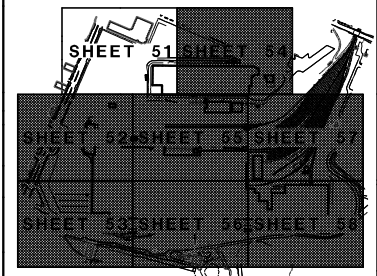


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- ⑤ SEE DITCH CHECK DETAIL ON SHEET 59.

**LAND FEATURE CHANGES - PHASE 2/3**

DISTURBED SURFACE AREA	66.87 ACRES
EXISTING IMPERVIOUS SURFACE AREA	65.73 ACRES
POST-CONSTRUCTION IMPERVIOUS SURFACE AREA	0.00 ACRES
POST-CONSTRUCTION REDUCTION IN IMPERVIOUS SURFACE AREA	-65.73 ACRES



**KEY PLAN**

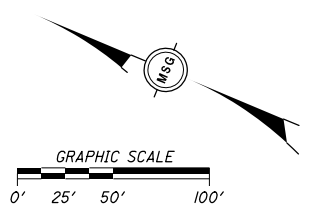
NO.	DATE	BY	DESCRIPTION
▲	11/09/12	LLH	SITE PLAN SUBMITTAL
▲			
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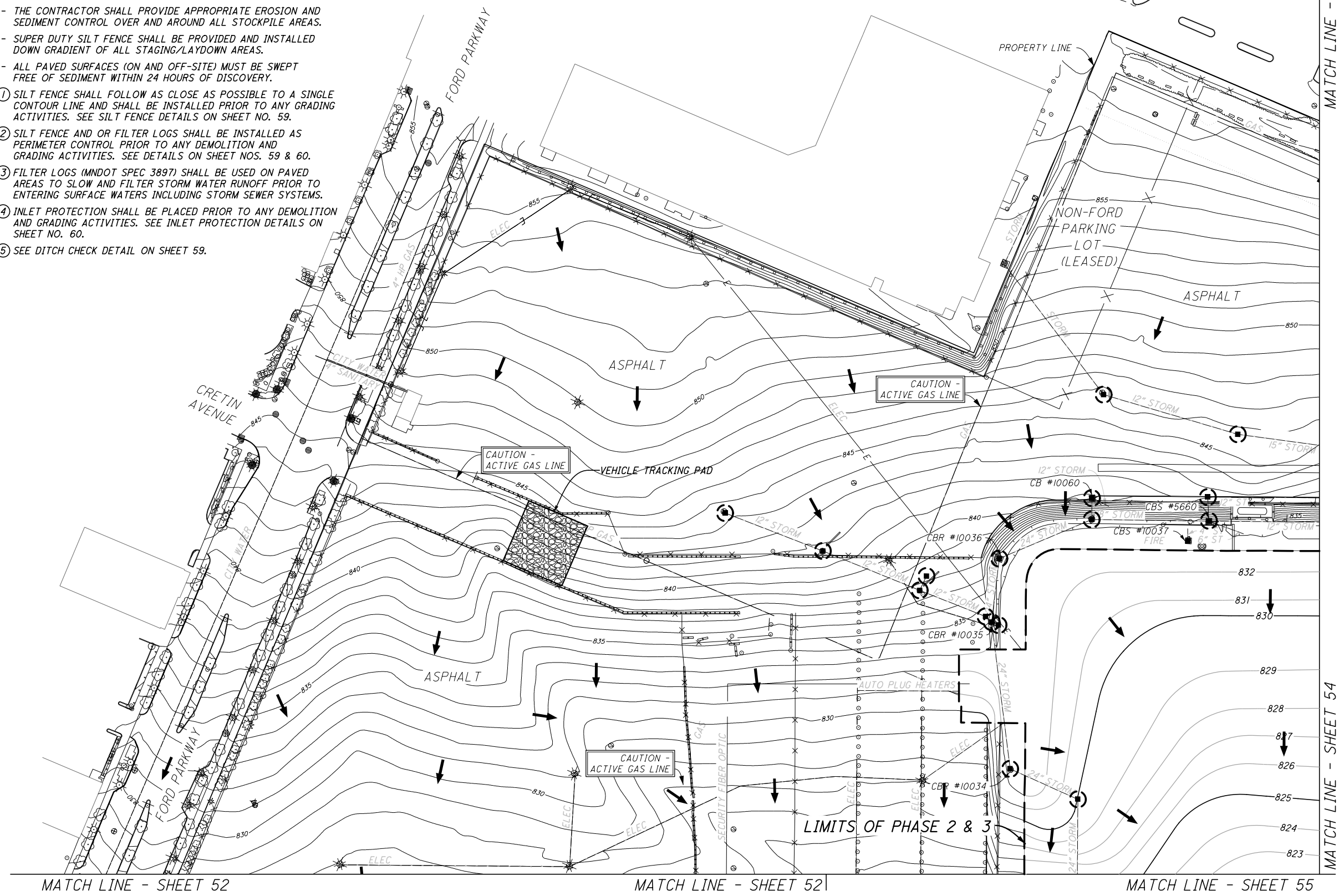
PRINT NAME: Matthew A. Wassman

SIGNATURE: \_\_\_\_\_

DATE: \_\_\_\_\_ LICENSE # 26883



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- SILT FENCE ① ②
  - BR— FILTER LOGS ③
  - INLET PROTECTION ④
  - SURFACE FLOW DIRECTION
  - X— SECURITY FENCE
  - ▨ EROSION CONTROL BLANKET (CAT 3)
  - BIOROLL DITCH CHECK ⑤



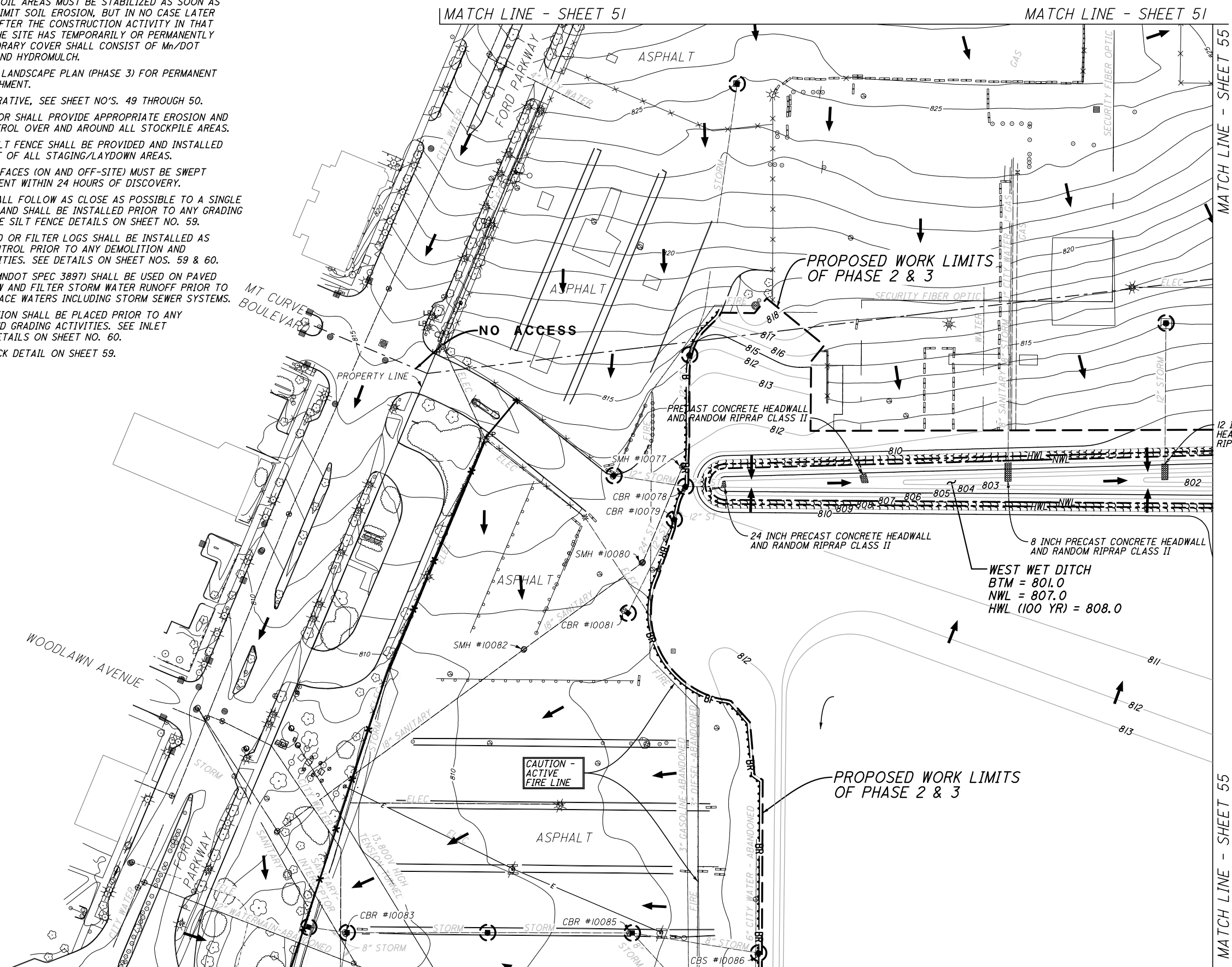
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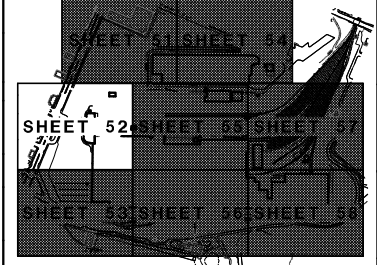
12/14/2012

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**FORDLAND**  
 The **Mannik & Smith** Group, Inc.  
 Civil Engineering, Surveying and Environmental Consulting

444 Cedar Street, Suite 1500  
 Saint Paul, MN 55101  
 651.292.4400  
 tkds.com

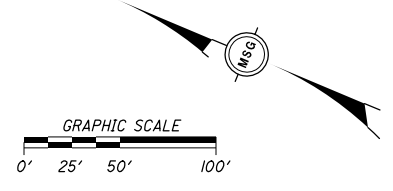


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  - SURFACE FLOW DIRECTION
  - SECURITY FENCE
  - EROSION CONTROL BLANKET (CAT 3)
  - BIOROLL DITCH CHECK ⑤

PROJECT  
**TWIN CITIES ASSEMBLY PLANT  
 SAINT PAUL, MINNESOTA**  
**PHASE 2/3 - EROSION  
 AND SEDIMENT  
 CONTROL PLAN**  
 52  
 79

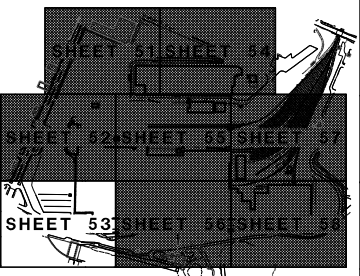
MATCH LINE - SHEET 52

MATCH LINE - SHEET 52



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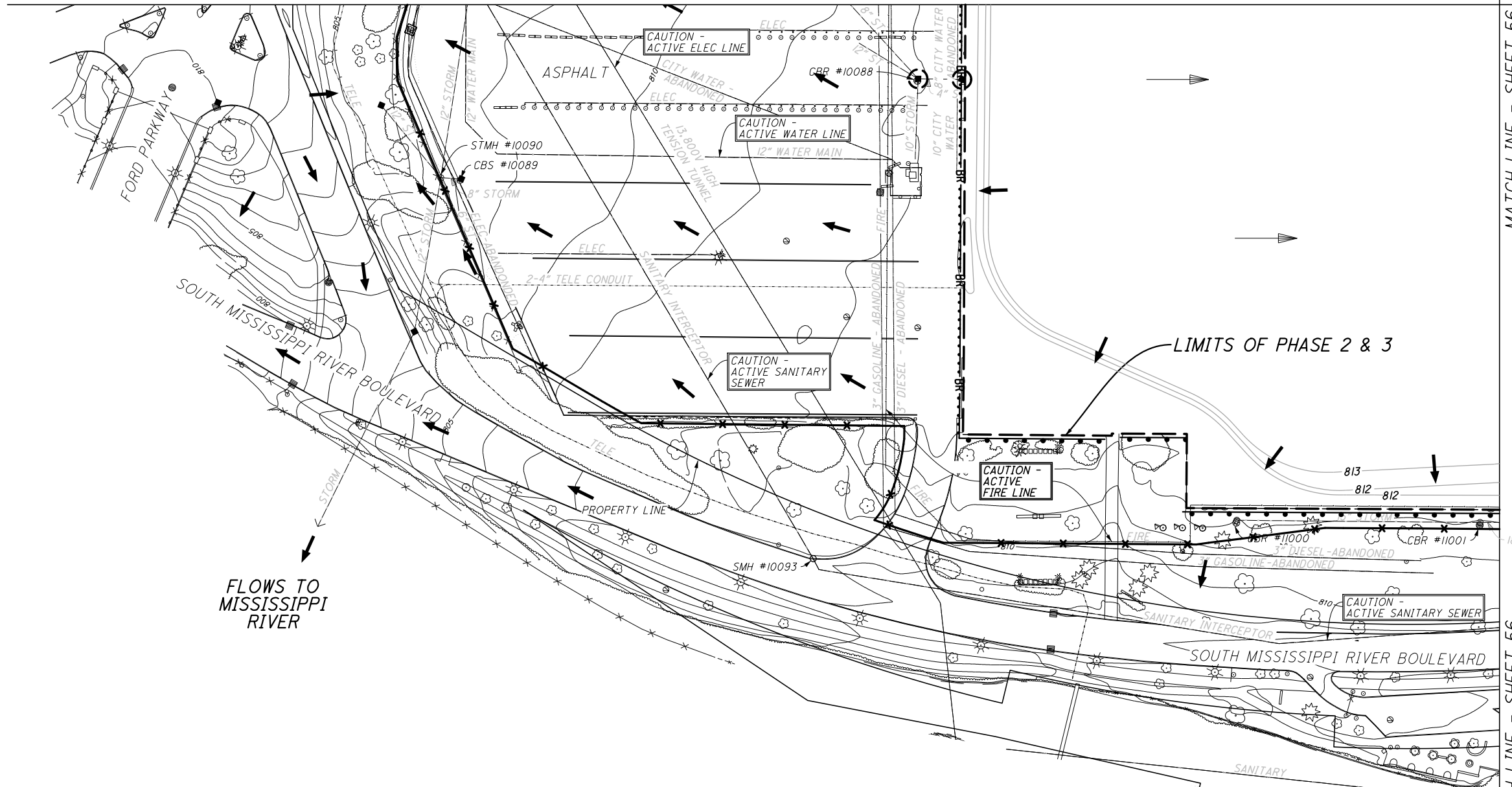


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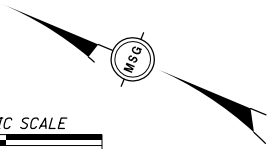
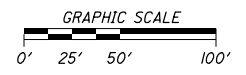
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FLows TO MISSISSIPPI RIVER

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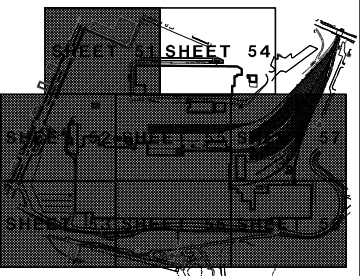
**LEGEND**

- SILT FENCE ① ②
- FILTER LOGS ③
- INLET PROTECTION ④
- SURFACE FLOW DIRECTION
- SECURITY FENCE
- EROSION CONTROL BLANKET (CAT 3)
- BIOROLL DITCH CHECK ⑤

PROJECT  
TWIN CITIES ASSEMBLY PLANT  
SAINT PAUL, MINNESOTA  
**PHASE 2 / 3 - EROSION AND SEDIMENT CONTROL PLAN**  
53  
79

12/14/2012

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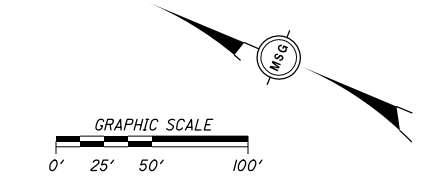
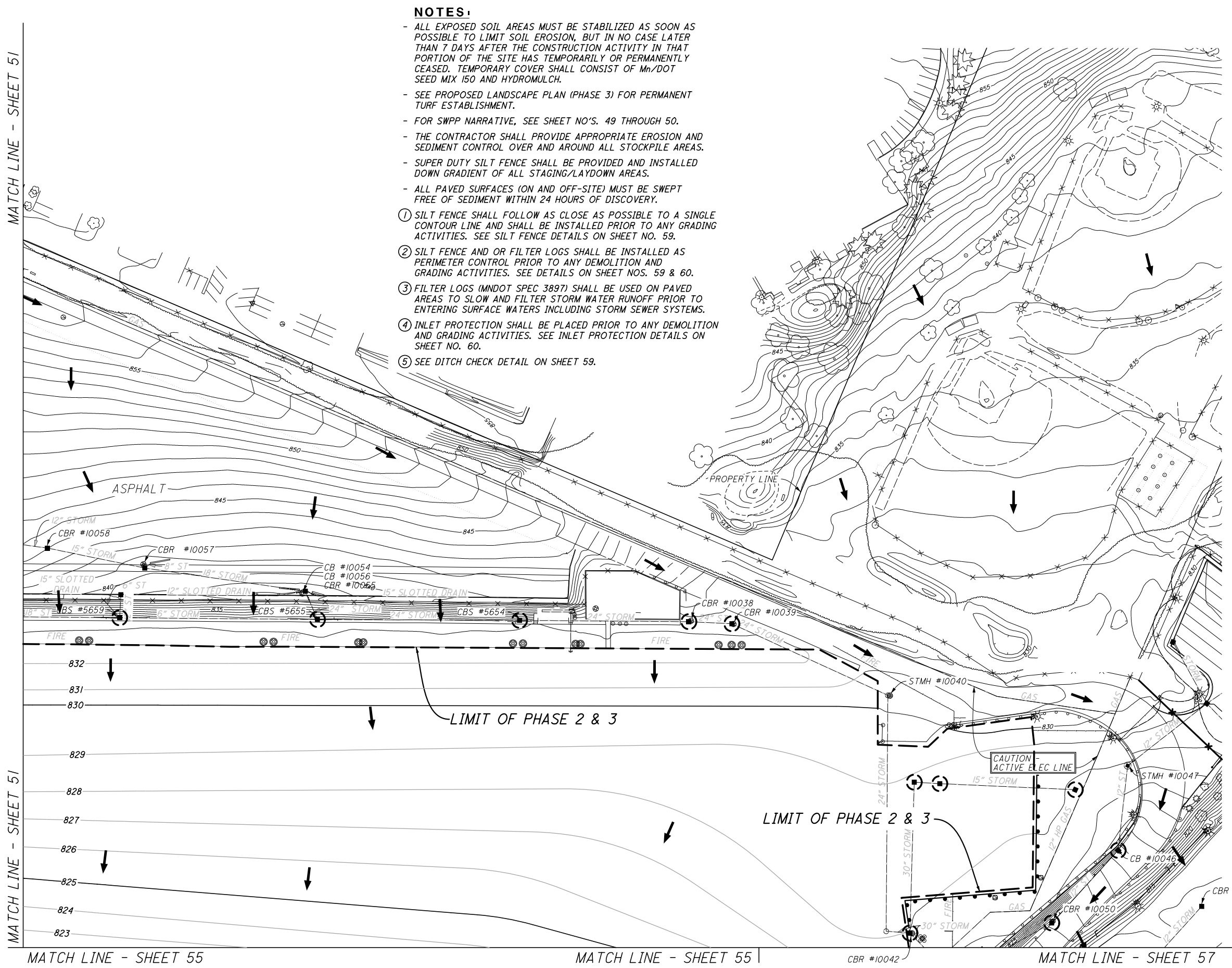
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- LEGEND**
- SILT FENCE ① ②
  - BR— FILTER LOGS ③
  - INLET PROTECTION ④
  - SURFACE FLOW DIRECTION
  - \*— SECURITY FENCE
  - ▨ EROSION CONTROL BLANKET (CAT 3)
  - BIOROLL DITCH CHECK ⑤

MATCH LINE - SHEET 51

MATCH LINE - SHEET 51

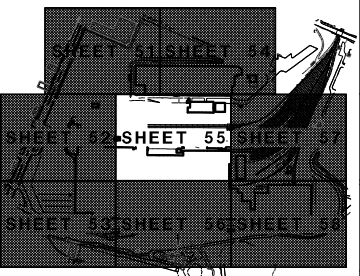
MATCH LINE - SHEET 55

MATCH LINE - SHEET 55

MATCH LINE - SHEET 55

MATCH LINE - SHEET 57

PROJECT  
TWIN CITIES ASSEMBLY PLANT  
SAINT PAUL, MINNESOTA  
54  
79

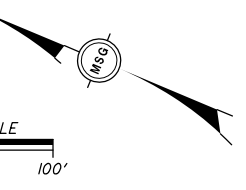


**KEY PLAN**

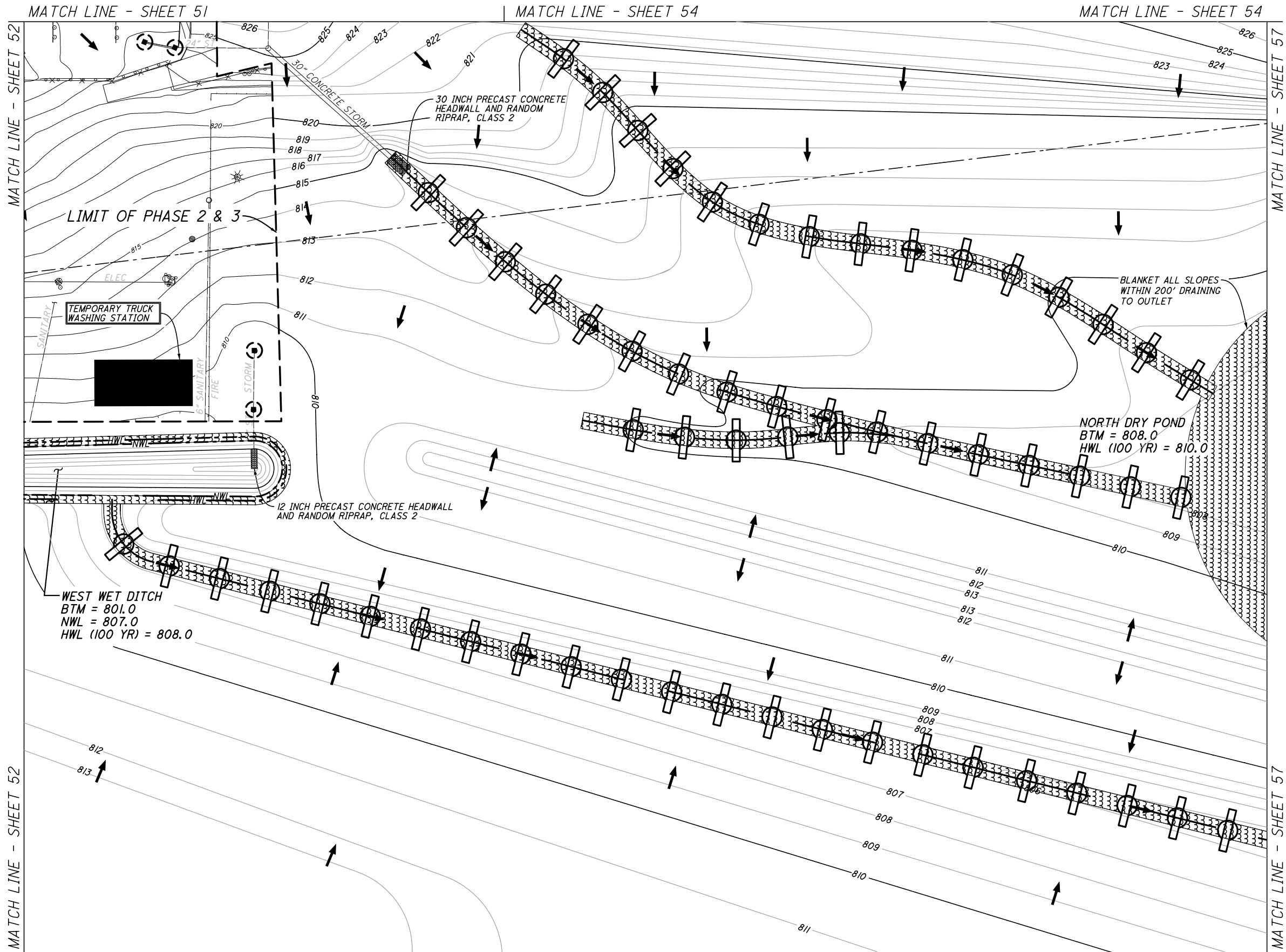
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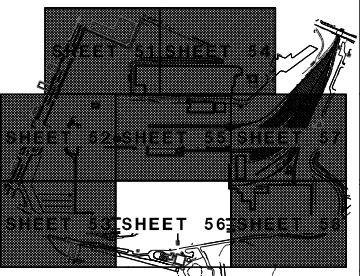
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12/4/2012

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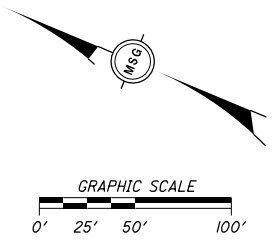


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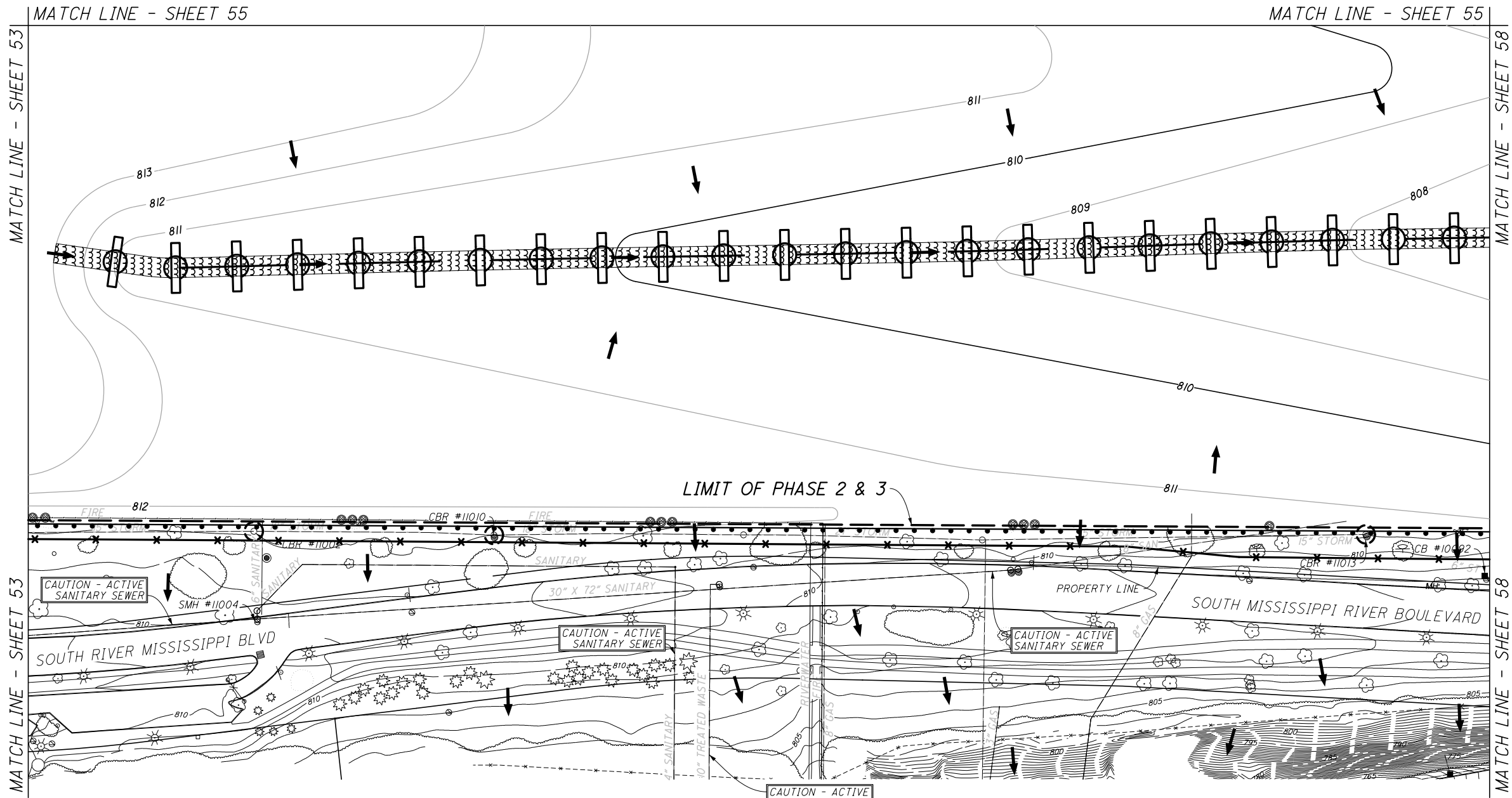
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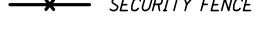
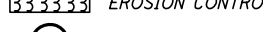
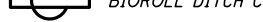
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PROJECT  
TWIN CITIES ASSEMBLY PLANT  
SAINT PAUL, MINNESOTA  
PHASE 2 / 3 - EROSION  
AND SEDIMENT  
CONTROL PLAN  
56  
79

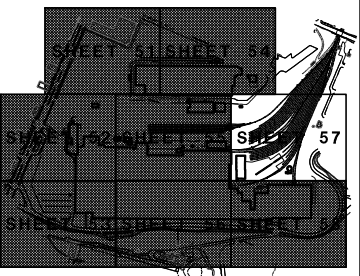


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- LEGEND**
-  SILT FENCE ①②
  -  FILTER LOGS ③
  -  INLET PROTECTION ④
  -  SURFACE FLOW DIRECTION
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  -  EROSION CONTROL BLANKET (CAT 3)
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12/4/2012

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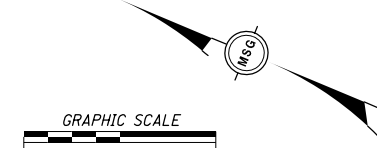
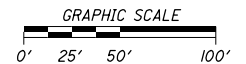
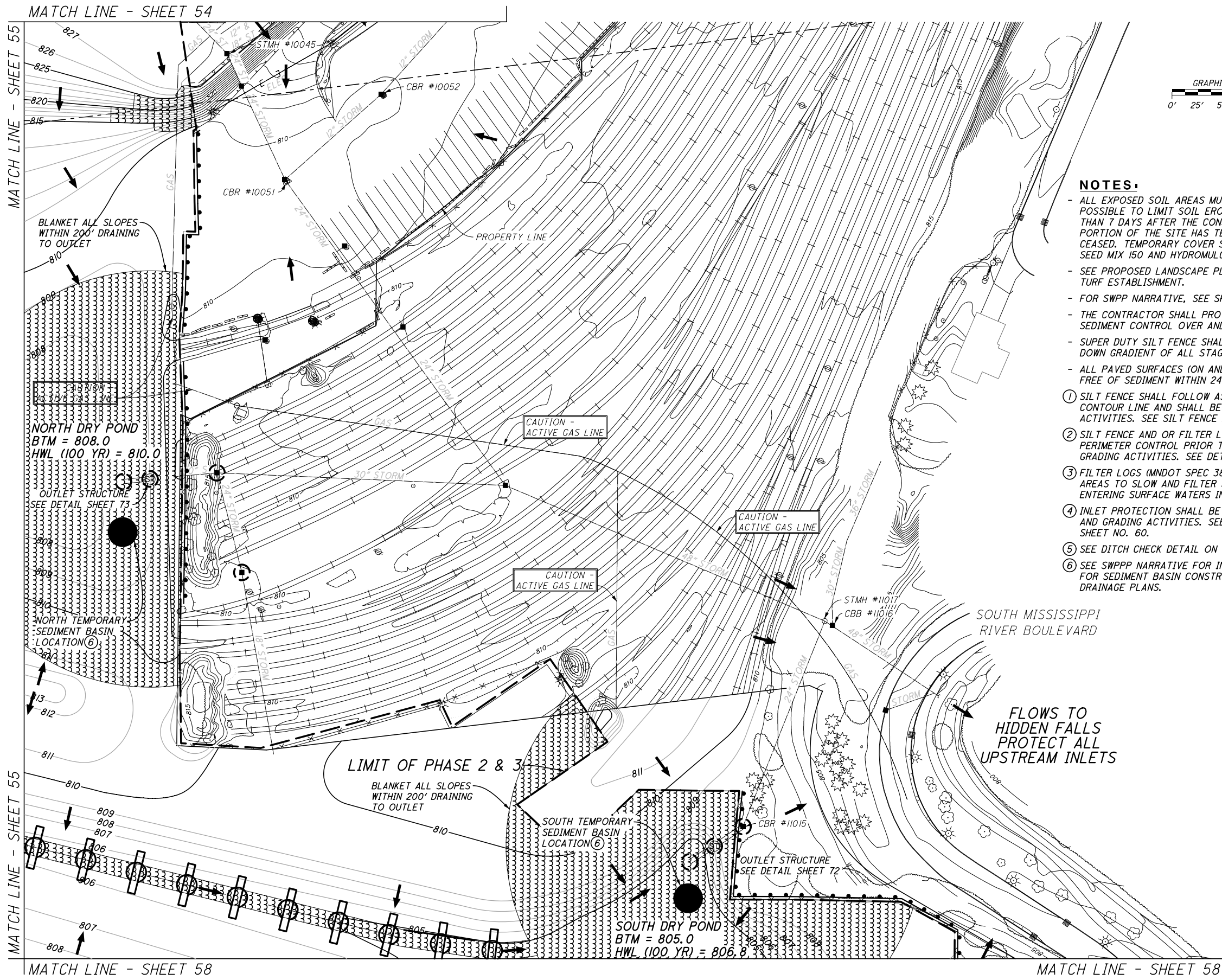


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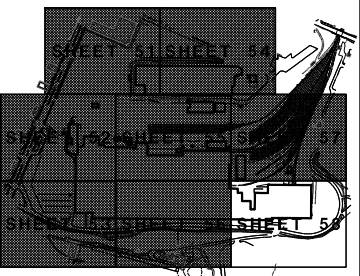


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  - ② SILT FENCE AND OR FILTER LOGS SHALL BE INSTALLED AS PERIMETER CONTROL PRIOR TO ANY DEMOLITION AND GRADING ACTIVITIES. SEE DETAILS ON SHEET NOS. 59 & 60.
  - ③ FILTER LOGS (MNDOT SPEC 3897) SHALL BE USED ON PAVED AREAS TO SLOW AND FILTER STORM WATER RUNOFF PRIOR TO ENTERING SURFACE WATERS INCLUDING STORM SEWER SYSTEMS.
  - ④ INLET PROTECTION SHALL BE PLACED PRIOR TO ANY DEMOLITION AND GRADING ACTIVITIES. SEE INLET PROTECTION DETAILS ON SHEET NO. 60.
  - ⑤ SEE DITCH CHECK DETAIL ON SHEET 59.
  - ⑥ SEE SWPPP NARRATIVE FOR INFORMATION ON REQUIREMENTS FOR SEDIMENT BASIN CONSTRUCTION. SEE GRADING AND DRAINAGE PLANS.

- LEGEND**
- SILT FENCE ① ②
  - BR— FILTER LOGS ③
  - INLET PROTECTION ④
  - SURFACE FLOW DIRECTION
  - ✕ SECURITY FENCE
  - ▨ EROSION CONTROL BLANKET (CAT 3)
  - BIOROLL DITCH CHECK ⑤

12/14/2012

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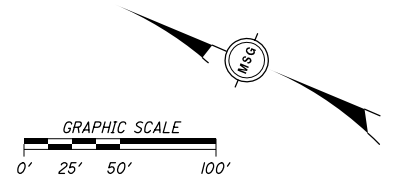


**KEY PLAN**








NO.	DATE	BY	DESCRIPTION
1	11/09/12	LLH	SITE PLAN SUBMITTAL

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA

PRINT NAME: Matthew A. Wassman  
SIGNATURE: \_\_\_\_\_  
DATE: \_\_\_\_\_ LICENSE # 26883

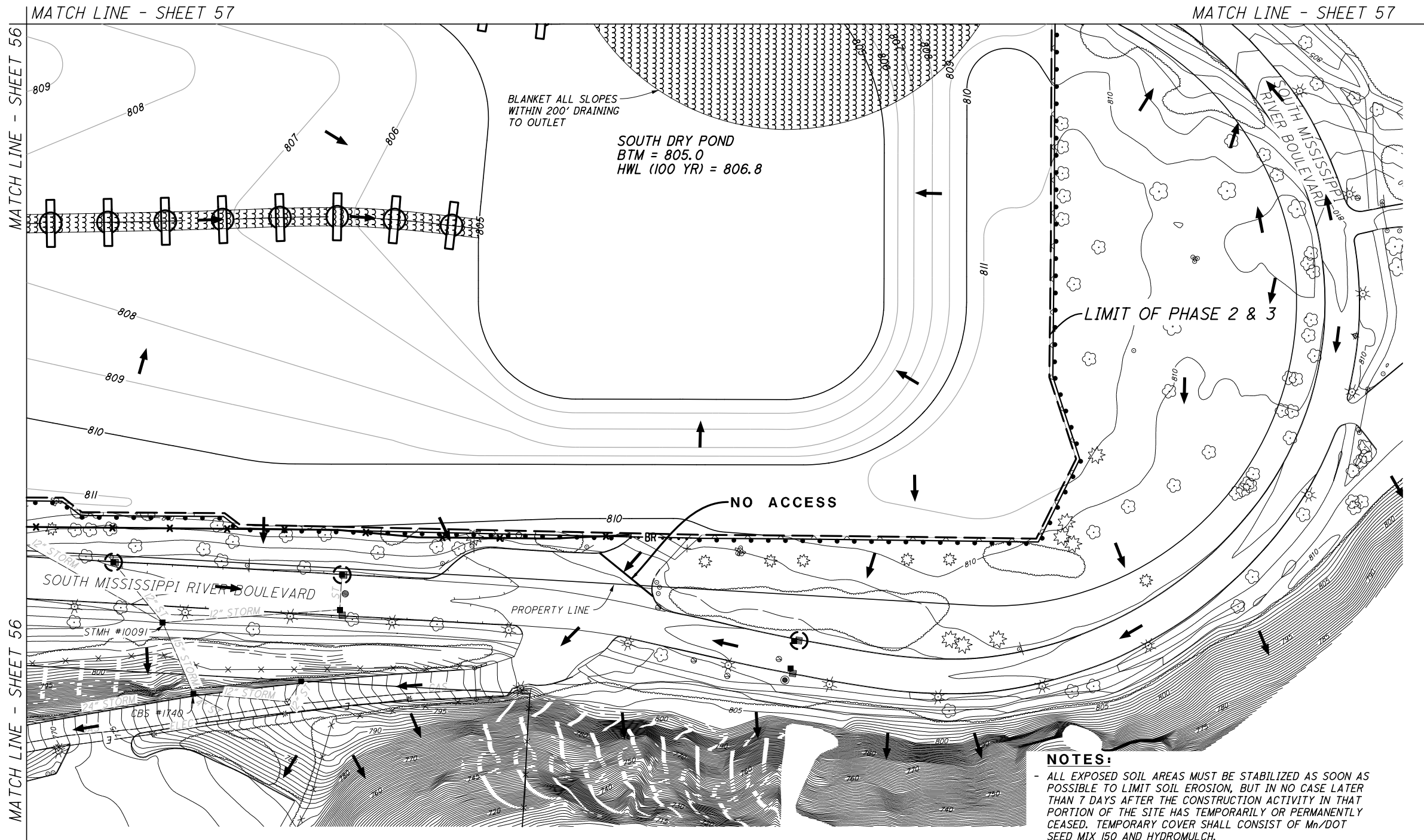


**LEGEND**

-  SILT FENCE ① ②
-  BR FILTER LOGS ③
-  INLET PROTECTION ④
-  SURFACE FLOW DIRECTION
-  SECURITY FENCE
-  EROSION CONTROL BLANKET (CAT 3)
-  BIOROLL DITCH CHECK ⑤

**NOTES:**

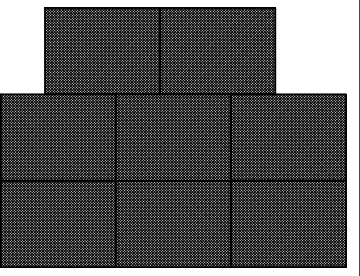
- ALL EXPOSED SOIL AREAS MUST BE STABILIZED AS SOON AS POSSIBLE TO LIMIT SOIL EROSION, BUT IN NO CASE LATER THAN 7 DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE HAS TEMPORARILY OR PERMANENTLY CEASED. TEMPORARY COVER SHALL CONSIST OF Mn/DOT SEED MIX 150 AND HYDROMULCH.
- SEE PROPOSED LANDSCAPE PLAN (PHASE 3) FOR PERMANENT TURF ESTABLISHMENT.
- FOR SWPP NARRATIVE, SEE SHEET NO'S. 49 THROUGH 50.
- THE CONTRACTOR SHALL PROVIDE APPROPRIATE EROSION AND SEDIMENT CONTROL OVER AND AROUND ALL STOCKPILE AREAS.
- SUPER DUTY SILT FENCE SHALL BE PROVIDED AND INSTALLED DOWN GRADIENT OF ALL STAGING/LAYDOWN AREAS.
- ALL PAVED SURFACES (ON AND OFF-SITE) MUST BE SWEEP FREE OF SEDIMENT WITHIN 24 HOURS OF DISCOVERY.
- ① SILT FENCE SHALL FOLLOW AS CLOSE AS POSSIBLE TO A SINGLE CONTOUR LINE AND SHALL BE INSTALLED PRIOR TO ANY GRADING ACTIVITIES. SEE SILT FENCE DETAILS ON SHEET NO. 59.
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- ⑤ SEE DITCH CHECK DETAIL ON SHEET 59.



12/4/2012

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**KEY PLAN**

NO.	DATE	BY	DESCRIPTION
1	11/09/12	LLH	SITE PLAN SUBMITTAL

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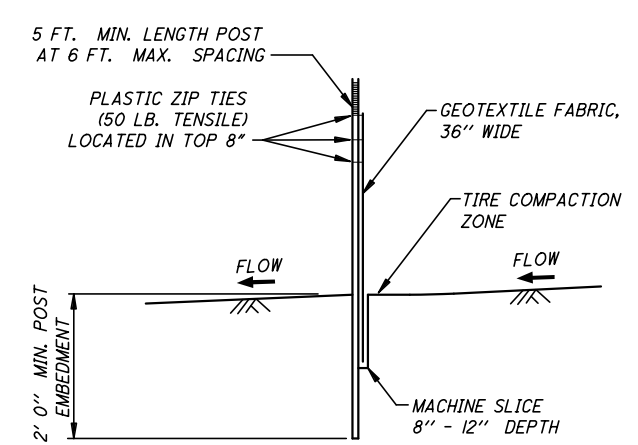
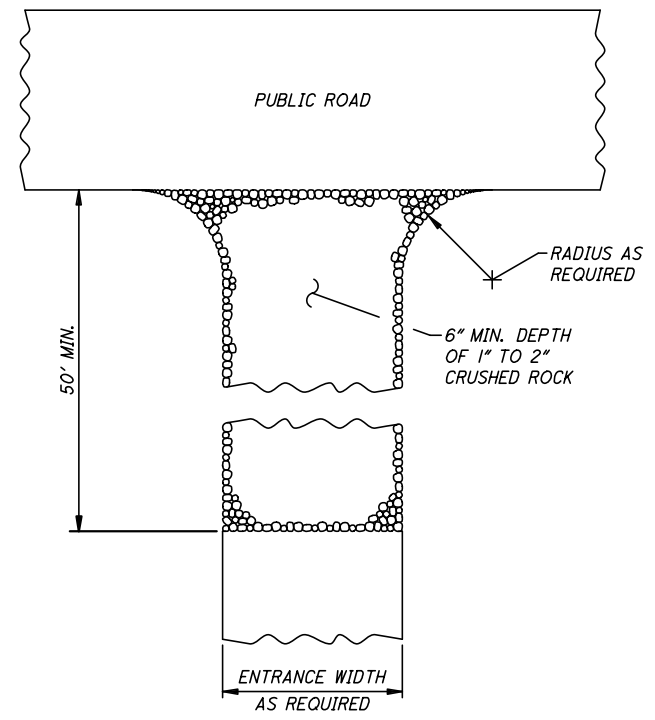
PRINT NAME: Matthew A. Wassman  
SIGNATURE: \_\_\_\_\_  
DATE: \_\_\_\_\_ LICENSE # 26883

PROJECT  
TWIN CITIES ASSEMBLY PLANT  
SAINT PAUL, MINNESOTA

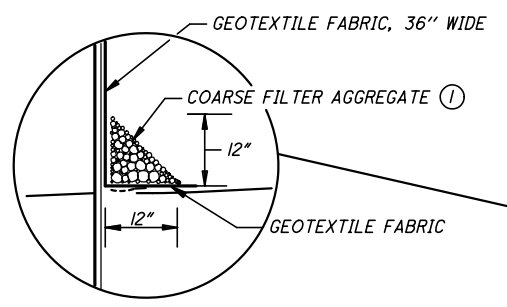
PHASE 2/3 - EROSION AND SEDIMENT CONTROL DETAILS

12/4/2012

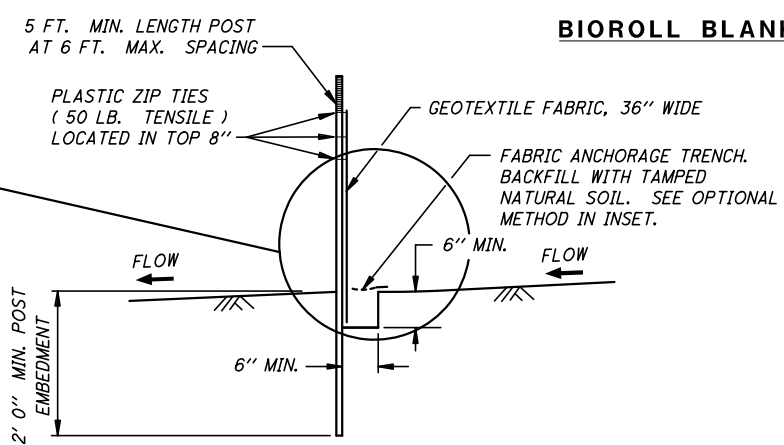
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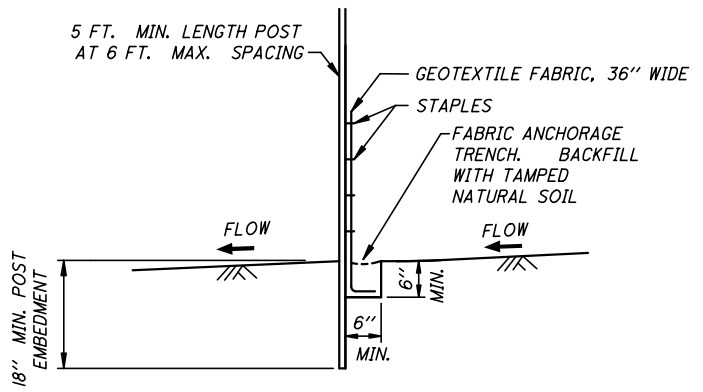
**SILT FENCE, MACHINE SLICED**  
DESIGN GUIDELINES:  
TO PROTECT AREAS FROM SHEET FLOW.  
MAXIMUM CONTRIBUTING AREA: 1 ACRE.



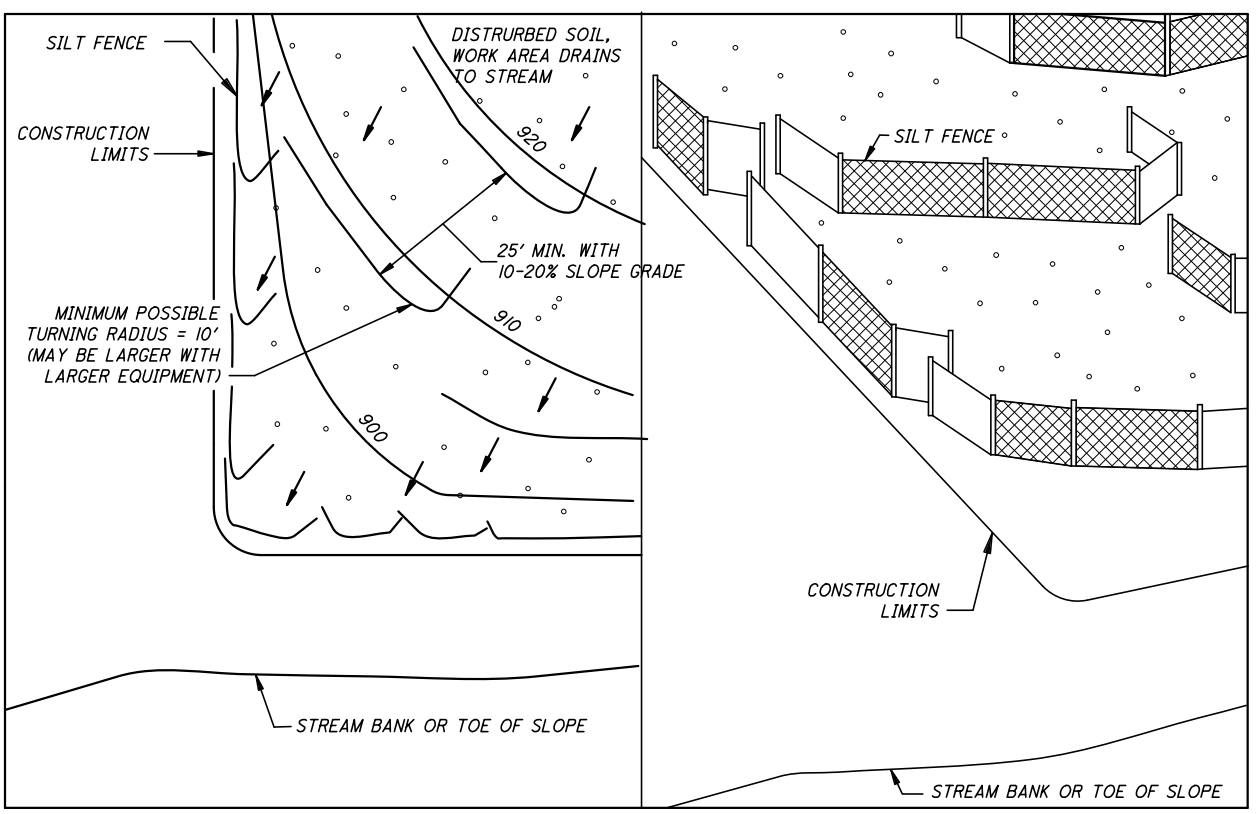
**OPTIONAL METHOD FOR SILT FENCE, HEAVY DUTY**



**SILT FENCE, HEAVY DUTY (HAND INSTALLED)**  
DESIGN GUIDELINES:  
TO PROTECT AREAS FROM SHEET FLOW.  
MAXIMUM CONTRIBUTING AREA: 1 ACRE.



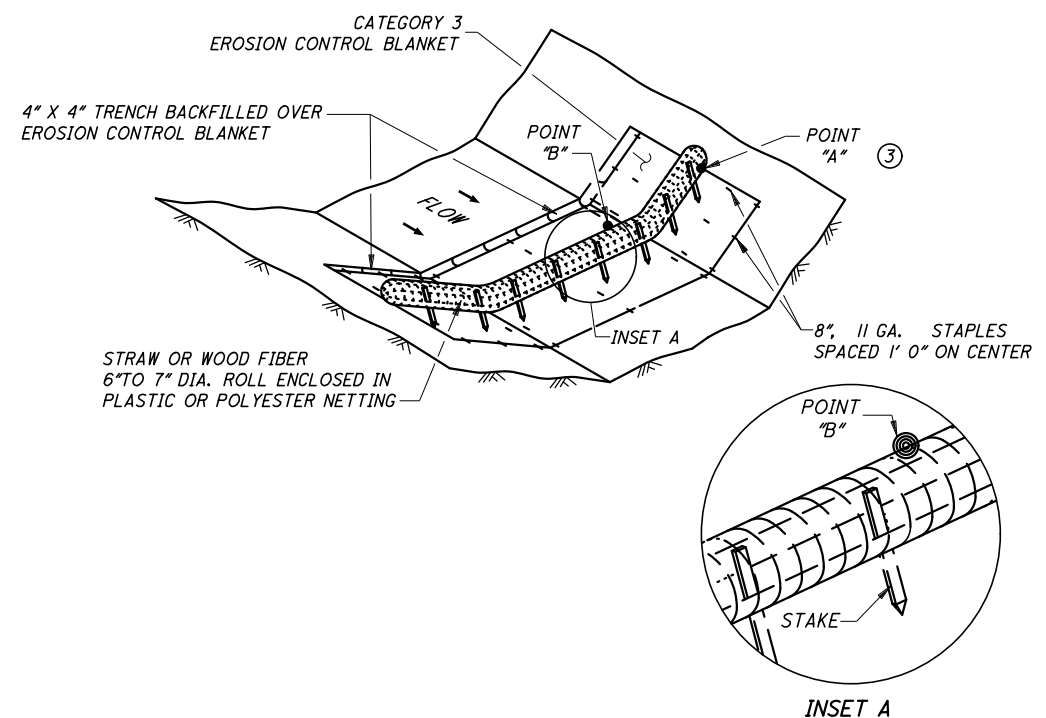
**SILT FENCE, PREASSEMBLED**  
DESIGN GUIDELINES:  
TO PROTECT AREAS FROM SHEET FLOW.  
MAXIMUM CONTRIBUTING AREA: 1 ACRE.



PLAN VIEW

SIDE VIEW

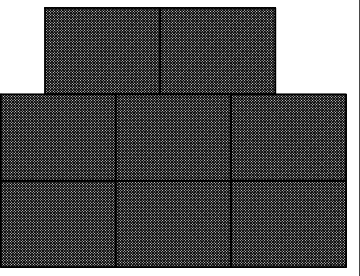
**SILT FENCE, J-HOOK INSTALLATION**



**BIOROLL BLANKET SYSTEM DITCH CHECK**

**NOTES:**

- SEE SPECS. 2573, 3149 & 3886.
- ① COARSE FILTER AGGREGATE (SPEC. 3149).
- ② ROCKS AT ENTRANCE CLEAN WORKSITE MUD OFF OF TRUCK TIRES BEFORE TRUCKS ENTER MAIN ROAD. KEEPING MUD OFF THE ROAD WILL PREVENT AUTO DAMAGE AND KEEP CONSTRUCTION SEDIMENT OUT OF DRAINAGE SYSTEMS AND WETLANDS. GEOTEXTILE MAY BE PLACED UNDER THE ROCK TO KEEP ROCKS SEPARATE FROM SOIL.
- ③ POINT "A" MUST BE A MINIMUM OF 6 INCHES HIGHER THAN POINT "B" TO ENSURE THAT WATER FLOWS OVER THE DIKE AND NOT AROUND THE ENDS.



**KEY PLAN**

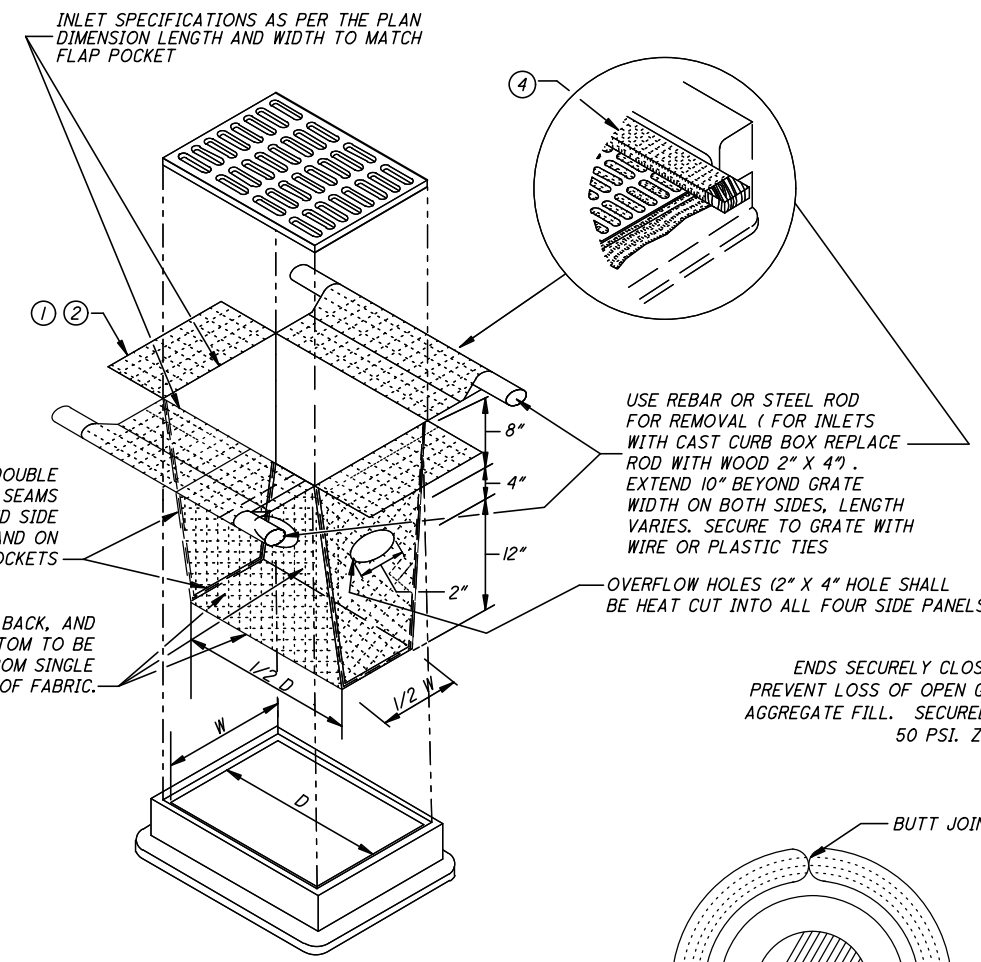
NO.	DATE	BY	DESCRIPTION
▲	11/09/12	LLH	SITE PLAN SUBMITTAL
▲			
▲			
▲			

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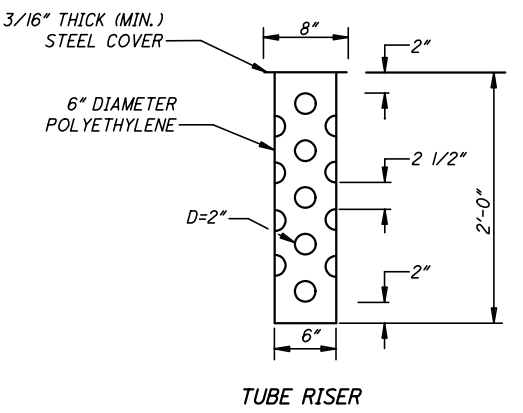
PRINT NAME: Matthew A. Wassman  
 SIGNATURE: \_\_\_\_\_  
 DATE: \_\_\_\_\_ LICENSE # 26883

PROJECT  
 TWIN CITIES ASSEMBLY PLANT  
 SAINT PAUL, MINNESOTA

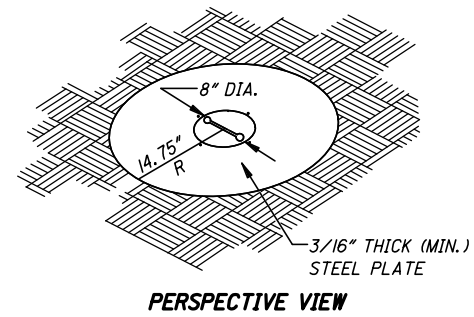
PHASE 2 / 3 - EROSION AND SEDIMENT CONTROL DETAILS



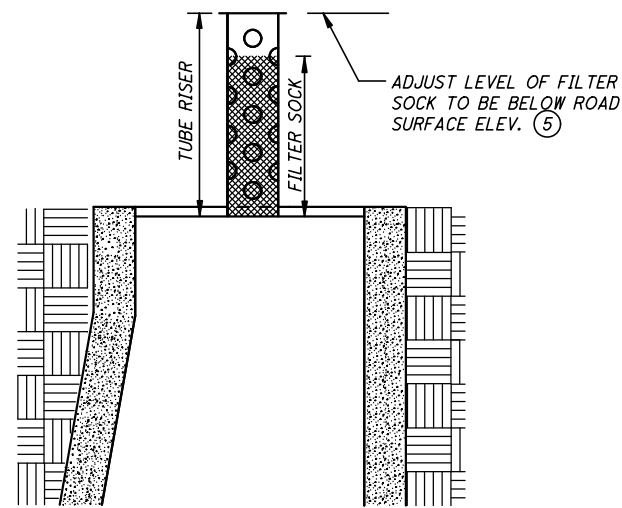
**FILTER BAG INSERT** ③  
 (CAN BE INSTALLED IN ANY INLET TYPE WITH OR WITHOUT A CURB BOX)



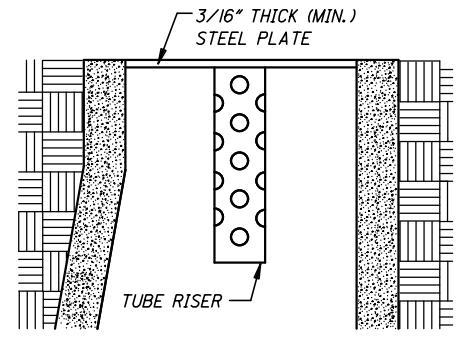
**TUBE RISER**



**PERSPECTIVE VIEW**

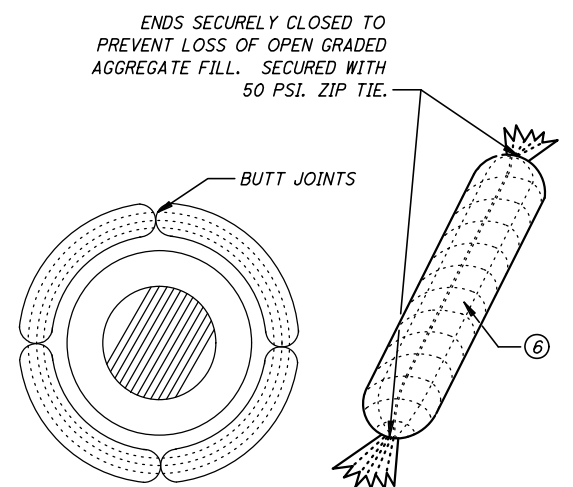


**SECTION (UP POSITION)**

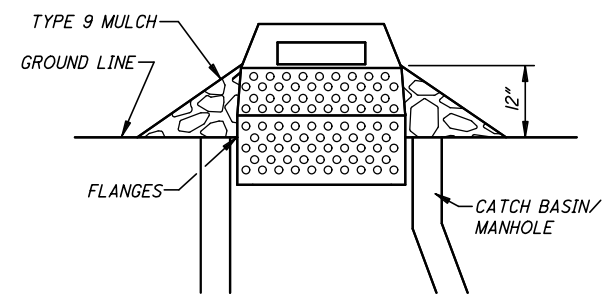


**SECTION (DOWN POSITION)**

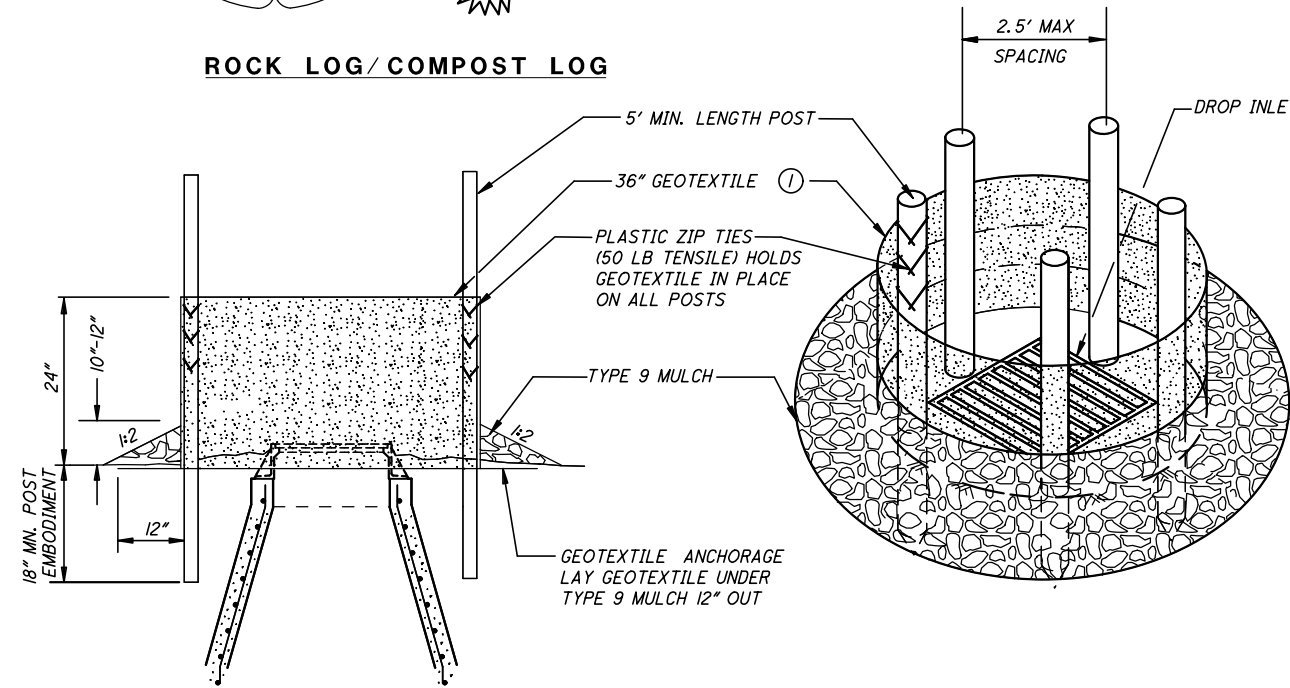
**POP-UP HEAD**



**ROCK LOG/COMPOST LOG**



**SEDIMENT CONTROL INLET HAT**



**SILTS FENCE RING AND ROCK FILTER BERM**  
 USE WHERE INLET DRAINS IN AN AREA WITH SLOPES AT 1:3 OR LESS

**NOTES:**

- SEE SPECS. 2573, 3137, 3886 & 3891.
- MANUFACTURED ALTERNATIVES LISTED ON Mn/DOT'S APPROVED PRODUCTS LIST MAY BE SUBSTITUTED.
- ① ALL GEOTEXTILE USED FOR INLET PROTECTION SHALL BE MONOFILAMENT IN BOTH DIRECTIONS, MEETING SPEC. 3886.
- ② FINISHED SIZE, INCLUDING POCKETS WHERE REQUIRED SHALL EXTEND A MINIMUM OF 10 INCHES AROUND THE PERIMETER TO FACILITATE MAINTENANCE OR REMOVAL.
- ③ INSTALLATION NOTES:  
 DO NOT INSTALL FILTER BAG INSERT IN INLETS SHALLOWER THAN 30 INCHES, MEASURED FROM THE BOTTOM OF THE INLET TO THE TOP OF THE GRATE. THE INSTALLED BAG SHALL HAVE A MINIMUM SIDE CLEARANCE OF 3 INCHES BETWEEN THE INLET WALLS AND THE BAG, MEASURED AT THE BOTTOM OF THE OVERFLOW HOLES. WHERE NECESSARY THE CONTRACTOR SHALL CLINCH THE BAG, USING PLASTIC ZIP TIES, TO ACHIEVE THE 3 INCH SIDE CLEARANCE.
- ④ FLAP POCKETS SHALL BE LARGE ENOUGH TO ACCEPT WOOD 2 INCH X 4 INCH OR USE A ROCK SOCK OR SAND BAGS IN PLACE OF THE FLAP POCKETS.
- ⑤ SOCK HEIGHT MUST NOT BE SO HIGH AS TO SLOW DOWN WATER FILTRATION TO CAUSE FLOODING OF THE ROADWAY.
- ⑥ GEOTEXTILE SOCK BETWEEN 4-10 FEET LONG AND 4-6 INCH DIAMETER. SEAM TO BE JOINED BY TWO ROWS OF STITCHING WITH A PLASTIC MESH BACKING OR PROVIDE A HEAT BONDED SEAM (OR APPROVED EQUIVALENT). FILL ROCK LOG WITH OPEN GRADED AGGREGATE CONSISTING OF SOUND DURABLE PARTICLES OF COARSE AGGREGATE CONFORMING TO SPEC. 3137 TABLE 3137-1; CA-3 GRADATION.

NOTE:  
 THE SEDIMENT CONTROL BARRIER SHALL BE A METAL OR PLASTIC/POLYETHYLENE RISER SIZED TO FIT INSIDE THE CATCH BASIN/MANHOLE; HAVE PERFORATIONS TO ALLOW FOR WATER INFILTRATION; HAVE AN OVERFLOW OPENING, FLANGES AND A LID/COVER.

12/4/2012

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