

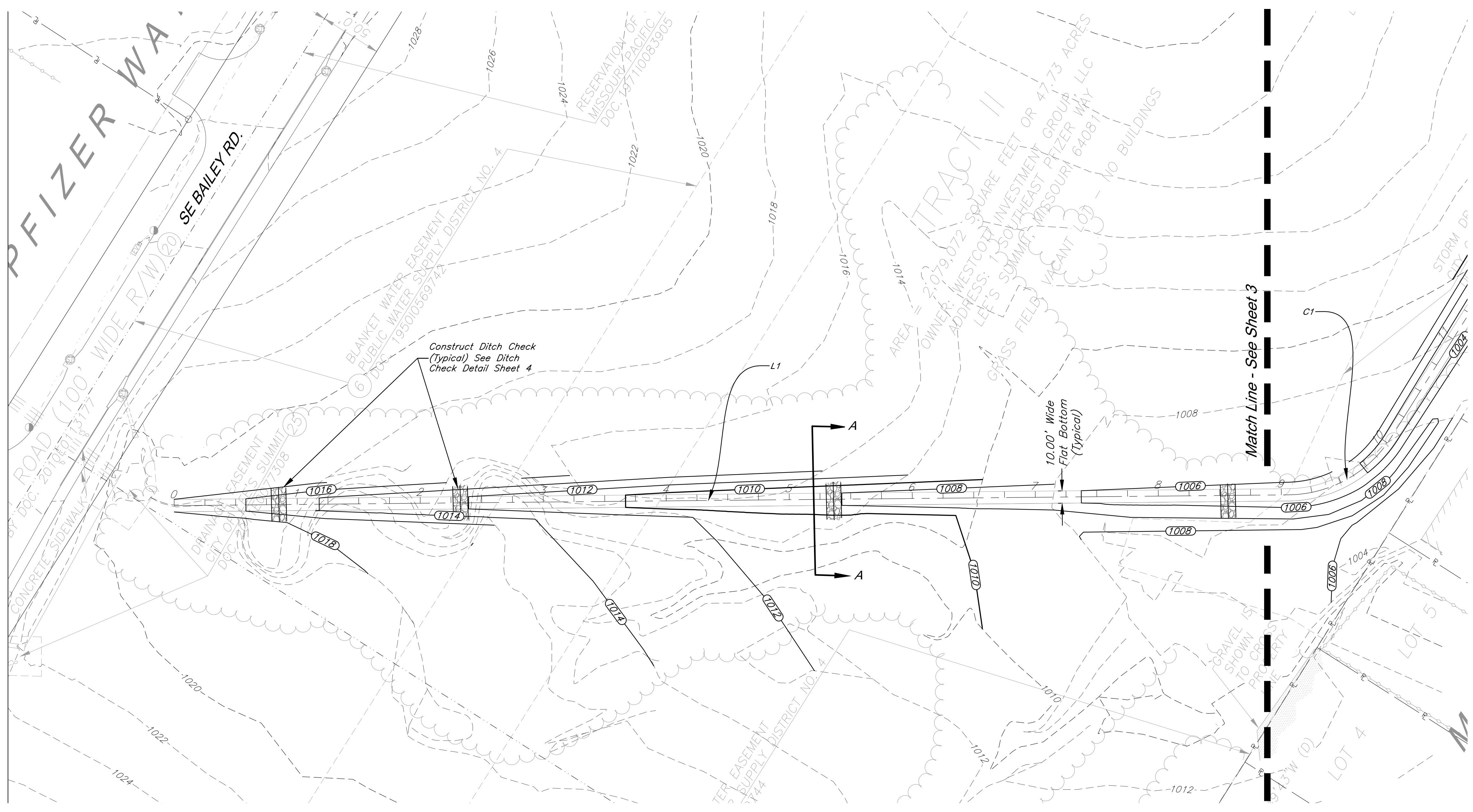
C:\13958.01\Civil 3D\Production Drawings\Exhibits\Swale Grading Exhibit\13958.0102720.dwg Layout - 2 GRADING PLAN -- Thursday, October 05, 2023, 11:41am -- Copyright 2023, George Butler Associates, Inc.

GBA

9801 Renner Blvd., Ste. 300
Lenexa, KS 66219
913.492.0400
gbateam.com

DATE:	11-17-2023
DESIGN BY:	CEL
DRAWN BY:	BIB
PROJECT NO.:	13958.01
SHEET NO.:	2
TOTAL SHEETS:	6

Clint Loumaster Professional Engineer License No. 2011009651		Mass Grading Plans LS Industrial, LLC Lee's Summit, Missouri	
NO.	DATE	REVISIONS	BY APPROVED



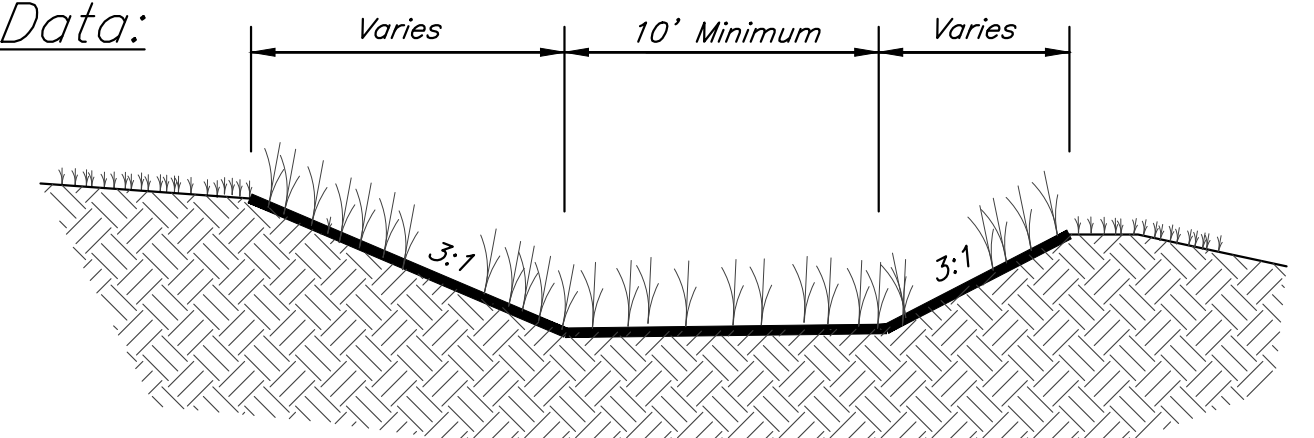
LEGEND

- Proposed Contour Major
- Proposed Contour Minor
- Existing Contour Major
- Existing Contour Minor
- Flow Arrow
- Match Line

Swale A

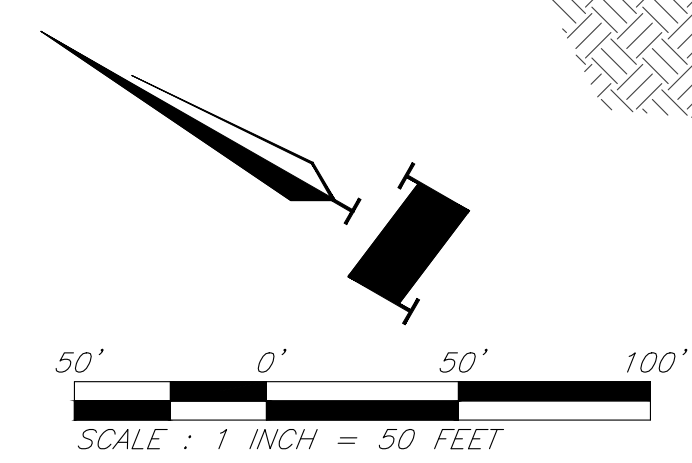
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L1		905.63	S30°33'17"E	N 993703.6332 E 2824921.3087
C1	100.00	99.96	S59°11'28"E	N 992923.7548 E 2825381.6962
L2		610.04	S87°49'40"E	N 992874.6627 E 2825464.0202

Bioswale Data:
Q100 Depth: 4.5'

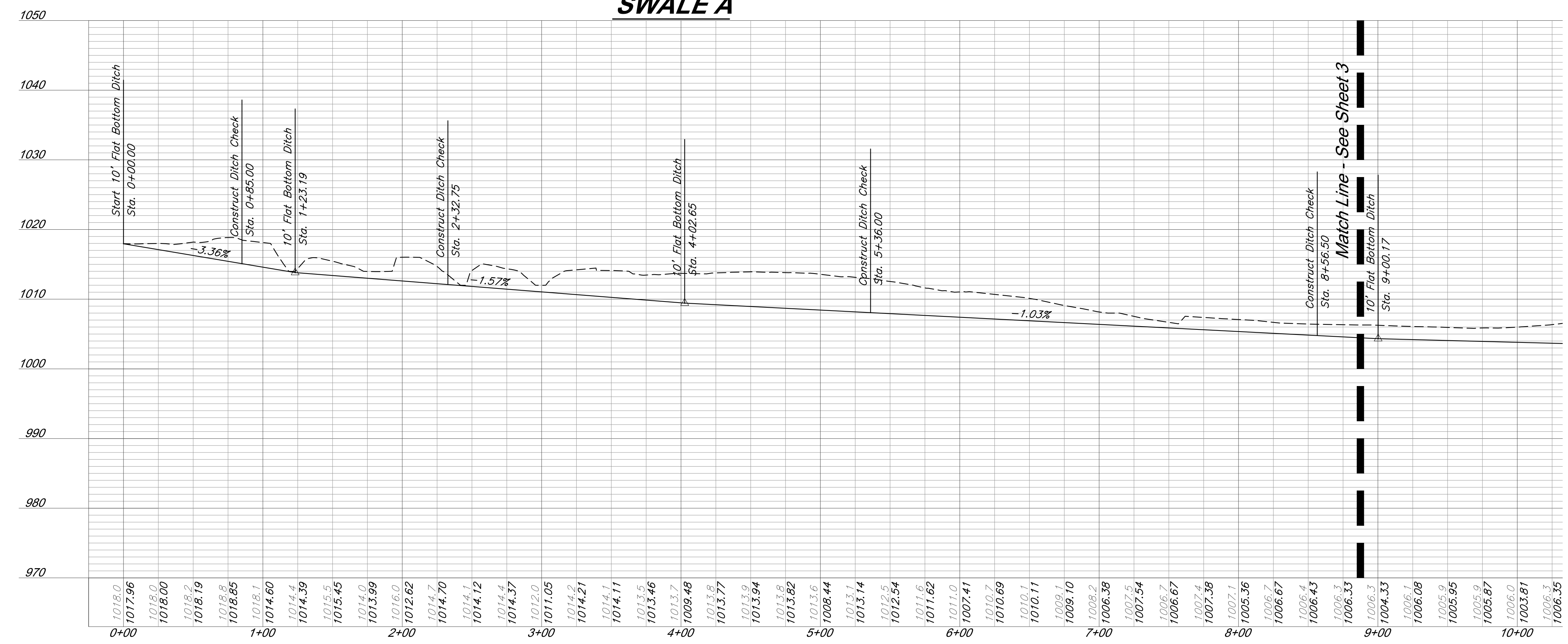


10' Flat Bottom Ditch

SECTION A-A
Not To Scale



SWALE A

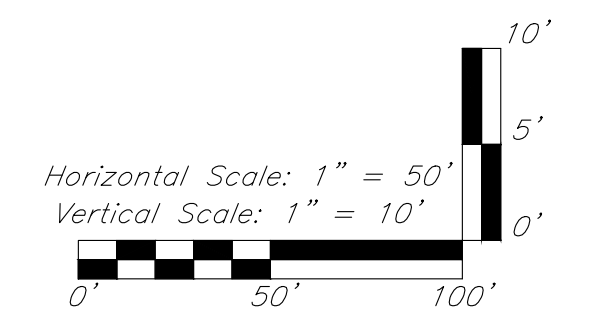


CAUTION!
Numerous Utilities on site. Contractor to verify location and elevation of all utilities prior to commencing construction.



**Know what's below.
Call before you dig.**

Grading Plan



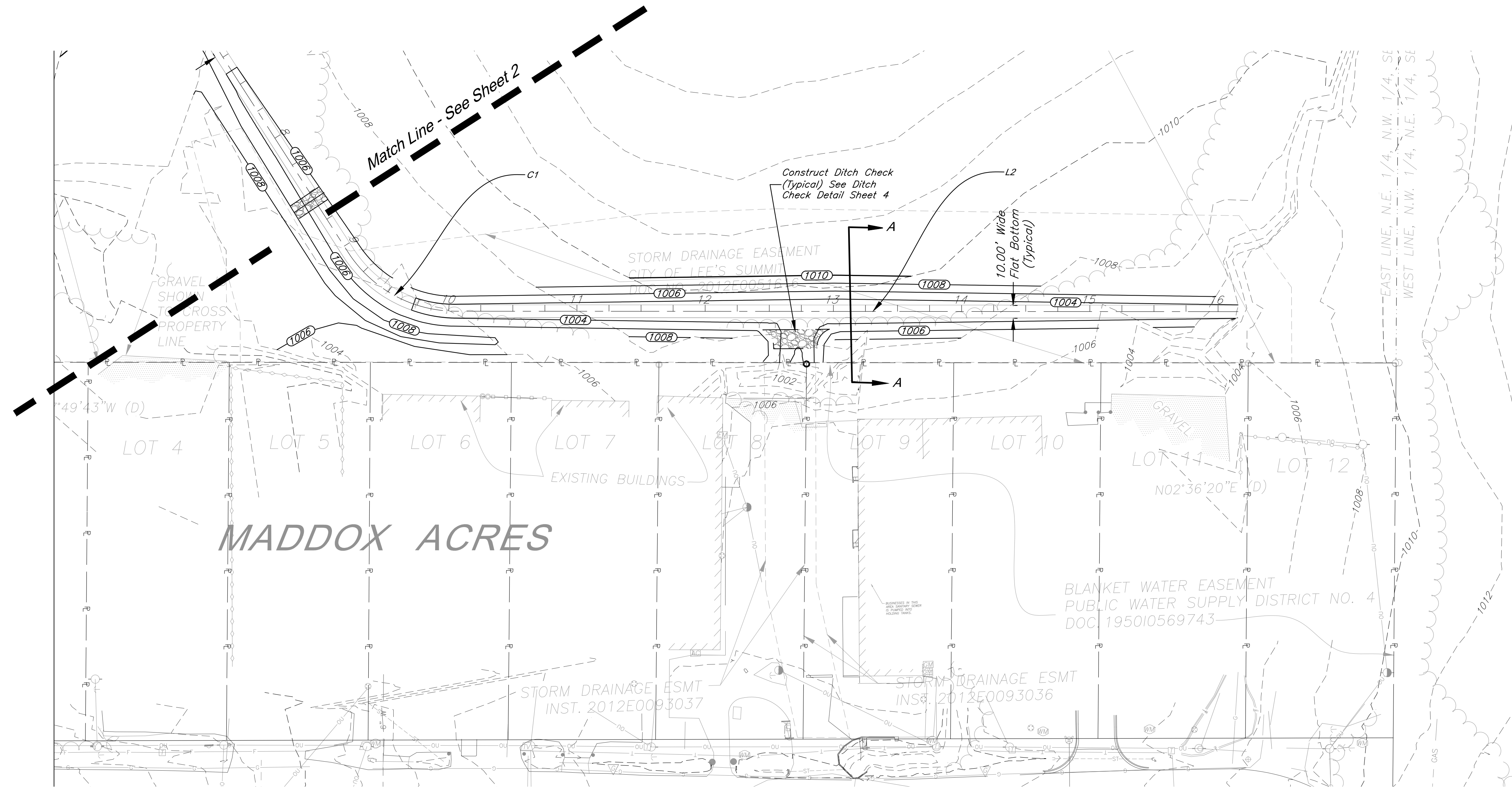
C:\13958.01\Civil 3D\Production Drawings\Exhibits\Swale Grading Exhibits\13958.01\02720.dwg Layout: 3 GRADING PLAN -- Thursday, October 05, 2023, 11:41am -- Copyright 2023, George Buder Associates, Inc.

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PROJECT NO.:	13958.01
SHEET NO.:	3
TOTAL SHEETS:	6

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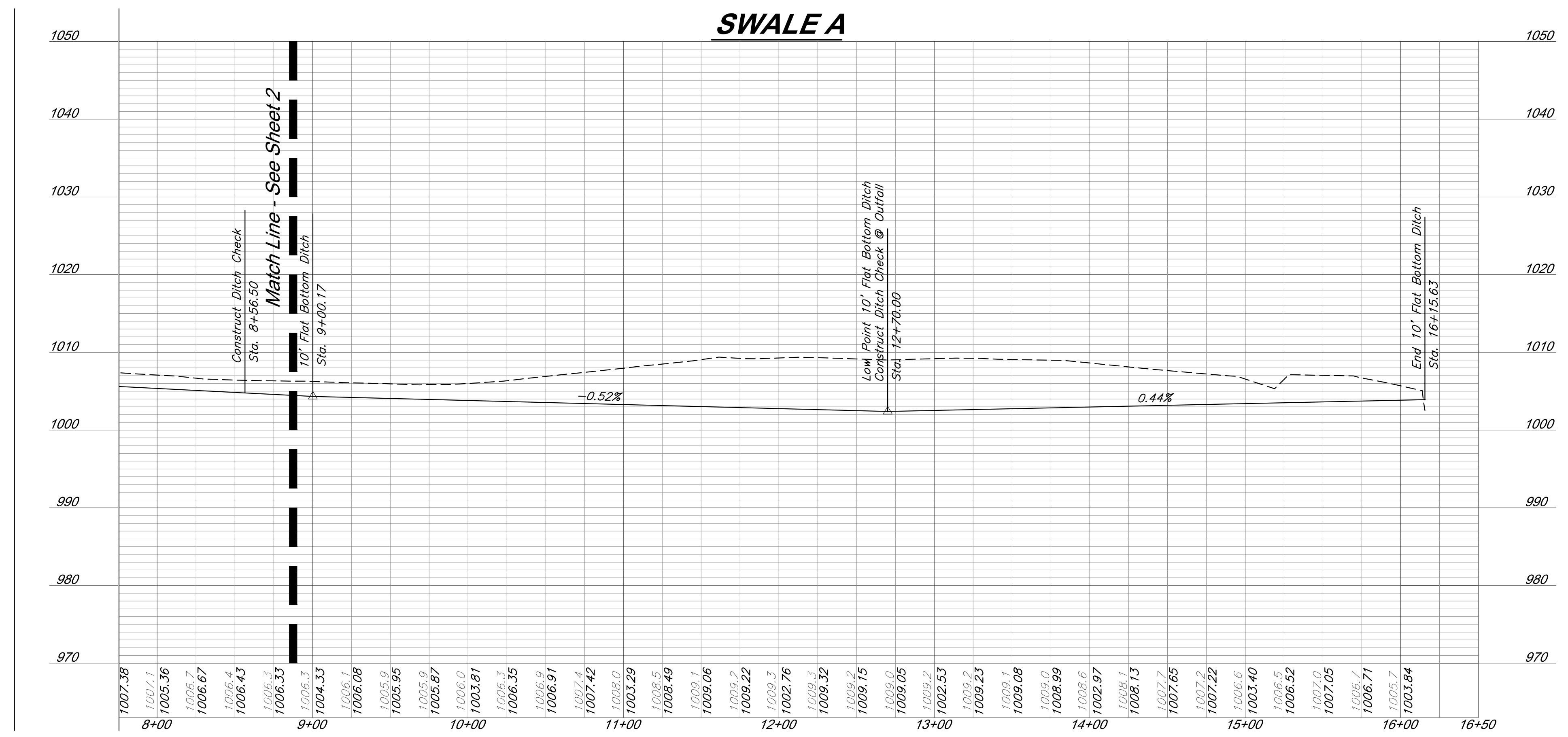
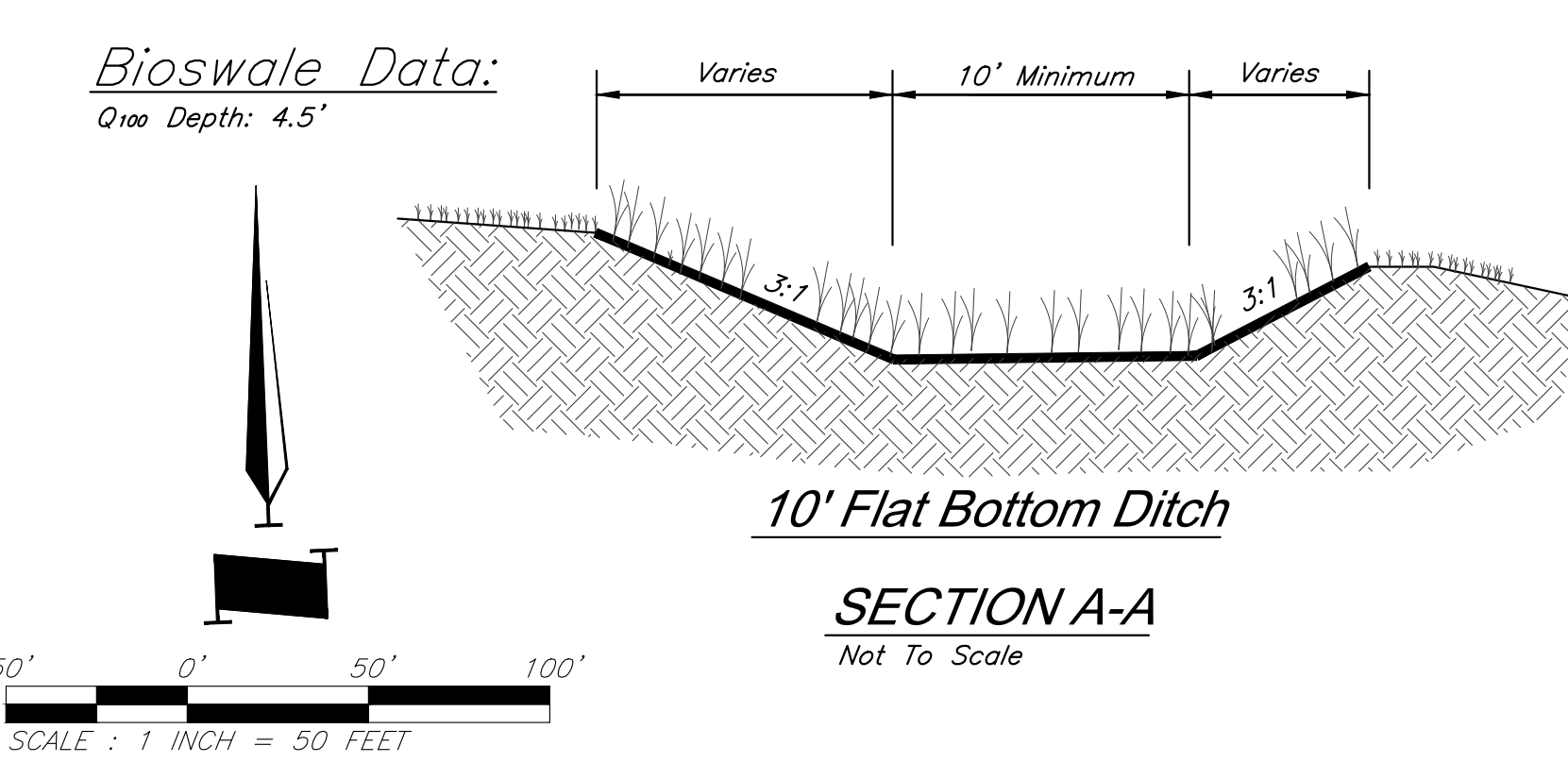


LEGEND

- Proposed Contour Major
- Proposed Contour Minor
- Existing Contour Major
- Existing Contour Minor
- Flow Arrow
- Match Line

Swale A

Number	Radius	Length	Line/Chord Direction	Northing/Easting
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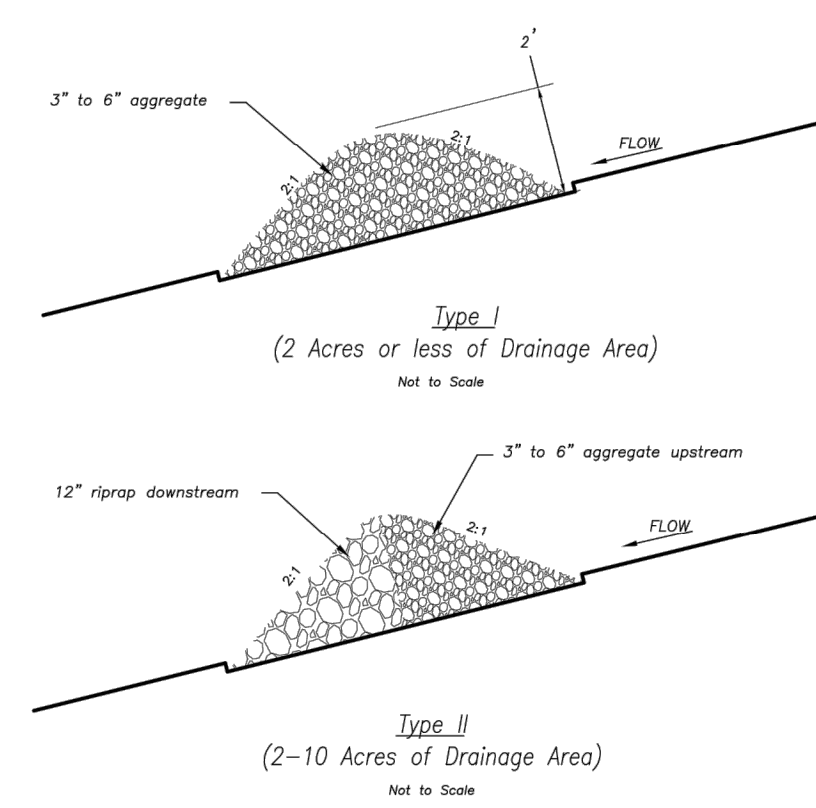
CAUTION!
Numerous Utilities on site. Contractor to verify location and elevation of all utilities prior to commencing construction.



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Grading Plan

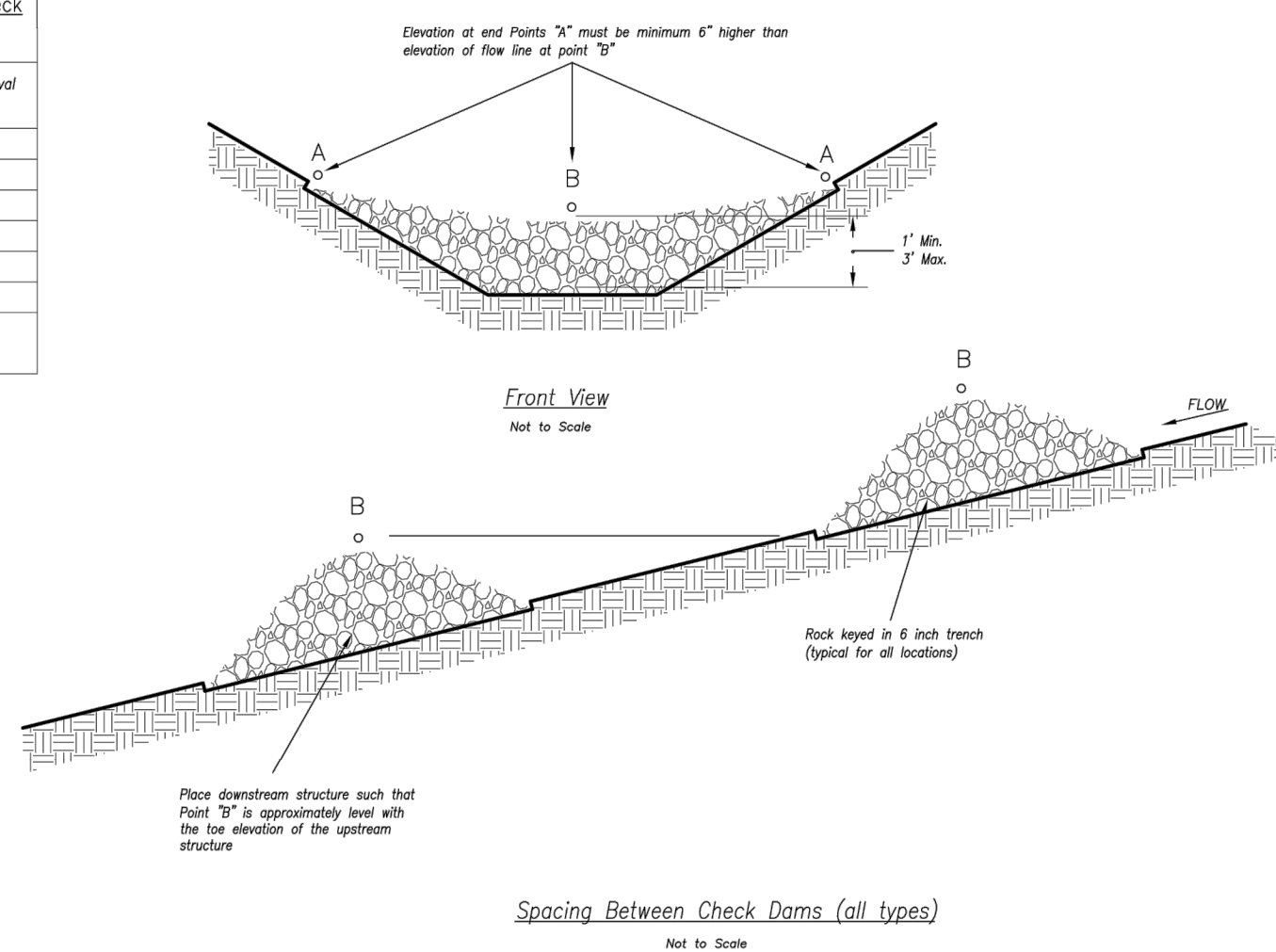
NO.	DATE	REVISIONS	BY	APPROVED



Temporary Rock Ditch Check Spacing

Ditch Centerline Slope (X)	Spacing Interval (Feet)
5.0	60
6.0	50
7.0	43
8.0	36
9.0	33
10.0	29

Note: Use this spacing only for Rock Ditch Checks.



Notes:

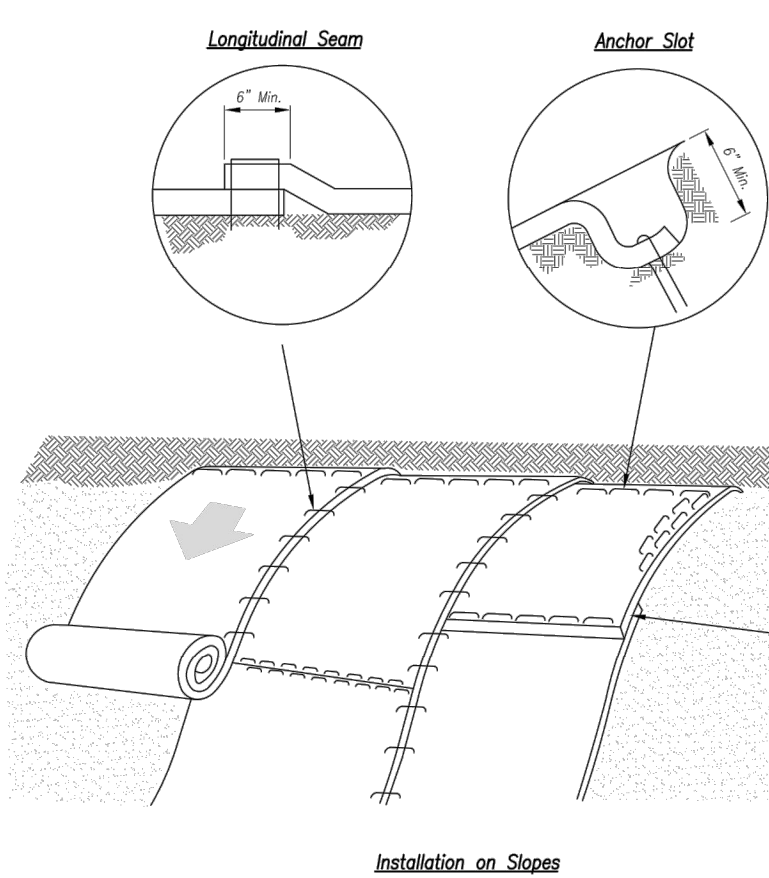
- Rock check dams shall be used only for drainage areas less than 10 acres unless approved by the City Engineer.
- The rock checks only in situations where the ditch slope exceeds 6E.

Maintenance:

- Remove and dispose of sediment deposits when the deposit approaches 1/2 the height of the ditch check.
- Replace and reshape as necessary to maintain function and integrity of installation.

AMERICAN PUBLIC WORKS ASSOCIATION
APWA
KANSAS CITY METRO CHAPTER
STANDARD DRAWING NUMBER ESC-10
ADOPTED: 10/24/2016
ROCK DITCH CHECKS

Modified from 2015 Overland Park Standard Details for Erosion and Sediment Control.



General Notes:

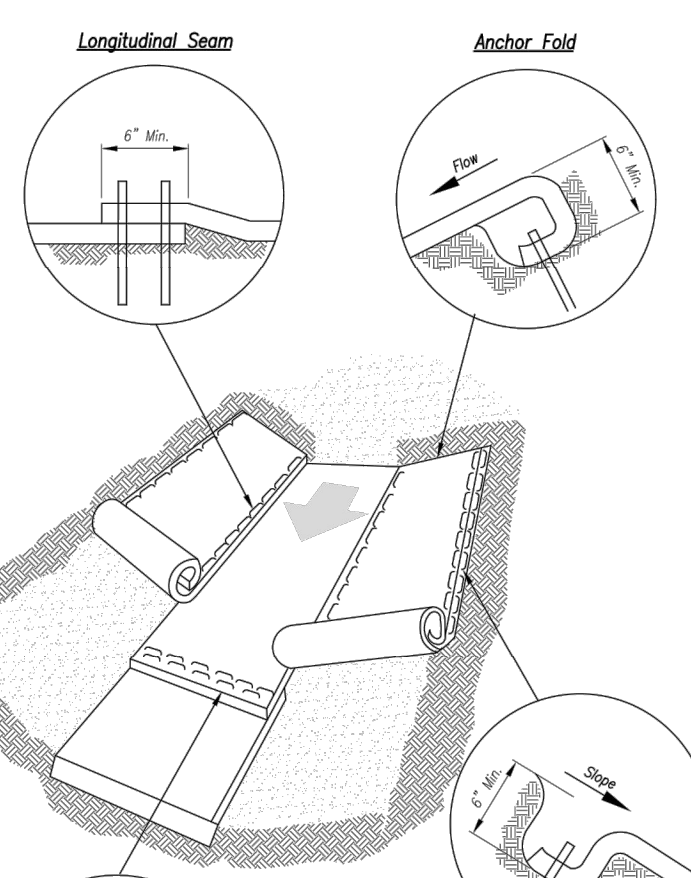
- APWA Specifications 2150 and Design Guidance 5100 shall be referenced to select type of blanket or mat to be used.
- Typical anchors and patterns/spacing shall be installed according to the manufacturer's instructions.
- LONGITUDINAL SEAMS:** The edges of the blanket or mat should overlap each other a minimum of 8 inches, with anchors catching the edges of both blankets.

Maintenance:

- Form or degraded product shall be repaired or replaced, unless such degradation is within the functional longevity specified by the manufacturer.
- Edges or seams that are loose or frayed shall be secured.

Notes for Installation on Slopes:

- Erosion Control Blankets and TMs shall be laid in the direction of the slope, in order for blanket to be in contact with the soil, top blanket loosely, avoiding stretching.
- ANCHOR SLOTS:** The top of the blanket should be "slotted" at the top of the slope and anchored in place with anchors 6 inches apart. The slots should be 6 inches wide x 6 inches deep with the blanket anchored in the bottom of the slot, then backfilled, tamped and sealed.
- SPLICE SEAM:** When splices are necessary, overlap and a minimum of 8 inches in direction of water flow. Stagger splice seams.
- TERMINAL FOLD:** The bottom edge of the blanket shall be turned under a minimum of 4 inches, then anchored in place with anchors 9 inches apart.



Notes for Installation in Channels:

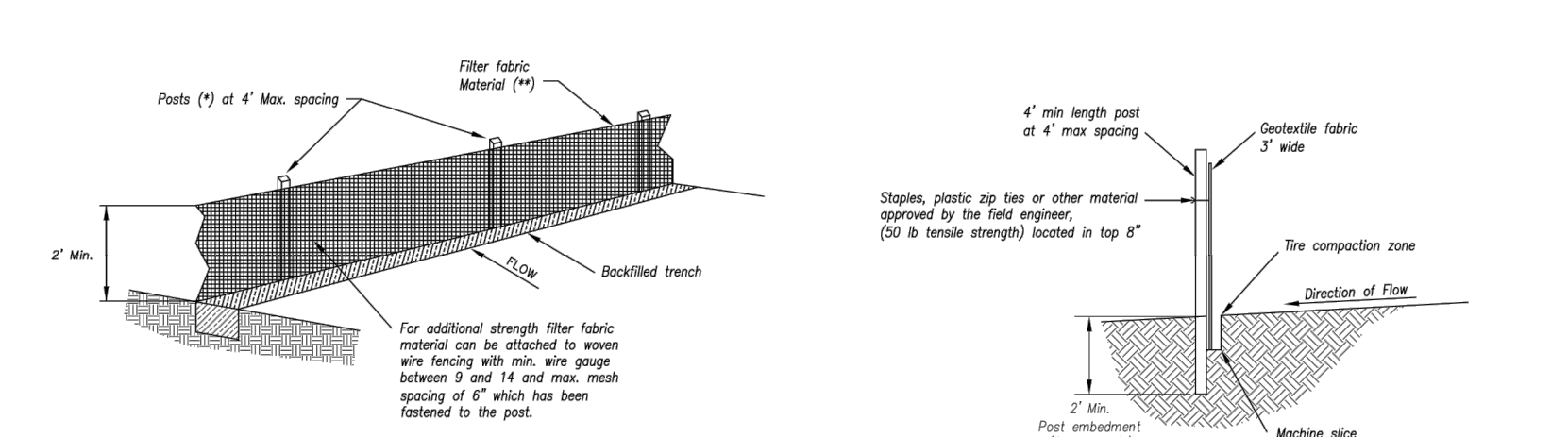
- Erosion Control Blankets and TMs shall be laid in the direction of the flow, with the first course at the centerline of channel, where applicable, in order for the mat to be in contact with the soil, by the mat loosely, avoiding stretching.
- ANCHOR FOLD:** The top of the mat should be folded under, buried and secured with wood or other approved anchors placed 6 inches apart. The top edge of the mat should be buried in a slot 6 inches wide x 6 inches deep, anchored in the bottom of the slot, backfilled, and the mat folded over the top as shown in detail.
- SPLICE SEAM:** When splices are necessary, overlap and a minimum of 12 inches in direction of water flow. Stagger splice seams.
- CHECK SLOTS:** Establish check slots transverse to slope every 30 feet. The slots should be 6 inches wide x 6 inches deep. The mat shall be cut to a length 12 inches beyond the slot. The top of the upstream mat shall be slotted, secured and buried similar to the edge anchor fold. The upstream mat shall then cover the slot and be anchored as shown.
- EDGE ANCHORS:** Lay outside edge of mat into trench at top of the slope and anchor.
- TERMINUS:** The bottom edge of the mat shall be anchored.

Critical Points:

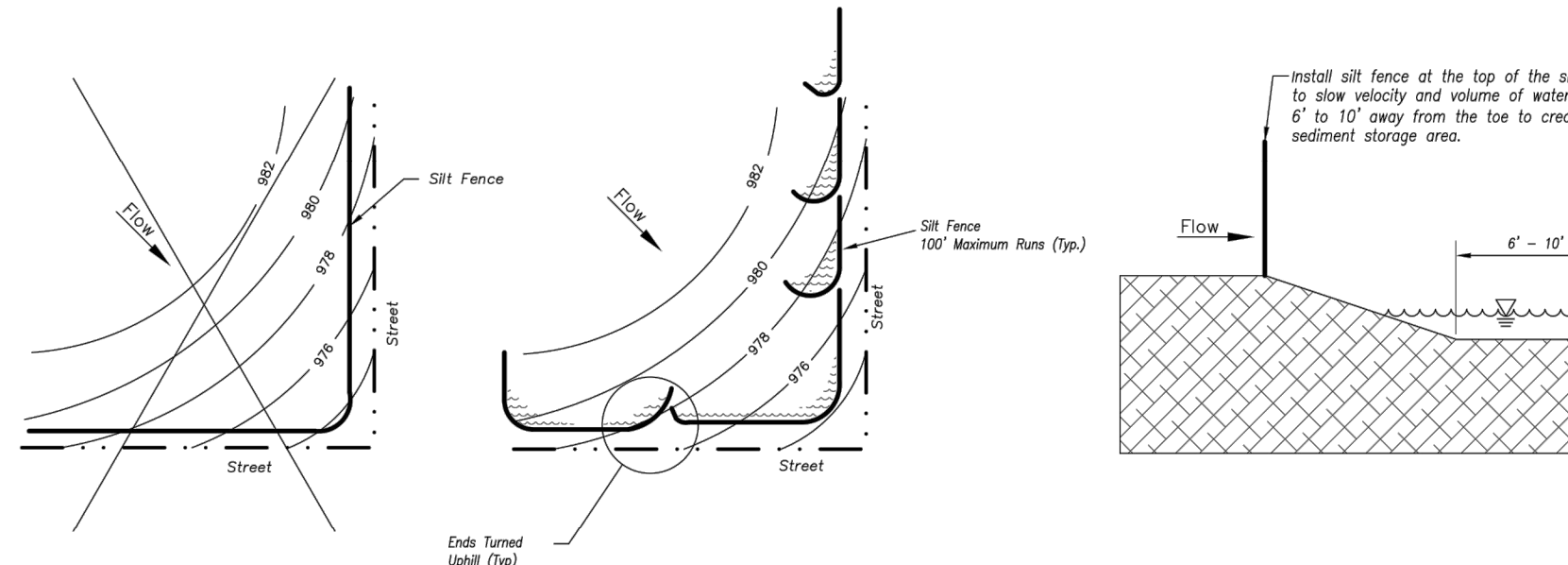
- A - Overlaps and seams;
- B - Projected water line;
- C - Channel bottom / side slope verticals;

AMERICAN PUBLIC WORKS ASSOCIATION
APWA
KANSAS CITY METRO CHAPTER
STANDARD DRAWING NUMBER ESC-02
ADOPTED: 10/24/2016
EROSION CONTROL BLANKETS AND TURF REINFORCEMENT MATS

Modified from 2015 Overland Park Standard Details for Erosion and Sediment Control.



SILT FENCE DETAILS

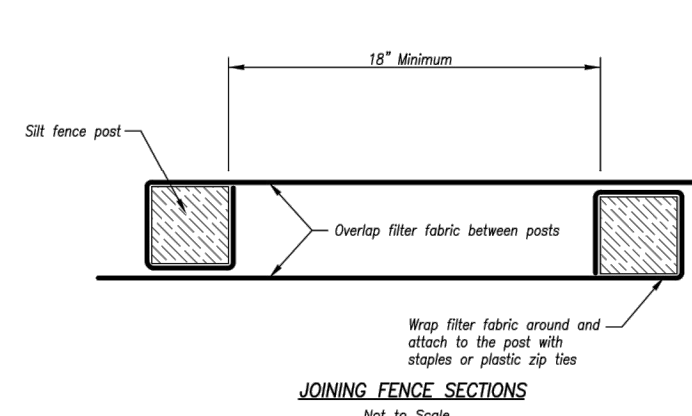


SILT FENCE LAYOUT

- Notes:**
- In order to contain water, the ends of the silt fence must be turned uphill (Figure A).
 - Long perimeter runs of silt fence must be limited to 100'. Runs should be broken up into several smaller segments to minimize water concentrations (Figure A).
 - Long slopes should be broken up with intermediate rows of silt fence to slow runoff velocities.
 - Attach fabric to upstream side of post.
 - Install posts a minimum of 2' into the ground.
 - Trenching will only be allowed for small or difficult installation, where staking machine cannot be reasonably used.

Maintenance:

- Remove and dispose of sediment deposits when the deposit approaches 1/2 the height of silt fence.
- Repair as necessary to maintain function and structure.



AMERICAN PUBLIC WORKS ASSOCIATION
APWA
KANSAS CITY METRO CHAPTER
STANDARD DRAWING NUMBER ESC-03
ADOPTED: 10/24/2016
SILT FENCE

Modified from 2015 Overland Park Standard Details for Erosion and Sediment Control.

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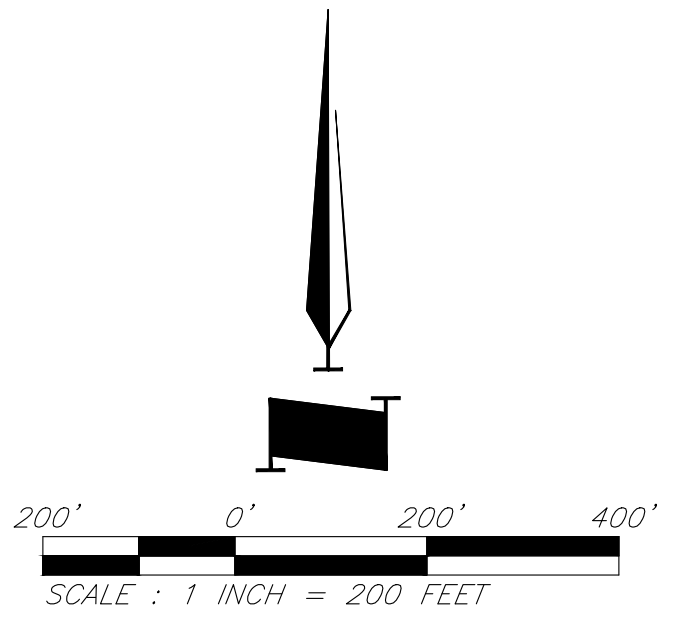
C:\Users\SCHEWE-1\AppData\Local\Temp\AutoPublish_129372\13958.01\2020.dwg Layout_C6 Existing Conditions Drainage Map -- Friday November 17, 2023, 3:06pm -- Copyright 2023, George Butler Associates, Inc. Architect 20212, Professional Engineer 000133, Professional Land Surveyor 000269



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		DESIGN BY: CEL
		DRAWN BY: DRV/KNJ
Clint Loumaster Professional Engineer License No. 2011009651		PROJECT NO.: 13958.01
		SHEET NO. 5 TOTAL SHEETS 6
Preliminary Development Plan LS Industrial, LLC Lee's Summit, Missouri		REVISIONS NO. DATE BY APPROVED

LEGEND

- Existing Drainage Boundary
- Existing Contour Major
- Existing Contour Minor



Existing Drainage Map

