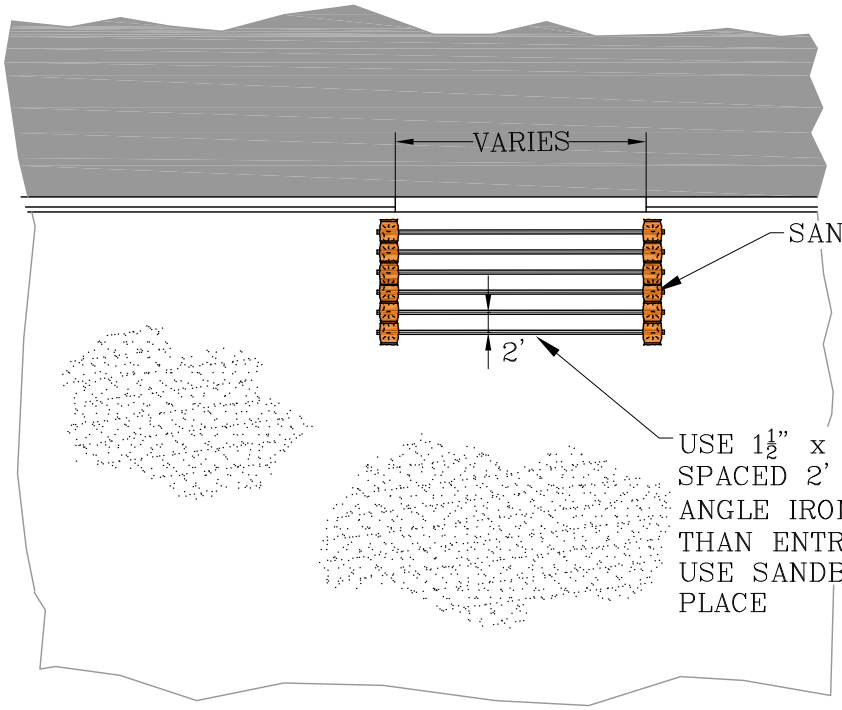
CITY OF ODESSA

ENGINEERING DIVISION

ALTERNATE CONSTRUCTION ENTRANCE FOR PRE-EXISTING PAVED SURFACES



USE $1\frac{1}{2}$" x $\frac{3}{16}$", OR BETTER, ANGLE IRON SPACED 2' APART.

ANGLE IRON MUST BE AT LEAST 4' LONGER THAN ENTRANCE.

USE SANDBAGS TO HOLD ANGLE IRON IN PLACE

DRAWN BY: MSotelo
DATE: OCT., 2015
SCALE: NTS

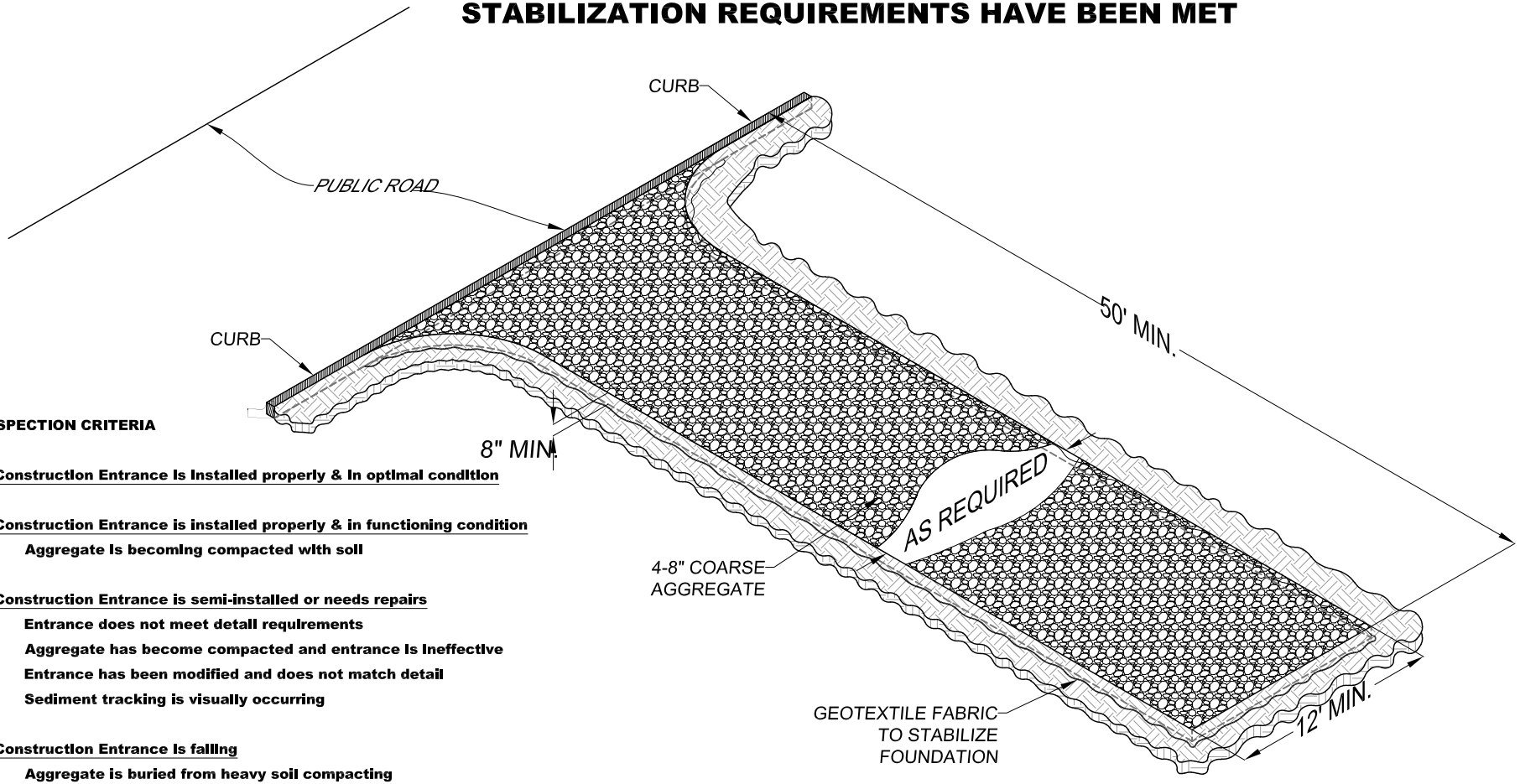
FILE: StormWater 16

ENGINEERING DIVISION

STABILIZED CONSTRUCTION ENTRANCE DETAIL

Minimum Requirements

EROSION CONTROLS MUST REMAIN INSTALLED UNTIL STABILIZATION REQUIREMENTS HAVE BEEN MET



INSPECTION CRITERIA

1-Construction Entrance Is Installed properly & In optimal condition

2-Construction Entrance is installed properly & in functioning condition

- **Aggregate Is becoming compacted with soil**

3-Construction Entrance is semi-installed or needs repairs

- **Entrance does not meet detail requirements**
- **Aggregate has become compacted and entrance Is Ineffective**
- **Entrance has been modified and does not match detail**
- **Sediment tracking is visually occurring**

4-Construction Entrance Is failing

- **Aggregate is buried from heavy soil compacting**
- **Entrance has become totally ineffective**
- **Excessive sediment tracking Is visually occurring**

5-Construction Entrance is not installed or has been removed

- **No construction entrance is installed on site where required and/or on the site map or drawings**
- **Construction Entrance has been removed and not installed at another location on the site**

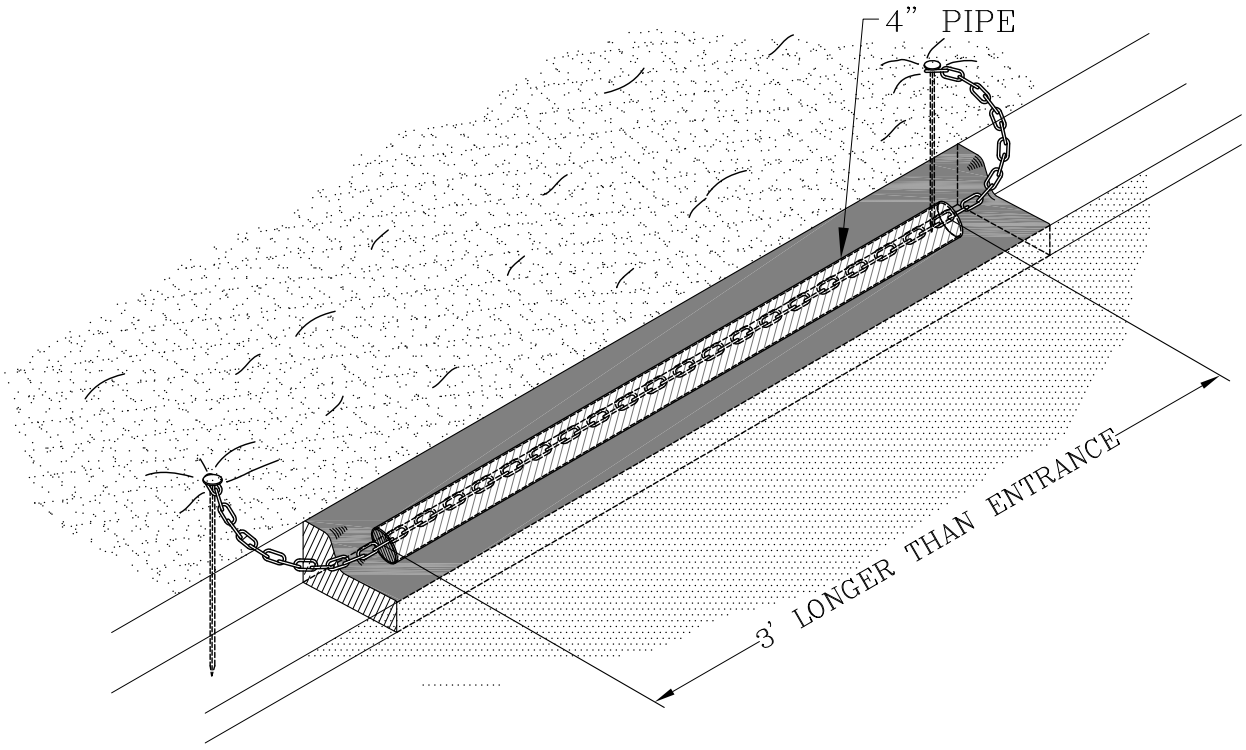
DRAWN BY: JStewart
DATE: Mar. 17, 17
SCALE: N.T.S.

FILE: StormWater2

CITY OF ODESSA

ENGINEERING DIVISION

RECOMMENDED CURB RAMP



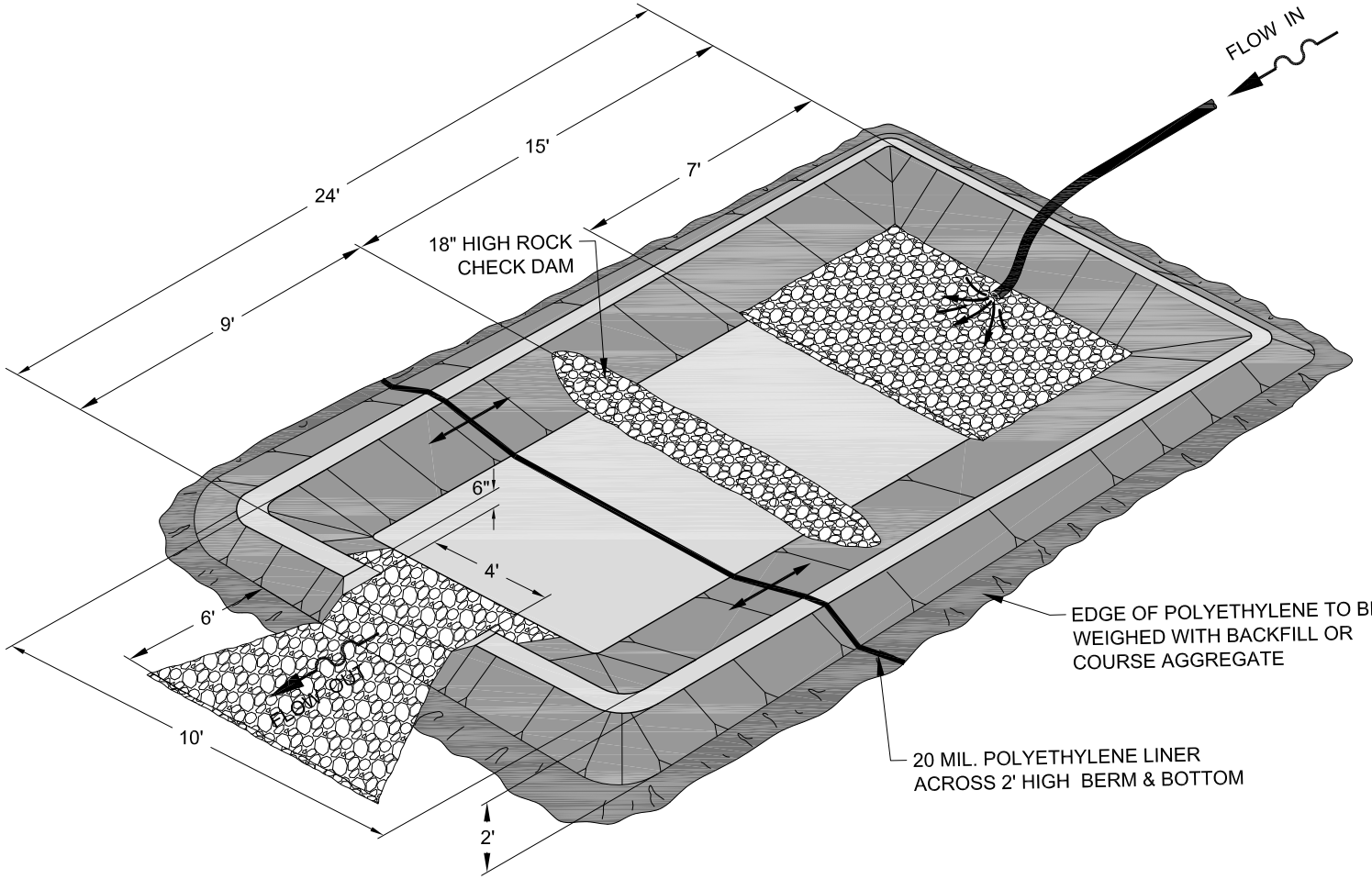
DRAWN BY: MSotelo
DATE: OCT., 2015
SCALE: NTS

FILE: StormWater 15

CITY OF ODESSA

ENGINEERING DIVISION

DE-WATERING SEDIMENT BASIN FOR UP TO 4" PUMP OR 1,000 GPM MAX.



DRAWN BY: MSotelo
DATE: DEC. 2015
SCALE: NTS

FILE : STORMWATER 17

ENGINEERING DIVISION

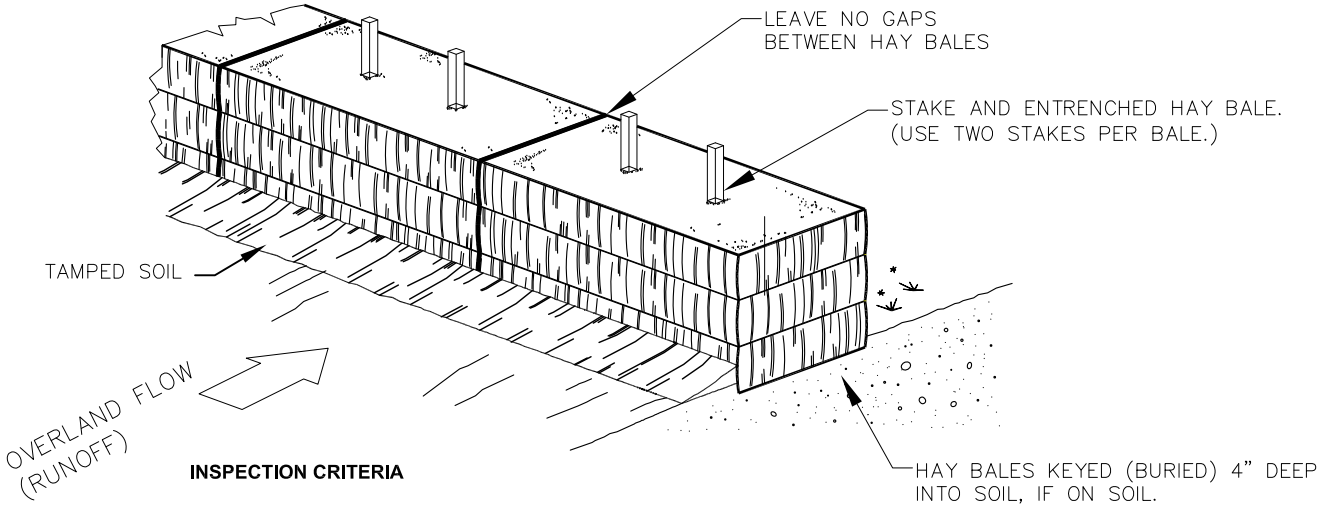
Hay Bale Erosion Control Best Management Practice

NOT TO SCALE

MINIMUM REQUIREMENTS

EROSION CONTROLS MUST REMAIN INSTALLED UNTIL STABILIZATION REQUIREMENTS HAVE BEEN MET

NOTE;
PROBLEMS CAN DEVELOP FROM WATER RUNNING BETWEEN AND UNDER HAY BALES. INSTALL THEM CAREFULLY. LONG- TERM STRUCTURES MUST BE PERIODICALLY CLEANED AND MAINTAINED. WHEN FINISHED, CLEAN AND REMOVE ALL HAY BALES AND HAY BALE REMNENTS FROM THE SITE.



INSPECTION CRITERIA

1- Hay Bales are installed properly and in optimal condition

2- Hay Bales are installed properly and in functioning condition

Hay Bales are visually showing signs of slight fraying

3- Hay Bales are either semi installed and/or needs repair

Hay Bales are either not staked in correctly or tied together with bailing wire

Are breaking away from their position

4- Hay Bales are failing

Hay Bales and any or all components (stakes, bailing wire) are missing

Have been removed and have not been replaced to their proper location

Coming apart to the point of being ineffective

Need to be cleaned of soil & trash build up

Becoming trash from their deteriorating condition

5- Hay Bales are not installed

Hay Bales and any or all of the installation components are not installed at any or all areas of the site where they are required (down sloping areas) and/or on the site map or drawings

DRAWN BY: S ODOM
DATE: Mar. 17, 2017
SCALE: N T S

FILE: StormWater12

CITY OF ODESSA

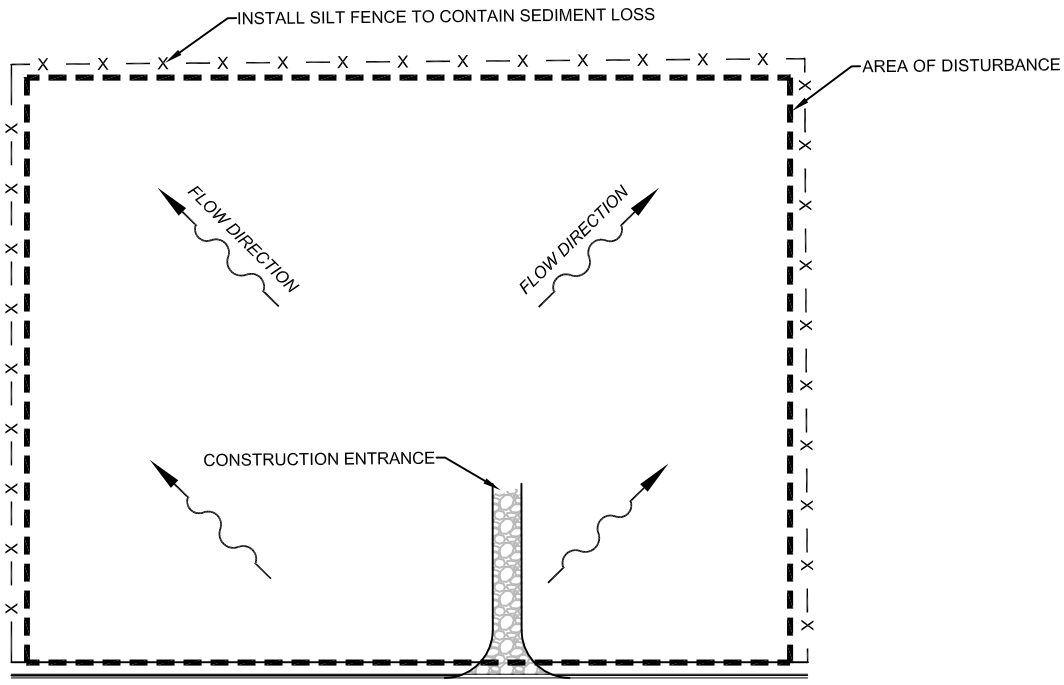
ENGINEERING DIVISION

LARGE CONSTRUCTION SITES

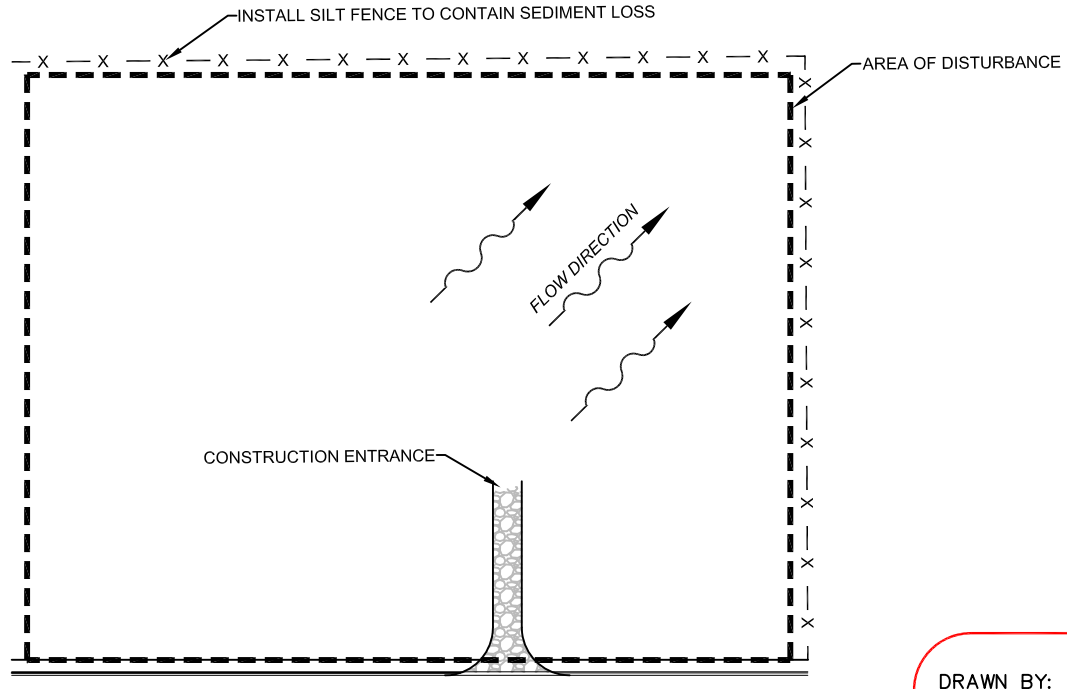
NOT TO SCALE — MINIMUM REQUIREMENTS

PERIMETER CONTROLS:

AT MINIMUM, SILT FENCE SEDIMENT CONTROLS ARE REQUIRED FOR ALL DOWN SLOPE BOUNDARIES OF THE CONSTRUCTION AREA, AND FOR THOSE SIDE SLOPE BOUNDARIES DEEMED APPROPRIATE AS DICTATED BY INDIVIDUAL SITE CONDITIONS.



FUTURE STREET



FUTURE STREET

DRAWN BY: JStewart
DATE: Apr. 10, 2015
SCALE: 1" = 8'-0"

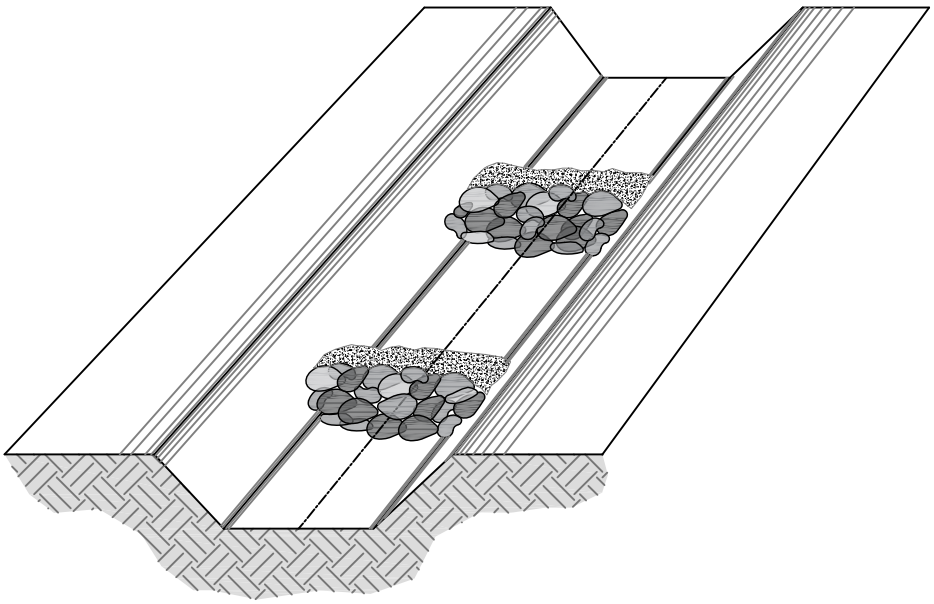
FILE: StormWater11

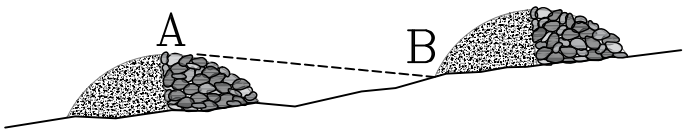
CITY OF ODESSA

ENGINEERING DIVISION

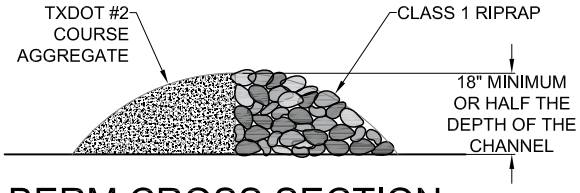
ROCK CHECK DAM

NOT TO SCALE MINIMUM REQUIREMENTS





SPACING OF BERMS



BERM CROSS SECTION

ROCK CHECK DAM NOTES

1. RIPRAP SIZE TO BE DETERMINED BY ENGINEER.
2. CHECK DAMS MAY BE USED IN SLOPING DITCHES OR CHANNELS TO SLOW VELOCITY OR TO CREATE SEDIMENT TRAPS.
3. ENSURE MAXIMUM SPACING BETWEEN DAMS PLACES THE TOE OF THE UPSTREAM DAM AT THE SAME ELEVATION AS THE DOWNSTREAM DAM (SEE DIAGRAM ABOVE).

DRAWN BY: sODOM
DATE: Aud., 18, 2015
SCALE: N T S

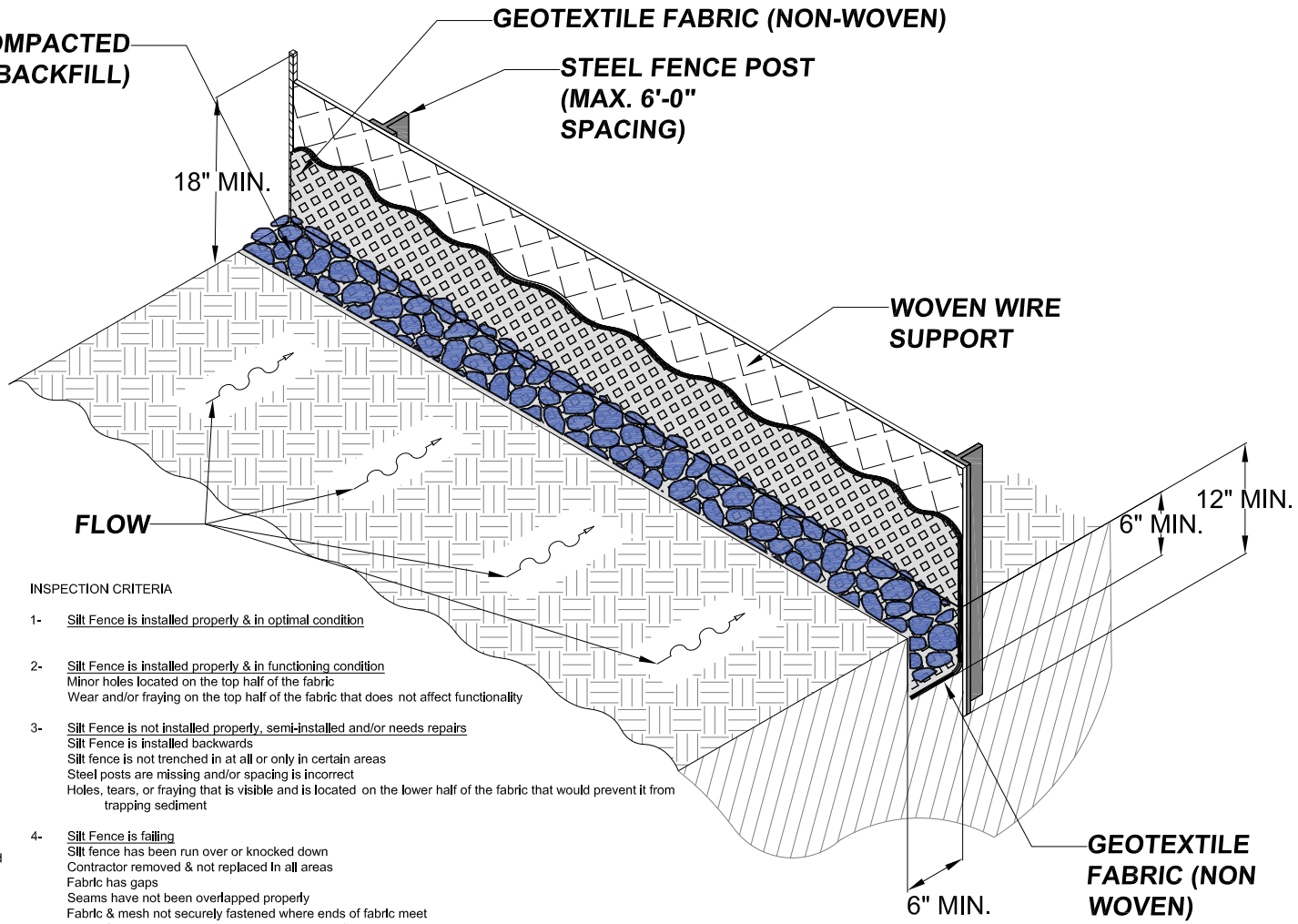
FILE: Stormwater 13

ENGINEERING DIVISION

SILT FENCE DETAIL

Minimum Requirements

EROSION CONTROLS MUST REMAIN INSTALLED UNTIL STABILIZATION REQUIREMENTS HAVE BEEN MET



SILT FENCE:

Description: A silt fence is a barrier consisting of geotextile fabric supported by metal posts to prevent soil and sediment loss from a site. When properly used, silt fences can be highly effective at controlling sediment from disturbed areas. They cause runoff to pond which allows heavier solids to settle. If not properly installed, silt fences are not likely to be effective. The purpose of a silt fence is to intercept and detain water-borne sediment from unprotected areas of a limited extent. Silt fence is used during the period of construction near the perimeter of a disturbed area to intercept sediment while allowing water to percolate through. This fence should remain in place until the disturbed area is permanently stabilized. Silt fence should not be used where there is a concentration of water in a channel or drainage way. If concentrated flow occurs after installation, corrective action must be taken such as placing a rock berm in the areas of concentrated flow. Silt fencing within the site may be temporarily moved during the day to allow construction activity provided it is replaced and properly anchored to the ground at the end of the day. Silt fences on the perimeter of the site or around drainage ways should not be moved at any time.

MATERIALS:

Silt fence material should be polypropylene, polyethylene or polyamide woven or nonwoven fabric. The fabric width should be 36 inches, with a minimum unit weight of 4.5 oz/yd, mullen burst strength exceeding 190 lb/in 2 , ultraviolet stability exceeding 70%, and minimum apparent opening size of U.S. Sieve No. 30.

Fence posts should be made of hot rolled steel, at least 4 feet long with Tee or Y-bar cross section, surface painted or galvanized, minimum nominal weight 1.25 lb/ft 2, and Brindell hardness exceeding 140.

Woven wire backing to support the fabric should be galvanized 2" x 4" welded wire, 12 gauge minimum.

INSTALLATION:

Steel posts, which support the silt fence, should be installed on a slight angle toward the anticipated runoff source. Post must be embedded a minimum of 1 foot deep and spaced not more than 6 feet on center. Where water concentrates, the maximum spacing should be 6 feet.

Lay out fencing down-slope of disturbed area, following the contour as closely as possible. The fence should be sited so that the maximum drainage area is ¼ acre/100 feet of fence.

The toe of the silt fence should be trenched in with a spade or mechanical trencher, so that the down-slope face of the trench is flat and perpendicular to the line of flow. Where fence cannot be trenched in (e.g., pavement or rock outcrop), weight fabric flap with 3 inches of pea gravel on uphill side to prevent flow from seeping under fence.

The trench must be a minimum of 6 inches deep and 6 inches wide to allow for the silt fence fabric to be laid in the ground and backfilled with compacted material.

Silt fence should be securely fastened to each steel support post or to woven wire, which is in turn attached to the steel fence post. There should be a 3-foot overlap, securely fastened where ends of fabric meet.

INSPECTION CRITERIA

1- Silt Fence is installed properly & in optimal condition

2- Silt Fence is installed properly & in functioning condition
Minor holes located on the top half of the fabric
Wear and/or fraying on the top half of the fabric that does not affect functionality

3- Silt Fence is not installed properly, semi-installed and/or needs repairs
Silt Fence is installed backwards
Silt fence is not trenched in at all or only in certain areas
Steel posts are missing and/or spacing is incorrect
Holes, tears, or fraying that is visible and is located on the lower half of the fabric that would prevent it from trapping sediment

4- Silt Fence is failing
Silt fence has been run over or knocked down
Contractor removed & not replaced in all areas
Fabric has gaps
Seams have not been overlapped properly
Fabric & mesh not securely fastened where ends of fabric meet
Fabric fastener is missing, has broken apart and/or not tied to steel post
Fabric and/or all components of silt fence have become ineffective in preventing sediment loss from the site
Dirt is pushed up against the fabric halfway or more

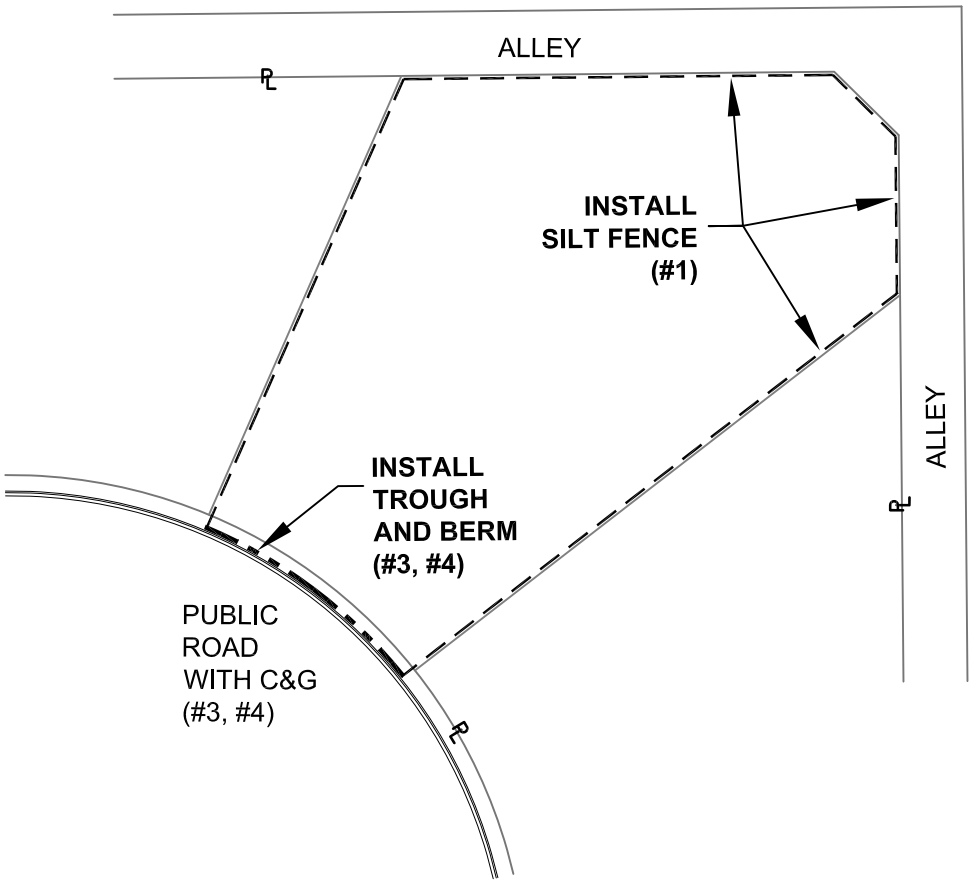
5- Silt Fence Is not Installed or has been removed
No attempt has been made to install silt fence at any or all of the site where it is required(down-sloping areas) and/or on the site map or drawings

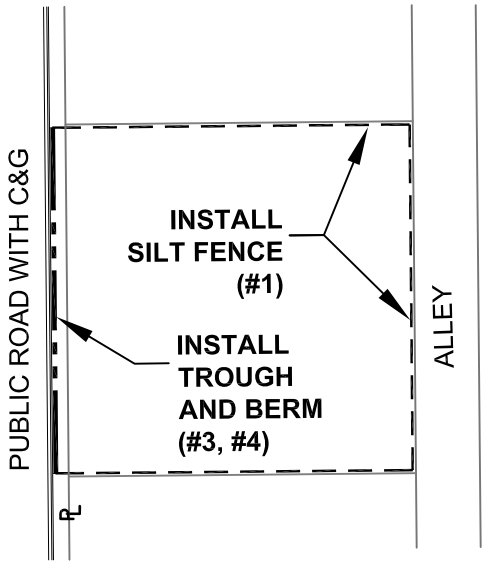
DRAWN BY: JStewart/La
DATE: MAR 17, 2017
SCALE: N.T.S.

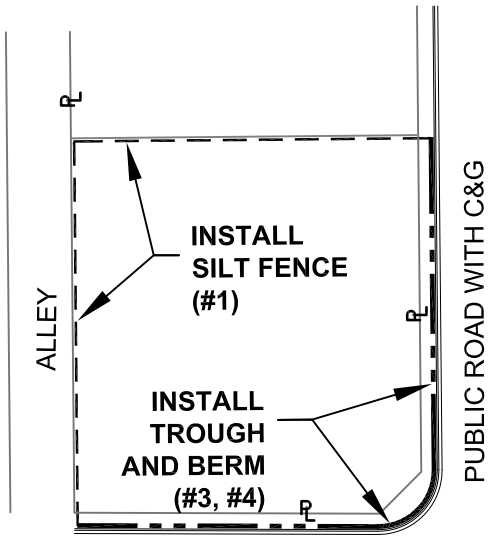
FILE: StormWater1

CITY OF ODESSA

ENGINEERING DIVISION







TROUGH AND BERM
(REF. STORM WATER DETAIL #3 STANDUP C&G)
(REF. STORM WATER DETAIL #4 LAYDOWN C&G)

SILT FENCE
(REF. STORM WATER DETAIL #1)

TROUGH AND BERM & SILT FENCE

USE ON RESIDENTIAL LOTS

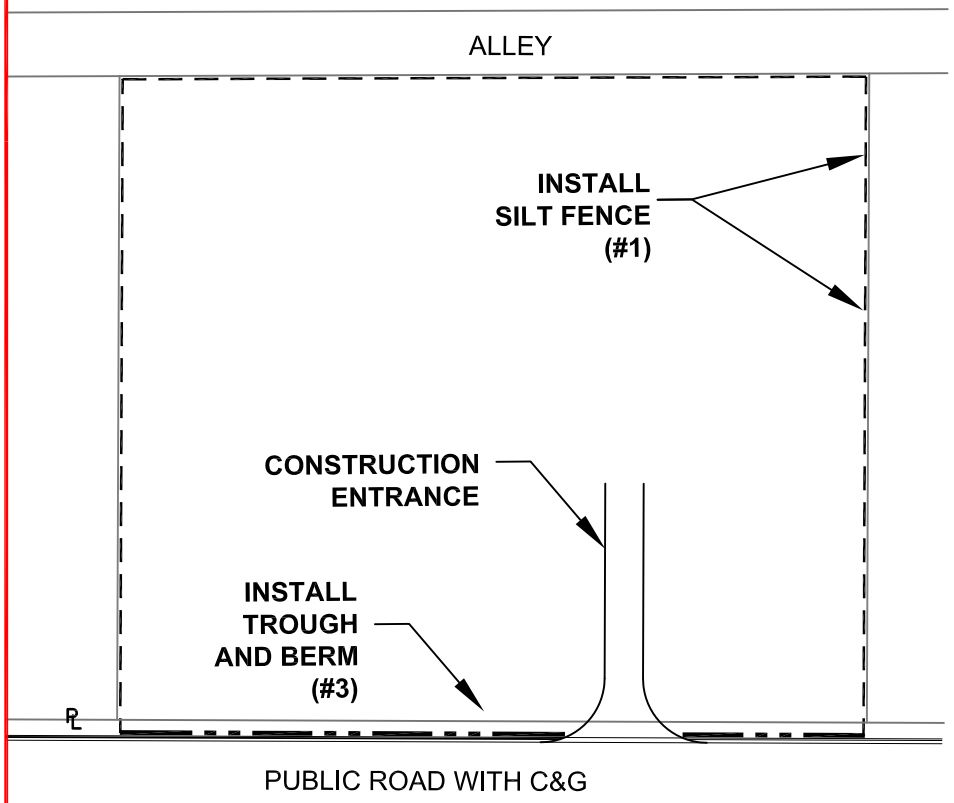
Minumum Requirements

DRAWN BY: S ODOM
DATE: Oct., 2, 2014
SCALE: 1"= 100'

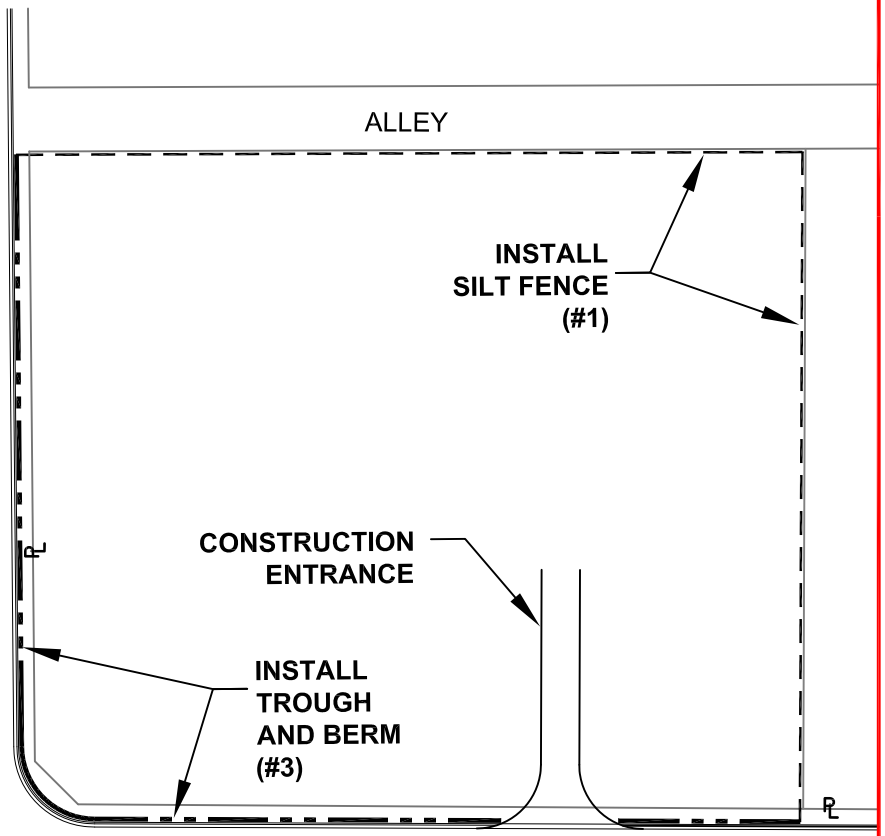
FILE; Storm Water 5

CITY OF ODESSA

ENGINEERING DIVISION



PUBLIC ROAD WITH C&G



PUBLIC ROAD WITH C&G

STABILIZED CONSTRUCTION ENTRANCE DETAIL
(REF. STORM WATER DETAIL #2 CONSTRUCTION ENTRANCE)

TROUGH AND BERM
(REF. STORM WATER DETAIL #3 STANDUP C&G)
(REF. STORM WATER DETAIL #4 LAYDOWN C&G)

SILT FENCE
(REF. STORM WATER DETAIL #1)

TROUGH AND BERM & SILT FENCE

USE ON COMMERCIAL LOTS
WITH CONSTRUCTION ENTRANCE
Minimum Requirements

DRAWN BY: S ODOM
DATE: Oct., 2, 2014
SCALE: 1"= 100'

FILE; StormWater6

The right place in Texas

Odessa

ENGINEERING DIVISION

STORM DRAIN INLET
MINIMUM STANDARDS

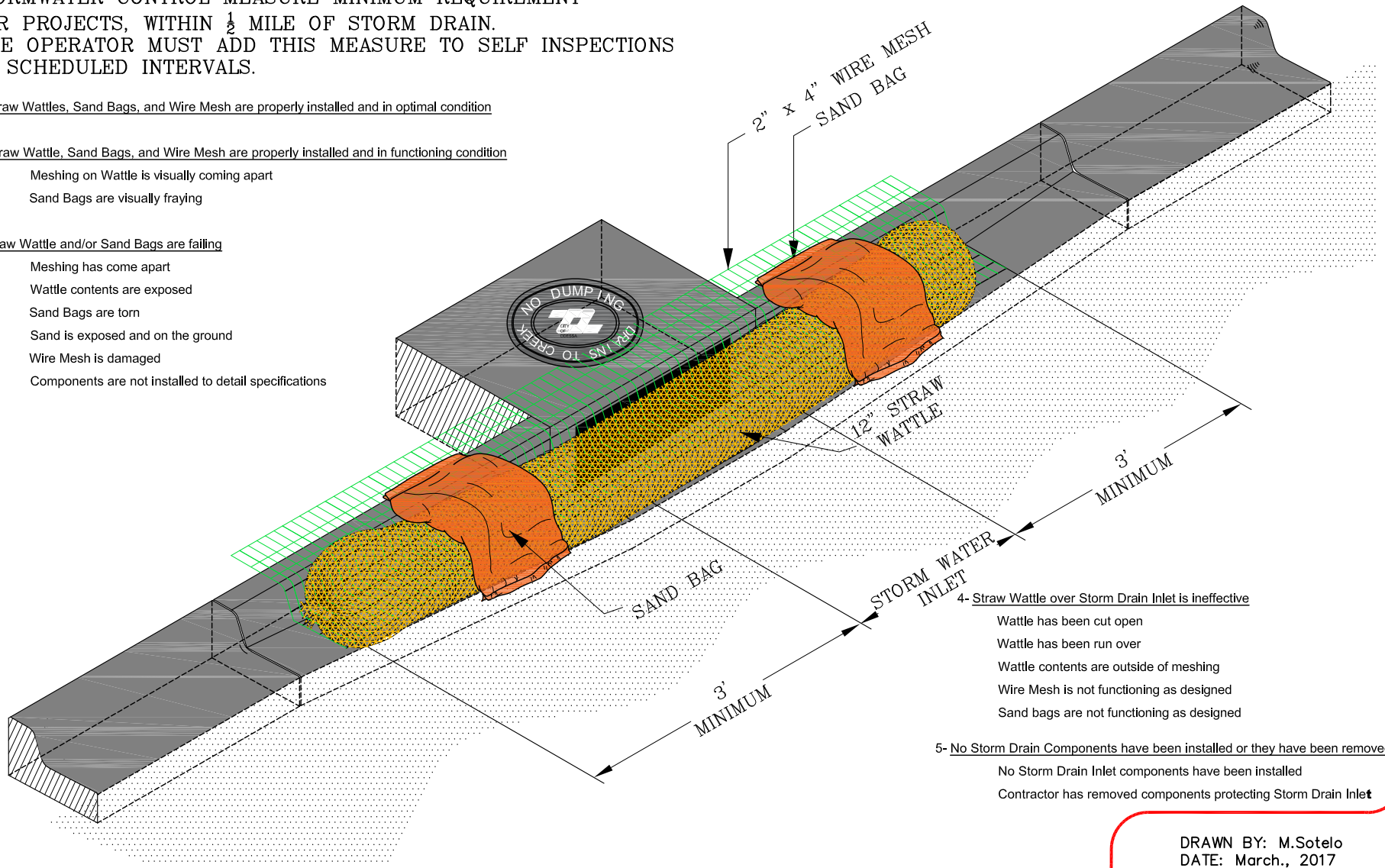
EROSION CONTROLS MUST REMAIN INSTALLED UNTIL STABILIZATION REQUIREMENTS HAVE BEEN MET

STORMWATER CONTROL MEASURE MINIMUM REQUIREMENT
FOR PROJECTS, WITHIN ½ MILE OF STORM DRAIN.
SITE OPERATOR MUST ADD THIS MEASURE TO SELF INSPECTIONS
AT SCHEDULED INTERVALS.

1- Straw Wattles, Sand Bags, and Wire Mesh are properly installed and in optimal condition

2- Straw Wattle, Sand Bags, and Wire Mesh are properly installed and in functioning condition
- Meshing on Wattle is visually coming apart
- Sand Bags are visually fraying

3- Straw Wattle and/or Sand Bags are failing
- Meshing has come apart
- Wattle contents are exposed
- Sand Bags are torn
- Sand is exposed and on the ground
- Wire Mesh is damaged
- Components are not installed to detail specifications



4- Straw Wattle over Storm Drain Inlet is ineffective
- Wattle has been cut open
- Wattle has been run over
- Wattle contents are outside of meshing
- Wire Mesh is not functioning as designed
- Sand bags are not functioning as designed

5- No Storm Drain Components have been installed or they have been removed
- No Storm Drain Inlet components have been installed
- Contractor has removed components protecting Storm Drain Inlet

DRAWN BY: M.Sotelo
DATE: March., 2017
SCALE: NTS

FILE: StormWater 14

The right place in Texas

Odessa

ENGINEERING DIVISION

STRAW WATTLE DETAIL ROADSIDE DITCHES

MINIMUM STANDARDS

EROSION CONTROLS MUST REMAIN INSTALLED UNTIL STABILIZATION REQUIREMENTS HAVE BEEN MET

INSPECTION CRITERIA

1- Wattle is properly installed & in optimal condition

2- Wattle is properly installed & slightly deteriorating

Meshing is visually coming apart and/or deteriorating from weathering

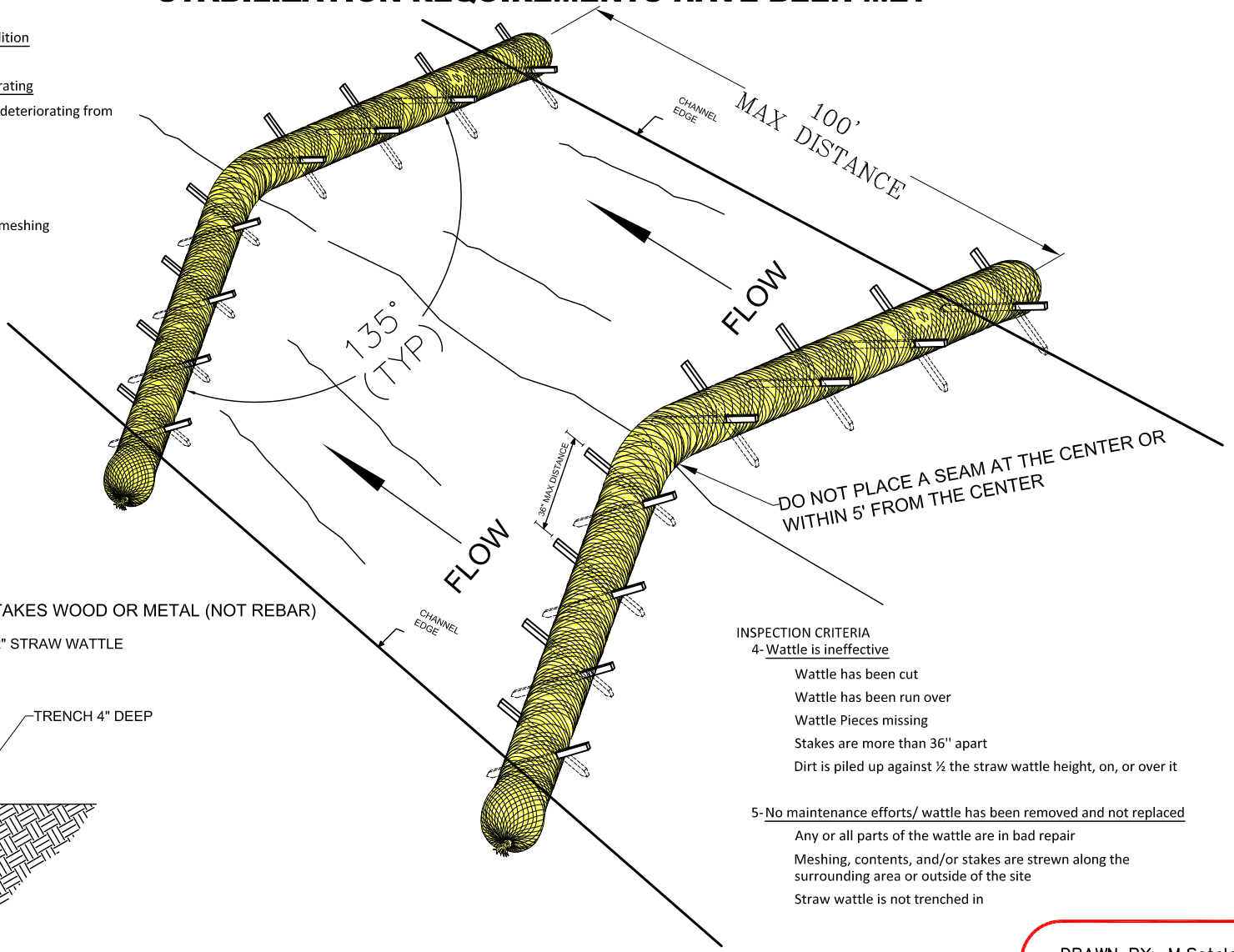
3- Wattle is visually failing

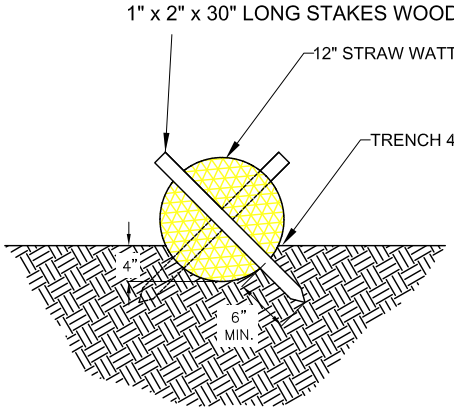
Meshing has come apart

Wattle contents are exposed outside of meshing

Stakes are missing

Straw wattle is not properly installed





END VIEW

INSPECTION CRITERIA

4- Wattle is ineffective

Wattle has been cut

Wattle has been run over

Wattle Pieces missing

Stakes are more than 36'' apart

Dirt is piled up against ½ the straw wattle height, on, or over it

5- No maintenance efforts/ wattle has been removed and not replaced

Any or all parts of the wattle are in bad repair

Meshing, contents, and/or stakes are strewn along the surrounding area or outside of the site

Straw wattle is not trenched in

DRAWN BY: M.Sotelo
DATE: MARCH 15, 2017
SCALE: NTS

FILE: StormWater 19

ENGINEERING DIVISION

STRAW WATTLE PERIMETER CONTROL
MINIMUM STANDARDS
EROSION CONTROLS MUST REMAIN INSTALLED UNTIL STABILIZATION REQUIREMENTS HAVE BEEN MET

INSPECTION CRITERIA

1- Wattle is properly installed & in optimal condition

2- Wattle is properly installed & slightly deteriorating

- Meshing is visually coming apart and/or deteriorating from weathering

3- Wattle is visually failing

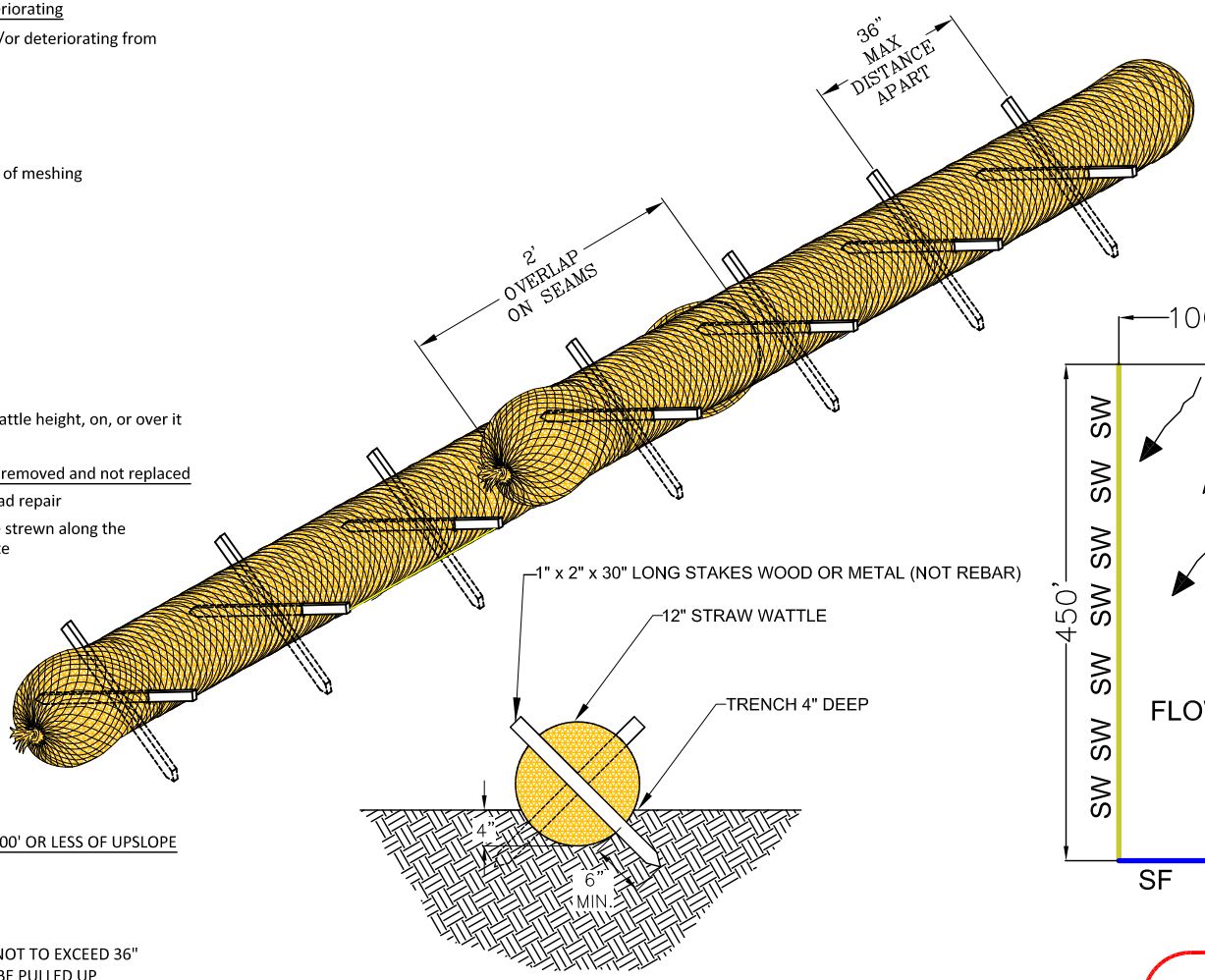
- Meshing has come apart
- Wattle contents are exposed outside of meshing
- Stakes are missing
- Straw wattle is not properly installed

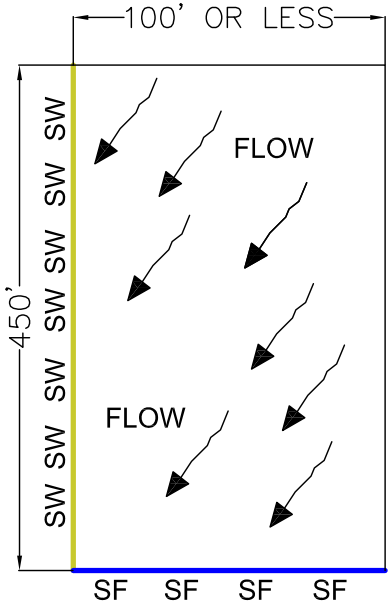
4-Wattle is ineffective

- Wattle has been cut
- Wattle has been run over
- Wattle Pieces missing
- Stakes are more than 36'' apart
- Dirt is piled up against ½ the straw wattle height, on, or over it

5-No maintenance efforts/ wattle has been removed and not replaced

- Any or all parts of the wattle are in bad repair
- Meshing, contents, and/or stakes are strewn along the surrounding area or outside of the site
- Straw wattle is not trenched in





INSTALLATION NOTES:

1. ONLY FOR PROJECTS THAT HAVE 100' OR LESS OF UPSLOPE
2. DIG A 4" DEEP TRENCH
3. LAY WATTLE IN TRENCH
4. STAKE AS PER DETAIL
   - 4.1. DISTANCE BETWEEN STAKES NOT TO EXCEED 36"
   - 4.2. STAKES SHOULD NOT EASILY BE PULLED UP

DRAWN BY: M.Sotelo
DATE: March., 2017
SCALE: NTS

FILE: StormWater 20

TROUGH AND BERM DETAIL

Minimum Requirements

Residential Single Lot Construction Only

EROSION CONTROLS MUST REMAIN INSTALLED UNTIL STABILIZATION REQUIREMENTS HAVE BEEN MET

INSPECTION CRITERIA

1- *Trough and Berm is properly installed & in optimal condition*

2- *Trough and Berm is properly installed & in functioning condition*

Cut curb may need to be recut to match detail drawing

3- *Trough and Berm is semi-installed or needs repair*

Cut curb is not fully installed

Cut curb installed does not match detail drawing

4- *Trough and Berm is failing*

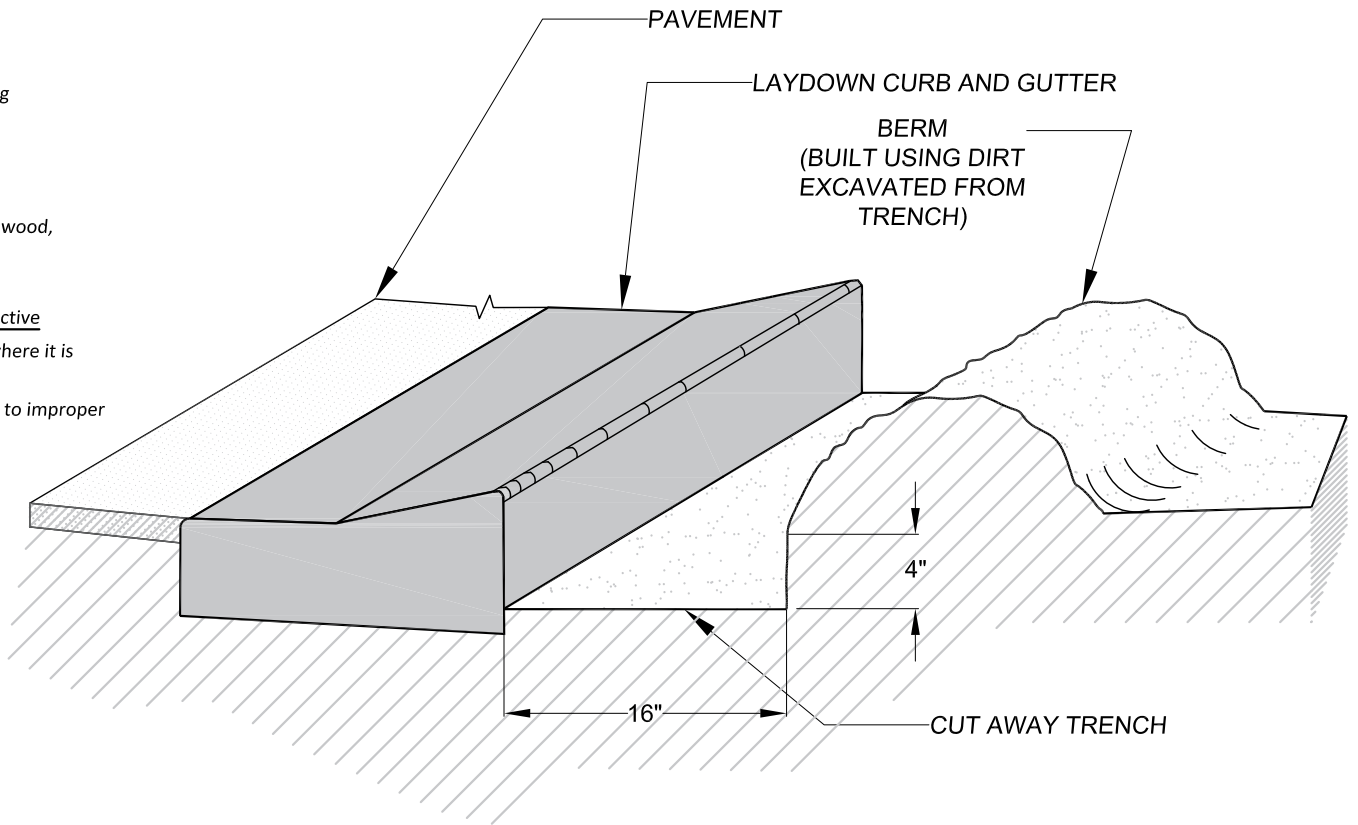
Areas of the cut curb trench is filled with dirt

Areas of the cut curb trench is filled with trash, wood, building materials, etc.

5- *Trough and Berm not installed or has become ineffective*

No attempt has been made to install cut curb where it is required

Cut curb area has been deemed ineffective due to improper or no maintenance



DRAWN: jS, LizA
DATE: Mar. 17, 2017
SCALE: N.T.S.

FILE: StormWater 4

The right place in Texas

Odessa

ENGINEERING DIVISION

TROUGH AND BERM DETAIL

Minimum Requirements

Residential Single Lot Construction Only

EROSION CONTROLS MUST REMAIN INSTALLED UNTIL STABILIZATION REQUIREMENTS HAVE BEEN MET

INSPECTION CRITERIA

1- *Trough and Berm is properly installed & in optimal condition*

2- *Trough and Berm is properly installed & in functioning condition*

Cut curb may need to be recut to match detail drawing

3- *Trough and Berm is semi-installed or needs repair*

Cut curb is not fully installed

Cut curb installed does not match detail drawing

4- *Trough and Berm is failing*

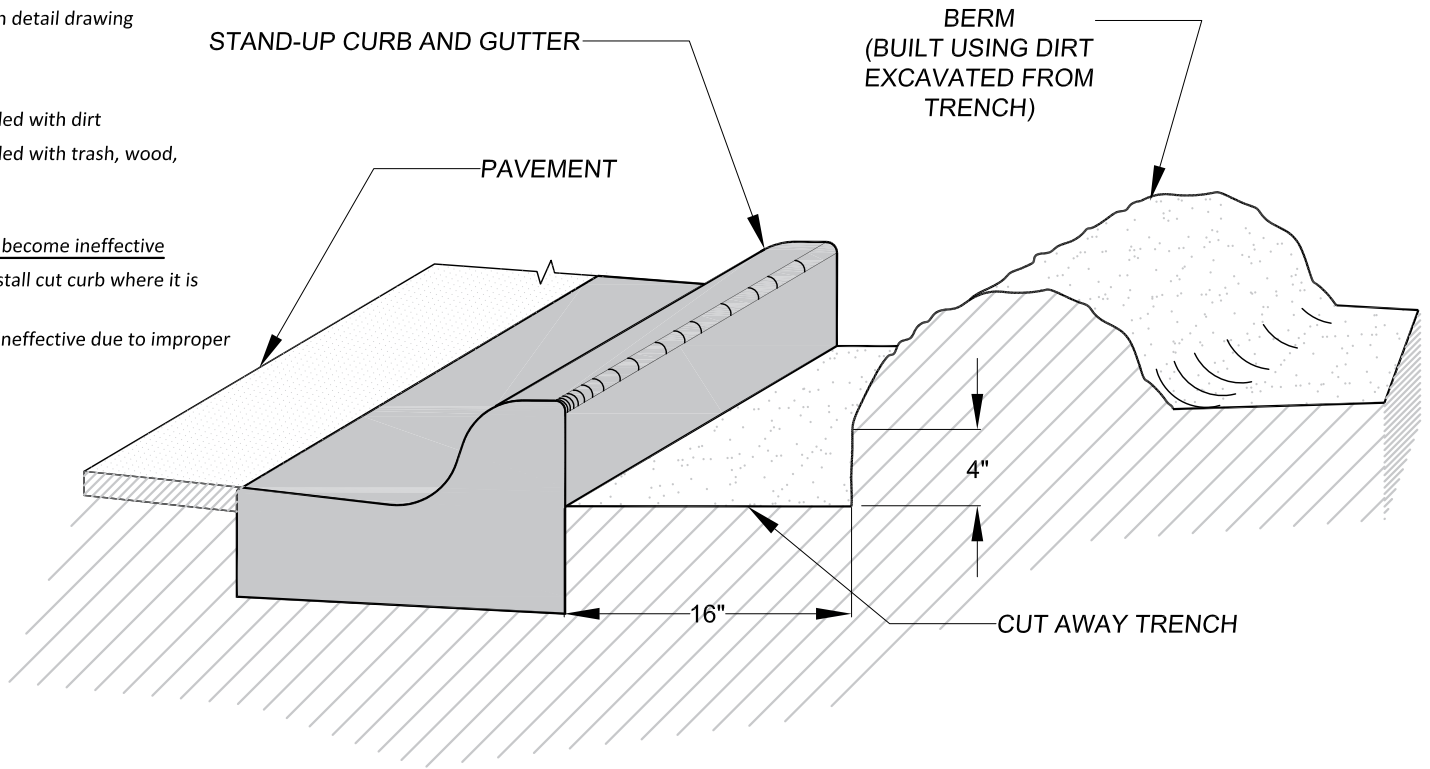
Areas of the cut curb trench is filled with dirt

Areas of the cut curb trench is filled with trash, wood, building materials, etc.

5- *Trough and Berm not installed or has become ineffective*

No attempt has been made to install cut curb where it is required

Cut curb area has been deemed ineffective due to improper or no maintenance



DRAWN BY: JStewart/La
DATE: Mar. 17, 2017
SCALE: N.T.S.

FILE: StormWater3

The right place in Texas

Odessa

ENGINEERING DIVISION

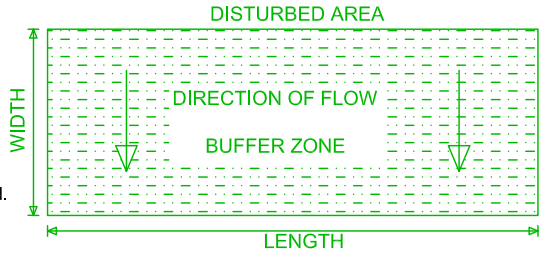
VEGETATIVE BUFFER

MINIMUM STANDARDS

EROSION CONTROLS MUST REMAIN INSTALLED UNTIL STABILIZATION REQUIREMENTS HAVE BEEN MET

Definition
An area of dense vegetation intended to slow runoff and trap sediment. Vegetative Buffers are commonly referred to as filter or buffer strips.

DETAIL 1.1



Purpose
The purpose of this practice is to remove sediment in sheet flow by velocity reduction.

Conditions Where Practice Applies
This practice applies to areas where sediment delivery is in the form of sheet and rill erosion from disturbed areas.

Criteria
This section establishes the minimum standards for design, installation and performance requirements. (see detail 1.1)
The vegetative buffer shall be located along the entire length of the down slope edge of the entire disturbed area for which the practice is being applied.
The vegetative buffer shall be located on the contour.
The width of the vegetative buffer shall have slopes less than 5 %.
The disturbed area draining to the vegetative buffer shall have slopes of 6 % or less.
The vegetative buffer shall have a minimum width of 25 feet. 25 feet is adequate for disturbed areas up to 125 feet upslope from the vegetative buffer. An additional one foot of width shall be added to the buffer for every 5 feet exceeding 125 feet upslope of the disturbed area draining to the vegetative buffer.
To minimize compaction and destruction of the vegetative cover, designate the vegetative buffer as an area of no disturbance. Construction equipment shall be prohibited from the designated area. Vegetative buffers shall be clearly shown on plans and marked in the field.
Vegetative buffers shall be densely vegetated prior to up-slope soil disturbance.

Considerations
Maintaining sheet flow is critical to the function of a vegetative buffer. In some conditions, a level spreader may need to be constructed at the up-slope side of the vegetative buffer to minimize concentrated flow.
Vegetative buffers may require large land areas compared to other erosion control practices.
Trees should not be cut down to establish a vegetative buffer. Other erosion control measures are preferred.

Plans and Specifications
Plans and specifications for vegetative buffers shall be in keeping with this standard and shall describe the requirements for applying the practice to achieve its intended purpose. The plans and specifications shall address the following:
Location of vegetative buffer.
Limits and slopes of disturbed area and any additional contributory drainage area.
Dimensions and slope of vegetative buffer.
All plans, standard detail drawings, or specifications shall include schedule for installation, inspection, and maintenance. The responsible party shall be identified.

Operation and Maintenance
Vegetative buffers shall be inspected for proper distribution of flows, sediment accumulation and signs of rill formation. Vegetative buffers shall at a minimum be inspected weekly and within 24 hours after every precipitation event that produces 0.5 inches of rain or more during a 24-hour period.
If the vegetative buffer becomes silt covered, contains rills, or is otherwise rendered ineffective, other perimeter sediment control measures shall be installed. Eroded areas shall be repaired and stabilized. Repair shall be completed as soon as possible with consideration to site conditions.
A stand of dense vegetation shall be maintained to a height of 3 – 12 inches.
Prior to land disturbance the perimeter of vegetative buffers shall be flagged or fenced to prevent equipment from creating ruts, compacting the soil and to prevent damage to vegetation.

DefInItIons
Dense vegetation: is defined as an existing stand of 3 – 12 inch high grassy vegetation that uniformly covers at least 90 % of a representative 1 square yard plot. Woody vegetation shall not be counted for the 90% coverage. No more than 10% of the overall buffer can be comprised of woody vegetation.
Level Spreader: Level spreaders disperse flows over a wide area, dissipating the energy of the runoff and creating sheet flow. Common types of level spreaders are weirs and stone trenches.
Sheetflow: Sheet flow is over plane surfaces, where runoff water flows in a thin uniform sheet across the land before it collects in a concentrated flow.
Sheet and Rill Erosion: Sheet and rill erosion is the removal of soil by the action of rainfall and shallow overland runoff. It is the first stage in water erosion. As flow becomes more concentrated rills occur. As soil detachment continues or flow increases, rills will become wider and deeper.
Width: Is measured in the direction of flow.

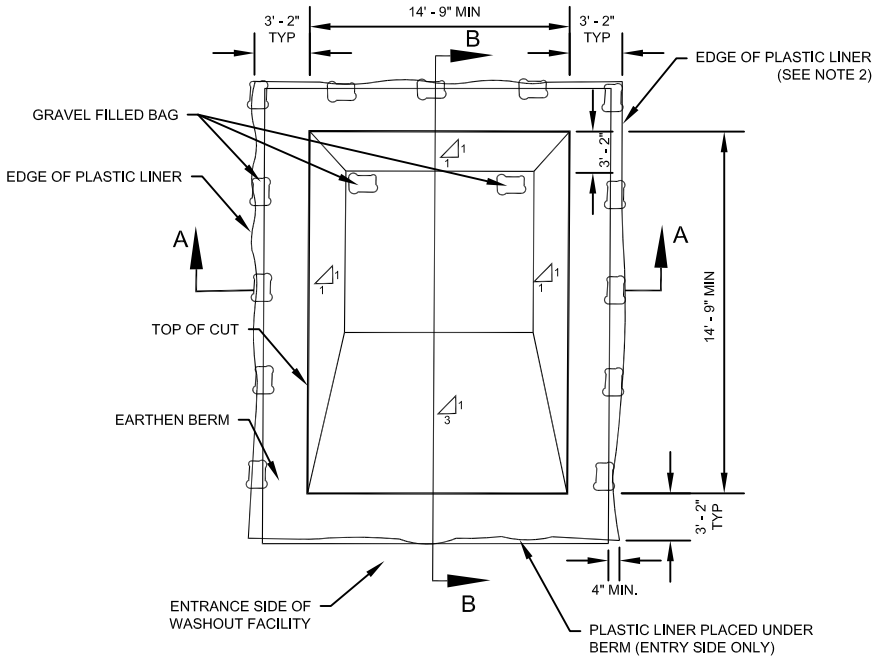
DRAWN BY: JFarnsworth
DATE: MAR 17, 2017
SCALE: N.T.S.

FILE: StormWater18

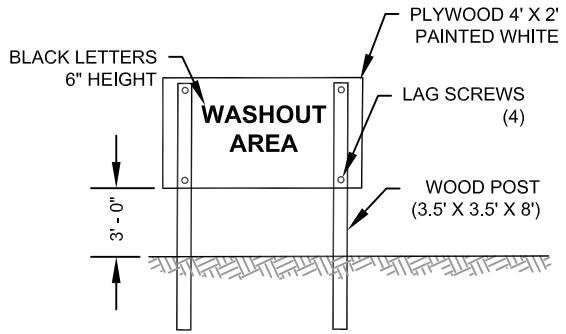
ENGINEERING DIVISION

LARGE CONSTRUCTION SITE WASHOUT CONTROL

NOT TO SCALE *MINIMUM REQUIREMENTS*



WASHOUT FACILITY - PLAN



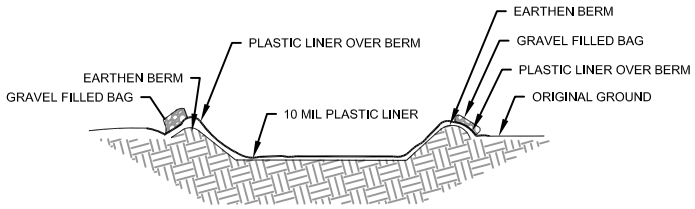
WASHOUT SIGN DETAIL

WASHOUT NOTES:

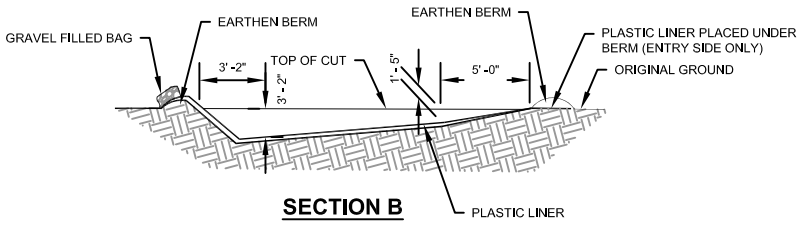
WASHOUTS CONSIST OF:

- ***-CONCRETE***
- ***-STUCCO***
- ***-PAINT***
- ***-FORM RELEASE***
- ***-CURING COMPOUNDS***
- ***-OTHER CONSTRUCTION MATERIALS***

1. *THE WASHOUT SIGN SHALL BE INSTALLED WITHIN 10' OF THE TEMPORARY WASHOUT FACILITY.*
2. *PLASTIC LINER SHALL BE ANCHORED WITH GRAVEL - FILLED BAGS.*
3. *PLASTIC LINER SHALL BE 10 MIL THICKNESS MINIMUM.*



SECTION A



SECTION B

WASHOUT FACILITY DETAILS

NOT TO SCALE *MINIMUM REQUIREMENTS*

WASHOUT FACILITY DETAILS

NOT TO SCALE *MINIMUM REQUIREMENTS*

DRAWN BY: JStewart
DATE: Nov. 09, 2016
SCALE: N.T.S.

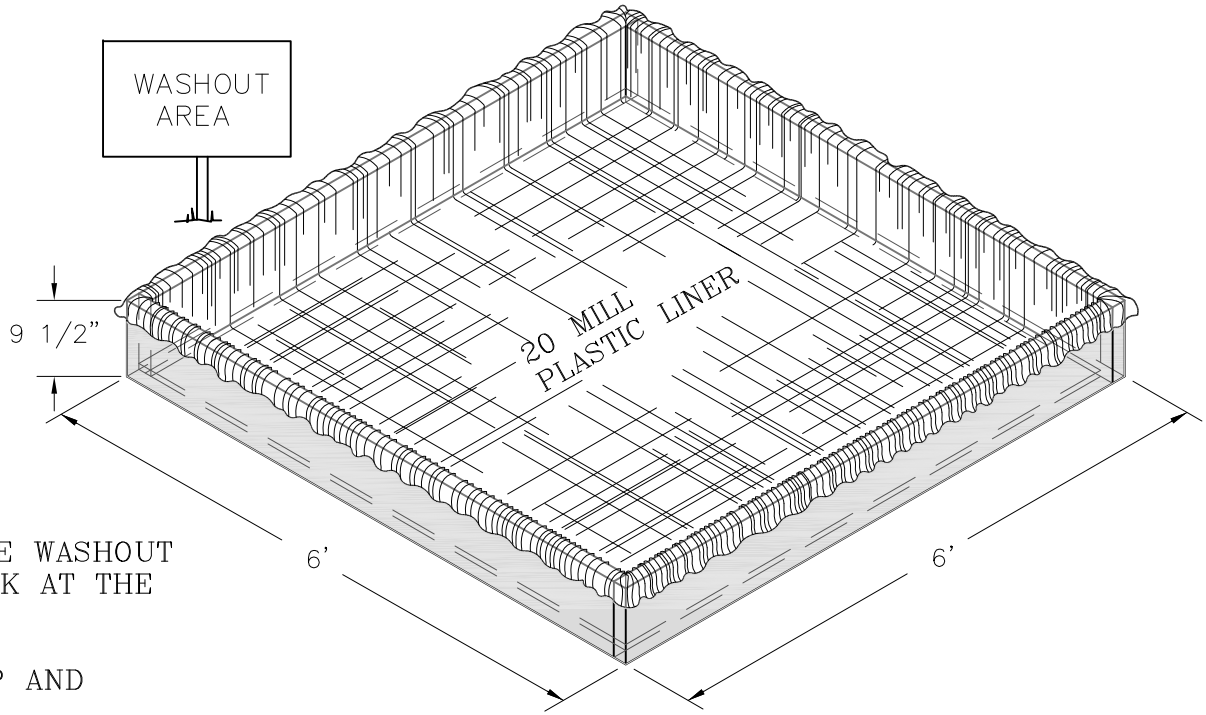
FILE: StormWater7

The right place in Texas™
Odessa
ENGINEERING DIVISION

RECOMMENDED WASHOUT DETAIL
(FOR SMALL CONSTRUCTION SITES)

WASHOUTS CONSIST OF:

-CONCRETE
-STUCCO
-PAINT
-FORM RELEASE
-CURING COMPOUNDS
-OTHER CONSTRUCTION MATERIALS



NOTES:

1. LINE BOX WITH 20 MILL PLASTIC
2. INSTRUCT TRUCK OPERATOR TO USE WASHOUT BOX WHEN WASHING OUT HIS TRUCK AT THE END OF A POUR.
3. ONCE SLURRY HAS DRIED, FOLD UP AND DISPOSE OF PLASTIC LINER.
4. REPLACE PLASTIC LINER IF NOT DONE WITH POURING CONCRETE ON SITE.

DRAWN BY: JSTEWART
DATE: Nov. 9, 2016
SCALE: N.T.S.

STORM WATER HANDOUT-1