

# MINNESOTA DEPARTMENT OF TRANSPORTATION

## CITY OF MAPLE GROVE

HENNEPIN COUNTY, MINNESOTA

CITY PROJECT NO. 2007-15

HENNEPIN COUNTY PROJECT NO. 0521

C.S.A.H. 30

CONSTRUCTION PLAN FOR GRADING, AGGREGATE BASE, BITUMINOUS PAVING, BITUMINOUS PATH, CONCRETE CURB & GUTTER,  
DRAINAGE, SIGNAL SYSTEMS, BOX CULVERT 27J44

LOCATED ON C.S.A.H. 30 FROM C.S.A.H. 101 TO DUNKIRK L.A.N.

**STATE PROJ. NOS. 189-020-18, 27-630-011**

GROSS LENGTH 8,620.70 FEET 1.633 MILES  
BRIDGES-LENGTH 22.41 FEET 0.004 MILES  
EXCEPTIONS-LENGTH 0.0 FEET 0.0 MILES  
NET LENGTH 8,620.70 FEET 1.633 MILES  
REF. POINT TO REF. POINT  
LENGTH AND DESCRIPTION BASED UPON E.B. C.S.A.H. 30

**STATE PROJ. NOS. 189-020-18, 27-630-011**

GROSS LENGTH 950.30 FEET 0.180 MILES  
BRIDGES-LENGTH 0.0 FEET 0.0 MILES  
EXCEPTIONS-LENGTH 0.0 FEET 0.0 MILES  
NET LENGTH 950.30 FEET 0.180 MILES  
REF. POINT TO REF. POINT  
LENGTH AND DESCRIPTION BASED UPON LAWDALE

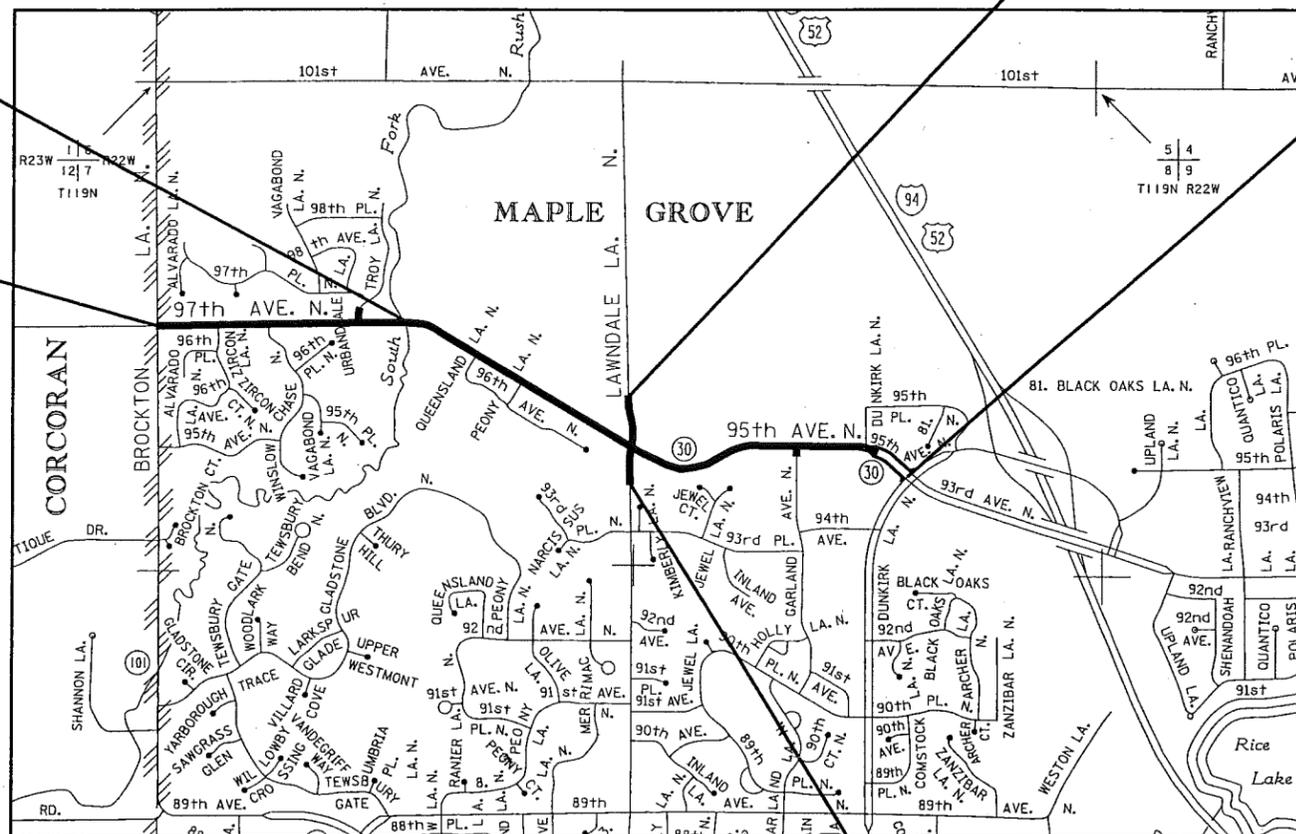
PROPOSED BRIDGE NO. 27J44  
STA. 126+69.99 TO STA. 126+92.40  
EXISTING BRIDGE NO. 92308

BEGIN S.P. 189-020-18  
S.P. 27-630-011

EB CSAH 30 STA. 100+25.92

END S.P. 189-020-18  
S.P. 27-630-011  
LAWDALE STA. 45+00.00

END S.P. 189-020-18  
S.P. 27-630-011  
EB CSAH 30 STA. 186+46.62



PLAN REVISIONS		
DATE	SHEET NO.	APPROVED BY



PROJECT LOCATION  
COUNTY : HENNEPIN  
DISTRICT : METRO

SCALES

INDEX MAP	2000'
GENERAL LAYOUT	400'
PLAN	100'
PROFILE	10'
X-SECTION	20'

**DESIGN DESIGNATION FOR:**

	CSAH 30 STA. 100+25.92- STA. 151+00	CSAH 30 STA. 151+00- STA. 173+00	CSAH 30 STA. 173+00- STA. 186+46.62	LAWDALE L.A. STA. 35+49.70
R-VALUE	13	13	13	13
ADT (Current Year) 2010 =	16,600	16,600	16,600	400
ADT (Future Year) 2030 =	35,000 (2030)	35,000 (2030)	35,000 (2030)	9350 (2030)
PAVEMENT DESIGN	10 TON	10 TON	10 TON	10 TON
FUNCTIONAL CLASSIFICATION	'A' MINOR ARTERIAL	'A' MINOR ARTERIAL	'A' MINOR ARTERIAL	MAJOR COLLECTOR
NO. OF TRAFFIC LANES	4	4	4	2
NO. OF PARKING LANES	0	0	0	0
ESALS (20)	2,740,000	1,590,000	1,590,000	576,000
Design Speed	50 MPH	45 MPH	40 MPH	40 MPH
Based on Sight Distance	STOPPING	STOPPING	STOPPING	STOPPING
Height of eye / Height of Object	3.5' / 2.0'	3.5' / 2.0'	3.5' / 2.0'	3.5' / 2.0'
Design Speed not achieved at:	NA	NA	NA	NA

FOR PLANS AND UTILITIES SYMBOLS SEE TECHNICAL MANUAL  
STATE PROJ. NO. CHARGE IDENTIFIER

I HEREBY CERTIFY THAT THE FINAL FIELD CHANGES, IF ANY, OF THIS PLAN WERE MADE BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

SIGNATURE \_\_\_\_\_  
DATE \_\_\_\_\_ LIC. NO. \_\_\_\_\_ PRINT NAME \_\_\_\_\_

FED. PROJ. NO. STPX 2709 (055)

**GOVERNING SPECIFICATIONS**

THE 2005 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN. ALL TRAFFIC CONTROL DEVICES SHALL CONFORM AND BE INSTALLED IN ACCORDANCE TO THE "MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MN MUTCD) AND PART VI, "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS".  
CITY OF MAPLE GROVE STANDARD SPECIFICATIONS FOR UTILITY AND STREET CONSTRUCTION 2004.

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THIS PLAN CONTAINS 238 SHEETS

**SRE CONSULTING GROUP, INC.**

I HEREBY CERTIFY THAT THIS PLAN 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.

SIGNATURE *Kristy Morter*  
DATE 8/25/08 LIC. NO. 43556 PRINT NAME KRISTY MORTER

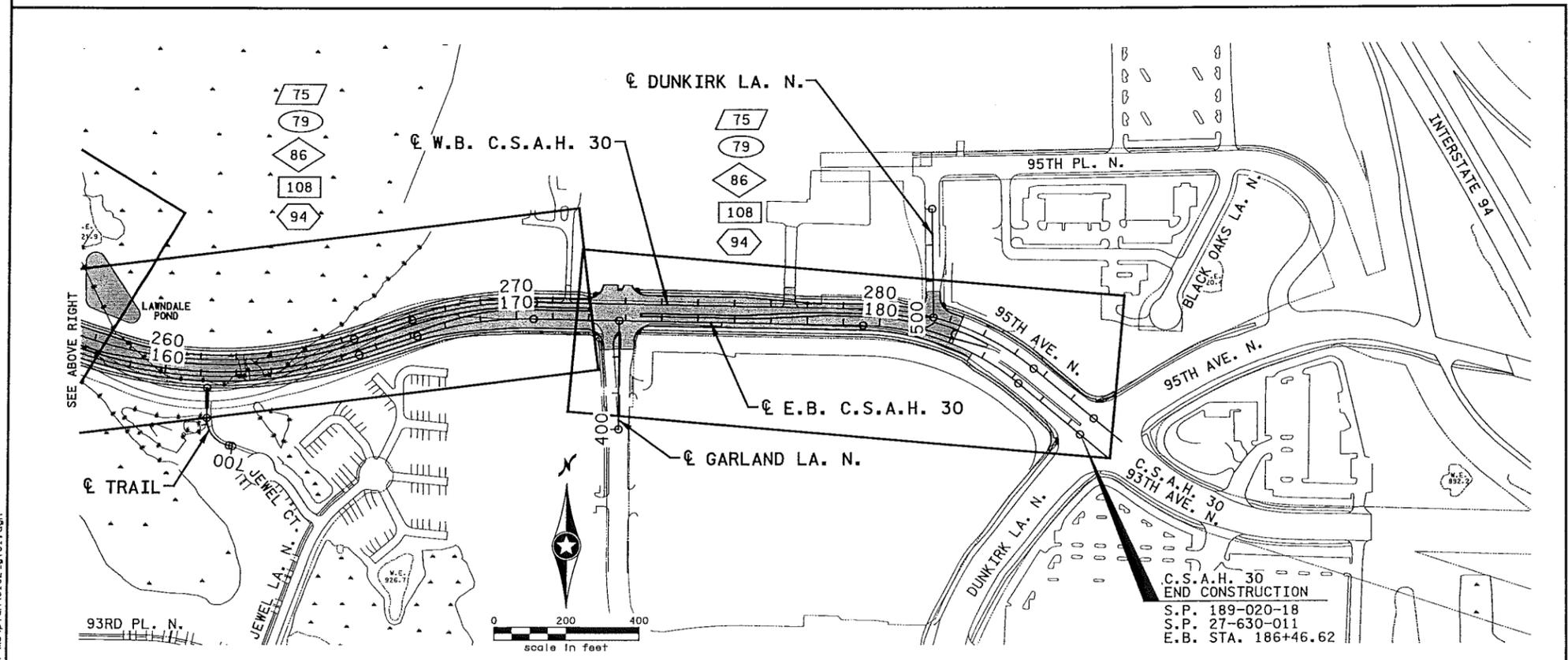
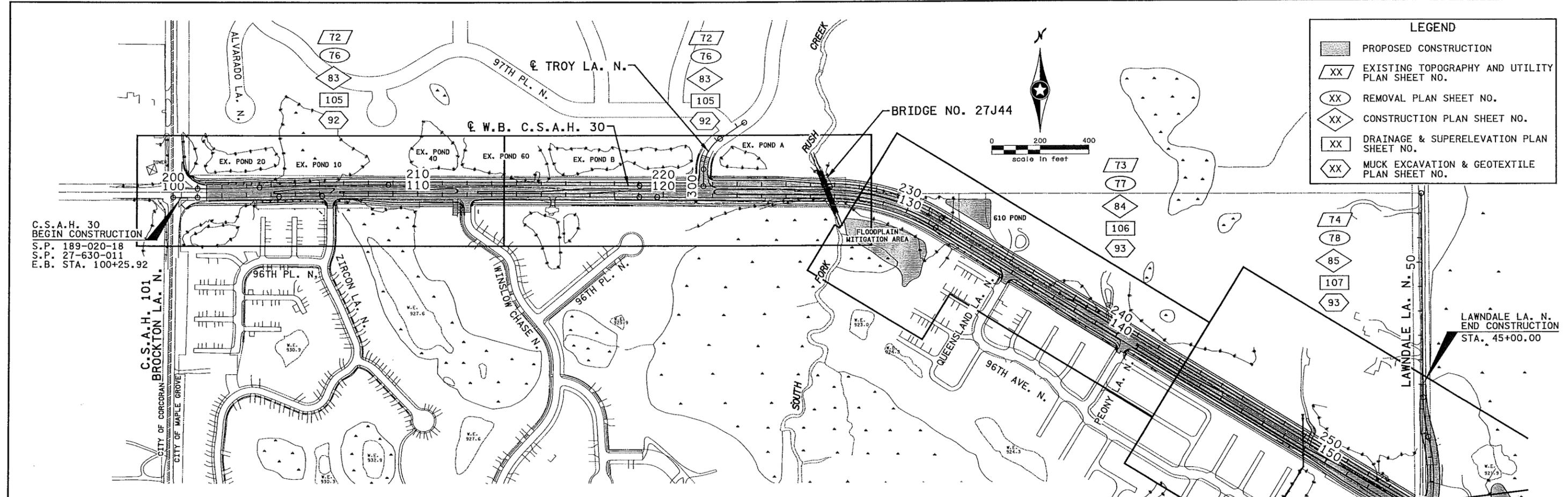
APPROVED *Ken Aspell* 8-25-08  
CITY ENGINEER, CITY OF MAPLE GROVE

APPROVED *James A. Strubbe* 9/19/08  
HENNEPIN COUNTY, DIRECTOR, TRANSPORTATION DEPARTMENT AND COUNTY ENGINEER

*D. J. S. Kueck* 10/23/08  
DISTRICT STATE AID ENGINEER; REVIEWED FOR COMPLIANCE WITH STATE AND/OR FEDERAL AID RULES/POLICY

*J. M. G.* 10/24/08  
APPROVED FOR STATE AND/OR FEDERAL AID FUNDING; STATE AID ENGINEER

S.A.P. C.S.A.H. 30  
STATE PROJ. NO. SP 189-020-18, SP 27-630-011 SHEET NO. 1 OF 236 SHEETS



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: KRISTY MORTER  
*Kristy Morter*  
 Date: 09/08/08 License #: 43556

STATE PROJECT NO.  
 SP 189-020-18  
 SP 27-630-011

STATE AID PROJECT NO.  
 X

COUNTY PROJECT NO.  
 0521

CITY PROJ. NO. 2007-15

DRAWN BY  
 V. LEE

DESIGNED BY  
 A. KLEIN

CHECKED BY  
 K. MORTER

COMM. NO. 0076102



CITY OF MAPLE GROVE

GENERAL LAYOUT  
 C.S.A.H. 30

SHEET  
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 236

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# STATEMENT OF ESTIMATED QUANTITIES

TAB	NOTES	ITEM NO.	ITEM DESCRIPTION	UNIT	TOTAL PROJECT QUANTITIES	C.S.A.H. 30 RECONSTRUCTION			
						S.P. 189-020-18 CITY OF MAPLE GROVE	S.P. 27-630-011 HENNEPIN COUNTY	S.P. 27-630-011 STORM SEWER	NON-PARTICIPATING CITY OF MAPLE GROVE
						QUANTITIES ESTIMATED	QUANTITIES ESTIMATED	QUANTITIES ESTIMATED	QUANTITIES ESTIMATED
Q		2540.602	INSTALL MAIL BOX SUPPORT	EACH	4	3			
AA	(8)	2540.602	WOOD BOLLARD	EACH	12	12			
FF		2554.602	IMPACT ATTENUATOR BARRELS	EACH	150	150			
FF		2554.602	RELOCATE IMPACT ATTENUATOR BARRELS	EACH	120	120			
AA	(5)	2557.501	WIRE FENCE DESIGN 60V-9322	LN FT	3000	3000			
AA		2557.523	METAL BRACE ASSEMBLY(CH LINK FE)	EACH	14	14			
AA		2557.527	ELECTRICAL GROUND	EACH	14	14			
AA	(5)	2557.603	INSTALL FENCE	LN FT	200	200			
	(1)	2563.601	TRAFFIC CONTROL	LUMP SUM	1	0.64	0.22	0.11	0.03
R	(4)	2563.602	RAISED PAVEMENT MARKER TEMPORARY	EACH	200	200			
		2563.618	CONSTRUCTION SIGN-SPECIAL	SQ FT	100	100			
DD	(8)	2564.531	SIGN PANELS TYPE C	SQ FT	548.6	548.6			
BB	(8)	2564.537	INSTALL SIGN TYPE C	EACH	28	28			
CC	(8)	2564.552	HAZARD MARKER X4-2	EACH	17	17			
DD		2564.602	SIGN COLLAR	EACH	29	29			
	(11)	2565.511	TRAFFIC CONTROL SIGNAL SYSTEM A	SIG SYS	1	0.92	0.08		
	(11)	2565.511	TRAFFIC CONTROL SIGNAL SYSTEM B	SIG SYS	1	0.92	0.08		
	(11)	2565.511	TRAFFIC CONTROL SIGNAL SYSTEM C	SIG SYS	1	0.84	0.16		
	(11),(15)	2565.601	TRAFFIC CONTROL INTERCONNECTION	LUMP SUM	1	0.68	0.32		
U		2571.541	TRANSPLANT TREE (SPADE SIZE 42")	TREE	6	6			
U	(4)	2573.502	SILT FENCE, TYPE HEAVY DUTY	LN FT	770	770			
U	(4)	2573.502	SILT FENCE, TYPE MACHINE SLICED	LN FT	13620	13620			
U	(10)	2573.512	TEMPORARY DITCH CHECK TYPE 2	LN FT	84	84			
U	(4)	2573.530	STORM DRAIN INLET PROTECTION	EACH	163	163			
	(1),(4),(10)	2573.550	EROSION CONTROL SUPERVISOR	LUMP SUM	1	0.64	0.22	0.11	0.03
U	(10)	2575.501	SEEDING	ACRE	8.5	8.5			
U	(10)	2575.502	SEED MIXTURE 310	POUND	30	30			
U	(10)	2575.502	SEED MIXTURE 350	POUND	580	580			
X	(10)	2575.505	SODDING TYPE EROSION	SQ YD	16			16	
U	(10)	2575.505	SODDING TYPE SALT RESISTANT	SQ YD	34000	34000			
U	(10)	2575.511	MULCH MATERIAL TYPE 3	TON	17	17			
U	(10)	2575.519	DISK ANCHORING	ACRE	8.5	8.5			
U	(10)	2575.523	EROSION CONTROL BLANKET CATEGORY 3	SQ YD	12360	12360			
U	(10)	2575.532	FERTILIZER TYPE 2	POUND	1050	1050			
	(10)	2575.545	WEED SPRAYING	ACRE	1.5	1.5			
	(10)	2575.547	WEED SPRAY MIXTURE - TYPE ROUNDUP	GALLON	2.5	2.5			
U	(10)	2575.571	RAPID STABILIZATION METHOD 3	M GALLONS	25	25			
	(10)	2575.605	PRESCRIBED BURN	ACRE	1.5	1.5			
U	(10)	2575.608	SEED MIXTURE SPECIAL 1	POUND	9	9			
U	(10)	2575.608	SEED MIXTURE SPECIAL 2	POUND	9	9			
EE	(8)	2582.501	PAVEMENT MESSAGE (LT ARROW) POLY PREFORM	EACH	18	18			
EE	(8)	2582.501	PAVEMENT MESSAGE (RT ARROW) POLY PREFORM	EACH	17	17			
R	(4)	2582.502	4" SOLID LINE WHITE - PAINT	LN FT	31380	31380			
R	(4)	2582.502	4" DOUBLE SOLID LINE YELLOW - PAINT	LN FT	24490	24490			
EE	(8)	2582.502	4" DOUBLE SOLID LINE YELLOW - POLY PREFORM	LN FT	2590	2590			
EE	(8)	2582.502	4" SOLID LINE WHITE - EPOXY	LN FT	8790	8790			
EE	(4)	2582.502	8" SOLID LINE WHITE - EPOXY	LN FT	250	250			
EE	(4)	2582.502	12" SOLID LINE WHITE - EPOXY	LN FT	110	110			
EE	(8)	2582.502	24" SOLID LINE WHITE - EPOXY	LN FT	240	240			
EE	(8)	2582.502	4" BROKEN LINE WHITE - EPOXY	LN FT	2580	2580			
EE	(8)	2582.503	CROSSWALK MARKING - POLY PREFORM	SQ FT	3130	3130			

**NOTES:**

- |  |   |   |
|--|---|---|
| (1) PRORATA ITEMS<br>(2) SEE REMOVAL PLAN AND CONSTRUCTION / SOILS NOTES.<br>(3) SEE CONSTRUCTION / SOILS NOTES.<br>(4) SEE STAGING PLANS.<br>(5) SEE CONSTRUCTION PLAN FOR LOCATION.<br>(6) SEE MISCELLANEOUS DETAILS AND CONSTRUCTION PLAN FOR LOCATIONS | (7) SEE BOX CULVERT PLANS AND DETAILS<br>(8) SEE SIGNING AND STRIPING PLAN.<br>(9) SEE SIGNING REMOVAL PLAN.<br>(10) SEE EROSION CONTROL / TURF ESTABLISHMENT PLANS<br>(11) SEE SIGNAL PLANS AND SPECIFICATIONS. INCLUDES COST OF THE SIGNAL CONTROLLER AND CABINET. EVP CONSIDERED INCIDENTAL TO SIGNAL PAY ITEMS. | (12) SEE DRAINAGE DETAILS.<br>(13) QUANTITY FOR 6" CONCRETE PEDESTRIAN CURB RAMP (SEE MN/DOT STD. PLT. 7036)<br>(14) 113 LBS / SQ. YD. * INCH USED TO DETERMINE TONS OF MATERIAL<br>(15) INCLUDES COST OF CONDUIT, PULL VAULTS, SPLICE VAULTS, TRACER WIRE, AND FIBER ENCLOSURE FOR A FUTURE CITY FIBER OPTIC FACILITY<br>(P) INDICATES PLAN QUANTITY |
|--|---|---|

I	09/08/08	VGL	TRE	KAM	FLOODPLAIN MITIGATION SITE ADDITION	
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: KRISTY MORTER <i>Kristy Morter</i> Date: 09/08/08 License #: 43556						
STATE PROJECT NO. SP 189-020-18 SP 27-630-011			DRAWN BY V. LEE			
STATE AID PROJECT NO. X			DESIGNED BY A. KLEIN			
COUNTY PROJECT NO. 0521			CHECKED BY K. MORTER			
CITY PROJ. NO. 2007-15			COMM. NO. 0076102		CITY OF MAPLE GROVE STATEMENT OF ESTIMATED QUANTITIES C.S.A.H. 30	
NO DATE BY CKD APPR REVISION						SHEET 6 OF 236

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CONSTRUCTION /SOILS NOTES

**GRADING, BASE AND SURFACE**

- 1 TOP OF THE GRADING SUBGRADE IS DEFINED AS THE BOTTOM OF THE SELECT GRANULAR MATERIAL.
- 2 SUITABLE GRADING MATERIAL ON THIS PROJECT, WHETHER OBTAINED LOCALLY OR FROM BORROW, SHALL CONSIST OF ALL SOILS EXCEPT TOPSOIL, DEBRIS, PEAT, MUCK AND ORGANIC OR OTHER UNSTABLE MATERIAL.
- 3 UNSUITABLE MATERIALS ARE TOPSOILS, DEBRIS, PEAT, MUCK AND ORGANIC OR OTHER UNSTABLE SOILS.
- 4 GRANULAR MATERIAL IS DEFINED AS MATERIAL MEETING THE REQUIREMENTS OF SPEC. 3149.2B1. SELECT GRANULAR MATERIAL IS DEFINED AS MATERIAL MEETING THE REQUIREMENTS OF SPEC. 3149.2B2. SELECT GRANULAR MATERIAL MODIFIED IS DEFINED AS MATERIAL MEETING THE REQUIREMENTS OF SPEC. 3149.2B, MODIFIED TO 5 PERCENT OR LESS PASSING THE NUMBER 200 SIEVE AND LESS THAN 50% PASSING THE NUMBER 40 SIEVE. THIS ITEM IS NOT SHOWN IN THE CONSTRUCTION PLANS. IN THE EVENT THAT FILL MATERIAL HAS TO BE PLACED WHERE EXCAVATION BOTTOMS ARE WET OR SUBMERGED AFTER DEWATERING OPERATIONS, THIS MATERIAL MAY BE PLACED IN LIEU OF GRANULAR MATERIAL OR COMMON EMBANKMENT AND SHALL BE PAID FOR AS GRANULAR BORROW. RECLAIMED MATERIAL SHALL NOT BE USED AS GRANULAR, SELECT GRANULAR, OR SELECT GRANULAR MODIFIED ON THIS PROJECT.
- 5 STRIP SOD AND TOPSOIL FROM AREAS TO BE DISTURBED BY CONSTRUCTION AND REUSE AS SLOPE DRESSING. FOR ESTIMATING PURPOSES, THE DEPTH OF TOPSOIL AVAILABLE IS VARIABLE AND IS BASED ON THE SOIL BORINGS.
- 6 ALL TOPSOIL STRIPPING, STOCKPILING, AND PLACEMENT WILL BE CONSIDERED TO BE COMMON EXCAVATION.
- 7 IN ALL AREAS OF NEW MAINLINE ROADWAY RECONSTRUCTION (PERMANENT AND TEMPORARY), PROVIDE FOR A MINIMUM 12 INCH COMPACTION SUBCUT, IN CUT AREAS, UNLESS OTHERWISE NOTED. BACKFILL WITH SUITABLE GRADING MATERIAL. ANY UNCONTAMINATED GRANULAR MATERIAL REMOVED FROM THE EXISTING SUBGRADE AREA MAY BE USED IN OTHER AREAS DESIGNATED FOR GRANULAR MATERIAL IF IT MEETS THE SPECIFICATION FOR THE REQUIRED MATERIAL.
- 8 EXCESS TOPSOIL AND MUCK MATERIAL SHALL BE USED THROUGHOUT THE PROJECT AS SHOWN HEREIN AND IN LOCATIONS INDICATED BY THE ENGINEER, OR DISPOSED OF OFF OF THE PROJECT.
- 9 IN FILL SECTIONS, TOPSOIL AND OTHER UNSUITABLE MATERIALS SHALL BE ELIMINATED FROM THE UPPER 4 FEET OF THE "GRADING GRADE" BENEATH THE ROADWAY, WITHIN THE LIMITS SHOWN ON THE TYPICAL SECTIONS, AND AS OTHERWISE SHOWN HEREIN.
- 10 OBTAIN COMPACTION ON THE SUBGRADE PORTIONS OF PERMANENT CONSTRUCTION IN ACCORDANCE WITH THE "SPECIFIED DENSITY METHOD" REQUIREMENTS.
- 11 COMPACTION OF THE SAND LAYER SHALL BE OBTAINED IN ACCORDANCE WITH THE MODIFIED PENETRATION INDEX METHOD REQUIREMENTS.
- 12 COMPACTION OF THE AGGREGATE BASE SHALL BE OBTAINED IN ACCORDANCE WITH THE MODIFIED PENETRATION INDEX METHOD. THE TEST SHALL BE PERFORMED IN ACCORDANCE WITH THE SPECIAL PROVISIONS THIS WOULD INCLUDE ANY AREAS WHERE CRUSHED CONCRETE OR SALVAGED ASPHALT MAY BE USED FOR AGGREGATE BASE.
- 13 COMPACTION OF THE GRADING AND AGGREGATE ITEMS ON BYPASSES AND OTHER TEMPORARY WORK SHALL BE BY THE "QUALITY COMPACTION" METHOD.
- 14 TEST ROLLING SHALL BE REQUIRED ON THIS PROJECT PER MN/DOT 2111 (INCIDENTAL).
- 15 THE BOTTOM OF ALL SUBCUTS SHALL BE SHAPED AND COMPACTED BY THE "QUALITY COMPACTION METHOD". THE CONTRACTOR SHALL USE A MINIMUM OF 4 PASSES OF AN APPROVED COMPACTION DEVICE.
- 16 AS A PRECAUTIONARY MEASURE FROM A SOILS STANDPOINT, TRAFFIC LANES TO BE USED DURING CONSTRUCTION MUST BE DELINEATED TO KEEP VEHICLES A SAFE DISTANCE AWAY FROM THE ADJACENT EXCAVATION. THE DELINEATION SHOULD COINCIDE WITH POINTS ESTABLISHED BY PROJECTING A 1(V):2(H) OR GREATER (FLATTER) SLOPE BETWEEN THE EDGE OF THE TRAFFIC SURFACE AND THE BOTTOM OF THE EXCAVATION.
- 17 WHERE CONNECTING TO THE INPLACE ROADWAYS AT THE TERMINI OF PROPOSED CONSTRUCTION, CUT VERTICALLY TO THE BOTTOM OF THE INPLACE SURFACING OR TO THE BOTTOM OF THE NEW SURFACING, WHICHEVER IS DEEPER, THEN 1V:20H TO THE BOTTOM OF THE RECOMMENDED SUBGRADE EXCAVATION, UNLESS OTHERWISE NOTED.
- 18 PROVIDE 1V:20H LONGITUDINAL TAPERS BETWEEN CHANGES IN SUBGRADE AND SUBCUT DEPTHS.
- 19 DITCH BOTTOMS, TOE OF FILL, CUT RUNOUTS AND THE TOP EDGE OF THE BACKSLOPES SHALL BE ROUNDED REGARDLESS OF THE SECTION USED ON THE CROSS SECTION SHEETS OR OTHERWISE IMPLIED.
- 20 PROVIDE A SAWCUT WHERE PLACING NEW PAVEMENT ADJACENT TO INPLACE PAVEMENT TO ENSURE A UNIFORM JOINT.

CONSTRUCTION /SOILS NOTES

- 21 PROVIDE FOR A UNIFORM BITUMINOUS TACK COAT BETWEEN ALL BITUMINOUS COURSES. THE TACK COAT SHALL BE IN ACCORDANCE WITH MN/DOT SPECIFICATION 2357 WITH THE FOLLOWING MODIFICATIONS:
    1. THE TACK COAT SHALL CONSIST OF EMULSIFIED ASPHALT (CSS-1 OR CSS-1H) AND SHALL BE APPLIED BETWEEN ALL BITUMINOUS COURSES.
    2. THE TACK COAT SHALL BE APPLIED AT A UNIFORM RATE OF 0.06 TO 0.10 GAL/SY BETWEEN NEW BITUMINOUS LAYERS, 0.10 TO 0.15 BETWEEN AGED BITUMINOUS, AND 0.14 TO 0.20 GAL/SY ON MILLED BITUMINOUS SURFACES PRIOR TO BEING OVERLAID.
- REMOVALS**
- 22 PROVIDE FOR THE REMOVAL AND DISPOSAL OF ANY INPLACE SURFACING, GUARDRAIL, OTHER STRUCTURES OR DEBRIS THAT WOULD INTERFERE WITH CONSTRUCTION. ALL SUCH MATERIALS SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL EITHER BE RECYCLED TO THE EXTENT ALLOWED OR DISPOSED OF OFF THE RIGHT OF WAY IN ACCORDANCE WITH SPEC. 2104.3C3. PROVIDE FOR SAW CUTTING AS DEEMED NECESSARY BY THE ENGINEER.
  - 23 THE EXISTING PAVEMENT THICKNESSES ARE ASSUMED TO BE AS FOLLOWS (SEE SOIL BORINGS AND TABLE 1 OF THE GEOTECHNICAL EVALUATION REPORT, PREPARED BY BRAUN INTERTEC DATED NOV. 27, 2007):
 

C.S.A.H. 30 - 4 - 11 INCHES BITUMINOUS PAVEMENT  
LAWNDALE LANE - 6.5 INCHES BITUMINOUS PAVEMENT  
TROY LANE - 3.5 INCHES BITUMINOUS PAVEMENT

THE EXISTING TOPSOIL THICKNESS IS ASSUMED 6 INCHES, WHERE NOT SPECIFICALLY IDENTIFIED IN SOIL BORINGS. TOPSOIL THICKNESS ALONG C.S.A.H. 30 IS VARIABLE IN THICKNESS, FROM 6 INCHES TO 7 FEET. THE CONTRACTOR SHALL INVESTIGATE AND MAKE HIS OWN DETERMINATION. (INFORMATION TAKEN FROM THE PROJECT SOIL BORINGS AND RECORD DRAWINGS).
- TURF ESTABLISHMENT**
- 24 PLACE A MINIMUM OF 6 INCHES OF TOPSOIL ON ALL AREAS SCHEDULED FOR PERMANENT TURF ESTABLISHMENT.
  - 25 PLACE A MINIMUM OF 6 INCHES OF MUCK REMOVAL MATERIAL ON ALL POND AREAS.
  - 26 SOD ALL AREAS ADJACENT TO RESIDENCES OR BUSINESSES AND AREAS OF HEAVY DRAINAGE RUNOFF, AS INDICATED IN THE TURF ESTABLISHMENT AND EROSION CONTROL PLANS AND DETAILS.
  - 27 SEEDING REQUIREMENTS ON THIS PROJECT ARE AS FOLLOWS:
    - A. ON PERMANENT SLOPES FLATTER THAN 1:3 USE SEED MIXTURE 350 AND TYPE 3 MULCH WITH DISK ANCHOR. SEE EROSION CONTROL AND TURF ESTABLISHMENT PLANS FOR SEED TYPE LOCATIONS.
    - B. ON PERMANENT SLOPES 1:3 OR STEEPER USE SEED MIXTURE 350 AND EROSION CONTROL BLANKET CATEGORY 3.
    - C. ON DESIGNATED AREAS IN AND AROUND PONDS, USE SEED MIXTURE 310 OR 350 AND TYPE 3 MULCH WITH DISK ANCHOR OR EROSION CONTROL BLANKET CATEGORY 3.
    - D. PROVIDE COMMERCIAL FERTILIZER, ANALYSIS 18-1-8 OR 22-5-10, RESPECTIVELY, SLOW RELEASE TYPE, OR EQUIVALENT ON ALL AREAS TO BE SEEDED OR SODDED. PROVIDE COMMERCIAL FERTILIZER ANALYSIS 18-1-8 ON ALL AREAS SEEDED AT PONDING LOCATIONS IDENTIFIED.
- MISCELLANEOUS**
- 28 WHERE SEDIMENT DEPOSITS IN WATERS OF THE STATE THE MATERIAL MUST BE REMOVED IN 7 DAYS.
  - 29 ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE LATEST EDITION OF THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, INCLUDING THE FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS.
  - 30 THE CONTRACTOR IS HEREBY REMINDED OF HIS RESPONSIBILITY UNDER STATE LAW TO CONTACT ALL UTILITIES THAT MAY HAVE FACILITIES IN THE AREA. CONTACT MUST BE MADE THROUGH GOPHER STATE ONE-CALL.
  - 31 WHENEVER THE WORD "INCIDENTAL" IS USED IN THIS PLAN, IT SHALL MEAN THIS WORK WILL BE INCIDENTAL FOR WHICH NO DIRECT COMPENSATION WILL BE MADE.

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NO	DATE	BY	CKD	APPR	REVISION

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: KRISTY MORTER

*Kristy Morter*

Date: 08/12/08 License #: 43556

STATE PROJECT NO.  
SP 189-020-18  
SP 27-630-011

STATE AID PROJECT NO.  
X

COUNTY PROJECT NO.  
0521

CITY PROJ. NO. 2007-15

DRAWN BY  
V. LEE

DESIGNED BY  
A. KLEIN

CHECKED BY  
K. MORTER

COMM. NO. 0076102



CITY OF MAPLE GROVE

CONSTRUCTION/SOILS NOTES

C.S.A.H. 30

P CLEARING & GRUBBING (SPEC. 2101)							
ALIGNMENT	STATION TO STATION	CLEARING		GRUBBING		NOTES	
		TREE	ACRE	TREE	ACRE		
E.B. C.S.A.H. 30	100+26 - 113+50	12		12			
E.B. C.S.A.H. 30	113+50 - 128+50	37		37			
E.B. C.S.A.H. 30	128+50 - 143+00	10	1.30	10	1.30		
E.B. C.S.A.H. 30	143+00 - 158+00	27	3.15	27	3.15		
E.B. C.S.A.H. 30	158+00 - 171+70	7	0.80	7	0.80		
E.B. C.S.A.H. 30	171+70 - 186+47	50	0.05	50	0.05		
LAWNDALE LA. N.	35+50 - 45+00		0.20		0.20		
<b>PROJECT TOTALS</b>		<b>143</b>	<b>5.50</b>	<b>143</b>	<b>5.50</b>		

NOTES:  
TRESSES WITHIN THE CONSTRUCTION LIMITS WILL BE DESIGNATED FOR REMOVAL BY THE ENGINEER.  
REMOVAL OF MISCELLANEOUS SHRUBS AND LANDSCAPING SHALL BE CONSIDERED INCIDENTAL.

Q REMOVALS, SAWING AND MILLING													
ALIGNMENT	STATION TO STATION	(B) REMOVE (SPEC. 2104)								(A), (B) SAWING (SPEC. 2104)		SALVAGE (SPEC. 2104) & INSTALL (B)	MILLING (SPEC. 2232)
		BITUMINOUS PAVEMENT	BITUMINOUS WALK	CONCRETE DRIVEWAY	CONCRETE MEDIAN	CONCRETE WALK	CURB & GUTTER	GUARD RAIL	WOOD POST	BITUMINOUS PAVEMENT	CONCRETE PAVEMENT	MAILBOX SUPPORT	BITUMINOUS SURFACE (2")
		SQ YD	SQ FT	SQ YD	SQ YD	SQ FT	LN FT	LN FT	EACH	LN FT	LN FT	EACH	SQ YD
E.B. C.S.A.H. 30	100+26 - 113+50	7260	190	135		350	110			280	30	1	1010
E.B. C.S.A.H. 30	113+50 - 128+50	6480				945	195	390		60	10		
E.B. C.S.A.H. 30	128+50 - 143+00	5300				150	85		6	90	10	1	
E.B. C.S.A.H. 30	143+00 - 158+00	7220	800		60		270		6	95		1	
E.B. C.S.A.H. 30	158+00 - 171+70	5110								15			
E.B. C.S.A.H. 30	171+70 - 186+47	7700	780		20	195	500		2	260	10		
LAWNDALE LA. N.	35+50 - 45+00	2790	4490	415			560			120	90	1	
STAGE 1										850			
STAGE 2										3750			
<b>PROJECT TOTALS</b>		<b>41860</b>	<b>6260</b>	<b>550</b>	<b>80</b>	<b>1640</b>	<b>1720</b>	<b>390</b>	<b>14</b>	<b>5520</b>	<b>150</b>	<b>4</b>	<b>1010</b>

NOTES:  
(A) ALL BITUMINOUS AND CONCRETE PAVEMENT SAWING IS FULL DEPTH.  
(B) REFER TO REMOVAL PLANS FOR EXACT LOCATIONS.

FF PORTABLE PRECAST BARRIER (SPEC. 2533 & 2554)				
STAGE	PORTABLE PRECAST BARRIER DES 8337	RELOCATE PORTABLE PRECAST BARRIER DES 8337	IMPACT ATTENUATOR BARRELS	RELOCATE IMPACT ATTENUATOR BARRELS
	(LN FT)	(LN FT)	(EACH)	(EACH)
STAGE 1	690		40	20
STAGE 2	2520	690	110	40
STAGE 3		1110		60
STAGE 4				
<b>PROJECT TOTALS</b>		<b>3210</b>	<b>1800</b>	<b>120</b>

R TEMPORARY PAVEMENT MARKINGS (SPEC. 2582)				
STAGE	PAINT		TRPM'S (EACH)	
	4" SOLID WHITE (LN FT)	4" DOUBLE SOLID YELLOW (LN FT)		
	STAGE 1	4910		3090
STAGE 2	17570	11300	140	
STAGE 3	8900	10100	30	
STAGE 4				
<b>PROJECT TOTALS</b>		<b>31380</b>	<b>24490</b>	<b>200</b>

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1	09/08/08	VGL	TRE	KAM	FLOODPLAIN MITIGATION SITE ADDITION
NO	DATE	BY	CKD	APPR	REVISION

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: KRISTY MORTER  
*Kristy Morter*  
Date 09/08/08 License # 43556

STATE PROJECT NO. SP 189-020-18 SP 27-630-011  
STATE AID PROJECT NO. X  
COUNTY PROJECT NO. 0521  
CITY PROJ. NO. 2007-15

DRAWN BY V. LEE  
DESIGNED BY A. KLEIN  
CHECKED BY K. MORTER  
COMM. NO. 0076102



CITY OF MAPLE GROVE		SHEET 13 OF 236
TABULATIONS C.S.A.H. 30		

**U TURF ESTABLISHMENT / EROSION CONTROL (SPEC. 2573 & 2575) (1)**

ALIGNMENT	STATION TO STATION	(2) BIOROLL (LIN. FT.)	INLET PROTECTION (EACH)	SILT FENCE MACHINE SLICED (LIN. FT.)	SILT FENCE HEAVY DUTY (LIN. FT.)	RAPID STABILIZATION METHOD 3 (M GALLONS)	SEEDING (ACRE)	SEED MIXTURE (3)				SODDING TYPE SALT RESISTANT (SQ. YD.)	MULCH MATERIAL (3) TYPE 3.0 (TON)	DISK ANCHOR. (ACRE)	EROSION CONTROL BLANKET CATEGORY 3 (SQ. YD.)	(3)(4) COMM. FERT. 18-1-8 (TON)	TRANSPLANT TREE (SPADE SIZE 42") (TREE)
								310 (LB)	350 (LB)	SPECIAL 1 (LB)	SPECIAL 2 (LB)						
E.B.C.S.A.H. 30	100+26 - 113+50						0.6					4110	1.3	0.6	935	100	
E.B.C.S.A.H. 30	113+50 - 128+50						1.3					6005	2.7	1.3	3115	200	
E.B.C.S.A.H. 30	128+50 - 143+00	84				9	3.1	15	125	9	9	6395	6.3	3.1	1500	240	
E.B.C.S.A.H. 30	143+00 - 158+00						1.5	10	125			6340	3.0	1.5	3950	230	6
E.B.C.S.A.H. 30	158+00 - 171+70						1.4	5	115			5905	2.7	1.4	2860	205	
E.B.C.S.A.H. 30	171+70 - 186+47						0.2		15			4460	0.3	0.2	20		
LAWNDALE LA. N.	35+50 - 45+00						0.4		30			785	0.7	0.4	55		
STAGE 1	157+00 - 186+47		29	2580		8											
STAGE 2	100+26 - 186+47		80														
STAGE 3	100+26 - 186+47		53	5620	770	8											
STAGE 4	157+00 - 171+70		1	5420													
<b>PROJECT TOTALS</b>		<b>84</b>	<b>163</b>	<b>13620</b>	<b>770</b>	<b>25</b>	<b>8.5</b>	<b>30</b>	<b>580</b>	<b>9</b>	<b>9</b>	<b>34000</b>	<b>17.0</b>	<b>8.5</b>	<b>12360</b>	<b>1050</b>	<b>6</b>

**NOTES:**

(1) QUANTITIES ARE BASED ON 110 % OF THE COMPUTED AREA OR LENGTH.  
 (2) PAID FOR AS TEMPORARY DITCH CHECK, TYPE 2

(3) QUANTITIES ARE BASED ON THE FOLLOWING BASIS:  
 SEED MIXTURE 310 - 82 LB/ACRE  
 SEED MIXTURE 350 - 84.5 LB/ACRE  
 MULCH TYPE 3 - 2 TON/ACRE  
 COMM. FERT. 18-1-8 - 150 LB/ACRE

(4) COMMERCIAL FERTILIZER SHALL BE THE SLOW RELEASE TYPE.  
 (5) REFER TO REMOVAL PLANS FOR EXACT LOCATION.

**Y**

**SANITARY SEWER**

ALIGNMENT	STATION TO STATION	OFFSET		PROPOSED T.C. ELEV (FT)	PROPOSED INV. ELEV (FT)	CONSTRUCT SANITARY MANHOLE (LIN FT)	FURNISH AND INSTALL (SPEC. 2503)					GRANULAR BEDDING (CU YD)	NOTES
		LEFT (FT)	RIGHT (FT)				8" PVC SDR 26 (LIN FT)	10" FORCEMAIN HDPE SEWER (LIN FT)	20" STEEL CASING PIPE (JACKED) (LIN FT)	8" PIPE PLUG (EACH)	10" PIPE BEND 45 DEGREE (EACH)		
E.B.C.S.A.H. 30	124+24.81 - 127+35.43		14.9-14.40					310				4	(A), (B)
E.B.C.S.A.H. 30	123+97.98 - 125+54.52		34.2	935.72	901.97	33.8							(A)
E.B.C.S.A.H. 30	123+97.98 - 125+54.52		34.2-66.3				160					110	
E.B.C.S.A.H. 30	125+54.52 - 128+03.02		66.3	923.84	902.75	21.1							
E.B.C.S.A.H. 30	125+54.52 - 128+03.02		66.3-37.4				244					170	
E.B.C.S.A.H. 30	128+03.02 - 149+33.18		37.4	931.23	903.92	27.3							(A)
E.B.C.S.A.H. 30	149+33.18 - 149+33.18		296.2	938.00	914.73	23.3		246					(A)
E.B.C.S.A.H. 30	149+33.18 - 149+33.18		58.4	938.60	915.68	22.9							
E.B.C.S.A.H. 31	149+33.18 - 148+56.78	65.0	58.4	940.50	916.26	24.2		135		100			
E.B.C.S.A.H. 31	148+56.78 - 148+21.50	65.0						67			1		
<b>PROJECT TOTALS</b>						<b>152.6</b>	<b>852</b>	<b>310</b>	<b>100</b>	<b>1</b>	<b>4</b>	<b>280</b>	

**NOTES:**

(A) CONNECT TO EXISTING (INCIDENTAL).  
 (B) 4" POLYSTYRENE INSULATION TO BE USED AS DIRECTED BY THE ENGINEER.

**Z**

**WATERMAIN (SPEC. 2504)**

ALIGNMENT	STATION TO STATION	OFFSET		PVC WATERMAIN			GATE VALVE & BOX			6" PIPE PLUG (EACH)	12" PIPE PLUG (EACH)	12"x12" TEE (EACH)	16"x6" TEE (EACH)	12" PIPE BEND 22.5 DEGREE (EACH)	12" PIPE BEND 45 DEGREE (EACH)	16" SLEEVE (EACH)	12"x8" WET TAP (EACH)	HYDRANT (EACH)	MEGALUGS				NOTES
		LT	RT	6" (LF)	8" (LF)	12" (LF)	6" (EACH)	8" (EACH)	12" (EACH)										6" (EACH)	8" (EACH)	12" (EACH)	16" (EACH)	
E.B.C.S.A.H. 30	124+24.81 - 127+35.43		17.9-31.0			310									4					8		4	(A), (B)
E.B.C.S.A.H. 30	111+95.62 - 112+22.77		48.2	28					1			1								2			(A)
E.B.C.S.A.H. 30	38+17.69 - 38+17.69		48.8					1												3			(A)
LAWNDALE LA. N.	38+17.69 - 38+17.69	52.0			83			1													2		(A)
LAWNDALE LA. N.	39+16.76 - 40+79.39	19.0						1						1	2						2		(A)
LAWNDALE LA. N.	36+07.58 - 36+07.58	59.1-76.8			163			1													9		(A)
LAWNDALE LA. N.	25.0-42.4				68			1			1										6		(A)
<b>PROJECT TOTALS</b>				<b>28</b>	<b>83</b>	<b>541</b>	<b>1</b>	<b>2</b>	<b>2</b>	<b>1</b>	<b>2</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>6</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>5</b>	<b>4</b>	<b>23</b>	<b>4</b>	

**NOTES:**

(A) CONNECT TO EXISTING (INCIDENTAL).  
 (B) 4" POLYSTYRENE INSULATION TO BE USED AS DIRECTED BY THE ENGINEER.

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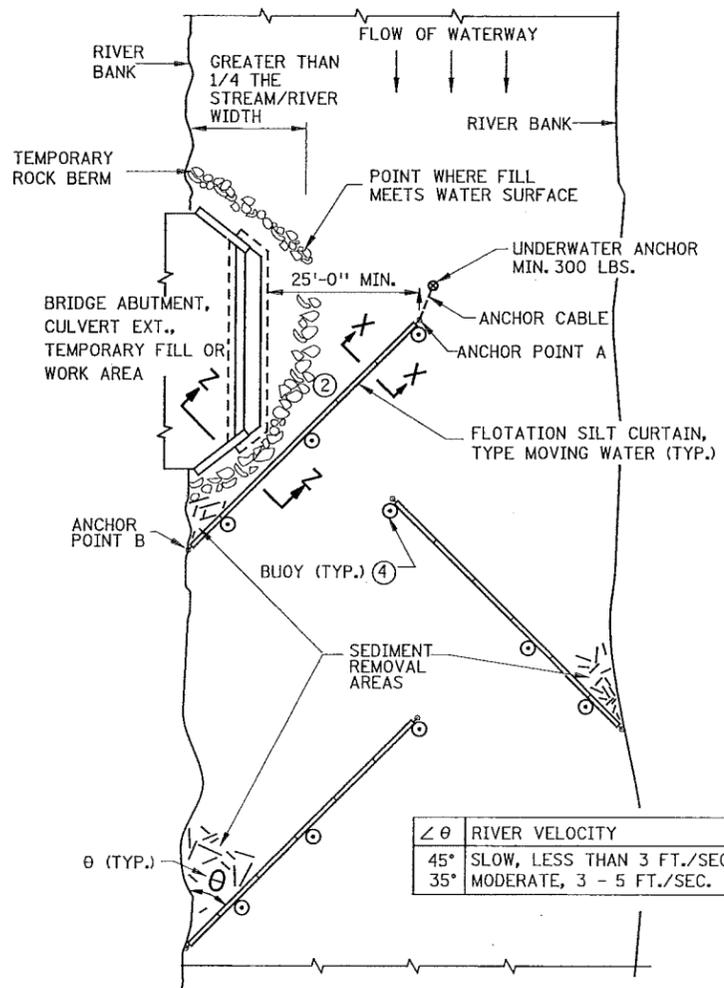
1	09/08/08	VGL	TRE	KAM	FLOODPLAIN MITIGATION SITE ADDITION
NO	DATE	BY	CHKD	APPR	REVISION

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: KRISTY MORTER  
*Kristy Morter*  
 Date: 09/08/08 License #: 43556

STATE PROJECT NO. SP 189-020-18 SP 27-630-011  
 STATE AID PROJECT NO. X  
 COUNTY PROJECT NO. 0521  
 CITY PROJ. NO. 2007-15  
 DRAWN BY V. LEE  
 DESIGNED BY A. KLEIN  
 CHECKED BY K. MORTER  
 COMM. NO. 0076102

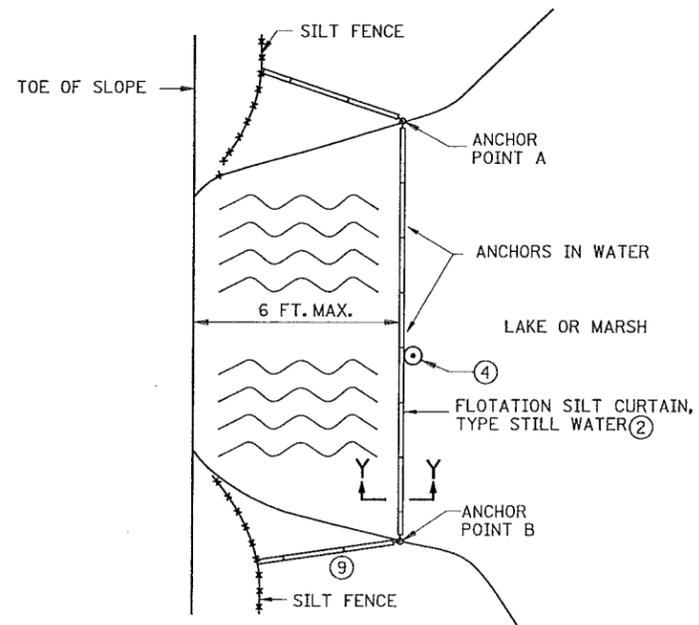


CITY OF MAPLE GROVE  
 TABULATIONS  
 C.S.A.H. 30  
 SHEET 15 OF 236

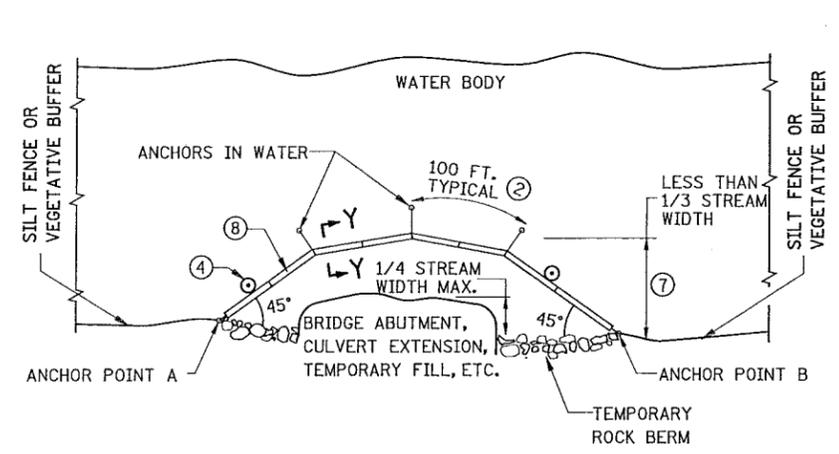


PLAN VIEW (TYPE: MOVING WATER)

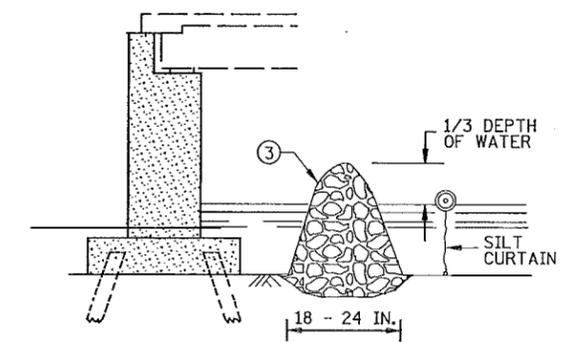
$\angle \theta$	RIVER VELOCITY
45°	SLOW, LESS THAN 3 FT./SEC.
35°	MODERATE, 3 - 5 FT./SEC.



PLAN VIEW (TYPE: STILL WATER)



PLAN VIEW (TYPE: WORK AREA)

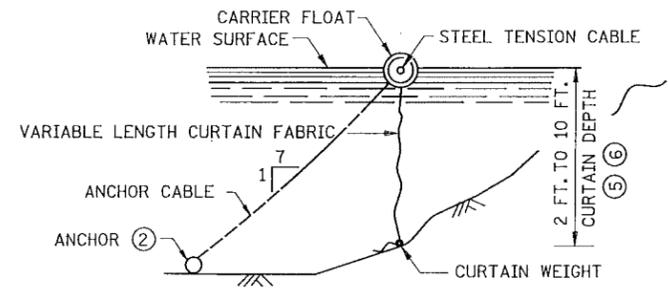


SECTION Z-Z TEMPORARY ROCK BERM FOR SEDIMENT CONTROL

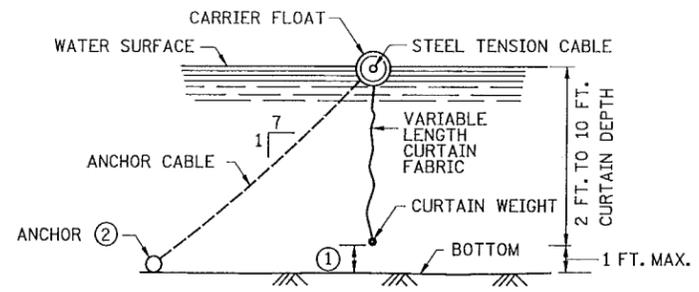
**DESIGN GUIDELINES: MOVING WATER**  
 WHEN TEMPORARY FILL ENCLOSES MORE THAN 1/4 BUT LESS THAN 1/3 WIDTH OF THE STREAM.  
 MINIMUM WATER DEPTH: 3 FT.  
 MAXIMUM WATER DEPTH: 11 FT.  
 MAXIMUM WATER VELOCITY: 5 FT./SEC. (1) (6)

**DESIGN GUIDELINES: WORK AREA**  
 WHEN TEMPORARY FILL ENCLOSES LESS THAN 1/4 OF THE WIDTH OF STREAM.  
 MAXIMUM WATER DEPTH: 10 FT.  
 MAXIMUM WATER VELOCITY: 5 FT./SEC.

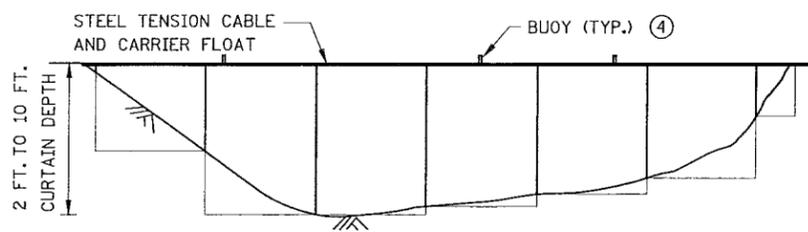
**DESIGN GUIDELINES: STILL WATER** (6)  
 MINIMUM WATER DEPTH: 0 FT.  
 MAXIMUM WATER DEPTH: 10 FT.



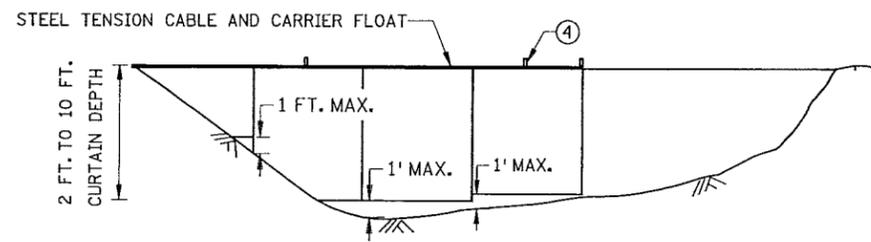
SECTION Y-Y



SECTION X-X



FLOTATION SILT CURTAIN - TYPE: WORK AREA AND STILL WATER (5)  
 FOR CONTAINING OVERFLOWS FROM WEIRS, STANDPIPES, SETTLING PONDS



FLOTATION SILT CURTAIN - TYPE: MOVING WATER (5)

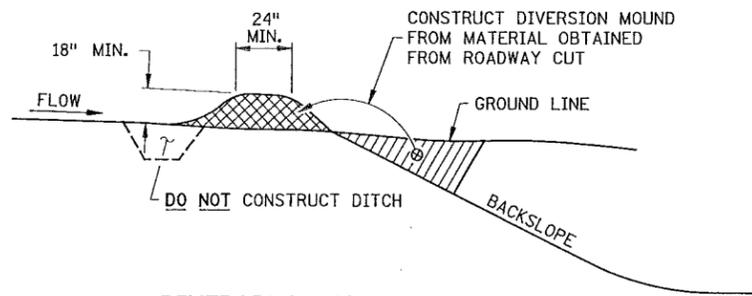
USE FOR SMALLER RIVERS WITH SLOW AND MODERATE VELOCITIES

**NOTES:**

- SEE SPECS. 2573 & 3887.
- (1) CURTAIN EXTENDS TO 1 FT. MAXIMUM FROM BOTTOM OF WATER BODY.
- (2) FOR ANCHOR AND WEIGHT REQUIREMENTS, SEE SPEC. 2573.
- (3) IN AREAS WHERE THE PLAN CALLS FOR RIPRAP AT THE BRIDGE, A TEMPORARY ROCK BERM WILL BE USED TO PROVIDE ADDITIONAL PROTECTION. THE TEMPORARY ROCK BERM IS INCIDENTAL FOR WHICH NO DIRECT PAYMENT WILL BE MADE.
- (4) ON U.S. COAST GUARD OR OTHER MOTORIZED WATERWAYS, BUOYS ARE REQUIRED TO MARK THE ENDS AND SPECIAL AREAS FOR VISIBILITY. PLACE BUOYS AS REQUIRED FOR NAVIGATIONAL PURPOSES.
- (5) WATER DEPTH CAN BE 0 TO 10 FEET, 0 TO 11 FEET FOR TYPE MOVING WATER.
- (6) SILT CURTAIN HEIGHT INCLUDES MAXIMUM WAVE HEIGHT FOR WATER BODY.
- (7) KEEP AS CLOSE TO WORK AREA AS POSSIBLE.
- (8) SILT CURTAIN, ROCK BERM OR SHEET PILE AS REQUIRED TO CONTROL THE INFILTRATION OF SILT.
- (9) IF 6 INCHES OR LESS OF WATER, USE BALE BARRIERS, SEE SHEET 2.

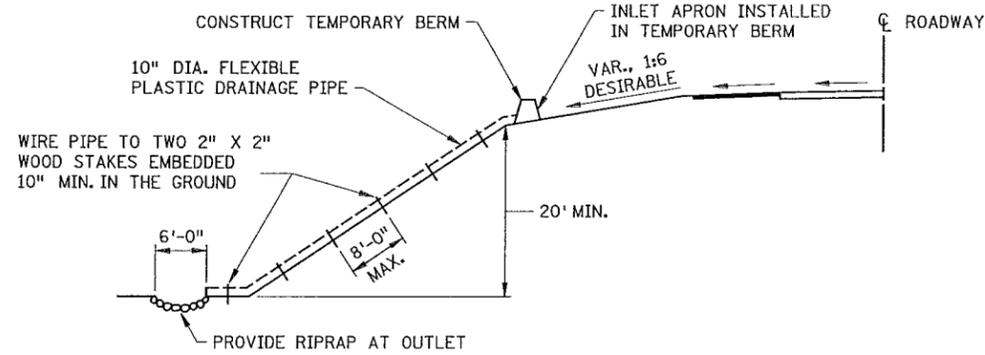
STANDARD SHEET NO. 5-297.405 (1 OF 4)	TITLE: TEMPORARY SEDIMENT CONTROL SILT CURTAIN
STANDARD APPROVED: SEPTEMBER 27, 2006	
SP 189-020-18, SP 27-630-011 (CSAH 30) SHEET NO. 36 OF 236 SHEETS	

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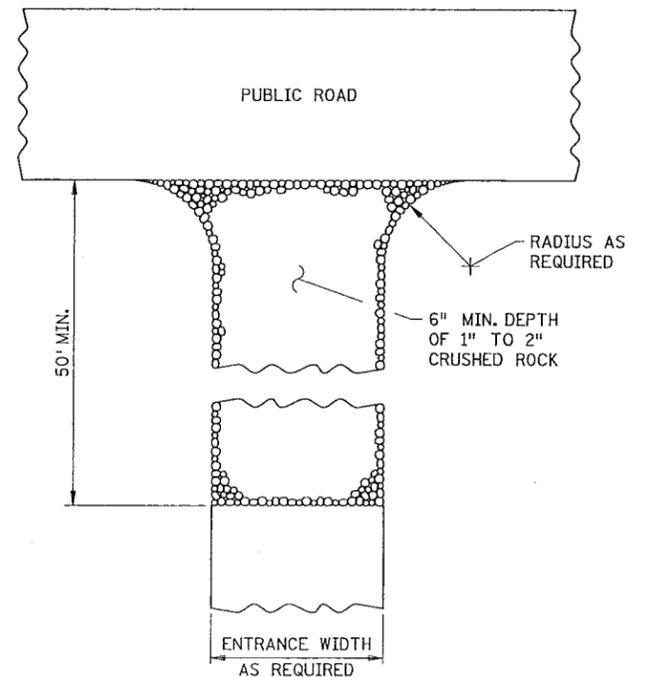
**DIVERSION MOUND**

DESIGN GUIDELINES:  
 STORM FREQUENCY: 10 YEAR - 24 HOUR  
 MAXIMUM DRAINAGE AREA: 5 ACRES  
 MAXIMUM DIVERSION: GRADE 5%

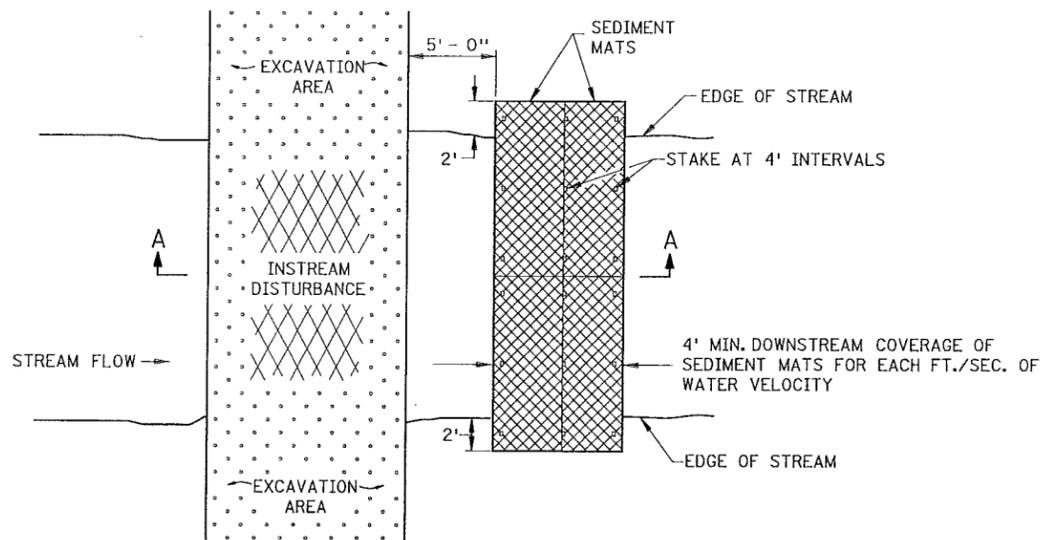


**TEMPORARY DOWN DRAIN ON FILL SLOPE**

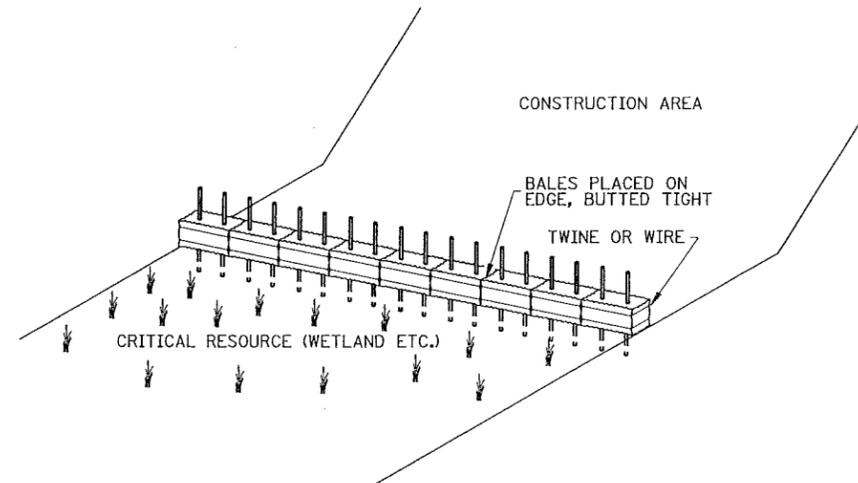
DESIGN GUIDELINES:  
 STORM FREQUENCY: 2 YEAR - 24 HOUR  
 MAXIMUM DRAINAGE AREA: 3 ACRES



**ROCK CONSTRUCTION ENTRANCE ①**

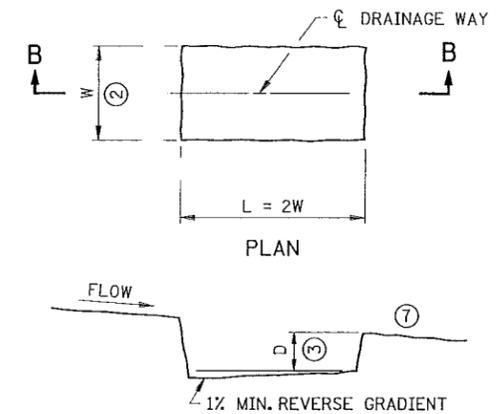


**PLAN VIEW**

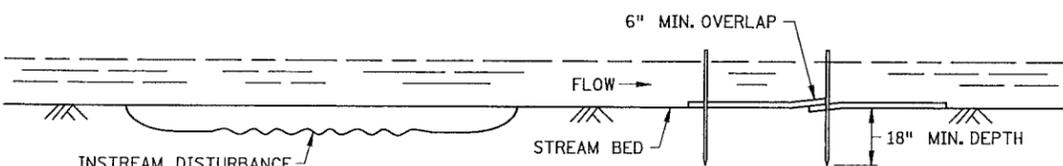


**BALE BARRIERS**

TO BE USED FOR CRITICAL PERIMETER CONTROL AREAS



**SECTION B-B  
 SEDIMENT TRAP DETAIL**

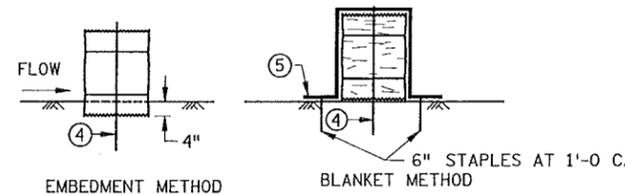


**SECTION A-A**

**SEDIMENT MAT ⑥**

TYPICAL STREAM BED INSTALLATION

DESIGN GUIDELINES:  
 MAXIMUM FLOW VELOCITY: 5 FT./SEC.  
 MAXIMUM FLOW DEPTH: 2 FT.



**BALE BARRIER DETAIL**

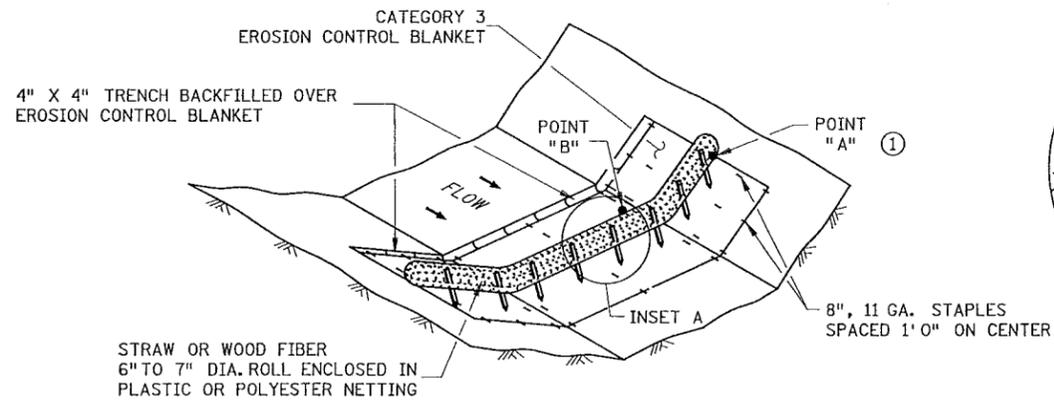
APPROX. BALE SIZE: 14" X 18" X 36" LONG

**NOTES:**

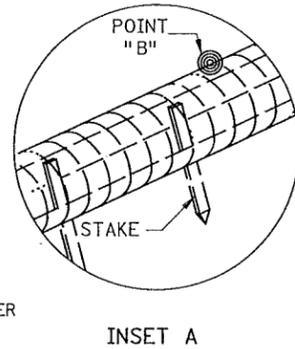
- SEE SPECS. 2573, 3892, & 3894.
- ① ROCKS AT ENTRANCE CLEAN WORKSITE MUD OFF OF TRUCK TIRES BEFORE TRUCKS ENTER MAIN ROAD. KEEPING MUD OFF THE ROAD WILL PREVENT AUTO DAMAGE AND KEEP CONSTRUCTION SEDIMENT OUT OF DRAINAGE SYSTEMS AND WETLANDS. GEOTEXTILE MAY BE PLACED UNDER THE ROCK TO KEEP ROCKS SEPARATE FROM SOIL.
- ② W = 10 FT. MIN., 20 FT. MAX.
- ③ D = 2 FT.
- ④ TWO 2 IN. X 2 IN. WOOD STAKES OR REINFORCING BARS IN EACH BALE EMBEDDED 10 INCHES MINIMUM IN THE GROUND.
- ⑤ PLACE A CATEGORY 3 EROSION CONTROL BLANKET, 6 FT. WIDE MINIMUM, OVER THE BALE INSTEAD OF TRENCHING.
- ⑥ THIS DETAIL MAY NOT BE ACCEPTABLE FOR WORK ON PUBLIC WATERS, SEE GENERAL PUBLIC WATERS PERMIT (GP) 2004-0001.
- ⑦ LOCATION OF DOWNSTREAM TEMPORARY SEDIMENT CONTROL DEVICE.

STANDARD SHEET NO. 5-297.405 (2 of 4)	TITLE: TEMPORARY SEDIMENT CONTROL MISCELLANEOUS DETAILS
STANDARD APPROVED: SEPTEMBER 27, 2006	
SP 189-020-18, SP 27-630-011 (CSAH 30) SHEET NO. 37 OF 236 SHEETS	

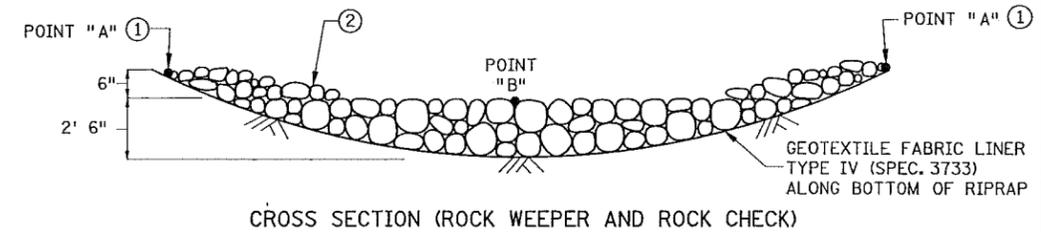
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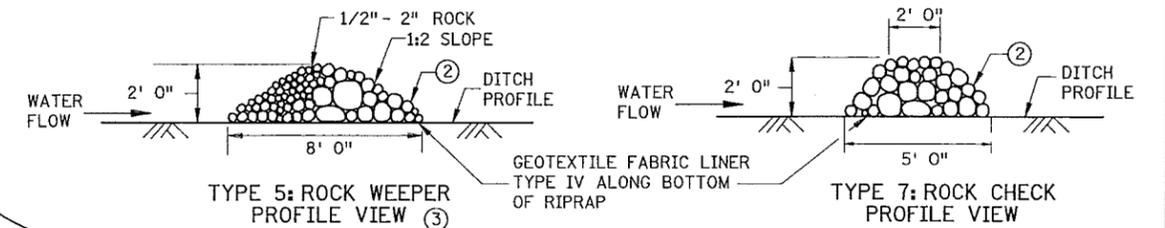
**TYPE 3: BIOROLL BLANKET SYSTEM DITCH CHECK**



INSET A



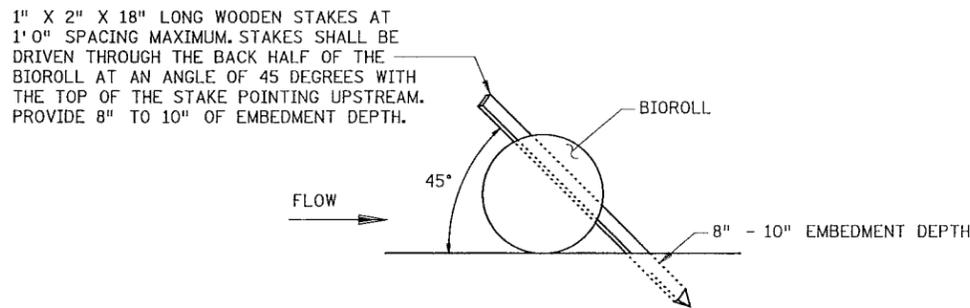
CROSS SECTION (ROCK WEEPER AND ROCK CHECK)



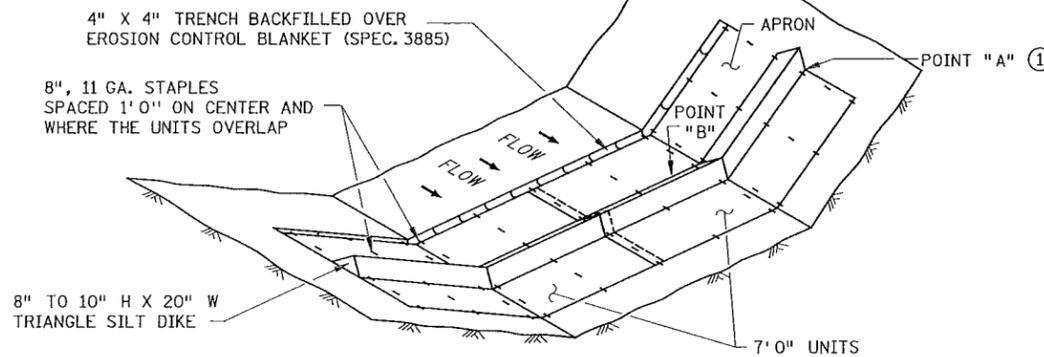
TYPE 5: ROCK WEEPER PROFILE VIEW ③

TYPE 7: ROCK CHECK PROFILE VIEW

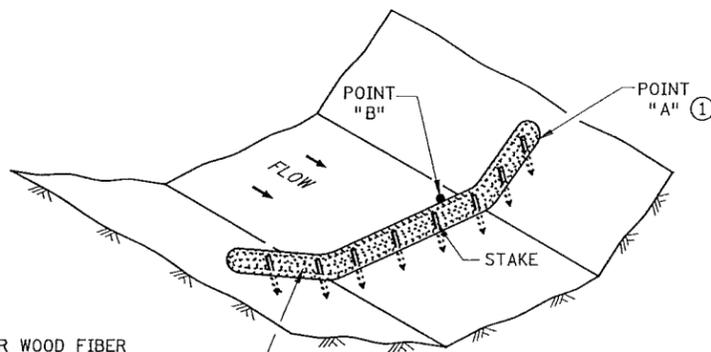
**TYPE 5: ROCK WEEPER AND TYPE 7: ROCK CHECK DITCH CHECKS ④**  
USE ON ROUGH GRADED AREAS



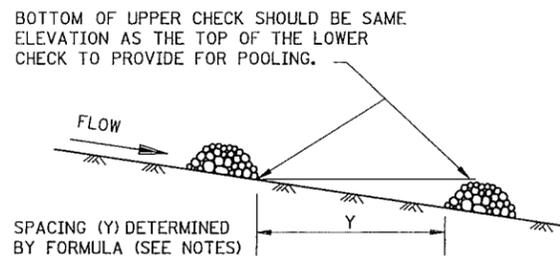
BIOROLL STAKING DETAIL



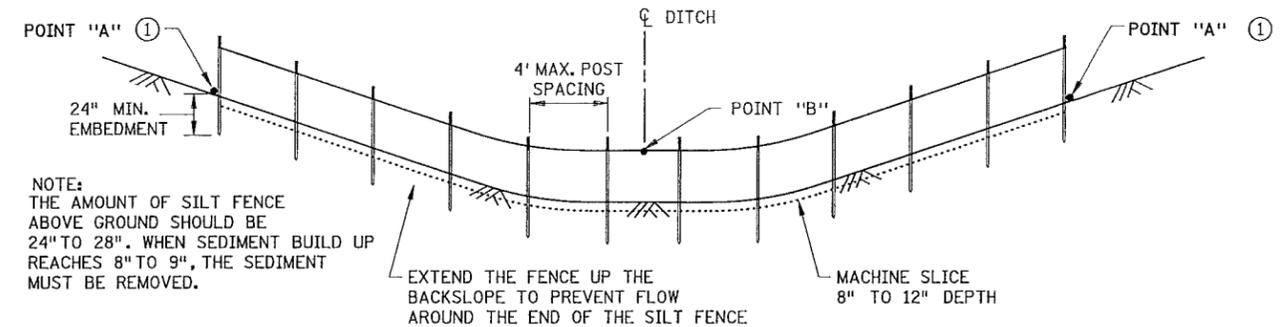
**TYPE 6: GEOTEXTILE TRIANGULAR DIKE DITCH CHECK**



**TYPE 2: BIOROLL DITCH CHECK**  
USE ON ROUGH GRADED AREAS



**DITCH CHECK SPACING ④**



**TYPE 1: SLICED IN SILT FENCE DITCH CHECK**

**NOTES:**

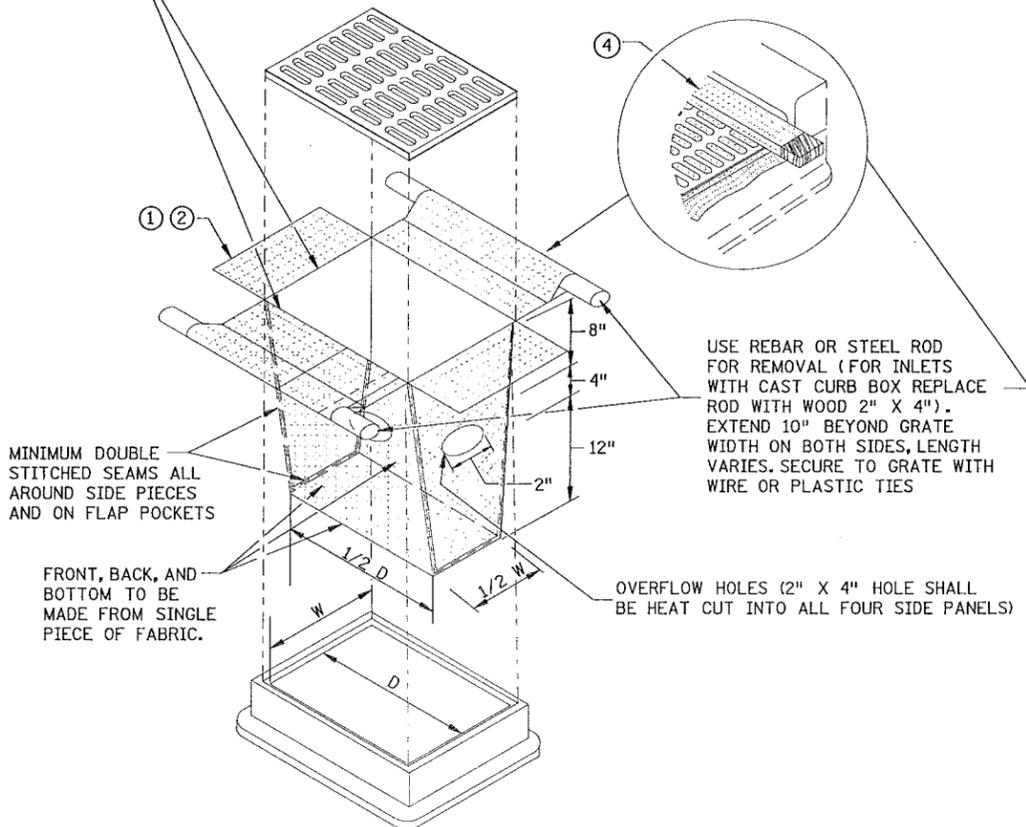
- SEE SPECS. 2573, 3601, 3733, 3885, 3886 & 3889.
- APPROXIMATE SPACING BETWEEN EACH DITCH CHECK SHOULD BE DETERMINED FROM THE FOLLOWING SPACING FORMULA:  

$$\text{APPROXIMATE SPACING OF DITCH CHECKS (FT.)} = Y = \frac{\text{DITCH CHECK HEIGHT (FT)}}{\% \text{ CHANNEL SLOPE}} \times 100$$
- ① 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.
- ② CLASS I - IV RIPRAP (SPEC. 3601) WITH GEOTEXTILE FABRIC LINER, TYPE IV (SPEC. 3733).
- ③ THE ROCK WEEPER FILTERS SEDIMENT OUT OF THE WATER BETTER THAN THE OTHER DITCH CHECKS. THE ROCK WEEPER COULD BE USED AS A PERMANENT WATER FILTERING FEATURE.
- ④ PERMANENT ROCK DITCH CHECKS PLACED WITHIN THE CLEAR ZONE WILL NEED TO BE 18" OR LESS IN HEIGHT. A 1:6 APPROACH AND DEPARTURE SLOPE SHALL BE PROVIDED.

GENERAL DESIGN GUIDELINES						
DITCH CHECK TYPE	SILT FENCE	BIOROLL	BIOROLL BLANKET	TRIANGULAR DIKE	ROCK WEEPER	ROCK CHECK
STORM FREQUENCY:	2 YR. - 24 HR.	2 YR. - 24 HR.	2 YR. - 24 HR.	2 YR. - 24 HR.	5 YR. - 24 HR.	5 YR. - 24 HR.
MAX. FLOW VELOCITY:	< 1 FT./SECOND	1.5 FT./SECOND	4.5 FT./SECOND	1.5 FT./SECOND	12 FT./SECOND	12 FT./SECOND
MAX. DITCH GRADE:	0% - 0.5%	1.5% - 3%	1.5% - 3%	1.5% - 2.0%	3% - 5%	3% - 5%
MAX. DRAINAGE AREA:	1 ACRE	2 ACRE	2 ACRE	4 ACRE	4+ ACRE	4+ ACRE

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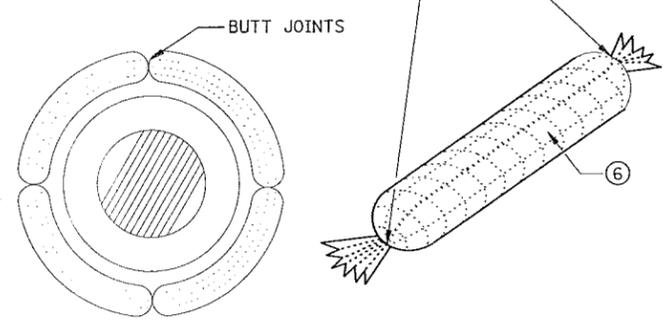
INLET SPECIFICATIONS AS PER THE PLAN DIMENSION LENGTH AND WIDTH TO MATCH FLAP POCKET



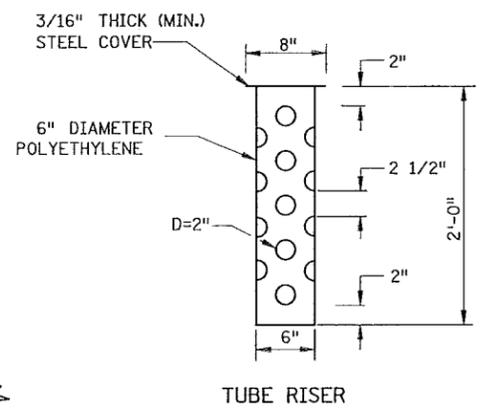
**FILTER BAG INSERT ③**

(CAN BE INSTALLED IN ANY INLET TYPE WITH OR WITHOUT A CURB BOX)

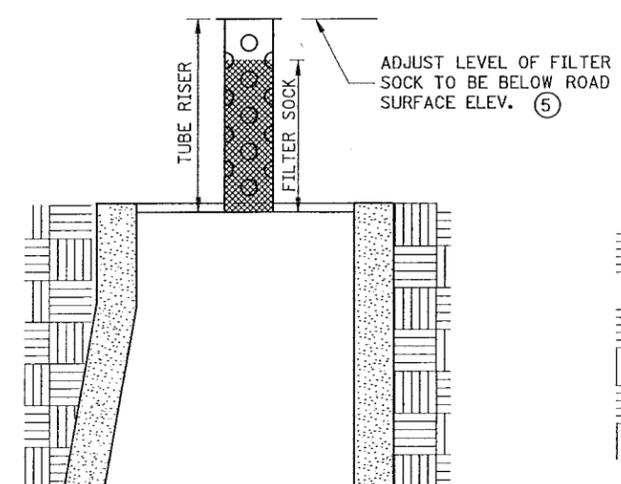
ENDS SECURELY CLOSED TO PREVENT LOSS OF OPEN GRADED AGGREGATE FILL. SECURED WITH 50 PSI ZIP TIE.



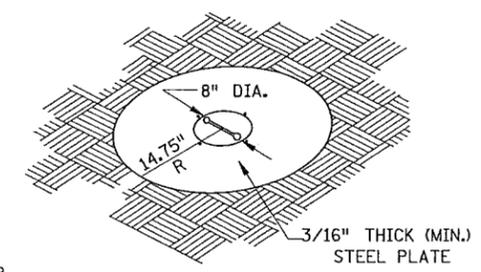
**ROCK LOG/COMPOST LOG**



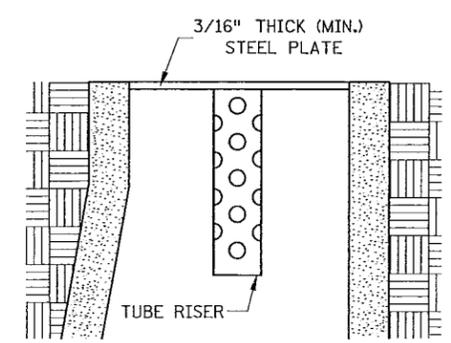
**TUBE RISER**



**SECTION (UP POSITION)**

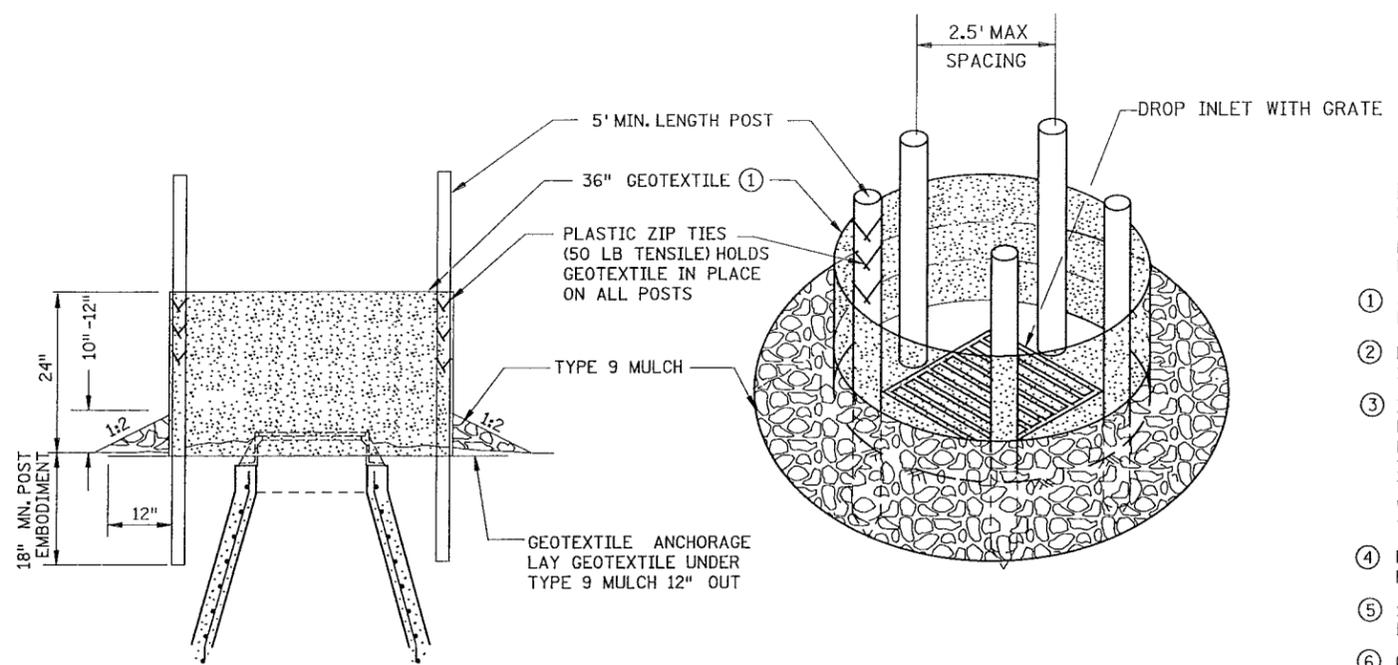


**PERSPECTIVE VIEW**

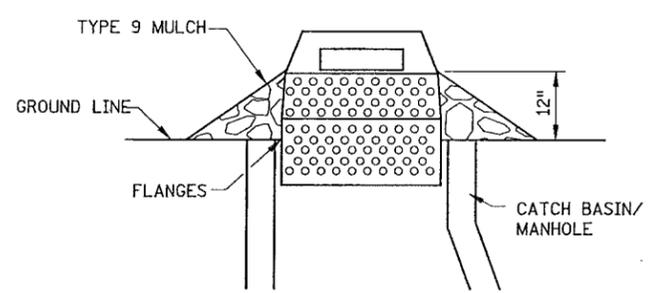


**SECTION (DOWN POSITION)**

**POP-UP HEAD**



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



**SEDIMENT CONTROL INLET HAT**

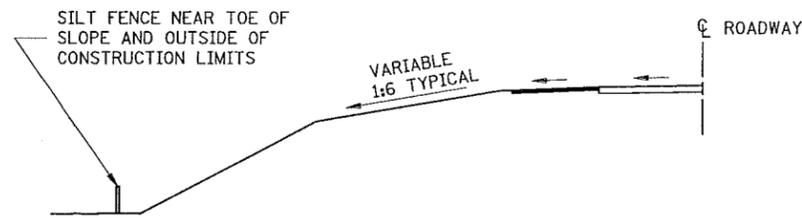
NOTE:  
THE SEDIMENT CONTROL BARRIER SHALL BE A METAL OR PLASTIC/POLYETHYLENE RISER SIZED TO FIT INSIDE THE CATCH BASIN/MANHOLE; HAVE PERFORATIONS TO ALLOW FOR WATER INFILTRATION; HAVE AN OVERFLOW OPENING, FLANGES AND A LID/COVER.

**NOTES:**

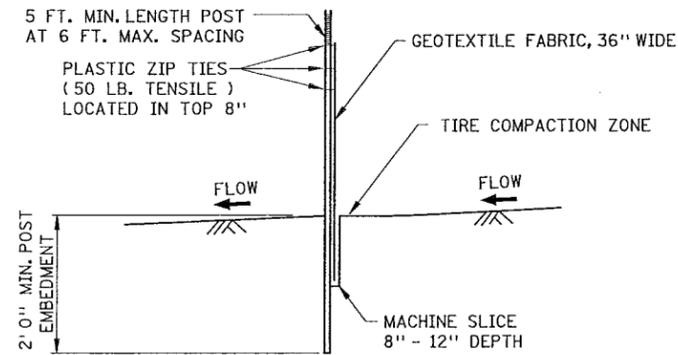
- SEE SPECS. 2573, 3137, 3886 & 3891.
- MANUFACTURED ALTERNATIVES LISTED ON Mn/DOT'S APPROVED PRODUCTS LIST MAY BE SUBSTITUTED.
- ① ALL GEOTEXTILE USED FOR INLET PROTECTION SHALL BE MONOFILAMENT IN BOTH DIRECTIONS, MEETING SPEC. 3886.
- ② FINISHED SIZE, INCLUDING POCKETS WHERE REQUIRED SHALL EXTEND A 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.

STANDARD SHEET NO. 297.405 (4 OF 4)	TITLE:
STANDARD APPROVED: SEPTEMBER 27, 2006	<b>TEMPORARY SEDIMENT CONTROL</b> STORM DRAIN INLET PROTECTION

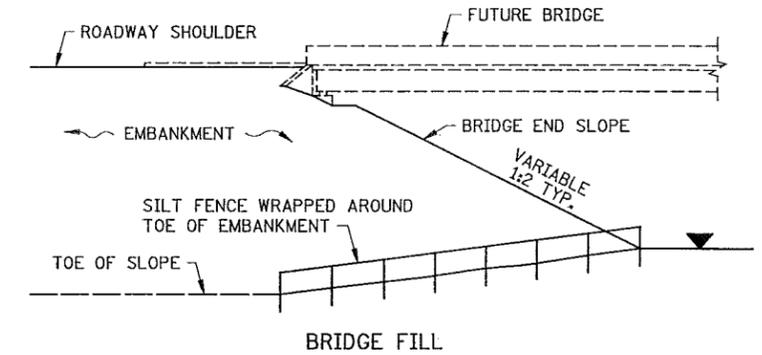
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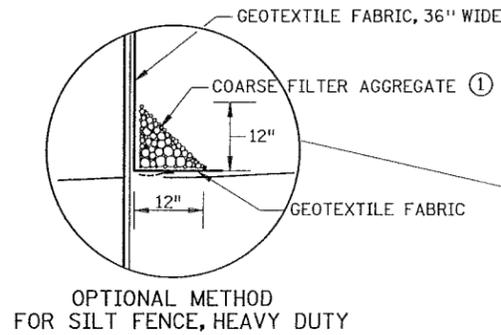
LOCATION OF SILT FENCE AT TOE OF ROADWAY EMBANKMENT



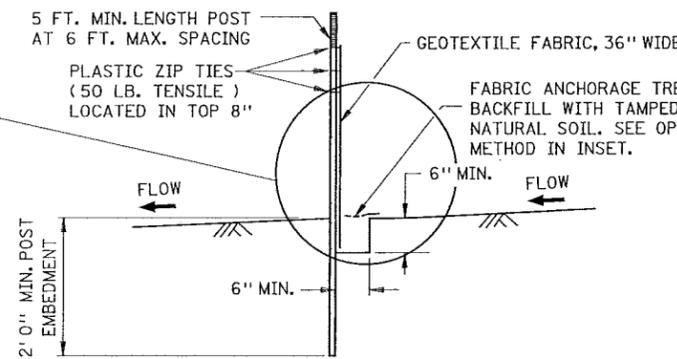
SILT FENCE, MACHINE SLICED  
DESIGN GUIDELINES:  
TO PROTECT AREAS FROM SHEET FLOW.  
MAXIMUM CONTRIBUTING AREA: 1 ACRE.



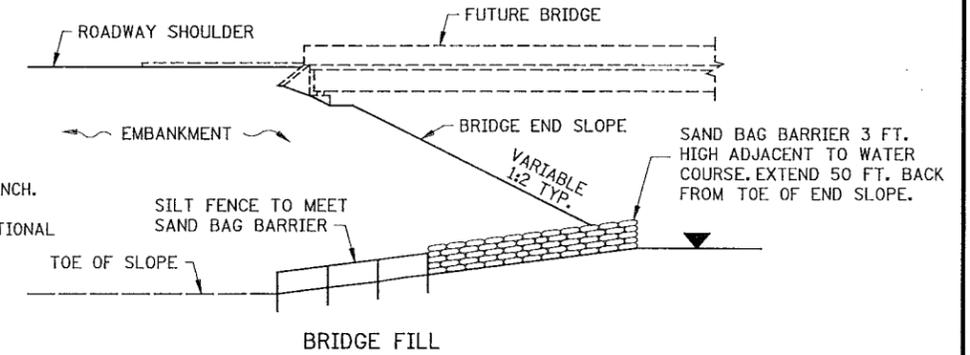
DESIGN GUIDELINES:  
WATER COURSE FLOW VELOCITY: STAGNANT  
CONTRIBUTING SLOPE AREA: 1/2 ACRE



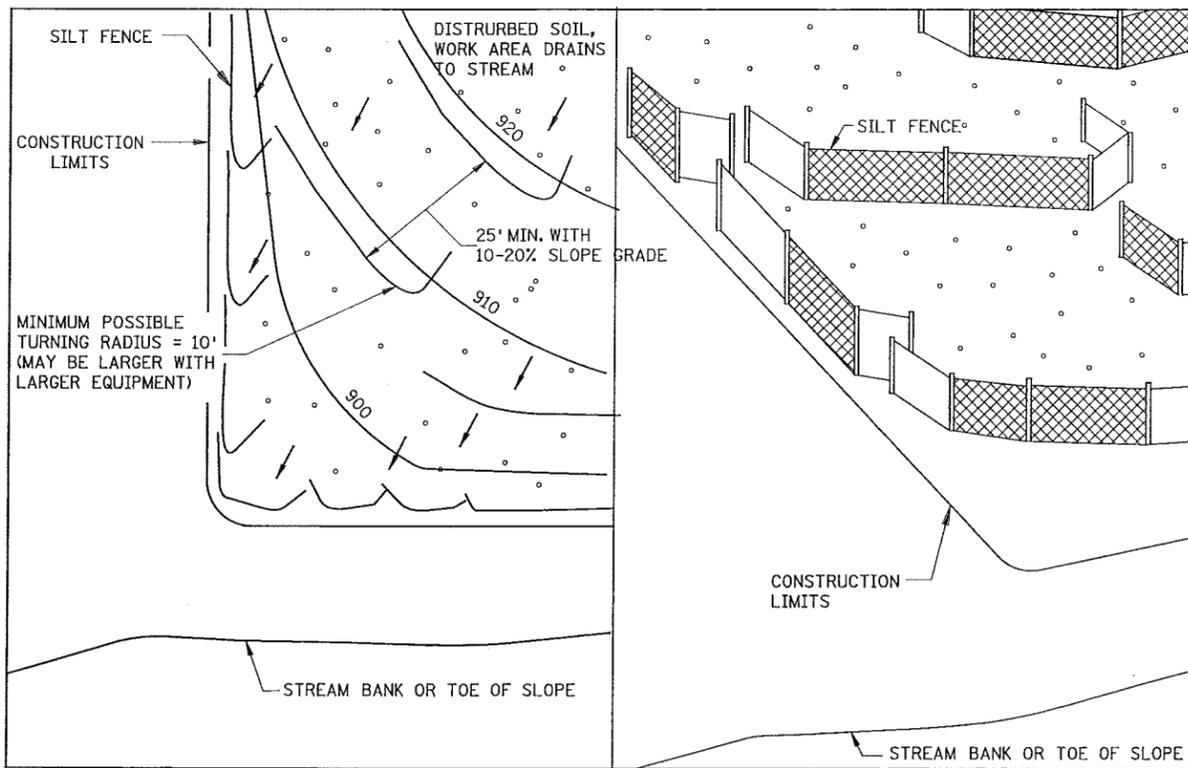
OPTIONAL METHOD FOR SILT FENCE, HEAVY DUTY



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



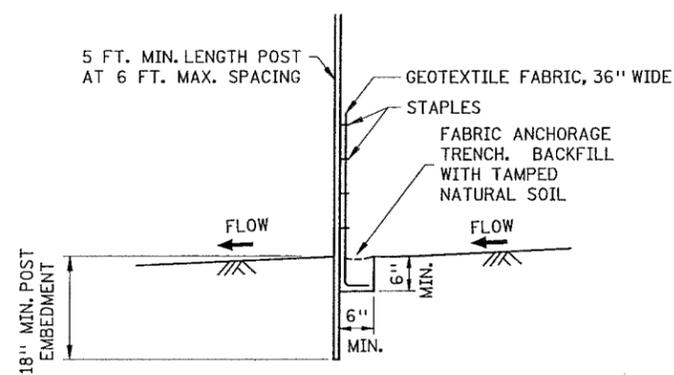
DESIGN GUIDELINES:  
WATER COURSE FLOW VELOCITY: 1 TO 7 FT./SEC.  
CONTRIBUTING SLOPE AREA: 1 ACRE



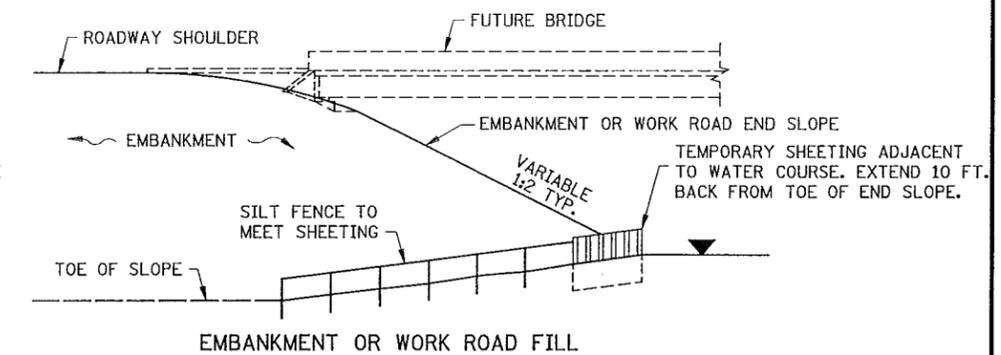
PLAN VIEW

SIDE VIEW

SILT FENCE, J-HOOK INSTALLATION



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



DESIGN GUIDELINES:  
WATER COURSE FLOW VELOCITY: 8 TO 15 FT./SEC.  
CONTRIBUTING SLOPE AREA: 3 ACRES

SILT FENCE AT BRIDGE EMBANKMENT ADJACENT TO WATER

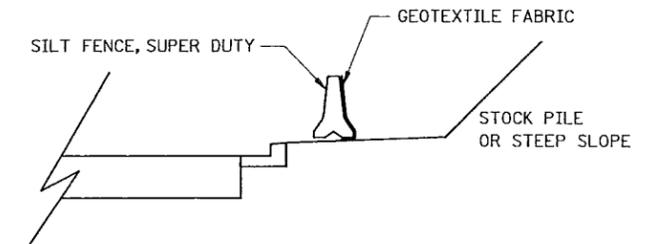
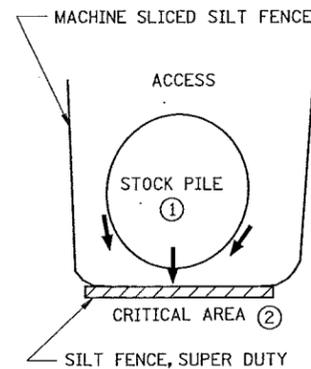
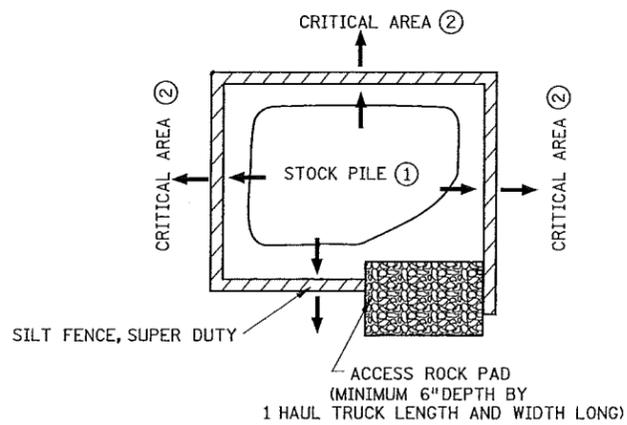
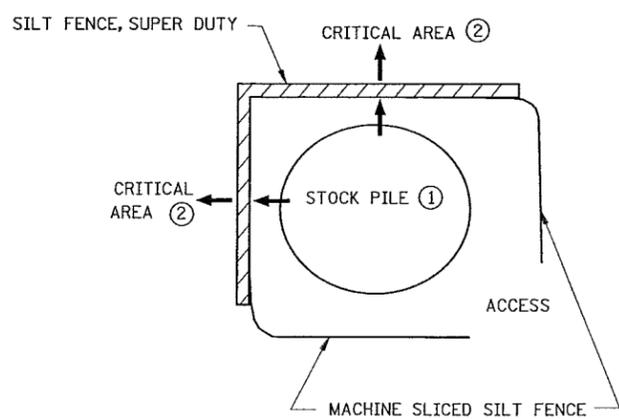
NOTES:

SEE SPECS. 2573, 3149 & 3886.

① COARSE FILTER AGGREGATE (SPEC. 3149) SHALL BE INCIDENTAL.

STANDARD SHEET NO. 5-297.408 (1 OF 2)	TITLE: TEMPORARY SEDIMENT CONTROL SILT FENCE
STANDARD APPROVED: SEPTEMBER 27, 2006	
SP 189-020-18, SP 27-630-011 (CSAH 30) SHEET NO. 41 OF 236 SHEETS	

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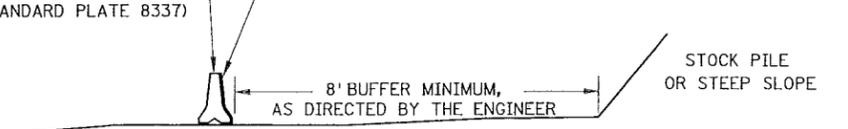


**SILT FENCE, SUPER DUTY CURB AND GUTTER PROTECTION SYSTEM**

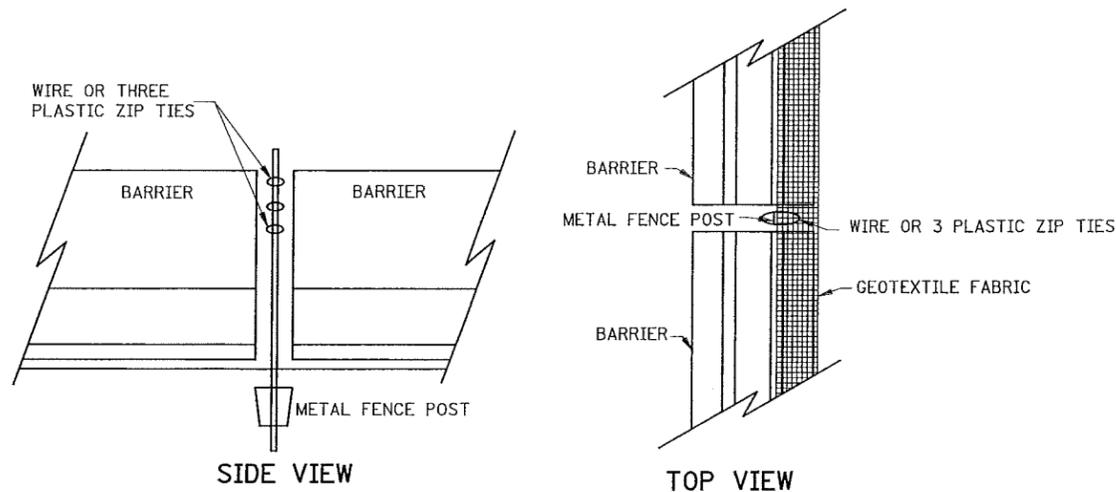
**SILT FENCE, SUPER DUTY STOCK PILE CONTAINMENT**

TEMPORARY PORTABLE PRECAST CONCRETE BARRIER DESIGN 8337 (TYPICAL) (SEE STANDARD PLATE 8337)

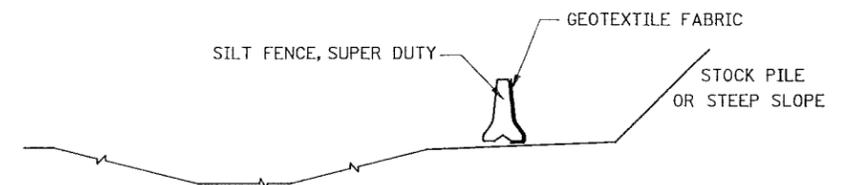
GEOTEXTILE FABRIC, 3' WIDTH, ATTACH TO BARRIER CABLE RINGS, IF PRESENT, BY WIRE OR PLASTIC ZIP TIES, OR TO METAL FENCE POST WITH WIRE OR THREE PLASTIC ZIP TIES.



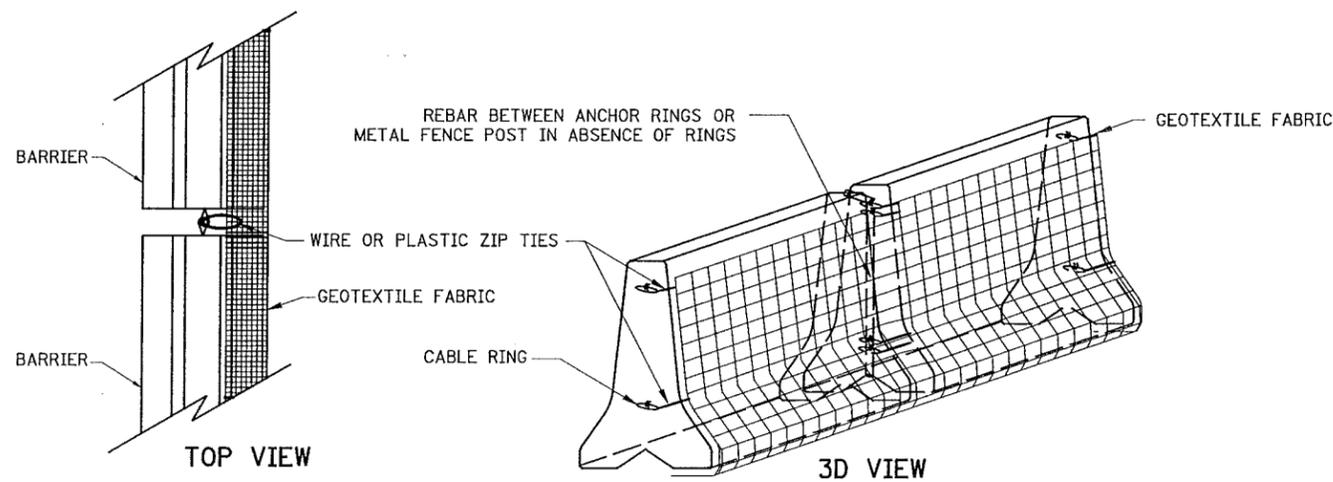
**SILT FENCE, SUPER DUTY STOCKPILE SEDIMENT CONTROL**



**BARRIER WITHOUT CABLE RINGS**



**SILT FENCE, SUPER DUTY DITCH PROTECTION SYSTEM**

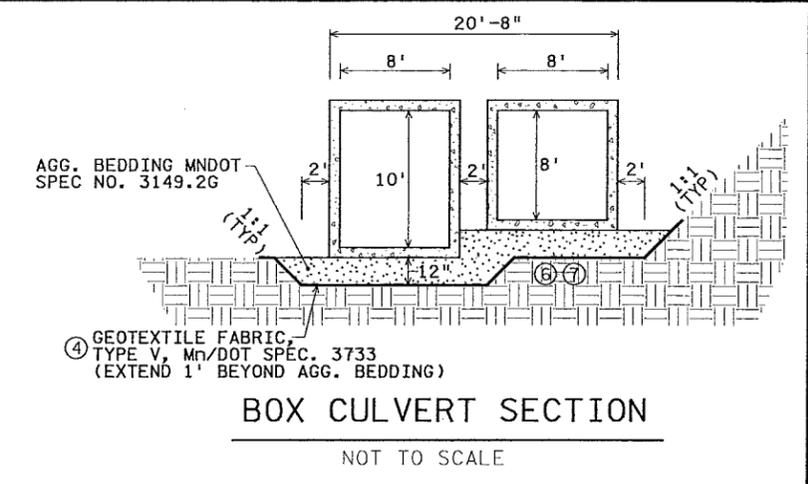
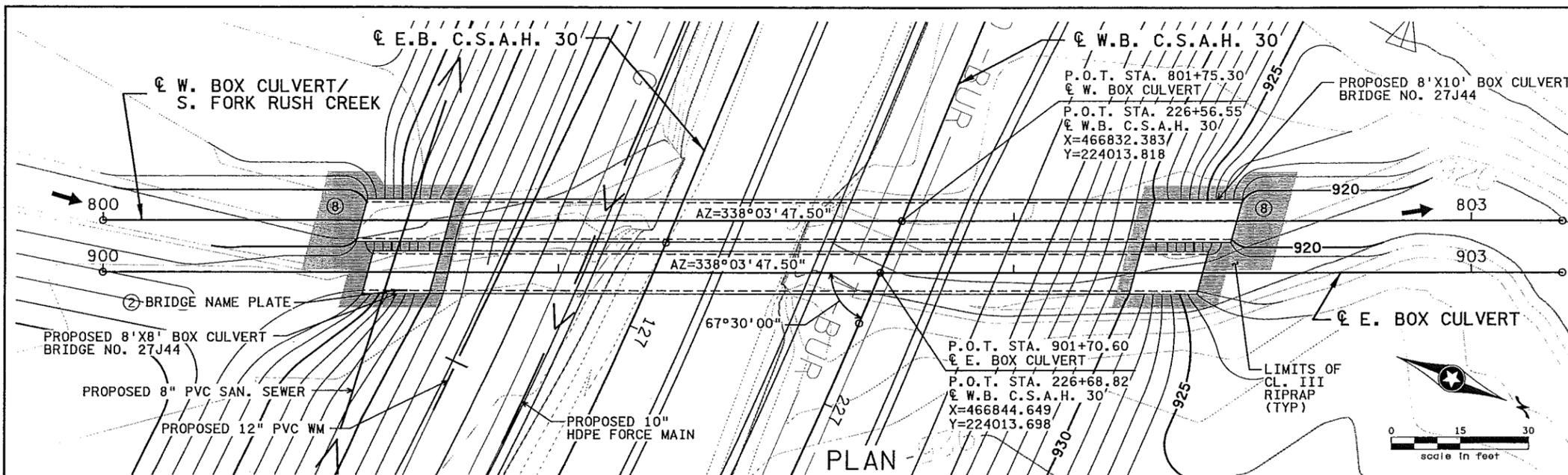


**BARRIER WITH CABLE RINGS SILT FENCE, SUPER DUTY**

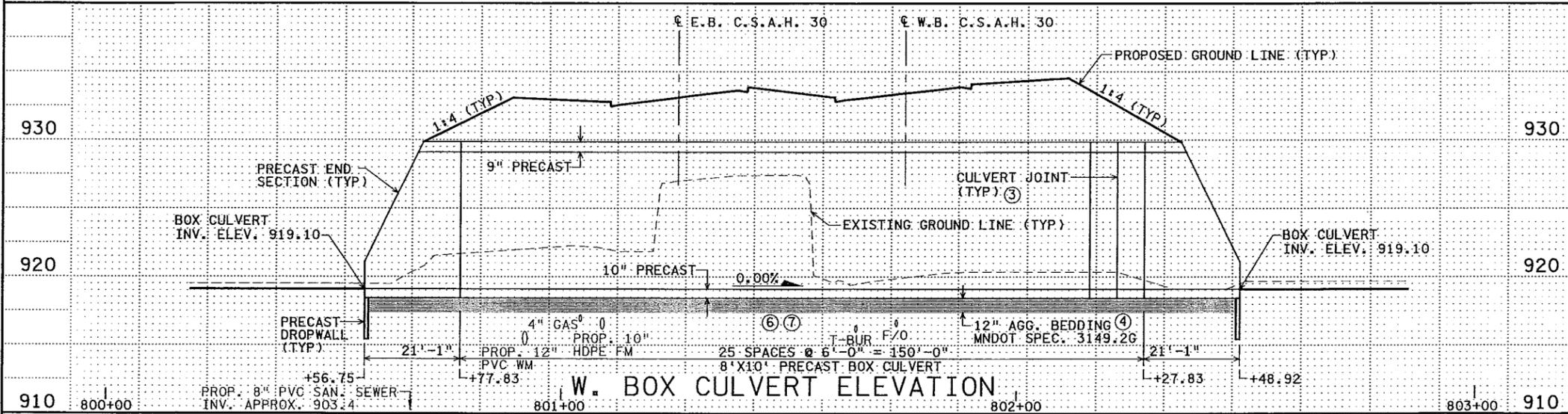
**NOTES:**

- SEE SPECS. 2533, 2573 & 3886.
- PLACE SUPER DUTY SILT FENCE ALONG A CONSTANT ELEVATION. SUPER DUTY SILT FENCE CAN UTILIZE EITHER A CONCRETE, OR WATER FILLED, TEMPORARY MEDIAN BARRIER.
- ① PLACING STOCK PILES NEXT TO AN ENVIRONMENTALLY SENSITIVE AREA IS NOT RECOMMENDED. WHEN THERE ARE NO FEASIBLE ALTERNATIVES, THE SUPER DUTY SILT FENCE IS TO BE USED AS SHOWN OR AS DIRECTED BY THE ENGINEER.
- ② CRITICAL AREAS INCLUDE WETLANDS, JUDICIAL DITCHES, STREAMS, WATER BODIES, AND OTHER AREAS REQUIRING PROTECTION.

STANDARD SHEET NO. 5-297.408 (2 of 2)	TITLE: TEMPORARY SEDIMENT CONTROL SUPER DUTY SILT FENCE
STANDARD APPROVED: SEPTEMBER 27, 2006	
SP 189-020-18, SP 27-630-011 (CSAH 30) SHEET NO. 42 OF 236 SHEETS	

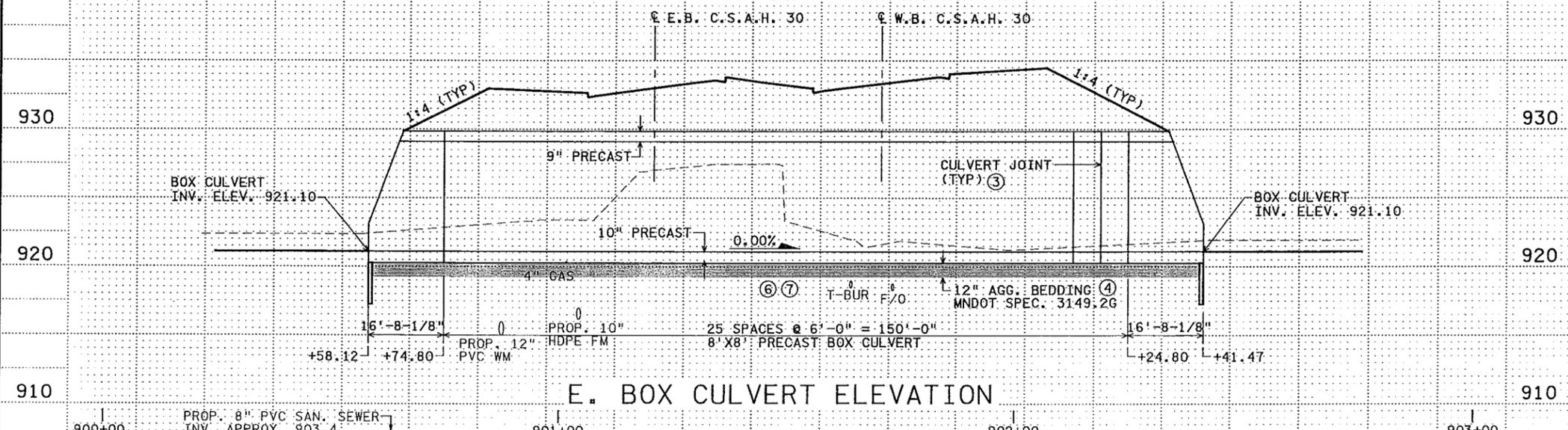


- NOTES:**
- SEE ALIGNMENT PLAN AND TABULATION FOR BOX CULVERT ALIGNMENT INFORMATION.
  - BRIDGE NAME PLATE TO BE INCIDENTAL TO OTHER ITEMS.
  - JOINTS BETWEEN ALL SECTIONS SHALL BE WRAPPED WITH 3-PLY JOINT WATERPROOFING ON THE TOP AND SIDES AND HAVE A FLEXIBLE WATER TIGHT JOINT USING MASTIC SEALS ALL AROUND.
  - CONSISTS OF GEOTEXTILE FABRIC TYPE V TO BE PLACED UNDER AGGREGATE BEDDING. THE GEOTEXTILE FABRIC TYPE II REQUIRED AT BOX CULVERT JOINTS IS INCIDENTAL TO THE PRECAST BOX CULVERT.
  - SHEETING OR SHORING MAY BE REQUIRED FOR STAGED BOX CULVERT CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE LOCATIONS OF SHEET PILING AND/OR SHORING BASED ON THE CONTRACTOR'S CONSTRUCTION OPERATION. THIS SHALL BE INCIDENTAL TO PRECAST BOX CULVERT.
  - EXCAVATE TO THE LIMITS SHOWN IN THE CROSS SECTIONS FOR ROADWAY SOIL CORRECTION OR 1' BELOW BOTTOM OF BOX CULVERTS, WHICHEVER IS GREATER.
  - THE NATIVE SOILS OR SELECT GRANULAR PLACED FOR SOIL CORRECTION SHALL BE MOISTURE CONDITIONED AND SURFACE COMPACTED AFTER EXCAVATION AND PRIOR TO PLACEMENT OF AGGREGATE BEDDING. THE AGGREGATE BEDDING SHALL BE PLACED IN 6\"/>



**HYDRAULIC ENGINEERS RECOMMENDATION**  
DATE MARCH 21, 2008

STREAM OR DITCH DESIGNATION RUSH CREEK  
DRAINAGE AREA 19.5 MI<sup>2</sup>  
MAX. FLOOD ON RECORD UNKNOWN  
MAXIMUM OBSERVED HIGHWATER ELEVATION UNKNOWN  
DESIGN FLOOD ( 50 YR. FREQ. ) 660 C.F.S.  
DESIGN STAGE ELEVATION 927.81  
TOTAL STAGE INCREASE 0.55 FT.  
DESIGN MEAN VELOCITY THROUGH STRUCTURE 5.4 F.P.S.  
LOW MEMBER AT OR ABOVE ELEVATION 927.10  
FLOWLINE ELEVATION 919.10 SKEW ANGLE 0°  
BASIC FLOOD ( 100 YR. FREQ. ) 720 C.F.S.  
STAGE ELEVATION 928.66  
TOTAL STAGE INCREASE 0.62  
MEAN VELOCITY THROUGH STRUCTURE 5.7 fps  
ESTIMATED DEPTH OF PIER SCOUR = N/A



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1	09/08/08	VGL	TRE	KAM	FLOODPLAIN MITIGATION SITE ADDITION
NO	DATE	BY	CKD	APPR	REVISION

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: TROY R. ERICKSON  
Date: 09/08/08 License #: 43554

STATE PROJECT NO. SP 189-020-18  
SP 27-630-011  
STATE AID PROJECT NO. Y  
COUNTY PROJECT NO. 0521  
CITY PROJ. NO. 2007-15

DRAWN BY W. ANDERSON  
DESIGNED BY J. NIELSEN  
CHECKED BY T. ERICKSON  
COMM. NO. 0076102



CITY OF MAPLE GROVE	SHEET 47 OF 236
BOX CULVERT PLAN & PROFILE	
C.S.A.H. 30	

**GENERAL TRAFFIC CONTROL NOTES:**

- ① ALL TRAFFIC CONTROL DEVICES, TEMPORARY LANE CLOSURE ARRANGEMENTS AND PROCEDURES, ETC. SHALL CONFORM TO REQUIREMENTS OF THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES INCLUDING THE FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS (JANUARY 2007).
- ② IF THE CONTRACTOR DECIDES TO PERFORM THE CONSTRUCTION WORK IN A SEQUENCE OTHER THAN SHOWN IN THIS TRAFFIC CONTROL PLAN, THE CONTRACTOR SHALL PROVIDE COMPLETE REVISED TRAFFIC CONTROL PLANS TO BE APPROVED BY THE ENGINEER.
- ③ THE LOCATIONS AND QUANTITIES OF TRAFFIC CONTROL DEVICES SHOWN ON THESE PLANS ARE APPROXIMATE AND ARE SUBJECT TO REVISION BY THE ENGINEER.
- ④ THE CONTRACTOR SHALL MAINTAIN A 2 FOOT MINIMUM CLEAR DISTANCE BETWEEN THE EDGE OF THE TRAVEL LANE AND THE NEAREST EDGE OF ANY ADJACENT TRAFFIC CONTROL DEVICES (DRUMS, BARRICADES, BARRIERS, ETC.) UNLESS OTHERWISE NOTED.
- ⑤ THE CONTRACTOR SHALL MAINTAIN ACCESS TO ALL DRIVEWAYS AT ALL TIMES TO THE SATISFACTION OF THE ENGINEER.
- ⑥ THE CONTRACTOR SHALL PROVIDE CHANNELIZING DEVICES (AND SIGNING IF NECESSARY) AT ALL PRIVATE ENTRANCE LOCATIONS WHERE NEEDED TO SAFELY GUIDE TRAFFIC TO AND FROM THE TRAVEL CORRIDOR TO THE SATISFACTION OF THE ENGINEER.
- ⑦ THE CONTRACTOR SHALL REMOVE ALL EXISTING PAVEMENT MARKINGS WHICH CONFLICT WITH THESE TRAFFIC CONTROL PLANS TO THE SATISFACTION OF THE ENGINEER. THE CONTRACTOR SHALL RESTORE ALL APPROPRIATE ORIGINAL PAVEMENT MARKINGS AFTER APPROVAL TO DO SO BY THE ENGINEER.
- ⑧ THE CONTRACTOR SHALL REMOVE, SALVAGE, OR COVER, AS APPROPRIATE, ALL EXISTING SIGNING WHICH CONFLICTS WITH THIS TRAFFIC CONTROL PLAN TO THE SATISFACTION OF THE ENGINEER. THE CONTRACTOR SHALL RESTORE ALL APPROPRIATE ORIGINAL SIGNING WHEN AND AS DIRECTED BY THE ENGINEER. REMOVAL AND SALVAGE OF SIGNS SHALL BE PAID FOR UNDER THE APPROPRIATE BID ITEM. COVERING AND UNCOVERING OF SIGNS SHALL BE INCIDENTAL TO TRAFFIC CONTROL.
- ⑨ THESE TRAFFIC CONTROL LAYOUTS DO NOT SHOW ALL INPLACE SIGNING. THE CONTRACTOR SHALL RELOCATE ALL APPROPRIATE INPLACE SIGNING TO MAINTAIN PROPER SIGN VISIBILITY DURING CONSTRUCTION AS DEEMED NECESSARY BY THE ENGINEER.
- ⑩ THE CONTRACTOR SHALL PROVIDE QUALIFIED FLAGGERS WITH TWO-WAY RADIOS AT ALL TIMES WHEN CONTRACTOR OPERATIONS REQUIRE ONE-LANE-TWO-WAY OPERATION OR WHEN, IN THE OPINION OF THE ENGINEER, ONE-LANE-TWO-WAY OPERATIONS ARE APPROPRIATE DUE TO SAFETY CONCERNS FROM OPEN EXCAVATIONS, ADJACENT EQUIPMENT, ETC.
- ⑪ THE CONTRACTOR SHALL NOT PLACE PAINTED TEMPORARY PAVEMENT MARKINGS ON PERMANENT FINAL SURFACING (OR ON OTHER SURFACING WHICH WILL NOT ULTIMATELY BE REPLACED OR COVERED BY PLANNED CONSTRUCTION) UNLESS THE TEMPORARY MARKINGS ARE IN THE SAME LOCATION AS THE PERMANENT MARKINGS.
- ⑫ 1:3 MAXIMUM TEMPORARY CONSTRUCTION EDGE SLOPES SHALL BE MAINTAINED AT ALL TIMES EXCEPT WHEN EXCAVATION WORK TEMPORARILY MANDATES STEEPER EDGE SLOPES, AS APPROVED BY THE ENGINEER. THE CONTRACTOR SHALL MINIMIZE WORK LENGTHS TO FACILITATE IMMEDIATE RE-ESTABLISHMENT OF 1:3 MAXIMUM TEMPORARY EDGE SLOPES FOLLOWING THE EXCAVATION WORK TO THE SATISFACTION OF THE ENGINEER. 1:1 MAXIMUM TEMPORARY CONSTRUCTION EDGE SLOPES MAY BE USED IF PROTECTED BY PORTABLE CONCRETE MEDIAN BARRIER.
- ⑬ THE CONTRACTOR SHALL FURNISH, INSTALL, MAINTAIN, AND REMOVE, AS APPROPRIATE, ALL SIGNS, PAVEMENT MARKINGS, AND DEVICES SHOWN ON THESE PLANS TO THE SATISFACTION OF THE ENGINEER.
- ⑭ THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY EXTRA SIGNING NEEDED TO FACILITATE TRAFFIC SWITCHES OR FOR TRANSITIONING TRAFFIC FROM ONE STAGE TO ANOTHER.
- ⑮ ALL TRAFFIC CONTROL SIGNS SHALL BE HIGH PERFORMANCE SHEETING FOR RIGID TEMPORARY SIGNS AND BARRICADES, BOTH TYPE HP AND TYPE HP FLO.
- ⑯ LONGITUDINAL DROP OFFS SHALL BE SIGNED AS SHOWN IN THE "TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS" FIELD MANUAL UNLESS OTHERWISE SPECIFIED IN THESE PLANS.
- ⑰ IN ALL WORK AREAS THAT REQUIRE "CONSTRUCTION UNDER TRAFFIC" THE CONTRACTOR SHALL PROTECT WORK AREAS AT ALL TIMES TO PROVIDE FOR SAFE TRAFFIC MOVEMENT TO THE SATISFACTION OF THE ENGINEER.
- ⑱ ANY LANE CLOSURES REQUIRED ALONG CSAH 30 SHALL BE DONE DURING THE OFF PEAK HOURS TO MINIMIZE INCONVENIENCE TO THE TRAVELING PUBLIC.
- ⑲ ADVANCE WARNING SIGNS SHALL BE POST MOUNTED OR AS APPROVED BY THE ENGINEER.
- ⑳ POSTS SHALL BE PLUMB, WITH SIGNS INSTALLED LEVEL AND AT PROPER MOUNTING HEIGHT IN ACCORDANCE WITH M.M.U.T.C.D. IF POST MOUNTING IS NOT POSSIBLE, SIGNS SHALL BE MOUNTED ON PORTABLE SUPPORTS AS APPROVED BY THE ENGINEER.
- ㉑ ALL SIGNS AND TRAFFIC CONTROL ITEMS SHALL BE LIKE NEW AND REFLECT UNIFORMLY AT NIGHT.
- ㉒ SPACING OF SIGNS AND TRAFFIC CONTROL DEVICES MAY BE ADJUSTED AS APPROVED BY THE ENGINEER.
- ㉓ THE CONTRACTOR SHALL PLACE PERMANENT PAVEMENT MARKINGS AND INSTALL PERMANENT SIGNING DURING EACH STAGE OF CONSTRUCTION AS APPROPRIATE AND CONSISTENT WITH THE REQUIREMENTS OF THE TEMPORARY TRAFFIC CONTROL.
- ㉔ INSTALL TEMPORARY AND/ OR PERMANENT SEDIMENT AND EROSION CONTROL MEASURES DURING AND AFTER COMPLETION OF EACH PARTIAL STAGE OF CONSTRUCTION.

**STAGING NARRATIVE:**

**STAGE 1**

**TEMPORARY CONSTRUCTION**

- \* INSTALL TEMPORARY PAVEMENT CONNECTING EXISTING CSAH 30 TO PROPOSED EB CSAH 30 AT STATION 165+50.
- \* INSTALL TEMPORARY PAVEMENT WIDENING ON THE NORTH SIDE OF CSAH 30 AT GARLAND LANE.

**PERMANENT CONSTRUCTION**

- \* CONSTRUCT EB CSAH 30 FROM STATION 165+50 TO EASTERLY END OF PROJECT AS SHOWN IN THE STAGING PLANS.
- \* CONSTRUCT WB CSAH 30 FROM STATION 258+17 TO STATION 264+00 AS SHOWN IN THE STAGING PLANS.
- \* CONSTRUCT GARLAND LANE IN TWO PHASES AS SHOWN IN THE STAGING PLANS.
- \* COMPLETE MUCK EXCAVATION WORK IN LOCATIONS SHOWN IN THE STAGING PLANS.

**TRAFFIC**

- \* SHIFT CSAH 30 TRAFFIC TO THE NORTH AT THE EASTERLY END OF THE PROJECT AS SHOWN IN THE STAGING PLANS.

**WATER RESOURCES:**

- \* CONSTRUCT PERMANENT LAWDALE POND ON THE NORTH SIDE OF CSAH 30 AT STATION 158+00.

**UTILITIES**

- \* CONSTRUCT PERMANENT AND TEMPORARY STORM SEWER AS SHOWN IN THE STAGING PLANS.
- \* CONSTRUCT PERMANENT WATERMAIN AND SANITARY SEWER AS SHOWN IN THE STAGING PLANS.

**STAGE 2**

**TEMPORARY CONSTRUCTION**

- \* INSTALL TEMPORARY PAVEMENT WIDENING ON THE SOUTH SIDE OF CSAH 30 AS SHOWN IN THE STAGING PLANS.
- \* INSTALL TEMPORARY PAVEMENT WIDENING ON THE NORTH SIDE OF PERMANENT W.B. CSAH 30 IN THE LOCATION OF THE BOX CULVERT.
- \* INSTALL TEMPORARY PAVEMENT CONNECTION AT STATION 166+00.
- \* INSTALL TEMPORARY PAVEMENT WIDENING ON THE NORTH SIDE OF PERMANENT E.B. CSAH 30 AT GARLAND LANE.
- \* INSTALL TEMPORARY PAVEMENT CONNECTION BETWEEN EXISTING AND PROPOSED CSAH 30 AT STATION 179+00.

**PERMANENT CONSTRUCTION**

- \* CONSTRUCT WB CSAH 30 AS SHOWN IN THE STAGING PLANS.
- \* CONSTRUCT PORTION OF EB CSAH 30 AT THE EASTERLY PROJECT LIMIT AS SHOWN IN THE STAGING PLANS.
- \* CONSTRUCT TROY LANE UNDER TRAFFIC.
- \* CONSTRUCT PORTION OF LAWDALE LANE AS SHOWN IN THE STAGING PLANS (NORTH SEGMENT IN TWO PHASES).
- \* CONSTRUCT DUNKIRK LANE UNDER TRAFFIC.

**TRAFFIC**

- \* CSAH 30 TRAFFIC TO REMAIN ON EXISTING ROADWAY (SHIFTED TO THE SOUTH IN SOME LOCATIONS) AND CROSS OVER TO NEW CONSTRUCTION AT THE EASTERLY END OF THE PROJECT.

**WATER RESOURCES:**

- \* CONSTRUCT PERMANENT 610 POND ON THE NORTH SIDE OF CSAH 30 AT STATION 132+00.

**UTILITIES**

- \* CONSTRUCT PERMANENT WATERMAIN AND SANITARY SEWER AS SHOWN IN THE STAGING PLANS.
- \* CONSTRUCT PERMANENT AND TEMPORARY STORM SEWER AS SHOWN IN THE STAGING PLANS.
- \* REMOVE DOWNSTREAM EXISTING WING WALLS AND OTHER APPURTENANCES SUCH THAT BOX CULVERTS CAN BE CONSTRUCTED TO THE EXTENT INDICATED IN THE STAGING PLANS.
- \* CONSTRUCT WEST BOX CULVERT AS SHOWN IN STAGING PLANS; MODIFY EXISTING CHANNEL AS NECESSARY TO COMPLETE DIVERSION.
- \* CONSTRUCT EAST BOX CULVERT AS SHOWN IN STAGING PLANS.

**STAGE 3**

**PERMANENT CONSTRUCTION**

- \* CONSTRUCT EB CSAH 30.
- \* CONSTRUCT WINSLOW CHASE UNDER TRAFFIC.
- \* CONSTRUCT PEONY LANE UNDER TRAFFIC.
- \* CONSTRUCT REMAINDER OF LAWDALE LANE AS SHOWN IN THE STAGING PLANS.

**TRAFFIC**

- \* CSAH 30 TRAFFIC TO USE NEW WB CSAH 30
- \* CLOSE ZIRCON LANE CONNECTION TO CSAH 30
- \* CLOSE QUEENSLAND LANE CONNECTION TO CSAH 30

**WATER RESOURCES:**

- \* CONSTRUCT FLOODPLAIN MITIGATION AREA.

**UTILITIES**

- \* CONSTRUCT PERMANENT WATERMAIN AND SANITARY SEWER AS SHOWN IN THE STAGING PLANS.
- \* CONSTRUCT PERMANENT STORM SEWER AS SHOWN IN THE STAGING PLANS.
- \* REMOVE EXISTING BOX CULVERTS, WING WALLS AND OTHER APPURTENANCES.
- \* CONSTRUCT EAST BOX CULVERT AS SHOWN IN STAGING PLANS.
- \* CONSTRUCT WEST BOX CULVERT AS SHOWN IN STAGING PLANS.

**STAGE 4**

**PERMANENT CONSTRUCTION**

- \* CONSTRUCT REMAINING CURB AND GUTTER AND MEDIAN ON CSAH 30 AS SHOWN IN THE STAGING PLANS.

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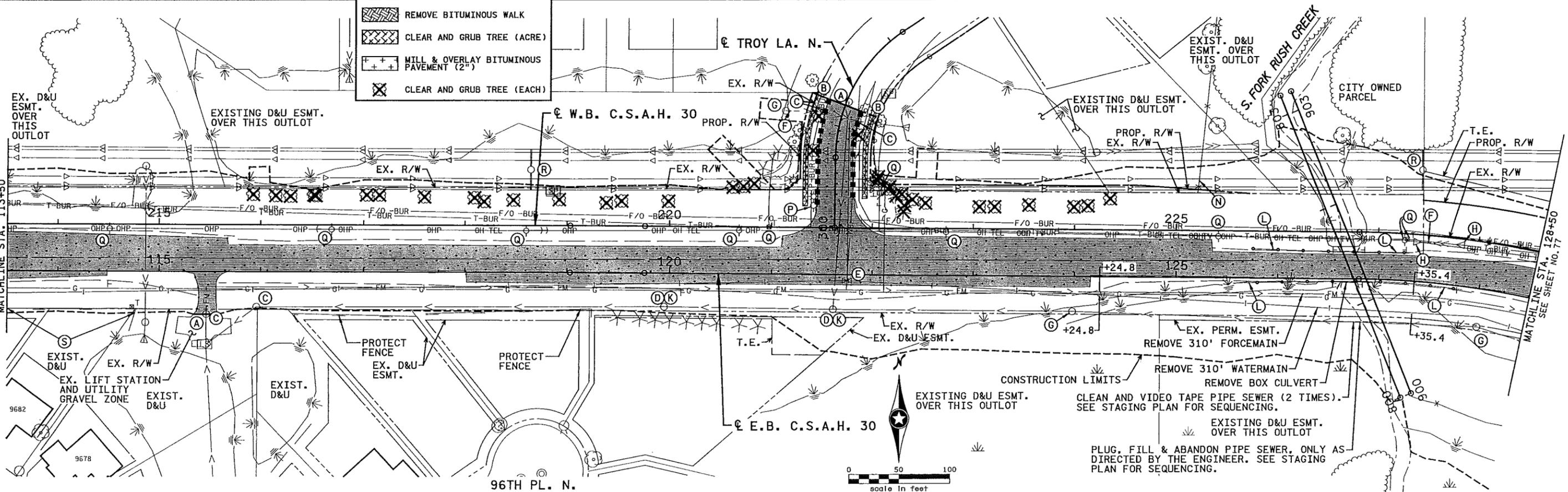
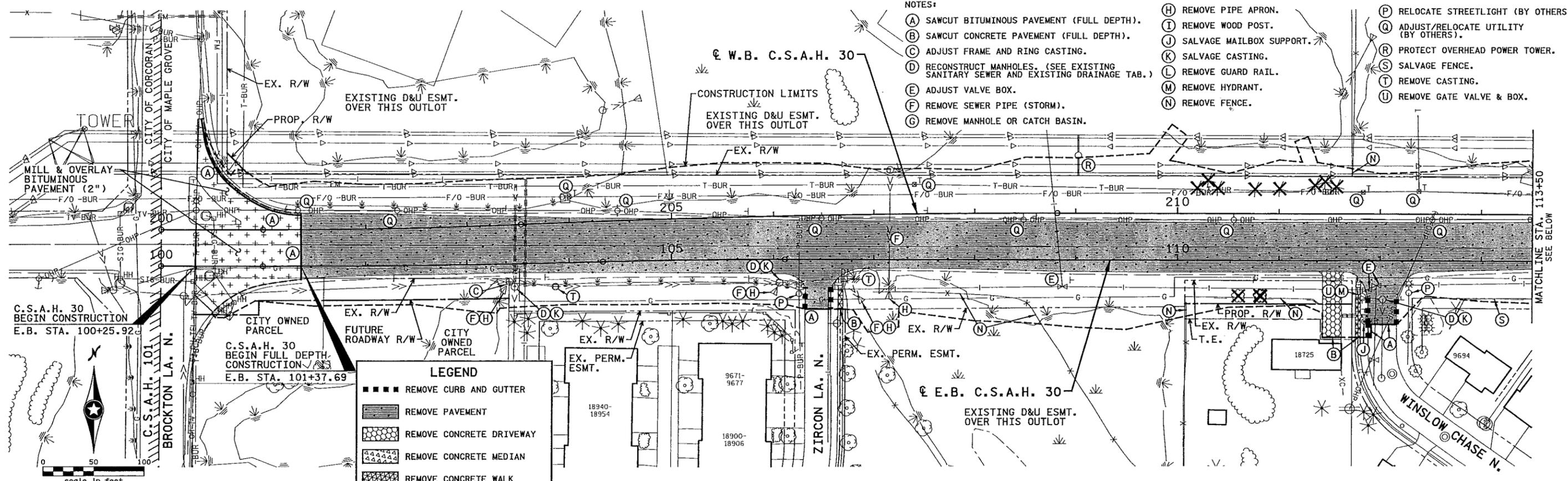
1	09/08/08	VGL	TRE	KAM	FLOODPLAIN MITIGATION SITE ADDITION
NO	DATE	BY	CKD	APPR	REVISION

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: KRISTY MORTER  
*Kristy Morter*  
 Date: 09/08/08 License #: 43556

STATE PROJECT NO. SP 189-020-18 SP 27-630-011  
 STATE AID PROJECT NO. X  
 COUNTY PROJECT NO. 0521  
 CITY PROJ. NO. 2007-15  
 DRAWN BY K. MORTER  
 DESIGNED BY K. MORTER  
 CHECKED BY M. TURNER  
 COMM. NO. 0076102



CITY OF MAPLE GROVE		SHEET 53 OF 236
TRAFFIC CONTROL NOTES AND STAGING NARRATIVE		
C.S.A.H. 30		



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NO	DATE	BY	CHKD	APPR	REVISION
1	09/08/08	VGL	TRE	KAM	FLOODPLAIN MITIGATION SITE ADDITION

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*Kristy Morter*

Date: 09/08/08 License #: 43556

STATE PROJECT NO. SP 189-020-18 SP 27-630-011

STATE AID PROJECT NO. X

COUNTY PROJECT NO. 0521

CITY PROJ. NO. 2007-15

DRAWN BY V. LEE

DESIGNED BY A. KLEIN

CHECKED BY K. MORTER

COMM. NO. 0076102



CITY OF MAPLE GROVE

REMOVAL PLAN

C.S.A.H. 30

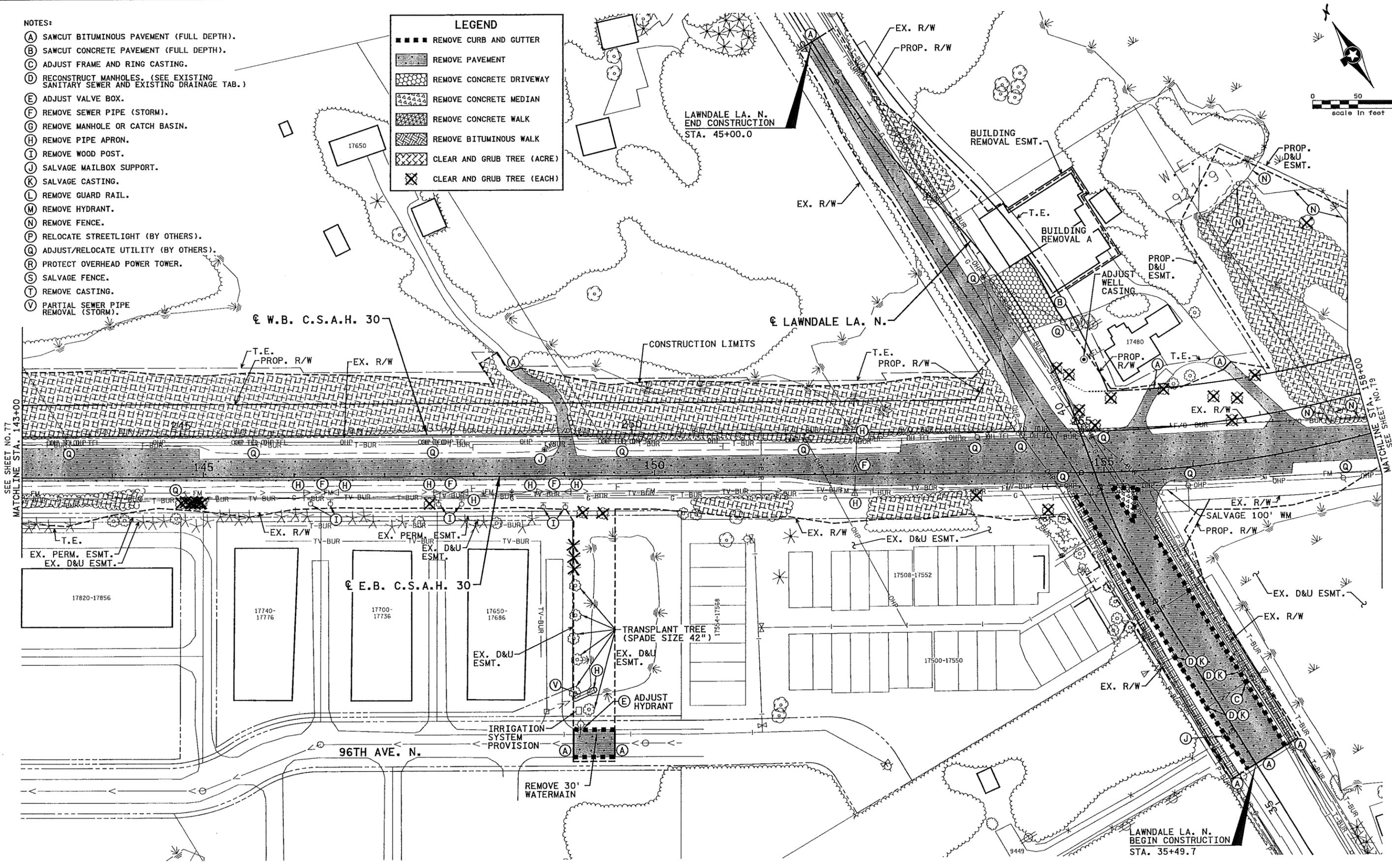
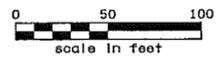
STA. 100+40.82 TO E.B. STA. 128+50

SHEET 76 OF 236

- NOTES:
- (A) SAWCUT BITUMINOUS PAVEMENT (FULL DEPTH).
  - (B) SAWCUT CONCRETE PAVEMENT (FULL DEPTH).
  - (C) ADJUST FRAME AND RING CASTING.
  - (D) RECONSTRUCT MANHOLES. (SEE EXISTING SANITARY SEWER AND EXISTING DRAINAGE TAB.)
  - (E) ADJUST VALVE BOX.
  - (F) REMOVE SEWER PIPE (STORM).
  - (G) REMOVE MANHOLE OR CATCH BASIN.
  - (H) REMOVE PIPE APRON.
  - (I) REMOVE WOOD POST.
  - (J) SALVAGE MAILBOX SUPPORT.
  - (K) SALVAGE CASTING.
  - (L) REMOVE GUARD RAIL.
  - (M) REMOVE HYDRANT.
  - (N) REMOVE FENCE.
  - (P) RELOCATE STREETLIGHT (BY OTHERS).
  - (Q) ADJUST/RELOCATE UTILITY (BY OTHERS).
  - (R) PROTECT OVERHEAD POWER TOWER.
  - (S) SALVAGE FENCE.
  - (T) REMOVE CASTING.
  - (V) PARTIAL SEWER PIPE REMOVAL (STORM).

**LEGEND**

■■■■	REMOVE CURB AND GUTTER
▨	REMOVE PAVEMENT
▩	REMOVE CONCRETE DRIVEWAY
▧	REMOVE CONCRETE MEDIAN
▦	REMOVE CONCRETE WALK
▥	REMOVE BITUMINOUS WALK
▤	CLEAR AND GRUB TREE (ACRE)
✕	CLEAR AND GRUB TREE (EACH)



SEE SHEET NO. 77  
MATCHLINE STA. 143+00

008155  
MATCHLINE STA. 158+00  
SEE SHEET NO. 78

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NO	DATE	BY	CHKD	APPR	REVISION

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Print Name: KRISTY MORTER  
*Kristy Morter*  
Date: 08/12/08 License #: 43556

STATE PROJECT NO.  
SP 189-020-18  
SP 27-630-011

STATE AID PROJECT NO.  
X

COUNTY PROJECT NO.  
0521

CITY PROJ. NO. 2007-15

DRAWN BY  
V. LEE

DESIGNED BY  
A. KLEIN

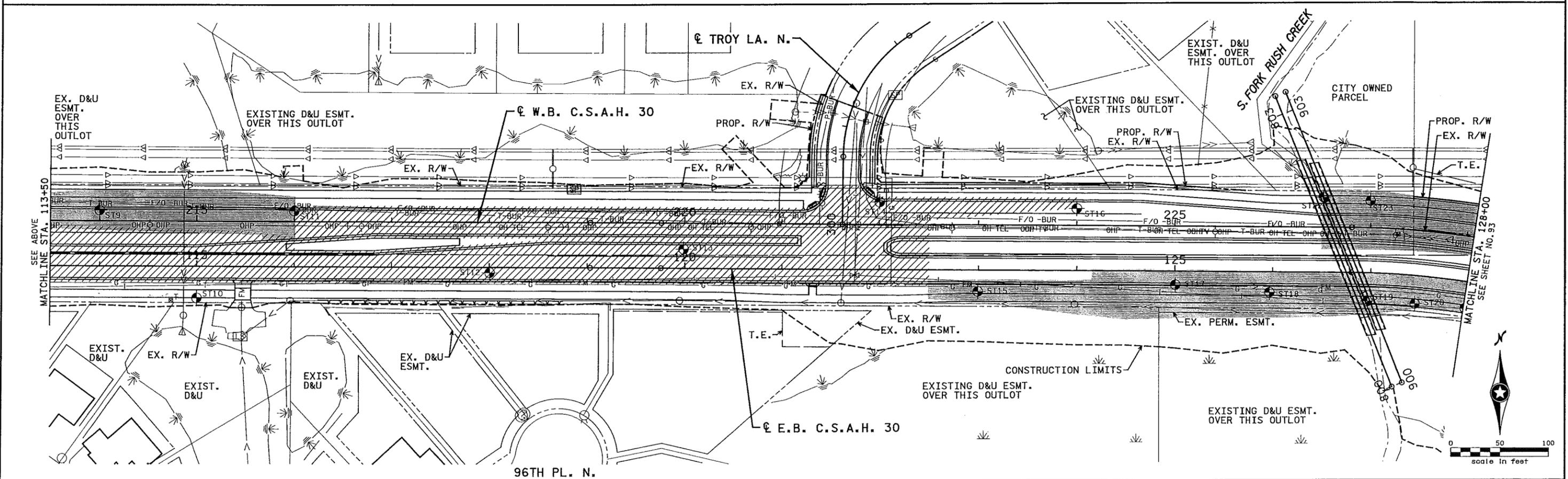
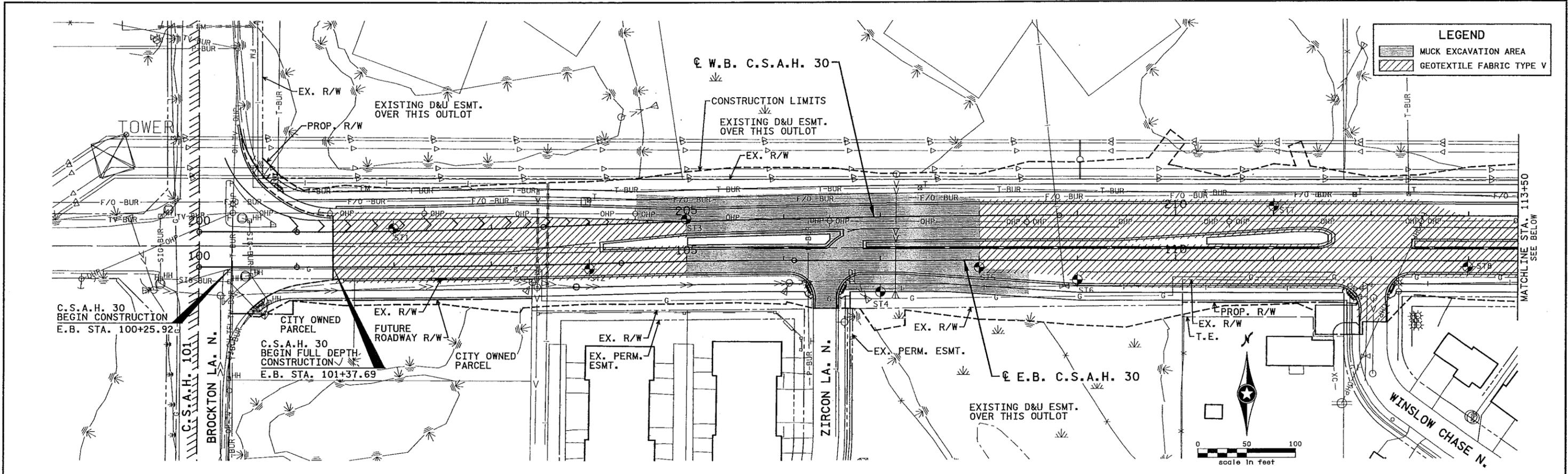
CHECKED BY  
K. MORTER

COMM. NO. 0076102

**SRF** CONSULTING GROUP, INC.

CITY OF MAPLE GROVE  
REMOVAL PLAN  
C.S.A.H. 30  
STA. 143+00 TO E.B. STA. 158+00

SHEET  
78  
OF  
236



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NO	DATE	BY	CHKD	APPR	REVISION
1	09/08/08	VGL	TRE	KAM	FLOODPLAIN MITIGATION SITE ADDITION

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 SP 189-020-18  
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 STATE AID PROJECT NO.  
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 COUNTY PROJECT NO.  
 0521  
 CITY PROJ. NO. 2007-15

DRAWN BY  
 V. LEE  
 DESIGNED BY  
 K. MORTER  
 CHECKED BY  
 M. TURNER  
 COMM. NO. 0076102



CITY OF MAPLE GROVE  
 MUCK EXCAVATION & GEOTEXTILE PLAN  
 C.S.A.H. 30  
 STA. 100+40.82 TO E.B. STA. 128+00

SHEET  
 92  
 OF  
 236



**WATER RESOURCES NOTES**

THE FOLLOWING NOTES GIVE INFORMATION ABOUT CRITICAL FEATURES AND ELEVATIONS FOR THE DRAINAGE ON THIS PROJECT:

1. CHANGING THE FLOW DIRECTION SHOWN ON THE PLANS COULD HAVE ADVERSE EFFECTS OFF THE PROJECT CORRIDOR. DIRECTION CHANGES SHOULD BE REVIEWED WITH THE HYDRAULICS ENGINEERS.

2. SPECIAL STRUCTURES INCLUDED IN THESE DRAINAGE PLANS:

STRUCTURE 231 (DESIGN SPECIAL 2) - OUTLET CONTROL STRUCTURE FOR EXISTING POND B. THIS STRUCTURE PROVIDES SKIMMING VIA A SUBMERGED 15-INCH REINFORCED CONCRETE PIPE. AN ORIFICE INSIDE THE STRUCTURE CONTROLS THE NORMAL WATER LEVEL OF THE POND.

STRUCTURE 351 (DESIGN SPECIAL 3) - OUTLET CONTROL STRUCTURE FOR 610 POND. THIS STRUCTURE PROVIDES SKIMMING VIA A SUBMERGED 24-INCH REINFORCED CONCRETE PIPE. AN ORIFICE INSIDE THE STRUCTURE CONTROLS THE NORMAL WATER LEVEL OF THE POND.

STRUCTURE 441 (DESIGN SPECIAL 4) - OUTLET CONTROL STRUCTURE FOR LAWDALE POND. THIS STRUCTURE PROVIDES SKIMMING VIA A SUBMERGED 21-INCH REINFORCED CONCRETE PIPE. AN ORIFICE INSIDE THE STRUCTURE CONTROLS THE NORMAL WATER LEVEL OF THE POND.

3. PONDING AREAS (SEE THE DRAINAGE PLANS FOR LOCATIONS)

**EXISTING POND 40**

NWL = 930.0 FT, HWL = 932.4 FT

NWL IS CONTROLLED BY EXISTING OUTLET CONTROL STRUCTURE. THIS STRUCTURE PROVIDES SKIMMING AND RATE CONTROL PRIOR TO DISCHARGING TO EXISTING POND 60.

**EXISTING POND B**

NWL = 927.8 FT, HWL = 930.1 FT

THIS PROJECT WILL RAISE THE NWL BY 0.8 FT IN ORDER TO PROVIDE ADDITIONAL TREATMENT CAPACITY. NWL IS CONTROLLED BY STRUCTURE 231 (DESIGN SPECIAL 2). THIS STRUCTURE PROVIDES SKIMMING AND RATE CONTROL PRIOR TO DISCHARGING TO EXISTING POND A.

**EXISTING POND A**

NWL = 926.0 FT, HWL = 928.5 FT

NWL IS CONTROLLED BY EXISTING OUTLET CONTROL STRUCTURE. THIS STRUCTURE PROVIDES SKIMMING AND RATE CONTROL PRIOR TO DISCHARGING TO RUSH CREEK.

**610 POND**

NWL = 926.0 FT, HWL = 930.0 FT

NWL IS CONTROLLED BY STRUCTURE 351 (DESIGN SPECIAL 3). THIS STRUCTURE PROVIDES SKIMMING AND RATE CONTROL PRIOR TO DISCHARGING TO RUSH CREEK.

**LAWDALE POND**

NWL = 925.0 FT, HWL = 927.7 FT

NWL IS CONTROLLED BY STRUCTURE 441 (DESIGN SPECIAL 4). THIS STRUCTURE PROVIDES SKIMMING AND RATE CONTROL PRIOR TO DISCHARGING TO RUSH CREEK.

4. ENVIRONMENTALLY SENSITIVE AREAS

AREAS MARKED "ENVIRONMENTALLY SENSITIVE AREAS" IN THIS PLAN ARE TO BE TREATED AS SUCH. BEST MANAGEMENT PRACTICES ARE TO BE USED FOR EROSION AND SEDIMENT CONTROL THROUGHOUT THE JOB SITE.

5. THE FOLLOWING CONSTRUCTION PERMITS APPLY:

**NPDES**

U. S. CORPS OF ENGINEERS  
WETLAND CONSERVATION ACT  
MN/DNR PUBLIC WATERS  
ELM CREEK WATERSHED MANAGEMENT COMMISSION

PLEASE REFER TO THE PERMIT APPLICATION AND PERMITS FOR SPECIAL CONDITIONS.

**6. NPDES PERMIT:**

THE ROADWAY SEGMENT BETWEEN E.B. C.S.A.H. 30 STATIONS 100+00 AND 111+50 WILL DRAIN THROUGH PROPOSED STORM SEWER BEFORE DISCHARGING TO EXISTING POND 40. EXISTING POND 40 DISCHARGES TO TRIBUTARY WETLANDS OF RUSH CREEK.

THE ROADWAY SEGMENT BETWEEN E.B. C.S.A.H. 30 STATIONS 111+50 AND 121+00 WILL DRAIN THROUGH PROPOSED STORM SEWER BEFORE DISCHARGING TO EXISTING POND B. EXISTING POND B DISCHARGES TO EXISTING POND A, WHICH DISCHARGES TO RUSH CREEK.

THE ROADWAY SEGMENT BETWEEN E.B. C.S.A.H. 30 STATIONS 121+00 AND 126+00 WILL DRAIN THROUGH PROPOSED STORM SEWER BEFORE DISCHARGING TO EXISTING POND A. EXISTING POND A DISCHARGES TO RUSH CREEK.

THE ROADWAY SEGMENT BETWEEN E.B. C.S.A.H. 30 STATIONS 126+00 AND 145+50 WILL DRAIN THROUGH PROPOSED STORM SEWER BEFORE DISCHARGING TO 610 POND. 610 POND DISCHARGES TO TRIBUTARY WETLANDS OF RUSH CREEK.

THE ROADWAY SEGMENT BETWEEN E.B. C.S.A.H. 30 STATIONS 145+50 AND 176+00 WILL DRAIN THROUGH PROPOSED STORM SEWER BEFORE DISCHARGING TO LAWDALE POND. LAWDALE POND DISCHARGES TO TRIBUTARY WETLANDS OF RUSH CREEK.

THE ROADWAY SEGMENT BETWEEN E.B. C.S.A.H. 30 STATIONS 176+00 AND 186+00 (END OF PROJECT) WILL DRAIN THROUGH PROPOSED STORM SEWER AND EXISTING STORM SEWER BEFORE DISCHARGING TO AN EXISTING STORMWATER DETENTION POND LOCATED ALONG THE WEST SIDE OF INTERSTATE 94.

**7. EXISTING STORM SEWER REMOVAL:**

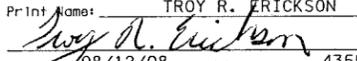
IT IS THE INTENT OF THE DRAINAGE DESIGN TO FACILITATE REMOVAL OF THE MAJORITY OF EXISTING STORM SEWER UNDER NEW PAVEMENT AS SHOWN IN THE REMOVALS TABULATION.

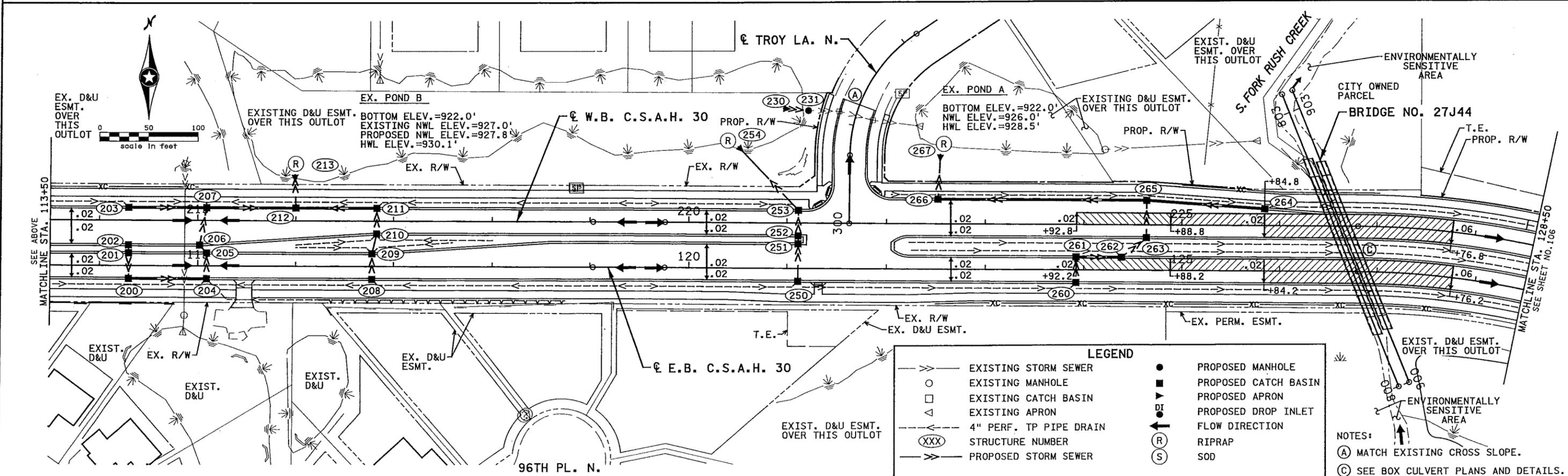
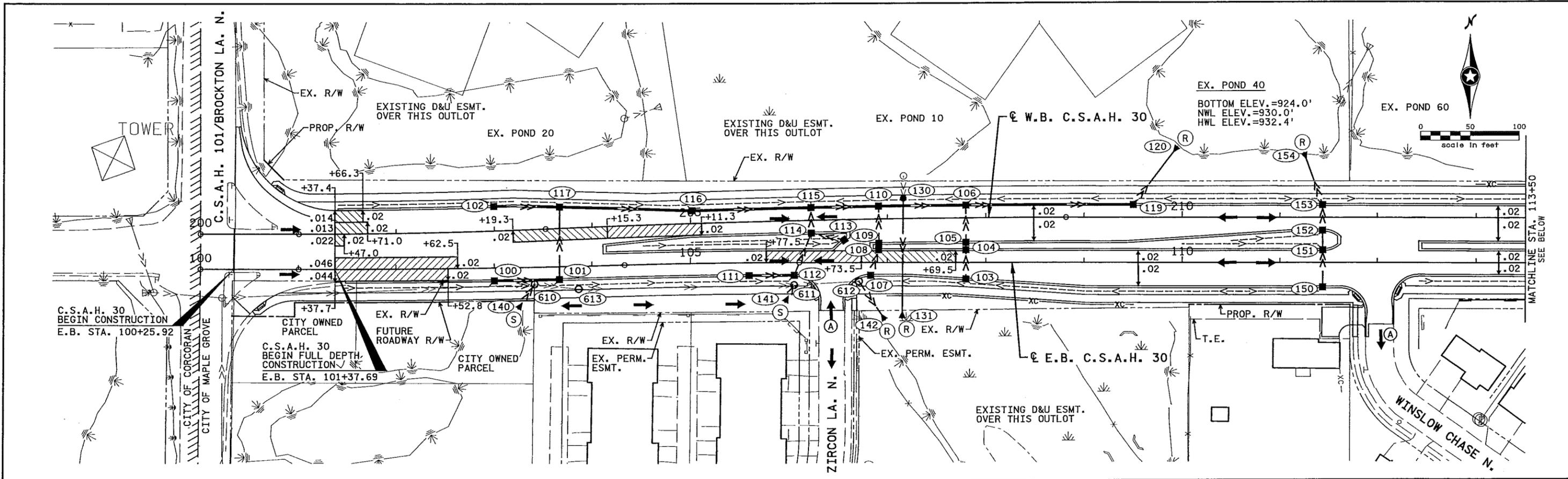
CASTING ASSEMBLIES SUMMARY						
ASSEMBLY	RING OR FRAME CASTING	COVER OR GRATE CASTING (A)	CURB BOX	STANDARD PLATE NO.	QUANTITY (B)	REMARKS
A - 7D	700-7	715		4101	8	MANHOLE
				4110		
			N/A			
B - 5	802A	816		4129	23	LOW POINT CATCH BASIN
				4154		
			823	4160		
B - 9	805	816		4132	112	CATCH BASIN
				4154		
			N/A			
C - 1	R-3067	R-3067		(C)	2	CATCH BASIN
				(C)		
			R-3067	(C)		
PROJECT TOTALS:					145	

**NOTES:**

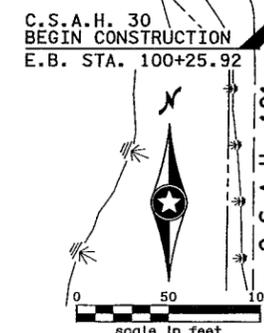
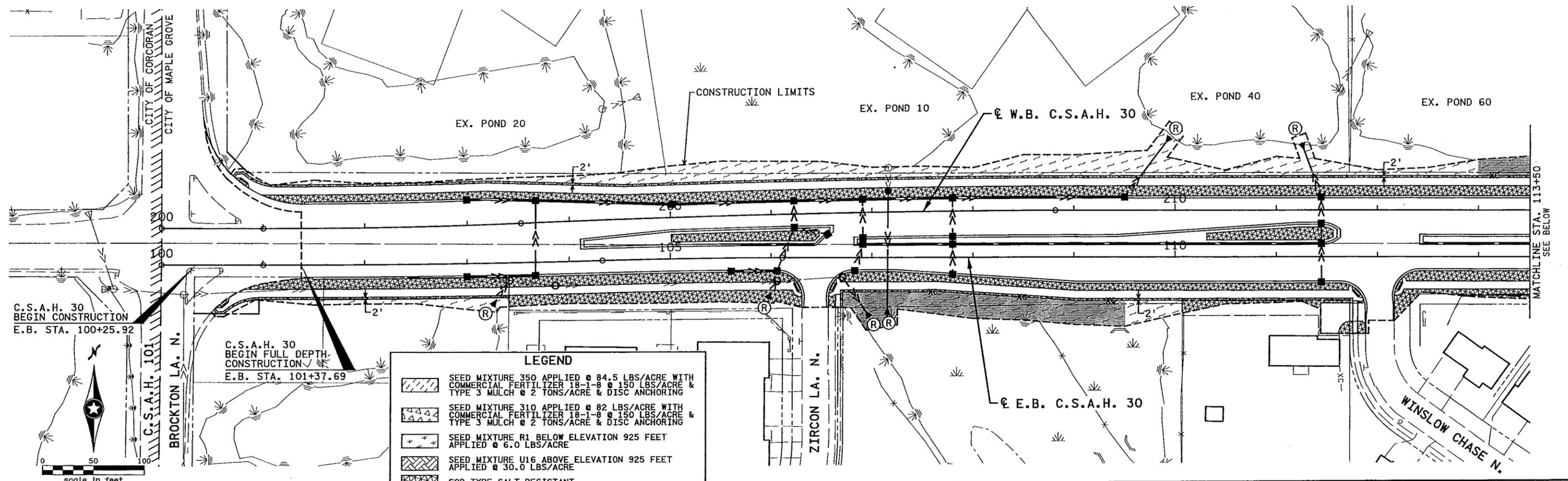
- (A) USE BENT BOLT WITH 816 GRATES
- (B) INCLUDES QUANTITIES FROM DRAINAGE TABULATION ONLY
- (C) NEENAH CASTING NO. R-3067 WITH TYPE V GRATE OR APPROVED EQUAL

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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. Pr Int Name: TROY R. ERICKSON  Date: 08/12/08 License #: 43554				STATE PROJECT NO. SP 189-020-18 SP 27-630-011 STATE AID PROJECT NO. X COUNTY PROJECT NO. 0521 CITY PROJ. NO. 2007-15	DRAWN BY W. ANDERSON DESIGNED BY J. NIELSEN CHECKED BY R. JONES COMM. NO. 0076102	<b>SRF CONSULTING GROUP, INC.</b>	CITY OF MAPLE GROVE WATER RESOURCES NOTES C.S.A.H. 30	SHEET 104 OF 236
NO DATE BY CKD APPR REVISION								

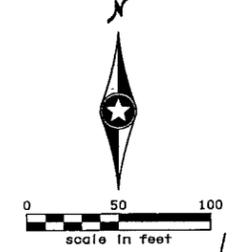
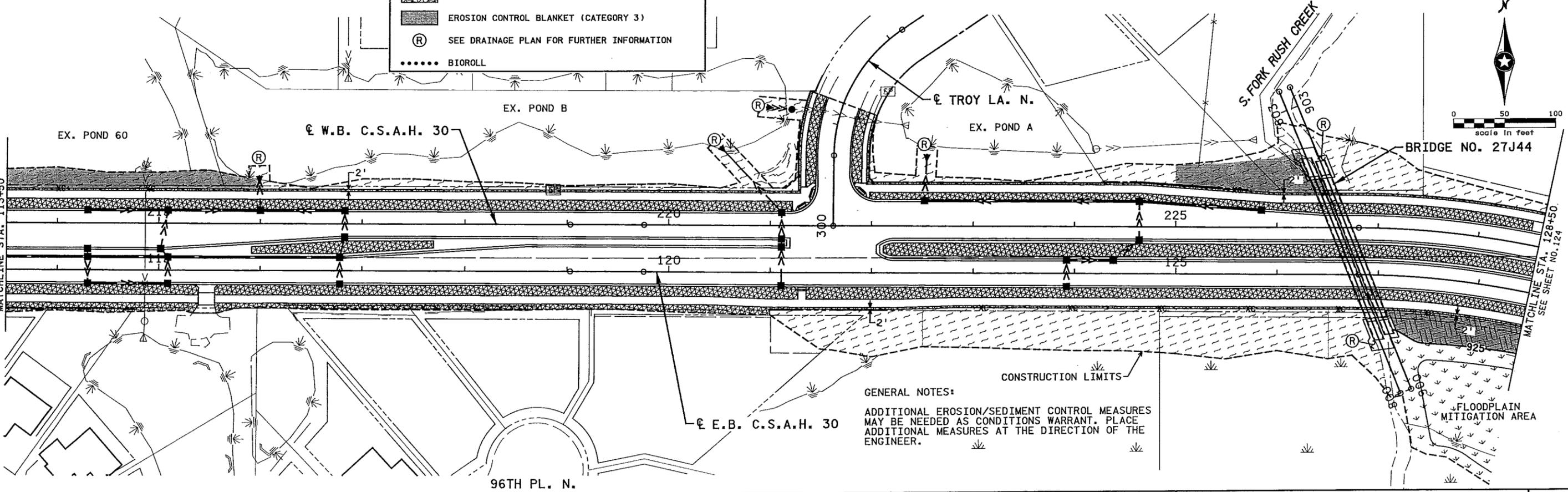


<p>9:40:38 AM 9/9/2008 ... \6102\h1-mu\plan\6102_dr01.dgn</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>NO</th> <th>DATE</th> <th>BY</th> <th>CKD</th> <th>APPR</th> <th>REVISION</th> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </table>	NO	DATE	BY	CKD	APPR	REVISION							<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>1</td> <td>09/08/08</td> <td>VGL</td> <td>TRE</td> <td>KAM</td> <td>FLOODPLAIN MITIGATION SITE ADDITION</td> </tr> </table>	1	09/08/08	VGL	TRE	KAM	FLOODPLAIN MITIGATION SITE ADDITION	<p>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.</p> <p>Print Name: <b>TROY R. ERICKSON</b>  <i>Troy R. Erickson</i>      Date: 09/08/08 License # 43554</p>	<p>STATE PROJECT NO. SP 189-020-18      SP 27-630-011      STATE AID PROJECT NO. X      COUNTY PROJECT NO. 0521      CITY PROJ. NO. 2007-15</p> <p>DRAWN BY: W. ANDERSON      DESIGNED BY: J. NIELSEN      CHECKED BY: R. JONES      COMM. NO. 0076102</p>	<p><b>SRF CONSULTING GROUP, INC.</b></p>	<p><b>CITY OF MAPLE GROVE</b>      DRAINAGE AND SUPERELEVATION PLAN      C.S.A.H. 30      STA. 100+40.82 TO E.B. STA. 128+50</p>	<p><b>SHEET</b>      105      OF      236</p>
NO	DATE	BY	CKD	APPR	REVISION																				
1	09/08/08	VGL	TRE	KAM	FLOODPLAIN MITIGATION SITE ADDITION																				



**LEGEND**

	SEED MIXTURE 350 APPLIED @ 84.5 LBS/ACRE WITH COMMERCIAL FERTILIZER 18-1-8 @ 150 LBS/ACRE & TYPE 3 MULCH @ 2 TONS/ACRE & DISC ANCHORING
	SEED MIXTURE 310 APPLIED @ 82 LBS/ACRE WITH COMMERCIAL FERTILIZER 18-1-8 @ 150 LBS/ACRE & TYPE 3 MULCH @ 2 TONS/ACRE & DISC ANCHORING
	SEED MIXTURE R1 BELOW ELEVATION 925 FEET APPLIED @ 6.0 LBS/ACRE
	SEED MIXTURE U16 ABOVE ELEVATION 925 FEET APPLIED @ 30.0 LBS/ACRE
	SOD TYPE SALT RESISTANT
	EROSION CONTROL BLANKET (CATEGORY 3)
	SEE DRAINAGE PLAN FOR FURTHER INFORMATION
	BIOROLL



**GENERAL NOTES:**  
 ADDITIONAL EROSION/SEDIMENT CONTROL MEASURES MAY BE NEEDED AS CONDITIONS WARRANT. PLACE ADDITIONAL MEASURES AT THE DIRECTION OF THE ENGINEER.

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NO	DATE	BY	CKD	APPR	REVISION
1	09/08/08	VGL	TRE	KAM	FLOODPLAIN MITIGATION SITE ADDITION

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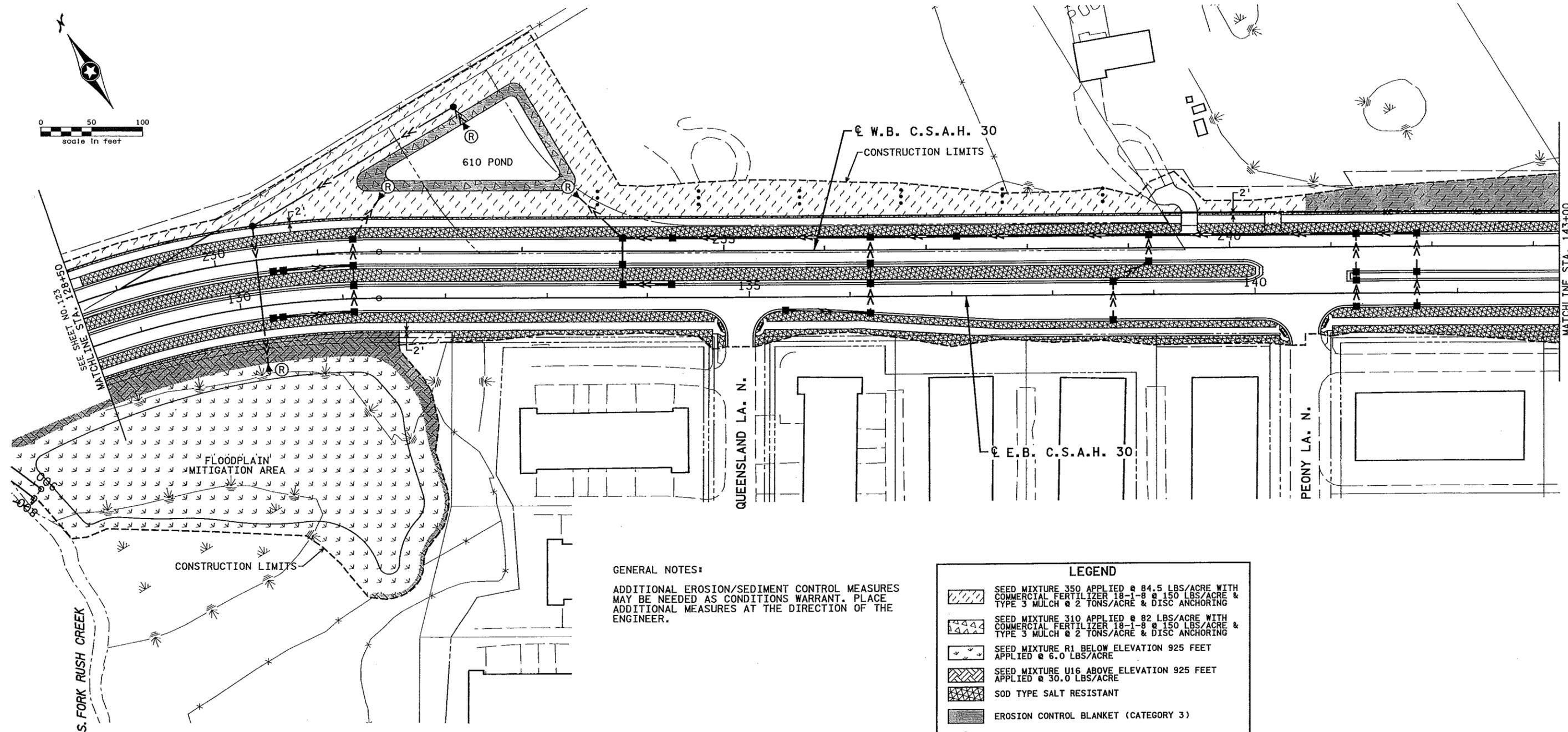
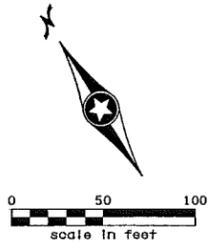
STATE PROJECT NO.  
 SP 189-020-18  
 SP 27-630-011  
 STATE AID PROJECT NO.  
 X  
 COUNTY PROJECT NO.  
 0521  
 CITY PROJ. NO. 2007-15

DRAWN BY  
 V. LEE  
 DESIGNED BY  
 A. KLEIN  
 CHECKED BY  
 K. MORTER  
 COMM. NO. 0076102



CITY OF MAPLE GROVE  
 EROSION CONTROL & TURF ESTABLISHMENT PLAN  
 C.S.A.H. 30  
 STA. 100+40.82 TO E.B. STA. 128+50

SHEET  
 123  
 OF  
 236



**GENERAL NOTES:**  
 ADDITIONAL EROSION/SEDIMENT CONTROL MEASURES MAY BE NEEDED AS CONDITIONS WARRANT. PLACE ADDITIONAL MEASURES AT THE DIRECTION OF THE ENGINEER.

LEGEND	
	SEED MIXTURE 350 APPLIED @ 84.5 LBS/ACRE WITH COMMERCIAL FERTILIZER 18-1-8 @ 150 LBS/ACRE & TYPE 3 MULCH @ 2 TONS/ACRE & DISC ANCHORING
	SEED MIXTURE 310 APPLIED @ 82 LBS/ACRE WITH COMMERCIAL FERTILIZER 18-1-8 @ 150 LBS/ACRE & TYPE 3 MULCH @ 2 TONS/ACRE & DISC ANCHORING
	SEED MIXTURE R1 BELOW ELEVATION 925 FEET APPLIED @ 6.0 LBS/ACRE
	SEED MIXTURE U16 ABOVE ELEVATION 925 FEET APPLIED @ 30.0 LBS/ACRE
	SOD TYPE SALT RESISTANT
	EROSION CONTROL BLANKET (CATEGORY 3)
	SEE DRAINAGE PLAN FOR FURTHER INFORMATION
	BIOROLL

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NO	DATE	BY	CHKD	APPR	REVISION
1	09/08/08	VGL	TRE	KAM	FLOODPLAIN MITIGATION SITE ADDITION

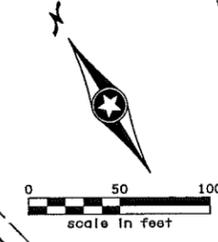
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.  
 Print Name: KRISTY MORTER  
*Kristy Morter*  
 Date: 09/08/08 License #: 43556

STATE PROJECT NO. SP 189-020-18 SP 27-630-011  
 STATE AID PROJECT NO. X  
 COUNTY PROJECT NO. 0521  
 CITY PROJ. NO. 2007-15  
 DRAWN BY V. LEE  
 DESIGNED BY A. KLEIN  
 CHECKED BY K. MORTER  
 COMM. NO. 0076102



CITY OF MAPLE GROVE  
 EROSION CONTROL & TURF ESTABLISHMENT PLAN  
 C.S.A.H. 30  
 STA. 128+50 TO E.B. STA. 143+00

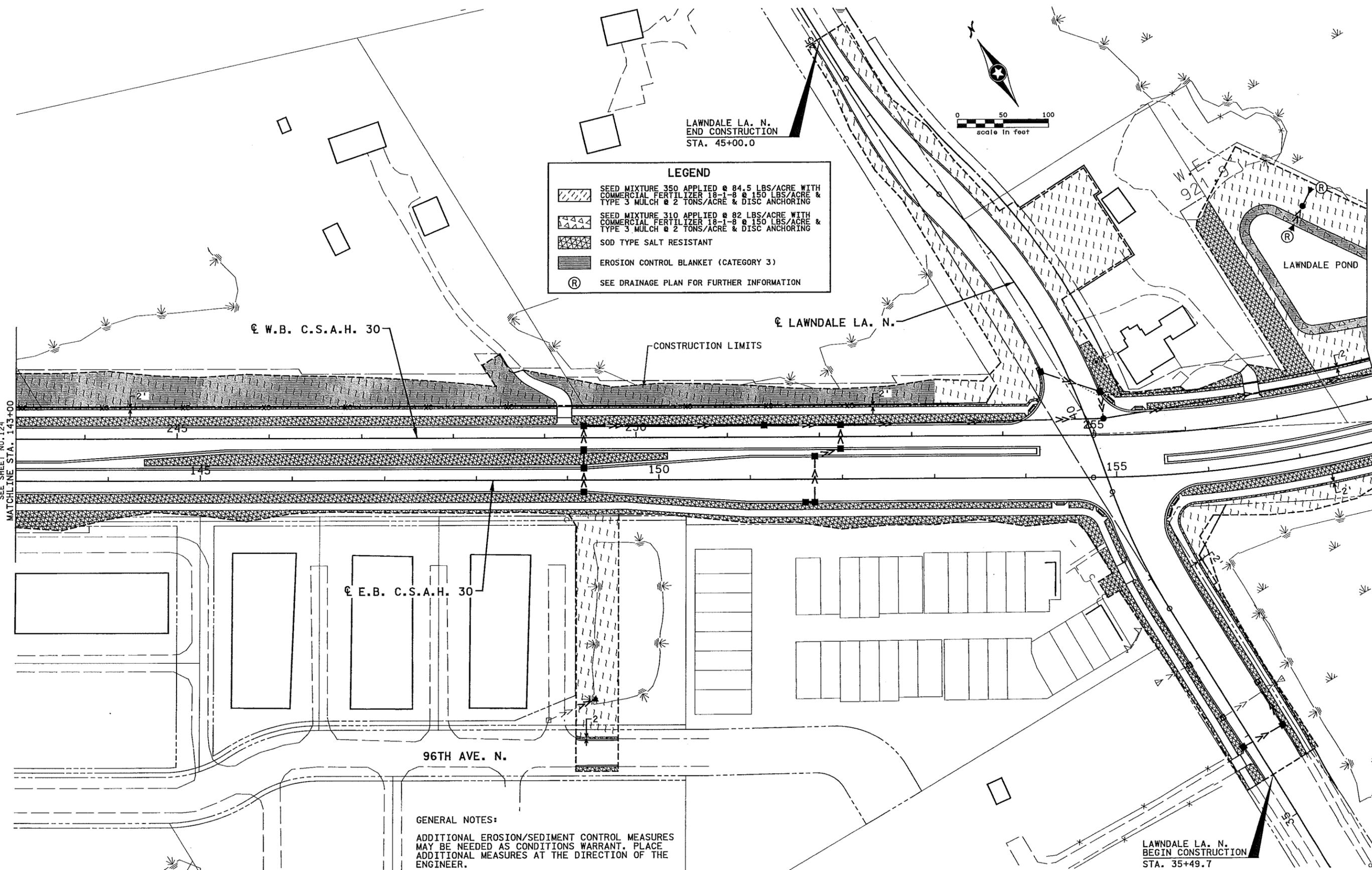
SHEET 124 OF 236



LAWDALE LA. N.  
END CONSTRUCTION  
STA. 45+00.0

**LEGEND**

- SEED MIXTURE 350 APPLIED @ 84.5 LBS/ACRE WITH COMMERCIAL FERTILIZER 18-1-8 @ 150 LBS/ACRE & TYPE 3 MULCH @ 2 TONS/ACRE & DISC ANCHORING
- SEED MIXTURE 310 APPLIED @ 82 LBS/ACRE WITH COMMERCIAL FERTILIZER 18-1-8 @ 150 LBS/ACRE & TYPE 3 MULCH @ 2 TONS/ACRE & DISC ANCHORING
- SOD TYPE SALT RESISTANT
- EROSION CONTROL BLANKET (CATEGORY 3)
- SEE DRAINAGE PLAN FOR FURTHER INFORMATION



**GENERAL NOTES:**  
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SEE SHEET NO. 124  
MATCHLINE STA. 143+00

MATCHLINE STA. 158+00  
SEE SHEET NO. 126

LAWDALE LA. N.  
BEGIN CONSTRUCTION  
STA. 35+49.7

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NO	DATE	BY	CHKD	APPR	REVISION

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: KRISTY MORTER  
*Kristy Morter*  
Date: 08/12/08 License #: 43556

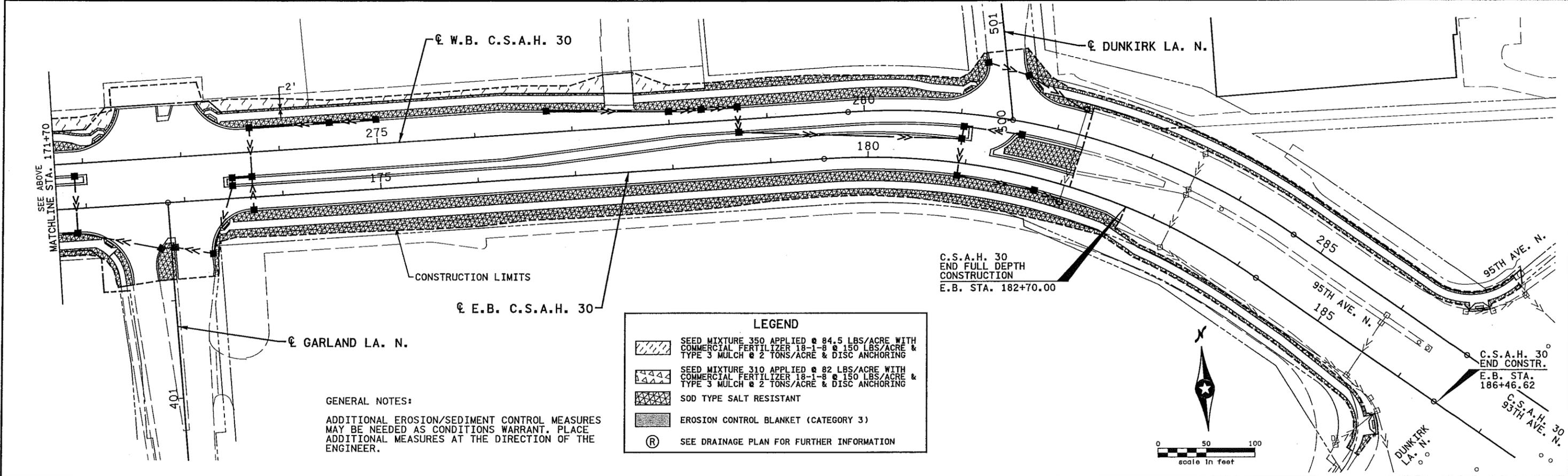
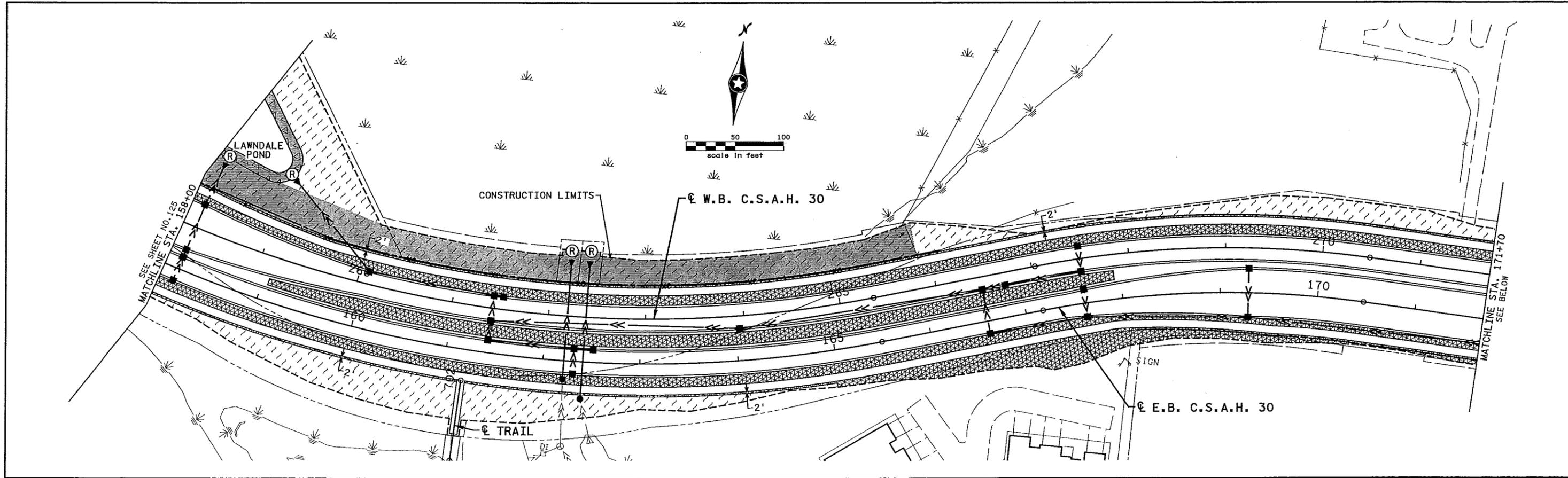
STATE PROJECT NO.  
SP 189-020-18  
SP 27-630-011  
STATE AID PROJECT NO.  
X  
COUNTY PROJECT NO.  
0521  
CITY PROJ. NO. 2007-15

DRAWN BY  
V. LEE  
DESIGNED BY  
A. KLEIN  
CHECKED BY  
K. MORTER  
COMM. NO. 0076102



CITY OF MAPLE GROVE  
EROSION CONTROL & TURF ESTABLISHMENT PLAN  
C.S.A.H. 30  
STA. 143+00 TO E.B. STA. 158+00

SHEET  
125  
OF  
236



**LEGEND**

	SEED MIXTURE 350 APPLIED @ 84.5 LBS/ACRE WITH COMMERCIAL FERTILIZER 18-1-8 @ 150 LBS/ACRE & TYPE 3 MULCH @ 2 TONS/ACRE & DISC ANCHORING
	SEED MIXTURE 310 APPLIED @ 82 LBS/ACRE WITH COMMERCIAL FERTILIZER 18-1-8 @ 150 LBS/ACRE & TYPE 3 MULCH @ 2 TONS/ACRE & DISC ANCHORING
	SOD TYPE SALT RESISTANT
	EROSION CONTROL BLANKET (CATEGORY 3)
	SEE DRAINAGE PLAN FOR FURTHER INFORMATION

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 Print Name: KRISTY MORTER  
*Kristy Morter*  
 Date: 08/12/08 License #: 43556

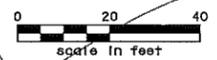
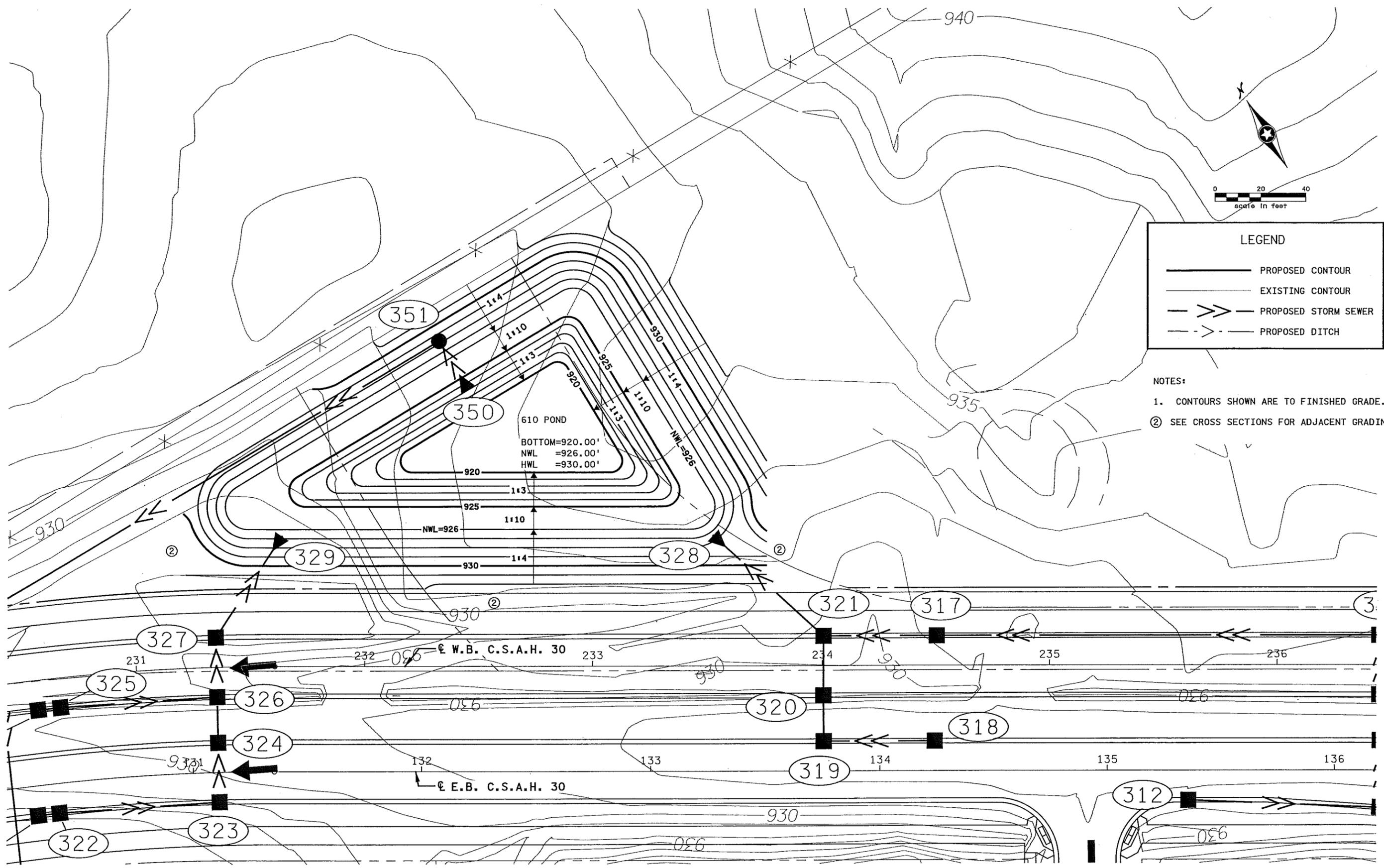
STATE PROJECT NO. SP 189-020-18 SP 27-630-011  
 STATE AID PROJECT NO. X  
 COUNTY PROJECT NO. 0521  
 CITY PROJ. NO. 2007-15  
 DRAWN BY V. LEE  
 DESIGNED BY A. KLEIN  
 CHECKED BY K. MORTER  
 COMM. NO. 0076102



**CITY OF MAPLE GROVE**  
 EROSION CONTROL & TURF ESTABLISHMENT PLAN  
 C.S.A.H. 30  
 STA. 158+00 TO E.B. STA. 186+44.36

**SHEET**  
 126  
 OF  
 236

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LEGEND	
	PROPOSED CONTOUR
	EXISTING CONTOUR
	PROPOSED STORM SEWER
	PROPOSED DITCH

- NOTES:
1. CONTOURS SHOWN ARE TO FINISHED GRADE.
  2. SEE CROSS SECTIONS FOR ADJACENT GRADING.

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NO	DATE	BY	CHKD	APPR	REVISION

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.  
 Prt Int Name: TROY R. ERICKSON  
*Troy R. Erickson*  
 Date: 08/12/08 License #: 43554

STATE PROJECT NO.  
 SP 189-020-18  
 SP 27-630-011  
 STATE AID PROJECT NO.  
 X  
 COUNTY PROJECT NO.  
 0521  
 CITY PROJ. NO. 2007-15

DRAWN BY  
 W. ANDERSON  
 DESIGNED BY  
 J. NIELSEN  
 CHECKED BY  
 T. ERICKSON  
 COMM. NO. 0076102

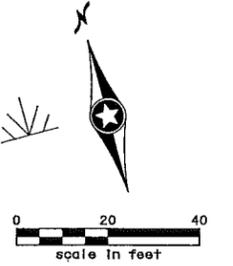


CITY OF MAPLE GROVE  
 CONTOUR PLANS  
 C.S.A.H. 30  
 PROPOSED 610 POND

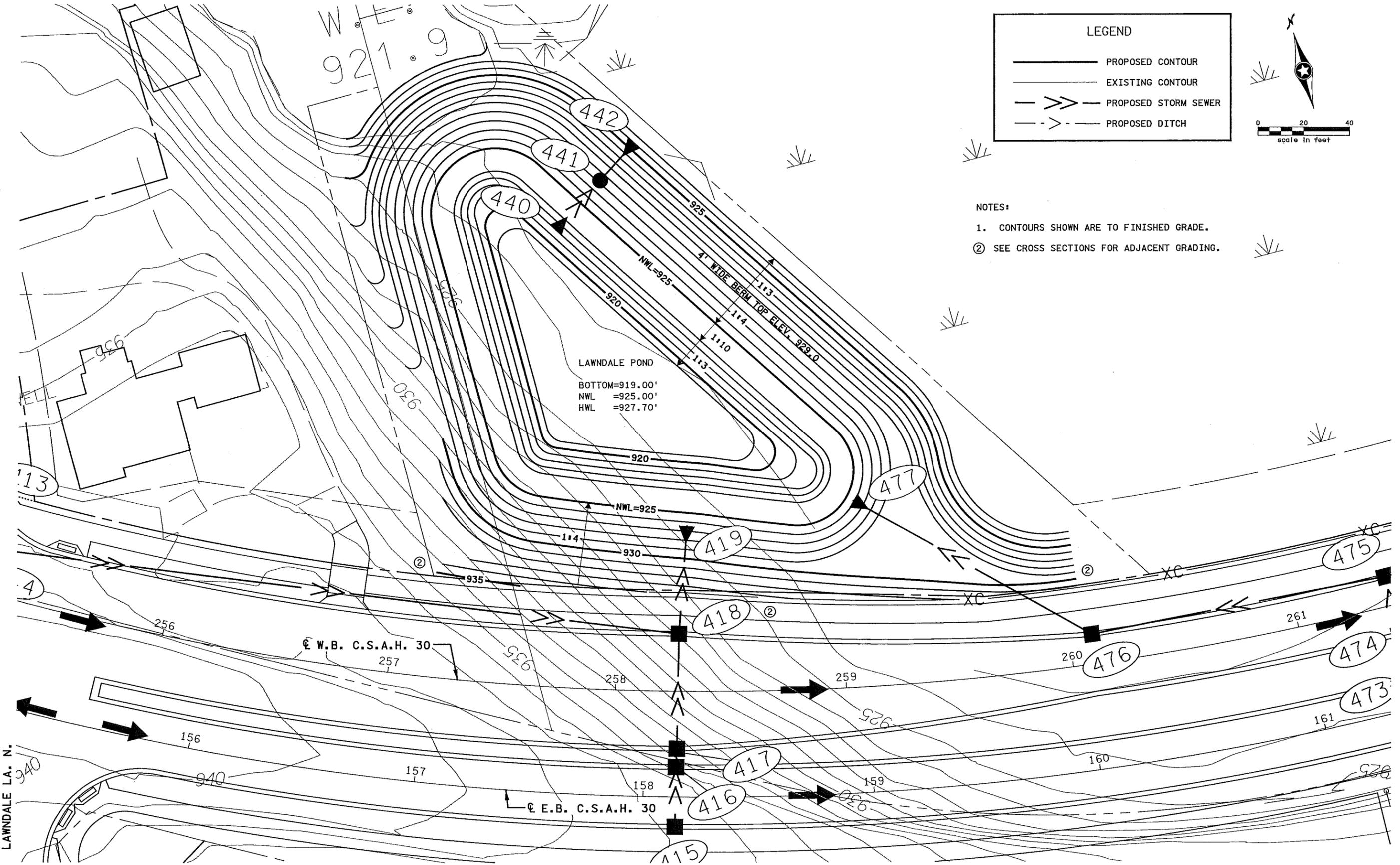
SHEET  
 161  
 OF  
 236

**LEGEND**

- PROPOSED CONTOUR
- EXISTING CONTOUR
- PROPOSED STORM SEWER
- PROPOSED DITCH



- NOTES:**
1. CONTOURS SHOWN ARE TO FINISHED GRADE.
  2. SEE CROSS SECTIONS FOR ADJACENT GRADING.



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NO	DATE	BY	CHKD	APPR	REVISION

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: **TROY R. ERICKSON**

*Troy R. Erickson*

Date: 08/12/08 License # 43554

STATE PROJECT NO.  
SP 189-020-18  
SP 27-630-011

STATE AID PROJECT NO.  
X

COUNTY PROJECT NO.  
0521

CITY PROJ. NO. 2007-15

DRAWN BY  
**W. ANDERSON**

DESIGNED BY  
**J. NIELSEN**

CHECKED BY  
**T. ERICKSON**

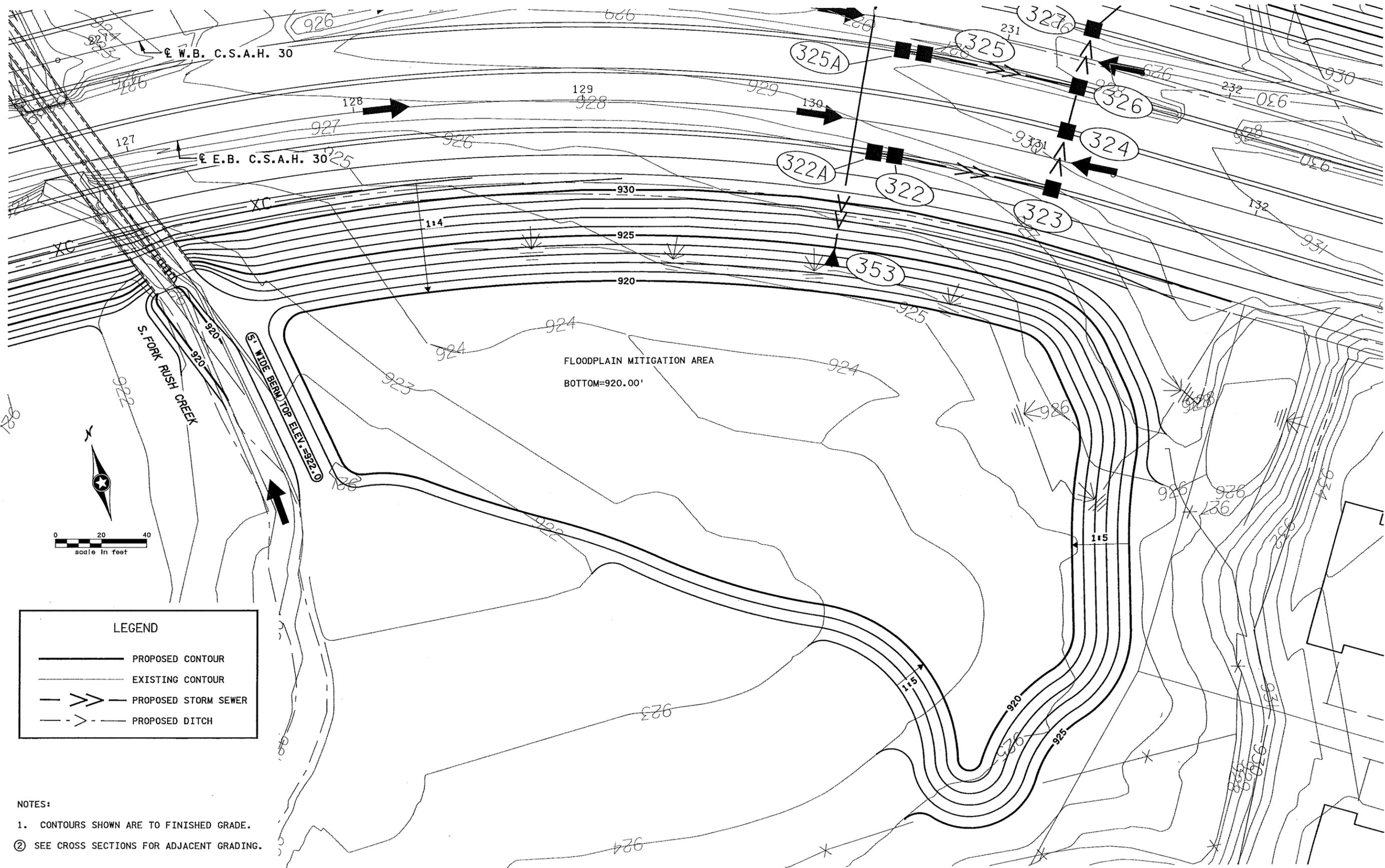
COMM. NO. 0076102



**CITY OF MAPLE GROVE**

CONTOUR PLANS  
C.S.A.H. 30  
PROPOSED LAWNDALE POND

**SHEET**  
162  
**OF**  
236



**LEGEND**

- PROPOSED CONTOUR
- EXISTING CONTOUR
- PROPOSED STORM SEWER
- PROPOSED DITCH

**NOTES:**

1. CONTOURS SHOWN ARE TO FINISHED GRADE.
2. SEE CROSS SECTIONS FOR ADJACENT GRADING.

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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: TROY R. ERICKSON  
  
 Date: 04/08/08 License #: 43554

STATE PROJECT NO.  
 SP 189-020-18  
 SP 27-630-011  
 STATE AID PROJECT NO.  
 X  
 COUNTY PROJECT NO.  
 0521  
 CITY PROJ. NO. 2007-15

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 W. ANDERSON  
 DESIGNED BY  
 J. NIELSEN  
 CHECKED BY  
 T. ERICKSON  
 COMM. NO. 0076102



CITY OF MAPLE GROVE

CONTOUR PLANS  
 C.S.A.H. 30  
 FLOODPLAIN MITIGATION AREA

SHEET  
 162A  
 OF  
 236

NO	DATE	BY	CKD	APPR	REVISION

**GRADING, SEEDING AND CONSTRUCTION NARRATIVE FOR FLOODPLAIN MITIGATION**

**WINTER TO SUMMER 2009**

GRADE FLOODPLAIN MITIGATION AREA AS SHOWN IN THE PLANS.

CONSTRUCTION MUST BE COMPLETED NO LATER THAN AUGUST 2009.

RAPID STABILIZATION METHOD 3 REQUIRED FOR ALL DISTURBED AREAS WITHIN CONSTRUCTION LIMITS.

**FALL 2009**

APPLY HERBICIDE TO TARGET REED CANARY GRASS IN ALL GRASSY AREAS WITHIN THE BOUNDARY FORMED BY THE DRAINAGE AND UTILITY EASEMENT, RUSH CREEK, CSAH 30 AND THE SOUTH CONSTRUCTION LIMIT. ONLY APPLY HERBICIDE TREATMENT WHERE REED CANARY GRASS IS PRESENT. TREAT WOODED AREAS WITH HERBICIDE WHERE REED CANARY GRASS IS PRESENT. AVOID IMPACTS TO NON-INVASIVE VEGETATION.

SEE SPECIFICATION FOR HERBICIDE TYPE.

CONDUCT PRESCRIBED BURN OF TREATED REED CANARY GRASS WITHIN THE BOUNDARY FORMED BY THE DRAINAGE AND UTILITY EASEMENT, RUSH CREEK, CSAH 30 AND THE SOUTH CONSTRUCTION LIMIT. BURNING SHALL OCCUR NO EARLIER THAN ONE MONTH AFTER THE INITIAL HERBICIDE APPLICATION AND NO LATER THAN ONE MONTH PRIOR TO THE SECOND HERBICIDE APPLICATION.

SEED APPLICATION TO TAKE PLACE AFTER ANY EXCAVATION OR SOIL DISTURBANCE.

**SPRING 2010**

APPLY SECOND APPLICATION OF HERBICIDE IN EARLY MAY, OR ONCE DORMANT REED CANARY GRASS HAS SPROUTED. ONLY APPLY HERBICIDE TREATMENT WHERE REED CANARY GRASS IS PRESENT. AVOID IMPACTS TO NON-INVASIVE VEGETATION.

SEED COVER CROPS IN LATE MAY, AT LEAST 10 DAYS AFTER SECOND HERBICIDE APPLICATION. INSTALL SEED MIXTURE R1 IN AREAS BELOW 925 FOOT CONTOUR. INSTALL SEED MIXTURE U16 IN AREAS WITHIN THE UPLAND BUFFER AND ABOVE THE 925 FOOT CONTOUR.

SEE SPECIFICATION FOR DETAILS ON SEED MIX TYPE AND APPLICATION INFORMATION.

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**Mixture R1 (BWSR Native Riparian and Floodplain - Mitigation Projects)**

COMMON NAME	SCIENTIFIC NAME	SEEDS/FT <sup>2</sup>	TOTAL LBS	% OF MIX
<b>GRASSES</b>				
American Sloughgrass	Beckmannia syzigachne	27.5	1.50	25.00%
Bluejoint Grass	Calamagrostis canadensis	6.2	0.06	1.00%
Reed Manna Grass	Glyceria grandis	5.3	0.18	3.00%
Fowl Manna Grass	Glyceria striata	7.1	0.12	2.00%
Rice Cut Grass	Leersia oryzoides	3.0	0.24	4.00%
Annual Rye	Lolium italicum	6.6	0.90	15.00%
Fowl Bluegrass	Poa palustris	78.0	1.80	30.00%
<b>GRAMINOIDS</b>				
Tussock Sedge	Carex stricta	1.2	0.06	1.00%
Brown Fox Sedge	Carex vulpinoidea	11.0	0.30	5.00%
Dark Green Bulrush	Scirpus atrovirens	10.1	0.06	1.00%
Wool Grass	Scirpus cyperinus	3.7	0.01	0.10%
River Bulrush	Scirpus fluviatilis	0.4	0.24	4.00%
Soft Stem Bulrush	Scirpus validus	1.4	0.12	2.00%
<b>FORBS</b>				
Swamp Milkweed	Asclepias incarnata	0.2	0.12	2.00%
Flat-topped Aster	Aster umbellatus	0.7	0.03	0.50%
Joe Pye Weed	Eupatorium maculatum	1.0	0.03	0.50%
Boneset	Eupatorium perfoliatum	1.4	0.02	0.40%
Sneezeweed	Helenium autumnale	1.1	0.02	0.40%
Spotted Touch-me-not	Impatiens capensis	0.1	0.06	1.00%
Great Blue Lobelia	Lobelia siphilitica	2.2	0.01	0.20%
Monkey Flower	Mimulus ringens	5.1	0.01	0.10%
Mountain Mint	Pycnanthemum virginianum	1.0	0.01	0.20%
Giant Goldenrod	Solidago gigantea	0.7	0.02	0.40%
Blue Vervain	Verbena hastata	1.2	0.04	0.60%
Ironweed	Vernonia fasciculata	0.3	0.04	0.60%
<b>TOTALS</b>		176.5	6.00	100.00%
RECOMMENDED RATE: 6.0 (PLS lbs/acre)				
<b>SUMMARIES</b>				
MIX SEEDS PER SQUARE FOOT		MIX SEEDS PER SQUARE YARD		MIX SEEDS PER ACRE
176.5		1588.5		7,688,340
% BY WEIGHT GRASSES		% BY WEIGHT GRAMINOIDS		% BY WEIGHT FORBS
80.0		13.2		6.8
% BY SEED COUNT GRASSES		% BY SEED COUNT GRAMINOIDS		% BY SEED COUNT FORBS
75.8		15.8		8.4

**Mixture U16 (Native General Roadside - Wide Height Prairie)**

COMMON NAME	SCIENTIFIC NAME	SEEDS/FT <sup>2</sup>	TOTAL LBS	% OF MIX
<b>GRASSES</b>				
Sideoats Grama	Bouteloua curtipendula	6.6	3.00	10.00%
Kalm's Brome	Bromus kalmii	2.6	0.90	3.00%
Canada Wild Rye	Elymus canadensis	4.0	2.10	7.00%
Slender Wheat Grass	Elymus trachydactylus	5.3	2.10	7.00%
June Grass	Koeleria macrantha	6.6	0.09	0.30%
Little Bluestem	Schizachyrium scoparium	19.8	3.60	12.00%
Sand Dropseed	Sporobolus cryptandrus	11.0	0.15	0.50%
<b>FORBS</b>				
Smooth Blue Aster	Aster laevis	0.3	0.02	0.05%
Purple Prairie Clover	Dalea purpurea	1.6	0.24	0.80%
Round-headed Bush Clover	Lespedeza capitata	0.7	0.24	0.80%
Long-headed Coneflower	Ratibida columnifera	1.4	0.09	0.30%
Black-eyed Susan	Rudbeckia hirta	1.5	0.05	0.15%
Hoary Vervain	Verbena stricta	0.3	0.03	0.10%
<b>COVER CROPS</b>				
Oats	Avena sativa	4.4	15.0	50.00%
Annual Rye	Lolium italicum	17.6	2.4	8.00%
<b>TOTALS</b>		83.7	30.0	100.00%
RECOMMENDED RATE: 30.0 (PLS lbs/acre)				
<b>SUMMARIES</b>				
MIX SEEDS PER SQUARE FOOT		MIX SEEDS PER SQUARE YARD		MIX SEEDS PER ACRE
83.9		755.1		3,654,684
% BY WEIGHT GRASSES		% BY WEIGHT FORBS		% BY WEIGHT COVER CROPS
39.8		2.2		58.0
% BY SEED COUNT GRASSES		% BY SEED COUNT FORBS		% BY SEED COUNT COVER CROPS
66.8		6.9		26.3

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NO	DATE	BY	CHKD	APPR	REVISION

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 Print Name: TROY R. ERICKSON  
 Date: 09/08/08 License #: 43554

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 SP 27-630-011  
 STATE AID PROJECT NO. X  
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DRAWN BY W. ANDERSON  
 DESIGNED BY J. NIELSEN  
 CHECKED BY T. ERICKSON  
 COMM. NO. 0076102



CITY OF MAPLE GROVE  
 FLOODPLAIN MITIGATION NARRATIVE  
 C.S.A.H. 30

SHEET 162B OF 236