

Item Numbers refer to SWMP Checklist

**STORMWATER MANAGEMENT PLAN (SWMP)
for
THE RESERVE AT CORRAL BLUFFS – FILINGS NO. 3-5**

Prepared for:

Corral Ranches Development Company
1830 Coyote Point Drive
Colorado Springs, CO 80904

Item 1. Add Qualified Stormwater Manager and Contractor information to cover/title sheet. If unknown, add a placeholder to be updated prior to the pre-construction meeting:

December 27, 2019

QUALIFIED STORMWATER MANAGER

Name: _____

Company: _____

Address: _____

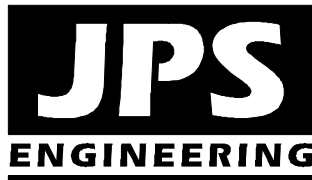
CONTRACTOR

Name: _____

Company: _____

Address: _____

Prepared by:



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**JPS Project No. 081104
PCD File No. SF-19-__**

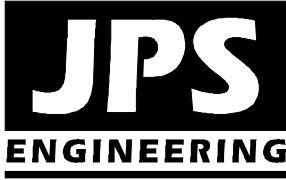
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**THE RESERVE AT CORRAL BLUFFS SUBDIVISION – FILINGS NO. 3-5
STORMWATER MANAGEMENT PLAN (SWMP)
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DRAWINGS

Grading & Erosion Control (GEC) Plans (incorporated by reference)



**THE RESERVE AT CORRAL BLUFFS SUBDIVISION
FILINGS NO. 3-5
STORMWATER MANAGEMENT PLAN (SWMP)
December, 2019**

I. QUALIFIED STORMWATER MANAGER

Move to cover sheet

A. Qualified Stormwater Manager

Contractor: To Be Determined

B. Applicant / Contact Information

Owner/Developer: Corral Ranches Development Company, Inc.
1830 Coyote Point Drive
Colorado Springs, CO 80904
Attn: Jake Kunstle (719)- 964-5941
kunstle@comcast.net

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

II. SPILL PREVENTION AND RESPONSE PLAN

A. Spill Prevention and Response Procedures:

- 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

B. 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.

III. MATERIALS HANDLING

A. 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.

B. 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.

C. 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, de-greasing 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 ad 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.

- D. Equipment maintenance and fueling: Contractor shall implement appropriate spill prevention and response procedures
- E. 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.

IV. POTENTIAL SOURCES OF POLLUTION

Potential pollutant sources will be addressed as follows:

POTENTIAL POLLUTION SOURCES

Potential Pollution Sources	Possible Site Contributions of Pollutants to Stormwater Discharges
All disturbed and stored soils	Stockpiles of fill from site excavations, topsoil stockpiles.
Vehicle tracking of sediments	See GEC Plans for vehicle entrance and exits. Vehicle tracking control pads will be installed and maintained at all construction access points.
Management of contaminated soils	No contaminated soils are expected to be encountered.
Loading and unloading operations	Loading and unloading of construction materials
Outdoor storage activities (building material, fertilizers, chemicals, etc.)	Stockpiles and equipment storage areas (no fertilizers, petroleum or chemical products will be stored on-site).
Vehicle and equipment maintenance and fueling	Fueling will occur on-site using mobile equipment (will not be stored on-site). Equipment maintenance will occur off-site.
Significant dust or particulate-generating processes	Vehicle tracking, soil removed from excavation, stockpiles.
Routine maintenance activities involving fertilizers, pesticides, detergents, fuels, solvents, oils, etc.	All equipment maintenance will occur off-site. No fertilizers, pesticides, detergents, and/or solvents will be used or stored on-site.
On-site waste management practices (waste piles, liquid wastes, dumpsters, etc.)	All waste will be removed from site as soon as possible, and disposed of at a permitted off-site disposal site
Concrete truck/equipment washing, including the concrete truck chute and associated fixtures and equipment	Properly contained concrete washout areas may be designated and maintained within the site, based on construction phasing.
Dedicated asphalt and concrete batch plants	No dedicated asphalt or concrete batch plants are planned on-site.

Non-industrial waste sources such as worker trash and portable toilets	Worker trash will be removed from the site as soon as possible. Portable toilets will be utilized and maintained as required based on construction phasing.
Other areas or procedures where potential spills can occur	Petroleum releases from equipment are possible.

V. IMPLEMENTATION OF CONTROL MEASURES

Narrative Description of Appropriate Stormwater Controls and Measures

Construction Phasing

Phase 1 – Mobilization, Clearing & Grubbing Operations

Clearing and grubbing will be completed prior to initial overlot grading activities for this site. Perimeter control measures will be installed prior to the start of construction operations. These perimeter controls will include silt fencing and a vehicle tracking control pad.

Phase 2 – Earthwork, Road Grading, and Utility Installation

Major earthwork activities will include site grading, excavation, backfill, compaction, utility construction, roadway paving, and related improvements.

Phase 3 – Building Construction and Final Grading Activities

This phase will include final grading of building sites and landscape areas. Appropriate temporary BMP's will be maintained until vegetation is re-established throughout the site.

Phase 4 – Stabilization

All disturbed areas within the project will be revegetated. The specific revegetation requirements will include the following:

- Landscape plantings – per approved landscape plans
- Native seeding – all other disturbed areas

Phase 5 – Removal of Temporary Control Measures

Temporary sediment control measures shall remain in place until vegetation has been adequately established to prevent erosion from storm runoff. Once adequate vegetation has been established, the temporary erosion control measures will be removed and disposed of off-site.

BMP's for Stormwater Pollution Prevention (See GEC Plans):

<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
Stabilization	SM
Removal of erosion control measures	

Proposed Sequence of Major Activities / Timing Schedule

The anticipated start and completion time period of the construction activities is from April, 2020 through September, 2020. The estimated schedule for erosion control activities is as follows:

- Install Initial BMP's: April, 2020
- Site Grading: April, 2020
- Seeding & Mulching: September, 2020
- Final Stabilization: August, 2021

Erosion and Sediment Controls:

- 1) Structural Practices / Control Measures (all structural Control Measures shall conform to ECM / DCM standards and details):
 - Silt fence at toe of slope along downstream limits of disturbed areas
 - Erosion Control Blankets (ECB) along drainage ditches in selected locations
 - Inlet protection (IP) at culvert inlets
- 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

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.
- Street Sweeping: Contractor shall perform street sweeping following storm events and as required to keep adjoining public streets clean.

VI. SITE DESCRIPTION

- A. Nature of Construction Activity
- The Reserve at Corral Bluffs Subdivision is a proposed rural residential development (5-acre minimum lot sizes) consisting of 31 single-family lots on a 156.5-acre parcel in eastern El Paso County, Colorado. Filings No. 3-5 comprise the final 19 lots to complete development of the subdivision. The proposed Filing No. 3 consists of 6 lots along the easterly extension of Hoofprint Road and the northerly extension of Solberg Court. All remaining public infrastructure improvements for the subdivision will be completed with Filing No. 3. The proposed Filing No. 4 consists of 5 lots at the north end of Solberg Court, and the proposed Filing No. 5 consists of the final 8 lots at the south end of Solberg Court.
 - Site development activities will include site grading, utilities, road construction, and related site improvements.
- B. Proposed sequence of major activities:
- Mobilization / implementation of BMP's
 - Clearing and grubbing
 - Rough grading
 - Final grading of subdivision roads
 - Seeding and stabilization
- C. Total site area = 124-acres; Projected disturbed area = 6-acres (approx.)
- D. Soil erosion potential and potential impacts upon discharge:
On-site soils are comprised of Ascalon sandy loam, Badland complex, Bresser sandy loam, and Stapleton-Bernal sandy loams. The majority of on-site soils are classified as Hydrologic Soils Group B (moderate erosion hazard). Uncontrolled soil erosion may adversely impact downstream drainageways; on-site BMP's will be provided and maintained to mitigate adverse impacts.
- E. Existing vegetation on site:
- Native grasses and shrubs (approx. 70% coverage, based on site inspection)
- F. Allowable non-stormwater components of discharge: none anticipated
- G. Receiving water: Curtis Ranch Drainage Basin; surface drainage from this site will continue to follow historic drainage patterns, flowing northerly into existing natural drainage swales, ultimately reaching a tributary channel of the West Fork of Black Squirrel Creek
- H. Stream Crossings: There are no stream crossings located within the construction site boundary.

VII. SITE MAP

- SWMP Maps are provided on GEC Plans – Sheet C1
- Qualified Stormwater Manager shall update SWMP Maps as required based on field conditions throughout the project.
- Contractor shall update and annotate the SWMP Maps to show the location of the construction trailer, stabilized staging area, CWA, and other items as these locations are determined on site.

VIII. FINAL STABILIZATION AND LONG-TERM STORMWATER MANAGEMENT

- A. Permanent seeding will be provided to achieve long-term stabilization of the site.
- B. Seed Mix: “Foothills Mix” or approved equal:
- C. 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
- D. 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.
- E. 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.
- F. 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.
- G. Structural Control Measures:
 - Re-seeding and landscaping for site stabilization
 - Permanent Stormwater Detention & Water Quality Ponds A and B
- H. Non-Structural Control Measures:
 - Proper Housekeeping Procedures
 - Proper Spill Containment Procedures

IX. INSPECTION REPORTS

- A. Qualified Stormwater Manager: Designated Inspector shall be a Qualified Stormwater Manager per CDPHE criteria.
- B. Inspection Frequency:
 - 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.

C. Inspection Procedures:

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.

D. 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.

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 / SWMP Maps and SWMP Plan 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.

E. Inspection Reports:

- Contractor shall maintain records of all inspection reports, including signed inspection logs, at the project site. SWMP records shall be located in the project trailer.
- Inspection logs shall be signed by the Qualified Stormwater Manager.
- 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, along with Inspector's signature
 - 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
 - Notations regarding updates and revisions to SWMP Maps based on field conditions