

WATER SYSTEM IMPROVEMENTS

FOR THE CASCADE METROPOLITAN DISTRICT NO. 1

APRIL 2017

DRAWING INDEX

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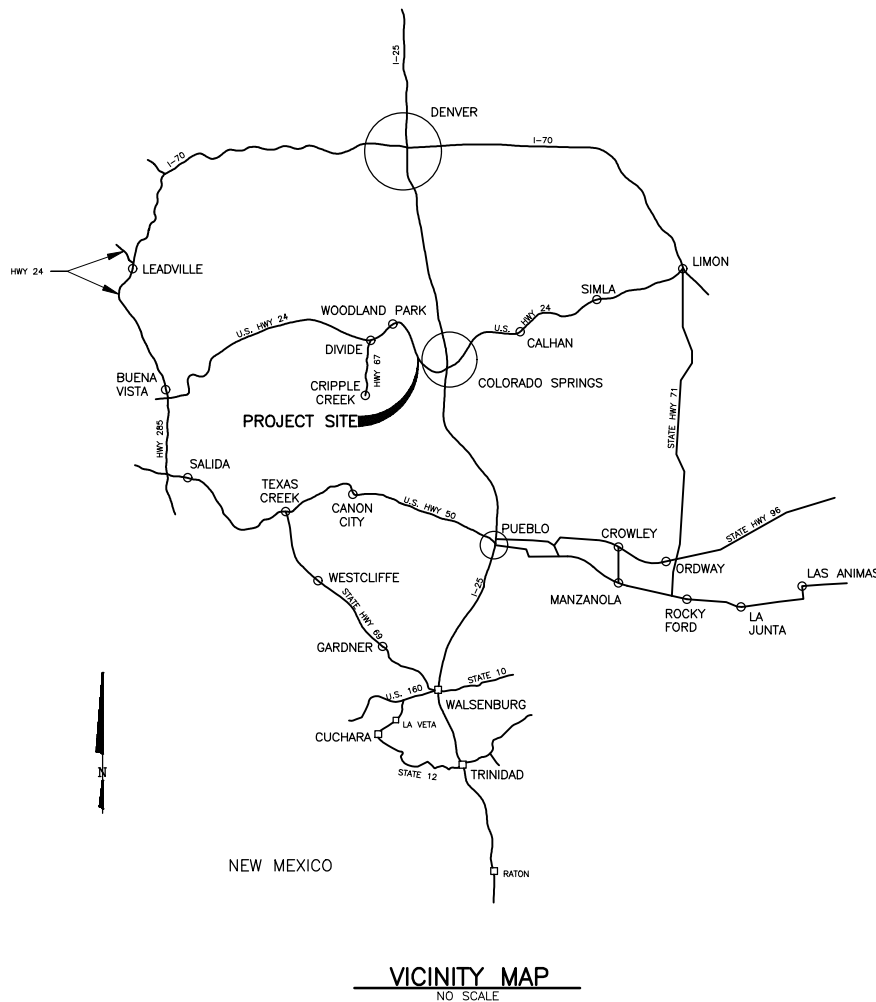
APPROVED FOR BIDDING AND CONSTRUCTION

THIS PLAN APPROVED FOR BIDDING AND CONSTRUCTION. IN THE EVENT OF ROAD IMPROVEMENTS, ADJUSTMENTS OF THIS UTILITY WILL BE AT THE OWNER'S EXPENSE. COUNTY PLAN REVIEW IS ONLY PROVIDED FOR GENERAL CONFORMANCE WITH COUNTY DESIGN CRITERIA. THE COUNTY IS NOT RESPONSIBLE FOR THE ACCURACY AND ADEQUACY OF THE DESIGN, DIMENSIONS, AND/OR ELEVATIONS, WHICH SHALL BE CONFIRMED AT THE JOB SITE. THE COUNTY THROUGH THE APPROVAL OF THIS DOCUMENT ASSUMES NO RESPONSIBILITY FOR COMPLETENESS AND/OR ACCURACY OF THIS DOCUMENT.

BY: _____ DATE: _____
JENNIFER E. IRVINE, P.E.,
COUNTY ENGINEER / ECM ADMINISTRATOR

COLORADO SPRINGS UTILITIES CONSTRUCTION PLAN APPROVAL	
APPROVED BY: _____	DATE: _____
PROJECT NUMBER: _____	WORK ORDER NUMBER: _____
CSU SHEET _____ OF _____	
APPROVAL EXPIRES ONE (1) YEAR FROM THE DATE ABOVE AND RESUBMITTAL OF THESE PLANS FOR REVIEW AND APPROVAL IS REQUIRED IF CONSTRUCTION DOES NOT BEGIN DURING THIS PERIOD.	

BY: _____ DATE: _____
MICHAEL WHITEMORE, DISTRICT PRESIDENT



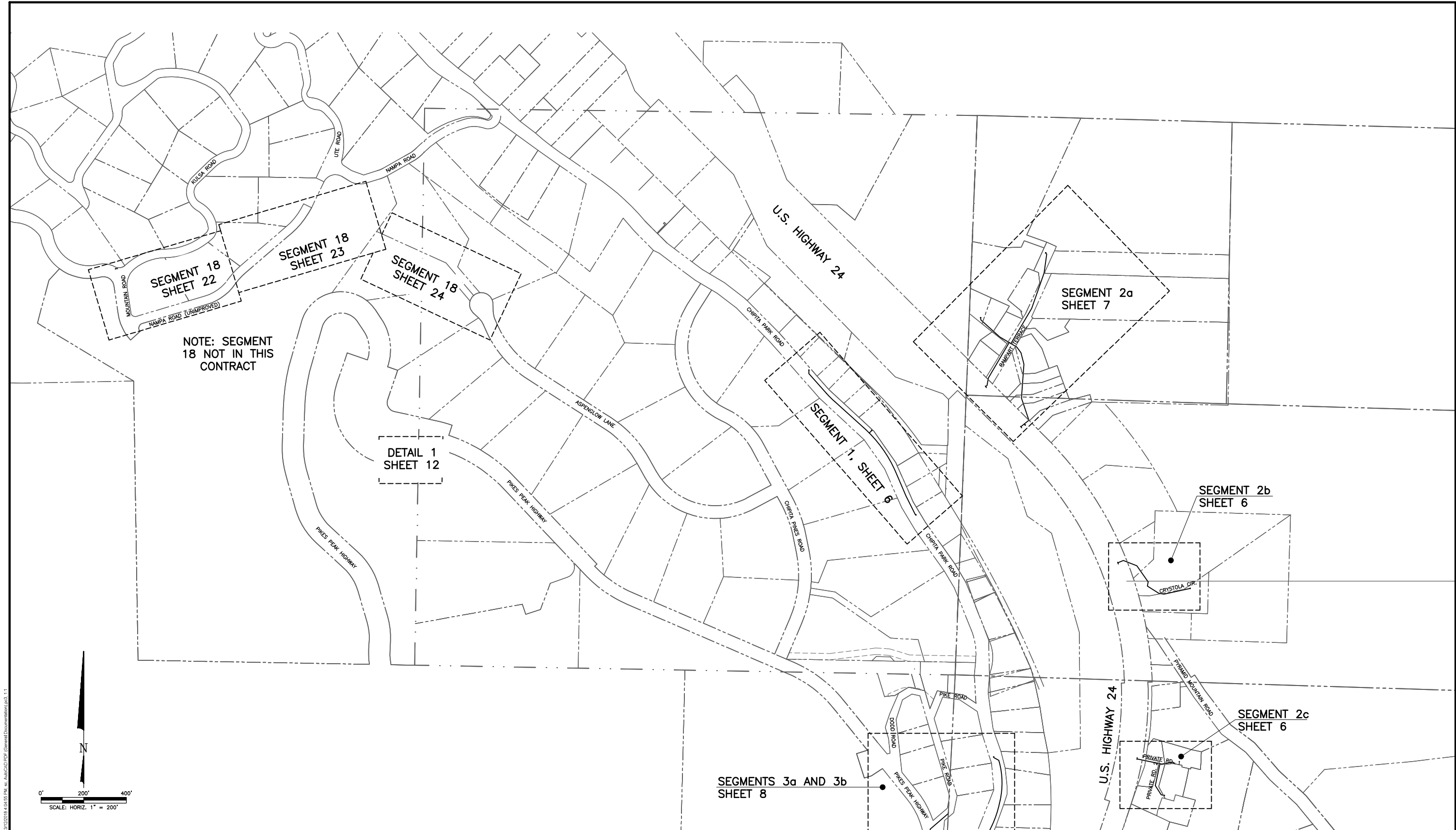
GMS, INC.
611 NORTH WEBER, SUITE 300
COLORADO SPRINGS, COLORADO 80903

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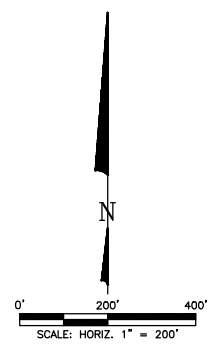
DATE OF LATEST REVISION:
03-06-2018 - REVISED TO REFLECT REDUCED
SCOPE OF WORK PER NEGOTIATED CONTRACT

SHEET 1 OF 30
GMS FILE No. 2810

PLOT CONFIGURATION: GMS-STANDARD(ISO SCREEN)
CAD FILENAME: G:\CASCADE METRO DISTRICT\15061\1001\002\15061002.DWG\15064002.DWG



NOTE: SEGMENT 18 NOT IN THIS CONTRACT



MATCH LINE

REFER TO SHEET 5

XREF FILENAME: G:\CASCADE METRO DIST\15061\300\001\15061001.DWG
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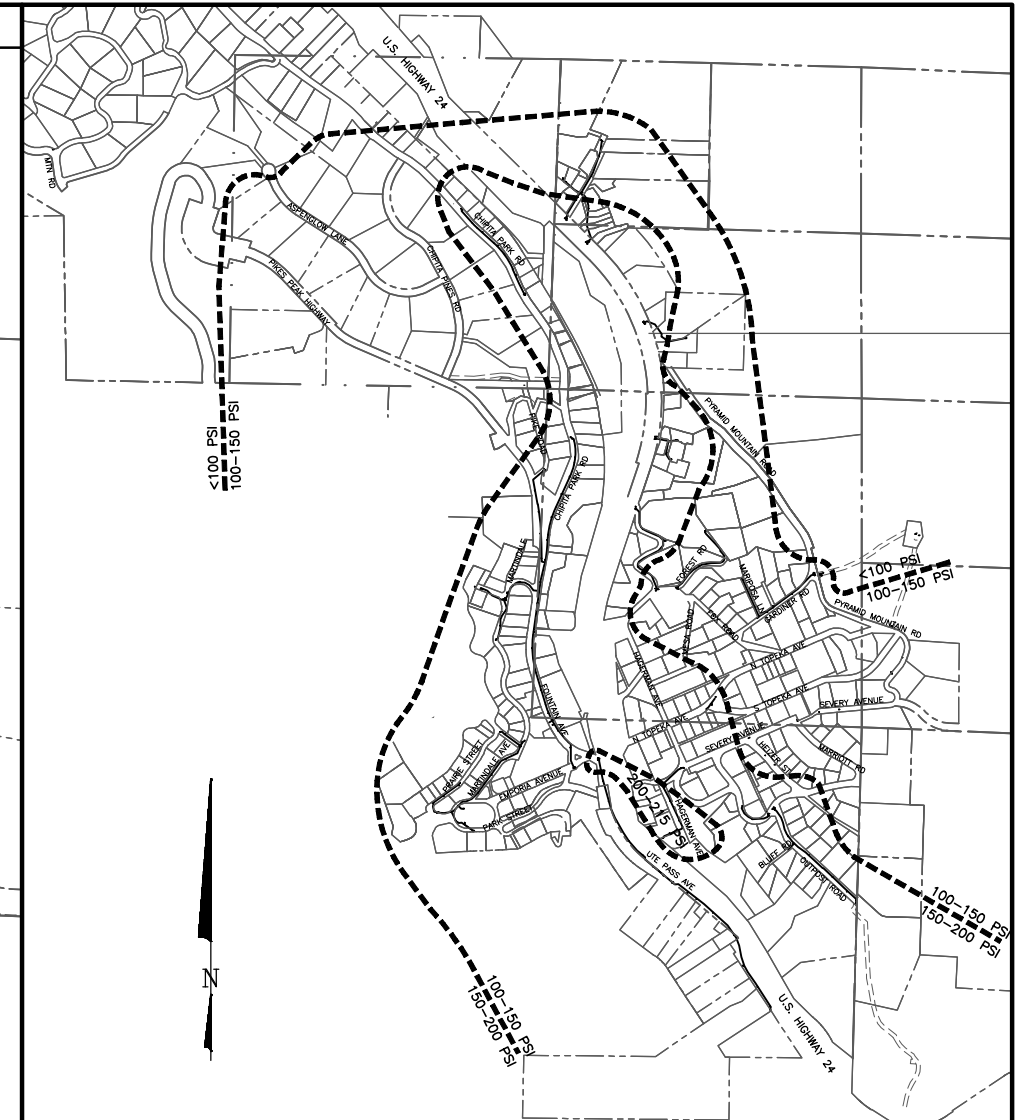
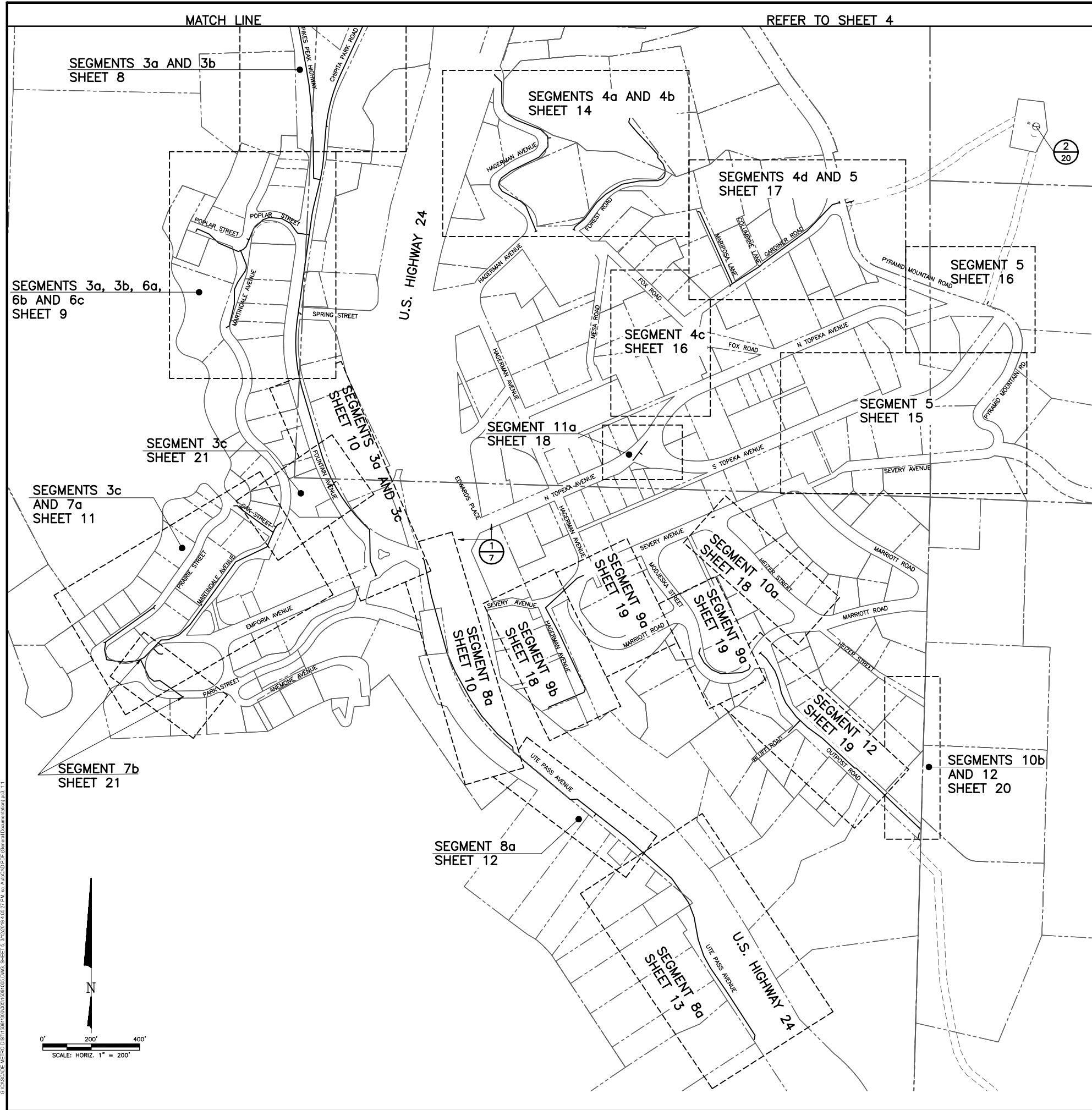
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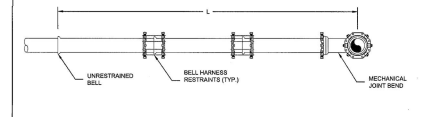
SHEET INDEX MAP 1 WATER SYSTEM IMPROVEMENTS CASCADE METROPOLITAN DISTRICT NO. 1		GMS, INC. CONSULTING ENGINEERS 611 N. WEBER, SUITE 300 COLORADO SPRINGS, COLORADO 80903	SHEET 4 OF 30
DRAWN <u>KLW</u> DESIGNED <u>KLW</u> CHECKED <u>EDM</u> DATE <u>FEBRUARY 2017</u> PROJECT NO. <u>15061.300</u> GMS FILE NO. <u>2810</u>			

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PRESSURE ZONE MAP TO BE USED FOR JOINT RESTRAINT DISTANCE REQUIREMENTS PER CSU TABLE BELOW

PIPE DIAMETER	L = MINIMUM RESTRAINED PIPE LENGTH (FEET)		
	45° BEND	22.5° BEND	15.5° BEND
8 INCH	10	15	20
12 INCH	15	20	25
18 INCH	20	25	30
24 INCH	25	30	35
30 INCH	30	35	40
36 INCH	35	40	45



NOTES:

- RESTRAINT LENGTHS FOR DEAD END MAY BE USED AT THE DISCRETION OF COLORADO SPRINGS UTILITIES.
- LENGTHS ARE BASED ON A MINIMUM OF 5 FEET OF UNRESTRAINED COVER AND SOIL COMPACTED ACCORDING TO CHAPTER 8 OF THESE WATER LINES. IF THE DEPTH OF COVER IS LESS THAN 5 FEET, RESTRAINT LENGTHS MUST BE DERIVED BY THE DESIGN ENGINEER.
- RESTRAINTS ARE BASED ON A POORLY DRAINED SANDY GRAVEL AND GRAVEL SAND MIXTURE. LITTLE OR NO CONCRETE THREAT BLOCK IS PRESENT.
- CALCULATIONS ARE BASED ON 100 PSI OPERATING PRESSURE, 150 PSI DESIGN PRESSURE, AND 200 PSI TEST PRESSURE. TYPE 4 BENDING CONDITIONS: TYPE 1 BENDS IN SAND, GRAVEL, OR CRUSHED STONE TO A DEPTH OF 18 INCHES PER DIAMETER (2" MIN.) FACTOR OF SAFETY 2.1.
- RESTRAINTS ARE BASED ON 100 PSI OPERATING PRESSURE, 150 PSI DESIGN PRESSURE, AND 200 PSI TEST PRESSURE.
- RESTRAINT LENGTHS FOR DEAD END MAY BE USED AT THE DISCRETION OF COLORADO SPRINGS UTILITIES.

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PLOT STYLE FILE: 15061.DWG
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SHEET INDEX MAP 2 AND PRESSURE ZONE MAP
WATER SYSTEM IMPROVEMENTS
CASCADE METROPOLITAN DISTRICT NO. 1

DRAWN: K/LW
DESIGNED: K/LW
CHECKED: EDM
DATE: FEBRUARY 2017
PROJECT NO.: 15061300
GMS FILE NO.: 2810

GMS, INC.
CONSULTING ENGINEERS
611 N. WEBER, SUITE 300
COLORADO SPRINGS, COLORADO 80903

SHEET **5** OF **30**

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