

STORMWATER MANAGEMENT PLAN (SWMP)

for

SETTLERS VIEW SUBDIVISION

Prepared for:

Hannigan and Associates, Inc.
19360 Spring Valley Road
Monument, CO 80132

ACCEPTED for FILE
Engineering Review

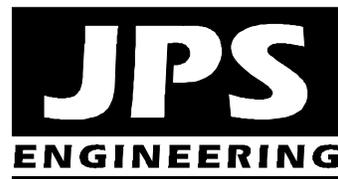
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Elizabeth Nijkamp

**EPC Planning & Community
Development Department**

January 28, 2019

Prepared by:



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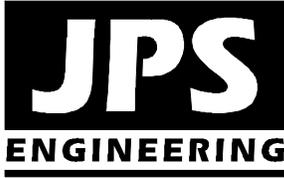
JPS Project No. 111603
PCD File No.: SF-18-041

**SETTLERS VIEW SUBDIVISION
STORMWATER MANAGEMENT PLAN (SWMP)
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**SETTLERS VIEW SUBDIVISION
STORMWATER MANAGEMENT PLAN (SWMP)
PCD File No. SF-18-041
January, 2019**

1. Applicant / Contact Information

Owner/Developer: Pinnacle Homes, LLC
5260 Hidden Rock Road
Colorado Springs, CO 80908
Attn: Tom Maher, (719)-290-5473
tom@pinnaclehomesales.com

Engineer: JPS Engineering, Inc.
19 E. Willamette Avenue
Colorado Springs, CO 80903
Attn: John P. Schwab, P.E. (719)-477-9429
john@jpsengr.com

Contractor: To Be Determined

2. Site Description

- a. Settlers View is a proposed rural residential subdivision consisting of 14 low-density residential lots (2.5-acre minimum size) on a 40-acre parcel in northern El Paso County. The property is described as a Part of the Northeast Quarter of Section 23, Township 11 South, Range 66 West of the 6th Principal Meridian. Site development activities will include site grading, utilities, roadway paving, and associated residential site development.

- b. Proposed sequence of major activities:
 - Mobilization / implementation of BMP's
 - Clearing and grubbing
 - Rough grading
 - Roadway paving
 - Final grading of building sites
- c. Total site area = 40 acres; Projected disturbed area = 4 acres (approx.)
- d. Historic runoff coefficient, $C = 0.35$;
Developed runoff coefficient, $C = 0.417$
- e. Existing vegetation on site: native meadow grasses (approx. 70% coverage)
- f. Potential pollution sources: vehicle fueling on-site
- g. Non-stormwater components of discharge: none anticipated
- h. Receiving water: Surface drainage from the east edge of the site flows easterly towards tributaries of East Cherry Creek. Surface drainage from the western part of the site flows southwesterly towards tributaries of West Cherry Creek.
- i. Soil erosion potential and potential impacts upon discharge: On-site soils are comprised of Elbeth sandy loam, Peyton sandy loam, and Tomah-Crowfoot soils, all of which are classified as Hydrologic Soils Group B (moderate erosion hazard).

3. Site Map (see Construction Drawings – Sheet C1)

4. BMP's for Stormwater Pollution Prevention (See Sheet C1):

<u>Phase</u>	<u>BMP</u>
Clearing and Grubbing necessary for perimeter controls	VTC's
Initiation of perimeter controls	Silt Fence
Remaining clearing and grubbing	
Site Grading	IP / SCL
Extended detention basin (sediment pond during construction)	EDB / SB
Stabilization	SM
Removal of erosion control measures	

- a. Erosion and Sediment Controls
 - 1) Structural Practices:
 - Silt fence at toe of slope along downstream limits of disturbed areas
 - Sediment control logs (SCL) along drainage ditches and swales
 - Inlet protection (IP) at culvert inlets
 - Extended Detention Basin (EDB)
 - 2) Non-Structural Practices:
 - Preserve existing vegetation beyond limits of work
 - Temporary seeding of areas to remain disturbed for significant periods of time
 - Permanent seeding/mulching (SM) upon completion of rough grading

b. Materials Handling and Spill Prevention

- General Materials Handling Practices:
 - Potential pollutants shall be stored and used in a manner consistent with the manufacturer's instructions in a secure location. To the extent practical, material storage areas should not be located near storm drain inlets and should be equipped with covers, roofs, or secondary containment as required to prevent storm water from contacting stored materials. Chemicals that are not compatible shall be stored and segregated areas so that spilled materials cannot combine and react.
 - Disposal of materials shall be in accordance with the manufacturer's instructions and applicable local, state, and federal regulations.
 - Materials no longer required for construction shall be removed from the site as soon as possible.
- Adequate garbage, construction waste, and sanitary waste handling and disposal facilities shall be provided as necessary to keep the site clear of obstruction and BMPs clear and functional.
- Specific Materials Handling Practices:
 - All pollutants, including waste materials and demolition debris, that occur on-site during construction shall be handled in a way that does not contaminate storm water.
 - All chemicals including liquid products, petroleum products, water treatment chemicals, and wastes stored on site shall be covered and contained and protected from vandalism.
 - Maintenance and repair of all equipment and vehicles involving oil changes, hydraulic system drain down, degreasing operations, fuel tank drain down and removal, and other activities which may result in the accidental release of contaminants, shall be conducted under cover during wet weather and on an impervious surface to prevent release of contaminants onto the ground. Materials spilled during maintenance operations shall be cleaned up immediately and properly disposed of.
 - Wheel wash water shall be settled and discharged on site by infiltration. Wheel wash water shall not be discharged to the storm water system.
 - Application of agricultural chemicals, including fertilizers and pesticides, shall be conducted in a manner and at application rates that will not result in loss of chemical to storm water runoff. Follow manufacturer's recommendations for application rates and procedures.
 - pH-modifying sources shall be managed to prevent contamination of runoff and storm water collected on site. The

most common sources of pH-modifying materials are bulk cement, cement kiln dust (CKD), fly ash, new concrete washing and curing waters, waste streams generated from concrete grinding and sawing, exposed aggregate processes, and concrete pumping and mixer washout waters.

- Equipment maintenance and fueling: Contractor shall implement appropriate spill prevention and response procedures
- Spill Prevention and Response Procedures:
 - No dedicated batch plants are proposed at this site.
 - The primary objective in responding to a spill is to quickly contain the material(s) and prevent or minimize their migration into storm water runoff and conveyance systems. If the release has impacted on-site storm water, it is critical to contain the released materials on site and prevent their release into receiving waters.
 - Spill Response Procedures:
 - Notify site superintendent immediately when a spill, or the threat of a spill, is observed. The superintendent shall assess the situation and determine the appropriate response.
 - If spills represent an imminent threat of escaping on-site facilities and entering the receiving waters, site personnel shall respond immediately to contain the release and notify the superintendent after the situation has stabilized.
 - The site superintendent, or his designee, shall be responsible for completing a spill reporting form and for reporting the spill to the appropriate agency.
 - Spill response equipment shall be inspected and maintained as necessary to replace any materials used in spill response activities.
 - Spill kits shall be on-hand at all fueling sites. Spill kit location(s) shall be reported to the SWMP Administrator.
 - Absorbent materials shall be on-hand at all fueling areas for use in containing inadvertent spills. Containers shall be on-hand at all fueling sites for disposal of used absorbents.
 - Recommended components of spill kits include the following:
 - Oil absorbent pads (one bale)
 - Oil absorbent booms (40 feet)
 - 55-gallon drums (2)
 - 9-mil plastic bags (10)
 - Personal protective equipment including gloves and goggles

- Concrete Wash Water: Unless confined in a pre-defined, bermed containment area, the cleaning of concrete truck delivery chutes is prohibited at the job site. The discharge of water containing waste cement to the storm drainage system is prohibited.
- Notification Procedures:
 - In the event of an accident or spill, the SWMP Administrator shall be notified as a minimum.
 - Depending on the nature of the spill material involved, the Colorado Department of Public Health and Environment (24-hour spill reporting line: 877-518-5608), downstream water users, or other agencies may also need to be notified.
 - Any spill of oil which 1) violates water quality standards, 2) produces a “sheen” on a surface water, or 3) causes a sludge or emulsion, or any hazardous substance release, or hazardous waste release which exceeds the reportable quantity, must be reported immediately by telephone to the National Response Center Hotline at (800)-424-8802.

5. Final Stabilization and Long-term Stormwater Management

- Permanent seeding will be provided to achieve long-term stabilization of the site.
- Seed Mix: “Foothills Mix” or approved equal:
- Seeding Application Rate: Drill seed 0.25” to 0.5” into the soil. In small areas not accessible to a drill, hand broadcast at double the rate and rake 0.25” to 0.5” into the soil. Apply seed at the following rates:
 - Dryland: 20-25 lbs/acre
 - Irrigated: 40 lbs/acre
- Soil Stabilization Practices:
 - Mulching Application: Apply 1-1/2 tons of certified weed free hay per acre mechanically crimped into the soil in combination with an organic mulch tackifier. On slopes and ditches requiring a blanket, the blanket shall be placed in lieu of much and mulch tackifier.
- Soil Conditioning and Fertilizer Requirements:
 - Soil conditioner, organic amendment shall be applied to all seeded areas at 3 CY / 1000 SF.
 - Fertilizer shall consist of 90% fungal biomass (mycelium) and 10% potassium-magnesia with a grade of 6-1-3 or approved equal. Fertilizer shall be applied as recommended by seed supplier.
- Final stabilization is reached when all soil-disturbing activities at the site have been completed, and uniform vegetative cover has been established with an individual plant density of at least 70 percent of pre-disturbance levels, or equivalent permanent, physical erosion reduction methods have been employed.

6. Other Controls

- Contractor shall dispose of all waste materials at a permitted off-site disposal site.
- Vehicle tracking pads will be installed at all access points to limit off-site soil tracking.

7. Inspection and Maintenance

a. Inspection Schedules:

- Contractor shall inspect BMPs bi-weekly as a minimum, and immediately (within 24 hours) after any precipitation or snowmelt event that causes surface erosion (i.e. that results in stormwater running across the ground), to ensure that BMPs are maintained in effective operating condition.

b. Inspection Procedures:

1) Site Inspection / Observation Items:

- Construction site perimeter and discharge points (including discharges into a storm sewer system)
- All disturbed areas
- Areas used for material / waste storage that are exposed to precipitation
- Other areas having a significant potential for stormwater pollution, such as demolition areas or concrete washout locations, or locations where vehicles enter or leave the site
- Erosion and sediment control measures identified in the SWMP
- Any other structural BMPs that may require maintenance, such as secondary containment around fuel tanks, or the condition of spill response kits.

2) Inspection Requirements:

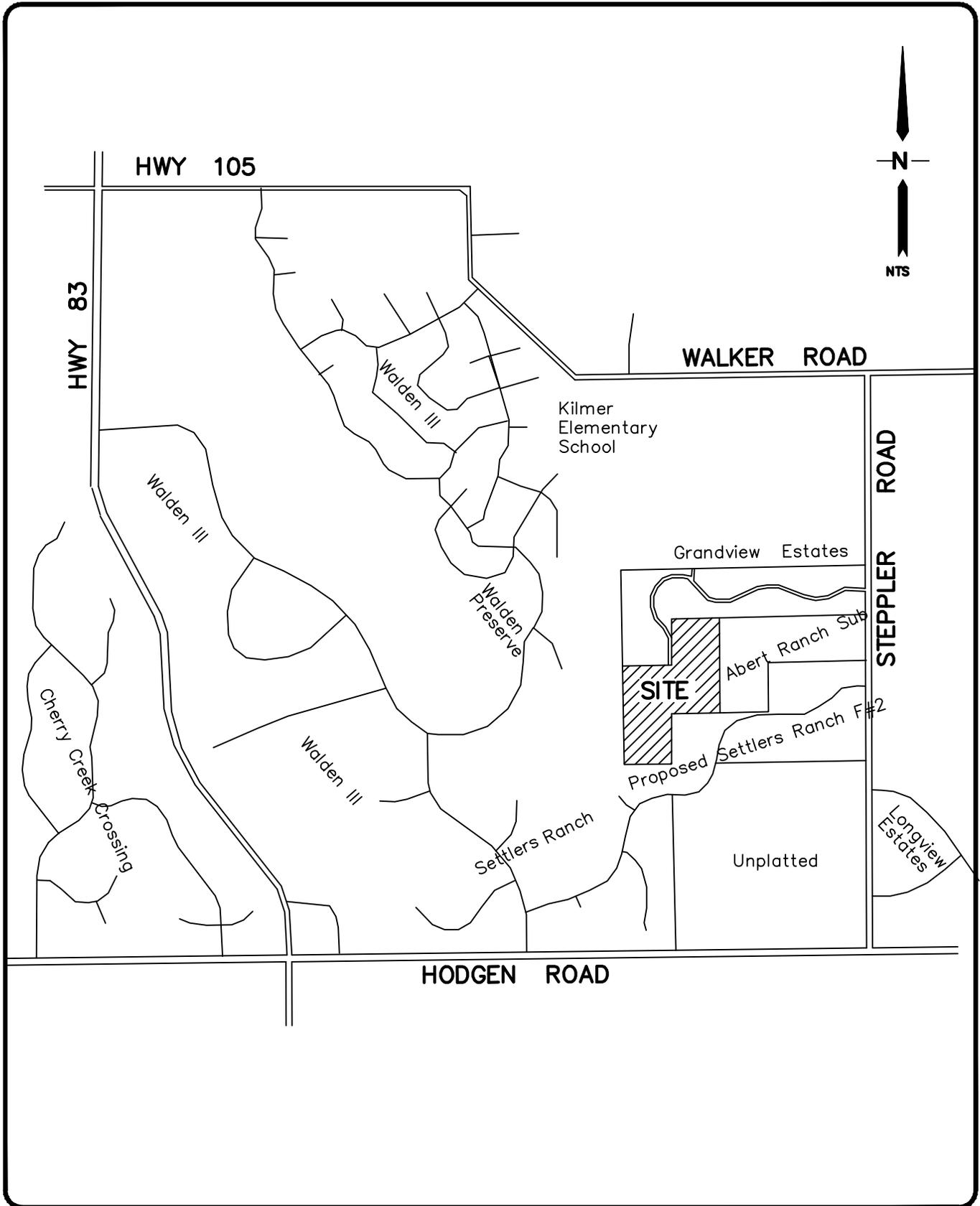
- Determine if there is any evidence of, or potential for, pollutants entering the drainage system.
- Review BMPs to determine if they still meet design and operational criteria in the SWMP, and if they continue to adequately control pollutants at the site.
- Upgrade and/or revise any BMPs not operating in accordance with the SWMP and update the SWMP to reflect any revisions.

c. BMP Maintenance / Replacement and Failed BMPs:

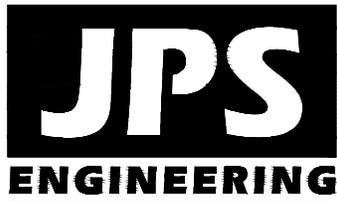
- Contractor shall remove sediment that has been collected by perimeter controls, such as silt fence and inlet protection, on a regular basis to prevent failure of BMPs, and remove potential of sediment from being discharged from the site in the event of BMP failure.

- Removed sediment must be moved to an appropriate location where it will not become an additional pollutant source, and should never be placed in ditches or streams.
 - Contractor shall update Erosion Control Plans as required with any new BMPs added during the construction period.
 - Contractor shall address BMPs that have failed or have the potential to fail without maintenance or modifications, as soon as possible, immediately in most cases, to prevent discharge of pollutants.
- d. Record Keeping and Documenting Inspections:
- Contractor shall maintain records of all inspection reports, including signed inspection logs, at the project site.
 - Permittee shall document inspection results and maintain a record of the results for a period of 3 years following expiration or inactivation of permit coverage.
 - Site inspection records shall include the following:
 - Inspection date
 - Name and title of personnel making the inspection
 - Location of discharges of sediment or other pollutants from the site
 - Location(s) of BMPs that need to be maintained
 - Location(s) of BMPs that failed to operate as designed or proved inadequate for a particular location
 - Location(s) where additional BMPs are needed that were not in place at the time of inspection
 - Deviations from the minimum inspection schedule

J:\jpsprojects\111603.settlers-view\dwg\civil\FIGURE A1.dwg, 2/17/2017 12:37:31 PM

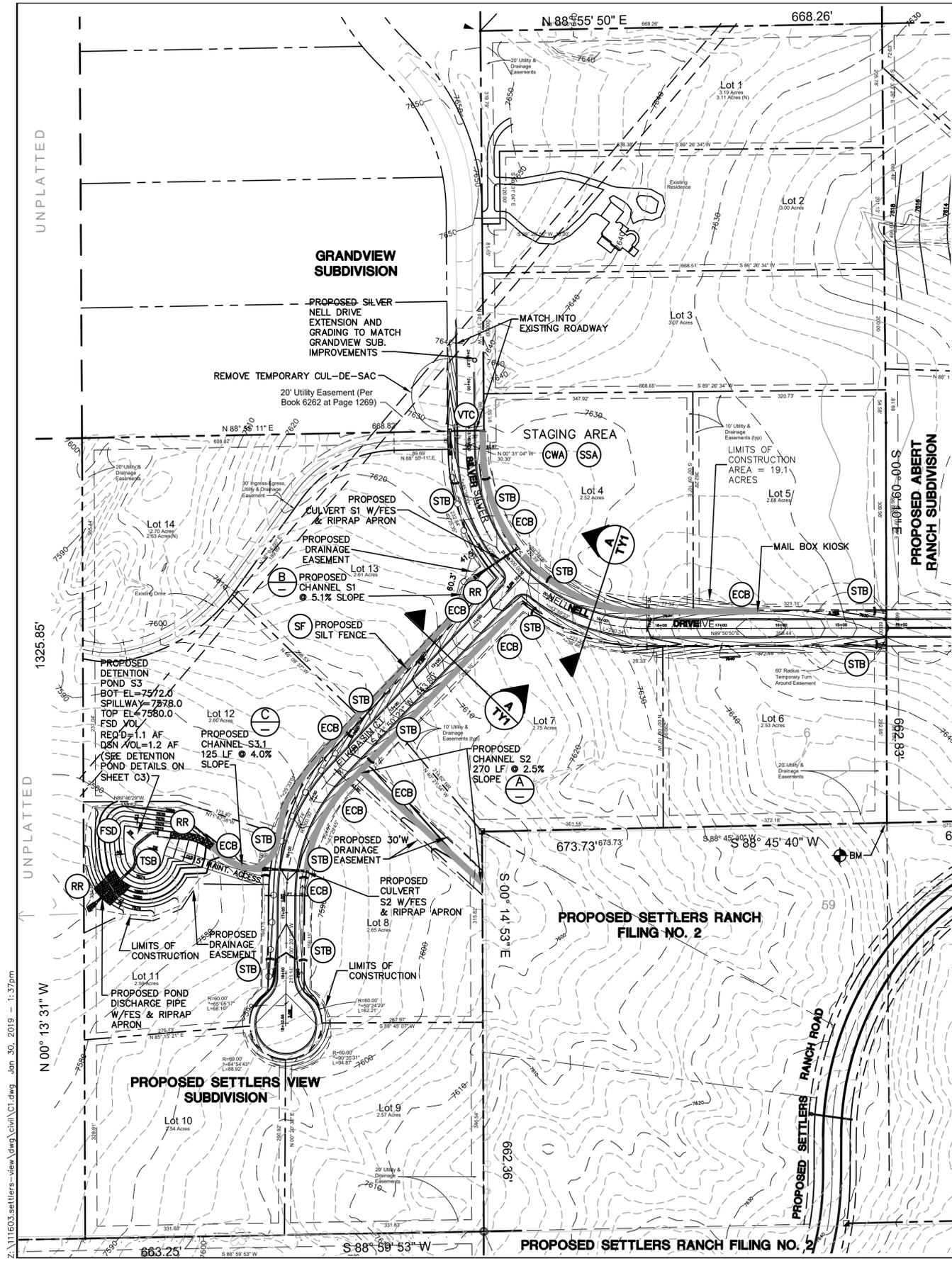


VICINITY MAP



SETTLERS VIEW

FIGURE A1
JPS PROJ NO. 111603



NOTE:
EXISTING VEGETATION CONSISTS OF NATIVE GRASSES.

GENERAL DRAINAGE NOTES:
1. INDIVIDUAL BUILDERS SHALL PROVIDE POSITIVE DRAINAGE AWAY FROM STRUCTURES AND ACCOUNT FOR POTENTIAL CROSS-LOT DRAINAGE IMPACTS WITHIN EACH LOT.
2. BUILDERS AND PROPERTY OWNERS SHALL IMPLEMENT & MAINTAIN EROSION CONTROL BEST MANAGEMENT PRACTICES FOR PROTECTION OF DOWNSTREAM PROPERTIES AND FACILITIES INCLUDING PROTECTION OF EXISTING GRASS BUFFER STRIPS ALONG THE DOWNSTREAM PROPERTY BOUNDARIES.

ESTIMATED EARTHWORK QUANTITY:
UNCLASSIFIED EXCAVATION (TOTAL CUT) = 6,072 CY
EMBANKMENT FILL = 7,144 CY
NET (FILL) = 1,072 CY
*(ASSUMES 15% COMPACTION FACTOR)

NOTE: THIS ESTIMATE IS PROVIDED FOR INFORMATION ONLY, REPRESENTING THE CALCULATED BULK EARTHWORK VOLUME NOT INCLUDING ANY ADJUSTMENTS FOR PAVEMENT DEPTHS. CONTRACTOR SHALL MAKE HIS OWN DETERMINATION OF EARTHWORK QUANTITIES AS BASIS FOR BID PRICING AND NOTIFY ENGINEER OF ANY DISCREPANCIES.

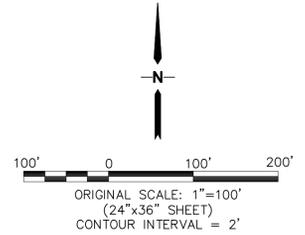
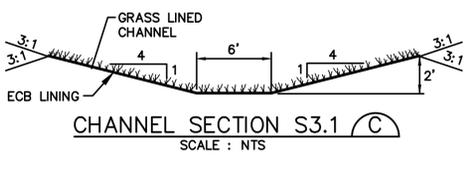
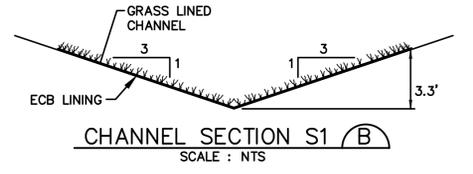
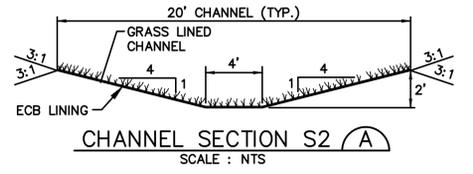
KEYED NOTES:
① CONTRACTOR MAY WASTE EXCESS CUT MATERIAL OR BORROW SUITABLE FILL MATERIAL FROM THIS AREA. MATCH INTO EXISTING GRADES WITH 3:1 MAX CUT AND FILL SLOPES AND MAINTAIN POSITIVE DRAINAGE IN ALL AREAS.

BMP PHASING

- INITIAL BMP'S
- INSTALL VTC
 - INSTALL SILT FENCE
 - TEMPORARY SEDIMENT BASIN
- INTERIM BMP'S
- STRAW BALE CHECK DAMS
- FINAL BMP'S
- RIPRAP APRONS
 - SEEDING

LEGEND

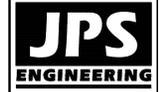
- BOUNDARY LINES
- - - DRAINAGE BASIN BOUNDARY
- 6520 EXISTING CONTOUR
- X 82.0 PROPOSED SPOT ELEVATION (FLOWLINE)
- X 82.0 EXISTING SPOT ELEVATION (FLOWLINE)
- DRAINAGE CHANNEL
- PROPOSED FLOW DIRECTION ARROW
- PROPOSED CULVERT W/ FLARED END SECTIONS
- IP INLET PROTECTION
- RR RIPRAP
- VTC VEHICLE TRACKING CONTROL PAD
- STB OR SCL STRAW BALE BARRIER @ 300' SPACING
- SF SILT FENCE
- TM STRAW BALES
- TM TEMPORARY SEED AND MULCH ON DISTURBED SLOPES
- ECB EROSION CONTROL BLANKET DITCH LINING (SC 150 OR EQUAL)
- TSB TEMPORARY SEDIMENT BASIN (DURING CONSTRUCTION)
- CWA CONCRETE WASHOUT AREA
- SSA STABILIZED STAGING AREA
- LIMITS OF CONSTRUCTION



BENCHMARK
THE MONUMENT AT THE SOUTHEAST PROPERTY CORNER, HAVING AN ASSUMED ELEVATION OF 7650.0 DATUM IS NAVD '88.

SETTLERS VIEW SUBDIVISION

SITE GRADING & EROSION CONTROL PLAN



19 E. Willamette Ave.
Colorado Springs, CO 80903
PH: 719-477-9429
FAX: 719-471-0766
www.jpsegr.com



CALL UTILITY NOTIFICATION CENTER OF COLORADO
1-800-922-1987
CALL BEFORE YOU DIG. IN ALL AREAS BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES.

NO.	REVISION	DATE	BY
1	COUNTY COMMENTS	2/13/18	JPS
2	COUNTY COMMENTS	7/31/18	JPS
3	FINAL PLAT SUBMITTAL	1/30/19	JPS

HORIZ. SCALE: 1"=100'	DRAWN: BJJ
VERT. SCALE: N/A	DESIGNED: JPS
SURVEYED: HANNIGAN	CHECKED: JPS
CREATED: 11/23/16	LAST MODIFIED: 1/30/19
PROJECT NO: 111603	MODIFIED BY: BJJ

SHEET: **C1**

PCD File No. SF-18-041

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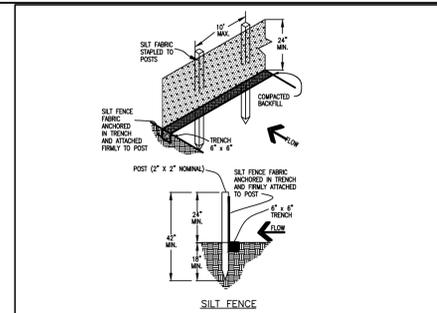
Standard Notes for El Paso County Grading and Erosion Control Plans

Revised 7/07/10

- Construction may not commence until a Construction Permit is obtained from Planning and Community Development Department and a Preconstruction Conference is held with Planning and Community Development Department Inspectors.
- 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 to regulations and standards must be requested, and approved, in writing.
- A separate Stormwater Management Plan (SMWP) 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.
- Once the ESQCP has been issued, the contractor may install the initial stage erosion and sediment control BMPs as indicated on the 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 PCD inspections staff.
- 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.
- 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 DCM Volume II and the Engineering Criteria Manual (ECM) appendix I.
- 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 Drainage Criteria Manual (DCM) Volume II and in accordance with the Stormwater Management Plan (SWMP).
- 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.
- 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.
- 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.
- 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.
- Erosion control blanketing is to be used on slopes steeper than 3:1.
- 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.
- Vehicle tracking of soils and construction debris off-site shall be minimized. Materials tracked offsite shall be cleaned up and properly disposed of immediately.
- 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.
- 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.
- 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.
- 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.
- No person shall cause the impediment of stormwater flow in the flow line of the curb and gutter or in the ditchline.
- 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.
- All construction traffic must enter/exit the site at approved construction access points.
- Prior to actual construction the permittee shall verify the location of existing utilities.
- A water source shall be available on site during earthwork operations and utilized as required to minimize dust from earthwork equipment and wind.
- The soils report for this site shall be considered a part of these plans.
- 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

NOTE:
NOTWITHSTANDING ANY DETAILS, NOTES OR PLANS SHOWN ON THESE DRAWINGS, ALL EROSION CONTROL DESIGNS AND INSTALLATIONS SHALL CONFORM TO EL PASO COUNTY STANDARDS AND POLICIES UNLESS OTHERWISE APPROVED IN WRITING.



SILT FENCE NOTES

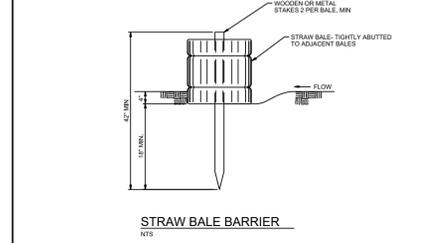
INSTALLATION REQUIREMENTS

- SILT FENCES SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.
- WHEN JOINTS ARE NECESSARY, SILT FENCE GEOTEXTILE AND SECURELY SEALED.
- METAL POSTS SHALL BE "SHOULDER TIE" OR "U" TYPE WITH MINIMUM WEIGHT 1.33 POUNDS PER LINEAR FOOT. WOOD POSTS SHALL HAVE A MINIMUM DIAMETER OR CROSS SECTION DIMENSION OF 2 INCHES.
- THE FILTER MATERIAL SHALL BE FASTENED SECURELY TO METAL OR WOOD POSTS USING WIRE TIES, OR TO WOOD POSTS WITH 3/4" LONG #8 HEAVY-DUTY STAPLES. THE SILT FENCE GEOTEXTILE SHALL NOT BE STAPLED TO EXISTING TREES.
- 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 3/4" LONG. THE WIRE SHALL EXTEND INTO THE TRENCH A MINIMUM OF 4" AND SHALL NOT EXTEND MORE THAN 3" ABOVE THE ORIGINAL GROUND SURFACE.
- 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 SEEDING TO BE SET. A MINIMUM DISTANCE OF 5 FEET FROM THE TOE OF THE FILL IS RECOMMENDED.
- 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 IMPROVE VOLUMES OF WATER SUFFICIENT TO CAUSE FAILURE OF THE STRUCTURE.

MAINTENANCE REQUIREMENTS

- CONTRACTOR SHALL INSPECT SILT FENCES IMMEDIATELY AFTER EACH RAINFALL AT LEAST DAILY DURING PROLONGED RAINFALL, AND IMMEDIATELY AFTER PERIODS OF PROLONGED RAINFALL. DAMAGED OR INEFFECTIVE SILT FENCES SHALL BE PROMPTLY REPAIRED OR REPLACED.
- SEDIMENT SHALL BE REMOVED FROM BEHIND SILT FENCE WHEN IT ACCUMULATES TO HALF THE HEIGHT OF THE FENCE.
- SILT FENCES SHALL BE REMOVED WHEN ADEQUATE VEGETATIVE COVER IS ATTAINED AS APPROVED BY THE CITY.

City of Colorado Springs Stormwater Quality Figure SF-2 Silt Fence Construction Detail and Maintenance Requirements



STRAW BALE BARRIER NOTES

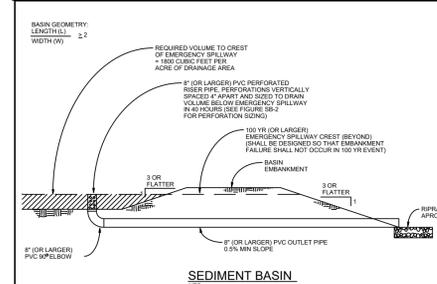
INSTALLATION REQUIREMENTS

- STRAW BALE BARRIERS SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.
- BALES SHALL CONSIST OF APPROXIMATELY 5 STRAW BALS OF APPROXIMATELY 18 INCHES LONG, 18 INCHES HIGH, AND 18 INCHES WIDE.
- BALES ARE TO BE PLACED IN A SINGLE ROW WITH THE ENDS OF THE BALES TIGHTLY ABUTTING ONE ANOTHER.
- EACH BALE IS TO BE SECURELY ANCHORED WITH AT LEAST TWO STAKES AND THE FIRST STAKE IS TO BE DRIVEN TOWARD THE PREVIOUSLY Laid BALE TO FORCE THE BALES TOGETHER.
- STAKES ARE TO BE A MINIMUM OF 42 INCHES LONG, METAL STAKES SHALL BE 1/2" DIA. OR 3/4" DIA. WITH MINIMUM WEIGHT OF 1.33 POUNDS PER LINEAR FOOT. WOOD STAKES SHALL HAVE A MINIMUM DIAMETER OR CROSS SECTION DIMENSION OF 2 INCHES.
- BALES ARE TO BE BOUND WITH EITHER WIRE OR STRAP AND ORIENTED SUCH THAT THE BARRIERS ARE AROUND THE SIDES AND NOT ALONG THE TOPS AND BOTTOMS OF THE BALE.
- GAPS BETWEEN BALES ARE TO BE CORKED, FILLED BY WEAVING WITH STRAW OR THE SAME MATERIAL OF THE BALE.
- END BALES ARE TO EXTEND UPSLOPE SO THE TRAFFIC RUNOFF CANNOT FLOW AROUND THE ENDS OF THE BARRIERS.

MAINTENANCE REQUIREMENTS

- CONTRACTOR SHALL INSPECT STRAW BALE BARRIERS IMMEDIATELY AFTER EACH RAINFALL, AT LEAST DAILY DURING PROLONGED RAINFALL, AND WEEKLY DURING PERIODS NO RAINFALL.
- DAMAGED OR INEFFECTIVE BARRIERS SHALL BE PROMPTLY REPAIRED. REPLACING BALES IS NECESSARY. DAMAGED OR INEFFECTIVE BALES NEED TO BE REPAIRED WITH COMPACTED BACKFILL MATERIAL.
- SEDIMENT SHALL BE REMOVED FROM BEHIND STRAW BALE BARRIERS WHEN IT ACCUMULATES TO APPROXIMATELY 1/2 THE HEIGHT OF THE BARRIERS.
- STRAW BALE BARRIERS SHALL BE REMOVED WHEN ADEQUATE VEGETATIVE COVER IS ATTAINED AS APPROVED BY THE CITY.

City of Colorado Springs Stormwater Quality Figure SBB-2 Straw Bale Barrier Construction Detail and Maintenance Requirements



SEDIMENT BASIN NOTES

INSTALLATION REQUIREMENTS

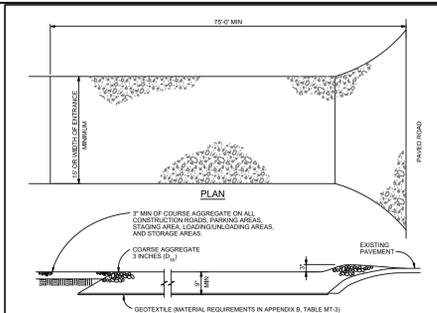
- SEDIMENT BASINS SHALL BE INSTALLED BEFORE ANY CLEARING/ARBOR STRIPPING IS UNDERTAKEN.
- THE AREA UNDER WHICH THE EMBANKMENT IS TO BE INSTALLED SHALL BE CLEANED, GRUBBED, AND STRIPPED OF ALL VEGETATION AND ROOT MAT.
- THE OUTLET OF THE BASIN SHALL BE DESIGNED TO DRAIN THE VOLUME IN 45 MINUTES.
- THE OUTLET IS TO BE LOCATED AT THE FURTHEST DISTANCE FROM THE INLET OF THE BASIN. Baffles MAY BE REQUIRED TO INCREASE THE FLOW LENGTH AND SETTLING.
- EMBANKMENT MATERIAL SHALL CONSIST OF SOIL WITH A MINIMUM OF 10% PASSING A #20 SIEVE. EXCAVATED SOIL CAN BE USED IF IT MEETS THIS REQUIREMENT.
- EMBANKMENT IS TO BE COMPACTED TO AT LEAST 90% OF MAXIMUM DENSITY AND WITHIN 2% OF OPTIMUM MOISTURE CONTENT ACCORDING TO ASTM A99.
- WHEN A BASIN IS INSTALLED NEAR A PERMANENT AREA FOR BATTERY RECHARGING, A SIGN SHALL BE POSTED AND THE AREA SECURED WITH A FENCE.

MAINTENANCE REQUIREMENTS

- CONTRACTOR SHALL INSPECT SEDIMENT BASINS IMMEDIATELY AFTER EACH RAINFALL AT LEAST DAILY DURING PROLONGED RAINFALL, AND WEEKLY DURING PERIODS NO RAINFALL.
- SEDIMENT BASINS SHALL BE CLEANED OUT BEFORE THE EMBANKMENT HAS FILLED HALF THE VOLUME OF THE BASIN.
- SEDIMENT BASINS SHALL REMAIN OPERATIONAL AND PROPERLY MAINTAINED UNTIL THE SITE AREA IS PERMANENTLY STABILIZED WITH ADEQUATE VEGETATIVE COVER AND/OR OTHER PERMANENT STRUCTURE AS APPROVED BY THE CITY.

DESIGN VOLUME=1.2 AF
8" RISER
INV=7572.0
TOP=7578.0
W/3 COLUMNS OF 5/8" HOLES

City of Colorado Springs Stormwater Quality Figure SB-1 Sediment Basin Construction Detail and Maintenance Requirements



VEHICLE TRACKING NOTES

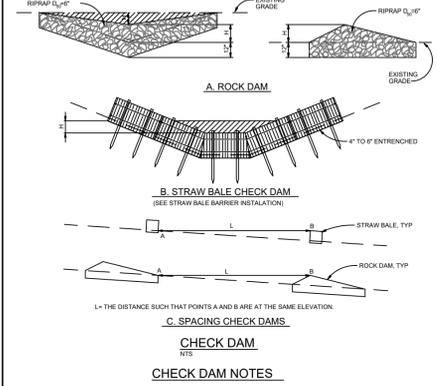
INSTALLATION REQUIREMENTS

- ALL ENTRANCES TO THE CONSTRUCTION SITE ARE TO BE STABILIZED PRIOR TO CONSTRUCTION BEGINNING.
- CONSTRUCTION ENTRANCES ARE TO BE BUILT WITH AN ASPHALT OR CONCRETE SURFACE, TRAFFIC SHOULD NOT BE BUILT OVER EXISTING PAVEMENT EXCEPT FOR A SLIGHT OVERLAP.
- AREAS TO BE STABILIZED ARE TO BE PROPERLY GRADED AND COMPACTED PRIOR TO LAYING DOWN GEOTEXTILE AND STONE.
- CONSTRUCTION ROADS, PARKING AREAS, LOADING/UNLOADING ZONES, STORAGE AREAS, AND STAGING AREAS ARE TO BE STABILIZED.
- CONSTRUCTION ROADS ARE TO BE BUILT TO CONFORM TO THE GRADES, BUT SHOULD NOT HAVE SIDE SLOPES OR ROAD GRADES THAT ARE EXCESSIVELY STEEP.

MAINTENANCE REQUIREMENTS

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

City of Colorado Springs Stormwater Quality Figure VT-2 Vehicle Tracking Application Examples



CHECK DAM NOTES

INSTALLATION REQUIREMENTS

- STRAW BALES USED AS CHECK DAMS ARE TO MEET THE REQUIREMENTS STATED IN FIGURE SBB-2.
- THE 1/2" DIMENSION SHALL BE SELECTED TO PROVIDE BEST FLOW CONVEYANCE FOR 2-YEAR FLOW OR GREATER.

MAINTENANCE REQUIREMENTS

- REGULAR INSPECTIONS ARE TO BE MADE OF ALL CHECK DAMS, ESPECIALLY AFTER STORM EVENTS.
- REPLACE STONE AS NECESSARY TO MAINTAIN THE CORRECT HEIGHT OF THE DAM.
- 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.
- CHECK DAMS ARE TO REMAIN IN PLACE AND OPERATIONAL UNTIL THE DRAINAGE AREA AND CHANNEL ARE PERMANENTLY STABILIZED.
- 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

SEEDING MIX:

GRASS	VARIETY	AMOUNT IN PLS LBS. PER ACRE
CRESTED WHEAT GRASS	EPHRAIM OR HYCREST	4.0 LBS.
PERENIAL RYE	LINN	2.0 LBS.
WESTERN WHEATGRASS	SARTON	3.0 LBS.
SMOOTH BROME GRASS	LINCOLN OR MANCHAR	5.0 LBS.
SIDEOATS GRAMA	EPHRAIM	2.5 LBS.
TOTAL:		16.5 LBS.

SEEDING & FERTILIZER APPLICATION: DRILL SEED OR HYDRO-SEED PER CDOT SPEC. SECTION 212.

MULCHING APPLICATION: CONFORM TO CDOT SPEC-SECTION 213.

SEDIMENT CONTROL MAINTENANCE PROGRAM:

FREQUENCY

RE-VEGETATION OF EXPOSED SOILS BI-WEEKLY¹ WITHIN 21 DAYS OF GRADING.

SEDIMENT REMOVAL FROM BMP'S MONTHLY² AFTER STABILIZATION ACHIEVED.

REMOVAL OF BMP'S AFTER STABILIZATION ACHIEVED.

1 AND AFTER ANY PRECIPITATION OR SNOW MELT EVENT THAT CAUSES SURFACE EROSION.

2 ACCUMULATED SEDIMENT AND DEBRIS SHALL BE REMOVED WHEN THE SEDIMENT LEVEL REACHES ONE HALF THE HEIGHT OF THE BMP OR AT ANY TIME THAT SEDIMENT OR DEBRIS ADVERSELY IMPACTS THE FUNCTION OF THE BMP.

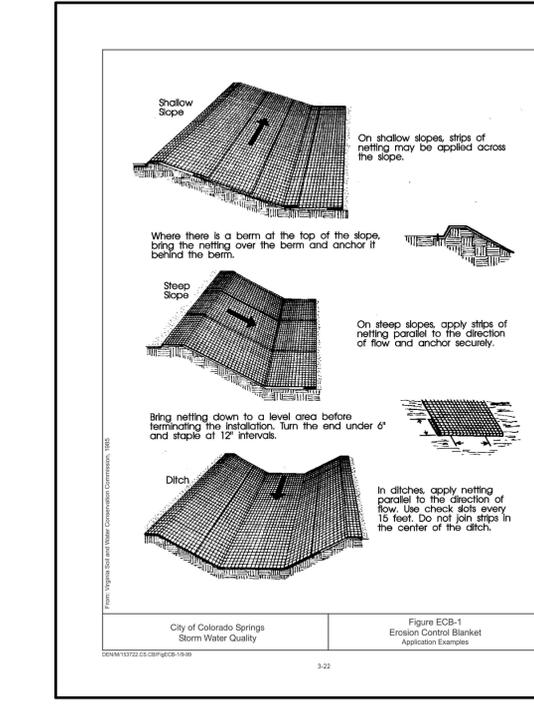
ESTIMATED TIME SCHEDULE:

INSTALL BMP'S APRIL, 2019

ROADWAY GRADING APRIL, 2019

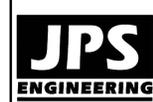
SEEDING & MULCHING SEPTEMBER, 2019

STABILIZATION SEPTEMBER, 2020



City of Colorado Springs Stormwater Quality Figure ECB-1 Erosion Control Blanket Application Examples

SETTLERS VIEW SUBDIVISION



19 E. Willamette Ave.
Colorado Springs, CO
80903
PH: 719-477-9429
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NO.	REVISION	DATE	BY
1	COUNTY COMMENTS	2/13/18	JPS
2	COUNTY COMMENTS	7/31/18	JPS
3	FINAL PLAT SUBMITTAL	1/30/19	JPS

EROSION CONTROL NOTES & DETAILS

HORIZ. SCALE:	N/A	DRAWN:	MSP
VERT. SCALE:	N/A	DESIGNED:	JPS
SURVEYED:	LWA	CHECKED:	JPS
CREATED:	7/26/18	LAST MODIFIED:	1/30/19
PROJECT NO:	111603	MODIFIED BY:	MSP

SHEET: **C2**

PCD File No. SF-18-041