

**INTERGOVERNMENTAL AGREEMENT BETWEEN THE CITY AND COUNTY OF DENVER ACTING BY AND THROUGH ITS BOARD OF WATER COMMISSIONERS AND THE BOARD OF COUNTY COMMISSIONERS OF DOUGLAS COUNTY REGARDING COST SHARING FOR THE RELOCATION OF DENVER WATER'S CONDUIT NO. 90 FOR CONSTRUCTION OF THE COUNTY LINE ROAD (BROADWAY TO UNIVERSITY) PROJECT**

**Contract # 506017**

**THIS INTERGOVERNMENTAL AGREEMENT** (the "Agreement") is made and entered into \_\_\_ day of \_\_\_, 2024, (the "Effective Date") by and between The City and County of Denver, acting by and through its Board of Water Commissioners, a municipal corporation of the State of Colorado (the "Board"), and Board of County Commissioners of Douglas County, State of Colorado (the "County"), and hereinafter collectively referred to as the "Parties".

**RECITALS**

WHEREAS Douglas County plans to reconstruct the existing two-lane roadway and upgrade to a four-lane urban arterial roadway on East County Line Road, between South Broadway and South University Boulevard ("the Project"); and

WHEREAS this Project will provide a center raised median, mitigate noise with masonry walls, and include milling and overlaying of the existing road; and

WHEREAS due to the grade change, the Board's Conduit No. 90 must be relocated on County Line Road from South Clarkson Street to approximately 450 feet east of the Douglas County owned public access serving lots 3 through 6 of Highlands Ranch Filing No. 65A ("the Work"); and

WHEREAS this agreement pertains only to the allocation of Project federal funding received by the County that must be shared with Board for their costs in performing the Work in support of the Project; and

WHEREAS the County estimates the cost of the Work as \$996,000 **Exhibit A**. As set forth below, the Federal Funding Percentage is 40.17%, which equates to \$400,093.20 paid by the County, and the Board's responsibility is the remaining \$595,906.80; and

WHEREAS, in accordance with the Colorado Constitution, Charter of the City and County of Denver, and the regulations of Douglas County, the Board and the County are authorized to enter into agreements of this nature; and

NOW, THEREFORE, for and in consideration of the mutual promises and covenants contained herein, the sufficiency of which is mutually acknowledged, the Parties hereto agree as follows:

**1. COORDINATION AND LIAISON.**

A. The Director of Public Works is the County's authorized representative for purposes of performing the County's obligations under this Agreement. The Director hereby designates the Capital Improvement Projects Supervisor, Benjamin Pierce, as the Director's authorized representative for purposes of directing and administering the County's activities under this Agreement. The County Engineer has designated Benjamin Pierce for the local agency as the Project Manager to generally oversee construction and act as liaison between the Board

and the County's construction contractor. The County may change its authorized representatives at any time by providing written notice to the Board of such change.

B. The Board's Director of Engineering is the Board's authorized representative for purposes of directing and administering the Board's activities under this Agreement. The Board may change its authorized representative at any time by providing written notice to the County of such change.

**2. THE WORK.**

A. The County's engineering consultant will provide design services for the Work, and the County's contractor will construct the Work as shown on the plans **Exhibit B** and as outlined in specifications approved by the Board. The Board hereby authorizes the County's contractor to exercise the Board's rights regarding service line replacements pursuant to the Denver Water Operating Rules.

**3. DESIGN AND CONSTRUCTION.**

A. Board Responsibilities

(1) As requested by the County, Board representatives shall attend any pre-bid conference scheduled by the County, assist in the preparation of any required addenda, attend the pre-construction meeting, and attend regularly scheduled construction meetings to address issues related to the Work.

(2) The Board shall participate in a final inspection of the Work to verify Work completion and acceptance.

(3) In performing its construction-related obligations, the Board, unless otherwise directed by the County's Project Manager, shall not direct the County's construction contractor, but shall instead provide such direction to the County's Project Manager.

B. County Responsibilities

(1) The County has contracted with HDR Inc. as an engineering consultant to prepare construction plans and specifications for the Work.

(2) The County, through its contractor, shall complete the Work in accordance with the Board's Operating Rules and Engineering Standards.

(3) The County shall structure its construction contract for the Project with discrete pay items at specific bid prices so that the Board's reimbursement obligation is capped except for reasonable change order costs incurred by the County.

**4. REIMBURSEMENT.**

A. HDR's Opinion of Probable Construction Cost estimates the cost of the Project as \$996,000 (Exhibit A). The Federal Funding Percentage for the County's larger project is estimated to be 40.17%, which means that the County will pay \$400,093.20 of the estimated cost, and the Board will pay \$595,906.80. The Board agrees to reimburse the County for a portion of costs associated with the Work. For budgeting purposes, and not as a limit on the Board's obligation, the parties estimate the total amount to be \$595,906.80, which the Board represents it has budgeted for the purpose of this Agreement.

**B. In the event the County determines that the cost of the Work will exceed the preceding cost estimate, the County shall provide notice in advance to the Board.**

C. The County shall invoice the Board upon completion of the Work or each month for Work completed during the previous month. The invoice shall include a detailed accounting of the actual costs expended for the Work by the County. The Board shall review the invoice and, unless disputing the invoice or the Work as completed, shall pay the invoice in one lump sum payment within thirty (30) days of the receipt of the invoice.

**5. RECORDS AND AUDITS.** The County shall at all times maintain a system of accounting records in accordance with its normal procedures, together with supporting documentation for all Work under this Agreement, which shall be made available for audit and reproduction by the Board at the Board's request. The parties agree that, for a period of at least three (3) years from the final scheduled payment under this Agreement, any duly authorized representative of the County or the Board, including the County Auditor or the County Auditor's designee, shall have access to and the right to examine any directly pertinent books, documents, papers, and records of the parties involving the transactions and other activities related to this Agreement.

**6. BEST EFFORTS.** The County and the Board agree to work diligently and in good faith together, using their best efforts to resolve any unforeseen issues or disputes regarding the design, construction, completion, and acceptance of the Work.

**7. INSPECTION AND ACCEPTANCE.**

A. The Board will be allowed to and shall undertake such inspections as it deems necessary to verify that the Work constructed is in accordance with the accepted Work plans. If the Board observes that the Work constructed is not in accordance with the accepted plans, then the Board shall provide timely notice of these observations to the County. If the County fails to act on these concerns, the Board's representative may stop all work on the Board's facilities.

B. At final completion of the Project, the County shall furnish record drawings or as-built drawings of the Work to the Board. The County or its contractor shall provide to the Board, within thirty (30) days or at a specified time frame after completion of the Project, a final "**Record Drawing Package.**" This package must clearly indicate all changes, additions, deletions, and deviations from the Work plans and any additional information discovered or determined to be relevant (e.g., unknown interference discovered but not shown on the "Final for Construction" drawings). This must also include any changes or clarifications made via the contractor's request for information, field modifications, work change directives, change orders, or contract/IGA amendments. All record drawings shall meet Denver Water's latest AutoCAD standards, Engineering Standards, and/or Capital Project Construction Standards. The Record Drawing Package must include the items listed below. There may be additional items included beyond these minimum requirements.

- PDF hard copy redline markups.
- PDF hard copy record drawings (as-built drawings)
- AutoCAD (Water Only) drawing file with all information and changes shown.

**8. OWNERSHIP AND MAINTENANCE.** Upon completion, inspection, and acceptance of the Work, the Board shall own and operate the completed Work. The County shall ensure its contractor is responsible for all costs associated with the maintenance, repair, and replacements of the Work for a period of one year following the Board's acceptance.

**9. LIABILITY.** Each party shall be liable for the errors and omissions of its agents and employees to the extent provided by the Colorado Governmental Immunity Act. This obligation shall survive termination of the Agreement.

**10. NOTICES.** All notices required or given under this Agreement shall be in writing and shall be deemed effective: (a) when delivered personally to the other party; or (b) seven days after posting in the United States mail, first-class postage prepaid, and properly addressed as follows; or (c) when sent by email transmission and the receipt is confirmed by return email transmission.

If sent to the County: Project Engineer, Benjamin Pierce P.E., Douglas County  
100 Third St., Castle Rock, CO 80104; bpierce@douglas.co.us

If sent to the Board: Paul Peloquin, Distribution Engineering, Denver Water, 1600  
West 12th Avenue, Denver, Colorado 80204; paul.peloquin@denverwater.org

or such other persons or addresses as the parties may have designated in writing.

**11. NO DISCRIMINATION IN EMPLOYMENT.** In connection with the performance of work under this Agreement, the Parties agree not to refuse to hire, discharge, promote or demote, or to discriminate in matters of compensation against any person otherwise qualified, solely because of race, color, religion, national origin, gender, age, military status, sexual orientation, marital status, or physical or mental disability. The parties further agree to insert the foregoing or a similar provision in all contracts entered into in furtherance of this Agreement.

**12. CONFLICT OF INTEREST.** The Parties agree that no official, officer, or employee of the County or of the Board shall have any personal or beneficial interest whatsoever in the Work, related services, or property described herein.

**13. SUBJECT TO LOCAL LAWS; VENUE.** Each and every term, provision, or condition herein is subject to and shall be construed in accordance with the provisions of Colorado law and the applicable ordinances, regulations, executive orders, or fiscal rules of Douglas County, enacted or promulgated pursuant thereto. The applicable ordinances, regulations, executive orders, and fiscal rules of Douglas County are hereby expressly incorporated into this Agreement as if fully set out herein by this reference. Venue for any legal action relating to this Agreement shall lie in the District Court in and for the Douglas County, Colorado.

**14. GOVERNMENTAL IMMUNITY ACT.** The Parties understand and agree that the parties are relying upon and have not waived the monetary limitations and all other rights, immunities and protections provided by the Colorado Governmental Immunity Act, C.R.S. § 24-10-101, et seq., as it may be amended from time to time.

**15. ENTIRE AGREEMENT.** This Agreement constitutes the entire agreement between the Board and the County as to the subject matter hereof, and it replaces all prior written or oral agreements and understandings. It may be altered, amended, or repealed only by a duly executed written instrument. However, the Parties acknowledge there are aspects of the Work

not within the scope of this Agreement (e.g., utility relocations) that will require submittal, review, approval, and licensing by the Board; such activities shall be governed by the Board's Operating Rules and Engineering Standards.

**16. NO THIRD-PARTY BENEFICIARIES.** Enforcement of the terms and conditions of this Agreement, and all rights of action relating to such enforcement shall be strictly reserved to the County and the Board; nothing contained in this Agreement shall give or allow any such claim or right of action by any other person or third party.

**17. EXECUTION OF AGREEMENT.** This Agreement is expressly subject to and shall not be or become effective or binding on the County and the Board until fully executed by all signatories of the Board and the Douglas County.

**18. EFFECTIVE DATE AND TERMINATION.** As used herein, the term "Effective Date" shall mean and refer to the date set out on the County's signature page of this Agreement. This Agreement shall expire, unless earlier terminated or otherwise stated herein, upon completion of the Work. Either party may terminate the Agreement on thirty days' written notice for cause in the event the other party fails to comply with any term or condition contained herein.

**19. ELECTRONIC SIGNATURES AND ELECTRONIC RECORDS.** The Board consents to the use of electronic signatures by the County. The Agreement, and any other documents requiring a signature hereunder, may be signed electronically by the County in the manner specified by the County. The parties agree not to deny the legal effect or enforceability of the Agreement solely because it is in electronic form or because an electronic record was used in its formation. The parties agree not to object to the admissibility of the Agreement in the form of an electronic record, a paper copy of an electronic document, or a paper copy of a document bearing an electronic signature on the grounds that it is an electronic record, an electronic signature, that it is not in its original form, or is not an original.

*[Remainder of page intentionally left blank. Signatures on following pages.]*

IN WITNESS WHEREOF, this Agreement is executed by the Parties hereto as of the date first written above.

**BOARD OF COUNTY COMMISSIONERS OF DOUGLAS COUNTY**

\_\_\_\_\_

\_\_\_\_\_, Chair

**ATTEST:**

**APPROVED AS TO CONTENT:**

\_\_\_\_\_

\_\_\_\_\_

Douglas J. DeBord, County Manager

\_\_\_\_\_

Clerk to the Board

**APPROVED AS TO FORM: APPROVED AS TO FISCAL CONTENT:**

\_\_\_\_\_

Chris Pratt, Managing County Attorney

\_\_\_\_\_

Andrew Copland, Director of Finance

ATTESTED:

DocuSigned by:  
Alan Salazar  
83F2596AEFC4424...  
Secretary

**THE CITY AND COUNTY OF DENVER,**  
acting by and through its  
**BOARD OF WATER COMMISSIONERS**

Signed by:  
Dominique Gomez  
U3147A4646344C9...  
By: \_\_\_\_\_  
President

APPROVED:

DocuSigned by:  
Robert McKeown  
FB8A4B37EBF6416...  
Chief Engineering Officer

DATE: 10/9/2024

APPROVED AS TO FORM:

Signed by:  
Kristi Kiegle  
C20B8722F4D34CD...  
Office of General Counsel

REGISTERED AND COUNTERSIGNED:  
CITY AND COUNTY OF DENVER

Signed by: \_\_\_\_\_  
Timothy M. O'Brien  
DBCB7E81F4174C8...  
By: \_\_\_\_\_  
Timothy M. O'Brien, CPA  
Auditor

Initial  
**JAM**

Date: 10/11/2024

Job No.	10330878
By:	CSB
Date:	12/4/2023
Reviewed:	KRB
Date:	12/10/2023



Project	Conduit 90 Relocaiton in County Line Rd
Task	Opinion of Probable Contruccion Cost
System	Denver Water
Client	Felsburg, Holt & Ullevig

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	EXTENSION
<b>202-00035</b>	<b>REMOVAL OF PIPE</b>				<b>\$ 268,575.00</b>
	24 INCH STEEL WITH POLYKEN TAPE WRAP COATING	133	LF	\$150.00	\$ 19,950.00
	24 INCH STEEL WITH ASBESTOS FELT COATING	1,195	LF	\$200.00	\$ 239,000.00
	12 INCH ASBESTOS CEMENT	55	LF	\$175.00	\$ 9,625.00
	ABANDON-IN-PLACE 24 INCH STEEL PIPE, FILL WITH FLOWFILL	525	LF		For Info Only Included in 202-00035
	CONCRETE PLUG	2	EA		For Info Only Included in 202-00035
<b>202-00021</b>	<b>REMOVAL OF MANHOLE</b>	<b>5</b>	<b>EA</b>	<b>\$2,000.00</b>	<b>\$ 10,000.00</b>
<b>210-01000</b>	<b>RESET FENCE</b>	<b>10</b>	<b>LF</b>	<b>\$50.00</b>	<b>\$ 500.00</b>
<b>604-30000</b>	<b>MANHOLE SLAB BASE (SPECIAL)</b>				<b>\$ 85,000.00</b>
	20 INCH MANWAY	4	EA	\$10,000.00	\$ 40,000.00
	6 INCH BLOWOFF ASSEMBLY	2	EA	\$15,000.00	\$ 30,000.00
	24 INCH BUTTERFLY VALVE	1	EA	\$15,000.00	\$ 15,000.00
<b>619-00006</b>	<b>CONNECT TO NEW WATERLINE</b>	<b>1</b>	<b>EA</b>	<b>\$2,000.00</b>	<b>\$ 2,000.00</b>
	FLANGE	1	EA		For Info Only Included in 619-00006
<b>619-00007</b>	<b>CONNECT TO EXISTING WATERLINE</b>				<b>\$ 57,500.00</b>
	24 INCH STEEL	2	EA	\$25,000.00	\$ 50,000.00
	12 INCH ASBESTOS CEMENT	1	EA	\$7,500.00	\$ 7,500.00
	FLANGES, INSULATING KIT AND BUTTSTRAP, TRANSITION COUPLING	3	EA		For Info Only Included in 619-00007
<b>619-00008</b>	<b>12 INCH WATERLINE (FITTINGS)</b>	<b>3</b>	<b>EA</b>	<b>\$1,000.00</b>	<b>\$ 3,000.00</b>
<b>619-06120</b>	<b>12 INCH DUCTILE IRON PIPE</b>	<b>52</b>	<b>LF</b>	<b>\$175.00</b>	<b>\$ 9,100.00</b>
<b>619-10240</b>	<b>24 INCH WELDED STEEL PIPE</b>	<b>1,323</b>	<b>LF</b>	<b>\$305.00</b>	<b>\$ 403,515.00</b>
	6 INCH BLOWOFF VALVE ASSEMBLY	2	EA		For Info Only Included in 619-10240
	20 INCH ACCESS MANWAY	4	EA		For Info Only Included in 619-10240
	12 STEEL OUTLET WITH FLANGE INSULATING KIT	1	EA		For Info Only Included in 619-10240
	TEMPORARY BLIND FLANGE	2	EA		For Info Only Included in 619-10240
<b>619-75096</b>	<b>12 INCH GATE VALVE</b>				<b>\$ 7,500.00</b>
	FLANGED	1	EA	\$4,000.00	\$ 4,000.00
	MECHANICAL	1	EA	\$3,500.00	\$ 3,500.00
<b>619-76193</b>	<b>24 INCH BUTTERFLY VALVE</b>	<b>1</b>	<b>EA</b>	<b>\$50,000.00</b>	<b>\$ 50,000.00</b>
	BUTTERFLY VALVE BYPASS AND OTHER COMPONENTS	1	EA		For Info Only Included in 619-76193
<b>619-80000</b>	<b>CATHODIC PROTECTION</b>	<b>1</b>	<b>LS</b>	<b>\$ 20,800.00</b>	<b>\$ 20,800.00</b>
	<b>Total Base Cost</b>				<b>\$ 917,490.00</b>
	Construction Contingency			5.0%	\$ 45,874.50
	Escalation (1 YR)	1	YR	3.5%	\$ 32,112.15
	<b>Total Base Cost plus adjustments</b>				<b>\$ 995,476.65</b>
	<b>TOTAL OPINION OF PROBABLE CONSTRUCTION COST</b>				<b>\$ 996,000.00</b>



# DENVER WATER DENVER, COLORADO

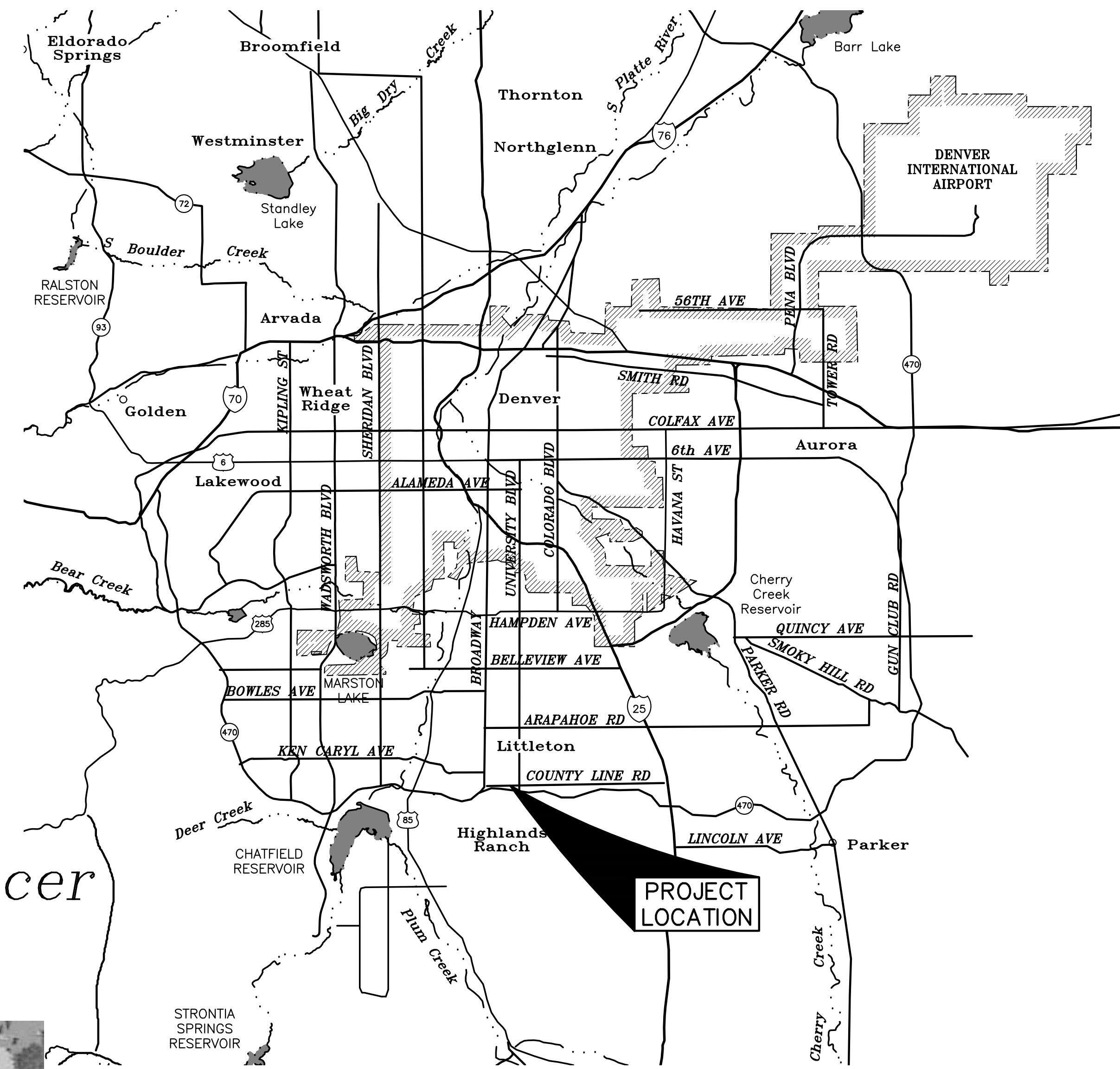
CONDUIT NO. 90  
RELOCATION IN COUNTY LINE ROAD,  
EAST OF CLARKSON STREET  
IGA NO. 506017

BOARD OF WATER COMMISSIONERS  
DENVER, COLORADO

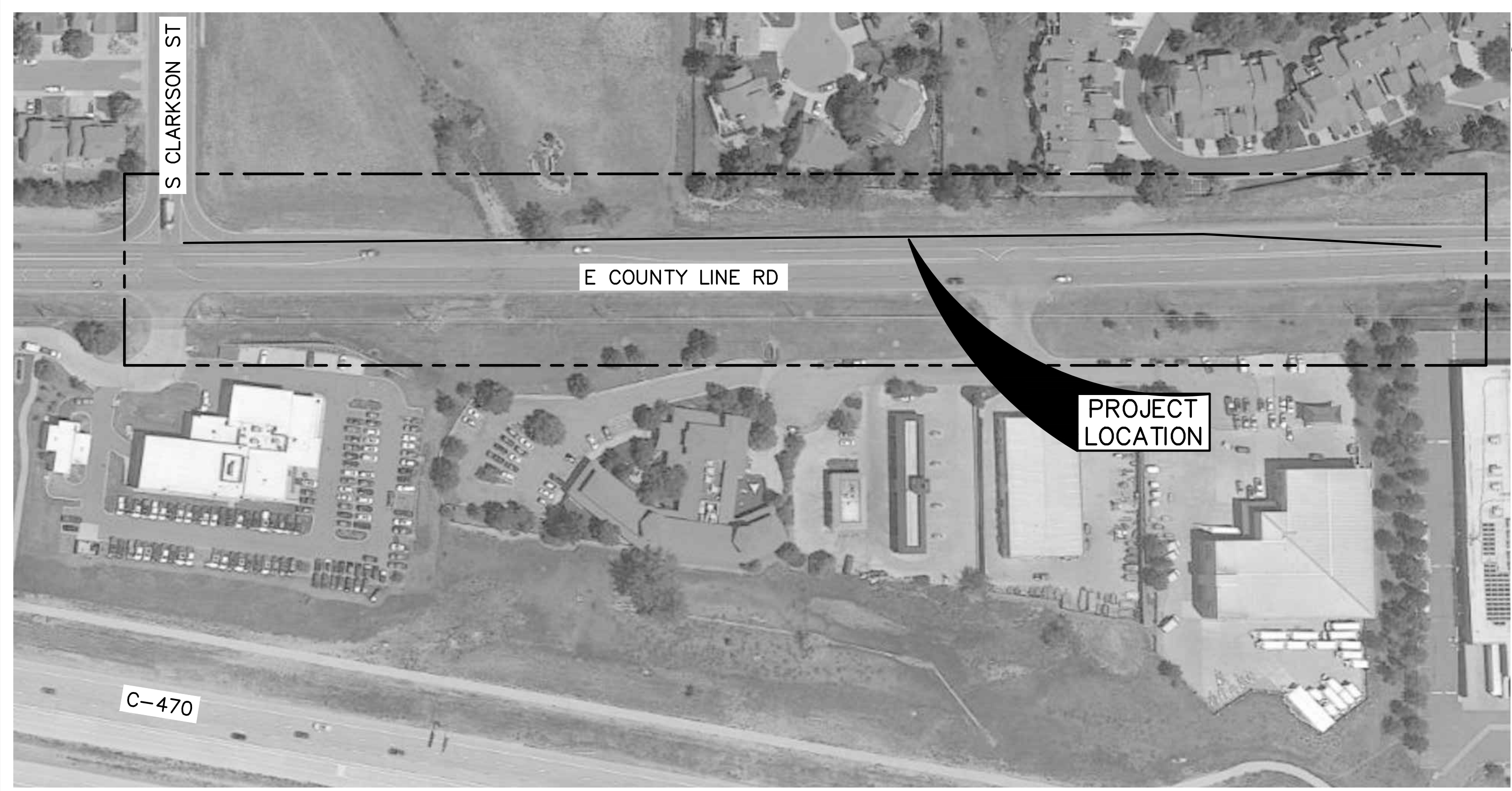
*Craig S. Jones – President*

*Alan Salazar – CEO/Manager*

*Robert J. Mahoney – Chief Engineering Officer*



**LOCATION MAP**  
SCALE: 1" = 3 miles



**VICINITY MAP**  
SCALE: 1" = 100'

**SHEET INDEX**

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- C-4 PLAN AND PROFILE
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- R-1 REFERENCE DRAWING
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- R-6 REFERENCE DRAWING
- R-7 REFERENCE DRAWING
- R-8 REFERENCE DRAWING

**GENERAL NOTES:**

1. STATIONING SHOWN ON EXISTING CONDUIT NO 90 IS PER DENVER WATER AS-BUILT PLANS DR 181 NO 16 (DATED 1970).
2. COORDINATE WITH DENVER WATER FOR OPERATION OF EXISTING VALVES, PIPELINE ISOLATION, DRAINING, DECHLORINATION AND DISINFECTION.

**PROJECT DIRECTORY**

**OWNER:**  
DENVER WATER  
1600 W 12th AVE  
DENVER, CO 80204  
303-628-6000

**CONTACT:**  
DESIGN PROJECT MANAGER  
JIM LIGHT  
303-628-6614  
jim.light@denverwater.org

**CONSULTANT:**  
HDR  
1670 BROADWAY, STE 3400  
DENVER, CO 80202

**CONTACT:**  
PROJECT MANAGER  
KEITH BUSHDIECKER, PE  
303-764-1547  
keith.bushdiecker@hdrinc.com

**DENVER WATER**  
1600 West 12th Ave  
Denver, Colorado 80204-3412  
T: 303.628.6000  
F: 303.628.6851  
denverwater.org

CONSULTANT  
**HDR**

**CONDUIT NO. 90**  
  
RELOCATION IN COUNTY  
LINE ROAD, EAST OF  
CLARKSON STREET

**REFERENCE:**  
CAPITAL PROJECTS CONSTRUCTION  
STANDARDS 4th EDITION

THIS DRAWING IS BASED ON THE  
DW\_METRO\_GRID COORDINATE SYSTEM

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△	3/29/24 FINAL FOR CONSTRUCTION

No	Date	Description
<b>REVISIONS</b>		

**VERIFY SCALES**  
BAR IS ONE INCH ON ORIGINAL DRAWING  
0 1" IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

PT NO: 21968  
DRAWN BY: JDA

CHKD BY: BAR/LIGHT

CHKD BY: KRB/M TURNEY

APPD BY:  
DATE: NOVEMBER 2022

CONTRACT: 506017

AS-BUILT DATE:

AS-BUILT BY:

DRAWING TITLE

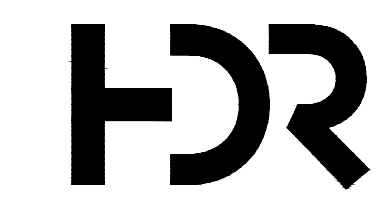
**COVER SHEET**  
  
G-1





1600 West 12th Ave  
 Denver, Colorado 80204-3412  
 T: 303.628.6000  
 F: 303.628.6851  
 denverwater.org

CONSULTANT



CONDUIT NO. 90

RELOCATION IN COUNTY LINE ROAD, EAST OF CLARKSON STREET

REFERENCE:  
 CAPITAL PROJECTS CONSTRUCTION STANDARDS 4th EDITION

THIS DRAWING IS BASED ON THE DW\_METRO\_GRID COORDINATE SYSTEM

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△	3/29/24 FINAL FOR CONSTRUCTION

No	Date	Description
REVISIONS		

**VERIFY SCALES**  
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 IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

PT NO: 21968  
 DRAWN BY: JDA

CHKD BY: BAR/LASSNER

CHKD BY: KRB/HUNTER

APPD BY:

DATE: NOVEMBER 2022

CONTRACT: 506017

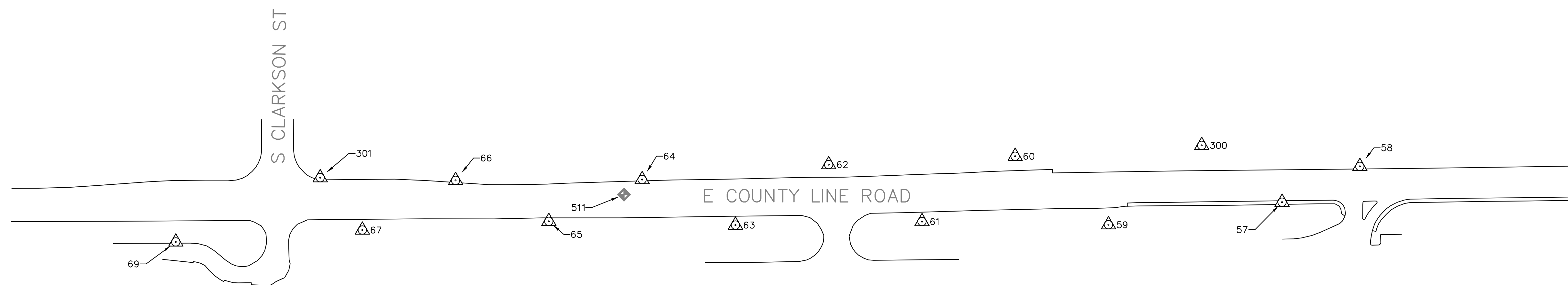
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DRAWING TITLE

SURVEY CONTROL DIAGRAM

G-2



**PLAN**  
 SCALE: 1" = 100'

SURVEY CONTROL				
POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
57	31484.35	150676.09	5735.33	NO.5 REBAR WITH 2 1/2-INCH ALUMINUM CAP STAMPED "AZTEC CP"
58	31541.97	150801.27	5736.45	NO.5 REBAR WITH 2 1/2-INCH ALUMINUM CAP STAMPED "AZTEC CP"
59	31448.02	150396.93	5731.71	NO.5 REBAR WITH 2 1/2-INCH ALUMINUM CAP STAMPED "AZTEC CP"
60	31558.33	150246.70	5726.03	NO.5 REBAR WITH 2 1/2-INCH ALUMINUM CAP STAMPED "AZTEC CP"
61	31453.17	150096.81	5711.71	NO.5 REBAR WITH 2 1/2-INCH ALUMINUM CAP STAMPED "AZTEC CP"
62	31544.86	149946.72	5701.11	NO.5 REBAR WITH 2 1/2-INCH ALUMINUM CAP STAMPED "AZTEC CP"
63	31447.45	149796.66	5686.65	NO.5 REBAR WITH 2 1/2-INCH ALUMINUM CAP STAMPED "AZTEC CP"
64	31520.80	149646.55	5676.17	NO.5 REBAR WITH 2 1/2-INCH ALUMINUM CAP STAMPED "AZTEC CP"
65	31453.56	149496.47	5666.63	NO.5 REBAR WITH 2 1/2-INCH ALUMINUM CAP STAMPED "AZTEC CP"
66	31519.49	149346.41	5665.44	NO.5 REBAR WITH 2 1/2-INCH ALUMINUM CAP STAMPED "AZTEC CP"
67	31439.57	149196.35	5676.77	NO.5 REBAR WITH 2 1/2-INCH ALUMINUM CAP STAMPED "AZTEC CP"
69	31420.34	148896.28	5694.36	NO.5 REBAR WITH 2 1/2-INCH ALUMINUM CAP STAMPED "AZTEC CP"
300	31575.81	150546.87	5743.31	NO.5 REBAR WITH 2 1/2-INCH ALUMINUM CAP STAMPED "AZTEC CP"
301	31523.76	149128.62	5679.76	NO.5 REBAR WITH 2 1/2-INCH ALUMINUM CAP STAMPED "AZTEC CP"

SURVEY CONTROL				
POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
511	31496.54	149617.44	5673.17	FOUND A 3-INCH DIAMETER BRASS CAP IN RANGE BOX STAMPED "LS 7104 1972"

**NOTES:**

ORIGINAL PROJECT CONTROL IS BASED ON AZTEC CONSULTANTS, INC. CONTROL SET AS COUNTYLINE ROAD CONTROL, DATED NOVEMBER 11, 2019. FOR THIS PROJECT, AZTEC CONSULTANTS, INC. CONTROL WAS RECOVERED AND DENVER WATER ESTABLISHED NEW HORIZONTAL VALUES BASED ON THE DW\_METRO\_GRID. VERTICAL VALUES HAVE BEEN VERIFIED FROM AZTEC CONSULTANTS, INC. CONTROL POINT 69. THE PROJECT BENCHMARK USED BY AZTEC CONSULTANTS, INC, BEING DOUGLAS COUNTY BENCHMARK CDOT2083, BEING A 3" ALUMINUM CAP STAMPED "CDOT 2.083" WITH AN ELEVATION = 5676.21' (NAVD 88), WAS SEARCHED FOR AND NOT RECOVERED WHEN FIELD WORK WAS COMPLETED ON MARCH 1, 2022.

THIS PROJECT IS ON A MODIFIED COLORADO STATE PLANE CENTRAL ZONE COORDINATE SYSTEM, NAD 83

GRID NAME: DW\_METRO\_GRID  
 TRUNCATION NORTH: 1600030  
 TRUNCATION EAST: 2999880  
 COMBINED FACTOR: 1.00026  
 UNITS: US SURVEY FEET

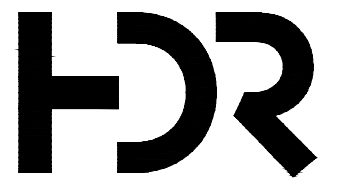
TO CONVERT FROM STATE PLANE COORDINATES TO DW\_METRO\_GRID COORDINATES:  
 GRID NORTH = (STATE PLANE NORTH - 1600030) x 1.00026  
 GRID EAST = (STATE PLANE EAST - 2999880) x 1.00026

VERTICAL DATUM: THE ELEVATIONS SHOWN HEREON BASED UPON NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88) GEOID 12B -PROJECT BM AZTEC CONSULTANT, INC. POINT 69 IS A NUMBER 5 REBAR WITH A 2.5' ALUMINUM CAP STAMPED "AZTEC CP" WITH A NAVD 88 ELEVATION OF 5694.36'.

C:\working\central01\d2731151\XXXXX\_DSGN\_G-2.dwg ### G-2 SURVEY CONTROL DIAGRAM 3/28/2024 3:28 PM



CONSULTANT



**CONDUIT NO. 90**

RELOCATION IN COUNTY LINE ROAD, EAST OF CLARKSON STREET

REFERENCE:  
 CAPITAL PROJECTS CONSTRUCTION STANDARDS 4th EDITION

THIS DRAWING IS BASED ON THE DW\_METRO\_GRID COORDINATE SYSTEM

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△	3/29/24 FINAL FOR CONSTRUCTION

No	Date	Description
<b>REVISIONS</b>		

**VERIFY SCALES**  
 BAR IS ONE INCH ON ORIGINAL DRAWING  
 0 1"  
 IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

PT NO: 21968  
 DRAWN BY: JDA

CHKD BY: BAR/LIGHT

CHKD BY: KRB/M TURNEY

APPD BY:

DATE: NOVEMBER 2022

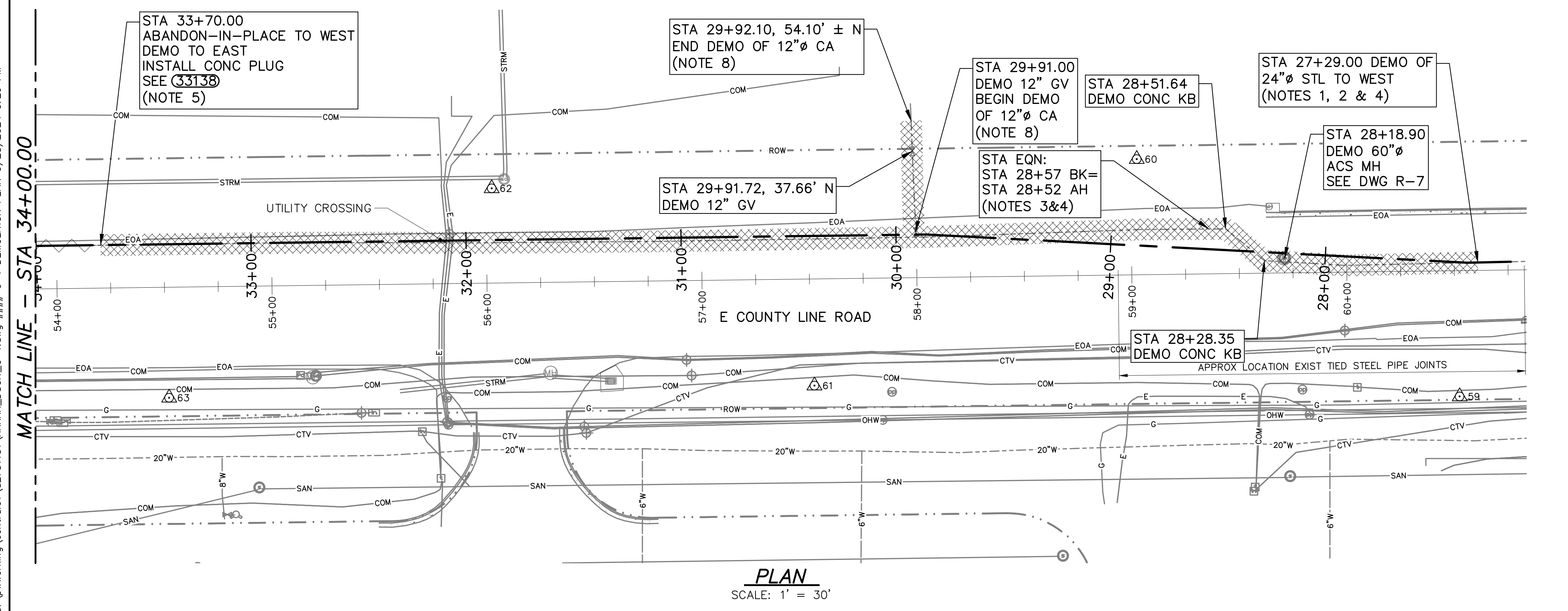
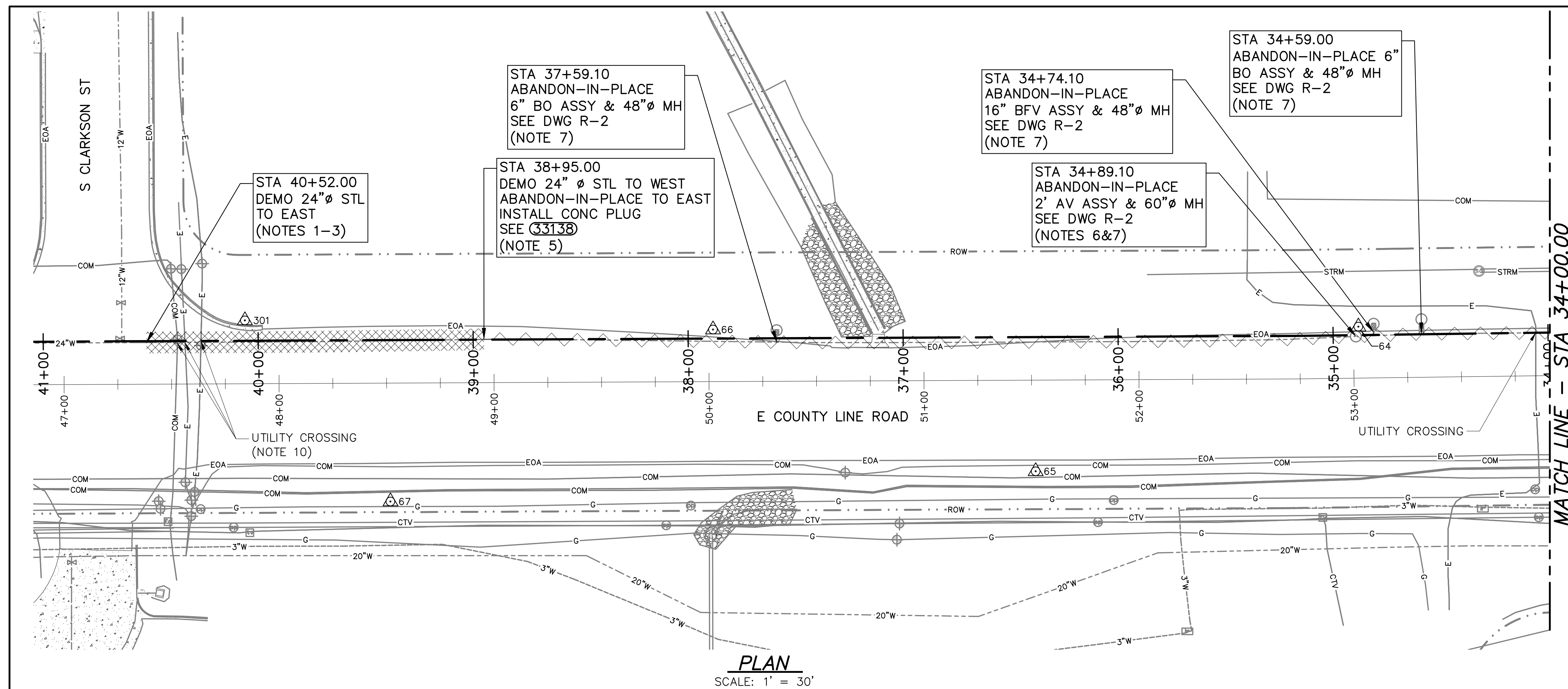
CONTRACT: 506017

AS-BUILT DATE:

AS-BUILT BY:

DRAWING TITLE

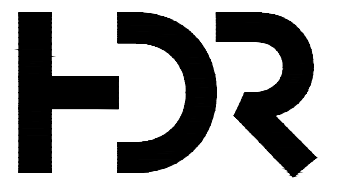
**DEMOLITION PLAN**



- NOTES:**
- REMOVAL STATIONS ARE APPROXIMATE. ADJUST LIMITS OF REMOVAL AS REQUIRED, 4-INCHES (MINIMUM) FROM EXISTING JOINT BELL, AND AS APPROVED BY ENGINEER.
  - THE EXACT LOCATION AND DEPTHS OF THE EXISTING 24-INCH CONDUIT SHOWN ON THE PLANS IS APPROXIMATE. VERIFY EXACT LOCATION OF FACILITIES PRIOR TO REMOVAL. ONCE REMOVED AND PROPERLY DISPOSED OF, BACKFILL VOID SPACES PER PROJECT SPECIFICATIONS.
  - EXISTING CONDUIT NO 90 COATING WEST OF STA 28+57 BACK/28+52 AHEAD CONTAINS ASBESTOS WHICH MUST BE ABATED IN ACCORDANCE WITH SPECIFICATION 02 60 00 PRIOR TO CUTTING AND WELDING TO THE PIPE. CONDUIT NO 90 PIPE DATA WEST OF STA 28+57± (INSTALLED ~1970):  
 OD: 25 3/8-INCHES  
 WALL THICKNESS: 7-GAUGE (0.1875-INCH)  
 LINING: 3/8-INCH CEMENT MORTAR COATING: COAL TAR ENAMEL WITH FIBROUS GLASS MAT, 15# ASBESTOS FELT AND KRAFT PAPER.
  - CONDUIT NO 90 PIPE DATA EAST OF STA 28+57± (INSTALLED ~1987):  
 OD: 25 3/8-INCHES  
 WALL THICKNESS: 0.188-INCH  
 LINING: 3/8-INCH CEMENT MORTAR COATING: POLYKEN YG II
  - REMOVE OR FLOWFILL EXISTING 24-INCH STEEL PIPE IDENTIFIED TO BE ABANDONED-IN-PLACE.
  - CLOSE EXISTING CORP STOPS AND REMOVE 2-INCH AIR VALVES. SALVAGE AIR VALVES TO DENVER WATER.
  - REMOVE MANHOLE CONE AND BARREL TO 5- FEET (MINIMUM) BELOW PROPOSED CONDUIT NO 90. FILL REMAINING PORTION OF MANHOLE WITH SQUEEGEE OR FLOWFILL.
  - THE EXISTING 12-INCH MAIN IS ASBESTOS-CEMENT PIPE. DISCONNECT ASBESTOS-CEMENT PIPE AT THE NEAREST JOINT AND REMOVE ALL PIPE TO BE REPLACED. CUTTING, CRUSHING AND DISPOSAL OF DEMOLISHED ASBESTOS-CEMENT PIPE SHALL BE IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE AND LOCAL LAWS, ORDINANCES, RULES, REGULATIONS AND REQUIREMENTS. ALSO SEE DRAWING C-4
  - CONDUIT NO 90 AND APPURTENANCES MUST REMAIN IN SERVICE AND ACCESSIBLE UNTIL THE FACILITY OUTAGE DATE SHOWN IN THE SPECIFICATIONS. PROVIDE TEMPORARY MANHOLE EXTENSIONS AS NEEDED FOR ACCESS.
  - SEE DRAWINGS C-2 AND C-3 FOR ELEVATION OF EXISTING UTILITIES. FIELD VERIFY PRIOR TO DEMOLITION.

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**CONDUIT NO. 90**

RELOCATION IN COUNTY LINE ROAD, EAST OF CLARKSON STREET

REFERENCE:  
CAPITAL PROJECTS CONSTRUCTION STANDARDS 4th EDITION

THIS DRAWING IS BASED ON THE DW\_METRO\_GRID COORDINATE SYSTEM

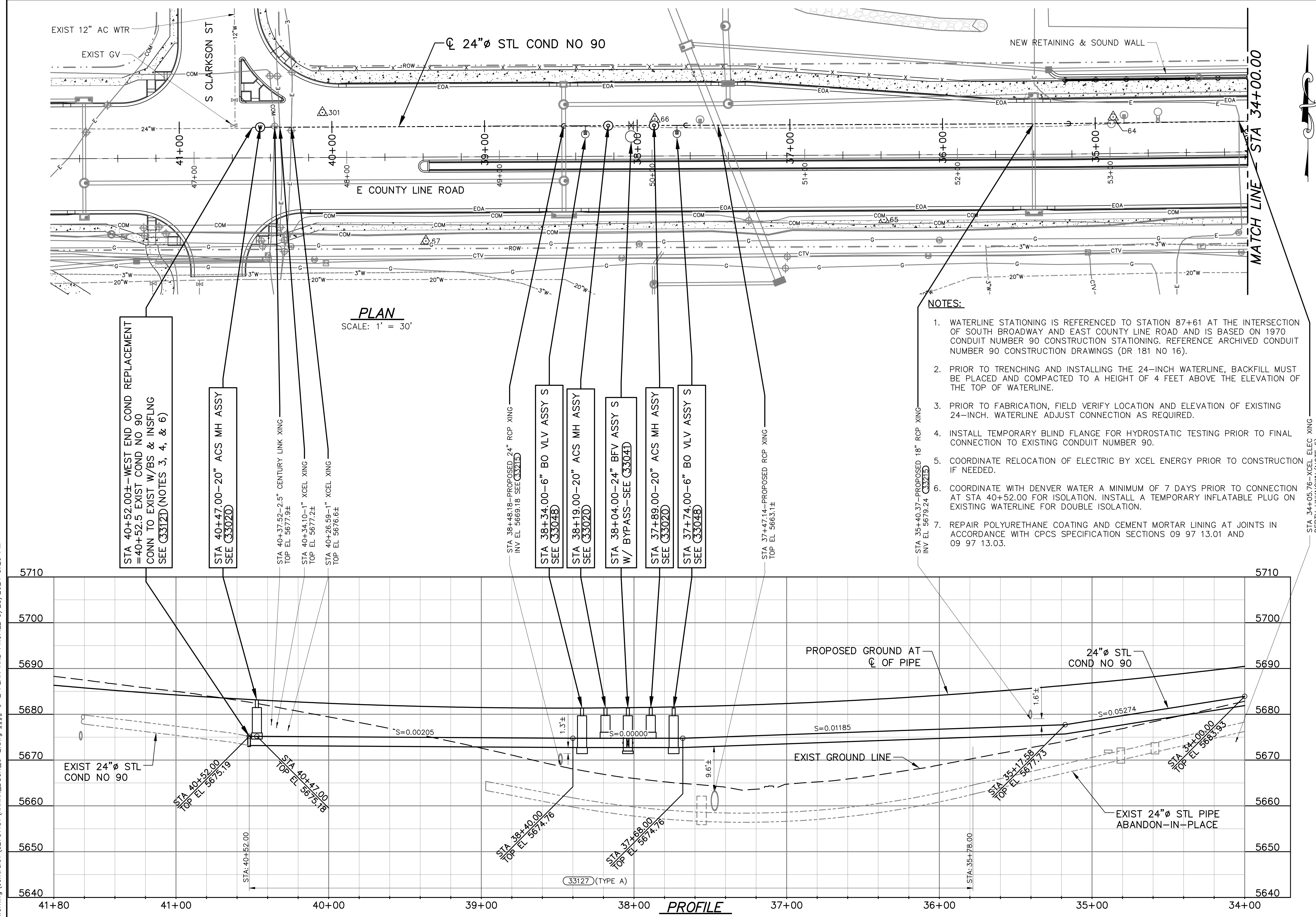
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△	3/29/24 FINAL FOR CONSTRUCTION

No	Date	Description
REVISIONS		

**VERIFY SCALES**  
BAR IS ONE INCH ON ORIGINAL DRAWING  
0 1"  
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

PT NO: 21968
DRAWN BY: JDA
CHKD BY: BAR/LIGHT
CHKD BY: KRB/M TURNEY
APPD BY:
DATE: NOVEMBER 2022
CONTRACT: 506017
AS-BUILT DATE:
AS-BUILT BY:
DRAWING TITLE

**PLAN AND PROFILE**



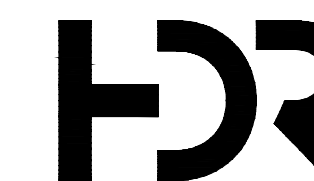
- NOTES:**
1. WATERLINE STATIONING IS REFERENCED TO STATION 87+61 AT THE INTERSECTION OF SOUTH BROADWAY AND EAST COUNTY LINE ROAD AND IS BASED ON 1970 CONDUIT NUMBER 90 CONSTRUCTION STATIONING. REFERENCE ARCHIVED CONDUIT NUMBER 90 CONSTRUCTION DRAWINGS (DR 181 NO 16).
  2. PRIOR TO TRENCHING AND INSTALLING THE 24-INCH WATERLINE, BACKFILL MUST BE PLACED AND COMPACTED TO A HEIGHT OF 4 FEET ABOVE THE ELEVATION OF THE TOP OF WATERLINE.
  3. PRIOR TO FABRICATION, FIELD VERIFY LOCATION AND ELEVATION OF EXISTING 24-INCH. WATERLINE ADJUST CONNECTION AS REQUIRED.
  4. INSTALL TEMPORARY BLIND FLANGE FOR HYDROSTATIC TESTING PRIOR TO FINAL CONNECTION TO EXISTING CONDUIT NUMBER 90.
  5. COORDINATE RELOCATION OF ELECTRIC BY XCEL ENERGY PRIOR TO CONSTRUCTION IF NEEDED.
  6. COORDINATE WITH DENVER WATER A MINIMUM OF 7 DAYS PRIOR TO CONNECTION AT STA 40+52.00 FOR ISOLATION. INSTALL A TEMPORARY INFLATABLE PLUG ON EXISTING WATERLINE FOR DOUBLE ISOLATION.
  7. REPAIR POLYURETHANE COATING AND CEMENT MORTAR LINING AT JOINTS IN ACCORDANCE WITH CPCS SPECIFICATION SECTIONS 09 97 13.01 AND 09 97 13.03.

SCALE: 1" = 30' HORIZ  
1" = 10' VERT

C:\working\central01\d2731151\XXXXX\_DSGN\_C-2.dwg ### C-2 PLAN AND PROFILE 3/28/2024 3:29 PM

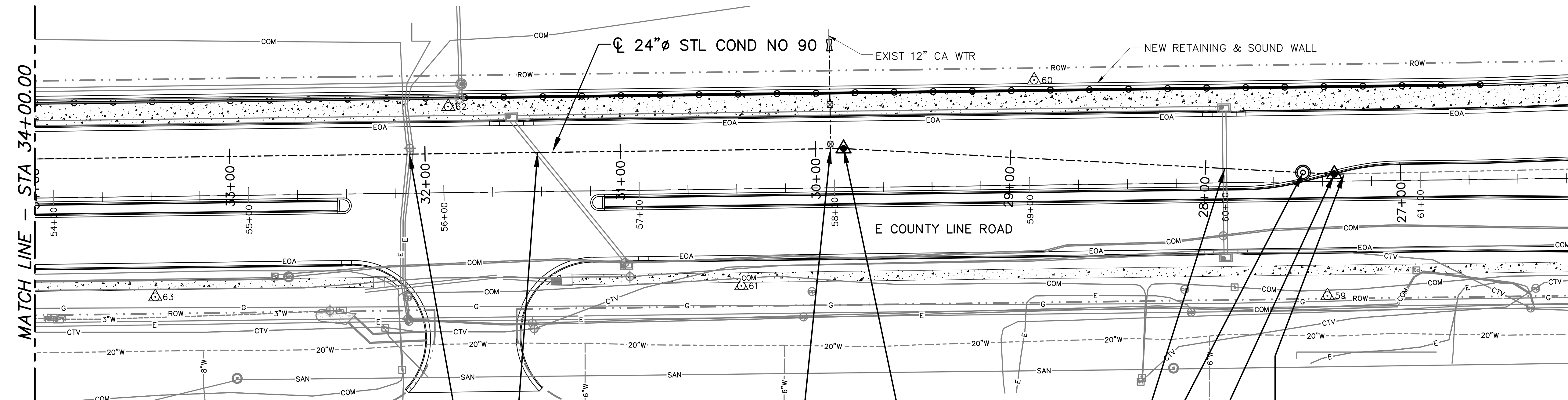


CONSULTANT



**CONDUIT NO. 90**

RELOCATION IN COUNTY LINE ROAD, EAST OF CLARKSON STREET



**NOTES:**

1. WATERLINE STATIONING IS REFERENCED TO STATION 87+61.00 AT THE INTERSECTION OF SOUTH BROADWAY AND EAST COUNTY LINE ROAD AND IS BASED ON 1970 CONDUIT NUMBER 90 CONSTRUCTION STATIONING. REFERENCE ARCHIVED CONDUIT NUMBER 90 CONSTRUCTION DRAWINGS (DR 181 NO 16).
2. PRIOR TO TRENCHING AND INSTALLING THE 24-INCH WATERLINE, BACKFILL MUST BE PLACED AND COMPACTED TO A HEIGHT OF 4 FEET ABOVE THE ELEVATION OF THE TOP OF WATERLINE.
3. PRIOR TO FABRICATION, FIELD VERIFY LOCATION AND ELEVATION OF EXISTING 24-INCH AND 12-INCH WATERLINE CONNECTIONS. ADJUST CONNECTIONS AND OUTLET LOCATION AS REQUIRED.
4. INSTALL TEMPORARY BLIND FLANGE FOR HYDROSTATIC TESTING PRIOR TO FINAL CONNECTION TO EXISTING CONDUIT NUMBER 90.
5. COORDINATE RELOCATION OF ELECTRIC BY XCEL ENERGY PRIOR TO CONSTRUCTION IF NEEDED.
6. COORDINATE WITH DENVER WATER A MINIMUM OF 7 DAYS PRIOR TO CONNECTION AT STA 27+29.00 FOR ISOLATION. INSTALLATION OF TEMPORARY INFLATABLE PLUG ON EXISTING WATERLINE MAY BE NECESSARY FOR DOUBLE ISOLATION.

**PLAN**  
 SCALE: 1" = 30'

**NOTES (CONT):**

7. REPAIR POLYURETHANE COATING AND CEMENT MORTAR LINING AT JOINTS IN ACCORDANCE WITH CPCS SPECIFICATION SECTIONS 09 97 13.01 AND 09 97 13.03.

REFERENCE:  
 CAPITAL PROJECTS CONSTRUCTION STANDARDS 4th EDITION

THIS DRAWING IS BASED ON THE DW\_METRO\_GRID COORDINATE SYSTEM

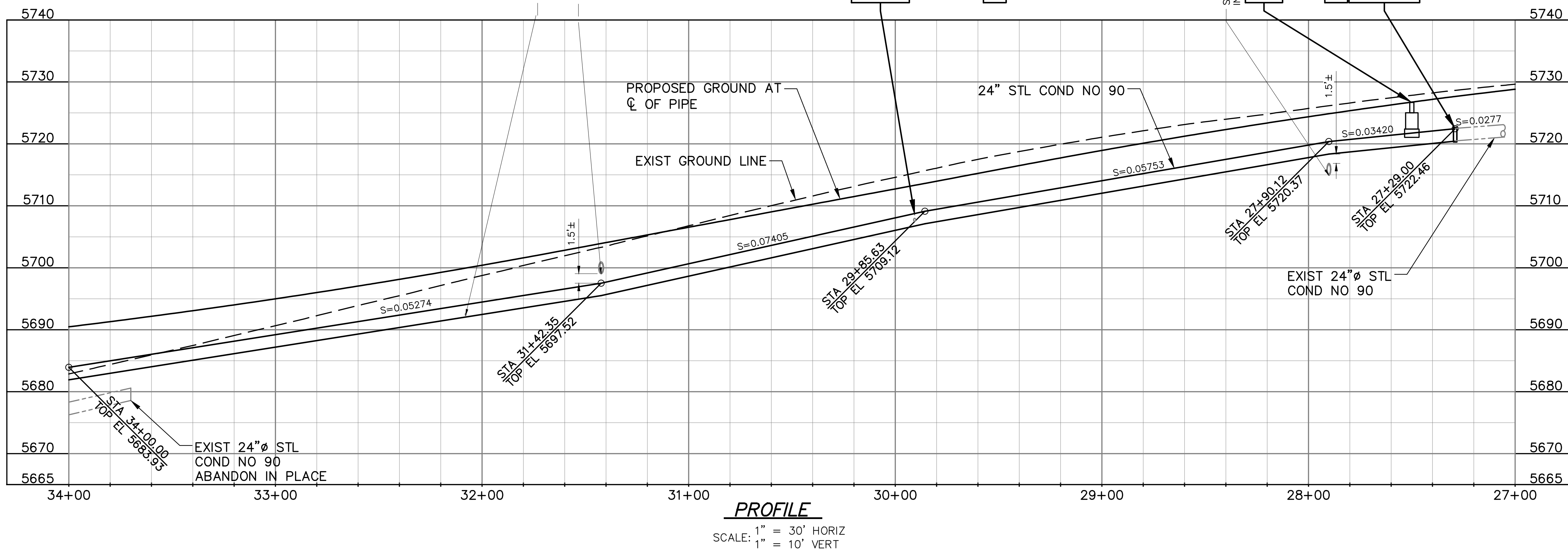
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△	3/29/24	FINAL FOR CONSTRUCTION

REVISIONS

**VERIFY SCALES**  
 BAR IS ONE INCH ON ORIGINAL DRAWING  
 0 [---] 1"  
 IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

PT NO: 21968
DRAWN BY: JDA
CHKD BY: BAR/LIGHT
CHKD BY: KRB/M TURNEY
APPD BY:
DATE: NOVEMBER 2022
CONTRACT: 506017
AS-BUILT DATE:
AS-BUILT BY:
DRAWING TITLE

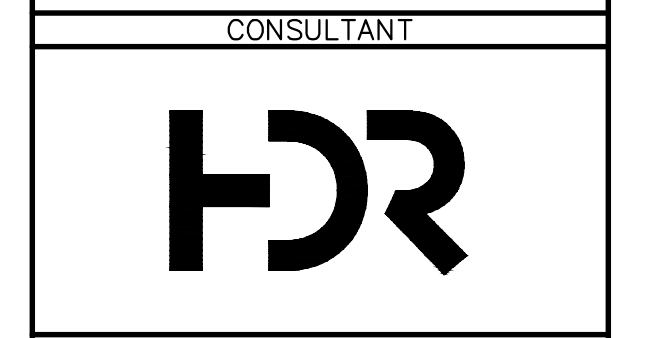
**PLAN AND PROFILE**



**PROFILE**  
 SCALE: 1" = 30' HORIZ  
 1" = 10' VERT

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**CONDUIT NO. 90**

RELOCATION IN COUNTY LINE ROAD, EAST OF CLARKSON STREET

**REFERENCE:**  
 CAPITAL PROJECTS CONSTRUCTION STANDARDS 4th EDITION

THIS DRAWING IS BASED ON THE DW\_METRO\_GRID COORDINATE SYSTEM

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△	3/29/24 FINAL FOR CONSTRUCTION

No	Date	Description
<b>REVISIONS</b>		

**VERIFY SCALES**  
 BAR IS ONE INCH ON ORIGINAL DRAWING  
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 IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

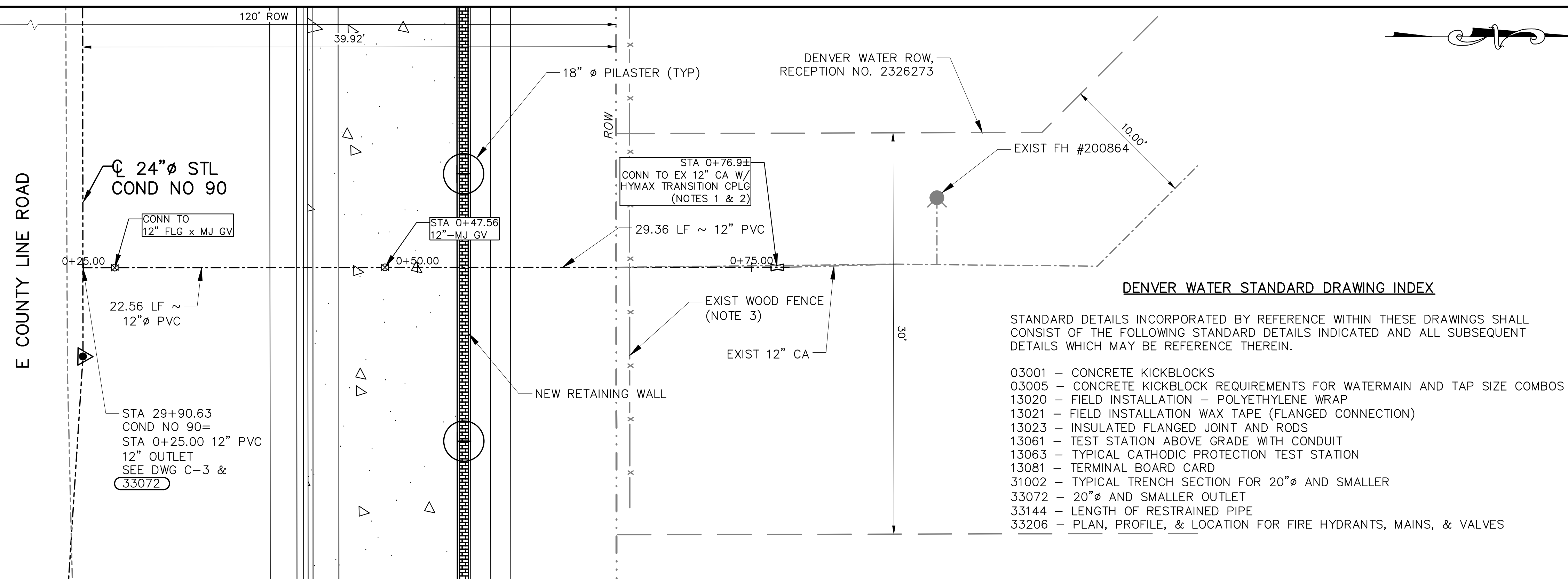
PT NO: 21968  
 DRAWN BY: JDA

CHKD BY: BAR/LIGHT  
 KRB

CHKD BY: KRB/M TURNEY

APPD BY:  
 DATE: NOVEMBER 2022  
 CONTRACT: 506017  
 AS-BUILT DATE:  
 AS-BUILT BY:  
 DRAWING TITLE

PLAN AND PROFILE

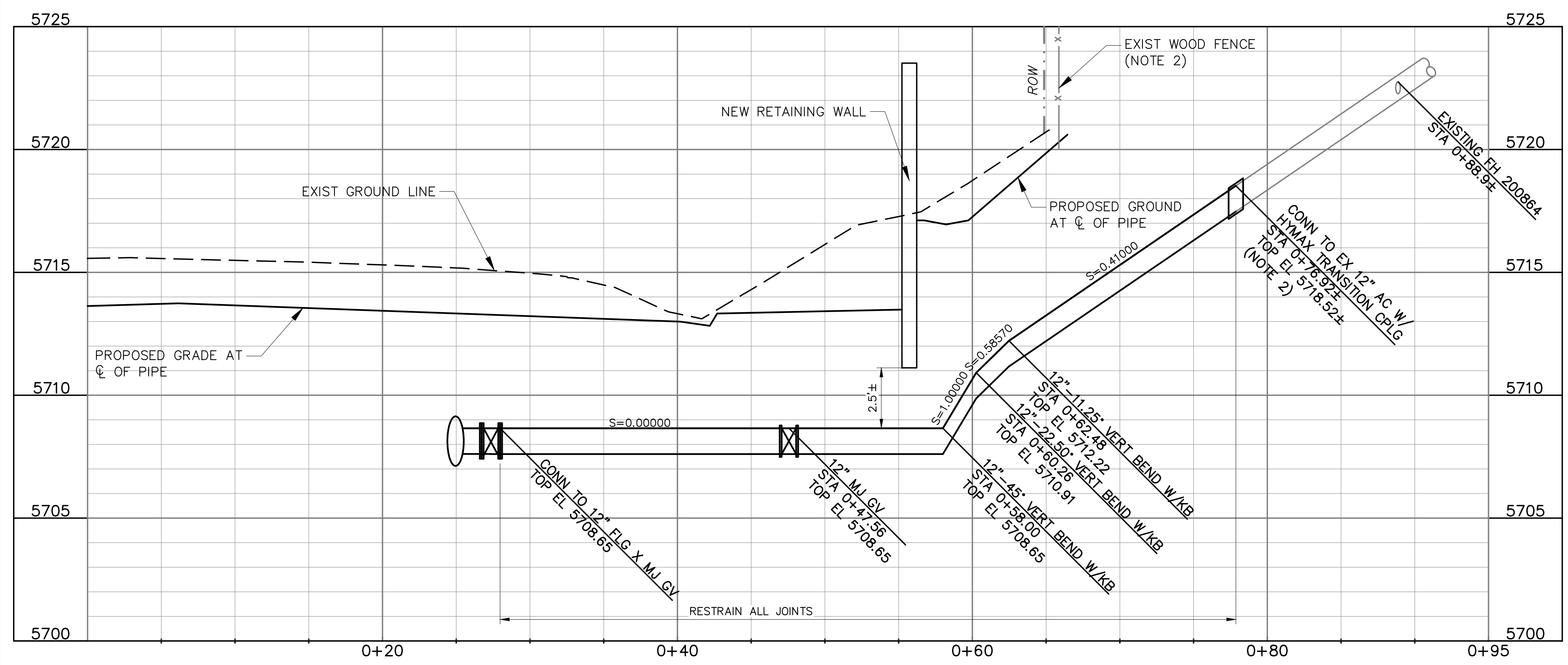


**DENVER WATER STANDARD DRAWING INDEX**

STANDARD DETAILS INCORPORATED BY REFERENCE WITHIN THESE DRAWINGS SHALL CONSIST OF THE FOLLOWING STANDARD DETAILS INDICATED AND ALL SUBSEQUENT DETAILS WHICH MAY BE REFERENCE THEREIN.

- 03001 - CONCRETE KICKBLOCKS
- 03005 - CONCRETE KICKBLOCK REQUIREMENTS FOR WATERMAIN AND TAP SIZE COMBOS
- 13020 - FIELD INSTALLATION - POLYETHYLENE WRAP
- 13021 - FIELD INSTALLATION WAX TAPE (FLANGED CONNECTION)
- 13023 - INSULATED FLANGED JOINT AND RODS
- 13061 - TEST STATION ABOVE GRADE WITH CONDUIT
- 13063 - TYPICAL CATHODIC PROTECTION TEST STATION
- 13081 - TERMINAL BOARD CARD
- 31002 - TYPICAL TRENCH SECTION FOR 20" AND SMALLER
- 33072 - 20" AND SMALLER OUTLET
- 33144 - LENGTH OF RESTRAINED PIPE
- 33206 - PLAN, PROFILE, & LOCATION FOR FIRE HYDRANTS, MAINS, & VALVES

**PLAN**  
 SCALE: 1" = 5'



**PROFILE**

SCALE: 1" = 5' HORIZ  
 1" = 3' VERT

**NOTES:**

1. THE EXISTING 12-INCH MAIN IS ASBESTOS-CEMENT PIPE. DISCONNECT ASBESTOS-CEMENT PIPE AT THE NEAREST JOINT AND REMOVE ALL PIPE TO BE REPLACED. CUTTING, CRUSHING, OR DIRECT TAPPING ASBESTOS-CEMENT PIPE SHALL BE IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE AND LOCAL REQUIREMENTS. DISPOSE OF DEMOLISHED/REMOVED MATERIALS OFF-SITE IN ACCORDANCE WITH APPLICABLE LAWS, ORDINANCES, RULES AND REGULATIONS.
2. FIELD VERIFY LOCATION AND ELEVATION OF EXISTING MAIN AND CONNECT AT NEAREST JOINT NORTH OF EXISTING GATE VALVE. ADJUST CONNECTION AND FITTINGS AS REQUIRED.
3. REMOVE AND RESET EXISTING WOOD FENCE AS NEEDED TO INSTALL WATERLINE.

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1600 West 12th Ave  
 Denver, Colorado 80204-3412  
 T: 303.628.6000  
 F: 303.628.6851  
 denverwater.org

CONSULTANT

CONDUIT NO 90

RELOCATION IN  
 COUNTY LINE  
 ROAD, EAST OF  
 CLARKSON  
 STREET

REFERENCE:  
 CAPITAL PROJECTS CONSTRUCTION  
 STANDARDS 4th EDITION

THIS DRAWING IS BASED ON THE  
 DW\_METRO\_GRID COORDINATE SYSTEM

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△	3/29/24 FINAL FOR CONSTRUCTION

No	Date	Description
REVISIONS		

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 0 1"  
 IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

PT NO: 21968  
 DRAWN BY: ORTEGA

CHKD BY: FLORI/ AF

CHKD BY: FLORI/ AF

APPD BY:  
 DATE: JULY 2023

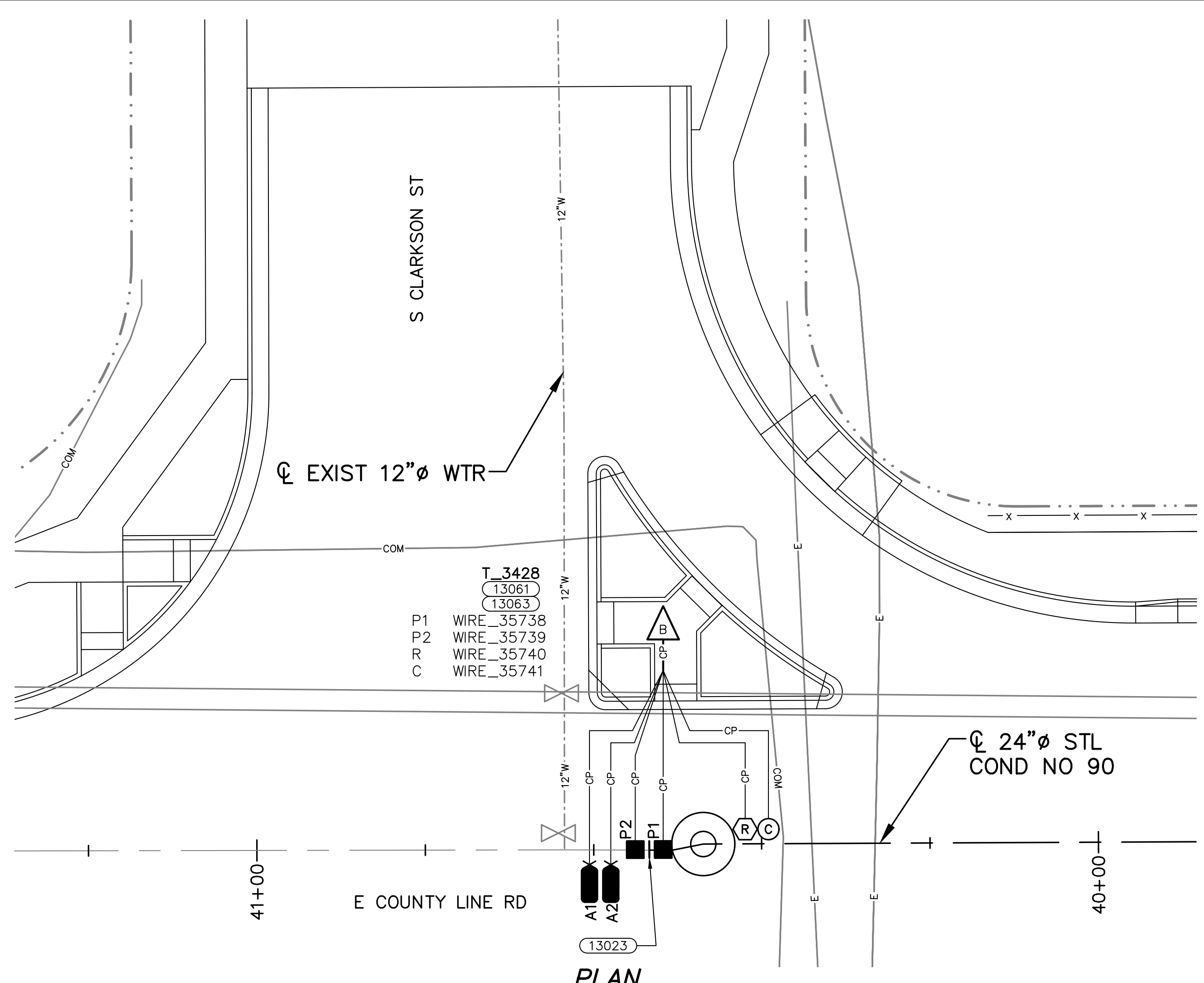
CONTRACT: 506017

AS-BUILT DATE:  
 AS-BUILT BY:

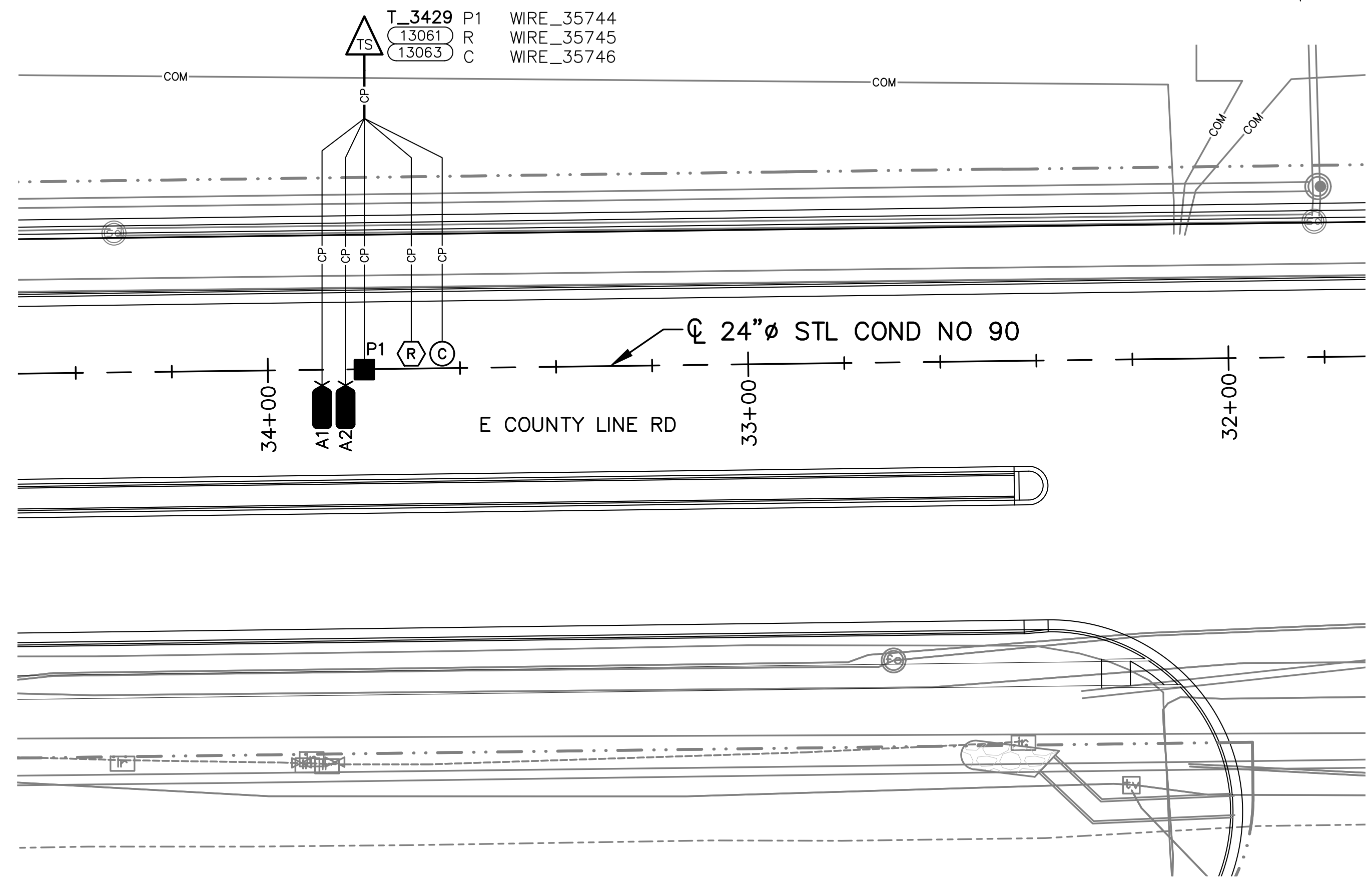
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CATHODIC PROTECTION DETAILS

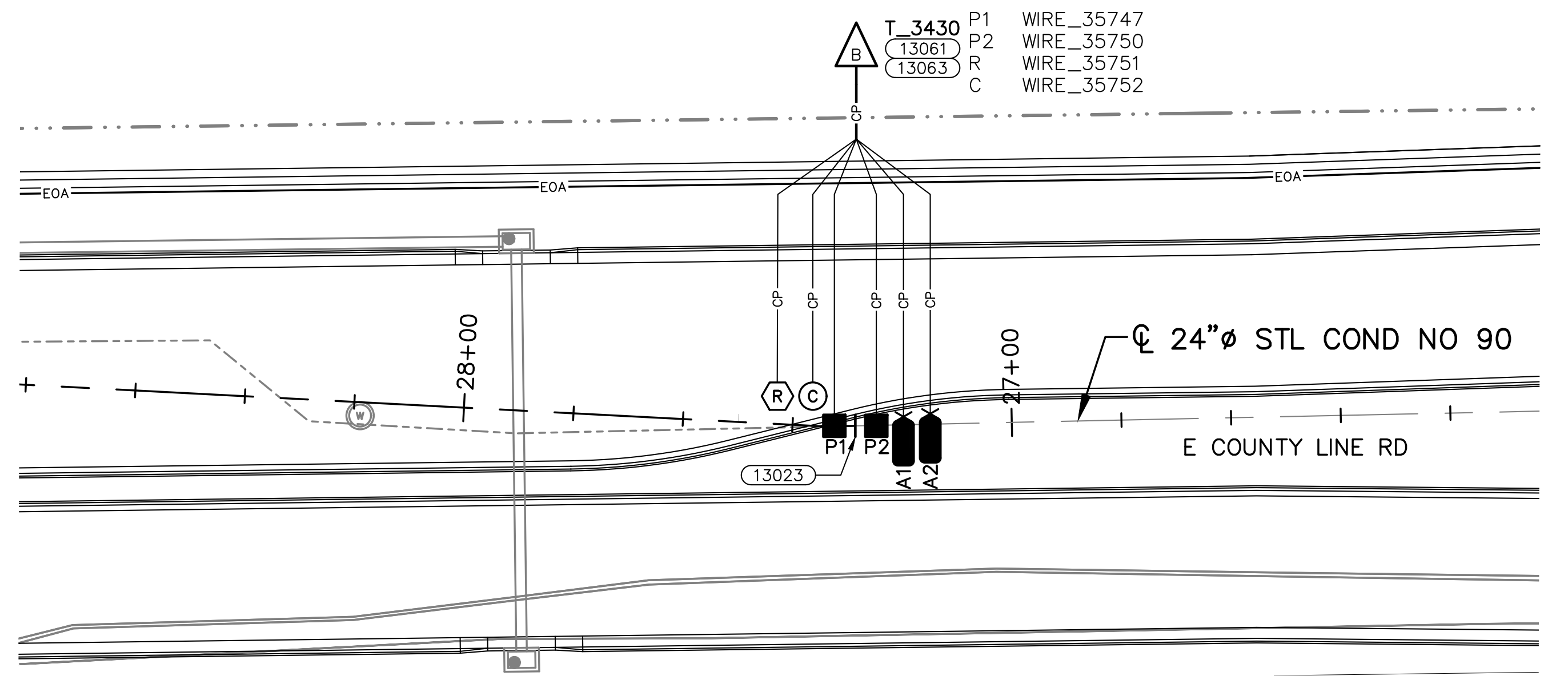
CP-1



**PLAN**  
 SCALE: 1" = 10'



**PLAN**  
 SCALE: 1" = 20'



**PLAN**  
 SCALE: 1" = 20'


**NOTE:**  
 INSTALL 48LB MAGNESIUM ANODES.

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- 1 ENGINEER, CONDUIT, CONDUCTOR AND CABLE SIZES, LENGTHS & TYPES ARE ESTIMATED ACCEPTABLE MINIMUMS.
- P## - REPRESENTS POWER
- 2 C## - REPRESENTS CONTROL AND COMMUNICATIONS
- A## - ANALOG
- L## - LIGHTING & RECEPTACLE
- F## - FIBER OPTIC
- CP# - CORROSION PROTECTION
- SHADED ROWS INDICATE EXISTING EQUIPMENT, NOT REQUIRING WORK; ALL UN-SHADED FIELDS INDICATE FINAL CONFIGURATION FOLLOWING WORK
- 3 PLEASE SEE THE CONDUIT AND CONDUCTORS NOTES SECTION IN SPECIFICATION 26 05 33, RACEWAYS FOR FURTHER DETAILS

CONDUIT		CONDUCTORS & CABLES		SOURCE	TERMINAL	DESTINATION	VOLTAGE	COMMENTS
No	SIZE	TYPE						
[CP001]	1.0"	PVC-SH40	(2) #10 AWG STRAND TYPE RHH/RHW (BLUE)	PIPE	P1	T_3428	WIRE_35738	24" STL COND 90 EAST
[CP002]		*[CP001]	(2) #10 AWG STRAND TYPE RHH/RHW (BLUE)	PIPE	P2	T_3428	WIRE_35739	24" STL COND 90 WEST
[CP003]		*[CP001]	(2) #12 AWG STRAND TYPE RHH/RHW (BLACK)	ANODE	A#	T_3428		2 48LB MAGNESIUM ANODES
[CP004]		*[CP001]	(1) #14 AWG STRAND TYPE RHH/RHW (YELLOW)	BRE	R	T_3428	WIRE_35740	
[CP005]		*[CP001]	(2) #12 AWG STRAND TYPE THHN (GREEN)	COUPON	C	T_3428	WIRE_35741	
[CP006]	1.0"	PVC-SH40	(2) #10 AWG STRAND TYPE RHH/RHW (BLUE)	PIPE	P1	T_3429	WIRE_35744	24" STL COND 90
[CP007]		*[CP006]	(2) #12 AWG STRAND TYPE RHH/RHW (BLACK)	ANODE	A#	T_3429		2 48LB MAGNESIUM ANODES
[CP008]		*[CP006]	(1) #14 AWG STRAND TYPE RHH/RHW (YELLOW)	BRE	R	T_3429	WIRE_35745	
[CP009]		*[CP006]	(2) #12 AWG STRAND TYPE THHN (GREEN)	COUPON	C	T_3429	WIRE_35746	
[CP010]	1.0"	PVC-SH40	(2) #10 AWG STRAND TYPE RHH/RHW (BLUE)	PIPE	P1	T_3430	WIRE_35747	24" STL COND 90 WEST
[CP011]		*[CP010]	(2) #12 AWG STRAND TYPE RHH/RHW (BLUE)	PIPE	P2	T_3430	WIRE_35750	24" STL COND 90 EAST
[CP012]		*[CP010]	(2) #14 AWG STRAND TYPE RHH/RHW (BLACK)	ANODE	A#	T_3430		2 48LB MAGNESIUM ANODES
[CP013]		*[CP010]	(1) #14 AWG STRAND TYPE RHH/RHW (YELLOW)	BRE	R	T_3430	WIRE_35751	
[CP014]		*[CP010]	(2) #12 AWG STRAND TYPE THHN (GREEN)	COUPON	C	T_3430	WIRE_35752	



1600 West 12th Ave  
Denver, Colorado 80204-3412  
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F: 303.628.6851  
denverwater.org

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CONSULTANT

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**CONDUIT NO 90**

RELOCATION IN COUNTY LINE ROAD, EAST OF CLARKSON STREET

---

**REFERENCE:**  
CAPITAL PROJECTS CONSTRUCTION STANDARDS 4th EDITION

THIS DRAWING IS BASED ON THE N/A COORDINATE SYSTEM

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△	3/29/24 FINAL FOR CONSTRUCTION

No	Date	Description
<b>REVISIONS</b>		

**VERIFY SCALES**

BAR IS ONE INCH ON ORIGINAL DRAWING

0  1"

IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

PT NO: 21968  
DRAWN BY: ORTEGA

CHKD BY: FLORI/ AF

CHKD BY: FLORI/ AF

APPD BY:  
DATE: JULY 2023  
CONTRACT: 506017  
AS-BUILT DATE:  
AS-BUILT BY:  
DRAWING TITLE

**CONDUIT & CONDUCTOR SCHEDULE**

CP-2

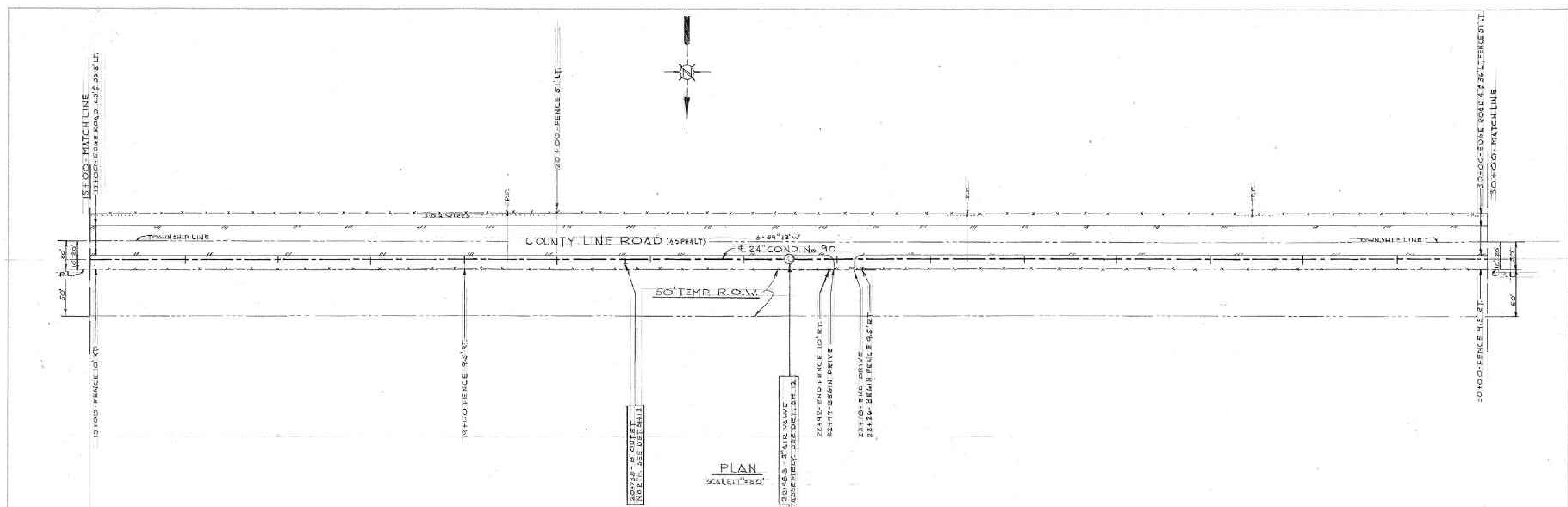




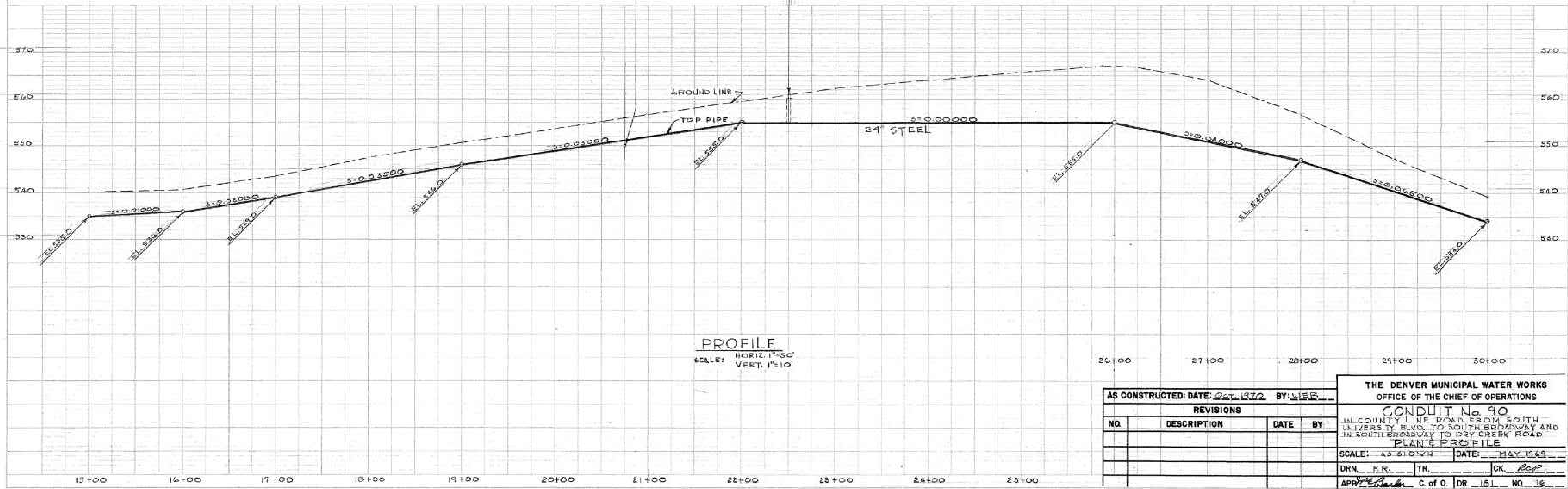
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PLAN	DATE	BY
CONDUCTOR		
DESIGNER		
CHECKER		
DATE		

PROFILE	DATE	BY
CONDUCTOR		
DESIGNER		
CHECKER		
DATE		



PLAN  
SCALE: 1"=50'



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

AS CONSTRUCTED: DATE: <u>SEP. 1970</u> BY: <u>WEB</u>
REVISIONS
NO. DESCRIPTION DATE BY

THE DENVER MUNICIPAL WATER WORKS  
OFFICE OF THE CHIEF OF OPERATIONS

**CONDUIT No. 90**  
IN COUNTY LINE ROAD FROM SOUTH  
UNIVERSITY BLVD. TO SOUTH BROADWAY AND  
IN SOUTH BROADWAY TO DRY CREEK ROAD

SCALE: AS SHOWN DATE: MAY 1949

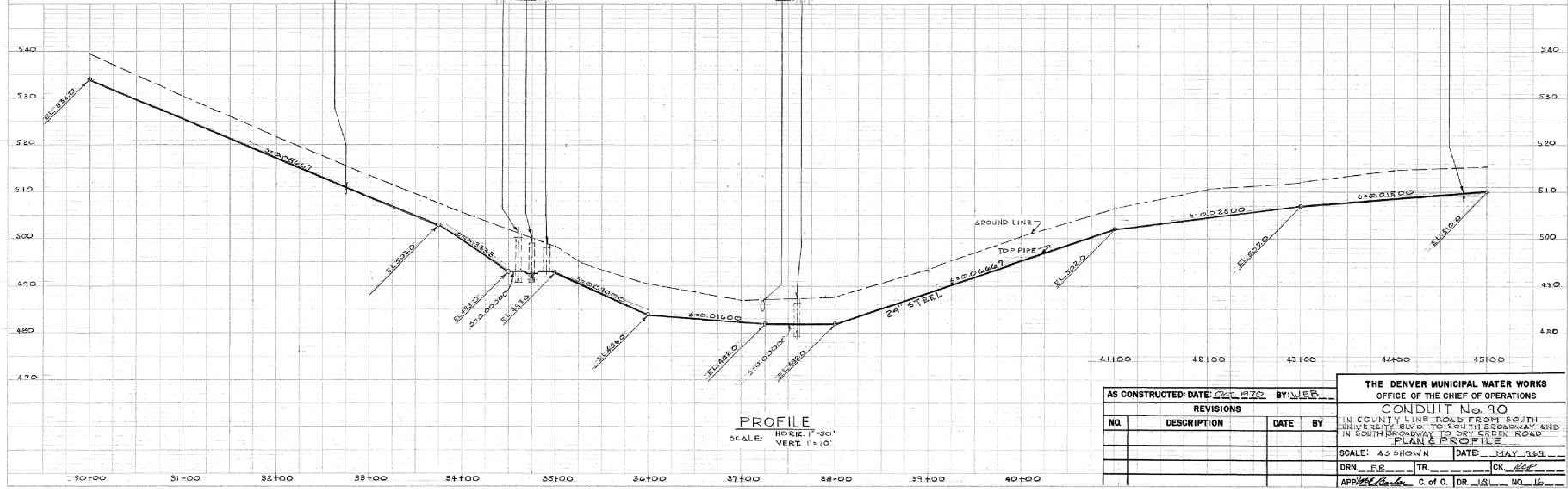
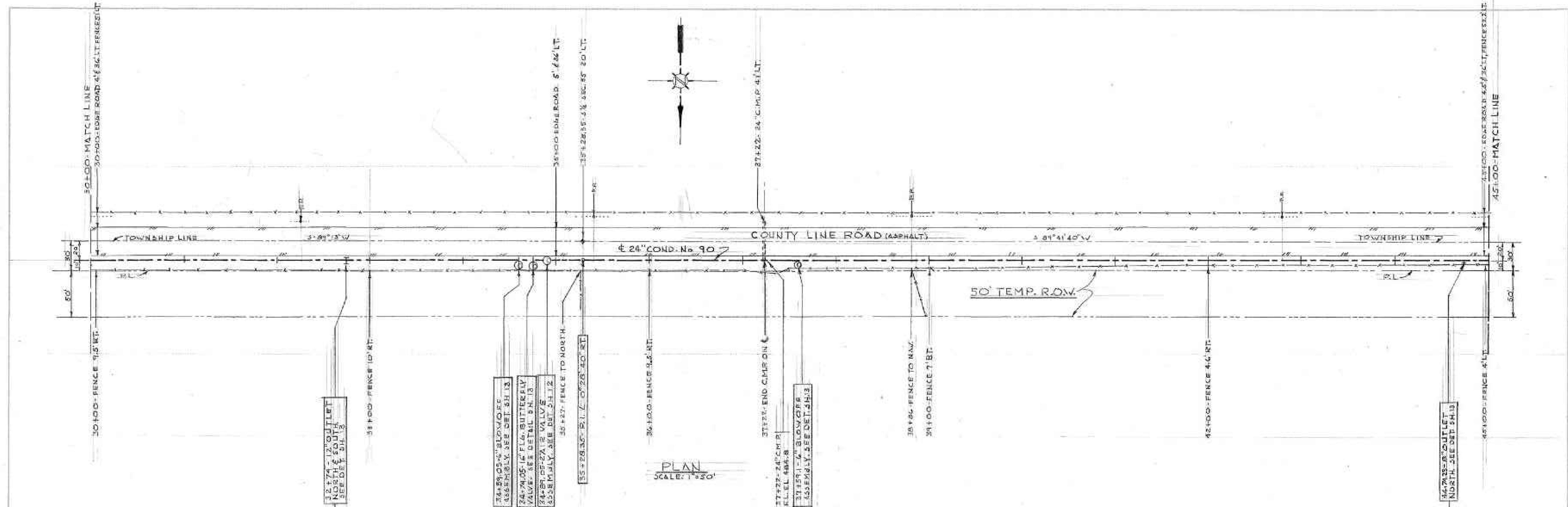
DRN. FR. TR. CK. REP

APP. REP C. of O. DR. 161 NO. 16

C:\working\central01\d273151\XXXX\_DSGN\_R-3.dwg ### R-3 REFERENCE DRAWING (1970) 3/28/2024 3:30 PM

DESIGNED BY	DATE
CHECKED BY	DATE
APPROVED BY	DATE
PROJECT NO.	
SHEET NO.	
TITLE	

DESIGNED BY	DATE
CHECKED BY	DATE
APPROVED BY	DATE
PROJECT NO.	
SHEET NO.	
TITLE	



AS CONSTRUCTED: DATE: <u>Oct 1970</u> BY: <u>WEB</u>			
REVISIONS			
NO.	DESCRIPTION	DATE	BY

THE DENVER MUNICIPAL WATER WORKS  
OFFICE OF THE CHIEF OF OPERATIONS

**CONDUIT No. 90**

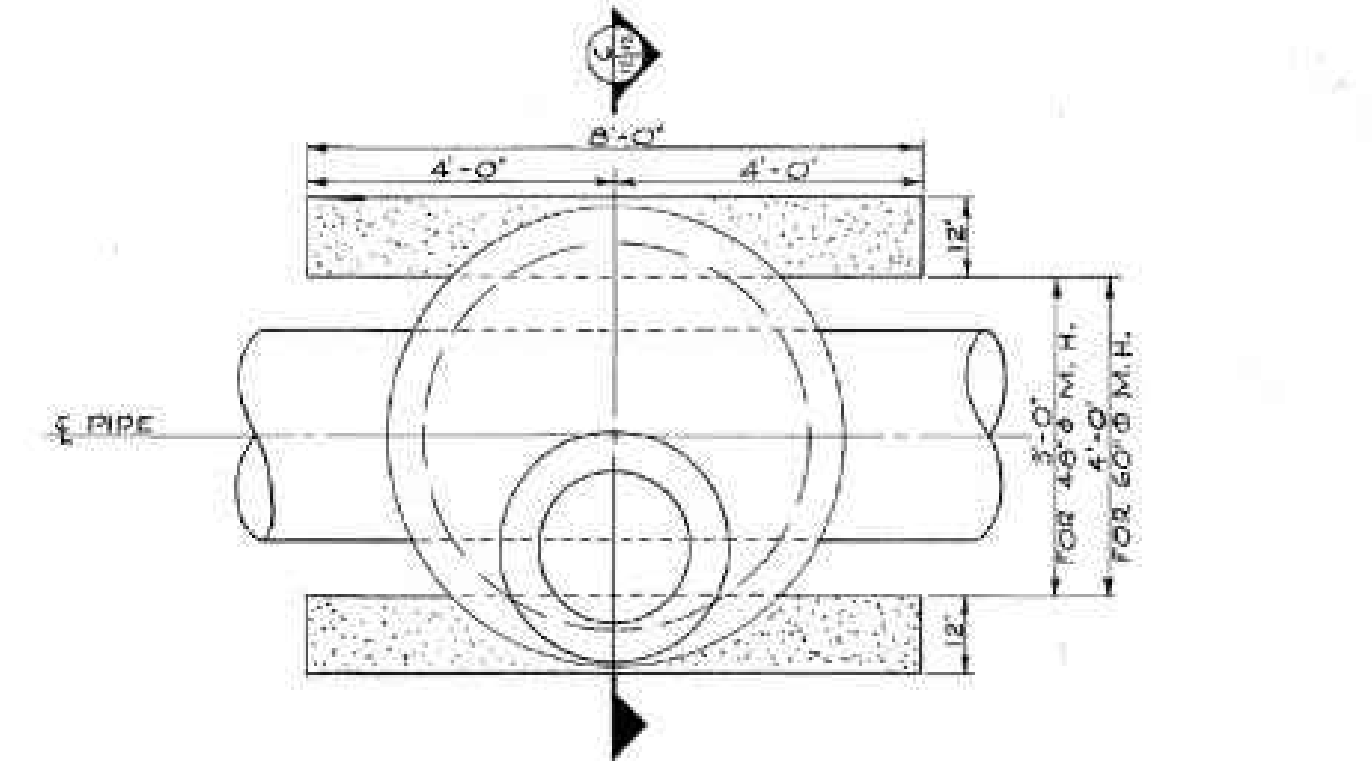
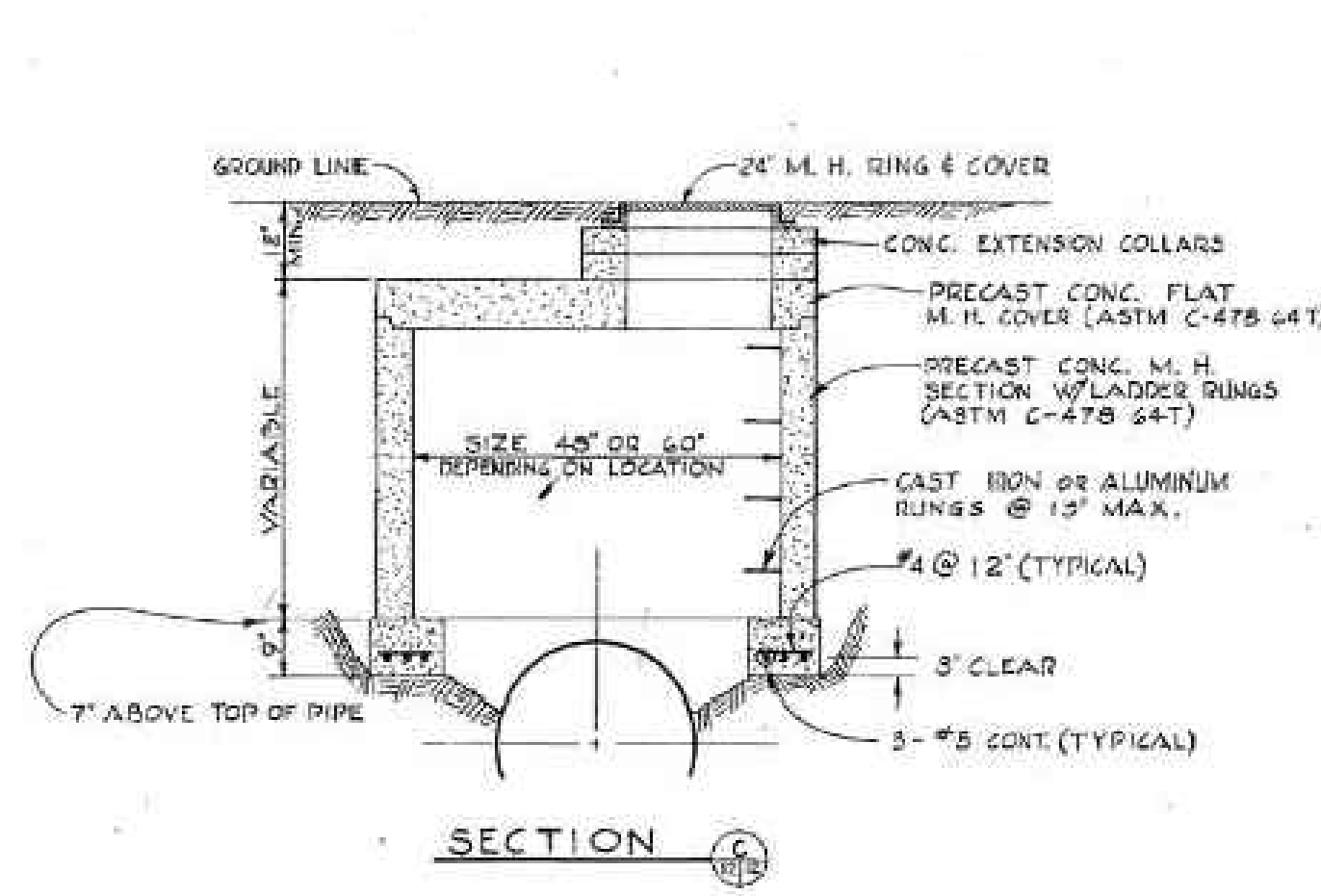
IN COUNTY LINE ROAD FROM SOUTH UNIVERSITY BLVD TO 800 TH BROADWAY AND IN SOUTH BROADWAY TO DRY CREEK ROAD

PLAN & PROFILE

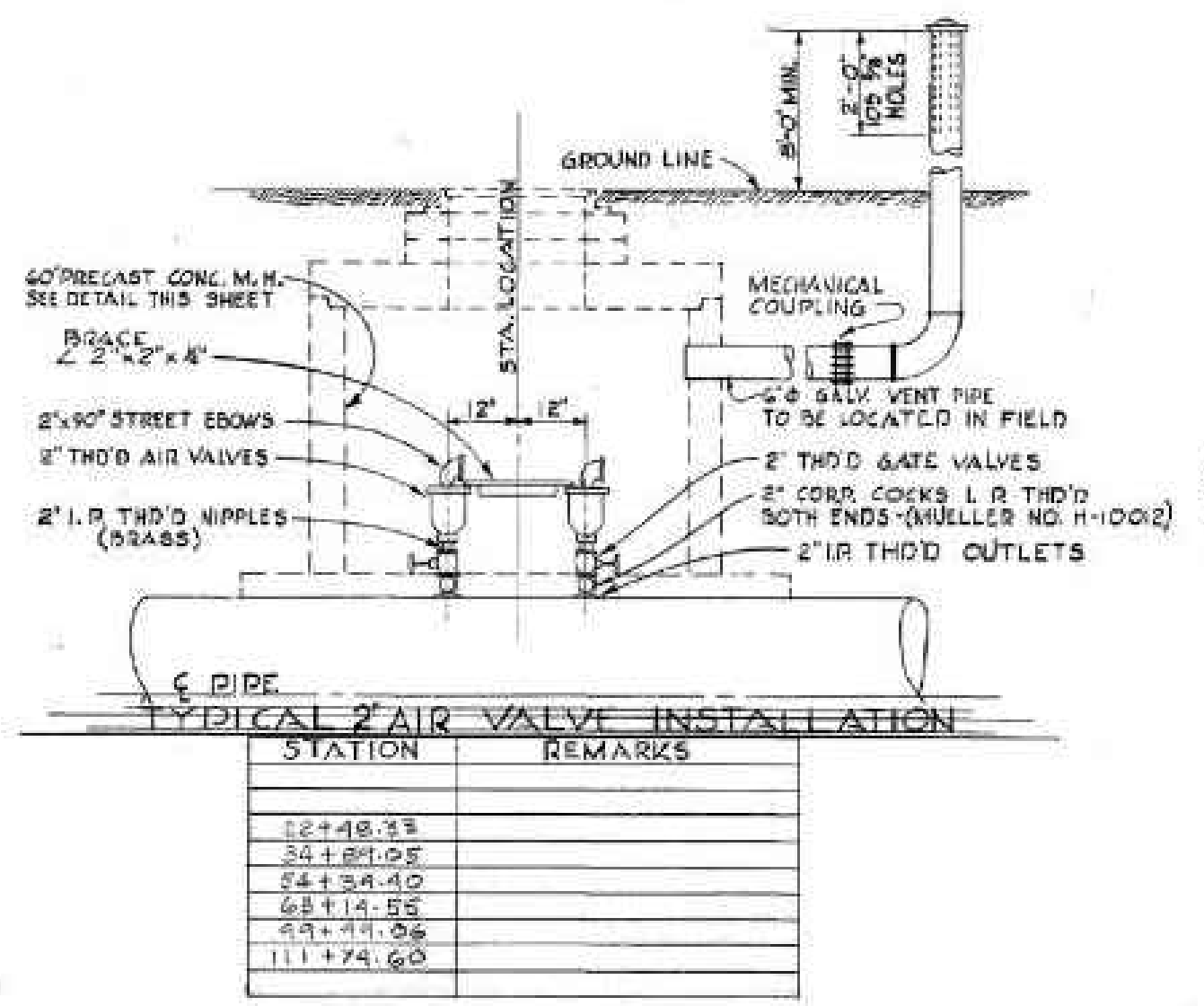
SCALE: AS SHOWN DATE: MAY 1969

DRN. FR TR.   CK.  

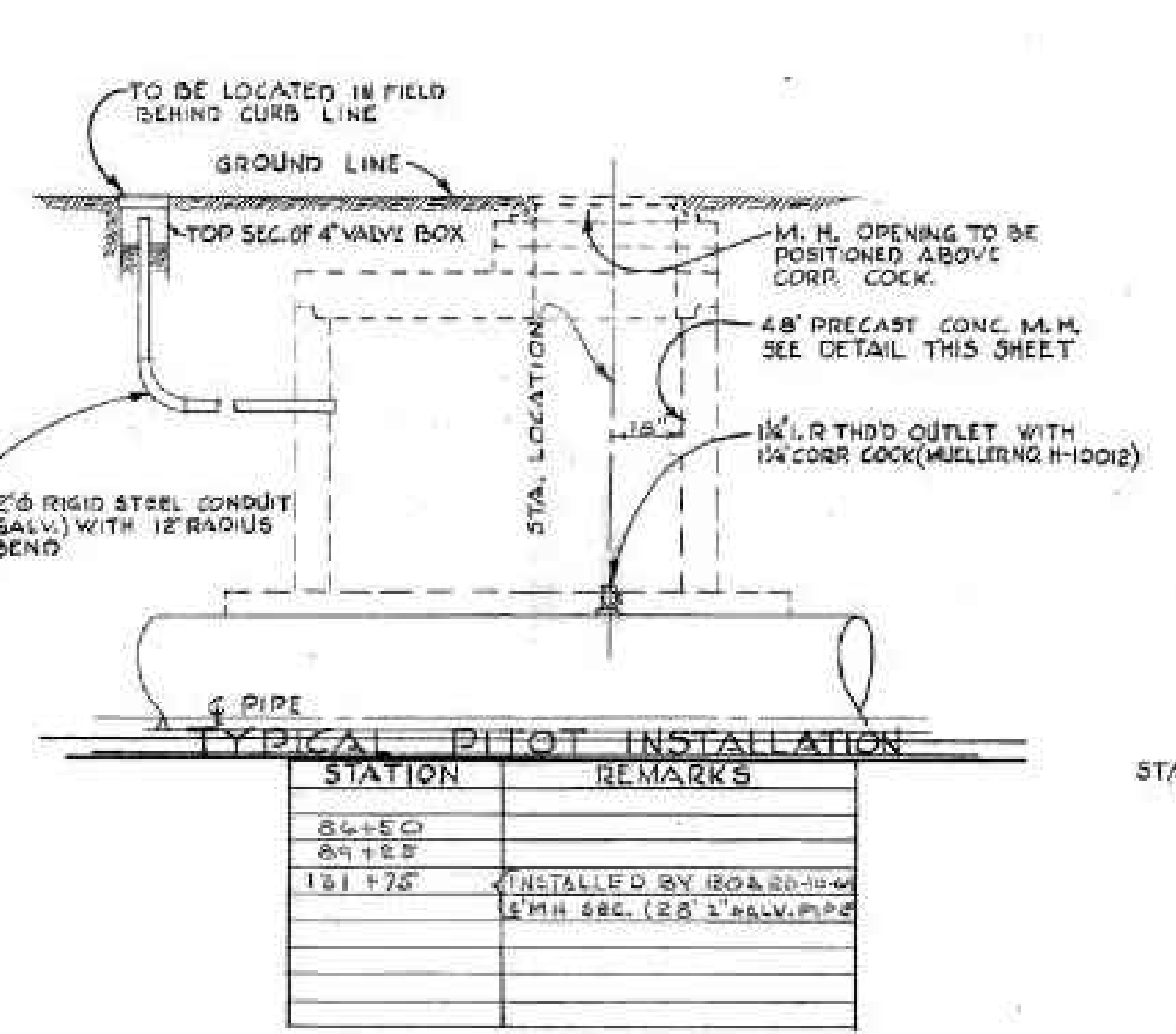
APP.   C. of O. DR. 15 NO. 16



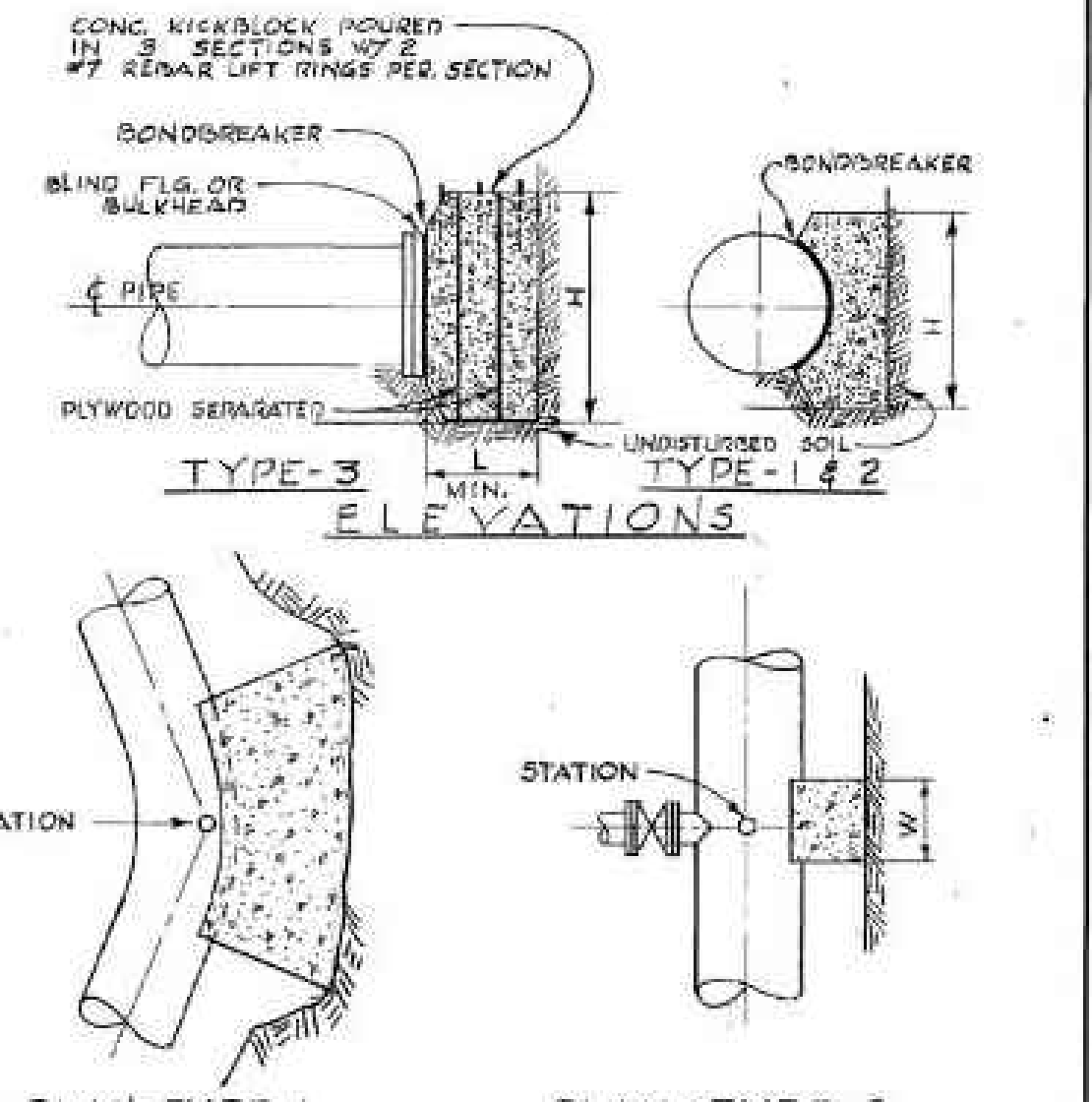
TYPICAL CONCRETE M.H. INSTALLATION



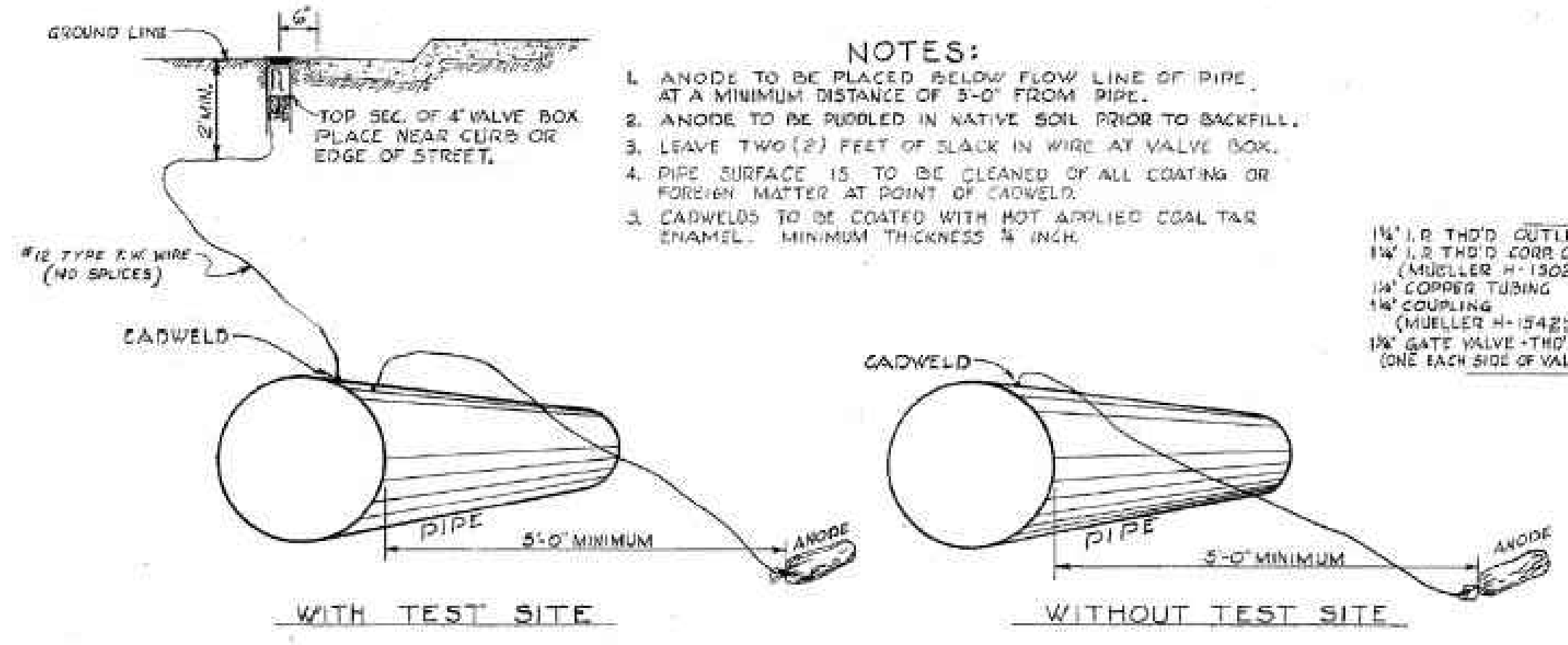
STATION	REMARKS
12+48.33	
30+81.05	
54+34.40	
68+14.55	
93+11.05	
111+74.60	



STATION	REMARKS
84+50	
89+55	
101+75	INSTALLED BY BOARD
	2\"/>

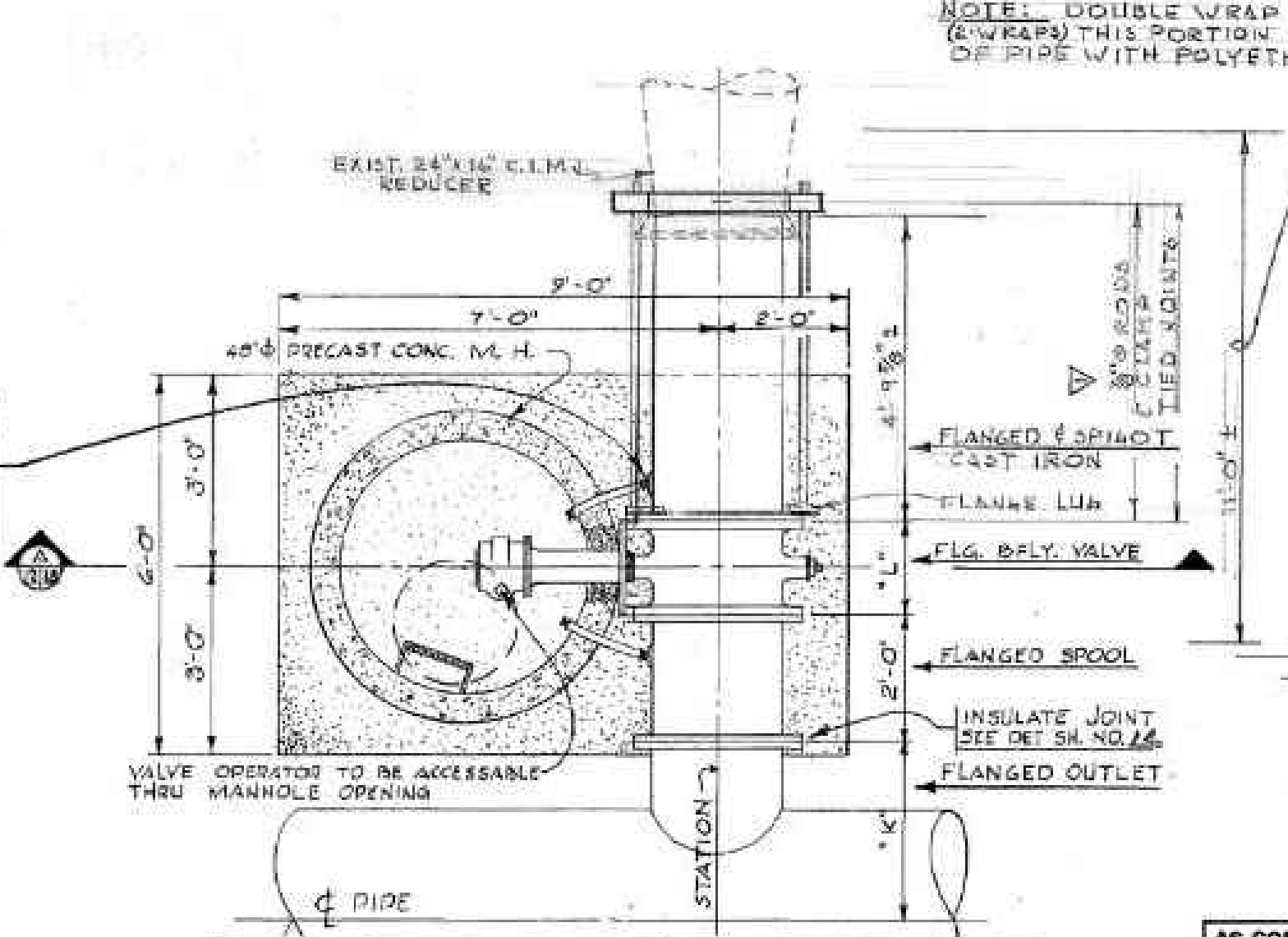


TYPE	STATION	H	W	L	REMARKS
1	20+73.80				8\"/>
1	38+194				12\"/>
1	46+34.25				4\"/>
1	53+74.28				12\"/>
1	61+74.55				6\"/>
1	74+74.16				8\"/>
1	87+401	2.5'	2.5'		1\"/>
1	94+54.06				24\"/>
1	104+49.52				12\"/>
1	113+66.7				16\"/>
1	123+60.0				8\"/>
1	131+00				1\"/>
1	131+29.2	3'	3'	1.5'	1\"/>



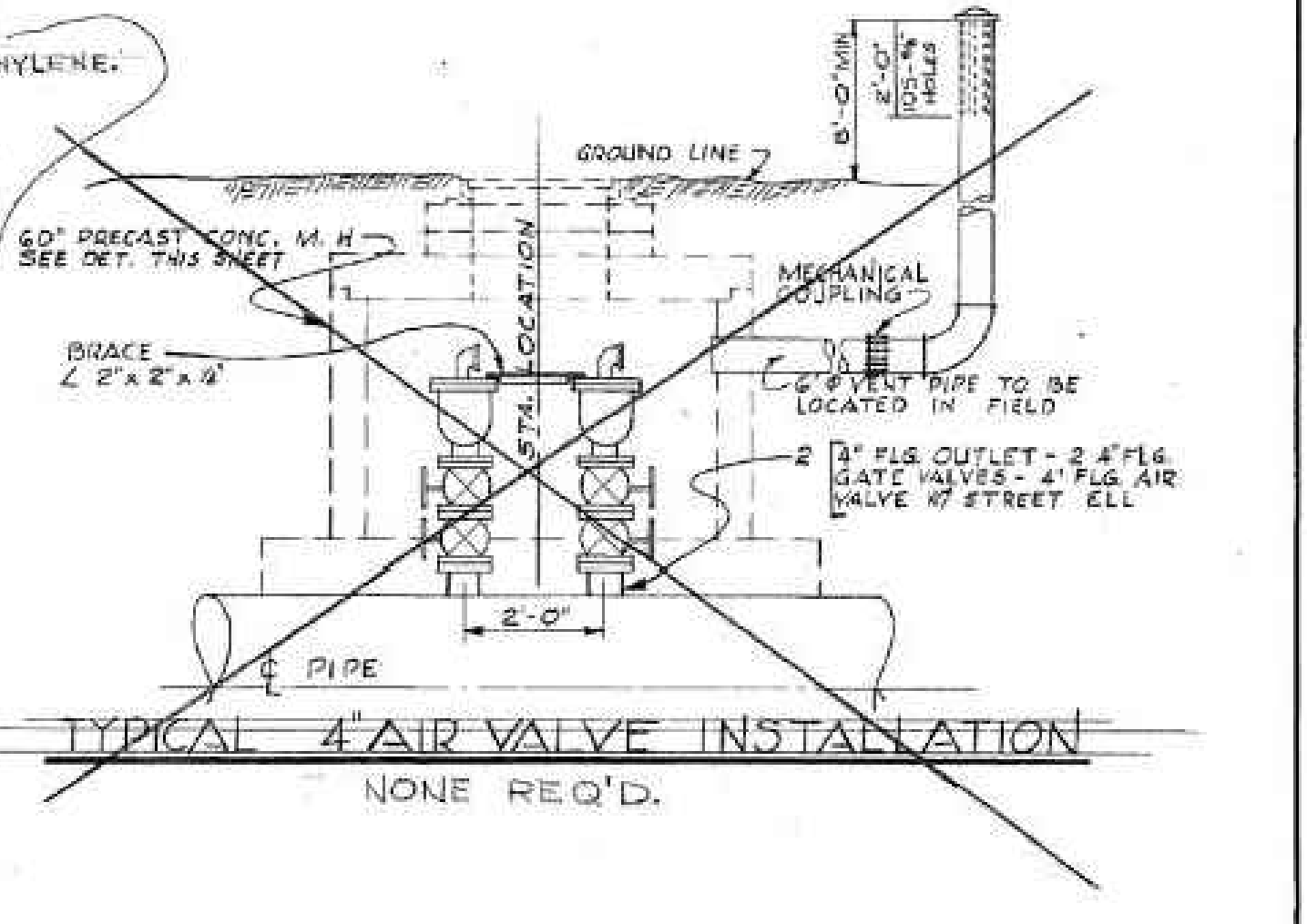
MAGNESIUM ANODE INSTALLATION

- NOTES:
1. ANODE TO BE PLACED BELOW FLOW LINE OF PIPE, AT A MINIMUM DISTANCE OF 5'-0" FROM PIPE.
  2. ANODE TO BE RUDDED IN NATIVE SOIL PRIOR TO BACKFILL.
  3. LEAVE TWO (2) FEET OF SLACK IN WIRE AT VALVE BOX.
  4. PIPE SURFACE IS TO BE CLEANED OF ALL COATING OR FOREIGN MATTER AT POINT OF CADWELD.
  5. CADWELDS TO BE COATED WITH HOT APPLIED COAL TAR ENAMEL. MINIMUM THICKNESS 1/8 INCH.



STATION	DIA. OUTLET & VALVE	DIM. W"	DIM. L"	REMARKS
113+87.0	16"	1410"	1-4"	SERVICE TO WATER RESERVOIR

OUTLET 16\"/>



AS CONSTRUCTED/ DATE: 03.12.10 BY: W.B.P.

NO.	DESCRIPTION	DATE	BY
Δ	CORRECTED ROD SIZE	1-8-70	FR

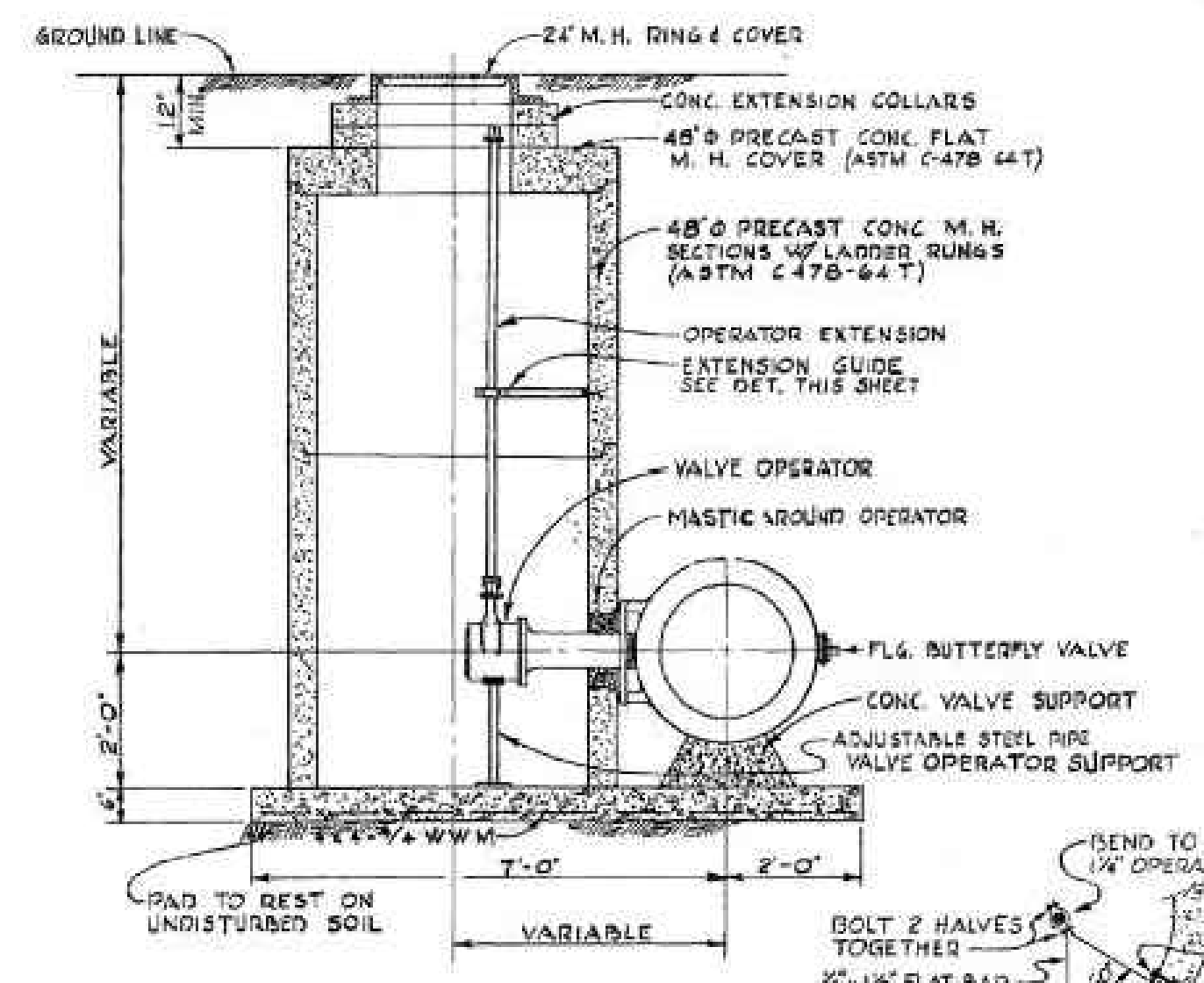
THE DENVER MUNICIPAL WATER WORKS  
OFFICE OF THE CHIEF OF OPERATIONS

CONDUIT No. 90  
IN COUNTY LINE ROAD FROM SOUTH UNIVERSITY BLVD. TO SOUTH BROADWAY AND IN SOUTH BROADWAY TO DRY CREEK ROAD

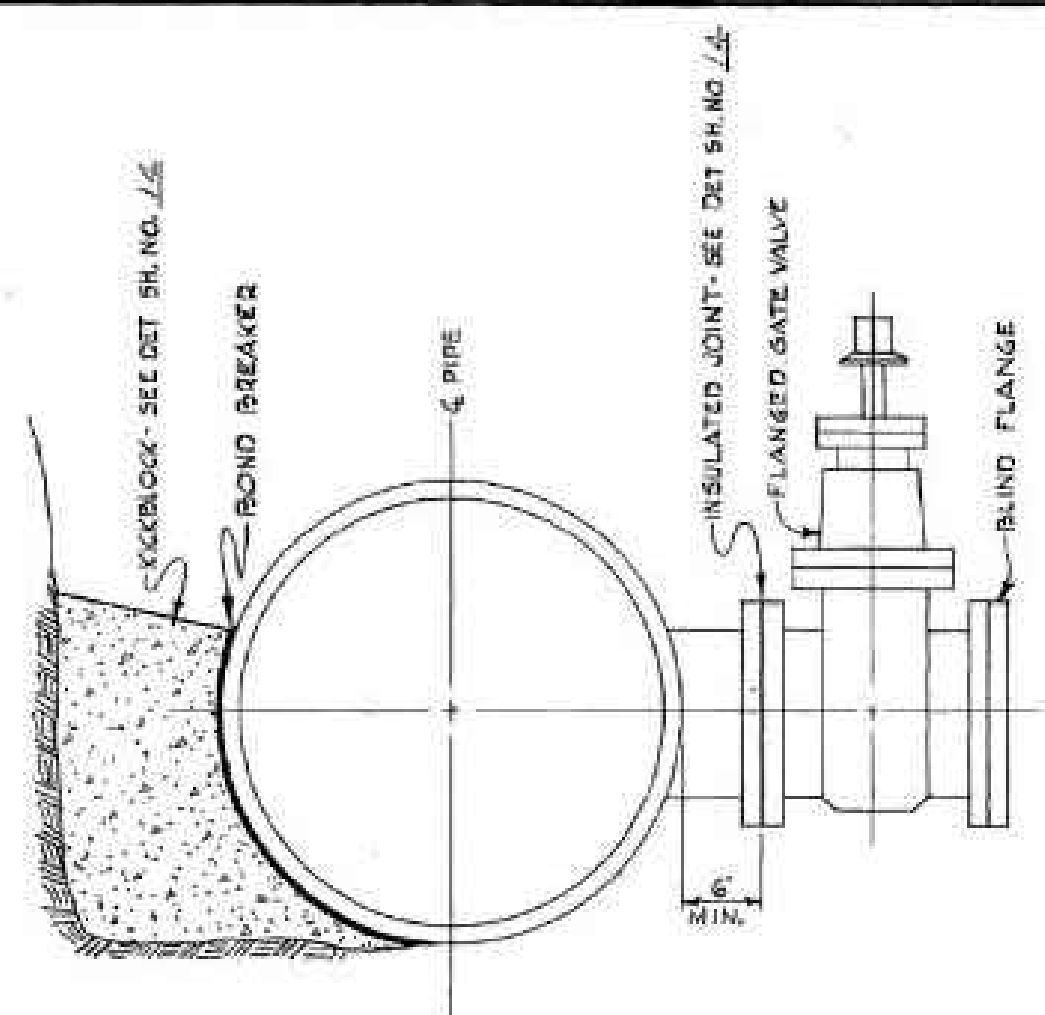
SCALE: NO SCALE DATE: MAY 1999  
DRN: BENS TR. CK: REC  
APP: C of O, DR: JBL, NO: 16

C:\working\central\01\273151\XXXX\_DSGN\_R-4.dwg ### R-4 REFERENCE DRAWING (1970) 3/28/2024 3:30 PM



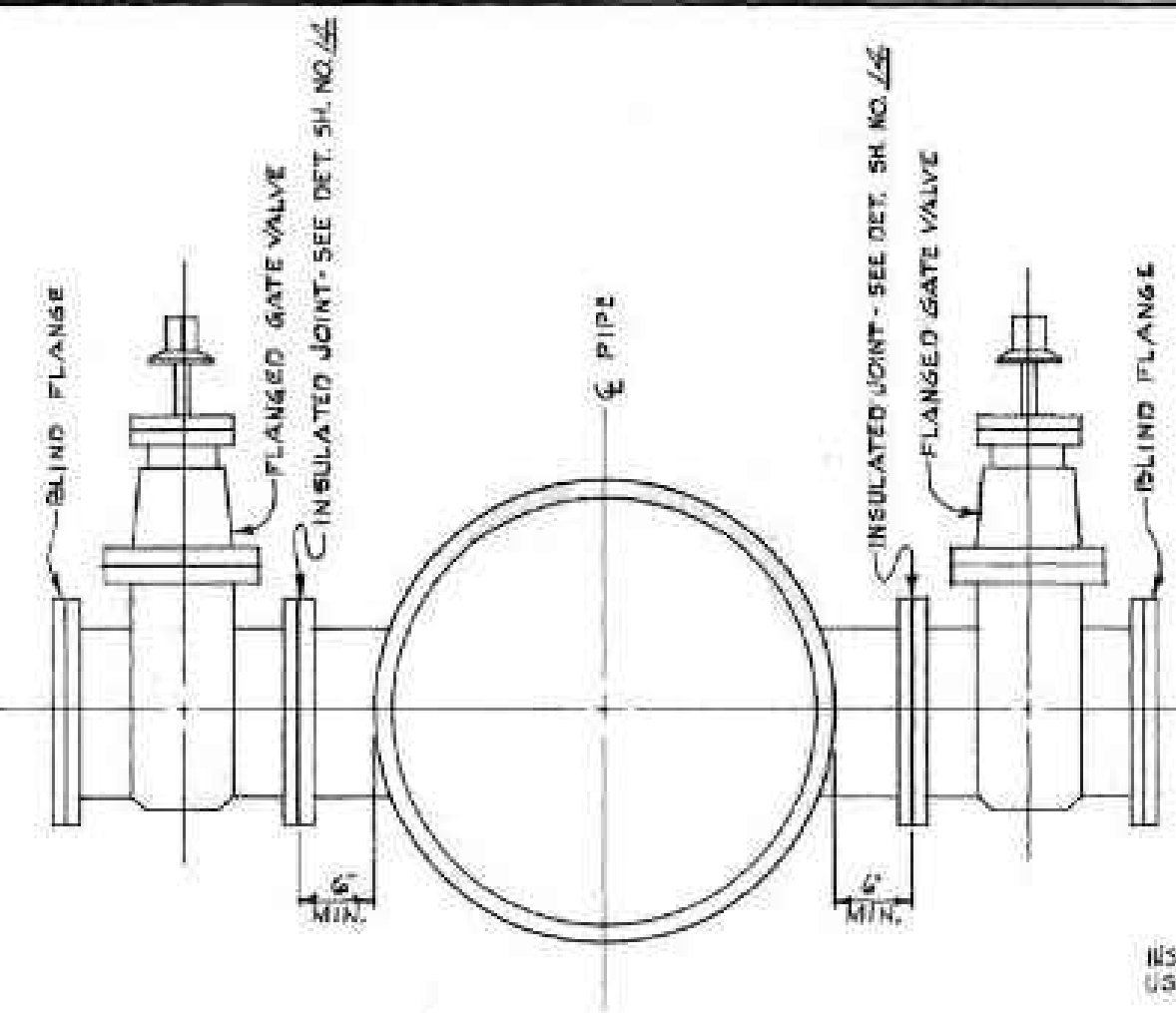


SECTION A



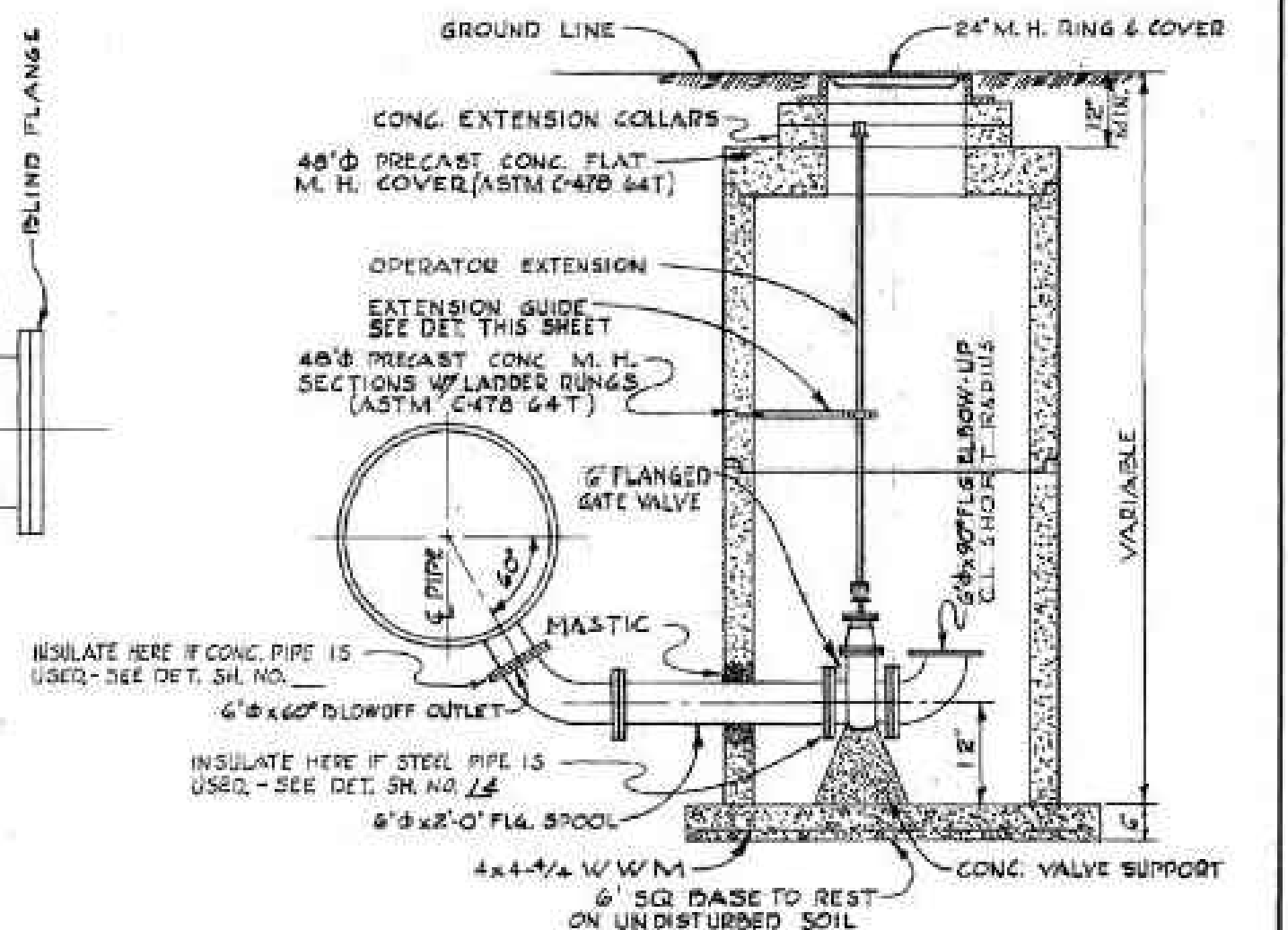
SINGLE FLANGED OUTLET

STATION LOCATION	OUTLET SIZE
20+73.8	8" (NORTH)
44+74.23	8" " "
50+74.34	8" " "
74+74.26	8" " "
79+59.06	8" (EAST)
104+99.82	10" " "
128+6.0	8" (EAST)



DOUBLE FLANGED OUTLET

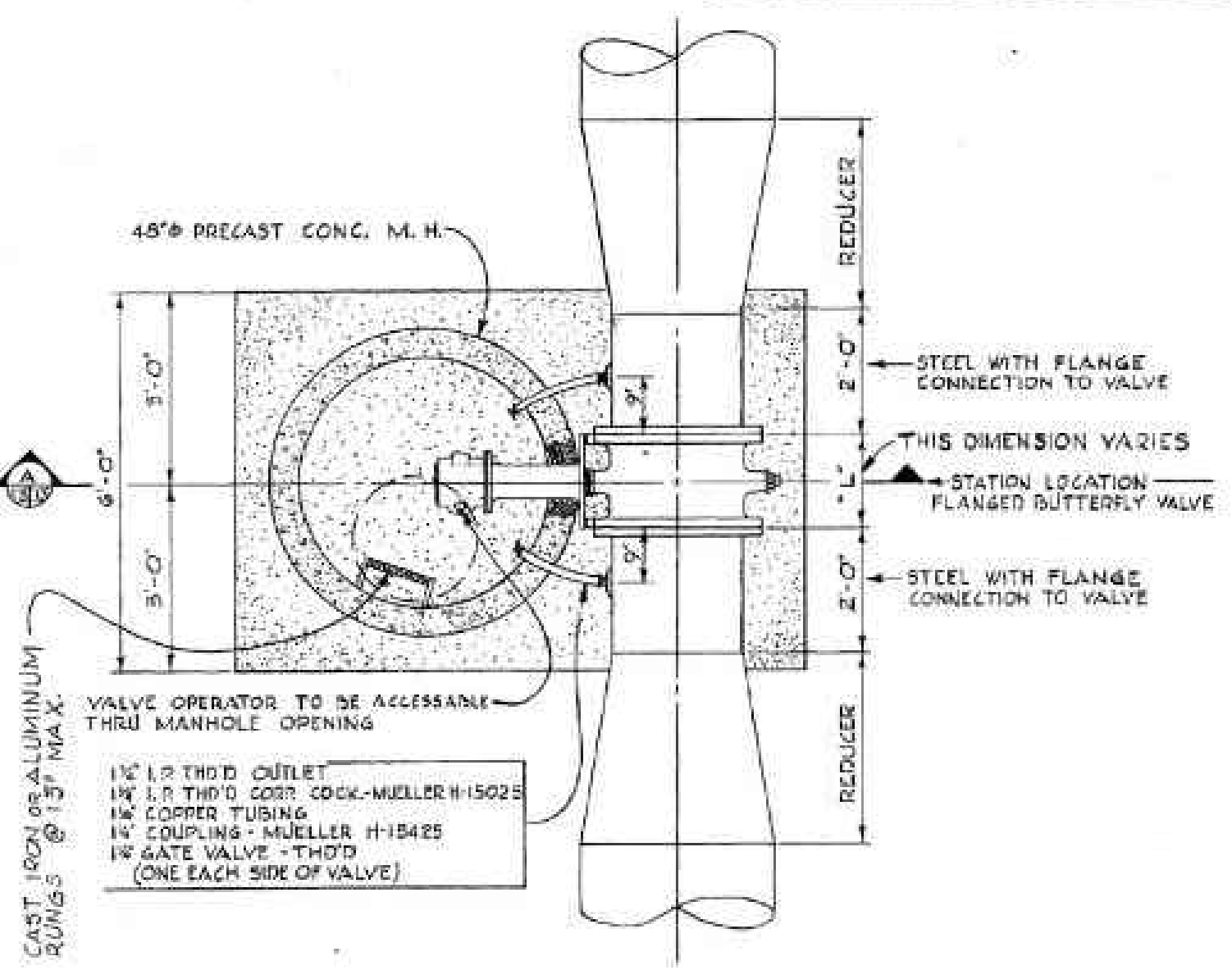
STATION LOCATION	OUTLET SIZE
35+74	10"
61+74.83	12"



BLOWOFF ASSEMBLY WITH M.H.

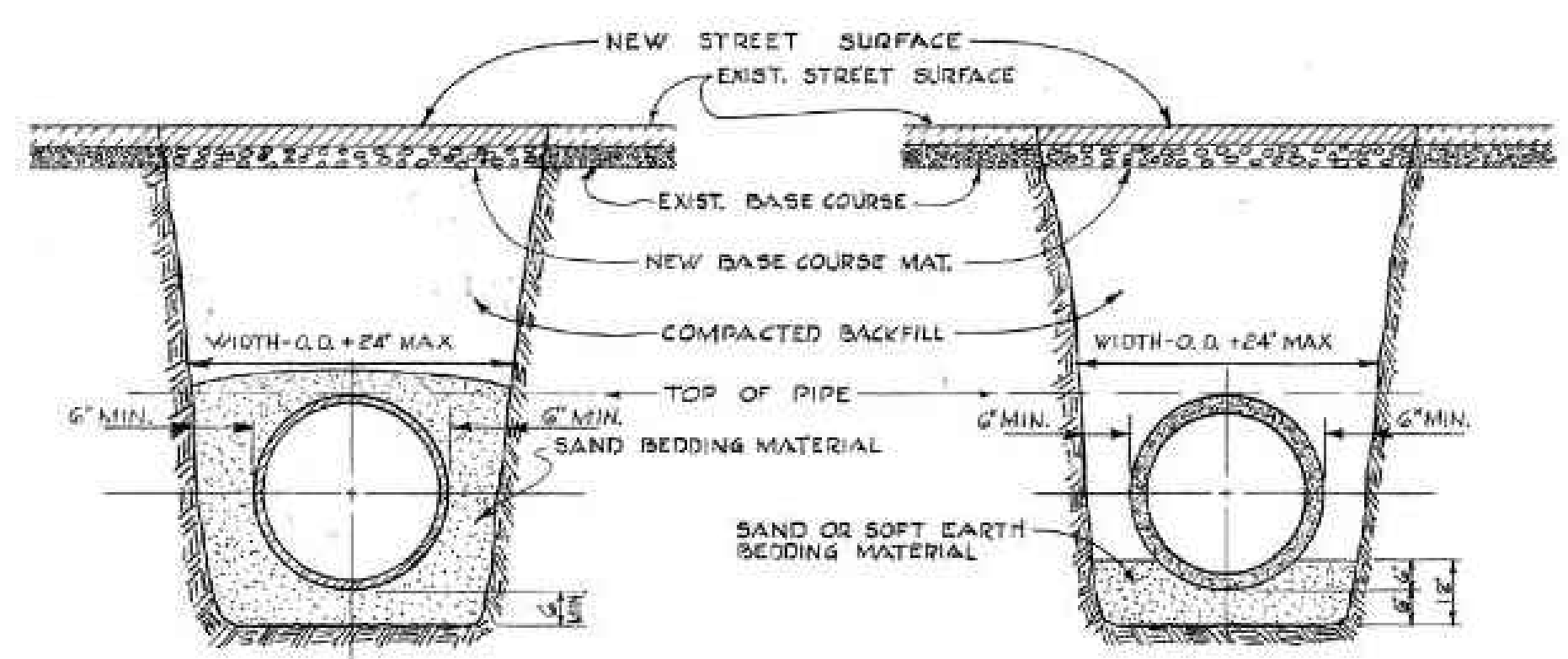
STATION LOCATION
10+73.60 (M.H. NORTH)
24+74.00 (M.H. " )
37+74.10 (M.H. " )
42+74.30 (M.H. " )
89+7.02 (M.H. EAST)
89+15" (M.H. EAST)
111+24.6 (M.H. EAST)
132+5.0 (M.H. " )

INSTALL BY BOARD OF  
SPECIALS. SLAB SHALL BE  
ROTATED DOWN 45° OUT  
OF THE EAST 1/2" DIA. SPH. 10"  
KID. 1/2" DIA. BOND M.H. 6" DIA  
SPOOL 1/2" DIA. BOND M.H. 6"  
SPOOL 1/2" DIA. BOND M.H. 6"

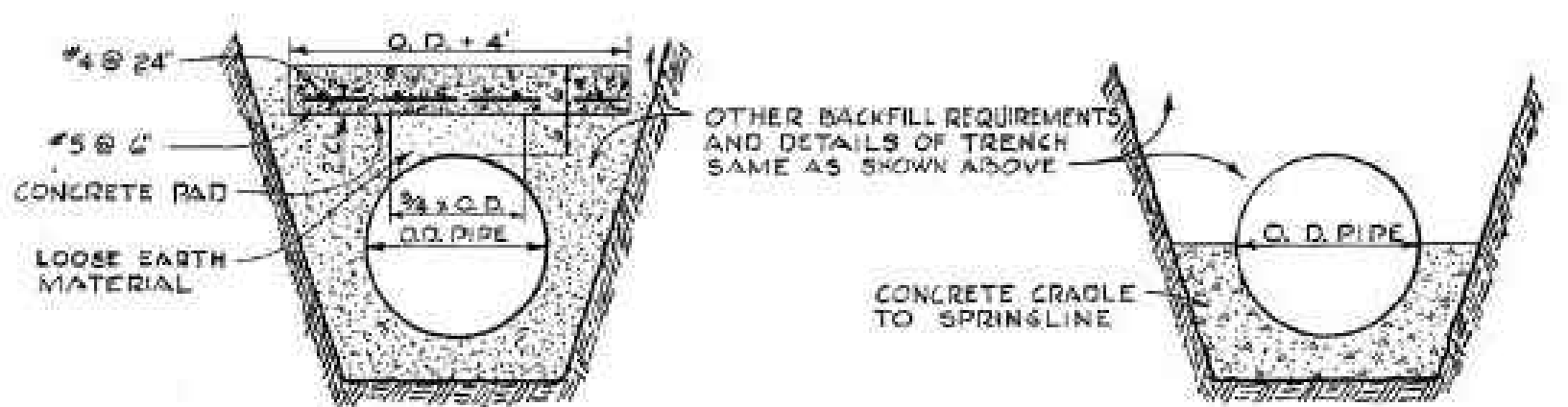


BUTTERFLY VALVE ASSEMBLY

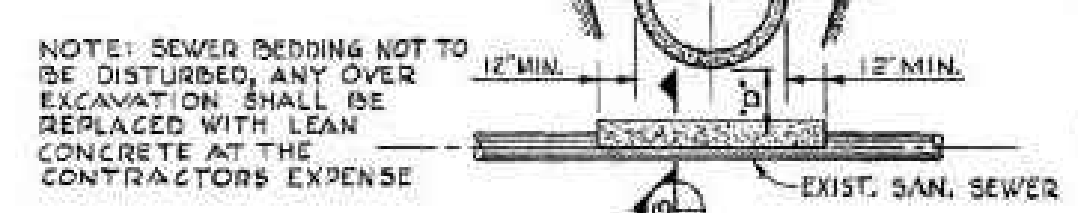
STATION LOCATION	REMARKS
33+74.05	M.H. NORTH
62+74.05	" " "
88+00	" " EAST
111+49.6	" " EAST



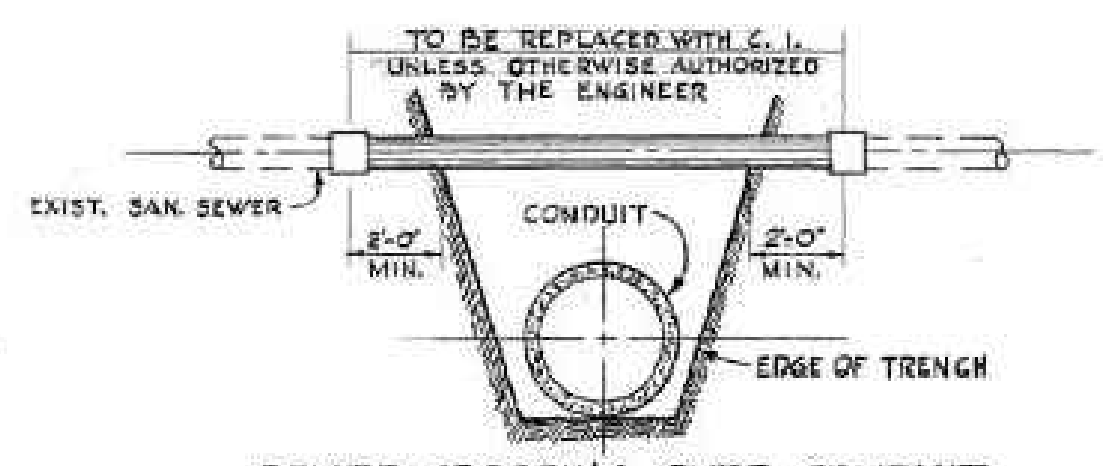
TYPICAL TRENCH SECTIONS



PIPE PROTECTION FOR TRENCH WIDTH IN EXCESS OF O.D. + 24"



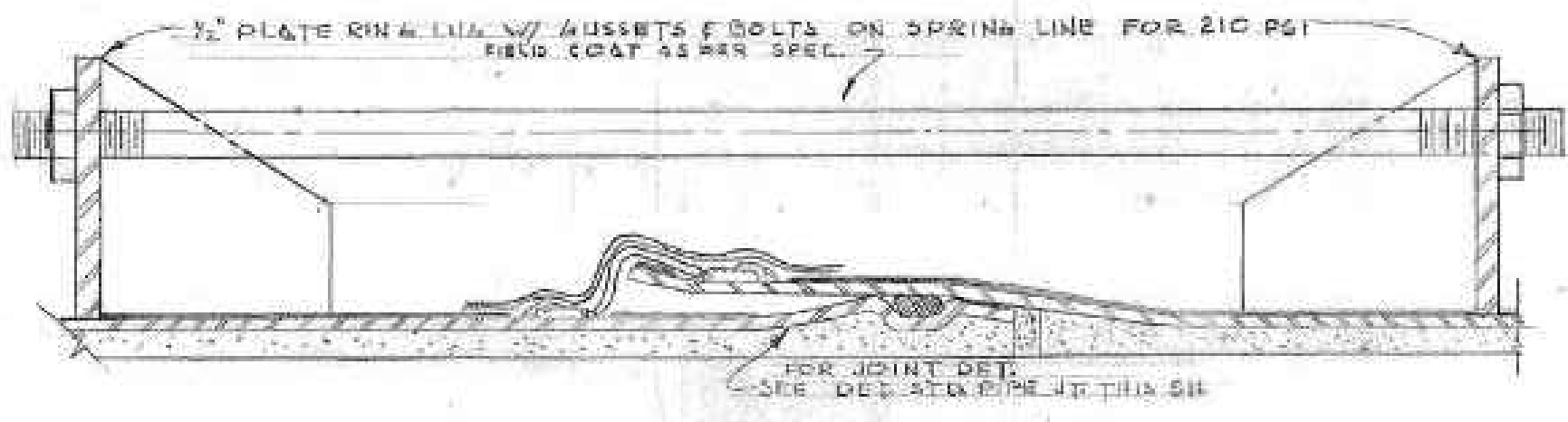
SEWER CROSSING UNDER CONDUIT  
APPLIES WHEN 'D' IS LESS THAN 2'-0"



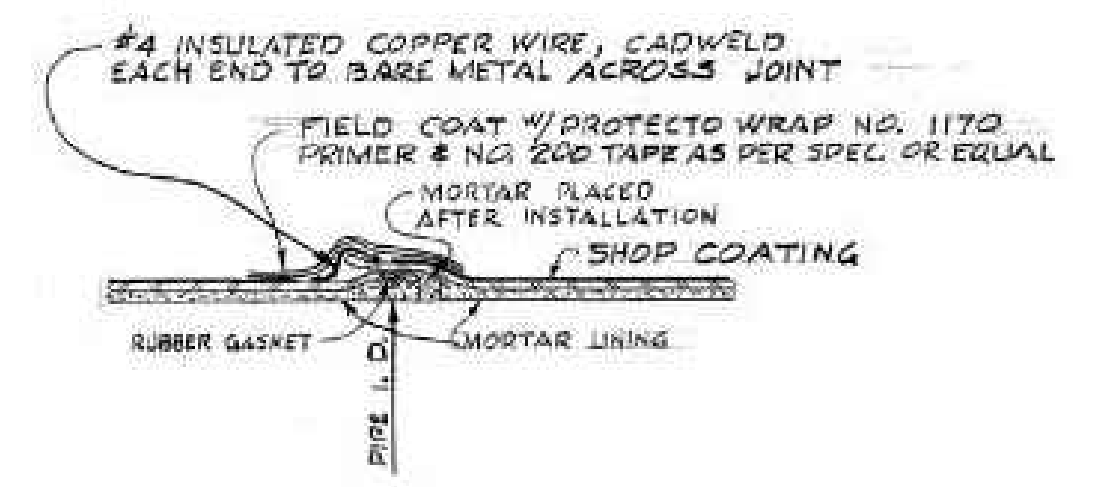
SEWER CROSSING OVER CONDUIT  
TYPICAL SANITARY SEWER CROSSINGS

AS CONSTRUCTED DATE: 2-1-1970 BY: WLB				THE DENVER MUNICIPAL WATER WORKS OFFICE OF THE CHIEF OF OPERATIONS	
REVISIONS				CONDUIT No. 90	
NO.	DESCRIPTION	DATE	BY	IN COUNTY LINE ROAD FROM SOUTH UNIVERSITY BLVD TO SOUTH BROADWAY AND IN SOUTH BROADWAY TO DRY CREEK ROAD DETAILS	
				SCALE: NO SCALE DATE: MAY 1963	
				DRN: BENS	TR: TR
				APP: [Signature]	CK: [Signature]
				C. of O. DR: [Signature] NO. 16	

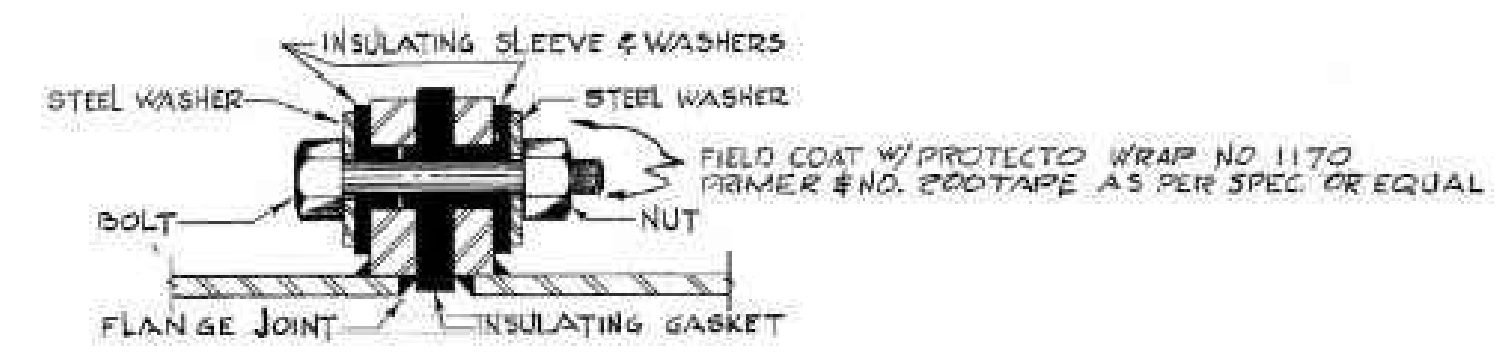
C:\working\central01\273151\XXXX\_DSGN\_R-5.dwg ### R-5 REFERENCE DRAWING (1970) 3/28/2024 3:30 PM



TIED JOINT FOR STEEL PIPE



DETAIL - STEEL PIPE JOINT

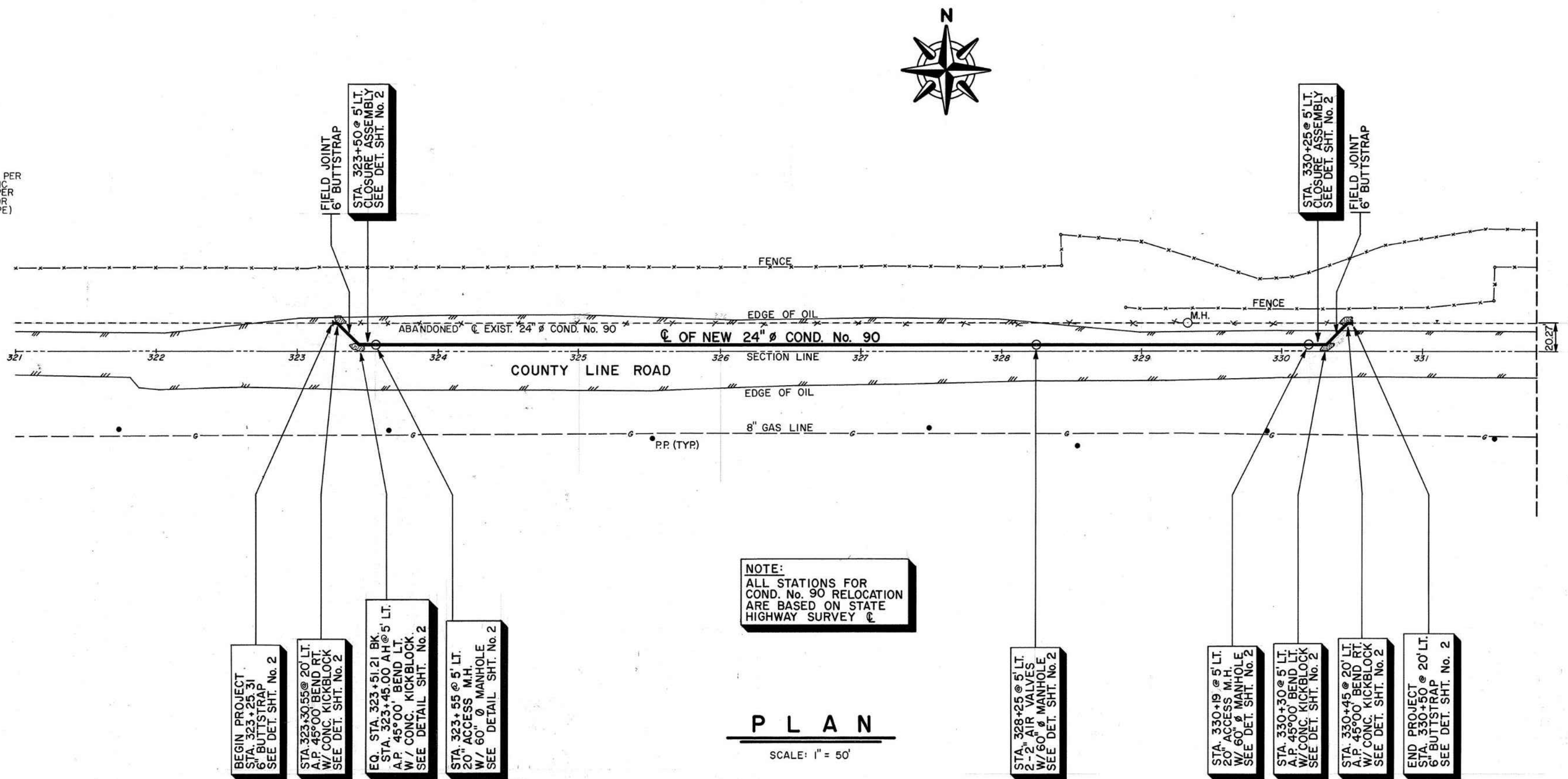
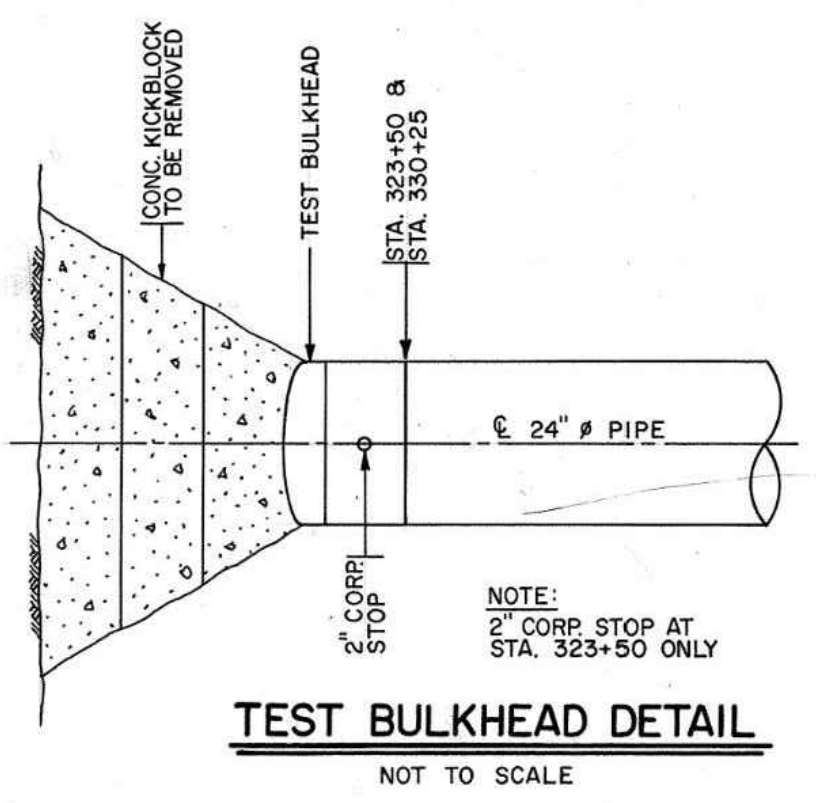
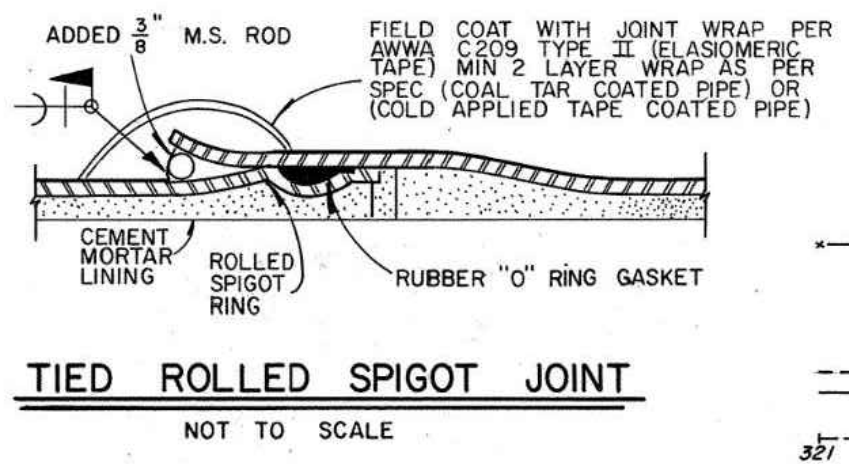


DETAIL - INSULATED FLANGE  
NO SCALE

AS CONSTRUCTED: DATE: <u>SEP. 1970</u> BY: <u>JES</u>				THE DENVER MUNICIPAL WATER WORKS OFFICE OF THE CHIEF OF OPERATIONS	
REVISIONS				CONDUIT No. 90	
NO.	DESCRIPTION	DATE	BY	IN COUNTY LINE ROAD FROM SOUTH UNIVERSITY BLVD. TO SOUTH BROADWAY AND IN SOUTH BROADWAY TO DRY CREEK ROAD	
				DETAILS	
				SCALE: NO SCALE	DATE: <u>MAY 17 69</u>
				DRN. <u>BENS</u>	TR. <u> </u> CK. <u> </u>
				APPR. <u> </u> C. of O. DR. <u> </u> NO. <u> </u>	

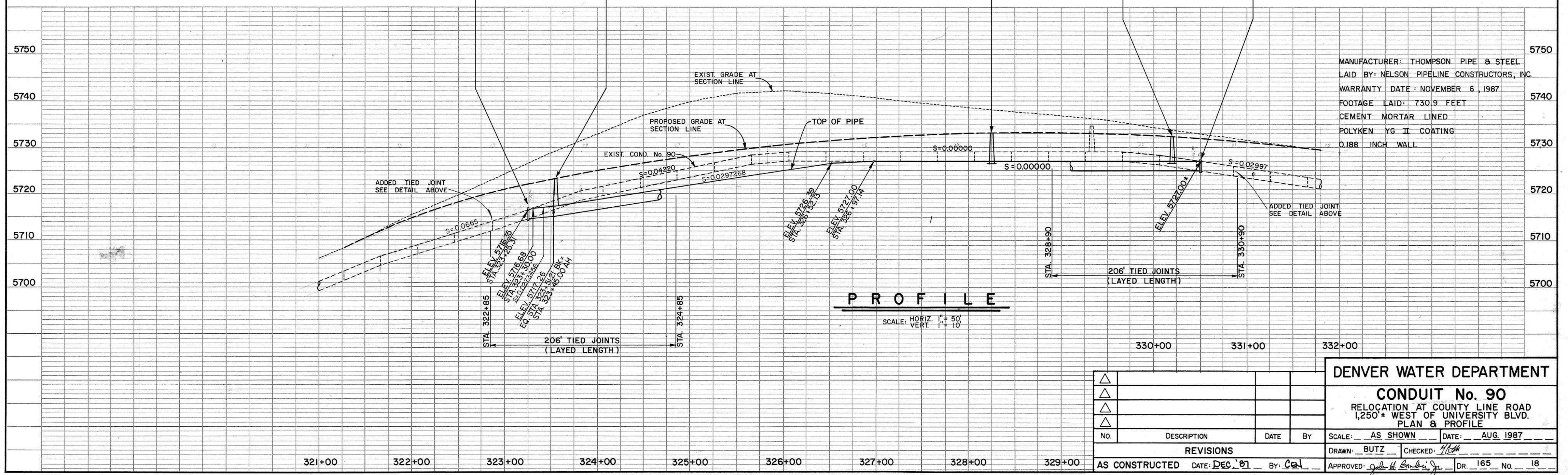
C:\working\central01\d273151\XXXXX\_DSGN\_R-6.dwg ### R-6 REFERENCE DRAWING (1987) 3/28/2024 3:30 PM





NOTE:  
ALL STATIONS FOR  
COND. No. 90 RELOCATION  
ARE BASED ON STATE  
HIGHWAY SURVEY

**PLAN**  
SCALE: 1" = 50'



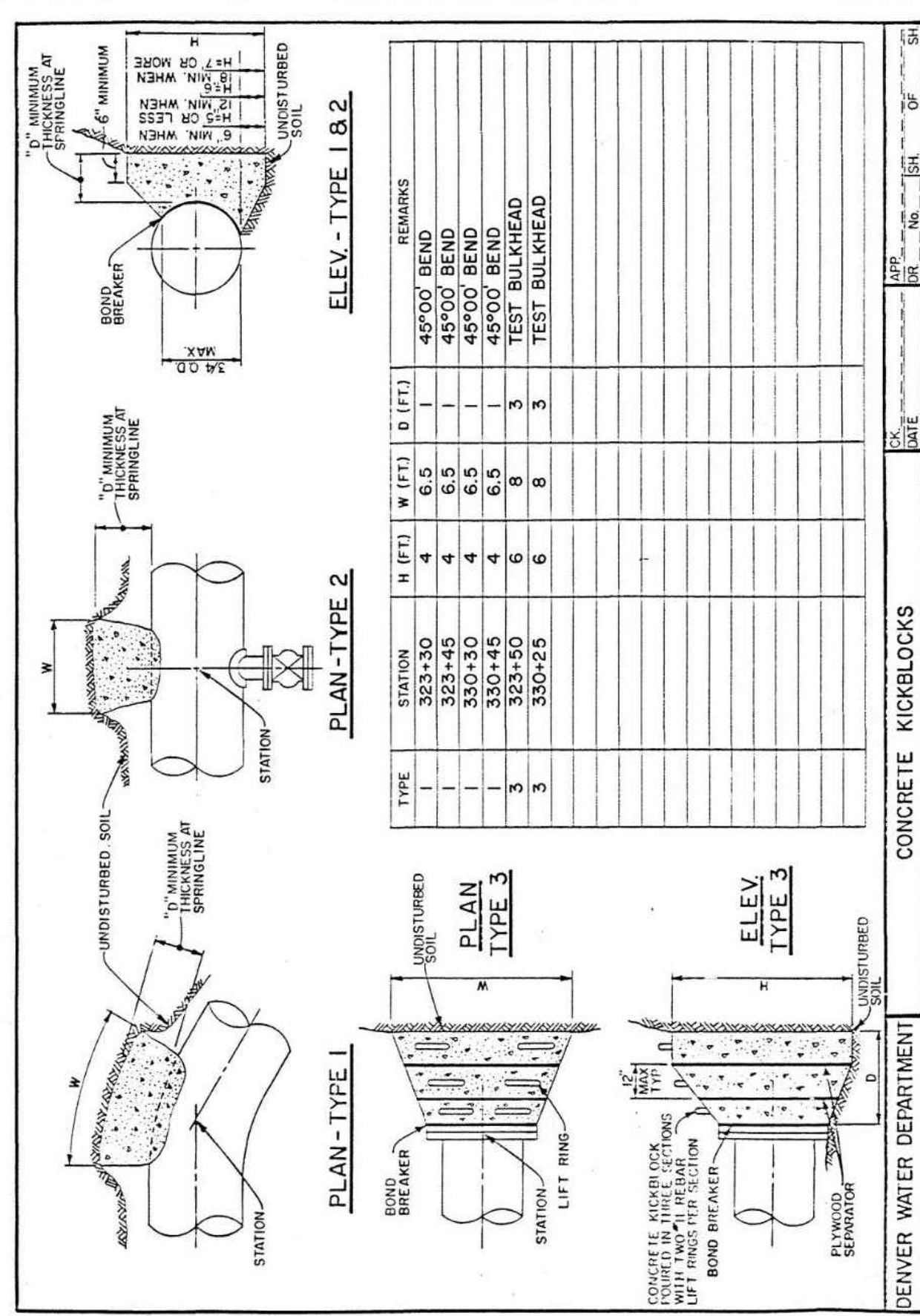
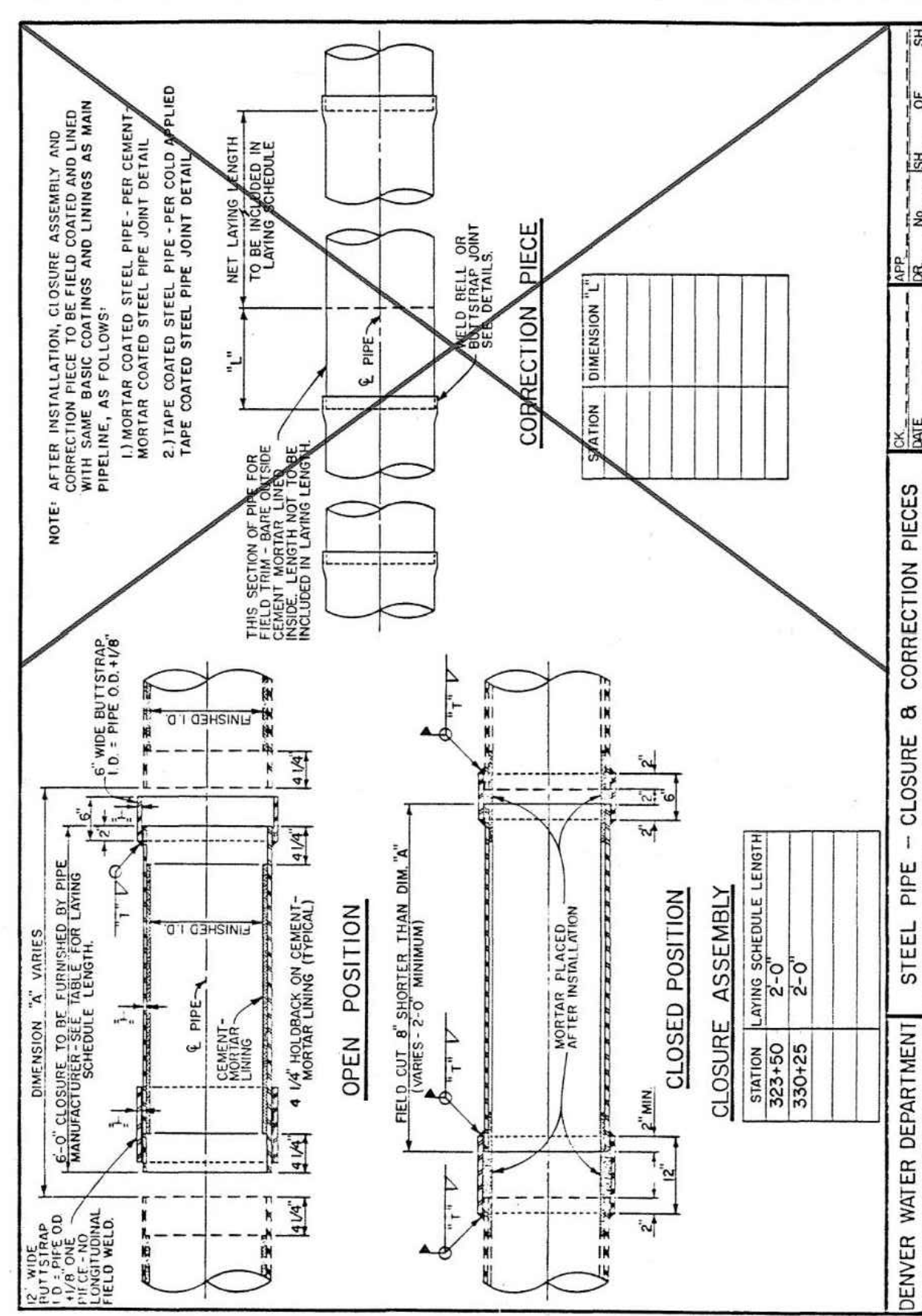
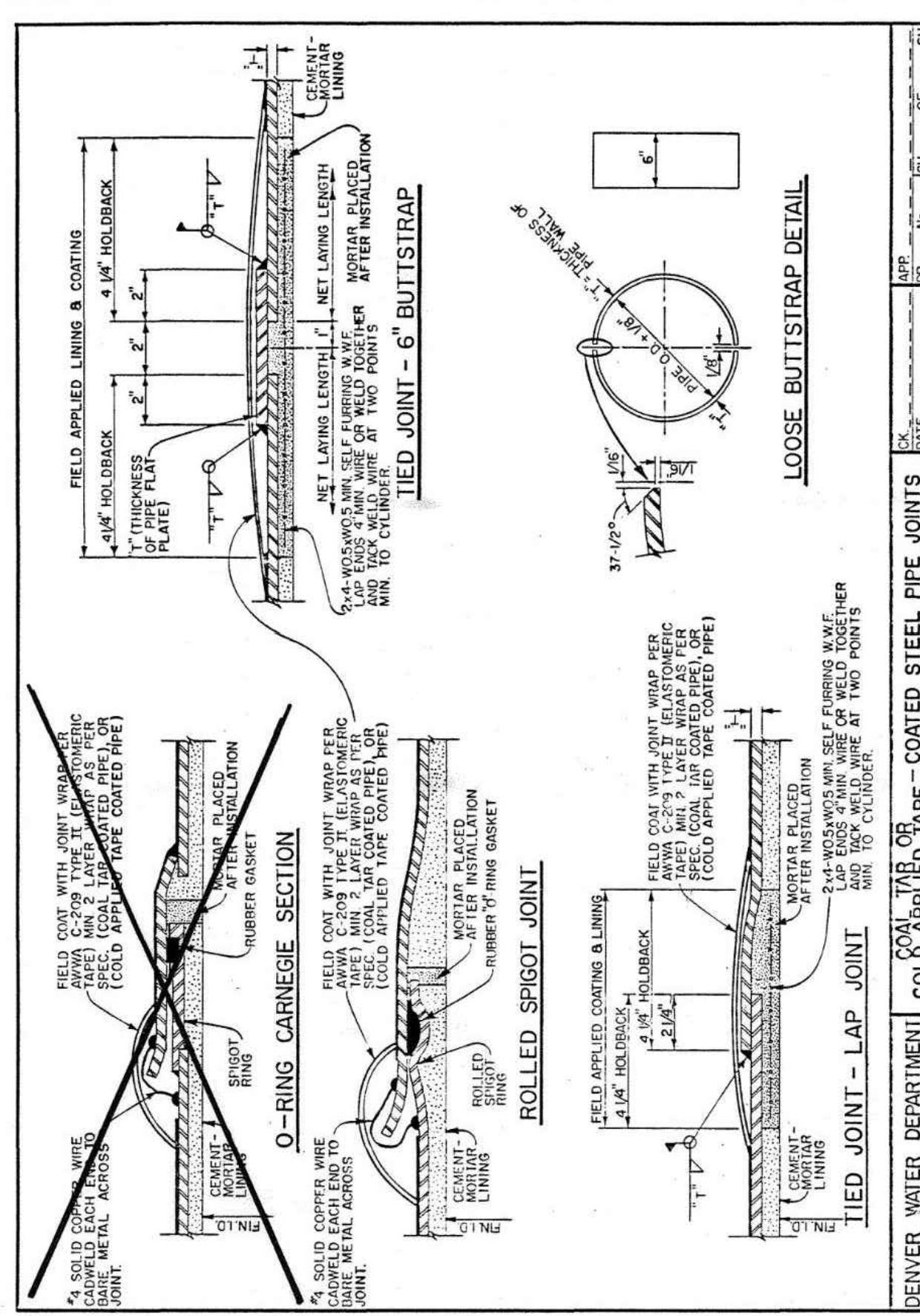
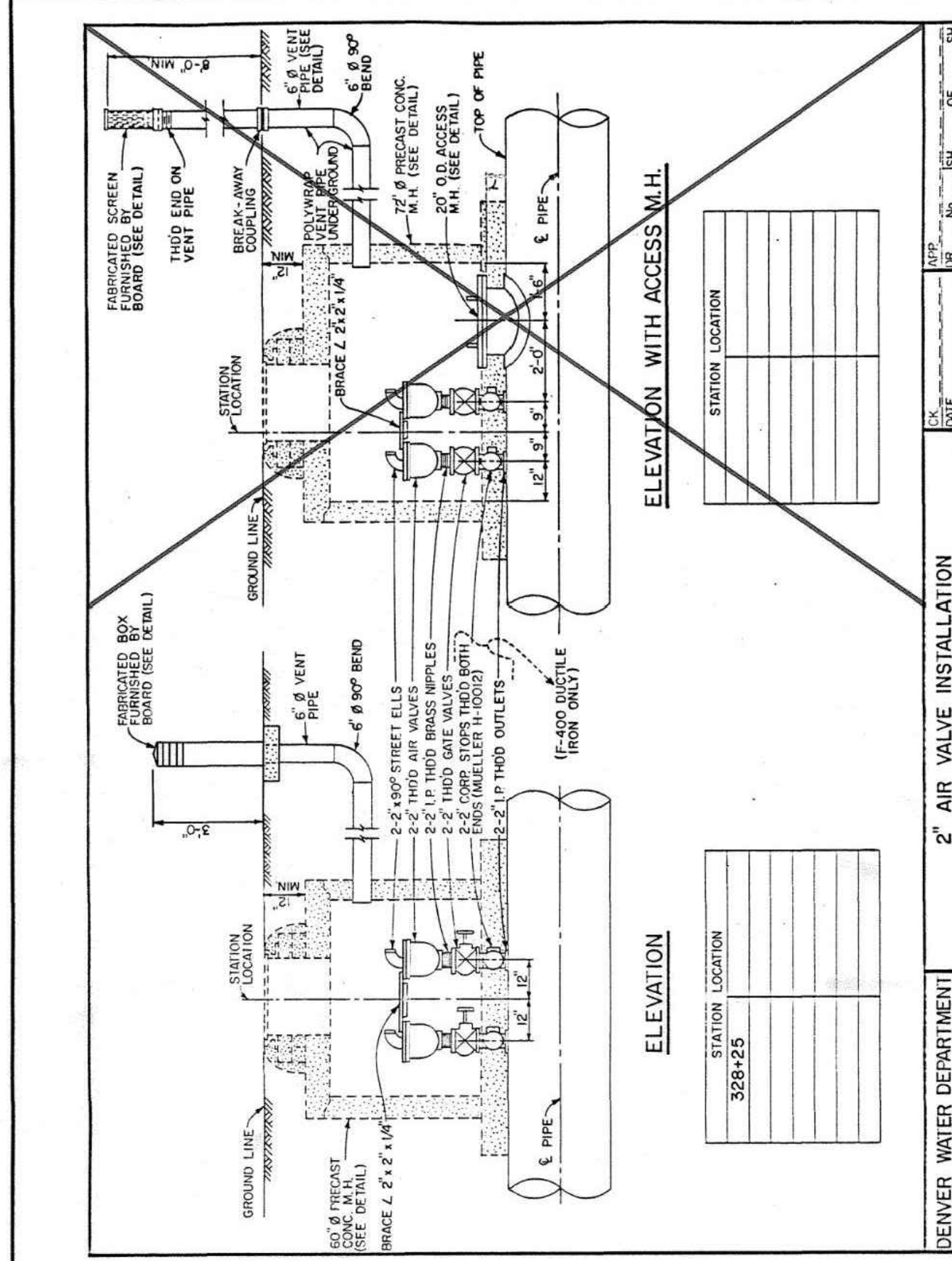
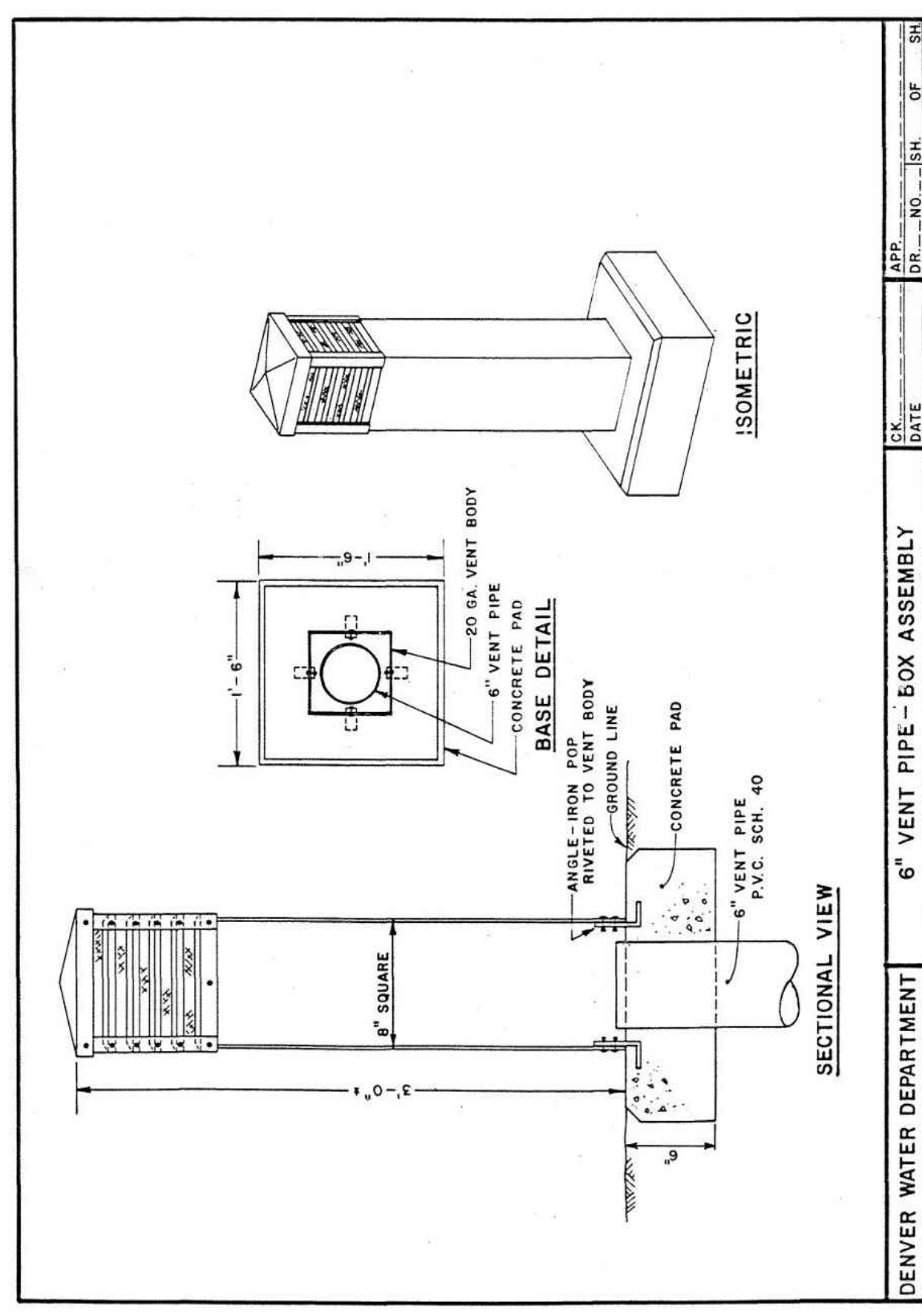
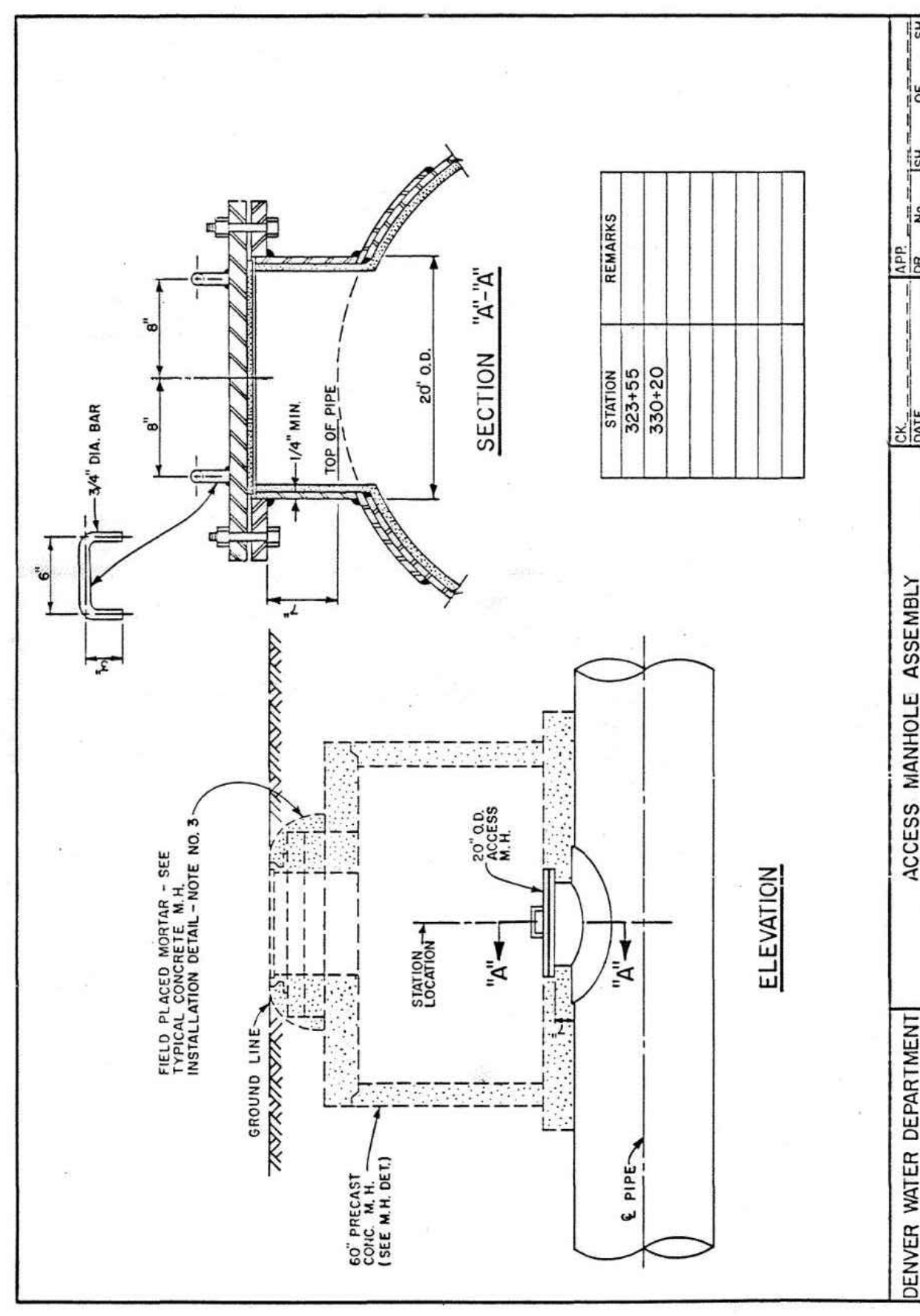
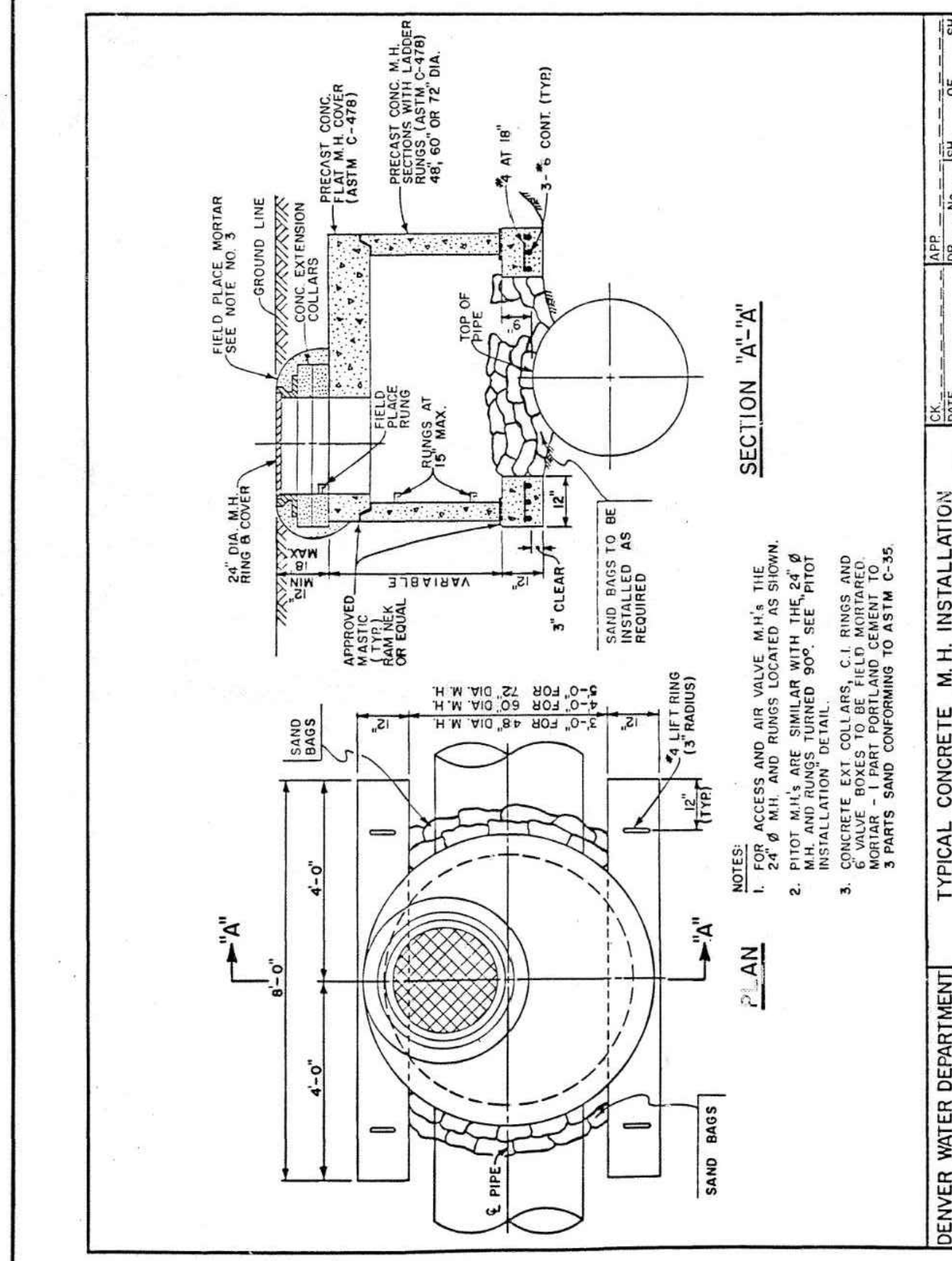
**PROFILE**  
SCALE: HORIZ. 1" = 50'  
VERT. 1" = 10'

MANUFACTURER: THOMPSON PIPE & STEEL  
LAID BY: NELSON PIPELINE CONSTRUCTORS, INC.  
WARRANTY DATE: NOVEMBER 6, 1987  
FOOTAGE LAID: 730.9 FEET  
CEMENT MORTAR LINED  
POLYKEN YG II COATING  
0.188 INCH WALL

				<b>DENVER WATER DEPARTMENT</b>	
				<b>CONDUIT No. 90</b>	
				RELOCATION AT COUNTY LINE ROAD 1,250' WEST OF UNIVERSITY BLVD. PLAN & PROFILE	
No.	DESCRIPTION	DATE	BY	SCALE: AS SHOWN	DATE: AUG. 1987
<b>REVISIONS</b>					
AS CONSTRUCTED			DATE: DEC. 01	BY: Cal	APPROVED: <i>[Signature]</i>
			DATE: _____	CHECKED: <i>[Signature]</i>	DR. 165 No. 18

C:\working\central01\273115\XXXX\_DSGN\_R-7.dwg ### R-7 REFERENCE DRAWING (1987) 3/28/2024 3:30 PM





**DENVER WATER DEPARTMENT**

**CONDUIT No. 90**

RELOCATION AT COUNTY LINE ROAD  
1,250' ± WEST OF UNIVERSITY BLVD.

SCALE: NONE DATE: AUG. 1987

AS CONSTRUCTED DRAWN: BUTZ CHECKED: [Signature]

DATE DEC. 87 BY: [Signature] APPROVED: [Signature] OR 165 No. 18