MY GARAGE @ NORTHCREST

COMMERCIAL CONSTRUCTION DRAWINGS

PREPARED FOR K&S DEVELOPMENT, LLC

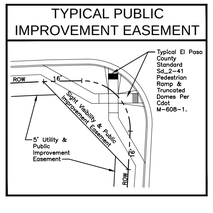
STANDARD NOTES EL PASO COUNTY CONSTRUCTION PLANS

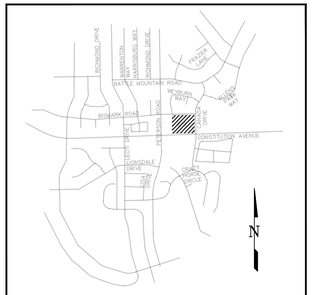
1. All drainage and roadway construction shall meet the standards and specifications of the City of Colorado Springs/El Paso County Drainage Criteria Manual, Volumes 1 and 2, and the El Paso County Engineering Criteria Manual.
2. Contractor shall be responsible for the notification and field notification 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 Curb 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	SHT	= 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

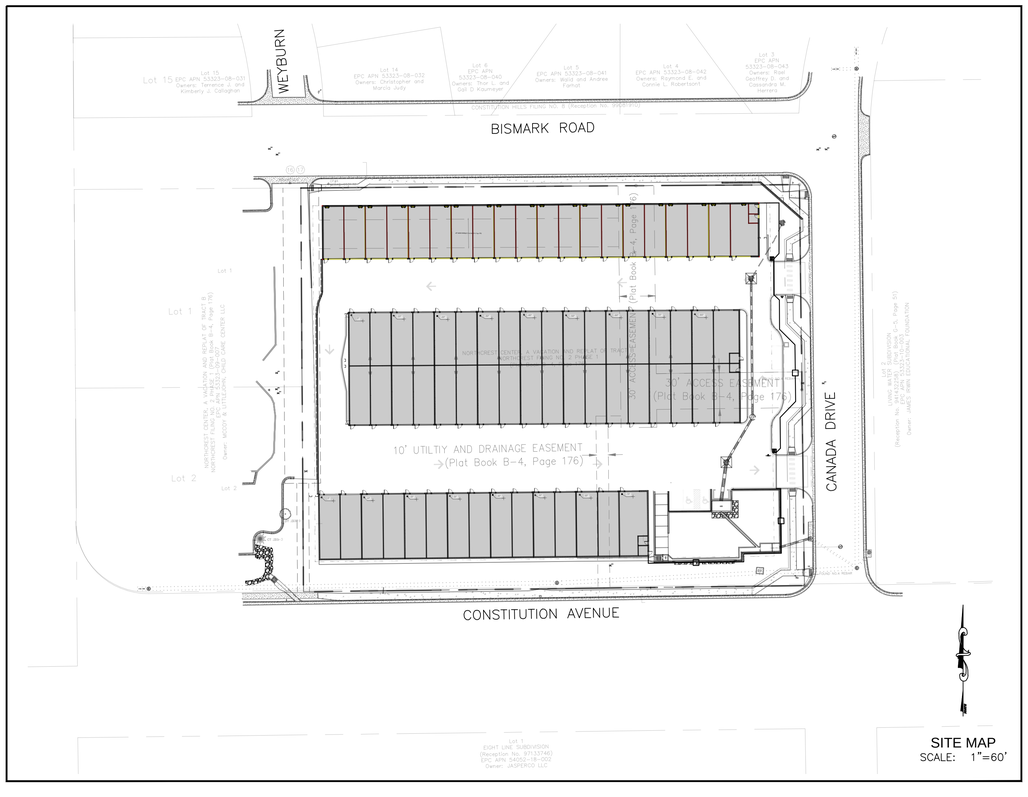




VICINITY MAP
NOT TO SCALE

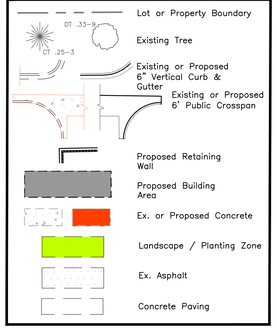
INDEX OF SHEETS

My Garage @ Northcrest

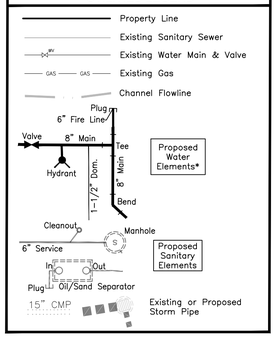


SITE MAP
SCALE: 1"=60'

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 WWSD 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.

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. I certify that 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 of myself in preparation of these detailed plans and specifications.

Andrew W. McCord, P.E. #25057
For and on behalf of Kiowa Engineering Corp.
8/2/24
Date

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
8/2/24
Date

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
Date

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 _____
Cimmaron 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

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

Black Hills Energy
18965 Bas Camp Road Unit A7
Monument, Colorado
(719) 359-0586

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

Kiowa Project No. 23049
August 2nd, 2024

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

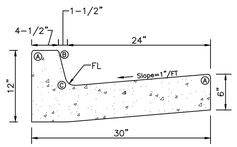
Know what's **below.** **Call** before you dig.

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

PCD File No. SF-22-024

GENERAL NOTES

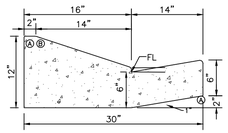
1. All work shall be done in accordance with current Engineering Manual and ADA requirements.
2. Contractor to notify Engineering Division inspection staff 48 hours prior to conconcrete placement.
3. Pedestrian ramp construction shall be a minimum 4,500 psi concrete, minimum 4" thick, non-colored, non-scored, coarse broom finish.
4. Ramp location and length may require modification to maintain the 12:1 maximum running ramp slope and 20:1 detectable warning area due to street intersection grades and / or alignment.
5. Detectable warning area shall start a minimum of 6" but not more than 8" from the flow line of the curb at any point.
6. Detectable warning area shall be prefabricated reddish integrally colored truncated-dome surfaced thermoplastic.
7. The detectable warning area shall be 24" in length and the full width of the ramp.
8. Ramp width required is the same as approaching sidewalk, 4' minimum.
9. all ramps will be perpendicular to traffic with the exception of mid-block or terminal ramps which may be parallel subject to approval.
10. Avoid palcing drainage structures, traffic signal / signage, utilities / junction boxes, or other obstructions within proposed ramp areas.
11. Where the 1'- 6" flared side(s) of a perpendicular curb ramp is (are) contiguous with a pedestrian or hard surface area, the flare width shall be increased to 8' minimum and the maximum flare slope shall not exceed 10:1.
12. Pedestrian walkway and / or location of existing or future pedestrian ramps on opposite corners shall be reviewed before construction new ramps. New ramps shall align with existing ramps and pedestrian walkway.
13. At marked pedestrian crossings, the bottom of the ramps, exclusive of the flare sides, shall be totally contained within the markings.
14. Sidewalk cross-slope: 1/4"/ft.
15. Concrete mix design shall conform to the requirements of the color admixture manufacturer and the following:
    1) 28-day compressive strength = 4,500 PSI (min.)
    2) Water/cement ratio = 0.45 (max.)
    3) Cement content = 6-1/2 sacks/C.Y. (min.) (Type II cement)
    4) Maximum aggregate size = 3/4"
    5) Entrained air content = 6% - 10%
    6) Slump = 1 inch (min.) - 4 inches (max.)



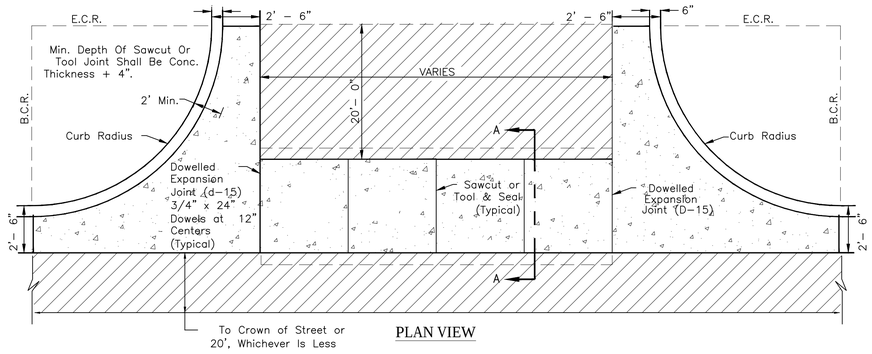
EPC TYPE A CURB & GUTTER
NOT TO SCALE

LENGTH FOR RADII
A=1/8"-1/4" B=1-1/2" C=1-1/2"-2"

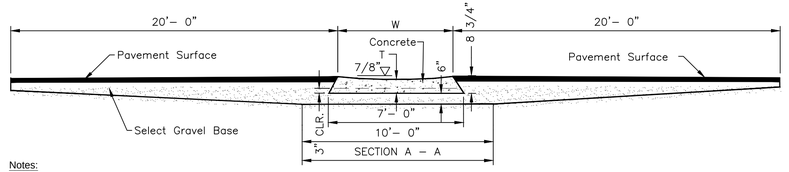
CURB & GUTTER DETAILS
EPC STD. SD_2-20
NOT TO SCALE



EPC OPTIONAL TYPE C CURB & GUTTER
NOT TO SCALE



PLAN VIEW

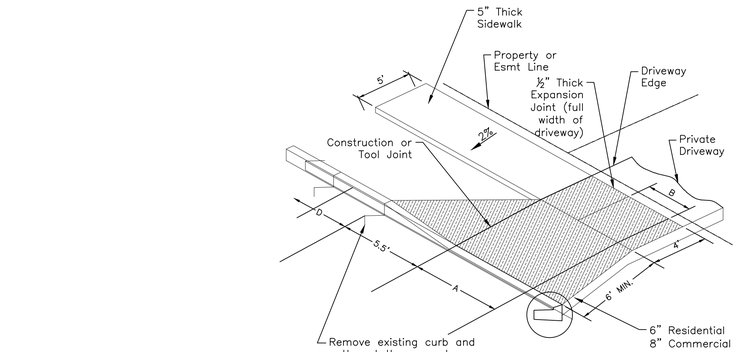


SECTION A-A

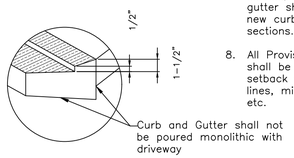
Notes:

1. W - Width shall be 6' for local, 8' for collectors, And 10' for Arterial Roads.
2. T - Squared-off Return to be poured Monolithic 8" P.C.C. Minimum with 6x6 - 4,4 W.W.F. Or #4 @ 18" E.W.
3. ▨ = 3" minimum asphalt depth (2 lifts).
4. Design to specify elevations at pi and pcr
5. Flow Capture Depth (Depression) shall be 7/8" for Local, 1-1/8" for Collectors, And 1-1/2" for arterial roads.
6. Flowline Grade shall be minimum 0.5%

CROSS PAN DETAIL
EPC STD. SD_2-26
NOT TO SCALE



TOOL JOINT SPACING		
DRIVEWAY WIDTH	A	B
12'	6'	3'
14'	7'	3'-6"
16'	8'	4'
18'	9'	4'-6"
20'	10'	5'
22'	11'	5'-6"
24'	8'	4'
26'	8'-8"	4'-4"
28'	9'-4"	4'-8"
30'	10'	5'



Notes:

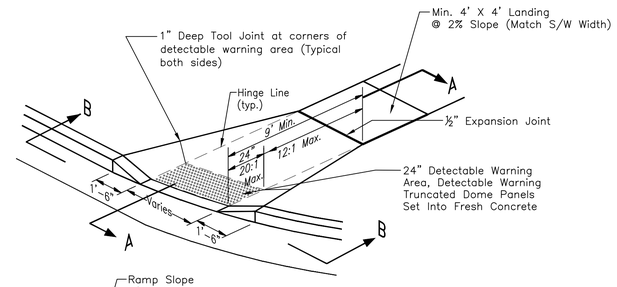
1. Provide Centerline Construction or tool joint when driveway width (edge to edge) is 14' or greater.
2. All Tool Joints shall be a minimum of 1-½" deep.
3. When replacing existing curb and gutter with new driveway, entire curb and gutter section shall be removed and replaced with curb and gutter (variable-curb-height) as shown. Do not break curb from gutter section.
4. Flared portion of driveway shall be poured monolithic with main rectangular portion of driveway.
5. Where there is more than one driveway on a lot, the spacing of the driveways shall meet requirements in ECM.
6. Where an existing sidewalk is in place, and its thickness is less than 6" (residential) or 8" (commercial and industrial) the sidewalk through the driveway shall be removed and replaced with Portland Cement Concrete at the required thickness.
7. When a driveway is to be taken out of service, the entire length of curb and gutter shall be removed and replaced with new curb and gutter matching the abutting sections.
8. All Provisions in the Land Development Code shall be met, with regard to minimum setback from intersection and side property lines, minimum spacing, maximum width, etc.

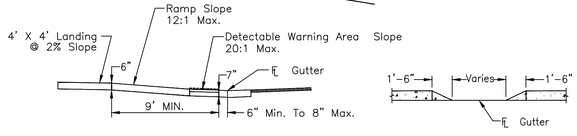
DRIVEWAY DETAIL WITH DETACHED SIDEWALK
EPC STD. SD_2-25
NOT TO SCALE

GENERAL NOTES:

▲ — Expansion Joints shall be installed when abutting existing concrete or fixed structure. Expansion Joint Material shall be 1/2" thick and shall extend the full depth of contact surface.

Concrete Shall be per El Paso County Engineering Division Specifications.





SECTION A-A

SECTION B-B

PEDESTRIAN RAMP DETAILS
EPC STD. SD_2-40
NOT TO SCALE

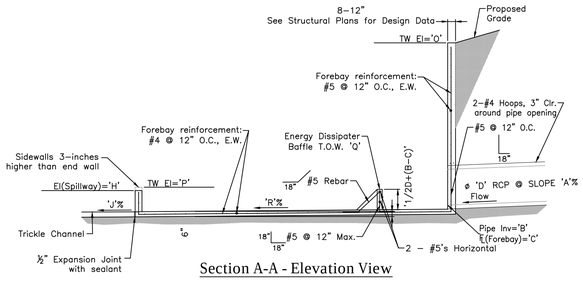
COLORADO LICENSED
25057
8/2/24
PROFESSIONAL ENGINEER

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

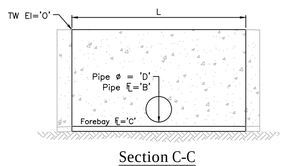
My Garage @ Northcrest
Site Detail Plan
Site Details
El Paso County, Colorado

Project No.:	23049
Date:	06/14/2024
Design:	MJK
Drawn:	MJK
Check:	AMcC
Revisions:	

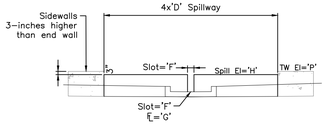
Sheet
C601
18 of 21 Sheets



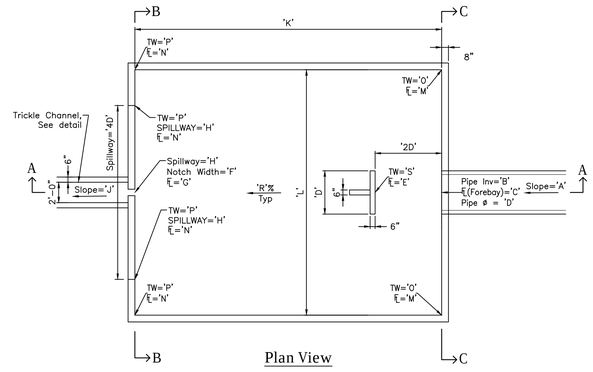
Section A-A - Elevation View



Section C-C



Section B-B



Plan View

1 C602 Forebay Details
NOT TO SCALE

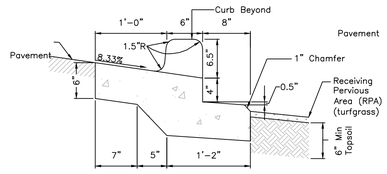
STRUCTURE NOTES:

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.

Bar Size	#4	#5	#6
Min. Splice Length	1'–3"	1'–7"	2'–0"

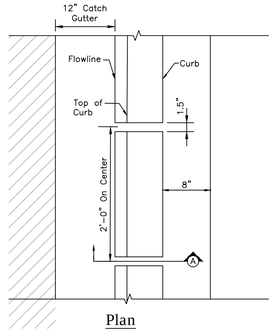
3. Concrete for the outlet structure and forebays shall be CDoT Class D Concrete.
4. Expansion joint material shall meet AASHTO specification M–213. Expansion joint material shall be ½" thick, shall extend the full depth of contact surface and the joint shall be sealed, refer to details.
5. All exposed concrete coners shall have a ¾–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 stucture steps shall conform to AASHTO M199.
9. Foreby: 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	6508.40
C	Forebay Inv In	6509.50	6508.07
D	Pipe Size (ft)	0.67	2.00
E	Baffle Face Inv	6509.49	6508.03
F	Slot Width	2.50	3.00
G	Forebay Inv Out	6509.46	6508.00
H	Spillway Inv	6510.21	6508.75
I	Spillway Top	6510.46	6509.00
J	Trickle Pan Slope	2.00	0.55
K	Forebay Length	4.00	8.50
L	Forebay Width	4.50	8.50
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	6513.50	6513.58
R	Forebay Slope %	1.00	0.60



Section

2 C602 Slotted Curb
NOT TO SCALE

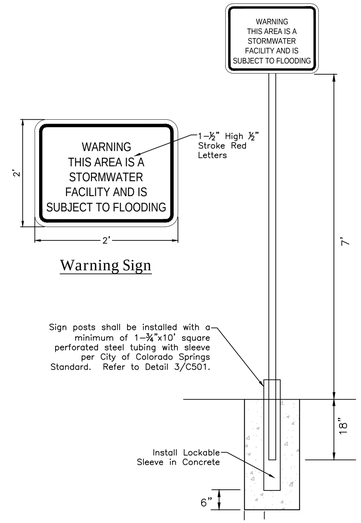


Plan

3 C602 Slotted Curb
NOT TO SCALE

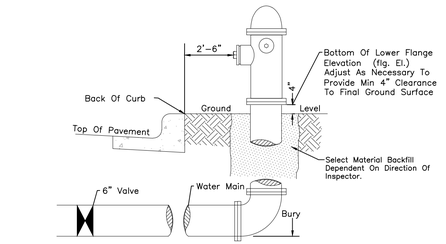
Subsequent To Stripping And Grubbing The Following Overlot/pipe Installation Procedures Are Anticipated For The Sanitary Sewer Located On Proposed Embankments:

- 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

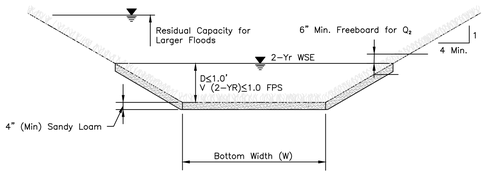
4 C602 Detention Warning Sign
NOT TO SCALE



Fire Hydrant Detail
NOT TO SCALE

GENERAL NOTES:

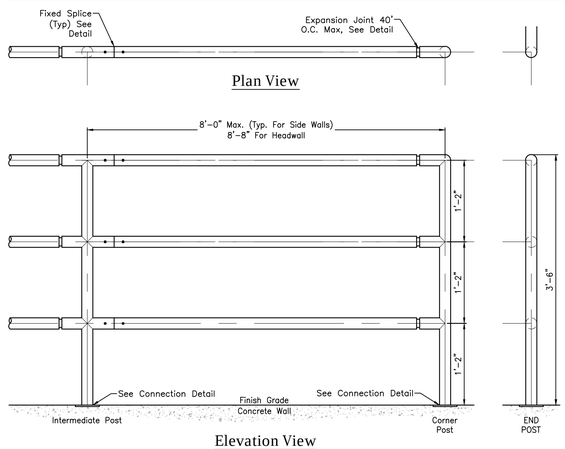
1. Hydrant nozzles shall be positioned at right angles to curb. If no curb or sidewalk exists, nozzles shall be placed at right angle to street or alley.
2. Hydrants shall be placed a minimum of 5.0 feet from any utility or drainage structure.
3. Any hydrant being installed with conditions other than 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 AWWA Standard C110.



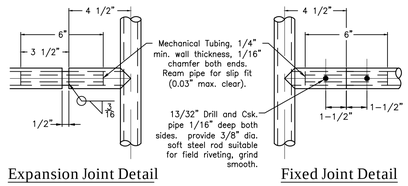
6 C602 Trapezoidal Typical Swale Section
NOT TO SCALE

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.

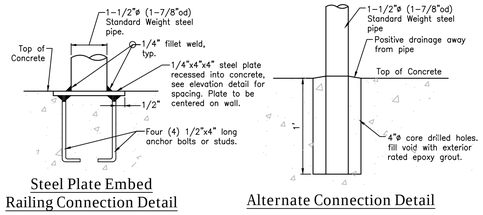


5 602 Pedestrian Railing/Handrail
NOT TO SCALE



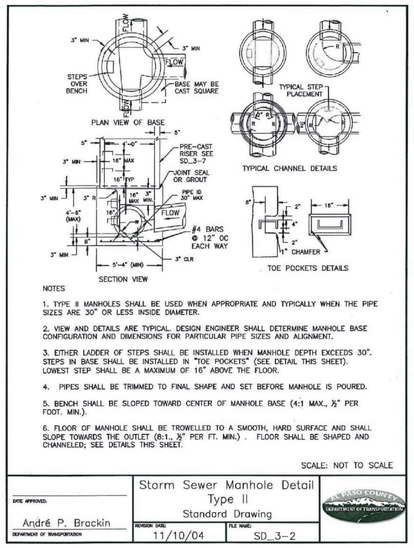
Expansion Joint Detail

Fixed Joint Detail



Steel Plate Embed Railing Connection Detail

Alternate Connection Detail



7 C602 Storm Sewer Manhole Detail Type II
EPC STD. SD_3-2
NOT TO SCALE

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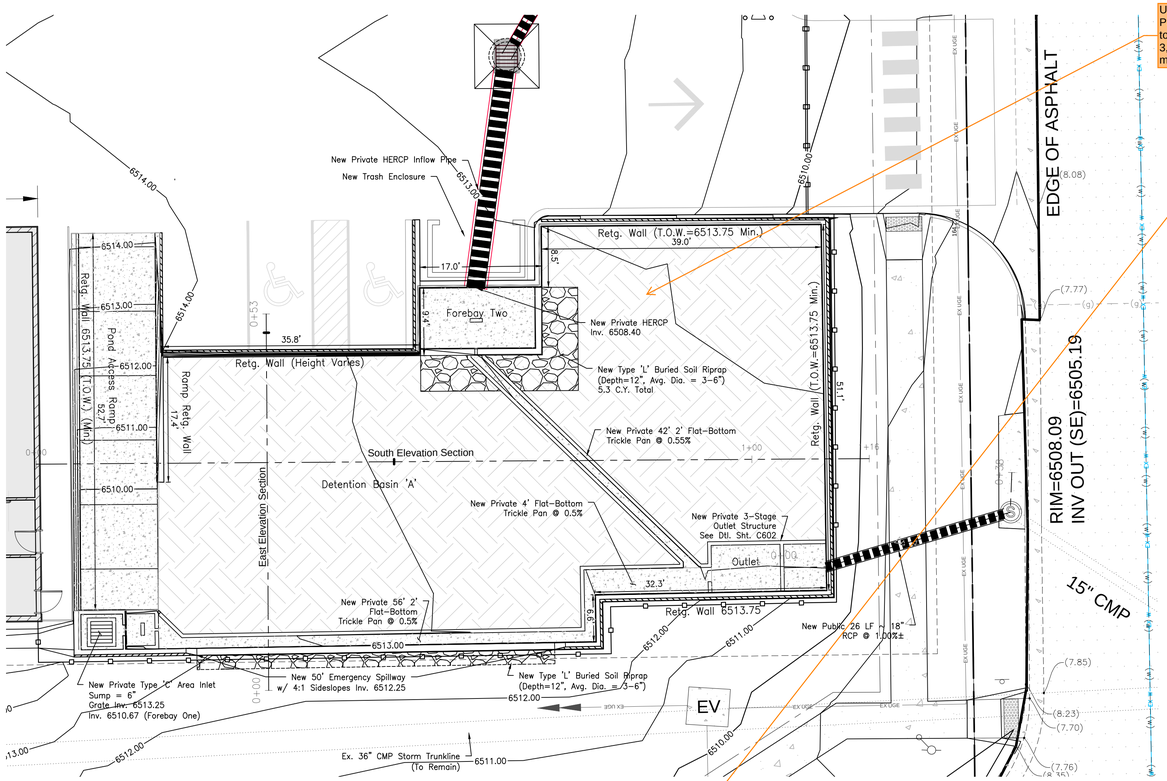
My Garage @ Northcrest
Site Detail Plan
Site Details
El Paso County, Colorado

Project No.:	23049
Date:	08/02/2024
Design:	MJK
Drawn:	MJK
Check:	AMcC
Revisions:	

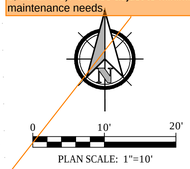
Sheet
C602
19 of 21 Sheets

23049–Detail_C602.dwg/Aug 01, 2024

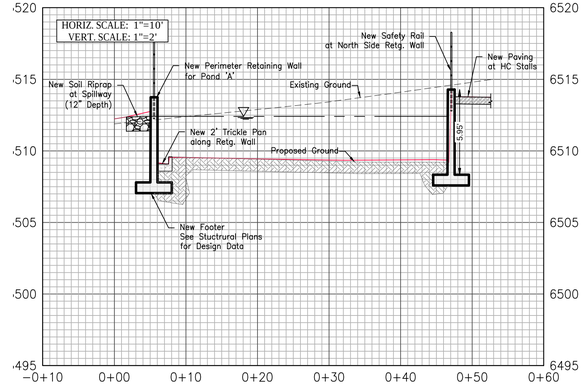


1 C601 Detention Basin Cross Sections
NOT TO SCALE

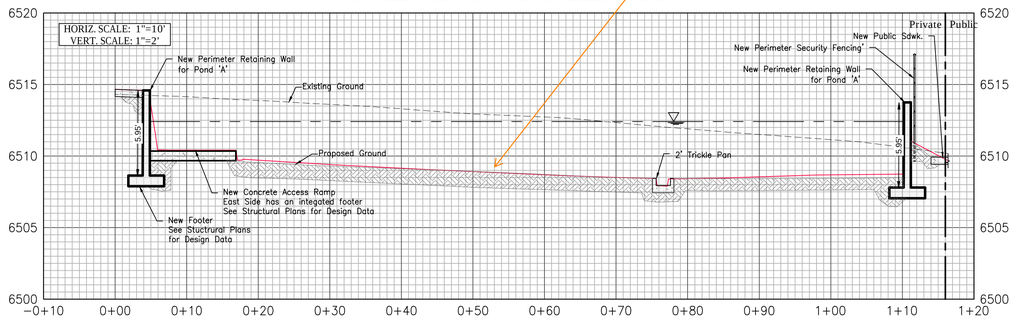
Unresolved Review 2 comment:
Pond bottom should have a minimum slope of 3% to the trickle channel and micropool (USDCM Vol 3, detail T-5). Please adjust to minimize future maintenance needs.



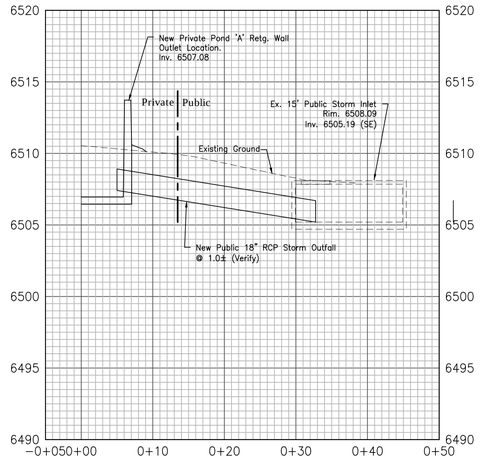
PROFILE VIEW OF POND ELEV EAST

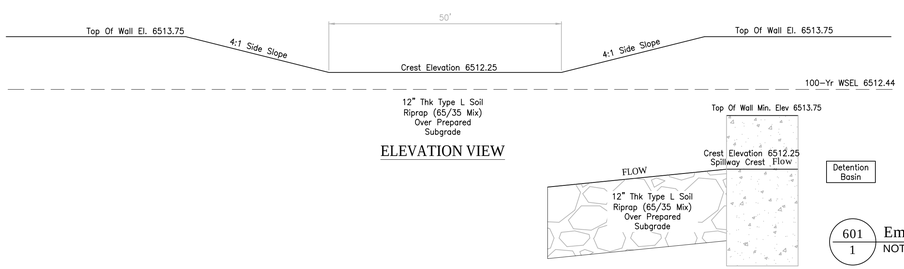


PROFILE VIEW OF POND ELEV SOUTH



PROFILE VIEW OF STORM OUTFALL





601 1 Emergency Spillway
NOT TO SCALE

I'm not seeing the section markers for this section. Please show them.

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My Garage @ Northcrest
Stormwater Facility
Detention Facility Plan
El Paso County, Colorado

Project No.:	23049
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Check:	AMcC
Revisions:	

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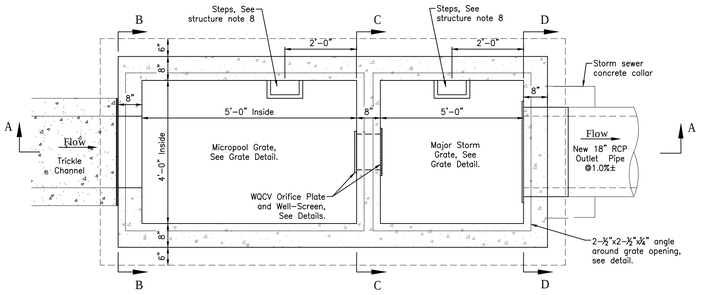
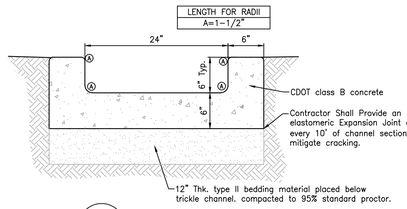
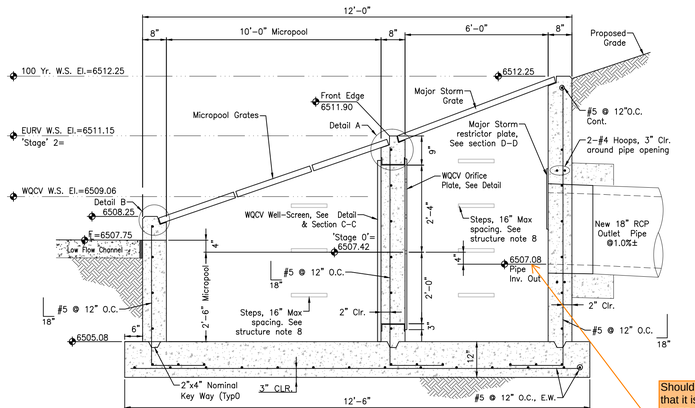
C603
20 of 21 Sheets



2 / C602 Outlet Structure Detail
PLAN VIEW
NOT TO SCALE

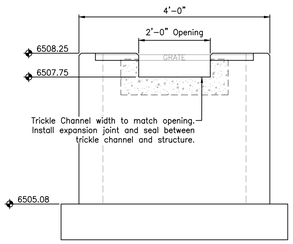


1 / C602 Trickle Channel
NOT TO SCALE

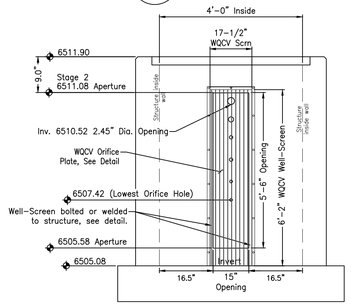


Should be 6507.09 so that it is 0.33ft (per MHFD-Detention calcs) below Stage = 0ft at 6507.42

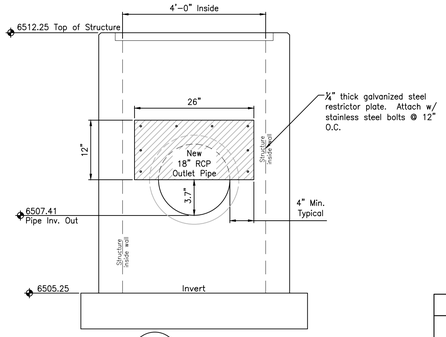
3 / C602 Section A-A
NOT TO SCALE



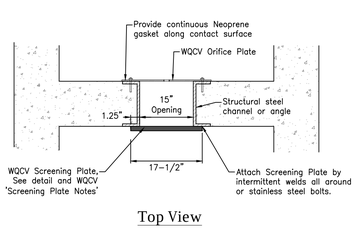
4 / C602 Section B-B
NOT TO SCALE



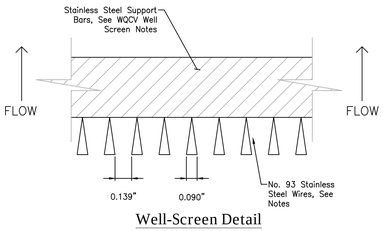
5 / C602 Section C-C
NOT TO SCALE



6 / C602 Section D-D
NOT TO SCALE



Top View



Well-Screen Detail

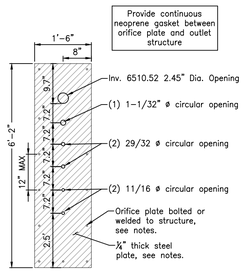
7 / C602 WQCV Orifice Plate and Screening Plate
NOT TO SCALE

8 / C602 WQCV Well-Screen
NOT TO SCALE

STRUCTURE NOTES:
1. Prior to construction, Contractor to provide Shop Drawings for all components of the outlet structure.
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.

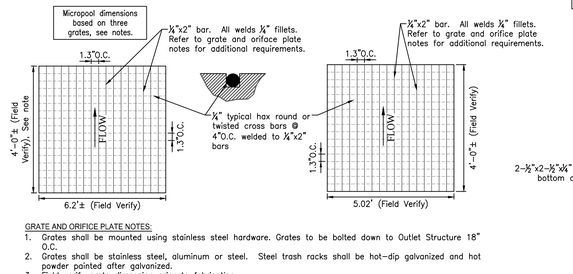
Bar Size	#4	#5	#6
Min. Splice Length	1'-3"	1'-7"	2'-0"

3. Concrete for the outlet structure and forebays shall be CDoT Class D Concrete.
4. Expansion joint material shall meet AASHTO specification M-213. Expansion joint material shall be ½" thick, shall extend the full depth of contact surface and the joint shall be sealed, refer to details.
5. All exposed concrete coners shall have a ¾-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 stucture steps shall conform to AASHTO M199.
9. Foreboy: Construction joints shall be installed at 10' O.C. maximum. The joints shall be sealed with a joint sealant.



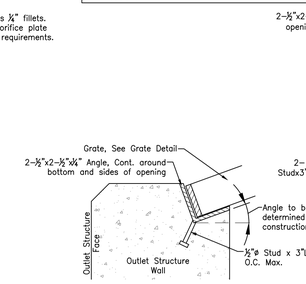
9 / C602 WQCV Orifice Plate
NOT TO SCALE

GRATE AND ORIFICE PLATE NOTES:
1. Grates shall be mounted using stainless steel hardware. Grates to be bolted down to Outlet Structure 18" O.C.
2. Grates shall be stainless steel, aluminum or steel. Steel trash racks shall be hot-dip galvanized and hot powder painted after galvanized.
3. Field verify grate dimension prior to fabrication.
4. Micropool grate size is shown as multiple sections to minimize the weight of the grate. The size may vary from that shown.

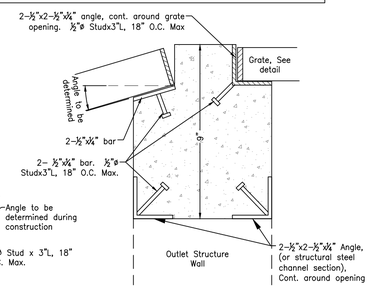


10 / C602 Micropool Grates Detail
NOT TO SCALE

11 / C602 Major Storm Grate Detail
NOT TO SCALE



12 / C602 Detail B
NOT TO SCALE



13 / C602 Detail A
NOT TO SCALE

SOIL RIPRAP:
1. 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.
2. Contractor shall cooperate with Engineer in obtaining and providing samples of all specified materials.
3. Contractor shall submit certified laboratory test certificates for all items required for Soil Riprap.
4. Riprap used shall be the type designated on the drawings and shall conform to the Table shown.
5. 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.
6. Neither width nor thickness of a single stone of riprap shall be less than One-Third (⅓) of its length.
7. The specific gravity of the riprap shall be two and one-half (2.5) or greater.
8. Minimum density for acceptable riprap shall be One-Hundred and Sixty-Five (165) pounds per cubic foot.
9. Riprap specific gravity shall be according to the Bulk-Saturated, Surface-Dry basis, in accordance with AASHTO T85.
10. 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.
11. 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.
12. 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.
13. 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 evebt 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

	% Smaller than Given Size by Weight	Intermediate Rock Dimension (Inches)	d_{50}* (Inches)
Riprap Designation	70-100	12	
	50-70	9	
	35-50	6	
Type VL	2-10	2	
	70-100	15	6**
	50-70	12	
	35-50	9	
Type L	2-10	3	
	70-100	21	9**
	50-70	18	
	35-50	12	
Type M	2-10	4	

* d_{50}=Mean Particle Size (Intermediate Dimension) by weight. 12**
** 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*)

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