LATIGO TRAILS - FILING NO. 10

A PARCEL OF LAND LOCATED IN THE SOUTH QUARTER OF SECTION S17
TOWNSHIP 12 SOUTH, RANGE 64 WEST OF P.M.,
EL PASO COUNTY, STATE OF COLORADO

ROADWAY CONSTRUCTION DOCUMENTS

STANDARD NOTES FOR EL PASO COUNTY CONSTRUCTION PLANS

1. ALL DRAINAGE AND ROADWAY CONSTRUCTION SHALL MEET THE STANDARDS AND SPECIFICATIONS OF THE CITY OF COLORADO SPRINGS/EL PASO COUNTY DRAINAGE CRITERIA MANUAL, VOLUMES 1 AND 2, AND THE EL PASO COUNTY ENGINEERING CRITERIA MANUAL.

2. CONTRACTOR SHALL BE RESPONSIBLE FOR THE NOTIFICATION AND FIELD NOTIFICATION OF ALL EXISTING UTILITIES, WHETHER SHOWN ON THE PLANS OR NOT, BEFORE BEGINNING CONSTRUCTION. LOCATION OF EXISTING UTILITIES SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. CALL 811 TO CONTACT THE UTILITY NOTIFICATION CENTER OF COLORADO (UNCC).

3. CONTRACTOR SHALL KEEP A COPY OF THESE APPROVED PLANS, THE GRADING AND EROSION CONTROL PLAN, THE STORMWATER MANAGEMENT PLAN (SWMP), THE SOIL AND GEOTECHNICAL REPORT, AND THE APPROPRIATE DESIGN AND CONSTRUCTION STANDARDS AND SPECIFICATIONS AT THE JOB SITE AT ALL TIMES, INCLUDING THE FOLLOWING:
   3.1. EL PASO COUNTY ENGINEERING CRITERIA MANUAL (ECM)
   3.2. CITY OF COLORADO SPRINGS/ EL PASO COUNTY DRAINAGE CRITERIA MANUAL, VOLUMES 1 AND 2
   3.3. COLORADO DEPARTMENT OF TRANSPORTATION (CDOT) STANDARD SPECIFICATIONS AND BRIDGE CONSTRUCTION
   3.4. CDOT M&S STANDARDS

4. NOTWITHSTANDING ANYTHING DEPICTED IN THESE PLANS IN WORDS OR GRAPHIC REPRESENTATION, ALL DESIGN AND CONSTRUCTION RELATED TO ROADS, STORM DRAINAGE AND EROSION CONTROL SHALL CONFORM TO THE STANDARDS AND REQUIREMENTS OF THE MOST RECENT VERSIONS OF THE RELEVANT ADOPTED EL PASO COUNTY STANDARDS, INCLUDING THE LAND DEVELOPMENT CODE, THE ENGINEERING CRITERIA MANUAL, THE DRAINAGE CRITERIA MANUAL, AND THE DRAINAGE CRITERIA MANUAL VOLUME 2. ANY DEVIATIONS FROM REGULATIONS AND STANDARDS MUST BE REQUESTED, AND APPROVED, IN WRITING. ANY MODIFICATIONS NECESSARY TO MEET CRITERIA AFTER-THE-FACT WILL BE ENTIRELY THE DEVELOPER'S RESPONSIBILITY TO RECTIFY.

5. IT IS THE DESIGN ENGINEER'S RESPONSIBILITY TO ACCURATELY SHOW EXISTING CONDITIONS, BOTH ONSITE AND OFFSITE, ON THE CONSTRUCTION PLANS. ANY MODIFICATIONS NECESSARY DUE TO CONFLICTS, OMISSIONS, OR CHANGED CONDITIONS WILL BE ENTIRELY THE DEVELOPER'S RESPONSIBILITY TO RECTIFY.

6. CONTRACTOR SHALL SCHEDULE A PRE-CONSTRUCTION MEETING WITH EL PASO COUNTY PLANNING AND COMMUNITY DEVELOPMENT INSPECTIONS, PRIOR TO STARTING CONSTRUCTION.

7. IT IS THE CONTRACTOR'S RESPONSIBILITY TO UNDERSTAND THE REQUIREMENTS OF ALL JURISDICTIONAL AGENCIES TO OBTAIN ALL REQUIRED PERMITS, INCLUDING BUT NOT LIMITED TO EL PASO COUNTY EROSION AND STORMWATER QUALITY CONTROL PERMIT (ESQCP), REGIONAL BUILDING FLOODPLAIN DEVELOPMENT PERMIT, U.S. ARMY CORPS OF ENGINEERS-ISSUED 401 AND/OR 404 PERMITS, AND COUNTY AND STATE FUGITIVE DUST PERMITS.

8. CONTRACTOR SHALL NOT DEVIATE FROM THE PLANS WITHOUT FIRST OBTAINING WRITTEN APPROVAL FROM THE DESIGN ENGINEER AND PCD. CONTRACTOR SHALL NOTIFY THE DESIGN ENGINEER IMMEDIATELY UPON DISCOVERY OF ANY ERRORS OR INCONSISTENCIES.

9. CONTRACTOR SHALL COORDINATE GEOTECHNICAL TESTING PER ECM STANDARDS. PAVEMENT DESIGN SHALL BE APPROVED BY EL PASO COUNTY PCD PRIOR TO PLACEMENT OF CURB AND GUTTER AND PAVEMENT.

10. ALL CONSTRUCTION TRAFFIC MUST ENTER/EXIT THE SITE AT APPROVED CONSTRUCTION ACCESS POINTS.

11. SIGHT VISIBILITY TRIANGLES ARE IDENTIFIED IN THE PLANS SHALL BE PROVIDED AT ALL INTERSECTIONS. OBSTRUCTIONS GREATER THAN 18 INCHES ABOVE FLOWLINE ARE NOT ALLOWED IN SIGHT TRIANGLES.

12. SIGNING AND STRIPING SHALL COMPLY WITH EL PASO COUNTY DEPARTMENT OF PUBLIC WORKS AND MUTCD CRITERIA.

13. CONTRACTOR SHALL OBTAIN ANY PERMITS REQUIRED BY EL PASO COUNTY DEPARTMENT OF PUBLIC WORKS, INCLUDING WORK WITHIN THE RIGHT-OF-WAY AND SPECIAL TRANSPORT PERMITS.

14. THE LIMITS OF CONSTRUCTION SHALL REMAIN WITHIN THE PROPERTY LINE UNLESS OTHERWISE NOTED. THE OWENER/DEVELOPER SHALL OBTAIN WRITTEN PERMISSION AND EASEMENTS, WHERE REQUIRED, FROM ADJOINING PROPERTY OWNER(S) PRIOR TO ANY OFF-SITE DISTURBANCE, GRADING, OR CONSTRUCTION.

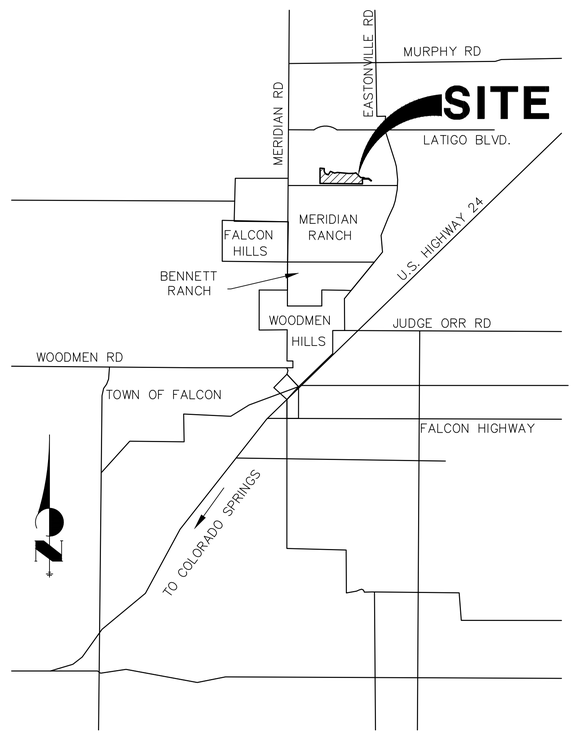
15. ALL STORM DRAIN PIPE SHALL BE CLASS III RCP UNLESS OTHERWISE NOTED AND APPROVED BY PCD.

ABBREVIATIONS

AC	ACRE	FL	FLOWLINE	RT	RIGHT
AD	ALGEBRAIC DIFFERENCE	FIL	FILING	S	SOUTH
AH	AHEAD	FO	FIBER OPTIC CABLE	STE	STEEL
ARCH	ARCHITECT	GB	GRADE BREAK	SAN	SANITARY SEWER
ASCE	AMERICAN SOCIETY OF CIVIL ENGINEERS	GE	GAS EASEMENT	SF	SQUARE FOOT
ASSY	ASSEMBLY	GIS	GEOGRAPHIC INFORMATION SYSTEM	ST	STREET
AVE	AVENUE	GL	GAS LINE	STA	STATION
BB	BOX BASE	GPS	GLOBAL POSITIONING SYSTEM	STM	STORM SEWER
BK	BACK	GV	GATE VALVE	SY	SQUARE YARD
BNDY	BOUNDARY	HBP	HOT BITUMINOUS PAVEMENT	SY-IN	SQUARE YARD INCH
BOP	BOTTOM OF PIPE	HC	HANDICAP	TB	THRUST BLOCK
BOV	BLOW OFF VALVE	HDC	HIGH DEFLECTION COUPLING	TBC	TOP BACK OF CURB
BFV	BUTTERFLY VALVE	HDPE	HIGH DENSITY POLYETHYLENE	TBW	TOP BACK OF WALK
BLVD	BOULEVARD	HGL	HYDRAULIC GRADE LINE	TEL	TELEPHONE
BW	BOTTOM OF WALL	HMA	HOT MIX ASPHALT	TN	TON
C&G	CURB & GUTTER	HOA	HOME OWNERS ASSOCIATION	TOA	TOP OF ASPHALT
CATV	CABLE TELEVISION	HP	HIGH POINT	TOB	TOP OF BOX
CB	CATCH BASIN	HR	HOUR	TOC	TOP OF CURB OR CONCRETE
CBC	CONCRETE BOX CULVERT	I	INLET	TOF	TOP OF FOUNDATION
CDOT	COLORADO DEPARTMENT OF TRANSPORTATION	IE	IRRIGATION EASEMENT	TOP	TOP OF PIPE
CDS	CUL-DE-SAC	INT	INTERSECTION	TW	TOP OF WALL
CF	CUBIC FOOT	INV	INVERT	TYP	TYPICAL
CFS	CUBIC FEET PER SECOND	IRR	IRRIGATION	UDFCD	URBAN DRAINAGE AND FLOOD CONTROL DISTRICT
CIP	COMPLETE IN PLACE	KB	KICK (THRUST) BLOCK	UE	UTILITY EASEMENT
CL	CENTER LINE	LB	POUND	U&DE	UTILITY & DRAINAGE EASEMENT
CLOMR	CONDITIONAL LETTER OF MAP REVISION	LE	LANDSCAPE EASEMENT	UGE	UNDERGROUND ELECTRIC
CLR	CLEAR	LF	LINEAR FOOT	VCP	VITRIFIED CLAY PIPE
CMP	CORRUGATED METAL PIPE	LN	LANE	VPC	VERTICAL POINT OF CURVATURE
CO	CLEAN OUT	LOMR	LETTER OF MAP REVISION	VPI	VERTICAL POINT OF INTERSECTION
COCS	CITY OF COLORADO SPRINGS	LP	LOW POINT	VPT	VERTICAL POINT OF TANGENCY
CONC	CONCRETE	LS	LUMP SUM	VTC	VEHICLE TRACKING CONTROL
CR	CIRCLE	LT	LEFT	W	WEST
CSP	CORRUGATED STEEL PIPE	MAX	MAXIMUM	WL	WATER LINE
CSU	COLORADO SPRINGS UTILITIES	M/D	MOISTURE DENSITY	WM	WATER MAIN
CT	COURT	MDDP	MASTER DEVELOPMENT DRAINAGE PLAN	WRD	WATER RESOURCES DEPARTMENT
CTRB	CONCRETE THRUST REDUCER BLOCK	MH	MANHOLE	WS	WATER SURFACE
CY	CUBIC YARD	MIN	MINIMUM	WSE	WATER SURFACE ELEVATION
DBPS	DRAINAGE BASIN PLANNING STUDY	MS	MOUNTABLE SIDEWALK	WTR	WATER
DE	DRAINAGE EASEMENT	N	NORTH	YR	YEAR
DIA	DIAMETER	NRCP	NON-REINFORCED CONCRETE PIPE		
DIP	DUCTILE IRON PIPE	ODP	OFFICIAL DEVELOPMENT PLAN		
DR	DRIVE	OHE	OVERHEAD ELECTRIC		
DRC	DESIGN REVIEW COMMITTEE	OHU	OVERHEAD UTILITY		
DU	DWELLING UNITS	PC	POINT OF CURVATURE		
DY	DAY	PCC	POINT OF COMPOUND CURVATURE		
E	EAST	PCR	POINT OF CURB RETURN		
EA	EACH	PDP	PRELIMINARY DEVELOPMENT PLAN		
EGL	ENERGY GRADE LINE	PE	PROFESSIONAL ENGINEER		
EL	ELEVATION	PI	POINT OF INTERSECTION		
ELEC	ELECTRIC	PKWY	PARKWAY		
EOA	EDGE OF ASPHALT	PL	PROPERTY LINE		
EPC	EL PASO COUNTY	PR	PROPOSED		
ERCP	ELLIPTICAL RCP	PRC	POINT OF REVERSE CURVATURE		
ESMT	EASEMENT	PT	POINT OF TANGENCY		
EST	ESTIMATE	PV	PLUG VALVE		
EX	EXISTING	PVC	POLYVINYL CHLORIDE		
FDP	FINAL DEVELOPMENT PLAN	R	RADIUS		
FDR	FINAL DRAINAGE REPORT	RCBC	REINFORCED CONCRETE BOX CULVERT		
FES	FLARED END SECTION				
FF	FINISHED FLOOR ELEVATION	RCP	REINFORCED CONCRETE PIPE		
FG	FINISHED GRADE	RD	ROAD		
FH	FIRE HYDRANT	ROW	RIGHT OF WAY		

VICINITY MAP

N.T.S.



SHEET INDEX

SIGNING AND STRIPING NOTES

1. ALL SIGNS AND PAVEMENT MARKING SHALL BE IN COMPLIANCE WITH THE CURRENT MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).

2. REMOVAL OF EXISTING PAVEMENT MARKINGS SHALL BE ACCOMPLISHED BY A METHOD THAT DOES NOT MATERIALLY DAMAGE THE PAVEMENT. THE PAVEMENT MARKINGS SHALL BE REMOVED TO THE EXTENT THEY WILL NOT BE VISIBLE UNDER DAY OR NIGHT CONDITIONS. AT NO TIME WILL IT BE ACCEPTABLE TO PAINT OVER EXISTING PAVEMENT MARKINGS.

3. ANY DEVIATION FROM THE STRIPING AND SIGNING PLAN SHALL BE APPROVED BY EL PASO COUNTY PLANNING AND COMMUNITY DEVELOPMENT.

4. ALL SIGNS SHOWN ON THE SIGNING AND STRIPING PLAN SHALL BE NEW SIGNS. EXISTING SIGNS MAY REMAIN OR BE REUSED IF THEY MEET CURRENT EL PASO COUNTY AND MUTCD STANDARDS.

5. STREET NAME AND REGULATORY STOP SIGNS SHALL BE ON THE SAME POST AT INTERSECTIONS.

6. ALL REMOVED SIGNS SHALL BE DISPOSED OF IN A PROPER MANNER BY THE CONTRACTOR.

7. ALL STREET NAME SIGNS SHALL BE "D" SERIES LETTERS, WITH LOCAL ROADWAY SIGNS BEING 4" UPPER-LOWER CASE LETTERING ON 8" BLANK AND NON-LOCAL ROADWAY SIGNS BEING 6" LETTERING. UPPER-LOWER CASE ON 12" BLANK, WITH A WHITE BORDER THAT IS NOT RECESSED. MULTI-LANE ROADWAYS WITH SPEED LIMITS OF 40 MPH OR HIGHER SHALL HAVE 8" UPPER-LOWER CASE LETTERING ON 18" BLANK WITH A WHITE BORDER THAT IS NOT RECESSED. THE WIDTH OF THE NON-RECESSED WHITE BORDERS SHALL MATCH PAGE 255 OF THE 2012 MUTCD "STANDARD HIGHWAY SIGNS".

8. ALL TRAFFIC SIGNS SHALL HAVE A MINIMUM HIGH INTENSITY PRISMATIC GRADE SHEETING.

9. ALL LOCAL RESIDENTIAL STREET SIGNS SHALL BE MOUNTED ON A 1.75" X 1.75" SQUARE TUBE SIGN POST AND STUB POST BASE,. FOR OTHER APPLICATIONS, REFER TO THE CDOT STANDARD S-614-8 REGARDING USE OF THE P2 TUBULAR STEEL POST SLIPBASE DESIGN.

10. ALL SIGNS SHALL BE SINGLE SHEET ALUMINUM WITH 0.100" THICKNESS.

11. ALL LIMIT LINES/STOP LINES, CROSSWALK LINES, PAVEMENT LEGENDS, AND ARROWS SHALL BE A MINIMUM 125 MIL THICKNESS PREFORMED THERMOPLASTIC PAVEMENT MARKINGS WITH TAPERED LEADING EDGES PER CDOT STANDARD S-627-1. WORD AND SYMBOL MARKINGS SHALL BE THE NARROW TYPE, STOP BARS SHALL BE 24" IN WIDTH, CROSSWALK LINES SHALL BE 12" WIDE AND 8' LONG PER CDOT S-267-1.

12. ALL LONGITUDINAL LINES SHALL BE A MINIMUM 15MIL THICKNESS EPOXY PAINT. ALL NON-LOCAL RESIDENTIAL ROADWAYS SHALL INCLUDE BOTH RIGHT AND LEFT EDGE LINE STRIPING AND ANY ADDITIONAL STRIPING AS REQUIRED BY CDOT S-627-1.

13. THE CONTRACTOR SHALL NOTIFY EL PASO COUNTY PLANNING AND COMMUNITY DEVELOPMENT (719) 520-6819 PRIOR TO AND UPON COMPLETION OF THE SIGNING AND STRIPING.

14. THE CONTRACTOR SHALL OBTAIN A WORK IN THE RIGHT OF WAY PERMIT FROM THE EL PASO COUNTY DEPARTMENT OF PUBLIC WORKS (DPW) PRIOR TO ANY SIGNAGE OR STRIPING WORK WITHIN AN EXISTING EL PASO COUNTY ROADWAY.

PCD FILING NO.: SF2136

Know what's **below.**
Call before you dig.

CONTACTS:

OWNER/DEVELOPER:	BRJM, LLC ATTN: BOB IRWIN 101 N. CASCADE, SUITE 200 COLORADO SPRINGS, CO 80903 P~719-475-7474
ENGINEER/SURVEYOR:	JR ENGINEERING, LLC ATTN: BRYAN LAW 5475 TECH CENTER DRIVE, SUITE 235 COLORADO SPRINGS, CO 80919 P~303-267-6254
FIRE PROTECTION DISTRICT:	FALCON FIRE FPD 7030 N MERIDIAN RD FALCON, CO 80831 P~719-494-4050
DISTRICT:	MERIDIAN SERVICE METROPOLITAN DISTRICT 11886 STAPLETON DR PEYTON, CO 80831 P~719-495-6567
EL PASO COUNTY:	PLANNING AND COUNTY DEVELOPMENT ATTN: BRAD WALTERS 2880 INTERNATIONAL CIRCLE, SUITE 110 COLORADO SPRINGS, COLORADO 80910 P ~ (719) 520-6819 DEPARTMENT OF PUBLIC WORKS 3257 AKERS DR COLORADO SPRINGS, CO 80910 P ~ (719) 529-6460
ELECTRIC COMPANY:	MOUNTAIN VIEW ELECTRIC ASSOC., INC. 11140 EAST WOODMEN ROAD FALCON, COLORADO 80831 (719) 495-2283

BASIS OF BEARING

THE SOUTH LINE OF SECTION 17, TOWNSHIP 12 SOUTH, RANGE 64 WEST OF THE 6TH PRINCIPAL MERIDIAN, BEING MONUMENTED AT THE SOUTHEAST CORNER BY A 3-1/4" ALUMINUM CAP STAMPED "LS 24964 2000" FLUSH WITH THE GROUND AND AT THE SOUTHWEST CORNER BY A 2-1/2" ALUMINUM CAP STAMPED "LS 25955 1996" 0.35" BELOW GROUND, BEARING N89°25'55"W.

BENCHMARK

NGS MONUMENT T 294 BEING MONUMENTED BY A 3-1/4" BRASS DISC SET IN A 4'X4' BOULDER, LOCATED 1.8 MILES EAST ALONG HIGBY ROAD FROM ITS INTERSECTION WITH JACKSON CREEK PARKWAY, 40 FEET SOUTH OF THE CENTERLINE OF THE ROAD, 6 FEET SOUTH OF A FENCE, AND 6.2 FEET SOUTH OF A WITNESS POST. SAID MONUMENT HAVING A PUBLISHED ELEVATION OF 7247.10 FEET, NAVD88.

OWNER/DEVELOPER STATEMENT

I, THE OWNER/DEVELOPER HAVE READ AND WILL COMPLY WITH ALL OF THE REQUIREMENTS SPECIFIED IN THESE DETAILED PLANS AND SPECIFICATIONS.

BOB IRWIN — DATE

BRJM, LLC
101 N. CASCADE
COLORADO SPRINGS, CO 80903

EL PASO COUNTY STATEMENT

COUNTY PLAN REVIEW IS PROVIDED ONLY 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.

FILED IN ACCORDANCE WITH THE REQUIREMENTS OF THE EL PASO COUNTY LAND DEVELOPMENT CODE, DRAINAGE CRITERIA MANUAL, VOLUMES 1 AND 2, AND ENGINEERING CRITERIA MANUAL AS AMENDED.

IN ACCORDANCE WITH ECM SECTION 1.12, THESE CONSTRUCTION DOCUMENTS WILL BE VALID FOR CONSTRUCTION FOR A PERIOD OF 2 YEARS FROM THE DATE SIGNED BY THE EL PASO COUNTY ENGINEER. IF CONSTRUCTION HAS NOT STARTED WITHIN THOSE 2 YEARS, THE PLANS WILL NEED TO BE RESUBMITTED FOR APPROVAL, INCLUDING PAYMENT OF REVIEW FEES AT THE PLANNING AND COMMUNITY DEVELOPMENT DIRECTORS DISCRETION.

JENNIFER IRVINE, P.E. — DATE

COUNTY ENGINEER/ECM ADMINISTRATOR

ENGINEER'S STATEMENT

THESE DETAILED PLANS AND SPECIFICATIONS WERE PREPARED UNDER MY DIRECT SUPERVISION. SAID PLANS AND SPECIFICATIONS HAVE BEEN PREPARED ACCORDING TO THE CRITERIA ESTABLISHED BY THE COUNTY FOR DETAILED ROADWAY, DRAINAGE, GRADING AND EROSION CONTROL PLANS AND SPECIFICATIONS, AND SAID PLANS AND SPECIFICATIONS ARE IN CONFORMITY WITH APPLICABLE MASTER DRAINAGE PLANS AND MASTER TRANSPORTATION PLANS. SAID PLAN AND SPECIFICATIONS MEET THE PURPOSES FOR WHICH THE PARTICULAR ROADWAY AND DRAINAGE FACILITIES ARE DESIGNED AND ARE CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF. I ACCEPT RESPONSIBILITY FOR ANY LIABILITY CAUSED BY ANY NEGLIGENT ACTS, ERRORS OR OMISSIONS ON MY PART IN PREPARATION OF THESE DETAILED PLANS AND SPECIFICATIONS.

COLORADO REGISTERED BRYAN T. LAW 25043 PROFESSIONAL ENGINEER

BRYAN T. LAW, P.E. — DATE
COLORADO P.E. 25043
FOR AND ON BEHALF OF JR ENGINEERING, LLC

UNTIL SUCH TIME AS THESE DRAWINGS ARE APPROVED BY THE APPROPRIATE REVIEWING AGENCIES, JR ENGINEERING APPROVES THEIR USE ONLY FOR THE PURPOSES DESIGNATED BY WRITTEN AUTHORIZATION.

PREPARED FOR
BRJM, LLC
101 N. CASCADE, SUITE 200
COLORADO SPRINGS, CO 80903
ATTN: BOB IRWIN
P~(719)-475-7474

J·R ENGINEERING
A Westrian Company
Centennial 303-740-9393 • Colorado Springs 719-593-2593
Fort Collins 970-491-9888 • www.jrengineering.com

No.	REVISION	BY	DATE

H-SCALE	NTS
V-SCALE	N/A
DATE	04/11/22
DESIGNED BY	N/A
DRAWN BY	QNL
CHECKED BY	

LATIGO TRAILS – FILING NO. 10

COVER SHEET

SHEET 1 OF 13

JOB NO. 25175.02

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LAYER LINETYPE LEGEND

	EXISTING	PROPOSED
PHASE LINE		
MATCH LINE		
SECTION LINE		
BOUNDARY LINE		
PROPERTY LINE		
EASEMENT LINE		
RIGHT OF WAY		
R.O.W. A LINE	A	A
CENTERLINE		
CITY LIMITS		
WIRE FENCE	×	×
CHAIN LINK FENCE	○	●
WOOD FENCE	◇	◆
MASONRY FENCE	□	■
GUARDRAIL		
CONC. BARRIER		
CABLE TV	TV	TV
ELECTRIC	E	E
FIBER OPTIC	FO	FO
GAS MAIN	G	G
IRRIGATION MAIN	IRR	IRR
OIL/PETRO. MAIN	O	O
OVERHEAD UTILITY	OHU	OHU
SANITARY SEWER	S	
STORM DRAIN		
TELEPHONE	T	T
WATER MAIN	W	
RAW WATER LINE	RWL	RWL
SWALE/WATERWAY FLOWLINE		
DIVERSION DITCH		
DIVERSION CHANNEL		
MAJOR DRAINAGE BASIN		
MINOR DRAINAGE BASIN		
TOP OF SLOPE		
TOE OF SLOPE		
EDGE OF WATER		
INDEX CONTOUR	6100	6100
INTERMEDIATE CONTOUR		
DEPRESSION CONT. (INDEX)	6100	6100
DEPRESSION CONT. (INTER)		
TOP OF CUTS		
TOE OF FILLS		
CUT AND FILL LINE		C/F C/F
SILT FENCE	SF	SF SF
100 YEAR FLOODPLAIN	100YR	100YR
500 YEAR FLOODPLAIN	500YR	500YR
FLOODWAY	FLDWY	FLDWY
BASE FLOOD ELEVATION		
EDGE OF WETLANDS		
STONE WALL		

UTILITIES LEGEND

	EXISTING	PROPOSED
STORM SEWER		
MANHOLE		
STORM INLET		
AREA INLET – SQUARE		
AREA INLET – ROUND		
FLARED END SECTION		
RIPRAP		
SANITARY SEWER		
LINE MARKER	Mkr San	
SERVICE MARKER		
CLEAN-OUT		
MANHOLE W/ DIRECTIONAL FLOW ARROW		
WATER LINE		
LINE MARKER	Mkr W	
SERVICE MARKER		
FIRE HYDRANT		
FIRE CONNECTION		
MANHOLE		
BEND		
BLOW-OFF VALVE		
WELL	WELL	WELL
METER		
VALVE		
REDUCER		
THRUST BLOCK		
CROSS		
PLUG W/ THRUST BLOCK		
TEE		
REVERSE ANCHOR		
ANODE		
AIR & VACUUM VALVE ASSEMBLY		
TRANSMISSION BLOW-OFF ASSEMBLY		
GAS LINE		
MARKER	Mkr G	
SERVICE MARKER		
METER		
VALVE		
PLUG		
TEE		
DRY UTILITIES		
CABLE TV MARKER	Mkr TV	
CABLE TELEVISION PEDESTAL	TV	
ELECTRIC MARKER	Mkr E	
ELECTRIC SERVICE MARKER		
ELECTRICAL PEDESTAL	E	
ELECTRICAL METER	E	
ELECTRICAL MANHOLE	E	
FIBER-OPTIC MARKER	Mkr FO	
IRRIGATION PEDESTAL	I	
TELEPHONE MARKER	Mkr T	
TELEPHONE PEDESTAL	T	
TELEPHONE MANHOLE	T	
UTILITY POLE		
GUY ANCHOR		
GUY POLE		
MISC. UTILITIES		
VENT PIPE	VP	VP
TEST HOLE DESIGNATOR	TH# FIRM/AGENCY	

MONUMENTATION LEGEND

ALUMINUM CAP – FOUND	AC
BRASS CAP – FOUND	BC
BENCHMARK – FOUND	
CROSS – FOUND	
MONUMENT – SET	
MONUMENT – FOUND (DEFAULT)	
MONUMENT – FOUND (ALTERNATE 1)	
MONUMENT – FOUND (ALTERNATE 2)	
MONUMENT – FOUND (ALTERNATE 3)	
MONUMENT – FOUND (ALTERNATE 4)	
MONUMENT – FOUND (ALTERNATE 5)	
MONUMENT – FOUND (ALTERNATE 6)	
MONUMENT – FOUND (ALTERNATE 7)	
NAIL & WASHER – FOUND	NAIL & WASHER
PANEL – FOUND	
PK NAIL – FOUND	PK NAIL
ROW MONUMENT – FOUND	
ROW MARKER – FOUND	
SECTION CORNER – FOUND	
SECTION CORNER – SET	
QUARTER-SECTION CORNER – FOUND	
QUARTER-SECTION CORNER – SET	
SECTION CENTER – FOUND	
SECTION CENTER – FOUND	
CONTROL/TRAVERSE POINT – SET	

TRAFFIC LEGEND

	EXISTING	PROPOSED
PARKING METER		
TRAFFIC SIGNAL BOX		
TRAFFIC SIGNAL POLE		
TRAFFIC SIGNAL		
BARRICADE		
GUARD RAIL POST		
IMPACT ATTENUATOR		
BRIDGE STYLE HIGHWAY SIGN POST		
CANTILEVER STYLE HIGHWAY SIGN POST		
SIGN		
RAILROAD MARKER/SIGN		
STREET LIGHT		
STREET LIGHT – SINGLE		
STREET LIGHT – DOUBLE		
LUMINAIRE		
ALTERNATE LUMINAIRE		
SIGNAL MAST ARM W/ LUMINAIRE		
PEDESTAL POLE FOUNDATION		
TRAFFIC SIGNAL POLE		
ROUND PULL BOX		
MEDIUM PULL BOX		
LARGE PULL BOX (20X33X15)		
SIGNAL HEAD WITHOUT BACK PLATE		
SIGNAL HEAD WITH BACK PLATE		
PEDESTRIAN SIGNAL HEAD		
VIDEO IMAGE DETECTOR		
OPTICOM DETECTOR		
VEHICLE DETECTION ZONE		V

STORM WATER MANAGEMENT

	KEY	SYMBOL
CHECK DAM	CD	
CONSTRUCTION ROAD STABILIZATION	CRS	
CURB SOCK INLET PROTECTION	CS	
CONCRETE WASHOUT AREA	CWA	
DIVERSION DITCH AND DIKE, TEMPORARY	DD	
DIVERSION CHANNEL, TEMPORARY	DV	
DEWATERING	DW	
EROSION CONTROL BLANKET	ECB	
INLET FILTER	IF	
INLET PROTECTION	IP	
MULCHING	MU	
OUTLET PROTECTION	OP	
PAVED FLUME	PF	
PERMENENT SEEDING	PS	
REINFORCED CONCRETE DAM	RCD	
ROUGH CUT STREET CONTROL	RCS	
SEDIMENT BASIN	SB	
SEDIMENT CONTROL LOG	SCL	
SILT FENCE	SF	
SURFACE ROUGHENING	SR	
STABILIZED STAGING AREA	SSA	
SEDIMENT TRAP	ST	
STRAW BALE BARRIER	STB	
TERRACING	TER	
TEMPORARY SEEDING	TS	
TEMPORARY STREAM CROSSING CULVERT/BRIDGE	TSC C	
TEMPORARY STREAM CROSSING FORD TYPE	TSC F	
TEMPORARY SLOPE DRAIN	TSD	
VEHICLE TRACKING CONTROL	VTC	
VEHICLE TRACKING CONTROL WITH WASH RACK	WR	

DRAINAGE REPORT PLANS

	KEY
BASIN DESIGNATION (NO COEFFICIENT)	# / #.#
BASIN DESIGNATION (1 COEFFICIENT)	# / #.# / #
BASIN DESIGNATION (2 COEFFICIENTS)	# / #.# / # / #
ANALISYS POINT IDENTIFIER	#
BASIN DESIGNATION (HISTORIC)	# / #.#
BASIN DESIGNATION (DEVELOPED)	# / #.#
SUB-BASIN DESIGNATION (DEVELOPED)	# / ##
DRAINAGE PIPE IDENTIFIER	##
DRAINAGE POINT IDENTIFIER (HEXAGONAL)	##
DRAINAGE POINT IDENTIFIER (TRIANGULAR)	?
SWMM DESIGNATION 1	#
SWMM DESIGNATION 2	#
SWMM DESIGNATION 3	#
SWMM DESIGNATION 4	?

LANDSCAPE LEGEND

	EXISTING	PROPOSED
TREE – CONIFEROUS		
TREE – DECIDUOUS		
SHRUB/BUSH		
SHRUBS AND BUSHES		
IRRIGATION BOX		
IRRIGATION SPRINKLER		
IRRIGATION VALVE		
BOLLARD		
FLAGPOLE	FP	

811 Know what's **below.** **Call** before you dig.

ENGINEER'S STATEMENT

STANDARD DETAILS SHOWN WERE REVIEWED ONLY AS TO THEIR APPLICATION ON THIS PROJECT

BRYAN T. LAW, P.E.
COLORADO P.E. 25043
FOR AND ON BEHALF OF JR ENGINEERING, LLC

DATE

COLORADO REGISTERED BRYAN T. LAW 25043 PROFESSIONAL ENGINEER

UNTIL SUCH TIME AS THESE DRAWINGS ARE APPROVED BY THE APPROPRIATE REVIEWING AGENCIES, JR ENGINEERING APPROVES THEIR USE ONLY FOR THE PURPOSES DESIGNATED BY WRITTEN AUTHORIZATION.

PREPARED FOR
BRJM, LLC
101 N. CASCADE, SUITE 200
COLORADO SPRINGS, CO 80903
ATTN: BOB IRWIN
P~(719)-475-7474

J·R ENGINEERING
A Westrian Company
Centennial 303-740-9393 • Colorado Springs 719-593-2593
Fort Collins 970-491-9888 • www.jrengineering.com

No.	REVISION	BY	DATE

H-SCALE	N/A
V-SCALE	N/A
DATE	04/11/22
DESIGNED BY	N/A
DRAWN BY	QNL
CHECKED BY	

LATIGO TRAILS – FILING NO. 10

LEGEND

SHEET 2 OF 13

JOB NO. 25175.02

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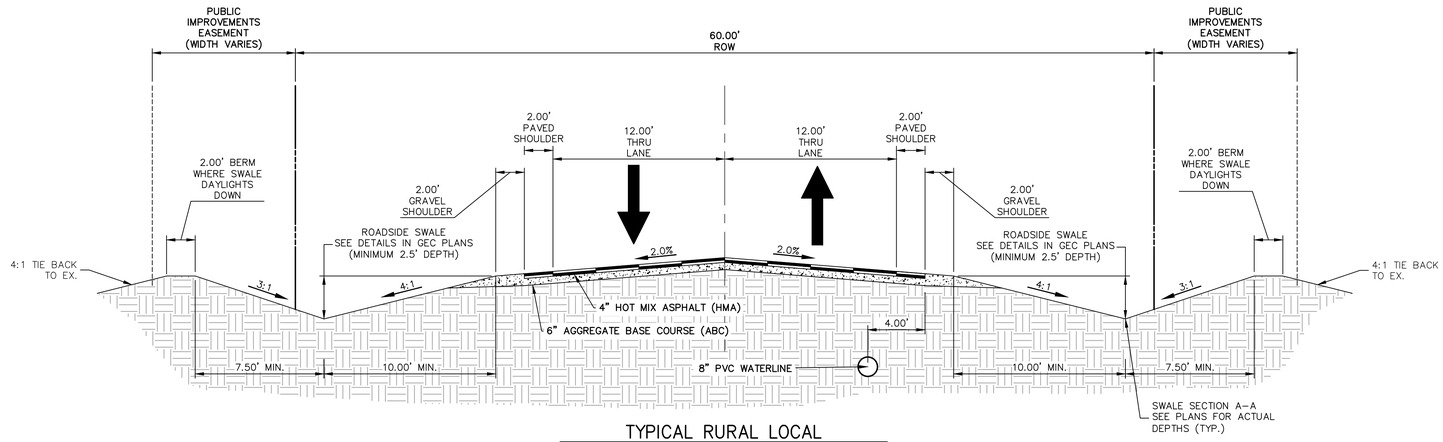
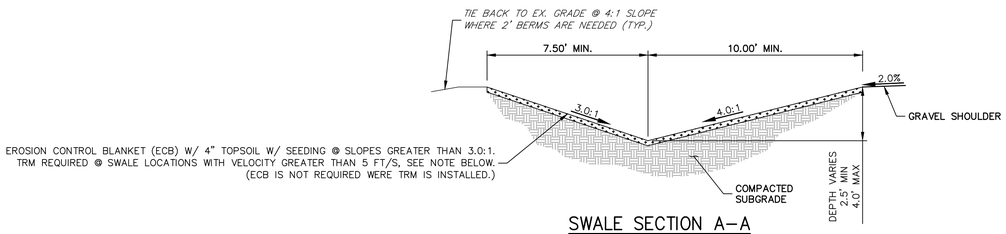


TYPICAL RURAL LOCAL

POSTED SPEED LIMIT = 30 MPH, DESIGN SPEED LIMIT = 30 MPH

CONESTOGA TRAIL, HORSE CANYON TRAIL, BUFFALO RIVER TRAIL

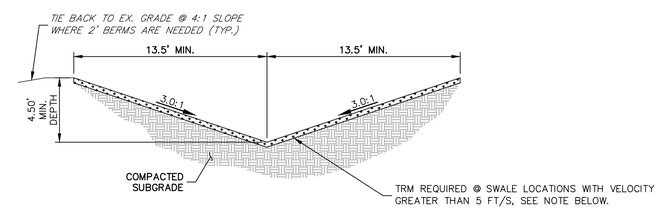
SCALE: 1" = 5'



SWALE SECTION A–A

SCALE: N.T.S

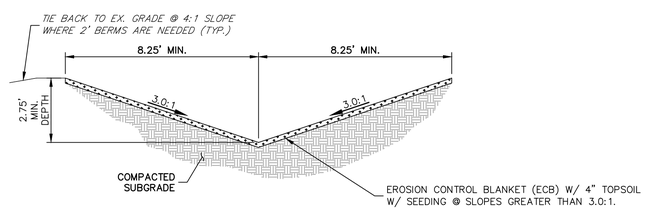
SC250 VMAX (OR APPROVED EQUIVALENT) PERMANENT TURF REINFORCEMENT MAT (TRM) IS REQUIRED TO BE INSTALLED IN NORTHERN ROAD SIDE SWALE OF CONESTOGA TRAIL SOUTH, CENTERLINE STATION 31+75 – 58+64.92 AND CENTERLINE STATION 58+64.92 – START OF EAST SWALE SECTION B–B. (SEE GEC PLAN FOR LOCATION)



SWALE SECTION B–B

SCALE: N.T.S

SC250 VMAX PERMANENT TURF REINFORCEMENT MAT (TRM) IS REQUIRED FOR ALL OF SWALE SECTION B–B. (SEE GEC PLAN FOR LOCATION)



SWALE SECTION C–C

N.T.S

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No.	REVISION	BY	DATE

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V-SCALE	1"=5'
DATE	04/11/22
DESIGNED BY	APL
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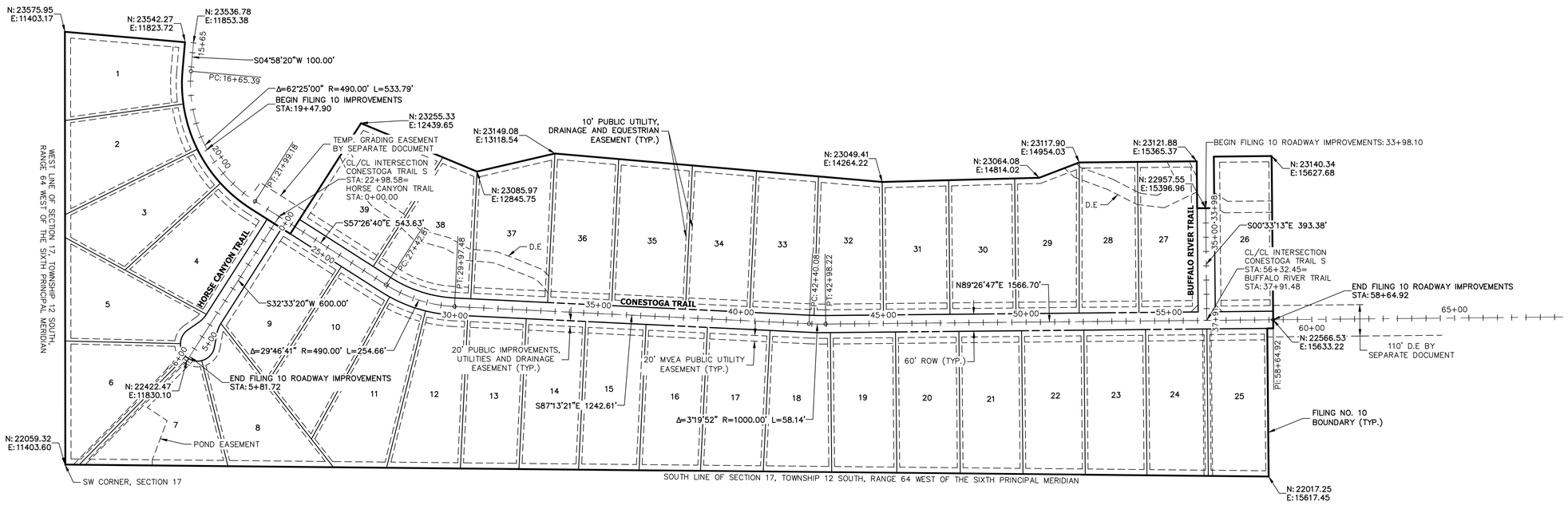
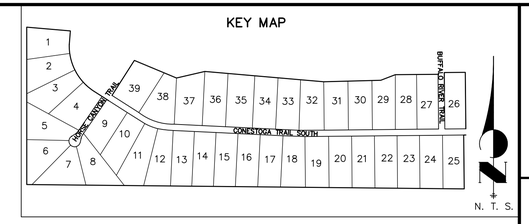
LATIGO TRAILS – FILING NO. 10

TYPICAL SECTIONS

SHEET 3 OF 13

JOB NO. 25175.02





200 100 0 200 400

ORIGINAL SCALE: 1" = 200'

Know what's **below.**
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ENGINEER'S STATEMENT

PREPARED UNDER MY DIRECT SUPERVISION AND ON BEHALF OF JR ENGINEERING

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COLORADO REGISTERED BRYAN T. LAW 25043 PROFESSIONAL ENGINEER

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No.	REVISION	BY	DATE

H-SCALE	1"=200'
V-SCALE	N/A
DATE	04/11/22
DESIGNED BY	XXX
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LATIGO TRAILS – FILING NO. 10

HORIZONTAL CONTROL PLAN

SHEET 4 OF 13

JOB NO. 25175.02

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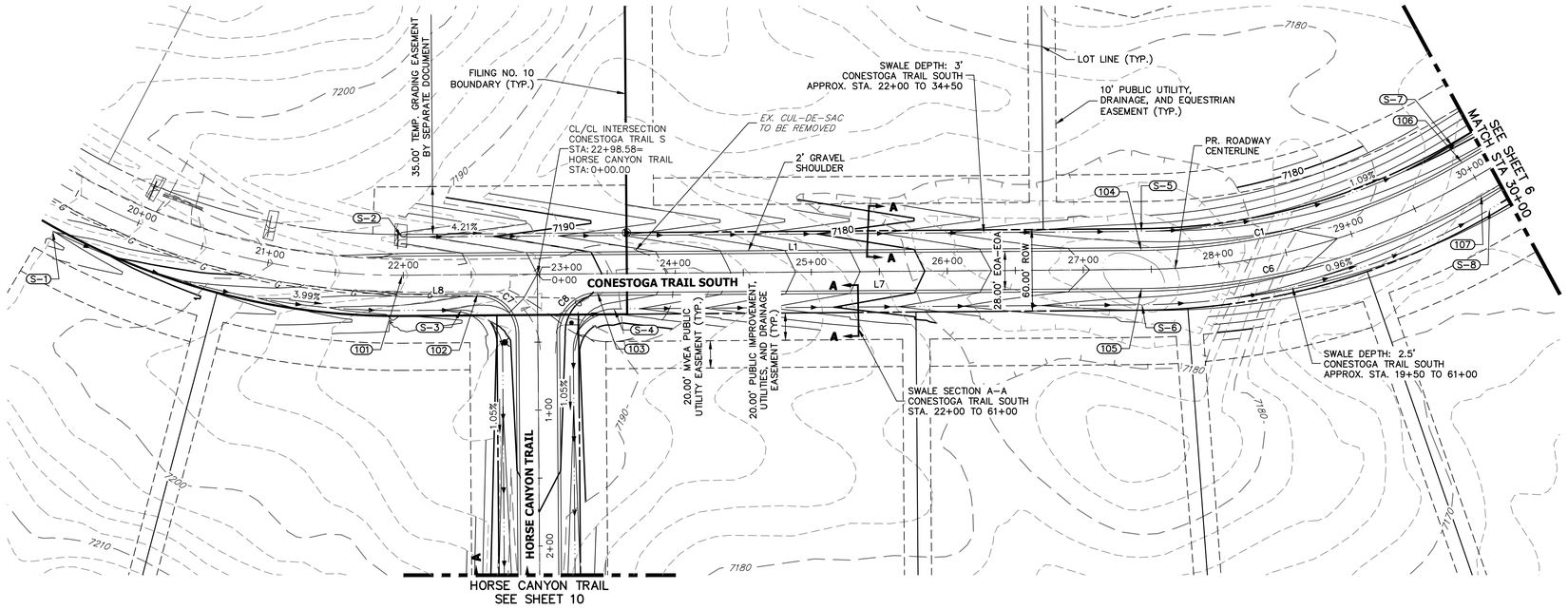
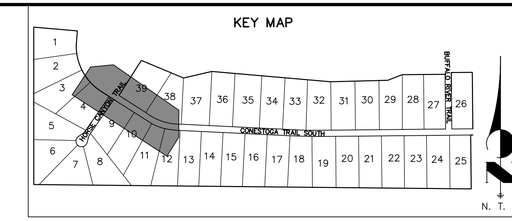


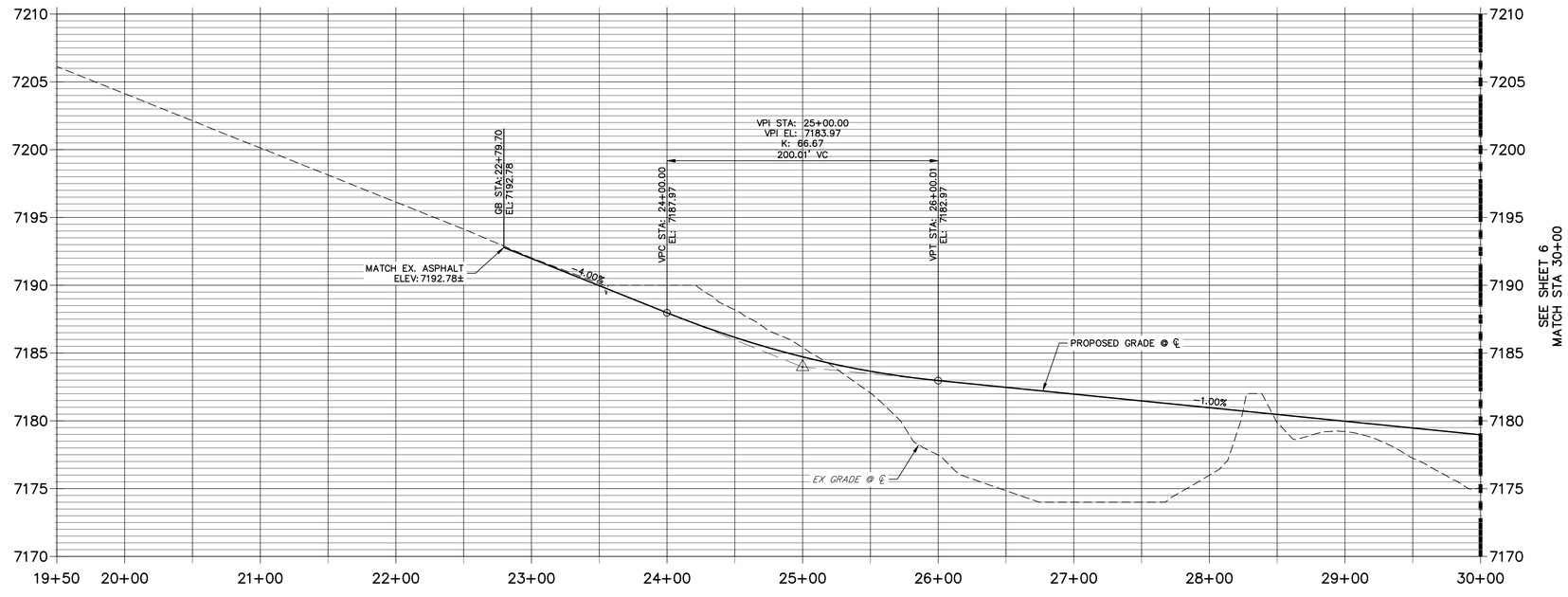


LINE AND CURVE TABLE			
LINE/CURVE	BEARING/DELTA	LENGTH	RADIUS
L1	S57°26'40"E	543.63'	
C1	29°46'41"	247.39'	476.00'
L8	S57°26'40"E	55.53'	
L7	S57°26'40"E	400.23'	
C6	29°46'41"	261.94'	504.00'
C7	90°00'00"	47.12'	30.00'
C8	90°00'00"	47.12'	30.00'

POINT TABULATION						
POINT NUMBER	STATION	OFFSET	ALIGNMENT	ELEVATION	NOTES	DESCRIPTION
101	21+99.28	0.00' ()	CONESTOGA TRAIL S	7196.17	±	BEGIN IMPROVEMENTS MATCH EX. ASPHALT
102	22+54.58	14.00' (RT)	CONESTOGA TRAIL S	7193.56		PCR
103	23+42.58	14.00' (RT)	CONESTOGA TRAIL S	7189.86		PCR
104	27+42.81	14.00' (LT)	CONESTOGA TRAIL S	7175.18		PC
105	27+42.81	14.00' (RT)	CONESTOGA TRAIL S	7175.18		PC
106	29+97.48	14.00' (LT)	CONESTOGA TRAIL S	7172.64		PT
107	29+97.48	14.00' (RT)	CONESTOGA TRAIL S	7172.64		PT

POINT TABULATION						
POINT NUMBER	STATION	OFFSET	ALIGNMENT	ELEVATION	NOTES	DESCRIPTION
S-1	19+47.90	32.86' (RT)	CONESTOGA TRAIL S	7202.05		BEGIN SWALE
S-2	21+99.18	28.00' (LT)	CONESTOGA TRAIL S	7192.85		BEGIN SWALE
S-3	22+42.58	26.00' (RT)	CONESTOGA TRAIL S	7191.53		SWALE PCR
S-4	23+54.58	26.00' (RT)	CONESTOGA TRAIL S	7186.81		SWALE PCR
S-5	27+42.81	28.00' (LT)	CONESTOGA TRAIL S	7172.14		SWALE PC
S-6	27+42.81	26.00' (RT)	CONESTOGA TRAIL S	7172.64		SWALE PC
S-7	29+97.48	28.00' (LT)	CONESTOGA TRAIL S	7169.60		SWALE PT
S-8	29+97.48	26.00' (RT)	CONESTOGA TRAIL S	7170.10		SWALE PT

CONESTOGA TRAIL S PROFILE (1)
STA 19+50.00 TO 30+00.00



STREET IMPROVEMENT NOTES

1. ALL STATIONING IS ℄, UNLESS OTHERWISE NOTED.
2. ALL PROFILE ELEVATIONS ARE ℄, UNLESS OTHERWISE NOTED.
3. ALL CURB RETURN RADII ARE 30', UNLESS OTHERWISE NOTED.
4. ALL SLOPE LABELS ARE SWALE CENTERLINE, UNLESS OTHERWISE NOTED.
5. SEE SHEET 3 FOR TYPICAL STREET SECTIONS, SWALE SECTION A-A, B-B, AND SECTION C-C DIMENSIONS AND DETAILS.
6. ALL PROPOSED ROW WIDTHS ARE 60', UNLESS OTHERWISE NOTED.
7. ABBREVIATIONS: EOA = EDGE OF ASPHALT, P.I.E. = PUBLIC IMPROVEMENTS EASEMENT.

50 25 0 50 100

HORIZONTAL
ORIGINAL SCALE: 1" = 50'
VERTICAL
ORIGINAL SCALE: 1" = 5'

Know what's **below.**
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ENGINEER'S STATEMENT

PREPARED UNDER MY DIRECT SUPERVISION AND ON BEHALF OF JR ENGINEERING

BRYAN T. LAW, P.E.
COLORADO P.E. 25043
FOR AND ON BEHALF OF JR ENGINEERING, LLC

DATE

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V-SCALE	1"=5'
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LATIGO TRAILS – FILING NO. 10

STREET IMPROVEMENT PLAN AND PROFILE

SHEET 5 OF 13

JOB NO. 25175.02

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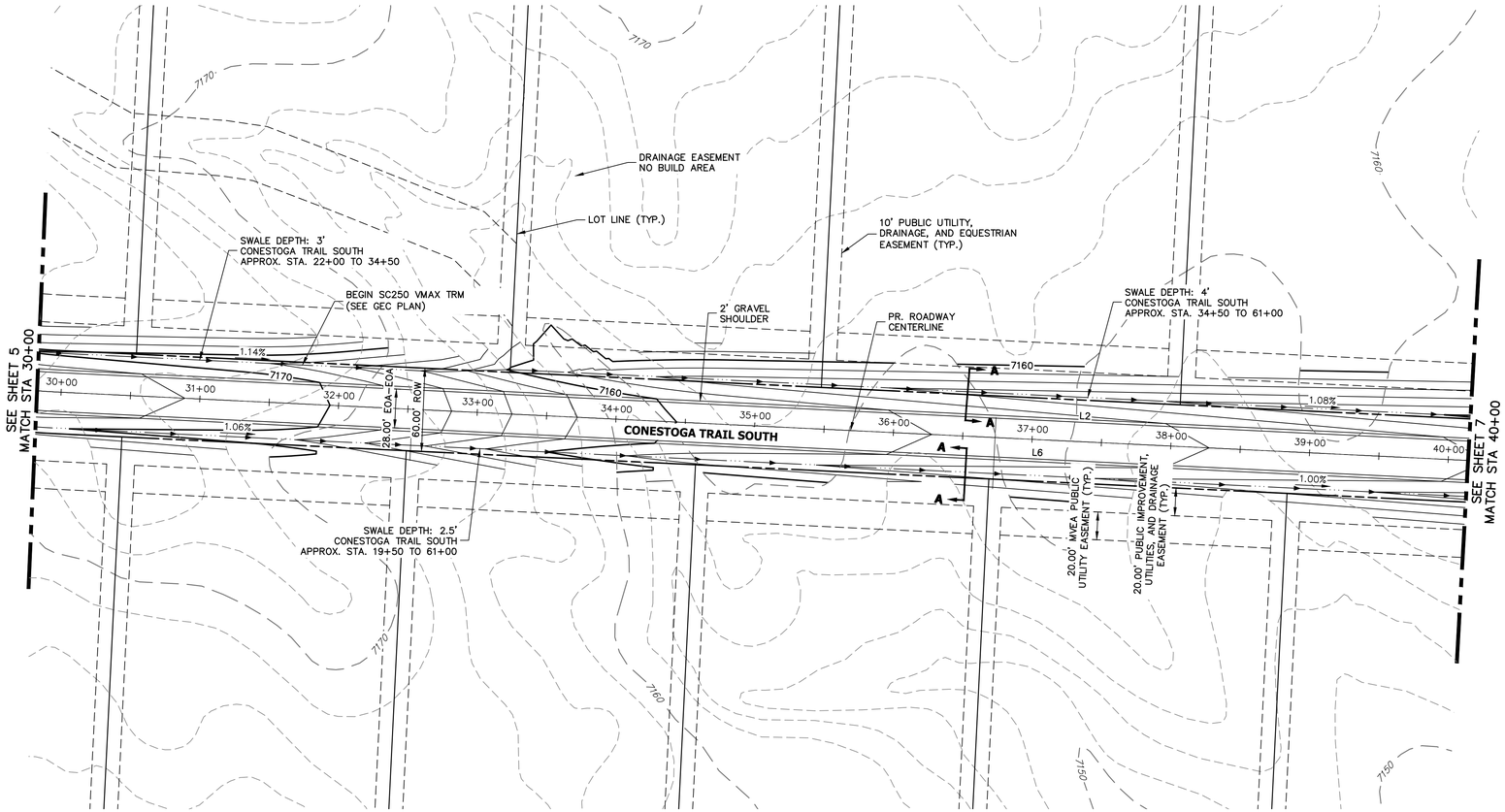
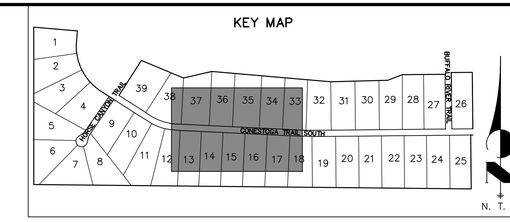
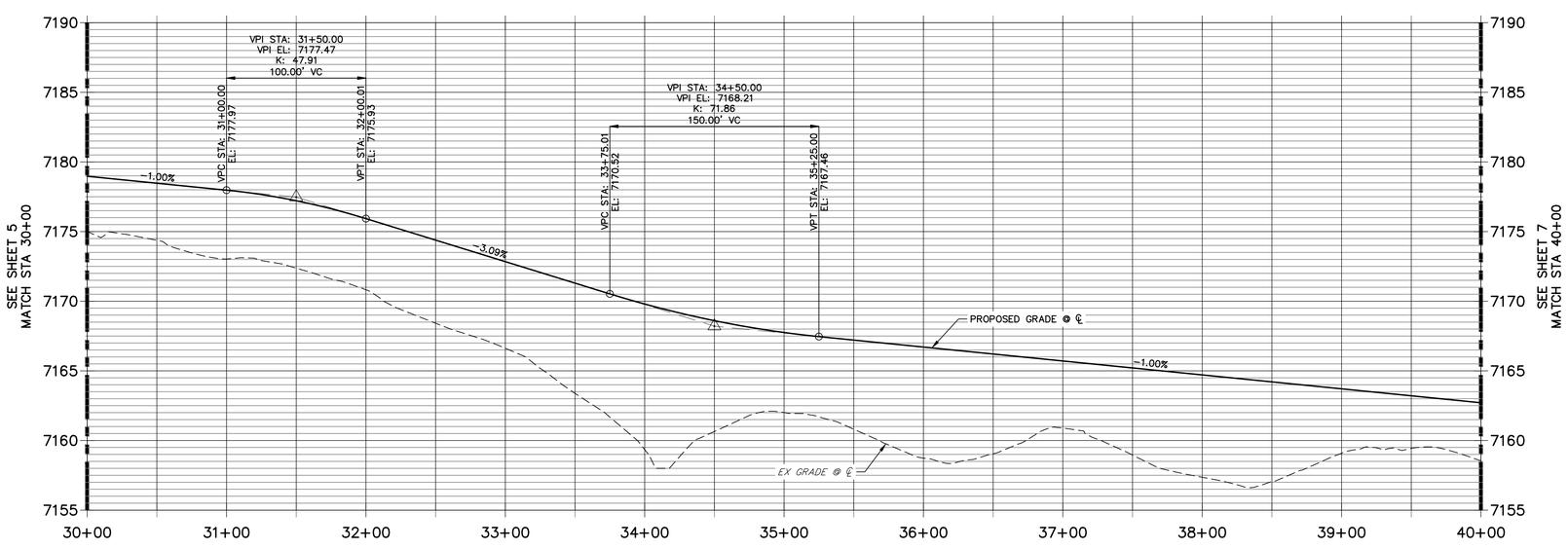




CONESTOGA TRAIL S PROFILE (2)
STA 30+00.00 TO 40+00.00



LINE AND CURVE TABLE			
LINE/CURVE	BEARING/DELTA	LENGTH	RADIUS
L2	S87°13'21"E	1242.61'	
L6	S87°13'21"E	1242.61'	

STREET IMPROVEMENT NOTES

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50 25 0 50 100

HORIZONTAL
ORIGINAL SCALE: 1" = 50'
VERTICAL
ORIGINAL SCALE: 1" = 5'

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H-SCALE	1"=50'
V-SCALE	1"=5'
DATE	04/11/22
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LATIGO TRAILS – FILING NO. 10

STREET IMPROVEMENT PLAN AND PROFILE

SHEET 6 OF 13

JOB NO. 25175.02

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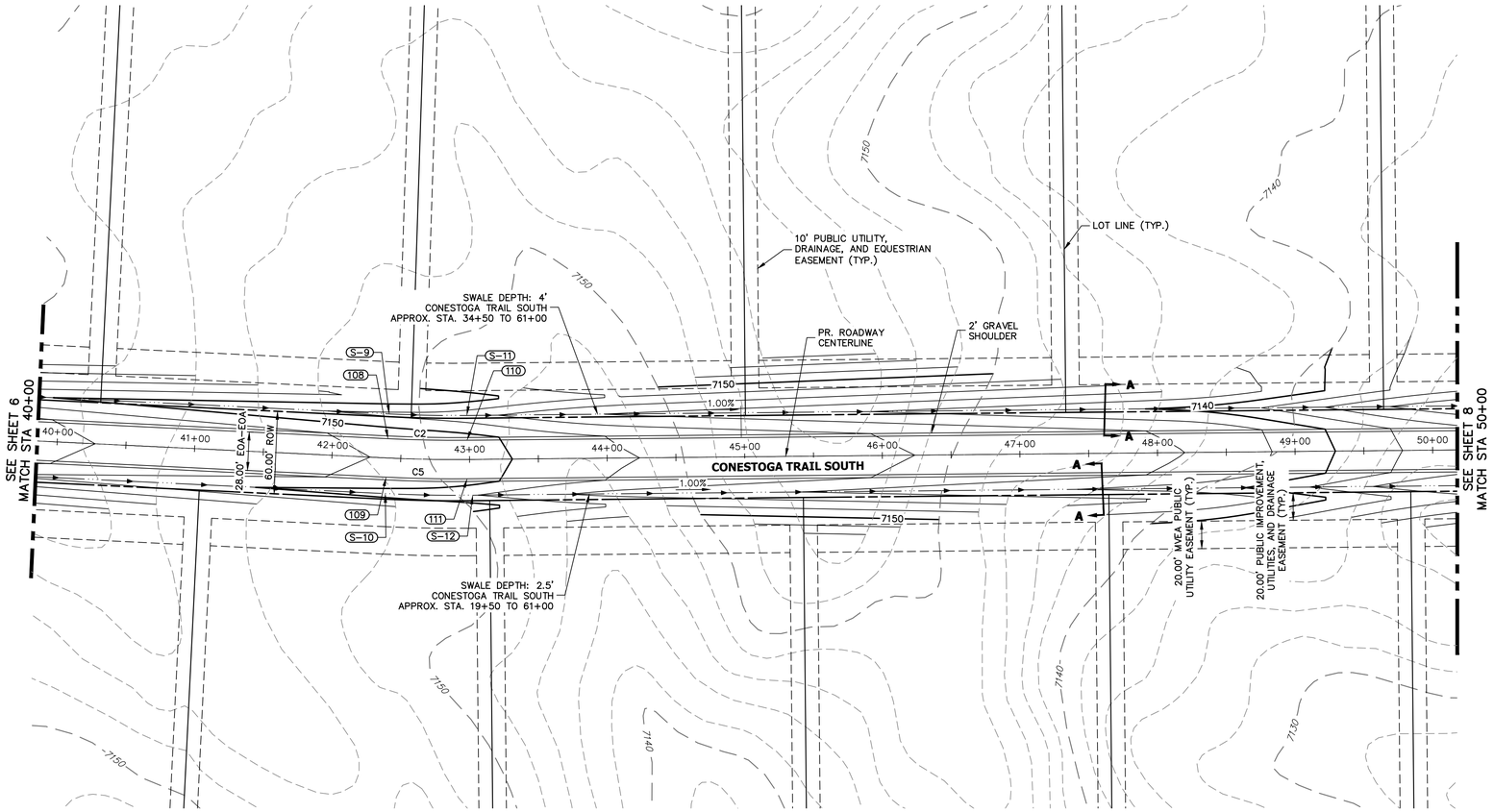
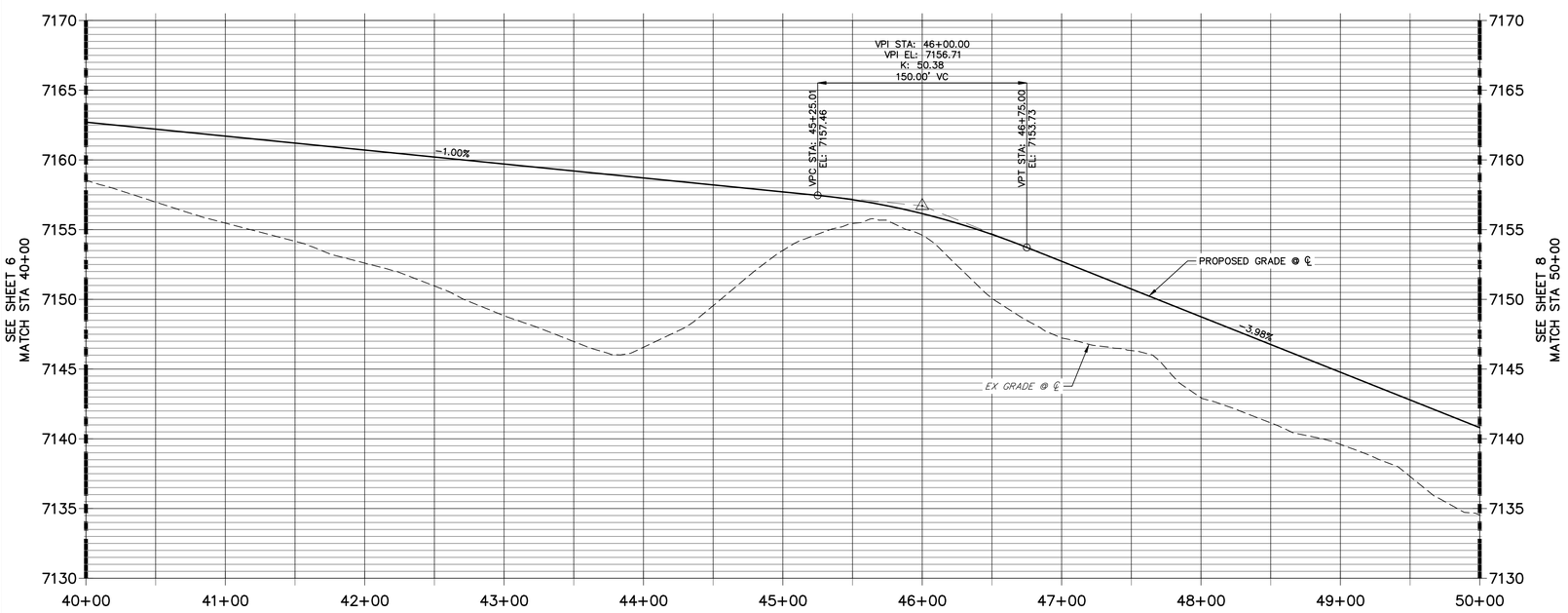
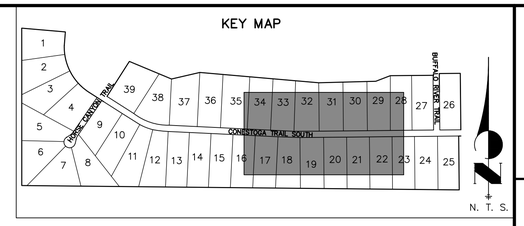


CONESTOGA TRAIL S PROFILE (3)
STA 40+00.00 TO 50+00.00





LINE AND CURVE TABLE			
LINE/CURVE	BEARING/DELTA	LENGTH	RADIUS
C2	3°19'52"	57.32'	986.00'
C5	3°19'52"	58.95'	1014.00'

POINT TABULATION						
POINT NUMBER	STATION	OFFSET	ALIGNMENT	ELEVATION	NOTES	DESCRIPTION
108	42+40.08	14.00' (LT)	CONESTOGA TRAIL S	7151.60		PC
109	42+40.08	14.00' (RT)	CONESTOGA TRAIL S	7151.60		PC
110	42+98.22	14.00' (LT)	CONESTOGA TRAIL S	7150.76		PT
111	42+98.22	14.00' (RT)	CONESTOGA TRAIL S	7150.76		PT

POINT TABULATION						
POINT NUMBER	STATION	OFFSET	ALIGNMENT	ELEVATION	NOTES	DESCRIPTION
S-9	42+40.08	32.00' (LT)	CONESTOGA TRAIL S	7147.56		SWALE PC
S-10	42+40.08	26.00' (RT)	CONESTOGA TRAIL S	7149.06		SWALE PC
S-11	42+98.22	32.00' (LT)	CONESTOGA TRAIL S	7146.72		SWALE PT
S-12	43+02.16	26.06' (RT)	CONESTOGA TRAIL S	7148.13		SWALE PT

STREET IMPROVEMENT NOTES

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50 25 0 50 100

HORIZONTAL
ORIGINAL SCALE: 1" = 50'
VERTICAL
ORIGINAL SCALE: 1" = 5'

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V-SCALE	1"= 5'
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CHECKED BY	

LATIGO TRAILS – FILING NO. 10

STREET IMPROVEMENT PLAN AND PROFILE

SHEET 7 OF 13

JOB NO. 25175.02

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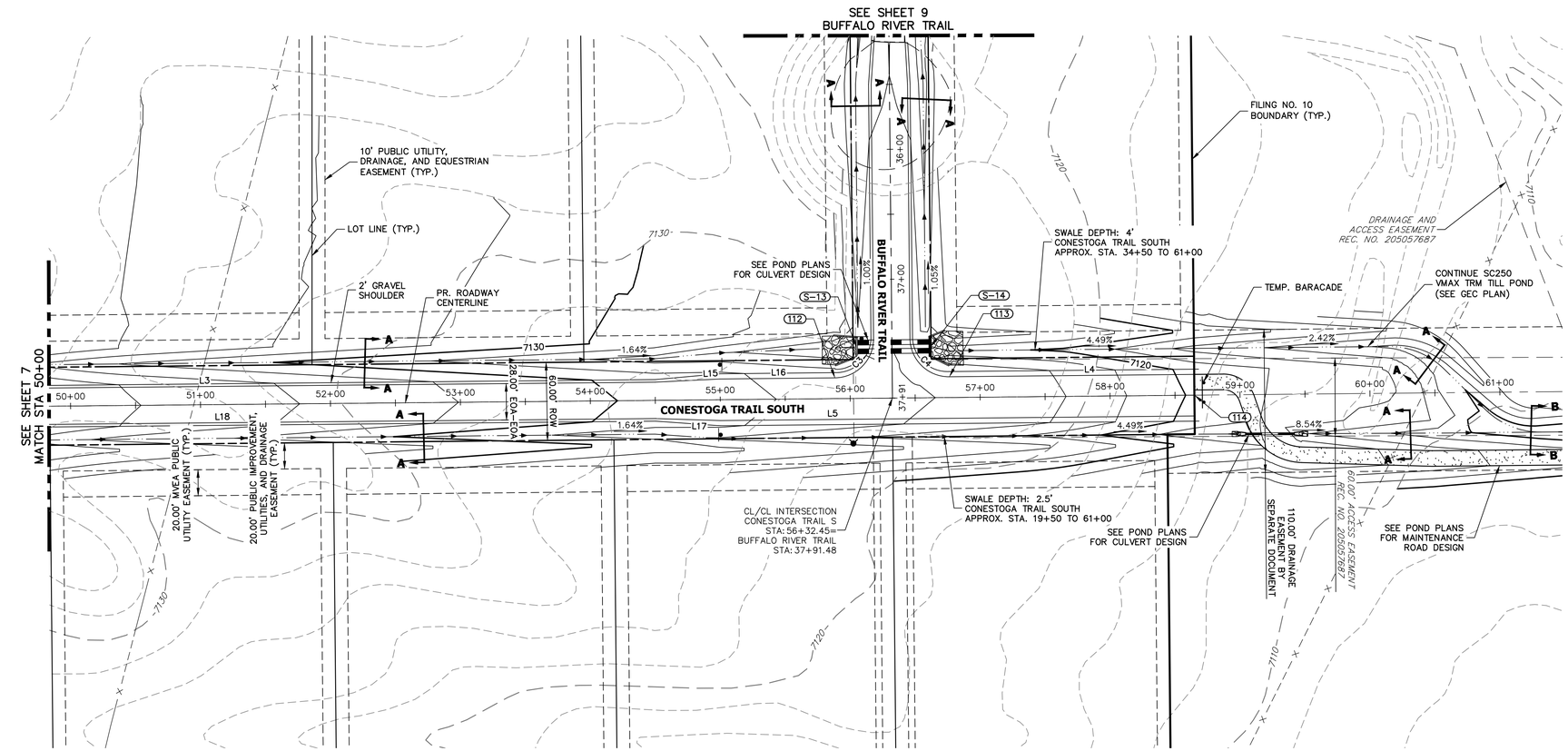
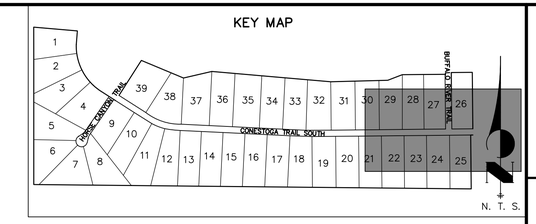


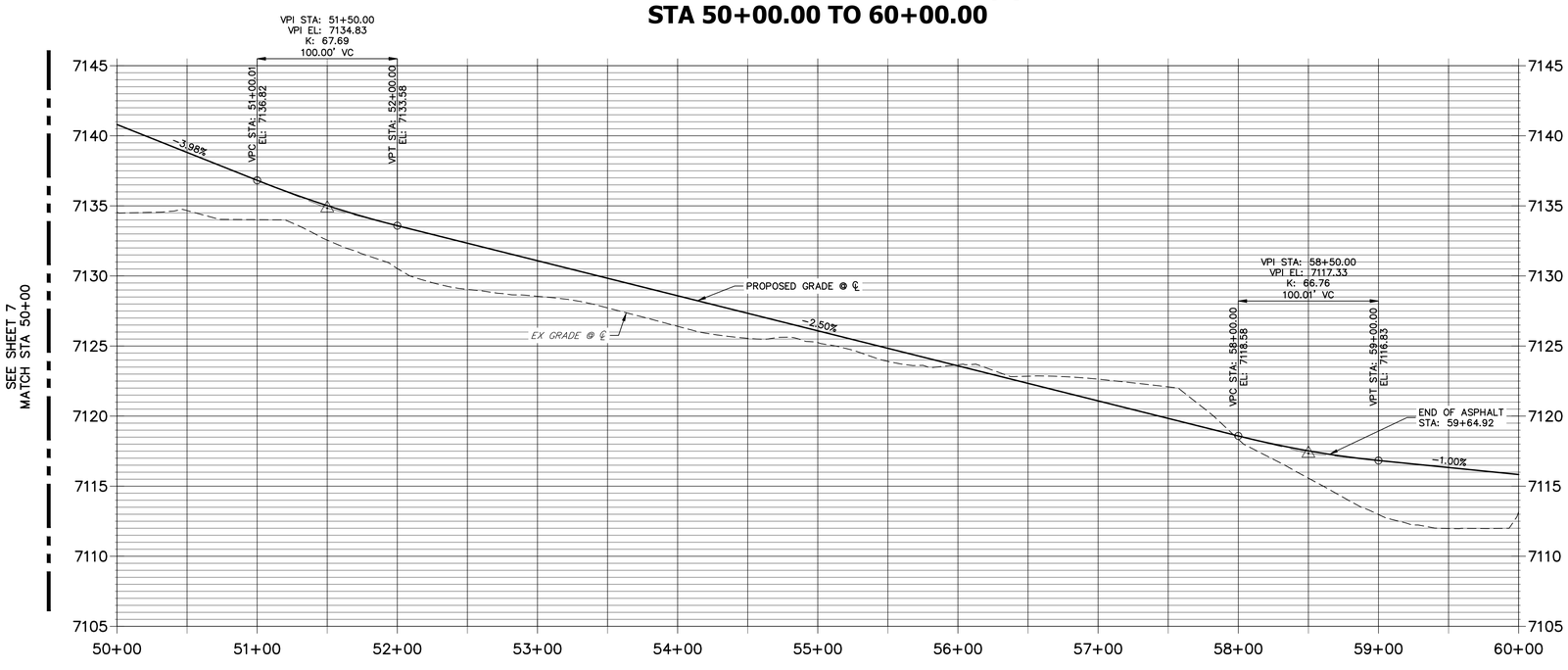


LINE AND CURVE TABLE			
LINE/CURVE	BEARING/DELTA	LENGTH	RADIUS
L5	N89°26'47"E	364.92'	
L16	N89°26'47"E	88.44'	
C3	90°00'00"	47.12'	30.00'
C4	90°00'00"	47.12'	30.00'
L4	N89°26'47"E	188.47'	
L15	S87°09'21"W	50.04'	
L17	N88°15'47"W	50.04'	
L3	N89°26'47"E	1151.78'	
L18	N89°26'47"E	1151.78'	

POINT TABULATION						
POINT NUMBER	STATION	OFFSET	ALIGNMENT	ELEVATION	NOTES	DESCRIPTION
S-13	56+05.04	39.89' (LT)	CONESTOGA TRAIL S	7121.62		END SWALE
S-14	56+62.45	39.45' (LT)	CONESTOGA TRAIL S	7121.42		BEGIN SWALE

POINT TABULATION						
POINT NUMBER	STATION	OFFSET	ALIGNMENT	ELEVATION	NOTES	DESCRIPTION
112	55+88.45	16.00' (LT)	CONESTOGA TRAIL S	7126.94		PCR
113	56+76.45	16.00' (LT)	CONESTOGA TRAIL S	7125.50		PCR
114	58+64.92	0.00' ()	CONESTOGA TRAIL S	0.00		END IMPROVEMENTS

CONESTOGA TRAIL S PROFILE (4)
STA 50+00.00 TO 60+00.00



STREET IMPROVEMENT NOTES

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3. ALL CURB RETURN RADII ARE 30', UNLESS OTHERWISE NOTED.
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5. SEE SHEET 3 FOR TYPICAL STREET SECTIONS, SWALE SECTION A-A, B-B, AND SECTION C-C DIMENSIONS AND DETAILS.
6. ALL PROPOSED ROW WIDTHS ARE 60', UNLESS OTHERWISE NOTED.
7. ABBREVIATIONS: EOA = EDGE OF ASPHALT, P.I.E. = PUBLIC IMPROVEMENTS EASEMENT.

50 25 0 50 100

HORIZONTAL
ORIGINAL SCALE: 1" = 50'
VERTICAL
ORIGINAL SCALE: 1" = 5'

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FOR AND ON BEHALF OF JR ENGINEERING, LLC

DATE

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PREPARED FOR
BRJM, LLC
101 N. CASCADE, SUITE 200
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ATTN: BOB IRWIN
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J·R ENGINEERING
A Westrian Company
Centennial 303-740-9393 • Colorado Springs 719-593-2593
Fort Collins 970-491-9888 • www.jrengineering.com

No.	REVISION	BY	DATE

H-SCALE	1"=50'
V-SCALE	1"=5'
DATE	04/11/22
DESIGNED BY	XXX
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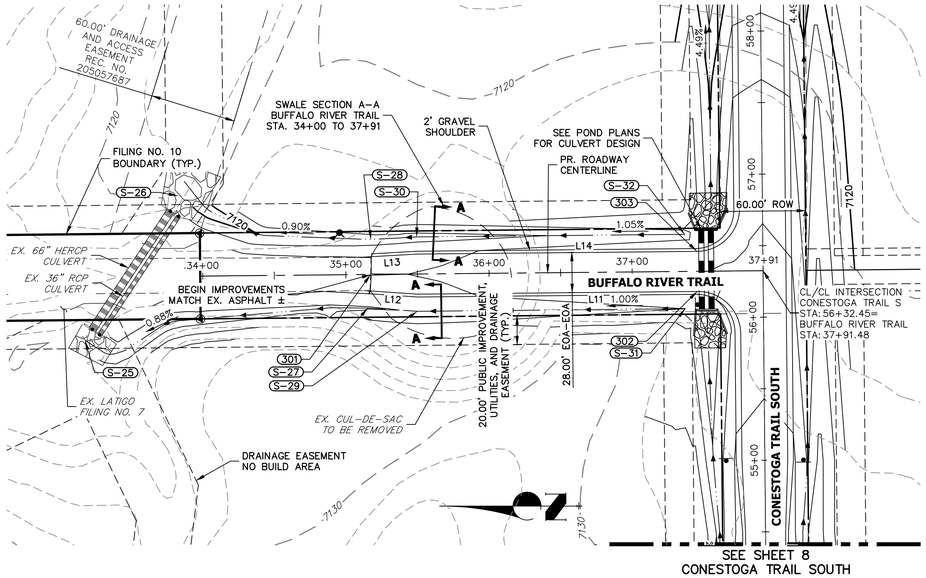
LATIGO TRAILS – FILING NO. 10

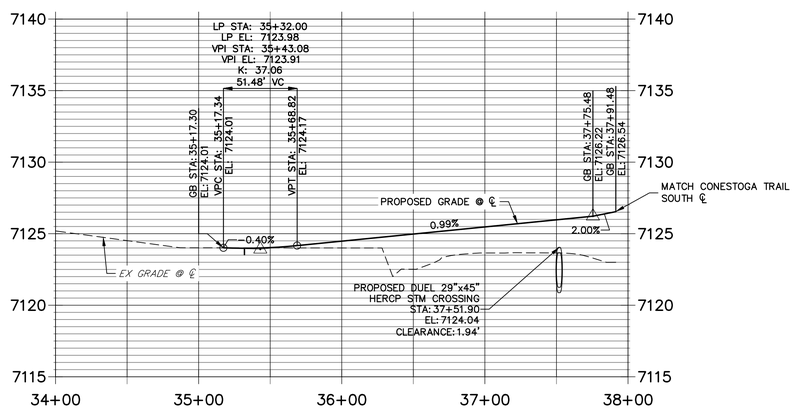
STREET IMPROVEMENT PLAN AND PROFILE

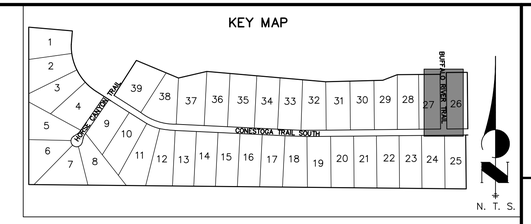
SHEET 8 OF 13

JOB NO. 25175.02



BUFFALO RIVER TRAIL PROFILE
STA 34+00.00 TO 38+00.00





LINE AND CURVE TABLE			
LINE/CURVE	BEARING/DELTA	LENGTH	RADIUS
L11	N00°33'13"W	195.48'	
L14	S00°33'13"E	195.48'	
L13	N03°16'46"W	41.11'	
L12	N03°51'17"E	37.17'	

POINT TABULATION						
POINT NUMBER	STATION	OFFSET	ALIGNMENT	ELEVATION	NOTES	DESCRIPTION
301	35+17.30	0.00' ()	BUFFALO RIVER TRAIL	7124.01		BEGIN IMPROVEMENTS MATCH EX. ASPHALT ±
302	37+45.48	14.00' (RT)	BUFFALO RIVER TRAIL	7125.63		PCR
303	37+45.48	14.00' (LT)	BUFFALO RIVER TRAIL	7125.63		PCR

POINT TABULATION						
POINT NUMBER	STATION	OFFSET	ALIGNMENT	ELEVATION	NOTES	DESCRIPTION
S–25	33+17.15	44.09' (LT)	BUFFALO RIVER TRAIL	7120.72		END SWALE
S–26	33+83.28	56.34' (RT)	BUFFALO RIVER TRAIL	7117.88		END SWALE
S–27	35+15.26	23.35' (RT)	BUFFALO RIVER TRAIL	7121.24		SWALE PI
S–28	35+17.63	24.47' (LT)	BUFFALO RIVER TRAIL	7121.22		SWALE PI
S–29	35+49.62	26.00' (RT)	BUFFALO RIVER TRAIL	7121.12		SWALE PI
S–30	35+49.76	26.00' (LT)	BUFFALO RIVER TRAIL	7121.12		SWALE PI
S–31	37+36.84	26.00' (RT)	BUFFALO RIVER TRAIL	7123.02		BEGIN SWALE
S–32	37+36.98	26.00' (LT)	BUFFALO RIVER TRAIL	7123.02		BEGIN SWALE

STREET IMPROVEMENT NOTES

1. ALL STATIONING IS ℄, UNLESS OTHERWISE NOTED.
2. ALL PROFILE ELEVATIONS ARE ℄, UNLESS OTHERWISE NOTED.
3. ALL CURB RETURN RADII ARE 30', UNLESS OTHERWISE NOTED.
4. ALL SLOPE LABELS ARE SWALE CENTERLINE, UNLESS OTHERWISE NOTED.
5. SEE SHEET 3 FOR TYPICAL STREET SECTIONS, SWALE SECTION A–A, B–B, AND SECTION C–C DIMENSIONS AND DETAILS.
6. ALL PROPOSED ROW WIDTHS ARE 60', UNLESS OTHERWISE NOTED.
7. ABBREVIATIONS: EOA = EDGE OF ASPHALT, P.I.E. = PUBLIC IMPROVEMENTS EASEMENT.

50 25 0 50 100

HORIZONTAL
ORIGINAL SCALE: 1" = 50'
VERTICAL
ORIGINAL SCALE: 1" = 5'

Know what's below. Call before you dig.

ENGINEER'S STATEMENT

PREPARED UNDER MY DIRECT SUPERVISION AND ON BEHALF OF JR ENGINEERING

BRYAN T. LAW, P.E.
COLORADO P.E. 25043
FOR AND ON BEHALF OF JR ENGINEERING, LLC

DATE

COLORADO REGISTERED BRYAN T. LAW 25043 PROFESSIONAL ENGINEER

UNTIL SUCH TIME AS THESE DRAWINGS ARE APPROVED BY THE APPROPRIATE REVIEWING AGENCIES, JR ENGINEERING APPROVES THEIR USE ONLY FOR THE PURPOSES DESIGNATED BY WRITTEN AUTHORIZATION.

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LATIGO TRAILS – FILING NO. 10

STREET IMPROVEMENT PLAN AND PROFILE

SHEET 9 OF 13

JOB NO. 25175.02

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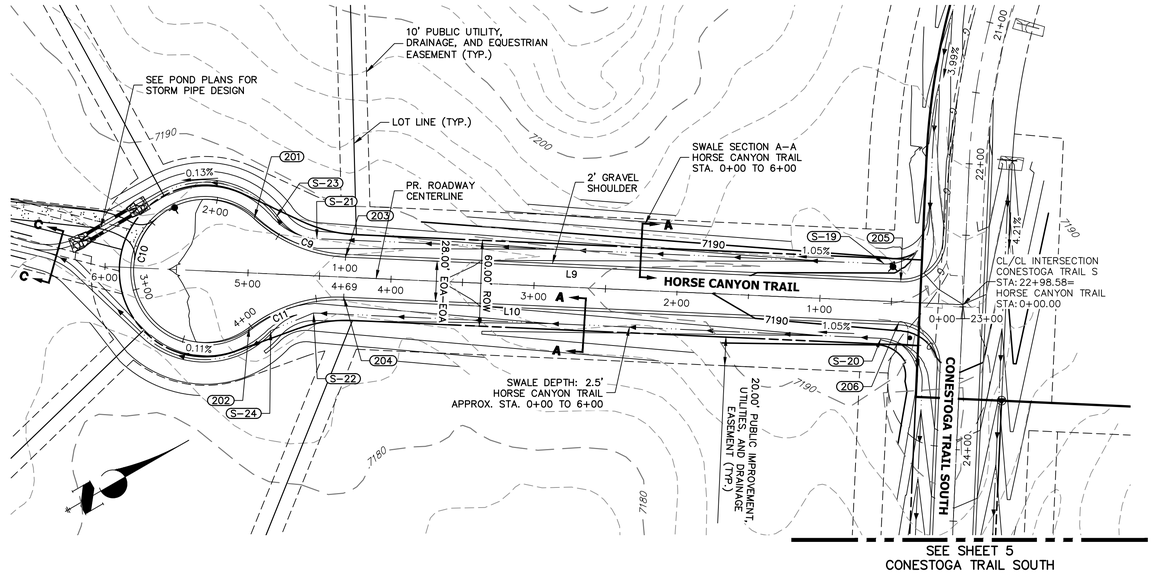
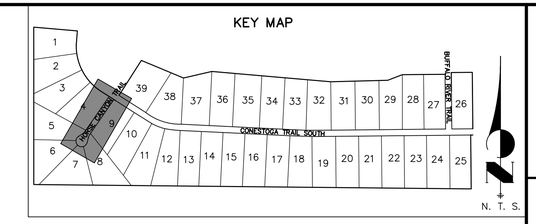
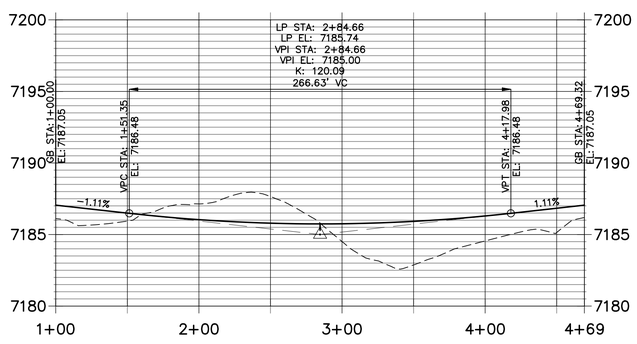
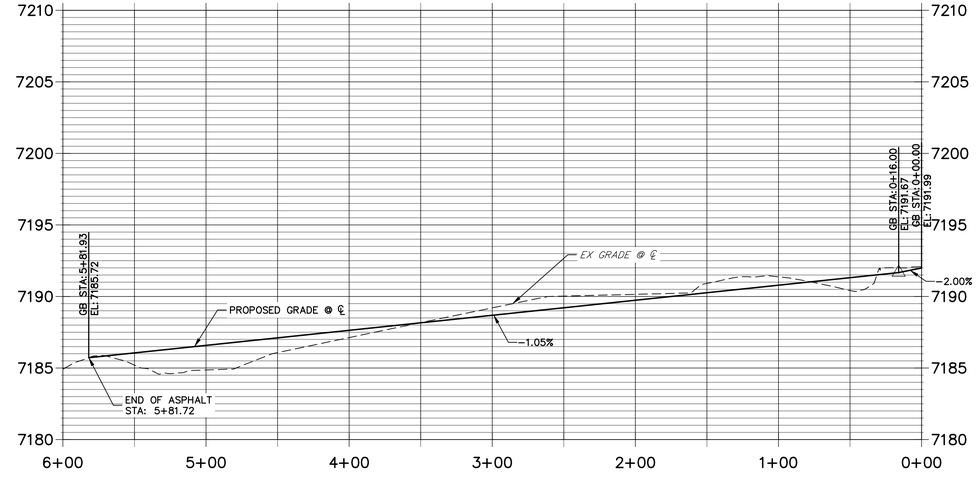




HORSE CANYON CUL-DE-SAC PROFILE
STA 1+00.00 TO 4+69.32



HORSE CANYON TRAIL PROFILE
STA 0+00.00 TO 6+00.00



POINT TABULATION						
POINT NUMBER	STATION	OFFSET	ALIGNMENT	ELEVATION	NOTES	DESCRIPTION
201	4+97.44	38.00' (RT)	HORSE CANYON TRAIL	0.00		PCR
202	4+97.44	38.00' (LT)	HORSE CANYON TRAIL	0.00		PCR
203	4+32.44	14.00' (RT)	HORSE CANYON TRAIL	0.00		PCR
204	4+32.44	14.00' (LT)	HORSE CANYON TRAIL	0.00		PCR
205	0+44.00	14.00' (RT)	HORSE CANYON TRAIL	7191.10		PCR
206	0+44.00	14.00' (LT)	HORSE CANYON TRAIL	7191.10		PCR

POINT TABULATION						
POINT NUMBER	STATION	OFFSET	ALIGNMENT	ELEVATION	NOTES	DESCRIPTION
S–19	0+56.00	26.00' (RT)	HORSE CANYON TRAIL	7188.43		SWALE PCR
S–20	0+56.00	26.00' (LT)	HORSE CANYON TRAIL	7188.43		SWALE PCR
S–21	4+53.09	26.00' (RT)	HORSE CANYON TRAIL	7184.26		SWALE PCR
S–22	4+53.09	26.00' (LT)	HORSE CANYON TRAIL	7184.26		SWALE PCR
S–23	4+82.29	39.68' (RT)	HORSE CANYON TRAIL	7183.52		SWALE PCR
S–24	4+82.29	39.68' (LT)	HORSE CANYON TRAIL	7183.52		SWALE PCR

LINE AND CURVE TABLE			
LINE/CURVE	BEARING/DELTA	LENGTH	RADIUS
C10	130°32'09"	113.91'	50.00'
L10	N32°33'20"E	388.44'	
C11	40°32'09"	70.75'	100.00'
L9	S32°33'20"W	388.44'	
C9	40°32'09"	70.75'	100.00'

50 25 0 50 100

HORIZONTAL
ORIGINAL SCALE: 1" = 50'
VERTICAL
ORIGINAL SCALE: 1" = 5'

ENGINEER'S STATEMENT

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COLORADO REGISTERED BRYAN T. LAW 25043 PROFESSIONAL ENGINEER

BRYAN T. LAW, P.E. DATE
COLORADO P.E. 25043
FOR AND ON BEHALF OF JR ENGINEERING, LLC

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CHECKED BY	

LATIGO TRAILS – FILING NO. 10

STREET IMPROVEMENT PLAN AND PROFILE

SHEET 10 OF 13

JOB NO. 25175.02

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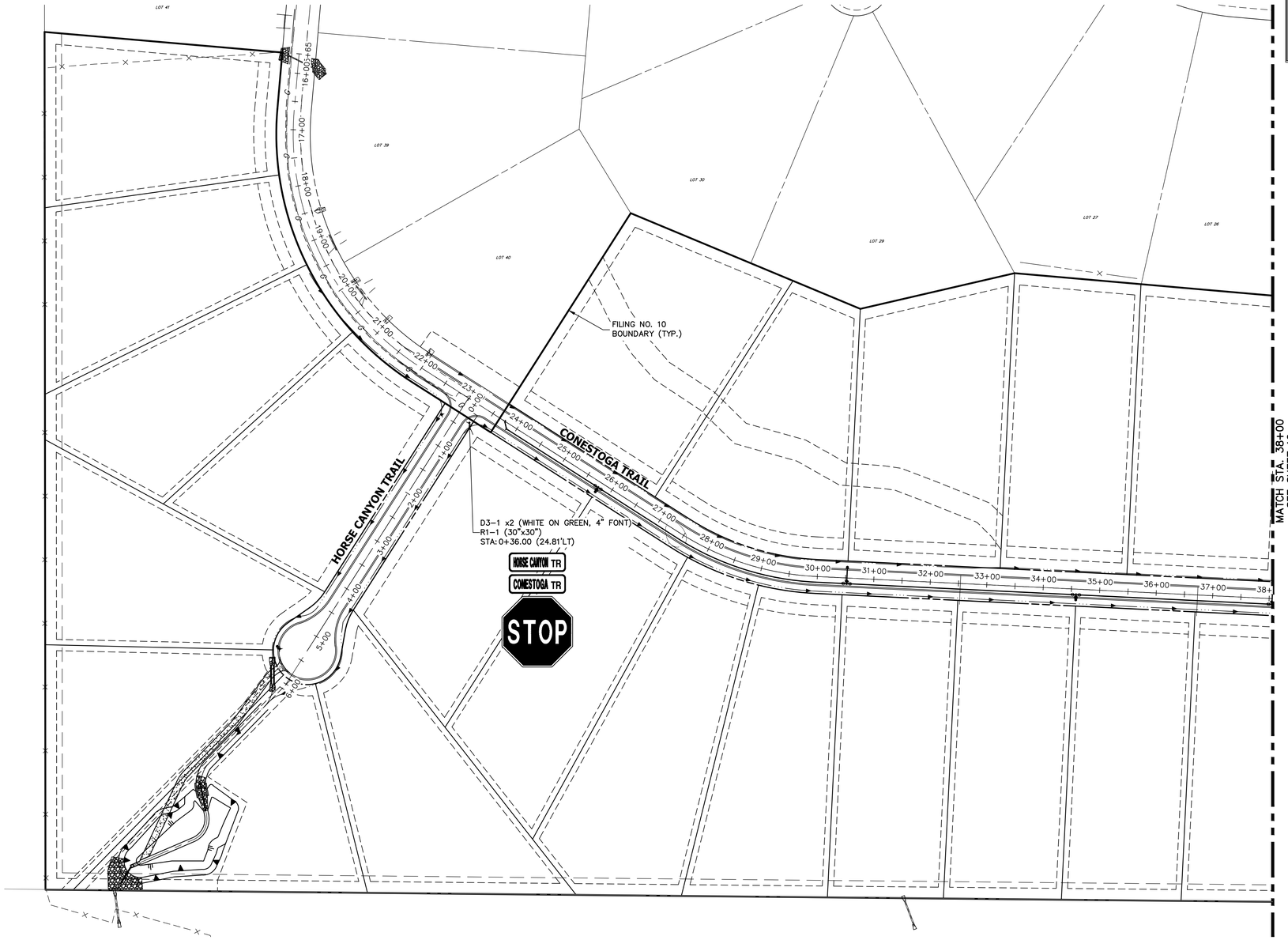

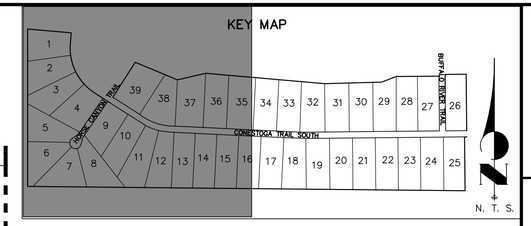

100 50 0 100 200

ORIGINAL SCALE: 1" = 100'

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V-SCALE	N/A
DATE	04/11/22
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LATIGO TRAILS – FILING NO. 10

SIGNAGE AND STRIPING PLAN

SHEET 11 OF 13

JOB NO. 25175.02

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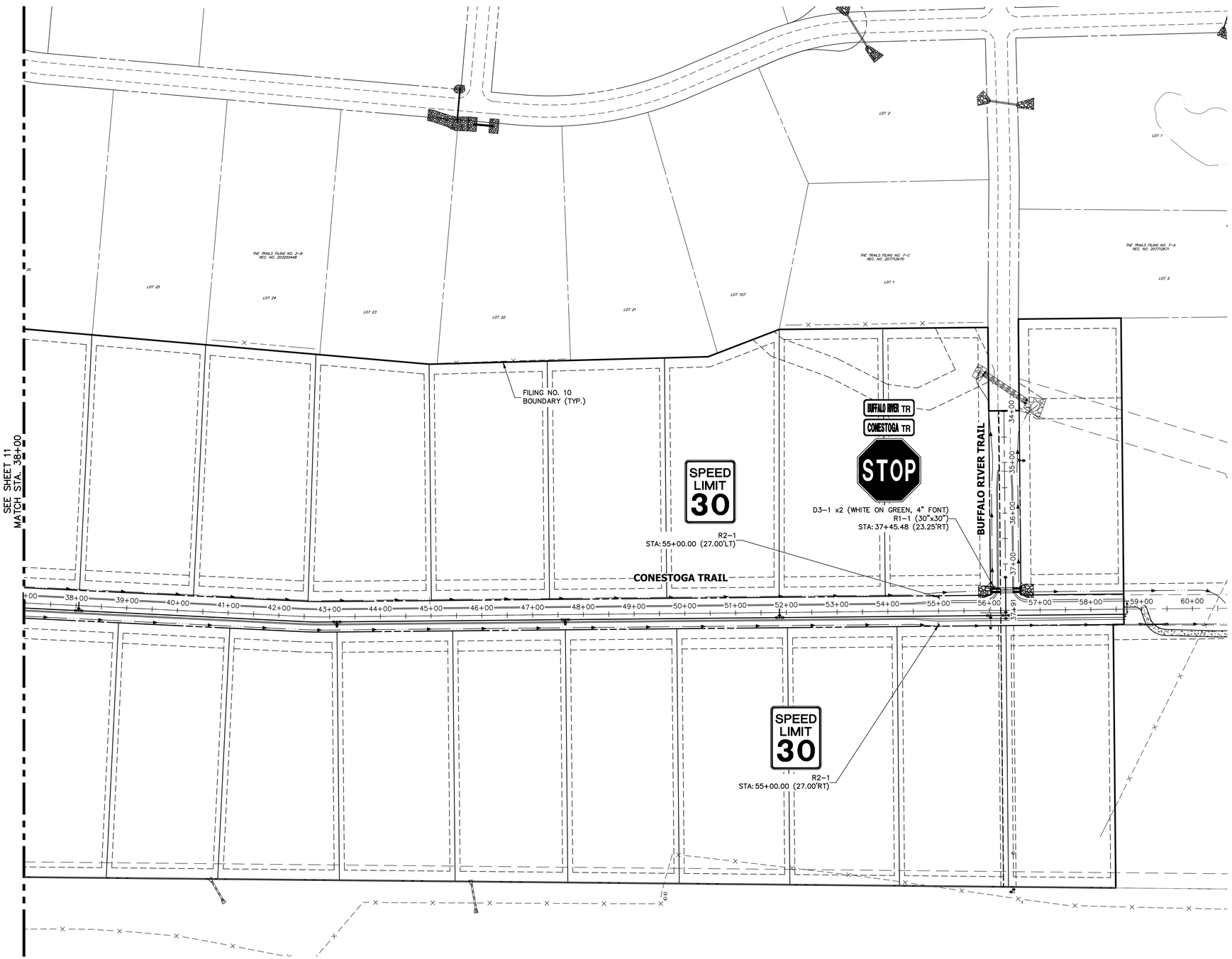

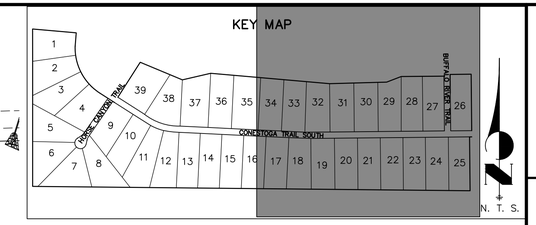

100 50 0 100 200

ORIGINAL SCALE: 1" = 100'

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SIGNAGE AND STRIPING PLAN

SHEET 12 OF 13

JOB NO. 25175.02

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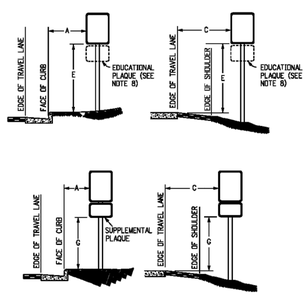
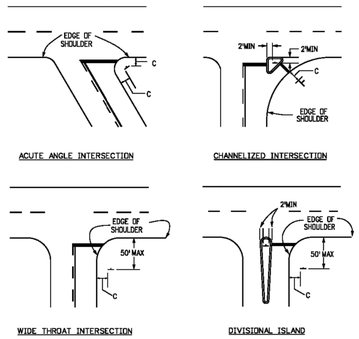
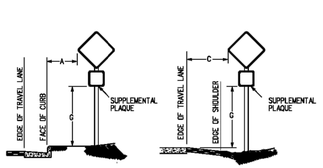
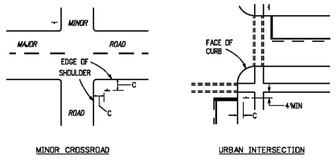


REGULATORY, RECREATIONAL AND CULTURAL INFORMATION SIGN PLACEMENT





WARNING SIGN PLACEMENT



TYPICAL LOCATIONS-STOP SIGNS AND YIELD SIGNS

GENERAL NOTES

1. THE ENGINEER WILL ESTABLISH GRADES AND LOCATIONS FOR ALL SIGN POSTS IN ACCORDANCE WITH DETAILS SHOWN ON THE PLANS.
2. SPECIAL CARE SHALL BE TAKEN IN SIGN LOCATION TO ENSURE AN UNOBSTRUCTED VIEW OF EACH SIGN.
3. MINIMUM POST EMBEDMENT SHALL BE 3 FT.FOR U-2 POSTS AND 4-3N X 4-3N TIMBER POSTS, AND 5 FT FOR 6-3N X 6-3N TIMBER POSTS. SEE APPLICABLE STANDARDS FOR FOOTING DEPTH.
4. IF A SHOULDER IS WIDER THAN 6 FT., THE MINIMUM LATERAL OFFSET DISTANCE SHOULD BE 6 FT. FROM THE EDGE OF SHOULDER, EXCEPT FOR MILE MARKER SIGNS. SEE FIGURE 2A-2(B) OF THE 2009 MUTCD.
5. NORMAL LATERAL PLACEMENT IS MEASURED FROM THE EDGE OF THE TRAVEL LANE.
6. IN URBAN AREAS, A LATERAL CLEARANCE OF 1 FT FROM THE CURB FACE IS PERMISSIBLE WHERE SIDEWALK WIDTH IS LIMITED OR WHERE EXISTING POLES ARE CLOSE TO THE CURB.
7. TYPICAL POST MOUNTING HEIGHTS FROM GROUND TO BOTTOM OF SIGN PANEL ARE 7 OR 8 FT. OTHER HEIGHTS MAY BE REQUIRED WHEN SIGNS ARE MOUNTED ON STEEPER FILL OR CUT SLOPES.
8. "EDUCATIONAL PLAQUES" FOR SYMBOL SIGNS WILL NOT BE CONSIDERED WHEN DETERMINING VERTICAL PLACEMENT. FOR INFORMATION OF EDUCATIONAL PLAQUES, SEE PAGE 3 OF THE 2012 CDOT GUIDE SIGNING POLICIES & PROCEDURES, AND SECTION 2M.06 OF THE 2009 MUTCD.
9. WHEN LATERAL PLACEMENT IS 30 FT OR MORE FOR SIGNS WITHOUT A SUPPLEMENTAL PLAQUE, VERTICAL PLACEMENT D MAY BE REDUCED TO 5 FT. WHEN LATERAL PLACEMENT IS 30 FT OR MORE FOR SIGNS WITH A SUPPLEMENTAL PANEL, VERTICAL PLACEMENT F DOES NOT DOES NOT APPLY - USE ONLY VERTICAL PLACEMENT H.
10. NORMAL ANGULAR PLACEMENT IS 0 DEG. SIGNS CLOSER THAN 30 FT. SHOULD BE TURNED SLIGHTLY AWAY TO MINIMIZE SPECULAR REFLECTION. SIGNS PLACED 30 FT. OR MORE SHOULD GENERALLY BE TURNED TOWARD THE ROAD.
11. THE EXIT PANEL IS MOUNTED ON THE RIGHT HAND SIDE FOR RIGHT HAND EXITS AND THE LEFT SIDE FOR LEFT HAND EXITS.
12. POST SHALL BE INSTALLED PLUMB, VERTICAL DEVIATION SHALL NOT EXCEED ½-IN. IN 10 FT.
13. ON ALL TWO-LANE, UNDIVIDED HIGHWAYS, THE MILE MARKER AND POST SHALL BE INSTALLED ON THE RIGHT SHOULDER IN THE ASCENDING DIRECTION WITH THE MILE MARKER PANELS DISPLAYED ON THE FRONT AND BACK SIDE OF THE POST.
14. ON ALL UNDIVIDED MULTI-LANE AND DIVIDED HIGHWAYS, AND INTERSTATES, THE MILE MARKER AND POST SHALL BE INSTALLED ON THE OUTSIDE SHOULDER (OR SIDEWALK IF APPLICABLE) IN BOTH DIRECTIONS OF TRAVEL.
15. VERTICAL SPACING BETWEEN SIGN PANELS SHALL BE 1 TO 1½ IN., TYPICAL.

PLACEMENT TABLES

KEY	LATERAL PLACEMENT: ALL CLASSES OF STREETS AND HIGHWAYS — MINIMUM	NORMAL
A	2'-0"	15'-0"PLUS CURB
B	2'-0"	30'-0" OR MORE INCLUDES CURB
C	2'-0"	6'-0"PLUS EDGE OF 6'+ WIDE SHOULDER. IF NONE, 15'-0" FROM EDGE OF TRAVEL LANE

KEY	VERTICAL PLACEMENT: FREEWAYS AND EXPRESSWAYS — MIN.	MAX.	CONVENTIONAL STREETS AND HIGHWAYS — URBAN MIN.	URBAN MAX.	RURAL MIN.	RURAL MAX.
D	7'-0" OR NOTE NO. 9	12'-0"	7'-0"	8'-0"	5'-0"	8'-0"
E	7'-0"	8'-0"	7'-0"	8'-0"	5'-0"	8'-0"
F	8'-0" OR NOTE NO. 9	12'-0"	8'-0"	9'-0"	5'-0"	9'-0"
G	6'-0"	7'-0"	6'-0"	7'-0"	4'-0"	7'-0"
H	5'-0"	10'-0"	6'-0"	7'-0"	4'-0"	7'-0"

Computer File Information	
Creation Date: 07/04/12	
Created By: KGM	
Last Modification Date: 07/31/19	
Last Modified By: AVU	
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	

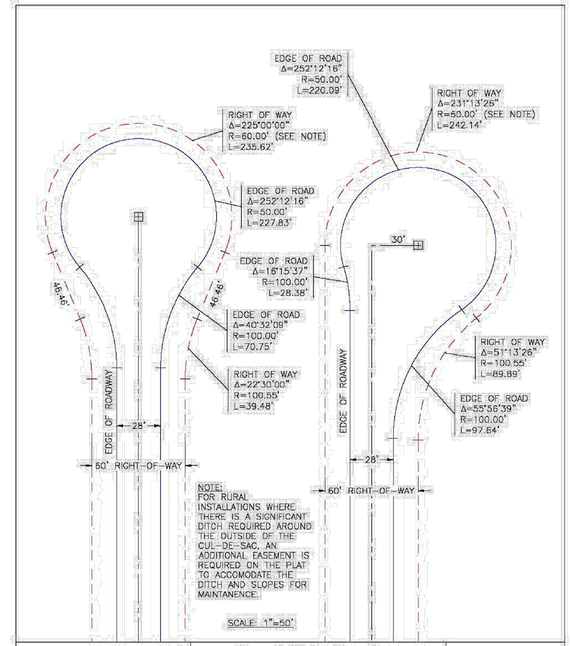
Sheet Revisions	
Date:	Comments

Colorado Department of Transportation
2829 W. Howard Pl.
Denver, CO 80204
Phone: 303-757-9436
FAX: 303-757-9219
Traffic & Safety Engineering MKB

GROUND SIGN PLACEMENT

Issued By: Traffic & Safety Engineering Branch July 31, 2019

STANDARD PLAN NO.
S-614-1
Standard Sheet No. 1 of 2
Project Sheet Number:



1/1/08	Rural Cul-De-Sac Details	EL PASO COUNTY DEPARTMENT OF TRANSPORTATION
DATE APPROVED:	Standard Drawing	
John A. McCarty	REVISION DATE: 12/8/15	FILE NAME: SD_2-76
DEPARTMENT OF TRANSPORTATION		

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ENGINEER'S STATEMENT

STANDARD DETAILS SHOWN WERE REVIEWED ONLY AS TO THEIR APPLICATION ON THIS PROJECT

BRYAN T. LAW, P.E.
COLORADO P.E. 25043
FOR AND ON BEHALF OF JR ENGINEERING, LLC

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DESIGNED BY	N/A
DRAWN BY	N/A
CHECKED BY	

LATIGO TRAILS – FILING NO. 10

DETAILS

SHEET 13 OF 13

JOB NO. 25175.02

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LATIGO TRAILS - FILING NO. 10

A PARCEL OF LAND LOCATED IN THE SOUTH QUARTER OF SECTION S17 TOWNSHIP 12 SOUTH, RANGE 64 WEST OF P.M., EL PASO COUNTY, STATE OF COLORADO

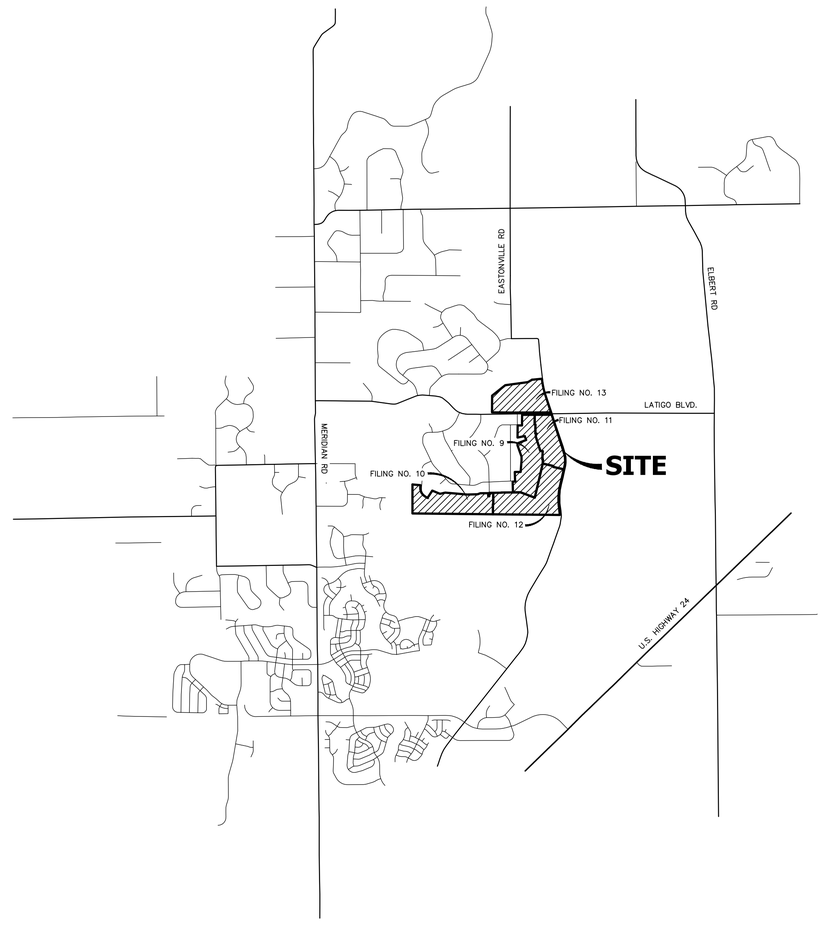
PUBLIC UTILITY PLAN

STANDARD NOTES FOR EL PASO COUNTY CONSTRUCTION PLANS

1. ALL DRAINAGE AND ROADWAY CONSTRUCTION SHALL MEET THE STANDARDS AND SPECIFICATIONS OF THE CITY OF COLORADO SPRINGS/EL PASO COUNTY DRAINAGE CRITERIA MANUAL, VOLUMES 1 AND 2, AND THE EL PASO COUNTY ENGINEERING CRITERIA MANUAL.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR THE NOTIFICATION AND FIELD NOTIFICATION OF ALL EXISTING UTILITIES, WHETHER SHOWN ON THE PLANS OR NOT, BEFORE BEGINNING CONSTRUCTION. LOCATION OF EXISTING UTILITIES SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. CALL 811 TO CONTACT THE UTILITY NOTIFICATION CENTER OF COLORADO (UNCC).
3. CONTRACTOR SHALL KEEP A COPY OF THESE APPROVED PLANS, THE GRADING AND EROSION CONTROL PLAN, THE STORMWATER MANAGEMENT PLAN (SWMP), THE SOIL AND GEOTECHNICAL REPORT, AND THE APPROPRIATE DESIGN AND CONSTRUCTION STANDARDS AND SPECIFICATIONS AT THE JOB SITE AT ALL TIMES, INCLUDING THE FOLLOWING:
   3.1. EL PASO COUNTY ENGINEERING CRITERIA MANUAL (ECM)
   3.2. CITY OF COLORADO SPRINGS/ EL PASO COUNTY DRAINAGE CRITERIA MANUAL, VOLUMES 1 AND 2
   3.3. COLORADO DEPARTMENT OF TRANSPORTATION (CDOT) STANDARD SPECIFICATIONS AND BRIDGE CONSTRUCTION
   3.4. CDOT M&S STANDARDS
4. NOTWITHSTANDING ANYTHING DEPICTED IN THESE PLANS IN WORDS OR GRAPHIC REPRESENTATION, ALL DESIGN AND CONSTRUCTION RELATED TO ROADS, STORM DRAINAGE AND EROSION CONTROL SHALL CONFORM TO THE STANDARDS AND REQUIREMENTS OF THE MOST RECENT VERSIONS OF THE RELEVANT ADOPTED EL PASO COUNTY STANDARDS, INCLUDING THE LAND DEVELOPMENT CODE, THE ENGINEERING CRITERIA MANUAL, THE DRAINAGE CRITERIA MANUAL, AND THE DRAINAGE CRITERIA MANUAL VOLUME 2. ANY DEVIATIONS FROM REGULATIONS AND STANDARDS MUST BE REQUESTED, AND APPROVED, IN WRITING. ANY MODIFICATIONS NECESSARY TO MEET CRITERIA AFTER-THE-FACT WILL BE ENTIRELY THE DEVELOPER'S RESPONSIBILITY TO RECTIFY.
5. IT IS THE DESIGN ENGINEER'S RESPONSIBILITY TO ACCURATELY SHOW EXISTING CONDITIONS, BOTH ONSITE AND OFFSITE, ON THE CONSTRUCTION PLANS. ANY MODIFICATIONS NECESSARY DUE TO CONFLICTS, OMISSIONS, OR CHANGED CONDITIONS WILL BE ENTIRELY THE DEVELOPER'S RESPONSIBILITY TO RECTIFY.
6. CONTRACTOR SHALL SCHEDULE A PRE-CONSTRUCTION MEETING WITH EL PASO COUNTY PLANNING AND COMMUNITY DEVELOPMENT INSPECTIONS, PRIOR TO STARTING CONSTRUCTION.
7. IT IS THE CONTRACTOR'S RESPONSIBILITY TO UNDERSTAND THE REQUIREMENTS OF ALL JURISDICTIONAL AGENCIES TO OBTAIN ALL REQUIRED PERMITS, INCLUDING BUT NOT LIMITED TO EL PASO COUNTY EROSION AND STORMWATER QUALITY CONTROL PERMIT (ESQCP), REGIONAL BUILDING FLOODPLAIN DEVELOPMENT PERMIT, U.S. ARMY CORPS OF ENGINEERS-ISSUED 401 AND/OR 404 PERMITS, AND COUNTY AND STATE FUGITIVE DUST PERMITS.
8. CONTRACTOR SHALL NOT DEVIATE FROM THE PLANS WITHOUT FIRST OBTAINING WRITTEN APPROVAL FROM THE DESIGN ENGINEER AND PCD. CONTRACTOR SHALL NOTIFY THE DESIGN ENGINEER IMMEDIATELY UPON DISCOVERY OF ANY ERRORS OR INCONSISTENCIES.
9. CONTRACTOR SHALL COORDINATE GEOTECHNICAL TESTING PER ECM STANDARDS. PAVEMENT DESIGN SHALL BE APPROVED BY EL PASO COUNTY PCD PRIOR TO PLACEMENT OF CURB AND GUTTER AND PAVEMENT.
10. ALL CONSTRUCTION TRAFFIC MUST ENTER/EXIT THE SITE AT APPROVED CONSTRUCTION ACCESS POINTS.
11. SIGHT VISIBILITY TRIANGLES ARE IDENTIFIED IN THE PLANS SHALL BE PROVIDED AT ALL INTERSECTIONS. OBSTRUCTIONS GREATER THAN 18 INCHES ABOVE FLOWLINE ARE NOT ALLOWED IN SIGHT TRIANGLES.
12. SIGNING AND STRIPING SHALL COMPLY WITH EL PASO COUNTY DEPARTMENT OF PUBLIC WORKS AND MUTCD CRITERIA.
13. CONTRACTOR SHALL OBTAIN ANY PERMITS REQUIRED BY EL PASO COUNTY DEPARTMENT OF PUBLIC WORKS, INCLUDING WORK WITHIN THE RIGHT-OF-WAY AND SPECIAL TRANSPORT PERMITS.
14. THE LIMITS OF CONSTRUCTION SHALL REMAIN WITHIN THE PROPERTY LINE UNLESS OTHERWISE NOTED. THE OWENER/DEVELOPER SHALL OBTAIN WRITTEN PERMISSION AND EASEMENTS, WHERE REQUIRED, FROM ADJOINING PROPERTY OWNER(S) PRIOR TO ANY OFF-SITE DISTURBANCE, GRADING, OR CONSTRUCTION.
15. ALL STORM DRAIN PIPE SHALL BE CLASS III RCP UNLESS OTHERWISE NOTED AND APPROVED BY PCD.

ABBREVIATIONS

AC	ACRE
AD	ALGEBRAIC DIFFERENCE
AH	AHEAD
ARCH	ARCHITECT
ASCE	AMERICAN SOCIETY OF CIVIL ENGINEERS
ASSY	ASSEMBLY
AVE	AVENUE
BB	BOX BASE
BK	BACK
BNDY	BOUNDARY
BOP	BOTTOM OF PIPE
BOV	BLOW OFF VALVE
BFV	BUTTERFLY VALVE
BLVD	BOULEVARD
BW	BOTTOM OF WALL
C&G	CURB & GUTTER
CATV	CABLE TELEVISION
CB	CATCH BASIN
CBC	CONCRETE BOX CULVERT
CDOT	COLORADO DEPARTMENT OF TRANSPORTATION
CDS	CUL-DE-SAC
CF	CUBIC FOOT
CFS	CUBIC FEET PER SECOND
CIP	COMPLETE IN PLACE
CL	CENTER LINE
CLOMR	CONDITIONAL LETTER OF MAP REVISION
CLR	CLEAR
CMP	CORRUGATED METAL PIPE
CO	CLEAN OUT
COCS	CITY OF COLORADO SPRINGS
CONC	CONCRETE
CR	CIRCLE
CSP	CORRUGATED STEEL PIPE
CSU	COLORADO SPRINGS UTILITIES
CT	COURT
CTRB	CONCRETE THRUST REDUCER BLOCK
CY	CUBIC YARD
DBPS	DRAINAGE BASIN PLANNING STUDY
DE	DRAINAGE EASEMENT
DIA	DIAMETER
DIP	DUCTILE IRON PIPE
DR	DRIVE
DRC	DESIGN REVIEW COMMITTEE
DU	DWELLING UNITS
DY	DAY
E	EAST
EA	EACH
EGL	ENERGY GRADE LINE
EL	ELEVATION
ELEC	ELECTRIC
EOA	EDGE OF ASPHALT
EPC	EL PASO COUNTY
ERCP	ELLIPTICAL RCP
ESMT	EASEMENT
EST	ESTIMATE
EX	EXISTING
FDP	FINAL DEVELOPMENT PLAN
FDR	FINAL DRAINAGE REPORT
FES	FLARED END SECTION
FF	FINISHED FLOOR ELEVATION
FG	FINISHED GRADE
FH	FIRE HYDRANT
FL	FLOWLINE
FIL	FILING
FO	FIBER OPTIC CABLE
GB	GRADE BREAK
GE	GAS EASEMENT
GIS	GEOGRAPHIC INFORMATION SYSTEM
GL	GAS LINE
GPS	GLOBAL POSITIONING SYSTEM
GV	GATE VALVE
HBP	HOT BITUMINOUS PAVEMENT
HC	HANDICAP
HDC	HIGH DEFLECTION COUPLING
HDPE	HIGH DENSITY POLYETHYLENE
HGL	HYDRAULIC GRADE LINE
HMA	HOT MIX ASPHALT
HOA	HOME OWNERS ASSOCIATION
HP	HIGH POINT
HR	HOUR
I	INLET
IE	IRRIGATION EASEMENT
INT	INTERSECTION
INV	INVERT
IRR	IRRIGATION
KB	KICK (THRUST) BLOCK
LB	POUND
LE	LANDSCAPE EASEMENT
LF	LINEAR FOOT
LN	LANE
LOMR	LETTER OF MAP REVISION
LP	LOW POINT
LS	LUMP SUM
LT	LEFT
MAX	MAXIMUM
M/D	MOISTURE DENSITY
MDDP	MASTER DEVELOPMENT DRAINAGE PLAN
MH	MANHOLE
MIN	MINIMUM
MS	MOUNTABLE SIDEWALK
N	NORTH
NRCP	NON-REINFORCED CONCRETE PIPE
ODP	OFFICIAL DEVELOPMENT PLAN
OHE	OVERHEAD ELECTRIC
OHU	OVERHEAD UTILITY
PC	POINT OF CURVATURE
PCC	POINT OF COMPOUND CURVATURE
PCR	POINT OF CURB RETURN
PDP	PRELIMINARY DEVELOPMENT PLAN
PE	PROFESSIONAL ENGINEER
PI	POINT OF INTERSECTION
PKWY	PARKWAY
PL	PROPERTY LINE
PR	PROPOSED
PRC	POINT OF REVERSE CURVATURE
PT	POINT OF TANGENCY
PV	PLUG VALVE
PVC	POLYVINYL CHLORIDE
R	RADIUS
RCBC	REINFORCED CONCRETE BOX CULVERT
RCP	REINFORCED CONCRETE PIPE
RD	ROAD
ROW	RIGHT OF WAY
RT	RIGHT
S	SOUTH
STE	STEEL
SAN	SANITARY SEWER
SF	SQUARE FOOT
ST	STREET
STA	STATION
STM	STORM SEWER
SY	SQUARE YARD
SY-IN	SQUARE YARD INCH
TB	THRUST BLOCK
TBC	TOP BACK OF CURB
TBW	TOP BACK OF WALK
TEL	TELEPHONE
TN	TON
TOA	TOP OF ASPHALT
TOB	TOP OF BOX
TOC	TOP OF CURB OR CONCRETE
TOF	TOP OF FOUNDATION
TOP	TOP OF PIPE
TW	TOP OF WALL
TYP	TYPICAL
UDFCD	URBAN DRAINAGE AND FLOOD CONTROL DISTRICT
UE	UTILITY EASEMENT
U&DE	UTILITY & DRAINAGE EASEMENT
UGE	UNDERGROUND ELECTRIC
VCP	VITRIFIED CLAY PIPE
VPC	VERTICAL POINT OF CURVATURE
VPI	VERTICAL POINT OF INTERSECTION
VPT	VERTICAL POINT OF TANGENCY
VTC	VEHICLE TRACKING CONTROL
W	WEST
WL	WATER LINE
WM	WATER MAIN
WRD	WATER RESOURCES DEPARTMENT
WS	WATER SURFACE
WSE	WATER SURFACE ELEVATION
WTR	WATER
YR	YEAR



SHEET INDEX

Know what's **below.**
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PCD FILE NO. SF-21-036

APPROVALS

ALL FIRE HYDRANTS SHALL BE INSTALLED ACCORDING TO MERIDIAN RANCH METRO DISTRICT SPECIFICATIONS. THE NUMBER OF FIRE HYDRANTS AND HYDRANT LOCATIONS AS SHOWN ON THIS WATER INSTALLATION PLAN ARE CORRECT AND ADEQUATE TO SATISFY THE FIRE PROTECTION REQUIREMENTS AS SPECIFIED BY THE FALCON FIRE DEPARTMENT.

SIGNED _____ DATE _____
FALCON FIRE DEPARTMENT
PLAN REVIEW NUMBER:_____

WATER INSTALLATION CORROSION CONTROL REQUIREMENTS: SEE PLAN FOR PLACEMENT

WATER PLAN APPROVAL

SIGNED _____ DATE _____
MERIDIAN SERVICE METRO DISTRICT
WORK ORDER NUMBER:_____ PROJECT NUMBER:_____

DISTRICT MANAGER _____ DATE _____

DISTRICT ENGINEER _____ DATE _____

CONTACTS:

OWNER/DEVELOPER:	BRJM, LLC ATTN: BOB IRWIN 101 N. CASCADE, SUITE 200 COLORADO SPRINGS, CO 80903 P~719-475-7474
ENGINEER/SURVEYOR:	JR ENGINEERING, LLC ATTN: BRYAN LAW 5475 TECH CENTER DRIVE, SUITE 235 COLORADO SPRINGS, CO 80919 P~303-267-6254
FIRE PROTECTION DISTRICT:	FALCON FIRE FPD 7030 N MERIDIAN RD FALCON, CO 80831 P~719-494-4050
DISTRICT:	MERIDIAN SERVICE METROPOLITAN DISTRICT 11886 STAPLETON DR PEYTON, CO 80831 P~719-495-6567
EL PASO COUNTY:	PLANNING AND COUNTY DEVELOPMENT ATTN: BRAD WALTERS 2880 INTERNATIONAL CIRCLE, SUITE 110 COLORADO SPRINGS, COLORADO 80910 P ~ (719) 520-6819 DEPARTMENT OF PUBLIC WORKS 3257 AKERS DR COLORADO SPRINGS, CO 80910 P ~ (719) 529-6460
ELECTRIC COMPANY:	MOUNTAIN VIEW ELECTRIC ASSOC., INC. 11140 EAST WOODMEN ROAD FALCON, COLORADO 80831 (719) 495-2283

BASIS OF BEARING

THE SOUTH LINE OF SECTION 17, TOWNSHIP 12 SOUTH, RANGE 64 WEST OF THE 6TH PRINCIPAL MERIDIAN, BEING MONUMENTED AT THE SOUTHEAST CORNER BY A 3-1/4" ALUMINUM CAP STAMPED "LS 24964 2000" FLUSH WITH THE GROUND AND AT THE SOUTHWEST CORNER BY A 2-1/2" ALUMINUM CAP STAMPED "LS 25955 1996" 0.35" BELOW GROUND, BEARING N89°25'55"W.

BENCHMARK

NGS MONUMENT T 294 BEING MONUMENTED BY A 3-1/4" BRASS DISC SET IN A 4'X4' BOULDER, LOCATED 1.8 MILES EAST ALONG HIGBY ROAD FROM ITS INTERSECTION WITH JACKSON CREEK PARKWAY, 40 FEET SOUTH OF THE CENTERLINE OF THE ROAD, 6 FEET SOUTH OF A FENCE, AND 6.2 FEET SOUTH OF A WITNESS POST. SAID MONUMENT HAVING A PUBLISHED ELEVATION OF 7247.10 FEET, NAVD88.

OWNER/DEVELOPER STATEMENT

I, THE OWNER/DEVELOPER HAVE READ AND WILL COMPLY WITH ALL OF THE REQUIREMENTS SPECIFIED IN THESE DETAILED PLANS AND SPECIFICATIONS.

_____ DATE _____
BOB IRWIN

BRJM, LLC
101 N. CASCADE
COLORADO SPRINGS, CO 80903

EL PASO COUNTY STATEMENT

COUNTY PLAN REVIEW IS PROVIDED ONLY 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.

FILED IN ACCORDANCE WITH THE REQUIREMENTS OF THE EL PASO COUNTY LAND DEVELOPMENT CODE, DRAINAGE CRITERIA MANUAL, VOLUMES 1 AND 2, AND ENGINEERING CRITERIA MANUAL AS AMENDED.

IN ACCORDANCE WITH ECM SECTION 1.12, THESE CONSTRUCTION DOCUMENTS WILL BE VALID FOR CONSTRUCTION FOR A PERIOD OF 2 YEARS FROM THE DATE SIGNED BY THE EL PASO COUNTY ENGINEER. IF CONSTRUCTION HAS NOT STARTED WITHIN THOSE 2 YEARS, THE PLANS WILL NEED TO BE RESUBMITTED FOR APPROVAL, INCLUDING PAYMENT OF REVIEW FEES AT THE PLANNING AND COMMUNITY DEVELOPMENT DIRECTORS DISCRETION.

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

ENGINEER'S STATEMENT

THESE DETAILED PLANS AND SPECIFICATIONS WERE PREPARED UNDER MY DIRECT SUPERVISION. SAID PLANS AND SPECIFICATIONS HAVE BEEN PREPARED ACCORDING TO THE CRITERIA ESTABLISHED BY THE COUNTY FOR DETAILED ROADWAY, DRAINAGE, GRADING AND EROSION CONTROL PLANS AND SPECIFICATIONS, AND SAID PLANS AND SPECIFICATIONS ARE IN CONFORMITY WITH APPLICABLE MASTER DRAINAGE PLANS AND MASTER TRANSPORTATION PLANS. SAID PLAN AND SPECIFICATIONS MEET THE PURPOSES FOR WHICH THE PARTICULAR ROADWAY AND DRAINAGE FACILITIES ARE DESIGNED AND ARE CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF. I ACCEPT RESPONSIBILITY FOR ANY LIABILITY CAUSED BY ANY NEGLIGENT ACTS, ERRORS OR OMISSIONS ON MY PART IN PREPARATION OF THESE DETAILED PLANS AND SPECIFICATIONS.

COLORADO REGISTERED BRYAN T. LAW 25043 PROFESSIONAL ENGINEER

_____ DATE _____
BRYAN T. LAW, P.E.
COLORADO P.E. 25043
FOR AND ON BEHALF OF JR ENGINEERING, LLC

UNTIL SUCH TIME AS THESE DRAWINGS ARE APPROVED BY THE APPROPRIATE REVIEWING AGENCIES, JR ENGINEERING APPROVES THEIR USE ONLY FOR THE PURPOSES DESIGNATED BY WRITTEN AUTHORIZATION.

PREPARED FOR
BRJM, LLC
101 N. CASCADE, SUITE 200
COLORADO SPRINGS, CO 80903
ATTN: BOB IRWIN
P~(719)-475-7474

J·R ENGINEERING
A Westrian Company
Centennial 303-740-9393 • Colorado Springs 719-593-2593
Fort Collins 970-491-9888 • www.jrengineering.com

No.	REVISION	BY	DATE

H-SCALE	N/A
V-SCALE	N/A
DATE	04/11/22
DESIGNED BY	QNL
DRAWN BY	QNL
CHECKED BY	

LATIGO TRAILS – FILING NO. 10

COVER SHEET

SHEET 1 OF 9

JOB NO. 25175.02

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LAYER LINETYPE LEGEND

	EXISTING	PROPOSED
PHASE LINE		
MATCH LINE		
SECTION LINE		
BOUNDARY LINE		
PROPERTY LINE		
EASEMENT LINE		
RIGHT OF WAY		
R.O.W. A LINE	A	A
CENTERLINE		
CITY LIMITS		
WIRE FENCE	×	×
CHAIN LINK FENCE	○	●
WOOD FENCE	◇	◆
MASONRY FENCE	□	■
GUARDRAIL		
CONC. BARRIER		
CABLE TV	TV	TV
ELECTRIC	E	E
FIBER OPTIC	FO	FO
GAS MAIN	G	G
IRRIGATION MAIN	IRR	IRR
OIL/PETRO. MAIN	O	O
OVERHEAD UTILITY	OHU	OHU
SANITARY SEWER	S	
STORM DRAIN		
TELEPHONE	T	T
WATER MAIN	W	
RAW WATER LINE	RWL	RWL
SWALE/WATERWAY FLOWLINE		
DIVERSION DITCH		
DIVERSION CHANNEL		
MAJOR DRAINAGE BASIN		
MINOR DRAINAGE BASIN		
TOP OF SLOPE		
TOE OF SLOPE		
EDGE OF WATER		
INDEX CONTOUR	6100	6100
INTERMEDIATE CONTOUR		
DEPRESSION CONT. (INDEX)	6100	6100
DEPRESSION CONT. (INTER)		
TOP OF CUTS		
TOE OF FILLS		
CUT AND FILL LINE		C/F C/F
SILT FENCE	SF	SF
100 YEAR FLOODPLAIN	100YR	100YR
500 YEAR FLOODPLAIN	500YR	500YR
FLOODWAY	FLDWY	FLDWY
BASE FLOOD ELEVATION		
EDGE OF WETLANDS		
STONE WALL		

UTILITIES LEGEND

	EXISTING	PROPOSED
STORM SEWER		
MANHOLE		
STORM INLET		
AREA INLET – SQUARE		
AREA INLET – ROUND		
FLARED END SECTION		
RIPRAP		
SANITARY SEWER		
LINE MARKER	Mkr San	
SERVICE MARKER		
CLEAN-OUT		
MANHOLE W/ DIRECTIONAL FLOW ARROW		
WATER LINE		
LINE MARKER	Mkr W	
SERVICE MARKER		
FIRE HYDRANT		
FIRE CONNECTION		
MANHOLE		
BEND		
BLOW-OFF VALVE		
WELL	WELL	WELL
METER		
VALVE		
REDUCER		
THRUST BLOCK		
CROSS		
PLUG W/ THRUST BLOCK		
TEE		
REVERSE ANCHOR		
ANODE		
AIR & VACUUM VALVE ASSEMBLY		
TRANSMISSION BLOW-OFF ASSEMBLY		
GAS LINE		
MARKER	Mkr G	
SERVICE MARKER		
METER		
VALVE		
PLUG		
TEE		
DRY UTILITIES		
CABLE TV MARKER	Mkr TV	
CABLE TELEVISION PEDESTAL	TV	
ELECTRIC MARKER	Mkr E	
ELECTRIC SERVICE MARKER		
ELECTRICAL PEDESTAL	E	
ELECTRICAL METER	E	
ELECTRICAL MANHOLE	E	
FIBER-OPTIC MARKER	Mkr FO	
IRRIGATION PEDESTAL	I	
TELEPHONE MARKER	Mkr T	
TELEPHONE PEDESTAL	T	
TELEPHONE MANHOLE	T	
UTILITY POLE		
GUY ANCHOR		
GUY POLE		
MISC. UTILITIES		
VENT PIPE	VP	VP
TEST HOLE DESIGNATOR	TH FIRM AGENCY	

MONUMENTATION LEGEND

ALUMINUM CAP – FOUND	AC
BRASS CAP – FOUND	BC
BENCHMARK – FOUND	
CROSS – FOUND	
MONUMENT – SET	
MONUMENT – FOUND (DEFAULT)	
MONUMENT – FOUND (ALTERNATE 1)	
MONUMENT – FOUND (ALTERNATE 2)	
MONUMENT – FOUND (ALTERNATE 3)	
MONUMENT – FOUND (ALTERNATE 4)	
MONUMENT – FOUND (ALTERNATE 5)	
MONUMENT – FOUND (ALTERNATE 6)	
MONUMENT – FOUND (ALTERNATE 7)	
NAIL & WASHER – FOUND	NAIL & WASHER
PANEL – FOUND	
PK NAIL – FOUND	PK NAIL
ROW MONUMENT – FOUND	
ROW MARKER – FOUND	
SECTION CORNER – FOUND	
SECTION CORNER – SET	
QUARTER-SECTION CORNER – FOUND	
QUARTER-SECTION CORNER – SET	
SECTION CENTER – FOUND	
SECTION CENTER – FOUND	
CONTROL/TRAVERSE POINT – SET	

TRAFFIC LEGEND

	EXISTING	PROPOSED
PARKING METER		
TRAFFIC SIGNAL BOX		
TRAFFIC SIGNAL POLE		
TRAFFIC SIGNAL		
BARRICADE		
GUARD RAIL POST		
IMPACT ATTENUATOR		
BRIDGE STYLE HIGHWAY SIGN POST		
CANTILEVER STYLE HIGHWAY SIGN POST		
SIGN		
RAILROAD MARKER/SIGN		
STREET LIGHT		
STREET LIGHT – SINGLE		
STREET LIGHT – DOUBLE		
LUMINAIRE		
ALTERNATE LUMINAIRE		
SIGNAL MAST ARM W/ LUMINAIRE		
PEDESTAL POLE FOUNDATION		
TRAFFIC SIGNAL POLE		
ROUND PULL BOX		
MEDIUM PULL BOX		
LARGE PULL BOX (20X33X15)		
SIGNAL HEAD WITHOUT BACK PLATE		
SIGNAL HEAD WITH BACK PLATE		
PEDESTRIAN SIGNAL HEAD		
VIDEO IMAGE DETECTOR		
OPTICOM DETECTOR		
VEHICLE DETECTION ZONE		V

STORM WATER MANAGEMENT

	KEY	SYMBOL
CHECK DAM	CD	
CONSTRUCTION ROAD STABILIZATION	CRS	
CURB SOCK INLET PROTECTION	CS	
CONCRETE WASHOUT AREA	CWA	
DIVERSION DITCH AND DIKE, TEMPORARY	DD	
DIVERSION CHANNEL, TEMPORARY	DV	
DEWATERING	DW	
EROSION CONTROL BLANKET	ECB	
INLET FILTER	IF	
INLET PROTECTION	IP	
MULCHING	MU	
OUTLET PROTECTION	OP	
PAVED FLUME	PF	
PERMENENT SEEDING	PS	
REINFORCED CONCRETE DAM	RCD	
ROUGH CUT STREET CONTROL	RCS	
SEDIMENT BASIN	SB	
SEDIMENT CONTROL LOG	SCL	
SILT FENCE	SF	
SURFACE ROUGHENING	SR	
STABILIZED STAGING AREA	SSA	
SEDIMENT TRAP	ST	
STRAW BALE BARRIER	STB	
TERRACING	TER	
TEMPORARY SEEDING	TS	
TEMPORARY STREAM CROSSING CULVERT/BRIDGE	TSC C	
TEMPORARY STREAM CROSSING FORD TYPE	TSC F	
TEMPORARY SLOPE DRAIN	TSD	
VEHICLE TRACKING CONTROL	VTC	
VEHICLE TRACKING CONTROL WITH WASH RACK	WR	

DRAINAGE REPORT PLANS

	KEY
BASIN DESIGNATION (NO COEFFICIENT)	# / #.#
BASIN DESIGNATION (1 COEFFICIENT)	# / #.# / #
BASIN DESIGNATION (2 COEFFICIENTS)	# / #.# / # / #
ANALISYS POINT IDENTIFIER	#
BASIN DESIGNATION (HISTORIC)	# / #.#
BASIN DESIGNATION (DEVELOPED)	# / #.#
SUB-BASIN DESIGNATION (DEVELOPED)	# / ##
DRAINAGE PIPE IDENTIFIER	##
DRAINAGE POINT IDENTIFIER (HEXAGONAL)	##
DRAINAGE POINT IDENTIFIER (TRIANGULAR)	?
SWMM DESIGNATION 1	#
SWMM DESIGNATION 2	#
SWMM DESIGNATION 3	#
SWMM DESIGNATION 4	?

LANDSCAPE LEGEND

	EXISTING	PROPOSED
TREE – CONIFEROUS		
TREE – DECIDUOUS		
SHRUB/BUSH		
SHRUBS AND BUSHES		
IRRIGATION BOX		
IRRIGATION SPRINKLER		
IRRIGATION VALVE		
BOLLARD		
FLAGPOLE	FP	

Know what's **below.**
Call before you dig.

UNTIL SUCH TIME AS THESE DRAWINGS ARE APPROVED BY THE APPROPRIATE REVIEWING AGENCIES, JR ENGINEERING APPROVES THEIR USE ONLY FOR THE PURPOSES DESIGNATED BY WRITTEN AUTHORIZATION.

PREPARED FOR
BRJM, LLC
101 N. CASCADE, SUITE 200
COLORADO SPRINGS, CO 80903
ATTN: BOB IRWIN
P~(719)-475-7474

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No.	REVISION	BY	DATE

H-SCALE	N/A
V-SCALE	N/A
DATE	04/11/22
DESIGNED BY	N/A
DRAWN BY	QNL
CHECKED BY	

LATIGO TRAILS – FILING NO. 10

LEGEND AND NOTES

SHEET 2 OF 9

JOB NO. 25175.02

METROPOLITAN DISTRICT GENERAL UTILITY NOTES FOR MERIDIAN SERVICE METROPOLITAN DISTRICT

GENERAL NOTES

1.MERIDIAN SERVICE METROPOLITAN DISTRICT (MSMD) CONTACT TELEPHONE NUMBERS:

ON SITE OFFICE 719-495-6567.
MANAGEMENT COMPANY, IN CARE OF CRS OF COLORADO, LLC 303-381-4965.

2. ALL SANITARY SEWER, POTABLE WATER, RECLAIMED WATER, RAW WATER AND STORM DRAIN SYSTEMS SHALL BE CONSTRUCTED IN CONFORMANCE WITH THE CURRENT MERIDIAN SERVICE METROPOLITAN DISTRICT (MSMD) SPECIFICATIONS. MSMD SPECIFICATIONS HEREINAFTER SHALL BE CONSISTENT WITH THE COLORADO SPRINGS UTILITIES SPECIFICATIONS (CSUS) FOR WASTEWATER LINE EXTENSION & SERVICE STANDARDS, 2010 EDITION AND THE WATER LIND EXTENSION & SERVICE STANDARDS, 2014 EDITION, UNLESS OTHERWISE NOTED AND APPROVED.
3. ALL PLANS ON THE JOB SITE SHALL BE SIGNED AND APPROVED BY MSMD AND MSMD'S ENGINEER. ANY REVISION TO THE PLANS SHALL BE APPROVED BY MSMD AND MSMD'S ENGINEER AND SO NOTED ON THE PLANS.
4. ALL MATERIALS AND WORKMANSHIP SHALL BE SUBJECT TO INSPECTION BY MSMD. MSMD RESERVES THE RIGHT TO ACCEPT OR REJECT ANY SUCH MATERIALS AND WORKMANSHIP THAT DOES NOT CONFORM TO MSMD STANDARDS AND SPECIFICATIONS.
5. ALL PIPE MATERIAL, BACKFILL, AND INSTALLATION SHALL CONFORM TO THE APPLICABLE SPECIFICATIONS OF THE EL PASO COUNTY DEVELOPMENT SERVICES, COLORADO SPRINGS UTILITIES, MSMD, DISTRICT ENGINEER AND THE SOILS ENGINEER.
6. ALL UTILITY TRENCH BACKFILL SHALL BE PLACED PER THE APPROVED SOILS REPORT RECOMMENDATIONS AND UNDER THE DIRECTION OF THE SOILS ENGINEER. TRENCH BACKFILL SHALL BE MOISTURE CONDITIONED TO WITHIN 2 PERCENT OF OPTIMUM AND COMPACTED TO AT LEAST 95 PERCENT OF MAXIMUM MODIFIED PROCTOR DRY DENSITY (ASTM D 1557) OR HIGHER STANDARD AS REQUIRED BY THE EL PASO COUNTY DEVELOPMENT SERVICES OR THE SOILS ENGINEER RECOMMENDATION. THIS SHALL INCLUDE ALL MAIN LINE, VALVES, FIRE HYDRANT RUNS, WATER & SEWER SERVICE LINES, CLEAN OUTS, INLET BOXES, MANHOLES, ETC. A QUALIFIED SOILS ENGINEER SHALL OBSERVE AND TEST THE BACKFILL AND COMPACTION OF ALL TRENCHES AND ALL REPORTS SHALL BE SUBMITTED TO MSMD FOR REVIEW AND APPROVAL.
7. CONTRACTOR SHALL VERIFY THE LOCATION OF ALL EXISTING FACILITIES (ABOVEGROUND AND UNDERGROUND) WITHIN THE PROJECT SITE SUFFICIENTLY AHEAD OF CONSTRUCTION TO PERMIT THE REVISIONS OF THE CONSTRUCTION DRAWINGS IF IT IS FOUND THAT THE ACTUAL LOCATIONS ARE IN CONFLICT WITH THE PROPOSED WORK.
8. ALL WATER AND SANITARY SEWER SERVICE LATERAL LOCATIONS SHALL BE CLEARLY MARKED BY STAMPING AN "S" FOR SEWER AND A "W" FOR WATER ON THE CURB FACE AT EACH SERVICE LATERAL LOCATION. ALL SLEEVE LOCATIONS SHALL BE CLEARLY MARKED BY STAMPING AN "X" ON THE CURB FACE. ALL PRIVATE IRRIGATION SLEEVES SHALL BE MARKED BY STAMPING AN "I" ON THE TOP OF THE SIDEWALK.
9. BENDS, DEFLECTIONS & CUT PIPE LENGTHS SHALL BE USED TO HOLD HORIZONTAL ALIGNMENT OF SEWER AND WATER LINES TO NO MORE THAN 0.5' FROM THE DESIGNED ALIGNMENT.
10. AT ALL LOCATIONS WHERE CAP AND STUB IS NOTED ON DRAWINGS, PROVIDE A PLUG AT THE END OF THE PIPE JOINT NEAREST THE SPECIFIED STATION. PROVIDE A REVERSE ANCHOR AT ALL WATER LINE PLUGS AND BLOW OFFS.
11. ALL EXISTING UTILITY MAINS SHALL BE SUPPORTED AND PROTECTED IN PLACE AND FUNCTION CONTINUOUSLY DURING ALL CONSTRUCTION OPERATIONS. SHOULD A MSMD UTILITY FAIL OR BE DAMAGED AS A RESULT OF THE CONSTRUCTION OPERATION, IT SHALL BE REPAIRED IMMEDIATELY BY THE CONTRACTOR PER ALL MSMD SPECIFICATIONS. IN THE EVENT THE CONTRACTOR CANNOT IMMEDIATELY MAKE THE REPAIRS TO THE FAILED OR DAMAGED MSMD UTILITY TO THE SATISFACTION OF MSMD, MSMD MAY REPAIR OR CAUSE THE REPAIR AND BACK CHARGE ALL SUCH COSTS TO THE CONTRACTOR.
12. THE CONTRACTOR SHALL REPLACE OR REPAIR ANY AND ALL DAMAGE CAUSED BY THE CONTRACTOR DURING CONSTRUCTION ACTIVITIES TO ALL ABOVE OR BELOW GROUND IMPROVEMENTS, INCLUDING BUT NOT LIMITED TO FENCES, LANDSCAPING, CURB, GUTTER, SIDEWALK, ASPHALT, ELECTRIC SYSTEMS, GAS SYSTEMS, TELEPHONE/TELEVISION SYSTEMS, ETC.
13. A PRECONSTRUCTION CONFERENCE MEETING SHALL BE HELD AT THE PROJECT SITE A MINIMUM OF 7 DAYS BEFORE CONSTRUCTION BEGINS AND SHALL BE ATTENDED BY ALL REPRESENTATIVES RESPONSIBLE FOR CONSTRUCTION, INSPECTION, SUPERVISION, TESTING AND ALL OTHER ASPECTS OF THE WORK. THE CONTRACTOR SHALL NOTIFY MSMD AND ALL AFFECTED UTILITY COMPANIES ADJACENT TO THE PROPOSED UTILITY CONSTRUCTION A MINIMUM OF 48 HOURS AND A MAXIMUM OF 96 HOURS PRIOR TO THE START OF CONSTRUCTION FOR SCHEDULING. THE CONTRACTOR SHALL SCHEDULE BI-WEEKLY CONSTRUCTION MEETINGS AT THE PROJECT SITE OR MORE FREQUENTLY AS DEEMED NECESSARY BY MSMD.
14. PRELIMINARY ACCEPTANCE SHALL BE DEFINED AS THE POINT IN TIME THAT MSMD ACCEPTS THE FACILITY FOR USE AND ALL SURFACE IMPROVEMENTS AND RESTORATIONS ARE COMPLETED.
15. FINAL ACCEPTANCE BY MSMD OF ANY UTILITY LINE OR SYSTEM SHALL NOT OCCUR UNTIL COMPLETION OF FINAL ASPHALT LAYERS AND/OR FINAL COMPLETION AND/OR RESTORATION OF ALL SURFACE IMPROVEMENTS. THE WARRANTY PERIOD FOR ALL FACILITIES SHALL BE 12 MONTHS COMMENCING WITH FINAL ACCEPTANCE. MSMD MAY REQUIRE RETESTING OF THE UTILITY SYSTEM PRIOR TO FINAL ACCEPTANCE.
16. INSPECTION FEES: CALL MSMD FOR FEE SCHEDULE.
17. ALL COMMERCIAL/BUSINESS DEVELOPMENTS SHALL HAVE A MINIMUM EIGHT INCH DIAMETER WATER MAIN LOOPED THROUGH THE PROPOSED PROPERTY WITH GATE VALVES LOCATED WHERE THE MAIN ENTERS AND EXITS THE PROPERTY AND A MINIMUM EIGHT INCH SANITARY SEWER MAIN WITH A MANHOLE IN THE STREET WHERE THE MAIN ENTERS THE PROPERTY. THE EXTENT OF THE MAINS SHALL BE MARKED WITH THE APPROPRIATELY COLORED CARSONITE MARKERS AND TRACER WIRE.
18. AFTER REVIEW AND APPROVAL OF PLANS FOR THE EXTENSION OF LINES, FACILITIES, AND/OR SERVICES, CONSTRUCTION MUST BE COMPLETED WITHIN 18 MONTHS FOR RESIDENTIAL SUBDIVISIONS AND 12 MONTHS FOR ANY COMMERCIAL INSTALLATIONS. IF WORK IS NOT COMPLETED WITHIN THIS TIME FRAME AND NO EXTENSION HAS BEEN GIVEN, THEN ALL PLANS MUST BE RE-SUBMITTED TO MSMD FOR REVIEW (WITH NEW FEES PAID) AND APPROVAL.
19. PUMPING OR BYPASS OPERATIONS SHALL BE REVIEWED AND APPROVED BY MSMD AND THE ENGINEER OF RECORD PRIOR TO EXECUTION.
20. ANY FACILITIES OUTSIDE OF PAVED ROADS MUST BE MARKED APPROPRIATELY WITH CARSONITE MARKERS AT EACH VALVE, MANHOLE, TEST STATION, AND ANY OTHER FACILITIES MSMD DEEMS NECESSARY.

WATER NOTES

27. ALL WATER MAIN PIPES SHALL BE AWWA C900 PVC, PRESSURE CLASS 200 OR MSMD APPROVED EQUAL, INSTALLED PER MANUFACTURERS' SPECIFICATIONS. ALL WATER MAIN FITTINGS SHALL HAVE MECHANICAL RESTRAINTS AND THRUST BLOCKS. ALL WATER MAIN PIPES SHALL HAVE A MINIMUM COVER DEPTH OF 5'-6" INSTALLED WITH A COATED 12 GAUGE U.F. TRACER WIRE.
28. ALL LOTS SHALL RECEIVE A MINIMUM 3/4 " DIAMETER HDPE OR COPPER WATER SERVICE INSTALLED PER APPROVED PLANS CSUS AND MSMD SPECIFICATIONS. HDPE WATER SERVICE SHALL BE HDPE SIDR-7 PE4710 RATED FOR 200 PSI WITH THE MARKING SIDR-7, AWWA C901, NSF61 PE4710. WATER SERVICES SHALL BE INCREASED IN SIZE TO 1" DIAMETER WHERE THE RESIDENTIAL SERVICE WATER PRESSURE IS LESS THAN 40 PSI AT 10 GPM DEMAND AND ALL 1/3 ACRE OR GREATER LOTS SHALL RECEIVE A MINIMUM 1" DIAMETER WATER SERVICE AS INDICATED ON THE PLANS. THE CURB STOP VALVE AND BOX AT THE END OF EACH WATER SERVICE SHALL BE "LOCATED" WITH A 2" X 4" PIECE OF WOOD EXTENDED 4' ABOVE FINISH GRADE, PAINTED BLUE, DIRECTLY BEHIND THE CURB STOP VALVE AND BOX. ALL TRACER WIRE CONNECTIONS SHALL BE MADE WITH DBY (DIRECT BURY YELLOW) WATER TIGHT STYLE ELECTRICAL CONNECTORS OR EQUAL.
29. IF HDPE WATER SERVICES ARE TO BE USED THEY SHALL INCLUDE A ROMAC 202 NS OR EQUAL TAPPING SADDLE AND A CURB STOP VALVE INSIDE A CURB STOP BOX AT THE END OF THE WATER SERVICE. ALL CORPORATION STOPS SHALL BE AY MCDONALD MODEL NUMBER 74701B-33 FOR SIDR HDPE SAME SIZE AS THE WATER SERVICE. ALL CURB STOP VALVES SHALL BE ¾" AY MCDONALD MODEL NUMBER 76100 (FLARE X FLARE) OR EQUIVALENT WITH A MAIN SIDE ONE PACK JOINT (PEP) ADAPTOR AY MCDONALD MODEL NUMBER 74755-33 UNLESS OTHERWISE NOTED ON THE PLANS. ALL 1" DIAMETER WATER SERVICES SHALL RECEIVE A 1" INLET BY ¾" OUTLET CURB STOP VALVE.
30. IF COPPER WATER SERVICES ARE TO BE USED THEY SHALL INCLUDE A ROMAC 202 BS OR EQUAL TAPPING SADDLE AND A CURB STOP VALVE INSIDE A CURB STOP BOX AT THE END OF THE WATER SERVICE. ALL CURB STOP VALVES SHALL BE ¾" UNLESS OTHERWISE NOTED ON THE PLANS. ALL 1" DIAMETER WATER SERVICES SHALL RECEIVE A 1" INLET BY ¾" OUTLET CURB STOP VALVE MANUFACTURED BY AY MCDONALD MODEL NUMBER 6104 (FLARE X FLARE) OR EQUIVALENT.
31. ALL POTABLE WATER VALVES SHALL OPEN CLOCKWISE WITH THE VALVE OPERATING NUT INSTALLED LOW NEAR THE MAIN LINE AND PAINTED RED. ALL POTABLE AND RAW WATER VALVES NOT WITHIN PAVED STREETS SHALL BE MARKED WITH CARSONITE MARKERS. ALL RAW WATER VALVES SHALL OPEN COUNTERCLOCKWISE WITH THE VALVE OPERATING NUT INSTALLED HIGH WITHIN 1' FROM THE SURFACE AND PAINTED BLACK.
32. ALL POTABLE WATER, RAW WATER AND NON-POTABLE WATER VALVES 14" OR GREATER SHALL BE BUTTERFLY VALVES WITH A SIDE OPERATING NUT. THE OPERATIONAL DEPTH OF THE POTABLE WATER VALVES SHALL NOT EXCEED 6' IN OVERALL DEPTH NOR SHALL IT BE CLOSER TO THE SURFACE THEN 4'
33. FIRE HYDRANT LOCATIONS SHALL BE REVIEWED AND APPROVED BY THE APPLICABLE FIRE DEPARTMENT AUTHORITY.
34. FIRE HYDRANTS SHALL BE AVK MODEL 2780 NOSTALGIC OPEN RIGHT WITH A 1 ½" PENTAGON OPERATING NUT AND SERVICE CAPS, STANDARD 4 1/2" PUMPER NOZZLE WITH A THREAD PATTERN OF 5 - 3/8" - 6 TPI (THREADS PER INCH) ALONG WITH TWO STANDARD 2 ½" NST (NATIONAL STANDARD THREAD) SIDE NOZZLES.
35. ALL DUCTILE IRON PIPES, FITTINGS, VALVES AND FIRE HYDRANTS SHALL BE WRAPPED WITH POLYETHYLENE TUBING, DOUBLE BONDED AT EACH JOINT AND ELECTRICALLY ISOLATED. BONDING AND ANODE CONNECTIONS SHALL BE THOROUGHLY COATED WITH BITUMINOUS COATINGS.
36. ALL DUCTILE IRON PIPE AND FITTINGS LESS THAN 12 INCHES IN DIAMETER SHALL HAVE CATHODIC PROTECTION USING TWO NO. 6 WIRES WITH 17 LB. MAGNESIUM ANODES EVERY 400 FEET AND 9 LB. MAGNESIUM ANODES AT EACH FITTING. ALL DUCTILE IRON PIPE AND FITTINGS 12 INCHES AND GREATER SHALL HAVE CATHODIC PROTECTION USING TWO NO. 6 WIRES WITH 17 LB. MAGNESIUM ANODES EVERY 300 FEET AND 9 LB. MAGNESIUM ANODES AT EACH FITTING. CATHODIC PROTECTION AND ANODES SHALL BE INSTALLED PER MSMD SPECIFICATIONS.
37. ALL EXISTING WATER UTILITY MATERIAL REMOVED AS PART OF THE WORK ON THESE DRAWINGS SHALL BE RETURNED TO MSMD AS REQUESTED.
38. TESTING OF FACILITIES:

    A.THE CONTRACTOR SHALL NOTIFY MSMD A MINIMUM OF 48 HOURS AND A MAXIMUM OF 96 HOURS PRIOR TO THE START OF ANY TESTING TO ALLOW MSMD STAFF TO BE PRESENT AT ALL TIMES DURING TESTING. ALL TESTING SHALL BE PER MSMD SPECIFICATIONS OR CSUS, WHICHEVER IS GREATER.

    B.ALL SECTIONS OF WATER LINES MUST FIRST PASS A CHLORINE TEST WITH A MINIMUM OF 50 PARTS PER MILLION OF RESIDUAL AFTER 24 HOURS. THE WHOLE SECTION OF LINE BEING TESTED MUST BE RE-CHLORINATED AND RE-TESTED IF IT DOES NOT PASS. ONCE THE SECTION OF LINE BEING TESTED PASSES THE CHLORINE TEST THE LINE MUST BE FLUSHED AND BAC-T TESTED PER CSUS. ONCE THE BAC-T TEST PASSES, THE SECTION OF LINE MAY BE PRESSURE TESTED. WATER FLUSHED FROM THE WATER SYSTEM MUST BE PROPERLY DE-CHLORINATED DURING THE FLUSHING PROCESS

    C.ALL SECTIONS OF WATER LINES MUST PASS A TWO HOUR 200 PSI HYDROSTATIC PRESSURE TEST. THE PRESSURE SHALL NOT DECREASE BY MORE THAN 5 PSI DURING THE DURATION OF THE TEST. NO WATER SHALL BE ADDED DURING THE PRESSURE TEST. IF THE PRESSURE TEST FAILS, THE SECTIONS OF LINE THAT FAILED MUST AGAIN PASS THE CHLORINE TEST, BE FLUSHED, AND PASS THE BAC-T TEST PRIOR TO CONDUCTING A NEW PRESSURE TEST.

    D.ONCE WATER SERVICES ARE INSTALLED A SECOND WATER PRESSURE TEST MUST BE DONE TO A WORKING PSI OF 150 PSI FOLLOWING THE ABOVE TESTING STANDARDS.

    E.SECTIONS OF WATER LINES SHALL BE LEFT PRESSURIZED ONCE THE WATER LINES HAVE PASSED ALL TESTING DURING THE REMAINING CONSTRUCTION ACTIVITIES.

39. COMMENCEMENT OF USE OF WATER LINES AND/OR SYSTEMS. NO WATER FACILITY SHALL BE PLACED IN SERVICE UNTIL:

    A.MSMD HAS APPROVED ALL TESTS AND COMPACTION TESTING REPORTS, AND AS-BUILT DRAWINGS ARE SUBMITTED TO AND APPROVED BY MSMD.

    B.ALL WATER LINES ARE COMPLETED AND THE FIRST LIFT OF ASPHALT IS COMPLETED OVER THE LINE. IN THE CASE WHERE NO ASPHALT IS TO BE PLACED OVER THE LINE, SURFACE IMPROVEMENTS SHALL BE COMPLETED PRIOR TO USE OF THE FACILITY.

    C.ALL EASEMENTS (PLATTED OR DEEDED) ARE DEDICATED, EXECUTED TO MSMD, AND RECORDED.

40. ANY WATER SHUT DOWNS THAT NEED TO OCCUR ON THE CRITICAL LINES AS DEFINED BY THE MSMD SOP (STANDARD OPERATION PROCEDURE) MANUAL SHALL BE COORDINATED WITH MSMD STAFF FOR NIGHT TIME SHUT DOWNS.
41. THE CONTRACTOR SHALL MAKE ALL NECESSARY CONNECTIONS TO EXISTING WATER MAINS WITHOUT A SHUTDOWN OF THE WATER SYSTEM. IN THE EVENT THAT A SHUTDOWN OF A WATER SYSTEM IS NECESSARY, THE CONTRACTOR SHALL ACQUIRE A PERMIT FROM MSMD.
42. ALL NON-POTABLE WATER MAINS SHALL BE AWWA NON-POTABLE STANDARD (PURPLE PIPE) C900 PVC, PRESSURE CLASS 200 OR MSMD APPROVED EQUAL, INSTALLED PER MANUFACTURERS' SPECIFICATIONS. ALL WATER MAIN FITTINGS SHALL HAVE MECHANICAL RESTRAINTS AND THRUST BLOCKS. ALL WATER MAIN PIPES SHALL HAVE A MINIMUM COVER DEPTH OF 5'-6" INSTALLED WITH A COATED 12 GAUGE U.F. TRACER WIRE.
43. ALL NON- POTABLE WATER VALVES SHALL OPEN COUNTER CLOCKWISE WITH A VALVE EXTENSION, EXTENDING TO WITHIN 1' OF THE SURFACE AND PAINTED PURPLE WITH AN OPEN DIRECTION ARROW.
44. IRRIGATION SERVICES SHALL HAVE A STOP AND WASTE CURB STOP VALVE INSTALLED ALONG WITH A TRACER WIRE EXTENDING BACK TO THE MAIN LINE.

THE ABOVE GUIDELINES ARE SUBJECT TO CHANGE AT ANY TIME.

Know what's **below.**
Call before you dig.

UNTIL SUCH TIME AS THESE DRAWINGS ARE APPROVED BY THE APPROPRIATE REVIEWING AGENCIES, JR ENGINEERING APPROVES THEIR USE ONLY FOR THE PURPOSES DESIGNATED BY WRITTEN AUTHORIZATION.

PREPARED FOR
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J·R ENGINEERING
A Westrian Company
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Fort Collins 970-491-9888 • www.jrengineering.com

No.	REVISION	BY	DATE

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V-SCALE	N/A
DATE	04/11/22
DESIGNED BY	N/A
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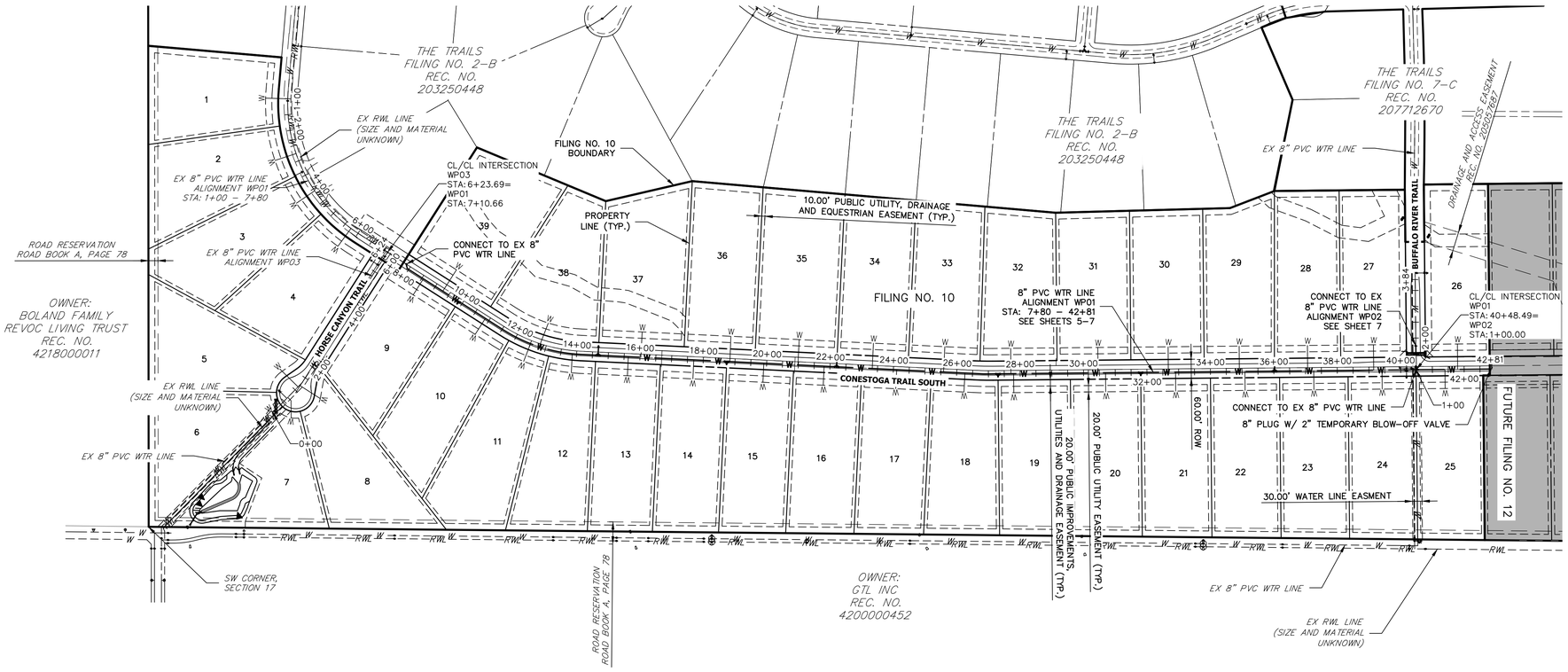
CHECKED BY	

LATIGO TRAILS – FILING NO. 10

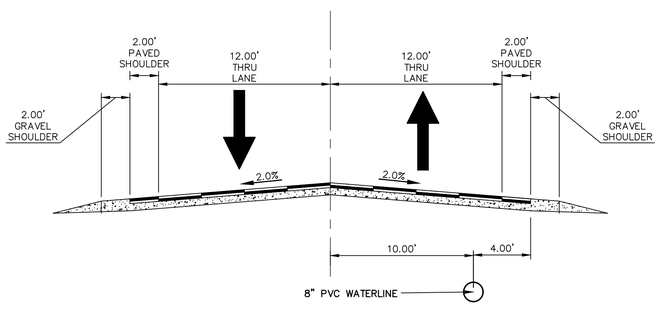
LEGEND AND NOTES

SHEET 3 OF 9

JOB NO. 25175.02



WATER SERVICE LINE TAP LOCATIONS		
ID NO.	PIPE ℄ STATION	PIPE ALIGNMENT
LOT 1	1+00.00	WP01
LOT 2	2+75.84	WP01
LOT 3	4+07.31	WP01
LOT 4	5+73.03	WP01
LOT 5	1+13.46	WP03
LOT 6	0+00.00	WP03
LOT 7	0+66.85	WP03
LOT 8	1+20.05	WP03
LOT 9	8+55.14	WP01
LOT 10	10+86.99	WP01
LOT 11	12+50.57	WP01
LOT 12	13+86.19	WP01
LOT 13	15+63.23	WP01
LOT 14	17+69.98	WP01
LOT 15	19+91.08	WP01
LOT 16	21+81.46	WP01
LOT 17	24+10.48	WP01
LOT 18	26+25.89	WP01
LOT 19	27+79.51	WP01
LOT 20	30+69.39	WP01
LOT 21	32+90.14	WP01
LOT 22	35+08.89	WP01
LOT 23	37+25.89	WP01
LOT 24	39+41.19	WP01
LOT 25	41+39.63	WP01
LOT 26	41+79.73	WP01
LOT 27	39+14.92	WP01
LOT 28	37+06.74	WP01
LOT 29	34+91.41	WP01
LOT 30	32+67.39	WP01
LOT 31	30+45.73	WP01
LOT 32	27+71.06	WP01
LOT 33	25+58.58	WP01
LOT 34	23+33.21	WP01
LOT 35	20+98.73	WP01
LOT 36	18+83.91	WP01
LOT 37	16+03.03	WP01
LOT 38	12+79.25	WP01
LOT 39	9+27.69	WP01



WATER X-SECTION

SCALE: 1' = 5'

THE LOCATIONS OF EXISTING ABOVE GROUND AND UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE CAUSED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL ABOVE GROUND AND UNDERGROUND UTILITIES.

WATER SERVICE NOTES

1. ALL WATER SERVICE PIPES ARE TO BE HDPE W/ FLARED FITTING.
2. ALL WATER SERVICE CURB STOP BOXES MUST BE RAISED A MINIMUM OF 2" ABOVE FINISHED GRADE WITH 1.5" PVC INSIDE THE STOP BOX AS TO KEEP THE VALVE EASILY ACCESSIBLE.

811 Know what's below. Call before you dig.

200 100 0 200 400

ORIGINAL SCALE: 1" = 200'

ENGINEER'S STATEMENT

PREPARED UNDER MY DIRECT SUPERVISION AND ON BEHALF OF JR ENGINEERING

BRYAN T. LAW, P.E.
COLORADO P.E. 25043
FOR AND ON BEHALF OF JR ENGINEERING, LLC

DATE

UNTIL SUCH TIME AS THESE DRAWINGS ARE APPROVED BY THE APPROPRIATE REVIEWING AGENCIES, JR ENGINEERING APPROVES THEIR USE ONLY FOR THE PURPOSES DESIGNATED BY WRITTEN AUTHORIZATION.

PREPARED FOR
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DRAWN BY	QNL
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LATIGO TRAILS – FILING NO. 10

OVERALL UTILITY PLAN

SHEET 4 OF 9

JOB NO. 25175.02

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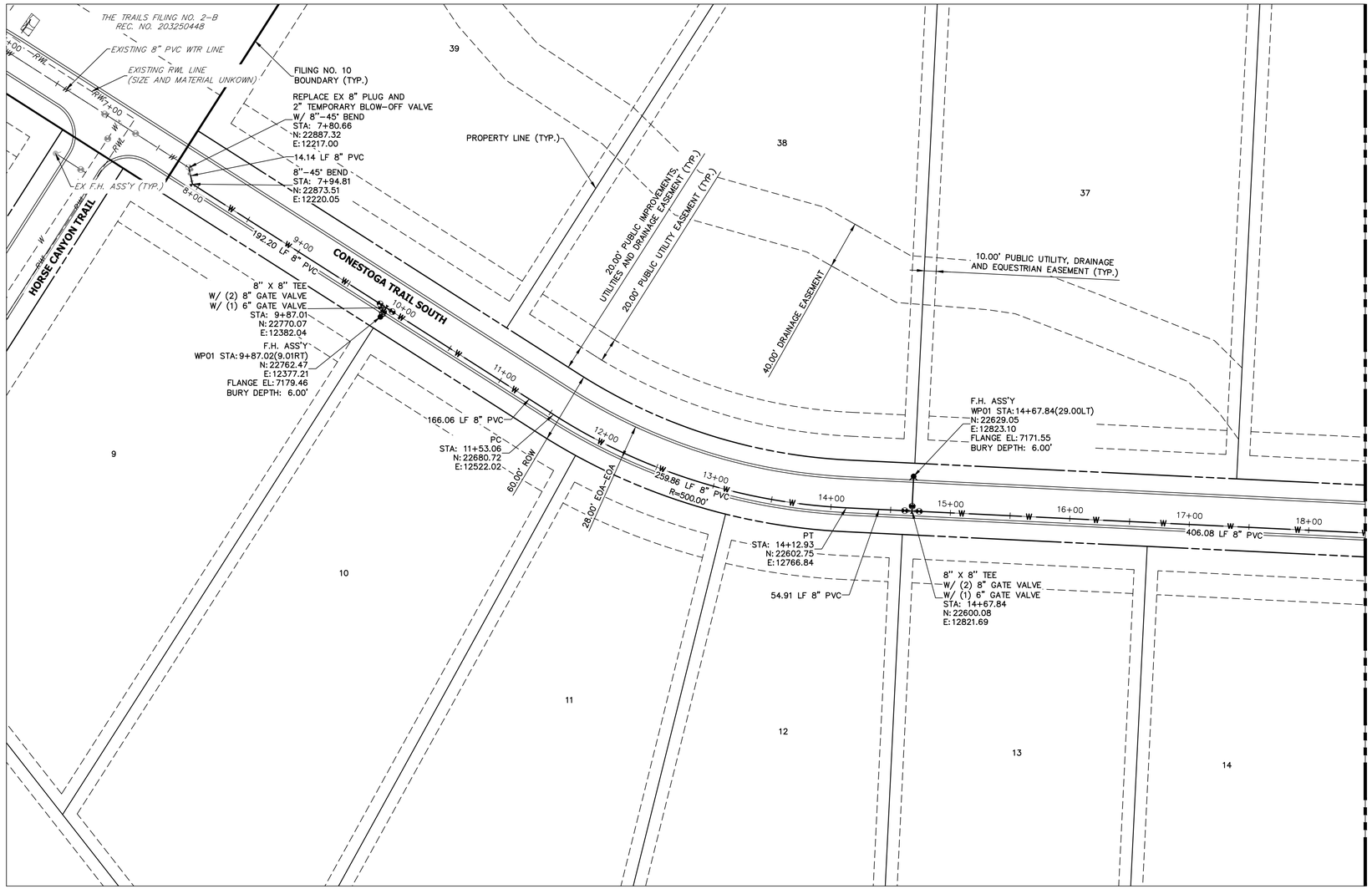

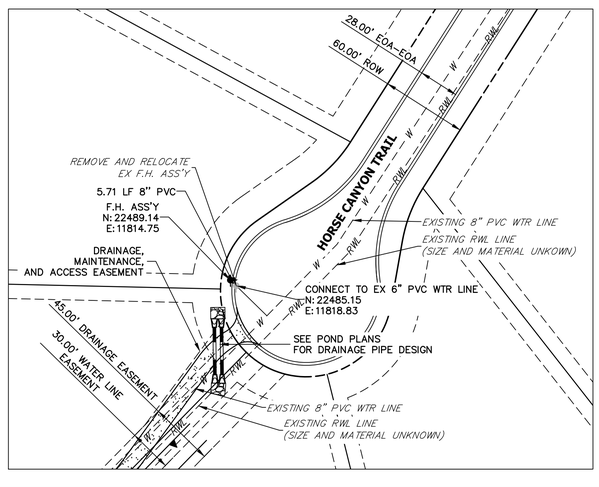

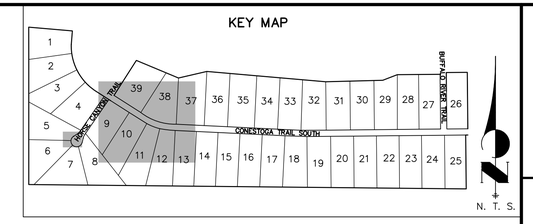

Know what's below.
Call before you dig.

50 25 0 50 100
ORIGINAL SCALE: 1" = 50'

WATER PIPE NOTES

1. ALL WATER LINES ARE OWNED AND MAINTAINED BY MERIDIAN SERVICE METROPOLITAN DISTRICT (MSMD) UNLESS OTHERWISE NOTED.
2. ALL CURVILINEAR PIPE MUST BE ACCOMPLISHED BY HIGH DEFLECTION COUPLERS.
3. ALL HORIZONTAL BENDS, TEES, AND CROSSES REQUIRE CONCRETE THRUST REACTION BLOCKS (CTRB). SEE CSU DETAILS A4-2 AND A4-3.
4. ALL HORIZONTAL AND VERTICAL DEFLECTIONS TO BE ACCOMPLISHED WITH HIGH DEFLECTION (HD) COUPLINGS.
5. ALL VERTICAL BENDS REQUIRE MECHANICAL JOINT RESTRAINTS (MJR). SEE CSU DETAIL A4-4.

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ENGINEER'S STATEMENT

PREPARED UNDER MY DIRECT SUPERVISION AND ON BEHALF OF JR ENGINEERING

COLORADO REGISTERED 25043 PROFESSIONAL ENGINEER

BRYAN T. LAW, P.E. DATE
COLORADO P.E. 25043
FOR AND ON BEHALF OF JR ENGINEERING, LLC

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LATIGO TRAILS – FILING NO. 10

WATER DISTRIBUTION PLAN

SHEET 5 OF 9

JOB NO. 25175.02

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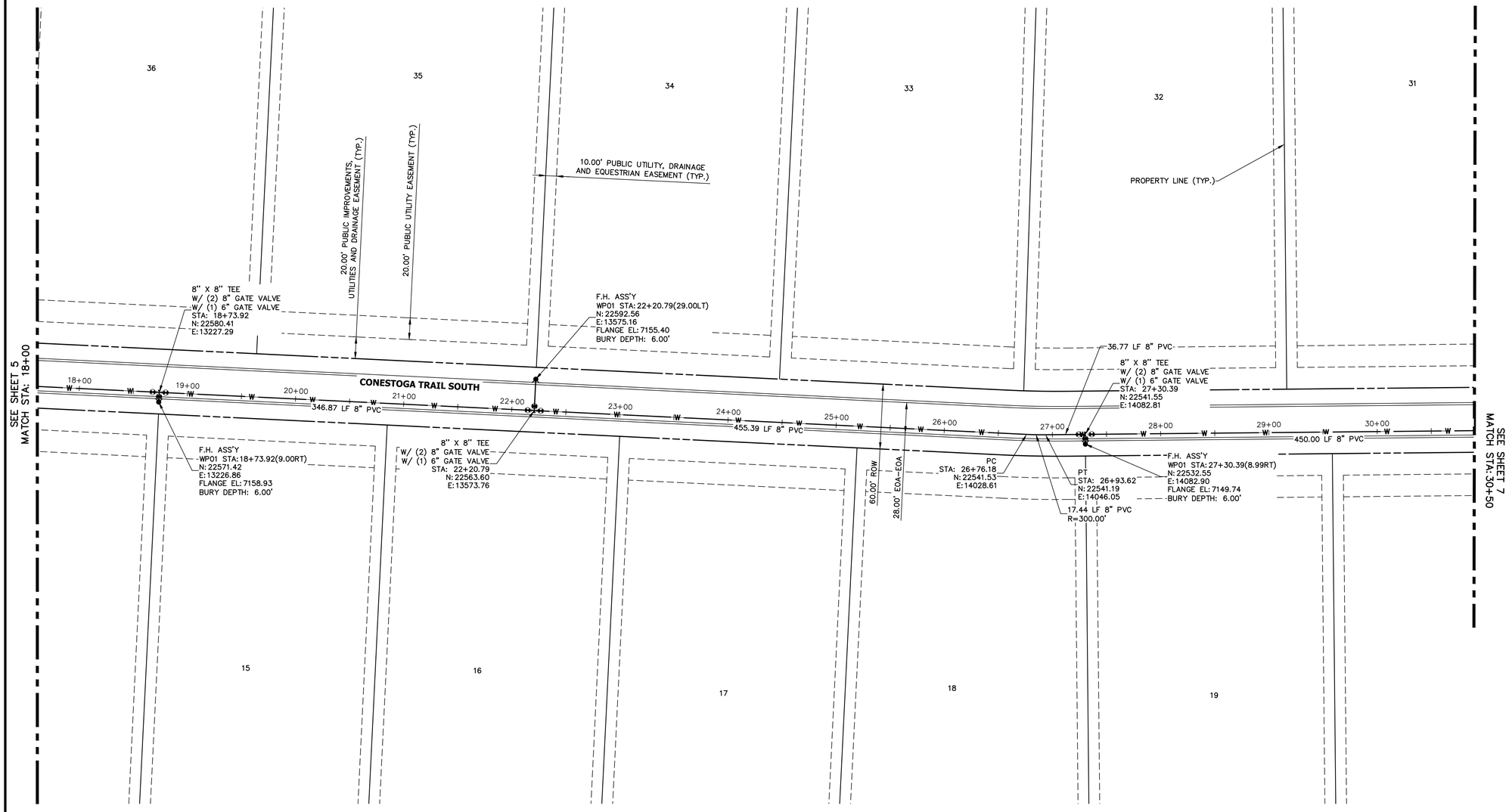

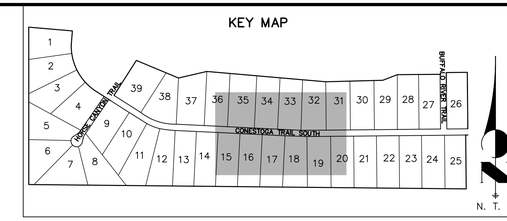

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ORIGINAL SCALE: 1" = 50'

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PREPARED UNDER MY DIRECT SUPERVISION AND ON BEHALF OF JR ENGINEERING

COLORADO REGISTERED BRYAN T. LAW 25043 PROFESSIONAL ENGINEER

BRYAN T. LAW, P.E. DATE
COLORADO P.E. 25043
FOR AND ON BEHALF OF JR ENGINEERING, LLC

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A Westrian Company
Centennial 303-740-9393 • Colorado Springs 719-593-2593
Fort Collins 970-491-9888 • www.jrengineering.com

No.	REVISION	BY	DATE

H-SCALE	1"=50'
V-SCALE	N/A
DATE	04/11/22
DESIGNED BY	QNL
DRAWN BY	QNL
CHECKED BY	

LATIGO TRAILS – FILING NO. 10

WATER DISTRIBUTION PLAN

SHEET 6 OF 9

JOB NO. 25175.02

WP02 PROFILE
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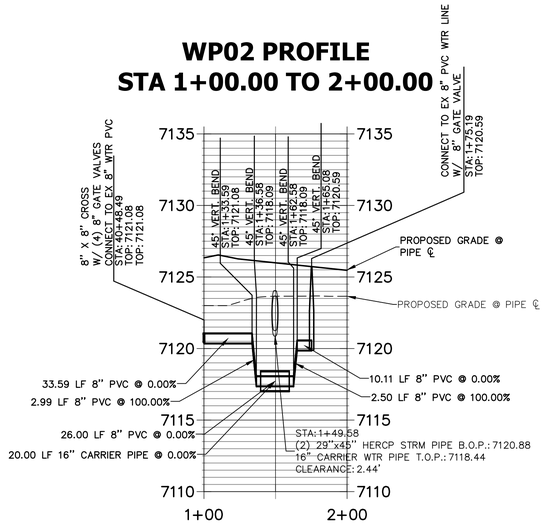
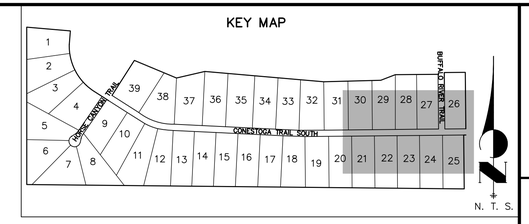
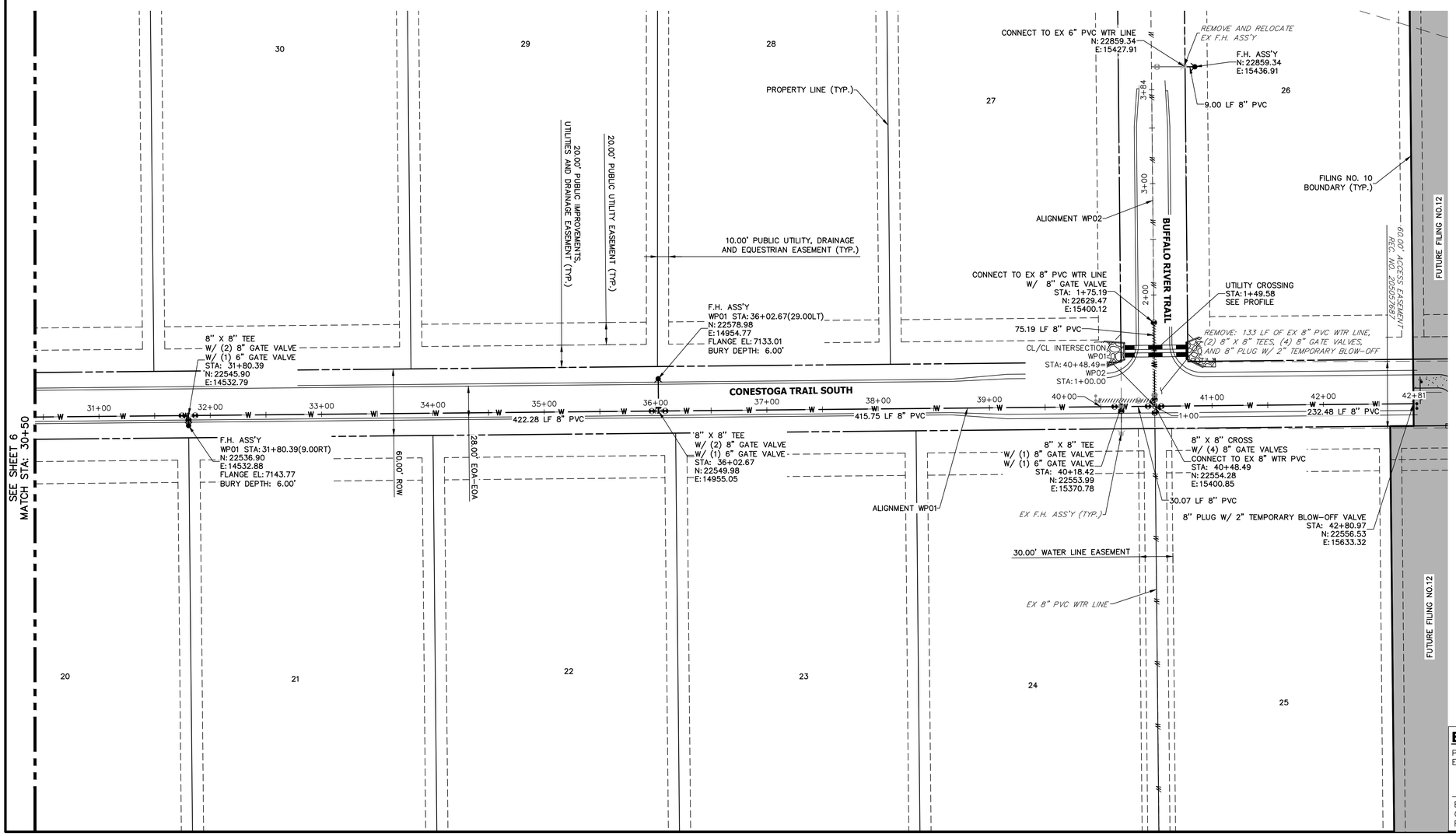




WATER PIPE NOTES

1. ALL WATER LINES ARE OWNED AND MAINTAINED BY MERIDIAN SERVICE METROPOLITAN DISTRICT (MSMD) UNLESS OTHERWISE NOTED.
2. ALL CURVILINEAR PIPE MUST BE ACCOMPLISHED BY HIGH DEFLECTION COUPLERS.
3. ALL HORIZONTAL BENDS, TEES, AND CROSSES REQUIRE CONCRETE THRUST REACTION BLOCKS (CTRB). SEE CSU DETAILS A4–2 AND A4–3.
4. ALL HORIZONTAL AND VERTICAL DEFLECTIONS TO BE ACCOMPLISHED WITH HIGH DEFLECTION (HD) COUPLINGS.
5. ALL VERTICAL BENDS REQUIRE MECHANICAL JOINT RESTRAINTS (MJR). SEE CSU DETAIL A4–4.



Know what's **below.**
Call before you dig.

50 25 0 50 100

HORIZONTAL
ORIGINAL SCALE: 1" = 50'
VERTICAL
ORIGINAL SCALE: 1" = 5'

THE LOCATIONS OF EXISTING ABOVE GROUND AND UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE CAUSED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL ABOVE GROUND AND UNDERGROUND UTILITIES.

ENGINEER'S STATEMENT

PREPARED UNDER MY DIRECT SUPERVISION AND ON BEHALF OF JR ENGINEERING

COLORADO REGISTERED BRYAN T. LAW 25043 PROFESSIONAL ENGINEER

BRYAN T. LAW, P.E. DATE
COLORADO P.E. 25043
FOR AND ON BEHALF OF JR ENGINEERING, LLC

UNTIL SUCH TIME AS THESE DRAWINGS ARE APPROVED BY THE APPROPRIATE REVIEWING AGENCIES, JR ENGINEERING APPROVES THEIR USE ONLY FOR THE PURPOSES DESIGNATED BY WRITTEN AUTHORIZATION.

PREPARED FOR
BRJM, LLC
101 N. CASCADE, SUITE 200
COLORADO SPRINGS, CO 80903
ATTN: BOB IRWIN
P~(719)–475–7474

J·R ENGINEERING
A Westrian Company
Centennial 303–740–9393 • Colorado Springs 719–593–2593
Fort Collins 970–491–9888 • www.jrengineering.com

No.	REVISION	BY	DATE

H–SCALE	1"=50'
V–SCALE	1"=5'
DATE	04/11/22
DESIGNED BY	QNL
DRAWN BY	QNL
CHECKED BY	

LATIGO TRAILS – FILING NO. 10

WATER DISTRIBUTION PLAN

SHEET 7 OF 9

JOB NO. 25175.02

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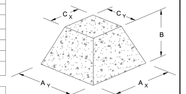
THRUST BLOCK DIMENSIONS and VOLUMES - PVC & DIP 250 psi

MAIN SIZE (in.)	TYPE OF FITTING	MINIMUM BEARING SURFACE AREA (ft^2)	MINIMUM A_x(ft)	MINIMUM A_y(ft)	MINIMUM C_x(ft)	MINIMUM C_y(ft)	MINIMUM B (ft)	APPROXIMATE VOLUME (yd^3)
4	11.25° BEND	1.00	1.00	1.00	0.25	0.33	2.00	0.25
4	22.5° BEND	2.00	1.41	1.41	0.21	0.33	2.00	0.25
4	45° BEND	3.50	1.87	1.87	0.42	0.33	2.00	0.25
4	TEE & DEAD END	4.75	2.18	2.18	0.67	0.33	2.00	0.25
6	11.25° BEND	2.00	1.41	1.41	0.25	0.50	2.00	0.25
6	22.5° BEND	3.75	1.94	1.94	0.38	0.50	2.00	0.25
6	45° BEND	7.25	2.69	2.69	0.58	0.50	2.00	0.25
6	TEE & DEAD END	9.50	3.08	3.08	0.83	0.50	2.00	0.50
8	11.25° BEND	3.25	1.80	1.80	0.34	0.67	2.00	0.25
8	22.5° BEND	6.50	2.55	2.55	0.48	0.67	2.00	0.25
8	45° BEND	12.50	3.57	3.50	0.87	0.67	2.00	0.50
8	TEE & DEAD END	16.25	4.64	3.50	1.08	0.67	2.00	0.75

THRUST BLOCK DIMENSIONS and VOLUMES - PVC (Maximum Static Pressure = 170 psi)

MAIN SIZE (in.)	TYPE OF FITTING	MINIMUM BEARING SURFACE AREA (ft^2)	MINIMUM A_x(ft)	MINIMUM A_y(ft)	MINIMUM C_x(ft)	MINIMUM C_y(ft)	MINIMUM B (ft)	APPROXIMATE VOLUME (yd^3)
12	11.25° BEND	4.75	2.18	2.18	0.43	1.00	2.00	0.25
12	22.5° BEND	9.25	3.04	3.04	0.64	1.00	2.00	0.50
12	45° BEND	18.00	4.92	3.66	1.00	1.00	2.00	0.75
12	TEE & DEAD END	23.50	6.42	3.66	1.46	1.00	2.48	1.00
16	11.25° BEND	8.00	2.83	2.83	0.44	1.33	2.00	0.50
16	22.5° BEND	16.00	4.27	3.75	0.66	1.33	2.00	0.75
16	45° BEND	31.00	8.27	3.75	1.00	1.33	3.64	1.75
16	TEE & DEAD END	40.50	10.80	3.75	1.92	1.33	4.44	3.00



THRUST BLOCK DIMENSIONS and VOLUMES - DIP (Maximum Static Pressure = 250 psi)

MAIN SIZE (in.)	TYPE OF FITTING	MINIMUM BEARING SURFACE AREA (ft^2)	MINIMUM A_x(ft)	MINIMUM A_y(ft)	MINIMUM C_x(ft)	MINIMUM C_y(ft)	MINIMUM B (ft)	APPROXIMATE VOLUME (yd^3)
12	11.25° BEND	6.75	2.60	2.60	0.43	1.00	2.00	0.50
12	22.5° BEND	13.50	3.69	3.66	0.64	1.00	2.00	0.50
12	45° BEND	26.25	7.17	3.66	1.00	1.00	3.09	1.50
12	TEE & DEAD END	34.25	9.36	3.66	1.46	1.00	3.95	2.25
16	11.25° BEND	11.75	3.43	3.43	0.44	1.33	2.00	0.50
16	22.5° BEND	23.25	6.20	3.75	0.66	1.33	2.77	1.00
16	45° BEND	45.50	12.13	3.75	1.00	1.33	5.57	4.00
16	TEE & DEAD END	59.50	15.87	3.75	1.92	1.33	6.98	6.50

NOTES:
1. THE MINIMUM BEARING SURFACE AREAS SHOWN ARE BASED ON A MAX STATIC PIPE PRESSURE OF 170/250 POUNDS PER SQUARE INCH PLUS A SAFETY FACTOR OF 1.5 AND AN ALLOWABLE SOIL BEARING CAPACITY OF 1500 POUNDS PER SQUARE FOOT. BEARING SURFACE AREA IS ROUNDED UP TO THE NEAREST 0.25 SQUARE FEET. REFERENCE AWWA M-23 AND M-41.
2. THE DESIGN ENGINEER IS RESPONSIBLE FOR VERIFYING ASSUMPTIONS BASED ON ACTUAL SITE CONDITIONS. IF SITE CONDITIONS VARY FROM THE ASSUMPTIONS THE DESIGN ENGINEER SHALL PROVIDE A SITE SPECIFIC DESIGN IN ACCORDANCE WITH AWWA M-23, PVC PIPE - DESIGN AND INSTALLATION AND AWWA M-41, DUCTILE-IRON PIPE AND FITTINGS. SITE SPECIFIC DESIGNS INCLUDING GEOTECHNICAL INFORMATION SHALL BE SUBMITTED TO COLORADO SPRINGS UTILITIES FOR REVIEW.
3. THE MINIMUM BEARING SURFACE AREA AND APPROXIMATE VOLUME OF CONCRETE SHALL BE SHOWN ON THE CONSTRUCTION PLANS FOR ALL CONCRETE THRUST BLOCKS. CONCRETE MIX SHALL BE PER MATERIAL CHAPTER 4.
4. THE APPROXIMATE VOLUMES SHOWN ARE BASED ON THE MINIMUM BEARING SURFACE AREA AND THE MINIMUM TRENCH DIMENSIONS. THE APPROXIMATE VOLUME IS ROUNDED UP TO THE NEAREST 0.25 CUBIC YARDS.
5. THESE CHARTS MAY ONLY BE USED IF THE BLOCK HEIGHT (Hy) IS EQUAL TO OR LESS THAN ONE HALF THE TOTAL DEPTH (H) FROM THE FINISHED GRADE TO THE BOTTOM OF THE BLOCK. THE MINIMUM DIMENSIONS SHOWN ARE BASED ON A PIPE DEPTH OF 5 FEET. SEE DETAIL DRAWING A4-3.
6. A SITE SPECIFIC DESIGN SHALL BE REQUIRED FOR PIPES LARGER THAN 16 INCHES OR MAX STATIC PIPE PRESSURES GREATER THAN 250 POUNDS PER SQUARE INCH. THE DESIGN ENGINEER HAS THE OPTION OF PROVIDING A SITE SPECIFIC DESIGN FOR PIPES SMALLER THAN 16 INCHES OR MAX STATIC PRESSURES LESS THAN 250 POUNDS PER SQUARE INCH.
7. ALL CALCULATIONS SHALL BE PROVIDED TO COLORADO SPRINGS UTILITIES FOR REVIEW.

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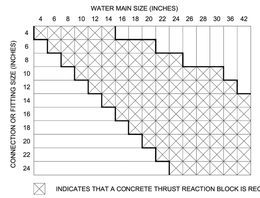
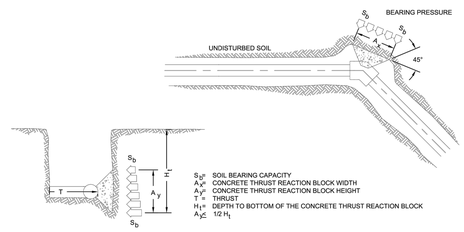
CONCRETE THRUST REACTION BLOCKS | A4-2 | DATED 03/2014

CONCRETE THRUST REACTION BLOCK REQUIREMENTS FOR TEES OR TAPS





NOTES:
1. A SITE SPECIFIC DESIGN SHALL BE REQUIRED FOR CONNECTIONS OR FITTING SIZE COMBINATIONS NOT SHOWN ABOVE.
2. THE CONCRETE THRUST REACTION BLOCK SHALL BEAR AGAINST UNDISTURBED SOIL.
3. THE CONCRETE THRUST REACTION BLOCK SHALL BE INSTALLED WITH A 45° ANGLE FROM THE FITTING TO THE UNDISTURBED SOIL AS SHOWN IN THE DRAWING ABOVE.
4. REFER TO DETAIL DRAWING A4-2 FOR STANDARD CONCRETE THRUST REACTION BLOCK DIMENSIONS AND VOLUMES.
5. DUCTILE IRON FITTINGS AND PIPE SHALL BE WRAPPED IN POLYETHYLENE TUBING WHERE ADJACENT TO CONCRETE.

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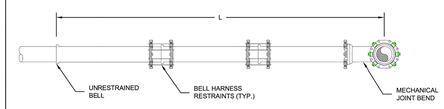
CONCRETE THRUST REACTION BLOCKS | A4-3 | DATED 03/2014

L = MINIMUM RESTRAINED PIPE LENGTH (FEET)

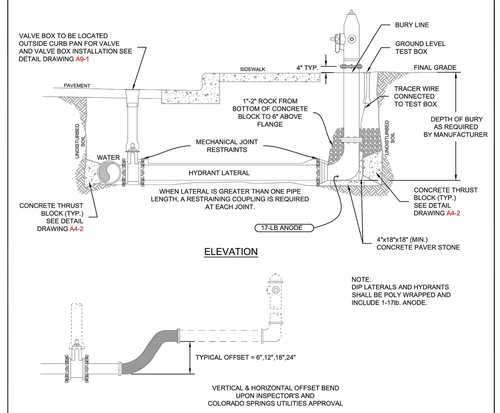
PIPE DIAMETER		45° BEND			22-1/2° BEND			11-1/4° BEND			DEAD END VALVE OR PLUG, TO INCLUDE IN-LINE VALVES (SEE NOTE 9)		
MAX. STATIC PRESSURE (PSI)		<100	100-150	150-200	<100	100-150	150-200	<100	100-150	150-200	<100	100-150	150-200
6 INCH	DUCTILE IRON AND PVC	6	9	12	3	5	6	2	3	3	49	73	97
8 INCH	DUCTILE IRON AND PVC	8	12	16	4	6	8	2	3	4	63	94	125
12 INCH	DUCTILE IRON AND PVC	12	17	23	6	8	11	3	4	6	89	133	177
16 INCH	DUCTILE IRON AND PVC	15	22	29	7	11	14	4	5	7	USE CONCRETE REVERSE ANCHOR	USE CONCRETE REVERSE ANCHOR	USE CONCRETE REVERSE ANCHOR
20 INCH	DUCTILE IRON AND PVC	18	26	35	9	13	17	4	6	8			
24 INCH	DUCTILE IRON AND PVC	20	30	40	10	15	20	5	7	10			
30 INCH	DUCTILE IRON AND PVC	24	36	48	12	18	24	6	9	12			
36 INCH	DUCTILE IRON AND PVC	28	42	56	14	20	27	7	10	14			



NOTES:
1. PRESSURE GREATER THAN 200 PSI REQUIRE SPECIAL DESIGN APPROVED BY SPRINGS UTILITIES. APPROVED BY COLORADO SPRINGS UTILITIES.
2. LENGTH IS BASED ON MINIMUM 5 FEET OF GROUND COVER AND SOIL COMPACTED ACCORDING TO CHAPTER 5 OF THESE WATER LESS. IF THE DEPTH IS LESS THAN 5 FEET RESTRAINED LENGTH MUST BE DESIGNED BY THE DESIGN ENGINEER.
3. APPROVED METHODS OF RESTRAINED PIPE BEYOND INITIAL FITTING SHALL BE IN ACCORDANCE WITH CHAPTER 4.
4. RESTRAINED PIPE LENGTH APPLIES TO CONDITIONS WHERE NO CONCRETE THRUST REACTION BLOCK IS PRESENT.
5. CALCULATIONS ARE BASED ON A POORLY GRADED SANDS, GRAVEL AND GRAVEL-SAND MIXTURE, LITTLE OR NO FINES, TYPE 4 BEDDING CONDITIONS - "PIPE BEDDED IN SAND, GRAVEL, OR CRUSHED STONE TO A DEPTH OF 1/8 PIPE DIAMETER (4" MIN.) " FACTOR OF SAFETY 2:1.
6. FIGURES ARE BASED ON DIP WRAPPED IN POLYETHYLENE MATERIAL.
7. MEASUREMENTS ARE IN FEET.
8. USE CRA FOR DOWN TURNING BENDS.
9. RESTRAINED LENGTH FOR DEAD END MAY BE USED AT THE DISCRETION OF COLORADO SPRINGS UTILITIES.

Colorado Springs Utilities — It's how we're all connected

RESTRAINED PIPE LENGTH (FEET) W/MECHANICAL JOINT RESTRAINTS | A4-4 | DATED 03/2014



NOTE:
DIP LATERALS AND HYDRANTS SHALL BE POLY WRAPPED AND INCLUDE 1-17lb. ANODE.

NOTES:
1. MECHANICAL JOINT RESTRAINTS SHALL BE INSTALLED PER DETAIL DRAWINGS A4-4, A4-5, & CHAPTER 5.
2. TRACER WIRE AND GROUND LEVEL TEST BOX TO BE INSTALLED WITH EACH FIRE HYDRANT. PLACE TEST BOX WITHIN 6" FROM THE HYDRANT.
3. REFERENCE DETAIL DRAWINGS A5-1 & A5-2 FOR FIRE HYDRANT LOCATION.
4. INSTALLATION OF A PRIVATE FIRE HYDRANT WILL REQUIRE A SECONDARY VALVE INSTALLED AT THE PROPERTY LINE.
5. HYDRANT BASE BLOCK SHALL BE PLACED ON UNDISTURBED EARTH.
6. DO NOT BLOCK WEEP HOLE WITH POLYWRAP.
7. COVER DRAIN ROCK WITH POLYWRAP PRIOR TO BACKFILL.
8. FOR HDPE HYDRANT CONNECTION SEE DETAIL DRAWING A10-9.
9. FOR PRIVATE FIRE HYDRANTS A SECONDARY VALVE SHALL BE INSTALLED ON THE PROPERTY LINE OR RIGHT-OF WAY LINE.

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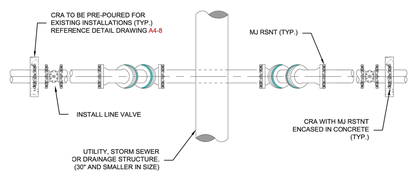
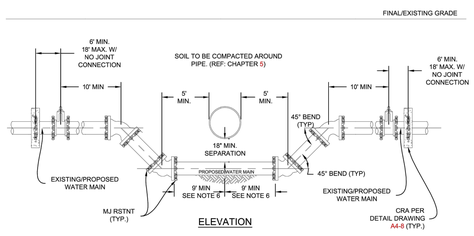
FIRE HYDRANT INSTALLATION | A5-3 | DATED 03/2014

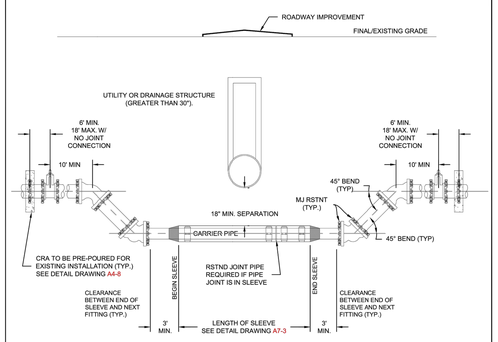




NOTES:
1. ALL DUCTILE IRON FITTINGS AND PIPE SHALL BE CATHODICALLY PROTECTED PER SECTION 2.6.I.
2. ALL FITTINGS SHALL HAVE MJ RESTRAINTS IN ACCORDANCE WITH CHAPTER 5.
3. EXAMPLE CAN VARY DUE TO SITE CONDITIONS AND COLORADO SPRINGS UTILITIES INSPECTOR'S DIRECTION.
4. RESTRAINED JOINTS ARE REQUIRED WITHIN LOWERING.
5. NO TAPS OR TEES ARE ALLOWED WITHIN THE LOWERING.
6. THE LOWERINGS MAY BE ACCOMPLISHED WITH ANY DEGREE OF BENDS, HOWEVER, THE MAXIMUM DEGREE OF BEND ALLOWED IS 45 DEGREES.
7. WHERE WATER MAIN CROSSES UNDER STORM SEWER, WASTEWATER OR NON-POTABLE WATER INFRASTRUCTURE, A MINIMUM OF 9 FEET REQUIRED BETWEEN THE CENTERLINE OF THE CROSSING AND THE FIRST JOINT. THIS MEETS THE REQUIREMENTS FOR SECONDARY CONTAINMENT AS DESCRIBED IN SECTION 2.6-H.2.

Colorado Springs Utilities — It's how we're all connected

LOWERING DETAIL UTILITY CROSSING 30" & SMALLER | A7-1 | DATED 08/2020



NOTES:
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6. THE LOWERINGS MAY BE ACCOMPLISHED WITH ANY DEGREE OF BENDS, HOWEVER, THE MAXIMUM DEGREE OF BEND ALLOWED IS 45 DEGREES.
7. WHERE WATER MAIN CROSSES UNDER STORM SEWER, WASTEWATER OR NON-POTABLE WATER INFRASTRUCTURE, A MINIMUM OF 9 FEET REQUIRED BETWEEN THE CENTERLINE OF THE CROSSING AND THE FIRST JOINT. THIS MEETS THE REQUIREMENTS FOR SECONDARY CONTAINMENT AS DESCRIBED IN SECTION 2.6-H.2.

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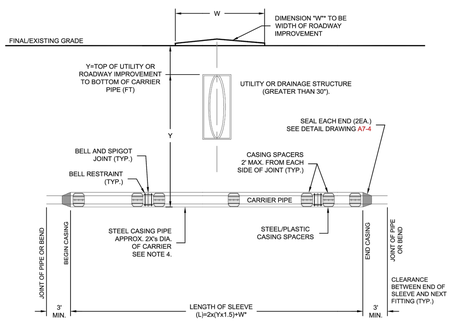
LOWERING DETAIL W/CASING UTILITY CROSSING GREATER THAN 30" | A7-2 | DATED 08/2020



NOTE:
AN ADDITIONAL CASING SPACER SHALL BE CENTERED ON THE PIPE WHEN 18' TO 20' LONG PIPE JOINTS ARE USED. (TYP.)

* "W" SHALL BE ADDED WHEN A SLEEVE IS REQUIRED TO CROSS A ROADWAY IMPROVEMENT SUCH AS A ROUNDABOUT OR MEDIAN. "W" IS NOT REQUIRED WHEN CROSSING AN UNDERGROUND UTILITY.

NOTES:
1. ALL FITTINGS AND BELLS SHALL BE RESTRAINED IN THE CASING PIPE.
2. LOCATE CASING SPACERS AT "HOMING" LOCATION FOR SLEEVES GREATER THAN 50 FEET IN LENGTH TO PREVENT DAMAGE TO BELL DURING INSTALLATION AND EXTRACTION OF PIPE, IF REMOVED.
3. CASING SHALL BE STEEL PIPE WITH A MINIMUM YIELD STRENGTH OF 35,000 PSI. CASING THICKNESS SHALL BE SPECIFIED BY THE DESIGN ENGINEER ON THE PLANS BASED ON THE ANTICIPATED LOADS. SEE DETAIL DRAWING A7-4.
4. THE DIAMETER OF THE CASING SHALL BE SPECIFIED BY THE DESIGN ENGINEER. THE DIAMETER SHALL TAKE INTO ACCOUNT THE MAXIMUM O.D. WITH THE USE OF RESTRAINED JOINT PIPE.
5. SEE DETAIL DRAWING A7-4 FOR CASING SPACER DETAILS.
6. LOCATE SPACERS ON BOTH SIDES OF JOINTS TO ELIMINATE DEFLECTION OF THE JOINT IN THE SLEEVE.
7. WHERE WATER MAIN CROSSES UNDER STORM SEWER, WASTEWATER OR NON-POTABLE WATER INFRASTRUCTURE, REFERENCE SECTION 2.6-H.2.
8. WHEN CROSSING A ROADWAY IMPROVEMENT, THE WIDTH OF THE IMPROVEMENT SHALL BE ADDED TO THE LENGTH OF THE SLEEVE.

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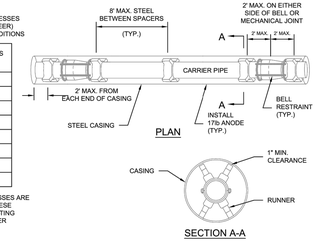
TYPICAL STEEL CASING INSTALLATION | A7-3 | DATED 06/2015

CASING PIPE MINIMUM SIZES AND THICKNESSES (TO BE VERIFIED BY THE DESIGN ENGINEER) BASED ON ACTUAL LOADING AND SITE CONDITIONS

CASING PIPE NOMINAL SIZE (IN)	MIN. THICKNESS (IN)
12	0.250
14	0.312
16	0.312
18	0.312
20	0.375
24	0.500
32	0.500
36	0.625

CASING PIPE MINIMUM SIZES AND THICKNESSES ARE BASED ON EBO LOADING. VARIANCES TO THESE MINIMUMS MAY BE ALLOWED WITH SUPPORTING CALCULATIONS FROM THE DESIGN ENGINEER



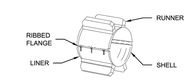
TYPICAL PIPE SUPPORT CASING ARRANGEMENT (CENTERED/RESTRAINED)

CARRIER PIPE:
1. CARRIER PIPE SHALL BE CENTERED WITHIN CASING BY USE OF APPROVED STAINLESS STEEL CASING SPACERS AS MANUFACTURED BY APPROVED MANUFACTURER BY COLORADO SPRINGS UTILITIES. (REFERENCE CHAPTER 2)

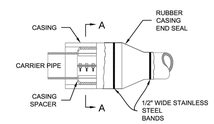
PLACEMENT OF SPACERS ON CARRIER PIPE:
1. GENERAL - ONE SPACER SHALL BE PLACED MAX. 2' FROM EACH END OF CASING AND ON EITHER SIDE OF EACH BELL OR MECHANICAL JOINT. SUBSEQUENT SPACERS SHALL BE PLACED AT 8' INTERVALS WITHIN THE CASING, OR IN ACCORDANCE WITH PIPE MANUFACTURERS RECOMMENDATIONS.

END SEALS:
1. END SEALS SHALL BE USED TO ENSURE A WATER TIGHT SEAL ON EITHER END OF THE CASING.

CATHODIC PROTECTION:
1. CASING SHALL BE CATHODICALLY PROTECTED PER SECTION 2.6.I.



SPACER



Colorado Springs Utilities — It's how we're all connected

TYPICAL STEEL CASING INSTALLATION | A7-4 | DATED 06/2015

Know what's below. Call before you dig.

ENGINEER'S STATEMENT
STANDARD DETAILS SHOWN WERE REVIEWED ONLY AS TO THEIR APPLICATION ON THIS PROJECT

BRYAN T. LAW, P.E.
COLORADO P.E. 25043
FOR AND ON BEHALF OF JR ENGINEERING, LLC

DATE

UNTIL SUCH TIME AS THESE PLANS ARE APPROVED BY THE APPROPRIATE REVIEWING AGENCIES, JR ENGINEERING APPROVES THEIR USE ONLY FOR THE PURPOSES DESIGNATED BY WRITTEN AUTHORIZATION.

PREPARED FOR
BRJM, LLC
101 N. CASCADE, SUITE 200
COLORADO SPRINGS, CO 80903
ATTN: BOB IRWIN
P~(719)-475-7474

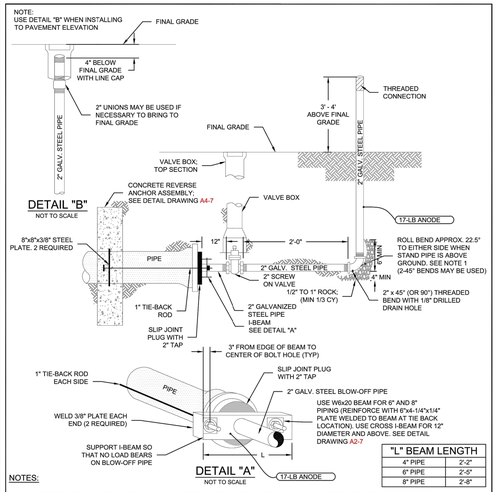
J·R ENGINEERING
A Westrian Company
Centennial 303-740-9393 • Colorado Springs 719-593-2593
Fort Collins 970-491-9888 • www.jrengineering.com

No.	REVISION	BY	DATE

H-SCALE	N/A
V-SCALE	N/A
DATE	04/11/22
DESIGNED BY	N/A
DRAWN BY	QNL
CHECKED BY	

LATIGO TRAILS – FILING NO. 10
DETAILS

SHEET 8 OF 9
JOB NO. 25175.02



"L" BEAM LENGTH	
4" PIPE	2'-2"
6" PIPE	2'-5"
8" PIPE	2'-8"

NOTES:

1. IF APPROPRIATE LOCATION FOR DISCHARGED WATER CANNOT BE REACHED BY ROLLING THE BEND ADDITIONAL BENDS MAY BE REQUIRED BY THE COLORADO SPRINGS UTILITIES INSPECTOR.
2. COAT TIE RODS, BEAM AND GALVANIZED STEEL PIPE. SEE DETAIL DRAWING A8-11.
3. ENTIRE BLOW-OFF ASSEMBLY MUST BE ADEQUATELY SUPPORTED. CONCRETE PAVER STONES MAY BE REQUIRED.
4. PIPE DOPE APPROVED FOR USE IN POTABLE WATER SYSTEMS MUST BE USED ON ALL THREADED FITTINGS.
5. TEMPORARY BLOW-OFF VALVE ASSEMBLIES SHALL BE INSPECTED BY THE COLORADO SPRINGS UTILITIES INSPECTOR PRIOR TO BACKFILL. BACKFILL COMPACTION TO BE SAME AS PIPE COMPACTION SPECIFICATIONS.
6. 2" GALVANIZED PIPE MUST BE RATED TO 250 PSI AND CONFORM TO NSF-61 SPECIFICATIONS.
7. THERE SHALL BE NO SERVICE LINES CONNECTED BETWEEN THE LAST ISOLATION VALVE AND THE TEMPORARY BLOW-OFF ASSEMBLY.
8. TIE BACK RODS SHALL BE A MINIMUM ASTM A307 GRADE A STEEL WITH MINIMUM ASTM A-36 NUTS. STEEL BEAMS SHALL BE ASTM A992 GD 50.
9. ALL HOLES IN STEEL SHALL BE OVERSIZED HOLES.

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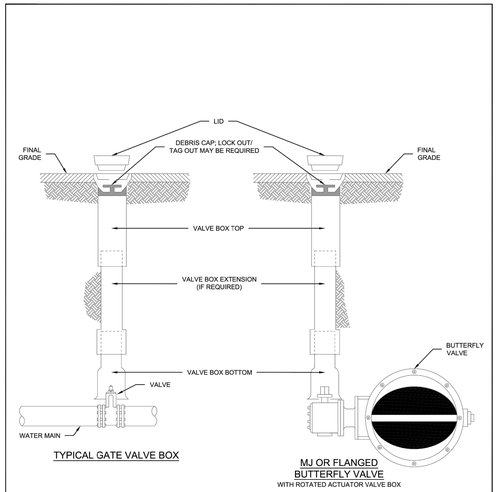
TEMPORARY BLOW-OFF ASSEMBLIES- 4", 6" & 8" MAINS WITH SLIP JOINT PLUG

A2-4

DATED 03/2014



NOTES:

1. MAIN AND FIRE HYDRANT VALVES AND VALVE BOXES SHALL NOT BE IN THE CURB PAN, CURB OR SIDEWALK.
2. VALVE BOXES SHALL BE SLIP TYPE, PER CHAPTER 4.
3. DEBRIS CAPS SHALL BE INSTALLED AS CLOSE UNDER THE CAST IRON COVER WITHOUT INTERFERING WITH COVER OPERATIONS.
4. DEBRIS CAPS WITH FLEXIBLE SKIRTS SHALL BE TRIMMED TO PROVIDE A SMOOTH CONTACT WITH THE INTERIOR OF THE VALVE BOX.
5. FOR SERVICE LINES 4" AND GREATER, TRACER WIRE WILL BE BROUGHT UP IN THE SECONDARY VALVE BOX.

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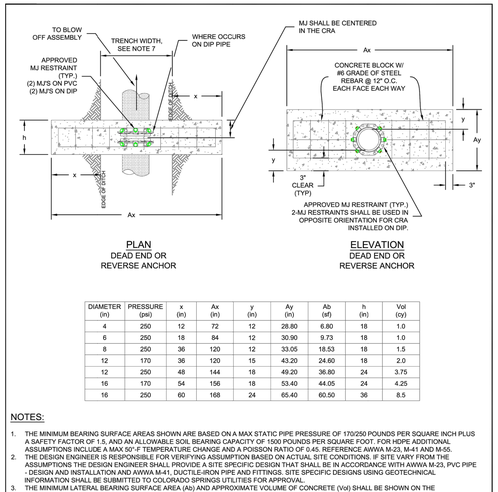
VALVE BOX INSTALLATION

A9-1

DATED 03/2014



DIAMETER (in)	PRESSURE (psi)	x (in)	Ax (in)	y (in)	Ay (in)	Ab (sf)	h (in)	Vol (cy)
4	250	12	72	12	28.80	6.80	18	1.0
6	250	18	84	12	30.90	9.73	18	1.0
8	250	36	120	12	33.05	18.53	18	1.5
12	170	36	120	15	43.20	24.60	18	2.0
12	250	48	144	18	49.20	36.80	24	3.75
16	170	54	156	18	53.40	44.05	24	4.25
16	250	60	168	24	65.40	60.50	36	8.5

NOTES:

1. THE MINIMUM BEARING SURFACE AREAS SHOWN ARE BASED ON A MAX STATIC PIPE PRESSURE OF 170/250 POUNDS PER SQUARE INCH PLUS A SAFETY FACTOR OF 1.5, AND AN ALLOWABLE SOIL BEARING CAPACITY OF 1500 POUNDS PER SQUARE FOOT. FOR HDPE ADDITIONAL ASSUMPTIONS INCLUDE A MAX 50°-F TEMPERATURE CHANGE AND A POISSON RATIO OF 0.45. REFERENCE AWWA M-23, M-41 AND M-55.
2. THE DESIGN ENGINEER IS RESPONSIBLE FOR VERIFYING ASSUMPTION BASED ON ACTUAL SITE CONDITIONS. IF SITE VARY FROM THE ASSUMPTIONS THE DESIGN ENGINEER SHALL PROVIDE A SITE SPECIFIC DESIGN THAT SHALL BE IN ACCORDANCE WITH AWWA M-23, PVC PIPE - DESIGN AND INSTALLATION AND AWWA M-41, DUCTILE-IRON PIPE AND FITTINGS. SITE SPECIFIC DESIGNS USING GEOTECHNICAL INFORMATION SHALL BE SUBMITTED TO COLORADO SPRINGS UTILITIES FOR APPROVAL.
3. THE MINIMUM LATERAL BEARING SURFACE AREA (As) AND APPROXIMATE VOLUME OF CONCRETE (Vol) SHALL BE SHOWN ON THE CONSTRUCTION PLANS FOR ALL CONCRETE REVERSE ANCHORS.
4. THE APPROXIMATE VOLUMES SHOWN ARE BASED ON THE MINIMUM DIMENSIONS IN THE TABLE. THE APPROXIMATE VOLUME IS ROUNDED UP TO THE NEAREST 0.25 CUBIC YARDS.
5. A SITE SPECIFIC DESIGN SHALL BE REQUIRED FOR PIPES LARGER THAN 16 INCHES OR MAX STATIC PIPE PRESSURES GREATER THAN 250 POUNDS PER SQUARE INCH. THE DESIGN ENGINEER HAS THE OPTION OF PROVIDING A SITE SPECIFIC DESIGN FOR PIPES SMALLER THAN 16 INCHES OR MAX STATIC PRESSURES LESS THAN THE PRESSURE LISTED IN THE TABLE.
6. FOR CORROSION PROTECTION OF THE RODS SEE DETAIL DRAWING A8-11.
7. A TRENCH WIDTH OF 4 FEET AND 6" BEDDING UNDER THE PIPE ARE ASSUMED FOR BEARING. CALCULATIONS, (Ax, Ay, x AND y).
8. THE DESIGN ENGINEER SHALL ENSURE THE CONSTRUCTION OF THE CONCRETE REVERSE ANCHOR SHALL NOT CONFLICT WITH OTHER UTILITIES.
9. DUCTILE IRON FITTINGS AND PIPE SHALL BE WRAPPED IN POLYETHYLENE TUBING WHERE ADJACENT TO CONCRETE.

Colorado Springs Utilities
It's how we're all connected

CONCRETE REVERSE ANCHOR FOR MECHANICAL JOINT RESTRAINTS

A4-8

DATED 06/2015

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LATIGO TRAILS – FILING NO. 10

DETAILS

SHEET 9 OF 9

JOB NO. 25175.02

LATIGO TRAILS - FILING NO. 10

A PARCEL OF LAND LOCATED IN THE SOUTH QUARTER OF SECTION S17
TOWNSHIP 12 SOUTH, RANGE 64 WEST OF P.M.,
EL PASO COUNTY, STATE OF COLORADO

POND PLANS

STANDARD NOTES FOR EL PASO COUNTY CONSTRUCTION PLANS

1. ALL DRAINAGE AND ROADWAY CONSTRUCTION SHALL MEET THE STANDARDS AND SPECIFICATIONS OF THE CITY OF COLORADO SPRINGS/EL PASO COUNTY DRAINAGE CRITERIA MANUAL, VOLUMES 1 AND 2, AND THE EL PASO COUNTY ENGINEERING CRITERIA MANUAL.

2. CONTRACTOR SHALL BE RESPONSIBLE FOR THE NOTIFICATION AND FIELD NOTIFICATION OF ALL EXISTING UTILITIES, WHETHER SHOWN ON THE PLANS OR NOT, BEFORE BEGINNING CONSTRUCTION. LOCATION OF EXISTING UTILITIES SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. CALL 811 TO CONTACT THE UTILITY NOTIFICATION CENTER OF COLORADO (UNCC).

3. CONTRACTOR SHALL KEEP A COPY OF THESE APPROVED PLANS, THE GRADING AND EROSION CONTROL PLAN, THE STORMWATER MANAGEMENT PLAN (SWMP), THE SOIL AND GEOTECHNICAL REPORT, AND THE APPROPRIATE DESIGN AND CONSTRUCTION STANDARDS AND SPECIFICATIONS AT THE JOB SITE AT ALL TIMES, INCLUDING THE FOLLOWING:
   3.1. EL PASO COUNTY ENGINEERING CRITERIA MANUAL (ECM)
   3.2. CITY OF COLORADO SPRINGS/ EL PASO COUNTY DRAINAGE CRITERIA MANUAL, VOLUMES 1 AND 2
   3.3. COLORADO DEPARTMENT OF TRANSPORTATION (CDOT) STANDARD SPECIFICATIONS AND BRIDGE CONSTRUCTION
   3.4. CDOT M&S STANDARDS

4. NOTWITHSTANDING ANYTHING DEPICTED IN THESE PLANS IN WORDS OR GRAPHIC REPRESENTATION, ALL DESIGN AND CONSTRUCTION RELATED TO ROADS, STORM DRAINAGE AND EROSION CONTROL SHALL CONFORM TO THE STANDARDS AND REQUIREMENTS OF THE MOST RECENT VERSIONS OF THE RELEVANT ADOPTED EL PASO COUNTY STANDARDS, INCLUDING THE LAND DEVELOPMENT CODE, THE ENGINEERING CRITERIA MANUAL, THE DRAINAGE CRITERIA MANUAL, AND THE DRAINAGE CRITERIA MANUAL VOLUME 2. ANY DEVIATIONS FROM REGULATIONS AND STANDARDS MUST BE REQUESTED, AND APPROVED, IN WRITING. ANY MODIFICATIONS NECESSARY TO MEET CRITERIA AFTER-THE-FACT WILL BE ENTIRELY THE DEVELOPER'S RESPONSIBILITY TO RECTIFY.

5. IT IS THE DESIGN ENGINEER'S RESPONSIBILITY TO ACCURATELY SHOW EXISTING CONDITIONS, BOTH ONSITE AND OFFSITE, ON THE CONSTRUCTION PLANS. ANY MODIFICATIONS NECESSARY DUE TO CONFLICTS, OMISSIONS, OR CHANGED CONDITIONS WILL BE ENTIRELY THE DEVELOPER'S RESPONSIBILITY TO RECTIFY.

6. CONTRACTOR SHALL SCHEDULE A PRE-CONSTRUCTION MEETING WITH EL PASO COUNTY PLANNING AND COMMUNITY DEVELOPMENT INSPECTIONS, PRIOR TO STARTING CONSTRUCTION.

7. IT IS THE CONTRACTOR'S RESPONSIBILITY TO UNDERSTAND THE REQUIREMENTS OF ALL JURISDICTIONAL AGENCIES TO OBTAIN ALL REQUIRED PERMITS, INCLUDING BUT NOT LIMITED TO EL PASO COUNTY EROSION AND STORMWATER QUALITY CONTROL PERMIT (ESQCP), REGIONAL BUILDING FLOODPLAIN DEVELOPMENT PERMIT, U.S. ARMY CORPS OF ENGINEERS-ISSUED 401 AND/OR 404 PERMITS, AND COUNTY AND STATE FUGITIVE DUST PERMITS.

8. CONTRACTOR SHALL NOT DEVIATE FROM THE PLANS WITHOUT FIRST OBTAINING WRITTEN APPROVAL FROM THE DESIGN ENGINEER AND PCD. CONTRACTOR SHALL NOTIFY THE DESIGN ENGINEER IMMEDIATELY UPON DISCOVERY OF ANY ERRORS OR INCONSISTENCIES.

9. CONTRACTOR SHALL COORDINATE GEOTECHNICAL TESTING PER ECM STANDARDS. PAVEMENT DESIGN SHALL BE APPROVED BY EL PASO COUNTY PCD PRIOR TO PLACEMENT OF CURB AND GUTTER AND PAVEMENT.

10. ALL CONSTRUCTION TRAFFIC MUST ENTER/EXIT THE SITE AT APPROVED CONSTRUCTION ACCESS POINTS.

11. SIGHT VISIBILITY TRIANGLES ARE IDENTIFIED IN THE PLANS SHALL BE PROVIDED AT ALL INTERSECTIONS. OBSTRUCTIONS GREATER THAN 18 INCHES ABOVE FLOWLINE ARE NOT ALLOWED IN SIGHT TRIANGLES.

12. SIGNING AND STRIPING SHALL COMPLY WITH EL PASO COUNTY DEPARTMENT OF PUBLIC WORKS AND MUTCD CRITERIA.

13. CONTRACTOR SHALL OBTAIN ANY PERMITS REQUIRED BY EL PASO COUNTY DEPARTMENT OF PUBLIC WORKS, INCLUDING WORK WITHIN THE RIGHT-OF-WAY AND SPECIAL TRANSPORT PERMITS.

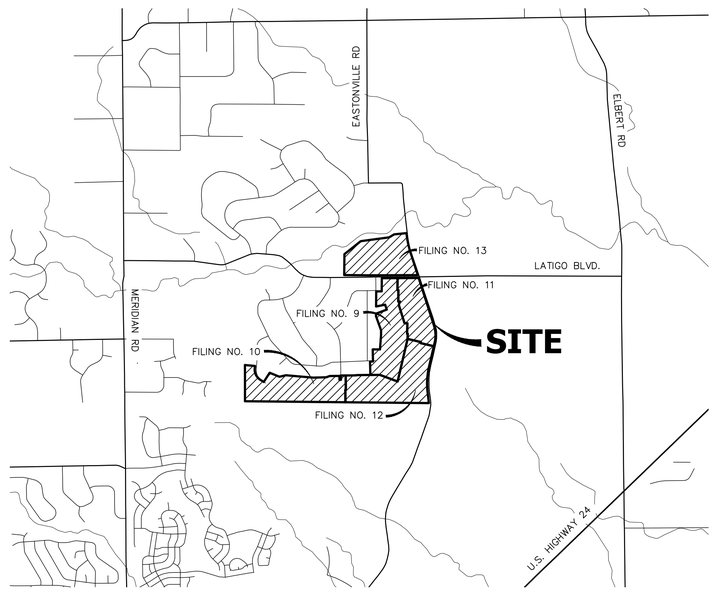
14. THE LIMITS OF CONSTRUCTION SHALL REMAIN WITHIN THE PROPERTY LINE UNLESS OTHERWISE NOTED. THE OWENER/DEVELOPER SHALL OBTAIN WRITTEN PERMISSION AND EASEMENTS, WHERE REQUIRED, FROM ADJOINING PROPERTY OWNER(S) PRIOR TO ANY OFF-SITE DISTURBANCE, GRADING, OR CONSTRUCTION.

15. ALL STORM DRAIN PIPE SHALL BE CLASS III RCP UNLESS OTHERWISE NOTED AND APPROVED BY PCD.

ABBREVIATIONS

AC	ACRE
AD	ALGEBRAIC DIFFERENCE
AH	AHEAD
ARCH	ARCHITECT
ASCE	AMERICAN SOCIETY OF CIVIL ENGINEERS
ASSY	ASSEMBLY
AVE	AVENUE
BB	BOX BASE
BK	BACK
BNDY	BOUNDARY
BOP	BOTTOM OF PIPE
BOV	BLOW OFF VALVE
BFV	BUTTERFLY VALVE
BLVD	BOULEVARD
BW	BOTTOM OF WALL
C&G	CURB & GUTTER
CATV	CABLE TELEVISION
CB	CATCH BASIN
CBC	CONCRETE BOX CULVERT
CDOT	COLORADO DEPARTMENT OF TRANSPORTATION
CDS	CUL-DE-SAC
CF	CUBIC FOOT
CFS	CUBIC FEET PER SECOND
CIP	COMPLETE IN PLACE
CL	CENTER LINE
CLOMR	CONDITIONAL LETTER OF MAP REVISION
CLR	CLEAR
CMP	CORRUGATED METAL PIPE
CO	CLEAN OUT
COCS	CITY OF COLORADO SPRINGS
CONC	CONCRETE
CR	CIRCLE
CSP	CORRUGATED STEEL PIPE
CSU	COLORADO SPRINGS UTILITIES
CT	COURT
CTRB	CONCRETE THRUST REDUCER BLOCK
CY	CUBIC YARD
DBPS	DRAINAGE BASIN PLANNING STUDY
DE	DRAINAGE EASEMENT
DIA	DIAMETER
DIP	DUCTILE IRON PIPE
DR	DRIVE
DRC	DESIGN REVIEW COMMITTEE
DU	DWELLING UNITS
DY	DAY
E	EAST
EA	EACH
EGL	ENERGY GRADE LINE
EL	ELEVATION
ELEC	ELECTRIC
EOA	EDGE OF ASPHALT
EPC	EL PASO COUNTY
ERCP	ELLIPTICAL RCP
ESMT	EASEMENT
EST	ESTIMATE
EX	EXISTING
FDP	FINAL DEVELOPMENT PLAN
FDR	FINAL DRAINAGE REPORT
FES	FLARED END SECTION
FF	FINISHED FLOOR ELEVATION
FG	FINISHED GRADE
FH	FIRE HYDRANT
FL	FLOWLINE
FIL	FILING
FO	FIBER OPTIC CABLE
GB	GRADE BREAK
GE	GAS EASEMENT
GIS	GEOGRAPHIC INFORMATION SYSTEM
GL	GAS LINE
GPS	GLOBAL POSITIONING SYSTEM
GV	GATE VALVE
HBP	HOT BITUMINOUS PAVEMENT
HC	HANDICAP
HDC	HIGH DEFLECTION COUPLING
HDPE	HIGH DENSITY POLYETHYLENE
HGL	HYDRAULIC GRADE LINE
HMA	HOT MIX ASPHALT
HOA	HOME OWNERS ASSOCIATION
HP	HIGH POINT
HR	HOUR
I	INLET
IE	IRRIGATION EASEMENT
INT	INTERSECTION
INV	INVERT
IRR	IRRIGATION
KB	KICK (THRUST) BLOCK
LB	POUND
LE	LANDSCAPE EASEMENT
LF	LINEAR FOOT
LN	LANE
LOMR	LETTER OF MAP REVISION
LP	LOW POINT
LS	LUMP SUM
LT	LEFT
MAX	MAXIMUM
M/D	MOISTURE DENSITY
MDDP	MASTER DEVELOPMENT DRAINAGE PLAN
MH	MANHOLE
MIN	MINIMUM
MS	MOUNTABLE SIDEWALK
N	NORTH
NRCP	NON-REINFORCED CONCRETE PIPE
ODP	OFFICIAL DEVELOPMENT PLAN
OHE	OVERHEAD ELECTRIC
OHU	OVERHEAD UTILITY
PC	POINT OF CURVATURE
PCC	POINT OF COMPOUND CURVATURE
PCR	POINT OF CURB RETURN
PDP	PRELIMINARY DEVELOPMENT PLAN
PE	PROFESSIONAL ENGINEER
PI	POINT OF INTERSECTION
PKWY	PARKWAY
PL	PROPERTY LINE
PR	PROPOSED
PRC	POINT OF REVERSE CURVATURE
PT	POINT OF TANGENCY
PV	PLUG VALVE
PVC	POLYVINYL CHLORIDE
R	RADIUS
RCBC	REINFORCED CONCRETE BOX CULVERT
RCP	REINFORCED CONCRETE PIPE
RD	ROAD
ROW	RIGHT OF WAY
RT	RIGHT
S	SOUTH
STE	STEEL
SAN	SANITARY SEWER
SF	SQUARE FOOT
ST	STREET
STA	STATION
STM	STORM SEWER
SY	SQUARE YARD
SY-IN	SQUARE YARD INCH
TB	THRUST BLOCK
TBC	TOP BACK OF CURB
TBW	TOP BACK OF WALK
TEL	TELEPHONE
TN	TON
TOA	TOP OF ASPHALT
TOB	TOP OF BOX
TOC	TOP OF CURB OR CONCRETE
TOF	TOP OF FOUNDATION
TOP	TOP OF PIPE
TW	TOP OF WALL
TYP	TYPICAL
UDFCD	URBAN DRAINAGE AND FLOOD CONTROL DISTRICT
UE	UTILITY EASEMENT
U&DE	UTILITY & DRAINAGE EASEMENT
UGE	UNDERGROUND ELECTRIC
VCP	VITRIFIED CLAY PIPE
VPC	VERTICAL POINT OF CURVATURE
VPI	VERTICAL POINT OF INTERSECTION
VPT	VERTICAL POINT OF TANGENCY
VTC	VEHICLE TRACKING CONTROL
W	WEST
WL	WATER LINE
WM	WATER MAIN
WRD	WATER RESOURCES DEPARTMENT
WS	WATER SURFACE
WSE	WATER SURFACE ELEVATION
WTR	WATER
YR	YEAR

SHEET INDEX



VICINITY MAP
SCALE: 1"=3000'

CONTACTS:

OWNER/DEVELOPER:	BRJM, LLC 101 N. CASCADE, SUITE 200 COLORADO SPRINGS, CO 80903 P~719-475-7474
ENGINEER/SURVEYOR:	JR ENGINEERING, LLC ATTN: MIKE A. BRAMLETT 5475 TECH CENTER DRIVE, SUITE 235 COLORADO SPRINGS, CO 80919 P~303-267-6240
FIRE PROTECTION DISTRICT:	FALCON FIRE FPD 7030 N MERIDIAN RD FALCON, CO 80831 P~719-494-4050
DISTRICT:	MERIDIAN SERVICE METROPOLITAN DISTRICT 11886 STAPLETON DR PEYTON, CO 80831 P~719-495-6567
COUNTY TRANSPORTATION:	EL PASO COUNTY, DEPT. OF PUBLIC WORKS 3275 AKERS DRIVE COLORADO SPRINGS, COLORADO 80922 KEVIN MASTIN ~ (719) 520-6300
COUNTY DEVELOPMENT:	EL PASO PLANNING AND COMMUNITY 2880 INTERNATIONAL CIRCLE COLORADO SPRINGS, CO 80910 CRAIG DOSSEY ~ (719) 520-6300
ELECTRIC COMPANY:	MOUNTAIN VIEW ELECTRIC ASSOC., INC. 11140 EAST WOODMEN ROAD FALCON, COLORADO 80831 (719) 495-2283

BASIS OF BEARING

THE BASIS OF BEARINGS IS THE WESTERLY LINE OF TRACT, B, WOODMOOR PLACER, BEING MONUMENTED BY A 1-1/4" YELLOW PLASTIC CAP ILLEGIBLE AT BOTH ENDS. SAID LINE BEARING N26°20'33"E AS REFERENCED TO COLORADO STATE PLANE CENTRAL ZONE.

BENCHMARK

NGS MONUMENT T 294 BEING MONUMENTED BY A 3-1/4" BRASS DISC SET IN A 4"X4" BOULDER, LOCATED 1.8 MILES EAST ALONG HIGBY ROAD FROM ITS INTERSECTION WITH JACKSON CREEK PARKWAY, 40 FEET SOUTH OF THE CENTERLINE OF THE ROAD, 6 FEET SOUTH OF A FENCE, AND 6.2 FEET SOUTH OF A WITNESS POST. SAID MONUMENT HAVING A PUBLISHED ELEVATION OF 7247.10 FEET, NAVD88.

OWNER/DEVELOPER STATEMENT

I, THE OWNER/DEVELOPER HAVE READ AND WILL COMPLY WITH ALL OF THE REQUIREMENTS SPECIFIED IN THESE DETAILED PLANS AND SPECIFICATIONS.

BOB IRWIN — DATE

BRJM, LLC
101 N. CASCADE
COLORADO SPRINGS, CO 80903

EL PASO COUNTY STATEMENT

COUNTY PLAN REVIEW IS PROVIDED ONLY 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.

FILED IN ACCORDANCE WITH THE REQUIREMENTS OF THE EL PASO COUNTY LAND DEVELOPMENT CODE, DRAINAGE CRITERIA MANUAL, VOLUMES 1 AND 2, AND ENGINEERING CRITERIA MANUAL AS AMENDED.

IN ACCORDANCE WITH ECM SECTION 1.12, THESE CONSTRUCTION DOCUMENTS WILL BE VALID FOR CONSTRUCTION FOR A PERIOD OF 2 YEARS FROM THE DATE SIGNED BY THE EL PASO COUNTY ENGINEER. IF CONSTRUCTION HAS NOT STARTED WITHIN THOSE 2 YEARS, THE PLANS WILL NEED TO BE RESUBMITTED FOR APPROVAL, INCLUDING PAYMENT OF REVIEW FEES AT THE PLANNING AND COMMUNITY DEVELOPMENT DIRECTORS DISCRETION.

JENNIFER IRVINE, P.E. — DATE

COUNTY ENGINEER/ECM ADMINISTRATOR

ENGINEER'S STATEMENT

THESE DETAILED PLANS AND SPECIFICATIONS WERE PREPARED UNDER MY DIRECT SUPERVISION. SAID PLANS AND SPECIFICATIONS HAVE BEEN PREPARED ACCORDING TO THE CRITERIA ESTABLISHED BY THE COUNTY FOR DETAILED ROADWAY, DRAINAGE, GRADING AND EROSION CONTROL PLANS AND SPECIFICATIONS, AND SAID PLANS AND SPECIFICATIONS ARE IN CONFORMITY WITH APPLICABLE MASTER DRAINAGE PLANS AND MASTER TRANSPORTATION PLANS. SAID PLAN AND SPECIFICATIONS MEET THE PURPOSES FOR WHICH THE PARTICULAR ROADWAY AND DRAINAGE FACILITIES ARE DESIGNED AND ARE CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF. I ACCEPT RESPONSIBILITY FOR ANY LIABILITY CAUSED BY ANY NEGLIGENT ACTS, ERRORS OR OMISSIONS ON MY PART IN PREPARATION OF THESE DETAILED PLANS AND SPECIFICATIONS.

COLORADO REGISTERED BRYAN T. LAW 25043 PROFESSIONAL ENGINEER

BRYAN T. LAW, P.E. — DATE
COLORADO P.E. 25043
FOR AND ON BEHALF OF JR ENGINEERING, LLC

Know what's below. Call before you dig.

PCD FILE NO. SF-21-036

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COVER SHEET

SHEET 1 OF 17

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LAYER LINETYPE LEGEND

	EXISTING	PROPOSED
PHASE LINE		
MATCH LINE		
SECTION LINE		
BOUNDARY LINE		
PROPERTY LINE		
EASEMENT LINE		
RIGHT OF WAY		
R.O.W. A LINE	A	A
CENTERLINE		
CITY LIMITS		
WIRE FENCE		
CHAIN LINK FENCE		
WOOD FENCE		
MASONRY FENCE		
GUARDRAIL		
CONC. BARRIER		
CABLE TV	TV	TV
ELECTRIC	E	E
FIBER OPTIC	FO	FO
GAS MAIN	G	G
IRRIGATION MAIN	IRR	IRR
OIL/PETRO. MAIN	O	O
OVERHEAD UTILITY	OHU	OHU
SANITARY SEWER	S	
STORM DRAIN		
TELEPHONE	T	T
WATER MAIN	W	
RAW WATER LINE	RWL	RWL
SWALE/WATERWAY FLOWLINE		
DIVERSION DITCH		
DIVERSION CHANNEL		
MAJOR DRAINAGE BASIN		
MINOR DRAINAGE BASIN		
TOP OF SLOPE		
TOE OF SLOPE		
EDGE OF WATER		
INDEX CONTOUR	6100	6100
INTERMEDIATE CONTOUR		
DEPRESSION CONT. (INDEX)	6100	6100
DEPRESSION CONT. (INTER)		
TOP OF CUTS		
TOE OF FILLS		
CUT AND FILL LINE		C/F C/F
SILT FENCE	SF	SF SF
100 YEAR FLOODPLAIN	100YR	100YR
500 YEAR FLOODPLAIN	500YR	500YR
FLOODWAY	FLDWY	FLDWY
BASE FLOOD ELEVATION		
EDGE OF WETLANDS		
STONE WALL		

UTILITIES LEGEND

	EXISTING	PROPOSED
STORM SEWER		
MANHOLE		
STORM INLET		
AREA INLET – SQUARE		
AREA INLET – ROUND		
FLARED END SECTION		
RIPRAP		
SANITARY SEWER		
LINE MARKER	Mkr San	
SERVICE MARKER		
CLEAN-OUT		
MANHOLE W/ DIRECTIONAL FLOW ARROW		
WATER LINE		
LINE MARKER	Mkr W	
SERVICE MARKER		
FIRE HYDRANT		
FIRE CONNECTION		
MANHOLE		
BEND		
BLOW-OFF VALVE		
WELL	WELL	WELL
METER		
VALVE		
REDUCER		
THRUST BLOCK		
CROSS		
PLUG W/ THRUST BLOCK		
TEE		
REVERSE ANCHOR		
ANODE		
AIR & VACUUM VALVE ASSEMBLY		
TRANSMISSION BLOW-OFF ASSEMBLY		
GAS LINE		
MARKER	Mkr G	
SERVICE MARKER		
METER		
VALVE		
PLUG		
TEE		
DRY UTILITIES		
CABLE TV MARKER	Mkr TV	
CABLE TELEVISION PEDESTAL	TV	
ELECTRIC MARKER	Mkr E	
ELECTRIC SERVICE MARKER		
ELECTRICAL PEDESTAL	E	
ELECTRICAL METER	E	
ELECTRICAL MANHOLE	E	
FIBER-OPTIC MARKER	Mkr FO	
IRRIGATION PEDESTAL	I	
TELEPHONE MARKER	Mkr T	
TELEPHONE PEDESTAL	T	
TELEPHONE MANHOLE	T	
UTILITY POLE		
GUY ANCHOR		
GUY POLE		
MISC. UTILITIES		
VENT PIPE	VP	VP
TEST HOLE DESIGNATOR	TH# FIRM FREQUENCY	

MONUMENTATION LEGEND

ALUMINUM CAP – FOUND	AC
BRASS CAP – FOUND	BC
BENCHMARK – FOUND	
CROSS – FOUND	
MONUMENT – SET	
MONUMENT – FOUND (DEFAULT)	
MONUMENT – FOUND (ALTERNATE 1)	
MONUMENT – FOUND (ALTERNATE 2)	
MONUMENT – FOUND (ALTERNATE 3)	
MONUMENT – FOUND (ALTERNATE 4)	
MONUMENT – FOUND (ALTERNATE 5)	
MONUMENT – FOUND (ALTERNATE 6)	
MONUMENT – FOUND (ALTERNATE 7)	
NAIL & WASHER – FOUND	NAIL & WASHER
PANEL – FOUND	
PK NAIL – FOUND	PK NAIL
ROW MONUMENT – FOUND	
ROW MARKER – FOUND	
SECTION CORNER – FOUND	
SECTION CORNER – SET	
QUARTER-SECTION CORNER – FOUND	
QUARTER-SECTION CORNER – SET	
SECTION CENTER – FOUND	
SECTION CENTER – FOUND	
CONTROL/TRAVERSE POINT – SET	

TRAFFIC LEGEND

	EXISTING	PROPOSED
PARKING METER		
TRAFFIC SIGNAL BOX		
TRAFFIC SIGNAL POLE		
TRAFFIC SIGNAL		
BARRICADE		
GUARD RAIL POST		
IMPACT ATTENUATOR		
BRIDGE STYLE HIGHWAY SIGN POST		
CANTILEVER STYLE HIGHWAY SIGN POST		
SIGN		
RAILROAD MARKER/SIGN		
STREET LIGHT		
STREET LIGHT – SINGLE		
STREET LIGHT – DOUBLE		
LUMINAIRE		
ALTERNATE LUMINAIRE		
SIGNAL MAST ARM W/ LUMINAIRE		
PEDESTAL POLE FOUNDATION		
TRAFFIC SIGNAL POLE		
ROUND PULL BOX		
MEDIUM PULL BOX		
LARGE PULL BOX (20X33X15)		
SIGNAL HEAD WITHOUT BACK PLATE		
SIGNAL HEAD WITH BACK PLATE		
PEDESTRIAN SIGNAL HEAD		
VIDEO IMAGE DETECTOR		
OPTICOM DETECTOR		
VEHICLE DETECTION ZONE		V

STORM WATER MANAGEMENT

	KEY	SYMBOL
CHECK DAM	CD	
CONSTRUCTION ROAD STABILIZATION	CRS	
CURB SOCK INLET PROTECTION	CS	
CONCRETE WASHOUT AREA	CWA	
DIVERSION DITCH AND DIKE, TEMPORARY	DD	
DIVERSION CHANNEL, TEMPORARY	DV	
DEWATERING	DW	
EROSION CONTROL BLANKET	ECB	
INLET FILTER	IF	
INLET PROTECTION	IP	
MULCHING	MU	
OUTLET PROTECTION	OP	
PAVED FLUME	PF	
PERMENENT SEEDING	PS	
REINFORCED CONCRETE DAM	RCD	
ROUGH CUT STREET CONTROL	RCS	
SEDIMENT BASIN	SB	
SEDIMENT CONTROL LOG	SCL	
SILT FENCE	SF	
SURFACE ROUGHENING	SR	
STABILIZED STAGING AREA	SSA	
SEDIMENT TRAP	ST	
STRAW BALE BARRIER	STB	
TERRACING	TER	
TEMPORARY SEEDING	TS	
TEMPORARY STREAM CROSSING CULVERT/BRIDGE	TSC C	
TEMPORARY STREAM CROSSING FORD TYPE	TSC F	
TEMPORARY SLOPE DRAIN	TSD	
VEHICLE TRACKING CONTROL	VTC	
VEHICLE TRACKING CONTROL WITH WASH RACK	WR	

DRAINAGE REPORT PLANS

	KEY
BASIN DESIGNATION (NO COEFFICIENT)	# / #.#
BASIN DESIGNATION (1 COEFFICIENT)	# / #.# / #
BASIN DESIGNATION (2 COEFFICIENTS)	# / #.# / # / #
ANALISYS POINT IDENTIFIER	#
BASIN DESIGNATION (HISTORIC)	# / #.#
BASIN DESIGNATION (DEVELOPED)	# / #.#
SUB-BASIN DESIGNATION (DEVELOPED)	# / ##
DRAINAGE PIPE IDENTIFIER	##
DRAINAGE POINT IDENTIFIER (HEXAGONAL)	##
DRAINAGE POINT IDENTIFIER (TRIANGULAR)	?
SWMM DESIGNATION 1	#
SWMM DESIGNATION 2	#
SWMM DESIGNATION 3	#
SWMM DESIGNATION 4	?

LANDSCAPE LEGEND

	EXISTING	PROPOSED
TREE – CONIFEROUS		
TREE – DECIDUOUS		
SHRUB/BUSH		
SHRUBS AND BUSHES		
IRRIGATION BOX		
IRRIGATION SPRINKLER		
IRRIGATION VALVE		
BOLLARD		
FLAGPOLE	FP	

Know what's **below.**
Call before you dig.

ENGINEER'S STATEMENT

PREPARED UNDER MY DIRECT SUPERVISION AND ON BEHALF OF JR ENGINEERING

COLORADO REGISTERED BRYAN T. LAW 25043 PROFESSIONAL ENGINEER

BRYAN T. LAW, P.E. DATE
COLORADO P.E. 25043
FOR AND ON BEHALF OF JR ENGINEERING, LLC

UNTIL SUCH TIME AS THESE DRAWINGS ARE APPROVED BY THE APPROPRIATE REVIEWING AGENCIES, JR ENGINEERING APPROVES THEIR USE ONLY FOR THE PURPOSES DESIGNATED BY WRITTEN AUTHORIZATION.

PREPARED FOR
BRJM, LLC
101 N. CASCADE, SUITE 200
COLORADO SPRINGS, CO 80903
ATTN: BOB IRWIN
P~(719)-475-7474

J·R ENGINEERING
A Westrian Company
Centennial 303-740-9393 • Colorado Springs 719-593-2593
Fort Collins 970-491-9888 • www.jrengineering.com

No.	REVISION	BY	DATE

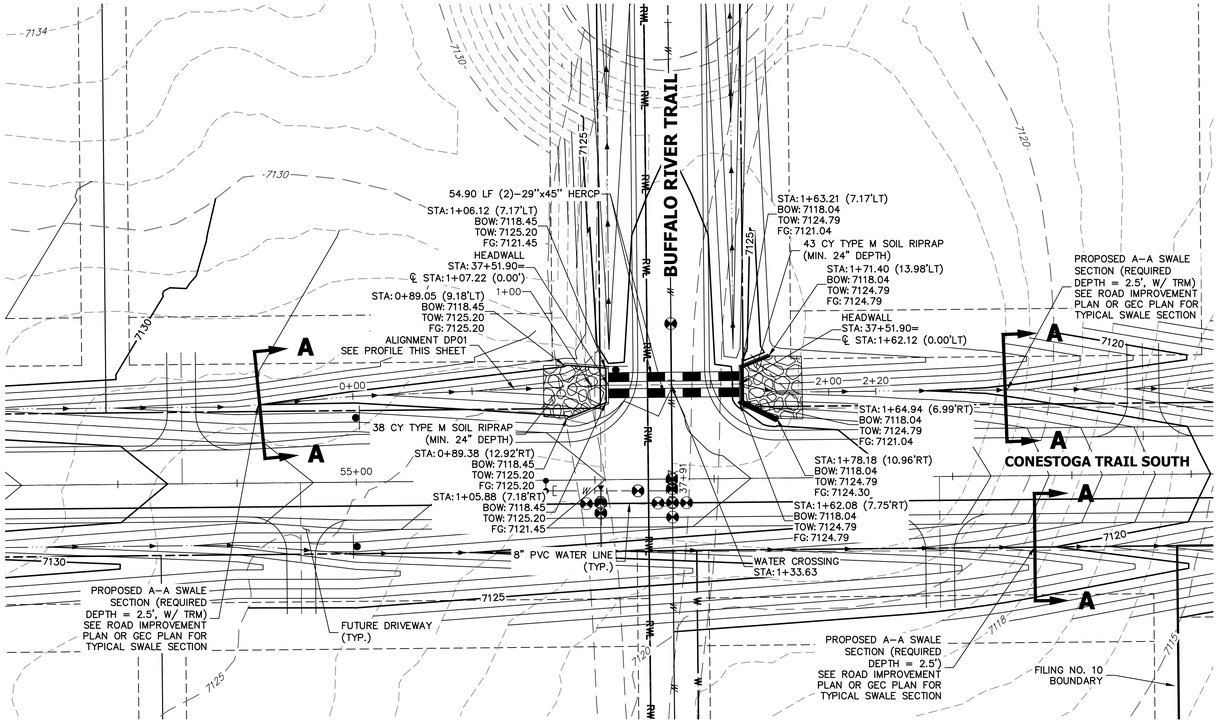
H-SCALE	N/A
V-SCALE	N/A
DATE	04/11/22
DESIGNED BY	N/A
DRAWN BY	QNL
CHECKED BY	

LATIGO TRAILS – FILING NO. 10

LEGEND

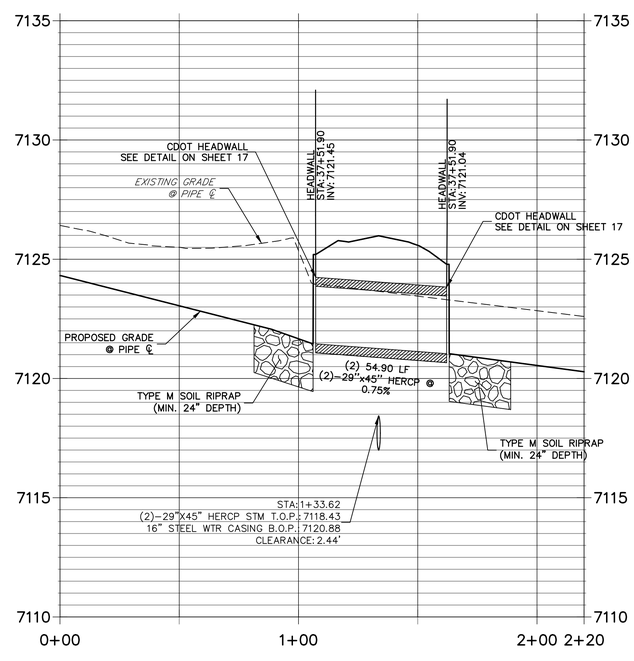
SHEET 2 OF 17

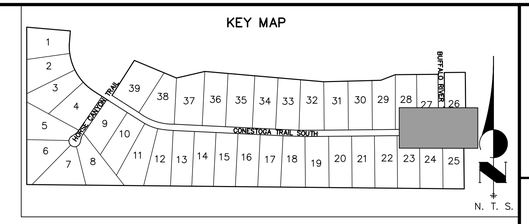
JOB NO. 25175.02



BUFFALO RIVER TRAIL CULVERT

DP01 PROFILE
STA 0+00.00 TO 2+19.74





NOTES

1. SEE SHEET 1 FOR BENCHMARK. SEE SHEET 2 FOR LEGEND.
2. ALL STATIONING IS PIPE CENTERLINE UNLESS OTHERWISE NOTED.
3. ALL RCP STORM SEWER SHALL BE CLASS III UNLESS OTHERWISE NOTED.
4. PIPE LENGTHS INCLUDE FES LENGTH AND/OR HEADWALL THICKNESS.
5. PIPES SHALL HAVE JOINT RESTRAINTS ON LAST 3 JOINTS AT PIPE OUTFALL.

HEADWALL/WINGWALL NOTES

1. SEE SHEET 17 FOR CDOT DETAIL M-601-10 & M-601-20 FOR ADDITIONAL HEADWALL & WINGWALL DETAILS.
2. PIPE INVERT IN/OUT ELV. SHALL MATCH GRADE.
3. HEADWALL DIMENSIONS SHALL BE 81" X 174".
4. TOP OF WALL ELEVATION SHALL MATCH TOP OF WINGWALL ELEVATION.

30 15 0 30 60

HORIZONTAL
ORIGINAL SCALE: 1" = 30'
VERTICAL
ORIGINAL SCALE: 1" = 3'

Know what's **below.**
Call before you dig.

ENGINEER'S STATEMENT

STANDARD DETAILS SHOWN WERE REVIEWED ONLY AS TO THEIR APPLICATION ON THIS PROJECT

BRYAN T. LAW, P.E.
COLORADO P.E. 25043
FOR AND ON BEHALF OF JR ENGINEERING, LLC

DATE

25043 COLORADO BRYAN T. LAW LICENSED PROFESSIONAL ENGINEER

UNTIL SUCH TIME AS THESE DRAWINGS ARE APPROVED BY THE APPROPRIATE REVIEWING AGENCIES, JR ENGINEERING APPROVES THEIR USE ONLY FOR THE PURPOSES DESIGNATED BY WRITTEN AUTHORIZATION.

PREPARED FOR
BRJM, LLC
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COLORADO SPRINGS, CO 80903
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No.	REVISION	BY	DATE

H-SCALE	1"=30'
V-SCALE	1"=3'
DATE	04/11/22
DESIGNED BY	SAV
DRAWN BY	SAV
CHECKED BY	

LATIGO TRAILS – FILING NO. 10

STORM SEWER PLAN AND PROFILE

SHEET 3 OF 13

JOB NO. 25175.02

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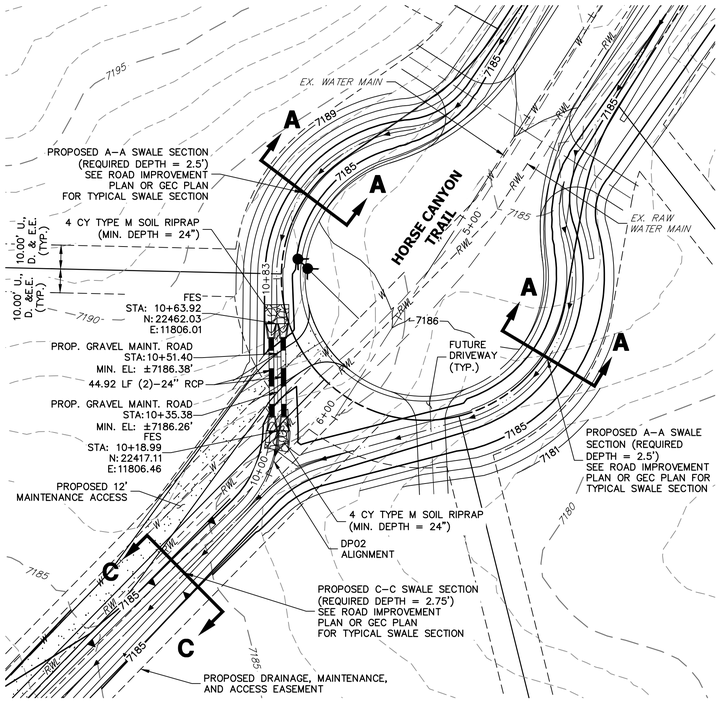
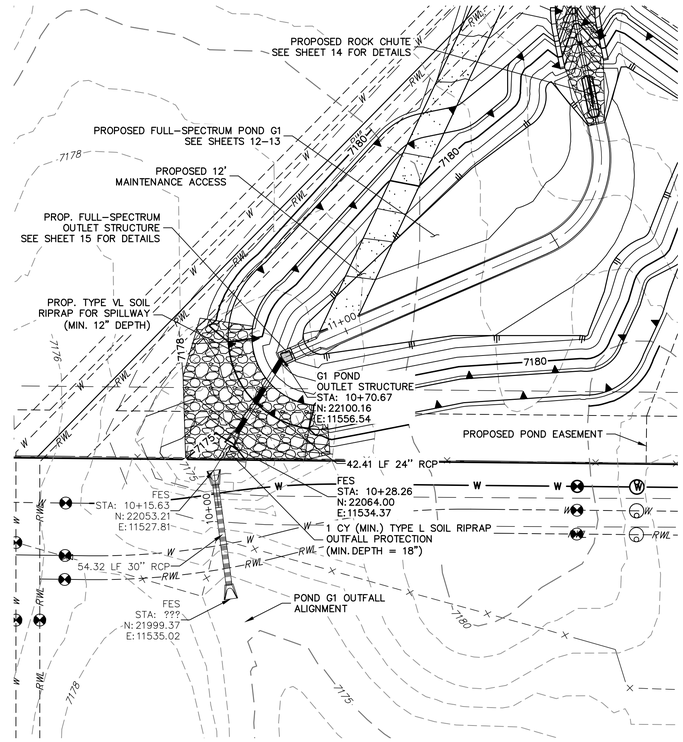
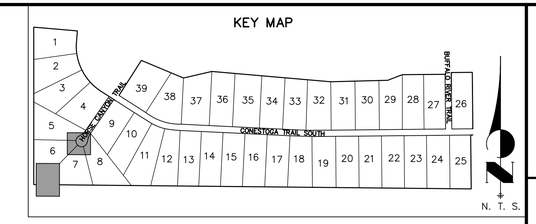


G1 POND MAINTENANCE ACCESS CULVERT



G1 POND OUTFALL



NOTES

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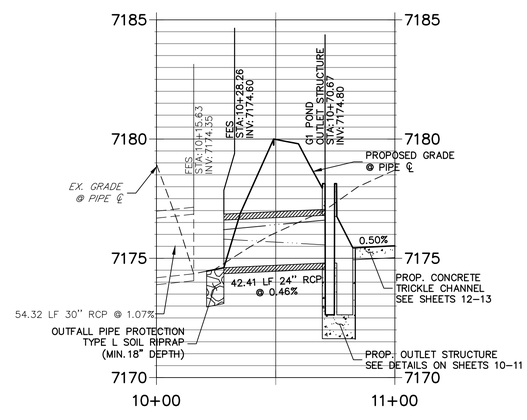
5. PIPES SHALL HAVE JOINT RESTRAINTS ON LAST 3 JOINTS AT PIPE OUTFALL.

POND G1 OUTFALL PROFILE
STA 10+00.00 TO 10+99.92



30 15 0 30 60

HORIZONTAL
ORIGINAL SCALE: 1" = 30'
VERTICAL
ORIGINAL SCALE: 1" = 3'

Know what's below. Call before you dig.

ENGINEER'S STATEMENT

STANDARD DETAILS SHOWN WERE REVIEWED ONLY AS TO THEIR APPLICATION ON THIS PROJECT

BRYAN T. LAW, P.E.
COLORADO P.E. 25043
FOR AND ON BEHALF OF JR ENGINEERING, LLC

DATE

COLORADO REGISTERED BRYAN T. LAW 25043 PROFESSIONAL ENGINEER

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PREPARED FOR
BRJM, LLC
101 N. CASCADE, SUITE 200
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No.	REVISION	BY	DATE

H-SCALE	1"=30'
V-SCALE	1"=3'
DATE	04/11/22
DESIGNED BY	SAV
DRAWN BY	SAV
CHECKED BY	

LATIGO TRAILS – FILING NO. 10

STORM SEWER PLAN AND PROFILE

SHEET 4 OF 13

JOB NO. 25175.02

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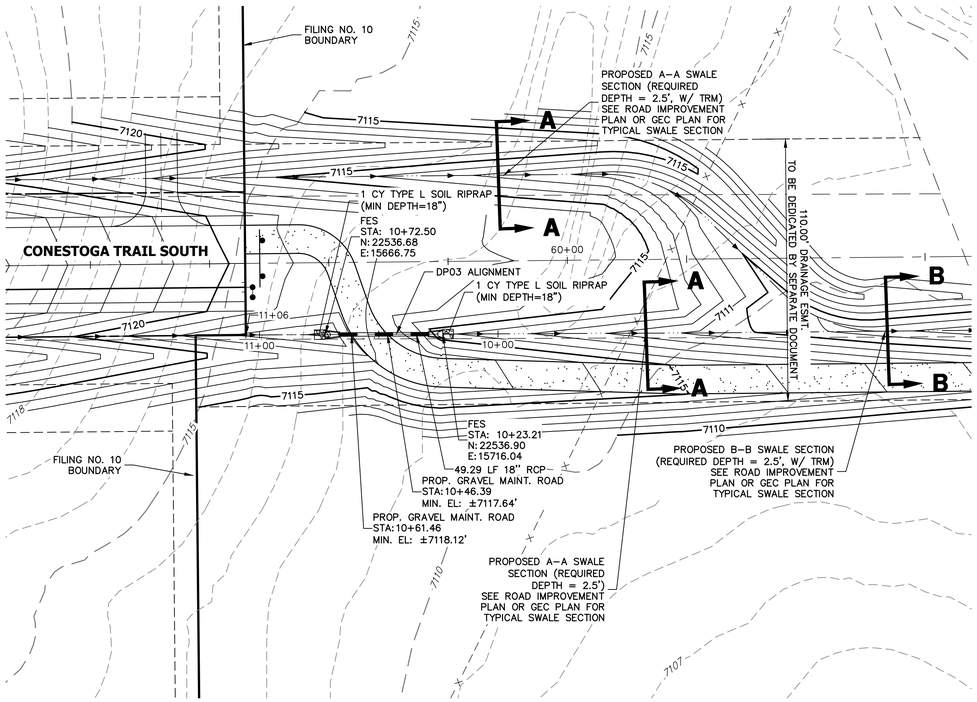
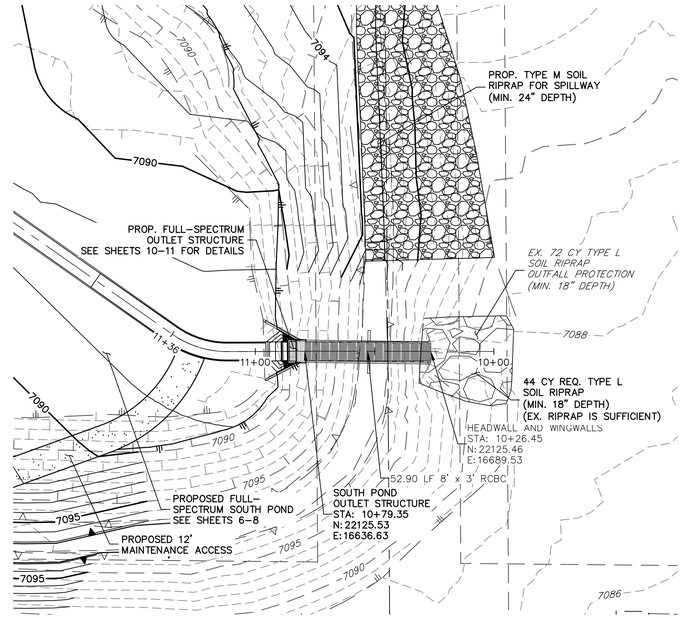
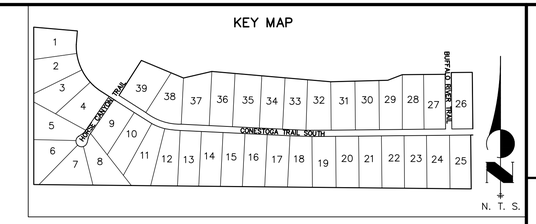


SOUTH POND MAINTENANCE ACCESS CULVERT



SOUTH POND OUTFALL



NOTES

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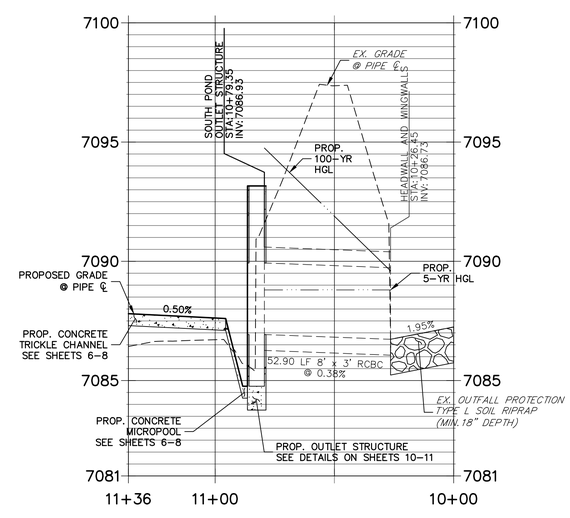
2. ALL STATIONING IS PIPE CENTERLINE UNLESS OTHERWISE NOTED.
3. ALL RCP STORM SEWER SHALL BE CLASS III UNLESS OTHERWISE NOTED.
4. PIPE LENGTHS INCLUDE FES LENGTH AND/OR HEADWALL THICKNESS.
5. PIPES SHALL HAVE JOINT RESTRAINTS ON LAST 3 JOINTS AT PIPE OUTFALL.

SOUTH POND OUTFALL PROFILE
STA 10+00.00 TO 11+36.33



30 15 0 30 60

HORIZONTAL
ORIGINAL SCALE: 1" = 30'
VERTICAL
ORIGINAL SCALE: 1" = 3'

Know what's below. Call before you dig.

ENGINEER'S STATEMENT

STANDARD DETAILS SHOWN WERE REVIEWED ONLY AS TO THEIR APPLICATION ON THIS PROJECT

BRYAN T. LAW, P.E.
COLORADO P.E. 25043
FOR AND ON BEHALF OF JR ENGINEERING, LLC

DATE

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PREPARED FOR
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No.	REVISION	BY	DATE

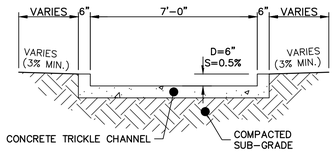
H-SCALE	1"=30'
V-SCALE	1"=3'
DATE	04/11/22
DESIGNED BY	SAV
DRAWN BY	SAV
CHECKED BY	

LATIGO TRAILS – FILING NO. 10

STORM SEWER PLAN AND PROFILE

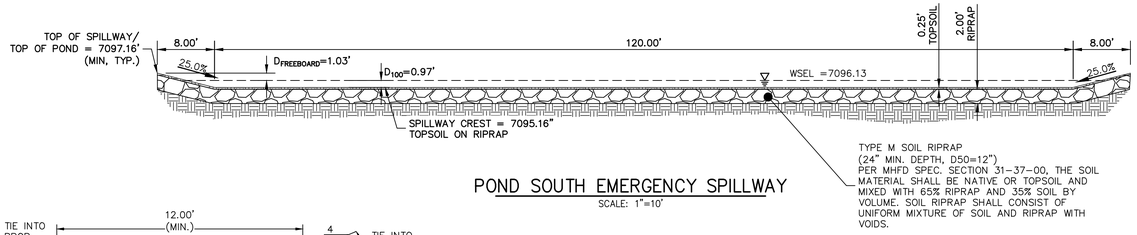
SHEET 5 OF 13

JOB NO. 25175.02



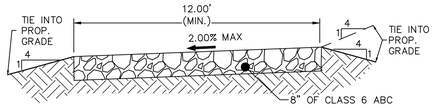
POND SOUTH TRICKLE CHANNEL

SCALE: 1"=3'



POND SOUTH EMERGENCY SPILLWAY

SCALE: 1"=10'



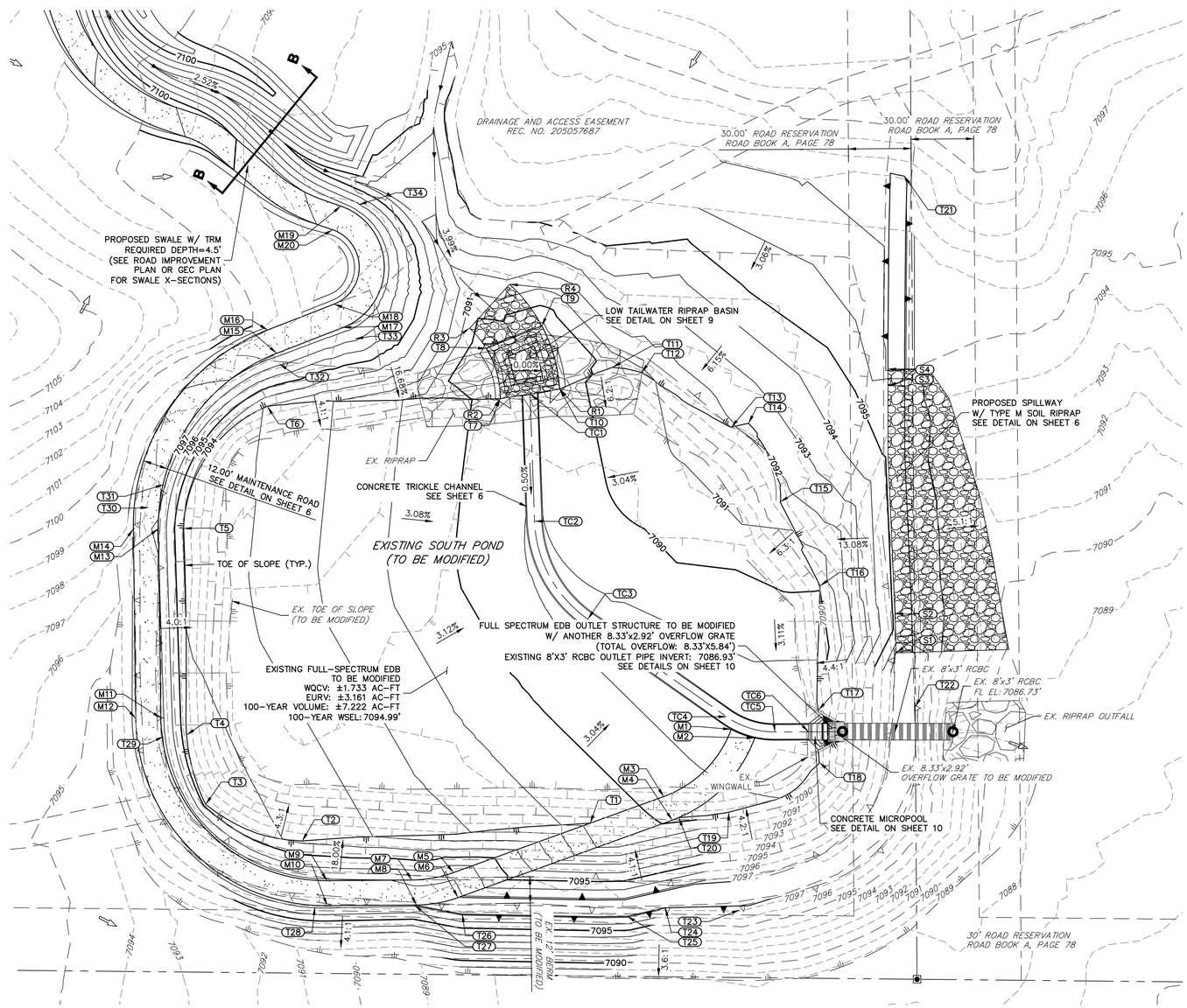
12' GRAVEL MAINTENANCE ACCESS ROAD TYPICAL SECTION

N.T.S.

Know what's **below.**
Call before you dig.

NOTES

1. ALL PROPOSED POND IMPROVEMENTS ARE PRIVATE UNLESS OTHERWISE NOTED.
2. SEE SHEETS 3-5 FOR PROPOSED STORM SEWER DESIGN.



30 15 0 30 60

ORIGINAL SCALE: 1" = 30'

POINT TABULATION			
ID NO.	DESCRIPTION	NORTHING/EASTING	ELEVATION
M1	MAINT. ROAD	N: 22126.60 E: 16583.37	7088.28
M2	MAINT. ROAD	N: 22122.43 E: 16594.62	7088.23
M3	MAINT. ROAD	N: 22094.40 E: 16551.04	7089.66
M4	MAINT. ROAD	N: 22083.12 E: 16555.12	7089.85
M5	MAINT. ROAD	N: 22057.99 E: 16450.42	7096.85
M6	MAINT. ROAD	N: 22046.01 E: 16452.57	7097.16
M7	MAINT. ROAD	N: 22054.41 E: 16430.48	7096.95
M8	MAINT. ROAD	N: 22042.43 E: 16432.63	7097.17
M9	MAINT. ROAD	N: 22054.09 E: 16389.81	7097.15
M10	MAINT. ROAD	N: 22042.09 E: 16389.91	7097.37
M11	MAINT. ROAD	N: 22132.06 E: 16310.20	7097.36
M12	MAINT. ROAD	N: 22131.91 E: 16298.20	7097.58
M13	MAINT. ROAD	N: 22222.75 E: 16309.02	7096.94
M14	MAINT. ROAD	N: 22222.59 E: 16297.02	7097.16
M15	MAINT. ROAD	N: 22306.84 E: 16365.73	7098.34
M16	MAINT. ROAD	N: 22318.03 E: 16361.38	7098.56
M17	MAINT. ROAD	N: 22319.19 E: 16397.45	7098.40
M18	MAINT. ROAD	N: 22330.37 E: 16393.10	7098.66
M19	MAINT. ROAD	N: 22377.36 E: 16396.40	7098.56
M20	MAINT. ROAD	N: 22366.02 E: 16392.46	7098.79
R1	RIPRAP LOW TAILWTR	N: 22289.65 E: 16501.15	7088.79
R2	RIPRAP LOW TAILWTR	N: 22285.06 E: 16472.78	7088.79
R3	RIPRAP LOW TAILWTR	N: 22318.84 E: 16458.05	7090.47
R4	RIPRAP LOW TAILWTR	N: 22339.94 E: 16477.25	7091.71
S1	SPILLWAY	N: 22163.26 E: 16662.35	7097.16
S2	SPILLWAY	N: 22181.99 E: 16661.78	7095.16
S3	SPILLWAY	N: 22291.30 E: 16658.42	7095.16
S4	SPILLWAY	N: 22299.30 E: 16658.41	7097.16
T1	TOE	N: 22081.64 E: 16515.77	7090.68
T2	TOE	N: 22073.12 E: 16377.87	7093.80
T3	TOE	N: 22090.65 E: 16331.62	7094.64
T4	TOE	N: 22123.93 E: 16322.51	7094.44
T5	TOE	N: 22222.90 E: 16321.08	7093.92
T6	TOE	N: 22281.40 E: 16361.05	7092.95

POINT TABULATION			
ID NO.	DESCRIPTION	NORTHING/EASTING	ELEVATION
T7	TOE	N: 22285.06 E: 16472.78	7088.79
T8	TOE	N: 22309.17 E: 16466.03	7088.79
T9	TOE	N: 22319.98 E: 16492.66	7088.79
T10	TOE	N: 22289.65 E: 16501.15	7088.79
T11	TOE	N: 22300.12 E: 16526.49	7090.43
T12	TOE	N: 22297.63 E: 16540.60	7090.83
T13	TOE	N: 22271.43 E: 16583.36	7091.95
T14	TOE	N: 22273.27 E: 16591.56	7092.20
T15	TOE	N: 22235.64 E: 16606.76	7091.58
T16	TOE	N: 22195.40 E: 16625.90	7090.07
T17	TOE	N: 22135.88 E: 16625.10	7088.27
T18	TOE	N: 22110.76 E: 16625.53	7088.40
T19	TOE	N: 22086.91 E: 16582.29	7089.36
T20	TOE	N: 22084.31 E: 16558.17	7089.76
T21	TOP	N: 22391.67 E: 16666.35	7097.16
T22	TOP	N: 22137.45 E: 16671.40	7097.23
T23	TOP	N: 22040.11 E: 16587.52	7097.16
T24	TOP	N: 22041.09 E: 16551.73	7097.16
T25	TOP	N: 22037.00 E: 16533.48	7097.16
T26	TOP	N: 22038.06 E: 16454.48	7097.16
T27	TOP	N: 22042.38 E: 16431.60	7097.16
T28	TOP	N: 22041.55 E: 16384.06	7097.16
T29	TOP	N: 22123.18 E: 16311.59	7097.16
T30	TOP	N: 22232.92 E: 16304.37	7097.16
T31	TOP	N: 22243.95 E: 16311.59	7097.16
T32	TOP	N: 22301.80 E: 16366.87	7097.16
T33	TOP	N: 22313.77 E: 16403.15	7097.16
T34	TOP	N: 22377.99 E: 16404.85	7097.16
TC1	TRICKLE CHANNEL	N: 22287.36 E: 16486.99	7088.79
TC2	TRICKLE CHANNEL	N: 22226.40 E: 16489.16	7088.49
TC3	TRICKLE CHANNEL	N: 22179.45 E: 16514.61	7088.21
TC4	TRICKLE CHANNEL	N: 22132.66 E: 16581.16	7087.80
TC5	TRICKLE CHANNEL	N: 22125.38 E: 16604.32	7087.68
TC6	TRICKLE CHANNEL	N: 22125.44 E: 16620.43	7087.60

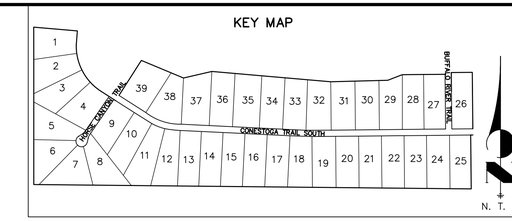
ENGINEER'S STATEMENT

STANDARD DETAILS SHOWN WERE REVIEWED ONLY AS TO THEIR APPLICATION ON THIS PROJECT

BRYAN T. LAW, P.E.
COLORADO P.E. 25043
FOR AND ON BEHALF OF JR ENGINEERING, LLC

25043 — COLORADO REGISTERED PROFESSIONAL ENGINEER — BRYAN T. LAW

DATE



UNTIL SUCH TIME AS THESE DRAWINGS ARE APPROVED BY THE APPROPRIATE REVIEWING AGENCIES, JR ENGINEERING APPROVES THEIR USE ONLY FOR THE PURPOSES DESIGNATED BY WRITTEN AUTHORIZATION.

PREPARED FOR
BRJM, LLC
101 N. CASCADE, SUITE 200
COLORADO SPRINGS, CO 80903
ATTN: BOB IRWIN
P~(719)-475-7474

J·R ENGINEERING
A Westrian Company
Centennial 303-740-9393 • Colorado Springs 719-593-2593
Fort Collins 970-491-9888 • www.jrengineering.com

No.	REVISION	BY	DATE

H-SCALE	1"=30'
V-SCALE	N/A
DATE	04/11/22
DESIGNED BY	GAG
DRAWN BY	GAG
CHECKED BY	

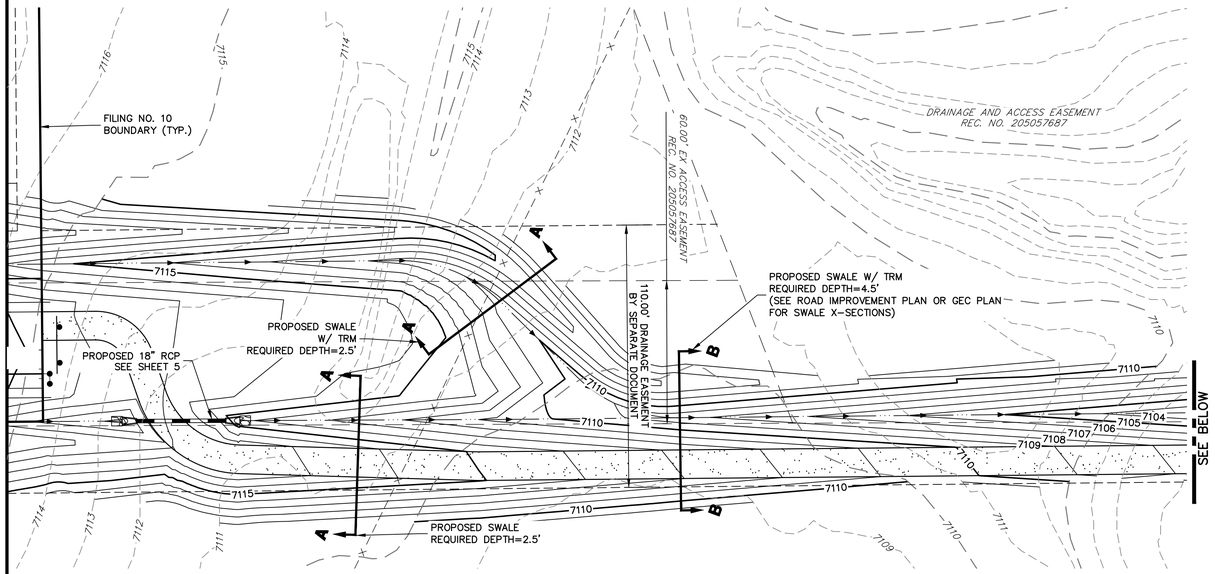
LATIGO TRAILS – FILING NO. 10

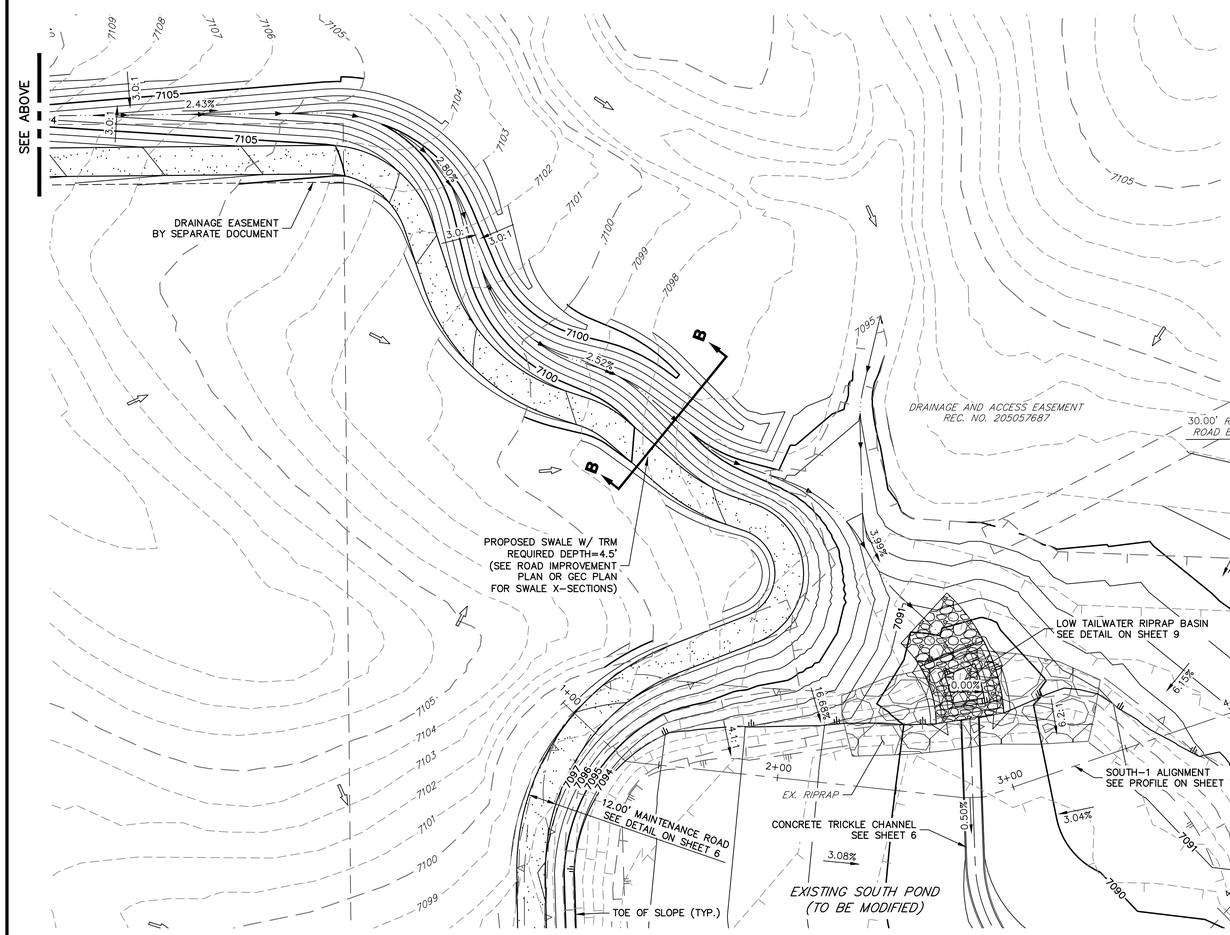
POND PLANS

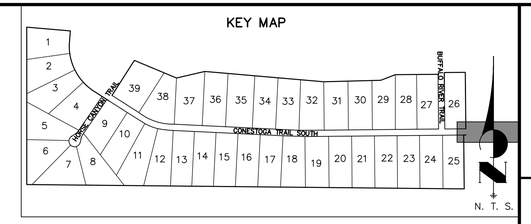
SHEET 6 OF 17

JOB NO. 25175.02

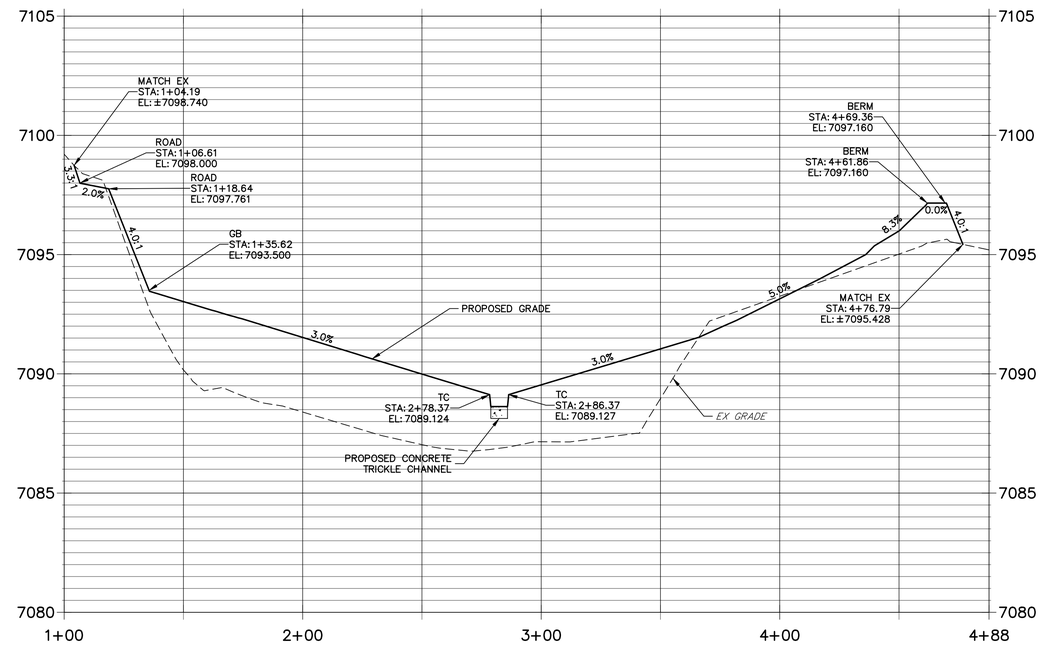
\\dr-fs-02\projects\25175000.all\25175002\Drawingsheet dwgs\CDF\25175002_South-PG01.dwg, South-PG01 Plan, 4/11/2022 5:23:09 PM, CS







SOUTH-1 PROFILE
STA 1+00.00 TO 4+87.73



ORIGINAL SCALE: 1" = 30'

Know what's below. Call before you dig.

ENGINEER'S STATEMENT

STANDARD DETAILS SHOWN WERE REVIEWED ONLY AS TO THEIR APPLICATION ON THIS PROJECT

BRYAN T. LAW, P.E.
COLORADO P.E. 25043
FOR AND ON BEHALF OF JR ENGINEERING, LLC

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ATTN: BOB IRWIN
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Fort Collins 970-491-9888 • www.jrengineering.com

No.	REVISION	BY	DATE

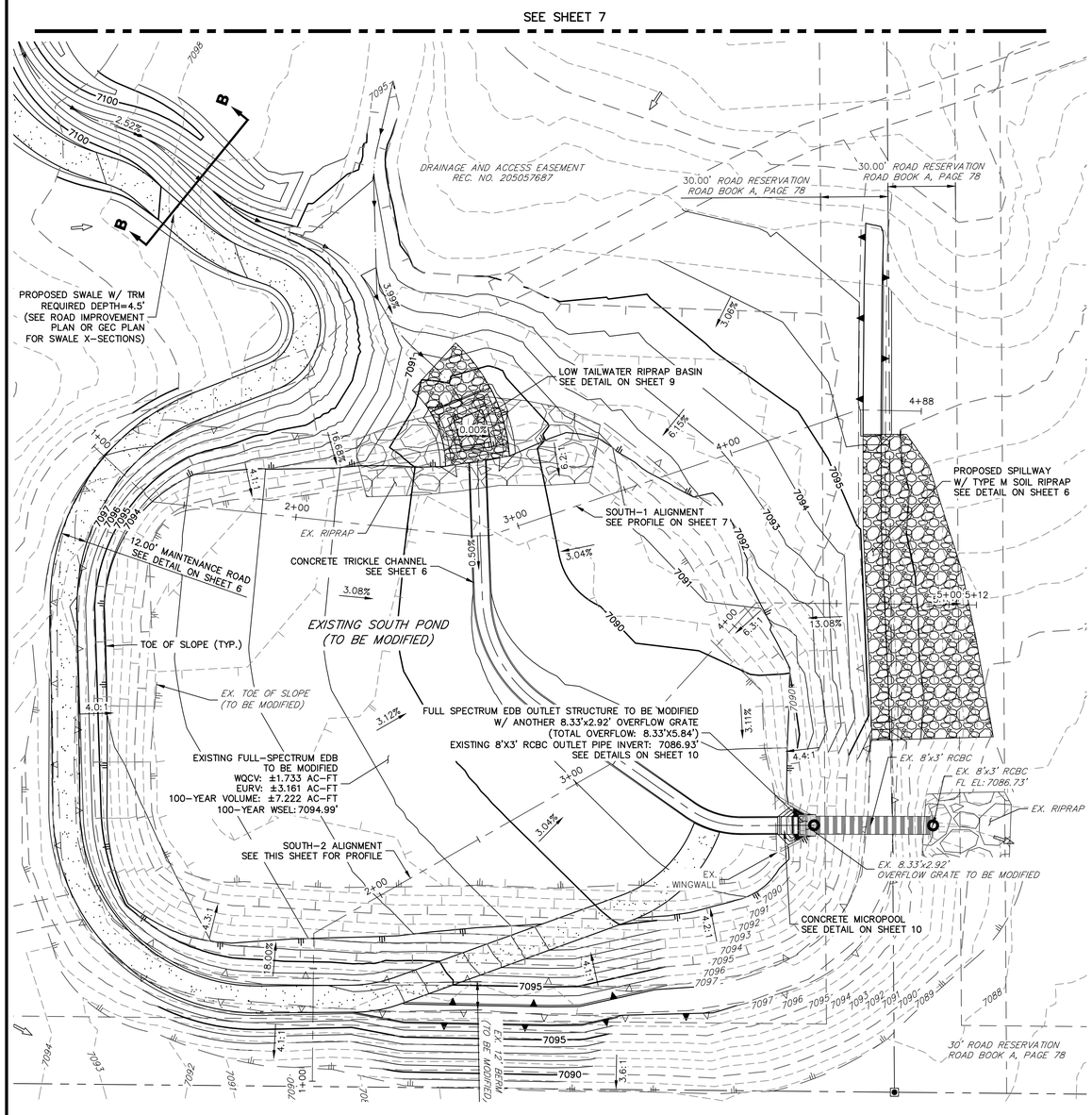
H-SCALE	1"=30'
V-SCALE	N/A
DATE	04/11/22
DESIGNED BY	GAG
DRAWN BY	GAG
CHECKED BY	

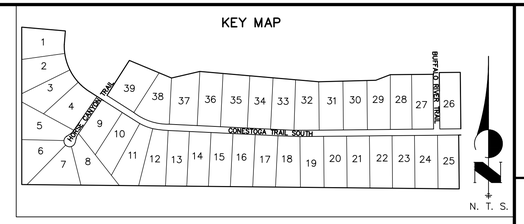
LATIGO TRAILS – FILING NO. 10

POND PLANS

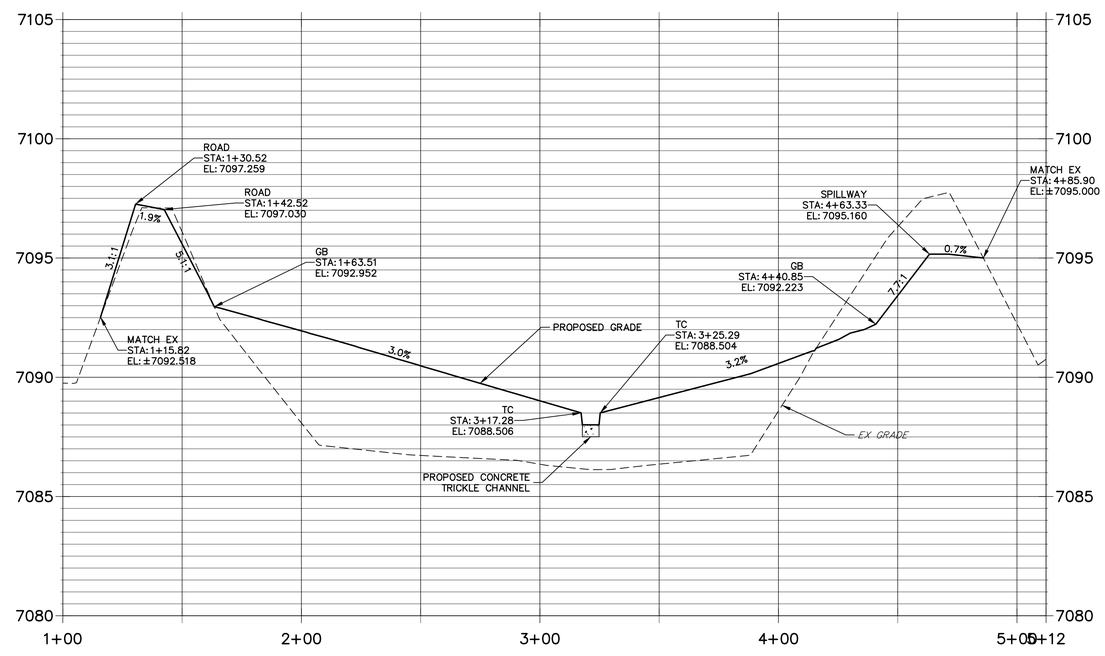
SHEET 7 OF 17

JOB NO. 25175.02





SOUTH-2 PROFILE
STA 1+00.00 TO 5+12.20



Know what's below. Call before you dig.

30 15 0 30 60
ORIGINAL SCALE: 1" = 30'

ENGINEER'S STATEMENT

STANDARD DETAILS SHOWN WERE REVIEWED ONLY AS TO THEIR APPLICATION ON THIS PROJECT

BRYAN T. LAW, P.E.
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V-SCALE	N/A
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LATIGO TRAILS – FILING NO. 10

POND PLANS

SHEET 8 OF 17

JOB NO. 25175.02

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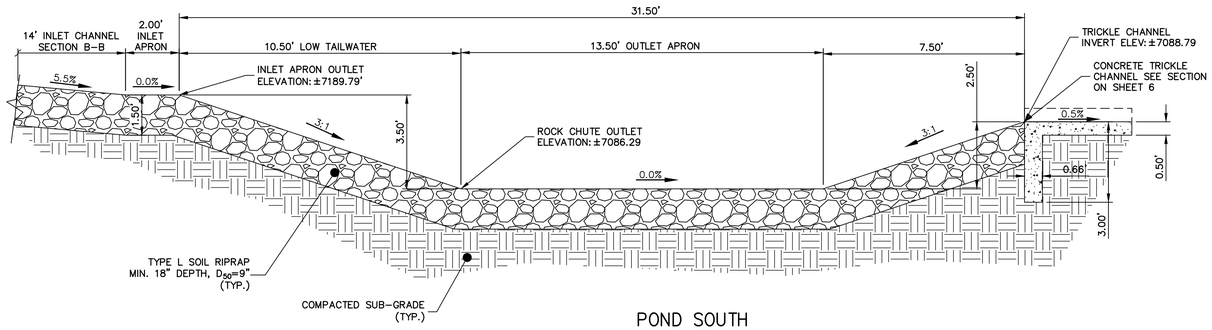
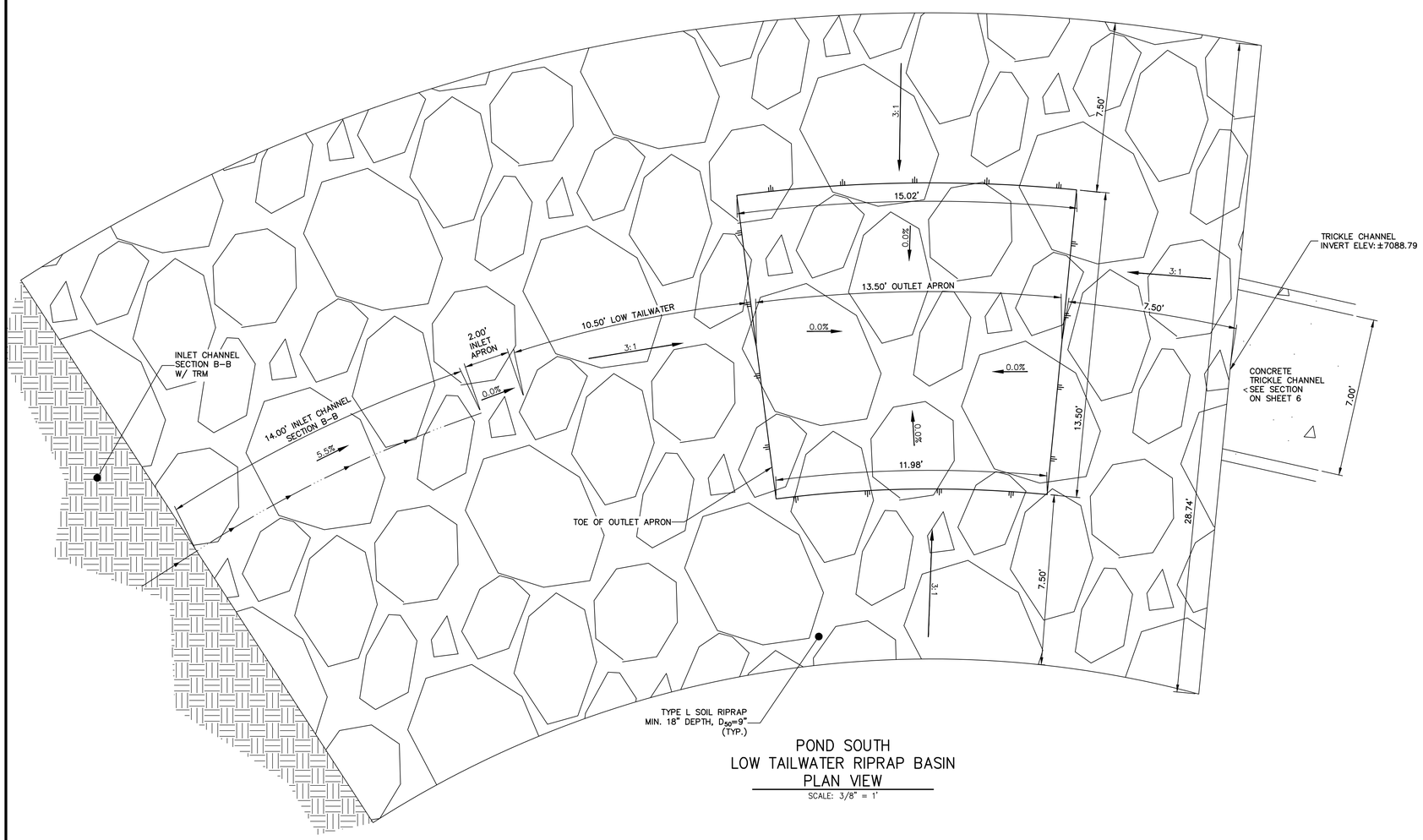


POND SOUTH
LOW TAILWATER RIPRAP BASIN
SCALE: 3/8" = 1'



POND SOUTH
LOW TAILWATER RIPRAP BASIN
PLAN VIEW
SCALE: 3/8" = 1'

811 Know what's below. Call before you dig.

ENGINEER'S STATEMENT

PREPARED UNDER MY DIRECT SUPERVISION AND ON BEHALF OF JR ENGINEERING

BRYAN T. LAW, P.E.
COLORADO P.E. 25043
FOR AND ON BEHALF OF JR ENGINEERING, LLC

COLORADO REGISTERED BRYAN T. LAW 25043 PROFESSIONAL ENGINEER

DATE

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H-SCALE	VARIES
V-SCALE	VARIES
DATE	04/11/22
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DRAWN BY	GAG
CHECKED BY	

LATIGO TRAILS – FILING NO. 10

POND PLANS

SHEET 9 OF N/A

JOB NO. 25175.02

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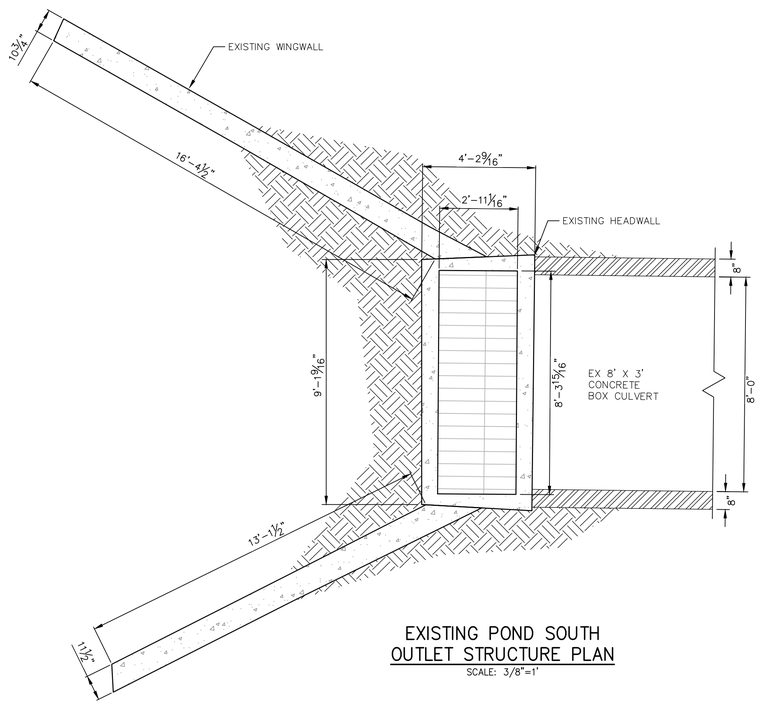
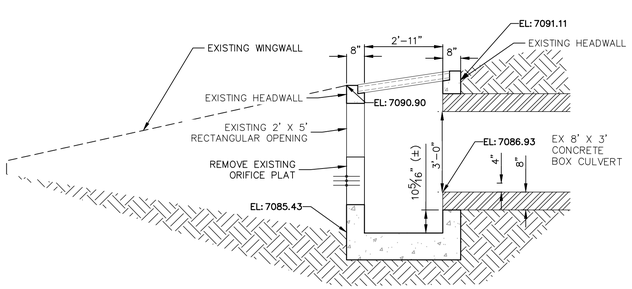
EXISTING OUTLET STRUCTURE

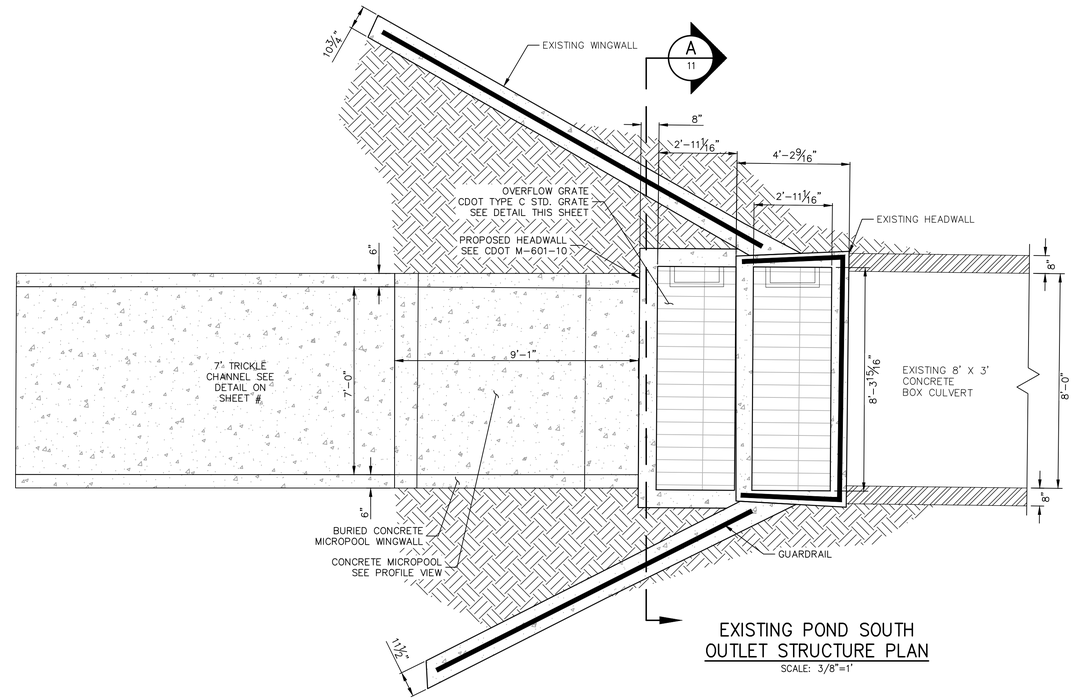


EXISTING POND SOUTH
OUTLET STRUCTURE PLAN
SCALE: 3/8"=1'

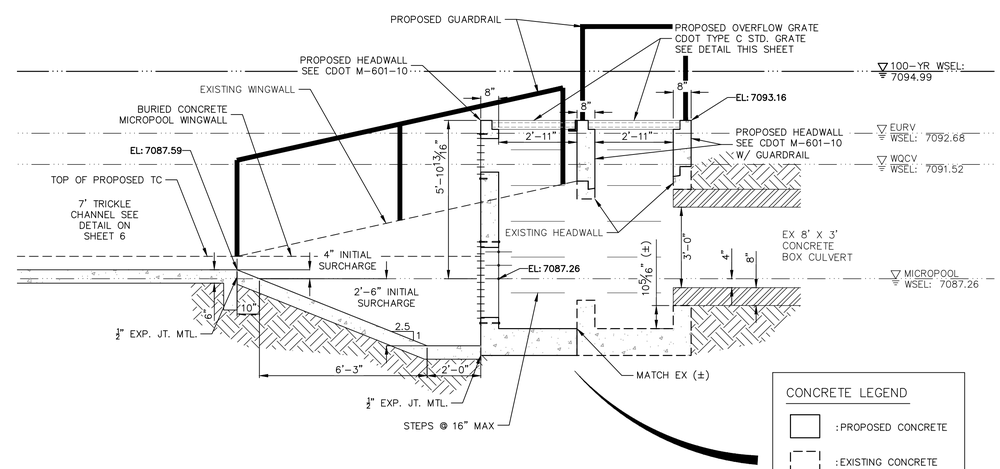


EXISTING POND SOUTH OUTLET
STRUCTURE PROFILE
SCALE: 3/8"=1'

PROPOSED OUTLET STRUCTURE



EXISTING POND SOUTH
OUTLET STRUCTURE PLAN
SCALE: 3/8"=1'



POND SOUTH OUTLET
STRUCTURE PROFILE
SCALE: 3/8"=1'

CONCRETE LEGEND

: PROPOSED CONCRETE

: EXISTING CONCRETE

#LEGEND ONLY PERTAINS TO THIS DETAIL

POND SOUTH OUTLET STRUCTURE NOTES:

1. STRUCTURAL STEEL FOR GRATES AND BARS SHALL BE GALVANIZED AND SHALL BE IN ACCORDANCE WITH CDOT STANDARD SPECIFICATIONS, SUBSECTION 712.06.
2. ALL HARDWARE, BOLTS, AND FASTENERS SHALL BE STAINLESS STEEL.
3. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR ALL PLATES AND GRATING FOR ENGINEER'S APPROVAL PRIOR TO CONSTRUCTION.
4. GUARDRAIL REQUIRED ALONG WINGWALLS AND HEADWALL.

811 Know what's below. Call before you dig.

ENGINEER'S STATEMENT

PREPARED UNDER MY DIRECT SUPERVISION AND ON BEHALF OF JR ENGINEERING

BRYAN T. LAW, P.E.
COLORADO P.E. 25043
FOR AND ON BEHALF OF JR ENGINEERING, LLC

COLORADO REGISTERED BRYAN T. LAW 25043 PROFESSIONAL ENGINEER

DATE

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PREPARED FOR
BRJM, LLC
101 N. CASCADE, SUITE 200
COLORADO SPRINGS, CO 80903
ATTN: BOB IRWIN
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A Westrian Company
Centennial 303-740-9393 • Colorado Springs 719-593-2593
Fort Collins 970-491-9888 • www.jrengineering.com

BY	DATE	No.	REVISION

H-SCALE	3/8"=1'
V-SCALE	3/8"=1'
DATE	04/11/22
DESIGNED BY	GAG
DRAWN BY	GAG
CHECKED BY	

LATIGO TRAILS – FILING NO. 10

POND PLANS

SHEET 10 OF N/A

JOB NO. 25175.02

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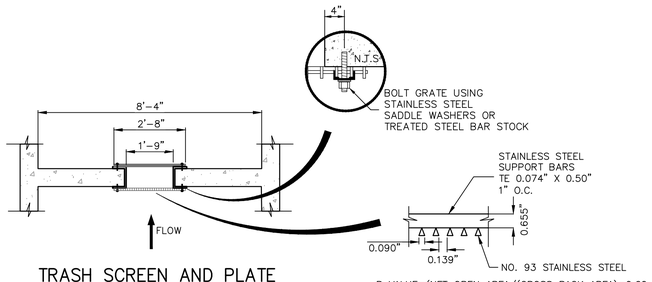
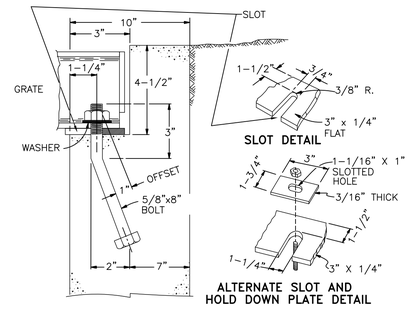


TRASH SCREEN AND PLATE DETAIL (PLAN)

N.T.S.

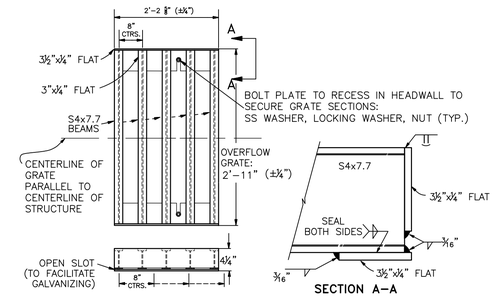
TRASH SCREEN DETAIL

N.T.S.



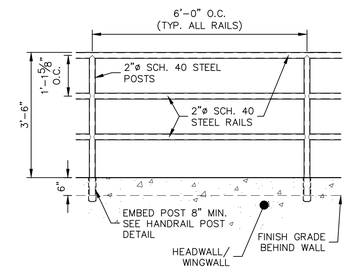
OVERFLOW GRATE/TRASH RACK INSTALLATION DETAIL

N.T.S.



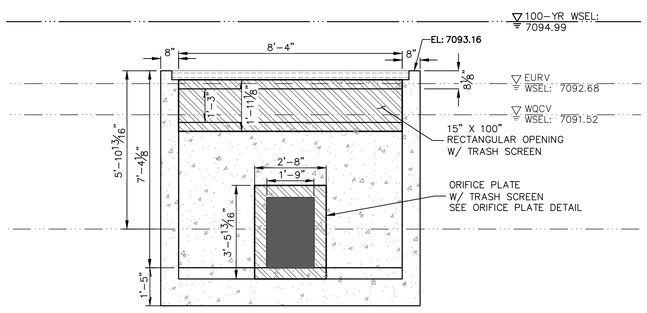
CDOT TYPE C STANDARD OVERFLOW GRATE DETAILS

N.T.S.



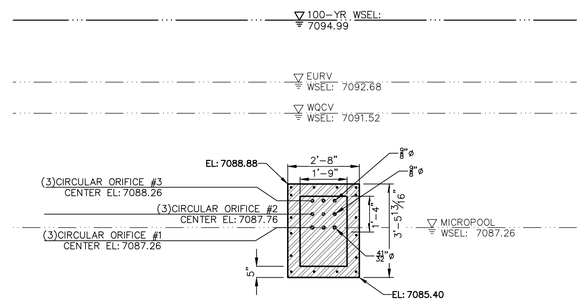
PEDESTRIAN RAILING DETAIL

SCALE: 1/2"=1'



A A-A SECTION

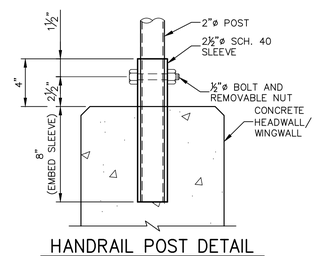
SCALE: 3/8"=1'



3/8" THICK ORIFICE PLATE, GALVANIZED STEEL WITH 3 - 41"ø/32, AND 6 - 8"ø CIRCULAR ORIFICES. BOLT PLATE TO CONCRETE @ 10" O.C. MAX. PROVIDE GASKET BETWEEN PLATE AND CONCRETE

ORIFICE PLATE DETAIL

SCALE: 3/8"=1'



HANDRAIL POST DETAIL

SCALE: 1"=6'

Know what's below. Call before you dig.

ENGINEER'S STATEMENT

PREPARED UNDER MY DIRECT SUPERVISION AND ON BEHALF OF JR ENGINEERING

BRYAN T. LAW, P.E.
COLORADO P.E. 25043
FOR AND ON BEHALF OF JR ENGINEERING, LLC

COLORADO REGISTERED BRYAN T. LAW 25043 PROFESSIONAL ENGINEER

DATE

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No.	REVISION	BY	DATE

H-SCALE	3/8"=1'
V-SCALE	3/8"=1'
DATE	04/11/22
DESIGNED BY	GAG
DRAWN BY	GAG
CHECKED BY	

LATIGO TRAILS - FILING NO. 10

POND PLANS

SHEET 11 OF N/A

JOB NO. 25175.02

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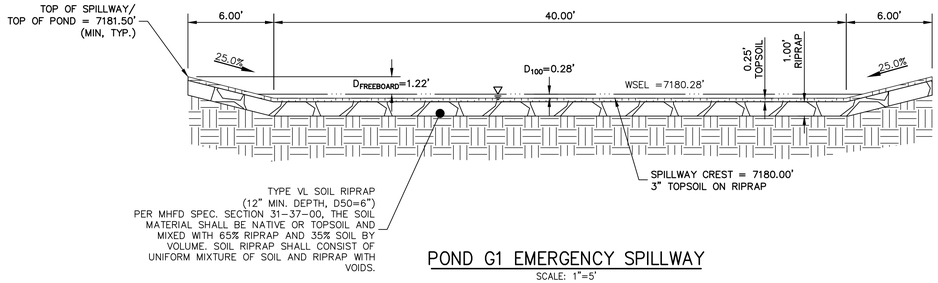
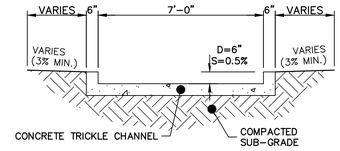


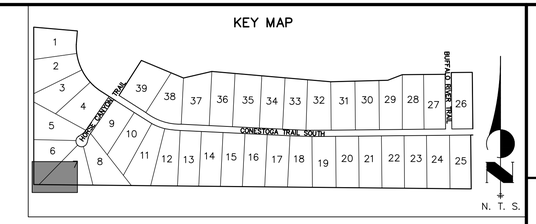
POND G1 EMERGENCY SPILLWAY

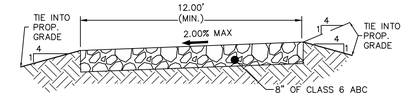
SCALE: 1"=5'



POND G1 TRICKLE CHANNEL

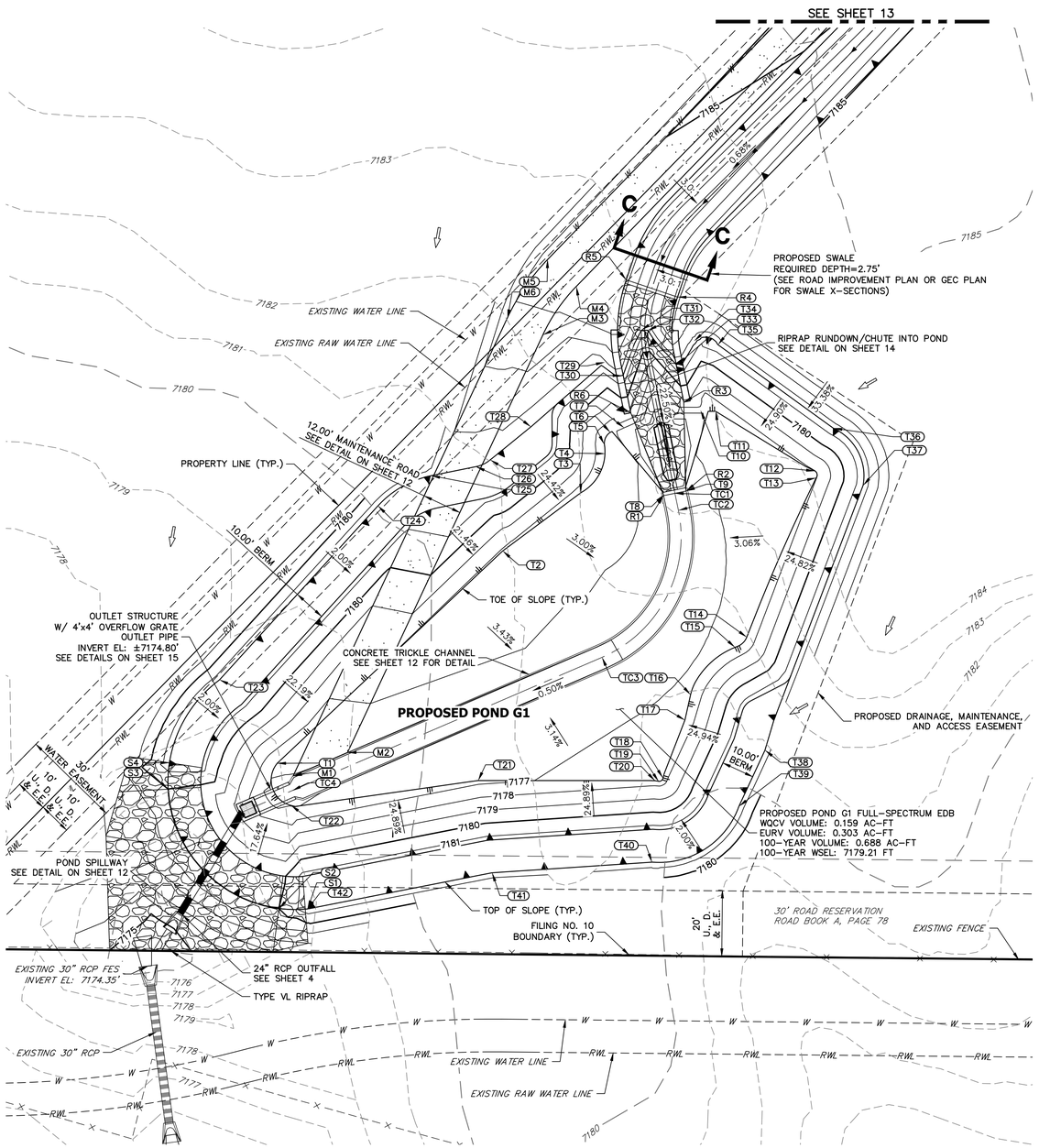
SCALE: 1"=3'





12' GRAVEL MAINTENANCE ACCESS ROAD TYPICAL SECTION

N.T.S.



POINT TABULATION			
ID NO.	DESCRIPTION	NORTHING/EASTING	ELEVATION
M1	MAINT. ROAD	N: 22111.19 E: 11572.05	7175.97
M2	MAINT. ROAD	N: 22118.32 E: 11588.63	7176.06
M3	MAINT. ROAD	N: 22245.78 E: 11648.23	7183.63
M4	MAINT. ROAD	N: 22260.47 E: 11658.36	7184.50
M5	MAINT. ROAD	N: 22268.82 E: 11649.74	7184.74
M6	MAINT. ROAD	N: 22250.86 E: 11637.36	7183.74
R1	RIPRAP CHUTE	N: 22196.70 E: 11685.06	7176.27
R2	RIPRAP CHUTE	N: 22198.12 E: 11691.91	7176.27
R3	RIPRAP CHUTE	N: 22225.24 E: 11691.20	7178.87
R4	RIPRAP CHUTE	N: 22257.29 E: 11689.29	7184.26
R5	RIPRAP CHUTE	N: 22262.54 E: 11673.65	7184.26
R6	RIPRAP CHUTE	N: 22221.99 E: 11675.02	7178.87
S1	SPILLWAY	N: 22070.59 E: 11576.36	7181.50
S2	SPILLWAY	N: 22070.74 E: 11567.68	7180.00
S3	SPILLWAY	N: 22107.14 E: 11533.90	7180.00
S4	SPILLWAY	N: 22115.19 E: 11534.30	7181.50
T1	TOE	N: 22115.02 E: 11567.16	7176.12
T2	TOE	N: 22179.80 E: 11635.94	7177.87
T3	TOE	N: 22197.64 E: 11659.87	7177.55
T4	TOE	N: 22209.52 E: 11667.16	7177.30
T5	TOE	N: 22212.42 E: 11666.97	7177.30
T6	TOE	N: 22216.05 E: 11668.81	7177.24
T7	TOE	N: 22217.43 E: 11673.00	7177.02

POINT TABULATION			
ID NO.	DESCRIPTION	NORTHING/EASTING	ELEVATION
T8	TOE	N: 22196.89 E: 11685.13	7176.28
T9	TOE	N: 22198.12 E: 11691.91	7176.27
T10	TOE	N: 22222.63 E: 11696.30	7177.42
T11	TOE	N: 22222.45 E: 11700.88	7177.29
T12	TOE	N: 22204.22 E: 11731.23	7177.98
T13	TOE	N: 22202.10 E: 11731.56	7177.97
T14	TOE	N: 22153.54 E: 11710.42	7177.34
T15	TOE	N: 22150.43 E: 11706.87	7177.28
T16	TOE	N: 22135.99 E: 11693.29	7177.17
T17	TOE	N: 22128.23 E: 11691.55	7177.31
T18	TOE	N: 22110.57 E: 11684.85	7177.63
T19	TOE	N: 22109.53 E: 11683.56	7177.64
T20	TOE	N: 22109.72 E: 11682.47	7177.62
T21	TOE	N: 22109.78 E: 11628.42	7176.71
T22	TOE	N: 22102.19 E: 11571.38	7175.95
T23	TOP	N: 22140.48 E: 11549.57	7181.50
T24	TOP	N: 22193.57 E: 11597.89	7181.50
T25	TOP	N: 22202.78 E: 11614.12	7181.50
T26	TOP	N: 22205.55 E: 11627.82	7181.30
T27	TOE	N: 22207.59 E: 11632.15	7181.50
T28	TOP	N: 22217.72 E: 11644.60	7181.50
T29	TOP	N: 22237.39 E: 11667.10	7181.89
T30	TOP	N: 22233.34 E: 11672.22	7181.50

POINT TABULATION			
ID NO.	DESCRIPTION	NORTHING/EASTING	ELEVATION
T31	TOP	N: 22247.17 E: 11678.25	7181.50
T32	TOP	N: 22247.15 E: 11680.25	7181.50
T33	TOP	N: 22236.80 E: 11689.38	7181.50
T34	TOP	N: 22243.90 E: 11694.37	7181.72
T35	TOP	N: 22242.78 E: 11701.59	7181.50
T36	TOP	N: 22217.28 E: 11736.84	7181.50
T37	TOP	N: 22199.83 E: 11745.90	7181.50
T38	TOP	N: 22119.01 E: 11715.95	7181.50
T39	TOP	N: 22101.95 E: 11708.04	7181.50
T40	TOP	N: 22084.87 E: 11681.57	7181.50
T41	TOP	N: 22081.63 E: 11632.66	7181.50
T42	TOP	N: 22070.59 E: 11576.36	7181.50
TC1	TRICKLE CHANNEL	N: 22197.41 E: 11688.48	7176.27
TC2	TRICKLE CHANNEL	N: 22192.21 E: 11689.56	7176.25
TC3	TRICKLE CHANNEL	N: 22147.34 E: 11666.21	7175.97
TC4	TRICKLE CHANNEL	N: 22106.70 E: 11571.73	7175.46

Know what's **below.**
Call before you dig.

20 10 0 20 40

ORIGINAL SCALE: 1" = 20'

NOTES

1. ALL PROPOSED POND IMPROVEMENTS ARE PRIVATE UNLESS OTHERWISE NOTED.
2. SEE SHEETS 3-5 FOR PROPOSED STORM SEWER DESIGN.

ENGINEER'S STATEMENT

PREPARED UNDER MY DIRECT SUPERVISION AND ON BEHALF OF JR ENGINEERING

BRYAN T. LAW, P.E.
COLORADO P.E. 25043
FOR AND ON BEHALF OF JR ENGINEERING, LLC

DATE

UNTIL SUCH TIME AS THESE DRAWINGS ARE APPROVED BY THE APPROPRIATE REVIEWING AGENCIES, JR ENGINEERING APPROVES THEIR USE ONLY FOR THE PURPOSES DESIGNATED BY WRITTEN AUTHORIZATION.

PREPARED FOR
BRJM, LLC
101 N. CASCADE, SUITE 200
COLORADO SPRINGS, CO 80903
ATTN: BOB IRWIN
P~(719)-475-7474

J·R ENGINEERING
A Westrian Company
Centennial 303-740-9393 • Colorado Springs 719-593-2593
Fort Collins 970-491-9888 • www.jrengineering.com

No.	REVISION	BY	DATE

H-SCALE	1"=20'
V-SCALE	N/A
DATE	04/11/22
DESIGNED BY	GAG
DRAWN BY	GAG
CHECKED BY	

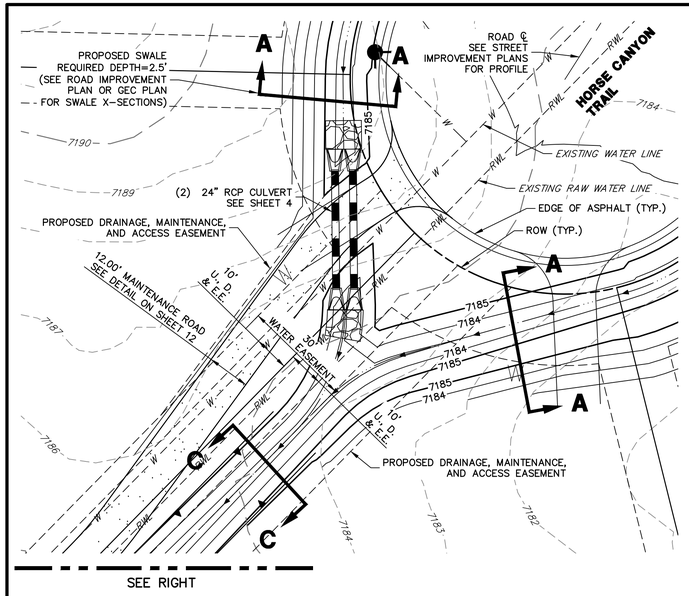
LATIGO TRAILS – FILING NO. 10

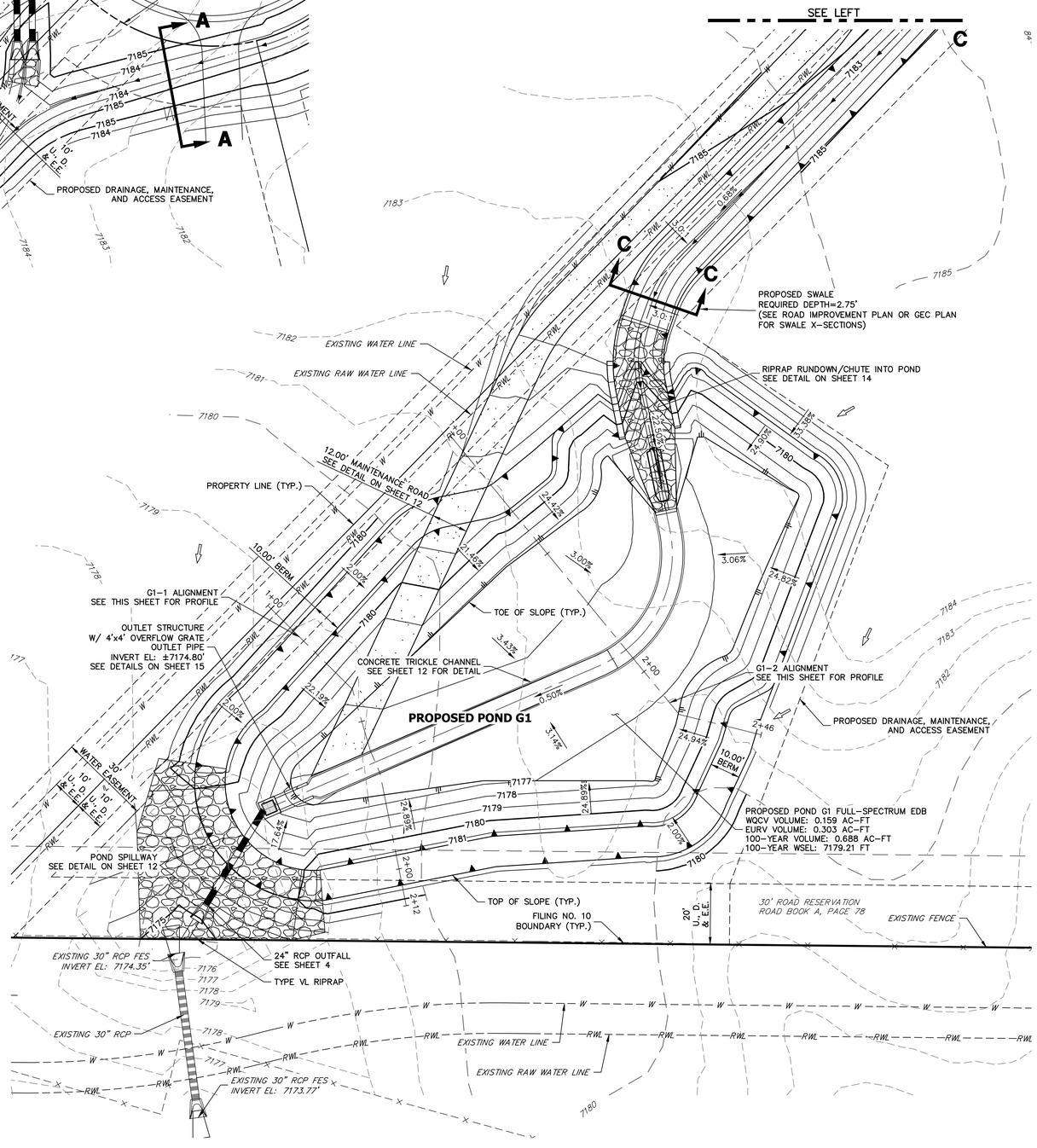
POND PLANS

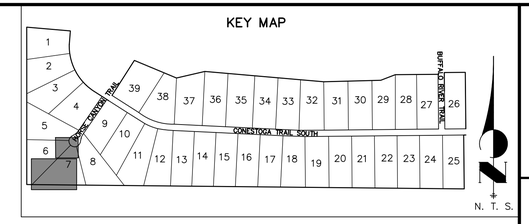
SHEET 12 OF 17

JOB NO. 25175.02

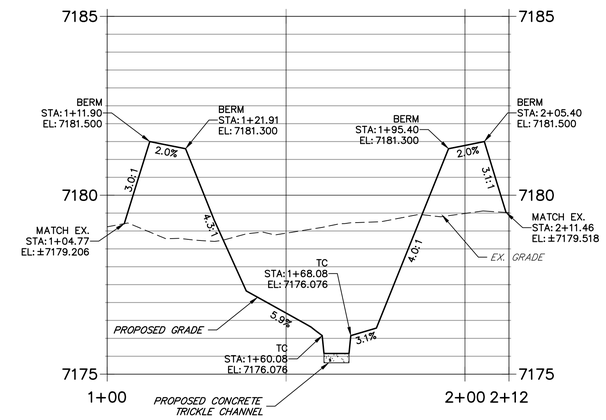
\\dr-fs-02\projects\25\0000.all\25175\02\Drawings\sheet dwgs\CD\S25175\02_G1-PG01.dwg, G1-PG01 Plan, 4/11/2022 5:28:44 PM, CS



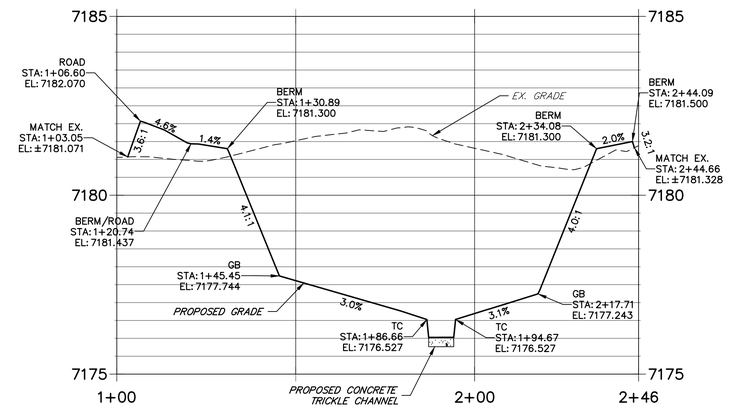




G1-1 PROFILE
STA 1+00.00 TO 2+12.30



G1-2 PROFILE
STA 1+00.00 TO 2+45.83



20 10 0 20 40

HORIZONTAL
ORIGINAL SCALE: 1" = 20'
VERTICAL
ORIGINAL SCALE: 1" = 2'

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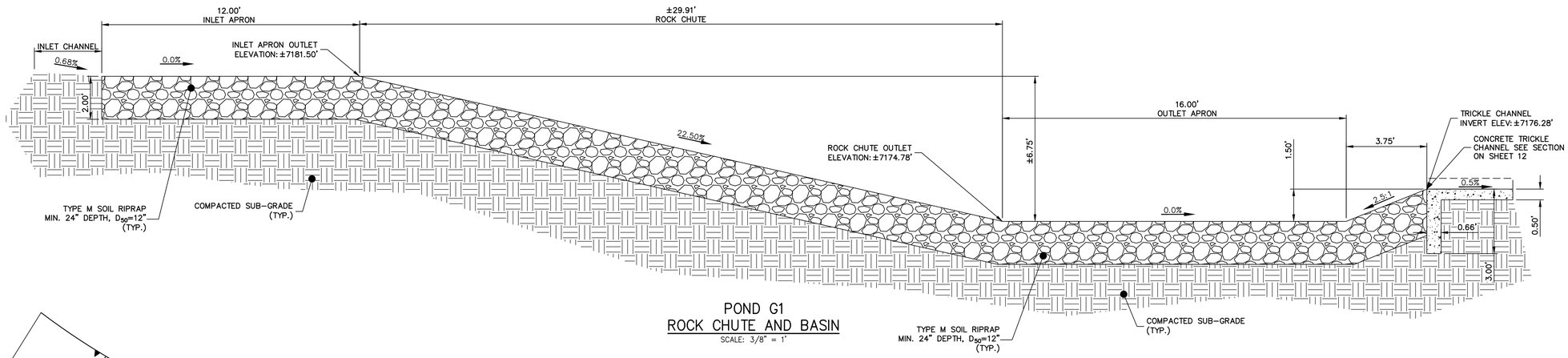
LATIGO TRAILS – FILING NO. 10

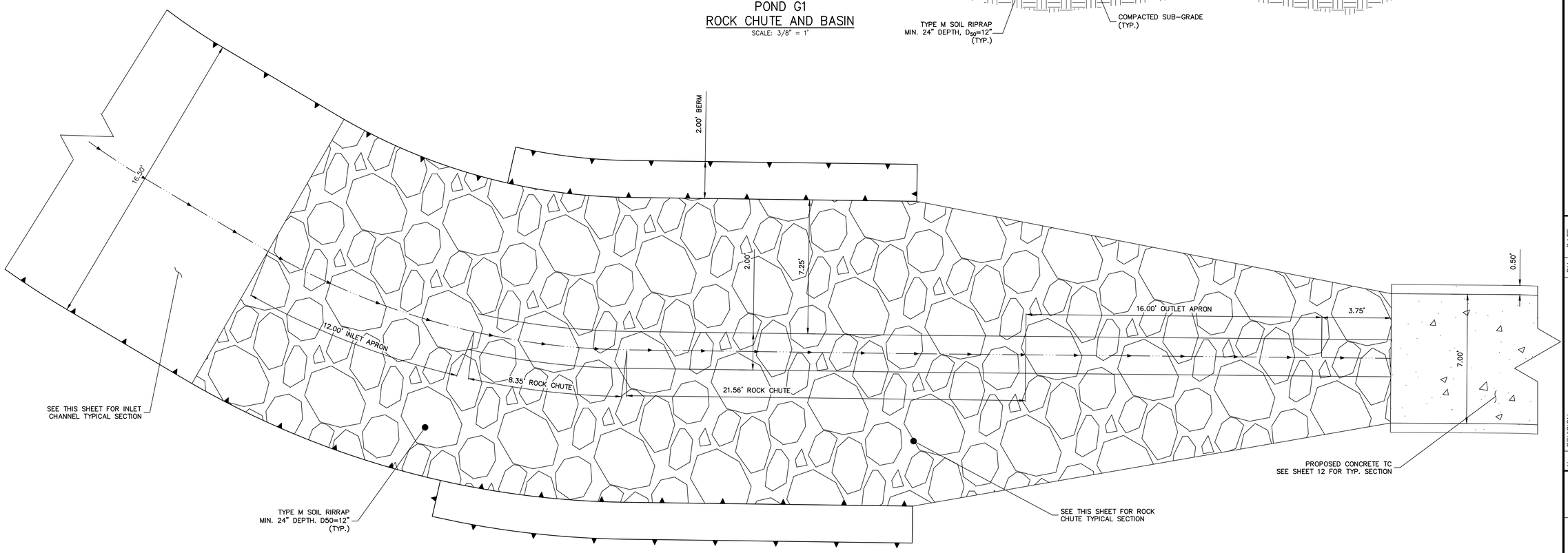
POND PLANS

SHEET 13 OF 17

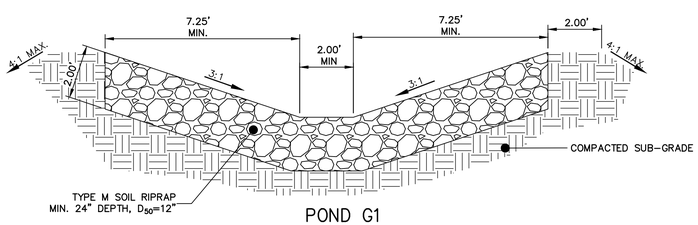
JOB NO. 25175.02



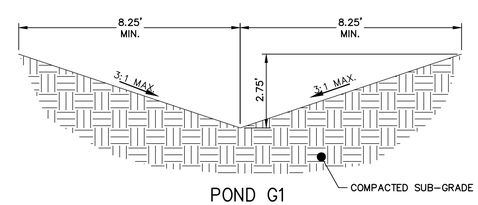
POND G1
ROCK CHUTE AND BASIN
SCALE: 3/8" = 1'



POND G1
ROCK CHUTE AND BASIN
PLAN VIEW
SCALE: 3/8" = 1'



POND G1
ROCK CHUTE AND BASIN
TYP. CROSS-SECTION
SCALE: 3/8" = 1'



POND G1
INLET CHANNEL
TYP. CROSS-SECTION
SCALE: 3/8" = 1'

Know what's **below.**
Call before you dig.

ENGINEER'S STATEMENT

PREPARED UNDER MY DIRECT SUPERVISION AND ON BEHALF OF JR ENGINEERING

BRYAN T. LAW, P.E.
COLORADO P.E. 25043
FOR AND ON BEHALF OF JR ENGINEERING, LLC

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No.	REVISION	BY	DATE

H-SCALE	VARIES
V-SCALE	VARIES
DATE	04/11/22
DESIGNED BY	GAG
DRAWN BY	GAG
CHECKED BY	

LATIGO TRAILS – FILING NO. 10

POND PLANS

SHEET 14 OF N/A

JOB NO. 25175.02

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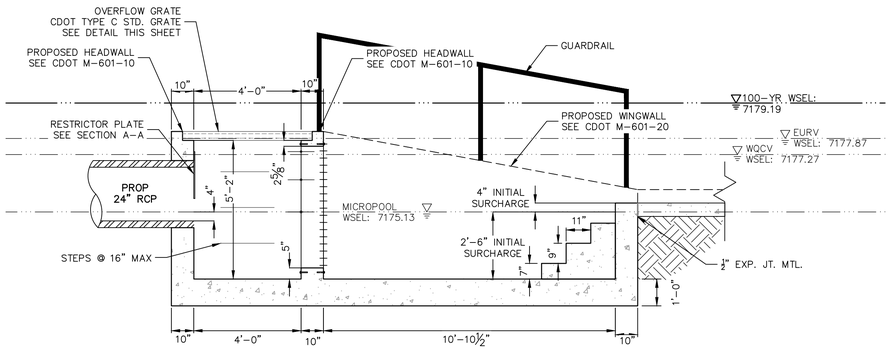
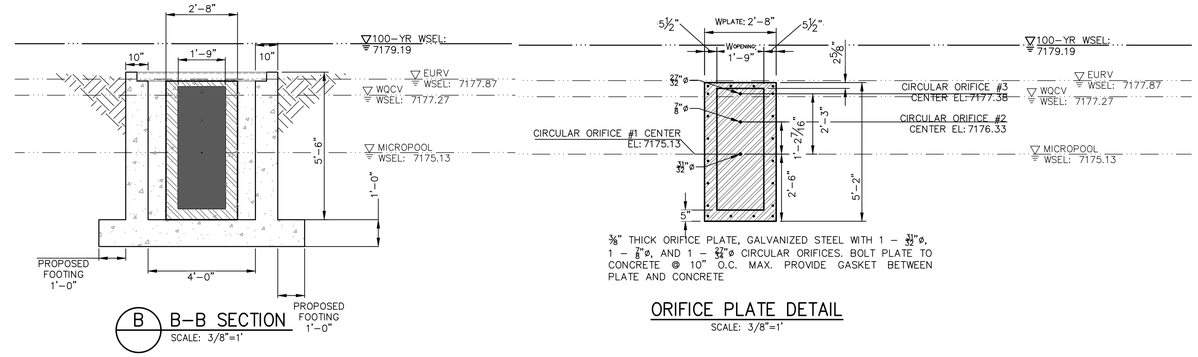


POND G1 OUTLET STRUCTURE PROFILE

SCALE: 3/8"=1'

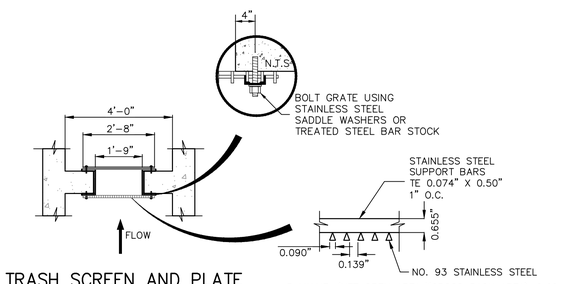


B B-B SECTION

SCALE: 3/8"=1'

ORIFICE PLATE DETAIL

SCALE: 3/8"=1'

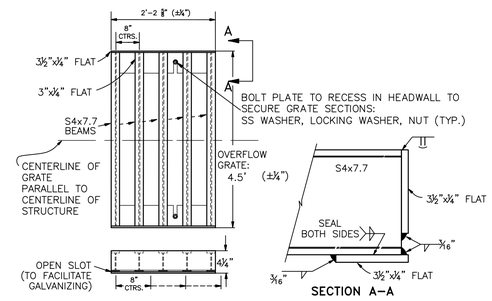


TRASH SCREEN AND PLATE DETAIL (PLAN)

N.T.S.

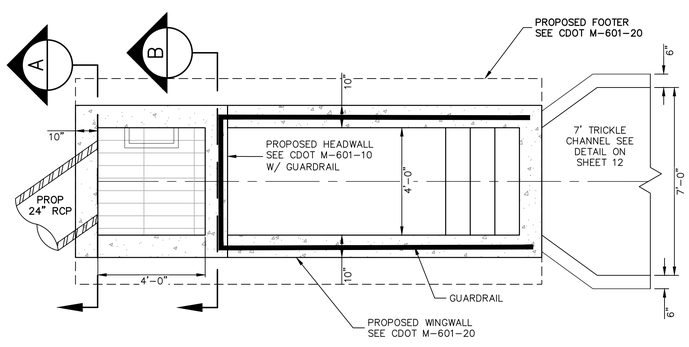
TRASH SCREEN DETAIL

N.T.S.



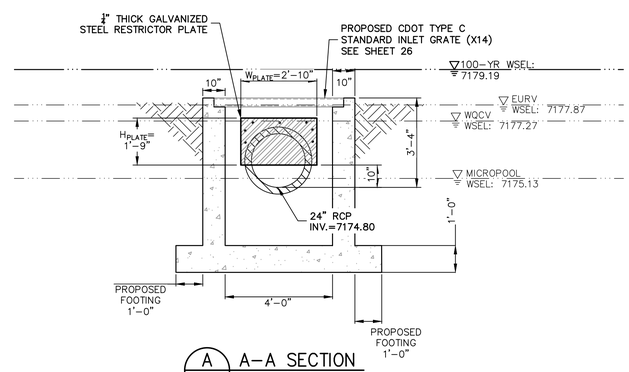
CDOT TYPE C STANDARD OVERFLOW GRATE DETAILS

N.T.S.



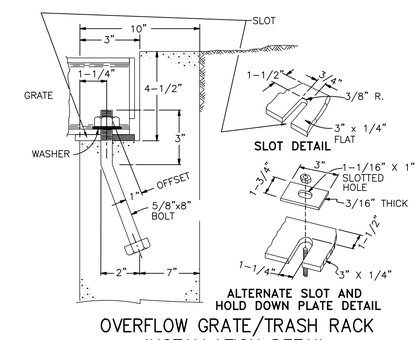
POND G1 OUTLET STRUCTURE PLAN

SCALE: 3/8"=1'



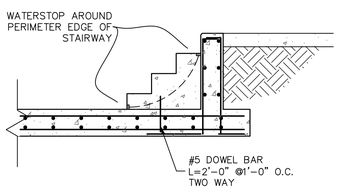
A A-A SECTION

SCALE: 3/8"=1'



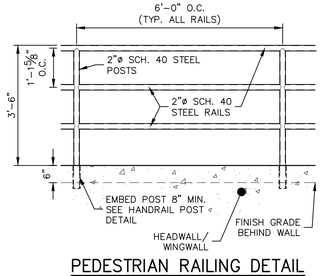
OVERFLOW GRATE/TRASH RACK INSTALLATION DETAIL

N.T.S.



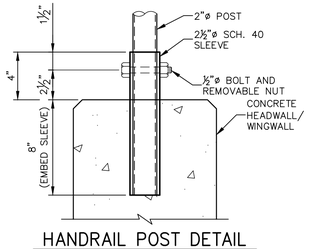
CONCRETE STEP DETAIL

SCALE: 3/8"=1'



PEDESTRIAN RAILING DETAIL

SCALE: 1/2"=1'



HANDRAIL POST DETAIL

SCALE: 1"=6'

POND G1 OUTLET STRUCTURE NOTES:

1. STRUCTURAL STEEL FOR GRATES AND BARS SHALL BE GALVANIZED AND SHALL BE IN ACCORDANCE WITH CDOT STANDARD SPECIFICATIONS, SUBSECTION 712.06.
2. ALL HARDWARE, BOLTS, AND FASTENERS SHALL BE STAINLESS STEEL.
3. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR ALL PLATES AND GRATING FOR ENGINEER'S APPROVAL PRIOR TO CONSTRUCTION.
4. GUARDRAIL REQUIRED ALONG WINGWALLS AND HEADWALL.

811 Know what's below. Call before you dig.

ENGINEER'S STATEMENT

PREPARED UNDER MY DIRECT SUPERVISION AND ON BEHALF OF JR ENGINEERING

BRYAN T. LAW, P.E.
COLORADO P.E. 25043
FOR AND ON BEHALF OF JR ENGINEERING, LLC

DATE

COLORADO REGISTERED BRYAN T. LAW 25043 PROFESSIONAL ENGINEER

PREPARED FOR
BRJM, LLC
101 N. CASCADE, SUITE 200
COLORADO SPRINGS, CO 80903
ATTN: BOB IRWIN
P~(719)-475-7474

J·R ENGINEERING
A Westrian Company
Centennial 303-740-9393 • Colorado Springs 719-593-2593
Fort Collins 970-491-9888 • www.jrengineering.com

No.	REVISION	BY	DATE

H-SCALE	3/8"=1'
V-SCALE	3/8"=1'
DATE	04/11/22
DESIGNED BY	GAG
DRAWN BY	GAG
CHECKED BY	

LATIGO TRAILS – FILING NO. 10

POND PLANS

SHEET 15 OF N/A

JOB NO. 25175.02

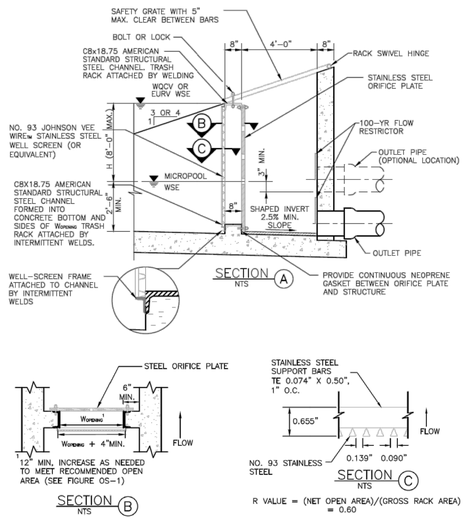
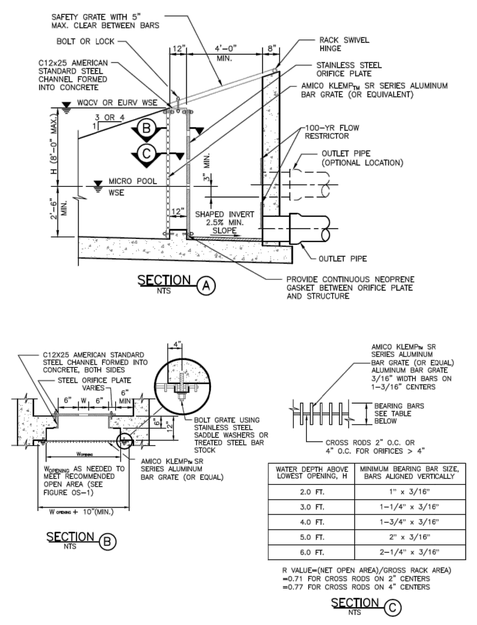
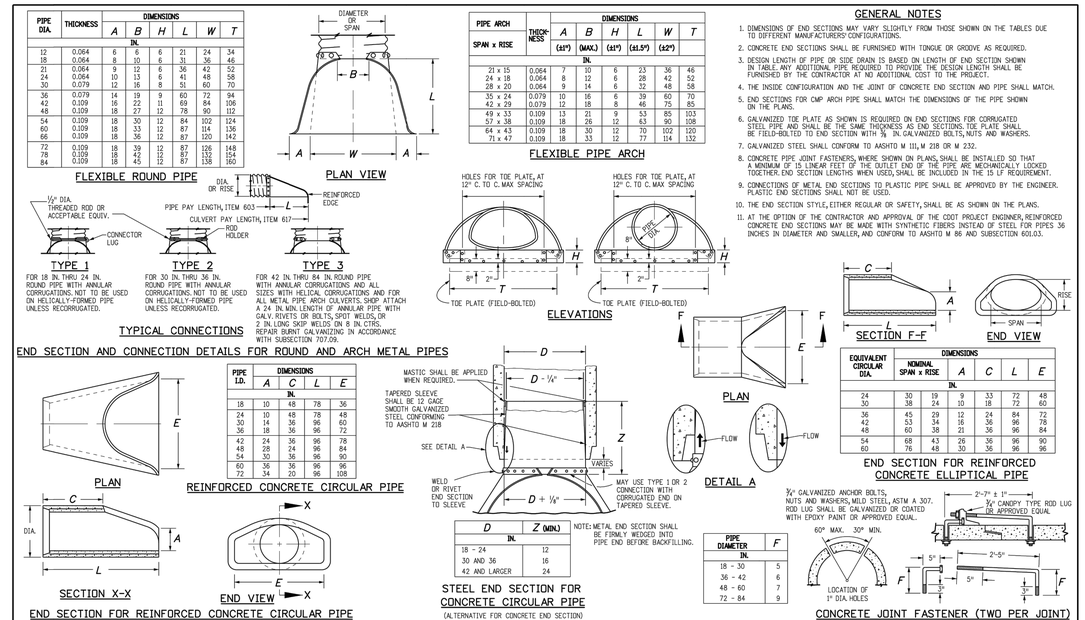


Figure OS-5. Typical outlet structure with well screen trash rack



WATER DEPTH ABOVE LOWEST OPENING, H	MINIMUM BEARING BAR SIZE, BARS ALIGNED VERTICALLY
2.0 FT.	1" x 3/16"
3.0 FT.	1-1/4" x 3/16"
4.0 FT.	1-3/4" x 3/16"
5.0 FT.	2" x 3/16"
6.0 FT.	2-1/4" x 3/16"

Figure OS-6. Typical outlet structure with bar grate trash rack



PIPE DIA.	THICKNESS	DIMENSIONS A	B	H	L	W	T
		IN.					
12	0.064	6	6	6	21	24	34
18	0.064	8	10	6	31	36	46
21	0.064	9	12	6	36	42	52
24	0.064	10	13	6	41	48	58
30	0.079	12	16	8	51	60	70
36	0.079	14	19	9	60	72	94
42	0.109	16	22	11	69	84	106
48	0.109	18	27	12	78	90	112
54	0.109	18	30	12	84	102	124
60	0.109	18	33	12	87	114	136
66	0.109	18	36	12	87	120	142
72	0.109	18	39	12	87	126	148
78	0.109	18	42	12	87	132	154
84	0.109	18	45	12	87	138	160

PIPE ARCH SPAN x RISE	THICKNESS	DIMENSIONS A (±1")	B (MAX.)	H (±1")	L (±1.5")	W (±2")	T
		IN.					
21 x 15	0.064	7	10	6	23	36	46
24 x 18	0.064	8	12	6	28	42	52
28 x 20	0.064	9	14	6	32	48	58
35 x 24	0.079	10	16	6	39	60	70
42 x 29	0.079	12	18	8	46	75	85
49 x 33	0.109	13	21	9	53	85	103
57 x 38	0.109	18	26	12	63	90	108
64 x 43	0.109	18	30	12	70	102	120
71 x 47	0.109	18	33	12	77	114	132

GENERAL NOTES

1. DIMENSIONS OF END SECTIONS MAY VARY SLIGHTLY FROM THOSE SHOWN ON THE TABLES DUE TO DIFFERENT MANUFACTURERS' CONFIGURATIONS.
2. CONCRETE END SECTIONS SHALL BE FURNISHED WITH TONGUE OR GROOVE AS REQUIRED.
3. DESIGN LENGTH OF PIPE OR SIDE DRAIN IS BASED ON LENGTH OF END SECTION SHOWN IN TABLE. ANY ADDITIONAL PIPE REQUIRED TO PROVIDE THE DESIGN LENGTH SHALL BE FURNISHED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE PROJECT.
4. THE INSIDE CONFIGURATION AND THE JOINT OF CONCRETE END SECTION AND PIPE SHALL MATCH.
5. END SECTIONS FOR CMP ARCH PIPE SHALL MATCH THE DIMENSIONS OF THE PIPE SHOWN ON THE PLANS.
6. GALVANIZED TOE PLATE AS SHOWN IS REQUIRED ON END SECTIONS FOR CORRUGATED STEEL PIPE AND SHALL BE THE SAME THICKNESS AS END SECTIONS. TOE PLATE SHALL BE FIELD-BOLTED TO END SECTION WITH ⅝ IN. GALVANIZED BOLTS, NUTS AND WASHERS.
7. GALVANIZED STEEL SHALL CONFORM TO AASHTO M 111, M 218 OR M 232.
8. CONCRETE PIPE JOINT FASTENERS, WHERE SHOWN ON PLANS, SHALL BE INSTALLED SO THAT A MINIMUM OF 15 LINEAR FEET OF THE OUTLET END OF THE PIPE ARE MECHANICALLY LOCKED TOGETHER. END SECTION LENGTHS WHEN USED, SHALL BE INCLUDED IN THE 15 LF REQUIREMENT.
9. CONNECTIONS OF METAL END SECTIONS TO PLASTIC PIPE SHALL BE APPROVED BY THE ENGINEER. PLASTIC END SECTIONS SHALL NOT BE USED.
10. THE END SECTION STYLE, EITHER REGULAR OR SAFETY, SHALL BE AS SHOWN ON THE PLANS.
11. AT THE OPTION OF THE CONTRACTOR AND APPROVAL OF THE CDOT PROJECT ENGINNER, REINFORCED CONCRETE END SECTIONS MAY BE MADE WITH SYNTHETIC FIBERS INSTEAD OF STEEL FOR PIPES 36 INCHES IN DIAMETER AND SMALLER, AND CONFORM TO AASHTO M 86 AND SUBSECTION 601.03.

EQUIVALENT CIRCULAR DIA.	DIMENSIONS NOMINAL SPAN x RISE	A	C	L	E
	IN.				
24	30 19	9	33	72	48
30	38 24	10	18	72	60
36	45 29	12	24	84	72
42	53 34	16	36	96	78
48	60 38	21	36	96	84
54	68 43	26	36	96	90
60	76 48	33	36	96	96

PIPE I.D.	DIMENSIONS A	C	L	E
	IN.			
18	10 48	78	36	
24	10 48	78	48	
30	14 36	96	60	
36	18 36	96	72	
42	24 36	96	78	
48	28 24	96	84	
54	30 36	96	90	
60	36 36	96	96	
72	34 20	96	108	

D	Z (MIN.)
IN.	
18 - 24	12
30 AND 36	16
42 AND LARGER	24

PIPE DIAMETER	F
IN.	
18 - 30	5
36 - 42	6
48 - 60	7
72 - 84	9

¾" GALVANIZED ANCHOR BOLTS, NUTS AND WASHERS, MILD STEEL, ASTM A 307. ROD LUG SHALL BE GALVANIZED OR COATED WITH EPOXY PAINT OR APPROVED EQUAL.

Computer File Information	Sheet Revisions Date:	Comments
Creation Date: 07/31/19		
Designer Initials: JBK		
Last Modification Date: 07/31/19		
Detailer Initials: LTA		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English		

Colorado Department of Transportation
2829 West Howard Place
CDOT HQ, 3rd Floor
Denver, CO 80204
Phone: 303-757-9021 FAX: 303-757-9868
Project Development Branch JBK

CONCRETE AND METAL END SECTIONS

Issued by the Project Development Branch: July 31, 2019

STANDARD PLAN NO.
M-603-10
Standard Sheet No. 1 of 1
Project Sheet Number:

Know what's below. Call before you dig.

ENGINEER'S STATEMENT
STANDARD DETAILS SHOWN WERE REVIEWED ONLY AS TO THEIR APPLICATION ON THIS PROJECT

25043

BRYAN T. LAW, P.E.
COLORADO P.E. 25043
FOR AND ON BEHALF OF JR ENGINEERING, LLC DATE

UNTIL SUCH TIME AS THESE DRAWINGS ARE APPROVED BY THE APPROPRIATE REVIEWING AGENCIES, JR ENGINEERING APPROVES THEIR USE ONLY FOR THE PURPOSES DESIGNATED BY WRITTEN AUTHORIZATION.

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V-SCALE	N/A
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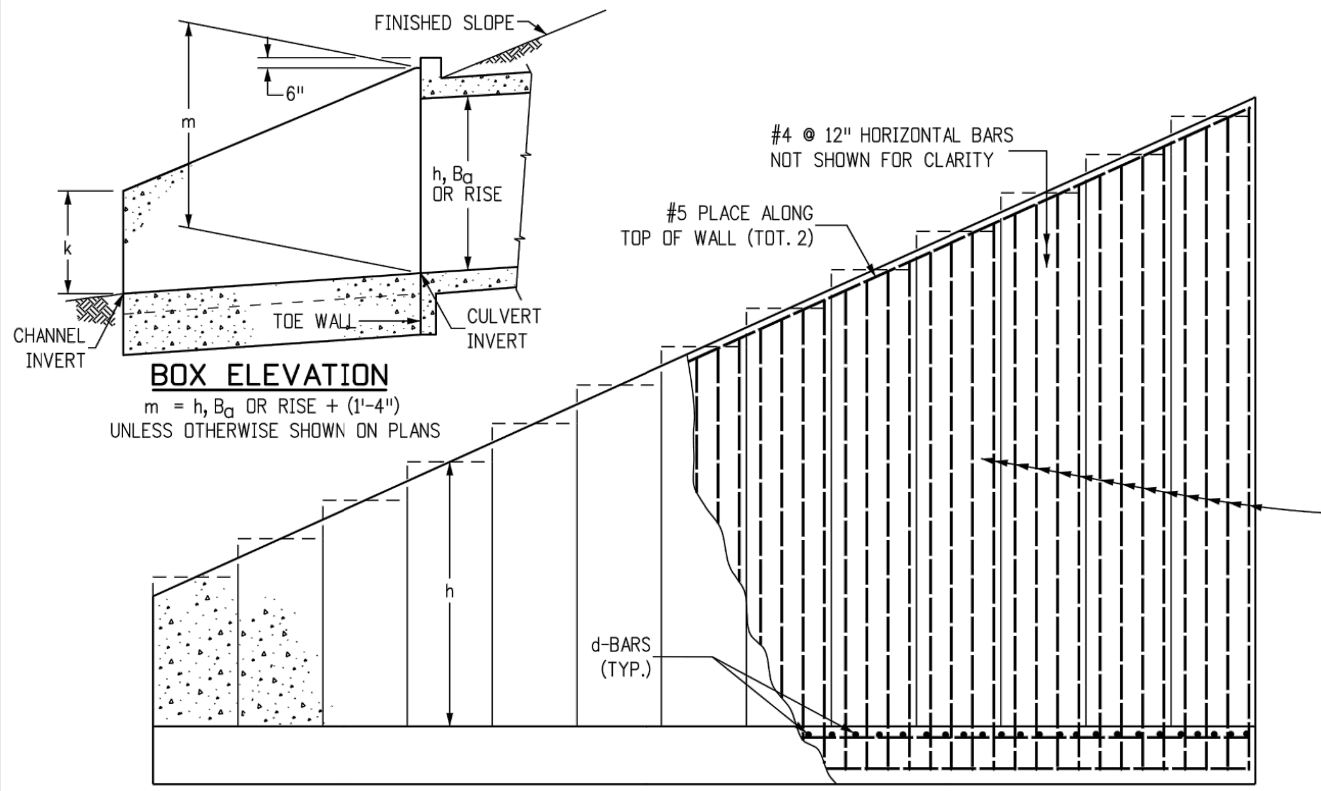
DRAWN BY	GAG
CHECKED BY	

LATIGO TRAILS – FILING NO. 10
DETAILS

SHEET 16 OF 17
JOB NO. 25175.02



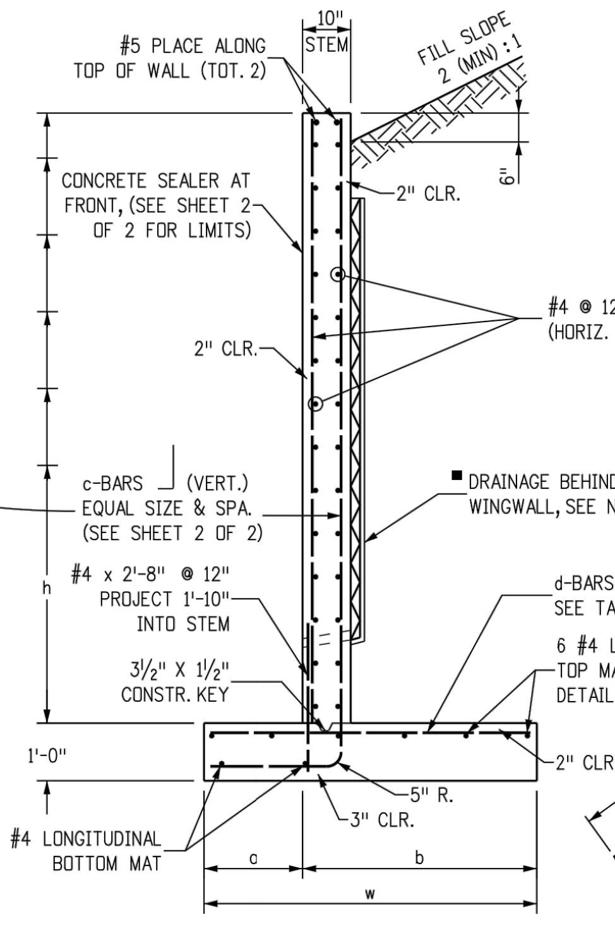
BOX ELEVATION

m = h, B_a OR RISE + (1'-4")
UNLESS OTHERWISE SHOWN ON PLANS

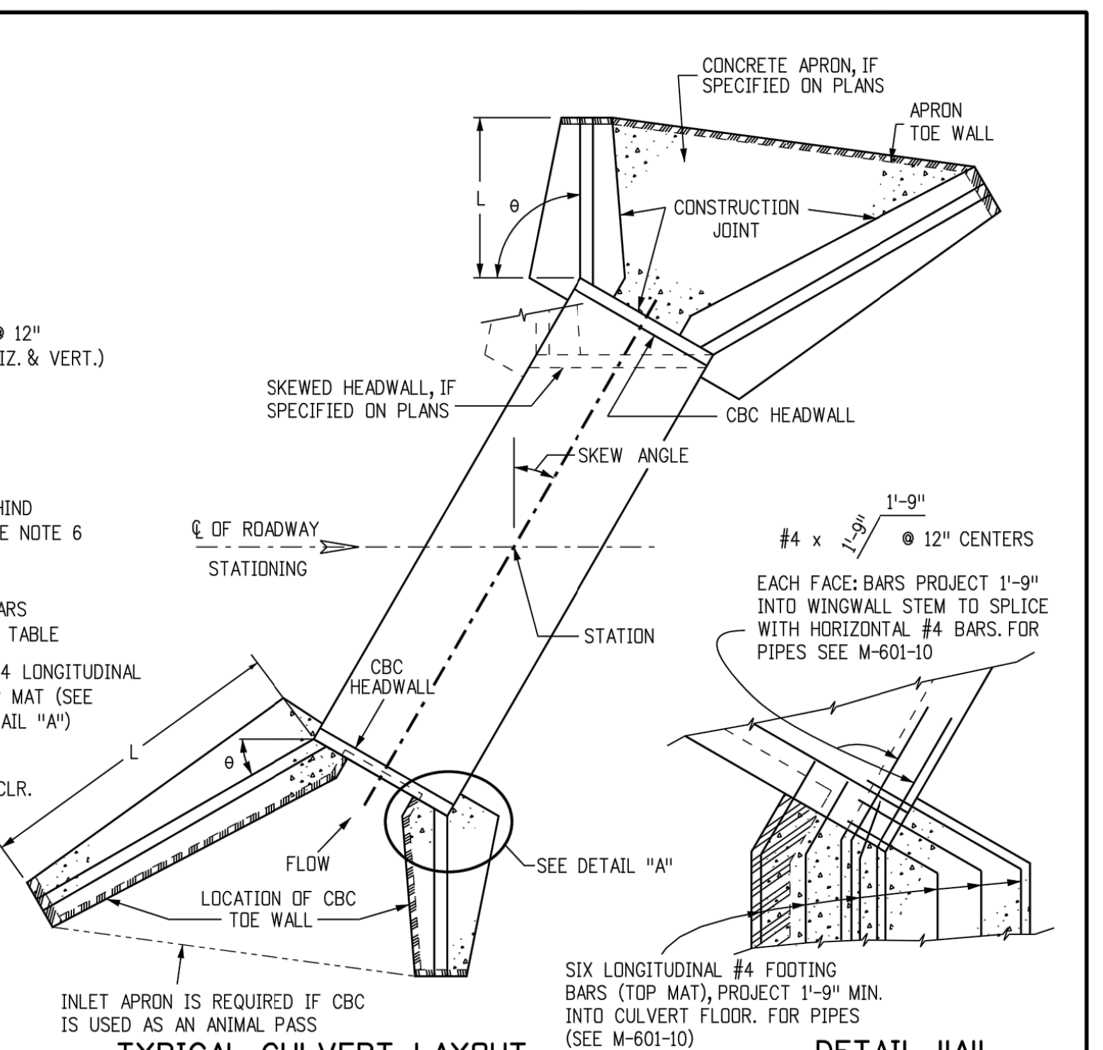
h =	2'	3'	4'	5'	6'	7'	8'	9'	10'	11'	■ 12'	■ 13'	■ 14'
a =	1'-0"	1'-2"	1'-4"	1'-6"	1'-8"	1'-10"	2'-0"	2'-2"	2'-4"	2'-6"	2'-8"	2'-10"	3'-0"
b =	1'-8"	2'-0"	2'-4"	2'-8"	3'-0"	3'-4"	3'-8"	4'-0"	4'-4"	4'-8"	5'-0"	5'-4"	5'-8"
w =	2'-8"	3'-2"	3'-8"	4'-2"	4'-8"	5'-2"	5'-8"	6'-2"	6'-8"	7'-2"	7'-8"	8'-2"	8'-8"
d-BARS	#4 @ 9"	#4 @ 9"	#4 @ 9"	#4 @ 9"	#4 @ 9"	#4 @ 9"	#5 @ 11"	#5 @ 10"	#5 @ 10"	#5 @ 8"	#6 @ 8"	#7 @ 9"	#7 @ 7"
✳ CONC. CY/LF	0.161	0.210	0.259	0.309	0.358	0.407	0.457	0.506	0.556	0.605	0.654	0.704	0.753

✳ DOES NOT INCLUDE TOE WALL QUANTITIES
SEE SHEET 2 OF 2 FOR REINFORCING STEEL QUANTITY

■ REQUIRED DRAINAGE BEHIND WINGWALLS
SEE NOTE 6

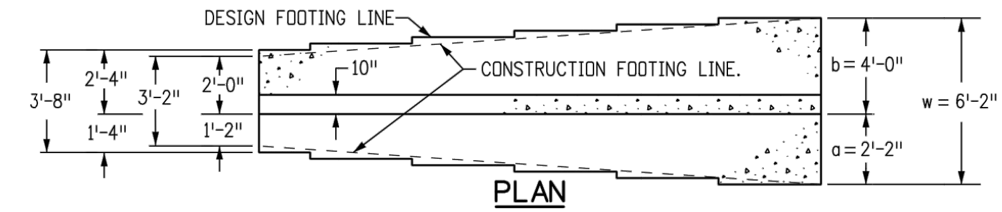


TYPICAL SECTION

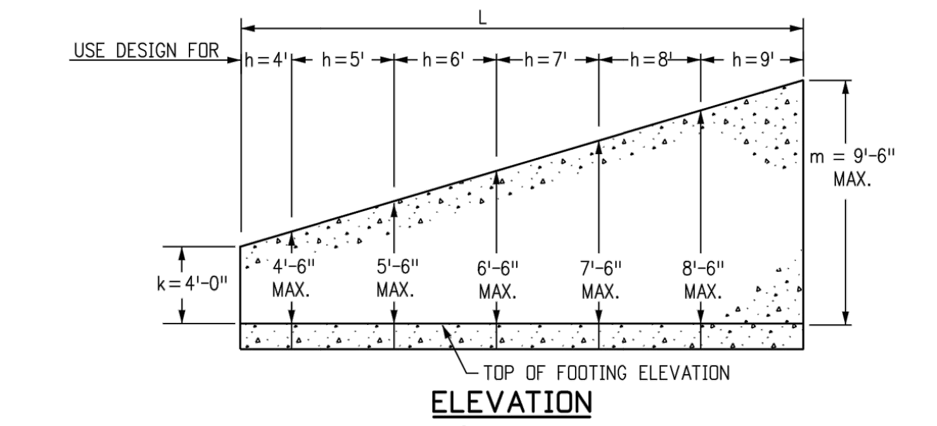


TYPICAL CULVERT LAYOUT

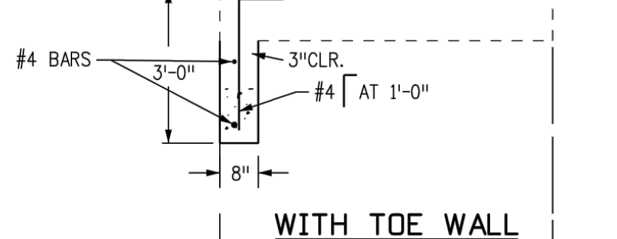
DETAIL "A"



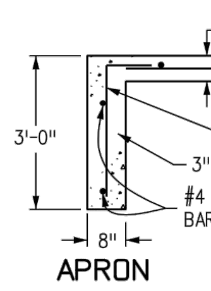
PLAN



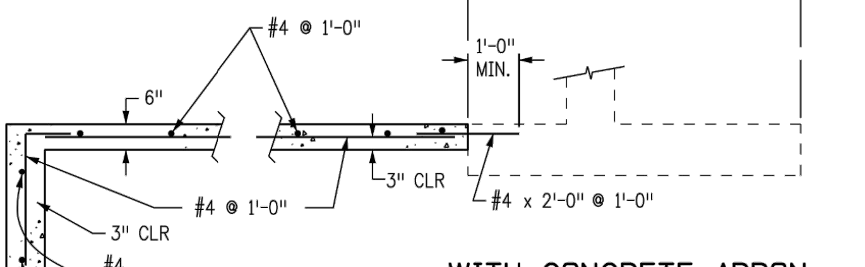
ELEVATION
DESIGN EXAMPLE



WITH TOE WALL



APRON
TOE WALL



WITH CONCRETE APRON

QUANTITIES FOR TOE WALL ONLY
CONCRETE 0.049 CU. YD./LIN. FT.
REINFORCEMENT 5.1 LB./LIN. FT.

REINFORCEMENT 1.34 LB./SQ. FT.

DESIGN DATA:

AASHTO LRFD EIGHTH EDITION, 2017
DESIGN METHOD: LOAD AND RESISTANCE FACTOR DESIGN, YIELD LINE METHOD

REINFORCED CONCRETE:
CONCRETE CLASS D (BOX CULVERT): f'_c = 4,500 PSI
REINFORCING STEEL: f_y = 60,000 PSI

LOADING:
AT-REST EARTH (FLUID) PRESSURE FOR CONCRETE STEM DESIGN = 55 PCF FOR 2 (MIN.) : 1 SLOPED BACKFILL
ACTIVE EARTH (FLUID) PRESSURE FOR CONCRETE FOOTING DESIGN = 40 PCF FOR 2 (MIN.) : 1 SLOPED BACKFILL
LIVE LOAD SURCHARGE = 2'
MINIMUM RESISTANCE FOR SOIL BEARING = 5.5 KSF
SOIL BEARING RESISTANCE FACTOR = 0.45

GENERAL NOTES:

1. ALL EXPOSED CONCRETE CORNERS SHALL BE CHAMFERED ¾ IN.
2. WINGWALL FOOTING AND FLOOR OF BOX CULVERT SHALL BE PLACED MONOLITHICALLY.
3. DIMENSIONS "h", "k", "L", "m" AND ANGLE "θ" FOR WINGWALL SHALL BE AS SHOWN ON THE PLANS.
4. MINIMUM CLASS B LAP SPLICE LENGTH FOR BLACK REINFORCING BARS:

BAR SIZE:	#4	#5	#6	#7
SPLICE LENGTH:	1'- 6"	1'-11"	2'-3"	2'-7"

5. DESIGN DOES NOT CONSIDER ANY SCOUR EFFECTS.
6. WINGWALL DRAIN SHALL BE REQUIRED IF "h" ≥ 12.0 FT., SEE SHEET 2 OF 2 FOR DETAILS.

Computer File Information		Sheet Revisions	
Creation Date: 07/31/19		Date:	Comments
Designer Initials: JBK	(R-X)		
Last Modification Date: 07/31/19	(R-X)		
Detailer Initials: LTA	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

Colorado Department of Transportation
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CDOT HQ, 3rd Floor
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Phone: 303-757-9021 FAX: 303-757-9868
Project Development Branch JBK

WINGWALLS FOR PIPE OR BOX CULVERTS

Issued by the Project Development Branch: July 31, 2019

STANDARD PLAN NO.
M-601-20
Standard Sheet No. 1 of 2

Project Sheet Number:

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c-BARS AND REINFORCING STEEL QUANTITY (EXCLUDE TOE WALL)

✳ REINFORCING STEEL QUANTITY INCLUDES STEM AND FOOTING QUANTITIES, BUT DOES NOT INCLUDE TOE WALL QUANTITIES.

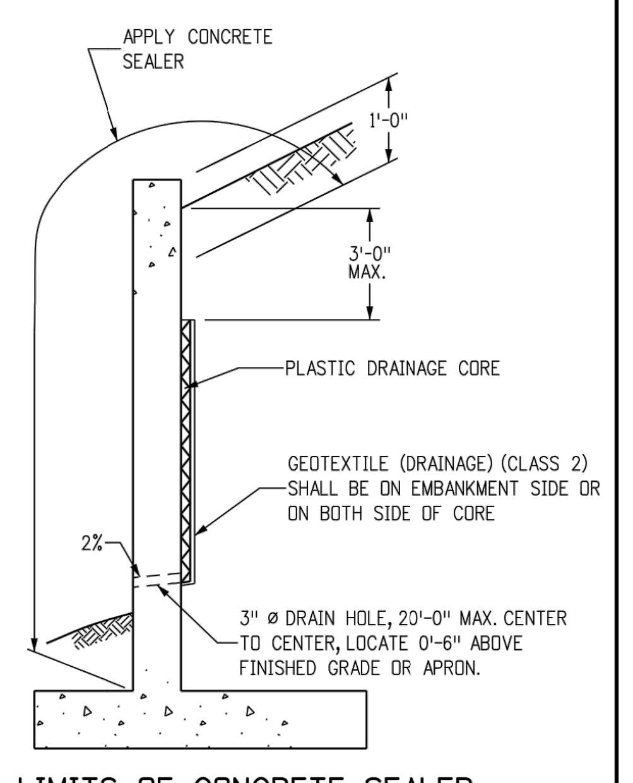
L (MULTIPLE OF m)		≤ (1.0 x m)		≤ (1.25 x m)		≤ (1.5 x m)		≤ (1.75 x m)		≤ (2.0 x m)		≤ (2.25 x m)		≤ (2.5 x m)		≤ (2.75 x m)		≤ (3.0 x m)		≤ (3.25 x m)		≤ (3.5 x m)	
m (FT)	k (FT)	c-BARS	✳ REINF. LB./L.F.	c-BARS	✳ REINF. LB./L.F.	c-BARS	✳ REINF. LB./L.F.	c-BARS	✳ REINF. LB./L.F.	c-BARS	✳ REINF. LB./L.F.	c-BARS	✳ REINF. LB./L.F.	c-BARS	✳ REINF. LB./L.F.	c-BARS	✳ REINF. LB./L.F.	c-BARS	✳ REINF. LB./L.F.	c-BARS	✳ REINF. LB./L.F.	c-BARS	✳ REINF. LB./L.F.
14	4	#4 @ 10"	53.60	#5 @ 10"	57.95	#5 @ 10"	57.10	#5 @ 8"	60.22	#5 @ 7"	62.43	#5 @ 7"	62.09	#5 @ 6"	65.38	#5 @ 6"	65.15	#6 @ 8"	67.10	#6 @ 8"	66.94	#6 @ 7"	70.66
	5	#4 @ 10"	55.86	#5 @ 10"	60.46	#5 @ 10"	59.60	#5 @ 8"	62.89	#5 @ 7"	65.23	#5 @ 7"	64.88	#5 @ 6"	68.34	#5 @ 6"	68.11	#6 @ 8"	70.17	#6 @ 8"	70.00	#6 @ 7"	73.90
	6	#5 @ 10"	64.43	#6 @ 10"	70.60	#6 @ 10"	69.69	#6 @ 8"	74.93	#6 @ 8"	74.45	#6 @ 7"	78.30	#6 @ 6"	83.64	#6 @ 6"	83.40	#6 @ 6"	83.22	#6 @ 6"	83.05	#7 @ 7"	89.64
	7	#5 @ 10"	67.29	#6 @ 10"	73.76	#6 @ 10"	72.83	#6 @ 8"	78.32	#6 @ 8"	77.84	#6 @ 7"	81.87	#6 @ 6"	87.45	#6 @ 6"	87.21	#6 @ 6"	87.02	#6 @ 6"	86.86	#7 @ 7"	93.73
	8	#5 @ 8"	74.71	#6 @ 8"	83.46	#6 @ 7"	87.09	#6 @ 6"	92.54	#7 @ 7"	99.47	#7 @ 7"	99.08	#7 @ 6"	107.11	#7 @ 6"	106.86	#7 @ 6"	106.66	#7 @ 6"	106.49	#7 @ 6"	106.35
	9	#5 @ 8"	78.10	#6 @ 8"	87.23	#6 @ 7"	91.03	#6 @ 6"	96.72	#7 @ 7"	103.93	#7 @ 7"	103.54	#7 @ 6"	111.90	#7 @ 6"	111.65	#7 @ 6"	111.45	#7 @ 6"	111.28	#7 @ 6"	111.13
13	4	#4 @ 10"	50.51	#4 @ 10"	49.25	#5 @ 10"	53.71	#5 @ 10"	53.09	#5 @ 10"	52.36	#5 @ 9"	53.85	#5 @ 8"	55.54	#5 @ 7"	57.85	#5 @ 7"	57.67	#5 @ 7"	57.51	#6 @ 9"	59.93
	5	#4 @ 10"	52.66	#4 @ 10"	51.37	#5 @ 10"	56.09	#5 @ 10"	55.46	#5 @ 10"	54.99	#5 @ 9"	56.29	#5 @ 8"	58.08	#5 @ 7"	60.51	#5 @ 7"	60.33	#5 @ 7"	60.17	#6 @ 9"	62.72
	6	#4 @ 10"	54.92	#5 @ 10"	59.48	#5 @ 9"	60.31	#6 @ 9"	67.56	#6 @ 9"	67.08	#6 @ 9"	66.70	#6 @ 8"	69.53	#6 @ 8"	69.28	#6 @ 7"	73.12	#6 @ 7"	72.95	#6 @ 7"	72.81
	7	#4 @ 10"	57.36	#5 @ 10"	62.16	#5 @ 9"	63.05	#6 @ 9"	70.66	#6 @ 9"	70.16	#6 @ 9"	69.78	#6 @ 8"	72.75	#6 @ 8"	72.50	#6 @ 7"	76.52	#6 @ 7"	76.35	#6 @ 7"	76.20
	8	#5 @ 10"	66.39	#6 @ 10"	72.82	#6 @ 8"	77.97	#6 @ 7"	81.68	#6 @ 7"	81.19	#6 @ 6"	86.67	#6 @ 6"	86.37	#7 @ 7"	93.18	#7 @ 7"	92.97	#7 @ 7"	92.80	#7 @ 7"	92.64
	9	#5 @ 10"	69.37	#6 @ 10"	76.10	#6 @ 8"	81.49	#6 @ 7"	85.37	#6 @ 7"	84.87	#6 @ 6"	90.59	#6 @ 6"	90.29	#7 @ 7"	97.39	#7 @ 7"	97.18	#7 @ 7"	97.00	#7 @ 7"	96.85
12	2	#4 @ 10"	43.91	#4 @ 10"	42.65	#4 @ 10"	41.82	#4 @ 10"	41.22	#4 @ 10"	40.78	#4 @ 9"	41.29	#5 @ 10"	44.61	#5 @ 10"	44.37	#5 @ 10"	44.18	#5 @ 10"	44.01	#5 @ 10"	43.87
	3	#4 @ 10"	45.82	#4 @ 10"	44.55	#4 @ 10"	43.71	#4 @ 10"	43.11	#4 @ 10"	42.66	#4 @ 9"	43.22	#5 @ 10"	46.75	#5 @ 10"	46.51	#5 @ 10"	46.32	#5 @ 10"	46.15	#5 @ 10"	46.01
	4	#4 @ 10"	47.80	#4 @ 10"	46.51	#4 @ 10"	45.65	#5 @ 10"	50.06	#5 @ 10"	49.59	#5 @ 10"	49.23	#5 @ 10"	48.94	#5 @ 10"	48.69	#5 @ 9"	50.00	#5 @ 8"	51.72	#5 @ 8"	51.57
	5	#4 @ 10"	49.84	#4 @ 10"	48.53	#4 @ 10"	47.66	#5 @ 10"	52.33	#5 @ 10"	51.85	#5 @ 10"	51.48	#5 @ 10"	51.19	#5 @ 10"	50.94	#5 @ 9"	52.33	#5 @ 8"	54.14	#5 @ 8"	54.00
	6	#4 @ 10"	51.99	#4 @ 10"	50.65	#5 @ 10"	55.34	#5 @ 8"	58.41	#5 @ 8"	57.93	#6 @ 10"	60.60	#6 @ 10"	60.29	#6 @ 9"	62.42	#6 @ 9"	62.22	#6 @ 9"	62.04	#6 @ 8"	64.89
	7	#4 @ 10"	54.30	#5 @ 10"	58.80	#5 @ 10"	57.87	#5 @ 8"	61.10	#5 @ 8"	60.61	#6 @ 10"	63.43	#6 @ 10"	63.11	#6 @ 9"	65.35	#6 @ 9"	65.15	#6 @ 9"	64.97	#6 @ 8"	67.96
	8	#5 @ 10"	62.91	#5 @ 10"	61.45	#5 @ 7"	67.46	#5 @ 6"	70.68	#5 @ 6"	70.20	#6 @ 7"	76.44	#6 @ 7"	76.13	#6 @ 7"	75.87	#6 @ 6"	81.30	#6 @ 6"	81.12	#6 @ 6"	80.98
	9	#5 @ 10"	65.64	#5 @ 10"	64.15	#5 @ 7"	70.44	#5 @ 6"	73.82	#5 @ 6"	73.33	#6 @ 7"	79.86	#6 @ 7"	79.54	#6 @ 7"	79.28	#6 @ 6"	84.95	#6 @ 6"	84.77	#6 @ 6"	84.62
11	2	#4 @ 10"	41.70	#4 @ 10"	40.42	#4 @ 10"	39.57	#4 @ 10"	38.96	#4 @ 10"	38.50	#4 @ 10"	38.15	#4 @ 10"	37.87	#4 @ 10"	37.63	#4 @ 9"	38.25	#5 @ 10"	41.46	#5 @ 10"	41.31
	3	#4 @ 10"	43.57	#4 @ 10"	42.27	#4 @ 10"	41.40	#4 @ 10"	40.79	#4 @ 10"	40.33	#4 @ 10"	39.97	#4 @ 10"	39.69	#4 @ 10"	39.45	#4 @ 9"	40.12	#5 @ 10"	43.54	#5 @ 10"	43.39
	4	#4 @ 10"	45.48	#4 @ 10"	44.16	#4 @ 10"	43.28	#4 @ 10"	42.66	#4 @ 9"	43.09	#5 @ 10"	46.57	#5 @ 10"	46.27	#5 @ 10"	46.02	#5 @ 10"	45.82	#5 @ 10"	45.65	#5 @ 10"	45.50
	5	#4 @ 10"	47.46	#4 @ 10"	46.10	#4 @ 10"	45.21	#4 @ 10"	44.58	#4 @ 9"	45.06	#5 @ 10"	48.74	#5 @ 10"	48.44	#5 @ 10"	48.19	#5 @ 10"	47.99	#5 @ 10"	47.81	#5 @ 10"	47.67
	6	#4 @ 10"	49.52	#4 @ 10"	48.14	#4 @ 9"	48.23	#5 @ 10"	51.88	#5 @ 10"	51.38	#5 @ 9"	52.57	#5 @ 9"	52.27	#5 @ 8"	53.99	#5 @ 8"	53.79	#5 @ 7"	56.16	#5 @ 7"	56.01
	7	#4 @ 10"	51.73	#4 @ 10"	50.31	#4 @ 9"	50.43	#5 @ 10"	54.29	#5 @ 10"	53.78	#5 @ 9"	55.04	#5 @ 9"	54.73	#5 @ 8"	56.55	#5 @ 8"	56.35	#5 @ 7"	58.84	#5 @ 7"	58.70
	8	#4 @ 10"	54.00	#5 @ 10"	58.44	#5 @ 10"	57.45	#5 @ 8"	60.64	#5 @ 7"	62.92	#5 @ 6"	66.25	#5 @ 6"	65.94	#5 @ 6"	65.69	#6 @ 8"	67.76	#6 @ 8"	67.57	#6 @ 7"	71.45
	9	#4 @ 10"	56.20	#5 @ 10"	60.87	#5 @ 10"	59.85	#5 @ 8"	63.21	#5 @ 7"	65.60	#5 @ 6"	69.09	#5 @ 6"	68.78	#5 @ 6"	68.52	#6 @ 8"	70.69	#6 @ 8"	70.51	#6 @ 7"	74.57
10	2	#4 @ 10"	39.84	#4 @ 10"	38.53	#4 @ 10"	37.65	#4 @ 10"	37.03	#4 @ 10"	36.57	#4 @ 10"	36.20	#4 @ 10"	35.91	#4 @ 10"	35.67	#4 @ 10"	35.48	#4 @ 9"	36.07	#4 @ 9"	35.93
	3	#4 @ 10"	41.68	#4 @ 10"	40.35	#4 @ 10"	39.47	#4 @ 10"	38.84	#4 @ 10"	38.36	#4 @ 10"	38.00	#4 @ 10"	37.71	#4 @ 10"	37.46	#4 @ 10"	37.27	#4 @ 9"	37.91	#4 @ 9"	37.76
	4	#4 @ 10"	43.58	#4 @ 10"	42.22	#4 @ 10"	41.31	#4 @ 10"	40.67	#4 @ 10"	40.19	#4 @ 10"	39.82	#4 @ 10"	39.53	#4 @ 10"	39.28	#4 @ 10"	39.08	#4 @ 9"	39.77	#4 @ 9"	39.63
	5	#4 @ 10"	45.53	#4 @ 10"	44.14	#4 @ 10"	43.21	#4 @ 10"	42.56	#4 @ 10"	42.07	#5 @ 10"	46.44	#5 @ 10"	46.13	#5 @ 10"	45.87	#5 @ 10"	45.67	#5 @ 10"	45.49	#5 @ 10"	45.34
	6	#4 @ 10"	47.58	#4 @ 10"	46.14	#4 @ 10"	45.20	#4 @ 10"	44.53	#4 @ 10"	44.03	#5 @ 10"	48.67	#5 @ 10"	48.35	#5 @ 10"	48.08	#5 @ 10"	47.88	#5 @ 10"	47.69	#5 @ 10"	47.54
	7	#4 @ 10"	49.79	#4 @ 10"	48.31	#4 @ 10"	47.34	#5 @ 10"	51.97	#5 @ 10"	51.45	#5 @ 10"	51.04	#5 @ 9"	52.29	#5 @ 9"	52.03	#5 @ 8"	53.79	#5 @ 8"	53.61	#5 @ 7"	56.00
	8	#4 @ 10"	52.06	#4 @ 10"	50.54	#4 @ 10"	49.54	#5 @ 10"	54.43	#5 @ 10"	53.89	#5 @ 10"	53.47	#5 @ 9"	54.80	#5 @ 9"	54.53	#5 @ 8"	56.39	#5 @ 8"	56.20	#5 @ 7"	58.72
9	2	#4 @ 10"	38.01	#4 @ 10"	36.75	#4 @ 10"	35.85	#4 @ 10"	35.21	#4 @ 10"	34.73	#4 @ 10"	34.36	#4 @ 10"	34.06	#4 @ 10"	33.81	#4 @ 10"	33.61	#4 @ 10"	33.44	#4 @ 10"	33.30
	3	#4 @ 10"	39.93	#4 @ 10"	38.56	#4 @ 10"	37.64	#4 @ 10"	36.99	#4 @ 10"	36.51	#4 @ 10"	36.13	#4 @ 10"	35.83	#4 @ 10"	35.58	#4 @ 10"	35.38	#4 @ 10"	35.21	#4 @ 10"	35.06
	4	#4 @ 10"	41.81	#4 @ 10"	40.40	#4 @ 10"	39.47	#4 @ 10"	38.81	#4 @ 10"	38.31	#4 @ 10"	37.93	#4 @ 10"	37.63	#4 @ 10"	37.37	#4 @ 10"	37.17	#4 @ 10"	36.99	#4 @ 10"	36.84
	5	#4 @ 10"	43.75	#4 @ 10"	42.30	#4 @ 10"	41.35	#4 @ 10"	40.67	#4 @ 10"	40.17	#4 @ 10"	39.78	#4 @ 10"	39.47	#4 @ 10"	39.20	#4 @ 9"	39.86	#5 @ 10"	43.28	#5 @ 10"	43.12
	6	#4 @ 10"	45.79	#4 @ 10"	44.30	#4 @ 10"	43.31	#4 @ 10"	42.62	#4 @ 10"	42.10	#4 @ 10"	41.71	#4 @ 10"	41.39	#4 @ 10"	41.12	#4 @ 9"	41.82	#5 @ 10"	45.46	#5 @ 10"	45.30
	7	#4 @ 10"	48.04	#4 @ 10"	46.50	#4 @ 10"	45.49	#4 @ 10"	44.77	#5 @ 10"	49.29	#5 @ 10"	48.86	#5 @ 10"	48.53	#5 @ 10"	48.24	#5 @ 10"	48.03	#5 @ 10"	47.84	#5 @ 10"	47.67
	8	#4 @ 10"	50.43	#4 @ 10"	48.84	#4 @ 10"	47.80	#4 @ 10"	47.06	#5 @ 10"	51.83	#5 @ 10"	51.40	#5 @ 10"	51.05	#5 @ 10"	50.77	#5 @ 10"	50.54	#5 @ 10"	50.35	#5 @ 10"	50.18
8	2	#4 @ 10"	36.41	#4 @ 10"	35.01	#4 @ 10"	34.08	#4 @ 10"	33.42	#4 @ 10"	32.92	#4 @ 10"	32.54	#4 @ 10"	32.23	#4 @ 10"	31.97	#4 @ 10"	31.77	#4 @ 10"	31.59	#4 @ 10"	31.44
	3	#4 @ 10"	38.23	#4 @ 10"	36.80	#4 @ 10"	35.85	#4 @ 10"	35.18	#4 @ 10"	34.67	#4 @ 10"	34.28	#4 @ 10"	33.97	#4 @ 10"	33.70	#4 @ 10"	33.50	#4 @ 10"	33.32	#4 @ 10"	33.17
	4	#4 @ 10"	40.09	#4 @ 10"	38.61	#4 @ 10"	37.64	#4 @ 10"	36.95	#4 @ 10"	36.44	#4 @ 10"	36.04	#4 @ 10"	35.72	#4 @ 10"	33.45	#4 @ 10"	35.25	#4 @ 10"	35.07	#4 @ 10"	34.91
	5	#4 @ 10"	41.99	#4 @ 10"	40.47	#4 @ 10"	39.47	#4 @ 10"	38.76	#4 @ 10"	38.24	#4 @ 10"	37.83	#4 @ 10"	37.50	#4 @ 10"	37.23	#4 @ 10"	37.02	#4 @ 10"	36.84	#4 @ 10"	36.68
	6	#4 @ 10"	43.97	#4 @ 10"	42.40	#4 @ 10"	41.36	#4 @ 10"	40.64	#4 @ 10"	40.10	#4 @ 10"	39.68	#4 @ 10"	39.35	#4 @ 10"	39.07	#4 @ 9"	43.33	#5 @ 10"	43.13	#5 @ 10"	42.96
	7	#4 @ 10"	46.19	#4 @ 10"	44.56	#4 @ 10"	43.49	#4 @ 10"	42.74	#4 @ 10"	42.18	#4 @ 10"	41.75	#4 @ 10"	41.41	#4 @ 10"	41.13	#4 @ 9"	45.65	#5 @ 10"	45.45	#5 @ 10"	45.28
7	2	#4 @ 10"	34.90	#4 @ 10"	33.44	#4 @ 10"	32.47	#4 @ 10"	31.78	#4 @ 10"	31.27	#4 @ 10"	30.86	#4 @ 10"	30.54	#4 @ 10"	30.27	#4 @ 10"	30.06	#4 @ 10"	29.88	#4 @ 10"	29.72
	3	#4 @ 10"	36.73	#4 @ 10"	35.23	#4 @ 10"	34.23	#4 @ 10"	33.53	#4 @ 10"	33.00	#4 @ 10"	32.59	#4 @ 10"	32.26	#4 @ 10"	31.99	#4 @ 10"	31.78	#4 @ 10"	31.59	#4 @ 10"	31.43
	4	#4 @ 10"	38.59	#4 @ 10"	37.04	#4 @ 10"	36.01	#4 @ 10"	35.29	#4 @ 10"	34.75	#4 @ 10"	34.33	#4 @ 10"	33.99	#4 @ 10"	33.71	#4 @ 10"	33.50	#4 @ 10"	33.31	#4 @ 10"	33.14
	5	#4 @ 10"	40.48	#4 @ 10"	38.86	#4 @ 10"	37.80	#4 @ 10"	37.06	#4 @ 10"	36.50	#4 @ 10"	36.07	#4 @ 10"	35.73	#4 @ 10"	35.44	#4 @ 10"	35.22	#4 @ 10"	35.03	#4 @ 10"	34.86
	6	#4 @ 10"	42.39	#4 @ 10"	40.71	#4 @ 10"	39.61	#4 @ 10"	38.84	#4 @ 10"	38.26	#4 @ 10"	37.82	#4 @ 10"	37.47	#4 @ 10"	37.17	#4 @ 10"	36.95	#4 @ 10"	36.75	#4 @ 10"	36.58

EXAMPLE:

SELECT THE c-BARS SIZE, SPACING AND STEEL QUANTITY FOR A 25.0 FEET LONG WINGWALL WITH m = 11.8 FT. AND k = 6.3 FT.

SOLUTION:

1. DETERMINE WINGWALL LENGTH IN MULTIPLE OF m:
   L / m = 25.0 / 11.8 = 2.12
   L = (2.12 x m), USE L ≤ (2.25 x m)
2. ROUND TO REAREST WHOLE NUMBER FOR m AND k:
   m = 11.8 FT., USE m = 12.0 FT.
   k = 6.3 FT., USE k = 6.0 FT.
3. DETERMINE c-BARS BY USING THE TABLE:
   L ≤ (2.25 x m)
   m = 12
   k = 6
   c-BARS: #6 @ 10"
   REINF. STEEL = 60.60 LB / LF
4. DETERMINE REINFORCING STEEL QUANTITY OF WHOLE WINGWALL:
   REINFORCING STEEL QUANTITY = 25.0 x 60.60 = 1,515 LB.



LIMITS OF CONCRETE SEALER AND WINGWALL DRAIN DETAILS

NOTES:
1. THE GEOCOMPOSITE SHALL BE SECURED TO THE WALL TO PREVENT MOVEMENT DURING BACKFILLING.
2. COST OF GEOCOMPOSITE DRAIN AND CONCRETE SEALER SHALL BE INCLUDED IN THE WORK.

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Last Modification Date: 07/31/19	(R-X)		
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CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

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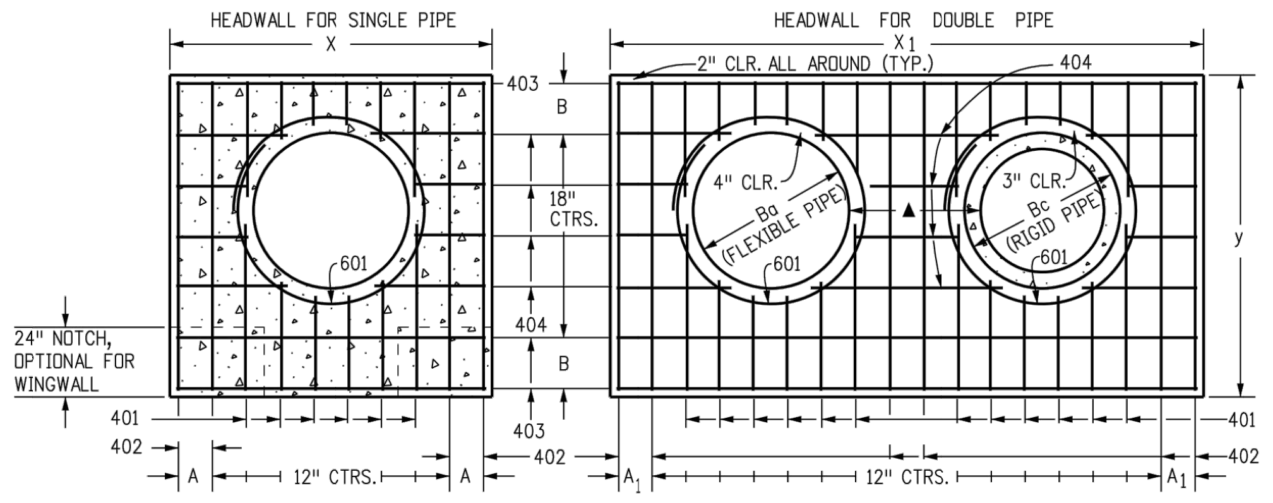
Project Development Branch JBK

WINGWALLS FOR PIPE OR BOX CULVERTS

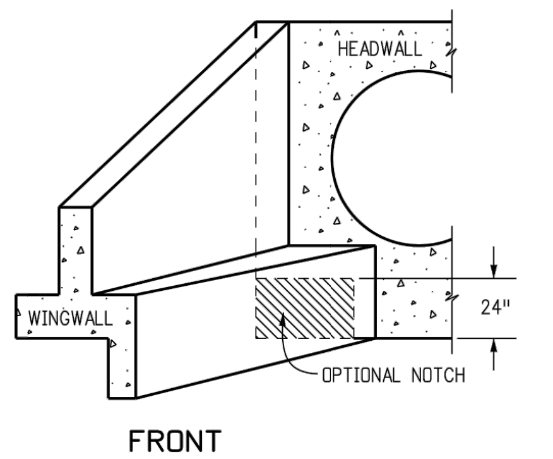
Issued by the Project Development Branch: July 31, 2019

STANDARD PLAN NO.
M-601-20
Standard Sheet No. 2 of 2

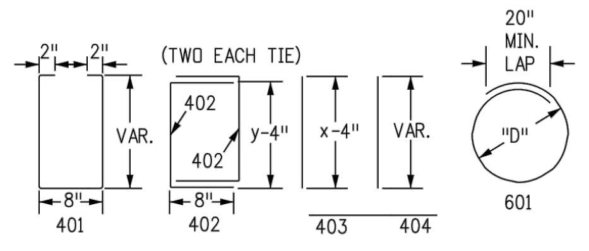
Project Sheet Number:



TYPICAL BAR LAYOUT FOR CONCRETE HEADWALLS

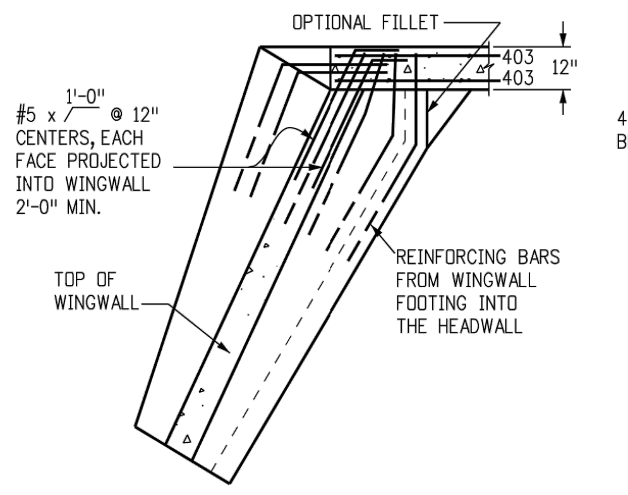


FRONT VIEW



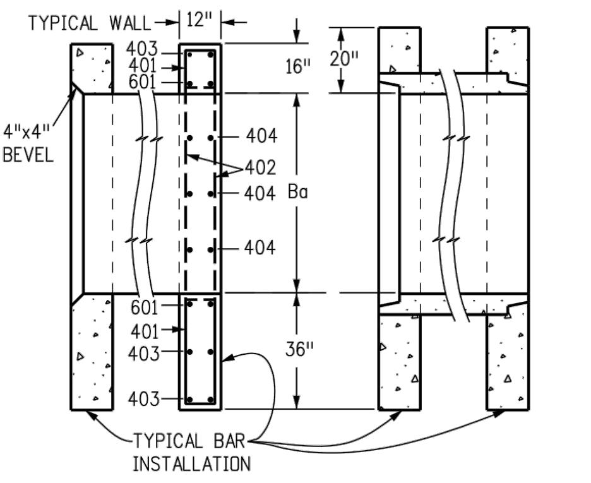
"D" = RIGID PIPE = Bc + 6"
FLEXIBLE PIPE = Ba + 8"
FLEXIBLE ARCH = SPAN + 8"
STRUCTURAL PLATE ARCH = RISE + 8"

BAR BENDING



TOP VIEW

WINGWALL CONNECTION

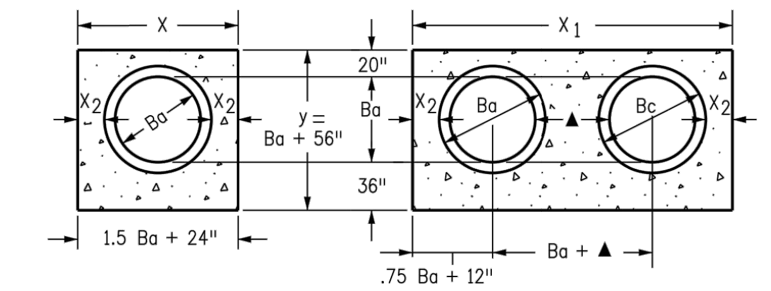


INLET OUTLET

ENDS OF FLEXIBLE PIPE

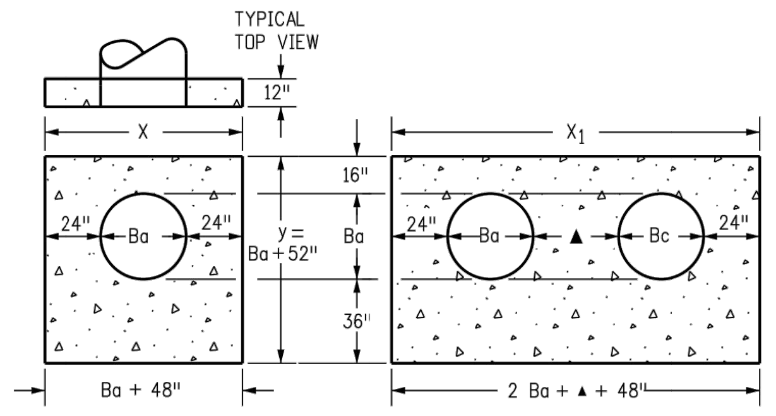
INLET OUTLET

ENDS OF RIGID PIPE



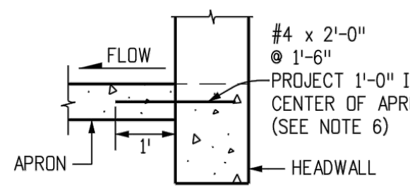
DIMENSIONS									QUANTITIES			
									CONCRETE		STEEL ■	
Ba IN.	Bc IN.	X FT.-IN.	A IN.	X1 FT.-IN.	A1 IN.	y FT.-IN.	B IN.	X2 IN.	SGL CU.YD.	DBL CU.YD.	SGL LBS.	DBL LBS.
54	65	8-9	8½	15-6	7	9-2	17	20	2.12	3.55	209	364
60	72	9-6	7	17-0	10	9-8	11	21	2.35	3.99	236	414
66	79	10-3	11½	18-6	7	10-2	14	22	2.60	4.44	249	453
72	86	11-0	10	20-0	10	10-8	17	23	2.85	4.91	270	476
78	93	11-9	8½	21-3	11	11-2	11	24	3.11	5.29	306	527
84	100	12-6	7	22-6	7	11-8	14	25	3.38	5.68	333	572
90	107	13-3	11½	23-9	8½	12-2	17	26	3.66	6.08	335	593
96	114	14-0	10	25-0	10	12-8	11	27	3.94	6.48	379	649
102	121	14-9	8½	26-3	11½	13-2	14	28	4.24	6.89	400	664
108	128	15-6	7	27-6	7	13-8	17	29	4.54	7.30	424	707

HEADWALL FOR RIGID ROUND PIPE



DIMENSIONS							QUANTITIES			
							CONCRETE		STEEL ■	
Ba IN.	X FT.-IN.	A IN.	X1 FT.-IN.	A1 IN.	y FT.-IN.	B IN.	SGL CU. YD.	DBL CU. YD.	SGL LBS.	DBL LBS.
54	8-6	7	15-3	11½	8-10	15	2.19	3.81	211	358
60	9-0	10	16-6	7	9-4	18	2.38	4.25	217	396
66	9-6	7	17-9	8½	9-10	12	2.58	4.70	252	454
72	10-0	10	19-0	10	10-4	15	2.78	5.17	255	472
78	10-6	7	20-0	10	10-10	18	2.98	5.56	276	499
84	11-0	10	21-0	10	11-4	12	3.19	5.95	297	553
90	11-6	7	22-0	10	11-10	15	3.40	6.36	317	517
96	12-0	10	23-0	10	12-4	18	3.62	6.79	321	597
102	12-6	7	24-0	10	12-10	12	3.84	7.21	364	663
108	13-0	10	25-0	10	13-4	15	4.06	7.63	362	678

HEADWALL FOR FLEXIBLE ROUND PIPE



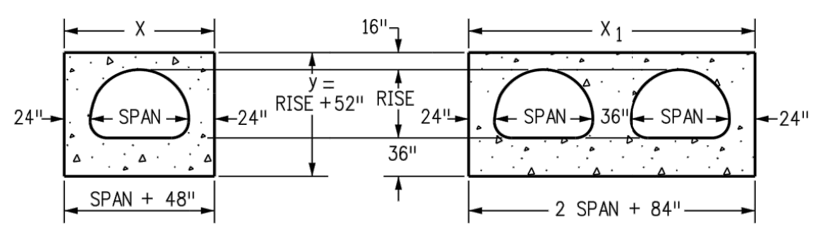
WHEN APRON IS REQUIRED

GENERAL NOTES

1. CONCRETE SHALL BE CLASS B.
2. HEADWALL SHALL BE PERPENDICULAR TO THE PIPE ℄ UNLESS OTHERWISE SHOWN ON THE PLANS. TABULATED DIMENSIONS AND QUANTITIES MUST BE ADJUSTED FOR SKEWED INSTALLATIONS.
3. FOR WINGWALL DETAILS, SEE STANDARD PLAN M-601-20.
4. VOLUME OCCUPIED BY PIPE HAS BEEN DEDUCTED FROM STEEL AND CONCRETE QUANTITIES.
5. EXPOSED CONCRETE CORNERS SHALL BE CHAMFERED ¾ IN.
6. ALL REINFORCING BARS SHALL HAVE A 2 IN. MINIMUM CLEARANCE.

▲ WHEN TWO OR MORE PIPES ARE LAID SIDE BY SIDE, THEY SHALL BE PLACED SO THAT THE ADJACENT PIPES WILL BE ½ INSIDE DIAMETER APART, OR ½ INSIDE SPAN APART, OR 3 FT. APART (INCLUDING WALL THICKNESS), WHICHEVER IS LESS.

■ ADD 0.89 x (X OR X_1) (LB.) WHEN APRON IS REQUIRED.



DIMENSIONS									QUANTITIES			
									CONCRETE		STEEL ■	
EQUIV. Ba IN.	SPAN IN.	RISE IN.	X FT.-IN.	A IN.	X1 FT.-IN.	A1 IN.	y FT.-IN.	B IN.	SGL CU. YD.	DBL CU. YD.	SGL LBS.	DBL LBS.
72	81	59	10-9	8½	20-6	7	9-3	17½	2.72	5.10	250	467
78	87	63	11-3	11½	21-6	7	9-7	10½	2.85	5.34	275	531
84	95	67	11-9	8½	22-10	9	9-11	12½	3.08	5.79	290	547
90	103	71	12-7	7½	24-2	11	10-3	15	3.30	6.21	321	591
96	112	75	13-4	12	25-8	8	10-7	16½	3.52	6.65	314	606
102	117	79	13-9	8½	26-6	7	10-11	9½	3.63	6.86	356	672
108	128	83	14-8	8	28-4	12	11-3	11½	3.96	7.51	376	699

HEADWALL FOR FLEXIBLE PIPE ARCH

DIMENSIONS									QUANTITIES			
									CONCRETE		STEEL ■	
EQUIV. Ba IN.	SPAN FT.-IN.	RISE FT.-IN.	X FT.-IN.	A IN.	X1 FT.-IN.	A1 IN.	y FT.-IN.	B IN.	SGL CU. YD.	DBL CU. YD.	SGL LBS.	DBL LBS.
66	6-1	4-7	10-1	10½	19-2	11	8-11	15½	2.52	4.70	232	424
75	7-0	5-1	11-0	10	21-0	10	9-5	9½	2.80	5.25	282	509
84	7-11	5-7	11-11	9½	22-10	9	9-11	12½	3.08	5.79	291	540
93	8-10	6-1	12-10	9	24-8	8	10-5	15½	3.36	6.33	309	622
102	9-9	6-7	13-9	8½	26-6	7	10-11	9½	3.63	6.86	379	673
111	10-11	7-1	14-11	9½	28-10	9	11-5	12½	4.05	7.67	377	711
120	11-10	7-7	15-10	9	30-8	8	11-11	15½	4.36	8.28	395	731
132	12-10	8-4	16-10	9	32-8	8	12-8	11	4.75	9.03	441	839
141	14-1	8-9	18-1	10½	35-2	11	13-1	13½	5.17	9.86	448	931
150	15-4	9-3	19-4	12	37-8	8	13-7	16½	5.69	10.88	490	953
159	15-10	9-10	19-10	9	38-8	8	14-2	11	5.89	11.25	534	1019

HEADWALL FOR STRUCTURAL PLATE ARCH

SKEW ANGLE A°	90	85	80	75	70	65	60	55	50	45	40	35	30
FACTOR (cosecA°)	1.000	1.004	1.015	1.035	1.064	1.103	1.155	1.221	1.305	1.414	1.556	1.743	2.000

SKEW FACTOR TABLE

Computer File Information		Sheet Revisions	
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Project Development Branch JBK

HEADWALL FOR PIPES

Issued by the Project Development Branch: July 31, 2019

STANDARD PLAN NO.
M-601-10
Standard Sheet No. 1 of 1

Project Sheet Number:

ENGINEER'S STATEMENT

STANDARD DETAILS SHOWN WERE REVIEWED ONLY AS TO THEIR APPLICATION ON THIS PROJECT

25043

BRYAN T. LAW, P.E.
COLORADO P.E. 25043
FOR AND ON BEHALF OF JR ENGINEERING, LLC

DATE

PREPARED FOR
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101 N. CASCADE, SUITE 200
COLORADO SPRINGS, CO 80903
ATTN: BOB IRWN
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No.	REVISION	BY	DATE

H-SCALE	N/A
V-SCALE	N/A
DATE	04/11/22
DESIGNED BY	GAG
DRAWN BY	GAG
CHECKED BY	

LATIGO TRAILS – FILING NO. 10

DETAILS

SHEET 17 OF 17

JOB NO. 25175.02