Temporary Erosion and Sediment Control Plan for Griegos Farms and Additional Information

1. Temporary Erosion and Sediment Control Plan (TESCP)
2. Best Management Practice Information Sheet
3. City of Albuquerque Erosion and Sediment Control Standard Notes
4. RUSLE Soil Data
5. Pond Stabilization Specifications
6. Project Roles and Responsibilities

1.

Temporary Erosion and Sediment Control Plan

Temporary Erosion and Sediment Control Plan

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60' 30' 0 60'
SCALE: 1"=60'

LEGEND

- FLOW ARROW
- 27.8 — PROPOSED TOP OF GRADE/PVMT ELEVATIONS
- FL27.8 — PROPOSED FLOW LINE/GUTTER ELEVATIONS
- TC27.8 — PROPOSED TOP OF CURB ELEVATIONS
- FGH27.8 — PROPOSED GRADE AT TOP OF WALL
- FGL27.8 — PROPOSED GRADE AT BOTTOM OF WALL
- 515 — EXISTING CONTOUR
- 515 — PROPOSED CONTOUR
- EXISTING STORM DRAIN
- FLOW LINE
- RIDGE LINE

Note that 814 Solutions did not create grading and drainage plan. Plan was edited by 814 Solutions to include stormwater best management practices.

CAUTION!!!!

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Note that in areas where silt fence can not be staked (asphalt/concrete) a temporary fence shall be installed and silt fence shall be attached to fence. Silt fence tail will be secured to ground with sandbags and/or wattle to capture runoff.

Soil Information

100% Agua silty clay loam

K-Factor: 0.37 (RUSLE)

Ponds shall be first item of construction to capture runoff from project.

Legend

- Existing Retaining Wall
- Limits of Disturbance
- Lot Boundary
- NPDES Permit Information Board
- Silt Fence
- Stabilized Construction Entrance

Lot 1
Lot 2
Lot 3
Lot 4
Lot 5
Lot 6
Lot 7
Lot 8

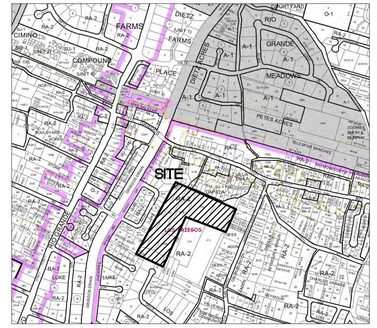
Ref Sheet C201
Ref Sheet C202
Ref Sheet C203
Ref Sheet C204

Note that ponds will be first item of construction. Stabilization methods discussed in Attachment 6.

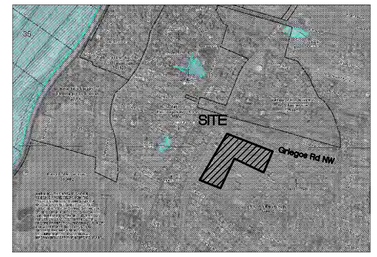
NOTE: BOTH THE RESIDENTIAL & THE CHURCH PROPERTY HAVE NO DISCHARGE AND WILL PROVIDE PONDING FOR THE 100-YR, 10-DAY STORM PER THE DPM. REF. THE DRAINAGE MANAGEMENT PLAN ON SHEET C206 FOR CALCULATIONS.

Land owned by Roman Catholic Church of Archdiocese of Santa Fe

All other land owned by Griegos Farms, LLC



VICINITY MAP - Zone Map F-13-Z
Legal Description: Tract 2, Our Lady of Guadalupe and Tract 144A1, Cordova's Subdivision City of Albuquerque, NM. 10.19 Acres.



FIRM MAP 35001C0118G

Per FIRM Map 35001C0118G, dated September 26, 2008, the site is located in Zone X of the Floodplain and determined to be inside the 0.2% chance Annual Floodplain.' Areas of 1% annual chance flood with average depths of less than 1 square mile; and areas protected by levees from 1% annual chance flood.

GRADING NOTES

1. *EXCEPT AS PROVIDED HEREIN, GRADING SHALL BE PERFORMED AT THE ELEVATIONS AND IN ACCORDANCE WITH THE DETAILS SHOWN ON THIS PLAN.*
2. *THE COST FOR REQUIRED CONSTRUCTION DUST AND EROSION CONTROL MEASURES SHALL BE INCIDENTAL TO THE PROJECT COST.*
3. *ALL WORK RELATIVE TO FOUNDATION CONSTRUCTION, SITE PREPARATION, AND PAVEMENT INSTALLATION, AS SHOWN ON THIS PLAN, SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE "GEOTECHNICAL INVESTIGATION," AS PROVIDED BY THE ARCHITECT OR OWNER. ALL OTHER WORK SHALL, UNLESS OTHERWISE STATED OR PROVIDED FOR HEREON, BE CONSTRUCTED IN ACCORDANCE WITH THE PROJECT, (FIRST PRIORITY) SPECIFICATIONS, AND/OR THE CITY OF ALBUQUERQUE (COA) STANDARD SPECIFICATIONS FOR PUBLIC WORKS (SECOND PRIORITY).*
4. *EARTH SLOPES SHALL NOT EXCEED 3 HORIZONTAL TO 1 VERTICAL UNLESS SHOWN OTHERWISE.*
5. *IT IS THE INTENT OF THESE PLANS THAT THIS CONTRACTOR SHALL NOT PERFORM ANY WORK OUTSIDE OF THE PROPERTY BOUNDARIES EXCEPT AS REQUIRED BY THIS PLAN.*
6. *THE CONTRACTOR IS TO ENSURE THAT NO SOIL ERODES FROM THE SITE ONTO ADJACENT PROPERTY OR PUBLIC RIGHT-OF-WAY. THIS SHOULD BE ACHIEVED BY CONSTRUCTING TEMPORARY BERMS OR SILT FENCE AT THE PROPERTY LINES AND WETTING THE SOIL TO PROTECT IT FROM WIND EROSION.*
7. *A DISPOSAL SITE FOR ANY & ALL EXCESS EXCAVATION MATERIAL, AND UNSUITABLE MATERIAL AND/OR A BORROW SITE CONTAINING ACCEPTABLE FILL MATERIAL SHALL BE OBTAINED BY THE CONTRACTOR IN COMPLIANCE WITH APPLICABLE ENVIRONMENTAL REGULATIONS AND APPROVED BY THE OBSERVER. ALL COSTS INCURRED IN OBTAINING A DISPOSAL OR BORROW SITE AND HAUL TO OR FROM SHALL BE CONSIDERED INCIDENTAL TO THE PROJECT AND NO SEPARATE MEASUREMENT OR PAYMENT SHALL BE MADE.*
8. *PAVING AND ROADWAY GRADES SHALL BE +/- 0.05' FROM PLAN ELEVATIONS. PAD ELEVATION SHALL BE +/- 0.05' FROM BUILDING PLAN ELEVATION.*
9. *ALL PROPOSED CONTOURS AND SPOT ELEVATIONS REFLECT TOP OF PAVEMENT ELEVATIONS IN THE PARKING AREA AND MUST BE ADJUSTED FOR PAVEMENT, MEDIANS, AND ISLANDS.*
10. *VERIFY ALL ELEVATIONS SHOWN ON PLAN FROM BASIS OF ELEVATION CONTROL STATION (IF APPLICABLE) PRIOR TO BEGINNING CONSTRUCTION.*
11. *THE CONTRACTOR SHALL PROVIDE THE SWPPP DOCUMENT (IF NECESSARY) AND SHALL ABIDE BY ALL LOCAL, STATE, AND FEDERAL LAWS, RULES AND REGULATIONS WHICH APPLY TO THE CONSTRUCTION OF THESE IMPROVEMENTS, INCLUDING EPA REQUIREMENTS WITH RESPECT TO STORM WATER DISCHARGE.*

JEFFREY TODD WOOTEN — NEW MEXICO — 16892 — PROFESSIONAL ENGINEER
ESC Plan sealed on 5/8/2023

City of Albuquerque
Planning Department
Development Review Services
HYDROLOGY SECTION
APPROVED
DATE: 04/21/23
BY:
HydroTrans #: F13D028A
THE APPROVAL OF THESE PLANS/REPORT SHALL NOT BE CONSTRUED TO PERMIT VIOLATIONS OF ANY CITY ORDINANCE OR STATE LAW, AND SHALL NOT PREVENT THE CITY FROM REQUIRING THE CORRECTION OF ERRORS IN THE CONSTRUCTION, OR ERROR OR OMISSIONS IN PLANS, SPECIFICATIONS, OR CONSTRUCTIONS. SUCH APPROVED PLANS SHALL NOT BE CHANGED, MODIFIED OR ALTERED WITHOUT AUTHORIZATION.

NO.	DATE	REMARKS	BY
		REVISIONS	
		DESIGN	
		DESIGNED BY: JW	DATE: February 2023
		DRAWN BY: OG	DATE: February 2023
		JOB NO.: 20220014	
		CHECKED BY: JW	DATE: February 2023

JEFFREY TODD WOOTEN — NEW MEXICO — 16892 — PROFESSIONAL ENGINEER
3/15/2023

Wooten Engineering
PO Box 15814
Rio Rancho, N.M. 87174
Phone: (505) 980-3560

N W E S

Griegos Farms
Griegos Rd & Guadalupe Church St NW
Albuquerque, NM 87107

Overall Grading Plan / Index

C-200

Temporary Erosion and Sediment Control Plan

Lot 1

Lot 2

Lot 5

Lot 6

Lot 7

Lot 8

Land owned by Roman Catholic Church of Archdiocese of Santa Fe

All other land owned by Griegos Farms, LLC

Pond

New Pond to be Graded w/ Griegos Farm Development

Pond

New Pond to be Graded w/ Griegos Farm Development

Note that ponds will be first item of construction. Stabilization methods discussed in Attachment 6.

NOTE: THIS DEVELOPMENT HAS NO DISCHARGE AND WILL PROVIDE PONDING FOR THE 100-YR, 10-DAY STORM PER THE DPM.

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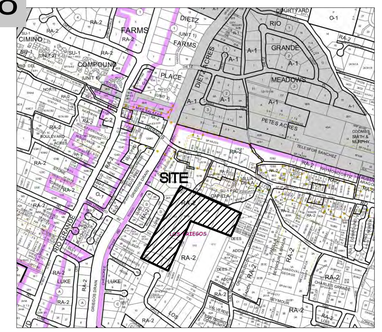

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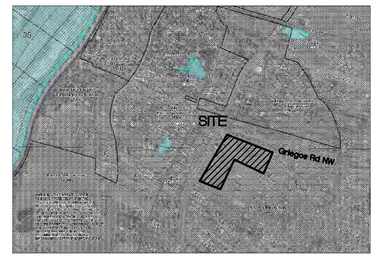

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Legend

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- Limits of Disturbance
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- NPDES Permit Information Board
- Silt Fence
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NEW MEXICO
16892
PROFESSIONAL ENGINEER

ESC Plan sealed on 5/8/2023

TESCP Page 2 of 2

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			JOB NO.: 20220214
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3/15/2023

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Phone: (505) 980-3560

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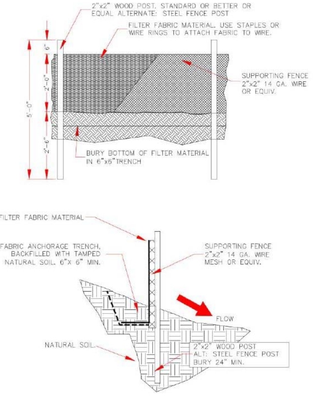
Griegos Farms
Griegos Rd & Guadalupe Church St NW
Albuquerque, NM 87107

Grading Plan - Church

C-204

2.

Best Management Practice Information Sheet

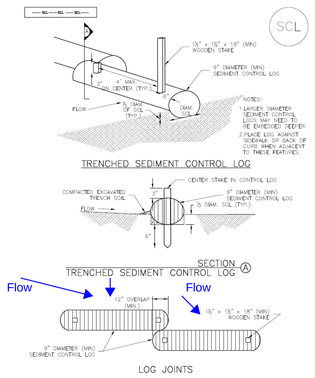


Notes:
1. Wire mesh is not required, but it is recommended as it will help prevent tearing due to increased wind speed or sediment/water load.
2. Pole spacing is not to exceed 10 feet between poles in straight-run sheet flow areas.
3. Pole spacing in a site's lower corners should be spaced approximately 6 feet apart or closer.
4. Silt fence is not created for use in high velocity situations, where flow is heavily concentrated. If concentrated flow does drain toward silt fence, then use additional BMPs to reduce the flow's velocity.
5. Silt fence fabric transition points should have posts interlocked with no gaps in the silt fence coverage.

Silt Fence

Source: City of Albuquerque Construction Site Manual 2018

Sediment Control Log (SCL) SC-2

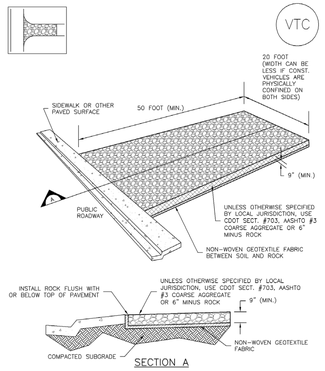


Notes:
1. It is recommended that wattles be trenched into the ground to a depth of approximately 1/3 of the diameter of the log. If trenching to this depth is not feasible or desirable, then a lesser trenching depth may be acceptable with more robust staking. Sandbags may be used on impervious surfaces.
2. Wattles that are 8 lb/ft or more do not need to be trenched.
3. Remove sediment from the upstream side of wattle when sediment accumulation is 1/2 the height of the wattle.
4. For parallel flow past the wattle joints, make sure the upstream wattle is on the interior side of the downstream wattle
5. Place wattle around stockpiles that are not being worked on or that are on impervious surfaces.

Wattle/ Filter Sock/ Sediment Control Log

Source: Urban Storm Drainage Criteria Manual Volume 3

Vehicle Tracking Control (VTC) SM-4



Notes:
1. A stabilized construction entrance/exit shall be located at all access points where vehicles access the construction site from paved right-of-ways.
2. Sediment tracked onto paved roads is to be removed throughout the day and at the end of the day by shoveling or sweeping. Sediment may not be washed down storm sewer drains.
3. Some Vehicle Tracking Controls may need a wheel wash station. When a wheel wash is available, make sure to direct wash water to a sediment trap prior to discharge from the site. Wash water may not contain soaps or chemicals, unless a separate permit is acquired.
4. A metal grate can be used in conjunction with an aggregate track-out pad. The grate should be regularly cleared of sediment, and help prevent track-out.
5. Make sure the Vehicle Tracking Control is not bypassed by the construction traffic.

Vehicle Tracking Control

Source: Urban Storm Drainage Criteria Manual Volume 3

Wash-out from curb-cutting operation.

Notes:
1. The preferred method to access a site is to cut the curb, so a ramp is not required. Placing curb cut in the same place as future entrance/exit can minimize work.

2. When cutting the curb, the cutting machine uses water, and the byproduct of the process is similar to concrete wash-out. Place byproduct in wash-out container.

Notes:
3. Laying lumber parallel to curb is an alternative, but this method is not be used on high speed (35 MPH and greater) roads due to it being a road hazard.

4. Adding cold-mix asphalt with a pipe in the gutter is acceptable, but do not extend asphalt past the gutter into the paved portion of the roadway.

5. Vehicle Tracking Controls are still needed if using a ramp over a curb.

Cold-mix asphalt ramp used for accessing the site.

Lumber laid parallel to the curb to create a ramp to access the site.

Notes:
6. Do not use dirt ramps to access sites with curbs, because the dirt can be easily washed to into storm drains.

7. WARNING! Any injury or property damage to a motorist, cyclist, or pedestrian due to the installation of a ramp is the responsibility of the contractor/property owner.

Access onto Curbed Sites

Source: City of Albuquerque Construction Site Manual 2018

Notes:
1. Regularly collect and dispose of garbage and waste material into designated collection areas.

2. Cover and maintain dumpsters and waste receptacles. Add additional dumpster or increase frequency of waste collection if overflowing conditions occur. Consider secondary containment around waste collection areas to minimize the likelihood of contaminated discharges.

3. Routinely inspect containers and equipment to ensure that it is functioning properly without leaking.

4. Promptly clean up leaks, drips, and other spills. Train employees on proper clean up and spill response procedures.

5. Store containers, drums, and bags away from direct traffic routes to reduce container damage.

6. Store materials in accordance with directions in Material Safety Data Sheets (MSDSs).

7. Store container s on pallets or similar devices to prevent corrosion of containers that results from containers coming into contact with moisture on the ground.

8. Store toxic or hazardous liquids within curbed areas or secondary containments.

9. Frequent and proper training in good housekeeping techniques reduces the likelihood that chemicals or equipment will be mishandled.

10. Segregate and provide proper disposal options for hazardous material wastes.

11. Make sure the site has a Spill Protection Plan, Spill kit, and individuals trained on the location and workings of the plan and kit.

12. Create a designated on-site fueling and maintenance area that is clean and dry, has a spill kit, and ideally in a covered area.

13. Locate toilet facilities away from storm drain inlets and waterways to prevent accidental contamination of stormwater.

14.or outdoor painting and sanding; conduct these operations in designated areas that are paved or have a secondary containment in place. Clean up and dispose of excess paint, paint chips, protective coatings, grit waste, etc.

15. Provide tie-downs or stake downs for portable toilets.

16. For vehicle and equipment washing: ensure there is no discharge of soaps, solvents, or detergents in equipment and vehicle wash water.

17. Recycle materials whenever possible (e.g. paper, wood, concrete, oil).

Good Housekeeping

Source: Urban Storm Drainage Criteria Manual Volume 3

One-piece inlet protection BMP for an inlet with a grate and a throat.

Notes:
1. The proper inlet protection shall be used and maintained to prevent sediment and wastes from entering a stormwater drainage system and shall minimize the risk of flooding.

2. The type of inlet protection utilized shall depend on the inlet type, slope, and volume of flow.

Notes:
3. For inlets with a throat opening and a grate, the inlet shall be protected with a BMP that covers the throat and the grate.

4. For throat type of inlet protection, sediment shall not be higher than halfway up the BMP.

5. For mat type and one-piece style of BMP, more than 50% of the inlet protection must be clear of sediment and debris.

Cocoa mat used for grate and throat.

Mulch sock used for inlet protection.

Notes:
6. The inlet protection shall be able to let water drain through.

7. WARNING! Any injury or property damage to a motorist, cyclist, or pedestrian due to the installation of inlet protection is the responsibility of the contractor/property owner. Try using a mat-type inlet protection to reduce possible road hazards.

8. Make sure inlet protection is secured in place, and will not be moved by stormwater.

Inlet Protection Part 1

Source: City of Albuquerque Construction Site Manual 2018

Rock bags used for inlet protection. Photo was taken during a rain event.

Notes:
9. In residential subdivisions where there are inlets internal to the construction site, the style should change as the site is developed. When the site is mostly dirt, use a BMP that protects throat and grate. When the site has built more and less dirt is exposed, then a less restrictive style can be used to catch sediment in the gutter.

Notes:
10. Inlet protection constructed of silt fence surrounding the inlet may be used when the inlet is surrounded by stake-able dirt.

11. Inlet protection should be used for inlets/storm drains within the construction site/disturbed area, AND any inlets/storm drains outside the project area that may receive stormwater discharges from the construction site/disturbed area.

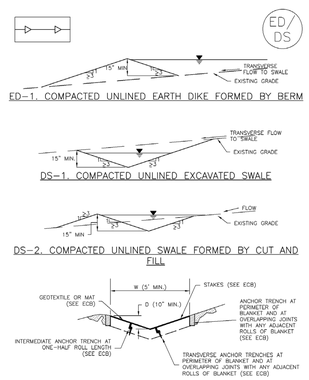
Another application of using silt fence for inlet protection.

Notes:
12. Open storm drains are considered an inlet and require protection. This also includes drains that are not actively being worked on.

Inlet Protection Part 2

Source: City of Albuquerque Construction Site Manual 2018

Earth Dikes and Drainage Swales (ED/DS) EC-10



Notes:
1. Earth dikes and drainage swales are typically used for controlling the flow path of runoff at a constructions site; sometimes by diverting water away from sensitive areas, or by conveying water to treatment BMPs (sediment traps or basins).
2. Unlined berms/dikes or swales need to be compacted, and should only be used for intercepting sheet flow runoff (not intended for diversion of concentrated flows.
3. If there is reoccuring damage, consider installing rock check dams or lining with riprap.
4. If berms/dikes or swales are not permanent, then remove berms/dikes and fill channels when upstream area is stabilized. Immediately stabilize the disturbed area after the BMP removal.

Earth Berms/ Dikes/ Drainage Swales

Source: Urban Storm Drainage Criteria Manual Volume 3

Energy dissipator for large storm drains

Notes:
1. When working in or adjacent to an arroyo or concrete channel, loose soil shall not be stockpiled or left in the low-flow area of the arroyo or channel. A berm or a similar BMP is to be constructed to diver flow into a low-flow area.
2. When working in or adjacent to an arroyo or concrete channel, pollutants (chemicals, debris, waste, etc.) shall not be left in the low-flow area of the arroyo or channel.
3. If there are active storm drains in the work zone, an energy dissipator is to be constructed at the pipe outfall to slow the velocity of the stormwater to less than 3 ft/sec at the end of the dissipater. A plunge pool constructed of large aggregate is the most common energy dissipator.
4. If there is an arroyo or channel draining into the work zone, and energy dissipator is to be constructed upstream of the confluence to slow the velocity of the stormwater to less than 3 ft/sec at the end of the dissipator. There are equations provided by the United States Bureau of Reclamation (USBR) and the Federal Highway Administration (FHWA) for sizing the energy dissipator and the aggregate.
5. If working adjacent to an arroyo or concrete channel, install BMPs to protect against or filter stormwater entering the drainage.

Arroyo and Channel Construction

Source: City of Albuquerque Construction Site Manual 2018

These roll-off wash-out containers were lowered for easier access.

Notes:
1. Designated wash-out areas shall be provided for any concrete, stucco, mortar, or paint operations. Wash-outs should be as far away as possible from waters of the U.S., stormwater inlets, or conveyances.

2. "Wash-out shall be directed to leak-proof containers or leak proof and lined pit designed so that no overflows can occur due to inadequate sizing or precipitation." -CGP 2022

Notes:
3. If the concrete/stucco/mortar is firm when it contacts the soil, then it is not considered wash-out (not wet enough to infiltrate into the soil).

4. A centralized wash-out may be effective for concrete trucks. For stucco, mortar, and paint wash-outs, a local wash-out and wash-out education has been more successful in avoiding improper wash-outs.

Mortar towers with plastic beneath as a BMP.

Notes:
5. Mortar towers shall have a plastic liner beneath them to prevent the wet mortar from contacting the soil. If wet stucco or mortar contacts the ground due to mixing, it would be a compliance issue.

6. If a wash-out occurs on bare soil, the Operator is expected to remove it same day. The wash-out material, as well as the wetted soil, are to be removed and disposed of appropriately.

Wash-outs

Source: City of Albuquerque Construction Site Manual 2018

BMP Information Sheet

EIGHT 14 SOLUTIONS
EROSION CONTROL & ENVIRONMENTAL CONSULTING

Project Name:

Owner:

Operator:

NPDES Permit #:

Date:

Sheet:

3.

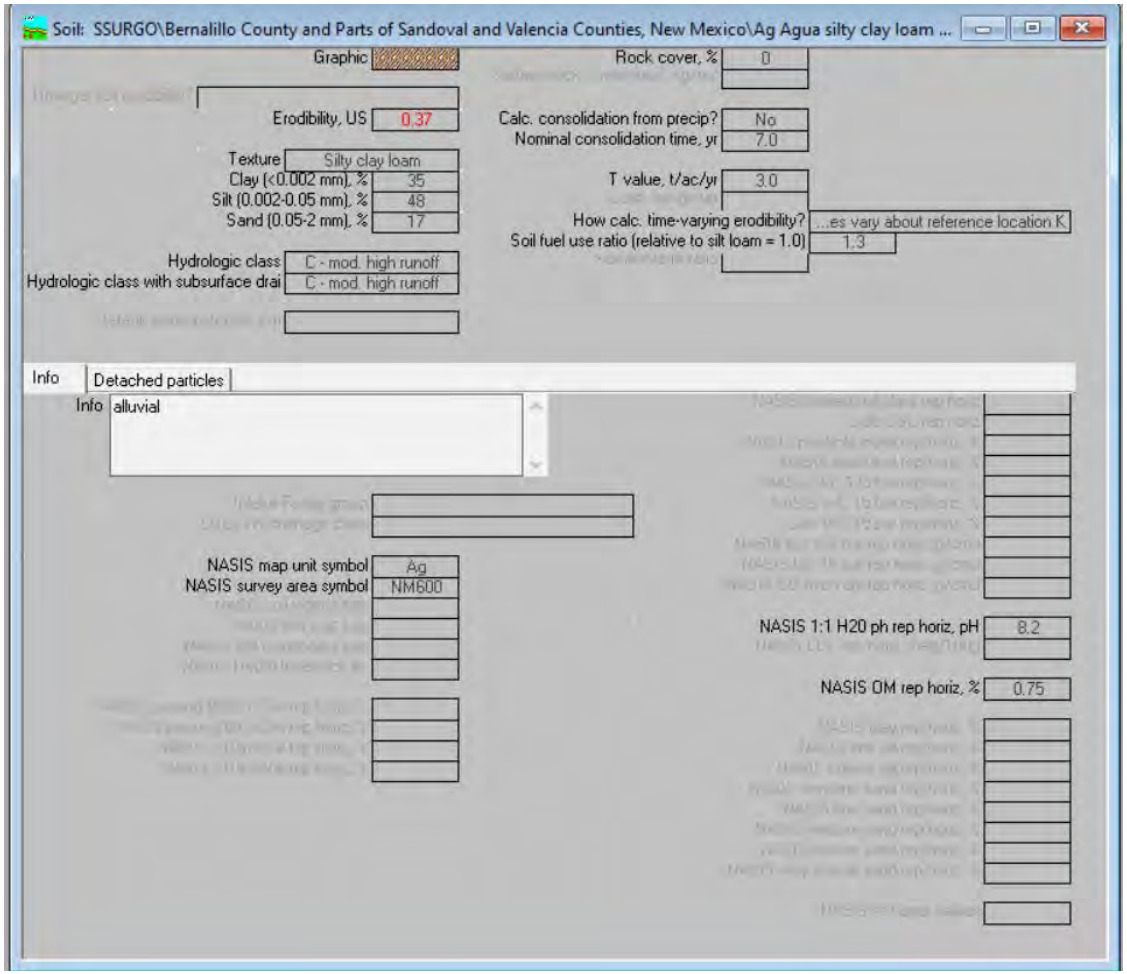
City of Albuquerque Erosion and Sediment Control Standard Notes

ESC Plan Standard Notes (2021-03-24)

1. All Erosion and Sediment Control (ESC) work on these plans, except as otherwise stated or provided hereon shall be permitted, constructed, inspected, and maintained in accordance with:
    a. The City Ordinance § 14-5-2-11, the ESC Ordinance,
    b. The EPA's 2017 Construction General Permit (CGP), and
    c. The City Of Albuquerque Construction BMP Manual.
2. All BMP's must be installed prior to beginning any earth moving activities except as specified hereon in the Phasing Plan. Construction of earthen BMP's such as sediment traps, sediment basins, and diversion berms shall be completed and inspected prior to any other construction or earthwork. Self-inspection is required after installation of the BMPs and prior to beginning construction.
3. Self-inspections - At a minimum a routine compliance self-inspection is required to review the project for compliance with the Construction General Permit once every 14 days and after any precipitation event of 1/4 inch or greater until the site construction has been completed and the site determined as stabilized by the city. Reports of these inspections shall be kept by the person or entity authorized to direct the construction activities on the site and made available upon request.
4. Corrective action reports must be kept by the person or entity authorized to direct the construction activities on the site and made available upon request.
5. Stabilization reports must be kept by the person or entity authorized to direct the construction activities on the site and made available upon request. Reports should include records of weed removal per City Ordinance (§ 9-8-1), sterilization, soil test results and recommendation, materials and manufacturer's specifications for application rates, estimated functional longevity, methods of application, inspection and maintenance. The reduced self-inspection schedule in CGP 4.4.1 applies to stabilized area and any damaged or worn stabilization must be identified in the reports along with weed problems. Corrective actions for stabilization shall be documented in a stabilization report including actual rates and dates of stabilization, and the materials and manufacturer's specifications used.
6. BMPs shall be inspected and maintained until all disturbed areas are stabilized in accordance with the Final Stabilization Criteria (CGP 2.2.14.b). Generally, all disturbed areas, other than structures and impervious surfaces, must have uniform perennial vegetation that provides 70 percent or more of the cover provided by native vegetation or seed the disturbed area and provide non-vegetative mulch that provides cover for at least three years without active maintenance. Final stabilization must be approved by the City of Albuquerque prior to removal of BMPs and discontinuation of inspections.

4.

Soil Data from RUSLE Program


Soil: SSURGO\Bernalillo County and Parts of Sandoval and Valencia Counties, New Mexico\Ag Agua silty clay loam ...
Graphic
Rock cover, %
0
Erodibility, US
0.37
Calc. consolidation from precip?
No
Nominal consolidation time, yr
7.0
Texture
Silty clay loam
Clay (<0.002 mm), %
35
Silt (0.002-0.05 mm), %
48
Sand (0.05-2 mm), %
17
T value, t/ac/yr
3.0
How calc. time-varying erodibility?
...es vary about reference location K
Soil fuel use ratio (relative to silt loam = 1.0)
1.3
Hydrologic class
C - mod. high runoff
Hydrologic class with subsurface drai
C - mod. high runoff
Info
Detached particles
Info
alluvial
NASIS map unit symbol
Ag
NASIS survey area symbol
NM600
NASIS 1:1 H20 ph rep horiz, pH
8.2
NASIS OM rep horiz, %
0.75

Pond Stabilization Specifications

After constructed, ponds shall be seeded as per approved specifications (described below and attached) by the 14-day time period designated by the Construction General Permit. Ponds shall be inspected regularly as part of the project, and will be inspected until 70% of native vegetative cover is achieved.

Flat Area: Areas less than 3:1

*Use one of the three specified seed mixes based on soil conditions

*Disc seed bed at 4-6” depth

*Drill seed specified seed mix

*Hydro mulch at 2000 lbs/ac with increased tackifier at 10% of wood fiber mulch dry weight (industry standard is 3-5% bulk dry weight of hydro mulch). We do this to help with better performance in dust stabilization for air quality.

Slopes: Areas 3:1 or steeper

*Use one of three specified seed mixes based on soil conditions. We double the application rate for better germination. In some instances we apply the specified rate with hydro mulch with tackifier on the slope prior to gravel mulch application.

*Apply 1-1.5” crushed stone at 300 tons per acre. This stone is larger than what is specified but we have found that the larger stone holds on the slopes better than the ¾” specified and isn’t so easily covered in locations with what we call blow sand or sugar sand.

**If the full double application rate of seed is not applied in the initial application we will now apply the second (double seed rate) application of seed with only trace amounts (~500 lbs/ac) wood fiber mulch and tackifier. Since this second

application will be at a diluted application rate, the seed will be washed down into all of the nooks and crannies of the gravel mulch to help protect it. Since this second application has tackifier added, it will help with final dust stabilization.

SECTION 1012

MISCELLANEOUS SEEDING

1012.1 GENERAL

1012.1.1 SCOPE

Furnish all labor, materials and equipment necessary for preparation of seedbed, furnishing and installation of seed, fertilizer, erosion control measures, soil amendments, and related work specified herein and as indicated on plans or as authorized by the LANDSCAPE ARCHITECT.

1012.1.2 APPLICABLE STANDARDS & REFERENCES:

1012.1.2.1 Drawings and general provisions of the Contract, including City of Albuquerque Standard Specifications for Public Works Construction, Latest Edition. General Conditions and any Supplemental Special Provisions, apply to this Section.

1012.1.2.2 All seed shall be certified by state of origin. The certification authority for the state of New Mexico is the New Mexico Crop Improvement Association.

1012.1.2.3 Reclamation efforts are controlled by the requirements stipulated in the National Pollution Discharge Elimination System General Permit for Region VI of the Environmental Protection Agency.

1012.1.3 PERFORMANCE REQUIREMENTS

1012.1.3.1 The CONTRACTOR shall be responsible for protecting and caring for seeded areas until final acceptance of the work and shall repair at CONTRACTOR expense any damage to seeded areas caused by pedestrian, vehicular traffic, vandalism or other cause.

1012.1.4 SUBMITTALS

1012.1.4.1 THIS PUBLICATION - Section 1502 - Submittals

1012.1.4.2 Certification of Grass Seed: From seed vendor for each grass-seed monostand or mixture, stating the botanical and common name, percentage by weight of each species and variety, and percentage of purity, germination, and weed seed. Include the year of production and date of packaging. Include identification of source and name and telephone number of supplier.

1012.1.4.3 Product Certificates: For fertilizers and organic amendments, from manufacturer.

1012.1.4.4 Pesticides and Herbicides: Product label and manufacturer's application instructions specific to Project.

1012.1.4.5 Sources of supply for native grass hay, straw, hydro mulch, erosion control blankets, and/or gravel mulch.

1012.1.5 DELIVERY, STORAGE & HANDLING

1012.1.5.1 Seed and Other Packaged Materials: Deliver packaged materials in original, unopened containers showing weight, certified analysis, name and address of manufacturer, and indication of compliance with state and Federal laws, as

applicable.

1012.1.5.2 Bulk Materials:

a. Do not dump or store bulk materials near fuel containers, herbicides, structures, utilities, walkways and pavements, or on existing turf areas or plants.

b. Provide erosion-control measures to prevent erosion or displacement of bulk materials; discharge of soil-bearing water runoff; and airborne dust reaching adjacent properties, water conveyance systems, or walkways.

c. Accompany each delivery of bulk materials with appropriate certificates.

1012.2 PRODUCTS

1012.2.1 SEED

1012.2.1.1 Native Seed: The native seed species and rate of application shall be as shown below and shall be used based on the type of soil or as specified on the plans or in the Supplemental Technical Specifications.

1012.2.1.2 Grass seed shall be fresh, re-cleaned seed of the latest crop, mixed in the proportions by weight, and be pure live seed as denoted within these specifications or as per the plans.

1012.2.1.3 Seed shall be delivered to the site in the original unopened containers which shall bear the vendor's guarantee of analysis. Labeling of seed shall be in accordance with Federal Seed Laws and the New Mexico Department of Agriculture labeling laws. Federal seed laws require that analysis shall be no older than five months for seed shipped interstate and no older than nine months for seed shipped intra-state. Seeds may be pre-mixed by a seed dealer. Documentation must be provided, the same as if the seeds were sold or bagged separately. The LANDSCAPE ARCHITECT shall receive all labels from all bags of seed used for verification. For each species included in the mix the following information will be found on each bag tag:

a. Variety - specify if certified.
b. Kind of seed
c. Lot number
d. Purity
e. Germination
f. % of Crop seed, % inert, % noxious weed
g. Origin
h. Test date
i. Pounds of this species or percentage of total lot.

1012.2.1.4 Seed Mixture and Rate: Seed species mixtures and application rates shall be as follows and shall be used based on the soil type unless otherwise specified in the plans or Supplemental Technical Specifications.

a. Gravelly Uplands and Slopes (Mainly East Foothills): Seed rate is given in pounds of pure live seed (PLS) per acre. Shrub species noted shall only be included in the seed mix if required in the plans or approved by the

LANDSCAPE ARCHITECT prior to seeding. If the area to be seeded is along a recreational trail or roadway the shrub species shall not be included in the mix. Perennial wildflower species shall be included if required in the plans and shall be installed at the rate of 2# PLS/AC.

a. Gravelly Uplands & Slopes	**#PLS/AC**	**Notes**
Bouteloua gracilis 'Hacita' – Blue Grama	7.0	
Bouteloua curtipendula 'Niner' - Sideoats Grama	5.0	
Stipa neomexicana – Needle & Thread Grass	2.0	
Oryzopsis hymenoides - "Indian Rice Grass"	2.0	
Koeleria macrantha – June Grass	1.0	
Pleuraphis jamesii 'Viva' – Galleta	1.0	
Fallugia Paradoxa - Apache Plume	.25	Shrub
Krascheninnikovia lanata - Winterfat	.25	Shrub
Yucca glauca – Soapweed Yucca	.25	Shrub
Ericameria nauseosis – Chamisa	.25	Shrub
Psilostrophe cooperi – Paper Flower	.25	Perennial Wildflower
Eriogonum jamesii var – Sulphur Buckwheat	.25	Perennial Wildflower
Gaillardia aristata - Blanket Flower	.25	Perennial Wildflower
Sphaeralcea parvifolia - Nelson Globemallow	.25	Perennial Wildflower
Oenothera pallida - White Evening Primrose	.25	Perennial Wildflower
Baileya multiradiata - Desert Marigold	.25	Perennial Wildflower
Castilleja integra - Indian Paintbrush	.25	Perennial Wildflower
Abronia fragrans - Sand Verbena	.25	Perennial Wildflower

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b. Sandy Soils: (Mainly Westside Areas) Seed rate is given in pounds of pure live seed (PLS) per acre. Shrub species noted shall only be included in the seed mix if required in the plans or approved by the LANDSCAPE ARCHITECT prior to seeding. If the area to be seeded is along a recreational trail or roadway the shrub species shall not be included in the mix. Perennial wildflower species shall be included if required in the plans and shall be installed at the rate of 1.5# PLS/AC.

b. Sandy Soils	**#PLS/AC**	**Notes**
Hilaria jamesii 'Viva' - Galleta	7.0	
Oryzopsis hymenoides 'Nespar' - Indian Rice Grass	5.0	
Bouteloua gracilis 'Hachita' – Blue Grama	2.0	
Bouteloua curtipendula 'Vaughn' – Sideoats Grama	1.0	
Agropyron smithii – Western Wheat	1.0	
Sporobolus cryptandrus – Sand Dropseed	1.0	
Sporobolus airoides 'Salado' – Alkali Sacaton	1.0	
Ephedra viridis – Green Mormon Tea	.25	Shrub
Atriplex canescens – Fourwing Saltbush	.25	Shrub
Artemisis filifolia – Sand Sage	.5	Shrub
Yucca glauca – Soapweed Yucca	.5	Shrub
Sphaeralcea ambigna – Desert Globemallow	.25	Perennial wildflower
Spaeralcea parvifolia – Nelson Globemallow	.25	Perennial wildflower

b. Sandy Soils	**#PLS/AC**	**Notes**
Oenothera pallid – White Evening Primrose	.25	Perennial wildflower
Baileya multiradiata – Desert Marigold	.25	Perennial wildflower
Penstemon ambiques – Sand Penstemon	.25	Perennial wildflower
Abronia fragrans – Sand Verbena	.25	Perennial wildflower

c. Clay, Clay Loam Soils: Mainly Valley & Bosque areas). Seed rate is given in pounds of pure live seed (PLS) per acre. Shrub species noted shall only be included in the seed mix if required in the plans or approved by the LANDSCAPE ARCHITECT prior to seeding. If the area to be seeded is along a recreational trail or roadway the shrub species shall not be included in the mix. Perennial wildflower species shall be included if required in the plans and shall be installed at the rate of 1.5# PLS/AC.

c. Clay, Clay Loam Soils	**#PLS/AC**	**Notes**
Hilaria jamesii 'Viva' - Galleta	4.0	
Bouteloua curtipendula 'Vaughn' – Sideoats Grama	3.0	
Panicum obtusum – Vine Mesquite	3.0	
Oryzopsis hymenoides'Nespar' - Indian Rice Grass	2.0	
Sporobolus airoides 'Salado' – Alkali Sacaton	2.0	
Agropyron smithii – Western Wheat	1.0	
Bouteloua gracilis 'Hachita' – Blue Grama	1.0	
Sporobolus cryptandrus – Sand Dropseed	1.0	
Stipa neomexicana – NM Needle & Thread Grass	1.0	
Soraghastrum nutans – Indian Grass	.5	
Krascheninnikovia lanata - Winterfat	.25	Shrub
Artemisia ludoviciana – Prairie Sage	.25	Shrub
Sphaeralcea coccinea - Scarlet Globemallow	.25	Perennial wildflower
Oenothera hookeri – Evening Primrose	.25	Perennial wildflower
Oenothera pallida – White Evening Primrose	.25	Perennial wildflower
Baileya multiradiata - Desert Marigold	.25	Perennial wildflower
Berlandiera lycrata – Chocolate Flower	.25	Perennial wildflower
Lineum lewissi – Blue Flax	.25	Perennial wildflower

d. Specific seed mixture application areas shall be determined in the field with the LANDSCAPE ARCHITECT prior to seed installation. Alternate seed mixes, variations of species, and variations of application rates are acceptable if noted on the plans or approved in writing by the LANDSCAPE ARCHITECT. Variations in application rates due to the presence of irrigation are acceptable if noted on the plans or approved in writing by the LANDSCAPE ARCHITECT.

1012.2.2 NATIVE GRASS AND WILDFLOWER MEADOWS

1012.2.2.1 Native grass and wildflower meadow seeding shall be installed to the extents shown on the plans. Seed mix for meadow plantings shall differ from those identified in 1012.2.1.4 as follows:

1012.2.2.2 Wildflower Seed: Fresh, clean, and dry new seed, of mixed species as follows:

a. Wildflower seed mix shall be developed based on soil type from seed mixes listed in Section 1012.2.1.4 and applied at a rate of 50# PLS/Acre.

1012.2.2.3 Native-Grass Seed: Fresh, clean, and dry new seed, of mixed species as follows:

a. Native-grass seed mix shall be 50% / 50% (by weight) combination of Bouteloua gracilis 'Hachita' – Blue Grama, and Buchloe dactyloides – Buffalo grass, applied at a rate of 100# PLS/Acre.

1012.2.2.4 Wildflower and Native-Grass Seed: Fresh, clean, and dry new seed, of mixed species as follows:

a. Wildflower and native grass seed mix shall be an equal combination of 1012.2.2.2 and 1012.2.2.3 above applied at rates noted.

1012.2.2.5 Seed Carrier: Inert material, sharp clean sand, or perlite.

1012.2.3 MULCHES

1012.2.3.1 Hydro-mulch/Tackifier:

a. Hydro-mulch shall consist of a mulch/tackifier combination independently laboratory tested for erosion control performance using a rainfall simulator raining at 4 inches per hour and mulch/tackifier applied at 1,600 lbs. per acre. No combination of mulch and tackifier shall be used unless laboratory test results based upon the above conditions show the mulch-tackifier combination to give a calculated apparent erosion rate of 5 tons per acre per hour or less.

b. The mulch shall include Silt Stop P.A.M. or approved equal tackifier. This tackifier shall be adhered to the fibers during manufacturing, to prevent separation during shipment and to avoid chemical agglomeration during mixing in the hydraulic mulching equipment. The tackifier shall be homogenous within the unit package. It shall have no growth or germination inhibiting factors and be nontoxic.

c. The mulch material shall consist of straw fibers manufactured expressly from annually renewable organic fibers. The fibers shall be processed in such a manner as to contain no growth or germination inhibiting factors. Fiber shall not be produced from residue from wood pulp and paper plants.

d. The fibers of the mulch must maintain uniform suspension in water under agitation. The fiber mulch shall blend with the additives to form homogenous slurry. Upon application, the mulch material shall form a blotter-like mat covering the ground. This mat shall have the characteristics of moisture absorption and percolation and shall cover and hold grass seed in contact with the soil. The fiber much shall be dyed a different color for each type of seed mixture to aid in visual metering and measurement during application. The dye shall be biodegradable and not inhibit plant growth.

e. The rate of application of the mulch/tackifier shall be a minimum 2,000 lbs. per acre. This application rate may vary according to soil type and slope as noted in the plans.

f. Alternate hydro-mulch/tackifier products and applications are acceptable if specified on the plans or with prior written approval by the LANDSCAPE

ARCHITECT.

1012.2.3.2 Native Grass Hay and Straw Mulch

a. Hay Mulch: Perennial native or introduced grasses of fine-stemmed varieties shall be used unless otherwise specified on the plans or approved in writing by the LANDSCAPE ARCHITECT. At least 65 percent of the herbage by weight of each bale of hay shall be 10 inches in length or longer. Hay with noxious seed or plants will not be acceptable. Rotted, brittle, or moldy hay will not be acceptable. Marsh grass or prairie hay composed of native grass species to be seeded will be acceptable. Marsh grass hay shall be composed of mid and tall native, usually tough and wiry grass and grass-like plants found in the lowland areas within the Rocky Mountain region. Tall wheat grass, Timothy grass, intermediate wheat grass, switch grass, or orchard hay will be acceptable only upon prior written approval of the LANDSCAPE ARCHITECT and then only if cut prior to seed formation. Hay shall be properly cured prior to use. Hay which is brittle, short fibered or improperly cured is not acceptable.

b. Straw Mulch: Small grain straw such as wheat, barley, rye or oats will not be allowed except by prior written approval of the LANDSCAPE ARCHITECT and with the concurrence of the Air Division of the Environmental Health Department. Other materials, such as alfalfa, are not acceptable. Material which is brittle, shorter than 10 inches or which breaks or fragments during the crimping operation will not be acceptable.

1012.2.3.3 Germination/Erosion Control Mats

a. Erosion-Control Blankets: Maximum 1-inch thick biodegradable wood excelsior, straw, or coconut-fiber mat enclosed in a photodegradable plastic mesh. Include manufacturer's recommended steel wire staples, 6 inches long.

b. Erosion-Control Fiber Mesh: Biodegradable burlap or spun-coir mesh, a minimum of 0.92 lb./sq. yd., with 50 to 65 percent open area. Include manufacturer's recommended steel wire staples, 6 inches long.

c. Other products as specified on the plans or within the Supplemental Technical Specifications, or as approved by the LANDSCAPE ARCHITECT.

1012.2.3.4 Aggregate Mulch: Sloped areas greater than 3:1

a. Aggregate mulch shall consist of 3/4 inch to 1 inch depth maximum size crushed or angular material and will only be allowed with prior written approval of the LANDSCAPE ARCHITECT.

1012.2.4 SOIL AMENDMENT

1012.2.4.1 Fertilizer: Fertilizer and Soil Amendments: Unless otherwise specified on the plans or in the Supplemental Technical Specification, no fertilizer or other soil amendments are required on areas specified to receive native seeding. If fertilizer and/or other soil amendments are required they shall be in accordance with Section 1011.2.2 of these specifications. If fertilizer and soil amendments are required CONTRACTOR shall perform a soils test in accordance with Section 1011.1.6.1 of these specifications.

1012.3 EXECUTION

1012.3.1 EXAMINATION

1012.3.1.1 Examine areas to be planted for compliance with requirements and other conditions affecting installation and performance of the Work.

a. Verify that no foreign or deleterious material or liquid such as paint, paint washout, concrete slurry, concrete layers or chunks, cement, plaster, oils, gasoline, diesel fuel, paint thinner, turpentine, tar, roofing compound, or acid has been deposited in soil within a planting area.

b. Suspend planting operations during periods of excessive soil moisture until the moisture content reaches acceptable levels to attain the required results.

c. Uniformly moisten excessively dry soil that is not workable or which is dusty.

1012.3.1.2 Proceed with installation only after unsatisfactory conditions have been corrected.

1012.3.1.3 If contamination by foreign or deleterious material or liquid is present in soil within a planting area, remove the soil and contamination as directed by the LANDSCAPE ARCHITECT and replace with new planting soil at no additional cost to the OWNER.

1012.3.2 PREPARATION

1012.3.2.1 Protect structures; utilities; sidewalks; pavements; and other facilities, trees, shrubs, and plantings from damage caused by seeding operations.

a. Protect grade stakes set by others until directed to remove them.

1012.3.2.2 Install erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways. Reference project NEPA and/or SWPPP requirements if applicable.

1012.3.3 SEED BED PREPARATION

1012.3.3.1 Prior to the starting of any seed bed preparation the final grades of all earthwork shall be inspected and approved by the LANDSCAPE ARCHITECT.

1012.3.3.2 No preparation shall be performed when the surface is wet or muddy or when the soil moisture content is such that the soil is not fully loosened by the disking operation.

1012.3.3.3 The extent of seed bed preparation shall not exceed the area on which seeding, mulching and crimping operations can be completed prior to crusting or wind or water erosion of the prepared surface. If erosion, crusting or re-compaction occurs, the affected area shall be re-worked beginning with seed bed preparation. Depth of preparation must be approved by the LANDSCAPE ARCHITECT prior to the seeding and mulching operations.

1012.3.3.4 Mechanical Preparation: Seed bed shall be prepared to a minimum depth of 6 inches, tilling with a disc, harrow or chiseling tools. Seed bed preparation shall be confined to disturbed areas unless otherwise specifically directed by the

LANDSCAPE ARCHITECT. Area of heavy or compacted soil may require additional preparation such as chiseling or ripping if disking alone does not result in specified depth. All competitive vegetation shall be uprooted during seed bed preparation and the soil shall be uniformly worked to a smooth, firm surface free of clods, stones or other foreign materials, 4 inches or larger, that would interfere with seeding or crimping equipment operations and germination. Tilling shall not occur when the wind is over 10 mph and is causing a dust problem to adjoining areas. No work shall be done when the moisture content of the soil is unfavorable or the ground is otherwise in an un-tillable condition.

1012.3.3.5 Hand preparation: Areas which cannot be prepared with mechanized equipment because of small size or irregular shape, slope angle, or significant existing vegetation which is to remain, may be loosened to a minimum depth of 2 inches using hand tools or a rototiller. Any such areas will be specified on the plans or approved in writing by the LANDSCAPE ARCHITECT.

1012.3.4 PREPARATION FOR GERMINATION/ EROSION-CONTROL MATERIALS

1012.3.4.1 For erosion-control mats, provide seed bed preparation and seeding prior to installation as specified within this section. Install erosion-control germination materials and fasten as recommended by material manufacturer.

1012.3.4.2 For erosion-control blanket or mesh, install from top of slope, working downward, and as recommended by material manufacturer for site conditions. Fasten as recommended by material manufacturer.

1012.3.4.3 Moisten prepared area after planting if surface is dry. Water thoroughly without creating erosion or run-off.

1012.3.5 SEEDING

1012.3.5.1 General: Seed types and rates shall be as shown on plans or as directed by the LANDSCAPE ARCHITECT. Three specific seed mixes have been specified for distinct areas of the city. Seeded areas shall be drilled seeded and hay mulched where slopes are less than 3:1 unless otherwise directed by the LANDSCAPE ARCHITECT. Slopes greater than 3:1 shall be broadcast seeded and hydro-mulched, aggregate mulched or erosion control blankets applied as per plans or as directed by the LANDSCAPE ARCHITECT.

a. Seeding shall not start until the seed bed preparation has been inspected and approved by the LANDSCAPE ARCHITECT.

b. CONTRACTOR'S vehicles and other equipment shall not travel over the prepared areas. If, as determined by the LANDSCAPE ARCHITECT, that rain or some other factor has impacted prepared surfaces so that it is not possible to seed to the proper depth, the CONTRACTOR shall again prepare the seed bed without additional compensation.

c. No more area may be seeded than can be stabilized (i.e. covered with mulch and crimped, covered with gravel mulch or erosion control mats, hydro-mulched) by the end of the work day. No seeding operations may be conducted when steady wind speeds exceed 10 mph. If winds exceed 10 mph, seeding operations will be halted and any areas seeded shall be

mulched and crimped.

d. Weather Limitations: Proceed with seeding operations only when existing and forecasted weather conditions permit planting to be performed when beneficial and optimum results may be obtained. Apply products during favorable weather conditions according to this specification.

1012.3.5.2 Drill Seeding: Drill seeding is required for reclamation areas unless otherwise specified in the plans or in the Supplemental Technical Specifications or approved in writing by the LANDSCAPE ARCHITECT. Seed shall be applied with a "rangeland" type seed drill equipped with packer wheels. Seed shall be drilled to a maximum depth of 1/2 inch unless otherwise specified. Direction of seeding shall be in long sweeping and overlapping S-curves on flats and perpendicular to slopes and on the contour whenever possible.

1012.3.5.3 Broadcast Seeding: Seed may be applied by hand or by utilizing a rotary spreader or a seeder box with a gear feed mechanism if mechanized seeding is not possible due to limited size, irregular shape, or slope angle exceeding 3:1. Rice hulls or other fillers shall be used to prevent uneven separation of lighter seed. Seed shall be evenly distributed and applied at a rate which is a minimum of twice that of drilled seed rate unless otherwise specified. Immediately following the seeding operation, the seed-bed shall be lightly raked to provide approximately 1/2 inch cover of soil over most of the seed.

1012.3.5.4 A hydro-mulch slurry blower may be used only with the prior written approval of the LANDSCAPE ARCHITECT.

1012.3.6 MEADOW SEEDING

1012.3.6.1 Sow seed with spreader or seeding machine. Do not broadcast or drop seed when wind velocity exceeds 5 mph.

a. Before sowing, mix seed with seed carrier at a ratio of not less than four parts seed carrier to one part seed.

b. Evenly distribute seed by sowing equal quantities in two directions at right angles to each other.

c. Do not use wet seed or seed that is moldy or otherwise damaged.

1012.3.6.2 Broadcast, hand or hydro-seed as specified within this section. Brush or rake seed into top 1/16 inch of soil, roll lightly, and water with fine spray.

1012.3.6.3 On slopes greater than 3:1, protect seeded areas from hot, dry weather or drying winds by applying erosion control/germination materials within same day after completing seeding operations.

1012.3.6.4 Water newly planted areas and keep moist until meadow is established.

1012.3.7 MULCHING FOR MISCELLANEOUS SEEDING

1012.3.7.1 General: All seeded areas shall be mulched unless otherwise specified on the plans or in the Supplemental Technical Specifications or approved in writing by the LANDSCAPE ARCHITECT.

1012.3.7.2 On seeded areas that are level or have slopes 3:1 or less, hay mulching shall be utilized unless otherwise specified on the plans or in the Supplemental Technical Specifications or with prior written approval of the LANDSCAPE ARCHITECT. On seeded areas that have slopes steeper than 3:1, only hydro-mulch, gravel mulch, or erosion control mats may be used as specified on the plans and in the Supplemental Technical Specifications.

1012.3.7.3 Hay/Straw Mulching: Hay mulch shall be applied at a minimum rate of 2.5 tons per acre of air-dry hay. If approved, straw mulch shall be applied at a minimum rate of 2.5 tons per acre of air-dry straw.

a. Crimping: Hay and/or straw mulch shall be crimped into the soil. The mulch shall be spread uniformly over the area either by hand or with a mechanical mulch spreader. When spread by hand, the bales of mulch shall be torn apart and fluffed before spreading. Mulching will not be permitted when wind velocity exceeds 15 miles per hour. The mulch shall be wetted down and allowed to soften for 15 to 20 minutes prior to crimping. A heavy disc such as a mulch-tiller, with flat serrated discs at least 1/4 inch in thickness, having dull edges and the disc spaced 6 inches to 8 inches apart shall be used to crimp (or anchor) the mulch into the soil to a minimum depth of 2 inches or as specified on the plans or in the Supplemental Technical Specifications. The discs shall be of sufficient diameter to prevent the frame of the equipment from dragging the mulch.

b. The crimping operations shall be across the slope where practical but not be parallel to prevailing Westerly winds (270 degrees magnetic). Crimping shall be in a general north-south direction where practical, and with tight interlocking “S” curves to avoid straight crimp lines.

c. If small grain straw mulch is used it shall be crimped in two directions in a cross-hatch pattern.

1012.3.7.4 Hydro-mulching: Immediately following the raking operation, all seeded areas shall receive hydro-mulch application with tackifier at the minimum rate of 2,000 lbs. per acre. The slurry shall be mixed in a tank with an agitation system and shall be sprayed, under pressure, uniformly to a depth of 1/8 inch over the soil surface. The hydraulic mulching equipment shall keep all materials in uniform suspension throughout the mixing and suspension cycle. The applicator shall use both horizontal and vertical movements to achieve an even application of the slurry material. All areas receiving insufficient coverage in the opinion of the LANDSCAPE ARCHITECT shall receive additional slurry.

1012.3.7.5 Erosion Control, Germination Blankets, Mats, or Fabric

a. The erosion control blankets shall be applied over seeded slope areas on the same day that seeding occurs without exception. Installation and anchoring of blankets shall occur as per approved manufacturer’s specifications.

1012.3.7.6 Aggregate Mulch

a. If slope is accessible by appropriate equipment, steep slopes can be mulched with aggregate mulch with written approval of the LANDSCAPE ARCHITECT. Immediately following seeding and raking operation, all seeded areas shall receive aggregate mulch as noted in the plans. The mulch shall be placed in a layer approximately one stone deep over seeded areas. Seeding and mulch shall be completed simultaneously in strips from the top

of the slope to the bottom so that seeded areas are not damaged by equipment use over seeded areas.

1012.3.8 MAINTENANCE AND PROTECTION

1012.3.8.1 The CONTRACTOR shall maintain the seeded areas regularly following installation until final acceptance.

1012.3.8.2 The CONTRACTOR shall be responsible for protecting and caring for seeded and mulched areas until final acceptance of the work and shall repair at his/her expense any damage to seeded and mulched areas caused by pedestrian or vehicular traffic or vandalism.

1012.3.9 MEADOW MAINTENANCE

1012.3.9.1 Maintain and establish areas designated as meadows by watering, weeding, mowing, trimming, replanting, and performing other operations as required to establish a healthy, viable meadow. Roll, re-grade, and replant bare or eroded areas and re-mulch. Provide materials and installation the same as those used in the original installation.

a. Fill in as necessary soil subsidence that may occur because of settling or other processes. Replace materials and meadow damaged or lost in areas of subsidence.

b. In areas where erosion control/germination materials have been disturbed by wind or maintenance operations, add new mats and anchor as required to prevent displacement.

1012.3.9.2 Watering:

a. Schedule watering to provide germination and establishment, prevent wilting, puddling, erosion, and displacement of seed or erosion control/germination materials.

1012.3.10 PEST AND WEED CONTROL

1012.3.10.1 Pest Control: Apply pesticides and other chemical products and biological control agents according to requirements of authorities having jurisdiction and manufacturer's written recommendations. Coordinate applications with the LANDSCAPE ARCHITECT and any others in proximity to the Work. Notify the LANDSCAPE ARCHITECT before each application is performed. Pest control shall be implemented as necessary at no cost to the OWNER until final acceptance of the Project.

1012.3.10.2 CONTRACTOR shall control germination of weed species that are not included as part of the seed mix. Weed control may be mechanical or hand removal methods as determined by the CONTRACTOR with approval by the LANDSCAPE ARCHITECT. Weed control shall be implemented as necessary at no cost to the OWNER until final acceptance of the Project.

1012.3.11 WARRANTY

1012.3.11.1 If at the end of one complete growing season, it has been determined by the LANDSCAPE ARCHITECT that insufficient germination has occurred in reclamation areas the CONTRACTOR shall reseed such areas with no additional cost to the OWNER.

1012.3.11.2 Where miscellaneous seeding is installed in areas without an irrigation system, no warranty shall be required after the date of final acceptance.

1012.3.11.3 Warranty inspection performance standards for non-irrigated seeding will be based upon achieving the establishment of at least the baseline vegetative cover (baseline for pre-construction vegetative cover ranges from 25% to 50% coverage unless otherwise pre-approved in writing by the LANDSCAPE ARCHITECT). The percentage of vegetative cover may vary as required in the Contract Documents.

1012.3.12 REVIEWS AND OBSERVATIONS

1012.3.12.1 The following shall be the minimum required reviews and observations during the course of construction. Additional reviews and observations can be made at any time at the discretion of the LANDSCAPE ARCHITECT. It shall be the responsibility of the CONTRACTOR to notify the LANDSCAPE ARCHITECT, in writing, 48 hours in advance of each required review or observation.

1012.3.12.2 The sequence of required reviews and observations shall not be changed from the sequence listed below. The CONTRACTOR shall not proceed with work of the next phase without written approval of the work of the previous phase by the LANDSCAPE ARCHITECT. Payment will not be approved for items which have not been reviewed and approved in writing.

a. Each phase of soil preparation shall be observed in process.

b. Finish grade shall be reviewed.

c. Implementation plan shall be approved prior to seeding.

d. Seed shall be reviewed prior to seeding.

e. Seeded area shall be reviewed after completion.

f. Mulched areas shall be reviewed after completion.

g. Final review and acceptance.

h. Warranty review

1012.3.13 MEASUREMENT & PAYMENT

1012.3.13.1 Measurement: The measurement of native grass seeding shall be by the acre.

1012.3.13.2 Payment: Payment shall be made at the contract unit price per acre, of native grass seeding complete in place, which shall include the seed, fertilizer (if required), area preparation , seeding, soil amendments (if required), and mulching.

END OF SECTION 1012

6. Project Roles and Responsibilities

Site Owner: Rembe Design

Contact: Jay Rembe

505 243-0188

rembe@rembedesign.com

Site Operators: Guzman Construction Solutions

Contact: Eddie Gonzales, Project Manager

505 975-8149

eddie@guzmancs.com

Stormwater Team: 814 Solutions

Contact: Gaylen Barnett (SWPPP preparer/inspector)

505 382-4828

gaylen@814solutions.com

2nd Contact: Eric Maez (Inspector)

505 401-7843

eric@814solutions.com

3rd Contact: Hannah Miller (Inspector

505 426-7715

Hannah@814solutions.com

4th Contact: Zak Burton (Inspector)

505 353-1611

zak@814solutions.com

BMP Installation: 814 Solutions

Contact: Sergio Lozoya

505 250-3734

sergio@814solutions.com

Daily sediment removal from public streets (when needed):

TBD a representative from Guzman or Rembe

Project Information:

Acres: 1.5

Expected area to be disturbed: Approximately 13 acres

Expected activities (including but not limited to):

- Clearing and grubbing
- Excavation
- Grading
- Building
- Utility installation
- Landscaping
- Gravel or seeding stabilization of ponds. Note that if hydroseed is applied SWPPP inspections shall/must continue until 70% of native vegetative cover is achieved.

BMP information:

The project will have silt fence surrounding the perimeter of the project to mitigate dust and water runoff. Ponds will be the first item of construction and are designed to capture stormwater runoff. A stabilized construction entrance shall be utilized, cleaned, and maintained throughout the project. The project shall be monitored daily to ensure BMPs are functional. If sediment trackout is observed, street sweeping shall be implemented. No significant slopes/drop-offs exist.