

# MY GARAGE @ NORTHCREST

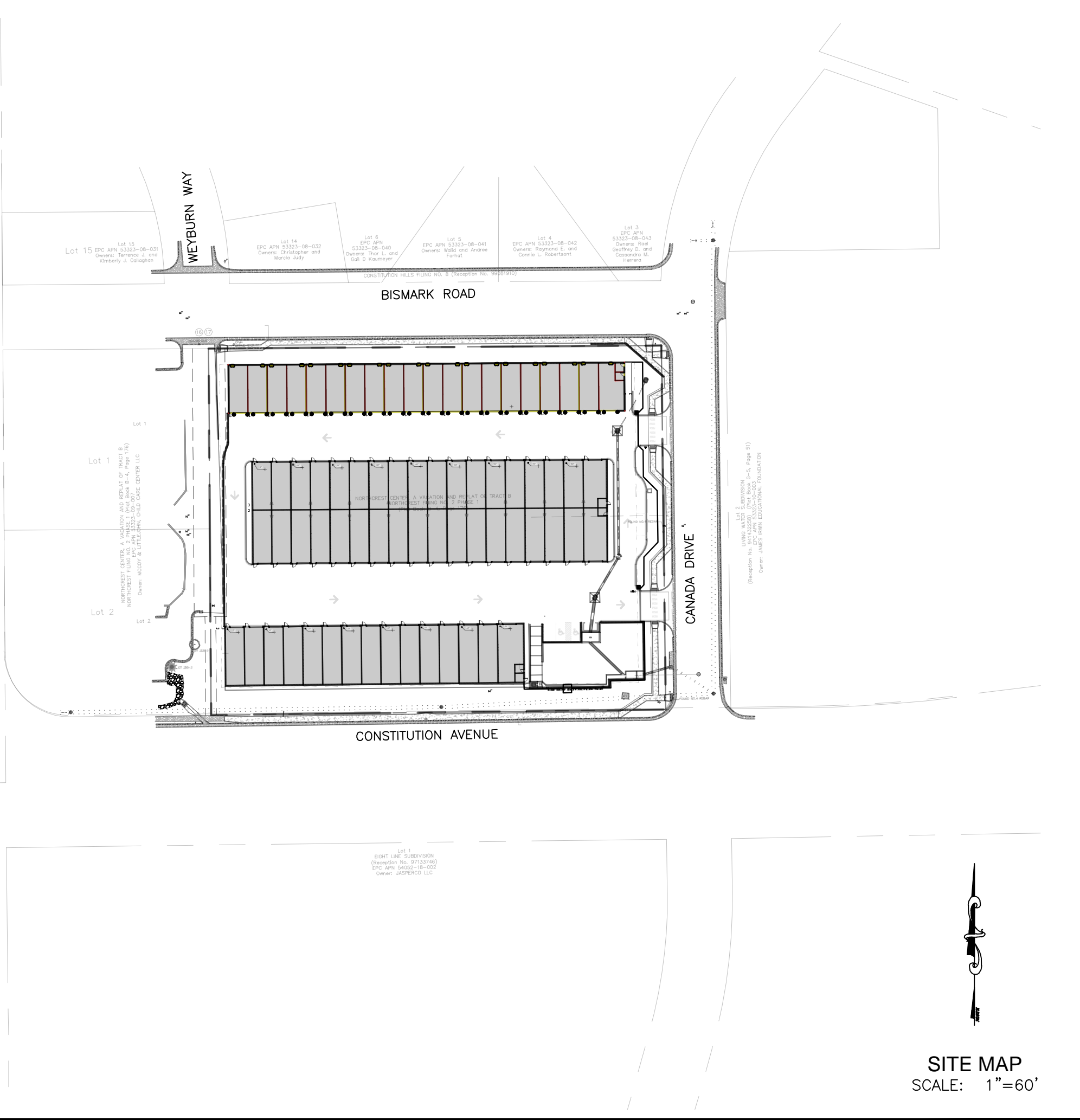
## GRADING AND EROSION CONTROL PLANS

### PREPARED FOR K&S DEVELOPMENT, LLC

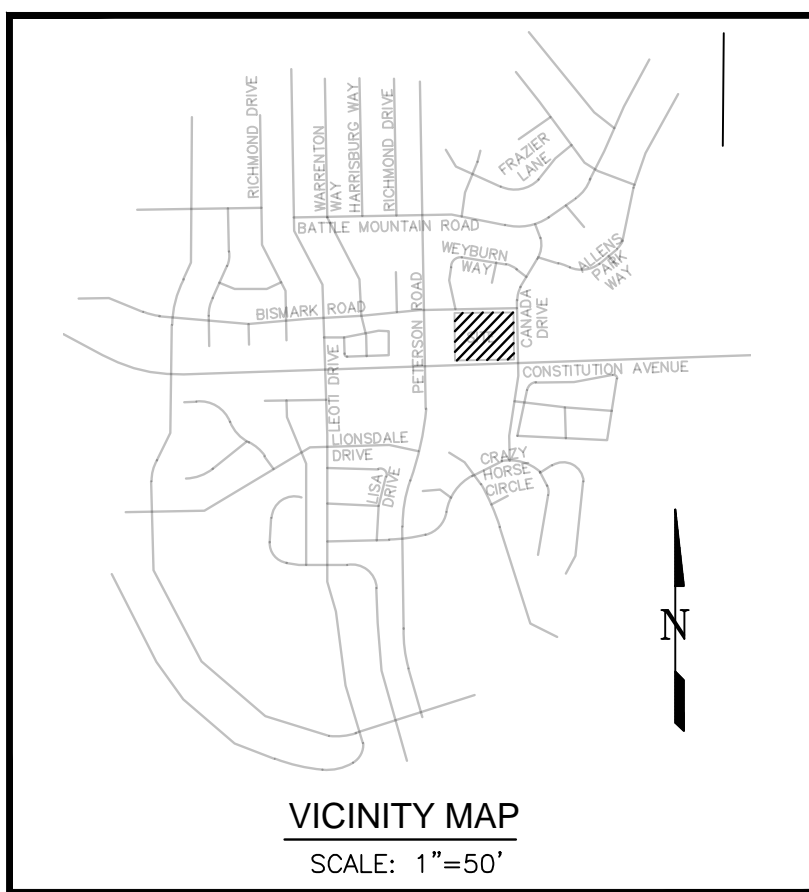
#### PROJECT SPECIFIC GRADING AND EROSION CONTROL NOTES

- Stormwater discharges from construction sites shall not cause or threaten to cause pollution, contamination, or degradation of State Waters. All work and earth disturbance shall be done in a manner that minimizes pollution of any on-site or off-site waters, including wetlands.
- 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.
- A separate Stormwater Management Plan (SWMP) for this project shall be completed and an Erosion and Stormwater Quality Control Permit (ESQCP) issued prior to commencing construction. Management of the SWMP during construction is the responsibility of the designated Qualified Stormwater Manager or Certified Erosion Control Inspector. The SWMP shall be located on site at all times during construction and shall be kept up to date with work progress and changes in the field.
- Once the ESQCP is approved and a "Notice to Proceed" has been issued, the contractor may install the initial stage erosion and sediment control measures as indicated on the approved GEC. A Preconstruction Meeting between the contractor, engineer, and El Paso County will be held prior to any construction. It is the responsibility of the applicant to coordinate the meeting time and place with County staff.
- Control measures must be installed prior to commencement of activities that could contribute pollutants to stormwater. Control measures for all slopes, channels, ditches, and disturbed land areas shall be installed immediately upon completion of the disturbance.
- All temporary sediment and erosion control measures shall be maintained and remain in effective operating condition until permanent soil erosion control measures are implemented and final stabilization is established. All persons engaged in land disturbance activities shall assess the adequacy of control measures at the site and identify if changes to those control measures are needed to ensure the continued effective performance of the control measures. All changes to temporary sediment and erosion control measures must be incorporated into the Stormwater Management Plan.
- Temporary stabilization shall be implemented on disturbed areas and stockpiles where ground disturbing construction activity has permanently ceased or temporarily ceased for longer than 14 days.
- Final stabilization must be implemented at all applicable construction sites. Final stabilization is achieved when all ground disturbing activities are complete and all disturbed areas either have a uniform vegetative cover with individual plant density of 70 percent of pre-disturbance levels established or equivalent permanent alternative stabilization method is implemented. All temporary sediment and erosion control measures shall be removed upon final stabilization and before permit closure.
- All permanent stormwater management facilities shall be installed as designed in the approved plans. Any proposed changes that affect the design or function of permanent stormwater management structures must be approved by the ECM Administrator prior to implementation.
- Earth disturbances shall be conducted in such a manner so as to effectively minimize accelerated soil erosion and resulting sedimentation. All disturbances shall be designed, constructed, and completed so that the exposed area of any disturbed land shall be limited to the shortest practical period of time. Pre-existing vegetation shall be protected and maintained within 50 horizontal feet of a waters of the state unless shown to be infeasible and specifically requested and approved.
- Compaction of soil must be prevented in areas designated for infiltration control measures or where final stabilization will be achieved by vegetative cover. Areas designated for infiltration control measures shall also be protected from sedimentation during construction until final stabilization is achieved. If compaction prevention is not feasible due to site constraints, all areas designated for infiltration and vegetation control measures must be loosened prior to installation of the control measure(s).
- Any temporary or permanent facility designed and constructed for the conveyance of stormwater around, through, or from the earth disturbance area shall be a stabilized conveyance designed to minimize erosion and the discharge of sediment off site.
- Concrete wash water shall be contained and disposed of in accordance with the SWMP. No wash water shall be discharged to or allowed to enter State Waters, including any surface or subsurface storm drainage system or facilities. Concrete washouts shall not be located in an area where shallow groundwater may be present, or within 50 feet of a surface water body, creek or stream.
- During dewatering operations of uncontaminated ground water may be discharged on site, but shall not leave the site in the form of surface runoff unless an approved State dewatering permit is in place.
- Erosion control blanketing or other protective covering shall be used on slopes steeper than 3:1.
- Contractor shall be responsible for the removal of all wastes from the construction site for disposal in accordance with local and State regulatory requirements. No construction debris, tree slash, building material wastes or unused building materials shall be buried, dumped, or discharged at the site.
- Waste materials shall not be temporarily placed or stored in the street, alley, or other public way, unless in accordance with an approved Traffic Control Plan. Control measures may be required by El Paso County Engineering if deemed necessary, based on specific conditions and circumstances.
- Tracking of soils and construction debris off-site shall be minimized. Materials tracked off-site shall be cleaned up and properly disposed of immediately.
- The owner/developer shall be responsible for the removal of all construction debris, dirt, trash, rock, sediment, soil, and sand that may accumulate in roads, storm drains and other drainage conveyance systems and stormwater appurtenances as a result of site development.
- The quantity of materials stored on the project site shall be limited, as much as practical, to that quantity required to perform the work in an orderly sequence. All materials stored on-site shall be stored in a neat, orderly manner, in their original containers, with original manufacturer's labels.
- No chemical(s) having the potential to be released in stormwater are to be stored or used onsite unless permission for the use of such chemical(s) is granted in writing by the ECM Administrator. In granting approval for the use of such chemical(s), special conditions and monitoring may be required.
- Bulk storage of allowed petroleum products or other allowed liquid chemicals in excess of 55 gallons shall require adequate secondary containment protection to contain all spills onsite and to prevent any spilled materials from entering State Waters, any surface or subsurface storm drainage system or other facilities.
- No person shall cause the impediment of stormwater flow in the curb and gutter or ditch except with approved sediment control measures.
- Owner/developer and their agents shall comply with the "Colorado Water Quality Control Act" (Title 25, Article 8, CRS), and the "Clean Water Act" (33 USC 1344), in addition to the requirements of the Land Development Code, DCM Volume II and the ECM Appendix I. All appropriate permits must be obtained by the contractor prior to construction (1041, NPDES, Floodplain, 404, fugitive dust, etc.). In the event of conflicts between these requirements and other laws, rules, or regulations of other Federal, State, local, or County agencies, the most restrictive laws, rules, or regulations shall apply.
- All construction traffic must enter/exit the site only at approved construction access points.
- Prior to construction the permittee shall verify the location of existing utilities.
- A water source shall be available on site during earthwork operations and shall be utilized as required to minimize dust from earthwork equipment and wind.
- The soils report for this site has been prepared by RMG Engineers/Architects, Inc (Dated: March 11, 2024) and shall be considered a part of these plans.
- At least ten (10) days prior to the anticipated start of construction, for projects that will disturb one (1) acre or more, the owner or operator of construction activity shall submit a permit application for stormwater discharge to the Colorado Department of Public Health and Environment, Water Quality Division. The application contains certification of completion of a stormwater management plan (SWMP), of which this Grading and Erosion Control Plan may be a part. For information or application materials contact:  
Colorado Department of Public Health and Environment  
Water Quality Control Division  
WQCD - Permits  
4300 Cherry Creek Drive South  
Denver, CO 80246-1530  
Attn: Permits Unit
- Base mapping was provided by Land Development Consultants. The date of the last survey update was July 27, 2021.
- Proposed Construction Schedule:  
Begin Construction: Summer 2024  
End Construction: Winter 2024  
Total Site Area = 3.25 Acres
- Area to be disturbed = 3.26 Acres.  
Existing 100-year runoff coefficient = 0.37  
Proposed 100-year runoff coefficient = 0.70  
Existing Hydrologic Soil Groups: A  
(A--Truon sandy loam)
- Site is currently undeveloped and covered with native grasses on moderate to steep slopes (25%-25%).
- Site is located in the West Fork Jimmy Camp Creek Drainage Basin.
- No Asphalt Batch Plants will be utilized at the site.

Sand Creek



SITE MAP  
SCALE: 1"=60'



VICINITY MAP  
SCALE: 1"=50'

#### 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.

#### SEED MIX

AREAS DISTURBED BY THE EARTHWORK ACTIVITIES AND NOT RECEIVING OTHER TREATMENT SHALL BE PERMANENTLY REVEGETATED WITH THE FOLLOWING SEED MIX.			
SPECIES	VARIETY	plg/acre	
SIDEWALLS GRAMA	<i>Bl. Reno</i>	3.0	
WESTERN WHEAT GRASS	<i>Burton</i>	2.0	
SLENDER WHEAT GRASS	<i>Native</i>	2.0	
LITTLE BLUESTEM	<i>Pastura</i>	2.0	
SAND DROPSPEED	<i>Native</i>	0.5	
SWITCH GRASS	<i>Nebraska 28</i>	3.0	
WEEPING LOVE GRASS	<i>Morpha</i>	1.0	
			14.0 lbs
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.			

#### INDEX OF SHEETS

C300	COVER SHEET
C301	INITIAL CONDITIONS
C302	INTERIM CONDITIONS
C303	FINAL CONDITIONS
C304	GEC DETAILS
C305	GEC DETAILS
C306	GEC DETAILS
C601	POND CONSTRUCTION
C602	POND DETAILS
C603	POND DETAILS
C604	POND DETAILS

#### OPINION OF COST FOR EROSION CONTROL REQUIREMENTS

ITEM	QUANTITY	UNIT	UNIT COST	AMOUNT
VEHICLE TRACKING CONTROL	2	EA	\$3,085.00	\$6,170.00
SILT FENCE	6,320	LF	\$3.00	\$18,960.00
STRAW BALES	18	EA	\$33.00	\$594.00
INLET PROTECTION	6	EA	\$217.00	\$1,302.00
CONCRETE WASH OUT	2	EA	\$1,172.00	\$2,344.00
ROCK SOCKS	100	EA	\$24.00	\$2,400.00
SURFACE ROUGHENING	1.0	AC	\$269.00	\$269.00
TEMPORARY SEEDING AND MULCH	0.7	AC	\$1793.00	\$1,255.00
MAINTENANCE (25% OF EROSION CONTROL)	1	LS	\$8,323.50	\$8,323.50
TOTAL				\$41,023.50

#### STANDARD NOTES FOR EL PASO COUNTY CONSTRUCTION PLANS

- 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 public 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.
- Signing and striping shall comply with El Paso County DOT and MUTCD criteria. [If applicable, additional signing and striping notes will be provided.]
- Contractor shall obtain any permits required by El Paso County DOT, 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.

#### DEVELOPER:

Leisure Construction, LLC  
3442 Tampa Road, Suite B  
Palm Harbor, FL 34684  
(727) 242-5121

#### PREPARED BY:

**Kiowa**  
Engineering Corporation

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

#### "A.G.A./A.P.W.A. STANDARD UTILITY MARKING COLOR CODE

NATURAL GAS	YELLOW
ELECTRIC	RED
WATER	BLUE
WASTEWATER	GREEN

CALL BEFORE YOU DIG...



48 HOURS BEFORE YOU DIG, CALL UTILITY LOCATORS FOR LOCATING AND MARKING GAS, ELECTRIC, WATER AND WASTEWATER

1-800-922-1987

PCD File PPR2412

My Garage @ Northcrest  
Grading Erosion Control Plan  
COVER SHEET  
El Paso County, Colorado

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

Project No.: 23049

Date: 06/17/2024

Design: MK

Drawn: MK

Check: AMcC

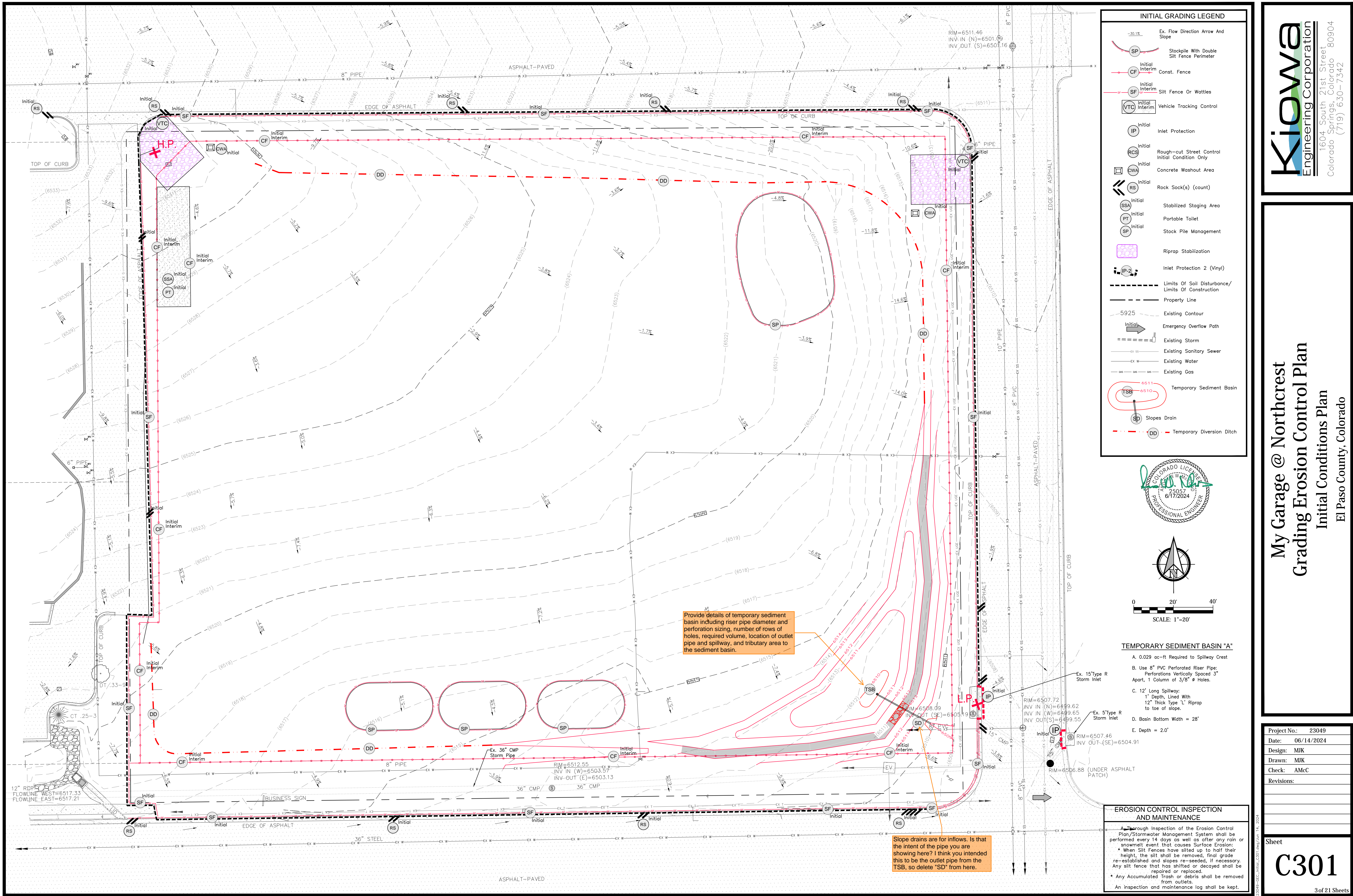
Revisions:

PCD File No. CDR-24-

**C300**

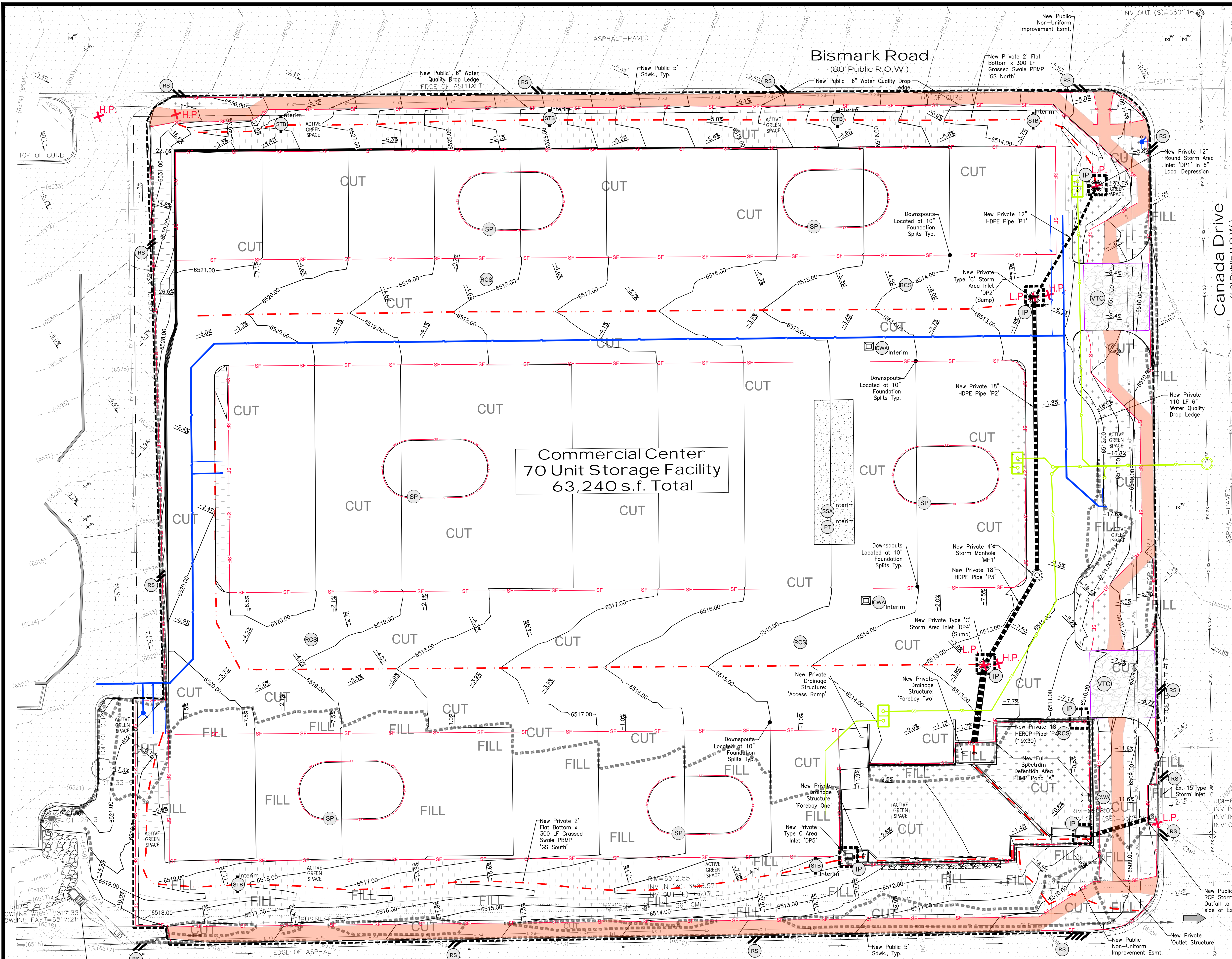
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**My Garage @ Northcrest**  
**Grading Erosion Control Plan**  
**Initial Conditions Plan**  
El Paso County, Colorado





### INTERIM GRADING LEGEND

**CUT** --- **FILL** Cut/Fill Delineation

- CF Initial Const. Fence
- SP Stockpile With Double Silt Fence Perimeter
- SF Initial Silt Fence Or Approved Alt.
- VTC Initial Vehicle Tracking Control
- IP Initial Inlet Protection
- STB Initial Straw Bale Barrier / Dyke
- CWA Initial Concrete Washout Area
- RS Initial Rock Sock(s) (count)
- SSA Initial Stabilized Staging Area
- PT Initial Portable Toilet
- SP Initial Stock Pile Management
- RCS Initial Rough-cut Street Control Interim Condition Only
- 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
- Existing Building Area
- Ex. or Proposed Concrete
- Ex. Asphalt
- Concrete Paving

### 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
SIDEWAYS GRAMA	El Reno	3.0
WESTERN WHEAT GRASS	Barton	2.5
SLENDER WHEAT GRASS	Native	2.0
LITTLE BLUESTEM	Pasture	2.0
SAND DROPSEED	Native	0.5
SWITCH GRASS	Nebraska 28	3.0
WEeping LOVE GRASS	Morpria	1.0
<b>14.0 lbs</b>		

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# Kiowa

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

## My Garage @ Northcrest

### Grading Erosion Control Plan

#### Interim Conditions Plan

El Paso County, Colorado

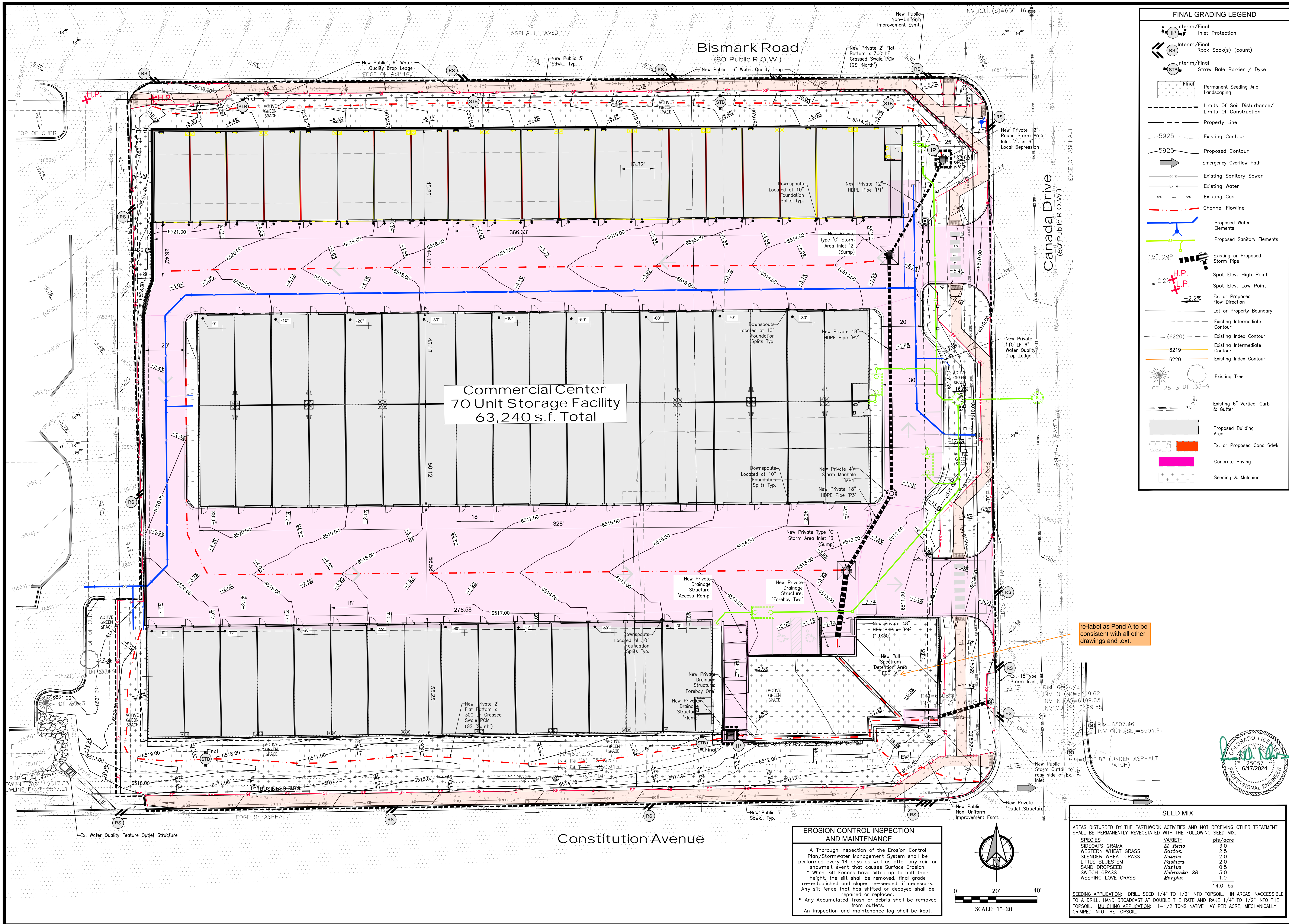
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Date: 06/14/2024  
Design: MJK  
Drawn: MJK  
Check: AMcC  
Revisions:

Sheet

# C302

4 of 21 Sheets





**FINAL GRADING LEGEND**

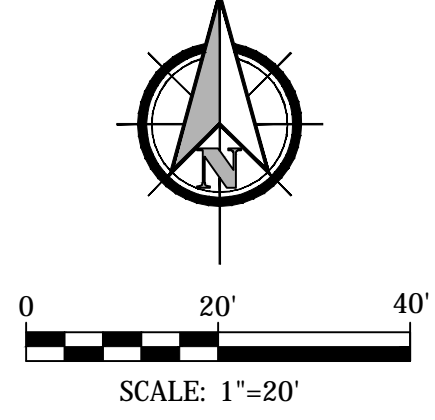
- Interim/Final Inlet Protection
- Interim/Final Rock Sock(s) (count)
- Interim/Final Straw Bale Barrier / Dyke
- Final Permanent Seeding And Landscaping
- Limits Of Soil Disturbance/ Limits Of Construction
- Property Line
- 5925 Existing Contour
- 5925 Proposed Contour
- Emergency Overflow Path
- Existing Sanitary Sewer
- Existing Water
- Existing Gas
- Channel Flowline
- Proposed Water Elements
- Proposed Sanitary Elements
- 15" CMP
- Spot Elev. High Point
- Spot Elev. Low Point
- 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 Sdkw
- Concrete Paving
- Seeding & Mulching

**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.



SEED MIX		
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SWITCH GRASS	Nebraska 28	3.0
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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

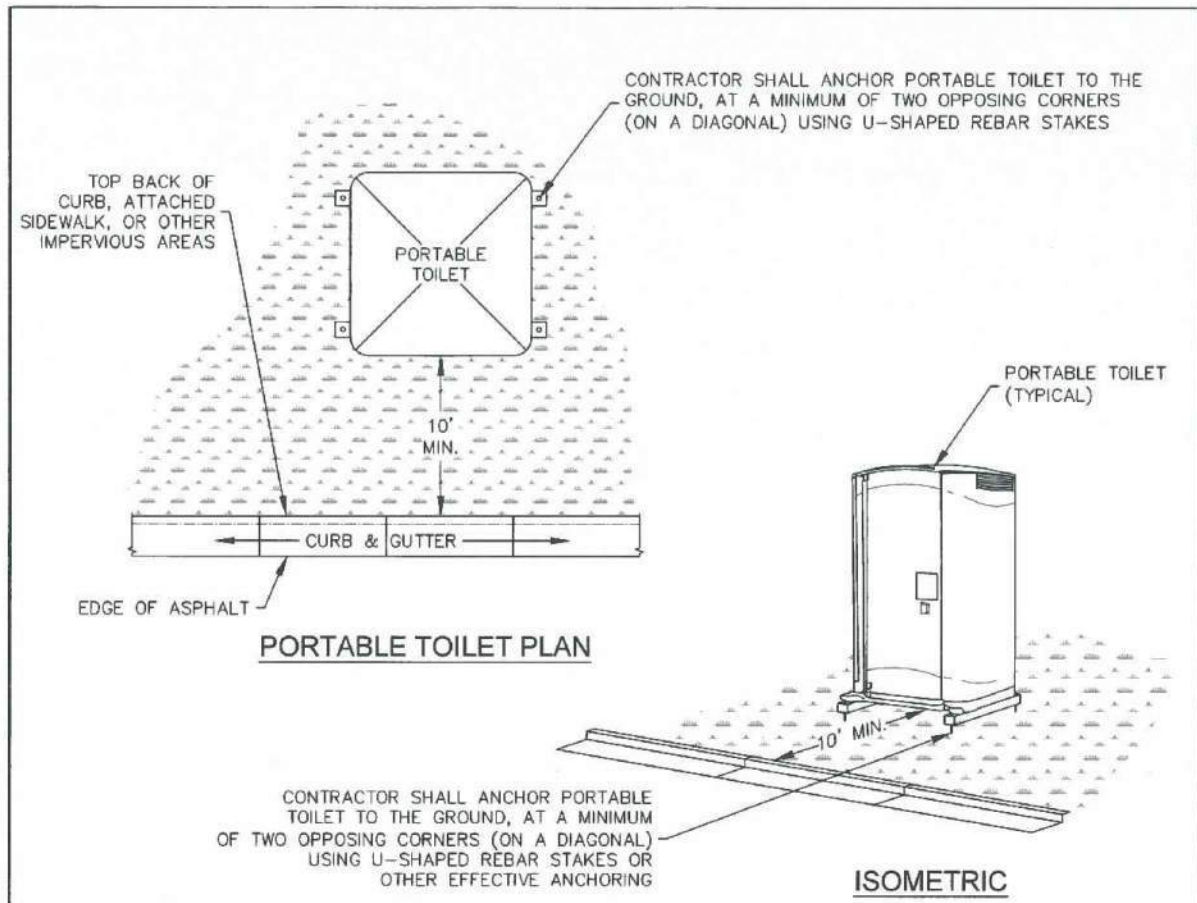
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Date: 05/27/2024  
Design: MJK  
Check: AMcC  
Revisions:

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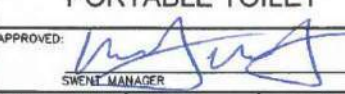
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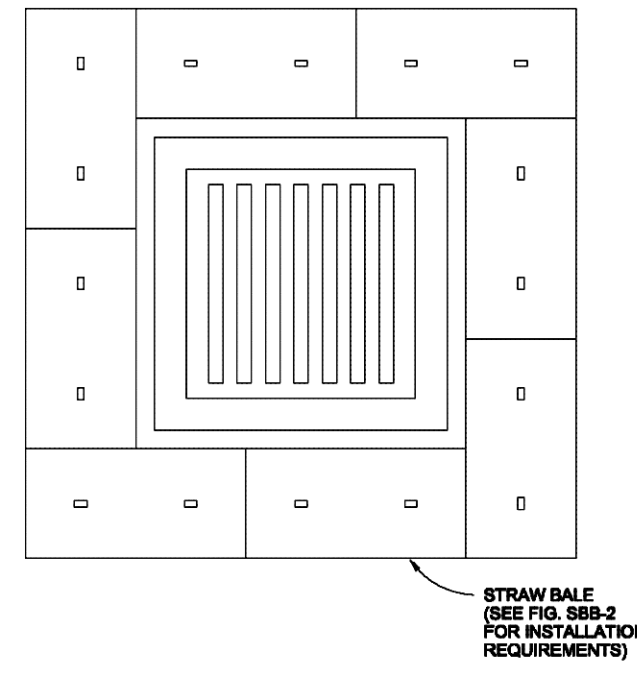
INSTALLATION NOTES		MAINTENANCE NOTES	
1. PORTABLE TOILETS SHALL BE PLACED A MINIMUM OF 10 FEET BEHIND ALL CURBS, SIDEWALKS, AND OTHER IMPERVIOUS AREAS; 50 FEET FROM STORM INLETS, AND 100 FEET FROM WATERWAYS.		1. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.	
2. PORTABLE TOILETS IN THE RIGHT-OF-WAY ARE REQUIRED TO BE PLACED ON MOBILE TRAILERS AND MUST BE ANCHORED OR WEIGHTED DOWN. PORTABLE TOILETS MAY BE INSTALLED IN ACCORDANCE WITH NOTE #1 IN STAGING AREAS/YARDS.		2. PORTABLE TOILETS SHALL BE SERVICED AT THE NECESSARY INTERVALS TO ELIMINATE THE POSSIBILITY OF OVERFLOW.	
3. PORTABLE TOILETS SHALL BE SECURELY ANCHORED TO THE GROUND USING U-SHAPED REBAR STAKES, OR OTHER EFFECTIVE ANCHORING.		3. WHEN THE PORTABLE TOILETS ARE REMOVED, ANY DISTURBED AREAS ASSOCIATED WITH THE INSTALLATION, MAINTENANCE, AND/OR REMOVAL OF THE TOILETS MUST BE PERMANENTLY STABILIZED.	
4. ANCHORING SHALL BE POSITIONED ON AT LEAST TWO OPPOSING (DIAGONAL) CORNERS.			
5. TOILET CONTAINMENT PANS MAY BE USED IN PLACE OF A TRAILER AT THE GEC INSPECTOR'S DISCRETION. TOILET CONTAINMENT PANS MUST BE ANCHORED IN PLACE AND MUST NOT BE USED WITHIN THE CITY R.O.W.			

PORTABLE TOILET

APPROVED: 

ISSUED: 2/15/19  
REVISED: 6/19/2020  
DRAWING NO. 905-PTM

PORTABLE TOILET **PT**  
NOT TO SCALE



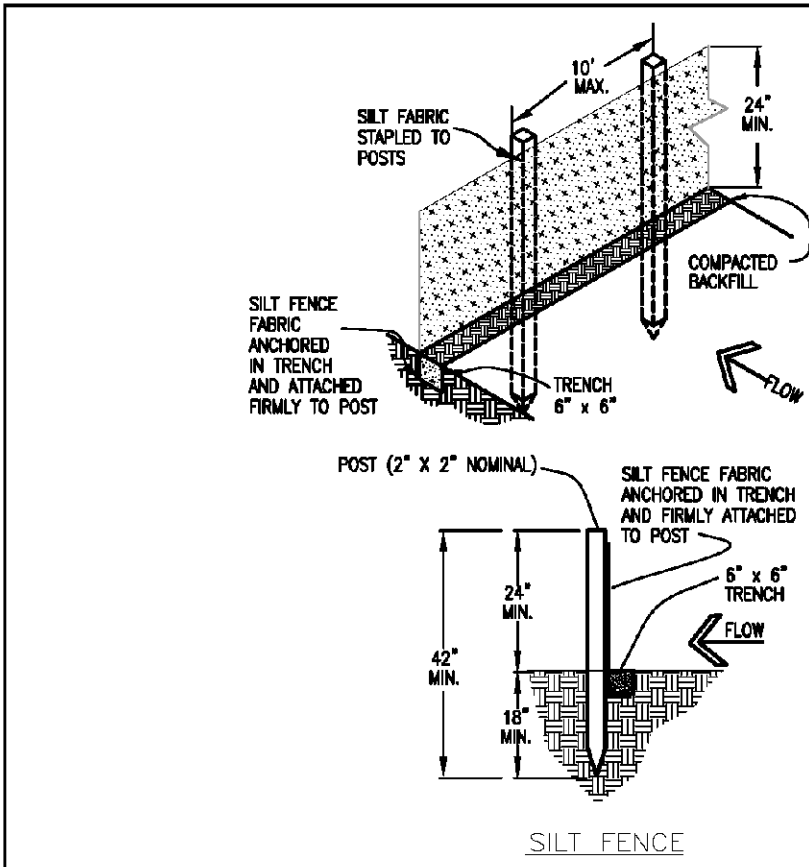
STRAW BALE INLET PROTECTION  
NTS

INSTALLATION REQUIREMENTS		MAINTENANCE REQUIREMENTS	
1. INLET PROTECTION SHALL BE INSTALLED IMMEDIATELY AFTER CONSTRUCTION OF INLET.		1. CONTRACTOR SHALL INSPECT STRAW BALE INLET PROTECTION IMMEDIATELY AFTER EACH RAINFALL, AT LEAST DAILY DURING PROLONGED RAINFALL, AND WEEKLY DURING PERIODS OF NO RAINFALL.	
2. BALES ARE TO BE PLACED IN A SINGLE ROW AROUND THE INLET WITH THE END OF THE BALES TIGHTLY ABUTTING ONE ANOTHER.		2. DAMAGED OR INEFFECTIVE INLET PROTECTION SHALL PROMPTLY BE REPAIRED, REPLACING BALES IF NECESSARY, AND UNENTRENCHED BALES NEED TO BE REPAIRED WITH COMPACTED BACKFILL MATERIAL.	
3. SEE STRAW BALE BARRIER FIGURE SBB-2 FOR INSTALLATION REQUIREMENTS.		3. SEDIMENT SHALL BE REMOVED FROM BEHIND STRAW BALES WHEN IT ACCUMULATES TO APPROXIMATELY 1/2 THE HEIGHT OF THE BARRIER.	

City of Colorado Springs  
Stormwater Quality

Figure IP-2  
Straw Bale Inlet Protection  
Construction Detail and Maintenance  
Requirements

INLET PROTECTION - 2 **IP-2**  
NOT TO SCALE

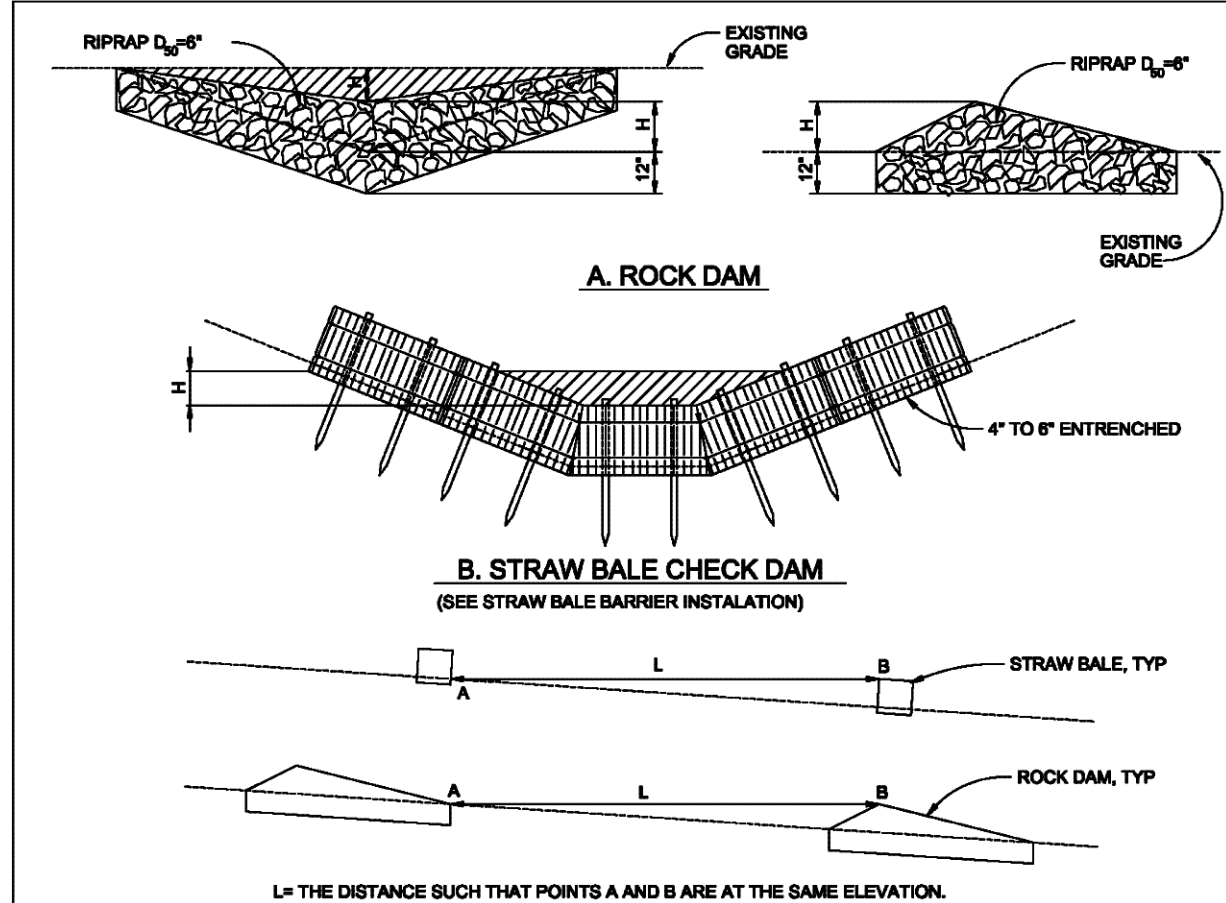


INSTALLATION REQUIREMENTS		MAINTENANCE REQUIREMENTS	
1. SILT FENCES SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.		1. CONTRACTOR SHALL INSPECT SILT FENCES IMMEDIATELY AFTER EACH RAINFALL, AT LEAST DAILY DURING PROLONGED RAINFALL, AND WEEKLY DURING PERIODS OF NO RAINFALL.	
2. WHEN JOINTS ARE NECESSARY, SILT FENCE GEOTEXTILE SHALL BE SPICED TOGETHER ONLY AT SUPPORT POST AND SECURELY SEALED.		2. DAMAGED OR INEFFECTIVE SILT FENCE SHALL PROMPTLY BE REPAIRED, REPLACING GEOTEXTILE IF NECESSARY, AND UNENTRENCHED GEOTEXTILE NEED TO BE REPAIRED WITH COMPACTED BACKFILL MATERIAL.	
3. METAL POSTS SHALL BE "STUDDED TEE" OR "U" TYPE WITH MINIMUM WEIGHT OF 1.33 POUNDS PER LINEAR FOOT. WOOD POSTS SHALL HAVE A MINIMUM DIAMETER ON CROSS SECTION DIMENSION OF 2 INCHES.		3. SEDIMENT SHALL BE REMOVED FROM BEHIND SILT FENCES WHEN IT ACCUMULATES TO APPROXIMATELY 1/2 THE HEIGHT OF THE FENCE.	
4. THE FILTER MATERIAL SHALL BE FASTENED SECURELY TO METAL OR WOOD POSTS USING WIRE TIES, OR 10 WOOD POSTS WITH 3/4" LONG #9 HEAVY-DUTY STAPLES. THE SILT FENCE GEOTEXTILE SHALL NOT BE STAPLED TO EXISTING TREES.		4. CONTRACTOR SHALL INSPECT SILT FENCES IMMEDIATELY AFTER EACH RAINFALL, AT LEAST DAILY DURING PROLONGED RAINFALL, AND WEEKLY DURING PERIODS OF NO RAINFALL.	
5. WHILE NOT REQUIRED, WIRE MESH FENCE MAY BE USED TO SUPPORT THE GEOTEXTILE. WIRE FENCE SHALL BE FASTENED SECURELY TO THE UPSLOPE SIDE OF THE POSTS USING HEAVY-DUTY WIRE STAPLES AT LEAST 3' LONG. THE WIRES OR HOG RINGS, THE WIRE SHALL EXTEND INTO THE TRENCH A MINIMUM OF 6" AND SHALL NOT EXTEND MORE THAN 3' ABOVE THE ORIGINAL GROUND SURFACE.		5. DAMAGED OR INEFFECTIVE SILT FENCE SHALL PROMPTLY BE REPAIRED, REPLACING GEOTEXTILE IF NECESSARY, AND UNENTRENCHED GEOTEXTILE NEED TO BE REPAIRED WITH COMPACTED BACKFILL MATERIAL.	

City of Colorado Springs  
Stormwater Quality

Figure SF-2  
Silt Fence  
Construction Detail and Maintenance  
Requirements

SILT FENCE **SF**  
NOT TO SCALE



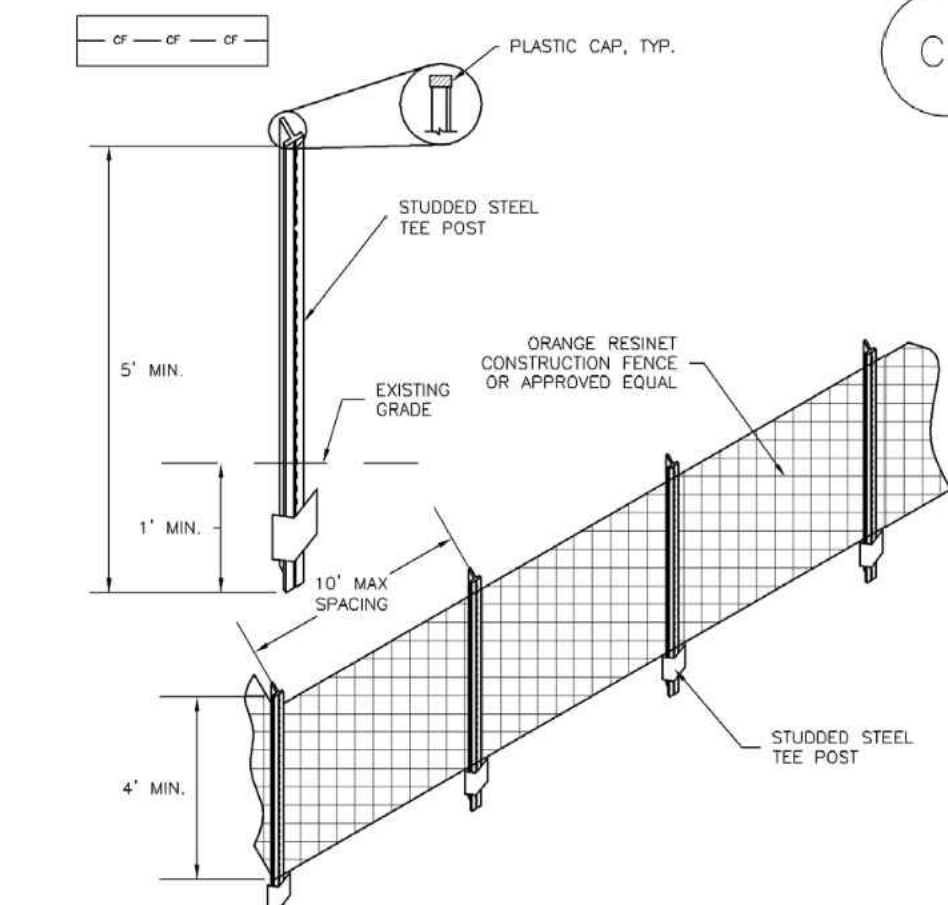
INSTALLATION REQUIREMENTS		MAINTENANCE REQUIREMENTS	
1. STRAW BALES USED AS CHECK DAMS ARE TO MEET THE REQUIREMENTS STATED IN FIGURE SBB-2.		1. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.	
2. THE "H" DIMENSION SHALL BE SELECTED TO PROVIDE WEIR FLOW CONVEYANCE FOR 2-YEAR FLOW OR GREATER.		2. REPLACE STONE AS NECESSARY TO MAINTAIN THE CORRECT HEIGHT OF THE DAM.	
		3. ACCUMULATED SEDIMENT AND DEBRIS IS TO BE REMOVED FROM BEHIND THE DAMS AFTER EACH STORM OR WHEN 1/2 OF THE ORIGINAL HEIGHT OF THE DAM IS REACHED.	
		4. CHECK DAMS ARE TO REMAIN IN PLACE AND OPERATIONAL UNTIL THE DRAINAGE AREA AND CHANNEL ARE PERMANENTLY STABILIZED.	
		5. WHEN CHECK DAMS ARE REMOVED THE CHANNEL LINING OR VEGETATION IS TO BE RESTORED.	

City of Colorado Springs  
Stormwater Quality

Figure CD-1  
Check Dam  
Construction Detail and Maintenance  
Requirements

CHECK DAM **CD1**  
NOT TO SCALE

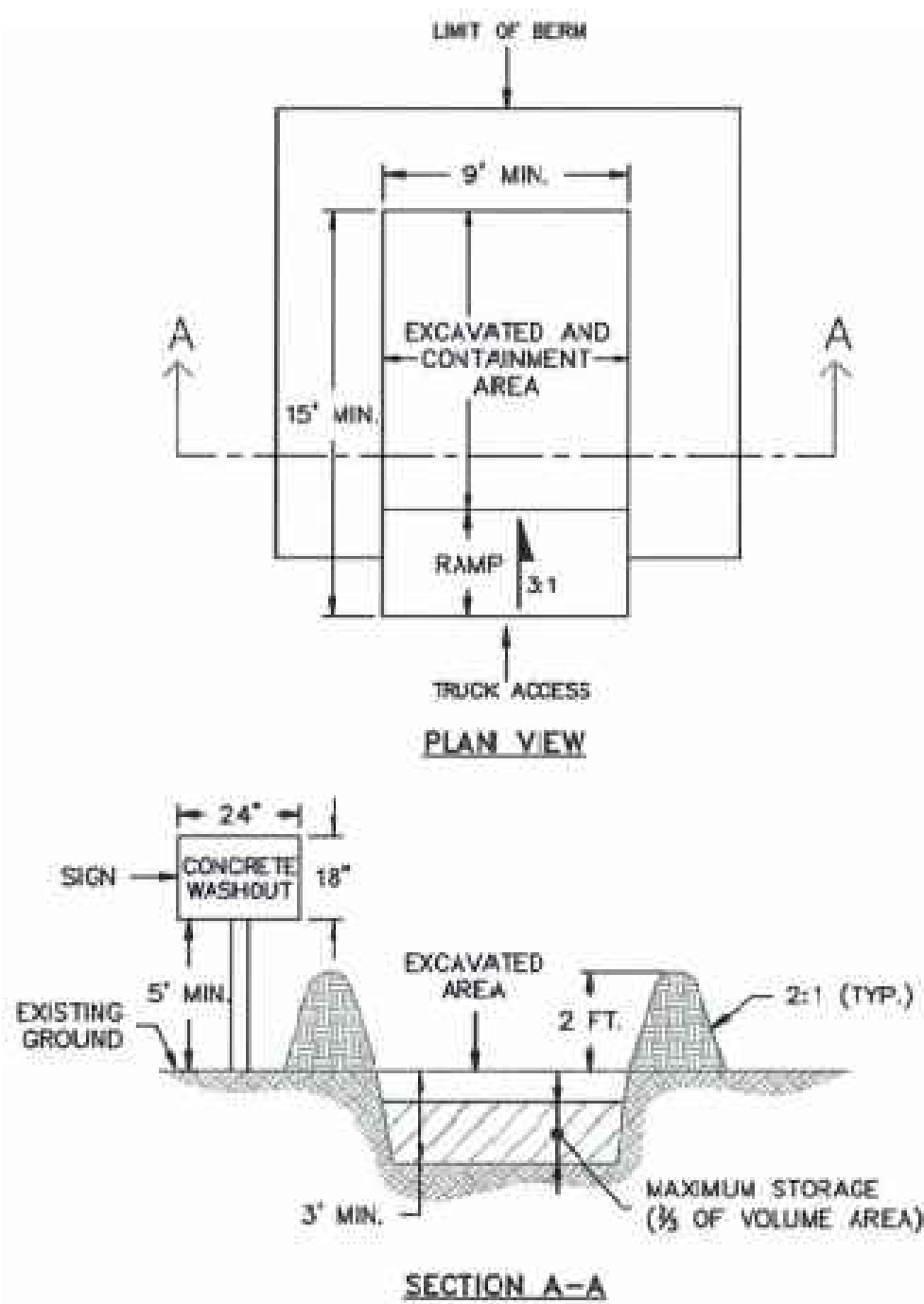
### SM-3 Construction Fence (CF)



CONSTRUCTION FENCE INSTALLATION NOTES		MAINTENANCE NOTES	
1. SEE PLAN VIEW FOR LOCATION OF CONSTRUCTION FENCE.		1. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.	
2. CONSTRUCTION FENCE SHOWN SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.		2. REPLACE STONE AS NECESSARY TO MAINTAIN THE CORRECT HEIGHT OF THE DAM.	
3. CONSTRUCTION FENCE SHALL BE COMPOSED OF ORANGE, CONTRACTOR-GRADE MATERIAL THAT IS AT LEAST 4' HIGH. METAL POSTS SHOULD HAVE A PLASTIC CAP FOR SAFETY.		3. ACCUMULATED SEDIMENT AND DEBRIS IS TO BE REMOVED FROM BEHIND THE DAMS AFTER EACH STORM OR WHEN 1/2 OF THE ORIGINAL HEIGHT OF THE DAM IS REACHED.	
4. STUDDED STEEL TEE POSTS SHALL BE UTILIZED TO SUPPORT THE CONSTRUCTION FENCE. MAXIMUM SPACING FOR STEEL TEE POSTS SHALL BE 10'.		4. CHECK DAMS ARE TO REMAIN IN PLACE AND OPERATIONAL UNTIL THE DRAINAGE AREA AND CHANNEL ARE PERMANENTLY STABILIZED.	
5. CONSTRUCTION FENCE SHALL BE SECURELY FASTENED TO THE TOP, MIDDLE, AND BOTTOM OF EACH POST.		5. WHEN CHECK DAMS ARE REMOVED THE CHANNEL LINING OR VEGETATION IS TO BE RESTORED.	

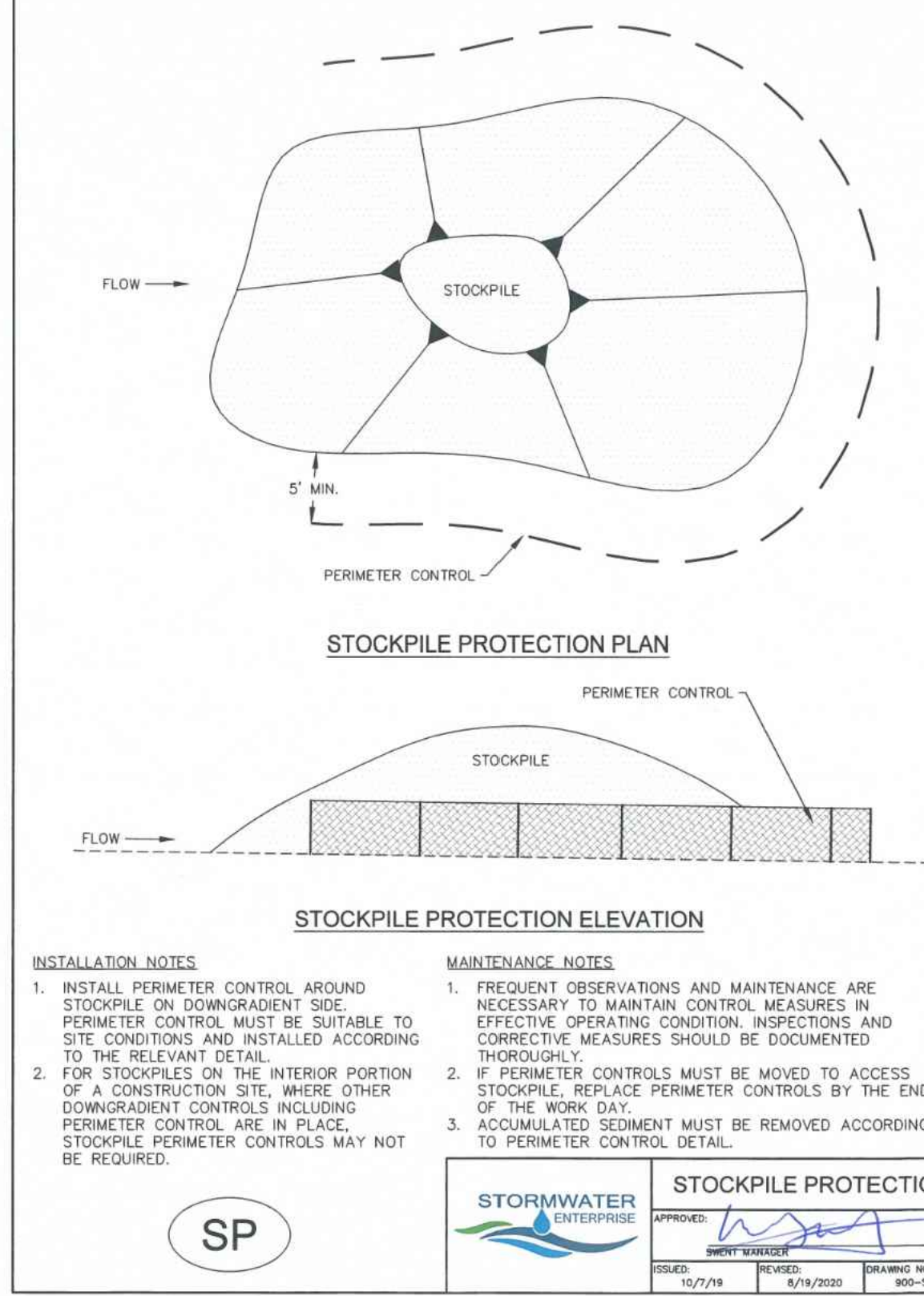
CF-2 Urban Drainage and Flood Control District  
Urban Storm Drainage Criteria Manual Volume 3 November 2010

CONSTRUCTION FENCE **CF**  
NOT TO SCALE



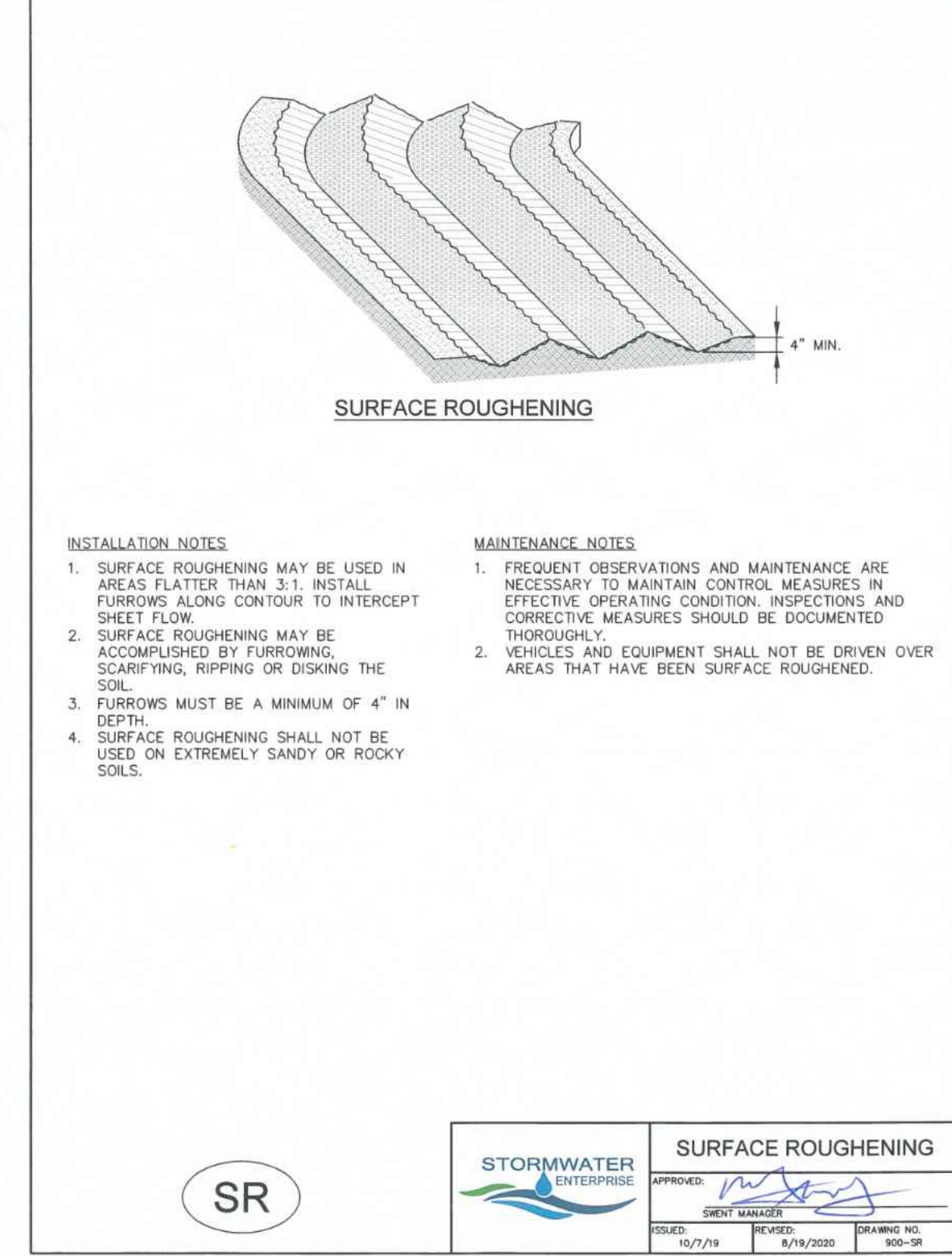
CONSTRUCTION FENCE INSTALLATION NOTES		MAINTENANCE NOTES	
1. SEE PLAN VIEW FOR LOCATION OF CONSTRUCTION FENCE.		1. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.	
2. CONSTRUCTION FENCE SHOWN SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.		2. REPLACE STONE AS NECESSARY TO MAINTAIN THE CORRECT HEIGHT OF THE DAM.	
3. CONSTRUCTION FENCE SHALL BE COMPOSED OF ORANGE, CONTRACTOR-GRADE MATERIAL THAT IS AT LEAST 4' HIGH. METAL POSTS SHOULD HAVE A PLASTIC CAP FOR SAFETY.		3. ACCUMULATED SEDIMENT AND DEBRIS IS TO BE REMOVED FROM BEHIND THE DAMS AFTER EACH STORM OR WHEN 1/2 OF THE ORIGINAL HEIGHT OF THE DAM IS REACHED.	
4. STUDDED STEEL TEE POSTS SHALL BE UTILIZED TO SUPPORT THE CONSTRUCTION FENCE. MAXIMUM SPACING FOR STEEL TEE POSTS SHALL BE 10'.		4. CHECK DAMS ARE TO REMAIN IN PLACE AND OPERATIONAL UNTIL THE DRAINAGE AREA AND CHANNEL ARE PERMANENTLY STABILIZED.	
5. CONSTRUCTION FENCE SHALL BE SECURELY FASTENED TO THE TOP, MIDDLE, AND BOTTOM OF EACH POST.		5. WHEN CHECK DAMS ARE REMOVED THE CHANNEL LINING OR VEGETATION IS TO BE RESTORED.	

CONCRETE WASHOUT AREA **CWA**  
NOT TO SCALE



CONSTRUCTION FENCE INSTALLATION NOTES		MAINTENANCE NOTES	
1. SEE PLAN VIEW FOR LOCATION OF CONSTRUCTION FENCE.		1. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.	
2. CONSTRUCTION FENCE SHOWN SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.		2. REPLACE STONE AS NECESSARY TO MAINTAIN THE CORRECT HEIGHT OF THE DAM.	
3. CONSTRUCTION FENCE SHALL BE COMPOSED OF ORANGE, CONTRACTOR-GRADE MATERIAL THAT IS AT LEAST 4' HIGH. METAL POSTS SHOULD HAVE A PLASTIC CAP FOR SAFETY.		3. ACCUMULATED SEDIMENT AND DEBRIS IS TO BE REMOVED FROM BEHIND THE DAMS AFTER EACH STORM OR WHEN 1/2 OF THE ORIGINAL HEIGHT OF THE DAM IS REACHED.	
4. STUDDED STEEL TEE POSTS SHALL BE UTILIZED TO SUPPORT THE CONSTRUCTION FENCE. MAXIMUM SPACING FOR STEEL TEE POSTS SHALL BE 10'.		4. CHECK DAMS ARE TO REMAIN IN PLACE AND OPERATIONAL UNTIL THE DRAINAGE AREA AND CHANNEL ARE PERMANENTLY STABILIZED.	
5. CONSTRUCTION FENCE SHALL BE SECURELY FASTENED TO THE TOP, MIDDLE, AND BOTTOM OF EACH POST.		5. WHEN CHECK DAMS ARE REMOVED THE CHANNEL LINING OR VEGETATION IS TO BE RESTORED.	

STOCKPILE PROTECTION **SP**  
NOT TO SCALE



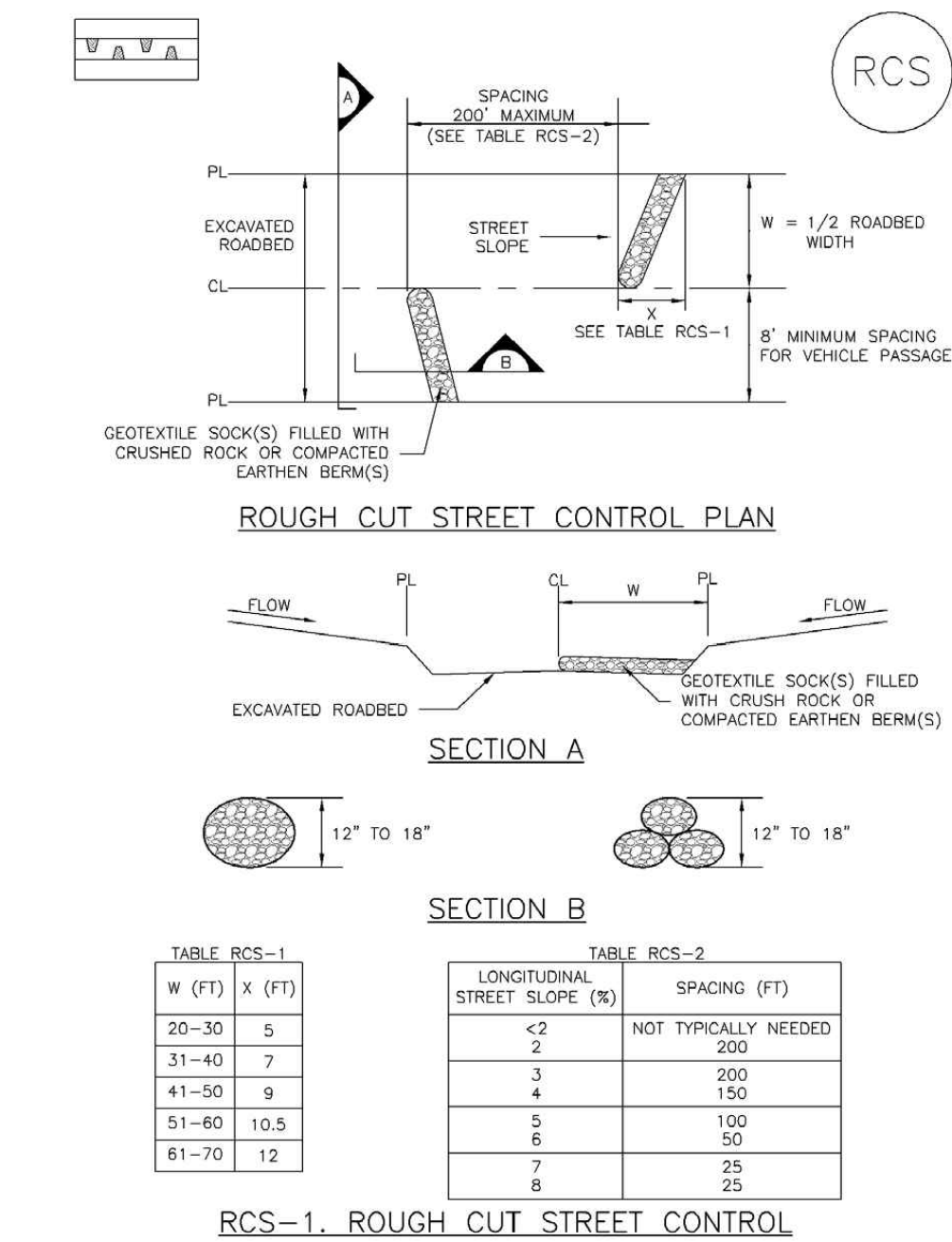
CONSTRUCTION FENCE INSTALLATION NOTES		MAINTENANCE NOTES	
1. SEE PLAN VIEW FOR LOCATION OF CONSTRUCTION FENCE.		1. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.	
2. CONSTRUCTION FENCE SHOWN SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.		2. REPLACE STONE AS NECESSARY TO MAINTAIN THE CORRECT HEIGHT OF THE DAM.	
3. CONSTRUCTION FENCE SHALL BE COMPOSED OF ORANGE, CONTRACTOR-GRADE MATERIAL THAT IS AT LEAST 4' HIGH. METAL POSTS SHOULD HAVE A PLASTIC CAP FOR SAFETY.		3. ACCUMULATED SEDIMENT AND DEBRIS IS TO BE REMOVED FROM BEHIND THE DAMS AFTER EACH STORM OR WHEN 1/2 OF THE ORIGINAL HEIGHT OF THE DAM IS REACHED.	
4. STUDDED STEEL TEE POSTS SHALL BE UTILIZED TO SUPPORT THE CONSTRUCTION FENCE. MAXIMUM SPACING FOR STEEL TEE POSTS SHALL BE 10'.		4. CHECK DAMS ARE TO REMAIN IN PLACE AND OPERATIONAL UNTIL THE DRAINAGE AREA AND CHANNEL ARE PERMANENTLY STABILIZED.	
5. CONSTRUCTION FENCE SHALL BE SECURELY FASTENED TO THE TOP, MIDDLE, AND BOTTOM OF EACH POST.		5. WHEN CHECK DAMS ARE REMOVED THE CHANNEL LINING OR VEGETATION IS TO BE RESTORED.	

SURFACE ROUGHENING **SR**  
NOT TO SCALE





EC-9 Rough Cut Street Control (RCS)

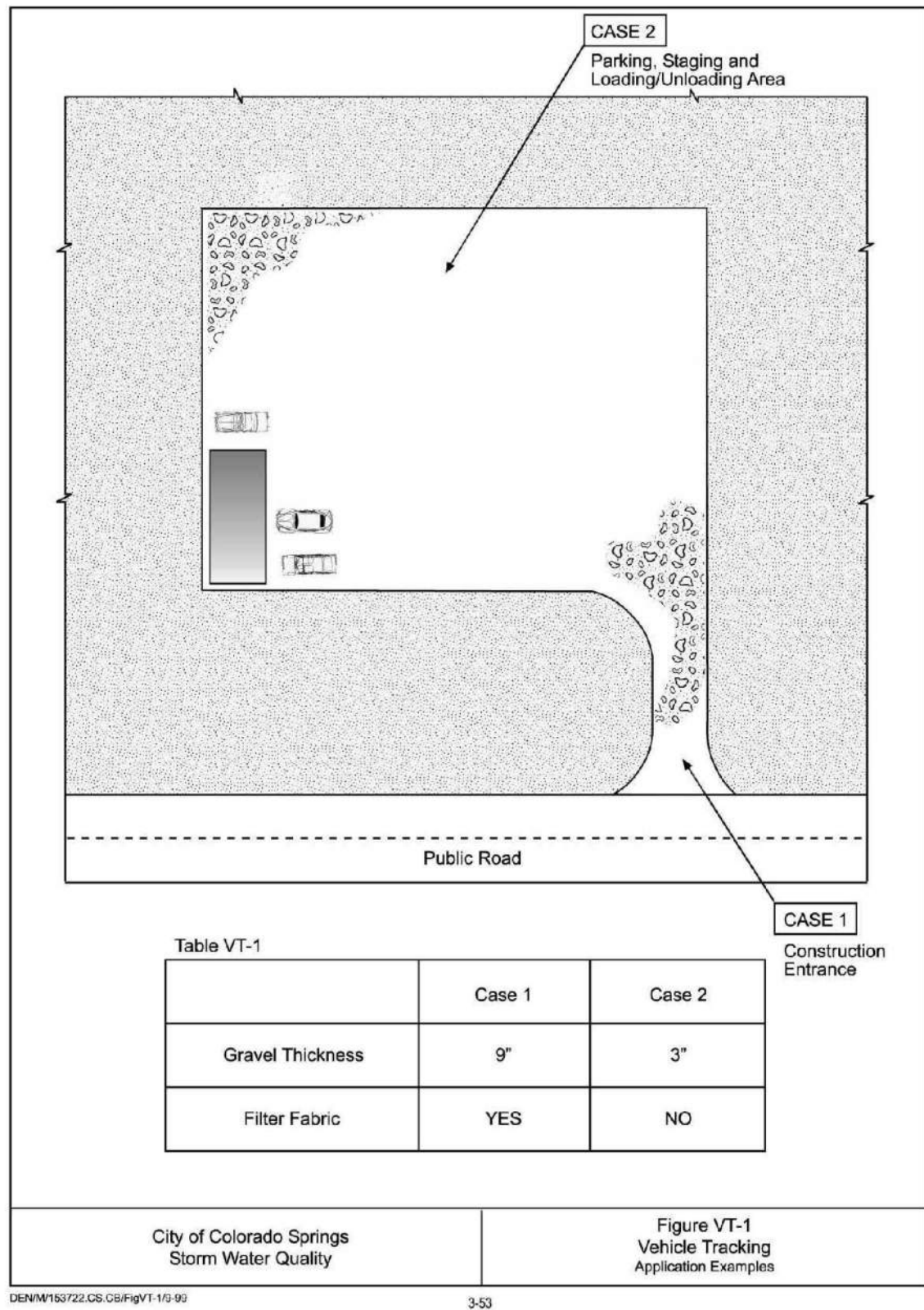


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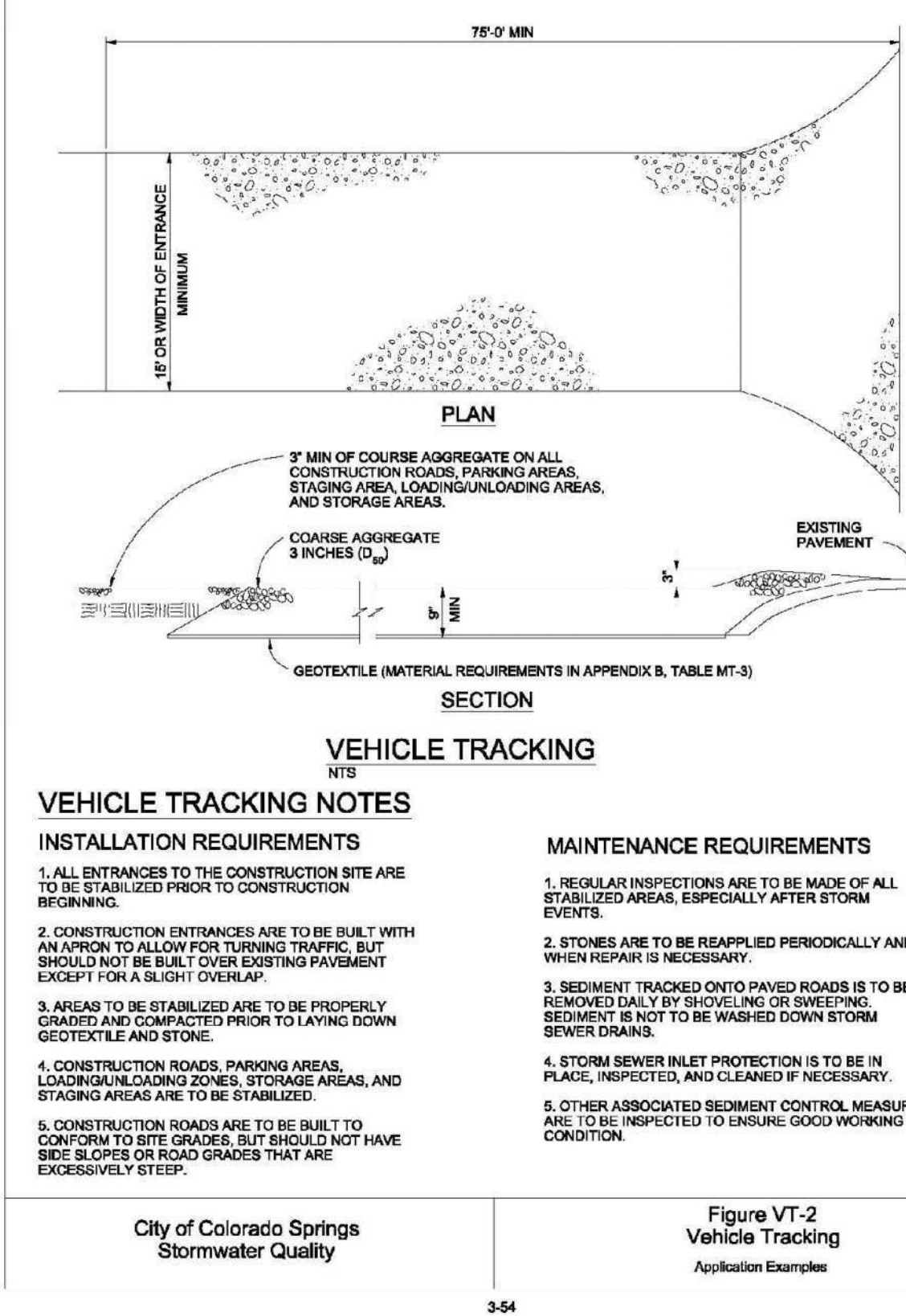
Rough Cut Street Control (RCS) EC-9

- ROUGH CUT STREET CONTROL INSTALLATION NOTES**
1. SEE PLAN VIEW FOR LOCATION OF ROUGH CUT STREET CONTROL MEASURES.
  2. ROUGH CUT STREET CONTROL SHALL BE INSTALLED AFTER A ROAD HAS BEEN CUT IN AND WILL NOT BE PAVED FOR MORE THAN 14 DAYS OR FOR TEMPORARY CONSTRUCTION ROADS THAT HAVE NOT RECEIVED ROAD BASE.
- ROUGH CUT STREET CONTROL INSPECTION AND MAINTENANCE NOTES**
1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
  2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
  3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
- (DETAILS ADAPTED FROM AURORA, COLORADO, NOT AVAILABLE IN AUTOCAD)
- NOTE:** MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

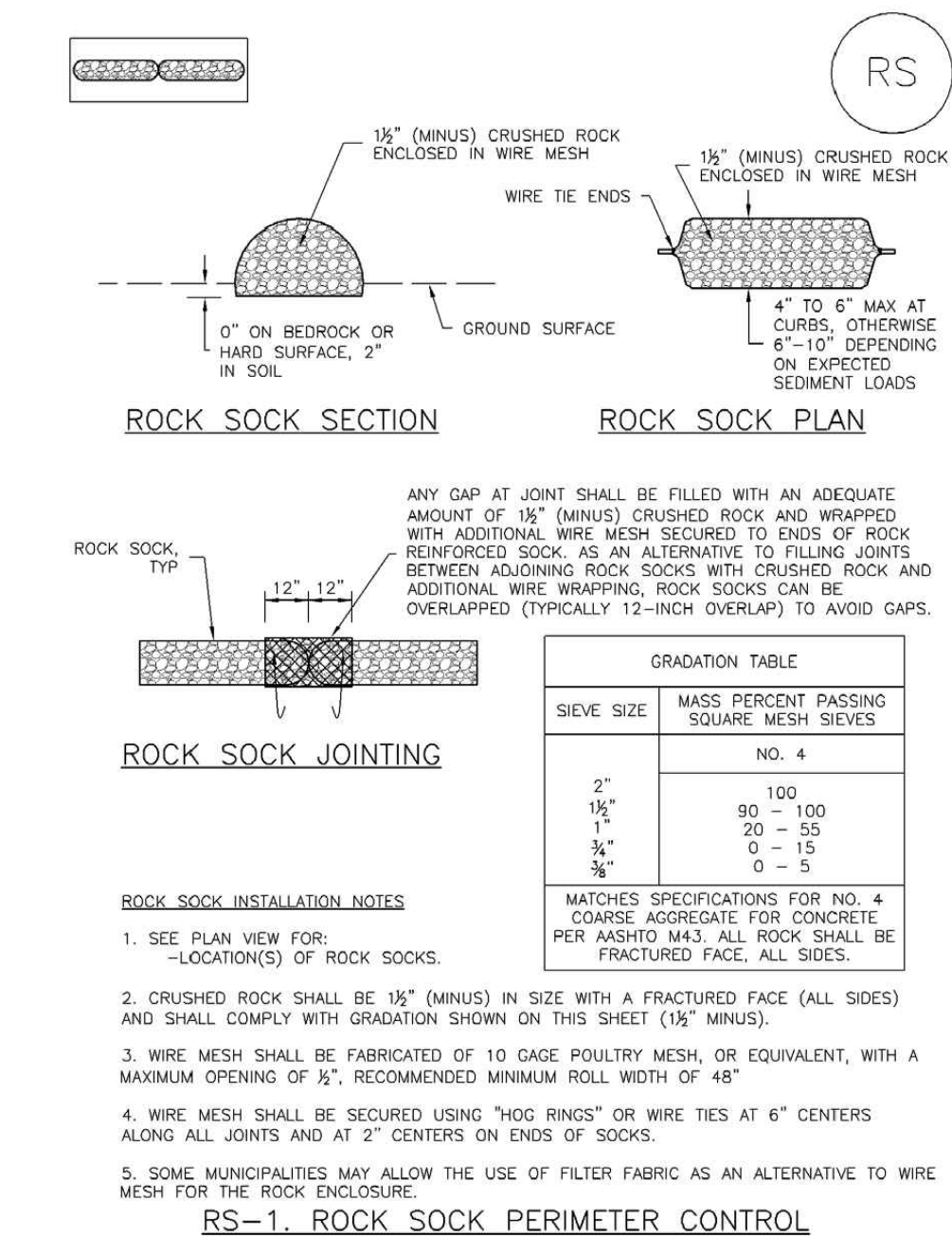
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VEHICLE TRACKING CONTROL (VTC) NOT TO SCALE



SC-5 Rock Sock (RS)



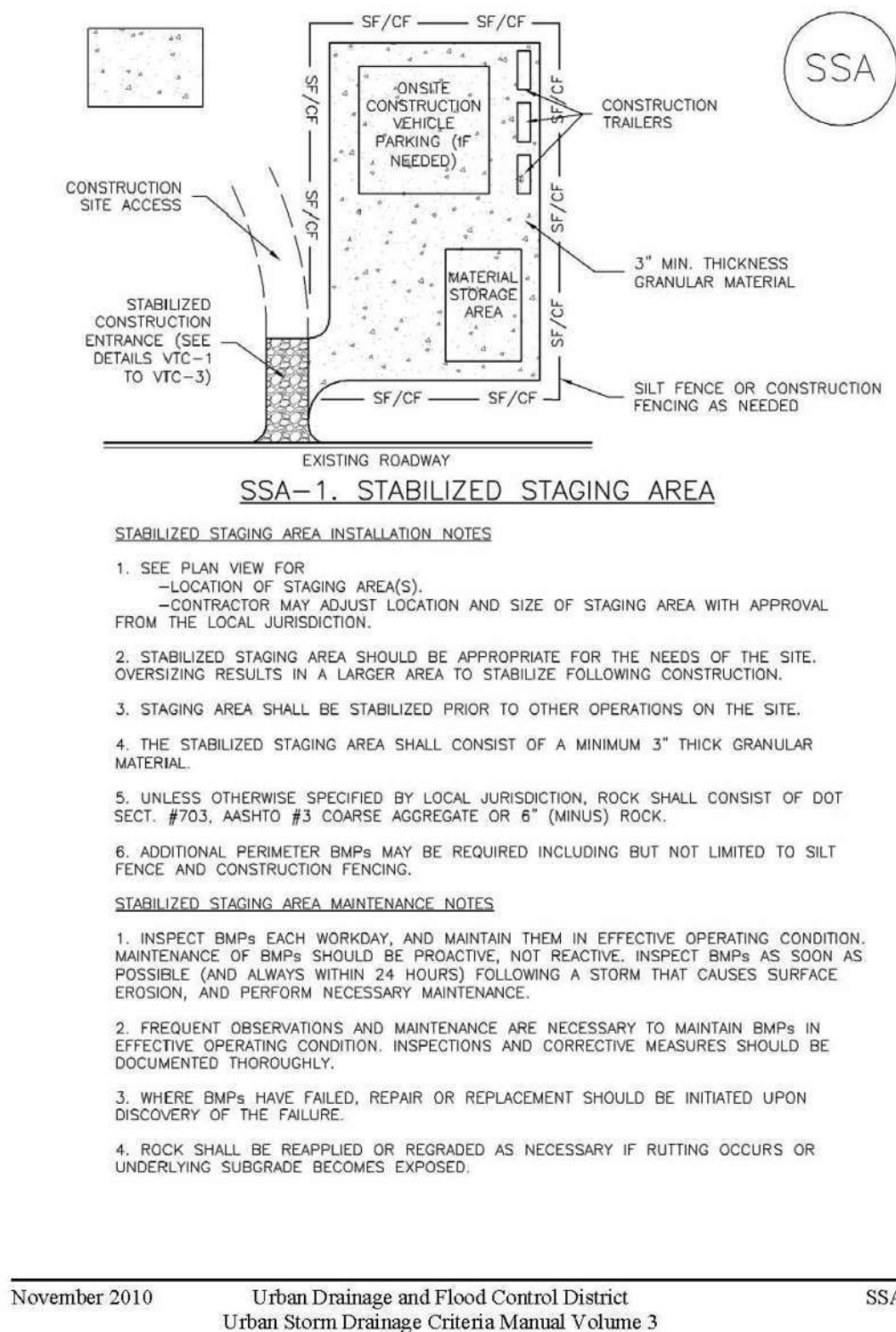
RS-2 Urban Drainage and Flood Control District November 2010  
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Rock Sock (RS) SC-5

- ROCK SOCK MAINTENANCE NOTES**
1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
  2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
  3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
  4. ROCK SOCKS SHALL BE REPLACED IF THEY BECOME HEAVILY SOILED, OR DAMAGED BEYOND REPAIR.
  5. SEDIMENT ACCUMULATED UPSTREAM OF ROCK SOCKS SHALL BE REMOVED AS NEEDED TO MAINTAIN FUNCTIONALITY OF THE BMP. TYPICALLY WHEN DEPTH OF ACCUMULATED SEDIMENTS IS APPROXIMATELY 1/2 OF THE HEIGHT OF THE ROCK SOCK.
  6. ROCK SOCKS ARE TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND APPROVED BY THE LOCAL JURISDICTION.
  7. WHEN ROCK SOCKS ARE REMOVED, ALL DISTURBED AREAS SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION.
- (DETAILS ADAPTED FROM TOWN OF PARKER, COLORADO AND CITY OF AURORA, COLORADO, NOT AVAILABLE IN AUTOCAD)
- NOTE:** MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.
- NOTE:** THE DETAILS INCLUDED WITH THIS FACT SHEET SHOW COMMONLY USED CONVENTIONAL METHODS OF ROCK SOCK INSTALLATION IN THE DENVER METROPOLITAN AREA. THERE ARE MANY OTHER SIMILAR PROPRIETARY PRODUCTS ON THE MARKET. UDFCD NEITHER ENDORSES NOR DISCOURAGES USE OF PROPRIETARY PROTECTION PRODUCTS; HOWEVER, IN THE EVENT PROPRIETARY METHODS ARE USED, THE APPROPRIATE DETAIL FROM THE MANUFACTURER MUST BE INCLUDED IN THE SWMP AND THE BMP MUST BE INSTALLED AND MAINTAINED AS SHOWN IN THE MANUFACTURER'S DETAILS.

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Stabilized Staging Area (SSA) SM-6



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Stabilized Staging Area (SSA) SM-6

- STABILIZED STAGING AREA MAINTENANCE NOTES**
5. STABILIZED STAGING AREA SHALL BE ENLARGED IF NECESSARY TO CONTAIN PARKING, STORAGE, AND UNLOADING/LOADING OPERATIONS.
  6. THE STABILIZED STAGING AREA SHALL BE REMOVED AT THE END OF CONSTRUCTION. THE GRANULAR MATERIAL SHALL BE REMOVED OR, IF APPROVED BY THE LOCAL JURISDICTION, USED ON SITE, AND THE AREA COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY LOCAL JURISDICTION.
- NOTE:** MANY MUNICIPALITIES PROHIBIT THE USE OF RECYCLED CONCRETE AS GRANULAR MATERIAL FOR STABILIZED STAGING AREAS DUE TO DIFFICULTIES WITH RE-ESTABLISHMENT OF VEGETATION IN AREAS WHERE RECYCLED CONCRETE WAS PLACED.
- NOTE:** MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.
- (DETAILS ADAPTED FROM DOUGLAS COUNTY, COLORADO, NOT AVAILABLE IN AUTOCAD)

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ROCK SOCK (RS) NOT TO SCALE

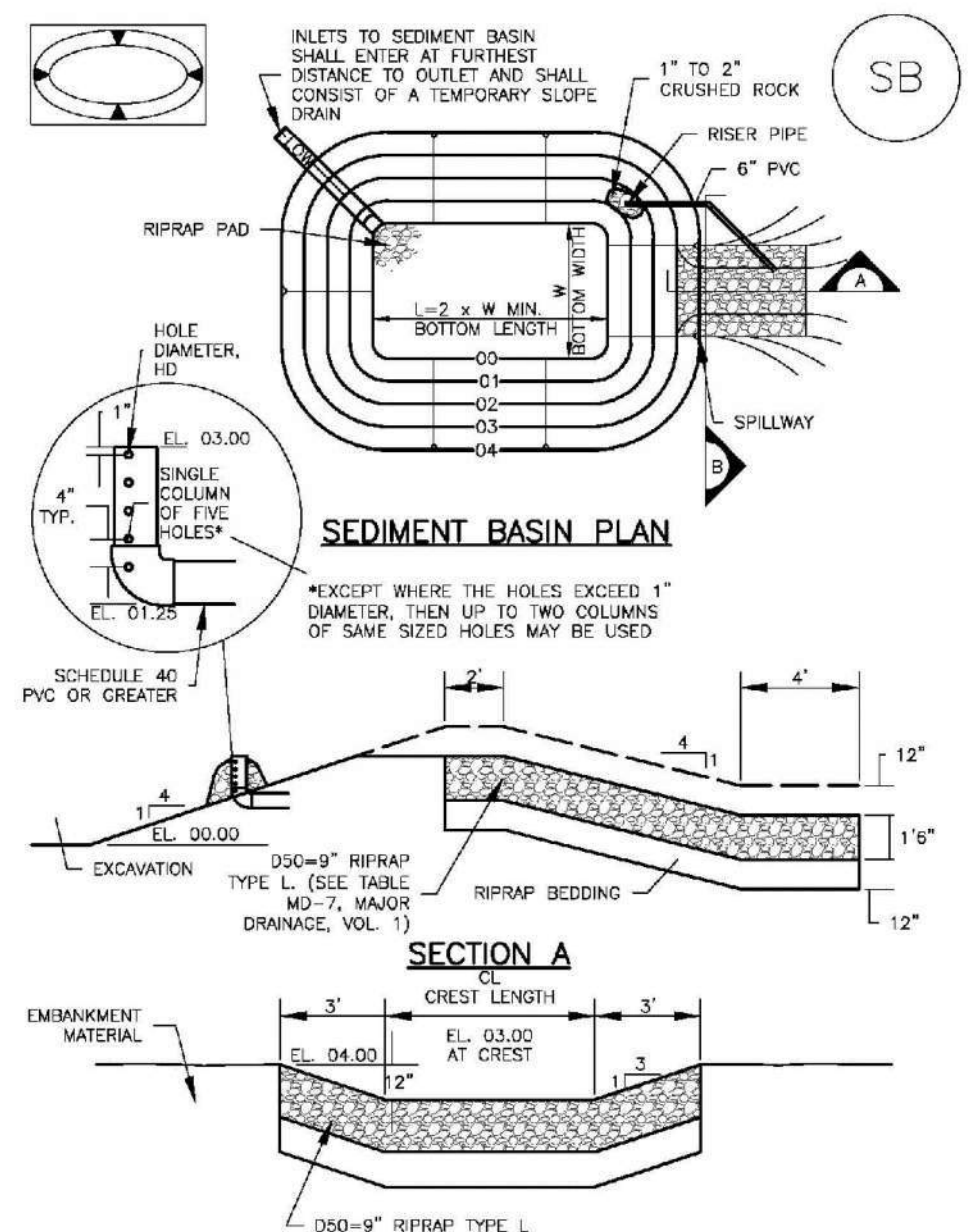
STABILIZED STAGING AREA (SSA) NOT TO SCALE





## Sediment Basin (SB)

SC-7



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SD-5

## SC-7

## Sediment Basin (SB)

TABLE SB-1. SIZING INFORMATION FOR STANDARD SEDIMENT BASIN				
Upstream Drainage Area (rounded to nearest acre), (ac)	Basin Bottom Width (W), (ft)	Spillway Crest Length (CL), (ft)	Hole Diameter (HD), (in)	
1	12 1/2	2	3/4	
2	21	3	1 1/4	
3	28	4	1 3/4	
4	33 1/2	5	1 7/8	
5	38 1/2	6	2	
6	43	7	2 1/8	
7	47 1/2	8	2 1/4	
8	51	9	2 3/8	
9	55	10	2 1/2	
10	58 1/2	11	2 5/8	
11	61	12	2 3/4	
12	64	13	2 7/8	
13	67 1/2	14	3	
14	70 1/2	15	3 1/4	
15	73 1/2	16	3 1/2	

## SEDIMENT BASIN INSTALLATION NOTES

- SEE PLAN VIEW FOR:
  - LOCATION OF SEDIMENT BASIN.
  - TYPE OF BASIN (STANDARD BASIN OR NONSTANDARD BASIN).
  - FOR STANDARD BASIN, BOTTOM WIDTH W, CREST LENGTH CL, AND HOLE DIAMETER, HD.
  - FOR NONSTANDARD BASIN, SEE CONSTRUCTION DRAWINGS FOR DESIGN OF BASIN INCLUDING RISER HEIGHT H, NUMBER OF COLUMNS N, HOLE DIAMETER HD AND PIPE DIAMETER D.
- FOR STANDARD BASIN, BOTTOM DIMENSION MAY BE MODIFIED AS LONG AS BOTTOM AREA IS NOT REDUCED.
- SEDIMENT BASINS SHALL BE INSTALLED PRIOR TO ANY OTHER LAND-DISTURBING ACTIVITY THAT RELIES ON ON BASINS AS A STORMWATER CONTROL.
- EMBANKMENT MATERIAL SHALL CONSIST OF SOIL FREE OF DEBRIS, ORGANIC MATERIAL, AND ROCKS OR CONCRETE GREATER THAN 3 INCHES AND SHALL HAVE A MINIMUM OF 15 PERCENT BY WEIGHT PASSING THE NO. 200 SIEVE.
- EMBANKMENT MATERIAL SHALL BE COMPACTED TO AT LEAST 95 PERCENT OF MAXIMUM DENSITY IN ACCORDANCE WITH ASTM D698.
- PIPE SCH 40 OR GREATER SHALL BE USED.
- THE DETAILS SHOWN ON THESE SHEETS PERTAIN TO STANDARD SEDIMENT BASIN(S) FOR DRAINAGE AREAS LESS THAN 15 ACRES. SEE CONSTRUCTION DRAWINGS FOR EMBANKMENT, STORAGE VOLUME, SPILLWAY, OUTLET, AND OUTLET PROTECTION DETAILS FOR ANY SEDIMENT BASIN(S) THAT HAVE BEEN INDIVIDUALLY DESIGNED FOR DRAINAGE AREAS LARGER THAN 15 ACRES.

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## TEMPORARY SEDIMENT BASIN (TSB) 'A'

NOT TO SCALE

## Sediment Basin (SB)

SC-7

## SEDIMENT BASIN MAINTENANCE NOTES

- INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
- FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
- WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
- SEDIMENT ACCUMULATED IN BASIN SHALL BE REMOVED AS NEEDED TO MAINTAIN BMP EFFECTIVENESS, TYPICALLY WHEN SEDIMENT DEPTH REACHES ONE FOOT (I.E., TWO FEET BELOW THE SPILLWAY CREST).
- SEDIMENT BASINS ARE TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND GRASS COVER IS ACCEPTED BY THE LOCAL JURISDICTION.
- WHEN SEDIMENT BASINS ARE REMOVED, ALL DISTURBED AREAS SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION.

(DETAILS ADAPTED FROM DOUGLAS COUNTY, COLORADO)

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

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SB-7

## SEEDING &amp; MULCHING

ALL SOIL TESTING, SOILS AMENDMENT AND FERTILIZER DOCUMENTATION, AND SEED LOAD AND BAG TICKETS MUST BE ADDED TO THE CSWMP.

## SOIL PREPARATION

- IN AREAS TO BE SEEDED, THE UPPER 6 INCHES OF THE SOIL MUST NOT BE HEAVILY COMPACTED, AND SHOULD BE IN FRABLE CONDITION. LESS THAN 80% STANDARD PROCTOR DENSITY IS ACCEPTABLE. AREAS OF COMPACTION OR GENERAL CONSTRUCTION ACTIVITY MUST BE SCARIFIED TO A DEPTH OF 6 TO 12 INCHES PRIOR TO SPREADING TOPSOIL TO BREAK UP COMPACTED LAYERS AND PROVIDE A BLENDING ZONE BETWEEN DIFFERENT SOIL LAYERS.
- AREAS TO BE PLANTED SHALL HAVE AT LEAST 4 INCHES OF TOPSOIL SUITABLE TO SUPPORT PLANT GROWTH.
- THE CITY RECOMMENDS THAT EXISTING AND/OR IMPORTED TOPSOIL BE TESTED TO IDENTIFY SOIL DEFICIENCIES AND ANY SOIL AMENDMENTS NECESSARY TO ADDRESS THESE DEFICIENCIES. SOIL AMENDMENTS AND/OR FERTILIZERS SHOULD BE ADDED TO CORRECT TOPSOIL DEFICIENCIES BASED ON SOIL TESTING RESULTS.
- TOPSOIL SHALL BE PROTECTED DURING THE CONSTRUCTION PERIOD TO RETAIN ITS STRUCTURE AVOID COMPACTION, AND TO PREVENT EROSION AND CONTAMINATION. STRIPPED TOPSOIL MUST BE STORED IN AN AREA AWAY FROM MACHINERY AND CONSTRUCTION OPERATIONS, AND CARE MUST BE TAKEN TO PROTECT THE TOPSOIL AS A VALUABLE COMMODITY. TOPSOIL MUST NOT BE STRIPPED DURING UNDESIRABLE WORKING CONDITIONS (E.G. DURING WET WEATHER OR WHEN SOILS ARE SATURATED). TOPSOIL SHALL NOT BE STORED IN SWALES OR IN AREAS WITH POOR DRAINAGE.

## SEEDING

- ALLOWABLE SEED MIXES ARE INCLUDED IN THE CITY OF COLORADO SPRINGS STORMWATER CONSTRUCTION MANUAL. ALTERNATIVE SEED MIXES ARE ACCEPTABLE IF INCLUDED IN AN APPROVED LANDSCAPING PLAN.
- SEED SHOULD BE DRILL-SEEDED WHENEVER POSSIBLE.
  - SEED DEPTH MUST BE 1/4 TO 3/8 INCHES WHEN DRILL-SEEDED IS USED.
  - BROADCAST SEEDING OR HYDRO-SEEDED WITH TACKIFIER MAY BE SUBSTITUTED ON SLOPES STEEPER THAN 3:1 OR ON OTHER AREAS NOT PRACTICAL TO DRILL SEED.
  - SEEDING RATES MUST BE DOUBLED FOR BROADCAST SEEDING OR INCREASED BY 50% IF USING A BRILLIANT DRILL OR HYDRO-SEEDED.
  - BROADCAST SEEDING MUST BE LIGHTLY HAND-RAKED INTO THE SOIL.

## MULCHING

- MULCHING SHOULD BE COMPLETED AS SOON AS PRACTICABLE AFTER SEEDING, HOWEVER PLANTED AREAS MUST BE MULCHED NO LATER THAN 14 DAYS AFTER PLANTING.
- MULCHING REQUIREMENTS INCLUDE:
  - HAY OR STRAW MULCH
    - ONLY CERTIFIED WEED-FREE AND CERTIFIED SEED-FREE MULCH MAY BE USED. MULCH MUST BE APPLIED AT 2 TONS/ACRE AND ADEQUATELY SECURED BY CRIMPING AND/OR TACKIFIER.
    - CRIMPING MUST NOT BE USED ON SLOPES GREATER THAN 3:1 AND MULCH FIBERS MUST BE TUCKED INTO THE SOIL TO A DEPTH OF 3 TO 4 INCHES.
    - TACKIFIER MUST BE USED IN PLACE OF CRIMPING ON SLOPES STEEPER THAN 3:1.
  - HYDRAULIC MULCHING
    - HYDRAULIC MULCHING IS AN OPTION ON STEEP SLOPES OR WHERE ACCESS IS LIMITED.
    - IF HYDRO-SEEDED IS USED, MULCHING MUST BE APPLIED AS A SEPARATE, SECOND OPERATION.
    - WOOD CELLULOSE FIBERS MIXED WITH WATER MUST BE APPLIED AT A RATE OF 2,000 TO 2,500 POUNDS/ACRE, AND TACKIFIER MUST BE APPLIED AT A RATE OF 100 POUNDS/ACRE.
  - EROSION CONTROL BLANKET
    - EROSION CONTROL BLANKET MAY BE USED IN PLACE OF TRADITIONAL MULCHING METHODS.

SM

STORMWATER ENTERPRISE		SEEDING & MULCHING	
APPROVED:		DRAWN:	
DATE: 10/7/19	REVISED: 8/15/2020	DRAWING NO. 900-SM	

## SEEDING &amp; MULCHING (SM)

NOT TO SCALE

My Garage @ Northcrest  
Grading Erosion Control Plan  
Details  
El Paso County, Colorado

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

Sheet

C306

8 of 21 Sheets

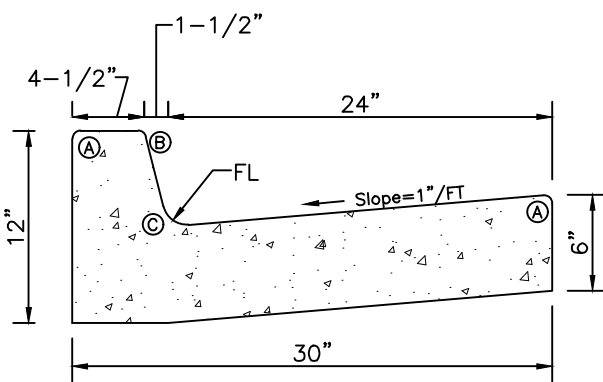
Kiowa  
Engineering Corporation  
1604 South 21st Street  
Colorado Springs, Colorado 80904  
(719) 630-7342





GENERAL NOTES

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

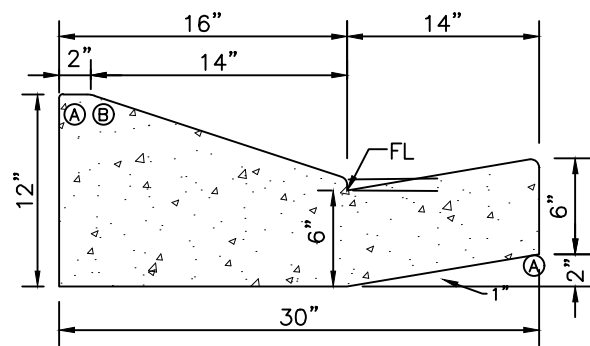


EPC TYPE A CURB & GUTTER  
NOT TO SCALE

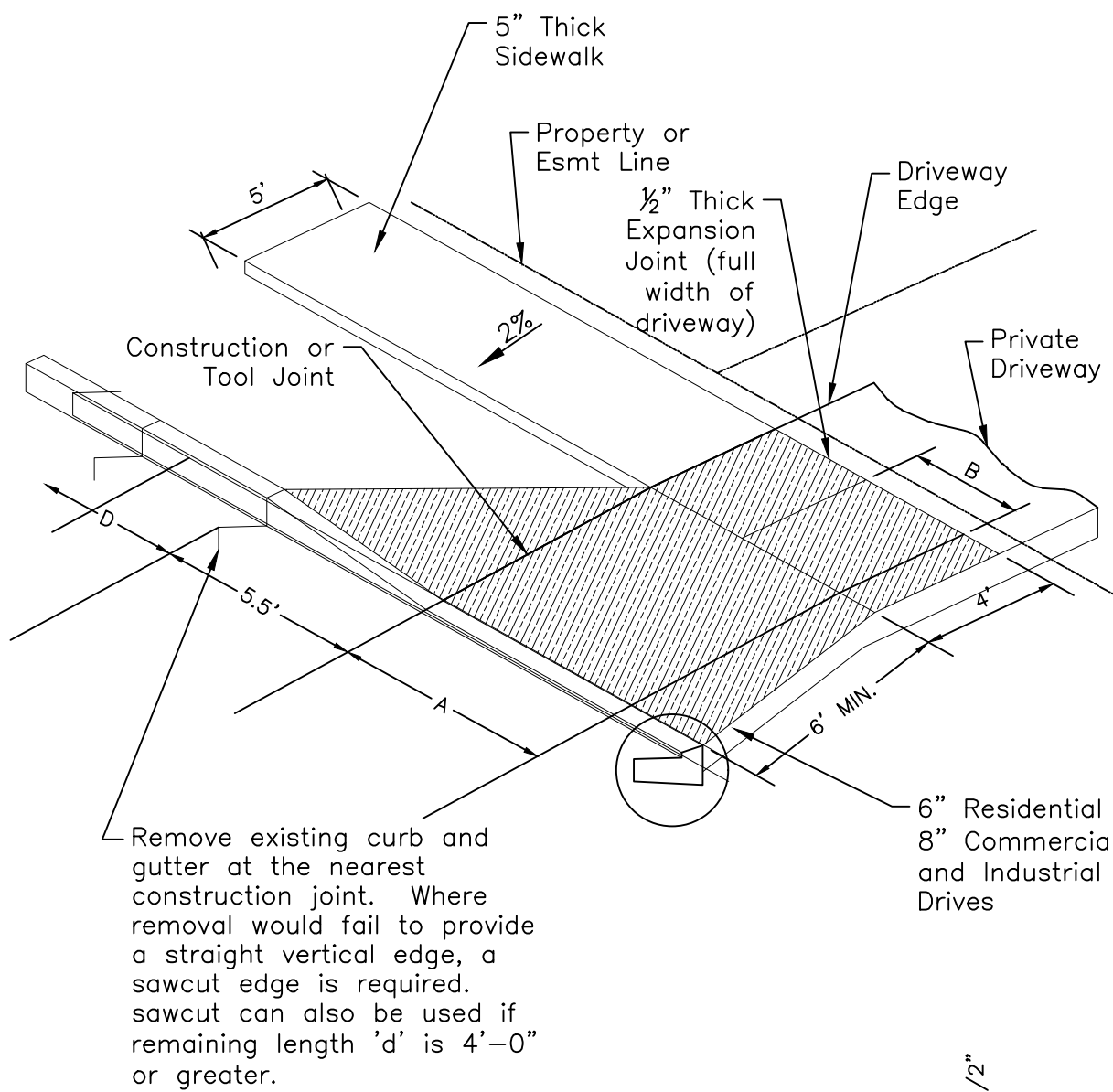
LENGTH FOR RADII		
A=1/8"-1/4"	B=1-1/2"	C=1-1/2"-2"

CURB & GUTTER DETAILS

EPC STD. SD. 2-20  
NOT TO SCALE



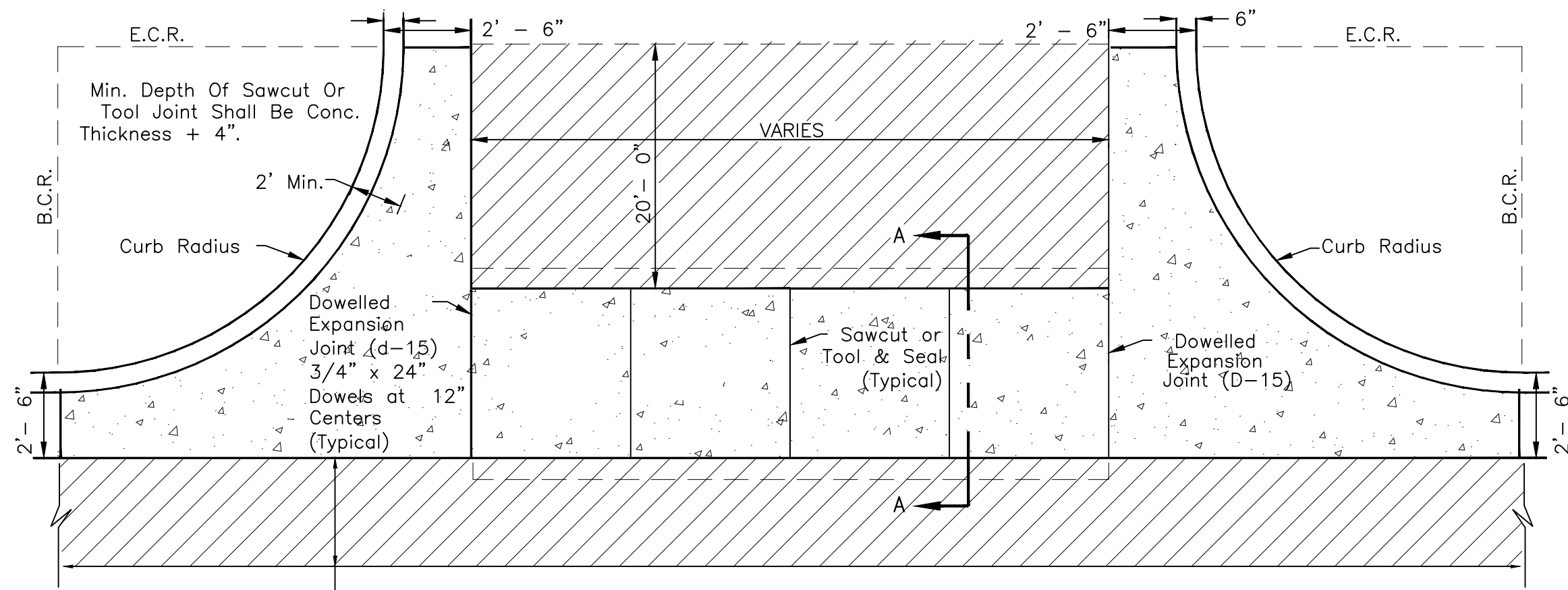
EPC OPTIONAL TYPE C CURB & GUTTER  
NOT TO SCALE



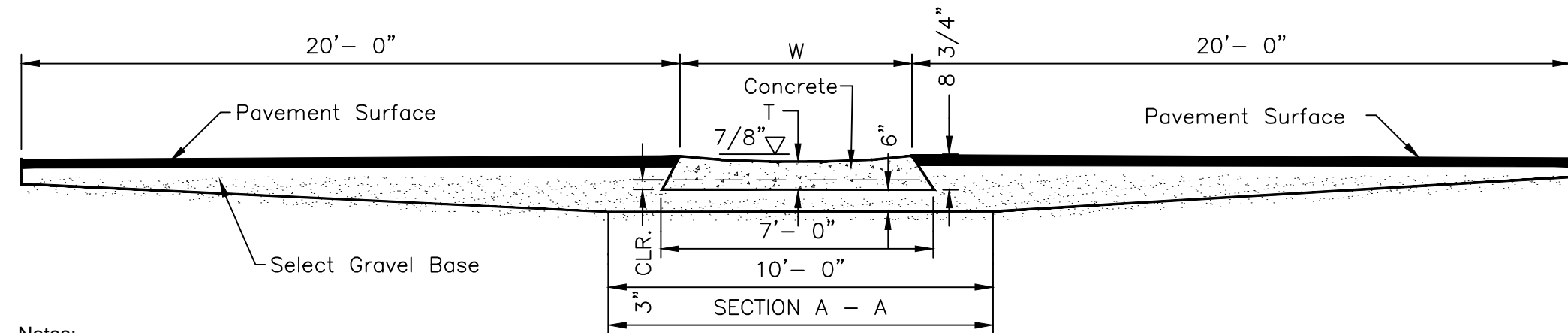
TOOL JOINT SPACING		
DRIVEWAY WIDTH	A	B
12'	6'	3'
14'	7'	3'-6"
16'	8'	4'
18'	9'	4'-6"
20'	10'	5'
22'	11'	5'-6"
24'	8'	4'
26'	8'-8"	4'-4"
28'	9'-4"	4'-8"
30'	10'	5'

DRIVEWAY DETAIL WITH DETACHED SIDEWALK

EPC STD. SD. 2-25  
NOT TO SCALE



PLAN VIEW



SECTION A - A

Notes:

- W - Width shall be 6' for local, 8' for collectors, And 10' for Arterial Roads.
- 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).
- Design to specify elevations at pi and pcr
- Flow Capture Depth (Depression) shall be 7/8" for Local, 1-1/8" for Collectors, And 1-1/2" for arterial roads.
- Flowline Grade shall be minimum 0.5%

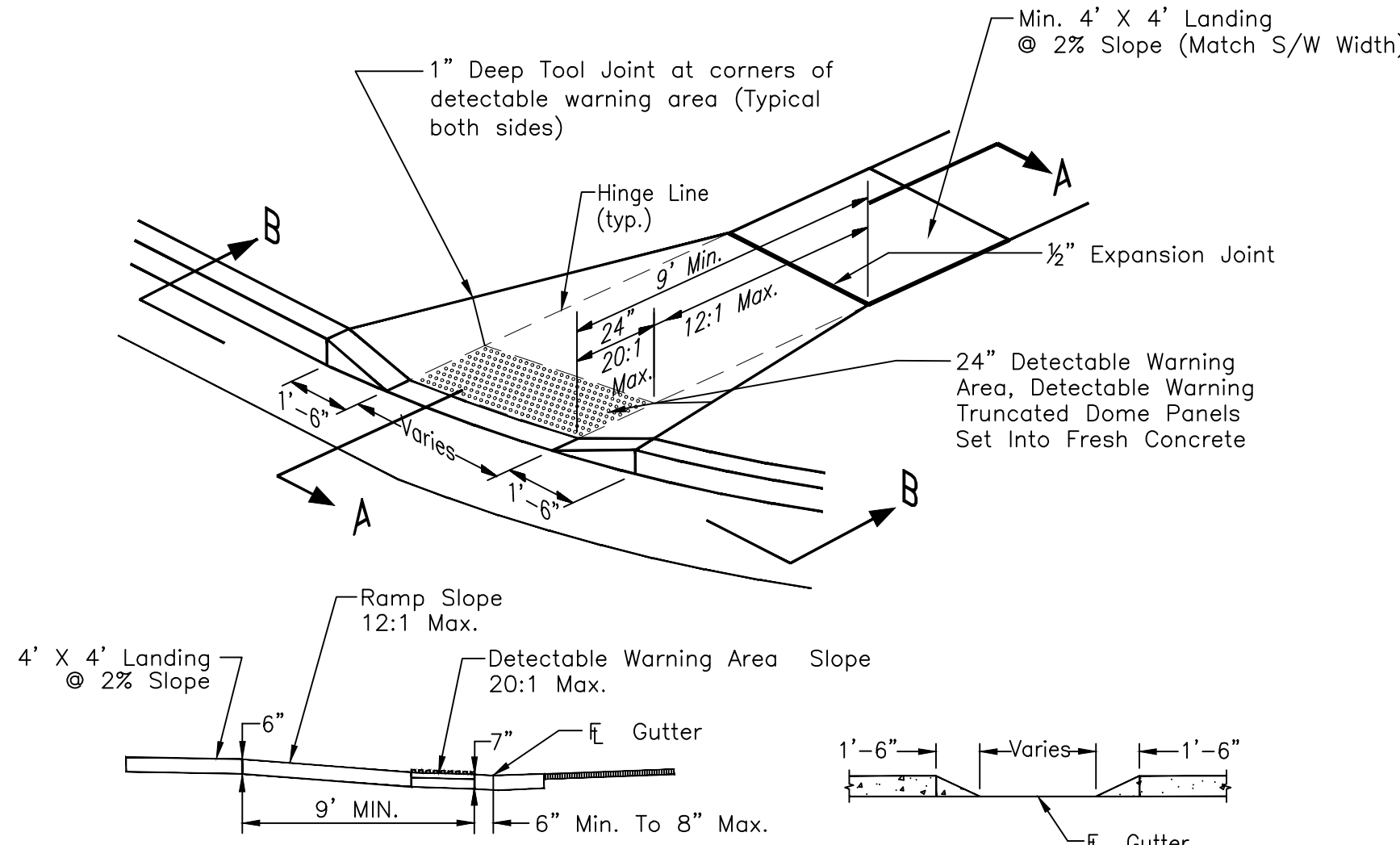
CROSS PAN DETAIL

EPC STD. SD. 2-26  
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



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

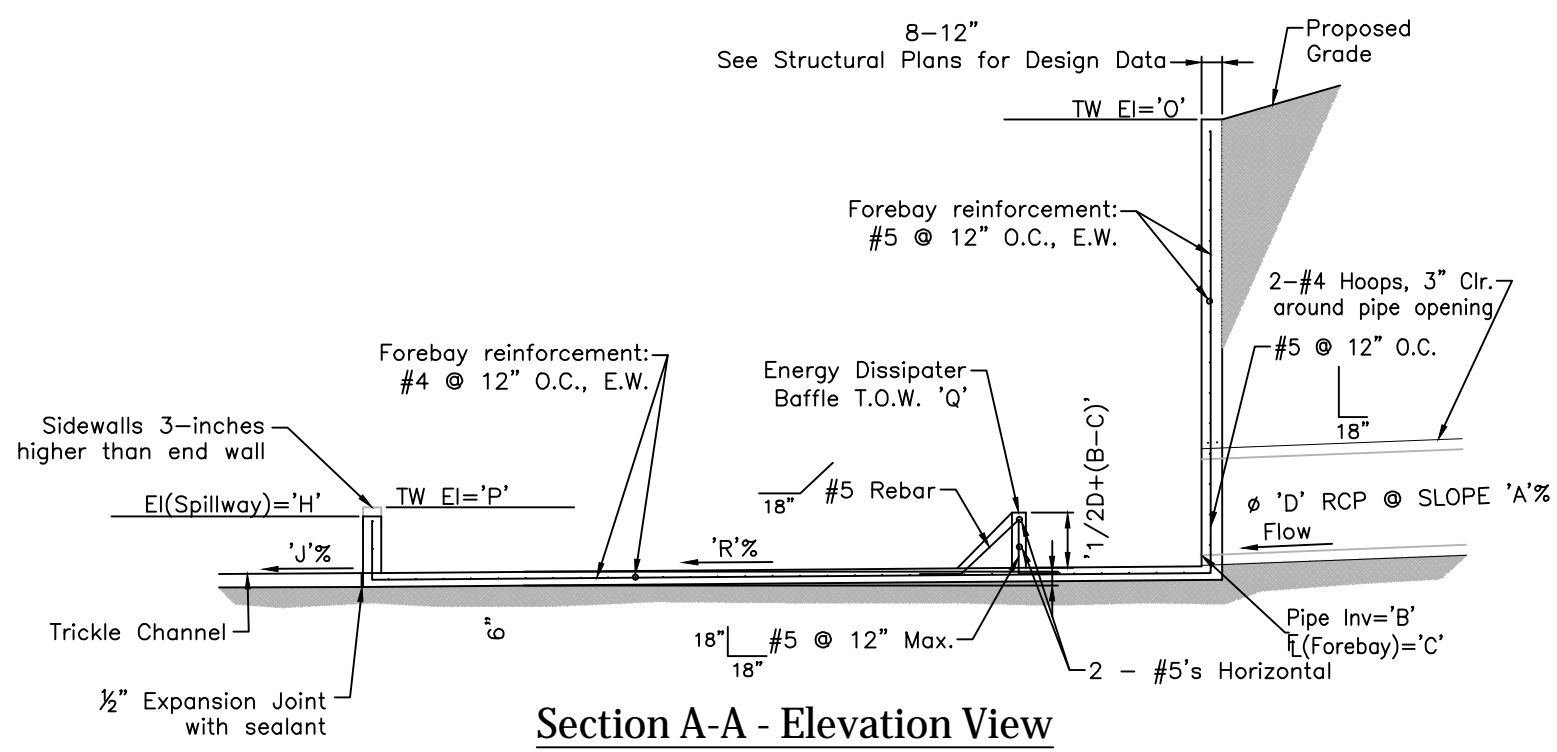
C601

18 of 21 Sheets

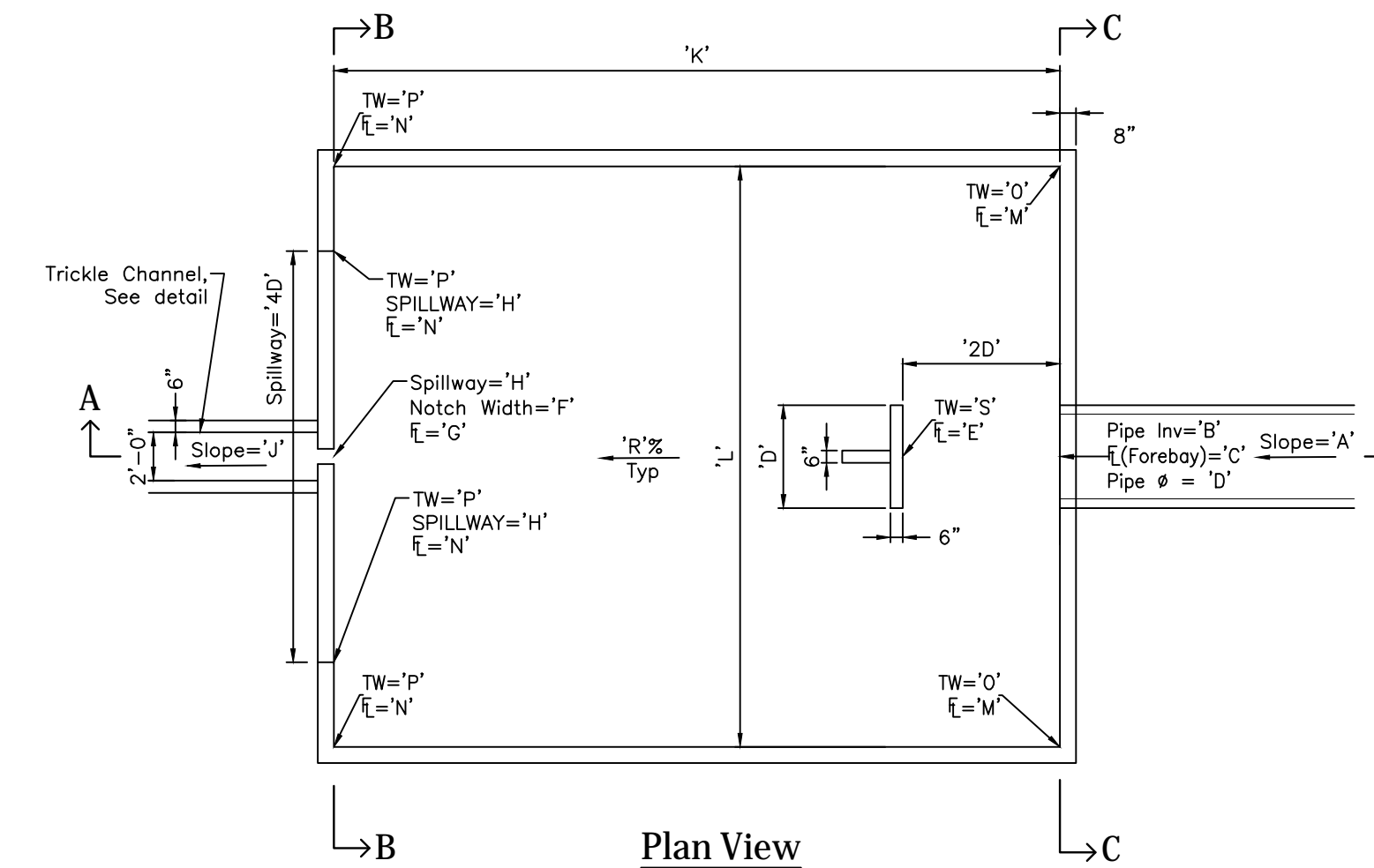
23049-Detail\_SP-C601.dwg/Jun 14, 2024

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



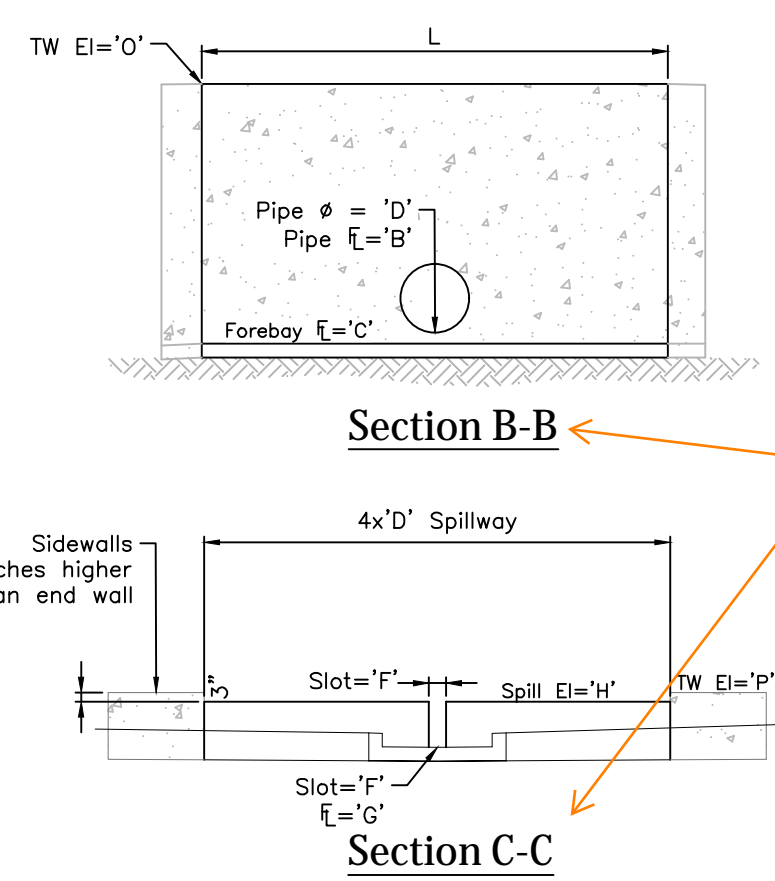


Section A-A - Elevation View



Plan View

1 Forebay Details  
C602 NOT TO SCALE



Section B-B

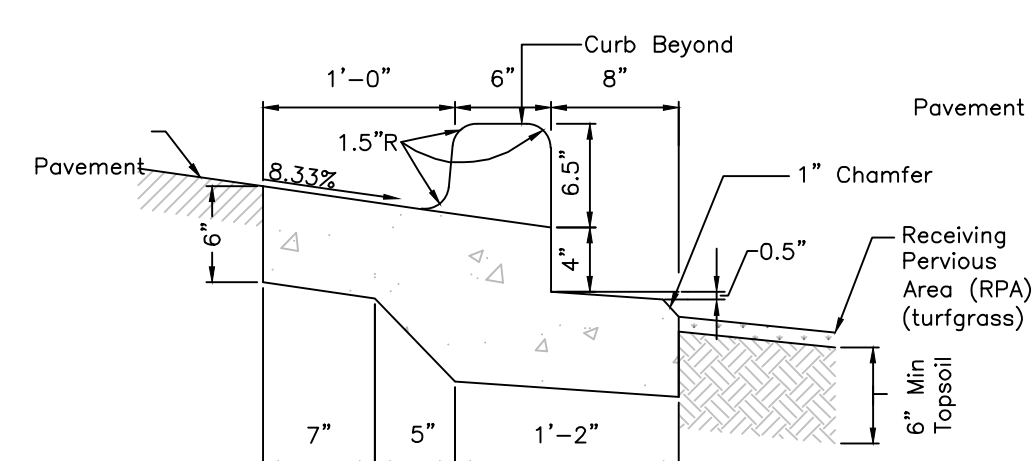
Section C-C

Section labels need to be switched

#### STRUCTURE NOTES:

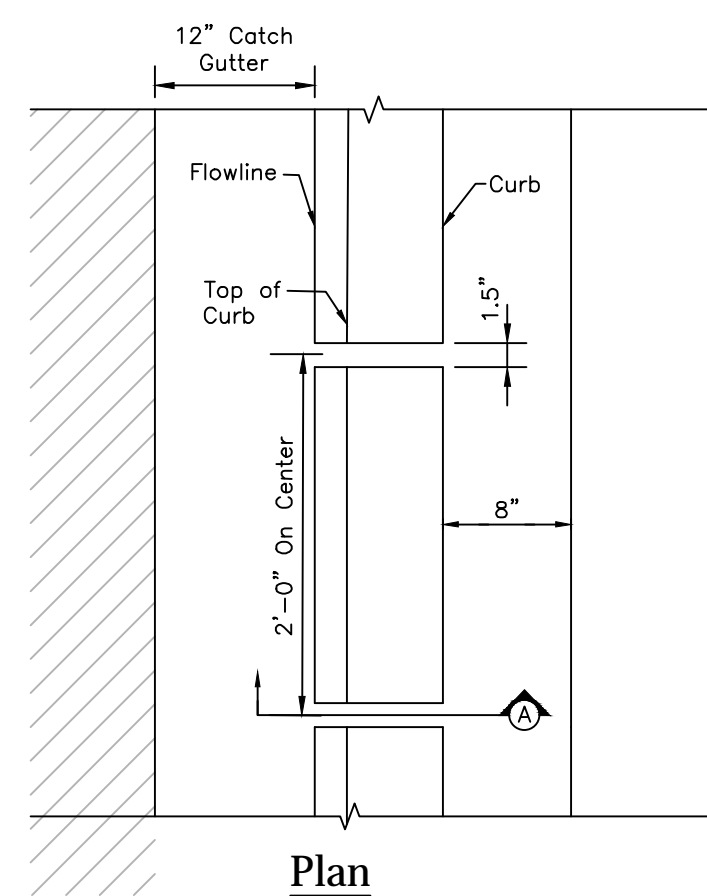
- Prior to construction, Contractor to provide Shop Drawings for all components of outlet structure, forebays and overflow wall.
- Grade 60 reinforcing steel required. See table for the minimum lap splice length for reinforcing bars. All reinforcing steel shall have 2-inch minimum clearance from edge 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 C602 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.

Variable	Presedimentation Forebay	Inflow	
		One (D5)	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



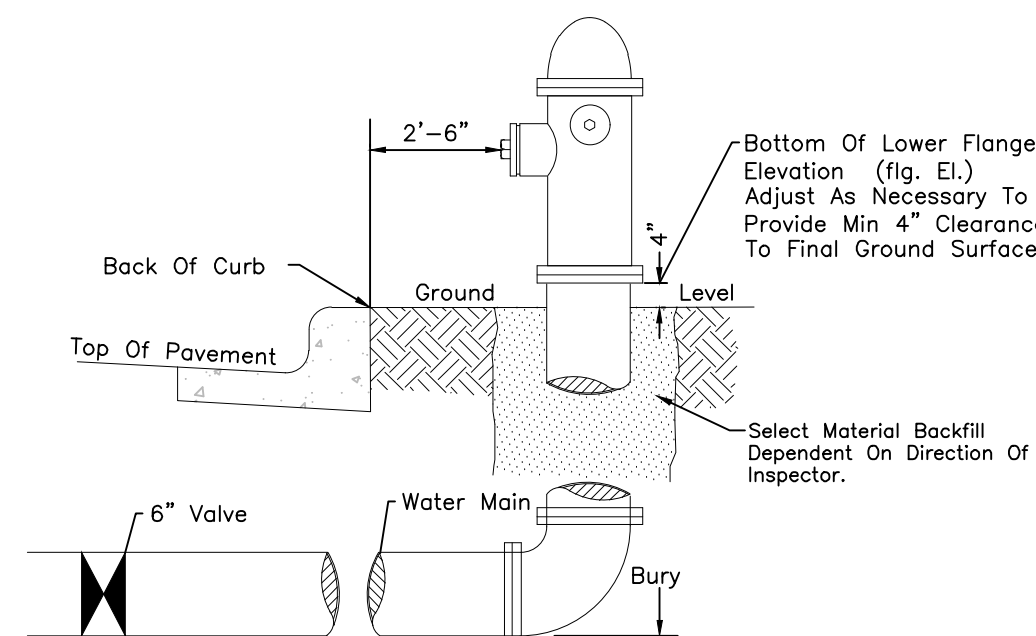
Section

2 Slotted Curb  
C602 NOT TO SCALE



Plan

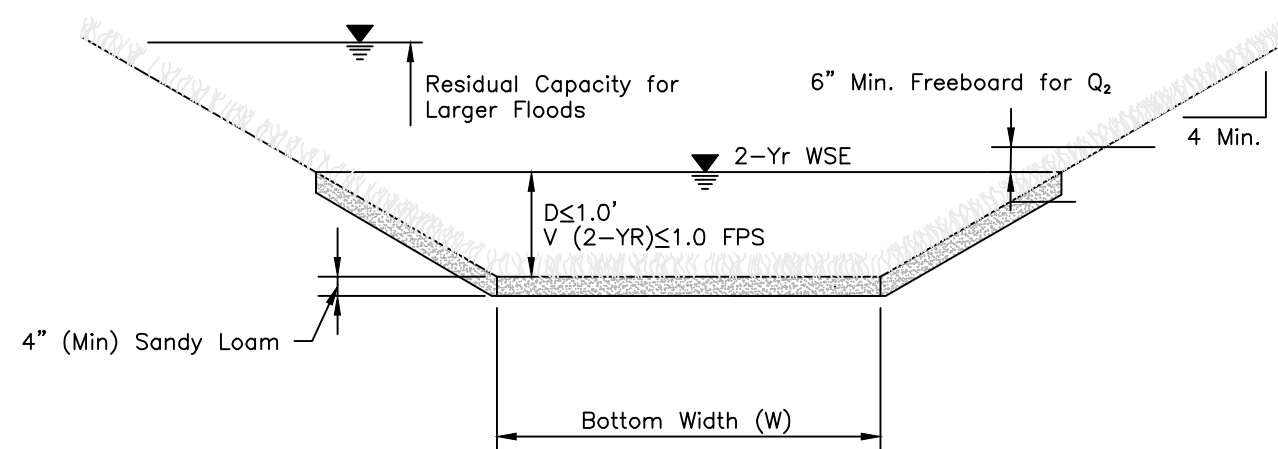
3 Slotted Curb  
C602 NOT TO SCALE



Fire Hydrant Detail  
NOT TO SCALE

#### GENERAL NOTES:

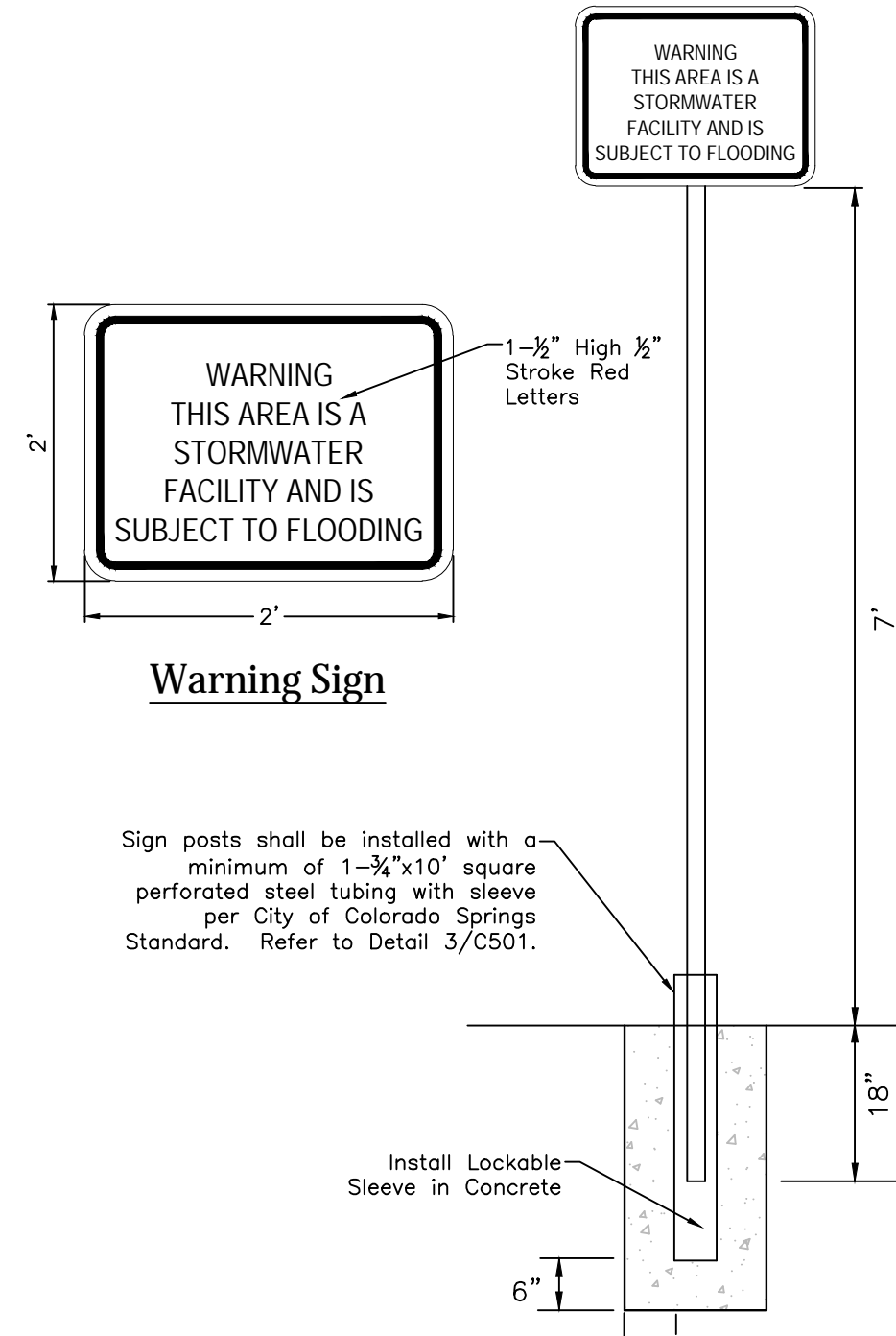
- Hydrant nozzles shall be positioned at right angles to curb. If no curb or sidewalk exists, nozzles shall be placed at right angle to street or alley.
- Hydrants shall be placed a minimum of 5.0 feet from any utility or drainage structure.
- Any hydrant being installed with conditions other than those mentioned and/or detailed below will require signed approval from the Widefield Water District and Security Fire District.
- See Site Utility Plan for hydrant locations and flange elevations.
- 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 Trapezoidal Typical Swale Section  
C602 NOT TO SCALE

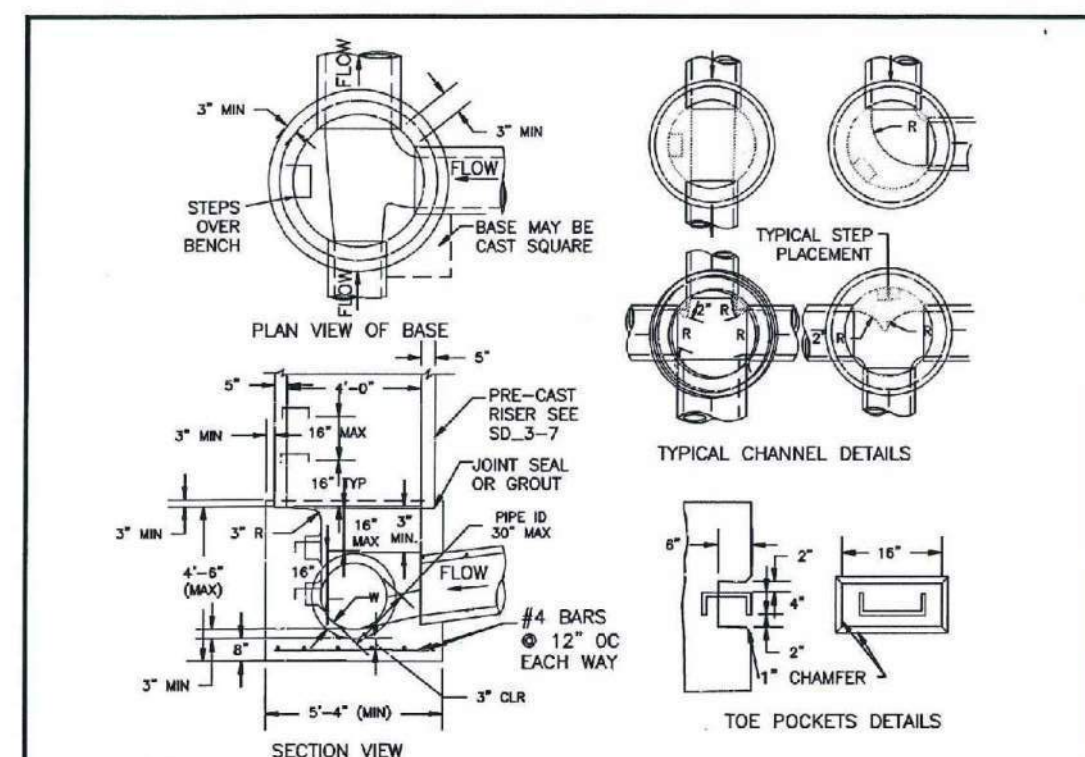
Subsequent To Stripping And Grubbing The Following Overlot/pipe Installation Procedures Are Anticipated For The Sanitary Sewer Located On Proposed Embankments:

- 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



#### NOTES

- TYPE II MANHOLES SHALL BE USED WHEN APPROPRIATE AND TYPICALLY WHEN THE PIPE SIZES ARE 30" OR LESS INSIDE DIAMETER.
- VIEW AND DETAILS ARE TYPICAL. DESIGN ENGINEER SHALL DETERMINE MANHOLE BASE CONFIGURATION AND DIMENSIONS FOR PARTICULAR PIPE SIZES AND ALIGNMENT.
- EITHER LADDER OF STEPS SHALL BE INSTALLED WHEN MANHOLE DEPTH EXCEEDS 30". STEPS IN BASE SHALL BE INSTALLED IN "TOE POCKETS" (SEE DETAIL THIS SHEET). LOWEST STEP SHALL BE A MAXIMUM OF 16" ABOVE THE FLOOR.
- PIPES SHALL BE TRIMMED TO FINAL SHAPE AND SET BEFORE MANHOLE IS POURED.
- BENCH SHALL BE SLOPED TOWARD CENTER OF MANHOLE BASE (4:1 MAX., 1/2" PER FOOT, MIN.).
- FLOOR OF MANHOLE SHALL BE TROWELED TO A SMOOTH, HARD SURFACE AND SHALL SLOPE TOWARDS THE OUTLET (8:1, 1/2" PER FT. MIN.). FLOOR SHALL BE SHAPED AND CHANNLED; SEE DETAILS THIS SHEET.

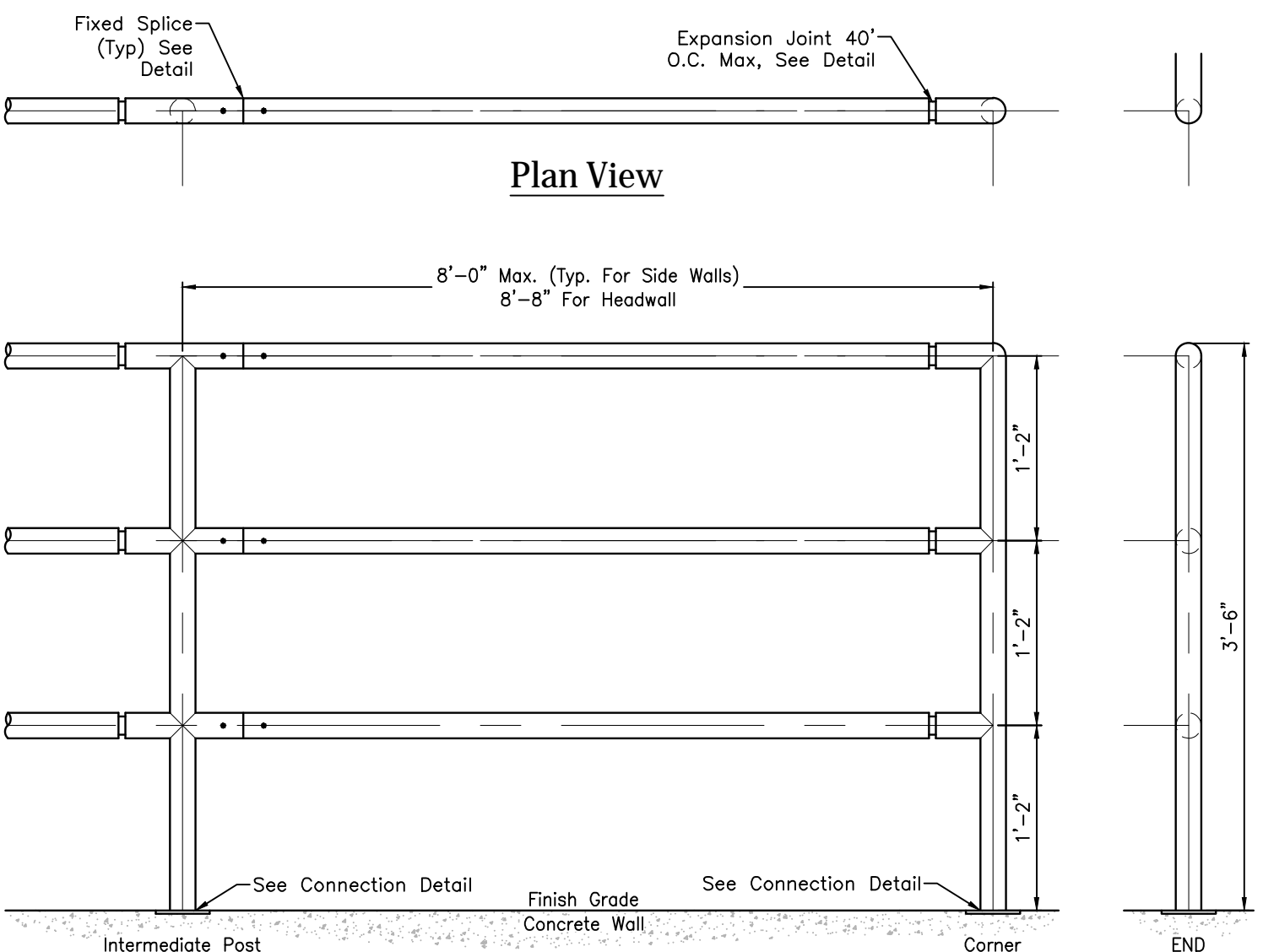
SCALE: NOT TO SCALE

DATE APPROVED	Storm Sewer Manhole Detail Type II Standard Drawing	FILE NAME
André P. Brackin	REVISION DATE	SD_3-2
REVISION DATE	11/10/04	

7 Storm Sewer Manhole Detail Type II  
C602 EPC STD. SD. 3-2  
NOT TO SCALE

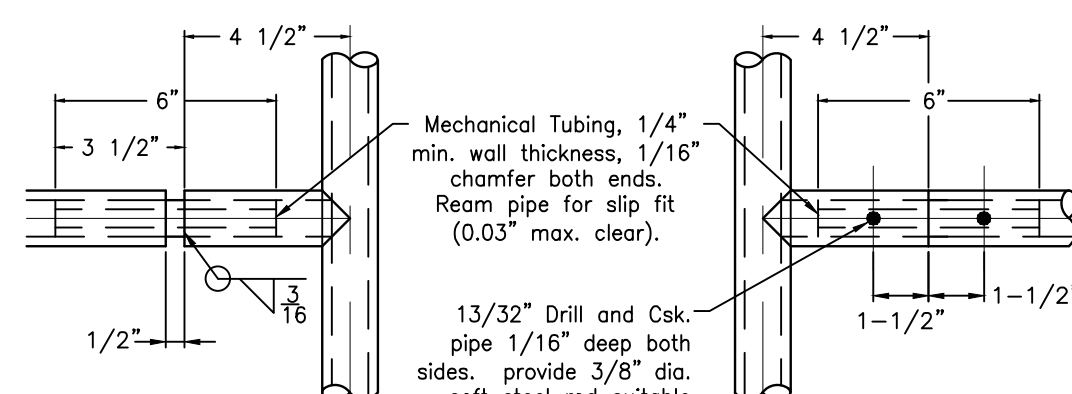
#### Pedestrian Railing/Handrail Notes:

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



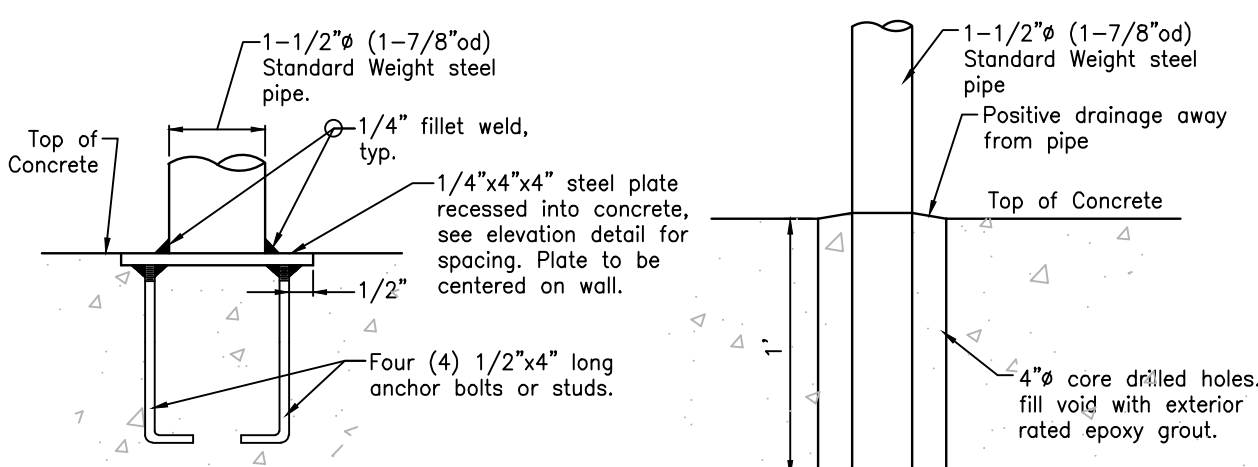
Elevation View

5 Pedestrian Railing/Handrail  
602 NOT TO SCALE



Expansion Joint Detail

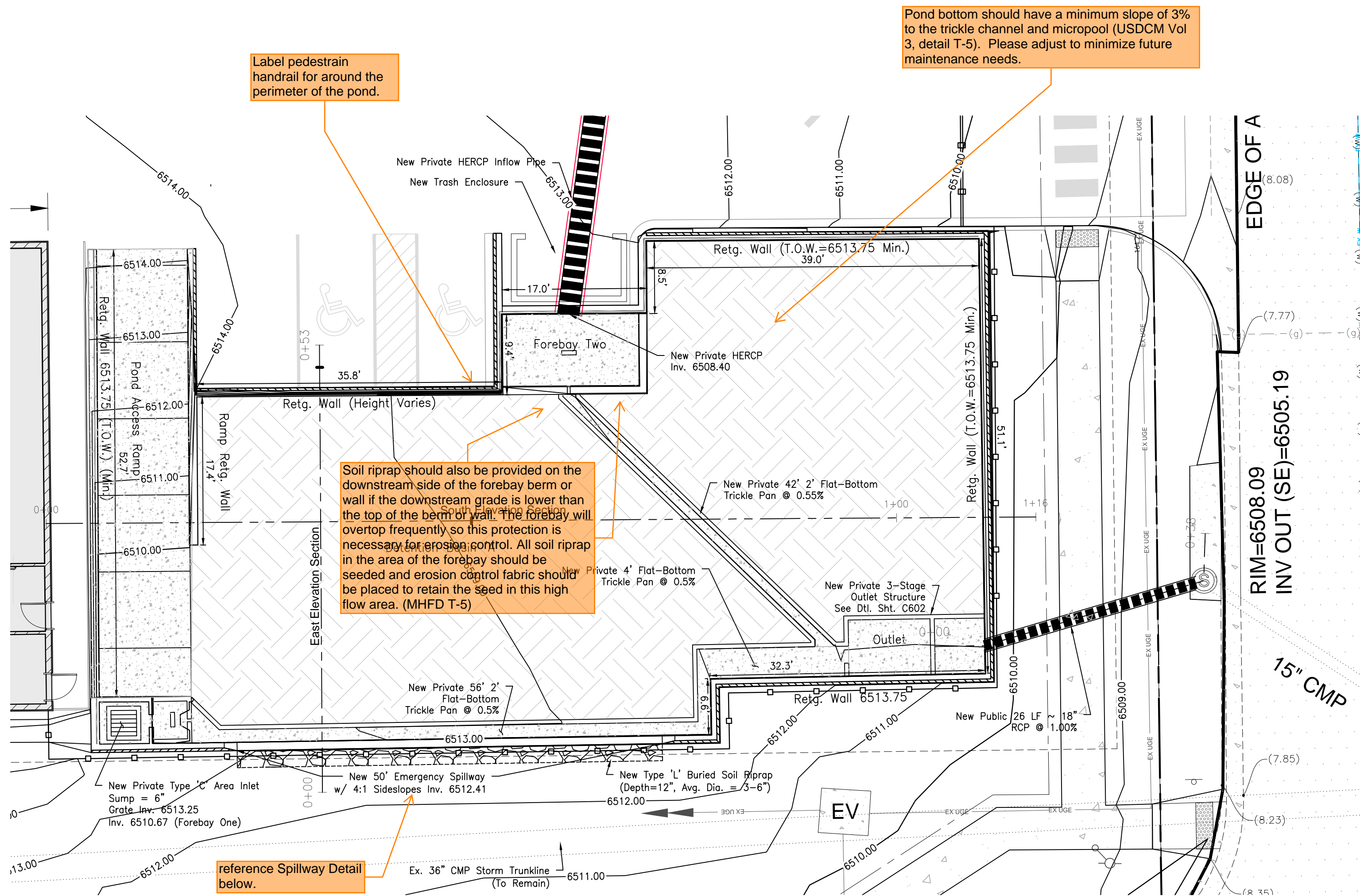
Fixed Joint Detail



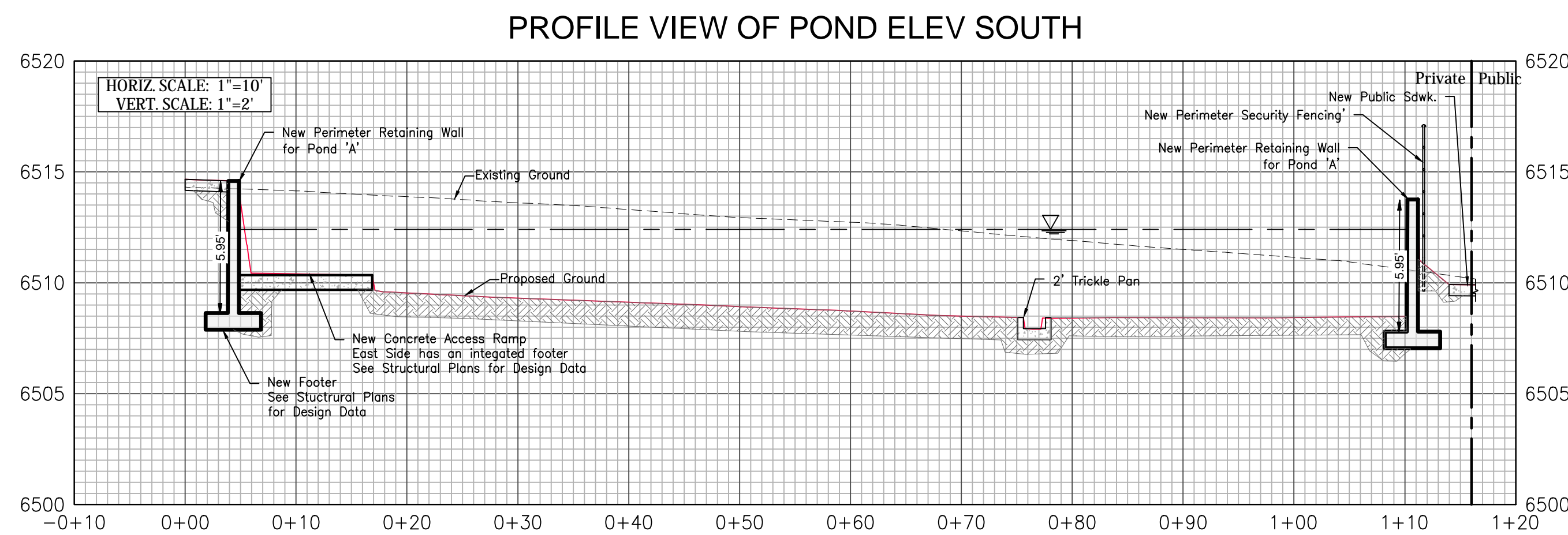
Steel Plate Embed  
Railing Connection Detail

Alternate Connection Detail

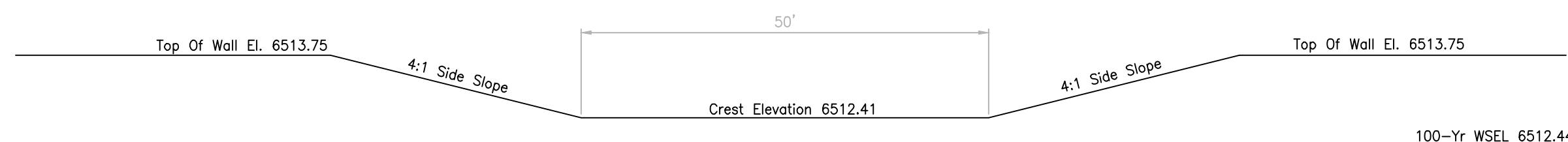




1  
C601 Detention Basin Cross Sections  
NOT TO SCALE

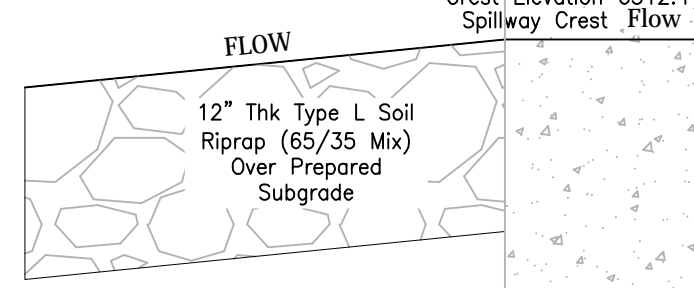


PROFILE VIEW OF POND ELEV SOUTH



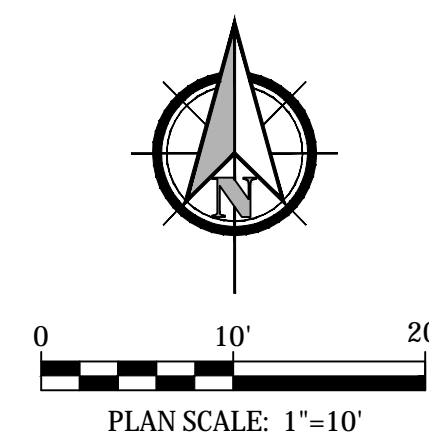
ELEVATION VIEW

Clarify that this is the  
Spillway Detail

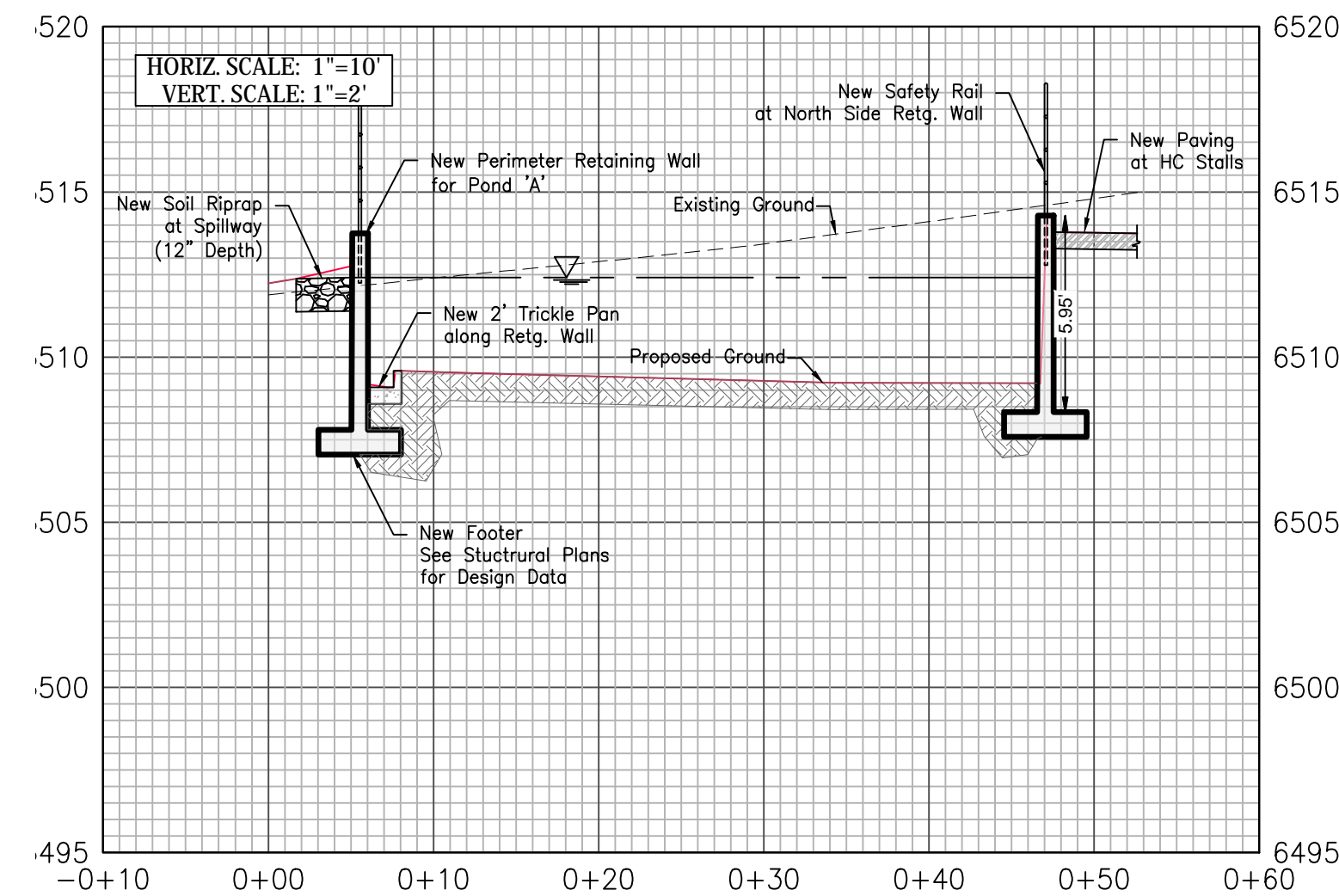


SECTION A-A

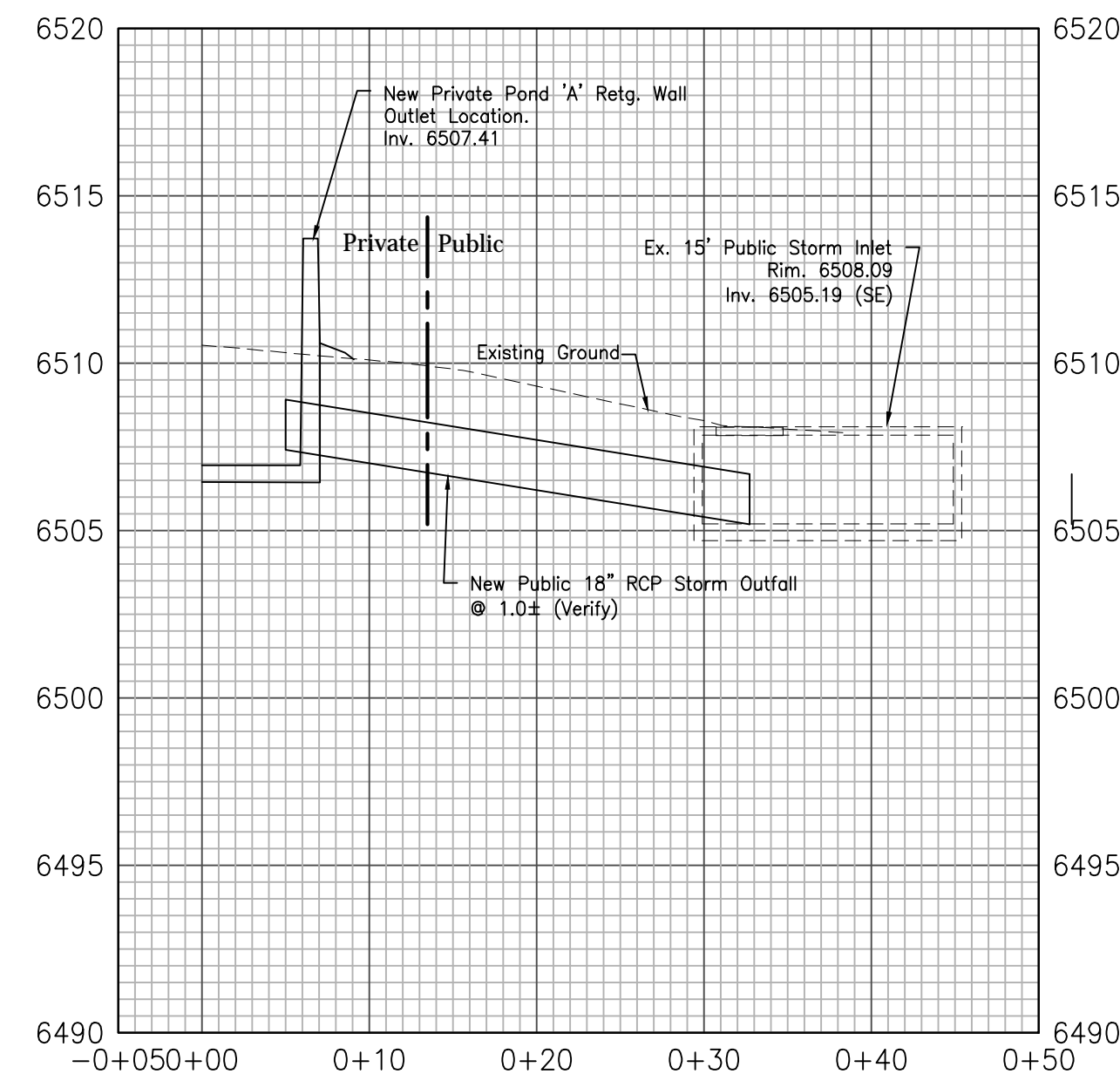
601  
1 Emergency Spillway  
NOT TO SCALE



PROFILE VIEW OF POND ELEV EAST

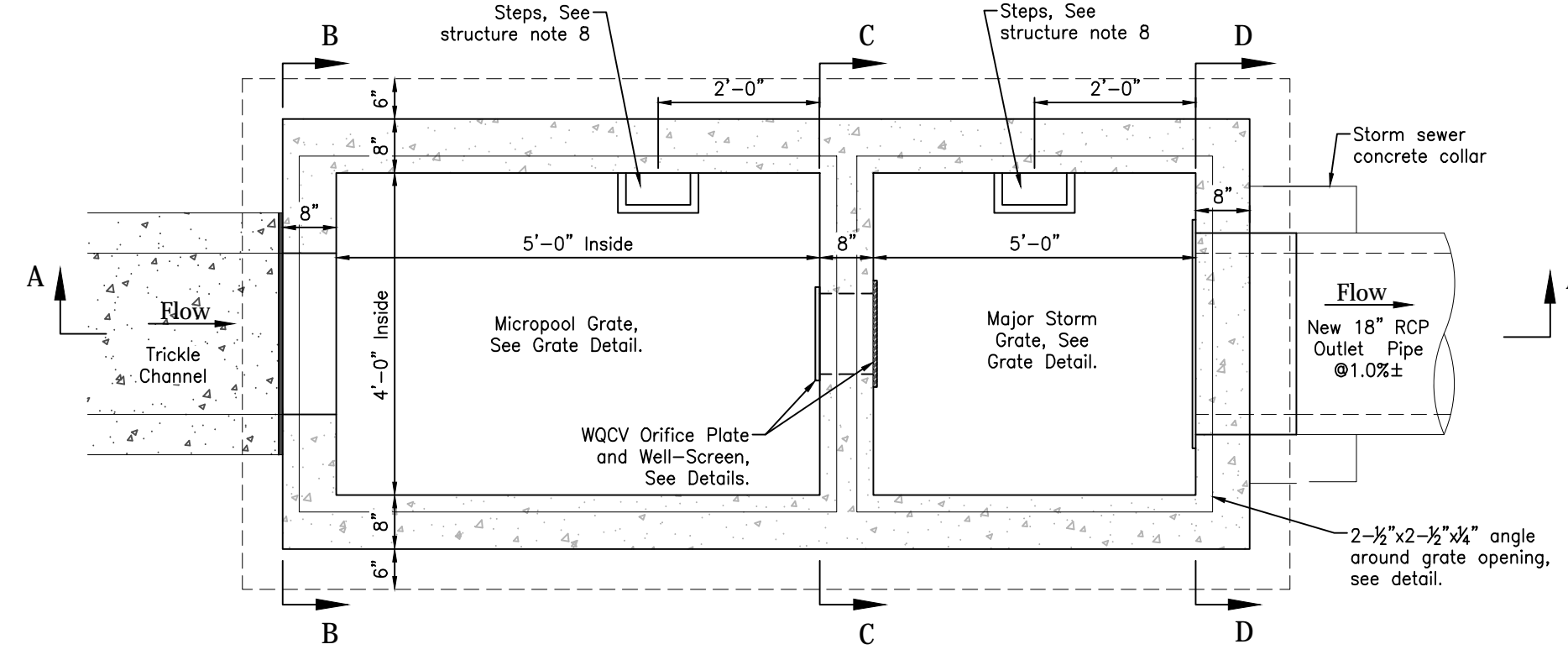


PROFILE VIEW OF STORM OUTFALL

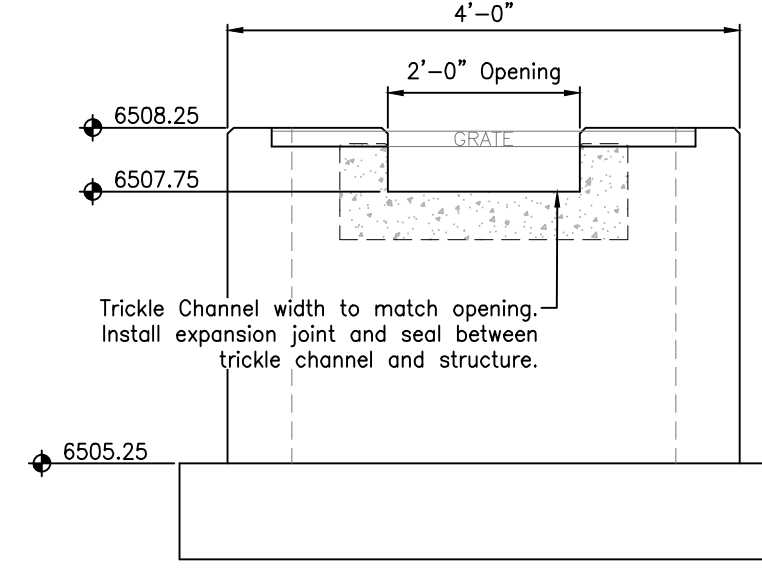


Project No.:	23049
Date:	06/14/2024
Design:	MJK
Drawn:	MJK
Check:	AMcC
Revisions:	

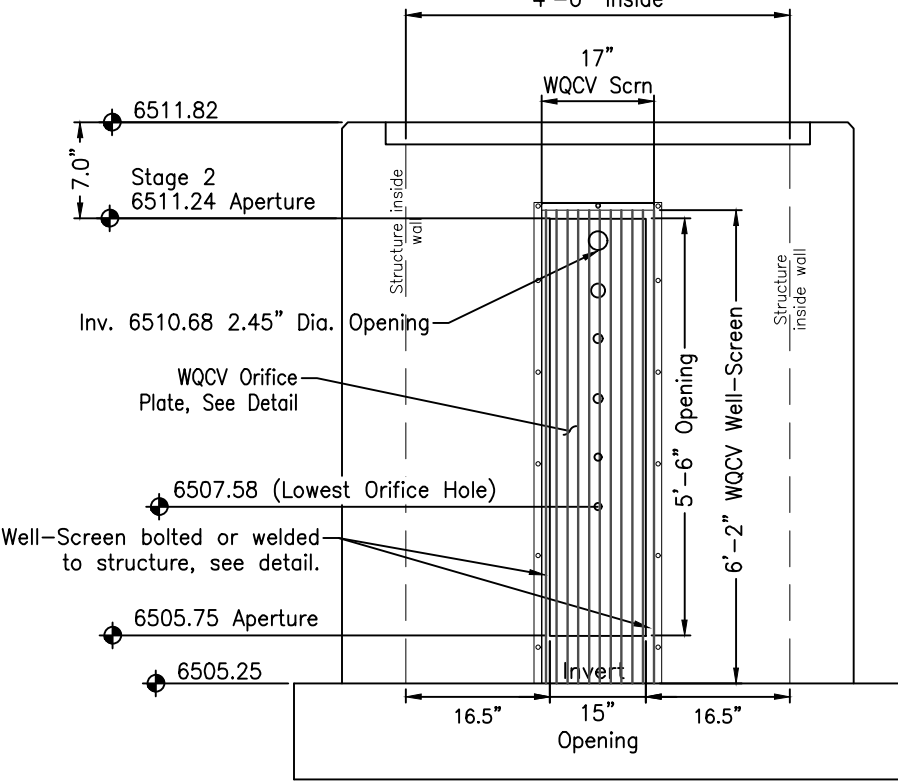




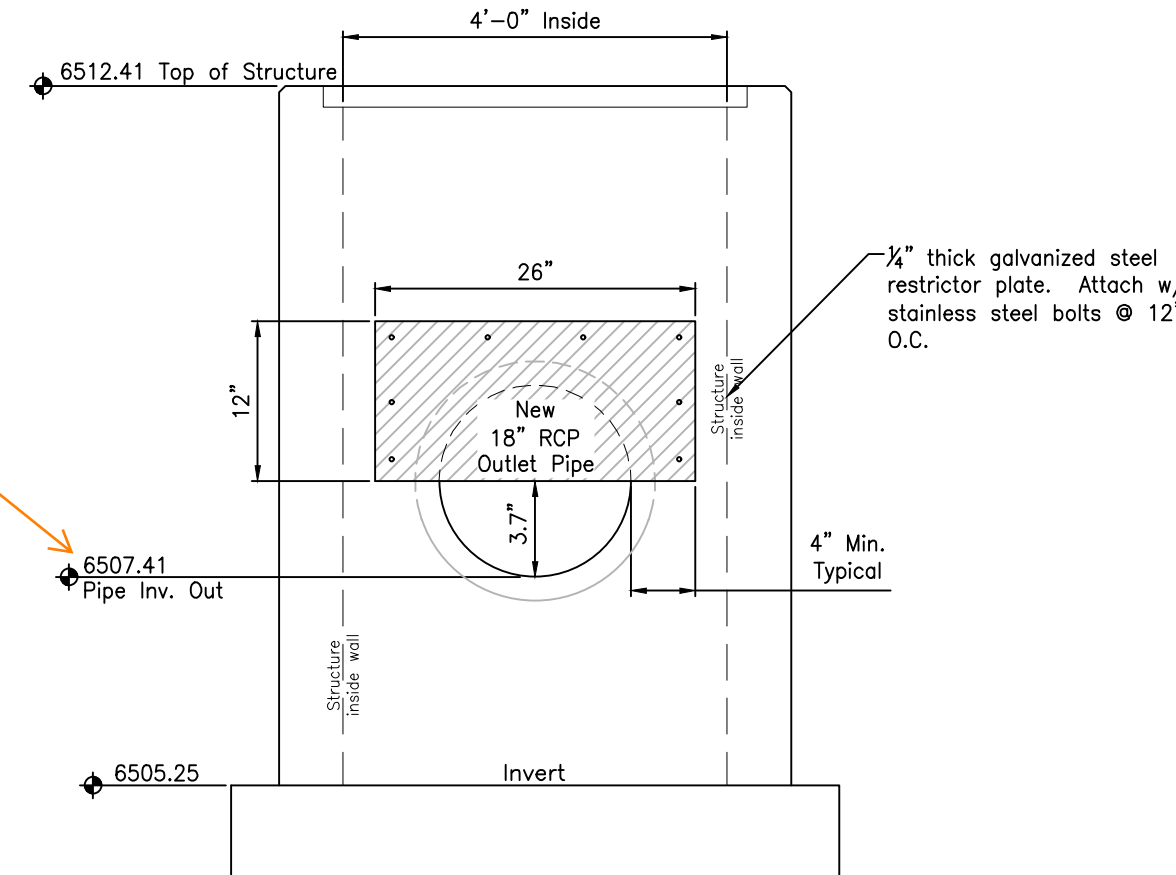
**2 Outlet Structure Detail**  
**C602** NOT TO SCALE



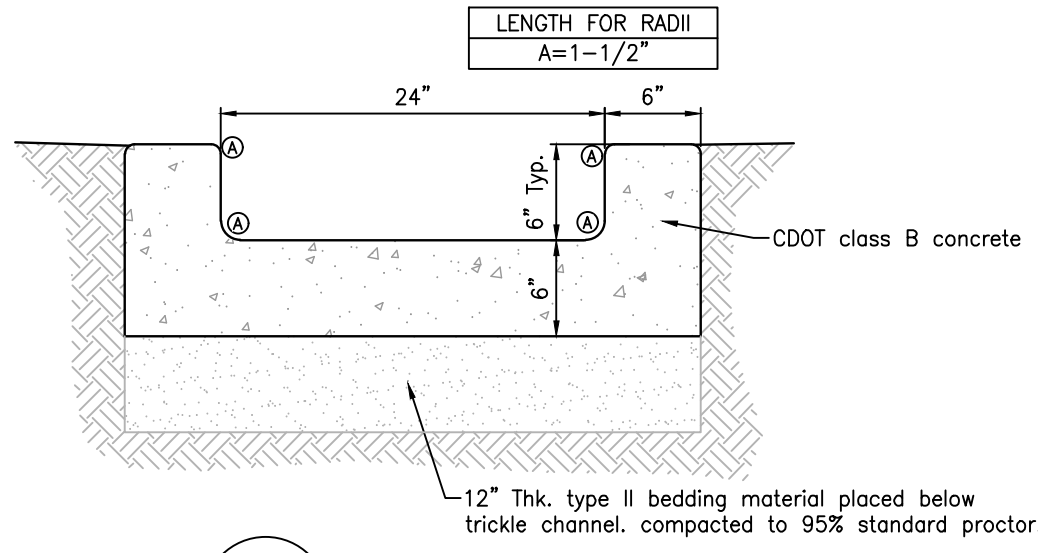
**4 Section B-B**  
**C602** NOT TO SCALE



**5 Section C-C**  
**C602** NOT TO SCALE



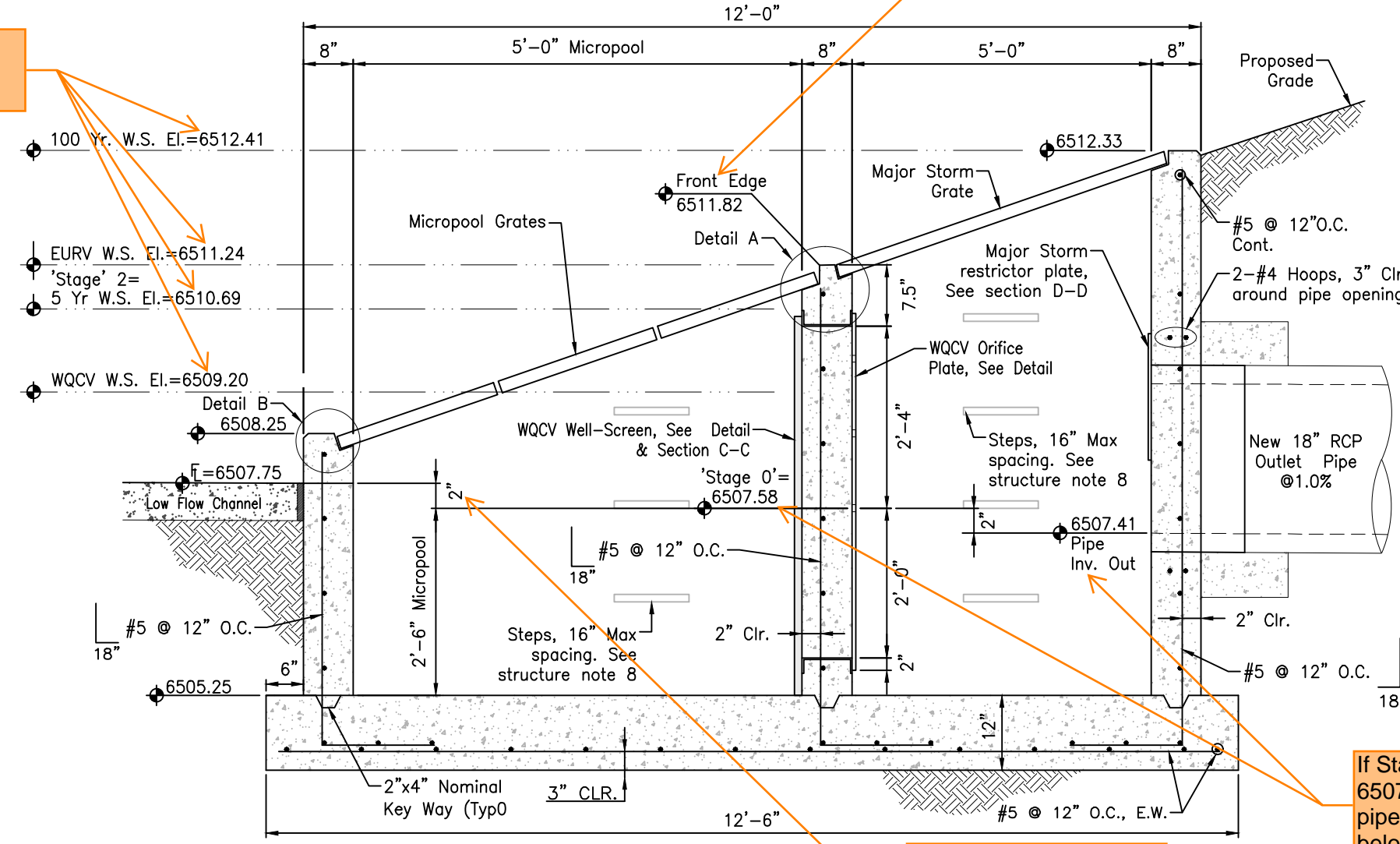
**6 Section D-D**  
**C602** NOT TO SCALE



**1 Trickle Channel**  
**C602** NOT TO SCALE

revise all of these per MHFD calcs output table.

Consider having control joints every ~10ft.

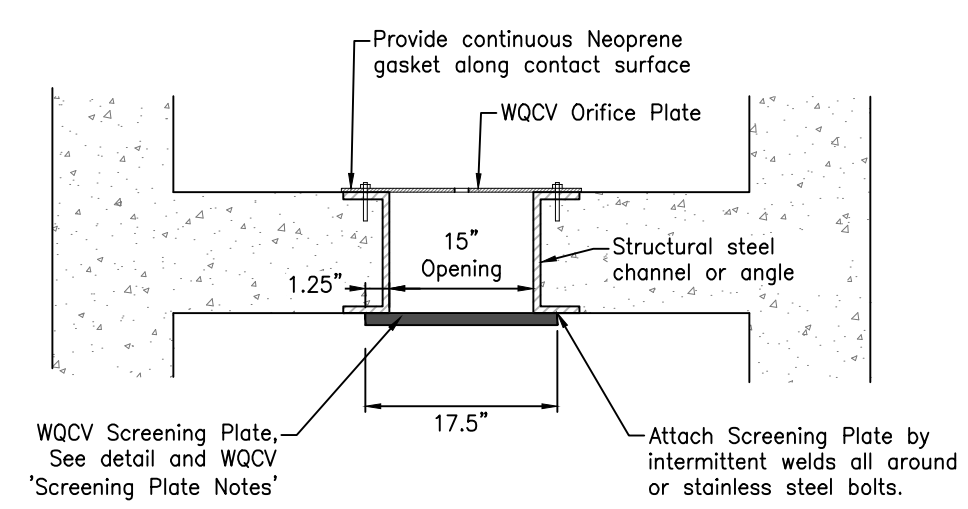


**3 Section A-A**  
**C602** NOT TO SCALE

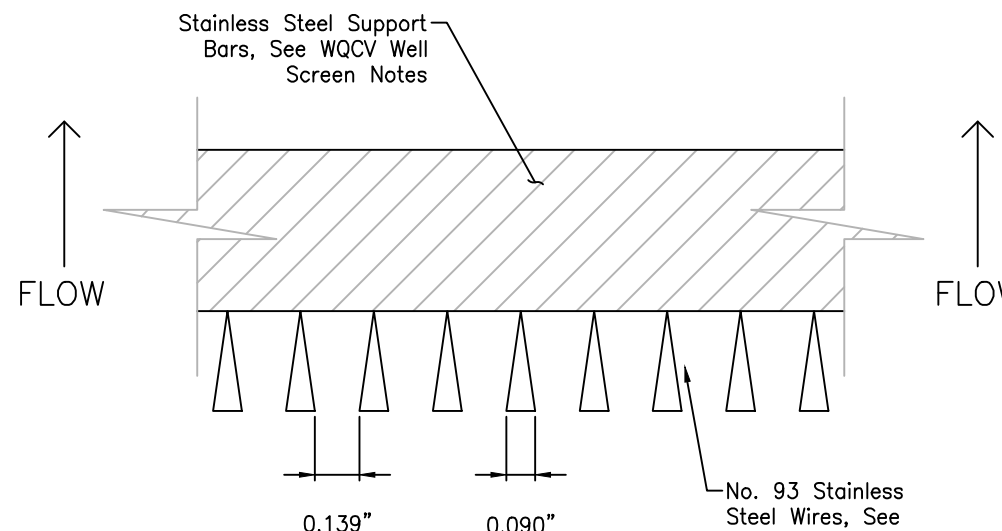
Per MHFD Detail T-5, the depth of initial surcharge volume is supposed to be 4"

If Stage=0ft is at 6507.58, then the outlet pipe inv should be 0.33' below that at 6507.25

- 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**



**Well-Screen Detail**

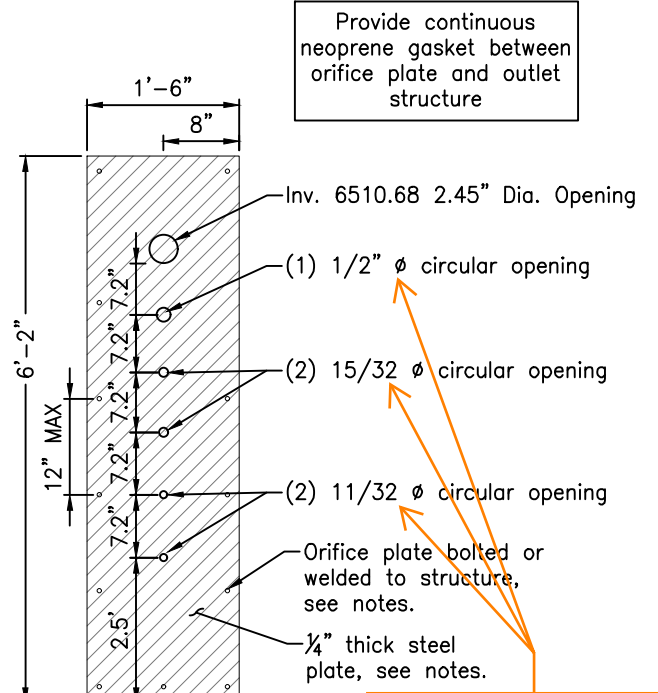
- STRUCTURE NOTES:**
- Prior to construction, Contractor to provide Shop Drawings for all components of the outlet structure.
  - Grade 60 reinforcing steel required. See table for the minimum lap splice length for reinforcing bars. All reinforcing steel shall have 2-inch minimum clearance from edge 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.

CLASSIFICATION AND GRADATION OF RIPRAP				
Riprap Designation	% Smaller than Given Size by Weight	Intermediate Rock Dimension (Inches)		dg <sub>50</sub> * (Inches)
		12	9	
Type VL	70-100	12	9	6**
	50-70	9	6	
	35-50	6	3	
Type L	70-100	15	12	9**
	50-70	12	9	
	35-50	9	6	
Type M	70-100	21	18	12**
	50-70	18	12	
	35-50	12	9	

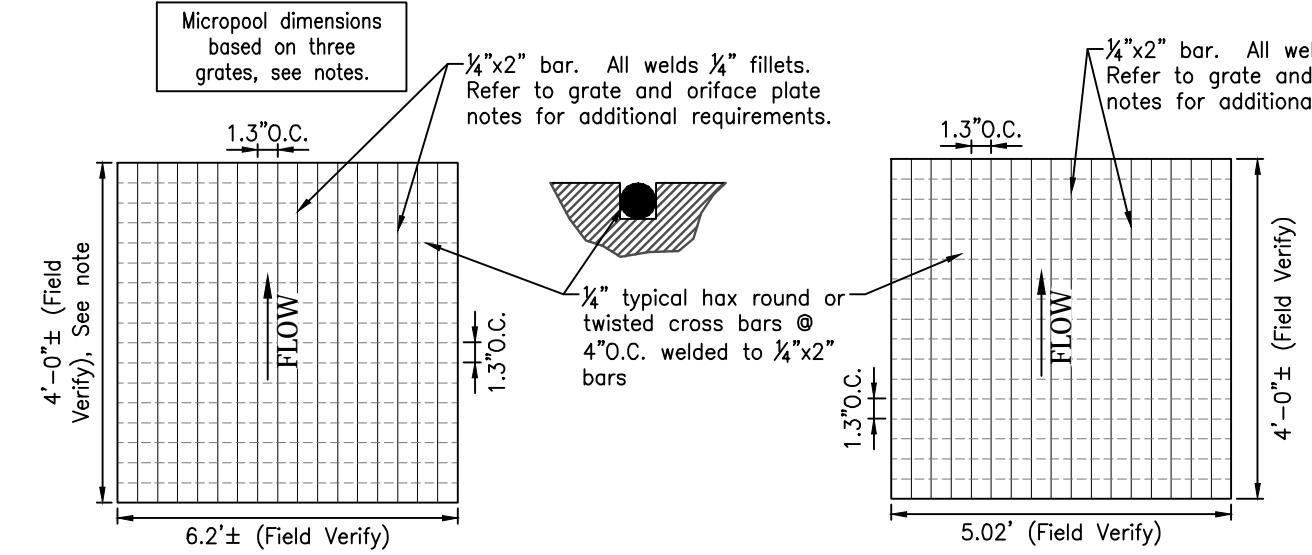
\* dg<sub>50</sub>=Mean Particle Size (Intermediate Dimension) by weight, 1/2\*\*  
\*\* Mix VL, L AND M Riprap with 35% Topsoil (by Volume) and bury with 4-6 Inches of Topsoil, all vibration compacted & revegetate.  
(Table MD-7: Classification and Gradation of Ordinary Riprap. UDFCD, Drainage Criteria Manual, Vol. 1)

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

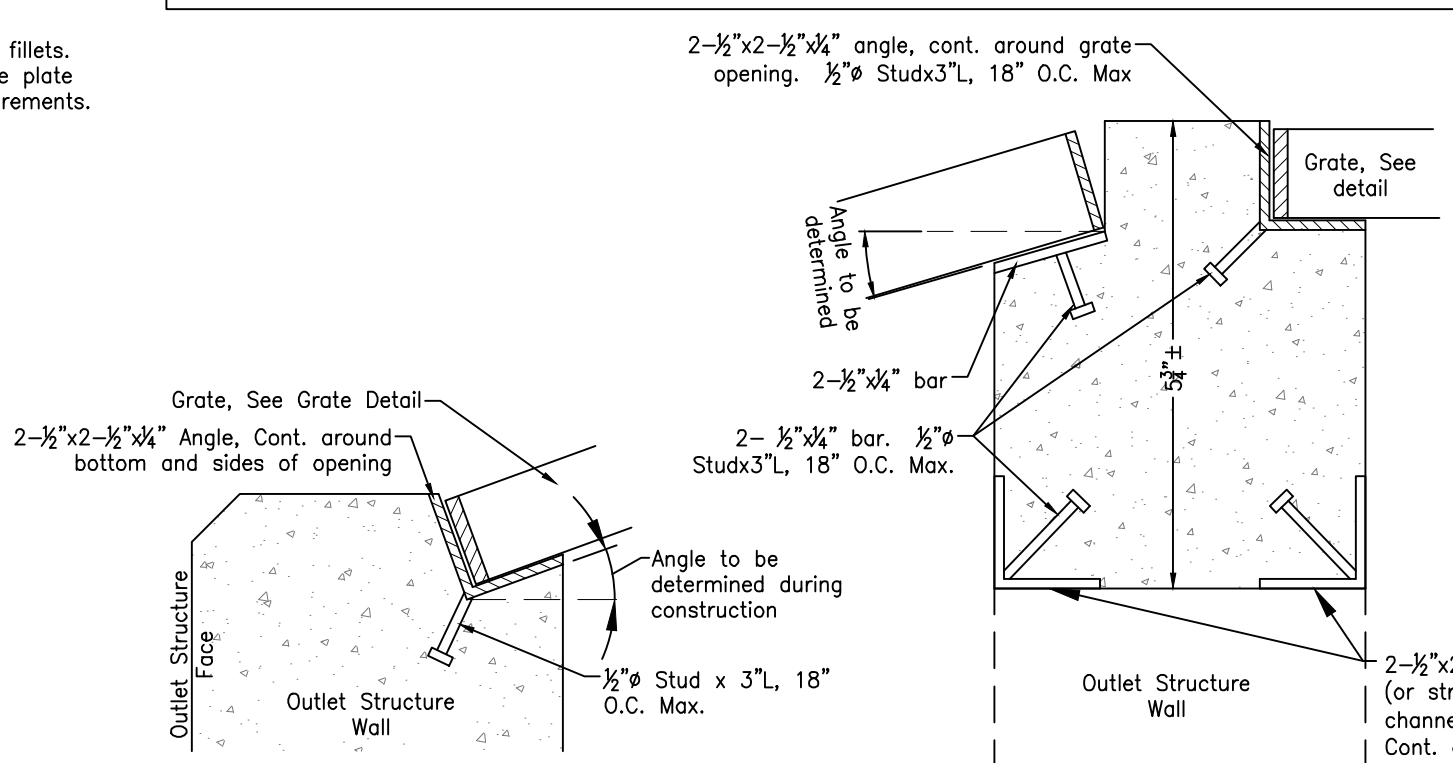
**8 WQCV Well-Screen**  
**C602** NOT TO SCALE



**9 WQCV Orifice Plate**  
**C602** NOT TO SCALE



**10 Micropool Grates Detail**  
**C602** NOT TO SCALE



**11 Major Storm Grate Detail**  
**C602** NOT TO SCALE

**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.