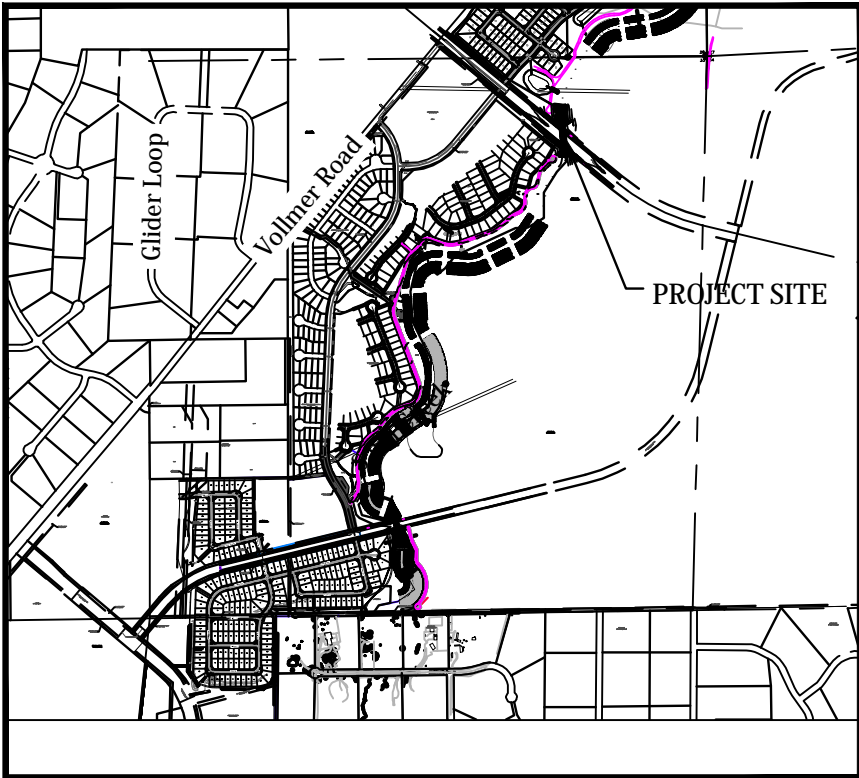


STERLING RANCH DEVELOPMENT
BRIARGATE BOULEVARD BRIDGE DESIGN PLANS
EL PASO COUNTY, COLORADO

Kiowa Project No. 19032
8/4/2021



VICINITY MAP
SCALE: N.T.S.

GENERAL NOTES

- Profile design lines are based on centerline, as shown, unless otherwise noted.
- All new construction to conform to the specifications of El Paso County Department of Public Works. Any asphalt removed is to be replaced to meet the specifications of the El Paso County Public Works Department.
- For pavement design, curb and gutter, and sidewalks see individual plan and profile sheets. Pavement design to be based on Resistance Value 'R' derived from Hveem tests and are to be approved by the Engineering Division of the El Paso County Planning and Community Development prior to work above subgrade.
- At intersections, all curb returns will have 20-foot radius unless otherwise noted.
- All existing utilities have been shown according to the best available information. The contractor is responsible for field location and verification prior to beginning work. If it appears that there could be a conflict with any utilities, whether indicated on the plans or not, the contractor is to notify the engineer and owner immediately. The contractor is responsible for the protection and repair (if necessary) of all utilities.
- A Pre-Construction meeting shall be held with the El Paso County Planning and Community Development prior to any construction.
- Approved plans, Engineering Criteria Manual, etc. is required to be on-site at all times during construction.
- All necessary permits, such as SWMP, ESQCP, Fugitive Dust, Access, C.O.E. 404, etc. shall be obtained prior to construction.
- All handicap ramps to be per El Paso County Standard SD 2-40.
- The contractor shall coordinate locations and layout with the El Paso County Planning and Community Development on the placement of any pedestrian ramps prior to construction of the curb.
- Where appropriate, neatly saw cut all existing concrete and asphalt. Repair/replace all disturbed existing items with like materials and thicknesses.
- All disturbed areas shall be revegetated with native grasses within 21 days of excavation per Erosion Control Plan.
- The prepared Erosion/Sediment Control Plan is to be considered a part of these plans and its requirements adhered to during the construction of this project.
- All storm and sanitary sewer pipe lengths and slopes are figured from center of manhole or bend. Pipe lengths are given as a horizontal length.
- All storm sewer bedding to be per CDOT Standards.
- All storm sewer pipe shall be Class III B Wall unless otherwise shown on the storm sewer plan and profile sheets.
- All wyves and bends used in construction of storm sewer facilities shall be factory fabricated, unless approved by the El Paso County Planning and Community Development.
- Construction and materials used in all storm and sanitary sewer manholes shall be per specifications. Storm sewer radial deflections to be grouted or installed per manufacturer's recommendations.
- Storm sewer manholes sizes as follows unless otherwise shown:
18" thru 36" use 48" I.D. manhole
42" thru 48" use 60" I.D. manhole
54" thru 60" use 72" I.D. manhole
NOTE: Manhole sizes tabulated here shall be increased, if necessary, to accommodate incoming laterals.
- All horizontal stationing is based on the 'Face of Curb', unless otherwise shown.
- All vertical design and top of curb are based on the design point shown in the typical cross section.
- The curb line design point is located at the intersection of the face and top of curb for the Type III Standard 6-inch vertical curb. See typical street section for design point locations.
- Vertical curb to be used between curb returns (CR) and at curb inlets. Transitions from ramp to vertical curb shall be 10-feet unless otherwise approved by the El Paso County Public Services Department. All other curb & gutter to be ramp curb & gutter.
- Cross pans to be per El Paso County Standard Detail SD 2-26.
- Curb returns shall be straight graded from CR to CR unless otherwise noted.
- Inlets are Type 'R' inlets (CDOT STD M-604-12) unless otherwise noted.

BENCHMARK:
THE TOP OF AN ALUMINUM SURVEYORS CAP, STAMPED "8953"
NORTHING = 411416.273
EASTING = 235167.071
ELEVATION = 7023.42

THE TOP OF RED PLASTIC SURVEYORS CAP, ILLEGIBLE
NORTHING = 410095.404
EASTING = 235052.131
ELEVATION = 7000.40

THE TOP OF RED PLASTIC SURVEYORS CAP, STAMPED "38141"
NORTHING = 411399.962
EASTING = 233849.817
ELEVATION = 7030.82

BASIS OF BEARING
THE SOUTH LINE OF THE SOUTHWEST QUARTER (SW $\frac{1}{4}$) OF SECTION 34, TOWNSHIP 12 SOUTH, RANGE 65 WEST OF THE 6TH P.M. AS MONUMENTED AT THE SOUTHWEST CORNER OF SAID SOUTHWEST QUARTER (SW $\frac{1}{4}$) BY A 2-1/2" ALUMINUM CAP STAMPED "LS 11624" AND AT THE SOUTHEAST CORNER OF SAID SOUTHWEST QUARTER (SW $\frac{1}{4}$) BY A 2-1/2" ALUMINUM CAP STAMPED "LS 11624", SAID LINE BEARS N 89°14'14" E, A DISTANCE OF 2,722.56 FEET.

STATEMENTS

Design Engineer's Statement:

These detailed plans and specifications were prepared under my direction and 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 plans 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.

Todd Cartwright, P.E. #33365 _____ Date _____
For and on behalf of Kiowa Engineering Corp.

Owner/Developer's Statement:

I, the owner/developer have read and will comply with of the requirements of the Grading and Erosion Control Plans and all of the requirements specified in these detailed plans and specifications.

James Morley _____ Date _____
Sterling Ranch Metropolitan District

El Paso County:

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, 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

EL PASO COUNTY STANDARD NOTES

- 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.
- 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).
- Contractor shall keep a copy of these approved plans, the Grading and Erosion Control Plan, the Stormwater Management Plan (SWMP), the soils and geotechnical report, and the appropriate design and construction standards and specifications at the job site at all times, including the following:
 - El Paso County Engineering Criteria Manual (ECM)
 - City of Colorado Springs/El Paso County Drainage Criteria Manual, Volumes 1 and 2
 - Colorado Department of Transportation (CDOT) Standard Specifications for Road and Bridge Construction
 - CDOT M & S Standards
- 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 version 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.
- 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.
- Contractor shall schedule a pre-construction meeting with El Paso County Planning and Community Development (PCD) - Inspections, prior to starting construction.
- It is the contractor's responsibility to understand the requirements of all jurisdictional agencies and 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.
- 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.
- All storm drain pipe shall be Class III RCP unless otherwise noted and approved by PCD.
- 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.
- All construction traffic must enter/exit the site at approved construction access points.
- Sight visibility triangles as identified in the plans shall be provided at all intersections. Obstructions greater than 18 inches above flowline are not allowed within sight triangles.
- Signing and striping shall comply with El Paso County Department of Public Works and MUTCD criteria. [If applicable, additional signing and striping notes will be provided.]
- 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.
- The limits of construction shall remain within the property line unless otherwise noted. The owner/developer shall obtain written permission and easements, where required, from adjoining property owner(s) prior to any off-site disturbance, grading, or construction.

INDEX OF SHEETS

C001	COVER SHEET
C101	SITE PLAN
C201	BRIARGATE BOULEVARD BRIDGE PLAN & PROFILE
C202	BRIARGATE BOULEVARD BRIDGE STRUCTURE LAYOUT
C203	BRIARGATE BOULEVARD BRIDGE FOOTER DETAILS
C204	BRIARGATE BOULEVARD BRIDGE GUARDRAIL PLAN
C211	BRIARGATE BOULEVARD BRIDGE DETAILS
C212	BRIARGATE BOULEVARD BRIDGE GUARDRAIL DETAILS
C213	BRIARGATE BOULEVARD BRIDGE HANDRAIL DETAILS
C301	4' DROP STRUCTURE A DETAILS
C302	3' DROP STRUCTURE B DETAILS
C303	DROP STRUCTURE DETAILS

ABBREVIATIONS

ASSY = ASSEMBLY	MIN. = MINIMUM
BNBY = BOUNDARY	NTS = NOT TO SCALE
BOP = BOTTOM OF PIPE	OD = OUTSIDE DIAMETER
CL = CENTERLINE	PC = POINT OF HORIZONTAL CURVATURE
CRA = CONCRETE REVERSE ANCHOR	PP = PROPOSED
CTRB = CONCRETE THRUST BLOCK	PT = POINT OF HORIZONTAL TANGENCY
CR = POINT OF CURB RETURN	PVC = POLY VINYL CHLORIDE PIPE
DIP = DUCTILE IRON PIPE	PVC = POINT OF VERTICAL CURVATURE
EL = ELEVATION	PVI = POINT OF VERTICAL INTERSECTION
ESMT = EASEMENT	PVT = POINT OF VERTICAL TANGENCY
EX. = EXISTING	RCB = REINFORCED CONCRETE BOX
FC = FACE OF CURB	RCP = REINFORCED CONCRETE PIPE
FES = FLARED END SECTION	ROW = RIGHT OF WAY
FLG = FLANGE	RT = RIGHT
FL = FLOWLINE	SHT = SHEET
GB = GRADE BREAK	SS = SANITARY SEWER
HP = HIGH POINT	STA = STATION
HORIZ = HORIZONTAL	STD = STANDARD
H/D = HYDRANT	TA = TOP OF ASPHALT
I.D. = INSIDE DIAMETER	TC = TOP OF CURB
LT = LEFT	TOP = TOP OF PIPE
LF = LINEAR FEET	TOR = TOP OF ROCK
LP = LOW POINT	TYP = TYPICAL
MAX = MAXIMUM	VC = VERTICAL CURVE
MH = MANHOLE	VERT = VERTICAL



Know what's below.
Call before you dig.



STERLING RANCH DEVELOPMENT
BRIARGATE BOULEVARD BRIDGE DESIGN PLANS
COVER SHEET
EL PASO COUNTY, COLORADO

Project No.: 19032

Date: 8/4/2021

Design: TAC

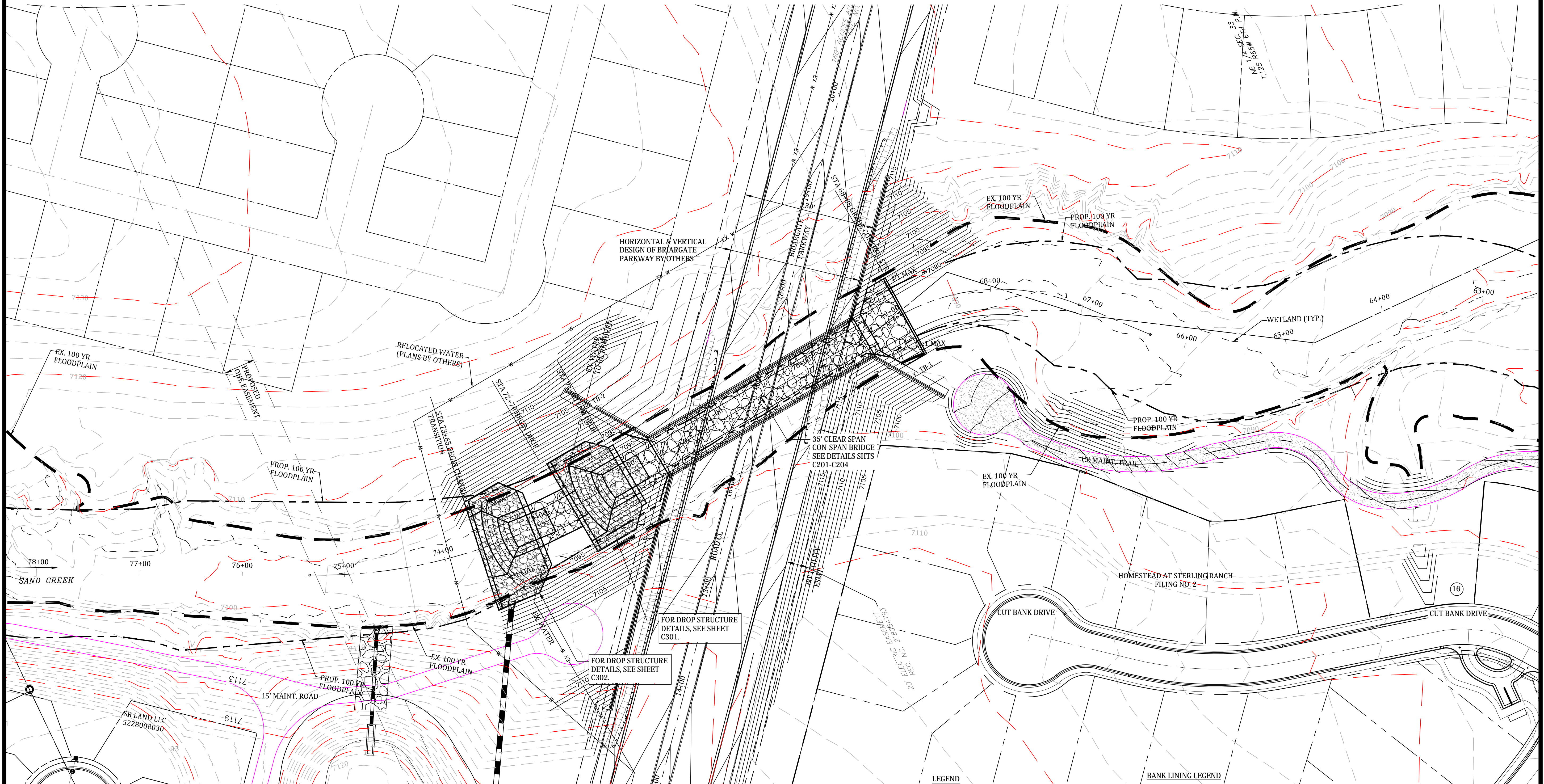
Drawn: PAV











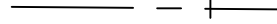

Check:

Revisions:

C001

CAUTION!!!
EXISTING UTILITIES TO BE
PROTECTED FROM DISTURBANCE
WHEN INSTALLING ALL DRAINAGE
INFRASTRUCTURE.



- | <u>LEGEND</u> | | <u>BANK LINING LEGEND</u> | |
|---|-----------------------------------|---|-------------------------------|
|  | EXISTING FEMA 100 YEAR FLOODPLAIN |  | GROUTED BOULDER 36"-48" |
|  | PROPOSED FEMA 100 YEAR FLOODPLAIN |  | TYPE I SOIL RIPRAP D50=9" |
|  | PROFILE CENTERLINE |  | TYPE M SOIL RIPRAP D50=12" |
|  | PROPERTY LINE |  | TRUF REINFORCED MAT |
|  | PROPOSED CONTOUR |  | WETLAND MITIGATION VEGETATION |
|  | EXISTING CONTOUR | | |
|  | FENCE | | |

kiowa
Engineering Corporation

Celebrating 30 years

1604 South 21st Street
Colorado Springs, Colorado 80904
(719) 630-7342

**STERLING RANCH DEVELOPMENT
BRIARGATE BOULEVARD BRIDGE DESIGN PLANS
SITE PLAN
EL PASO COUNTY, COLORADO**

Project No.:	19032
Date:	8/4/2021
Design:	TAC
Drawn:	PAV
Check:	
Revisions:	

C101

TEST BORING NO. 1
DATE DRILLED 7/13/2021
Job # 211647

REMARKS

WATER @ 1.5', 7/20/21
SAND, SLIGHTLY SILTY, FINE TO
COARSE GRAINED, GRAY
BROWN, DENSE, VERY MOIST

SANDSTONE, SLIGHTLY SILTY,
FINE TO COARSE GRAINED,
GRAY BROWN, DENSE TO VERY
DENSE, VERY MOIST

SILTSTONE, SANDY, GRAY
BROWN, HARD, MOIST

SANDSTONE, SLIGHTLY SILTY,
FINE TO COARSE GRAINED, GRAY
BROWN, DENSE TO VERY
MOIST

TEST BORING NO. 2
DATE DRILLED 7/13/2021
CLIENT C&C LAND
LOCATION BRIARGATE BRIDGE

REMARKS

WATER @ 3.5', 7/20/21
SAND, SILTY, BROWN

SANDSTONE, SLIGHTLY SILTY,
FINE TO COARSE GRAINED,
GRAY BROWN, VERY DENSE,
MOIST

SILTSTONE, SANDY, GRAY
BROWN, HARD, MOIST

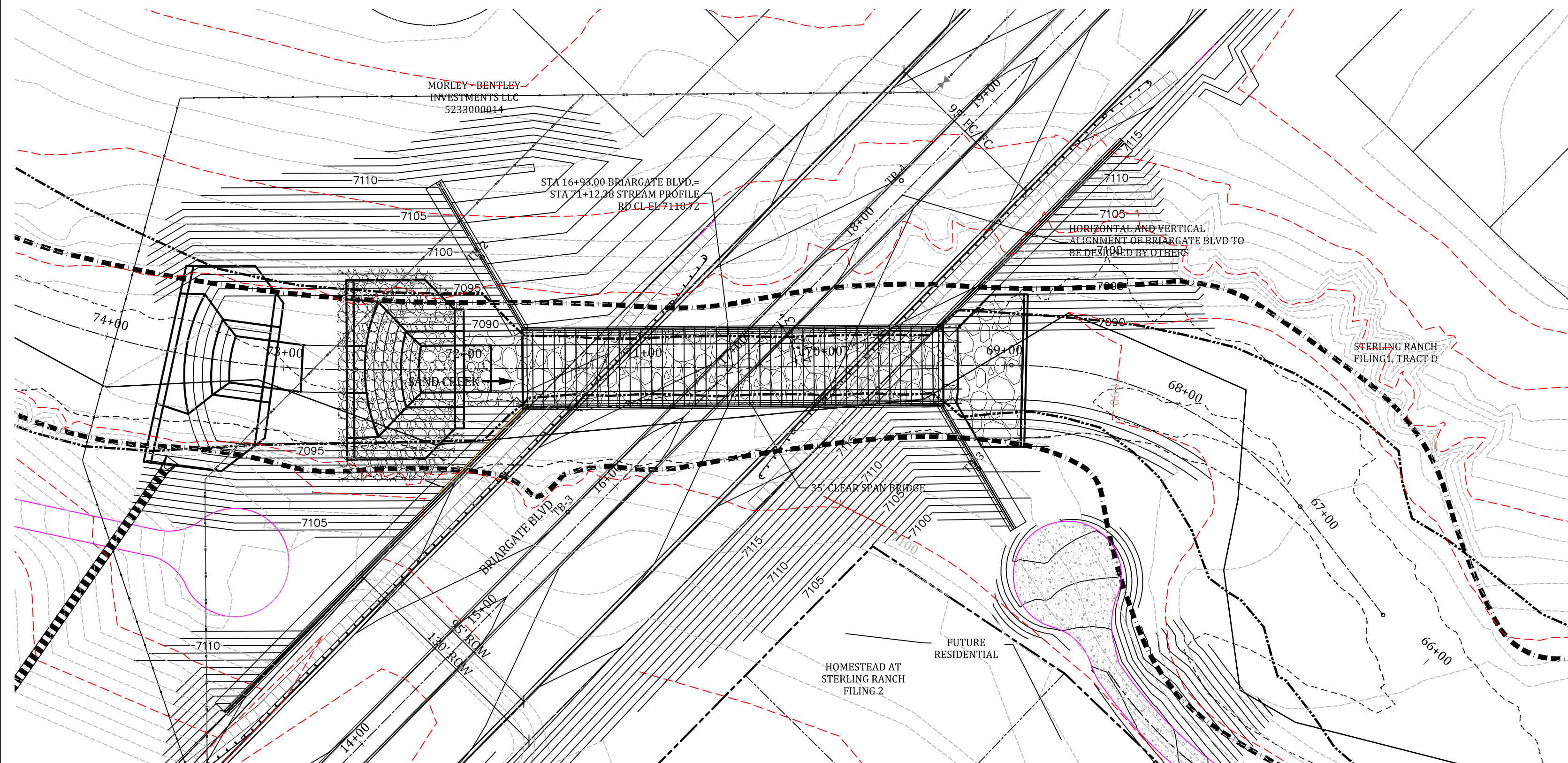
SANDSTONE, SLIGHTLY SILTY,
FINE TO COARSE GRAINED,
GRAY BROWN, VERY DENSE,
MOIST



TEST BORING LOG

JOB NO.
211647
FIG NO.
A- 1

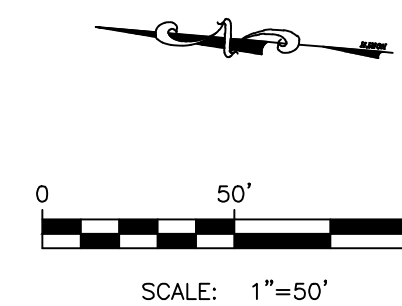
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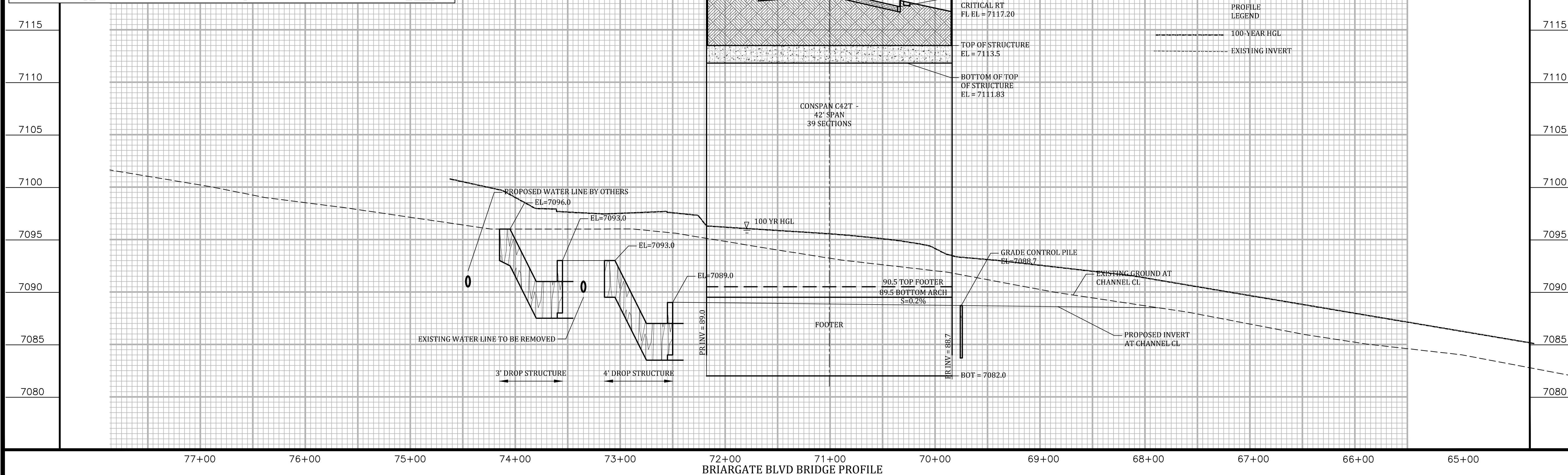
SITE PLAN BRIARGATE BLVD BRIDGE

1"= 50'

CAUTION!!!
EXISTING UTILITIES TO BE PROTECTED
FROM DISTURBANCE WHEN INSTALLING
BRIDGE AND INFRASTRUCTURE.



Know what's below.
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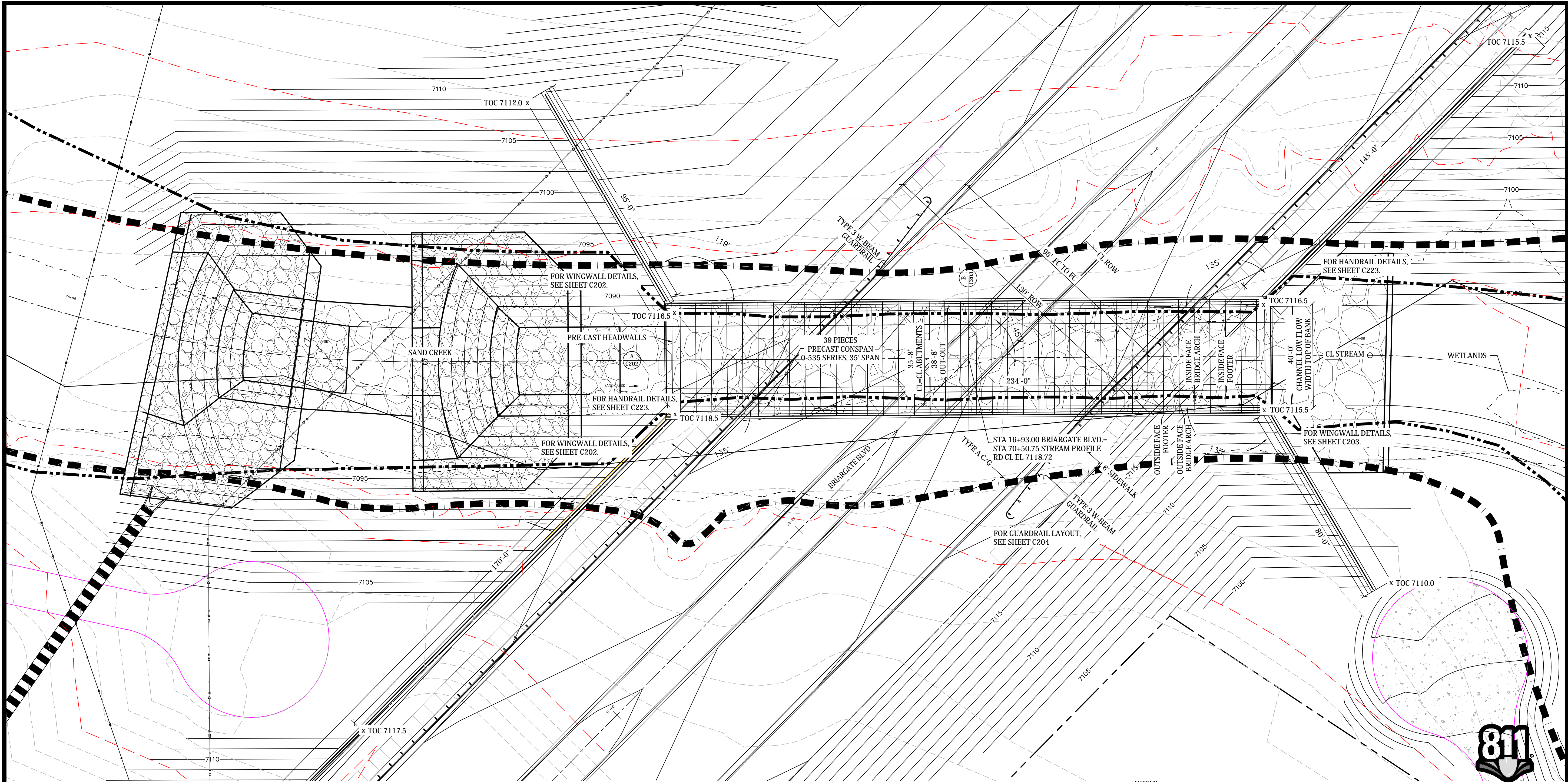
BRIARGATE BLVD BRIDGE PROFILE

STERLING RANCH DEVELOPMENT
BRIARGATE BOULEVARD BRIDGE DESIGN PLANS
PLAN AND PROFILE
EL PASO COUNTY, COLORADO

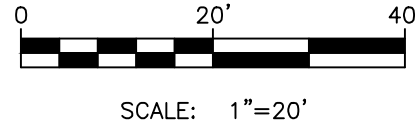
Project No.: 19032
Date: 9/8/21
Design: TAC
Drawn: PAV
Check:
Revisions:

C201

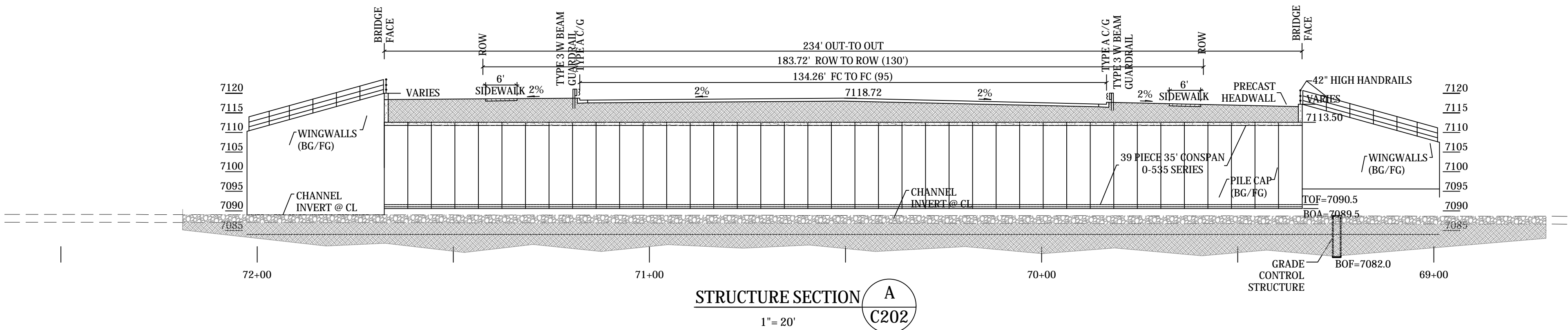
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Engineering Corporation
1604 South 21st Street
Colorado Springs, Colorado 80904
(719) 630-7342



STRUCTURE LAYOUT
1" = 20'



- NOTES:
1. PRECAST BRIDGE SECTIONS SHALL BE DESIGNED TO MEET HL-93 HIGHWAY LOADING AND MANUFACTURED IN CONFORMANCE WITH CDOT STANDARD SPECIFICATIONS.

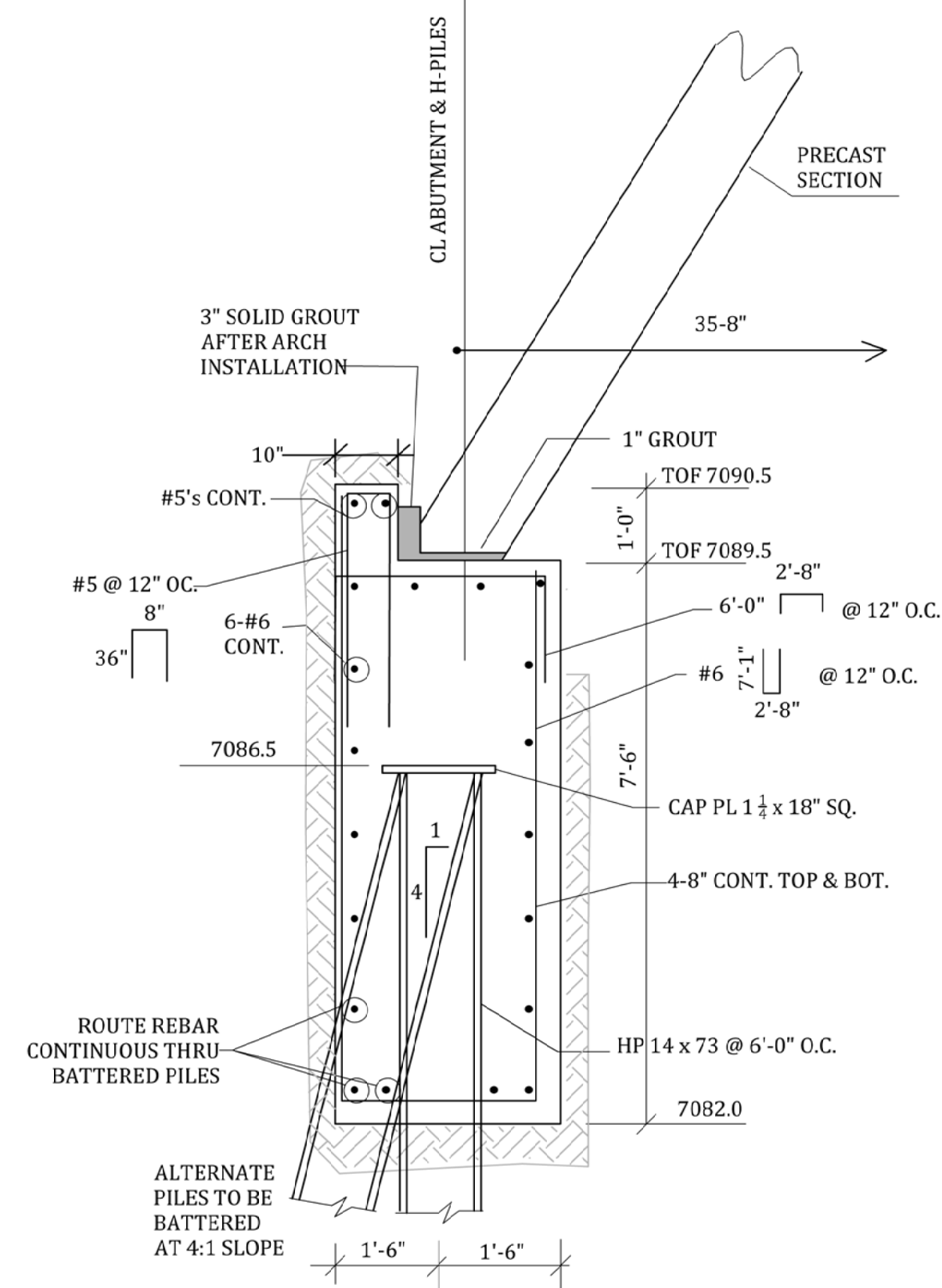
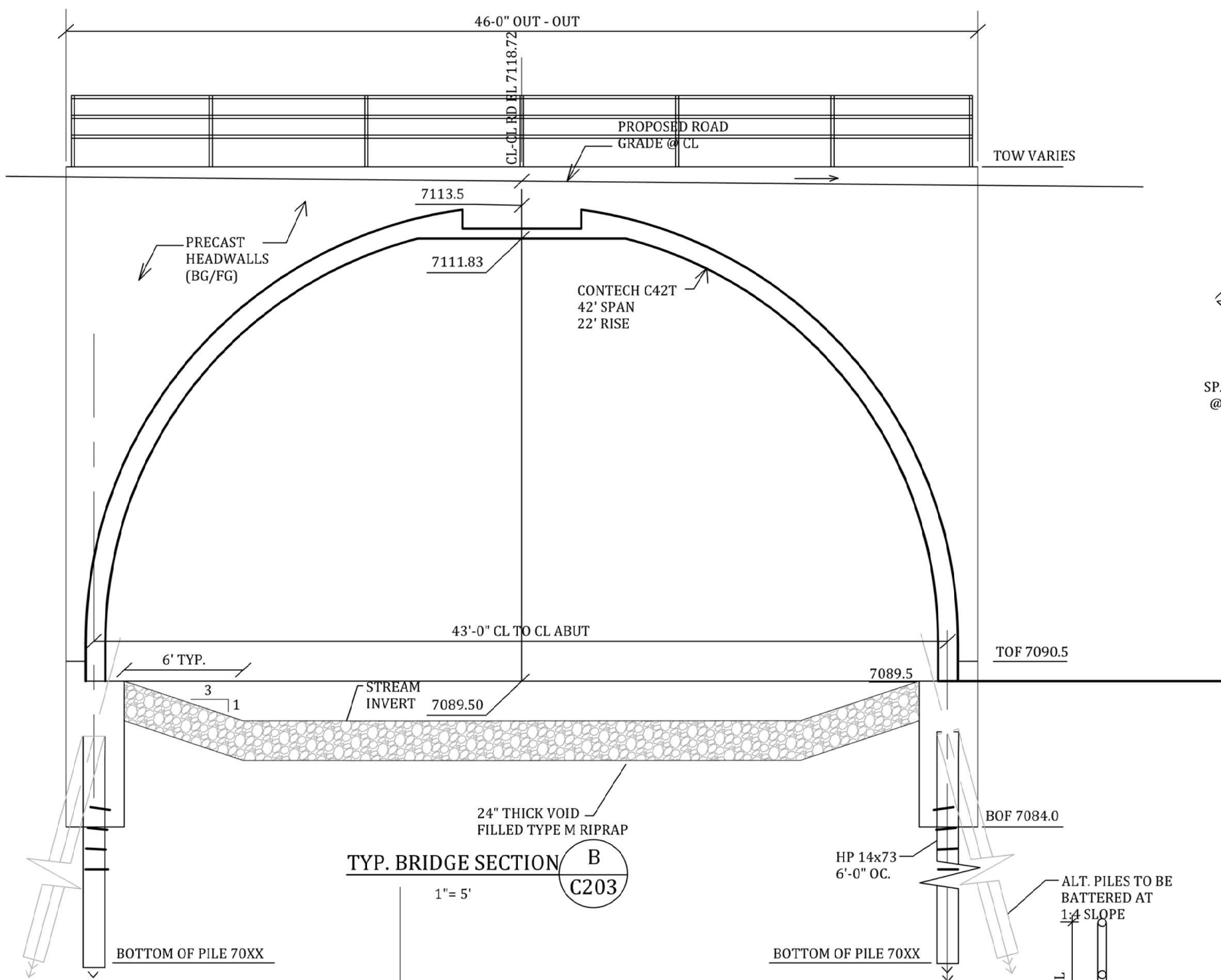


STRUCTURE SECTION A
1" = 20'
C202

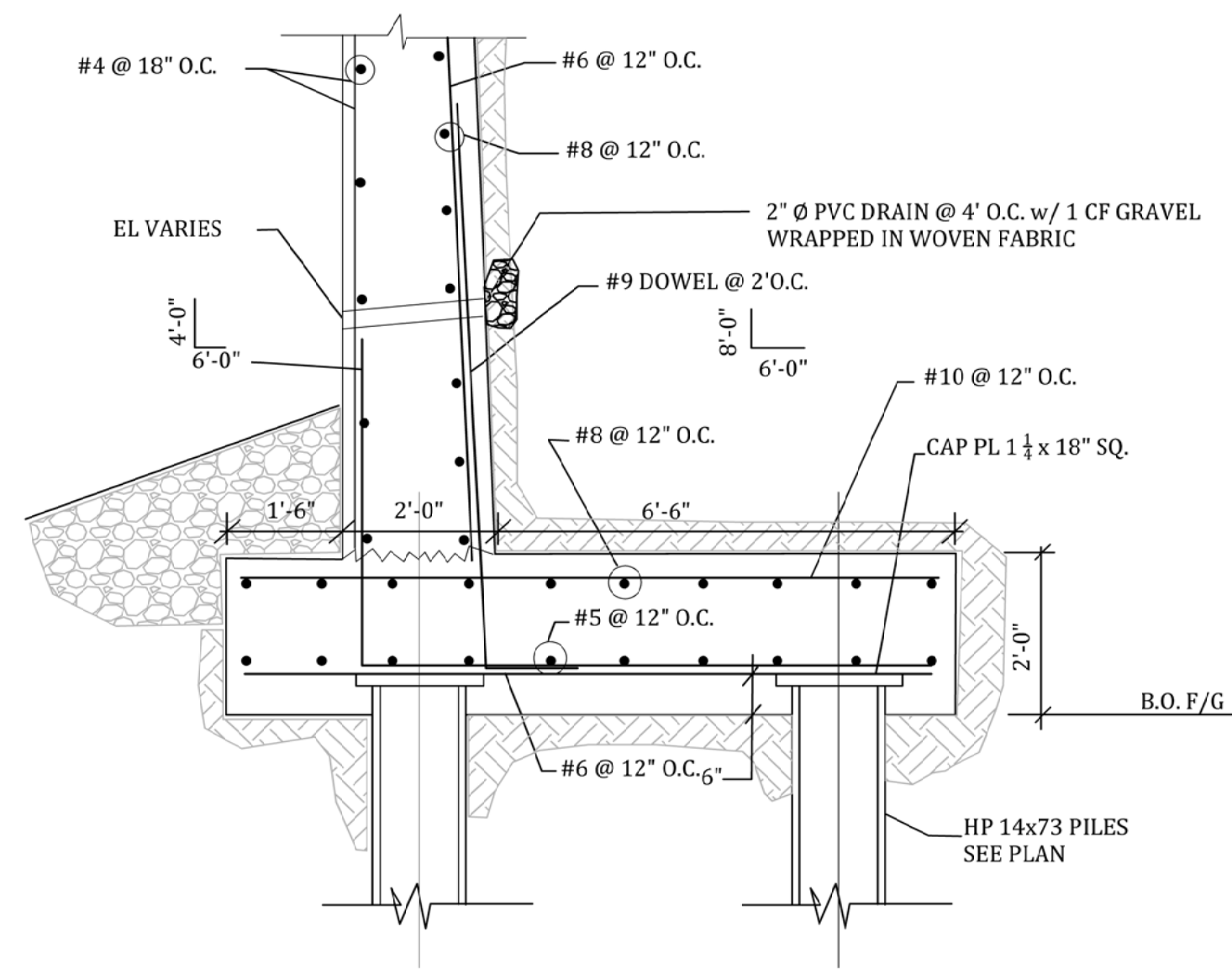
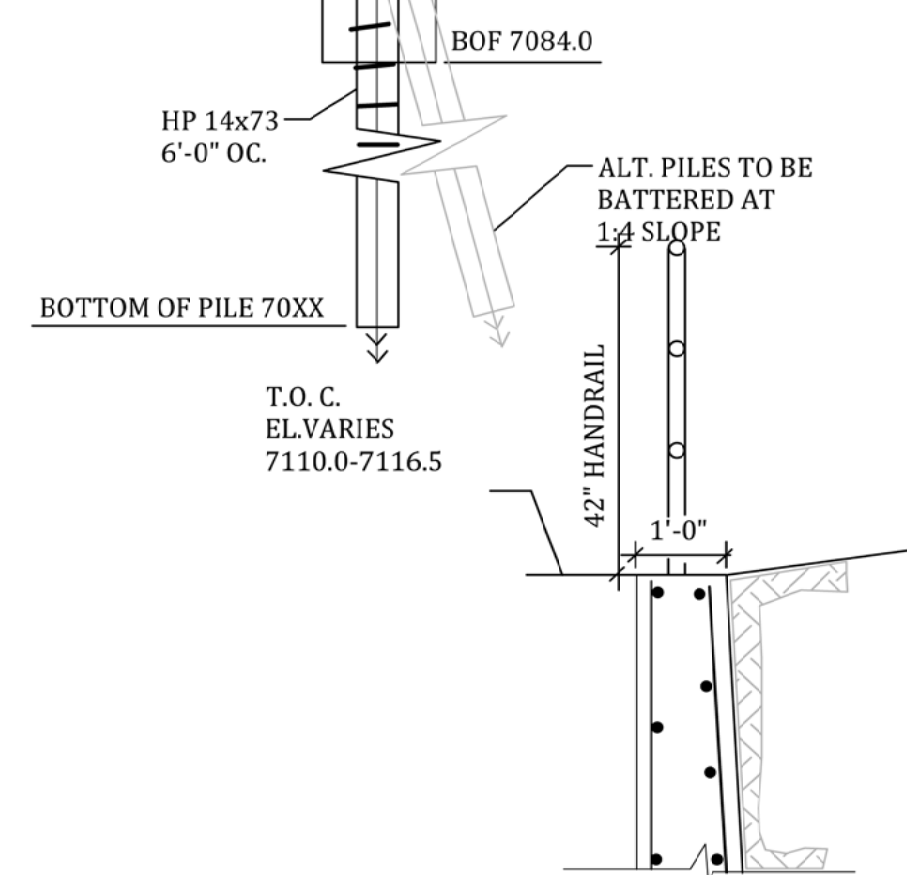
**STERLING RANCH DEVELOPMENT
BRIARGATE BOULEVARD BRIDGE DESIGN PLANS
STRUCTURE LAYOUT
EL PASO COUNTY, COLORADO**

Project No.:	19032
Date:	8/4/21
Design:	TAC
Drawn:	PAV
Check:	
Revisions:	

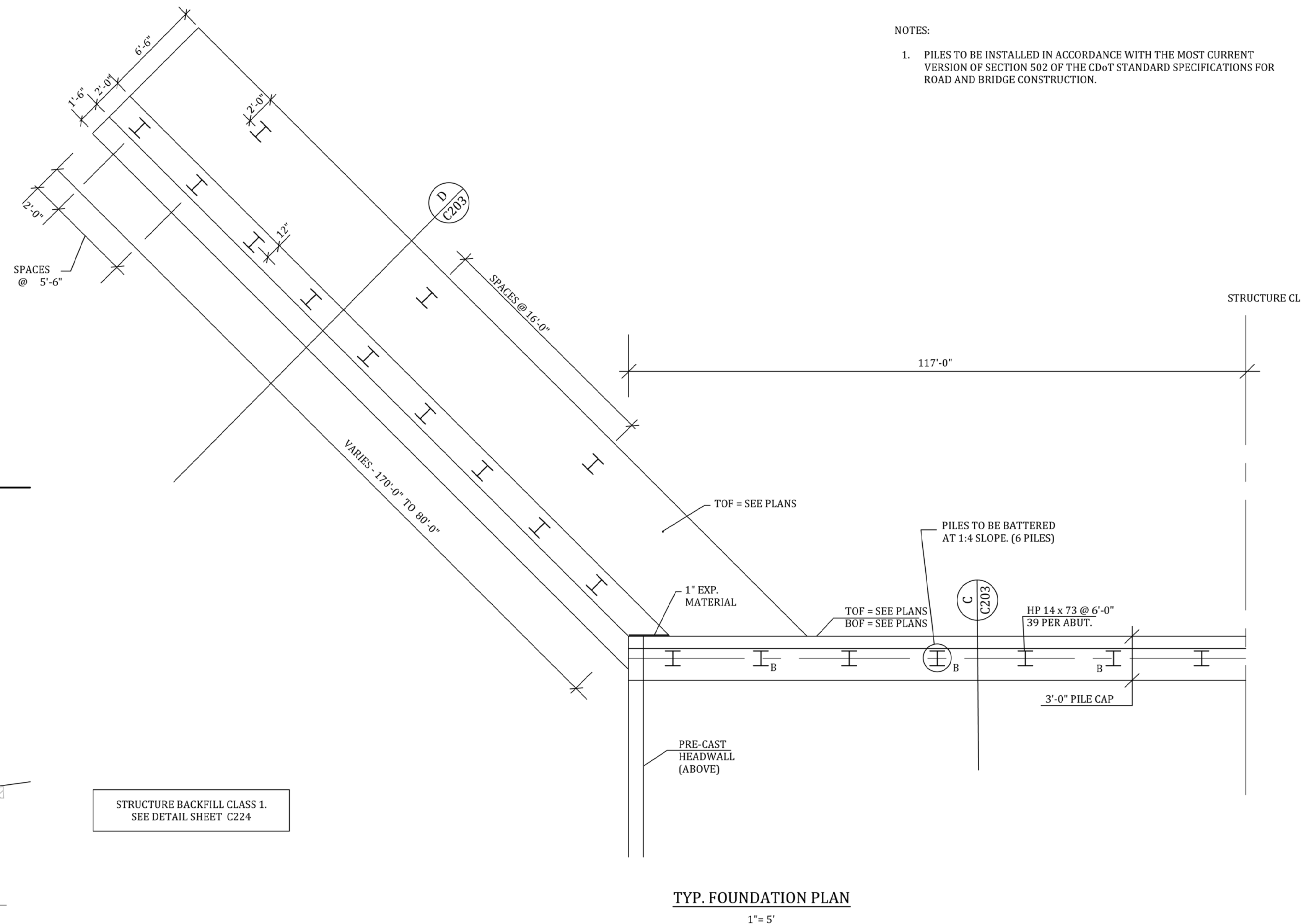
C202



TYP. BRIDGE FOOTER SECTION C
1" = 2'



TYP. WINGWALL SECTION D
1" = 2'



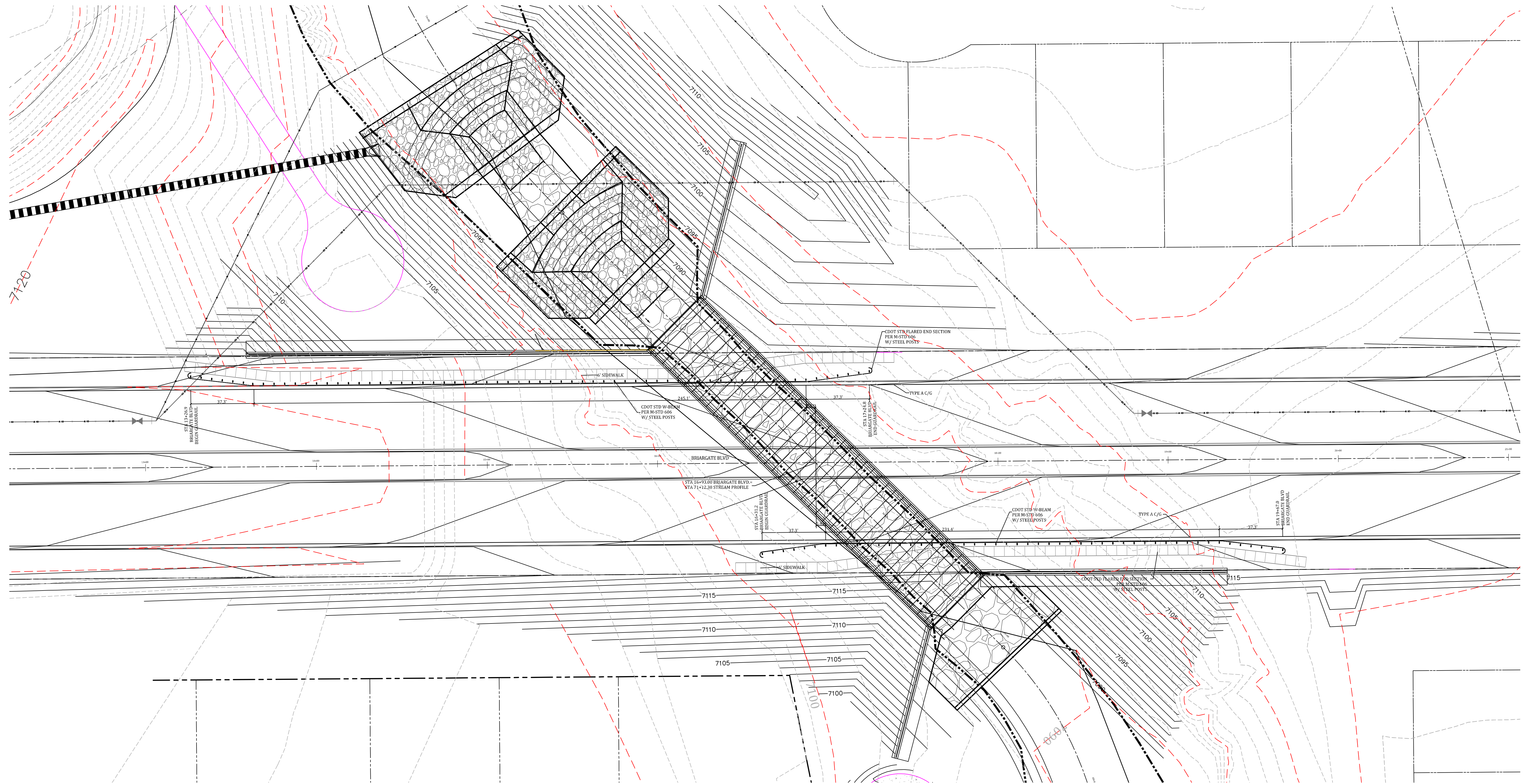
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Colorado Springs, Colorado 80904
(719) 630-7342

STERLING RANCH DEVELOPMENT
BRIARGATE BOULEVARD BRIDGE DESIGN PLANS
FOOTER DETAILS
EL PASO COUNTY, COLORADO

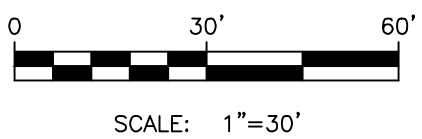
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Date:	8/4/21
Design:	TAC
Drawn:	PAV
Check:	
Revisions:	

C203



NOTES:
1. FOR GUARDRAIL DETAILS SEE SHEET C223

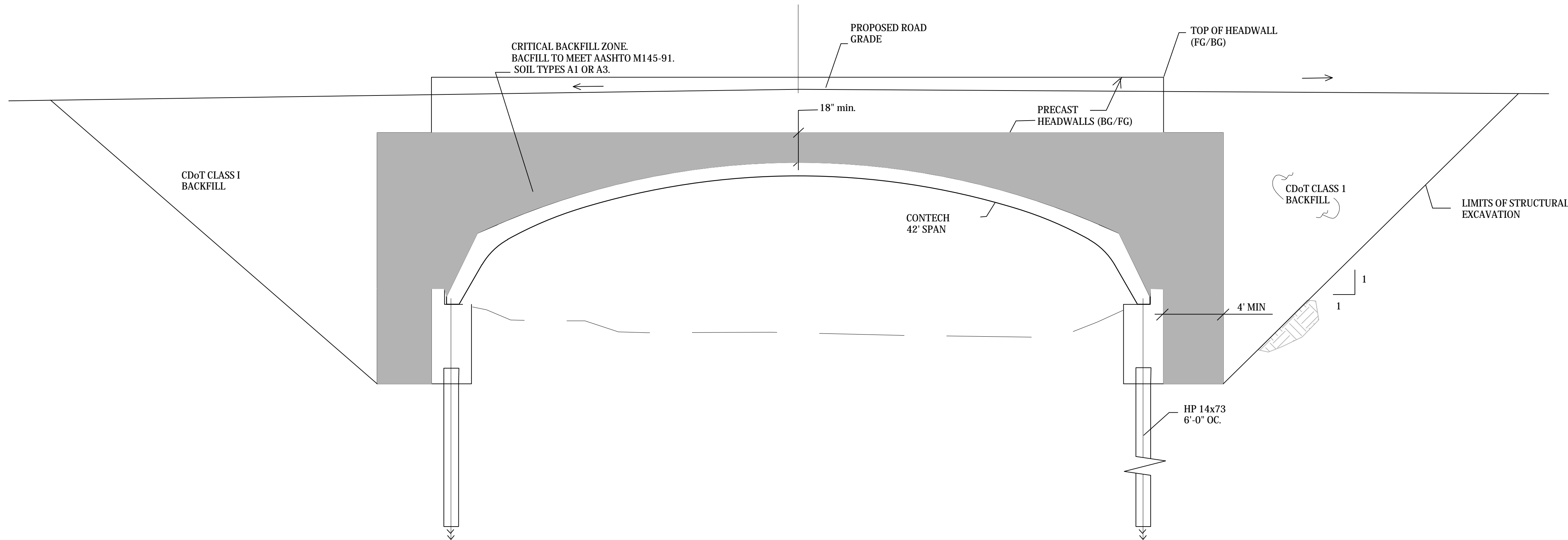
GUARDRAIL LAYOUT
1"= 20'



STERLING RANCH DEVELOPMENT
BRIARGATE BOULEVARD BRIDGE DESIGN PLANS
GUARDRAIL PLAN
EL PASO COUNTY, COLORADO

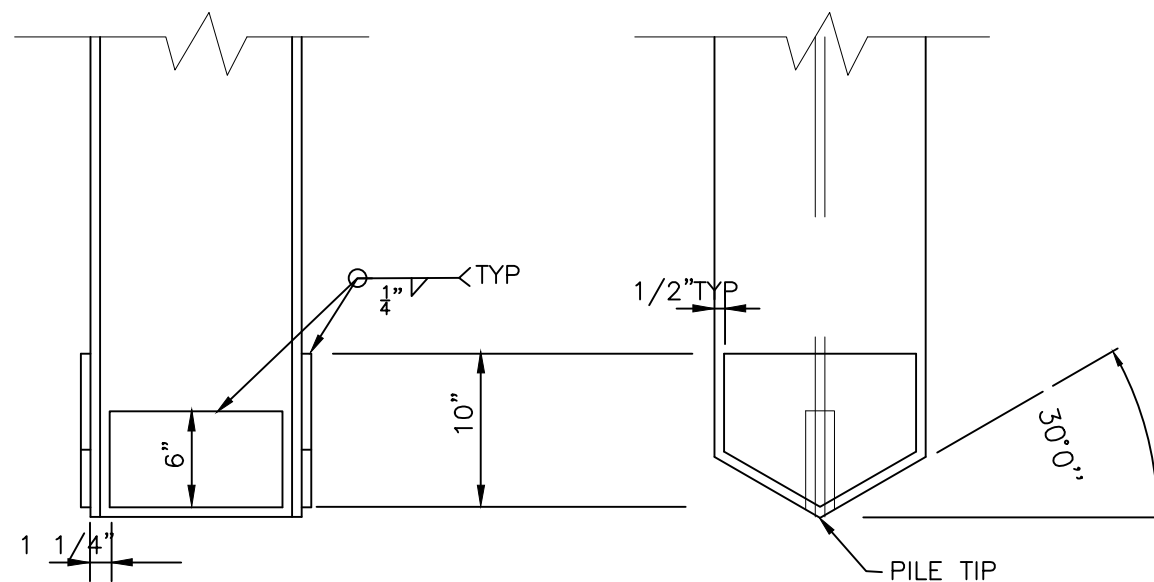
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Date:	8/4/21
Design:	TAC
Drawn:	PAV
Check:	
Revisions:	

C204



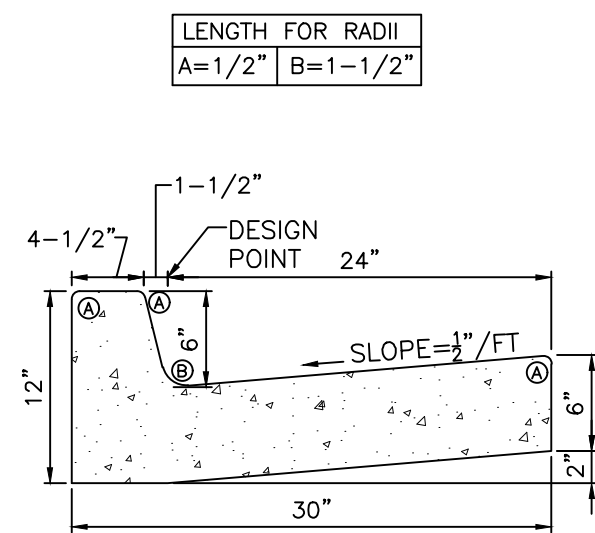
BRIDGE BACKFILL SECTION
NTS

BACKFILL DESCRIPTION (AASHTO M 145-91)									
GROUP CLASSIFICATION		A-1		A-3	A-2		A-2-6		A-4
		A-1-a	A-1-b		A-2-4	A-2-5			
SIEVE ANALYSIS (100% PASSING 3" SIEVE)									
NO. 10		50 max							
NO. 40		30 max	50 max	51 max	35 max	35 max	35 max	35 max	35 min
NO. 200		15max	25 max	10 mac					
CHARACTERISTICS OF FRACTION PASSING NO. 40									
LIQUID LIMIT					40 max	41 max	11 min	11 min	10 max
USUAL TYPES OF SIGNIFICANT CONSTITUENT MATERIALS		GRAVEL & SAND		SAND					
GENERAL RATING AS SUB-GRADE		EXCELLENT TO GOOD							FAIR TO POOR



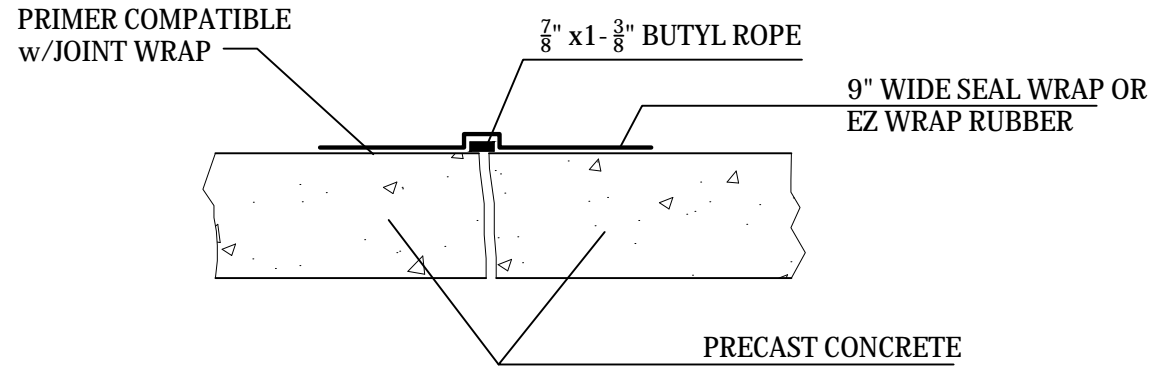
PILE TIP DETAIL
NTS

AN APPROVED COMMERCIAL PILE MAY BE USED



EPC TYPE A
VERTICAL CURB AND GUTTER
NTS

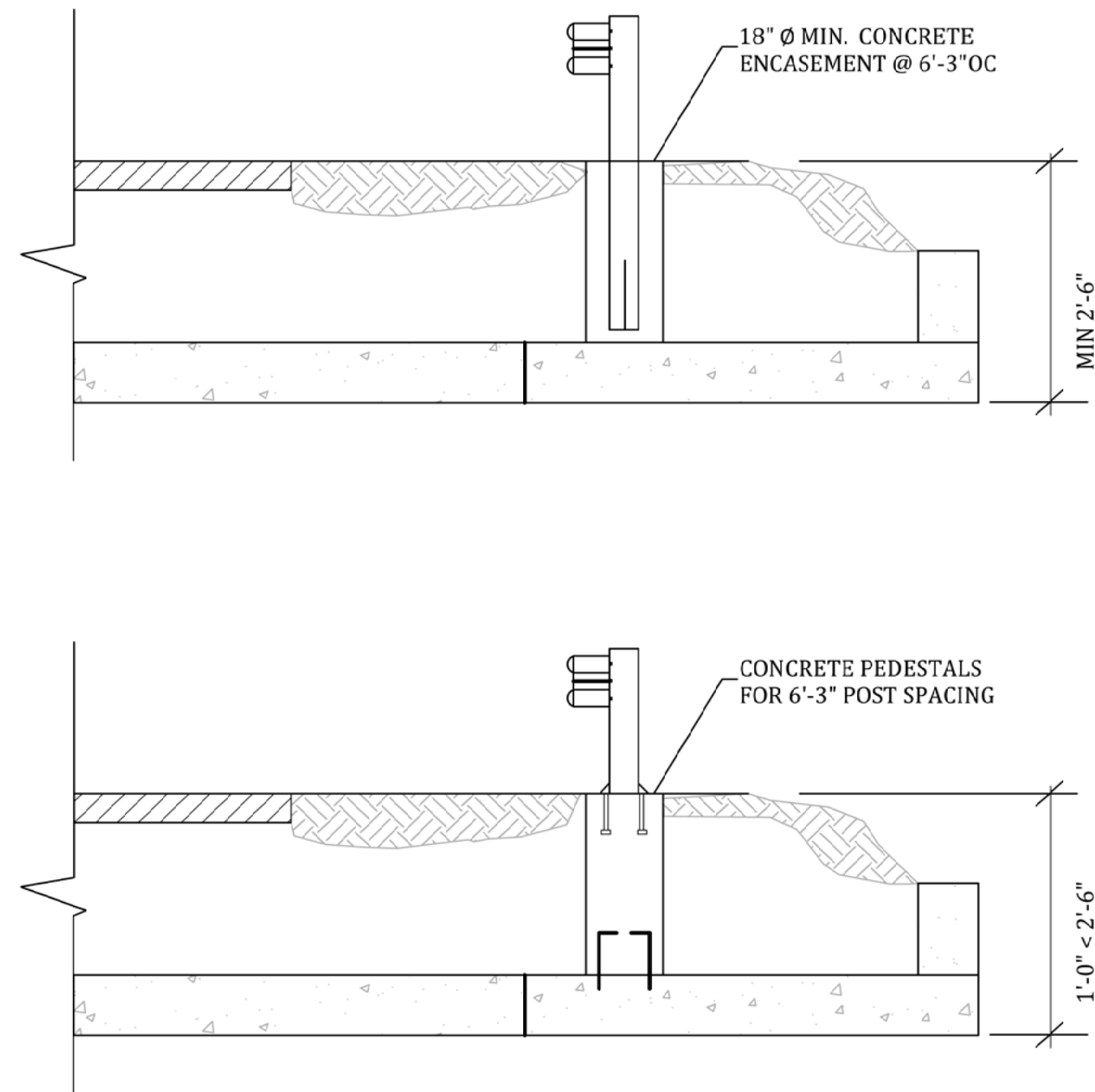
EPC STD. SD.2-20



TYPICAL JOINT SEAL
NTS

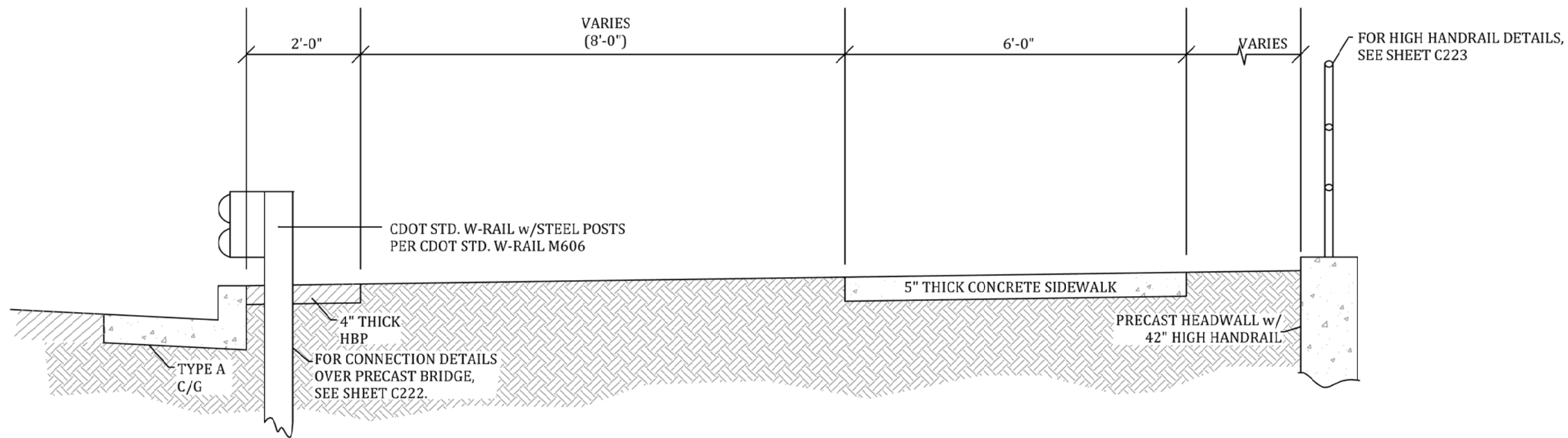


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GUARDRAIL MOUNTING DETAILS
NTS

- NOTES:
1. GUARDRAIL POST SPACING OVER THE PRECAST SECTIONS SHALL BE IN CONFORMANCE WITH CDOT M-606.

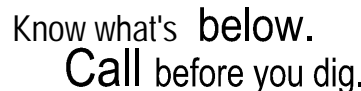
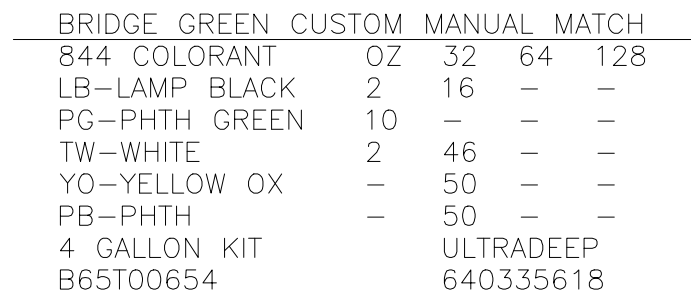


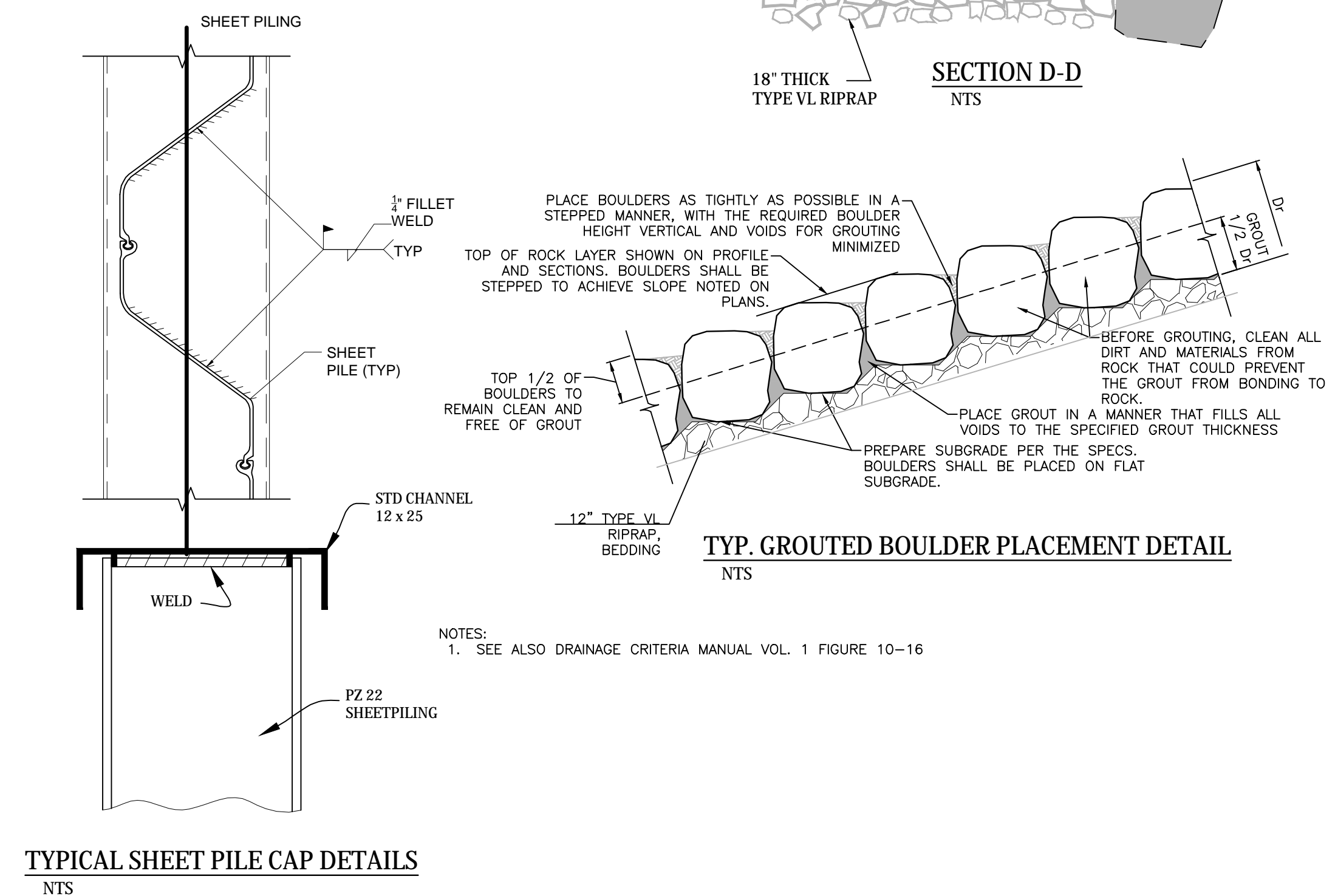
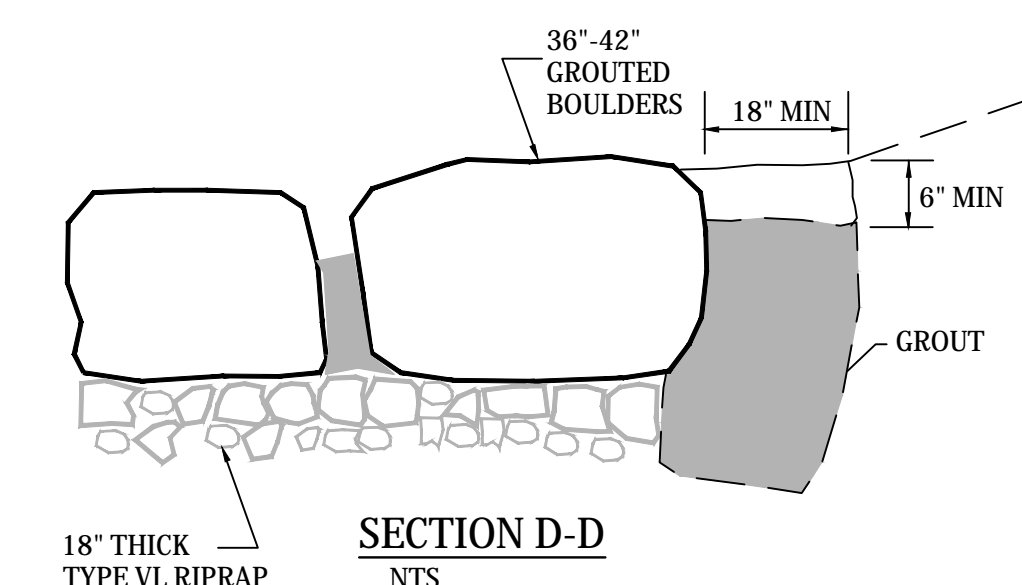
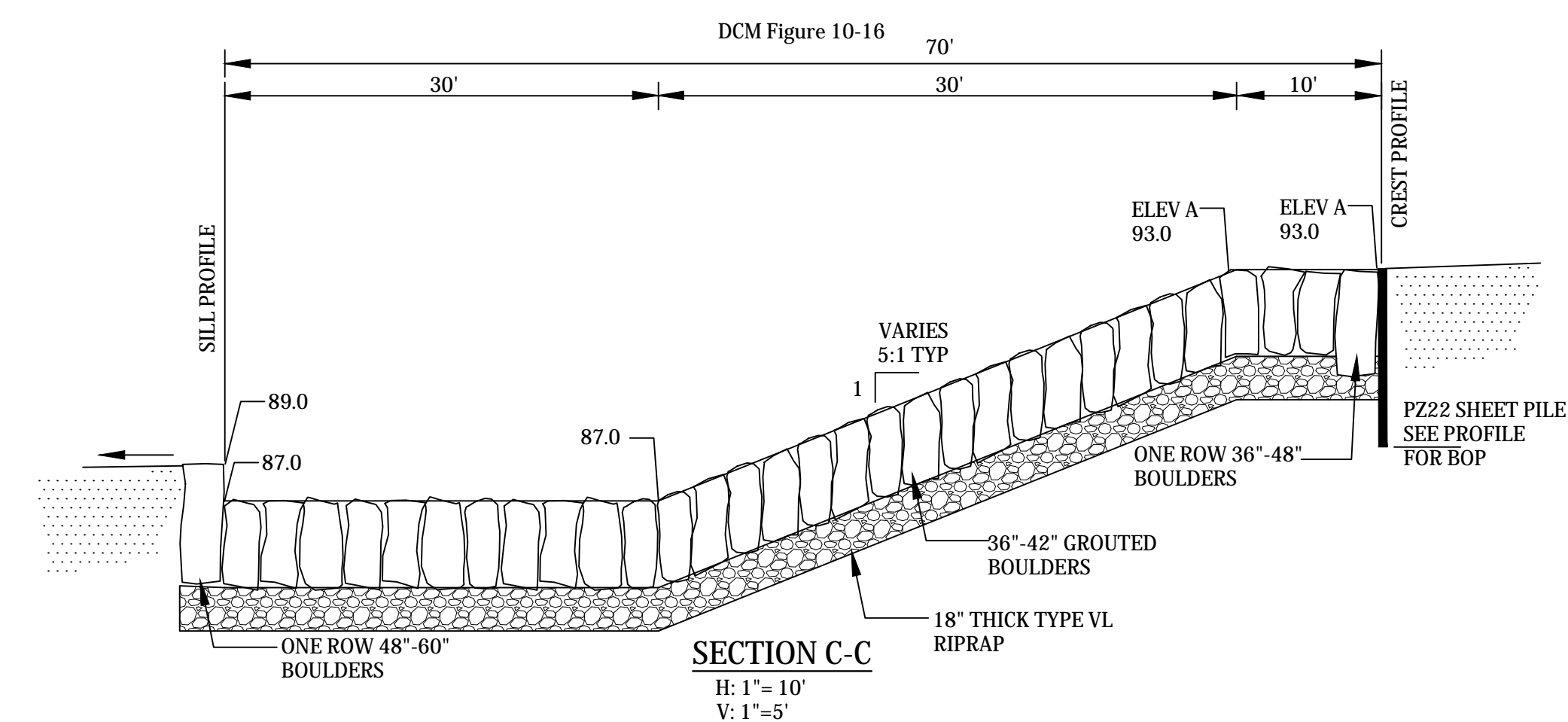
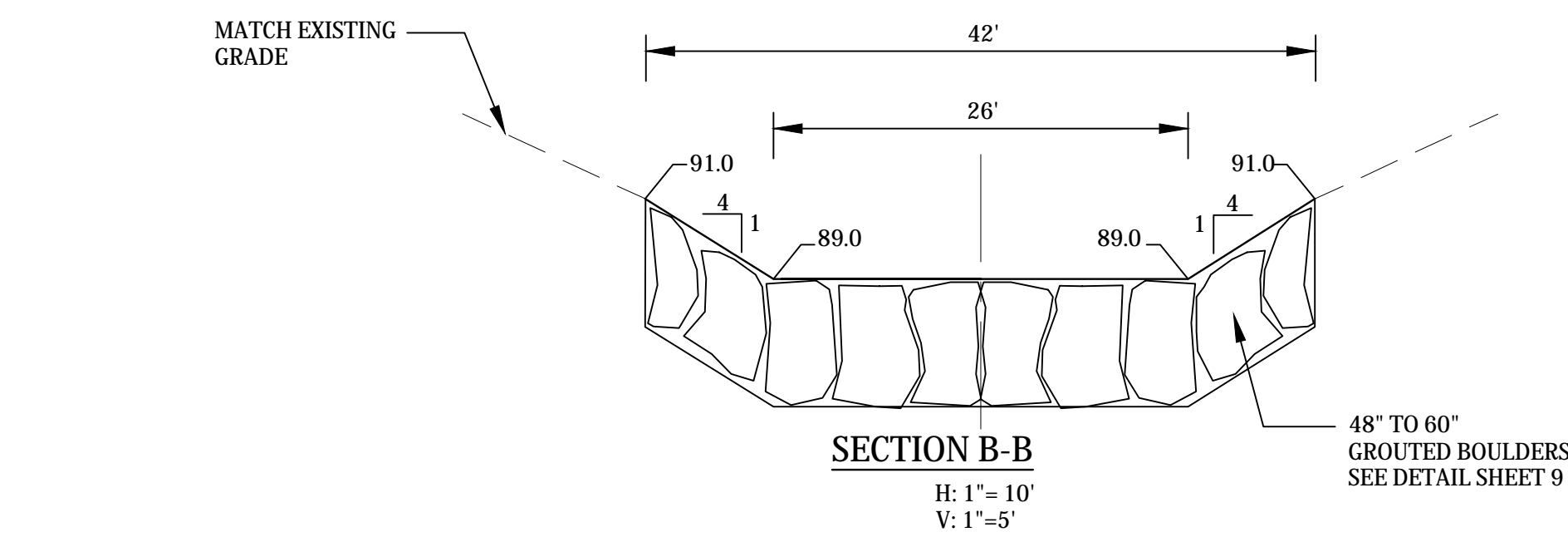
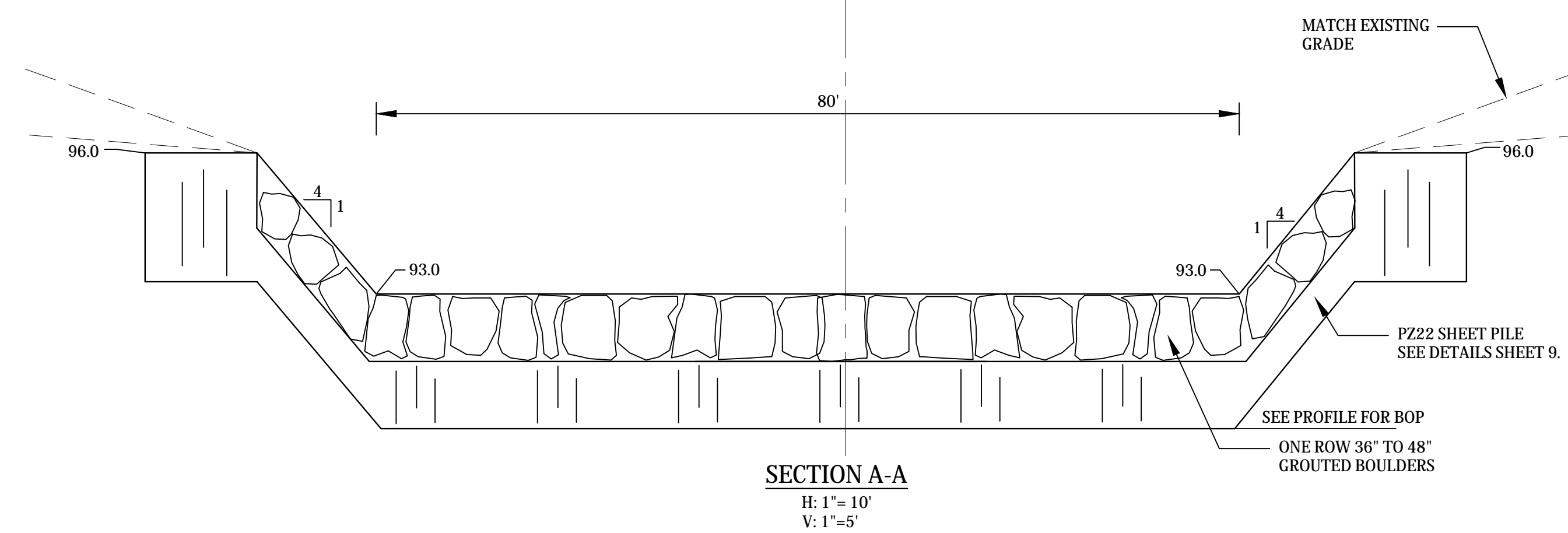
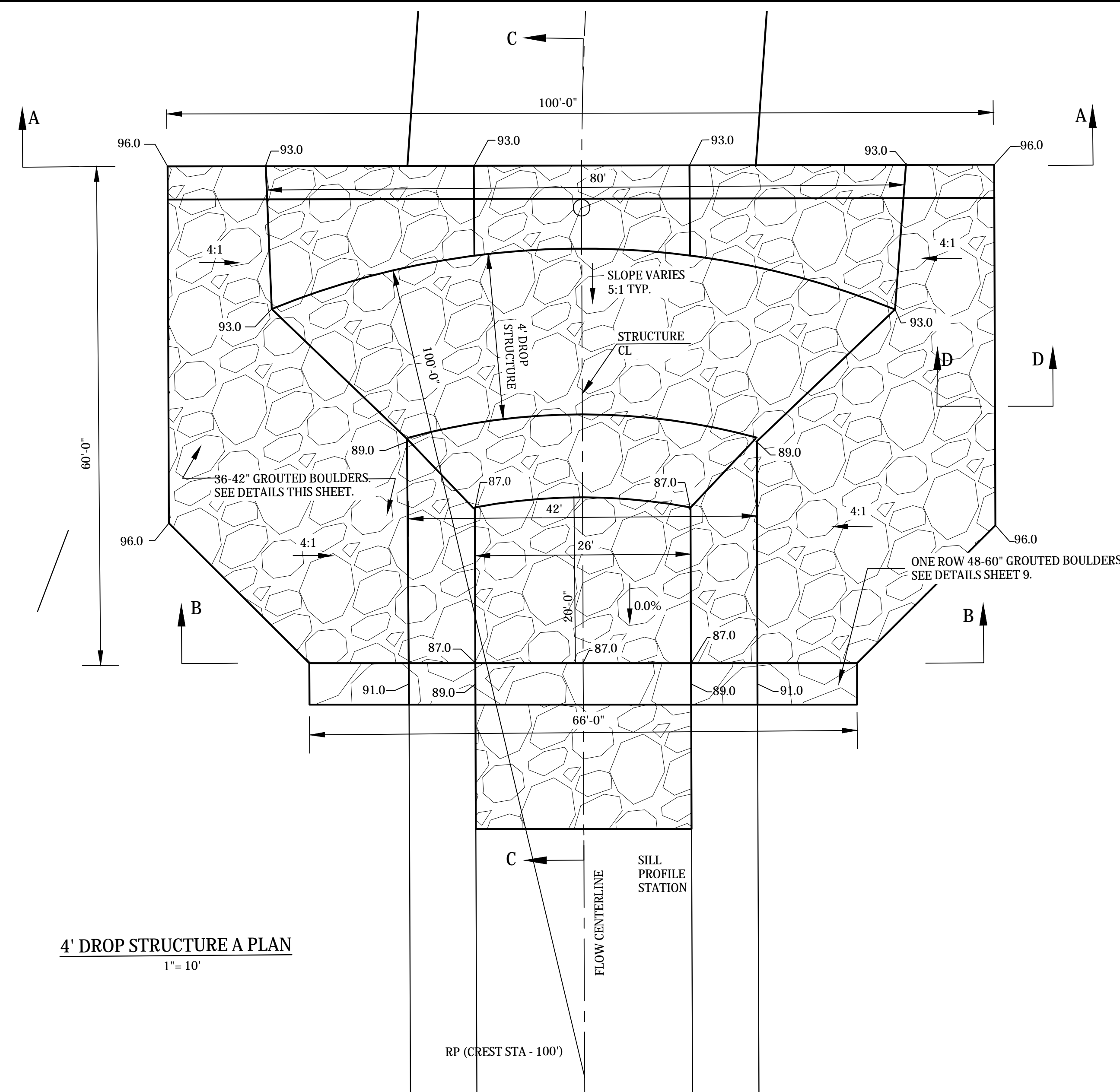
TYPICAL GUARDRAIL LAYOUT BRIARGATE BLVD
1"= 2'



Know what's below.
Call before you dig.

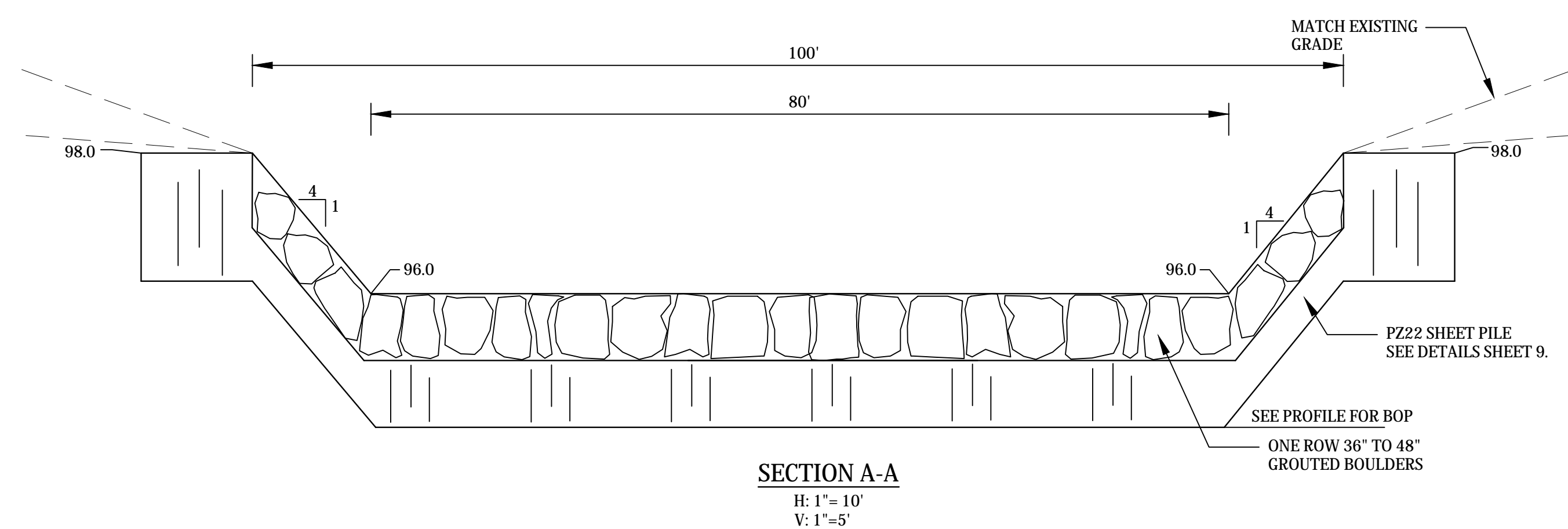
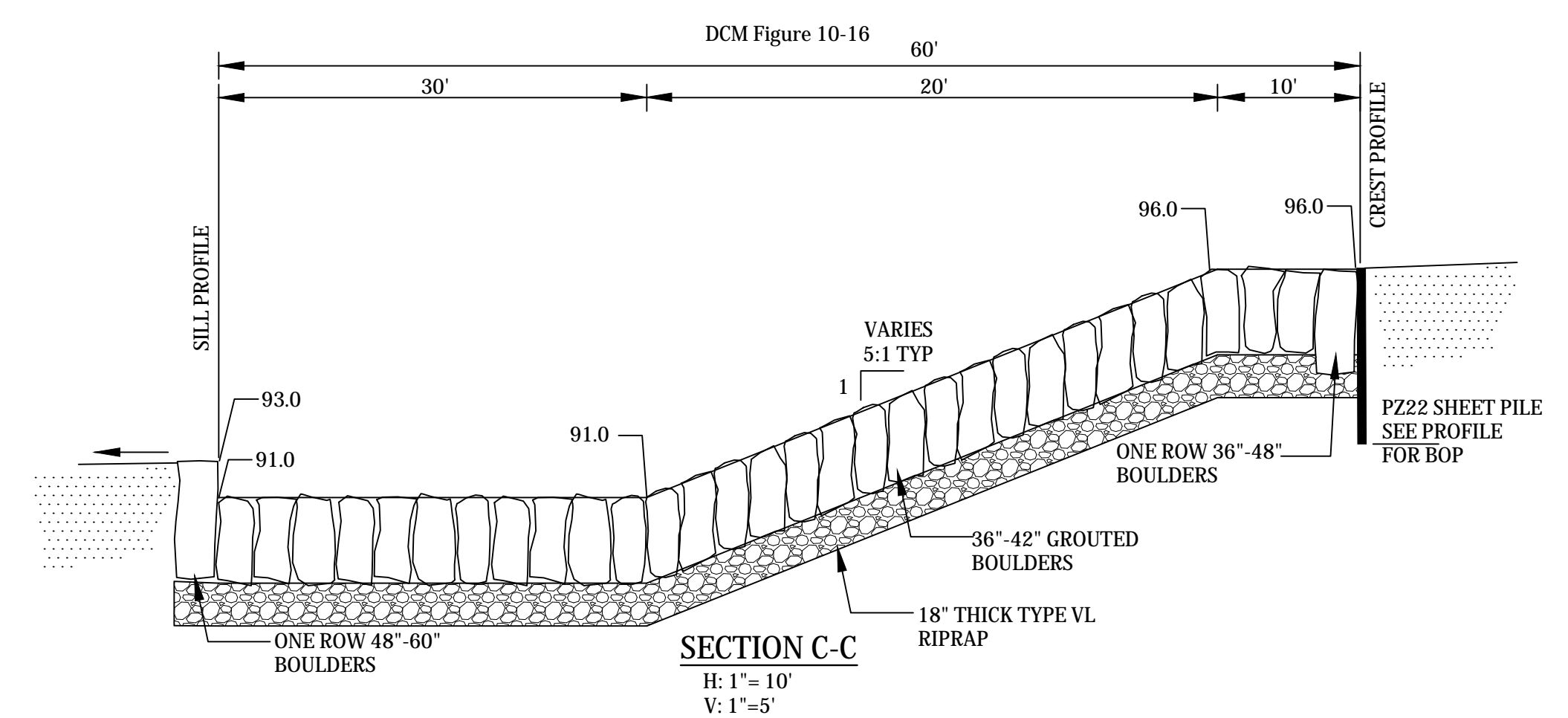
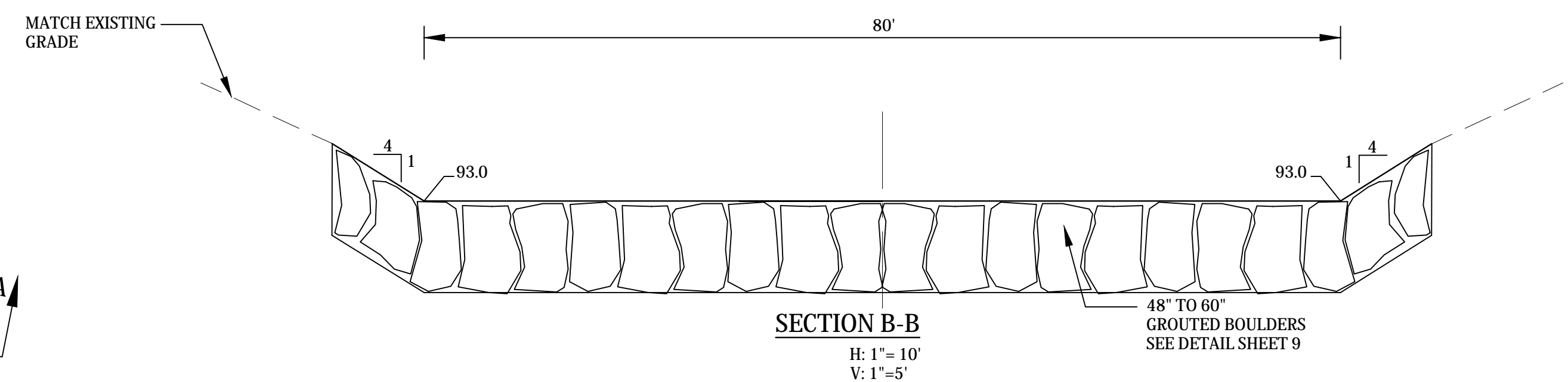
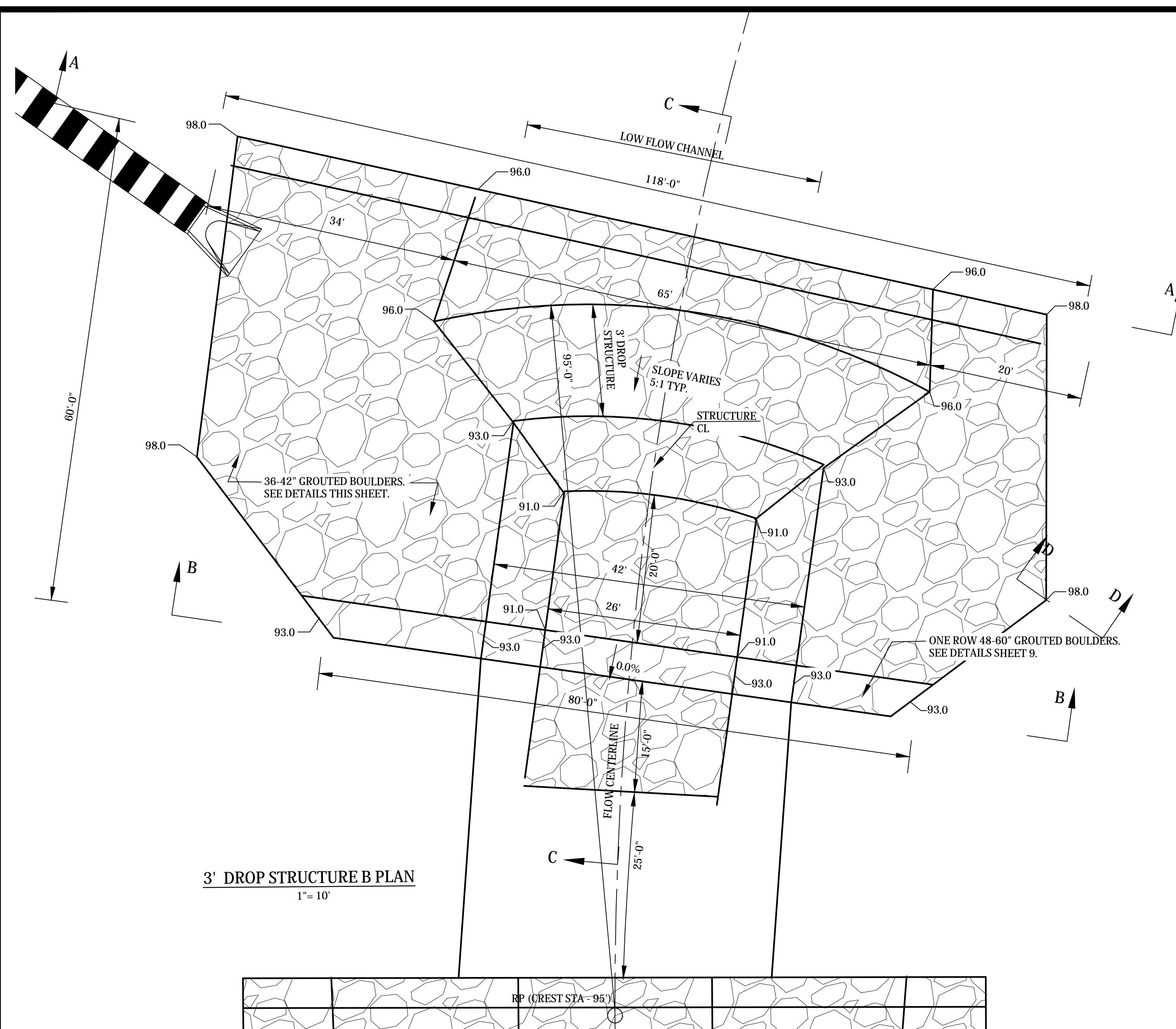
Project No.:	19032
Date:	8/4/21
Design:	TAC
Drawn:	PAV
Check:	
Revisions:	





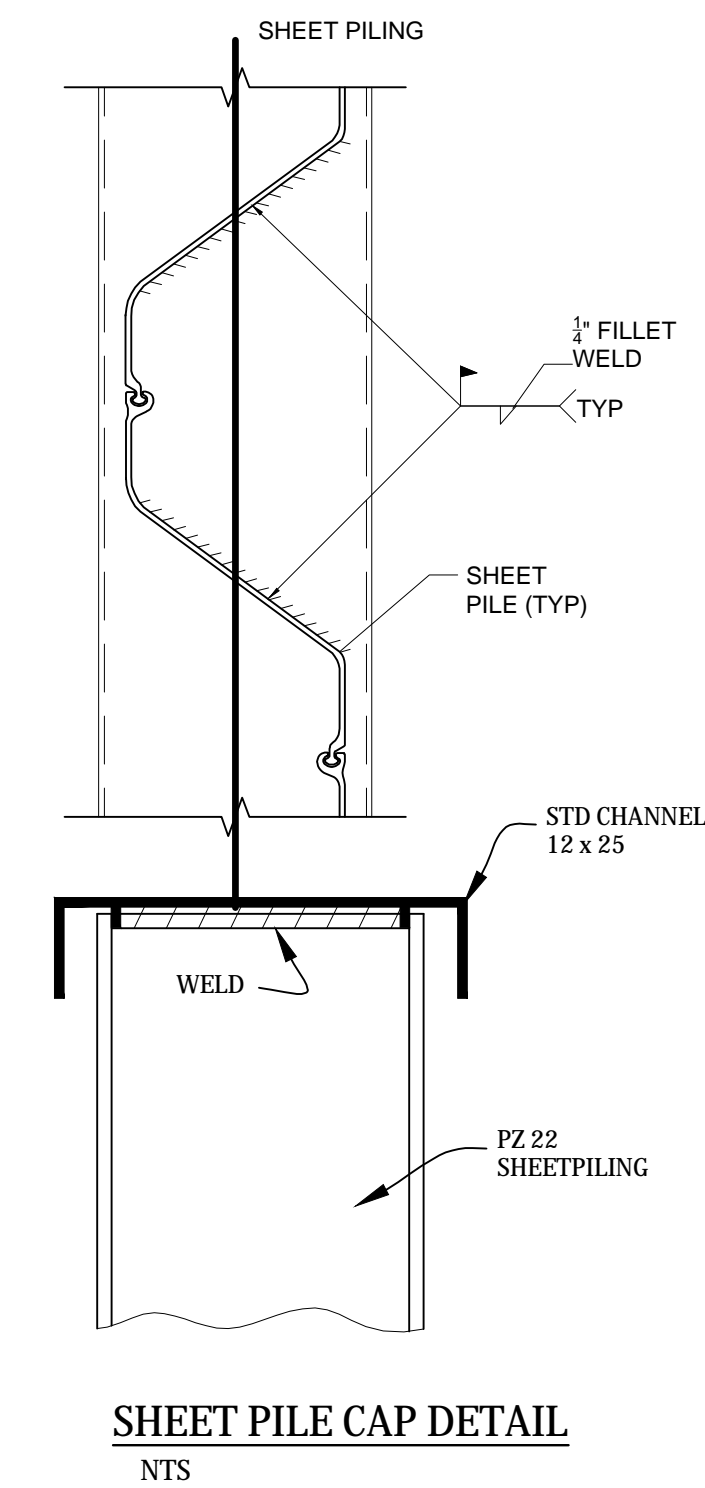
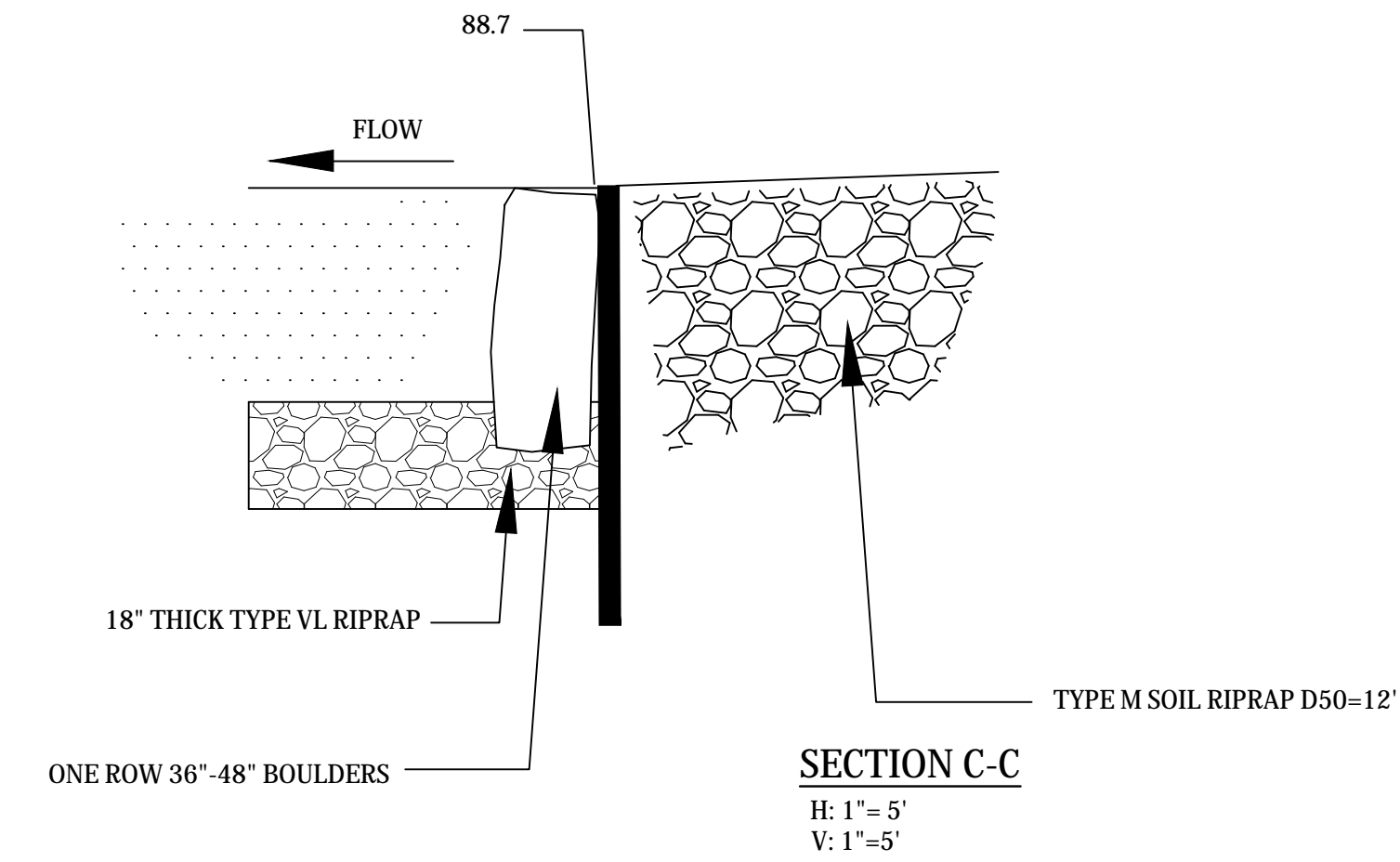
**STERLING RANCH DEVELOPMENT
BRIARGATE BOULEVARD BRIDGE DESIGN PLANS
4' DROP STRUCTURE A DETAILS
EL PASO COUNTY, COLORADO**

Project No.:	19032
Date:	8/4/21
Design:	TAC
Drawn:	PAV
Check:	
Revisions:	



**STERLING RANCH DEVELOPMENT
BRIARGATE BOULEVARD BRIDGE DESIGN PLANS
3' DROP STRUCTURE B DETAILS
EL PASO COUNTY, COLORADO**

Project No.:	19032
Date:	8/4/21
Design:	TAC
Drawn:	PAV
Check:	
Revisions:	



**STERLING RANCH DEVELOPMENT
BRIARGATE BOULEVARD BRIDGE DESIGN PLANS
DROP STRUCTURE DETAILS
EL PASO COUNTY, COLORADO**

Project No.:	19032
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