



Title: Permit Application 20-071: 4512 North Ave, Edina

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Recommendation:

MCWD staff recommend denial of the variance to Section 3(a) of the [Floodplain Alteration Rule](#).

Background:

Jack & Connie Weston (Applicants) have applied for a Minnehaha Creek Watershed District (MCWD) permit for Floodplain Alteration at 4512 North Ave, Edina, a single family home residence. This project proposes to convert a walkout basement created by a previous homeowner into a full basement. Per the Applicants, the current walkout basement has historically been subject to flood risk, with sandbag berms being deployed as temporary protective structures. As high water events become more frequent, as has been the trend in recent history, the Applicants wish to provide more permanent protection from flood risk.

The proposed work involves bringing in 20.4 cubic yards of fill below the floodplain elevation to restore the existing structure to its pre-walkout condition, and to reduce the risk of future high water events impacting the single family home structure.

The application requests Board consideration of a variance to the MCWD [Floodplain Alteration rule](#), to allow the project to fill 20.4 cubic yards of the floodplain of Minnehaha Creek without providing compensatory floodplain storage.

MCWD Rule Analysis:

Floodplain Alteration Rule Trigger:

The [Floodplain Alteration Rule](#) is applicable whenever land altering activity is proposed below the 100-year high water level (HWL) of any waterbody or watercourse. This is to ensure that floodplain storage capacity is not lost and that any fill does not aggravate high water conditions upstream or downstream of a project site. The 100-year HWL for this reach of Minnehaha Creek has been identified as 888.4' (NGVD 29).

As the Applicants are proposing to fill below the 100-yr HWL, the [Floodplain Alteration rule](#) is triggered.

Floodplain Alteration Variance Trigger:

Per Section 3(a) of the rule, fill shall not cause a net decrease in storage capacity below the projected 100-year HWL of a waterbody/watercourse, and any fill brought onsite below the projected 100-year HWL must be mitigated by the creation of compensatory storage.

The Applicants are proposing to fill 20.4 cubic yards of the Minnehaha Creek floodplain without providing compensatory storage. Per the District Engineer's analysis (attachment 5), the proposed fill will cause a decrease in floodplain storage capacity at the site.

After reviewing several alternatives the Applicants contend that there is not a feasible and prudent method of providing compensatory storage and have, therefore, requested the Board consider a variance from the [Floodplain Alteration rule](#).

Floodplain Alteration Rule Analysis:

Section 3(b) of the rule requires no increase in the 100-year flood elevation of a watercourse.

The Applicants have provided a No-Rise analysis showing that the proposed fill will not increase upstream or downstream flood elevations by greater than 0.044ft (attachment 3), which meets Department of Natural Resource (DNR) no-rise criteria. It should be noted that the Applicant's No-Rise modeling work that incorporates the 20.4 cubic yards of unmitigated fill shows a slightly different 100-yr HWL which is acceptable due the model's truncation and updates (attachment 5).

The District Engineer has reviewed the attached analysis and concurs that based upon the No-Rise modeling analysis, the proposed fill will not increase the 100-yr HWL, meets the no-rise criteria and complies with Section 3(b).

Section 3(c) of the rule is not applicable as the fill in question occurs on a watercourse.

Section 3(d) of the rule is not applicable as no new impervious surface is proposed.

Section 3(e) of the rule is not applicable as no ice ridge grading is proposed this section of the rule is not applicable.

Section 3(f) of the rule requires that all new residential, commercial, industrial, and institutional structures shall be constructed such that all door and window openings are at a minimum of two feet above the 100-year high water elevations. As no new structure is proposed this section of the rule is not applicable. However, per the narrative submitted by the applicants, the conversion from a walkout basement to a full basement would result in the new low opening elevation of the existing structure of 890.4' (attachment 4), which conforms with Section 3(f).

Variance Analysis:

Variance Framework:

The [Variance and Exception Rule](#) provides a framework for the Board of Managers to consider variances from a provision of District rules. To grant a variance, the Board of Managers must determine, based on a showing by the applicant:

- a) That because of special conditions inherent to the property, which do not apply generally to other land structures in the District, strict compliance with a provision of a District rule will cause undue hardship to the applicant or property owner.
- b) That the hardship was not created by the landowner, the landowner's agent or representative, or a contractor. Economic hardship is not grounds for issuing a variance.
- c) That granting such a variance will not merely serve as a convenience to the applicant.
- d) That there is no feasible and prudent alternative to the proposed activity requiring the variance.
- e) That granting the variance will not impair or be contrary to the intent of these rules

For the purposes of Staff and the Board's review, feasibility and prudence refers to the proposal's consistency with sound engineering practices that, in light of the purpose and intent of the District's rules and comprehensive watershed management plan, do not cause environmental, social, or economic costs that outweigh the public benefit derived from compliance with the otherwise applicable rule provision.

Applicant's Variance Rationale:

The Applicants have submitted a Variance Application (attachment 2) requesting to place 20.4 cubic yards of unmitigated floodplain fill along Minnehaha Creek (referenced as 'proposal', 'option', or 'solution' in the list below).

The following information was provided as the basis for the variance request:

- The proposal is restoring a previous existing condition that was altered by a previous homeowner without permission of the Watershed District or City.
- The proposed fill will not increase flood elevation upstream or downstream.
- The proposed solution will have minimal construction impacts or disturbance to the creek shoreline, bottom, and vegetation. Only 15 lineal feet of shoreline will be impacted at a distance of 10 feet from the edge of the waterline.
- This solution will not create flooding impacts or bring floodwaters nearer to the existing home on this property or adjacent properties.
- This solution will have the same or lesser net effect to flood waters and disturbance as sandbagging which is the only current allowable alternative. This solution is essentially a “permanent sandbag”.
- This option has the smallest disturbed areas of the alternatives investigated at 340 sq. ft. since only fill is required and not excavation.
- This option preserves mature trees on the property that have an existing net positive effect on creek water levels, natural buffers, and wildlife habitat
- The solution is the most prudent alternative.

Additionally, the Applicant has provided a narrative addressing each criteria of the Variance and Exception Rule. This information has been summarized and addressed in the rule criteria, outlined below. Section 2(a) of the Variance and Exception Rule states that the applicant must demonstrate that because of special conditions inherent to the property, which do not apply generally to other land or structures in the District, strict compliance with a provision of a District rule will cause undue hardship to the applicant or property owner. The Applicant’s submitted material outlines that there are several unique or special conditions to the property that make strict compliance with the rule an undue hardship, including:

- A walkout basement that is exposed to the 100-yr HWL of Minnehaha Creek. As a result, the lower level of their home is subject to flooding during high water events. This modification to the home was made prior to the Applicant’s purchase of the property by a previous homeowner who conducted the work without City or District approval.
- Compliance with the compensatory storage provision of the [Floodplain Alteration rule](#) will bring the floodplain much closer to neighboring properties than the existing condition adding undue risk.
- Compliance with the compensatory storage provision of the [Floodplain Alteration rule](#) will require large hardwood oak tree removal and other overstory trees that provide exclusive shade to the home and are a major asset to the property.
- Compliance with the compensatory storage provision of the [Floodplain Alteration rule](#) will require retaining wall construction and loss of usable yard.

Variance Analysis:

Staff and the District Engineer have reviewed the materials supplied by the Applicant, and the rationale and reasoning provided to address Section 2(a) of the Variance criteria.

Principally, staff find that (1) there are no special conditions inherent to the property, which do not apply generally to other land or structures in the District; and (2) strict compliance with the compensatory storage requirement of the Floodplain Alteration Rule will not cause undue hardship on the property owner.

The District Engineer has identified that it is feasible to construct compensatory storage on site, while preserving the existing single family use of the property and achieving the stated project objectives of reducing flood risk associated with the current walkout. Absent a finding of hardship, a variance cannot be granted.

Additional analysis is provided below.

For the purpose of clarity 'special conditions', as outlined in the Variance and Exception Rule, constitute physical characteristics of the landscape that would otherwise prevent the owner from attaining the intended use of the property.

As such, staff and the District Engineer find that the low-opening condition is integral to the home, and not to the property, and therefore, not a special condition. Further, the walk-out condition, and the risk that is associated with it, was a condition present when the property was purchased. In acquiring a property that contains a structure immediately adjacent to a watercourse that also has a low opening walk-out condition presumes that the owner is acknowledging and assuming the risk associated with waterfront properties. Watercourses are not static, and change in response to the climate, which means periodically enduring both low flow and flood flow conditions. Therefore, considering the condition was present at the time of purchase, the risk was subsequently a known quantity, and in turn cannot be considered a special condition.

The Applicant cites the walk-out condition was installed without approval from the City or District in 1984, and therefore constitutes an undue hardship. Many structures across the watershed have been constructed and/or modified prior to the advent of District rules or a particular city ordinance. In those cases, structures and project proposals, regardless of when they were constructed or if they conform to current accepted standards, are subject to the same rules and regulations whenever the owner, as here, seeks to undertake construction requiring a District permit.

Furthermore, if a structure was or is built or modified when the District rules were in place, it is the obligation of the property owner to obtain any and all permits required prior to work taking place. At the time of purchase, the Applicants (and all property owners) have the option to have an inspection performed on the property to ensure that any modifications or additions done to the home were in conformance with applicable rules or ordinances, and that the appropriate permits had been obtained for any work done on the property. As such, the actions taken by a previous homeowner are readily able to be known, as are the compliance of those actions with applicable ordinances, rules, and process. It necessarily follows that because the compliance of those actions are readily knowable, if an action is out of compliance, it is able to be addressed at the time of sale, or it is understood that the purchaser is assuming responsibility for complying with applicable rule and ordinance at such time modifications or additions are made to the property. Therefore, it is the obligation of the property owner to assume responsibility of complying with applicable rules and ordinance at the time of any proposed modifications, which the purchaser assumed at the time of sale. Accordingly, staff and the District Engineer find that the installation of the walk-out condition without City or District approval is not a special condition.

The Applicant has outlined that compliance with the compensatory storage provision of the Floodplain Rule (Section 3(a)), will bring the floodplain closer to neighboring properties, creating additional undue risk from the existing condition. Further the Applicant cites that pursuing compensatory storage would result in tree loss significant to the property, loss of usable yard, and require the construction of retaining walls. The Applicant has cited these factors as special conditions, and therefore cause to find an undue hardship.

The District Engineer has reviewed the materials and alternatives submitted by the Applicant, as outlined in the attached memo (attachment 5), and found that there is a technically feasible and prudent alternative to the variance request, which fully complies with the requirement to provide compensatory storage, and, in the District's view, preserves the use of the property and meets the objectives of the project to manage flood risk through the removal of the walkout.

Further, the District Engineer has determined that providing compensatory storage on site will not increase flood risk. Completing the project with compensatory storage will not bring the flood elevation closer to any low openings of nearby structures. Additionally, while inclusion of compensatory storage in the Applicant's side yard may reduce the setback from the adjacent southerly structure to the floodplain, the overall setback from the home, westward to

Minnehaha Creek's floodplain, will be maintained. Therefore, the District Engineer has determined that compliance with the rule will not increase flood risk.

The Applicant has claimed that the removal of mature trees represents a hardship that prevents the proposed project from complying with MCWD requirements to have floodplain fill compensated with an equivalent volume of storage. While the MCWD does not dispute the benefits that mature trees can bring to a property in regards to both recreation and value, tree loss alone is not a basis for a hardship. Hardship determinations within the variance rule are tied to "special conditions inherent to the property, which do not apply generally to other land structures in the District". Broadly speaking, trees are not special conditions inherent to this property that do not apply to other properties. Therefore, removal of trees to comply with the District's floodplain rule does not constitute a hardship.

Also in regards to potential tree removal, the Applicant has asserted that the removal of trees is imprudent with respect to the feasible alternative to the proposed project – of providing compensatory storage to offset the floodplain fill. The District evaluates the feasibility and prudence of project alternatives, within the context of a variance application, by evaluating consistency with sound engineering practices that, in light of the District's rules and comprehensive watershed management plan, do not cause environmental, social, or economic costs that outweigh the public benefit derived from compliance with the otherwise applicable rule provision. In this instance, Staff and the District Engineer have determined that it is feasible to provide compensatory floodplain storage, and that this feasible alternative would align with well-established and sound engineering practices. In relation to the prudence of removing two mature trees to achieve the required floodplain storage, staff have evaluated the project's consistency with policies within the watershed management plan and weighed the economic, social, and environmental costs relative to the public benefit of not eliminating the finite resource of floodplain storage.

There are certainly numerous quantifiable social, recreational and economic benefits from trees such as soil stability, shade, property value, and habitat, among others. However, relative to the permanent loss of floodplain storage, a finite resource, in the midst of measured changes in the intensity and frequency of precipitation patterns, place the finite floodplain storage volume at a premium. In evaluating the public benefit of trees specific to a private property, against floodplain storage that serves the greater creek corridor, it is the assessment of Staff and the District Engineer that the economic, social, and environmental costs of the tree removal do not outweigh the public benefit of providing compensatory floodplain storage.

However, staff and the District Engineer have evaluated the function of the trees relative to streambank stability. While the removal of two mature trees may be required to satisfy the compensatory storage requirement of the District's floodplain rule, the District Engineer has determined that the trees required to be removed are not material to the streambank's stability, based upon their location.

Moreover, in review of modeling and channel geomorphology for this stream reach, erosion potential is limited. The slope of the Minnehaha Creek at this location are (0.04%) and velocities experienced in this area (1 – 2 ft/s) indicate a low potential for erosion. The current condition of the streambank supports this analysis, as it presently shows no erosion, even with the high flows experienced in past years. Further, if the Applicant is concerned about potential erosion, it is possible to integrate a naturalized shoreline stabilization plan as part of a proactive solution to address potential streambank stability, and thereby render the scenario a non-issue. This portion of streambank would be designated as low erosion intensity based on the District's rules. In light of these reasons, the District Engineer has therefore concluded that the removal of the tree will not affect streambank stability, nor impact the potential for streambank erosion, and a technically feasible and prudent solution exists if the applicant chooses to address potential erosion. Therefore, no undue hardship has been demonstrated.

Staff and the District Engineer have also reviewed the variance application and supplemental materials for the potential inclusion of a retaining wall. Based on staff and the District Engineer's analysis a retaining wall may be structurally required as a component of providing compensatory storage. Therefore, it is the assessment of staff and the District Engineer that the inclusion of a retaining wall be viewed as part of the total project cost. The Applicant has cited the inclusion of a retaining wall constitutes an undue hardship due to the financial burden of implementation. Under Section 2(b) of the Variance and Exception rule, economic hardship is not viewed as grounds to grant a variance.

Considering these factors in aggregate, and the District Engineer's assessment, staff find that there is a technically feasible and prudent alternative to the variance request that does not increase the risk to neighboring properties, that provides flood storage, mitigates the risk associated with the low-opening condition, maintains use of the property, is otherwise in keeping with the purposes and intent of District rules, and does not materially impact shoreline stability. Based on this assessment, staff and the District Engineer find that compliance with the rule does not represent a hardship, and is not precluded due to special conditions inherent to this property.

As an additional consideration related to the analysis of feasible and prudent alternatives, the Applicant considered reducing the amount of proposed fill. However, the Applicant determined this option was not feasible nor prudent and considered 20.4 cubic yards the amount appropriate for the intended objectives (Attachment 3). Based on the District Engineer's analysis, the project objective could be achieved with less fill against the existing foundation to remove the walk-out. This would in turn require a lesser degree of disturbance, and require less compensatory floodplain mitigation. As noted previously, in evaluation of the feasibility and prudence of a given alternative, Staff and the District Engineer assess the proposals consistency with sound engineering practices that, in light of the District's rules and comprehensive watershed management plan, do not cause environmental, social, or economic costs that outweigh the public benefit derived from compliance with the otherwise applicable rule provision. In this case, it is the assessment of Staff and the District Engineer that a less environmentally impactful solution exists via the use of less fill, whose costs do not outweigh the public benefit of floodplain storage.

For these reasons, it is the assessment of staff and the District Engineer that the Applicant has not demonstrated that there are special conditions inherent to the property that impede strict compliance with the rule. Therefore, staff and the District Engineer find that no undue hardship is present.

Section 2(b) states that the Applicant must demonstrate that the hardship was not created by the landowner, the landowner's agent or representative, or a contractor, and that economic hardship is not grounds for a variance. The Applicant has cited that the hardship was caused by a previous homeowner without permission of the District or City. As outlined in Section 2(a) above, staff and the Engineer find that no undue hardship is present, therefore, the criteria of 2(b) has not been satisfied.

Section 2(c) states that the Applicant must demonstrate that receiving the variance will not merely serve as a convenience to the applicant. Based on staff and the District Engineer's findings, no undue hardship is present, and there is a technically feasible and prudent alternative to the variance request that complies with District rules, and will not impact the intended use of the property. As noted in the *Variance Framework* section, feasible and prudent refers to the proposals consistency with sound engineering practices that do not cause environmental, social, or economic costs that outweigh the public benefit derived from compliance with the otherwise applicable rule provision. Based on Staff and the District Engineer's assessment, approval of the variance would shift the private responsibility of providing compensatory floodplain storage onto the public domain when there is a technically feasible option available on site. Therefore, it is the assessment of staff and the District Engineer that granting the variance will serve as a convenience to the Applicant. Accordingly, staff and the District Engineer find that this criteria has not been satisfied.

Section 2(d) States that the applicant must demonstrate that there are no feasible and prudent alternatives to the proposed activity requiring the variance. The Applicant provided five alternatives (Attachment 3), ultimately determining none of them to be feasible or prudent. The Applicant cites that the requested mitigation may be technically feasible, but it is not prudent based on the list of bulleted reasons, immediately following paragraph two of this variance analysis.

Based on the District Engineer's review of the Applicant's alternatives analysis (attachment 5), Alternative 4 is technically feasible and prudent. The Applicant has cited that this alternative is feasible, but not prudent due to the risk associated with bringing flood waters closer to adjoining properties, and removal of trees and subsequent destabilization of the streambank. As noted in Section 2(a) the District Engineer has reviewed the alternative and found that floodplain mitigation could be accomplished without increasing the horizontal or vertical encroachment of the floodplain beyond existing conditions. Further, the District Engineer has found that the oak tree on the subject property is not material to streambank stability, and the area is not erosion prone based on the characteristics of stream slope and flow velocity.

Therefore, the District Engineer has determined that there is a technically feasible and prudent alternative to the variance proposal. Staff and the District Engineer find that this criteria has not been satisfied.

Section 2(e) of the rule states that applicants must prove that receiving the variance will not impair or be contrary to the intent of these rules. The intent of the [Floodplain Alteration rule](#) is to preserve the water storage capacity below the 100-year high water elevation for all waterbodies in the watershed to minimize the frequency and severity of high water and to minimize development below the 100-year high water elevation that will unduly restrict flood flows or aggravate known high water problems. It is further the intention of the Floodplain Rule to maintain flood storage capacity of waterbodies and watercourses by requiring on-site mitigation for floodplain fill whenever technically feasible and prudent. While the Applicant had demonstrated through No-Rise modeling that the unmitigated fill would not aggravate the high water conditions upstream or downstream, there is a technically feasible and prudent alternative to the variance request on-site. Considering this finding, and the intention of the rule to provide on-site floodplain mitigation when technically feasible and prudent, staff has determined that the proposal is contrary to the intention of the rule. Therefore, staff and the District Engineer find that this criteria has not been satisfied.

Summary:

The Applicants are proposing to convert a walkout basement that was created by a previous property owner into a full basement with the goal of protecting their home from high water events along Minnehaha Creek. To accomplish this, the Applicants are proposing to place 20.4 cubic yards of unmitigated floodplain fill along the exposed foundation to restore the site to its pre-walkout condition. As fill is being placed below the 100-yr HWL (888.4 ft, NGVD) of Minnehaha Creek, the District's [Floodplain Alteration rule](#) is applicable to the project. The District's [Floodplain Alteration rule](#) requires the Applicant to provide compensatory storage for any fill placed below the 100-yr HWL of a waterbody or watercourse.

The Applicants have submitted a variance request from Section 3(a) of the District's [Floodplain Alteration rule](#), which requires compensatory storage be provided for all fill below the 100-yr HWL of a waterbody or watercourse. The Applicant has supplied a supporting narrative, and five potential alternatives to the proposed unmitigated floodplain fill. The Applicants have detailed their opinion that the alternatives analyzed, while feasible, are not prudent, and therefore make the variance request reasonable.

Based on staff and the District Engineer's findings, there are no special conditions inherent to the property that cause undue hardship, and therefore, no finding of undue hardship. Further, the District Engineer finds that there are feasible and prudent alternatives to the variance request, as outlined in the variance analysis section above. Therefore, the variance request serves as a convenience to the applicant, and is contrary to the intention of the [Floodplain Alteration rule](#).

For these reasons, it is the recommendation of staff and the District Engineer to deny the Variance Request from Section 3(a) of the District's [Floodplain Alteration rule](#).

Attached is Resolution 20-062 (attachment 1) which outlines the findings of the permit report for application 20-071. The Board of Managers may vote on whether they concur with the assessment of staff and the District Engineer and to adopt the resolution.

Supporting documents (list attachments):

- 1) Resolution 20-062
- 2) Variance Request Form & Water Resource Permit Application Form
- 3) No-Rise Modeling & Analysis
- 4) Variance Support Narrative
- 5) Wenck Analysis Memo & Grading Plan



RESOLUTION

Resolution number: 20-062

Title: Adopting Findings and Denying Floodplain Variance Request for 4512 North Ave, Edina

WHEREAS, Jack & Connie Weston (Applicants) have applied for a Floodplain Alteration Permit for approximately 20.4 cubic yards of fill to their residence located at 4512 North Ave, Edina (the 'property') in order to convert a walkout basement into a full basement;

WHEREAS, the property is located along a reach of Minnehaha Creek between 44th St W and 50th St W. The 100-yr HWL for this reach has been identified as 888.4' (NGVD 29);

WHEREAS, the District's Floodplain Alteration rule, section 3(a), requires that any fill brought into the floodplain be mitigated with the creation of compensatory storage at a 1:1 ratio.

WHEREAS, In conjunction with the permit application designated as 20-071, the Applicants have requested a variance from section 3(a) of the District's Floodplain Alteration rule on the grounds that: (a) the No-Rise Analysis provided in their application materials demonstrates that the unmitigated fill does not aggravate upstream and downstream conditions of the 100-yr HWL, (b) they are restoring the site to its pre-walkout condition, (c) they have used sandbag berms in the past to address high water issues and the proposed fill would essentially be a permanent solution, (d) they have considered five alternatives to provide compensatory storage but have determined them not to be feasible and prudent.

WHEREAS, to grant a variance, the Board of Managers must determine, based on a showing by the applicant, that:

- Due to special conditions inherent to the property, which do not apply generally to other land or structures in the District, strict compliance with a provision of a District rule will cause undue hardship to the applicant or property owner.
- The hardship was not created by the property owner or its contractor.
- The hardship is not merely an inconvenience, and not solely economic.
- There is no feasible and prudent alternative by which the rule may be met.
- The variance will not impair or be contrary to the intent of these rules.

WHEREAS, for the purposes of staff and the Board of Managers review, feasibility and prudence refers to the proposal's consistency with sound engineering practices that, in light of the purpose and intent of the District's rules and comprehensive watershed management plan, do not cause environmental, social, or economic costs that outweigh the public benefit derived from compliance with the otherwise applicable rule provision.

WHEREAS, the Applicants have submitted a variance request and narrative to address the variance criteria as follows;

- The special condition being that the property has a low opening in the form of a walkout basement that is within the 100-yr HWL floodplain of Minnehaha Creek.
- The hardship was not created by the current property owners or their contractor as it was constructed by a previous property owner without prior approval from the City or the MCWD.
- Due to special conditions inherent to the site, compliance with the rule via mitigation would restrict use of the property, and as such the variance would not serve as a convenience.
- Several alternatives to the variance were explored, but deemed to be infeasible or imprudent as they would: involve the removal of mature trees; would restrict use of the property; reduce floodplain setback; and, the associated costs of installing a retaining wall constitutes an undue hardship. As such they contend there is not a feasible and prudent way to provide mitigation.
- The Applicants state that the variance would not impair or be contrary to the Floodplain Alteration rule as the submitted No-Rise Analysis shows the unmitigated fill would not aggravate 100-yr HWL events upstream or downstream of the property.

WHEREAS, staff and the District Engineer have reviewed the materials submitted by the Applicants and have determined that there are no special conditions inherent to the property which would justify the variance, nor would strict compliance to the compensatory requirements of the Floodplain rule cause undue hardship to the property owners based on the following determinations, specifically:

- The walkout condition is integral to the home but not the property as a whole and, as such, does not constitute a 'special condition'. Additionally, the acquisition of a property adjacent to a watercourse that also has a walkout feature low opening presumes that the property owner is acknowledging and assuming the associated risk of water front properties.
- There are many structures along Minnehaha Creek that were built or modified prior to the advent of District rules. These structures would be

held to the same requirements as this project. Furthermore, for structures that were built or modified when District rules were in place, it is the obligation of the property owner to obtain permits prior to the commencement of any work. Any buyer of the property would have had the option of conducting a third party inspection to ensure the structure is in compliance with applicable rules and ordinances and the appropriate permits had been attained prior to work. Compliance issues discovered during that time could then be addressed at time of sale, otherwise it is assumed the purchaser is accepting responsibility for compliance.

- MCWD Staff and the District Engineer do not dispute the economic, social, and environmental benefits that trees represent. However, tree loss alone is not a basis for hardship as a hardship must represent a special condition, broadly speaking. Additionally, the costs of mature tree removal do not outweigh the public benefit of maintaining a finite resource such as floodplain storage.
- While floodplain setback would be reduced in the area of mitigation, floodplain setback from the southerly property westward to the Creek is maintained, and as such, mitigation would not pose an increase in flood risk. It is also the opinion of Staff and the District Engineer that usability of the property would be maintained if mitigation is provided.
- In reference to their analysis, the District Engineer noted that a retaining wall may be structurally required as a component of providing mitigation. The Applicants have identified the cost of installing the retaining wall as an undue hardship, however it is the assessment of staff and the District Engineer that the inclusion of the retaining wall be viewed as part of the total project cost. Per section 2(b) of the variance rule, economic hardships are not grounds for a variance request.
- The District Engineer has identified a method in which floodplain mitigation can be provided by the applicant that is feasible and prudent as it aligns with well-established and sound engineering principles and would not shift the cost of lost floodplain storage onto the public domain.
- The intent of the MCWD's Floodplain Alteration Rule is to preserve the existing water storage capacity of all waterbodies in the watershed to minimize the frequency of and severity of high water, and to minimize development below the 100-yr HWL that will unduly restrict flood flows and aggravate high water conditions. The Applicants have submitted a No-Rise analysis, which has been reviewed by staff and the District Engineer. While the analysis demonstrates that the unmitigated fill would not aggravate high water conditions, the District Engineer cites that floodplain capacity would be lost if the fill is unmitigated. Further, there is a feasible and prudent way to provide compensatory storage. Therefore, it is the assessment of staff and the District Engineer that the Applicant's variance proposal is contrary to the intent of the Floodplain Alteration rule.

NOW, THEREFORE, BE IT RESOLVED that, based on the entire record and the information noted above, the Minnehaha Creek Watershed District Board of Managers denies the variance on the following grounds:

- There are no special conditions inherent to this property, which do not apply generally to other land or structures in the District, and strict compliance with the Floodplain rule will not cause undue hardship on the applicant or property owner.
- The hardship alleged was created by the property owners, their predecessors, or their contractors. The walkout feature was constructed by a previous property owner without approval from the MCWD or the City. However, as previously stated above, there are many structures built or modified along the Creek prior to creation of the District and the implementation of its rules. Regardless of if they conform to the current standards, they would be required to meet the same criteria as the property in question.
- That granting the Variance will merely serve as a convenience to the applicant. As the Engineering Analysis has shown that there is a feasible and prudent way to provide compensatory storage.
- That there is a feasible and prudent alternative to the proposed activity requiring the Variance. The Applicants have explored five alternatives to providing the compensatory storage and have dismissed them as not feasible or prudent. The District Engineer has identified one of these alternatives as feasible and prudent and provided guidance on how to do so.
- That granting the Variance will impair or be contrary to the intent of these rules. The intent of the Floodplain Alteration Rule is to maintain water storage capacity and minimize development below the 100-yr HWL that could restrict flood flows or aggravate known high water conditions. The Applicants have submitted a No-Rise Analysis that demonstrates that the unmitigated fill would not aggravate high water conditions upstream or downstream of the property. While Staff and the District Engineer concur that the unmitigated fill would not necessarily aggravate high water conditions, they find that there would be a loss in water storage capacity at the property, and a feasible and prudent alternative exists to provide said storage. Therefore, the granting of the Variance will be contrary to the intent of the Floodplain Alteration rule.

Resolution Number 20-071 was moved by Manager _____, seconded by Manager _____ . Motion to adopt the resolution ___ ayes, ___ nays, ___ abstentions. Date: [Click here to enter a date.](#)

_____ Date:

Secretary

WATER RESOURCE PERMIT APPLICATION FORM

Use this form to notify/apply to the Minnehaha Creek Watershed District (MCWD) of a proposed project or work which may fall within their jurisdiction. Fill out this form completely and submit with your site plan, maps, etc. to the MCWD at:
15320 Minnetonka Blvd. Minnetonka, MN 55345.

Keep a copy for your records.

YOU MUST OBTAIN ALL REQUIRED AUTHORIZATIONS BEFORE BEGINNING WORK.

1. Name of each property owner: Jack Weston
Mailing Address: 4512 North Ave City: Edina State: MN Zip: 55346
Email Address: _____ Phone: _____ Fax: _____

2. Property Owner Representative Information (not required) (licensed contractor, architect, engineer, etc...)
Business Name: _____ Representative Name: _____
Business Address: _____ City: _____ State: _____ Zip: _____
Email Address: _____ Phone: _____ Fax: _____

3. Project Address: 4512 North Ave City: Edina
State: MN Zip: 55346 Qtr Section(s): _____ Section(s): _____ Township(s): _____ Range(s): _____
Lot: 016 Block: _____ Subdivision: _____ PID: 2811721210040

4. Size of project parcel (square feet or acres): 0.56 ac
Area of disturbance (square feet): 0.77 sf Volume of excavation/fill (cubic yards): 20.4
Area of existing impervious surface: 5646 Area of proposed impervious surface: 5342
Length of shoreline affected (feet): 0 Waterbody (& bay if applicable): N/A

5. Type of permit being applied for (Check all that apply):
 EROSION CONTROL WATERBODY CROSSINGS/STRUCTURES
 FLOODPLAIN ALTERATION STORMWATER MANAGEMENT
 WETLAND PROTECTION APPROPRIATIONS
 DREDGING ILLICIT DISCHARGE
 SHORELINE/STREAMBANK STABILIZATION

6. Project purpose (Check all that apply):
 SINGLE FAMILY HOME MULTI FAMILY RESIDENTIAL (apartments)
 ROAD CONSTRUCTION COMMERCIAL or INSTITUTIONAL
 UTILITIES SUBDIVISIONS (include number of lots)
 DREDGING LANDSCAPING (pools, berms, etc.)
 SHORELINE/STREAMBANK STABILIZATION OTHER (DESCRIBE): Flood Protection

7. NPDES/SDS General Stormwater Permit Number (if applicable): _____

8. Waterbody receiving runoff from site: Minnehaha Creek

9. Project Timeline: Start Date: 4/1/2020 Completion Date: 4/15/2020

Permits have been applied for: City County MN Pollution Control Agency DNR COE
Permits have been received: City County MN Pollution Control Agency DNR COE

By signing below, I hereby request a permit to authorize the activities described herein. I certify that I am familiar with MCWD Rules and that the proposed activity will be conducted in compliance with these Rules. I am familiar with the information contained in this application and, to the best of my knowledge and belief, all information is true, complete and accurate. I understand that proceeding with work before all required authorizations are obtained may be subject to federal, state and/or local administrative, civil and/or criminal penalties.

Constance M. Weston 2.19.2020
Signature of Each Property Owner _____ Date _____
Jack Weston

REQUEST FOR VARIANCE AND STATEMENT OF HARDSHIP

MINNEHAHA CREEK WATERSHED DISTRICT (MCWD)
15320 MINNETONKA BLVD.
MINNETONKA, MN 55345

Phone: 952-471-0590
Fax: 952-471-0682

A request for a Variance must be accompanied by a MCWD Water Resources Application

Project Details:

Project address: 4512 North Ave City: Edina State: MN Zip: 55346
County: Hennepin Property ID number (PID): 2811721210040

The Board of Managers may hear requests for variances from strict compliance with provisions of the District Rules in instances where strict enforcement of the rules would cause an undue hardship because of circumstances unique to the property under consideration. The Board of Managers may grant variances where it is demonstrated that such action will remain in spirit and with the intent of these rules. An applicant granted a variance from full compliance with a requirement of the rules would be required to meet the requirement to the greatest degree feasible short of full compliance. A variance must be approved by a two-thirds majority of managers voting.

To grant a variance, the Board of Managers must determine, based on a showing by the applicant:

- That because of special conditions inherent to the property, which do not apply generally to other land or structures in the District, strict compliance with a provision of a District rule will cause undue hardship to the applicant or property owner;
- That the hardship was not created by the landowner, the landowner's agent or representative, or a contractor. Economic hardship is not grounds for issuing a variance.
- That granting such variance will not merely serve as a convenience to the applicant.
- That there is no feasible and prudent alternative to the proposed activity requiring the variance.
- That granting the variance will not impair or be contrary to the intent of these rules.

A variance will remain valid only as long as the underlying permit remains valid.

A violation of any condition of approval of a permit subject to a variance shall constitute grounds for termination of the variance.

Variance Requested From MCWD Rule(s):

- Erosion Control
- Floodplain Alteration
- Wetland Protection
- Shoreline & Streambank Stabilization

- Waterbody Crossings & Structures
- Stormwater Management
- Appropriations
- Illicit Discharge

Provision(s) and Requirement(s) of the Rule(s):

Floodplain alteration rule- fill shall not cause a net decrease in storage capacity below the projected 100-yr high water elevation of a water body.

Requested Variance:

Request to place 20.4 cubic yards of fill below the 100-yr high water elevation of Minnehaha Creek.

Please complete the below narrative to be used as the variance justification that will be considered by the Board of Managers. Please note that economic hardship is not grounds for issuing a variance.

Describe the special conditions inherent to the property and how strict compliance with the rule will cause an undue hardship.

The property has a low floor / low opening elevation that is exposed to flood waters from Minnehaha Creek. In high flow events the flood waters directly enter the lower level of the home. Placing soil and removing this "walkout" condition is the only viable solution to protect the property.

Describe how the special condition was not created by the applicant, the representative, or a contractor.

The home was converted to a "walkout" and the low opening elevation lowered by a previous homeowner by excavating material in this location. The current homeowner did not create this condition.

Provide a minimum of two alternatives that were considered and why they were rejected to demonstrate that there is no feasible and prudent alternative to the proposed activity requiring the variance.

1. Excavation of the upland portion of the yard and converting it to floodplain as mitigation for the filled portion is not feasible because it would bring flood waters closer to the existing structures on this property as well as existing adjacent homes. This would be adding flood risk.
2. Using sandbags to protect the home results in the same net effect to the flood pain as a permanent solution, not prudent.

Referring to the Policy of the Rule(s), describe how the intent of the rule(s) will be met.

The amount of proposed fill will not measurably affect the 100-yr HWL of the creek. There is no stormwater modeling software or program that can accurately measure the impact of such a small amount of fill on such a large capacity creek. Any attempt to model would show any change well within the model's margin of error. To illustrate, the creek has a flow rate of 590 CFS in the 100-yr storm event in this location. It would use up the 20.4 CY storage capacity in 0.03 seconds deeming the fill volume irrelevant in a flood. The intent of the rule is to guard against negative impacts to adjacent properties, and this amount of fill will not have a measurable negative impact, and will protect the subject property.



The dry years - about 1936 or 37



a couple years later



TEMPERED
16 CFR 1201-CII
ANSI Z97.1-1984
1/8U SGCC-598

AFG C336



BS5206A

CIVIL METHODS, INC.

PROFESSIONAL ENGINEERS

LAND | WATER | INFRASTRUCTURE

1551 Livingston Ave, Ste 104, St. Paul, MN 55118

(763) 210-5713 www.civilmethods.com

TECHNICAL MEMORANDUM

Date: July 7, 2020
Subject: No-Rise Certification: 4512 North Ave Proposed Fill
Prepared For: Minnehaha Creek Watershed District
Prepared By: Kent Brander, PE

A. INTRODUCTION

Civil Methods, Inc. (CMI) performed a hydraulic analysis to evaluate the floodplain impact of proposed fill adjacent to Minnehaha Creek, on the property owned by Jack Weston and located at 4512 North Ave, Minneapolis, MN. We revised a portion of the governing XP-SWMM model to represent proposed fill and compared the resulting flood elevations to those of the existing conditions. The results of the analysis indicate that the proposed fill will not cause an increase in upstream flood elevations for the critical event. This analysis was performed as part of the effort to meet the Minnehaha Creek Watershed District (MCWD) requirements for obtaining a permit/variance for the proposed project. This Technical Memorandum describes the methodology and results of the analysis.

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.	
Print Name:	Kent Brander
Signature:	
Date:	07 July 2020
License #:	44578

B. XP-SWMM MODEL DETAILS

Overview

The MCWD engineer provided the existing conditions XP-SWMM model for the analysis. The current governing model was truncated as requested by CMI for use specifically in this analysis, with the rainfall and other key parameters of the truncated model set by the MCWD. The provided (truncated) model was run and the results of that run were used to represent the existing conditions floodplain elevations. It is assumed that the reader of this Technical Memorandum is familiar with and has access to the original XP-SWMM model. The revised model files are provided separately. The MCWD engineer also provided a KMZ file with geographical information corresponding to the XP-SWMM model.

For this analysis, the key result is the difference between the existing conditions and the proposed conditions water surface elevations in the vicinity of the project and upstream. The only physical change being proposed is the placement of fill as illustrated in Attachment 1. The only required modification to the provided (truncated) model is in the HDR (hydraulics) module.

Affected Model Elements

The provided KMZ file was used to determine the location of the proposed project within the model. Using the model parameter values, Node MC-77 is 488 FT upstream of the HWY 100 bridge, and Node MC-77 FN3 is 1018 FT upstream of the HWY 100 bridge (i.e., 530 FT upstream of Node MC-77). The proposed project is approximately 740 FT upstream of the HWY 100 bridge. Within the model, this would place the project near the middle of Link MC-77xsec3, a “natural section” link defined by shape NS_MC-77xsec3.

Existing Conditions Summary

Under existing conditions, the four nodes immediately upstream of the project area and the associated peak water surface elevations are as follows:

Table 1. Existing HWL Summary

Node	Elevation (FT)
MC-77 FN3	889.105
MC-77 FN2	889.106
MC-77 FN1	889.106
MC-76 FN5	889.106

Characterizing Proposed Conditions

In XP-SWMM, natural section links are defined by a representative cross section defining the shape, along with the upstream and downstream elevations that serve to anchor the shape at its lowest point and thus form the channel corridor. The model upstream and downstream channel bottom elevations are 881.6 and 880.8, respectively. This would make the bottom elevation in the vicinity of the project very close to 881.2.

The absolute X-Y values of the channel shape are theoretically arbitrary, in that they are only used to define the shape, not to set the channel at a specific elevation. The model takes the defined shape and places the lowest point at the model profile elevations. That having been said, the X-Y values defining the shape within the model were selected to correspond with location of the upstream node invert. Therefore, the Y value of the point defining the channel bottom is 881.6. To modify the channel shape to represent proposed conditions using actual elevation values, the shape needs to be transferred to the project location. To do this, 0.4 is subtracted from each Y value defining the shape, to give a representative cross section with bottom elevation 881.2.

The proposed fill will be represented in the model by a (very minor) constriction of the channel section shape, equivalent to the volume of fill proposed. The proposed fill would be placed on the east side of the channel between elevations 885.95 and 888.4. This is outside the main defined channel area and would only affect floodplain storage, not floodway conveyance. Therefore, it is valid to represent the fill as a constriction averaged out over the entire channel segment length. The channel segment is 530 FT long and the volume of fill proposed is 20.4 CY, or 550.8 CF. The area of the representative cross section

would therefore need to be reduced (constricted) by 1.04 SF. $[550.8 \text{ CF} / 530 \text{ FT} = 1.04 \text{ SF}]$. The additional constriction would be added to the east side of the channel between elevations 885.95 and 888.4.

To add this constriction, a few points need to be added or modified in the natural channel shape. The required modifications are as follows:

1. Start with the natural channel shape definition from the original model. The specific coordinates to look are (1580, 884.1), (1589, 888.1), and (1597, 893.9). As described above, shifting the shape to the project location would make these points (1580, 883.7), (1589, 887.7), and (1597, 893.5).
2. At the project location, the replacement coordinates are (1580, 883.7), (1585.0625, 885.95), (1589.5484, 888.4), (1589.9655, 888.4), and (1597, 893.5). Note the first and last coordinate sets are unchanged, as a reference point for placing the new points within the cross section.
3. Modifying the cross section as described adds 1.04 SF of constricted area relative to the existing conditions shape. This was verified by drawing the shapes to scale in AutoCAD and using the software to calculate the relevant areas. This removes the 20.4 CY of channel floodplain storage necessary for characterizing the proposed fill.
4. With the modifications made, the 0.4 FT was added back into the Y values for the cross-section shape, for consistency with the rest of the model. The revised channel shape was named "NS_MC-77xsec3.2" and was used to define the affected link.

Proposed Conditions Summary

Under proposed conditions, characterized as described above, the four nodes immediately upstream of the project area and the associated peak water surface elevations are as follows:

Table 2. Proposed HWL Summary

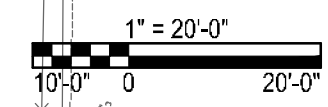
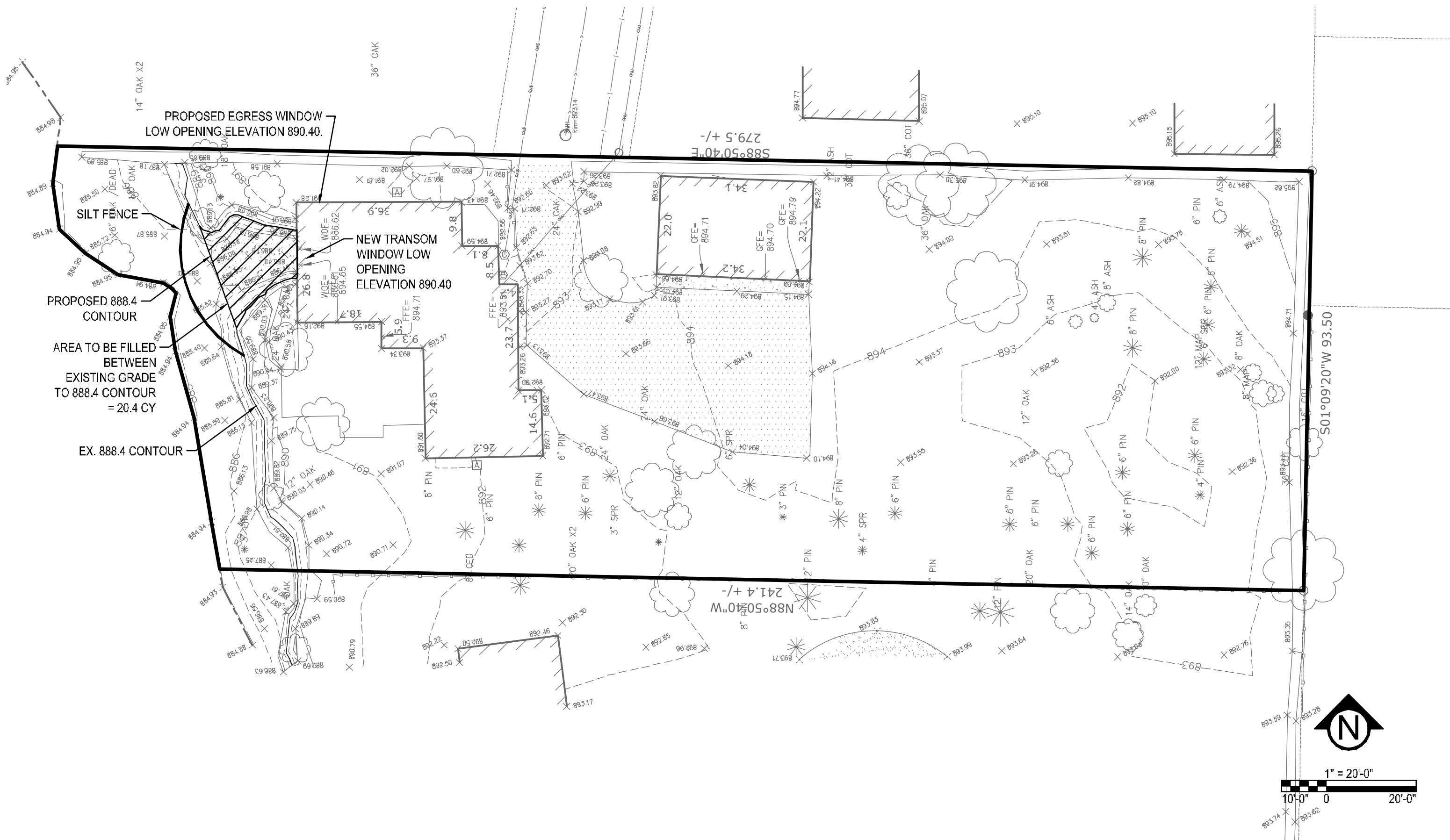
Node	Elevation (FT)
MC-77 FN3	889.105
MC-77 FN2	889.106
MC-77 FN1	889.106
MC-76 FN5	889.106

The elevations are unchanged from existing conditions. This is not surprising given the small amount of volume of proposed fill relative to the overall channel floodplain storage volume, and the fact that under current conditions the flood elevation is apparently driven by something other than available floodplain storage.

Conclusion

The proposed fill would not cause a rise in the critical event water surface elevations.

Attachment 1: Illustration of Proposed Fill Area



4512 NORTH AVE EDINA, MN 55436		SITE PLAN	
	4931 W. 35TH ST., #200 ST. LOUIS PARK, MN 55416 952.250.2003 / 763.213.394 www.CivilSiteGroup.com		Project Number: 19419 Issue Date: 01/06/2020
			Revision Number: Revision Date:
			EX 1

Project Variance Narrative 4512 North Avenue, Edina, MN

Date 7-9-20

Matt Pavek PE

Purpose:

This narrative accompanies the variance application for the subject property submitted to Minnehaha Creek Watershed District. The information provided below details the proposed unmitigated floodplain fill, the reasoning for the proposal, several alternate design options and a conclusion as to why the current proposal is the only reasonable and prudent solution.

Existing Flooding Issue:

The property has a low floor / low opening elevation that is exposed to flood waters from Minnehaha Creek. In high flow events the flood waters directly enter the lower level of the home. The home was converted to a "walkout" and the low opening elevation lowered by a previous homeowner by excavating material in this location. The current homeowner did not create this condition. In past high water events, the homeowner has been forced to use sandbags and pumps in attempts to protect the home from flooding damage. Currently the low floor / low opening elevation of the home is 886.61. The 100-year elevation of the creek at this location is 888.40. This results in 1.79 feet of flooding in the basement of the subject property.

Proposed solution:

The proposed solution to this flooding issue is filling the previously dredged area with soil returning the landscape to the original design when the home was constructed. This would convert the home from a walkout style home back into a full basement with lookout style windows. The new low opening elevation of the home is proposed to be a minimum of 890.40 which is 2.0 feet above the 100-year high water elevation. This proposed design requires unmitigated floodplain fill of 20.4 cubic yards. This is equivalent to approximately one dump truck of material. This proposed solution is shown on **Exhibit A** - Attached.

Reasoning for the proposed solution:

- This proposal is restoring a previous existing condition that was altered by a previous homeowner without permission of the Watershed District or City.
- The proposed fill will not increase flood elevation upstream or downstream (See no-rise calculation)
- The proposed solution will have minimal construction impacts or disturbance to the creek shoreline, bottom, and vegetation. Only 15 lineal feet of shoreline will be impacted at a distance of 10 feet from the edge of the waterline.
- This solution will not create flooding impacts or bring floodwaters nearer to the existing home on this property or adjacent properties.
- This solution will have the same or lesser net effect to flood waters and disturbance as sandbagging which is the only current allowable alternative. This solution is essentially a "permanent sandbag".
- This option has the smallest disturbed areas of the alternatives investigated at 340 square feet since only fill is required and not excavation.
- This option preserves mature trees on the property that have an existing net positive effect on creek water levels, natural buffers and wildlife habitat.
- The solution is the most prudent alternative.

Requirements for a variance:

Minnehaha Creek watershed district clearly defines that to grant a variance the Board of Managers must determine the following:

1. That because of special conditions inherent to the property, which do not apply generally to other land or structures in the District, strict compliance with the provision of a district rule will cause undue hardship to the property owner.

Response: The conditions and reasoning for the variance are completely unique to this property in that in this property and its challenges are not a carbon copy of any other in the district. This property has unique characteristics including, low opening created by previous owner with no permission or permit, mature overstory trees, small potential mitigation area affecting adjacent properties and proof of no rise caused by unmitigated fill.

For example, there may be other structures within the district that have low openings below the floodplain, however they are not necessarily situations where a previous homeowner improperly excavated without permits or permission and the request is to restore the bank to its previous location. There may be other properties in the district that may have small lots where mitigation is not ideal, however they may not have the only feasible mitigation option that brings flood plain much closer to neighboring adjacent properties than the existing condition adding undue risk. There also may be other properties within the district that require tree removal to provide mitigation, but not necessarily large hardwood oak trees and other overstory trees that provide the only shade to the home and are a major asset to the property. There may be other properties in the district that request unmitigated fill but not necessarily able to provide a no-rise certification that shows there is no impact of flood elevation to neighboring properties upstream or downstream. There is zero evidence that this unmitigated fill will measurably affect flood levels. All of these conditions being considered together certainly demonstrates this property is entirely unique and not setting up any vague precedent. No two properties are entirely alike and thus precedent that considers a combination of factors cannot be established.

Undue hardship means unnecessary hardship. It is entirely unnecessary to require mitigation, excavation, retaining wall construction, loss of usable yard, loss of large trees, risk to neighboring properties, continued sandbagging etc. all to provide mitigation for a volume that has no effect on flood elevations, proven by a no-rise certification. Strict compliance to provide mitigation in this case is an undue hardship. Destroying the homeowner's creek frontage, large trees and small amount of existing usable yard is an undue hardship. Condition satisfied.

2. That the hardship was not created by the landowner, the landowner's agent or representative, or a contractor. Very simply, this hardship was caused by a previous homeowner without permission of the district city or any permitting obtained. Condition satisfied.
3. That granting such a variance will not merely serve as a convenience to the applicant. The variance is not merely for convenience, it is for preservation and protection of the lower level of their home and protecting the life and safety of its occupants from flood waters. Condition satisfied.
4. That there is no feasible and prudent alternative to the proposed activity requiring the variance. The activity here (creating flood mitigation) may be technically feasible, but it is certainly not prudent based on the litany of reasons listed above. If the threshold were only if something were technically feasible, then there would be no need for variances whatsoever as there is always a possible technical way to do something. However, in the wisdom of those who crafted the variance language it was clearly stated that the solution must also be prudent. Prudent means "wise or judicious in practical affairs; sagacious; discreet or circumspect; sober. Careful in providing for the future; provident; a prudent decision". This inclusion of the word prudent clearly is intended to be inclusive of any and all practical and reasonable arguments against unnecessary requirements, not just solely left to the term "technically feasible". Just because mitigation is technically feasible is not enough reasoning to deny a variance request. The mitigation must also be proven to be a prudent measure. This mitigation is not a prudent measure. Condition satisfied.
5. That granting the variance will not impair or be contrary to the intent of these rules. The intent of the flood mitigation rule is simple and straight forward. It is intended to provide mitigation for areas of floodplain fill so that there is no negative affect upstream or downstream on adjacent properties due to alterations in the flood elevations. We have provided a no-rise modeling study that shows exactly that.

There is no affect to flood elevations as a result of this unmitigated fill. The spirit of this requirement is met. Condition satisfied.

Establishing precedence. We are aware that there is concern that this variance application and approval could potentially establish precedence for other homeowners to propose and construct unmitigated fill on their properties. That would only be the case if the other properties had the exact same set of unique qualities as this property. They would not just need to demonstrate one or two similar qualities but all factors being the same to establish a precedent. This is extremely unlikely as the unique combination of characteristics of this property are not typical and common. Furthermore, if there is another property on the creek in this exact same situation the watershed district should wholeheartedly support helping that homeowner permanently protect their property, especially when it poses no negative affects as a result of the project and the alternatives pose many negative consequences (loss of usable property, tree loss, environmental impacts etc.).

The watershed district's goals are intended to force people to flood their homes for no reason, or to force people to choose between destroying their yards and trees or flooding their homes, or forcing people to haphazardly sandbag instead of installing a permanent thoughtful solution. Its purpose should be to help all those within the district address flooding problems in the most reasonable and prudent way possible. For example, sandbagging to protect property is allowed...but a "permanent sandbag" to protect a property more safely and in perpetuity is not allowed.... that is an unreasonable policy and conflicts with the watershed stated vision. Situations like this is precisely why the variance option exists.

The vision of the district mentions improving the quality of life in the community and being flexible and creative in adapting practices to those of its partners. The proposed solution to this easily solvable problem directly speaks to that vision.

Design Alternates:

The design alternates described below have been investigated and deemed not reasonable or feasible and prudent.

ALTERNATIVE 1 - Excavation of a portion of the yard and retaining wall and converting to floodplain. The limits of this option are shown on **Exhibit B**. Excavation of the upland portion of the yard and converting it to a floodplain as mitigation for the filled portion is not feasible because it would bring flood waters closer to the existing structure on the subject property as well as existing adjacent homes adding flood risk. The north side of 4512 North is very close to the neighbor's home (4508 North) which is vulnerable to flooding of it's basement due to dirt crawlspaces being located on both sides of it's foundation. This was discussed at the MCWD meeting on 1/15/20 and Tom Dietrich agreed then that this aspect was a mitigation issue. These dirt crawl spaces are below the flood elevation of the creek. This mitigation option would also reduce the flood separation to the adjacent property from 30 feet to 10 feet and only provides 10' of horizontal separation to the existing house. Also, mitigation in this area would only yields 10 cubic yards of material and creates a disturbed area of 590 square feet. Any design solution should not be implemented if it increases risk to an upstream or downstream property. Therefore, mitigation on the north side of the lot is not feasible and prudent.

ALTERNATIVE 2 – Excavation of the lower portion of the shoreline on the creek side of the granite retaining wall to approximately 5' from the bottom of the existing granite retaining wall. The limits of this option are shown on **Exhibit B**. Excavation of the upland portion of this area (elevations above 885.30) only yields 3 cubic yards of material. This proposal would also uproot the existing well-established vegetation and disturb the entire frontage of the property a distance of 110 lineal feet and creates a disturbed area of 1060 square feet. Therefore, this option is not feasible and prudent.

ALTERNATIVE 3 - Excavation of the entirety of the lower shoreline all the way to the retaining wall would yield about 15 cubic yards of material but would undermine the existing granite retaining wall. The limits of this option are shown on **Exhibit B**. This would result in an unstable and failed wall that would require

reconstruction at an overly burdensome cost to the landowner and heavy site disturbance. Further excavation behind the retaining wall would be needed to achieve 20 cubic yards of soil. This solution also desecrates the shoreline whereby the property owner would no longer have use of their shoreline property. This proposal would also uproot the existing well-established vegetation and disturb the entire frontage of the property a distance of 110 lineal feet and creates a disturbed area of 2040 square feet. Therefore this full mitigation along the entire creek frontage is not feasible and prudent.

ALTERNATIVE 4 - Excavation of the southern portion of the subject property would yield 20 cubic yards, however it would require the removal of a large oak tree and basswood tree, reconstruction of a granite retaining wall and bring creek waters closer to the neighboring property to the south. This property to the south (4604 Cascade) has a lower basement and a sump pump that runs continuously. Therefore, this option is not feasible and prudent mainly due to unnecessary increased risk to an adjacent property.

ALTERNATIVE 5 – Minimize the proposed fill to something less than 20.4 cubic yards. The proposed fill of 20.4 cubic yards is the reasonable amount required to restore the original shoreline location with the upstream and downstream locations of the stream bank. This provides a separation distance from flood waters to the home foundation of 20.0 feet. The alternative of something less only increases the potential for flood waters and groundwater seepage to enter the foundation of the subject property and is not a good design, not a solution that can be recommend by Civil Site Group and thus not a feasible solution.

Conclusion:

The preferred proposed design solution (unmitigated fill) is the only reasonable and prudent option that does not bring undue hardship to the landowner for this situation. It is a restoration to a pre-existing condition, it has no impacts to upstream or downstream properties, no measurable impacts to flood elevations upstream or downstream and has the minimum environmental impacts to the creek in the short term and long term. This entirely unique property and its challenges and solution is precisely the reason the variance process exists.

From: [jackweston](#)
To: [James Wisker](#); [Thomas Dietrich](#); [Will Roach](#); [Matt Pavek](#)
Subject: MCWD proposed mitigation 4512 North Ave
Date: Wednesday, July 29, 2020 3:40:47 PM

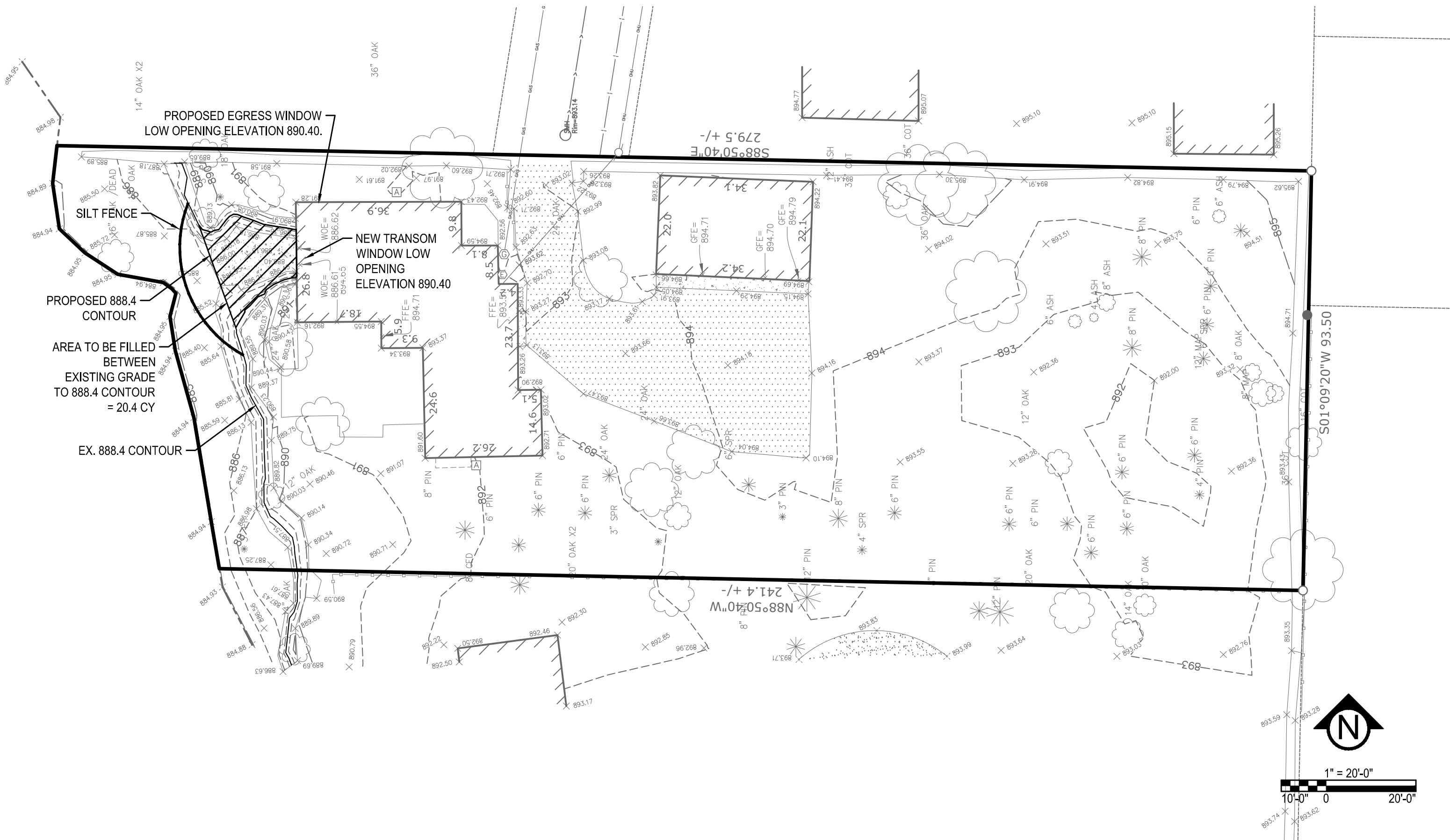
From: Devon Beau Hammel [mailto:dbhammel@gmail.com]
Sent: Thursday, June 18, 2020 7:23 AM
To: mpavek@civilsitegroup.com
Cc: jwisker@minnehahacreek.org; TDietrich@minnehahacreek.org; Katy; jackweston
Subject: MCWD proposed mitigation 4512 North Ave

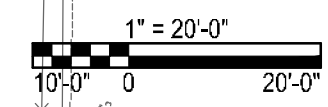
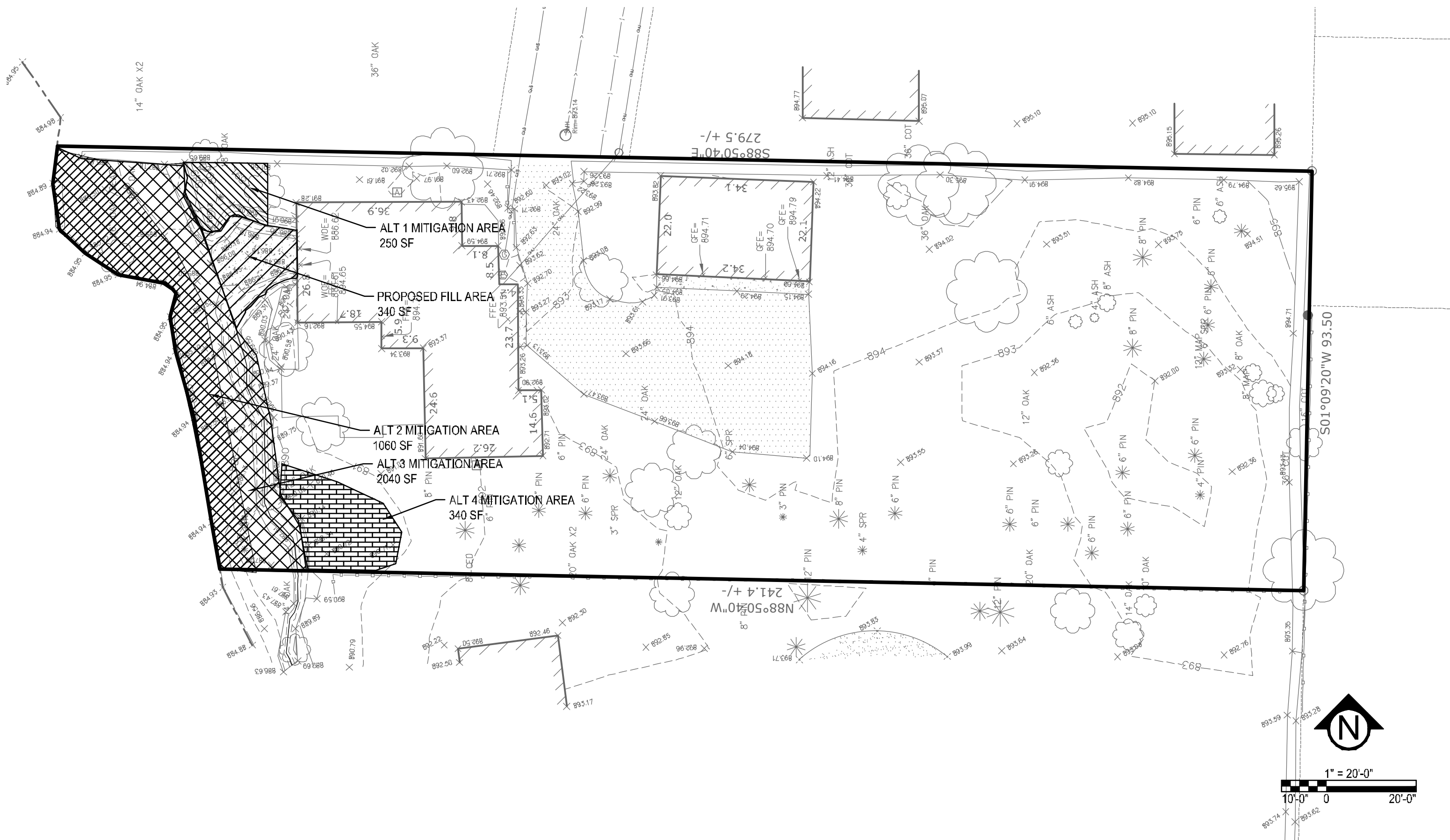
Dear Matt,

This letter is to inform you and MCWD staff that we (Devon and Katy Hammel) owners of property located at 4604 Cascade Lane Edina, MN have concerns regarding the MCWD staff's proposed mitigation at 4512 North Ave next to our home. Our next door neighbors the Westons located at 4512 North Ave Edina, Mn described the MCWD staff's proposed mitigation to us recently. We are aware that the Westons have been working with the MCWD to obtain a permit to protect their home from future flooding. We believe this proposed mitigation is unreasonable being that it is too close to our home's foundation and if implemented will introduce additional adverse flood risk to our home.

Sincerely,

Devon and Katy Hammel





Technical Memo



To: Tom Dietrich, *Permitting Manager*, Minnehaha Creek Watershed District

From: Erik Megow, PE, Wenck Associates, Inc.
Chris Meehan, PE, CFM, Wenck Associates, Inc.

Date: July 10, 2020

Permit Name: 4512 North Avenue, Edina - Floodplain Alteration

Permit Number: 20-071

Listed below are the rules applicable to this redevelopment and our analysis of how the applicant has satisfied the requirements of each rule.

Reviewed Exhibits

- Signed Water Resource Permit Application Form, signed 2-19-2020, dated 2-19-20.
- 4512 Variance Narrative form Civil Site Group dated 6-3-20, received 6-3-20 (**Attachment 1**).
- No-Rise Certification: 4512 North Ave. Proposed Fill from Civil Methods, Inc. dated, 7-7-20, received 7-7-20 (**Attachment 2**).

Floodplain Alteration

The applicant is a single-family homeowner who is proposing to fill within the floodplain to protect the house from flooding. The home has a walkout basement along Minnehaha Creek that they would like to remove and add fill to protect the home from flooding with the placement of fill. The project proposes 20.4 CY of floodplain fill below the Minnehaha Creek 100-year elevation (888.4 ft) in lieu of sandbagging during periods where the Creek is high.

The fill causes a net decrease in storage capacity below the project 100-year high water elevation of Minnehaha Creek. Per Section 3(a) of the Floodplain Alteration Rule, the project is required to provide mitigation volume at a 1:1 ratio. The applicant states that they are unable to provide the mitigation on-site and are seeking a variance (Attachment 1) from the requirement.

Per Section 3(b) of the Floodplain Alteration Rule, the proposed fill shall not cause an increase in the 100-year flood elevation. The Applicant has provided a No-Rise analysis showing that the proposed fill will not increase upstream or downstream by greater than 0.044 ft (Attachment 2). The analysis in Attachment 2, shows that the proposed model and fill will not increase the 100-year HWL from the updated existing model which meets the no-rise criteria. It should be noted that these updated existing and proposed models show a slightly different 100-year HWL which is acceptable due to the model's truncation and updates.

Section 3(c) is not applicable to this fill as the waterbody being filled is a watercourse.

Section 3(d) is not applicable to the project as no impervious surface is being proposed.

Section 3(e) is not applicable as the waterbody does not have a lakebed.

Per Section 3(f) of the rule, window openings are at a minimum of two feet above the 100-year high water level. In replacement of the walkout basement access, the applicant is proposing new transom windows 2-feet above the 100-year HWL at an elevation of 900.4.

The Project does not meet the District's Floodplain Alteration Rule as it does not provide Floodplain Mitigation volume at a 1:1 Ratio (Section 3(a)).

Variance and Exceptions Rule

The applicant has provided a Variance Narrative (Attachment 1) which states that floodplain mitigation cannot be provided onsite due to various physical constraints. Additionally, floodplain mitigation cannot be off-site, as there are no feasible areas within this reach of Minneheha Creek where the mitigation can be provided. The applicant has submitted a variance analysis outlining 5 Alternatives for mitigating the floodplain fill. The Variance Analysis states that no Alternative is feasible due to various constraints. In review of the Variance Analysis, Alternative 4, providing floodplain mitigation on the southwest edge of property does seem feasible as the 20.4 CY of floodplain mitigation can be provided in this area with the removal of an oak tree and a granite retaining wall.

Therefore, we do not believe the project meets Variance Standard (d), that there is no feasible and prudent alternative to the proposed floodplain alteration activity.

ATTACHMENT A

CIVIL METHODS, INC.

PROFESSIONAL ENGINEERS

LAND | WATER | INFRASTRUCTURE

1551 Livingston Ave, Ste 104, St. Paul, MN 55118

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TECHNICAL MEMORANDUM

Date: July 7, 2020
Subject: No-Rise Certification: 4512 North Ave Proposed Fill
Prepared For: Minnehaha Creek Watershed District
Prepared By: Kent Brander, PE

A. INTRODUCTION

Civil Methods, Inc. (CMI) performed a hydraulic analysis to evaluate the floodplain impact of proposed fill adjacent to Minnehaha Creek, on the property owned by Jack Weston and located at 4512 North Ave, Minneapolis, MN. We revised a portion of the governing XP-SWMM model to represent proposed fill and compared the resulting flood elevations to those of the existing conditions. The results of the analysis indicate that the proposed fill will not cause an increase in upstream flood elevations for the critical event. This analysis was performed as part of the effort to meet the Minnehaha Creek Watershed District (MCWD) requirements for obtaining a permit/variance for the proposed project. This Technical Memorandum describes the methodology and results of the analysis.

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.	
Print Name:	Kent Brander
Signature:	
Date:	07 July 2020
License #:	44578

B. XP-SWMM MODEL DETAILS

Overview

The MCWD engineer provided the existing conditions XP-SWMM model for the analysis. The current governing model was truncated as requested by CMI for use specifically in this analysis, with the rainfall and other key parameters of the truncated model set by the MCWD. The provided (truncated) model was run and the results of that run were used to represent the existing conditions floodplain elevations. It is assumed that the reader of this Technical Memorandum is familiar with and has access to the original XP-SWMM model. The revised model files are provided separately. The MCWD engineer also provided a KMZ file with geographical information corresponding to the XP-SWMM model.

For this analysis, the key result is the difference between the existing conditions and the proposed conditions water surface elevations in the vicinity of the project and upstream. The only physical change being proposed is the placement of fill as illustrated in Attachment 1. The only required modification to the provided (truncated) model is in the HDR (hydraulics) module.

Affected Model Elements

The provided KMZ file was used to determine the location of the proposed project within the model. Using the model parameter values, Node MC-77 is 488 FT upstream of the HWY 100 bridge, and Node MC-77 FN3 is 1018 FT upstream of the HWY 100 bridge (i.e., 530 FT upstream of Node MC-77). The proposed project is approximately 740 FT upstream of the HWY 100 bridge. Within the model, this would place the project near the middle of Link MC-77xsec3, a “natural section” link defined by shape NS_MC-77xsec3.

Existing Conditions Summary

Under existing conditions, the four nodes immediately upstream of the project area and the associated peak water surface elevations are as follows:

Table 1. Existing HWL Summary

Node	Elevation (FT)
MC-77 FN3	889.105
MC-77 FN2	889.106
MC-77 FN1	889.106
MC-76 FN5	889.106

Characterizing Proposed Conditions

In XP-SWMM, natural section links are defined by a representative cross section defining the shape, along with the upstream and downstream elevations that serve to anchor the shape at its lowest point and thus form the channel corridor. The model upstream and downstream channel bottom elevations are 881.6 and 880.8, respectively. This would make the bottom elevation in the vicinity of the project very close to 881.2.

The absolute X-Y values of the channel shape are theoretically arbitrary, in that they are only used to define the shape, not to set the channel at a specific elevation. The model takes the defined shape and places the lowest point at the model profile elevations. That having been said, the X-Y values defining the shape within the model were selected to correspond with location of the upstream node invert. Therefore, the Y value of the point defining the channel bottom is 881.6. To modify the channel shape to represent proposed conditions using actual elevation values, the shape needs to be transferred to the project location. To do this, 0.4 is subtracted from each Y value defining the shape, to give a representative cross section with bottom elevation 881.2.

The proposed fill will be represented in the model by a (very minor) constriction of the channel section shape, equivalent to the volume of fill proposed. The proposed fill would be placed on the east side of the channel between elevations 885.95 and 888.4. This is outside the main defined channel area and would only affect floodplain storage, not floodway conveyance. Therefore, it is valid to represent the fill as a constriction averaged out over the entire channel segment length. The channel segment is 530 FT long and the volume of fill proposed is 20.4 CY, or 550.8 CF. The area of the representative cross section

would therefore need to be reduced (constricted) by 1.04 SF. $[550.8 \text{ CF} / 530 \text{ FT} = 1.04 \text{ SF}]$. The additional constriction would be added to the east side of the channel between elevations 885.95 and 888.4.

To add this constriction, a few points need to be added or modified in the natural channel shape. The required modifications are as follows:

1. Start with the natural channel shape definition from the original model. The specific coordinates to look are (1580, 884.1), (1589, 888.1), and (1597, 893.9). As described above, shifting the shape to the project location would make these points (1580, 883.7), (1589, 887.7), and (1597, 893.5).
2. At the project location, the replacement coordinates are (1580, 883.7), (1585.0625, 885.95), (1589.5484, 888.4), (1589.9655, 888.4), and (1597, 893.5). Note the first and last coordinate sets are unchanged, as a reference point for placing the new points within the cross section.
3. Modifying the cross section as described adds 1.04 SF of constricted area relative to the existing conditions shape. This was verified by drawing the shapes to scale in AutoCAD and using the software to calculate the relevant areas. This removes the 20.4 CY of channel floodplain storage necessary for characterizing the proposed fill.
4. With the modifications made, the 0.4 FT was added back into the Y values for the cross-section shape, for consistency with the rest of the model. The revised channel shape was named "NS_MC-77xsec3.2" and was used to define the affected link.

Proposed Conditions Summary

Under proposed conditions, characterized as described above, the four nodes immediately upstream of the project area and the associated peak water surface elevations are as follows:

Table 2. Proposed HWL Summary

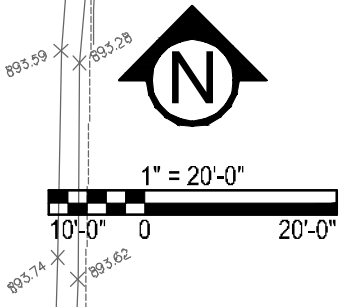
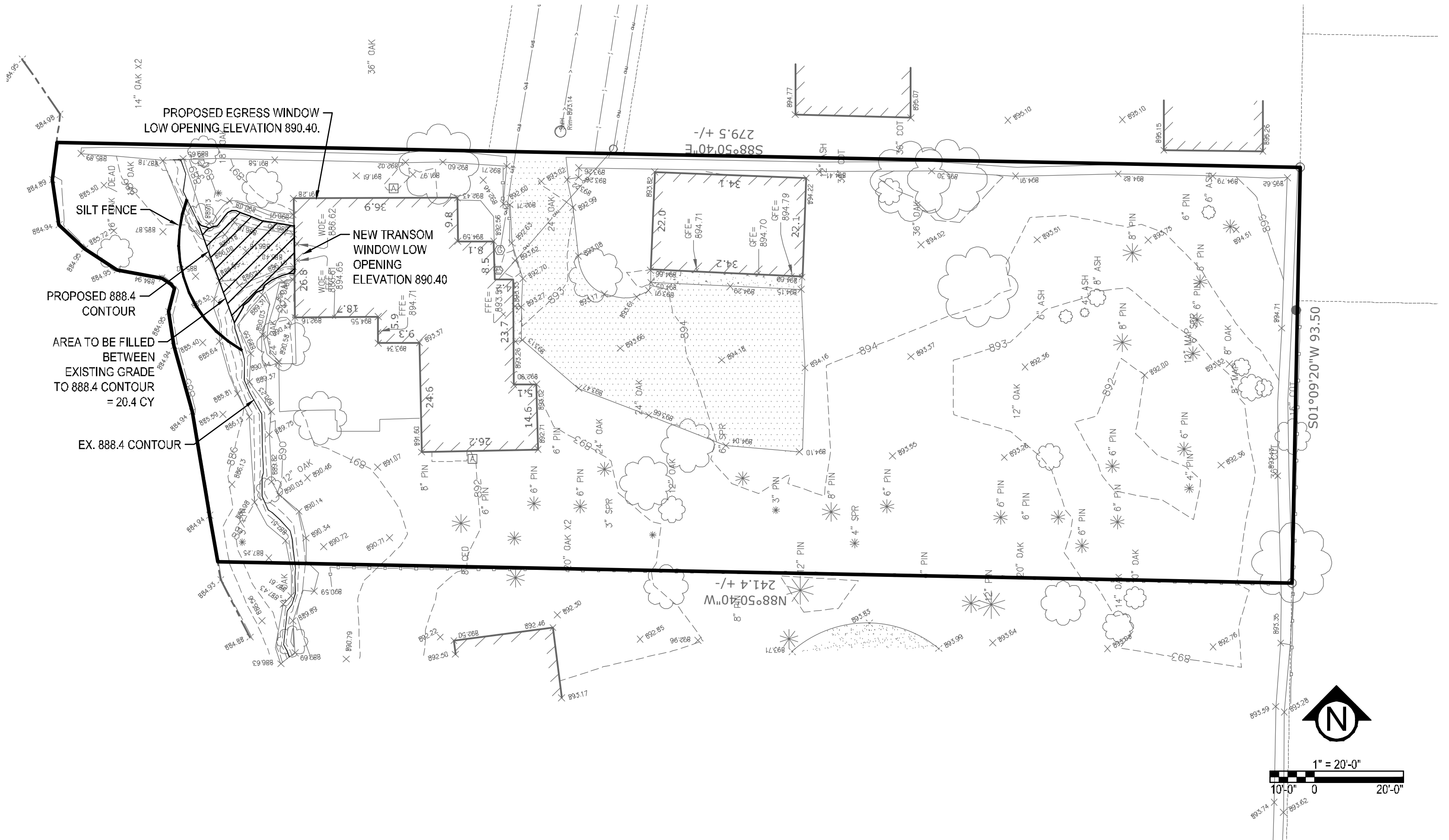
Node	Elevation (FT)
MC-77 FN3	889.105
MC-77 FN2	889.106
MC-77 FN1	889.106
MC-76 FN5	889.106

The elevations are unchanged from existing conditions. This is not surprising given the small amount of volume of proposed fill relative to the overall channel floodplain storage volume, and the fact that under current conditions the flood elevation is apparently driven by something other than available floodplain storage.

Conclusion

The proposed fill would not cause a rise in the critical event water surface elevations.

Attachment 1: Illustration of Proposed Fill Area



ATTACHMENT B

Project Variance Narrative 4512 North Avenue, Edina, MN

Date 6-3-20

Matt Pavek PE

Purpose:

This narrative accompanies the variance application for the subject property submitted to Minnehaha Creek Watershed District. The information provided below details the proposed unmitigated floodplain fill, the reasoning for the proposal, several alternate design options and a conclusion as to why the current proposal is the most reasonable solution.

Existing Flooding Issue:

The property has a low floor / low opening elevation that is exposed to flood waters from Minnehaha Creek. In high flow events the flood waters directly enter the lower level of the home. The home was converted to a "walkout" and the low opening elevation lowered by a previous homeowner by excavating material in this location. The current homeowner did not create this condition. In past high water events the homeowner has been forced to use sandbags and pumps in attempts to protect the home from flooding damage. Currently the low floor / low opening elevation of the home is 886.61. The 100-year elevation of the creek at this location is 888.40. This results in 1.79 feet of flooding in the basement of the subject property.

Proposed solution:

The proposed solution to this flooding issue is filling the previously dredged area with soil returning the landscape to the original design when the home was constructed. This would convert the home from a walkout style home back into a full basement with lookout style windows. The new low opening elevation of the home is proposed to be a minimum of 890.40 which is 2.0 feet above the 100-year high water elevation. This proposed design requires unmitigated floodplain fill of 20.4 cubic yards. This is equivalent to approximately one dump truck of material. This proposed solution is shown on **Exhibit A** - Attached.

Reasoning for the proposed solution:

- This proposal is restoring a previous existing condition that was altered by a previous homeowner without permission of the Watershed District or City.
- The proposed fill will not increase flood elevation upstream or downstream (See no-rise calculation)
- The proposed solution will have minimal construction impacts or disturbance to the creek shoreline, bottom, and vegetation. Only 15 lineal feet of shoreline will be impacted at a distance of 10 feet from the edge of the waterline.
- This solution will not create flooding impacts or bring floodwaters nearer to the existing home on this property or adjacent properties.
- This solution will have the same or lesser net effect to flood waters and disturbance as sandbagging which is allowed. This solution is essentially a "permanent sandbag".
- This option has the smallest disturbed areas of the alternatives investigated at 340 square feet since only fill is required and not excavation.

Design Alternates:

The design alternates described below have been investigated and deemed not reasonable or feasible.

ALTERNATIVE 1 - Excavation of a portion of the yard and retaining wall and converting to floodplain. The limits of this option are shown on **Exhibit B**. Excavation of the upland portion of the yard and converting it to a floodplain as mitigation for the filled portion is not feasible because it would bring flood waters closer to the existing structure on the subject property as well as existing adjacent homes adding flood risk. The north side of 4512 North is very close to the neighbor's home (4508 North) which is vulnerable to flooding of it's basement due to dirt crawlspaces being located on both sides of it's foundation. This was discussed at the

MCWD meeting on 1/15/20 and Tom Dietrich agreed then that this aspect was a mitigation issue. These dirt crawl spaces are below the flood elevation of the creek. This mitigation option would also reduce the flood separation to the adjacent property from 30 feet to 10 feet and only provides 10' of horizontal separation to the existing house. Also, mitigation in this area would only yields 10 cubic yards of material and creates a disturbed area of 590 square feet. Any design solution should not be implemented if it increases risk to an upstream or downstream property. Therefore, mitigation on the north side of the lot is not feasible.

ALTERNATIVE 2 – Excavation of the lower portion of the shoreline on the creek side of the granite retaining wall to approximately 5' from the bottom of the existing granite retaining wall. The limits of this option are shown on **Exhibit B**. Excavation of the upland portion of this area (elevations above 885.30) only yields 3 cubic yards of material. This proposal would also uproot the existing well-established vegetation and disturb the entire frontage of the property a distance of 110 lineal feet and creates a disturbed area of 1060 square feet. Therefore, this option is not feasible.

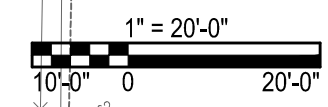
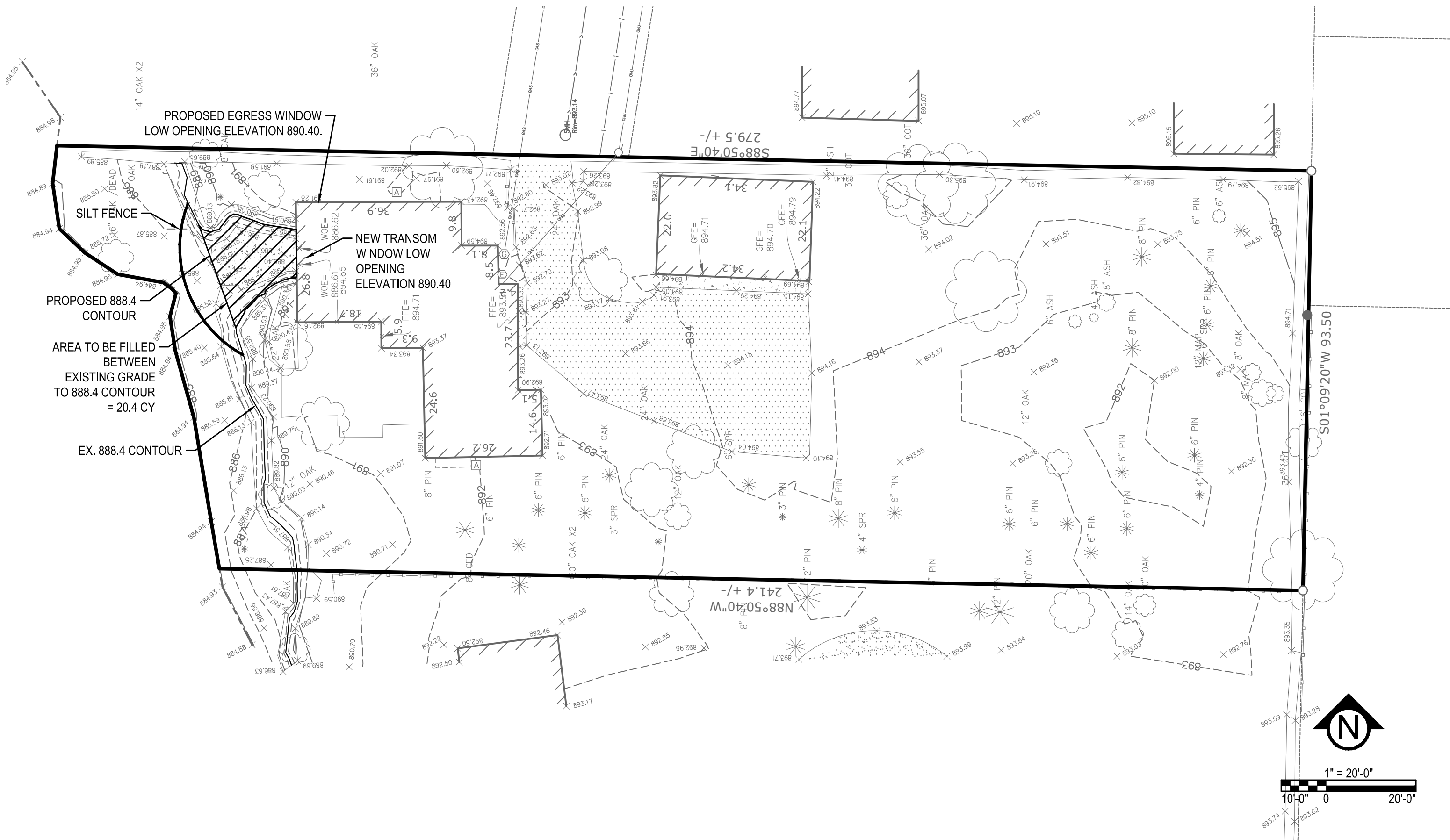
ALTERNATIVE 3 - Excavation of the entirety of the lower shoreline all the way to the retaining wall would yield about 15 cubic yards of material but would undermine the existing granite retaining wall. The limits of this option are shown on **Exhibit B**. This would result in an unstable and failed wall that would require reconstruction at an overly burdensome cost to the landowner and heavy site disturbance. Further excavation behind the retaining wall would be needed to achieve 20 cubic yards of soil. This solution also desecrates the shoreline whereby the property owner would no longer have use of their shoreline property. This proposal would also uproot the existing well-established vegetation and disturb the entire frontage of the property a distance of 110 lineal feet and creates a disturbed area of 2040 square feet. Therefore this full mitigation along the entire creek frontage is not feasible.

ALTERNATIVE 4 - Excavation of the southern portion of the subject property would yield 20 cubic yards, however it would require the removal of a large oak tree, reconstruction of a granite retaining wall and bring creek waters closer to the neighboring property to the south. This property to the south (4604 Cascade) has a lower basement and a sump pump that runs continuously. Therefore, this option is not feasible mainly due to increased risk to an adjacent property and prohibitive costs.

ALTERNATIVE 5 – Minimize the proposed fill to something less than 20.4 cubic yards. The proposed fill of 20.4 cubic yards is the reasonable amount required to restore the original shoreline location with the upstream and downstream locations of the stream bank. This provides a separation distance from flood waters to the home foundation of 20.0 feet. The alternative of something less only increases the potential for flood waters and groundwater seepage to enter the foundation of the subject property and is not a good design, not a solution that can be recommend by Civil Site Group and thus not a feasible solution.

Conclusion:

The preferred proposed design solution is the only reasonable option for this situation. It is a restoration to a pre-existing condition, it has no impacts to upstream or downstream properties, no measurable impacts to flood elevations upstream or downstream and has the minimum environmental impacts to the creek in the short term and long term.



4512 NORTH AVE EDINA, MN 55436

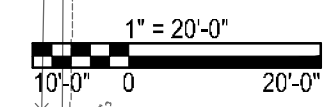
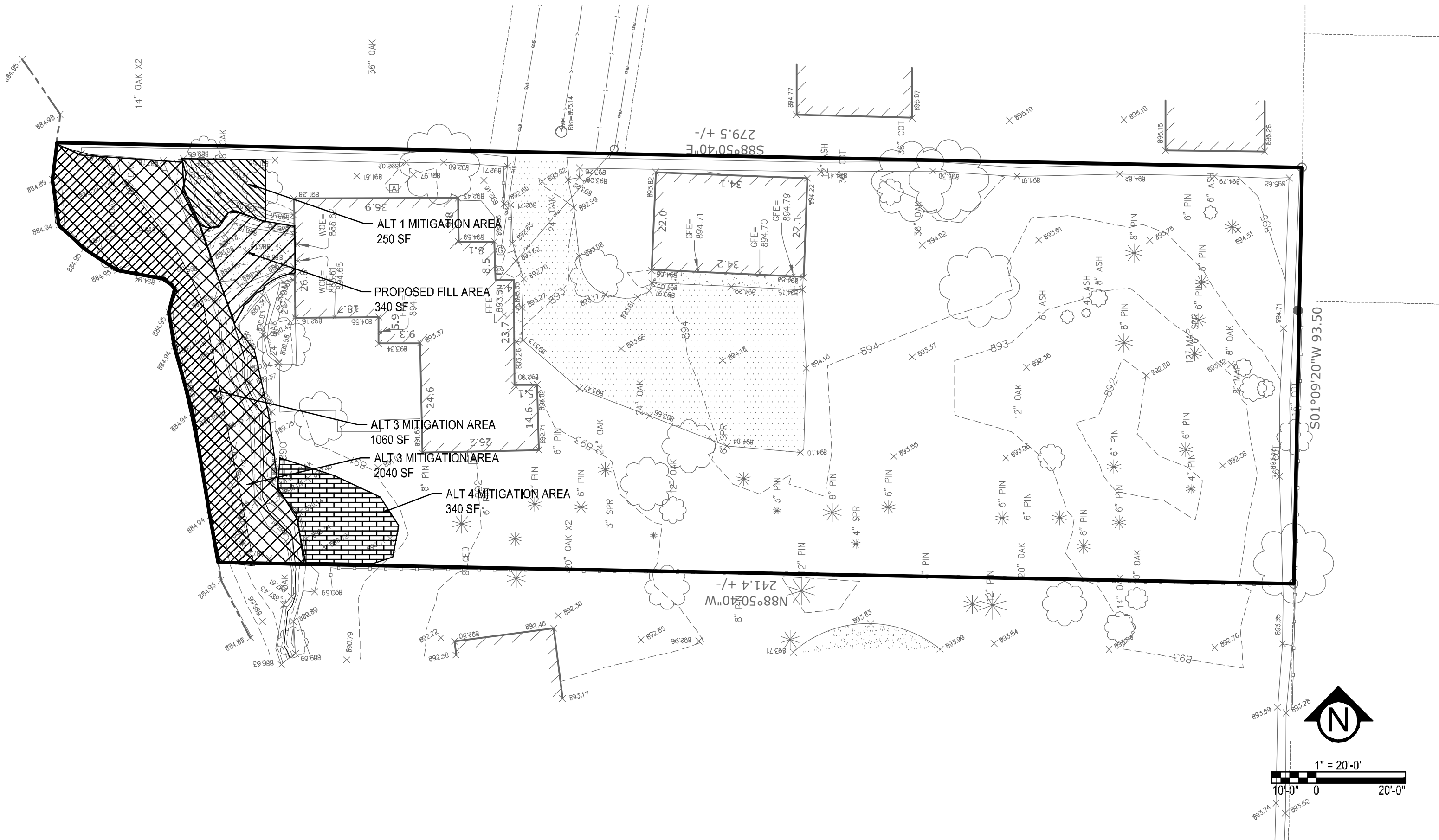


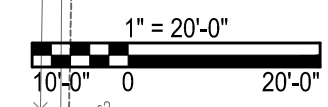
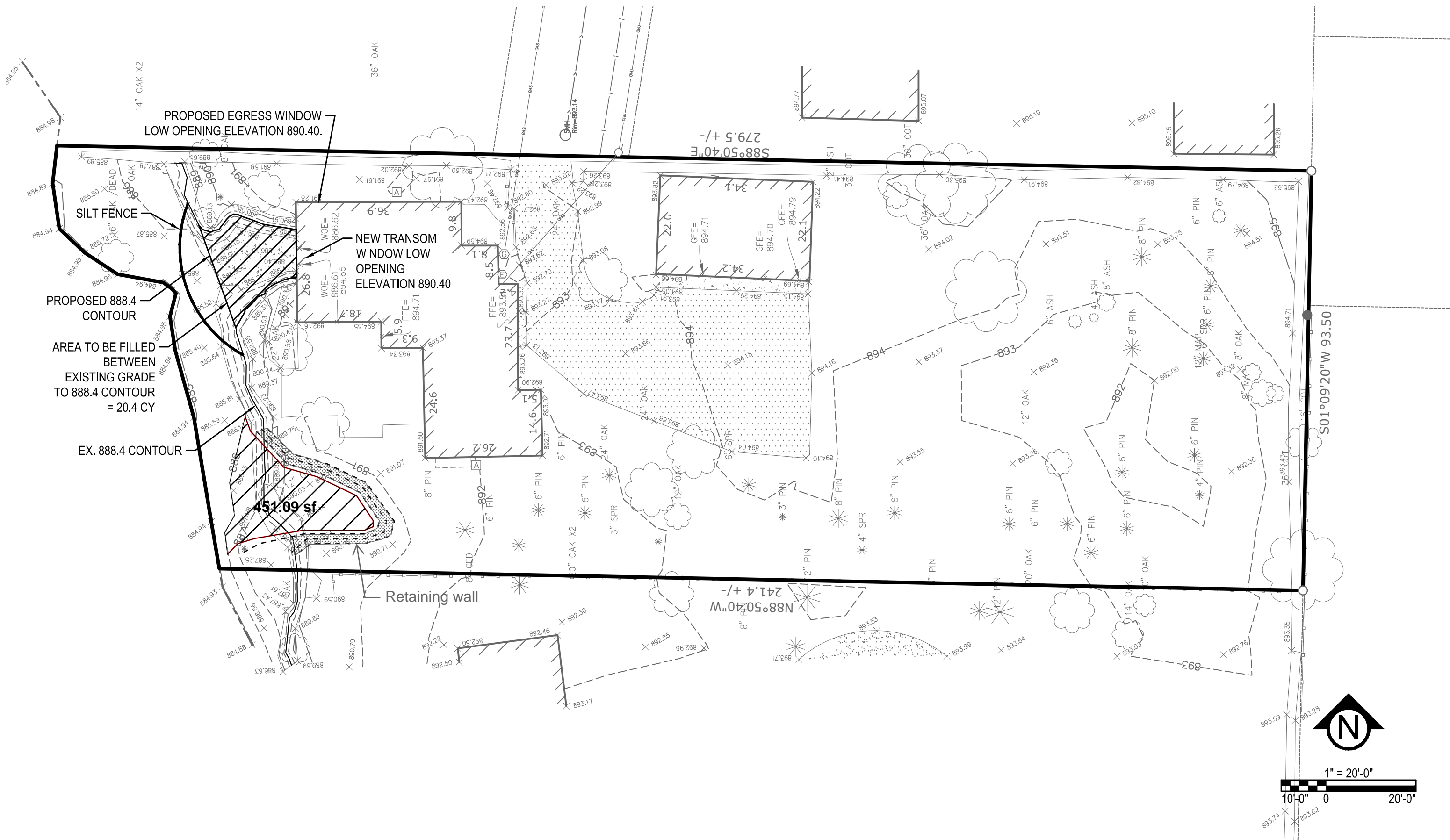
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PROPOSED FLOOD PLAIN FILL

Project Number:	19419	Revision Number:	
Issue Date:	5/29/20	Revision Date:	

EXHIBIT A





4512 NORTH AVE EDINA, MN 55436		PROPOSED FLOOD PLAIN FILL	
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