

PLAN LEGEND

RIGHT OF WAY LINE	---
DITCH CENTERLINE	---
FENCE LINE	---
RETAINING WALL	---
GRAVEL LINE	---
GUARD RAIL LINE	---
RAILROAD TRACK LINE	---
ROAD CENTERLINE	---
TREE LINE	---
STREAM LINE	---
WETLAND LINE	---
EX SANITARY LINE	---
PR SANITARY LINE	---
AB SANITARY LINE	---
EX FORCEMAIN LINE	---
PR FORCEMAIN LINE	---
AB FORCEMAIN LINE	---
EX STORM LINE	---
PR STORM LINE	---
AB STORM LINE	---
EX WATER LINE	---
PR WATER LINE	---
AB WATER LINE	---
EX GAS LINE	---
PR GAS LINE	---
AB GAS LINE	---
EX STEAM LINE	---
PR STEAM LINE	---
AB STEAM LINE	---
UG CABLE TV LINE	---
AB CABLE TV LINE	---
UG ELECTRIC LINE	---
AB ELECTRIC LINE	---
UG FIBEROPTIC LINE	---
AB FIBEROPTIC LINE	---
UG TELEPHONE LINE	---
AB TELEPHONE LINE	---
OH ELECTRIC LINE	---
OH TELEPHONE LINE	---
OH CABLE TV LINE	---

SYMBOLS

EX SANITARY MANHOLE	(SAN)
EX SANITARY CLEANOUT	(STRM)
EX STORM MANHOLE	(W)
EX STORM CATCHBASIN	(W&G)
EX. WATER MANHOLE	(W)
EX. WATER VALVE	(W)
EX. WATER HYDRANT	(W&G)
EX. WATER SHUTOFF	(W&G)
EX. WATER & GAS MH	(W&G)
EX. GAS MANHOLE	(GAS)
EX. GAS VALVE	(GAS)
EX. GAS SHUTOFF	(GAS)
EX. STEAM MANHOLE	(STEAM)
EX. TELEPHONE MANHOLE	(T)
EX. ELECTRIC MANHOLE	(E)
EX. POWERPOLE	(E)
EX. LIGHT POLE	(E)
EX. ELECTRIC VAULT	(E)
EX. ANCHOR	(E)
EX. ELECTRIC TRANSFORMER	(ET)
EX. STREET LIGHT	(E)
EX. SIGNAL W/ STREET LIGHT	(E)
EX. HANDHOLE	(H.H.)
EX. HANDHOLE	(H.H.)
EX. TELEPHONE PEDESTAL	(H.H.)
EX. WELL	(W)
BENCHMARK	(B)
FOUND CI MONUMENT	(B)
EX. SIGN	(S)
CONTROL POINT	(C)
EX DECIDUOUS TREE	(D)
EX CONIFEROUS TREE	(C)
EX. PARKING METER	(P)
EX. SOIL BORING	(SB#)

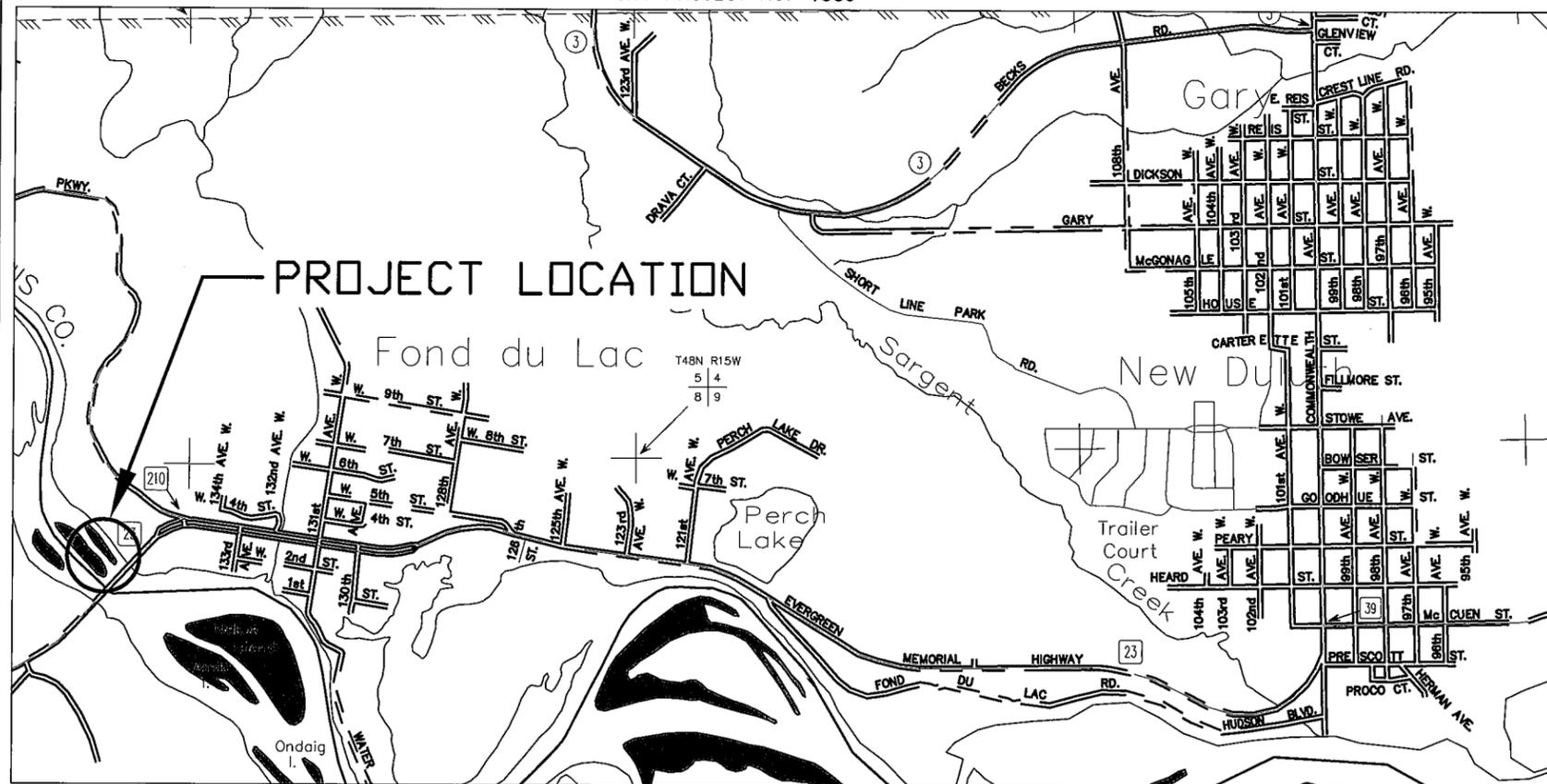
CITY OF DULUTH

DEPARTMENT OF PUBLIC WORKS AND UTILITIES ENGINEERING DIVISION

CONSTRUCTION PLANS FOR:

CHAMBERS GROVE PARK G.L.R.I. STORMWATER IMPROVEMENTS

CITY PROJECT NO. 1539



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

WARNING:
LOCATION OF UNDERGROUND UTILITIES TO BE VERIFIED BY CONTRACTOR. CALL BEFORE DIGGING. GOPHER STATE ONE CALL 1-800-252-1166 REQUIRED BY LAW

GOVERNING SPECIFICATIONS
THE 2016 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN. AVAILABLE AT: <http://www.dot.state.mn.us/pre-letting/spec/index.html>

THE 2016 EDITION OF THE CITY OF DULUTH PUBLIC WORKS AND UTILITIES DEPARTMENT CONSTRUCTION STANDARDS AND SUPPLEMENTS OR ADDENDUMS SHALL APPLY.
AVAILABLE AT:
<http://www.duluthmn.gov/engineering/standard-construction-specifications/>

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INDEX

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APPENDIX 1	TITLE SHEET
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APPENDIX 3	SEQ & DETAIL
APPENDIX 4	POND PLAN, PROFILE & DETAIL
APPENDIX 5	SEDIMENT BASIN PLAN, PROFILE & DETAIL

THIS PLAN CONTAINS 5 SHEETS

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

TOM JOHNSON
PROJECT ENGINEER (TYPED OR PRINTED NAME)
[Signature] 3/24/16 46744
PROJECT ENGINEER DATE LIC. NO.

CITY APPROVAL

[Signature] 3-24-16
APPROVED CHIEF ENGINEER OF TRANSPORTATION DATE

[Signature] 3-24-16
APPROVED CHIEF ENGINEER OF UTILITIES DATE

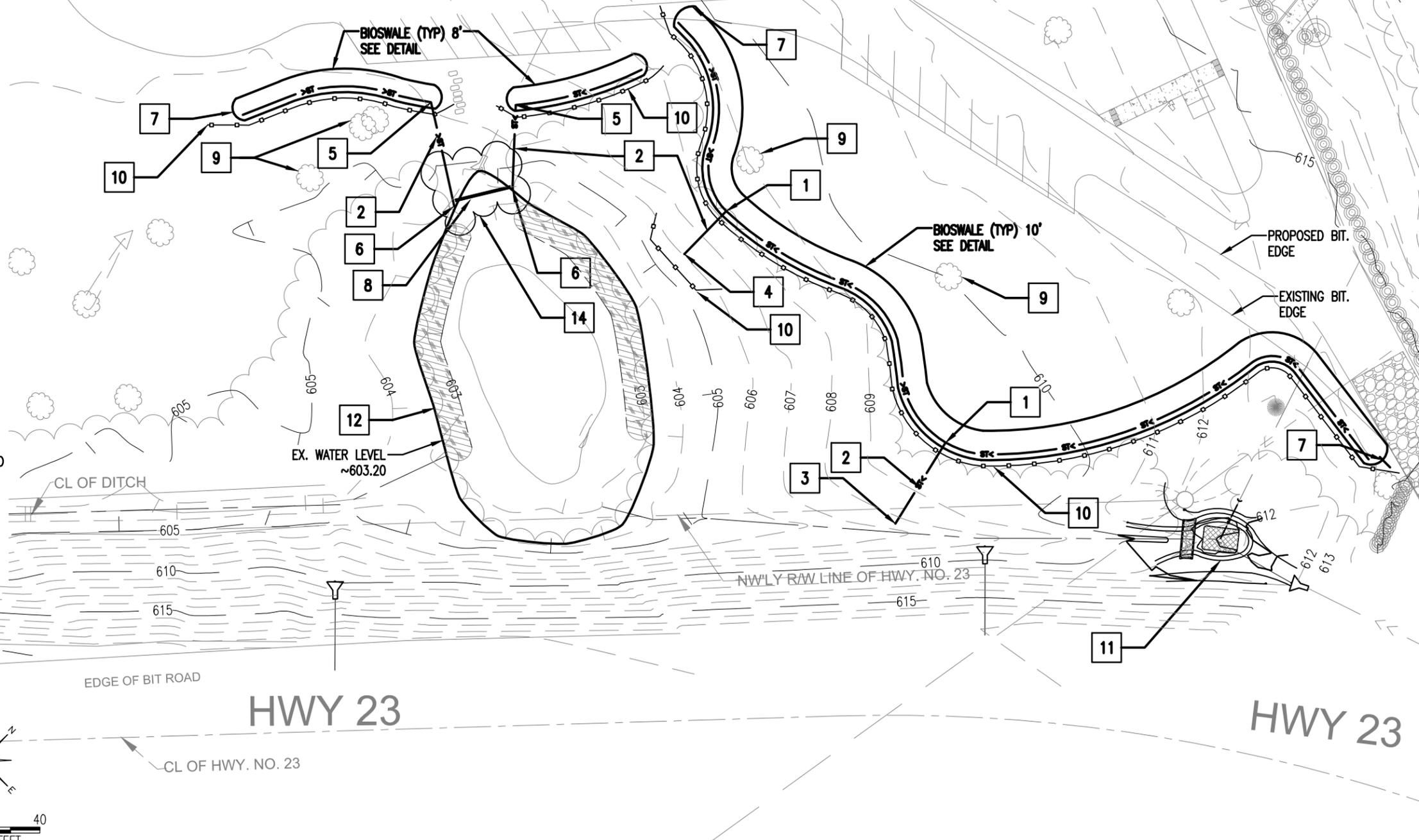
[Signature] 3-24-16
APPROVED CITY ENGINEER DATE

CONSTRUCTION NOTES:

- 1) PROVIDE "TEE" FITTING.
- 2) 6" SOLID THERMOPLASTIC PIPE AT 1.6% SLOPE.
- 3) DAYLIGHT AT EDGE OF EXISTING DRAINAGE CHANNEL. PROVIDE PRECAST CONCRETE HEADWALL, MNDOT STD PLATE 3131D.
- 4) DAYLIGHT IN WOODS. MAINTAIN SLOPE TO ENSURE PIPE DRAINS FREELY. CLEAR VEGETATION FROM DRAINAGE AREA, ~30 SQUARE FEET. PROVIDE PRECAST CONCRETE HEADWALL, MNDOT STANDARD PLATE 3131C.
- 5) PROVIDE 90° FITTING & TRANSITION TO 6" SOLID THERMOPLASTIC.
- 6) DAYLIGHT AT END OF POND EDGING. PROVIDE PRECAST CONCRETE HEADWALL MNDOT STANDARD PLATE 3131C.
- 7) TAPER ENDS OF ALL BIOSWALES TO MATCH SURROUNDING FINAL GRADE.
- 8) PROVIDE 20' POND EDGING - SEE DETAIL.
- 9) PROTECT TREES FROM DAMAGE.
- 10) PROVIDE PERIMETER CONTROL - SEE GENERAL NOTE C.
- 11) PROVIDE SEDIMENT BASIN - SEE DETAIL.
- 12) POND DREDGING. SEE DREDGING DETAIL.
- 13) DO NOT DREDGE POND ALONG TOE OF ROAD EMBANKMENT SLOPE.
- 14) CLEAR AND GRUB A MAXIMUM OF 40' ALONG POND EDGE.

GENERAL NOTES:

- A) CONTRACTOR SHALL MINIMIZE DISTURBANCE AREA OUTSIDE OF AREAS OF PROPOSED WORK. CONTRACTOR SHALL MINIMIZE ACCESS ROUTES TO PROPOSED WORK AND STOCKPILES AREAS.
- B) ALL AREAS OUTSIDE OF PROPOSED WORK SHALL BE RESTORED AT THE CONTRACTORS EXPENSE WITH 4" TOPSOIL, SEED MIX 25-151 AND CATAGORY 3 EROSION CONTROL BLANKET.
- C) PERIMETER CONTROL LOCATION AND QUANTITY MAY BE ADJUSTED IN THE FIELD TO ACCOUNT FOR THE CONTRACTORS CONSTRUCTION PRACTICES AND SEQUENCING. PERIMETER CONTROL SHALL BE RELOCATED ONE OR MORE TIMES DURING DIFFERENT PHASES OF CONSTRUCTION. PERIMETER CONTROL SHALL BE IN PLACE AROUND ALL STOCK PILES LEFT OVERNIGHT.



I:\PWU\ENGINEER\Storm\Internal_City_Projects\ChambersGrove\DWG\CHAMBERSGROVE_BMP_PLAN.dwg

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SIGNATURE: *[Signature]*

TOM JOHNSON
TYPE NAME

DATE: 3/24/2016

LIC. NO.: 46744



CITY OF DULUTH
ENGINEERING DIVISION
411 W. 1ST ST. STE. 211
DULUTH, MN 55802

CHAMBERS GROVE PARK G.L.R.I. STORMWATER IMPROVEMENTS

CITY PROJECT NO.: 1539

STATE AID PROJECT NO.: NA

DRAWN BY: JJM

PLAN

SHEET NO. APPENDIX 2 OF 5

STATEMENT OF ESTIMATED QUANTITIES (8)

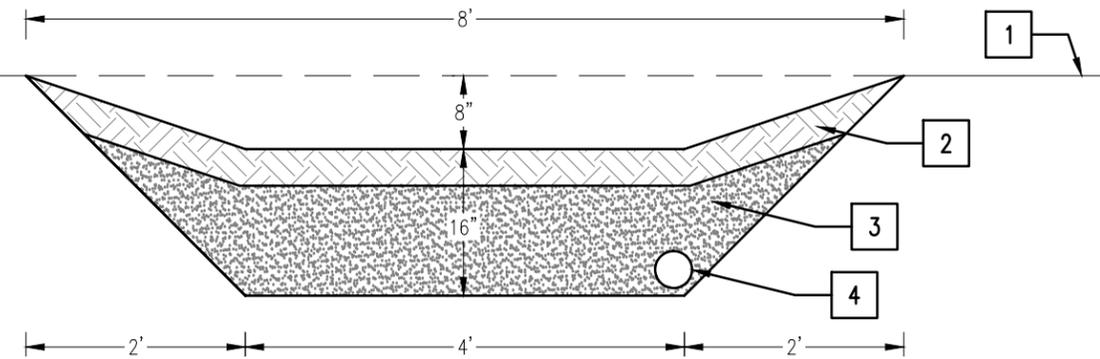
NOTES	LINE NUM	DESCRIPTION	UNIT	ESTIMATED QUANTITY	FINAL QUANTITY
	1	MOBILIZATION	LS	1.00	
	3	6" STRAW BIOROLL	LF	600	
1	4	BIOSWALE, 8' WIDE	LF	120	
1	5	BIOSWALE, 10' WIDE	LF	360	
2,6	6	6" SOLID THERMOPLASTIC PIPE	LF	140	
1,6	7	POND EDGING WALL	LF	20	
3,6	8	POND DREDGING	CU YD	460	
4,6,9	9	SEDIMENT BASIN CONSTRUCTION	LS	1	
5	10	SEDIMENT BASIN BOTTOM PAVER	S F	100	
	11	RIPRAP, CLASS 2	CU YD	2	
7	13	POND PLANT - SWEET FLAG	EACH	100	
7	14	POND PLANT - BLUE FLAG IRIS	EACH	100	
7	15	POND PLANT - SOFT-STEM BULRUSH	EACH	100	
7	16	POND PLANT - BLUE JOINT GRASS	EACH	100	

NOTES:

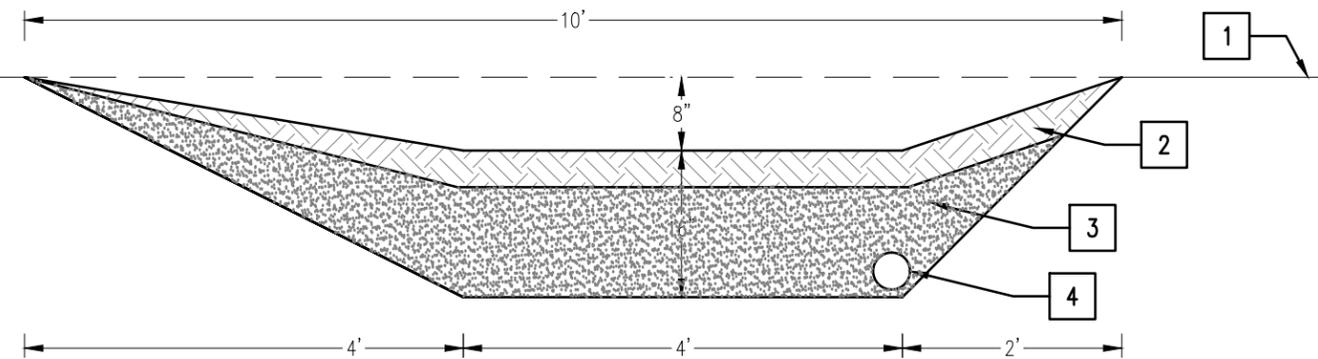
- 1) INCLUDES ALL ITEMS IN DRAWING DETAIL.
- 2) INCLUDES FITTINGS AS SHOWN ON PLAN.
- 3) INCLUDES EXCAVATION & DISPOSAL OF SOIL, ALL DEWATERING & HANDLING OF SATURATED MATERIAL, AND ALL APPLICABLE EROSION & SEDIMENT CONTROL BMPs NECESSARY TO ACHIEVE DREDGING WORK.
- 4) EXCAVATED MATERIAL MAY BE USED AS FILL BEHIND POND EDGING WALL.
- 5) TURFSTONE, PERMEABLE PAVER, OR EQUIVALENT APPROVED BY THE ENGINEER. MINIMUM
- 6) INCLUDES CLEARING & GRUBBING AND MINOR GRADING TO ACHIEVE WORK. CLEARING AND
- 7) POND PLANTINGS SHALL BE PLUGS.
- 8) THE OWNER MAY ELIMINATE OR REDUCE PLANNED WORK AT THEIR DISCRETION.
- 9) INCLUDES 20 CUBIC YARDS OF EXCAVATION, DISPOSAL OF EXCAVATED MATERIAL, GRADING TO PROPOSED CONTOURS AND RESTORATION OF DISTURBED AREAS.

BIOSWALE DETAIL

8' WIDE BIOSWALE SECTION
NOT TO SCALE



10' WIDE BIOSWALE SECTION
NOT TO SCALE



NOTES:

- 1) EXISTING GRADE
- 2) 4" DEPTH TOPSOIL (CITY SPEC 3077), SEED (MNDOT MIX 25-151)
- 3) & CATEGORY 3 EROSION CONTROL BLANKET (MNDOT SPEC 3885)
- 4) SAND (MNDOT 3149.232)
- 5) 6" DIAMETER PERFORATED CORRUGATED THERMOPLASTIC PIPE WITH SOCK (MNDOT 3245)

GENERAL NOTES:

- A) ALL WORK AND MATERIALS TO CONSTRUCT BIOSWALES SHALL BE PAID FOR BY LINEAL FOOT OF BIOSWALE CONSTRUCTED. THIS INCLUDES EXCAVATION AND DISPOSAL OF EXCAVATED MATERIALS.

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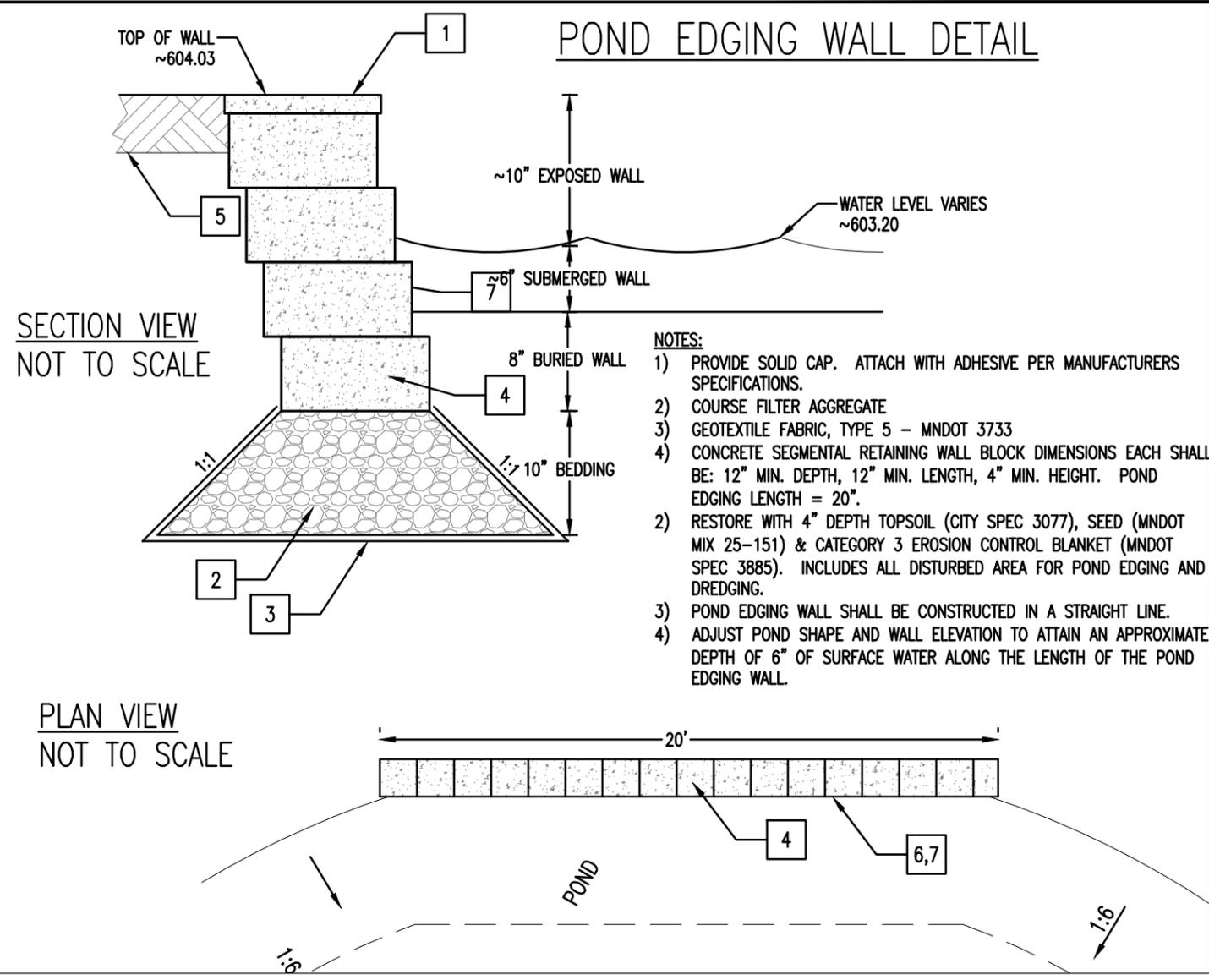
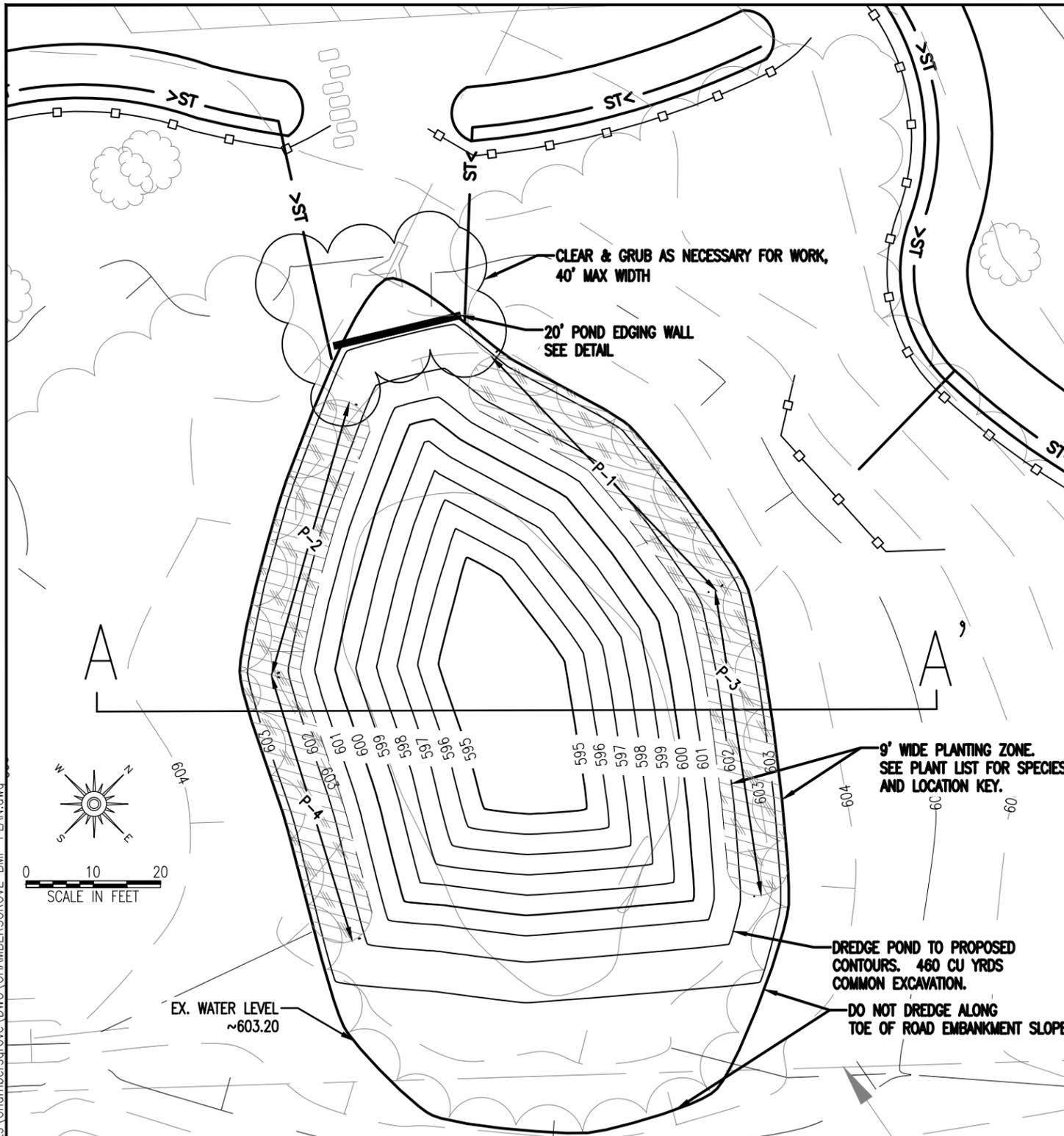
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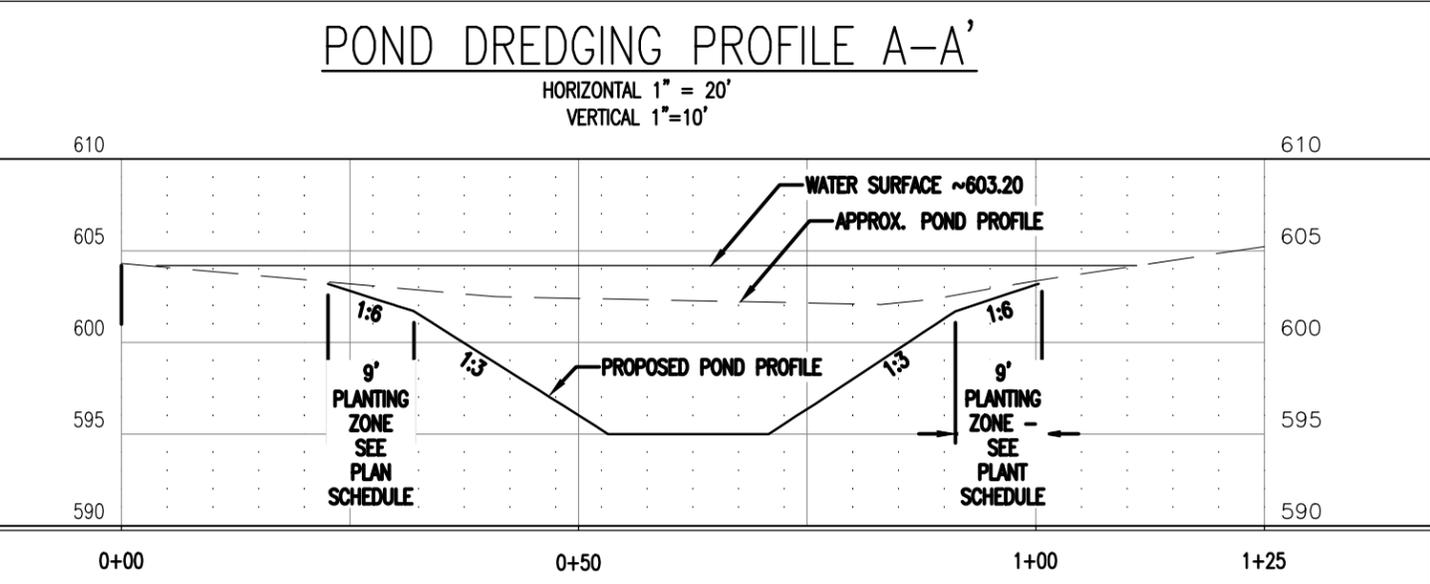
DRAWN BY: JJM

SEQ & DETAILS

SHEET NO. APPENDIX 3 OF 5

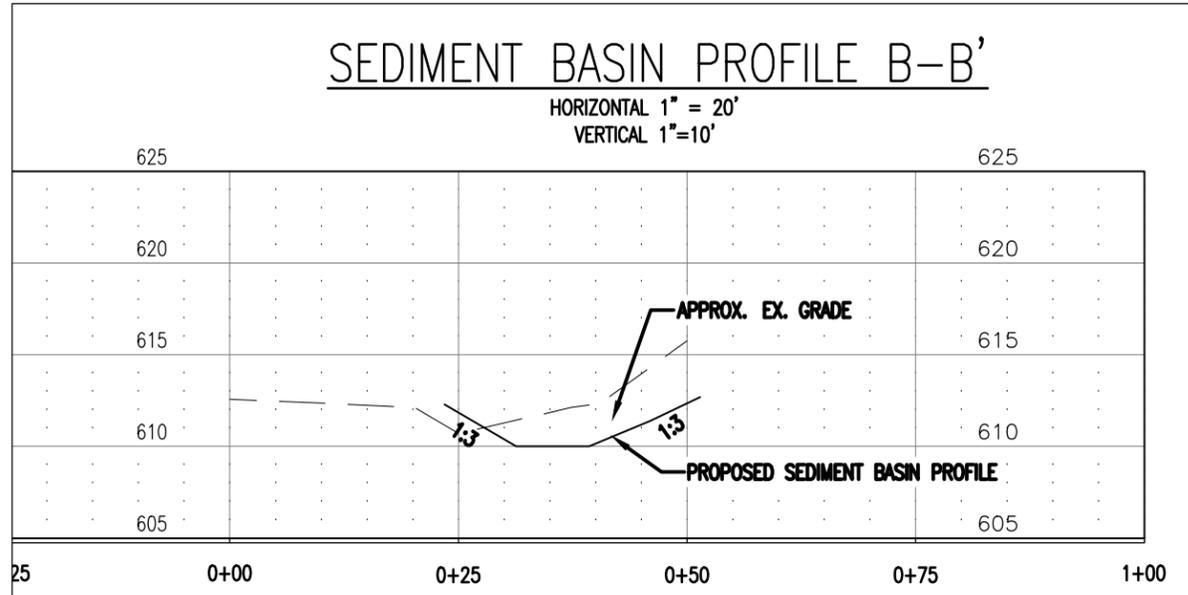
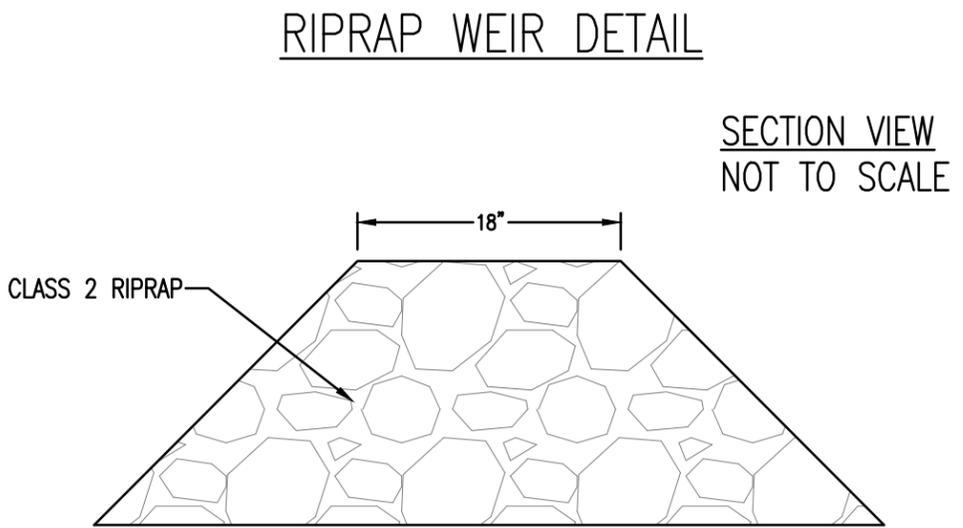
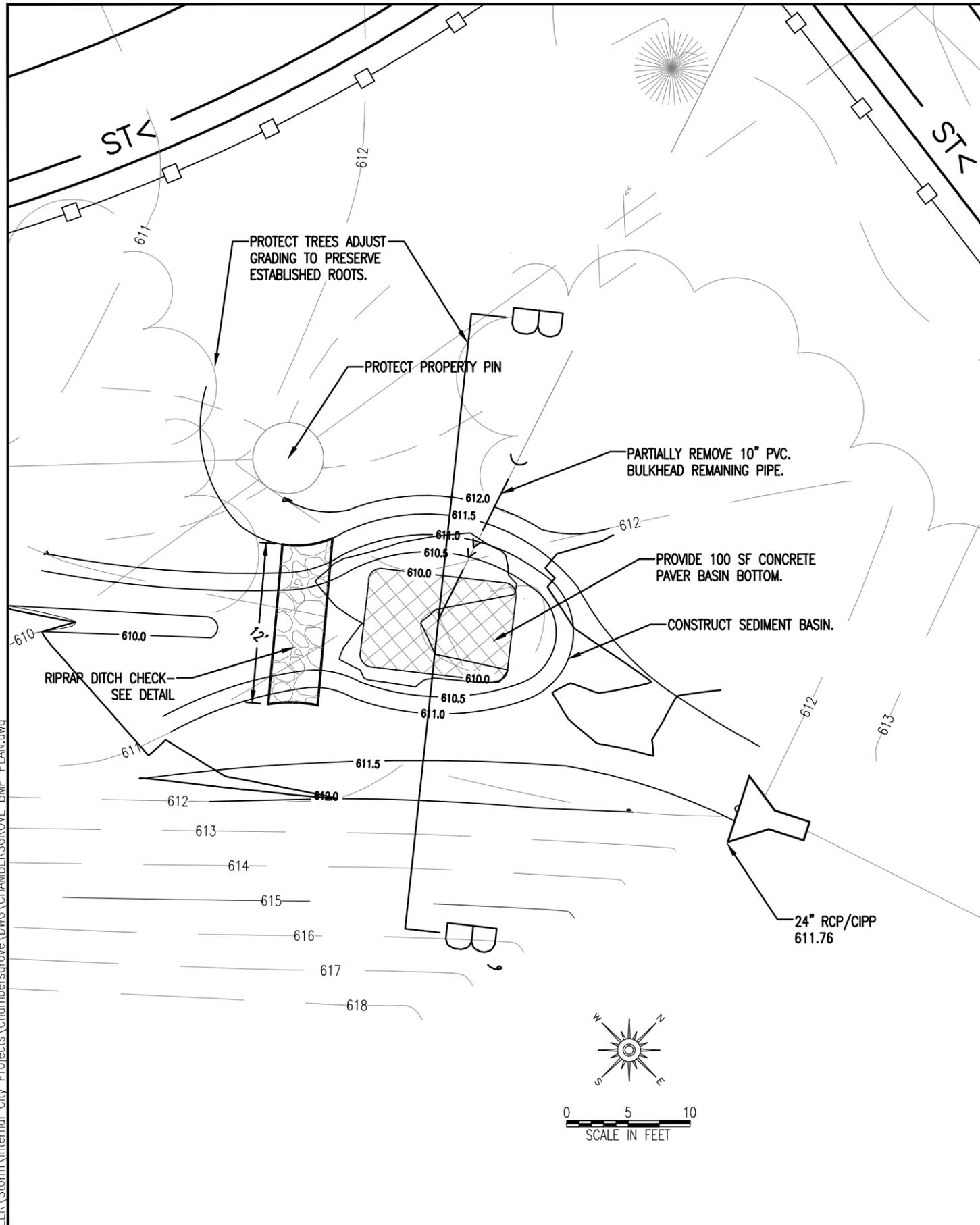


- NOTES:**
- 1) PROVIDE SOLID CAP. ATTACH WITH ADHESIVE PER MANUFACTURERS SPECIFICATIONS.
 - 2) COURSE FILTER AGGREGATE
 - 3) GEOTEXTILE FABRIC, TYPE 5 - MNDOT 3733
 - 4) CONCRETE SEGMENTAL RETAINING WALL BLOCK DIMENSIONS EACH SHALL BE: 12" MIN. DEPTH, 12" MIN. LENGTH, 4" MIN. HEIGHT. POND EDGING LENGTH = 20".
 - 2) RESTORE WITH 4" DEPTH TOPSOIL (CITY SPEC 3077), SEED (MNDOT MIX 25-151) & CATEGORY 3 EROSION CONTROL BLANKET (MNDOT SPEC 3885). INCLUDES ALL DISTURBED AREA FOR POND EDGING AND DREDGING.
 - 3) POND EDGING WALL SHALL BE CONSTRUCTED IN A STRAIGHT LINE.
 - 4) ADJUST POND SHAPE AND WALL ELEVATION TO ATTAIN AN APPROXIMATE DEPTH OF 6" OF SURFACE WATER ALONG THE LENGTH OF THE POND EDGING WALL.



- POND DREDGING GENERAL NOTES:**
- SATURATED DREDGE MATERIAL SHALL BE PROPERLY HANDLED TO MINIMIZE EROSION AND SEDIMENTATION ISSUES. STOCK PILE AND TRANSPORT OF MATERIAL SHALL MEET THE MPCA-NPDES PERMIT REQUIREMENTS.
 - PROVIDE PROPER DEWATERING PROCEDURES TO CONTROL SEDIMENT DISCHARGE.
 - DUE TO POTENTIAL HIGH GROUND WATER LEVELS, DREDGING POND BOTTOM IN SUBMERGED CONDITIONS SHOULD BE ANTICIPATED.

POND PLANTING TABLE		
PLANT SPECIES	PLANT SIZE	PLAN LOCATION NUMBER
SWEET FLAG - ACORUS CALAMUS	PLUG	1
BLUE FLAG IRIS - IRIS VERSICOLOR	PLUG	2
SOFT-STEM BULRUSH - SCIRPUS VALIDUS	PLUG	3
BLUE JOINT GRASS - CALAMAGROSTIS CANADENSIS	PLUG	4



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CITY PROJECT NO.: 1539 STATE AID PROJECT NO.: NA

DRAWN BY: JJM
SEDIMENT BASIN PLAN, PROFILE & DETAIL
SHEET NO. APPENDIX 5 OF 5