Residential Lot Stormwater Quality Permit Application

BUILDING DIVISION
410 E. 5TH STREET • LOVELAND, CO 80537
(GENERAL INFORMATION) 970-962-2505
(FAX) 970-962-2904 • eplan-res@cityofloveland.org

STORMWATER DIVISION
PWA BUILDING • 2525 W. 1ST ST. • LOVELAND, CO 80537
(GENERAL INFORMATION) 970-962-2772
(FAX) 970-962-2908 • Stormwater@cityofloveland.org

TO SCHEDULE AN INSPECTION, THE BUILDING PERMIT NUMBER AND INSPECTION CODE WILL BE NEEDED.

BUILDING PERMIT INSPECTION LINE (970) 962-2100

PLEASE SELECT A STORMWATER INSPECTION CODE FROM THE FOLLOWING LIST:

6629 to schedule a stormwater inspection during the footing and foundation phase
6659 to schedule a stormwater inspection during rough construction (vertical) phase
6669 to schedule a stormwater inspection prior to Certificate of Occupancy or Letter of Completion

A Stormwater Quality Permit is required for land disturbance activities upon the property by means including but not limited to grading; excavating; stockpiling soil, fill or other materials; clearing; vegetation removal; removal or deposit of any rock, soil, or other materials; or other activities which disturb/expose soil.

(1) Project Information:

Address:	Zip Code:
Project Name:	
Legal Description:	

(2) Contact Information:

(a). Name of Owner:	
Address:	
Phone:	Fax:
Mobile:	E-mail:
(b). Name of Builder:	
Address:	
Phone:	Fax:
Mobile:	E-mail:
(c). Other:	
Address:	
Phone:	Fax:
Mobile:	E-mail:

(3) SWMP Administrator:

Name:	Check One: ☐ Phone ☐ Mobile	Number: _____

(4) List any site personnel along with their contact information who will have authority to make modifications to the Stormwater Management Plan (SWMP) if the SWMP Administrator is unavailable:

Name:	Check One: ☐ Phone ☐ Mobile	Number: _____
Name:	Check One: ☐ Phone ☐ Mobile	Number: _____

(5) Project Information:

Lot Size:

_____ sq. ft.

(1). Will excavated material remain on the lot in which the building is taking place?
☐ Yes ☐ No ☐ Some

(2). If no or some, please indicate where the excavated material will be placed below.

(3). Do you own the lot(s) where the excavated material will be placed? ☐ Yes ☐ No

Please Note: If you don't own the lot(s) where the excavated material is to be placed you will be required to submit a signed letter of permission from the owner(s) of the lot(s).

Location(s) of Excavated Material:

(6) Project Schedule:

Expected work start date: _____ Expected work completion date: _____

As a condition for the issuance of a Stormwater Quality Permit for Residential dwellings, applicants shall be required to provide the City of Loveland a SWMP document specifically designed to address each lot that is disturbed as a result of the work described above or they can use the Small Site SWMP document (Drawing SW-16) developed by the City.

Are you using the Small Site Stormwater Management Plan (SWMP) document (Drawing SW-16) developed by the City?

☐ Yes ☐ No

WARNING:
The City of Loveland will not issue a Certificate of Occupancy if any of the sites disturbed as part of this Stormwater Quality Permit have not been sufficiently stabilized as determined in sole discretion by the City Inspector.

Note: This permit is separate from any permits that may be required by the Colorado Department of Public Health and Environment (CDPHE), Water Quality Control Division under the Colorado Discharge Permit System.

By signing and dating this application I acknowledge that:

- I have read all the documents attached to this permit application (**Residential Lot Stormwater Management Plan (SWMP) Guidance** and **Residential Lot Stormwater Quality Permit Fact Sheet)**, and filled out the application to the best of my knowledge, and;
- I understand what temporary sediment erosion control measures are required for the building site. Furthermore, I understand that the SWMP document applies to all lots disturbed as a result of this building permit along with the consequences to me if the control measures are not maintained in accordance with the City of Loveland's expectations.

APPLICANT SIGNATURE:_____ **DATE:** _____

*** FOR OFFICE USE ONLY ***

Applicant is using the City of Loveland Small Site Stormwater Management Plan (SWMP) document (Drawing SW-16): ☐ Yes ☐ No	
Received Stormwater Management Plan (SWMP): ☐ Yes ☐ No ☐ N/A	More than one lot is being impacted: ☐ Yes ☐ No
Received signed letter of permission from owner of lot to stockpile excavated material: ☐ Yes ☐ No ☐ N/A	Approved: ☐ Yes ☐ No
Staff Comments:	

Revised: June, 2016

Residential Lot Stormwater Quality Permit Fact Sheet

City of Loveland

PUBLIC WORKS ADMINISTRATION (PWA) BUILDING
PUBLIC WORKS/STORMWATER
2525 W. 1ST STREET, LOVELAND, CO 80537
970-962-2772 • (FAX) 970-962-2908
WWW.CITYOFLOVELAND.ORG/STORMWATER

1. Why is a Residential Lot Stormwater Quality Permit required from the City of Loveland?

The City of Loveland's stormwater program is mandated under the National Pollutant Discharge Elimination System (NPDES), a component of the Clean Water Act. The requirement is intended to reduce the amount of pollutants entering waterways such as streams, rivers, lakes, and wetlands as a result of runoff from residential, commercial and industrial areas. Large construction sites have been under a requirement from the State (the Colorado Department of Public Health & Environment (CDPHE) to obtain permit coverage since 1992 (Phase I of the program). Small construction sites have been under a requirement to obtain permit coverage from CDPHE since July 1, 2002.

2. When is a Residential Lot Stormwater Quality Permit required from the City of Loveland?

The **Residential Lot Stormwater Quality Permit,** to be referred to as **(Permit)** is part of the Building Inspection Process. A **Permit** is required from the City of Loveland for disturbance activities upon the property by means including but not limited to grading; excavating; stockpiling soil, fill or other materials; clearing; vegetation removal; removal or deposit of any rock, soil, or other materials; or other activities which disturb/expose soil.

3. What is necessary to obtain a Residential Lot Stormwater Quality Permit from the City of Loveland?

☐ **Fill-out all 6 sections, sign and date the Permit application form.**

- **Section 1 - Project Information**
  You will need to provide an address, zip code, project name, and legal description for the site.
- **Section 2 - Contact Information**
  You will need to provide the name, address, phone number(s), and e-mail of the **Owner** and **Builder**.
- **Section 3 – SWMP *(Stormwater Management Plan)* Administrator**
  You will need to designate a **SWMP Administrator** on the permit. *Note: The **SWMP Administrator** must be the person who will be the responsible party for the project regarding the installation & maintenance of temporary sediment/erosion control measures and who has the authority to make modifications to the **SWMP**.*
- **Section 4 – Site Personnel who have the authority to make modifications to the SWMP**
  You will need to provide the name(s) and contact information for any personnel other than the **SWMP Administrator** that are authorized to make modifications to the **SWMP**. *Note: Authorized site personnel are typically any site personnel in addition to the Permittee who can ensure quick response to control measure repairs and/or failures.*
- **Section 5 – Project Information**
  You will need to provide the lot size and where the excavated material will be placed.
- **Section 6 – Project Schedule**
  You will need to provide both the expected work start and completion dates.
- **Sign and Date the Permit application form.**

Note: Failure to fill-out* all 6 sections, sign and date *the Permit application could delay the start of the project.

☐ **Stormwater Management Plan (SWMP).** You may choose to (a.) use the City's standard **Residential Lot SWMP** drawing ***(Drawing SW-16)*** that meets the minimum design criteria or (b.) you may choose to design your own **SWMP**. Please refer to the **Residential Lot SWMP Guidance** for plan requirements if you choose to design your own **SWMP**. *Please Note: If no **SWMP** document is submitted with the Residential Lot Stormwater Quality Permit Application the City of Loveland will require you to comply with the **Residential Lot SWMP** drawing **(Drawing SW-16)**.*

☐ **Performance Security.** None

4. How often will the Stormwater Inspector perform inspections?

☐ **Stormwater Inspections**

The City of Loveland stormwater inspector will perform at least three (3) site inspections during the development of the site. Please note that:

- The **first (initial) site inspection** will occur during the grading and excavation process. Before construction begins the Builder will need to install the perimeter control measures to contain the site disturbances.
- The **second site inspection** will occur when vertical construction begins. The Builder will need to install all BMP's and be actively maintaining them.
- The **third (final) site inspection** will occur prior to issuing the certificate of occupancy. The Builder will need to turn the site over to the homeowner with all control measures installed and in good working order and the homeowner will need to be made aware, by the Builder at the time of closing that the control measures must remain in place until all landscaping improvements have been installed by the homeowner.

5. What will happen if I fail to install and/or maintain the BMP(s) for the site?

Since the **Permit** is part of the Building Inspection process it will follow the same processes and procedures for non-compliance as any other Building Inspection. The failure to install and/or maintain the control measures on your site could result in the following:

- A stoppage of Building Inspections until the site is in compliance as determined by the City of Loveland Stormwater Inspector, and;
- A $47.00 fee that the Building Department typically charges to "unlock" the inspection process.

Residential Lot
Stormwater Management Plan (SWMP) Guidance

PUBLIC WORKS ADMINISTRATION (PWA) BUILDING
PUBLIC WORKS/STORMWATER
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A **Stormwater Management Plan (SWMP)** is required for all City of Loveland Stormwater Quality Permits. This guidance document is for those who have chosen not to use the recommended standard **Small Site SWMP** drawing ***(Drawing SW-16).*** It has been specifically designed to help you develop a **SWMP** for your residential lot construction site.

Although the **SWMP** shall be prepared in accordance with good engineering, hydrologic and pollution control practices it does not need to be prepared by a registered engineer. The main objective of the **SWMP** is to prevent potential sources of pollution, including sediment, which may reasonably be expected to affect the quality of stormwater discharges associated with construction and development from leaving your residential lot construction site. The **SWMP** must show the location of each **Control Measure** which will be used to reduce the pollutants in stormwater discharges associated with construction activity runoff.

The **SWMP** will need the following:

1. **A Base Map and/or Lot Drawing that:**
   - Shows all the existing water features, i.e., lakes, ditches, creeks, wetlands, etc., and labels them accordingly.
   - Shows the location of the building, driveway, sidewalks, patio(s), etc. All features should be labeled accordingly.
   - Shows the location of the gutter downspouts.
   - Shows the direction of the stormwater runoff.
   - Contains the following note: *"Note: The **SWMP** should be revised as the construction site conditions change so it accurately depicts the construction activity occurring on-site."*
2. **Location of Appropriate Control Measures**
   - The **SWMP** will need to show the location of the **Control Measures** that will be used and the **Control Measures** should be labeled accordingly:
     - Silt Fence (SF)
     - Concrete Washout (CW)
     - Wattle (W)
     - Port-o-let (P)
     - Construction Fence (CF)
     - Vehicle Tracking Control Pad (VTC)
     - Erosion Control Mat (ECM)
     - Dumpsters (D)
     - Waste Control (WC)

In addition to the **SWMP** the City of Loveland recommends the following:

1. **Develop a Spill Prevention Plan**
   - There should be a plan developed appropriate to the site to handle materials, prevent spills and remediate any spill that may occur.

2. Develop Inspection and Maintenance Procedures

The **Control Measures** will need to be inspected and maintained regularly to ensure they are in good and effective operating condition. *Note: An efficient record-keeping system is a helpful tool in managing inspection and maintenance reports. It is recommended that a logbook be maintained for inspection reports, maintenance records, spill response, weather conditions, training, correspondence, etc.* To avoid inspection delays the City of Loveland recommends the following:

a. Remove sediment from roadways by the end of each working day.

b. Inspect **Control Measures** regularly.
   - o Perform inspection every 14 days, or following a significant stormwater event.
   - o Complete an inspection report for each inspection performed. *Note: you can develop your own document or use the Inspection and Maintenance Procedures Form below.*
   - o Keep inspection reports in a binder located on site.

c. Maintain **Control Measures** regularly.
   - o Perform maintenance and repairs as soon as possible on items or areas identified in the inspection report.
   - o Perform maintenance as indicated in the City of Loveland Storm Drainage Standards, per manufacturer's specifications, or other sources determined to be acceptable.

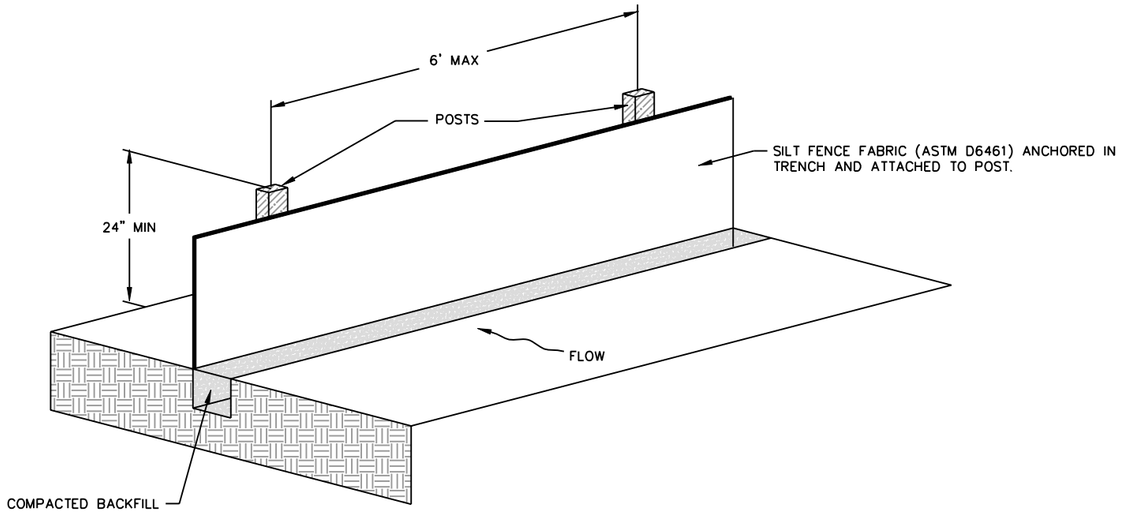
INSPECTION AND MAINTENANCE PROCEDURES FORM

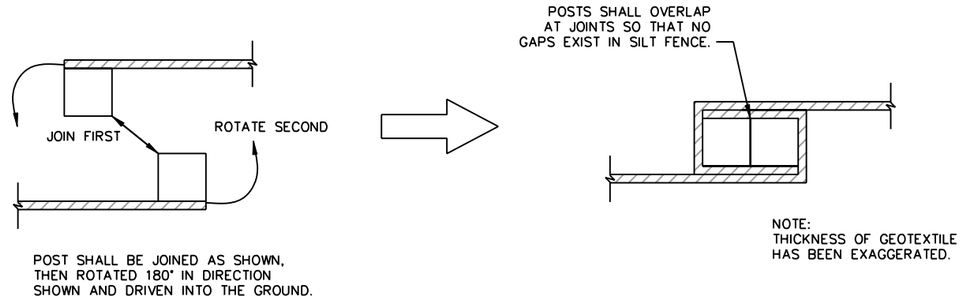
Inspection Date: _____ **Time:** _____ ☐ a.m. ☐ p.m.

EROSION, SEDIMENT AND WASTE CONTROL MEASURES

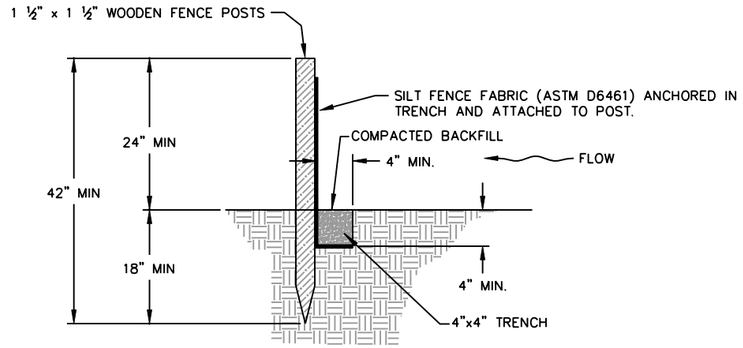
No.	Control Measure	Practice Used		To Be Installed		Requires Maintenance		Needs Replacement (Not Functional)		Comments
		Yes	No	Yes	No	Yes	No	Yes	No	
1	Concrete Washout (CW)									
2	Construction Fence (CF)									
3	Dumpsters (D)									
4	Erosion Control Mat (ECM)									
5	Port-o-let (P)									
6	Silt Fence (SF)									
7	Vehicle Tracking Control (VTC)									
8	Waste Control (WC)									
9	Wattle (W)									
10										
11										

*Note: The failure to install and/or maintain the **Control Measures** for the site could result in a stoppage of building inspections until the site is in compliance as determined by the City of Loveland stormwater inspector.*





SILT FENCE JOINTS



PREASSEMBLED SILT FENCE

INSTALLATION NOTES:

1. DRIVE POSTS VERTICALLY INTO THE GROUND TO A MINIMUM DEPTH OF 18".
2. EXCAVATE A TRENCH APPROXIMATELY 4" WIDE AND 4" DEEP ALONG THE LINE OF POSTS AND UPSLOPE FROM THE BARRIER.
3. ANCHOR TRENCH SHALL BE EXCAVATED BY HAND, WITH TRENCHER, OR WITH SILT FENCE INSTALLATION MACHINE. NO ROAD GRADERS, BACKHOES, ETC. SHALL BE USED.
4. NOT LESS THAN THE BOTTOM 1' OF THE SILT FENCE FABRIC SHALL BE BURIED IN THE TRENCH.
5. THE TRENCH SHALL BE COMPACTED BY HAND, WITH "JUMPING JACK" OR BY WHEEL ROLLING. COMPACTION SHALL BE SUCH THAT THE SILT FENCE RESISTS BEING PULLED OUT OF ANCHOR TRENCH BY HAND.
6. SILT FENCE INDICATED IN THE PLANS SHALL BE INSTALLED PRIOR TO ANY LAND-DISTURBING ACTIVITIES.
7. USE WOOD POSTS OR OTHER MATERIAL AS ACCEPTED BY THE CITY.

MAINTENANCE NOTES:

1. THE CONTRACTOR SHALL INSPECT SILT FENCE EVERY TWO WEEKS AND AFTER SIGNIFICANT STORM EVENTS AND MAKE REPAIRS OR CLEAN OUT UPSTREAM SEDIMENT AS NECESSARY. SEDIMENT ACCUMULATED UPSTREAM OF SILT FENCE SHALL BE REMOVED WHEN THE
2. UPSTREAM SEDIMENT REACHES A DEPTH OF 6".
   SILT FENCE SHALL BE REMOVED WHEN THE UPSTREAM DISTURBED AREA IS STABILIZED
3. AND GRASS COVER IS ACCEPTED BY THE CITY. IF ANY DISTURBED AREA EXISTS AFTER REMOVAL, IT SHALL BE SEEDED AND MULCHED OR OTHERWISE STABILIZED IN A MANNER ACCEPTED BY THE CITY.

SILT FENCE (SF) —— SF —— SF ——			
CITY OF LOVELAND PUBLIC WORKS DEPT. STORMWATER	STORMWATER CONSTRUCTION DRAWINGS	APPROVED: KWG DATE: 8/17/07 DRAWN BY: TBK	DRAWING SW-10

W1 NOTES:

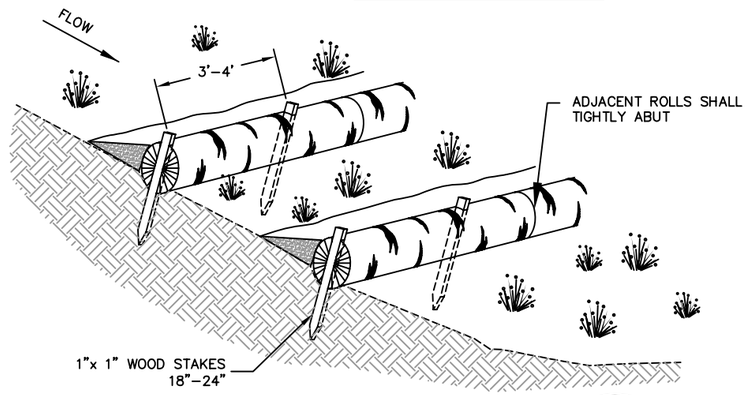
INSTALLATION:
WHEN INSTALLING RUNNING LENGTHS OF WATTLES, BUTT THE SECOND WATTLE TIGHTLY AGAINST THE FIRST, DO NOT OVERLAP THE ENDS. STAKE THE WATTLES AT EACH END AND FOUR FOOT ON CENTER. FOR EXAMPLE:

A 25 FOOT WATTLE USES 6 STAKES
A 20 FOOT WATTLE USES 5 STAKES
A 12 FOOT WATTLE USES 4 STAKES

STAKES SHOULD BE DRIVEN THROUGH THE MIDDLE OF THE WATTLE. LEAVING 2 – 3 INCHES OF THE STAKE PROTRUDING ABOVE THE WATTLE. A HEAVY SEDIMENT LOAD WILL TEND TO PICK THE WATTLE UP AND COULD PULL IT OFF THE STAKES IF THEY ARE DRIVEN DOWN TOO LOW. IT MAY BE NECESSARY TO MAKE A HOLE IN THE WATTLE WITH A PICK END OF YOUR MADDOX IN ORDER TO GET THE STAKE THROUGH THE STRAW. WHEN STRAW WATTLES ARE USED FOR FLAT GROUND APPLICATIONS, DRIVE THE STAKES STRAIGHT DOWN; WHEN INSTALLING WATTLES ON SLOPES, DRIVE THE STAKES PERPENDICULAR TO THE SLOPE.

DRIVE THE FIRST END STAKE OF THE SECOND WATTLE AT AN ANGLE TOWARD THE FIRST WATTLE IN ORDER TO HELP ABUT THEM TIGHTLY TOGETHER. IF YOU HAVE DIFFICULTY DRIVING THE STAKE INTO EXTREMELY HARD OR ROCKY SLOPES, A PILOT BAR MAY BE NEEDED TO BEGIN THE STAKE HOLE.

PERVIOUS INSTALLATION



W1 & W2 INSTALLATION NOTES:

1. THE LOCATION AND LENGTH OF WATTLE IS DEPENDENT ON THE CONDITIONS OF EACH SITE.
2. WATTLES SHALL BE INSTALLED PRIOR TO ANY LAND–DISTURBING ACTIVITIES.
3. WATTLES SHALL CONSIST OF STRAW, COMPOST, EXCELSIOR, OR COCONUT FIBER.
4. NOT FOR USE IN CONCENTRATED FLOW AREAS.
5. THE WATTLES SHALL BE TRENCHED INTO THE GROUND A MINIMUM OF TWO (2) INCHES.
6. WATTLES SHALL BE INSTALLED PER MANUFACTURERS SPECIFICATIONS.
7. ON SLOPES, WATTLES SHOULD BE INSTALLED ON CONTOUR WITH A SLIGHT DOWNWARD ANGLE AT THE END OF THE ROW IN ORDER TO PREVENT PONDING AT THE MID SECTION.
8. RUNNING LENGTHS OF WATTLES SHOULD BE ABUTTED FIRMLY TO ENSURE NO LEAKAGE AT THE ABUTMENTS.
9. SPACING – DOWNSLOPE:
   VERTICAL SPACING FOR SLOPE INSTALLATIONS SHOULD BE DETERMINED BY SITE CONDITIONS. SLOPE GRADIENT AND SOIL TYPE ARE THE MAIN FACTORS. A GOOD RULE OF THUMB IS:

   1:1 SLOPES = 10 FEET APART
   2:1 SLOPES = 20 FEET APART
   3:1 SLOPES = 30 FEET APART
   4:1 SLOPES = 40 FEET APART, ETC.

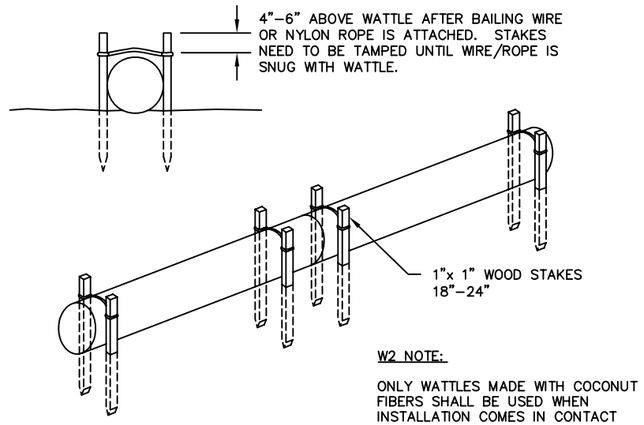
   HOWEVER, ADJUSTMENTS MAY HAVE TO BE MADE FOR THE SOIL TYPE: FOR SOFT, LOAMY SOILS – ADJUST THE ROWS CLOSER TOGETHER; FOR HARD, ROCKY SOILS – ADJUST THE ROWS FURTHER APART. A SECONDARY WATTLE PLACED BEHIND THE ABUTMENT OF TWO WATTLES IS ENCOURAGED ON STEEP SLOPES OR WHERE JOINTS HAVE FAILED IN THE PAST.
10. STAKING: THE CITY RECOMMENDS USING WOOD STAKES TO SECURE THE WATTLES. 1/2" TO 5/8" REBAR IS ALSO ACCEPTABLE. BE SURE TO USE A STAKE THAT IS LONG ENOUGH TO PROTRUDE SEVERAL INCHES ABOVE THE WATTLE: 18" IS A GOOD LENGTH FOR HARD, ROCKY SOIL. FOR SOFT LOAMY SOIL USE A 24" STAKE.

WATTLES – DETAIL A (W1)

W2 NOTES:

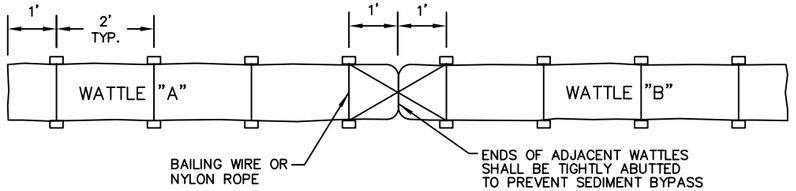
INSTALLATION:
STAKES SHOULD BE DRIVEN ACROSS FROM EACH OTHER AND ON EACH SIDE OF THE WATTLE. LEAVING 4"–6" OF STAKE PROTRUDING ABOVE THE WATTLE. BAILING WIRE OR NYLON ROPE SHOULD BE TIED TO THE STAKES ACROSS THE WATTLE. STAKES SHOULD THEN BE DRIVEN UNTIL THE BAILING WIRE OR NYLON ROPE IS SUFFICIENTLY SNUG TO THE WATTLE.

WHEN INSTALLING RUNNING LENGTHS OF WATTLES, TO PREVENT SHIFTING, BUTT THE SECOND WATTLE TIGHTLY AGAINST THE FIRST. DO NOT OVERLAP THE ENDS. STAKES SHOULD BE DRIVEN 1 FT. FROM END, ACROSS FROM AND ON EACH SIDE OF WATTLE LEAVING 4"–6" OF STAKE PROTRUDING ABOVE THE WATTLE. BAILING WIRE OR NYLON ROPE SHOULD BE TIED TO STAKES IN AN HOUR GLASS FORMATION (FRONT TO BACK OF WATTLE "A", ACROSS TO FRONT OF WATTLE "B", ACROSS TO BACK AND BACK TO FRONT OF WATTLE "A"). STAKES SHOULD THEN BE DRIVEN IN UNTIL BAILING WIRE OR NYLON ROPE IS SUFFICIENTLY SNUG TO THE WATTLE.



W2 NOTE:

ONLY WATTLES MADE WITH COCONUT FIBERS SHALL BE USED WHEN INSTALLATION COMES IN CONTACT WITH A WATER BODY.



WATTLES – DETAIL B (W2)

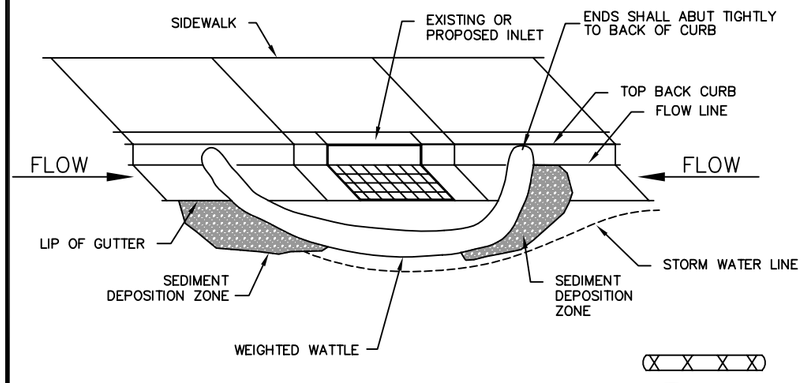
W3, W4 & W5 NOTES:

1. WHEN USING STRAW WATTLE, THE STRAW WATTLE MUST HAVE A WEIGHTED CORE.
2. ALL PRODUCTS SHALL BE INSTALLED PER THE MANUFACTURER'S SPECIFICATIONS.
3. OTHER PRODUCTS MAY BE USED IN PLACE OF WEIGHTED WATTLES UPON WRITTEN APPROVAL FROM THE CITY. NOTE: A COPY OF DETAILS AND SPECIFICATIONS WILL NEED TO BE INCORPORATED INTO THE SWMP.

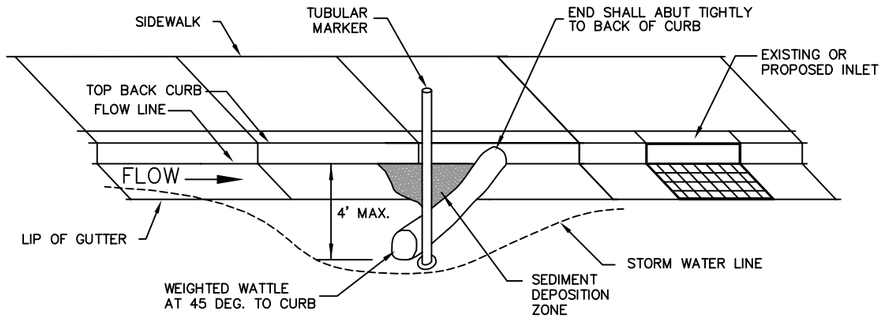
W3 NOTE:

IF THE AREA BEHIND THE INLET IS NOT STABILIZED, A BMP SHOULD BE USED TO PREVENT SEDIMENT FROM ENTERING THE INLET

IMPERVIOUS INSTALLATION

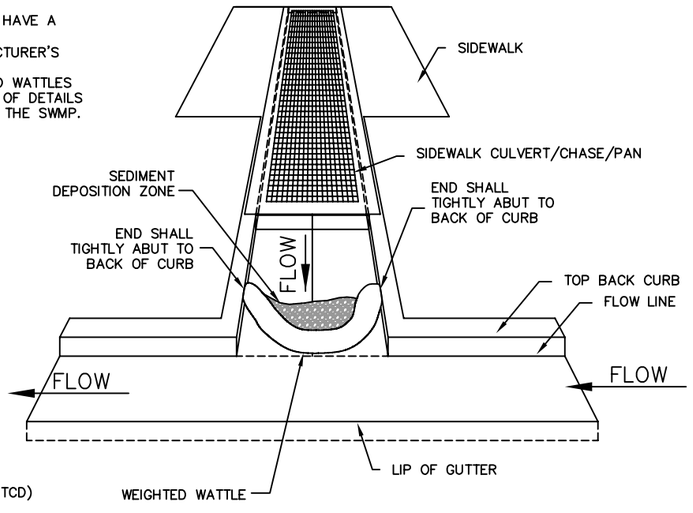


CURB INLET WATTLE PROTECTION SETUP (W3)



W4 NOTES:
1. NUMBER OF WATTLES AND SPACING SHOULD BE DETERMINED BY THE SLOPE AND SITE CONDITIONS.
2. TUBULAR MARKERS SHALL MEET THE REQUIREMENTS OF MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD)
3. CITY RECOMMENDS INSTALLING AT LEAST 3 CHECKDAMS WHEN USING THIS SETUP.

CURBSIDE CHECKDAMS SETUP (W4)



CONCRETE CHASE/TRICKLE CHANNEL SETUP (W5)

WATTLE MAINTENANCE NOTES:

1. THE CONTRACTOR SHALL INSPECT WATTLES EVERY TWO WEEKS AND AFTER ANY SIGNIFICANT STORM EVENT AND MAKE REPAIRS OR REMOVE SEDIMENT ACCUMULATED BEHIND WATTLE AS NECESSARY.
2. SEDIMENT ACCUMULATED BEHIND WATTLE SHALL BE REMOVED WHEN THE SEDIMENT HAS ACCUMULATED TO ONE HALF THE DIAMETER OF THE WATTLE.
3. WATTLES SHALL REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND IS ACCEPTED BY THE CITY.

WATTLE INSTALLATION (W)

CITY OF LOVELAND
PUBLIC WORKS DEPT.
STORMWATER

STORMWATER CONSTRUCTION DRAWINGS

APPROVED: KWG
DATE: 4/23/09
DRAWN BY: TBK

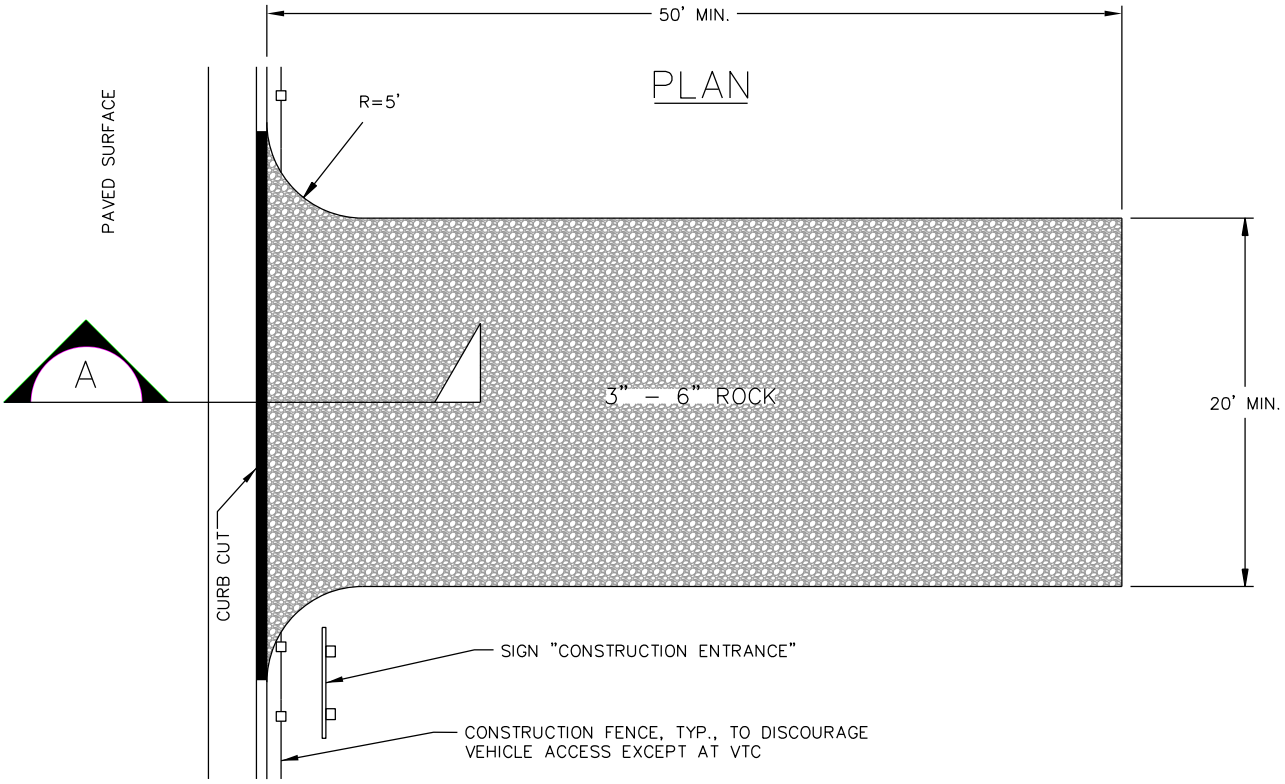
DRAWING SW–13

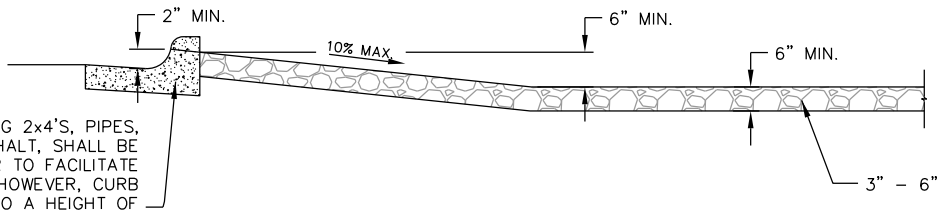
INSTALLATION NOTES:

1. VEHICLE TRACKING CONTROL PAD SHALL BE LOCATED AT EVERY ACCESS POINT TO THE CONSTRUCTION SITE.
2. A SIGN SHALL BE PLACED NEXT TO THE VEHICLE TRACKING CONTROL PAD TO DESIGNATE THE LOCATION AS THE CONSTRUCTION ENTRANCE/EXIT.
3. VEHICLE TRACKING CONTROL (VTC) PADS SHALL CONSIST OF HARD, DENSE, DURABLE ROCK, ANGULAR IN SHAPE AND RESISTANT TO WEATHERING. ROUNDED STONE SHALL NOT BE USED, i.e., RIVER ROCK AND COBBLES. THE ROCK SHALL BE A MINIMUM OF 3" AND A MAXIMUM OF 6" DIAMETER. THE ROCK SHALL HAVE A SPECIFIC GRAVITY OF AT LEAST 2.6. CONTROL OF GRADATION WILL BE BY VISUAL INSPECTION. NOTE: OTHER MATERIALS, i.e., ROADBASE, MUD MATS, ETC., MAY BE USED IN PLACE OF ROCK UPON WRITTEN APPROVAL OF THE CITY INSPECTOR.
4. ANY CRACKED OR DAMAGED CURB AND GUTTER AND SIDEWALK SHALL BE REPLACED BY CONTRACTOR.
5. ALTHOUGH NOT NORMALLY USED, THE CITY RESERVES THE RIGHT TO REQUIRE VEHICLE TRACKING CONTROL WITH A TEMPORARY CATTLE GUARD AND/OR WHEEL WASH FACILITIES AT SITES WHERE TRACKING ONTO PAVED AREAS BECOMES A SIGNIFICANT PROBLEM AS DETERMINED BY THE CITY INSPECTOR.
6. IF VEHICLE TRACKING CONTROL WITH WHEEL WASH FACILITIES ARE REQUIRED, ALL WHEELS ON EVERY VEHICLE LEAVING THE SITE SHALL BE CLEANED OF MUD USING A PRESSURE-WASHER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING A WATER SOURCE AND CONSTRUCTING A WASHWATER SEDIMENT TRAP.

MAINTENANCE NOTES:

1. CONTRACTOR SHALL INSPECT VEHICLE TRACKING CONTROL PAD DAILY. ROCK SURFACE SHALL BE CLEAN AND LOOSE ENOUGH TO RUT SLIGHTLY UNDER WHEEL LOADS AND CAUSE LOOSE ROCK TO DISLODGE MUD FROM TIRES. WHEN ROCK BECOMES COMPACTED OR FILLED WITH SEDIMENT SO THAT THE EFFECTIVENESS OF THE PAD IS DIMINISHED, CONTRACTOR SHALL RIP, TURN OVER, OR OTHERWISE LOOSEN ROCK, PLACE ADDITIONAL NEW ROCK, OR REPLACE WITH NEW ROCK AS NECESSARY TO RESTORE EFFECTIVENESS.
2. SEDIMENT AND OTHER MATERIAL SPILLED, DROPPED OR TRACKED ONTO PAVED SURFACES SHALL BE REMOVED IMMEDIATELY OR BY THE END OF EACH WORKING DAY.
3. VEHICLE TRACKING CONTROL PAD SHALL BE REMOVED AT THE END OF CONSTRUCTION. THE AREA SHOULD BE TOPSOILED, SEEDED, CRIMPED, AND MULCHED OR OTHERWISE STABILIZED.
4. IF VEHICLE WHEEL WASH FACILITIES ARE REQUIRED, CONTRACTOR SHALL INSPECT VEHICLE TRACKING CONTROL AND WHEEL WASH FACILITIES DAILY. ACCUMULATED SEDIMENTS SHALL BE REMOVED FROM THE PAD SURFACE.
5. ACCUMULATED SEDIMENT IN THE WASHWATER/SEDIMENT TRAP SHALL BE REMOVED WHEN THE SEDIMENT REACHES AN AVERAGE DEPTH OF 12-INCHES.





NO MATERIALS INCLUDING 2x4'S, PIPES, DIRT, GRAVEL OR ASPHALT, SHALL BE PLACED IN GUTTER TO FACILITATE MOUNTING CURB; HOWEVER, CURB MAY BE CUT DOWN TO A HEIGHT OF 2" OR HIGHER FOR EASIER ACCESS AND REPLACED AT PROJECT COMPLETION. OTHER ACCESS DEVICES MAY BE USED AS ACCEPTED BY THE CITY.

SECTION A

VTC

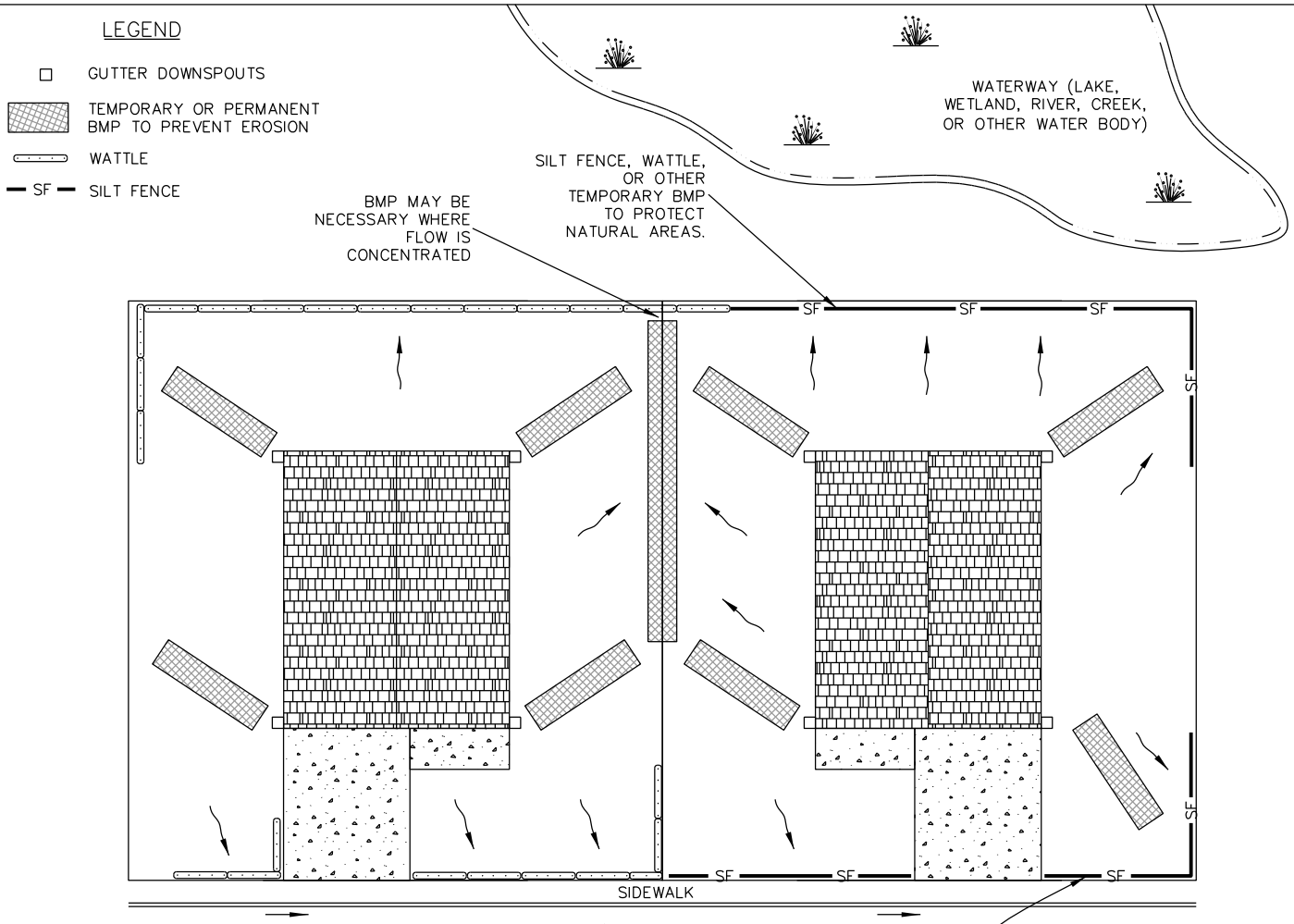
VEHICLE TRACKING CONTROL PAD

VTC

CITY OF LOVELAND PUBLIC WORKS DEPT. STORMWATER	STORMWATER CONSTRUCTION DRAWINGS	APPROVED: KWG DATE: 3/18/13 DRAWN BY: TBK	DRAWING SW-15

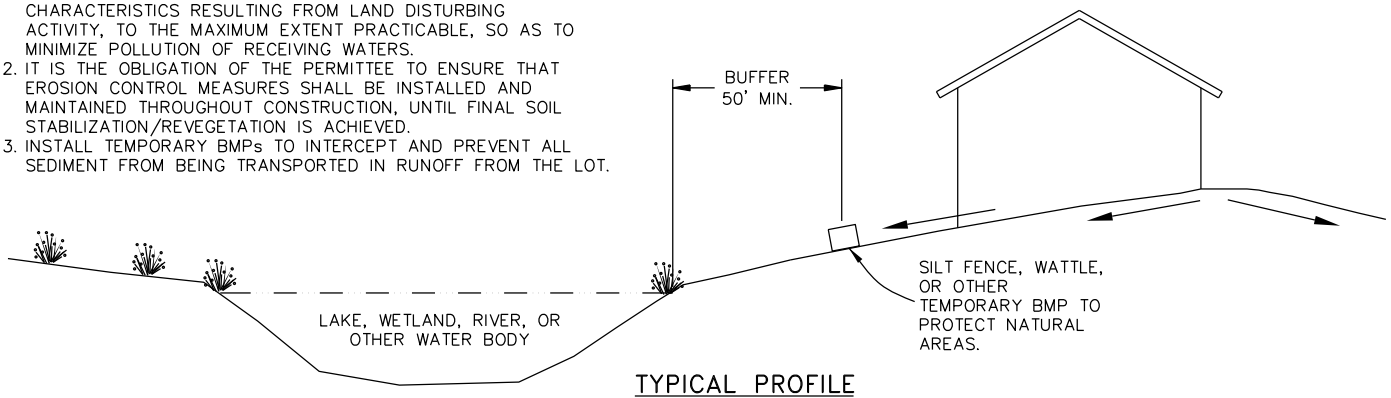
LEGEND

- GUTTER DOWNSPOUTS
- TEMPORARY OR PERMANENT BMP TO PREVENT EROSION
- WATTLE
- SF — SILT FENCE



TYPICAL PLAN VIEW

1. STORMWATER QUALITY BEST MANAGEMENT PRACTICES SHALL BE IMPLEMENTED TO MINIMIZE SOIL EROSION, SEDIMENTATION, INCREASED POLLUTANT LOADS AND CHANGED WATER FLOW CHARACTERISTICS RESULTING FROM LAND DISTURBING ACTIVITY, TO THE MAXIMUM EXTENT PRACTICABLE, SO AS TO MINIMIZE POLLUTION OF RECEIVING WATERS.
2. IT IS THE OBLIGATION OF THE PERMITTEE TO ENSURE THAT EROSION CONTROL MEASURES SHALL BE INSTALLED AND MAINTAINED THROUGHOUT CONSTRUCTION, UNTIL FINAL SOIL STABILIZATION/REVEGETATION IS ACHIEVED.
3. INSTALL TEMPORARY BMPs TO INTERCEPT AND PREVENT ALL SEDIMENT FROM BEING TRANSPORTED IN RUNOFF FROM THE LOT.



TYPICAL PROFILE

4. INSTALLATION AND MAINTENANCE OF TEMPORARY LOT SEDIMENT AND EROSION CONTROL BMPs SHALL COMPLY WITH CHAPTER 13.20 OF THE LOVELAND MUNICIPAL CODE.
5. INSPECTION FREQUENCY: ONCE EVERY FOURTEEN (14) DAYS AND AFTER EVERY SIGNIFICANT STORM EVENT.
6. MAINTENANCE: SEDIMENT AND OTHER MATERIAL SPILLED, DROPPED, OR TRACKED ONTO PUBLIC ROADS SHALL BE REMOVED BY THE END OF EACH WORKING DAY. SEDIMENT SHALL BE REMOVED UPSTREAM OF SILT FENCE AND WATTLES WHEN THEY ARE ½ FULL.
7. A VEHICLE TRACKING CONTROL PAD (VTC) MAY BE REQUIRED BY THE CITY INSPECTOR WHERE TRACKING ONTO PAVED AREAS BECOMES A SIGNIFICANT PROBLEM AS DETERMINED BY THE CITY INSPECTOR IN THEIR SOLE DISCRETION.
8. PORT-O-LETS SHALL BE ANCHORED AT ALL TIMES AND PLACED NO CLOSER THAN 50 FT. TO A STORM DRAIN INLET UNLESS OTHERWISE APPROVED BY THE CITY INSPECTOR.
9. TEMPORARY BMPs SHALL BE UTILIZED TO PREVENT CONCRETE AND OTHER MATERIALS FROM BEING RANDOMLY DISPOSED OF ON-SITE.
10. GOOD HOUSEKEEPING SHALL BE PERFORMED DAILY TO PREVENT CONSTRUCTION MATERIALS FROM BEING DISCHARGED OFF-SITE.
11. DUMPSTERS SHALL BE COVERED AND PLACED NO CLOSER THAN 50 FT. TO A STORM DRAIN INLET UNLESS OTHERWISE APPROVED BY THE CITY INSPECTOR.

RESIDENTIAL LOT STORMWATER MANAGEMENT PLAN (SWMP)

CITY OF LOVELAND PUBLIC WORKS DEPT. STORMWATER	STORMWATER CONSTRUCTION DRAWINGS	APPROVED: KWG DATE: 1/25/12 DRAWN BY: CAC	DRAWING SW-16

BMPs for Initial and Mid-Construction Inspections

Cut back - Cut down lot 2”-4” below back of side-walk or curb.
Benefits - Low cost, can drive over.
Disadvantages - High maintenance as you bust clean all sediment off paved surfaces. Will not work once lot is set to grade.

Trench/Berm - Use mechanical equipment to cut in a trench and then drive over spoils to create a berm.
Benefits - Low cost and easy to maintain.
Disadvantages - Only suitable for back and side of lot away from paved surfaces. Will not work once lot is set to grade and must be removed before final inspection.

Foam Wattles -
Benefits - Reusable, can drive over, easily installed and maintained.
Disadvantages - Cost may be high.

Straw Wattles -
Benefits - Easy to install and does an excellent job keeping sediment on lot if installed correctly. Low cost.
Disadvantages - Cannot be driven over, must be staked in place, can be hard to maintain with trades driving/walking over and smashing.

BMPs for Initial and Mid-Construction Inspections

Silt Fence -
Benefits - Does an excellent job keeping sediment on lot if installed correctly. May be a low cost option compared to other BMPs.
Disadvantages - Cannot be driven over, hard to install correctly, can be hard to maintain with trades driving/walking over, hard to maintain with strong winds.

Vehicle Tracking Controls -
Benefits - Does an excellent job keeping sediment on lot if installed correctly.
Disadvantages - Maybe expensive and hard to find an applicable location on small lots.

BMPs for Final CO Acceptance

Erosion Fabric -
Benefits - Easy to install and does an excellent job keeping sediment on lot, prevents rilling and rutting and looks clean for the new owner.
Disadvantages - Cost.

Landscaped Area-
Benefits - This is the best option as it will fully prevent erosion of sediment.
Disadvantage - It is not always feasible for the builder to complete landscaping before the issuance of C.O.

Rock-
Benefits - Cost, easy to intall.
Disadvantages - May not fully prevent erosion of sediment and therefore maintenance may be more cumbersome.

Wattles -
Benefits - Could reuse materials already onsite and easy to install.
Disadvantages - If not installed properly it can cause more of a mess.