CITY OF ANN ARBOR
ENGINEERING

HURON RIVER DRIVE
CULVERT REPLACEMENT

BID No. RFP No. 24-20, FILE No. 2023-008

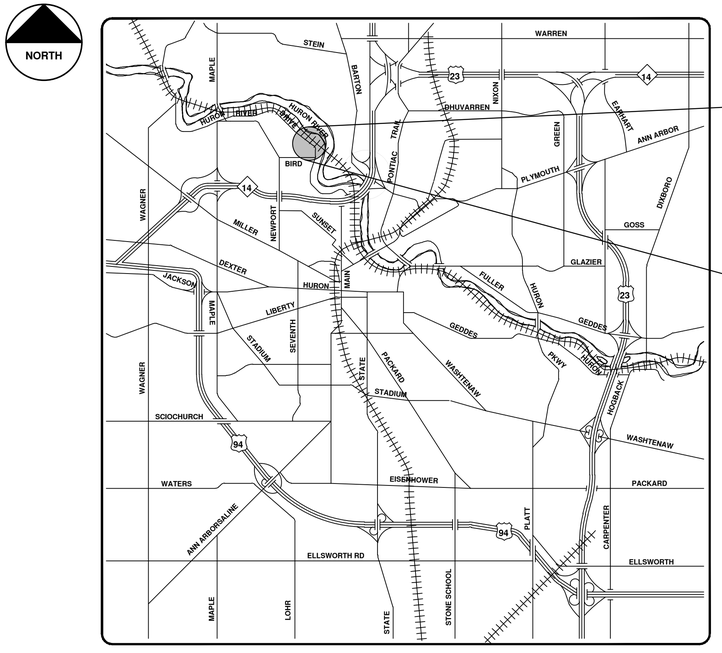
SHEET LIST TABLE	
SHEET NUMBER	SHEET TITLE
1	COVER SHEET
2	LEGEND
3-5	DETAILS AND SECTIONS
6	MAINTENANCE OF TRAFFIC AND DETOUR PLAN
7	REMOVALS
8	CONSTRUCTION
9	WATER MAIN RELOCATION

NOTES:

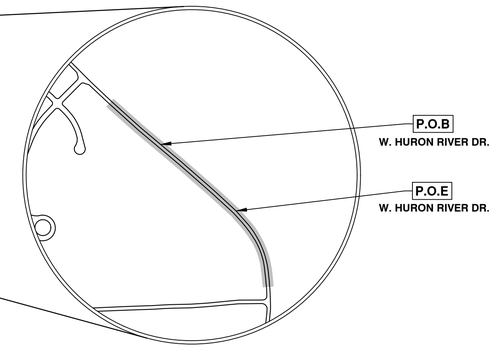
FOR PROTECTION OF UNDERGROUND UTILITIES AND IN CONFORMANCE WITH PUBLIC ACT 174 OF 2013, THE CONTRACTOR SHALL CALL 811 OR 1-800-482-7171 A MINIMUM OF THREE FULL WORKING DAYS, EXCLUDING SATURDAYS, SUNDAYS, AND HOLIDAYS, PRIOR TO BEGINNING EACH EXCAVATION IN AREAS WHERE PUBLIC UTILITIES HAVE NOT BEEN PREVIOUSLY LOCATED. MEMBERS WILL THUS BE ROUTINELY NOTIFIED. THIS DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OF NOTIFYING UTILITY OWNERS WHO MAY NOT BE A PART OF THE "MISS DIG" ALERT SYSTEM.

THE UNDERGROUND LOCATIONS SHOWN FOR NATURAL GAS, TELEPHONE, ELECTRICAL POWER, CABLE TV AND FIBER OPTIC LINES ARE APPROXIMATE. THE CITY OF ANN ARBOR ASSUMES NO RESPONSIBILITY FOR THEIR ACCURATE REPRESENTATION IN THIS DRAWING. MISS DIG MUST BE CONTACTED PRIOR TO CONSTRUCTION TO LOCATE THESE UTILITIES.

THE CONSTRUCTION COVERED BY THESE PLANS SHALL CONFORM TO THE 2024 EDITION OF THE CITY OF ANN ARBOR PUBLIC SERVICES DEPARTMENT STANDARD SPECIFICATIONS, IT'S DETAILS, WHICH ARE INCLUDED BY REFERENCE, AND THIS PROJECT'S CONTRACT DOCUMENTS. THE OMISSION OF ANY CURRENT STANDARD DETAIL DOES NOT RELIEVE THE CONTRACTOR FROM THIS REQUIREMENT.



VICINITY MAP



PREPARED UNDER THE SUPERVISION OF

STATE OF MICHIGAN · JOHN VINCENT BALINT, III · PROFESSIONAL ENGINEER · No. 6201054062 · LICENSED PROFESSIONAL ENGINEER

JOHN V. BALINT, P.E. - MI LICENSE No. 6201054062
Hubbel, Roth, & Clark, Inc.

4/ 22 / 2024
DATE

CITY APPROVAL

STATE OF MICHIGAN · NICHOLAS BAYLEY ENGINEER · No. 6201055228 · LICENSED PROFESSIONAL ENGINEER

NICHOLA
PROJECT MANAGER

1055228

4/ 22 / 2024
DATE

Know what's below. Call before you dig.

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
5				
4				
3				
2			NTM/JWK	BH1/JVB
1	ISSUED FOR BIDS	4/22/2024		

CITY OF ANN ARBOR
PUBLIC SERVICES
301 EAST HURON STREET
P.O. BOX 8647
ANN ARBOR, MI 48107-8647
734.794.6410
www.a2gov.org

CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

HURON RIVER DRIVE CULVERT REPLACEMENT

COVER SHEET

SCALE: NA | PROFILE: NA | DRAWING No. 2023-008-1

SHEET No. 1 OF 9

CONSTRUCTION NOTES:

1. DRIVEWAYS AND ENTRANCES TO BUILDINGS, REAL PROPERTY, AND THE LIKE SHALL NOT BE BLOCKED EXCEPT FOR SHORT DURATIONS AND ONLY WHEN APPROVED BY THE ENGINEER. VEHICULAR AND PEDESTRIAN ACCESS SHALL BE MAINTAINED AT ALL TIMES. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE ALL NECESSARY DRIVEWAY CLOSURES WITH THE PROPERTY OWNER(S) AND RESIDENT(S) IN THE AREAS OF CONSTRUCTION.
2. THE LOCATION AND DEPTH OF ALL EXISTING UTILITIES AND SERVICE LEADS ARE TO BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION.
3. LOCATION AND DEPTH OF UTILITIES AS DEPICTED ON THE PLANS IS APPROXIMATE AND SHOWN ACCORDING TO THE BEST INFORMATION AVAILABLE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO EXCAVATE AHEAD AND ADJUST DEPTH OF CONFLICT UTILITIES ACCORDINGLY. ANY DAMAGE TO UTILITIES IS THE CONTRACTOR'S RESPONSIBILITY TO AVOID AND/OR REPAIR AS NECESSARY.
4. THE CONTRACTOR IS REQUIRED TO SUBMIT ANY AND ALL NECESSARY REQUESTS TO MISS DIG FOR THE LOCATING AND MARKING OF ANY AND ALL UTILITIES LOCATED WITHIN THE PROJECT. THE CONTRACTOR SHALL NOT BEGIN WORK UNTIL ALL UTILITIES WITHIN THE PROJECT LIMITS HAVE BEEN LOCATED AND MARKED BY MISS DIG, AND RECEIVED CONFIRMATION FROM MISS DIG THAT ALL KNOWN UTILITIES WITHIN THE PROJECT LIMITS HAVE BEEN LOCATED AND MARKED.
5. THE CONTRACTOR IS TO TAKE SPECIAL CARE TO PROTECT EXISTING UTILITIES AND BE RESPONSIBLE FOR MAINTAINING UNINTERRUPTED SERVICE.
6. DURING NON-WORKING HOURS NO TRENCH SHALL REMAIN OPEN; ANY OPEN TRENCH SHALL BE PROPERLY SECURED WITH PROTECTIVE FENCING. THIS WORK SHALL BE INCLUDED IN THE ITEM OF WORK "GENERAL CONDITIONS, MAX $ __"
7. POSTAL DELIVERY AND REFUSE PICKUP SERVICE SHALL BE MAINTAINED AT ALL TIMES BY THE CONTRACTOR.
8. WHERE STREET CURBS ARE UNDERMINED DUE TO CONSTRUCTION ACTIVITIES, THEY SHALL BE REMOVED AND REPLACED AS DIRECTED BY THE ENGINEER.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CONTINUOUS MAINTENANCE OF THE TEMPORARY ROAD SURFACE AND SOIL EROSION CONTROL MEASURES WITHIN THE CONSTRUCTION AREA UNTIL THE FULL COMPLETION OF THE PROJECT. THIS WORK SHALL BE INCLUDED IN THE ITEM OF WORK "GENERAL CONDITIONS, MAX $____-LS".
10. ALL CURB, SIDEWALK, DRIVEWAY APPROACH REMOVALS SHALL BE APPROVED BY ENGINEER BEFORE THE WORK IS DONE.
11. SAWED SEWER PIPE CONNECTIONS SHALL BE COUPLED WITH A FERNCO FLEXIBLE COUPLING AND A STAINLESS STEEL SHEAR RING.
12. THE LOCATION OF MATERIAL STOCK PILES AND ON-SITE STAGING AREAS TO BE APPROVED BY THE ENGINEER.
13. FOR MAINLINE PAVING, THE WIDTH OF THE MAT FOR EACH PASS OF THE PAVER SHALL BE NOT LESS THAN 10.5' OR GREATER THAN 15', AS DIRECTED BY THE ENGINEER. THE ENGINEER WILL DIRECT THE LAYOUT OF THE LONGITUDINAL JOINTS DURING CONSTRUCTION.
14. WHERE SEWER PIPES OF DIFFERENT SIZES OR MATERIALS ARE JOINED, FERNCO FLEXIBLE COUPLINGS WITH STAINLESS STEEL SHEAR RINGS SHALL BE USED. THE CONTRACTOR'S PURCHASE PRICE FOR THESE DEVICES, INCLUDING SHIPPING, SHALL BE PAID AS AN EXTRA. PRIOR TO PAYMENT FOR THIS ITEM, THE CONTRACTOR SHALL SUBMIT RECEIPTS FOR THE ENGINEER'S REVIEW AND APPROVAL. ALL OTHER COSTS ASSOCIATED WITH THE INSTALLATION OF THESE DEVICES SHALL BE INCLUDED IN THE PAYMENT FOR THE SEWER.
15. WHERE SEWER AND WATER MAIN ARE TO BE REMOVED & REPLACED OR ADDED, ALL PIPE SHALL BE INSTALLED USING TRENCH DETAIL DETAILED IN THE SPECIFICATIONS OR SHOWN ON PLANS. BACKFILL FOR SEWER AND WATER CONSTRUCTION SHALL BE MDOT CLASS II GRANULAR MATERIAL.
16. EXISTING STREET NAME, GUIDE, REGULATORY SIGNS, AND MAILBOXES WHICH CONFLICT WITH THE PROPOSED CONSTRUCTION SHALL BE REMOVED PRIOR TO CONSTRUCTION, STORED IN A MANNER WHICH WILL PREVENT DAMAGE, AND RE-SET IN LOCATIONS AS DIRECTED BY THE ENGINEER. THIS WORK WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN "GENERAL CONDITIONS, MAX $____-LS".
17. ALL DUCTILE IRON PIPE AND FITTINGS SHALL BE POLYETHYLENE WRAPPED PER ANSI/AWWA C105/A21.5.
18. MEGALUG MECHANICAL JOINT RESTRAINTS BY EBAA IRON, INC AND CAR-BLUE T-HEAD BOLTS AND NUTS BY BIRMINGHAM FASTENER SHALL BE USED AT ALL MECHANICAL WATER MAIN JOINTS OUT HYDRANTS.
19. ALL PLUGS, CAPS, TEES, HYDRANTS, AND HORIZONTAL BENDS SHALL BE PROVIDED WITH 3500 PSI CONCRETE THRUST BLOCKS IN ACCORDANCE WITH SD-W-2, UNLESS OTHERWISE INDICATED (ART 10 SEC II.K.5).
20. THE CONTRACTOR SHALL CONSTRUCT, FLUSH, AND BACTERIOLOGICALLY TEST THE WATER MAIN PER SECTION II.L OF ARTICLE 10 OF THE ANN ARBOR 2024 STANDARD SPECIFICATIONS AND AS APPROVED BY THE ENGINEER. ALL CHLORINATED WATER SHALL BE DISCHARGED DIRECTED INTO AN APPROVED SANITARY SEWER. THE CONTRACTOR SHALL SUPPLY ALL NECESSARY HOSES, FITTINGS AND THE LIKE TO ACCOMPLISH THIS WORK.
22. WHERE SEWER AND WATER MAIN ARE TO BE REMOVED & REPLACED OR ADDED, ALL PIPE SHALL BE INSTALLED USING TRENCH DETAIL DETAILED IN THE SPECIFICATIONS OR SHOWN ON PLANS. BACKFILL FOR SEWER AND WATER CONSTRUCTION SHALL BE MDOT GRANULAR MATERIAL, CLASS II, MODIFIED.
21. ALL FITTINGS, HYDRANTS, VALVES AND CASTINGS REMOVED DURING CONSTRUCTION ARE THE PROPERTY OF THE CITY OF ANN ARBOR. THE CONTRACTOR SHALL COORDINATE WITH AND DELIVER SUCH APPURTENANCES TO CITY OF ANN ARBOR PUBLIC WORKS FACILITY AT THE W.R. WHEELER SERVICE CENTER LOCATED AT 4251 STONE SCHOOL ROAD, OR TO ANOTHER LOCATION STIPULATED BY THE CITY. ALL COSTS ASSOCIATED WITH THE DELIVERY OF SUCH APPURTENANCES TO THE CITY SHALL BE CONSIDERED INCIDENTAL TO OTHER PAY ITEMS AND WILL NOT BE PAID FOR SEPARATELY.

TOTAL AREA OF PROPOSED DISTURBANCE = **0.43** AC

ON SITE SOILS PER USDA SOIL SURVERY (AS OF 3/13/2024):
Sb - SEBEWA LOAM, DISINTEGRATION MORAINE - 0% TO 2% SLOPES

PERMITS REQUIRED TO BE OBTAINED BY THE CONTRACTOR PRIOR TO THE BEGINNING OF CONSTRUCTION.

PERMIT	ISSUING AUTHORITY
LANE CLOSURE PERMIT*	CITY OF ANN ARBOR ENGINEERING
GRADING/SOIL EROSION & SEDIMENTATION CONTROL PERMIT*	CITY OF ANN ARBOR CUSTOMER SERVICE
RIGHT-OF-WAY PERMIT*	CITY OF ANN ARBOR CUSTOMER SERVICE

* NO COST TO CONTRACTOR

CONTACT INFORMATION

PUBLIC UTILITIES	OWNER	CONTACT
WATER SANITARY STORM FORESTRY SIGNS SIGNALS STREET LIGHTS	CITY OF ANN ARBOR PUBLIC WORKS W.R. WHEELER SERVICE CENTER 4251 STONE SCHOOL ROAD ANN ARBOR, MI 48108	(734) 794-6350 MARK MORENO (734) 794-6361
PRIVATE UTILITIES	**OWNER**	**CONTACT**
ELECTRIC	DTE ENERGY WESTERN WAYNE SERVICE CENTER 8001 HAGGERTY ROAD BELLEVILLE, MI 48111	ANTHONY IGNASIAK (734) 397-4447

HURON RIVER DRIVE CONTROL POINTS

BENCHMARKS

BM#	ELEV.	NORTHING	EASTING	DESCRIPTION
300	801.12	295359.08	13288217.23	FOUND GEAR SPIKE IN EAST FACE OF 12" TREE EAST SIDE HURON RIVER DR. SOUTH OF PARK INTRANCE

TRAVERSE POINTS

TP#	ELEV.	NORTHING	EASTING
3000	797.24	295433.633	13288164.90
3002	796.25	295441.72	13288136.19
3003	797.66	295586.14	13288107.75

HORIZONTAL DATUM: NAD83 SPC MICHIGAN SOUTH ZONE 2113
VERTICAL DATUM: NAVD88

EXISTING LEGEND

EX = EXISTING
SANITARY MANHOLE
POST
SIGN
UTILITY POLE
TRAVERSE POINT
BENCH MARK
WATER MAIN
SANITARY SEWER
ELECTRICAL OVER HEAD
BOUNDARY
CENTERLINE OF DITCH
CENTERLINE/CROWN OF ROAD
CONTOUR MAJOR
CONTOUR MINOR
EDGE OF WATER
FENCE
GRAVEL
R.O.W.
WETLAND
TREE (DECIDUOUS)
TREE (CONIFEROUS)
SHRUB (DECIDUOUS)
STUMP
TREE TO REMAIN & PROTECT (DECIDUOUS)
CRITICAL ROOT ZONE (C.R.Z.) = DIAMETER BREAST HEIGHT (INCHES) X 10
TREE TO REMAIN & PROTECT (CONIFEROUS)
CRITICAL ROOT ZONE (C.R.Z.) = DIAMETER BREAST HEIGHT (INCHES) X 10

PROPOSED LEGEND

PROP = PROPOSED
DRAIN ARROW
SIGN
TRAFFIC FLOW ARROW
STORM CULVERT
SANITARY SEWER
CENTERLINE OF DITCH
CENTERLINE OF ROAD
FENCE
GRAVEL
SILT FENCE
PROTECTIVE FENCE
CONTOUR MAJOR
CONTOUR MINOR
WATER EASMENT
STORM EASEMENT
SANITARY EASEMENT
R.O.W.
LIMITS OF CONSTRUCTION
LIMIT OF GRADING
PAVEMENT REMOVAL
CLEARING AND GRUBBING
RIPRAP STONE
CONCRETE
HMA PAVEMENT
TREE (DECIDUOUS)
TREE (CONIFEROUS)
TREE TO BE REMOVED (DECIDUOUS)
TREE TO BE REMOVED (CONIFEROUS)
STUMP TO BE REMOVED

MISCELLANEOUS AND AS-NEEDED QUANTITIES

TOTAL	UNIT	DESCRIPTION
1	LSUM	GENERAL CONDITIONS, MAX. $__
1	LSUM	PROJECT SUPERVISION, MAX. $__
30	FT	EROSION CONTROL, SILT FENCE
250	FT	TREE PROTECTION FENCE
11	EA	TREE, REM, 6 IN. - 12 IN.
1	EA	TREE, REM, 13 IN. - 19 IN.
5	EA	STUMP, REM
40	SYD	HMA, ANY THICKNESS, REM
78	FT	DS_LAP JOINT
40	SYD	DS_MACHINE GRADING
1	CYD	PIPE UNDERCUT AND BACKFILL, SANITARY
5	CYD	PIPE UNDERCUT AND BACKFILL, STORM
4	EA	TEMPORARY WATER MAIN LINE STOP, ADDITIONAL RENTAL DAY
40	SYD	AGGREGATE BASE, 8 IN., 21AA, CIP
1	TON	AGGREGATE SHOULDER, CL II, 23A
12	TON	HAND PATCHING
26	FT	PAVT MRKG, SPRAYABLE THERMOPL, 4 IN., WHITE
52	FT	PAVT MRKG, SPRAYABLE THERMOPL, 4 IN., YELLOW
10	FT	FENCE, SALVAGE AND RE-ERECT

Know what's below. Call before you dig. 811

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
5				
4				
3				
2			NTM/JWK	BHT/JVB
1	ISSUED FOR BIDS	4/22/2024		

CITY OF ANN ARBOR
PUBLIC SERVICES
301 E. HURON STREET
P.O. BOX 8647
ANN ARBOR, MI 48107-8647
734.794.6410
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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

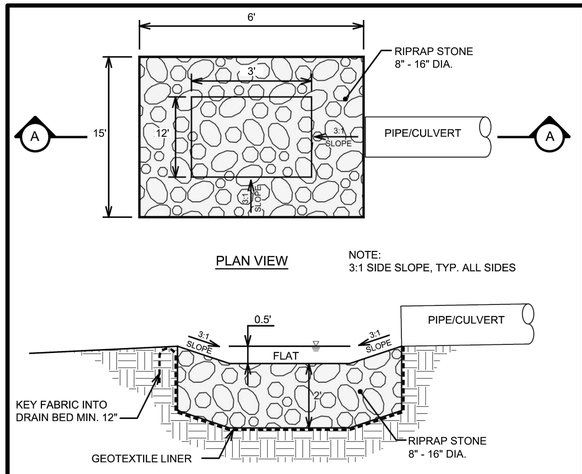
HURON RIVER DRIVE CULVERT REPLACEMENT

NOTES AND LEGEND

SCALE: NA | PROFILE: NA | DRAWING No. 2023-008-2

SHEET No. 2 OF 9

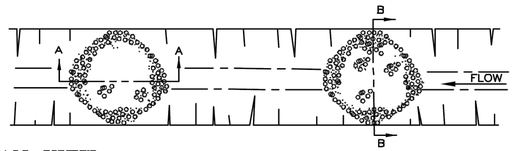
V:\2023\2023030273\C\Sheets\Cov.dwg — _02 standard bw.stb — Plot Date: 4/20/2024 1:52:35 PM



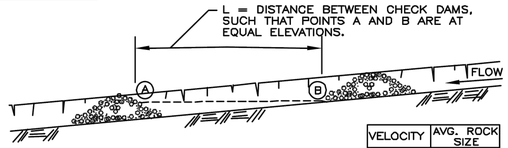
PREFORMED SCOUR POOL DETAILS

NOT TO SCALE

CHECK DAMS (E-3)

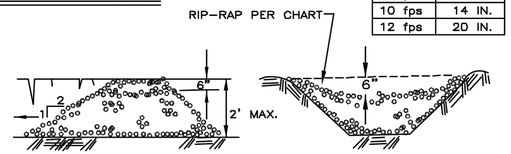


PLAN VIEW



CROSS-SECTION

VELOCITY	AVG. ROCK SIZE
6 fps	5 IN.
8 fps	10 IN.
10 fps	14 IN.
12 fps	20 IN.



SECTION A-A

NOTE: CHECK DAMS GREATER THAN TWO FEET IN DEPTH MAY SERIOUSLY IMPACT THE FLOW CHARACTERISTICS OF THE DITCH.

SECTION B-B

-DEPENDING ON THE VELOCITY, SLOPE AND SOILS, USE THE PROPER SIZED RIP-RAP TO HANDLE THE SHEER STRESS OF THE SLOPE/CHANNEL.

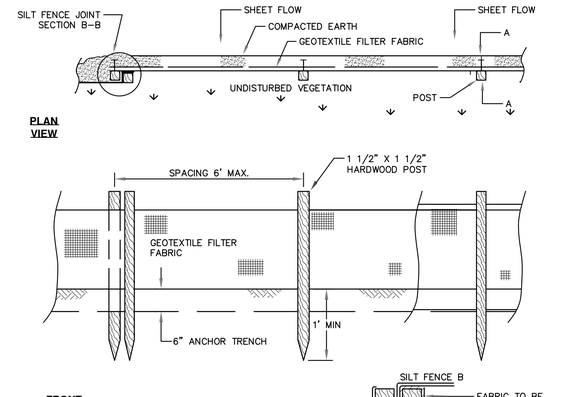
-FOR SLOPE AND/OR CHANNEL PROTECTION SEE OTHER BMP'S ON THIS SHEET OR IN THE WRC SOIL EROSION MANUAL.

NOTIFY THE CITY OF ANN ARBOR SOIL EROSION CONTROL OFFICE 48 HOURS PRIOR TO BEGINNING WORK ON THE PROJECT. PHONE: 734-794-6265.

1. THE CONTRACTOR SHALL IMPLEMENT AND MAINTAIN THE SOIL EROSION CONTROL MEASURES AS SHOWN ON THE PLANS AND AS DIRECTED BY THE ENGINEER AT ALL TIMES DURING CONSTRUCTION. ANY MODIFICATIONS OR ADDITIONS TO THE SOIL EROSION CONTROL MEASURES DUE TO CONSTRUCTION OR CHANGED CONDITIONS SHALL BE AS DIRECTED AND APPROVED BY THE ENGINEER.
2. ALL SOIL EROSION AND SEDIMENTATION CONTROL WORK SHALL CONFORM TO THE PERMIT REQUIREMENTS OF THE CITY OF ANN ARBOR, CHAPTER 55 ANN ARBOR UNIFIED DEVELOPMENT CODE, CITY OF ANN ARBOR STANDARDS DIVISION VII, THE LAWS OF THE STATE OF MICHIGAN, AND THE REQUIREMENTS OF THE CONTRACT DOCUMENTS.
3. DAILY, OR AFTER ANY STORM EVENT, INSPECTIONS OF EROSION CONTROL MEASURES SHALL BE MADE BY THE CONTRACTOR. PERIODIC INSPECTIONS MAY BE MADE BY THE ENGINEER TO DETERMINE THE EFFECTIVENESS OF EROSION AND SEDIMENTATION CONTROL MEASURES. ANY NECESSARY CORRECTIONS SHALL BE MADE WITHOUT DELAY, AND WITHOUT ADDITIONAL COST TO THE CITY OF ANN ARBOR.
4. EROSION AND SEDIMENTATION FROM WORK ON THE SITE SHALL BE CONTAINED ON THE SITE AND NOT BE ALLOWED TO COLLECT ON ANY OFF-SITE AREAS, ROADWAYS OR WATERWAYS.
5. ALL MUD/SOIL TRACKED ONTO ROADWAYS FROM THE SITE DUE TO CONSTRUCTION, SHALL BE PROMPTLY REMOVED BY THE CONTRACTOR. IF SO ORDERED, THE CONTRACTOR SHALL PROVIDE AND OPERATE A VACUUM-TYPE STREET SWEEPER, AT NO ADDITIONAL COST TO THE CITY OF ANN ARBOR.
6. RESTORATION OF ALL DISTURBED AREAS, INCLUDING PLACEMENT OF TOPSOIL, SEED, FERTILIZER AND MULCH AND/OR SOD SHALL BE PERFORMED WITHIN FIVE (5) DAYS OF THE COMPLETION OF FINAL GRADE EXCEPT WHERE TEMPORARY SEEDING OR AN ANCHORED MULCH BLANKET ARE SET FORTH AS TEMPORARY MEASURES PER THE APPROVED SEQUENCE OF SOIL EROSION MEASURES.
7. CONSTRUCTION OPERATIONS SHALL BE SCHEDULED AND PERFORMED SO THAT PREVENTATIVE SOIL EROSION CONTROL MEASURES ARE IN PLACE PRIOR TO EXCAVATION IN CRITICAL AREAS AND TEMPORARY STABILIZATION MEASURES ARE IN PLACE IMMEDIATELY FOLLOWING BACKFILLING OPERATIONS.
8. SPECIAL PRECAUTIONS WILL BE TAKEN IN THE USE OF CONSTRUCTION EQUIPMENT TO PREVENT SITUATIONS THAT PROMOTE EROSION.
9. PROPER DUST CONTROL SHALL BE MAINTAINED DURING CONSTRUCTION BY USE OF WATER TRUCKS AND/OR DUST PALLIATIVE AS REQUIRED.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL TEMPORARY SOIL EROSION CONTROL MEASURES AND REMOVAL OF SOME MEASURES UPON AUTHORIZED COMPLETION OF THE PROJECT. FINAL COMPLETION OF PROJECT WILL NOT BE AUTHORIZED UNTIL ALL SITE WORK AND UTILITY CONSTRUCTION IS COMPLETE AND ALL SOILS ARE STABILIZED.
11. THE CONTRACTOR SHALL NOT GRADE INTO ADJACENT PROPERTIES. SILT AND PROTECTIVE FENCE SHALL BE INSTALLED AND MAINTAINED TO PREVENT GRADING, EROSION AND SEDIMENTATION INTO THE ADJACENT PROPERTIES.
12. TREE PROTECTION FENCING MUST REMAIN INTACT UNTIL RESTORATION OF THE SITE IS COMPLETE.

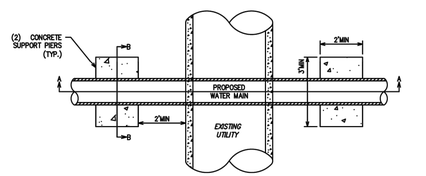
SD-SESC-6

STANDARD SOIL EROSION AND SEDIMENTATION CONTROL NOTES



SD-SESC-3

SILT FENCE

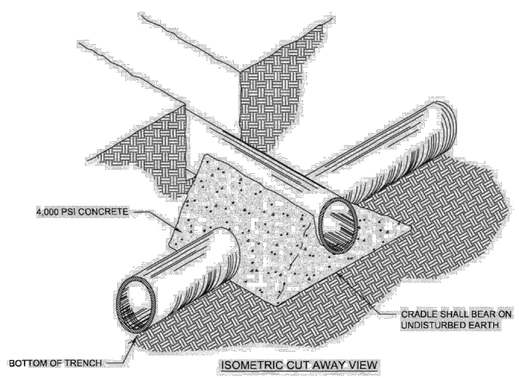


UTILITY CROSSING BRIDGE

NOTES:

1. CROSSING BRIDGE IS REQUIRED WHEN 18 INCHES OF CLEARANCE OR GREATER ABOVE (WITHIN A 1:1 INFLUENCE OF THE SPRING LINE) AN EXISTING UTILITY CANNOT BE MAINTAINED.
2. UTILITY PIPE SPANNING THE EXISTING UTILITY MUST BE CENTERED BETWEEN JOINTS OVER THE EXISTING UTILITY.
3. ALL WORK NECESSARY TO CONSTRUCT THE UTILITY CROSSING BRIDGE AS SHOWN SHALL BE CONSIDERED INCLUDED IN THE UNIT PRICE BID FOR THE ITEM "DS_UTILITY BRIDGE - EA" AND WILL NOT BE PAID FOR SEPARATELY.

NOTES:
TO BE USED WHEN CLEAR DISTANCE (FROM EXTERIOR PIPE DIAMETER TO EXTERIOR PIPE DIAMETER) BETWEEN SANITARY SEWER PIPING (MAINS, LATERALS, FORCE MAINS, ETC.) AND ALL OTHER PIPES IS 18" OR LESS, PER ENGINEER'S DIRECTION, OR WHERE NOTED ON THE CONSTRUCTION PLANS. A MINIMUM CLEAR DISTANCE OF 3" MUST BE PROVIDED TO MAINTAIN THE STRUCTURAL INTEGRITY OF THE CONCRETE.



ISOMETRIC CUT AWAY VIEW

CONCRETE CRADLE DETAIL

NOT TO SCALE

SEQUENCE OF EROSION CONTROL MEASURES:

1. THE CONTRACTOR IS TO SUBMIT TO THE ENGINEER, A SEQUENCE OF CONSTRUCTION WITH RESPECT TO THE SOIL EROSION CONTROL MEASURES FOR REVIEW, COMMENT AND APPROVAL. THIS SCHEDULE IS TO INCLUDE INSPECTION AND REPAIR OF ALL TEMPORARY EROSION CONTROL MEASURES DAILY AND WITHIN 24 HOURS OF A STORM EVENT.

SAMPLE SOIL EROSION AND SEDIMENTATION CONTROL INSTALLATION MINIMUM REQUIREMENTS:

1.1. INSTALL SILT FENCE, TREE PROTECTION FENCING, MUD MATS, INLET FILTERS ON EXISTING DRAINAGE FEATURES, AND ALL OTHER TEMPORARY SOIL EROSION CONTROLS, PRIOR TO ANY CLEARING OR EARTH MOVING OPERATION.

1.2. STRIP AND STOCKPILE TOPSOIL. STABILIZE STOCKPILE AS REQUIRED.

1.3. INSTALL WATER MAINS, STORM AND SANITARY SEWERS, AND OTHER ENCLOSED DRAINAGE FEATURES. NEW INLET FILTERS SHALL BE INSTALLED IMMEDIATELY FOLLOWING INSTALLATION OF NEW DRAINAGE INLETS.

1.4. PERFORM MACHINE GRADING OPERATIONS AND CONSTRUCT PAVEMENTS (MAINLINE, SIDEWALKS, DRIVES, ETC.).

1.5. CONTINUALLY MAINTAIN EROSION AND SEDIMENTATION CONTROL MEASURES, AS REQUIRED TO ALLOW DRAINAGE AND SEDIMENT REMOVAL. REMOVE ANY ACCUMULATED SEDIMENT IMMEDIATELY.

1.6. COMPLETE ALL FINE GRADING.

1.7. INSTALL TEMPORARY SEED DURING CONSTRUCTION IN ACCORDANCE WITH ARTICLE 8 OF THE CITY'S PUBLIC WORKS DESIGN AND CONSTRUCTION STANDARDS. DURING MONTHS UNFAVORABLE TO SEEDING, AN ANCHORED MULCH BLANKET SHALL BE INSTALLED PER SD-SESC-4.

1.8. REFER TO LANDSCAPE PLANTING PLANS FOR PERMANENT SITE STABILIZATION.

1.9. CLEAN OUT STORM SEWER SYSTEMS.

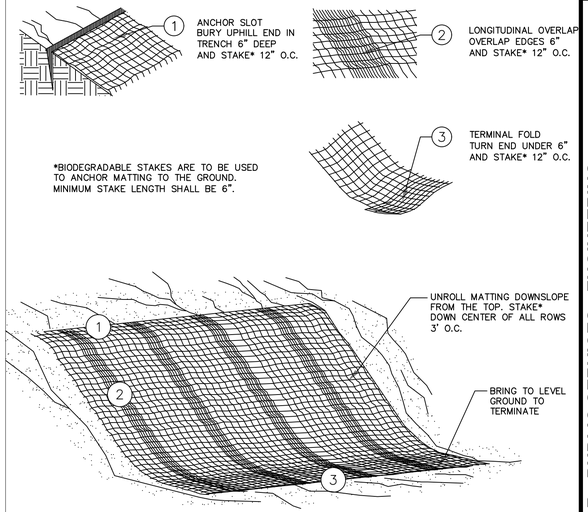
1.10. REMEDY ANY NOTED DEFECTS TO THE SATISFACTION OF THE CITY OF ANN ARBOR'S SOIL EROSION AND SEDIMENTATION CONTROL OFFICIAL.

1.11. ALL TEMP. SOIL EROSION CONTROL MEASURES MUST BE REMOVED, WITH ENGINEERS APPROVAL, PRIOR TO FINAL INSPECTION

NOTE: THIS SEQUENCE IS FOR INFORMATION ONLY. IT IS INTENDED TO SHOW THE SEQUENCE OF CONSTRUCTION WITH RESPECT TO THE SOIL EROSION AND SEDIMENTATION CONTROL MEASURES. THE CONTRACTOR IS RESPONSIBLE FOR SUBMITTING THEIR OWN DETAILED CONSTRUCTION SEQUENCE AND SCHEDULE TO THE ENGINEER FOR REVIEW, COMMENT, AND APPROVAL. THE APPROVED SEQUENCE OF SOIL EROSION MEASURES MUST BE INCLUDED ON THE APPROVED CONSTRUCTION PLANS.

SD-SESC-7

SEQUENCE OF SOIL EROSION CONTROL MEASURES



NOTE:

PROVIDE EROSION CONTROL MATTING ON ALL DISTURBED AREAS TO BE PERMANENTLY RESTORED WITH GRASS AND AS DIRECTED BY THE ENGINEER. SEE LANDSCAPE PLANS FOR MORE DETAILS. MATERIAL SHALL BE RAPIDLY BIODEGRADABLE. USE OF PLASTIC MATERIALS IS SPECIFICALLY PROHIBITED.

SD-SESC-4

MULCH BLANKET

Know what's below. Call before you dig. 811

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
5				
4				
3				
2			NTM/JWK	BH1/JVB
1	ISSUED FOR BIDS	4/22/2024		

CITY OF ANN ARBOR
PUBLIC SERVICES
301 E. HURON STREET
P.O. BOX 8647
ANN ARBOR, MI 48107-8647
(734) 794-6410
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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

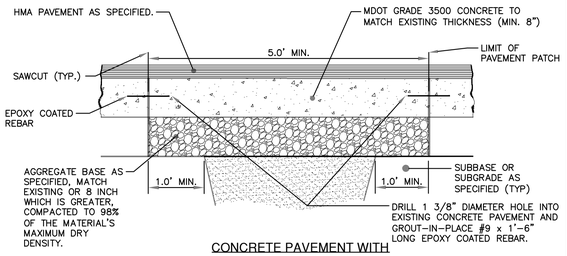
HURON RIVER DRIVE CULVERT REPLACEMENT

DETAILS AND SECTIONS

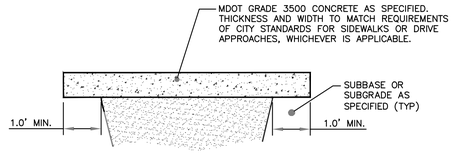
SCALE: NTS | PROFILE: NTS | DRAWING No. 2023-008-3

SHEET No. 3 OF 9

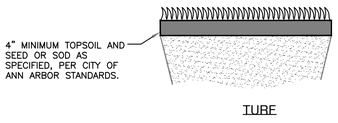
V:\2023\2023073\C\Sheets\20230273_Det.dwg - _a2 standard bw.stb - Plot Date: 4/20/2024 1:53:03 PM



CONCRETE PAVEMENT WITH BITUMINOUS OVERLAY



SIDEWALK OR DRIVE APPROACH

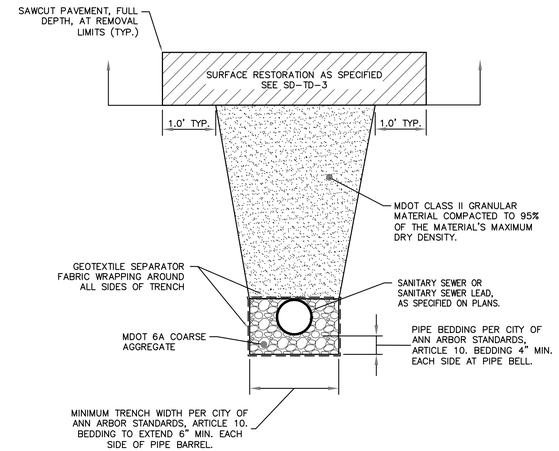


TURF

NOTE:

PIPE TO BE BEDDED PER TD-1 OR 2

SD-TD-3.2
UTILITY TRENCH SURFACE RESTORATION



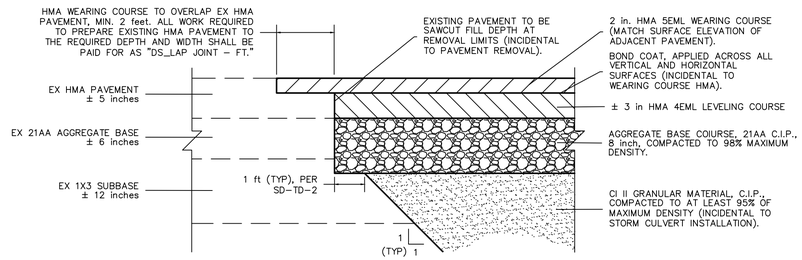
NOTES:

1. ALL TRENCH EXCAVATION, BEDDING, BACKFILLING, AND SURFACE RESTORATION SHALL COMPLY WITH CITY OF ANN ARBOR STANDARDS, ARTICLE 10.
2. TRENCH DETAILS SHOW TYPE OF BACKFILL AND TRENCHING REQUIREMENTS ONLY.
3. ALL TRENCHING TO CONFORM TO ALL APPLICABLE M.I.O.S.H.A. AND CITY STANDARDS.
4. PIPE BEDDING THICKNESS UNDER CONCRETE PIPE 66" OR LARGER SHALL BE INCREASED TO 6".
5. SEE SD-TD-4 FOR EDGE DRAIN BEDDING AND BACKFILL DETAILS.
6. SURFACE RESTORATION SHALL NOT BE INCLUDED IN THE UNIT PRICE FOR PIPE AND WILL BE PAID FOR SEPARATELY.

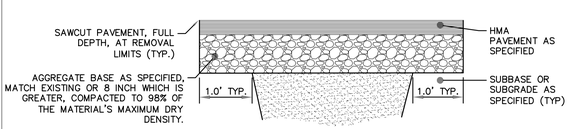
SD-TD-2
UTILITY TRENCH - TYPE II

HMA APPLICATION ESTIMATE				
IDENT NO.	**ITEM**	**APPLICATION/RATE**	**BINDER**	**REMARKS**
4EML	**HMA, 4EML**	**220 LBS/SYD (MIN) - 275 LBS/SYD (MAX)**	**PG58-28**	**LEVELING**
53ML	**HMA 53ML**	**165 LBS/SYD (MIN) - 220 LBS/SYD (MAX)**	**PG64-22**	**AWI-250 MIN, WEARING**
	BOND COAT	**0.05-0.15 GAL/SYD**		

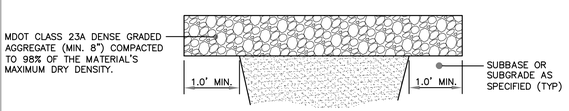
NOTES:
1. **MDOT TIER 1 RAP LIMITS APPLY TO WEARING COURSE HMA MIXES.**
2. **MDOT TIER 2 RAP LIMITS APPLY TO LEVELING AND BASE COURSE HMA MIXES.**
3. **FURNISHING AND PLACING BOND COAT IS INCIDENTAL TO HMA PAY ITEMS.**



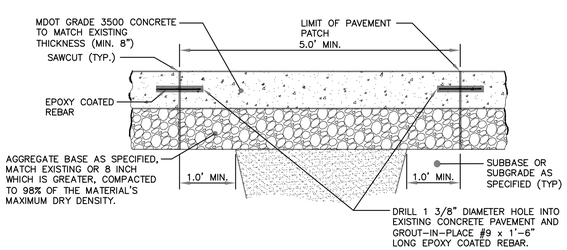
LAP JOINT DETAIL
N.T.S



BITUMINOUS PAVEMENT RESTORATION

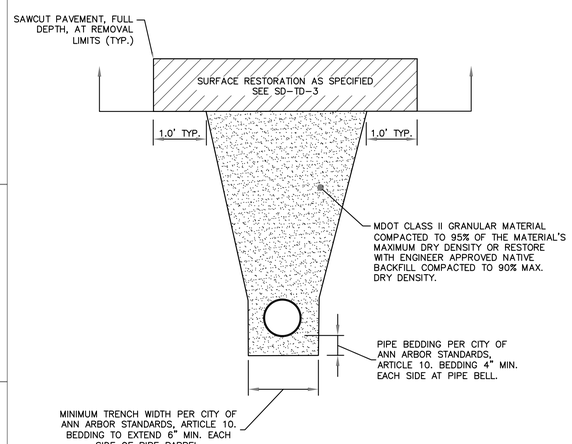


GRAVEL ROAD / PARKING



CONCRETE PAVEMENT

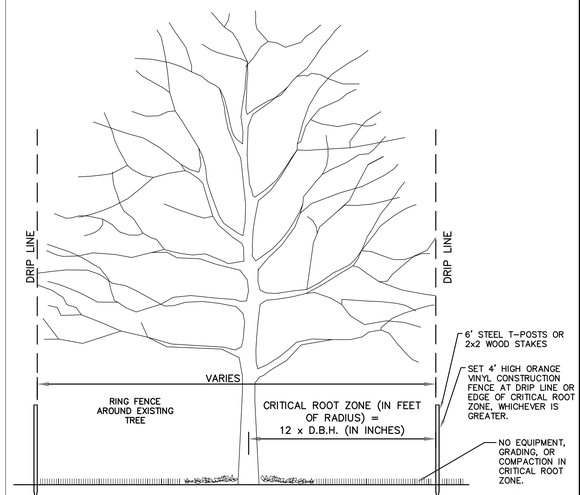
SD-TD-3.1
UTILITY TRENCH SURFACE RESTORATION



NOTES:

1. ALL TRENCH EXCAVATION, BEDDING, BACKFILLING, AND SURFACE RESTORATION SHALL COMPLY WITH CITY OF ANN ARBOR STANDARDS, ARTICLE 10.
2. TRENCH DETAILS SHOW TYPE OF BACKFILL AND TRENCHING REQUIREMENTS ONLY.
3. ALL TRENCHING TO CONFORM TO ALL APPLICABLE M.I.O.S.H.A. AND CITY STANDARDS.
4. PIPE BEDDING THICKNESS UNDER CONCRETE PIPE 66" OR LARGER SHALL BE INCREASED TO 6".
5. SEE SD-TD-2 FOR SANITARY BEDDING AREA DETAIL. SEE SD-TD-4 FOR EDGE DRAIN BEDDING AND BACKFILL.
6. SURFACE RESTORATION SHALL NOT BE INCLUDED IN THE UNIT PRICE FOR PIPE AND WILL BE PAID FOR SEPARATELY.
7. NOT TO BE USED FOR SANITARY SEWER OR EDGE DRAIN.

SD-TD-1
UTILITY TRENCH-TYPE I



SD-L-3
TREE PROTECTION

Know what's below. Call before you dig. 811

NO.	DESCRIPTION	DATE	DRAWN	CHECKED
1	ISSUED FOR BIDS	4/22/2024	NTM/JWK	BHT/JVB
2				
3				
4				
5				

REV.

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PUBLIC SERVICES
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ANN ARBOR, MI 48107-8647
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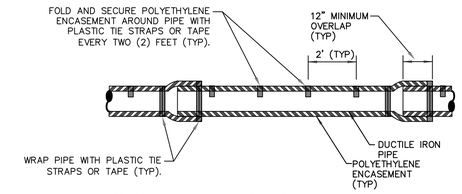
CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

HURON RIVER DRIVE CULVERT REPLACEMENT

DETAILS AND SECTIONS

SCALE: NTS | PROFILE: NTS | DRAWING No. 2023-008-4

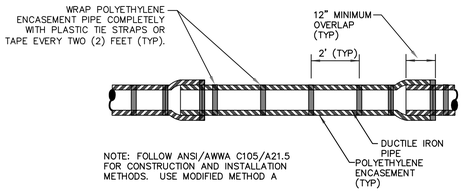
SHEET No. 4 OF 9



NOTE: FOLLOW ANSI/AWWA C105/A21.5 FOR CONSTRUCTION AND INSTALLATION METHODS. USE MODIFIED METHOD A

APPLIES TO: POLYETHYLENE WRAPPED D.I. WATERMAIN
SEE PLANS FOR LOCATIONS

POLYETHYLENE ENCASEMENT (DRY INSTALLATION)



NOTE: FOLLOW ANSI/AWWA C105/A21.5 FOR CONSTRUCTION AND INSTALLATION METHODS. USE MODIFIED METHOD A

APPLIES TO: POLYETHYLENE WRAPPED D.I. WATERMAIN
SEE PLANS FOR LOCATIONS

POLYETHYLENE ENCASEMENT (WET INSTALLATION)

SD-W-7
POLYETHYLENE ENCASEMENT

MINIMUM STANDARDS

THE MDOT GRADE 3500 OR P-NC CONCRETE AT THE FITTING FACE SHALL EXTEND TO WITHIN 2" OF THE BELL AND SHALL EXTEND FROM THE FITTING FACE A MINIMUM OF 2' TO THE UNDISTURBED SOLID GROUND.

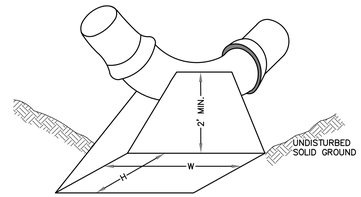
THE DIMENSIONS OF THE THRUST BLOCK AT THE FACE OF THE UNDISTURBED SOLID GROUND SHALL BE AS SHOWN IN THE TABLE BELOW.

IF THERE ISN'T SUFFICIENT SPACE FOR THE INSTALLATION OF THE THRUST BLOCK WITHOUT INTERFERENCE WITH OTHER SERVICES, ANOTHER ARRANGEMENT SATISFACTORY TO THE ENGINEER SHALL BE USED.

FITTINGS I.D.	PLUG TEE CROSS		BENDS								HYDRANT	
			90°		45°		22½°		11¼°			
INCHES	W	H	W	H	W	H	W	H	W	H	W	H
4	1.0	1.0	1.0	1.0	1.0	1.0						
6	2.0	1.5	2.0	2.0	2.0	1.0	1.0	1.0	1.0	1.0	2.0	1.5
8	2.5	2.0	3.5	2.0	2.0	2.0	2.0	1.0	1.0	1.0	2.5	2.0
12	3.5	3.0	5.5	3.0	3.5	2.5	2.0	2.0	2.0	1.0		
16	6.0	3.5	6.0	4.0	5.0	3.0	3.5	2.5	2.0	2.0		
·	·	·	·	·	·	·	·	·	·	·		

FOR FITTING SIZES LARGER THAN 16", THRUST BLOCK DIMENSIONS SHALL BE AS SPECIFIED BY ENGINEER.

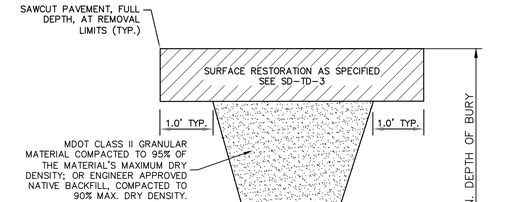
W = WIDTH IN FEET
H = HEIGHT IN FEET



NOTE:

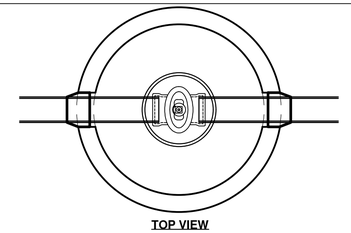
THESE ARE MINIMUM STANDARDS. WHERE SOIL CONDITIONS DICTATE, ADJUSTMENTS IN SIZE SHALL BE MADE AS DIRECTED BY THE PUBLIC SERVICES AREA ADMINISTRATOR.

SD-W-2
THRUST BLOCK

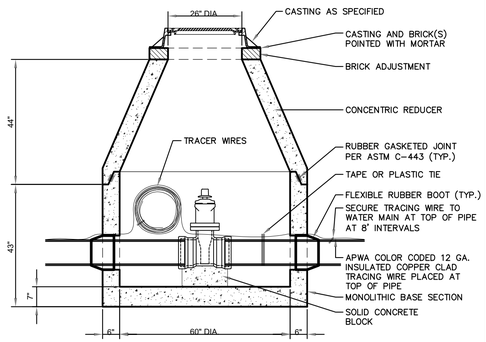


NOTES:
1. WATER MAINS SHALL BE CONSTRUCTED WITH 5-1/2 FEET OF EARTH COVER (ART 3 SEC B.5.a OF ANN ARBOR STANDARDS). WHERE CONFLICTS EXIST DURING CONSTRUCTION THAT PREVENT THIS COVER REQUIREMENT, THE WATER MAIN MAY BE INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF THIS DETAIL. THE CONTRACTOR MUST RECEIVE PERMISSION FROM THE OWNER FOR ANY AND ALL INSTANCES WHERE THIS DETAIL IS PROPOSED TO BE USED.
2. ALL TRENCHING TO CONFORM TO ALL APPLICABLE M.I.O.S.H.A AND CITY STANDARDS.
3. IN AREAS WHERE ROAD PAVEMENT IS SCHEDULED FOR FULL REMOVAL AND REPLACEMENT, THE SIDES OF TEH TRENCH SHALL BE SLOPED AS SHOWN IN THE TYPICAL ROAD SECTION(S).
4. IN AREAS WHERE ONLY THE ROAD PAVEMENT ABOVE THE TRENCH IS SCHEDULED FOR REMOVAL AND REPLACEMENT, THE SIDES OF THE TRENCH SHALL BE SLOPED AS SHOWN IN SD-TD-1.

INSULATED TRENCH FOR WATER MAIN CONSTRUCTION



TOP VIEW



TYPICAL MANHOLE SECTION

NOTES:

1. PRECAST MANHOLE PER ASTM C-478.
2. REINFORCING IN WALLS TO BE ONE LAYER OF 2" X 8" W3/W2.9 WELDED WIRE MESH. CIRCUMFERENTIAL REINFORCEMENT = 0.18 SQ. IN./VERT. FT.
3. BASE SLAB TO BE REINFORCED WITH ONE LAYER OF #4 REBAR AT 12" C-C, E.W. AREA/STEEL = .20 SQ. IN./FT E.W.

SD-W-3
PRECAST GATE WELL (WATERMAINS 16 INCH AND SMALLER)

Know what's below. Call before you dig.

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
5				
4				
3				
2	ISSUED FOR BIDS	4/22/2024	NTM/JWK	BH1/JVB
1				

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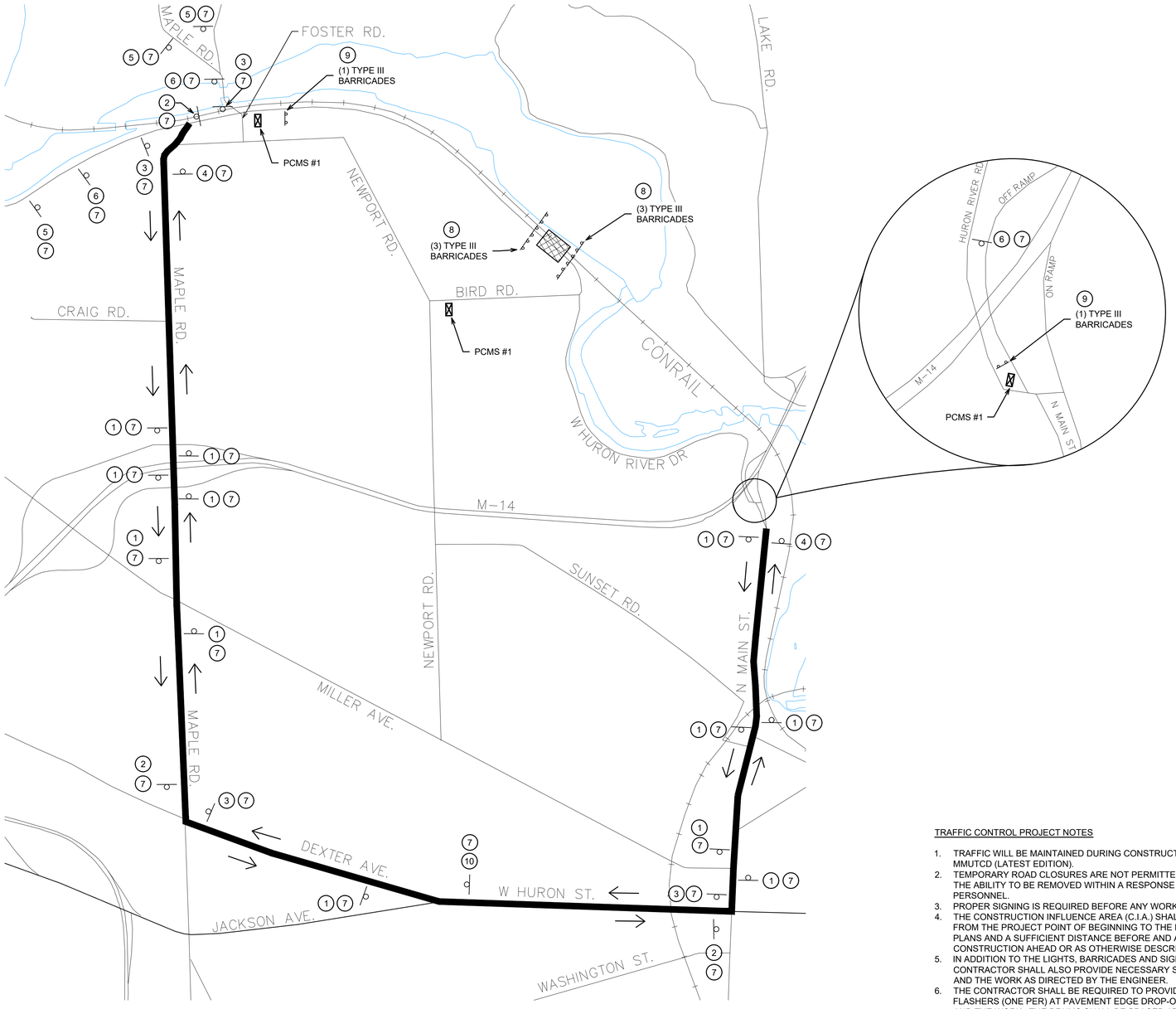
CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

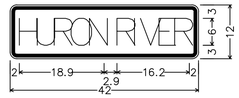
HURON RIVER DRIVE CULVERT REPLACEMENT

DETAILS AND SECTIONS

SCALE: NTS | PROFILE: NTS | DRAWING No. 2023-008-5

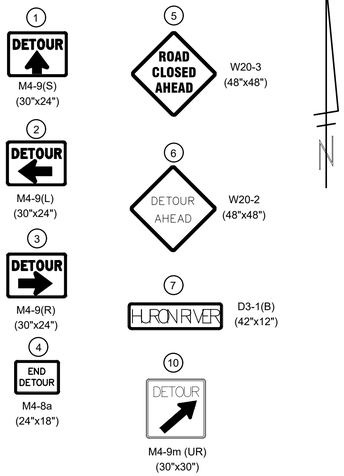
SHEET No. 5 OF 9





D3–1(B)_Huron River Dr;
1.5" Radius, 0.6" Border, 0.4" Indent, Black on Orange;
"HURON RIVER", C 48% spacing;
Table of widths and spaces

2.0	H	3.3	0.6	U	3.3	0.6	R	3.3	0.5	O	3.5	0.6	N	3.2								
															2.9	R	3.3	0.6	I	0.9	0.4	V	3.7	0.5	E	3.0	0.5	R	3.3	2.0



SEQ #1	SEQ #2
HURN RVR CLOSED AT BIRD	FOLLOW DETOUR XXX X/XX

PCMS #1

MAINTAINING TRAFFIC QUANTITIES - ALL STAGES

TOTAL	UNIT	DESCRIPTION
1	LSUM	TRAFFIC REGULATOR CONTROL
1	LSUM	MINOR TRAFFIC CONTROL, MAX $__
216.25	SFT	SIGN, TYPE B, TEMP, PRISMATIC, FURN AND OPER
98	SFT	SIGN, TYPE B, TEMP, PRISMATIC, SPECIAL, FURN AND OPER
3	EA	SIGN, PORTABLE, CHANGEABLE MESSAGE, FURN AND OPER
25	EA	CHANNELIZER CONE, HIGH INTENSITY, 42 IN., FURN AND OPER
8	EA	BARRICADE, TYPE III, HIGH INTENSITY, DOUBLE SIDED, LIGHTED, FURN AND OPER

TRAFFIC CONTROL PROJECT NOTES

1. TRAFFIC WILL BE MAINTAINED DURING CONSTRUCTION IN ACCORDANCE WITH CONSTRUCTION PLANS, AND MMUTCD (LATEST EDITION).
2. TEMPORARY ROAD CLOSURES ARE NOT PERMITTED WITHOUT AUTHORIZATION AND IF PERMITTED MUST HAVE THE ABILITY TO BE REMOVED WITHIN A RESPONSE TIME DEEMED ACCEPTABLE BY CITY PUBLIC SAFETY PERSONNEL.
3. PROPER SIGNING IS REQUIRED BEFORE ANY WORK IN RIGHT OF WAY STARTED.
4. THE CONSTRUCTION INFLUENCE AREA (C.I.A.) SHALL CONSIST OF THE WIDTH OF THE PROPOSED RIGHT OF WAY FROM THE PROJECT POINT OF BEGINNING TO THE POINT OF ENDING OR AS OTHERWISE INDICATED ON THE PLANS AND A SUFFICIENT DISTANCE BEFORE AND AFTER THE PROJECT TO WARN MOTORISTS OF THE CONSTRUCTION AHEAD OR AS OTHERWISE DESCRIBED.
5. IN ADDITION TO THE LIGHTS, BARRICADES AND SIGNS SPECIFIED ON THE CONSTRUCTION PLANS, THE CONTRACTOR SHALL ALSO PROVIDE NECESSARY SIGNS, BARRICADES AND LIGHTS TO PROTECT THE TRAFFIC AND THE WORK AS DIRECTED BY THE ENGINEER.
6. THE CONTRACTOR SHALL BE REQUIRED TO PROVIDE PLASTIC DRUMS WITH BATTERY OPERATED AMBER FLASHERS (ONE PER) AT PAVEMENT EDGE DROP-OFFS IN EXCESS OF 3 INCHES TO PROTECT THE TRAFFIC LANE AND THE WORK. THE DRUMS SHALL BE SPACED AT 50 FOOT MAXIMUM INTERVALS.
7. TRAFFIC CHANNELING DEVICES (PLASTIC DRUMS) AND (42" FLUORESCENT CHANNELIZING DEVICES) FURNISHED BY THE CONTRACTOR FOR WORK PROTECTION SHALL BE IN ACCORDANCE WITH MAINTAINING TRAFFIC TYPICAL 101-GEN-SPACING-CHARTS FOR APPROPRIATE "D" AND "L" DISTANCES AND PER THE CURRENT VERSION OF THE MMUTCD.
8. ALL SIGNS, BARRELS, AND BARRICADES TO BE REFLECTORIZED AND HAVE LIGHTS MOUNTED ON THEM.
9. SIGN SPACING TO BE ADJUSTED IN FIELD TO AVOID DRIVES, ROADS AND OBSTRUCTING VIEWS FOR TURNING ONTO OR OFF OF ROAD.
10. CONTRACTOR TO ADJUST SIGNS TO MATCH OPERATIONS. ALL CHANGES MUST BE APPROVED BY PROJECT ENGINEER.
11. CONTRACTOR SOLELY RESPONSIBLE FOR SAFETY OF PERSONS AND VEHICLES IN WORK ZONE.
12. ACCESS TO INTERSECTIONS, COMMERCIAL DRIVES AND RESIDENTIAL PROPERTIES WITHIN THE CONSTRUCTION INFLUENCE AREA (C.I.A.) SHALL BE MAINTAINED AT ALL TIMES.
13. REPLACE ALL DISTURBED PAVEMENT MARKINGS IN-KIND AFTER CONSTRUCTION.

LEGEND

- WORK AREA
- TYPE III BARRICADE
- CONSTRUCTION SIGN
- DETOUR ROUTE
- TRAFFIC FLOW ARROW
- PORTABLE, MESSAGE BOARD

Know what's below. Call before you dig. 811

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
5				
4				
3				
2				
1	ISSUED FOR BIDS	4/22/2024	NTM/JWK	BH1/JVB

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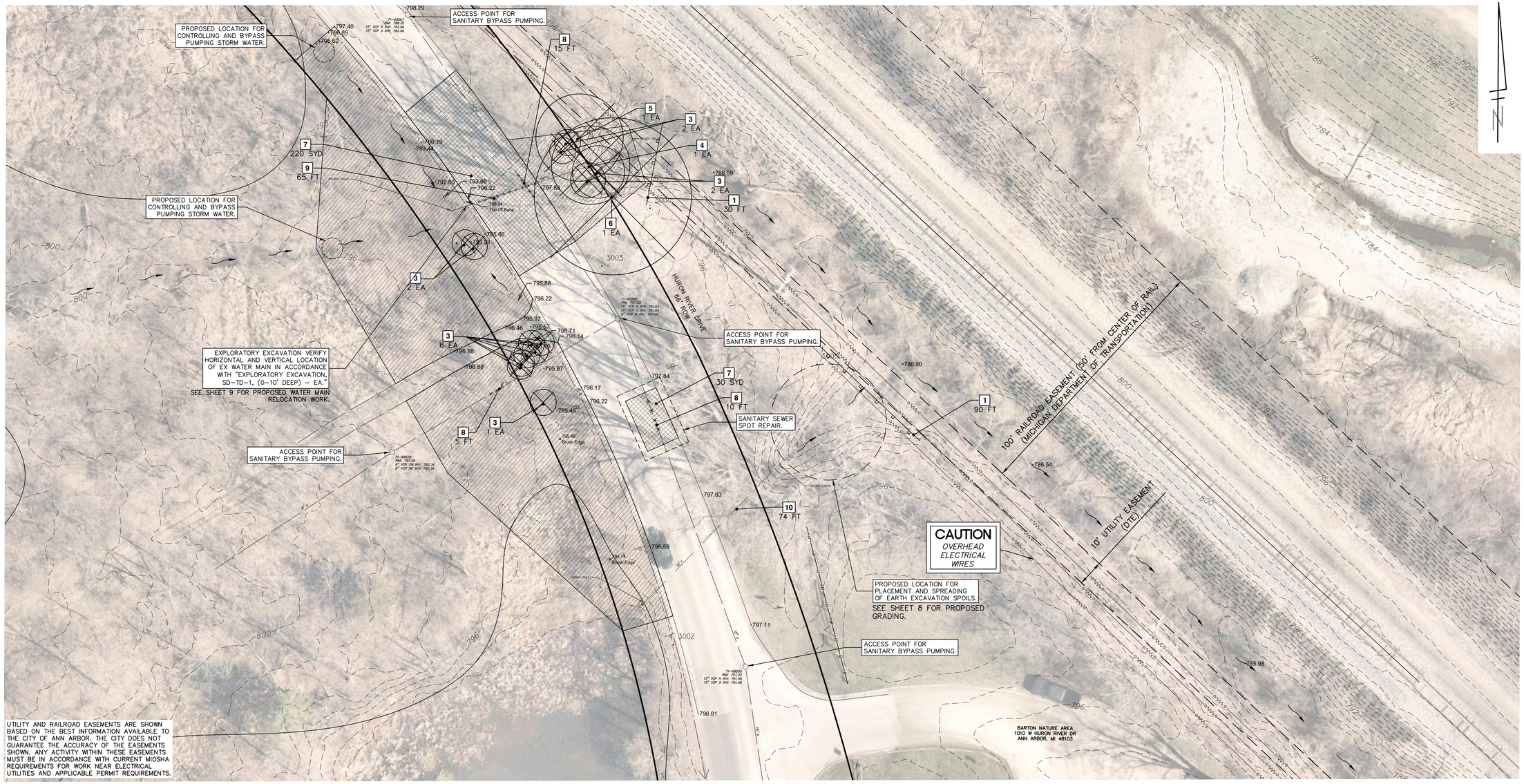
CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

HURON RIVER DRIVE CULVERT REPLACEMENT

MAINTENANCE OF TRAFFIC AND DETOUR PLAN

SCALE: 1" = 1000' | PROFILE: N/A | DRAWING No. 2023-008-6

SHEET No. 6 OF 9



NOTES:

1. TEMPORARY REMOVAL/RELOCATION, STORAGE, AND RE-INSTALLATION/RE-SETTING OF EXISTING MAILBOXES, NEWSPAPER TUBES, SIGNS, ETC. IS CONSIDERED INCIDENTAL TO "GENERAL CONDITIONS, MAX $____-LSUM" AND WILL NOT BE PAID FOR SEPARATELY (SEC I.F.L OF ART 10 OF THE ANN ARBOR 2024 STANDARD SPECIFICATIONS).
2. THE REMOVAL OF SHRUBS, BRUSH, AND TREES LESS THAN 6" DIAMETER (DBH), AS SHOWN ON THE PLAN SHEETS OR AS DIRECTED BY THE PSAA, SHALL BE CONSIDERED INCIDENTAL TO "GENERAL CONDITIONS, MAX $____-LSUM" AND WILL NOT BE PAID FOR SEPARATELY (SEC I.F.U OF ART 10 OF THE ANN ARBOR 2024 STANDARD SPECIFICATIONS).
3. ALL LABOR, MATERIALS, AND EQUIPMENT REQUIRED TO RECORD EXISTING LOCATION, REMOVE, TEMPORARILY STORE, AND RE-INSTALL VEHICULAR BARRICADE ACROSS GRAVEL ACCESS PATH (TIMBER POSTS, CHAIN, SIGN, AND ANY OTHER RELATED APPURTENANCES) SHALL BE CONSIDERED INCIDENTAL TO THE UNIT PRICE BID FOR THE ITEM "FENCE, SALVAGE AND RE-ERECT - FT" AND WILL NOT BE PAID FOR SEPARATELY. PAYMENT WILL BE MADE BASED ON A LINEAL FOOT MEASUREMENT FROM CENTER OF POST TO CENTER OF POST (POSITION PRIOR TO REMOVAL). ANY DAMAGE TO THE BARRICADE DURING REMOVAL, STORAGE, AND OR REINSTALLATION SHALL BE REPAIRED/REPLACED BY THE CONTRACTOR AT THEIR OWN EXPENSE.
4. ABANDONMENT OF EXISTING STORM CULVERT REQUIRES PLACING FLOWABLE FILL THE FULL LENGTH AND CROSS-SECTION OF THE ABANDONED CULVERT (CONSTRUCTION SHALL BE IN ACCORDANCE WITH SEC II.AA OF ART 10 OF THE ANN ARBOR 2024 PUBLIC SERVICES STANDARD SPECIFICATIONS).
5. EXPECTED SANITARY SEWER DRY WEATHER FLOW RATE:
   BIRD HILLS SEWER (8 IN. SAN) = ~0.07 CFS
   HURON RIVER SEWER (15 IN. SAN) = ~0.52 CFS
6. EXPECTED SANITARY SEWER WET WEATHER FLOW RATES:
   BIRD HILLS SEWER (8 IN. SAN) = TBD
   HURON RIVER SEWER (15 IN. SAN) = TBD

REMOVAL QUANTITIES - THIS SHEET

TOTAL	UNIT	DESCRIPTION
120	FT	EROSION CONTROL, SILT FENCE
13	EA	TREE, REM, 6 IN. - 12 IN.
1	EA	TREE, REM, 13 IN. - 19 IN.
1	EA	TREE, REM, 20 IN. - 29 IN.
1	EA	TREE, REM, 30 IN. - 39 IN.
250	SYD	HMA, ANY THICKNESS, REM
1	EA	EXPLORATORY EXCAVATION, SD-TD-1 (0-10' DEEP)
5	FT	SANITARY SEWER PIPE, 8 IN. DIA., REM
25	FT	SANITARY SEWER PIPE, 15 IN. DIA., REM
1	LSUM	DS_SANITARY SEWER, TEMP BYPASS PUMPING, OPERATION SETUPS AND BREAKDOWNS
1	LSUM	DS_SANITARY SEWER, TEMP BYPASS PUMPING, OPERATION AND MONITORING
74	FT	STORM SEWER PIPE, 12 IN. DIA., ABANDON
65	FT	STORM SEWER PIPE, 24 IN. DIA., REM
1	LSUM	DS_STORM SEWER, TEMP BYPASS PUMPING, OPERATION SETUPS AND BREAKDOWNS
1	LSUM	DS_STORM SEWER, TEMP BYPASS PUMPING, OPERATION AND MONITORING

REMOVAL KEY TABLE

KEY	DESCRIPTION
1	SILT FENCE
2	TREE PROTECTION FENCE
3	TREE, REMOVE, 6-12 INCH
4	TREE, REMOVE, 13-19 INCH
5	TREE, REMOVE, 20-29 INCH
6	TREE, REMOVE, 30-29 INCH
7	HMA SURFACE, REMOVE*
8	SANITARY SEWER, REMOVE
9	STORM SEWER, REMOVE
10	STORM SEWER, ABANDON

*SAWCUT FULL DEPTH AT REMOVAL LIMITS

Know what's below. Call before you dig. 811

REV.	DESCRIPTION	DATE	DRAWN	BHT/JVB	CHECKED
1	ISSUED FOR BIDS	4/22/2024	NTM/JWK		

CITY OF ANN ARBOR
PUBLIC SERVICES
301 E HURON STREET
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(734) 794-6410
www.a2gov.org

CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

HURON RIVER DRIVE CULVERT REPLACEMENT

REMOVALS

SCALE: 1" = 20' | PROFILE: N/A | DRAWING No. 2023-008-7

SHEET No. 7 OF 9

NOTES:

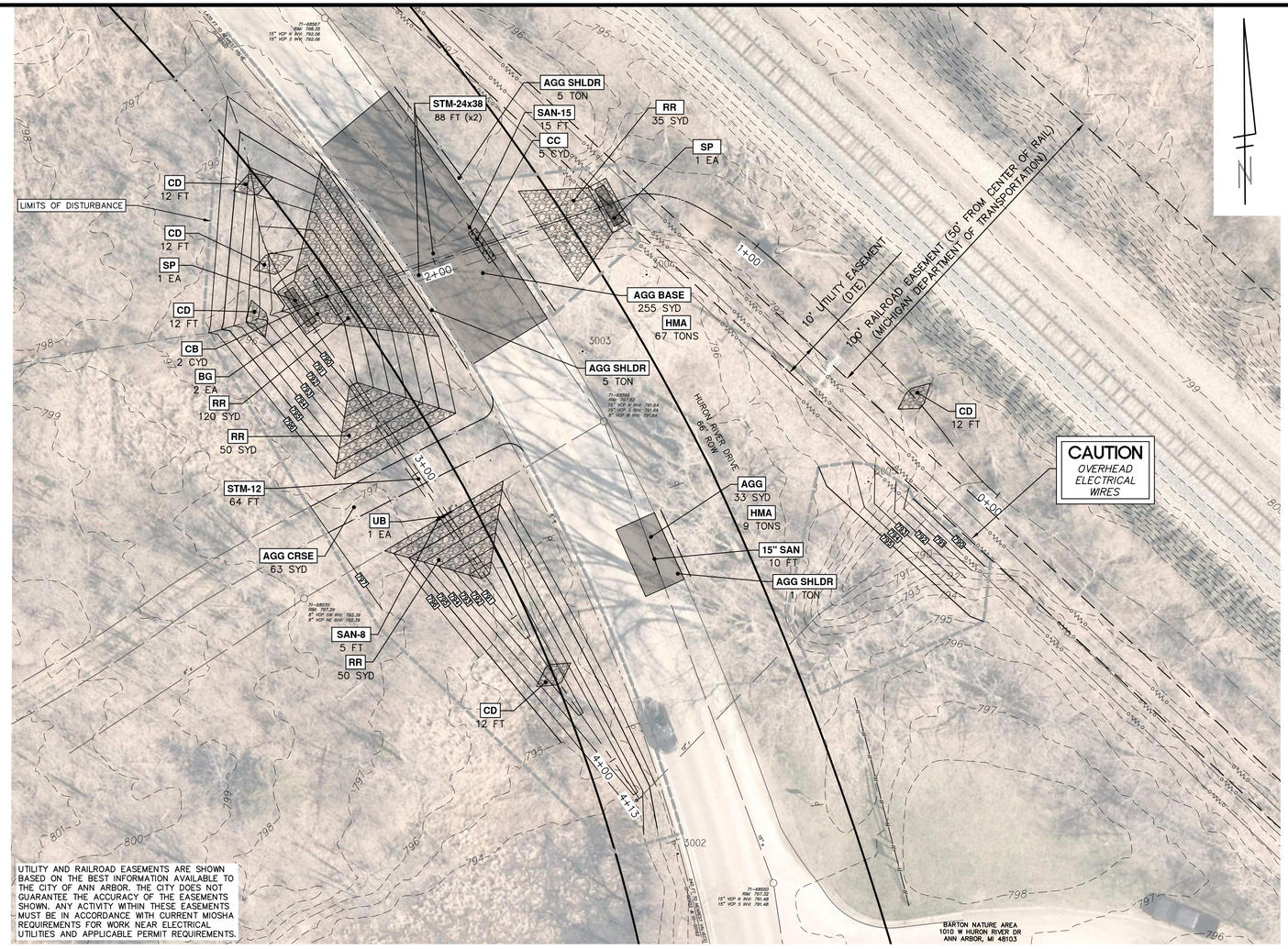
1. PLACEMENT AND SPREADING OF EARTH EXCAVATION SPOILS AT THE OUTLET END OF THE CULVERT SCHEDULED FOR ABANDONMENT IS NOT PERMITTED UNTIL A NEW OUTLET IS PROVIDED.
2. THE TRANSPORTATION AND OFF-SITE DISPOSAL OF ANY AND ALL SURPLUS EARTH EXCAVATION SPOILS SHALL BE CONSIDERED INCIDENTAL TO THE UNIT PRICE BID FOR THE ITEM "EARTH EXCAVATION – CYD" AND WILL NOT BE PAID FOR SEPARATELY.
3. PLACEMENT AND GRADING OF EARTH EXCAVATION SPOILS AT THE LOCATIONS AND TO THE LIMITS AND GRADES INDICATED SHALL BE PAID FOR AS "DS_MACHINE GRADING – SYD."

CONSTRUCTION KEY TABLE

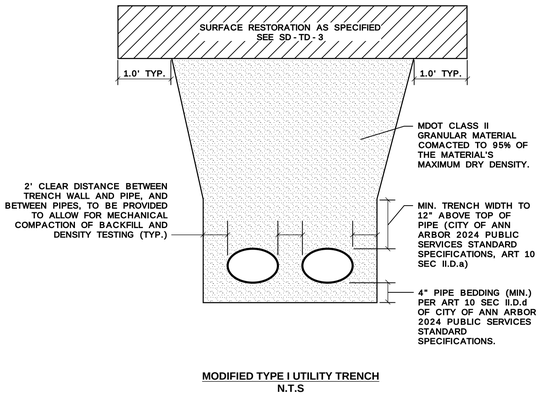
KEY	DESCRIPTION
CD	CHECK DAM
RR	RIPRAP
AGG BASE	AGGREGATE BASE
AGG CRSE	AGGREGATE SURFACE COURSE
AGG SHLDR	AGGREGATE SHOULDER
HMA	HMA PAVEMENT
CC	CONCRETE CRADLE
UB	UTILITY BRIDGE
SP	SCOUR POOL
SAN-8	SANITARY SEWER, 8 IN DIA.
SAN-15	SANITARY SEWER, 15 IN DIA.
STM-12	STORM SEWER, 12 IN DIA (ROUND)
STM-24x38	STORM SEWER, 24x38 IN DIA (ELLIPTICAL)
CB	CLAY BAR
BG	BAR GRATE

CONSTRUCTION QUANTITIES - THIS SHEET

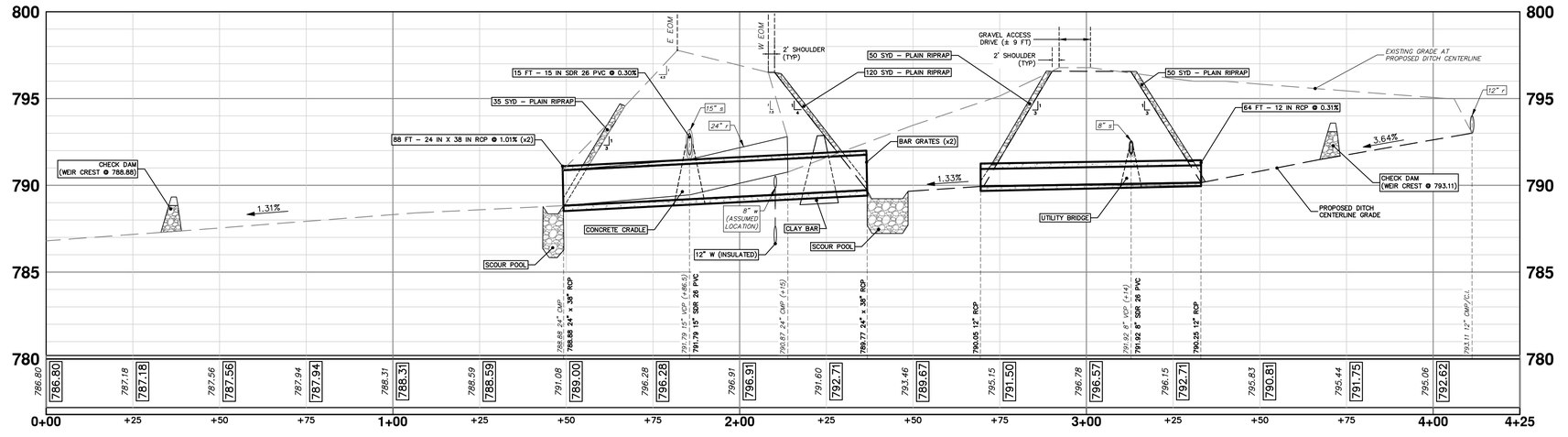
TOTAL	UNIT	DESCRIPTION
60	FT	DS_EROSION CONTROL, CHECK DAM, PERMANENT
99	FT	DS_LAP JOINT
2,030	SYD	DS_MACHINE GRADING
530	CYD	EARTH EXCAVATION
5	FT	8 IN., SDR 26 PVC SANITARY SEWER, SD-TD-2
25	FT	15 IN., SDR 26 PVC SANITARY SEWER, SD-TD-2
64	FT	12 IN., CL IV RCP STORM SEWER, SD-TD-1
176	FT	24 IN. x 38 IN., CL IV RCP STORM SEWER, SD-TD-1
255	SYD	RIPRAP, PLAIN
2	EA	DS_SCOUR POOL
288	SYD	AGGREGATE BASE, 8 IN., 21AA, CIP
63	SYD	AGGREGATE SURFACE COURSE, 8 IN., 23A, CIP
11	TON	AGGREGATE SHOULDER, CL II, 23A
53	TON	HMA, 4EML
31	TON	HMA, 5EML
198	FT	PAVT MRKG, SPRAYABLE THERMOPL, 4 IN., WHITE
198	FT	PAVT MRKG, SPRAYABLE THERMOPL, 4 IN., YELLOW
1,010	SYD	DS_TURF RESTORATION, WETLAND EDGE SEED MIX
390	SYD	DS_TURF RESTORATION, MDOT THV SEED MIX
1,400	SYD	MULCH BLANKET
5	CYD	DS_CONCRETE CRADLE
1	EA	DS_UTILITY BRIDGE
10	CYD	DS_CLAY BAR
2	EA	DS_BAR GRATE



UTILITY AND RAILROAD EASEMENTS ARE SHOWN BASED ON THE BEST INFORMATION AVAILABLE TO THE CITY OF ANN ARBOR. THE CITY DOES NOT GUARANTEE THE ACCURACY OF THE EASEMENTS SHOWN. ANY ACTIVITY WITHIN THESE EASEMENTS MUST BE IN ACCORDANCE WITH CURRENT MIOSHA REQUIREMENTS FOR WORK NEAR ELECTRICAL UTILITIES AND APPLICABLE PERMIT REQUIREMENTS.



MODIFIED TYPE I UTILITY TRENCH
N.T.S



REV.	DESCRIPTION	DATE	DRAWN	CHECKED
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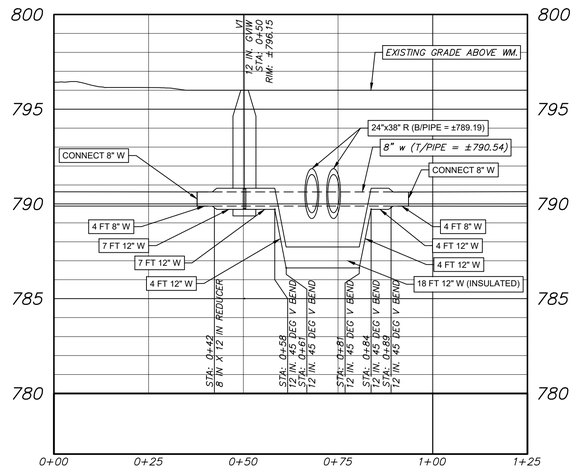
CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

HURON RIVER DRIVE CULVERT REPLACEMENT

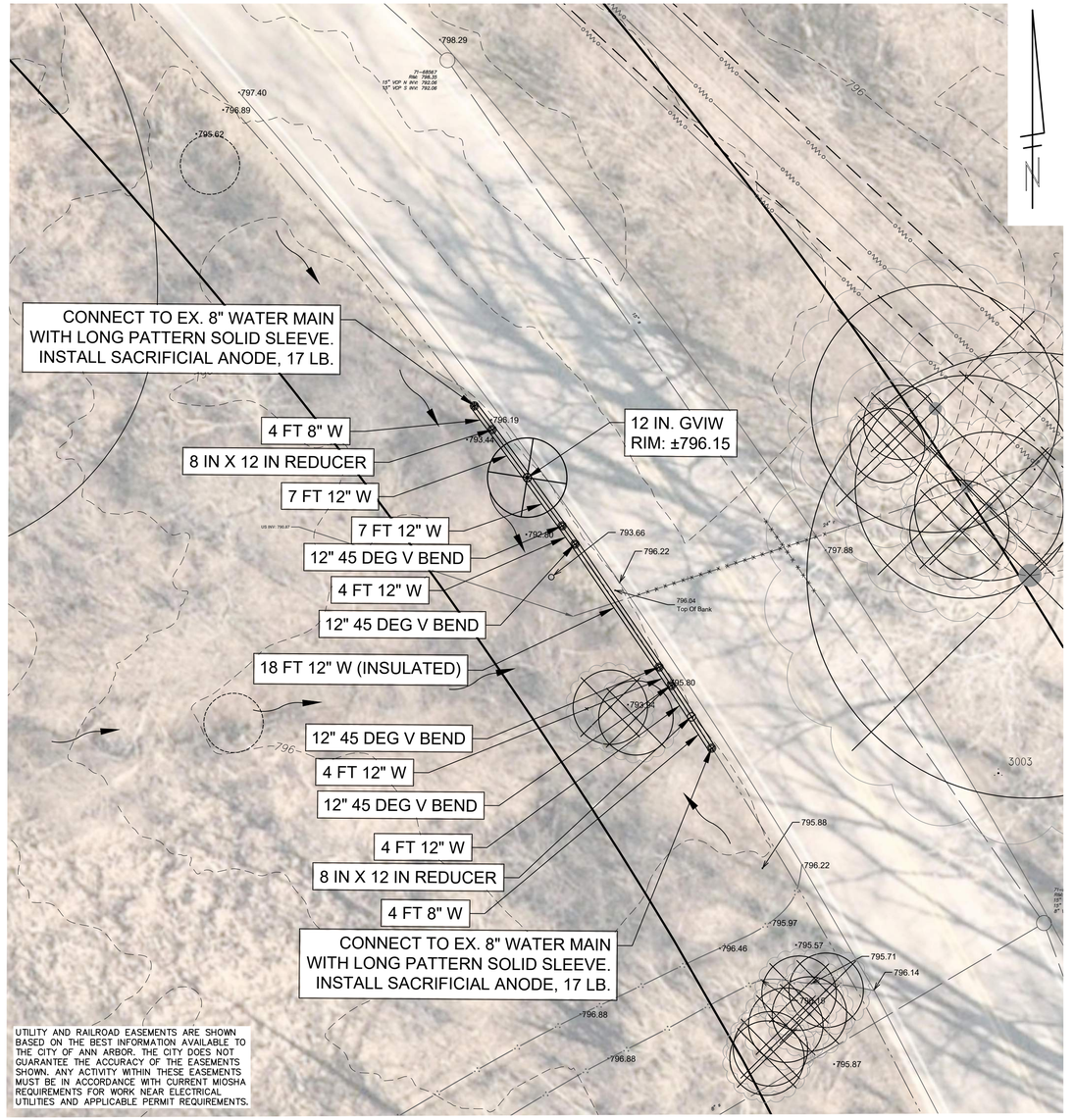
CONSTRUCTION

SCALE: 1" = 20'
PROFILE: 1" = 4'
DRAWING No. 2023-008-8
SHEET No. 8 OF 9



WATER MAIN PROFILE VIEW
SCALE:
VERT: 1" = 4'
HORIZ: 1" = 20'

NOTES:
1. STATION 0+00 IS ALIGNED WITH SANITARY MANHOLE 71-68567.
2. THE PROPOSED 24"x38" CULVERTS ARE CENTERED ABOUT STATION 0+71.
3. APPROXIMATE LIMITS OF REMOVAL AND RELOCATION ARE FROM 0+38 TO 0+94. ACTUAL LIMITS AND LOCATIONS OF REMOVAL AND RELOCATION WORK TO BE DETERMINED BY CITY AFTER EXPLORATORY EXCAVATION WORK IS COMPLETED.



NOTES:
1. WHERE EXISTING WATER MAIN IS EXPOSED FOR A CONNECTION OR APPURTENANCE INSTALLATION, THE CONTRACTOR SHALL INSTALL ONE SACRIFICIAL ANODE ON THE EXISTING PIPE. IF THE NEW FITTING IS INSTALLED IN-LINE WITH THE EXISTING MAIN, SUCH AS AT A CUT-IN TEE OR VALVE INSERTION, ONE ANODE SHALL BE INSTALLED ON THE EXISTING PIPE TO EACH SIDE OF THE NEW FITTING. EACH ANODE INSTALLED ON EXISTING WATER MAIN WILL BE PAID FOR AS "SACRIFICIAL ANODE, ___ LB."
2. THE CONTRACTOR SHALL REMOVE THE NECESSARY PORTIONS OF THE EXISTING WATER MAIN IN ORDER TO FACILITATE THE PROPOSED WATER MAIN RELOCATION WORK. REMOVAL WORK SHALL BE PAID FOR AS "WATER MAIN PIPE, ___ IN. DIA., REM - FT."
3. A DETECTABLE TRACER WIRE SHALL BE INSTALLED THE ENTIRE LENGTH OF THE WATER MAINS, SHALL EXTEND TO ALL HYDRANTS, BLOWOFFS, DEAD ENDS, AND POST INDICATOR VALVES, AND SHALL TERMINATE IN THE GATE VALVES LOCATED AT EACH END OF THE WATER MAIN CONSTRUCTION, OR AS DIRECTED BY THE CITY ENGINEER.
4. FURNISHING AND INSTALLING LONG PATTERN SOLID SLEEVES FOR CONNECTIONS (NEW WM TO EX WM) SHALL BE CONSIDERED INCIDENTAL TO THE UNIT PRICE BID FOR "___ IN., PC 350 DIP W/POLYWRAP, SD-TD-1 - FT," AND WILL NOT BE PAID FOR SEPARATELY.
5. A MINIMUM DISTANCE EQUAL TO 10 FEET FOR EVERY INCH OF PIPE DIAMETER (ID) SHALL BE PROVIDED BETWEEN THE PROPOSED POINTS OF CONNECTION BETWEEN THE NEW AND EXISTING WATER MAINS, AND THE LOCATION OF THE PROPOSED TEMPORARY WATER MAIN LINE STOPS.
6. THE REMOVAL OF EXISTING PAVEMENT REQUIRED FOR TEMPORARY WATER MAIN LINE STOP SHALL BE PAID FOR AS "HMA, ANY THICKNESS, REM - SYD." THE RE-CONSTRUCTION OF ANY AGGREGATE SHOULDER, AGGREGATE BASE, AND/OR HMA PAVEMENT WITHIN THE LIMITS OF A PROPOSED WATER MAIN LINE STOP SHALL BE PAID FOR AS "AGGREGATE SHOULDER, CL II, 23A - TON." "AGGREGATE BASE, 8 IN., 21AA, CIP - SYD." AND "HAND PATCHING - TON," RESPECTIVELY.
7. **THE LOCATION OF PROPOSED CONNECTION LOCATIONS, FITTINGS, AND VALVES ARE SHOWN BASED ON LIMITED INFORMATION AVAILABLE TO THE CITY OF ANN ARBOR FOR THE EXISTING 8 IN WATER MAIN IN THIS AREA. IT IS THE OWNER'S INTENT TO HAVE AN EXPLORATORY INVESTIGATION PERFORMED BY THE CONTRACTOR PRIOR TO ANY OTHER WORK BEGINNING, IN ORDER TO CONFIRM THE HORIZONTAL AND VERTICAL LOCATION OF THE EXISTING 8 IN WATER MAIN. THE LOCATION OF PROPOSED VALVES, FITTINGS, AND CONNECTION POINTS MAY BE REVISED BY THE OWNER BASED ON THE CONFIRMED LOCATION OF THE EXISTING WATER MAIN.**

WATER MAIN QUANTITIES - THIS SHEET

TOTAL	UNIT	DESCRIPTION
8	FT	8 IN., PC 350 DIP W/POLYWRAP, SD-TD-1
44	FT	12 IN., PC 350 DIP W/POLYWRAP, SD-TD-1
4	EA	12 IN. 45 DEG DIP BEND
2	EA	8 IN. X 12 IN. DIP REDUCER
1	EA	DS_GATE VALVE IN WELL, 12 IN.
2	EA	SACRIFICIAL ANODE, 17-POUND
2	EA	TEMPORARY WATER MAIN LINES STOP, 8 IN. OR LESS
56	FT	WATER MAIN PIPE, 8 IN. DIA., REM

WATER MAIN STRUCTURE TABLE

STRUCTURE	TYPE	STATION	RIM	DEPTH T/P	DIAMETER	COVER TYPE
V1	GVIW	N/A	±796.15	±5.75	60 IN.	MDOT TYPE B

Know what's below. Call before you dig.

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
1	ISSUED FOR BIDS	4/22/2024	NTM/JWK	BH1/JVB
2				
3				
4				
5				

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

HURON RIVER DRIVE CULVERT REPLACEMENT

WATER MAIN

SCALE: 1" = 10' | PROFILE: NA | DRAWING No. 2023-008-9

SHEET No. 9 OF 9