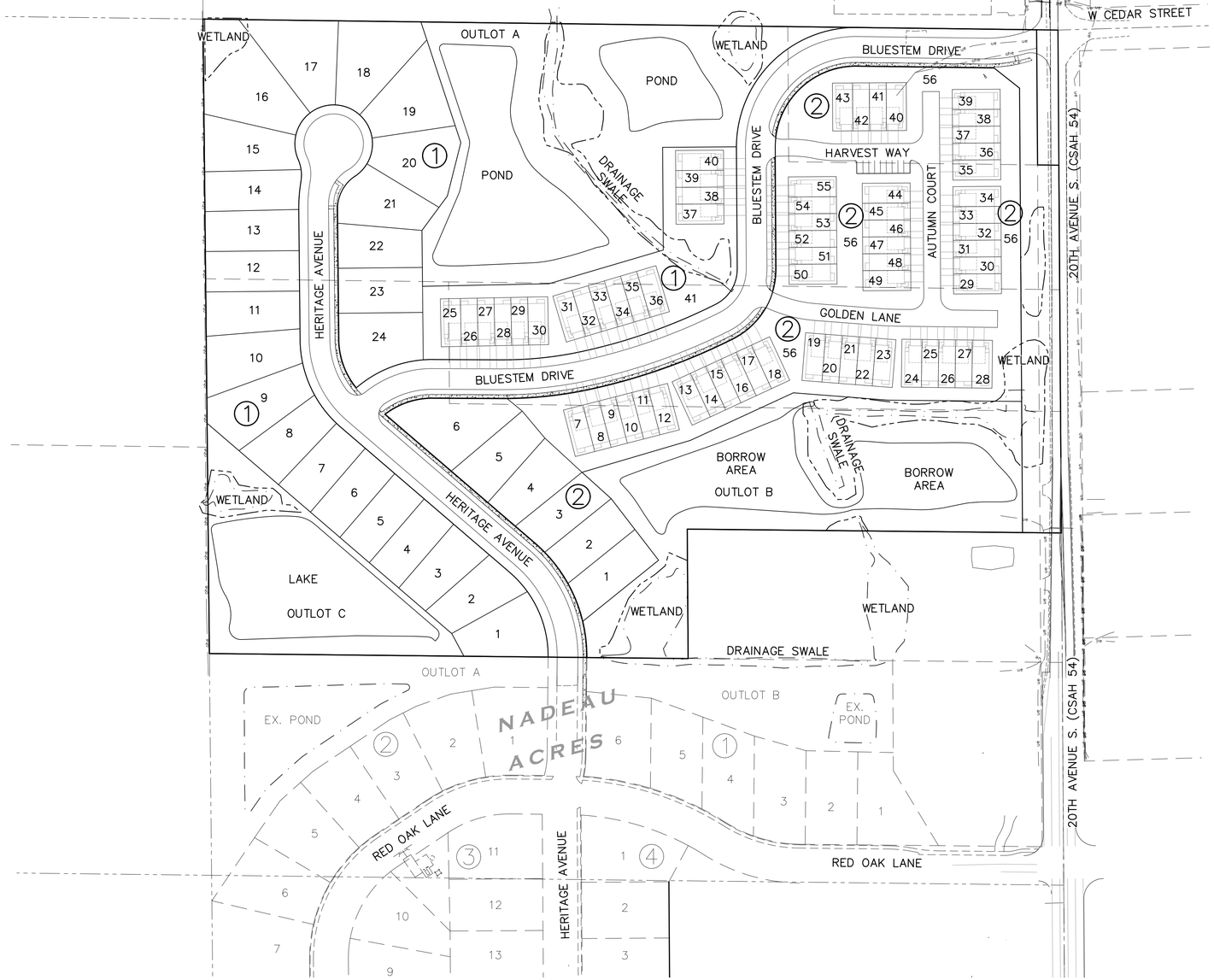
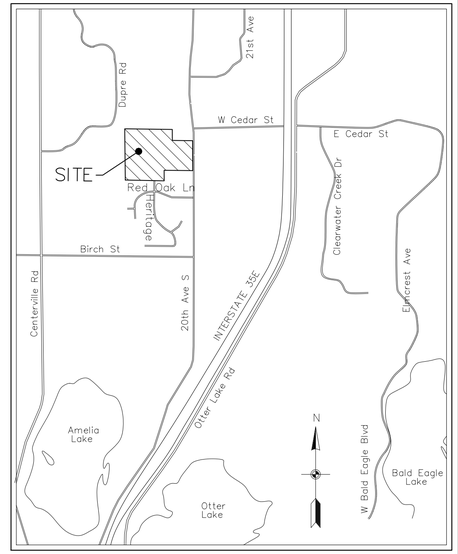
HARVEST GRANGE

SANITARY SEWER, WATER MAIN, STORM SEWER AND STREET CONSTRUCTION PLANS

LINO LAKES, MINNESOTA





VICINITY MAP
NOT TO SCALE

HARVEST GRANGE

SHEET INDEX

1. COVER
2. SANITARY SEWER INDEX
3–5. SANITARY SEWER & WATER MAIN
6. STORM SEWER INDEX
7–9. STORM SEWER
10. STREET DRAINTILE
11. STREET CONSTRUCTION
    - HERITAGE AVENUE
12. STREET CONSTRUCTION
    - BLUESTEM DRIVE
13. STREET CONSTRUCTION
    - GOLDEN LANE
    - AUTUMN COURT
    - HARVEST WAY
14. SIGNING & STRIPING PLAN
15–20. DETAILS

N

0 50 100 200
(IN FEET)

BENCHMARKS

1. Minnesota Department of Transportation GSID Station #92399 (Name: 0282 S) ELEVATION: 931.46 ft. (NAVD88)
2. Minnesota Department of Transportation GSID Station #92394 (Name: 0282 N) ELEVATION: 911.43 ft. (NAVD88)

CALL BEFORE YOU DIG

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

The subsurface utility information shown on this plan is utility Quality Level D. This quality level was determined according to the guidelines of CI/ASCE 38–02, entitled "Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data."

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Print Name: Brian J. Krystofiak, P.E.
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Date: 06/24/26 License #: 25063

Drawn: NJP
Designed: BJK
Date: 06/24/26

Revisions:
1. 8/26/26 Per City Comments
2. 9/30/26 Rev. Shts. 5,14,20 Per City/County Comments

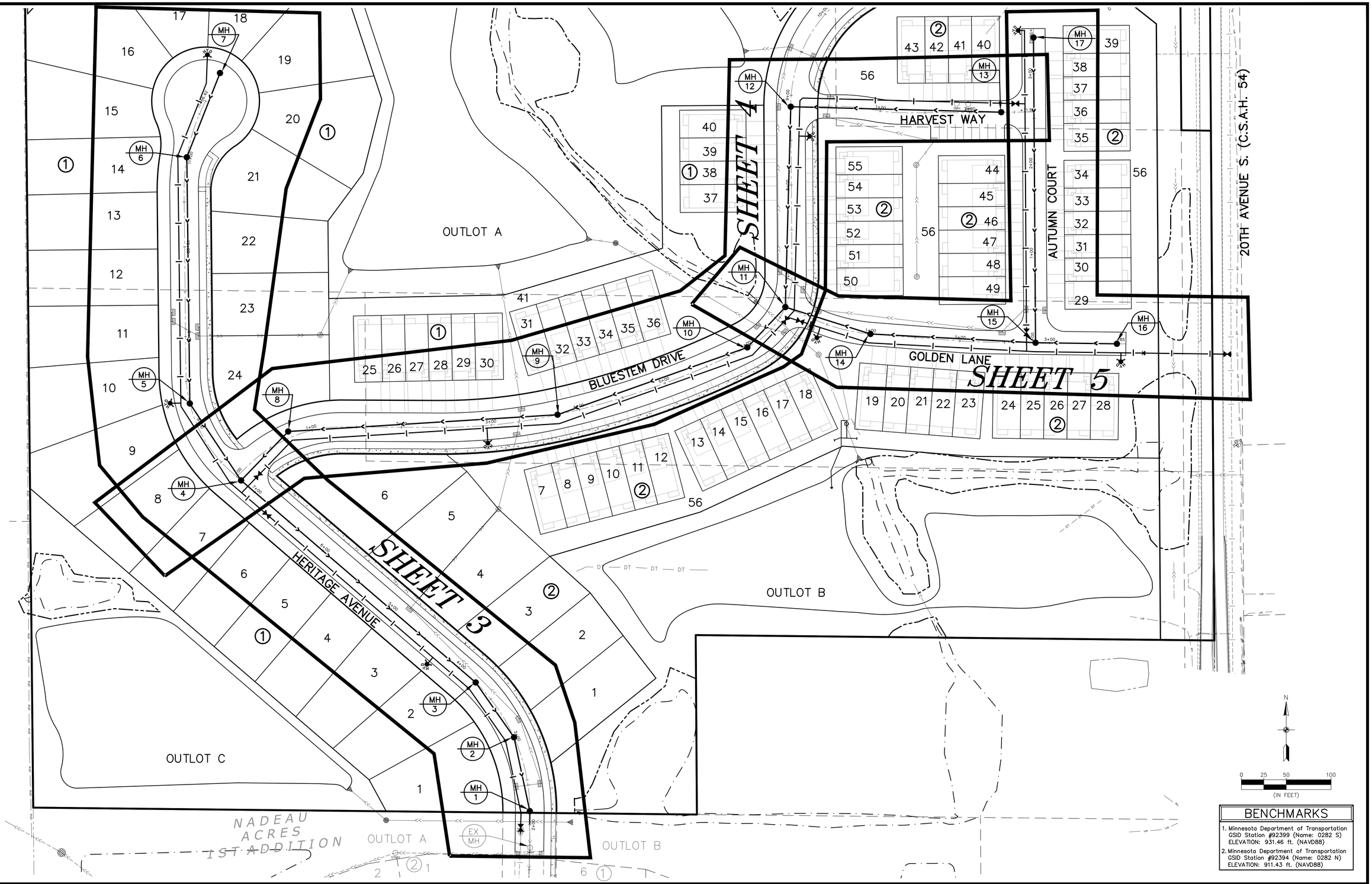
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Golden Valley, MN 55422

HARVEST GRANGE
Lino Lakes, MN

COVER

1 of 20

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#11343



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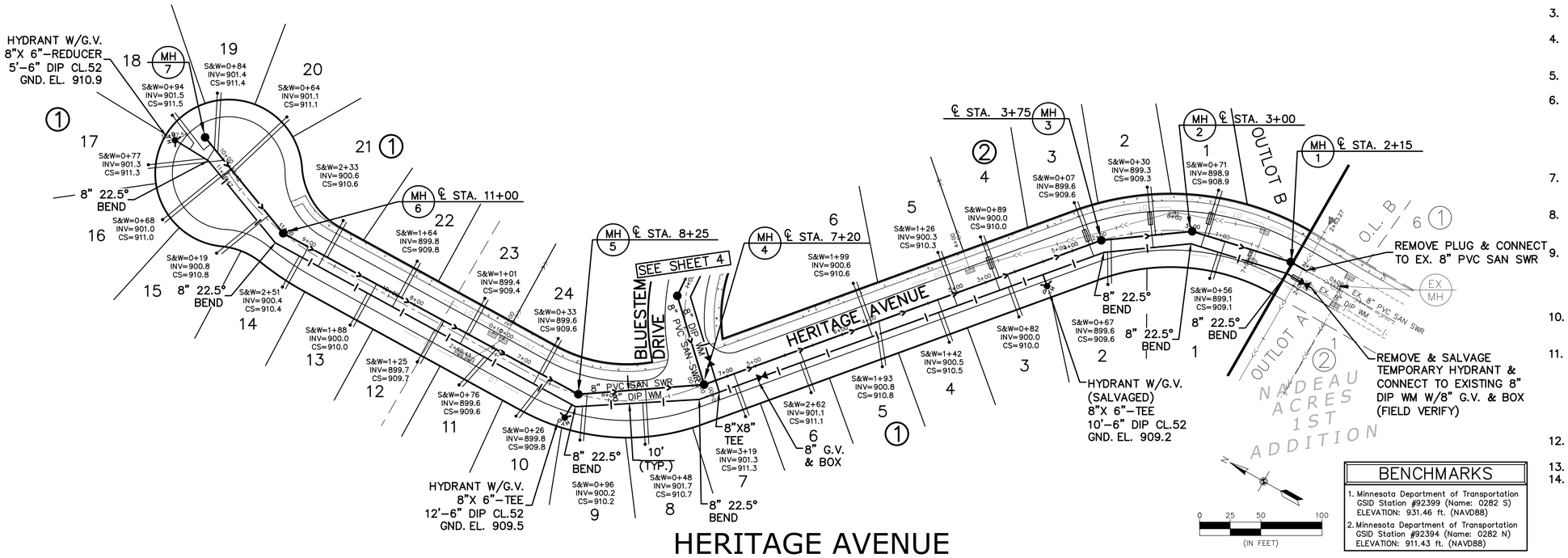
HARVEST GRANGE

HARVEST GRANGE
Lino Lakes, MN

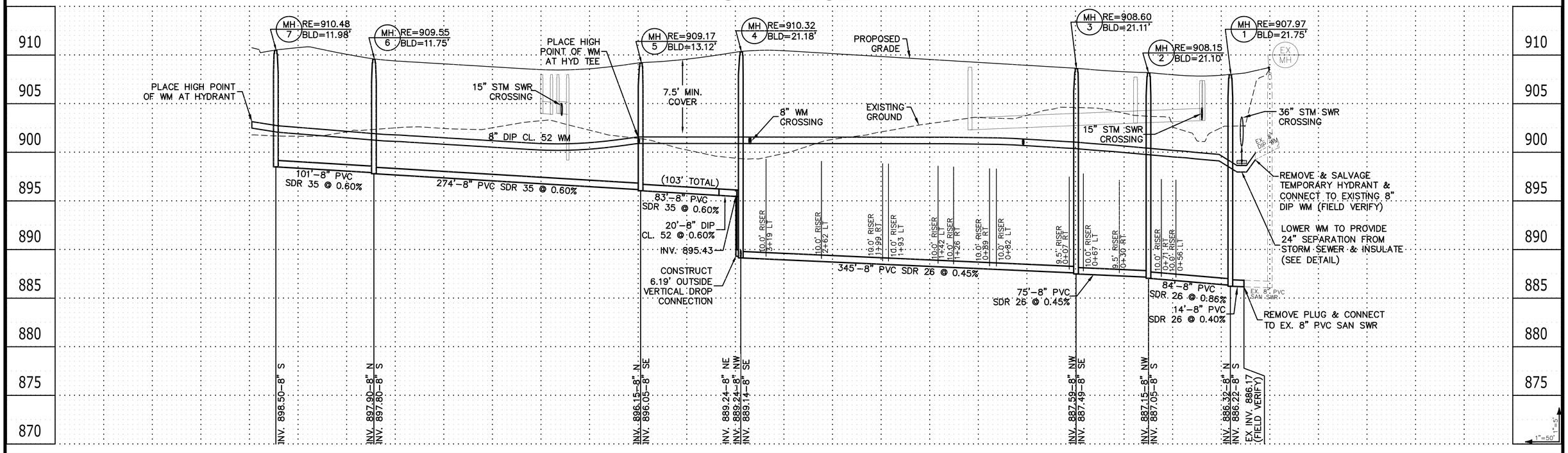
SANITARY SEWER INDEX

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#11343



HERITAGE AVENUE



BENCHMARKS

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2. SANITARY SEWER SERVICES SHALL BE 4" PVC SCHEDULE 40 UNLESS OTHERWISE NOTED.
3. WATER SERVICES SHALL BE 1" DIA. MIN. TYPE K COPPER WITH 7.5' MINIMUM COVER.
4. SANITARY SEWER SERVICE WYES ARE STATIONED FROM THE DOWN STREAM MANHOLE.
5. SANITARY SEWER INVERTS ARE SHOWN AT THE CURB STOP.
6. SANITARY SEWER & WATER SERVICES ON PUBLIC STREETS SHALL BE CONSTRUCTED 6' BEYOND THE R/W. SANITARY SEWER & WATER SERVICES ON PRIVATE STREETS SHALL BE CONSTRUCTED 10' BEYOND THE BACK OF CURB
7. ALL FITTINGS SHALL BE DUCTILE IRON CLASS 350 COMPACT FUSION-BONDED EPOXY COATED.
8. WATER SERVICES FOR LOTS 1-4, BLOCK 2 SHALL BE LOWERED 2' BELOW THE STORM SEWER & INSULATED.
9. SEE DETAIL PLATE WAT-3 FOR WATERMAIN OFFSET. 8'X8'X4' INSULATION IS TO BE USED WHEN THERE IS LESS THAN 24" VERTICAL CLEARANCE BETWEEN THE WATERMAIN AND SEWER.
10. CONTRACTOR TO PROVIDE X,Y,Z COORDINATES FOR WYES AND SERVICE ENDS FOR FUTURE LOCATING REQUIREMENTS.
11. TRACER WIRE TO BE INSTALLED ON ALL SANITARY SERVICES. (SEE DETAIL SAN-7) A TRACER WIRE BOX SHALL BE PROVIDED AT THE SURFACE FOR THE ENDS OF THE SANITARY SERVICE TRACER WIRE TO PROVIDE ACCESS TO WIRE ENDS FOR FUTURE LOCATING REQUIREMENTS.
12. CURB BOXES TO INCLUDE TRACER WIRE CONNECTION. (SEE DETAIL)
13. ANODE BAGS ARE REQUIRED.
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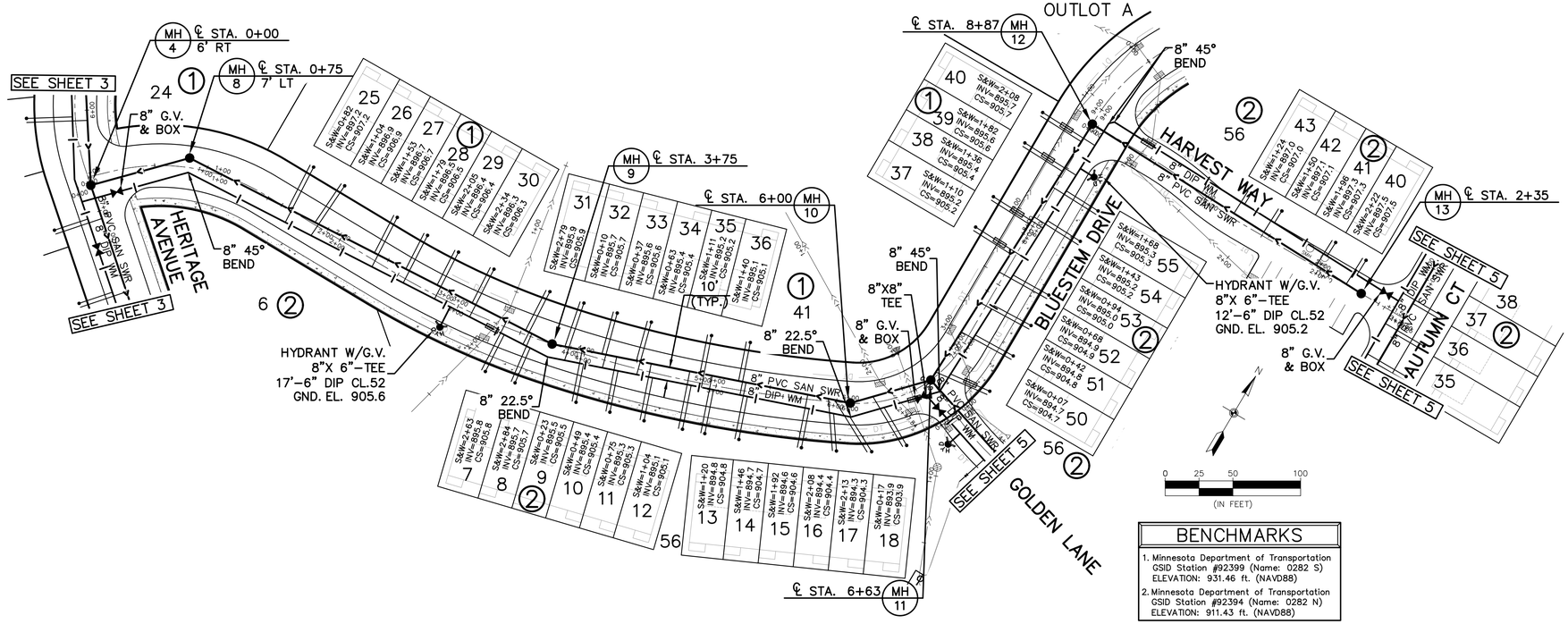
HARVEST GRANGE

HARVEST GRANGE
Lino Lakes, MN

SANITARY SEWER & WATER MAIN

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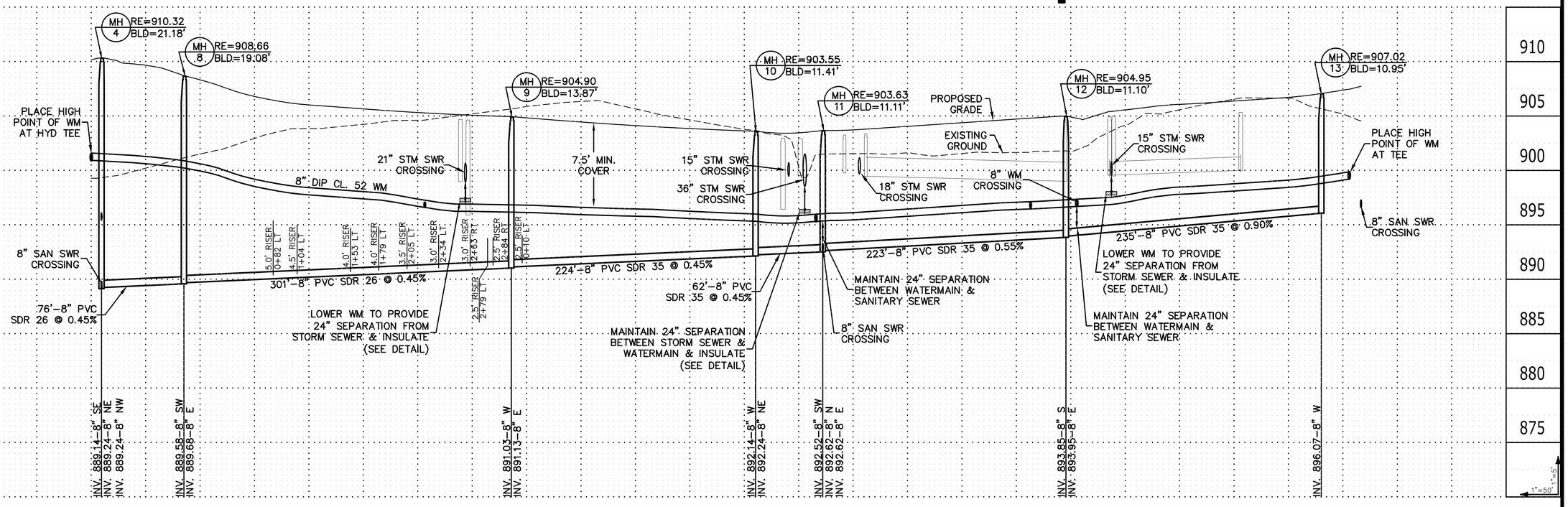
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BLUESTEM DRIVE ◀|▶ HARVEST WAY

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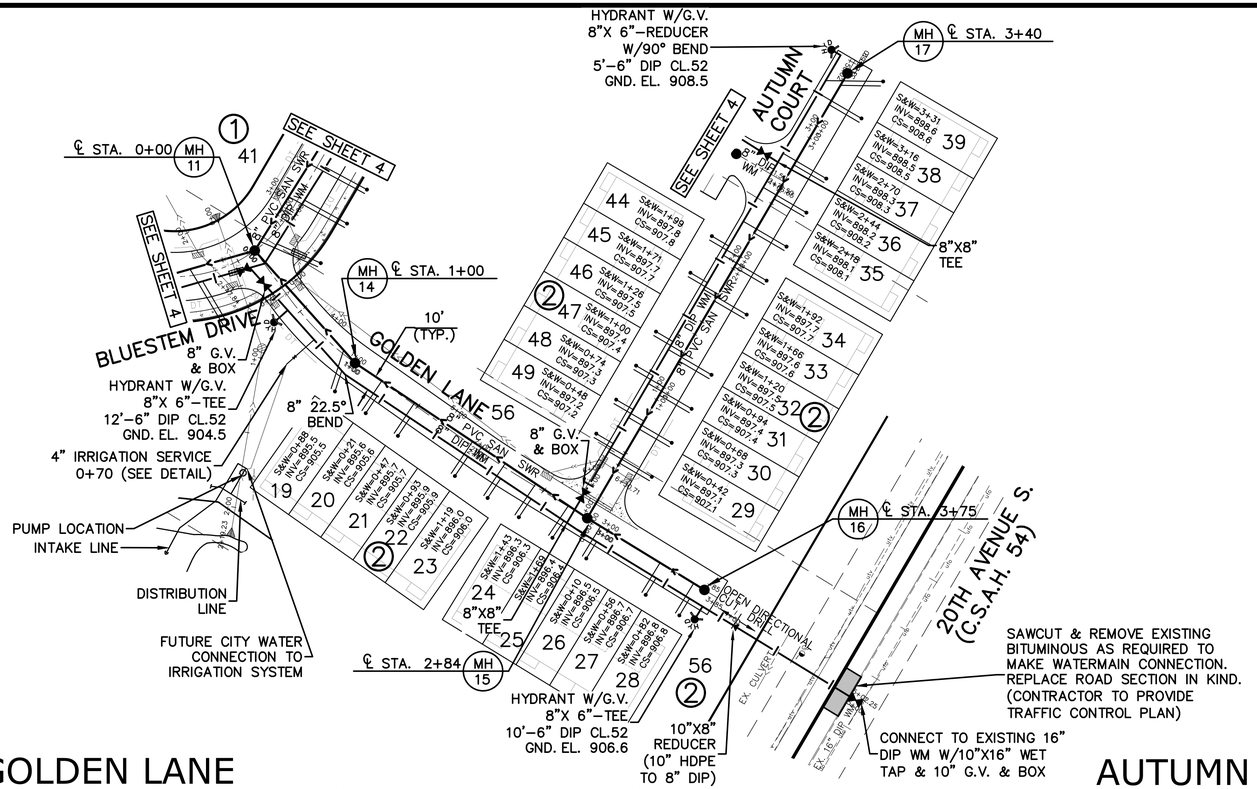
HARVEST GRANGE

HARVEST GRANGE
Lino Lakes, MN

SANITARY SEWER & WATER MAIN

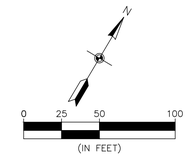
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GENERAL NOTES:

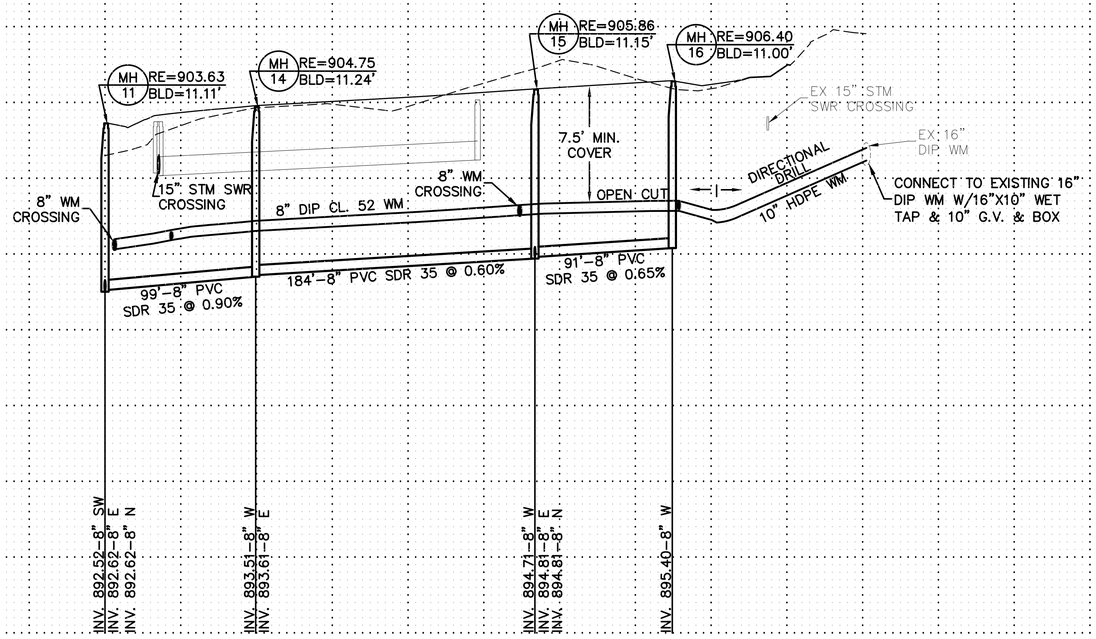
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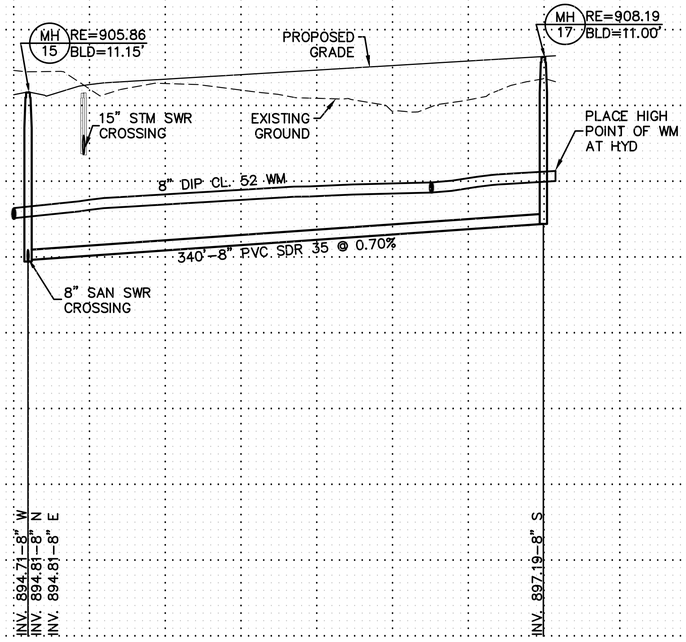
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GOLDEN LANE



AUTUMN COURT



1"=5'
1"=50'

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Revisions:
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2. 9/30/26 Rev. irrigation service

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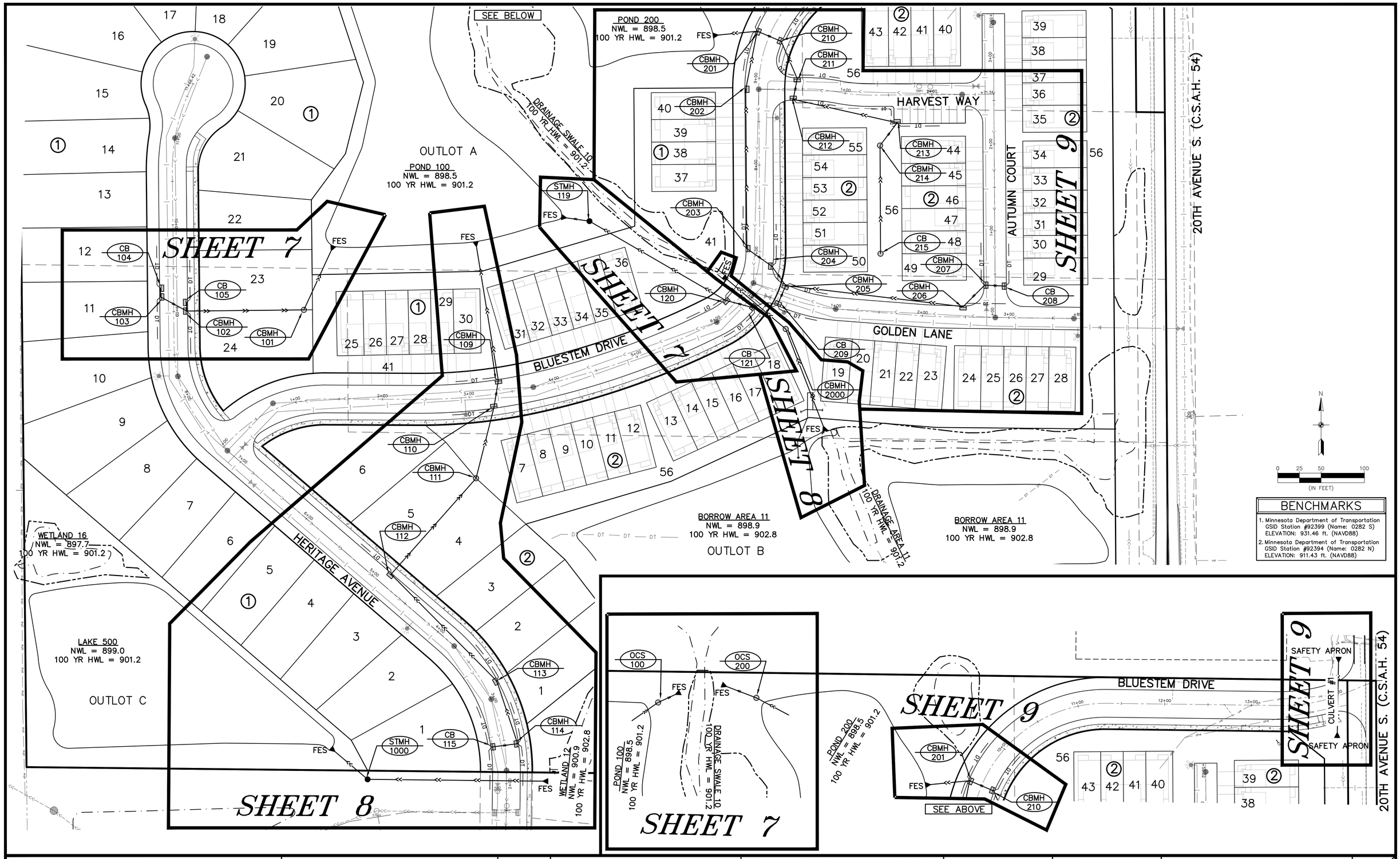
HARVEST GRANGE

HARVEST GRANGE
Lino Lakes, MN

SANITARY SEWER & WATER MAIN

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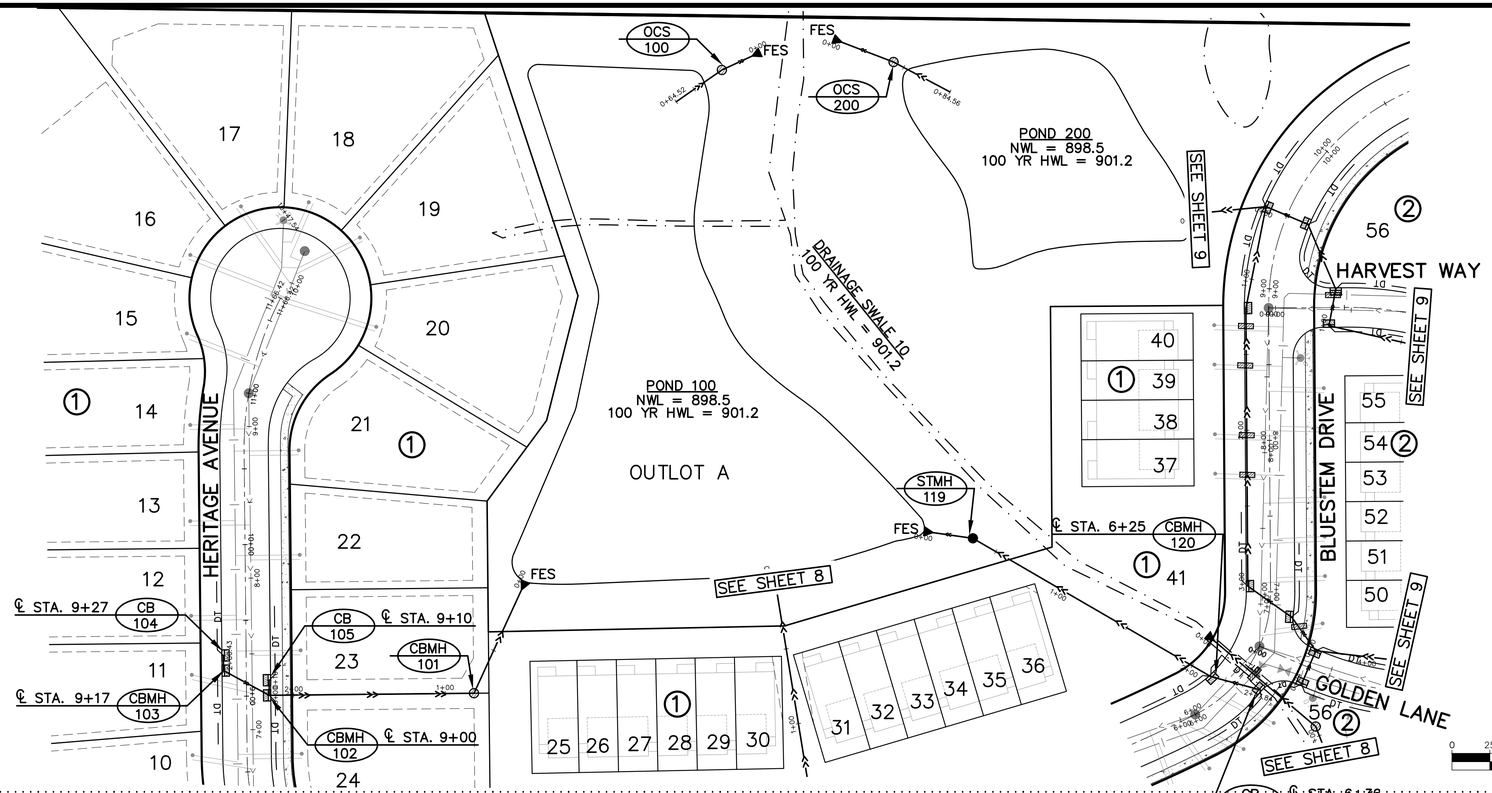
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STORM SEWER INDEX

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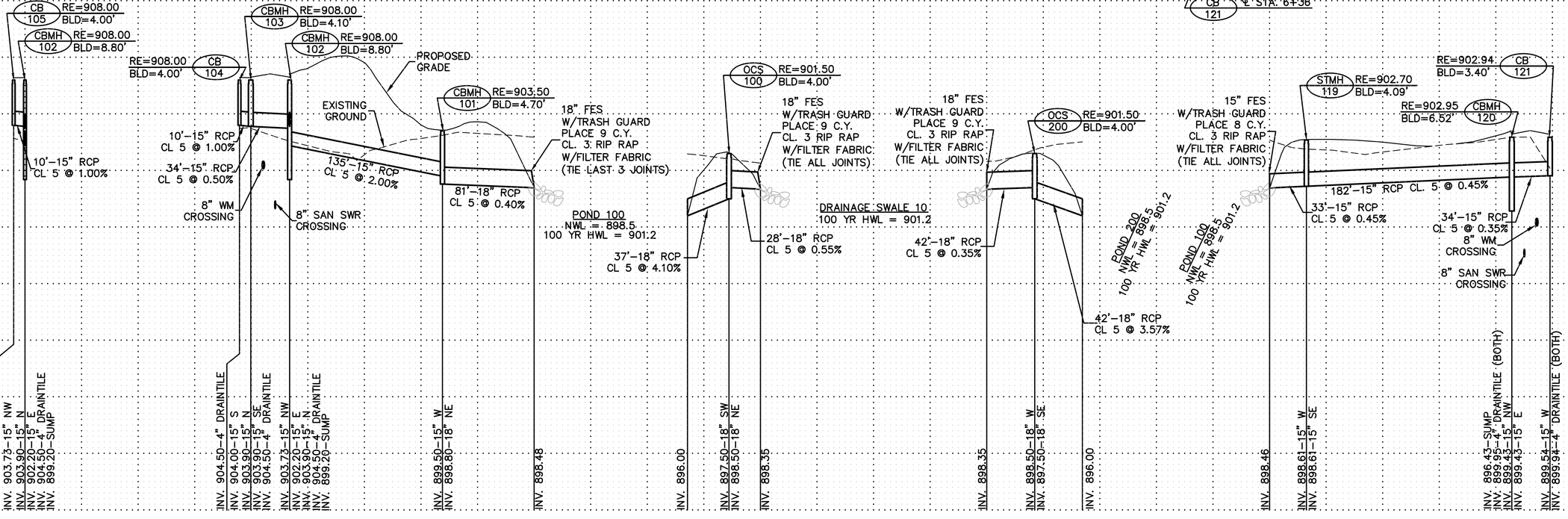


STORM SEWER SCHEDULE		
STRUCTURE		NEENAH CASTING or EQUAL
TYPE & No.	SIZE	
OCS–100	(SEE DETAIL)	
CBMH–101	48" DIA.	R–4340–B
CBMH–102	48" DIA.	R–3067–V
CBMH–103	48" DIA.	R–3067–V
CB–104	24"X36"	R–3067–V
CB–105	24"X36"	R–3067–V
STMH–119	48" DIA.	R–1642
CBMH–120	48" DIA.	R–3067–VB
CB–121	24"X36"	R–3067–VB
OCS–200	(SEE DETAIL)	

GENERAL NOTES:
1. INSTALL SEDIMENT CONTROL BARRIER INSERTS ON ALL CATCH BASINS (SEE DETAIL).
2. ALL JOINTS TO BE WRAPPED WITH GEOTEXTILE FABRIC (SEE DETAIL STR–11)
3. SEE SHEET 10 FOR STREET DRAINTILE
4. INFI–SHIELD, OR APPROVED EQUAL, TO BE INSTALLED ON THE OUTSIDE OF ALL ADJUSTMENT RINGS AND SHALL COVER THE RINGS FROM THE CASTING DOWN OVER THE CONE OF THE STRUCTURE.

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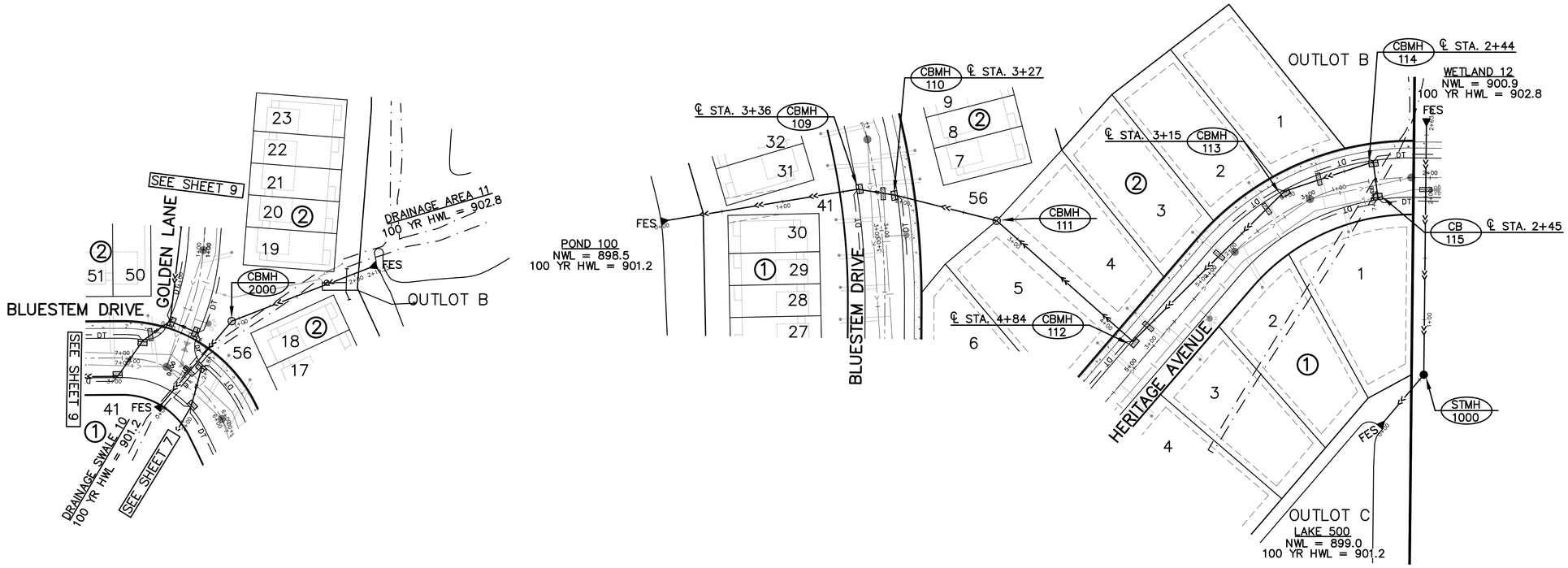
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STORM SEWER

7 of 20

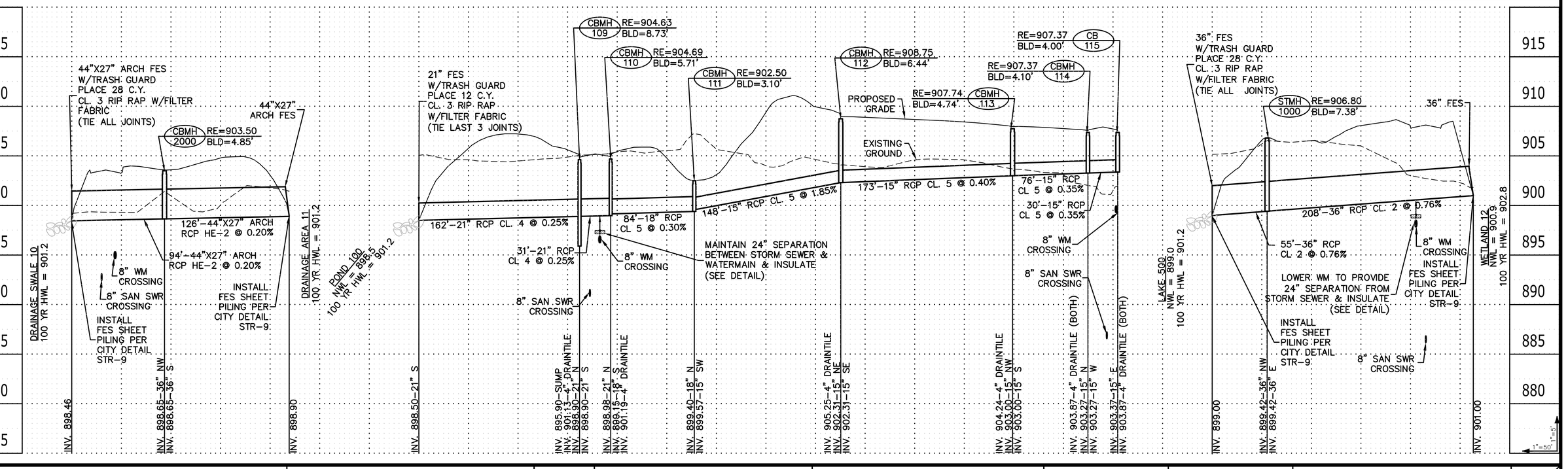


STORM SEWER SCHEDULE		
STRUCTURE		NEENAH CASTING or EQUAL
TYPE & No.	SIZE	
CBMH–109	48" DIA.	R–3067–V
CBMH–110	48" DIA.	R–3067–V
CBMH–111	48" DIA.	R–4340–B
CBMH–112	48" DIA.	R–3067–V
CBMH–113	48" DIA.	R–3067–V
CBMH–114	48" DIA.	R–3067–VB
CB–115	24"X36"	R–3067–VB
STMH–1000	60" DIA.	R–1642
CBMH–2000	72" DIA.	R–4340–B

GENERAL NOTES:
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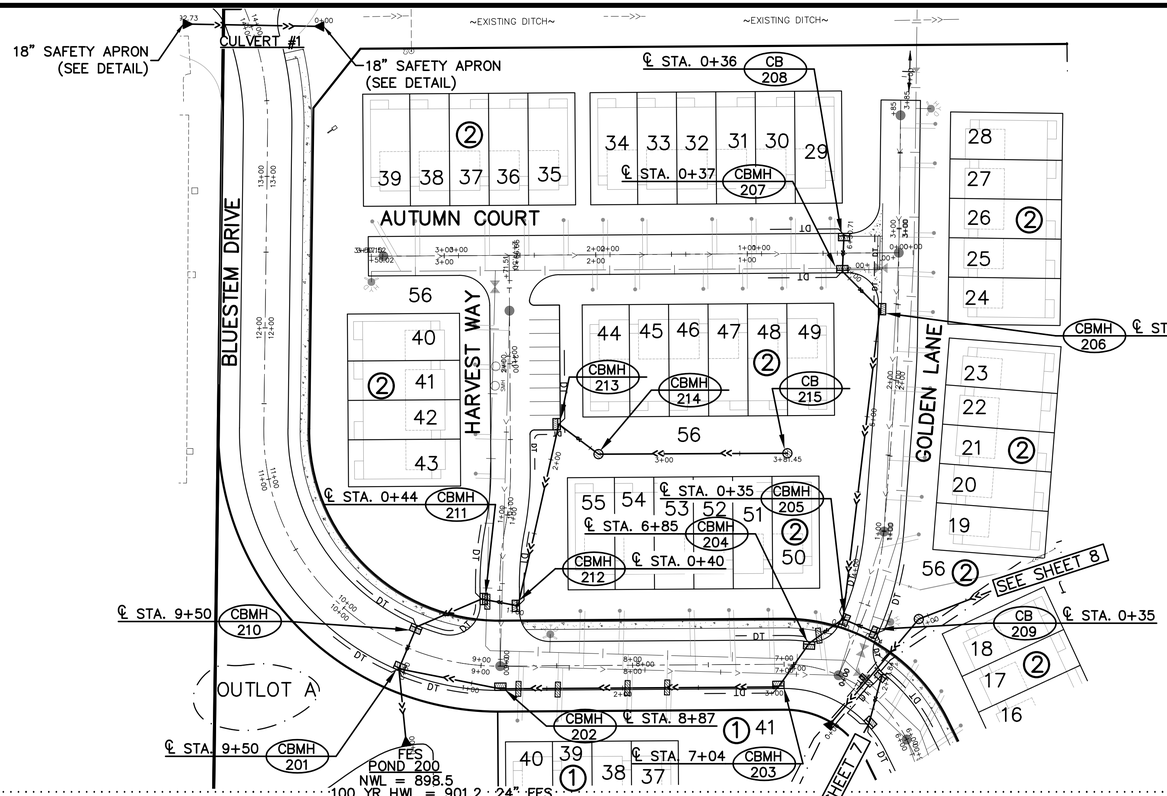
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STORM SEWER

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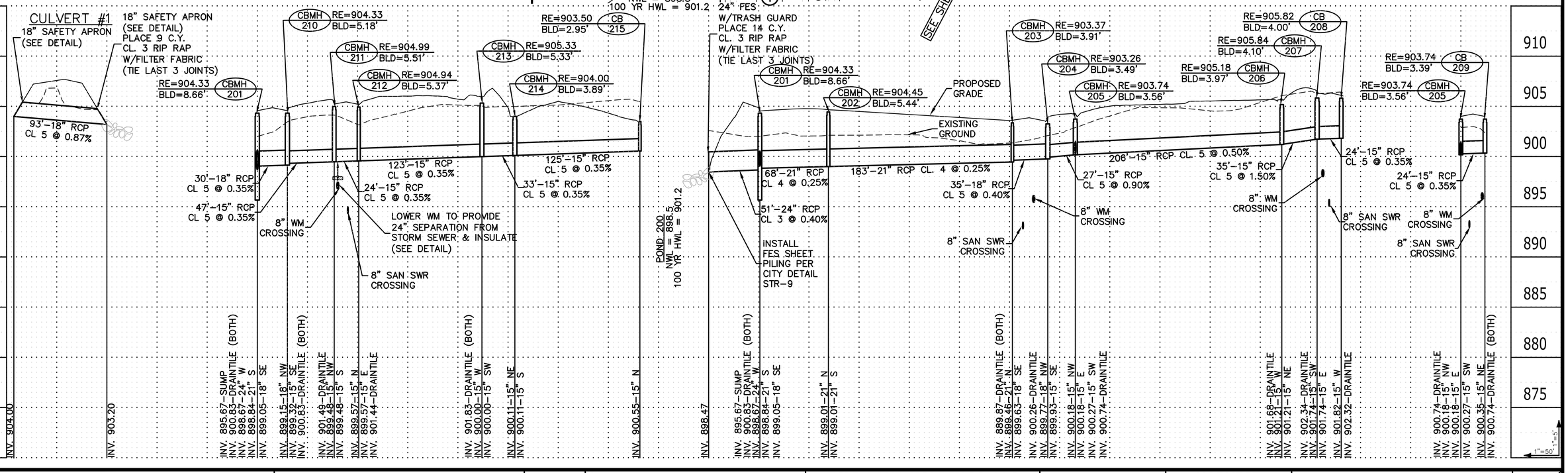
STORM SEWER SCHEDULE		
STRUCTURE		NEENAH CASTING or EQUAL
TYPE & No.	SIZE	
CBMH–201	60" DIA.	R–3067–VB
CBMH–202	48" DIA.	R–3067–V
CBMH–203	48" DIA.	R–3067–V
CBMH–204	48" DIA.	R–3501–TB
CBMH–205	48" DIA.	R–3067–V
CBMH–206	48" DIA.	R–3067–V
CBMH–207	48" DIA.	R–3067–V
CB–208	24"X36"	R–3067–V
CB–209	24"X36"	R–3067–V
CBMH–210	48" DIA.	R–3067–VB
CBMH–211	48" DIA.	R–3067–V
CBMH–212	48" DIA.	R–3067–V
CBMH–213	60" DIA.	R–3067–VB
CBMH–214	48" DIA.	R–4340–B
CB–215	27" DIA.	R–4340–B

GENERAL NOTES;
1. INSTALL SEDIMENT CONTROL BARRIER INSERTS ON ALL CATCH BASINS (SEE DETAIL).
2. ALL JOINTS TO BE WRAPPED WITH GEOTEXTILE FABRIC (SEE DETAIL STR–11)
3. SEE SHEET 10 FOR STREET DRAINTILE
4. INFI–SHIELD, OR APPROVED EQUAL, TO BE INSTALLED ON THE OUTSIDE OF ALL ADJUSTMENT RINGS AND SHALL COVER THE RINGS FROM THE CASTING DOWN OVER THE CONE OF THE STRUCTURE.

0 25 50 100 (IN FEET)

BENCHMARKS

1. Minnesota Department of Transportation GSID Station #92399 (Name: 0282 S) ELEVATION: 931.46 ft. (NAVD88)
2. Minnesota Department of Transportation GSID Station #92394 (Name: 0282 N) ELEVATION: 911.43 ft. (NAVD88)



CARLSON ENGINEERING
ENGINEERING SURVEYING PLANNING
3890 PHEASANT RIDGE DR NE SUITE 100 BLAINE, MN 55449 TEL 763.489.7900 FAX 763.489.7959 CARLSON-ENGINEERING.COM

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: Brian J. Krystofiak, P.E.
Signature:
Date: 06/24/26 License #: 25063

Drawn: NJP
Designed: BJK
Date: 06/24/26

Revisions:
1. 8/26/26 Per City Comments

TCLD LAND HOLDINGS, LLC
4800 Olson Memorial Hwy - #100
Golden Valley, MN 55422

HARVEST GRANGE

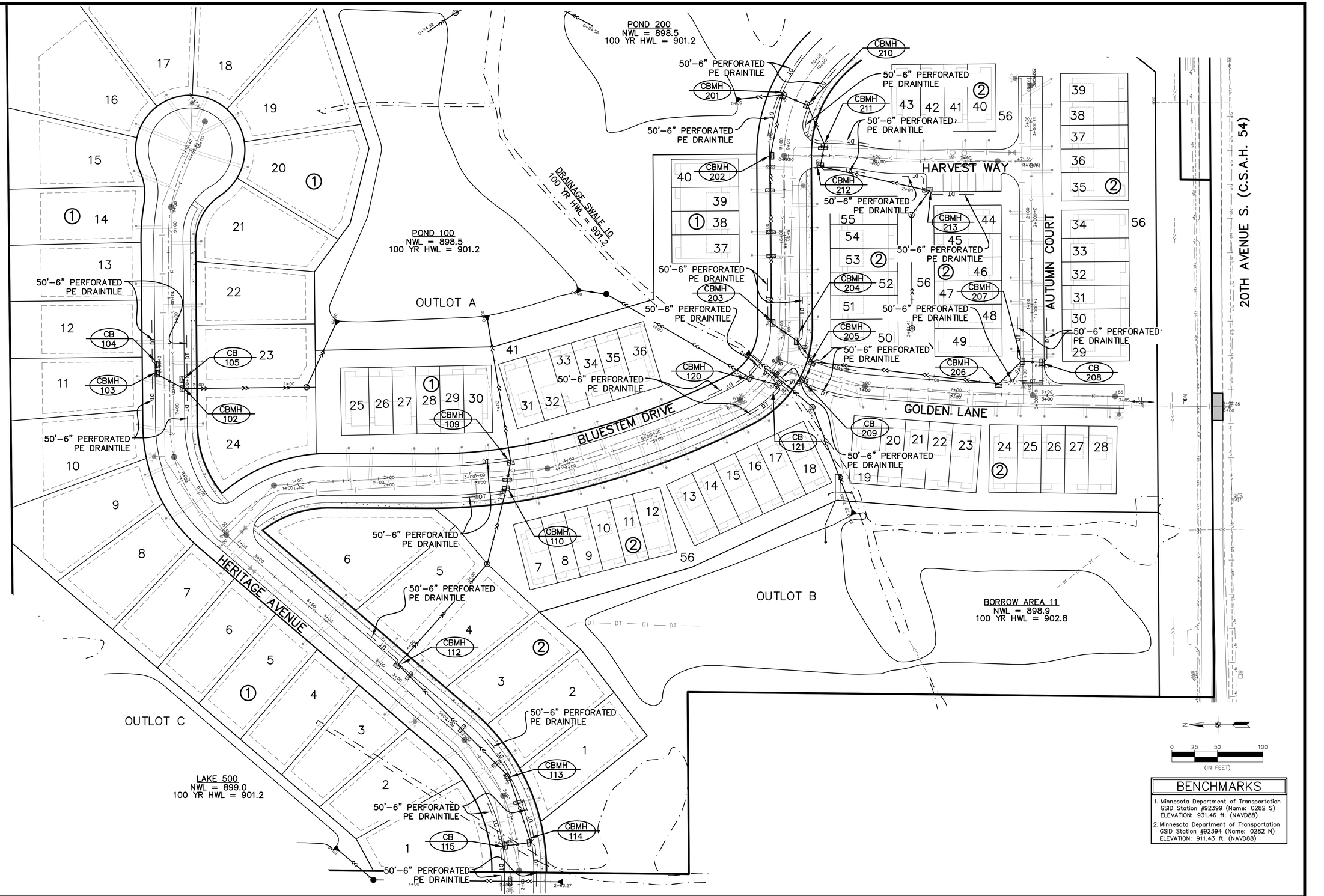
HARVEST GRANGE
Lino Lakes, MN

STORM SEWER

9 of 20

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#11343



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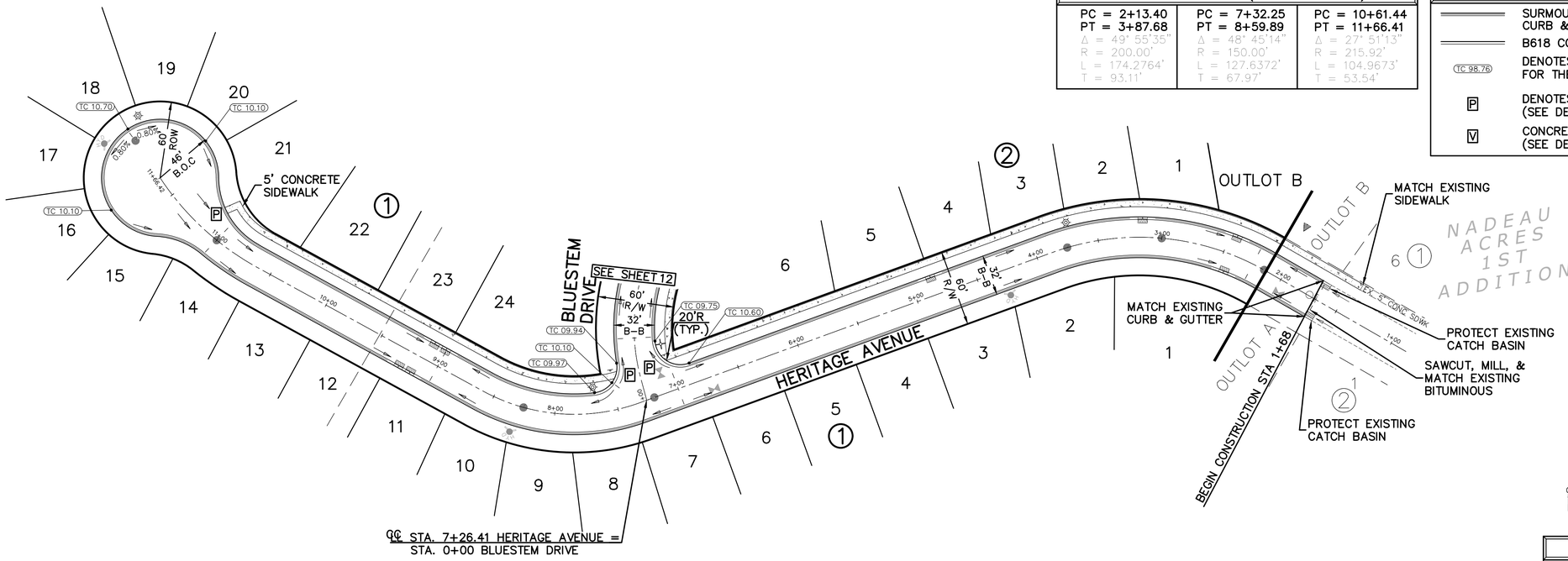
HARVEST GRANGE

HARVEST GRANGE
Lino Lakes, MN

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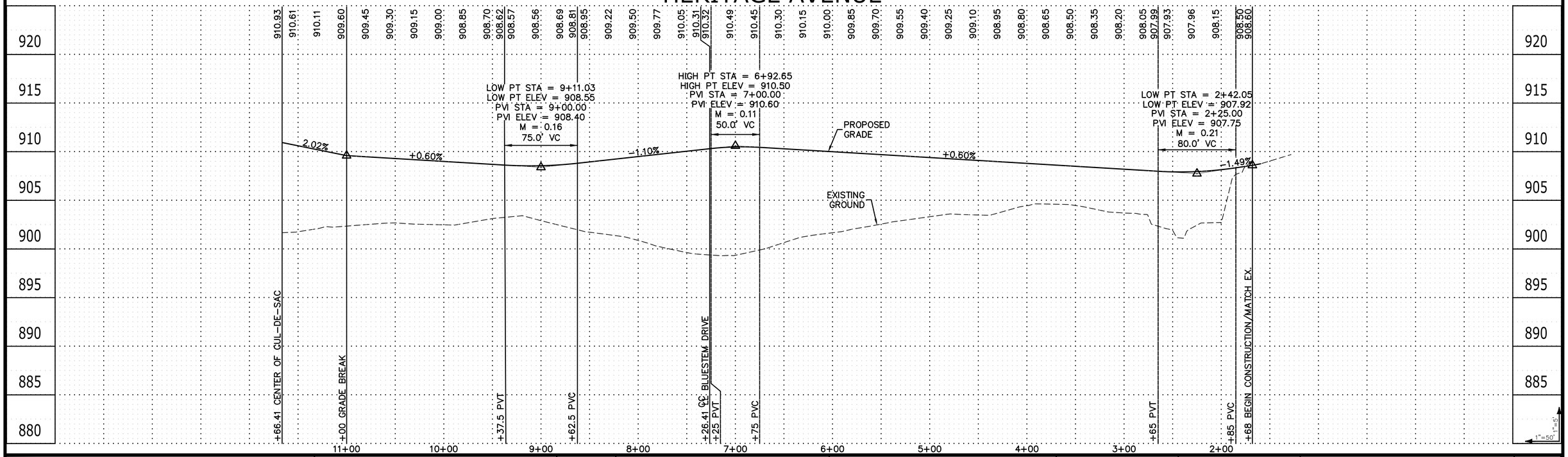
℄ CURVE DATA (HERITAGE AVENUE)		
PC = 2+13.40 PT = 3+87.68 Δ = 49° 55'35" R = 200.00' L = 174.2764' T = 93.11'	PC = 7+32.25 PT = 8+59.89 Δ = 48° 45'14" R = 150.00' L = 127.6372' T = 67.97'	PC = 10+61.44 PT = 11+66.41 Δ = 27° 51'13" R = 215.92' L = 104.9673' T = 53.54'

CURB TYPES LEGEND	
	SURMOUNTABLE CONCRETE CURB & GUTTER
	B618 CONCRETE CURB & GUTTER
TC 98.76	DENOTES TOP OF CURB ELEVATION FOR THE TYPE OF CURB SHOWN.
P	DENOTES PEDESTRIAN RAMP. (SEE DETAIL)
V	CONCRETE VALLEY GUTTER. (SEE DETAIL)

BENCHMARKS

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HERITAGE AVENUE



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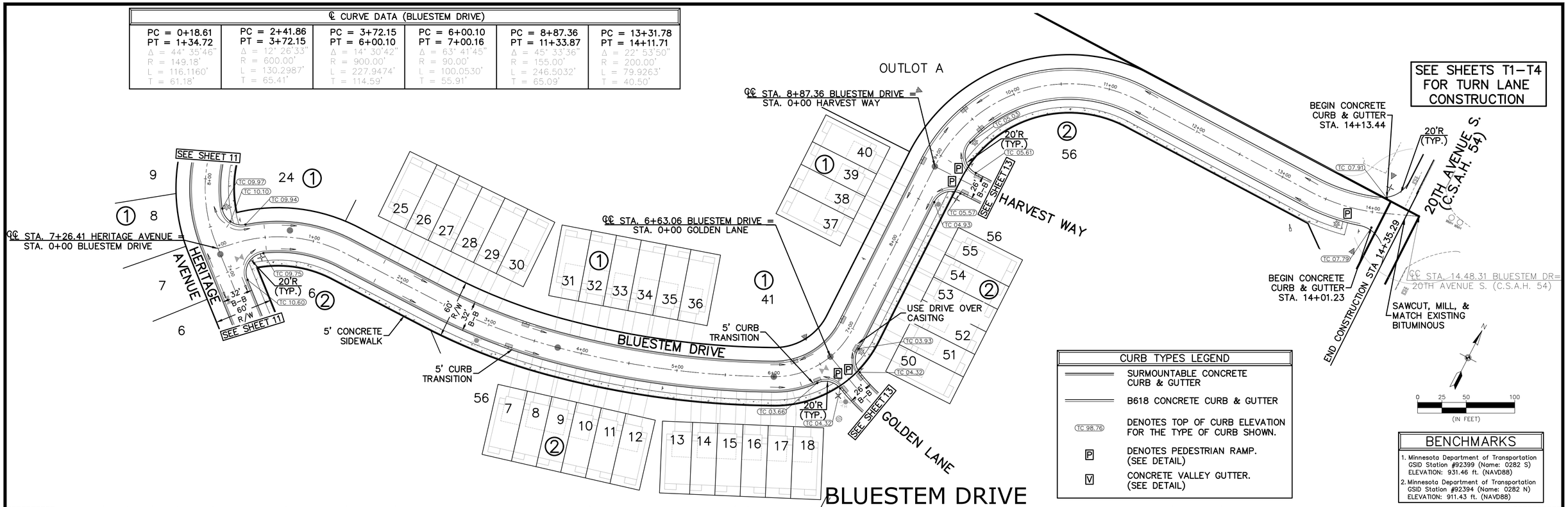
HARVEST GRANGE
Lino Lakes, MN

STREET CONSTRUCTION

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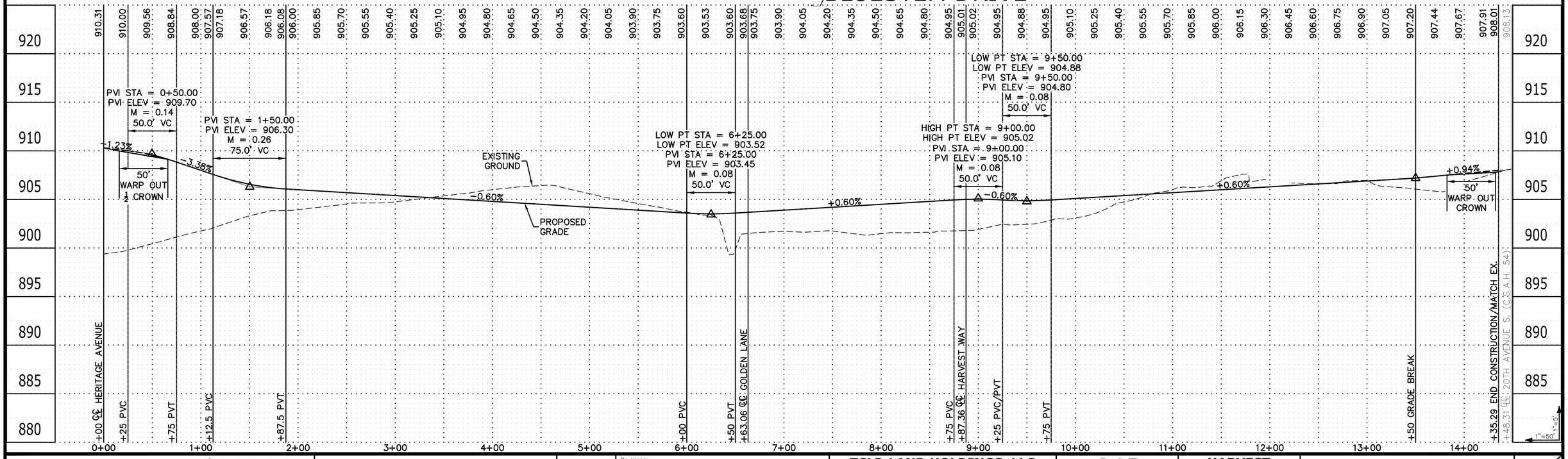
#11343

℄ CURVE DATA (BLUESTEM DRIVE)					
PC = 0+18.61 PT = 1+34.72 Δ = 44° 35' 46" R = 149.18' L = 116.1160' T = 61.18'	PC = 2+41.86 PT = 3+72.15 Δ = 12° 26' 33" R = 600.00' L = 130.2987' T = 65.41'	PC = 3+72.15 PT = 6+00.10 Δ = 14° 30' 42" R = 900.00' L = 227.9474' T = 114.59'	PC = 6+00.10 PT = 7+00.16 Δ = 63° 41' 45" R = 90.00' L = 100.0530' T = 55.91'	PC = 8+87.36 PT = 11+33.87 Δ = 45° 33' 36" R = 155.00' L = 246.5032' T = 65.09'	PC = 13+31.78 PT = 14+11.71 Δ = 22° 53' 50" R = 200.00' L = 79.9263' T = 40.50'



BENCHMARKS

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1. 8/26/26 Per City Comments

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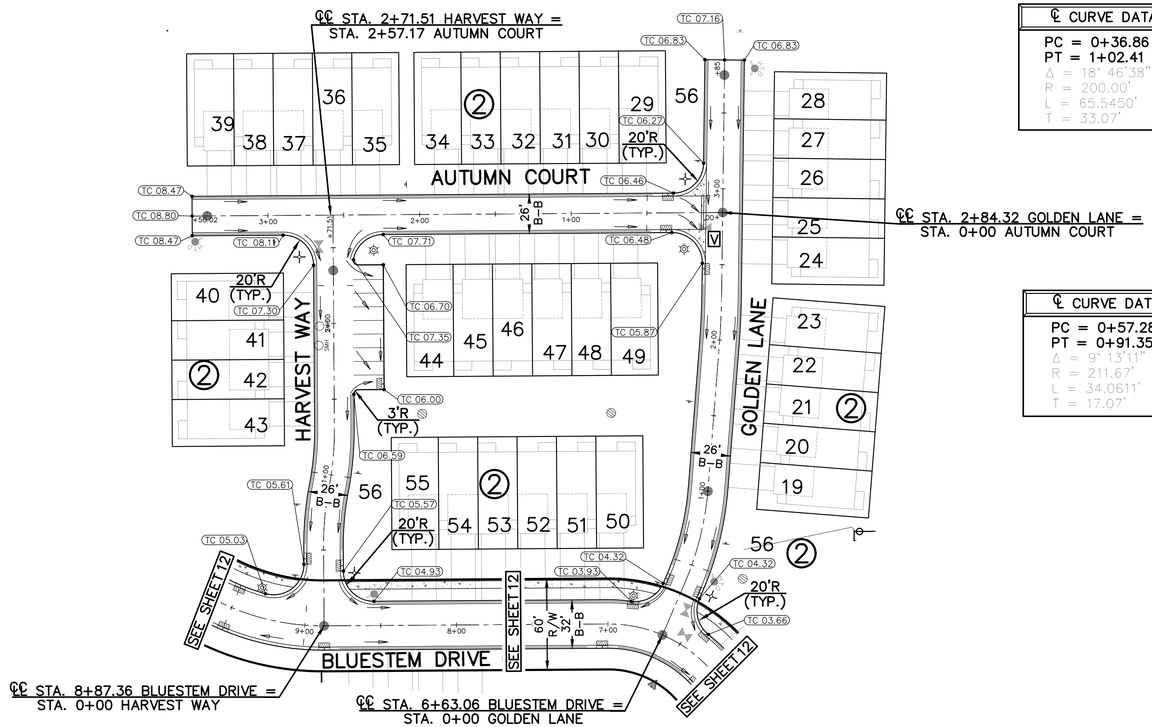
HARVEST GRANGE

HARVEST GRANGE
Lino Lakes, MN

STREET CONSTRUCTION

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#11343



℄ CURVE DATA (GOLDEN LANE)	
PC = 0+36.86	PC = 1+97.73
PT = 1+02.41	PT= 2+30.18
Δ = 18° 46'38"	Δ = 3° 43'07"
R = 200.00'	R = 500.00'
L = 65.5450'	L = 32.4502'
T = 33.07'	T = 16.23'

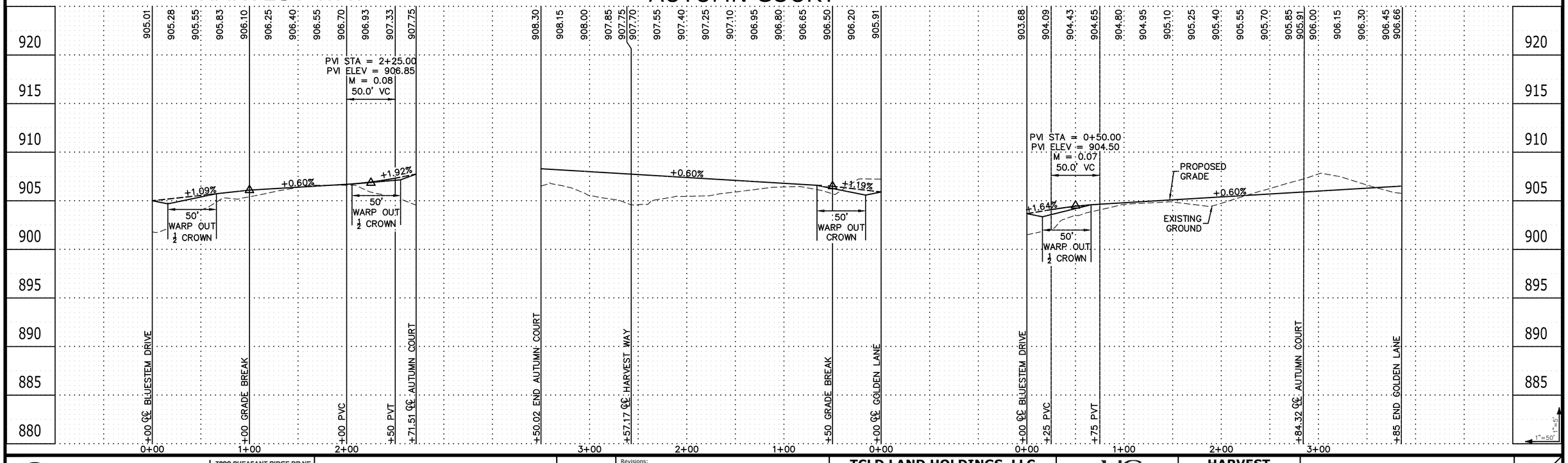
℄ CURVE DATA (HARVEST WAY)	
PC = 0+57.28	PC = 0+91.35
PT = 0+91.35	PT= 1+30.61
Δ = 9° 13'11"	Δ = 11° 14'54"
R = 211.67'	R = 200.00'
L = 34.0611'	L = 39.2640'
T = 17.07'	T = 19.70'

CURB TYPES LEGEND	
═══	SURMOUNTABLE CONCRETE CURB & GUTTER
═══	B618 CONCRETE CURB & GUTTER
───	B612 CONCRETE CURB & GUTTER
TC 98.76	DENOTES TOP OF CURB ELEVATION FOR THE TYPE OF CURB SHOWN.
P	DENOTES PEDESTRIAN RAMP. (SEE DETAIL)
V	DENOTES VALLEY GUTTER

0 25 50 100
(IN FEET)

BENCHMARKS

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Revisions:
1. 8/26/26 Per City Comments

TCLD LAND HOLDINGS, LLC
4800 Olson Memorial Hwy - #100
Golden Valley, MN 55422

HARVEST GRANGE

HARVEST GRANGE
Lino Lakes, MN

STREET CONSTRUCTION

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#11343

SIGN SCHEDULE			
SIGN	SIGN NO.	SIZE	QUANTITY
STOP	R1-1	30" x 30"	4
	STREET SIGN		6
	W1-1R	30" x 30"	1
	W1-1L	30" x 30"	1
15 M.P.H.	W13-1P	18" x 18"	2
NO PARKING FIRE LANE	R8-31	12" x 18"	7
	X4-3	WRAP AROUND	1

*STREET NAME SIGNS			
NAMES		COLOR	QUANTITY
①	Heritage Ave Bluestem Dr	White on Green White on Green	1
②	Bluestem Dr 20th Ave S	White on Green White on Green	1
③	Golden Ln Bluestem Dr	White on Brown White on Green	1
④	Golden Ln Autumn Ct	White on Brown White on Brown	1
⑤	Autumn Ct Harvest Way	White on Brown White on Brown	1
⑥	Bluestem Dr Harvest Way	White on Green White on Brown	1

*ALL STREET SIGNS SHALL CONFORM TO CITY OF LINO LAKES STREET SIGN DETAIL

LIGHTING NOTES:

PROPOSED LIGHT LOCATION.

FINAL LOCATION TO BE VERIFIED WITH CITY/XCEL.

BENCHMARKS
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Revisions:
1. 8/26/26 Per City Comments
2. 9/30/26 Add X4-3 marker to stop sign

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Golden Valley, MN 55422

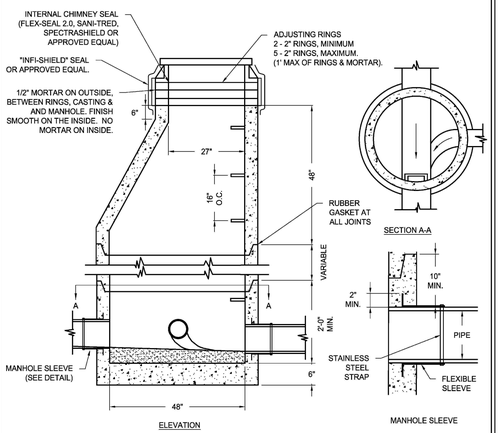
HARVEST GRANGE

HARVEST GRANGE
Lino Lakes, MN

SIGNING & STRIPING PLAN

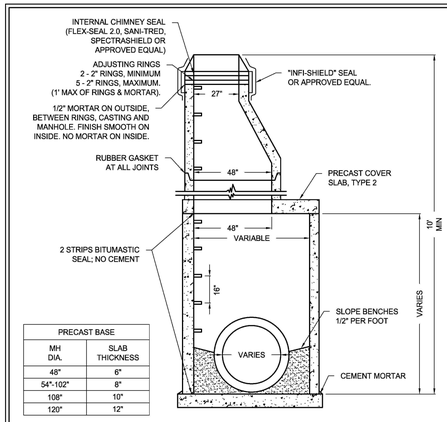
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#11343



NOTES:
1. INTERNAL CHIMNEY SEAL (FLEX-SEAL 2.0, SANI-TRED, SPECTRASHIELD OR APPROVED EQUAL) ALL JOINTS.
2. A URETHANE OR BUTYL SEAL SHALL BE USED TO SEAL THE TOP RING TO THE CASTING AND THE BOTTOM RING TO THE CONE OR TOP SLAB.
3. NO WOOD SHALL BE USED FOR ADJUSTING CASTING; CEMENT MORTAR ONLY. ADJUSTING RINGS MAY BE CONCRETE OR PLASTIC.
4. CAST IRON MANHOLE FRAME & COVER AS PER SPECIFICATIONS.
5. MANHOLE STEPS SHALL BE CAST IRON, ALUMINUM OR STEEL REINFORCED PLASTIC, PER ASTM C478. STEP LOCATION SHALL BE AS NOTED IN THE SPECIFICATIONS.
6. PRECAST REINFORCED CONCRETE MANHOLE SECTIONS PER ASTM C478, FURNISHED WITH O-RING GASKETS AND LUBRICANT EXCEPT AS OTHERWISE SPECIFIED. A 12" OR 18" BARREL SECTION SHALL BE INSTALLED UNDER THE CONE WHENEVER POSSIBLE.
7. PIPE CONNECTIONS TO MANHOLE SHALL BE MADE WATER TIGHT BY CAST INPLACE RUBBER BOOT AND CEMENT MORTAR. INSIDE SURFACE SHALL BE FINISHED SMOOTH.
8. PROTECT MANHOLE FROM RAINWATER, INFILTRATION AND SEDIMENT DURING CONSTRUCTION BY GRADING, SEALING AND COVERING.

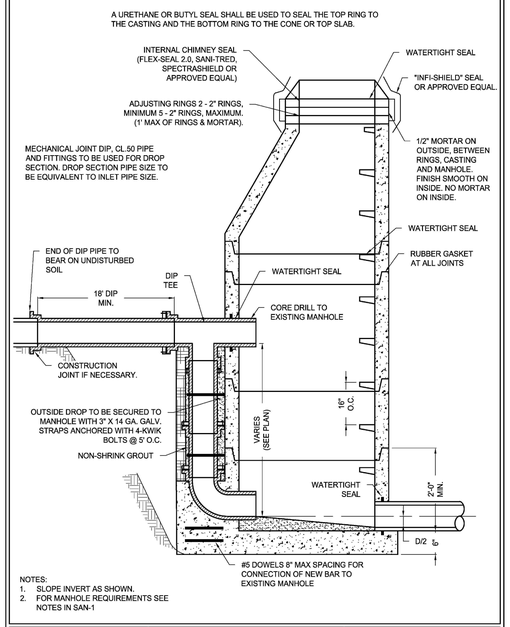
CITY OF LINO LAKES	SANITARY SEWER MANHOLE TYPE 301 (PIPES 27" OR LESS)	APRIL 2026
		SAN-1



PRECAST BASE	
MH DIA.	SLAB THICKNESS
48"	6"
54"-102"	8"
108"	10"
120"	12"

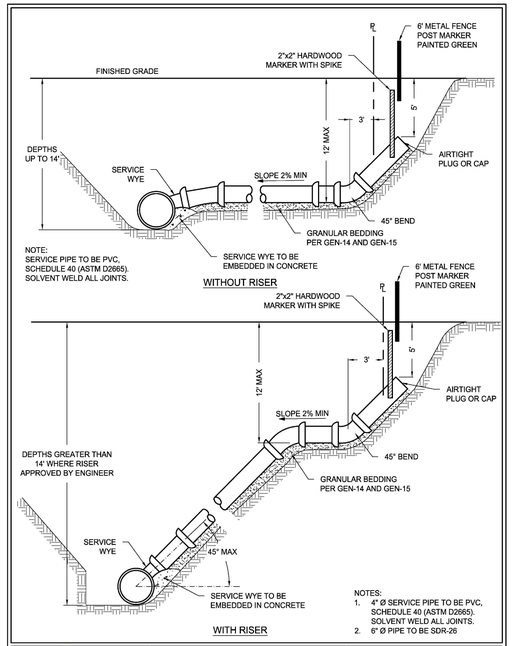
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3. NO WOOD SHALL BE USED FOR ADJUSTING CASTING; CEMENT MORTAR ONLY. ADJUSTING RINGS MAY BE CONCRETE OR PLASTIC.
4. CAST IRON MANHOLE FRAME & COVER AS PER SPECIFICATIONS.
5. MANHOLE STEPS SHALL BE CAST IRON, ALUMINUM OR STEEL REINFORCED PLASTIC PER ASTM C478. STEP LOCATION SHALL BE AS NOTED IN THE SPECIFICATIONS.
6. PRECAST REINFORCED CONCRETE MANHOLE SECTIONS PER ASTM C478, FURNISHED WITH O-RING GASKETS AND LUBRICANT EXCEPT AS OTHERWISE SPECIFIED. A 12" OR 18" BARREL SECTION SHALL BE INSTALLED UNDER THE CONE WHENEVER POSSIBLE.
7. PIPE CONNECTIONS TO MANHOLE SHALL BE MADE WATER TIGHT BY CAST INPLACE RUBBER BOOT AND CEMENT MORTAR. INSIDE SURFACE SHALL BE FINISHED SMOOTH.
8. PROTECT MANHOLE FROM RAINWATER, INFILTRATION AND SEDIMENT DURING CONSTRUCTION BY GRADING, SEALING AND COVERING.

CITY OF LINO LAKES	SANITARY SEWER MANHOLE TYPE 303	APRIL 2026
		SAN-3



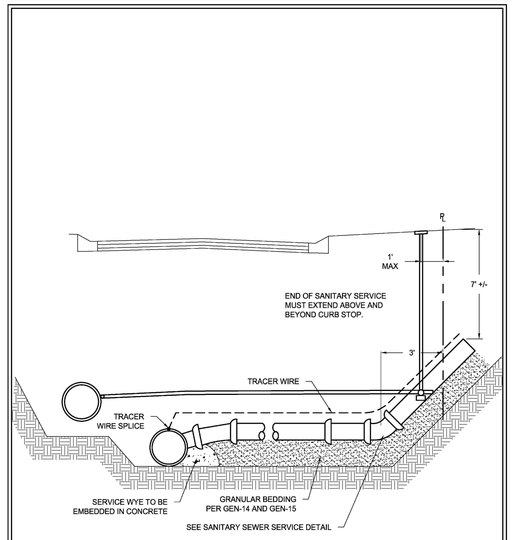
NOTES:
1. SLOPE INVERT AS SHOWN.
2. FOR MANHOLE REQUIREMENTS SEE NOTES IN SAN-1

CITY OF LINO LAKES	SANITARY SEWER OUTSIDE DROP	APRIL 2026
		SAN-4



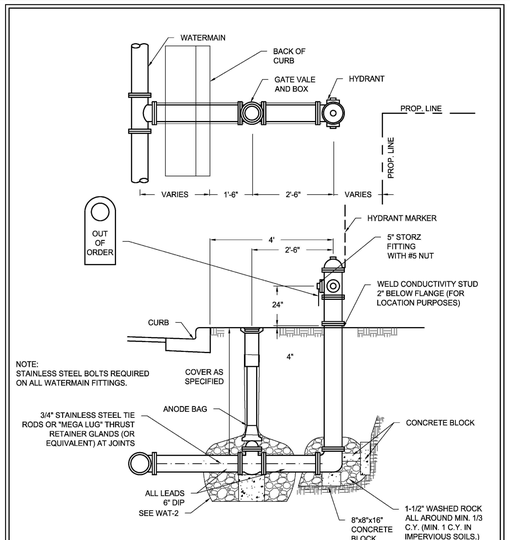
NOTES:
1. 4" Ø SERVICE PIPE TO BE PVC, SCHEDULE 40 (ASTM D2665). SOLVENT WELD ALL JOINTS.
2. 6" Ø PIPE TO BE SDR-26

CITY OF LINO LAKES	SANITARY SEWER SERVICE	JANUARY 2024
		SAN-6



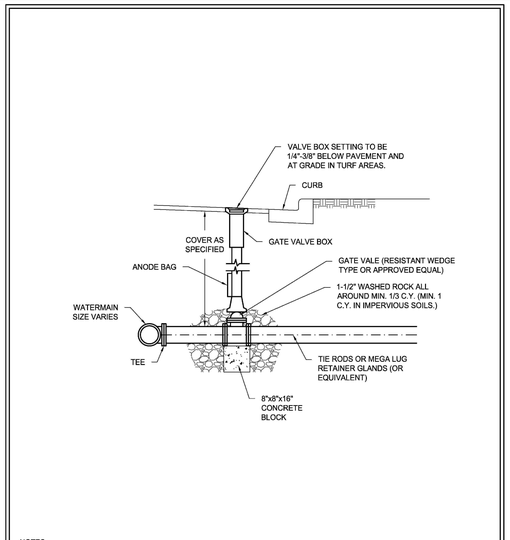
NOTES:
1. SERVICES SHALL BE 4" DIAMETER PVC SCHEDULE 40.
2. SEWER SERVICES ARE LOCATED 3' DOWNSTREAM OF WATER SERVICE IF IN SAME TRENCH.
3. TRACER WIRE SHALL BE INSTALLED ON ALL SANITARY SEWER SERVICES.
4. AN "S" SHALL BE STAMPED INTO THE CURB ABOVE THE SANITARY SERVICE FOR FUTURE LOCATING PURPOSES.
5. BENDS AND RISER PIPE INCIDENTAL TO THE PIPE.

CITY OF LINO LAKES	SERVICE DETAIL	JANUARY 2026
		SAN-7



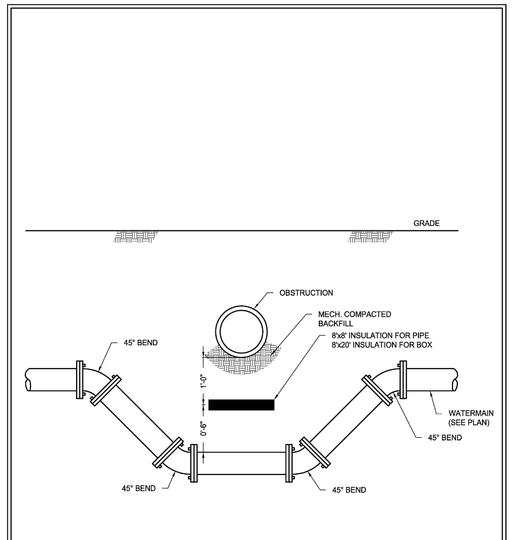
NOTES:
1. ALL FITTINGS SHALL BE MECHANICAL JOINTS.
2. MEGALUG OPTION PERMITTED UPON CITY REVIEW.
3. HYDRANTS SHALL HAVE 16" BREAKAWAY SECTION.
4. NO EXTENSIONS ARE ALLOWED.
5. GATE VALVE SHALL MEET ALL REQUIREMENTS OF WAT-2.
6. VENTED CAP.
7. HYDRANT TO BE INSTALLED WITH "OUT OF ORDER" TAG AND MARKER IN PLACE.

CITY OF LINO LAKES	TYPICAL HYDRANT DETAILS (VALVE IN BOULEVARD)	JANUARY 2026
		WAT-1



NOTES:
1. GATE VALVES SHOULD BE USED ON 6" THROUGH 16" WATERMAIN.
2. VALVE BOX INSERTS ARE NOT ALLOWED UNLESS APPROVED BY THE ENGINEER.
3. VALVE BOXES SHALL BE INSTALLED PLUMB AND SHALL ALLOW A 4" P.V.C. PIPE TO PASS ENTIRELY OVER THE GATE VALVE NUT AFTER INSTALLATION IS COMPLETE.
4. ALL VALVES SHALL BE TIED WITH 3/4" THREADED TIE RODS TO THE MAIN. MEGALUGS MAY BE USED IN LIEU OF TIE RODS.
5. THE INITIAL AND FINAL RAISING OF VALVE BOXES SHALL BE CONSIDERED INCIDENTAL TO THE PROJECT.
6. BONNET ADAPTOR SHALL BE INSTALLED ON TOP OF GATE VALVE.
7. STAINLESS STEEL BOLTS REQUIRED ON ALL WATERMAIN FITTINGS.

CITY OF LINO LAKES	GATE VALE AND BOX INSTALLATION	FEBRUARY 2020
		WAT-2



NOTES:
1. TIE ALL JOINTS WITH MEGALUGS (8 REQ.).
2. STAINLESS STEEL BOLTS REQUIRED ON ALL WATERMAIN FITTINGS.

CITY OF LINO LAKES	WATERMAIN LOWERING	APRIL 2026
		WAT-3

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Print Name: Brian J. Krystofiak, P.E.
Signature:
Date: 06/24/26 License #: 25063

Drawn: NJP
Designed: BJK
Date: 06/24/26

Revisions:
1. 8/26/26 Per City Comments

TCLD LAND HOLDINGS, LLC
4800 Olson Memorial Hwy - #100
Golden Valley, MN 55422

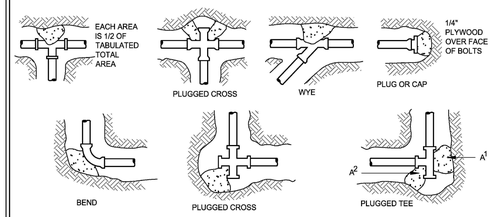
HARVEST GRANGE

HARVEST GRANGE
Lino Lakes, MN

DETAILS

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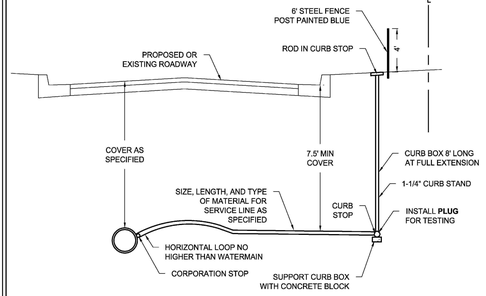
#11343



NOMINAL FITTING SIZE, INCHES	TEE, WYE, PLUG OR CAP	90° BEND, PLUGGED CROSS	TEE PLUGGED ON RUN		45° BEND	22-1/2° BEND	11-1/4° BEND
			A^1	A^2			
4	1.0	1.4	1.9	1.4	1.0	-	-
6	2.1	3.0	4.3	3.0	1.6	1.0	-
8	3.8	5.3	7.6	5.4	2.9	1.5	1.0
10	5.9	8.4	11.8	8.4	4.6	2.6	1.2
12	8.5	12.0	17.0	12.0	6.6	3.4	1.7
14	11.5	16.3	23.0	16.3	8.9	4.6	2.3
16	15.0	21.3	30.0	21.3	11.6	6.0	3.0
18	19.0	27.0	38.0	27.0	14.6	7.6	3.8
20	23.5	33.3	47.0	33.3	18.1	9.4	4.7
24	34.0	48.0	68.0	48.0	26.2	13.6	6.8

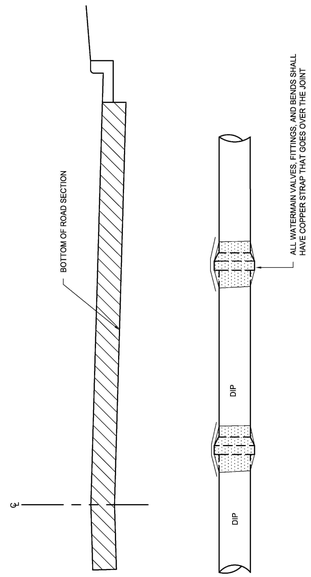
1. CONCRETE THRUST BLOCKING TO BE POURED AGAINST UNDISTURBED EARTH.
2. KEEP CONCRETE CLEAR OF JOINT AND ACCESSORIES.
3. REQUIRED BEARING AREAS AT FITTING SHALL BE AS NOTED ABOVE, UNLESS INDICATED OTHERWISE.
4. BEARING AREAS AND SPECIAL BLOCKING DETAILS SHOWN ON THE PLANS TAKE PRECEDENCE OVER BEARING AREAS AND BLOCKING DETAILS SHOWN ON THIS STANDARD PLATE.
5. ABOVE BEARING AREAS BASED ON TEST PRESSURES OF 150 PSI AND AN ALLOWABLE SOIL BEARING STRESS OF 2000 LBS. PER SQUARE FOOT. TO COMPUTE BEARING AREAS FOR DIFFERENT TEST PRESSURES AND SOIL BEARING STRESSES, USE THE FOLLOWING EQUATION: BEARING AREA = (TEST PRESSURE/150) X (2000/SOIL BEARING STRESS) X (TABLE VALUE).

CITY OF LINO LAKES	DUCTILE IRON PIPE REACTION BLOCKING (FOR BENDS)	MAY 2013 WAT-4

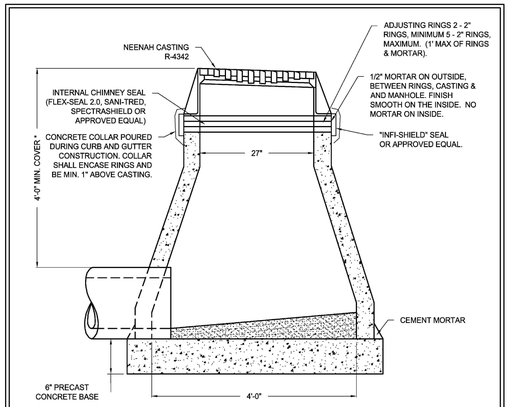


NOTES:
1. CURB BOXES INSTALLED IN AREAS WHERE BOULEVARD IS TO BE CUT AT A LATER DATE SHALL BE INSTALLED AT DEPTH REQUIRED, CURB BOX EXTENSION FOR BOXES EXCEEDING 7.5' IN LENGTH ARE TO BE BID AT CONTRACT PRICE AND SHALL INCLUDE STACK COUPLINGS, CONNECTIONS, ETC.
2. CURB BOXES LOCATED IN DRIVEWAYS OR PARKING LOTS SHALL UTILIZE THE FORD MINNEAPOLIS PATTERN CURB BOXES A-1 OR CITY APPROVED EQUIVALENT.
3. CORP. STOPS SHALL BE MUELLER H-15028N AND CURB STOPS SHALL BE MUELLER H-1504-1N OR CITY APPROVED EQUIVALENT.
4. WATER SERVICES SHALL BE TYPE K COPPER - 1" DIA. MIN.
5. MAINTAIN 18" VERTICAL & 36" HORIZONTAL SEPARATION BETWEEN SEWER & WATER SERVICES.
6. WATER SERVICE IS REQUIRED TO BE UPSTREAM OF SANITARY SEWER.
7. CURB STOPS SHALL HAVE INTERNAL OPERATING RODS TO FINISHED GRADE. OPERATING RODS NEED TO BE PINNED AND CONNECT TO THE CORP.
8. CURB STOPS LOCATED IN PAVED AREAS SHALL BE COVERED WITH METER BOX COVER (FORD A-1 OR APPROVED EQUAL).
9. A "W" SHALL BE STAMPED INTO THE CURB ABOVE THE WATER SERVICE FOR FUTURE LOCATING PURPOSES.
10. ALL FITTINGS ARE REQUIRED TO BE FLARE FITTINGS ON 1" COPPER.
11. ALL CORP STOPS ARE TO BE TAPPED IN TO THE MAIN, EXCEPT FOR EXISTING 6" DIP WHERE SADDLES WILL BE REQUIRED.

CITY OF LINO LAKES	WATER SERVICE DETAIL	JANUARY 2026 WAT-5



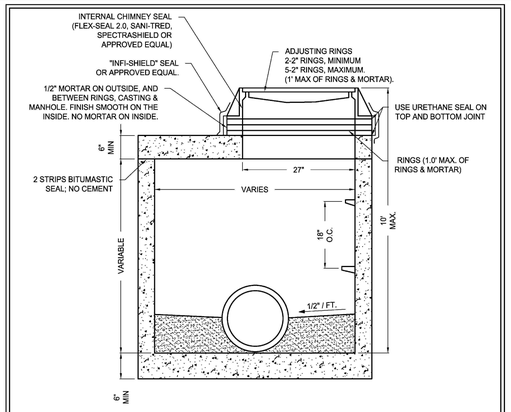
CITY OF LINO LAKES	COPPER STRAP OVER WATERMAIN FITTINGS	JANUARY 2024 WAT-7



NOTES:
1. A URETHANE OR BUTYL SEAL SHALL BE USED TO SEAL THE TOP RING TO THE CASTING AND THE BOTTOM RING TO THE CONE OR TOP SLAB.
2. NO WOOD SHALL BE USED FOR ADJUSTING CASTING; CEMENT MORTAR ONLY.
3. RINGS MAY BE CONCRETE OR PLASTIC.
4. CAST IRON CATCH BASIN FRAME & COVER CASTINGS PER SPECIFICATIONS.
5. PRECAST REINFORCED CONCRETE CONE SECTION & PRECAST BASE PER ASTM C478.
6. FILL OPENING BETWEEN PIPE AND MANHOLE WALL WITH CEMENT MORTAR INSIDE SURFACE SHALL BE FINISHED SMOOTH.

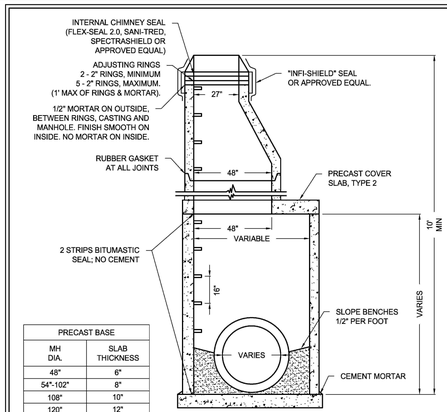
* MINIMUM PIPE COVER CAN BE REDUCED FROM 4' TO 2'-6" WITH INSTALLATION OF PERFORATED PIPE DRAIN PER "GRANULAR SUBCUT AND PERFORATED PIPE DRAIN" DETAIL.

CITY OF LINO LAKES	CATCH BASIN TYPE G	APRIL 2026 STR-1



NOTES:
1. INTERNAL CHIMNEY SEAL (FLEX-SEAL 2.0, SANI-TRED, SPECTRASHIELD OR APPROVED EQUAL) ALL JOINTS.
2. A URETHANE OR BUTYL SEAL SHALL BE USED TO SEAL THE TOP RING TO THE CASTING AND THE BOTTOM RING TO THE CONE OR TOP SLAB.
3. NO WOOD SHALL BE USED FOR ADJUSTING CASTING; CEMENT MORTAR ONLY. ADJUSTING RINGS MAY BE CONCRETE OR PLASTIC.
4. CAST IRON MANHOLE FRAME & COVER AS PER SPECIFICATIONS.
5. MANHOLE STEPS SHALL BE CAST IRON, ALUMINUM OR STEEL REINFORCED PLASTIC, PER ASTM C478. STEP LOCATION SHALL BE AS NOTED IN THE SPECIFICATIONS.
6. PRECAST REINFORCED CONCRETE MANHOLE SECTIONS & PRECAST BASE PER ASTM C478, FURNISHED WITH O-RING GASKETS AND LUBRICANT EXCEPT AS OTHERWISE SPECIFIED.
7. PRECAST REINFORCED CONCRETE COVER SLAB (TYPE 2), PER ASTM C478. PIPE CONNECTIONS TO MANHOLE SHALL BE MADE WATER TIGHT BY CAST INPLACE RUBBER BOOT AND CEMENT MORTAR. INSIDE SURFACE SHALL BE FINISHED SMOOTH.
8. PROTECT MANHOLE FROM RAINWATER, INFILTRATION AND SEDIMENT DURING CONSTRUCTION BY GRADING, SEALING AND COVERING.

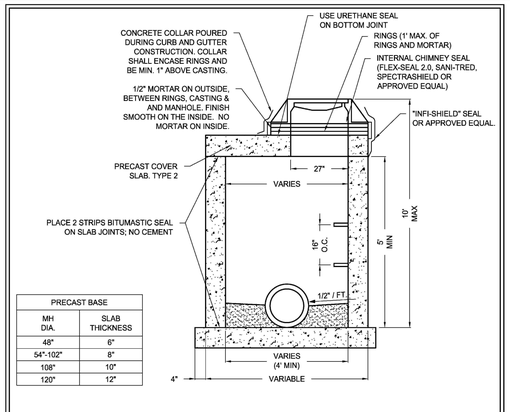
CITY OF LINO LAKES	SANITARY SEWER MANHOLE TYPE 302 (PIPES 30" AND LARGER)	APRIL 2026 SAN-2



PRECAST BASE	
MH DIA.	SLAB THICKNESS
48"	6"
54"-102"	8"
108"	10"
120"	12"

NOTES:
1. INTERNAL CHIMNEY SEAL (FLEX-SEAL 2.0, SANI-TRED, SPECTRASHIELD OR APPROVED EQUAL) ALL JOINTS.
2. A URETHANE OR BUTYL SEAL SHALL BE USED TO SEAL THE TOP RING TO THE CASTING AND THE BOTTOM RING TO THE CONE OR TOP SLAB.
3. NO WOOD SHALL BE USED FOR ADJUSTING CASTING; CEMENT MORTAR ONLY. ADJUSTING RINGS MAY BE CONCRETE OR PLASTIC.
4. CAST IRON MANHOLE FRAME & COVER AS PER SPECIFICATIONS.
5. MANHOLE STEPS SHALL BE CAST IRON, ALUMINUM OR STEEL REINFORCED PLASTIC PER ASTM C478. STEP LOCATION SHALL BE AS NOTED IN THE SPECIFICATIONS.
6. PRECAST REINFORCED CONCRETE MANHOLE SECTIONS PER ASTM C478, FURNISHED WITH O-RING GASKETS AND LUBRICANT EXCEPT AS OTHERWISE SPECIFIED. A 12" OR 18" BARREL SECTION SHALL BE INSTALLED UNDER THE CONE WHENEVER POSSIBLE.
7. PIPE CONNECTIONS TO MANHOLE SHALL BE MADE WATER TIGHT BY CAST INPLACE RUBBER BOOT AND CEMENT MORTAR. INSIDE SURFACE SHALL BE FINISHED SMOOTH.
8. PROTECT MANHOLE FROM RAINWATER, INFILTRATION AND SEDIMENT DURING CONSTRUCTION BY GRADING, SEALING AND COVERING.

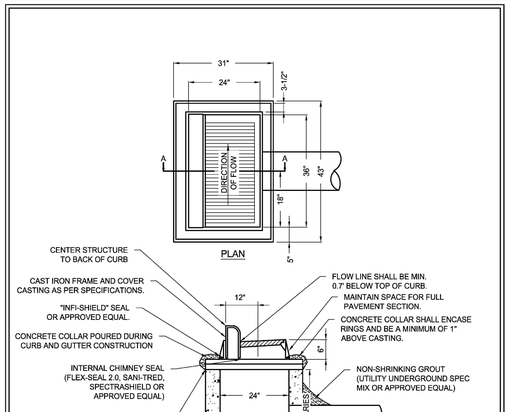
CITY OF LINO LAKES	SANITARY SEWER MANHOLE TYPE 303	APRIL 2026 SAN-3



PRECAST BASE	
MH DIA.	SLAB THICKNESS
48"	6"
54"-102"	8"
108"	10"
120"	12"

NOTES:
1. A URETHANE OR BUTYL SEAL SHALL BE USED TO SEAL THE TOP RING TO THE CASTING AND THE BOTTOM RING TO THE CONE OR TOP SLAB.
2. NO WOOD SHALL BE USED FOR ADJUSTING CASTING; CEMENT MORTAR ONLY.
3. ADJUSTING RINGS MAY BE CONCRETE OR PLASTIC.
4. CAST IRON MANHOLE FRAME & COVER AS PER SPECIFICATIONS.
5. MANHOLE STEPS SHALL BE CAST IRON, ALUMINUM OR STEEL REINFORCED PLASTIC PER ASTM C478. LOCATION SHALL BE AS NOTED IN THE SPECIFICATIONS.
6. PRECAST REINFORCED CONCRETE MANHOLE SECTIONS & BASE SLAB PER ASTM C478.
7. FURNISH PRECAST MANHOLE SECTIONS WITH O-RING GASKETS & LUBRICANT EXCEPT AS OTHERWISE SPECIFIED.
8. A 12" OR 18" BARREL SECTION SHALL BE INSTALLED UNDER THE CONE WHENEVER POSSIBLE.
9. FILL OPENING BETWEEN PIPE & MH WALL WITH CEMENT MORTAR. INSIDE SURFACE SHALL BE FINISHED SMOOTH.

CITY OF LINO LAKES	STORM MANHOLE TYPE 4020	APRIL 2026 STR-5



NOTES:
1. REINFORCING TO CONSIST OF #4 BARS @ 8" O.C., 4' MINIMUM LENGTH, EACH SIDE OF CASTING.
2. GROUT BOTTOM TO DRAIN TO CENTER.
3. PIPE CUT-OUTS TO BE LOCATED WHERE REQUIRED.
4. ADJUSTING RINGS SHALL HAVE MORTAR JOINTS - PLASTER OUTSIDE, STRIKE CLEAN INSIDE.
5. CATCH BASINS THAT HOLD WATER AFTER CONSTRUCTION SHALL HAVE "FLEX SEAL" APPLIED TO ENTIRE INTERIOR OF STRUCTURE.
6. INLET PROTECTION TO BE INSTALLED IN CATCH BASIN AND MAINTAINED AS DIRECTED BY THE ENGINEER

CITY OF LINO LAKES	2 X 3 CATCH BASIN	APRIL 2026 STR-6

CARLSON ENGINEERING
ENGINEERING SURVEYING PLANNING
3890 PHEASANT RIDGE DR NE
SUITE 100
BLAINE, MN 55449
TEL 763.489.7900
FAX 763.489.7959
CARLSON-ENGINEERING.COM

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: Brian J. Krystofiak, P.E.
Signature:
Date: 06/24/26 License #: 25063

Drawn: NJP
Designed: BJK
Date: 06/24/26

Revisions:
1. 8/26/26 Per City Comments

TCLD LAND HOLDINGS, LLC
4800 Olson Memorial Hwy - #100
Golden Valley, MN 55422

HARVEST GRANGE

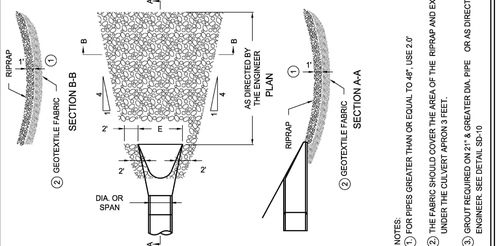
HARVEST GRANGE
Lino Lakes, MN

DETAILS

16 of 20

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#11343



NOTES:
1. FOR PIPES GREATER THAN OR EQUAL TO 48", USE 2.0'
2. THE FABRIC SHOULD COVER THE AREA OF THE RIPRAP AND EXTEND UNDER THE CULVERT APRON 3 FEET.
3. GROUT REQUIRED ON 21" & GREATER DIA. PIPE OR AS DIRECTED BY ENGINEER. SEE DETAIL SD-10

RCP AT OUTLETS

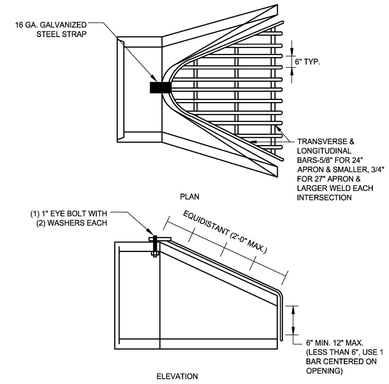
TABLE OF QUANTITIES

	RIPRAP AT RCP OUTLETS									
	CLASS III D_{50} = 15"		CLASS IV D_{50} = 18"		CLASS V D_{50} = 24"					
SPAN ROUND PIPE	15" DEPTH RIPRAP (CY/LF)	7.5" DEPTH GRANULAR FILTER (CY/LF)	18" DEPTH RIPRAP (CY/LF)	9" DEPTH GRANULAR FILTER (CY/LF)	24" DEPTH RIPRAP (CY/LF)	9" DEPTH GRANULAR FILTER (CY/LF)	12" DEPTH RIPRAP (CY/LF)	12" DEPTH GRANULAR FILTER (CY/LF)		
12	2.1	1.1	3.6	1.8	4.4	2.2	5.8	2.9		
15	2.9	1.4	4.8	2.4	5.8	2.9	7.6	3.8		
18	3.8	1.8	6.2	3.1	7.4	3.7	9.6	4.8		
24	5.6	2.8	9.0	4.5	10.6	5.3	13.6	6.8		
30	7.7	3.8	12.2	6.1	14.2	7.1	17.9	8.9		
36	9.9	4.9	15.5	7.7	17.9	8.9	22.3	11.2		
42	12.3	6.1	19.1	9.5	21.8	10.9	27.1	13.5		
48	14.8	7.4	22.9	11.5	26.0	13.0	32.2	16.1		
54	17.5	8.8	27.0	13.5	30.4	15.2	37.6	18.8		
60	20.3	10.2	31.3	15.6	35.1	17.5	43.3	21.6		
66	23.3	11.6	35.8	17.9	40.0	20.0	49.3	24.6		
72	26.4	13.1	40.5	20.2	45.2	22.6	55.6	27.8		
84	33.0	16.5	50.5	25.3	56.3	28.1	69.2	34.6		
96	40.5	20.2	61.7	30.9	68.7	34.4	84.3	42.2		

	RIPRAP AT RCP-A OR BOXES OF EQUIVALENT SPAN WIDTH									
	CLASS III D_{50} = 15"		CLASS IV D_{50} = 15"		CLASS V D_{50} = 15"					
SPAN ROUND PIPE	15" DEPTH RIPRAP (CY/LF)	7.5" DEPTH GRANULAR FILTER (CY/LF)	18" DEPTH RIPRAP (CY/LF)	9" DEPTH GRANULAR FILTER (CY/LF)	24" DEPTH RIPRAP (CY/LF)	12" DEPTH GRANULAR FILTER (CY/LF)				
12	(CY/LF)	(CY/LF)	(CY/LF)	(CY/LF)	(CY/LF)	(CY/LF)				
15	2.1	1.1	3.6	1.8	4.4	2.2				
18	2.9	1.4	4.8	2.4	5.8	2.9				
24	3.8	1.8	6.2	3.1	7.4	3.7				
30	5.6	2.8	9.0	4.5	10.6	5.3				
36	7.7	3.8	12.2	6.1	14.2	7.1				
42	9.9	4.9	15.5	7.7	17.9	8.9				
48	12.3	6.1	19.1	9.5	21.8	10.9				
54	14.8	7.4	22.9	11.5	26.0	13.0				
60	17.5	8.8	27.0	13.5	30.4	15.2				
66	20.3	10.2	31.3	15.6	35.1	17.5				
72	23.3	11.6	35.8	17.9	40.0	20.0				
84	29.7	14.8	45.7	22.8	50.8	25.4				
96	36.8	18.4	56.7	28.3	62.9	31.5				
108	44.5	22.3	68.5	34.2	75.6	37.8				
120	53.0	26.5	81.1	40.5	89.3	44.6				

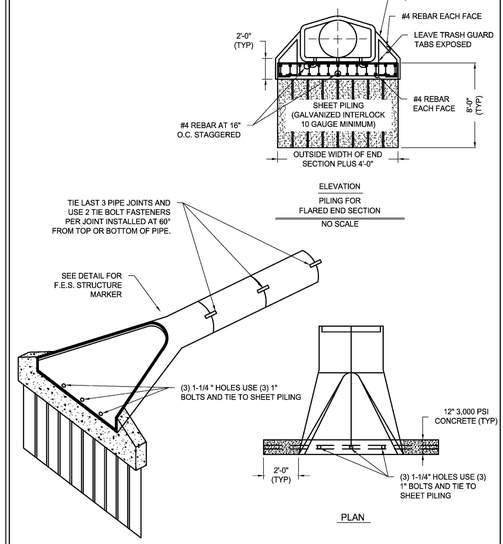
NOTE:
REQUIREMENTS FOR RIPRAP SIZE, THICKNESS, WILL BE DESIGNATED IN PLANS.

CITY OF LINO LAKES | RIPRAP AT RCP OUTLETS | MAY 2013 | STR-7



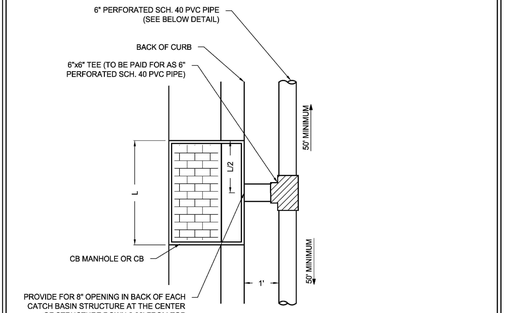
NOTES:
1. ENTIRE TRASH GUARD ASSEMBLY TO BE HOT-DIP GALVANIZED AFTER FABRICATION.
2. SIZE OF TRASH GUARD VARIABLE DEPENDENT ON SIZE OF FLARED END SECTION.
3. PLACE TRASH GUARDS ON APRONS 18" AND LARGER, MUST BE APPROVED BY THE ENGINEER PRIOR TO INSTALLATION.

CITY OF LINO LAKES | TRASH GUARDS | MAY 2013 | STR-8

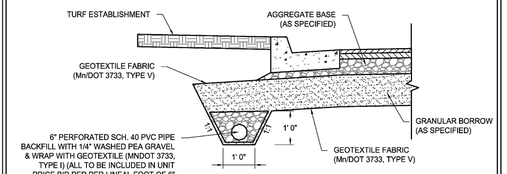


NOTES:
1. THIS DRAWING IS TYPICAL FOR ALL FLARED END SECTIONS 24" IN DIAMETER OR LARGER
2. ALL TRASH GUARDS WILL BE GALVANIZED.
3. TIE LAST 3 JOINTS ON ALL APRONS.
4. TRASH GUARDS TO BE INSTALLED ONLY AS DIRECTED BY THE ENGINEER.
5. MARKING POST SHALL BE SUPPLIED AND INSTALLED BY THE CONTRACTOR (INCIDENTAL).

CITY OF LINO LAKES | FES PILING | FEBRUARY 2020 | STR-9

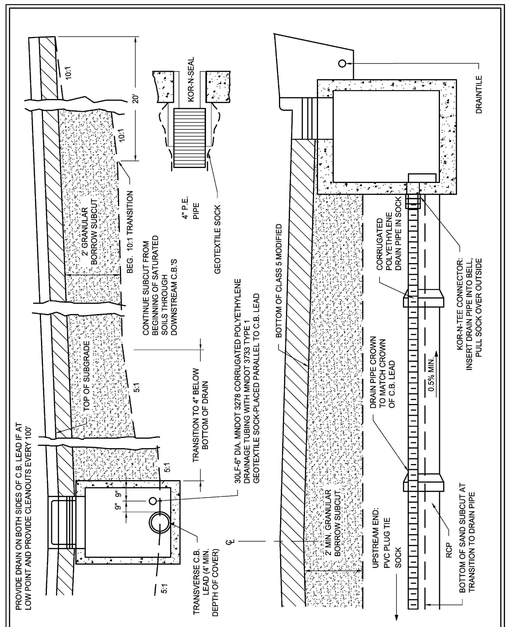


PVC PIPE DRAIN CONNECTION TO MANHOLE OR CB
NO SCALE

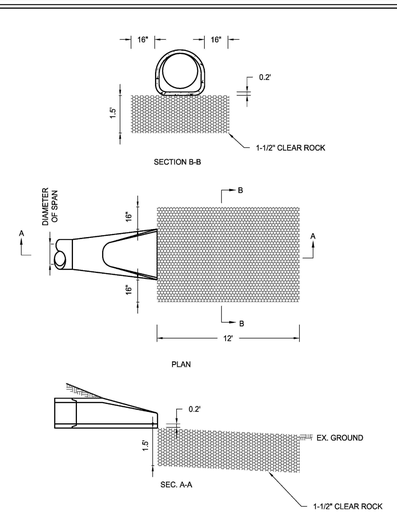


6" PERFORATED PVC PIPE DRAIN DETAIL
NO SCALE

CITY OF LINO LAKES | LOW POINT PERFORATED PIPE DRAIN | JANUARY 2024 | STR-10A

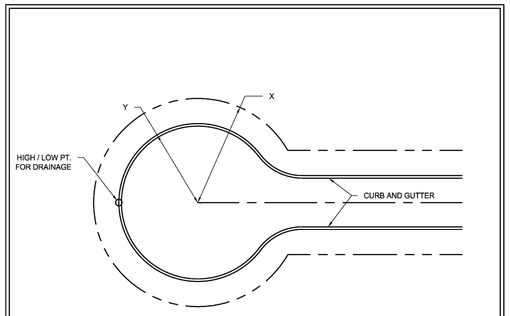


CITY OF LINO LAKES | PERFORATED PIPE DRAIN WHEN SPECIFIED WITH PIPE | JANUARY 2024 | STR-10B



NOTES:
1. ALL TREES AND BRUSH SHALL BE REMOVED FROM THE AREA OF THE OUTFALL AS DESCRIBED ABOVE AND FROM AROUND COLLAR AREA OF F.E.S.
2. IF PIPE HAS TRASH GAURD IT SHALL BE REMOVED AND CLEANED OUT BY HAND TO FIRST PIPE JOINT.
3. EXISTING RIP RAP MAY BE DEPOSITED AROUND COLLAR AREA OF PIPE.
4. AN AREA 12' LONG BY TWICE THE WIDTH OF THE PIPE SHALL BE EXCAVATED TO 18" IN DEPTH AS SHOWN ABOVE. THIS AREA SHALL BE FILLED WITH 1-1/2" CLEAR ROCK. THE TOP OF THE ROCK SHALL BE 0.2' BELOW THE INVERT OF THE PIPE. EXCAVATED MATERIAL SHALL BE REMOVED FROM THE SITE.
5. RESTORATION OF DISTURBED AREA SHALL INCLUDE BUT NOT BE LIMITED TO BLACK DIRT AND SEED OR SOD TO MATCH EXISTING CONDITIONS.

CITY OF LINO LAKES | CLEAN / OPEN STORM SEWER OUTFALL | MAY 2013 | STR-11

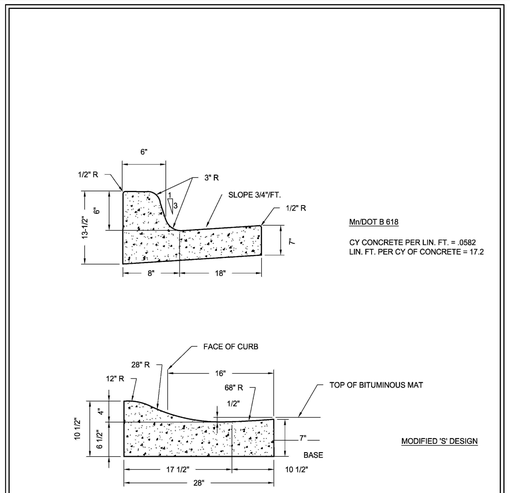


STANDARD CUL-DE-SAC

	X	Y*
COM./IND.	60' RAD.	AS DIRECTED BY THE ENGINEER
URBAN	60' RAD.	45' RAD.
RURAL	60' RAD.	46' RAD.

*NOTE:
1. ALL DISTANCE FOR STREET WIDTHS ARE MEASURED TO BACK OF CURB.

CITY OF LINO LAKES | STANDARD CUL-DE-SAC | JANUARY 2022 | GEN-3



NOTES:
1. MINIMUM OF 3" AGGREGATE BASE, CL 5 UNDER ALL CURB AND GUTTER.
2. STAMP W FOR WATER SERVICE AND S FOR SANITARY SERVICE.

CITY OF LINO LAKES | CONCRETE CURB AND GUTER | JANUARY 2024 | GEN-4

CARLSON ENGINEERING
ENGINEERING SURVEYING PLANNING
3890 PHEASANT RIDGE DR NE
SUITE 100
BLAINE, MN 55449
TEL 763.489.7900
FAX 763.489.7959
CARLSON-ENGINEERING.COM

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: Brian J. Krystofiak, P.E.
Signature:
Date: 06/24/26 License #: 25063

Drawn: NJP
Designed: BJK
Date: 06/24/26

Revisions:
1. 8/26/26 Per City Comments

TCLD LAND HOLDINGS, LLC
4800 Olson Memorial Hwy - #100
Golden Valley, MN 55422

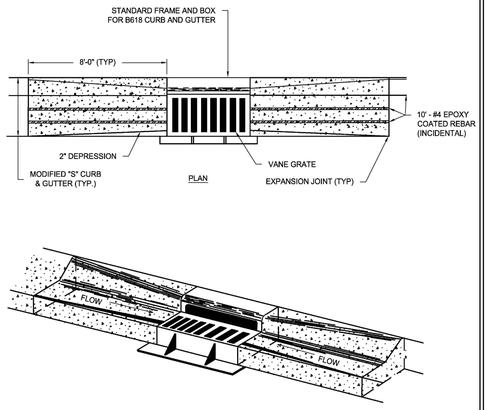
HARVEST GRANGE

HARVEST GRANGE
Lino Lakes, MN

DETAILS

Save Date: 09/30/26 | F:\jobs\11341 - 11350\11343 - rehbein nelson parcels\cad c3d\engineering\final plans\11343_details.dwg

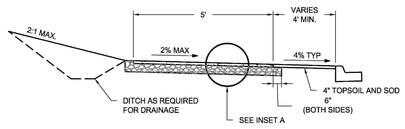
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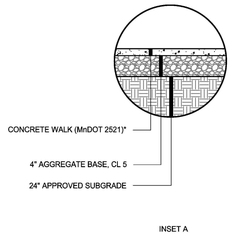


CATCH BASIN INSTALLATION

APRIL 2026

GEN-8





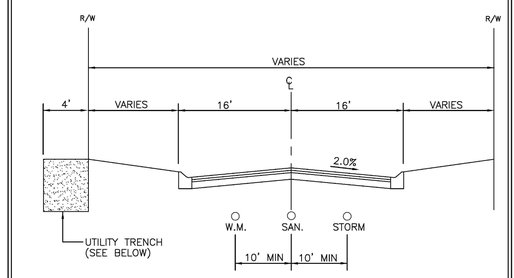
INSET A

*MINIMUM CONCRETE WALK THICKNESS IS 4", CONCRETE WALK SHALL BE A MINIMUM OF 6" THICK ACROSS ALL DRIVEWAYS, IN AREAS WITH REGULARLY SPACED DRIVEWAYS, OR AS DIRECTED BY THE CITY ENGINEER.

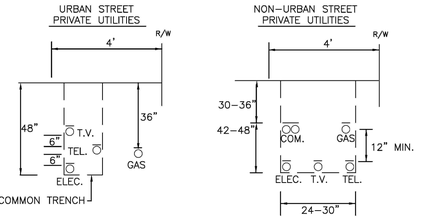
CONCRETE WALK

JANUARY 2024

GEN-10



NOTE: MINIMUM R/W CROSSING DEPTH 30".

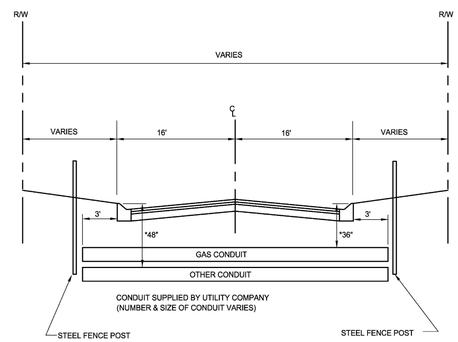


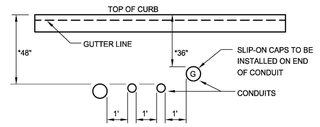
○ = WARNING TAPE OVER UTILITY

UTILITY LOCATION

JANUARY, 2024

GEN-11



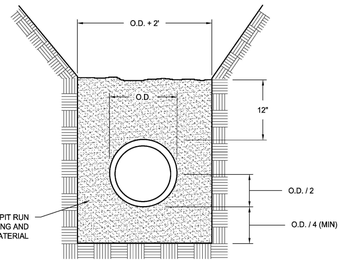


NOTES: CONDUIT SUPPLIED BY UTILITY COMPANY
(NUMBER & SIZE OF CONDUIT VARIES)
BURY DEPTH SHALL BE 4" BELOW PAVEMENT SECTION

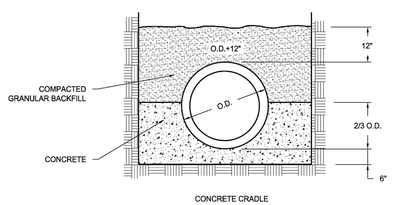
CONDUIT CROSSING

FEBRUARY 2021

GEN-12



GRANULAR MATERIAL ENCASEMENT

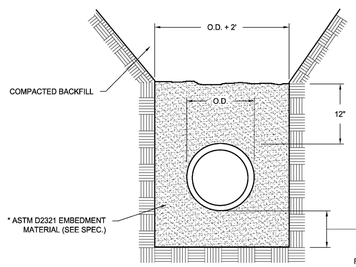


CONCRETE CRADLE

PIPE BEDDING DETAILS

APRIL 2026

GEN-13



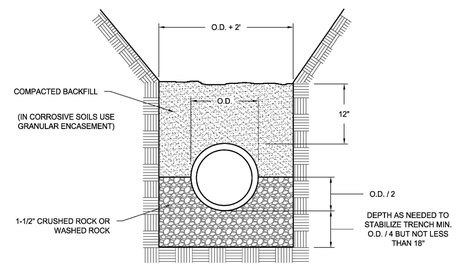
PIPE INSTALLATION IN ACCORDANCE WITH ASTM D2321, TABLE 2.

* EMBEDMENT MATERIAL SHALL CONFORM TO ASTM D2321, TABLE 1.

GRANULAR MATERIAL BEDDING METHOD (FOR PVC PIPE)

JANUARY 2024

GEN-14



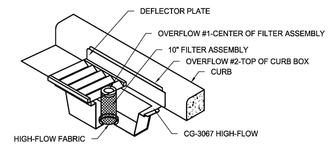
NOTE:
STABILIZATION OR DEWATERING OF TRENCH IS INCIDENTAL TO THE PIPE INSTALLATION UNLESS A SPECIFIC BID ITEM IS PROVIDED.

SPECIAL FOUNDATION FOR STABILIZING OR DEWATERING OF TRENCH

FEBRUARY 2020

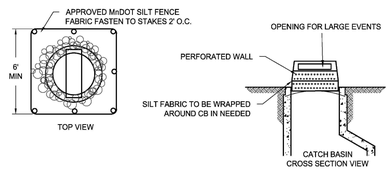
GEN-15

NO SCALE



WIMCO MODEL # CG-3067 HIGH-FLOW
INLET PROTECTION OR APPROVED EQUAL

CURB AND GUTTER INLET PROTECTION



INFRASAFE SEDIMENT CONTROL BARRIER ROYAL ENVIRONMENTAL SERVICES OR AN ENGINEER APPROVED EQUAL

REAR YARD INLET PROTECTION

INLET PROTECTION

MAY 2013

GEN-19

CARLSON ENGINEERING
ENGINEERING
SURVEYING
PLANNING

3890 PHEASANT RIDGE DR NE
SUITE 100
BLAINE, MN 55449
TEL 763.489.7900
FAX 763.489.7959
CARLSON-ENGINEERING.COM

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: Brian J. Krystofiak, P.E.
Signature:
Date: 06/24/26 License #: 25063

Drawn: NJP
Designed: BJK
Date: 06/24/26

Revisions:
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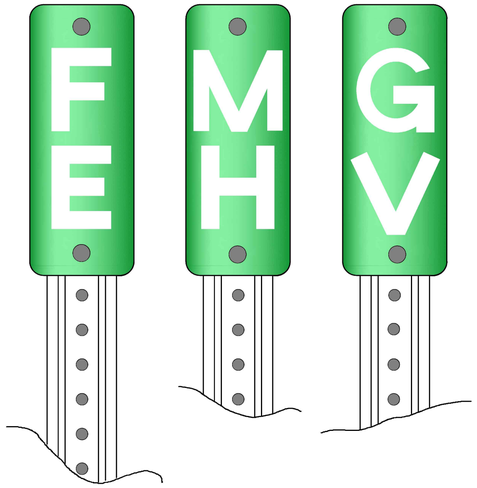
HARVEST GRANGE

HARVEST GRANGE
Lino Lakes, MN

DETAILS

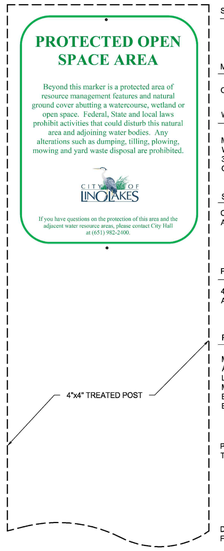
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#11343



NOTES:
1. STRUCTURE MARKER SIGNS SHALL BE FURNISHED AND INSTALLED FOR ALL STRUCTURES LOCATED OUTSIDE OF THE STREET RIGHT OF WAY AND SHALL BE CONSIDERED INCIDENTAL.
2. 0.063" THICK ALUMINUM SIGN. WHITE LETTERS ON GREEN HIGH INTENSITY REFLECTORIZED BACKGROUND.
3. U-CHANNEL POST, MINIMUM 1.2LB./FT. 6'- 6" LONG, PAINTED GREEN.

CITY OF LINO LAKES	STREET MARKING SIGNS	MAY 2013 GEN-21



SPECIFICATIONS:

MONUMENT

CONSISTS OF A POST AND A PROTECTED OPEN SPACE SIGN

WETLAND BUFFER SIGNS

MOUNTED FLUSH WITH THE TOP OF THE POST FASTENED WITH NON-REMOVABLE SCREWS OR RIVETS SIZE: 5.5" H x 3.75" W ALUMINUM SHALL BE 5052-H38 OR 6061-T6 ALLOY. GAUGE SHALL BE 0.080

SIGN COLOR

COLOR SHALL BE GREEN AND BLUE LETTERS ON A WHITE BACKGROUND.

POST MATERIALS

4" X 4" SQUARE TREATED WOOD OR OTHER CITY APPROVED MATERIAL

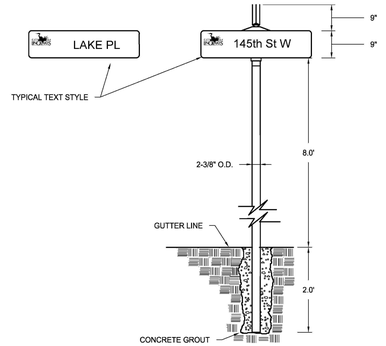
POST INSTALLATION

MOUNTED TO A HEIGHT OF FOUR FEET ABOVE GRADE SET AT LEAST 42 INCHES IN THE GROUND INSTALLED AT EACH LOT LINE WHERE IT CROSSES A WETLAND BUFFER WITH A MAXIMUM SPACING OF 300 FEET BETWEEN SIGNS (IF NO BUFFER IS REQUIRED THE MONUMENT SHALL BE AT THE EDGE OF THE WETLAND).

PLACE ADDITIONAL POSTS AS NECESSARY TO FOLLOW BUFFER CONTOUR LINE

DIGITAL COPY OF SIGN AVAILABLE FROM ENGINEERING DEPARTMENT

CITY OF LINO LAKES	WETLAND BUFFER SIGN	JANUARY 2019 GEN-22



STREET SIGN SPECIFICATIONS

MATERIAL:
ALUMINUM BLANKS SHALL BE CONSTRUCTED OF 5052-H38 ALLOY, HAVE A GAUGE OF .080, BE NOTCHED FOR USE WITH E-450 BRACKETS, HAVE HOLES PUNCHED AT EACH END FOR BOLTING TOGETHER AND BE 9" AS REQUIRED. BLANKS SHALL HAVE 1 1/2" ROUND CORNERS.

PLATES SHALL BE COVERED WITH ENGINEERING GRADE REFLECTIVE SHEETING, WHITE ON GREEN. (PRIVATE STREETS SHALL BE WHITE ON BROWN) LETTERING SHALL BE SERIES C, 6" U.C. AND 4.5" L.C.

E-450 BRACKETS ARE TO BE ALUMINUM DESIGNED FOR USING 9" PLATES AS REQUIRED.

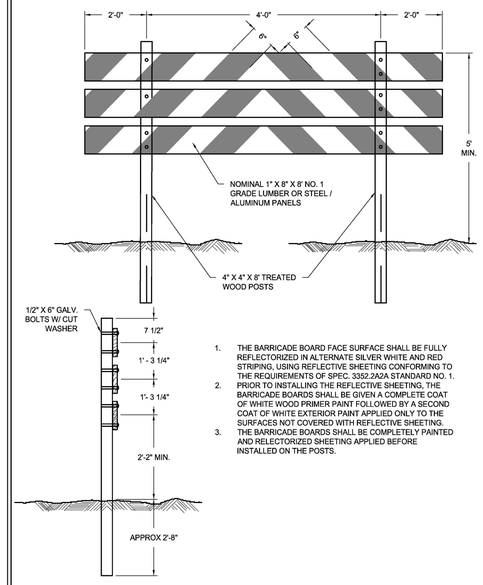
TUBULAR POSTS SPECIFICATIONS

TUBULAR POSTS USED FOR MOUNTING STREET NAME/TRAFFIC CONTROL SIGNS, SHALL VARY IN LENGTH, SHALL BE 2-3/8" O.D., SHALL BE GALVINIZED AND SHALL HAVE A WEIGHT OF 2LB./FT.

ABBREVIATIONS

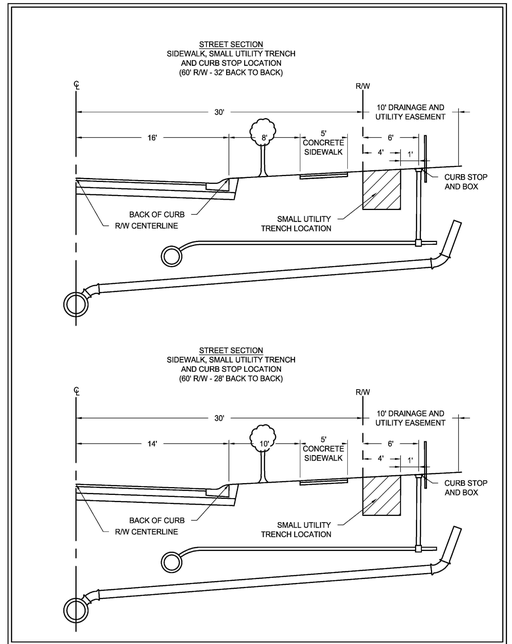
Ave FOR AVENUE
Blvd FOR BOULEVARD
Cir FOR CIRCLE
Ct FOR COURT
Dr FOR DRIVE
E FOR EAST
Pkwy FOR PARKWAY
Pl FOR PLACE
St FOR STREET
Ter FOR TERRACE
Trl FOR TRAIL
W FOR WEST

CITY OF LINO LAKES	STREET SIGN	FEBRUARY 2020 GEN-23

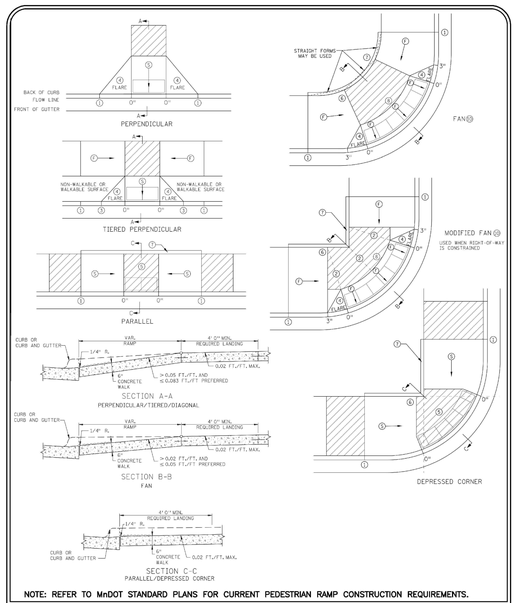


1. THE BARRICADE BOARD FACE SURFACE SHALL BE FULLY REFLECTORIZED IN ALTERNATE SILVER WHITE AND RED STRIPING, USING REFLECTIVE SHEETING CONFORMING TO THE REQUIREMENTS OF SPEC. 3352-2A2A STANDARD NO. 1.
2. PRIOR TO INSTALLING THE REFLECTIVE SHEETING, THE BARRICADE BOARDS SHALL BE GIVEN A COMPLETE COAT OF WHITE WOOD PRIMER PAINT FOLLOWED BY A SECOND COAT OF WHITE EXTERIOR PAINT APPLIED ONLY TO THE SURFACES NOT COVERED WITH REFLECTIVE SHEETING.
3. THE BARRICADE BOARDS SHALL BE COMPLETELY PAINTED AND RELECTORIZED SHEETING APPLIED BEFORE INSTALLED ON THE POSTS.

CITY OF LINO LAKES	PERMANENT BARRICADE	MAY 2013 GEN-24

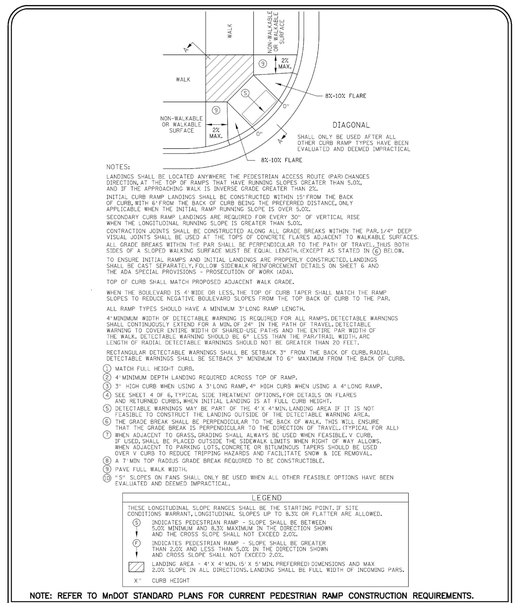


CITY OF LINO LAKES	STREET SECTION SMALL UTILITY TRENCH DETAIL	JUNE 2016 GEN-25



NOTE: REFER TO MnDOT STANDARD PLANS FOR CURRENT PEDESTRIAN RAMP CONSTRUCTION REQUIREMENTS.

CITY OF LINO LAKES	ACCESSIBLE SIDEWALK PEDESTRIAN RAMP (1 of 2)	JANUARY, 2024 GEN-26



NOTES:
LANDINGS SHALL BE LOCATED ANYWHERE THE PEDESTRIAN ACCESS ROUTE (PAR) CHANGES DIRECTION, AT THE TOP OF RAMPS THAT HAVE RUNNING SLOPES GREATER THAN 5.0%, AND IF THE APPROACHING WALK IS INVERSE GRADE GREATER THAN 2%.

INITIAL CURB RAMP LANDINGS SHALL BE CONSTRUCTED WITHIN 15' FROM THE BACK OF CURB, WITH 6' FROM THE BACK OF CURB BEING THE PREFERRED DISTANCE, ONLY APPLICABLE WHEN THE INITIAL RAMP RUNNING SLOPE IS OVER 5.0%.

SECONDARY CURB RAMP LANDINGS ARE REQUIRED FOR EVERY 30" OF VERTICAL RISE WHEN THE LONGITUDINAL RUNNING SLOPE IS GREATER THAN 5.0%.

CONTRACTION JOINTS SHALL BE CONSTRUCTED ALONG ALL GRADE BREAKS WITHIN THE PAR, 1/4" DEEP VISUAL JOINTS SHALL BE USED AT THE TOPS OF CONCRETE FLARES ADJACENT TO WALKABLE SURFACES. ALL GRADE BREAKS WITHIN THE PAR SHALL BE PERPENDICULAR TO THE PATH OF TRAVEL, THUS BOTH SIDES OF A SLOPED WALKING SURFACE MUST BE EQUAL LENGTH, (EXCEPT AS STATED IN (6) BELOW.

TO ENSURE INITIAL RAMPS AND INITIAL LANDINGS ARE PROPERLY CONSTRUCTED, LANDINGS SHALL BE CAST SEPARATELY, FOLLOW SIDEWALK REINFORCEMENT DETAILS ON SHEET 6 AND THE ADA SPECIAL PROVISIONS - PROSECUTION OF WORK (ADA).

TOP OF CURB SHALL MATCH PROPOSED ADJACENT WALK GRADE.

WHEN THE BOULEVARD IS 4'-WIDE OR LESS, THE TOP OF CURB TAPER SHALL MATCH THE RAMP SLOPES TO REDUCE NEGATIVE BOULEVARD SLOPES FROM THE TOP BACK OF CURB TO THE PAR.

ALL RAMP TYPES SHOULD HAVE A MINIMUM 3'-LONG RAMP LENGTH.

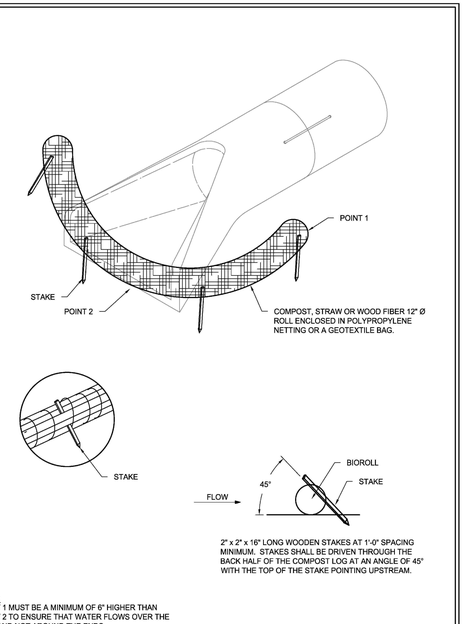
4'-MINIMUM WIDTH OF DETECTABLE WARNING IS REQUIRED FOR ALL RAMPS. DETECTABLE WARNINGS SHALL CONTINUOUSLY EXTEND FOR A MIN. OF 24" IN THE PATH OF TRAVEL. DETECTABLE WARNING TO COVER ENTIRE WIDTH OF SHARED-USE PATHS AND THE ENTIRE PAR WIDTH OF THE WALK. DETECTABLE WARNING SHOULD BE 6" LESS THAN THE PAR/TRAIL WIDTH, ARC LENGTH OF RADIAL DETECTABLE WARNINGS SHOULD NOT BE GREATER THAN 20 FEET.

RECTANGULAR DETECTABLE WARNINGS SHALL BE SETBACK 3" FROM THE BACK OF CURB. RADIAL DETECTABLE WARNINGS SHALL BE SETBACK 3" MINIMUM TO 6" MAXIMUM FROM THE BACK OF CURB.

1. MATCH FULL HEIGHT CURB.
2. 4' MINIMUM DEPTH LANDING REQUIRED ACROSS TOP OF RAMP.
3. 3" HIGH CURB WHEN USING A 3'-LONG RAMP, 6" HIGH CURB WHEN USING A 4'-LONG RAMP.
4. SEE SHEET 4 OF 6, TYPICAL SIDE TREATMENT OPTIONS, FOR DETAILS ON FLARES AND RETURNED CURBS, WHEN INITIAL LANDING IS AT FULL CURB HEIGHT.
5. DETECTABLE WARNINGS MAY BE PART OF THE 4'X 4' MIN. LANDING AREA IF IT IS NOT FEASIBLE TO CONSTRUCT THE LANDING OUTSIDE OF THE DETECTABLE WARNING AREA.
6. THE GRADE BREAK SHALL BE PERPENDICULAR TO THE BACK OF WALK. THIS WILL ENSURE THAT THE GRADE BREAK IS PERPENDICULAR TO THE DIRECTION OF TRAVEL. (TYPICAL FOR ALL)
7. WHEN ADJACENT TO GRASS, GRADING SHALL ALWAYS BE USED WHEN FEASIBLE. IF CURB, IF USED, SHALL BE PLACED OUTSIDE THE SIDEWALK LIMITS WHEN RIGHT OF WAY ALLOWS. WHEN ADJACENT TO PARKING LOTS, CONCRETE OR BITUMINOUS TAPERS SHOULD BE USED OVER V CURB TO REDUCE TRIPPING HAZARDS AND FACILITATE SNOW & ICE REMOVAL.
8. A 7' MIN. TOP RADIUS GRADE BREAK REQUIRED TO BE CONSTRUCTIBLE.
9. PAVE FULL WALK WIDTH.
10. "5% SLOPES ON FANS SHALL ONLY BE USED WHEN ALL OTHER FEASIBLE OPTIONS HAVE BEEN EVALUATED AND DEEMED IMPRACTICAL.

NOTE: REFER TO MnDOT STANDARD PLANS FOR CURRENT PEDESTRIAN RAMP CONSTRUCTION REQUIREMENTS.

CITY OF LINO LAKES	ACCESSIBLE SIDEWALK PEDESTRIAN RAMP (2 of 2)	JANUARY, 2024 GEN-26A



2" x 2" x 16" LONG WOODEN STAKES AT 1'-0" SPACING MINIMUM. STAKES SHALL BE DRIVEN THROUGH THE BACK HALF OF THE COMPOST LOG AT AN ANGLE OF 45° WITH THE TOP OF THE STAKE POINTING UPSTREAM.

NOTE:
POINT 1 MUST BE A MINIMUM OF 6" HIGHER THAN POINT 2 TO ENSURE THAT WATER FLOWS OVER THE DIKE AND NOT AROUND THE ENDS.

CITY OF LINO LAKES	PIPE CHECK BIOROLL WEIR	DECEMBER 2020 GEN-28

CARLSON ENGINEERING
ENGINEERING SURVEYING PLANNING
3890 PHEASANT RIDGE DR NE
SUITE 100
BLAINE, MN 55449
TEL 763.489.7900
FAX 763.489.7959
CARLSON-ENGINEERING.COM

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: Brian J. Krystofiak, P.E.
Signature:
Date: 06/24/26 License #: 25063

Drawn: NJP
Designed: BJK
Date: 06/24/26

Revisions:
1. 8/26/26 Per City Comments

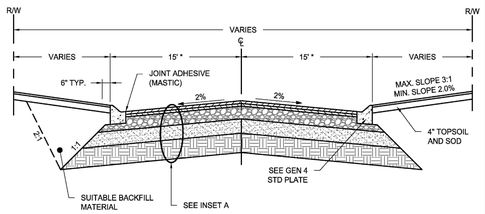
TCLD LAND HOLDINGS, LLC
4800 Olson Memorial Hwy - #100
Golden Valley, MN 55422

HARVEST GRANGE

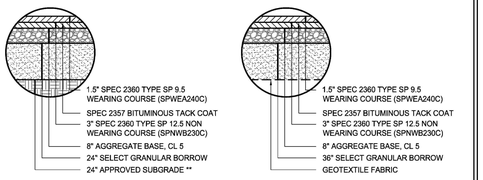
HARVEST GRANGE
Lino Lakes, MN

DETAILS

19 of 20



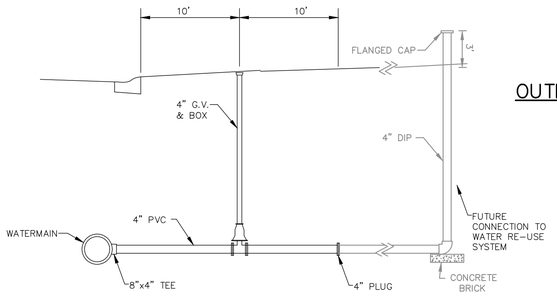
* ROAD WIDTH DIMENSION MEASURED TO BACK OF CURB



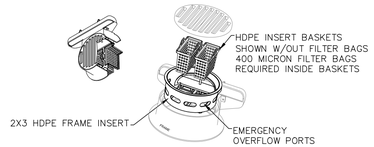
** THIS WORK SHALL INCLUDE OVER TURNING THE SOIL IN WET CONDITIONS TO DRY SUBGRADE MATERIAL AND PASSING ROLL TEST (INCIDENTAL).

CITY OF LINO LAKES	PUD TYPICAL SECTON (URBAN STREET)	APRIL 2026
		GEN-1 PUD

IRRIGATION SERVICE
(NOT TO SCALE)

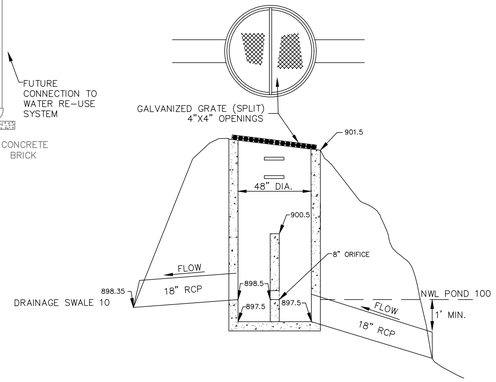


INFRASAFE – 27" DEBRIS COLLECTION DEVICE
AS MANUFACTURED BY ROYAL ENVIRONMENTAL SERVICES

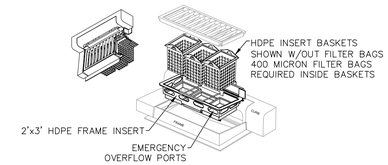


- MEETS MN/DOT SPECIFICATION 3891.F "STORM DRAIN INLET PROTECTION – FILTER BAG INSERT"
- DESIGNED FOR NEENAH R-3250-A OR R-3250-1 (MNDOT 801) FRAME CASTING

OUTLET CONTROL STRUCTURE POND 100

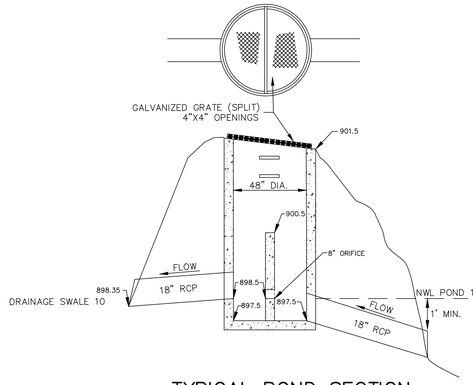


INFRASAFE – 2'x3' DEBRIS COLLECTION DEVICE
AS MANUFACTURED BY ROYAL ENVIRONMENTAL SYSTEMS

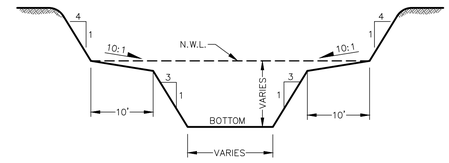


- MEETS MN/DOT SPECIFICATION 3891.F "STORM DRAIN INLET PROTECTION – FILTER BAG INSERT"
- DESIGNED FOR NEENAH R-3067 OR R-3290 SERIES

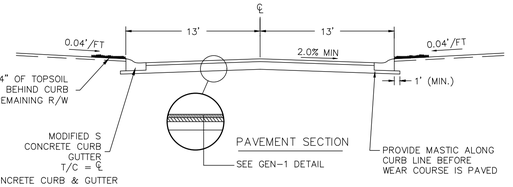
OUTLET CONTROL STRUCTURE POND 200



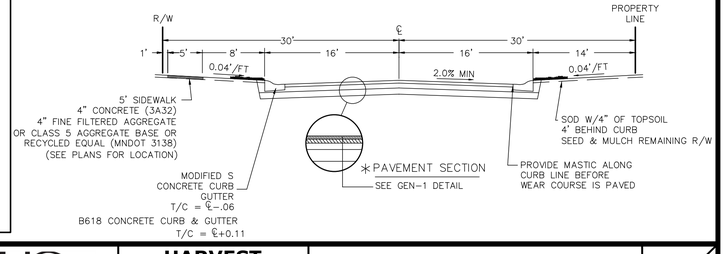
TYPICAL POND SECTION

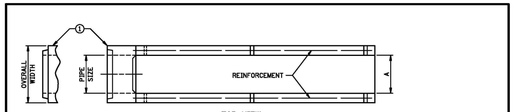


TYPICAL STREET SECTION
GOLDEN LANE, AUTUMN COURT, HARVEST WAY (PRIVATE DRIVE)

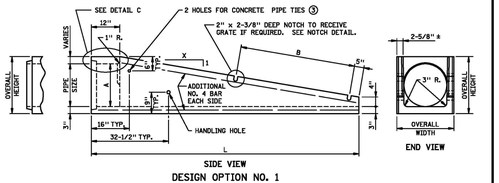


TYPICAL STREET SECTION
60' R/W – 32' B/B
HERITAGE AVENUE, BLUESTEM DRIVE





TOP VIEW



SIDE VIEW — END VIEW

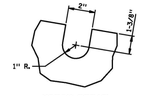
DESIGN OPTION NO. 1

1:6 SLOPES

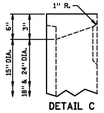
PIPE SIZE	A INSIDE	B ℄ - ℄	L	OVERALL HEIGHT	OVERALL WIDTH	WEIGHT (LBS.)
15"	15"	4'-0"	9'-4-1/2"	24"	24"	1800
18"	18"	4'-0"	9'-4-1/2"	24"	24"	1700
24"	24"	6'-0"	12'-4" ②	30"	30"	2800

1:4 SLOPES

PIPE SIZE	A INSIDE	B ℄ - ℄	L	OVERALL HEIGHT	OVERALL WIDTH	WEIGHT (LBS.)
24"	24"	4'-0"	8'-5"	30"	30"	1900



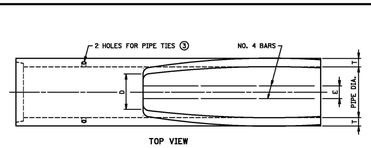
NOTCH DETAIL



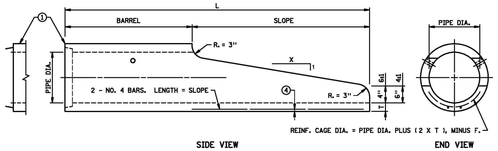
DETAIL C

NOTES:
- THE DESIGN USED IS THE CONTRACTOR'S OPTION.
- REINFORCING STEEL AND CONCRETE PER AASHTO M170.
- REINFORCEMENT SHALL CONFORM TO STANDARD REINFORCED CONCRETE PIPE CLASS II, LOCATED AT CENTER OF WALL PLUS ONE (1) NO. 4 BAR, TOP, BOTTOM AND EACH SIDE.
- JOINT IN END SECTION PER STANDARD PLATE 3000.
- TOP EXPOSED CONCRETE CORNERS SHALL HAVE 3/4" CHAMFER.
- TIE BOLTS AS REQUIRED.
- ① SEE PLANS FOR TYPE OF END REQUIRED.
- ② TWO PIECE CONSTRUCTION PERMISSIBLE.
- ③ SEE STANDARD PLATE 3145 FOR DETAILS.

APPROVED SEPT. 19, 2000 — Dallas W. Braden, STATE DESIGN ENGINEER	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION — PRECAST CONCRETE SAFETY APRON (DESIGN OPTION NO. 1)	SPECIFICATION REFERENCE 2501 REVISED 3-22-2013 M.J.E.	STANDARD PLATE NO. 3022C 1 OF 3



TOP VIEW



SIDE VIEW — END VIEW

DESIGN OPTION NO. 2

1:6 SLOPES

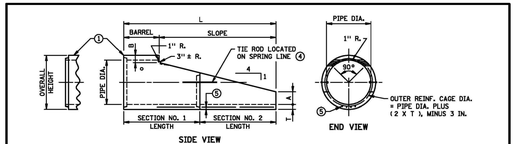
DIAMETER (IN.)	T (IN.)	L (IN.)	SLOPE (IN.)	BARREL (IN.)	D (IN.)	E (IN.)	F (IN.)	WEIGHT (LBS.)
12	2	72	42	30	6	3	2-1/4	415
15	2-1/4	84	60	24	8	4	2-1/4	595
18	2-1/2	96	81	15	10	5	2-1/2	850
24	3	144 ②	120	24	11	6	2-1/2	NO.1 1280 NO.2 720

1:4 SLOPES

DIAMETER (IN.)	T (IN.)	L (IN.)	SLOPE (IN.)	BARREL (IN.)	D (IN.)	E (IN.)	F (IN.)	WEIGHT (LBS.)
18	2-1/2	72	46	26	10	5	2-1/2	750
24	3	96	72	24	11	6	2-1/2	1450

NOTES:
- THE DESIGN USED IS THE CONTRACTOR'S OPTION.
- REINFORCEMENT AND CONCRETE SHALL CONFORM TO STANDARD REINFORCED CONCRETE PIPE CLASS II, EXCEPT AS NOTED.
- JOINT IN END SECTION PER STANDARD PLATE 3000, OR APPROVED EQUAL.
- ① GROOVE END ON OUTLET END SECTION. TONGUE END ON INLET END SECTION.
- ② TWO 6 FOOT SECTIONS.
- ③ SEE STANDARD PLATE 3145 FOR DETAILS.
- ④ 5/8" CLEAR TO 15" DIA., 3/4" CLEAR OVER 15" DIA.

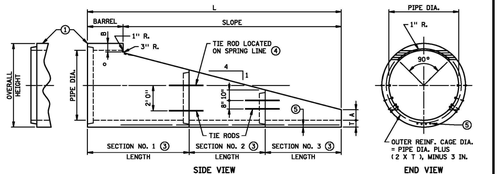
APPROVED SEPT. 19, 2000 — Dallas W. Braden, STATE DESIGN ENGINEER	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION — PRECAST CONCRETE SAFETY APRON (DESIGN OPTION NO. 2)	SPECIFICATION REFERENCE 2501 REVISED 3-22-2013 M.J.E.	STANDARD PLATE NO. 3022C 2 OF 3



SIDE VIEW — END VIEW

PIPE DIA.	OVERALL HEIGHT	T	A	B	SLOPE	BARREL	L	SECT. 1 LENGTH	SECT. 2 LENGTH	NO. OF BARS ⑤	BAR SPACING ⑤	APPROXIMATE WEIGHT LBS.
②⑥ 30"	37"	3-1/2"	7-1/2"	5-7/8"	7'-6"	1'-0"	8'-6"	8'-6"	NONE	3	4"	2075
②⑥ 30"	37"	3-1/2"	9-5/8"	5-7/8"	6'-0"	2'-0"	8'-0"	8'-0"	NONE	3	4"	2170
② 36"	44"	4"	12"	6-1/4"	7'-3"	1'-3"	8'-5"	8'-6"	NONE	3	4"	2950
42"	51"	4-1/2"	12"	6-7/8"	9'-2-1/2"	2'-9-1/2"	12'-0"	6'-0"	6'-0"	3	4"	NO.1-3800 NO.2-2100
48"	58"	5"	12"	7-5/8"	11'-2-1/2"	2'-9-1/2"	14'-0"	8'-0"	6'-0"	4	4"	NO.1-6080 NO.2-2330
54"	65"	5-1/2"	12"	7-7/8"	13'-2-1/2"	2'-9-1/2"	16'-0"	8'-0"	8'-0"	4	4"	NO.1-7680 NO.2-4580

SLOPED END SECTION 30" - 54" DIA. PIPE



SIDE VIEW — END VIEW

PIPE DIA.	OVERALL HEIGHT	T	A	B	SLOPE	BARREL	L	SECT. 1 LENGTH	SECT. 2 LENGTH	SECT. 3 LENGTH	NO. OF BARS ⑤	BAR SPACING ⑤	APPROXIMATE WEIGHT LBS.
60"	72"	6"	12"	6-3/8"	15'-2-1/2"	2'-9-1/2"	18'-0"	6'-0"	6'-0"	6'-0"	4	4"	NO.1-7400 NO.2-5170 NO.3-2800
72"	86"	7"	12"	9-3/8"	19'-2-1/2"	2'-9-1/2"	22'-0"	8'-0"	8'-0"	6'-0"	4	4"	NO.1-12130 NO.2-8000 NO.3-4050

THREE PIECE SLOPED END SECTION 60" & 72" DIA. PIPE

NOTES:
- REINFORCING STEEL AND CONCRETE PER AASHTO M170.
- REINFORCEMENT SHALL CONFORM TO STANDARD REINFORCED CONCRETE PIPE CLASS II.
- JOINTS IN END SECTION PER STANDARD PLATE 3000, OR APPROVED EQUAL.
- JOINTS SHALL BE SEALED PER SPEC. 2503.3C.
- INNER CAGE NOT REQUIRED IN SLOPE AREA.
- ① SEE PLANS FOR TYPE OF END REQUIRED.
- ② NO TIE RODS OR ADDITIONAL JOINTS REQUIRED.
- ③ SECTION LENGTHS MAY VARY, TOTAL LENGTH TO EQUAL L.
- ④ SEE STANDARD PLATE 3145 FOR DETAILS.
- ⑤ NO. 4 BARS, MIN. LENGTH = SLOPE. 1" CLEAR ALL SIZES.
- ⑥ DESIGN USED IS CONTRACTOR'S OPTION.

APPROVED SEPT. 19, 2000 — Dallas W. Braden, STATE DESIGN ENGINEER	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION — PRECAST CONCRETE SAFETY APRON (1:4 SLOPE)	SPECIFICATION REFERENCE 2501 REVISED 3-22-2013 M.J.E.	STANDARD PLATE NO. 3022C 3 OF 3

CARLSON ENGINEERING — ENGINEERING SURVEYING PLANNING
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CARLSON-ENGINEERING.COM

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: Brian J. Krystofiak, P.E.
Signature: Brian J. Krystofiak
Date: 06/24/26 License #: 25063

Drawn: NJP
Designed: BJK
Date: 06/24/26

Revisions:
1. 8/26/26 Per City Comments
2. 9/30/26 Rev. Irrigation service detail

TCLD LAND HOLDINGS, LLC
4800 Olson Memorial Hwy - #100
Golden Valley, MN 55422

HARVEST GRANGE

HARVEST GRANGE
Lino Lakes, MN

DETAILS

20 of 20

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