UTILITY ADJUSTMENT/RELOCATION ONLY

DATE	BY	NO.	REVISION
5/20/20	VA	1	000-127-008, PE, 001, RW, 200, C-500 (044)
9/10/20			
12/11/20			

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC SHALL BE SHOWN BY THE DEPARTMENT NECESSARY BY THE DEPARTMENT.

NOTES:

1. ALL 6" DIA. AND 8" SEWER AND WATER MAINS TO BE ABANDONED UNDER PROPOSED PAVEMENT SHALL BE FLAGGED OR CAPPED AND FILLED WITH FLOWABLE GRADEFILL.
2. CONTRACTOR TO INSTALL EXISTING MANHOLE AND PLACE CONCRETE UNDER PAVEMENT SO THAT FRAME AND COVER DOES NOT CONTACT WITH CURB.
3. DEFLECT PIPE JOINTS TO MAKE THEM WITH 22.5 DEGREE.
4. CONTRACTOR SHALL INSTALL RELOCATED WATER SERVICES AT LEAST 6" BELOW PROPOSED EXCAVATION FOR UNSUITABLE MATERIAL.



PROJECT MANAGER: [Name]  
 DESIGNER: [Name]  
 CHECKED BY: [Name]  
 SURVEYANCE UTILITY: [Name]

DATE	BY	NO.	REVISION
000-127-008			044

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC SHALL BE SHOWN BY THE DEPARTMENT NECESSARY BY THE DEPARTMENT.

NOTES:

1. ALL 6" DIA. AND 8" SEWER AND WATER MAINS TO BE ABANDONED UNDER PROPOSED PAVEMENT SHALL BE FLAGGED OR CAPPED AND FILLED WITH FLOWABLE GRADEFILL.
2. CONTRACTOR TO INSTALL EXISTING MANHOLE AND PLACE CONCRETE UNDER PAVEMENT SO THAT FRAME AND COVER DOES NOT CONTACT WITH CURB.
3. DEFLECT PIPE JOINTS TO MAKE THEM WITH 22.5 DEGREE.
4. CONTRACTOR SHALL INSTALL RELOCATED WATER SERVICES AT LEAST 6" BELOW PROPOSED EXCAVATION FOR UNSUITABLE MATERIAL.



THIS SHEET FOR UTILITY ADJUSTMENT/RELOCATION ONLY

DATE	5/20/20	PROJECT	000H-127-108, PE-101, RW-201-C-50
BY	VA	NO.	1
DESIGN FEATURES RELATING TO CONSTRUCTION OF THIS SHEET SHALL BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT			

DESIGN FEATURES RELATING TO CONSTRUCTION OF THIS SHEET SHALL BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

WATER SUPPLY AND OVERFLOW  
 WFD 006 HEAD  
 WFD 006 HEAD  
 WFD 006 HEAD

1.8 CT. FLOWABLE BACKFILL  
 ABANDON EXIST. FIBER MAN  
 SEE NOTE 3 THIS SHEET.

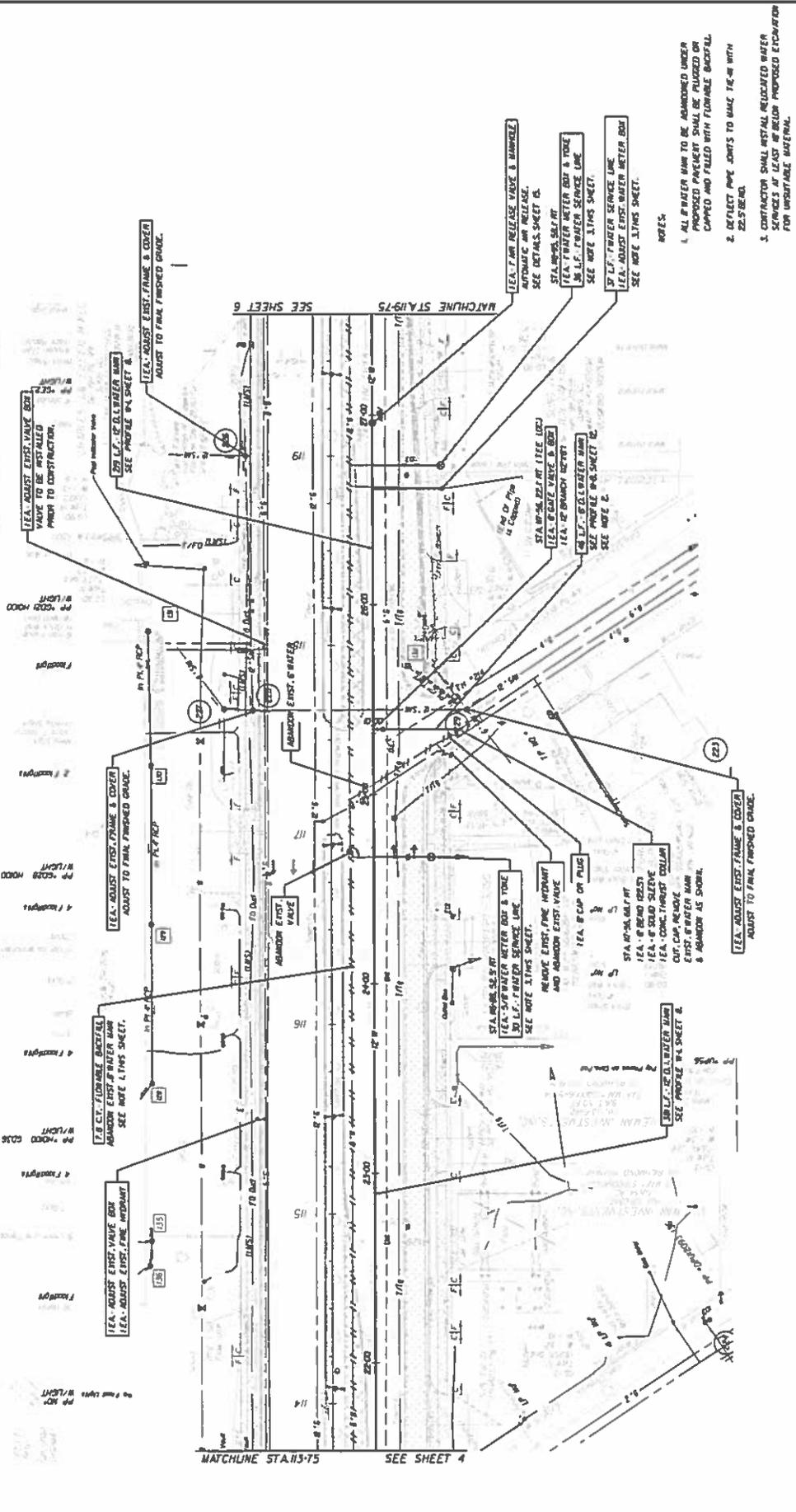
1EA. ADJUST EXIST. VALVE BOX  
 1EA. ADJUST EXIST. FINE INVERT  
 SEE NOTE 3 THIS SHEET.

1EA. ADJUST EXIST. FRAME & COVER  
 ADJUST TO FINAL FINISHED GRADE.

20 L.F. 6" DOLLAR MAN  
 SEE PROFILE ON SHEET A.

1EA. ADJUST EXIST. VALVE BOX  
 ADJUST TO FINAL FINISHED GRADE.

1EA. ADJUST EXIST. FRAME & COVER  
 ADJUST TO FINAL FINISHED GRADE.



NOTES:  
 1. ALL PIPES ARE TO BE ABANDONED UNDER EXISTING SURFACE. ALL PIPES SHALL BE PLACED ON CAPPED AND FILLED WITH FLOWABLE BACKFILL 22.5 BEARS.  
 2. DEFLECT JOINTS TO MAKE 12-18 WITH 22.5 BEARS.  
 3. CONTRACTOR SHALL INSTALL REDUCED WATER PRESSURE VALVE AND PROPOSED ETCHING FOR IDENTIFIABLE MATERIAL.

1EA. ADJUST EXIST. VALVE BOX  
 ADJUST TO FINAL FINISHED GRADE.

1EA. ADJUST EXIST. FRAME & COVER  
 ADJUST TO FINAL FINISHED GRADE.

1EA. ADJUST EXIST. VALVE BOX  
 ADJUST TO FINAL FINISHED GRADE.

1EA. ADJUST EXIST. FRAME & COVER  
 ADJUST TO FINAL FINISHED GRADE.

1EA. ADJUST EXIST. VALVE BOX  
 ADJUST TO FINAL FINISHED GRADE.

1EA. ADJUST EXIST. FRAME & COVER  
 ADJUST TO FINAL FINISHED GRADE.

1EA. ADJUST EXIST. VALVE BOX  
 ADJUST TO FINAL FINISHED GRADE.

1EA. ADJUST EXIST. FRAME & COVER  
 ADJUST TO FINAL FINISHED GRADE.

NOTE: SEE SHEET 3 FOR UTILITY OWNER INFORMATION.





THIS SHEET FOR UTILITY ADJUSTMENT/RELOCATION ONLY

PROJECT NUMBER: 000427-001-PE-01A  
 DATE: 5/20/20  
 SHEET NO: 1  
 PROJECT: RW-201-C-201  
 SHEETS: 10(61)



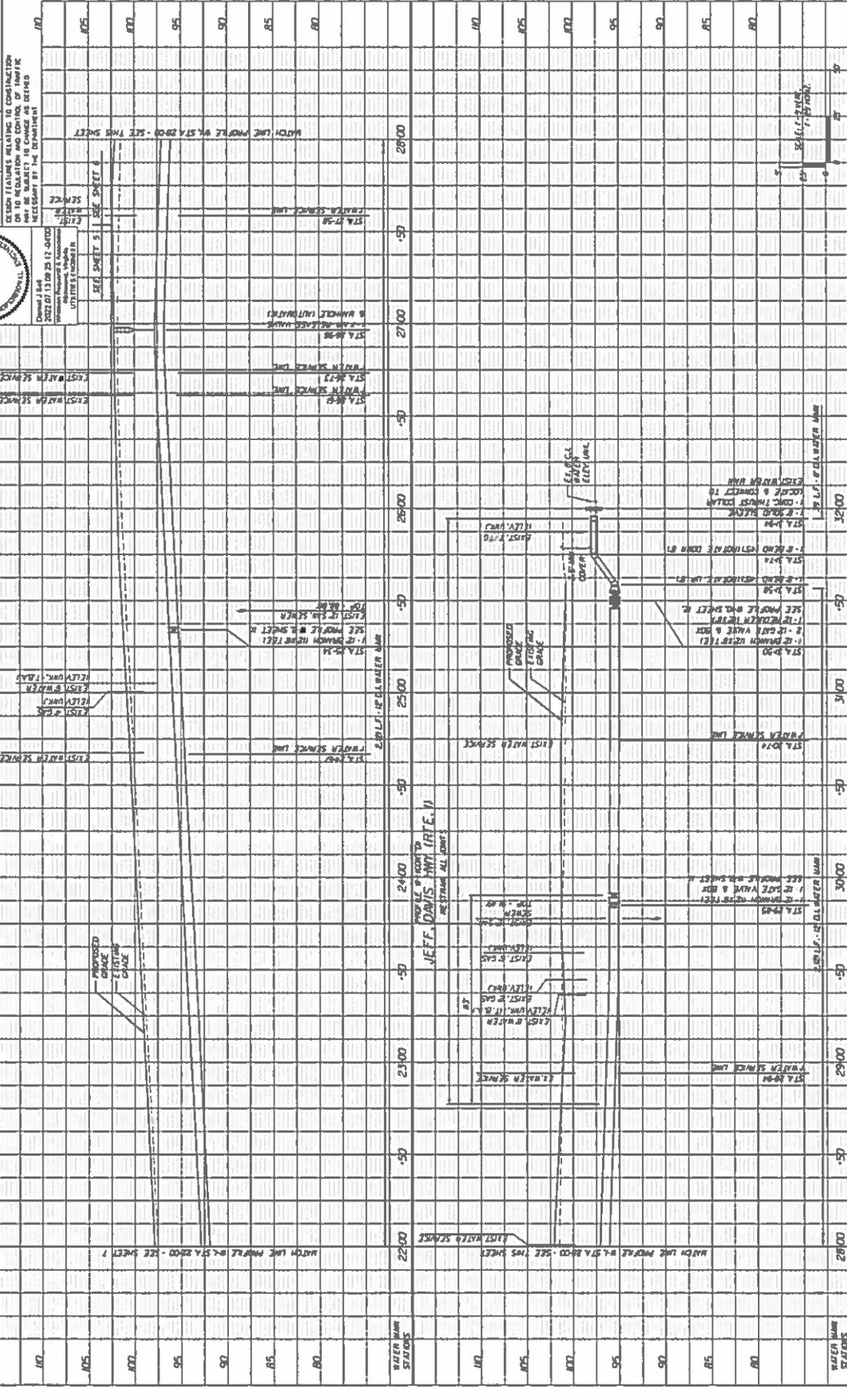
DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF FLOW ARE NECESSARY BY THE DEPARTMENT

PROPOSED 12" DIA. WATER MAIN  
 2.0' L.S. TO 2.5' L.S.  
 2.0' L.S. TO 2.5' L.S.  
 2.0' L.S. TO 2.5' L.S.

PROPOSED 12" DIA. WATER MAIN  
 2.0' L.S. TO 2.5' L.S.  
 2.0' L.S. TO 2.5' L.S.  
 2.0' L.S. TO 2.5' L.S.

PROPOSED 12" DIA. WATER MAIN  
 2.0' L.S. TO 2.5' L.S.  
 2.0' L.S. TO 2.5' L.S.  
 2.0' L.S. TO 2.5' L.S.

PROPOSED 12" DIA. WATER MAIN  
 2.0' L.S. TO 2.5' L.S.  
 2.0' L.S. TO 2.5' L.S.  
 2.0' L.S. TO 2.5' L.S.



PROJECT NUMBER: 000427-001-PE-01A  
 DATE: 5/20/20  
 SHEET NO: 1  
 PROJECT: RW-201-C-201  
 SHEETS: 10(61)

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF FLOW ARE NECESSARY BY THE DEPARTMENT



DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF FLOW ARE NECESSARY BY THE DEPARTMENT

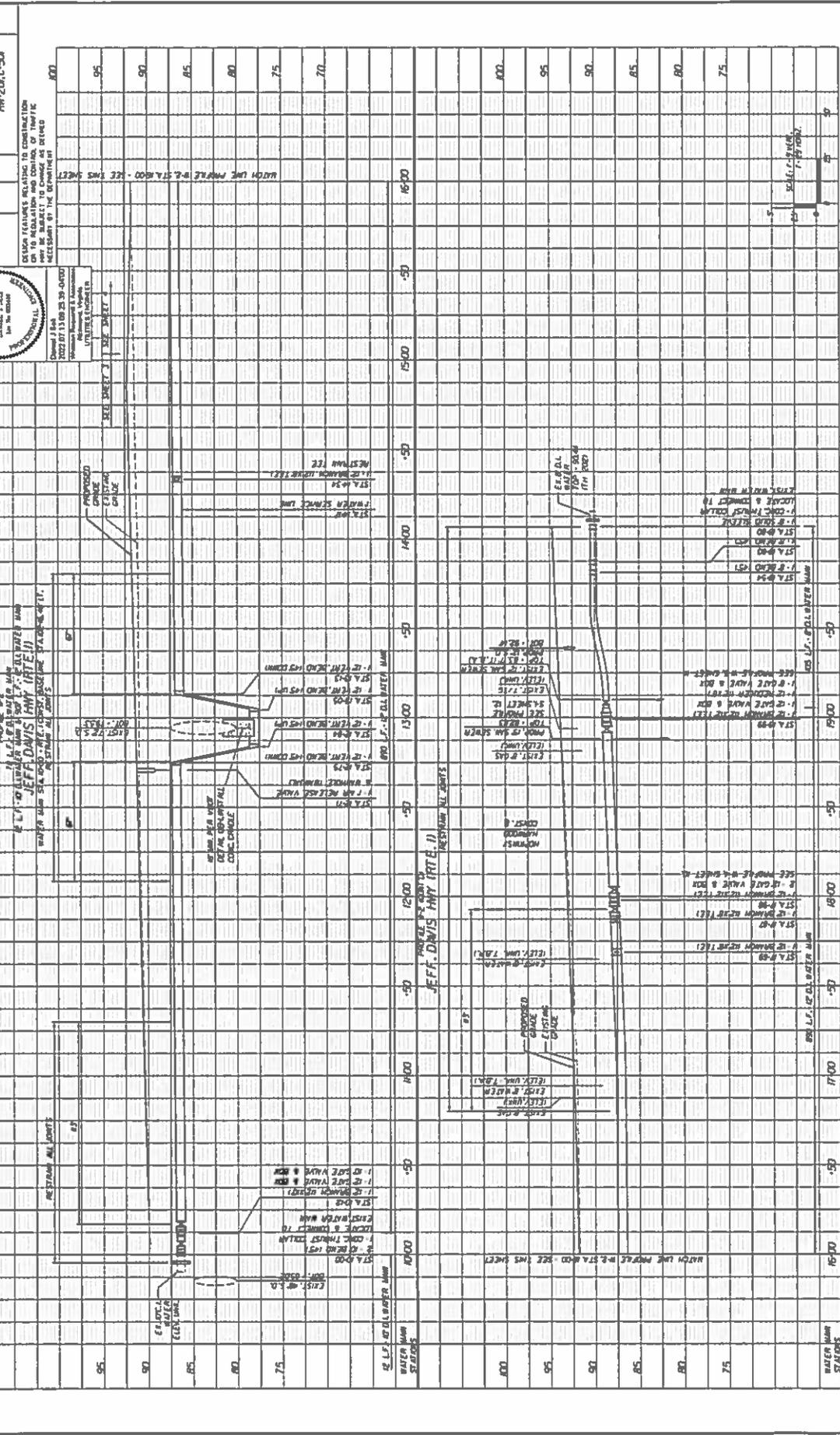
THIS SHEET FOR UTILITY ADJUSTMENT/RELOCATION ONLY

DATE: 5/20/20  
 DRAWN BY: VA  
 PROJECT NO: 000427-NOR-PC-N01  
 SHEET NO: RW-201-C-501  
 SCALE: AS SHOWN

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC SHALL BE SHOWN ON SEPARATE SHEETS NECESSARY TO THE CONTRACT

PROJECT MANAGER: [Name]  
 CHECKED BY: [Name]  
 DATE: 5/20/20

PROJECT MANAGER: [Name]  
 CHECKED BY: [Name]  
 DATE: 5/20/20



PROJECT NO: 000427-NOR-PC-N01  
 SHEET NO: RW-201-C-501  
 SCALE: AS SHOWN  
 DATE: 5/20/20  
 DRAWN BY: VA

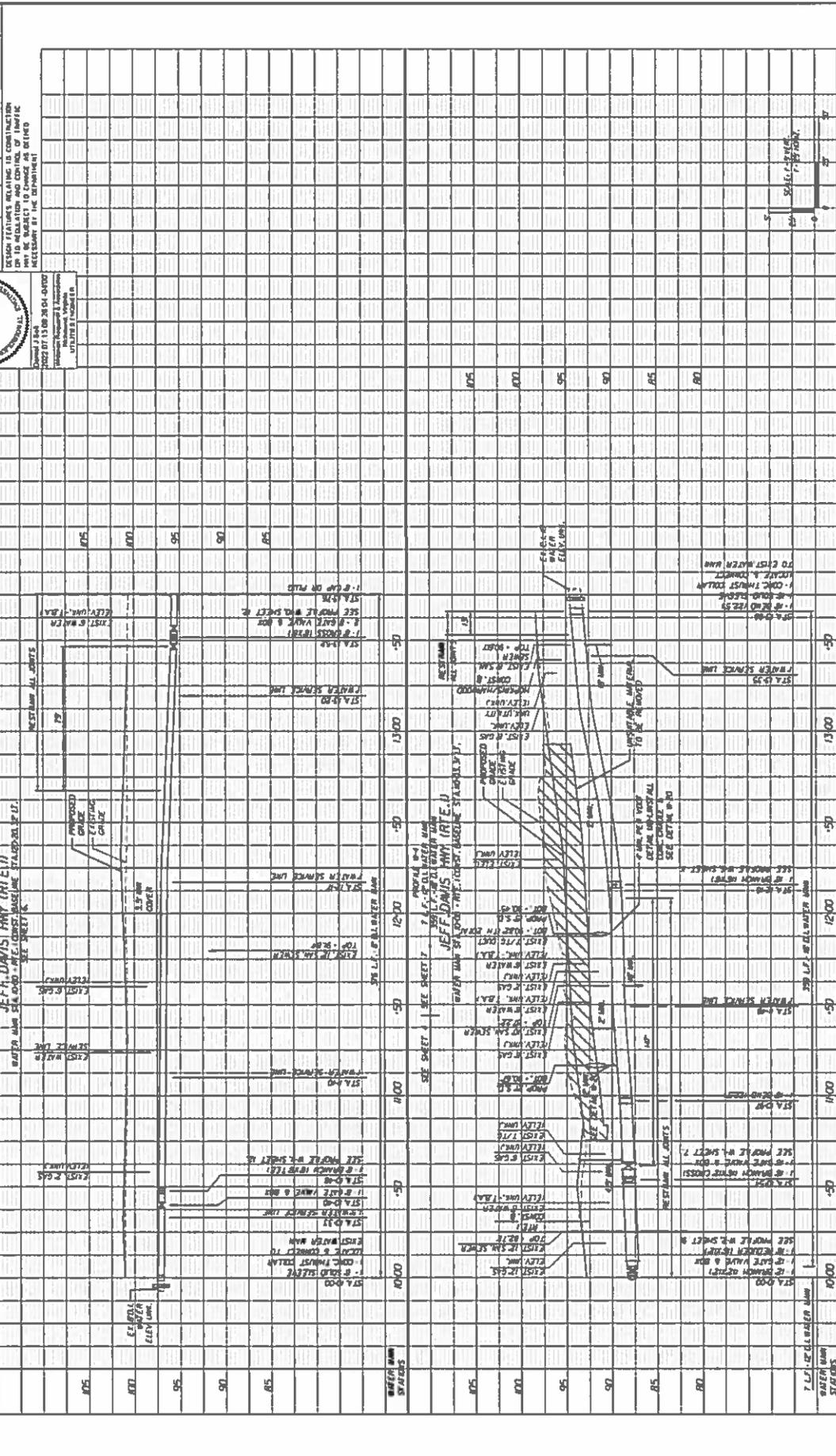
THIS SHEET FOR UTILITY ADJUSTMENT/RELOCATION ONLY

DATE	5/20/20
SCALE	VA 1
PROJECT	000427-001 PE-10A RW-201.C-50
SHEET NO.	10101

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF WATER NECESSARY BY THE DEPARTMENT



PROJECT NO. 000427-001 PE-10A  
SHEET NO. 10101  
DATE 5/20/20  
SCALE VA 1  
PROJECT 000427-001 PE-10A  
RW-201.C-50  
SHEET NO. 10101



STATION	0+00	0+50	1+00	1+50	2+00	2+50	3+00	3+50	4+00	4+50	5+00	5+50	6+00	6+50	7+00	7+50	8+00	8+50	9+00	9+50	10+00	10+50	11+00	11+50	12+00
ELEVATION	95.00	95.50	96.00	96.50	97.00	97.50	98.00	98.50	99.00	99.50	100.00	100.50	101.00	101.50	102.00	102.50	103.00	103.50	104.00	104.50	105.00	105.50	106.00	106.50	107.00

PROJECT NO. 000427-001 PE-10A  
SHEET NO. 10101  
DATE 5/20/20  
SCALE VA 1  
PROJECT 000427-001 PE-10A  
RW-201.C-50  
SHEET NO. 10101

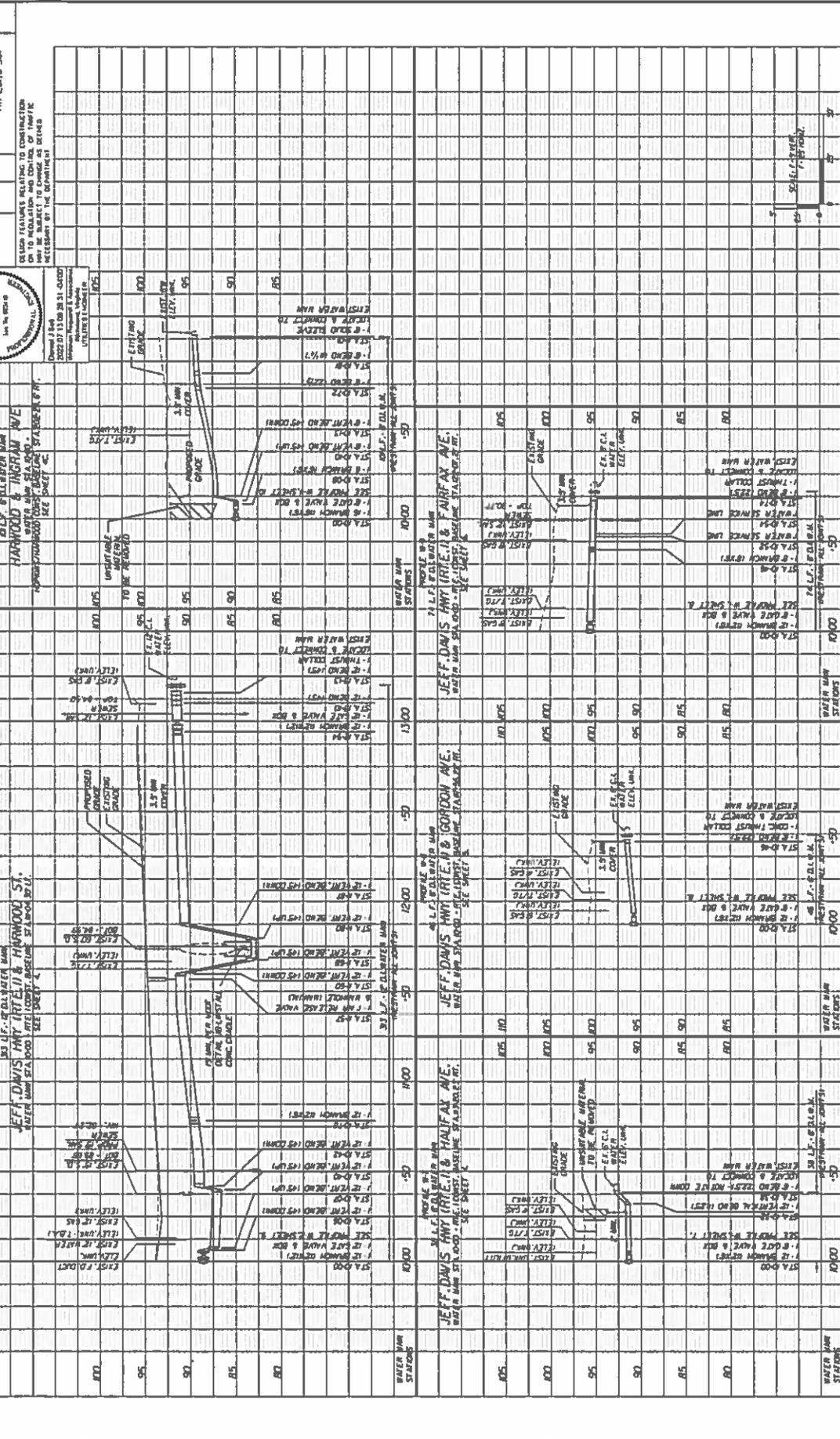
THIS SHEET FOR UTILITY ADJUSTMENT/RELOCATION ONLY

DATE	NO.	BY	PROJECT
5/20/20	1	VA	000-127-008-PE-001 RW-201-C-500

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO RELOCATION AND CONTROL OF THE SITE NECESSARY BY THE DEPARTMENT

DATE: 11/08/2019 11:08:28 AM  
 PROJECT: 000-127-008-PE-001  
 SHEET: RW-201-C-500

PROJECT: 000-127-008-PE-001  
 SHEET: RW-201-C-500  
 DATE: 11/08/2019 11:08:28 AM  
 PROJECT: 000-127-008-PE-001  
 SHEET: RW-201-C-500



DATE	NO.	BY	PROJECT
5/20/20	1	VA	000-127-008-PE-001 RW-201-C-500

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO RELOCATION AND CONTROL OF THE SITE NECESSARY BY THE DEPARTMENT

DATE: 11/08/2019 11:08:28 AM  
 PROJECT: 000-127-008-PE-001  
 SHEET: RW-201-C-500

PROJECT: 000-127-008-PE-001  
 SHEET: RW-201-C-500  
 DATE: 11/08/2019 11:08:28 AM  
 PROJECT: 000-127-008-PE-001  
 SHEET: RW-201-C-500



THIS SHEET FOR UTILITY ADJUSTMENT/RELOCATION ONLY



DATE	PROJECT	DATE	PROJECT
5/20/20			
BY	NO.	BY	NO.
VA	1		
0008-127-404, PE, 404, 100131 RW-204.C-500			

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC ARE SHOWN BY DIMENSIONS AND NOTATION NECESSARY BY THE DEPARTMENT

Standard J 3-84  
Virginia Department of Transportation  
UTILITY INSTALLATION

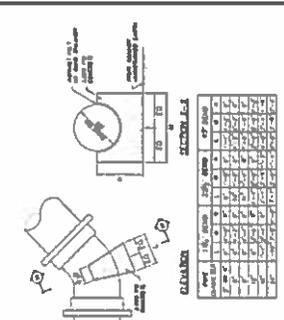


TABLE 14-1  
CLEARANCE

PIPE DIA.	18"	24"	30"	36"	42"	48"	54"	60"	66"	72"	78"	84"	90"	96"	102"	108"	114"	120"
MIN. CLEARANCE	18"	24"	30"	36"	42"	48"	54"	60"	66"	72"	78"	84"	90"	96"	102"	108"	114"	120"

THRUST BLOCKING (LOWER VERTICAL BENDS) (W-14)  
NO SCALE

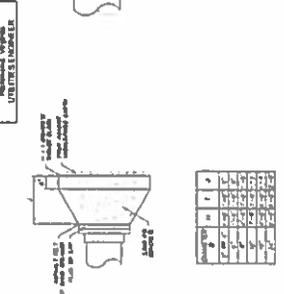


TABLE 15-1  
CLEARANCE

PIPE DIA.	18"	24"	30"	36"	42"	48"	54"	60"	66"	72"	78"	84"	90"	96"	102"	108"	114"	120"
MIN. CLEARANCE	18"	24"	30"	36"	42"	48"	54"	60"	66"	72"	78"	84"	90"	96"	102"	108"	114"	120"

THRUST BLOCKING (UPPER VERTICAL BENDS) (W-15)  
NO SCALE

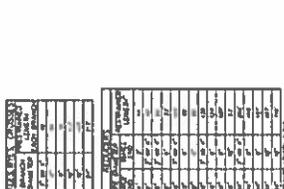


TABLE 12-1  
CLEARANCE

PIPE DIA.	18"	24"	30"	36"	42"	48"	54"	60"	66"	72"	78"	84"	90"	96"	102"	108"	114"	120"
MIN. CLEARANCE	18"	24"	30"	36"	42"	48"	54"	60"	66"	72"	78"	84"	90"	96"	102"	108"	114"	120"

THRUST BLOCKING (TEES) (W-12)  
NO SCALE

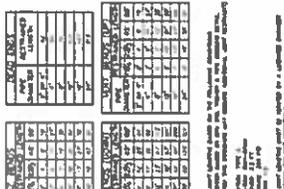


TABLE 11-1  
CLEARANCE

PIPE DIA.	18"	24"	30"	36"	42"	48"	54"	60"	66"	72"	78"	84"	90"	96"	102"	108"	114"	120"
MIN. CLEARANCE	18"	24"	30"	36"	42"	48"	54"	60"	66"	72"	78"	84"	90"	96"	102"	108"	114"	120"

THRUST BLOCKING (HORIZONTAL BENDS) (W-11)  
NO SCALE

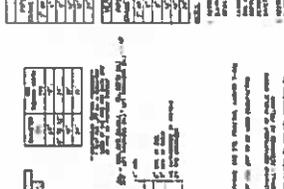


TABLE 10-1  
JOINT RESTRAINT TABLES (W-10)

PIPE DIA.	18"	24"	30"	36"	42"	48"	54"	60"	66"	72"	78"	84"	90"	96"	102"	108"	114"	120"
MIN. CLEARANCE	18"	24"	30"	36"	42"	48"	54"	60"	66"	72"	78"	84"	90"	96"	102"	108"	114"	120"

JOINT RESTRAINT TABLES (W-10)  
NO SCALE

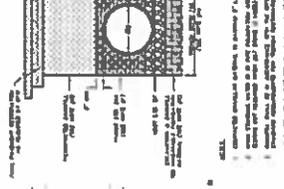


TABLE 8-1  
TRENCH & PIPE BEDDING (W-8)

PIPE DIA.	18"	24"	30"	36"	42"	48"	54"	60"	66"	72"	78"	84"	90"	96"	102"	108"	114"	120"
MIN. CLEARANCE	18"	24"	30"	36"	42"	48"	54"	60"	66"	72"	78"	84"	90"	96"	102"	108"	114"	120"

TRENCH & PIPE BEDDING (W-8)  
NO SCALE

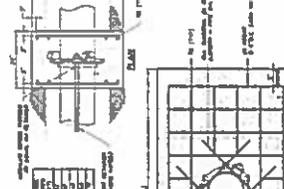


TABLE 16-1  
THRUST COLLAR (W-16)

PIPE DIA.	18"	24"	30"	36"	42"	48"	54"	60"	66"	72"	78"	84"	90"	96"	102"	108"	114"	120"
MIN. CLEARANCE	18"	24"	30"	36"	42"	48"	54"	60"	66"	72"	78"	84"	90"	96"	102"	108"	114"	120"

THRUST COLLAR (W-16)  
NO SCALE

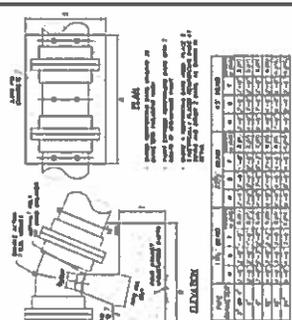


TABLE 7-1  
PORTABLE HYDRANT ASSEMBLY (W-7)

PIPE DIA.	18"	24"	30"	36"	42"	48"	54"	60"	66"	72"	78"	84"	90"	96"	102"	108"	114"	120"
MIN. CLEARANCE	18"	24"	30"	36"	42"	48"	54"	60"	66"	72"	78"	84"	90"	96"	102"	108"	114"	120"

PORTABLE HYDRANT ASSEMBLY (W-7)  
NO SCALE

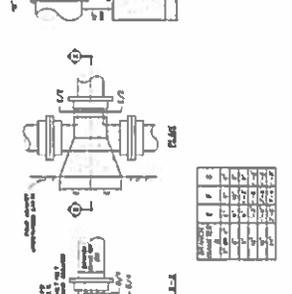


TABLE 8-2  
SMALL TESTING & FLUSHING ASSEMBLY ON EXISTING MAIN (W-8)

PIPE DIA.	18"	24"	30"	36"	42"	48"	54"	60"	66"	72"	78"	84"	90"	96"	102"	108"	114"	120"
MIN. CLEARANCE	18"	24"	30"	36"	42"	48"	54"	60"	66"	72"	78"	84"	90"	96"	102"	108"	114"	120"

SMALL TESTING & FLUSHING ASSEMBLY ON EXISTING MAIN (W-8)  
NO SCALE

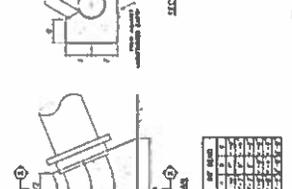


TABLE 10-2  
JOINT RESTRAINT TABLES (W-10)

PIPE DIA.	18"	24"	30"	36"	42"	48"	54"	60"	66"	72"	78"	84"	90"	96"	102"	108"	114"	120"
MIN. CLEARANCE	18"	24"	30"	36"	42"	48"	54"	60"	66"	72"	78"	84"	90"	96"	102"	108"	114"	120"

JOINT RESTRAINT TABLES (W-10)  
NO SCALE

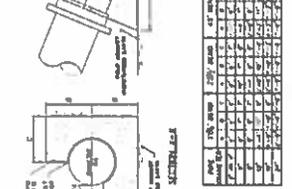


TABLE 14-2  
THRUST BLOCKING (LOWER VERTICAL BENDS) (W-14)

PIPE DIA.	18"	24"	30"	36"	42"	48"	54"	60"	66"	72"	78"	84"	90"	96"	102"	108"	114"	120"
MIN. CLEARANCE	18"	24"	30"	36"	42"	48"	54"	60"	66"	72"	78"	84"	90"	96"	102"	108"	114"	120"

THRUST BLOCKING (LOWER VERTICAL BENDS) (W-14)  
NO SCALE

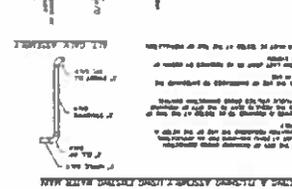


TABLE 15-2  
THRUST BLOCKING (UPPER VERTICAL BENDS) (W-15)

PIPE DIA.	18"	24"	30"	36"	42"	48"	54"	60"	66"	72"	78"	84"	90"	96"	102"	108"	114"	120"
MIN. CLEARANCE	18"	24"	30"	36"	42"	48"	54"	60"	66"	72"	78"	84"	90"	96"	102"	108"	114"	120"

THRUST BLOCKING (UPPER VERTICAL BENDS) (W-15)  
NO SCALE

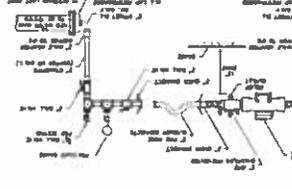


TABLE 12-2  
THRUST BLOCKING (TEES) (W-12)

PIPE DIA.	18"	24"	30"	36"	42"	48"	54"	60"	66"	72"	78"	84"	90"	96"	102"	108"	114"	120"
MIN. CLEARANCE	18"	24"	30"	36"	42"	48"	54"	60"	66"	72"	78"	84"	90"	96"	102"	108"	114"	120"

THRUST BLOCKING (TEES) (W-12)  
NO SCALE

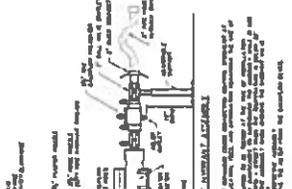


TABLE 11-2  
THRUST BLOCKING (HORIZONTAL BENDS) (W-11)

PIPE DIA.	18"	24"	30"	36"	42"	48"	54"	60"	66"	72"	78"	84"	90"	96"	102"	108"	114"	120"
MIN. CLEARANCE	18"	24"	30"	36"	42"	48"	54"	60"	66"	72"	78"	84"	90"	96"	102"	108"	114"	120"

THRUST BLOCKING (HORIZONTAL BENDS) (W-11)  
NO SCALE

PROJECT: 0008-127-404  
SHEET NO: 40131

THIS SHEET FOR UTILITY ADJUSTMENT/RELOCATION ONLY

DATE	5/20/20
PROJECT	000H-27-008 PE-04, RW-20A-C-50
SCALE	AS SHOWN
DATE	VA. 1
PROJECT	000H-27-008 PE-04, RW-20A-C-50
SCALE	AS SHOWN

DESIGN STANDARDS RELATING TO CONSTRUCTION OR TO RELOCATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT.

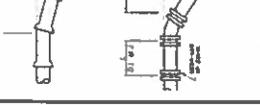
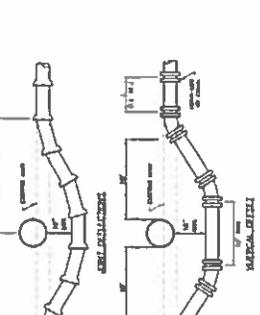
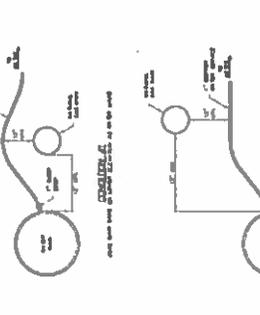
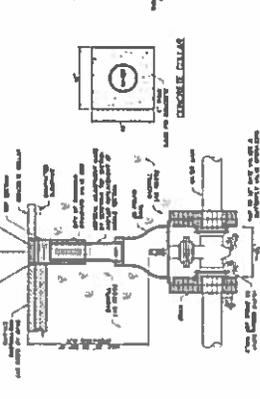
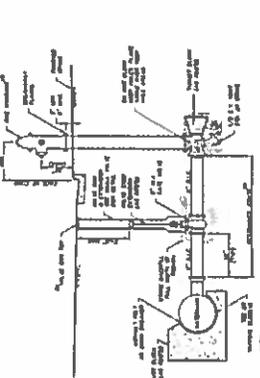
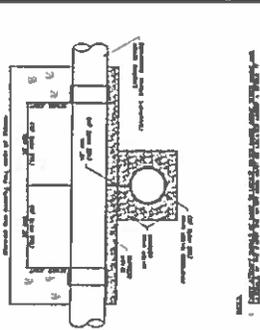
CONTRACT NO. 000H-27-008 PE-04, RW-20A-C-50  
 DATE: 5/20/20  
 PROJECT: 000H-27-008 PE-04, RW-20A-C-50

CONTRACT NO. 000H-27-008 PE-04, RW-20A-C-50  
 DATE: 5/20/20  
 PROJECT: 000H-27-008 PE-04, RW-20A-C-50

CONTRACT NO. 000H-27-008 PE-04, RW-20A-C-50  
 DATE: 5/20/20  
 PROJECT: 000H-27-008 PE-04, RW-20A-C-50

CONTRACT NO. 000H-27-008 PE-04, RW-20A-C-50  
 DATE: 5/20/20  
 PROJECT: 000H-27-008 PE-04, RW-20A-C-50

CONTRACT NO. 000H-27-008 PE-04, RW-20A-C-50  
 DATE: 5/20/20  
 PROJECT: 000H-27-008 PE-04, RW-20A-C-50



**WATER MAIN CROSSING UNDER SEWER/STORM DRAIN (W-20)**  
 NO SCALE

**FIRE HYDRANT DETAIL (W-27)**  
 NO SCALE

**SMALL METER BOX (10"X15"X18") FIBERGLASS (W-38)**  
 NO SCALE

**SMALL WATER SERVICE SEPARATION FROM GAS (W-23)**  
 NO SCALE

**LOWERING WATER MAIN EXISTING OR NEW INSTALLATION (W-18)**  
 NO SCALE

**CITY OF RICHMOND FIRE HYDRANT NOZZLE THREADS (W-28)**  
 NO SCALE

**SMALL METER BOX (10"X15"X18") HDPE (W-39)**  
 NO SCALE

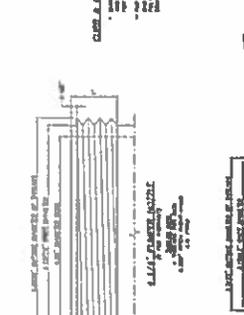
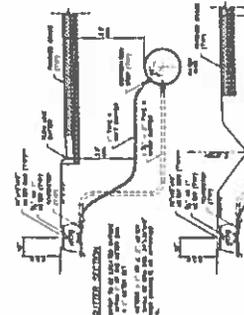
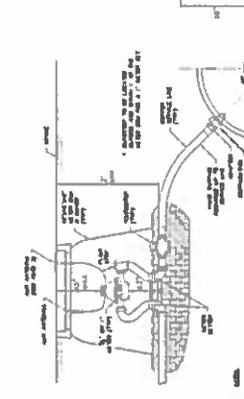
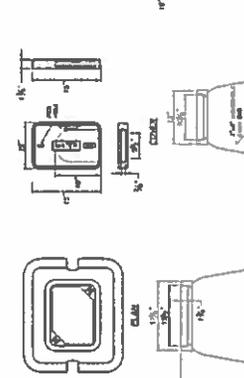
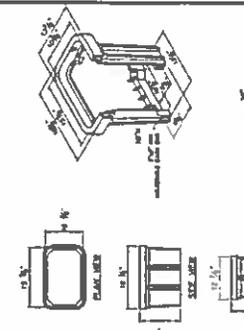
**SMALL METER BOX (10"X15"X18") FIBERGLASS (W-38)**  
 NO SCALE

**SMALL METER BOX INSTALLATION (W-37)**  
 NO SCALE

**SMALL WATER SERVICE CONNECTION (W-36)**  
 NO SCALE

**SMALL WATER SERVICE CONNECTION (W-36)**  
 NO SCALE

**SMALL WATER SERVICE CONNECTION (W-36)**  
 NO SCALE



**SMALL METER BOX (10"X15"X18") HDPE (W-39)**  
 NO SCALE

**SMALL METER BOX (10"X15"X18") FIBERGLASS (W-38)**  
 NO SCALE

**SMALL METER BOX INSTALLATION (W-37)**  
 NO SCALE

**SMALL WATER SERVICE CONNECTION (W-36)**  
 NO SCALE

**SMALL WATER SERVICE CONNECTION (W-36)**  
 NO SCALE

**SMALL WATER SERVICE CONNECTION (W-36)**  
 NO SCALE

PROJECT NO. 000H-27-008 PE-04, RW-20A-C-50  
 DATE: 5/20/20  
 PROJECT: 000H-27-008 PE-04, RW-20A-C-50

CONTRACT NO. 000H-27-008 PE-04, RW-20A-C-50  
 DATE: 5/20/20  
 PROJECT: 000H-27-008 PE-04, RW-20A-C-50

CONTRACT NO. 000H-27-008 PE-04, RW-20A-C-50  
 DATE: 5/20/20  
 PROJECT: 000H-27-008 PE-04, RW-20A-C-50

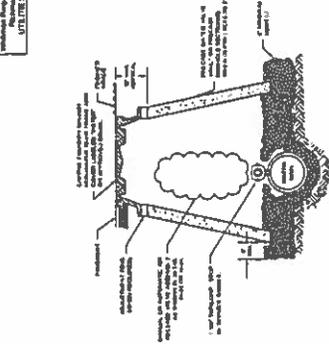
CONTRACT NO. 000H-27-008 PE-04, RW-20A-C-50  
 DATE: 5/20/20  
 PROJECT: 000H-27-008 PE-04, RW-20A-C-50

CONTRACT NO. 000H-27-008 PE-04, RW-20A-C-50  
 DATE: 5/20/20  
 PROJECT: 000H-27-008 PE-04, RW-20A-C-50

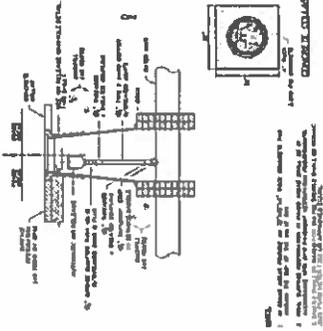
CONTRACT NO. 000H-27-008 PE-04, RW-20A-C-50  
 DATE: 5/20/20  
 PROJECT: 000H-27-008 PE-04, RW-20A-C-50

THIS SHEET FOR UTILITY ADJUSTMENT/RELOCATION ONLY

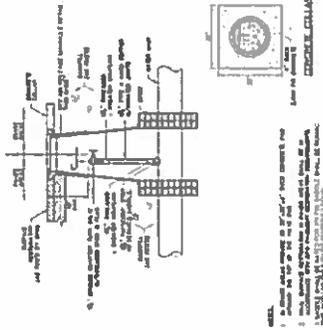
DATE	NO. OF SHEETS	PROJECT	DATE
5/20/20	1	000-127-008, PE, 401, RW-201C-500	05/20/20
DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC ARE SHOWN BY THE DIMENSIONS NECESSARY BY THE DEPARTMENT		CONTRACT NO. 000-127-008 SHEET NO. 401(5)	



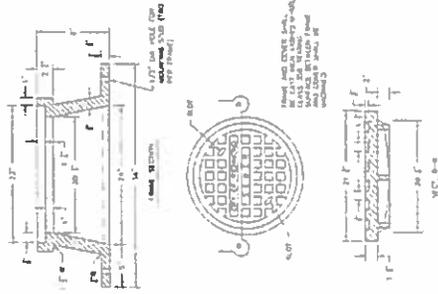
MANUAL/AUTOMATIC AIR RELEASE MANHOLE  
NOT TO SCALE



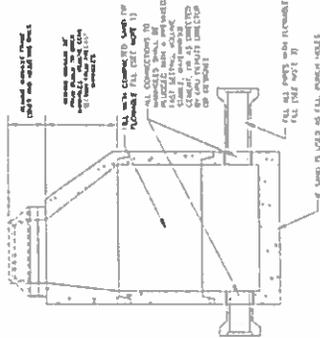
AUTOMATIC AIR RELEASE VALVE (W-34)  
NO SCALE



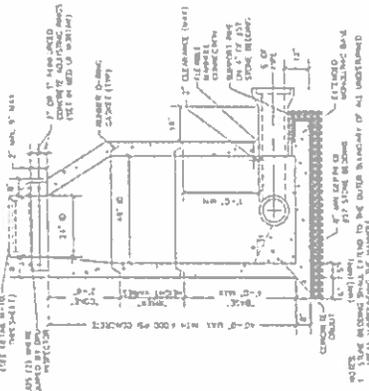
MANUAL AIR RELEASE VALVE  
PITOT TAP (W-33)  
NO SCALE



STANDARD MANHOLE FRAME & COVER (M-10)  
NO SCALE



MANHOLE ABANDONMENT DETAIL (M-8)  
NO SCALE



STANDARD PRECAST SANITARY SEWER MANHOLE (M-1)  
NO SCALE

1. WORK UNDER THE SUPERVISION OF THE PROJECT ENGINEER.

PROJECT MANAGER: JAMES J. BELL, P.E., 10100  
 DESIGNER: JAMES J. BELL, P.E., 10100  
 SURVEYOR: JAMES J. BELL, P.E., 10100