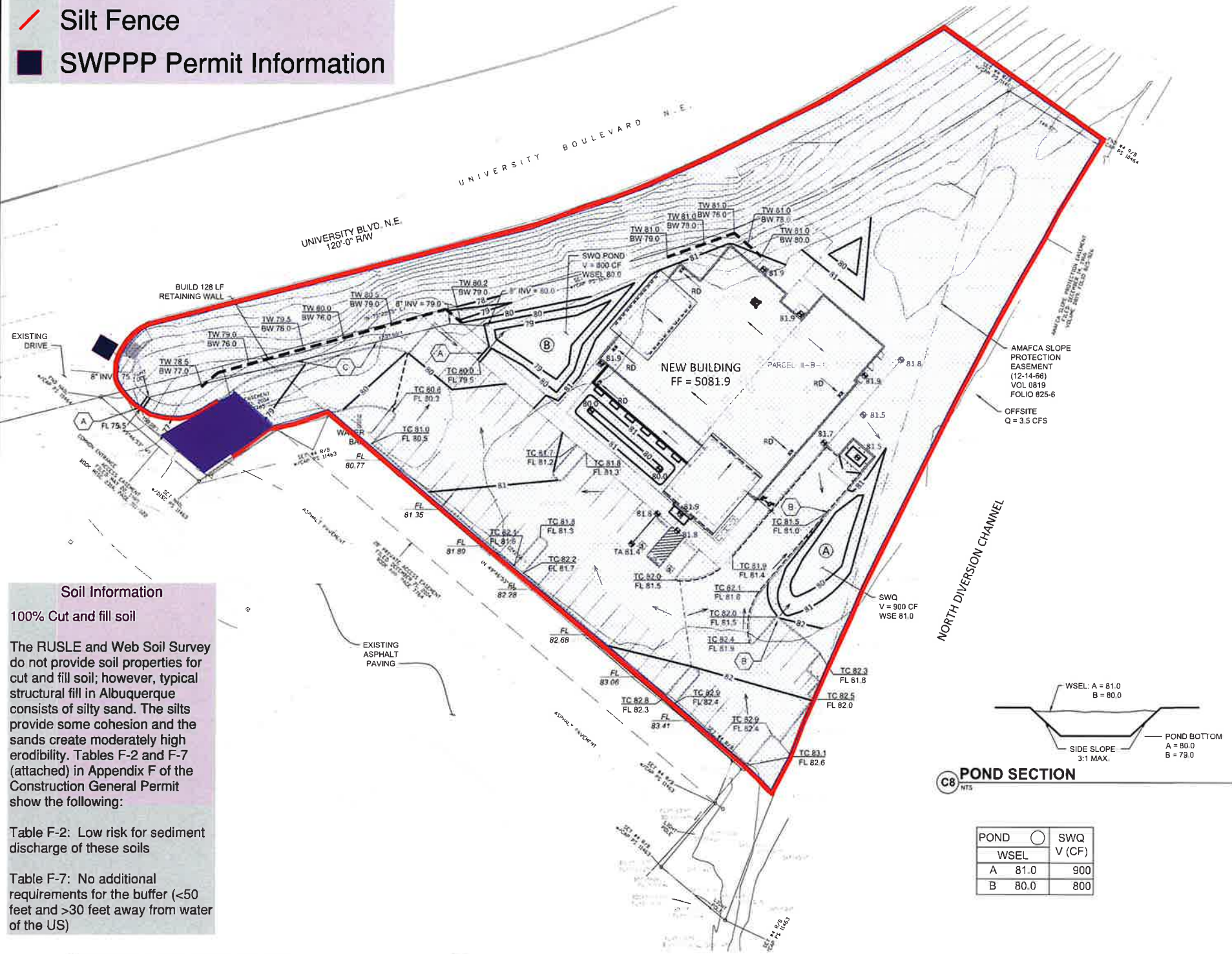


Temporary Erosion and Sediment Control Plan

Legend

- Construction Entrance
- Limits of Disturbance
- Silt Fence
- SWPPP Permit Information



Soil Information

100% Cut and fill soil

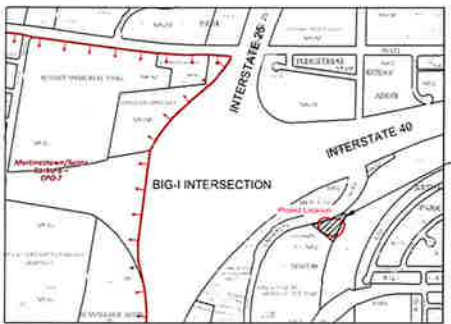
The RUSLE and Web Soil Survey do not provide soil properties for cut and fill soil; however, typical structural fill in Albuquerque consists of silty sand. The silts provide some cohesion and the sands create moderately high erodibility. Tables F-2 and F-7 (attached) in Appendix F of the Construction General Permit show the following:

Table F-2: Low risk for sediment discharge of these soils

Table F-7: No additional requirements for the buffer (<50 feet and >30 feet away from water of the US)

A1 GRADING & DRAINAGE PLAN

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



VICINITY MAP

H-15-Z

LEGEND

- EXISTING CONTOUR
- NEW CONTOUR
- PROPOSED BUILDING FINISH FLOOR ELEV
- NEW SPOT ELEVATION
- NEW CONSTRUCTION
- RD
- TC
- TOP OF CURB
- SURVEY SPOT ELEVATION
- RETAINING WALL

GENERAL GRADING NOTES

- SIDE SLOPES SHALL BE STABILIZED WITH AGGREGATE MULCH AND NATIVE GRASS SEED (PER CITY SPEC 1012) OR EQUAL.

KEYED NOTES

- BUILD NEW 12" SIDEWALK CULVERT PER CITY STD DWG 2236.
- BUILD NEW 3" CURB OPENING.
- BUILD NEW 8" PVC DRAIN LINE AT 2% (MIN.) SLOPE.

DRAINAGE ANALYSIS

ADDRESS: 1656 University Blvd NE, Albuquerque, NM

LEGAL DESCRIPTION: PARCEL 11B-1 UNIVERSITY TOWERS

PARCEL AREA: 1.27 ACRE DISTURBED AREA: 40,075 SF (0.92 acre)

BENCHMARK: City of Albuquerque Station '15-H15' being a brass cap with ELEV= 5071.506 (NAVD 1988)

SURVEYOR: The Survey Office dated November 2016

PRECIPITATION ZONE: 2

FLOOD HAZARD: From FEMA Map 35001C0332G (9/26/08) and 35001C0351H (8/16/12), this site is identified as being within Zone 'X' which is determined to be outside the 0.2% annual chance floodplain.

OFFSITE FLOW: Offsite flow will continue to be accepted by this site from the adjacent property to the east. The offsite Q= (1.12)(3.14 CFS/AC)= 3.5 CFS

EXISTING CONDITIONS: The site is undeveloped and slopes down to the west. Runoff discharges to University Blvd

PROPOSED IMPROVEMENTS: A veterinary clinic (8,980 SF) is proposed on this site along with paved parking and access drives and xeric landscape areas. Landscaped areas will be depressed to retain the SWQ volume onsite.

DRAINAGE APPROACH: The site development will direct developed flows to the SWQ ponds shown. The flow will then be directed to the entry drive surface and will discharge to University Blvd.

Existing land treatment: 100% B Precipitation Zone: 2
Q= (2.28)(1.27)= 2.9 CFS

Proposed land treatment: 6% B, 32% C and 62% D
Q= [(0.06)(2.28)+(0.32)(3.14)+(0.62)(4.70)](1.27)= 5.1 CFS

SWQ V= (0.42/12)(33,438) = 1,170 CF
The proposed SWQ pond areas will provide V=900+800=1,700 CF (>1170 CF)

WEIR Calculations for 3' by 6" high curb opening:
Q= K (2g)^{1/2} (L)(H)^{3/2}= (0.6)(8.0)(3)(0.35)= 5.0 CFS

C8 POND SECTION

POND	WSEL	SWQ V (CF)
A	81.0	900
B	80.0	800



BLUE CROSS ANIMAL CLINIC

University Blvd. NE
Albuquerque, New Mexico 87106

Ashlee Andrews DVM

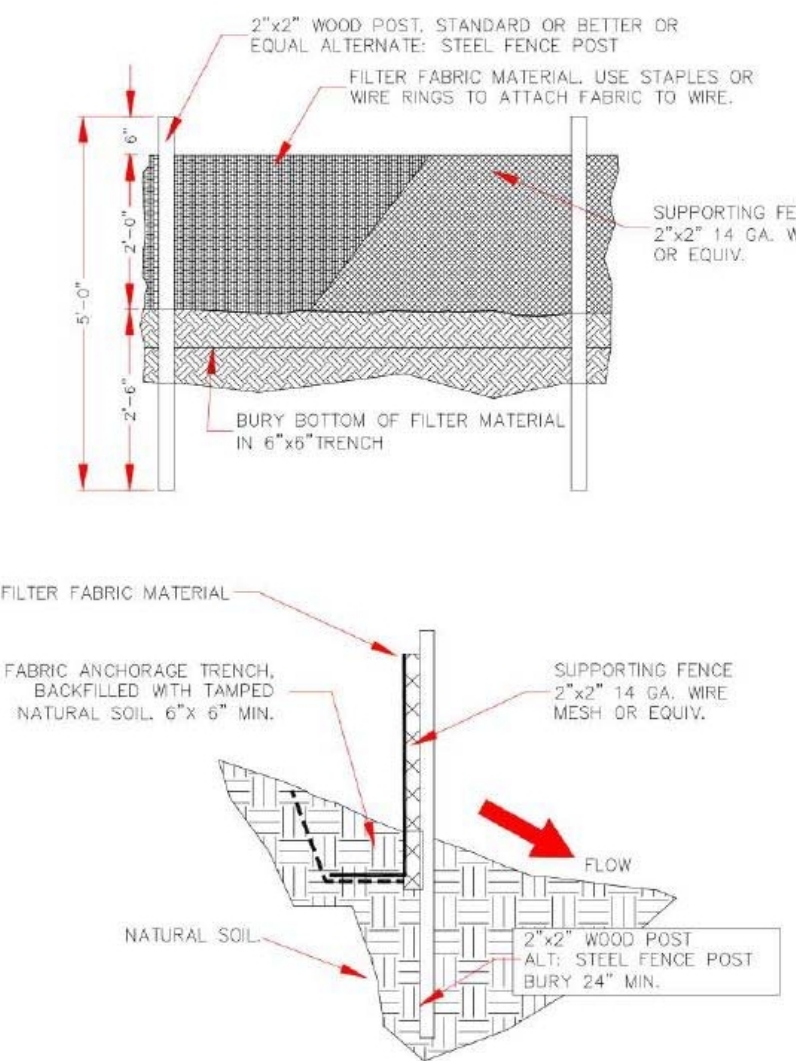
Copyright, 2016, BDA ARCHITECTURE PC

GRADING & DRAINAGE PLAN

REV #	DATE	COMMENTS
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		
26		
27		
28		
29		
30		
31		
32		
33		
34		
35		
36		
37		
38		
39		
40		
41		
42		
43		
44		
45		
46		
47		
48		
49		
50		
51		
52		
53		
54		
55		
56		
57		
58		
59		
60		
61		
62		
63		
64		
65		
66		
67		
68		
69		
70		
71		
72		
73		
74		
75		
76		
77		
78		
79		
80		
81		
82		
83		
84		
85		
86		
87		
88		
89		
90		
91		
92		
93		
94		
95		
96		
97		
98		
99		
100		

C101

Note: No BMP specifications are provided in the Construction General Permit. The BMP specifications displayed below are guidelines. Specifications on site may be site adjusted to site-specific needs and may not match what is displayed in this Appendix.

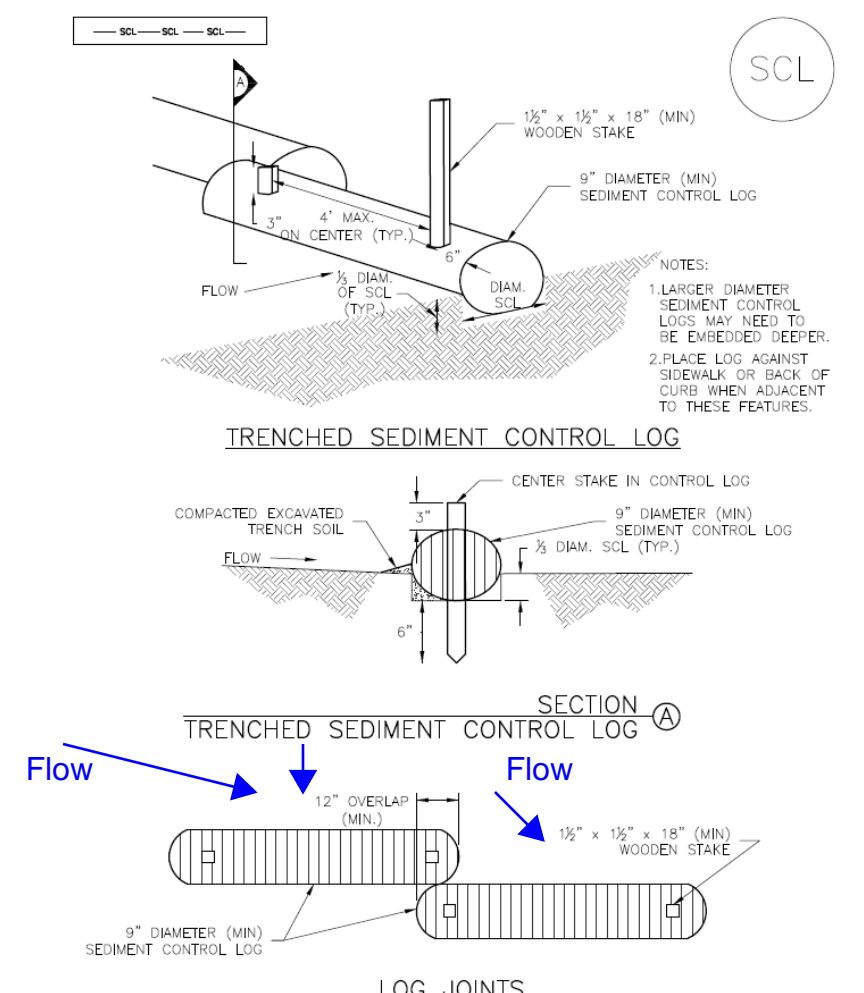


Silt Fence

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.

Source: City of Albuquerque
Construction Site Manual 2018



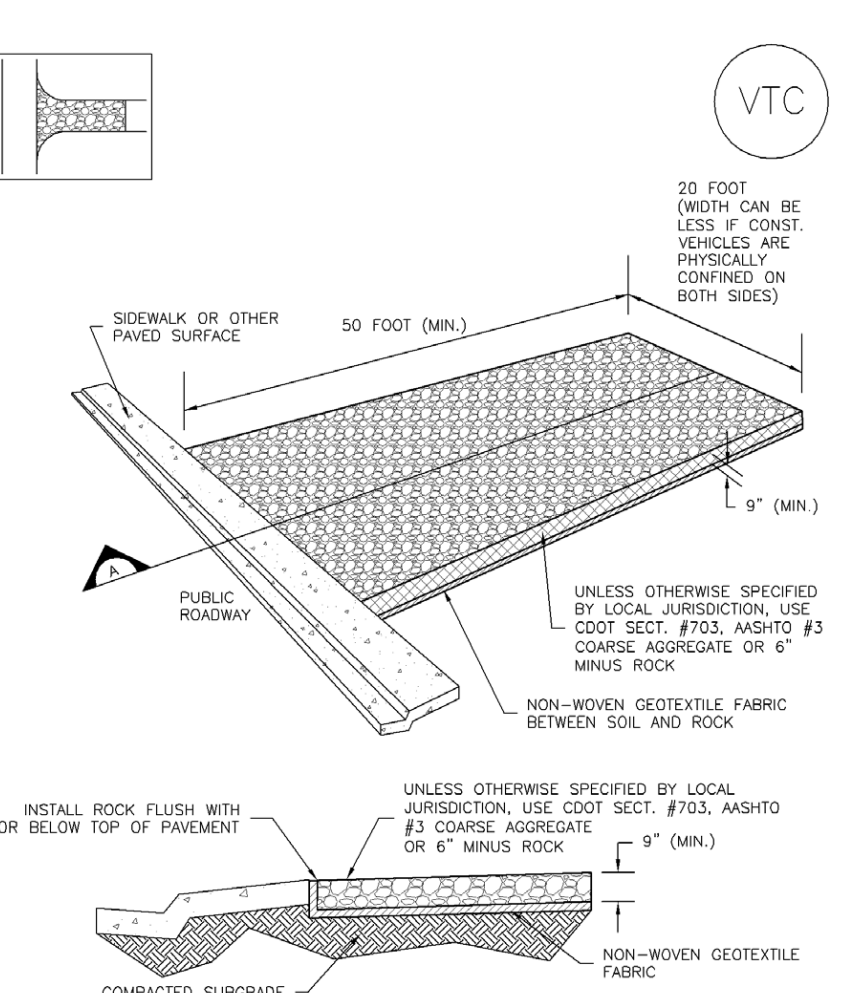
Sediment Control Log (SCL) SC-2

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.



Cold-mix asphalt ramp used for accessing the site.

Notes:

3. Laying lumber parallel to curb is an alternative, but this method is not to 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.



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. -(CGP 2017)
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.



Cocoon mat used for grate and throat.

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.



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.



Another application of using silt fence for inlet protection.

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.

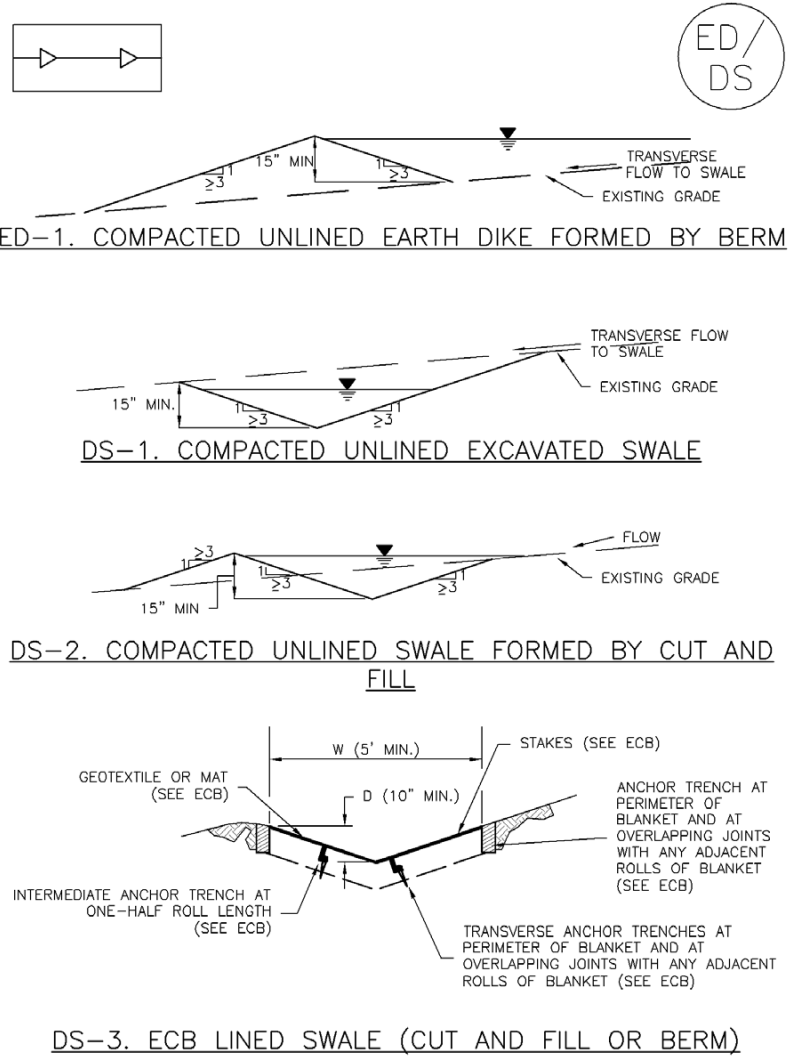


Notes:

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 construction 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 recurring 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 divert 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 dissipator. 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 should 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 should 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 2017



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

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 liner 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



Project Name:
Owner:
Operator:

NPDES Permit #:
Date:
Sheet:

Table F-2 Risk Levels for Sites with Average Slopes of ≤ 3 Percent

Soil Type Location	Clay	Silty Clay Loam or Clay-Loam	Sand	Sandy Clay Loam, Loamy Sand or Silty Clay	Loam, Silt, Sandy Loam or Silt Loam
CNMI / Guam	Moderate	Moderate	Moderate	Moderate	High
Puerto Rico	Moderate	Moderate	Moderate	Moderate	High
Virgin Islands	Low	Moderate	Low	Moderate	Moderate
American Samoa	Moderate	Moderate	Moderate	Moderate	High
Massachusetts and New Hampshire	Low	Moderate	Low	Low	Moderate
Idaho	Low	Low	Low	Low	Low
New Mexico	Low	Low	Low	Low	Low
Washington D.C.	Low	Moderate	Low	Low	Moderate

Table F-3 Risk Levels for Sites with Average Slopes of > 3 Percent and ≤ 6 Percent

Soil Type Location	Clay	Silty Clay Loam or Clay-Loam	Sand	Sandy Clay Loam, Loamy Sand or Silty Clay	Loam, Silt, Sandy Loam or Silt Loam
CNMI / Guam	Moderate	Moderate	Moderate	Moderate	High
Puerto Rico	Moderate	Moderate	Moderate	Moderate	High
Virgin Islands	Moderate	Moderate	Moderate	Moderate	High
American Samoa	High	High	Moderate	High	High
Massachusetts and New Hampshire	Moderate	Moderate	Low	Moderate	High
Idaho	Low	Low	Low	Low	Low
New Mexico	Low	Low	Low	Low	Moderate
Washington D.C.	Moderate	Moderate	Moderate	Moderate	High

Table F-7. Alternative 2 Requirements²

Risk Level Based on Estimated Soil Erosion	Retain \geq 50' Buffer	Retain $<$50' and $>$30' Buffer	Retain \leq30' and $>$10' Buffer	Retain \leq 10' Buffer
Low Risk	No Additional Requirements	No Additional Requirements	Double Perimeter Control	Double Perimeter Control
Moderate Risk	No Additional Requirements	Double Perimeter Control	Double Perimeter Control	Double Perimeter Control and 7- Day Site Stabilization
High Risk	No Additional Requirements	Double Perimeter Control	Double Perimeter Control and 7- Day Site Stabilization	Double Perimeter Control and 7- Day Site Stabilization