GRADING AND EROSION CONTROL NOTES

1. Construction may not commence until a Construction Permit is obtained from Development Services and a Preconstruction Conference is held with Development Services Inspections.
2. 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.
3. 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 to regulations and standards must be requested, and approved, in writing.
4. 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. During construction the SWMP is the responsibility of the designated Stormwater Manager, shall be located on site at all times and shall be kept up to date with work progress and changes in the field.
5. Once the ESQCP has been issued, the contractor may install the initial stage erosion and sediment control BMPs as indicated on the Grading & Erosion Control Plan. 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 DSD inspections staff.
6. Soil erosion control measures for all slopes, channels, ditches, or any disturbed land area shall be completed within 21 calendar days after final grading, or final earth disturbance, has been completed. Disturbed areas and stockpiles which are not at final grade but will remain dormant for longer than 30 days shall also be mulched within 21 days after interim grading. An area that is going to remain in an interim state for more than 60 days shall also be seeded. All temporary soil erosion control measures and BMPs shall be maintained until permanent soil erosion control measures are implemented and established.
7. Temporary soil erosion control facilities shall be removed and earth disturbance areas graded and stabilized with permanent soil erosion control measures pursuant to standards and specification prescribed in the *Drainage Criteria Manual DCM Volume II* and the *Engineering Criteria Manual (ECM)* appendix I.
8. All persons engaged in earth disturbance shall implement and maintain acceptable soil erosion and sediment control measures including BMPs in conformance with the erosion control technical standards of the *DCM Volume II* and in accordance with the Stormwater Management Plan (SWMP).
9. All temporary erosion control facilities including BMPs and all permanent facilities intended to control erosion of any earth disturbance operations, shall be installed as defined in the approved plans, the SWMP and the DCM Volume II and maintained throughout the duration of the earth disturbance operation.
10. Any earth disturbance shall be conducted in such a manner so as to effectively reduce 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.
11. Any temporary or permanent facility designed and constructed for the conveyance of stormwater around, through, or from the earth disturbance area shall be designed to limit the discharge to a non-erosive velocity.
12. Concrete wash water shall be contained and disposed of in accordance with the SWMP. No wash water shall be discharged to or allowed to runoff to State Waters, including any surface or subsurface storm drainage system or facilities.
13. Erosion control blanketing is to be used on slopes steeper than 3:1.
14. Building, construction, excavation, or other 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. BMP's may be required by El Paso County Engineering if deemed necessary, based on specific conditions and circumstances.
15. Vehicle tracking of soils and construction debris off-site shall be minimized. Materials tracked offsite shall be cleaned up and properly disposed of immediately.
16. 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.
17. The owner, site developer, contractor, and/or their authorized agents shall be responsible for the removal of all construction debris, dirt, trash, rock, sediment, and sand that may accumulate in the storm sewer or other drainage conveyance system and stormwater appurtenances as a result of site development.
18. 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.
19. No chemicals are to be used by the contractor, which have the potential to be released in stormwater unless permission for the use of a specific chemical is granted in writing by the ECM Administrator. In granting the use of such chemicals, special conditions and monitoring may be required.
20. Bulk storage structures for petroleum products and other chemicals shall have adequate protection so as to contain all spills and prevent any spilled material from entering State Waters, including any surface or subsurface storm drainage system or facilities.
21. No person shall cause the impediment of stormwater flow in the flow line of the curb and gutter or in the ditchline.
22. Individuals 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 included in the *DCM Volume II* and the ECM Appendix I. All appropriate permits must be obtained by the contractor prior to construction (NPDES, Floodplain, 404, fugitive dust, etc.). In the event of conflicts between these requirements and laws, rules, or regulations of other Federal, State, or County agencies, the more restrictive laws, rules, or regulations shall apply.
23. All construction traffic must enter/exit the site at approved construction access points.
24. Prior to actual construction the permitee shall verify the location of existing utilities.
25. A water source shall be available on site during earthwork operations and utilized as required to minimize dust from earthwork equipment and wind.
26. The soils report for this site has been prepared by CTL Thompson, Inc. and shall be considered a part of these plans.
27. At least ten days prior to the anticipated start of construction, for projects that will disturb 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:

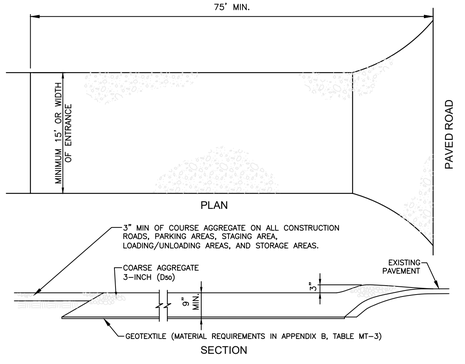
Colorado Department of Public Health and Environment
Water Quality Control Division
WQCD - Permits
4300 Cherry Creek Drive South
Denver, CO 80246-1530
Attn: Permits Unit

LEGEND:

- ELECTRICAL BOX
- ELECTRIC METER
- TELEPHONE PEDESTAL
- SANITARY SEWER MANHOLE
- CLEAN OUT
- GAS METER
- FIRE HYDRANT
- WATER VALVE
- WELL HEAD
- PINE TREE
- GRAVEL DRIVEWAY
- CONCRETE
- SIGN
- E.O.A. EDGE OF ASPHALT
- E.O.G. EDGE OF GRAVEL
- FENCE LINE
- EXSTG. UNDERGROUND TELEPHONE
- EXSTG. UNDERGROUND ELECTRIC
- EXSTG. WATER LINE
- EXSTG. WASTEWATER LINE
- PROPOSED STORMSEWER
- PROPOSED WATER LINE
- PROPOSED WASTEWATER LINE
- PROPOSED WATER SERVICE
- PROPOSED WASTEWATER SERVICE
- RIPRAP
- PROPOSED BUILDING

INSTALLATION REQUIREMENTS
1. ALL ENTRANCES TO THE CONSTRUCTION SITE ARE TO BE STABILIZED PRIOR TO CONSTRUCTION BEGINNING.
2. CONSTRUCTION ENTRANCES ARE TO BE BUILT WITH AN APRON TO ALLOW FOR TURNING TRAFFIC, BUT SHOULD NOT BE BUILT OVER EXISTING PAVEMENT EXCEPT FOR A SLIGHT OVERLAP.
3. AREAS TO BE STABILIZED ARE TO BE PROPERLY GRADED AND COMPACTED PRIOR TO LAYING DOWN GEOTEXTILE AND STONE.
4. CONSTRUCTION ROADS, PARKING AREAS, LOADING/UNLOADING ZONES, STORAGE AREAS, AND STAGING AREAS ARE TO BE STABILIZED.
5. CONSTRUCTION ROADS ARE TO BE BUILT TO CONFORM TO SITE GRADES, BUT SHOULD NOT HAVE SIDE SLOPES OR ROAD GRADES THAT ARE EXCESSIVELY STEEP.

MAINTENANCE REQUIREMENTS
1. REGULAR INSPECTIONS ARE TO BE MADE OF ALL STABILIZED AREAS, ESPECIALLY AFTER STORM EVENTS.
2. STONES ARE TO BE REAPPLIED PERIODICALLY AND WHEN REPAIR IS NECESSARY.
3. SEDIMENT TRACKED ONTO PAVED ROADS IS TO BE REMOVED DAILY BY SHOVELING OR SWEEPING. SEDIMENT IS NOT TO BE WASHED DOWN STORM SEWER DRAINS.
4. STORM SEWER INLET PROTECTION IS TO BE IN PLACE, INSPECTED, AND CLEANED IF NECESSARY.
5. OTHER ASSOCIATED SEDIMENT CONTROL MEASURES ARE TO BE INSPECTED TO ENSURE GOOD WORKING CONDITION.



VEHICLE TRACKING CONTROL (VTC)
NTS

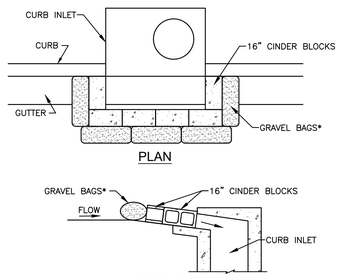
PROJECT SPECIFIC GRADING AND EROSION CONTROL NOTES

1. All earthwork required of this construction shall be completed in accordance with all applicable sections of the Project Specifications and Soil Investigation Report (Geotechnical Report).
2. Rubbish including timber, concrete rubble, trees, brush, and asphalt shall not be backfilled adjacent to any of the structures or be in the placement of any unclassified fill. The Contractor shall be responsible for the removal and hauling of such materials to a suitable spoil area. Costs associated with the removal of such materials shall be paid for as documented in the Project Specifications.
3. Excess excavation shall become the property of the Contractor and shall be disposed of at the Contractor's expense. The cost of haulage and spoiling of excess excavated materials shall be paid for as documented in the Project Specifications.
4. Water shall be used as a dust palliative as required and shall be included in the cost for earthwork item(s). No separate payment will be made for dust control associated with the site construction.
5. The road grades shall be cleared of vegetation and the topsoil stockpiled for later use.
6. All grading shall be in conformance with the Geotechnical Report for the area.
7. Placement of fill for roadway embankments shall be completed in conformance with the Geotechnical Report.
8. Grading contours shown on this plan are to final grade.
9. Compaction under filled areas, including roadway and detention basin embankments, shall be 95 percent of the maximum Standard Proctor Density (ASTM D698) at two (2) percent of optimum moisture content.
10. No rubble or debris shall be placed in the backfill under any of the proposed buildings, streets, curb & gutter, sidewalk and drainage structures or within five (5) feet of a building footprint. Properly graded rubble may be used in some locations as specified and verified by the Geotechnical Engineer.
11. Contractor is responsible for reviewing the site prior to bidding to verify site conditions.
12. Contractor is responsible for providing erosion control measures as approved by the El Paso County DSD Engineering Division and as may be required by the El Paso County Inspector.
13. All slopes equal to or greater than 3:1 shall require anchored soil retention blanket (SRB), Geocoir 700 or equal.
14. The Developer is responsible for maintaining erosion control measures until a mature stage of vegetation is established.
15. All soils used for fill must be approved by a representative of the Geotechnical Engineer.
16. All natural ground to receive fill must be properly scarified, watered and compacted prior to placing fill.
17. The Contractor is solely responsible for the design, maintenance and operation of any required dewatering system. The Contractor shall perform such independent investigation as he deems necessary to satisfy himself as to the subsurface groundwater conditions and unstable soil conditions to be encountered throughout the construction. Contractor shall coordinate the dewatering system with El Paso County when associated with public facilities.
18. No fill shall be placed, spread or rolled while it is frozen, thawing or during unfavorable weather conditions. When the work is interrupted by heavy rain, fill operations shall not be resumed until a representative of the Geotechnical Engineer indicates that the moisture content and density of the previously placed fill are as specified. Fill surfaces may be scarified and recompacted after rainfall if necessary, to obtain proper moisture density relation.
19. Additional erosion control structures and/or grading may be required at the time of construction.
20. Sediment removal for erosion control facilities shall be performed continuously for proper function.
21. Base mapping was provided by Rampart Surveys, Inc.
22. Proposed Construction Schedule:
    Begin Construction: Fall 2017
    End Construction: Fall 2018
    Total Site Area = 12.30 Acres
23. Area to be disturbed = 10.58 Acres (est.)
    Existing 100-year runoff coefficient = 0.53
    Proposed 100-year runoff coefficient = 0.57
    Existing Hydrological Soil Group: B & D
    (Pring course sandy loam, and Alamosa loam)
24. Site is currently undeveloped and covered with native grasses on gentle slopes (2%-8%).
25. Site is located in the Dirty Women Creek Drainage Basin.

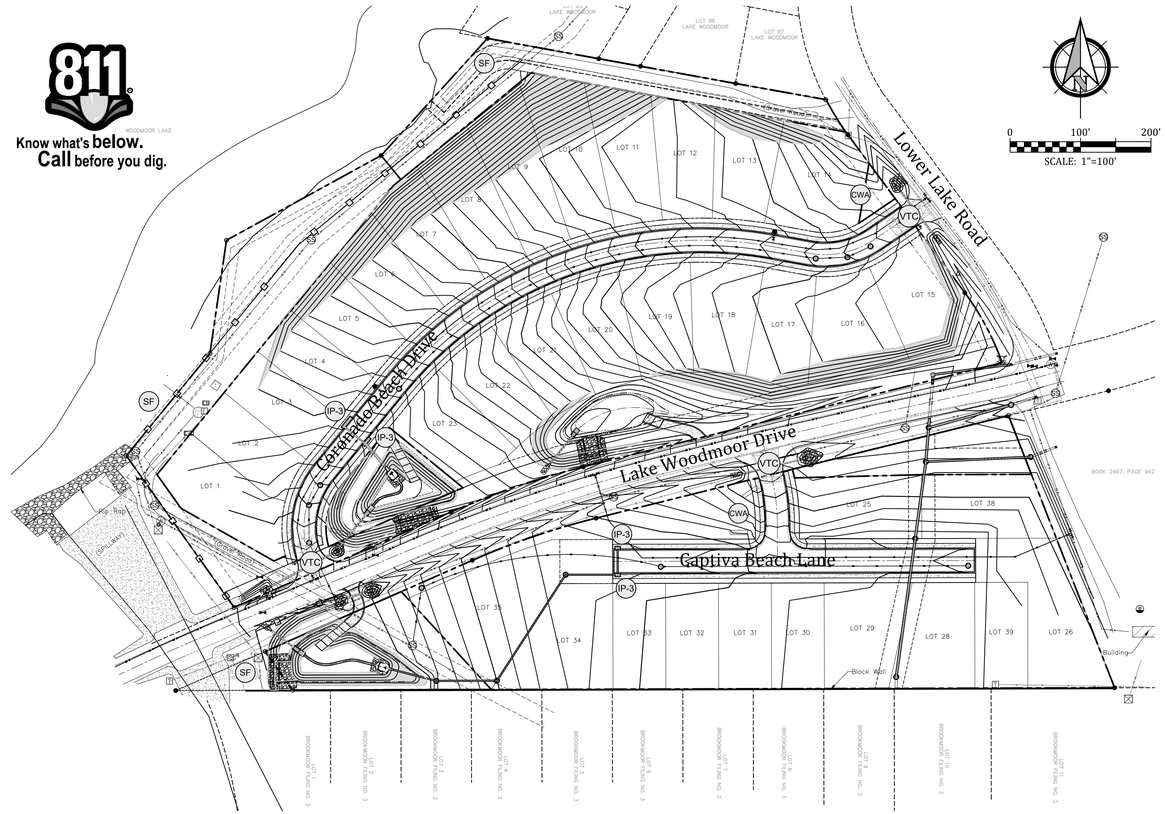
INSTALLATION REQUIREMENTS
1. INLET PROTECTION SHALL BE INSTALLED IMMEDIATELY AFTER CONSTRUCTION OF INLET.
2. CONCRETE BLOCKS ARE TO BE LAID AROUND THE INLET IN A SINGLE ROW ON THEIR SIDES, ABUTTING ONE ANOTHER WITH THE OPEN ENDS OF THE BLOCK FACING OUTWARD.
3. GRAVEL BAGS ARE TO BE PLACED AROUND THE CONCRETE BLOCKS CLOSELY ABUTTING ONE ANOTHER SO THERE ARE NO GAPS.
4. GRAVEL BAGS ARE TO CONTAIN WASHED SAND OR GRAVEL APPROXIMATELY 3/4" IN DIAMETER.
5. BAGS ARE TO BE MADE OF 1/4" WIRE MESH (USED WITH GRAVEL ONLY) OR GEOTEXTILE.

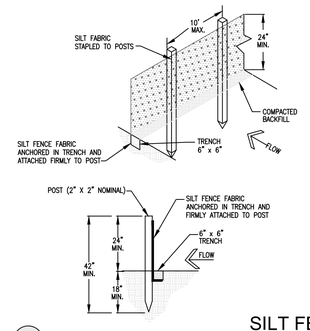
MAINTENANCE REQUIREMENTS
1. CONTRACTOR SHALL INSPECT INLET PROTECTION IMMEDIATELY AFTER EACH RAINFALL, AT LEAST DAILY DURING PROLONGED RAINFALL, AND WEEKLY DURING PERIODS OF NO RAINFALL.
2. DAMAGED OR INEFFECTIVE INLET PROTECTION SHALL PROMPTLY BE REPAIRED OR REPLACED.
3. SEDIMENT SHALL BE REMOVED WHEN SEDIMENT HAS ACCUMULATED TO APPROXIMATELY 1/2 THE DESIGN DEPTH OF THE TRAP.
4. INLET PROTECTION SHALL BE REMOVED WHEN ADEQUATE VEGETATIVE COVER IS ATTAINED WITHIN THE DRAINAGE AREA AS APPROVED BY THE COUNTY.

*NOTE: AN ALTERNATE 3/4" TO 1" GRAVEL FILTER OVER A WIRE SCREEN MAY BE USED IN PLACE OF GRAVEL BAGS. THE WIRE MESH SHALL EXTEND ABOVE THE TOP OF THE CONCRETE BLOCKS AND THE GRAVEL PLACED OVER THE WIRE SCREEN TO THE TOP OF THE CONCRETE BLOCKS.



BLOCK AND GRAVEL BAG INLET PROTECTION (IP-3)
NTS





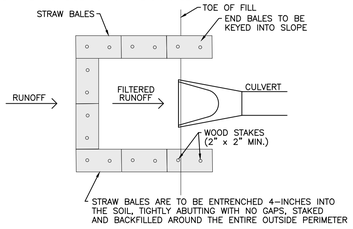
SILT FENCE DETAIL (SF)
NTS

INSTALLATION REQUIREMENTS
1. SILT FENCES SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES AT THE LOCATIONS SHOWN ON THE GRADING AND EROSION CONTROL PLAN (GEC).
2. WHEN JOINTS ARE NECESSARY, SILT FENCE GEOTEXTILE SHALL BE SPLICED TOGETHER ONLY AT SUPPORT POST AND SECURELY SEALED.
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 OR CROSS SECTION DIMENSION OF 2 INCHES.
4. THE FILTER MATERIAL SHALL BE FASTENED SECURELY TO METAL OR WOOD POSTS USING WIRE TIES, OR TO WOOD POSTS WITH 3/4" LONG #9 HEAVY-DUTY STAPLES. THE SILT FENCE GEOTEXTILE SHALL NOT BE STAPLED TO EXISTING TREES.
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 ¾" LONG, TIE 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.
6. ALONG THE TOE OF FILLS, INSTALL THE SILT FENCE ALONG A LEVEL CONTOUR AND PROVIDE AN AREA BEHIND THE FENCE FOR RUNOFF TO POND AND SEDIMENT TO SETTLE, A MINIMUM DISTANCE OF 5 FEET FROM THE TOE OF THE FILL IS RECOMMENDED.
7. THE HEIGHT OF THE SILT FENCE FROM THE GROUND SURFACE SHALL BE MINIMUM OF 24 INCHES AND SHALL NOT EXCEED 36 INCHES; HIGHER FENCES MAY IMPOUND VOLUMES OF WATER SUFFICIENT TO CAUSE FAILURE OF THE STRUCTURE.

MAINTENANCE REQUIREMENTS
1. CONTRACTOR SHALL INSPECT SILT FENCES IMMEDIATELY AFTER EACH RAINFALL, AT LEAST DAILY DURING PROLONGED RAINFALL, AND WEEKLY DURING PERIODS OF NO RAINFALL. DAMAGED, COLLAPSED, UNENTRENCHED OR INEFFECTIVE SILT FENCES SHALL BE PROMPTLY REPAIRED OR REPLACED.
2. SEDIMENT SHALL BE REMOVED FROM BEHIND SILT FENCE WHEN IT ACCUMULATES TO HALF THE EXPOSED GEOTEXTILE HEIGHT.
3. SILT FENCES SHALL BE REMOVED WHEN ADEQUATE VEGETATIVE COVER IS ATTAINED AS APPROVED BY THE COUNTY.

DEFINITION
A SEDIMENT FILTER OR AN EXCAVATED IMPOUNDING AREA AROUND A STORM DRAIN CULVERT INLET.

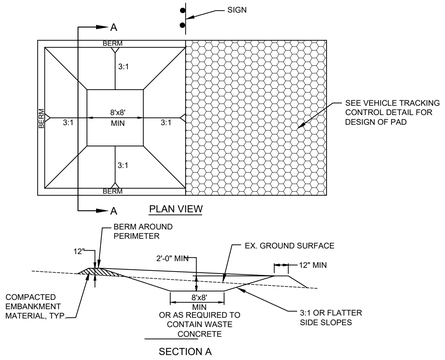
PURPOSES
TO PREVENT SEDIMENT FROM ENTERING STORM DRAINAGE SYSTEMS PRIOR TO PERMANENT STABILIZATION OF THE DISTURBED AREA.



CULVERT INLET PROTECTION
NTS

INSTALLATION REQUIREMENTS
1. INLET PROTECTION SHALL BE INSTALLED IMMEDIATELY AFTER CONSTRUCTION OF INLET.
2. BALES ARE TO BE PLACED IN A SINGLE ROW AROUND THE INLET WITH THE END OF THE BALES TIGHTLY ABUTTING ONE ANOTHER.
3. SEE STRAW BALE BARRIER DETAILS AND NOTES FOR INSTALLATION REQUIREMENTS.

MAINTENANCE REQUIREMENTS
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. DAMAGED OR INEFFECTIVE INLET PROTECTION SHALL PROMPTLY BE REPAIRED OR REPLACING BALES IF NECESSARY, AND UNTRENCHED BALES NEED TO BE REPAIRED WITH COMPACTED BACKFILL MATERIAL.
3. SEDIMENT SHALL BE REMOVED FROM BEHIND STRAW BALES WHEN IT ACCUMULATES TO APPROXIMATELY 1/3 THE HEIGHT OF THE BARRIER.
4. INLET PROTECTION SHALL BE REMOVED WHEN ADEQUATE VEGETATIVE COVER IS ATTAINED WITHIN THE DRAINAGE AREA AS APPROVED BY THE COUNTY.



CONCRETE WASHOUT AREA (CWA)
NTS

INSTALLATION REQUIREMENTS
1. SEE GEC FOR LOCATIONS OF CONCRETE WASHOUT AREA.
2. THE CONCRETE WASHOUT AREA SHALL BE INSTALLED PRIOR TO ANY CONCRETE PLACEMENT SITE.
3. VEHICLE TRACKING CONTROL IS REQUIRED AT THE ACCESS POINT.
4. SIGNS SHALL BE PLACED AT THE CONSTRUCTION ENTRANCE, AT THE WASHOUT AREA, AND ELSEWHERE AS NECESSARY TO CLEARLY INDICATE THE LOCATION OF THE CONCRETE WASHOUT AREA TO OPERATORS OF CONCRETE TRUCKS AND PUMP RIGS.
5. EXCAVATED MATERIAL SHALL BE UTILIZED IN PERIMETER BERM CONSTRUCTION.

MAINTENANCE REQUIREMENTS
1. THE CONCRETE WASHOUT AREA SHALL BE REPAIRED AND ENLARGED OR CLEANED OUT AS NECESSARY TO MAINTAIN CAPACITY FOR WASTED CONCRETE.
2. AT THE END OF CONSTRUCTION, ALL CONCRETE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF AT AN APPROVED WASTE SITE.
3. WHEN THE CONCRETE WASHOUT AREA IS REMOVED, COVER THE DISTURBED AREA WITH TOPSOIL, DRILL SEED AND CRIMP MULCH OR OTHERWISE STABILIZE IN A MANNER APPROVED BY THE LOCAL JURISDICTION.
4. INSPECT WEEKLY, AND DURING AND AFTER ANY STORM EVENT.

EROSION CONTROL LEGEND

- Silt Fence (SF)
- Vehicle Tracking Control (VTC)
- Sediment Control Log (SCL)
- Erosion Control Blanket (ECB)
- Inlet Protection (IP)
- Concrete Wash Area (CWA)

ENGINEER'S STATEMENT
THIS GRADING AND EROSION CONTROL PLAN WAS PREPARED UNDER MY DIRECTION AND SUPERVISION AND IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF. SAID PLAN HAS BEEN PREPARED ACCORDING TO THE CRITERIA ESTABLISHED BY THE COUNTY FOR GRADING AND EROSION CONTROL PLANS. I ACCEPT RESPONSIBILITY FOR ANY LIABILITY CAUSED BY ANY NEGLIGENT ACTS, ERRORS OR OMISSIONS ON MY PART IN PREPARING THIS PLAN.

DATE

FOR AND ON BEHALF OF KIOWA ENGINEERING CORPORATION

See the Final Plat (SF-17-005) application for review comments to the Grading and Erosion Control Plan.

OWNER'S STATEMENT
THE OWNER WILL COMPLY WITH THE REQUIREMENTS OF THE GRADING AND EROSION CONTROL PLAN.

BY: _____ DATE

TITLE: _____

ADDRESS: LAKE WOOMOOR HOLDINGS, LLC
1755 TELSTAR DRIVE, SUITE 211
COLORADO SPRINGS, COLORADO 80920

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 AND ENGINEERING CRITERIA MANUAL, AS AMENDED.

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

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

The Beach at Woodmoor Filing No. 1

Grading and Erosion Control Plan
El Paso County, Colorado

Project No.:	16059
Date:	May 24, 2017
Design:	JAK
Drawn:	JAK
Check:	AWMc
Revisions:	

SHEET 3

3 OF 6 SHEETS

16059-GR-RIS.dwg May 24, 2017