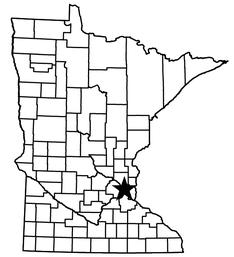
JAVA LINO LAKES 2nd ADDITION
JAVA PROPERTIES

7691 LAKE DRIVE
LINO LAKES, MN 55014



TRUE NORTH

INDEX OF SHEETS:

GENERAL NOTES:

1. TOPOGRAPHIC SURVEY, INCLUDING PROPERTY LINES, LEGAL DESCRIPTION, EXISTING UTILITIES, TOPOGRAPHY WITH SPOT ELEVATIONS AND PHYSICAL FEATURES WAS PROVIDED BY:

   DESIGN TREE ENGINEERING & LAND SURVEYING
   120 17TH AVENUE WEST
   ALEXANDRIA, MN 56308

2. CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO AVOID PROPERTY DAMAGE TO ADJACENT PROPERTIES DURING THE CONSTRUCTION OF THIS PROJECT

PROJECT CONTACTS

CIVIL ENGINEER
DESIGN TREE ENGINEERING AND
LAND SURVEYING
MICHAEL J. GERBER
120 17TH AVENUE WEST
ALEXANDRIA, MN 56308
TEL:320-227-0203
EMAIL:mjg@dte-ls.com

OWNER
JAVA COMPANIES
MARK KROGH
255 E ST
MENDOTA, MN 55150

DESIGN TREE
engineering + land surveying
Corporate Office:
120 17th Ave W Alexandria, MN 56308
888-216-1916

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.

PRINTED NAME: MICHAEL J. GERBER

DATE: 03/28/2025 LICENSE #: 56653

JAVA LINO LAKES
2ND ADDITION

LINO LAKES, MN

DRAWN BY: NPK

CHECKED BY: JEA

PROJECT NO.: 10923008

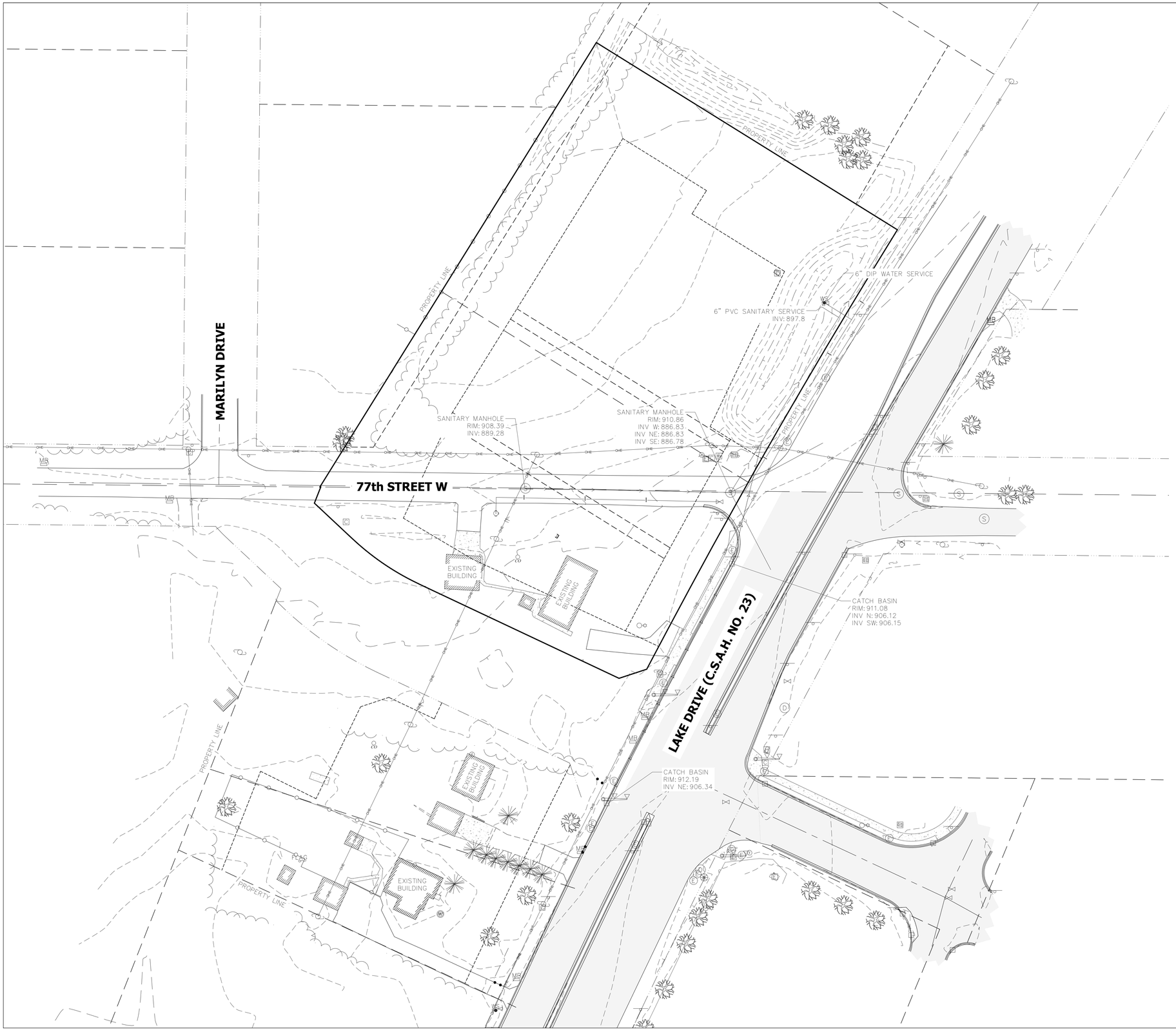
NO.	DATE	DESCRIPTION
1	06/09/2025	FINAL PLAT SUBMITTAL
2	07/15/2025	REV. FINAL PLAT SUBMITTAL
3	08/20/2025	RCWD REVISIONS

COVER SHEET

DRAWING NO.

C001

F:\DESIGN TREE ENGINEERING\PROJECTS\109 - JAVA PROPERTIES\10923008 - LINO LAKES 2.0\CONSTRUCTS\CIVIL\10923008-C-DETAILS.DWG #### 8/20/2025



NOTES:

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   DESIGN TREE ENGINEERING & LAND SURVEYING
   120 17TH AVENUE W
   ALEXANDRIA, MN 56308
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4. GOPHER STATE ONE CALL DAMAGE PREVENTION SYSTEM FOR BURIED UTILITIES. 1-800-252-1166. CONTRACTOR SHALL HIRE A PRIVATE UTILITY LOCATOR TO ASSIST WITH PRIVATE UTILITY LOCATES.

LEGEND

- HYDRANT
- SANITARY MANHOLE
- GATE VALVE
- POWER POLE
- LIGHT POLE
- CATCH BASIN
- SIGN
- DECIDUOUS TREE
- CONIFEROUS TREE
- SHRUB
- PEDESTAL
- GUY WIRE
- BOLLARD
- POWER BOX
- ELECTRIC METER
- MONITORING WELL
- SANITARY SEWER CLEANOUT
- WOOD FENCE
- CHAINLINK FENCE
- WIRE FENCE
- STORM SEWER LINE
- SANITARY SEWER LINE
- WATERMAIN
- OVERHEAD ELECTRIC
- UNDERGROUND TELEPHONE
- UNDERGROUND FIBER
- UNDERGROUND ELECTRIC
- UNDERGROUND GAS LINE
- CONCRETE PAVEMENT
- BITUMINOUS PAVEMENT
- AGGREGATE SURFACING
- LANDSCAPING
- BUILDING

DESIGN TREE
engineering + land surveying
Corporate Office:
120 17th Ave W Alexandria, MN 56308
888-216-1916

JAVA COMPANIES

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PRINTED NAME: MICHAEL J. GERBER

DATE: 03/28/2025 LICENSE #: 56653

JAVA LINO LAKES 2ND ADDITION

LINO LAKES, MN

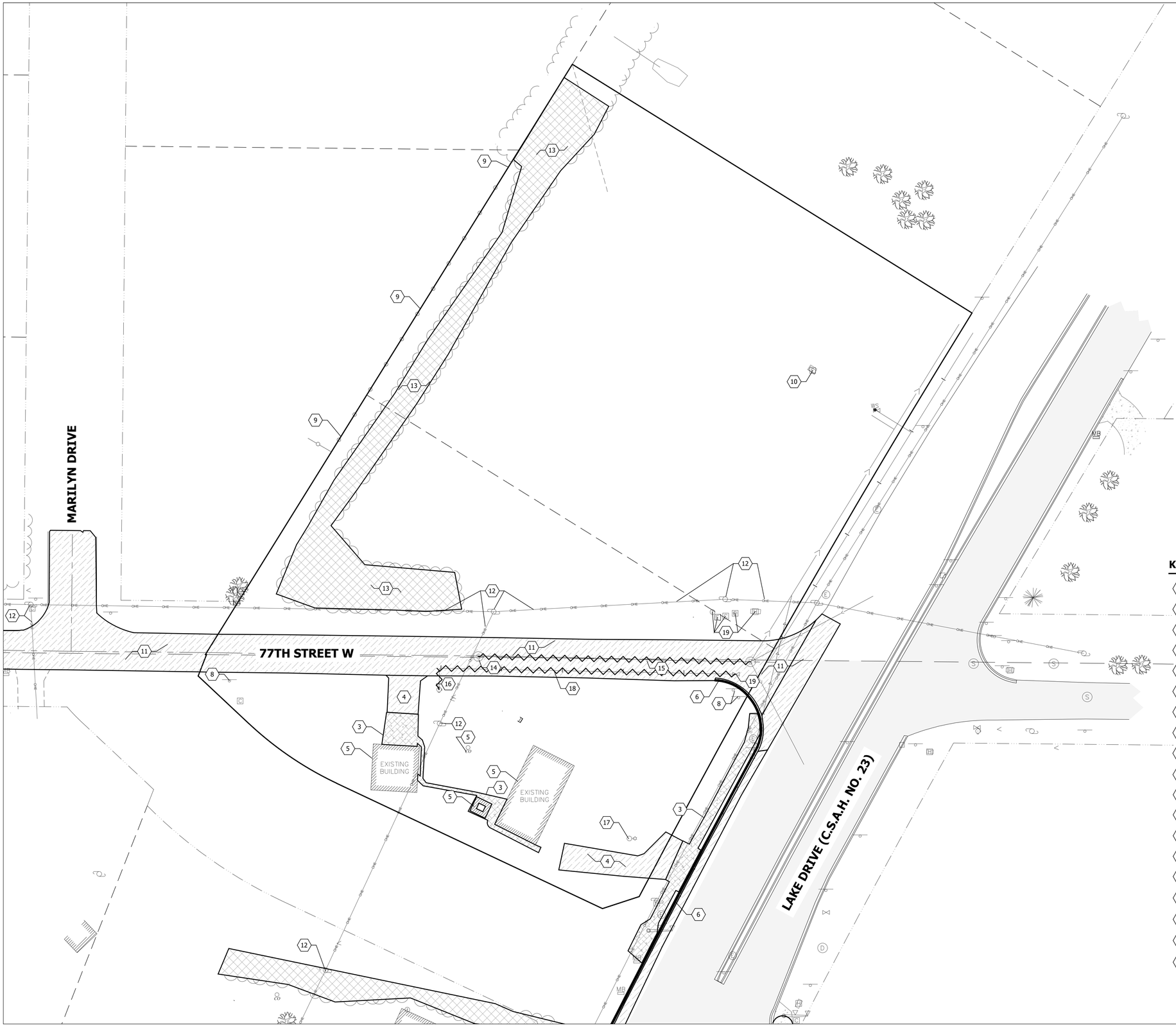
DRAWN BY:	NPK
CHECKED BY:	JEA
PROJECT NO.:	10923008

NO.	DATE	DESCRIPTION
1	06/09/2025	FINAL PLAT SUBMITTAL
2	07/15/2025	REV. FINAL PLAT SUBMITTAL
3	08/20/2025	RCWD REVISIONS

EXISTING CONDITIONS

DRAWING NO.

C101



NOTES:

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   DESIGN TREE ENGINEERING & LAND SURVEYING
   120 17TH AVENUE W
   ALEXANDRIA, MN 56308
2. CONTRACTOR SHALL FIELD VERIFY ALL BUILDING DIMENSIONS AND REMOVAL LIMITS PRIOR TO ANY CONSTRUCTION.
3. SAWCUT CURB AND GUTTER AND SIDEWALK, OR REMOVE AT NEAREST EXPANSION JOINTS.
4. SAWCUT BITUMINOUS PAVEMENT FULL DEPTH AT ALL TIE-IN LOCATIONS.
5. CONTRACTOR SHALL PLACE ALL NECESSARY EROSION CONTROL MEASURES REQUIRED TO MAINTAIN SITE STABILITY PRIOR TO EXECUTING ANY SITE REMOVALS.
6. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION WITH UTILITY PROVIDERS FOR REMOVAL AND/OR RELOCATION OF EXISTING UTILITIES AFFECTED BY SITE DEVELOPMENT. ALL PERMITS, APPLICATIONS, AND FEES ARE THE RESPONSIBILITY OF THE CONTRACTOR.
7. ALL EXCESS OR WASTE MATERIAL GENERATED AS PART OF CONSTRUCTION SHALL BE REMOVED FROM THE SITE AND DISPOSED OF IN ACCORDANCE WITH STATE AND LOCAL REQUIREMENTS.
8. CONTRACTOR SHALL MAINTAIN FULL ACCESS TO ADJACENT PROPERTIES DURING CONSTRUCTION AND TAKE ALL PRECAUTIONS NECESSARY TO AVOID PROPERTY DAMAGE TO ADJACENT PROPERTIES.
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10. GOPHER STATE ONE CALL DAMAGE PREVENTION SYSTEM FOR BURIED UTILITIES. 1-800-252-1166. CONTRACTOR SHALL HIRE A PRIVATE UTILITY LOCATOR TO ASSIST WITH PRIVATE UTILITY LOCATES.
11. CITY SHALL RELOCATE EXISTING UTILITIES. CONTRACTOR SHALL COORDINATE WITH CITY & LOCAL UTILITY COMPANIES.
12. REMOVE/ABANDON/SEAL ALL EXISTING WELLS PER MINNESOTA DEPARTMENT OF HEALTH REQUIREMENTS.
13. REMOVE ALL EXISTING SEPTIC SYSTEMS PER MPCA AND COUNTY REQUIREMENTS.

REMOVALS LEGEND

- = CURB REMOVAL
- = BITUMINOUS PAVEMENT REMOVAL
- = CONCRETE REMOVAL
- = TREE REMOVAL
- = REMOVAL ITEM

KEY NOTES:

1. CLEAR & GRUB WOODED AREA
2. REMOVE EXISTING CURB AND GUTTER.
3. REMOVE EXISTING CONCRETE
4. REMOVE EXISTING BITUMINOUS PAVEMENT
5. REMOVE EXISTING BUILDING & ASSOCIATED ITEMS
6. REMOVE EXISTING CURB & GUTTER (BY CITY)
7. REMOVE TREE
8. REMOVE SIGN (BY CITY)
9. PROTECT FENCE DURING CONSTRUCTION
10. RELOCATION OF UTILITY (SEE NOTES)
11. REMOVE BITUMINOUS PAVEMENT (BY CITY)
12. RELOCATION OF OVERHEAD UTILITIES (SEE NOTES)
13. CLEAR & GRUB WOODED AREA (BY CITY)
14. REMOVE SANITARY SEWER MANHOLE (BY CITY)
15. ABANDON SANITARY SEWER PIPE FROM 77TH STREET W RIGHT-OF-WAY
16. REMOVE HYDRANT (BY CITY)
17. REMOVE LIGHT POLE
18. REMOVE WATERMAIN FROM 77TH STREET W RIGHT-OF-WAY (BY CITY)
19. EXISTING UTILITIES TO REMAIN

0' 30' 60'

DESIGN TREE
engineering + land surveying
Corporate Office:
120 17th Ave W Alexandria, MN 56308
888-216-1916

JAVA COMPANIES

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PRINTED NAME: MICHAEL J. GERBER

DATE: 03/28/2025 LICENSE #: 56653

JAVA LINO LAKES 2ND ADDITION

LINO LAKES, MN

DRAWN BY: NPK

CHECKED BY: JEA

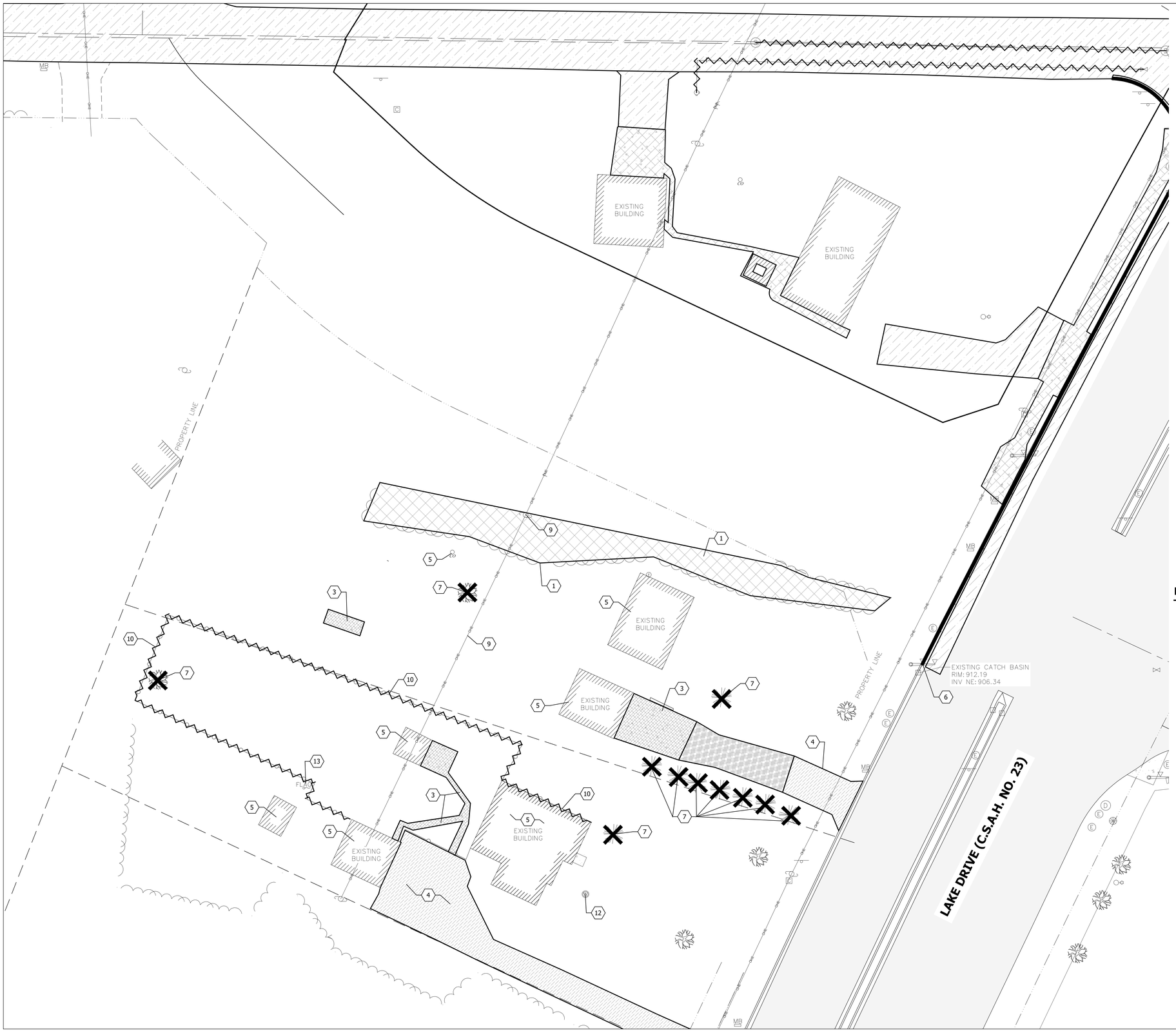
PROJECT NO.: 10923008

NO.	DATE	DESCRIPTION
1	06/09/2025	FINAL PLAT SUBMITTAL
2	07/15/2025	REV. FINAL PLAT SUBMITTAL
3	08/20/2025	RCWD REVISIONS

REMOVALS PLAN (NORTH)

DRAWING NO.

C102



NOTES:

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   DESIGN TREE ENGINEERING & LAND SURVEYING
   120 17TH AVENUE W
   ALEXANDRIA, MN 56308
2. CONTRACTOR SHALL FIELD VERIFY ALL BUILDING DIMENSIONS AND REMOVAL LIMITS PRIOR TO ANY CONSTRUCTION.
3. SAWCUT CURB AND GUTTER AND SIDEWALK, OR REMOVE AT NEAREST EXPANSION JOINTS.
4. SAWCUT BITUMINOUS PAVEMENT FULL DEPTH AT ALL TIE-IN LOCATIONS.
5. CONTRACTOR SHALL PLACE ALL NECESSARY EROSION CONTROL MEASURES REQUIRED TO MAINTAIN SITE STABILITY PRIOR TO EXECUTING ANY SITE REMOVALS.
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12. REMOVE/ABANDON/SEAL ALL EXISTING WELLS PER MINNESOTA DEPARTMENT OF HEALTH REQUIREMENTS.
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REMOVALS LEGEND

- = CURB REMOVAL
- = BITUMINOUS PAVEMENT REMOVAL
- = CONCRETE REMOVAL
- = TREE REMOVAL
- = REMOVAL ITEM

KEY NOTES:

1. CLEAR & GRUB WOODED AREA
2. REMOVE EXISTING TREE
3. REMOVE EXISTING CONCRETE
4. REMOVE EXISTING BITUMINOUS PAVEMENT
5. REMOVE EXISTING BUILDING & ASSOCIATED ITEMS
6. REMOVE EXISTING CURB & GUTTER
7. REMOVE TREE
8. REMOVE & SALVAGE SIGN
9. RELOCATION OF OVERHEAD UTILITIES (SEE NOTES)
10. REMOVE FENCE
11. CLEAR & GRUB WOODED AREA (BY CITY)
12. ABANDON EXISTING WELL (SEE LOCAL AND STATE REQUIREMENTS)
13. REMOVE EXISTING FLAG POLE AND FOUNDATION

0' 20' 40'

DESIGN TREE
engineering + land surveying
Corporate Office:
120 17th Ave W Alexandria, MN 56308
888-216-1916

JAVA COMPANIES

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PRINTED NAME: MICHAEL J. GERBER

DATE: 03/28/2025 LICENSE #: 56653

JAVA LINO LAKES 2ND ADDITION

LINO LAKES, MN

DRAWN BY: NPK

CHECKED BY: JEA

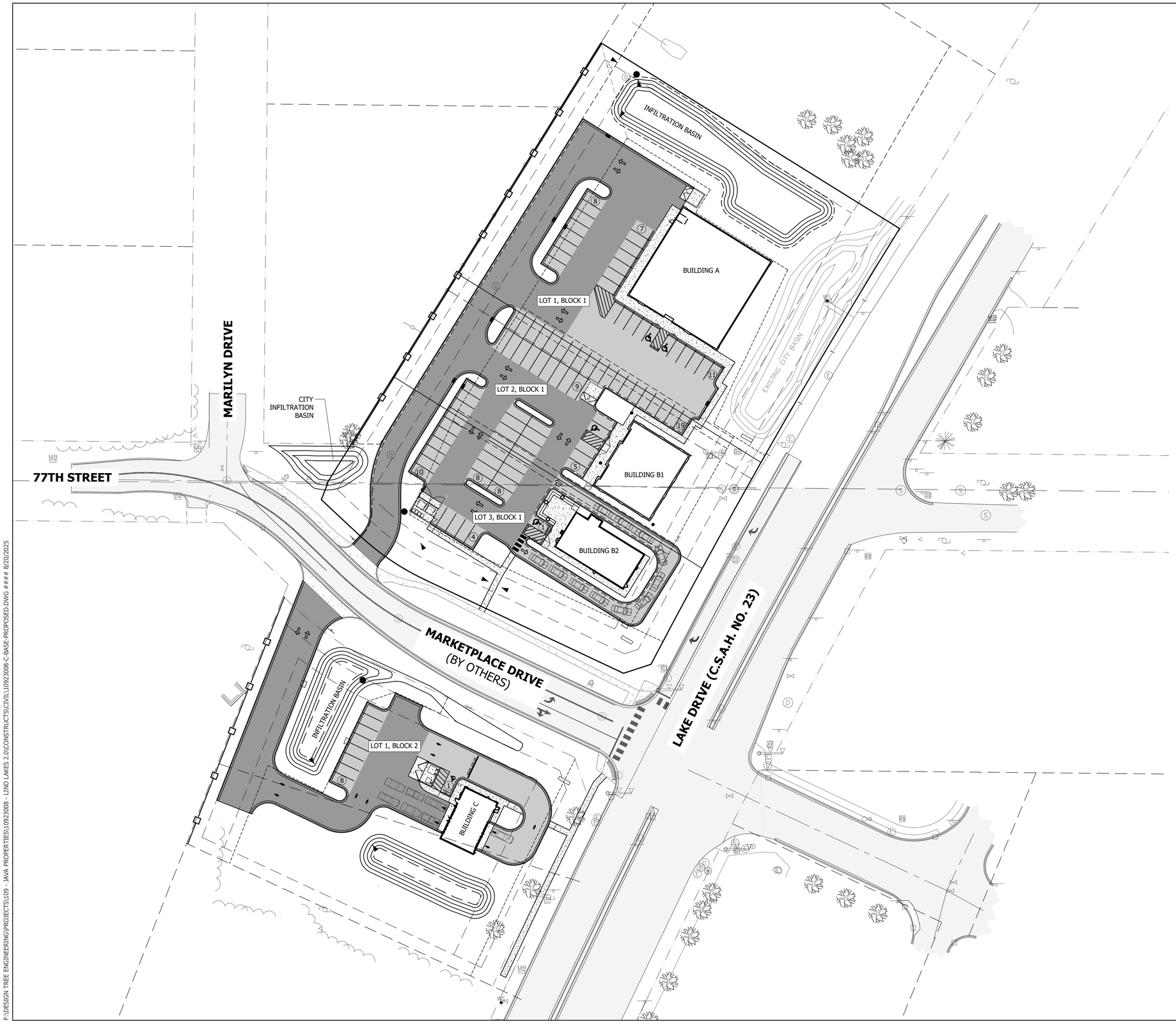
PROJECT NO.: 10923008

NO.	DATE	DESCRIPTION
1	06/09/2025	FINAL PLAT SUBMITTAL
2	07/15/2025	REV. FINAL PLAT SUBMITTAL
3	08/20/2025	RCWD REVISIONS

REMOVALS PLAN (SOUTH)

DRAWING NO.

C103



NOTES:

1. MARKETPLACE DRIVE IMPROVEMENTS TO BE COMPLETED SUMMER 2025. CONTRACTOR SHALL COORDINATE SITE AND UTILITY CONNECTIONS WITH CITY DURING CONSTRUCTION.
2. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE CURRENT EDITION OF THE CITY OF LINO LAKES' GENERAL SPECIFICATIONS AND STANDARD DETAIL PLATES FOR STREET AND UTILITY CONSTRUCTION.

PROPERTY INFORMATION

DEVELOPMENT AREA	4.34 AC
PROPOSED IMPERVIOUS AREA	2.112 AC
DISTURBED AREA	4.5 ±AC
LOT 1, BLOCK 1	
PROPOSED LOT AREA	1.50 AC
PROPOSED IMPERVIOUS AREA	0.706 AC
PROPOSED IMPERVIOUS COVERAGE	47.1%
LOT 2, BLOCK 1	
PROPOSED LOT AREA	0.68 AC
PROPOSED IMPERVIOUS AREA	0.465 AC
PROPOSED IMPERVIOUS COVERAGE	68.4%
LOT 3, BLOCK 1	
PROPOSED LOT AREA	0.84 AC
PROPOSED IMPERVIOUS AREA	0.458 AC
PROPOSED IMPERVIOUS COVERAGE	54.5%
LOT 1, BLOCK 2	
PROPOSED LOT AREA	1.32 AC
PROPOSED IMPERVIOUS AREA	0.483 AC
PROPOSED IMPERVIOUS COVERAGE	36.6%

PARKING REQUIREMENTS

BUILDING A = 7,450 SF (GROSS) = 6,705 SF (FLOOR)
REQUIRED PARKING STALLS = 1 SPACE / 200 SF FLOOR AREA = 34 STALLS

BUILDING B1 = 3,520 SF (GROSS) = 3,168 SF (FLOOR)
REQUIRED PARKING STALLS = 1 SPACE / 200 SF FLOOR AREA = 16 STALLS

BUILDING B2 = 2,398 SF (GROSS)
REQUIRED PARKING STALLS = 1 SPACE / 67 SF = 36 STALLS

BUILDING C = 1,690 SF
REQUIRED PARKING STALLS = 4 SPACES + 2 SPACES / SERVICE BAY = 8 STALLS

PARKING INFORMATION

BLOCK 1	
REQUIRED STALLS	86 STALLS
TOTAL PROVIDED STALLS	90 STALLS
ACCESSIBLE STALLS	4 STALLS
BLOCK 2	
REQUIRED STALLS	8 STALLS
TOTAL PROVIDED STALLS	9 STALLS
ACCESSIBLE STALLS	1 STALL

0' 40' 80'

DESIGN TREE
engineering + land surveying
Corporate Office:
120 17th Ave W Alexandria, MN 56308
888-216-1916

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JAVA LINO LAKES 2ND ADDITION

LINO LAKES, MN

DRAWN BY: NPK
CHECKED BY: JEA
PROJECT NO.: 10923008

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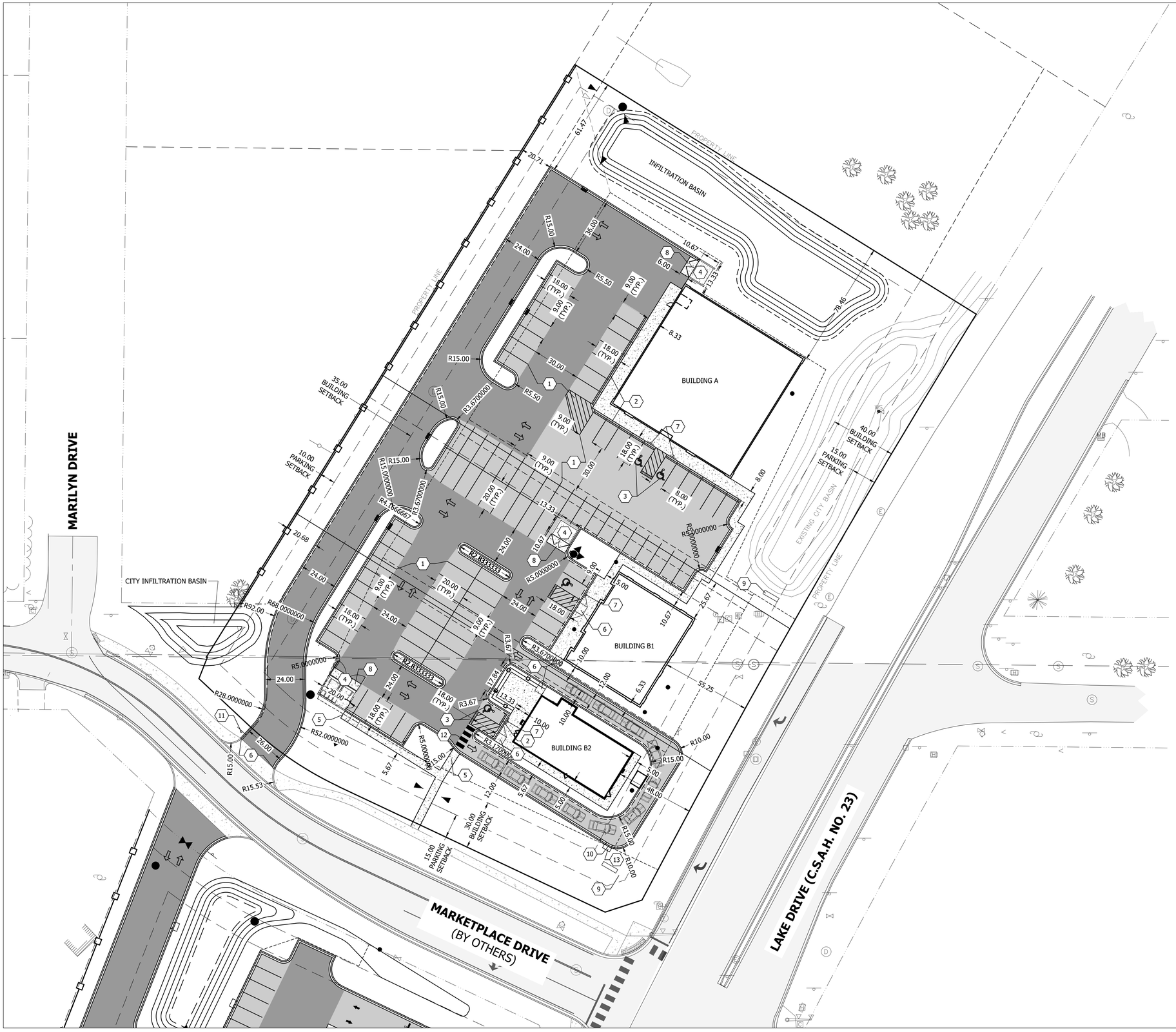
SITE PLAN OVERALL

DRAWING NO.

C201

F:\DESIGN TREE ENGINEERING\PROJECTS\109 - JAVA PROPERTIES\10923008 - LINO LAKES 2.0\CONSTRUCTS\CIVIL\10923008-C-BASE-PROPOSED.DWG #### 8/20/2025



NOTES:

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2. CONTRACTOR SHALL VERIFY ALL PLAN AND DETAIL DIMENSIONS PRIOR TO CONSTRUCTION.
3. ALL CROSSWALK STRIPING SHALL BE WHITE IN COLOR.
4. ALL INTERIOR PARKING STALL STRIPING SHALL BE 4" AND YELLOW IN COLOR.
5. ACCESSIBLE PARKING STALL STRIPING, ACCESS AISLE, SYMBOL, AND SIGNAGE SHALL BE IN ACCORDANCE WITH LOCAL AUTHORITY REQUIREMENTS.
6. CONTRACTOR SHALL MAINTAIN FULL ACCESS TO ADJACENT PROPERTIES DURING CONSTRUCTION AND TAKE ALL PRECAUTIONS NECESSARY TO AVOID PROPERTY DAMAGE TO ADJACENT PROPERTIES.
7. ALL SITE WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE GEOTECHNICAL ENGINEER.
8. CONTRACTOR SHALL PROVIDE A TEMPORARY PEDESTRIAN ACCESS ROUTE PLAN FOR ANY WORK PERFORMED WITHIN THE PUBLIC RIGHT-OF-WAY.
9. CONTRACTOR SHALL PROVIDE A TEMPORARY TRAFFIC CONTROL PLAN FOR ANY WORK PERFORMED WITHIN THE PUBLIC RIGHT-OF-WAY.
10. GOPHER STATE ONE CALL DAMAGE PREVENTION SYSTEM FOR BURIED UTILITIES. 1-800-252-1166. CONTRACTOR SHALL HIRE A PRIVATE UTILITY LOCATOR TO ASSIST WITH PRIVATE UTILITY LOCATES.

PROPOSED SITE LEGEND

- LIGHT DUTY BITUMINOUS PAVEMENT
- HEAVY DUTY BITUMINOUS PAVEMENT
- CONCRETE PAVEMENT
- CONCRETE SIDEWALK
- B6-12 CURB AND GUTTER
- B6-12 TIPPED CURB AND GUTTER
- RETAINING WALL
- CHAINLINK FENCE
- 6' HIGH PRIVACY FENCE
- TRAFFIC CONTROL SIGNAGE
- PAINTED DIRECTIONAL ARROW
- PAINTED ACCESSIBLE PARKING SYMBOL

KEY NOTES:

1. PARKING STRIPING
2. CURB STOP
3. ACCESSIBLE PARKING MARKINGS
4. TRASH ENCLOSURE (SEE ARCH)
5. ADA PEDESTRIAN RAMP
6. CURB REVEAL TRANSITION (SEE DETAIL)
7. "ACCESSIBLE PARKING" SIGN & POST
8. CONCRETE APRON
9. SIGN (SEE ARCHITECTURAL)
10. 4' CURB CUT
11. "STOP" SIGN & POST
12. CROSSWALK STRIPING
13. RAIN GUARDIAN BUNKER

0' 30' 60'

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JAVA LINO LAKES 2ND ADDITION

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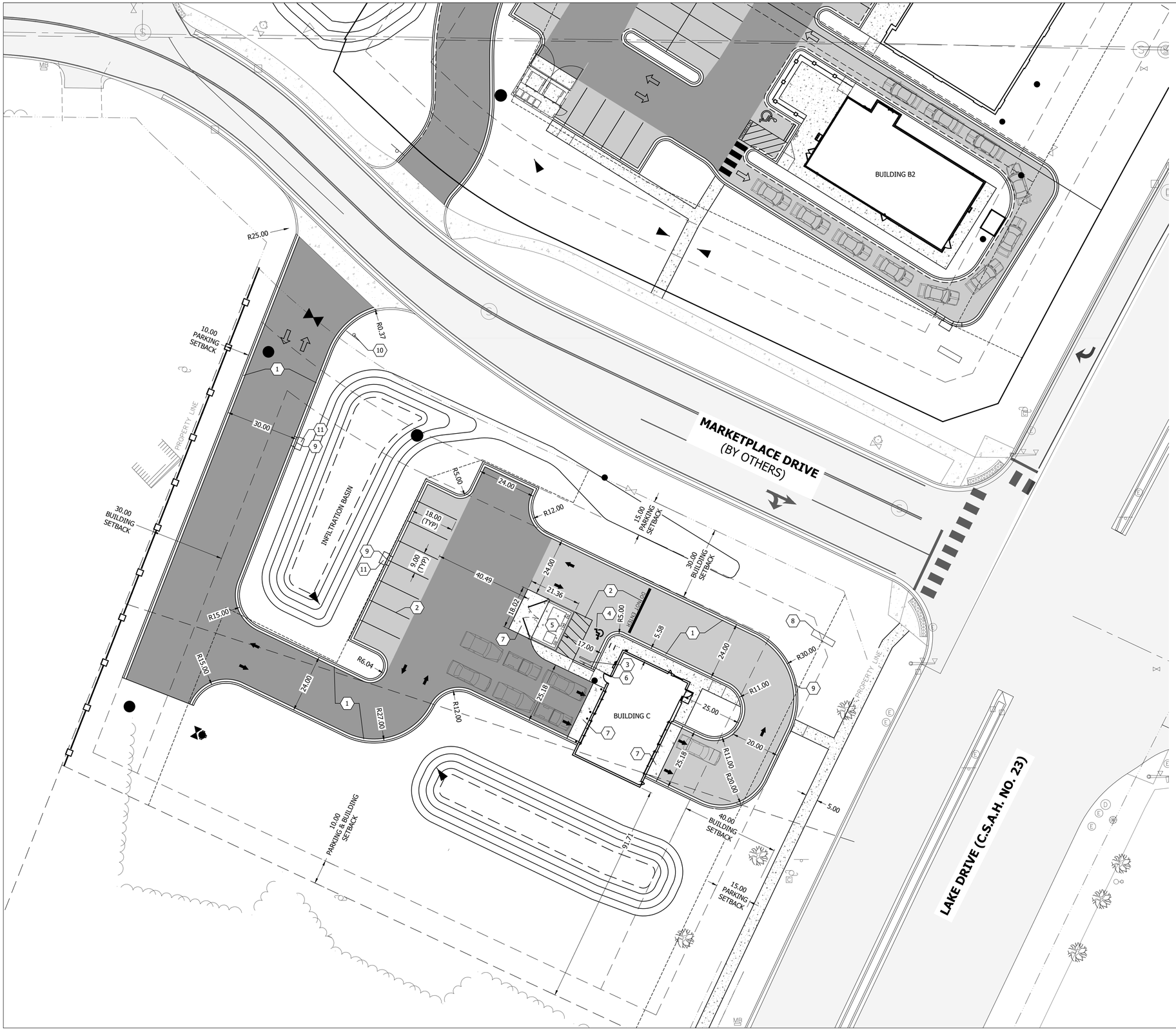
SITE PLAN (NORTH)

DRAWING NO.

C202



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PROPOSED SITE LEGEND

- LIGHT DUTY BITUMINOUS PAVEMENT
- HEAVY DUTY BITUMINOUS PAVEMENT
- CONCRETE PAVEMENT
- CONCRETE SIDEWALK
- CURB AND GUTTER
- TIPPED CURB AND GUTTER
- RETAINING WALL
- CHAINLINK FENCE
- 6' HIGH PRIVACY FENCE
- TRAFFIC CONTROL SIGNAGE
- PAINTED DIRECTIONAL ARROW
- PAINTED ACCESSIBLE PARKING SYMBOL

KEY NOTES:

1. B612 CURB AND GUTTER
2. PARKING STRIPING
3. CURB STOP
4. ACCESSIBLE PARKING MARKINGS
5. TRASH ENCLOSURE
6. "ACCESSIBLE PARKING" SIGN & POST
7. CONCRETE APRON
8. MONUMENT SIGN (SEE ARCH.)
9. 4' CURB CUT
10. "STOP" SIGN & POST
11. RAIN GUARDIAN BUNKER

DESIGN TREE
engineering + land surveying
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DATE: 03/28/2025 LICENSE #: 56653

JAVA LINO LAKES 2ND ADDITION

LINO LAKES, MN

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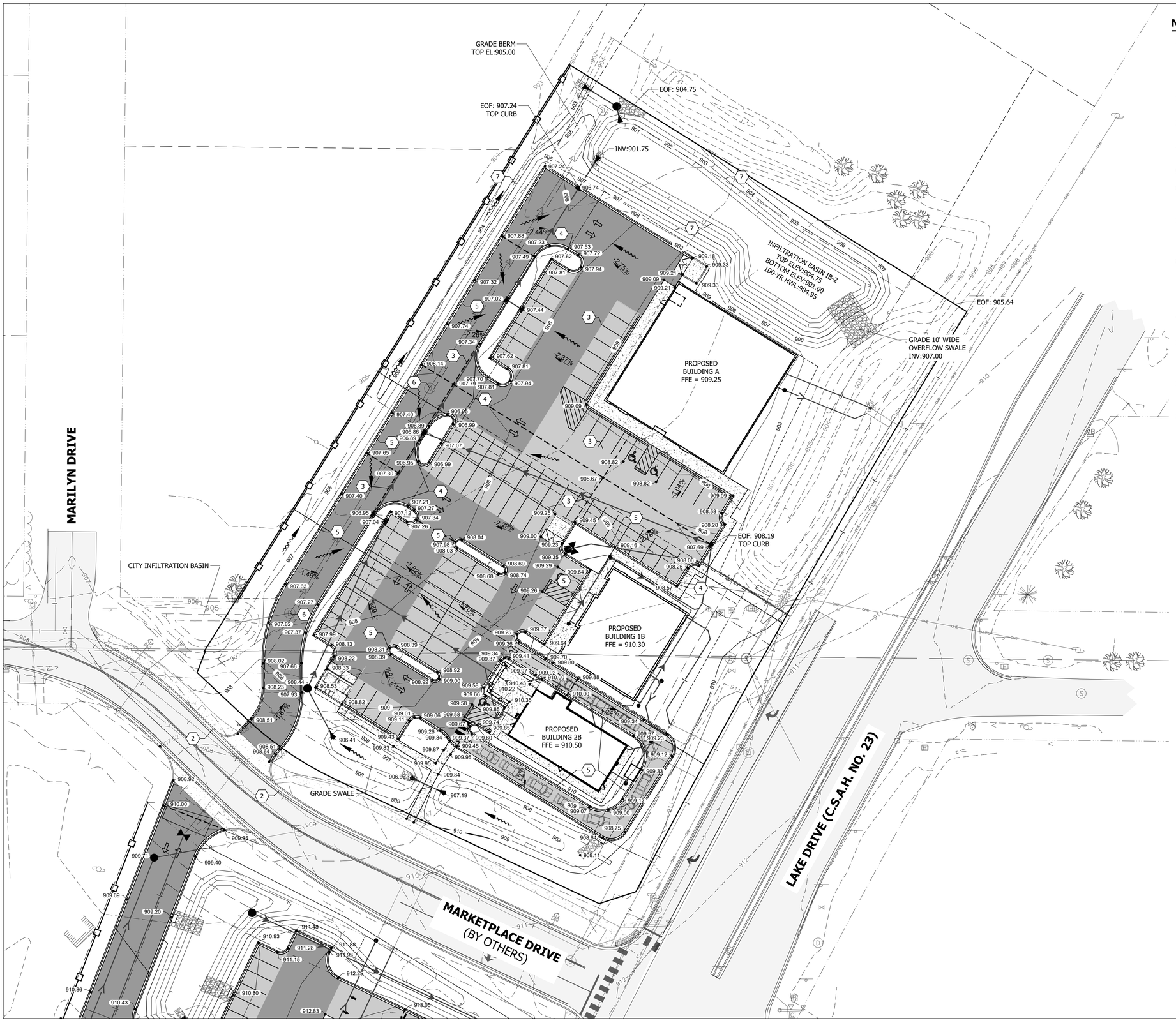
SITE PLAN (SOUTH)

DRAWING NO.

C203



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2. SIDEWALKS SHALL MEET ADA REQUIREMENTS, AND SHALL NOT EXCEED 2.00% CROSS SLOPE, OR 5.00% LONGITUDINAL SLOPE.
3. CONCRETE ENTRANCES AND APPROACHES SHALL NOT EXCEED 2.00% CROSS SLOPE IN SIDEWALK AREAS.
4. ACCESSIBLE PARKING STALLS SHALL MEET ADA REQUIREMENTS, AND SHALL NOT EXCEED 2.00% CROSS SLOPE IN ALL DIRECTIONS.
5. PEDESTRIAN RAMPS SHALL MEET ADA REQUIREMENTS.
6. ALL EXCESS OR WASTE MATERIAL GENERATED AS PART OF CONSTRUCTION SHALL BE REMOVED FROM THE SITE AND DISPOSED OF IN ACCORDANCE WITH STATE AND LOCAL REQUIREMENTS.
7. ALL EXCAVATION SHALL BE IN ACCORDANCE WITH THE CURRENT EDITION OF "STANDARD SPECIFICATIONS FOR TRENCH EXCAVATION AND BACKFILL/SURFACE RESTORATION" AS PREPARED BY THE CITY ENGINEERS ASSOCIATION OF MINNESOTA.
8. IN ADDITION TO THESE PLANS, A STORMWATER MANAGEMENT STUDY HAS BEEN PROVIDED. THE STORMWATER MANAGEMENT STUDY INCLUDES ADDITIONAL INFORMATION REGARDING THE DESIGN OF THE STORMWATER MANAGEMENT BMP. THE CONTRACTOR SHALL REVIEW THE STORMWATER BOOK AND COMPLY WITH ALL STATE AND LOCAL REQUIREMENTS.
9. ALL SITE WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE GEOTECHNICAL ENGINEER.
10. INFILTRATION AREAS SHALL NOT BE EXCAVATED TO FINAL GRADE UNTIL THE CONTRIBUTING DRAINAGE AREA HAS BEEN CONSTRUCTED AND STABILIZED. ONLY LOW IMPACT TRACK EQUIPMENT SHALL BE USED WITHIN INFILTRATION AREAS.
11. SPOT ELEVATIONS SHOWN INDICATE FINISHED PAVEMENT ELEVATIONS & GUTTER FLOW LINE UNLESS OTHERWISE NOTED. PROPOSED CONTOURS ARE TO FINISHED SURFACE GRADE.
12. GOPHER STATE ONE CALL DAMAGE PREVENTION SYSTEM FOR BURIED UTILITIES. 1-800-252-1166. CONTRACTOR SHALL HIRE A PRIVATE UTILITY LOCATOR TO ASSIST WITH PRIVATE UTILITY LOCATES.

GRADING LEGEND

- = EXISTING MAJOR CONTOUR
- = EXISTING MINOR CONTOUR
- 100 = EXISTING CONTOUR LABEL
- = PROPOSED MAJOR CONTOUR
- = PROPOSED MINOR CONTOUR
- 100 = PROPOSED CONTOUR LABEL
- = PROPOSED GRADE BREAK
- XXX.XX = EXISTING SPOT ELEVATION*
- XXX.XX = PROPOSED SPOT ELEVATION*
- = PROPOSED SURFACE FLOW DIRECTION

*SPOT ELEVATIONS ALONG CURB & GUTTER AND OTHER REVEALS ARE TO FLOWLINE, UNLESS OTHERWISE NOTED.

KEY NOTES:

1. MATCH INTO EXISTING BITUMINOUS PAVEMENT
2. MATCH INTO EXISTING CURB & GUTTER
3. GRADE BREAK
4. CURB TRANSITION
5. TIP OUT CURB
6. ADJUST EXISTING MANHOLE TO PROPOSED GRADES
7. 3:1 SLOPES

0' 30' 60'

DESIGN TREE
engineering + land surveying
Corporate Office:
120 17th Ave W Alexandria, MN 56308
888-216-1916

JAVA COMPANIES

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.

PRINTED NAME: MICHAEL J. GERBER

DATE: 03/28/2025 LICENSE #: 56653

JAVA LINO LAKES 2ND ADDITION

LINO LAKES, MN

DRAWN BY:	NPK
CHECKED BY:	JEA
PROJECT NO.:	10923008

NO.	DATE	DESCRIPTION
1	06/09/2025	FINAL PLAT SUBMITTAL
2	07/15/2025	REV. FINAL PLAT SUBMITTAL
3	08/20/2025	RCWD REVISIONS

GRADING PLAN (NORTH)

DRAWING NO.

C301

NOTES:

1. THE LOCATIONS AND ELEVATIONS OF THE EXISTING UTILITIES SHOWN HEREIN ARE APPROXIMATE. THEY HAVE BEEN PLOTTED FROM AVAILABLE SURVEYS AND/ OR RECORDS. THE CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING LOCATION AND ELEVATION TO ENSURE THAT ANY EXISTING UTILITIES (SHOWN OR NOT SHOWN) ARE NOT DAMAGED DURING CONSTRUCTION.
2. SIDEWALKS SHALL MEET ADA REQUIREMENTS, AND SHALL NOT EXCEED 2.00% CROSS SLOPE, OR 5.00% LONGITUDINAL SLOPE.
3. CONCRETE ENTRANCES AND APPROACHES SHALL NOT EXCEED 2.00% CROSS SLOPE IN SIDEWALK AREAS.
4. ACCESSIBLE PARKING STALLS SHALL MEET ADA REQUIREMENTS, AND SHALL NOT EXCEED 2.00% CROSS SLOPE IN ALL DIRECTIONS.
5. PEDESTRIAN RAMPS SHALL MEET ADA REQUIREMENTS.
6. ALL EXCESS OR WASTE MATERIAL GENERATED AS PART OF CONSTRUCTION SHALL BE REMOVED FROM THE SITE AND DISPOSED OF IN ACCORDANCE WITH STATE AND LOCAL REQUIREMENTS.
7. ALL EXCAVATION SHALL BE IN ACCORDANCE WITH THE CURRENT EDITION OF "STANDARD SPECIFICATIONS FOR TRENCH EXCAVATION AND BACKFILL/SURFACE RESTORATION" AS PREPARED BY THE CITY ENGINEERS ASSOCIATION OF MINNESOTA.
8. IN ADDITION TO THESE PLANS, A STORMWATER MANAGEMENT STUDY HAS BEEN PROVIDED. THE STORMWATER MANAGEMENT STUDY INCLUDES ADDITIONAL INFORMATION REGARDING THE DESIGN OF THE STORMWATER MANAGEMENT BMP. THE CONTRACTOR SHALL REVIEW THE STORMWATER BOOK AND COMPLY WITH ALL STATE AND LOCAL REQUIREMENTS.
9. ALL SITE WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE GEOTECHNICAL ENGINEER.
10. INFILTRATION AREAS SHALL NOT BE EXCAVATED TO FINAL GRADE UNTIL THE CONTRIBUTING DRAINAGE AREA HAS BEEN CONSTRUCTED AND STABILIZED. ONLY LOW IMPACT TRACK EQUIPMENT SHALL BE USED WITHIN INFILTRATION AREAS.
11. SPOT ELEVATIONS SHOWN INDICATE FINISHED PAVEMENT ELEVATIONS & GUTTER FLOW LINE UNLESS OTHERWISE NOTED. PROPOSED CONTOURS ARE TO FINISHED SURFACE GRADE.
12. GOPHER STATE ONE CALL DAMAGE PREVENTION SYSTEM FOR BURIED UTILITIES. 1-800-252-1166. CONTRACTOR SHALL HIRE A PRIVATE UTILITY LOCATOR TO ASSIST WITH PRIVATE UTILITY LOCATES.

GRADING LEGEND

- = EXISTING MAJOR CONTOUR
- = EXISTING MINOR CONTOUR
- 100 = EXISTING CONTOUR LABEL
- = PROPOSED MAJOR CONTOUR
- = PROPOSED MINOR CONTOUR
- 100 = PROPOSED CONTOUR LABEL
- XXX.XX = EXISTING SPOT ELEVATION*
- XXX.XX = PROPOSED SPOT ELEVATION*
- = PROPOSED SURFACE FLOW DIRECTION

*SPOT ELEVATIONS ALONG CURB & GUTTER AND OTHER REVEALS ARE TO FLOWLINE, UNLESS OTHERWISE NOTED.

KEY NOTES:

1. MATCH INTO EXISTING BITUMINOUS PAVEMENT
2. GRADE BREAK
3. MATCH INTO EXISTING CURB & GUTTER
4. 4' CURB CUT

0' 20' 40'

DESIGN TREE
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888-216-1916

JAVA COMPANIES

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PRINTED NAME: MICHAEL J. GERBER

DATE: 03/28/2025 LICENSE #: 56653

JAVA LINO LAKES 2ND ADDITION

LINO LAKES, MN

DRAWN BY: NPK

CHECKED BY: JEA

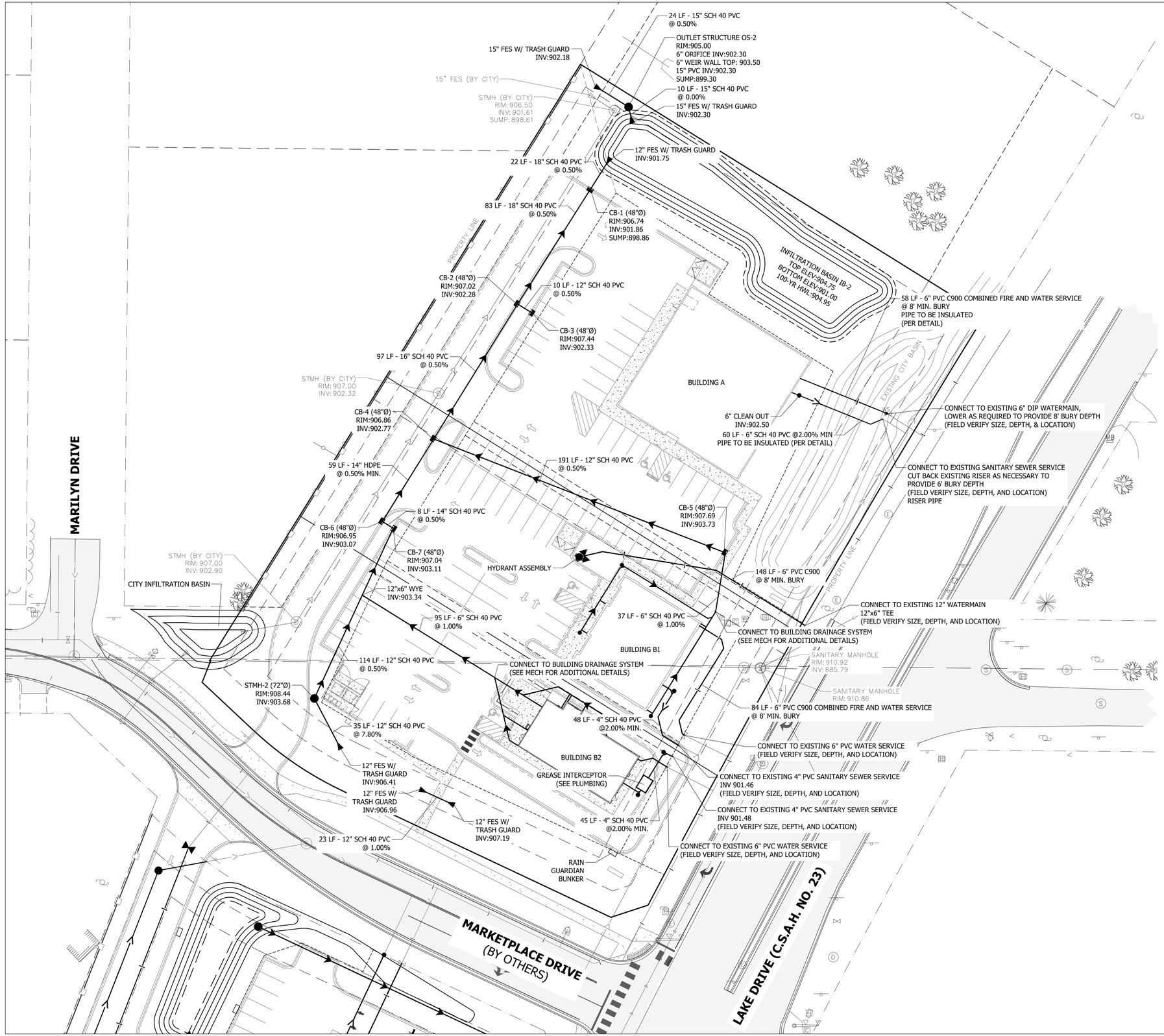
PROJECT NO.: 10923008

NO.	DATE	DESCRIPTION
1	06/09/2025	FINAL PLAT SUBMITTAL
2	07/15/2025	REV. FINAL PLAT SUBMITTAL
3	08/20/2025	RCWD REVISIONS

GRADING PLAN (SOUTH)

DRAWING NO.

C302



NOTES:

1. THE LOCATIONS AND ELEVATIONS OF THE EXISTING UTILITIES SHOWN HEREIN ARE APPROXIMATE. THEY HAVE BEEN PLOTTED FROM AVAILABLE SURVEYS AND/ OR RECORDS. THE CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING LOCATION AND ELEVATION TO ENSURE THAT ANY EXISTING UTILITIES (SHOWN OR NOT SHOWN) ARE NOT DAMAGED DURING CONSTRUCTION.
2. CONTRACTOR SHALL VERIFY AND COORDINATE BUILDING UTILITY CONNECTION SIZES, LOCATIONS, AND ELEVATIONS WITH PLUMBING, MECHANICAL, AND ELECTRICAL CONTRACTORS.
3. ALL EXCAVATION SHALL BE IN ACCORDANCE WITH THE CURRENT EDITION OF "STANDARD SPECIFICATIONS FOR TRENCH EXCAVATION AND BACKFILL/SURFACE RESTORATION" AS PREPARED BY THE CITY ENGINEERS ASSOCIATION OF MINNESOTA.
4. ALL WATER PIPING SHALL BE BURIED A MINIMUM OF 8'.
5. SEE WATER DETAILS FOR ADDITIONAL INFORMATION.
6. A MINIMUM VERTICAL SEPARATION OF 18 INCHES IS REQUIRED AT ALL WATER LINE CROSSINGS WITH SANITARY SEWER OR STORM SEWER. THE WATER LINE SHALL NOT HAVE JOINTS OR CONNECTIONS WITHIN 10 FEET OF THE CROSSING. INSULATE CROSSINGS WITH STORM SEWER.
7. SANITARY SEWER CLEANOUTS SHALL BE PROVIDED WITHIN 5' OF THE BUILDING FOR UNIT'S CONNECTION.
8. SANITARY SEWER CLEANOUT SPACING SHALL NOT EXCEED 90'.
9. SANITARY SEWER SERVICES SHALL HAVE A MINIMUM OF 2.00% GRADE.
10. SEE SANITARY SEWER DETAILS FOR ADDITIONAL INFORMATION.
11. ALL NONCONDUCTIVE PIPE SHALL BE INSTALLED WITH A LOCATE (TRACER) WIRE PER MINNESOTA RULES, PART 7560.0150
12. ALL CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH THE MINNESOTA STATE PLUMBING CODE.
13. ALL PIPING SHALL BE TESTED IN ACCORDANCE WITH THE MINNESOTA STATE PLUMBING CODE.
14. CONTRACTOR SHALL COORDINATE UTILITY INSPECTIONS WITH LOCAL AUTHORITIES HAVING JURISDICTION.
15. GOPHER STATE ONE CALL DAMAGE PREVENTION SYSTEM FOR BURIED UTILITIES. 1-800-252-1166. CONTRACTOR SHALL HIRE A PRIVATE UTILITY LOCATOR TO ASSIST WITH PRIVATE UTILITY LOCATES.
16. OVER EXCAVATE INFILTRATION BASIN AREAS BY 3-FT. DOCUMENT PRESENCE OF GROUNDWATER. DOCUMENT SOIL CONDITIONS.
17. CONTRACTOR SHALL PERFORM A DOUBLE-RING INFILTROMETER TEST AT BOTTOM ELEVATION OF STORMWATER BASIN AND VERIFY DESIGN INFILTRATION RATE OF 0.45 IN/HR.

PROPOSED UTILITY LEGEND

- = HYDRANT
- = CURB STOP
- = GATE VALVE
- = SANITARY MANHOLE
- = CLEANOUT
- = STORM MANHOLE
- = CATCH BASIN
- = CULVERT APRON
- = WATER LINE
- = SANITARY LINE
- = STORM LINE

DESIGN TREE
engineering + land surveying
Corporate Office:
120 17th Ave W Alexandria, MN 56308
888-216-1916

JAVA COMPANIES

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PRINTED NAME: MICHAEL J. GERBER

DATE: 03/28/2025 LICENSE #: 56653

JAVA LINO LAKES 2ND ADDITION

LINO LAKES, MN

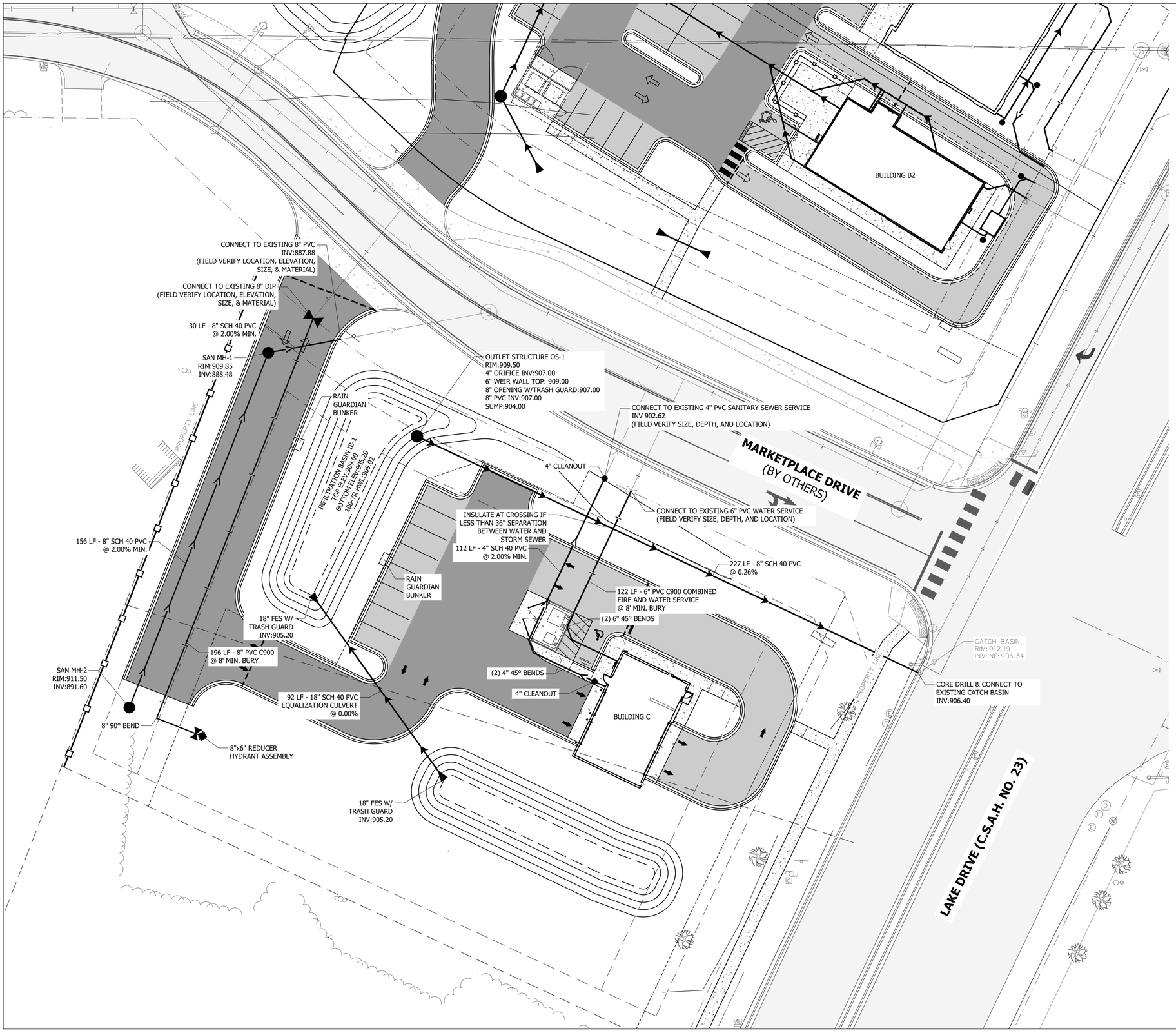
DRAWN BY:	NPK
CHECKED BY:	JEA
PROJECT NO.:	10923008

NO.	DATE	DESCRIPTION
1	06/09/2025	FINAL PLAT SUBMITTAL
2	07/15/2025	REV. FINAL PLAT SUBMITTAL
3	08/20/2025	RCWD REVISIONS

UTILITY PLAN (NORTH)

DRAWING NO.

C401



NOTES:

1. THE LOCATIONS AND ELEVATIONS OF THE EXISTING UTILITIES SHOWN HEREIN ARE APPROXIMATE. THEY HAVE BEEN PLOTTED FROM AVAILABLE SURVEYS AND/ OR RECORDS. THE CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING LOCATION AND ELEVATION TO ENSURE THAT ANY EXISTING UTILITIES (SHOWN OR NOT SHOWN) ARE NOT DAMAGED DURING CONSTRUCTION.
2. CONTRACTOR SHALL VERIFY AND COORDINATE BUILDING UTILITY CONNECTION SIZES, LOCATIONS, AND ELEVATIONS WITH PLUMBING, MECHANICAL, AND ELECTRICAL CONTRACTORS.
3. ALL EXCAVATION SHALL BE IN ACCORDANCE WITH THE CURRENT EDITION OF "STANDARD SPECIFICATIONS FOR TRENCH EXCAVATION AND BACKFILL/SURFACE RESTORATION" AS PREPARED BY THE CITY ENGINEERS ASSOCIATION OF MINNESOTA.
4. ALL WATER PIPING SHALL BE BURIED A MINIMUM OF 8'.
5. SEE WATER DETAILS FOR ADDITIONAL INFORMATION.
6. A MINIMUM VERTICAL SEPARATION OF 18 INCHES IS REQUIRED AT ALL WATER LINE CROSSINGS WITH SANITARY SEWER OR STORM SEWER. THE WATER LINE SHALL NOT HAVE JOINTS OR CONNECTIONS WITHIN 10 FEET OF THE CROSSING. INSULATE CROSSINGS WITH STORM SEWER.
7. SANITARY SEWER CLEANOUTS SHALL BE PROVIDED WITHIN 5' OF THE BUILDING FOR UNIT'S CONNECTION.
8. SANITARY SEWER CLEANOUT SPACING SHALL NOT EXCEED 90'.
9. SANITARY SEWER SERVICES SHALL HAVE A MINIMUM OF 2.00% GRADE.
10. SEE SANITARY SEWER DETAILS FOR ADDITIONAL INFORMATION.
11. ALL NONCONDUCTIVE PIPE SHALL BE INSTALLED WITH A LOCATE (TRACER) WIRE PER MINNESOTA RULES, PART 7560.0150
12. ALL CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH THE MINNESOTA STATE PLUMBING CODE.
13. ALL PIPING SHALL BE TESTED IN ACCORDANCE WITH THE MINNESOTA STATE PLUMBING CODE.
14. CONTRACTOR SHALL COORDINATE UTILITY INSPECTIONS WITH LOCAL AUTHORITIES HAVING JURISDICTION.
15. GOPHER STATE ONE CALL DAMAGE PREVENTION SYSTEM FOR BURIED UTILITIES. 1-800-252-1166. CONTRACTOR SHALL HIRE A PRIVATE UTILITY LOCATOR TO ASSIST WITH PRIVATE UTILITY LOCATES.
16. OVER EXCAVATE INFILTRATION BASIN AREAS BY 3-FT. DOCUMENT PRESENCE OF GROUNDWATER. DOCUMENT SOIL CONDITIONS.
17. CONTRACTOR SHALL PERFORM A DOUBLE-RING INFILTROMETER TEST AT BOTTOM ELEVATION OF STORMWATER BASIN AND VERIFY DESIGN INFILTRATION RATE OF 0.45 IN/HR.

PROPOSED UTILITY LEGEND

- = HYDRANT
- = CURB STOP
- = GATE VALVE
- = SANITARY MANHOLE
- = CLEANOUT
- = STORM MANHOLE
- = CATCH BASIN
- = CULVERT APRON
- = WATER LINE
- = SANITARY LINE
- = STORM LINE

DESIGN TREE
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PRINTED NAME: MICHAEL J. GERBER

DATE: 03/28/2025 LICENSE #: 56653

JAVA LINO LAKES 2ND ADDITION

LINO LAKES, MN

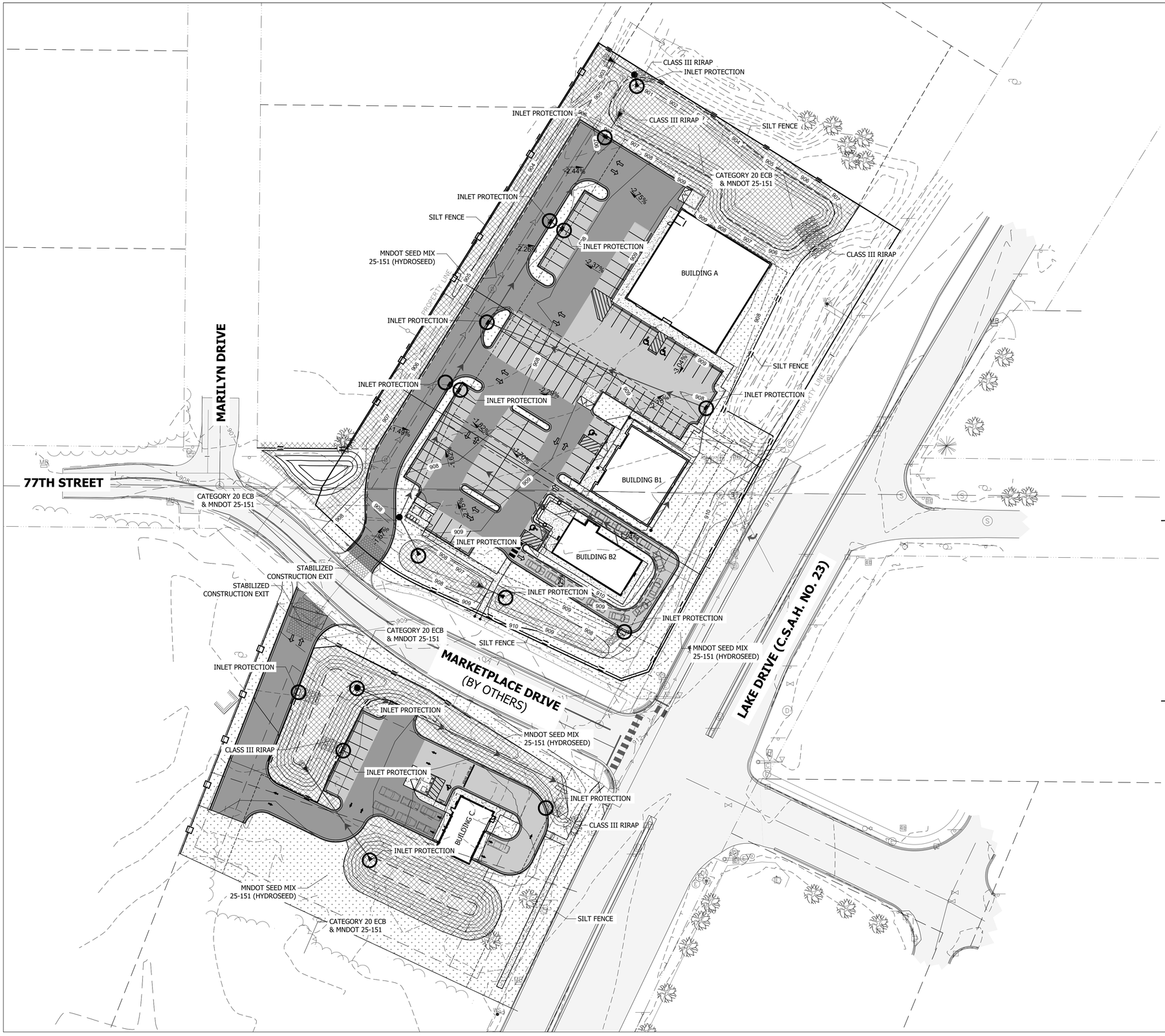
DRAWN BY:	NPK
CHECKED BY:	JEA
PROJECT NO.:	10923008

NO.	DATE	DESCRIPTION
1	06/09/2025	FINAL PLAT SUBMITTAL
2	07/15/2025	REV. FINAL PLAT SUBMITTAL
3	08/20/2025	RCWD REVISIONS

UTILITY PLAN (SOUTH)

DRAWING NO.

C402



NOTES:

1. ALL DISTURBED AREAS SHALL BE FINAL GRADED AND PERMANENTLY STABILIZED WITH THE SEED MIX IDENTIFIED ON PLANS.
2. THE SITE MUST BE STABILIZED PER THE REQUIREMENTS OF THE MPCA, NPDES, MNDOT, AND CITY.
3. INLET PROTECTION SHALL BE PROVIDED ON ALL CATCH BASINS AND INLETS DOWN GRADIENT OF CONSTRUCTION ACTIVITY.
4. PROVIDE SILT FENCE PERIMETER CONTROL DOWN GRADIENT OF ALL CONSTRUCTION ACTIVITY AND TEMPORARY STOCKPILES.
5. TEMPORARY STABILIZED CONSTRUCTION EXITS SHALL BE INSTALLED AND MAINTAINED THROUGHOUT THE DURATION OF CONSTRUCTION.
6. NO OFFSITE VEHICLE TRACKING IS PERMITTED. STREETS SHALL BE CLEANED AND SWEPT WHENEVER TRACKING OF SEDIMENTS OCCURS AND BEFORE SITES ARE LEFT IDLE FOR WEEKENDS AND HOLIDAYS.
7. REFER TO THE SWPPP AND THE CITY OF LINO LAKES EROSION CONTROL REQUIREMENTS FOR FURTHER EROSION CONTROL SEQUENCING.
8. IN ADDITION TO THESE PLANS, A STORMWATER MANAGEMENT STUDY HAS BEEN PROVIDED. THE STORMWATER MANAGEMENT STUDY INCLUDES ADDITIONAL INFORMATION REGARDING THE DESIGN OF THE STORMWATER MANAGEMENT BMP. THE CONTRACTOR SHALL REVIEW THE STORMWATER BOOK AND COMPLY WITH ALL STATE AND LOCAL REQUIREMENTS.
9. WHEN INSTALLING END-OF-LINE FLARED END SECTIONS, BRING THE SILT FENCE UP & OVER THE FLARED END SECTIONS & COVER DISTURBED AREAS WITH RIP RAP. THE UPSTREAM FLARED END SECTIONS SHALL HAVE WOOD FIBER BLANKET INSTALLED ON THE DISTURBED SOILS.
10. INFILTRATION AREAS SHALL NOT BE EXCAVATED TO FINAL GRADE UNTIL THE CONTRIBUTING DRAINAGE AREA HAS BEEN CONSTRUCTED AND STABILIZED. ONLY LOW IMPACT TRACK EQUIPMENT SHALL BE USED WITHIN INFILTRATION AREAS.
11. GOPHER STATE ONE CALL DAMAGE PREVENTION SYSTEM FOR BURIED UTILITIES. 1-800-252-1166. CONTRACTOR SHALL HIRE A PRIVATE UTILITY LOCATOR TO ASSIST WITH PRIVATE UTILITY LOCATES.

NORTH EROSION CONTROL QUANTITIES:

STABILIZED CONSTRUCTION EXIT	(1 EA)
SILT FENCE	(1,640 LF)
MNDOT SEED MIX 25-151 (HYDROSEED)	(0.85 AC)
RIPRAP	(52 CY) SEE DETAIL
CATEGORY 20 ECB & MNDOT 25-151	(3,178 SY)
INLET PROTECTION	(11 EA)

NOTE: QUANTITIES SHOWN ARE FOR SWPPP PLAN, AND ARE NOT FOR BIDDING PURPOSES.

SOUTH EROSION CONTROL QUANTITIES:

STABILIZED CONSTRUCTION EXIT	(1 EA)
SILT FENCE	(1295 LF)
MNDOT SEED MIX 25-151 (HYDROSEED)	(0.75 AC)
RIPRAP	(22 CY) SEE DETAIL
CATEGORY 20 ECB & MNDOT 25-151	(3,625 SY)
INLET PROTECTION	(5 EA)

NOTE: QUANTITIES SHOWN ARE FOR SWPPP PLAN, AND ARE NOT FOR BIDDING PURPOSES.

0' 40' 80'

DESIGN TREE
engineering + land surveying
Corporate Office:
120 17th Ave W Alexandria, MN 56308
888-216-1916

JAVA COMPANIES

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PRINTED NAME: MICHAEL J. GERBER

DATE: 03/28/2025 LICENSE #: 56653

JAVA LINO LAKES 2ND ADDITION

LINO LAKES, MN

DRAWN BY: NPK

CHECKED BY: JEA

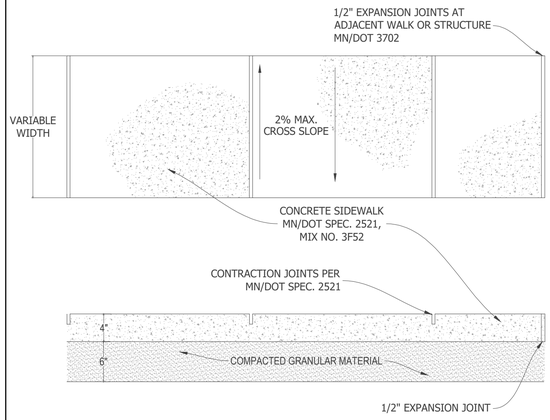
PROJECT NO.: 10923008

NO.	DATE	DESCRIPTION
1	06/09/2025	FINAL PLAT SUBMITTAL
2	07/15/2025	REV. FINAL PLAT SUBMITTAL
3	08/20/2025	RCWD REVISIONS

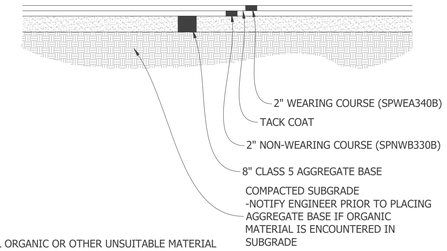
EROSION CONTROL PLAN

DRAWING NO.

C501

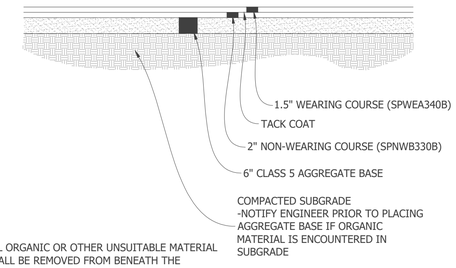


TYPICAL SIDEWALK DETAIL
SCALE=N.T.S.



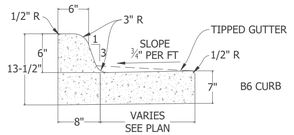
NOTES:
1. ALL ORGANIC OR OTHER UNSUITABLE MATERIAL SHALL BE REMOVED FROM BENEATH THE ROADWAY.

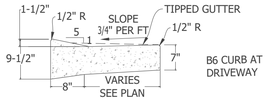
HEAVY DUTY BITUMINOUS PAVEMENT SECTION
SCALE=N.T.S.

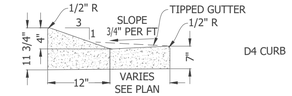


NOTES:
1. ALL ORGANIC OR OTHER UNSUITABLE MATERIAL SHALL BE REMOVED FROM BENEATH THE ROADWAY.

LIGHT DUTY BITUMINOUS PAVEMENT SECTION
SCALE=N.T.S.



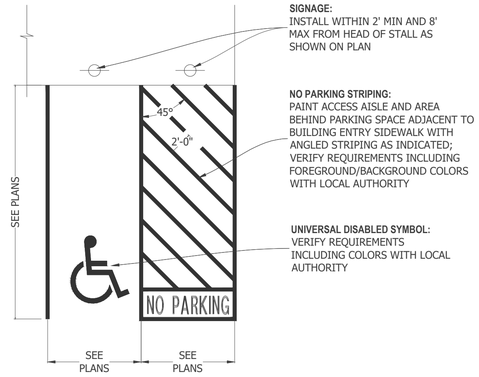




NOTES:

1. SEE TYPICAL BITUMINOUS SECTION FOR AGGREGATE BASE SECTION INFORMATOIN.

CURB & GUTTER DETAILS
SCALE=N.T.S.



ACCESSIBLE PARKING LAYOUT
SCALE=N.T.S.

DESIGN TREE
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Corporate Office:
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JAVA COMPANIES

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PRINTED NAME: MICHAEL J. GERBER

DATE: 03/28/2025 LICENSE #: 56653

JAVA LINO LAKES 2ND ADDITION

LINO LAKES, MN

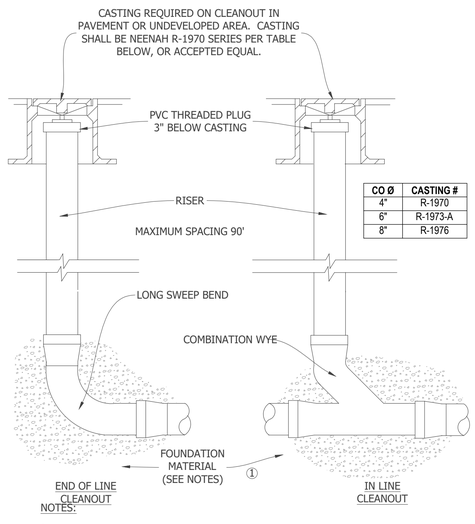
DRAWN BY:	NPK
CHECKED BY:	JEA
PROJECT NO.:	10923008

NO.	DATE	DESCRIPTION
1	06/09/2025	FINAL PLAT SUBMITTAL
2	07/15/2025	REV. FINAL PLAT SUBMITTAL
3	08/20/2025	RCWD REVISIONS

CIVIL DETAILS

DRAWING NO.

C601



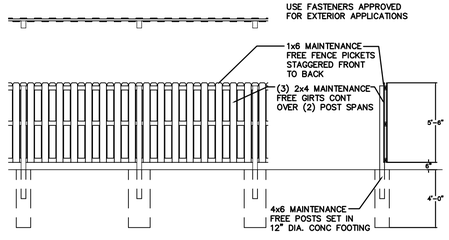
CO Ø	CASTING #
4"	R-1970
6"	R-1973-A
8"	R-1976

NOTES:

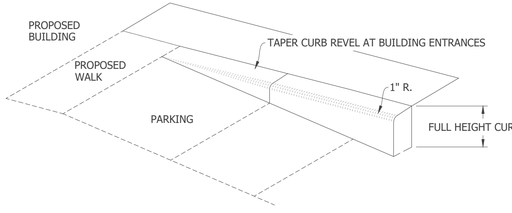
① FOUNDATION MATERIAL - NATURAL OR CRUSHED 1 1/2" ROCK ON ALL WYES AND SERVICE RISER CLEANOUTS.

② IN WET OR UNSUITABLE MATERIAL, BED ENTIRE SERVICE IN 1-1/2" NATURAL OR CRUSHED ROCK.

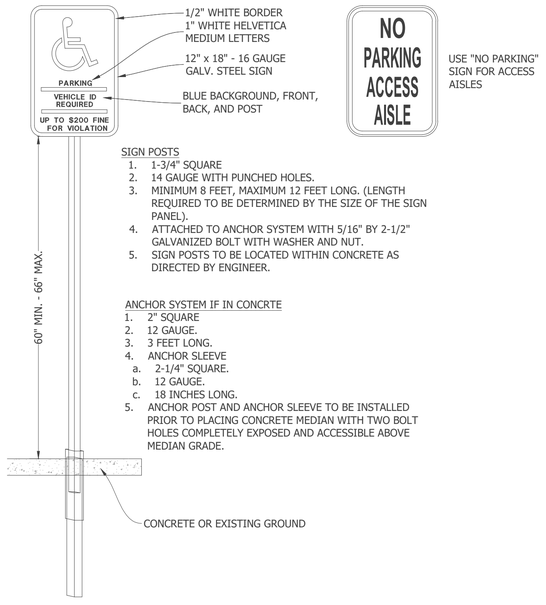
SEWER CLEANOUT CASTING DETAIL
SCALE=N.T.S.



4 A1 FENCE DETAIL
SCALE: 1/4" = 1'-0"



TAPER CURB REVEAL ADJACENT TO BUILDING
SCALE=N.T.S.

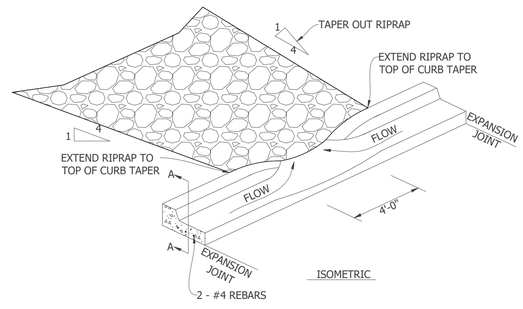


SIGN POSTS
1. 1-3/4" SQUARE
2. 14 GAUGE WITH PUNCHED HOLES.
3. MINIMUM 8 FEET, MAXIMUM 12 FEET LONG. (LENGTH REQUIRED TO BE DETERMINED BY THE SIZE OF THE SIGN PANEL).
4. ATTACHED TO ANCHOR SYSTEM WITH 5/16" BY 2-1/2" GALVANIZED BOLT WITH WASHER AND NUT.
5. SIGN POSTS TO BE LOCATED WITHIN CONCRETE AS DIRECTED BY ENGINEER.

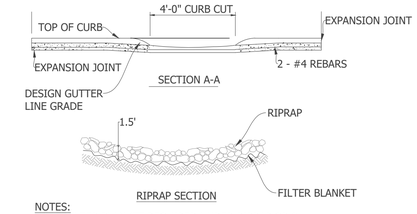
ANCHOR SYSTEM IF IN CONCRTE
1. 2" SQUARE
2. 12 GAUGE.
3. 3 FEET LONG.
4. ANCHOR SLEEVE
   a. 2-1/4" SQUARE.
   b. 12 GAUGE.
   c. 18 INCHES LONG.
5. ANCHOR POST AND ANCHOR SLEEVE TO BE INSTALLED PRIOR TO PLACING CONCRETE MEDIAN WITH TWO BOLT HOLES COMPLETELY EXPOSED AND ACCESSIBLE ABOVE MEDIAN GRADE.

NOTES:
1. ALL POSTS, HARDWARE, AND ANCHOR SYSTEMS SHALL BE TELESPAR SQUARE TUBE SYSTEMS AS DISTRIBUTED BY UNISTRUT CORPORATION, OR EQUAL.
2. PROVIDE "NO PARKING" SIGNAGE AT ACCESS AISLE.
3. SLEEVE NOT REQUIRED IN GREEN SPACE LOCATIONS
4. INSTALL ON POST WITHIN 2' MIN AND 8' MAX FROM HEAD OF PARKING STALL.

ACCESSIBLE PARKING SIGN & POST DETAIL
SCALE=N.T.S.



ISOMETRIC



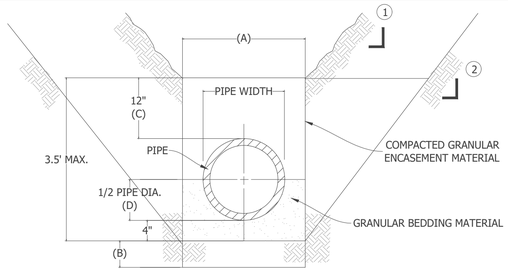
RIPRAP SECTION

NOTES:
1. FILTER BLANKET REQUIRED UNDER RIPRAP OR 2 LAYERS OF 500X "MIRAFI" FABRIC OR EQUAL
2. RIPRAP SHALL EXTEND TO BOTTOM OF SLOPE OR AS SHOWN ON PLANS.
3. CURB TAPERS SHALL BE 3 FT.

*CLASS III RIPRAP, D50= 9 IN. (MNDOT SPEC 3601)

CURB CUT W/ RIPRAP DETAIL
SCALE=N.T.S.

F:\DESIGN TREE ENGINEERING\PROJECTS\109 - JAVA PROPERTIES\10923008 - LINO LAKES 2.0\CONSTRUCTS\CIVIL\10923008-C-DETAILS.DWG #### 8/20/2025



1. 0-12" DEPTH TRENCH
   SLOPE DEPENDS ON SOIL TYPE.
2. 12-20' DEPTH TRENCH
   SLOPE DEPENDS ON SOIL TYPE.
3. 0-20' DEPTH TRENCH
   SUPPORT OR SHIELD SYSTEM CAN BE UTILIZED TO REDUCE TRENCH WIDTH.
4. 20' OR GREATER DEPTH TRENCH
   EXCAVATION MUST BE DESIGNED BY A LICENSED PROFESSIONAL ENGINEER. CONTRACTOR SHALL HAVE THE DESIGN COMPLETED AT HIS EXPENSE AND PROVIDE A COPY TO THE OWNER AND THE PROJECT ENGINEER.

(A) MINIMUM TRENCH WIDTH SHALL ALLOW FOR SIX INCHES OF CLEARANCE ON EACH SIDE OF PIPE JOINT HUB.

(B) THE TRENCH MAY BE OVEREXCAVATED A MIN. OF 6" & BACKFILLED WITH COMPACTED GRANULAR MATERIALS WHEN ROCK, INCOMPRESSIBLE MATERIALS, OR UNSTABLE SOILS ARE ENCOUNTERED.

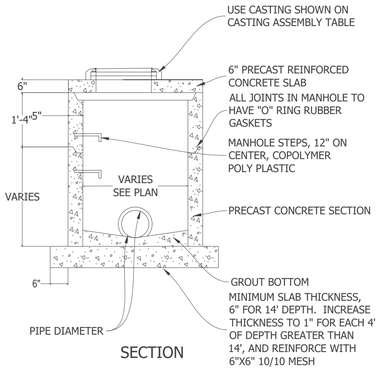
(C) COMPACTED GRANULAR ENCASEMENT MATERIAL SHALL COVER THE TOP OF PIPE BY AT LEAST 12" AND EXTEND THE FULL WIDTH OF THE TRENCH OR AT LEAST 2 1/2" TIMES THE PIPE DIAMETER ON EACH SIDE OF THE PIPE.

(D) BEDDING AND HAUNCHING MATERIAL SHALL BE PLACED AND COMPACTED TO PROVIDE FULL SUPPORT FOR THE LENGTH OF THE PIPE.

NOTES:
1. THIS DETAIL APPLIES TO SANITARY SEWER, STORM SEWER, WATERMAIN, AND ALL SERVICE PIPES.

TYPICAL PIPE BEDDING DETAIL
SCALE=N.T.S.

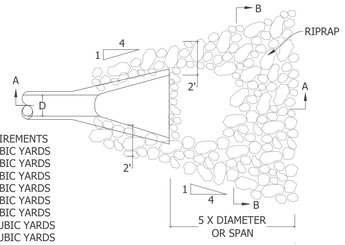
CASTING ASSEMBLY TABLE				
STRUCTURE TYPE	**LOCATION**	**FRAME**	**COVER/GRATE**	**CURB BOX**
STMH	PAVEMENT	700-4	716 STAMPED "STORM SEWER"	
STMH	GREENSPACE	700-4	716 STAMPED "STORM SEWER"	
CB/CBMH	B-STYLE CURB LINE	802A	816 OR 814A (BIKE FRIENDLY)	823A
CB/CBMH	D-STYLE CURB LINE	805	816 OR 814A (BIKE FRIENDLY)	
CB/CBMH	PAVEMENT	700-4	720	
CB/CBMH	GREENSPACE	700-4	731	
CB/CBMH	VALLEY GUTTER	805	814A	
CB/CBMH	ADA	SEE ABOVE	817	



SECTION

NOTE:
1. USE METAL SHIMS ONLY AT ADJUSTING RINGS WHEN LEVELING.
2. ALL PIPE CONNECTIONS SHALL HAVE MANHOLE SLEEVES OR WATERSTOP FOR WATERTIGHT CONNECTIONS.

STANDARD MNDOT STORM MANHOLE/CATCH BASIN 4020
SCALE=N.T.S.

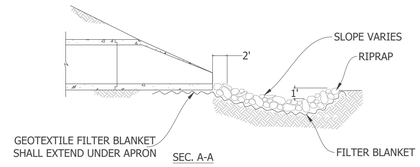


PLAN

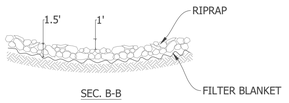
CLASS III RIPRAP REQUIREMENTS

12"	4.4 CUBIC YARDS
15"	4.8 CUBIC YARDS
18"	6.4 CUBIC YARDS
21"	7.1 CUBIC YARDS
24"	9.2 CUBIC YARDS
27"	9.9 CUBIC YARDS
30"	12.3 CUBIC YARDS
36"	15.8 CUBIC YARDS
42"	18.7 CUBIC YARDS
48"	22.2 CUBIC YARDS

(ONE CUBIC YARD IS APPROX. 2,800 LBS)



SEC. A-A

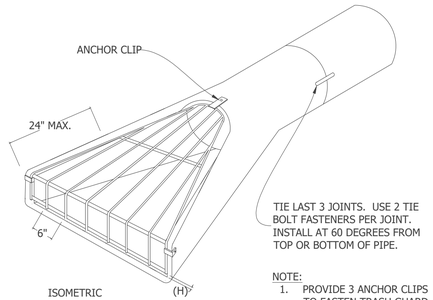


SEC. B-B

NOTES:
1. FILTER BLANKET REQUIRED UNDER RIPRAP OR 2 LAYERS OF 500X "MIRAFI" FABRIC OR EQUAL

*CLASS III RIPRAP, D50= 9 IN. (MNDOT SPEC 3601)

CLASS III RIPRAP AT OUTLETS
SCALE=N.T.S.



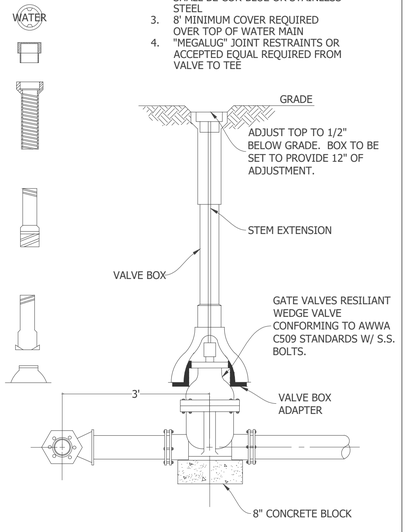
NOTE:
1. PROVIDE 3 ANCHOR CLIPS TO FASTEN TRASH GUARD TO FLARED END SECTION. HOT DIP GALVANIZE AFTER FABRICATION.

TRASH GUARD SIZING

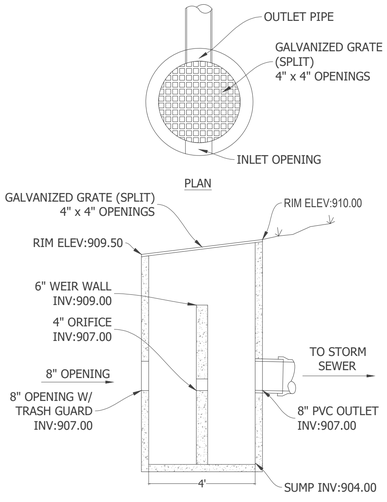
PIPE SIZE	BARS	"H"	BOLTS
12"-18"	¾" DIA	4"	⅝"
21"-42"	1" DIA	6"	¾"
48"-72"	1-1/4" DIA	12"	1"

FLARED END SECTION AND TRASH GUARD
SCALE=N.T.S.

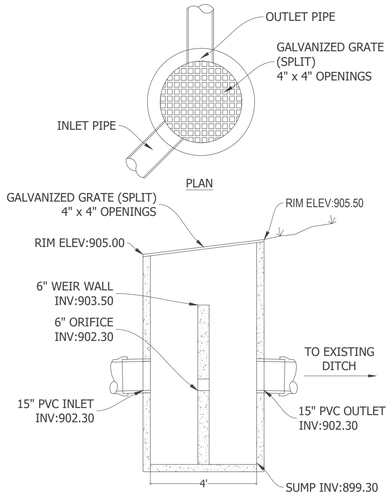
NOTE:
1. BITUMASTIC ANTI-CORROSIVE COATING REQUIRED ON ALL BARE METALS (AEROSOL SPRAY IS NOT ACCEPTABLE)
2. ALL MECHANICAL JOINT BOLTS SHALL BE COR-BLUE OR STAINLESS STEEL
3. 8' MINIMUM COVER REQUIRED OVER TOP OF WATER MAIN
4. "MEGALUG" JOINT RESTRAINTS OR ACCEPTED EQUAL REQUIRED FROM VALVE TO TEE



GATE VALVE & BOX INSTALLATION
SCALE=N.T.S.



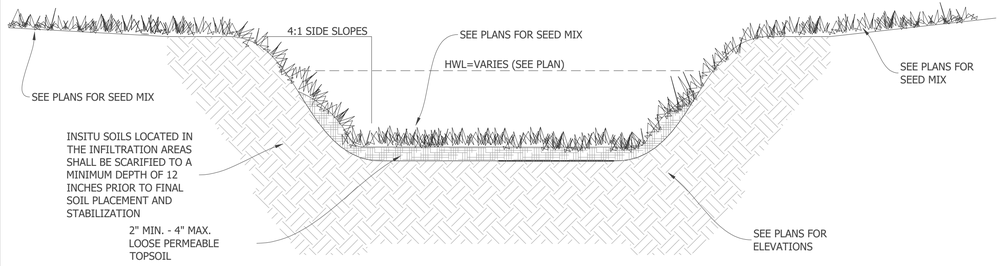
OUTLET STRUCTURE 0S-1 DETAIL
SCALE=N.T.S.



OUTLET STRUCTURE 0S-2 DETAIL
SCALE=N.T.S.

INFILTRATION BMP CONSTRUCTION REQUIREMENTS:

1. **PROTECT SITE:** BEFORE THE PROJECT STARTS, THE INFILTRATION BMP PERIMETER IS REQUIRED TO BE MARKED AND STAKED OFF TO AVOID SOIL COMPACTION. EXAMPLES: YELLOW CAUTION TAPE OR SILT FENCE.
2. **DON'T COMPACT:** IT IS EXTREMELY IMPORTANT WHILE EXCAVATING AND THROUGHOUT THE CONSTRUCTION PHASE NOT TO COMPACT THE SOIL. KEEP VEHICLES AND EQUIPMENT OFF THE INFILTRATION AREA.
3. **WHEN TO CONSTRUCT:** INFILTRATION SYSTEMS SHOULD NOT BE EXCAVATED TO FINAL GRADE UNTIL THE CONTRIBUTING DRAINAGE AREA HAS BEEN CONSTRUCTED AND FULLY STABILIZED. CONTRIBUTING DRAINAGE AREAS ARE REQUIRED TO BE FULLY STABILIZED PRIOR TO BRINGING INFILTRATION SYSTEMS INTO USE.
4. **DURING CONSTRUCTION** OF AN INFILTRATION SYSTEM, RIGOROUS EROSION PREVENTION AND SEDIMENT CONTROLS (e.g. DIVERSION BERMS) ARE REQUIRED TO KEEP SEDIMENT AND RUNOFF COMPLETELY AWAY FROM THE INFILTRATION AREA. INFILTRATION BMP'S SHOULD BE CONSTRUCTED AT THE END OF THE PROJECT IF POSSIBLE.
5. **SOILS:** SOIL MIXTURES MUST FOLLOW DESIGN SPECIFICATIONS. IF SOILS UNDER THE INFILTRATION AREA ARE HEAVILY COMPACTED OR OF MATERIAL THAT DOES NOT DRAIN (e.g. CLAY) ALTERATIONS MUST BE IMPLEMENTED SUCH AS DEEP SOIL RIPPING OR REMOVAL AND REPLACEMENT OF UNDERLYING SOILS.
6. **GRADES AND ELEVATIONS:** SLOPES, ELEVATIONS, AND DEPTHS OF THE INFILTRATION DESIGN ARE REQUIRED TO BE FOLLOWED TO ENSURE PROPER FUNCTIONING OF THE SYSTEM.
7. **REMOVE SEDIMENT:** SEDIMENT IS REQUIRED TO BE REMOVED FROM THE BMP WHEN THE PROJECT IS COMPLETED.
8. **PRE-TREATMENT CONSTRUCTION:** REQUIRED PRIOR TO DISCHARGING TO THE INFILTRATION BMP. IMPORTANT TO INSTALL CORRECTLY SO WATER CAN ENTER THE INFILTRATION AREA - SEDIMENT MUST BE REMOVED AT THE END OF THE PROJECT.
9. **POST-CONSTRUCTION OPERATION AND MAINTENANCE:** A POST-CONSTRUCTION MAINTENANCE PLAN IS REQUIRED. DO THIS PRIOR TO LAND DISTURBANCE PERMIT TERMINATION.



TYPICAL INFILTRATION BASIN SECTION
SCALE=N.T.S.

DESIGN TREE
engineering + land surveying
Corporate Office:
120 17th Ave W Alexandria, MN 56308
888-216-1916

JAVA COMPANIES

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.

PRINTED NAME: MICHAEL J. GERBER

DATE: 03/28/2025 LICENSE #: 56653

JAVA LINO LAKES 2ND ADDITION

LINO LAKES, MN

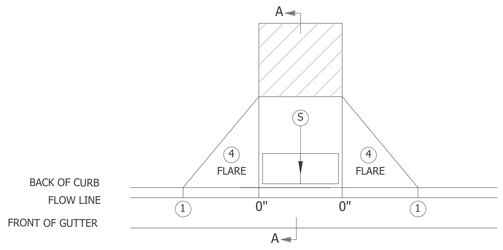
DRAWN BY:	NPK
CHECKED BY:	JEA
PROJECT NO.:	10923008

NO.	DATE	DESCRIPTION
1	06/09/2025	FINAL PLAT SUBMITTAL
2	07/15/2025	REV. FINAL PLAT SUBMITTAL
3	08/20/2025	RCWD REVISIONS

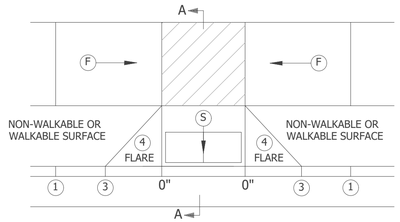
CIVIL DETAILS

DRAWING NO.

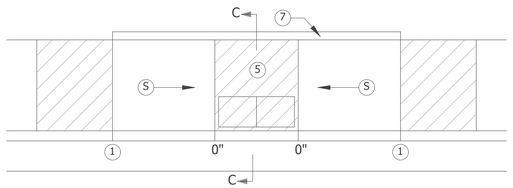
C602



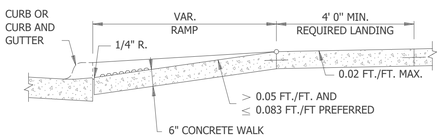
PERPENDICULAR



TIERED PERPENDICULAR

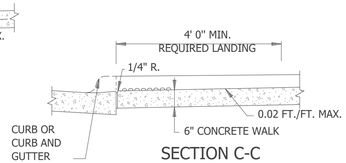


PARALLEL



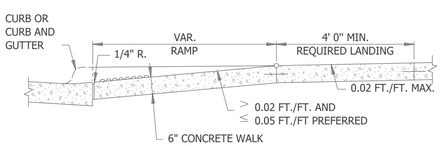
SECTION A-A

PERPENDICULAR/TIERED/DIAGONAL



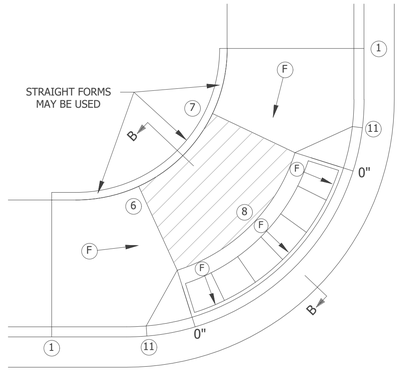
SECTION C-C

PARALLEL/DEPRESSED CORNER

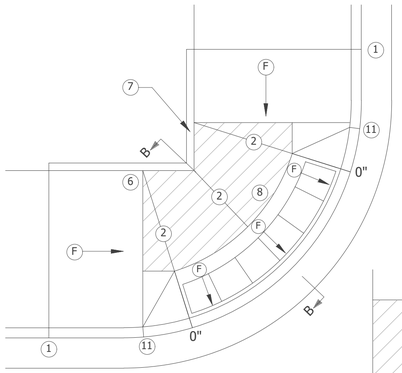


SECTION B-B

FAN

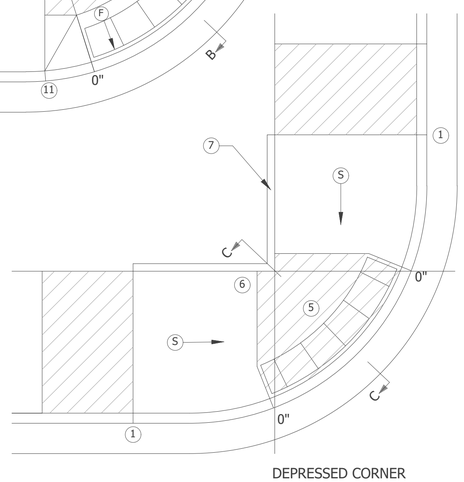


FAN (10)

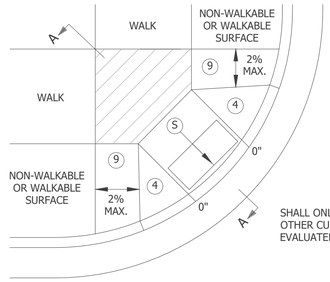


MODIFIED FAN (10)

USED WHEN RIGHT-OF-WAY IS CONSTRAINED



DEPRESSED CORNER



DIAGONAL

SHALL ONLY BE USED AFTER ALL OTHER CURB RAMP TYPES HAVE BEEN EVALUATED AND DEEMED IMPRACTICAL

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 RAMPS AND LANDINGS ARE PROPERLY CONSTRUCTED, ALL INITIAL LANDINGS AT A TOP OF A RAMPED SURFACE (RUNNING SLOPE GREATER THAN 2%) SHALL BE FORMED AND PLACED SEPARATELY IN AN INDEPENDENT CONCRETE POUR. FOLLOW SIDEWALK REINFORCEMENT DETAILS ON SHEET 6 OF 6 FOR ALL SEPARATELY POURED INITIAL LANDINGS.

WHEN SIDEWALK IS AT BACK OF CURB, TOP OF CURB SHALL MATCH PROPOSED ADJACENT WALK GRADE.

MAINTAIN POSITIVE BOULEVARD DRAINAGE TO TOP OF CURB.

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 THE ENTIRE PAR WIDTH OF SHARED-USE PATHS AND THE ENTIRE PAR WIDTH OF THE WALK WITH THE EXCEPTION OF 3" MAXIMUM ON EACH OUTSIDE EDGE WHICH ENSURES THE DETECTABLE WARNINGS ARE ENCASED IN CONCRETE WHEN ADJACENT TO TURF. WHEN ADJACENT TO CONCRETE FLARES 0" - 3" OFFSET IS ALLOWED.

WHEN DESIGNING OR ORDERING RECTANGULAR DETECTABLE WARNING SURFACES SHOULD BE 6" LESS THAN THE INCOMING PAR. ARC LENGTH OF THE 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, 4" 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.

(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. V CURB, IF USED, SHALL BE PLACED OUTSIDE THE SIDEWALK LIMITS WHEN RIGHT OF WAY ALLOWS. WHEN ADJACENT TO PARKING LOTS, CONCRETE OR BITUMINOUS TAPERS LESS THAN 5% RUNNING SLOPE SHOULD BE USED OVER V CURB TO REDUCE TRIPPING HAZARDS AND FACILITATE SNOW & ICE REMOVAL.

(8) A 7' MIN TOP RADIUS GRADE BREAK IS REQUIRED TO BE CONSTRUCTIBLE.

(9) PAVE FULL WALK WIDTH.

(10) "S" SLOPES ON FANS SHALL ONLY BE USED WHEN ALL OTHER FEASIBLE OPTIONS HAVE BEEN EVALUATED AND DEEMED IMPRACTICAL.

(11) INTERMEDIATE CURB HEIGHTS TAPER SHALL RISE AT 8-10% TO A MINIMUM 3" CURB HEIGHT. REDUCE INTERMEDIATE CURB HEIGHT TO 2+ INCHES IF NECESSARY TO MATCH ADJACENT BOULEVARD OR SIDEWALK GRADES.

LEGEND

THESE LONGITUDINAL SLOPE RANGES SHALL BE THE STARTING POINT. IF SITE CONDITIONS WARRANT, LONGITUDINAL SLOPES UP TO 8.3% OR FLATTER ARE ALLOWED.

(S) INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE BETWEEN 5.0% MINIMUM AND 8.3% MAXIMUM IN THE DIRECTION SHOWN AND THE CROSS SLOPE SHALL NOT EXCEED 2.0%.

(F) INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE GREATER THAN 2.0% AND LESS THAN 5.0% IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%.

LANDING AREA - 4' X 4' MIN. (5' X 5' MIN. PREFERRED) DIMENSIONS AND MAX 2.0% SLOPE IN ALL DIRECTIONS. LANDING SHALL BE FULL WIDTH OF INCOMING PARS.

X" CURB HEIGHT

THIS IS FOR GUIDELINE ONLY. REFER TO MNDOT STANDARD PLANS 5-297.250

PEDESTRIAN RAMP DETAILS

SCALE=N.T.S.

DESIGN TREE
engineering + land surveying
Corporate Office:
120 17th Ave W Alexandria, MN 56308
888-216-1916

JAVA COMPANIES

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.

PRINTED NAME: MICHAEL J. GERBER

DATE: 03/28/2025 LICENSE #: 56653

JAVA LINO LAKES 2ND ADDITION

LINO LAKES, MN

DRAWN BY: NPK

CHECKED BY: JEA

PROJECT NO.: 10923008

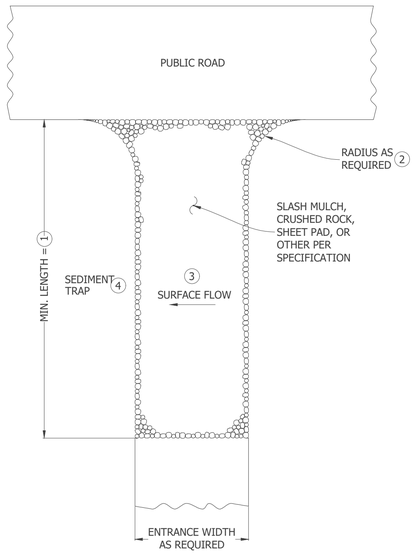
NO.	DATE	DESCRIPTION
1	06/09/2025	FINAL PLAT SUBMITTAL
2	07/15/2025	REV. FINAL PLAT SUBMITTAL
3	08/20/2025	RCWD REVISIONS

CIVIL DETAILS

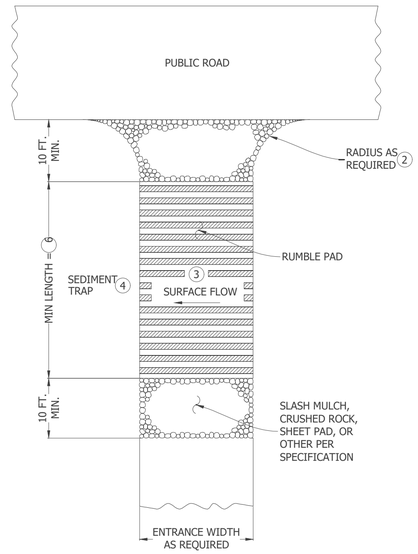
DRAWING NO.

C603

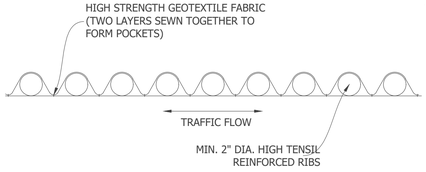
F:\DESIGN TREE ENGINEERING\PROJECTS\109 - JAVA PROPERTIES\10923008 - LINO LAKES 2.0\CONSTRUCTS\CIVIL\10923008-C-DETAILS.DWG #### 8/20/2025



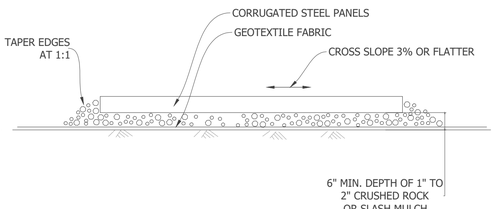
SLASH MULCH, CRUSHED ROCK, OR SHEET PAD CONSTRUCTION EXIT (5) (7)



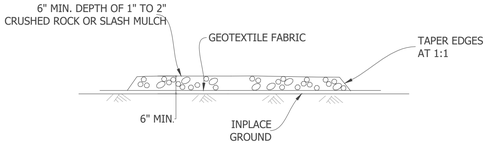
RUMBLE PAD CONSTRUCTION EXIT (5) (7)



SHEET PAD



RUMBLE PAD



SLASH MULCH OR CRUSHED ROCK

NOTES:

SEE SPECS. 2573 & 3882.

(1) MINIMUM LENGTH SHALL BE THE GREATER OF 50 FEET OR A LENGTH SUFFICIENT TO ALLOW A MINIMUM OF 5 TIRE ROTATIONS ON THE PROVIDED PAD. MINIMUM LENGTH SHALL BE CALCULATED USING THE LARGEST TIRE WHICH WILL BE USED IN TYPICAL OPERATIONS.

(2) PROVIDE RADIUS OR WIDEN PAD SUFFICIENTLY TO PREVENT VEHICLE TIRES FROM TRACKING OFF OF PAD WHEN LEAVING SITE.

(3) IF RUNOFF FROM DISTURBED AREAS FLOWS TOWARD CONSTRUCTION EXITS, PREVENT RUNOFF FROM DRAINING DIRECTLY TO PUBLIC ROAD OVER CONSTRUCTION EXIT BY CROWNING THE EXIT OR SLOPING TO ONE SIDE. IF SURFACE GRADING IS INSUFFICIENT, PROVIDE OTHER MEANS OF INTERCEPTING RUNOFF.

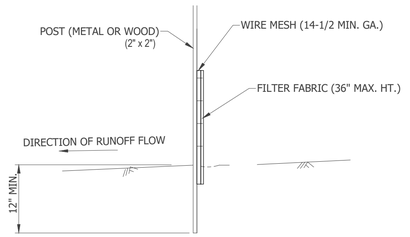
(4) IF RUNOFF FROM CONSTRUCTION EXITS WILL DRAIN OFF OF PROJECT SITE, PROVIDE SEDIMENT TRAP WITH STABILIZED OVERFLOW.

(5) IF A TIRE WASH OFF IS REQUIRED THE CONSTRUCTION EXITS SHALL BE GRADED TO DRAIN THE WASH WATER TO A SEDIMENT TRAP.

(6) MINIMUM LENGTH OF RUMBLE PAD SHALL BE 20 FEET, OR AS REQUIRED TO REMOVE SEDIMENT FROM TIRES. IF SIGNIFICANT SEDIMENT IS TRACKED FROM THE SITE, THE RUMBLE PAD SHALL BE LENGTHENED OR THE DESIGN MODIFIED TO PROVIDE ADDITIONAL VIBRATION. WASH-OFF LENGTH SHALL BE AS REQUIRED TO EFFECTIVELY REMOVE CONSTRUCTION SEDIMENT FROM VEHICLE TIRES.

(7) MAINTENANCE OF CONSTRUCTION EXITS SHALL OCCUR WHEN THE EFFECTIVENESS OF SEDIMENT REMOVAL HAS BEEN REDUCED. MAINTENANCE SHALL CONSIST OF REMOVING SEDIMENT AND CLEANING THE MATERIALS OR PLACING ADDITIONAL MATERIAL (SLASH MULCH OR CRUSHED ROCK) OVER SEDIMENT FILLED MATERIAL TO RESTORE EFFECTIVENESS.

STABILIZED CONSTRUCTION EXIT DETAILS
SCALE=N.T.S.



NOTES:
1. TYPE OF FENCING TO BE USED SHALL COMPLY WITH MNDOT 3886.1 UNLESS INDICATED OTHERWISE ON PLANS.

2. DIG A 6" x 6" TRENCH ALONG THE INTENDED FENCE LINE.

3. DRIVE ALL POSTS INTO THE GROUND AT THE DOWNHILL SIDE OF TRENCH.

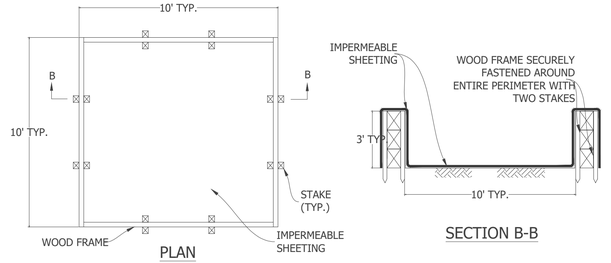
4. WIRE FENCING PER MNDOT SPEC. 3886. WIRE MESH MUST BE A MINIMUM OF 2" INTO THE GROUND AND NO MORE THAN 36" ABOVE THE ORIGINAL GROUND SURFACE.

5. FILTER FABRIC PER MNDOT SPEC. 3886. FABRIC APPARENT OPENING SIZE (AOS) SHALL BE 30 TO 80 IN AREAS OF COARSE GRAINED SOILS, AND 50 TO 80 IN AREAS OF FINE GRAINED SOILS.

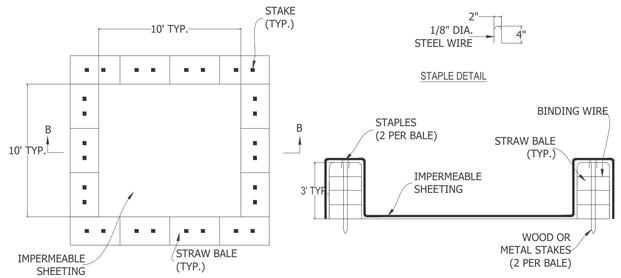
6. LAY OUT SILT FENCE ON THE UPHILL SIDE ALONG THE FENCE LINE, AND BACK FILL.

7. WOOD POSTS MAY BE SPACED UP TO 4 FEET APART IF WIRE MESH IS NOT USED TO SUPPORT THE FABRIC. IF WIRE MESH IS USED TO SUPPORT THE FABRIC STEEL POSTS MAY BE SPACED UP TO 8 FEET APART.

SILT FENCE DETAIL
SCALE=N.T.S.

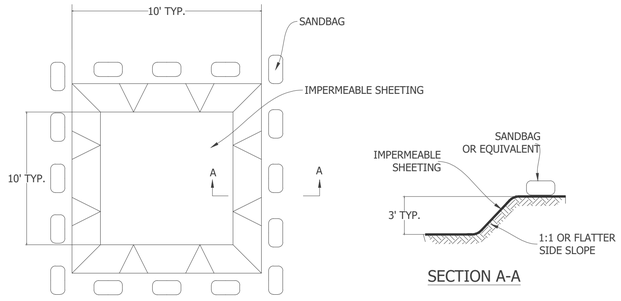


WASHOUT STRUCTURE WITH WOOD PLANKS



NOTE:
CAN BE TWO STACKED BALES OR PARTIALLY EXCAVATED TO REACH 3 FT DEPTH

WASHOUT STRUCTURE WITH STRAW BALES



EXCAVATED WASHOUT STRUCTURE

CONSTRUCTION SPECIFICATIONS

1. LOCATE WASHOUT STRUCTURE A MINIMUM OF 50 FEET AWAY FROM OPEN CHANNELS, STORM DRAIN INLETS, SENSITIVE AREAS, WETLANDS, BUFFERS AND WATER COURSES AND AWAY FROM CONSTRUCTION TRAFFIC.

2. SIZE WASHOUT STRUCTURE FOR VOLUME NECESSARY TO CONTAIN WASH WATER AND SOLIDS AND MAINTAIN AT LEAST 4 INCHES OF FREEBOARD. TYPICAL DIMENSIONS ARE 10 FEET X 10 FEET X 3 FEET DEEP.

3. PREPARE SOIL BASE FREE OF ROCKS OR OTHER DEBRIS THAT MAY CAUSE TEARS OR HOLES IN THE LINER. FOR LINER, USE 10 MIL OR THICKER UV RESISTANT, IMPERMEABLE SHEETING, FREE OF HOLES AND TEARS OR OTHER DEFECTS THAT COMPROMISE IMPERMEABILITY OF THE MATERIAL.

4. PROVIDE A SIGN FOR THE WASHOUT IN CLOSE PROXIMITY TO THE FACILITY.

5. KEEP CONCRETE WASHOUT STRUCTURE WATER TIGHT. REPLACE IMPERMEABLE LINER IF DAMAGED (E.G., RIPPED OR PUNCTURED). EMPTY OR REPLACE WASHOUT STRUCTURE THAT IS 75 PERCENT FULL, AND DISPOSE OF ACCUMULATED MATERIAL PROPERLY. DO NOT REUSE PLASTIC LINER. WET-VACUUM STORED LIQUIDS THAT HAVE NOT EVAPORATED AND DISPOSE OF IN AN APPROVED MANNER. PRIOR TO FORECASTED RAINSTORMS, REMOVE LIQUIDS OR COVER STRUCTURE TO PREVENT OVERFLOWS. REMOVE HARDENED SOLIDS, WHOLE OR BROKEN UP, FOR DISPOSAL OR RECYCLING. MAINTAIN RUNOFF DIVERSION AROUND EXCAVATED WASHOUT STRUCTURE UNTIL STRUCTURE IS REMOVED.

CONCRETE WASHOUT DETAILS
SCALE=N.T.S.

DESIGN TREE
engineering + land surveying
Corporate Office:
120 17th Ave W Alexandria, MN 56308
888-216-1916

JAVA COMPANIES

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.

PRINTED NAME: MICHAEL J. GERBER

DATE: 03/28/2025 LICENSE #: 56653

JAVA LINO LAKES 2ND ADDITION

LINO LAKES, MN

DRAWN BY: NPK

CHECKED BY: JEA

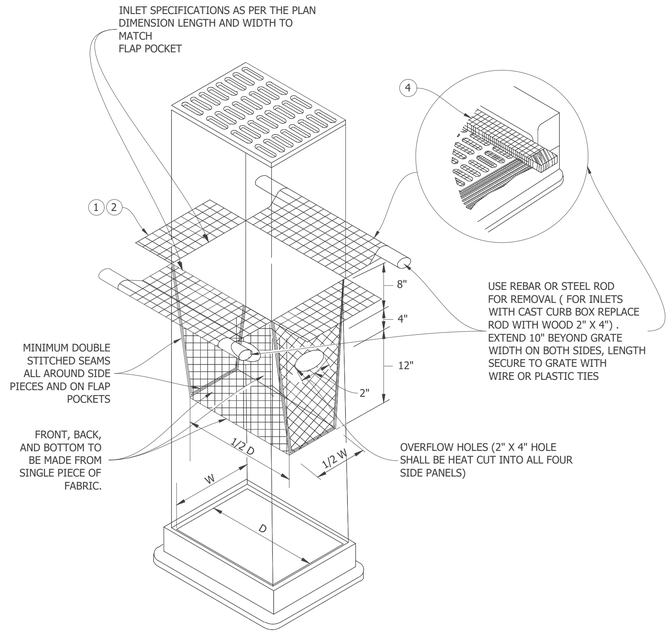
PROJECT NO.: 10923008

NO.	DATE	DESCRIPTION
1	06/09/2025	FINAL PLAT SUBMITTAL
2	07/15/2025	REV. FINAL PLAT SUBMITTAL
3	08/20/2025	RCWD REVISIONS

EROSION CONTROL DETAILS

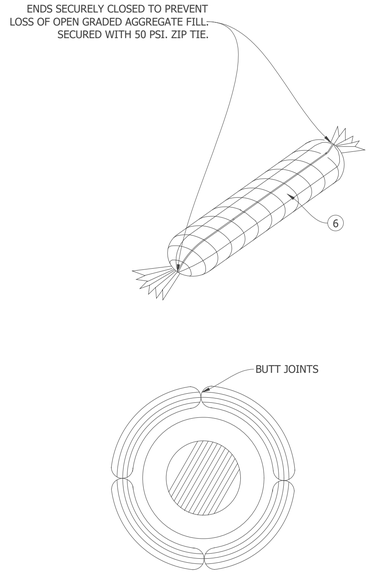
DRAWING NO.

C604

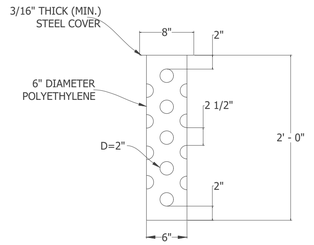


FILTER BAG INSERT (3)

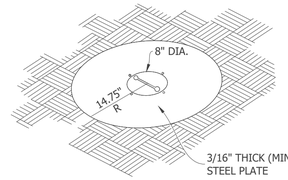
(CAN BE INSTALLED IN ANY INLET TYPE WITH OR WITHOUT A CURB BOX)



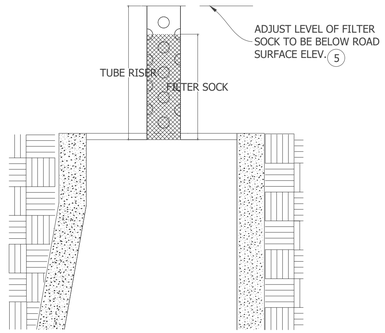
ROCK LOG/COMPOST LOG



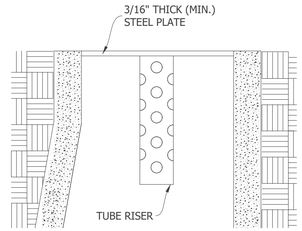
TUBE RISER



PERSPECTIVE VIEW

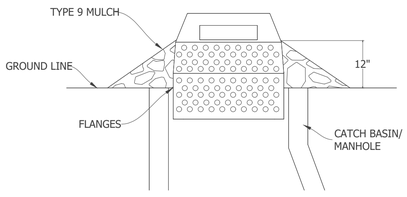


SECTION
(UP POSITION)



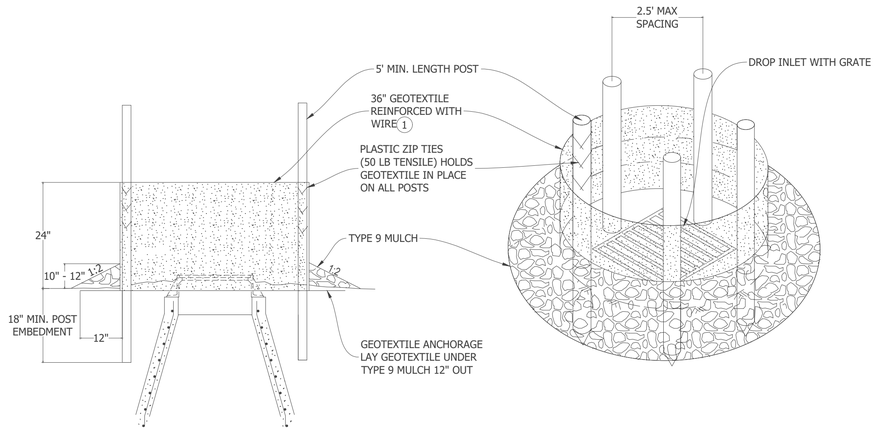
SECTION
(DOWN POSITION)

POP-UP HEAD



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.



SILT FENCE RING AND ROCK FILTER BERM

USE WHERE INLET DRAINS IN AN AREA WITH SLOPES AT 1:3 or LESS

NOTES:

SEE SPECS. 2573, 3137, 3886.

DEVICES MUST BE ADJUSTED ACCORDINGLY AS TO NOT CAUSE FLOODING ON ROADWAY THAT WOULD IMPEDE TRAFFIC FLOW.

(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 PLACED 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.

STORM DRAIN INLET PROTECTION DETAILS

SCALE=N.T.S.

DESIGN TREE
engineering + land surveying
Corporate Office:
120 17th Ave W Alexandria, MN 56308
888-216-1916

JAVA COMPANIES

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PRINTED NAME: MICHAEL J. GERBER

DATE: 03/28/2025 LICENSE #: 56653

JAVA LINO LAKES 2ND ADDITION

LINO LAKES, MN

DRAWN BY:	NPK
CHECKED BY:	JEA
PROJECT NO.:	10923008

NO.	DATE	DESCRIPTION
1	06/09/2025	FINAL PLAT SUBMITTAL
2	07/15/2025	REV. FINAL PLAT SUBMITTAL
3	08/20/2025	RCWD REVISIONS

EROSION CONTROL DETAILS

DRAWING NO.

C605

Project Description:
The work on the project includes the development of three existing lots within Lino Lakes and coordination with the City of Lino Lakes, as they design and construct Marketplace Drive, and the removal of 77th St. The proposed development will span Marketplace Drive, and include the addition of new buildings, parking lots, curb, walk, landscape space, and stormwater infiltration basins, pipe, and pretreatment devices. The project is located at 7691 Lake Dr, Lino Lakes, MN, 55014. The majority of the underlying soils on the property are in Hydrologic Soil Group "B" and have moderate infiltration rates when thoroughly wet.

Receiving Waters:
All existing stormwater runoff sheet flows to a culvert, north of the proposed development. All stormwater runoff from proposed impervious surfaces will be treated via infiltration basin BMPs, and perforated storm sewer BMPs. Overflow from these systems will continue to flow to City storm sewer infrastructure, discharging to the culvert, north of the proposed development.

Responsible Parties:
The Owner and the Contractor are responsible co-permittees for the implementation of the SWPPP. The Contractor and Owner shall apply for the NPDES/SDS Construction Permit within 24 hours of award of Contract. The complete application must be submitted prior to start of construction activity. The Contractor is responsible for installation, inspection, maintenance, and repair of all erosion prevention and sediment control BMPs before, during, and after active construction. The Contractor shall amend the SWPPP before beginning construction to include the chain of responsibility of all operators on the site, or if not known, the title or position of the responsible party. The Contractor is responsible for identifying a trained person (as specified in the NPDES/SDS Contruction Permit) knowledgeable and experienced in the application of erosion prevention and sediment control BMPs who will oversee the implementation of the SWPPP before and during construction until the construction project is complete, the entire site has undergone final stabilization, and a Notice of Termination(NOT)/Permit Modification form has been submitted to the MPCA. The Owner must identify who will be responsible for the long-term operation and maintenance of all permanent stormwater management systems. The Contractor is liable until final stabilization of all disturbed areas is achieved and the Notice of Termination (NOT)/Permit Modification form is submitted to the MPCA (as specified in the NPDES/SDS Construction Permit). Once the identity of Responsible Parties is known, the SWPPP must be amended to include this information in the area below.

Project Contacts:

Project Engineer	Owner	Contractor
MICHAEL J GERBER	JAVA PROPERTIES	TBD
DESIGN TREE ENGINEERING & LAND SURVEYING	MARK KROGH	
120 17TH AVE W.	255 E St	
ALEXANDRIA, MN 56308	Mendota, MN 55150	
(320) 227-0203		
MJG@DTE-LS.COM		

SWPPP Amendments:
The Owner or Contractor must amend the SWPPP as necessary to include additional requirements, such as additional or modified BMPs that are designed to correct problems identified or address situations whenever:

1. There is a change in design, construction, operation, maintenance, weather or seasonal conditions that has a significant effect on the discharge of pollutants to surface water or underground waters.
2. Inspections or investigations by site owner or operators, USEPA or MPCA officials indicate the SWPPP is not effective in eliminating or significantly minimizing the discharge of pollutants to surface waters or underground waters or that the discharges are causing water quality standard exceedances.
3. The SWPPP is not achieving the general objectives of minimizing pollutants in stormwater discharges associated with construction activity, or the SWPPP is not consistent with the terms and conditions of this permit.
4. At any time after the permit coverage is effective, the MPCA deems necessary.

Construction Notes:
Construction shall be governed by the MnDOT Standard Specifications for Construction, latest edition, City of Lino Lake's Specifications, special provisions, amendments, and the project specifications and details. Permits and maps relating to this project's SWPPP can be found in the Project Documents. The Contractor shall keep inspection and maintenance logs and NPDES/SDS Construction Permit on-site at all times during active construction. Please refer to the plans and specifications for additional SWPPP information.
Soil Compaction should be minimized and topsoil should be preserved whenever and wherever possible during construction
All soil stockpiling shall include sediment control devices and shall be placed in areas away from surface waters or natural buffers.

Special Waters, Impaired Waters, & TMDL Implementation Plans:
The site is located within 1 mile of George Watch Lake and Marshan Lake, which are considered impaired waters as identified by the MPCA. Both George Watch Lake, and Marshan Lake have an EPA-approved impairment for Nutrients. These impairments are considered to be construction related parameters and require additional best management practices found in items 23.9 and 23.10 of the permit. All disturbed areas not actively being worked must be stabilized within 7 days. The Owner is responsible for the long term maintenance of all stormwater treatment facilities and private storm sewer systems. Inlet protection, silt fence, final stabilization, and other BMPs must be implemented prior to allowing any water runoff from being discharged off-site.

Calculations:

Disturbed Area	4.5 AC
Pre-Construction Impervious Area	0.552 AC
Post-Construction Impervious Area	2.122 AC
Net Increase in Impervious Area	1.570 AC

Sequence of Construction:
The Contractor shall verify that all applicable permits have been obtained and the NPDES/SDS Construction Permit has been submitted to the MPCA prior to the start of construction.

1. The Contractor must plan for and implement appropriate construction phasing, vegetated buffer strips, horizontal slope grading, and other construction practices that minimize erosion. The location of areas not to be disturbed are shown on the plans.
2. The Contractor shall be responsible for full implementation and maintenance required by the SWPPP untill the Notice of Termination (NOT) is approved by the MPCA.
3. The Contractor shall construct erosion and sediment control BMPs in the following construction sequence:
   a. Install rock construction entrances where indicated in the plans.
   b. Install silt fence and inlet protection where indicated in the plans.
   c. Install silt fence around proposed infiltration and bioretention BMPs to protect soils from compaction.
   d. Locate portable toilets on flat surfaces away from drainage paths. Position portable toilets so they are secure and will not tip or be knocked over.
   e. Construct concrete washout area and provide signage.
   f. Establish waste control areas.
   g. Construct diversions to sediment basins.
   h. Rough grade site.
   i. Leave disturbed area of site in a roughened condition to limit erosion. Temporarily stabilize areas that will be inactive for a period of 7 days.
   j. Install storm drainage system and place inlet protection as each inlet is installed. Energy dissipation devices shall be installed and functional within 24 hours of connecting pip outlets to surface waters.
   k. Protect and repair BMPs, as necessary.
   l. Perform street sweeping as needed.
   m. Temporarily stabilize areas not actively being worked.
   n. Site construction (Utilities, paving, buildings, etc...)
   o. Final grading.
   p. Final stabilization (seeding, planting). Stabilized soil with the seed mix indicated on the plans..
   q. Construct stormwater infiltration basins and bioretention basins only when contributing drainage area has been constructed and fully stabilized.
   r. Remove erosion control devices upon site establishment in accordance with the NPDES/SDS Notice of Termination (NOT) requirements.

Final Stabilization:
Final stabilization is not met until all of the following are completed:

1. Stabilization by uniform perennial vegetative cover (70% density of it's expected final growth). The seed mix indicated on the plan or sod shall be used for final stabilization.
2. Permanent stormwater management system is constructed, meets all requirements, and is operational.
3. Drainage ditches are fully stabilized.
4. All temporary synthetic and structural BMPs are removed.
5. Sediment from conveyance systems and sedimentation basins are cleaned out (returned to design capacity).
6. Notice of Termination (NOT) is submitted to the MPCA.

Erosion Control Maintenance and Inspection: BMP inspection and maintenance Responsible Party: _____

1. Inspect erosion control devices and provide routine maintenance as follows:
   a. Inspect erosion control a minimum of once per week and within 24 hours of a rainfall event greater than 0.5" in 24 hours.
   b. Records of each inspection and maintenance activity shall include:
      - Date and time of inspections.
      - Name of person(s) conducting inspection.
      - Accurate findings of inspection, including the specific location where corrective actions are needed.
      - Corrective actions taken (including dates, times, and party completing maintenance activities).
      - Date and amount of all rainfall events greater than 0.5" in 24 hours, and the amount of rainfall for each event. Rainfall amounts must be obtained by either a properly maintained rain gauge installed onsite, a weather station that is within 1 mile of the site, or a weather reporting system that provides site specific rainfall data from radar summaries.
      - If discharge is observed during the inspection, the inspector must record and should photograph and describe the location of the discharge (i.e. color, odor, settled or suspended solids, oil sheen, and other obvious indicators of pollutants).
      - Documentation of amendments to the SWPPP proposed as a result of the inspection as required by the NPDES/SDS Construction Permit.
   c. Inspections may be suspended where construction activity has been suspended due to frozen ground conditions. Inspections must resume within 24 hours of runoff occurring, or upon resuming construction, whichever comes first.
2. Provide maintenance for all devices as follows:
   a. Silt fences and erosion control devices at storm sewer inlets shall be inspected for depth of sediment, tears, to see if fabric is securely attached to support posts or structure, and to see that posts and devices are securely in place.
   b. Silt fence, inlet protection at storm sewer inlets, and other erosion control devices shall be cleaned when sediment reaches 1/3 of the height of the erosion control device.
   c. Rock construction entrances shall be inspected for clogging of rock. Rock that has become clogged with sediment shall be removed and replaced with clean rock.
   d. Repairs or replacement of all erosion control devices shall occur within 24 hours of discovery.
   e. Temporary sediment basins shall be cleaned when sediment reaches 1/2 of the outlet's height or 1/2 of the basins storage volume. The basin shall be drained and sediment removed within 72 hours.
   f. Temporary diversion berms shall be inspected and any breaches shall be promptly repaired.
   g. Tracked sediment from construction vehicles onto public streets and paved areas (including paved areas on the construction site) shall be removed within 24 hours of discovery.
   h. The bottom and side slopes of the proposed stormwater treatment basins shall be stabilized within 200 feet of the property lines or point of discharge to any surface water, including curb and gutter, pavement, storm sewer, swales, or other similar stormwater conveyance devices.
   i. Removal of all deltas and sediment deposited in surface waters and re-stabilization of exposed soils shall be accomplished within 7 days of discovery.

Pollution Prevention Management Measures:

1. Storage, handling, and disposal of construction products, materials and wastes:
   a. The Contractor shall comply with the following to minimize the exposure to stormwater (any of the products, materials, or wastes/products which are either not a source of contamination to strormwater or are designed to be exposed to stormwater are not held to this requirement):
      - Building products that have the potential to leach pollutants must be under cover (e.g. plastic sheeting or temporary roofs) to prevent the discharge of pollutants or be protected by a similarly effective means designed to prevent contact with stormwater.
      - Pesticides, herbicides, insecticides, fertilizers, treatment chemicals, and landscape materials must be under cover (e.g. plastic sheeting or temporary roofs) to prevent the discharge of pollutants or protected by similarly effective means designed to prevent contact with stormwater.
      - Hazardous materials, toxic wastes (including oil, diesel fuel, gasoline., hydraulic fluids, paint solvents, petroleum-based products, wood preservatives, additives, curing compounds, and acids), must be properly stored in sealed containers to prevent spills, leaks, or other discharge.
      - Restricted access storage areas must be provided to prevent vandalism. Storage and disposal of hazardous waste or hazardous materials must be in compliance with Minn. R. ch. 7045 including secondary containment as applicable.
      - Solid wastes must be stored, collected, and disposed of properly in compliance with Minn. R. ch. 7035.
      - Portable toilets must be positioned so that they are secure and will not be tipped or knocked over. Sanitary waste must be disposed of properly in accordance with Minn. R. ch. 7041.
2. Fueling and maintenance of equipment or vehicles; spill prevention and response:
   a. The Contractor shall take reasonable steps to prevent the discharge of spilled or leaked chemicals, including fuel, from any areas where chemicals or fuel will be loaded or unloaded including the use of drip pans or absorbents unless infeasible.
   b. The Contractor must conduct fueling in a contained area unless infeasible.
   c. The Contractor must ensure adequate supplies are available at all times to clean up discharged materials and that an appropriate disposal method is available for recovered spilled materials.
   d. The Contractor must report and clean up spills immediately as required by Minn. Stat. 115.061, using dry clean up measures where possible.
3. Vehicle and equipment washing:
   a. If the Contractor washes the exterior of vehicles or equipment on the project site, washing must be limited to a defined area of the site.
   b. Runoff from the washing area must be contained in a sediment basin or other similarly effective controls and waste from the washing activity must be properly disposed of.
4. The Contractor must properly use and store soaps, detergents, and solvents.
5. No engine degreasing is allowed on site.
6. Concrete and other washout waste:
   a. The Contractor must provide effective containment for all liquid and solid wastes generated by washout operations (concrete, stucco, paint, form release oils, curing compounds, and other construction materials) related to the construction activity.
   b. The liquid and solid waste must not contact the ground, and the containments must be designed so that it does not result in runoff from the washout operations or areas.
   c. Liquid and solid wastes must be disposed of properly and in compliance with MPCA rules.
   d. A sign must be installed adjacent to each washout facility that requires site personnel to utilize the proper facilities for disposal of concrete and other washout wastes.

Dewatering and Basin Draining:
Dewatering or basin draining that may have turbid or sediment laden discharge water must be discharged to a temporary or permanent sedimentation basin on the project site whenever possible. Discharge from the temporary or permanent sedimentation basin must be visually checked to ensure adequate treatment is obtained in the basin and nuisance conditions, impacts to wetlands, and erosion in receiving channels or on down gradient properties will not result from the discharge. Adequate sedimentation control measures are required for discharge water that contains suspended solids.
If using using filters with backwash water, either haul the backwash water away for disposal and return the backwash water to the beginning of the treatment process, or incorporate the backwash water into the site in a manner that does not cause erosion.

Timing of BMP Installation:
The erosion and sediment control BMPs shall be installed as necessary to minimize erosion from disturbed surfaces and capture sediment on site and shall meet the NPDES/SDS Construction Permit part VII requirements. Perimeter controls shall be placed prior to the start of any construction. All disturbed areas not actively being worked must be stabilized within 7 days.

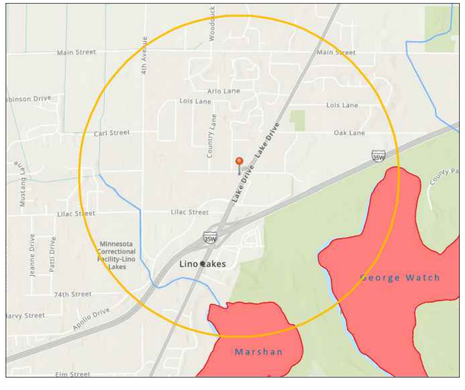
Storm Water Pollution Prevention Plan:
The Permitees must implement the entire SWPPP and the requirement of the NPDES/SDS Construction Permit. The BMPs identified in the SWPPP and in the permit must be selected, installed, and maintained in an appropriate and functional manner that is in accordance with manufacturer specifications and accepted engineering practices.

Temporary Sediment Basins:
The area disturbed for construction does not drain more than 5 acres to a common discharge point, therefore a temporary sediment basin is not required.

Future Operation and Maintenance (O&M):
The owner shall be responsible for performing future operations and maintenance of the permanent stormwater management systems on the property.

CONTACTS		
AGENCY	NAME	PHONE NUMBER
Anoka County	Administrator	(763) 324-4000
DNR Waters	Janell Miersch	(218) 739-7576 ext. 232
ACOE	St. Paul Office	(651) 290-5375
State Duty Officer	MPCA	(800) 422-0798
SWPPP Designer	Michael Gerber	(320) 227-0203
Erosion Control Review	Michael Gerber	(320) 227-0203
Erosion Control Supervisor	TBD	

LOCATION OF SWPPP REQUIREMENTS		
DESCRIPTION	TITLE	SHEET # OR SPECIFICATION SECTION
Receiving Surface Water	City of Lino Lakes Stormsewer	C301, C302
Final Stabilization	Erosion Control Plan	C501
Drainage Plans	Site Grading & Utility Plan	C201, C202, C401, C402
Drainage Details	Details	C601, C602, C603
Erosion Control Sheets	Erosion Control Plan	C501
Erosion Control Details	Details	C604, C605
Erosion & Sediment Control Quantities	Erosion Control Plan	C501
Existing & Proposed Drainage Maps	Final Stormwater Management Plan	Project Manual



UNIVERSITY OF MINNESOTA
Michael J. Gerber
Construction Site Management (May 31 2026)
Design of Construction SWPPP (May 31 2027)

DESIGN TREE
engineering + land surveying
Corporate Office:
120 17th Ave W Alexandria, MN 56308
888-216-1916

JAVA COMPANIES

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.

PRINTED NAME: MICHAEL J. GERBER

DATE: 03/28/2025 LICENSE #: 56653

JAVA LINO LAKES 2ND ADDITION

LINO LAKES, MN

DRAWN BY: NPK
CHECKED BY: JEA
PROJECT NO.: 10923008

NO.	DATE	DESCRIPTION
1	06/09/2025	FINAL PLAT SUBMITTAL
2	07/15/2025	REV. FINAL PLAT SUBMITTAL
3	08/20/2025	RCWD REVISIONS

SWPPP NARRATIVE

DRAWING NO.
C606

GOVERNING SPECIFICATIONS

THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" LATEST EDITION AND ALL APPLICABLE MNDOT SPECIAL PROVISIONS AT THE TIME OF BIDDING SHALL APPLY ON THIS CONTRACT EXCEPT AS MODIFIED OR ALTERED IN THE FOLLOWING SPECIAL PROVISIONS. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE CURRENT EDITION OF THE CITY OF LINO LAKES GENERAL SPECIFICATIONS AND STANDARD DETAIL PLATES FOR STREET AND UTILITY CONSTRUCTION.

TRAFFIC SIGNAGE

1. SIGNS
   - 1.1. Signs shall meet the requirements of MnDOT Standard Specifications for Construction – Latest Edition, Section 3352 and the MN MUTCD.
2. SIGNPOSTS
   - 2.1. Signposts shall meet the requirements of MnDOT Standard Specifications for Construction – Latest Edition, Section 3401 and 3402.
3. EXECUTION
   - 3.1. Execution shall be in accordance with MnDOT Standard Specifications for Construction – Latest Edition, Section 2564, the MN MUTCD, all applicable MnDOT Special Provisions and as shown in the plans except as modified herein.
   - 3.2. Locations of signs on the Plans are approximate. Final locations of the signs shall be approved the Engineer or Owner's Representative prior to installation.
   - 3.3. Posts shall be installed plumb and to the requirements set forth in MnDOT specifications and the plans. Posts that are bent or otherwise damaged shall be removed and replaced at no expense to the Owner.
   - 3.4. Set posts in sleeves as shown in the details for signs installed in asphalt, concrete or other pavement surfaces.
   - 3.5. Prior to completion, remove all rust and clean post and signs of all grease, oil or other contaminating materials.

SITE CLEARING

1. EXECUTION
   - 1.1. Perform Work in accordance with MnDOT Standard Specifications for Construction – Latest Edition, Section 2101, 2104, and 2105 and all applicable MnDOT Special Provisions except as modified herein.
   - 1.2. Protect trees, plant growth, and features designated to remain, as final landscaping as shown in the Plans.
   - 1.3. Protect benchmarks, survey control points, and existing structures from damage or displacement.
   - 1.4. Abandoned structures and other obstructions shall be removed and disposed of in accordance with the provisions of MnDOT 2104, except as modified below.
   - 1.5. Prior to beginning removals, the Engineer or Owner will mark the limits of the features to be removed. The limits shall be reviewed on-site by the Contractor and the Owner's on-site representative.
   - 1.6. Remove debris, rock, and extracted plant life from site.
   - 1.7. Partially remove paving, curbs, sidewalks, and driveways as indicated on Drawings. Neatly saw cut edges at right angle to surface.
   - 1.8. Items indicated to be salvaged shall be done so with minimum damage and stored until reinstallation or moved to a storage location as directed by the Owner.
   - 1.9. Any item removed that is not to be salvaged or reused on the project shall be disposed of offsite by the Contractor in accordance with MnDOT Standard Specifications for Construction - Latest Edition, Section 2104.
   - 1.10. Excavate topsoil from areas to be further excavated, re-landscaped, or re-graded, without mixing with foreign materials for use in finish grading.
   - 1.11. Do not excavate wet topsoil.
   - 1.12. Stockpile topsoil to be reused on-site in area determined by the Contractor and approved by the Owner.
   - 1.13. Protect stockpiled topsoil from erosion in accordance with NPDES permit requirements.

GRADING

1. GENERAL
   - 1.1. All information concerning property boundaries, ground elevations, present obstructions on or near the site, location of conduits, pipes, wires, etc., has been obtained from a source the Owner believes reliable. Present ground and subsurface conditions are documented by test boring logs included herein, however accuracy of this data is not guaranteed, and is furnished solely for the convenience of the Bidder. Use of this data is at Bidder's risk and no additional compensation will be granted because of the Bidder's lack of knowledge of the existing site.
   - 1.2. Additional test borings and other exploratory operations may be conducted by a Bidder (at no cost to the Owner), provided the methods and operations are acceptable to the Owner.
   - 1.3. Grades shown on the Plans are finished grades. Grading Contractor shall grade to the subgrade except landscaped areas that will be graded to finish grade with approved topsoil.
   - 1.4. The Contractor shall be solely responsible for determining quantities of cut, fill and waste materials and for grading to be done to complete the Work. Import/Export materials as required at no additional cost to the Owner.
   - 1.5. Should uncharted, or incorrectly charted, piping or other utilities be encountered during excavation, consult appropriate utility owner immediately for directions. Cooperate with Owner and utility companies in keeping respective services and facilities in operation. Repair any damaged utility(s) to satisfaction of utility owner.
   - 1.6. Visit the site prior to bidding; be familiar with actual conditions in the field. Extra compensation will not be allowed for conditions which could have been determined or anticipated by examination of the site, the Contract Drawings and the information available pertaining to existing soils, utilities, and other site characteristics.
   - 1.7. Maintain carefully, as established, temporary benchmarks, monuments, and other reference points and, if disturbed or destroyed by the Contractor, pay for replacement by a registered Engineer or Land Surveyor.
   - 1.8. Locate existing underground utilities and tile lines in areas of work. If utilities are to remain in place, provide adequate means of support and protection during earthwork operations.
2. PRODUCTS
   - 2.1. General: Provide suitable on-site or off-site borrow soil materials when sufficient satisfactory soil materials are not available from excavations.
   - 2.2. See the Geotechnical Evaluation Report for suitable fill materials and locations.
   - 2.3. TOPSOIL
     - 2.3.1. Shall be a fertile, friable, natural loam containing a liberal amount of humus and capable of sustaining vigorous plant growth.
     - 2.3.2. The pH value of the topsoil shall be between 5.5 and 7.5.
     - 2.3.3. Shall be obtained from naturally well-drained areas and shall be clean and reasonably free of subsoil, stones, clods of hard earth, plants or their roots and other extraneous matter.
     - 2.3.4. Obtained from stripping the site may be used.
     - 2.3.5. Whether it is new or salvaged, shall be loosened such that it is dry and friable and ready to be fine graded.
   - 2.4. RIPRAP shall be random riprap, Class III meeting the requirements of MnDOT 3601.
   - 2.5. Geotextile Fabric shall be Type 5 meeting requirements of MnDOT 3733.
3. EXECUTION
   - 3.1. Execution shall be in accordance with MnDOT Standard Specifications for Construction – Latest Edition, Section 2105 and Section 2112 and all applicable MnDOT Special Provisions except as modified herein.
   - 3.2. EXCAVATIONS
     - 3.2.1. Excavations must comply with the requirements of OSHA 29 CFR, Part 1926, Subpart P, "Excavations and Trenches."
     - 3.2.2. Remove topsoil in areas to be regraded and/or excavated without mixing with existing subgrade soils. Stockpile salvaged topsoil that will be reused.
     - 3.2.3. Remove subsoil from areas to be further excavated, re-landscaped, or re-graded.
     - 3.2.4. Remove excess subsoil not intended for reuse, from site.
     - 3.2.5. Excess materials or materials not to be reused on-site shall be disposed of in accordance with MnDOT 2104.3C.
     - 3.2.6. Stockpile excavated material to be reused on site in area agreed upon by the Owner/Engineer.
     - 3.2.7. Review all subgrades with the Geotechnical Engineer to determine suitability of subgrade soils.
     - 3.2.8. Make soil corrections defined in the Geotechnical Report or by the Geotechnical Engineer. Follow soil correction procedures and use materials defined in the Report and in these specifications.
     - 3.2.9. Remove any groundwater and/or accumulated water from excavations or subgrades prior to fill placement or construction.
     - 3.2.10. Provide temporary drainage where construction interferes with existing drainage.
     - 3.2.11. Where new sod, seed, planting beds, or other vegetative matter are shown within construction limits defined on drawings, remove existing fill soil material to depth required for topsoil and replace with new or salvaged topsoil material.
     - 3.2.12. Do not remove wet subsoil unless it is subsequently processed to obtain optimum moisture content.
     - 3.2.13. When excavating through roots, perform work by hand and cut roots with sharp axe.
     - 3.2.14. Proof roll subgrade under all drivable surfaces with a fully loaded tandem-axle truck and have proof rolling observed by Geotechnical Engineer prior to placement of placement of additional fill or aggregate base.
     - 3.2.15. When subgrades consist of SP soils, proof rolling shall not be conducted until after placement of the aggregate base. Confirm presence of SP soils with Geotechnical Engineer.
   - 3.3. PLACEMENT AND COMPACTION
     - 3.3.1. Execution shall be in accordance with MnDOT Standard Specifications for Construction – Latest Edition, Section 2105 and Section 2112 and all applicable MnDOT Special Provisions except as modified herein.
     - 3.3.2. Place fill and prepare subgrades according to the recommendations contained in the Geotechnical Report and in these specifications.
     - 3.3.3. In areas that will receive fills, remove vegetation, debris, unsatisfactory soil materials, obstructions, and deleterious materials from ground surface prior to placement of fills.
     - 3.3.4. Prior to placement of fill, excavations shall be inspected by the Geotechnical Engineer to verify that all unsuitable materials have been properly removed.
     - 3.3.5. When existing ground surface has a density less than that specified under for a particular area, break up ground surface, pulverize, moisture-condition to optimum moisture content, and compact to required depth and percentage of maximum density.
     - 3.3.6. Before compaction, moisten or aerate each layer as necessary to provide optimum moisture content. Compact each layer to required percentage of maximum dry density or relative dry density for each area classification. Do not place backfill or fill material on surfaces that are muddy, frozen, or contain frost or ice.
     - 3.3.7. Place backfill and fill materials evenly adjacent to structures, piping, or conduit to required elevations. Prevent wedging action of backfill against structures or displacement of piping or conduit by carrying material uniformly around structure, piping, or conduit to approximately same elevation in each lift.
     - 3.3.8. Control soil and fill compaction, providing minimum percentage of density specified. Correct improperly compacted areas or lifts as directed by Testing Agency if soil density tests indicate inadequate compaction.
     - 3.3.9. Compaction of all fill shall be obtained by the "Specified Density Compaction" method described in MnDOT 2105.3F1 unless specified otherwise in these specifications.
       - 3.3.9.1. The upper 3 feet of fill and fill that is adjacent to structures shall be compacted to a density of not less than 100 percent of maximum density.
       - 3.3.9.2. Fill below the upper 3 feet and not adjacent to structures shall be compacted to a density of not less than 98% of maximum density.
   - 3.4. FINAL GRADING
     - 3.4.1. Turf areas are defined as any area not covered by asphalt, concrete, building, aggregates, infiltration basins and bioretention basins.
     - 3.4.2. In turf areas, spread topsoil material to a minimum depth of 6 inches and a maximum depth of 12 inches (depth after compaction), after installation of pavements, fencing, and walks. Complete grading of site and bring entire site to finish elevations shown on drawings. General turf areas shall be bladed smooth with a skid steer, planer bar, or similar lightweight equipment.
     - 3.4.3. Compact the subsoil and topsoil as necessary to prevent future settlement without inhibiting vertical drainage and subsequent turf establishment.
     - 3.4.4. If over compaction occurs (defined as a relative density above 90% Standard Proctor density), the Contractor shall scarify the soil to full depth of topsoil and regrade as required.
     - 3.4.5. Turf area grade tolerance shall be not more than 0.08' (one inch) above or below finish grade elevations.
     - 3.4.6. Final grading of topsoil shall be accomplished immediately prior to turning over to the sodding/seeding contractors. Coordinate finish grading with landscaping contractor's schedule.
     - 3.4.7. Topsoil shall not be spread around the building until exterior building work (any work related to building exterior finishing that would cause disturbance to the topsoil after it is placed) is complete.
     - 3.4.8. Topsoil shall not be backfilled behind back of curb, pavements or walks until curbing, pavements and walks are installed.
     - 3.4.9. Topsoil shall not be spread until underground utilities (storm sewer, sanitary sewer and watermain) are installed.
   - 3.5. INFILTRATION VERIFICATION
     - 3.5.1. Infiltration rate shall be determined by a double ring infiltrometer test for the infiltration basin after completion and site has been stabilized. Contractor shall coordinate with Geotechnical Engineer to perform the test.
     - 3.5.2. Variances between the field Infiltrometer Test and the infiltration rate listed in the Stormwater Management Study for the project to be discussed with the Engineer to determine if modifications to the basin, outlet structure, grading or other improvements is needed.
     - 3.5.3. If the Infiltrometer Test exceeds the maximum infiltration rate of 8.3 inch/hour, the Contractor shall amend the soils in the basin to reduce the infiltration rate to meet MPCA guidelines.

TRENCH EXCAVATION & BACKFILLING FOR UTILITIES

1. PRODUCTS
   - 1.1. GRANULAR BORROW
     - 1.1.1. Granular borrow for use as bedding or fill material shall be Class II materials as identified by ASTM D2321.
   - 1.2. CRUSHED ROCK
     - 1.2.1. Crushed rock for use as bedding or fill material shall be Class IA or Class IB materials as identified by ASTM D2321.
2. EXECUTION
   - 2.1. Execution shall be in accordance with ASTM D2321, "Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications", AWWA C600, "AWWA Standard for Installation of Ductile-Iron Water Mains and Their Appurtenances", AWWA Standard 605, "Underground Installation of Polyvinyl Chloride (PVC) Pressure Pipe and Fittings for Water" and as shown in the plans except as modified herein.
   - 2.2. TRENCHING
     - 2.2.1. All excavations and trenches must comply with the requirements of OSHA 29 CFR, Part 1926, Subpart P, "Excavations and Trenches".
     - 2.2.2. Remove lumped subsoil, boulders, and rock up of 1/6 cubic yard measured by volume.
     - 2.2.3. Do not advance open trench more than 200 feet ahead of installed pipe.
     - 2.2.4. Cut trenches sufficiently wide to enable installation and allow inspection. Remove water or materials that interfere with Work.
     - 2.2.5. Excavate trenches to depth indicated on Drawings. Provide uniform and continuous bearing and support for bedding material and utilities.
     - 2.2.6. When subsurface materials at bottom of trench are loose or soft, excavate to greater depth as directed by Engineer until suitable material is encountered and fill with granular or crushed rock material.
     - 2.2.7. Correct areas over excavated areas with compacted backfill as specified for authorized excavation or replace with fill concrete as directed by Engineer.
     - 2.2.8. Excavated non-organic materials shall be salvaged and stockpiled for use as subgrade materials and for the replacement of any unsuitable materials encountered during utility installation.
     - 2.2.9. Excess non-organic materials not used for subgrade materials or for the replacement of unsuitable materials shall be removed from site.
   - 2.3. SHEETING AND SHORING
     - 2.3.1. All excavations and trenches must comply with the requirements of OSHA 29 CFR, Part 1926, Subpart P, "Excavations and Trenches".
     - 2.3.2. Remove lumped subsoil, boulders, and rock up of 1/6 cubic yard measured by volume.
     - 2.3.3. Do not advance open trench more than 200 feet ahead of installed pipe.
     - 2.3.4. Cut trenches sufficiently wide to enable installation and allow inspection. Remove water or materials that interfere with Work.
     - 2.3.5. Excavate trenches to depth indicated on Drawings. Provide uniform and continuous bearing and support for bedding material and utilities.
     - 2.3.6. When subsurface materials at bottom of trench are loose or soft, excavate to greater depth as directed by Engineer until suitable material is encountered and fill with granular or crushed rock material.
     - 2.3.7. Correct areas over excavated areas with compacted backfill as specified for authorized excavation or replace with fill concrete as directed by Engineer.
     - 2.3.8. Excavated non-organic materials shall be salvaged and stockpiled for use as subgrade materials and for the replacement of any unsuitable materials encountered during utility installation.
     - 2.3.9. Excess non-organic materials not used for subgrade materials or for the replacement of unsuitable materials shall be removed from site.
   - 2.4. BACKFILLING
     - 2.4.1. All excavations and trenches must comply with the requirements of OSHA 29 CFR, Part 1926, Subpart P, "Excavations and Trenches".
     - 2.4.2. Remove lumped subsoil, boulders, and rock up of 1/6 cubic yard measured by volume.
     - 2.4.3. Do not advance open trench more than 200 feet ahead of installed pipe.
     - 2.4.4. Cut trenches sufficiently wide to enable installation and allow inspection. Remove water or materials that interfere with Work.
     - 2.4.5. Excavate trenches to depth indicated on Drawings. Provide uniform and continuous bearing and support for bedding material and utilities.
     - 2.4.6. When subsurface materials at bottom of trench are loose or soft, excavate to greater depth as directed by Engineer until suitable material is encountered and fill with granular or crushed rock material.
     - 2.4.7. Correct areas over excavated areas with compacted backfill as specified for authorized excavation or replace with fill concrete as directed by Engineer.
     - 2.4.8. Excavated non-organic materials shall be salvaged and stockpiled for use as subgrade materials and for the replacement of any unsuitable materials encountered during utility installation.
     - 2.4.9. Excess non-organic materials not used for subgrade materials or for the replacement of unsuitable materials shall be removed from site.

EROSION AND SEDIMENT CONTROLS

1. PRODUCTS
   - 1.1. Materials shall be as specified in MnDOT Standard Specifications for Construction – Latest Edition, Section 2573 and 2575.
2. EXECUTION
   - 2.1. Execution shall be as specified in MnDOT Standard Specifications for Construction – Latest Edition, Section 2573, MnDOT Special Provisions and as shown on the Drawings except as modified herein.
   - 2.2. The Contractor shall protect adjacent properties and water resources from erosion and sedimentation damage throughout construction.
   - 2.3. The Contractor shall notify the Engineer and Construction Manager of deficiencies or changes in the Erosion Control Plans or SWPPP required by current or changes to site conditions.
   - 2.4. The Contractor shall schedule and conduct operations to minimize the erosion of soils, to prevent the transportation of silt within and adjacent to the site.
   - 2.5. Construction of drainage infrastructure and the establishment of turf shall be done concurrently with earthwork operations or soon thereafter to minimize erosion and the transportation of sediment.
   - 2.6. The Contractor shall incorporate erosion control features as soon as practicable prior to grading operations and provide additional control measures as needed to correct conditions that develop during construction.
   - 2.7. MAINTENANCE DURING CONSTRUCTION
     - 2.7.1. Execution shall be as specified in MnDOT Standard Specifications for Construction – Latest Edition, Section 1514 except as modified herein.
     - 2.7.2. In addition to the Contractor's requirements for sweeping as required under MnDOT 2051 (Maintenance and Restoration of Haul Roads), the Engineer may require additional sweeping of roads adjacent to the construction site to provide safe conditions for the traveling public, for environmental reasons, to meet local regulatory requirements or as otherwise directed by the Owner.
     - 2.7.3. All erosion control devices shall remain in place until other means of permanent control are in place.
     - 2.7.4. Contractor shall maintain erosion control devices throughout construction and replace them when they no longer function properly.
     - 2.7.5. Erosion control devices shall not be removed until the site has been permanently stabilized in accordance with NPDES permit requirements.
   - 2.8. AIR, LAND AND WATER POLLUTION
     - 2.8.1. Execution shall be as specified in MnDOT Standard Specifications for Construction – Latest Edition, Section 1717 and as shown on the Drawings except as modified herein.
     - 2.8.2. If during the Project, the Contractor unexpectedly encounters any of the following conditions indicating the possible presence of contaminated soil, contaminated water, or regulated waste, the Contractor shall immediately stop work in the vicinity, notify the Engineer, and request suspension of work in the vicinity of the discovery area, in accordance with MnDOT 1803.4.
     - 2.8.3. A documented inspection and evaluation will be conducted prior to the resumption of work. The Contractor shall not resume work in the suspected area without authorization by the Owner's representative.
       - 2.8.3.1. Indicators of contaminated soil, ground water or surface water include, but are not limited to the following:
         - 2.8.3.1.1. Odor including gasoline, diesel, creosote (odor of railroad ties), mothballs, or other chemical odor.
         - 2.8.3.1.2. Soil stained green or black (but not because of organic content), or with a dark, oily appearance, or any unusual soil color or texture.
         - 2.8.3.1.3. A rainbow color (sheen) on surface water or soil.
       - 2.8.3.2. Indicators of regulated wastes include, but are not limited to the following:
         - 2.8.3.2.1. Cans, bottles, glass, scrap metal, wood (indicators of solid waste and a possible dump)
         - 2.8.3.2.2. Concrete and asphalt rubble (indicators of demolition waste).
         - 2.8.3.2.3. Roofing materials, shingles, siding, vermiculite, floor tiles, transite or any fibrous material (indicators of demolition waste that could contain asbestos, lead or other chemicals).
         - 2.8.3.2.4. Culverts or other pipes with tar-like coating, insulation or transite (indicators of asbestos).
         - 2.8.3.2.5. Ash (ash from burning of regulated materials may contain lead, asbestos or other chemicals).
         - 2.8.3.2.6. Sandblast residue (could contain lead).
         - 2.8.3.2.7. Treated wood including, but not limited to products referred to as green treat, brown treat and creosote (treated wood disposal is regulated).
         - 2.8.3.2.8. Chemical containers such as storage tanks, drums, filters and other containers (possible sources of chemical contaminants).
         - 2.8.3.2.9. Old basements with intact floor tiles or insulation (could contain asbestos), sumps (could contain chemical waste), waste traps (could contain oily wastes) and cesspools (could contain chemical or oily wastes).
   - 2.9. NPDES PERMIT
     - 2.9.1. Execution shall be in accordance with the rules, regulations, and standards adopted and established by the Minnesota Pollution Control Agency (M.P.C.A.), and as specified in MnDOT Standard Specifications for Construction – Latest Edition, Section 1717 except as modified herein.
     - 2.9.2. By signing the Proposal and completing the NPDES permit application, the Contractor is a co-permittee with the Owner to ensure compliance with the terms and conditions of the General Storm Water Permit (MN R100001) and is responsible for those portions of the permit where the operator is referenced. This Permit establishes conditions for discharging storm water to waters of the State from construction activities that disturb 0.4 hectares [1 acre] or more of total land area. A copy of the "General Permit Authorization to Discharge Storm Water Associated with a Construction Activity Under the National Pollutant Discharge Elimination System (NPDES)/State Disposal System Permit Program" is available at http://www.pca.state.mn.us/water/stormwater/stormwater-c.html or by calling 651-296-3890.
     - 2.9.3. Contractor must provide an Erosion Control Supervisor as per MnDOT 2573.3. The Contractor is solely responsible for all inspections, maintenance, and records required in the General Permit, Section 11. Contractor must use standard forms for logging all required inspection and maintenance activities. Contractor must submit all inspection and maintenance forms used on this Project to the Engineer weekly for retention in accordance with the permit. The Contractor must also have the forms available for on-site review.
     - 2.9.4. Contractor must immediately notify the Engineer of any site visits by Local Permitting Authorities performed in accordance with Section 24.10 of the permit. The Contractor must obtain the Engineer's approval before starting any work required by regulatory authorities which (1) the Contractor believes will result in additional compensation; or (2) will impact the design or requirements of the Contract documents or impact traffic.
     - 2.9.5. The Contractor must use Emergency Best Management Practices to help minimize turbidity of surface waters and relieve runoff from extreme weather events. The Contractor must report a stormwater sediment release from the project site to the Minnesota Duty Officer and the Resident Engineer at the time the Contractor or Department discovers the release. The Contractor must also immediately contact the State Duty Officer (at 1-800-422-0798 or 1-651-649-5451) during any emergency involving an uncontrolled stormwater release.
     - 2.9.6. Contractor must Review and abide by the instructions contained in the permit package. The Contractor will indemnify and hold the Owner harmless for any fines or sanctions imposed by a regulatory authority and arising from the Contractor's acts or omissions in complying, or failing to comply, with the permit or erosion control provisions of this Contract.
     - 2.9.7. The NPDES Permit refers to a Storm Water Pollution Prevention Plan (SWPPP). This Project's SWPPP requirement is addressed throughout the Contract, as well as this Project's Plan. The following table identifies NPDES permit requirements and cross-references where this Contract addresses each requirement. This table is for ease of reference only and may be incomplete.

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JAVA COMPANIES

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.

PRINTED NAME: MICHAEL J. GERBER

DATE: 03/28/2025 LICENSE #: 56653

JAVA LINO LAKES 2ND ADDITION

LINO LAKES, MN

DRAWN BY: NPK

CHECKED BY: JEA

PROJECT NO.: 10923008

NO.	DATE	DESCRIPTION
1	06/09/2025	FINAL PLAT SUBMITTAL
2	07/15/2025	REV. FINAL PLAT SUBMITTAL
3	08/20/2025	RCWD REVISIONS

CIVIL SITE SPECIFICATIONS

DRAWING NO.

C607

GOVERNING SPECIFICATIONS

THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" LATEST EDITION AND ALL APPLICABLE MNDOT SPECIAL PROVISIONS AT THE TIME OF BIDDING SHALL APPLY ON THIS CONTRACT EXCEPT AS MODIFIED OR ALTERED IN THE FOLLOWING SPECIAL PROVISIONS. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE CURRENT EDITION OF THE CITY OF LINO LAKES GENERAL SPECIFICATIONS AND STANDARD DETAIL PLATES FOR STREET AND UTILITY CONSTRUCTION.

AGGREGATE BASE

1. PRODUCTS
   - 1.1. The class of aggregate to be used on the project shall be in accordance with MnDOT Standard Specification for Construction – Latest Edition, Section 3138 except as modified herein.
2. EXECUTION
   - 2.1. Perform work in accordance with MnDOT Standard Specifications for Construction – Latest Edition, Section 2211, and all applicable MnDOT Special Provisions except as modified herein.
   - 2.2. Correct irregularities in substrate gradient and elevation by scarifying, reshaping, and re-compacting as needed (also refer to Trench Excavation and Backfilling for Utilities).
   - 2.3. Do not place fill on soft, muddy, or frozen surfaces.
   - 2.4. Level and contour surfaces to elevations and gradients indicated.
   - 2.5. Maintain optimum moisture content of fill materials to attain required compaction density.
   - 2.6. Compaction shall be achieved by the "Specified Density Method" as described in MnDOT 2211.3.D.2.a
     - 2.6.1. The full thickness of each layer shall be compacted to not less than 100 percent of maximum density. At the time of compaction, the moisture content of the base material shall be not less than 65 percent of optimum moisture.

BITUMINOUS PAVEMENT

1. PRODUCTS
   - 1.1. Materials shall be as specified in MnDOT Standard Specifications for Construction – Latest Edition, Section 2360, and all applicable MnDOT Special Provisions except as modified herein.
   - 1.2. Bituminous Mix Design
     - 1.2.1. Non-wearing Course: SPNWB330B
     - 1.2.2. Wearing Course: SPWEA340B
     - 1.2.3. Heavy Duty Wearing Course: SPWEA340B
2. EXECUTION
   - 2.1. Perform Work in accordance with MnDOT Standard Specifications for Construction – Latest Edition and MnDOT's Plant Mixed Asphalt Pavement (2360) Special Provision except as modified herein.
   - 2.2. PREPARATION
     - 2.2.1. Apply tack coat in accordance with MnDOT Standard Specifications for Construction – Latest Edition, Section 2357 except as modified herein.
     - 2.2.2. Tack coat operations shall be conducted in a manner that offers the least inconvenience to traffic, with movement in at least one direction always permitted without pickup or tracking of the bituminous material.
     - 2.2.3. The tack coat shall not be applied when the road surface or weather conditions are unsuitable as determined by the Engineer. The daily application of tack coat shall be limited to approximately the area on which construction of the subsequent bituminous course can reasonably be expected to be completed that day.
     - 2.2.4. At the time of applying bituminous tack coat material, the surface shall be dry and clean, and all necessary repairs or reconditioning work shall have been completed as provided for in the Contract and approved by the Engineer.
     - 2.2.5. All objectionable foreign matter on the surface shall be removed and disposed of by the Contractor as the Engineer approves.
     - 2.2.6. Preparatory to placing an abutting bituminous course, the contact surfaces of all fixed structures and the edge of the in-place mixture in all courses at transverse joints and in the wearing course at longitudinal joints shall be given a uniform coating of liquid asphalt or emulsified asphalt, applied by methods that will ensure uniform coating.
   - 2.3. PLACEMENT
     - 2.3.1. Place asphalt binder course within 24 hours of applying tack coat.
     - 2.3.2. Place wearing course within 24 hours of placing and compacting binder course. When binder course is placed more than 24 hours before placing wearing course, clean surface and apply tack coat before placing wearing course.
     - 2.3.3. Compact each course by rolling to specified density. Do not displace or extrude pavement from position. Hand compact in areas inaccessible to rolling equipment.
     - 2.3.4. Perform rolling with consecutive passes to achieve even and smooth finish, without roller marks.

CONCRETE PAVEMENT, SIDEWALKS & CURBS

1. PRODUCTS
   - 1.1. REINFORCEMENTS
     - 1.1.1. Reinforcing Steel shall be epoxy coated as specified in MnDOT Standard Specification for Construction – Latest Edition, Section 3301.
     - 1.1.2. Dowel Bar shall be as specified in MnDOT Standard Specification for Construction – Latest Edition, Section 3301.
     - 1.1.3. Reinforcing Steel Fabric shall be as specified in MnDOT Standard Specification for Construction – Latest Edition, Section 3303.
   - 1.2. CONCRETE MATERIALS
     - 1.2.1. Concrete Materials shall be as specified in MnDOT Standard Specification for Construction – Latest Edition, Section 2461, MnDOT Special Provisions, and the Special Provision "Certified Ready-Mix Plants". The concrete mix design designations for each element of work are listed below.
       - 1.2.1.1. Pavement – 3F52.
       - 1.2.1.2. Valley Gutter – 3F52.
       - 1.2.1.3. Slip-form Curb & Gutter – 3F32.
       - 1.2.1.4. Hand-form Curb & Gutter – 3F52.
       - 1.2.1.5. Sidewalks – 3F52.
2. EXECUTION
   - 2.1. Place concrete curb and gutter in accordance with MnDOT Standard Specification for Construction – Latest Edition, Section 2531.
   - 2.2. Place concrete sidewalks in accordance with MnDOT Standard Specification for Construction – Latest Edition, Section 2521.
   - 2.3. Place concrete pavement in accordance with MnDOT Standard Specification for Construction -Latest Edition, Section 2301.
   - 2.4. Moisten base to minimize absorption of water from fresh concrete.
   - 2.5. Coat surfaces of manhole and catch basin frames with oil to prevent bond with concrete pavement.
   - 2.6. Place and secure forms to correct location, dimension, profile, and gradient.
   - 2.7. Assemble formwork to permit easy stripping and dismantling without damaging concrete.
   - 2.8. Place joint filler vertical in position, in straight lines. Secure to formwork during concrete placement.
   - 2.9. Place reinforcement and dowels as indicated on details in the Plans.
   - 2.10. Ensure reinforcement, inserts, embedded parts, and formed joints are not disturbed during concrete placement.
   - 2.11. Place concrete continuously over the full width of the panel and between predetermined construction joints.
   - 2.12. Do not break or interrupt successive pours such that cold joints occur.
   - 2.13. Place expansion joints as shown on details in the Plans. Align curb and sidewalk joints.
   - 2.14. Provide scored or sawn joints between sidewalks and curbs and between curbs and pavement as shown on details in the Plans.
   - 2.15. Provide keyed joints as indicated on details in the Plans.
   - 2.16. Driveway Paving: Light broom, parallel to the direction of travel.
   - 2.17. Sidewalk Paving: Light broom, perpendicular to the direction of travel.
   - 2.18. Curbs and Gutters: Light broom, perpendicular to the direction of travel.
   - 2.19. Place curing compound on exposed concrete surfaces immediately after finishing.

PAVEMENT MARKINGS

1. PRODUCTS
   - 1.1. PAINT
     - 1.1.1. Paint for marking pavement (parking lot and zone marking) shall meet MnDOT spec 3591. Owner will make color selections.
   - 1.2. PAINT APPLICATOR
     - 1.2.1. Apply all marking by approved mechanical equipment. The equipment shall provide constant agitation of paint and travel at controlled speeds. Synchronize one or more paint "guns" to automatically begin and cut off paint flow in the case of skip lines. The equipment shall have manual control to apply continuous lines of varying length and marking widths as shown. Provide pneumatic spray guns for hand application of paint in areas where a mobile paint applicator cannot be used, use a separate piece of equipment. An experienced technician that is thoroughly familiar with equipment, materials, and marking layouts shall control all painting equipment and operations.
   - 1.3. SANDBLASTING EQUIPMENT
     - 1.3.1. Apply all marking by approved mechanical equipment. The equipment shall provide constant agitation of paint and travel at controlled speeds. Synchronize one or more paint "guns" to automatically begin and cut off paint flow in the case of skip lines. The equipment shall have manual control to apply continuous lines of varying length and marking widths as shown. Provide pneumatic spray guns for hand application of paint in areas where a mobile paint applicator cannot be used, use a separate piece of equipment. An experienced technician that is thoroughly familiar with equipment, materials, and marking layouts shall control all painting equipment and operations.
2. EXECUTION
   - 2.1. Allow new pavement surfaces to cure for a period of not less than 14 days before application of marking materials.
   - 2.2. Thoroughly clean all surfaces to be marked before application of paint. Remove dust, dirt, and other granular surface deposits by sweeping, blowing with compressed air, rinsing with water, or a combination of these methods. Completely remove rubber deposits, existing paint markings, and other coatings adhering to the pavement with scrapers, wire brushings, sandblasting, mechanical abrasion, or approved chemicals.
   - 2.3. Apply uniformly painted pavement marking of required color(s), length, and width with true, sharp edges and ends on properly cured, prepared, and dried surfaces in conformance with the details as shown and established control points. The length and width of lines shall conform within a tolerance of plus or minus 3 inches and plus or minus 1/8 inch, respectively, in the case of skip markings. The length of intervals shall not exceed the line length tolerance. Temperature of the surface to be painted and the atmosphere shall be above 50 SF and less than 95 SF. Apply the paint at a wet film thickness of 0.015 inch. Apply paint in one coat. Markings showing light spots may receive additional coats. The maximum drying time requirements of the paint specifications will be strictly enforced, to prevent undue softening of asphalt, and pick up, displacement, or discoloration by tires of traffic. If there is a deficiency in drying of the marking, discontinue paint operations until cause of the slow drying is determined and corrected. Remove and replace marking that is applied at less than minimum material rates; deviates from true alignment; exceeds stipulated length and width tolerances; or shows light spots, smears, or other deficiencies or irregularities. Use carefully controlled sand blasting, approved grinding equipment, or other approved method to remove marking so that the surface to which the marking was applied will not be damaged.
   - 2.4. Use Detail Pavement Markings, exclusive of actual traffic lane marking, at exit and entrance islands and turnouts, on curbs, at crosswalks, at parking bays, and at such other locations as shown. Show the International Handicapped Symbol at indicated parking spaces. Color shall be selected by owner. Apply paint for the symbol using a suitable template that will provide a pavement marking with true, sharp edges and ends. Place detail pavement markings of the color(s), width(s) and length(s), and design pattern at the locations shown.

TURF ESTABLISHMENT

1. PRODUCTS
   - 1.1. FERTILIZER
     - 1.1.1. Furnish materials in accordance with MnDOT Standard Specifications for Construction – Latest Edition, Section 3881 except as modified herein.
   - 1.2. SEED
     - 1.2.1. Furnish materials in accordance with MnDOT Standard Specifications for Construction – Latest Edition, Section 3876 except as modified herein.
     - 1.2.2. All seed shall conform to the latest seed law of the State, including those governing labeling and weed seed tolerances. Tolerances for Germination and Purity, as determined by the Department of Agriculture, shall only apply to seed that has been previously tested and approved by the Department of Agriculture as a seed lot.
     - 1.2.3. All native grass, sedge, rushes, and forbs seed shall be either origin certified or wild type. Origin Certified Seed, designated as MCIA yellow tag species shall be used in all native seed mixes (mixes numbered 300 and above). Wild type may be substituted for yellow tag species only by obtaining approval of the Engineer and the Erosion Control Engineering Unit from the Office of Environmental Services. Wild type and named varieties of native species listed in Table 3876-1 may be used in 100 and 200 series seed mixtures. Origin shall be clearly identified on the seed label for all seed, including native forbs.
   - 1.3. MULCH & HYDRAULIC SOIL STABILIZER
     - 1.3.1. Furnish materials in accordance with MnDOT Standard Specifications for Construction – Latest Edition, Section 3882, and Section 3884 except as modified herein.
   - 1.4. ROLLED EROSION PREVENTION PRODUCT
     - 1.4.1. Furnish materials in accordance with MnDOT Standard Specifications for Construction – Latest Edition, Section 3885.
   - 1.5. WATER
     - 1.5.1. Water shall be clean, fresh, and free of substances or matter capable of inhibiting vigorous growth of grass.
2. EXECUTION
   - 2.1. Perform Work in accordance with MnDOT Standard Specifications for Construction – Latest Edition, Section 2575, and all applicable MnDOT Special Provisions except as modified herein.
   - 2.2. The Contractor shall be responsible for temporary seeding and all costs associate with temporary seeding to comply with NPDES permit requirements and MnDOT seeding dates identified in MnDOT Standard Specifications for Construction – Latest Edition, Section 2575.
   - 2.3. FINISH GRADING
     - 2.3.1. Verify subgrade and trench backfilling have been inspected.
     - 2.3.2. Verify subgrade has been contoured and compacted.
     - 2.3.3. Where topsoil is to be placed, scarify surface to depth of 4 inches.
     - 2.3.4. In areas where vehicles or equipment have compacted soil, scarify surface to depth of 6 inches.
     - 2.3.5. Place topsoil in areas where seeding, sod, and planting are indicated.
     - 2.3.6. Place topsoil to a minimum of 6" compacted thickness.
     - 2.3.7. Place topsoil during dry weather.
     - 2.3.8. Remove roots, weeds, rocks, and foreign material while spreading and prior to seeding or sod placement.
     - 2.3.9. Rocks larger than 1" diameter shall be removed.
     - 2.3.10. Near plants spread topsoil manually to prevent damage.
     - 2.3.11. Fine grade topsoil to eliminate uneven areas and low spots. Maintain profiles and contour of subgrade.
     - 2.3.12. Lightly compact placed topsoil.
   - 2.4. SOIL PREPARATION
     - 2.4.1. Immediately prior to placing the topsoil, scarify the existing soils to a minimum depth of 6 inches for all areas on slopes shallower than 2 horizontal to 1 vertical.
     - 2.4.2. Perform soil preparation immediately prior to seeding or placing sod to prevent undesirable weed growth or soil erosion.
     - 2.4.3. Place the topsoil and spread uniformly over lawn areas to a minimum depth of 6 inches unless a specific depth is stated elsewhere. Firm and smooth the topsoil after working the soil.
     - 2.4.4. Apply a starter fertilizer at the Manufacturer's or Supplier's recommended rates and work into the topsoil. The lag time between seeding or placing sod and fertilizing shall not exceed 48 hours.
     - 2.4.5. Fertilizers shall be applied at a rate determined by the seed or sod supplier. The type of fertilizer shall be determined based on the type and properties of the topsoil, seed, or sod.
     - 2.4.6. Rake the surface until it is smooth and of uniform fine texture immediately prior to seeding or placing sod.
     - 2.4.7. Rocks larger than 1" diameter shall be removed.
   - 2.5. SEEDING
     - 2.5.1. The seed mixture shall be placed with a seed drill that will accurately meter the types of seed to be planted and keep all seeds uniformly mixed during drilling. The application rate for seed mixes 25-151 shall be 200 lbs./acre. The drill shall be equipped with disk furrow openers and packer assembly to compact the soil directly over the drill row. Seeding shall be done at a right angle to the surface drainage. The seeding shall be done with two passes over the entire area, with the second pass in a direction at a right angle to the first pass.
     - 2.5.2. Seeded areas shall have the seedbed firmed after seeding and prior to mulching. Soil firming shall be done with a drag cultipacker or other approved soil firming equipment. On slopes too steep to operate mechanical equipment, the seed shall be covered by hand raking or other approved means, wherever feasible, prior to mulching. Accomplish the soil firming or seed covering immediately after seeding.
     - 2.5.3. The mulch shall be spread by mechanical means to provide a uniform distribution at an application rate of 2.0 tons/acre of MnDOT Type 3 Mulch.
     - 2.5.4. Seed placed under the Contract shall be fertilized and watered and maintained by the Contractor for a period of 30 days after placement or until accepted by the Owner, whichever comes first. The seed shall develop into a lush turf over the landscaped areas to be acceptable.
   - 2.6. HYDROSEEDING
     - 2.6.1. Mix the seed, fertilizer, and mulch material in the required amount of water to produce a slurry mixture.
     - 2.6.2. Mulching shall be executed in accordance with MnDOT Standard Specifications for Construction – Latest Edition, Section 2575.
     - 2.6.3. Mulch shall be Type 4 in areas seeded with MnDOT seed mixture 25-151 and applied at a rate of 1.5 tons per acre immediately following seeding and shall be immediately over-sprayed with Stabilized Fiber Matrix at 750 lbs./acre.
     - 2.6.4. Apply water with fine spray immediately after each area has been mulched. Saturate to 4 inches of soil.
     - 2.6.5. Incorporate the mulch into the slurry mix after the seed and fertilizer have been thoroughly mixed.
     - 2.6.6. Direct the spray during the application to obtain a uniform material distribution.
     - 2.6.7. Empty the slurry mixture within one hour after the seed is added to the tank.
     - 2.6.8. Hydroseed placed under the Contract shall be fertilized, watered, and maintained by the Contractor for a period of 30 days after placement. The seed shall develop into a lush turf over the landscaped areas to be acceptable.
   - 2.7. ROLLED EROSION PREVENTION PRODUCT
     - 2.7.1. Rolled erosion prevention products shall be executed in accordance with MnDOT Standard Specifications for Construction – Latest Edition, Section 2575.
     - 2.7.2. Rolled erosion prevention products shall be Category 20 and shall be used with the seed mixtures designated above in areas as shown on the Drawings.
     - 2.7.3. Lay product smoothly on surface, bury top end of each section in 6-inch-deep excavated topsoil trench. Overlap edges and ends of adjacent rolls minimum 12 inches. Backfill trench and rake smooth, level with adjacent soil.
     - 2.7.4. Lightly dress slopes with topsoil to ensure close contact between fabric and soil.
     - 2.7.5. At sides of ditches, lay fabric laps in direction of water flow. Lap ends and edges minimum 6 inches.
   - 2.8. MAINTENANCE
     - 2.8.1. Water to prevent grass and soil from drying out.
     - 2.8.2. Roll surface to remove minor depressions or irregularities.
     - 2.8.3. Control growth of weeds. Apply herbicides. Remedy damage resulting from improper use of herbicides.
     - 2.8.4. Immediately reseed areas showing bare spots.
     - 2.8.5. Repair washouts or gullies.

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PRINTED NAME: MICHAEL J. GERBER

DATE: 03/28/2025 LICENSE #: 56653

JAVA LINO LAKES 2ND ADDITION

LINO LAKES, MN

DRAWN BY: NPK

CHECKED BY: JEA

PROJECT NO.: 10923008

NO.	DATE	DESCRIPTION
1	06/09/2025	FINAL PLAT SUBMITTAL
2	07/15/2025	REV. FINAL PLAT SUBMITTAL
3	08/20/2025	RCWD REVISIONS

CIVIL SITE SPECIFICATIONS

DRAWING NO.

C608

GOVERNING SPECIFICATIONS
THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" LATEST EDITION AND ALL APPLICABLE MNDOT SPECIAL PROVISIONS AT THE TIME OF BIDDING SHALL APPLY ON THIS CONTRACT EXCEPT AS MODIFIED OR ALTERED IN THE FOLLOWING SPECIAL PROVISIONS. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE CURRENT EDITION OF THE CITY OF LINO LAKES GENERAL SPECIFICATIONS AND STANDARD DETAIL PLATES FOR STREET AND UTILITY CONSTRUCTION.

WATER DISTRIBUTION PIPING

1. PRODUCTS
   - 1.1. WATER PIPING
     - 1.1.1. All water pipe and fittings shall be manufactured and constructed in accordance with the State Plumbing Code and any local jurisdiction requirements.
   - 1.2. FITTINGS
     - 1.2.1. Fittings shall be mechanical joint ductile iron Class 350 conforming to the requirements of AWWA C110 or C153, ANSI A21.53, A21.11, and A21.4.
     - 1.2.2. Fittings shall have an asphaltic coating at least one mil thick on all exterior surfaces. Spotty of thin seal coating, or poor coating adhesion, shall be cause for rejection.
     - 1.2.3. Fitting gaskets shall be designed and constructed to meet or exceed the requirements of AWWA C111.
     - 1.2.4. Restrainer glands shall be Megalug of approved equal.
     - 1.2.5. Stainless steel or Cor-Blue bolts shall be used for all fitting connections.
   - 1.3. GATE VALVES
     - 1.3.1. Gate valves shall meet the requirements of AWWA C509-80 and shall be single disc type with resilient seat bonded. With a water working pressure of not less than 150 psi.
     - 1.3.2. Gate valves shall be provided with a two-inch square operating nut, painted white, opening counterclockwise.
     - 1.3.3. Gate valves shall include a stationary valve rod extension which attaches to the operating nut and extends to within 1' of the valve box cover.
     - 1.3.4. Valve boxes shall be three piece, 5 ¼", screw type for a burial depth of 8' or as shown on the plans and shall be Mueller, Tyler, Bibby, or Engineer approved equal.
     - 1.3.5. Valve boxes shall be of sufficient length to provide for minimum adjustment of 6" above and below grades when the pipe is installed to specified depth.
   - 1.4. HYDRANTS
     - 1.4.1. Hydrants shall conform to the applicable requirements of AWWA C502.
     - 1.4.2. Hydrants shall be Waterous WB-67, American B-62-B with breakaway flange or Engineer approved equal.
     - 1.4.3. Hydrants bury depth, measured from the top of the branch pipe connection to the finished ground line at the hydrant, shall be 8'.
     - 1.4.4. Hydrants shall have 16" from the breakaway flange to the discharge fittings.
     - 1.4.5. Hose and streamer connection shall match sizes and type of thread with City fire department (Two hose nozzles, one pumper nozzle). Coordinate size and thread with local fire department.
     - 1.4.6. Hydrants shall be provided with outlets for drainage in the base or barrel, or between the base and barrel.
     - 1.4.7. Hydrant operating nut shall be rotated counterclockwise to open.
     - 1.4.8. Restrainer glands shall be Megalug of approved equal.
     - 1.4.9. Hydrants shall be repainted prior to acceptance if paint has been damaged.
     - 1.4.10. Hydrant markers shall be RoDon 5' Hydra-finder attached using the RoDon flat mounting bracket, Hy-Viz 5' Traditional fiberglass Hydrant Marker with bolt mount, or Engineer approved equal.
   - 1.5. TRACER WIRE
     - 1.5.1. Tracer wire shall be #12 AWG copper-clad steel wire with 30 mils of blue HDPE coating.
     - 1.5.2. Tracer wire shall be spliced using a direct bury splice kit and be covered with a flame retardant compound.
     - 1.5.3. Tracer wire test stations shall be Rhino TriView Flex Test Station, Carsonite Perma-Post Test Station or Engineer approved equal and shall be 72" tall, blue in color, with two internal terminals and water pipeline stickers affixed to them.
   - 1.6. CORPORATION STOPS
     - 1.6.1. Corporation stops shall meet the requirements of AWWA C800.
     - 1.6.2. Corporation stops shall be ball type and manufactured by Ford, AY McDonald, Mueller or Engineer approved equal.
     - 1.6.3. Stainless steel strap saddles shall be included with each corporation stop.
   - 1.7. CURB STOPS & BOXES
     - 1.7.1. Curb stops & boxes shall meet the requirements of AWWA C800.
     - 1.7.2. Curb stops shall be ball type, Minneapolis pattern valve and manufactured by Ford, AY McDonald, Mueller or Engineer approved equal.
     - 1.7.3. The fittings on the corporation stop and curb stop shall be compression type.
     - 1.7.4. Curb boxes shall have a stationary rod; lid with brass pentagon head plug; the ability to extend up to 96"; Minneapolis pattern base to attach to curb stop; and be manufactured by Ford, AY McDonald, Mueller or Engineer approved equal.
2. EXECUTION
   - 2.1. GENERAL
     - 2.1.1. Installation of water pipe and their appurtenances shall conform to the requirements of the State Plumbing Code and local jurisdictional requirements.
     - 2.1.2. When replacing existing watermain and services, the existing water supply must remain active during construction. The Contractor shall make the necessary arrangements to provide uninterrupted water service to all properties adjacent to the project.
     - 2.1.3. Granular bedding material and encasements are required as indicated in the plans.
     - 2.1.4. In wet or unsuitable soil conditions, the Contractor shall excavate 6" below the bottom of the pipe, furnish and install a 6" crushed rock foundation to provide support for the pipe installation. The rock will be incidental to pipe cost.
   - 2.2. WATER PIPING
     - 2.2.1. Maintain separation of water piping from sanitary sewer and storm sewer of 10 feet in accordance with Minnesota Department of Health and Minnesota Department of Labor & Industry requirements.
     - 2.2.2. When crossing sanitary sewer mains or services, a minimum of 18" of vertical separation shall be provided and one full length of water pipe shall be centered at the point of crossing so both joints will be equidistant and as far from the sewer as possible.
     - 2.2.3. Have sufficient materials available to allow for unknown conditions that may be encountered.
     - 2.2.4. Have sufficient tools on-site that may be necessary during construction, such as, valve box wrenches, curb stop wrenches, gate valve keys, etc.
     - 2.2.5. Install pipe to indicated elevation to within tolerance of a 1/2 inch.
     - 2.2.6. Establish elevations of buried piping with not less than 8ft of cover.
     - 2.2.7. When using a bar to push the watermain pipe home, wood blocking shall be used to protect the bell or spigot of the pipe from being damaged.
     - 2.2.8. Install concrete for thrust restraints at each elbow or change of direction of pipe and as shown in the plans.
     - 2.2.9. Support blocking, reaction blocking, and anchorage devices shall be provided as detailed in the plans.
     - 2.2.10. Excavations shall not be backfilled until fittings and connections have been inspected by the Owner or the Engineer.
     - 2.2.11. Excavations shall not be backfilled until necessary information for record drawings has been recorded.
     - 2.2.12. Utilize stiffeners for polyethylene pipe where recommended by the pipe or fitting manufacturer.
     - 2.2.13. Support blocking, reaction blocking and anchorage devices for curb stops and curb boxes shall be provided as detailed in the plans.
     - 2.2.14. Curb stops & boxes shall be adjusted to within 1" of finished grade.
     - 2.2.15. Curb boxes in driveways shall have a short top section of a valve box installed to protect the curb stop and curb box as shown in the plans.
   - 2.3. FITTINGS
     - 2.3.1. All plugs, caps, tees, bends, and other thrust points shall be provided with reaction backing, or movement shall be prevented by attachment of suitable restraining devices, megalugs or tie rods in accordance with plans.
     - 2.3.2. Fittings shall be protected with an 8-mil polyethylene encasement in accordance with ANSI/AWWA C105/A21.5-88.
   - 2.4. GATE VALVES
     - 2.4.1. Support blocking, reaction blocking, and anchorage devices shall be provided as detailed in the plans.
     - 2.4.2. Center and plumb valve box over valve. Set box ½" below finished grade in pavements or sidewalk, flush with finished grade in turf areas, and 3" below finished grade in aggregate roads and alleys.
     - 2.4.3. Gate valves shall be protected with an 8-mil polyethylene encasement in accordance with ANSI/AWWA C105/A21.5-88.
   - 2.5. HYDRANTS
     - 2.5.1. Set hydrants plumb; locate pumper nozzle perpendicular to and facing roadway. Turning hydrant heads shall be incidental to the cost of the hydrant.
     - 2.5.2. Support blocking, reaction blocking, and anchorage devices shall be provided as detailed in the plans.
     - 2.5.3. Set hydrants to grade, with nozzles at least 24 inches above ground.
     - 2.5.4. Hydrants bury depth, measured from the top of the branch pipe connection to the finished ground line at the hydrant, shall be 8'.
     - 2.5.5. Provide drainage pit as shown in the plans.
     - 2.5.6. Do not connect drain opening to sewer.
     - 2.5.7. Plug drain holes if hydrant is located in water table or in areas with contaminated soils and equip with notification that hydrant needs to be pumped after use.
   - 2.6. TRACER WIRE
     - 2.6.1. Tracer wire shall be attached to the top and in the center of the pipe as necessary such that the wire is not displaced during backfilling operations.
     - 2.6.2. Tracer wire shall be brought to the surface as shown in the plans at the end of the main, at each valve box, at each hydrant, and shall be connected to existing tracer wire when connecting to an existing main.
     - 2.6.3. Sufficient tracer wire shall be left around curb stop to allow for extension of the tracer wire to the residence with the extension of the water service.
     - 2.6.4. Tracer wire test stations shall be connected to the tracer wire and installed at every hydrant.
   - 2.7. FIELD QUALITY CONTROL
     - 2.7.1. All water piping shall be tested in accordance with the State Plumbing Code.
     - 2.7.2. Electric Conductivity Test:
       - 2.7.2.1. All tracer wire shall be tested for electrical conductivity from tracer wire test station to tracer wire test station.
     - 2.7.3. Any portion of the work deemed to be defective through the testing shall be remedied at no additional cost to the Owner.
     - 2.7.4. Owner or Engineer shall be present for all testing for verification of results.
     - 2.7.5. The Owner will not consider final acceptance or substantial completion until all testing and corrective action is completed to the satisfaction of the Engineer.

SANITARY SEWER PIPING

1. PRODUCTS
   - 1.1. SANITARY SEWER PIPE
     - 1.1.1. All PVC pipe and fittings shall be manufactured and constructed in accordance with the State Plumbing Code and any local jurisdiction requirements.
   - 1.2. SANITARY SEWER MANHOLE
     - 1.2.1. Precast concrete riser sections and appurtenant units (grade rings, top and base slabs, special sections, etc.) used in the construction shall conform to the requirements of ASTM C-478, MnDOT 2506, MnDOT 3622 and as shown in the plans except as modified herein.
     - 1.2.2. All manholes shall have sealed "boots" cast in the manhole for all pipe connections.
     - 1.2.3. Manhole steps shall conform to MnDOT Standard Plate 4180 and shall be made of reinforced plastic.
     - 1.2.4. Sanitary sewer manhole castings shall be gray iron or ductile iron capable of withstanding traffic loadings and conform to MnDOT Standard Plate 4101 for a 7" casting No. 700-7.
     - 1.2.5. Castings shall be marked "Sanitary Sewer" on the lid. Lids shall be sealed type with neoprene seal and pick hole shall be recessed.
   - 1.3. PRECAST JOINT EXTERNAL SEAL WRAP
     - 1.3.1. Precast joint external seal wrap shall be an 8" single continuous rubber band made of EPDM rubber with a minimum thickness of 65 mils.
     - 1.3.2. The seal shall be secured by a 2" wide mastic strip on the top and bottom edge of the rubber wrap.
     - 1.3.3. The mastic shall be non-hardening butyl rubber sealant and shall adhere to two different manhole sections.
   - 1.4. EXTERNAL RUBBER SEALING SLEEVE
     - 1.4.1. External chimney seals shall be a single continuous rubber band made of EPDM rubber with a minimum thickness of 65 mils.
     - 1.4.2. The seal shall be secured by a 2" x ¼" mastic strip on the top and bottom edge.
     - 1.4.3. The mastic shall be non-hardening butyl rubber sealant and shall seal the cone/top slab of the manhole and over the lip of the casting.
   - 1.5. TRACER WIRE
     - 1.5.1. Tracer wire shall be #12 AWG copper-clad steel wire with 30 mils of green HDPE coating.
     - 1.5.2. Tracer wire shall be spliced using a direct bury splice kit and be covered with a flame retardant compound.
     - 1.5.3. Tracer wire test stations shall be Rhino TriView Flex Test Station, Carsonite Perma-Post Test Station or Engineer approved equal and shall be 72" tall, green in color, with two internal terminals and sewer pipeline stickers affixed to them.
2. EXECUTION
   - 2.1. GENERAL
     - 2.1.1. Execution shall be in accordance with ASTM D2321, "Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications", National Precast Concrete Association's "NPCA Manhole Installation Guide", in accordance with the State Plumbing Code, any local requirements and as shown in the plans except as modified herein.
     - 2.1.2. Existing lines and wastewater flow must remain active during construction. The Contractor shall make the necessary arrangements to provide uninterrupted sanitary sewer service to all properties adjacent to the project.
     - 2.1.3. Granular bedding material and encasements are required as indicated in the plans.
     - 2.1.4. In wet or unsuitable soil conditions, the Contractor shall excavate 6" below the bottom of the pipe, furnish and install a 6" crushed rock foundation to provide support for the pipe installation. Foundation rock will be incidental to pipe installation price.
   - 2.2. SANITARY SEWER PIPING
     - 2.2.1. Maintain separation of water main from sanitary sewer and storm sewer of 10 feet in accordance with Minnesota Department of Health requirements.
     - 2.2.2. Have sufficient materials available to allow for unknown conditions that may be encountered.
     - 2.2.3. When using a bar to push the sanitary sewer pipe home, wood blocking shall be used to protect the bell or spigot of the pipe from being damaged.
     - 2.2.4. Install pipe to indicated elevation to within tolerance of a ½".
     - 2.2.5. All service fittings, including wyes, bend, and cleanouts, shall have 1 ½" crushed or natural rock as foundation material.
     - 2.2.6. Cleanouts shall be extended to within 6 inches of finished grade elevation.
     - 2.2.7. Excavations shall not be backfilled until connections have been inspected by the Owner or the Engineer.
     - 2.2.8. Excavations shall not be backfilled until necessary information for record drawings has been recorded.
   - 2.3. TRACER WIRE
     - 2.3.1. Tracer wire shall be attached to the top and in the center of the pipe as necessary such that the wire is not displaced during backfilling operations.
     - 2.3.2. Tracer wire test stations shall be installed at every air release manhole and at every lift station. Locations to be determined in the field by the Contractor, the Owner and the Engineer's on-site representative.
   - 2.4. TESTING
     - 2.4.1. All pipes shall be tested in accordance with the State Plumbing code.
     - 2.4.2. Upon completion of pressure testing, all sanitary sewer pipe 8 inches in diameter or larger shall be jetted and televised prior to final acceptance and system startup.
     - 2.4.3. Upon completion of jetting the sanitary sewer main, all sanitary sewer manholes shall be cleaned prior to final acceptance and system startup.
     - 2.4.4. All tracer wire shall be tested for electrical conductivity from tracer wire test station to tracer wire test station.
     - 2.4.5. Any portion of the work deemed to be defective through the testing shall be remedied at no additional cost to the Owner.
     - 2.4.6. Owner or Engineer shall be present for all testing for verification of results.
     - 2.4.7. The Owner will not consider final acceptance or substantial completion until all testing, jetting, and corrective action is completed to the satisfaction of the Engineer.

STORM WATER CONVEYANCE

1. PRODUCTS
   - 1.1. Materials shall be in accordance with the State Plumbing Code and MnDOT Standard Specification for Construction – Latest Edition, Section 2501, 2503, 2506 and 2511.
   - 1.2. CONCRETE PIPE SEWER
     - 1.2.1. Reinforced Circular Concrete Pipe
       - 1.2.1.1. Meeting requirements of MnDOT 3236.
       - 1.2.1.2. As per MnDOT Standard Plate 3000 and shall be Class III.
     - 1.2.2. Pipe Joints
       - 1.2.2.1. Bell and spigot end joints.
       - 1.2.2.2. Rubber gasketed to meet the requirements of MnDOT 3726 (MnDOT Standard Plate 3006).
     - 1.2.3. Aprons
       - 1.2.3.1. As per MnDOT Standard Plate 3100.
       - 1.2.3.2. Three sections preceding an apron and the apron itself shall be tied in accordance with MnDOT requirements.
   - 1.3. PVC STORM SEWER PIPE
     - 1.3.1. All PVC pipe and fittings shall be manufactured and constructed in accordance with the State Plumbing Code and any local jurisdiction requirements.
   - 1.4. HIGH DENSITY POLYETHYLENE PIPE
     - 1.4.1. All HDPE pipe and fittings shall be manufactured and constructed in accordance with the State Plumbing Code and any local jurisdiction requirements.
     - 1.4.2. End section joints shall be tied and provided with approved trash guard.
   - 1.5. CONCRETE MANHOLES AND CATCH BASINS
     - 1.5.1. Shall be pre-cast concrete meeting the requirements of ASTM Specification C-478 and MnDOT 2506.
     - 1.5.2. Manholes and catch basins shall conform to MnDOT Standard Plate 4003, 4005, or 4006 as applicable by the design designated on the plans.
     - 1.5.3. All joints shall be gasketed.
   - 1.6. AREA DRAIN BASINS
     - 1.6.1. The surface drainage inlets shall be as manufactured by Nyloplast a division of Advanced Drainage Systems, Inc. or engineer approved equal.
     - 1.6.2. PVC surface drainage inlets shall include the drain basin type as indicated on the contract drawing and referenced within the contract specifications. The ductile iron grates for each of these fittings are to be considered an integral part of the surface drainage inlet and shall be furnished by the same manufacturer.
     - 1.6.3. Drain basins required for this contract shall be manufactured from PVC pipe stock, utilizing a thermoforming process to reform the pipe stock to the specified configuration.
     - 1.6.4. The drainage pipe connection stubs shall be manufactured from PVC pipe stock and formed to provide a watertight connection with the specified pipe system. This joint tightness shall conform to ASTM D3212. The flexible elastomeric seals shall conform to ASTM F477. The pipe bell spigot shall be joined to the main body of the drain basin.
     - 1.6.5. The raw material used to manufacture the pipe stock that is used to manufacture the main body and pipe stubs of the surface drainage inlets shall conform to ASTM D1784 cell class 12454.
     - 1.6.6. The grates and frames furnished for all area drain inlets shall be ductile iron for sizes 8" – 30" and shall be made specifically for each basin so as to provide a round bottom flange that closely matches the diameter of the area drain inlet. Grates for drain basins shall be capable of supporting various wheel loads as specified by Nyloplast. Ductile iron used in the manufacture of the castings shall conform to ASTM A536 grade 70-50-05. Grates and covers shall be painted black.
   - 1.7. RIPRAP
     - 1.7.1. Shall be random riprap, Class III meeting the requirements of MnDOT 3601.
2. EXECUTION
   - 2.1. Execution shall be as specified in the MnDOT Standard Specifications for Construction – Latest Edition, Section 2501 and 2511.
   - 2.2. Granular bedding material and encasements are required as indicated in the plans.
   - 2.3. In wet or unsuitable soil conditions, the Contractor shall excavate 6" below the bottom of the pipe, furnish and install a 6" crushed rock foundation to provide support for the pipe installation. Foundation rock will be incidental to pipe installation price.
   - 2.4. The Contractor shall not impede existing drainage ways during construction, if necessary, the Contractor shall temporarily bypass until permanent measures are operational.
   - 2.5. Remove large stones or other hard matter which could damage piping or impede consistent backfilling or compaction.
   - 2.6. All culverts or pipe sewers to be removed or salvaged and reinstalled shall be replaced at the same location and elevation unless otherwise shown on the plans.
   - 2.7. All existing pipe sewers or culverts are to remain in place if possible unless otherwise shown on the plans.
   - 2.8. AREA DRAIN BASINS
     - 2.8.1. The specified area drain basins shall be installed using conventional flexible pipe backfill materials and procedures.
     - 2.8.2. The backfill material shall be crushed stone or other granular material meeting the requirements of class 1, class 2 or class 3 material as defined in ASTMD2321.
     - 2.8.3. Bedding and backfill for area drains shall be well placed and compacted uniformly in accordance with ASTM D2321.
     - 2.8.4. The area drain body will be cut at the time of the final grade. No brick, stone or concrete block shall be used to set the grate to final elevation.

STORM WATER MANAGEMENT FACILITIES

1. EXECUTION
   - 1.1. Infiltration areas are shown on the Plans.
   - 1.2. Areas that will be used for temporary erosion control basins shall be established early in the project.
   - 1.3. Temporary erosion control basin areas that will be used as final stormwater best management practices shall be protected as outlined in the Stormwater Pollution Prevention Plan (SWPPP).
   - 1.4. INFILTRATION SYSTEMS
     - 1.4.1. Infiltration Basin areas are shown on the plans.
     - 1.4.2. Infiltration basins shall be protected during construction as outlined in the Stormwater Pollution Prevention Plan (SWPPP).
     - 1.4.3. Excavate to subgrade elevation after entire site is stabilized unless otherwise authorized by Owner or Owner's representative.
     - 1.4.4. Once subgrade elevation is reached the top 12" shall be ripped.
     - 1.4.5. Topsoil and compost mix shall be evenly spread over subgrade and incorporated by "farming" the mix into the subgrade.
     - 1.4.6. Basin shall be compacted with low impact equipment to a density not exceeding 90% dry density using the standard proctor test.
   - 1.5. QUALITY ASSURANCE
     - 1.5.1. Infiltration rate shall be determined by a double ring infiltrometer test for the sand-based performance fields, biofiltration basin, and infiltration basin after completion and site has been stabilized. Contractor shall coordinate with Geotechnical Engineer to perform the test.
     - 1.5.2. Variances between the field Infiltrometer Test and the infiltration rate listed in the Stormwater Management Study for the project to be discussed with the Engineer to determine if modifications to the basin, outlet structure, grading or other improvements is needed.
     - 1.5.3. If the Infiltrometer Test exceeds the maximum infiltration rate of 8.3 inch/hour, the Contractor shall amend the soils in the basin to reduce the infiltration rate to meet MPCA guidelines.

DESIGN TREE
engineering + land surveying
Corporate Office:
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JAVA COMPANIES

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.

PRINTED NAME: MICHAEL J. GERBER

DATE: 03/28/2025 LICENSE #: 56653

JAVA LINO LAKES 2ND ADDITION

LINO LAKES, MN

DRAWN BY: NPK

CHECKED BY: JEA

PROJECT NO.: 10923008

NO.	DATE	DESCRIPTION
1	06/09/2025	FINAL PLAT SUBMITTAL
2	07/15/2025	REV. FINAL PLAT SUBMITTAL
3	08/20/2025	RCWD REVISIONS

CIVIL UTILITY SPECIFICATIONS

DRAWING NO.

C609