

MINNESOTA PLUMBING BOARD
ORDER DENYING VARIANCE

Stillwater Area Public School District (the “District”) submitted a Petition for Variance dated December 10, 2024 (the “Petition” Attachments B and C), to the Minnesota Plumbing Board (the “Board”). The Petition requested a variance from the 2018 edition of the Uniform Plumbing Code, specifically section 310.5, incorporated by reference and made part of the Minnesota Plumbing Code by Minnesota Rule 4714.0050, for the purpose of installing and implementing a storm water infiltration system with piping that is surcharged and considered an obstruction at the additions and renovations for Oak-Land Middle School. The Board considered the Petition for Variance at the January 21, 2025, Board meeting.

At the January 21, 2025, Board meeting, the Board denied the Petition for a permanent variance within the scope of the information submitted as Attachments B and C. In denying the Petition, the Board determined that there is an alternative installation using a lift station that would allow the piping to not be surcharged and would comply with code. The increased costs associated with this alternative do not warrant approval of the variance. The Board has the authority to deny this variance under Minn. Stat. § 14.055, subd. 4 (2024). The Board further authorized the undersigned to issue the required Order under Minn. Stat. § 14.056, subd. 5.

ACCORDINGLY, IT IS HEREBY ORDERED that the District is denied a variance from the 2018 edition of the Uniform Plumbing Code, specifically section 310.5, incorporated by reference and made part of the Minnesota Plumbing Code by Minnesota Rule 4714.0050, for the purpose of installing and implementing a storm water infiltration system with piping that is surcharged and considered an obstruction at the additions and renovations for Oak-Land Middle School as described in Attachments B and C.

Dated: January 21, 2025

A handwritten signature in blue ink, reading "Richard D. Becker".

Richard Becker, Chair, Plumbing Board

Attachment B



December 10, 2024

Lyndy Logan
Plumbing Board
Minnesota Department of Labor
443 Lafayette Road North
St. Paul, MN 55155

Re: Variance Petition
Oak-Land Middle School Additions Project
Lake Elmo, MN

Dear Lyndy Logan,

We are petitioning for a variance regarding Minnesota State Plumbing Code 310.5 regarding the specific situation at the Oak-Land Middle School Project. We are making this petition on behalf of Stillwater Area Public School for this project.

Please see the attached information regarding this petition. If you have questions or need additional information you can contact myself or Mitch Honsa at Larson Engineering (office phone: 651-481-9120)

Thank you for your consideration of this petition.

Sincerely,
Larson Engineering, Inc.



Greg A. Buchal, PE
Project Manager

Attachments:
Variance Petition Memo Dated 12-10-2024
Exhibits 1 through 5



MEMORANDUM

To: Minnesota State Plumbing Board Date: December 10, 2024
From: Larson Engineering, Inc. Project No: 12246044
Project: Oak-Land Middle School Additions & Renovations
Re: Variance Regarding 2020 Minnesota Plumbing Code Section 310.5

We are petitioning for a variance regarding the 2020 Minnesota Plumbing Code: 2018 Uniform Plumbing Code (UPC) section 310.5 as incorporated in the Minnesota Plumbing Code by Minnesota Rules, part 4714.0050. The variance is being specifically requested because of the final interpretation for inquiry PB0519, stating that plumbing code does not allow storm sewers to be surcharged.

Existing Conditions

Oak-Land Middle School, which was built in 1966, currently has a portion of the existing roof drains being collected in an 8-inch pipe extending through the building, under the floor slab, until it exits the building on the south side and discharges into several existing dry wells. The site soil conditions are generally sandy, such that the current system has been working well.

Proposed Addition and New Conditions

The School District will be adding additional classroom space to the school and one of the proposed additions is located on the south side of the existing building. It is our understanding that since the new building addition extends over a portion of the existing storm drainage pipe currently connected to the drywells, that pipe now being under a building, needed to be compliant with the Minnesota Plumbing Code since the existing material, vitrified clay pipe, is not an approved material allowed under the building. Due to the roof drainage area, it was determined that the existing 8-inch pipe would no longer be sufficiently sized in consideration of the current Plumbing Code requirements and would need to be upsized to a 15-inch pipe under and downstream of the proposed addition and would still be directed to the dry well. Some of the existing roof water, along with the roof water from the new addition is being re-directed separately to a storm water treatment system, such that less water would be flowing through the new 15" roof drain pipe and entering the existing dry wells.

Since this current system of routing the roof water to the dry wells has been working well, it is our desire to continue to have the roof water flow to the drywell. However, since the roof drain pipe was upgraded, it is our understanding that everything downstream of the new connection will need to be compliant with the current Minnesota Plumbing Code standards, which is where we run into the issue of surcharging the pipe, since the existing drywell has no outlet other than infiltrating water through the native sandy soils or overflowing via the rim of the dry well structure and then surfacing draining to the south. Should surcharging of this inlet pipe to the drywell occur, and water flows out the top of the dry well, the new rim elevation of the dry well (909.40) is two (2) feet below the building floor slab elevation (911.40) and would not result in water backing up into the building or on the roof.

Also, should the current primary drainage system from the roof drains to the dry well not be functioning properly, the existing secondary roof drainage system would allow the water on the roof to be discharged on to grade.

If the roof water in this particular situation is not allowed to continue to flow to the existing drywell, a new storm sewer lift station would be required. The lift station is needed since the invert elevation of the existing roof drain pipe going to the dry well is too deep to discharge water to the existing storm sewer outlet from the site. To raise the invert elevation of the existing roof drainage pipe would require extensive floor removal within the school building and rerouting pipe mostly in areas of the school that are not currently being renovated.

The requirement for a lift station has significant cost and a lift station was not anticipated or budgeted for by the School District for this addition project. Space constraints, other site utilities, the proximity of the property line to the building addition, and site drainage patterns also add difficulty to incorporating the proposed lift station into the overall storm water design.

Summary

Because the roof water flowing to the dry well is an existing condition, and this condition is being impacted only due to the proposed building classroom addition location, to avoid the hardships related to constructing and maintaining a lift station for this storm water, we request a variance be granted to the rule for surcharging pipes for this particular situation with the drywell. We are not aware of anyone that would be adversely impacted by this variance.

Remarks

Thank you for your consideration of this variance request. If you need additional information or have question please contact Larson Engineering, Inc.

Greg Buchal, PE T: 612-991-2601 EM: gbuchal@larsonengr.com.
Mitch Honsa, PE T: 651-448-0931 EM: mhonsa@larsonengr.com

Attachments:

- Exhibit 1 – Existing Roof Drain Routing with Proposed Addition
- Exhibit 2 – Proposed Roof Drain Routing with Proposed Addition
- Exhibit 3 – Roof Drainage Areas
- Exhibit 4 – Underground Plumbing Plan Roof Drain Routing – South Portion
- Exhibit 5 – Underground Plumbing Plan Roof Drain Routing - North Portion

Mitchell,

As Lyndy noted below that yes you are on the agenda for the meeting. I did take a look at what you have submitted and have a couple of pointers that may help the Variance request along. Please keep in mind, I cannot speak for the board nor do I know how the Board will decide but from past variance request the Board was not always able to make a decision on the first attempt as they felt additional information was needed to help make the decision. This resulted in a delay and the need for additional meetings.

I have the following thoughts on what you submitted:

1. On the drawings can you please provide the water quality level for the dry wells? Can you explain how often the pipes will surcharge(what Rain event will it occur?) What rain event will the dry well overflow the manhole structure? The water quality volume for the drywells is the volume between the Rim and bottom of the structure. That being said, the structures are 6' in diameter and one has a rim to invert height of 8'and the other has a rim to invert height of 9.5'. Therefore, the water quality volume provided in the 9.5' tall structure is about 267 CF and the water quality volume in the 8' structure is about 226 CF. Looking at the roof water in consideration of the typical civil engineering stormwater design standards, water draining from the roof to the drywells would overflow/cause surcharging of the pipe in all storm water events such as 2-yr (2 in) , 10-yr (4 in), and 100-yr (7 in). There are some unknowns about the original design of the existing dry wells that could affect our calculations such as the rate water dissipates from the drywell. Based on our current soil borings for the new addition, infiltration rates used for our stormwater design for the underlying soils are about 0.8-0.6 in/hr. Some areas of Lake Elmo have more rapid infiltration where the rates are up to 12-30 in/hr. I mention this because the site adjacent to ours has two rapid infiltration basins that were designed with the Valley Branch Watershed, so water could be dissipating from the drywells at a much higher rate. The manager of facilities and site operations for the Stillwater Area Public Schools has stated he believes the drywells only overflow in the event of larger rainfalls such a 1" – 2" events or greater. He has also worked with the district for over 25 year managing the facilities and there haven't been any significant issues with water surcharging in pipes interior to the building to his knowledge.
2. Provide a larger site plan showing elevations of the storm system, helps explain why you cannot connect to existing. Show other work that will be completed on the site. I have attached utility drawings to this email that depict the design if the drywells are maintained, but please note that the stormwater system for the site are rather complex and cluttered. This was initially withheld from the submittal to prevent confusion. The attached plan sheets are not the most recent utility plans for the project as the project is set to start construction this spring and we needed to proceed forward with an alternate design that included a lift station to service the existing roof leader which greatly increased the cost of the civil related work.
3. Explain why the project cannot make changes inside the building. Both above and below grade?(have you considered all options?) Options have been discussed with the design team for the project. Based upon conversations with the Mechanical Engineer (Hallberg Engineering), the pipe that runs north/south under the center of the building which is shown in Exhibit 5, was installed relatively deep and this pipe has several other storm lines that split off it at this low elevation and roof drain pipe extends -through numerous classrooms that are outside the scope of the current project (that are highlighted in green in the exhibit). Due to budget considerations, this additional work could not be incorporated into the project.

4. Can you connect more of the existing roof to the new 10" RWL to reduce the surcharge or eliminate it entirely? Does this impact the amount of surcharged pipe in the building? Always try and minimize the impact if possible. Hallberg Engineering rerouted as much of the roof as possible to the new higher roof leader that goes to our underground stormwater treatment system. About 18% of the existing roof that drained to the existing roof leader was re-routed to the new roof leader. Based upon my response in item #1, it's hard to quantify exactly how much this reduction in roof area will help the surcharge of the existing drywells.
5. Does raising the rim elevation of the structure impact the amount of surcharged pipe? I know it will but in other words, could you avoid raising the rim elevation to help minimize the amount of surcharged pipe? Raising the rim will affect the how much the existing pipe is surcharged as this is the only known outlet for the roof water other than the overflow flow scuppers on the roof. The raised rim elevations will still be 2' below finished floor elevation. The reason the rims were raised was because just south of the existing drywells an overflow route will be installed for our underground system. This will be a 24" pipe that crosses our site in this area as our only outlet is the Washington County storm sewer located along Manning Avenue on the southeast corner of the site. This overflow route needs ground cover so this governed the rim of the adjacent drywells.

If you can provide any of these answers via revised drawings to Lyndy by Friday 1/10/25, she would be able to incorporate into the package for review by the Plumbing Board or you can present some of the information when you come and talk to the board.

I am hopeful with the added information that the Board can make a decision on your variance request.

Mike

Mike Westemeier, P.E.

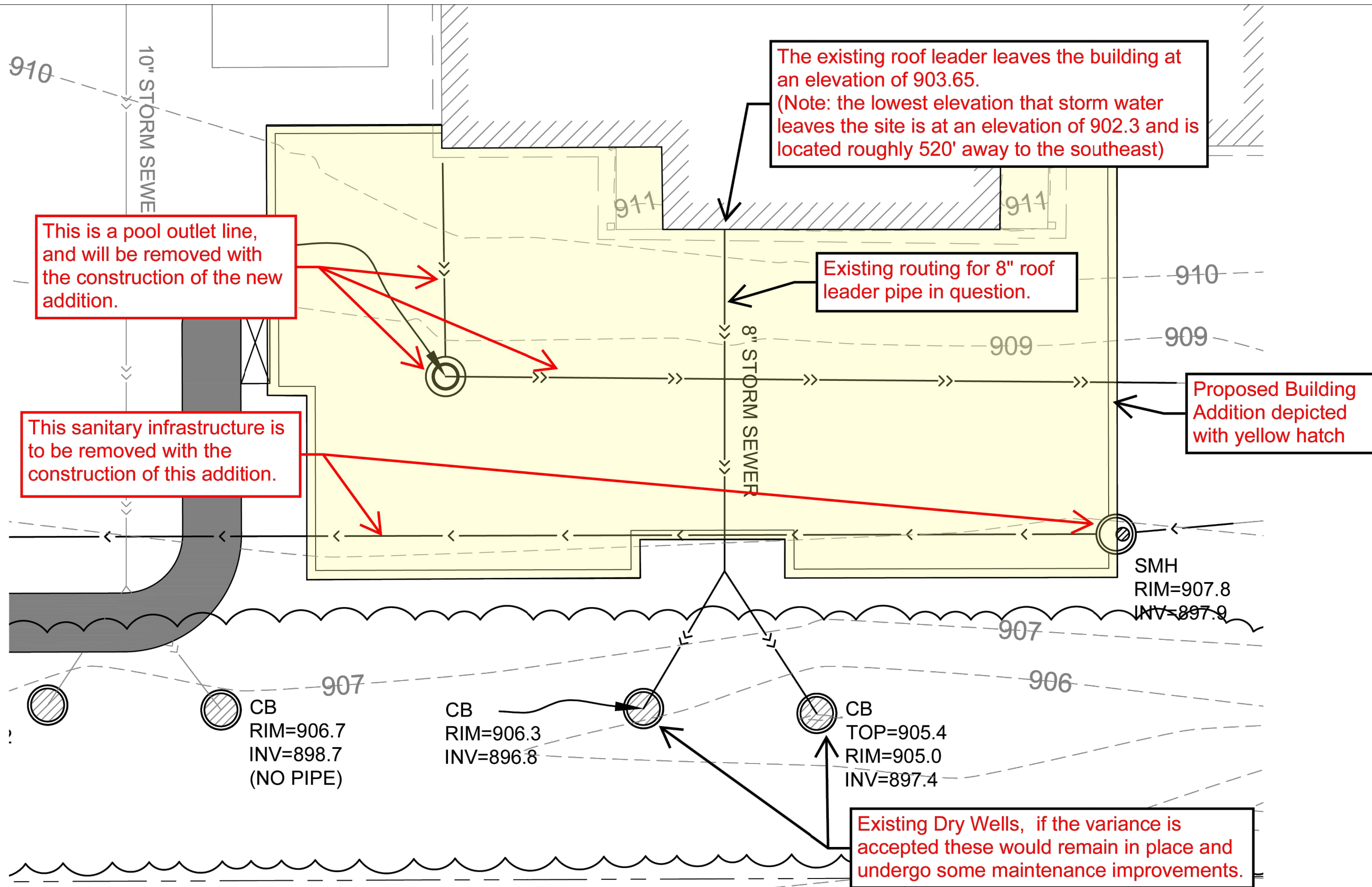
Engineering Administrative Plumbing Plan Review | Construction Codes and Licensing

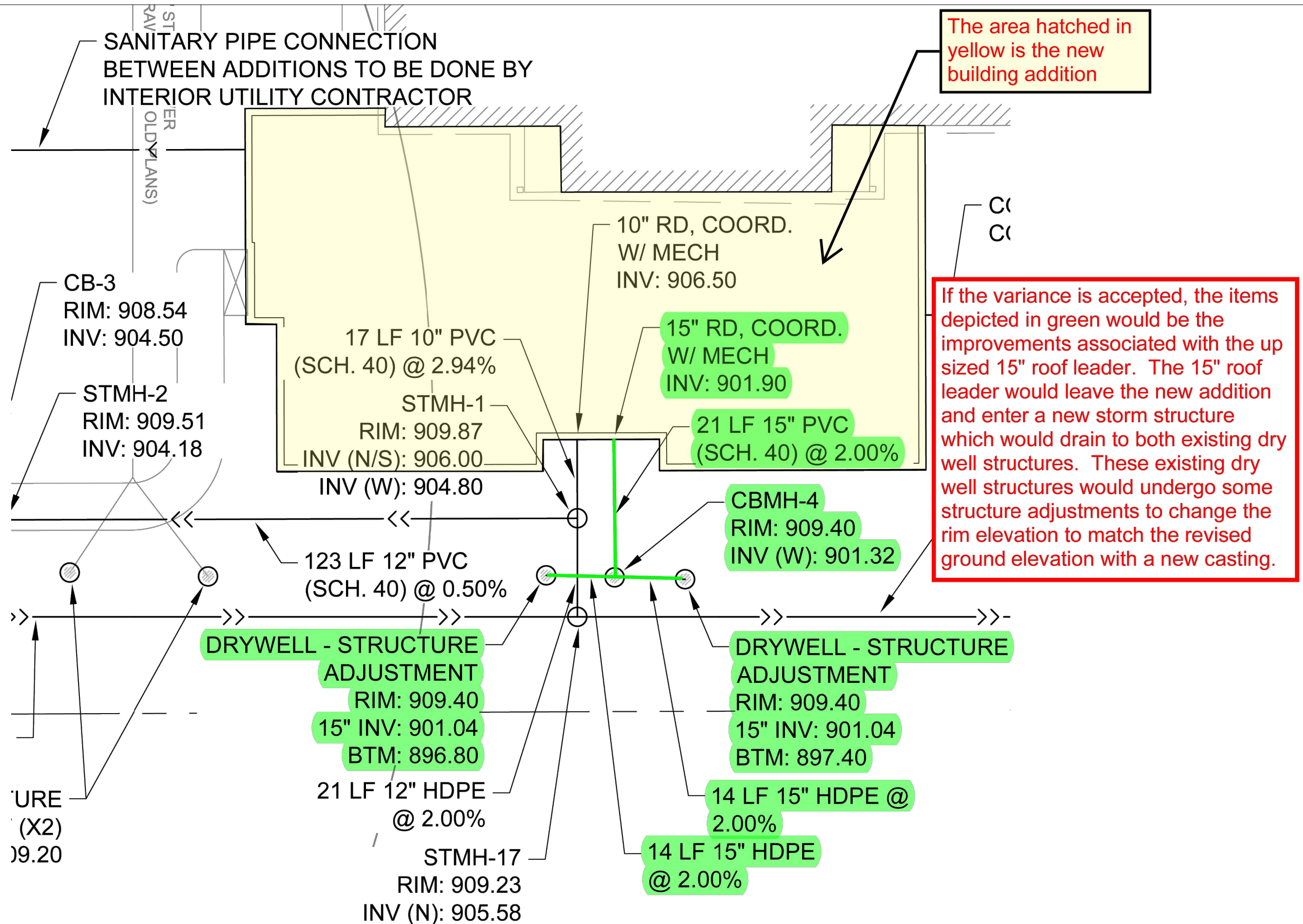
Minnesota Department of Labor and Industry

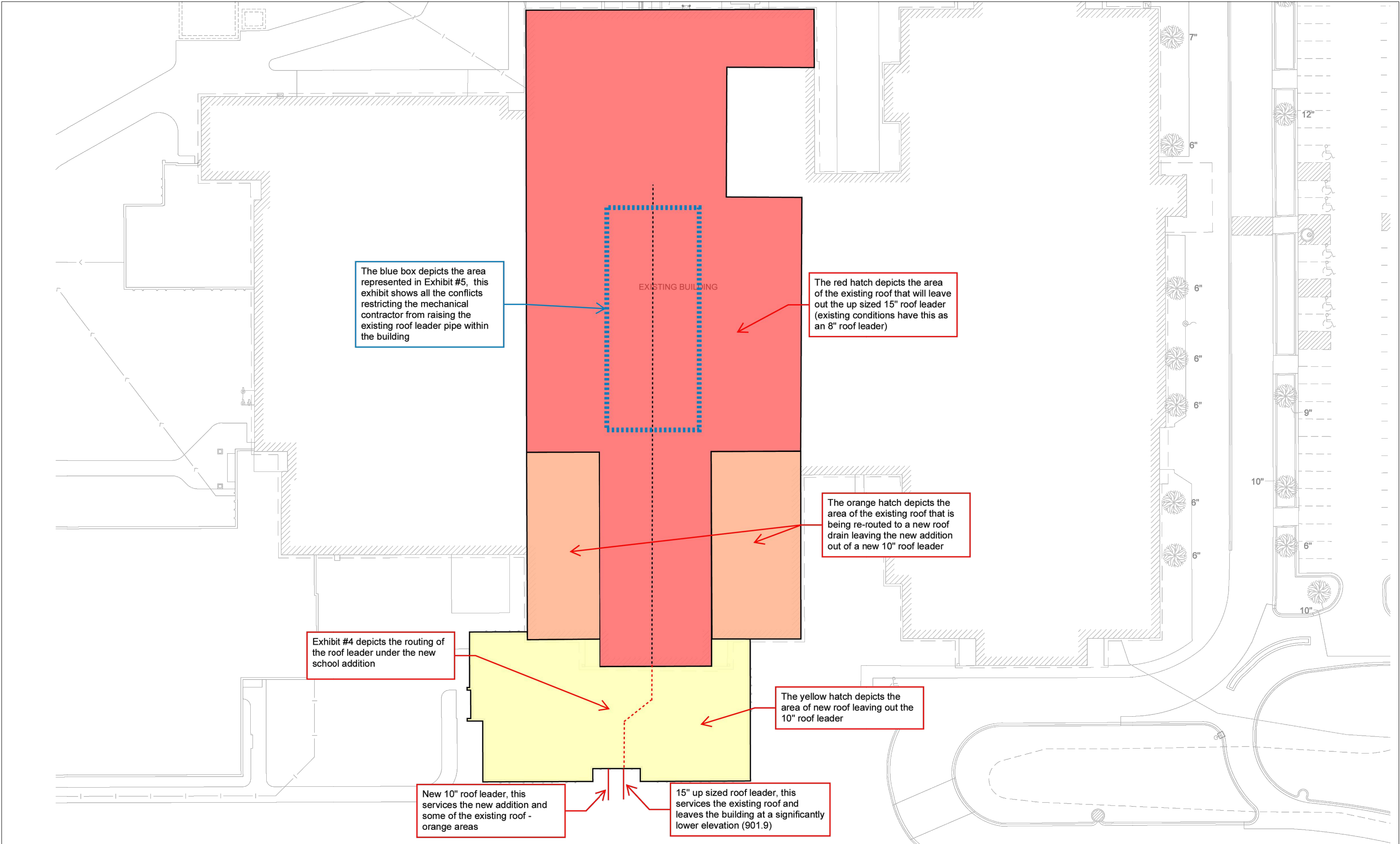
443 Lafayette Road N., St. Paul, MN 55155

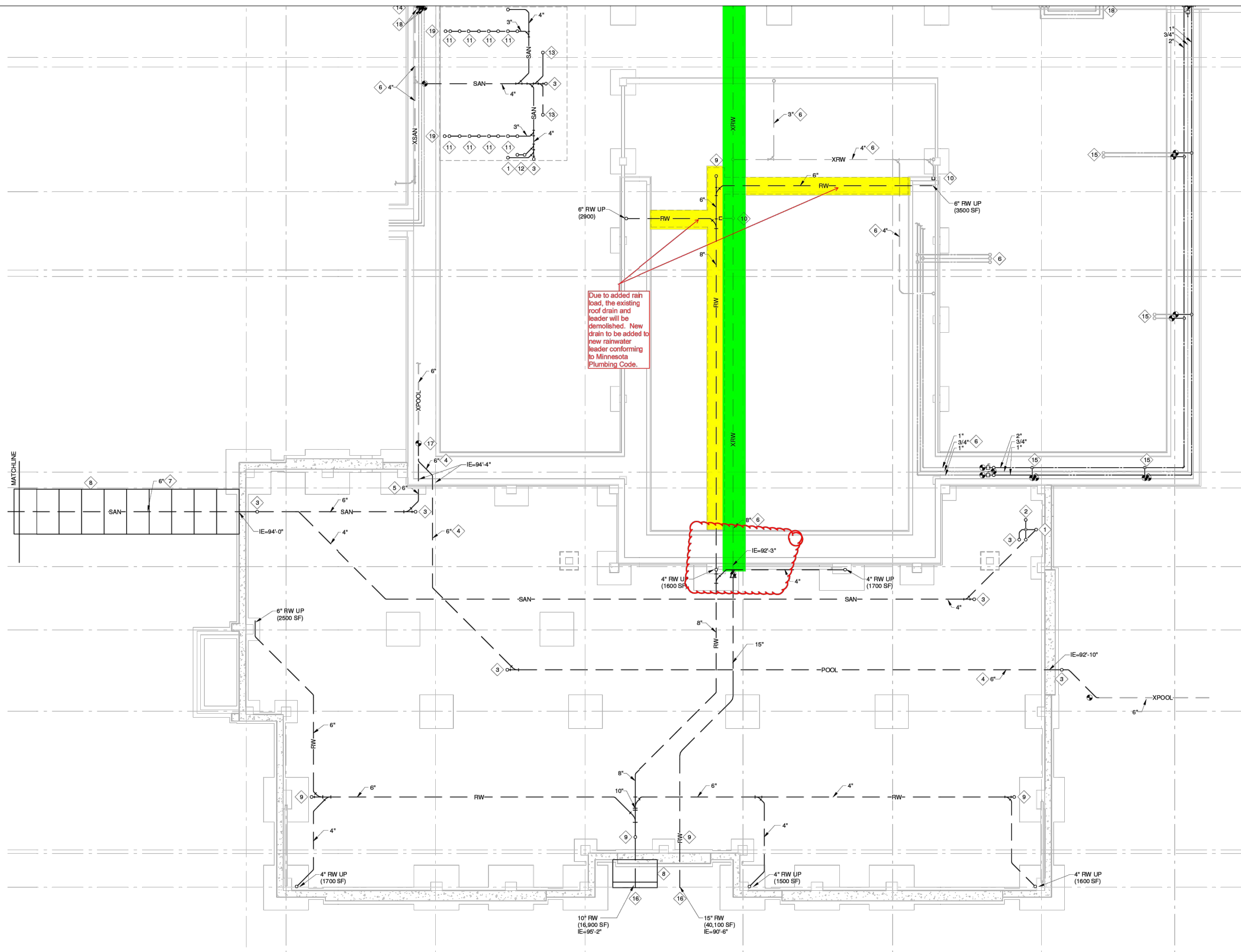
Phone: 651-284-5898 | Web: www.dli.mn.gov











SYMBOL LEGEND

- STORM MANHOLE

○

CATCH BASIN

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CURB INLET

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FLARED END

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SANITARY MANHOLE
- ⛶

HYDRANT

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GATE VALVE & BOX

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WATER SHUTOFF

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WET
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FIBER OPTIC UNDERGROUND LINE

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NATURAL GAS UNDERGROUND LINE

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SANITARY SEWER PIPE

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STORM SEWER PIPE

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WETLAND
- TELEPHONE UNDERGROUND LINE

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WATERMAIN PIPE

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DRAINTILE PIPE

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PROPERTY LINE

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EASEMENT LINE

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RIGHT-OF-WAY LINE

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SETBACK LINE

CITY OF LAKE ELMO'S STANDARD PLAN
NOTES FOR SANITARY SEWER PLANS

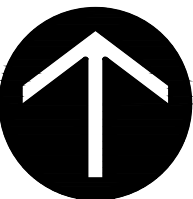
- ALL SANITARY SEWER AND ACCESSORIES MUST BE CONSTRUCTED IN ACCORDANCE WITH THE CITY OF LAKE ELMO STANDARD SPECIFICATIONS AND DETAILS.
- ALL SANITARY SEWER PVC PIPE SHALL BE INSTALLED IN ACCORDING TO CITY OF STANDARD DRAWING 103 "GRANULAR MATERIAL BEDDING METHOD" (FOR PVC SANITARY SEWER PIPE).
- UNLESS NOTED OTHERWISE, ALL SMOOTH WALLED SANITARY SEWER PVC PIPE AND FITTINGS SHALL BE SDR 35 WITH ELASTOMETRIC GASKETED JOINTS.
- ALL SANITARY SEWER SERVICES SHALL BE 4-INCH PVC, SCH. 40, UNLESS NOTED OTHERWISE.
- SMOOTH WALLED PVC PIPE AND FITTINGS SHALL CONFORM WITH THE REQUIREMENTS OF ASTM D-3034 FOR THE SIZE, STANDARD DIMENSION RATION (SDR), AND STRENGTH REQUIREMENTS INDICATED ON THE PLANS, SPECIFICATIONS, AND SPECIAL PROVISIONS.
- REINFORCED CONCRETE PIPE AND FITTINGS SHALL CONFORM WITH THE REQUIREMENTS OF M-dot SPEC 3236 (REINFORCED CONCRETE PIPE) FOR THE TYPE, SIZE, AND STRENGTH CLASS SPECIFIED HEREIN.
- JOINTS OF MANHOLE RISER SECTIONS SHALL BE TONGUE AND GROOVE WITH RUBBER "O" RING JOINTS PROVIDED ON ALL SANITARY SEWER MANHOLES.
- SANITARY SEWER INLET AND OUTLET PIPES SHALL BE JOINED TO THE MANHOLE WITH A GASKETED, FLEXIBLE, WATERTIGHT CONNECTION TO ALL DIFFERENTIAL SETTLEMENT OF THE PIPE AND MANHOLE.
- A 1'-0" TO 1'-4" MANHOLE SECTION SHALL BE INSTALLED UNDER THE CONE SECTION TO ALLOW FOR HEIGHT ADJUSTMENT WHENEVER POSSIBLE.
- ALL SERVICE LINE STUBS MUST HAVE 2" x 2" HARDWOOD MARKER WITH METAL SPIKE RUNNING FROM THE END OF PIPE TO FINISHED GRADE ELEVATION.
- UPON MARKING A CONNECTION TO AN EXISTING SANITARY SEWER STUB OR MANHOLE, DIRT AND DEBRIS SHALL BE PREVENTED FROM ENTERING THE EXISTING SEWER BY IMMEDIATELY INSTALLING WATERTIGHT PLUGS AS NEEDED IN THE EXISTING MANHOLE.
- ALL MAINLINE SANITARY SEWER AND SERVICES SHALL HAVE TRACER WIRE PER CITY SPECIFICATIONS AND DETAILS.

CITY OF LAKE ELMO'S STANDARD PLAN
NOTES FOR STORM SEWER PLANS

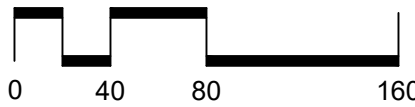
- ALL STORM SEWER AND ACCESSORIES MUST BE CONSTRUCTED IN ACCORDANCE WITH THE CITY OF LAKE ELMO STANDARD SPECIFICATIONS AND DETAILS.
- REINFORCED CONCRETE PIPE AND FITTINGS SHALL CONFORM WITH THE REQUIREMENTS OF M-dot SPEC 3236 (REINFORCED CONCRETE PIPE) FOR THE TYPE, SIZE, AND STRENGTH CLASS SPECIFIED HEREIN.
- PRECAST CONCRETE MANHOLE AND CATCH BASIN SECTIONS SHALL CONFORM TO THE REQUIREMENTS OF ASTM C-477.
- A 1'-0" TO 1'-4" MANHOLE SECTION SHALL BE INSTALLED UNDER THE CONE SECTION TO ALLOW FOR HEIGHT ADJUSTMENT WHENEVER POSSIBLE.
- JOINTS OF MANHOLE RISER SECTIONS SHALL BE TONGUE AND GROOVE WITH RUBBER "O" RING JOINTS PROVIDED ON ALL STORM SEWER MANHOLES.
- RIP--RAP SHALL BE HAND - PLACED OVER GEOTEXTILE FABRIC AND CONFORM TO M-dot SPEC. 3601, CLASS III, OR AS SPECIFIED HEREIN.
- THE GEOTEXTILE FABRIC USED UNDER RIP--RAP SHALL EXTEND 3-FT UNDER THE APRON.
- FURNISH & INSTALL TRASH GUARDS ON ALL FLARED END SECTIONS.
- ALL SILT SHALL BE CLEANED OUT FROM THE RIP - RAP AT THE END OF THE PROJECT.
- STORM SEWER STRUCTURES WITHIN 10 FT OF WATERMAIN ARE TO HAVE WATER TIGHT CONNECTIONS PER MDH REQUIREMENTS.
- ALL NEW STORM SEWER PIPE SHALL BE FLUSHED AND TELEVISED PRIOR TO SUBSTANTIAL COMPLETION -SEE SPECIFICATION SECTION 700 - CLOSEOUT REQUIREMENTS

CITY OF LAKE ELMO'S STANDARD PLAN
NOTES FOR WATERMAIN PLANS

- ALL WATERMAIN AND ACCESSORIES MUST BE CONSTRUCTED IN ACCORDANCE WITH THE CITY OF LAKE ELMO STANDARD SPECIFICATIONS AND DETAILS.
- MANIPULATION OF EXISTING VALVES SHALL BE PERFORMED ONLY BY CITY PERSONNEL.
- WATERMAIN SHALL BE DUCTILE IRON PIPE, ENCASED IN POLYETHYLENE, CLASS--52.
- ALL FITTINGS SHALL COMPLY WITH CEAM SPEC. 2611.2.A1. ALL FITTINGS SHALL BE DUCTILE IRON PIPE WITH POLYETHYLENE ENCASEMENT. ALL CONNECTIONS SHALL BE INSTALLED UTILIZING COR--BLUE NUTS & BOLTS.
- USE GATE VALVES FOR ALL APPLICATIONS UP THROUGH 12 INCHES.
- GATE VALVES SHALL BE RESILIENT WEDGE AMERICAN FLOW CONTROL SERIES 2500 OR APPROVED EQUAL. GATE VALVES MUST COMPLY WITH CEAM SPEC 2611.2.C.2.
- USE BUTTERFLY VALVES FOR ALL APPLICATIONS GREATER THAN 12 INCHES.
- BUTTERFLY VALVES SHALL BE MUELLER LINESEAL III, OR APPROVED EQUAL. BUTTERFLY VALVES SHALL COMPLY WITH CEAM SPEC. 26 11.2.CA.
- BOLTS AND NUTS ON ALL VALVES AND HYDRANTS SHALL BE STAIN LESS STEEL.
- ALL HYDRANTS SHALL BE INSTALLED 5.0 FEET BACK OF CURB.
- HYDRANTS SHALL BE WATEROUS "PACER," MODEL WB-67 OR APPROVED EQUAL, FITTED WITH FH 800 SERIES FLEX STAKE AND PAINTED RED.
- HYDRANTS SHALL HAVE TWO OUTLET NOZZLES FOR 2- $\frac{1}{2}$ " (1. D.) HOSE CONNECTIONS AND ONE 4" STORZ NOZZLE (MODEL WB-67) AND PENTAGON NUT END CAP.
- THE CURB STOP SERVICE ASSEMBLY SHALL HAVE A MINIMUM 1 - FT ADJUSTMENT RANGE AND SHALL EXTEND 6 INCHES ABOVE FINISHED GRADE FULLY EXTENDED.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING WATER TO HOMES AND BUSINESSES WHOSE WATER SUPPLY IS DISRUPTED DURING THE COURSE OF THE PROJECT.



NORTH



OAK-LAND MIDDLE
SCHOOL 2025-26
ADDITION AND
RENOVATION

820 Manning Ave N,
Lake Elmo, MN 55042

Independent School
District #834

1875 Greeley Street South
Stillwater, MN 55082

Wold

WOLD ARCHITECTS
AND ENGINEERS

332 Minnesota Street, Suite W2000
St. Paul, Minnesota 55101
woldae.com | 651 227 7773



Larson
Engineering, Inc.

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White Bear Lake, MN 55110
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I hereby certify that this plan, specifications 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.

Greg A. Buchal, P.E.

Date: 11.12.24

Reg. No.: 23793

Revisions		
Description	Date	Num
ADDENDUM #2	NOVEMBER 26, 2024	1

Comm: 12246044

Date: 11-12-2024

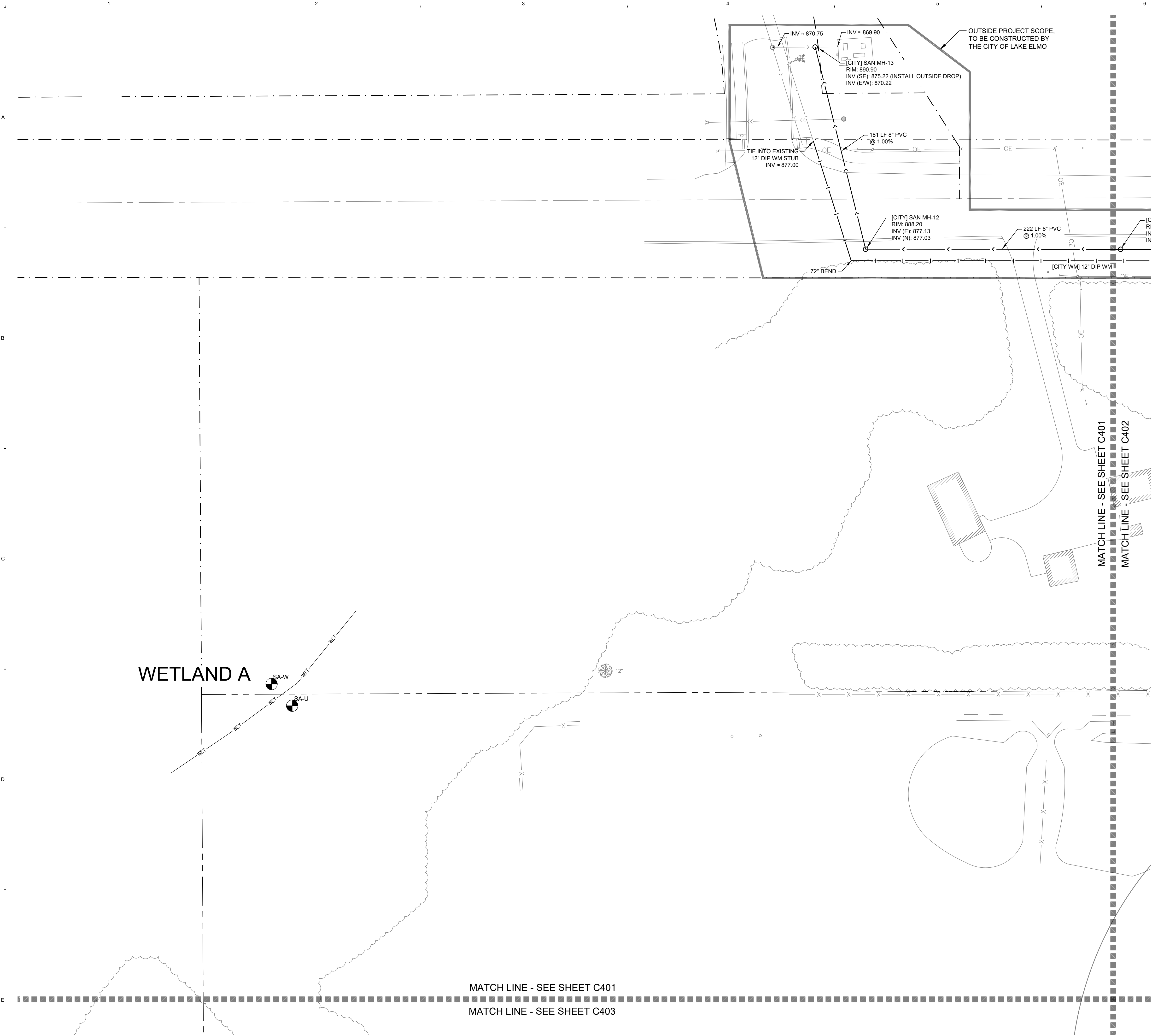
Drawn: MTH

Check: NJN

UTILITY PLAN -
OVERALL

C400

MN



SYMBOL LEGEND

- STORM MANHOLE

○

CATCH BASIN

□

CURB INLET

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FLARED END

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SANITARY MANHOLE
- HYDRANT

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GATE VALVE & BOX

⊗

WATER SHUTOFF

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POWER POLE

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LIGHT POLE
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- CABLE UNDERGROUND LINE

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ELECTRIC OVERHEAD LINE

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ELECTRIC UNDERGROUND LINE

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FIBER OPTIC UNDERGROUND LINE

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NATURAL GAS UNDERGROUND LINE

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SANITARY SEWER PIPE

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STORM SEWER PIPE

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TELEPHONE UNDERGROUND LINE

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WATERMAIN PIPE

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DRAINTILE PIPE

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PROPERTY LINE

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EASEMENT LINE

—

RIGHT-OF-WAY LINE

KEY NOTES

- 1

2' X 3' CATCH BASIN , SEE DETAIL 7/C701
_A: CASTING & FRAME: NEENAH R-3067-C, TYLE L GRATE
_B: CASTING & FRAME: NEENAH R-4342
- 2

CATCH BASIN MANHOLE, SEE DETAIL 5/C701
_A: CASTING & FRAME: NEENAH R-4342
- 3

STORM MANHOLE, CASTING & FRAME: NEENAH R-1642, TYLE B LID, SEE DETAIL 5/C701
- 4

INLINE DRAIN, SEE DETAIL 8/C701
- 5

WATERMAIN VERTICAL OFFSET, SEE DETAIL 7/C702
- 6

INSTALL SALVAGED RAIN GUARDIAN TURRET, SEE DETAIL 8/C703
- 7

FLARED END SECTION, SEE DETAIL 4/C701
_A: TYPE 1 - HDPE
_B: TYPE 2 - RCP
- 8

SANITARY MANHOLE, SEE DETAIL 1/C702
- 9

STRUCTURE ADJUSTMENT, SEE DETAIL 2/C705
- 10

HYDRANT WITH GATE VALVE, SEE DETAIL 3/C702
- 11

GATE VALVE AND BOX, SEE DETAIL 4/C702
- 12

TRUST BLOCKING, SEE DETAIL 6/C702

CITY OF LAKE ELMO NOTES

1.

See sheet C400 for City of Lake Elmo Standard Plan Notes for Sanitary Sewer Plans, Storm Sewer Plans, and Watermain Plans.

BENCHMARK

ELEVATIONS ARE BASED MN/DOT GEODETIC DATABASE STATION# 33601 (KRAFTHEFER MN 163) WHICH IS LOCATED 3 MILES SOUTH OF LAKE ELMO AND NEAR THE INTERSECTION OF INTERSTATE 94 AND COUNTY ROAD 15. ELEVATION=912.41 (NGVD 29)

OAK-LAND MIDDLE SCHOOL 2025-26 ADDITION AND RENOVATION

820 Manning Ave N,
Lake Elmo, MN 55042

Independent School District #834

1875 Greeley Street South
Stillwater, MN 55082

Wold

WOLD ARCHITECTS AND ENGINEERS

332 Minnesota Street, Suite W2000
St. Paul, Minnesota 55101
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White Bear Lake, MN 55110
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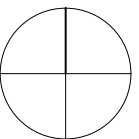
I hereby certify that this plan, specifications or report was prepared by me or under my direct supervision and that I am a duly licensed Professional Engineer under the laws of the state of Minnesota.

Greg A. Buchal
Greg A. Buchal, P.E.

Date: 11.12.24 Reg. No.: 23793

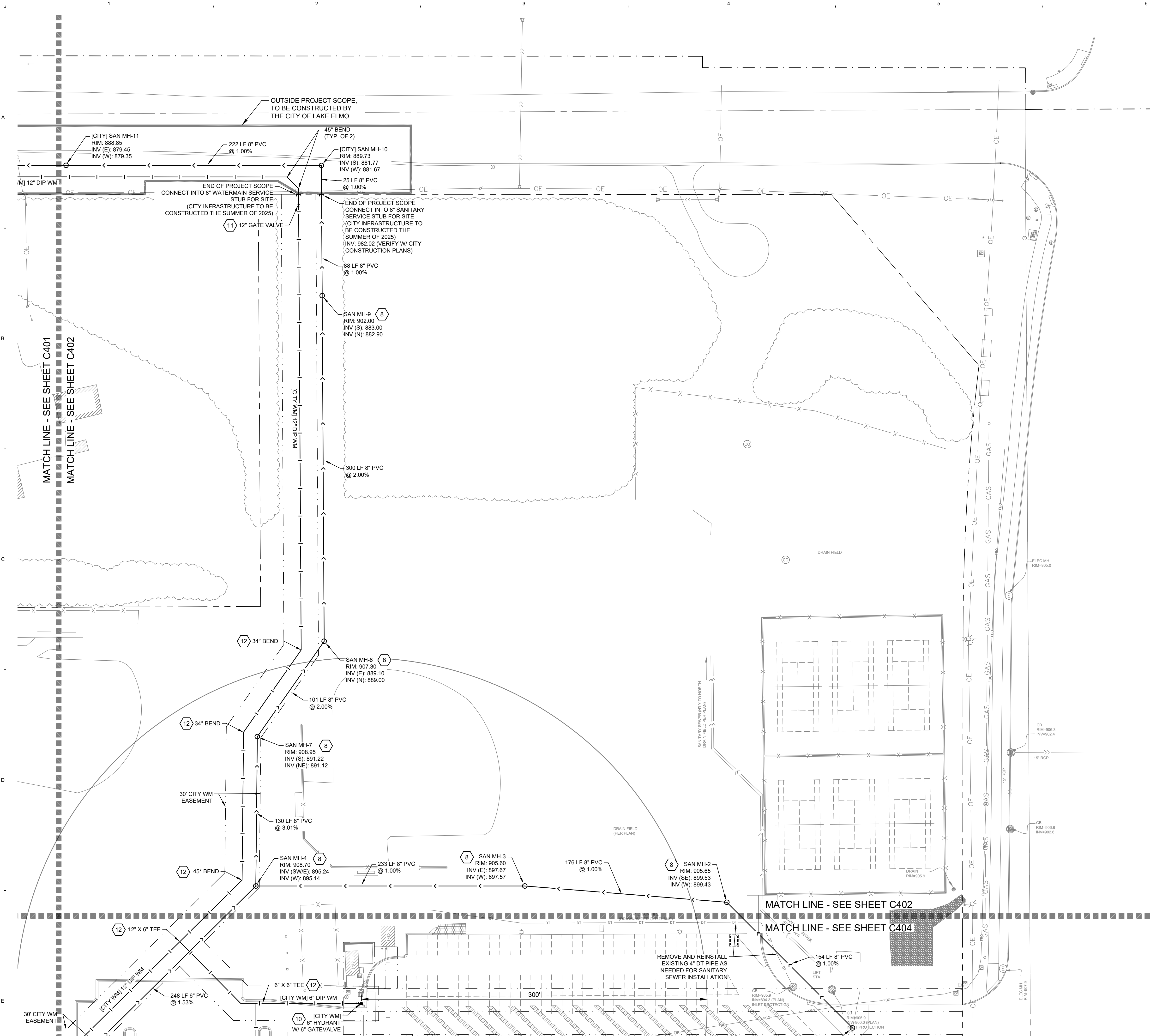
Revisions			Δ
Description	Date	Num	
ADDENDUM #2	NOVEMBER 26, 2024	1	

Comm: 12246044
Date: 11-12-2024
Drawn: MTH
Check: NJN



UTILITY PLAN - NORTHWEST

C401



SYMBOL LEGEND

- STORM MANHOLE
- CATCH BASIN
- CURB INLET
- FLARED END
- SANITARY MANHOLE
- HYDRANT
- GATE VALVE & BOX
- WATER SHUTOFF
- POWER POLE
- LIGHT POLE
- CTV
- OE
- UE
- F0
- GAS
- GAS
- GAS
- STORM SEWER PIPE
- TELEPHONE UNDERGROUND LINE
- WATERMAIN PIPE
- DRAINTILE PIPE
- PROPERTY LINE
- EASEMENT LINE
- RIGHT-OF-WAY LINE
- CABLE UNDERGROUND LINE
- ELECTRIC OVERHEAD LINE
- ELECTRIC UNDERGROUND LINE
- FIBER OPTIC UNDERGROUND LINE
- NATURAL GAS UNDERGROUND LINE
- SANITARY SEWER PIPE
- STORM SEWER PIPE
- TELEPHONE UNDERGROUND LINE
- WATERMAIN PIPE
- DRAINTILE PIPE
- PROPERTY LINE
- EASEMENT LINE
- RIGHT-OF-WAY LINE

KEY NOTES

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A: CASTING & FRAME: NEENAH R-3067-C, TYLE L GRATE
B: CASTING & FRAME: NEENAH R-4342
- CATCH BASIN MANHOLE, SEE DETAIL 5/C701
A: CASTING & FRAME: NEENAH R-4342
- STORM MANHOLE, CASTING & FRAME: NEENAH R-1642, TYLE B LID, SEE DETAIL 5/C701
- INLINE DRAIN, SEE DETAIL 8/C701
- WATERMAIN VERTICAL OFFSET, SEE DETAIL 7/C702
- INSTALL SALVAGED RAIN GUARDIAN TURRET, SEE DETAIL 8/C703
- FLARED END SECTION, SEE DETAIL 4/C701
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B: TYPE 2 - RCP
- SANITARY MANHOLE, SEE DETAIL 1/C702
- STRUCTURE ADJUSTMENT, SEE DETAIL 2/C705
- HYDRANT WITH GATE VALVE, SEE DETAIL 3/C702
- GATE VALVE AND BOX, SEE DETAIL 4/C702
- TRUST BLOCKING, SEE DETAIL 6/C702

CITY OF LAKE ELMO NOTES

- See sheet C400 for City of Lake Elmo Standard Plan Notes for Sanitary Sewer Plans, Storm Sewer Plans, and Watermain Plans.

BENCHMARK

ELEVATIONS ARE BASED MN/DOT GEODETIC DATABASE STATION# 33601 (KRAFTHEFER MN 163) WHICH IS LOCATED 3 MILES SOUTH OF LAKE ELMO AND NEAR THE INTERSECTION OF INTERSTATE 94 AND COUNTY ROAD 15. ELEVATION=912.41 (NGVD 29)

OAK-LAND MIDDLE SCHOOL 2025-26 ADDITION AND RENOVATION

820 Manning Ave N,
Lake Elmo, MN 55042

Independent School District #834

1875 Greeley Street South
Stillwater, MN 55082

Wold

WOLD ARCHITECTS AND ENGINEERS

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I hereby certify that this plan, specifications 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.

Greg A. Buchal
Greg A. Buchal, P.E.
Date: 11.12.24 Reg. No.: 23793

Revisions		
Description	Date	Num
ADDENDUM #2	NOVEMBER 26, 2024	1

Comm: 12246044
Date: 11.12.2024
Drawn: MTH
Check: NJN

UTILITY PLAN - NORTHEAST

C402

MN

MATCH LINE - SEE SHEET C401

MATCH LINE - SEE SHEET C403

SYMBOL LEGEND

- STORM MANHOLE

○

CATCH BASIN

□

CURB INLET

▲

FLARED END

○

SANITARY MANHOLE

— CTV —

CABLE UNDERGROUND LINE

— OE —

ELECTRIC OVERHEAD LINE

— UE —

ELECTRIC UNDERGROUND LINE

— F0 —

FIBER OPTIC UNDERGROUND LINE

— GAS —

NATURAL GAS UNDERGROUND LINE

—>>>—

SANITARY SEWER PIPE

—>>>—

STORM SEWER PIPE

— T —

TELEPHONE UNDERGROUND LINE

— W —

WATERMAIN PIPE

— D —

DRAINTILE PIPE

— P —

PROPERTY LINE

— E —

EASEMENT LINE

— R —

RIGHT-OF-WAY LINE
- ⊗

HYDRANT

⊗

GATE VALVE & BOX

⊗

WATER SHUTOFF

○

POWER POLE

○

LIGHT POLE

KEY NOTES

1

2' X 3' CATCH BASIN, SEE DETAIL 7/C701
_A: CASTING & FRAME: NEENAH R-3067-C, TYLE L GRATE
_B: CASTING & FRAME: NEENAH R-4342

2

CATCH BASIN MANHOLE, SEE DETAIL 5/C701
_A: CASTING & FRAME: NEENAH R-4342

3

STORM MANHOLE, CASTING & FRAME: NEENAH R-1642, TYLE B LID, SEE DETAIL 5/C701

4

INLINE DRAIN, SEE DETAIL 8/C701

5

WATERMAIN VERTICAL OFFSET, SEE DETAIL 7/C702

6

INSTALL SALVAGED RAIN GUARDIAN TURRET, SEE DETAIL 8/C703

7

FLARED END SECTION, SEE DETAIL 4/C701
_A: TYPE 1 - HDPE
_B: TYPE 2 - RCP

8

SANITARY MANHOLE, SEE DETAIL 1/C702

9

STRUCTURE ADJUSTMENT, SEE DETAIL 2/C705

10

HYDRANT WITH GATE VALVE, SEE DETAIL 3/C702

11

GATE VALVE AND BOX, SEE DETAIL 4/C702

12

TRUST BLOCKING, SEE DETAIL 6/C702

CITY OF LAKE ELMO NOTES

1

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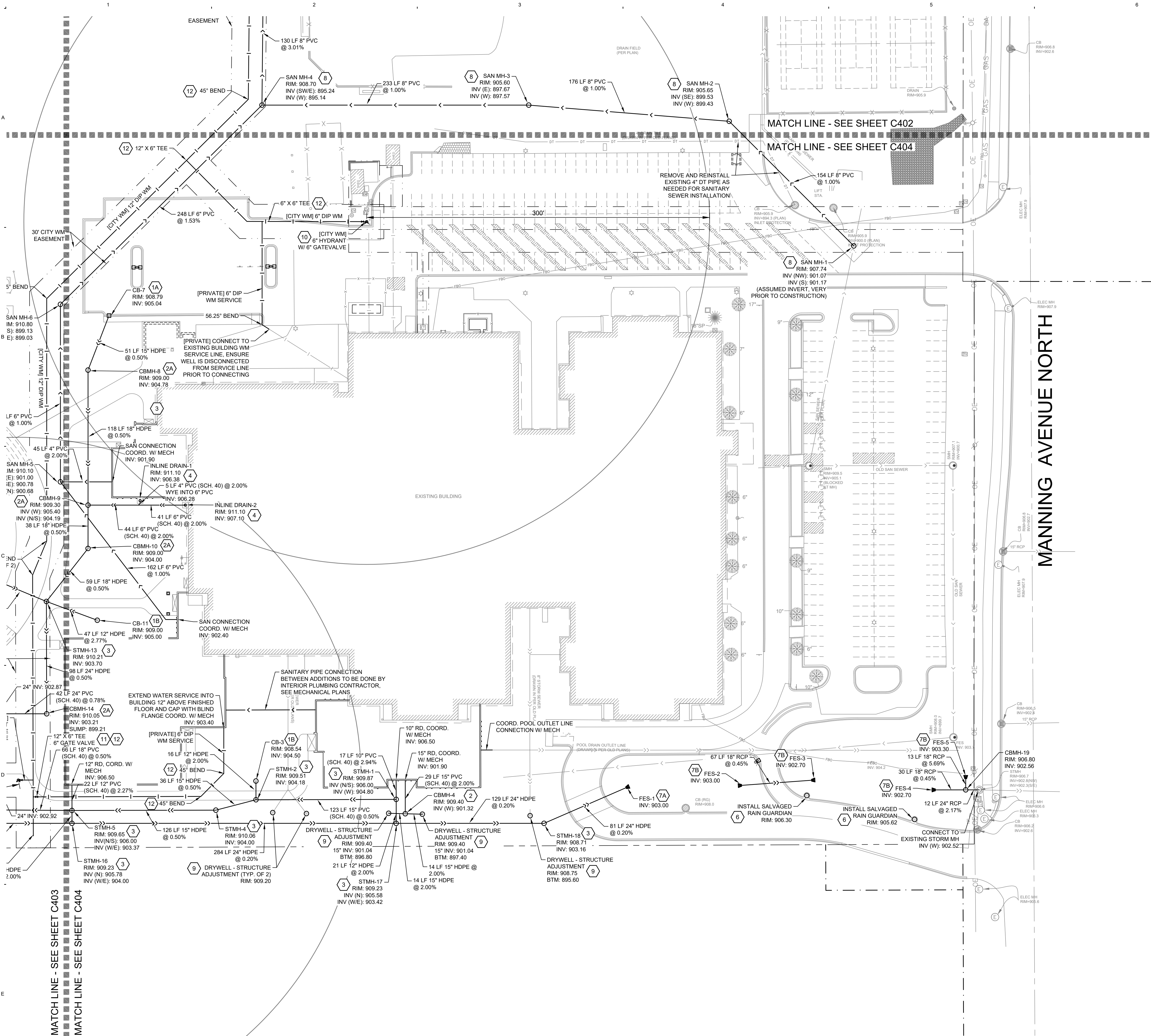
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UTILITY PLAN - SOUTHWEST

C403

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MN



SYMBOL LEGEND

- STORM MANHOLE
- CATCH BASIN
- CURB INLET
- FLARED END
- SANITARY MANHOLE
- HYDRANT
- GATE VALVE & BOX
- WATER SHUTOFF
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I hereby certify that this plan, specifications 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.

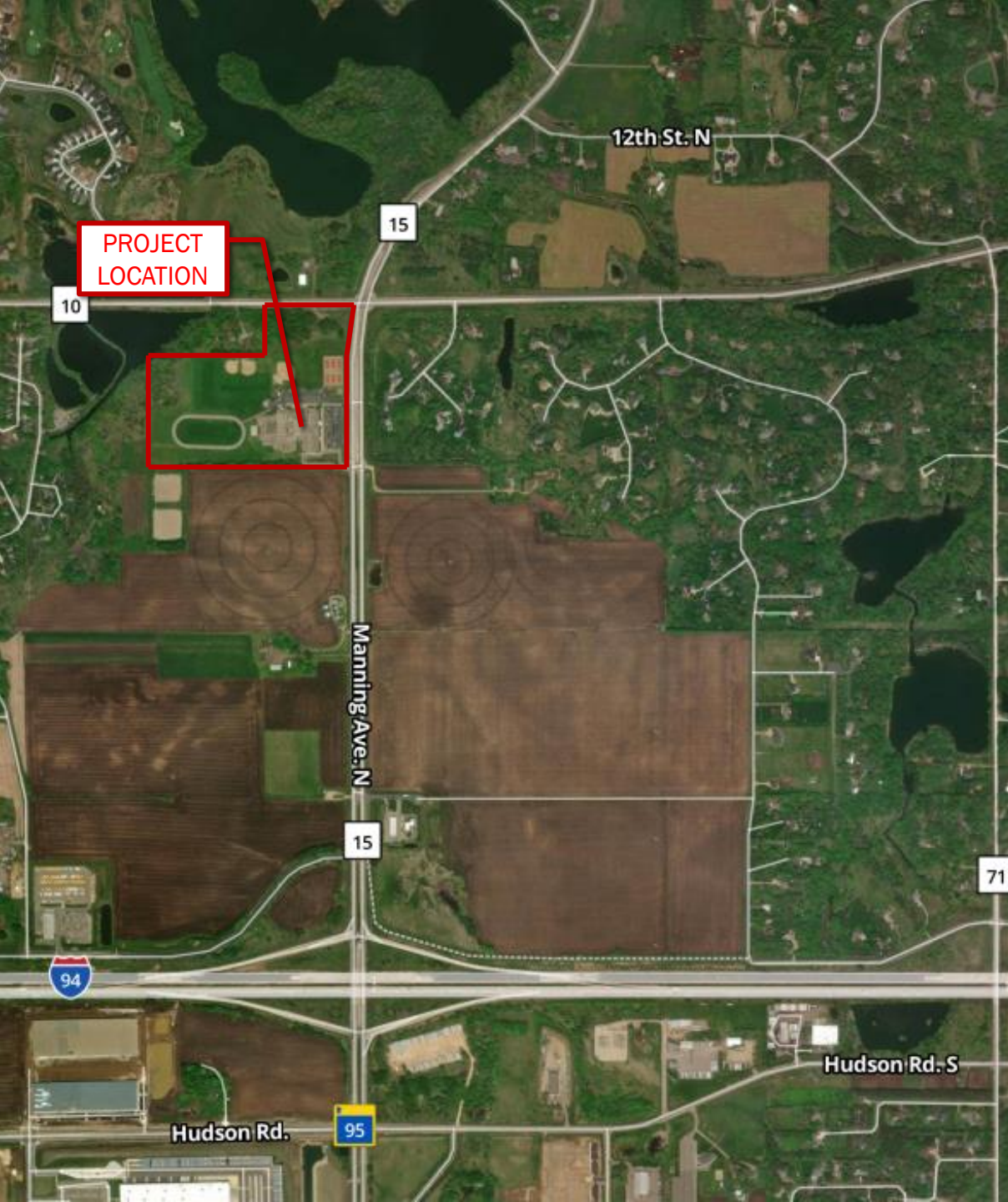
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UTILITY PLAN - SOUTHEAST

C404

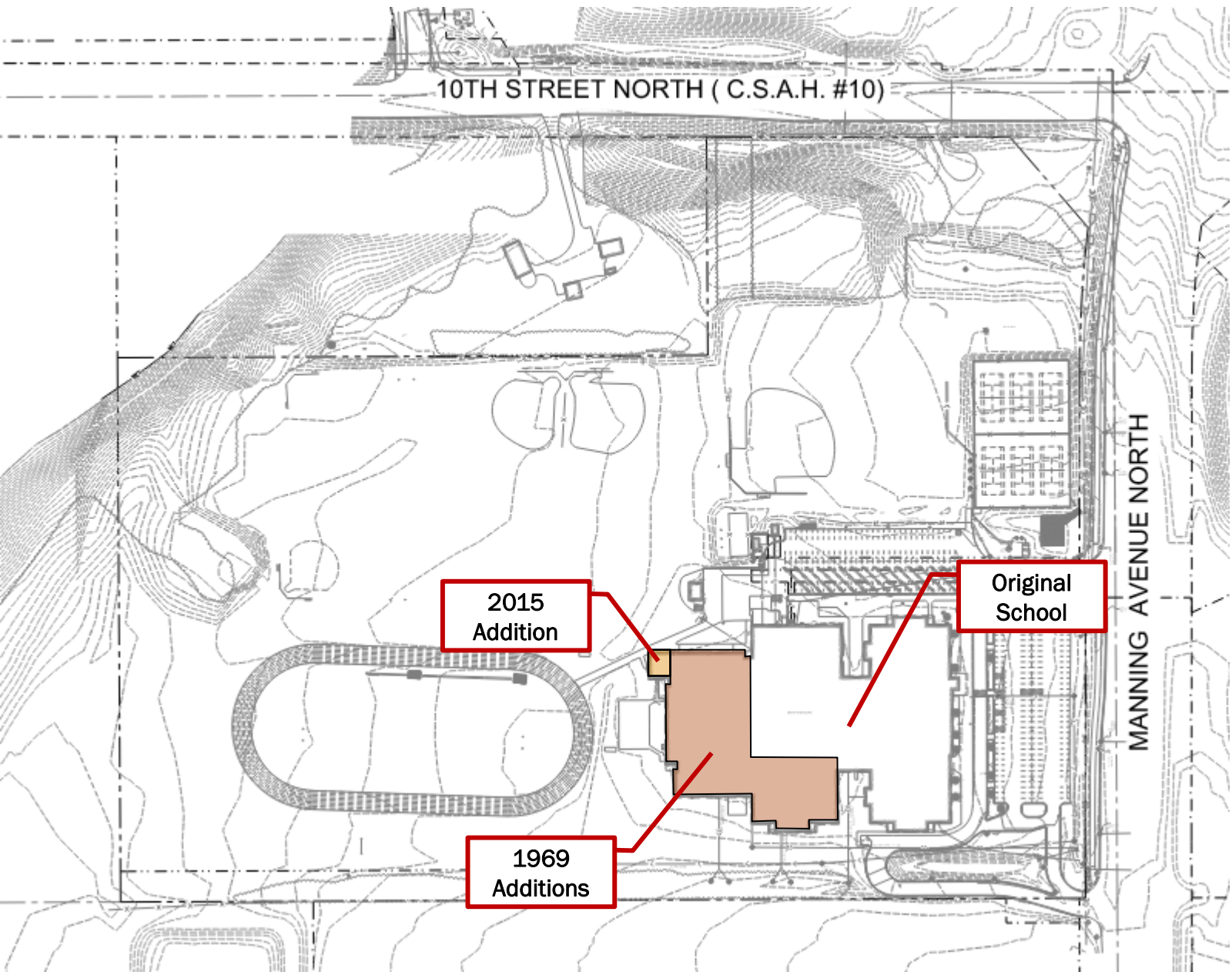


Oak-Land Middle School 2025-26 Addition and Renovation

INDEPENDENT SCHOOL DISTRICT #834

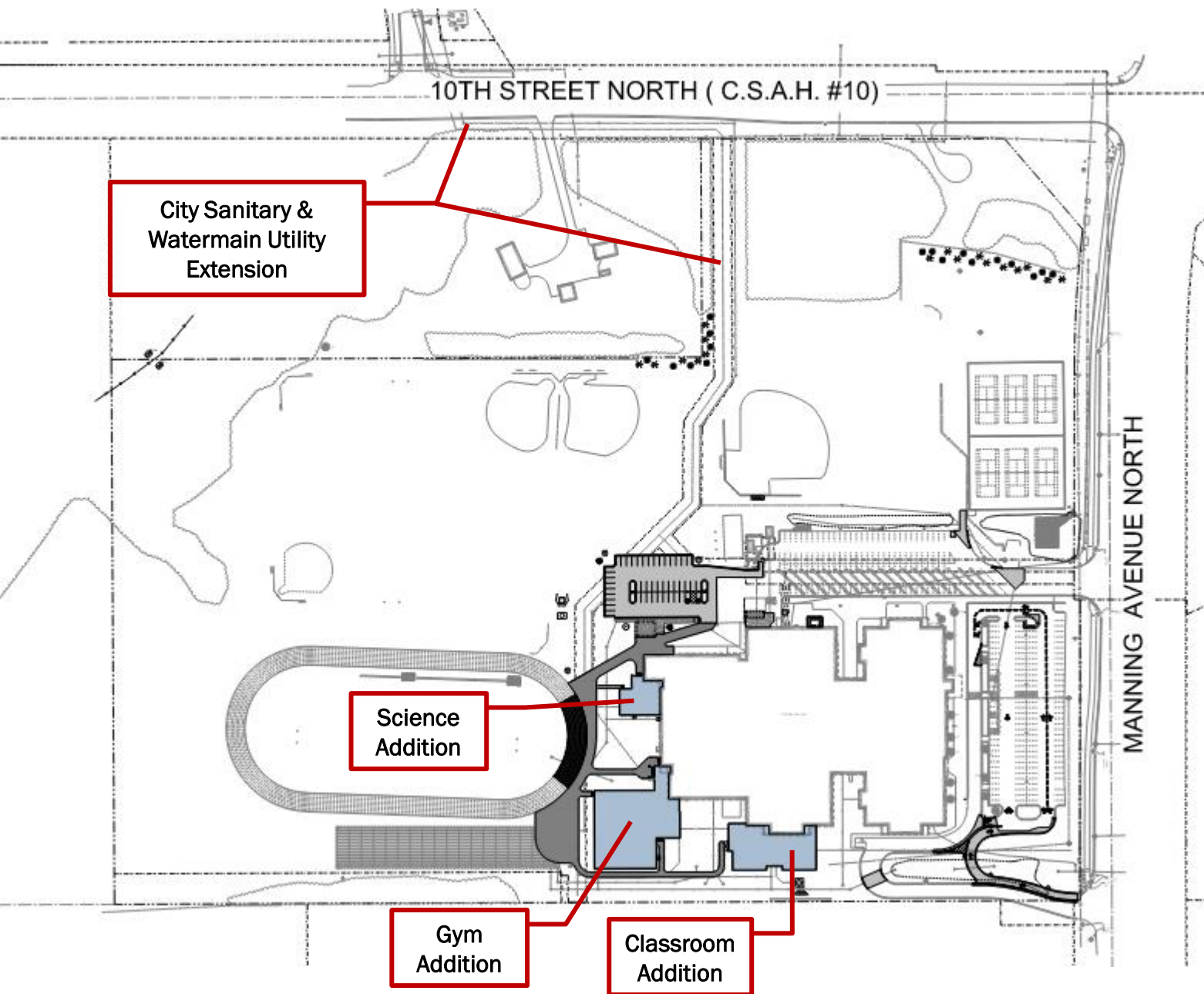
820 MANNING AVENUE NORTH

LAKE ELMO, MN 55042



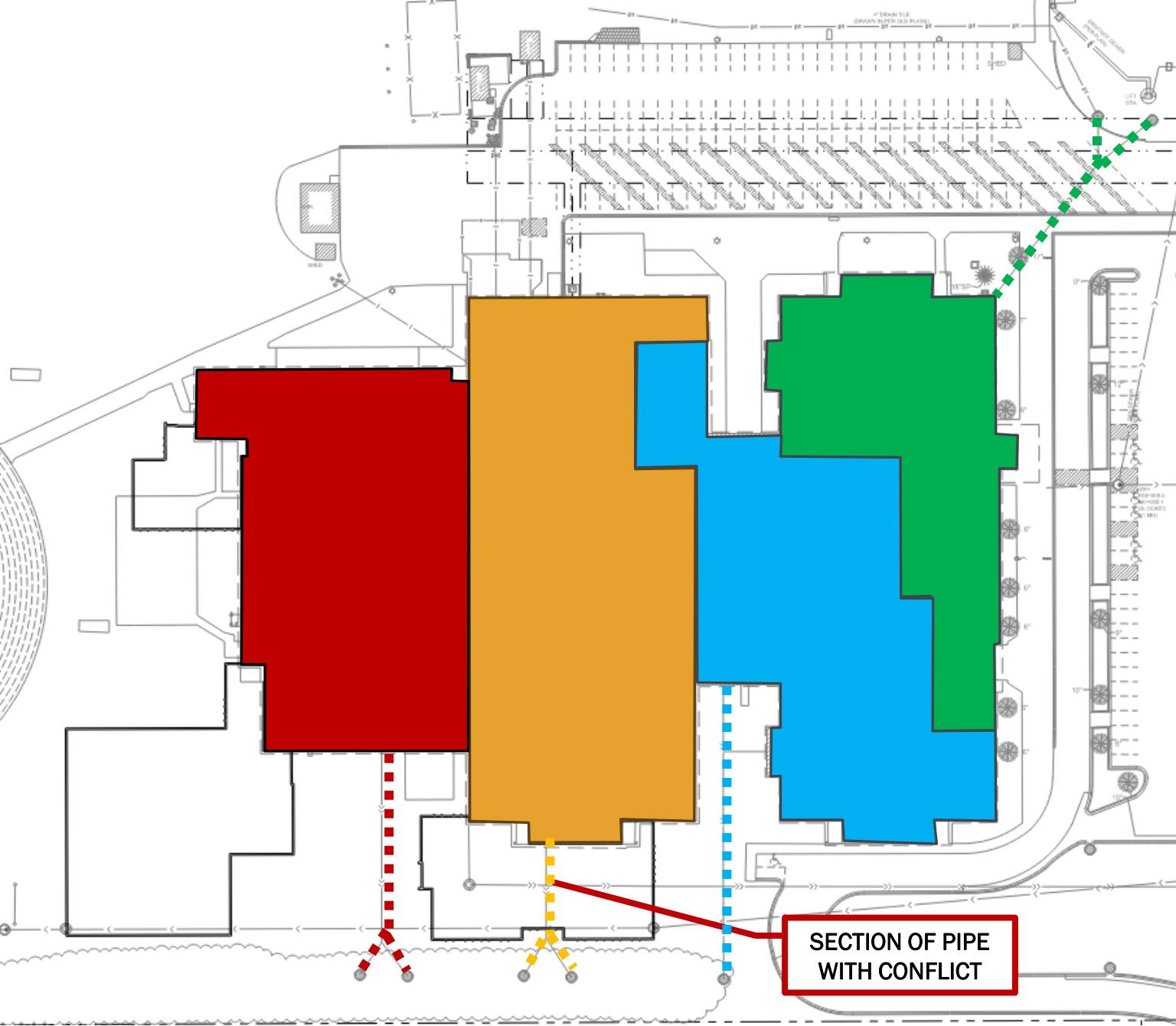
SITE HISTORY

- 1966 THE ORIGINAL BUILDING WAS CONSTRUCTED
- 1969 THE WEST AND SOUTH ADDITIONS WERE CONSTRUCTED
- 2015 NORTHWESTERN CLASSROOM ADDITION



2025-26 PROPOSED ADDITION AND RENOVATION IMPROVEMNETS

- ADDITIONAL CLASSROOM WING
- SCIENCE WING
- NEW GYMNASIUM/FIELD HOUSE
- RENOVATION OF THE OLD GYMNASIUM INTO A MEDIA CENTER
- BRINGING CITY UTILITIES TO THE SITE (SANITARY & WATER)
- PROVIDING FIRE ACCESS LOOP AROUND THE SITE TO PROVIDE BETTER COVERAGE
- RE-WORKING ON-SITE QUEUING AND TRAFFIC FLOW TO REDUCE CONGESTION ON MANNING AVENUE NORTH
- PROVIDING UNDERGROUND INFILTRATION SYSTEM TO TREAT NEW ADDITIONS & PARKING LOT ALONG WITH SOME OF THE EXISTING SITE.

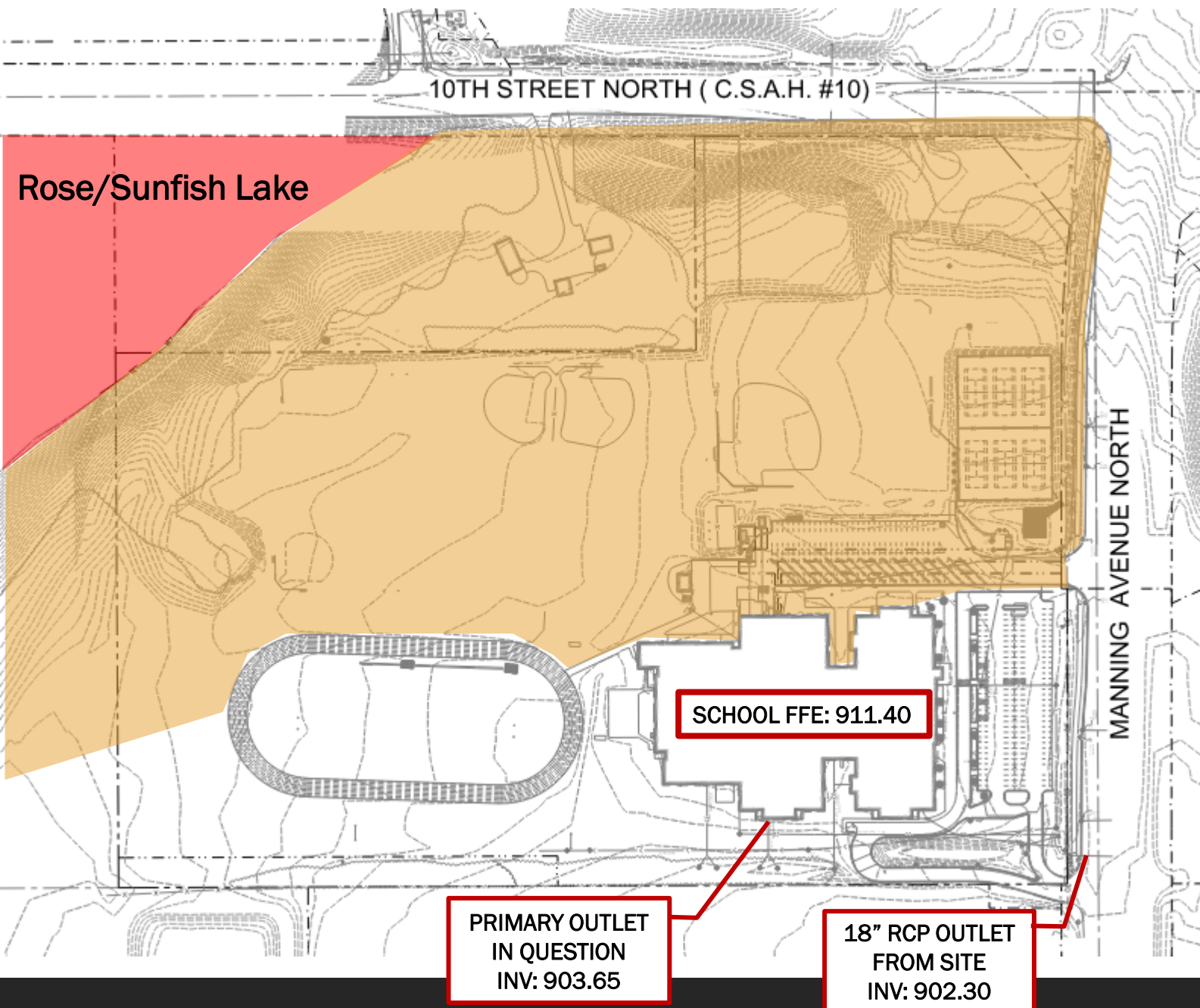


EXISTING ROOF DRAINAGE AND SCHOOL ADDITION CONTRUCTION IMPLICATIONS

- ALL EXISTING ROOF LEADERS DRAIN TO A SERIES OF DRYWELLS THROUGHOUT THE SITE
- THE ADDITION ON THE SOUTH OF THE BUILDING IS BEING PLACED OVER SOME OF THE EXTERIOR PIPING.
- THE ROOF DRAIN IN QUESTION IS A 8 INCH DIAMETER VITRIFIED CLAY PIPE MATERIAL. THIS IS NOT A BUILDING CODE APPROVE MATERIAL.
- THIS 8 INCH ROOF LEADER CURRENTLY SERVICES ABOUT 44,000 SF OF ROOF WHICH IS DEPICTED IN ORANGE
- CURRENTLY BUILDING CODE STANDARDS WOULD REQUIRE THIS PIPE TO BE A PVC PIPE WITH A DIAMETER OF 15 INCHES AND FOR THE PROPECT TO BRING UP TO CODE ALL DOWNSTREAM FACILITIES

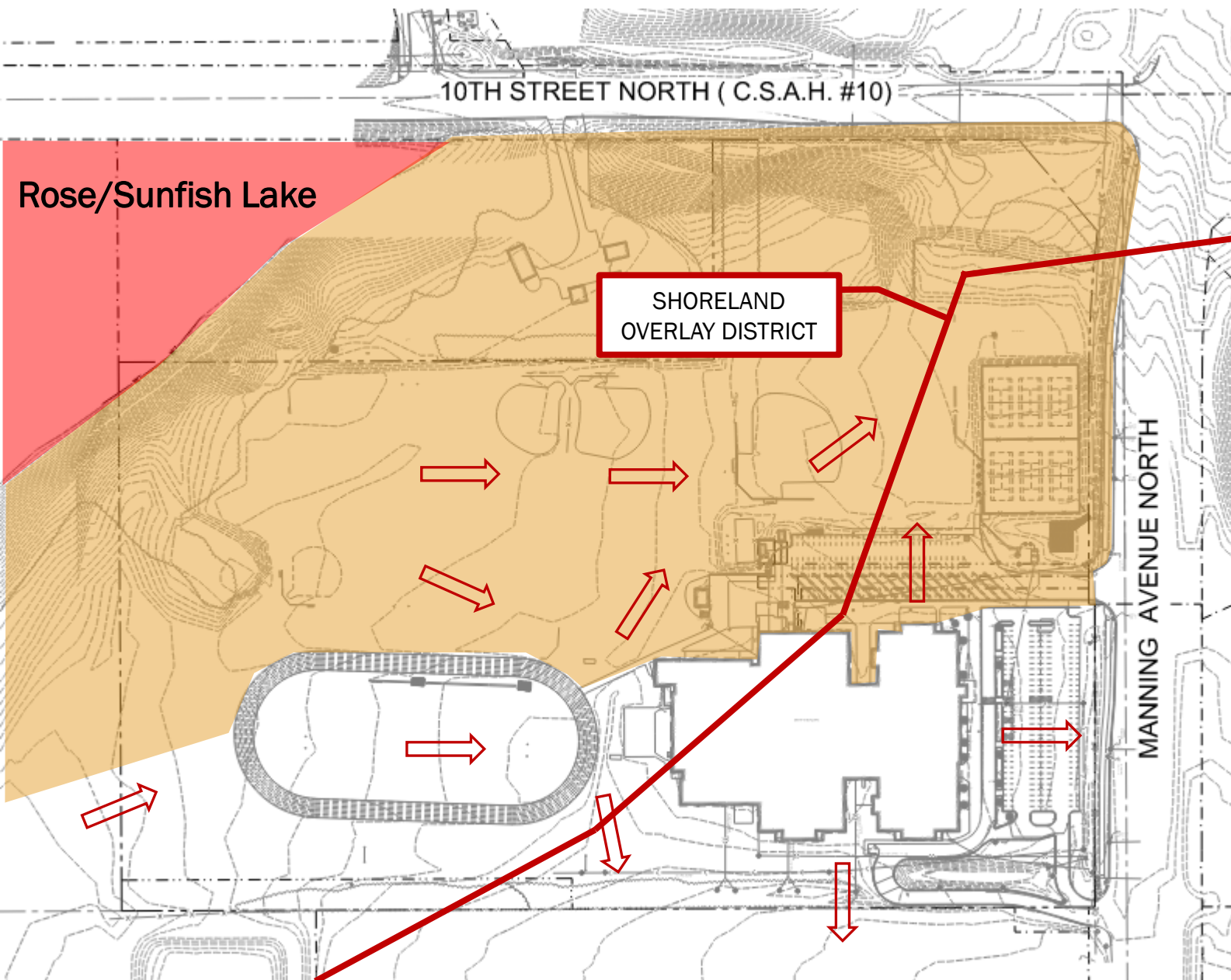
AFFECTED PLUMBING CODE SECTIONS

- SECTION 1101.4.4: UNDERGROUND BUILDING STORM DRAINS SHALL COMPLY WITH THE APPLICABLE STANDARDS REFERENCED IN TABLE 701.2 FOR UNDERGROUND DRAIN, WASTE, AND VENT PIPE.
- SECTION 310.5: [N]O FITTING, FIXTURE AND PIPING CONNECTION, APPLIANCE, DEVICE, OR METHOD OF INSTALLATION THAT OBSTRUCTS OR RETARDS THE FLOW OF WATER, WASTES, SEWAGE, OR AIR IN THE DRAINAGE OR VENTING SYSTEMS . . . SHALL BE USED UNLESS IT IS INDICATED AS ACCEPTABLE IN THIS CODE OR IS APPROVED IN ACCORDANCE WITH SECTION 301.2 OF THIS CODE.”
 - FINAL INTERPRETATION PB01060: NO, A DRAINAGE SYSTEM IS NOT SURCHARGED BY DESIGN WHEN THE INLET PIPE ENTERS A STORMWATER RETENTION POND ABOVE THE LEVEL ATTAINED BY THE WATER QUALITY VOLUME, WHICH EQUALS THE MPCA REQUIRED POND LEVEL OF 1800 CUBIC FEET PER ACRE OF DRAINAGE AREA PLUS THE VOLUME OF 1.0 INCH OF RUNOFF FROM THE NET INCREASE IN IMPERVIOUS SURFACES



PRIMARY EXTERIOR ISSUES

- EXTERIOR ELEVATION THE ROOF LEADER LEAVES THE BUILDING
 - BUILDING FINISH FLOOR ELEVATION = 911.40 (100' 00")
 - OUTLET ELEVATION = 903.65 (92' 3")
 - 7' 9" FROM FFE TO INVERT OF ROOF LEADER
- EXISTING STORMWATER INFRASTRUCTURE WAS DESIGNED PRIOR TO RECENT SUCHARGING CONCERNS
 - STANDARD DESIGN OF DRY WELLS ONLY HAVE TWO WAYS OF OUTLETTING
 - OPTION 1: EXFILTRATION WHICH OCCURS AT THE BOTTOM AND SIDES OF THE DRYWELL
 - OPTION 2: OVERFLOWING VIA THE RIM OF THE DRYWELL STRUCTURE THIS OCCURS WHEN THE DRYWELL IS UNABLE TO EXFILTRATE WATER AT THE RATE IT RECIEVES WATER.
 - DRYWELLS WHERE NEVER DESIGNED TO PROVIDE WATER QUALITY VOLUME.
 - CURRENT DRYWELL SERVICING THE ROOF LEADER IN QUESTION PROVIDES ROUGHLY 200 CF OF WATER QUALITY VOLUME (WQV) WHICH WOULD BE SUFFICENT FOR A ROOF WITH AN AREA 2,400 SF
- LACK OF LOCATIONS ON SITE WITH LOW ELEVATION.
 - ROSE/SUNFISH LAKE WATERSHED: CAN'T INCREASE RATES OR VOLUME TO THE LAKE IN ANY STORM EVENT.
 - LOWEST GRADE AT SOUTH PROPERTY LINE = 906.00
 - LOW STORM INVERT LEAVING THE SITE = 902.30
- POSSIBLE OUTLET LOCATION IS JUST OVER 500 FEET FROM EXISTING ROOF LEADER CONNECTION POINT

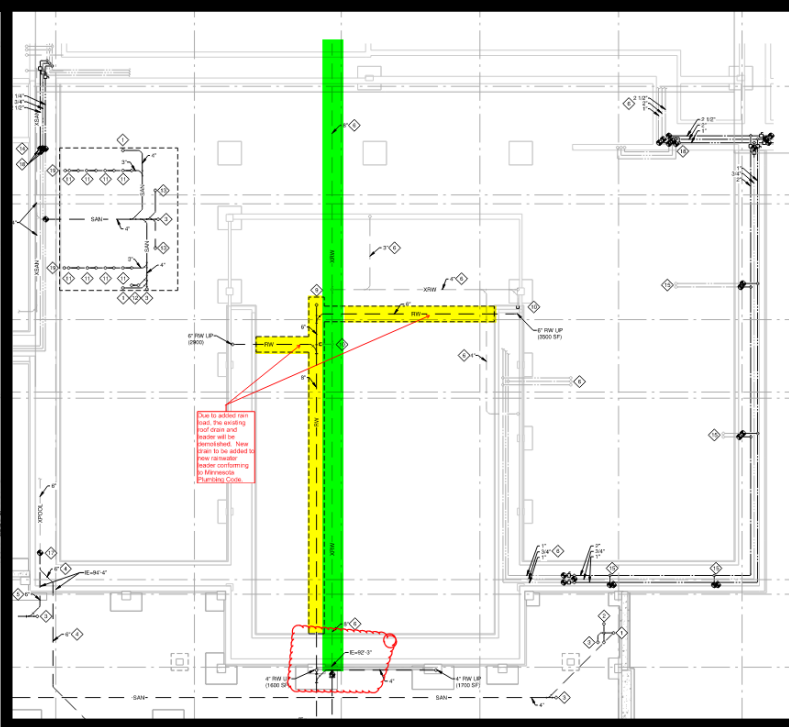
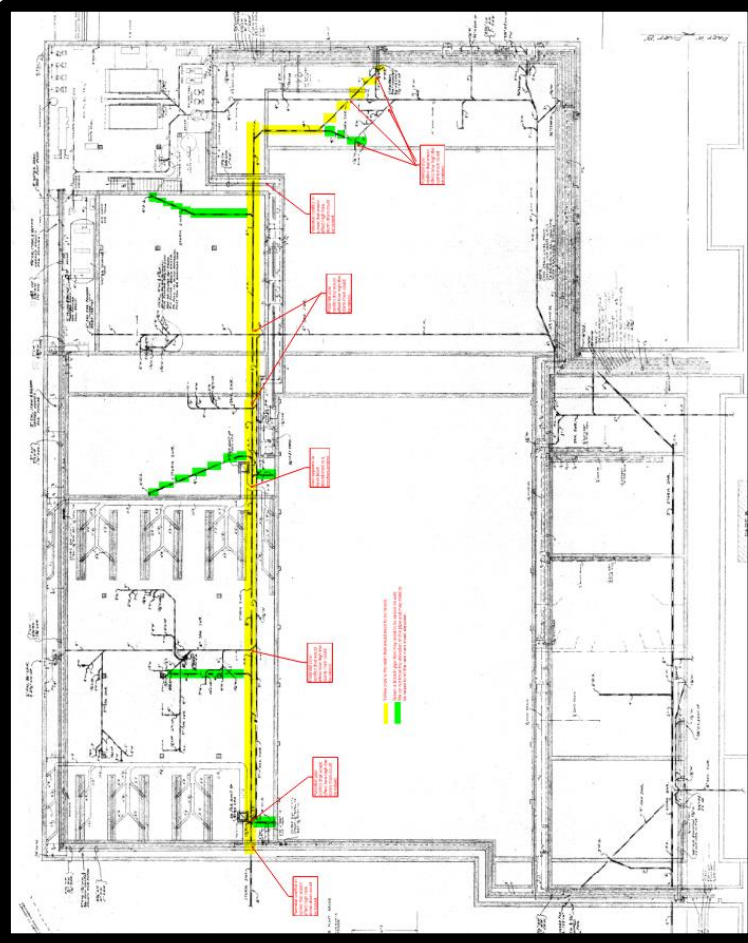


PRIMARY EXTERIOR ISSUES (CONTINUED)

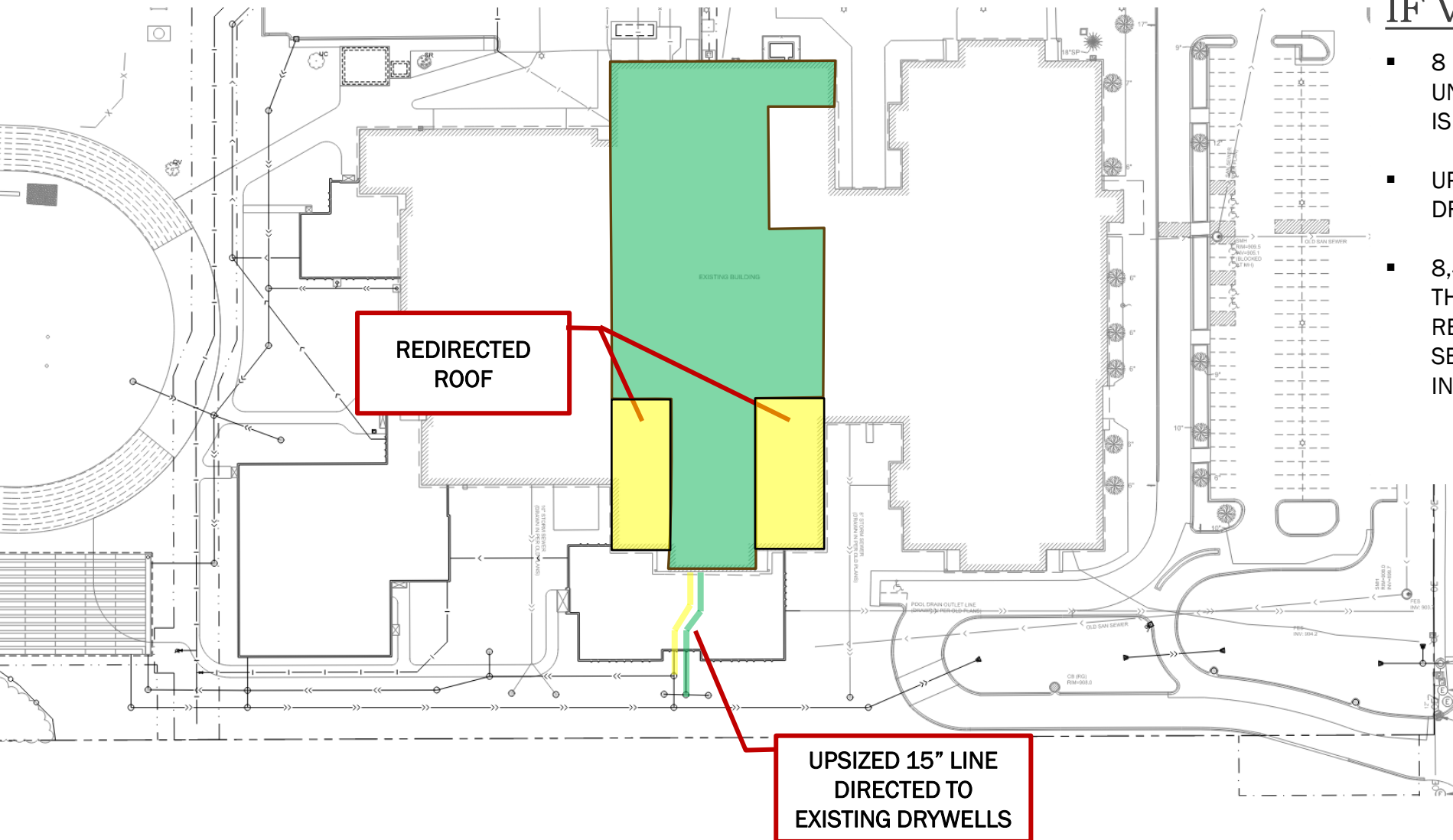
- ROSE/SUNFISH LAKE - CURRENTLY EXPERIENCES PERIODIC FLOODING THROUGHOUT THE SPRING AND SUMMER AND IS REGULARLY PUMPED. VALLEY BRANCH WATERSHED DISTRICT IS THE AUTHORITY HAVING JURISDICTION (AHJ) PROHIBITS THE REDIRECTION OF STORMWATER RUNOFF TO THE LAKE
- SHORELAND DISTRICT - THE CITY OF LAKE ELMO HAS A SHORELAND OVERLAY DISTRICT FOR ROSE/SUNFISH LAKE. THIS LIMITS THE AMOUNT OF HARD SURFACE THAT CAN BE CREATED WITHIN THE OVERLAY DISTRICT. 15% OF THE OVERLAY DISTRICT CAN BE HARD SURFACE.
- EXISTING DRAINAGE PATTERNS - CURRENTLY DRAINS THE DRAIN FROM WEST TO EAST DIRECTING THE MAJORITY OF RUNOFF TOWARDS THE SCHOOL.
- CITY/COUNTY INFRASTRUCTURE - THE ONLY CITY/COUNTY INFRASTRUCTURE CURRENTLY ADJACENT TO THE SITE IS STORM SEWER AND IT WAS ONLY DESIGNED TO SERVICE THE DITCH INFRASTRUCTURE ADJACENT TO THE COUNTY ROADWAYS. THIS MEANS THE STORM SEWER INFRASTRUCTURE IS ALL RELATIVELY SHALLOW ADJACENT TO THE SCHOOL SITE.
- PROPOSED INFRASTRUCTURE - THERE IS A LARGE AMOUNT OF STORMWATER INFRASTRUCTURE BEING INSTALLED ON THE SOUTH END OF THE PROJECT TO TREAT/DIRECT THE RUNOFF FROM THE NEW IMPROVEMENTS.

PRIMARY INTERIOR ISSUES

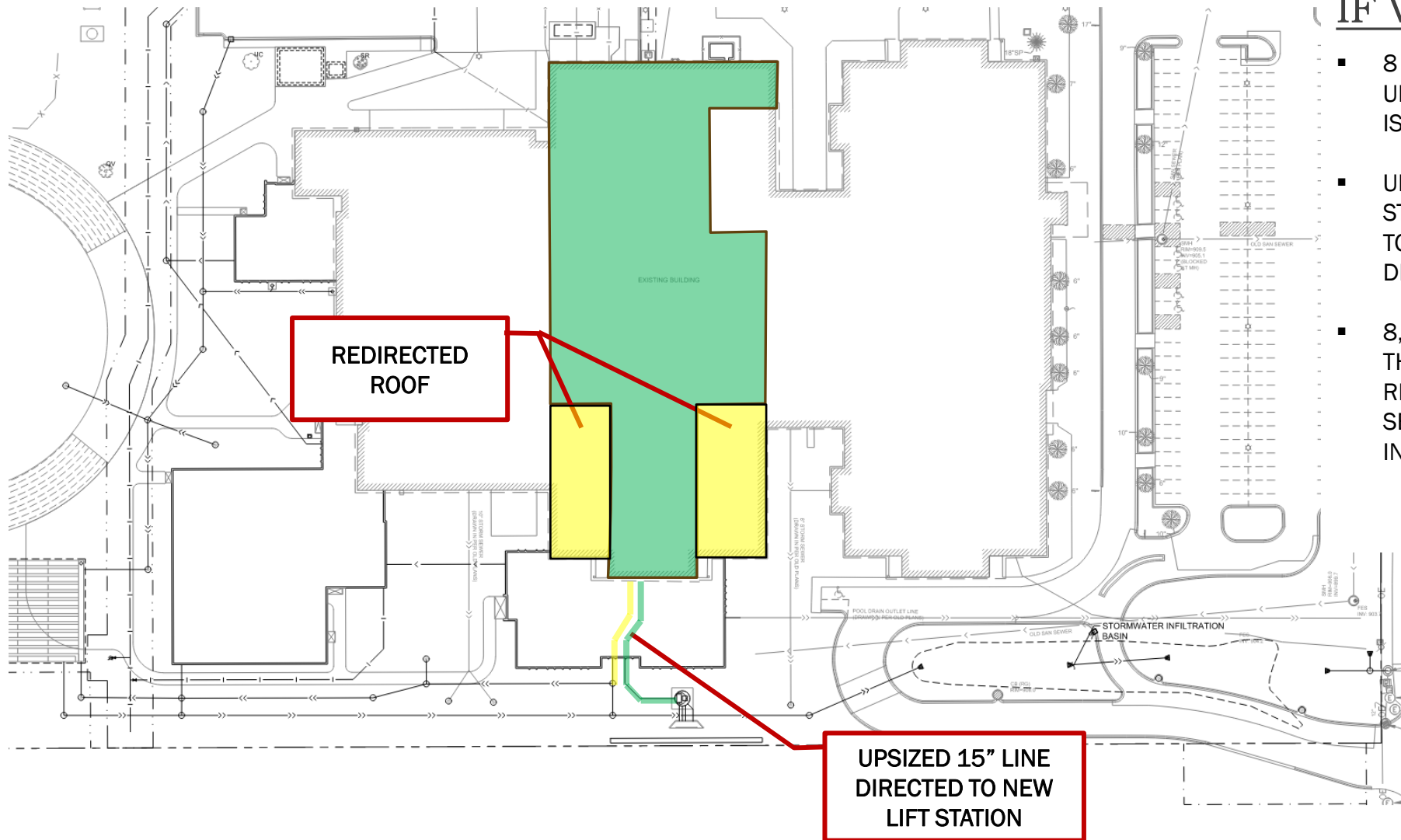
- 8" PIPE RUNS THE WHOLE LENGTH OF THE BUILDING FROM NORTH END TO THE SOUTH END.
- THERE ARE LARGE NUMBER OF KNOWN CONFLICTS WITH RAISING THE STORM PIPE SUCH AS CONDUITS, SANITARY PIPING, OR EXISTING FOOTINGS.
- NUMEROUS BRANCH STORM DRAINS THAT ENTER VARIOUS CLASS ROOM OUTSIDE THE SCOPE OF THE PROJECT. THESE SMALLER OFF SHOOTS WERE NOT DESIGNED TO THE CURRENT PLUMBING CODES FOR RAINFALL RATES.
 - ASSUMING THESE COULD BE WORKED AROUND, THE MOST THE MAIN NORTH/SOUTH LINE COULD BE RAISED IS 36 INCHES
- THE CONSTRUCTION UNKNOWNNS THAT WOULD COME UP IF THE PROJECT TRIED TO RAISE THE ROOF LEADER.



PROPOSED CONDITIONS IF VARAINCE IS APPROVED



- 8 INCH VCP IS REVISED TO A 15 INCH PVC UNDER NEW ADDITION, DOWN STREAM PIPING IS ADJUSTED ACCORDNGLY
- UPSIZED PIPE CONNECTS BACK INTO EXISTING DRYWELLS
- 8,400 SF OF EXISTING ROOF THAT GOES TO THE EXISTING 8 INCH LINE WILL BE REDIRECTED TO A NEW ROOF LEADER SERVICED BY A NEW UNDERGROUND INFILTRATION SYSTEM.



PROPOSED CONDITIONS IF VARAINCE IS DENIED

- 8 INCH VCP IS REVISED TO A 15 INCH PVC UNDER NEW ADDITION, DOWN STREAM PIPING IS ADJUSTED ACCORDNGLY
- UPSIZED PIPE CONNECTS INTO A NEW LIFT STATION STRUCTURE DESIGNED TO BE ABLE TO PUMP 2,900 GALLONS PER MINUTE AND DISCHARGES ON GRADE.
- 8,400 SF OF EXISTING ROOF THAT GOES TO THE EXISTING 8 INCH LINE WILL BE REDIRECTED TO A NEW ROOF LEADER SERVICED BY A NEW UNDERGROUND INFILTRATION SYSTEM.

CONCLUSION

BECAUSE THE ROOF WATER FLOWING TO THE DRY WELL IS AN EXISTING CONDITION, AND THIS CONDITION IS BEING IMPACTED ONLY DUE TO THE PROPOSED BUILDING CLASSROOM ADDITION LOCATION, TO AVOID THE HARDSHIPS RELATED TO CONSTRUCTING AND MAINTAINING A LIFT STATION FOR THIS STORM WATER, WE ARE REQUESTING A VARIANCE BE GRANTED TO THE RULE FOR SURCHARGING PIPES FOR THIS PARTICULAR SITUATION WITH THE DRYWELL WHILE PROVIDING A REDUCTION IN THE ROOF AREA TO THE EXISTING DRYWELL TO HELP REDUCE POTENTIAL SURCHARGING. WE ARE NOT AWARE OF ANYONE THAT WOULD BE ADVERSELY IMPACTED BY THIS VARIANCE.

Questions?

Thank You
