A meeting of the joint Technical Advisory Committee (TAC) of the Shingle Creek and West Mississippi Watershed Management Commissions is scheduled for **8:30 a.m., Thursday, April 30, 2020.** This will be a virtual meeting.

To join the meeting click <a href="https://us02web.zoom.us/j/86148351365">https://us02web.zoom.us/j/86148351365</a>. Or go to <a href="www.zoom.us">www.zoom.us</a> and click Join A Meeting and use Meeting ID: 861 4835 1365. If you don't have audio capabilities on your computer you can also join by voice on the numbers below to participate in the meeting.

+13126266799,,86148351365# US (Chicago)

+19292056099,,86148351365# US (New York)

### AGENDA

- 1. Call to Order.
  - a. Roll Call.
  - b. Approve Agenda.\*
  - c. Approve Minutes of Last Meeting.\*
- 2. City of Crystal Cost Share Application.\*
  - a. Plans and drawings.\*
- 3. Lake Pepin Nutrient TMDL.\*
- 4. Maintenance Levy Discussion.
  - a. Kennedy-Graven Memo.\*
  - b. Wenck Memo.\*
- 5. Initial 2021 Budget Discussion.
  - a. Shingle Creek.\*
  - b. West Mississippi.\*
- 6. Connections II Project.\*
- 7. Other Business.
- 8. Next TAC meeting is scheduled for ...
- 9. Adjournment.

3235 Fernbrook Lane N • Plymouth, MN 55447 Tel: 763.553.1144 • Fax: 763.553.9326 Email: judie@jass.biz • Website: www.shinglecreek.org

### **MINUTES**

March 30, 2020

A virtual meeting of the Technical Advisory Committee (TAC) of the Shingle Creek and West Mississippi Watershed Management Commissions was called to order by Chairman Richard McCoy at 1:06 p.m., Monday, March 30, 2020.

Present were: Andrew Hogg, Brooklyn Center; Mitch Robinson, Brooklyn Park; Mark Ray, Crystal; Liz Stout and Shahram Missaghi, Minneapolis; Megan Hedstrom, New Hope; Ben Scharenbroich, Plymouth; Richard McCoy and Marta Roser, Robbinsdale; Ed Matthiesen, Diane Spector, and Erik Megow, Wenck Associates, Inc.; and Amy Juntunen and Judie Anderson, JASS.

Not represented: Champlin, Maple Grove, and Osseo.

Also present: Tim Olson and Kevin Kielb, Bolton--Menk.

- I. Motion by Ray, second by Stout to approve the agenda.\* Motion carried unanimously.
- **II.** Motion by Ray, second by Hogg to **approve the minutes\*** of the February 13, 2020 meeting. *Motion carried unanimously*.

### III. 2020 CIP and Minor Plan Amendment.\*

Typically, the TAC hears feasibility studies for proposed projects and makes a recommendation to the Commissions in April of each year as to which projects to consider for that year's CIP and whether any minor plan amendments are necessary. This all goes to the Commissions, which then set the maximum levies and forward that information to Hennepin County. The County then goes through its public hearing and maximum levy setting process that is usually done by the end of June. The process then goes back to the Commissions to hold public hearings on proposed projects and set a final levy.

Included in Staff's March 25, 2020 memo are the current draft CIPs for each Commission. They reflect the Minor Pan Amendments approved in 2019 and the rescheduling of some projects to future years. Shown are the potential projects for consideration in 2020 and the associated estimated levies.

In 2019 the Commissions amended their Management Plan to raise the annual voluntary maximum levy to \$750,000. As proposed, Shingle Creek would exceed that \$750,000 voluntary cap. Both the Cost-Share program and the Partnership Cost Share program have balances, currently about \$120,000 (plus an additional \$100,000 to be received this year) and \$150,000 (plus \$50,000) respectively. The Commission could get by without certifying levy for either of these programs in 2020 if need be. The Shingle Creek Commission would also expect to submit grant applications for the Meadow Lake and two stream projects, and there will be another round of Watershed-Based Funding from BWSR that could also provide funding for these projects.



The members discussed options for proceeding with a proposed levy that exceeds the voluntary cap of \$750,000. The cost share of Plymouth's enhanced street sweeper and the three capital projects are all TMDL implementation projects that will be of benefit to the lakes/streams and make required phosphorus and sediment load reductions. Grant applications for two of the three projects were pursued in the past but were not funded. Additional grant funding can be pursued for all three of the projects in 2020. The cities also expect to continue to make use of both the public and private cost share funds. The TAC recommends to the Commissions that the 2020 maximum levies be approved as shown below:

Shingle Creek Project	Total Estimated Cost	City/ Private	Grant	Commission Share	Total Levy
Cost share (city projects)	\$200,000	\$100,000	0	\$100,000	\$106,050
Connections II Stream Restoration	400,000	0	0	400,000	424,200
Plymouth Street Sweeper	350,000	275,000	0	75,000	79,540
Meadow Lake Management Plan	300,000	0	0	300,000	318,150
Bass Creek Restoration	400,000	0	0	400,000	424,200
Partnership cost share (private projects)	100,000	50,000	0	50,000	\$53,025
Subtotal	\$1,750,000	\$425,000	\$0	\$1,325,000	
5% additional for legal/admin costs				66,250	
Subtotal				1,391,250	
TOTAL LEVY (101% for uncollectable)			_	\$1,405,165	\$1,405,165

West Mississippi Project	Total Estimated	City/ Private	Grant	Commission Share	Total Levy
Cost share (city projects)	\$100,000	\$50,000	0	\$50,000	\$53,025
River Park Stormwater Improvements	485,000	363,750		121,250	128,585
Subtotal	\$585,000	\$413,750	\$ 0	\$171,250	
5% additional for legal/admin costs				8,560	
Subtotal				179,810	
TOTAL LEVY (101% for uncollectable)				\$181,610	\$181,610

### IV. Cost Share Program.\*

The City of Brooklyn Park has submitted an application for cost share funding in the West Mississippi watershed. The project, called **River Park**, is located at 81st Avenue and Mississippi Lane. The total project cost in \$2,600,00; \$660,000 of that amount is stormwater basin costs. A stormwater pond is proposed near the exiting 60" piped outlet to the river and would be designed to have a natural feel, with slight drops in elevation from one cell to the next, slowly sloping to the river. Other sources of funding for this project include a Hennepin County Grant (\$100,000) and a State of Minnesota Legacy Heritage Grant (\$250,000). Construction is expected to begin in summer 2020.

The TAC discussed the project. Staff noted that the Watershed-Based Funding resources were allocated by the Commission to the Cost Share Program as a convenience for disbursal, and are really just pass-through grant funds similar to other grants the Commission receives that are then passed-through to the cities. The members agreed that allocating the WBF funds currently residing in the Cost Share Program account to the River Park project would not violate the limitation on receiving both Cost Share and CIP funds from the county levy and recommended that the Commission authorize the allocation of the \$35,422 Watershed Based Funding to Brooklyn Park's River Park stormwater basin.

SCWM TAC Meeting Minutes March 30, 2020 Page 3



### V. Effectiveness of the Preserver and the SAFL Baffle.\*

Staff's February 20, 2020 memo discusses the effectiveness of the Preserver and the SAFL Baffle in removing and retaining suspended sediment in sumps. In summation, both devices are effective in removing suspended sediment from sump inflow, but their performance differs based on flow rate and sediment particle size. The choice between the two devices should depend on predicted flow rates and sediment size in the sump and other construction, installation, and maintenance logistics.

Members had been asked to describe their experiences with these devices. Derek Asche from the City of Maple Grove responded,

Our experience with at least one Preserver, is that the energy dissipater is fine and allows for maintenance with a vac truck, but the skimmer has been difficult to install and has been crushed, blocking the outlet pipe. We are concerned there may be some design or material strength issues with the Preserver skimmer when the inlet and outlet are not "in-line" with each other.

The SAFL baffle has been easy to install and we can maintain easily with a vac truck.

I suspect in lab testing they are similar when it comes to trapping material, however, when it comes to practical details in the field such as how pipes come into manholes, as well as maintenance, there could be differences in performance.

Given Maple Grove's standard operating procedure to regularly vac sump manholes (many with SAFL baffles) and inspect all outfalls, the SAFL baffle works better in our community.

### VI. Other Business.

### VII. Next Meeting.

The next Technical Advisory Committee meeting is scheduled for 8:30 a.m. Thursday, April 30, 2020. It will be a virtual meeting.

The meeting was adjourned.

Respectfully submitted,

La: Adamson

Judie A. Anderson Recording Secretary

Z:\Shingle Creek\TAC\2020 TAC\March 30 2020 TAC minutes.docx



# Shingle Creek and West Mississippi Watershed Management Commissions Cost-Share Program Application April 2020

City:	Crystal
Contact Name:	Mark Ray
Contact Phone:	(763) 531-1160
Contact Email:	Mark.ray@crystalmn.gov
Project Name:	W. Broadway Storm water Infiltration Project (2020/2021)
Total Project Cost:	\$400,000
Amount Requested:	\$50,000
Project Location:	5747 W Broadway Ave

1. Describe the BMP(s) proposed in your project. Describe the current condition and how the BMP(s) will reduce pollutant loading and/or runoff volume. Note the estimated annual load and volume reduction by parameter, if known, and how they were calculated. Attach figures showing project location and BMP details including drainage area to the BMP(s).

In 2015 SCWMC completed a sub-watershed assessment of the Crystal shopping center area. One of the projects identified in the assessment was an underground infiltration system a lot just north of 5747 W Broadway Ave. At the time this lot was a separate, tax-forfeited property. In addition to putting this project in the City's storm water capital improvement program, over the past few years the City acquired the property from Hennepin County, put a storm water easement over the entire property, then sold the property to 5747 W. Broadway. The property owner at 5747 then replanted the two lots into a single property with the address of 5757 W. Broadway.

In 2019, the City contracted with Wenck and started design of the underground system. The design is now complete and project will be going out for bid in April. Construction will occur in either 2020 or 2021. Two years were provided for construction to maximize contractor flexibility and thus minimize costs.

The proposed project will have two layers of sediment containment prior to entering the chambers. Overall the system can hold 21,000 cubic feet of water (157,000 gallons).

2. If this request is for cost share in "upsizing" a BMP, explain how the upsize cost and benefit were computed.

Mr. Will Bouchard February 6, 2009 Page 3 This is a new facility.

3. Show total project cost, amount of cost share requested, and the amount and source of matching funds.

The City is currently requesting \$50,000 from Shingle Creek Watershed Public Cost-Share project in 2020/2021 to help cover a portion of the construction cost. The balance of the project costs will come from the City's storm water utility fund (\$400,000 budgeted).

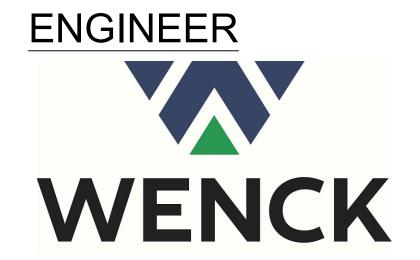
4. What is the project schedule, when will work on the BMP(s) commence and when will work be complete?

Date	Event
Jan - April 2020	Finalize all plans
April 2020	Bidding for construction.
May/June 2020	Award construction.
June – Oct 2020	Construction
2021	Alternate construction timeline

**FOR** 

# KENTUCKY AVENUE WATER QUALITY IMPROVEMENT

CRYSTAL, MINNESOTA
APRIL 2020

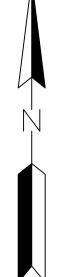


WENCK ASSOCIATES, INC.
7500 OLSON MEMORIAL HWY SUITE 300
GOLDEN VALLEY, MN 55427
(P) - 763-252-6800
CONTACT: BRIAN KALLIO, P.E.



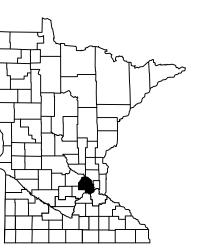
	SHEET INDEX
Sheet Number	Sheet Title
C-001	COVER SHEET
C-002	NOTES
C-003	EXISTING CONDITIONS
C-004	REMOVALS PLAN AND PRECONSTRUCTION EROSION CONTROL PLAN
C-101	SITE PLAN
C-501	STORM SEWER PLAN
C-801	DETAILS
C-802	DETAILS

UNDERGROUND STORM CHAMBER SYSTEM BY ADVANCED DRAINAGE SYSTEMS (SHEETS 1 TO 7 OF 7) ARE APPENDED TO THIS SET.



VICINITY MAP

NOT TO SCALE



PROJECT LOCATION

CITY: MINNEAPOLIS
COUNTY: HENNEPIN

# **WARNING:**

THE CONTRACTOR SHALL BE RESPONSIBLE FOR CALLING FOR LOCATIONS OF ALL EXISTING UTILITIES. THEY SHALL COOPERATE WITH ALL UTILITY COMPANIES IN MAINTAINING THEIR SERVICE AND/OR RELOCATION OF LINES.

THE CONTRACTOR SHALL CONTACT GOPHER STATE ONE CALL AT 651-454-0002 AT LEAST 48 HOURS IN ADVANCE FOR THE LOCATIONS OF ALL UNDERGROUND WIRES, CABLES, CONDUITS, PIPES, MANHOLES, VALVES OR OTHER BURIED STRUCTURES BEFORE DIGGING. THE CONTRACTOR SHALL REPAIR OR REPLACE THE ABOVE WHEN DAMAGED DURING CONSTRUCTION AT NO COST TO THE OWNER.

CALL BEFORE YOU DIG

# GOPHER STATE ONE CALL

TWIN CITY AREA: 651-454-0002 TOLL FREE 1-800-252-1166



7500 OLSON MEMORIAL HW'
SUITE 300
GOLDEN VALLEY, MN 55427
PHONE: 763-252-6800
FAX: 952-831-1268

WWW.WENCK.C



JALITY IMPROVEMENT

CITY OF CRYSTAL

CITY OF CRYSTAL

ISSUE NO.: PROJEC

DESCRIPTION:
BID PLANS

CERTIFICATION:

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.

LICENSE NO.: 25817

DATE: 04/15/2020

 DWN BY:
 CHK'D BY:
 APP'D BY:

 BMB
 MJS
 BFK

ISSUE DATE: 04/

SHEET TITLE:

COVER SHEET

C-001

/e, Crystal\5\_DESIGN\1\_CAD\3 PLANSHEETS\C-001 COVER SHEET.d

# GOVERNING SPECIFICATIONS

- 1. THE PROJECT SPECIFICATION
- 2. CITY OF CRYSTAL STANDARD SPECIFICATIONS.
- 3. MINNESOTA DEPARTMENT OF TRANSPORTATION (MNDOT) "STANDARD SPECIFICATIONS FOR CONSTRUCTION" LATEST EDITION AND SUPPLEMENTS.
- CITY ENGINEERS ASSOCIATION OF MINNESOTA (CEAM) STANDARD SPECIFICATIONS FOR UTILITIES LATEST EDITION. MINNESOTA PLUMBING CODE.
- . APPLICABLE FEDERAL, STATE, AND LOCAL LAWS AND ORDINANCES.

# GENERAL NOTES

- CONTRACTOR SHALL ALLOW AND PROVIDE ACCESS TO THE PARKING LOT FROM KENTUCKY AVENUE THROUGH OUT THE DURATION OF THE PROJECT, INCLUDING MINIMUM 20 PAVED OFF-STREET PARKIGN STALLS FOR THE ADJACENT OFFICE BUILDING.
- 2. SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 38-2 ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA". EXACT LOCATION/DEPTH OF SUBSURFACE UTILITIES SUCH AS GAS, TELEPHONE, FIBER OPTIC, SEWER, WATER, PIPELINES, ELECTRICAL, AND CABLE TV ARE UNKNOWN AND THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE.
- 3. CONTRACTOR RESPONSIBLE FOR CONTACTING GOPHER STATE ONE CALL (1-800-252-1166) A MINIMUM OF 48 HOURS IN ADVANCE (EXCLUDING HOLIDAYS AND WEEKENDS) BEFORE STARTING WORK FOR LOCATIONS OF UNDERGROUND UTILITIES.
- 4. CONTRACTOR SHALL ANTICIPATE PRIVATE UTILITY CONFLICTS THROUGHOUT THE PROJECT SUB CUT AND TRENCH AREAS AND MUST COORDINATE THE RELOCATION OR PROTECTION OF EXISTING UTILITIES, OR INSTALLATION OF NEW UTILITIES WITH UTILITY OWNERS THAT MAY HAVE BURIED OR AERIAL UTILITIES WITHIN OR NEAR THE CONSTRUCTION AREA BEFORE STARTING WORK. COSTS FOR SUCH WORK, INCLUDING EXTRA TIME AND EFFORT FOR PROVISIONS NECESSARY TO WORK AROUND OR UNDER UTILITIES, IS THE RESPONSIBILITY OF THE CONTRACTOR WITH NO ADDITIONAL COST TO THE OWNER. FEES OR CHARGES WHICH ARE TO BE PAID TO THE UTILITY COMPANY, INCLUDING WORK THAT MUST BE PERFORMED BY THE UTILITY COMPANY, ARE AT NO ADDITIONAL COST TO THE OWNER.
  5. QUANTITIES ARE APPROXIMATE. AND MAY VARY TO ALLOW COMPLETION OF WORK.
- 6. WORK AND MATERIALS MUST COMPLY WITH CITY, COUNTY, STATE, AND FEDERAL (INCLUDING OSHA) REGULATIONS AND
- 7. CONTRACTOR SHALL COORDINATE WORK WITH OTHER CONTRACTORS PERFORMING WORK AT OR NEAR THE SITE. CONTRACTOR SHALL COORDINATE AND MAINTAIN STORMWATER DRAINAGE CONVEYANCE THROUGHOUT CONSTRUCTION (BOTH PIPED AND OVERLAND FLOW).
- 8. CONSTRUCTION LIMITS ARE TO PROPERTY LINE UNLESS SHOWN OR NOTED OTHERWISE. CONTRACTOR SHALL RESTRICT CONSTRUCTION ACTIVITIES TO AREAS DESIGNATED ON PLANS WITHIN THE CONSTRUCTION LIMITS.
- 9. CONTRACTOR SHALL PRESERVE AND PROTECT EXISTING PAVEMENT, SITE FEATURES, UTILITIES, TREES, ETC., UNLESS NOTED OR SHOWN OTHERWISE.
- 10. CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO AVOID PROPERTY DAMAGE TO ADJACENT PROPERTIES DURING CONSTRUCTION AND WILL BE HELD SOLELY RESPONSIBLE FOR ANY DAMAGES.
- 11. CONTRACTOR MUST IMMEDIATELY NOTIFY THE OWNER AND ENGINEER OF DISCREPANCIES OR CONFLICTS IN THE CONTRACT DOCUMENTS BEFORE COMMENCING WORK. NO FIELD CHANGES OR DEVIATIONS ARE TO BE MADE WITHOUT PRIOR APPROVAL FROM THE OWNER AND ENGINEER. FAILURE TO NOTIFY OWNER AND ENGINEER OF AN IDENTIFIABLE CONFLICT BEFORE PROCEEDING WITH INSTALLATION RELIEVES OWNER OF ANY OBLIGATION TO PAY FOR A RELATED CHANGE ORDER.
- 12. CONTRACTOR SHALL HAVE ONE COPY OF EACH REQUIRED CONSTRUCTION PERMIT AND ONE COPY OF THE MOST CURRENT AND COMPLETE SET OF CONSTRUCTION DOCUMENTS (INCLUDING PLANS, SPECIFICATIONS, GEOTECHNICAL REPORT AND SPECIAL CONDITIONS AND PROVISIONS) AVAILABLE AT THE PROJECT SITE AT ALL TIMES.
- 13. CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR IMPLEMENTATION AND ENFORCEMENT OF SAFE WORK PRACTICES, INCLUDING, BUT NOT LIMITED TO PERSONNEL MONITORING, USE OF TRENCHING, SHEETING, AND SHORING, ; OPERATION OF EQUIPMENT; AND SAFETY OF PUBLIC DURING PROGRESS OF WORK.
- 14. CONTRACTOR SHALL PLAN FOR AND ENSURE PERSONNEL COMPLY WITH BASIC PROVISIONS OF OSHA SAFETY & HEALTH STANDARDS (29 CFR 1910) AND GENERAL CONSTRUCTION STANDARDS (29 CFR 1926) AS APPROPRIATE.
- 15. CONTRACTOR SHALL BE RESPONSIBLE FOR INITIATING, MAINTAINING, AND SUPERVISING SAFETY PROGRAMS IN CONNECTION WITH WORK. CONTRACTOR SHALL TAKE NECESSARY PRECAUTIONS FOR SAFETY OF EMPLOYEES ON PROJECT SITE AND OTHER PERSONS AND ORGANIZATIONS WHO MAY BE AFFECTED BY THE PROJECT. CONTRACTOR'S DUTIES AND RESPONSIBILITIES FOR SAFETY IN CONNECTION WITH WORK SHALL CONTINUE UNTIL SUCH TIME AS ALL WORK IS COMPLETED, AND ENGINEER HAS ISSUED NOTICE TO CONTRACTOR. THAT WORK IS COMPLETE.
- CONTRACTOR SHALL DOCUMENT AND MAINTAIN AS-BUILT INFORMATION AS CONSTRUCTION PROGRESSES AND IS
  RESPONSIBLE FOR PROVIDING AS-BUILT DRAWINGS TO THE OWNER AS REQUIRED BY JURISDICTIONAL AGENCIES FOR
  CERTIFICATION.
- 17. HAZARDOUS MATERIALS, INCLUDING BUT NOT LIMITED TO OIL, GASOLINE, PAINT AND ANY HAZARDOUS SUBSTANCE MUST BE PROPERLY STORED, BY THE CONTRACTOR, INCLUDING SECONDARY CONTAINMENTS, TO PREVENT SPILLS, LEAKS OR OTHER DISCHARGE. RESTRICTED ACCESS TO STORAGE AREAS MUST BE PROVIDED TO PREVENT VANDALISM. STORAGE AND DISPOSAL OF HAZARDOUS WASTE MUST BE IN COMPLIANCE WITH MCPA REGULATIONS. CONTRACTOR SHALL REMOVE SPILL OF FUELS, OILS, OR OTHER CHEMICALS IMMEDIATELY UPON DETECTION.

# **REMOVAL NOTES**

- . SEE GENERAL NOTES FOR ADDITIONAL PROJECT AND SITE INFORMATION.
- 2. CONTRACTOR SHALL OBTAIN PERMITS REQUIRED FOR DEMOLITION, REMOVAL AND DISPOSAL.
- 3. CONTRACTOR SHALL REVIEW FEATURES NOT SPECIFICALLY IDENTIFIED ON PLAN FOR SALVAGE OR REMOVAL THAT CONFLICT WITH CONSTRUCTION WITH THE ENGINEER.
- 4. UNLESS OTHERWISE NOTED, CONTRACTOR IS RESPONSIBLE FOR REMOVAL/DEMOLITION WITHIN ALL AREAS OF PROPOSED IMPROVEMENTS. REMOVAL LIMITS ARE IDENTIFIED ON THE DRAWINGS IN ANTICIPATED LOCATIONS. CONTRACTOR RESPONSIBLE FOR REMOVALS AS NECESSARY TO CONSTRUCT NEW IMPROVEMENTS AND CONFORM TO DESIGN REQUIREMENTS. ALL FACILITIES TO BE REMOVED MUST BE UNDERCUT TO SUITABLE MATERIAL AND BROUGHT TO GRADE WITH SUITABLE FILL MATERIAL IN ACCORDANCE WITH THE SPECIFICATIONS AND AS DIRECTED BY THE GEOTECHNICAL ENGINEER.
- 5. CONTRACTOR SHALL COORDINATE REMOVAL LIMITS / EXTENTS WITH THE CITY OF CRYSTAL AND THEIR CONSULTANTS/CONTRACTORS FOR REMOVALS IDENTIFIED IN EXISTING AND PROPOSED RIGHT OF WAY
- 6. MATERIALS REMOVED/DEMOLISHED BY CONTRACTOR BECOME PROPERTY OF THE CONTRACTOR, UNLESS OTHERWISE NOTED. CONTRACTOR SHALL LOAD AND HAUL MATERIAL OFF-SITE AND PROPERLY DISPOSE OF MATERIALS IN ACCORDANCE WITH APPLICABLE REGULATIONS. CONTRACTOR MUST LEAVE THE SITE IN A CONDITION TO THE SATISFACTION OF THE OWNER AND ENGINEER.
- 7. CONTRACTOR SHALL SAWCUT FULL DEPTH AT PAVEMENT REMOVAL LIMITS WHERE PAVEMENT REMOVAL ABUTS ADJACENT PAVED SURFACE
- 8. CONTRACTOR SHALL COORDINATE UTILITY REMOVAL WORK WITH APPROPRIATE UTILITY OWNER.
- 9. CONTRACTOR SHALL SALVAGE AND REINSTALL STREET AND TRAFFIC SIGNS IN CONFLICT WITH CONSTRUCTION ACTIVITIES AS NOTED OR AS DIRECTED BY ENGINEER. IF SIGNS ARE DAMAGED DURING CONSTRUCTION, CONTRACTOR REQUIRED TO PROVIDE NEW SIGNS AT NO ADDITIONAL COST TO THE OWNER.
- 10. IN THE EVENT THAT UNKNOWN CONTAINERS OR TANKS ARE ENCOUNTERED, THE CONTRACTOR MUST CONTACT THE ENGINEER IMMEDIATELY. ALL CONTAINERS OR TANKS MUST BE DISPOSED OF PROPERLY AT A REGULATED/PERMITTED FACILITY.

# TRAFFIC CONTROL NOTES

- . SEE GENERAL NOTES FOR ADDITIONAL PROJECT AND SITE INFORMATION.
- CONTRACTOR SHALL EITHER MAINTAIN TWO LANES OF TRAFFIC OR ONE LANE OF TRAFFIC WITH FLAGGING ON KENTUCKY AVENUE WHILE THE IN-STREET CONNECTIONS ARE BEING COMPLETED.
- CONTRACTOR SHALL COORDINATE CONSTRUCTION STAGING, ON OR OFFSITE, AS NECESSARY TO COMPLETE THE WORK. SUBMIT A STAGING PLAN TO THE ENGINEER FOR REVIEW BEFORE STARTING WORK.
- 4. CONTRACTOR RESPONSIBLE FOR ALL TRAFFIC CONTROL. TRAFFIC CONTROL MUST BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MN MUTCD, INCLUDING LATEST FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS, SUBMIT TRAFFIC CONTROL PLAN TO ENGINEER, CITY, AND COUNTY FOR REVIEW REFORE CONSTRUCTION.
- LAYOUTS. SUBMIT TRAFFIC CONTROL PLAN TO ENGINEER, CITY, AND COUNTY FOR REVIEW BEFORE CONSTRUCTION RELATED ACTIVITIES. PLANS MUST COMPLY WITH APPLICABLE PERMIT REQUIREMENTS.

# PAVING, PAVEMENT MARKING, AND SIGNAGE NOTES

5. CONTRACTOR MUST SCHEDULE WORK IMPACTING PUBLIC STREETS ADJACENT TO THE PROJECT.

- 1. CONSTRUCTION AND MATERIALS WITHIN PUBLIC RIGHT-OF-WAY MUST BE IN ACCORDANCE WITH CITY OF CRYSTAL SPECIFICATIONS AND STANDARDS. MNDOT SPECIFICATIONS AND STANDARDS APPLY IF NOT COVERED BY LOCAL OR COUNTY REGULATIONS.
- 2. SIGNS, PAVEMENT MARKINGS, AND OTHER TRAFFIC CONTROL DEVICES MUST BE IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AND CITY OF CRYSTAL STANDARDS.
- 4. A TOLERANCE OF 1/4 INCH UNDER OR 1/4 INCH OVER THE SPECIFIED WIDTH WILL BE ALLOWED FOR STRIPING PROVIDED THE VARIATION IS GRADUAL AND DOES NOT DETRACT FROM THE GENERAL APPEARANCE. BROKEN LINE SEGMENTS MAY VARY UP TO ONE-HALF FOOT FROM THE SPECIFIED LENGTHS OVER AND UNDER VARIATIONS ARE REASONABLY COMPENSATORY. ALIGNMENT DEVIATIONS FROM THE CONTROL GUIDE SHALL NOT EXCEED 1 INCH. MATERIAL SHALL NOT BE APPLIED OVER LONGITUDINAL JOINTS. ESTABLISHMENT OF APPLICATION TOLERANCES SHALL NOT RELIEVE THE CONTRACTOR OF THEIR RESPONSIBILITY TO COMPLY AS CLOSELY AS PRACTICABLE WITH THE PLANNED DIMENSIONS.
- 5. THE ROAD SURFACE SHALL BE CLEANED AT THE DIRECTION OF THE ENGINEER JUST PRIOR TO APPLICATION.
  PAVEMENT CLEANING SHALL CONSIST OF AT LEAST BRUSHING WITH A ROTARY BROOM (NON-METALLIC) OR AS RECOMMENDED BY THE MATERIAL MANUFACTURER AND ACCEPTABLE TO THE ENGINEER. (INCIDENTAL)
- THE PAVEMENT MARKING APPLICATION SHALL IMMEDIATELY FOLLOW THE PAVEMENT CLEANING.
   OPERATIONS SHALL BE CONDUCTED ONLY WHEN THE ROAD PAVEMENT SURFACE TEMPERATURES ARE 50 DEGREES

# **EROSION CONTROL NOTES**

. SEE GENERAL NOTES FOR ADDITIONAL PROJECT AND SITE INFORMATION.

EXACT LOCATION OF PAVEMENT MARKINGS TO MATCH EXISTING

- 2. CONTRACTOR SHALL CONFORM TO AND CONDUCT INSPECTIONS IN ACCORDANCE WITH THE NPDES PERMIT AND SWPPP REQUIREMENTS.
- 3. BEFORE SITE DISTURBANCE AND AS REQUIRED AS CONSTRUCTION PROGRESSES, CONTRACTOR SHALL INSTALL, MAINTAIN, REPAIR, AND REPLACE EROSION PREVENTION MEASURES AND SEDIMENT CONTROL DEVICES (INLET PROTECTION, CONSTRUCTION ENTRANCE, SILT FENCE, EROSION CONTROL BLANKET, ETC.) IN ACCORDANCE WITH THE SWPPP, NPDES PERMIT, AND CITY, STATE, AND WATERSHED DISTRICT PERMITS.
- 4. ADDITIONAL EROSION CONTROL MEASURES MAY BE REQUIRED DEPENDING ON SITE CONDITIONS DURING CONSTRUCTION. COORDINATE WITH ENGINEER.
- 5. CONTRACTOR SHALL STABILIZE ALL EXPOSED SOIL AREAS WITHIN THE CONSTRUCTION LIMITS WITHIN 7 DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE THAT HAS TEMPORARILY (WILL NOT RESUME FOR A PERIOD EXCEEDING 14 CALENDAR DAYS) OR PERMANENTLY CEASED. STABILIZATION MUST BE INITIATED PROMPTLY. REFER TO LANDSCAPE PLANS FOR FINAL GROUND COVER MATERIALS.
- 6. CONTRACTOR SHALL REMOVE ANY SEDIMENT THAT HAS TRACKED ONTO PAVED SURFACES BOTH ON AND OFFSITE WITHIN 24 HOURS AND AS DIRECTED BY THE CITY AND/OR ENGINEER. SWEEP STREET IN ACCORDANCE WITH CITY, COUNTY, STATE AND NDPES PERMIT REQUIREMENTS.
- 7. CONTRACTOR SHALL COMPLETE CONCRETE WASH-OUT OFF-SITE OR PROVIDE SELF-CONTAINED CONCRETE READY MIX TRUCKS.
- 8. CONTRACTOR SHALL MINIMIZE DUST FROM CONSTRUCTION OPERATIONS BY PROVIDING WATER OR OTHER APPROVED METHOD ON A DAILY BASIS.
- CONTRACTOR SHALL PHASE GRADING WORK TO MINIMIZE THE DURATION THAT DISTURBED SOIL IS EXPOSED.
   CONTRACTOR SHALL LOCATE SOIL STOCKPILES NO LESS THAN 20 FEET FROM ROADWAYS, STORMWATER INLETS, PONDS, WETLANDS, DRAINAGE CHANNELS, AND OTHER SURFACE WATERS. IF REMAINING FOR MORE THAN 7 DAYS, STABILIZE THE STOCKPILES BY MULCHING, VEGETATED COVER, TARPS, OR OTHER MEANS IN ACCORDANCE WITH THE NPDES PERMIT. PLACE PERIMETER SEDIMENT CONTROLS AROUND STOCKPILES TO CONTROL EROSION. COVER TEMPORARY STOCKPILES LOCATED ON PAVED SURFACES IF LEFT FROM MORE THAN 24 HOURS.
- 11. CONTRACTOR SHALL REMOVE ALL EROSION CONTROL MEASURES AFTER SITE HAS BEEN STABILIZED AND VEGETATION IS ESTABLISHED AS DIRECTED BY ENGINEER. EROSION CONTROL MEASURES USED FOR CONSTRUCTION MUST NOT BE REMOVED UNTIL AUTHORIZED BY OWNER OR ENGINEER.
- 12. CONTRACTOR SHALL SUBMIT THE NOTICE OF TERMINATION AT THE COMPLETION OF THE PROJECT IN ACCORDANCE WITH THE NPDES PERMIT AND SWPPP REQUIREMENTS.
- 13. INSPECT ALL BMPS WITHIN 24 HOURS AFTER A ½" OR GREATER RAINFALL.

# **GRADING NOTES**

- 1. SEE GENERAL NOTES FOR ADDITIONAL PROJECT AND SITE INFORMATION.
- 2. PROPOSED CONTOURS ARE TO FINISHED SURFACE GRADE, UNLESS NOTED OTHERWISE
- 3. CONTRACTOR SHALL PROVIDE TOPSOIL, SEED/SOD, MULCH, AND FERTILIZER IN ACCORDANCE WITH THE LANDSCAPE PLAN/EROSION CONTROL PLAN.
- 4. THE SITE HAS NOT NECESSARILY BEEN DESIGNED TO BALANCE THE ON-SITE MATERIALS. ADDITIONAL ONSITE EXCAVATION OF SOIL MAY BE NECESSARY TO ACHIEVE THE FINAL GRADE SHOWN ON THE DRAWINGS. CONTRACTOR SHALL COORDINATE ADDITIONAL BORROW AREAS WITH OWNER AND ENGINEER.
- 5. CONTRACTOR SHALL PROVIDE POSITIVE DRAINAGE AWAY FROM BUILDINGS AND ENSURE NO PONDING IN PAVED AREAS. CONTRACTOR SHALL NOTIFY ENGINEER IF GRADING DISCREPANCIES ARE FOUND IN EXISTING OR PROPOSED GRADES PRIOR TO PLACEMENT OF PAVEMENT. OBSERVE PAVEMENT AREAS FOR EVIDENCE OF PONDING BEFORE PLACEMENT OF PAVEMENT TO ENSURE DRAINAGE IS ADEQUATE TO INTENDED AREA.
- 6. EXISTING TOPSOIL ON SITE VARIES IN DEPTH. CONTRACTOR SHALL REMOVE SURFACE VEGETATION AND TOPSOIL AND OTHER LOOSE, SOFT OR OTHERWISE UNSUITABLE MATERIAL FROM THE IMPERVIOUS AREAS AND OTHER AREAS AS DIRECTED BY THE GEOTECHNICAL ENGINEER BEFORE PLACEMENT OF FILL MATERIAL.
- REFERENCE LANDSCAPE PLAN FOR MINIMUM TOPSOIL RESPREAD THICKNESS.
   CONTRACTOR SHALL EXCAVATE AND DISPOSE OF UNSUITABLE OR CONTAMINATED SOILS DISCOVERED ONSITE IN ACCORDANCE WITH APPLICABLE REGULATIONS AND AS DIRECTED BY GEOTECHNICAL ENGINEER.
- 9. SOILS TESTING WILL BE COMPLETED BY THE OWNER'S GEOTECHNICAL ENGINEER. CONTRACTOR SHALL COORDINATE REQUIRED SOIL TESTS AND INSPECTIONS WITH THE GEOTECHNICAL ENGINEER.
- 10. CONTRACTOR IS RESPONSIBLE FOR MEETING GRADING/COMPACTION REQUIREMENTS OUTLINED IN THE GEOTECHNICAL REPORT AND SPECIFICATIONS FOR THE PROJECT.
- 11. ONSITE EMBANKMENT MATERIAL FREE OF ORGANIC SOIL AND DEBRIS MAY BE CONSIDERED FOR REUSE AS FILL MATERIAL BUT MUST BE APPROVED BY THE GEOTECHNICAL ENGINEER.
- 12. IMPORTED MATERIAL NEEDED MAY CONSIST OF SAND (SW, SP), SILTY SAND (SM), CLAYEY SAND (SC), SANDY LEAN CLAY OR LEAN CLAY (CL), ACCORDING TO THE USCS CLASSIFICATION WITH A PLASTIC INDEX OF THESE MATERIALS NOT
- EXCEEDING 15, AND MUST BE APPROVED BY THE GEOTECHNICAL ENGINEER BEFORE BRINGING ON THE SITE.

  13. CONTRACTOR SHALL PROVIDE DEWATERING MEASURES AS REQUIRED OR AS DIRECTED BY THE GEOTECHNICAL ENGINEER AT NO ADDITIONAL COST TO THE OWNER.
- 14. CONTRACTOR SHALL BACKFILL SUBGRADE AND TRENCH EXCAVATIONS PROMPTLY AFTER EXCAVATION TO HELP OFFSET STABILITY PROBLEMS DUE TO WATER SEEPAGE OR STEEP SLOPES AND PUBLIC SAFETY.
- 15. CONTRACTOR SHALL INSTALL A MINIMUM OF 6 INCHES CLASS 5 AGGREGATE BASE UNDER CURB AND GUTTER, SEE DETAILS.
- CONTRACTOR SHALL CONSTRUCT/GRADE SIDEWALKS AND ACCESSIBLE ROUTES INCLUDING CROSSING DRIVEWAYS IN ACCORDANCE WITH CURRENT ADA STATE AND NATIONAL STANDARDS. NOTIFY ENGINEER IMMEDIATELY IF ADA
- CRITERIA CANNOT BE MET AT ANY LOCATION.

  7. AGGREGATE BASE MODIFIED SPECIFICATION: RECYCLED MATERIAL SHALL CONTAIN NO MATERIAL GREATER THAN 1.5-INCHES IN NOMINAL DIAMETER AND CONTAIN NO MORE THAN 10% PASSING THE #200 SIEVE. SOIL SHALL BE COMPACTED TO AT LEAST 100% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY. MOISTURE CONTENT SHALL BE KEPT WITHIN -1% TO +3% OF ITS OPTIMUM VALUE. AS MATERIAL GRADATIONS MAY CHANGE THROUGHOUT THE STOCKPILE, SEVERAL PROCTOR TESTS MAY NEED TO BE COMPLETED. SAMPLES OF EACH OF THESE MATERIALS SHALL BE KEPT ON SITE FOR COMPARISON DURING CONSTRUCTION.
- 18. AVOID COMPACTION OF SOIL IN PROPOSED STORMWATER BASIN LOCATIONS.

# STORM SEWER NOTES

- 1. CONTRACTOR SHALL MAINTAIN, AT ALL TIMES, STORMWATER CONVEYANCE ONTO THE PROPERTY AND MANAGE THE STORMWATER IN STRICT COMPLIANCE WITH THE SWPPP. ADJACENT PROPERTIES AND ROW THAT RUN ONTO THE PROPERTY SHALL NOT BE NEGATIVELY IMPACTED BY THE CONSTRUCTION OF THE IMPROVEMENTS. TEMPORARY CONVEYANCE PLANS SHALL BE PROVIDED BY THE CONTRACTOR FOR REVIEW AND APPROVAL BY THE OWNER AND THE CITY OF APPLE VALLEY.
- 2. CONTRACTOR SHALL COMPLY WITH THE SPECIFICATIONS OF THE CITY OF CRYSTAL, CEAM, AND MINNESOTA PLUMBING CODE (MINNESOTA RULES CHAPTER 4714) FOR MATERIALS, INSTALLATION, AND TESTING OF STORM UTILITIES
- 3. STORM SEWER MAINS, SERVICE PIPES, AND FITTINGS TO MEET THE FOLLOWING REQUIREMENTS:
- 3.1. SITE PIPING: 3.1.1. 12 INCH
- 3.1.1. 12 INCH DIA. AND LARGER, REINFORCED CONCRETE (RC) PIPE CLASS PER CITY SPECIFICATIONS AS NOTED ON THE PLAN.
- 3.1.2. JOINTS: JOINTS MUST BE CERTIFIED BY THE MANUFACTURER TO BE ABLE TO PASS THE AIR TEST OR INTERNAL HYDROSTATIC PRESSURE REQUIRED BY THE AGENCY HAVING JURISDICTION.
- 3.2. BEDDING: CONTRACTOR SHALL INSTALL PVC AND HDPE PIPING IN ACCORDANCE WITH CEAM, ASTM D 2321 AND ASTM F 1668 (FOR GRAVITY SEWER), ASTM D 2774 (FOR PRESSURE PIPE), ASTM A798 (FOR CMP), AND PROJECT DETAILS. CONTRACTOR SHALL INSTALL RC PIPE IN ACCORDANCE WITH CEAM, ASTM C 1479, AND PROJECT DETAILS AND SPECIFICATIONS.
- 4. CONTRACTOR SHALL PROVIDE 10 FEET MINIMUM HORIZONTAL SEPARATION (OUTSIDE EDGE OF PIPE TO OUTSIDE EDGE OF PIPE/STRUCTURE) BETWEEN WATER LINES AND SANITARY OR STORM LINES AND STRUCTURES.
- 5. CONTRACTOR SHALL PROVIDE 24 INCH MINIMUM VERTICAL SEPARATION (OUTSIDE EDGE OF PIPE TO OUTSIDE EDGE OF PIPE/STRUCTURE) BETWEEN WATER LINES AND OTHER UTILITY LINES. PROVIDE INSULATION WHERE WATER, SANITARY, OR STORM UTILITIES CROSS. OFFSET WATERMAIN AND SERVICES AS NECESSARY.
- 6. CONTRACTOR SHALL VERIFY PIPE SIZE, MATERIAL, AND ELEVATION FOR CONNECTIONS. PROVIDE APPROPRIATE PIPES AND FITTINGS REQUIRED TO MAKE CONNECTIONS TO EXISTING INFRASTRUCTURE AS VERIFIED IN THE FIELD.
- 7. CONTRACTOR SHALL PROVIDE AND INSTALL A FLEXIBLE COMPRESSION JOINT TO MAKE WATERTIGHT CONNECTIONS TO MANHOLES IN ACCORDANCE WITH MINNESOTA PLUMBING CODE, SECTION 719.6. RESILIENT RUBBER JOINTS MEETING ASTM C 923 MAY BE USED IF APPROVED BY AGENCY HAVING JURISDICTION SEE PROJECT DETAILS.
- 8. CONTRACTOR SHALL PLACE AND COMPACT FILL MATERIAL BEFORE INSTALLATION OF PROPOSED UTILITIES.
- 9. CONTRACTOR IS RESPONSIBLE FOR PROPERLY LOCATING AND INSTALLING CATCH BASINS SO THAT THE INLET FRAME AND GRATE PROPERLY ALIGN WITH CURB AND GUTTER.
- 10.LINES UNDERGROUND SHALL BE INSTALLED, INSPECTED, AND APPROVED PRIOR TO BACKFILLING IN ACCORDANCE WITH CITY OF CRYSTAL REQUIREMENTS.
- 11.ALL NECESSARY INSPECTIONS AND/OR CERTIFICATIONS REQUIRED BY CODES, AGENCY HAVING JURISDICTION AND UTILITY SERVICE COMPANIES.

# DEWATERING NOTES

- IN THE EVENT THAT GROUNDWATER DEWATERING IS NECESSARY CONTRACTOR SHALL OBTAIN APPLICABLE REQUIRED PERMITS (INCLUDING MN DNR WATER APPROPRIATION PERMIT) AND SUBMIT DEWATERING PLAN TO CITY FOR REVIEW. DEWATERING MUST MEET PERMIT REQUIREMENTS AND BE APPROVED BEFORE STARTING CONSTRUCTION ACTIVITIES.
   CONTRACTOR MUST DEWATER IN ACCORDANCE WITH THE PROJECT SWPPP AND NPDES PERMIT.
- 3. CONTRACTOR MUST DEWATER IN ACCORDANCE WITH THE PROJECT SWEFF AND NEDES FERMIT.

  (E.G. PUMPED DISCHARGES, TRENCH/DITCH CUTS FOR DRAINAGE) TO A TEMPORARY OR PERMANENT SEDIMENTATION BASIN ON THE PROJECT SITE UNLESS INFEASIBLE. CONTRACTOR MAY DISCHARGE FROM THE TEMPORARY OR
- PERMANENT SEDIMENTATION BASINS TO THE SURFACE WATERS IF THE BASIN WATER HAS BEEN VISUALLY CHECKED TO ENSURE ADEQUATE TREATMENT HAS BEEN OBTAINED IN THE BASIN AND THAT NUISANCE CONDITIONS (SEE MINNESOTA RULES CHAPTER 7050.0210, SUBPART 2) WILL NOT RESULT FROM THE DISCHARGE. IF THE WATER CANNOT BE DISCHARGED TO A SEDIMENTATION BASIN PRIOR TO ENTERING THE SURFACE WATER, IT MUST BE TREATED WITH THE APPROPRIATE BMPS (E.G. SILT BAGS), SUCH THAT THE DISCHARGE DOES NOT ADVERSELY AFFECT THE RECEIVING WATER OR DOWNSTREAM PROPERTIES. IF THE CONTRACTOR MUST DISCHARGE WATER THAT CONTAINS OIL OR GREASE, THE CONTRACTOR MUST USE AN OIL-WATER SEPARATOR OR SUITABLE FILTRATION DEVICE (E.G. CARTRIDGE FILTERS, ABSORBENTS PADS) PRIOR TO DISCHARGING THE WATER. THE CONTRACTOR MUST ENSURE THAT DISCHARGE POINTS ARE ADEQUATELY PROTECTED FROM EROSION AND SCOUR. THE DISCHARGE MUST BE DISPERSED OVER
- NATURAL ROCK RIPRAP, SAND BAGS, PLASTIC SHEETING, OR OTHER ACCEPTED ENERGY DISSIPATION MEASURES.

  CONTRACTOR MUST DISCHARGE WATER FROM DEWATERING OR BASIN-DRAINING ACTIVITIES IN A MANNER THAT DOES NOT CAUSE NUISANCE CONDITIONS, EROSION IN RECEIVING CHANNELS OR ON DOWNSLOPE PROPERTIES, OR INUNDATION IN WETLANDS CAUSING SIGNIFICANT ADVERSE IMPACT TO THE WETLAND.
- 5. IF THE CONTRACTOR IS USING FILTERS WITH BACKWASH WATER, THE CONTRACTOR MUST HAUL THE BACKWASH WATER AWAY FOR DISPOSAL, RETURN THE BACKWASH WATER TO THE BEGINNING OF THE TREATMENT PROCESS, OR INCORPORATE THE BACKWASH WATER INTO THE SITE IN A MANNER THAT DOES NOT CAUSE EROSION. THE CONTRACTOR MAY DISCHARGE BACKWASH WATER TO THE SANITARY SEWER IF PERMISSION IS GRANTED BY THE SANITARY SEWER AUTHORITY. THE CONTRACTOR MUST REPLACE AND CLEAN THE FILTER MEDIA USED IN DEWATERING DEVICES WHEN REQUIRED TO RETAIN ADEQUATE FUNCTION.



7500 OLSON MEMORIAL HWY SUITE 300 GOLDEN VALLEY, MN 55427 PHONE: 763-252-6800

FAX: 952-831-1268

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IFNT<sup>.</sup>



# MENIUCKY AVE WAIER QUALITY IMPROVEMEN

E: DESCRIPTION:

CERTIFICATION:

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.

Br K\_\_\_

LICENSE NO.: 25817

DATE: 04/15/2020

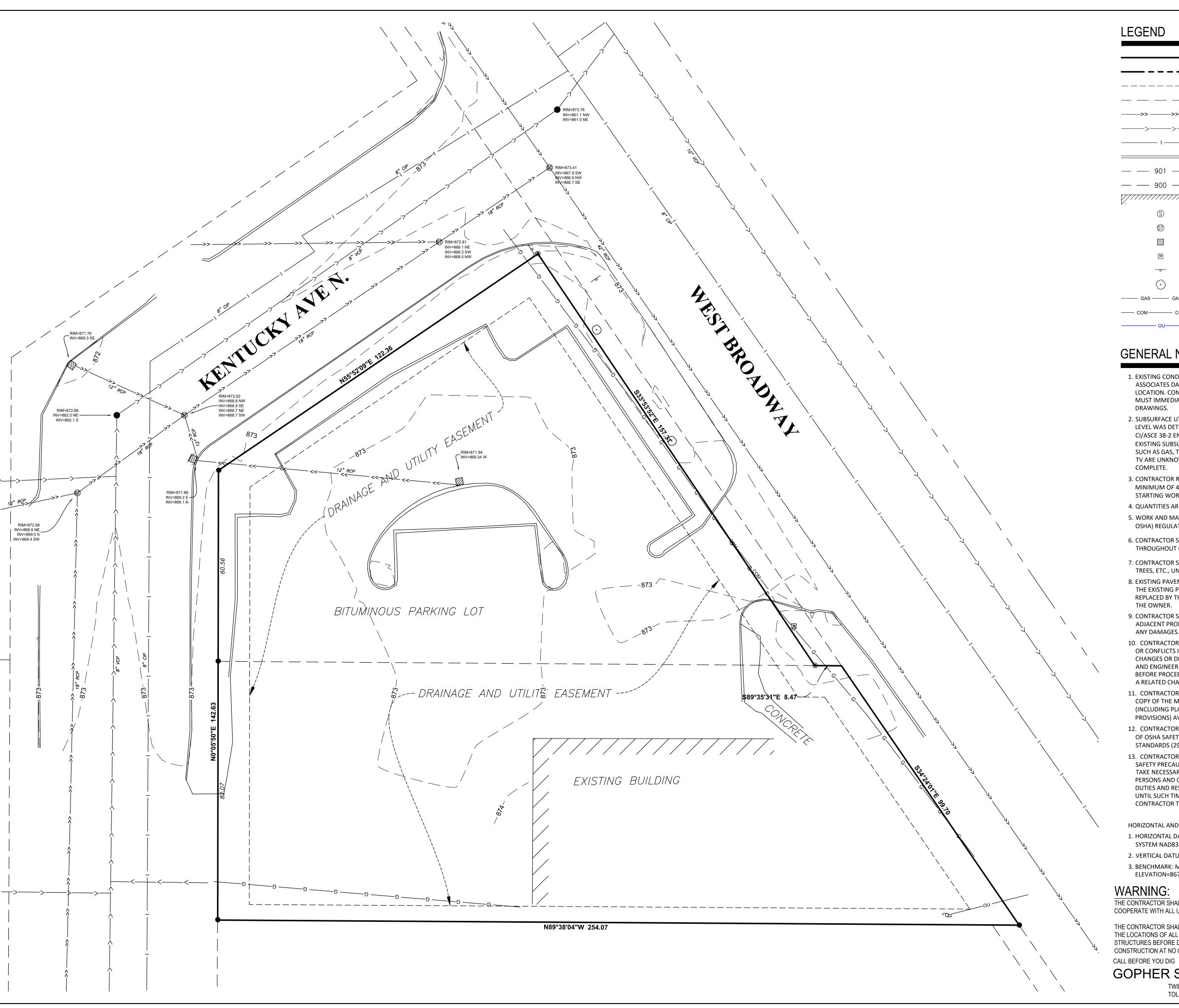
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 CHK'D BY:
 APP'D BY:

 BMB
 MJS
 BFK

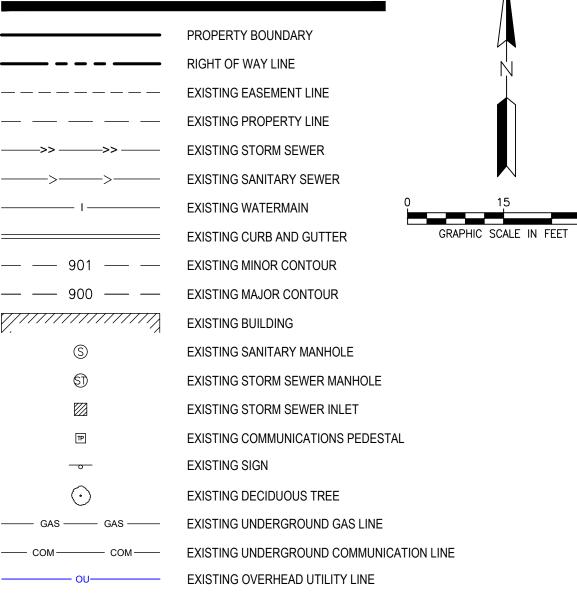
ISSUE DATE:
04/15/2020

SHEET TITLE:

NOTES







# **GENERAL NOTES**

- 1. EXISTING CONDITIONS SHOWN ARE FROM A TOPOGRAPHIC SURVEY COMPLETED BY WENCK ASSOCIATES DATED FEBRUARY 10, 2020. EXISTING FEATURES MAY NOT BE EXACT TO THEIR LOCATION. CONTRACTOR RESPONSIBLE FOR VERIFYING THE CONDITIONS OF THE SITE AND MUST IMMEDIATELY NOTIFY THE ENGINEER OF DISCREPANCIES OR VARIATIONS FROM THE
- 2. SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 38-2 ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF
- EXISTING SUBSURFACE UTILITY DATA". EXACT LOCATION/DEPTH OF SUBSURFACE UTILITIES SUCH AS GAS, TELEPHONE, FIBER OPTIC, SEWER, WATER, PIPELINES, ELECTRICAL, AND CABLE TV ARE UNKNOWN AND THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR
- 3. CONTRACTOR RESPONSIBLE FOR CONTACTING GOPHER STATE ONE CALL (1-800-252-1166) A MINIMUM OF 48 HOURS IN ADVANCE (EXCLUDING HOLIDAYS AND WEEKENDS) BEFORE STARTING WORK FOR LOCATIONS OF UNDERGROUND UTILITIES.
- 4. QUANTITIES ARE APPROXIMATE, AND MAY VARY TO ALLOW COMPLETION OF WORK.
- 5. WORK AND MATERIALS MUST COMPLY WITH CITY, COUNTY, STATE, AND FEDERAL (INCLUDING OSHA) REGULATIONS AND CODES.
- 6. CONTRACTOR SHALL COORDINATE AND MAINTAIN STORMWATER DRAINAGE CONVEYANCE THROUGHOUT CONSTRUCTION (BOTH PIPED AND OVERLAND FLOW).
- 7. CONTRACTOR SHALL PRESERVE AND PROTECT EXISTING PAVEMENT, SITE FEATURES, UTILITIES, TREES, ETC., UNLESS NOTED OR SHOWN OTHERWISE.
- 8. EXISTING PAVEMENT AND SITE CONDITIONS HAVE BEEN DOCUMENTED AND ANY DAMAGE TO THE EXISTING PAVEMENT, CURBING, STRIPING, OR OTHER SITE FEATURE TO REMAIN MUST BE REPLACED BY THE CONTRACTOR, TO OWNER'S SATISFACTION, AT NO ADDITIONAL COST TO
- 9. CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO AVOID PROPERTY DAMAGE TO ADJACENT PROPERTIES DURING CONSTRUCTION AND WILL BE HELD SOLELY RESPONSIBLE FOR ANY DAMAGES.
- 10. CONTRACTOR MUST IMMEDIATELY NOTIFY THE OWNER AND ENGINEER OF DISCREPANCIES OR CONFLICTS IN THE CONTRACT DOCUMENTS BEFORE COMMENCING WORK. NO FIELD CHANGES OR DEVIATIONS ARE TO BE MADE WITHOUT PRIOR APPROVAL FROM THE OWNER AND ENGINEER. FAILURE TO NOTIFY OWNER AND ENGINEER OF AN IDENTIFIABLE CONFLICT BEFORE PROCEEDING WITH INSTALLATION RELIEVES OWNER OF ANY OBLIGATION TO PAY FOR A RELATED CHANGE ORDER.
- 11. CONTRACTOR SHALL HAVE ONE COPY OF EACH REQUIRED CONSTRUCTION PERMIT AND ONE COPY OF THE MOST CURRENT AND COMPLETE SET OF CONSTRUCTION DOCUMENTS (INCLUDING PLANS, SPECIFICATIONS, GEOTECHNICAL REPORT AND SPECIAL CONDITIONS AND PROVISIONS) AVAILABLE AT THE PROJECT SITE AT ALL TIMES.
- 12. CONTRACTOR SHALL PLAN FOR AND ENSURE PERSONNEL COMPLY WITH BASIC PROVISIONS OF OSHA SAFETY AND HEALTH STANDARDS (29 CFR 1910) AND GENERAL CONSTRUCTION STANDARDS (29 CFR 1926) AS APPROPRIATE.
- 13. CONTRACTOR SHALL BE RESPONSIBLE FOR INITIATING, MAINTAINING, AND SUPERVISING SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH WORK. CONTRACTOR SHALL TAKE NECESSARY PRECAUTIONS FOR SAFETY OF EMPLOYEES ON PROJECT SITE AND OTHER PERSONS AND ORGANIZATIONS WHO MAY BE AFFECTED BY THE PROJECT. CONTRACTOR'S DUTIES AND RESPONSIBILITIES FOR SAFETY IN CONNECTION WITH WORK SHALL CONTINUE UNTIL SUCH TIME AS ALL WORK IS COMPLETED, AND ENGINEER HAS ISSUED NOTICE TO CONTRACTOR THAT WORK IS COMPLETE.
- HORIZONTAL AND VERTICAL CONTROL NOTES
- 1. HORIZONTAL DATUM: HENNEPIN COUNTY COORDINATE
- SYSTEM NAD83(11)
- 2. VERTICAL DATUM: NAVD88
- 3. BENCHMARK: MNDOT CONTROL STATION GEP A ELEVATION=867.09'

THE CONTRACTOR SHALL BE RESPONSIBLE FOR CALLING FOR LOCATIONS OF ALL EXISTING UTILITIES. THEY SHALL COOPERATE WITH ALL UTILITY COMPANIES IN MAINTAINING THEIR SERVICE AND/OR RELOCATION OF LINES.

THE CONTRACTOR SHALL CONTACT GOPHER STATE ONE CALL AT 651-454-0002 AT LEAST 48 HOURS IN ADVANCE FOR THE LOCATIONS OF ALL UNDERGROUND WIRES, CABLES, CONDUITS, PIPES, MANHOLES, VALVES OR OTHER BURIED STRUCTURES BEFORE DIGGING. THE CONTRACTOR SHALL REPAIR OR REPLACE THE ABOVE WHEN DAMAGED DURING CONSTRUCTION AT NO COST TO THE OWNER.

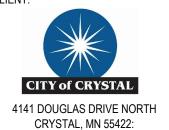
# **GOPHER STATE ONE CALL**

TWIN CITY AREA: 651-454-0002 TOLL FREE 1-800-252-1166



7500 OLSON MEMORIAL HWY GOLDEN VALLEY, MN 55427 PHONE: 763-252-6800

> FAX: 952-831-1268 WWW.WENCK.COM



PRO.					
ISSUE NO.:	0				
SCRIPTION:	PLANS				

CERTIFICATION:

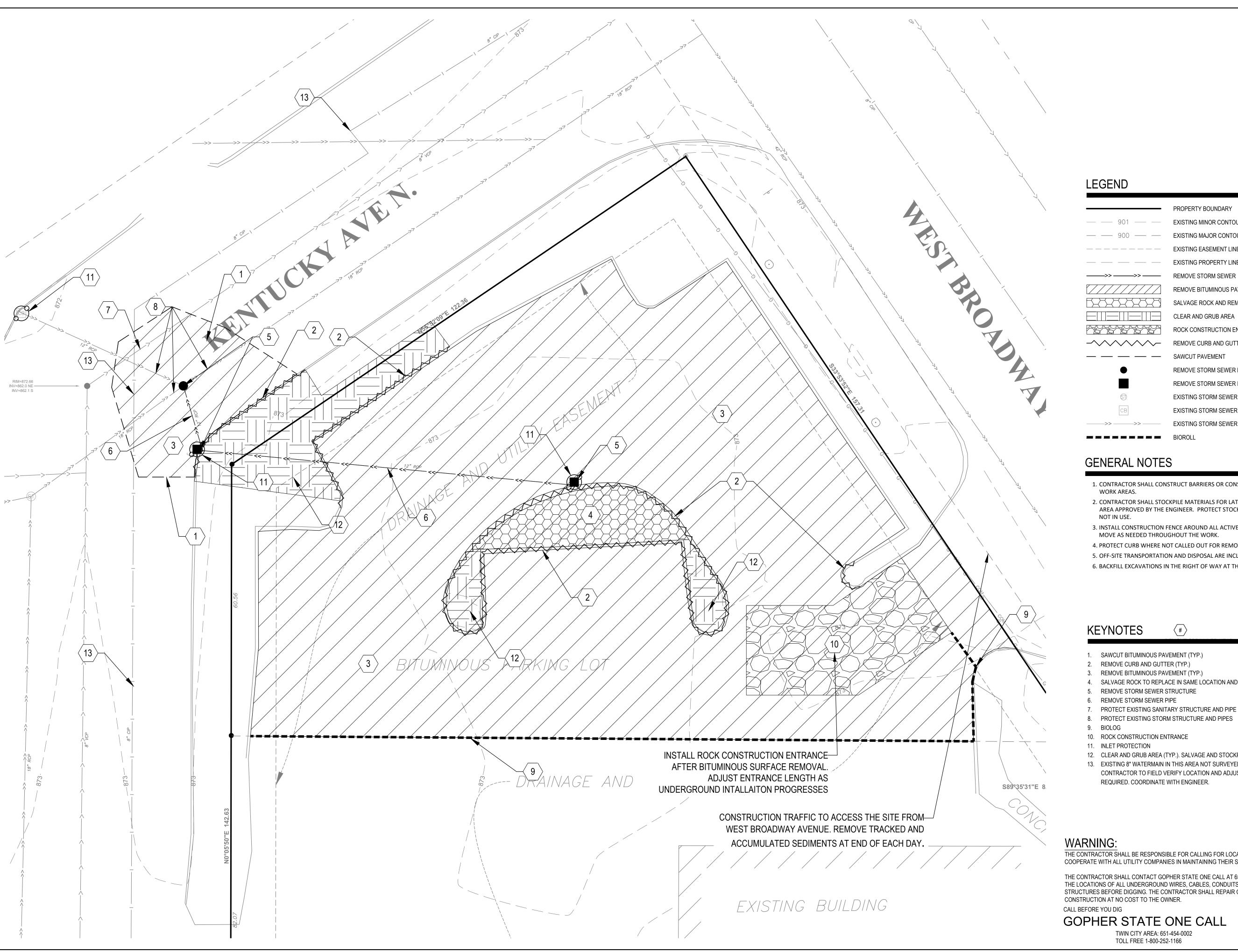
HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

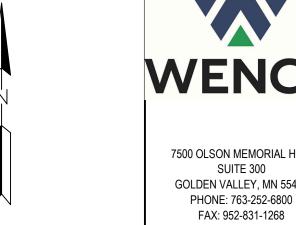
LICENSE NO.: 25817 DATE: 04/15/2020

1886-0010 PROJECT NO.: DWN BY: | CHK'D BY: | APP'D BY: BMB MJS BFK

04/15/2020 ISSUE DATE: ISSUE NO.:

SHEET TITLE: **EXISTING CONDITIONS** 





PROPERTY BOUNDARY EXISTING MINOR CONTOUR EXISTING MAJOR CONTOUR EXISTING EASEMENT LINE EXISTING PROPERTY LINE REMOVE STORM SEWER REMOVE BITUMINOUS PAVEMENT SALVAGE ROCK AND REMOVE PARKING LOT ISLAND CLEAR AND GRUB AREA ROCK CONSTRUCTION ENTRANCE REMOVE CURB AND GUTTER SAWCUT PAVEMENT REMOVE STORM SEWER MANHOLE REMOVE STORM SEWER INLET EXISTING STORM SEWER MANHOLE EXISTING STORM SEWER INLET EXISTING STORM SEWER

# **GENERAL NOTES**

- 1. CONTRACTOR SHALL CONSTRUCT BARRIERS OR CONSTRUCTION FENCE SURROUNDING ALL WORK AREAS.
- 2. CONTRACTOR SHALL STOCKPILE MATERIALS FOR LATER USE AS NEEDED AT A DESIGNATED AREA APPROVED BY THE ENGINEER. PROTECT STOCKPILES WITH PERIMETER CONTROL WHEN
- 3. INSTALL CONSTRUCTION FENCE AROUND ALL ACTIVE WORK AREAS. MAINTAIN FENCE AND MOVE AS NEEDED THROUGHOUT THE WORK.

- 5. OFF-SITE TRANSPORTATION AND DISPOSAL ARE INCLUDED WITH REMOVAL BID ITEMS. 6. BACKFILL EXCAVATIONS IN THE RIGHT OF WAY AT THE END OF EACH WORK DAY.



- SAWCUT BITUMINOUS PAVEMENT (TYP.)
- 2. REMOVE CURB AND GUTTER (TYP.)
- 3. REMOVE BITUMINOUS PAVEMENT (TYP.)
- 4. SALVAGE ROCK TO REPLACE IN SAME LOCATION AND REMOVE PARKING LOT ISLAND
- 5. REMOVE STORM SEWER STRUCTURE
- 6. REMOVE STORM SEWER PIPE
- 8. PROTECT EXISTING STORM STRUCTURE AND PIPES
- BIOLOG
- 10. ROCK CONSTRUCTION ENTRANCE
- 11. INLET PROTECTION
- 12. CLEAR AND GRUB AREA (TYP.). SALVAGE AND STOCKPILE EXISTING TOPSOIL.
- 13. EXISTING 8" WATERMAIN IN THIS AREA NOT SURVEYED AND SHOWN FOR REFERENCE ONLY -CONTRACTOR TO FIELD VERIFY LOCATION AND ADJUST REMOVAL AND REPLACEMENT LIMITS IF REQUIRED. COORDINATE WITH ENGINEER.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR CALLING FOR LOCATIONS OF ALL EXISTING UTILITIES. THEY SHALL COOPERATE WITH ALL UTILITY COMPANIES IN MAINTAINING THEIR SERVICE AND/OR RELOCATION OF LINES.

THE CONTRACTOR SHALL CONTACT GOPHER STATE ONE CALL AT 651-454-0002 AT LEAST 48 HOURS IN ADVANCE FOR THE LOCATIONS OF ALL UNDERGROUND WIRES, CABLES, CONDUITS, PIPES, MANHOLES, VALVES OR OTHER BURIED STRUCTURES BEFORE DIGGING. THE CONTRACTOR SHALL REPAIR OR REPLACE THE ABOVE WHEN DAMAGED DURING CONSTRUCTION AT NO COST TO THE OWNER.

# **GOPHER STATE ONE CALL**

TWIN CITY AREA: 651-454-0002 TOLL FREE 1-800-252-1166



7500 OLSON MEMORIAL HWY GOLDEN VALLEY, MN 55427

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4141 DOUGLAS DRIVE NORTH CRYSTAL, MN 55422:

CERTIFICATION:

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.

I HEREBY CERTIFY THAT THIS PLAN,

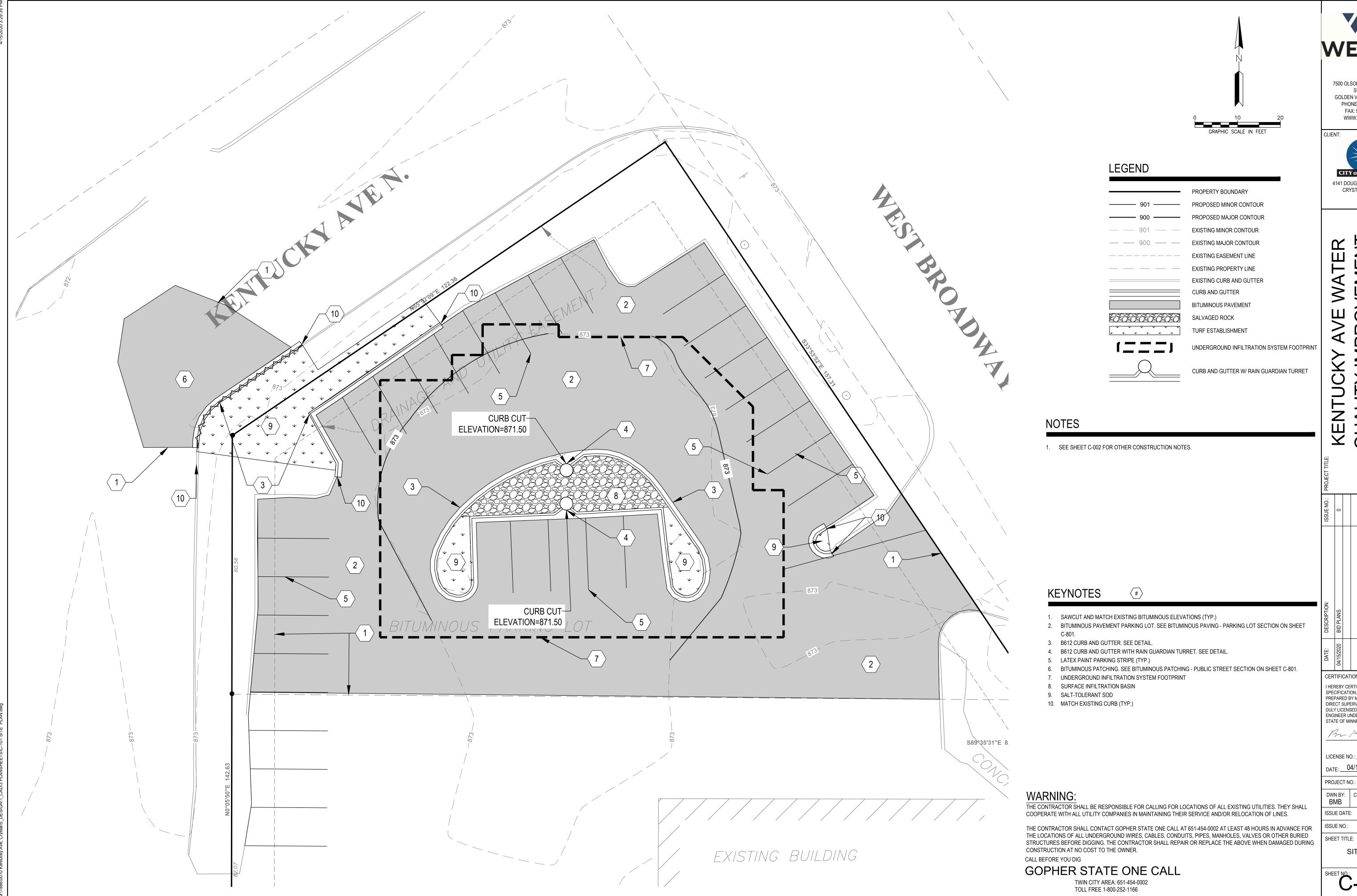
LICENSE NO.: 25817 DATE: 04/15/2020

1886-0010 PROJECT NO.: DWN BY: CHK'D BY: APP'D BY:

BMB MJS BFK 04/15/2020 ISSUE DATE:

ISSUE NO.: SHEET TITLE:

REMOVALS PLAN AND PRECONSTRUCTION **EROSION CONTROL PLAN** 



WENCK

7500 OLSON MEMORIAL HWY SUITE 300 GOLDEN VALLEY, MN 55427 PHONE: 763-252-6800

FAX: 952-831-1268 WWW.WENCK.COM

4141 DOUGLAS DRIVE NORTH CRYSTAL, MN 55422:

CERTIFICATION:

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

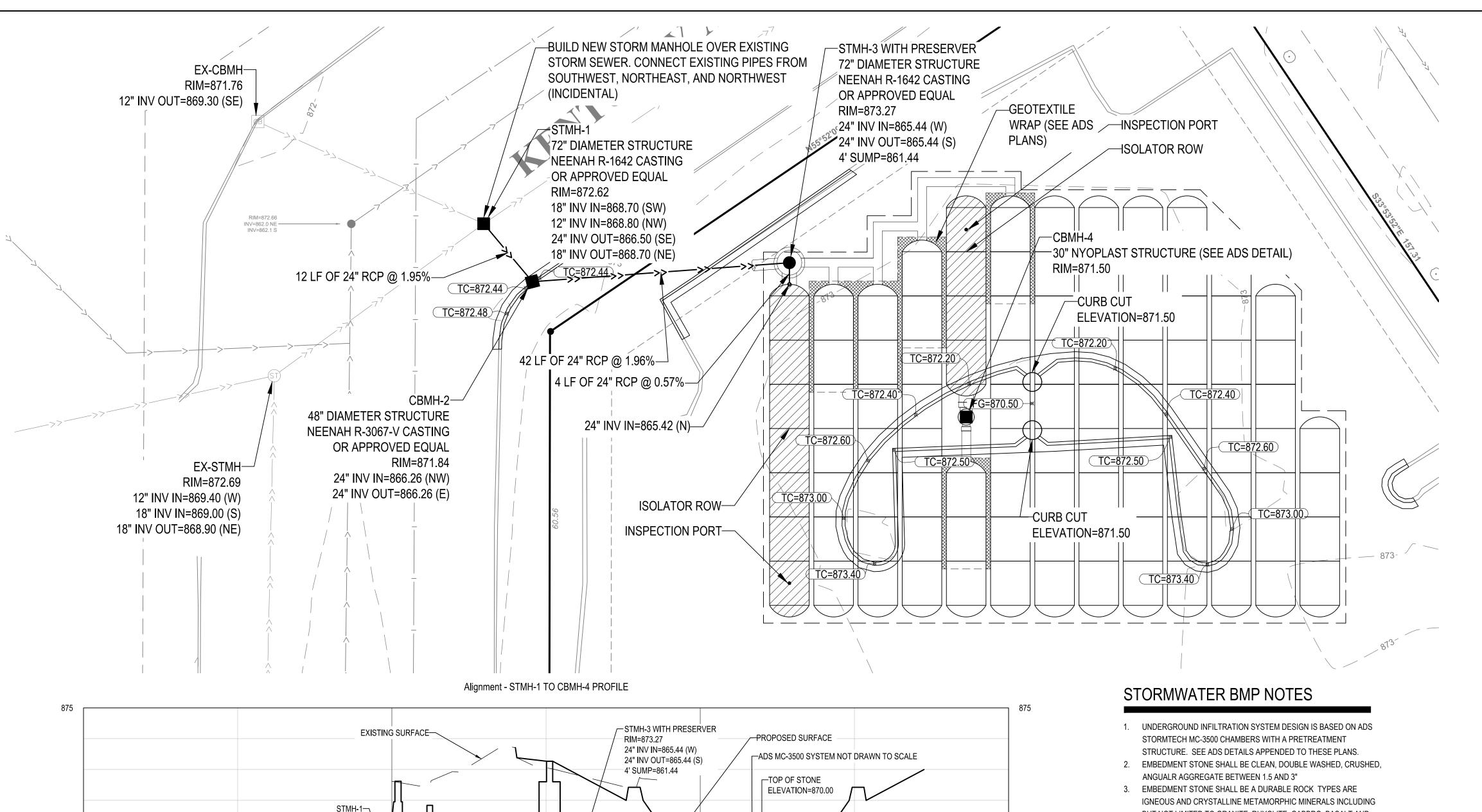
STATE OF MINNESOTA.

LICENSE NO.: 25817 DATE: 04/15/2020

PROJECT NO.: DWN BY: CHK'D BY: APP'D BY: BMB MJS BFK

04/15/2020 ISSUE DATE:

SITE PLAN



-CBMH-4

BOTTOM OF STONE ELEVATION=864.50—

1+00

└─4 LF OF 24" RCP @ 0.57% (S)

RIM=871.50

TOP OF CHAMBER

ELEVATION=869.00

BOTTOM OF CHAMBER

ELEVATION=865.25

870

865

RIM=872.62

12 LF OF 24" RCP @ 1.95% (SE)-

CBMH-2-

RIM=871.84

24" INV IN=866.26 (NW)

24" INV OUT=866.26 (E)

42 LF OF 24" RCP @ 1.96% (E

18" INV IN=868.70 (SW) EXISTING -

12" INV IN=868.80 (NW) EXISTING

18" INV OUT=868.70 (NE) EXISTING -

18" INV OUT=868.70 (NE) EXISTING

24" INV OUT=866.50 (SE)

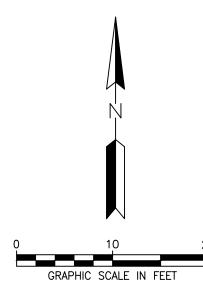
24" INV OUT=866.50 (SE)

- BUT NOT LIMITED TO GRANITE, RHYOLITE, GABBRO, BASALT AND QUARTZITE.
- 4. UNACCEPTABLE MINERALS FOR EMBEDMENT STONE INCLUDE, BUT ARE NOT LIMITED TO, CARBONATES AND NON-CRYSTALLINE MINERALS INCLUDING BUT NOT LIMITED TO LIMESTONE, DOLOMITE, DOLOSTONE AND SHALE
- MEETING THE FOLLOWING REQUIREMENTS:
- 5.1. NO METAL STRUCTURES SHALL BE ALLOWED

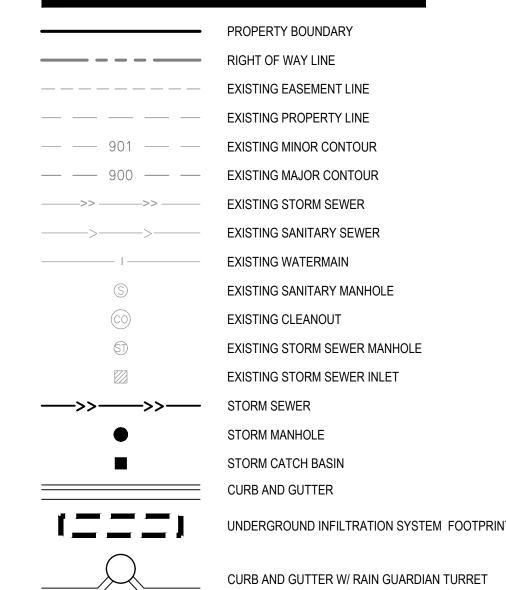
- THE SYSTEM OUTLET
- SYSTEM OUTLET ELEVATION SHALL BE 868.7
- EQUAL ITEM SHALL BE INCLUDED IN THE LUMP SUM COST AS IDENTIFIED ON THE BID FORM.
- MINIMIZE COMPACTION OF THE SOILS IN THE INFILTRATION AREAS. CONTRACTOR SHALL ACHIEVE FINAL GRADING OF THE INFILTRATION AREA USING LOW IMPACT (TRACKED) EARTH MOVING EQUIPMENT TO MINIMIZE COMPACTION.
- 7. CONTRACTOR SHALL STAKE OUT AND MARK THE PROJECT AREA TO KEEP CONSTRUCTION TRAFFIC, EQUIPMENT (EXCEPT THAT EQUIPMENT REQUIRED FOR GRADING AND CONSTRUCTION) AND MATERIAL STOCKPILES OUT OF THE PROPOSED INFILTRATION AREAS.
- 8. CONTRACTOR SHALL STAGE CONSTRUCTION APPROPRIATELY, AND INSTALL NECESSARY EROSION AND SEDIMENT CONTROLS, TO PREVENT SEDIMENT AND TOPSOIL FROM WASHING INTO THE INFILTRATION BASIN. IN THE EVENT THAT SEDIMENT IS INTRODUCED TO THE BASIN, THE CONTRACTOR SHALL REMOVE THE MATERIAL BEFORE PROCEEDING WITH CONSTRUCTION, AT NO COST TO THE
- 9. CONTRACTOR SHALL NOT USE THE INFILTRATION BMP AS A TEMPORARY SEDIMENT BASIN.
- 10. CONTRACTOR SHALL KEEP THE INFILTRATION BMP OFF-LINE BY ENGINEER.

- 5. CONTRACTORS MAY PROPOSE AN EQUAL UNDERGROUND SYSTEM
- PROVIDE A MINIMUM OF 20,262 CUBIC FEET OF STORAGE
- PROVIDE A MINIMUM OF 17,000 CUBIC FEET OF STORAGE BELOW
- MINIMUM BOTTOM ELEVATION OF THE SYSTEM SHALL BE 864.5.
- TOP OF SYSTEM SHALL NOT BE GREATER THAN 870.0
- ANY ADDITIONAL REMOVALS OR RESTORATION REQUIRED FOR
- 6. CONTRACTOR SHALL STAGE CONSTRUCTION APPROPRIATELY TO

- RESTRICTING SURFACE WATER INFLOW UNTIL DIRECTED BY THE



# LEGEND



ADS MC-3500 CHAMBER W/ END CAPS

FINISHED GRADE ELEVATION

TOP OF CURB ELEVATION

# **GENERAL NOTES**

- MANHOLES AND CATCH BASINS:
- ALL CONNECTIONS SHALL BE WATERTIGHT.

(FG=9XX.XX)

TC=9XX.XX ×

- FIELD VERIFY PIPE SIZES, LOCATIONS AND INVERTS. CONNECT TO EXISTING PIPE AT REMOVAL LOCATION PER
- MANUFACTURER REQUIREMENTS PROVIDE STRUCTURAL POLLUTION CONTROL DEVICE
- (PRESERVER OR EQUIVALENT) IN MANHOLE STMH-3. STRUCTURE DIAMETERS, INVERTS AND CASTINGS AS SHOWN
- IN THE PLANS. SOILS:
- 2.1. CONTRACTOR SHALL NOTE THAT SOIL IN THE EXCAVATION IS SUITABLE FOR ON-SITE OR OFF-SITE RE-USE. AN ENVIRONMENTAL PROFESSIONAL WILL BE ON SITE DURING EXCAVATION TO FIELD SCREEN TO ENSURE IT IS NOT IMPACTED BY A PAST RELEASE OR OTHERWISE REGULATED DUE TO THE PRESENCE OF DEMOLITION DEBRIS, ETC.
- CONTRACTOR SHALL STOCKPILE AND REUSE EXCAVATED SOIL ON SITE WHERE OTHER CONSTRUCTION MATERIALS ARE NOT SPECIFIED.

# BEDDING:

PROVIDE BEDDING MATERIAL FOR ALL BURIED PIPING, STRUCTURES AND UNDERGROUND INFILTRATION SYSTEM PER PROJECT DETAILS AND SPECIFICATIONS.

# **WARNING:**

THE CONTRACTOR SHALL BE RESPONSIBLE FOR CALLING FOR LOCATIONS OF ALL EXISTING UTILITIES. THEY SHALL COOPERATE WITH ALL UTILITY COMPANIES IN MAINTAINING THEIR SERVICE AND/OR RELOCATION OF LINES.

THE CONTRACTOR SHALL CONTACT GOPHER STATE ONE CALL AT 651-454-0002 AT LEAST 48 HOURS IN ADVANCE FOR THE LOCATIONS OF ALL UNDERGROUND WIRES, CABLES, CONDUITS, PIPES, MANHOLES, VALVES OR OTHER BURIED STRUCTURES BEFORE DIGGING. THE CONTRACTOR SHALL REPAIR OR REPLACE THE ABOVE WHEN DAMAGED DURING CONSTRUCTION AT NO COST TO THE OWNER. CALL BEFORE YOU DIG

# **GOPHER STATE ONE CALL**

TWIN CITY AREA: 651-454-0002 TOLL FREE 1-800-252-1166



7500 OLSON MEMORIAL HWY GOLDEN VALLEY, MN 55427 PHONE: 763-252-6800 FAX: 952-831-1268

WWW.WENCK.COM



W W

KE Q

CERTIFICATION:

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.

I HEREBY CERTIFY THAT THIS PLAN,

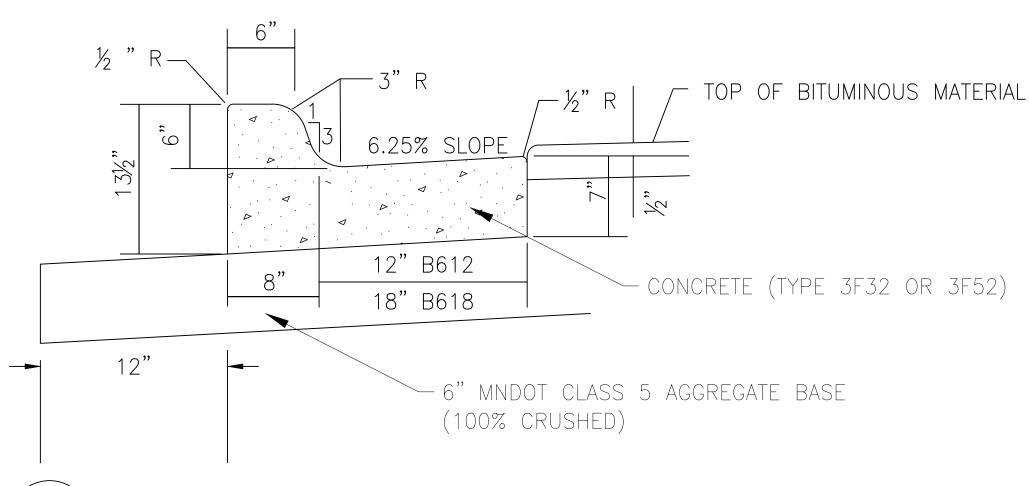
LICENSE NO.: 25817 DATE: 04/15/2020

1886-0010 PROJECT NO.: DWN BY: CHK'D BY: APP'D BY: BMB MJS BFK

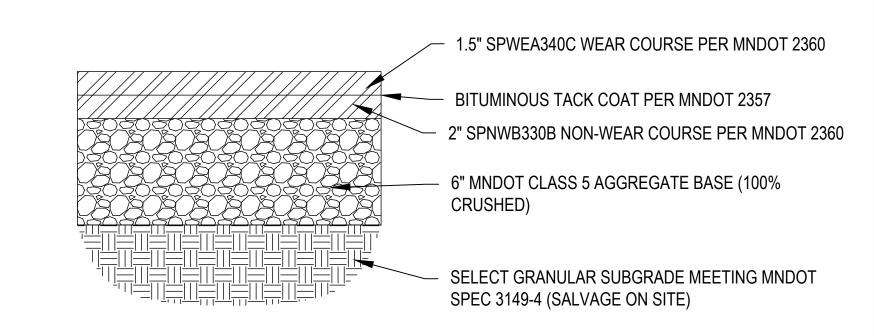
04/15/2020 ISSUE DATE: ISSUE NO.:

SHEET TITLE: STORM SEWER PLAN

**ROCK CONSTRUCTION ENTRANCE** C801 NOT TO SCALE



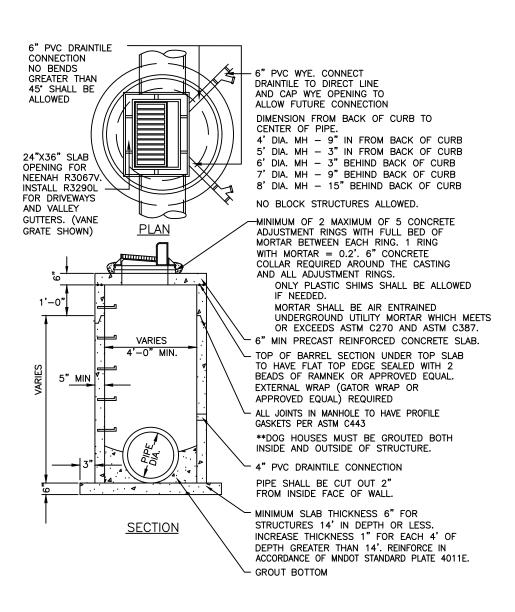
**B612 CURB AND GUTTER** C801 NOT TO SCALE



BITUMINOUS PATCHING - PUBLIC STREET C801 NOT TO SCALE

WIMCO ROAD DRAIN CG-3067 HIGH FLOW INLET PROTECTION CURB AND GUTTER MODEL OR CITY APPROVED EQUAL. --- DEFLECTOR PLATE - OVERFLOW IS ½ OF THE CURB BOX HEIGHT OVERFLOW AT TOP OF FILTER ASSEMBLY - 10" FILTER ASSEMBLY HIGH-FLOW FABRIC

GROUT BOTTOM OF MANHOLE TO A MINIMUM OF 1/2 DIAMETER AT PIPE AND SLOPE GROUT 2" TOWARD INVERT. MANHOLE STEPS SHALL BE PLACED SO
THAT OFFSET VERTICAL PORTION OF
CONE IS FACING DOWNSTREAM FOR ALL
PIPES UP TO 24". PLACE STEPS ON
RIGHT HAND SIDE WHEN FACING DOWN - NEENAH FRAME AND COVER OR EQUAL LETTERED, "STORM SEWER", WITH 2
CONCEALED PICK HOLES. MINIMUM OF 2 MAXIMUM OF 5 CONCRETE
ADJUSTMENT RINGS WITH FULL BED OF
MORTAR BETWEEN EACH RING. 1 RING WITH MORTAR = 0.2'. 6" CONCRETE COLLAR REQUIRED AROUND ALL ADJUSTMENT RINGS. ONLY PLASTIC SHIMS SHALL BE ALLOWED IF NEEDED. MORTAR SHALL BE AIR ENTRAINED
UNDERGROUND UTILITY MORTAR WHICH MEETS
OR EXCEEDS ASTM C270 AND ASTM C387. -6" PRECAST REINFORCED CONCRETE MANHOLE SLAB WITH #4 BARS AT 5 O.C. EACH WAY AND 2-#4 BARS AT ALL SIDES OF OPENING TO HAVE FLAT TOP EDGE SEALED WITH 2
BEADS OF RAMNEK OR APPROVED EQUAL. EXTERNAL WRAP (GATOR WRAP OR APPROVED EQUAL) REQUIRED -PIPE SHALL BE CUT OUT 2" FROM INSIDE FACE OF WALL. \*\*DOG HOUSES MUST BE GROUTED BOTH INSIDE AND OUTSIDE OF STRUCTURE. <u>SECTION</u> - MINIMUM SLAB THICKNESS 6" FOR STRUCTURES 14' IN DEPTH OR LESS. INCREASE THICKNESS 1" FOR EACH 4' OF DEPTH GREATER THAN 14', AND REINFORCE WITH 6"X6" 10/10 MESH.



BITUMINOUS PAVEMENT - PARKING LOT C801 NOT TO SCALE

**INLET PROTECTION** C801 NOT TO SCALE

STORM SEWER MANHOLE C801 NOT TO SCALE

CATCH BASIN MANHOLE \C801 NOT TO SCALE

WENCK

7500 OLSON MEMORIAL HWY SUITE 300 GOLDEN VALLEY, MN 55427 PHONE: 763-252-6800 FAX: 952-831-1268 WWW.WENCK.COM

4141 DOUGLAS DRIVE NORTH CRYSTAL, MN 55422:

**WATER** 

CERTIFICATION: 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.

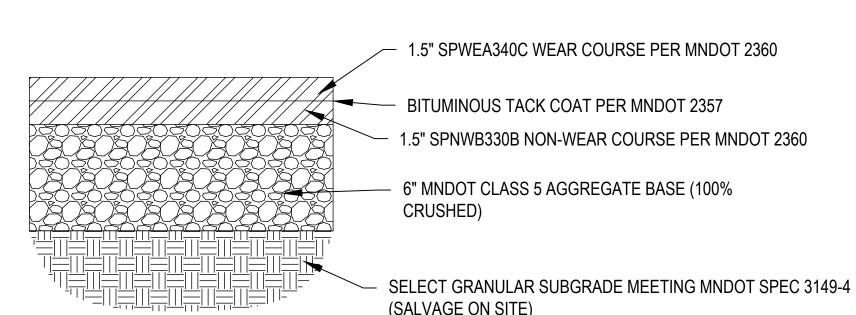
LICENSE NO.: 25817 DATE: 04/15/2020

1886-0010 PROJECT NO.: DWN BY: CHK'D BY: APP'D BY: BMB MJS BFK 04/15/2020 ISSUE DATE:

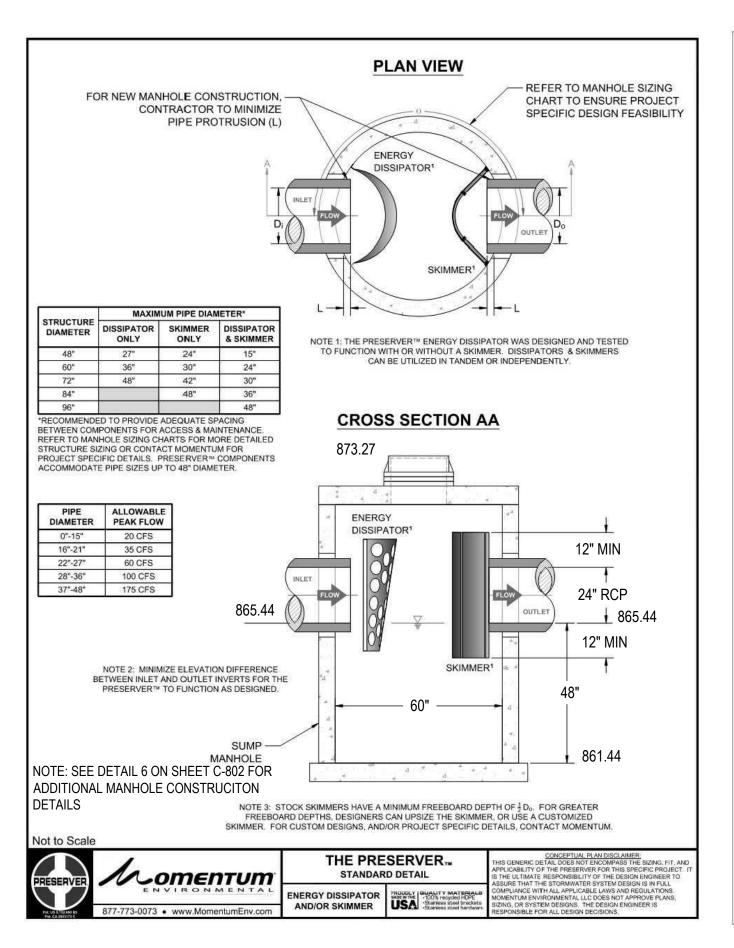
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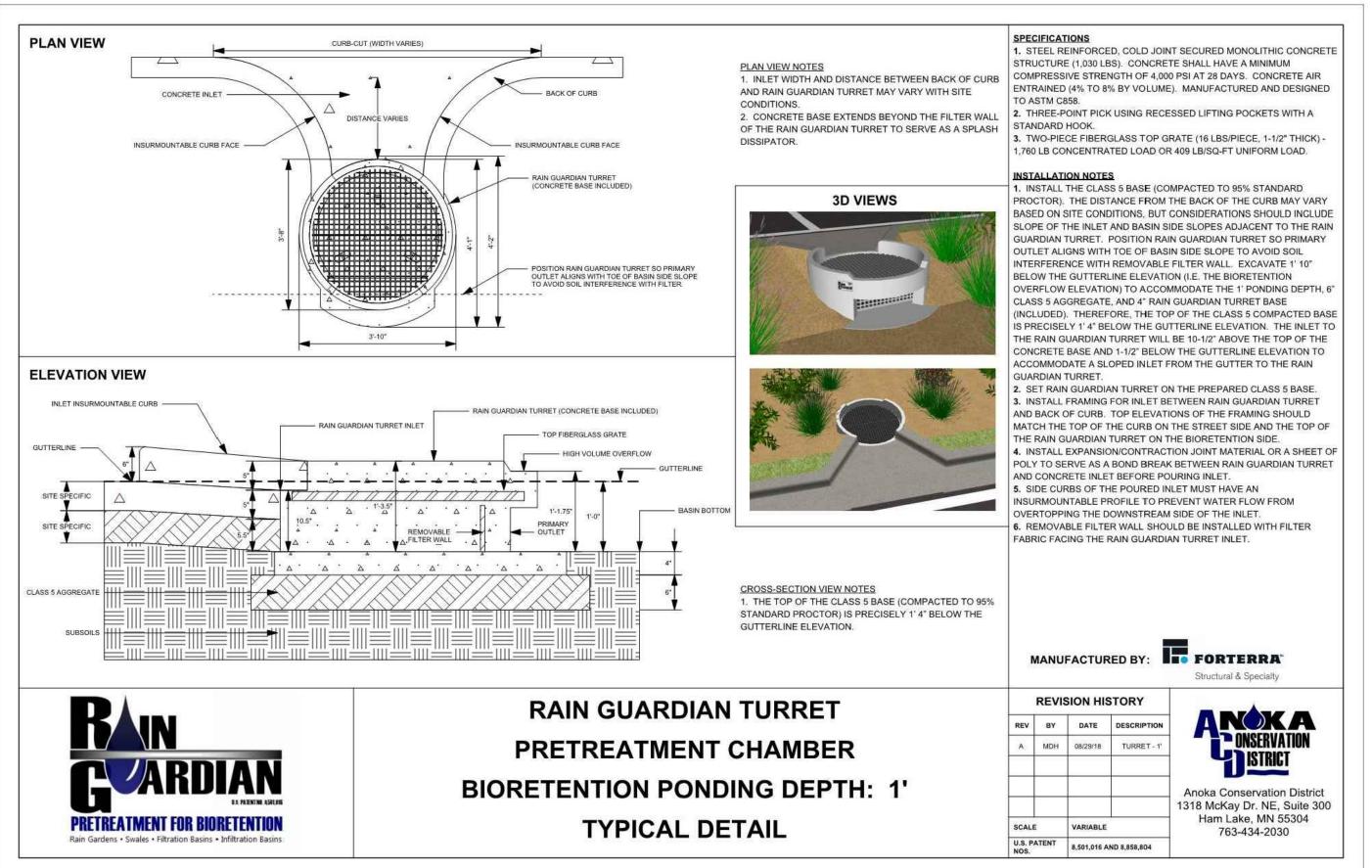
**DETAILS** 

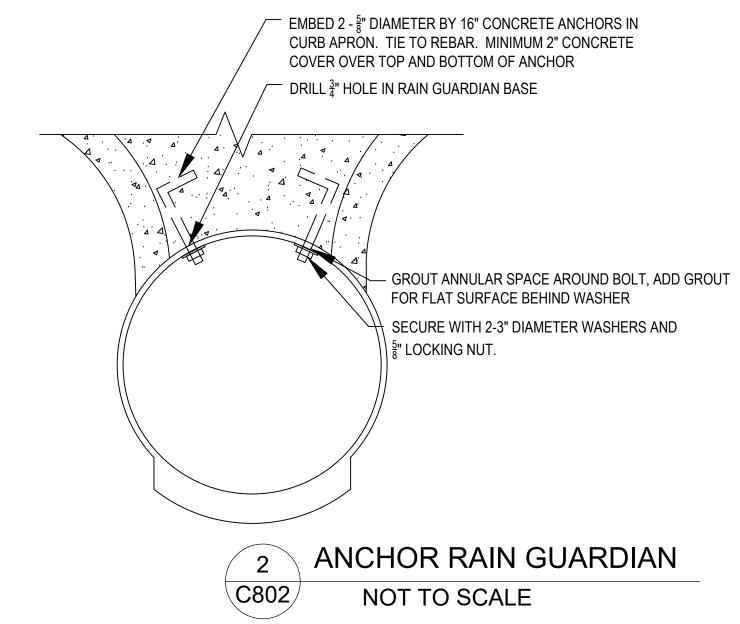
C-801

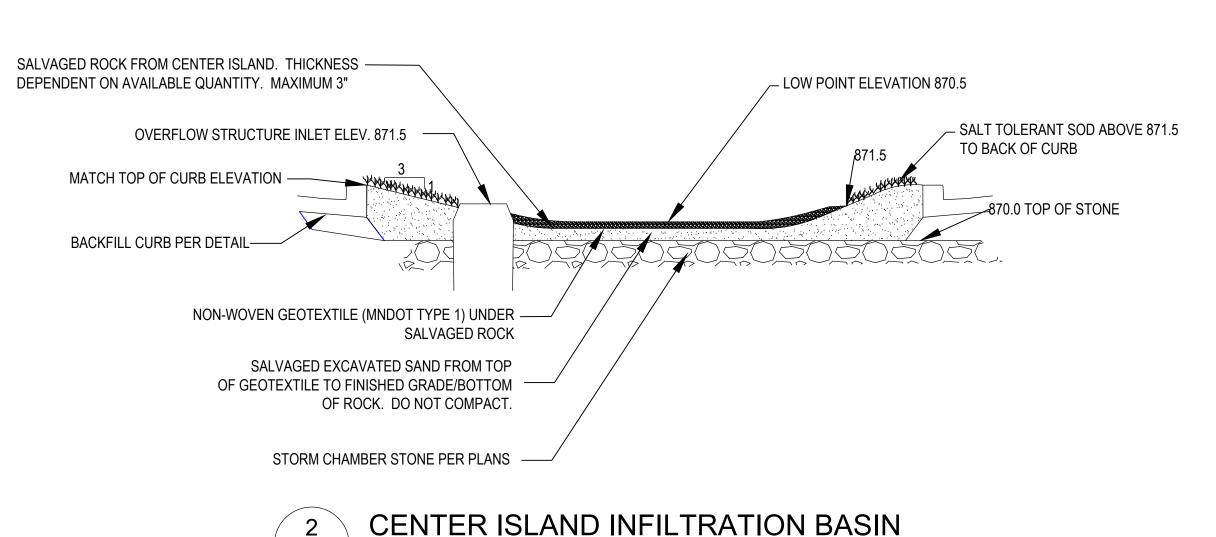


(SALVAGE ON SITE)

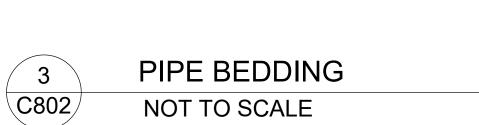




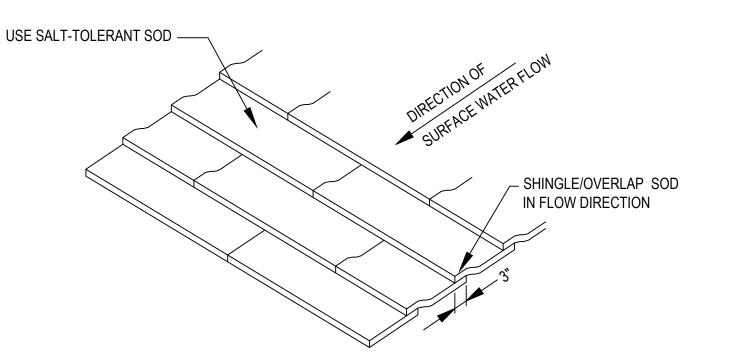




NOT TO SCALE



DIA+12" MIN.





COMPACTED BACKFILL

"DIA" DENOTES OUTSIDE DIAMETER OF PIPE

7500 OLSON MEMORIAL HWY SUITE 300 GOLDEN VALLEY, MN 55427 PHONE: 763-252-6800 FAX: 952-831-1268 WWW.WENCK.COM

CLIENT:



CRYSTAL, MN 55422:

CERTIFICATION:

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.

LICENSE NO.: 25817 DATE: 04/15/2020

PROJECT NO.:

DWN BY: CHK'D BY: APP'D BY: BMB MJS BFK 04/15/2020 ISSUE DATE:

ISSUE NO.: SHEET TITLE:

**DETAILS** 

PRO	JECT INFORMATION
ENGINEERED PRODUCT MANAGER:	AARON GANSON 612-271-7026 AARON.GANSON@ADS-PIPE.COM
ADS SALES REP:	TOM ROONEY 612-756-3552 TOM.ROONEY@ADS-PIPE.COM
PROJECT NO:	S175211





# KENTUCKY AVE WQ IMPROVEMENTS

# CRYSTAL, MN

### MC-3500 STORMTECH CHAMBER SPECIFICATIONS

- 1. CHAMBERS SHALL BE STORMTECH MC-3500.
- 2. CHAMBERS SHALL BE ARCH-SHAPED AND SHALL BE MANUFACTURED FROM VIRGIN, IMPACT-MODIFIED POLYPROPYLENE COPOLYMERS.
- 3. CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418-16a, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS" CHAMBER CLASSIFICATION 45x76 DESIGNATION SS.
- 4. CHAMBER ROWS SHALL PROVIDE CONTINUOUS, UNOBSTRUCTED INTERNAL SPACE WITH NO INTERNAL SUPPORTS THAT WOULD IMPEDE FLOW OR LIMIT ACCESS FOR INSPECTION.
- 5. THE STRUCTURAL DESIGN OF THE CHAMBERS, THE STRUCTURAL BACKFILL, AND THE INSTALLATION REQUIREMENTS SHALL ENSURE THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12, ARE MET FOR: 1) LONG-DURATION DEAD LOADS AND 2) SHORT-DURATION LIVE LOADS, BASED ON THE AASHTO DESIGN TRUCK WITH CONSIDERATION FOR IMPACT AND MULTIPLE VEHICLE PRESENCES.
- 6. CHAMBERS SHALL BE DESIGNED, TESTED AND ALLOWABLE LOAD CONFIGURATIONS DETERMINED IN ACCORDANCE WITH ASTM F2787, "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS". LOAD CONFIGURATIONS SHALL INCLUDE: 1) INSTANTANEOUS (<1 MIN) AASHTO DESIGN TRUCK LIVE LOAD ON MINIMUM COVER 2) MAXIMUM PERMANENT (75-YR) COVER LOAD AND 3) ALLOWABLE COVER WITH PARKED (1-WEEK) AASHTO DESIGN TRUCK.
- 7. REQUIREMENTS FOR HANDLING AND INSTALLATION:
  - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
  - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS
  - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT AS DEFINED IN SECTION 6.2.8 OF ASTM F2418 SHALL BE GREATER THAN OR EQUAL TO 500 LBS/IN/IN. AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.
- 8. ONLY CHAMBERS THAT ARE APPROVED BY THE SITE DESIGN ENGINEER WILL BE ALLOWED. UPON REQUEST BY THE SITE DESIGN ENGINEER OR OWNER, THE CHAMBER MANUFACTURER SHALL SUBMIT A STRUCTURAL EVALUATION FOR APPROVAL BEFORE DELIVERING CHAMBERS TO THE PROJECT SITE AS FOLLOWS:
  - THE STRUCTURAL EVALUATION SHALL BE SEALED BY A REGISTERED PROFESSIONAL ENGINEER.
  - THE STRUCTURAL EVALUATION SHALL DEMONSTRATE THAT THE SAFETY FACTORS ARE GREATER THAN OR EQUAL TO 1.95 FOR DEAD LOAD AND 1.75 FOR LIVE LOAD, THE MINIMUM REQUIRED BY ASTM F2787 AND BY SECTIONS 3 AND 12.12 OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS FOR THERMOPLASTIC PIPE.
  - THE TEST DERIVED CREEP MODULUS AS SPECIFIED IN ASTM F2418 SHALL BE USED FOR PERMANENT DEAD LOAD DESIGN EXCEPT THAT IT SHALL BE THE 75-YEAR MODULUS USED FOR DESIGN.
- CHAMBERS AND END CAPS SHALL BE PRODUCED AT AN ISO 9001 CERTIFIED MANUFACTURING FACILITY.

### IMPORTANT - NOTES FOR THE BIDDING AND INSTALLATION OF MC-3500 CHAMBER SYSTEM

- 1. STORMTECH MC-3500 CHAMBERS SHALL NOT BE INSTALLED UNTIL THE MANUFACTURER'S REPRESENTATIVE HAS COMPLETED A PRE-CONSTRUCTION MEETING WITH THE INSTALLERS.
- 2. STORMTECH MC-3500 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
- 3. CHAMBERS ARE NOT TO BE BACKFILLED WITH A DOZER OR AN EXCAVATOR SITUATED OVER THE CHAMBERS. STORMTECH RECOMMENDS 3 BACKFILL METHODS:
  - STONESHOOTER LOCATED OFF THE CHAMBER BED.
  - BACKFILL AS ROWS ARE BUILT USING AN EXCAVATOR ON THE FOUNDATION STONE OR SUBGRADE.
  - BACKFILL FROM OUTSIDE THE EXCAVATION USING A LONG BOOM HOE OR EXCAVATOR.
- THE FOUNDATION STONE SHALL BE LEVELED AND COMPACTED PRIOR TO PLACING CHAMBERS.
- 5. JOINTS BETWEEN CHAMBERS SHALL BE PROPERLY SEATED PRIOR TO PLACING STONE.
- 6. MAINTAIN MINIMUM 6" (150 mm) SPACING BETWEEN THE CHAMBER ROWS.
- 7. INLET AND OUTLET MANIFOLDS MUST BE INSERTED A MINIMUM OF 12" (300 mm) INTO CHAMBER END CAPS.
- 8. EMBEDMENT STONE SURROUNDING CHAMBERS MUST BE A CLEAN, CRUSHED, ANGULAR STONE MEETING THE AASHTO M43 DESIGNATION OF #3 OR #4.
- STONE MUST BE PLACED ON THE TOP CENTER OF THE CHAMBER TO ANCHOR THE CHAMBERS IN PLACE AND PRESERVE ROW SPACING.
- 10. THE CONTRACTOR MUST REPORT ANY DISCREPANCIES WITH CHAMBER FOUNDATION MATERIALS BEARING CAPACITIES TO THE SITE DESIGN ENGINEER.
- 11. ADS RECOMMENDS THE USE OF "FLEXSTORM CATCH IT" INSERTS DURING CONSTRUCTION FOR ALL INLETS TO PROTECT THE SUBSURFACE STORMWATER MANAGEMENT SYSTEM FROM CONSTRUCTION SITE RUNOFF.

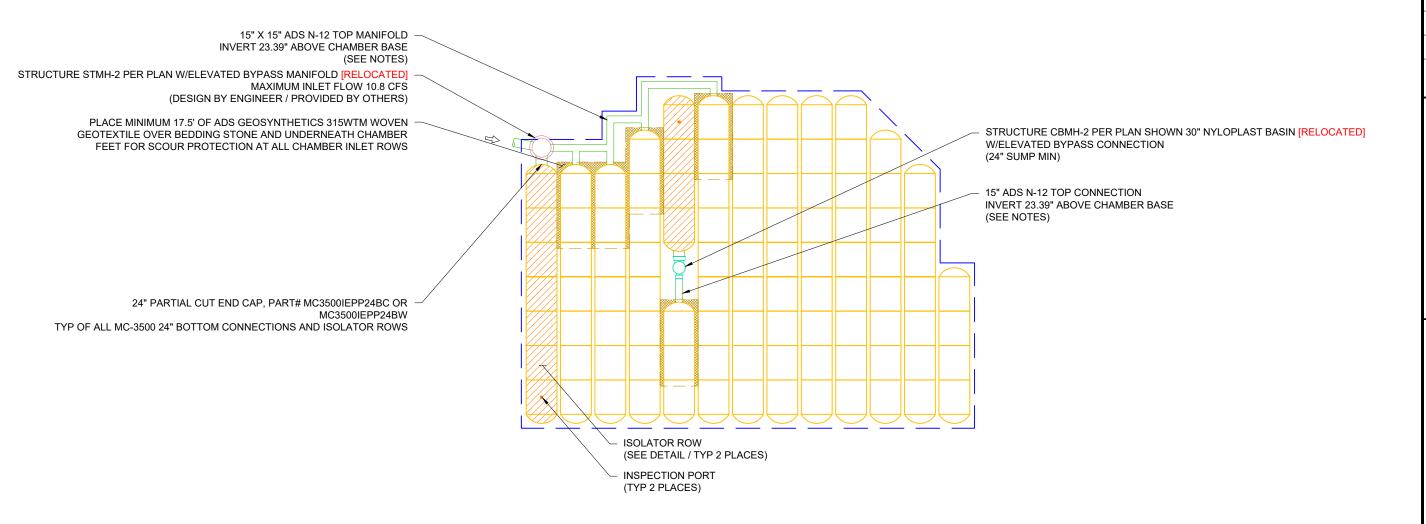
### NOTES FOR CONSTRUCTION EQUIPMENT

- 1. STORMTECH MC-3500 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
- THE USE OF EQUIPMENT OVER MC-3500 CHAMBERS IS LIMITED:
  - NO EQUIPMENT IS ALLOWED ON BARE CHAMBERS.
  - NO RUBBER TIRED LOADER, DUMP TRUCK, OR EXCAVATORS ARE ALLOWED UNTIL PROPER FILL DEPTHS ARE REACHED IN ACCORDANCE WITH THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
  - WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT CAN BE FOUND IN THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
- 3. FULL 36" (900 mm) OF STABILIZED COVER MATERIALS OVER THE CHAMBERS IS REQUIRED FOR DUMP TRUCK TRAVEL OR DUMPING.

USE OF A DOZER TO PUSH EMBEDMENT STONE BETWEEN THE ROWS OF CHAMBERS MAY CAUSE DAMAGE TO CHAMBERS AND IS NOT AN ACCEPTABLE BACKFILL METHOD. ANY CHAMBERS DAMAGED BY USING THE "DUMP AND PUSH" METHOD ARE NOT COVERED UNDER THE STORMTECH STANDARD WARRANTY.

CONTACT STORMTECH AT 1-888-892-2694 WITH ANY QUESTIONS ON INSTALLATION REQUIREMENTS OR WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT.

PROPOS	ED LAYOUT
100	STORMTECH MC-3500 CHAMBERS
28	STORMTECH MC-3500 END CAPS
12	STONE ABOVE (in)
9	STONE BELOW (in)
40	% STONE VOID
20,262	INSTALLED SYSTEM VOLUME (CF) (PERIMETER STONE INCLUDED)
6,097	SYSTEM AREA (ft²)
326	SYSTEM PERIMETER (ft)
PROPOS	ED ELEVATIONS
877.00	MAXIMUM ALLOWABLE GRADE (TOP OF PAVEMENT/UNPAVED)
871.00	MINIMUM ALLOWABLE GRADE (UNPAVED WITH TRAFFIC)
870.50	MINIMUM ALLOWABLE GRADE (UNPAVED NO TRAFFIC)
870.50	MINIMUM ALLOWABLE GRADE (BASE OF FLEXIBLE PAVEMENT)
870.50	MINIMUM ALLOWABLE GRADE (TOP OF RIGID PAVEMENT)
870.00	TOP OF STONE
869.00	TOP OF MC-3500 CHAMBER
867.20	15" TOP MANIFOLD / CONNECTION INVERT
865.42	24" ISOLATOR ROW CONNECTION INVERT
865.25	BOTTOM OF MC-3500 CHAMBER
864.50	BOTTOM OF STONE



**NOTES** 

MANIFOLD SIZE TO BE DETERMINED BY SITE DESIGN ENGINEER. SEE TECHNICAL NOTE 6.32 FOR MANIFOLD SIZING GUIDANCE.

ADDITIONAL PIPE TO STANDARD MANIFOLD COMPONENTS IN THE FIELD.

BASE STONE DEPTH MAY BE INCREASED OR DECREASED ONCE THIS INFORMATION IS PROVIDED.

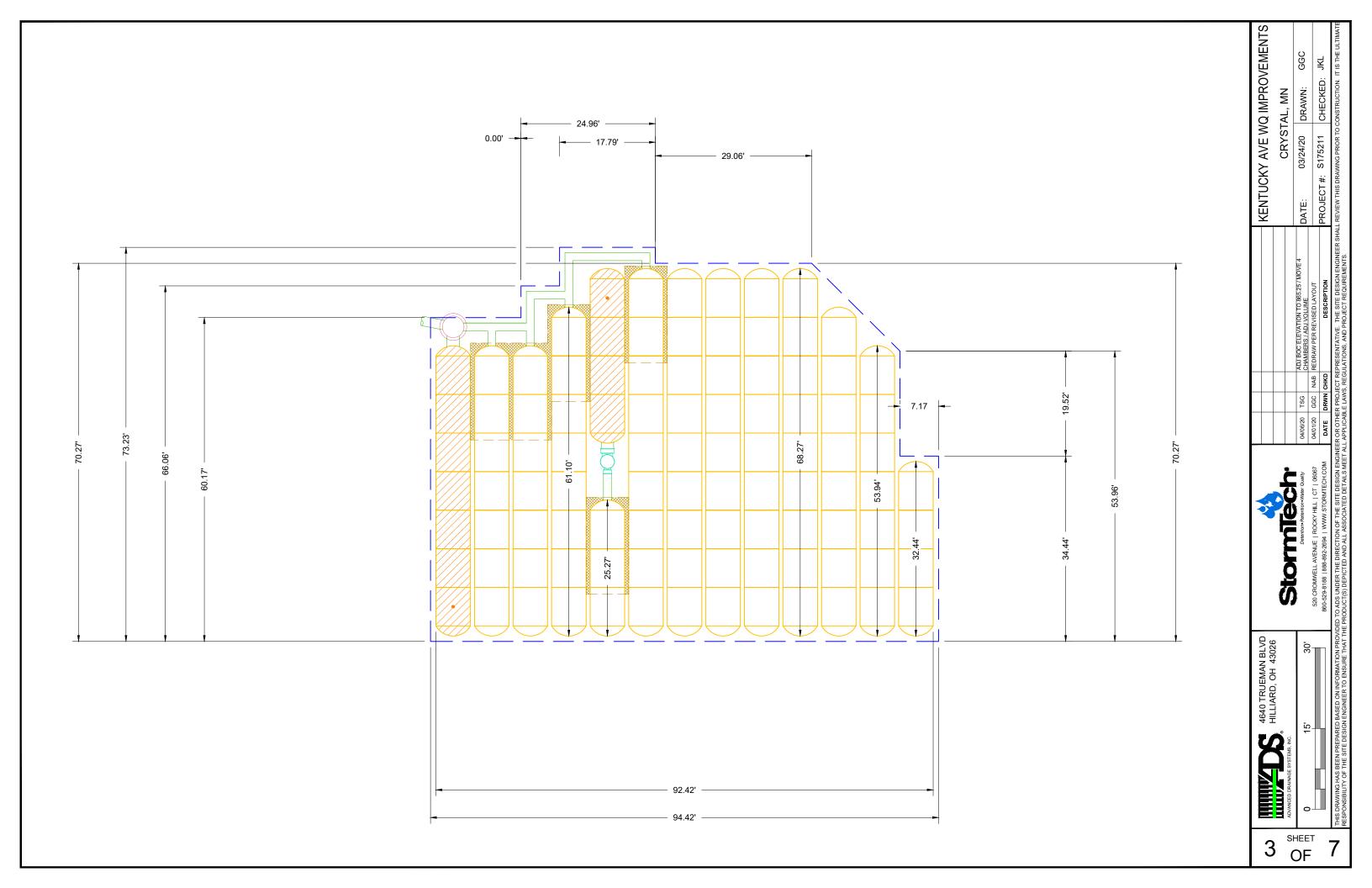
DUE TO THE ADAPTATION OF THIS CHAMBER SYSTEM TO SPECIFIC SITE AND DESIGN CONSTRAINTS, IT MAY BE NECESSARY TO CUT AND COUPLE

THIS CHAMBER SYSTEM WAS DESIGNED WITHOUT SITE-SPECIFIC INFORMATION ON SOIL CONDITIONS OR BEARING CAPACITY. THE SITE DESIGN

ENGINEER IS RESPONSIBLE FOR DETERMINING THE SUITABILITY OF THE SOIL AND PROVIDING THE BEARING CAPACITY OF THE INSITU SOILS. THE

KENTUCKY AVE WQ IMPROVEMENTS DRAWN: CHECKED: CRYSTAL, MN 03/24/20 S175211 PROJECT#: DATE: Stormle 4640 TRUEMAN BLVD HILLIARD, OH 43026

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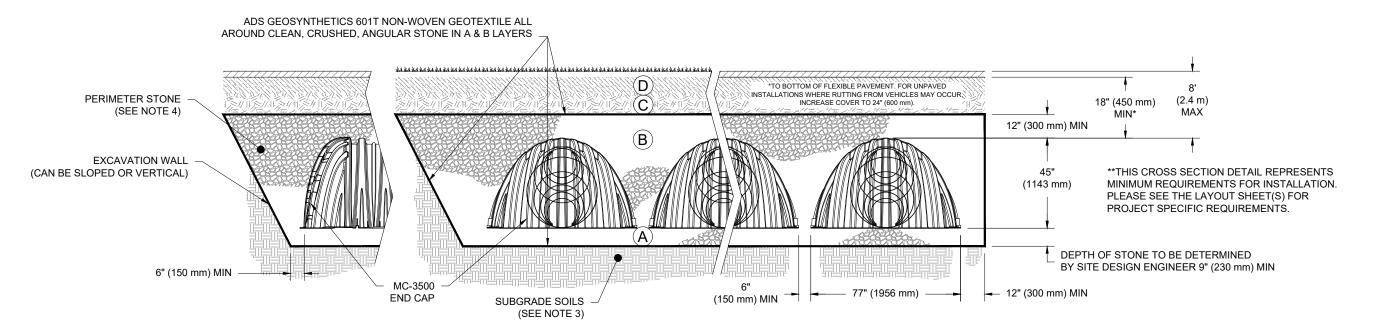


### **ACCEPTABLE FILL MATERIALS: STORMTECH MC-3500 CHAMBER SYSTEMS**

	MATERIAL LOCATION	DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D	FINAL FILL: FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER	ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
С	INITIAL FILL: FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 24" (600 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES OR PROCESSED AGGREGATE.  MOST PAVEMENT SUBBASE MATERIALS CAN BE USED IN LIEU OF THIS LAYER.	AASHTO M145 <sup>1</sup> A-1, A-2-4, A-3 OR AASHTO M43 <sup>1</sup> 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 24" (600 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 12" (300 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS.
В	<b>EMBEDMENT STONE:</b> FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43 <sup>1</sup> 3, 4	NO COMPACTION REQUIRED.
А	FOUNDATION STONE: FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43 <sup>1</sup> 3, 4	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE. <sup>2,3</sup>

### PLEASE NOTE:

- THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
- STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 9" (230 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
- WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.
- ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.

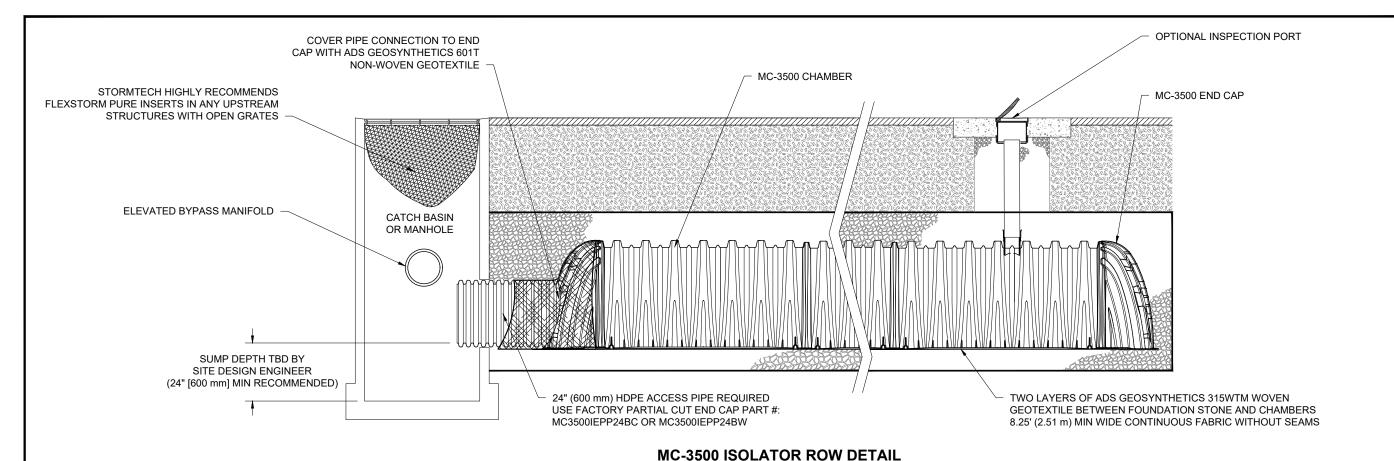


### NOTES:

- 1. CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418-16a, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS" CHAMBER CLASSIFICATION 45x76 DESIGNATION SS.
- 2. MC-3500 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
- 3. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS.
- 4. PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
- 5. REQUIREMENTS FOR HANDLING AND INSTALLATION:
  - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
  - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 3".
  - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT AS DEFINED IN SECTION 6.2.8 OF ASTM F2418 SHALL BE GREATER THAN OR EQUAL TO 500 LBS/IN/IN. AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.

	3/	G40 TELIEMAN BLVD	**					LENITHON AVE		STIMPMIN	
4		4040 I KOEMAN BLVD						MENIOCAY AVE W.Q. IMPROVEMENIO	W C IMP		_
		15050 15050						700	INM INTOVOL		
S	ADVANCED DRAINAGE SYSTEMS, INC.								OLAL, IVIII		
HEE				04/06/20 T	TSG	ADJ BOC ELE	ADJ BOC ELEVATION TO 865.25 / MOVE 4 CHAMBERS / ADJ VOLUME	DATE: 03/24/20	03/24/20 DRAWN: GGC	299	
ΞT			520 CROMWELL AVENUE   ROCKY HILL   CT   06067	04/01/20 G	GC NA	REDRAW PE	04/01/20 GGC NAB REDRAW PER REVISED LAYOUT				_
•			860-529-8188   888-892-2694   WWW.STORMTECH.COM	DATE DRWN CHKD	WN CHK	0	DESCRIPTION	PROJECT #: S1/5211   CHECKED: JKL	1 CHECKE	ED: JKL	
7	THIS DRAWING HAS BEEN PREPARED B. RESPONSIBILITY OF THE SITE DESIGN E	BASED ON INFORMATION PROVIE	THIS DRAWING HAS BEEN PREPARED BASED ON INFORMATION PROVIDED TO ADS UNDER THE DIRECTION OF THE SITE DESIGN ENGINEER OR OTHER PROJECT REPRESENTATIVE. THE SITE DESIGNENGINEER SHALL REVIEW THIS DRAWING PRIOR TO CONSTRUCTION. IT IS THE ULTIMATE RESPONSIBILITY OF THE SITE DESIGNE ENGINEER TO ENSIRE THAT THE PRODUCTED AND ALL ASSOCIATED DETAILS MEET ALL APPLICABLE LAWS, REGILATIONS, AND PROJECT REQUIREMENTS.	R OR OTHER F	ROJECT LAWS. RE	REPRESENTATI	IVE. THE SITE DESIGN ENGINEER SHAL ID PROJECT REQUIREMENTS	L REVIEW THIS DRAWING PRIOF	TO CONSTRUCTI	ON. IT IS THE ULTIMAT	ш

4 OF



### **INSPECTION & MAINTENANCE**

STEP 1) INSPECT ISOLATOR ROW FOR SEDIMENT

A. INSPECTION PORTS (IF PRESENT)

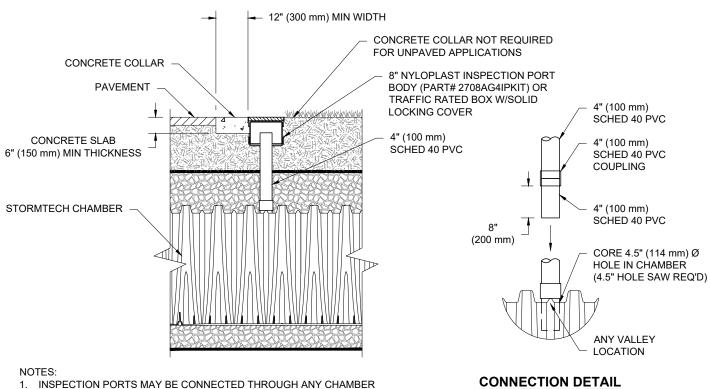
- A.1. REMOVE/OPEN LID ON NYLOPLAST INLINE DRAIN
- A.2. REMOVE AND CLEAN FLEXSTORM FILTER IF INSTALLED
- A.3. USING A FLASHLIGHT AND STADIA ROD, MEASURE DEPTH OF SEDIMENT AND RECORD ON MAINTENANCE LOG
- A.4. LOWER A CAMERA INTO ISOLATOR ROW FOR VISUAL INSPECTION OF SEDIMENT LEVELS (OPTIONAL)
- A.5. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.

B. ALL ISOLATOR ROWS

- B.1. REMOVE COVER FROM STRUCTURE AT UPSTREAM END OF ISOLATOR ROW
- B.2. USING A FLASHLIGHT, INSPECT DOWN THE ISOLATOR ROW THROUGH OUTLET PIPE
  - i) MIRRORS ON POLES OR CAMERAS MAY BE USED TO AVOID A CONFINED SPACE ENTRY
- ii) FOLLOW OSHA REGULATIONS FOR CONFINED SPACE ENTRY IF ENTERING MANHOLE
   .3. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.
- STEP 2) CLEAN OUT ISOLATOR ROW USING THE JETVAC PROCESS
  - A. A FIXED CULVERT CLEANING NOZZLE WITH REAR FACING SPREAD OF 45" (1.1 m) OR MORE IS PREFERRED
  - B. APPLY MULTIPLE PASSES OF JETVAC UNTIL BACKFLUSH WATER IS CLEAN
  - C. VACUUM STRUCTURE SUMP AS REQUIRED
- STEP 3) REPLACE ALL COVERS, GRATES, FILTERS, AND LIDS; RECORD OBSERVATIONS AND ACTIONS.
- STEP 4) INSPECT AND CLEAN BASINS AND MANHOLES UPSTREAM OF THE STORMTECH SYSTEM.

### **NOTES**

- 1. INSPECT EVERY 6 MONTHS DURING THE FIRST YEAR OF OPERATION. ADJUST THE INSPECTION INTERVAL BASED ON PREVIOUS OBSERVATIONS OF SEDIMENT ACCUMULATION AND HIGH WATER ELEVATIONS.
- 2. CONDUCT JETTING AND VACTORING ANNUALLY OR WHEN INSPECTION SHOWS THAT MAINTENANCE IS NECESSARY.



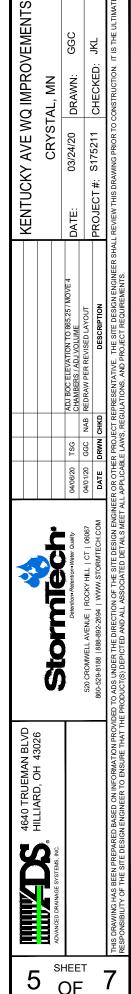
**4" PVC INSPECTION PORT DETAIL** 

CORRUGATION VALLEY.

PROVIDED BY ADS).

2. ALL SCHEDULE 40 FITTINGS TO BE SOLVENT CEMENTED (4" PVC NOT

NTS

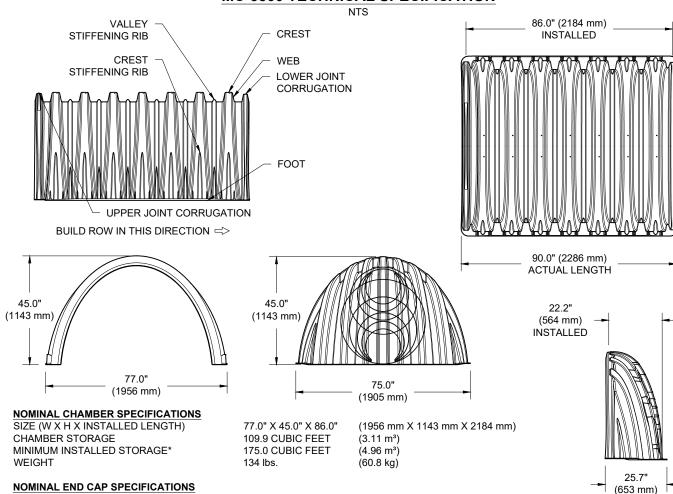


### MC-SERIES END CAP INSERTION DETAIL

STORMTECH END CAP 12" (300 mm) MIN SEPARATION 12" (300 mm) MIN INSERTION -MANIFOLD STUB MANIFOLD HEADER MANIFOLD HEADER MANIFOLD STUB 12" (300 mm) 12" (300 mm) MIN SEPARATION MIN INSERTION

> NOTE: MANIFOLD STUB MUST BE LAID HORIZONTAL FOR A PROPER FIT IN END CAP OPENING.

### MC-3500 TECHNICAL SPECIFICATION



(1905 mm X 1143 mm X 564 mm)

 $(0.42 \text{ m}^3)$ 

(1.28 m³) (22.2 kg)

\*ASSUMES 12" (305 mm) STONE ABOVE, 9" (229 mm) STONE FOUNDATION, 6" (152 mm) STONE BETWEEN CHAMBERS, 6" (152 mm) STONE PERIMETER IN FRONT OF END CAPS AND 40% STONE POROSITY.

75.0" X 45.0" X 22.2"

14.9 CUBIC FEET

45.1 CUBIC FEET

PARTIAL CUT HOLES AT BOTTOM OF END CAP FOR PART NUMBERS ENDING WITH "B" PARTIAL CUT HOLES AT TOP OF END CAP FOR PART NUMBERS ENDING WITH "T" END CAPS WITH A PREFABRICATED WELDED STUB END WITH "W"

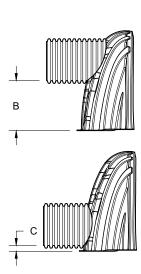
PART#	STUB	В	С
MC3500IEPP06T	6" (150 mm)	33.21" (844 mm)	
MC3500IEPP06B	0 (130 11111)		0.66" (17 mm)
MC3500IEPP08T	8" (200 mm)	31.16" (791 mm)	
MC3500IEPP08B	0 (200 11111)		0.81" (21 mm)
MC3500IEPP10T	10" (250 mm)	29.04" (738 mm)	
MC3500IEPP10B	10 (230 11111)		0.93" (24 mm)
MC3500IEPP12T	12" (300 mm)	26.36" (670 mm)	
MC3500IEPP12B	12 (500 11111)		1.35" (34 mm)
MC3500IEPP15T	15" (375 mm)	23.39" (594 mm)	
MC3500IEPP15B	10 (0/0111111)		1.50" (38 mm)
MC3500IEPP18TC		20.03" (509 mm)	·
MC3500IEPP18TW	18" (450 mm)	20.00 (000 11111)	
MC3500IEPP18BC	10 (400 11111)		1.77" (45 mm)
MC3500IEPP18BW			1.77 (45 11111)
MC3500IEPP24TC		14.48" (368 mm)	
MC3500IEPP24TW	24" (600 mm)	17.70 (300 11111)	
MC3500IEPP24BC	2 <del>4</del> (000 mm)		2.06" (52 mm)
MC3500IEPP24BW			2.00 (32 11111)
MC3500IEPP30BC	30" (750 mm)		2.75" (70 mm)

NOTE: ALL DIMENSIONS ARE NOMINAL

SIZE (W X H X INSTALLED LENGTH)

MINIMUM INSTALLED STORAGE\*

END CAP STORAGE



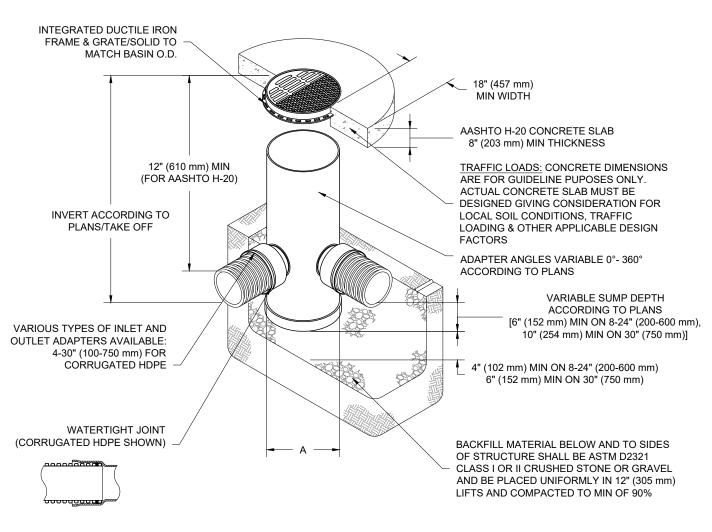
CUSTOM PARTIAL CUT INVERTS ARE AVAILABLE UPON REQUEST. INVENTORIED MANIFOLDS INCLUDE 12-24" (300-600 mm) SIZE ON SIZE AND 15-48" (375-1200 mm) ECCENTRIC MANIFOLDS. CUSTOM INVERT LOCATIONS ON THE MC-3500 END CAP CUT IN THE FIELD ARE NOT RECOMMENDED FOR PIPE SIZES GREATER THAN 10" (250 mm). THE INVERT LOCATION IN COLUMN 'B' ARE THE HIGHEST POSSIBLE FOR THE PIPE SIZE.

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	n.Re	04/06/20	TSG		ADJ BOC ELEVATION TO 865.25 / MOVE 4 CHAMBERS / ADJ VOLUME	DATE: 03/24/20	03/24/20 DRAWN: GGC	299
	520 CROMWELL AVENUE   ROCKY HILL   CT   06067	04/01/20	299	NAB	TUO.			
	860-529-8188   888-892-2694   WWW.STORMTECH.COM	DATE DRWN CHKD	DRWN	CHKD	DESCRIPTION	PROJECT#: S175211   CHECKED: JKL	CHECKED:	JKL
N INFORMATION PROV R TO ENSURE THAT TH	INFORMATION PROVIDED TO ADS UNDER THE DIRECTION OF THE SITE DESIGN ENGINEER OR OTHER PROJECT REPRESENTATIVE. THE SITE DESIGN ENGINEER SHALL REVIEW THIS DRAWING PRIOR TO CONSTRUCTION. IT IS THE ULTIMATING PRODUCT(S) DEPICTED AND ALL ASSOCIATED DETALS MEET ALL APPLICABLE LAWS, REGULATIONS, AND PROJECT REQUIREMENTS.	R OR OTHE	R PROJ	S, REG	EPRESENTATIVE. THE SITE DESIGN ENGINEER SHALL ULATIONS, AND PROJECT REQUIREMENTS.	REVIEW THIS DRAWING PRIOR TO	CONSTRUCTION.	IT IS THE ULTIMATI
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SHEET OF

### **NYLOPLAST DRAIN BASIN**

NTS



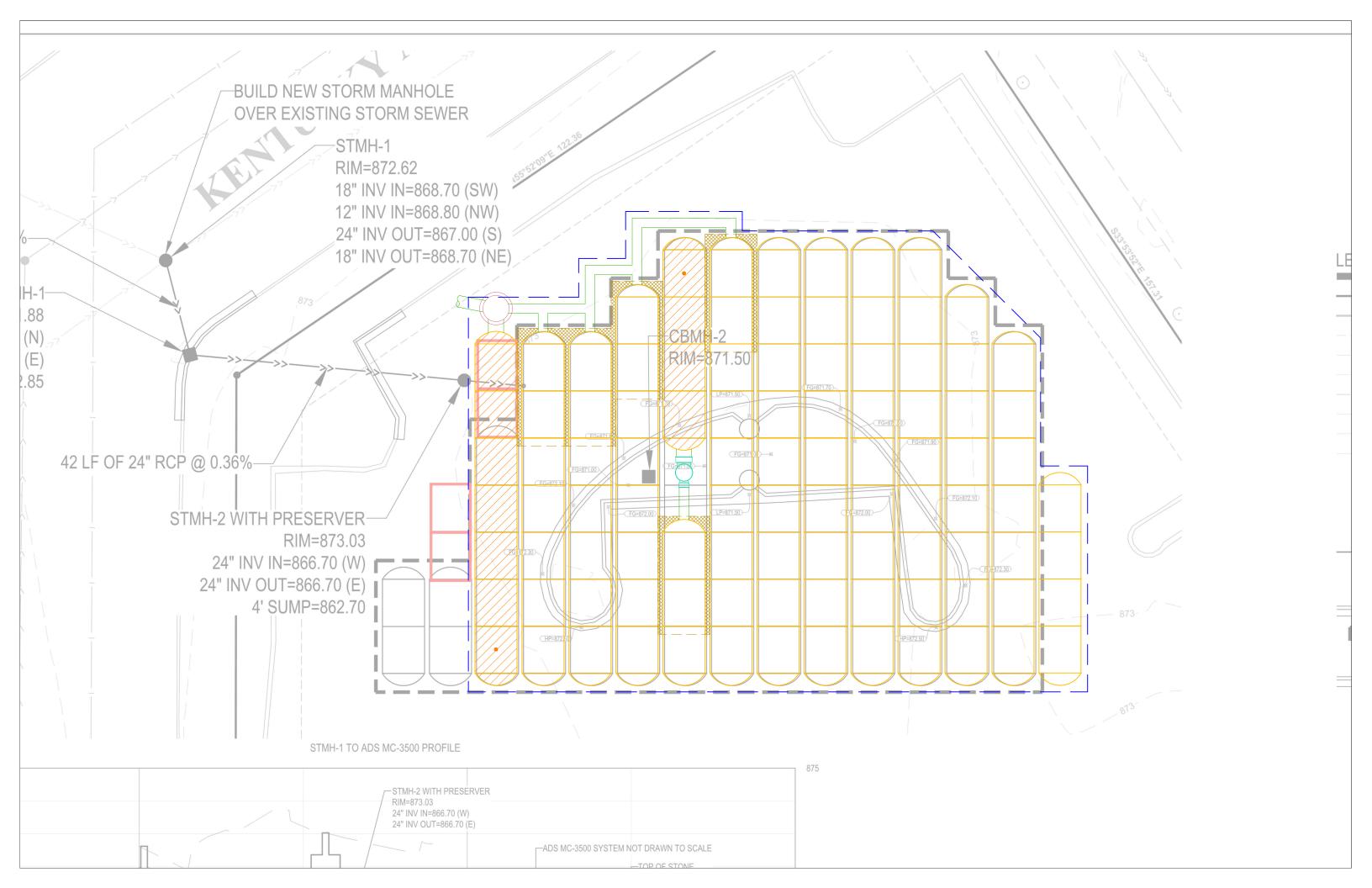
# NOTES

- T. 8-30" (200-750 mm) GRATES/SOLID COVERS SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05
- 2. 12-30" (300-750 mm) FRAMES SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05
- DRAIN BASIN TO BE CUSTOM MANUFACTURED ACCORDING TO PLAN DETAILS
- DRAINAGE CONNECTION STUB JOINT TIGHTNESS SHALL CONFORM TO ASTM D3212 FOR CORRUGATED HDPE (ADS & HANCOR DUAL WALL) & SDR 35 PVC
- . FOR COMPLETE DESIGN AND PRODUCT INFORMATION: WWW.NYLOPLAST-US.COM
- 6. TO ORDER CALL: **800-821-6710**

Α	PART #	GRATE/SOLID COVER OPTIONS			
8" (200 mm)	2808AG	PEDESTRIAN LIGHT DUTY	STANDARD LIGHT DUTY	SOLID LIGHT DUTY	
10" (250 mm)	2810AG	PEDESTRIAN LIGHT DUTY	STANDARD LIGHT DUTY	SOLID LIGHT DUTY	
12"	2812AG	PEDESTRIAN	STANDARD AASHTO	SOLID	
(300 mm)		AASHTO H-10	H-20	AASHTO H-20	
15"	2815AG	PEDESTRIAN	STANDARD AASHTO	SOLID	
(375 mm)		AASHTO H-10	H-20	AASHTO H-20	
18"	2818AG	PEDESTRIAN	STANDARD AASHTO	SOLID	
(450 mm)		AASHTO H-10	H-20	AASHTO H-20	
24"	2824AG	PEDESTRIAN	STANDARD AASHTO	SOLID	
(600 mm)		AASHTO H-10	H-20	AASHTO H-20	
30"	2830AG	PEDESTRIAN	STANDARD AASHTO	SOLID	
(750 mm)		AASHTO H-20	H-20	AASHTO H-20	

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	— Nyloblast		04/06/20	TSG	ADJ BOC ELEVATION TO 865.25 / MOVE 4 CHAMBERS / ADJ VOLUME	DATE: 03/24/20	03/24/20 DRAWN: GGC	
	: : : : :	www.nyiopiast-us.com	04/01/20	GGC NAB	OUT		:	
			DATE	DATE DRWN CHKD	DESCRIPTION	PROJECT #: S1/5211   CHECKED: JKL	CHECKED: JKL	
THIS DRAWING HAS BEEN PREPARED BASED ON INFORMATION PROVIDED TO ADS UNDER THE DIRECTION OF THE SITE DESIGN ENGINEER OR OTHER PROJECT REPRESENTATIVE. THE SITE DESIGN ENGINEER SHALL REVIEW THIS DRAWING PRIOR TO CONSTRUCTION. IT IS THE ULTIMATE PROPINITY OF THE SITE DESIGN ENGINEER TO	A PROVIDED TO ADS UNDER THE DIRECTION	OF THE SITE DESIGN ENGINEE SSOCIATED DETAILS MEET ALL	R OR OTHER	PROJECT F	REPRESENTATIVE. THE SITE DESIGN ENGINEER SHAL BILLATIONS AND PROJECT RECLIBEMENTS	LL REVIEW THIS DRAWING PRIOR TO	CONSTRUCTION. IT IS THE	ULTIMATE

SHEET



# Technical Memo



Responsive partner. Exceptional outcomes.

To: Shingle Creek/West Mississippi WMC TAC

From: Ed Matthiesen, P.E.

Diane Spector Katie Kemmitt

**Date:** April 24, 2020

**Subject:** Lake Pepin Nutrient TMDL

The Lake Pepin Nutrient TMDL has been completed and is currently out for public comment. The review period ends June 19, 2020. The draft had previously been out for informal review and comment in August-September 2019. The documents can be found at

https://www.pca.state.mn.us/water/tmdl/lake-pepin-watershed-excess-nutrients-tmdl-project.

The TMDL does call for TP load reductions from runoff discharged into the Mississippi River, and establishes a concentration standard for each of the reaches from the Crow River to Lake Pepin. For communities with a Municipal Separate Storm Sewer System (MS4), the goal is to reduce phosphorus in their stormwater discharges to **0.35 lb/acre/year**. This approach does not call for a flat percentage reduction from all MS4 permits. Instead, municipalities may consider work already completed toward reducing phosphorus discharges.

Table 1 shows the annualized flow and TP load at SC-0. While there is annual variation, in each year the loading rate was much lower than the 0.35 lb/acre/year goal. There is a part of the watershed that discharges into the creek downstream of SC-0, most notably areas of Minneapolis that are collected in storm sewers that discharge into the creek in Webber Park (see Figure 1). Some of that tributary area is treated by a regional pond on the north side of Crystal Lake Cemetery. The balance of the tributary area may have some treatment in the form of sump manholes, rain gardens, etc. The flow and load contributed by this area is small compared to the load contributed by the watershed above SC-0.

We do not have data at this time to do a similar analysis for West Mississippi, but would expect it to be similar or less, given that quite a bit of the watershed developed under treatment rules.

Table 1. Annual flow and TP load at SC-0.

		Total Phosphorus		
	Flow	Load	Conc	
Year	(ac-ft)	(lbs)	(ug/L)	(lbs/acre)
2004	8,612	3,748	160	0.13
2005	15,367	6,820	163	0.24
2006	13,255	5,060	140	0.17
2007	11,239	3,960	130	0.14
2008	7,950	3,080	142	0.11
2009	3,917	880	83	0.03
2010	7,634	3,300	159	0.12
2011	18,023	5,814	119	0.20
2012	7,943	3,384	157	0.12
2013	9,916	4,382	163	0.15
2014	17,483	5,945	125	0.21
2015	8,630	2,187	113	0.08
2016	17,007	4,241	148	0.15
2017	16,149	3,601	88	0.13
2018	9,886	2,850	114	0.10
2019	24,763	7,001	112	0.24

This figure from the Minneapolis Subwatershed Assessment shows the modeled TP loading rates. The area in the blue rectangle is approximately the area being treated by a regional pond in Crystal Lake cemetery. The area outlined with a black dash is the approximate area that discharges downstream of SC-0, mostly with minimal treatment.

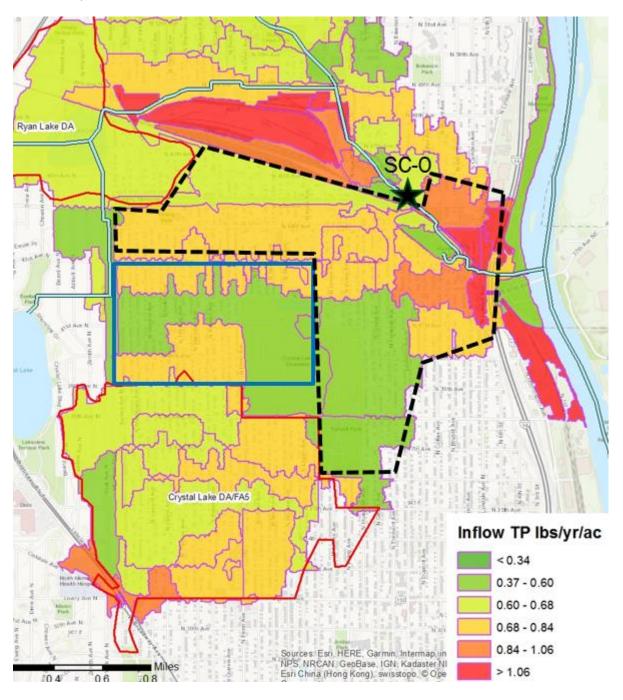


Figure 1. Minneapolis modeled TP loading rate.

## **Summary of Total Maximum Daily Load (TMDL) report** Reducing phosphorus to minimize algae

# Lake Pepin and upstream Mississippi River

# from the Crow River to the St. Croix River



### What are the issues?

Algae blooms, some leading to fish kills, once plagued Lake Pepin, a naturally occurring lake on the Mississippi River in southeast Minnesota. The Minnesota Pollution Control Agency (MPCA) placed Lake Pepin on its impaired waters list in 2002 because nutrient levels were too high to meet state water quality standards. The MPCA started a study in 2006 on reducing those nutrient levels. The study now includes the Mississippi River upstream, from the Crow River near Dayton, Minn., to the St. Croix River near Hastings, Minn.

The study references phosphorus reductions in several upstream rivers, which are addressed in separate studies.



Phosphorus, much of it from upstream rivers, causes algae blooms in Lake Pepin, as shown in this August 2014 photo by the Minnesota Department of Natural Resources.

Sediment is also an important issue for Lake Pepin. The Mississippi River carries high loads of sediment - the majority from the Minnesota River upstream - with much of it settling out in Lake Pepin. The sediment levels are so high that the upper part of the lake is already filling in. Some phosphorus attaches to sediment, meaning reductions in sediment could reduce phosphorus and minimize algae blooms. A healthier Lake Pepin means addressing both phosphorus and sediment, and addressing them upstream.

### How does the study address the issues?

A Total Maximum Daily Load (TMDL) is a study to determine how much of a pollutant a water body can receive and still meet water quality standards. TMDL studies are part of federal and state efforts to monitor water bodies, identify impaired waters, and plan for their restoration.

In the case of Lake Pepin, the TMDL study addresses the level of phosphorus that Lake Pepin and upstream waters can carry and still meet water quality standards.

The Lake Pepin TMDL study was an immense undertaking, due to the size of the watershed, scope of the project, and science developed for it:

- **Size:** Nearly 50,000 square miles roughly half of Minnesota plus parts of three neighboring states drain to Lake Pepin through the Upper Mississippi, St. Croix, and Minnesota rivers. No other TMDL project in Minnesota has covered such a large watershed.
- **Scope:** The TMDL addresses phosphorus impairments in the lake and two sections of the Mississippi River upstream. It proposes reductions in phosphorus from many sources.
- **Science:** The MPCA and its partners developed site-specific standards for Lake Pepin and upstream rivers, developed a computer model to help determine pollutant reductions, and examined the link between phosphorus and sediment.



# Pepin: Lake or river?

Lake Pepin has characteristics of both a lake and river. Pepin is one of the widest parts of the Mississippi River, bordered by Minnesota on the west and Wisconsin on the east. It is located about 60 miles downstream of St. Paul, Minn., just south of the confluence of the St. Croix and Minnesota rivers with the Mississippi. The lake is 21 miles long, averages 1.7 miles wide and covers 29,295 acres. It has a maximum depth of 60 feet and an average depth of 18 feet.

### How were nutrient reductions determined?

The MPCA initially addressed the sediment levels in the Mississippi River and nutrient levels in Lake Pepin in one TMDL study. The agency and partners developed a computer model that examined both sediment and nutrient levels for the Upper Mississippi River from Lock and Dam No. 1 at St. Paul through Lock and Dam No. 4 below Lake Pepin. The model supported TMDLs for both sediment and nutrient impairments in Pools 2, 3, and 4 of the Upper Mississippi River.



Lake Pepin in southeast Minnesota is popular for many types of recreation.

Based on recommendations in 2008 from the study's Stakeholder Advisory Committee and Science Advisory Panel, the MPCA decided to separate the issues of sediment and nutrients by developing separate TMDLs:

- The TMDL addressing sediment for the South Metro Mississippi from St. Paul through Lake Pepin, which was approved by the U.S. Environmental Protection Agency (EPA) in 2016.
- The TMDL for nutrients for Lake Pepin, now open for public comment in spring 2020.

Because Lake Pepin is unique in many ways, the Science Advisory Panel recommended a site-specific standard, a more customized water quality standard, for the lake. One reason is that Lake Pepin has characteristics of both a lake and a river. The MPCA Citizens Board adopted the standard in 2014.

The MPCA and partners then used the computer model to predict the impact of different scenarios on nutrient levels in the lake. The model showed that nutrient reductions in upstream rivers would be needed for Lake Pepin to meet the standard and to continue to do so as population increases and other changes occur. About two-thirds of the algae in Lake Pepin are produced upstream. Thus, the TMDL includes two upstream sections that must meet Minnesota river eutrophication standards:

- Mississippi River from the Crow River to Upper St. Anthony Falls
- Mississippi River from Upper St. Anthony Falls to the St. Croix River

While Lake Pepin is close to meetings its standard, the Upper Mississippi sections need further reductions to meet their water quality standards, as outlined in the table below.

Mississippi River water quality Crow River to Upper St. Anthony Falls	Standard to meet	Average level 2006-2014
Total phosphorus	100 micrograms per liter	113.9 micrograms per liter
Chlorophyll-a n(green pigment in algae)	18 micrograms per liter	28.1 micrograms per liter
Mississippi River water quality Upper St. Anthony Falls to the St. Croix River	Standard to meet	Average level 2004-2010
Total phosphorus	125 micrograms per liter	182.3 micrograms per liter
Chlorophyll-a (green pigment in algae)	35 micrograms per liter	37.5 micrograms per liter
Lake Pepin water quality	Standard to meet	Average level 2009-2018
Total phosphorus	100 micrograms per liter	134 micrograms per liter
Chlorophyll-a (green pigment in algae)	28 micrograms per liter	27 micrograms per liter

### What reductions are needed to meet standards?

While Lake Pepin is the focus of this TMDL, the work needs to happen upstream. Both point and non-point sources – regulated and unregulated sources – need to reduce the phosphorus they send downstream. If upstream watersheds meet their phosphorus and sediment goals, then local rivers will be healthier and so will Lake Pepin at the end of the system.

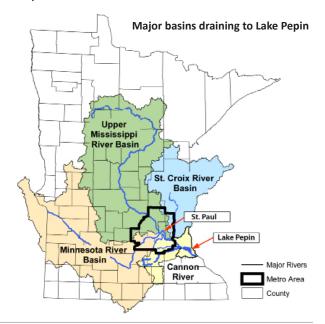
Flow is a big factor for the lake:

- During high flows, when runoff is high, sediment is the concern. Several other studies address the sediment issues, including the South Metro Mississippi TMDL and Minnesota River TMDL.
- During low flows, wastewater discharges are more of a concern because they make up more of the flow and their phosphorus has potential to grow algae. The Lake Pepin TMDL and several upstream studies regulate these discharges through permits for wastewater and municipal stormwater. The majority of the cities and industries in the Lake Pepin watershed have done their part in reducing total phosphorus loads over the past 20 years.

The model used to simulate pollutant reductions recommended the following phosphorus reductions on an average yearly basis:

- 70% reduction from wastewater treatment facilities (goal nearly achieved as of 2020)
- 50% reduction from non-point sources in the Minnesota River and Cannon River
- 50% reduction in resuspension of phosphorus from bottom sediment of the Mississippi River from St. Paul to Hastings
- 20% reduction from non-point sources in the Mississippi River at Lock & Dam 1, St. Croix River and other tributaries

These reductions would protect aquatic recreational uses for Lake Pepin and the downstream pools and should be applicable over the range of high and low water flows.



### What do these reductions mean for regulated and non-regulated parties?

Water quality data and modeling confirm that both point and non-point source reductions - regulated and non-regulated - are required to meet the water quality standards. Due to the variability in weather and stream flows, the entire load reduction needed across all years could not be borne by either point or non-point sources alone.

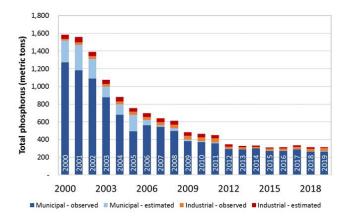
### Regulated sources

For regulated parties, mainly wastewater and stormwater systems that need a state permit, reducing algae in Lake Pepin means reducing phosphorus in their discharges to the environment.

**Wastewater:** Over the past two decades, most of the cities and industries in the Lake Pepin Basin have done their part to reduce total phosphorus loads. Phosphorus in wastewater from municipal and industrial facilities decreased by 80% from 2000-2019.

The MPCA has assigned a waste load allocation – a percentage of the overall phosphorus reduction needed – to 397 permitted wastewater dischargers, based on their size and treatment type. Many of these facilities are already meeting their targets for local resources and Lake Pepin. However, several facilities in upstream watersheds may need to meet more restrictive phosphorus limits to meet eutrophication standards for their rivers.

# Phosphorus reductions in wastewater in the Lake Pepin Basin



Wastewater treatment facilities have reduced phosphorus going to Lake Pepin by 80% since 2000.

**Municipal stormwater:** For communities with a Municipal Separate Storm Sewer System (MS4), the goal is to reduce phosphorus in their stormwater discharges to rivers upstream of Lake Pepin to 0.35 lb/acre/year. This goal is based on literature review, stakeholder input, and agreement with existing basin-wide TMDLs. This approach does not call for a flat percentage reduction from all MS4 permits. Instead, municipalities may consider work already completed toward reducing phosphorus discharges.

### Non-regulated parties

The TMDL calls for big reductions in phosphorus from non-point sources, mainly cropland runoff and fertilizer leaching, but these sources are exempt from regulation and thus the focus will remain on voluntary best management practices (BMPs) that build soil health, reduce runoff and help water quality. For example, cover crops are one practice that helps water quality by keeping soil in place during spring storms. Keeping soil in place prevents sediment – and phosphorus – from draining to lakes and river.

### How will the reductions be implemented?

To guide implementation for the Lake Pepin TMDL study, the MPCA is using the Minnesota Nutrient Reduction Strategy (<a href="www.pca.state.mn.us/water/nutrient-reduction-strategy">www.pca.state.mn.us/water/nutrient-reduction-strategy</a>), developed to reduce nutrient loads across the state and Minnesota's contribution to the dead zone in the Gulf of Mexico.

The Nutrient Reduction Strategy calls for a 45% reduction in phosphorus in the Mississippi River, compared to a 1980 - 1996 baseline, by 2025. The strategy provides a detailed discussion of phosphorus sources, transport mechanisms, reduction strategies, and example BMP combinations that can attain reduction goals.

The MPCA and other partners have already completed several other TMDLs that address phosphorus and/or sediment in the Lake Pepin watershed, including those for Lake St. Croix, Byllesby Reservoir and the Minnesota River.

Minnesota has made progress in reducing phosphorus and sediment loads to lakes and streams by way of wastewater treatment and soil conservation. Additionally, the buffer initiative and the Conservation Reserve Enhancement (CREP) are expected to improve water quality, but those changes will need many years to take effect and show pollutant reductions.

Much of the work to reduce phosphorus going to the Mississippi River and Lake Pepin needs to be done on agricultural land (non-point sources). Public and private entity solutions will be important, both in terms of creating markets for perennial plants to reduce soil erosion and providing services to support conservation practices. Examples of such work include:

- University of Minnesota's Forever Green program (www.forevergreen.umn.edu)
- General Mills' commitment to use perennial plants in food production
- Land O'Lakes Sustain program (www.landolakessustain.com)

The science shows that work upstream will reduce phosphorus and algae in Lake Pepin and the Upper Mississippi as well as lead to dramatic improvements in several other rivers. Now it's up to cities, landowners, private companies, government programs and other stakeholders to make it happen.

### **Contact**

Minnesota Pollution Control Agency
Justin Watkins, watershed unit supervisor
justin.watkins@state.mn.us
507-206-2621
18 Wood Lake Drive S.E., Rochester, MN 55904

### Study history

- **2002:** State lists Lake Pepin as impaired by nutrients
- 2006-'09: Extensive stakeholder involvement building model and technical work for TMDL use
- 2008: State separates phosphorus TMDL from sediment TMDL
- 2009: Work starts on "custom" water quality standard for lake
- 2014: MPCA Citizens Board approves standard for lake; river eutrophication standards also adopted by state
- 2016: Upstream Mississippi River impairments added to study
- 2016: EPA approves TMDL addressing sediment in South Metro Mississippi
- 2016-'17: LimnoTech, a private consultant, develops Lake Pepin/Upper Mississippi TMDL document
- 2018-'19: MPCA and EPA review TMDL document
- 2019: Informal review and comment period for interested parties
- 2020: EPA approves TMDL addressing sediment in Minnesota River
- 2020: Formal public notice period for Lake Pepin/ Upper Mississippi TMDL with comments becoming part of official record
- Next step: Respond to comments and submit revised TMDL to EPA for approval

### More info

Lake Pepin TMDL study: www. pca.state.mn.us/water/tmdl/ lake-pepin-excess-nutrients-tmdlproject



# Kennedy

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Graven

CHARTERED

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tgilchrist@kennedy-graven.com
http://www.kennedy-graven.com

Also: St. Cloud Office 501 W. Germain Street, Suite 304 St. Cloud, MN 56301 (320) 240-8200 telephone

### **MEMORANDUM**

To: Shingle Creek and West Mississippi TAC Committees

From: Troy Gilchrist

Re: Maintenance Levy

Date: April 28, 2020

------

The Commissions have been discussing whether it can establish and communicate to the County a levy to maintain its CIP projects. A maintenance levy is specifically provided for in Minn. Stat. § 103B.251, subd. 9, but it refers to the commission imposing the levy itself in the same manner as a watershed district under Minn. Stat. §§ 103D.915 and 103D.921. The statute also makes it clear the county must approve the levy.

I sent the attached message to the county attorney's office to see if they would agree to the Commissions sending the county a maintenance levy along with its usual levy request. I thought I had sent the message out earlier in the month, but I found it in my draft messages and so it was not sent until April 24<sup>th</sup>. I have not yet received a response from the county.

If the TAC recommends, and the Commissions agree, to proceed with a maintenance levy request, I recommend the Commissions act at the next meeting to set an amount for the maintenance levy conditioned on the county agreeing to it. I would then work with Diane to add language regarding the maintenance levy to the regular communication to the county regarding the levy request.

If the county does not agree with the request, whether because it believes it is not authorized under the statute or for some other reason, the only consequence should be the county telling the Commissions no. As such, I see no particular harm in making the request if that is what the Commissions would like to do.

From: Gilchrist, Troy J. < TGilchrist@Kennedy-Graven.com>

**Sent:** Friday, April 24, 2020 12:32 PM

**To:** 'Chuck.Salter@hennepin.us' < <a href="mailto:Chuck.Salter@hennepin.us">Chuck.Salter@hennepin.us</a>>

Cc: Diane Spector (<a href="mailto:dspector@wenck.com">dspector@wenck.com</a>; Judie Anderson <a href="mailto:Judie@jass.biz">Judie@jass.biz</a>

**Subject:** Levy for Maintenance (SH220-1)

Hello Chuck,

You and I communicated last summer about Shingle Creek and West Mississippi WMOs including street sweepers in its CIP funding. As you know, after a fair amount of discussion and analysis, the WMOs were able to adopt a policy to address that issue. Since then, another issue has come up that I would like to run by you to get your thoughts on it. Specifically, the WMOs are exploring the possibility of including in its levy request a maintenance levy for maintaining CIP projects. The WMOs have engaged in many successful CIP projects, but providing for their on-going maintenance so they can continue to provide the water qualify benefits is becoming an increasing challenge.

In reviewing the statutes, I noticed Minn. Stat. 103B.251, subd. 9 contemplates a maintenance levy:

Subd. 9. **Maintenance levy**. For the purpose of creating a maintenance fund to be used for normal and routine maintenance of a work of improvement constructed in whole or part with money provided by the county pursuant to subdivision 6, the board of managers of a watershed district, with the approval of the county, may impose an ad valorem levy on all property located within the territory of the watershed district or subwatershed unit. The levy shall be certified, levied, collected, and distributed as provided in sections 103D.915 and 103D.921, and shall be in addition to any other money levied and distributed to the district. The proceeds of the levy shall be deposited in a separate maintenance and repair account to be used only for the purpose for which the levy was made.

If the county approves, it appears a WMO may establish a maintenance fund for maintenance activities associated with a funded CIP project and levy to support that fund. The statute indicates the funds are to be levied under 103D, but at this point the WMOs are asking if it is possible to certify a maintenance levy to the county along with its usual levy request. I do not know if any other WMOs in the county are levying for maintenance, but I have not previously been asked to look into it on behalf the WMOs I represent and so I was wondering if you have any experience, thoughts, or comments on this option and whether the county would accept such a levy request.

Thanks for your input and feel free to let me know if have any questions.

Troy J. Gilchrist | Attorney at Law Kennedy & Graven, Chartered Direct: 612.337.9214 tgilchrist@kennedy-graven.com

# Technical Memo



Responsive partner. Exceptional outcomes.

To: Shingle Creek/West Mississippi WMC TAC

From: Ed Matthiesen, P.E.

**Diane Spector** 

**Date:** April 30, 2020

**Subject:** Potential Maintenance Levy

Staff met to discuss potential actions that might be considered for funding from a maintenance levy. These actions were limited to the costs associated with maintaining a capital improvement or the benefits of a capital improvement.

Upper Twin Lake ongoing CLP treatment: \$5,000-7,000 per year, including the cost of delineation and permitting

Twin Lake ongoing carp management: \$10,000-30,000 per year depending on effort, disposal costs, etc. (Note that this is about how much Ramsey-Washington budgets per year for Lake Owasso.)

Bass/Pomerleau Lakes ongoing CLP treatment: \$10,000 per year, including the cost of delineation and permitting. So far no treatment has been required on Pomerleau. The project budget covers years 1-5, should additional treatment or Pomerleau treatment be necessary maintenance levy would be required

Crystal Lake: CLP management for years 1-3 is built into budget, but if additional treatment is required would need maintenance levy.

Meadow: Future drawdowns would likely be done as capital projects.

Iron and Biochar-enhanced sand filters: At some point these will need to be refreshed - \$5,000-8,000 per site.

In summary, \$30,000 - \$50,000 per year.

Z:\Shingle Creek\CIPs\2020\M-maint levy.docx

# Technical Memo



Responsive partner.
Exceptional outcomes.

To: Shingle Creek WMO TAC

**From:** Ed Matthiesen, P.E.

Diane Spector
Judie Anderson

**Date:** April 30, 2020

**Subject:** Initial Discussion of 2021 Proposed Operating Budget

Recommended Commission Action

This report presents a proposed 2021 budget for TAC discussion and comment. Based on these discussions, we will prepare a final budget for consideration at the May 14, 2020 Commission meeting. The budget must be finalized prior to July 1.

The Joint Powers Agreement (JPA) governing operations of the Shingle Creek Watershed Management Commission requires a budget and the resulting proposed city assessments for the coming year to be reported to the member cities by July 1. This memo is the first step in the 2021 budget process.

The budget is separated into an operating budget and a project budget. The annual operating budget revenue source is primarily city assessments and funds the Commission's core activities. Projects and studies are funded through a variety of grant and other sources, most of which do not proceed on an annual fiscal year basis. Tracking budgets separately provides more clarity as to the activities the cities are funding directly from their annual budgets.

Assessment Cap. The assessment cap in the JPA limits the annual city assessment increase to the June-to-June increase in the Consumer Price Index-Urban (CPI-U), using the assessment in 2004 as a base. As Table 1 shows below, the "SC Allowed" is the amount of assessment that could have been made based on accumulated CPI-U change compared to the "SC Actual," which is the amount actually assessed. While the current estimate of annual inflation is 0.8%, the allowable increase is based on the accumulated inflation rate since 2003. This preliminary recommended draft 2021 budget assumes an assessment of \$369,190, which is a 1.5% increase.

Table 1. Calculation of allowable member city assessments according to the JPA assessment cap.

		Annual CPI %	Cumul. CPI		
Year	June CPI-U	Change	% Change	SC Allowed	SC Actual
2003	183.7				
2004	189.7			\$262,750	\$262,750
2005	194.5	3.3%	3.3%	271,330	268,190
2006	202.9	2.5%	5.9%	278,200	276,500
2007	208.352	4.3%	10.5%	290,210	285,900
2008	218.815	2.7%	13.4%	298,010	292,760
2009	215.693	5.0%	19.1%	312,980	304,470
2010	217.965	-1.4%	17.4%	308,510	304,400

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Year	June CPI-U	Annual CPI % Change	Cumul. CPI % Change	SC Allowed	SC Actual
2011	225.722	1.1%	18.7%	311,760	304,400
2012	229.478	3.6%	22.9%	322,850	321,400
2013	233.504	1.7%	24.9%	328,230	321,400
2014	238.343	1.8%	27.1%	333,990	329,600
2015	238.638	2.1%	29.7%	340,910	337,970
2016	241.018	0.1%	29.9%	341,330	337,970
2017	243.801	1.0%	29.6%	344,730	340,610
2018	251.989	1.6%	33.3%	350,360	348,710
2019	254.202	1.9%	37.2%	360,430	356,900
2020	258.115*	0.9%	39.4%	366,370	363,590
2021		0.8%**	40.5%**	369,190	369,190

<sup>\*</sup>March 2020 is the latest available. \*\*June 2019 to March 2020

*Proposed Budget.* With a few exceptions the proposed budget shown in Table 2 generally continues the same activities at the same level of effort as 2020. Each line item is explained in the 2021 Budget Explanation below. Figure 1 shows the proposed 2021 expenditures by category. A few lines require more explanation:

Interest (line 4): The Commission currently has about \$1 million in the bank, most of which is restricted funds dedicated to grant and levy projects. That balance is earning considerable interest, which staff recommends letting accrue to the cash reserves (line 45) rather than spend.

West Metro Water Alliance (WMWA) Programs (lines 5-6 and 33-40): Shingle Creek acts as the fiscal agent for WMWA. The Commission's budget shows revenues received from our WMO partners for general WMWA programming (line 5). The partners' share of WMWA expenses is shown on lines 34, 36, and 40, the sum of which equals the revenues shown on line 5. Shingle Creek's contributions to WMWA programs are shown on lines 33, 35, and 39. The rain garden workshops are handled in a different way. They are funded directly by cities (line 6) and invoiced through Shingle Creek as a convenience, and the Commission contributes funds (line 37) to subsidize this cost for workshops hosted in the watershed.

Subwatershed BMP Assessment (line 42). The SWA account had a balance of \$34,152 at the end of 2018. The 2019 budget allocated \$20,000 budgeted for subwatershed assessments and \$5,000 for contribution to the 4<sup>th</sup> generation plan to provide cost share to the HUC-8 flood mapping update. At the end of 2019 the Commission contributed \$19,690 to the City of Maple Grove's Pike Lake SWA. The 2020 budget includes a \$20,000 annual contribution to the Subwatershed Assessment account. No requests for SWAs have been submitted yet in 2020, so the account has a pre-audit balance of \$34,500. Staff recommends reducing the 2021 contribution to \$10,000.

Contribution to 4<sup>th</sup> Generation Plan (line 44). The Commission has been contributing annually to a restricted account to finance the upcoming 4<sup>th</sup> Generation Plan. At the end of 2019 that balance is an estimated \$62,000. We believe that with West Mississippi's contribution this will be sufficient to provide an update to the management plan, especially given the management plan implementation work that has been ongoing: the TMDL 5-year reviews, HUC-8 modeling, robust monitoring program and annual water quality report.

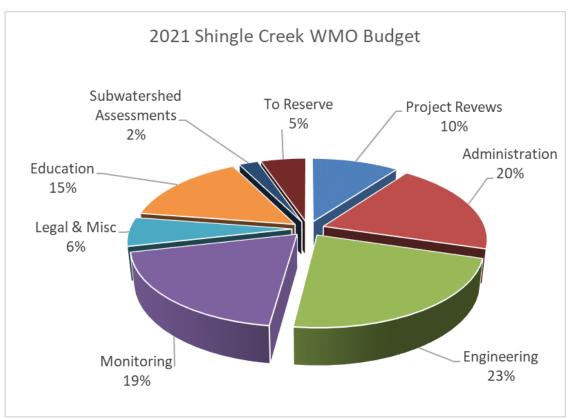


Figure 1. Proposed Shingle Creek 2021 budget: operating budget by category.

### 2021 Budget Explanation

Income (see Table 2)

	ne (see Table 2)
Line	Explanation
1	The application fee structure is intended to recover the cost of completing current project reviews. While
	the fees do not fully fund that activity, they are set and periodically reviewed and adjusted so as to recover
	a majority of the cost. It is difficult to predict and budget for project review revenues and fees because it
	varies based on the economy.
2	The proposed assessment of \$369,190 is a 1.5% increase over the 2020 assessment. There was no increase
	from 2015 to 2016 and a 0.1% increase between 2016 and 2017.
3	The Blue Line Extension project will be built through the watershed, and there will be a number of wetland
	and floodplain impacts and stream crossings. The Metropolitan Council will reimburse the Commission's
	cost for the Watershed Engineer's participation in planning meetings, which recently have been on hold.
4	The Commission uses the 4M fund to manage its funds, as do many of the member cities. Interest rates
	are low and likely to remain so, however, the commission is maintaining a high balance of funds
	encumbered for capital projects, so the amount of interest earned is rising.
5-6	The Commission is the fiscal agent for WMWA activities, and West Mississippi, Elm Creek, and Bassett
	Creek reimburse the Commission for those services. Participating cities reimburse the Commission for
	Metro Blooms workshops.

Expenditures (see Table 2)

Line	Explanation
8-11	These line items are to provide administrative support (scheduling, minutes, etc.) for regular
	Commission and TAC meetings and any special meetings that require support, as well as general
	administrative duties such as notices, mailings, and correspondence. The Watershed Engineer
	continues to request the administrator to take on tasks that she can perform more cost effectively.

Line	Explanation
12	This line item includes general engineering support, including preparation for and attendance at
	Commission and TAC meetings, general technical and engineering assistance, minor special projects,
	etc. There has been an increasing amount of work including more frequent TAC meetings, technical
	assistance to the member cities, CIP and grants, etc., so this line item is proposed for increase.
13	The Commission continues to be successful in obtaining grant funds. This line item funds both the
	development of grant applications and the work necessary to get them under contract, such as
	developing work plans, budgets, and schedules. Where possible grant administration is rolled into the
	grant project costs and is an eligible grant activity.
14-15	These line items are for project reviews, review of Local Water Management Plans and Comprehensive
	Plan amendments and updates, environmental assessments, and general inquiries about past and
	upcoming projects, and large projects. This activity has noticeably increased in the past few years, as
	there have been more planning and pre-submittal meetings and reviews. It is difficult to predict what
	the expense for a coming year will be, as it is based on the number of project reviews, inquiries, etc.
	received. In 2019 the Commission reviewed nine local water management plans.
16	In the lake and stream TMDLs, the Commission took on completing reviews of progress every five years
	on a rotating schedule. The Shingle and Bass Creeks Biota and DO TMDL review will be completed in
	2020-2021, after which the first cycle will be complete.
17-21	Legal and administrative costs necessary to operate the Commission and hold meetings.
22-23	The Commission's routine stream monitoring program. Flow and water quality are monitored at two
	sites – SC-0 at Webber Park in Minneapolis and SC-3 at Brooklyn Boulevard in Brooklyn Park, and one
	site on Bass Creek – BC-1 in Bass Creek Park in Brooklyn Park. This also includes the Commission's share
	of operating the USGS real-time monitoring site at Queen Avenue in Minneapolis.
24	No monitoring equipment is proposed for replacement in 2021.
26	This line item is the routine lake water quality monitoring and aquatic vegetation surveys as set forth in
	the Third Generation Monitoring Program and in the lake TMDLs. In 2021 lakes monitored for water
	quality and aquatic vegetation will be Success and Cedar Island Lakes.
27-29	Volunteer lake, macroinvertebrate, and wetland monitoring. The lake monitoring is through the Met
	Council's Citizen Assisted Monitoring Program (CAMP), and the stream macroinvertebrate and wetland
	monitoring is coordinated by Hennepin County Environmental Services. In 2021 the CAMP lakes will be
	Eagle, Pike, Schmidt, and Magda. Two wetlands yet to be determined will be monitored in 2021.
30	This line item is the annual water quality report, which provides a record of all the monitoring results
	for the year as well as analysis of water quality trends and an overview of progress toward the TMDLs.
	West Mississippi also budgets funds for this report. Now that the Commissions has accumulated a long
	enough data record, more trend analysis is possible.
31-32	The cost of the Education program is split 50/50 between Shingle Creek and West Mississippi. The
	education grants are targeted to educators and other parties desiring to enhance education and
	outreach around water. Some past examples are: transportation to the annual Children's Water Fest;
	materials for a schoolyard rain garden; and interpretive signage at volunteer restoration sites.
33-40	Shingle Creek is the fiscal agent for the West Metro Water Alliance (WMWA). These lines show the
	Commission's share as well as the partners' share.
41	The Commission reviews its Capital Improvement Program (CIP) annually, and periodically formally
	revises the CIP through major and minor plan amendments. No amendment is anticipated in 2021.
42	Completion of subwatershed BMP assessments systematically in the areas of the watershed that could
40	benefit from additional treatment as recommended in the Third Generation Plan.
43	A 2019 special project to update flood modeling and mapping that was last updated decades ago. The
	2019 budget included funding to supplement the \$50,000 contributed by the DNR. The project will be
	complete in 2020.
44-45	Contributions to dedicated accounts: a reserve for the 4 <sup>th</sup> Generation Management Plan; and a grant
	match reserve. The 4 <sup>th</sup> Generation Plan Account will have a balance of \$62,000 at the end of 2019. No
	contribution is proposed to either the 4 <sup>th</sup> Gen Plan or the grant match fund in 2021.

Table 2. Proposed Shingle Creek WMC 2021 operating budget.

Tabl	e 2. Proposed Shingle Creek WMC 2021 oper	ating budget.			
		2019 Budget	Pre-Audit Actual 2019	Approved 2020 Budget	Proposed 2021 Budget
REVE	NUE				8
1	Application Fees	\$22,000	\$18,200	\$23,000	\$20,000
2	Member Assessments	356,900	356,900	363,590	369,190
3	Blue Line Extension	0	0	1,000	0
4	Interest	3,000	21,260	15,000	20,000
5	WMWA Education Reimbursement	33,000	23,382	33,000	33,000
6	WMWA Rain Garden Workshops	6,000	6,250	8,000	8,000
7	Miscellaneous Income	0	0	0	0
	TOTAL REVENUE	\$420,900	\$425,992	\$443,590	\$450,190
EXPE	INSES				
	ADMINISTRATION				
8	Administrative Services	\$71,000	\$71,268	\$71,000	\$71,000
9	Engineering Support	17,000	15,875	17,000	17,000
10	Project Reviews/WCA	1,700	1,516	1,500	1,500
11	Blue Line Extension		0	500	_
	Subtotal	\$89,700	\$88,659	\$90,000	\$89,500
	ENGINEERING				
12	Engineering Services	62,000	95,518	62,000	80,000
13	Grant Application Writing	10,000	10,109	11,500	11,000
14	Project Reviews/WCA	37,000	43,480	45,000	44,000
	Local Plan Reviews	0	0	0	0
15	Blue Line Extension	0	0	500	0
16	TMDL 5 Year Reviews	12,000	12,008	12,000	10,000
	Subtotal	\$121,000	\$161,115	\$131,000	\$145,000
	LEGAL				
17	Legal Services	6,000	5,390	6,000	\$5,500
	MISCELLANEOUS				
18	Bookkeeping	7,000	7,005	7,000	7,000
19	Audit	6,000	6,000	6,500	6,500
20	Insurance & Bonding	3,100	2,441	3,100	3,100
21	Meeting Expense	4,700	4,010	5,000	5,000
	Subtotal	\$20,800	\$19,456	\$21,600	\$21,600
	PROGRAMS				
	Monitoring		22.21-		
22	Stream Monitoring	33,000	36,047	35,000	36,000
23	Stream Monitoring-USGS	4,100	3,800	4,500	4,200
24	Monitoring Equipment	3,000	(in al. al. al. al.)	0	0
25	Stream Biomonitoring	22.500	(incl above)	0	24.000
26	Commission Lake Monitoring	22,500	22,491	24,000	24,000
27	Citizen Assisted Lake Monitoring	3,800	1,903	3,800	3,800
28	Vol Stroam Monitoring	2,000	0	2,000	2,000
29	Vol Stream Monitoring	2,000	2,000	1,000	1,000
30	Annual Monitoring Report	14,000 <b>\$84,400</b>	13,999	16,000	16,000
	Subtotal Water Quality Education	304,4UU	\$80,240	\$86,300	\$87,000
21	Water Quality Education	15,000	19 424	15,000	15 000
31	Education Program		18,424		15,000
32	Education Grants	500	0	500	500

		2019 Budget	Pre-Audit Actual 2019	Approved 2020 Budget	Proposed 2021 Budget
33	WMWA Admin/Tech: SC Share	5,000	12.025	5,000	5,000
34	WMWA Admin/Tech: Partners Share	15,000	12,025	15,000	15,000
35	WMWA Impl Activities: SC Share	2,000	2 970	2,000	2,000
36	WMWA Impl Activities: Partners Share	4,500	3,879	4,500	4,500
37	Rain Garden Workshops: SC Share	2,000	0.000	2,000	2,000
38	Rain Garden Workshops: Partners Share	6,000	9,000	6,000	6,000
39	WMWA Educators: SC Share	4,500	12.226	4,500	4,500
40	WMWA Educators: Partners Share	13,500	12,326	13,500	13,500
	Subtotal	\$68,000	\$55,654	\$68,000	\$68,000
	MANAGEMENT PLANS				
41	3 <sup>rd</sup> Gen Plan/Plan Amendments	1,000	2,168	1,000	0
42	Subwatershed BMP Assessment	0	19,992	20,000	10,000
	Subtotal	\$1,000	\$1,958	\$21,000	\$10,000
	PROJECTS				
43	Flood Modeling and Mapping	25,000	35,001	0	0
44	Contribution to 4th Generation Plan	5,000	0	0	0
45	To/From Reserves	0	0	19,690	23,590
	Subtotal	\$30,000	\$35,001	\$19,690	\$23,590
	TOTAL OPERATING EXPENSE		\$422,208	\$443,590	\$450,190
	To be reimbursed by DNR		7,925		
	Amount Under (Over)		(3,402)		

### **Budget Background**

#### INCOME

- Assessments: annual assessments to the member cities to pay the operating expenses of the Commission. Assessments are apportioned 50 percent based on land area within the watershed and 50 percent based on tax capacity of land within the watershed.
- Blue Line Extension: The Met Council reimburses the Commission for work the Engineer and WCA administrators undertake as part of planning for the Blue Line Extension.
- WMWA Education and Rain Garden Workshops: Shingle Creek serves as the fiscal agent for the West Metro Water Alliance. As that fiscal agent, Shingle Creek invoices the other three watersheds for general WMWA work and also works with individual cities or groups of cities who wish to contract with Metro Blooms for raingarden workshops.

#### **EXPENSES**

OPERATIONS: All activities mandated by statute or state administrative rule except where noted.

#### Administration

- Administrative Services: clerical and office support duties on behalf of the Commission, such as preparing for and attending meetings, preparing minutes and agendas, correspondence, mailings, official records, official publications, annual reporting, preparing budget.
- TAC/Engineering Support: correspondence, official publications, attendance and minutes at TAC and other special meetings, and other support regarding engineering activities.

 Project Reviews/WCA: correspondence and other support regarding project reviews and Wetland Conservation Act actions.

# Engineering

- Engineering Services: technical and administrative duties on behalf of the Commission, such as: investigation and resolution of drainage, flood control, bank stabilization, erosion and water quality problems; research; preparing for and attending meetings; correspondence; responding to inquiries; annual reporting; preparing budget.
- Grant Application Writing: researching and writing grant applications to supplement Commission funds, preparing work plans and contracts for awarded grants. The Commission started funding grant applications in 2003 and has received grants totaling just over \$4.3 million from various sources. Not mandated.
- Project Reviews/WCA: reviewing projects and wetland replacement plans for conformance with Commission and WCA requirements; reviewing local plans and comprehensive plan amendments; consultation on upcoming projects; reviewing environmental assessments.
- TMDL 5 Year Reviews/CIP Engineering: technical assistance to the Commission and cities in the ongoing implementation of TMDLs and projects and completion of TMDL Five Year Reviews. Each Five Year Review is published as a stand-alone report. Not mandated.

#### Legal

 Legal Services: general counsel, preparing for and attending meetings, drafting policies and variances, drafting and reviewing contracts and agreements.

#### Miscellaneous

 Miscellaneous: annual audit, bookkeeping services, insurance and bonding, and meeting expenses.

MONITORING AND INFORMATION GATHERING: State administrative rules **mandate** monitoring programs that are "...capable of producing accurate data to the extent necessary to determine whether water quantity and quality goals are being achieved" but *do not specify* what those programs should entail. The Commission lake, stream, and biomonitoring are in accordance with the ongoing monitoring committed to by the Commission in the lake and stream TMDLs Implementation Plans.

- Commission Stream Monitoring: Field data collection, equipment maintenance, sample lab analysis, and data analysis for flow monitoring and water quality sampling at three sites (SC-0 Webber Park, SC-3 Brooklyn Boulevard, and BCP Bass Creek Park).
- Stream Monitoring-USGS: The Commission's share of the cost of operating the USGS site at Queen Avenue (SC-1). Real-time data can be found at waterdata.usgs.gov/mn/nwis/uv?05288705.
- Commission Stream Biomonitoring: The Commission periodically performs fish and macroinvertebrate sampling at the water quality monitoring stations.
- Commission Lake Monitoring: Bimonthly water column water quality monitoring, aquatic
  vegetation surveys, and sediment core sampling (where necessary) to obtain a more robust
  assessment of lake water quality and biotic health.
- Citizen Assisted Lake Monitoring Program (CAMP): In partnership with the Metropolitan Council, volunteers are trained to take lake water samples and make observations. Met Council provides sample analyses and data compilation. The Commission provides equipment, training, and sample collection. Lakes are monitored on a rotating schedule set forth in the Third Gen Plan.

- Volunteer Wetland Monitoring: In partnership with Hennepin County Environment and Energy. Adults are trained to monitor and sample wetlands for plants and macroinvertebrates and to classify the sampled organisms and plants as an indicator of wetland health. Two to three sites are monitored each year.
- Volunteer Stream Monitoring: In partnership with Hennepin County Environment and Energy, high school and college students are trained to sample streambeds for macroinvertebrates and to classify the sampled organisms as an indicator of stream health. Various sites on Shingle Creek.
- Annual Monitoring Report: Information gathered through the various monitoring programs is presented and interpreted in an Annual Water Quality Report. This report also includes an analysis of water quality trends.

<u>EDUCATION AND PUBLIC OUTREACH</u>: A public information program is **mandated** by state administrative rules. The Commission also provides at the member cities' request NPDES Phase II education and public outreach programs **mandated** by the federal and state governments.

- Education: General public information and NPDES education program: target one or two messages per year; coordinate messages with cities; prepare materials for distribution by member cities; work with lake associations; Great Shingle Creek Watershed Cleanup; work with Watershed Partners; coordinate Education and Public Outreach Committee (EPOC); coordinate with West Metro Water Alliance (WMWA) (with West Mississippi, Bassett, and Elm Creek WMOs); work with area schools; maintain Web site.
- Education Grants: Financial assistance for activities such as classes or programs to improve
  water quality education; curriculum and educational materials for use in the classroom;
  expenses for field trips or fieldwork related to water quality education; implementation projects
  that include an education component.

<u>MANAGEMENT PLANS</u>: The Commission is **mandated** by state statute and administrative rule to pursue an Implementation Program that consists of nonstructural, structural, and programmatic solutions to problems, issues, and management goals.

- 3<sup>rd</sup> Gen Plan/Plan Amendments: Management Plans have been completed for water resources in the watershed, including approved TMDLs for each Impaired Water. Each year the Commission reviews the Capital Improvement program (CIP), and if necessary modifies it through a major or minor plan amendment.
- Subwatershed BMP Assessments: These analyses evaluate and model smaller subwatersheds for possible small Best Management Practice implementation, including rain gardens, bioinfiltration and filtration basins, pond expansions and iron-enhanced filter retrofits, pervious pavement, tree trenches, capture and reuse, and other practices. Such assessments have been completed in several areas within the watershed.

<u>CONSTRUCTION/MATCHING GRANT FUND:</u> A capital contribution towards a fund to be used to match grants or for high-priority projects as designated by the Commission. **Not mandated** 

<u>CONTRIBUTION TO  $4^{TH}$  GENERATION MANAGEMENT PLAN:</u> The Commissions are required by statute to update their plans at least every ten years. The commissions are accumulating funds in a dedicated account to pay for this plan, expected in 2021-2022. **Not mandated** 

# Technical Memo



Responsive partner. Exceptional outcomes.

To: West Mississippi WMO TAC

**From:** Ed Matthiesen, P.E.

Diane Spector
Jude Anderson

**Date:** April 30, 2020

**Subject:** Initial Discussion of Proposed 2020 Operating Budget

Recommended Commission Action This report presents a proposed 2021 budget for TAC discussion and comment. Based on these discussions, we will prepare a final budget for consideration at the May 14, 2020 Commission meeting. The budget must be finalized prior to July 1.

The Joint Powers Agreement governing operations of the West Mississippi Watershed Management Commission requires a budget and the resulting proposed city assessments for the coming year to be reported to the member cities by July 1. This memo is the first step in the 2021 budget process.

The assessment cap in the Joint Powers Agreement limits the annual city assessment increase to the increase in the Consumer Price Index (CPI-U), using the assessment in 2004 as a base. As Table 1 shows, the Commission could under that cap increase member city assessments for 2021 to \$167,840. The draft 2021 budget assumes an assessment of \$157,000, an increase of 2.2% over 2020. In past years the Commission supplemented the assessments with a contribution from the cash reserves to draw down what was a substantial balance. The proposed 2021 budget assumes no contribution from the cash reserves. The unrestricted fund balance at the end of 2019 was estimated to be about \$86,000, and staff recommends that assessments continue to be increased if necessary by steps over a few years to fully fund the operating budget without that supplement.

Table 1. Calculation of allowable member city assessments according to the JPA assessment cap.

	June CPI-U	Annual CPI % Change	Cumul. CPI % Change	WM Allowed	WM Actual
2003	183.7				
2004	189.7			\$119,450	\$ 76,200
2005	194.5	3.3%	3.3%	123,350	77,950
2006	202.9	2.5%	5.9%	126,470	80,350
2007	208.352	4.3%	10.5%	131,930	125,600
2008	218.815	2.7%	13.4%	135,480	125,600
2009	215.693	5.0%	19.1%	142,280	130,620
2010	217.965	-1.4%	17.4%	140,250	128,000
2011	225.722	1.1%	18.7%	141,730	128,000
2012	229.478	3.6%	22.9%	146,770	128,000
2013	233.504	1.7%	24.9%	149,220	135,700
2014	238.343	1.8%	27.1%	151,830	135,700

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		Annual CPI	Cumul. CPI		_
	June CPI-U	% Change	% Change	WM Allowed	WM Actual
2015	238.638	2.1%	29.7%	154,980	135,700
2016	241.018	0.1%	29.9%	155,170	135,700
2017	243.801	1.0%	31.2%	156,720	145,000
2018	251.989	1.6%	33.3%	159,280	150,000
2019	254.202	1.9%	37.2%	163,850	153,600
2020	258.115*	0.9%	39.4%	165,290	153,600
2021		0.8%**	40.5%**	167,840	157,000

<sup>\*</sup>March 2020 CPI-U is the latest available \*\*June 2016 to March 2020

Subwatershed Assessments (line 28). The Commission has set aside \$10,000-20,000 per year to complete subwatershed assessments, including one in Champlin in the vicinity of TH 169 and West River Road, and one in Brooklyn Center, in its Evergreen Park Neighborhood. No applications have been made for the past two years, so it is recommended that no funds be budgeted specifically for this. At the end of 2019 the estimated balance of that account was \$40,000. Should a member city request one in 2021, the Commission may consider amending the budget for that purpose.

Contribution to Construction/Grant Match Fund (line 29). The commission has set aside \$5,000 each year in a restricted fund for construction projects or to match grants. Aside from one project in Brooklyn Center, the funds have not been used and the audited balance at the end of 2018 was \$84,310. It is recommended that no funds be budgeted specifically for this.

Contribution to 4<sup>th</sup> Generation Plan (line 30). When the member cities agreed to an "above the cap" assessment for the Third Generation Plan, they advised the Commission to begin setting aside funds every year in a reserve to pay for the Fourth Generation Plan, which expires in 2022. Shingle Creek sets aside \$10,000 per year for this purpose and has accumulated \$65,000. Because of the significant balance in the cash reserves, the Commission had previously declined to specifically set aside funds. Staff recommends that the Commission again consider segregating an amount in the reserves specifically for the Fourth Generation Plan, and staff recommends that amount be \$25,000, and that no contribution from the annual budget be made.

Updated Floodplain Mapping (line 31). Commission staff are currently working with the DNR to undertake updated floodplain modeling in Shingle Creek. While the DNR is not prioritizing updating flood modeling and mapping in West Mississippi, the existing flood delineations are quite old and were prepared when the watershed was much less developed. Staff has recommended updating the modeling and mapping at the same time as Shingle Creek for economies of scale. The DNR has no funding available to underwrite this work in West Mississippi. Staff estimates that the cost of this work would be about \$25,000. The 2019 budget allocated \$25,000 from reserves for West Mississippi work, however, it was not a priority as the Shingle Creek work is still under way and was not completed. Should the Commission choose to go forward in 2021 the budget may be amended.

With the above exceptions the proposed budget shown in Table 2 generally continues the same activities at the same level of effort as 2020. Each line item is explained in the 2021 Budget Explanation below. Figure 1 shows the proposed 2021 expenditures by category.

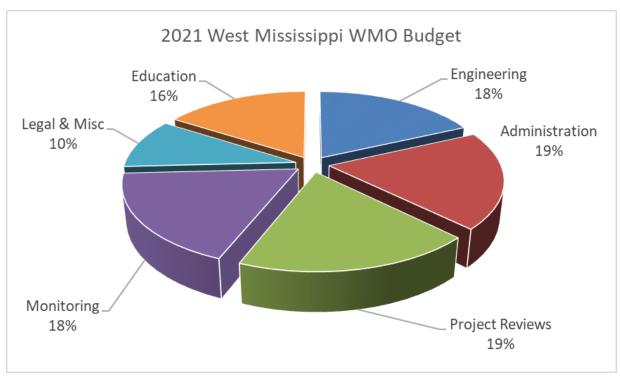


Figure 1. West Mississippi proposed 2021 budget by category.

# 2021 Budget Explanation

# Income (see Table 2)

1110011	meome (see ruble 2)				
Line	Explanation				
1	The application fee structure is intended to recover the cost of completing current project reviews. While the fees do not fully fund that activity, they are set and periodically reviewed and adjusted so as to recover a majority of the cost. It is difficult to predict and budget for project review revenues and fees because it varies based on the economy.				
3	Following no increases for two years, the 2021 assessment is a2.2% increase over 2020. This continues to phase out the use of cash reserves to subsidize the budget.				
4	The Blue Line Extension project will be built through the watershed, and there will be a number of wetland and floodplain impacts and stream crossings. While currently on hold, the Metropolitan Council will reimburse the Commission for the cost of the Watershed Engineer's participation in planning meetings.				
5	The Commission has in the past maintained a very healthy cash reserve. In previous years, those reserves were used to subsidize the assessments. As the reserves have been drawn down, the assessments are now funding most of the operating expenses. In 2019, funds from the cash reserves were set aside to update flood modeling and mapping.				

# Expenditures (see Table 2)

Line	Explanation
6-9	These line items are to provide administrative support (scheduling, minutes, etc.) for regular Commission and TAC meetings and any Commission, TAC, or other meetings that require support, as well as general administrative duties such as notices, mailings, and correspondence. The Watershed Engineer continues to request the administrator to take on tasks that she can perform more cost effectively.
10-11	This line item includes general engineering support, including preparation for and attendance at Commission and TAC meetings, general technical and engineering assistance, minor special projects, writing and administering grants, etc.  There has been an increasing amount of work including more frequent TAC meetings, more technical assistance to the member cities, managing the CIP process, etc., so this line item is proposed for increase.
12-13	These line items are for project reviews, review of Local Water Management Plans and Comprehensive Plan amendments and updates, environmental assessments, large projects such as the Blue Line Extension and general inquiries about past and upcoming projects. This activity has noticeably increased in the past few years, as there have been more planning and pre-submittal meetings and reviews. It is difficult to predict what the expense for a coming year will be, as it is based on the number of project reviews, inquiries, etc. received.

Line	Explanation			
14-18	Legal and administrative costs necessary to operate the Commission and hold meetings.			
19-20	At this time we are not recommending changes to the volunteer stream or wetland monitoring budgets. One stream			
	site is monitored (Mattson Brook) through the RiverWatch program when volunteers are available, and two wetlands			
	through the Wetland Health Evaluation Program, both volunteer programs managed by Hennepin County.			
21	Routine flow and water quality monitoring at two stream and/or outfall sites each year on a rotating basis.			
22	This line is the Commission's contribution to the Annual Shingle Creek and West Mississippi Water Quality Report.			
23,26	The cost of the Education program is split 50/50 between Shingle Creek and West Mississippi.			
24-25	The Commission participates in the West Metro Water Alliance (WMWA), contributes to funds to support rain garden			
	workshops, classroom activities, and special projects on a regional basis.			
27	The Commission reviews its Capital Improvement Program (CIP) annually, and periodically formally revises the CIP			
	through major and minor plan amendments. No amendments are anticipated for 2021.			
28	Completion of subwatershed BMP assessments systematically in the areas of the watershed that could benefit from			
	additional treatment as recommended in the Third Generation Plan. No assessments have been requested for 2021,			
	thus no funds are budgeted.			
29	In the past the commission periodically has set aside funds in a segregated account to provide grant match, but as that			
	account has not been used and carried a balance, no funds are budgeted for 2020.			
30	The Commission could but does not at this time make regular contributions to a dedicated 4 <sup>th</sup> Generation Watershed			
	Management Plan account.			
31	A 2019 special project to update flood modeling and mapping that was last updated decades ago. Work was put on			
	hold until similar modeling is completed in Shingle Creek.			
32	When expenses are less than collected revenues, the balance is transferred to the cash reserves.			

Table 2. Proposed West Mississippi Watershed Management Commission 2021 budget.

Table	2. Proposed West Mississippi Watershe	d Management Commission 2021 budget.				
		2019 Budget	2019 Actual (pre-audit)	2020 Budget	Proposed 2021	
INCO	ME					
1	Application fees	\$20,000	\$18,800	\$18,000	\$18,000	
2	Interest income	2,000	10,807	5,000	7,000	
3	Assessment	153,600	153,600	153,600	157,000	
4	Blue Line Extension	0	0	500	0	
5	Reserve - General	25,000	0	0	0	
	TOTAL INCOME	\$200,600	\$183,207	\$177,100	\$182,000	
EXPEN		7=00,000	7-20/201	7-11-7-00	¥===,000	
	Administration:					
6	Administrative services	\$31,000	\$27,948	\$31,000	\$30,000	
7	TAC/engineering support	4,500	4,849	4,500	5,000	
8	Project reviews/WCA	1,500	1,169	1,500	1,500	
9	Blue Line Extension	0		0	0	
	Subtotal	\$37,000	\$33,966	\$37,500	\$36,500	
	Engineering:					
10	Engineering services	30,000	\$29,244	31,000	32,000	
11	Grant writing	1,500	414	1,000	1,000	
12	Project reviews/WCA	27,000	34,984	27,600	32,500	
13	Blue Line Extension	0	0	500	0	
	Subtotal	\$58,500	\$64,642	\$60,100	\$65,500	
	Legal:					
14	Legal services	5,000	\$3,736	5,000	4,000	
	Subtotal	\$5,000	\$3,736	\$5,000	\$4,000	
	Miscellaneous:	, , , , , ,	, , ,	, - ,	. ,	
15	Accounting	2,800	\$2,374	3,000	3,000	
16	Audit	5,000	4,500	5,500	5,500	
17	Insurance & bonding	2,800	2,343	2,800	2,800	
18	Meeting expense	2,500	1,719	2,700	2,700	
	Subtotal	\$13,100	\$10,936	\$14,000	\$14,000	
	Monitoring:	<b>V10)100</b>	<b>420,300</b>	Ψ2 1,000	ΨΞ 1,000	
19	Vol stream monitoring	1,000	\$0	1,000	0	
20	Vol wetland monitoring	2,000	0	2,000	2,000	
21	Outfall & stream monitoring	18,000	18,183	20,000	23,000	
22	Annual monitoring report	6,000	6,000	8,000	8,000	
22	Subtotal	\$27,000	\$24,183	\$31,000	\$33,000	
	Education:	327,000	724,103	731,000	755,000	
23	Education program	15,000	\$18,523	15,000	15,000	
24	Rain garden workshops	2,000	2,000	2,000	2,000	
25	WMWA implementation activities	11,500	7,000	11,500	11,500	
26	-	500	7,000	500	500	
20	Education grants  Subtotal	\$29,000	\$27,523	\$29,000	\$29,000	
		\$29,000	\$27,525	\$29,000	\$25,000	
27	Management Plans:	1 000	1 501	1 000	0	
27 28	3rd Gen Plan/plan amendments	1,000	1,581	1,000	0	
	Subwatershed BMP assessment	61 000	61.591	61 000	0	
	Subtotal  Contrib to constr/grant match	\$1,000	\$1,581	\$1,000	\$0	
29	Contribution to 4th Con Plan	5,000	0	0	0	
30	Contribution to 4th Gen Plan	0	0	0	0	
31	Flood modeling and mapping	25,000	0	0	0	
32	To (from) reserves	4	16,640	4	4	
TOTA	L OPERATING EXPENSE	\$200,600	\$183,207	\$177,100	\$182,000	

## **Budget Background**

### **INCOME**

 Assessments: annual assessments to the member cities to pay the operating expenses of the Commission. Assessments are apportioned 50 percent based on land area within the watershed and 50 percent based on tax capacity of land within the watershed.

### **EXPENSES**

OPERATIONS: All activities mandated by statute or state administrative rule except where noted.

#### Administration

- Administrative Services: clerical and office support duties on behalf of the Commission, such as preparing for and attending meetings, preparing minutes and agendas, correspondence, mailings, official records, official publications, annual reporting, preparing budget.
- Engineering Support: correspondence, official publications, attendance and minutes at TAC and other special meetings, and other support regarding engineering activities.
- Project Reviews/WCA: correspondence and other support regarding project reviews and Wetland Conservation Act actions.

## Engineering

- Administration: technical and administrative duties on behalf of the Commission, such as: investigation and resolution of drainage, flood control, bank stabilization, erosion and water quality problems; research; preparing for and attending meetings; correspondence; responding to inquiries; annual reporting; preparing budget
- Grant Application Writing: researching and writing grant applications to supplement Commission funds. Not mandated.
- Project Reviews/WCA: reviewing projects and wetland replacement plans for conformance with Commission and WCA requirements; reviewing local plans and comprehensive plan amendments; consultation on upcoming projects; reviewing environmental assessments.

# Legal

 Legal Services: general counsel, preparing for and attending meetings, drafting policies and variances, reviewing contracts and agreements.

## Miscellaneous

 Miscellaneous: annual audit, bookkeeping services, insurance and bonding, and meeting expenses.

MONITORING AND INFORMATION GATHERING: State administrative rules **mandate** water quantity and quality monitoring programs that are "...capable of producing accurate data to the extent necessary to determine whether water quantity and quality goals are being achieved" but *do not specify* what those programs should entail.

Volunteer Stream Monitoring: Macroinvertebrate monitoring: in partnership with Hennepin County Environmental Services, students are trained to sample streambeds for macroinvertebrates and to classify the sampled organisms as an indicator of stream health. Monitoring is done on Mattson Brook when volunteers are available.

- Volunteer Wetland Monitoring: Macroinvertebrate and vegetation monitoring: in partnership with Hennepin County Environmental Services, adults are trained to monitor and sample wetlands for plants and macroinvertebrates and to classify the sampled organisms and plants as an indicator of wetland health. Two to three sites are monitored each year.
- Commission Stream and Outfall Monitoring: Field data collection, equipment maintenance, sample lab analysis, and data analysis for flow monitoring and water quality sampling at two sites which rotate among Mattson Brook, the outlet of the Brooklyn Park Environmental Preserve, and various Mississippi River storm sewer outfalls.
- Water Quality Monitoring Report: An annual report that presents data gathered in the previous year and evaluates whether water quantity and quality goals are being achieved.

<u>EDUCATION AND PUBLIC OUTREACH</u>: A public information program is **mandated** by state administrative rules. The Commission also provides at the member cities' request NPDES Phase II education and public outreach programs **mandated** by the federal and state governments; the NPDES specifies the types of education and outreach that should be provided.

## Education

General public information and NPDES education program: target one or two messages per year; coordinate messages with cities; prepare materials for distribution by member cities; work with lake associations; Great Shingle Creek Watershed Cleanup; work with Watershed Partners; coordinate Education and Public Outreach Committee (EPOC); coordinate with the West Metro Water Alliance (WMWA) (with Shingle, Bassett, and Elm WMOs); work with area schools; maintain Web site.

#### **Education Grants:**

Financial assistance for activities such as classes or programs to improve water quality education; curriculum and educational materials for use in the classroom; expenses for field trips or fieldwork related to water quality education; implementation projects that include an education component.

<u>MANAGEMENT PLANS</u>: The Commission is **mandated** by state statute and administrative rule to pursue an Implementation Program that consists of nonstructural, structural, and programmatic solutions to problems, issues, and management goals, although it does not specify what must be included.

3<sup>rd</sup> Gen Plan/Management Plans: Each year the Commission reviews the Capital Improvement program (CIP), and if necessary, modifies it through a major or minor plan amendment.

Subwatershed BMP Assessments: Using a method developed by the Metro Conservation District and the Center for Watershed Protection, these analyses evaluate and model smaller subwatersheds for possible small Best Management practice implementation, including rain gardens, bioinfiltration and filtration basins, pond expansions and iron-enhanced filter retrofits, pervious pavement, tree trenches, capture and reuse, and other practices. Such an assessment has been completed in Champlin, in select direct drainage areas to the Mississippi River, and in Brooklyn Center, in the Evergreen Park area.

#### CONSTRUCTION/MATCHING GRANT FUND: Not mandated

An annual capital contribution towards a fund to be used to match grants or for high-priority projects as designated by the Commission.

# CONTRIBUTION TO 4TH GENERATION MANAGEMENT PLAN

The Commissions are required by statute to update their plans at least every ten years. The Shingle Creek Commission is accumulating funds in a dedicated account to pay for this plan, expected in 2021-2022. The West Mississippi Commission at this time expects to pay its share from fund balance.

<u>PROJECTS:</u> The Commission is **mandated** by state statute and administrative rule to pursue an Implementation Program that consists of nonstructural, structural, and programmatic solutions to problems, issues, and management goals. The Commission maintains an updated Capital Improvement Program (CIP) identifying potential projects, and has a policy of participating in 25 percent of the cost of qualifying capital projects. The Commission does not have the authority to construct capital projects; all projects are completed by the member cities who fund the balance of the cost

# Technical Memo



Responsive partner. Exceptional outcomes.

To: Shingle Creek WMO Commissioners

From: Ed Matthiesen, P.E.

**Diane Spector** 

Date: October 5, 2019

**Subject:** Connections II Project Accounting

Recommended Commission Action

Authorize the creation of a Connections II Feasibility Study project to be funded by the Closed Project Account, and authorize the reallocation of \$9,392.44 expended from the General Engineering budget line item to the new Feasibility Study project.

Earlier this year we worked with the cities of Brooklyn Park and Brooklyn Center to conceptualize and prepare 30% plans and a cost estimate for the Shingle Creek Connections II. The feasibility study and findings were used to prepare a Clean Water Fund grant application that was submitted to BWSR last month. This is similar to what was done for the Meadow Lake Feasibility Study.

The Meadow Lake work was funded from the Closed Projects Account. That was not the case for the Connections II work, which was funded from the General Engineering budget.

We recommend that the Commission establish a project called the Connections II Feasibility Report project, funded from the Closed Projects Account. We further recommend that the Commission authorize the reallocation of \$9,392.44 of expense charged to General Engineering to that project. In 2020, when the project is ordered, the expense of the feasibility report will be included in the overall project cost, and will be included in the levy certified for the overall project, thus "reimbursing" the Closed Projects Account for this cost.

As of 12/31/18, the Closed Projects Account had a balance of just under \$80,000. \$5,000 of that was expended on the preparation of the Meadow Lake Feasibility Study.

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