CITY OF MINNETRISTA

CITY COUNCIL BUSINESS ITEM

Subject:	**Application from S & RB Investments, LP for a rezoning to R-2(a): Low Medium Residence with a planned unit development overlay and a preliminary plat to develop 214 lots at property located at 9400 Highway 7.**
Prepared By:	**Nickolas Olson, Senior City Planner**
Through:	**David Abel, Community Development Director**
Meeting Date:	**October 19, 2026**

Overview: S & RB Investments, LP (the "Applicant") has submitted an application for a rezoning to R-2(a): Low Medium Residence with a planned unit development overlay and a preliminary plat to develop 214 lots at property located at 9400 Highway 7; AP: Agriculture Preserve Zoning District; PID # 30-117-24-32-0004 (the "Property").

Background: In early 2026, the Applicant submitted for a comprehensive plan amendment to change the future land use of the Property from Permanent Agriculture to Residential Low-Medium. This was presented to the Planning Commission on January 26th for a recommendation and public hearing. A recommendation of approval was forwarded to the City Council for review on February 18th. After review, the City Council approved the request and it was later submitted to the Metropolitan Council for their review and on June 24th, they approved the request as well.

The Applicant is working with Brandl Anderson Homes (the "Developer"), represented by John Anderson, for the development of the Property. While the comprehensive plan amendment was under review, the Developer scheduled a neighborhood meeting on June 25th. This was an opportunity for the Developer to hear from those who will be noticed of the public hearing.

The Developer has provided the City with the necessary preliminary plat documents for review. An outline of the discussion points walks through the main items to consider when reviewing the Applicant's request. The outline explains how each area relates to the City Code requirements. The project is proposed to be rezoned to R-2a Low Medium Residence with a Planned Unit Development (PUD) overlay. A PUD grants the developer flexibilities from the underlying R-2a in order to achieve a higher level of development. Outside of any flexibilities the City deems appropriate, the Developer will be held to city standards and specifications. All necessary items will be outlined in a future developer agreement between the City and the Developer.

Discussion: It is the policy of the city to consider the subdivision of land and the subsequent development of subdivided land as subject to the control of the city pursuant to the official comprehensive municipal plan of the city and this section for the orderly, planned, efficient, and economical development of the city. Land to be subdivided will be of such character that it can be used safely for building purposes without danger to health or peril from fire, flood, or other menace. Land will not be subdivided until available public and private facilities and improvements exist and proper provision has been made for drainage, water, sewerage, and capital improvements such as schools, parks, recreation facilities, transportation facilities and other public improvements.

Comprehensive Plan: The future land use of the property was recently changed from Permanent Agriculture to Residential Low-Medium. Residential Low-Medium allows for a density range of 3.5-6 units/acre. The proposed development falls within this range.

Zoning: The Property is proposed to be rezoned to R-2a Low-Medium Residence with a PUD overlay. The PUD overlay would allow the Developer flexibility from certain zoning standards. Below is a table explaining the flexibility being requested:

	City Standard (R-2a)	PUD Flexibility Requested
Lot Width	70 ft.	55 ft. minimum
Lot Depth	100 ft.	none
Lot Area	9,500 sf	6,800 sf
Front Setback	30 ft.	25 ft.
Side Setback	10 ft.	7.5 ft. single family 5 ft. villa 20 ft. side street
Rear Setback	25 ft.	none
Wetland Setback	35-50 ft.	none
Wetland Buffer	16.5-35 ft. based on size of wetland	30 ft. avg.
Hardcover	45% per lot	none

Any flexibility not outlined in the PUD rezoning would defer to the underlying R-2a zoning. Should the Developer in the future want to seek additional flexibilities, a PUD amendment application would need to be submitted and reviewed by the City Council.

Water & Sanitary Sewer System General: The City Engineer's memorandum contains comments regarding the water and sewer system. It should be noted that the development cannot use City water for irrigation systems. Lawn irrigation shall be serviced by the onsite storm water ponds.

Streets General: The streets within the development will need to be designed and installed to the City's standards and specifications. Improvement to Buck Lake

Road from Highway 7 to the entrance of the development is being proposed and will be required. This section will also need to be to the applicable designed standards of the City. It is the expectation that this segment will be maintained by the City of Minnetrista. Additional details regarding the proposed street plans can be found in the attached civil plans and comments from the City Engineer can be found in the attached memorandum.

Stormwater: The Developer has submitted a stormwater management plan with the overall development plans. The City has commented on the original plan and has since received revised plans. However, due to the timing of the submittal of revised plans, staff did not have sufficient time to verify the statements made in the developer's engineer's October 9, 2026, response letter. Staff will review the revised plans and coordinate with the developer's engineer on any changes needed for the final plat submittal. A stormwater tax district will be established with the final plat. The purpose of the district is to allow the City to maintain, repair or reconstruct storm water improvements within the subdivision in the event the developer or homeowners' association fails to do so and to recover the cost thereof through a tax levied solely against property within the district.

Traffic: The proposed development will gain access from Buck Lake Road off Highway 7. As mentioned previously, this section of Buck Lake will be improved to City standards and specifications. A traffic study has been completed and attached for review. MnDOT informally said the eastbound bypass lane should be upgraded into a full left turn. The Developer will be required to obtain all necessary permits and approvals from MnDOT for access and work within their ROW for Highway 7 as a condition of approval. MNDOT is reviewing the development proposal and they will be working with the Developer on potential improvements to the intersection.

Tree Preservation: All subdivisions resulting in five or more units, lots, parcels, tracts or long-term leaseholds regardless of the zoning district. Subdivisions and planned unit developments affected by this section are required to protect all significant trees that do not need to be removed to allow the reasonable development of the property. At a minimum, 70 percent of the total caliper inches of significant trees on the property shall be protected. If the caliper inches of the trees removed is greater than the allowed 30 percent, the required replacement trees shall be one caliper inch for each caliper inch removed beyond the allowed 30 percent. In cases in which it can be demonstrated that a property cannot accommodate additional trees on site and replacement trees are required, the city council, at its sole discretion, may also allow an applicant to contribute $100.00 per Caliper Inch city's Tree Replacement and Environmental Enhancement Fund.

Included with the submittal is a tree preservation plan and a landscape plan. This outlines the proposed removal and planting scheduled for the development. A summary of the removal and plantings is outlined in the table below:

Total Significant Inches	1,982
Total Saved (in.)	1,236
Total Removed (in.)	746
Allowed Removal (30%)	595
Removal Above 30%	151
Replacement	535* (one 2.5 in. tree per unit) *See plan for more detail

Parks, Trails, & Open Space General: Pursuant to Minn. Stats. § 462.358, subdivision 2b, the city requires all subdividers to dedicate to the city or preserve for public use as parks, recreational facilities, playgrounds, trails, open space or areas of natural and environmental significance a reasonable portion of the buildable land of the subdivision. The city council, at its discretion, may elect to require in lieu of land an equivalent cash payment based on the fair market value of the buildable land no later than the time of final subdivision approval.

Analysis of the required park dedication, according to Section 500.47, a development which has at least 3 but less than 4 units per acre requires 12% of buildable land or equivalent market value in cash to be dedicated. An appraisal would be required to determine fair market value and park dedication amount.

The Parks Commission will review park dedication on July 27th prior to this meeting. In review of the current Parks, Trails, and Open Space Plan, the northeastern corner of Property is located within a planned park service area. However, a majority of the service area is located on the properties to the east and north. It may make sense to wait for future development of the adjacent properties before establishing a city park and it may make sense for the Parks Commission to consider cash-in-lieu of land for the park dedication requirement. If there is a desire to have a park in the neighborhood, the city could work with the developer to establish a neighborhood HOA park and give credit towards the park dedication requirement.

Architectural Guidelines and Homeowner's Association: Any new development of ten or more single-family detached, single-family attached in groups of two, or two-family detached dwelling units will have at least four different types of housing models (i.e. ramblers, split, colonial, victorian, bungalows, craftsman, contemporary and et cetera). Each housing model will have at least three variations with differing characteristics which clearly and obviously distinguish it from the other housing models, including different floor plans, exterior materials, roof lines, garage placement, and/or building face. The Applicant will be required to provide a set of model homes for review against the Cit's architectural standards. If the desired models do not conform, then the Applicant would need to request a waiver from said standards for the City Council to consider.

The city council may, upon recommendation of the planning commission and/or city staff require the subdivider to create a viable homeowner's association,

acceptable to the city which will be responsible for the ownership and maintenance of among other things: Common facilities, private roads, private sewer and water lines, open space, pathways, storm drainage ways, and storm drainage ponds, and any improvements which are not to be accepted by the city for public ownership and maintenance. Such maintenance will include, among other things, repair, replacement when necessary, snow removal, grass cutting, weed control, clean-up of trash and debris, mosquito control, odor control, silt removal from storm drainage ponds and drainage ways, and grading and surfacing of private roads.

Neighborhood Comments: Staff sent out notices to property owner's within 1,000 feet of the proposed development area. The written comments received have been attached for consideration. The public hearing was held with the Planning Commission on July 27, 2026 and a summary of the hearing is included with the Planning Commission meeting section of the staff report.

Planning Commission Recommendation: The Applicant's request was presented to the Planning Commission at their July 27th, 2026 meeting. At that meeting, the Planning Commission held the required public hearing. There were several people present who spoke during the hearing. Some of the things discussed and brought up during the hearing included traffic, Highway 7/Buck Lake Road intersection, potential traffic traveling on the gravel portion of Buck Lake Road and other connecting roads, and open/green/park spaces. After hearing testimony during the public hearing and discussing amongst themselves, the Planning Commission agreed the traffic should be analyzed and a study completed to determine the impact and any recommendations for the Highway 7/Buck Lake Road intersection and also temporary green space/open space should be incorporated in the interim until a future park is developed to serve the area. A motion was made to recommend the City Council adopt an ordinance rezoning the properties to R2(a) Low Medium Residence with a PUD – Planned Unit Development overlay and a resolution approving the preliminary plat known as Seven Oaks, subject to the conditions outlined in the staff report with the added conditions of a traffic study being completed and green space/park be incorporated into the plan. Motion passed 5-0. Absent: Livermore, Gangestad, Gehring, and Rognli.

Since the Planning Commission meeting, the Developer had a traffic study completed and submitted to the City. It has been attached to this staff report for the City Council to review. The summary of the considerations of the study is:

1) There does not appear to be any safety issues from a crash frequency or severity perspective within the study area.
2) The study intersection and all approaches operate at an acceptable LOS A during the typical weekday peak hours and there are no significant existing operational issues from an intersection capacity perspective.
3) The residential development includes a total of 214 residential units, which includes 149 single-family homes and 65 townhomes. Construction is planned to be completed by the year 2030.

4) Traffic forecasts were developed for year 2030 build conditions. The traffic forecasts account for a 0.5% annual background growth and trip generation from the proposed development.
    a. The proposed development is estimated to generate 135 a.m. peak hour (36 in / 99 out), 172 p.m. peak hour (105 in / 67 out), and 1,780 daily (890 in / 890 out) trips.
5) Under year 2030 build conditions, the study intersection and all approaches are expected to continue to operate at an acceptable LOS C or better during the typical weekday peak hours.
6) There are no significant operational issues anticipated with the addition of the proposed development from an intersection capacity perspective.
7) Once a roadway connection from the proposed development to Wildwood Avenue is constructed, it is estimated that about 15% of the proposed development site trips (i.e., 250 daily trips) could utilize this connection and would no longer need to access Buck Lake Road.
8) The intersection sight distance at the Highway 7 and Buck Lake Road intersection meets the recommended AASHTO guidance and the existing eastbound bypass lane and westbound right-turn lane configuration should be maintained.
9) The following items are offered for further consideration between the City and / or project team.
    a. Upgrade Buck Lake Road from Highway 7 to the proposed development access from a gravel roadway to a paved surface.
        i. Note that Buck Lake Road may eventually be realigned if / when additional development south of Highway 7 occurs to align future roadways and eliminate offset intersections.
    b. Locate signage and landscaping to avoid creating any sight distance issues.
    c. Review truck maneuverability to limit potential internal circulation conflicts.
    d. Ensure that sidewalks are provided on at least one side of every road within the development.
    e. Review internal intersections and provide appropriate internal traffic controls (i.e., stop signs) in collaboration with the City Engineer.

Conclusion: The City Council should review the staff report and the recommendation of the Planning Commission. After review, the City Council should consider the entire record before them prior to making a motion. When making a motion, findings of fact should be established which support the motion. Along with making a motion, the City Council should determine if any conditions are required to ensure orderly, planned, efficient, and economical development of the city. Based on its review, staff would recommend the following conditions:

1. The Applicant shall satisfy all comments within the City Engineer's review memorandum dated July 23, 2026 and any additional comments regarding future revised submittals prior to final plat approval;
2. The Applicant shall comply with any recommendations of the traffic study and those from the City and MnDOT;

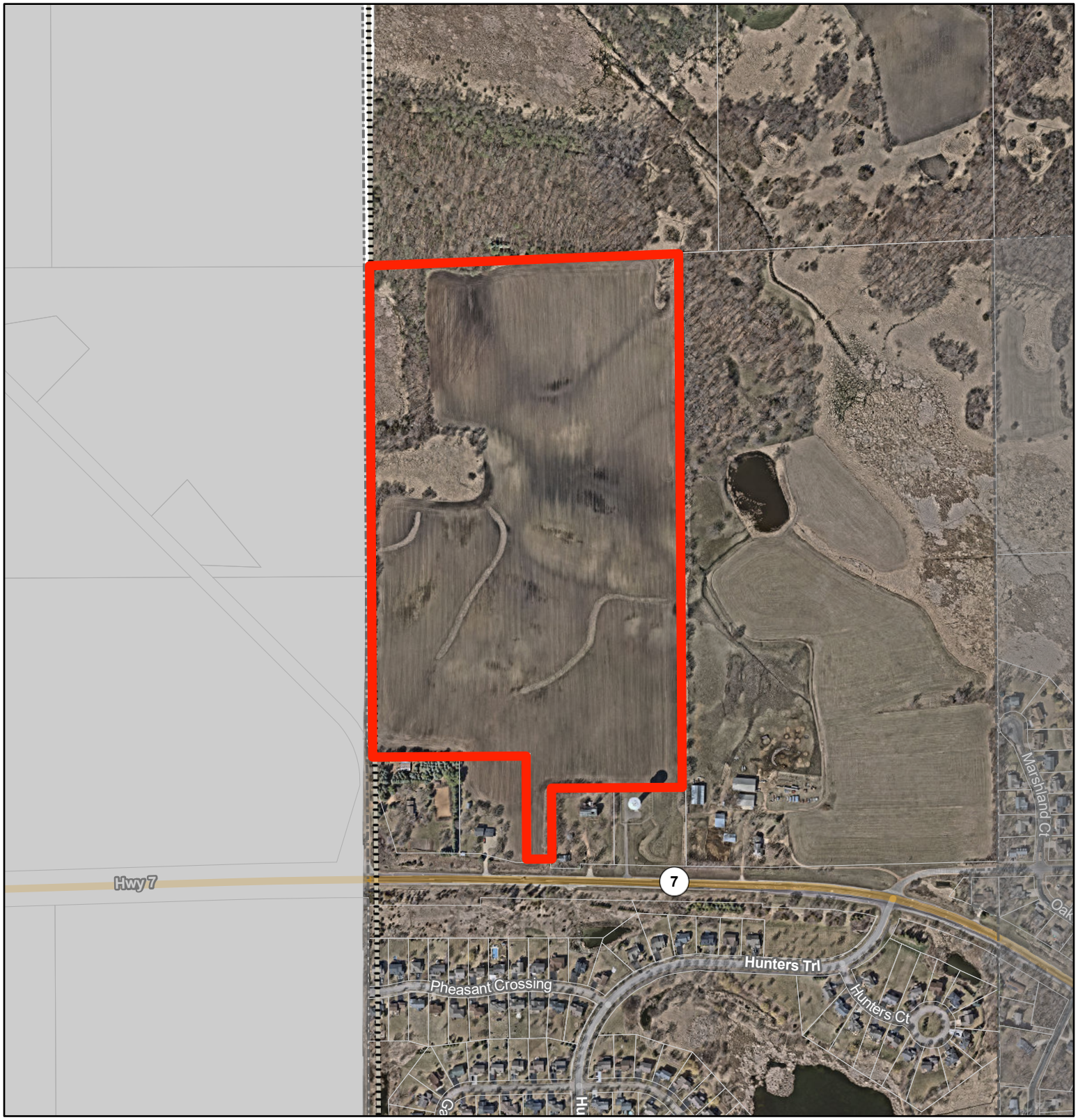
3. The Applicant shall work to incorporate green space/park areas temporarily until a future park is developed to serve the area;
4. The preliminary plat is subject to Minnesota State Fire code and review by the local Fire Chief;
5. The Applicant shall submit a set of model homes for review of conformance with the City's architectural guidelines with the final plat application;
6. The Applicant shall contribute a warning siren fee of $64/unit at the time of final plat;
7. The Applicant shall submit an appraisal at their cost for fair market value of the Properties being developed. A park dedication fee in the amount of 12% of the appraised value, as agreed upon by the City Council, of the land shall be paid at the time of final plat. The City Council reserves the right to require their own appraisal at the expense of the Applicant if necessary to determine fair market value;
8. Per the City fee schedule, a sewer area charge and water area charge will be due at the time of final plat approval;
9. The Applicant shall comply with all of the rules, regulations, and permitting requirements of MnDOT, Hennepin County, MCWD, and all other public agencies with jurisdiction over the Properties;
10. All utilities for the proposed development shall be located underground;
11. Standard drainage and utility easements shall be provided around the boundaries of all lots and wetlands;
12. Lawn and landscape irrigation systems within the development cannot be connected to city water per Section 500.31 Subd. 4 of City Code. The lawn and landscape irrigation needs of the development shall be served by the installation of a separate irrigation system supply pipes connected to the storm water ponds;
13. The rezoning of the Property will become effective upon filing of the final plat for the first phase;
14. A developer's agreement must be executed before the final plat will go to the City Council;
15. A stormwater tax district shall be established for all property included within the plat;
16. The Applicant shall establish a homeowner's association for all the property included with the proposed plat;
17. The Applicant shall provide title evidence satisfactory to the City Attorney prior to final plat approval;
18. Payment of all associated preliminary plat review fees shall be received by the City prior to acceptance of a final plat application; and
19. The Applicant shall submit a completed application for final plat within one hundred eighty (180) days of date of adoption of resolution by the City Council.

Recommended Action: Motion to adopt an ordinance rezoning the properties to R2(a) Low Medium Residence with a PUD – Planned Unit Development overlay and a resolution approving the preliminary plat known as Seven Oaks, subject to the conditions outlined in the staff report.

Attachments:

1. Location Map
2. Applicant Narrative
3. Preliminary Plat & Civil Plans
4. Traffic Study
5. City Engineer Memorandum
6. Public Comments
7. Res. No. 111-26 Approving Preliminary Plat of Seven Oaks
8. Ordinance No. 512 Rezoning to R2a and PUD

9400 Highway 7



1 in = 800 Ft

City Boundary

City Mask

Address Labels

N

January 23, 2026

Map Powered By Datafi

wsb

SEVEN OAKS
MINNETRISTA, MN

Preliminary Plat & Planned Unit Development (PUD)
Written Statements

a. <u>Contact Information</u>

Developer: Seven Oaks, LLC (Brandl Anderson Homes)
221 River Ridge Circle South
Burnsville, MN 55337
Attn: Chris Contreras
ccontreras@brandlanderson.com
952-898-0230

Project Manager: John Anderson
johnbranderson@aol.com
612-598-4987

Owner: S&RB Investments, LP
11383 County Road 33
Norwood Young America, MN 55397
Attn: Dan Boll
952-393-4992

Engineer/Surveyor: Pioneer Engineering
2422 Enterprise Drive
Mendota Heights, MN 55120
Attn: Nick Polta
npolta@pioneereng.com
651-681-1914

Soil Borings/
Construction Testing: Haugo Geotechnical Services, LLC
2825 Cedar Avenue S
Minneapolis, MN 55407
Attn: Paul Haugo
phaugo@haugogts.com
612-729-2959

Wetlands: Kjolhaug Environmental Services
2500 Shadywood Road, Suite 130
Orono, MN 55331
Attn: Mark Kjolhaug

mkjol@kjolhaugenv.com
952-401-8757

b. Site Data

Property Address: 9400 State Highway No. 7
Minnetrista, MN 55388

PID Number: 3011724320004

Acreage: 67.7822 acres or 2,952,592 square feet

Legal Description: The West Half of the Southwest Quarter of Section 30, Township 117 North, Range 24 West, Hennepin County, Minnesota.

EXCEPT that part thereof embraced within the plat of Bollderidge.

EXCEPT The East 273 feet of the West 1045.12 feet of the South 384 feet threof.

EXCEPT that part of the South 384.00 Feet lying easterly of the East 273 feet of the West 1045.12 feet of the South 384 feet thereof.

EXCEPT State Highway No. 7.

c. General Information

Proposed Name: Seven Oaks.

Number of Lots: 214 total lots
93 single-family lots
56 villa lots
65 townhome lots

Outlot Acreage: 17.3906 acres dedicate to open space, ponding, public use and common area

Right of Way Acreage: 11.3156 acres

d. Addressed Issues

Since the initial discussion on the comprehensive plan amendment, we as a team have prepared a preliminary plat and plans that incorporate items discussed with Minnetrista and other jurisdictions such as the watershed and MNDOT. This includes sanitary sewer alignment, street access, wetland impacts, grading, etc. We are aware additional items may arise as we move forward with the approval and will be ready to

address these items in the future. At this time, we have a meeting set up with Watertown Township to discuss the Buck Lake Road improvements. We also are submitting an application to the Minnehaha Creek Watershed District along with the submittal to the City. Plans will also be submitted to MNDOT in regards to the Buck Lake Road access to State Highway 7, which is proposed to remain a full intersection and a second potential future right in right out temporary access to State Highway 7 to be located in Outlot F and separate from the Buck Lake Road access on State Highway 7. A wetland replacement application will also be submitted to the required jurisdictions as well including the DNR.

e. Narrative

Seven Oaks, LLC is requesting approval of a preliminary plat, planned unit development (PUD) and rezone for a 214 residential development that includes three specific product types to be known as Seven Oaks. These separate products include single-family detached lots, detached villa lots and attached townhome lots. The proposed lot requirements under the PUD are listed below.

Single-family Lot Sizes and Setbacks – 93 Lots
Minimum Lot Width: 65 feet (at front setback)
Minimum Lot Size: 8,125 square feet
Front Yard Setback: 25 feet
Rear Yard Setback: 25 feet
Side Yard Setback: 7.5 feet
Side Yard Setback Adjacent to Street: 20 feet

Villa Lot Sizes and Setbacks – 56 Lots
Minimum Lot Width: 55 feet (at front setback)
Minimum Lot Size: 7,000 square feet
Front Yard Setback: 25 feet
Rear Yard Setback: 25 feet
Side Yard Setback: 5 feet
Side Yard Setback Adjacent to Street: 20 feet

Townhome Setbacks – 65 Lots
Front Yard Setback: 25 feet
Perimeter Setback: 25 feet
Setback Between Buildings: 20 feet
Side Yard Setback Adjacent to Street: 20 feet

The PUD is being requested to allow flexibility in the design of the site by utilizing multiple products so we can have a variety of price points. This will also help us meet the 3.5 unit per acre density requirement the Metropolitan Council is looking for with the current land use designation We plan on building custom single-family homes and a villa product that buyer's will be able to pick from numerous floor plans. The townhomes will have a similar look on the outside but we can change of the exterior materials and will be more price sensitive to allow for some first time home buyer's.

As part of the approvals, an application for a comprehensive plan amendment was submitted previously and was approved by the City of Minnetrista, guiding this property to Residential Low-Medium Density. The development is looked at as a multi-phase project and at this time with four phases being proposed starting in the fall of 2026. It is expected full buildout would take about 7 years.

A current tree survey, in accordance with City of Minnetrista requirements, has been completed for this site. There are 168 significant trees that have been tagged on site for a total of 1,982 significant inches. The plan is to save 110 of the significant trees which is 65.5% or 746 significant inches. Allowable removal is 30% of the total significant inches or 595 significant inches, so we are 151 significant inches over the removal threshold. We will replace one inch for one inch removed and include front yard trees on each of the lots. The landscape plan calls for the planting of 357 tree over the entire site, which includes the trees to offset the additional removal and the front yard tree requirements for each lot.

f. Proposed Density

Site Area:	67.7822 acres
Net Area:	55.9234 acres (excludes open space and ponding outlots and Buck Lake Road right of way)
Net Density:	214 homes / 55.9234 acres – 3.8267 units per acre

g. Neighbor Concerns

A neighborhood meeting was held on June 25, 2026 where around twenty neighbors showed up. Concerns that were brought up at the meeting included traffic and the Buck Lake Road access on State Highway 7, open space within the development, density within the development and long terms plans for neighboring properties. We did speak with several individuals separately after the meeting and plan to continue these discussions in the future to best address these concerns as the approval process proceeds forward.

h. Infrastructure Extensions

Sanitary Sewer

As part of the development, a lift station is proposed in the middle of the site for sanitary sewer service. This lift station will serve the property as well as properties adjacent to this site. A forcemain will be run from this lift station to the south and eventually along State Highway 7 east to a sanitary sewer manhole in Wildwood Avenue within St. Bonifacius where it will connect. The Metropolitan Council has provided feedback that this is the preferred connection point for the sanitary sewer.

Watermain

Water service will be extended throughout the development and connect to the City watermain at the water tower site adjacent to the development.

Sidewalks

Sidewalks are proposed to be located on one side of all streets proposed within the development. There are no trails or trail connections proposed at this time. It is possible that a trail or sidewalk could be located in Outlot F connecting the development south to Highway 7.

Roadways

The main access point for the development will be located on the west side of the development and connect to Buck Lake Road. It is expected that Buck Lake Road will be paved from Highway 7 to the entrance of the development, since it is currently gravel. This will be discussed at a future meeting with Watertown Township in July. In addition to this, outlot F is proposed to be available for a secondary connection into the development from State Highway 7. It is thought that this would be, at the most, a temporary right in/right out access point. If this access was to be constructed to State Highway 7, it is expected that once access points are extended east on the neighboring property and connected to Wildwood Avenue and Highway 7, that this temporary access point would go away and either become a local street to serve the properties adjacent to this site or become a trail corridor.

Irrigation

The site is being design for irrigation reuse out of the ponds on site. This will help with the stormwater management as well as limit the use of City water. This irrigation reuse will be owned and maintained by an association, which will be created as part of the development. Each homeowner will be a member of the association and each house will be part of the shared irrigation system.

i. Conflict Avoidance & Mitigation

Conflicts with neighboring uses was not really brought up at the neighborhood meeting. The property to the east and west is mostly farmland and pasture and open space. Land to the north is wooded and three single family residences and the City water tower site are directly to the south. Long term the proposed development will set up access for the property to east with three streets being stubbed to the property line and the property to the north with one street stub in that direction. Future access through Outlot F can also provide access to the properties to the south. Since the west property line is the county line between Hennepin and Carver Counties and a large portion of this area is wetland no streets stubs are provided in that direction. It is expected that future land use to the east, south and north could be developed at some point in time to urban densities with municipal sanitary sewer and water. Property to the west could also be served by the sanitary sewer and water being provided by the proposed development, but that property is in a different jurisdiction and a different county.

j. Project Justification

The property has been guided by the City for Residential Low to Medium Density and the proposed development meets that requirement of at least 3.5 units per acre. With that density, or in this case 214 lots, the proposed development should not exceed capacity on the water or sanitary sewer system. In fact, as part of the

development, a lift station is being constructed along with forcemain that will allow the property to develop to these densities, along with the neighboring properties as well.

In terms of police, fire and school that will be looked at during the review process but the existing services should be able to handle this. Parks were also looked at and at this time no park land is being proposed on this development. It was thought that park land dedication would make more sense on other properties in the area as future development occurs.

Traffic flows and capacity will also be reviewed as part of this development and MNDOT will be a big part of that review. Until final comments are received from MNDOT it will be hard to know what may be needed, if anything, in terms of additional traffic requirements.

k. Lakeshore Access

Does not apply.

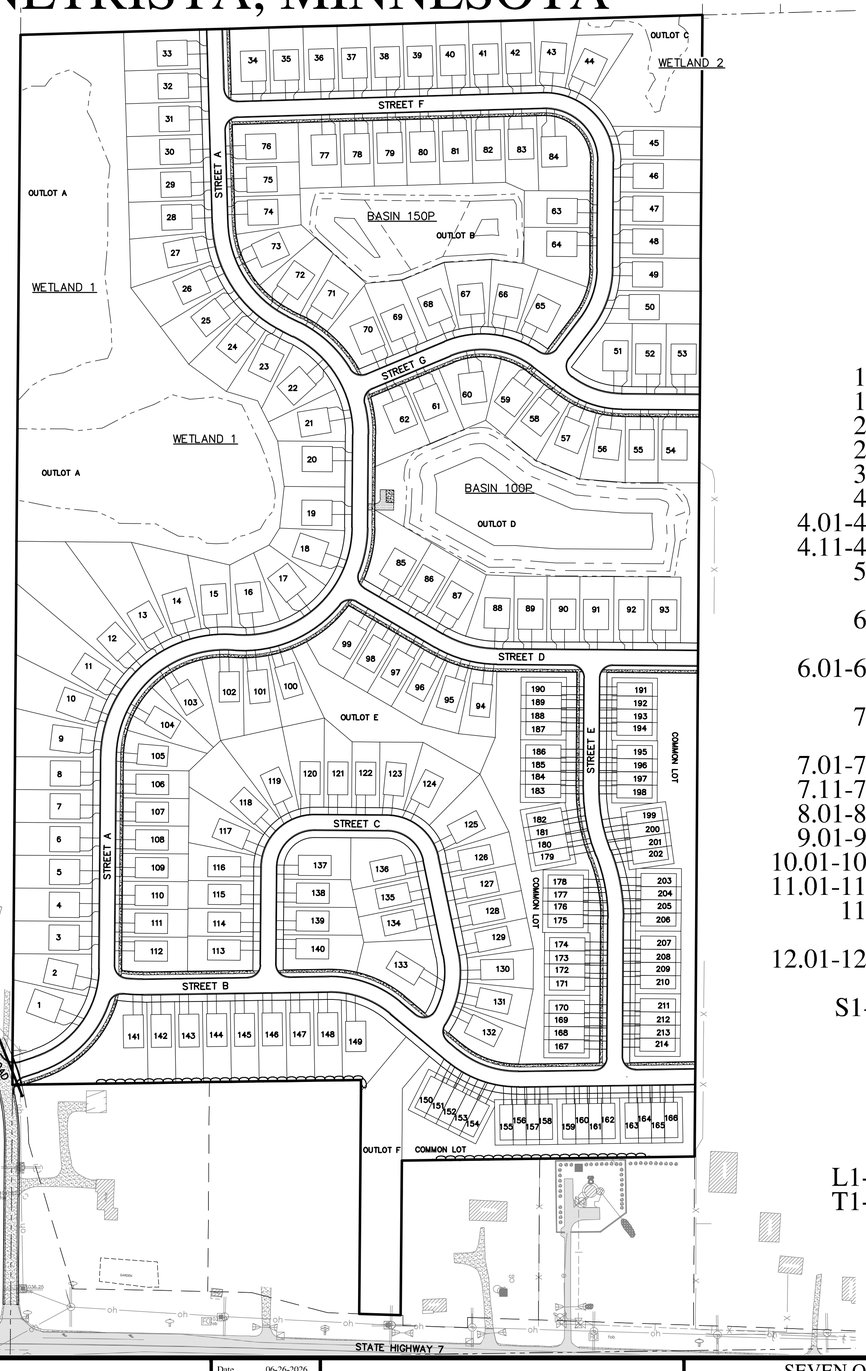
l. Parks and Open Space

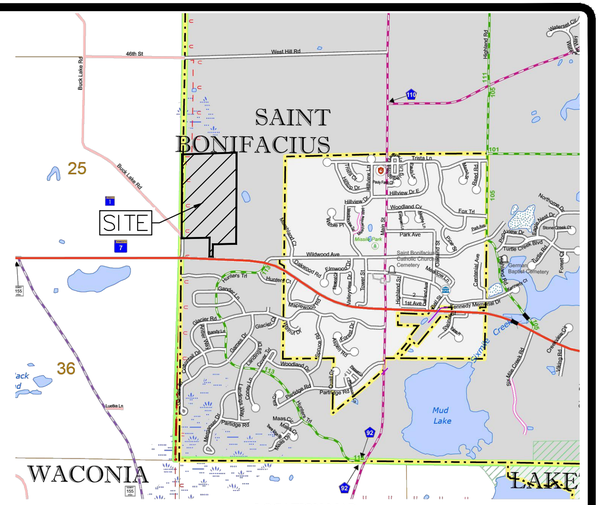
As part of the proposed plat, there are six outlots that are being platted. Two of those outlots will be dedicated primarily as open space and contain woodland and wetlands. Two outlots will be created for stormwater ponds and one outlot will be created as green space acting as a buffer between the townhomes and villa lots. The final outlot will be left for future access to either State Highway 7 or neighboring properties to the south. It is proposed that the two open space outlots are dedicated to the City for ownership while the other outlots will be owned and maintained by an association. No park land has been proposed with the development.

m. Development Schedule

It is expected that grading would begin in the fall of 2026 and depending on final plat approval timing for phase 1, street and utility work may begin in late 2026 or 2027. It is expected that moving forward that one phase per year is final platted and developed until the development is fully built out. It is expected that there will be four phases with the Seven Oaks development meaning it could be 2030 when the last phase is developed.

SEVEN OAKS
PRELIMINARY PLAT
MINNETRISTA, MINNESOTA





LOCATION MAP

SHEET INDEX

1.00. COVER SHEET
1.01. LEGEND
2.01. EXISTING CONDITIONS
2.11. PRELIMINARY REMOVALS PLAN
3.01. PRELIMINARY PLAT
4.00. PRELIMINARY PHASING & PRODUCT PLAN
4.01-4.03. PRELIMINARY SITE PLAN
4.11-4.15. PRELIMINARY STREET PROFILES
5.01. PRELIMINARY WETLAND IMPACT & BUFFER PLAN
6.00. PRELIMINARY OVERALL SANITARY SEWER & WATERMAIN PLAN
6.01-6.04. PRELIMINARY SANITARY SEWER & WATERMAIN PLAN
7.00. PRELIMINARY OVERALL STORM SEWER PLAN
7.01-7.03. PRELIMINARY STORM SEWER PLAN
7.11-7.12. PRELIMINARY BASIN DETAILS
8.01-8.06. PRELIMINARY GRADING PLAN
9.01-9.02. PRELIMINARY EROSION CONTROL PLAN
10.01-10.02. PRELIMINARY SEEDING PLAN
11.01-11.02. PRELIMINARY GRADING DETAILS
11.11. PRELIMINARY OUTLET CONTROL STRUCTURE DETAILS
12.01-12.03. CITY DETAILS

S1-S2. STORMWATER POLLUTION PREVENTION PLAN
S3. MPCA MAP
S4. EXISTING HYDROLOGY MAP
S5. PROPOSED HYDROLOGY MAP
S6. IRRIGATION AREA MAP

L1-L4. PRELIMINARY LANDSCAPE PLAN
T1-T2. PRELIMINARY TREE PRESERVATION PLAN

ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE LATEST EDITION OF THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, INCLUDING THE LATEST EDITION OF THE FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS.

THE SUBSURFACE UTILITY INFORMATION ON THIS PLAN IS UTILITY QUALITY LEVEL D. THIS QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 38-02, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA".

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

0 75 150 300
GRAPHIC SCALE IN FEET

BENCH MARK
TOP NUT HYDRANT 60 FEET NORTH OF MN HWY 7 ALONG WATER TOWER DRIVEWAY. (1080 FEET EAST OF BUCK LAKE RD. INTERSECTION. EL.=1008.40

00-ENG-125159-SHEET-COVR

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Mendota Heights, MN 55120
(651) 681-1914
Fax: 681-9488
www.pioneereng.com

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota
Name Brian N. Molinaro
Reg. No. 47504 Date 06-26-2026

Revisions
1. 10-08-26 City & Watershed Comments

Date	06-26-2026
Designed	MBG
Drawn	MBG/AJA

COVER SHEET

SEVEN OAKS LLC
221 RIVER RIDGE CIRCLE SOUTH, SUITE 100
BURNSVILLE, MN

SEVEN OAKS
MINNETRISTA, MN

1.00 OF 42

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LEGEND

UTILITY LINES

EXISTING	PROPOSED	FUTURE	DESCRIPTION
			SANITARY MANHOLE
			SANITARY SEWER (SANITARY & WATERMAIN PLANS)
			SANITARY SEWER (STORM SEWER PLANS)
FM	FM	FM	FORCE MAIN
			HYDRANT
			GATE VALVE
			REDUCER
			CURB STOP
			WATERMAIN (SANITARY & WATERMAIN PLANS)
			WATERMAIN (STORM SEWER PLANS)
			CATCH BASIN
			BEEHIVE
			STORM MANHOLE
			FLARED END SECTION
			CONTROL STRUCTURE
			STORM SEWER (SANITARY & WATERMAIN PLANS)
			STORM SEWER (STORM SEWER PLANS)
			CULVERT
PERF	PERF	PERF	PERFORATED DRAINTILE
DT	DT	DT	SOLID DRAINTILE SERVICE
			CASING
e	e	e	UNDERGROUND ELECTRIC LINE
fo	fo	fo	UNDERGROUND FIBER OPTIC LINE
g	g	g	UNDERGROUND GAS PIPELINE
petro	petro	petro	UNDERGROUND PETROLEUM PIPELINE
t	t	t	UNDERGROUND TELEPHONE LINES
tv	tv	tv	UNDERGROUND TELEVISION LINE
oh	oh	oh	OVERHEAD UTILITY LINES

SITE LINES

EXISTING	PROPOSED	FUTURE	DESCRIPTION
			SURMOUNTABLE CURB & GUTTER
			B-STYLE CURB & GUTTER
			RIBBON CURB & GUTTER
			EDGE OF BITUMINOUS
			YELLOW PAVEMENT STRIPING (SINGLE/DOUBLE)
			WHITE PAVEMENT STRIPING (SINGLE/DOUBLE)
			PHASE LINE
			CENTERLINE
902	902	902	2' CONTOUR LINE
900	900	900	10' CONTOUR LINE
	OUTLET=987.0	OUTLET=987.0	BASIN OUTLET LINE
	HWL=900.2	HWL=900.2	BASIN HIGH WATER LINE
	84.3		PROPOSED SPOT ELEVATION
			EMERGENCY OVERFLOW
			DRAINAGE FLOW ARROW
BUFFER	BUFFER	BUFFER	DELINEATED / PROPOSED WETLAND LINE
			WETLAND BUFFER
			TREE LINE
FEMA	FEMA	FEMA	FEMA FLOODPLAIN BOUNDARY
			RETAINING WALL
X	X	X	FENCE (BARBED WIRE)
#	#	#	FENCE (CHAIN LINK)
[]	[]	[]	FENCE (WOOD)
	C W		CONSERVATION AREA SIGN
			WETLAND BUFFER SIGN
			TYPE III BARRICADE
			LIGHT POLE
			STREET SIGNS
			PEDESTRIAN RAMP

SURVEY LINES

EXISTING	PROPOSED	FUTURE	DESCRIPTION
			BOUNDARY
			RIGHT OF WAY
			LOT LINE
			EASEMENT
			SET BACK LINE
			SECTION LINE
			RESTRICTED ACCESS

HATCH PATTERNS

- GRAVEL SURFACE
- BITUMINOUS SURFACE
- CONCRETE SURFACE

TOPOGRAPHIC SYMBOLS

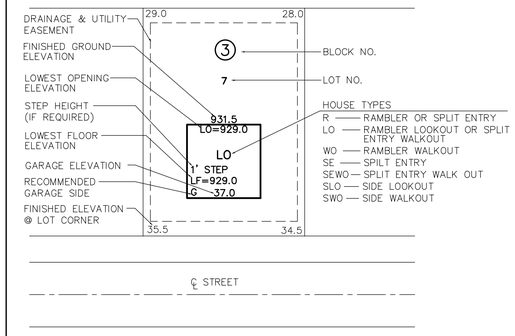
- CATCH BASIN
- CATCH BASIN BEEHIVE
- FLARED END SECTION
- GATE VALVE
- HYDRANT
- WATER SERVICE
- WATER WELL
- MONITORING WELL
- CLEANOUT
- HAND HOLE
- MANHOLE OTHER THAN SANITARY OR STORM
- SANITARY OR STORM MANHOLE
- LAWN SPRINKLER VALVE
- LAWN SPRINKLER HEAD
- UTILITY POLE
- TRANSFORMER BOX
- FIBER OPTIC BOX
- ELECTRIC BOX
- NATURAL GAS METER
- LIGHT POLE
- SEMAPHORE
- TELEPHONE BOX
- CABLE BOX
- CAST IRON MONUMENT
- FOUND IRON PIPE
- JUDICIAL LAND MARK
- PK NAIL
- CONTROL POINT
- SPIKE
- FLAG POLE
- TEST HOLE
- MAILBOX
- SIGN
- BOLLARD
- CONSERVATION POST
- DECIDUOUS TREE
- CONIFEROUS TREE
- SHRUB / BUSH

ABBREVIATIONS

A	ALGEBRAIC DIFFERENCE
B-B	BACK TO BACK
BV	BUTTERFLY VALVE
BOC	BACK OF CURB
BFE	BASE FLOOD ELEVATION
BMP	BEST MANAGEMENT PRACTICE
℄	CENTER LINE
CB	CATCHBASIN
CBMH	CATCHBASIN MANHOLE
CMP	CORRUGATED METAL PIPE
CO	CLEAN OUT
CS	CURB STOP
DIP	DUCTILE IRON PIPE
DT	DRAINTILE
EL/ELEV	ELEVATION
EX	EXISTING
FES	FLARED END SECTION
F-F	FACE TO FACE
FM	FORCEMAIN
GB	GRADE BREAK
GND	GROUND
GV	GATE VALVE
HP	HIGH POINT
HYD	HYDRANT
HWL	HIGH WATER LEVEL
INV	INVERT
K	CURVE COEFFICIENT
L	LENGTH
LF	LOWEST FLOOR
LO	LOOKOUT
LO	LOWEST OPENING
LP	LIQUID PETROLEUM
LP	LOW POINT
MH	MANHOLE
PC	POINT OF CURVATURE
PCC	POINT OF COMPOUND CURVATURE
PI	POINT OF INTERSECTION
P̄L	PROPERTY LINE
PRC	POINT OF REVERSE CURVATURE
PVT	POINT OF TANGENCY
PVC	POINT OF VERTICAL CURVATURE
PVC	POLYVINYL CHLORIDE PIPE
PVI	POINT OF VERTICAL INTERSECTION
R	RADIUS
R	RAMBLER
RCP	REINFORCED CONCRETE PIPE
ROW	RIGHT OF WAY
SSWR	SANITARY SEWER
STA	STATION
STRM	STORM SEWER
SWPPP	STORM WATER POLLUTION PROTECTION PLAN
TNH	TOP NUT HYDRANT
TYP	TYPICAL
WM	WATER MAIN
WO	WALKOUT

LOT INFORMATION

(TYPICAL SECTION NOT TO SCALE)



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Reg. No. 47504 Date 06-26-2026

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1. 10-08-26 City & Watershed Comments

Date	06-26-2026
Designed	MBG
Drawn	MBG/AJA

LEGEND

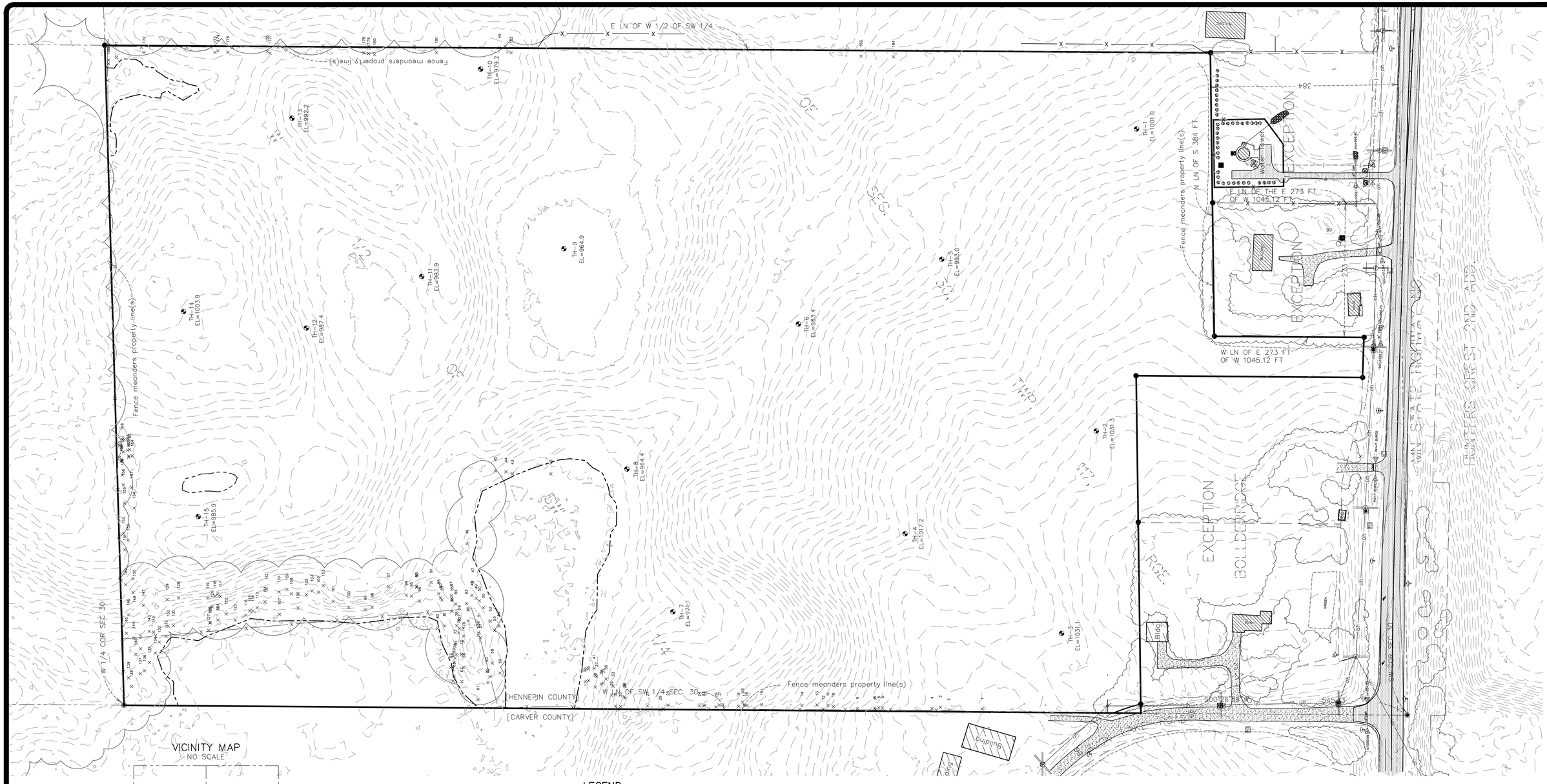
SEVEN OAKS LLC
221 RIVER RIDGE CIRCLE SOUTH, SUITE 100
BURNSVILLE, MN

SEVEN OAKS
MINNETRISTA, MN

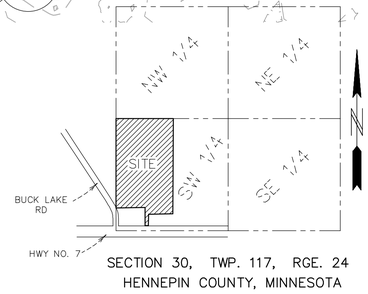
00-ENG-125159-SHEET-LGND

1.01 OF 42

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VICINITY MAP
NO SCALE



SECTION 30, TWP. 117, RGE. 24
HENNEPIN COUNTY, MINNESOTA

LEGEND

- Denotes gravel
- Denotes bituminous
- Denotes tree line
- Denotes storm sewer line
- oh — Denotes overhead utility lines
- X — Denotes fence (barbed wire)
- Denotes flared end section
- Denotes utility pole
- Denotes telephone box
- Denotes cast iron monument
- Denotes found iron pipe

Property description per ALTA Commitment for Title Insurance issued by Land Title, Inc., a division of Stewart Title Guaranty Company Commitment Number: 723005 Commitment Date: October 24, 2025 at 7:00 a.m.:

The West Half of the Southwest Quarter of Section 30, Township 117 North, Range 24 West, Hennepin County, Minnesota.

EXCEPT that part thereof embraced within the plat of BOLLDERIDGE.

EXCEPT The East 273 feet of the West 1045.12 feet of the South 384 feet thereof.

EXCEPT that part of the South 384.00 feet lying easterly of the East 273 feet of the West 1045.12 feet of the South 384 feet thereof.

EXCEPT State Highway No. 7.

0 50 100 200
GRAPHIC SCALE IN FEET

EX-SURV-125159-BASE.DWG

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Name Peter J. Hawkinson
Reg. No. 42299 Date 06-26-2026

Revisions
1. 10-08-26 City & Watershed Comments

Date	06-26-2026
Designed	MBG
Drawn	MBG/AJA

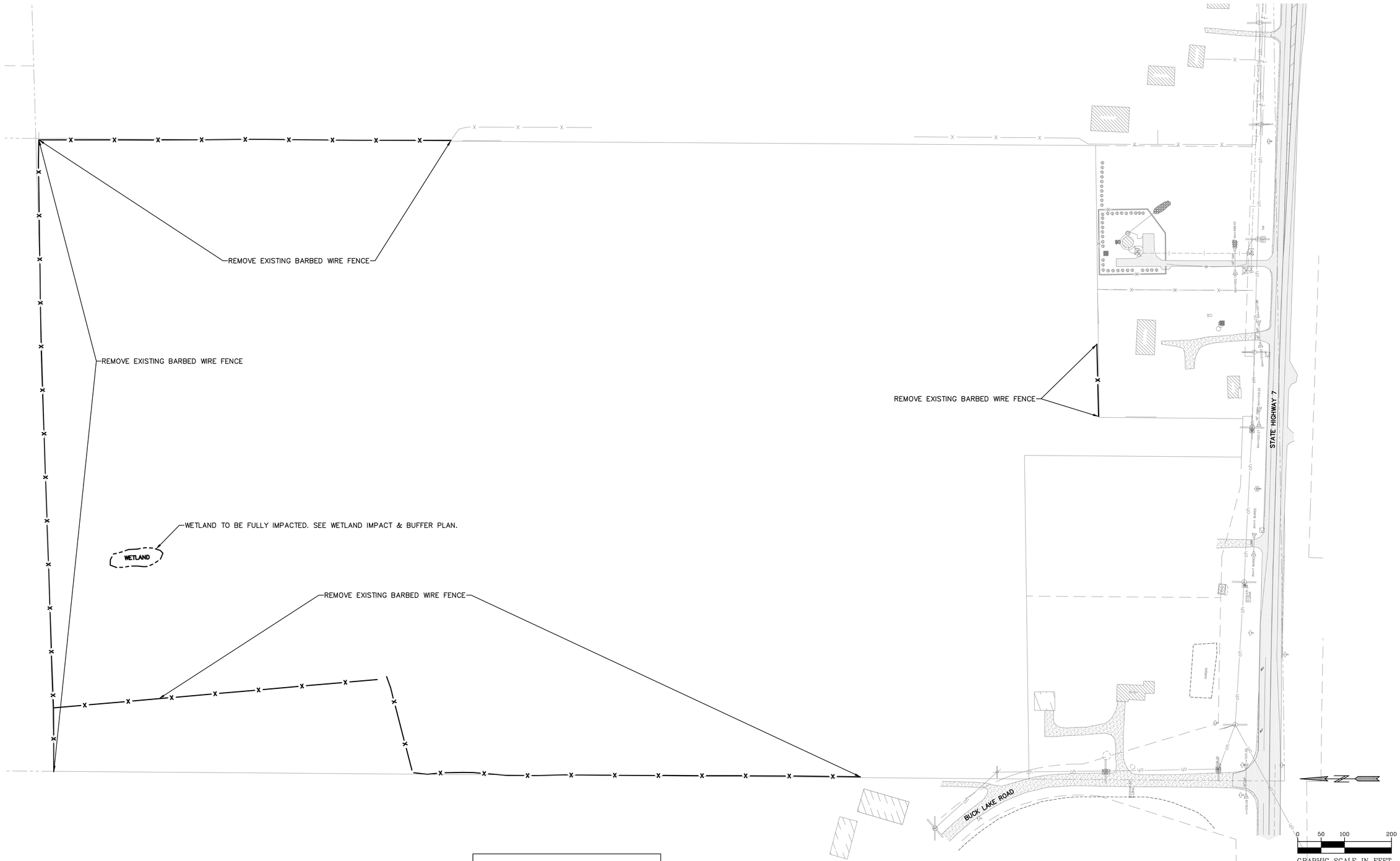
EXISTING CONDITIONS

SEVEN OAKS LLC
221 RIVER RIDGE CIRCLE SOUTH, SUITE 100
BURNSVILLE, MN

SEVEN OAKS
MINNETRISTA, MN

2.01 OF 42

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NOTE:

SEE TREE PRESERVATION PLAN FOR TREE REMOVAL DESIGNATIONS.

BENCH MARK

TOP NUT HYDRANT 60 FEET NORTH OF MN HWY 7 ALONG WATER TOWER DRIVEWAY. (1080 FEET EAST OF BUCK LAKE RD. INTERSECTION. EL.=1008.40

00-ENG-125159-SHEET-DEMO

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Reg. No. 47504 Date 06-26-2026

Revisions
1. 10-08-26 City & Watershed Comments

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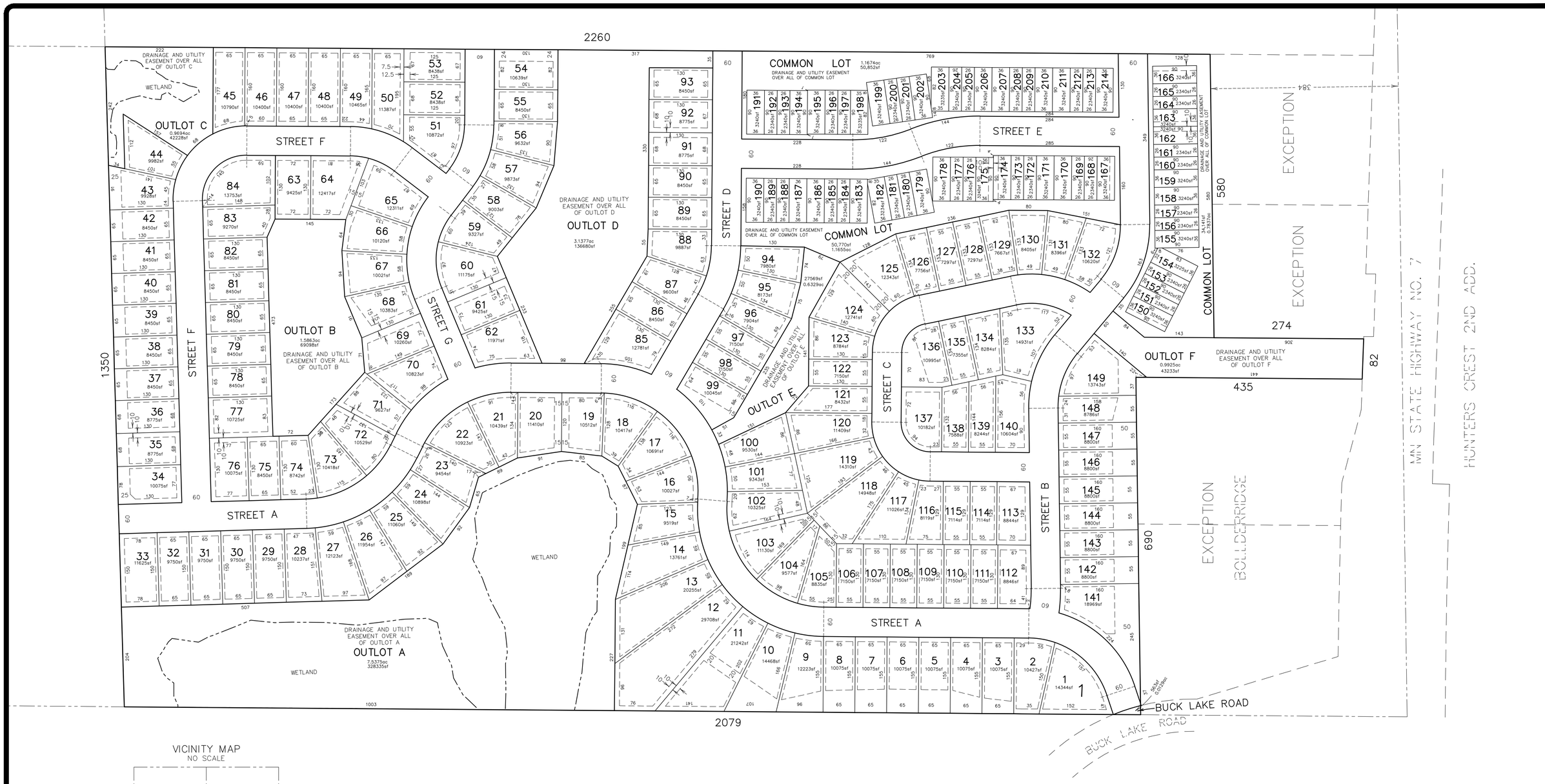
PRELIMINARY REMOVALS PLAN

SEVEN OAKS LLC
221 RIVER RIDGE CIRCLE SOUTH, SUITE 100
BURNSVILLE, MN

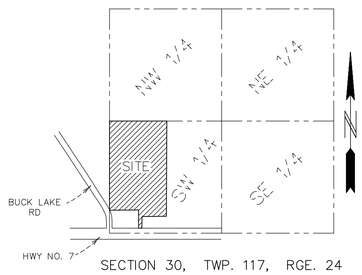
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MINNETRISTA, MN

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VICINITY MAP
NO SCALE



SECTION 30, TWP. 117, RGE. 24
HENNEPIN COUNTY, MINNESOTA

NUMBER OF LOTS	214
NUMBER OF OUTLOTS	6
TOTAL LOT AREA	41.7235 ACRES
TOTAL OUTLOT AREA	14.8563 ACRES
TOTAL PROPOSED RIGHT OF WAY AREA–LOCAL STREETS	11.1895 ACRES
TOTAL EXISTING RIGHT OF WAY AREA BUCK LAKE ROAD	0.0129 ACRES
TOTAL GROSS AREA	67.7822 ACRES

Property description per ALTA Commitment for Title Insurance issued by Land Title, Inc., a division of Stewart Title Guaranty Company Commitment Number: 723005 Commitment Date: October 24, 2025 at 7:00 a.m.:

The West Half of the Southwest Quarter of Section 30, Township 117 North, Range 24 West, Hennepin County, Minnesota.

EXCEPT that part thereof embraced within the plat of BOLLDERIDGE.

EXCEPT The East 273 feet of the West 1045.12 feet of the South 384 feet thereof.

EXCEPT that part of the South 384.00 feet lying easterly of the East 273 feet of the West 1045.12 feet of the South 384 feet thereof.

EXCEPT State Highway No. 7.

0 50 100 200
GRAPHIC SCALE IN FEET

00-SURV-125159-BASE.DWG

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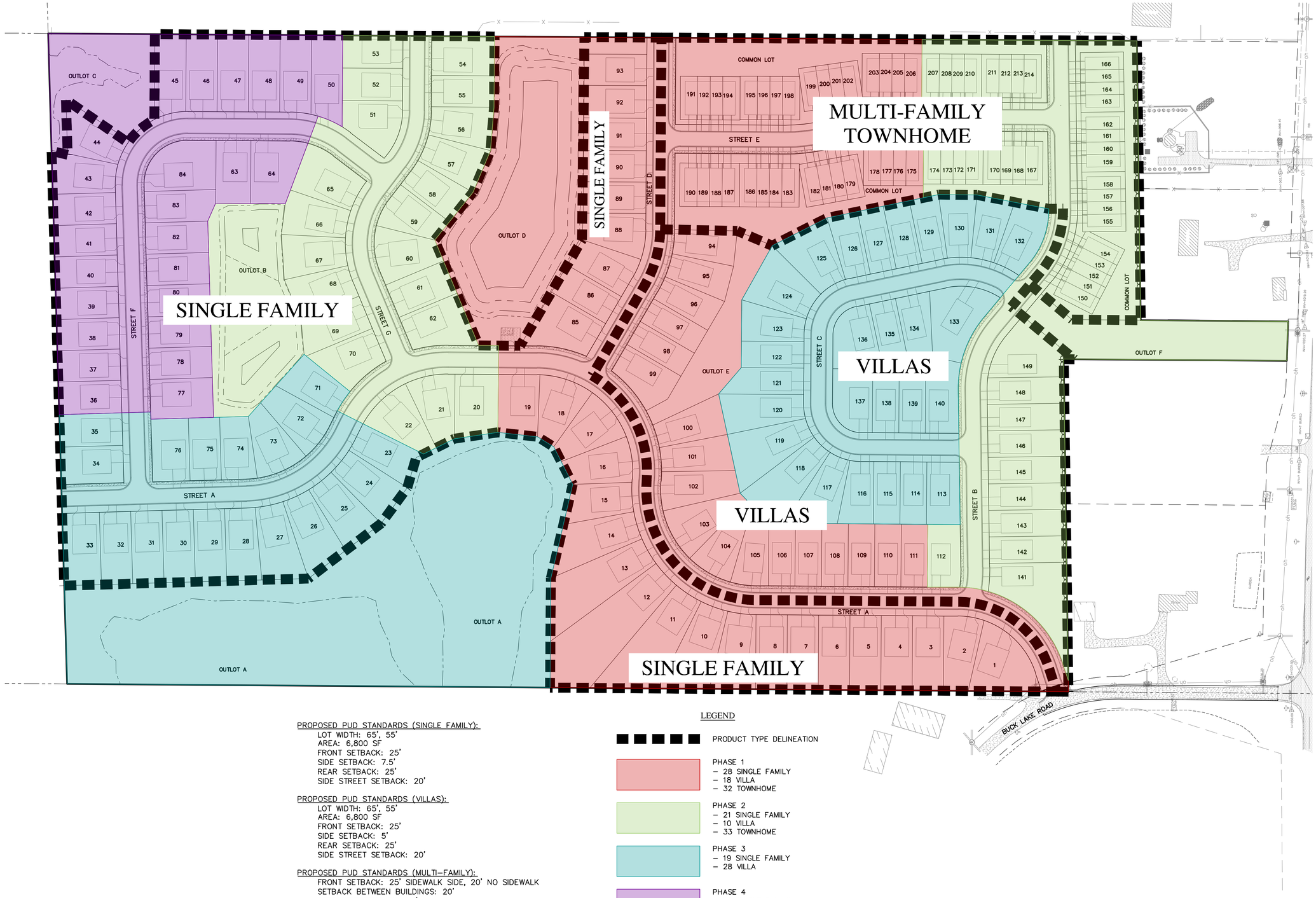
PRELIMINARY PLAT

SEVEN OAKS LLC
221 RIVER RIDGE CIRCLE SOUTH, SUITE 100
BURNSVILLE, MN

SEVEN OAKS
MINNETRISTA, MN

3.01 OF 42

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PROPOSED PUD STANDARDS (SINGLE FAMILY):
- LOT WIDTH: 65', 55'
- AREA: 6,800 SF
- FRONT SETBACK: 25'
- SIDE SETBACK: 7.5'
- REAR SETBACK: 25'
- SIDE STREET SETBACK: 20'

PROPOSED PUD STANDARDS (VILLAS):
- LOT WIDTH: 65', 55'
- AREA: 6,800 SF
- FRONT SETBACK: 25'
- SIDE SETBACK: 5'
- REAR SETBACK: 25'
- SIDE STREET SETBACK: 20'

PROPOSED PUD STANDARDS (MULTI-FAMILY):
- FRONT SETBACK: 25' SIDEWALK SIDE, 20' NO SIDEWALK
- SETBACK BETWEEN BUILDINGS: 20'
- PERIMETER SETBACK: 25'

LEGEND

- PRODUCT TYPE DELINEATION
- PHASE 1
  - 28 SINGLE FAMILY
  - 18 VILLA
  - 32 TOWNHOME
- PHASE 2
  - 21 SINGLE FAMILY
  - 10 VILLA
  - 33 TOWNHOME
- PHASE 3
  - 19 SINGLE FAMILY
  - 28 VILLA
- PHASE 4
  - 25 SINGLE FAMILY

0 50 100 200

GRAPHIC SCALE IN FEET

BENCH MARK

TOP NUT HYDRANT 60 FEET NORTH OF MN HWY 7 ALONG WATER TOWER DRIVEWAY. (1080 FEET EAST OF BUCK LAKE RD. INTERSECTION. EL.=1008.40

00-ENG-125159-SHEET-PHASE

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Date	06-26-2026
Designed	MBG
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PRELIMINARY PHASING & PRODUCT PLAN

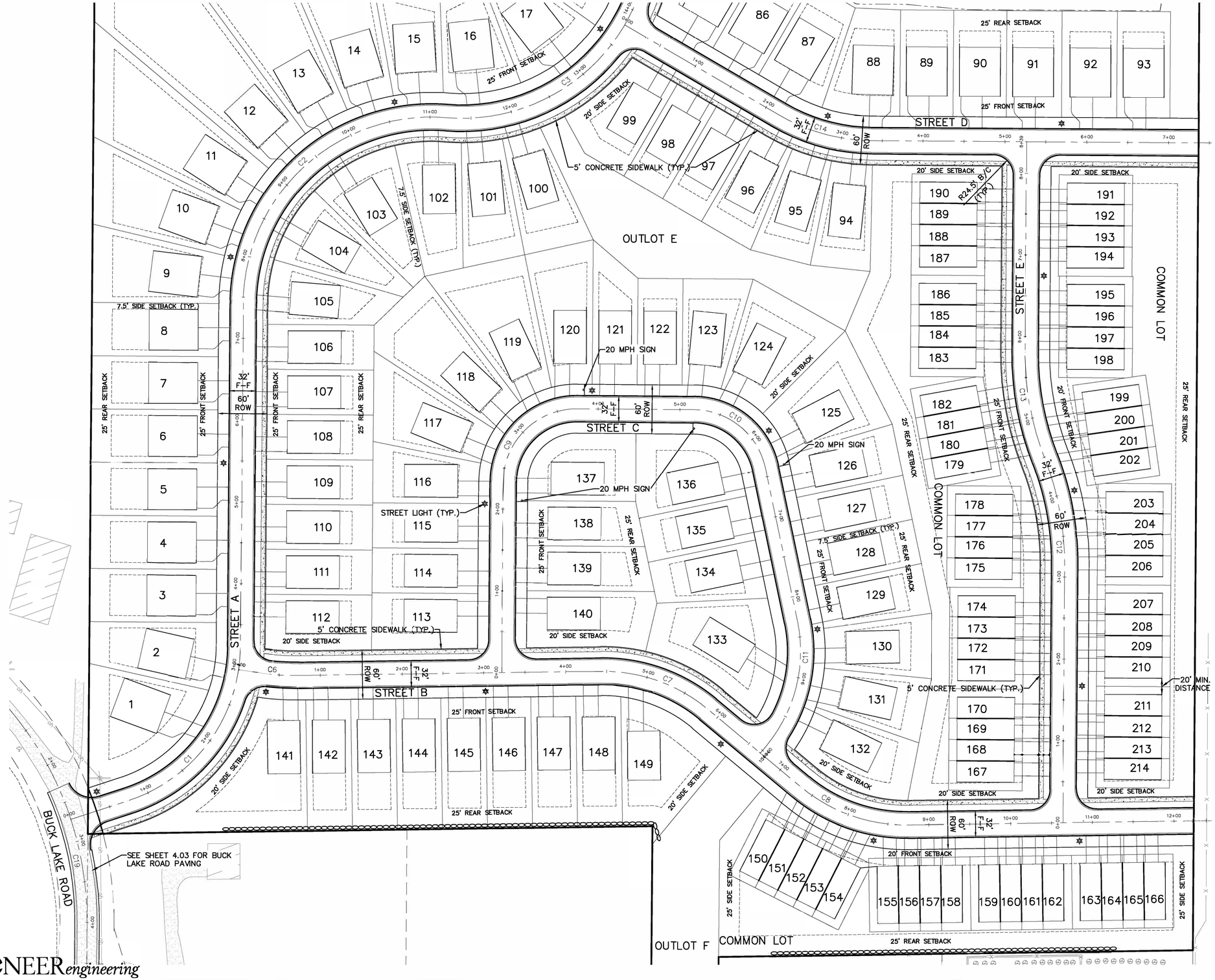
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BURNSVILLE, MN

SEVEN OAKS
MINNETRISTA, MN

4.00 OF 42

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SEE SHEET 4.02



SITE DATA:

GROSS AREA: ±67.8 ACRES
WETLAND AREA: ±5 ACRES
NET DEVELOPABLE AREA: ±62.8 ACRES

2040 GUIDE PLAN: PERMANENT AGRICULTURE
CURRENT ZONING: AP–AG PRESERVE
PROPOSED ZONING: R–2A (PUD)
PROPOSED LAND USE: RESIDENTIAL LOW–MEDIUM (3–5 UNITS/ACRE)

PROPOSED LOTS: 214
65' SINGLE FAMILY: 93
55' VILLA: 56
TOWNHOMES: 65

GROSS AREA: 67.7822 ACRES
OUTLOT A WETLAND & BUFFER: 6.4520 ACRES
OUTLOT B: 1.5905 ACRES
OUTLOT C WETLAND & BUFFER: 0.6730 ACRES
OUTLOT D: 3.1304 ACRES
BUCK LAKE ROAD ROW: 0.0129 ACRES
NET AREA: 55.9234 ACRES
NET DENSITY: 214 HOMES / 55.9234 AC = 3.8267 UNITS/AC

PROPOSED PUD STANDARDS (SINGLE FAMILY):
LOT WIDTH: 65', 55'
AREA: 6,800 SF
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PROPOSED PUD STANDARDS (MULTI–FAMILY):
FRONT SETBACK: 25' SIDEWALK SIDE, 20' NO SIDEWALK
SETBACK BETWEEN BUILDINGS: 20'
PERIMETER SETBACK: 25'

STORMWATER SETBACKS
LOW OPENING: 1'+EOF
LOW OPENING: 3'+HWL

WETLAND IMPACT
WETLAND A: 3,574 SF

CURVE TABLE

CURVE	DELTA	LENGTH	RADIUS	TANGENT	PC	PT
C1	71°28'33"	249.50	200.00	143.92	0+73.32	3+22.82
C2	94°13'35"	378.25	230.00	247.62	7+42.20	11+20.45
C3	94°13'35"	378.25	230.00	247.62	11+20.45	14+98.70
C4	63°54'33"	256.55	230.00	143.47	16+83.28	19+39.83
C5	61°47'39"	248.06	230.00	137.64	19+66.03	22+14.09
C6	9°20'07"	48.88	300.00	24.49	0+25.28	0+74.16
C7	40°39'20"	141.91	200.00	74.09	4+42.76	5+84.67
C8	40°39'20"	141.91	200.00	74.09	7+32.72	8+74.64
C9	90°00'00"	141.37	90.00	90.00	2+33.38	3+74.75
C10	77°46'10"	122.16	90.00	72.58	5+17.21	6+39.37
C11	51°37'59"	162.21	180.00	87.08	8+30.53	9+92.74
C12	21°47'12"	133.09	350.00	67.36	3+14.83	4+47.91
C13	21°47'12"	133.09	350.00	67.36	4+47.91	5+81.00
C14	29°52'52"	119.95	230.00	61.37	2+18.33	3+38.28
C15	59°56'10"	188.30	180.00	103.79	2+05.54	3+93.84
C16	36°54'32"	115.95	180.00	60.07	4+67.82	5+83.77
C17	36°54'32"	115.95	180.00	60.07	10+50.96	11+66.91
C18	92°03'19"	192.80	120.00	124.38	6+46.13	8+38.93
C19	43°11'46"	301.57	400.00	158.36	1+00.00	4+01.57

0 30 60 120
GRAPHIC SCALE IN FEET

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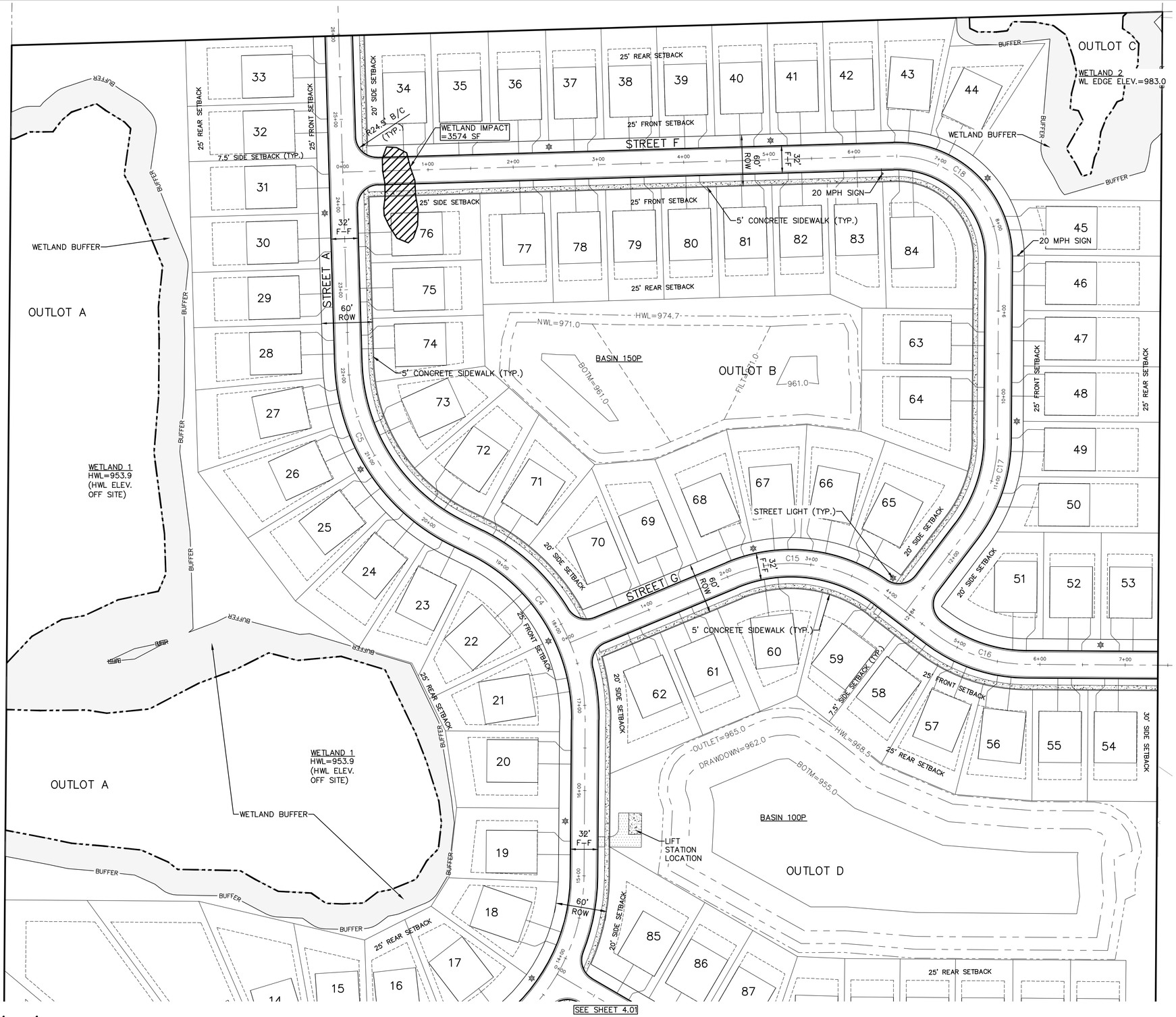
PRELIMINARY SITE PLAN

SEVEN OAKS LLC
221 RIVER RIDGE CIRCLE SOUTH, SUITE 100
BURNSVILLE, MN

SEVEN OAKS
MINNETRISTA, MN

4.01 OF 42

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WETLAND IMPACT
WETLAND A: 3,574 SF

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CURVE	DELTA	LENGTH	RADIUS	TANGENT	PC	PT
C1	71°28'33"	249.50	200.00	143.92	0+73.32	3+22.82
C2	94°13'35"	378.25	230.00	247.62	7+42.20	11+20.45
C3	94°13'35"	378.25	230.00	247.62	11+20.45	14+98.70
C4	63°54'33"	256.55	230.00	143.47	16+83.28	19+39.83
C5	61°47'39"	248.06	230.00	137.64	19+66.03	22+14.09
C6	9°20'07"	48.88	300.00	24.49	0+25.28	0+74.16
C7	40°39'20"	141.91	200.00	74.09	4+42.76	5+84.67
C8	40°39'20"	141.91	200.00	74.09	7+32.72	8+74.64
C9	90°00'00"	141.37	90.00	90.00	2+33.38	3+74.75
C10	77°46'10"	122.16	90.00	72.58	5+17.21	6+39.37
C11	51°37'59"	162.21	180.00	87.08	8+30.53	9+92.74
C12	21°47'12"	133.09	350.00	67.36	3+14.83	4+47.91
C13	21°47'12"	133.09	350.00	67.36	4+47.91	5+81.00
C14	29°52'52"	119.95	230.00	61.37	2+18.33	3+38.28
C15	59°56'10"	188.30	180.00	103.79	2+05.54	3+93.84
C16	36°54'32"	115.96	180.00	60.07	4+67.82	5+83.77
C17	36°54'32"	115.95	180.00	60.07	10+50.96	11+66.91
C18	92°03'19"	192.80	120.00	124.38	6+46.13	8+38.93
C19	43°11'46"	301.57	400.00	158.36	1+00.00	4+01.57

N

0 30 60 120
GRAPHIC SCALE IN FEET

BENCH MARK
TOP NUT HYDRANT 60 FEET NORTH OF MN HWY 7 ALONG WATER TOWER DRIVEWAY. (1080 FEET EAST OF BUCK LAKE RD. INTERSECTION.
EL.=1008.40

00-ENG-125159-SHEET-SITE

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Name: Brian N. Molinaro
Reg. No. 47504 Date 06-26-2026

Revisions
1. 10-08-26 City & Watershed Comments

Date 06-26-2026
Designed MBG
Drawn MBG/AJA

PRELIMINARY SITE PLAN

SEVEN OAKS LLC
221 RIVER RIDGE CIRCLE SOUTH, SUITE 100
BURNSVILLE, MN

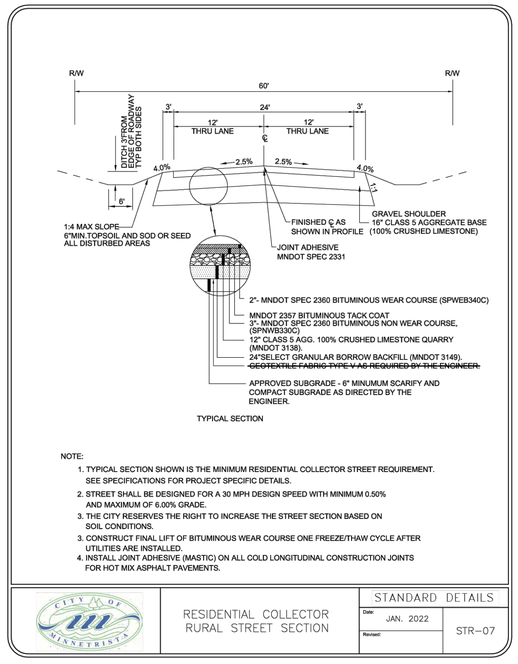
SEVEN OAKS
MINNETRISTA, MN

4.02 OF 42

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CURVE TABLE						
CURVE	DELTA	LENGTH	RADIUS	TANGENT	PC	PT
C1	71°28'33"	249.50	200.00	143.92	0+73.32	3+22.82
C2	94°13'35"	378.25	230.00	247.62	7+42.20	11+20.45
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C18	92°03'19"	192.80	120.00	124.38	6+46.13	8+38.93
C19	43°11'46"	301.57	400.00	158.36	1+00.00	4+01.57



TYPICAL SECTION

NOTE:

1. TYPICAL SECTION SHOWN IS THE MINIMUM RESIDENTIAL COLLECTOR STREET REQUIREMENT. SEE SPECIFICATIONS FOR PROJECT SPECIFIC DETAILS.
2. STREET SHALL BE DESIGNED FOR A 30 MPH DESIGN SPEED WITH MINIMUM 0.50% AND MAXIMUM OF 6.00% GRADE.
3. THE CITY RESERVES THE RIGHT TO INCREASE THE STREET SECTION BASED ON SOIL CONDITIONS.
3. CONSTRUCT FINAL LIFT OF BITUMINOUS WEAR COURSE ONE FREEZE/THAW CYCLE AFTER UTILITIES ARE INSTALLED.
4. INSTALL JOINT ADHESIVE (MASTIC) ON ALL COLD LONGITUDINAL CONSTRUCTION JOINTS FOR HOT MIX ASPHALT PAVEMENTS.

	RESIDENTIAL COLLECTOR RURAL STREET SECTION	STANDARD DETAILS	
CITY OF MINNETRISTA		Date: JAN. 2022	STR-07
		Revised:	

N

0 30 60 120

GRAPHIC SCALE IN FEET

BENCH MARK

TOP NUT HYDRANT 60 FEET NORTH OF MN HWY 7 ALONG WATER TOWER DRIVEWAY. (1080 FEET EAST OF BUCK LAKE RD. INTERSECTION. EL.=1008.40

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Designed	MBG
Drawn	MBG/AJA

PRELIMINARY SITE PLAN

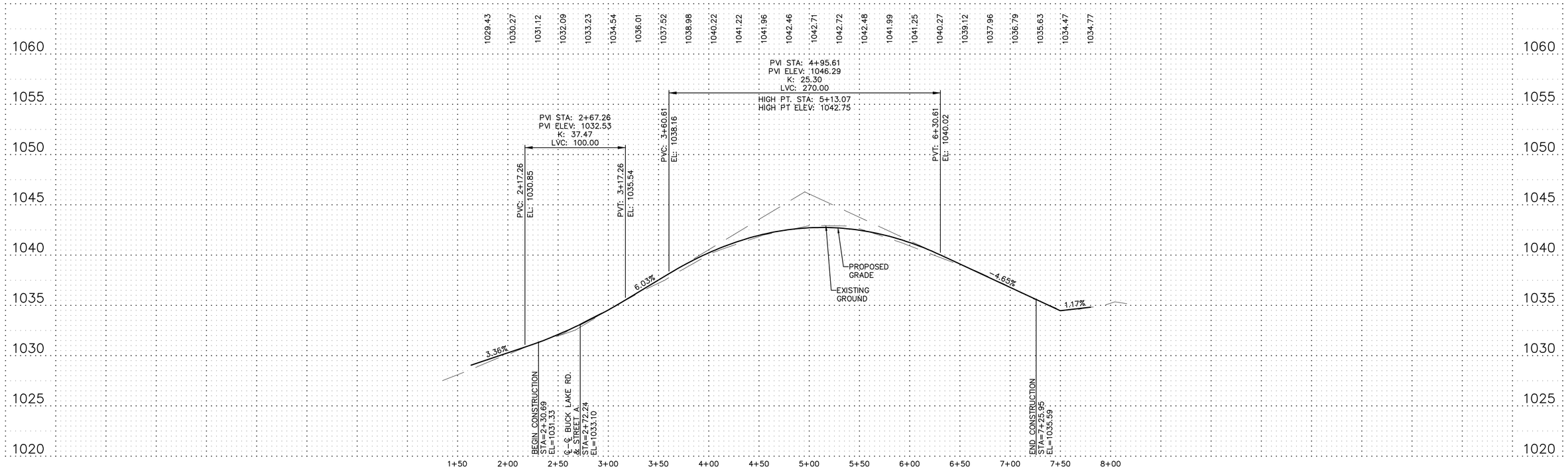
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221 RIVER RIDGE CIRCLE SOUTH, SUITE 100
BURNSVILLE, MN

SEVEN OAKS
MINNETRISTA, MN

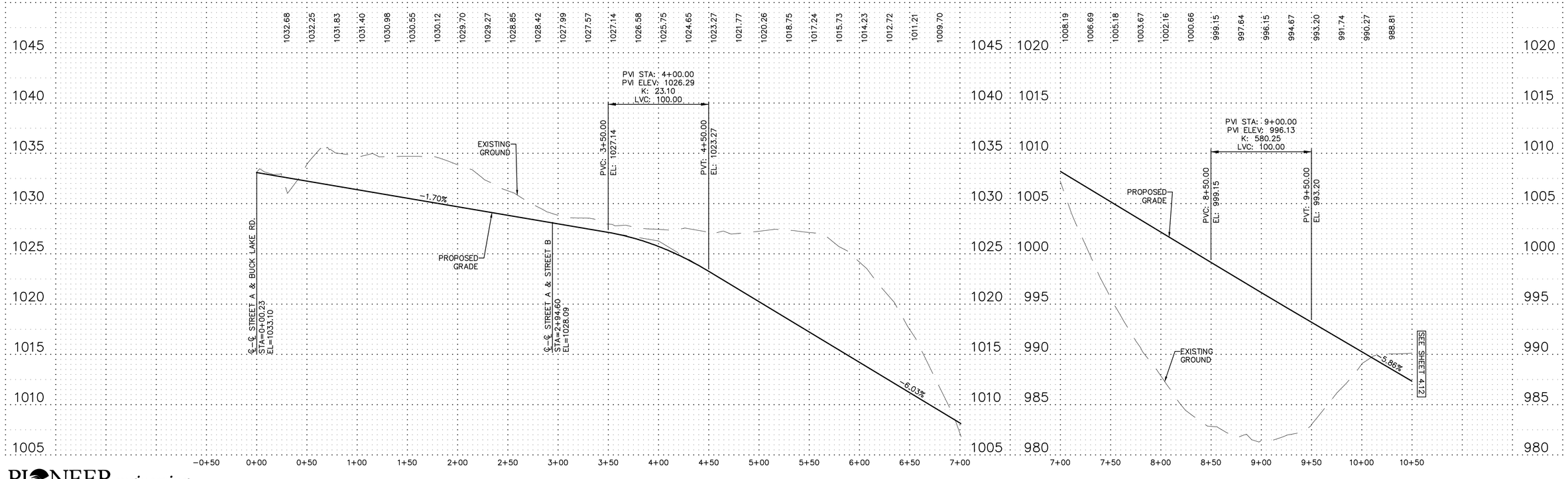
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BUCK LAKE ROAD



STREET A



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PRELIMINARY STREET PROFILES

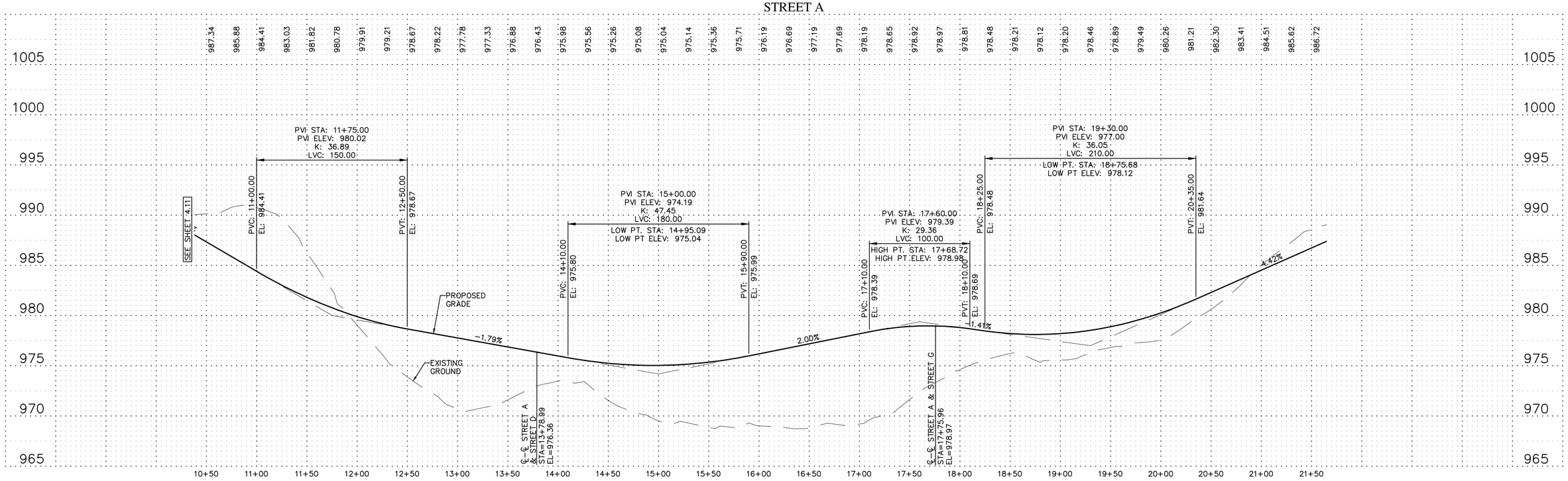
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MINNETRISTA, MN

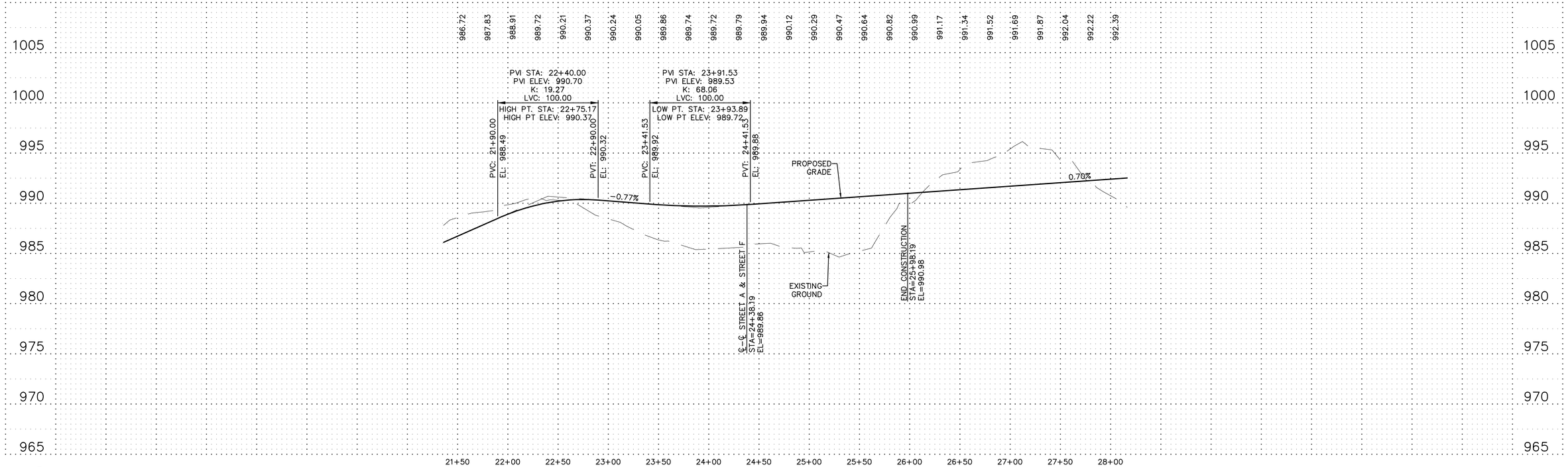
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STREET A



STREET A



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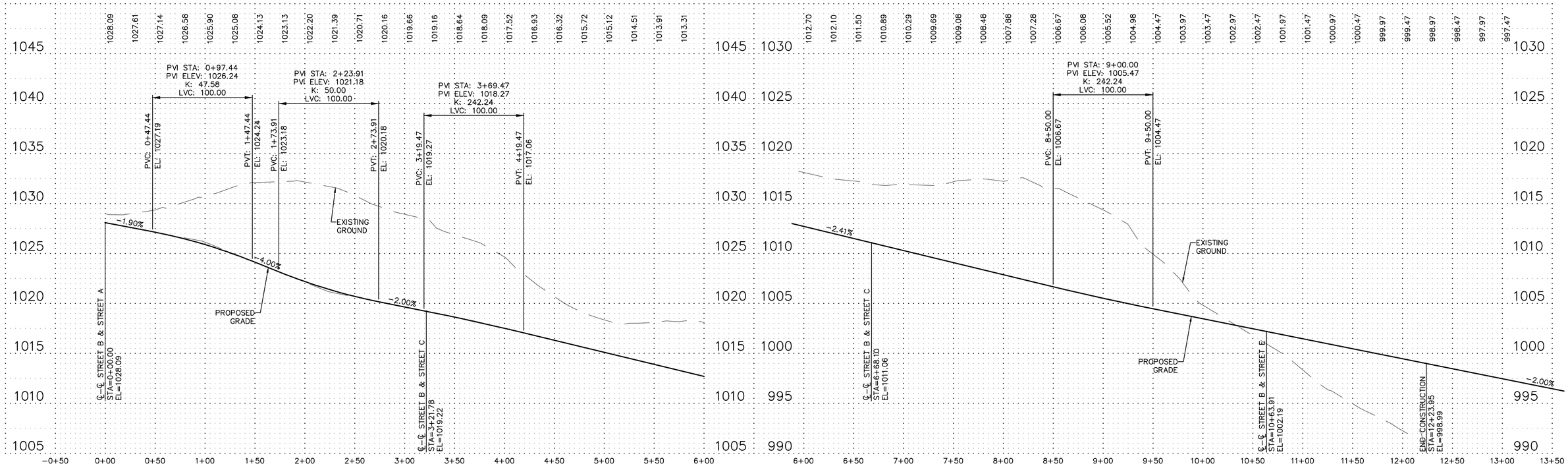
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BURNSVILLE, MN

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MINNETRISTA, MN

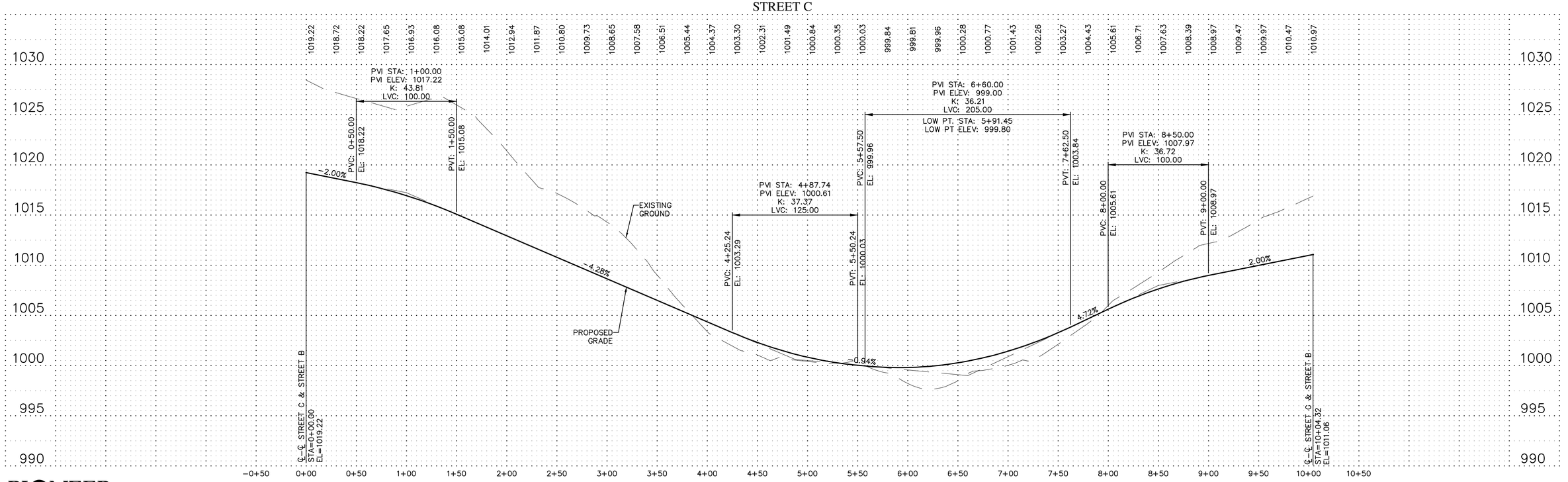
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STREET B



STREET C



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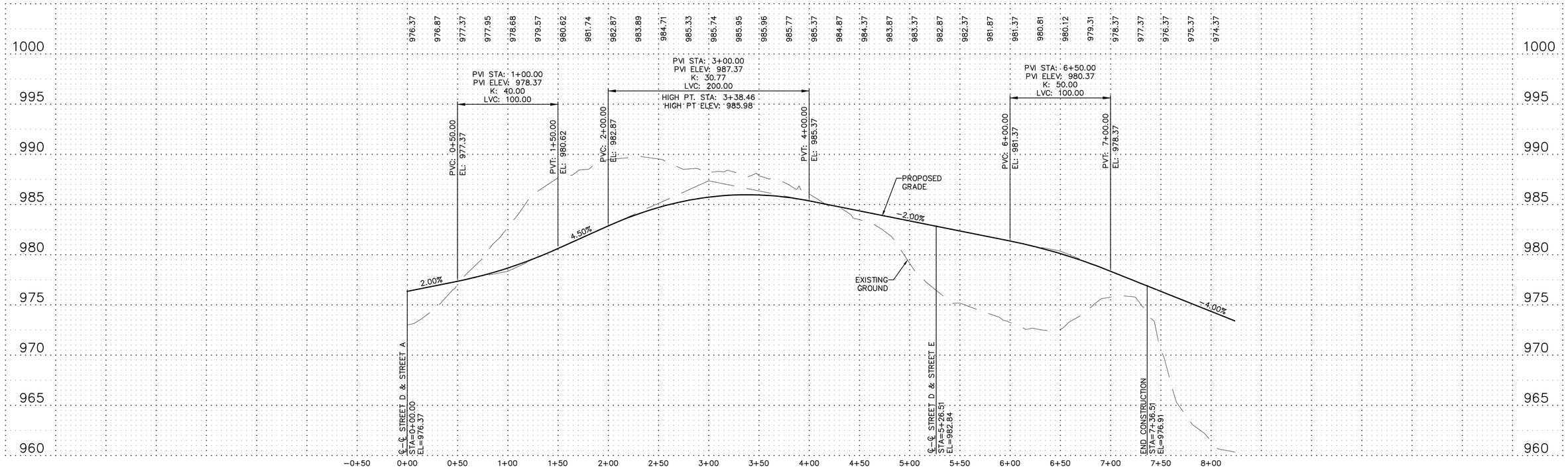
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221 RIVER RIDGE CIRCLE SOUTH, SUITE 100
BURNSVILLE, MN

SEVEN OAKS
MINNETRISTA, MN

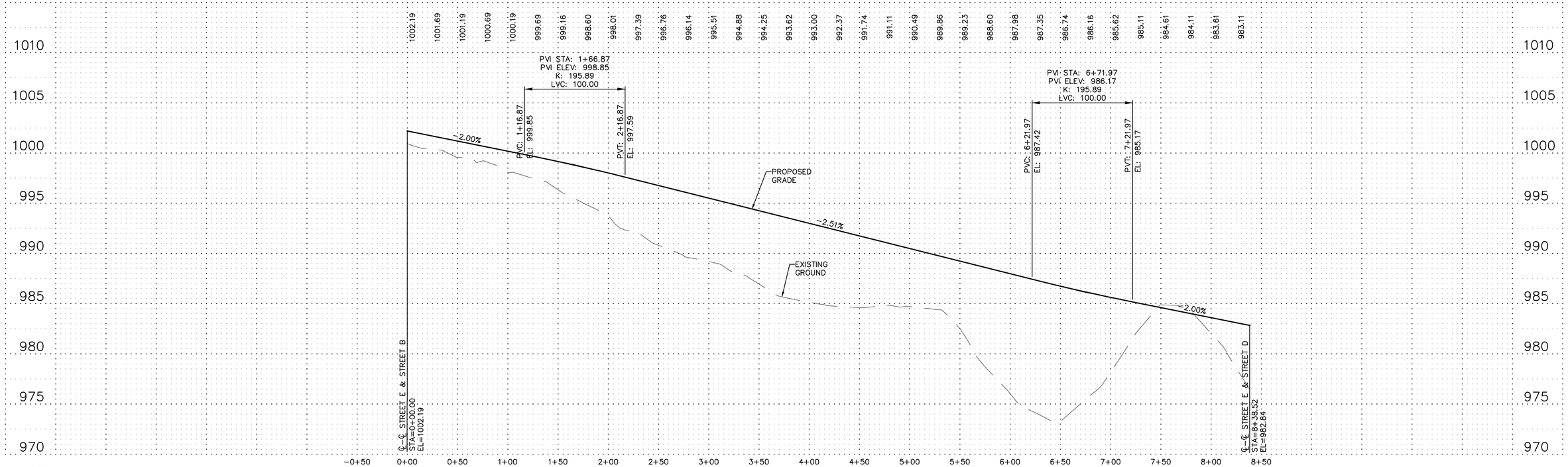
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STREET D



STREET E



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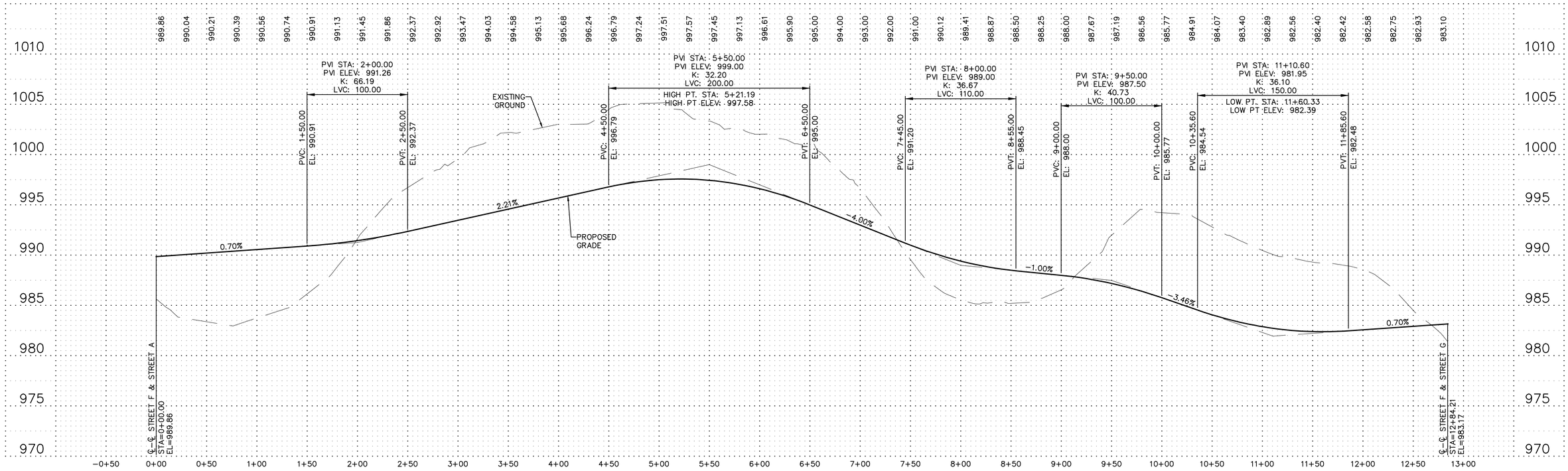
SEVEN OAKS LLC
221 RIVER RIDGE CIRCLE SOUTH, SUITE 100
BURNSVILLE, MN

SEVEN OAKS
MINNETRISTA, MN

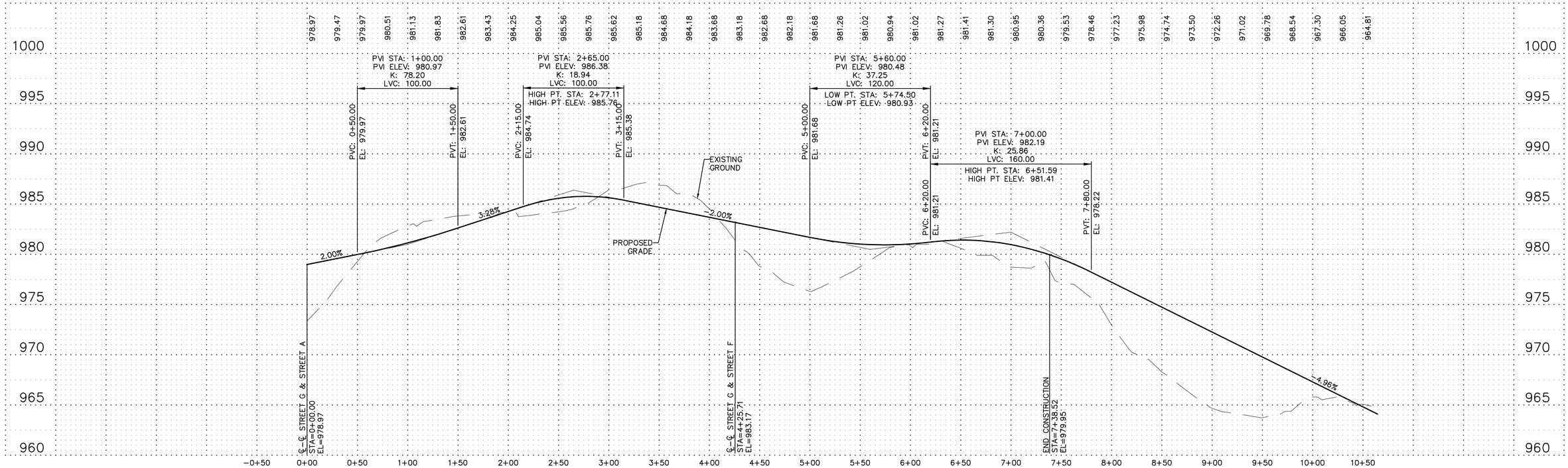
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STREET F



STREET G



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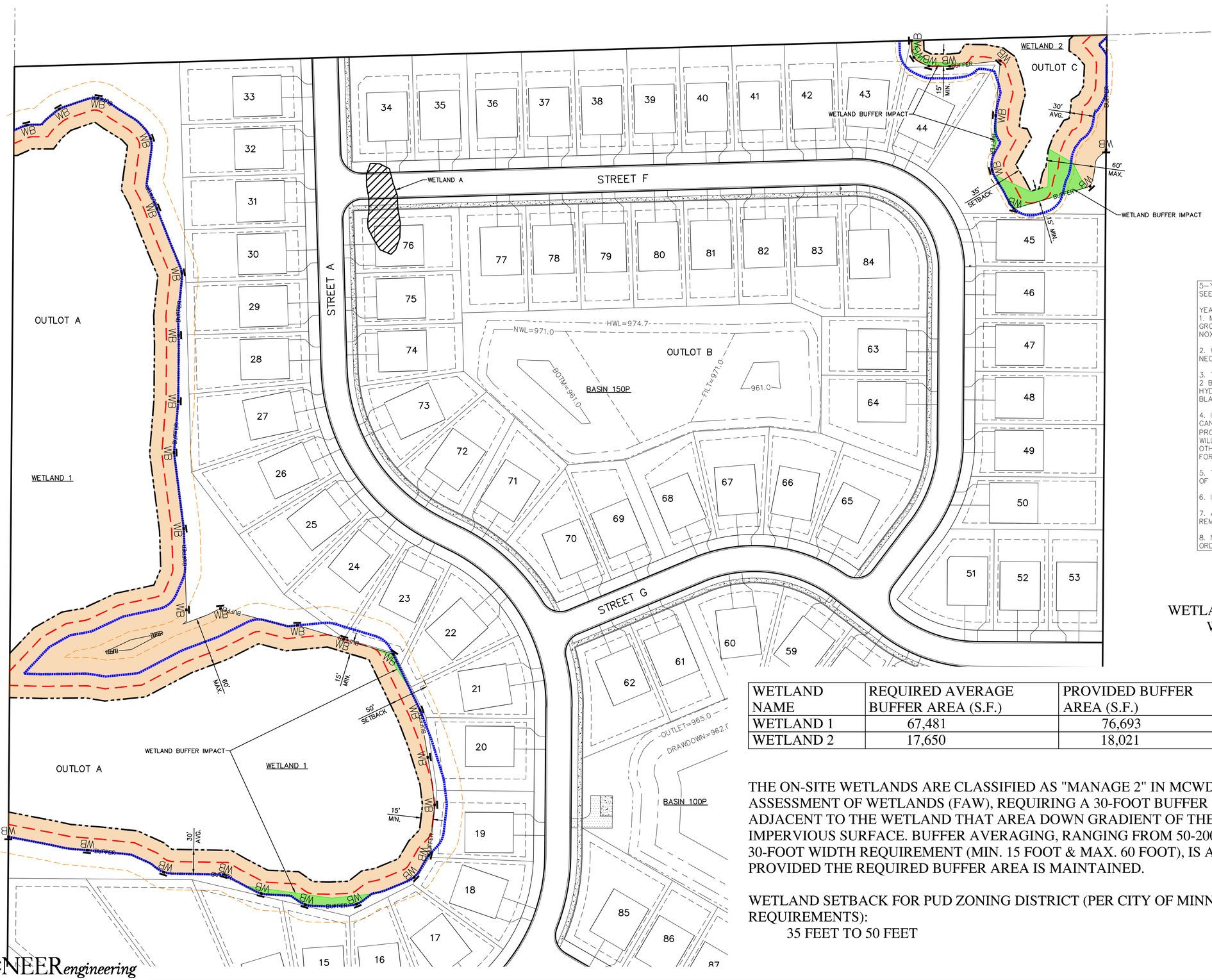
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LEGEND

- WB — WETLAND BUFFER SIGN/MONUMENT SEE STANDARD PLATE ERO-22
- BUFFER — PROPOSED WETLAND BUFFER LINE
- PROPOSED WETLAND BUFFER AREA
- DELINEATED WETLAND LINE
- WETLAND BUFFER MIN. REQ'D
- WETLAND BUFFER AVG. REQ'D
- WETLAND SETBACK LINE
- WETLAND IMPACT
- PROPOSED WETLAND BUFFER IMPACT

5-YEAR MAINTENANCE PLAN FOR WETLAND BUFFER MITIGATION SEEDING:

YEAR 1-5:
1. MOWING SHOULD OCCUR AS NECESSARY THROUGHOUT THE GROWING SEASON FOR THE FIRST TWO SEASONS TO PREVENT NOXIOUS WEEDS FROM TAKING HOLD.

2. WEEDS SHOULD BE HAND PULLED OR SPOT SPRAYED AS NECESSARY.

3. TYPE 3 MULCH SHOULD BE USED IN BASIN BOTTOM AND TYPE 2 BLANKET SHOULD BE USED ON SLOPES UNLESS THE AREAS ARE HYDRO SEEDED WITH A HEAVY TACKIFIER IN WHICH CASE NO BLANKET OR MULCH WILL BE NECESSARY.

4. IF THE AREA BECOMES SATURATED WITH ANY FREQUENCY, REED CANARY GRASS OR OTHER NOXIOUS WEEDS CAN BECOME A PROBLEM. SETHOXYDIM (OR EQUIVALENT) OR OTHER HERBICIDES WILL BE EFFECTIVE IN CONTROLLING REED CANARY GRASS AND OTHER NOXIOUS WEEDS WITHOUT HARMING SEDGES, RUSHES, AND FORBS.

5. TREES AND SHRUBS SHOULD ONLY BE PRUNED IN THE EVENT OF DAMAGED OR BROKEN BRANCHES.

6. INLETS MUST BE KEPT CLEAR OF DEBRIS.

7. ANY DEBRIS OBSERVED IN MITIGATION AREA SHALL BE REMOVED.

8. NO HEAVY MACHINERY TO BE USED IN WETLAND AREA IN ORDER MAINTAIN THE INTEGRITY OF INFILTRATION

WETLAND IMPACT:
WETLAND A = 3,574 S.F.

WETLAND NAME	REQUIRED AVERAGE BUFFER AREA (S.F.)	PROVIDED BUFFER AREA (S.F.)
WETLAND 1	67,481	76,693
WETLAND 2	17,650	18,021

THE ON-SITE WETLANDS ARE CLASSIFIED AS "MANAGE 2" IN MCWD'S FUNCTIONAL ASSESSMENT OF WETLANDS (FAW), REQUIRING A 30-FOOT BUFFER ON AREAS ADJACENT TO THE WETLAND THAT AREA DOWN GRADIENT OF THE PROPOSED IMPERVIOUS SURFACE. BUFFER AVERAGING, RANGING FROM 50-200% OF THE 30-FOOT WIDTH REQUIREMENT (MIN. 15 FOOT & MAX. 60 FOOT), IS ALLOWED PROVIDED THE REQUIRED BUFFER AREA IS MAINTAINED.

WETLAND SETBACK FOR PUD ZONING DISTRICT (PER CITY OF MINNETRISTA REQUIREMENTS):
35 FEET TO 50 FEET

0 30 60 120
GRAPHIC SCALE IN FEET

BENCH MARK
TOP NUT HYDRANT 60 FEET NORTH OF MN HWY 7 ALONG WATER TOWER DRIVEWAY. (1080 FEET EAST OF BUCK LAKE RD. INTERSECTION.
EL.=1008.40

00-ENG-125159-SHEET-WETL

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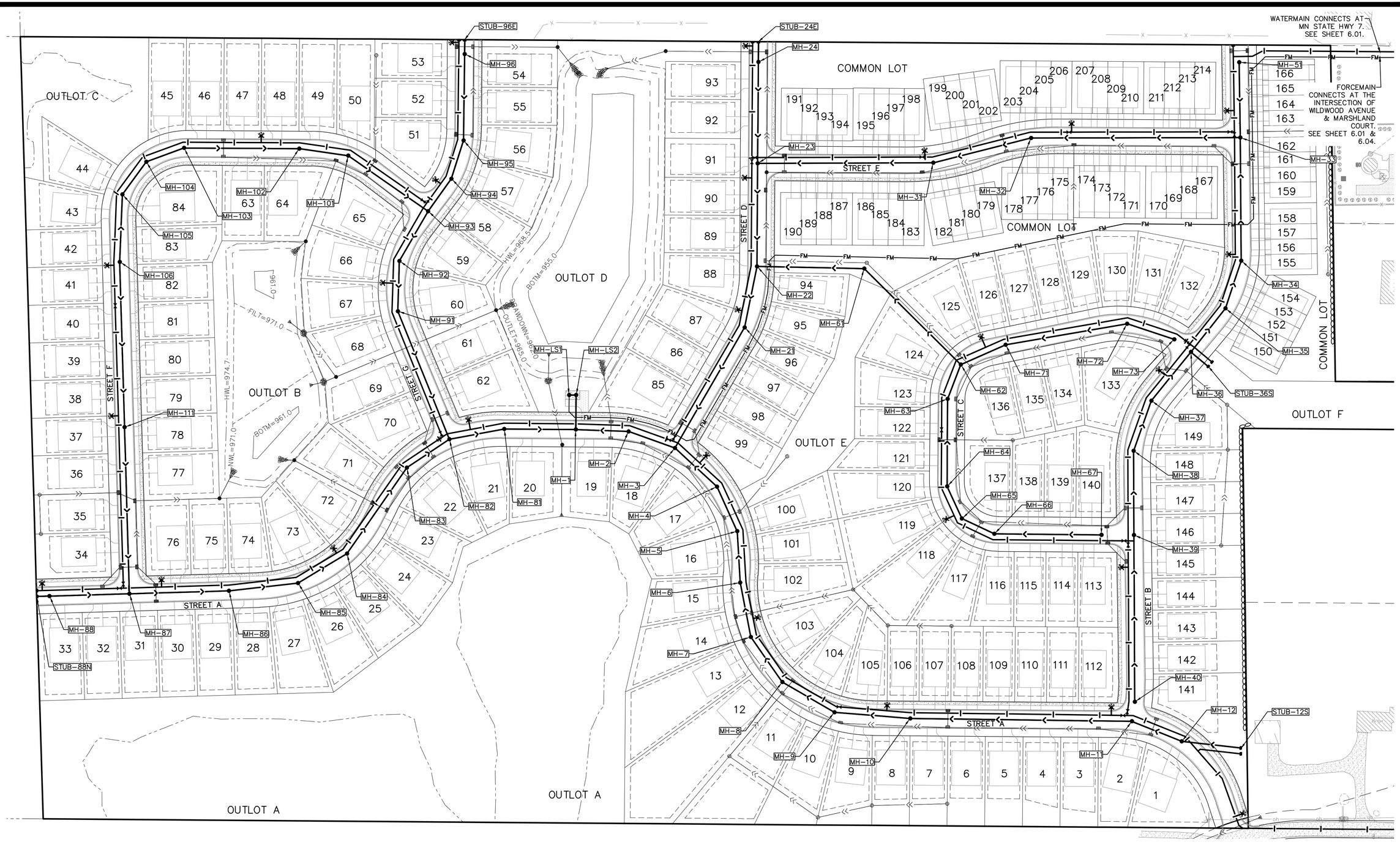
PRELIMINARY WETLAND IMPACT & BUFFER PLAN

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MINNETRISTA, MN

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0 40 80 160

GRAPHIC SCALE IN FEET

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00-ENG-125159-SHEET-SSWR-OVR

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PRELIMINARY OVERALL SANITARY SEWER & WATERMAIN PLAN

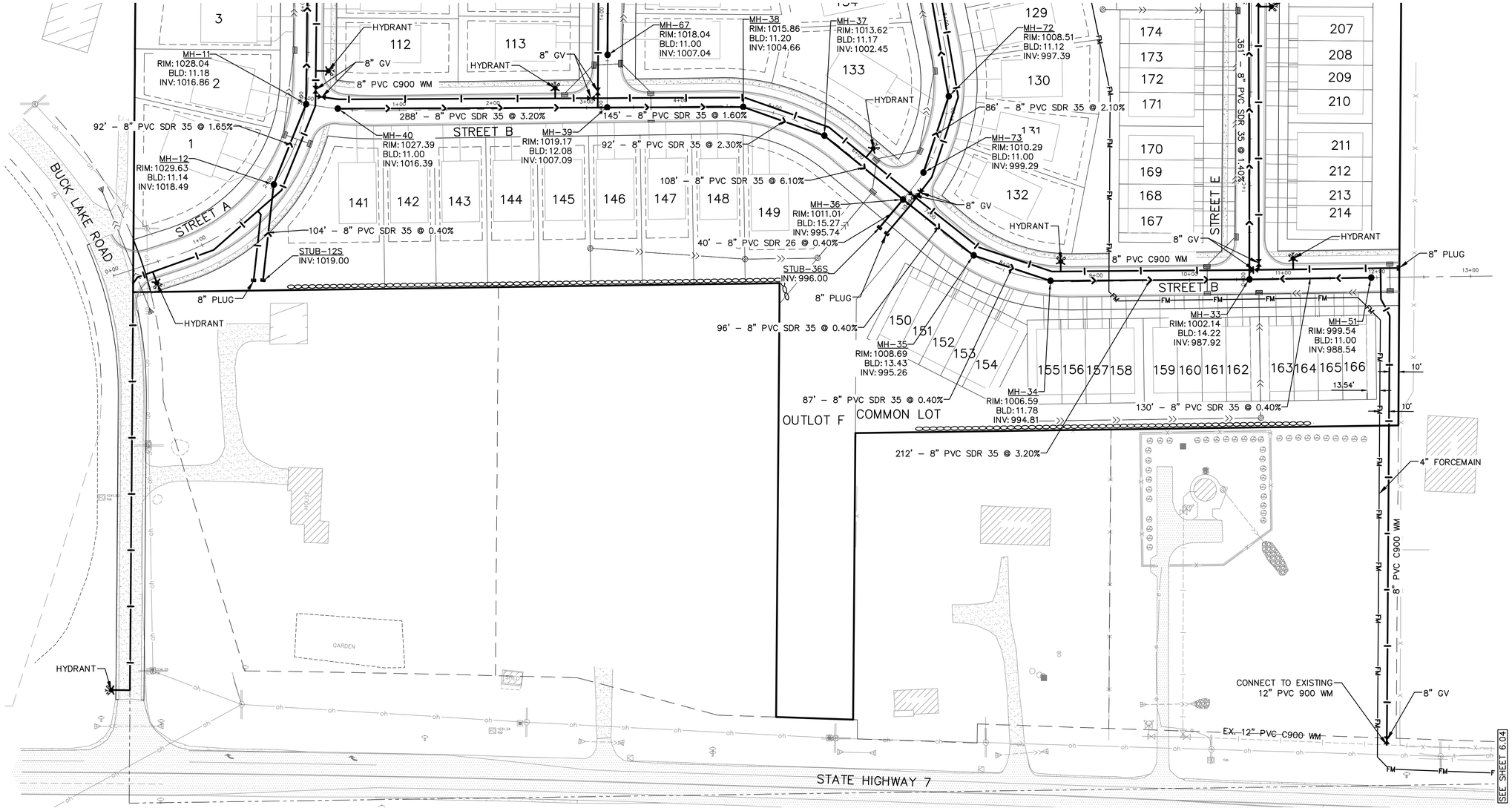
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MINNETRISTA, MN

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SEE SHEET 6.02



0 30 60 120

GRAPHIC SCALE IN FEET

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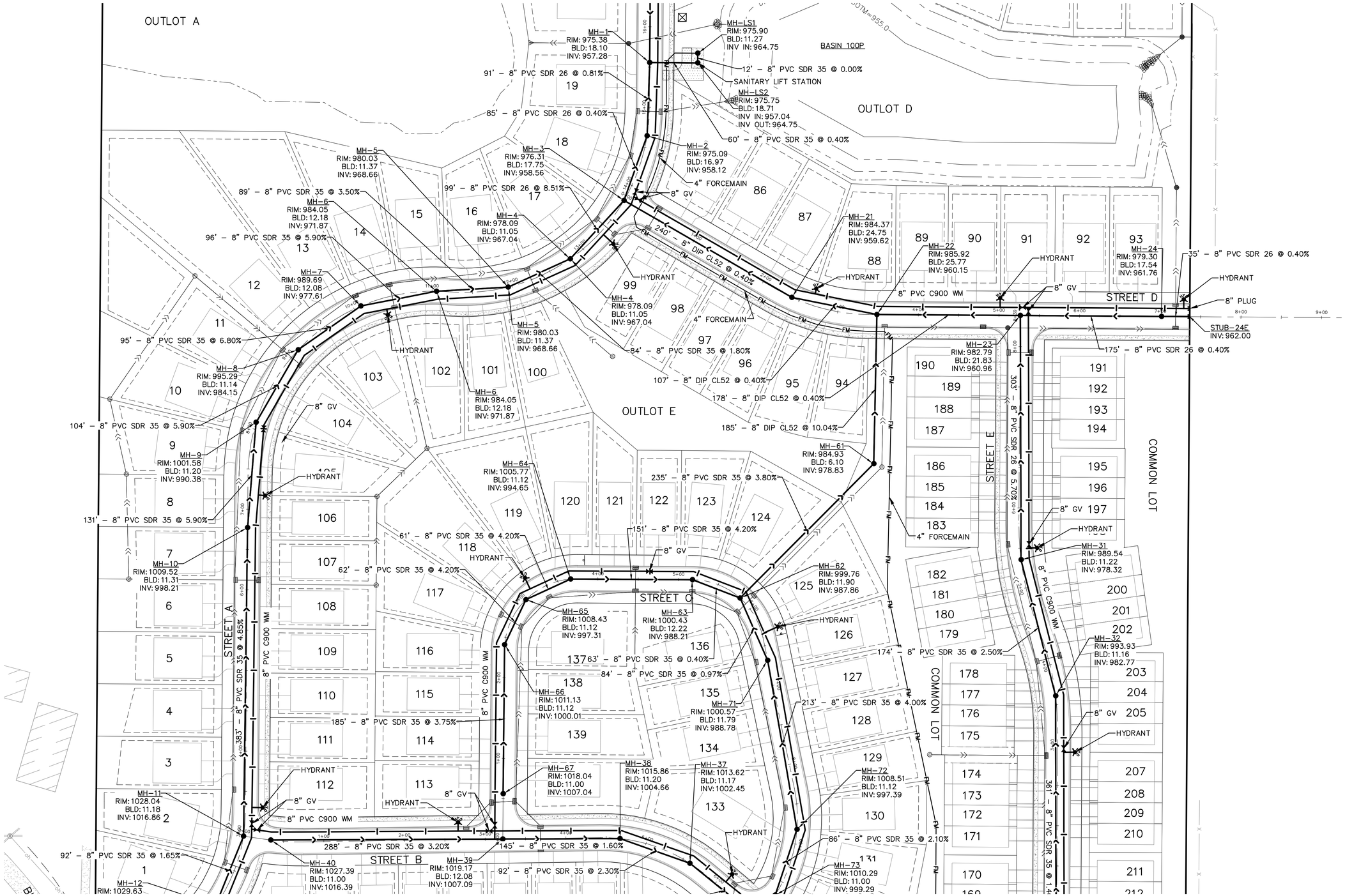
PRELIMINARY SANITARY SEWER & WATERMAIN PLAN

SEVEN OAKS LLC
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SEVEN OAKS
MINNETRISTA, MN

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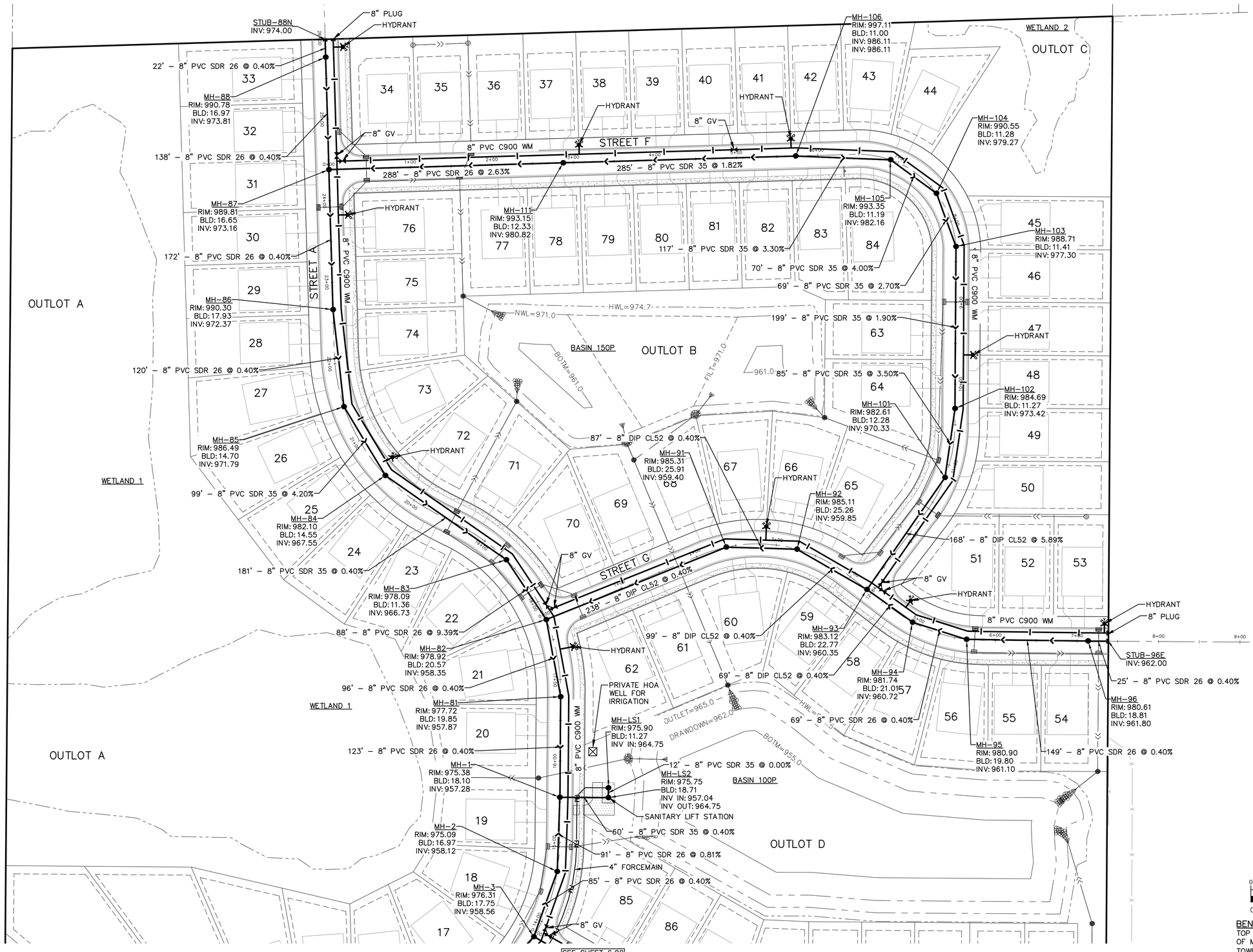
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BURNSVILLE, MN

SEVEN OAKS
MINNETRISTA, MN

6.02 OF 42

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BENCH MARK
TOP NUT HYDRANT 60 FEET NORTH OF MN HWY 7 ALONG WATER TOWER DRIVEWAY. (1080 FEET EAST OF BUCK LAKE RD. INTERSECTION. EL.=1008.40

00-ENG-125159-SHEET-SSWR

PIONEER engineering
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2422 Enterprise Drive
Mendota Heights, MN 55120
(651) 681-1914
Fax: 681-9488
www.pioneereng.com

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota
Name: Brian N. Molinaro
Reg. No. 47504 Date 06-26-2026

Revisions
1. 10-08-26 City & Watershed Comments

Date 06-26-2026
Designed MBG
Drawn MBG/AJA

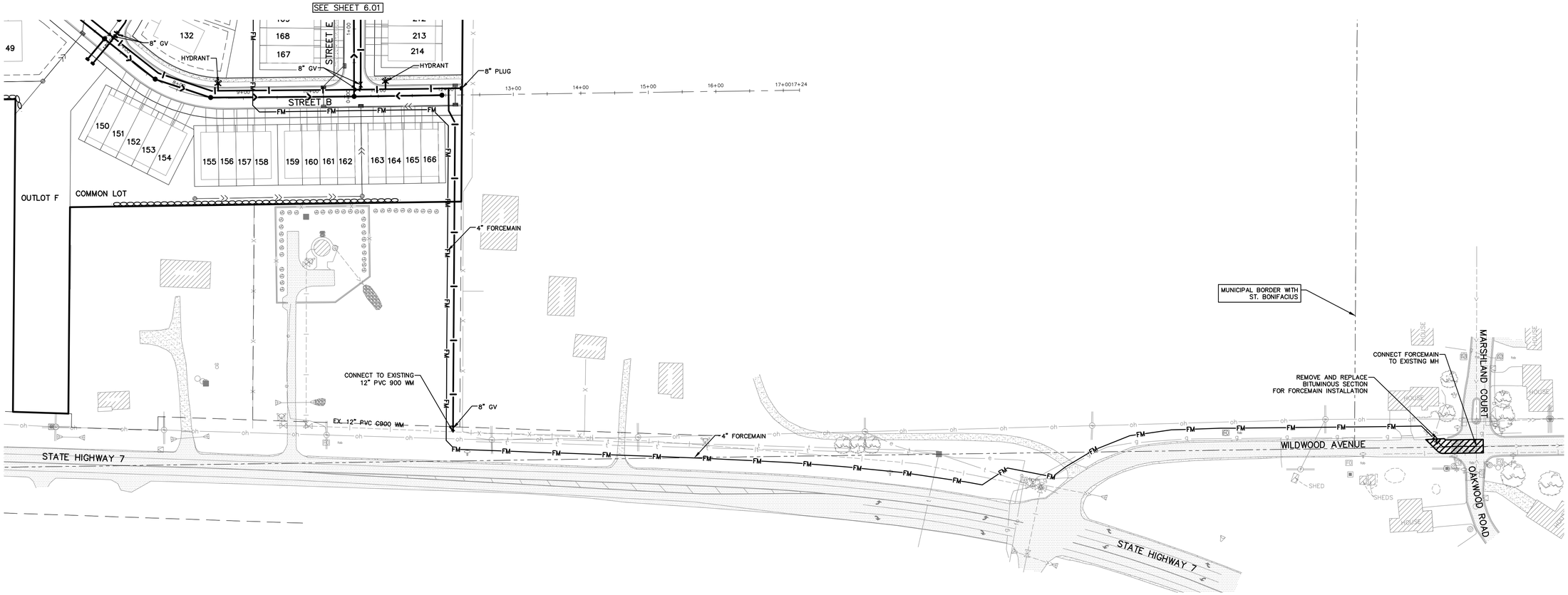
PRELIMINARY SANITARY SEWER & WATERMAIN PLAN

SEVEN OAKS LLC
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BURNSVILLE, MN

SEVEN OAKS
MINNETRISTA, MN

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N

0 40 80 160

GRAPHIC SCALE IN FEET

BENCH MARK

TOP NUT HYDRANT 60 FEET NORTH OF MN HWY 7 ALONG WATER TOWER DRIVEWAY. (1080 FEET EAST OF BUCK LAKE RD. INTERSECTION. EL.=1008.40

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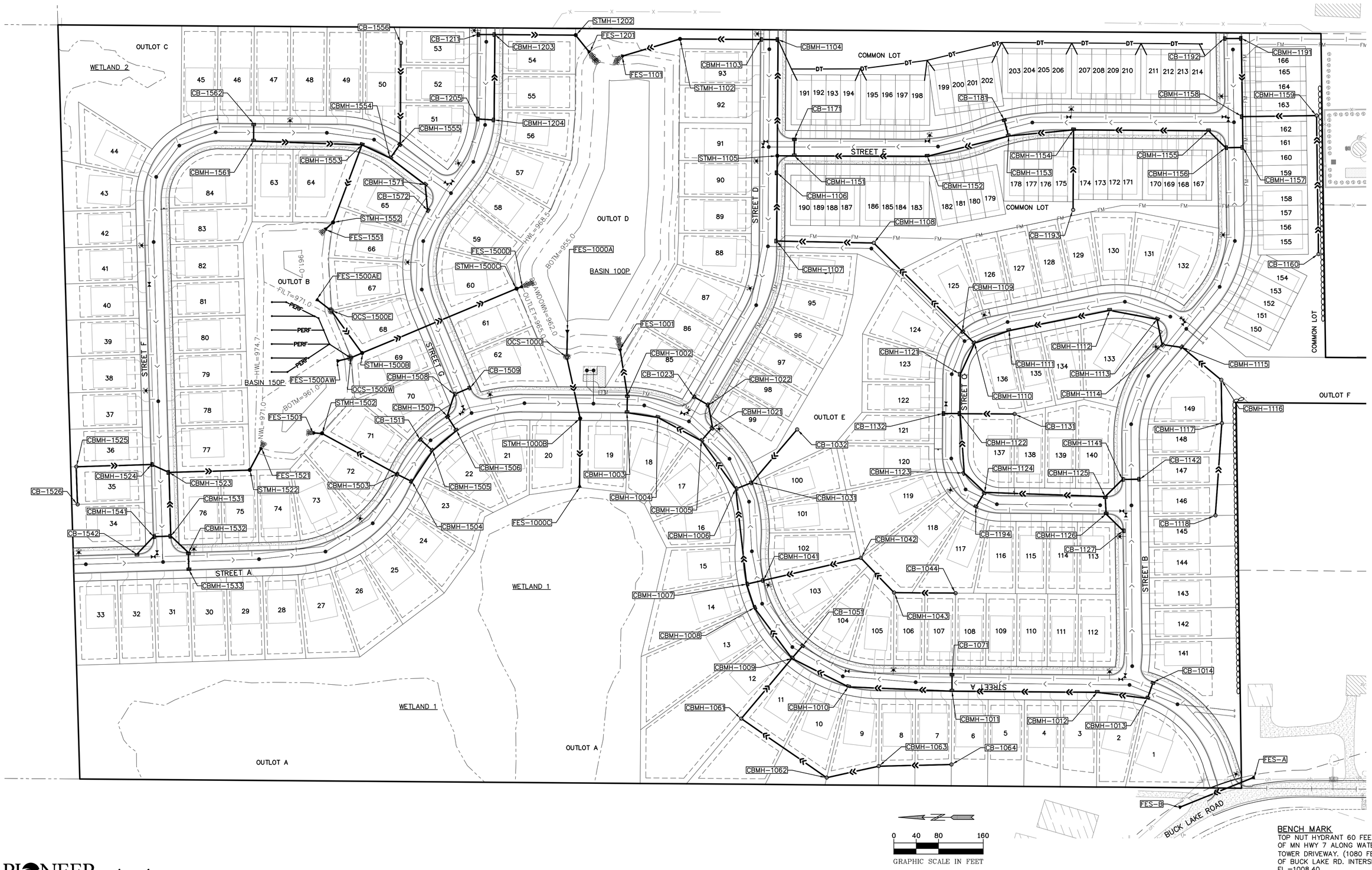
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00-ENG-125159-SHEET-STRM-OVR

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PRELIMINARY OVERALL STORM SEWER PLAN

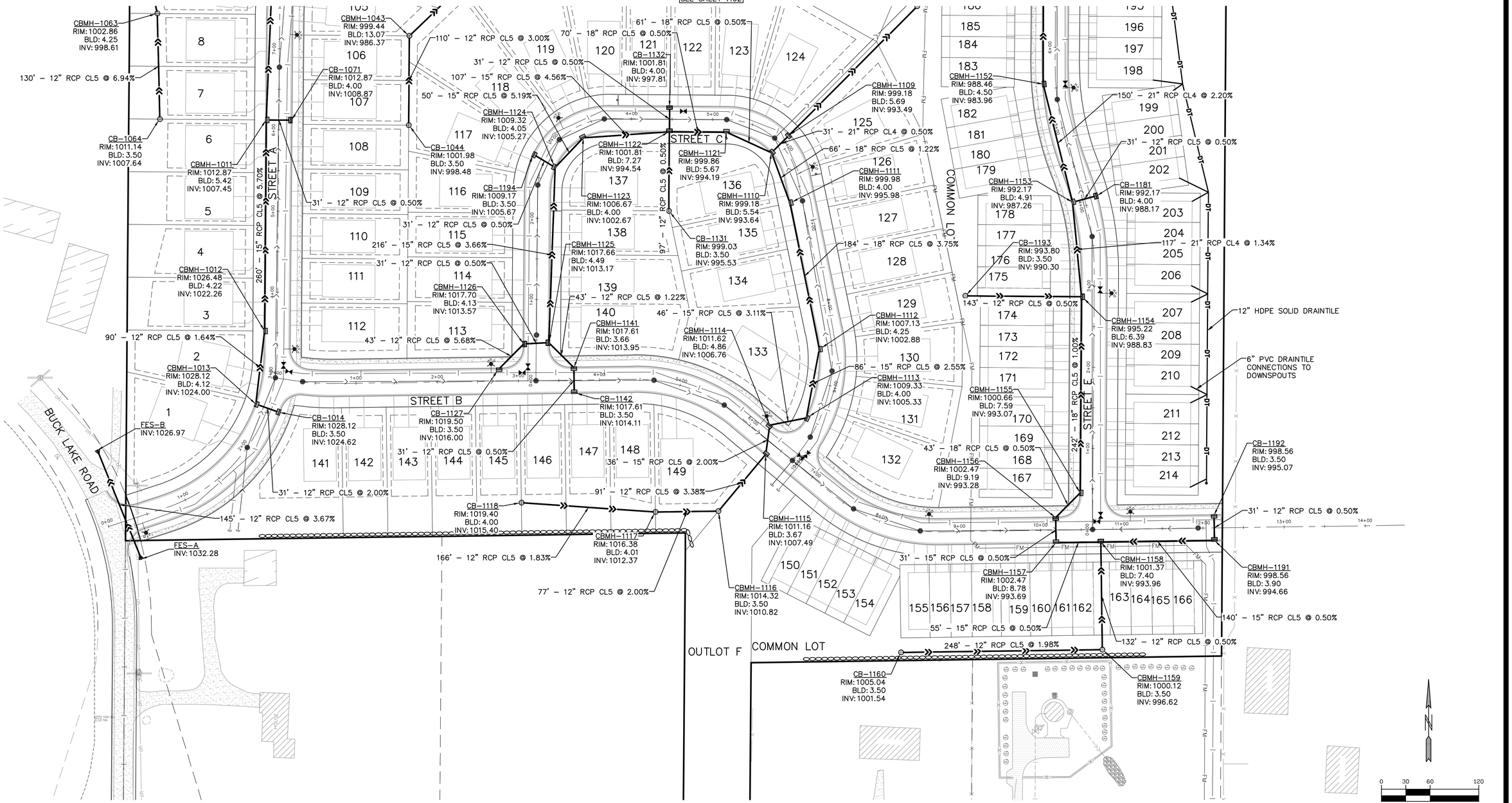
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BURNSVILLE, MN

SEVEN OAKS
MINNETRISTA, MN

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STORM SEWER NOTES:

1. 4" PERFORATED PVC DRAIN TILE IS REQUIRED BEHIND THE CURB A MINIMUM OF 50' IN EACH DIRECTION FROM LOW POINT STRUCTURES. IT IS ALSO REQUIRED ON EACH SIDE OF THE CROSSING PIPE AT THE LOW POINT. SEE CITY STANDARD DETAIL PLATE STO-10.



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Drawn	MBG/AJA

PRELIMINARY STORM SEWER PLAN

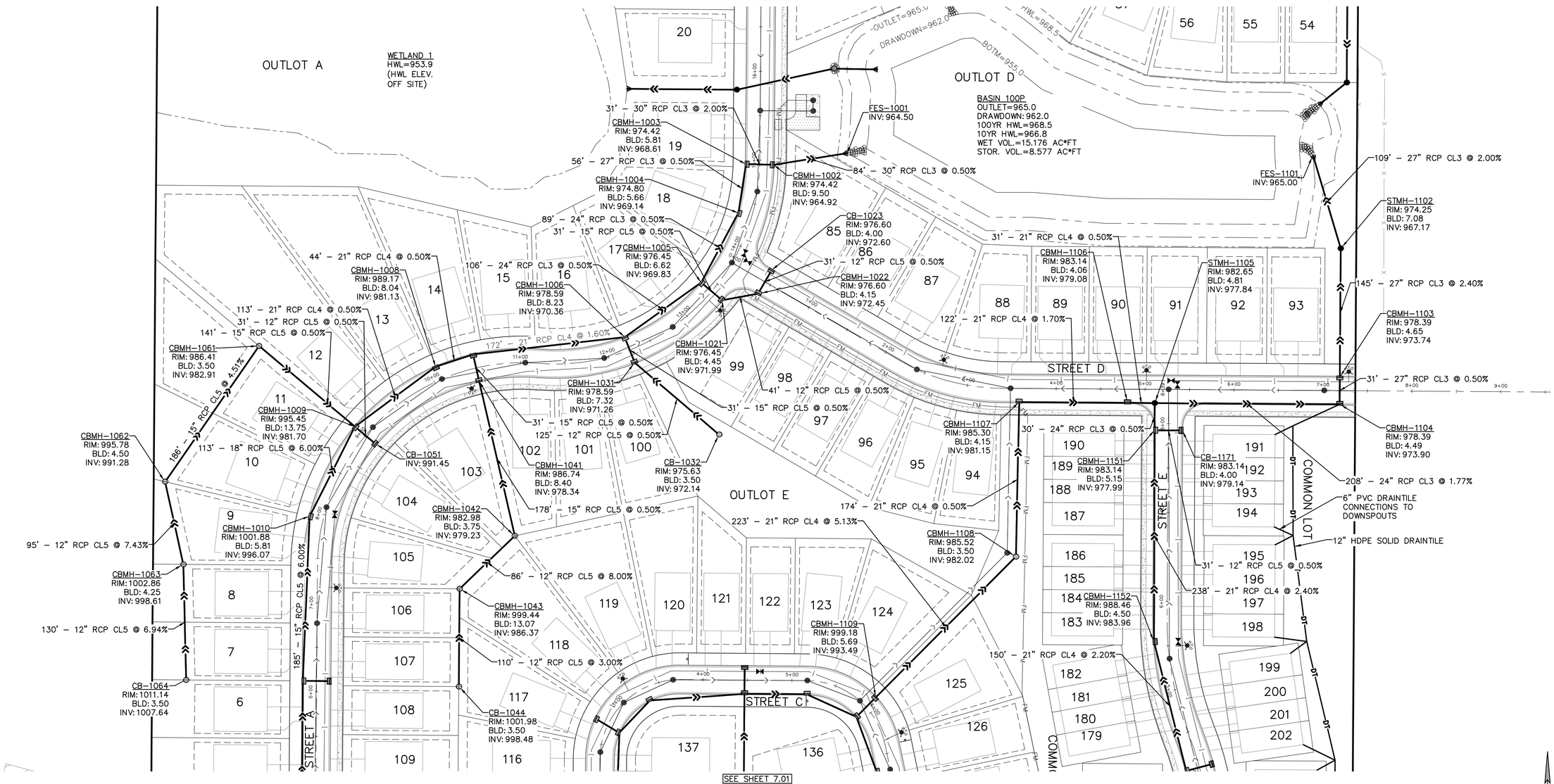
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221 RIVER RIDGE CIRCLE SOUTH, SUITE 100
BURNSVILLE, MN

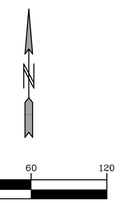
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MINNETRISTA, MN

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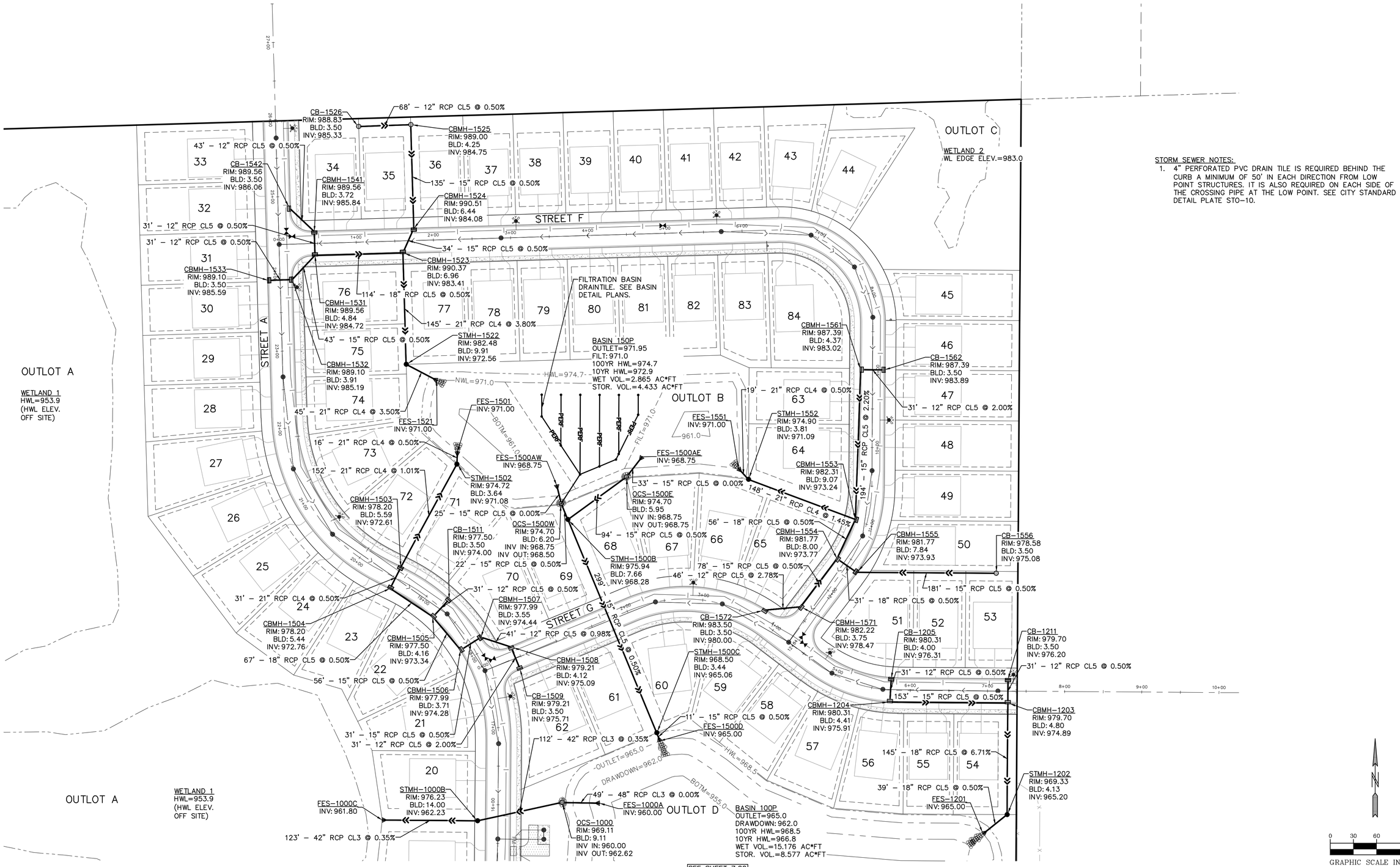
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221 RIVER RIDGE CIRCLE SOUTH, SUITE 100
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MINNETRISTA, MN

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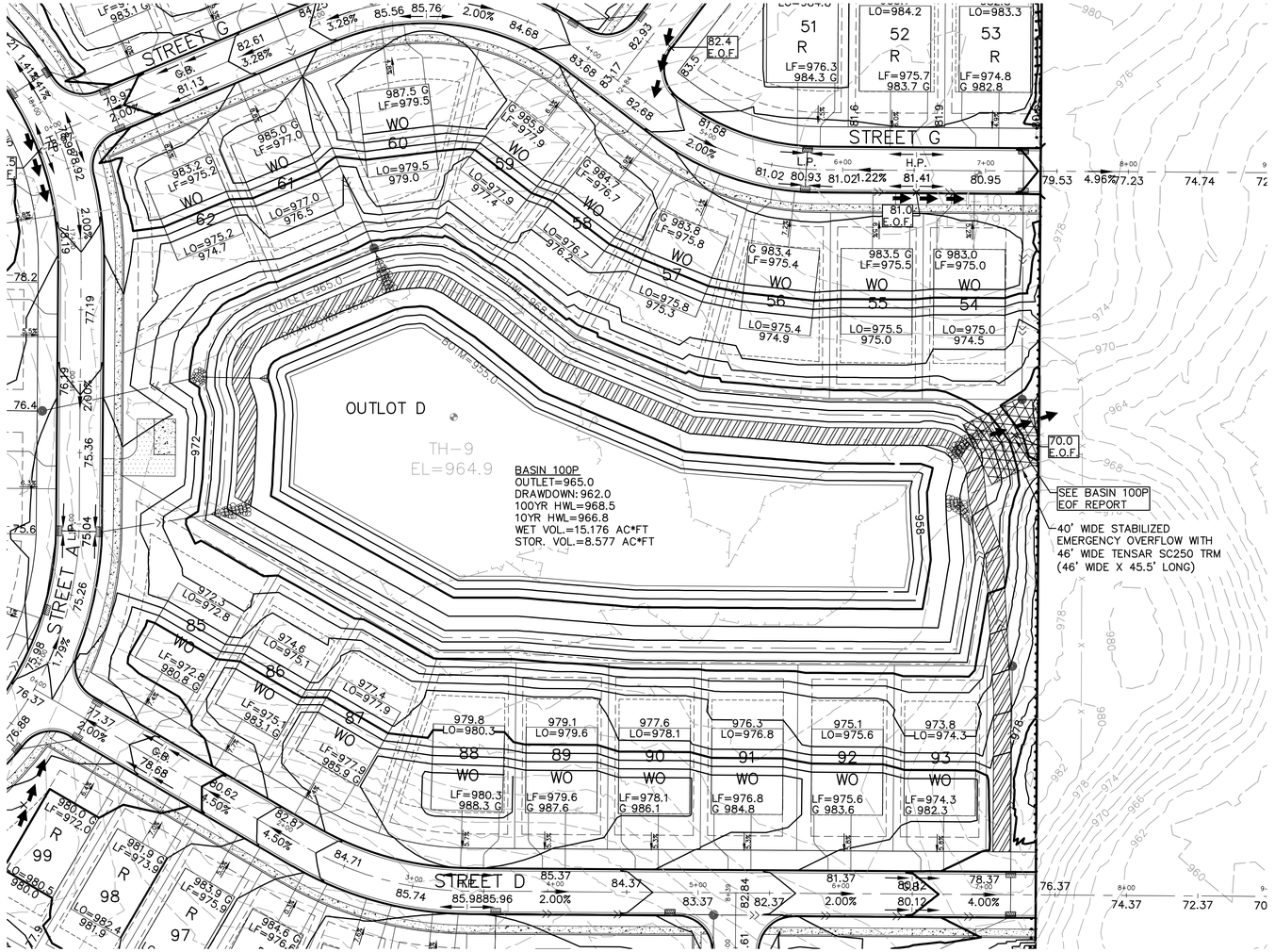
PRELIMINARY STORM SEWER PLAN

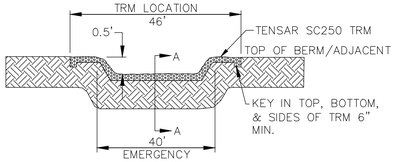
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SEVEN OAKS
MINNETRISTA, MN

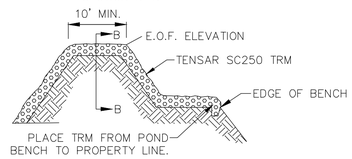
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STABILIZED EMERGENCY OVERFLOW DETAIL (BASIN 100P)
SECTION B–B



STABILIZED EMERGENCY OVERFLOW DETAIL (BASIN 100P)
SECTION A–A

BASIN 100P EOF REPORT
(3 TIMES THE 100-YR OUTFLOW)

Weir Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. — Tuesday, Oct 6 2026

<Name>

Rectangular Weir

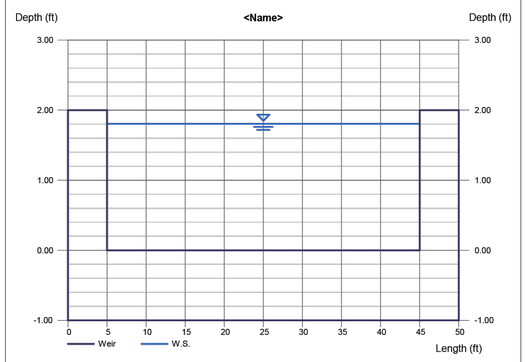
Crest	= Broad
Bottom Length (ft)	= 40.00
Total Depth (ft)	= 2.00

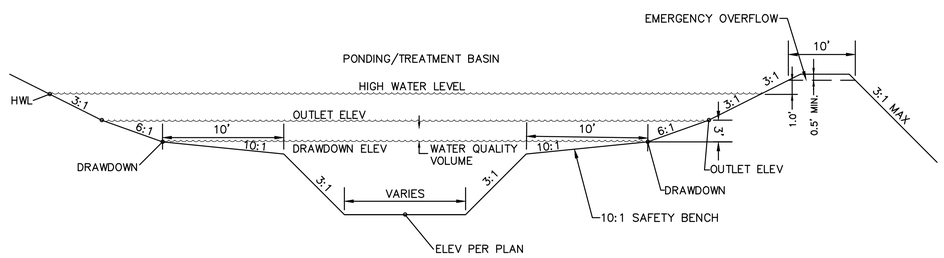
Calculations

Weir Coeff. Cw	= 2.60
Compute by:	Known Q
Known Q (cfs)	= 252.00

Highlighted

Depth (ft)	= 1.80
Q (cfs)	= 252.00
Area (sqft)	= 72.18
Velocity (ft/s)	= 3.49
Top Width (ft)	= 40.00





BASIN 100P
STORM WATER RE-USE BASIN
SECTION
(TYPICAL SECTION NOT TO SCALE)

BASIN ACCESS 7% SLOPE MAX.

STABILIZED EMERGENCY OVERFLOW (TENSAR SC250 TRM)

STORMWATER SETBACKS
LOW OPENING: 1'+EOF
LOW OPENING: 3'+HWL

N

0 25 50 100
GRAPHIC SCALE IN FEET

BENCH MARK
TOP NUT HYDRANT 60 FEET NORTH OF MN HWY 7 ALONG WATER TOWER DRIVEWAY. (1080 FEET EAST OF BUCK LAKE RD. INTERSECTION. EL.=1008.40

00-ENG-125159-SHEET-BASN-DTLS

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Drawn	MBG/AJA

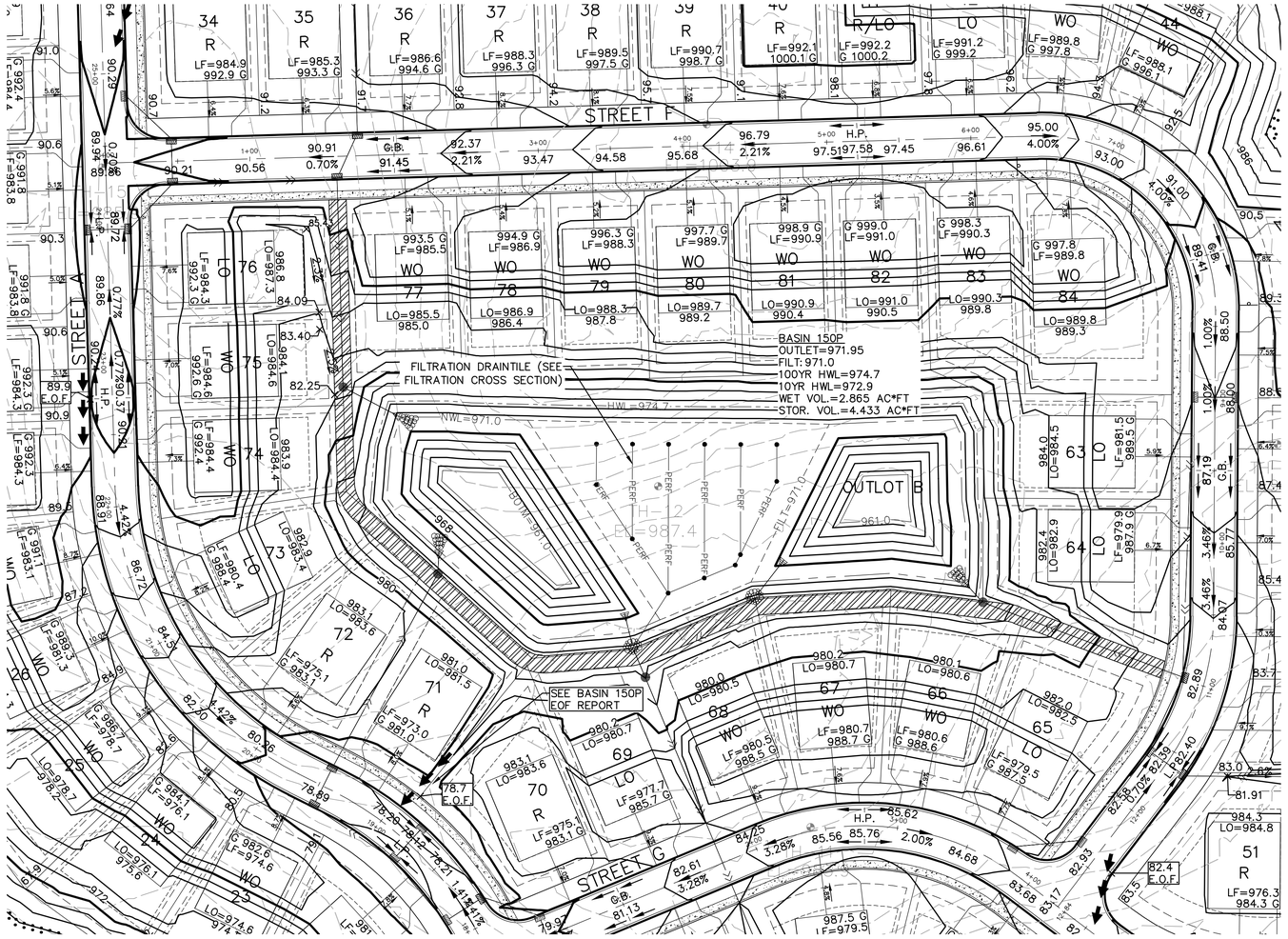
PRELIMINARY BASIN DETAILS

SEVEN OAKS LLC
221 RIVER RIDGE CIRCLE SOUTH, SUITE 100
BURNSVILLE, MN

SEVEN OAKS
MINNETRISTA, MN

7.11 OF 42

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BASIN 150P EOF REPORT
(3 TIMES THE 100-YR OUTFLOW)

Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. — Monday, Oct 5 2026

Basin 150 EOF

Trapezoidal

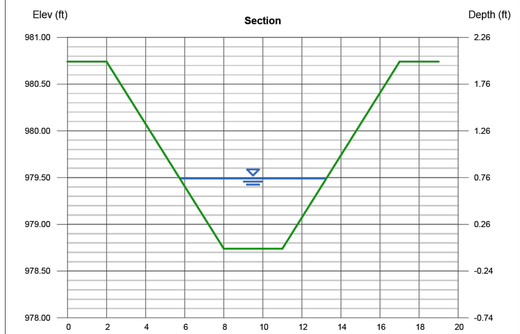
Bottom Width (ft)	= 3.00
Side Slopes (z:1)	= 3.00, 3.00
Total Depth (ft)	= 2.00
Invert Elev (ft)	= 978.74
Slope (%)	= 2.00
N-Value	= 0.025

Calculations

Compute by:	Known Q
Known Q (cfs)	= 21.00

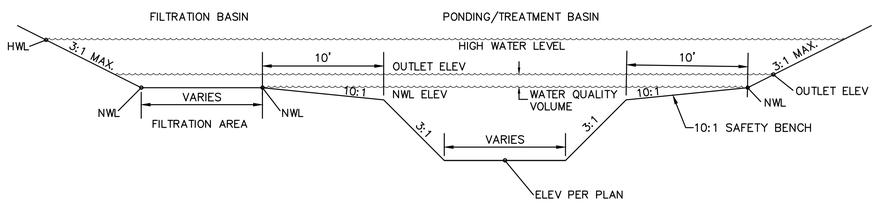
Highlighted

Depth (ft)	= 0.75
Q (cfs)	= 21.00
Area (sqft)	= 3.94
Velocity (ft/s)	= 5.33
Wetted Perim (ft)	= 7.74
Crit Depth, Yc (ft)	= 0.87
Top Width (ft)	= 7.50
EGL (ft)	= 1.19

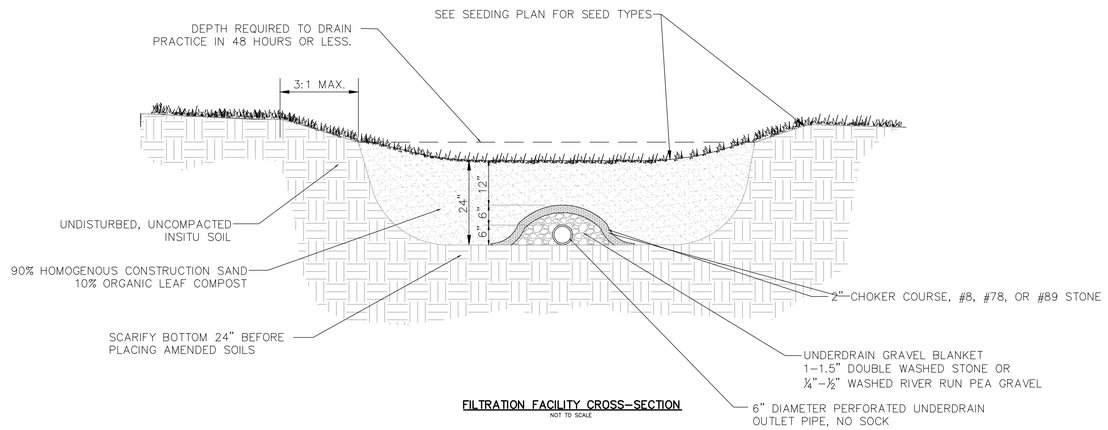


BASIN ACCESS 7% SLOPE MAX.

STORMWATER SETBACKS
LOW OPENING: 1'+EOF
LOW OPENING: 3'+HWL



BASIN 150P
STORM WATER/FILTRATION
BASIN SECTION
(TYPICAL SECTION NOT TO SCALE)



FILTRATION FACILITY CROSS-SECTION
NOT TO SCALE

0 25 50 100
GRAPHIC SCALE IN FEET

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EL.=1008.40

00-ENG-125159-SHEET-BASN-DTLS

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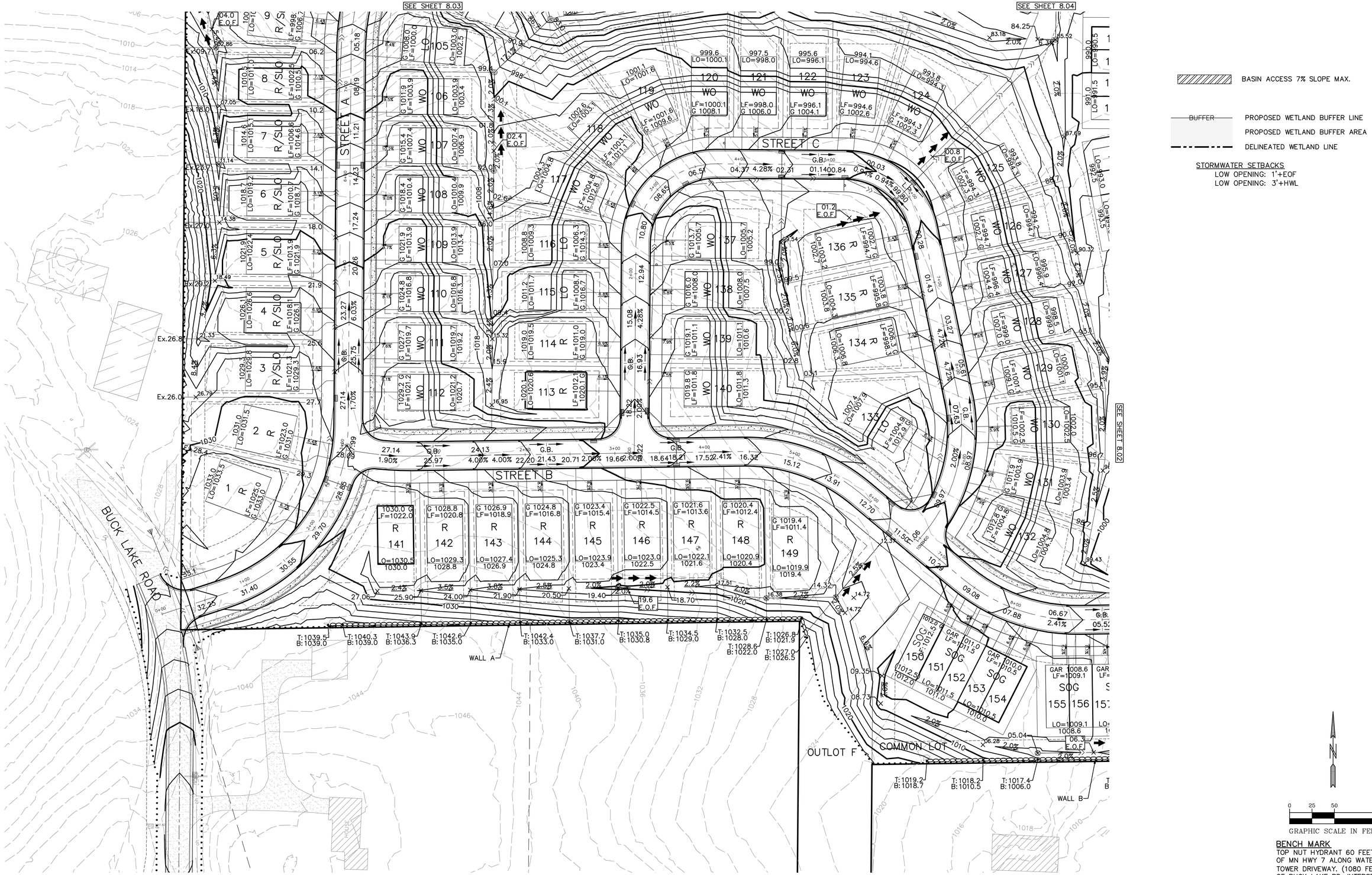
PRELIMINARY BASIN DETAILS

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SEVEN OAKS
MINNETRISTA, MN

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00-ENG-125159-SHEET-GRAD

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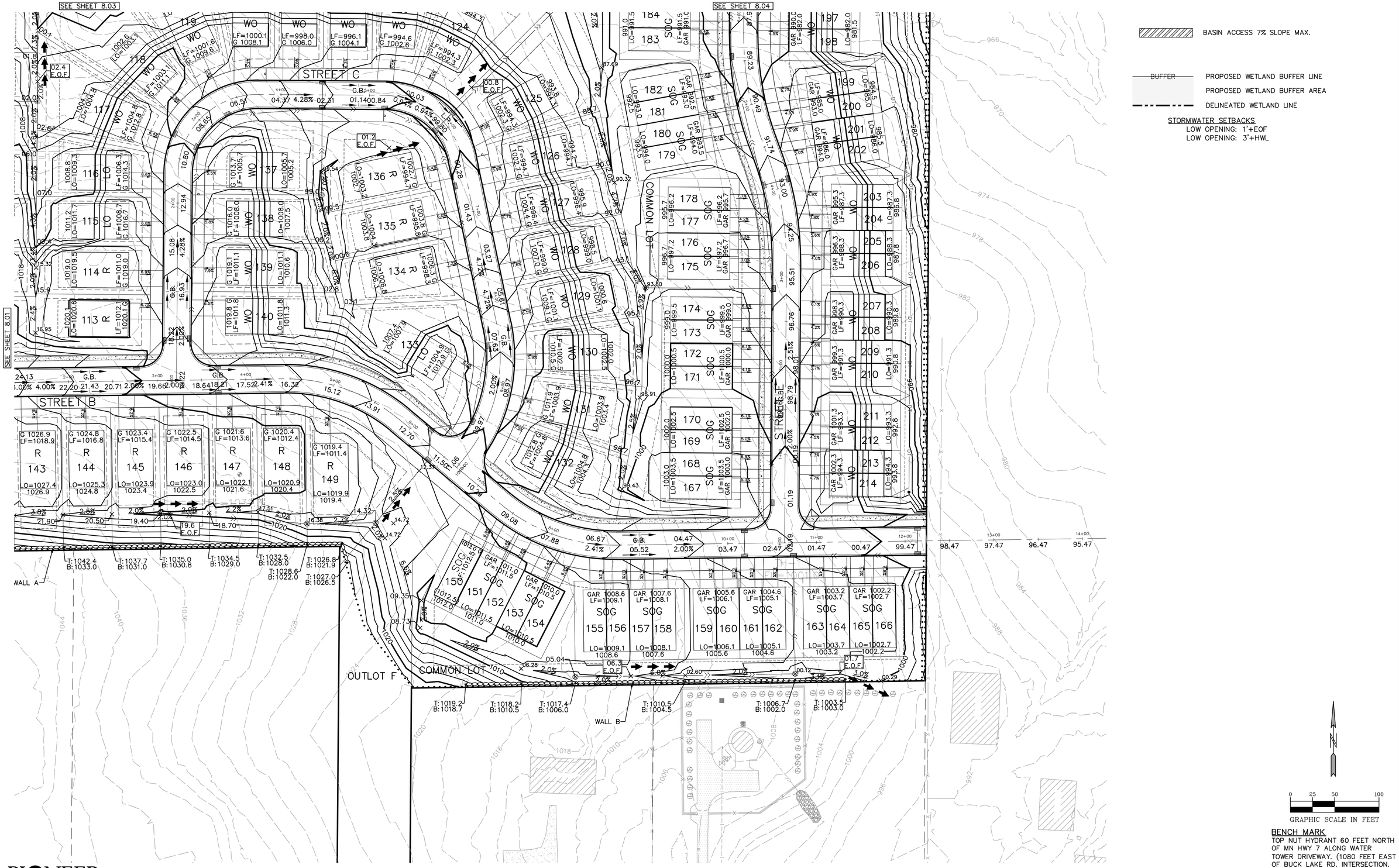
PRELIMINARY GRADING PLAN

SEVEN OAKS LLC
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8.01 OF 42

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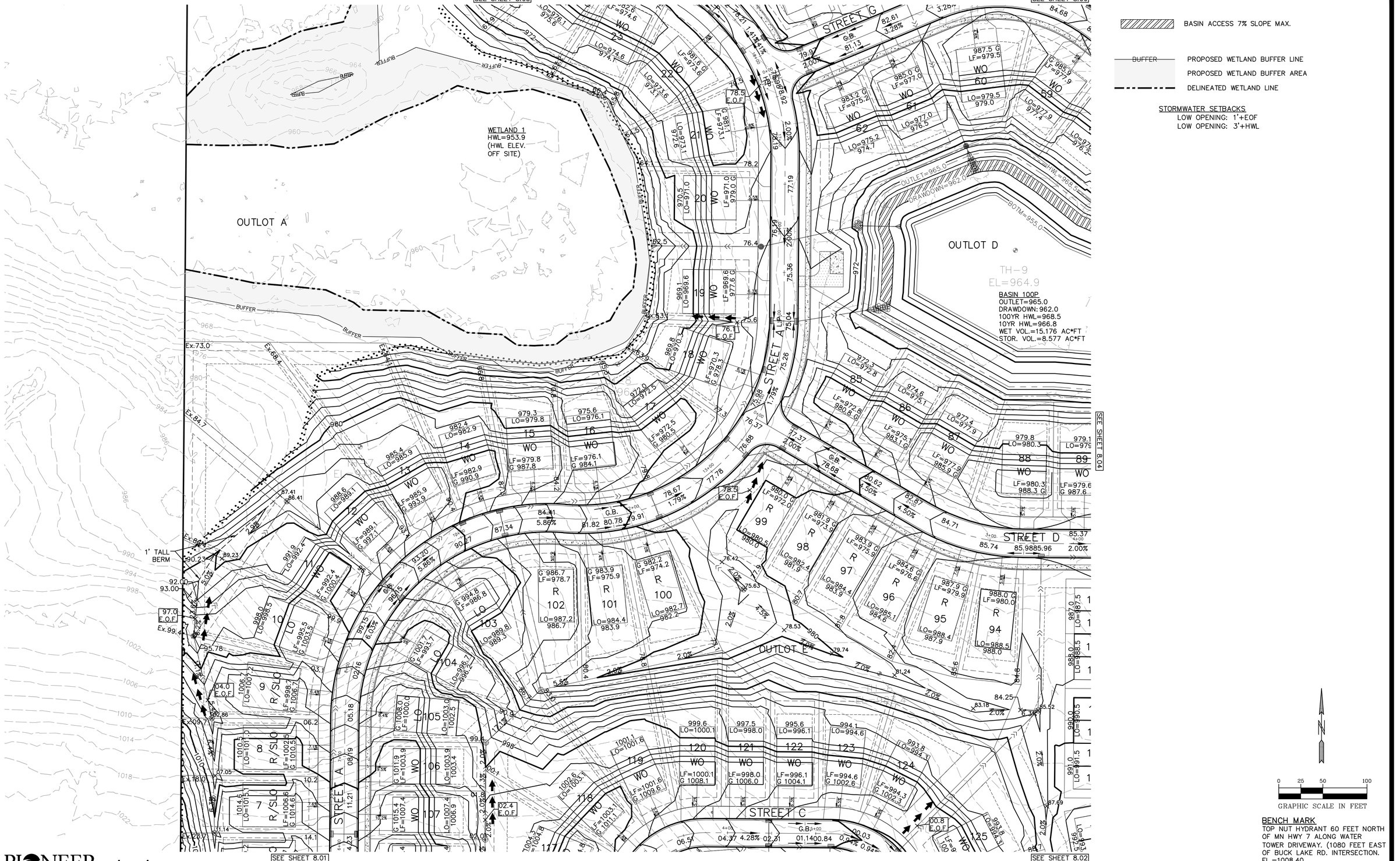
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SEVEN OAKS
MINNETRISTA, MN

8.02 OF 42

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BASIN ACCESS 7% SLOPE MAX.

BUFFER — PROPOSED WETLAND BUFFER LINE

PROPOSED WETLAND BUFFER AREA

DELINEATED WETLAND LINE

STORMWATER SETBACKS
LOW OPENING: 1'+EOF
LOW OPENING: 3'+HWL

0 25 50 100
GRAPHIC SCALE IN FEET

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BASIN ACCESS 7% SLOPE MAX.

BUFFER — PROPOSED WETLAND BUFFER LINE

PROPOSED WETLAND BUFFER AREA

DELINEATED WETLAND LINE

STORMWATER SETBACKS
LOW OPENING: 1'+EOF
LOW OPENING: 3'+HWL

BASIN 150P
OUTLET=971.95
FILT: 971.0
100YR HWL=974.7
10YR HWL=972.9
WET VOL.=2.865 AC*FT
STOR. VOL.=4.433 AC*FT

OUTLOT A

OUTLOT B

WETLAND 1
HWL=953.9
(HWL ELEV.
OFF SITE)

WETLAND 1
HWL=953.9
(HWL ELEV.
OFF SITE)

STREET A

STREET F

STREET G

SEE SHEET 8.06

SEE SHEET 8.03

SEE SHEET 8.04

GRAPHIC SCALE IN FEET
0 25 50 100

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Reg. No. 47504 Date 06-26-2026

Revisions
1. 10-08-26 City & Watershed Comments

Date	06-26-2026
Designed	MBG
Drawn	MBG/AJA

PRELIMINARY GRADING PLAN

SEVEN OAKS LLC
221 RIVER RIDGE CIRCLE SOUTH, SUITE 100
BURNSVILLE, MN

SEVEN OAKS
MINNETRISTA, MN

8.05 OF 42

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BASIN ACCESS 7% SLOPE MAX.

BUFFER — PROPOSED WETLAND BUFFER LINE

PROPOSED WETLAND BUFFER AREA

DELINEATED WETLAND LINE

STORMWATER SETBACKS
LOW OPENING: 1'+EOF
LOW OPENING: 3'+HWL

BASIN 150P
OUTLET=971.95
FILT: 971.0
100YR HWL=974.7
10YR HWL=972.9
WET VOL.=2.865 AC*FT
STOR. VOL.=4.433 AC*FT

WETLAND 1
HWL=953.9
(HWL ELEV.
OFF SITE)

WETLAND 2
WL EDGE ELEV.=983.0

OUTLOT B

OUTLOT C

STREET A

STREET F

STREET G

SEE SHEET 8.05

SEE SHEET 8.03

SEE SHEET 8.04

0 25 50 100
GRAPHIC SCALE IN FEET

BENCH MARK
TOP NUT HYDRANT 60 FEET NORTH OF MN HWY 7 ALONG WATER TOWER DRIVEWAY. (1080 FEET EAST OF BUCK LAKE RD. INTERSECTION.
EL.=1008.40

00-ENG-125159-SHEET-GRAD

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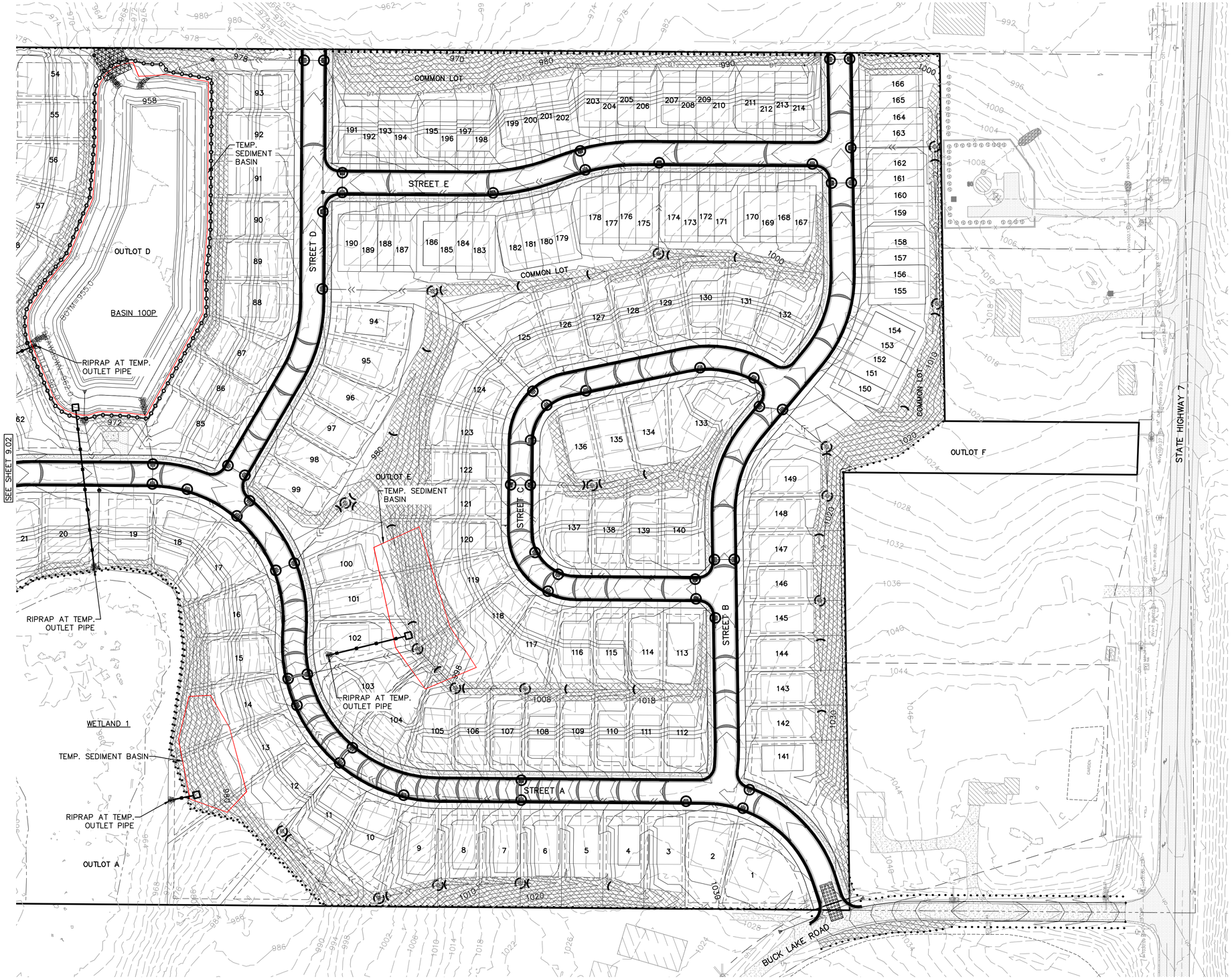
PRELIMINARY GRADING PLAN

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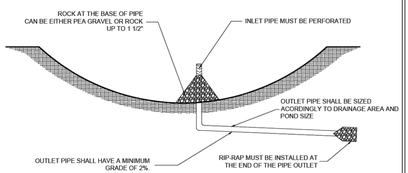
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LEGEND

- ROCK CONSTRUCTION ENTRANCE INSTALL BEFORE START OF GRADING
- PERIMETER EROSION CONTROL FENCE. INSTALL BEFORE START OF GRADING
- SECONDARY EROSION CONTROL FENCE. TO BE INSTALLED 48 HOURS AFTER COMPLETION OF GRADING.
- EROSION CONTROL PRACTICE AT BACK OF CURB PER CITY STANDARD. TO BE INSTALLED AFTER COMPLETION OF SIDEWALK CONSTRUCTION.
- SUMPED RIP RAP PERMANENT ENERGY DISSIPATER, INSTALL WITHIN 24 HOURS AFTER CONNECTION TO A SURFACE WATER.
- CATCH BASIN INLET PROTECTION TO BE INSTALLED AFTER 1ST LIFT OF BITUMINOUS.
- CATCH BASIN INLET PROTECTION TO BE INSTALLED WITH CATCH BASIN GRATE.
- MNDOT CAT 20 EROSION CONTROL BLANKET. INSTALL WITHIN 7 DAYS OF GRADING COMPLETION
- STRAW BIO ROLLS. INSTALL WITHIN 7 DAYS OF GRADING COMPLETION OR BEFORE 1ST RAINFALL EVENT WHICHEVER IS FIRST
- ROCK BERM. INSTALL WITHIN 7 DAYS OF GRADING COMPLETION OR BEFORE 1ST RAINFALL EVENT WHICHEVER IS FIRST
- STABILIZED EMERGENCY OVERFLOW (TENSAR SC250 TRM)
- POTENTIAL AREA DESIGNATED FOR TEMPORARY SEDIMENT BASIN WITH OUTLET PIPE. SEE CITY DETAIL PLATE ERO-18. CONTRACTOR TO PROPOSE FINAL TEMP. BASIN LOCATIONS. CONTRACTOR TO MAINTAIN DRAINAGE TO TEMP. BASINS AT ALL TIMES.
- TEMPORARY OUTLET PIPE W/RIPRAP AT OUTLET. SEE CITY DETAIL PLATE ERO-18.

NOTE:
1. THE BASINS MUST PROVIDE STORAGE BELOW THE OUTLET PIPE FOR A CALCULATED VOLUME OF RUNOFF FROM A 2 YEAR, 24 HOUR STORM FROM EACH ACRE DRAINED TO THE BASIN, EXCEPT THAT IN NO CASE SHALL THE BASIN PROVIDE LESS THAN 1800 CUBIC FEET OF STORAGE BELOW THE OUTLET PIPE FROM EACH ACRE DRAINED TO THE BASIN.
2. WHERE NO SUCH CALCULATION HAS BEEN PERFORMED, A TEMPORARY SEDIMENT BASIN PROVIDING 3,600 CUBIC FEET OF STORAGE BELOW THE OUTLET PIPE PER ACRE DRAINED TOTHE BASIN, SHALL BE PROVIDED WHERE ATTAINABLE UNTIL FINAL STABILIZATION OF THE SITE.
3. SKIMMER INTAKES OR OTHER OUTLET METHODS SHALL PREVENT SHORT-CIRCUITING AND THE DISCHARGE OF FLOATING DEBRIS. THE BASIN MUST BE DESIGNED WITH THE ABILITY TO ALLOW COMPLETE BASIN DRAWDOWN (E.G., PERFORATED RISER PIPE WRAPPED WITH FILTER FABRIC AND COVERED WITH CRUSHED GRAVEL, PUMPS OR OTHER MEANS.) FOR MAINTENANCE ACTIVITIES, AND PROVIDE A STABILIZED EMERGENCY OVERFLOW TO PREVENT FAILURE OF POND INTEGRITY. ENERGY DISSIPATION MUST BE PROVIDED FOR THE BASIN OUTLET.
4. THE TEMPORARY BASINS MUST BE CONSTRUCTED AND MADE OPERATIONAL CONCURRENT WITH THE START OF SOIL DISTURBANCE THAT IS UPGRADIENT OF THE AREA AND CONTRIBUTES RUNOFF TO THE POND.



TEMPORARY SEDIMENTATION BASIN WITH OUTLET PIPE

Special Details
Date JAN. 2022
Revised
ERO-18

0 40 80 160
GRAPHIC SCALE IN FEET

BENCH MARK
TOP NUT HYDRANT 60 FEET NORTH OF MN HWY 7 ALONG WATER TOWER DRIVEWAY. (1080 FEET EAST OF BUCK LAKE RD. INTERSECTION. EL.=1008.40

00-ENG-125159-SHEET-EROS

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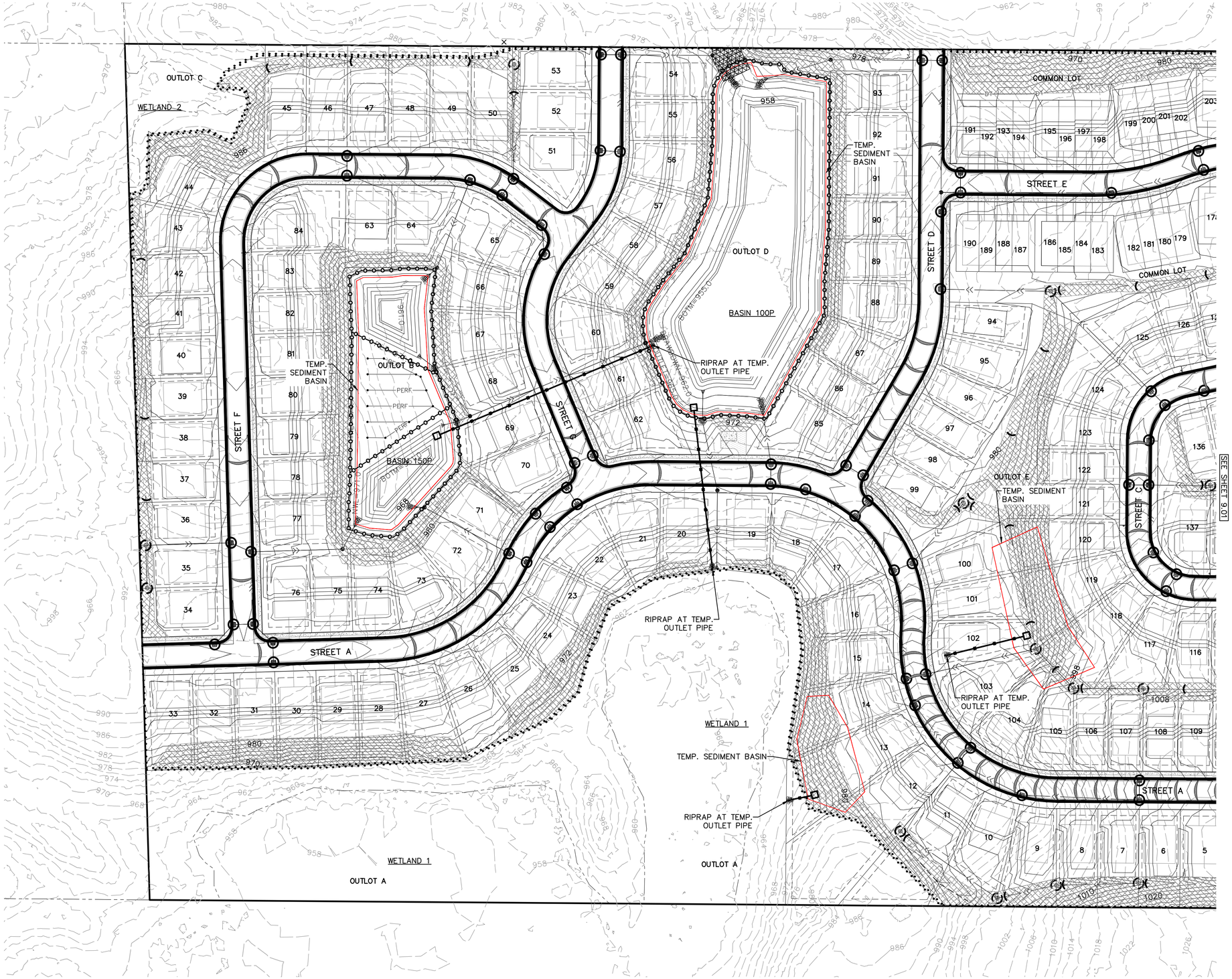
PRELIMINARY EROSION CONTROL PLAN

SEVEN OAKS LLC
221 RIVER RIDGE CIRCLE SOUTH, SUITE 100
BURNSVILLE, MN

SEVEN OAKS
MINNETRISTA, MN

9.01 OF 42

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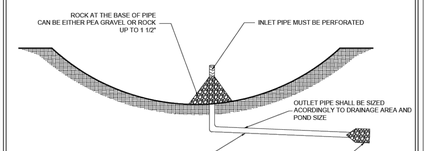


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	TEMPORARY SEDIMENTATION BASIN WITH OUTLET PIPE	Special Details Date JAN. 2022 Revised ERO-18

0 40 80 160

GRAPHIC SCALE IN FEET

BENCH MARK

TOP NUT HYDRANT 60 FEET NORTH OF MN HWY 7 ALONG WATER TOWER DRIVEWAY. (1080 FEET EAST OF BUCK LAKE RD. INTERSECTION. EL.=1008.40

00-ENG-125159-SHEET-EROS

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Drawn	MBG/AJA

PRELIMINARY EROSION CONTROL PLAN

SEVEN OAKS LLC
221 RIVER RIDGE CIRCLE SOUTH, SUITE 100
BURNSVILLE, MN

SEVEN OAKS
MINNETRISTA, MN

9.02 OF 42

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TEMPORARY SEED SHALL BE DONE IN ACCORDANCE TO MNDOT 2575 & 3876; CONSISTING OF:

- MAY 1 – AUGUST 1: MINNESOTA STATE SEED MIXTURE OATS (O) @ 100.0 LBS. PER ACRE OR APPROVED EQUAL.
- AUGUST 1 – OCTOBER 1: MINNESOTA STATE SEED MIXTURE WINTER WHEAT (WW) @ 100.0 LBS. PER ACRE OR APPROVED EQUAL.
- MULCH SHALL BE MNDOT 3882, TYPE 1 @ 2 TONS PER ACRE OR APPROVED EQUAL AND DISK ANCHORED IN PLACE OR APPROVED EQUAL, INSTALLED TO MINIMUM 90% COVERAGE OF THE SURFACE AREA DISTURBED.
- MNDOT 3881, TYPE 1 COMMERCIAL FERTILIZER, 10–10–20 @ 200 LBS. PER ACRE

PERMANENT TURF RESTORATION SHALL BE DONE IN ACCORDANCE WITH MNDOT 2575 & 3876 CONSISTING OF:

- MINNESOTA STATE SEED MIXTURE MESIC INSLOPE (MI) AT 85.0 POUNDS PER ACRE.
- MULCH SHALL BE MNDOT 3882, TYPE 1 @ 2 TONS PER ACRE OR APPROVED EQUAL AND DISK ANCHORED IN PLACE OR APPROVED EQUAL, INSTALLED TO MINIMUM 90% COVERAGE OF THE SURFACE AREA DISTURBED.
- MNDOT 3881, TYPE 3 SLOW–RELEASE FERTILIZER, 22–5–10, MINIMUM 70% WATER–INSOLUBLE NITROGEN @ 350 LBS PER ACRE.

PERMANENT BASIN SEEDING SHALL BE DONE IN ACCORDANCE WITH MNDOT 2575 & 3876 CONSISTING OF:

- WET BASIN BENCH/(IN)FILTRATION BASIN: MINNESOTA STATE SEED MIXTURE 33–261 (STORMWATER SOUTH AND WEST) AT 35.0 POUNDS PER ACRE.
- ABOVE BASIN BENCH TO HIGH WATER LEVEL: MINNESOTA STATE SEED MIXTURE 33–261 (STORMWATER SOUTH AND WEST) AT 35.0 POUNDS PER ACRE.
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UPLAND/NATURAL AREA SEEDING SHALL BE DONE IN ACCORDANCE TO MNDOT 2575 & 3876; CONSISTING OF:

- MINNESOTA STATE SEED MIXTURE 35–621 (DRY PRAIRIE SOUTHEAST) AT 11.0 POUNDS PER ACRE.
- MULCH SHALL BE MNDOT 3882, TYPE 3 @ 2 TONS PER ACRE OR APPROVED EQUAL AND DISK ANCHORED IN PLACE OR APPROVED EQUAL,
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WETLAND UPLAND BUFFER

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- SEE WETLAND IMPACT & BUFFER PLAN FOR ADDITIONAL INFORMATION.

NOTE:

A MINIMUM OF 36" OF SOD IS REQUIRED TO BE PLACED BEHIND THE BACK OF CURB IN ALL LOCATIONS. WHERE SIDEWALKS AND BIKE TRAILS (IF ANY) ARE LOCATED, ONE ROLL OF SOD IS REQUIRED ON THE OUTSIDE OF THE WALKWAY, AND THE ENTIRE BOULEVARD BETWEEN THE WALKWAY AND CURB WILL BE SODDED. A MINIMUM OF ONE ROLL OF SOD WILL BE PLACED ON EACH SIDE OF TRAILS LOCATED OUTSIDE OF ROAD RIGHT–OF–WAYS (IF ANY).

0 40 80 160

GRAPHIC SCALE IN FEET

BENCH MARK

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00-ENG-125159-SHEET-SEED

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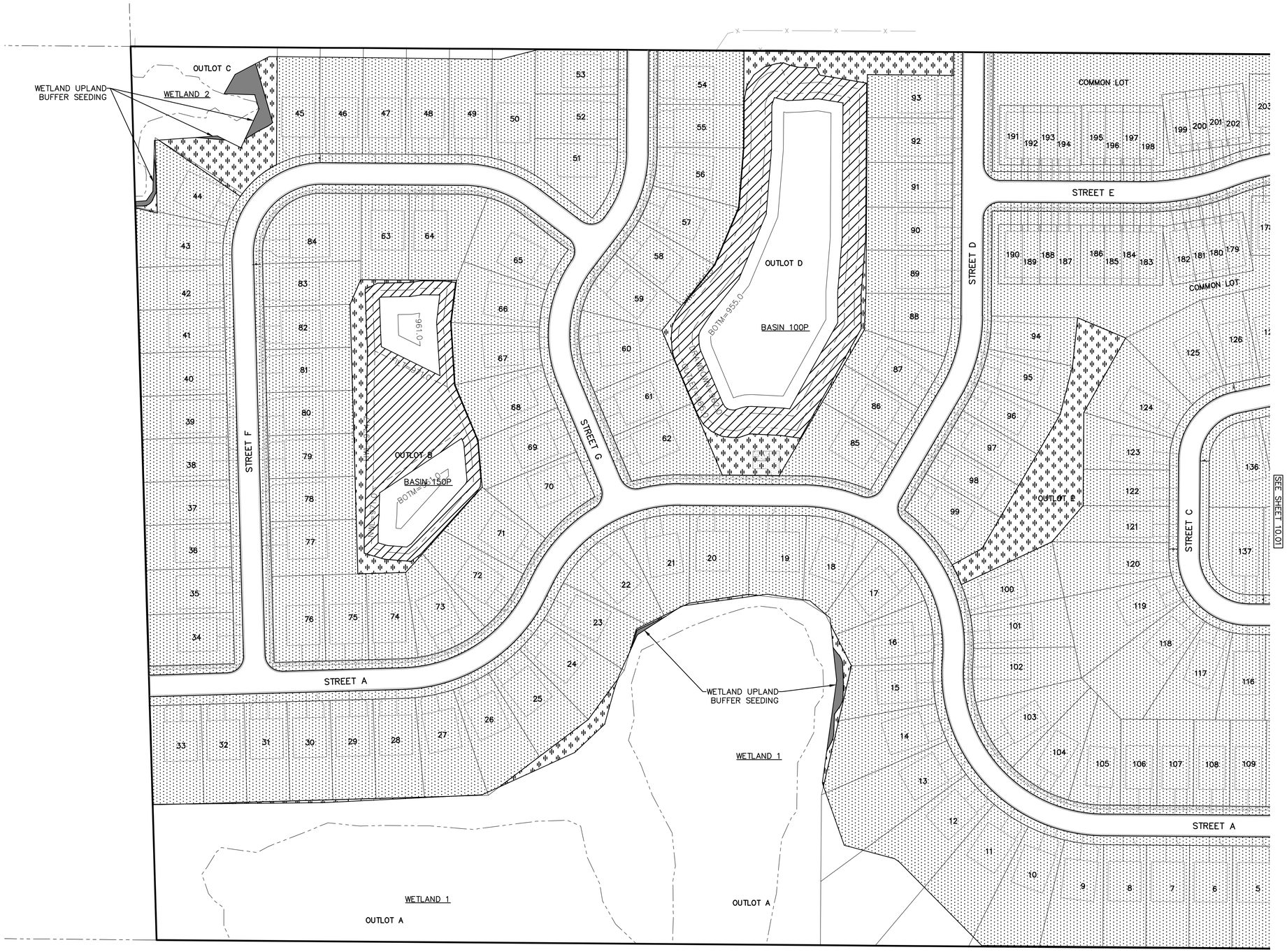
PRELIMINARY SEEDING PLAN

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BURNSVILLE, MN

SEVEN OAKS
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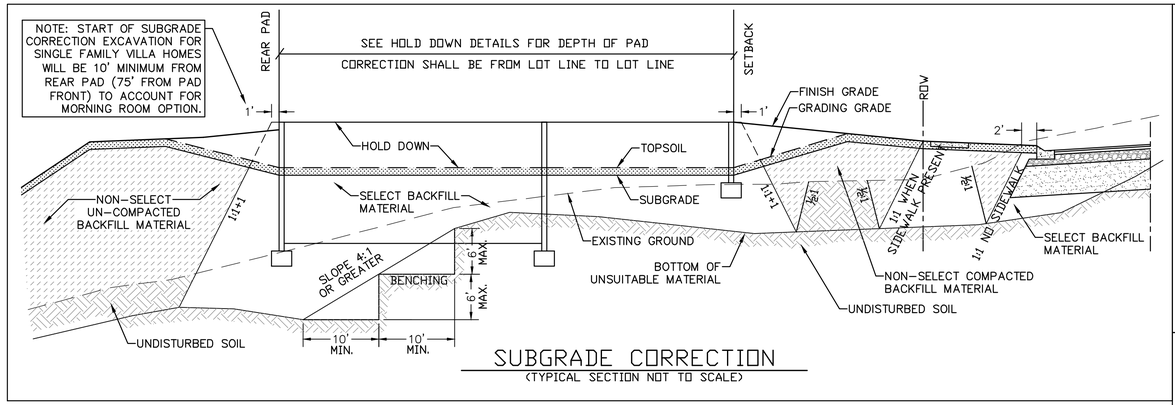
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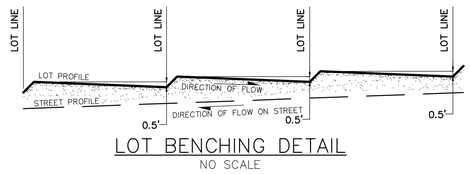
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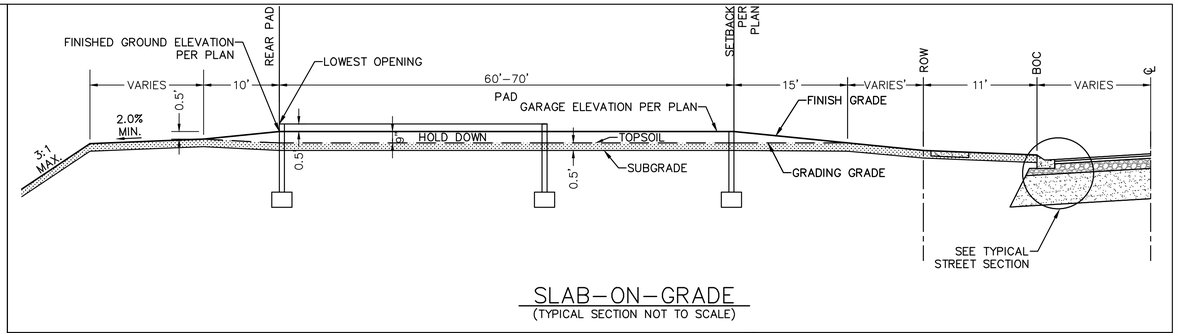
SINGLE FAMILY & TOWNHOMES



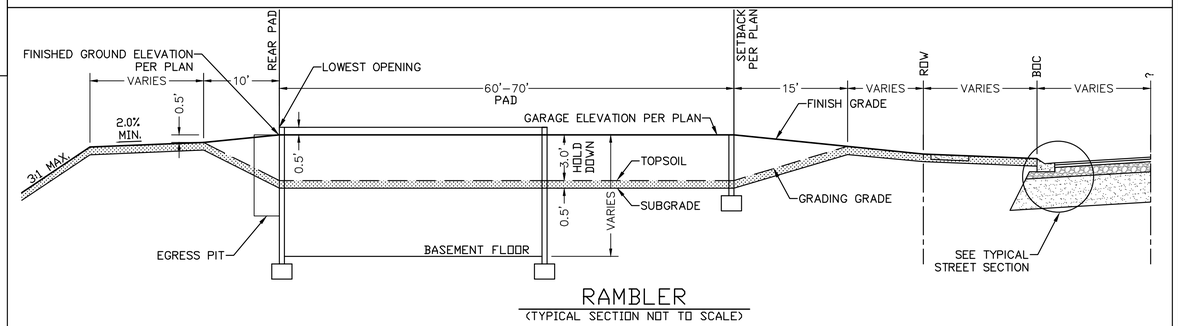
SUBGRADE CORRECTION
(TYPICAL SECTION NOT TO SCALE)



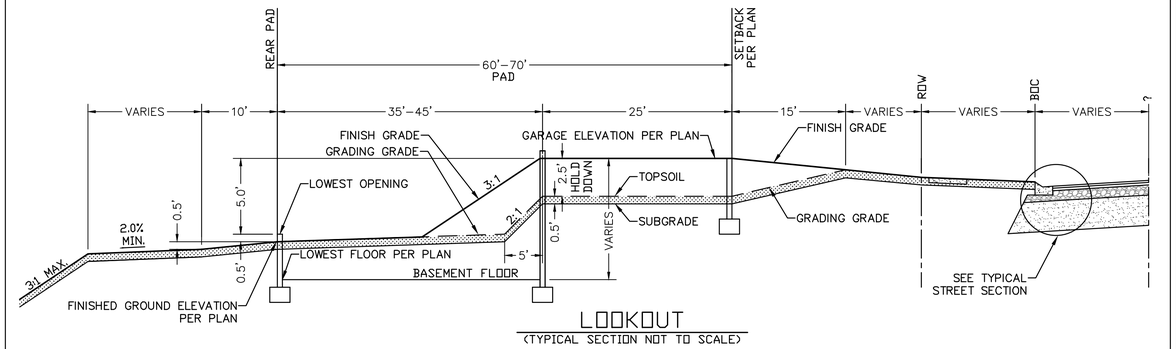
LOT BENCHING DETAIL
NO SCALE



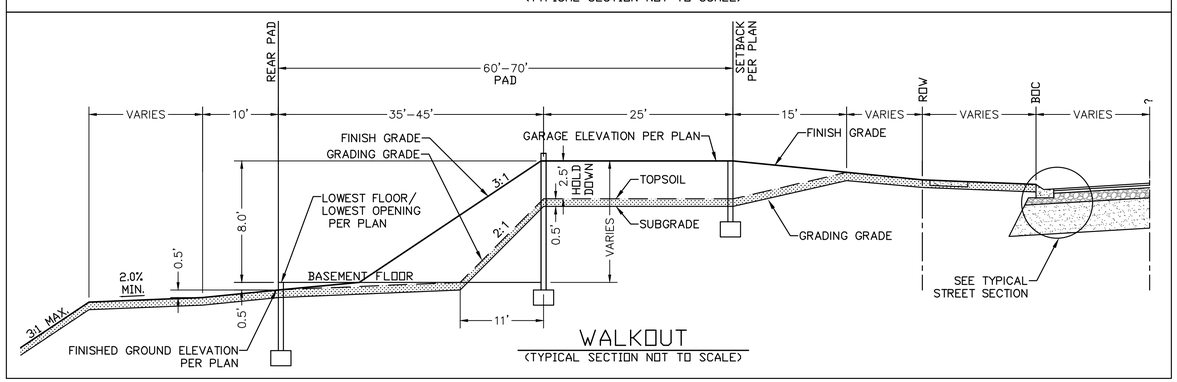
SLAB-ON-GRADE
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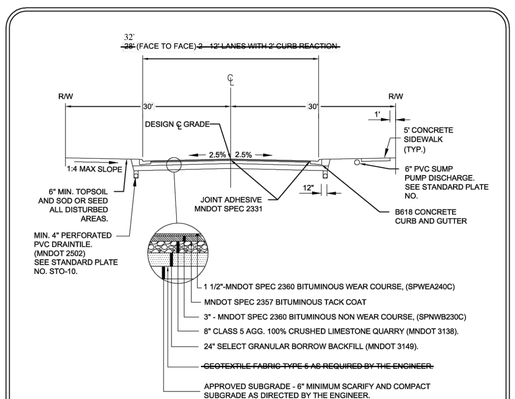
RAMBLER
(TYPICAL SECTION NOT TO SCALE)



LOOKOUT
(TYPICAL SECTION NOT TO SCALE)



WALKOUT
(TYPICAL SECTION NOT TO SCALE)

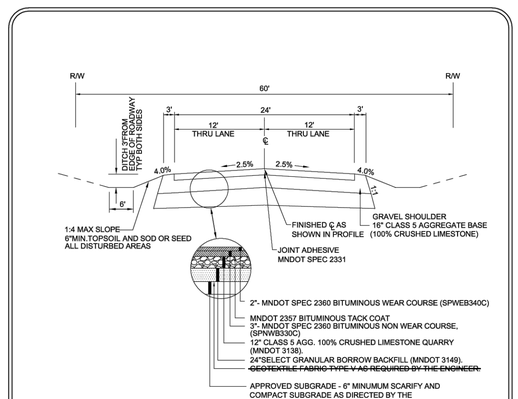


TYPICAL SECTION

NOTE:

1. TYPICAL SECTION SHOWN IS THE MINIMUM RESIDENTIAL STREET REQUIREMENT. SEE SPECIFICATIONS FOR PROJECT SPECIFIC DETAILS.
2. DRAINTILE SHALL BE INSTALLED BEHIND CURB IN ALL SILTY, LOAMY, AND SANDY CLAY SOILS WHEN REAR LOT CORNERS ARE ABOVE STREET CENTERLINE. DRAINTILE TO BE INSTALLED AS REQUIRED TO DRAIN ALL SELECT GRANULAR FILL AREAS. DRAINTILE SHALL BE INSTALLED BEHIND CURB AT LOW POINTS 50' IN EACH DIRECTION (SEE STANDARD PLATE NO. STO-10).
3. STREET SHALL BE DESIGNED FOR A 30 MPH DESIGN SPEED WITH MINIMUM 0.50% AND MAXIMUM OF 6.00% GRADE.
4. THE CITY RESERVES THE RIGHT TO INCREASE THE STREET SECTION BASED ON SOIL CONDITIONS.
5. CONSTRUCT FINAL LIFT OF BITUMINOUS WEAR COURSE ONE FREEZE/THAW CYCLE AFTER UTILITIES ARE INSTALLED.
6. SEE STANDARD PLATE NO. STR-18 FOR BIKE PATH AND SIDEWALK SECTIONS.
7. INSTALL JOINT ADHESIVE (MASTIC) ON ALL COLD LONGITUDINAL CONSTRUCTION JOINTS FOR HOT MIX ASPHALT PAVEMENTS.

CITY OF MINNETRISTA	RESIDENTIAL URBAN STREET SECTION	STANDARD DETAILS Date: JAN. 2022 Revised: STR-04



TYPICAL SECTION

NOTE:

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CITY OF MINNETRISTA	RESIDENTIAL COLLECTOR RURAL STREET SECTION	STANDARD DETAILS Date: JAN. 2022 Revised: STR-07

PIONEER engineering
CIVIL ENGINEERS LAND PLANNERS LAND SURVEYORS LANDSCAPE ARCHITECTS
2422 Enterprise Drive
Mendota Heights, MN 55120
(651) 681-1914
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www.pioneereng.com

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota

Name: Brian N. Molinaro
Reg. No. 47504 Date 06-26-2026

Revisions
1. 10-08-26 City & Watershed Comments

Date	06-26-2026
Designed	MBG
Drawn	MBG/AJA

PRELIMINARY GRADING DETAILS

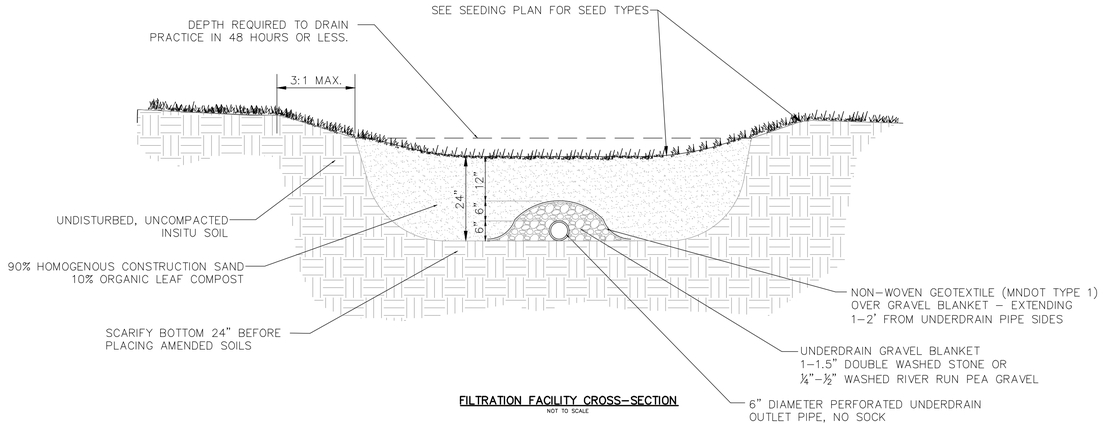
SEVEN OAKS LLC
221 RIVER RIDGE CIRCLE SOUTH, SUITE 100
BURNSVILLE, MN

SEVEN OAKS
MINNETRISTA, MN

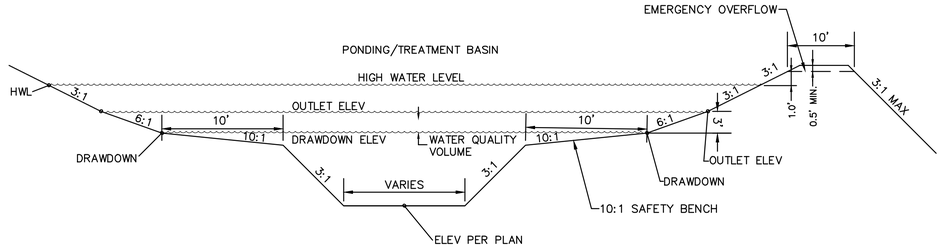
00-ENG-125159-SHEET-GRAD-DTLS

11.01 OF 42

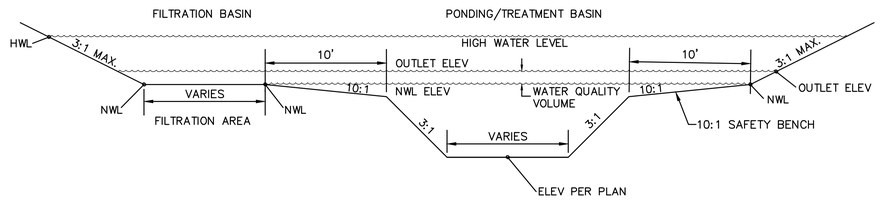
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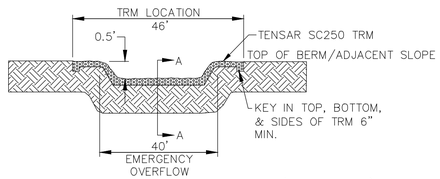
FILTRATION FACILITY CROSS-SECTION
NOT TO SCALE



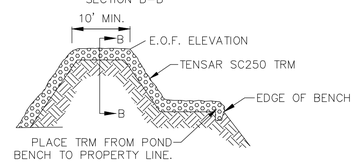
BASIN 100P
STORM WATER RE-USE BASIN SECTION
(TYPICAL SECTION NOT TO SCALE)



BASIN 150P
STORM WATER/FILTRATION BASIN SECTION
(TYPICAL SECTION NOT TO SCALE)



STABILIZED EMERGENCY OVERFLOW DETAIL (BASIN 100P)
SECTION B-B



STABILIZED EMERGENCY OVERFLOW DETAIL (BASIN 100P)
SECTION A-A

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Date	06-26-2026
Designed	MBG
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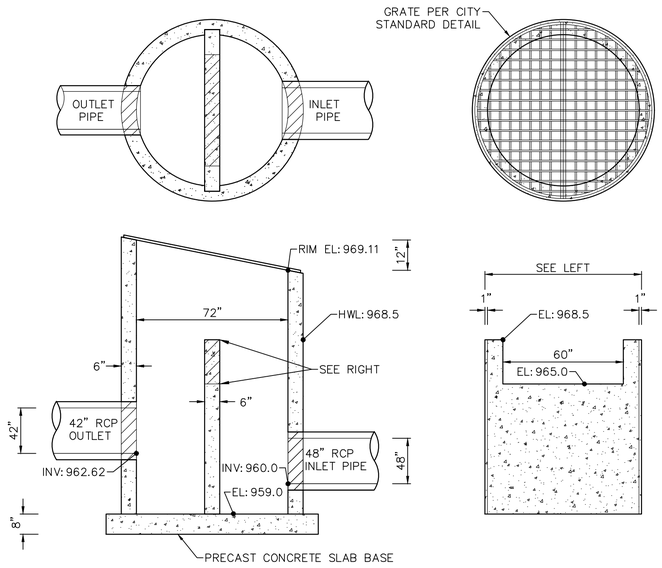
PRELIMINARY GRADING DETAILS

SEVEN OAKS LLC
221 RIVER RIDGE CIRCLE SOUTH, SUITE 100
BURNSVILLE, MN

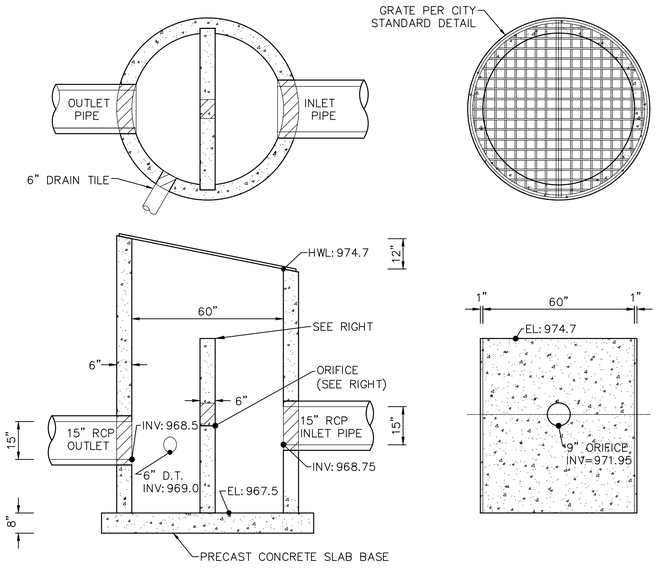
SEVEN OAKS
MINNETRISTA, MN

00-ENG-125159-SHEET-GRAD-DTLS

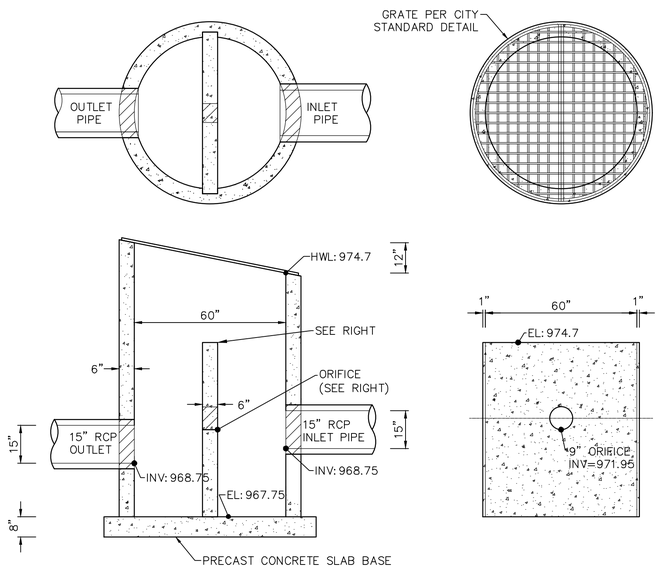
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POND OUTLET CONTROL STRUCTURE OCS–1000
(NOT TO SCALE)



POND OUTLET CONTROL STRUCTURE OCS–1500W
(NOT TO SCALE)



POND OUTLET CONTROL STRUCTURE OCS–1500E
(NOT TO SCALE)

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Reg. No. 47504 Date 06-26-2026

Revisions
1. 10-08-26 City & Watershed Comments

Date	06-26-2026
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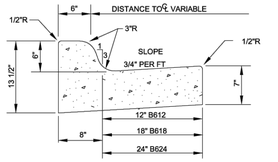
PRELIMINARY OUTLET CONTROL STRUCTURE DETAILS

SEVEN OAKS LLC
221 RIVER RIDGE CIRCLE SOUTH, SUITE 100
BURNSVILLE, MN

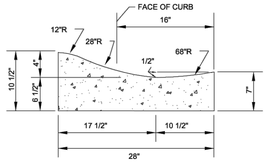
SEVEN OAKS
MINNETRISTA, MN

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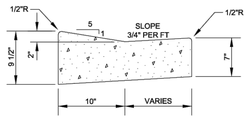
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MnDOT B612
MnDOT B618
MnDOT B624



MOUNTABLE



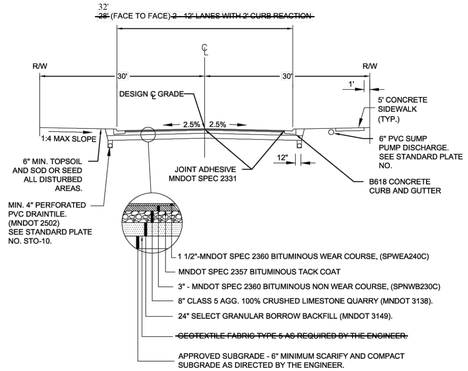
STANDARD SECTION

THROUGH DRIVEWAY

NOTE:

PLACE A "W" STAMP & "S" STAMP ON FACE OF CURB WHERE CURB & GUTTER CROSSES A WATER SERVICE PER CITY PLATE NO. STR-24. (INCIDENTAL)

CURB AND GUTTER	STANDARD DETAILS	
	Date: JAN. 2022	STR-01
	Revised:	

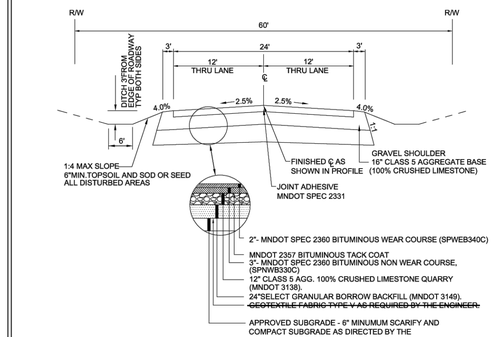


TYPICAL SECTION

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RESIDENTIAL URBAN STREET SECTION	STANDARD DETAILS	
	Date: JAN. 2022	STR-04
	Revised:	

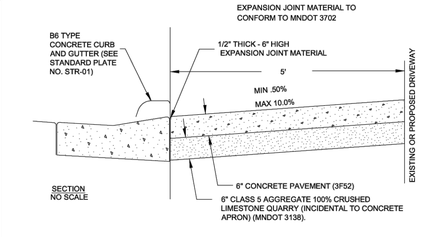


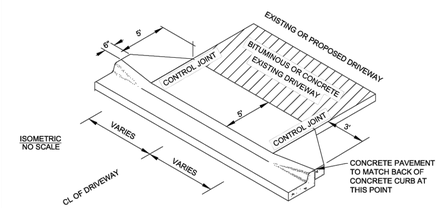
TYPICAL SECTION

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RESIDENTIAL COLLECTOR RURAL STREET SECTION	STANDARD DETAILS	
	Date: JAN. 2022	STR-07
	Revised:	

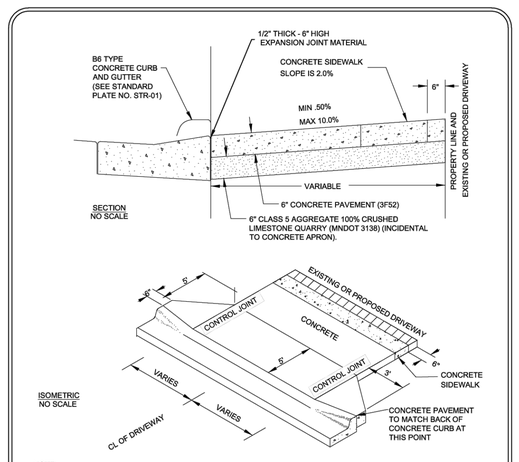




NOTE:

1. CONTROL JOINTS IN CONCRETE CURB NOT TO EXCEED 10' SPACING THROUGH DRIVEWAY SECTION.
2. DRIVEWAY WINGS ARE REQUIRED WITH THE B6 STYLE CURBING. THE MAXIMUM DRIVEWAY WIDTH AT THE CURB AND THE PROPERTY LINE IS 24', PLUS THE 3' WINGS. THE MINIMUM WIDTH OF THE DRIVEWAY AT THE CURB AND PROPERTY LINE IS 12'.

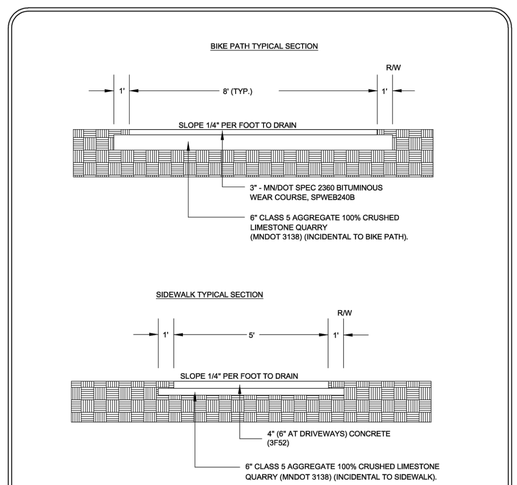
RESIDENTIAL CONCRETE DRIVEWAY APRON (B6 TYPE CURB)	STANDARD DETAILS	
	Date: JAN. 2022	STR-10
	Revised:	



NOTE:

1. CONTROL JOINTS IN CONCRETE CURB NOT TO EXCEED 10' SPACING THROUGH DRIVEWAY SECTION.
2. CONCRETE MUST BE CONSTRUCTED BETWEEN SIDEWALK AND DRIVEWAY APRON.
3. CONCRETE SIDEWALK THROUGH DRIVEWAY IS 6" THICK.
4. DRIVEWAY WINGS ARE REQUIRED WITH THE B6 STYLE CURBING. THE MAXIMUM DRIVEWAY WIDTH AT THE CURB IS 24' PLUS THE 3' WINGS. MAXIMUM WIDTH OF DRIVEWAY AT THE PROPERTY LINE IS ALSO 24'. THE MINIMUM WIDTH OF DRIVEWAY IS 12'.

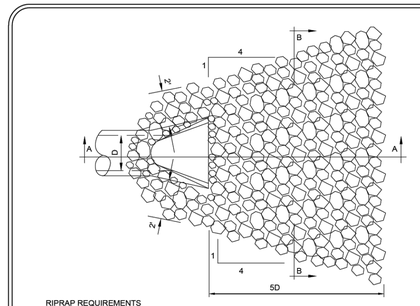
RESIDENTIAL CONCRETE DRIVEWAY APRON WITH SIDEWALK (B6 TYPE CURB)	STANDARD DETAILS	
	Date: JAN. 2022	STR-11
	Revised:	



NOTES:

1. 6" THICK SIDEWALK IS REQUIRED THROUGH DRIVEWAY AREAS. SURVEYOR/DEVELOPER SHALL MARK DRIVEWAY LOCATIONS FOR 6" CONC. ; OTHERWISE ALL SIDEWALK SHALL BE 4" THICK.
2. MAINTAIN A 2' CLEAR ZONE ON EACH SIDE OF THE PATH OR SIDEWALK.

TYPICAL BIKE PATH AND SIDEWALK SECTIONS	STANDARD DETAILS	
	Date: JAN. 2022	STR-18
	Revised:	



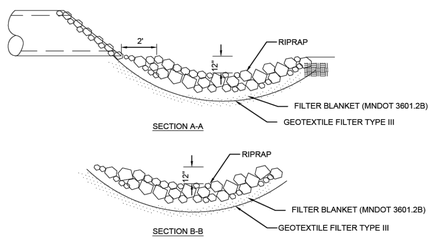
RIPRAP REQUIREMENTS

12" TO 24"	8 to 12 CY CL.3
27" TO 33"	14 to 20 CY CL.3
36" TO 48"	23 to 38 CY CL.3
54" AND UP	62 CY and up CL.4

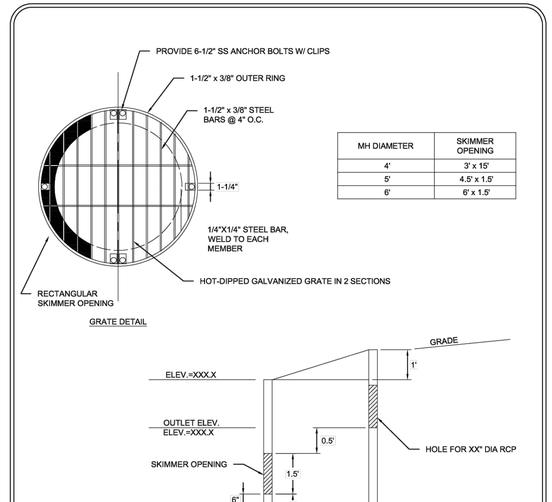
(ONE CUBIC YARD IS APPROXIMATELY 2,800 LBS.)

PLAN

NOTE
FILTER BLANKET REQUIRED UNDER RIPRAP OR 2 LAYERS OF 500X MIRAFI FABRIC OR EQUAL.



RIPRAP AT OUTLETS	STANDARD DETAILS	
	Date: JAN. 2022	STO-09
	Revised:	



MH DIAMETER	SKIMMER OPENING
4'	3' x 15'
5'	4.5' x 1.5'
6'	6' x 1.5'

STORM SEWER SKIMMER STRUCTURE	STANDARD DETAILS	
	Date: JAN. 2022	STO-12
	Revised:	

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Name Brian N. Molinaro
Reg. No. 47504 Date 06-26-2026

Revisions
1. 10-08-26 City & Watershed Comments

Date 06-26-2026
Designed MBG
Drawn MBG/AJA

CITY DETAILS

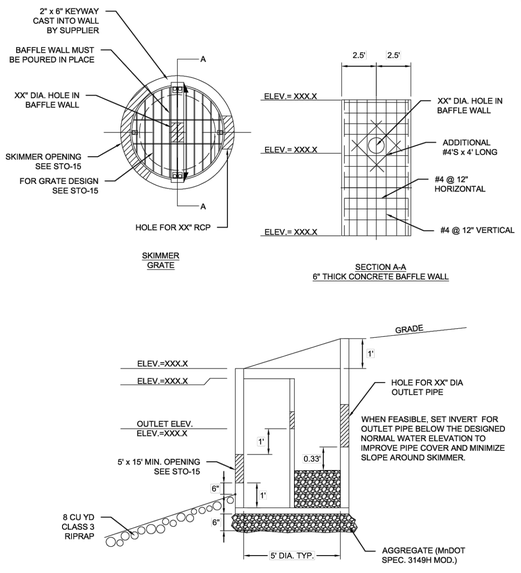
SEVEN OAKS LLC
221 RIVER RIDGE CIRCLE SOUTH, SUITE 100
BURNSVILLE, MN

SEVEN OAKS
MINNETRISTA, MN

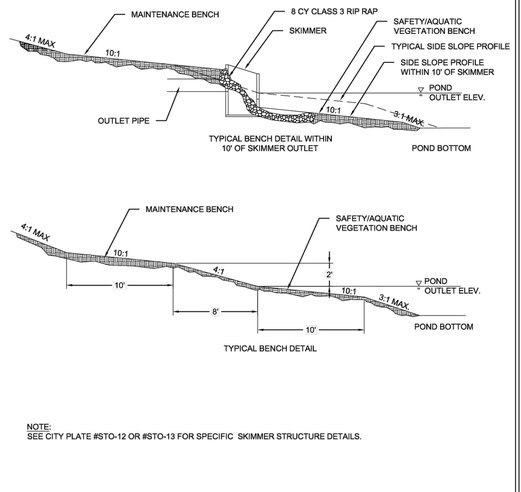
00-ENG-125159-SHEET-DTLS

12.01 OF 42

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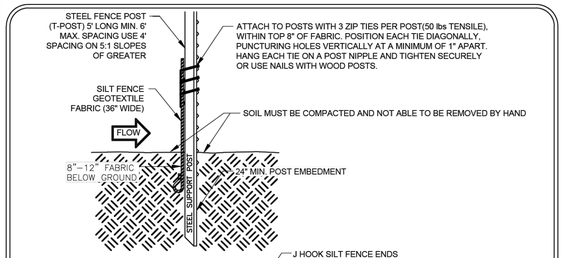


CITY OF MINNETRISTA	SKIMMER STRUCTURE WITH CONCRETE BAFFLE WALL	STANDARD DETAILS Date: JAN. 2022 Revised:	STO-13



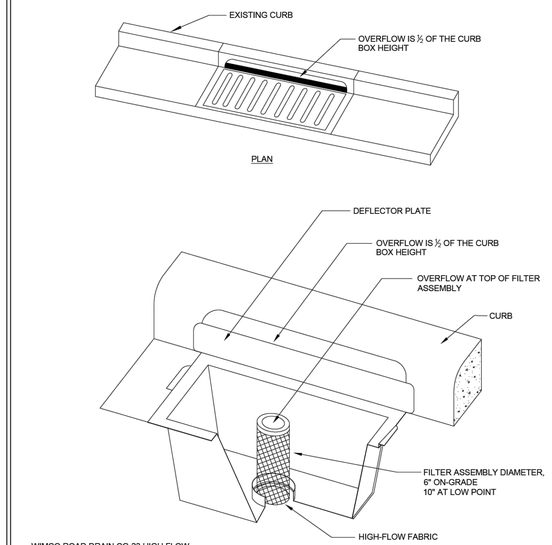
NOTE:
SEE CITY PLATE #STO-12 OR #STO-13 FOR SPECIFIC SKIMMER STRUCTURE DETAILS.

CITY OF MINNETRISTA	TYPICAL BENCH DETAIL	STANDARD DETAILS Date: JAN. 2022 Revised:	STO-14



NOTES:
1. WOOD POST CAN BE USED ON SLOPES 10:1 OR FLATTER, USE A WOOD LATH AND 2 NAILS ON EACH WOOD POST.
2. SEDIMENT SHALL BE REMOVED WHEN IT REACHES 1/3 THE HEIGHT OF THE FENCE OR 9" DEEP MAX.
3. SILT FENCE SHALL BE INSPECTED WEEKLY AND AFTER EACH 0.5" RAIN EVENT IN 24 HOURS. ANY REQUIRED REPAIRS SHALL BE MADE IMMEDIATELY.
4. MONOFILAMENT GEOTEXTILE FABRIC PER MnDOT TABLE 2886-1 MACHINE SLICED.
5. SILT FENCE SHALL FOLLOW AS CLOSE AS POSSIBLE TO A SINGLE CONTOUR LINE.

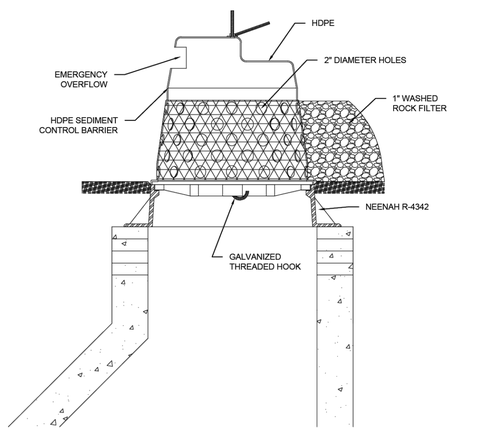
CITY OF MINNETRISTA	SILT FENCE	Special Details Date: JAN. 2022 Revised:	ERO-01



WIMCO ROAD DRAIN CG-23 HIGH FLOW INLET PROTECTION CURB AND GUTTER MODEL OR CITY APPROVED EQUAL.

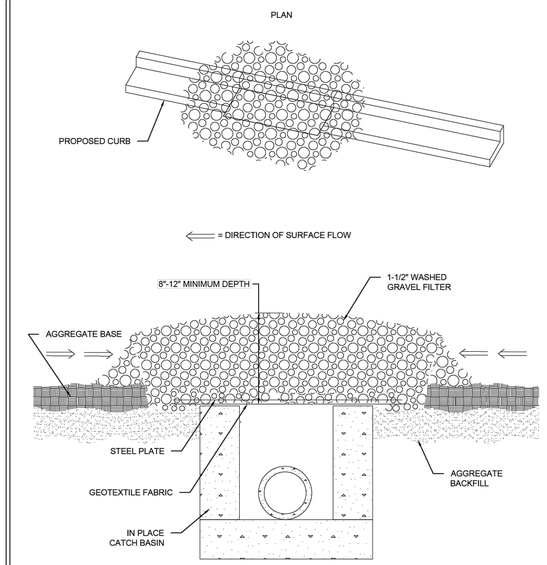
CITY APPROVED INLET PROTECTION

CITY OF MINNETRISTA	INLET PROTECTION-CATCH BASIN INSERT AFTER PAVING	Special Details Date: JAN. 2022 Revised:	ERO-04



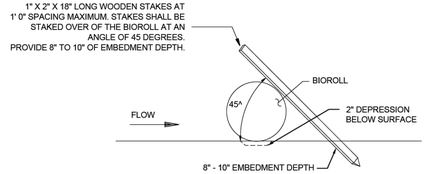
FLOW RATES SHALL COMPARE TO OR EXCEED FLOW RATES OF DITCH GRATE CASTINGS.

CITY OF MINNETRISTA	INLET PROTECTION FOR BEEHIVE OR STOOL GRATE	Special Details Date: JAN. 2022 Revised:	ERO-05

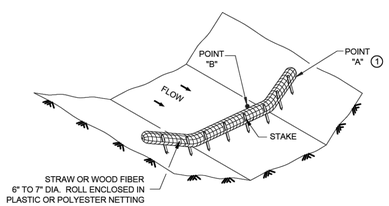


NOTE:
FILTER FABRIC UNDER STEEL PLATE. WASH FILTER ROCK ON TOP. A STEEL PLATE COVERING A MANHOLE IS CONSIDERED INADEQUATE PROTECTION.

CITY OF MINNETRISTA	INLET PROTECTION WASH ROCK FILTER DURING ROAD CONSTRUCTION	Special Details Date: JAN. 2022 Revised:	ERO-06



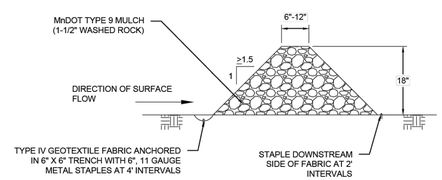
BIOROLL STAKING DETAIL



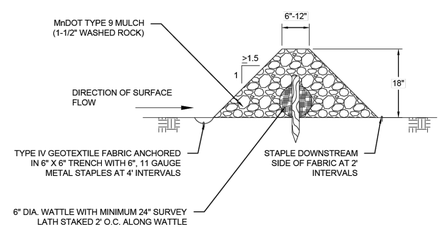
TYPE 2: BIOROLL DITCH CHECK
USE ON ROUGH GRADED AREAS AND AREAS WITH HIGHER FLOW TO SLOW SURFACE WATER DOWN.

CITY OF MINNETRISTA	BIO-LOG STAKING AND DITCH CHECK	Special Details Date: JAN. 2022 Revised:	ERO-08

I. ROCK WEEPER



II. BIO WEEPER



CITY OF MINNETRISTA	DITCH CHECK ROCK/BIO WEEPER	Special Details Date: JAN. 2022 Revised:	ERO-12

PIONEER engineering
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www.pioneereng.com

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota
Name: Brian N. Molinaro
Reg. No. 47504 Date 06-26-2026

Revisions
1. 10-08-26 City & Watershed Comments

Date	06-26-2026
Designed	MBG
Drawn	MBG/AJA

CITY DETAILS

SEVEN OAKS LLC
221 RIVER RIDGE CIRCLE SOUTH, SUITE 100
BURNSVILLE, MN

SEVEN OAKS
MINNETRISTA, MN

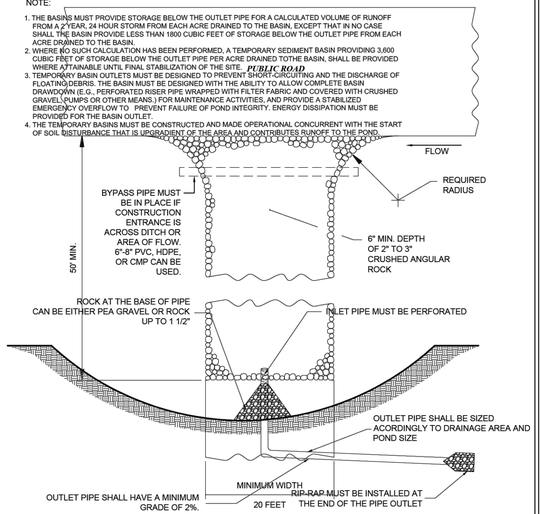
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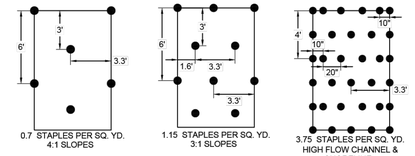
NOTE:

1. THE BASINS MUST PROVIDE STORAGE BELOW THE OUTLET PIPE FOR A CALCULATED VOLUME OF RUNOFF FROM A 2 YEAR, 24 HOUR STORM FROM EACH ACRE DRAINED TO THE BASIN, EXCEPT THAT IN NO CASE SHALL THE BASIN PROVIDE LESS THAN 1800 CUBIC FEET OF STORAGE BELOW THE OUTLET PIPE FROM EACH ACRE DRAINED TO THE BASIN.
2. WHERE NO SUCH CALCULATION HAS BEEN PERFORMED, A TEMPORARY SEDIMENT BASIN PROVIDING 3,600 CUBIC FEET OF STORAGE BELOW THE OUTLET PIPE PER ACRE DRAINED TOTHE BASIN, SHALL BE PROVIDED WHERE ATTAINABLE UNTIL FINAL STABILIZATION OF THE SITE.
3. TEMPORARY BASIN OUTLETS MUST BE DESIGNED TO PREVENT SHORT-CIRCUITING AND THE DISCHARGE OF FLOATING DEBRIS. THE BASIN MUST BE DESIGNED WITH THE ABILITY TO ALLOW COMPLETE BASIN DRAWDOWN (E.G., PERFORATED RISER PIPE WRAPPED WITH FILTER FABRIC AND COVERED WITH CRUSHED GRAVEL, PUMPS OR OTHER MEANS.) FOR MAINTENANCE ACTIVITIES, AND PROVIDE A STABILIZED EMERGENCY OVERFLOW TO PREVENT FAILURE OF POND INTEGRITY. ENERGY DISSIPATION MUST BE PROVIDED FOR THE BASIN OUTLET.
4. THE TEMPORARY BASINS MUST BE CONSTRUCTED AND MADE OPERATIONAL CONCURRENT WITH THE START OF SOIL DISTURBANCE THAT IS UPGRADIENT OF THE AREA AND CONTRIBUTES RUNOFF TO THE POND.



TEMPORARY SEDIMENTATION BASIN WITH ONE PIPE

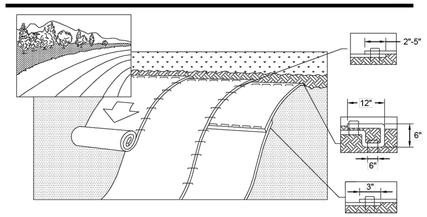
Special Details
Date: JAN. 2022
Revised:
ERO-18



0.7 STAPLES PER SQ. YD. 4:1 SLOPES

1.15 STAPLES PER SQ. YD. 3:1 SLOPES

3.75 STAPLES PER SQ. YD. HIGH FLOW CHANNEL & SHORELINE



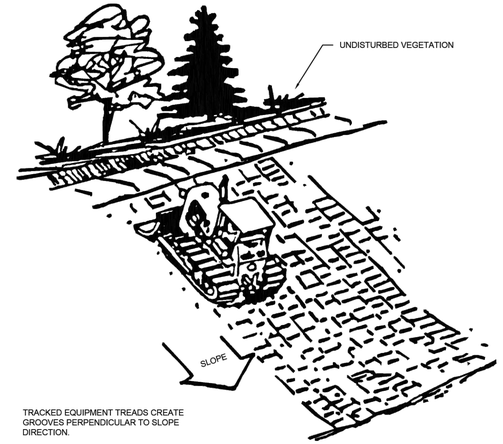
NOTES:

1. PREPARE SOIL BEFORE INSTALLING BLANKETS, TO A SMOOTH GRADE SO THAT BLANKET HAS DIRECT CONTACT WITH SOILS, INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED.
2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE BLANKET IN A 6" (15cm) DEEP X 6" (15cm) WIDE TRENCH WITH APPROXIMATELY 12" (30cm) OF BLANKET EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE BLANKET WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30cm) APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" (30cm) PORTION OF BLANKET BACK OVER SEED AND COMPACTED SOIL. SECURE BLANKET OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" (30cm) APART ACROSS THE WIDTH OF THE BLANKET.
3. ROLL THE BLANKETS (A.) DOWN OR (B.) HORIZONTALLY ACROSS THE SLOPE. BLANKETS WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL BLANKETS MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING OPTIONAL DOT SYSTEM , STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
4. THE EDGES OF PARALLEL BLANKETS MUST BE STAPLED WITH APPROXIMATELY 2"-5" (5cm-12.5cm) OVERLAP DEPENDING ON BLANKET TYPE. TO ENSURE PROPER SEAM ALIGNMENT, PLACE THE EDGE OF THE OVERLAPPING BLANKET (BLANKET BEING INSTALLED ON TOP) EVEN WITH THE COLORED SEAM STITCH ON THE PREVIOUSLY INSTALLED BLANKET.
5. CONSECUTIVE BLANKETS SPLICED DOWN THE SLOPE MUST BE PLACED END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 3" (7.5cm) OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" (30cm) APART ACROSS ENTIRE BLANKET WIDTH.

NOTE:
*IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" (15cm) MAY BE NECESSARY TO PROPERLY SECURE THE BLANKETS.

EROSION CONTROL BLANKET INSTALLATION

Special Details
Date: JAN. 2022
Revised:
ERO-19



TRACKED EQUIPMENT TREADS CREATE GROOVES PERPENDICULAR TO SLOPE DIRECTION.

NOTE:
ALL SLOPES WITH A GRADE EQUAL TO OR STEEPER THAN 3:1 REQUIRE SLOPE TRACKING. SLOPES WITH A GRADE MORE GRADUAL THAN 3:1 REQUIRE SLOPE TRACKING IF THE STABILIZATION METHOD IS EROSION CONTROL BLANKET OR HYDROMULCH.

SLOPE TRACKING

Special Details
Date: JAN. 2022
Revised:
ERO-21

TABLE 2575-3
RAPID STABILIZATION

METHOD	MATERIALS
1	TYPE 1 MULCH PLACED AT A RATE OF 2 TONS PER ACRE (4.5 TONNE PER ha) WITH DISC ANCHORING
2	TYPE 3 MULCH PLACED AT A RATE OF 1.5 TON PER ACRE (3.4 TONNE PER ha). 3884, TYPE HYDRAULIC MULCH, PLACED AT A RATE OF 750 LB/ACRE (835 kg/ha)
3	3884, TYPE HYDRAULIC MULCH, PLACED AT 350 LB PER 1000 GALLONS OF SLURRY MIXTURE (159 kg PER 3.8 CU. METERS) OF SLURRY MIXTURE. SEED MIXTURE 22-111 PLACED AT A RATE OF 10 LB PER 1,000 GALLONS (4.5 kg PER 3.8 CU. METERS) OF SLURRY MIX. TYPE 3 SLOW RELEASE FERTILIZER 10-10-10 PLACED AT A RATE OF 50 LB PER 1000 GALLONS (22.7 kg PER 3.8 CU. METERS) OF SLURRY MIX. WATER PLACED AT A RATE OF 875 GALLONS PER 1,000 GALLONS (3.3 CU. METERS PER 3.8 CU. METERS) OF SLURRY MIX. APPLY MIXTURE AT A RATE OF 6,000 GALLONS PER ACRE (56 CU. METERS PER ha).
4	CATEGORY 3 EROSION CONTROL BLANKET. SEED MIXTURE 22-111 PLACED AT A RATE OF 2 LB PER 100 SQ. YD. (1.1 kg PER 100 CU. METERS). TYPE 3 SLOW RELEASE FERTILIZER 10-10-10 PLACED AT A RATE OF 8 LB PER 100 SQ. YD. (3.6 kg PER 84 SQ. METERS).
5	RIP RAP CLASS II. GEOTEXTILE TYPE III.

RAPID STABILIZATION METHOD 1-5

Special Details
Date: JAN. 2022
Revised:
ERO-24

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www.pioneereng.com

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota
Name: Brian N. Molinaro
Reg. No. 47504 Date 06-26-2026

Revisions
1. 10-08-26 City & Watershed Comments

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Drawn	MBG/AJA

CITY DETAILS

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221 RIVER RIDGE CIRCLE SOUTH, SUITE 100
BURNSVILLE, MN

SEVEN OAKS
MINNETRISTA, MN

00-ENG-125159-SHEET-DTLS

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STORMWATER POLLUTION PREVENTION PLAN (SWPPP)

TO COMPLY WITH THE GENERAL STORMWATER PERMIT FOR CONSTRUCTION ACTIVITY

THE FULL STORMWATER MANAGEMENT PLAN IS A SEPARATE DOCUMENT AVAILABLE UPON REQUEST

CONSTRUCTION ACTIVITY INFORMATION

PROJECT NAME: SEVEN OAKS
PROJECT LOCATION:
530 FEET NORTH OF
MN HWY 7 & BUCK LAKE ROAD
MINNETRISTA, MINNESOTA 55388
HENNEPIN COUNTY
LATITUDE/LONGITUDE: 44.909774, -93.765277

TOTAL PROJECT AREA DISTURBED: 58.7 ACRES
TOTAL EXISTING IMPERVIOUS AREA: 0.0 ACRES
TOTAL PROPOSED IMPERVIOUS AREA: 23.0 ACRES

RECEIVING WATERS:
ADJACENT WETLANDS

DATES OF CONSTRUCTION:
CONSTRUCTION START DATE: MONTH 1, 202Y **EST. COMPLETION DATE:** MONTH 1, 202X

CONTACT INFORMATION

PROJECT OWNER
SEVEN OAKS LLC
CHRISTOPHER CONTRERAS – PRESIDENT
221 RIVER RIDGE CIRCLE SOUTH, SUITE 100
BURNSVILLE, MN 55337
PHONE 952-898-0230 [EXT. 209]
EMAIL: CCONTRERAS@BRANDLANDERSON.COM

CONTRACTOR:
XXCOMPANYXX
FIRST LASTNAME – TITLE
XXX HIGHWAY
City, State Zip
PHONE XXX-XXX-XXXX
EMAIL: XXX@XXXXXXXXXX.COM

GENERAL CONSTRUCTION PROJECT INFORMATION

THE CONSTRUCTION OF NEW ROADWAYS AND 214 LOTS FOR RESIDENTIAL DEVELOPMENT. THIS CONSTRUCTION WILL COMPLETE GRADING, INSTALLATION OF SANITARY SEWER, WATERMAIN, STORM SEWER, CONCRETE CURB AND GUTTER, BITUMINOUS SURFACING, STREET LIGHTING, LANDSCAPING, EROSION CONTROL, AND TURF ESTABLISHMENT.

BASED ON THE SOIL BORINGS THAT WERE RETRIEVED FROM THE SITE, SOILS ENCOUNTERED ON SITE ARE LEAN CLAY, SANDY LEAN CLAY, CLAYEY SAND, POORLY GRADED SAND WITH SILT, SILTY SAND, AND SILTY CLAY.

GENERAL SITE INFORMATION (III.A)

1. THE PROJECT IS REQUIRED TO MEET THE CONSTRUCTION STORMWATER REQUIREMENTS FOR THE NPDES GENERAL STORMWATER PERMIT AND MNDOT SPEC. 1717, 2573, AND 2575.
2. THE CONTRACTOR SHALL INSTALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES IN ACCORDANCE WITH MNDOT GENERAL CONDITIONS 2573 TO BE INSPECTED BY THE CITY PRIOR TO STARTING ANY CONSTRUCTION OPERATION THAT MAY CAUSE ANY SEDIMENTATION OR SILTATION AT THE SITE.
3. LOCATIONS, TYPE AND QUANTITY OF TEMPORARY AND PERMANENT EROSION CONTROL MEASURES CAN BE FOUND WITHIN THE CONSTRUCTION PLANS.
4. THE PROJECT IS NOT LOCATED WITHIN 1 MILE AND FLOWS TO AN IMPAIRED WATER BODY. THEREFORE, THE PROJECT WILL NOT NEED TO STABILIZE ALL EXPOSED SOILS NO LATER THAN 7 DAYS. DITCHES OR RAVINES THROUGHOUT THE PROJECT THAT ARE DISTURBED SHALL BE STABILIZED WITHIN 24 HOURS.
5. THE PROJECT IS NOT LOCATED WITH 1 MILE AND FLOWS TO AN IMPAIRED WATER BODY. THEREFORE, TEMPORARY SEDIMENT BASINS ARE NEEDED FOR DRAINAGE AREAS OF 10 ACRES OR MORE FLOWING TO A COMMON LOCATION.
6. THE CONTRACTOR SHALL INSTALL ADDITIONAL BMP'S AS NECESSARY TO PREVENT SEDIMENT TRANSPORT PER PERMIT REQUIREMENTS
7. INLET PROTECTION, SILT FENCE AND BIOROLLS SHALL BE INSTALLED IN THE FIELD AS SHOWN ON THE PLANS AS DIRECTED BY THE ENGINEER.
8. PERMIT COVERAGE FOR THIS PROJECT CANNOT BE ISSUED UNTIL ALL OF THE REQUIREMENTS OF SECTION 22 OF THE GENERAL STORMWATER PERMIT WITH REGARDS TO WETLAND PERMITTING, DECISIONS, AND MITIGATIVE SEQUENCING HAVE BEEN FINALIZED AND DOCUMENTED.

THE INTENDED SEQUENCING OF MAJOR CONSTRUCTION ACTIVITIES IS AS FOLLOWS:
1. INSTALL STABILIZED ROCK CONSTRUCTION ENTRANCE
2. INSTALLATION OF SILT FENCE AROUND SITE
3. INSTALL DOUBLE SILT FENCE AROUND WETLAND AREAS
4. INSTALL ORANGE CONSTRUCTION FENCING AROUND INFILTRATION AREAS.
5. CLEAR AND GRUB FOR TEMPORARY SEDIMENT BASIN/POND INSTALL.
6. CONSTRUCT TEMP PONDS – CAN USE PROPOSED BASINS AS TEMP PONDS
7. CLEAR AND GRUB REMAINDER OF SITE
8. STRIP AND STOCKPILE TOPSOIL
9. ROUGH GRADING OF SITE
10. STABILIZE DENUDED AREAS AND STOCKPILES
11. INSTALL SANITARY SEWER, WATER MAIN, STORM SEWER AND SERVICES
12. INSTALL SILT FENCE/INLET PROTECTION AROUND CB'S
13. INSTALL STREET SECTION
14. INSTALL CURB AND GUTTER
15. BITUMINOUS ON STREETS
16. INSTALL SMALL UTILITIES (GAS, ELECTRIC, PHONE, CABLE, ETC.)
17. FINAL GRADE BOULEVARD, INSTALL SEED AND MULCH
18. REMOVE ACCUMULATED SEDIMENT FROM BASIN/POND
19. FINAL GRAD POND/INFILTRATION BASINS (DO NOT COMPACT SOILS IN INFILTRATION AREAS.)
20. WHEN ALL CONSTRUCTION ACTIVITY IS COMPLETE AND THE SITE IS STABILIZED BY EITHER SEED OR SOD/LANDSCAPING, REMOVE SILT FENCE AND RESEED AREAS DISTURBED BY THE REMOVAL.

ENVIRONMENTALLY SENSITIVE AREAS:
WETLANDS – THERE ARE IMPACTS TO WETLANDS PER SECTION 22 OF THE PERMIT. SEE ATTACHED WETLAND IMPACT & BUFFER PLAN, AND SITE PLAN FOR IMPACTS AND MITIGATION. THE APPROVED WETLANDS PERMIT IS ON FILE WITH THE OWNER.

SPECIAL AND IMPAIRED WATERS – NONE IMPAIRMENT(S): N/A

TMDL – N/A

SCIENTIFIC OR NATURAL AREAS – THERE ARE NO **SNA WITHIN 1 MILE OF THE PROJECT.**

KARST AREA – THE PROJECT IS NOT **LOCATED WITHIN A KARST AREA.**

CALCAREOUS FENS – THE PROJECT DOES NOT **DISCHARGE TO A FEN.**

TRAINING (21.1)

THE CONTRACTOR SHALL ENSURE THAT THE TRAINING REQUIREMENTS IN PART 21.1 OF THE GENERAL STORMWATER PERMIT FOR CONSTRUCTION ACTIVITY ARE COMPLIED WITH. THE INDIVIDUALS TRAINED WILL BE RECORDED IN THE SWPPP BEFORE THE START OF CONSTRUCTION OR AS SOON AS PERSONNEL FOR THE PROJECT HAVE BEEN DETERMINED. PROVIDE INFORMATION IN THE SPACE PROVIDED BELOW FOR ADDITIONAL PERSONNEL ON THE PROJECT AS REQUIRED BY THE PERMIT.

SWPPP DESIGNER **COMPANY** **CERTIFICATION**

SWPPP INSTALLER

SWPPP INSPECTOR

PERMANENT STORMWATER MANAGEMENT SYSTEM (15.1)

1. THE PROJECT WILL CREATE A NEW CUMULATIVE IMPERVIOUS SURFACE GREATER THAN OR EQUAL TO ONE ACRE. THE PROJECT PROPOSES TO CONSTRUCT A STORMWATER TREATMENT SYSTEM TO COLLECT RUNOFF TO BE DISCHARGED OFFSITE. TREATMENT FOR THE RUNOFF IS TO BE EXECUTED BY THE PROPOSED STORMWATER MANAGEMENT SYSTEM. CALCULATIONS DETAILING THE BASINS ARE AVAILABLE UPON REQUEST.

BMP SELECTION & STORMWATER MANAGEMENT (7.1)

1. THE CONTRACTOR SHALL INSTALL AND MAINTAIN THE BMPS IDENTIFIED IN THIS PLAN IN AN APPROPRIATE AND FUNCTIONAL MANNER AND IN ACCORDANCE WITH RELEVANT MANUFACTURER SPECIFICATIONS AND ACCEPTED ENGINEERING PRACTICES TO MINIMIZE THE DISCHARGE OF POLLUTANTS IN STORMWATER FROM CONSTRUCTION ACTIVITIES. THESE BMPS SHALL BE INSPECTED BY THE CITY.
2. THE CONTRACTOR SHOULD CONSTRUCT TEMPORARY OR PERMANENT WET SEDIMENTATION BASINS IDENTIFIED IN THIS PLAN (WHEN REQUIRED, SEE SECTION 14 AND 15) AS A FIRST STEP IN CONSTRUCTION AND STORMWATER ROUTED TO THESE.
3. THE CONTRACTOR MUST PHASE CONSTRUCTION SO TO LIMIT DISTURBED LAND TO AREAS THAT CAN BE EFFECTIVELY INSPECTED AND MAINTAINED. PER SECTION 11 OF THE PERMIT.
4. ALL EROSION CONTROL NETTING USED ON THE SITE AS PART OF THE SOIL STABILIZATION TECHNIQUES, ARE ENCOURAGED TO USE PRODUCTS THAT HAVE BEEN SHOWN TO MINIMIZE IMPACTS ON WILDLIFE. THE U.S. FISH & WILDLIFE SERVICE RECOMMENDS USING TYPES OF NETTING PRACTICES THAT ARE CONSIDERED "WILDLIFE FRIENDLY," INCLUDING THOSE THAT USE NATURAL FIBER OR 100 PERCENT BIODEGRADABLE MATERIALS AND THAT USE A LOOSE WEAVE WITH A NON-WELDED, MOVABLE JOINTED NETTING.

EROSION PREVENTION PRACTICES (8.1)

1. THE CONTRACTOR SHALL PHASE THE WORK TO LIMIT THE OVERALL DISTURBANCE OF THE PROJECT AT ANY GIVEN TIME. NATURAL VEGETATIVE BUFFERS SHALL BE MAINTAINED BETWEEN THE WORK LIMITS AND ALL SURFACE WATERS OR WETLANDS THROUGHOUT THE COURSE OF CONSTRUCTION.
2. THE AREAS NOT TO BE DISTURBED WILL BE DELINEATED THROUGH THE USE OF SILT FENCE, BIOROLLS AND CONSTRUCTION STAKING.
3. THE CONTRACTOR SHALL MAINTAIN A NATURAL, VEGETATED BUFFER ADJACENT TO THE WETLANDS WHEREVER POSSIBLE DURING CONSTRUCTION.
4. TEMPORARY COVER SHALL BE PROVIDED USING TEMPORARY SEED WITH EROSION CONTROL BLANKET OR HYDROMULCH.
5. PERMANENT COVER SHALL BE PROVIDED AS DETAILED ON THE CONSTRUCTION PLANS USING SEED WITH EROSION CONTROL BLANKET OR HYDROMULCH. PERMITTEES MUST NOT USE MULCH, HYDROMULCH, TACKIFIER, POLYACRYLAMIDE OR SIMILAR EROSION PREVENTION PRACTICES WITHIN ANY PORTION OF THE NORMAL WETTED PERIMETER OF A TEMPORARY OR PERMANENT DRAINAGE DITCH OR SWALE SECTION WITH A CONTINUOUS SLOPE OF GREATER THAN 2 PERCENT
6. THE CONTRACTOR IS REQUIRED TO PROVIDE ANY ADDITIONAL EROSION PREVENTION MEASURES NECESSARY FOR CONFORMANCE TO THE NPDES CONSTRUCTION PERMIT THROUGHOUT CONSTRUCTION.
7. STABILIZATION TIME FRAMES – INITIATE STABILIZATION IMMEDIATELY WHEN CONSTRUCTION TEMPORARILY OR PERMANENTLY CEASES ON A PORTION OF THE SITE. COMPLETE STABILIZATION WITHIN THE TIME FRAMES LISTED.

7.1.	LAST 200 LINEAL FEET OF DITCH OR SWALE	24 HOURS OF CONNECTION TO SURFACE WATERS
7.2.	REMAINING DITCH OR SWALE	14 DAYS
7.3.	PIPE AND CULVERT OUTLETS	24 HOURS
7.4.	EXPOSED SOIL AND STOCKPILES	14 DAYS

SEDIMENT CONTROL PRACTICES (9.1)

1. SILT FENCE AND ALL OTHER DOWN GRADIENT PERIMETER CONTROL DEVICES SHALL BE INSTALLED AND INSPECTED BY THE CITY PRIOR TO ANY LAND DISTURBANCE ACTIVITY.
2. EROSION CONTROL BLANKET AND BIOROLLS SHALL BE PLACED WITHIN THE DITCH BOTTOMS WITHIN 24 HOURS AFTER FINE GRADING.
3. PRIOR TO STOCKPILING SOIL, SEDIMENT CONTROLS AT THE BASE OF THE STOCKPILE NED TO BE INSTALLED. STOCKPILES LOCATED ON SITE SHALL BE SEEDED, MULCHED OR BLANKETED AND HAVE SILT FENCE OR A BMP APPROVED BY THE ENGINEER IN THE FIELD PLACED AROUND THE BASE OF THE STOCKPILE.
4. MAINTAIN A 50-FOOT NATURAL BUFFER DOWN GRADIENT OF THE SITE OR REDUNDANT SEDIMENT CONTROLS IF BUFFER IS NOT FEASIBLE, WHEN THE CONSTRUCTION IS WITHIN 50 FEET OF A SURFACE WATER.
5. MINIMIZE SOIL COMPACTION BY NOT DISTURBING AREAS OUTSIDE OF THE CONSTRUCTION LIMITS. DELINEATE AREAS NOT TO BE DISTURBED PRIOR TO STARTING GROUND DISTURBING ACTIVITIES. PRESERVE ALL NATURAL BUFFERS SHOWN ON THE PLANS. NO HEAVY CONSTRUCTION EQUIPMENT ALLOWED IN FILTRATION OR INFILTRATION AREAS PER PLANS.
6. CONTRACTOR SHALL USE STREET SWEEPING IN ADDITION TO VEHICLE TRACKING BMPS IF THESE BMPS ALONE ARE NOT ADEQUATE TO PREVENT SEDIMENT TRACKING ONTO THE STREET.
7. ANY SEDIMENT CONTROL PRACTICE USING SOIL IMPLEMENTED BY THE CONTRACTOR SHALL BE TEMPORARILY OR PERMANENTLY STABILIZED WITHIN 24 HOURS OF INSTALLATION.

DEWATERING AND BASIN DRAINING (10.1)

1. IT IS POSSIBLE THAT GROUNDWATER COULD BE ENCOUNTERED AND DEWATERING COULD BE REQUIRED ON THIS PROJECT. IF DEWATERING IS NECESSARY, THE CONTRACTOR SHALL SUBMIT A PLAN TO THE ENGINEER FOR ACCEPTANCE.
2. IF DEWATERING IS NECESSARY, IT MUST NOT CAUSE NUISANCE CONDITIONS IN SURFACE WATERS FROM DEWATERING AND BASIN DRAINING DISCHARGE.
3. IF THE DEWATERING OR PUMPING PROCESS IS TURBID OR CONTAINS SEDIMENT LADEN WATER, IT MUST BE TREATED THROUGH THE USE OF A SEDIMENT CONTROL (TRAPS, VEGETATIVE FILTER STRIPS, FLOCCULANTS OR OTHER SEDIMENT REDUCING MEASURES) SUCH THAT DISCHARGE DOES NOT VISIBLY CONTAIN MORE TURBIDITY THAN THE RECEIVING WATER.
4. WHEN POSSIBLE, USE WELL VEGETATED (EG. GRASSY OR WOODED) UPLAND AREAS ON THE SITE TO INFILTRATE DEWATERING WATERS BEFORE DISCHARGED OFF SITE.
5. DISCHARGE DIRECTLY INTO A SURFACE WATER OR WETLAND IS NOT PERMITTED. RECEIVING WATERS CANNOT BE USED AS PART OF THE TREATMENT AREA.
6. ALL CONSTRUCTION DEWATERING SHALL BE DISCHARGED TO AN APPROVED LOCATION FOR TREATMENT PRIOR TO DISCHARGE TO THE RECEIVING WATER. THE DEWATERING PLAN SHALL BE DEVELOPED AND SUBMITTED TO THE ENGINEER FOR REVIEW IN ACCORDANCE WITH MNDOT SPEC. 1717.2E.
7. CONDITIONS OF THE SITE MAY REQUIRE A PERMIT TO BE OBTAINED FROM THE MINNESOTA DEPARTMENT OF NATURAL RESOURCES FOR WATER APPROPRIATIONS. THE CONTRACTOR WILL BE RESPONSIBLE FOR OBTAINING ANY NECESSARY PERMITS FOR DEWATERING.
8. THE DISCHARGE POINT OF DEWATERING WATERS SHOULD BE VISUALLY INSPECTED AND PHOTOGRAPHED AT THE BEGINNING OF OPERATION AND AT LEAST ONCE EVERY 24 HOURS OF OPERATION TO ENSURE EXCESS TURBIDITY IS NOT BEING RELEASED TO THE RECEIVING WATERS.'
9. IF NUISANCE CONDITIONS RESULT FROM THE DISCHARGE, PERMITTEES MUST CEASE DEWATERING IMMEDIATELY AND CORRECTIVE ACTIONS MUST OCCUR BEFORE DEWATERING IS RESUMED. NUISANCE CONDITIONS INCLUDES, BUT IS NOT LIMITED TO, A SEDIMENT PLUME IN THE DISCHARGE OR THE DISCHARGE APPEARS CLOUDY, OR OPAQUE, OR HAS A VISIBLE CONTRAST, OR HAS A VISIBLE OIL FILM, OR HAS AQUATIC HABITAT DEGRADATION THAT CAN BE IDENTIFIED BY AN OBSERVER.

INSPECTIONS AND MAINTENANCE (11.1)

1. THE CONTRACTOR SHALL IDENTIFY A CERTIFIED EROSION AND SEDIMENT CONTROL SUPERVISOR TO CONDUCT INSPECTIONS FOR THE PROJECT.
2. THE CONSTRUCTION SITE SHALL BE OBSERVED AT LEAST ONCE EVERY 7 DAYS DURING ACTIVE CONSTRUCTION AND WITHIN 24 HOURS AFTER A RAINFALL EVENT GREATER THAN 0.5 INCHES IN 24 HOURS AND 7 DAYS AFTER THAT. PER SECTION 11.11 THE INSPECTION CAN BE ADJUSTED AS FOLLOW:
   - AREAS WITH PERMANENT COVER CAN BE REDUCED TO ONCE A MONTH
   - SITES WITH PERMANENT COVER AND NO CONSTRUCTION ACTIVITY CAN BE REDUCED TO ONCE A MONTH
   - WHERE CONSTRUCTION ACTIVITY HAS BEEN SUSPENDED DUE TO FROZEN GROUND CONDITIONS, INSPECTION MAY BE SUSPENDED AND RESUME WITHIN 24 HOURS OF RUNOFF OCCURRING
3. WHEN SEDIMENT IS OBSERVED UP TO APPROXIMATELY ONE-THIRD OF THE HEIGHT OF SILT FENCE, SEDIMENT SHALL BE REMOVED. SILT FENCE WILL BE REPLACED, OR SUPPLEMENTED IF IT BECOMES NON-FUNCTIONAL.
4. THE CITY OF MINNETRISTA IS RESPONSIBLE TO MAINTAIN PERMANENT BMP'S.
5. DURING EACH INSPECTION THE FOLLOWING SHALL BE OBSERVED:
   - ALL EROSION PREVENTION AND SEDIMENT CONTROL BMP'S AND POLLUTION PREVENTION MEASURES.
   - SURFACE WATERS – INCLUDING DITCHES AND CONVEYANCE SYSTEMS NEED TO BE OBSERVED FOR EROSION AND SEDIMENT.
   - CONSTRUCTION SITE VEHICLE EXIT LOCATIONS FOR EVIDENCE OF TRACKING ONTO PAVED SURFACES.
   - INSPECT SURROUNDING PROPERTIES FOR EVIDENCE OF OFF SITE SEDIMENT ACCUMULATION.
   - INFILTRATION AREAS FOR SIGNS OF SEDIMENT DEPOSITION AND COMPACTION (TO ENSURE THAT EQUIPMENT IS NOT BEING DRIVEN ACROSS THE AREA).
7. RECORD ALL INSPECTIONS AND MAINTENANCE ACTIVITIES IN WRITING WITHIN 24 HOURS. SUBMIT INSPECTION REPORTS IN A FORMAT THAT IS ACCEPTABLE TO THE PROJECT ENGINEER. INCLUDE THE FOLLOWING IN THE RECORDS OF EACH INSPECTION AND MAINTENANCE ACTIVITY:
   - DATE AND TIME OF INSPECTIONS
   - NAME OF PERSONS CONDUCTING INSPECTIONS
   - FINDINGS OF INSPECTIONS WITH PHOTOGRAPHS AND RECOMMENDATIONS FOR CORRECTIVE ACTIONS
   - CORRECTIVE ACTIONS TAKEN, INCLUDING DATES, TIMES, AND PARTY COMPLETING MAINTENANCE ACTIVITIES
   - DATE AND AMOUNT OF ALL RAINFALL EVENTS GREATER THAN 0.5 INCH IN 24 HOURS
   - DOCUMENT AND DISCHARGES, DEWATERING OPERATIONS AND NUISANCE CONDITIONS WITH PHOTOGRAPHS.
   - DOCUMENTS AND CHANGES MADE TO THE SWPPP
8. REPLACE, REPAIR OR SUPPLEMENT ALL NONFUNCTIONAL BMPS BY THE END OF THE NEXT BUSINESS DAY FOLLOWING DISCOVERY UNLESS LISTED DIFFERENTLY BELOW:
   - A. REPAIR, REPLACE, OR SUPPLEMENT PERIMETER CONTROL DEVICES WHEN IT BECOMES NONFUNCTIONAL OR SEDIMENT REACHES 1/2 THE HEIGHT OF THE DEVICE. COMPLETE REPAIRS BY THE END OF THE NEXT BUSINESS DAY FOLLOWING DISCOVERY.
   - B. REPAIR OR REPLACE INLET PROTECTION DEVICES WHEN THEY BECOME NONFUNCTIONAL OR SEDIMENT REACHES 1/2 THE HEIGHT AND/OR DEPTH OF THE DEVICE.
   - C. DRAIN AND REMOVE SEDIMENT FROM TEMPORARY AND PERMANENT SEDIMENT BASINS ONCE THE SEDIMENT HAS REACHED 1/2 THE STORAGE VOLUME. COMPLETE WORK WITHIN 72 HOURS OF DISCOVERY.
   - D. REMOVE ALL DELTAS AND SEDIMENT DEPOSITED IN SURFACE WATERS INCLUDING DRAINAGE WAYS, CATCH BASINS, AND OTHER DRAINAGE SYSTEMS. RESTABILIZE ANY AREAS THAT ARE DISTURBED BY SEDIMENT REMOVAL OPERATIONS. SEDIMENT REMOVAL AND STABILIZATION MUST BE COMPLETED WITHIN 7 DAYS OF DISCOVERY. PREPARE AND SUBMIT A SITE MANAGEMENT PLAN FOR WORKING IN SURFACE WATERS. CONTACT ALL APPROPRIATE AUTHORITIES PRIOR TO WORKING IN SURFACE WATERS.
   - E. REMOVE TRACKED SEDIMENT FROM PAVED SURFACES BOTH ON AND OFF SITE WITHIN 24 HOURS OF DISCOVERY. STREET SWEEPING MAY HAVE TO OCCUR MORE OFTEN TO MINIMIZE OFF SITE IMPACTS. LIGHTLY WET THE PAVEMENT PRIOR TO SWEEPING.
   - F. MAINTAIN ALL BMPS UNTIL WORK HAS BEEN COMPLETED, SITE HAS GONE UNDER FINAL STABILIZATION, AND THE NOTICE OF TERMINATION (NOT) HAS BEEN SUBMITTED TO THE MPCA.

POLLUTION PREVENTION MANAGEMENT MEASURES (12.1)

ALL WORK NECESSARY TO PROVIDE PROPER POLLUTION PREVENTION MEASURES SHALL BE CONSIDERED INCIDENTAL TO THE PROJECT.
1. COLLECTED SEDIMENT, ASPHALT AND CONCRETE MILLINGS, FLOATING DEBRIS, AND OTHER WASTE MUST BE DISPOSED OF PROPERLY AND MUST COMPLY WITH MPCA DISPOSAL REQUIREMENTS.
2. CONSTRUCTION MATERIALS NEED TO BE COVERED TO MINIMIZE STORMWATER INTERACTION UNLESS MATERIAL IS NOT A POTENTIAL SOURCE OF STORMWATER CONTAMINATION.
3. OIL, GASOLINE, PAINT AND ANY HAZARDOUS SUBSTANCES MUST BE PROPERLY STORED, INCLUDING SECONDARY CONTAINMENT TO PREVENT SPILLS, LEAKS OR OTHER DISCHARGES. RESTRICTED ACCESS TO STORAGE AREAS MUST BE PROVIDED TO PREVENT VANDALISM. STORAGE AND DISPOSAL OF HAZARDOUS WASTE MUST BE IN COMPLIANCE WITH MPCA REGULATIONS.
4. EXTERNAL WASHING OF TRUCKS AND OTHER CONSTRUCTION VEHICLES IS NOT ALLOWED ON SITE. RUNOFF MUST BE CONTAINED AND WASTE PROPERLY DISPOSED OF. NO ENGINE DEGREASING IS ALLOWED ON SITE.
5. ALL LIQUID AND SOLID WASTE GENERATED BY CONCRETE WASHOUT OPERATIONS MUST BE CONTAINED IN A LEAK-PROOF CONTAINMENT FACILITY OR IMPERMEABLE LINER. A COMPACTED CLAY LINER THAT DOES NOT ALLOW WASHOUT LIQUIDS TO ENTER THE GROUND WATER IS CONSIDERED AN IMPERMEABLE LINER. THE LIQUID AND SOLID WASTES MUST NOT CONTACT THE GROUND, AND THERE MUST NOT BE RUNOFF FROM THE CONCRETE WASHOUT OPERATIONS OR AREAS. LIQUID AND SOLID WASTE MUST BE DISPOSED OF PROPERLY AND IN COMPLIANCE WITH MPCA REGULATIONS. A SIGN MUST BE INSTALLED ADJACENT TO EACH WASHOUT FACILITY TO INFORM CONCRETE EQUIPMENT OPERATORS TO UTILIZE THE PROPER FACILITIES.

SEE FOLLOWING SHEET FOR CONTINUED SWPPP NOTES

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Reg. No. 47504 Date 06-26-2026

Revisions
1. 10-08-26 City & Watershed Comments

Date	06-26-2026
Designed	MBG
Drawn	MBG/SHA

STORMWATER POLLUTION PREVENTION PLAN

SEVEN OAKS LLC
221 RIVER RIDGE CIRCLE SOUTH, SUITE 100
BURNSVILLE, MN

SEVEN OAKS
MINNETRISTA, MN

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5. ANY SPILLS OF HAZARDOUS MATERIALS AND/OR A MINIMUM OF 5-GALLONS PETROLEUM SHALL BE IMMEDIATELY REPORTED TO THE MPCA (STATE DUTY OFFICER: 1.800.422.0798 OR 651.297.8610). ANY SPILLS ABOVE THE REPORTABLE QUANTITIES LIMITS IN THE CODE OF FEDERAL REGULATIONS (CFR) TITLE 40, PART 302 SHALL BE REPORTED TO THE EPA NATIONAL RESPONSE CENTER (1.800.424.8802). IN ORDER TO REDUCE THE RISK OF HAZARDOUS MATERIALS COMING INTO CONTACT WITH STORM WATER, THE FOLLOWING PRACTICES WILL BE FOLLOWED: A) AN EFFORT WILL BE MADE TO STORE ONLY ENOUGH PRODUCTS REQUIRED TO DO THE WORK, B) ALL MATERIALS STORED ON SITE WILL BE STORED IN A NEAT, ORDERLY MANNER IN THEIR APPROPRIATE CONTAINERS AND IF POSSIBLE, UNDER COVER, C) PRODUCTS WILL BE KEPT IN THEIR ORIGINAL CONTAINERS WITH THE ORIGINAL MANUFACTURER'S LABEL UNLESS THE ORIGINAL CONTAINER CANNOT BE RESEALED, IN WHICH CASE THE ORIGINAL LABEL AND MATERIALS SAFETY DATA SHALL BE RETAINED, D) SUBSTANCES WILL NOT BE MIXED WITH ONE ANOTHER UNLESS RECOMMENDED BY THE MANUFACTURER, E) WHENEVER POSSIBLE, ALL OF A PRODUCT WILL BE USED BEFORE DISPOSING OF THE CONTAINER, F) THE MANUFACTURER'S RECOMMENDATIONS FOR PROPER USE AND DISPOSAL WILL BE FOLLOWED, AND G) THE OPERATOR WILL INSPECT DAILY TO ENSURE PROPER USE AND DISPOSAL OF MATERIALS ON SITE. MANUFACTURER'S RECOMMENDED METHODS FOR SPILL CLEANUP WILL BE CLEARLY POSTED AND SITE PERSONNEL WILL BE MADE AWARE OF THE PROCEDURES AND THE LOCATION OF THE INFORMATION AND CLEANUP SUPPLIES.

6. ALL SANITARY WASTE WILL BE COLLECTED BY TEMPORARY SANITARY FACILITIES PROVIDED AT THE SITE BY THE CONTRACTOR THROUGHOUT THE CONSTRUCTION PROJECT. ALL CONSTRUCTION PERSONNEL SHALL UTILIZE TEMPORARY SANITARY FACILITIES, WHICH SHALL BE REGULARLY SERVICE BY A COMMERCIAL OPERATOR. TEMPORARY SANITARY FACILITIES SHALL BE PLACED IN A LOCATION WHERE ACCIDENTAL SPILLAGE OF THE FACILITY SHALL NOT DISCHARGE TO THE STORM SEWER SYSTEM.

TEMPORARY SEDIMENTATION BASINS (14.2)

1. TEMPORARY SEDIMENTATION BASINS ARE REQUIRED WHERE 10 OR MORE ACRES DRAIN TO A COMMON LOCATION TO PROVIDE TREATMENT OF THE RUNOFF BEFORE IT LEAVES THE CONSTRUCTION SITE OR ENTERS SURFACE WATERS. WHEN A CONSTRUCTION SITE DISCHARGES TO AN IMPAIRED WATER BODY, TEMPORARY SEDIMENTATION BASINS ARE REQUIRED WHERE 5 OR MORE ACRES DRAIN TO A COMMON LOCATION. TEMPORARY SEDIMENTATION BASINS CAN BE CONVERTED TO PERMANENT BASINS AFTER CONSTRUCTION IS COMPLETE.

2. THE TEMPORARY BASIN MUST PROVIDE LIVE STORAGE FOR A CALCULATED VOLUME OF RUNOFF FROM A TWO (2)-YEAR, 24-HOUR STORM FROM EACH ACRE DRAINED TO THE BASIN OR 1,800 CUBIC FEET OF LIVE STORAGE PER ACRE DRAINED, WHICHEVER IS GREATER. WHERE PERMITTEES HAVE NOT CALCULATED THE TWO (2)-YEAR, 24-HOUR STORM RUNOFF AMOUNT, THE TEMPORARY BASIN MUST PROVIDE 3,600 CUBIC FEET OF LIVE STORAGE PER ACRE OF THE BASINS DRAINAGE AREA.

3. PERMITTEES MUST DESIGN THE OUTLET STRUCTURE TO WITHDRAW WATER FROM THE SURFACE TO MINIMIZE THE DISCHARGE OF POLLUTANTS. PERMITTEES MAY TEMPORARILY SUSPEND THE USE OF A SURFACE WITHDRAWAL MECHANISM DURING FROZEN CONDITIONS. THE BASIN MUST INCLUDE A STABILIZED EMERGENCY OVERFLOW TO PREVENT FAILURE OF POND INTEGRITY. PROVIDE ENERGY DISSIPATION FOR THE BASIN OUTLET WITHIN 24 HOURS OF CONNECTION TO A SURFACE WATER.

4. WHERE A TEMPORARY SEDIMENT BASIN MEETING THE REQUIREMENTS OF THE ABOVE IS INFEASIBLE, PERMITTEES MUST INSTALL EFFECTIVE SEDIMENT CONTROLS SUCH AS SMALLER SEDIMENT BASINS AND/OR SEDIMENT TRAPS, SILT FENCES, VEGETATIVE BUFFER STRIPS OR ANY APPROPRIATE COMBINATION OF MEASURES AS DICTATED BY INDIVIDUAL SITE CONDITIONS. IN DETERMINING WHETHER INSTALLING A SEDIMENT BASIN IS INFEASIBLE, PERMITTEES MUST CONSIDER PUBLIC SAFETY AND MAY CONSIDER FACTORS SUCH AS SITE SOILS, SLOPE, AND AVAILABLE AREA ON-SITE. PERMITTEES MUST DOCUMENT THIS DETERMINATION OF INFEASIBILITY IN THE SWPPP.

FINAL STABILIZATION (4.1)

1. ALL DISTURBED AREAS SHALL BE PERMANENTLY STABILIZED AS SHOWN ON THE CONSTRUCTION PLANS. METHODS TO ACHIEVE FINAL STABILIZATION INCLUDE: SEED WITH MULCH OR EROSION CONTROL BLANKET AND SOD.

2. ALL AREAS SEEDED BY MEANS OF BROADCAST SEEDING SHALL BE HAND RAKED TO INCORPORATE THE SEEDS INTO THE TOPSOIL.

3. EROSION CONTROL BLANKETS SHALL BE PLACED IN THE DITCH BOTTOM WITHIN 24 HOURS AFTER FINE GRADING. BIOROLLS SHALL BE PLACED IN CONJUNCTION WITH THE BLANKET IN THE DITCH BOTTOMS. THE BIOROLLS ARE INTENDED TO SERVE AS PERMANENT DITCH CHECKS.

4. THE PERMITTEE WILL SUBMIT A NOTICE OF TERMINATION (NOT) WITHIN 30 DAYS AFTER FINAL STABILIZATION. FINAL STABILIZATION SHALL CONSIST OF A UNIFORM PERENNIAL VEGETATIVE COVER OF AT LEAST 70 PERCENT OF THE EXPECTED FINAL VEGETATIVE GROWTH DENSITY OR OTHER PERMANENT COVER HAS BEEN ESTABLISHED OVER THE ENTIRE PERVIOUS SURFACES.

5. PERMIT COVERAGE TERMINATES ON INDIVIDUAL LOTS IF THE STRUCTURES ARE FINISHED AND TEMPORARY EROSION PREVENTION AND DOWNGRADIENT PERIMETER CONTROL IS COMPLETE, THE RESIDENCE SELLS TO THE HOMEOWNER, AND THE PERMITTEE DISTRIBUTES THE MPCA'S "HOMEOWNER FACT SHEET" TO THE HOMEOWNER.

PERMIT TERMINATION CONDITIONS (13.1)

1. PERMITTEES MUST COMPLETE ALL CONSTRUCTION ACTIVITY AND MUST INSTALL PERMANENT COVER OVER ALL AREAS PRIOR TO SUBMITTING THE NOTICE OF TERMINATION (NOT). VEGETATIVE COVER MUST CONSIST OF A UNIFORM PERENNIAL VEGETATION WITH A DENSITY OF 70 PERCENT OF ITS EXPECTED FINAL GROWTH. VEGETATION IS NOT REQUIRED WHERE THE FUNCTION OF A SPECIFIC AREA DICTATES NO VEGETATION, SUCH AS IMPERVIOUS SURFACES OR THE BASE OF A SAND FILTER.

2. FOR RESIDENTIAL CONSTRUCTION ONLY, PERMIT COVERAGE TERMINATES ON INDIVIDUAL LOTS IF THE LOT IS SOLD TO THE HOMEOWNER, STRUCTURES ARE FINISHED, AND PERMANENT COVER HAS BEEN ESTABLISHED. FOR LOTS THAT ARE SOLD TO THE HOMEOWNER WHERE PERMANENT COVER HAS NOT BEEN ESTABLISHED, COVERAGE TERMINATES IF TEMPORARY EROSION PREVENTION AND DOWNGRADIENT PERIMETER CONTROL IS PROPERLY INSTALLED, AND THE PERMITTEE DISTRIBUTES THE MPCA'S "HOMEOWNER FACT SHEET" TO THE HOMEOWNER.

3. WHEN SUBMITTING THE NOT PERMITTEES MUST INCLUDE EITHER GROUND OR AERIAL PHOTOGRAPHS SHOWING THE REQUIREMENTS OF 13.2 HAVE BEEN MET. PERMITTEES ARE NOT REQUIRED TO TAKE PHOTOGRAPHS OF EVERY DISTINCT PART OF THE SITE, HOWEVER THE CONDITIONS PORTRAYED MUST BE SUBSTANTIALLY SIMILAR TO THOSE AREAS THAT ARE NOT PHOTOGRAPHED. PHOTOGRAPHS MUST BE CLEAR AND IN FOCUS AND MUST INCLUDE THE DATE THE PHOTO WAS TAKEN.

RECORDS RETENTION (5.1&6.1)

1. RECORDS MUST BE KEPT ON SITE IN A PHYSICAL OR ELECTRONIC FORMAT DURING NORMAL WORKING HOURS WITH PERSONNEL WHO HAVE OPERATIONAL CONTROL OVER THE APPLICABLE PORTION OF THE SITE. THESE RECORDS MUST INCLUDE:
   A. COPY OF THE SWPPP AND AMENDMENTS
   B. TRAINING DOCUMENTATION
   C. INPSECTION AND MAINTENANCE RECORDS

2. THIS SWPPP WILL BE AMENDED AS NEEDED AND/OR AS REQUIRED BY PROVISIONS OF THE PERMIT. ANY CHANGES TO THE SWPPP SHALL BE NOTED BELOW AND ON THE APPLICABLE PLAN SHEETS. ANY AMENDMENTS TO THE SWPPP MUST BE INCORPORATED WITHIN 7 DAYS TO INCLUDE ADDITIONAL OR MODIFIED BMPS.

3. THE CONTRACTOR WILL RECORD CHANGES TO THE SWPPP AND MAINTAIN DOCUMENTATION OF THESE CHANGES ON SITE AT ALL TIMES. A SUMMARY MAINTENANCE/CONSTRUCTION OBSERVATION REPORT WILL BE RECORDED AFTER EACH SITE INSPECTION/OBSERVATION.

4. THE CONTRACTOR WILL BE RESPONSIBLE TO MAINTAIN AND REPAIR THE EROSION AND SEDIMENT CONTROL BMP'S UNTIL FINAL STABILIZATION IS COMPLETE AND A NOTICE OF TERMINATION (NOT) IS SUBMITTED.

ITEM DESCPRIPTION	UNIT	ESTIMATED QUANTITY
CONSTRUCTION LIMIT STAKING	LF	X
ROCK CONSTRUCTION ENTRANCE	EA	1
ROCK CONSTRUCTION ENTRANCE MAINTENANCE	EA	1
EROSION CONTROL FENCE	LF	XXXX
MAINTENANCE OF PERIMETER EROSION CONTROL	YR	1
BIOROLL DITCH CHECK	EA	XXX
STREET SWEEPING AND VACUUMING	YR	1
STORM DRAIN INLET PROTECTION	EA	XX
TEMPORARY SEED AND MULCH	AC	X.X
PERMANENT SEED AND MULCH	AC	X.X
MAINTAIN SEED AND MULCH	AC	X.X
EROSION CONTROL BLANKET (MNDOT CAT. 20)	SY	XXX
VEHICLE AND EQUIPMENT CLEANING	LS	1
VEHICLE AND EQUIPMENT FUELING	LS	1
VEHICLE AND EQUIPMENT MAINTENANCE	LS	1
SPILL PREVENTION AND CONTROL	LS	1
ROCK BERM EROSION CONTROL	LS	1
RIP RAP ENERGY DISSIPATOR	CY	X.X
INDIVIDUAL LOT HOME CONSTRUCTION EROSION CONTROL	EA	XX

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Name Brian N. Molinaro
Reg. No. 47504 Date 06-26-2026

Revisions
1. 10-08-26 City & Watershed Comments

Date 06-26-2026
Designed MBG
Drawn MBG/SHA

STORMWATER POLLUTION PREVENTION PLAN

SEVEN OAKS LLC
221 RIVER RIDGE CIRCLE SOUTH, SUITE 100
BURNSVILLE, MN

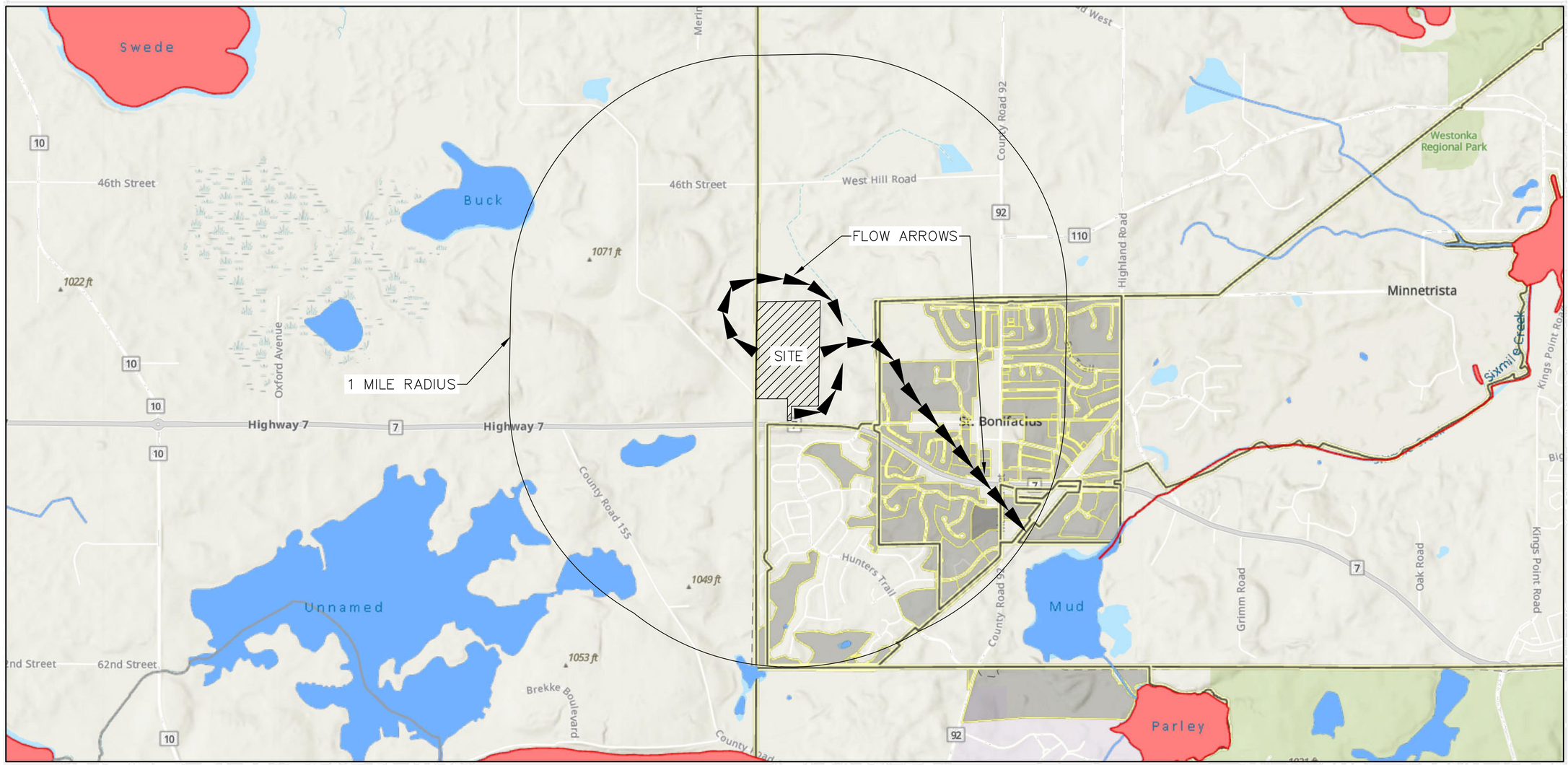
SEVEN OAKS
MINNETRISTA, MN

OA-ENG-125159-SHEET-SWPPP

S2 OF S6

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MPCA's Construction Stormwater Special Waters Search



6/17/2026, 11:36:53 AM

- Waterbody Units - Lakes (1)
- Waterbody Units - Streams (1)
- Impaired Lakes with additional construction requirements
- Impaired Streams without additional construction requirements
- Impaired Streams with additional construction requirements
- MS4 - Platted Areas
- MS4 - MNDOT
- MS4 - County
- MS4 - Watershed District
- MS4 - City or Township

1:36,112

0 0.28 0.55 1.1 mi

0 0.45 0.9 1.8 km

Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community, Esri, NASA, NGA, USGS, FEMA

Minnesota Pollution Control Agency

Esri, NASA, NGA, USGS, FEMA | Esri Community Maps Contributors, Metropolitan Council, MetroGIS, Three Rivers Park District, MN Dept Natural Resources, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, USFWS | MPCA; US Census Bureau;

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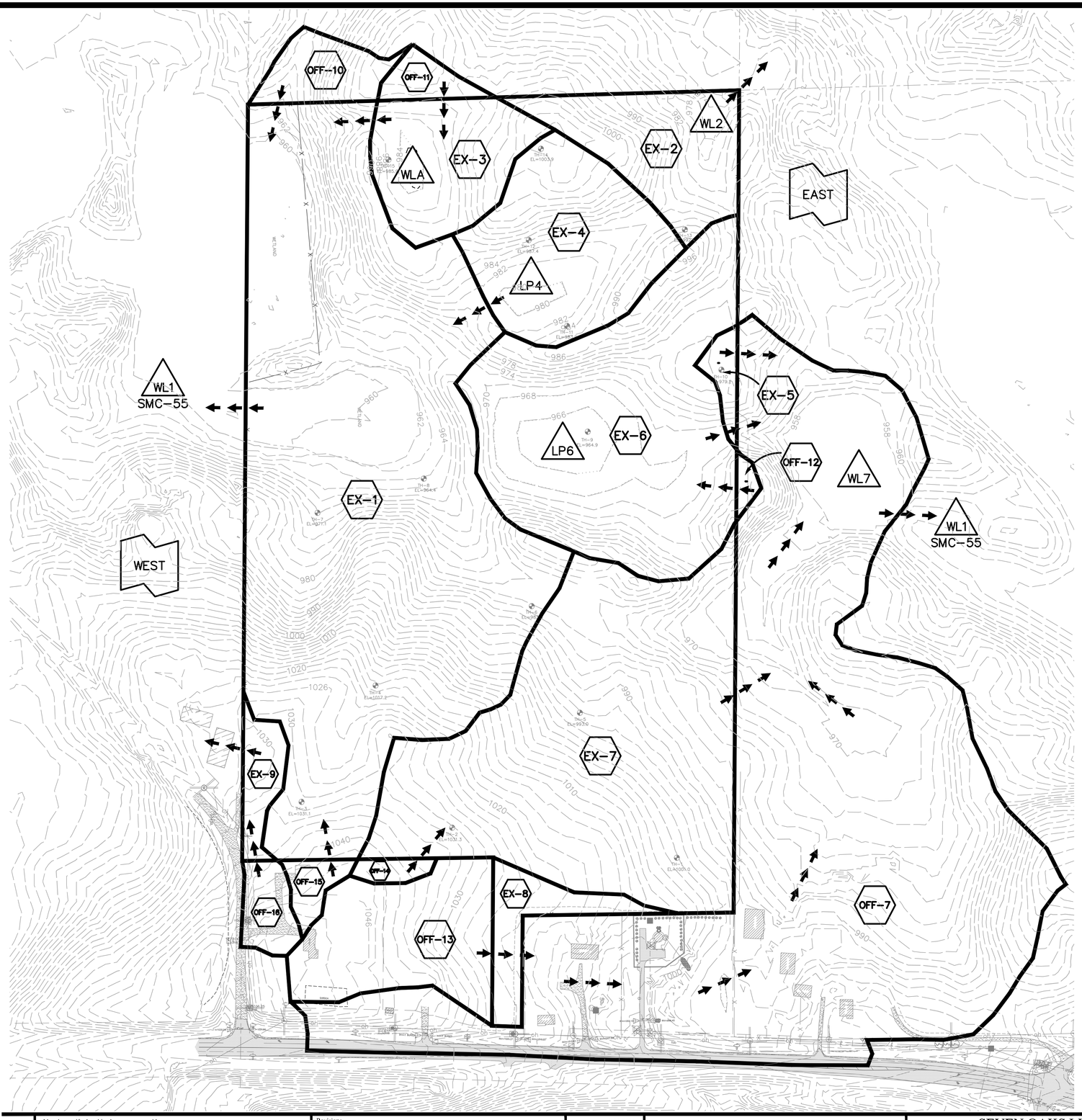
MPCA MAP

SEVEN OAKS LLC
221 RIVER RIDGE CIRCLE SOUTH, SUITE 100
BURNSVILLE, MN

SEVEN OAKS
MINNETRISTA, MN

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LEGEND

1	SUBCATCHMENT
200P	POND
EP-025a	LINK
← ← ←	FLOW ARROWS

N

0 75 150 300

GRAPHIC SCALE IN FEET

BENCH MARK

TOP NUT HYDRANT 60 FEET NORTH OF MN HWY 7 ALONG WATER TOWER DRIVEWAY. (1080 FEET EAST OF BUCK LAKE RD. INTERSECTION. EL.=1008.40

OA-ENG-125159-SHEET-HYDR-EXIS

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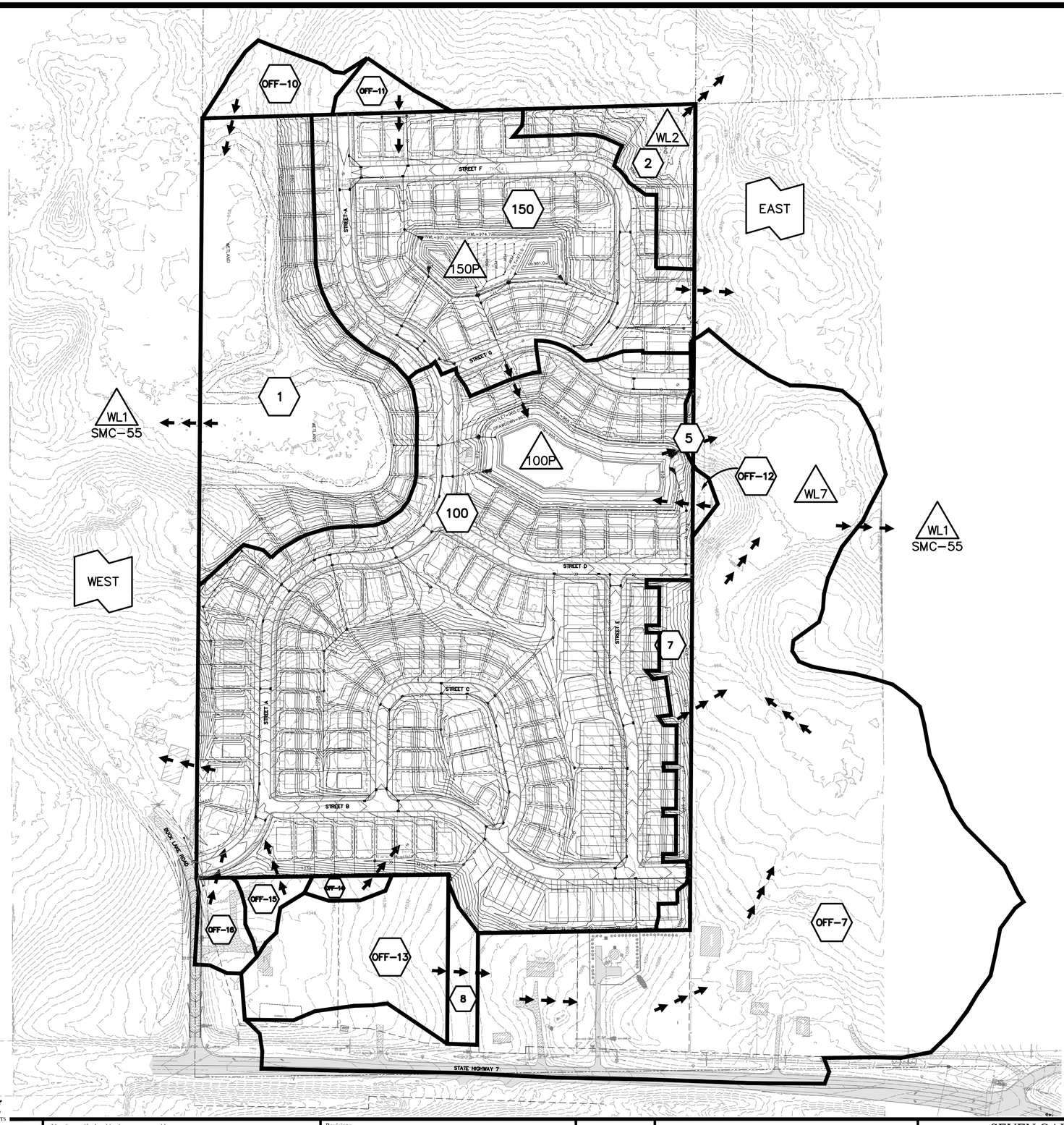
EXISTING HYDROLOGY MAP

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BURNSVILLE, MN

SEVEN OAKS
MINNETRISTA, MN

S4 OF S6

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LEGEND

1 SUBCATCHMENT

200P POND

EP-025a LINK

FLOW ARROWS

N

0 75 150 300

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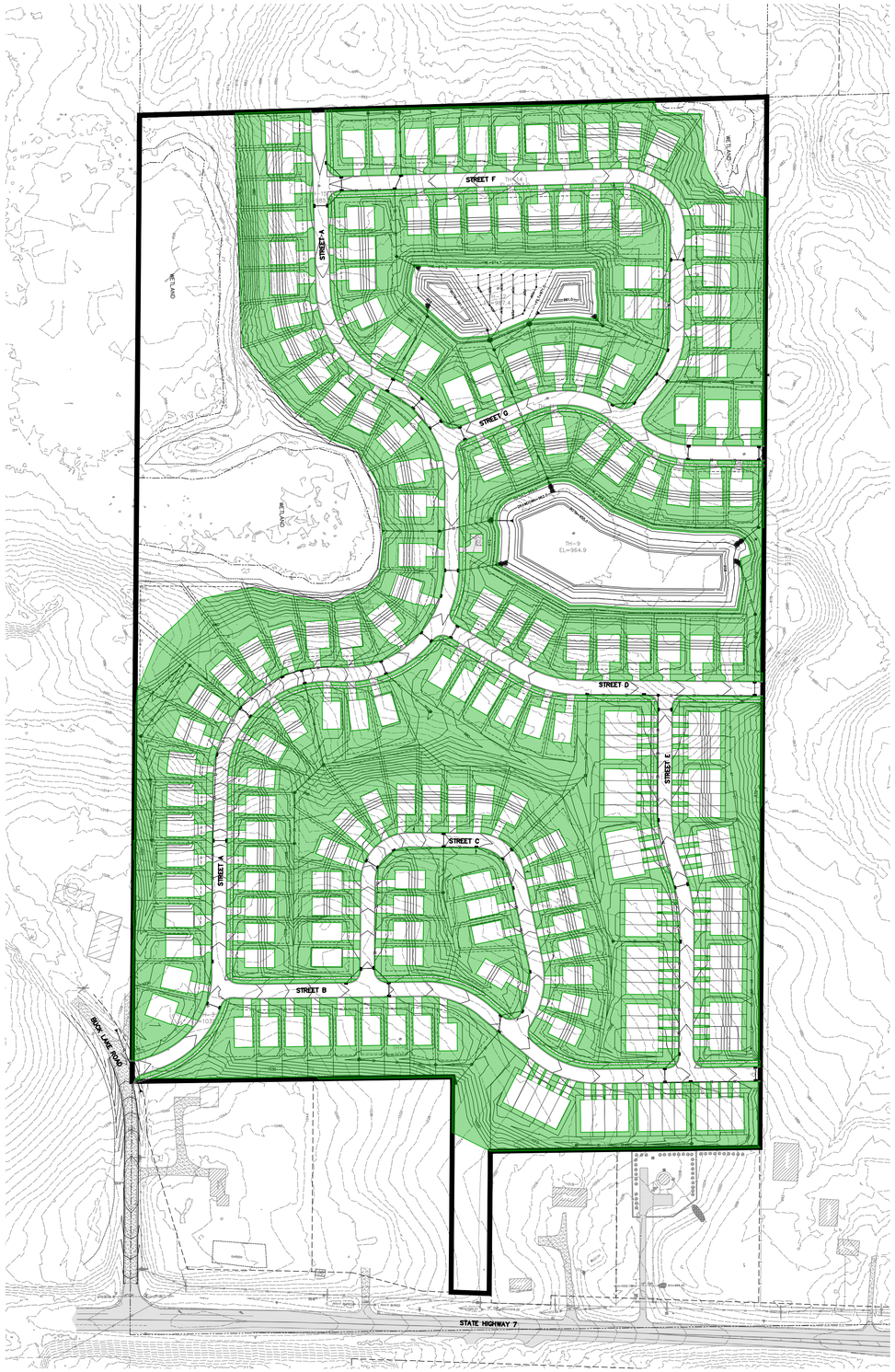
PROPOSED HYDROLOGY MAP

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BURNSVILLE, MN

SEVEN OAKS
MINNETRISTA, MN

S5 OF S6

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IRRIGATED AREA

0 75 150 300

GRAPHIC SCALE IN FEET

BENCH MARK

TOP NUT HYDRANT 60 FEET NORTH OF MN HWY 7 ALONG WATER TOWER DRIVEWAY. (1080 FEET EAST OF BUCK LAKE RD. INTERSECTION. EL.=1008.40

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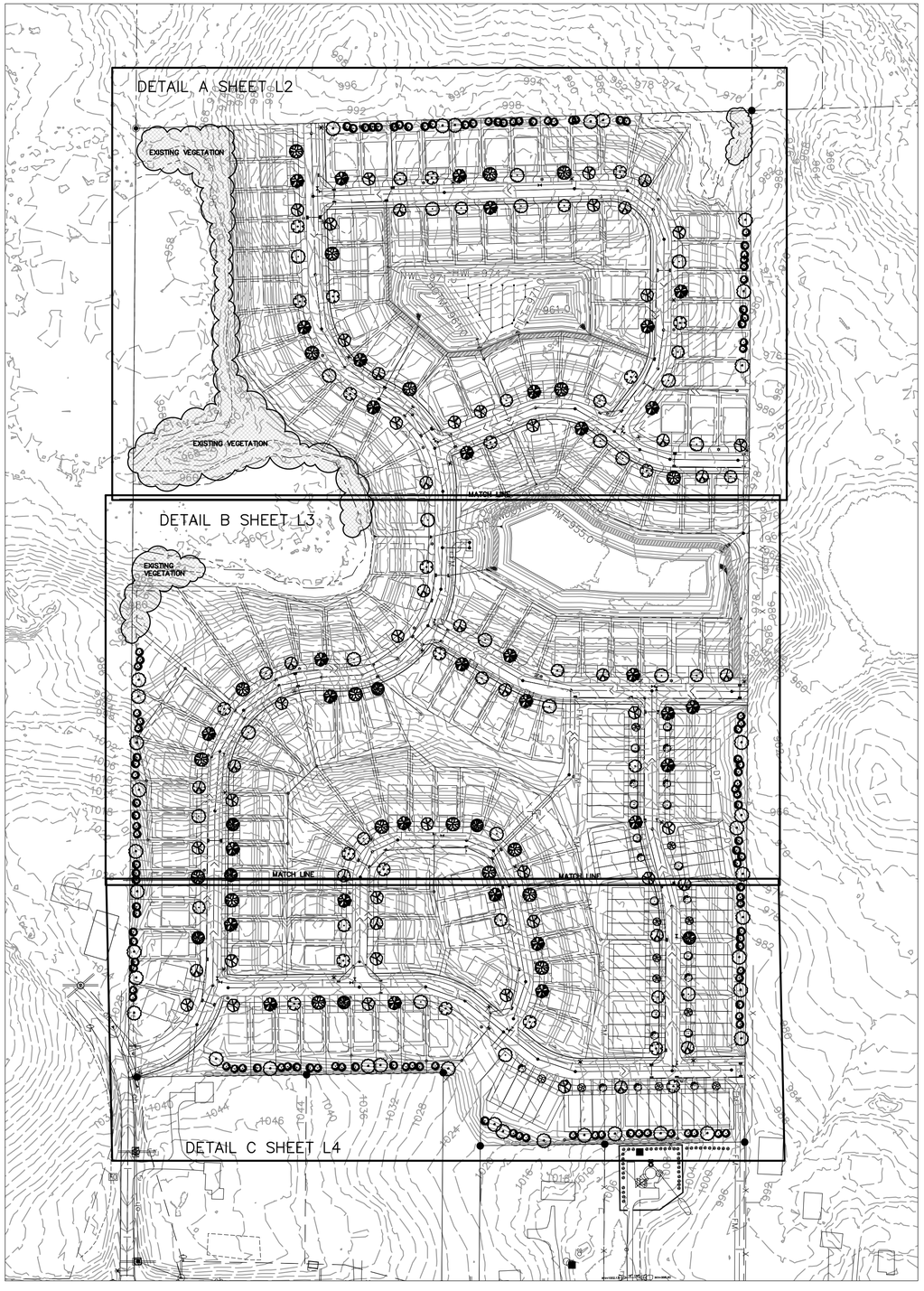
IRRIGATION AREA MAP

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221 RIVER RIDGE CIRCLE SOUTH, SUITE 100
BURNSVILLE, MN

SEVEN OAKS
MINNETRISTA, MN

S6 OF S6

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PLANT SCHEDULE

KEY	COMMON NAME/SCIENTIFIC NAME	ROOT	QUANTITY
	OVERSTORY TREES		
	SENTRY LINDEN/TILIA AMERICANA 'SENTRY'	2.5" B&B	22
	NORTHERN PIN OAK/QUERCUS ELLIPSOIDALIS	2.5" B&B	33
	THORNLESS HONEYLOCUST/GLEDITSIA TRIACANTHOS VAR INERMIS	2.5" B&B	31
	RIVER BIRCH/BETULA NIGRA 'HERITAGE' (CLUMP)	12-14' B&B	37
	NORTHWOOD MAPLE/ACER RUBRUM 'NORTHWOOD'	2.5" B&B	20
	HACKBERRY/CELTIS OCCIDENTALIS	2.5" B&B	17
	ACCOLADE ELM/ULMUS 'MORTON' ACCOLADE	2.5" B&B	21
	KENTUCKY COFFEETREE/GYMNOCLADUS DIOICUS	2.5" B&B	7
	AUTUMN BLAZE MAPLE/ACER X FREEMANII 'JEFFERSRED'	2.5" B&B	21
	EVERGREEN TREES		
	WHITE PINE/PINUS STROBUS	6' B&B	56
	BLACK HILLS SPRUCE/PICEA GLUACA VAR DENSATA	6' B&B	60
	UNDERSTORY TREES		
	PINKSPIRE CRAB/MALUS 'PINKSPIRE'	2" B&B	7
	JAPANESE TREE LILAC/SYRINGA RETICULATA	6-8' B&B	11
	SPRING SNOW CRAB/MALUS 'SPRING SNOW'	2" B&B	10
	SERVICEBERRY/AMELANCHIER X GRANDIFLORA 'AUTUMN BRILLIANCE'	6-8' B&B	4

LANDSCAPE REQUIREMENTS:
1. 1 TREE AND 2 SHRUBS* PER UNIT
2. 20' BUFFER LANDSCAPING ON COMMON PROPERTY LINE (PERIMETER). NO BUFFER SHALL BE PLANTED WHERE UNDISTURBED NATURAL FEATURES OR STORMWATER PONDING EXISTS.

*SHRUBS SHALL BE PLANTED AFTER CONSTRUCTION OF HOMES AND ARE THE RESPONSIBILITY OF THE BUILDER OR HOMEOWNER.

MITIGATION REQUIREMENT: 151"
SEE TREE PRESERVATION PLAN FOR DETAILS

LANDSCAPE NOTES

– THE LANDSCAPE CONTRACTOR SHALL VISIT THE PROJECT SITE TO BECOME FAMILIAR WITH THE EXISTING CONDITIONS PRIOR TO SUBMITTING A BID.

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– COMMERCIAL GRADE POLY LAWN EDGING SHALL BE INSTALLED WHERE NOTED.

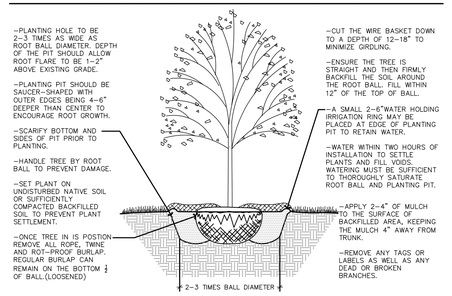
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– THE LANDSCAPE CONTRACTOR SHALL KEEP PAVEMENTS CLEAN UNSTAINED. ALL PEDESTRIAN AND VEHICLE ACCESS TO BE MAINTAINED THROUGHOUT CONSTRUCTION PERIOD. ALL WASTES SHALL BE PROMPTLY REMOVED FROM THE SITE. ANY DAMAGE TO EXISTING FACILITIES SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.

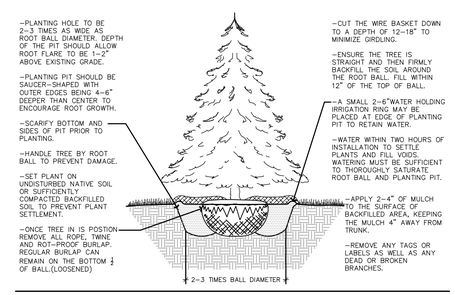
– THE CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLYING WITH ALL APPLICABLE CODES, REGULATIONS AND PERMITS GOVERNING THE WORK.

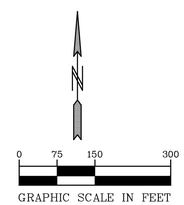
– STORAGE OF MATERIALS OR SUPPLIES ON–SITE WILL NOT BE ALLOWED.

DECIDUOUS TREE PLANTING DETAIL



CONIFEROUS TREE PLANTING DETAIL





00-PLAN-125159-SHEET-LAND

PIONEER engineering
CIVIL ENGINEERS LAND PLANNERS LAND SURVEYORS LANDSCAPE ARCHITECTS
2422 Enterprise Drive
Mendota Heights, MN 55120
(651) 681-1914
Fax: 681-9488
www.pioneereng.com

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Landscape Architect under the laws of the State of Minnesota

Name Jennifer L. Thompson
Reg. No. 44763 Date 10-8-2026

Revisions
1. 10-08-26 City & Watershed Comments

Date	06-26-2026
Designed	JLT
Drawn	JLT

LANDSCAPE PLAN

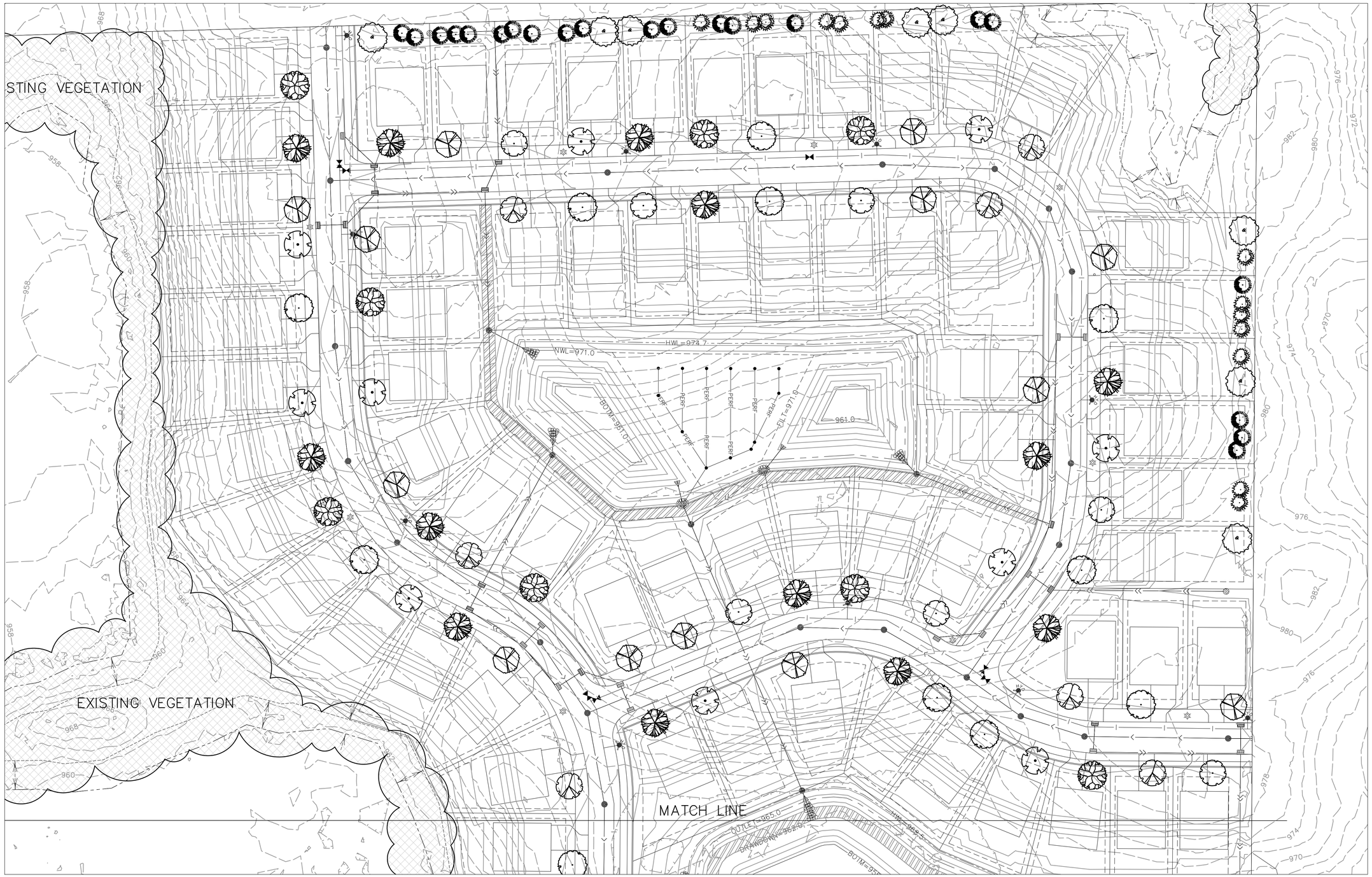
SEVEN OAKS LLC
221 RIVER RIDGE CIRCLE SOUTH, SUITE 100
BURNSVILLE, MN

SEVEN OAKS
MINNETRISTA, MN

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DETAIL A



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LANDSCAPE PLAN

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L2 OF 4

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DETAIL B

MATCH LINE

EXISTING VEGETATION

MATCH LINE

MATCH LINE

N

0 25 50 100

GRAPHIC SCALE IN FEET

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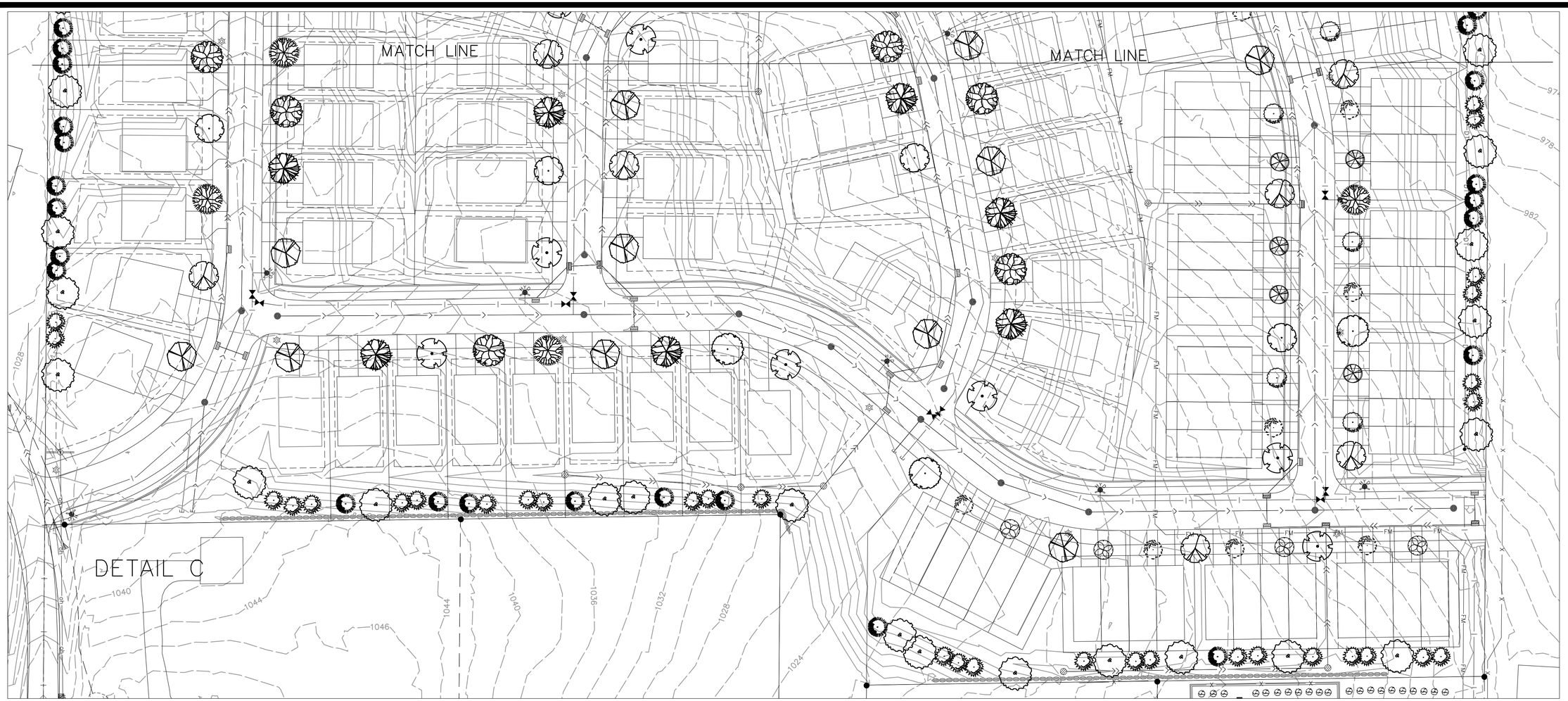
LANDSCAPE PLAN

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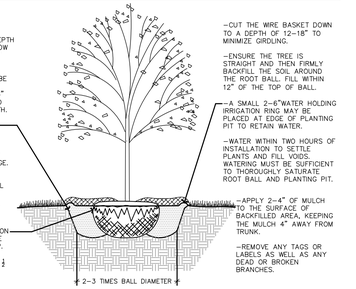
PLANT SCHEDULE

KEY	COMMON NAME/SCIENTIFIC NAME	ROOT	QUANTITY
	OVERSTORY TREES		
	SENTRY LINDEN/TILIA AMERICANA 'SENTRY'	2.5" B&B	22
	NORTHERN PIN OAK/QUERCUS ELLIPSOIDALIS	2.5" B&B	33
	THORNLESS HONEYLOCUST/GLEDITSIA TRIACANTHOS VAR INERMIS	2.5" B&B	31
	RIVER BIRCH/BETULA NIGRA 'HERITAGE' (CLUMP)	12-14' B&B	37
	NORTHWOOD MAPLE/ACER RUBRUM 'NORTHWOOD'	2.5" B&B	20
	HACKBERRY/CELTIS OCCIDENTALIS	2.5" B&B	17
	ACCOLADE ELM/ULMUS 'MORTON' ACCOLADE	2.5" B&B	21
	KENTUCKY COFFEETREE/GYMNOCLADUS DIOICUS	2.5" B&B	7
	AUTUMN BLAZE MAPLE/ACER X FREEMANII 'JEFFERSRED'	2.5" B&B	21
	EVERGREEN TREES		
	WHITE PINE/PINUS STROBUS	6' B&B	56
	BLACK HILLS SPRUCE/PICEA GLUACA VAR DENSATA	6' B&B	60
	UNDERSTORY TREES		
	PINKSPIRE CRAB/MALUS 'PINKSPIRE'	2" B&B	7
	JAPANESE TREE LILAC/SYRINGA RETICULATA	6-8' B&B	11
	SPRING SNOW CRAB/MALUS 'SPRING SNOW'	2" B&B	10
	SERVICEBERRY/AMELANCHIER X GRANDIFLORA 'AUTUMN BRILLIANCE'	6-8' B&B	4

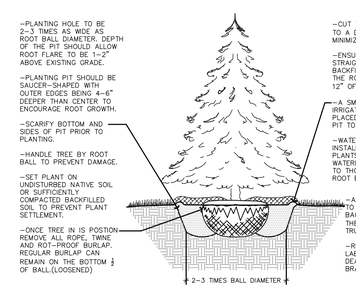
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DECIDUOUS TREE PLANTING DETAIL



CONIFEROUS TREE PLANTING DETAIL





GRAPHIC SCALE IN FEET

00-PLAN-125159-SHEET-LAND

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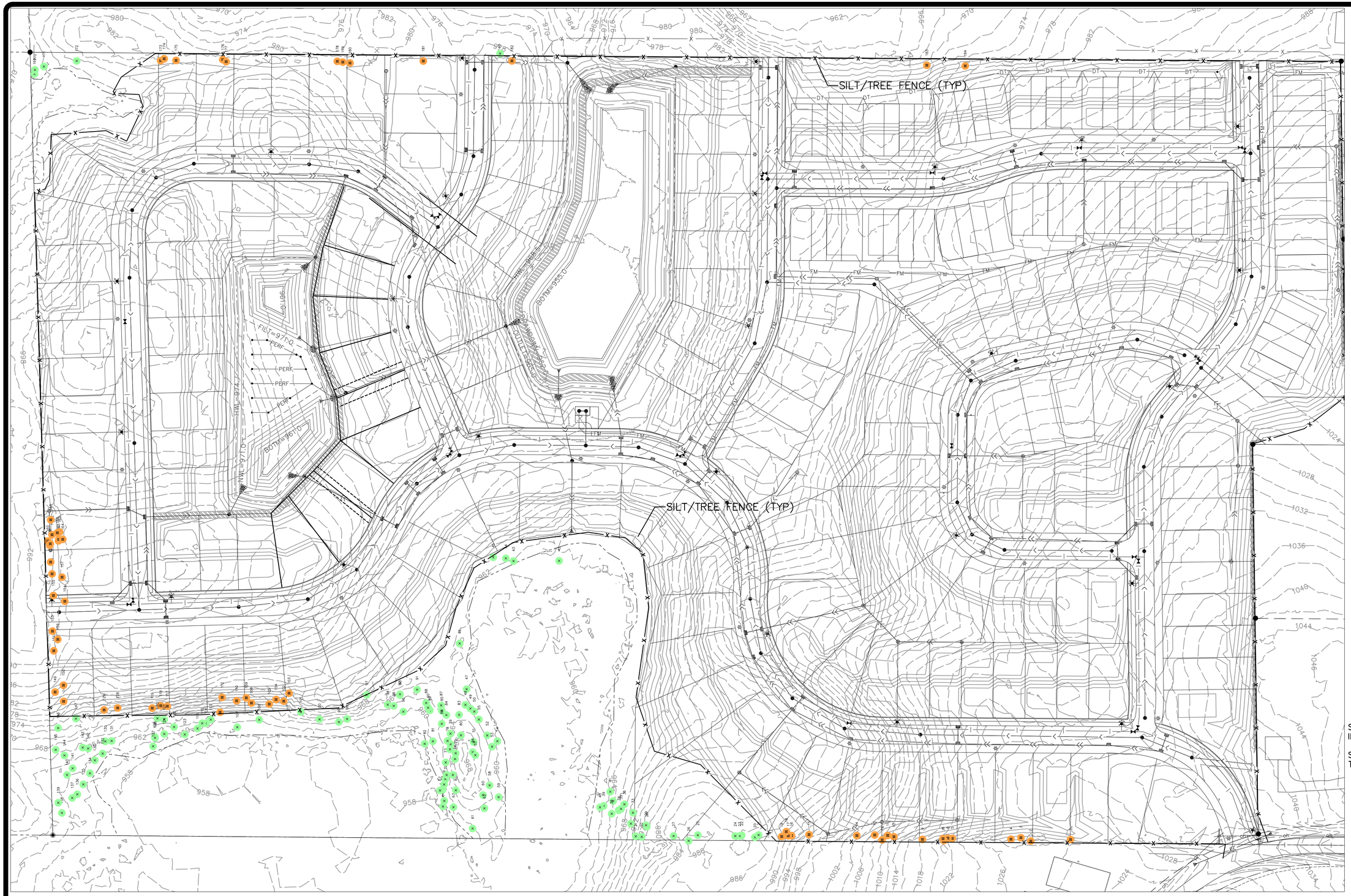
LANDSCAPE PLAN

SEVEN OAKS LLC
221 RIVER RIDGE CIRCLE SOUTH, SUITE 100
BURNSVILLE, MN

SEVEN OAKS
MINNETRISTA, MN

L4 OF 4

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TREE INVENTORY PROVIDED BY

Rehder Forestry Consulting

12516 TREE TO BE REMOVED
12514 TREE TO BE SAVED

SEE SHEET T2 FOR TREE INVENTORY AND CALCULATIONS

SEE LANDSCAPE PLAN FOR TREE MITIGATION

0 40 80 160

GRAPHIC SCALE IN FEET

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TREE PRESERVATION PLAN

SEVEN OAKS LLC
221 RIVER RIDGE CIRCLE SOUTH, SUITE 100
BURNSVILLE, MN

SEVEN OAKS
MINNETRISTA, MN

T1 OF 1

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Tag	DBH	Tree	Condition	Notes	Status
1	10	Boxelder	4		Remove
2	8	Boxelder	4		Remove
3	8	Boxelder	4		Remove
4	13	Elm, siberian	4	Invasive/Non-Native	Remove
5	8	Boxelder	4		Remove
6	9	Boxelder	4		Remove
7	9	Boxelder	4		Remove
8	16	Boxelder	4		Remove
9	8	Boxelder	4		Remove
10	11	Boxelder	4		Remove
11	22	Boxelder	4		Remove
12	11	Boxelder	4		Remove
13	19	Boxelder	4		Remove
14	16	Elm, american	4		Remove
15	35	Boxelder	4		Remove
16	9	Boxelder	4		Remove
17	9	Elm, american	4		Remove
18	10	Elm, american	4		Remove
19	12	Boxelder	4		Remove
20	12	Boxelder	4		Remove
21	17	Boxelder	4		Remove
22	24	Elm, american	4	2x 12 12	Remove
23	11	Elm, american	4		Remove
24	7	Boxelder	4		Remove
25	12	Boxelder	4		Save
26	10	Elm, american	4		Save
27	24	Boxelder	4		Save
28	15	Elm, american	4		Save
29	8	Elm, american	4		Save
30	25	Basswood, american	4		Save
31	12	Oak, red	4		Save
32	7	Boxelder	4		Save
33	6	Boxelder	4		Save
34	15	Boxelder	4		Save
35	10	Boxelder	4		Save
36	7	Boxelder	4		Save
37	8	Boxelder	4		Save
38	8	Boxelder	4		Save
39	7	Boxelder	4		Save
40	9	Boxelder	4		Save
41	21	Boxelder	4		Save
42	18	Ash, green	4		Save
43	24	Boxelder	4		Save
44	18	Ash, green	4		Save
45	17	Boxelder	4		Save
46	13	Elm, american	4		Save
47	8	Elm, american	4		Save
48	7	Cedar, red	4	25' tall	Save
49	8	Cedar, red	4	25' tall	Save
50	7	Cedar, red	4	25' tall	Save
51	9	Cedar, red	4	25' tall	Save
52	8	Cedar, red	4	25' tall	Save
53	7	Cedar, red	4	25' tall	Save
54	6	Cedar, red	4	25' tall	Save
55	16	Basswood, american	4		Save
56	16	Basswood, american	4		Save
57	17	Basswood, american	4		Save
58	13	Oak, red	4		Save
59	8	Elm, american	4		Save
60	19	Basswood, american	4		Save
61	21	Basswood, american	4		Save
62	16	Basswood, american	4		Save
63	8	Cedar, red	4	25' tall	Save
64	9	Cedar, red	4	25' tall	Save
65	7	Cedar, red	4	25' tall	Save
66	8	Cedar, red	4	25' tall	Save
67	6	Cedar, red	4	25' tall	Save
68	5	Cedar, red	4	25' tall	Save
69	5	Cedar, red	4	25' tall	Save
70	5	Cedar, red	4	25' tall	Save
71	6	Cedar, red	4	25' tall	Save
72	5	Cedar, red	4	25' tall	Save
73	7	Cedar, red	4	25' tall	Save
74	8	Cedar, red	4	25' tall	Save
75	4	Cedar, red	4	25' tall	Save
76	4	Cedar, red	4	25' tall	Save
77	6	Cedar, red	4	25' tall	Save
78	8	Cedar, red	4	25' tall	Save
79	7	Cedar, red	4	25' tall	Save
80	5	Cedar, red	4	25' tall	Save
81	8	Cedar, red	4	25' tall	Save
82	4	Cedar, red	4	25' tall	Save
83	11	Hickory, butternut	4		Save
84	11	Aspen, quaking	4		Save
85	11	Aspen, quaking	4		Save
86	6	Aspen, quaking	4		Save
87	11	Aspen, quaking	4		Save
88	7	Basswood, american	4		Save
89	7	Elm, american	4		Save
90	9	Basswood, american	4		Save
91	9	Basswood, american	4		Save
92	7	Maple, sugar	4		Save

Tag	DBH	Tree	Condition	Notes	Status
93	8	Elm, american	4		Save
94	7	Elm, american	4		Save
95	12	Elm, american	4		Save
96	12	Basswood, american	4		Save
97	8	Maple, sugar	4		Save
98	12	Basswood, american	4		Save
99	23	Maple, sugar	4		Save
100	23	Maple, sugar	4		Save
101	10	Elm, american	4		Save
102	14	Elm, siberian	4	Invasive/Non-Native	Remove
103	8	Elm, siberian	4	Invasive/Non-Native	Remove
104	10	Elm, siberian	4	Invasive/Non-Native	Remove
105	25	Boxelder	4	2x 15 10	Remove
106	12	Basswood, american	4		Save
107	6	Elm, siberian	4	Invasive/Non-Native	Save
108	8	Boxelder	4		Remove
109	16	Elm, american	4		Remove
110	11	Elm, american	4		Remove
111	13	Boxelder	4		Remove
112	9	Cherry, black	4		Remove
113	35	Basswood, american	4	3x 15 10 10	Save
114	8	Elm, american	4		Save
115	16	Elm, american	4		Save
116	32	Basswood, american	4	3x 12 10 10	Save
117	12	Elm, american	4		Remove
118	12	Elm, american	4		Remove
119	15	Boxelder	4		Remove
120	13	Elm, american	4		Save
121	8	Hackberry	4		Save
122	15	Elm, american	4		Save
123	13	Basswood, american	4		Save
124	6	Elm, american	4		Save
125	7	Elm, american	4		Save
126	10	Elm, american	4		Save
127	10	Elm, american	4		Save
128	11	Maple, sugar	4		Remove
129	7	Elm, american	4		Remove
130	9	Elm, american	4		Save
131	14	Hackberry	4		Save
132	17	Hackberry	4		Save
133	6	Cedar, red	4	25' tall	Save
134	8	Elm, american	4		Save
135	9	Elm, american	4		Save
136	28	Oak, bur	4		Save
137	6	Elm, american	4		Save
138	7	Ironwood	4		Save
139	8	Elm, siberian	4	Invasive/Non-Native	Save
140	21	Oak, bur	4		Save
141	21	Oak, bur	4		Save
142	9	Elm, siberian	4	Invasive/Non-Native	Save
143	9	Elm, american	4		Save
144	11	Maple, sugar	4		Save
145	10	Maple, sugar	4		Save
146	7	Maple, sugar	4		Save
147	12	Elm, american	4		Save
148	8	Maple, sugar	4		Remove
149	25	Basswood, american	4		Remove
150	16	Elm, siberian	4	Invasive/Non-Native	Remove
151	8	Elm, siberian	4	Invasive/Non-Native	Remove
152	9	Elm, siberian	4	Invasive/Non-Native	Remove
153	9	Basswood, american	4		Remove
154	9	Elm, american	4		Remove
155	11	Elm, american	4		Remove
156	17	Elm, american	4		Remove
157	17	Elm, siberian	4	Invasive/Non-Native	Remove
158	10	Basswood, american	4		Remove
159	7	Elm, siberian	4	Invasive/Non-Native	Remove
160	6	Elm, american	4		Remove
161	19	Basswood, american	4		Remove
162	9	Elm, american	4		Remove
163	12	Elm, american	4		Remove
164	16	Oak, red	4		Remove
165	8	Oak, bur	4		Remove
166	10	Oak, red	4		Remove
167	17	Oak, red	4		Remove
168	16	Basswood, american	4		Remove
169	8	Maple, sugar	4		Save
170	12	Oak, bur	4		Save
171	12	Oak, bur	4		Save
172	15	Elm, american	4		Save
173	17	Elm, american	4		Remove
174	9	Elm, american	4		Remove
175	15	Elm, american	4		Remove
176	12	Elm, american	4		Remove
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182	8	Hickory, butternut	4		Remove
183	25	Boxelder	4		Remove
184	23	Boxelder	4		Remove

Total Significant Trees: 168		
Total Trees removed: 58 (34.5%)		
Total Trees saved: 110 (65.5%)		
Total Signficant Inches: 1,982		
Total Significant Inches Saved: 1,236 (62.4%)		
Total Significant Inches Removed: 746 (37.6%)		
Allowable Removal (30% of 1,982): 595"		
Removal Over Threshold: 746-595 = 151"		
Mitigtion Required (1" mitigation for 1" removal over threshold): 151"		

MN DNR has classified Siberian Elm as invasive non-native.
Siberian Elm are removed from all calculations

TREE INVENTORY PROVIDED BY

Rehder Forestry Consulting

TREE PRESERVATION NOTES

BEFORE LAND CLEARING BEGINS, CONTRACTOR SHOULD MEET WITH THE CONSULTANT ON SITE TO REVIEW ALL WORK PROCEDURES, ACCESS ROUTES, STORAGE AREAS, AND TREE PROTECTION MEASURES.

NO FILL SHOULD BE PLACED AGAINST THE TRUNK, ON THE ROOT CROWN, OR WITHIN THE DRIP LINE AREA OF ANY TREES THAT ARE TO BE SAVED.

NO GRADING, TRENCHING OR PLACEMENT OF EQUIPMENT IS ALLOWED IN THE TREE PROTECTION AREA.

WORK PERFORMED WITHIN THE TREE PROTECTION AREA SHOULD BE DONE BY HAND AND UNDER THE SUPERVISION OF THE CONSULTING ARBORIST.

PRUNING OF OAK TREES MUST NOT TAKE PLACE FROM APRIL 15 TO JULY 15 TO PREVENT THE SPREAD OF OAK WILT DISEASE.

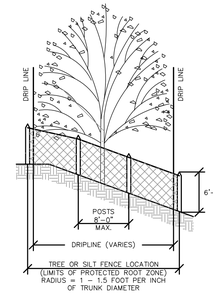
IF WOUNDING OF OAK TREES OCCUR ANYTIME BETWEEN APRIL TO AUGUST, A NON-TOXIC WOUND DRESSING MUST BE APPLIED IMMEDIATELY, (EXCAVATORS MUST HAVE A NON-TOXIC TREE WOUND DRESSING WITH THEM ON DEVELOPMENT SITES).

TREE PROTECTION DETAIL

NOT TO SCALE

TREES TO BE SAVED SHALL BE FENCED OFF WITH BRIGHT ORANGE POLYETHYLENE SAFETY NETTING OR HEAVY DUTY SILT FENCE AND STEEL STAKES AT THE DRIP LINE, OR AS DIRECTED BY THE OWNER'S CONSULTANT.

PROTECTION FENCE WILL HELP INSURE AGAINST DAMAGE BY VEHICLES, COMPACTION OF SOILS AND/OR THE CHEMICAL ALTERATION OF SOILS DUE TO CONCRETE WASHOUT, PAINTS AND LEAKAGE OR SPILLAGE OF ANY TOXIC MATERIALS.



INSTALL TREE OR SILT FENCE PRIOR TO OR AT SAME TIME AS LAND CLEARING.

PROTECTION FENCE SHOULD REMAIN IN PLACE UNTIL ALL CONSTRUCTION IS COMPLETE.

IF PROTECTION FENCE IS DAMAGED OR REMOVED, NEW FENCING MUST BE PLACED BACK IN ORIGINAL POSITION UNTIL CONSTRUCTION IS COMPLETE.

PIONEERengineering
CIVIL ENGINEERS LAND PLANNERS LAND SURVEYORS LANDSCAPE ARCHITECTS
2422 Enterprise Drive
Mendota Heights, MN 55120
(651) 681-1914
Fax: 681-9488
www.pioneereng.com

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Landscape Architect under the laws of the State of Minnesota

Name Jennifer L. Thompson
Reg. No. 44763 Date 10-8-2026

Revisions
1. 10-08-26 City & Watershed Comments

Date	06-26-2026
Designed	JLT
Drawn	JLT

TREE PRESERVATION PLAN

SEVEN OAKS LLC
221 RIVER RIDGE CIRCLE SOUTH, SUITE 100
BURNSVILLE, MN

SEVEN OAKS
MINNETRISTA, MN

00-PLAN-125159-SHEET-TREES

T2 OF 2

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REPORT

To: John Anderson, Developer
Seven Oaks, LLC (Brandl Anderson Homes)

From: Matt Pacyna, PE, Principal
Transportation Collaborative & Consultants, LLC

Date: September 23, 2026

Subject: Seven Oaks Development Traffic Study; Minnetrista, MN

INTRODUCTION

TC2 completed a traffic study for the proposed Seven Oaks residential development in the City of Minnetrista. The subject site, shown in Figure 1, is generally in the northeast quadrant of the Highway 7 and Buck Lake Road intersection. The main objectives of the study are to identify existing traffic operations within the study area, evaluate potential impacts of the proposed development, and recommend improvements, if necessary, to ensure safe and efficient operations for all users. The following study assumptions, methodology, and findings are offered for consideration.

Figure 1 Subject Site



EXISTING CONDITIONS

Existing conditions were reviewed within the study area to establish current traffic conditions to help determine impacts associated with the proposed development. The evaluation of existing conditions included collecting traffic volumes, observing transportation characteristics, reviewing crash history, and analyzing intersection capacity, which are described in the following sections.

Traffic Volumes

Vehicular intersection turning movement and pedestrian / bicyclist counts were collected at the Highway 7 and Buck Lake Road intersection on Thursday, August 27, 2026 from 6 a.m. to 7 p.m. Based on this data, the a.m. and p.m. peak hours represent 7 to 8 a.m. and 4:30 to 5:30 p.m., respectively. Heavy commercial vehicle activity along Highway 7 ranged from 6% to 9% during the peak hours. Average daily traffic (ADT) volumes were provided by MnDOT or estimated based on the data collected.

Transportation Characteristics

Observations were conducted within the study area to identify various transportation characteristics such as roadway geometry, traffic controls, speed limits, and multimodal facilities. A general overview of key roadways within the study area is as follows:

- ***Highway 7*** – a two-lane principal arterial roadway with an eastbound bypass lane and a westbound right-turn lane at the Buck Lake Road intersection. There are no multimodal facilities and the speed limit is 60-mph but changes to 50-mph near Wildwood Avenue / Hunters Trail.
- ***Buck Lake Road*** – a two-lane gravel local roadway with no multimodal facilities; there is no posted speed limit.

The Highway 7 and Buck Lake Road intersection has side-street stop control. Existing geometry, traffic control, and volumes in the study area are shown in Figure 2.

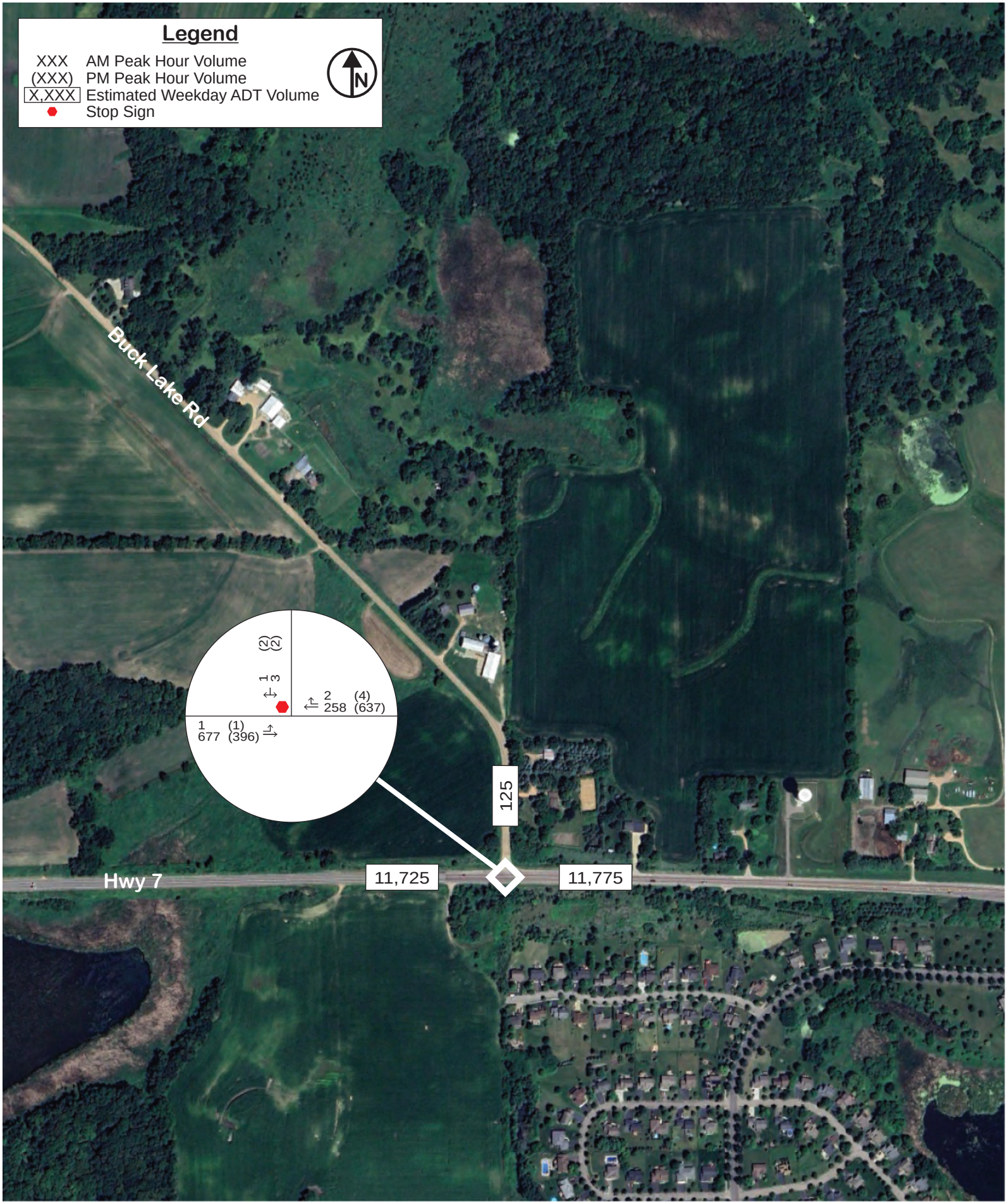
Crash History

Five (5) years of crash history were reviewed from 2021 through 2025 using *MnDOT's Crash Mapping Analysis Tool (MnCMAT)*. During that period, no crashes were reported at the Highway 7 and Buck Lake Road intersection. Based on this review there does not appear to be any safety issues from a crash frequency or severity perspective within the study area.

Intersection Capacity

Intersection capacity was evaluated using Synchro / SimTraffic Software (*version 12*), which uses methods outlined in the *Highway Capacity Manual, 7th Edition*. The software is used to develop calibrated models that simulate observed traffic operations, account for peaking characteristics, and identify key metrics such as intersection Level of Service (LOS) and queues. These models incorporate collected traffic, pedestrian, and bicyclist volumes, traffic controls, heavy commercial vehicle activity (i.e., buses and trucks), and driver behavior factors.

Level of Service (LOS) quantifies how an intersection is operating. Intersections are graded from LOS A to LOS F, which corresponds to the average delay per vehicle values shown. LOS A indicates the best traffic operation, while LOS F indicates an intersection where demand exceeds capacity. Overall intersection LOS A though LOS D is considered acceptable in the study area.



Existing Conditions

Seven Oaks Development Traffic Study

Figure 2

Level of Service	Average Delay / Vehicles	
	Unsignalized	Signalized
A	< 10 seconds	< 10 seconds
B	10 to 15 seconds	10 to 20 seconds
C	15 to 25 seconds	20 to 35 seconds
D	25 to 35 seconds	35 to 55 seconds
E	35 to 50 seconds	55 to 80 seconds
F	> 50 seconds	> 80 seconds

For side-street stop-controlled intersections, special emphasis is given to providing an estimate for the level of service of the side-street approach. Traffic operations at an unsignalized intersection with side-street stop control can be described in two ways. First, consideration is given to the overall intersection level of service, which takes into account the total number of vehicles entering the intersection and the capability of the intersection to support the volumes. Second, it is important to consider the delay on the minor approach. Since the mainline does not have to stop, most delay is attributed to the side-street approaches. It is typical of intersections with higher mainline traffic volumes to experience high levels of delay (i.e., poor levels of service) on the side-street approaches, but an acceptable overall intersection level of service during peak hour conditions. For side-street stop intersections, the overall intersection level of service is shown followed by the worst-approach level of service and delay.

The existing intersection capacity analysis results, summarized in Table 1, indicate that the study intersection and all approaches operate at an acceptable LOS A during the typical weekday peak hours; no significant queuing was observed. Thus, there are no significant existing operational issues from an intersection capacity perspective.

Table 1 Existing Intersection Capacity

Intersection	Traffic Control	Level of Service (delay in seconds)	
		AM Peak Hour	PM Peak Hour
Highway 7 and Buck Lake Road	SSS	A / A (7)	A / A (5)

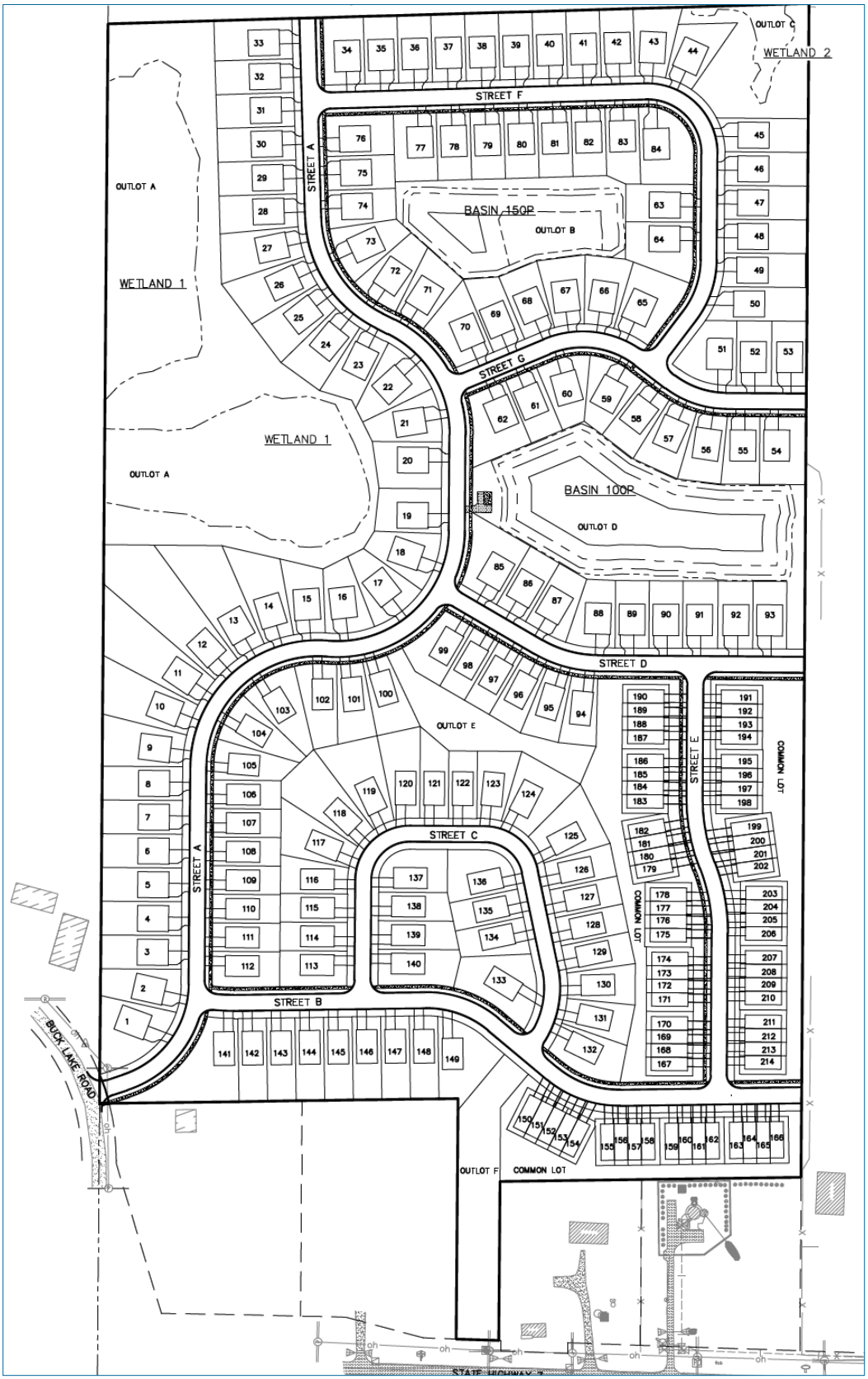
SSS – Side-Street-Stop
(overall intersection level of service is shown followed by the worst-approach level of service and delay)

PROPOSED DEVELOPMENT

The proposed development, shown in Figure 3, is in the northeast quadrant of the Highway 7 and Buck Lake Road intersection. The project includes a total of 214 residential units, which includes 149 single-family homes and 65 townhomes. Multimodal facilities (i.e., sidewalk) are planned to be provided along at least one side of each roadway within the development, except Street C. Construction is planned to be completed by the year 2030.

One (1) access to the site is planned located approximately 550 feet north of the Highway 7 and Buck Lake Road intersection. Note that the roadway network throughout the project site is configured to allow for future roadway connections to / from adjacent parcels if / when additional development occurs. Further discussion regarding access is provided later in this report.

Figure 3 Proposed Development Site Plan



TRAFFIC FORECASTS

Traffic forecasts were developed for year 2030 build conditions, which account for general background growth and trip generation from the proposed development. The following information summarizes the traffic forecast development process.

Background Growth

To account for general background growth in the study area, a one-half (0.5) percent annual growth rate was applied to the existing traffic volumes to develop year 2030 background traffic forecasts. Although daily traffic volumes have been stable or decreasing over the last 5+ years, the growth rate was applied to provide a more conservative assessment.

Proposed Development Trip Generation

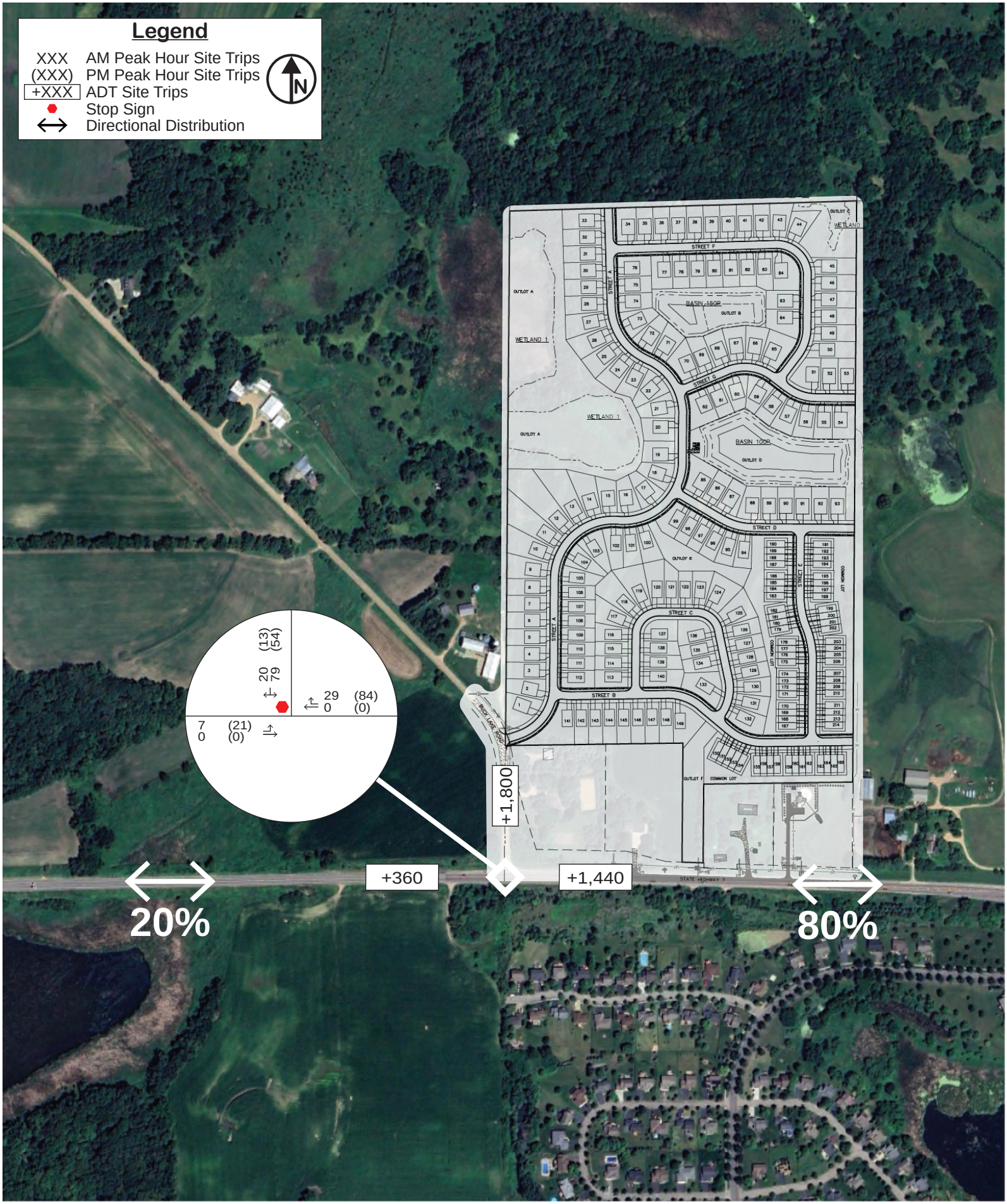
A trip generation estimate for the proposed development was created using the *ITE Trip Generation Manual, 12th Edition* and includes trips for typical weekday a.m. / p.m. peak hours, as well as daily. The proposed development, shown in Table 2, is estimated to generate 135 a.m. peak hour (36 in / 99 out), 172 p.m. peak hour (105 in / 67 out), and 1,780 daily (890 in / 890 out) trips. No reductions were included for trips via walking, biking, or transit to provide a more conservative analysis.

Table 2 Proposed Development Trip Generation Summary

Land Use Type *(ITE Code)*	Size	AM Peak Hour		PM Peak Hour		Daily
		In	Out	In	Out	
Single-Family Residential *(210)*	**149 units**	**28**	**76**	**86**	**53**	**1,354**
Townhomes *(215)*	**65 units**	**8**	**23**	**19**	**14**	**426**
Total	**65 units**	*+ 36*	*+ 99*	*+ 105*	*+ 67*	*+ 1,780*

Site generated trips, which are illustrated in Figure 4, were distributed to area roadways based on the global directional distribution shown, which was developed using a combination of existing travel patterns and engineering judgment. With Buck Lake Road being unpaved, it was assumed that there would be very few trips traveling to / from the north along Buck Lake Road. Therefore, site generated trips were only distributed to the west and east legs of Highway 7, which provides a more conservative analysis with respect to the Highway 7 and Buck Lake Road intersection capacity.

The resultant year 2030 build condition traffic forecasts are illustrated in Figure 5. Note that a future no build condition was not reviewed given the relatively short timeframe between existing and year 2030, as well as the relatively minimal background growth anticipated.



Site Generated Trips

Seven Oaks Development Traffic Study

Figure 4



Year 2030 Build Conditions

Seven Oaks Development Traffic Study

Figure 5

YEAR 2030 CONDITIONS

To understand impacts associated with the proposed development, a future intersection capacity analysis was completed for year 2030 build conditions. Results of the future capacity analysis, shown in Table 3, illustrate that the study intersection and all approaches are expected to continue to operate at an acceptable LOS C or better during the typical weekday peak hours. Peak queues along Buck Lake Road are expected to range from 75 to 100 feet, which equates to about three (3) to four (4) vehicles. Thus, there are no significant operational issues anticipated with the addition of the proposed development from an intersection capacity perspective.

Table 3 Year 2030 Build Condition Intersection Capacity

Intersection	Traffic Control	Level of Service (delay in seconds)	
		AM Peak Hour	PM Peak Hour
Highway 7 and Buck Lake Road	SSS	A / C (16)	A / B (14)

SSS – Side-Street-Stop
(overall intersection level of service is shown followed by the worst-approach level of service and delay)

ALTERNATIVE SITE ACCESS

As noted earlier, the roadway network within the proposed development was configured to eventually connect to future development and Wildwood Avenue to the east. Once a roadway connection from the proposed development to Wildwood Avenue is constructed, it is estimated that about 15% of the site trips (i.e., 250 daily trips) could utilize this connection and would no longer need to access Buck Lake Road. This roadway connection, if it were to be constructed, would be expected to improve operations of the Highway 7 and Buck Lake Road intersection compared to what is shown in Table 3.

HIGHWAY 7 / BUCK LAKE ROAD DESIGN REVIEW

A preliminary review of intersection sight distance and turn lane warrants was completed for the Highway 7 and Buck Lake Road intersection. This review indicates that the sight distance looking to the east and west is about 700 feet and 800 feet, respectively, with an average of 8.5 and 9 second gaps once a vehicle is observed. Design guidance from AASHTO recommends providing 665 feet of intersection sight distance (for a 60-mph roadway) and 7.5 second gaps for a passenger car to make a "Left Turn from Stop" condition (*sources: Table 9-6 and 9-7*). Therefore, intersection sight distance at the Highway 7 and Buck Lake Road intersection meets the recommended AASHTO guidance.

Using *MnDOT's Traffic Engineering Manual (Table 4-23 and Table 4-24)*, the future Highway 7 and Buck Lake Road intersection traffic volumes meet the criteria to warrant an eastbound left-turn lane and a westbound right-turn lane. However, the *Traffic Engineering Manual* does state that "A left-turn bypass lane may be considered when a left-turn lane is warranted where its construction is not practical due to limited right-of-way, steep terrain, existing structures, wetlands, or other protected features." Given the steep topography and limited drainage ditch along the south side of Highway 7 at this intersection, the relatively small amount of eastbound left-turn movements expected, and the potential realignment of Buck Lake Road to a future development access to the south, the benefit of implementing an eastbound left-turn lane does not appear to be a cost-effective improvement. Therefore, the existing eastbound bypass lane and westbound right-turn lane configuration should be maintained.

OTHER CONSIDERATIONS

A review of the proposed site plan does not indicate any major issues. However, the following items are offered for further consideration between the City and / or project team.

- Upgrade Buck Lake Road from Highway 7 to the proposed development access from a gravel roadway to a paved surface.
    - *Note that Buck Lake Road may eventually be realigned if / when additional development south of Highway 7 occurs to align future roadways and eliminate offset intersections.*
- Locate signage and landscaping to avoid creating any sight distance issues.
- Review truck maneuverability to limit potential internal circulation conflicts.
- Ensure that sidewalks are provided on at least one side of every road within the development.
- Review internal intersections and provide appropriate internal traffic controls (i.e., stop signs) in collaboration with the City Engineer.

CONCLUSIONS

Based on the findings of the study, the following conclusions are offered for consideration.

1) There does not appear to be any safety issues from a crash frequency or severity perspective within the study area.
2) The study intersection and all approaches operate at an acceptable LOS A during the typical weekday peak hours and there are no significant existing operational issues from an intersection capacity perspective.
3) The residential development includes a total of 214 residential units, which includes 149 single-family homes and 65 townhomes. Construction is planned to be completed by the year 2030.
4) Traffic forecasts were developed for year 2030 build conditions. The traffic forecasts account for a 0.5% annual background growth and trip generation from the proposed development.
    a. The proposed development is estimated to generate 135 a.m. peak hour (36 in / 99 out), 172 p.m. peak hour (105 in / 67 out), and 1,780 daily (890 in / 890 out) trips.
5) Under year 2030 build conditions, the study intersection and all approaches are expected to continue to operate at an acceptable LOS C or better during the typical weekday peak hours.
6) There are no significant operational issues anticipated with the addition of the proposed development from an intersection capacity perspective.
7) Once a roadway connection from the proposed development to Wildwood Avenue is constructed, it is estimated that about 15% of the proposed development site trips (i.e., 250 daily trips) could utilize this connection and would no longer need to access Buck Lake Road.
8) The intersection sight distance at the Highway 7 and Buck Lake Road intersection meets the recommended AASHTO guidance and the existing eastbound bypass lane and westbound right-turn lane configuration should be maintained.

9) The following items are offered for further consideration between the City and / or project team.
   a. Upgrade Buck Lake Road from Highway 7 to the proposed development access from a gravel roadway to a paved surface.
      - *Note that Buck Lake Road may eventually be realigned if / when additional development south of Highway 7 occurs to align future roadways and eliminate offset intersections.*
   b. Locate signage and landscaping to avoid creating any sight distance issues.
   c. Review truck maneuverability to limit potential internal circulation conflicts.
   d. Ensure that sidewalks are provided on at least one side of every road within the development.
   e. Review internal intersections and provide appropriate internal traffic controls (i.e., stop signs) in collaboration with the City Engineer.

July 23, 2026

Mr. Nickolas Olson
City Planner
City of Minnetrista
7701 County Road 110 West
Minnetrista, MN 55364

Re: Seven Oaks
Preliminary Plat Review
ML No. 26014

Dear Mr. Olson:

We have completed our review of the Preliminary Plat application submittal for the proposed Seven Oaks project. The project involves grading, street paving, storm sewer and stormwater BMP construction, watermain and sanitary sewer construction, and appurtenant work. The application materials were reviewed against the City's design requirements. The following items were submitted for review:

- Preliminary Plat for Seven Oaks, dated 6/26/2026
- Civil Plans for Seven Oaks, dated 6/26/2026
- Stormwater Report for Seven Oaks, dated 4/7/2025
- Soil Boring Report, dated 2/24/2026
- Tree Preservation Plan for Seven Oaks, dated 6/25/2026
- Wetland Delineation Report for Seven Oaks, dated 12/5/2025

We request that the developer provides a response letter with the next submittal to ensure that comments have been addressed.

General

1. Submit for and provide copies to the City of all required permits from regulatory agencies (MCES, Minnesota Pollution Control Agency, Minnesota Department of Health, NPDES, etc.)

Preliminary Plat

2. Include drainage and utility easement that extends at a 1:1 slope with a minimum of 10' on each side of a public utility outside of the right of way.
3. Eliminate easement 'islands' at the back of Lots 142-145

Site Plan

4. Provide a traffic study to recommend the intersection type for Highway 7/Buck Lake Road that factors in future conditions (background growth and future developments in the area). This condition stems from the anticipated future intersection modification at

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Wildwood Avenue (to the east) and the expected difficulty for southbound Buck Lake Road turning movement to eastbound Highway 7 during the morning and evening peak traffic flows

5. Provide proposed road section for Buck Lake Road reflecting any necessary improvements (widening, engineered materials, etc.) to accommodate proposed rural road
6. Improvements to Buck Lake Road are subject to review and approval from Watertown Township
7. Temporary cul de sacs or turnarounds will be necessary with phasing of the project
8. Provide additional signage including type 3 barricades with future through street
9. Horizontal and vertical curves should meet 30 MPH design standards for stopping sight distances
    a. Areas where this cannot be achieved will require reduced speed signs
10. See additional redline comments on plans

Grading Plan

11. Provide road profiles meeting 30 MPH design standards for stopping sight distances
    b. Provide existing and proposed profile for Buck Lake Rd
    c. Areas where this cannot be achieved will require reduced speed signs
12. Provide proposed spot elevations at all property corners
    d. Typically match existing around development perimeter
13. Provide high points between each lot
14. All common drainage should be directed along property lines or within established drainage and utility easements
15. Provide easements for all EOF routes
16. The HOA shall own and maintain retaining walls that fall on two or more properties.
17. See additional redline comments

Sanitary Sewer and Watermain

18. The city’s water engineer, AE2S will provide comments regarding the the proposed watermain.
19. Consider utility stubs for future water and sanitary sewer to serve the existing lots south of the development
20. Verify minimum required separation between sanitary forcemain and watermain along water tower site
21. Identify potential conflicts between the proposed water, sanitary and storm sewer

22. The sanitary sewer for the development will ultimately connect to St. Bonifacius' system. The developer shall coordinate construction with the City of St. Bonifacius.
23. Coordinate with MnDOT for the forcemain in the State R/W
24. During final design the developer's engineer shall contact the City Engineer and Public Works Director regarding the hydraulic grade of the steeper pipe segments as they connect to flatter pipes to determine if drip manholes are necessary.
25. During final design the developer's engineer shall contact the Public Works Director regarding the design of the lift station and the site layout.
26. An 8" PVC stub shall extend to the northern property line. City staff is evaluating the invert elevation necessary to serve the future developable area to the north.
27. The plans do not include a sanitary sewer stub to the property to the east which is appropriate based on the elevations.
28. See additional redline comments on plans

Stormwater Management and Storm Sewer

29. Provide storm sewer design calculations with a catch basin drainage area map. Ensure off-site drainage is included in storm sewer calculations.
30. Storm sewer minimum velocity is 3 fps, maximum velocity is 10 fps, and the maximum velocity into a pond is 8 fps. Manholes shall have 1/10th of a foot drop if pipe diameters are the same, or match crown elevations if pipe diameters are different. Confirm these requirements are met.
31. Ensure all storm sewer pipe includes labels. See comments on plan.
32. Add storm detail STO-8 and detail STO-16 if applicable. Make note on the plans to reference STO-8, STO-9, and STO-16. Include plan note to tie three pipe sections upstream of FES.
33. Inlets are required every 400 feet on streets/in swales. Additionally, inlet maximum design flow is 3 cfs. Confirm these requirements are met.
34. Mark inlets not within paved area with a heavy (3lbs./ft) channel post unless located in a maintained lawn with easements (see SAN-12).
35. Confirm catch basin locations are 5' from the return of all intersection radii.
36. Add offsite drainage to the stormwater management report. Confirm total offsite area matches in existing and proposed conditions.
37. A storm sewer segment, as called out in the plans, does not meet easement requirements for the build depth. Recommended to shift CBMHs 1103 and 1104 east to be centered on the D&U easement, then shift STMH 1102 north to avoid property conflicts.
38. Submit modeling calculations for the 1-year storm event, per the City's surface water management plan.

39. Confirm HWLs reported on the plans match the HydroCAD models. Additionally, please show the 10-yr HWL on the plans.
40. For the reuse basin 100P, adjust all inlet FESs to no lower than 964.5 and extend riprap to the drawdown elevation. Basin 100P's 10:1 bench should stay at the drawdown elevation with a shallower slope (4-5:1) extended through the reuse zone to ensure safety surrounding the basin during times of drawdown levels. The maintenance access route shall utilize the 10:1 bench at the drawdown elevation.
41. NURP pretreatment is required prior to discharge. A permanent pool volume greater than or equal to the runoff from a 2.5" storm over the entire drainage area, assuming full development, is required for all stormwater basins onsite. The permanent pool average depth (basin volume at NWL / basin area at NWL) shall be greater than 4', which is currently not met for basin 150P.
42. EOFs are to have capacity to overflow water at an elevation below the lowest building opening at a rate not less than three times the 100-year peak discharge rate from the basin or the anticipated 100-year peak inflow rate to the basin, whichever is higher.
43. A watershed district permit will be required for final approval. Confirm watershed district rule requirements are met.
44. Submit an operation plan, pump design, and irrigation area and layout for the stormwater reuse system. Show lift station location on the irrigation plans and show how stormwater will leave the reuse basin 100P. Irrigation demand is recommended at a 2:1 ratio of drainage area to directly connected impervious. See CCWMO study. Ensure the design has adequate water augmentation to provide in dry years. Recommended to direct more impervious to basin 100P or install a booster head pump at another basin.
45. Wetland A is impacted based on the wetland plans. Describe how mitigation will be handled for the wetland impact.
46. Provide D&U over Outlot B and all EOF routes.
47. Confirm homes are not located in the drainage and utility easement.
48. Ensure maintenance access routes meet City requirements with a maximum grade of 7%, maximum cross slope of 2%, minimum horizontal curve radius of 50', minimum width of 12', and a load capacity of 30 tons. All inlets, pond NWL, and filtration benches shall be accessible by the maintenance route. Applies to all basins onsite.
49. Show 100-yr floodplain and HWL for all existing waterbodies onsite. Ensure there is no cumulative fill in the floodplain. Ensure there is adequate separation from existing waterbody HWLs to proposed development.
50. Provide a maintenance agreement.
51. Sewer shall be bedded according to City detail plates BED-01 through BED-03. Include details in plans.
52. Ensure stormwater pipes are not short circuiting.
53. Ensure all EOFs have 1 ft separation from low opening.
54. Lawn and landscape irrigation systems within the development cannot be connected to city water per Section 500.31 Subd. 4 of City Code. The lawn and landscape irrigation needs of the development can be served by the installation of a separate irrigation system supply pipes connected to the storm water ponds.

55. Include erosion control blanket on all slopes that are 3:1 or greater.

Sincerely,
WSB

Alyson Fauske, P.E. (MN)
(612) 263-1736
afauske@wsbeng.com

Carver County
Water Resource Management
Ordinance and BMP Guidelines

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Section 1. Ordinance Guidance

These guidelines have been developed in accordance with the Carver County Water Resource Management Ordinance (Rules) that went into effect **October 15, 2016**. The intention is to show example calculations and typical best management practices (BMPs) that can be used to meet the water quality and volume reduction requirements of the Rules. BMPs other than those described in these guidelines may also be used; available references for BMP designs and descriptions can be found in the Minnesota Stormwater Manual.

A. Calculating Treatment Volumes and Selecting BMPs

Related Ordinance Section(s): § 153.56

Guidance on Calculating Treatment Volumes

For The treatment volume is a storm event of 1inch. If the site has a qualifying constraint, volume retained is reduced to 0.5 inches and water quality treatment will be 1 inch, as indicated below. Linear Projects have an added requirement to treat ten (10) percent of reconstructed impervious surfaces.

1. Volume Retained. The requirement is 1 inch from the site impervious or 0.5 inches from the site impervious area if site has a qualifying constraint.

2. Water Quality Treatment. The requirement is 1 inch from the site impervious. All volume reduction BMPs assume a 100% reduction for Water Quality treatment up to 0.5 inches, resulting in a total treatment requirement of 0.5 inches.

Calculating the required TOTAL Treatment Volume for a Site

Non-linear Site

Assume a 5 acre commercial site has 75% impervious. Calculate the treatment volume as follows:

Step 1: Calculate the VOLUME to be RETAINED on site (1 inch)

163,350 ft^2 of impervious x 1 inches x 1 ft /12 inches = ***13,613 ft^3***

Step 1A: If site is constrained: Calculate the VOLUME to be RETAINED on site (0.5 inches)

163,350 ft^2 of impervious x 0.5 inches x 1 ft /12 inches = ***6,806 ft^3***

Step 2: Calculate the VOLUME to be treated for WATER QUALITY (0.5 inches)

13,613 ft^3 – 6,806 ft^3 = ***6,807 ft^3***

Linear Site

Assume a linear project of 4 acres of new impervious and 1 acre of reconstructed impervious. Calculate the treatment volume as follows:

Step 1: Add 10 percent of the reconstructed impervious area to the total new impervious area

174,240 ft^2 + 4,356 ft^2 **= 178,596** ft^2

Step 2: Calculate the VOLUME to be RETAINED on site (1 inch)

178,596 ft^2 of impervious x 1 inches x 1 ft /12 inches = ***14,883 ft^3***

Step 2A: If site is constrained: Calculate the VOLUME to be RETAINED on site (0.5 inches)

178,596 ft^2 of impervious x 0.5 inches x 1 ft /12 inches = ***7,442 ft^3***

Step 3: Calculate the VOLUME to be treated for WATER QUALITY (0.5 inches)

14,883 ft^3 – 7,442 ft^3 = ***7,441 ft^3***

Select BMPs

Review Section 2. Best Management Practice (BMP) Guidance to identify potential BMPs for volume control and water quality treatment for your site.

Demonstrate that Volume, TP and TSS Removal Requirements Have Been Met

Section 2 Best Management Practice (BMP) Guidance can be used on how to calculate the volume treated and pollutant removal percentages for each BMP selected for the site. A calculator is available on the Carver County website (http://www.co.carver.mn.us/home/showdocument?id=5871) for use in demonstrating that the requirements have been met and is further described in Section 2.C.

B. Volume Credit Banking Guidance

Related Ordinance Section(s): § 153.56(E)(5)

Purpose

Carver County WMO is establishing a Stormwater Credit Banking Program for Local Government Units (LGUs) that construct regional water treatment projects. These practices are intended to treat stormwater to a higher quality than is required by federal laws, state statutes, and county ordinances creating a positive balance of stormwater treatment credits. These credits are then available for other projects within the LGU boundaries.

In addition to the regional treatment practices, LGUs can also retrofit existing best management practices (BMPs) that treat more than is required or construct BMPs that are designed to treat what is more than required. In either situation, the extra credits are also qualified to be used within the Stormwater Credit Banking Program.

Establishing a Stormwater Credit Bank

An LGU can apply to establish a stormwater credit bank that can be used by other entities, both private and public. It will be the responsibility of the LGU to establish the cost for each credit being offered. Once established, it is the responsibility of the LGU to track the use of credits, with the WMO reviewing all applications for credit withdrawal.

To apply, the LGU must submit the following items:

- Site Plan
- Stormwater Management Plan and Details
- Hydrologic, Hydraulic, and Water Quality Computations
- Regional plan for usage
- Credit Bank Spreadsheet

Eligible BMPs

Certain BMPs that have a volume reduction credit will be eligible for a stormwater credit bank. These BMPs are:

- Stormwater Reuse
- Pervious Pavement
- Upland Restoration
- Amended Soils
- Bioretention basins with 3 feet of separation
- Green Roof

Credit Utilization

Once a credit bank has been established, the LGU has the authority to release credits. Credits can be used in the following ratios based on location:

- 1:1 credit when used within the same major subwatershed

0.5:1 credit when used outside the same major subwatershed

Banking Spreadsheet

The LGU will establish a banking spreadsheet to record the initial credits available and subsequent credit withdrawals. For each tab, or individual BMP selected, there are two sections that make up the spreadsheet. The top portion is for the initial design of the BMP with an estimated credit available. The bottom portion is designed for tracking of credits that are remaining in the bank. Each time a new applicant applies and receives credits, this table is updated.

C. Upstream and Downstream Impacts Guidance

Related Ordinance Section(s): § 153.56(G)

Purpose

Development of land can cause significant changes to the surrounding hydrology and nearby properties. Carver County WMO may request additional information for individual developments regarding how changes to a site may impact adjacent properties wither upstream or downstream of the project area. Any changes occurring within the project area cannot cause damage to adjacent parcels.

Required information

CCWMO requires certain information to confirm that development does not adversely impacts adjacent parcels. Impacts occurring upstream of a project site mainly include either impoundment of water or changing water ways due to changes to topography or drainage pipes. To investigate these potential impacts, Carver County Water Management Staff may request the following information:

- Plans showing offsite location and elevations of known tiles and intakes
- Locations and elevations of culverts under roads or farm accesses
- Location and bottom floor elevation of structures
- Perimeter swales or diversions along property lines shall be identified
- Hydrological model indicating no net increase in surface ponding or impediments within a stormwater system, which includes drain tiles.

Carver Soil and Water is available to assist with adjacent agricultural landowners. In summary, the proposed development shall not create berms or show other grading that inhibits existing drainage patterns or causes water to pond offsite.

Downstream impacts can occur due to an increase in volume, poor erosion control, or extreme events. Although the development will be required to maintain or lessen existing rates, to investigate the potential of offsite impacts the applicant may be required to do the following:

- Identify the downstream flowpath to the next receiving water body (wetland, stream, pond, etc.)
- Show the drainage capacity for the EOF flowpath (if different from the typical discharge flowpath)
- Show downstream channel capacity (calculate HWLs, etc.) using the site's discharge pipe(s) one or two year event and at full flow. These full flow rates may be higher than the modeled rates, however it allows for review of offsite system capacity at maximum flows.
- Document the downstream culvert or stormwater conveyance capacity.
- Document road overflow elevations
- Document structure elevations

In summary, the County will review the effect of additional volume and extreme events on downstream systems.

D. Maintenance Plan Guidance

Related Ordinance Section(s): § 153.56(H)

Purpose

Maintenance of stormwater BMPs is of vital importance for long-term operation. Maintenance may consist of sediment removal, vegetation cutting, replanting, changing types of plantings, etc.

Required Information

A maintenance plan or agreement, including the following components shall be provided prior to release of the site escrow:

1. Defines maintenance responsibilities following completion of the project
2. Specifies types and frequency of inspection and maintenance activities
3. Specifies who will conduct inspections and maintenance activities.
4. Site map showing BMP locations with drainage areas for each BMP
5. Planting Plan

A sample maintenance plan and list of inspection activities follow in Section 3.

E. Wetland Transition Setback Guidance

Related Ordinance Section(s): § 153.57(B)

Accepted Wetland Function and Value Assessments

1. Carver County Wetland Function and Values Assessment. The County completed a wetland function and values assessment in 2001. Data is available on the Carver County Property Information mapping application (https://gis.co.carver.mn.us/publicparcel/) or from Planning and Water Management Staff.

2. BWSRs Agricultural Wetland Evaluation Tool. This wetland functional assessment tool was developed for use in evaluating agricultural wetlands. It is based on the latest version of the Minnesota Routine Assessment Method (MnRAM) for evaluating wetland functions, a BWSR-approved wetland functional assessment. See the links below for additional information.

   Guidance Document (http://www.bwsr.state.mn.us/wetlands/wetlandbanking/agbanking/Agricultural_Wetland_Evaluation_Tool_6-26-13.pdf)

   Web Calculator (http://apps.bwsr.state.mn.us/agbank/)

3. Full or modified Minnesota Routine Assessment Method (MnRAM). Applicants may propose to use the full or a modified version of MnRAM to classify wetlands. If using a modified version of MnRAM, please submit information on proposed modifications to the full MnRAM assessment to Planning and Water Management Staff prior to completing the assessment.

   MnRAM 3.4 (http://www.bwsr.state.mn.us/wetlands/mnram/index.html)

F. Topsoil Management Plan Guidance

Related Ordinance Section(s): § 153.60

Purpose

The goal of the Topsoil Management Plan is to preserve the structure of undisturbed soils on site and/or improve the quality and permeability of disturbed soils once mass grading is completed and infrastructure is installed.

Carver County Topsoil Standard

Table 1. Carver County Topsoil Standard

Requirement	Range	Test Method
Material Passing the ¾ in [19 mm]	100 %	ASTM D 422
Material passing No 4 in [4.75 mm]	≥ 85%	-
Clay	5% – 30%	ASTM D 422
Silt	5% - 35%	ASTM D 422
Sand	38% - 75%	ASTM D 422
Organic matter	3% – 15%	ASTM D 2974
pH	6.1 – 7.5	ASTM G 51
Compaction	- 1,400 kilopascals (kPa) / 200 pounds per square inch (psi) in the upper 12 inches of soil, or - bulk density of less than 1.4 grams per cubic centimeter (g/cm3) in the upper 12 inches of soil	Field test

Matching Existing Soils

For sites that have not been previously graded, a site specific topsoil standard can be developed using one of the methods described below. The site specific standard should include

Method 1 Soil Survey Data

A site specific topsoil standard can be developed using information on physical soil properties from the Natural Resource Conservation Service's Web Soil Survey for Carver County. A site specific standard shall be developed using a weighted average of the physical soil properties for the top 12 inches of soil map units identified within the project area.

Method 2 Onsite Testing

A site specific topsoil standard may be developed using onsite sampling results. One (1) sample shall be collected of the top 12 inches of soil from each soil map unit within the disturbed area of the project. Samples shall be collected and analyzed for percent clay, percent sand, percent silt, organic matter content, and pH. A site specific standard shall then be developed using a

weighted average of the samples collected on site. Sample results and the proposed site specific standard must be submitted prior to permit approval.

Stockpile Testing Requirements

One composite sample shall be collected, tested, and submitted per 2,500 cubic yards of stockpile. For sites with stockpiles less than 2,500 cubic yards, a minimum of one composite sample shall be collected, tested, and submitted.

Stockpile Sampling Procedures

1. One sample shall be collected per 2,500 cubic meters of stockpile (a minimum of one sample shall be taken if stockpiles are less than 2,500 cubic meters).
2. The Contractor/Supplier shall form a face for the full height of the stockpile at four locations.
3. A loader bucket or similar equipment shall then be filled by channeling the full height of the stockpile face, from the bottom to the top, in one operation.
4. The bucket shall then be lowered and emptied by rotation to form a small pile at each sampling location.
5. The sampler shall place a shovel full of soil from each pile into a large container. The soil shall be thoroughly mixed and a sufficient amount of mixed topsoil shall be taken to fill a standard topsoil sampling container.
6. Samples shall be submitted for analysis to lab qualified to use the following test methods: ASTM D 422, ASTM D 2974, and ASTM G 51. Samples shall be analyzed for clay, silt, sand, organic matter, and pH.
7. Additional topsoil shall not be added to the stockpile after sampling.
8. Sample results shall be submitted to the County for review. Test results are valid for 6 months.

Inplace (ungraded) Topsoil Sampling Procedures

1. The sampling procedure for inplace (ungraded) topsoil shall consist of the preparation of one composite sample for each soil map unit within the project area.
2. Each composite sample shall represent full depth topsoil from not fewer than ten individual locations per soil map unit. If the full depth is unknown, a sample from the top 6 inches of soil shall be obtained at each location.
3. The sampler shall place a shovel full of soil from each area into a large container. The soil shall be thoroughly mixed and a sufficient amount of mixed topsoil shall be taken to fill a standard topsoil sampling container.
4. Samples shall be submitted for analysis to lab qualified to use the following test methods: ASTM D 422, ASTM D 2974, and ASTM G 51. Samples shall be analyzed for clay, silt, sand, organic matter, and pH.
5. Sample results shall be submitted to the County for review.

Testing Requirements for Imported Topsoil

For imported topsoil material, test results or certification from the supplier will be acceptable methods for demonstrating compliance with the topsoil standard. If test results or certification from the supplier are unavailable, testing should be conducted per the requirements for stockpile testing (1 sample per 2,500 cubic yards of material).

Subsoil Preparation Methods

Perform subsoil preparation before placing topsoil. Perform subsoil preparation in one direction on the contours perpendicular to the flow of water and slopes flatter than 1:2 (V:H).Scarify/loosen the subsoil to a depth of 6 inches. Subsoil areas shall be loosened to less than 200 psi [1400 kPa]. For saturated soil, delay subsoil preparation until soil dries to at least field capacity.

The following areas do not require subsoil preparation:
- Areas within the dripline of existing trees,
- Over utilities within 30 in of the surface,
- Where trenching or drainage lines are installed,
- Where compaction is required by design (abutments, footings, or inslopes), and
- Inaccessible slopes.

Soil Bed Preparation Methods

Prepare the soil surface to provide a smooth, moist, and evenly textured foundation before sowing seed or placing sod. Complete the tilling after applying soil amendments to the soil. Use cultivating equipment such as disks, harrows, field diggers, or tillers capable of loosening the soil to a depth of at least 6 in on all areas except for slopes steeper than 1:2 (V:H). Till the soil surface to remove track imprints from wheeled or tracked equipment. Operate cultivating equipment on slopes at right angles to the direction of surface drainage. Soil clods, lumps, and tillage ridges 3 in [75 mm] high may remain in place for seeding operations. Soil clods, lumps and tillage ridges 1.5 inch (40 mm) high may remain in place for sodding operations. Multiple passes of the equipment may be needed to meet these requirements

Submittal Requirements

The Topsoil Management Plan shall include the following information:

(1) Topsoil Standard. This section will identify the topsoil standard being utilized for the project.

(2) Topsoil Stripping and Stockpiling Methods. This section shall include the following:

   (a) Estimated quantity of topsoil available on the site.
   (b) Quantity of topsoil needed to restore green space areas.
   (c) Estimated depth of topsoil available on the site.
   (d) Description of equipment used to strip topsoil.
   (e) Temporary methods of erosion control for topsoil stockpile (silt fence or similar).
   (f) Permanent methods of erosion control for topsoil stockpile (establishment of vegetation) if stockpile will remain in place for longer than 6 months.

(3) Topsoil Stockpile Sampling Methods. This section shall include a description of the number of samples to be collected and the process for collecting samples from the stockpile(s). One composite sample shall be collected, tested, and submitted per 2,500 cubic yards of stockpile. For sites with stockpiles less than 2,500 cubic yards, a minimum of one composite sample shall be collected, tested, and submitted.

(4) Topsoil Re-application Procedures. This section shall include the following:

   (a) Method for decompacting subsoil prior to reapplication of topsoil.
   (b) Method for re-applying stockpiled topsoil prior.

(c) General description of method(s) for amending topsoil to meet specification provided in Table 2, if testing shows stockpiles do not meet specification.

(5) Construction Schedule and Phasing. Construction sequencing shall include:

(a) Timing for stockpiling topsoil.
(b) Timing for preparing subsoil and replacing topsoil in common areas.
(c) Timing for preparing subsoil and replacing topsoil on individual lots.

(6) Plan Sheet(s) showing:

(a) Quantity of topsoil needed.
(b) Total green space area including outlots, common areas, boulevards, residential front, rear, and side lots, etc. Green space area shall be shown on plan sheet and calculation of total area shall also be provided.
(c) Location and size of stockpile(s).
(d) Location(s) where topsoil is to be reapplied.
(e) Note that topsoil must be reapplied at a depth of 6 inches and must meet the specification in Table 2.
(f) Note that topsoil quality and depth must be verified by County or City staff prior to seeding or placement of sod.

G. Selecting Vegetation

Selecting appropriate vegetation is essential for proper functioning of a stormwater BMP. Below are links to tools that can aid in selecting vegetation. **Table 1** (below) contains a list of suitable plants for infiltration/filtration areas based on soil moisture level. The Carver SWCD is available to assist in selecting regionally appropriate plants, call 952.466.5230 for more information.

Plant Selection Tools

- **Plants for Stormwater Design** (MPCA, July 2003). Copies of this guidebook are available for viewing at the Planning & Water Management Office, the SWCD Office, or online at http://www.pca.state.mn.us/yhiza85.
- The **MnDOT Seeding Manual** is available online. The following **MnDOT seeding mixtures** are recommended:
  - Mixture 33-261 – Ponds & Wet Areas
  - Mixture 34-262 – Wet Prairie
  - Link: http://www.dot.state.mn.us/environment/erosion/pdf/seedingmanual.pdf

Table 1. List of Suitable Plants for Infiltration/Filtration Areas

Wet (Basin Base)			
Common Name	**Scientific Name**	**Common Name**	**Scientific Name**
Fox Sedge	*Carex vulpinoidea*	Joe-Pye Weed	*Eupatorium maculatum*
Sweet Black Eyed Susan	*Rudbeckia subtomentosa*	Ironweed	*Vernonia fasciculata*
Common Elderberry	*Sambucus canadensis*	Dense Blazingstar	*Liatris spicata*
Blue Flag Iris	*Iris versicolor*	Boneset	*Eupatorium perfoliatum*
Swamp Milkweed	*Asclepias incarnata*	River Birch	*Betula nigra*
Redosier Dogwood	*Cornus sericea*	Highbush Cranberry	*Viburnum trilobum*
Wet Edge (Lower Side Slopes)			
Common Name	**Scientific Name**	**Common Name**	**Scientific Name**
Purple Coneflower	*Echinacea purpurea*	New England Aster	*Aster novae-angliae*
Ohio Goldenrod	*Solidago ohioensis*	Ox Eye Sunflower	*Heliopsis helinathoides*
Marsh Phlox	*Phlox glaberrima*	Culver's Root	*Veronicastrum virginicum*
Yellow Coneflower	*Ratibida pinnata*	Black Chokeberry	*Aronia melanocarpa*
Prairie Blazingstar	*Liatris pychnostachya*	Wild Quinine	*Parthenium integrifolium*
Smooth Penstemon	*Penstemon digitalis*	Blue False Indigo	*Baptisia australis*
Mesic Upland (Upper Side Slopes & Edge)			
Common Name	**Scientific Name**	**Common Name**	**Scientific Name**
Little Bluestem	*Schizachyrium scoparium*	Rattlesnake Master	*Eryngium yuccifolium*
Switch Grass	*Panicum virgatum*	Purple Prairie Clover	*Petalostemum purpureum*
Indian Grass	*Sorghastrum nutans*	Sideoats Grama	*Boutelioua curtipendula*
Stiff Goldenrod	*Solidago rigida*	Bush Honeysuckle	*Diervilla lonicera*
Black Eyed Susan	*Rudbeckia hirta*	Purple Coneflower	*Echinacea purpurea*
Bergamot	*Monarda fistulosa*	Butterfly Milkweed	*Asclepias tuberosa*

Section 2. Best Management Practice (BMP) Guidance

A. Volume Control Credit Calculations

Methods for calculating the volume reduction for a variety of BMPs are listed below. The volume control requirement can be met using a combination of practices. Other than the Amended Soils and Upland BMPs, volume credit is based upon the impervious surfaces draining to the practice. **BMPs must be built and inspected by Carver County Staff to the standards described in Section 2.D. BMP Design Guidance and Section 2.E BMP Construction Details in order to qualify for the volume credits listed below.**

Amended Soils

Calculation Method. The volume reduction for amended soils is calculated using a maximum of 0.5 inches over the amended area. Design guidance for amending soils is available in Sections 2D and 2E.

Bioretention with 3 feet of vertical separation

Calculation Method. The volume reduction for bioretention is calculated as 40% of the ponded volume. Construction details for bioretention practices are available in Sections 2D and 2E. No volume credit will be given for bioretention practices within 3 feet of vertical separation from the seasonally high groundwater or sited immediately adjacent to wet ponds and/or bioretention practices controlled by the same outlet as a wet pond (e.g. bioretention shelves or benches).

Stormwater Reuse (irrigation).

Calculation Method. To meet the volume requirement, the volume to be retained onsite must be utilized on site once per week for a period of 20 weeks during the growing season. The volume reduction for stormwater reuse is calculated by the area irrigated times the irrigation rate, with limits based upon area draining to the storage area and storage volume. Refer to Section 2D for total stormwater reuse volume reduction credits.

Preservation or Restoration of Upland Vegetation.

Calculation Method. The volume reduction for preservation or restoration of upland vegetation is calculated using a maximum of 0.5 inches over the amended area. Design guidance is available in Section 2D.

Green Roof.

Calculation Method. The area of the green roof is excluded from the total impervious calculation, thereby reducing the total treatment volume. Design guidance is available in Section 2D.

Pervious Pavement.

Calculation Method. The volume reduction for pervious pavement is calculated as 50% of the volume below the tile outlet elevation (assumes 50% pore space below tile). The area of pervious pavement is also excluded from the total impervious calculation. Construction details for pervious pavement are available in Sections 2D and 2E.

Infiltration.

Calculation Method. The volume retained is calculated as 80% of the ponded volume.

Disconnecting Impervious Surfaces.

Calculation Method. Volume reduction for disconnecting impervious surface is dependent upon the pervious area being routed to and must have amended soils to receive volume reduction credits. Volume reduction is 0.5 inches over the area of amended soils, with a maximum width equal to the flow path. Impervious areas must be discharging to the amended soils as a uniform sheet flow, with a max flow path of 100 feet.

NOTES.

1. Combinations of the above practices can be used to meet the volume control requirement.
2. A calculator is available on the Carver County website (http://www.co.carver.mn.us/home/showdocument?id=5871) for use in determining whether or not the requirements have been met.

B. Water Quality Credit Calculations

Water quality requirements can be met using a combination of practices. The given removal percentages for TP are listed below, as sites meet the phosphorus requirement, they will also meet the TSS requirement. **BMPs must be built to the standards described in Section 2.D. BMP Design Guidance and Section 2.E BMP Construction Details in order to qualify for the water quality credit listed below.**

Pond (NURP)
Calculation Method. For stormwater ponds designed to meet NURP design criteria (2.5 inches over the entire watershed draining to the pond), 60% TP removal and 80% TSS removal can be assumed for the ponded volume.

Pond (NURP) with Filtration
Calculation Method. For stormwater ponds designed to meet NURP design criteria (2.5 inches over the entire watershed draining to the pond) and include either a filtration bench or filtration shelf, 90% TP removal and 90% TSS removal can be assumed for the ponded volume and filtered volume.

Pond (MN Stormwater Manual)
Calculation Method. For stormwater ponds designed to meet MN Stormwater Manual (1,800 cubic feet of dead storage per acre of watershed draining to the pond), 40% TP removal and 65% TSS removal can be assumed for the ponded volume.

Pond (MN Stormwater Manual) with Filtration
Calculation Method. For stormwater ponds designed to meet MN Stormwater Manual (1,800 cubic feet of dead storage per acre of watershed draining to the pond) and includes either a filtration bench or a filtration shelf, 75% TP removal and 80% TSS removal can be assumed for the ponded volume.

Bioretention/Filtration
Calculation Method. Bioretention basins designed to meet the design criteria in the Carver County BMP Guidelines, 75% TP removal and 90% TSS removal can be assumed for the volume filtered.

Iron-enhanced Sand Filter
Calculation Method. For iron-enhanced filtration systems designed to meet design criteria in the Carver County BMP Guidelines, 90% TP and TSS removal can be assumed for the volume filtered.

Infiltration
Calculation Method. 100% TP and TSS removal can be assumed for the volume naturally infiltrating.

Hydrodynamic Separator
Calculation Method. TSS removal is 50% of the watershed being treated by the device. No credit is given for TP removal.

Disconnecting Impervious surfaces

Calculation Method. 45% TP reduction and 75% TSS reduction with a maximum area equal to the area of impervious area discharging to the pervious area. Discharge must be uniform sheet flow with a max flow path of 100 feet.

Notes.

1. Combinations of the above practices can be used to meet the water quality requirement.
2. A calculator is available on the Carver County website (http://www.co.carver.mn.us/home/showdocument?id=5871) for use in determining whether or not the requirements have been met.

C. BMP Design Guidance

The following construction design guidance are included here for reference. **BMPs must be built to these standards in order to qualify for the water quality and volume credits described in the Rules.**

Alternative designs may be approved if, upon review, the county determines the design will provide treatment equal to or greater than the practices described in this appendix. Applicants wishing to utilize an alternative design must submit plans and specifications for the proposed design along with calculations showing compliance with the stormwater standards of Carver County Ordinance Chapter 153. Calculations should be generated using industry standard models.

Design guidance is provided for the following BMPs:

1) Amended Soil
2) Green Roof
3) Stormwater Reuse
4) Preservation or Restoration of Upland Vegetation
5) Pond Bioretention Bench or Shelf
6) Disconnecting Impervious Surfaces
7) Hydrodynamic Separators

1) Amended Soil Design Guidance

Purpose

The purpose of amending soil is to decrease the volume and rate of runoff by enhancing soil absorption and plant uptake capacity. A secondary benefit of amending soils with compost is that the need to fertilize turf at compost amended sites is reduced or eliminated. The methods below were created after a review of information from Iowa Stormwater Manual, Minnesota Stormwater Manual, EPA office of Research and Development, Seattle, WA literature and existing MNDOT specifications.

Calculation Method

The volume reduction is calculated using a maximum of 0.5 inches over the amended area.
The rate of runoff reduction for the amended area can be reduced by upgrading the Hydrologic Soil Group (HSG) condition of the soil group from Type C to B. This adjustment under model runs for proposed conditions may reduce the "bounce" in the pond for the site.

Eligible Areas

Areas of passive green space are eligible for the amended soils volume credit. Areas of active green space (yards, playing fields, etc) are not eligible. Areas within existing setbacks, defined either by County or LGU Ordinance are not eligible.

Design Guidance

Approved Construction Materials

Compost: Mature compost from yard waste is preferred over manure compost for increasing soil infiltration rates. Table 1 from the Minnesota Stormwater Manual summarizes recommended compost qualities.
Topsoil: imported topsoil shall meet Carver County Topsoil Specifications.

Construction Methods

Amended soils can be achieved either by modifying existing soil and/or importing equivalent. Soil testing may be necessary to document the qualities of imported topsoil and compost.

a. Amending undisturbed soils. Till soil to a depth of 10-16 inches using rip-type tillage equipment. Prior to tilling, perform plasticity test to determine soil moisture content. Installation must stop if smearing and compaction is occurring due to wet soils. Apply 2-3 inches of compost to existing top soil and re-till to a depth of 8 inches.

b. Amending disturbed soils.
    i. Prepare subgrade -- Before replacement of topsoil, apply 1 inch of compost over subsoil. Till to a minimum depth of 6 to 10 inches using rip-type tillage equipment. Prior to tilling, perform plasticity test to determine soil moisture content. Installation must stop if smearing and compaction is occurring due to wet soils.
    ii. Amended Soils -- Incorporate compost in the replaced topsoil at a rate of 2 inches of compost per 6 inches total of topsoil. Any additional imported topsoil shall meet Carver County Topsoil specifications.

c. Construction Plans.

i. Construction plans should include detail of soil amendment methods chosen for site (see details section for example soil amendment detail)
ii. Construction plans should clearly show the location to be amended and should refer to detail chosen for site.
iii. Construction plans should also include the following note:
Contractor shall submit an Amended Soils Work Plan to Carver County SWCD staff at preconstruction meeting. Amended Soils Work Plan shall include information on method, equipment to be used, phasing, name of restoration subcontractor, and other information relevant to ensuring the goal of the amended soils will be met. Final approval will not be granted without satisfactory amended soils work plan.

2) Green Roof Design Guidance

Purpose

Use of a green roof is an option for sites that have space limitations for other BMPs. In addition to the automatic removal of the roof area from total impervious calculations, green roofs help with stormwater rate control and help with energy efficiency of the building.

Calculation Method

The area of the green roof is excluded from the total impervious calculation, thereby reducing the total treatment volume.

Design Guidance

Please see the Minnesota Stormwater Manual for information on designing a green roof:
http://stormwater.pca.state.mn.us/index.php/Green_roofs

3) Stormwater Reuse Design Guidance

Purpose

Stormwater reuse's purpose is use collected stormwater as an irrigation source. A secondary benefit of using stormwater for irrigation is the reduction in potable water being used as a water source for turf grass.

Calculation Methods

Volume Requirement – To use stormwater reuse to meet the volume requirement, the volume retained (0.5 inches from the site impervious area) must be utilized on site once per week for a period of 20 weeks during the growing season. Volume reduction is based upon irrigation rate, irrigation area, impervious surface area routed to the storage facility, and the storage volume. See below for further discussion on calculation of the total volume reduction credit.

Design Guidance

Irrigation Rate. The accepted irrigation rate is a maximum of 2 inches per week for a period of 20 weeks during the growing season (May through September). Higher or more frequent irrigation rates may be allowed when irrigating undisturbed or protected upland vegetation, or when irrigating on areas with amended soils.

Irrigation Area. Acceptable irrigation areas include those that are outside of any LGU Ordinance defined setbacks for sensitive areas, such as steep slope setbacks and wetland setbacks. Side slopes of ponds are not eligible to be considered within the irrigation area.

Volume Reduction Credit. Credit given will be limited based upon the irrigation area, amount of impervious area draining to the storage structure, and storage limits. If the irrigation area is less than the impervious area draining, then the credit will be irrigation rate times the irrigation area. If the irrigation area is more than the impervious area, then credit is equal to 0.5 inches over the impervious area. The maximum credit given will be 4 week storage volume of a pond or 1 week storage volume of an underground system. Credit cannot be overlapped with other volume BMPs, such as irrigating amended soils or in Upland Vegetation.

Usage Meter. The applicant shall install a usage meter for monitoring water usage. The meter shall be in an area accessible to CCWMO staff.

Stormwater Reuse Plan Sheet. Applicants shall submit a stormwater reuse plan sheet with the following information:

1. Area to be irrigated
2. Area draining to storage structure
3. Location of reuse system components
   - Location of pump
   - Location of intake from pond
   - Location of usage meter
   - Location of potable connection (if using)
   - Location of backflow prevention devices (if using)
   - Location and type of filters (if using)

   - Location of debris collection sumps (if using)
4. Narrative describing operation of system
5. Location of access for maintenance activities
6. Drawdown elevation of pond
7. Volume reduction and/or water quality calculation
8. Other information relevant to the reuse system

Pond Calculations. Pond volumes must be submitted to verify a minimum depth of four feet remains after irrigation quantity is used. The pond shall provide for the storage of at least 4 times the credit received. Pond storage is the volume between the "off" elevation and either the normal water level or the drawdown level of a filtration shelf or trench. The stormwater reuse plan sheet shall also include a cross section or otherwise indicate what the drawdown elevation will be for the pond. Identify the 'ON' elevation at an elevation that provides for one complete irrigation cycle per required volume. To provide a tolerance for the equipment, this elevation should be at least 0.5 feet above 'OFF' elevation.

Maintenance. A maintenance plan and inspection checklist for the stormwater reuse system shall be developed and incorporated into the maintenance plan for the site. The maintenance plan for the reuse system shall include, but is not limited to, the following:

1. Clearly identifies entity with responsibility for maintaining the reuse system.

2. Acknowledgement that the stormwater reuse system must remain in place in perpetuity or equivalent water quality and volume reduction treatment must be provided if it is to be replaced or if its use is to be discontinued.

3. Inspection schedule with the following activities:

   - Inspect entire collection system and clean winter debris accumulation at start of spring snowmelt
   - Inspect entire collection system and clean accumulated debris in fall prior to winter operations or seasonal shut-down
   - Conduct additional inspections and cleaning of filters as recommended by manufacturer
   - Other activities as appropriate for the system

4. A copy of the Stormwater Reuse Plan Sheet (see above for additional information).

5. Pump manufacturer and maintenance information.

Review of Stormwater Reuse System Design. Prior to selecting a contractor for the construction of the irrigation/stormwater reuse system, the CCWMO must review and approve the design specs for the reuse system. This is to ensure that the designed system is capable of distributing enough water to meet the volume reduction requirement for the site. Below are submittal requirements for review.

1. Provide a system text summary, (typically in cover letter) and includes
   a. Volume required
   b. Area
   c. Inches per week applied (typically 1" to 2" per week)

2. A site plan that shows storage location, the pipe network and irrigation reuse areas, pump location and electrical source
    a. Show the contributing area has sufficient runoff to fill the pond or tank

3. Pond or Tank Storage
    a. Pond volume can be taken from HydroCAD model
    b. Pond should hold a minimum volume equivalent to 4 weeks of irrigation
    c. Provide pond cross section with water level elevations (max drawdown level must leave 4' of water in the pond)
    d. Tank manufacturer and dimensions needed
        i. Storage volume is reduced by sediment storage
        ii. Tank should hold a minimum volume equivalent to 1 week of irrigation.

4. Provide a distribution plan
    a. Show number of heads
        i. Provide the spec for individual heads
    b. Show and label irrigation zones.
    c. Watering schedule

5. Pump
    a. Submit pump manufacturer, model number, and pump curve
    b. Power requirements
    c. Operating pressure
    d. Pump on/pump off elevations

6. Backup Supply
    a. Water meter size, service main size and flow and pressure available.
    b. Backflow preventer
    c. Separate water meter from the pump supply meter
    d. Letter of approval from the City that they will allow a stormwater reuse system to connect "touch" the municipal supply. Not all municipalities have code that allow this.

Additional Resources. Review the Metropolitan Council's Stormwater Reuse Guide for information on designing a reuse system:
http://www.metrocouncil.org/environment/WaterSupply/STORMWATER%20REUSE%20GUIDE_2012.zip

4) Preservation or Restoration of Upland Vegetation Design Guidance

Purpose

The purpose of preserving or restoring pervious upland areas (prairie, woodland, forest) is to decrease the volume and rate of runoff by preserving soil absorption and plant uptake.

Calculation Method

The volume reduction is calculated using a maximum of 0.5 inches over the area preserved or restored.

Design Guidance

The area to be preserved should consist of existing trees or predominantly native vegetation. Areas to be restored must be restored to predominantly native vegetation. Areas that are within steep slope setbacks with no disturbance and areas within a wetland setback will not be eligible for this BMP. A vegetation planting and maintenance plan must be submitted for review. Credit will not be given if applied in the same area as other volume BMPs, such as Stormwater Reuse or Amended Soils.

The area to be preserved must be placed under easement to ensure that it continues to provide treatment in perpetuity.

5) Pond Bioretention Bench or Bioretention Shelf Design Guidance

Purpose

The purpose of a filtration bench or shelf as an addition to a Pond is to provide treatment for the remaining 30% Water Quality treatment.

Calculation Method

The water quality volume and associated tile length is calculated as the total volume of a 0.5 foot drawdown from the Normal Water Level. In retrofit situations, if constructing a filtration bench is constrained, a minimum of 50 linear feet or 150 square feet is required.

Design Guidance

The system should be designed to allow for a 0.5 foot drawdown from the Normal Water Level. All tile lines need to have a positive slope of 0.5% to the outlet.

6) Disconnecting Impervious Surface Design Guidance

Purpose

Disconnecting impervious surfaces, or specifically routing stormwater to vegetation, allows for sheet flow to be treated by vegetation.

Calculation Method

45% TP reduction and 75% TSS reduction with a maximum area equal to the area of impervious area discharging to the area. Discharge must be uniformed sheet flow with a max flow path of 100 feet. If the pervious area is amended soils, then the volume reduction is 0.5 inches over the amended soils equal to the area of impervious surface draining to the area.

Design Guidance

Credit for both Water Quality and Volume Reduction is based upon a one to one ratio, meaning that the maximum area for pervious is equal to the area of the impervious area discharging to the green area. Flow paths over impervious surfaces also cannot be greater than 100 feet and of a uniform sheet flow. It is recommended that native plantings be used for these areas.

7) Hydrodynamic Separator Design Guidance

Purpose

Hydrodynamic separators will need to be used in situations when other BMPs cannot be located in subwatersheds draining directly to a water body. These devices remove particles from stormwater, reducing TSS loading to downstream water bodies.

Calculation Method

TSS reduction is 50% of the watershed being treated by the device. No TP reduction will be credited for this type of BMP.

Design Guidance

Submit design information showing structure is sized for a 100 micron particle and for the inflow pipe. At a minimum the device should be sized for 12-inch pipe capacity or 2 year event flow.

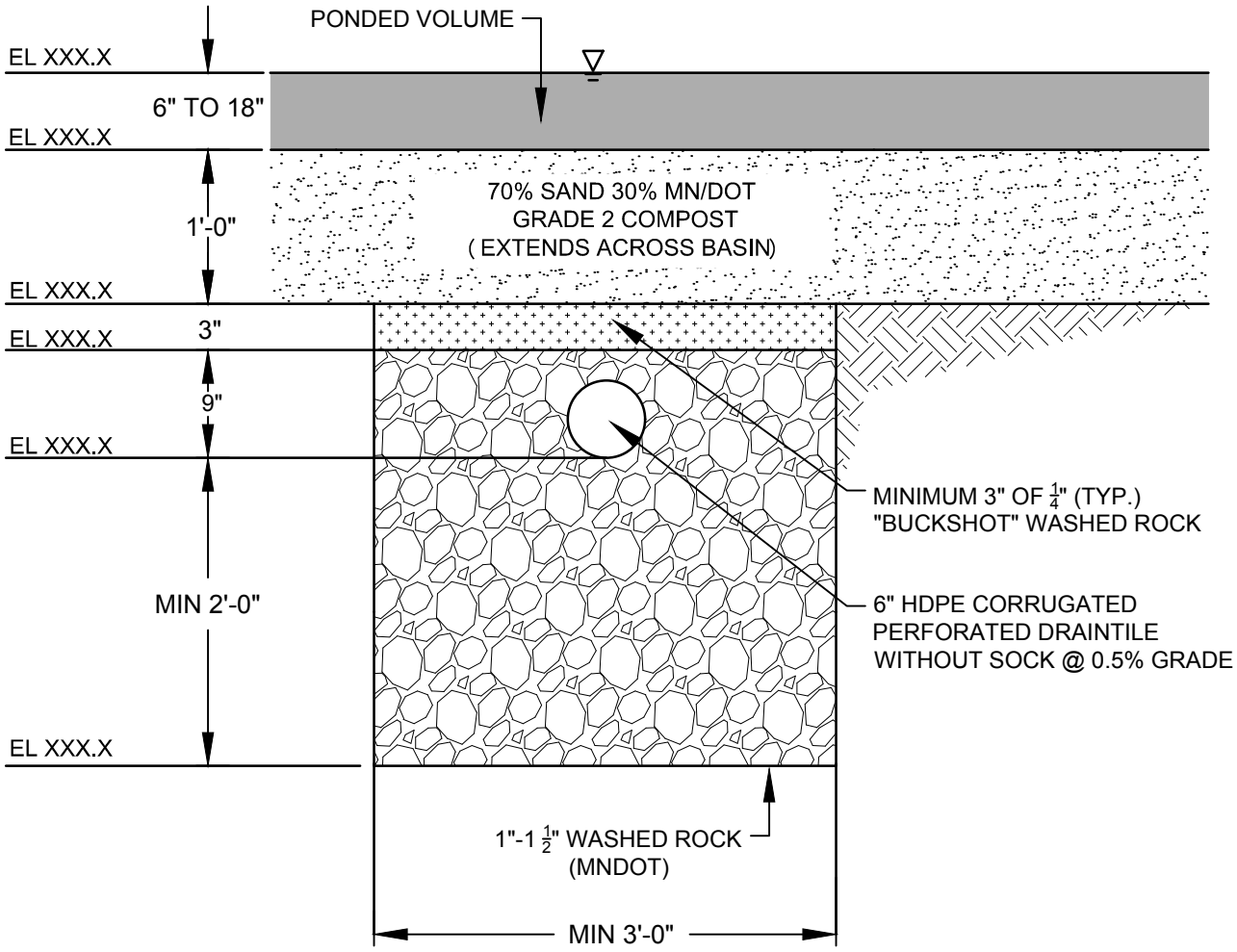
D. BMP Construction Details

The following construction detail plates are included here for reference. **BMPs must be built to these standards in order to qualify for the water quality and volume credits described in the Rules.**

Alternative designs may be approved if, upon review, the county determines the design will provide treatment equal to or greater than the practices described in this appendix. Applicants wishing to utilize an alternative design must submit plans and specifications for the proposed design along with calculations showing compliance with the stormwater standards of Carver County Ordinance Chapter 153. Calculations should be generated using industry standard models.

Construction detail plates are provided for the following BMPs:

- Amended Soil
- Bioretention
    - Basin
    - Bench
    - Shelf
    - Swale
    - Trench
    - Offline Basin
    - Outlet
- Pervious Pavement
- Iron-Enhanced Sand Filter



CALCULATIONS TO MEET RULES

VOLUME:

1. VOLUME REDUCTION IS CALCULATED AS 40% OF PONDED VOLUME.
2. IF NO VEGETATION IS PROVIDED, THE VOLUME CALCULATION IS LOWERED TO 50% OF ROCK VOLUME BELOW TILE.
3. TILE INVERT MUST BE 3 FT ABOVE DOWNSTREAM NWL, GROUNDWATER, BEDROCK, ETC.

WATER QUALITY:

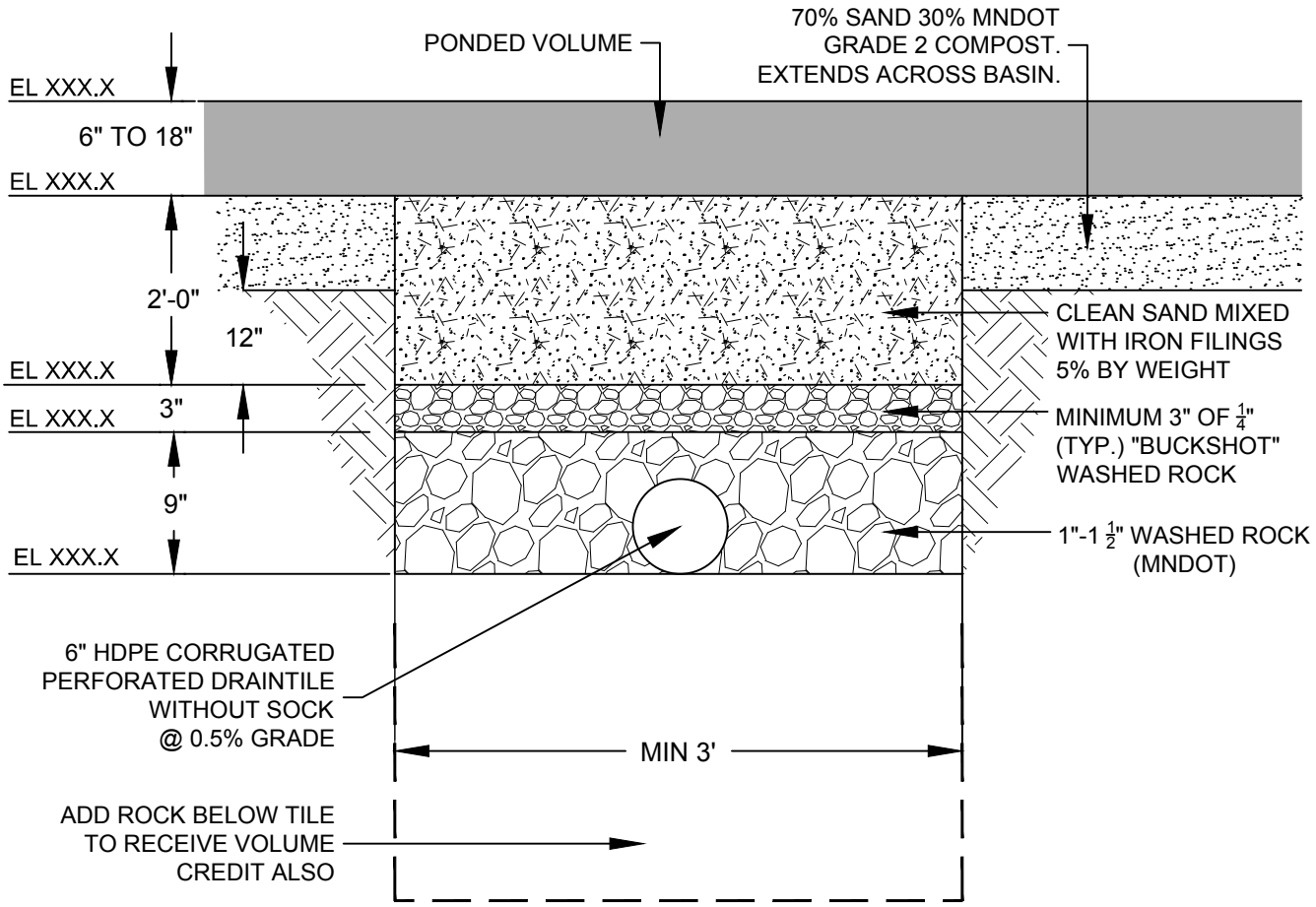
1. FILTRATION IS CALCULATED AS 75% TP REMOVAL AND 90% TSS REMOVAL.

DRAWDOWN:

1. 48 HOUR DRAWDOWN OF BMPS IS REQUIRED. TO DETERMINE LENGTH OF TRENCH NEEDED, USE FILTRATION RATE OF 50 CF OF PONDED VOLUME WILL PASS THROUGH ONE LINEAR FOOT OF 3' WIDE TRENCH, OR 17 CF OF PONDED VOLUME PER SF OF SURFACE AREA.

CARVER COUNTY	WENCK ASSOCIATES Responsive partner. Exceptional outcomes.	BIORETENTION TRENCH	DEC 2016 DETAIL 1

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CALCULATIONS TO MEET RULES

VOLUME:

1. VOLUME REDUCTION IS CALCULATED AS 40% OF PONDED VOLUME.
2. TO RECEIVE VOLUME CREDIT, ADD 2 FEET OF ROCK BELOW TILE PER DETAIL 6.
3. IF NO VEGETATION IS PROVIDED, THE VOLUME CALCULATION IS LOWERED TO 50% OF ROCK VOLUME BELOW TILE.
4. TILE INVERT MUST BE 3 FT ABOVE DOWNSTREAM NWL, GROUNDWATER, BEDROCK, ETC.

WATER QUALITY:

1. IRON ENHANCED FILTRATION IS CALCULATED AS 90% TP REMOVAL AND 90% TSS REMOVAL.

DRAWDOWN:

1. 48 HOUR DRAWDOWN OF BMPS IS REQUIRED. TO DETERMINE LENGTH OF TRENCH NEEDED, USE FILTRATION RATE OF 50 CF OF PONDED VOLUME WILL PASS THROUGH ONE LINEAR FOOT OF 3' WIDE TRENCH, OR 17 CF PER SF OF SURFACE AREA. RETROFITS USE MINIMUM OF 150 SF.

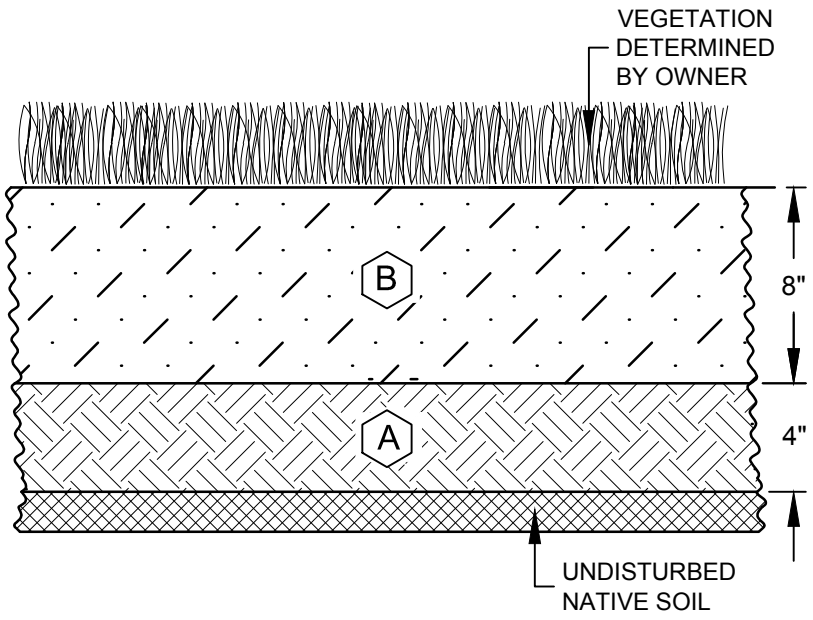
IRON FILINGS:

1. AMOUNT OF FILINGS CAN BE DETERMINED BY CALCULATING TOTAL SAND NEEDED TO FILL THE TRENCH, AND MULTIPLYING BY 5%.
2. SAND IRON NEEDS TO BE PRE-MIXED PRIOR TO INSTALLATION. CAN OCCUR OFF SITE.
3. IRON FILINGS MUST BE CLEANED AND WASHED. PROVIDE SUPPLIER INFORMATION TO WMO. NO OIL OR GREASE ALLOWED.

CARVER COUNTY	WENCK ASSOCIATES Responsive partner. Exceptional outcomes.	IRON ENHANCED SAND FILTER	DEC 2016
			DETAIL 2

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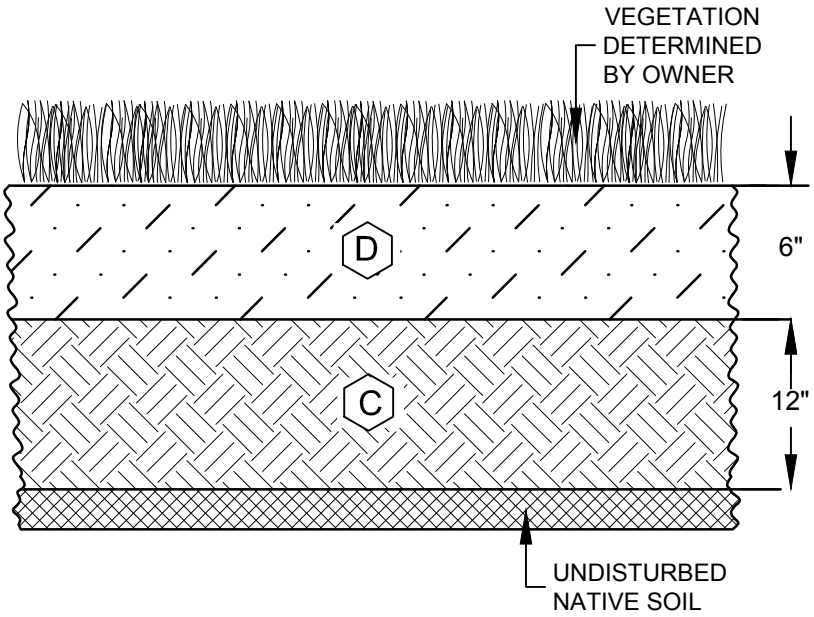
UNDISTURBED SOILS



(A) TILL OR RIP SOIL TO A DEPTH OF 12 INCHES USING RIP-TYPE TILLAGE EQUIPMENT. DURING TILLING, INSTALLATION MUST STOP IF SMEARING AND COMPACTION IS OCCURRING.

(B) APPLY 2 TO 3 INCHES OF COMPOST TO EXISTING TOPSOIL AND RE-TILL TO A DEPTH OF 8 INCHES

DISTURBED SOILS



(C) BEFORE REPLACEMENT OF ANY TOPSOIL, APPLY 1 INCH OF COMPOST OVER SUBSOIL. TILL TO A MINIMUM DEPTH OF 12 INCHES USING RIP-TYPE TILLAGE EQUIPMENT. DURING TILLING, INSTALLATION MUST STOP IF SMEARING AND COMPACTION IS OCCURRING.

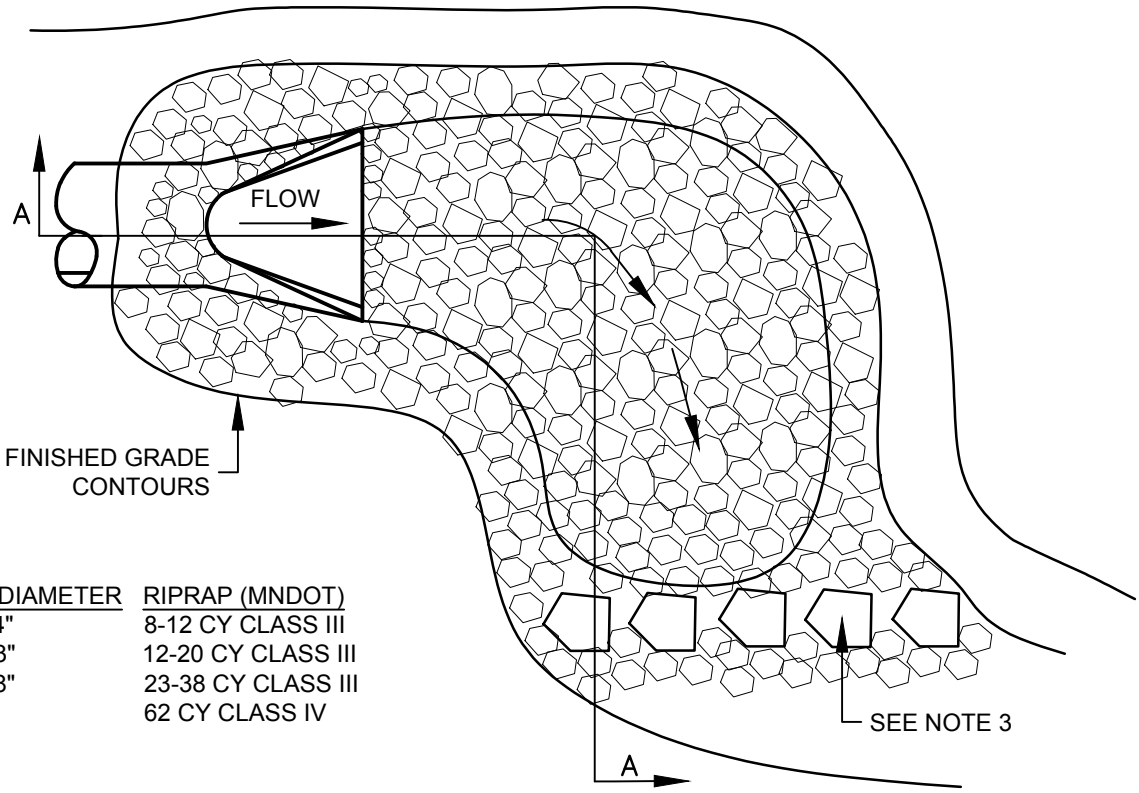
(D) INCORPORATE COMPOST IN THE TOPSOIL AT A RATE OF 2 INCHES OF COMPOST PER 6 INCHES TOTAL OF TOPSOIL. ALL TOPSOIL SHOULD MEET CARVER COUNTY SPEC.

NOTE: CONTRACTOR SHALL SUBMIT AN AMENDED SOILS WORK PLAN TO WMO REPRESENTATIVE AT PRECONSTRUCTION MEETING. AMENDED SOILS WORK PLAN SHALL INCLUDE INFORMATION ON METHOD, EQUIPMENT TO BE USED, PHASING, NAME OF RESTORATION SUBCONTRACTOR, AND OTHER INFORMATION RELEVANT TO ENSURING THE GOAL OF THE AMENDED SOILS WILL BE MET. FINAL APPROVAL WILL NOT BE GRANTED WITHOUT SATISFACTORY AMENDED SOILS WORK PLAN.

CARVER COUNTY	WENCK ASSOCIATES Responsive partner. Exceptional outcomes.	AMENDED SOILS	DEC 2016
			DETAIL 3

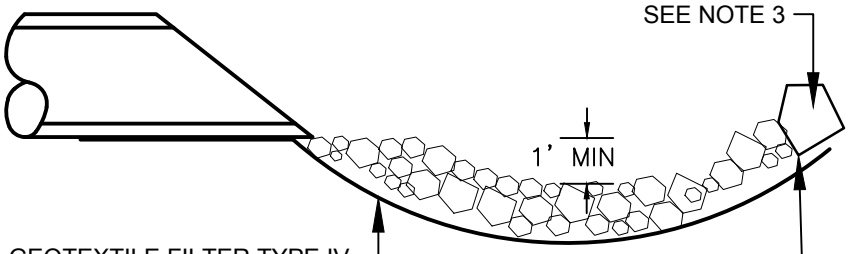
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PLAN VIEW



PIPE DIAMETER	RIPRAP (MNDOT)
12"-24"	8-12 CY CLASS III
27"-33"	12-20 CY CLASS III
36"-48"	23-38 CY CLASS III
>54"	62 CY CLASS IV

SECTION A-A



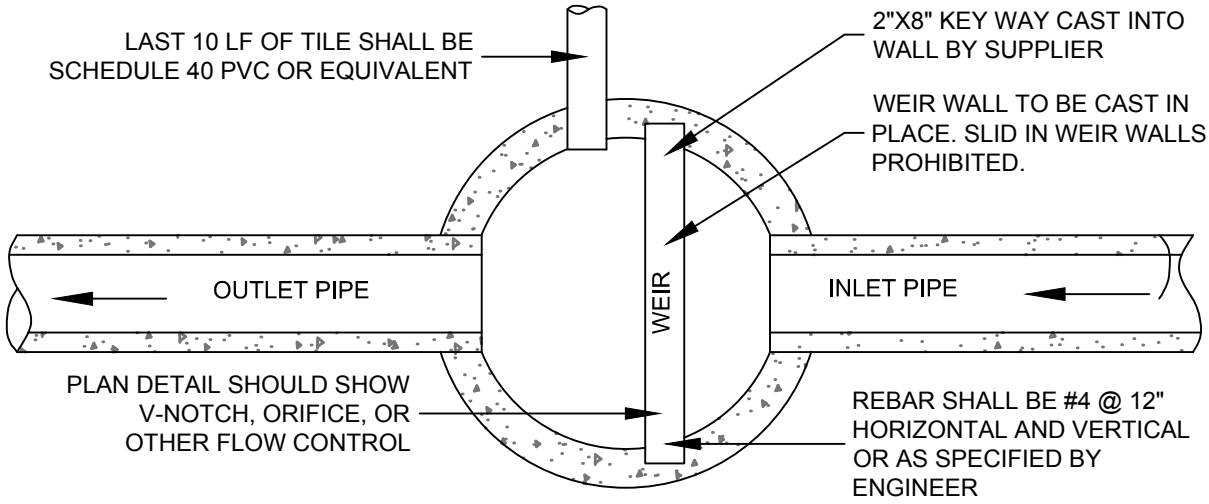
NOTES

1. REVIEW RIP RAP LAYOUT WITH COUNTY STAFF IN FIELD PRIOR TO INSTALLATION.
2. CONFORM RIP RAP TO EXISTING SLOPES AND FLOWPATH, OR AS DIRECTED BY COUNTY STAFF. RIP RAP SHALL EXTEND TO MEET 1 FOOT OR 1D ABOVE INVERT ON OUTSIDE CONTOUR.
3. ENERGY DISSIPATION ROCKS SHALL BE ANGULAR STONE TWICE THE PIPE DIAMETER UP TO A MAXIMUM 36" DIAMETER
4. LENGTH OF RIP RAP SHALL BE A MINIMUM LENGTH OF 5 PIPE DIAMETERS.

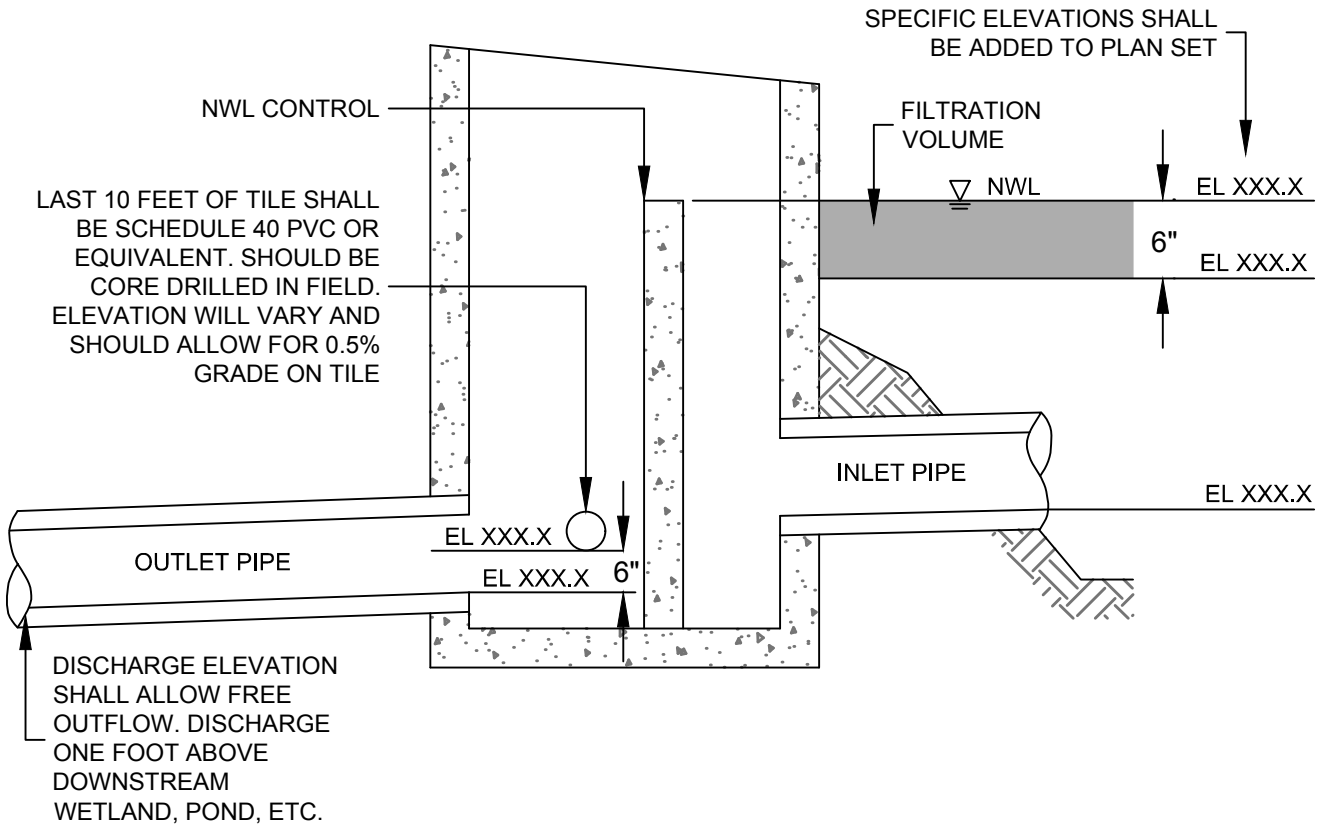
CARVER COUNTY	WENCK ASSOCIATES Responsive partner. Exceptional outcomes.	MODIFIED RIPRAP TO CHANNEL CONFIGURATION	DEC 2016 DETAIL 4

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PLAN VIEW



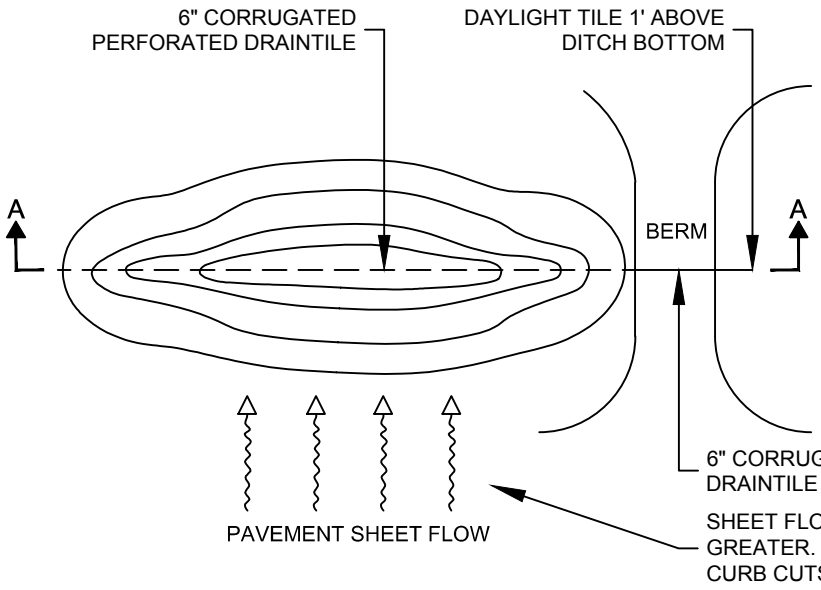
SECTION



CARVER COUNTY	WENCK ASSOCIATES Responsive partner. Exceptional outcomes.	OUTLET STRUCTURE	DEC 2016 DETAIL 5

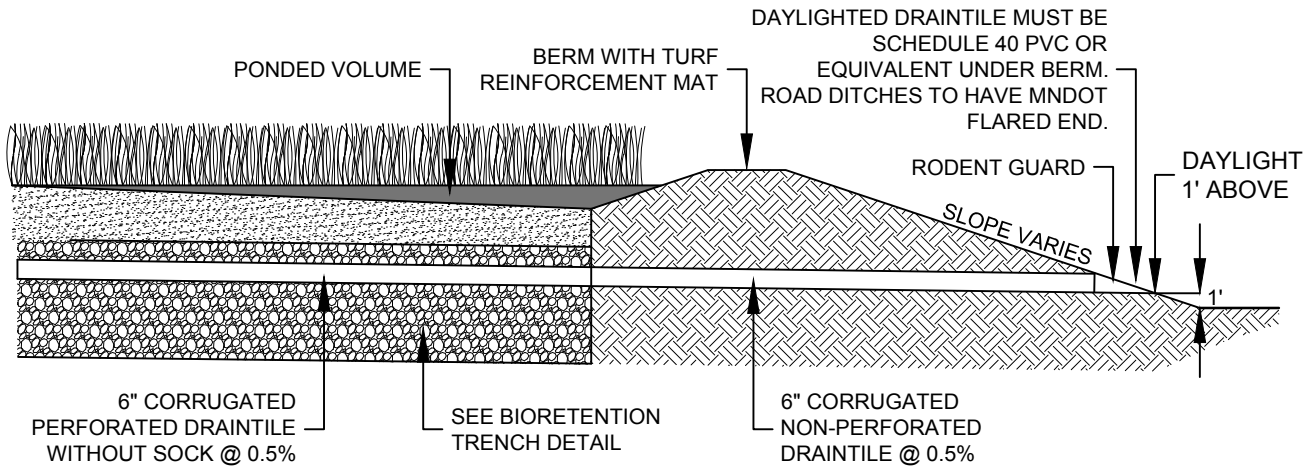
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PLAN VIEW



QUANTITIES		
FOOTPRINT	_____	SF
MEDIA	_____	CY
TILE	_____	LF

SECTION A - A



CALCULATIONS TO MEET RULES

VOLUME:

1. VOLUME REDUCTION IS CALCULATED AS 40% OF PONDED VOLUME.
2. TO RECEIVE VOLUME CREDIT, ADD 2 FEET OF ROCK BELOW TILE PER DETAIL 1.
3. IF NO VEGETATION IS PROVIDED, THE VOLUME CALCULATION IS LOWERED TO 50% OF ROCK VOLUME BELOW TILE.
4. TILE INVERT MUST BE 3 FT ABOVE DOWNSTREAM NWL, GROUNDWATER, BEDROCK, ETC.

WATER QUALITY:

1. FILTRATION IS CALCULATED AS 75% TP REMOVAL AND 90% TSS REMOVAL.

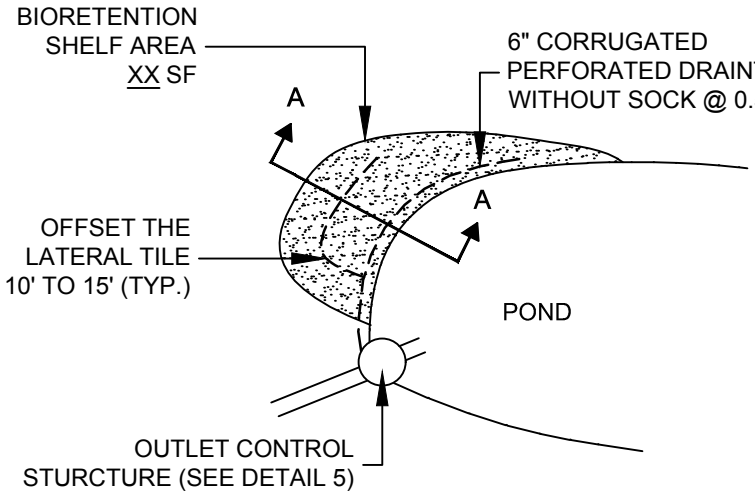
DRAWDOWN:

1. 48 HOUR DRAWDOWN OF BMPS IS REQUIRED. TO DETERMINE LENGTH OF TRENCH NEEDED, USE FILTRATION RATE OF 50 CF OF PONDED VOLUME WILL PASS THROUGH ONE LINEAR FOOT OF 3' WIDE TRENCH, OR 17 CF PER SF OF SURFACE AREA. RETROFITS USE MINIMUM OF 150 SF.

CARVER COUNTY	WENCK ASSOCIATES Responsive partner. Exceptional outcomes.	BIORETENTION SWALE	DEC 2016 DETAIL 6

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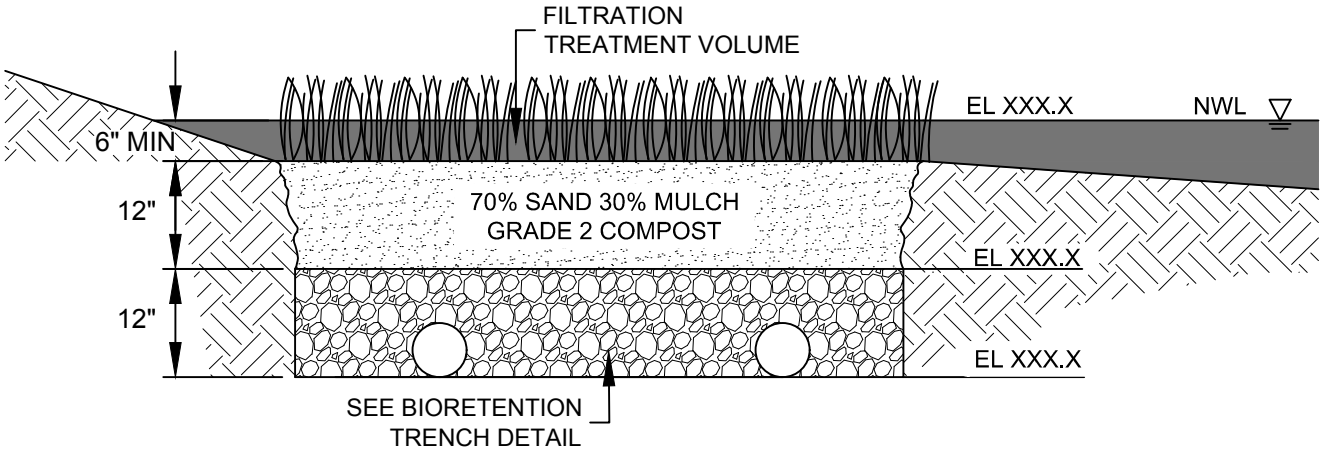
PLAN VIEW



QUANTITIES

SHELF AREA	_____	SF
MEDIA	_____	CY
TILE	_____	LF

SECTION A-A



CALCULATIONS TO MEET RULES

VOLUME:

1. NO VOLUME REDUCTION IS GIVEN FOR FILTRATION SHELF.

WATER QUALITY:

1. TP CREDIT IS 60% FOR NURP VOLUME AND 75% FOR FILTRATION VOLUME. TSS CREDIT IS 80% FOR NURP VOLUME AND 90% FOR FILTRATION VOLUME

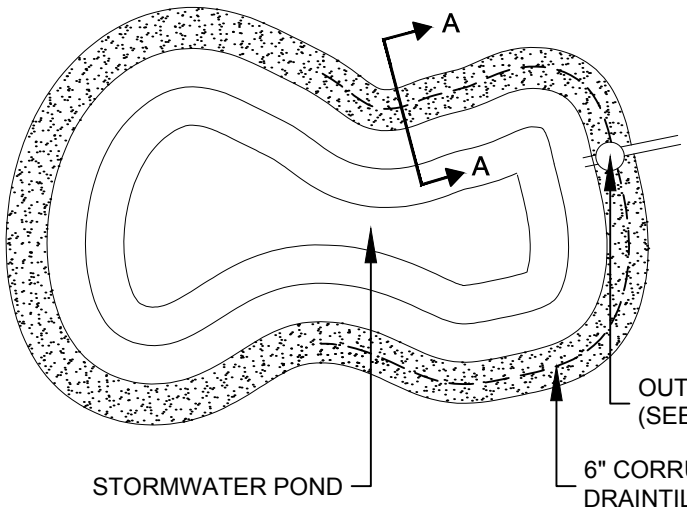
DRAWDOWN:

1. TO DETERMINE LENGTH OF TRENCH NEEDED, USE FILTRATION RATE OF 50 CF OF PONDED VOLUME WILL PASS THROUGH ONE LINEAR FOOT OF 3' WIDE TRENCH, OR 17 CF OF PONDED VOLUME PER ONE SF OF SURFACE AREA.

CARVER COUNTY	WENCK ASSOCIATES Responsive partner. Exceptional outcomes.	BIORETENTION SHELF	DEC 2016 DETAIL 7

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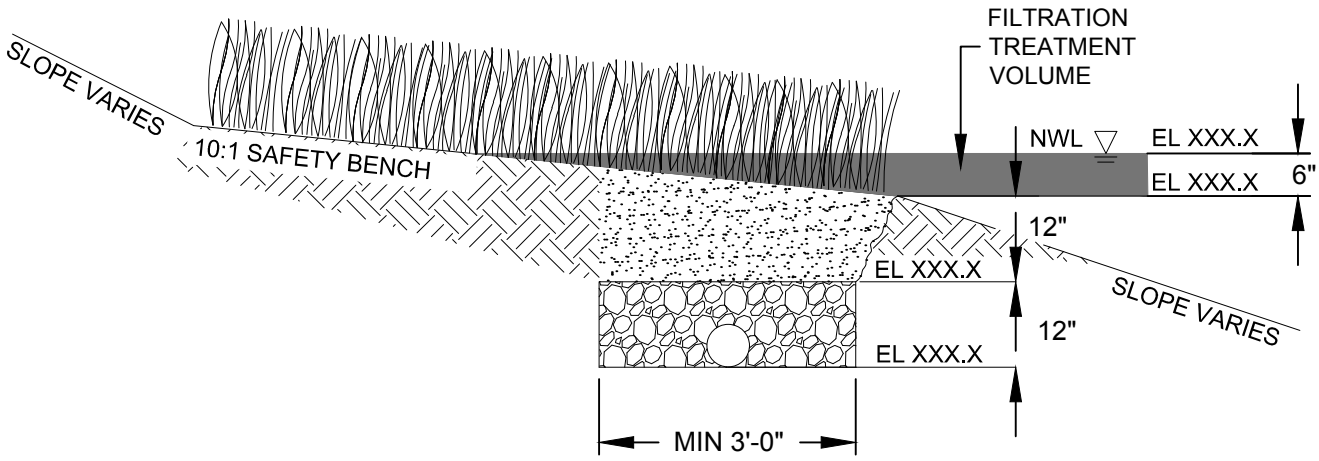
PLAN VIEW



QUANTITIES

FOOTPRINT	_____	SF
MEDIA	_____	CY
TILE	_____	LF

SECTION A - A



CALCULATIONS TO MEET RULES

VOLUME:

1. NO VOLUME REDUCTION IS GIVEN FOR BIORETENTION BENCH.

WATER QUALITY:

1. WATER QUALITY CREDIT FOR TP IS CALCULATED AS 60% OF NURP VOLUME AND 75% OF FILTRATION VOLUME; CREDIT FOR TSS IS CALCULATED AS 80% OF NURP VOLUME AND 90% OF FILTRATION VOLUME.

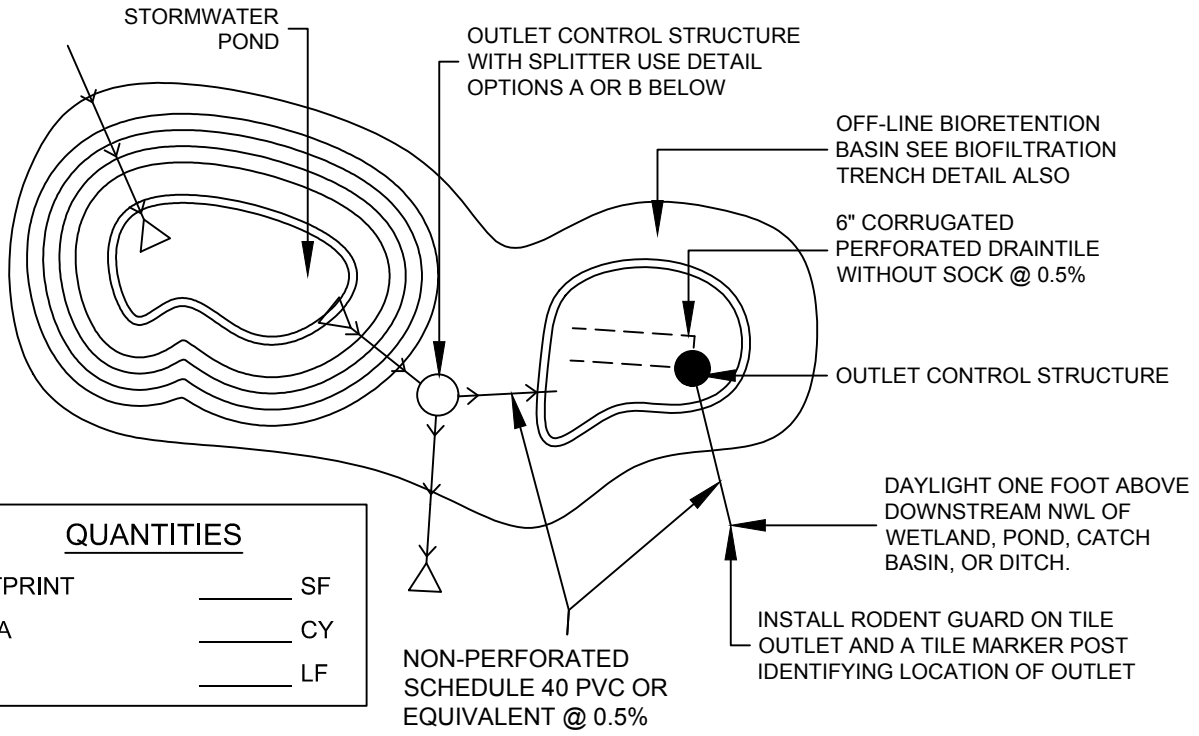
DRAWDOWN:

1. 48 HOUR DRAWDOWN OF BMPS IS REQUIRED. TO DETERMINE LENGTH OF TRENCH NEEDED, USE FILTRATION RATE OF 50 CF OF PONDED VOLUME WILL PASS THROUGH ONE LINEAR FOOT OF 3' WIDE TRENCH, OR 17 CF OF PONDED VOLUME PER SF OF SURFACE AREA. RETROFITS USE MINIMUM 150 SF.

CARVER COUNTY	WENCK ASSOCIATES Responsive partner. Exceptional outcomes.	BIORETENTION BENCH	DEC 2016 DETAIL 8

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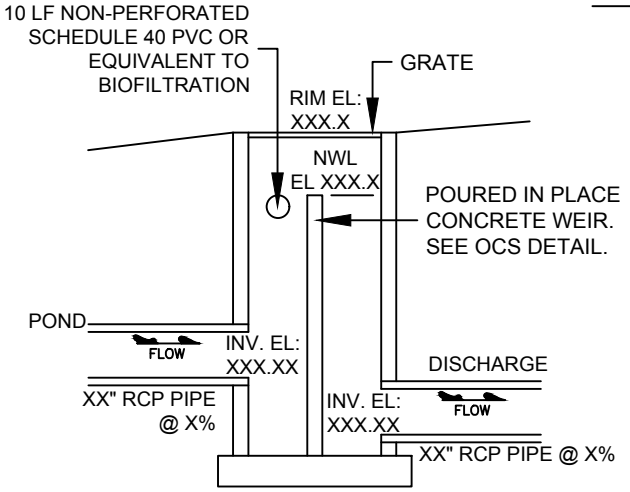
PLAN VIEW



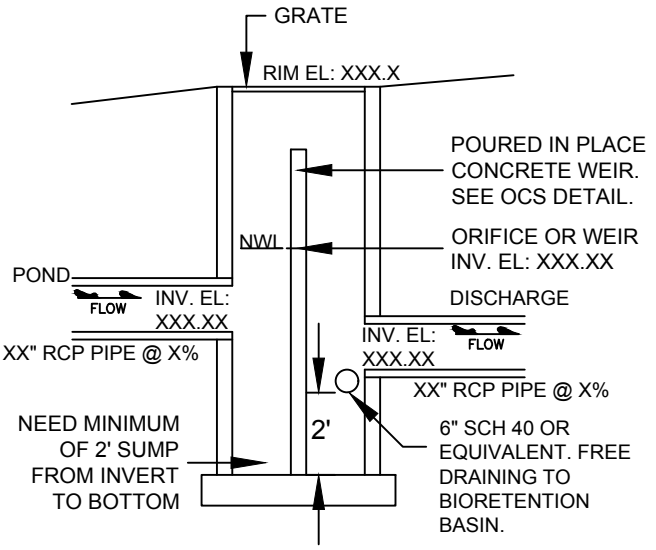
QUANTITIES

FOOTPRINT	_____	SF
MEDIA	_____	CY
TILE	_____	LF

SECTION VIEW OPTIONS



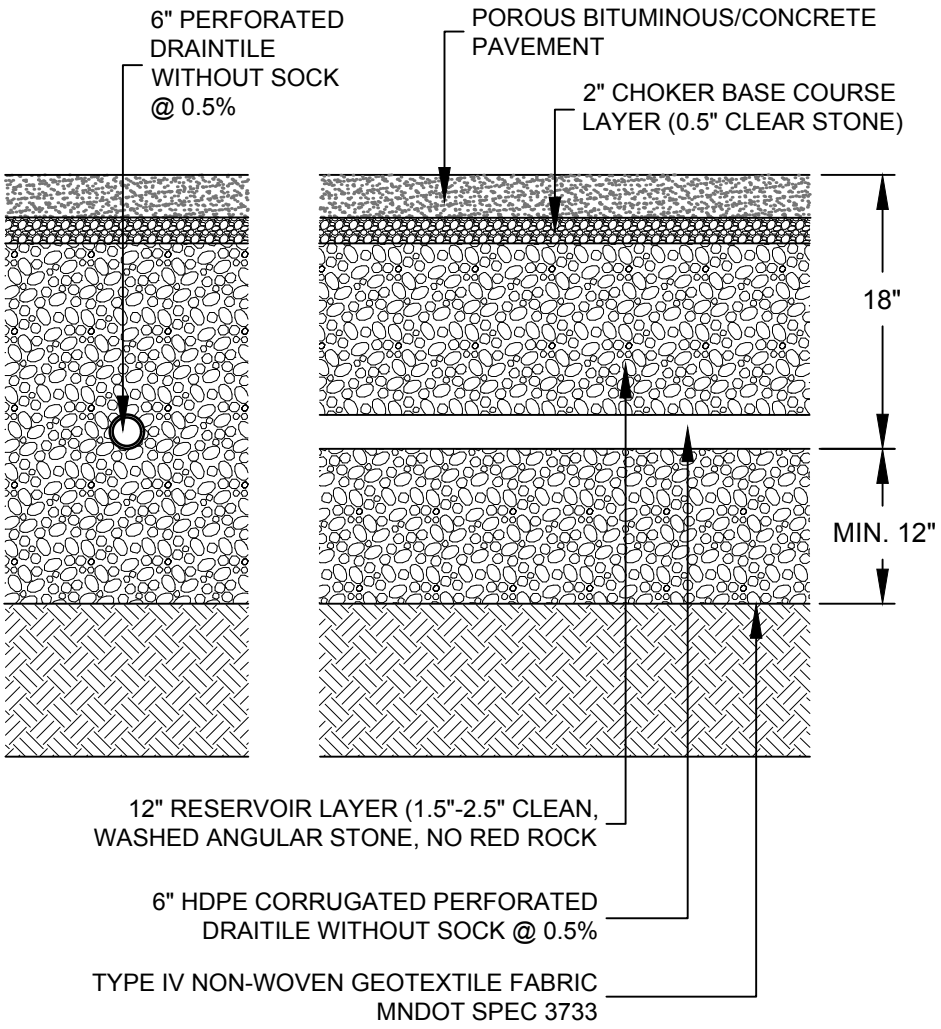
A OCS DETAIL – OPTION A



B OCS DETAIL – OPTION B

CARVER COUNTY	WENCK ASSOCIATES Responsive partner. Exceptional outcomes.	OFF-LINE FILTRATION BASIN	DEC 2016
			DETAIL 9

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NOTES:

1. EDGE CONSTRAINT ON ALL BOUNDARIES, CONCRETE CURBING, OR STEEL EDGES ARE PREFERRED.

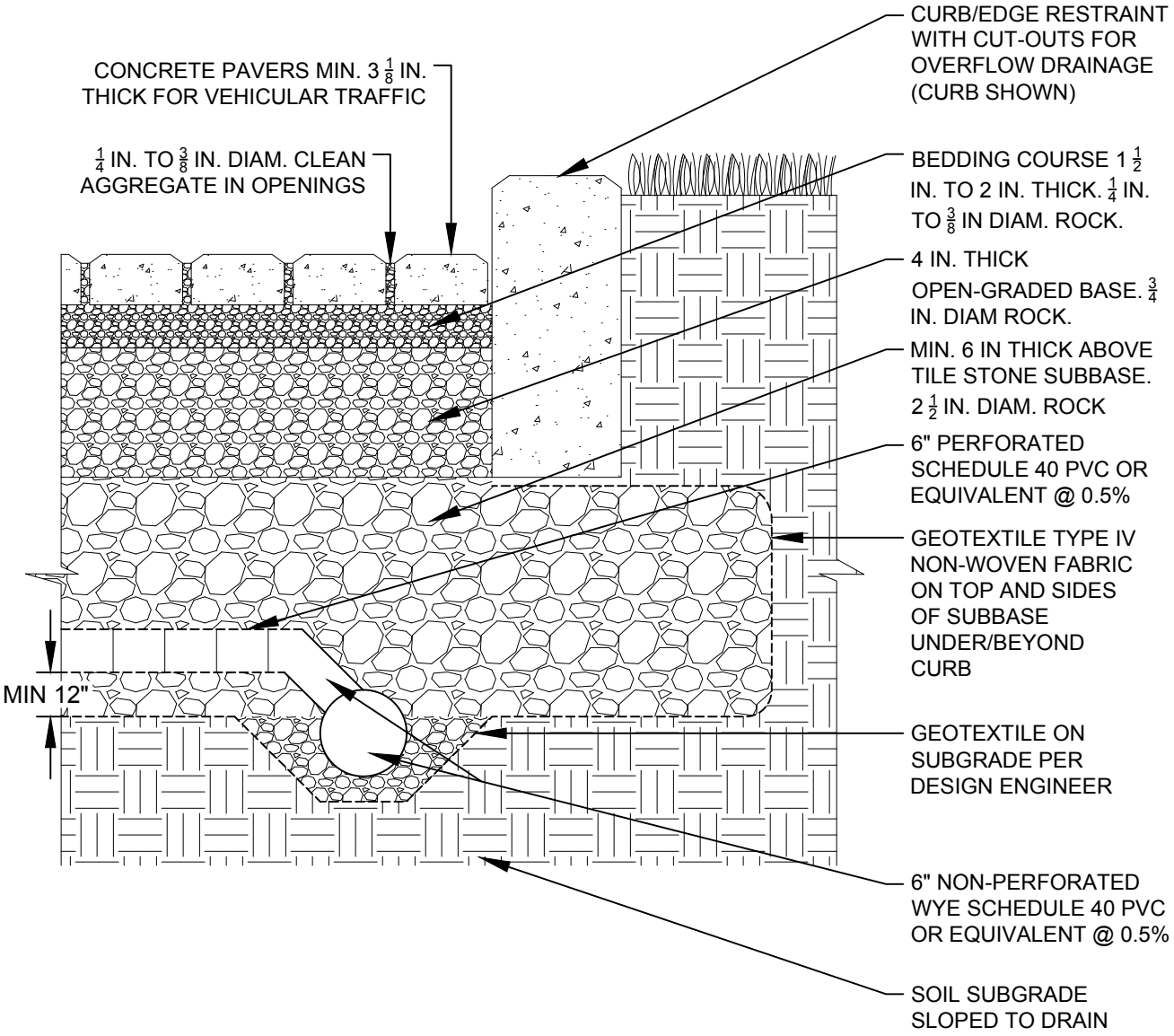
CALCULATIONS TO MEET RULES

VOLUME:

1. VOLUME REDUCTION IS CALCULATED AS 50% OF TOTAL ROCK VOLUME BELOW TILE INVERT.
2. NO WATER QUALITY CREDIT PROVIDED

CARVER COUNTY	WENCK ASSOCIATES Responsive partner. Exceptional outcomes.	POROUS PAVEMENT	DEC 2016 DETAIL 10

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NOTES:

1. 2 3/8 IN. THICK PAVERS MAY BE USED IN PEDESTRIAN AND RESIDENTIAL APPLICATIONS.
2. VOLUME REDUCTION IS CALCULATED AS 50% OF TOTAL ROCK VOLUME BELOW TILE INVERT.
3. NO WATER QUALITY CREDIT PROVIDED.

CARVER COUNTY	WENCK ASSOCIATES Responsive partner. Exceptional outcomes.	PERMEABLE PAVEMENT EXAMPLE	DEC 2016 DETAIL 11

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Section 3. CCWMO Calculator Guidance

The CCWMO Calculators (http://www.co.carver.mn.us/home/showdocument?id=5871) were developed to help guide applicants through an easy spreadsheet to determine if proposed BMPs will meet the requirements of Carver County Water Management Organization for treating stormwater. Due to the different requirements for a linear project and a non-linear project, two distinct calculators have been created . These Calculators are also a useful tool in sizing BMPs and for comparing different options that can be used on site.

Each calculator has 11 distinct BMPs that can be chosen from the "Select BMP" dropdown lists. For each BMP, the BMP Details (total volume for the practice or the square footage) must be entered by the applicant. The associated volume reduction, TP treatment, and TSS treatment are calculated from these inputs. For stormwater reuse, BMP details are automatically entered.

BMPs Included in the Calculator

- **Amended Soils.** Amended soils are used as a volume treatment. The square footage of the area is to be entered in the 'BMP Details' cell. The volume credit is 0.5" over the area, or 4.17% of the square footage.

- **Bioretention <3' Separation.** In locations where a 3 foot separation from a limiting factor such as bedrock or perched ground water does not exist, the bioretention trench can be used for credits towards both TP and TSS requirements. Enter the storage volume of the bioretention basin in the 'BMP Details' cell. TP credit is 75% of the ponded volume and TSS credit is 90% of the ponded volume.

- **Bioretention >3' Separation.** For areas that do not have a limiting factor below the tile line, a 2 foot deep trench 3 feet wide can be constructed below the tile to receive a volume credit in addition to the water quality credits. Volume credit is calculated as 40% of the ponded volume. TP and TSS credits are the same as other Bioretention BMPs. As with the other bioretention BMPs, enter the total volume of the ponded water in the basin.

- **Bioretention Swale.** These BMPs are similar to Bioretention BMPs. Enter the ponded volume in the 'BMP Details' cell. Volume credit is 40% of the ponded volume, TP credit is 75% of the ponded volume and TSS credit is 90% of the ponded volume.

- **Disconnecting Impervious Surface**. Disconnecting impervious surfaces, or specifically routing stormwater to vegetation, allows for sheet flow to be treated by vegetation. 45% TP reduction and 75% TSS reduction with a maximum area equal to the area of impervious area discharging to the area. Discharge must be uniformed sheet flow with a max flow path of 100 feet.

- **Hydrodynamic Separator.** Hydrodynamic separators are used within the stormwater sewer system as an in-pipe BMP to remove solids from stormwater. Use of these structures result in a 50% reduction in TSS, no credit is giving to TP or volume.

- **Iron Enhanced Sand Filter with <3' Separation.** Similar to a bioretention basin, an iron-enhanced filtration basin will achieve a 90% reduction for TP. Construction is slightly different

than a Bioretention, with the increase of one more foot of sand/iron mix on top of the tile. For the 'BMP Details' cell enter the volume of the ponded water. There is no volume credit for this BMP and a 90% reduction credit for both TP and TSS.

- **Iron Enhanced Sand Filter with >3' Separation.** Addition of iron filings can be used to increase the TP credit from 75% to 90%, which is especially useful in site locations that are limited by available space for additional BMPs. Volume credit will be 40% of the ponded volume. TP and TSS credits are both 90% of the ponded volume. Enter the total volume of the ponded volume in the basin for the 'BMP Details' cell.

- **Pervious Pavement.** Parking spaces and low traffic areas are ideal placement for pervious pavement due to maintenance requirements. There are three main types of pervious pavement that can be used; porous concrete, permeable asphalt, and permeable pavers. The volume credit is calculated as 50% of the total rock volume below tile invert elevation. Enter the total rock volume in the "BMP Details" cell. There is no TP or TSS credit given for this type of BMP.

- **Pond (NURP).** Stormwater Ponds have been an integral part of treating stormwater since the early 1980's and are designed based upon NURP (Nationwide Urban Runoff Program) design criteria. This BMP does not receive any volume reduction credits. TP volume reduction is 60% and TSS reduction is 80% of the dead storage volume with the max being 60% and 80% of the required Water Quality reduction requirement. Enter in the dead storage volume into the "BMP Details" cell.

- **Pond (NURP) with Filtration.** A filtration shelf or filtration trench is added to a stormwater pond to increase the Water Quality reduction. TP reduction is increased to 90% and TSS reduction is increased to 90%. Enter the volume that will be filtered through the shelf or trench in the "BMP Details" cell.

- **Pond (MN Stormwater Manual).** The Minnesota Stormwater Manual offers design criteria that is different from the NURP Design Standards, which results in a dead pool storage thatis less than a NURP Pond. Due to this, TP and TSS treatment is reduced. TP volume reduction is 40% and TSS reduction is 65% of the dead storage volume with the max being 40% and 65% of the required Water Quality reduction requirement. Enter in the dead storage volume into the "BMP Details" cell.

- **Pond (MN Stormwater Manual) with Filtration.** A filtration shelf or filtration trench is added to a stormwater pond to increase the Water Quality reduction. TP reduction is increased to 75% and TSS reduction is increased to 80%. Enter the volume that will be filtered through the shelf or trench in the "BMP Details" cell.

- **Stormwater Reuse.** Stormwater can be used for irrigation from either a storm pond or underground storage tanks. This BMP cannot be used as the sole treatment option for a site due to the limited operational time span. Volume credit is based upon the three limiting factors and is calculated in the Stormwater Reuse Calculations tab. Currently there is no credit for TP and TSS requirements.

- **Upland Vegetation**. The purpose of preserving or restoring pervious upland areas (prairie, woodland, forest) is to decrease the volume and rate of runoff by preserving soil absorption and plant uptake. Conservation easements are recorded to ensure the permanent protection of these areas. The volume credit is 0.5 inches over the preserved or restored area, no TP or TSS credit is available for this BMP. Enter in the square feet of the upland vegetation in the "BMP Details" cell.

Non-Linear Calculator Sections

The non-linear calculator was developed for projects not involving roads, trails, or sidewalks. There are four distinct sections within this Calculator; stormwater reuse, overall volume reduction, subwatersheds, and a summary sheet. These sections are arranged as tabs located at the bottom of the excel spreadsheet.

Overall Volume Section

The first tab titled "Overall Volume Reduction" will be used determine if the BMPs used onsite will meet the volume reduction requirements of the CCWMO. The approved approach for determining volume reduction is to calculate what the total volume is for the entire site. This is different than looking at water quality, where each subwatershed has to have treatment before leaving the site. In addition to looking at the overall site, the calculator reviews if the site is constrained. To be considered constrained, which reduces the amount of required volume reduction from 1 inch to 0.5 inches, a site must have more than 50 percent of the total area with a site specific conditions that include: low infiltration rates, less than 3 feet to bedrock, or well head protection. If the site utilizes Stormwater Reuse, a separate tab must be filled out to accurately calculate the total volume reduction of the proposed project.

Inputs

- Site impervious acres.
- Total site area in acres
- Constrained area in acres
- Select appropriate BMPs.
- Identify each BMP with a whole integer between 1 and 25. Use these throughout all plans to properly identify.
- If 'Stormwater Reuse' is selected, fill out the 'Stormwater Reuse Calculations' tab.
    - All fields will be automatically updated in this section and in the Watershed Section from the 'Stormwater Reuse Calculations' tab.

Outputs

- Calculator will determine how much volume is being credited through BMPs.
- Summation shows total amount.
- Percentage is how much is provided versus 'Volume to be Retained'.
    - A 'Yes/No' box indicates if the proposed BMPs meet the CCWMO Standards for the project site.

Stormwater Reuse Section

This is the second tab titled "Stormwater Reuse Calculations" that will be used to determine the correct volume reduction credit for a project site. It takes into account the three main limiting factors of utilizing stormwater for reuse; 1) irrigation area, 2) impervious surface draining to the storage area, and 3) the size of the storage area. Results, which will auto-populate other tabs in the calculator, will be for total volume credit given and associated irrigation area. This calculator can

only design one reuse system for a site, if there is more than one system being used; please contact CCWMO Staff to review options on how to show total credit.

Inputs

- Impervious surfaces draining to the BMP in acres.
- Irrigation area that will be irrigated.
- Choose irrigation rate (inches/week). Current standards indicate between 1 to 2 inches/week.
- Enter storage volume.

Outputs

- Limiting Factor
  - Calculator will determine the limiting factor of the site which is either the Irrigation Area or the Impervious Surface Area.
    - If the irrigation area is too large, water supply from the impervious surface is the limiting factor.
    - If the impervious surface is too large, the irrigation area is the limiting factor.
- Volume Credit
  - Volume credit is based upon the limiting factor as defined above.
  - Max volume credit is based off of 0.5" off of impervious surfaces. If the site is unconstrained, this limit is raised to 1"
- Irrigation Area
  - Irrigation area is based upon the volume credit.
    - If impervious surface is the limiting factor, than the irrigation area will be smaller than the user defined area.
    - If irrigation area is the limiting factor, than the user defined irrigation area will be the same.
- Required Storage
  - Determines if there is adequate storage in either a pond or storage tank
  - Sizing requirements.
    - Storm Ponds: the volume between the Normal Water Level and 4 feet above pond bottom is equal to 4x the required weekly amount.
    - Storage Tanks: volume of the tank is equal to 1 week of the required weekly amount.
  - If the storage is undersized, the maximum volume credit and irrigation area as calculated in the section below will be used.

Subwatershed Section(s)

Tabs 3 through 12 are designated for individual subwatersheds within the project site and will be used to review the water quality requirements of the CCWMO. A subwatershed is defined as an area that has a discharge offsite. It is possible to have multiple subwatersheds within one project. This will ensure that all water leaving the site receives adequate water quality treatment before discharging off site. Multiple BMPs can be used in a treatment train to achieve the required water quality reduction. It is assumed that all volume reduction BMPs receive a 100% TP and 100% TSS reduction for the first 0.5" off of impervious surfaces being treated. Due to this, the required water quality treatment within the calculator is adjusted to 0.5", instead of 1".

Inputs

- Label the subwatershed based upon the naming convention used within the Stormwater Management Plan.
- Input new impervious area of the subwatershed in acres.
- Select BMPs from the provided list.
    - Inputs for the Stormwater Reuse are automatically updated.
    - All BMP credits are capped at the listed percent reduction for both TP and TSS.
- Number each BMP with a whole integer between 1 and 25 that matches what is on both plan set and Stormwater Modeling.
- Input the size of the BMP.

Outputs

- Summation of each BMP Water Quality Credit for both TP and TSS.
- The percentage of the BMPS versus the required amount.
- 'Yes/No' boxes indicating if the selection and sizing of BMPs will meet CCWMO Water Quality Requirements.

Summary Section

The 'Summary Sheet' compiles all inputs from the Subwatershed tabs based upon the BMP ID#. This is a useful sheet to review if the site has multiple subwatersheds and keeping track of all the BMPs that are proposed. There are no user inputs, all fields are auto-populated.

Linear Calculator Sections

The linear calculator was developed for projects involving roads, trails, or sidewalks. The linear calculator is very similar to the non-linear calculator except that it incorporates reconstructed area, possible reduction in impervious, and new impervious variables. The calculator has the same distinct sections as the non-linear which were outlined above.

Overall Volume Section

The first tab titled "Overall Volume Reduction" will be used determine if the BMPs used onsite will meet the volume reduction requirements of the CCWMO. Linear projects incorporate two new variables in addition to whether a site is constrained or not. As with non-linear projects, if the site is constrained, the volume is reduced from 1 inch treatment to 0.5 inch for all new impervious areas. In addition to the site constraint variable, linear projects that reconstruct a portion of the road will have to treat 10 percent of the volume generated from a 1 inch storm over the reconstructed area. It is assumed that all volume reduction BMPs receive a 100% TP and 100% TSS reduction for the first 0.5" off of new impervious surfaces being treated. Due to this, the required water quality treatment within the calculator is adjusted to 0.5", instead of 1". Finally, if the project results in a net reduction of 10 percent of impervious surface, then volume reduction requirement has been met.

Inputs

- Existing impervious acres.
- Proposed New Impervious Area in acres
- Proposed Reconstructed Impervious Area in acres
- Total site area in acres
- Constrained area in acres
- Select appropriate BMPs.

- Identify each BMP with a whole integer between 1 and 25. Use these throughout all plans to properly identify.
- If 'Stormwater Reuse' is selected, fill out the 'Stormwater Reuse Calculations' tab.
    - All fields will be automatically updated in this section and in the Watershed Section from the 'Stormwater Reuse Calculations' tab.

Outputs

- Calculator will determine how much volume reduction is required
- Calculator will determine how much volume is being credited through BMPs.
- Summation shows total amount.
- Percentage is how much is provided versus 'Volume to be Retained'.
    - A 'Yes/No' box indicates if the proposed BMPs meet the CCWMO Standards for the project site.

Stormwater Reuse Section

This is the second tab titled "Stormwater Reuse Calculations" that will be used to determine the correct volume reduction credit for a project site. It takes into account the three main limiting factors of utilizing stormwater for reuse; 1) irrigation area, 2) impervious surface draining to the storage area, and 3) the size of the storage area. Results, which will auto-populate other tabs in the calculator, will be for total volume credit given and associated irrigation area. This calculator can only design one reuse system for a site, if there is more than one system being used; please contact CCWMO Staff to review options on how to show total credit. There are no major differences between the non-linear and linear calculators for stormwater reuse.

Inputs

- Impervious surfaces draining to the BMP in acres.
- Irrigation area that will be irrigated.
- Choose irrigation rate (inches/week). Current standards indicate between 1 to 2 inches/week.
- Enter storage volume.

Outputs

- Limiting Factor
    - Calculator will determine the limiting factor of the site which is either the Irrigation Area or the Impervious Surface Area.
        - If the irrigation area is too large, water supply from the impervious surface is the limiting factor.
        - If the impervious surface is too large, the irrigation area is the limiting factor.
- Volume Credit
    - Volume credit is based upon the limiting factor as defined above.
    - Max volume credit is based off of 0.5" off of impervious surfaces. If the site is unconstrained, this limit is raised to 1"
- Irrigation Area
    - Irrigation area is based upon the volume credit.
        - If impervious surface is the limiting factor, than the irrigation area will be smaller than the user defined area.
        - If irrigation area is the limiting factor, than the user defined irrigation area will be the same.

- Required Storage
    - Determines if there is adequate storage in either a pond or storage tank
    - Sizing requirements.
        - Storm Ponds: the volume between the Normal Water Level and 4 feet above pond bottom is equal to 4x the required weekly amount.
        - Storage Tanks: volume of the tank is equal to 1 week of the required weekly amount.
    - If the storage is undersized, the maximum volume credit and irrigation area as calculated in the section below will be used.

Subwatershed Section(s)

Tabs 3 through 12 are designated for individual subwatersheds within the project site and will be used to review the water quality requirements of the CCWMO. A subwatershed is defined as an area that has a discharge offsite. It is possible to have multiple subwatersheds within one project. This will ensure that all water leaving the site receives adequate water quality treatment before discharging off site. Multiple BMPs can be used in a treatment train to achieve the required water quality reduction. Linear projects have another requirement for reconstructed impervious areas of treating 10 percent of the 1 inch storm over this area which is included in the formula equating the total water quality treatment volume. As with the volume reduction requirement, if the total impervious area has a net reduction of 10 percent, then the treatment requirement for water quality has been met. It is assumed that all volume reduction BMPs receive a 100% TP and 100% TSS reduction for the first 0.5" off of new impervious surfaces being treated. Due to this, the required water quality treatment within the calculator is adjusted to 0.5", instead of 1".

Inputs

- Label the subwatershed based upon the naming convention used within the Stormwater Management Plan.
- Input existing impervious area of the subwatershed in acres.
- Input proposed new impervious area in acres
- Input proposed reconstructed impervious area in acres
- Select BMPs from the provided list.
    - Inputs for the Stormwater Reuse are automatically updated.
    - All BMP credits are capped at the listed percent reduction for both TP and TSS.
- Number each BMP with a whole integer between 1 and 25 that matches what is on both plan set and Stormwater Modeling.
- Input the size of the BMP.

Outputs

- Summation of each BMP Water Quality Credit for both TP and TSS.
- The percentage of the BMPS versus the required amount.
- 'Yes/No' boxes indicating if the selection and sizing of BMPs will meet CCWMO Water Quality Requirements.

Summary Section

The 'Summary Sheet' compiles all inputs from the Subwatershed tabs based upon the BMP ID#. This is a useful sheet to review if the site has multiple subwatersheds and keeping track of all the BMPs that are proposed. There are no user inputs, all fields are auto-populated.

Section 4. Example Maintenance Plan and Declaration

Sample: Maintenance Declaration, Operations & Maintenance Plan, and Inspection Checklists

Draft

Prepared by:

Carver County Water Management Organization
in cooperation with Carver Soil and Water Conservation district

CARVER COUNTY

Carver County
Water Management Organization

CARVER SWCD

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Draft

Declaration for Maintenance of Stormwater Facilities: Porous Paving + Biofiltration

Draft

DECLARATION FOR MAINTENANCE
of
STORMWATER FACILITIES

THIS DECLARATION is made this 31st day of March, 2014, by Carver County Facilities Department at 600 E 4th St, Chaska MN 55318 ("Declarant"), in favor of the Carver County Watershed Management Organization, a body with powers pursuant to Minnesota Chapters 103B and 103D ("CCWMO").

WHEREAS, Declarant(s) hold(s) fee interest in real property within the City of Chaska, Carver County, Minnesota, platted and legally described as:

Lot 1, Block 1, and Outlot A. COURTHOUSE CAMPUS TWO. PID# 301490010

WHEREAS, no one other than Declarant(s) possess(es) any right, title or interest in the Property;

WHEREAS, the facilities on or to be located on the Property to which the maintenance requirements in the Declaration apply as labeled on the scaled site plan located in the Operations and Maintenance Plan are as follows (the Facilities):

Porous Paving w/ underdrain

Planted Biofiltration w/ underdrain

WHEREAS, Declarant desires to subject the Property to certain conditions and restrictions imposed by the CCWMO as a condition to issuance of CCWMO Permit # WP20080039 for the mutual benefit of the CCWMO and Declarant.

NOW THEREFORE Declarant makes this declaration and hereby declares that this declaration shall constitute covenants to run with the Property, and further declares that the Property shall be owned, used, occupied, and conveyed subject to the covenants and restrictions set forth in this declaration, all of which shall be binding in perpetuity on all persons owning or acquiring any right, title or interest in the Property, and their heirs, successors, personal representatives and assigns, but only during the period of ownership of that right, title or interest.

1. Declarant will inspect the Facilities at least annually.

2. Declarant will maintain and repair all facilities, as necessary to preserve the integrity and intended function of the facility:

    a) In the case of basins and other facilities where sediment collects, to preserve storage or capacity at or above the design volume or, where no design storage volume or capacity is incorporated into the permit, the volume or capacity recommended by the manufacturer, including regular cleaning of pretreatment devices.

    b) In the case of conveyances and other structures, to preserve design hydraulic capacity.

    c) In the case of facilities relying on soils and vegetation for stormwater management or treatment, to preserve healthy vegetation and design soil permeability.

    d) In the case of facilities where stormwater is to be reused for irrigation purposes, as necessary to preserve the capacity of the system to distribute the design volume.

    e) In the case of filtration systems including porous pavement, to preserve the permeability or capacity at or above the designed infiltration rate.

3. Declarant will submit annually, a report to include inspection dates, facility conditions, and corrective actions taken.

4. If Declarant fails to perform required maintenance to stormwater facilities resulting in deviation from the designed treatment performance or efficiency, the CCWMO may notify Declarant of this deficiency. If Declarant has not completed or scheduled corrective action within 60 days of receipt of notification, the CCWMO may perform any action deemed necessary to return full design function and treatment performance to the stormwater treatment facility. The Declarant shall be responsible for reimbursement of all costs incurred from such activity including but not limited to administrative overhead and attorney's fees.

5. Any notice under this declaration shall be sent by certified mail, return receipt requested, or delivered to the following address:

Draft

Facilities Services Department
c/o Kevin Maas
600 E 4th St
Chaska MN 55318

Declarant may change this address by a certified letter to the CCWMO referencing the permit number.

6. If Declarant, its successors or assigns, materially changes use of the Property so that the Facilities which are the subject of this Declaration are rendered unnecessary, or are replaced by other Facilities approved by the CCWMO, its successors or assigns, this Declaration shall become void and of no further force or effect.

7. An executed copy of this declaration shall be filed with Carver County Registrar or Carver County Recorder, filing cost to be borne by the Declarant. This declaration will be unlimited in duration without being re-recorded.

Kevin Maas
DECLARANT

_____

The foregoing instrument was acknowledged before me this 31st day of March, 2014 by

John Doe.



John Doe

_____

Notary

This instrument was drafted by:

Carver County Watershed Management Organization
400 East 4th Street
Chaska, MN 55318
1/21/2014

Draft

Operations and Maintenance Plan Carver county Courthouse Porous Paving + Biofiltration

Legal Description: Lot 1, Block 1, and Outlot A. COURTHOUSE CAMPUS TWO. PID# 301490010

Contact: Kevin Maas (952) - 361-1557
600 E 4th St
Chaska, MN 55318

Project Description/ Purpose: This project was installed during the fall of 2008 as a demonstration site for the use of porous paving and planted filtration trench within Carver County. The project serves to treat the stormwater prior to entering into the adjacent East Chaska Creek. The approximate drainage area is ~ 37,000 sq ft. Maintenance is necessary to the functionality and long-term success of the project. Features include:

- Porous bituminous pavement w/ underdrain
- Planted Biofiltration w/ underdrain

All underdrains are connected to adjacent catch basin w/ manhole. Inspections of the connection into the catch basin will indicate that the underdrain is functioning.

Maintenance Tasks – Courthouse Porous Paving + Biofiltration

Timeline	Task	Personnel
February	➢ Schedule porous pavement sweeper for April, July and October	➢ Facilities Dept. Manager
April	➢ Remove dead plant material (if not completed in the fall) ➢ Sweep porous pavement with a regenerative air vacuum sweeper ➢ Replace and dead plants w/ new plugs or transplants	➢ Facilities Dept. Staff ➢ Contracted Services & Facilities Dept. Manager
May	➢ Add mulch swale as needed ➢ Mow grass buffer around swale	➢ Facilities Dept. Staff ➢ Contracted Services & Facilities Dept. Manager
June	➢ Mow grass buffer around swale ➢ Weed swale	➢ Contracted Services & Facilities Dept. Manager ➢ Facilities Dept. Staff (Planning & Water Mngt staff are available to assist with plant identification)
July	➢ Weed swale ➢ Mow grass buffer around swale ➢ Sweep porous pavement with a regenerative air vacuum sweeper	➢ Facilities Dept. Staff (PWM staff available to assist) ➢ Contracted Services & Facilities Dept. Manager ➢ Contracted Services & Facilities Dept. Manager
August	➢ Mow grass buffer around swale ➢ Weed swale	➢ Contracted Services & Facilities Dept. Manager ➢ Facilities Dept. Staff (PWM staff are available to assist with plant identification)
September	➢ Mow grass buffer around swale	➢ Contracted Services & Facilities Dept. Manager
October	➢ Mowing & fixing any erosion/gullying formed during season	➢ Facilities Dept. Staff
Early November	➢ Remove dead plant material (could also wait until spring) ➢ Sweep porous pavement with a regenerative air vacuum sweeper	➢ Facilities Dept. Staff ➢ Contracted Services & Facilities Dept. Manager
Additional	No sand (de-icing) is to be used at any time on or around the porous pavement. Salt use for de-icing should follow the guidelines laid out by the Minnesota Pollution Control Agency.	

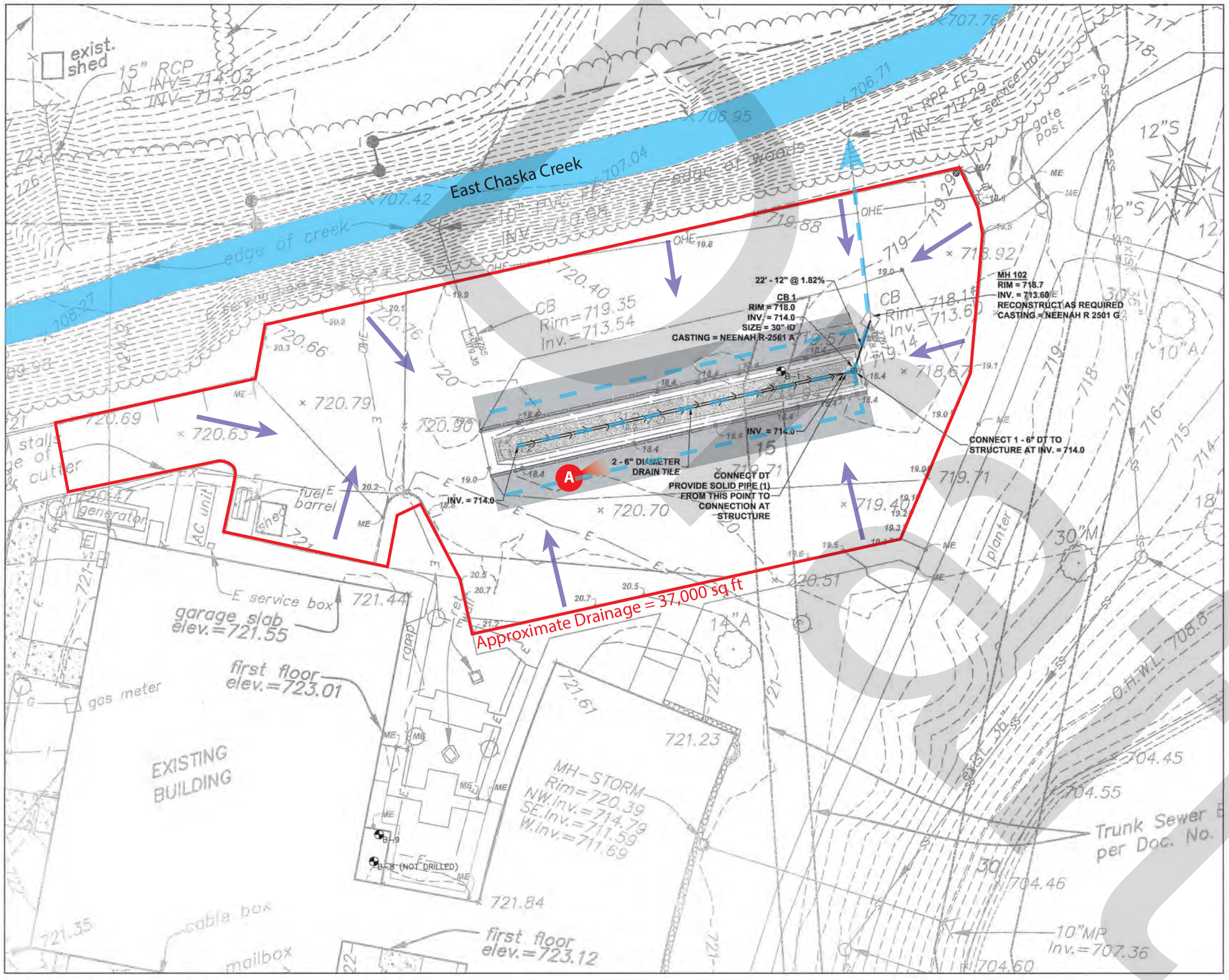
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Location Map



Site aerial





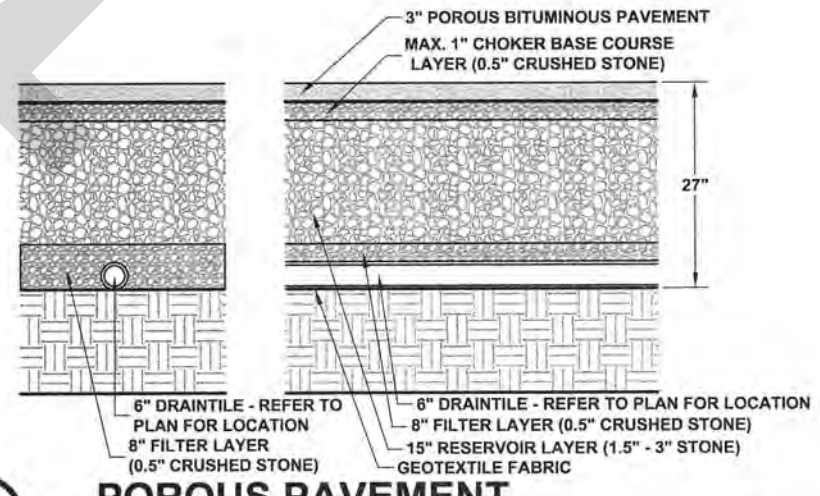
1 C4.1 **UTILITY PLAN - BASE BID**



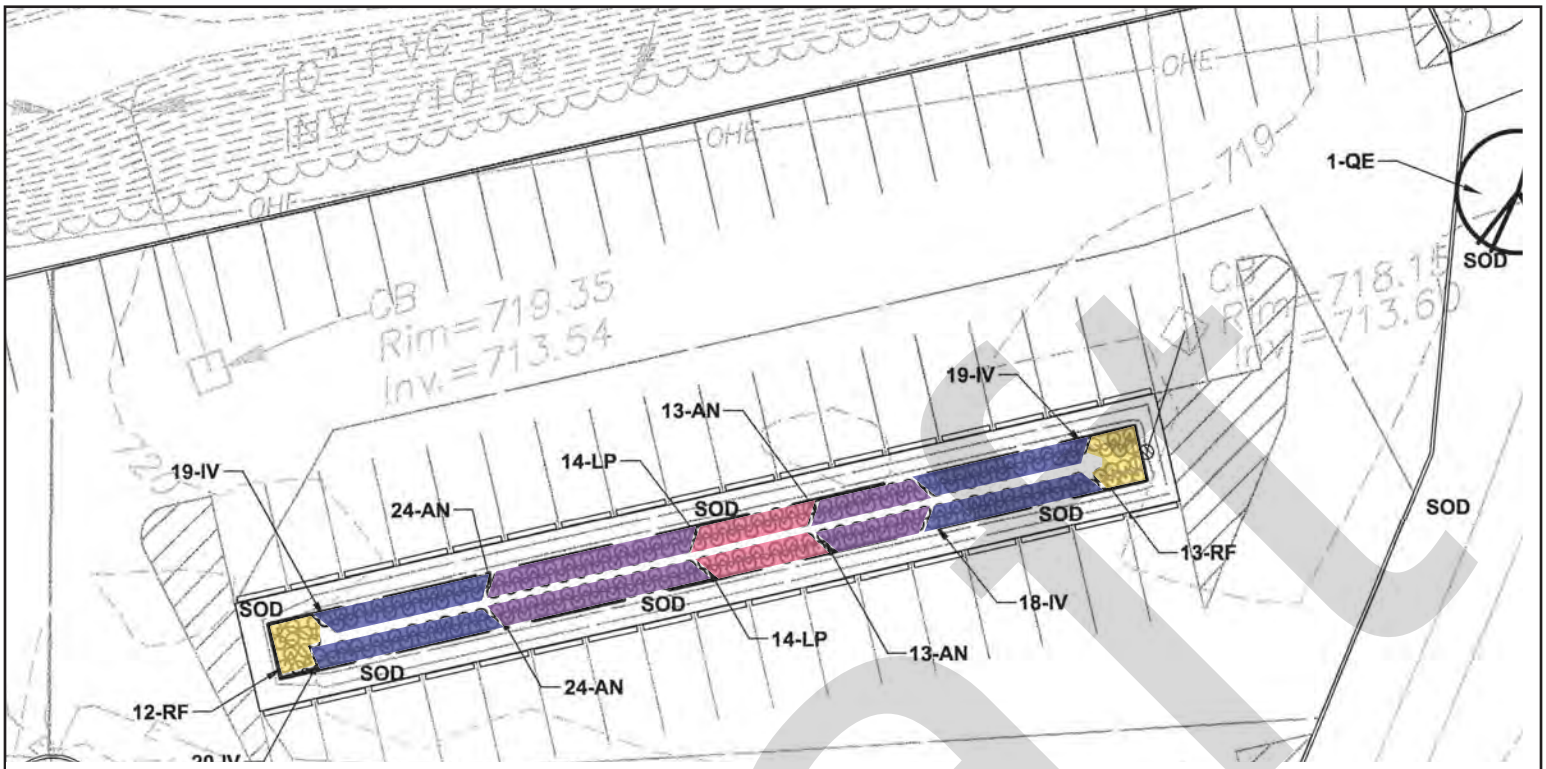
Looking East-Northeast from point A



Porous Bituminous



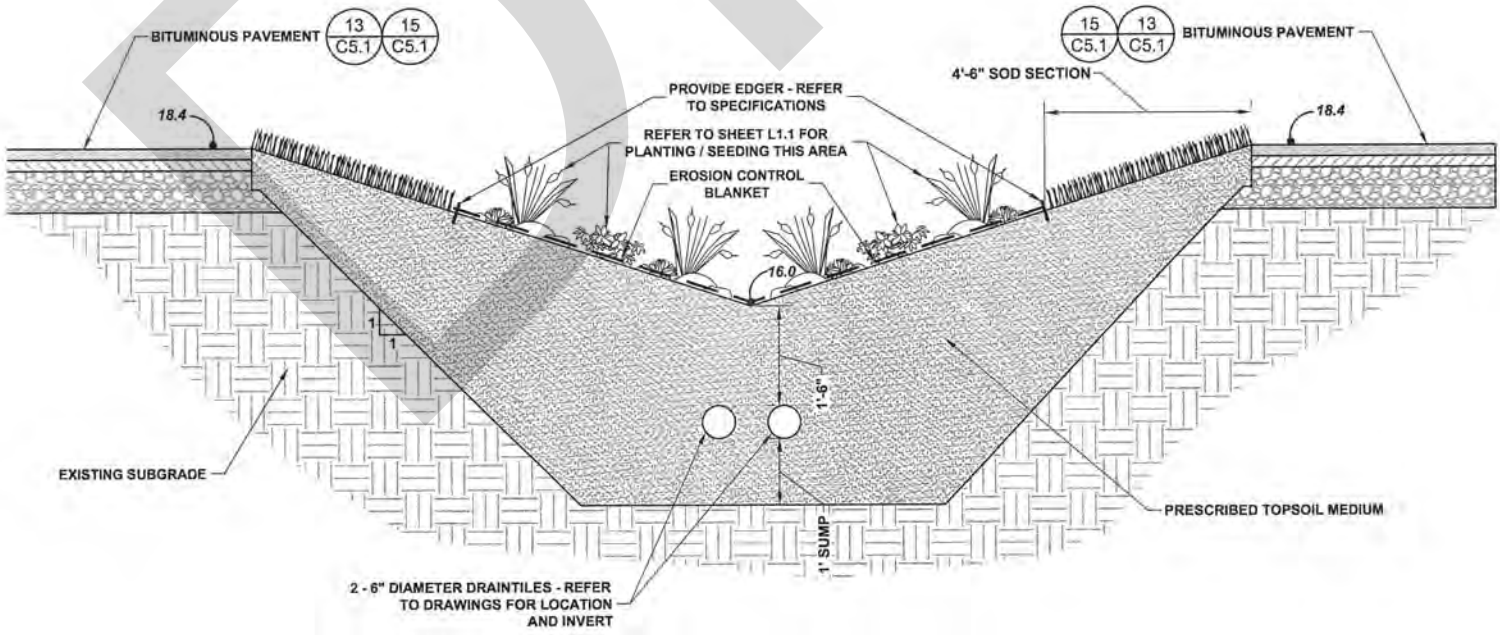
15 C5.1 **POROUS PAVEMENT (ALTERNATE NO. 4)**



INFILTRATION BASIN PLANTINGS

	Common Name	Scientific Name	QTY.
AN	New England Aster	Aster novae-angliae	74
IV	Blue Flag Iris	Iris versicolor	76
LP	Prairie Blazingstar	Liatris pychnostachya	28
RF	Black Eyed Susan	Rudbeckia hirta	25

1 / L1.1 **LANDSCAPE PLAN**



20 / C5.1 **SECTION THRU INFILTRATION BASIN**

DRAFT

	Flower	Leaf	Juvenile
AN New England Aster			
IV Blue Flag Iris			
LP Prairie Blazingstar			
RF Black Eyed Susan			

Biofiltration (Rain Garden) Maintenance Inspection Checklist

Inspector:
Date:
Time:
Weather: Rainfall over previous 2-3 days? Reading from closest NOAA reporting station:_____"
Rain Garden Location:

Mark items in the table below using the following key:

- **X** Needs immediate attention
- **–** Not Applicable
- ✓ Okay
- **?** Clarification Required.

Rain Garden Components:

Items Inspected	Checked		Maintenance Needed		Inspection Frequency
DEBRIS CLEANOUT	Y	N	Y	N	**M**
1. Rain gardens and contributing areas clean of debris					
2. No dumping of yard wastes into rain garden					
3. Litter (trash, debris, etc.) have been removed					
VEGETATION					**M**
4. No evidence of erosion					
5. Is plant composition still according to approved plans					
6. No placement of inappropriate plants					
DEWATERING AND SEDIMENTATION					**A,AMS**
7. Rain garden dewaters between storms					
8. No evidence of standing water					
9. No evidence of surface clogging					
10. Sediments should not be greater than 20% of swale design depth					
OUTLETS/OVERFLOW SPILLWAY					**A, AMS**
11. Good condition, no need for repair					
12. No evidence of erosion					
13. No evidence of any blockages					
INTEGRITY OF BIOFILTER					**M**
14. Raingarden has not been blocked or filled inappropriately					
15. Mulch layer is still in place (depth of at least 3")					
16. Noxious plants or weeds removed					

Inspection Frequency Key **A= Annual, M= Monthly, AMS= After Major Storm**

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Comments:

OVERALL CONDITION OF FACILITY:

In accordance with approved design plans? Y / N In accordance with As Built plans? Y / N

Dimension on as built:

Field Verified Dimension:

Maintenance required as detailed above? Y / N Compliance with other consent conditions? Y / N

Comments:_____

_____

Dates by which maintenance must be completed: _____/___/_____

Dates by which outstanding information as per consent conditions is required by: :_____/___ /_____

Inspector's signature:_____

Consent Holder/Engineer/Agent's signature:_____

Consent Holder/Engineer/Agent's name printed:_____

Draft

Porous Paving Maintenance Inspection Checklist

Inspector:
Date:
Time:
Weather: Rainfall over previous 2-3 days? Site Conditions:

Mark items in the table below using the following key:

- **X** Needs immediate attention
- – Not Applicable
- ✓ Okay
- **?** Clarification Required.

Porous Paving Components:

Items Inspected	Checked		Maintenance Needed		Inspection Frequency
PAVEMENT SURFACE	Y	N	Y	N	M
1. Signs of clogging (e.g. standing water)?					
2. Debris accumulation (mulch, sticks, trash)?					
3. Sediment accumulation?					
4. Standing water present?					
ADJACENT AREAS					A, AMS
5. Erosion from underdrain outlet?					
6. Exposed soil in areas discharging to porous paving?					
7. Is porous pavement adversely affected by any adjacent site feature?					
DEWATERING					A, AMS
8. Does runoff discharge from pavement area within 48hrs?					
OUTLETS/OVERFLOW					A, AMS
9. Is outlet for storm sewer system free from debris and in good working order?					
OTHER					
10. Have there been complaints?					A
11. Public Hazard noted?					
12. Other:					

Inspection Frequency Key A= Annual, M= Monthly, AMS= After Major Storm

Draft

Comments:

OVERALL CONDITION OF FACILITY:

In accordance with approved design plans? Y / N

In accordance with As-Built plans? Y / N

Dimension on as built: Y / N

Field Verified Dimension: Y / N

Maintenance required as detailed above? Y / N

Compliance with other consent conditions? Y / N

Comments:_____

_____

Dates by which maintenance must be completed: _____/___/_____

Dates by which outstanding information as per consent conditions is required by: :_____/___ /_____

Inspector's signature:_____

Consent Holder/Engineer/Agent's signature:_____

Consent Holder/Engineer/Agent's name printed:_____

Draft

Section 5. Upland Preservation Easement Template

OPEN SPACE CONSERVATION EASEMENT AGREEMENT

This **OPEN SPACE CONSERVATION EASEMENT AGREEMENT** is entered into by and between **_____**, a Limited Liability Company under the laws of the State of Minnesota (the "**Grantor**"), and Carver County, Minnesota, a political subdivision of the State of Minnesota (the "**Grantee**"); the terms of this Conservation Easement Agreement may also be enforced by **_____**, as the agent for Grantee, as authorized by Grantee from time to time.

RECITALS

A. Grantor is the current owner of real property in Carver County, Minnesota legally described on **Exhibit A** attached hereto (the "**Protected Property**").

B. The Protected Property has open space values of significant importance, hereafter referred to as "**Conservation Values**." [MORE SPECIFICS IF POSSIBLE RE: THIS] Preservation of the Protected Property will further policies established by the Carver County Comprehensive Land Use Plan, Carver County Planning & Water Management Plan, Minnesota Statutes Chapter 84C, and Minnesota Statutes Chapter 103A.

C. The Grantor and Grantee intend to create a conservation easement that is binding upon the Grantor and all future owners of the Protected Property, conveying to Grantee the right to protect and preserve the Conservation Values of the Protected Property for the benefit of current and future generations.

D. The Grantor and Grantee intend this Easement Agreement to meet the volume requirements of appendix A of the Carver County Water Resource Management Ordinance, Chapter No. 153.

EXAMPLE

CONVEYANCE OF CONSERVATION EASEMENT:

Pursuant to the laws of the State of Minnesota including Minnesota Statutes Chapter 84C, and in consideration of the facts recited above and the mutual covenants contained herein, Grantor, for themselves and for their successors and assigns, hereby conveys and warrants to Grantee, and their successors and assigns, a perpetual conservation open space easement over the Protected Property, consisting of the following rights, terms, and restrictions (the "Easement"):

1. CONSERVATION PURPOSE.

The purpose of this Easement is to preserve and protect in perpetuity the Conservation Values of the Protected Property, by restricting the future development, management and use of the Protected Property, and by providing remedies for any breach or violation of this Agreement or the Easement.

2. LAND USE RESTRICTIONS.

Except as specifically permitted in paragraph 3 below, restrictions imposed upon the Protected Property include the following:

2.1. Industrial and Commercial Activity. No industrial or commercial activities may be conducted upon the Protected Property.

2.2. Agricultural Use. No agricultural activities may be conducted upon the Protected Property. Prohibited agricultural activities include, without limitation, tilling, plowing, haying, planting and harvesting of row crops, or the keeping, breeding, feeding or grazing of poultry, swine, cows or any other livestock.

2.3. Residential Development. No residential use or development of the Protected Property is allowed.

2.4. Right of Way. No right of way shall be granted across the Protected Property, in conjunction with any industrial, commercial, or residential use or development of other adjacent land not protected by this Easement; provided, that nothing in this paragraph shall impose any duty on the part of the Grantor to contest any eminent domain or other similar proceeding, or other taking by any federal, state or local government entity or agency.

2.5. Subdivision. The Protected Property may not be subdivided or partitioned, and may hereafter be conveyed only in its entirety as a single parcel, except as otherwise agreed by Grantee in each instance.

2.6. Density. No portion of the Protected Property may be used to satisfy land area requirements for other property not subject to this Easement, for purposes of calculating building density, lot coverage, or open space under otherwise applicable laws, regulations, or ordinances controlling land use.

2.7. Structures and Improvements. No temporary or permanent buildings, structures, utilities, roads or other improvements of any kind may be placed or constructed on the Protected Property.

EXAMPLE

a. Utilities. Electrical lines may be maintained, repaired and replaced only to serve uses and activities already occurring, or as otherwise hereafter approved by Grantee. Communications towers, electrical transmission towers and lines, wind turbines, and other similar structures will not be permitted, without prior written approval of Grantee in each instance.
b. Signs. No billboards or other signs may be placed or maintained on the Protected Property, other than small, unlighted signs for notice purposes, such as "no trespassing" or "private property" signs.
c. Roads and Trails. No roads or trails may be constructed or used on the Protected Property.

2.8. Dumping. No trash, non-compostable waste, hazardous or toxic substances, junk, or other unsightly material or debris may be dumped or accumulated on the Protected Property.

2.9. Topography And Surface Alteration. No alteration or change in the topography of the surface of the Protected Property is allowed. Ditching, draining, filling, grading and excavation or removal of soil, sand, gravel, rock or other materials, are not permitted, except where incidental to activities or uses specifically permitted by this Easement.

2.10. Water. No alteration or manipulation of natural watercourses, ponds, lakes, wetlands or other surface or subsurface bodies of water is allowed, except to restore or enhance wildlife habitat or native biological communities, or to improve or enhance the function and quality of existing wetlands, in accordance with a habitat management plan approved by the Grantee under paragraph 3 below.

2.11. Storage. The Protected Property may not be used for any kind of storage, whether above or below ground, specifically including boats, vehicles, equipment, etc.

2.12. Vegetation Management. No removal, cutting, pruning, trimming or mowing of any trees or other vegetation, and no introduction of non-native species, is allowed, except as follows:
a. In conjunction with forest or habitat protection and management, or as otherwise specifically permitted in paragraph 3 below.
b. As reasonably required to prevent or control insects, noxious weeds, invasive vegetation, disease, fire, personal injury, or property damage.
c. To remove fallen or dead trees, and to gather firewood for personal use, or as otherwise provided in Subparagraph 3.2 below.

3. RESERVED RIGHTS.

Grantor retains all rights associated with ownership and use of the Protected Property that are not expressly restricted or prohibited by this Agreement and the Easement. The Grantor may not, however, exercise such rights in a manner that would have a material, adverse impact on the open space Conservation Values of the Protected Property. Additionally, the Grantor must give notice to the Grantee before exercising any reserved right that might have a material, adverse impact on the Conservation

EXAMPLE

Values associated with the Protected Property. Without limiting the generality of the above, the following rights are expressly reserved and the Grantor may use and allow others to use the Protected Property as follows:

3.1. Right to Convey. The Grantor may sell, give, lease, bequeath, devise, mortgage or otherwise encumber or convey the Protected Property; provided, that any conveyance or encumbrance of the Protected Property is subject to the Easement and the terms of this Agreement.

3.2. Habitat and Forest Management. The Protected Property may be used to maintain, restore and enhance habitat for native wildlife, native plant life, and native biological communities. Any removal of timber shall be limited to fallen or dead trees, and firewood for personal use, unless in accordance with a woodland management plan approved by Grantee.

4. GRANTEE'S RIGHTS AND REMEDIES.

In order to accomplish the purposes of this Easement, the Grantee has the following rights and remedies:

4.1. Right to Enter. The Grantee or its agent has the right to enter the Protected Property at reasonable times and in a reasonable manner for the following purposes:

a. To inspect the Protected Property and to monitor compliance with the terms of this Easement.
b. To obtain evidence for use in seeking judicial or other enforcement of this Easement.
c. To survey or otherwise mark the boundaries of all or part of the Protected Property, if necessary to determine whether there has been or may be a violation of this Easement.
d. To otherwise exercise its rights under this Easement.

4.2. Right of Enforcement. The Grantee has the right to prevent or remedy violations of this Easement through appropriate judicial action brought against the Grantor or other responsible party, in any court of competent jurisdiction.

a. Notice. Grantee may not initiate judicial action until Grantor is given written notice of the violation, or threatened violation, of this Agreement and the terms of the Easement, and a reasonable opportunity to correct the violation, unless immediate judicial action is necessary to prevent or mitigate significant damage to the Protected Property and good faith efforts to notify Grantor are unsuccessful.
b. Remedies. Remedies available to the Grantee in enforcing the terms of the Easement and this Agreement include the right to request temporary or permanent injunctive relief for any such violation or threatened violation, to require restoration of the Protected Property to its condition at the time of this conveyance or as otherwise necessitated by such violation, to seek

EXAMPLE

specific performance or declaratory relief, and to recover damages resulting from such violation. The foregoing remedies are cumulative and are available without requiring the Grantee to prove actual damage to the Conservation Values.

c. Costs. Any costs incurred by Carver County in enforcing the terms of this Agreement against Grantor, including court costs and attorney's fees, and any cost of restoration necessitated by Grantor's violation of the terms of this Grant shall be borne by Grantor.

d. Discretionary Enforcement. Enforcement of the terms of the Easement and this Agreement is solely at the discretion of Grantee, and Grantee does not waive or forfeit the right to take any action necessary to assure compliance with the terms of the Easement and this Agreement by any delay or prior failure of Grantee in discovering a violation or initiating enforcement proceedings.

e. Acts Beyond Grantor's Control. Grantee may not bring any action against Grantor for any change to the Protected Property resulting from causes beyond Grantor's control, such as changes caused by fire, flood, storm, natural deterioration or the unauthorized acts of persons other than the Grantor or the Grantor's agents, employees or contractors, or, changes resulting from reasonable actions taken in good faith to attempt to prevent or mitigate damage resulting from such causes.

5. NO PUBLIC ACCESS.

Nothing whatsoever in this Easement shall be construed as giving the general public a right to enter upon or otherwise use the Protected Property, or to otherwise claim any rights whatsoever with respect to the Protected Property.

6. GENERAL PROVISIONS.

6.1. Assignment. This Agreement and the Easement may only be assigned or transferred by Grantee to another political subdivision of the State of Minnesota. Any such future holder of the Easement shall have the rights of Grantee pursuant to the terms of the Easement and this Agreement. Grantee will notify Grantor of any assignment within fifteen (15) days thereof, and will provide the Grantor with the name and address of the new holder.

6.2. Amendment. This Agreement and the Easement may not be modified, amended or extinguished without the express written agreement of Grantee in each instance. If the Easement is extinguished or terminated in whole or in part, Grantee shall not be entitled to any portion of any proceeds received from a sale, exchange or involuntary conversion.

6.3. Indemnification. Grantor, its successor and assigns, shall hold harmless, indemnify and defend Grantee and its employees, agents and contractors, and their successors and assigns (collectively "Indemnified Parties") from and against all liabilities, penalties, costs, losses, damages, expenses, causes of action,

EXAMPLE

claims, demands or judgments, including without limitation, reasonable attorneys' fees arising from or in any way connected with: (1) the result of a violation or alleged violation of any State or Federal environmental statue or regulation including the storage or disposal of hazardous or toxic chemicals or materials; (2) injury to or the death of any person, or physical damage to any property, resulting from any act, omission, condition or other matter related to or incurring on or about the premises, regardless of costs, unless due solely to the gross negligence of any of the Indemnified Parties; and (3) existence and administration of this easement.

6.4. Binding Effect. The Easement and this Agreement shall run with and burden the Protected Property in perpetuity. The terms of this Easement are binding and enforceable against Grantor, all successors in title to the Protected Property, and all other parties entitled to possess or use the Protected Property. This Easement creates a property right immediately vested in the Grantee and its successors and assigns that cannot be terminated or extinguished except as set out herein.

6.5 Enforceability. If any provisions of this easement, or the application thereof to any person or circumstances, is found to be invalid, the remainder of the provisions of this easement, or the application of such provision to the persons or circumstances other than those as to which it found to be invalid, as the case may be, shall not be affected and shall continue in full force and effect.

6.6 Authorized Representative. Each individual signing on behalf of a party to this Agreement states that he or she is the duly authorized representative of the signing party and that his or her signature on this Agreement has been duly authorized by; and creates the binding and enforceable obligation of the party on whose behalf the representative is signing.

IN WITNESS WHEREOF, said parties have hereunto executed this document the date and year first written below.

DATE: GRANTORS:

_____

_____

STATE OF MINNESOTA)
) ss
COUNTY OF CARVER)

The foregoing instrument was acknowledged before me this _____ day of _____, 2016, by _____, named in the forgoing instrument, and _____, his spouse, as their free act and deed.

EXAMPLE

_____
Notary Public

OR

STATE OF MINNESOTA)
) ss
COUNTY OF CARVER)

The foregoing instrument was acknowledged before me this _____ day of _____, 2016, by _____, Grantor.

_____
Notary Public

OR

STATE OF MINNESOTA)
) ss
COUNTY OF CARVER)

The foregoing instrument was acknowledged before me this _____ day of _____, 2016, by _____, a Minnesota corporation named in the forgoing instrument, and said that he did so pursuant to authority given him by the board of directors of said corporation.

_____
Notary Public

EXAMPLE

GRANTEE:
County of Carver

By: _____

STATE OF MINNESOTA)
) ss
COUNTY OF CARVER)

The foregoing instrument was acknowledged before me this _____ day of _____, 2016, by _____, Grantor.

This document drafted by:

Office of the Carver County Attorney
604 East Fourth Street
Chaska, Minnesota 55318
(952) 361-1400

EXAMPLE

CONSENT OF MORTGAGEE

The foregoing Conservation Easement is hereby consented to by _____, a national association.

BANK

By _____

Its_____

By _____

Its_____

Date: _____

STATE OF MINNESOTA)
) ss
COUNTY OF CARVER)

The foregoing instrument was acknowledged before me on _____, 20___ by _____, the _____ and _____, the _____, of _____, a national association on behalf of said national association.

EXAMPLE

EXHIBIT A (legal description)

EXAMPLE

Nickolas Olson

From: Minnetrista
Sent: Thursday, July 16, 2026 7:24 AM
To: Nickolas Olson
Subject: FW: Planning commission S and RB investments

Thank you,
Darci J. Atkinson
Administrative Assistant

City of Minnetrista
7701 County Road 110 W
Minnetrista, MN 55364
952-446-1660

-----Original Message-----
From: JD <jake.d.heinsch@icloud.com>
Sent: Wednesday, July 15, 2026 5:10 PM
To: Minnetrista <minnetrista@cityofminnetrista.gov>
Subject: Planning commission S and RB investments

Question for nickolas,
We live in hunterscrest and directly across hwy 7 from us would be the new development. Which i believe its only far to let someone build there but there needs to be proper turning in and out of the development. Crossing hwy 7 into st boni is already a death trap. And yes i have talked to hennipin county nothing has happened so only ask is when you are meeting with county on this project please put in a turn around out of hunters to slow everyone down and put a jake brake ordinance in on semi's coming into town. Sorry i suck at typing.
Thanks nickolas!
Jake

From: capistrant kinney
To: Nickolas Olson
Subject: proposed subdivision
Date: Thursday, July 16, 2026 3:17:17 PM

Hello to the those who hold office in the City of Minnetrista:

Thank you for reading my previously emailed objections to the proposed subdivision on Highway 7, also known as the Boll property. I would like to express my shared opinion that Highway 7 is one lane road and already very congested from Hunter's Crest all the way to the City of Excelsior. Others at the developer's meeting were also concerned with traffic. I have researched the ordinances in place for Minnetrista and I believe that there are strong reasons for opposing the new subdivision, Seven Oaks. In reading the city's ordinances, I believe that the current plat and plan for Seven Oaks does not comply.

Subdivision regulations 500.01 state that under Policy b. "Land to be divided will be of such character that it can be used safely for building purposes without danger...."
Subdivision 3, under Purpose a. "To protect and provide for the public health, safety, general welfare of the city and to prevent harm...."
Purpose c. "To provide adequate light, air, privacy.....and to prevent overcrowding of the land and undue congestion..."
Purpose f. "To guide public and private policy in order to provide adequate and efficient transportation, water, sewer, schools, **parks**, playground..."
Purpose 9. "To provide the most beneficial relationship between land and building and the circulation of traffic....having particular regard to the avoidance of congestion in the streets and highways...."
Furthermore, regarding a Class III Subdivision (more than 3 lots) for Article b under Procedure 7. e. "The additional development created does NOT increase traffic levels beyond the capacity of existing roads."
There is also Subdivsion 5. On-site Roads, d. "No access will be provided from the arterial road..."
I am not sure if Highway 7 counts as the arterial road but I will use that article as a possible additional point of contention for vetoing this subdivision.
Lastly, I am really confused about why the subdivision has no park. If I am reading right, the table on the Section 550.47, Park Dedication Requirements, shows this site to have at least 3 but no more than 4 units per acre and should require at least 12% of buildable land dedicated to "parks, playgrounds or open spaces." It would be very difficult to add green space or a park AFTER the creation of this subdivision. I hope you will consider this when you decide whether or not to approve this new development.

I appreciate your time in this matter, and I ask you that you NOT approve this subdivision due to the direct conflict with the city ordinances regarding traffic congestion and safety.
Thank you for your thoughtful consideration.
Reneé Capistrant
Hunter's Crest resident

RESOLUTION NO. 111-26

CITY OF MINNETRISTA

RESOLUTION GRANTING PRELIMINARY APPROVAL OF THE PLAT SEVEN OAKS

WHEREAS, the city of Minnetrista (the "City") is a municipal corporation, organized and existing under the laws of Minnesota; and

WHEREAS, the City has adopted a zoning ordinance and subdivision regulations to promote the orderly, economic and safe development and utilization of land; and

WHEREAS, S & RB Investments, LP, a Minnesota limited partnership (the "Applicant") is the fee owner of the land generally known as 9400 Highway 7 and legally described in Exhibit A attached hereto (the "Property"); and

WHEREAS, Brandl Anderson Homes (the "Developer") has applied for preliminary approval to plat known as Seven Oaks on behalf of the Applicant; and

WHEREAS, after due notice as required by law, a public hearing on the preliminary plat was held before the planning commission on July 27, 2026; and

WHEREAS, the planning commission, after consideration of the staff report and other written materials included in its packet and the testimony delivered at the public hearing, voted 5-0 to recommend that the city council approve the preliminary plat request.

NOW, THEREFORE, BE IT RESOLVED, by the City Council of the City of Minnetrista, Minnesota that preliminary approval of the plat known as Seven Oaks is hereby granted to the Applicant in accordance with the preliminary plat and development plans presented by the Applicant and prepared by Pioneer Engineering originally dated June 26, 2026 and the following terms and conditions:

1. The Applicant shall satisfy all comments within the City Engineer's review memorandum dated July 23, 2026 and any additional comments regarding future revised submittals prior to final plat approval;
2. The Applicant shall comply with any recommendations of the traffic study and those from the City and MnDOT;
3. The Applicant shall work to incorporate green space/park areas temporarily until a future park is developed to serve the area;
4. The preliminary plat is subject to Minnesota State Fire code and review by the local Fire Chief;
5. The Applicant shall submit a set of model homes for review of conformance with the City's architectural guidelines with the final plat application;
6. The Applicant shall contribute a warning siren fee of $64/unit at the time of final plat;
7. The Applicant shall submit an appraisal at their cost for fair market value of the Properties being developed. A park dedication fee in the amount of 12% of the appraised value, as agreed upon by the City Council, of the land shall be paid at the time of final plat. The City

Council reserves the right to require their own appraisal at the expense of the Applicant if necessary to determine fair market value;

8. Per the City fee schedule, a sewer area charge and water area charge will be due at the time of final plat approval;
9. The Applicant shall comply with all of the rules, regulations, and permitting requirements of MnDOT, Hennepin County, MCWD, and all other public agencies with jurisdiction over the Properties;
10. All utilities for the proposed development shall be located underground;
11. Standard drainage and utility easements shall be provided around the boundaries of all lots and wetlands;
12. Lawn and landscape irrigation systems within the development cannot be connected to city water per Section 500.31 Subd. 4 of City Code. The lawn and landscape irrigation needs of the development shall be served by the installation of a separate irrigation system supply pipes connected to the storm water ponds;
13. The rezoning of the Property will become effective upon filing of the final plat for the first phase;
14. A developer's agreement must be executed before the final plat will go to the City Council;
15. A stormwater tax district shall be established for all property included within the plat;
16. The Applicant shall establish a homeowner's association for all the property included with the proposed plat;
17. The Applicant shall provide title evidence satisfactory to the City Attorney prior to final plat approval;
18. Payment of all associated preliminary plat review fees shall be received by the City prior to acceptance of a final plat application; and
19. The Applicant shall submit a completed application for final plat within one hundred eighty (180) days of date of adoption of resolution by the City Council.

This resolution was adopted by the City Council of the City of Minnetrista on the 19th day of October, 2026 by a vote of _____ ayes and _____ nays.

_____
Lisa Whalen, Mayor

ATTEST:

_____
Ann Meyerhoff, City Clerk

(SEAL)

EXHIBIT A

Property description per ALTA Commitment for Title Insurance issued by Land Title, Inc., a division of Stewart Title Guaranty Company Commitment Number: 723005 Commitment Date: October 24, 2025 at 7: 00 a.m.:

The West Half of the Southwest Quarter of Section 30, Township 117 North, Range 24 West, Hennepin County, Minnesota.

EXCEPT that part thereof embraced within the plat of BOLLDERIDGE.

EXCEPT The East 273 feet of the West 1045.12 feet of the South 384 feet thereof.

EXCEPT that part of the South 384.00 feet lying easterly of the East 273 feet of the West 1045.12 feet of the South 384 feet thereof.

EXCEPT State Highway No. 7.

ORDINANCE NO. 512

CITY OF MINNETRISTA
COUNTY OF HENNEPIN
STATE OF MINNESOTA

AN ORDINANCE TO AMEND MINNETRISTA CITY CODE BY AMENDING THE OFFICIAL ZONING MAP OF THE CITY OF MINNETRISTA

THE CITY COUNCIL OF THE CITY OF MINNETRISTA, MINNESOTA ORDAINS AS FOLLOWS:

Section I. The official zoning map of the city of Minnetrista is hereby amended to change the zoning classification of the property generally located at 9400 Highway 7 (PID# 30-117-24-32-0004) and legally described on Exhibit A attached hereto (the "Property") from AP: Agriculture Preserve to R2(a) Low Medium Residence and PUD Planned Unit Development.

Section III. The revised Lot Width and Setback requirements shall be as depicted on Exhibit B attached hereto and outlined on Exhibit C attached hereto.

Section IV. All standards not specified by this ordinance are to be the same as found in the Minnetrista Zoning Ordinance for the R2(a) Low Medium Residence.

Section IV. The city clerk is hereby directed to cause this ordinance or a resolution authorizing publication thereof by title and summary to be published in the official newspaper. The zoning administrator is directed to make the appropriate modification to the City's official zoning map after this ordinance is effective. A copy of the ordinance and the updated City zoning map shall be kept on file at Minnetrista city hall.

Section V. This ordinance shall be effective upon its adoption and publication in the official newspaper after approval of the first phase of the final plat.

Ordinance No. 512 was adopted by the city council of the city of Minnetrista this 19th day of October, 2026 by a vote of _____ ayes and _____ nays.

_____
Lisa Whalen, Mayor

Attest:

_____
Ann Meyerhoff, City Clerk

EXHIBIT A

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EXCEPT The East 273 feet of the West 1045.12 feet of the South 384 feet thereof.

EXCEPT that part of the South 384.00 feet lying easterly of the East 273 feet of the West 1045.12 feet of the South 384 feet thereof.

EXCEPT State Highway No. 7.

EXHIBIT B

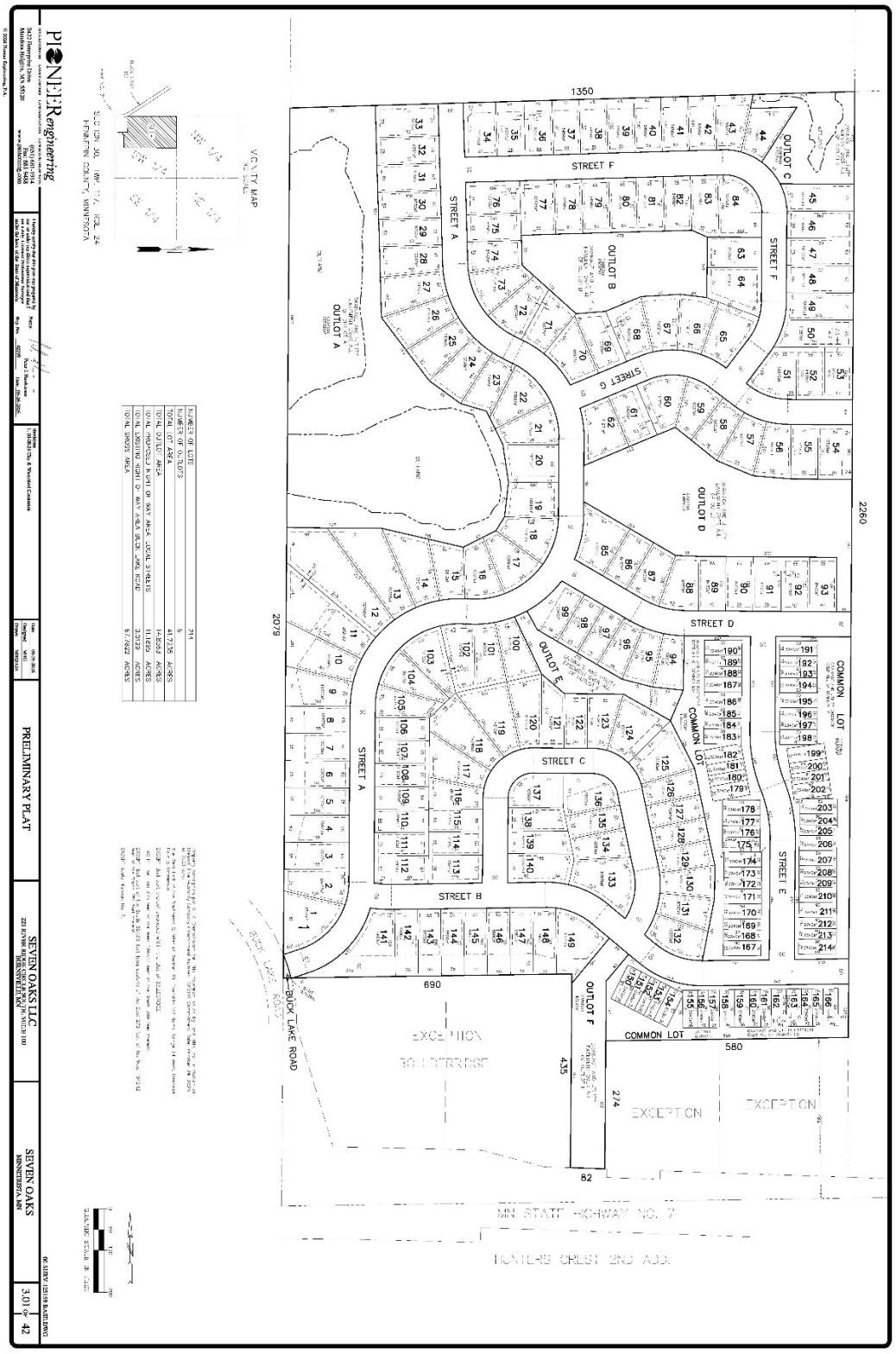

PRELIMINARY PLAT
SEVEN OAKS LLC
SEVEN OAKS
STREET A
STREET B
STREET C
STREET D
STREET E
STREET F
STREET G
OUTLOT A
OUTLOT B
OUTLOT C
OUTLOT D
OUTLOT E
OUTLOT F
COMMON LOT
BUCK LAKE ROAD
MN STATE HIGHWAY NO. 7
HUNTERS CREST 2ND ADD.
EXCEPTION
EXCEPTION
EXCEPTION
1350
2260
2079
690
435
274
82
580

EXHIBIT C

PROPOSED PUD STANDARDS (SINGLE FAMILY):

LOT WIDTH: 65', 55'
AREA: 6,800 SF
FRONT SETBACK: 25'
SIDE SETBACK: 7.5'
REAR SETBACK: 25'
SIDE STREET SETBACK: 20'

PROPOSED PUD STANDARDS (VILLAS):

LOT WIDTH: 65', 55'
AREA: 6,800 SF
FRONT SETBACK: 25'
SIDE SETBACK: 5'
REAR SETBACK: 25'
SIDE STREET SETBACK: 20'

PROPOSED PUD STANDARDS (MULTI–FAMILY):

FRONT SETBACK: 25' SIDEWALK SIDE, 20' NO SIDEWALK
SETBACK BETWEEN BUILDINGS: 20'
PERIMETER SETBACK: 25'

HARDCOVER: 100%