

MY GARAGE @ NORTHCREST

COMMERCIAL CONSTRUCTION DRAWINGS

RECORD DRAWINGS

PREPARED FOR K&S DEVELOPMENT, LLC

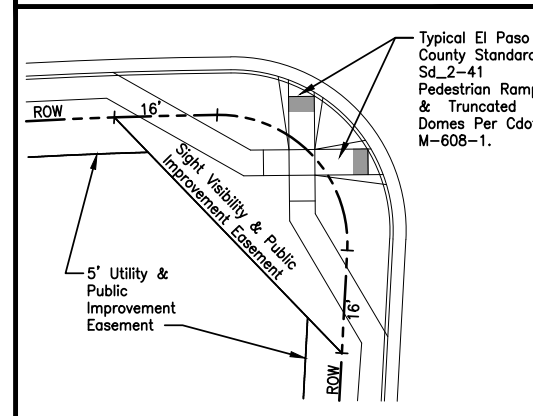
STANDARD NOTES EL PASO COUNTY CONSTRUCTION PLANS

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 soils and geotechnical report, and the appropriate design and construction standards and specifications at the job site at all times, including the following:
 - a. El Paso County Engineering Criteria Manual (ECM)
 - b. City of Colorado Springs/El Paso County Drainage Criteria Manual, Volumes 1 and 2
 - c. Colorado Department of Transportation (CDOT) Standard Specifications for Road and Bridge Construction
 - d. 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 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.
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 (PCD) - Inspections, prior to starting construction.
7. 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.
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. All public storm drain pipe shall be Class III RCP unless otherwise noted and approved by PCD.
10. 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.
11. All construction traffic must enter/exit the site at approved construction access points.
12. Signing and striping shall comply with El Paso County DOT and MUTCD criteria. [If applicable, additional signing and striping notes will be provided.]
13. Contractor shall obtain any permits required by El Paso County DOT, 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 owner/developer shall obtain written permission and easements, where required, from adjoining property owner(s) prior to any off-site disturbance, grading, or construction.

ABBREVIATIONS

ASSY = Assembly	NTS = Not To Scale
BNDY = Boundary	OD = Outside Diameter
BOP = Bottom Of Pipe	PC = Point Of Horizontal Curvature
CL = Centerline	PP = Proposed
CRA = Concrete Reverse Anchor	PT = Point Of Horizontal Tangency
CTRB = Concrete Thrust Block	PVC = Poly Vinyl Chloride Pipe
CR = Point Of Curve Return	PVC = Point Of Vertical Curvature
DIP = Ductile Iron Pipe	PVI = Point Of Vertical Intersection
EL = Elevation	PVT = Point Of Vertical Tangency
ESMT = Easement	RCB = Reinforced Concrete Box
EX = Existing	RCP = Reinforced Concrete Pipe
FC = Face Of Curb	ROW = Right Of Way
FES = Flared End Section	RT = Right
FLG = Flange	SHIT = Sheet
FL = Flowline	SS = Sanitary Sewer
GB = Grade Break	STA = Station
HP = High Point	STD = Standard
HORIZ = Horizontal	TA = Top Of Asphalt
HYD = Hydrant	TC = Top Of Curb
I.D. = Inside Diameter	TOP = Top Of Pipe
LT = Left	TYP = Typical
LF = Linear Feet	VC = Vertical Curve
LP = Low Point	VERT = Vertical
MAX = Maximum	
MH = Manhole	

TYPICAL PUBLIC IMPROVEMENT EASEMENT

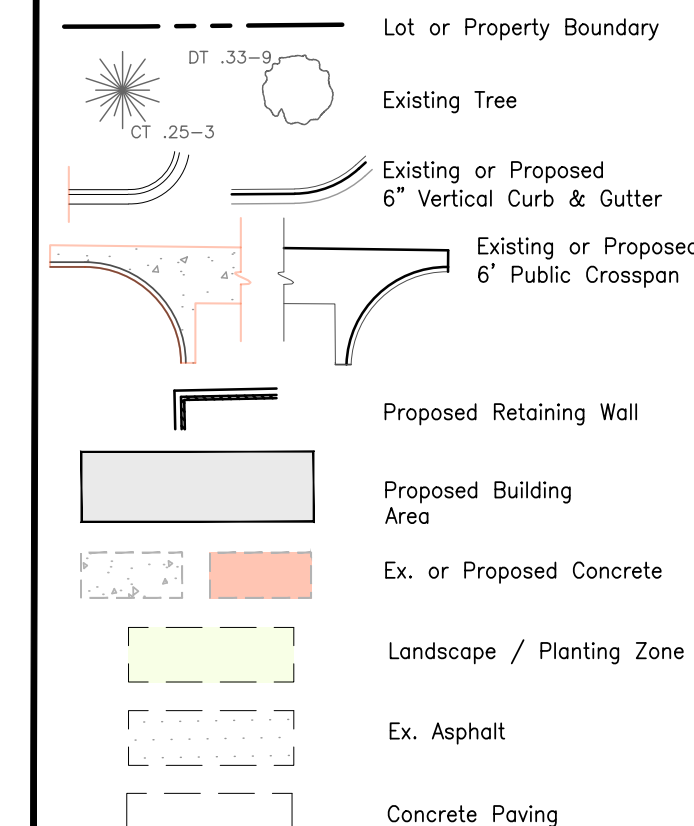


INDEX OF SHEETS

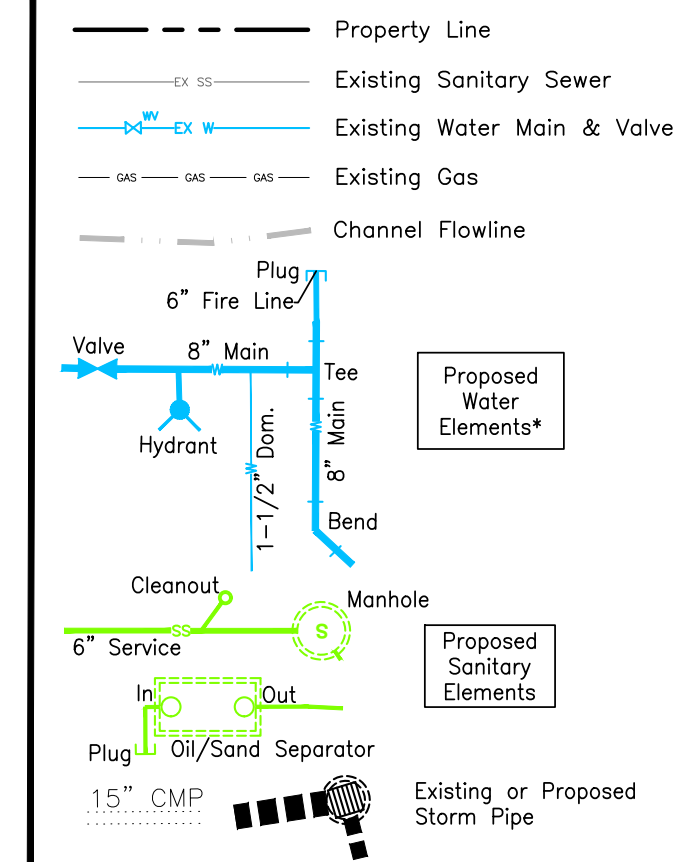
My Garage @ Northcrest

C100	Cover Sheet	RECORD DRAWING
C300	Grading and Erosion Control Cover Sheet	
C301	Grading and Erosion Control Initial Conditions	
C302	Grading and Erosion Control Interim Conditions	
C303	Grading and Erosion Control Final Conditions	RECORD DRAWING
C304	Grading and Erosion Control Details	
C305	Grading and Erosion Control Details	
C306	Grading and Erosion Control Details	
C307	Grading Area Plan Grading Area Detail 'A' thru 'D'	
C308	Grading Area Plan Grading Area Detail 'A'	
C309	Grading Area Plan Grading Area Detail 'B'	
C310	Grading Area Plan Grading Area Detail 'C'	
C311	Grading Area Plan Grading Area Detail 'D'	
C400	Utility Plan - Cover Sheet	
C400	Water Plan - Cover Sheet	
C401	Utility Plan - Private Water & Sanitary Sewer	
C402	Utility Plan - Private Water Main 'A' - Plan & Profile	
C403	Utility Plan - Private Sanitary Services 'A' thru 'C'	
C501	Private Storm Sewer Plan & Profile	
C601	Site Detail Plan - Site Details	RECORD DRAWING
C602	Site Detail Plan - Site Details	RECORD DRAWING
C603	Stormwater Plan - Detention Facility	RECORD DRAWING
C604	Stormwater Plan - Details	RECORD DRAWING

SITE LEGEND



UTILITIES LEGEND



*Proposed 8" Pvc Water Main (dr 18) with MJ Fittings (unless otherwise noted)

- Note:
1. Minimum Radius Shown For Water Main = 290' Per WWSO Specifications and El Paso County ECM 4.3.6.a.1&2, The Minimum Cover for Water Main & Services and Sanitary Sewer Mains & Services is 5 feet.
 2. Streetlight locations are pending and are not a part of this submittal.
 3. Gas - All Gas Mains and Services are to be installed per the city of Colorado Springs.

Kiowa Project No. 23049
June 17, 2024
July 30, 2026 Record Drawings

Engineer or record drawings must be stamped and signed by the EOR on all pages. Original signed CDs to be used. Approved plans can be downloaded from EDARP under PPR2412

The revisions shall be shown on a copy of the original approved construction plans that are filed with the County. Engineering Record Drawings submitted for County review may be the same drawings as the original approved plan drawing if no substantial variation to the original approved design occurred.

Each sheet of the record drawings shall be designated as "Engineering Record Drawings" and signed and dated by the engineer of record.

DEVELOPER:
LEISURE CONSTRUCTION, LLC
3442 Tampa Road, Suite B
Palm Harbor, FL 34684
(727) 242-5121

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

PREPARED BY:
Kiowa
Engineering Corporation
1604 South 21st Street
Colorado Springs, Colorado 80904
(719) 630-7342
PCD File No. **SP-22-024**

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.

Andrew W. McCord, P.E. #25057
For and on behalf of Kiowa Engineering Corp.

Owner/Developer's Statement:

I, the owner/developer have read and will comply with all of the requirements of the grading and erosion control plan and all the requirements specified in these detailed plans and specifications.

Sean Edwards, President
Leisure Construction, LLC
3442 Tampa Road, Suite B
Palm Harbor, FL 34684

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.

Josh Palmer, P.E.
County Engineer / ECM Administrator

UTILITY APPROVALS

WATER AND SEWER MAIN EXTENSIONS

Any changes or alterations affecting the grade, alignment, elevation and/or depth of cover of any water or sewer mains or other appurtenance shown on this drawing shall be the responsibility of the Owner/Developer. The Owner/Developer shall be responsible for all operational damages and defects in installation and material for mains and services from the date of approval until final acceptance is issued.

Signed _____ Date _____
Cimarron Hills Fire Department

Print Name _____

DBA: LEISURE CONSTRUCTION

Address: LEISURE CONSTRUCTION, LLC
3442 Tampa Road, Suite B
Palm Harbor, FL 34684
Ph: (727) 242-5121

FIRE AUTHORITY APPROVAL

The number of fire hydrants and hydrant locations shown on this water installation plan are correct and adequate to satisfy the fire protection requirements as specified by the Fire District serving the property noted on the plans.

Cimarron Hills Fire Department

Signed _____ Date _____

DISTRICT APPROVALS

The Cheyenne Metro District recognizes the design engineer as having responsibility for the design. The Cheyenne Metro District has limited its scope of review accordingly.

CHEROKEE WATER AND SANITATION METRO DISTRICT WASTEWATER DESIGN APPROVAL

Date: _____ By: _____

In case of errors or omissions with the sewer design as shown on this document the standards as defined in the "Rules and Regulations for Installation of Sewer Mains and Services" shall rule. Approval expires 180 days from Design Approval.

CHEROKEE WATER AND SANITATION METRO DISTRICT WATER DESIGN APPROVAL

Date: _____ By: _____

In case of errors or omissions with the sewer design as shown on this document the standards as defined in the "Rules and Regulations for Installation of Sewer Mains and Services" shall rule. Approval expires 180 days from Design Approval.

GOVERNING AGENCIES

El Paso County Planning & Community Development Department
2880 International Circle Suite 110
Colorado Springs Colorado
(719) 520-6300

Black Hills Energy
1896S Bas Camp Road Unit A7
Monument Colorado
(719) 359-0586

Cherokee Metro District
6250 Palmer Park Blvd.
Colorado Springs, Colorado
(719) 597-5080

Mountain View Electric Association
11140 East Woodmen Road
Falcon, Colorado
(719) 495-2283



PA Punchlist Item:
"Trapezoidal swale. Plans call for grass lined swale. Contractor is wanting to install riprap swale."

As-Built comment: please shoot me an email if the contractor decided to leave this as grass lined. Otherwise redline this as riprap if that's what the contractor did in the field. We'll also need calcs to show that the riprap is sufficiently sized for the flows.

FINAL GRADING LEGEND

- IP Interim/Final Inlet Protection
- RS Interim/Final Rock Sock(s) (count)
- STB Interim/Final Straw Bale Barrier / Dyke
- Final Permanent Seeding And Landscaping
- Limits Of Soil Disturbance/ Limits Of Construction
- Property Line
- 5925 Existing Contour
- 5925 Proposed Contour
- Emergency Overflow Path
- Existing Sanitary Sewer
- Existing Water
- Existing Gas
- Channel Flowline
- Proposed Water Elements
- Proposed Sanitary Elements
- 15" CMP Existing or Proposed Storm Pipe
- Spot Elev. High Point
- Spot Elev. Low Point
- Ex. or Proposed Flow Direction
- Lot or Property Boundary
- Existing Intermediate Contour
- Existing Index Contour
- Existing Intermediate Contour
- Existing Index Contour
- Existing Tree
- Existing 6" Vertical Curb & Gutter
- Proposed Building Area
- Ex. or Proposed Conc Sawk
- Concrete Paving
- Cobble Landscaping

SEED MIX

AREAS DISTURBED BY THE EARTHWORK ACTIVITIES AND NOT RECEIVING OTHER TREATMENT SHALL BE PERMANENTLY REVEGETATED WITH THE FOLLOWING SEED MIX.

SPECIES	VARIETY	lbs/acre
SIDEOTS GRAMA	El Reno	3.0
WESTERN WHEAT GRASS	Barton	2.5
SLENDER WHEAT GRASS	Native	2.0
LITTLE BLUESTEM	Pastura	2.0
SAND DROPSEED	Native	0.5
SWITCH GRASS	Nebraska 28	3.0
WEERING LOVE GRASS	Moravia	1.0

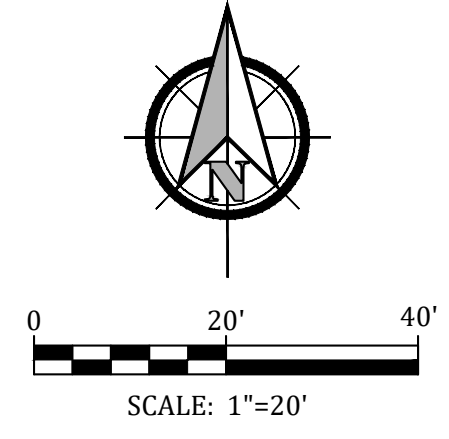
SEEDING APPLICATION: DRILL SEED 1/4" TO 1/2" INTO TOPSOIL. IN AREAS INACCESSIBLE TO A DRILL, HAND BROADCAST AT DOUBLE THE RATE AND RAKE 1/4" TO 1/2" INTO THE TOPSOIL. MULCHING APPLICATION: 1-1/2 TONS NATIVE HAY PER ACRE, MECHANICALLY CRIMPED INTO THE TOPSOIL.

EROSION CONTROL INSPECTION AND MAINTENANCE

A Thorough Inspection of the Erosion Control Plan/Stormwater Management System shall be performed every 14 days as well as after any rain or snowmelt event that causes Surface Erosion:

- When Silt Fences have silted up to half their height, the silt shall be removed, final grade re-established and slopes re-seeded, if necessary.
- Any silt fence that has shifted or decayed shall be repaired or replaced.
- Any Accumulated Trash or debris shall be removed from outlets.

An inspection and maintenance log shall be kept.



Kiowa

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

My Garage @ Northcrest

Grading Erosion Control Plan

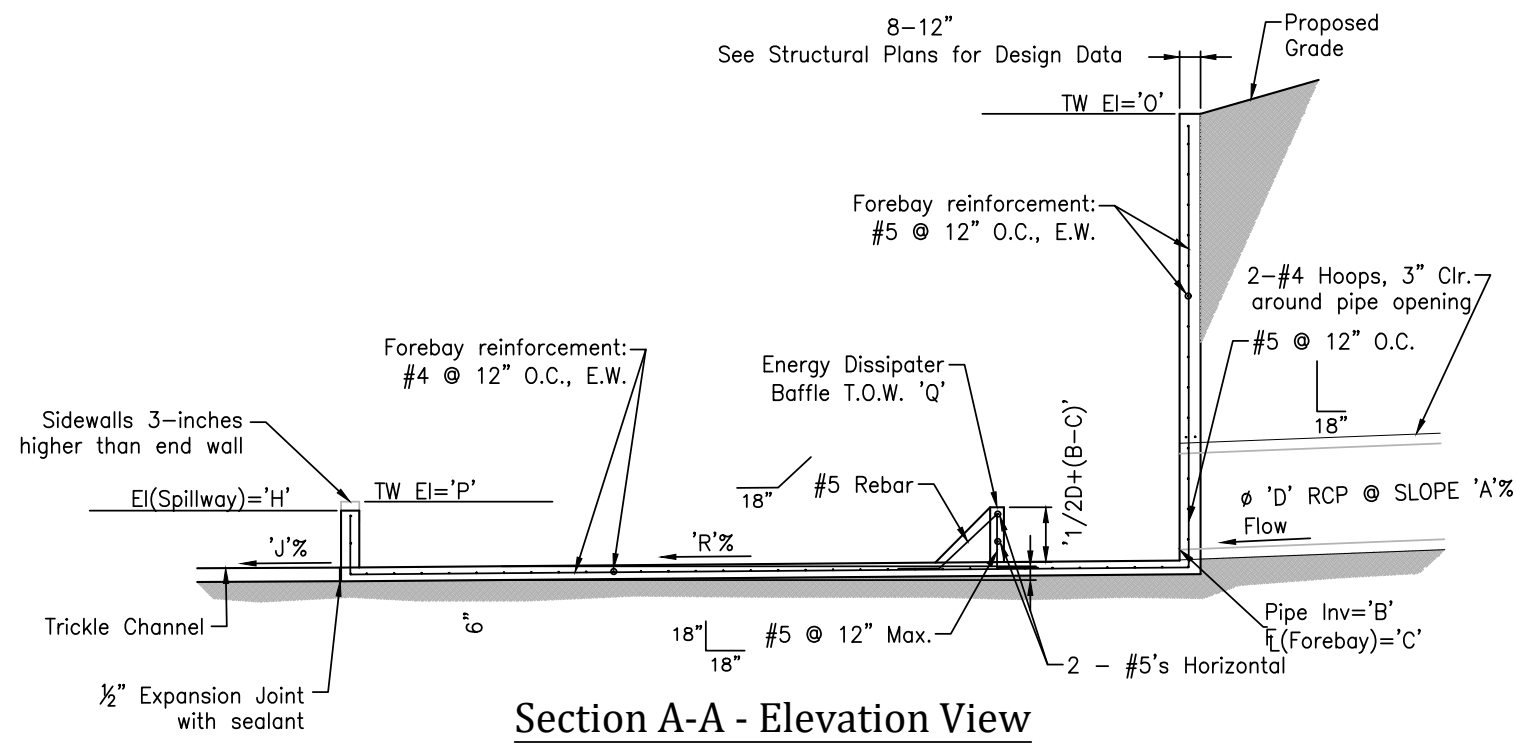
Final Conditions Plan
El Paso County, Colorado

Project No.: 23049
Date: 08/22/2024
Design: MJK
Drawn: MJK
Check: AMcC
Revisions:
AB RECORD DWGS 7/30/26

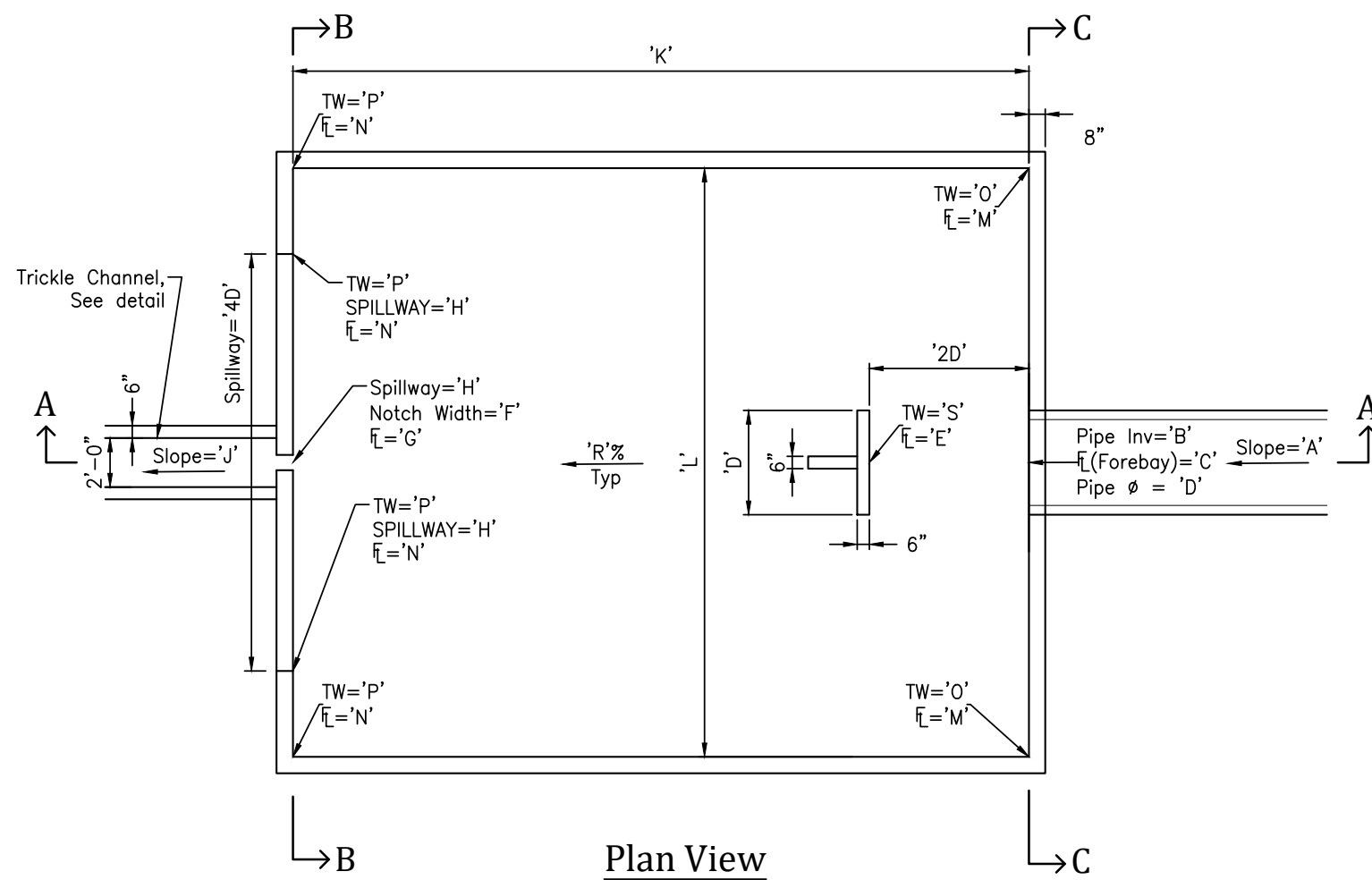
Sheet

C303

5 of 22 Sheets



Section A-A - Elevation View

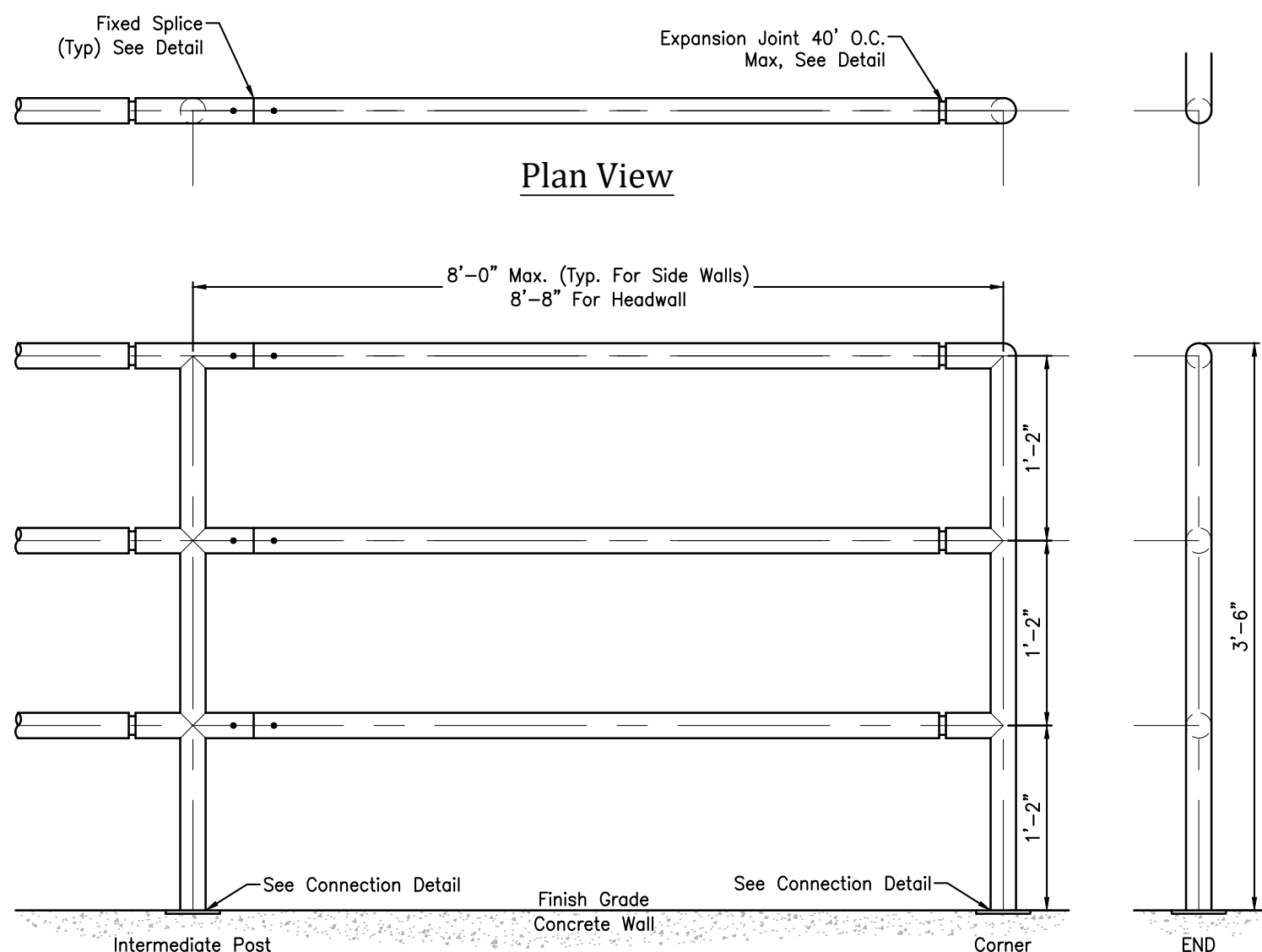


Plan View

1 Forebay Details
C602 NOT TO SCALE

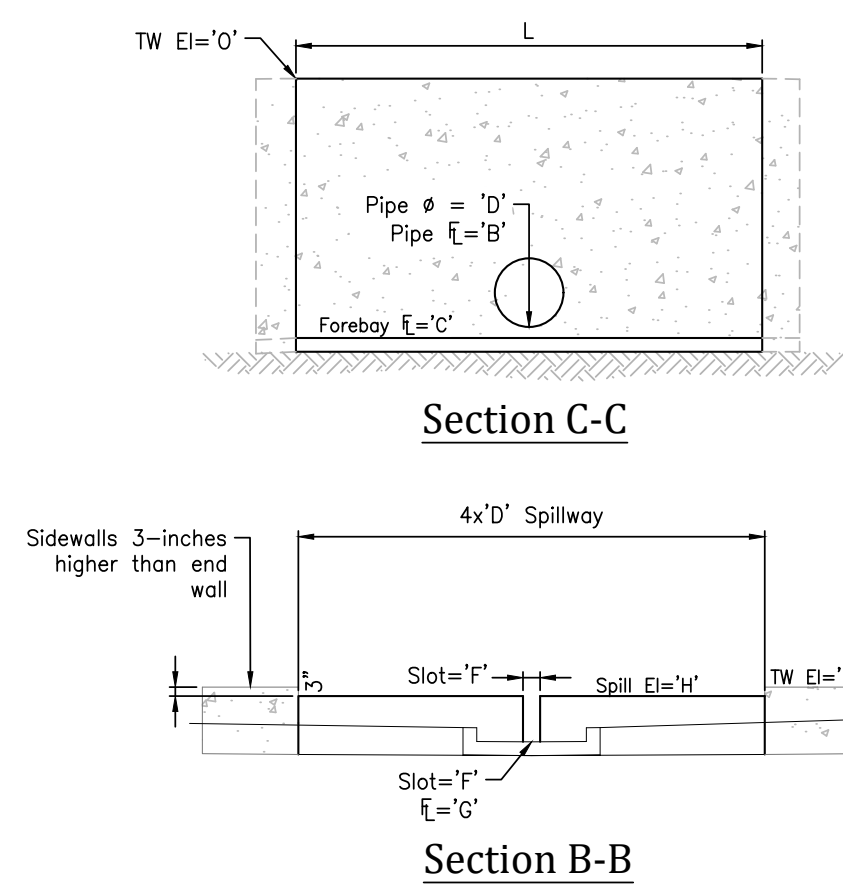
Pedestrian Railing/Handrail Notes:

1. All handrail shall be fabricated with new 1-1/2" (1-7/8" od) diameter standard weight steel pipe.
2. Weld all pipe joints with 1/8" reinforced welds and dress smooth.
3. Corners and edges of all bars, plates and pipe ends shall be sanded smooth and free of burrs.
4. All handrail material required for complete installation shall be provided.
5. Handrail finish shall be one coat metal primer and two coats Sherwin Williams bridge green. color shall be verified by County.
6. Contractor to field verify dimensions prior to fabrication.



Elevation View

5 Pedestrian Railing/Handrail
602 NOT TO SCALE



Section C-C

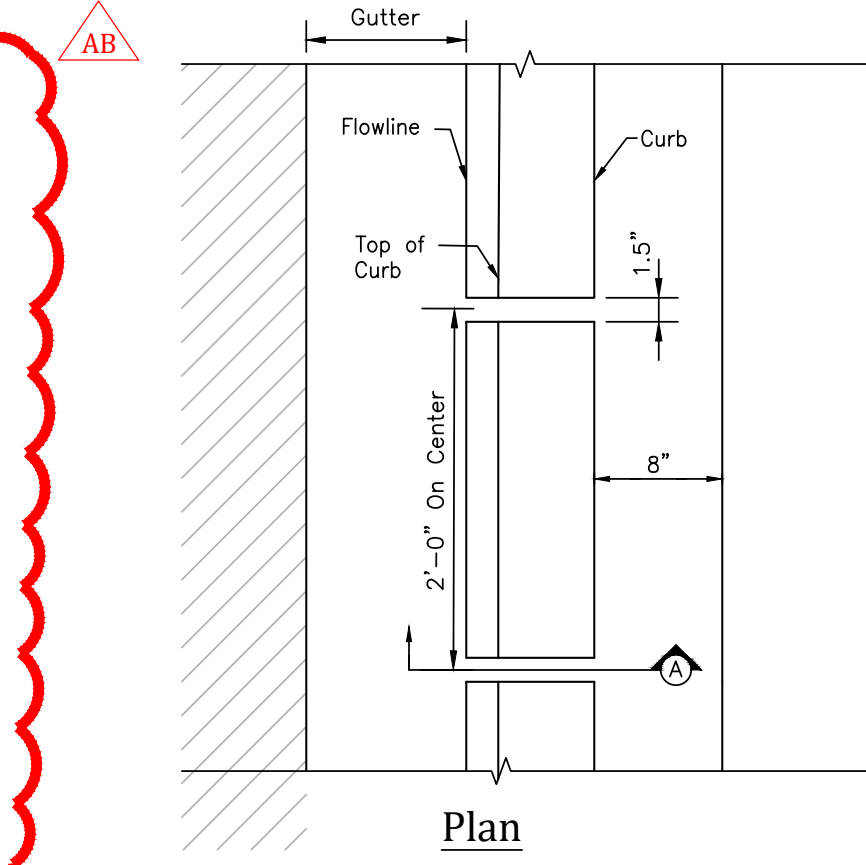
Section B-B

STRUCTURE NOTES:

1. Prior to construction, Contractor to provide Shop Drawings for all components of outlet structure, forebays and overflow wall.
2. Grade 60 reinforcing steel required. See table for the minimum lap splice length for reinforcing bars. All reinforcing steel shall have 2-inch minimum clearance from edge of concrete and 3-inch min. clearance to the edge of concrete placed against soil, unless otherwise noted.
3. Concrete for the outlet structure and forebays shall be CDO Class D Concrete.
4. Expansion joint material shall meet AASHTO specification M-213. Expansion joint material shall be 1/2" thick, shall extend the full depth of contact surface and the joint shall be sealed, refer to details.
5. All exposed concrete corners shall have a 3/4-inch chamfer, unless otherwise noted.
6. Backfilling against walls shall not commence until concrete has obtained its full seven day strength.
7. Subgrade to be 12" thick clean fill compacted to 95% Standard Proctor Density per ASTM M698 under structures.
8. Outlet structure steps shall conform to AASHTO M199.
9. Forebay: Construction joints shall be installed at 10' O.C. maximum. The joints shall be sealed with a joint sealant.

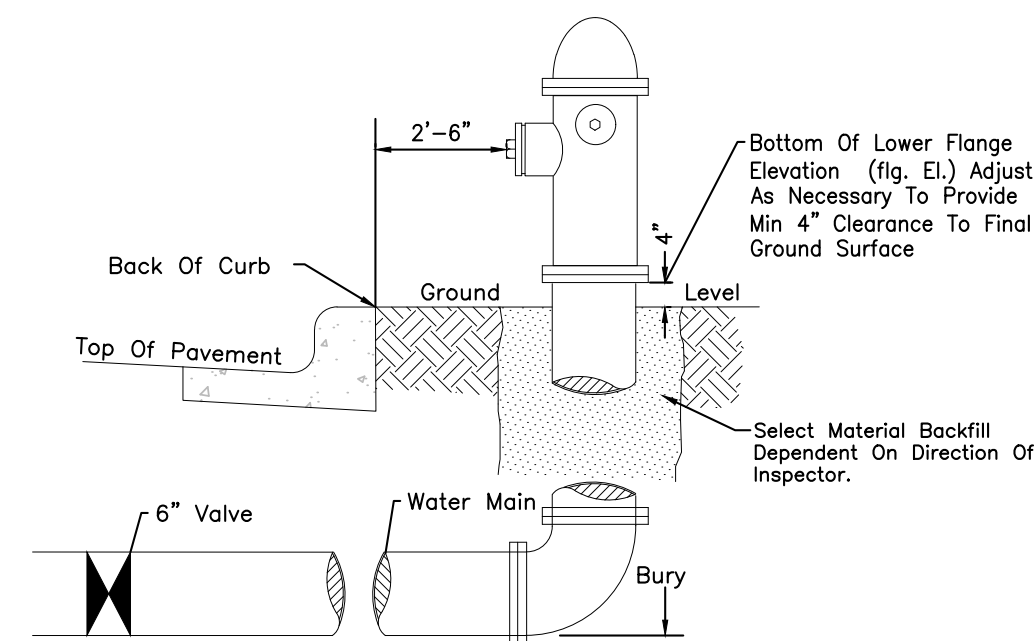
Variable	Presedimentation Forebay	Inflow One (D5)	Inflow Two (D6)
A	Pipe Slope %	2.00	0.60
B	Pipe Inv In	6510.00	6509.39 AB 6508.40 6508.29 AB
C	Forebay Inv In	6509.50	6509.39 AB 6508.07 6508.29 AB
D	Pipe Size (ft)	0.67	2.00
E	Baffle Face Inv		6508.03
F	Slot Width	2.50	3.00
G	Forebay Inv Out	6509.46 AB	6508.00 6508.18 AB
H	Spillway Inv	6510.21	6510.34 AB 6508.75 6509.10 AB
I	Spillway Top	6510.46	6509.00
J	Trickle Pan Slope	2.00	0.55
K	Forebay Length	4.00 AB	8.50 8.89 AB
L	Forebay Width	4.50 5.6 AB	8.50 16.5 AB
M	Toe of Wall	6509.50	6508.07
N	Toe of Wall	6509.46	6508.00
O	Top of Wall	6513.75	6513.83
P	Top of Wall	6510.46	6509.00
Q	Baffle Wall Top		6513.58
R	Forebay Slope %	1.00	0.60

AB



Plan

3 Slotted Curb
C602 NOT TO SCALE



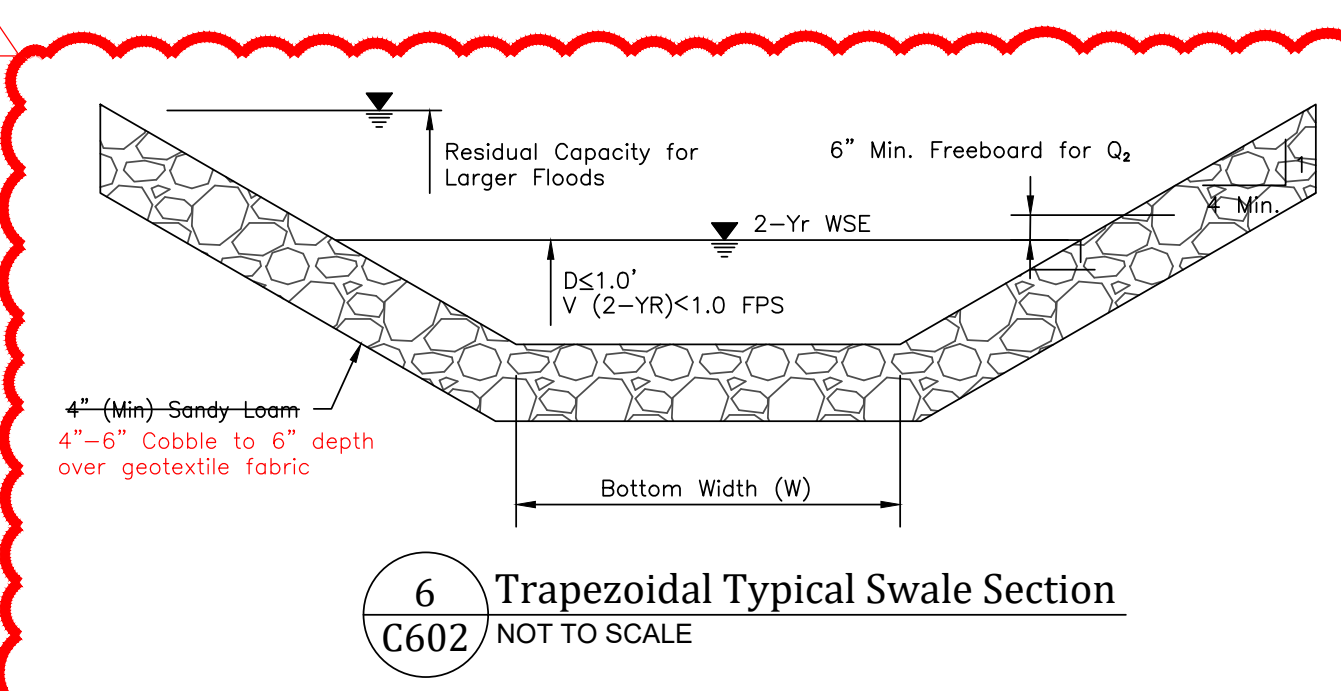
Fire Hydrant Detail

NOT TO SCALE

GENERAL NOTES:

1. Hydrant nozzles shall be positioned at right angles to curb. If no curb or sidewalk exists, nozzles shall be placed at right angle to street or alley.
2. Hydrants shall be placed a minimum of 5.0 feet from any utility or drainage structure.
3. Any hydrant being installed with conditions other than those mentioned and/or detailed below will require signed approval from the Widefield Water District and Security Fire District.
4. See Site Utility Plan for hydrant locations and flange elevations.
5. The upper exposed section of the hydrant above ground shall be painted rustoleum 659 yellow or equal. The buried portion of the hydrant shall be given a bituminous coating in accordance with Section 10-8.1 of AWA Standard C110.

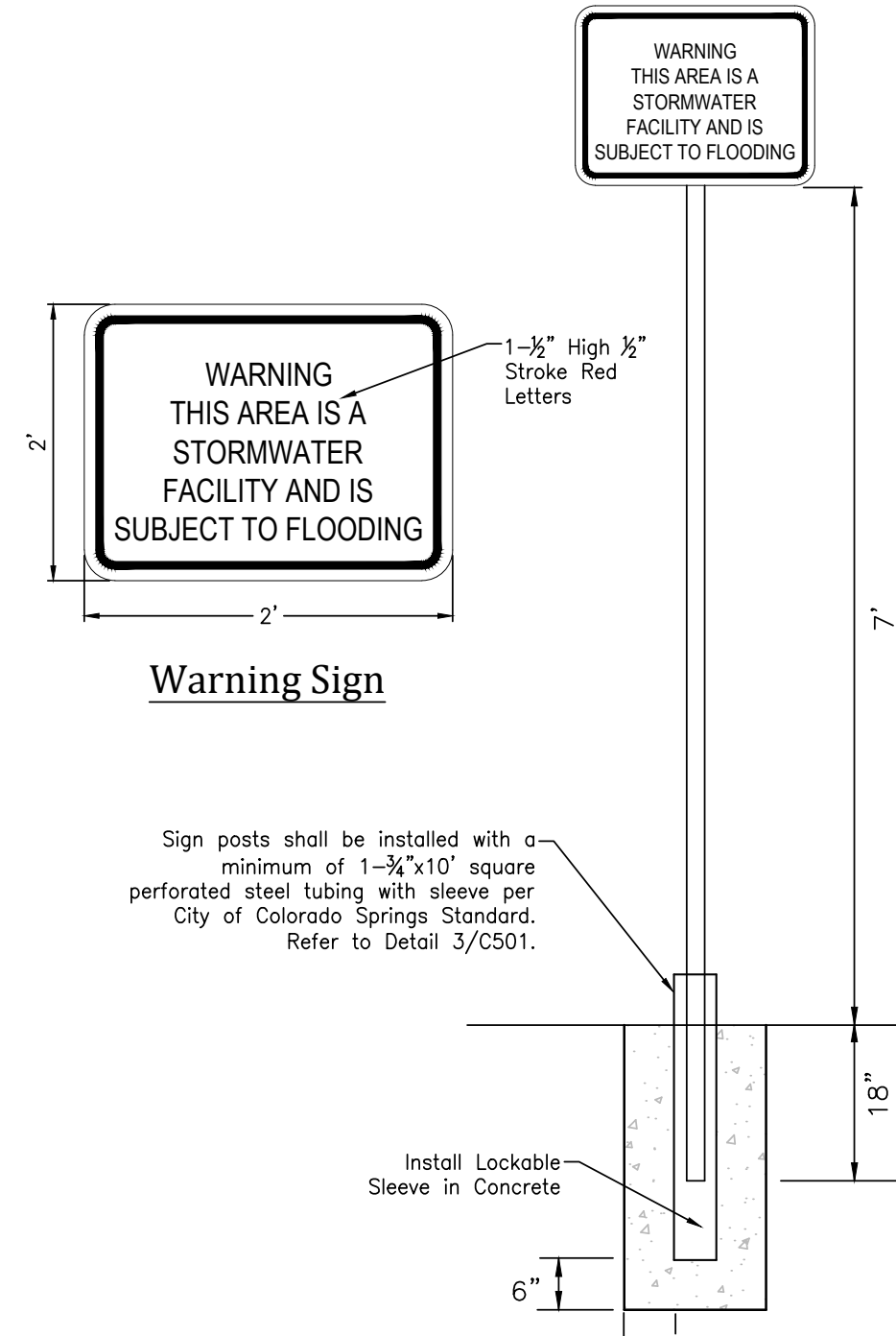
AB



6 Trapezoidal Typical Swale Section
C602 NOT TO SCALE

Subsequent To Stripping And Grubbing The Following Overlot/pipe Installation Procedures Are Anticipated For The Sanitary Sewer Located On Proposed Embankments:

- The Removal And Replacement Of Metastable Soil.
- Testing Of The Fill Subsequent To The Penetration Of The Metastable Soil Will Continue Until A Minimum Of 7 Feet Of Structural Fill Has Been Placed Above The Proposed Sewer Line Elevation.
- Utility Trenches Shall Be Excavated And Sanitary Sewer Line Installed. The Pipe Shall Be Properly Bedded And Structural Fill Placed And Tested To The Previous Grade.
- The Overlot And Embankment Fill Can Be Completed.
- Where The Sanitary Sewer Is Placed In Embankment Fill During The Overlot Process, Site Shall Monitor and Test All Work Associated with the Affected Portions.



Warning Sign

4 Detention Warning Sign
C602 NOT TO SCALE

To Ed's point with his comment on page 1 above, the whole point of as-builts is for engineers to certify that they have walked/surveyed the site and are confirming the subsequent redlines on these plans. This is similar to how an engineer signs/stamps the CDs pre-construction without this type of disclaimer, even though they may be relying on topo from a surveyor, shop drawings from a sub-contractor, etc.

THESE RECORD DRAWINGS HAVE BEEN PREPARED BASED ON INFORMATION SUBMITTED IN PART BY OTHERS. WHILE THIS INFORMATION IS BELIEVED TO BE RELIABLE, THE ENGINEER IS NOT RESPONSIBLE FOR ITS ACCURACY, NOR FOR ERRORS OR OMISSIONS, WHICH MAY HAVE BEEN INCORPORATED INTO THESE DOCUMENTS AS A RESULT.

My Garage @ Northcrest
Site Detail Plan - Record Drawings

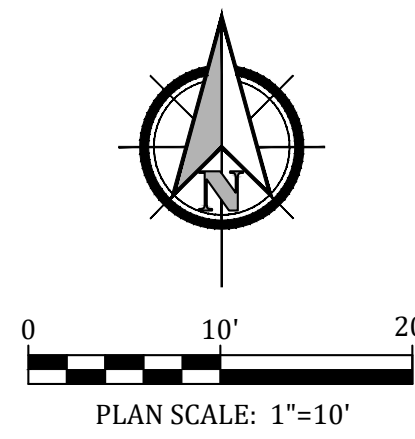
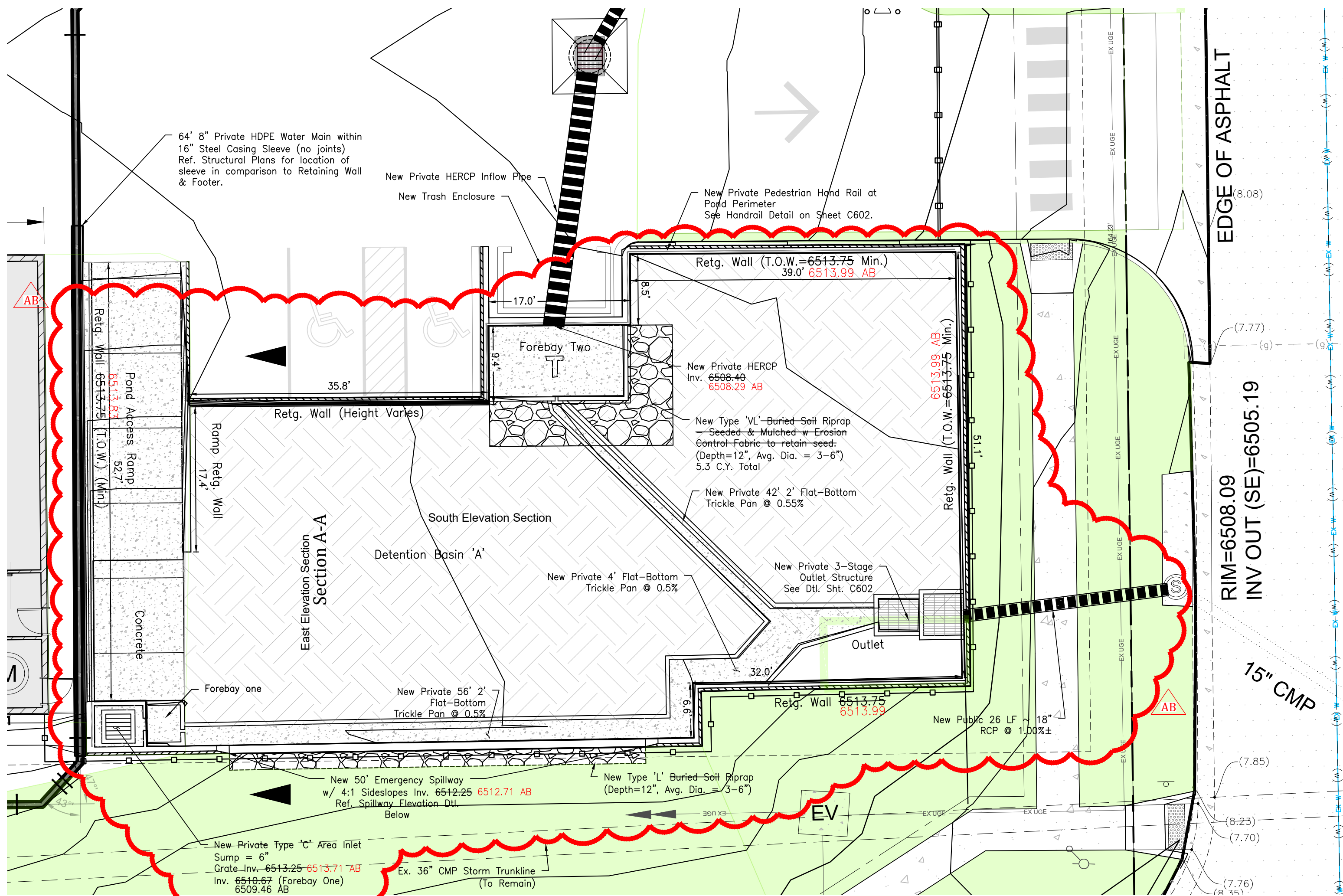
Site Details
El Paso County, Colorado

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

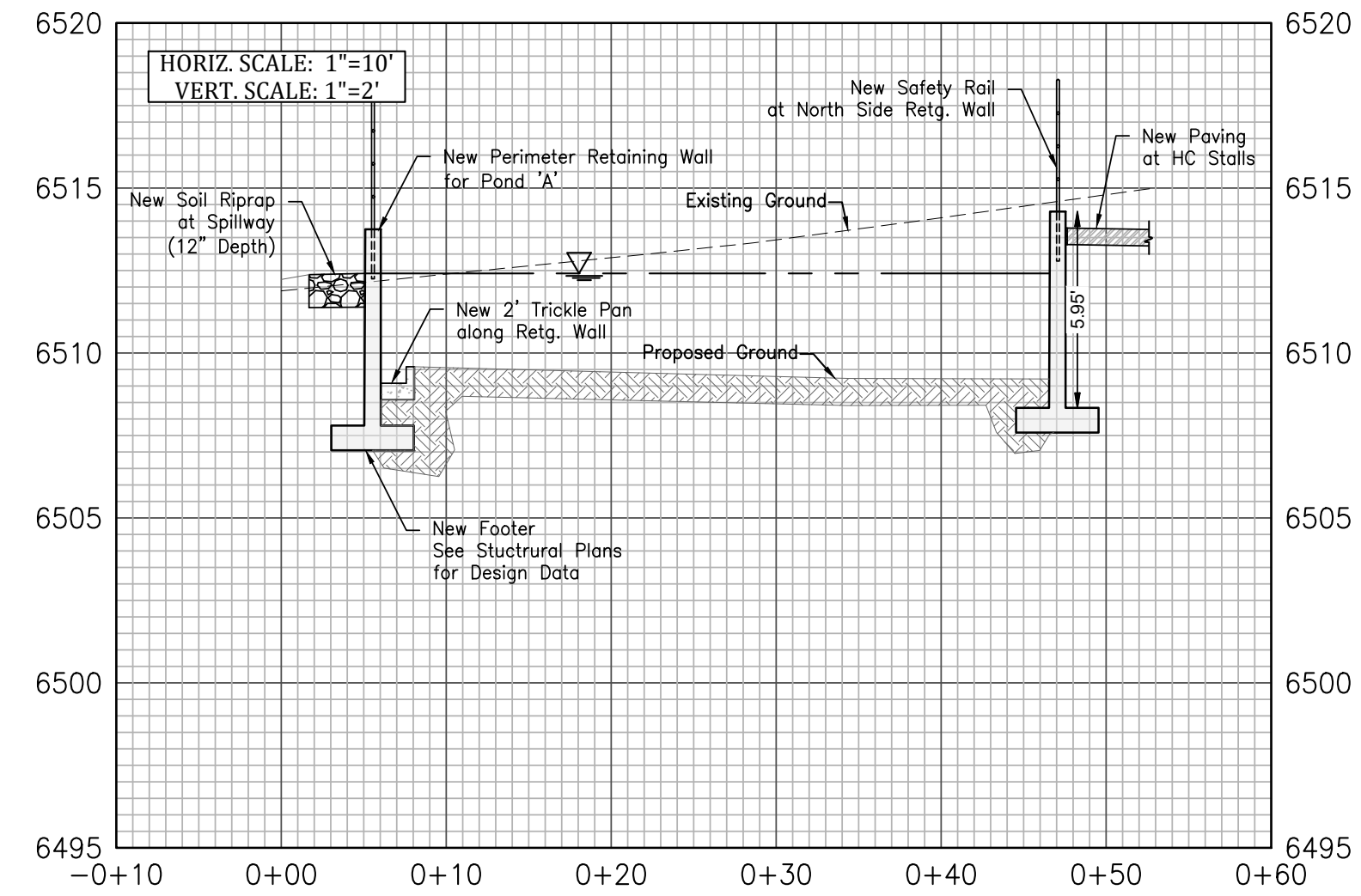
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Date: 08/02/2024
Design: MJK
Drawn: MJK
Check: AmC
Revisions:
AB RECORD DWGS 7/30/26

Sheet

C602

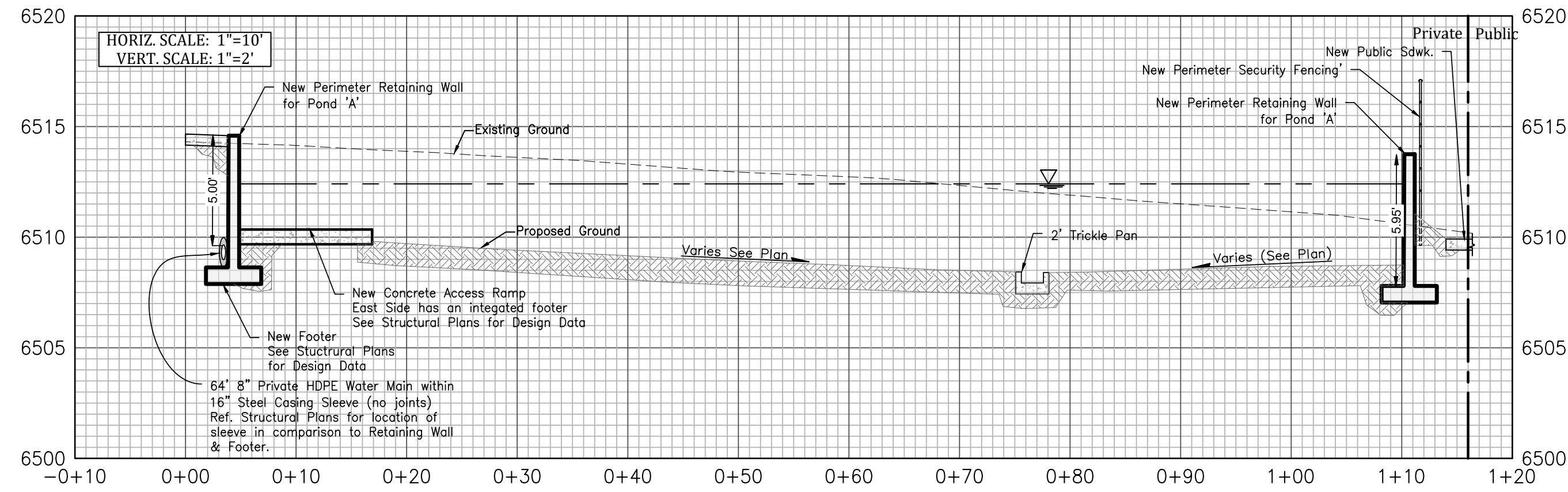


PROFILE VIEW OF POND ELEV EAST

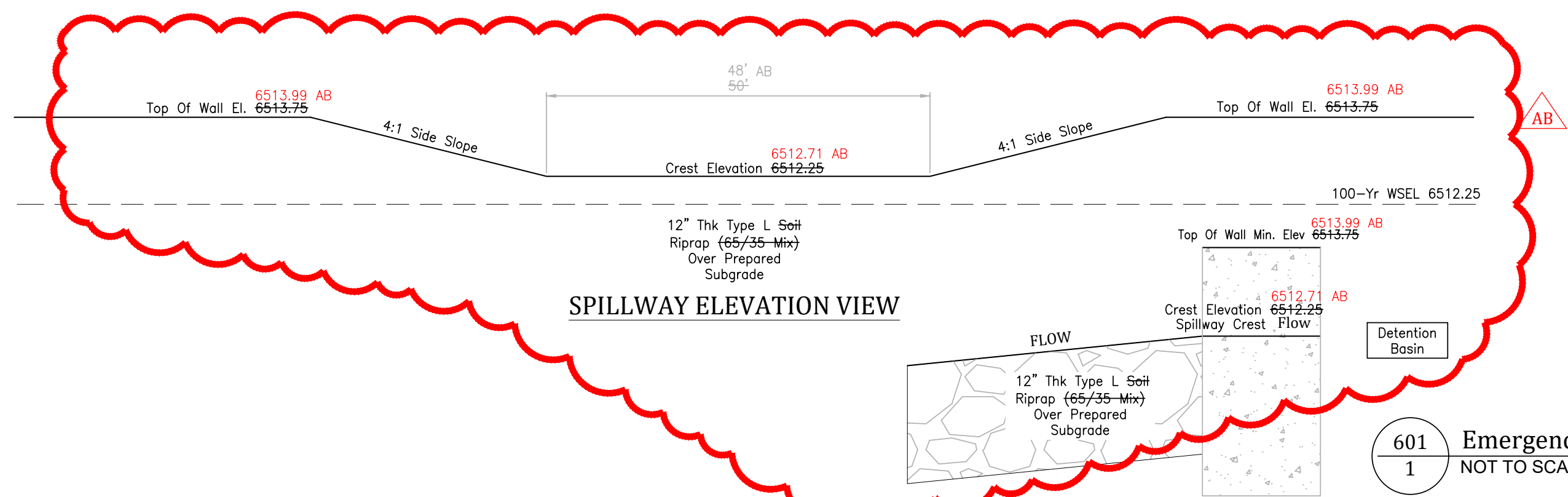
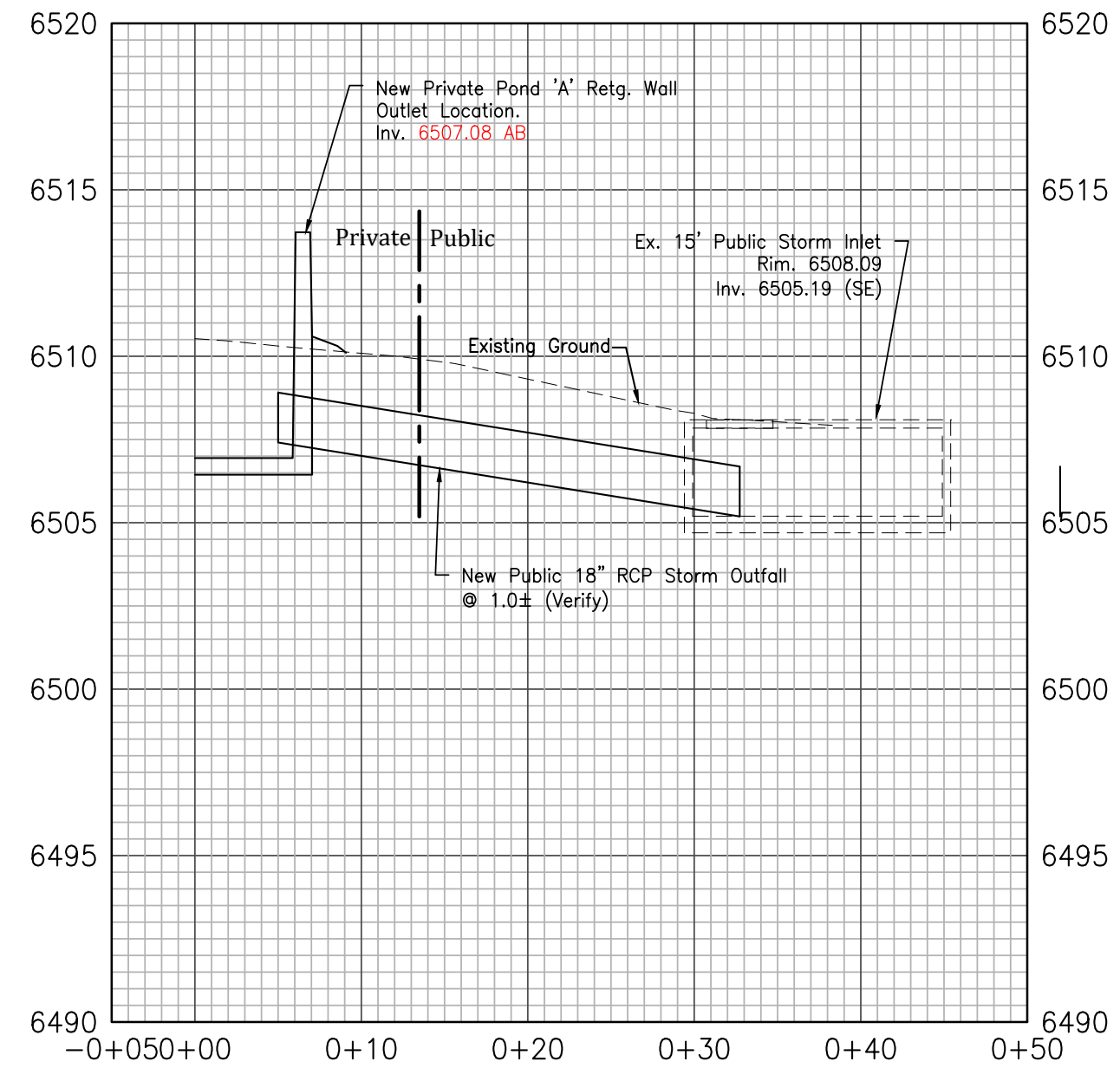


1
C601 Detention Basin Cross Sections
NOT TO SCALE

PROFILE VIEW OF POND ELEV SOUTH



PROFILE VIEW OF STORM OUTFALL



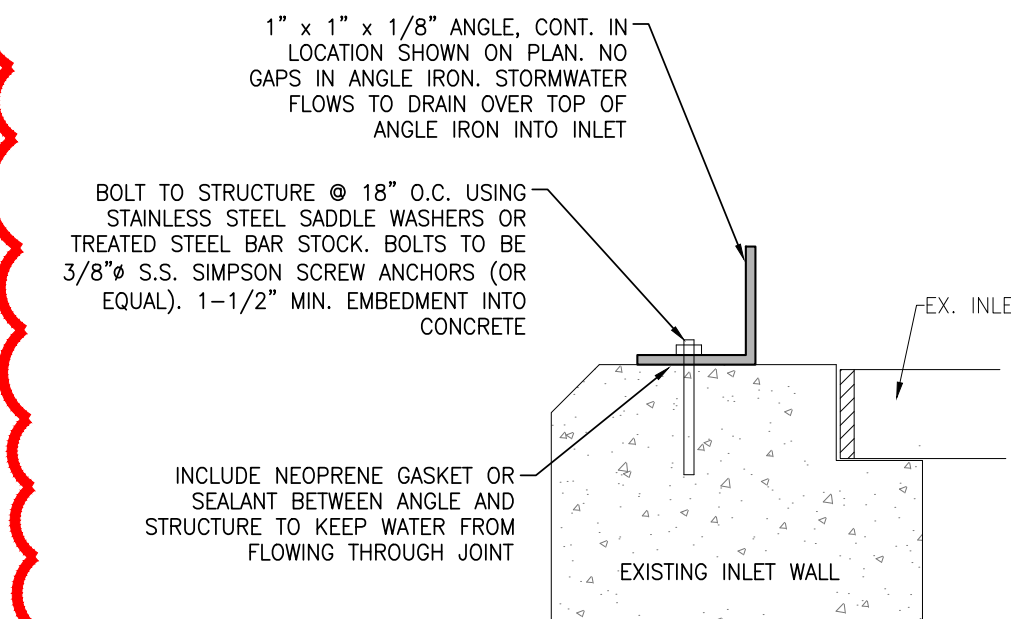
Ref: SECTION A-A

601
1 Emergency Spillway
NOT TO SCALE

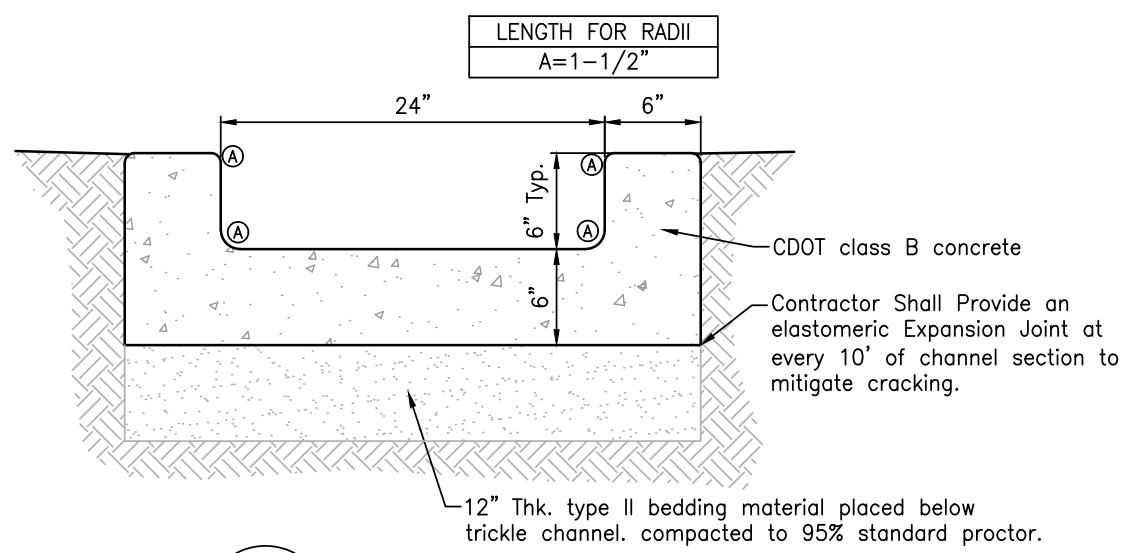
AB

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AB

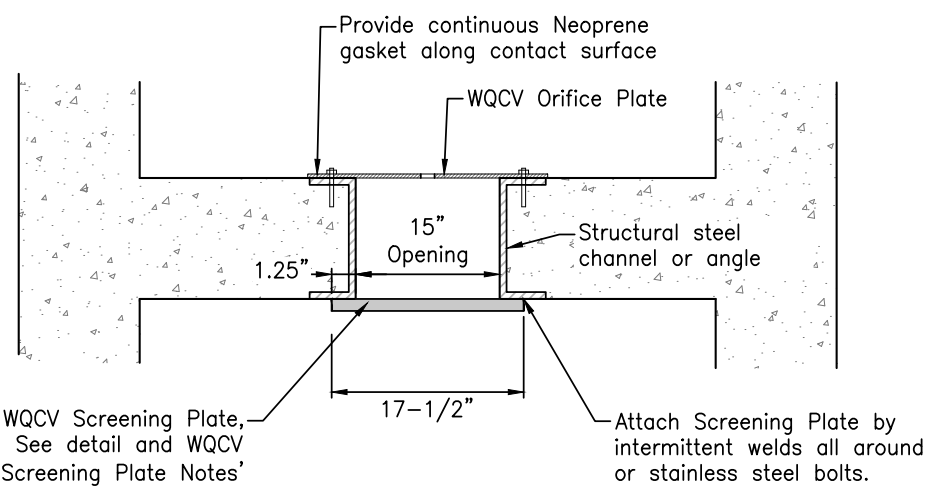


14 Outlet Structure Top Edge
C602 NOT TO SCALE



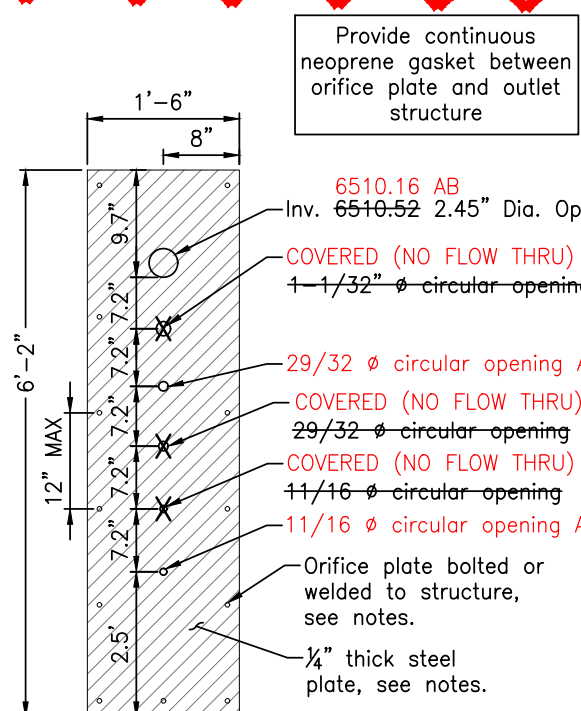
1 Trickle Channel
C602 NOT TO SCALE

- WQCV Well-Screen Notes:
- Well-Screen shall be stainless steel and attached by intermittent welds or stainless steel bolts along edge of the mounting frame.
 - WQCV well screen
 - Type of Screen: Stainless Steel #93 Vee Wire (Johnson Vee Wire TM Stainless Steel Screen or equivalent with 60% Open Area)
 - Screen Slot Opening Dimension: 0.139" (Screen #93 Vee Wire Slot Opening)
 - Type and Size of Support Rod: TE 0.074"x0.50"
 - Spacing of Support Rod (O.C.): 1.0 inch
 - Total Screen Thickness: 0.655"
 - Carbon Steel Holding Frame Type: 3/4" x 1.0" Angle

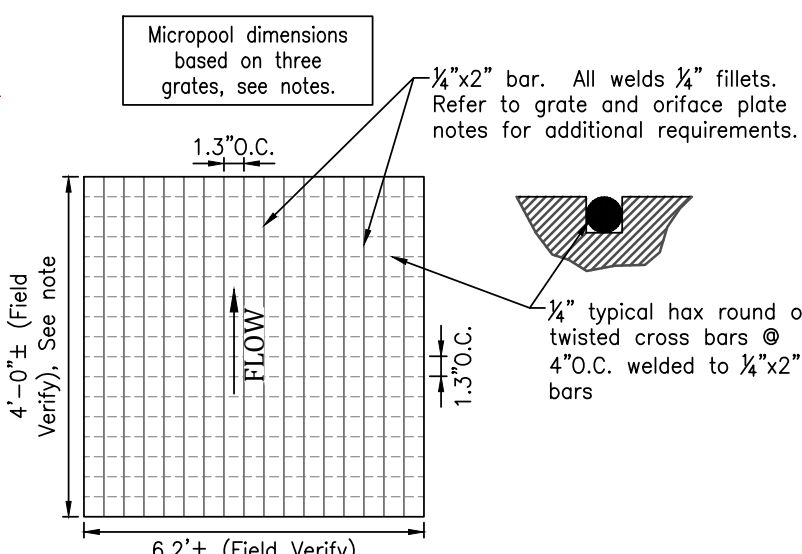


Top View

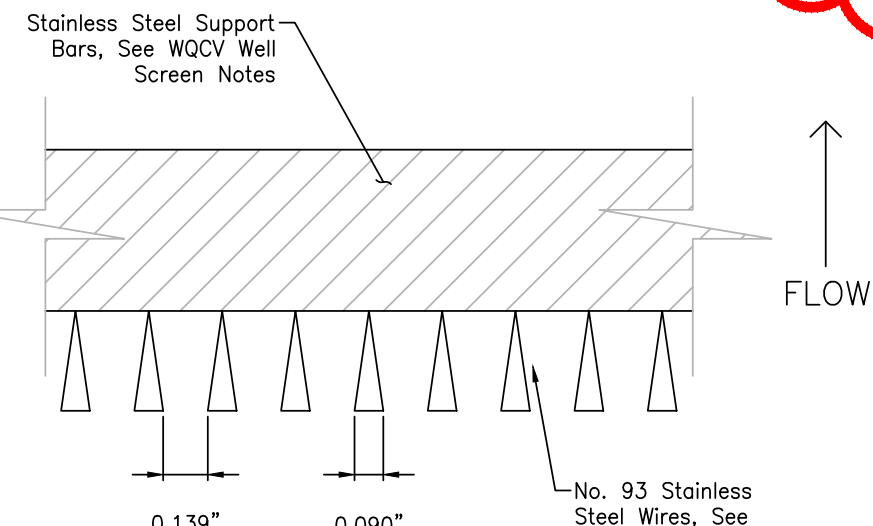
7 WQCV Orifice Plate and Screening Plate
C602 NOT TO SCALE



9 WQCV Orifice Plate
C602 NOT TO SCALE

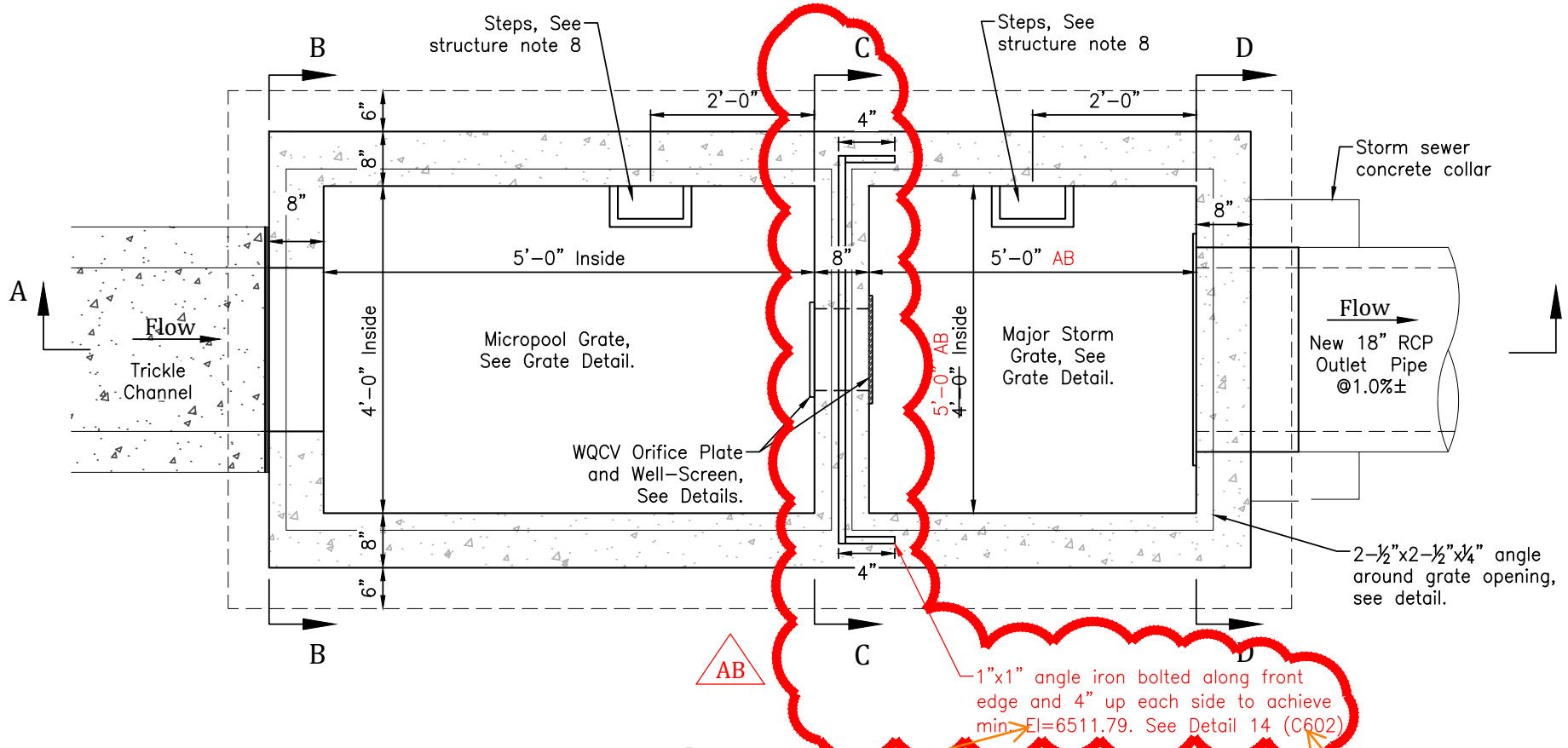


10 Micropool Grates Detail
C602 NOT TO SCALE



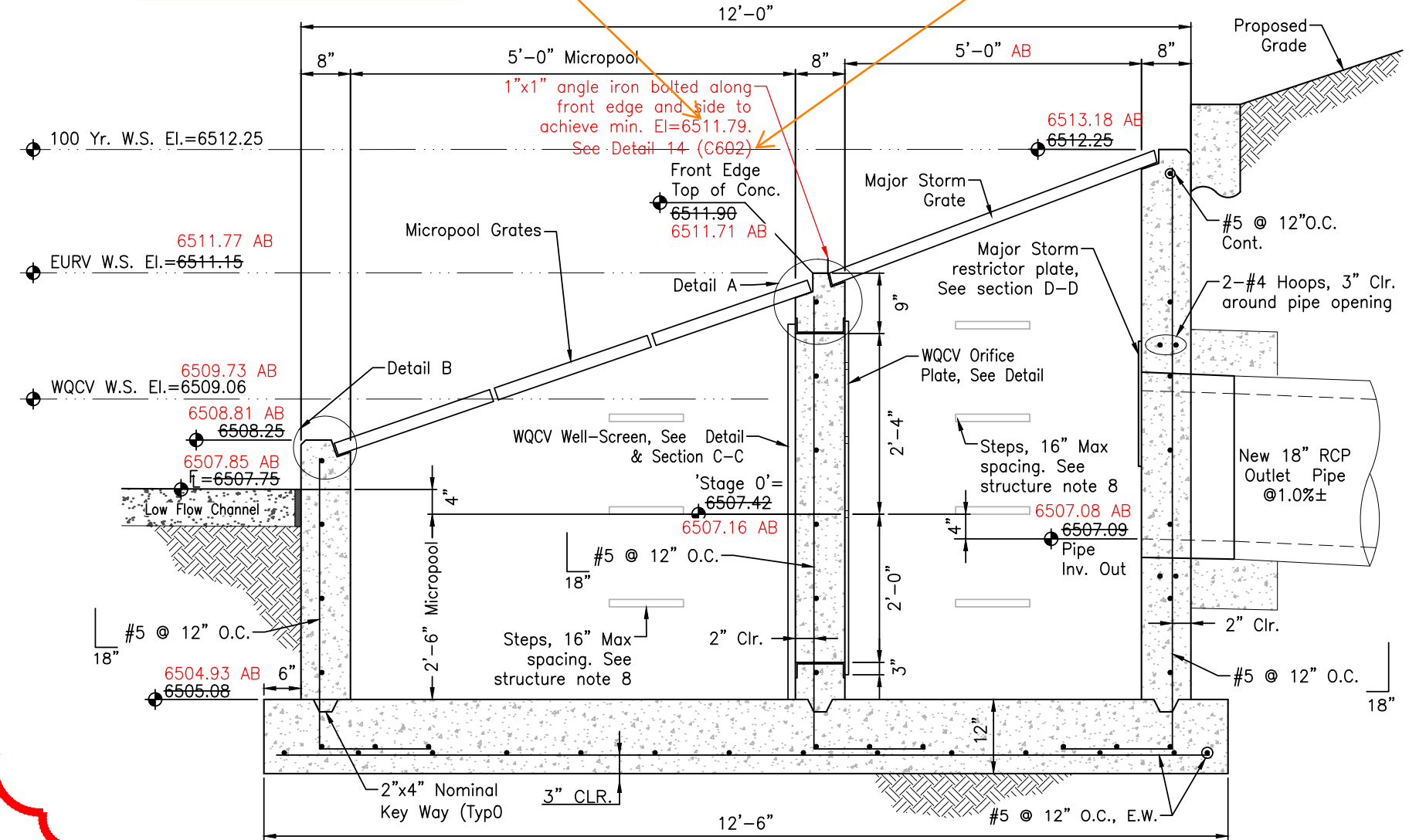
Well-Screen Detail

8 WQCV Well-Screen
C602 NOT TO SCALE



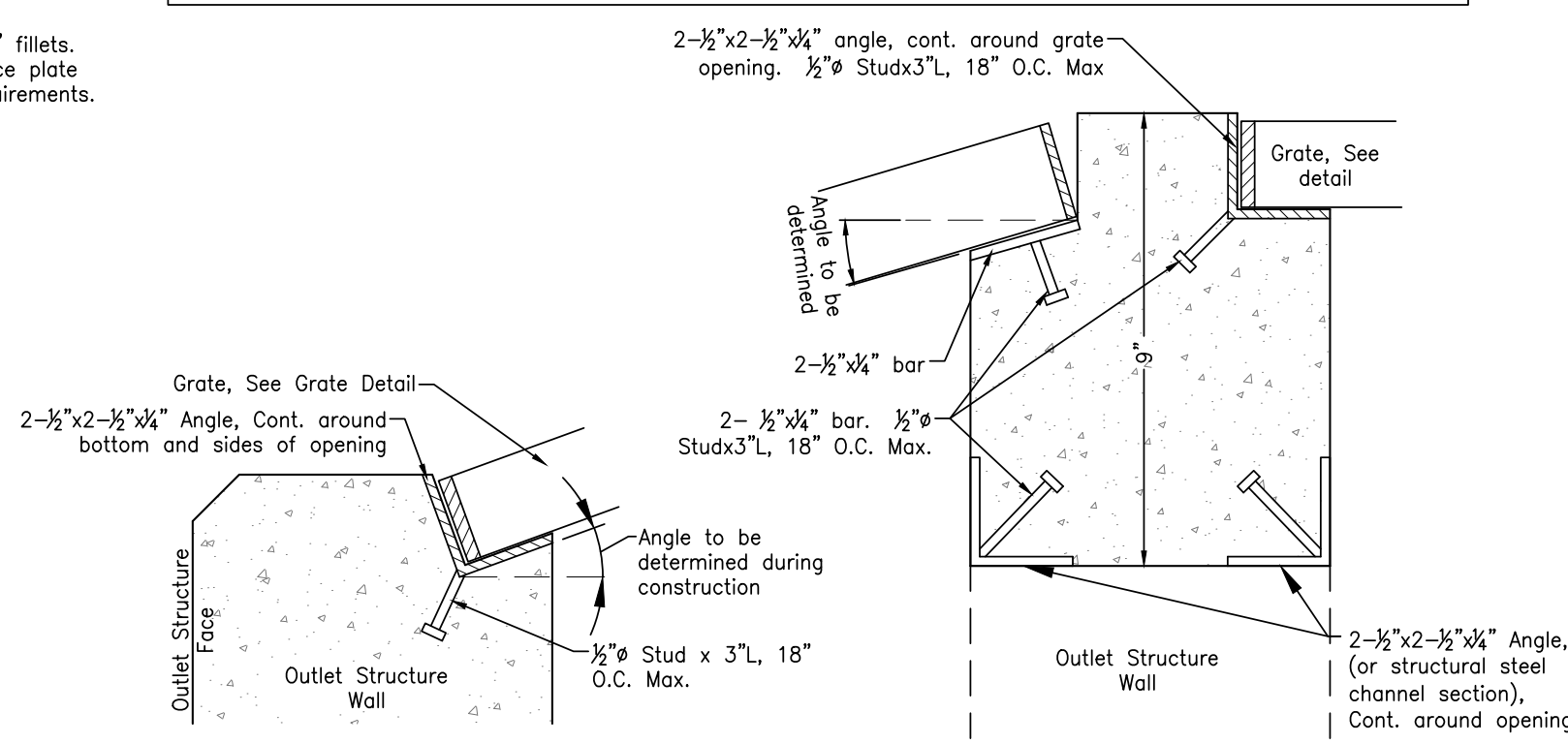
2 Outlet Structure Detail
C602 NOT TO SCALE

Calcs show this at:
6507.16 + 4.55 = 6511.71
Or did you mean to input 4.63 into Overflow Weir Front Edge Height on the calcs?

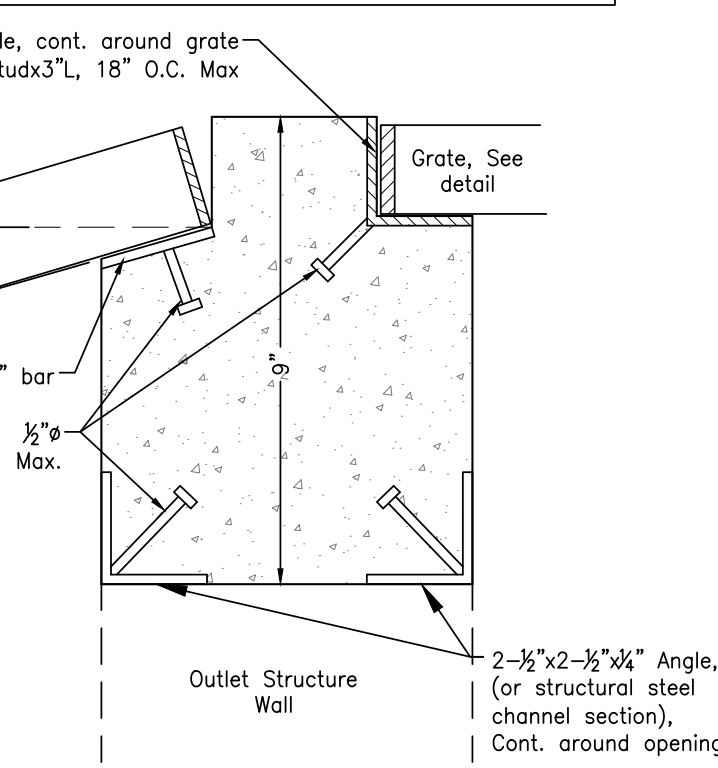


3 Section A-A
C602 NOT TO SCALE

- STRUCTURE NOTES:
- Prior to construction, Contractor to provide Shop Drawings for all components of the outlet structure.
 - Grade 60 reinforcing steel required. See table for the minimum lap splice length for reinforcing bars. All reinforcing steel shall have 2-inch minimum clearance from edge of concrete and 3-inch min. clearance to the edge of concrete placed against soil, unless otherwise noted.
 - Concrete for the outlet structure and forebays shall be CdoT Class D Concrete.
 - Expansion joint material shall meet AASHTO specification M-213. Expansion joint material shall be 1/2" thick, shall extend the full depth of contact surface and the joint shall be sealed, refer to details.
 - All exposed concrete corners shall have a 3/4-inch chamfer, unless otherwise noted.
 - Backfilling against walls shall not commence until concrete has obtained its full seven day strength.
 - Subgrade to be 12" thick clean fill compacted to 95% Standard Proctor Density per ASTM M698 under structures.
 - Outlet structure steps shall conform to AASHTO M199.
 - Forebay: Construction joints shall be installed at 10' O.C. maximum. The joints shall be sealed with a joint sealant.



12 Detail B
C602 NOT TO SCALE



13 Detail A
C602 NOT TO SCALE

- SOIL RIPRAP:
- The soil material shall be native or topsoil and mixed with Sixty-Five Percent (65%) riprap and Thirty-Five Percent (35%) soil by volume. Soil Riprap shall consist of a uniform mixture of soil and riprap without voids.
 - Contractor shall cooperate with Engineer in obtaining and providing samples of all specified materials.
 - Contractor shall submit certified laboratory test certificates for all items required for Soil Riprap.
 - Riprap used shall be the type designated on the drawings and shall conform to the Table shown.
 - The riprap designation and total thickness of riprap shall be as shown on the drawings. The maximum stone size shall not be larger than the thickness of the riprap.
 - Neither width nor thickness of a single stone of riprap shall be less than One-Third (1/3) of its length.
 - The specific gravity of the riprap shall be two and one-half (2.5) or greater.
 - Minimum density for acceptable riprap shall be One-Hundred and Sixty-Five (165) pounds per cubic foot.
 - Riprap specific gravity shall be according to the Bulk-Saturated, Surface-Dry basis, in accordance with AASHTO T85.
 - The riprap shall have a percentage loss of not more than Forty Percent (40%) after Five-Hundred (500) revolutions when tested in accordance with AASHTO T96.
 - The riprap shall have a percentage loss of not more than Ten (10%) after Five (5) cycles when tested in accordance with AASHTO T104 for Ledge rock using sodium sulfate.
 - The riprap shall have a percentage loss of not more than Ten Percent (10%) after Twelve (12) cycles of freezing and thawing when tested in accordance with AASHTO T103 for Ledge rock, Procedure A. Rock shall be free from calcite intrusions.
 - Gradation: Each load of riprap shall be reasonably well-graded from the smallest to the largest size specified.
 - 13.1. Stones smaller than the Two to Ten Percent (2%-10%) size will not be permitted in an amount exceeding Ten Percent (10%) by weight of each load.
 - 13.2. Control of gradation shall be by visual inspection. However in the event the Engineer determines the riprap to be unacceptable, he Engineer shall pick Two (2) random truckloads to be dumped and checked for gradation. Mechanical equipment and labor needed to assist in checking gradation shall be provided by the Contractor at no additional cost.

CLASSIFICATION AND GRADATION OF RIPRAP				
Riprap Designation	% Smaller than Given Size by Weight	Intermediate Rock Dimension (Inches)		dg ₅₀ * (Inches)
		2-10	12-18	
Type VL	70-100	12	18	dg ₅₀ * (Inches)
	50-70	9	12	
	35-50	6	9	
Type L	70-100	15	21	g**
	50-70	12	18	
	35-50	9	12	
Type M	70-100	21	27	g**
	50-70	18	21	
	35-50	12	15	

* dg₅₀=Mean Particle Size (Intermediate Dimension) by weight, 1/2**
** Mix VL, L AND M Riprap with 35% Topsoil (by Volume) and bury with 4-6 Inches of Topsoil, all vibration compacted & revegetate. (Table MD-7: Classification and Gradation of Ordinary Riprap. UDFCD, Drainage Criteria Manual, Vol. 1)

My Garage @ Northcrest
Stormwater Plan - Record Drawings
Details
El Paso County, Colorado

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

Project No.: 23049
Date: 09/09/2024
Design: MJK
Drawn: MJK
Check: AMcC
Revisions:
AB RECORD DWGS 7/30/26

Sheet

C604