

# MASS GRADING FOR LS INDUSTRIAL, LLC

## Section 17-Township 47N-Range 31W City of Lee's Summit Jackson County, Missouri

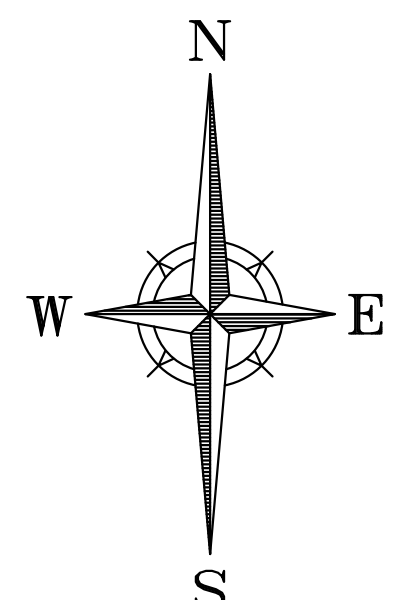
### LEGAL DESCRIPTION

A tract of land being part of the Northeast and Northwest Quarters of Section 17, Township 47 North, Range 31 West of the Fifth Principal Meridian, in the City of Lee's Summit, Jackson County, Missouri, said tract more particularly described as follows:

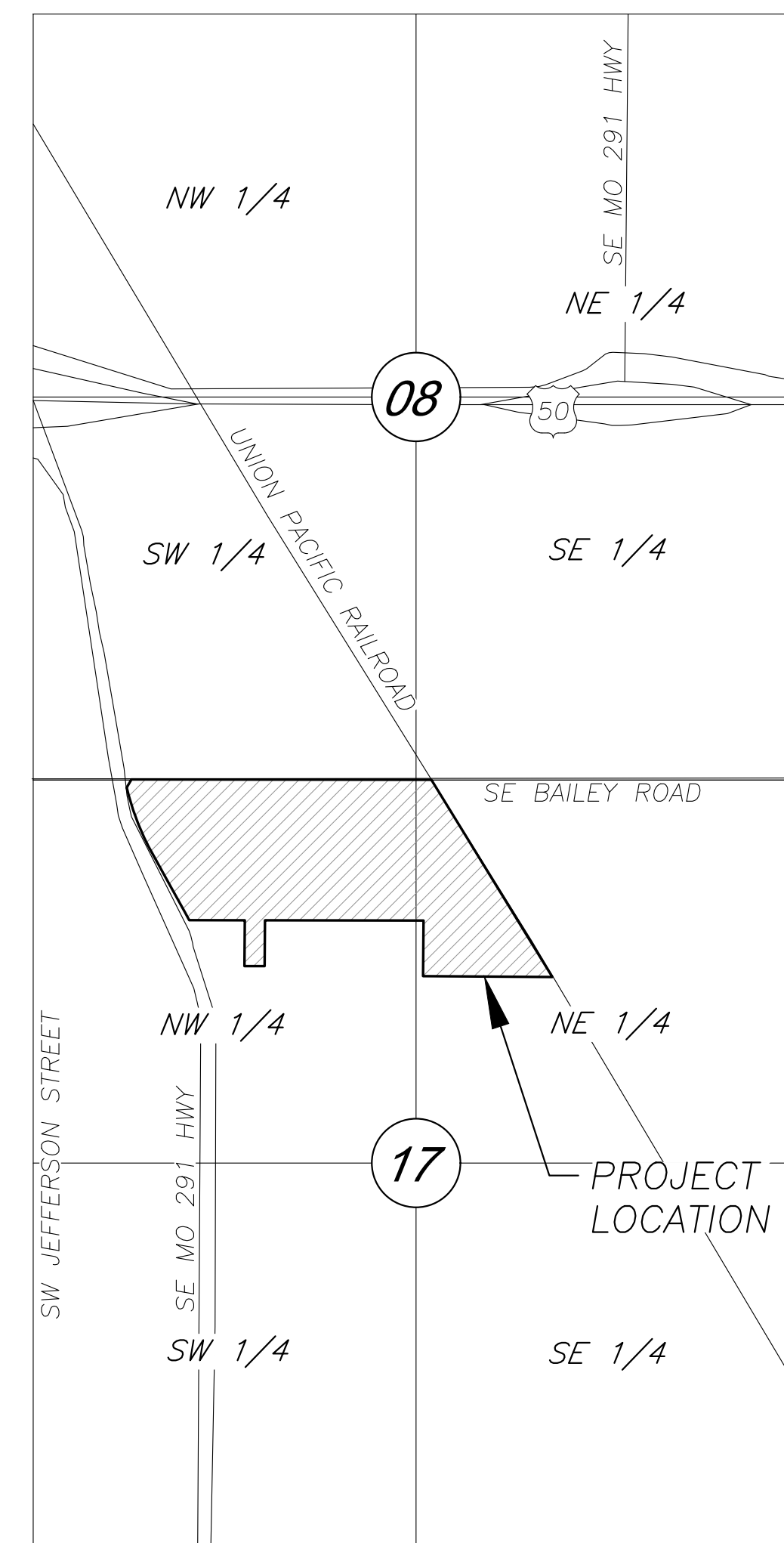
COMMENCING at the Northwest corner of said Northeast Quarter; thence South 87°43'34" East, along the North line of said Northeast Quarter, a distance of 42.89 feet; thence South 02°16'26" West, departing said North line, a distance of 49.92 feet, to the intersection of the South line of Bailey Road established by a Right-of-Way deed recorded as Instrument Number 2010E0113177 and the westerly line of Union Pacific Railroad (formerly Missouri Pacific Railroad Company) established by Special Warranty Deed recorded as Document Number 19710083905 in Book 1252 at Page 675, said intersection also being the POINT OF BEGINNING; thence South 29°25'44" East, along said westerly railroad line, a distance of 1,488.22 feet, to the intersection of said westerly railroad line with the North line of WATT ACRES, a subdivision of land in said city, county and state, recorded in Book 18, Page 93, said line also being the South line of the Northwest Quarter of said Northeast Quarter; thence North 87°32'47" West, departing said westerly railroad line, along said North line of WATT ACRES, and along said South line, a distance of 832.35 feet, to the Southwest corner of said North Northwest Quarter of the Northeast Quarter, said corner being on the East line of MADDUX ACRES, a subdivision in said city, county and state, recorded in Book 21, Page 55; thence North 02°35'45" East, departing said North line, along the West line of said Northwest Quarter of the Northeast Quarter, and along said East line, a distance of 358.32 feet, to the Northeast corner of said MADDUX ACRES; thence North 87°49'40" West, departing said West line, along the North line of said subdivision, a distance of 1,020.02 feet; thence South 02°34'12" West, departing said North line, a distance of 295.01 feet, to a point on the North Right-of-Way line of 16th Street, as now established; thence North 87°59'13" West, along said North Right-of-Way line, a distance of 130.00 feet; thence North 02°33'49" East, departing said North Right-of-Way line, a distance of 295.37 feet, to the North line of said MADDUX ACRES; thence North 87°49'40" West, along said North line a distance of 357.53 feet, to a point on the East Right-of-Way line of Missouri State Highway No. 291, as now established; thence North 26°18'22" West, along said East Right-of-Way line, a distance of 55.42 feet; thence North 02°59'35" West, along said East Right-of-Way line, a distance of 241.77 feet, thence continuing along said East Right-of-Way line, along a curve to the right having a radius of 1707.58 feet, a chord bearing of North 18°02'37" West, a central angle of 13°09'41", an arc length of 392.24 feet; thence North 32°13'27" East, a distance of 61.84 feet, to a point on the South Right-of-Way line of Bailey Road established by a Right-of-Way deed recorded as Instrument Number 2010E0113177; thence South 87°49'40" East, along said South Right-of-Way line, a distance of 1,930.59 feet, to the POINT OF BEGINNING, containing 2,171,545 square feet or 49.85 acres.

### UTILITY CONTACTS

<p><b>Sanitary Sewers</b> Mr. Jeff Thorn, PE City of Lee's Summit Water Utilities 1200 SE Hamblen Road Lee's Summit, MO 64063 (816) 969-1900 email: jeff.thorn@cityofLS.net</p>	<p><b>Gas</b> Mr. Donnie Richards Missouri Gas Energy 7500 E 35th Terrace Kansas City, MO 64129 (816) 472-9464 Fax (816) 472-3488 email: donnie.richards@sug.com</p>
<p><b>Water</b> Mr. Jeff Thorn, PE City of Lee's Summit Water Utilities 1200 SE Hamblen Road Lee's Summit, MO 64063 (816) 969-1900 email: jeff.thorn@cityofLS.net</p>	<p><b>Cable Television</b> Mr. Greg Thomas Time Warner Cable 8221 W. 119th Street Overland Park, KS 66213 (913) 643-1950 email: greg.thomas@twcable.com</p>
<p><b>Electric Service</b> Mr. Nathan Michael Kansas City Power &amp; Light P.O. Box 418679 Kansas City, MO 64141 (816) 220-5210 Fax (816) 245-3623 email: Nathan.Michael@kcpl.com</p>	<p><b>Telephone</b> Ms. Glenda Charles AT&amp;T 1425 Oak Street Kansas City, MO 64106 (816) 365-1669 Fax (816) 275-1109 email: gc6954@att.com</p>



Scale: 1"=1000'



**VICINITY MAP**  
Section 17-T47N-R31W

### Sheet List Table

1	Cover Sheet
2	OVERALL GRADING
3	GRADING PLAN
4	GRADING PLAN
5	DETAILS
6	Erosion Control Plan
7	Erosion Control Details

PREPARED FOR:  
GARY O'DELL  
LS INDUSTRIAL, LLC  
4 EAST FRANKLIN ST.  
LIBERTY, MISSOURI 64068  
816-803-7633

PREPARED & SUBMITTED BY:  
GEORGE BUTLER ASSOCIATES, INC.  
9801 RENNER BOULEVARD  
LENEXA, KANSAS 66219-9745  
CONTACT: CLINT LOUMASTER, PE  
913-492-0400



PROJECT ENGINEER:

11/22/2022

DATE:

### Floodplain


THE SITE IS NOT LOCATED WITHIN ANY SPECIAL FLOOD HAZARD AREAS (SFHA) PER FEMA FIRM MAP 2909SC0438G-PANEL 438 OF 625, EFFECTIVE DATE OF JANUARY 20, 2017. NO LETTERS OF MAP AMENDMENT OR REVISIONS ARE BEING PROPOSED.

### Disturbed Area


3.26 AC



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Professional Engineer  
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DATE: 10-05-2023

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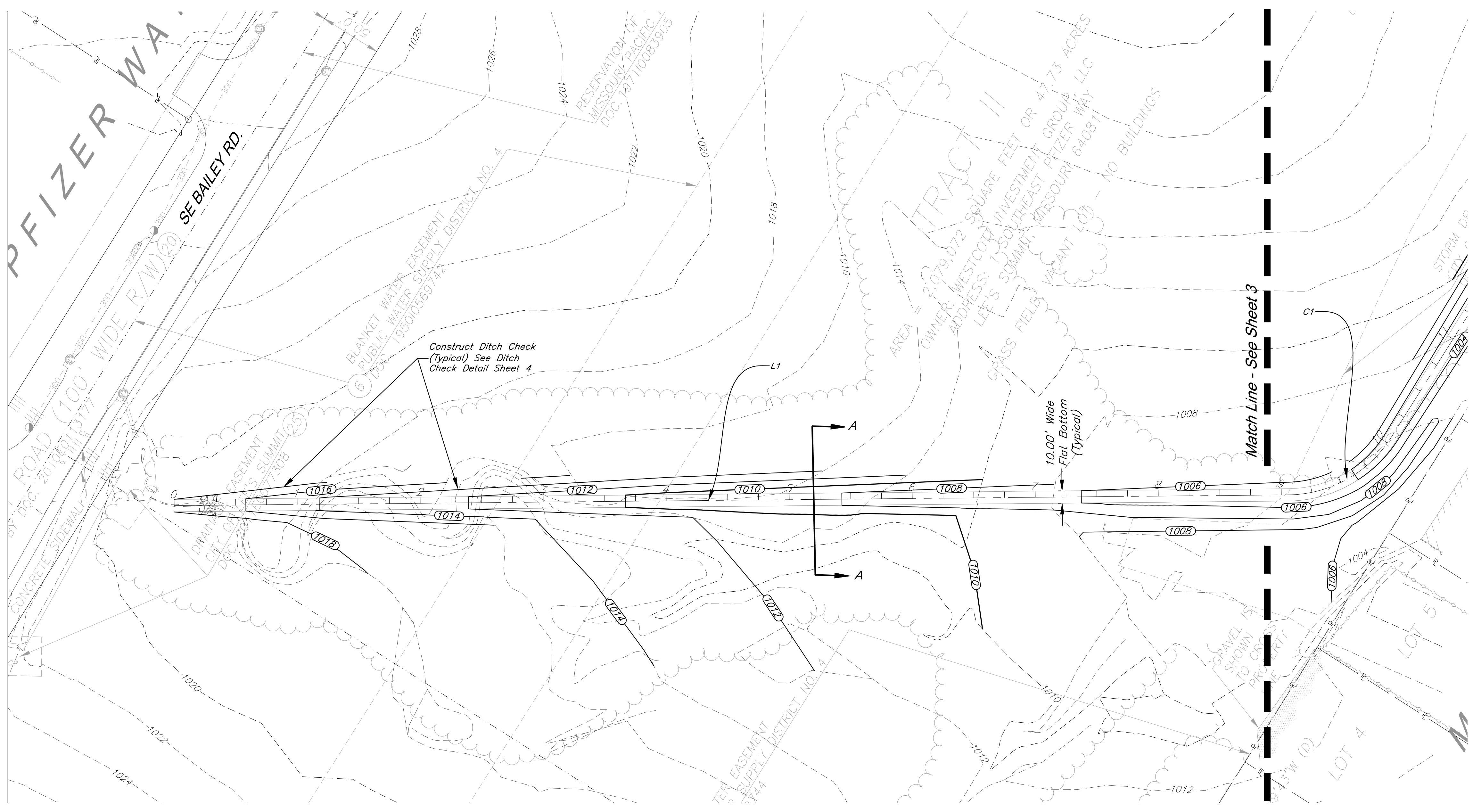
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PROJECT NO.: 13958.01

SHEET NO.	TOTAL SHEETS
<b>3</b>	<b>9</b>

Mass Grading Plans  
**LS Industrial, LLC**  
Lee's Summit, Missouri

NO.	DATE	REVISIONS	BY	APPROVED

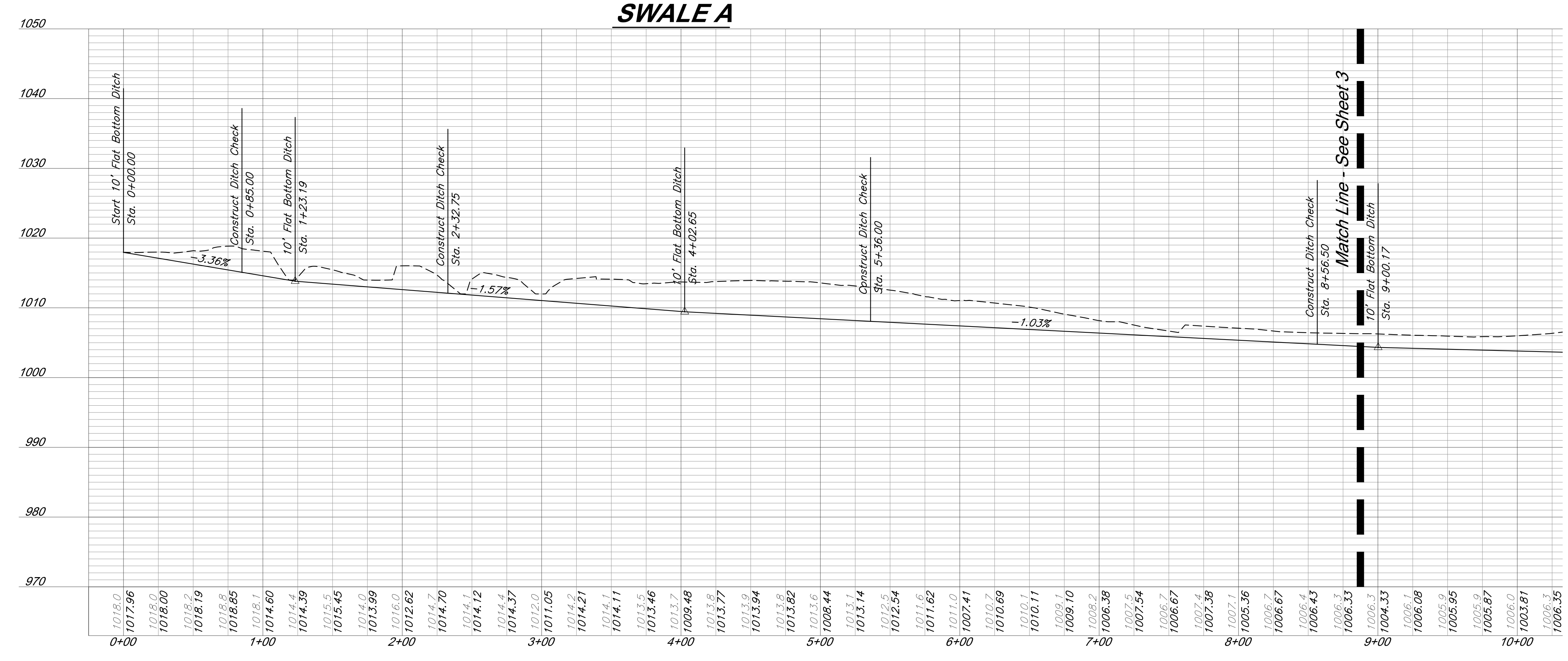
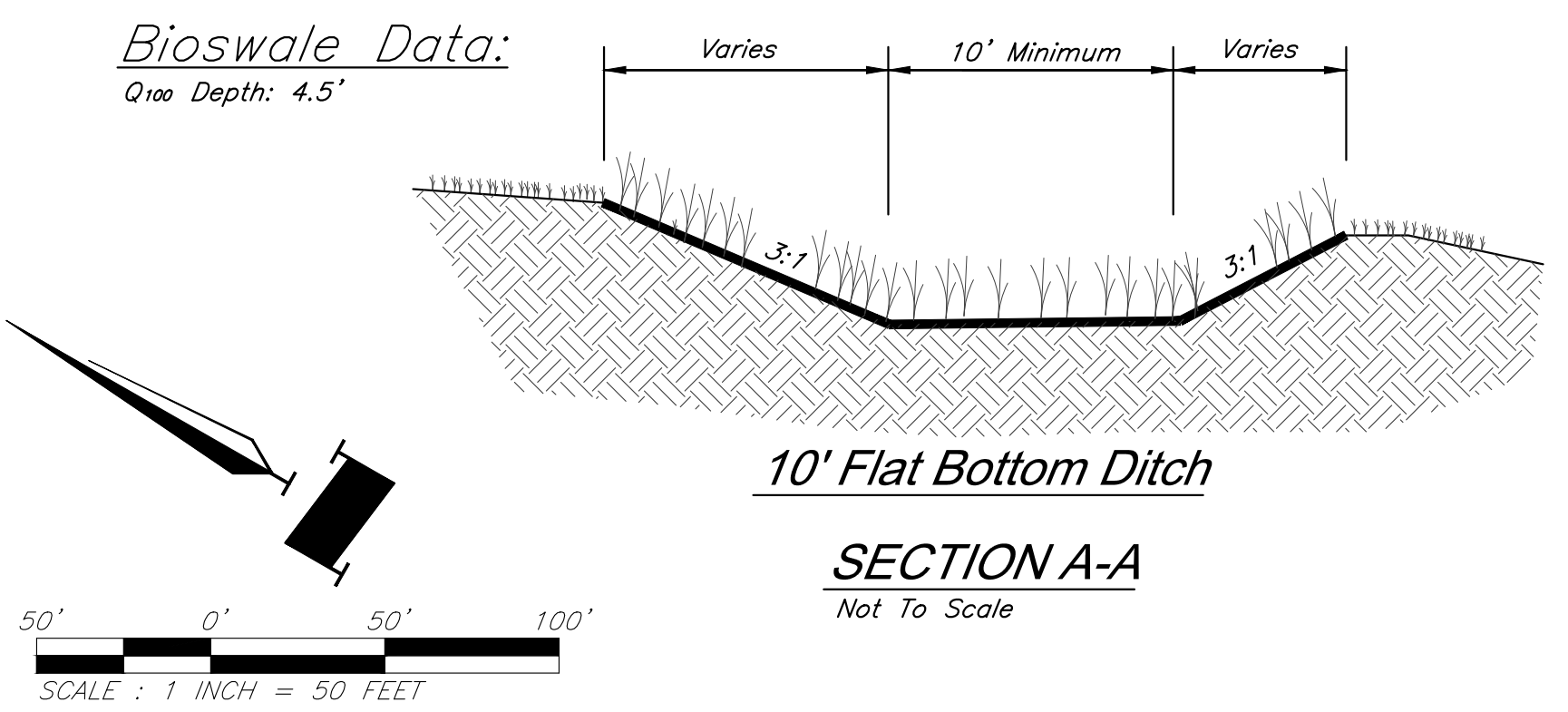


**LEGEND**

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

**Swale A**

Number	Radius	Length	Line/Chord Direction	Northing/Easting
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

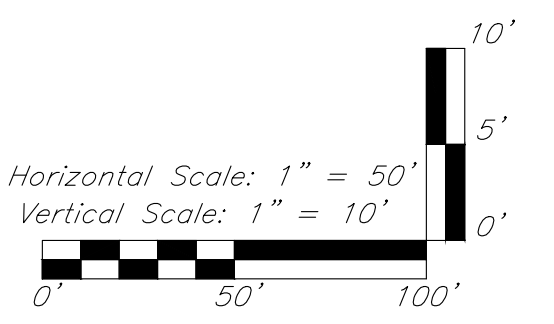


**CAUTION!**  
Numerous Utilities on site. Contractor to verify location and elevation of all utilities prior to commencing construction.



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

**GRADING PLAN**



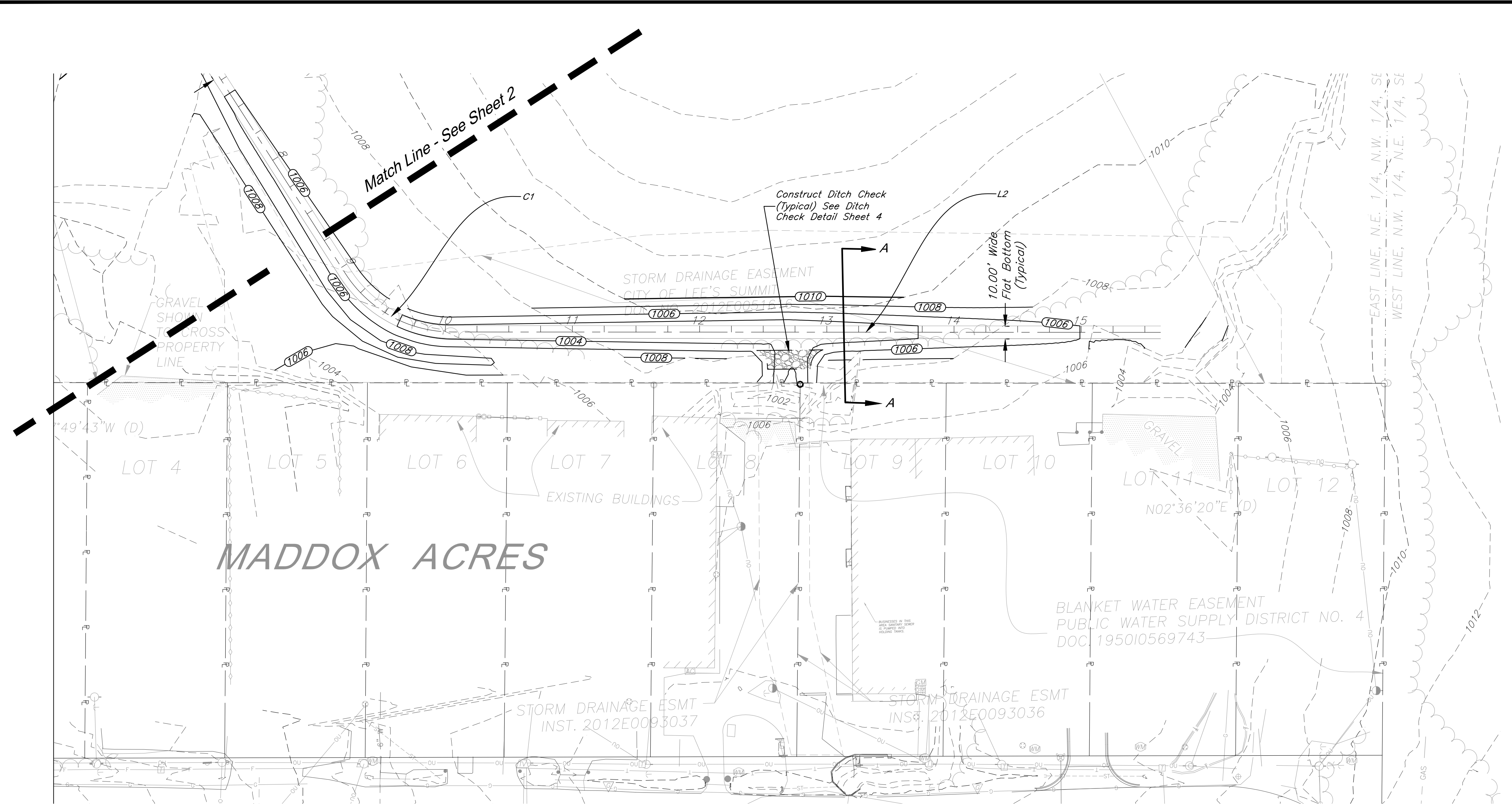
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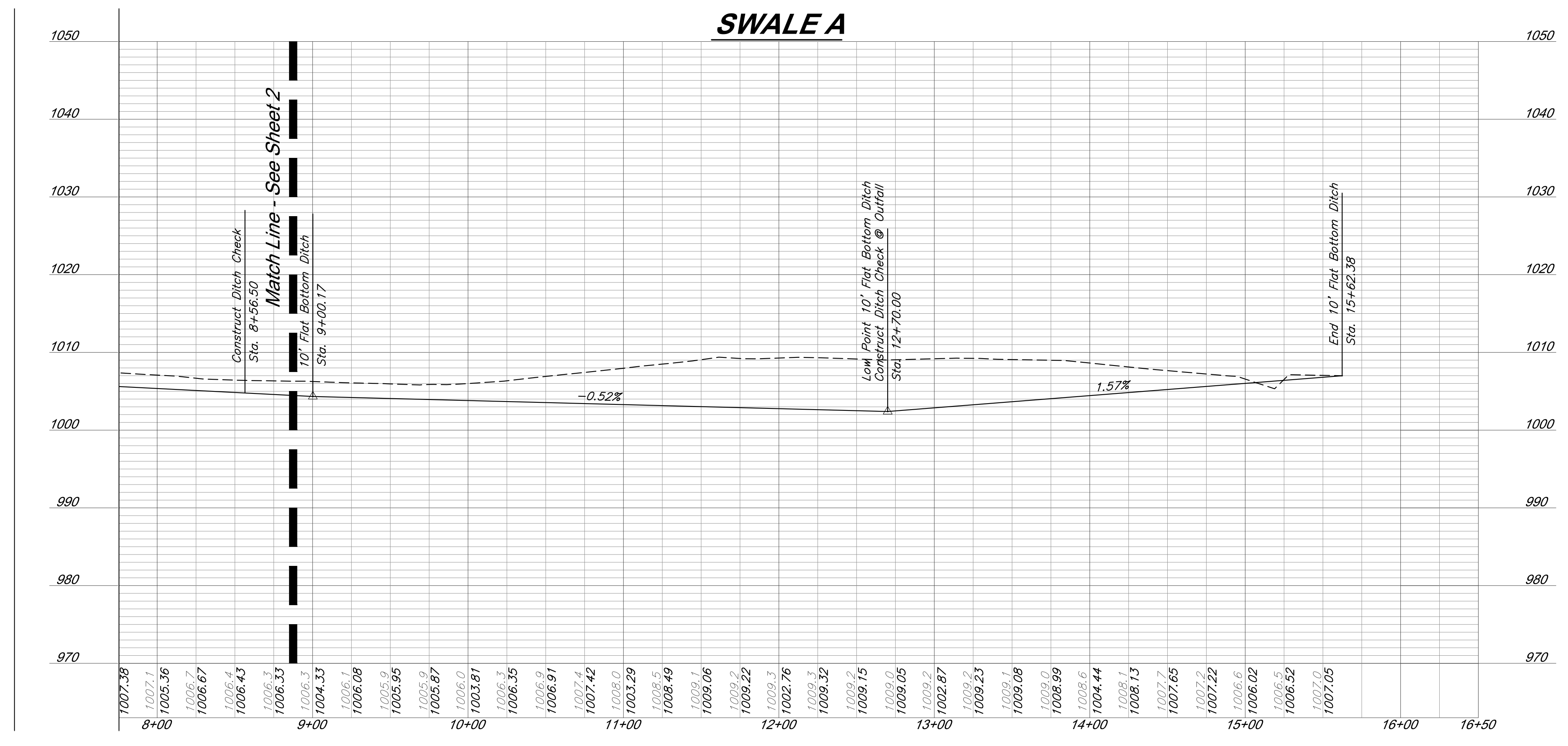
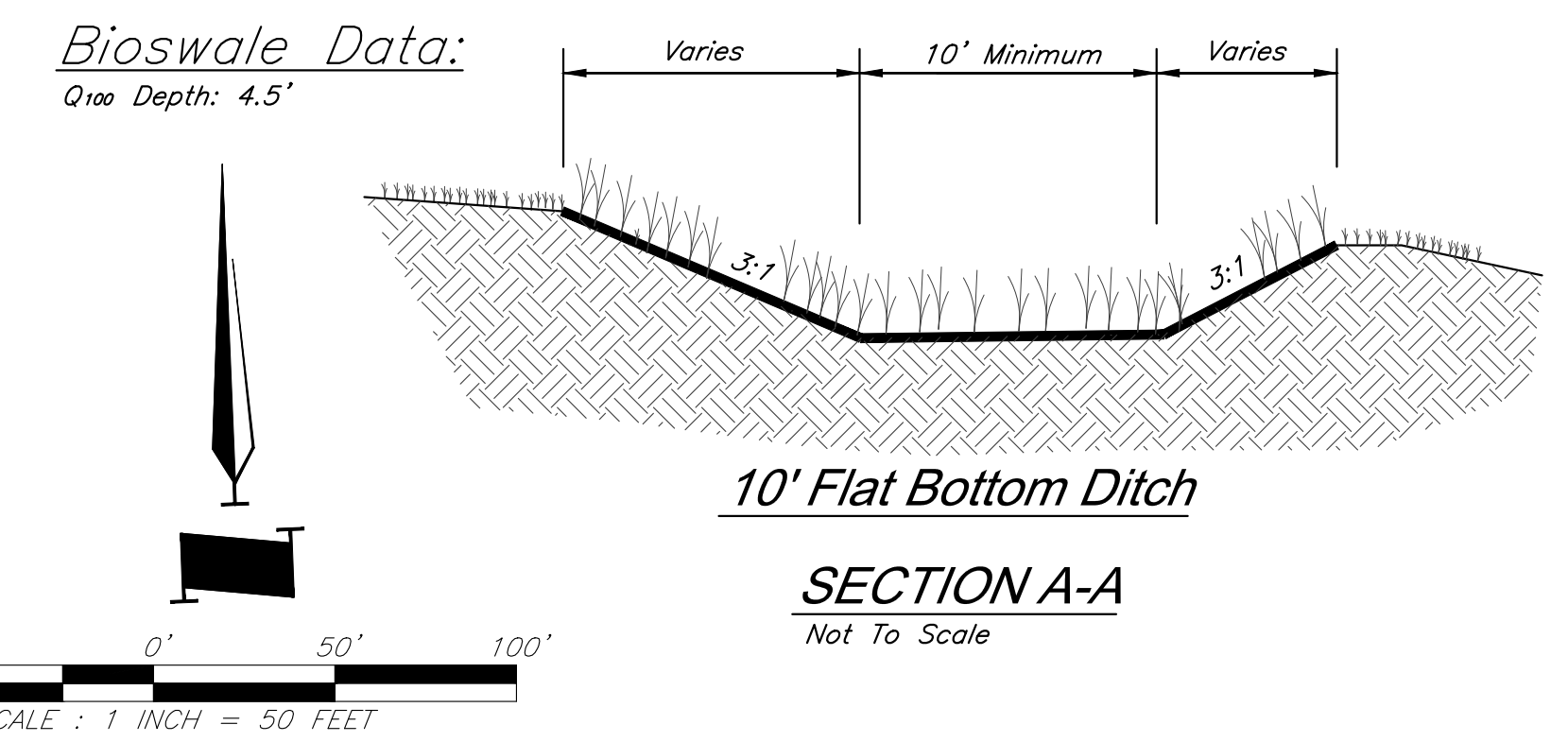


**LEGEND**

- 1020 Proposed Contour Major
- 1018 Proposed Contour Minor
- 1020 Existing Contour Major
- 1018 Existing Contour Minor
- Flow Arrow
- Match Line

**Swale A**

Number	Radius	Length	Line/Chord Direction	Northing/Easting
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



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**GRADING PLAN**

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TOTAL SHEETS:	9

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 License No. 2011009651

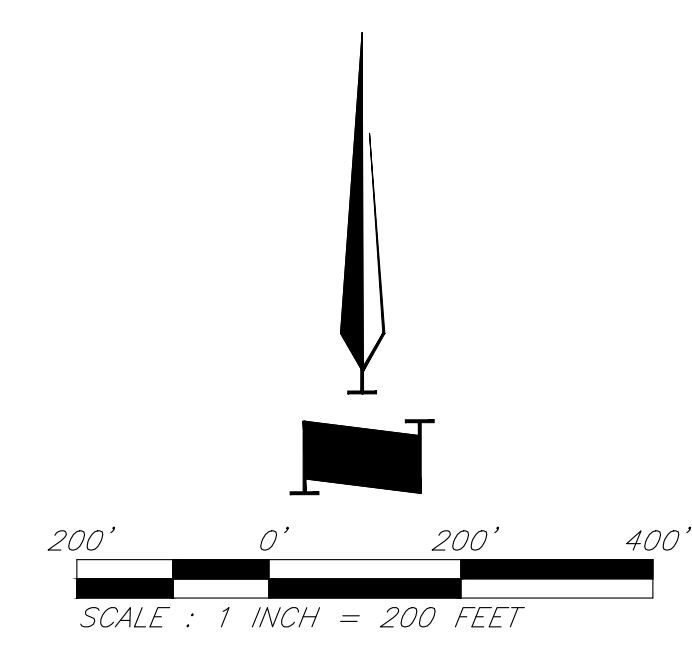
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 Lee's Summit, Missouri

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**LEGEND**

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



**EXISTING CONDITIONS DRAINAGE MAP**



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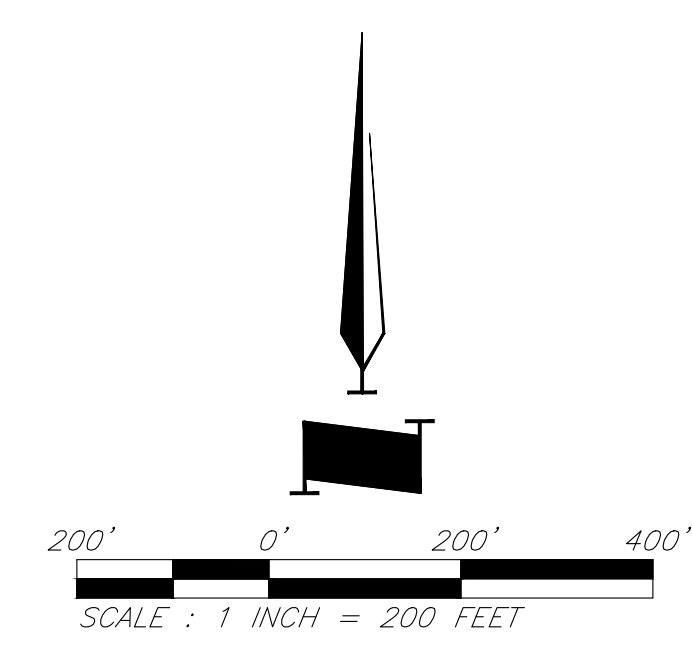
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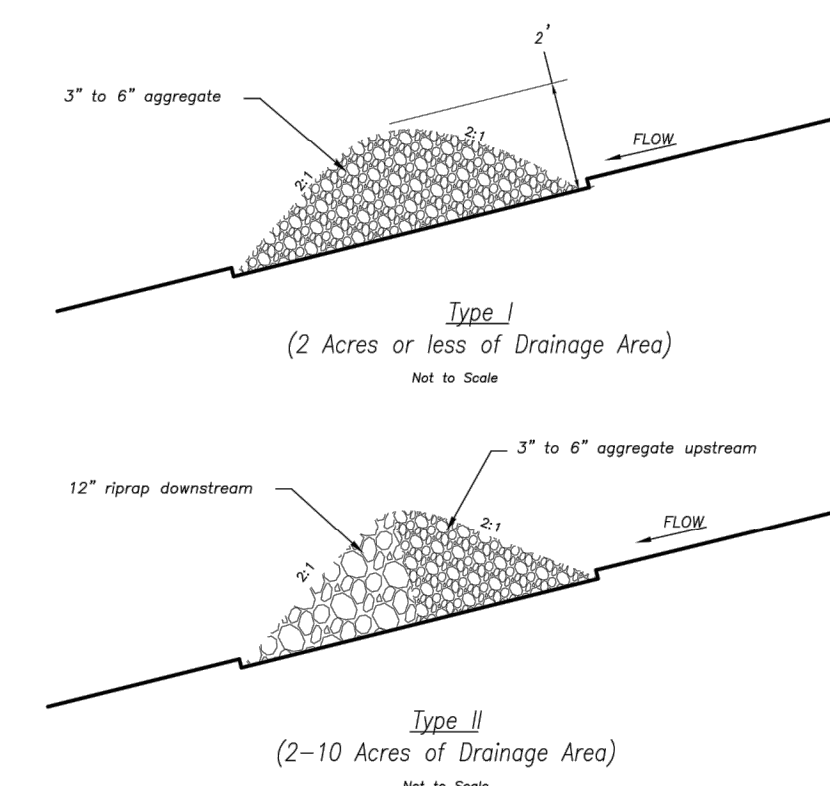
**LEGEND**

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



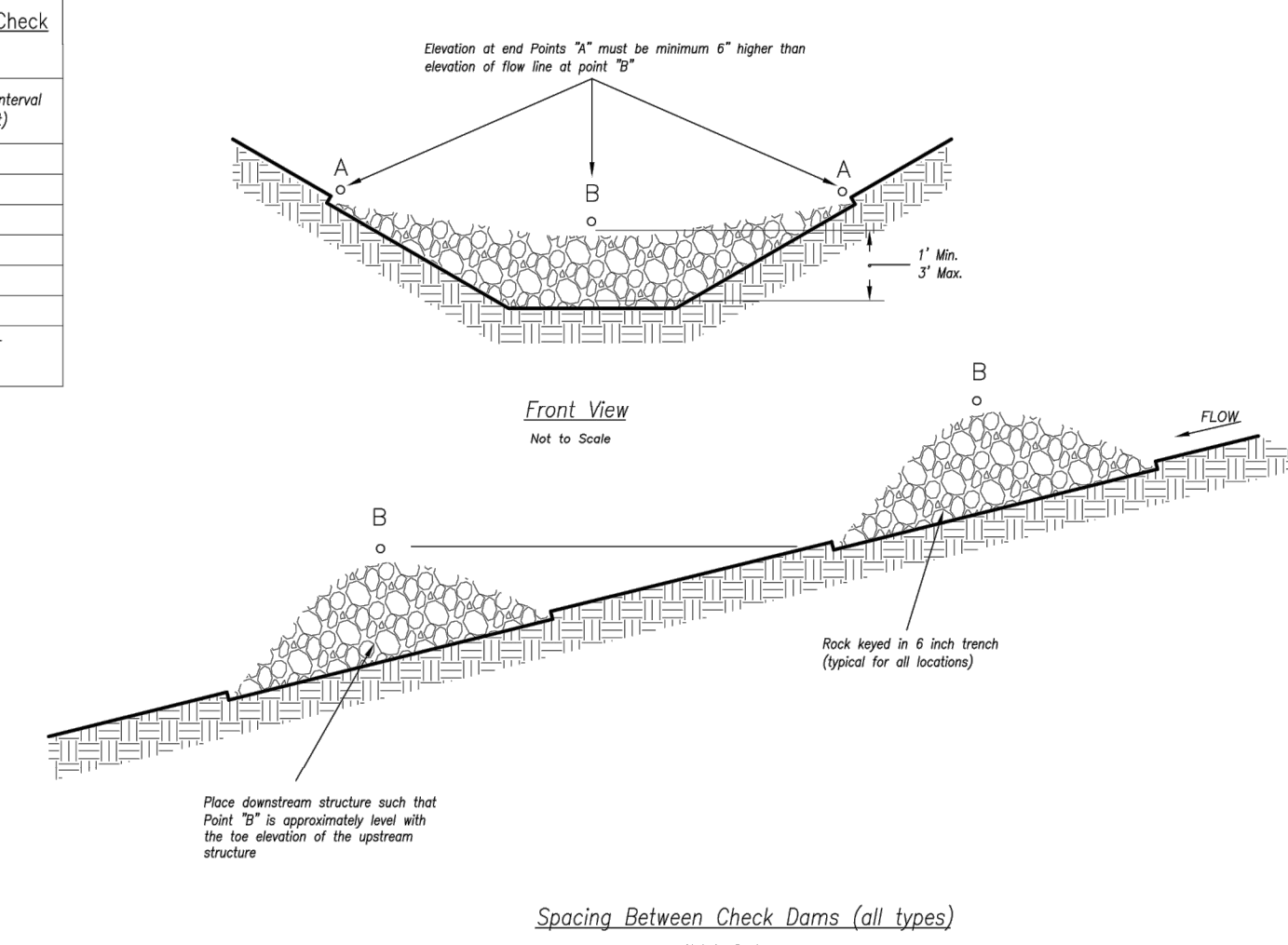
**PROPOSED CONDITIONS DRAINAGE MAP**

		<b>GBA</b> 9801 Renner Blvd., Ste. 300 Lenexa, KS 66219 913.492.0400 gbateam.com		DATE: 10-05-2023 DESIGN BY: CEL DRAWN BY: BIB PROJECT NO.: 13958.01 SHEET NO.: 7 TOTAL SHEETS: 9
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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.



Spacing Between Check Dams (all types)  
Not to Scale

Notes:

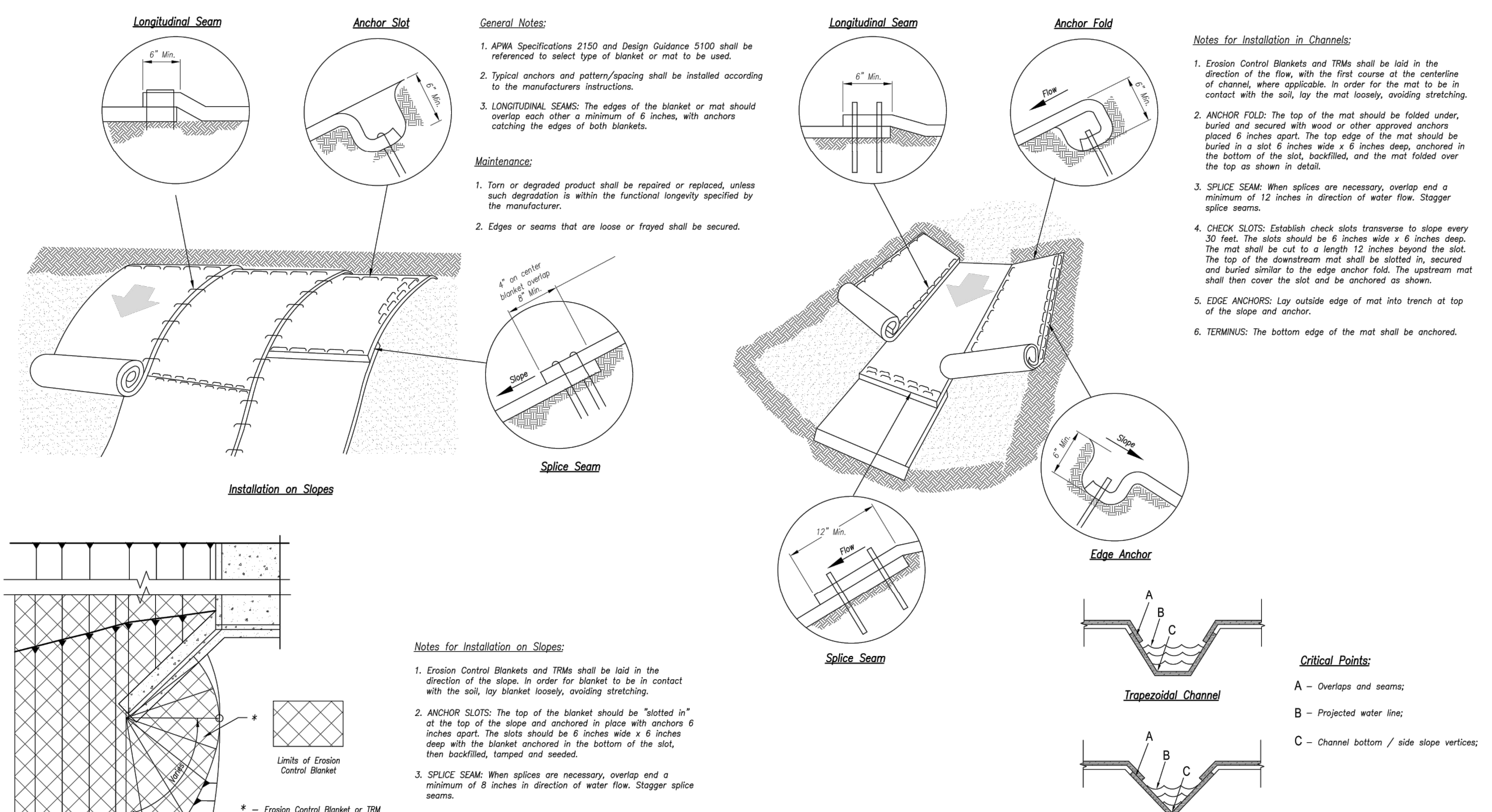
- Rock check dams shall be used only for drainage areas less than 10 acres unless approved by the City Engineer.
- The rock checks only in situations where the ditch slope exceeds 6%.

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  
 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 in Channels:

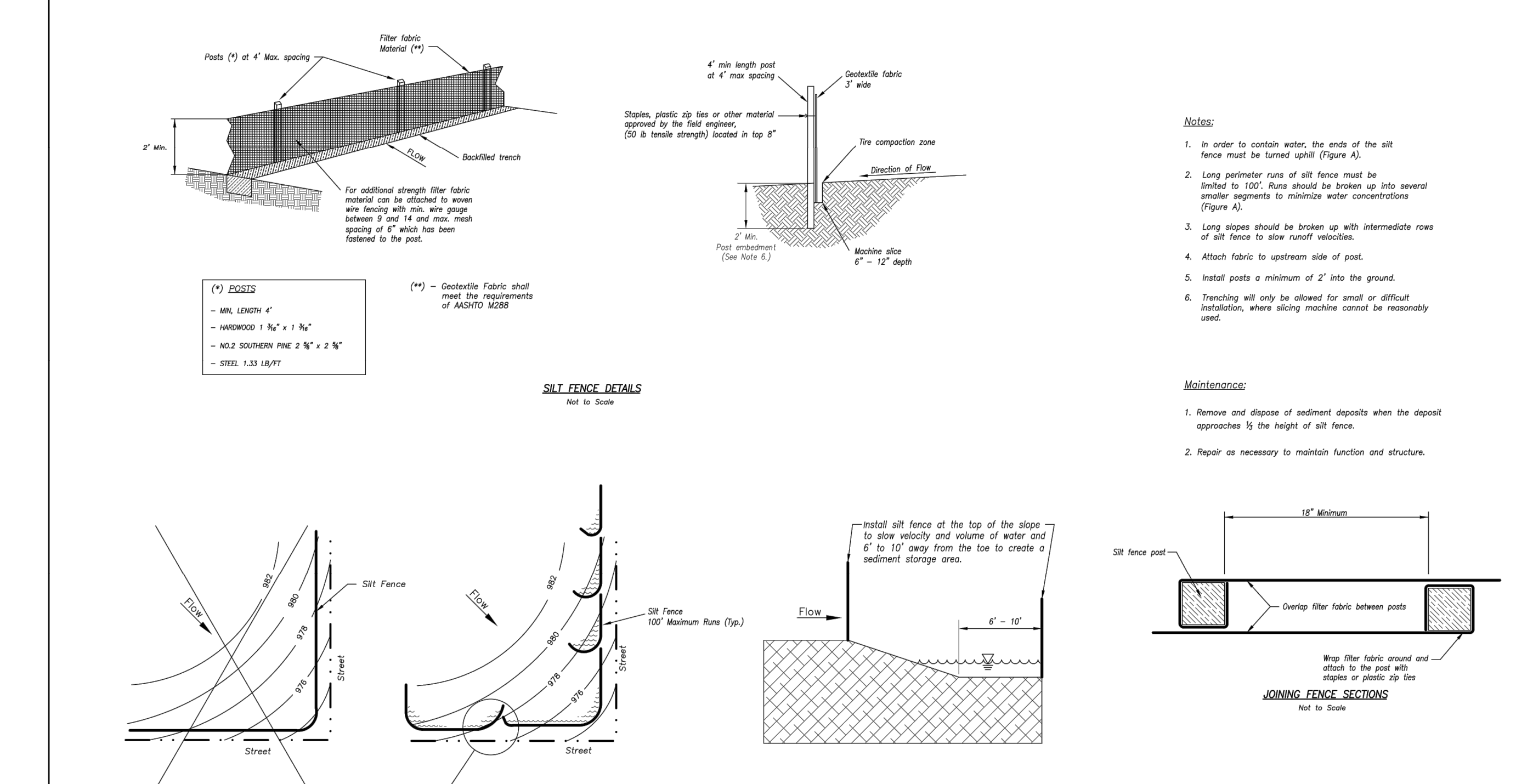
- EROSION CONTROL BLANKETS and TRMs shall be laid in the direction of the flow, with the first course at the centerline of channel, where applicable, in order for the mat to be in contact with the soil, by the mat loosely, avoiding stretching.
- ANCHOR FOLD: The top of the mat should be folded under, 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, specified, 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 buried in, 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 vertices;

AMERICAN PUBLIC WORKS ASSOCIATION  
 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.



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 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.

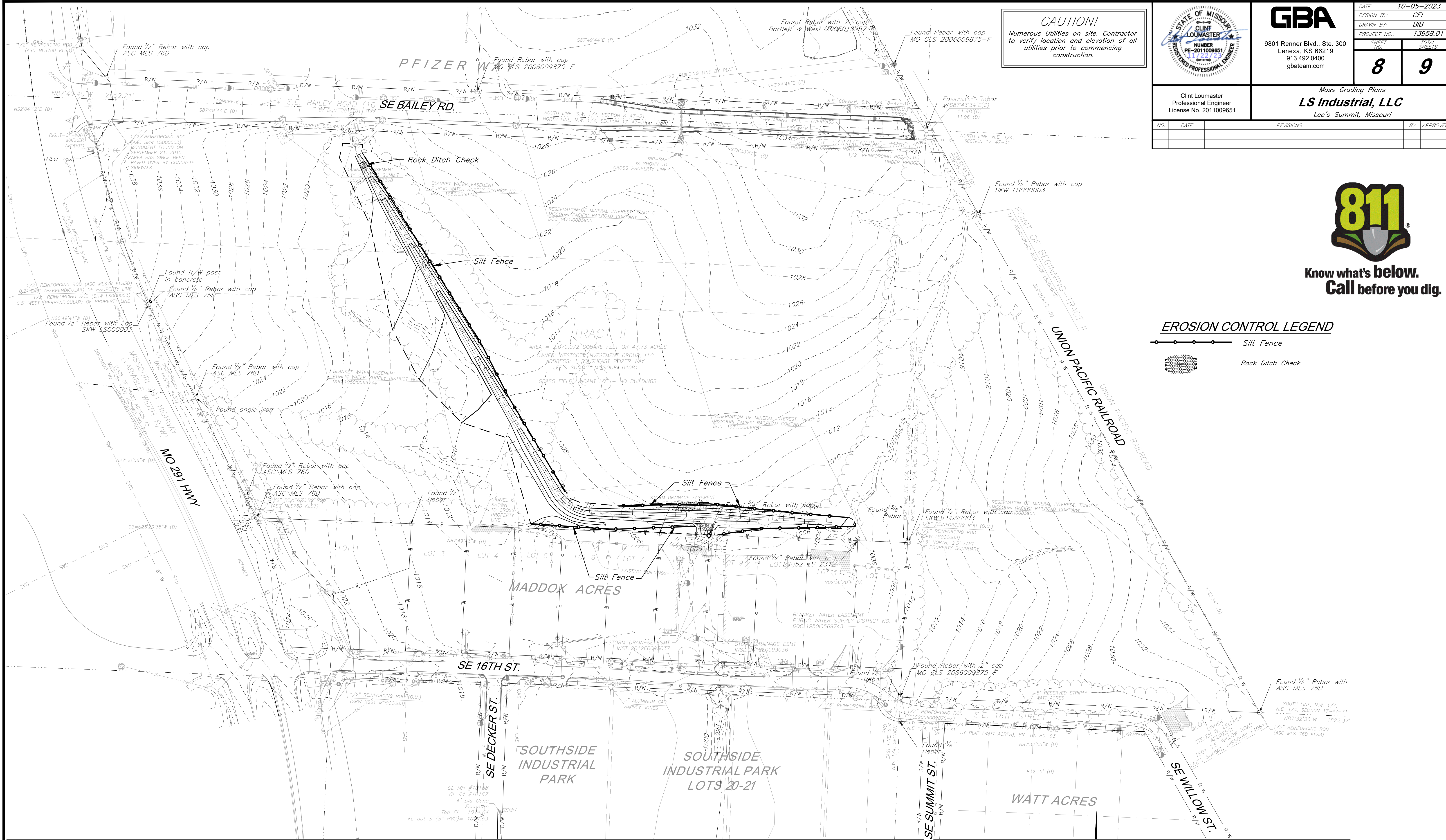
Maintenance:

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

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	PROJECT NO.: 13958.01
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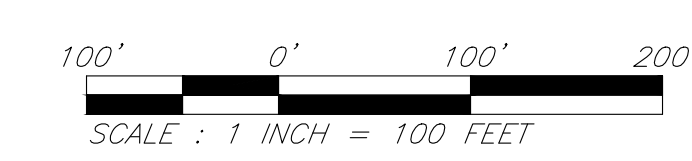


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**EROSION CONTROL LEGEND**

- Silt Fence
- Rock Ditch Check

Project Phase	Reference No.	Description	Remove After Phase:	Notes
1 - Place Erosion Control Prior to Land Disturbance	①	Install Perimeter Silt Fence	2	Install as shown on plans
2 - After Mass Grading	②	Final Grading, Seeding, Sodding, and Landscaping of all disturbed areas	1	Erosion control measures may be removed once seed and sodded areas are established to cover 80% of the site.



**EROSION CONTROL PLAN**

## EROSION AND SEDIMENT CONTROL NOTES

The layout of erosion control best management practices (BMPs) shown on the engineering plans is intended to control erosion and minimize, if not eliminate, the transport of sediment from the disturbed areas. The Contractor shall be responsible for the evaluation of existing surface drainage patterns and for making adjustments to the BMP locations to best control erosion and minimize, if not eliminate, the transport of sediment from the disturbed areas. The following are measures to achieve the control of erosion and sediment.

1. **Stabilization Practices** – Stabilization practices are very effective at preventing erosion by shielding the soil surface from the impact of rain, slowing the velocity of runoff, holding soils in place, and increasing infiltration of runoff and allowing the soil to absorb more rainfall.

- a. **Temporary Seeding Stabilization** – During acceptable growing periods (see Table 1 below); temporary seeding of annual vegetation with a straw mulch cover shall be used as a temporary cover until permanent vegetation is established. If there is a possibility that a vegetative cover will be required to control erosion for more than 1 year, then consider the addition of a perennial/permanent grass species as part of a seeding mixture.

Table 1. Temporary Seeding Dates and Minimum Application Rates

Seeding Dates	Temporary Seed Species	Minimum Application Rates (pure live seed lbs. per acre)	Straw Mulch (tons per acre)
Jan. 1 – Jan. 31	None	Not Applicable	2.5
Feb. 1 – May 31	Annual Ryegrass	120	1.5
June 1 – Aug. 4	None	Not Applicable	2.5
Aug. 15 – Nov. 15	Cereal/Winter Rye	120	1.5
Nov. 16 – Dec. 31	None	Not Applicable	2.5

**Seedbed Preparation** – For broadcast seeding or drilling, loosen soil to depth of 3 inches. For no till drilling, loosen soil if it is compacted. Loosen compacted, hard or crusted soil surfaces with a disk, ripper, chisel, harrow or other tillage equipment. Avoid preparing the seedbed under excessively wet conditions. For establishment and long-term growth, apply a complete fertilizer at rates recommended by soil tests or as specified in plans and specifications. If soil pH is less than 6.0, apply lime according to soil tests. Incorporate necessary lime and fertilizer to a depth of 3 to 6 inches of soil.

**Installation** – For the best results use certified seed. Apply seed uniformly using a cyclone seeder, drop-type spreader, drill, cultipacker seeder or hydroseeder. When using a drill seeder, plant rye or other grains about 1 inch deep and plant grasses no more than ½ inch. A vegetative straw mulch cover shall be applied over the seed mixture to help germinate and establish plant cover, control weeds, and protect seed mixture against temperature extremes. Follow straw mulch preparation and application procedures described herein.

- b. **Temporary Mulch Stabilization** – During non-growing periods, a straw mulch cover shall be applied in unseeded areas to protect against erosion until temporary or permanent vegetation is established.

**Site Preparation** – Divert runoff water from areas above the site that will be mulched. Remove stumps, roots and other debris from the construction area. Grade area as needed to permit the use of equipment for seeding, mulching and maintenance. Shape area so that it is relatively smooth.

**Application** – Spread straw mulch uniformly over the area with a power blower, hydroseeder, or by hand. No more than 25% of the ground surface should be visible after spreading. Apply straw mulch at a rate of 1.5 tons per acre as a seed cover or 2.5 tons per acre as a stand alone cover. The straw should be dry, unchopped, unweathered; free of weed seeds and rot. In areas of steep slopes or high winds, or in critical areas such as swales, mulching may need to be secured to the ground with a binder, netting, or tacking.

- c. **Permanent Seeding Stabilization** – All disturbed areas shall be permanently seeded with a cool season grass mixture as specified in the Standards and Specifications of the City of Lee's Summit, Missouri.

**Seedbed Preparation** – loosen soil to depth of 3 inches. For no till drilling, loosen soil if it is compacted. Loosen compacted, hard or crusted soil surfaces with a disk, ripper, chisel, harrow or other tillage equipment. Avoid preparing the seedbed under excessively wet conditions. For establishment and long-term growth, apply a complete fertilizer at rates recommended by soil tests or as specified in plans and specifications. If soil pH is less than 6.0, apply lime according to soil tests. Incorporate necessary lime and fertilizer to a depth of 3 to 6 inches of soil.

**Installation** – For the best results use certified seed. Apply seed uniformly using a hydroseeder. A vegetative straw mulch cover shall be applied over the seed mixture to help germinate and establish plant cover, control weeds, and protect seed mixture against temperature extremes. Follow straw mulch preparation and application procedures described in the Standards and Specifications of the City of Lee's Summit, Missouri.

## 2. Structural Practices

- a. **Silt Fence** – A temporary sediment barrier consisting of a geotextile fabric shall be installed as shown on the attached engineering plans and details. Silt fencing shall be installed to maintain sediment onsite.

**Minimum Requirements:**

**Location** – Fence should be built on a nearly level grade and at least 10 feet from the toe of the slope to provide a broad shallow sediment pool. Install on the contour, where fence can intercept runoff as a sheet flow; not located crossing channels, waterways or other concentrated flow paths; not attached to existing trees.

**Spacing of Support Posts** – 10 feet maximum for fence supported by wire; 6 feet maximum for high strength fabric without supportive wire backing. Support posts should be driven into the ground a minimum of 10 inches deep.

**Trench** – Bottom 1 foot of fence must be buried minimum of 4 inches deep.

- b. **Inlet Protection** – When installation of the storm drainage system is complete, gravel curb inlet sediment traps will be placed at the drainage system inlets. Construction shall be in accordance with attached engineering plans and details.
- c. **Stockpiles** – The toe of stockpiles shall be placed a minimum of 10 feet from erosion control measures. If stockpiles are to remain for more than 14 days, they shall be temporarily stabilized with vegetative mulch and temporary seeding.

3. **Maintenance** – The contractor shall repair all erosion control measures or re-seed areas that are disturbed or damaged as a result of weather or other situations, within 2 days after the occurrence. This will include all areas bare of vegetation.

## EROSION CONTROL GENERAL NOTES

1. The Contractor is responsible for erosion control during construction and until the Owner and City accepts the work as complete. The erosion control measures shown on this plan are a typical minimum installation. The Contractor shall be responsible for adjusting or adding to these measures as necessary during the phasing of the construction to assure adequate control.

2. Clearing and grubbing within 50' of a defined drainage course should be avoided when possible. Where changes to a defined drainage course occur, work should be delayed until all materials and equipment necessary to protect and complete the drainage change are on site. Changes shall be completed as quickly as possible once the work has been initiated. The area impacted by the construction activities shall be revegetated or protected from erosion as soon as possible, areas within 50' of a defined drainage ways should be recontoured as needed or otherwise protected within five (5) working days after grading has ceased.

3. Where soil disturbing activities cease in an area for more than 14 days, the disturbed areas shall be protected from erosion by stabilizing the area with mulch or other similarly effective erosion control measures. If the slope of the area is greater than 3:1 or if the slope is greater than 3% and greater than 150 feet in length, then the disturbed areas shall be protected from erosion by stabilizing the area with mulch or other similarly effective erosion control measures if activities cease for more than seven (7) days.

4. Existing vegetation shall be preserved to the extent and where practical. In no case shall disturbed areas remain without vegetative ground cover for a period in excess of 60 days.

5. Additional site management practices which shall be adhered to during the construction process shall include:

–Solid and hazardous waste management including providing trash containers and regular site clean up for proper disposal of solid waste such as building and construction material, product/material shipping waste, food containers and cups, and providing containers for the proper disposal of waste paints solvents, and cleaning compounds.

–Provisions of portable toilets for proper disposal of sanitary sewage.

–Storage of construction materials away from drainage courses and low areas.

–Installation of containment berms and use of drip pans at petroleum product and liquid storage tanks and containers.

6. All disturbed areas shall be seeded, fertilized and mulched, or sodded, in accordance with the Standards and Specifications adopted by the City of Lee's Summit, Missouri and good engineering practices. This shall be completed within fourteen (14) days after completing the work, in any area. If this is outside of the seeding period, silt barriers or other similarly effective measures shall be provided until such time that the areas can be seeded.

**practices.** This shall be completed within fourteen (14) days after completing the work, in any area. If this is outside of the seeding period, silt barriers or other similarly effective measures shall be provided until such time that the areas can be seeded.

7. All erosion control measures, temporary or permanent, require maintenance to preserve their effectiveness. All erosion control devices shall be inspected immediately after each heavy rainstorm and at least daily during prolonged rainfall. Any required repairs should be made immediately. All costs associated with the repair work including related incidentals will be the contractor's responsibility and shall be included in the Contractor's bid for the proposed work. Only after the project is complete and accepted can the erosion control be removed.

8. Seeding shall be done before the proposed seedbed becomes eroded, crusted over, or dried out and shall not be done when the ground is frozen, or covered with snow. The seed shall comply with requirements of the Missouri Seed Law and the Federal Seed Act. Also, it shall contain no seed of any plant on the Federal Noxious Weed List. Other weed seed shall not exceed one percent by weight of mix.


9. During the dates Dec. 15 through May 30 ALL lime, fertilizer, seed, and mulch shall be applied to finished slopes of disturbed areas. During the months of June, July, October, and November 1st through December 15th, lime, fertilizer, seed, and mulch shall be applied at the following rates:

Lime – 100% of the specified quantity  
Fertilizer – 75% of the specified quantity  
Seed – 50% of the specified quantity  
Mulch – 100% of the specified quantity

10. Mulch shall be Vegetative type, cereal straw form stalks of oats, rye, or barley, or approved equal. The straw shall be free of prohibited weed seed and relatively free of all other noxious and undesirable seed. Apply straw mulch at a rate of 1.5 tons per acre as a seed cover or 2.5 tons per acre as a stand alone cover. Mulch shall be embedded by a mulch anchoring tool or disk type roller having flat serrated disks spaced not more than 10 inches apart and cleaning scrapers shall be provided.

### CAUTION!

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

	<b>GBA</b> 9801 Renner Blvd., Ste. 300 Lenexa, KS 66219 913.492.0400 gbateam.com		DATE: 10-05-2023 DESIGN BY: CEL DRAWN BY: BIB PROJECT NO.: 13958.01
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	Mass Grading Plans <b>LS Industrial, LLC</b> Lee's Summit, Missouri		
Clint Loumaster Professional Engineer License No. 2011009851			
NO.	DATE	REVISIONS	BY APPROVED



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