



# CITY OF ANN ARBOR PUBLIC SERVICES - ENGINEERING

IN COOPERATION WITH THE  
UNIVERSITY OF MICHIGAN

# NICHOLS ARBORETUM SANITARY SEWER LINING

ITB No. 4686, FILE No. 2021-015

**NOTES:**

FOR PROTECTION OF UNDERGROUND UTILITIES AND IN CONFORMANCE WITH PUBLIC ACT 53, 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.

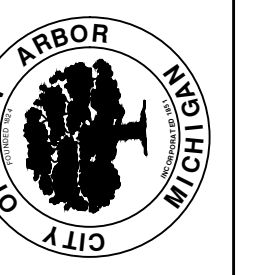
THE UNDERGROUND LOCATIONS SHOWN FOR NATURAL GAS, TELEPHONE, ELECTRICAL POWER, CABLE TV AND FIBER OPTIC LINES ARE APPROXIMATE. THE CITY OF ANN ARBOR, THE UNIVERSITY OF MICHIGAN, AND FISHBEEK ASSUMES NO RESPONSIBILITY FOR THEIR ACCURATE REPRESENTATION IN THESE DRAWINGS. MISS DIG MUST BE CONTACTED PRIOR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

THE CONSTRUCTION COVERED BY THESE PLANS SHALL CONFORM TO THE 1994 EDITION OF THE CITY OF ANN ARBOR PUBLIC SERVICES DEPARTMENT STANDARD SPECIFICATIONS, ITS 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.



REV.	DESCRIPTION	DATE	DRAWN	CHECKED
	ISSUED FOR BID	07-06-2021		

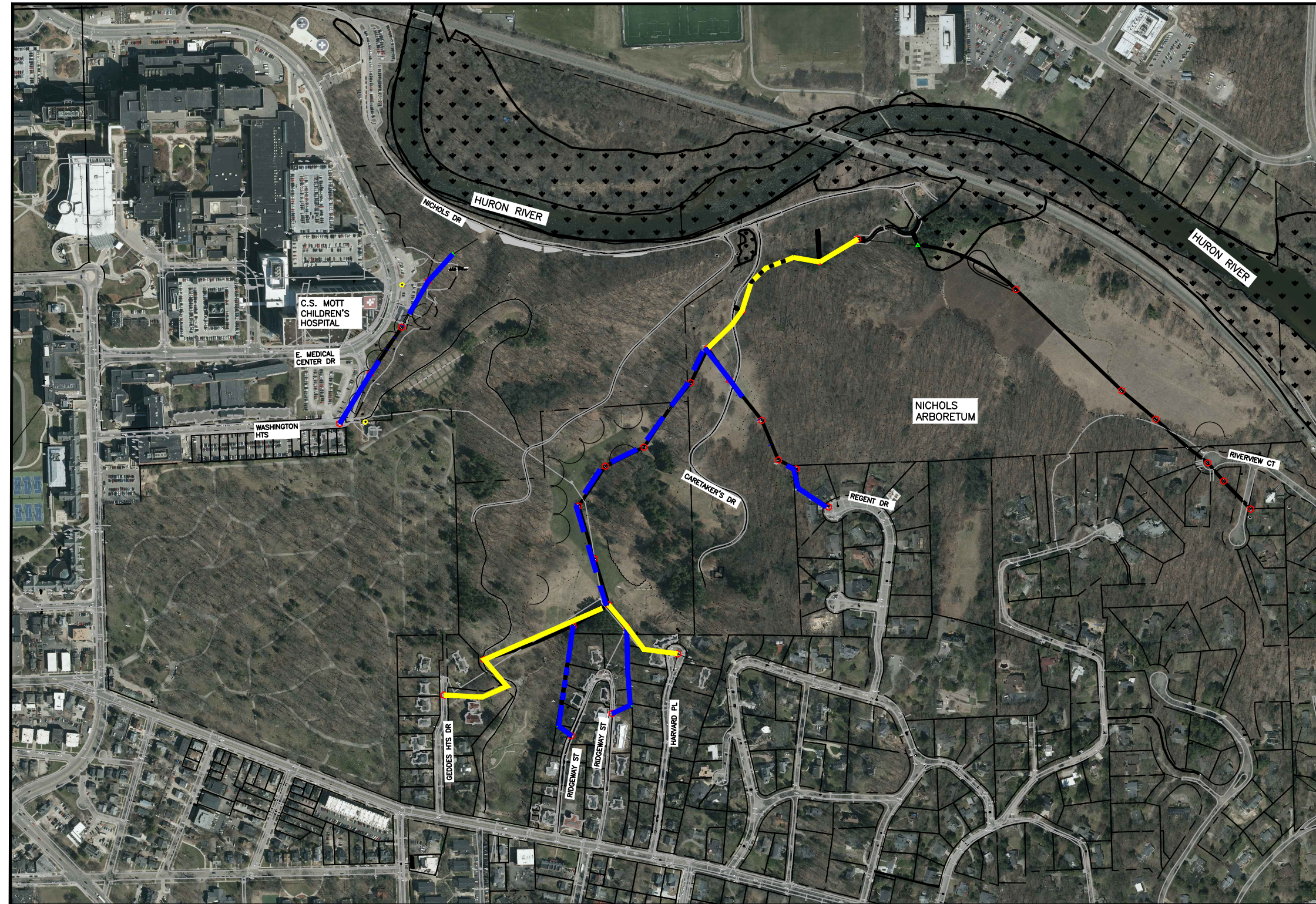
CITY OF ANN ARBOR  
PUBLIC SERVICE  
301 EAST HURON STREET  
ANN ARBOR, MI 48107-8647  
734-794-6410  
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PUBLIC SERVICES-ENGINEERING - CITY OF ANN ARBOR  
NICHOLS ARBORETUM SANITARY SEWER LINING  
COVER SHEET  
SCALE PLAN:  
DRAWING No.  
2021-015 -G1

SHEET No.  
G-1

Z:\2019\190408\CAD\CD\1\_210912 - Nichols Arboretum Sanitary Sewer Lining (Segments 1-6)\G-1 COVER SHEET\_1.dwg Dwg Created: 21-Jun-21 - standard (reduced).ctb - Plot Date: 6-Jul-21



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STATE OF MICHIGAN  
DOUGLAS A. DUNN  
REGISTERED PROFESSIONAL ENGINEER  
60529  
5/22/20

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- ALL THE DRAWINGS MUST BE PRINTED IN COLOR
- CONTACT CITY OF ANN ARBOR FOR THE SEWER TAP INFORMATION

**GENERAL NOTES:**

- ALL WORK SHALL CONFORM TO THE LATEST REVISIONS OF THE CITY OF ANN ARBOR STANDARD SPECIFICATIONS AND THE MICHIGAN DEPARTMENT OF TRANSPORTATION (MDOT) 2012 STANDARD SPECIFICATIONS FOR CONSTRUCTION AS APPLICABLE.
- 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.
- LOCATION AND DEPTH OF EXISTING UTILITIES AND SERVICE LEADS AS DEPICTED ON THE PLANS ARE APPROXIMATE AND SHOWN ACCORDING TO THE BEST INFORMATION AVAILABLE AND ARE TO BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO PERFORMING THE WORK. IT IS THE CONTRACTOR'S RESPONSIBILITY TO EXCAVATE AHEAD AND DETERMINE THE PRECISE HORIZONTAL AND VERTICAL LOCATION OF THESE UTILITIES. THE CONTRACTOR SHALL REPORT IN WRITING ANY CONFLICTS SO THAT THE ENGINEER MAY DETERMINE AN APPROPRIATE COURSE OF ACTION. THIS WORK WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE RELATED CONTRACT ITEMS OF WORK. ANY DAMAGE TO UTILITIES IS THE CONTRACTOR'S RESPONSIBILITY TO REPAIR AS NECESSARY.
- THE CONTRACTOR IS SOLELY RESPONSIBLE FOR ANY DELAYS, DAMAGES, COSTS AND/OR CHARGES INCURRED DUE TO AND/OR BY REASON OF ANY UTILITY, STRUCTURE, FEATURES AND/OR SITE CONDITION, WHETHER SHOWN ON THE PLANS OR NOT. THE CONTRACTOR SHALL REPAIR AND/OR REPLACE, AT ITS SOLE EXPENSE, TO AS GOOD OR BETTER CONDITION, ANY AND ALL UTILITIES, STRUCTURES, FEATURES AND/OR SITE CONDITIONS WHICH ARE IMPACTED BY REASON OF THE WORK, OR INJURED BY ITS OPERATIONS, OR DURING THE OPERATIONS OF ITS SUBCONTRACTORS OR SUPPLIERS.
- NO EXTRA PAYMENTS OR ADJUSTMENTS TO UNIT PRICES WILL BE MADE FOR DAMAGES, DELAYS, COSTS AND/OR CHARGES DUE TO EXISTING UTILITIES, STRUCTURES, FEATURES AND/OR SITE CONDITIONS NOT SHOWN OR BEING INCORRECTLY SHOWN OR REPRESENTED ON THE PLANS.
- DURING NON-WORKING HOURS ANY OPEN TRENCH, EXCAVATION OR SANITARY STRUCTURE SHALL BE PROPERLY SECURED WITH PROTECTIVE FENCING AND TEMPORARY COVER. TEMPORARY COVER(S) OVER SANITARY CHAMBERS SHALL BE CAPABLE OF WITHSTANDING THE WEIGHT OF A HUMAN/DEER. THIS WORK WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE ITEM OF WORK "GENERAL CONDITIONS".
- THE CONTRACTOR SHALL BACKFILL TRENCHES OR EXCAVATIONS IN ACCORDANCE WITH TRENCH DETAIL(S) SPECIFIED ON PLANS. THIS WORK WILL NOT BE CONSIDERED ADDITIONAL AND SHALL BE INCLUDED IN THE APPROPRIATE ITEM OF WORK.
- THE CONTRACTOR SHALL MAINTAIN ACCESS TO GEDDES HTS. DR, RIDGEWAY ST, HARVARD PL, REGENT DR., RIVERVIEW CT, E. MEDICAL CENTER DRIVE, LOT M29, THE ARBORETUM, NICHOLS DRIVE AND THE CARETAKER'S RESIDENCE THROUGHOUT THE COURSE OF PROJECT AS INDICATED ON THE DRAWINGS AND IN THE SPECIFICATIONS.
- ALL CASTINGS AND FITTINGS REMOVED DURING CONSTRUCTION ARE THE PROPERTY OF THE CITY OF ANN ARBOR. THE CONTRACTOR, WITHIN 48 HOURS, SHALL DELIVER THEM TO THE CITY OF ANN ARBOR W.R. WHEELER SERVICE CENTER LOCATED AT 4251 STONE SCHOOL ROAD. THIS WORK WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE RELATED ITEMS OF WORK.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CONTINUOUS MAINTENANCE OF THE TEMPORARY TRAFFIC CONTROL DEVICES AND SOIL EROSION CONTROL MEASURES WITHIN THE PROJECT AREA AND APPROACHES TO PROJECT SITE, UNTIL THE FINAL COMPLETION OF THE PROJECT. THIS WORK WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE RELATED ITEMS OF WORK.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CONTINUOUS MAINTENANCE OF THE TEMPORARY ROAD SURFACE, NICHOLS DRIVE WITHIN THE PROJECT AREA AND APPROACHES TO PROJECT SITE, AND FEATURES WITHIN THE ARBORETUM, UNTIL THE FINAL COMPLETION OF THE PROJECT. ANY DAMAGE TO EXISTING ROAD SURFACES, STRUCTURES, AND/OR FEATURES WITHIN THE PROJECT LIMITS AND APPROACHES TO PROJECT SITE, SHALL BE REPAIRED TO EXISTING OR BETTER CONDITION. THIS WORK WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE ITEM OF WORK "GENERAL CONDITIONS".
- THE LOCATION OF MATERIAL STOCK PILES AND ON-SITE STAGING AREAS TO BE APPROVED BY THE ENGINEER, U OF M AND NICHOLS ARBORETUM STAFF. ANY MATERIALS STOCKPILED OR STORED SHALL NOT CREATE AN EROSION PROBLEM, INTERFERE WITH DRAINAGE, OR CREATE INSUFFICIENT SIGHT DISTANCE.
- CONTRACTOR SHALL AT NO TIME OBSTRUCT ANY OF THE TRAFFIC LANES ON E. MEDICAL CENTER DRIVE WITH TRUCKS, EQUIPMENT, DELIVERIES, ETC., UNLESS AS APPROVED BY THE ENGINEER AND UNIVERSITY OF MICHIGAN.
- CONTRACTOR IS RESPONSIBLE FOR ALL SNOW AND ICE REMOVAL ALONG NICHOLS DRIVE FROM E. MEDICAL CENTER DRIVE TO THE NICHOLS ARBORETUM ENTRANCE GATE, AREAS WITHIN NICHOLS ARBORETUM INDICATED AS WORK AREAS AND ALL AREAS ALONG NICHOLS DRIVE BETWEEN THESE AREAS. ALL COSTS ASSOCIATED WITH THIS WORK WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE ITEM OF WORK, "GENERAL CONDITIONS."
- ALL TEMPORARY MAINTENANCE OF TRAFFIC MATERIALS (SIGNS, BARRICADES, CHANNELIZING DEVICES, TEMPORARY AGGREGATE, CULVERTS, ETC.) SHALL BE REMOVED FROM THE SITE AND PROPERLY DISPOSED OF BY THE CONTRACTOR UPON COMPLETION OF THE WORK. ALL COSTS ASSOCIATED WITH THIS WORK WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE RELATED ITEMS OF WORK.
- RESTORE ALL WORK AND STAGING AREAS TO A CONDITION THAT IS EQUAL TO, OR BETTER THAN, THAT WHICH EXISTED PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. THIS WORK WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE ITEM OF WORK "PROJECT CLEAN-UP AND RESTORATION,
- FOR WORK ZONES IN THE ARBORETUM CONTRACTOR SHALL ERECT WORK ZONE & INGRESS/EGRESS BOUNDARIES USING TEMPORARY FENCING (STANDARD 4-FOOT TALL ORANGE PLASTIC SAFETY FENCE OR ENGINEER APPROVED EQUAL) BOUNDARIES SHALL BE ESTABLISHED ON SITE WITH OWNER & ARBORETUM STAFF MINIMUM 2 WEEKS PRIOR TO THE START OF WORK.
- FOR INGRESS/EGRESS PURPOSES TEMPORARY FENCE SHALL BE PLACED NO WIDER THAN 20' APART OR OFFSET FROM THE TREELINE.
- CONTRACTOR SHALL NOT TRAVERSE OPEN AREAS OF THE ARBORETUM OUTSIDE OF THE TEMPORARY FENCING.
- ALL PEDESTRIAN CROSSINGS IN ALL WORK AREAS SHALL BE ADA COMPLIANT.
- CONTRACTOR SHALL MAINTAIN VEHICULAR ACCESS TO ALL DRIVEWAYS AT ALL TIMES.

- FOR WORK ZONES ON PUBLIC STREETS, BARRICADES MAY NOT BE SET MORE THAN 24 HOURS IN ADVANCE OF THE WORK. BARRICADES MUST BE REMOVED WITHIN 24 HOURS OF COMPLETION OF THE WORK.
- THE CONTRACTOR SHALL OBTAIN A HYDRANT METER, BACKFLOW PREVENTER AND VANDAL-RESISTANT CAGE TO PROTECT HYDRANT METER. CONTACT CITY OF ANN ARBOR CUSTOMER SERVICES UNIT TO DETERMINE THE FEES AND ARRANGE FOR INSTALLATION OF EQUIPMENT. THIS WORK WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE RELATED ITEMS OF WORK.
- THE CONTRACTOR SHALL PROTECT THE FIRE HYDRANT AND BACKFLOW PREVENTER FROM FREEZING AND DAMAGE. ALL COSTS ASSOCIATED WITH THIS WORK WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE ITEM OF WORK "GENERAL CONDITIONS".
- RESTORE ALL WORK AND STAGING AREAS TO A CONDITION THAT IS EQUAL TO, OR BETTER THAN, THAT WHICH EXISTED PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. THIS WORK WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE ITEM OF WORK "PROJECT CLEAN-UP AND RESTORATION, SPECIAL."

**DESCRIPTION OF SITE AND EXPECTED BEHAVIOR:**

NICHOLS ARBORETUM (THE ARBORETUM) IS 123 ACRE PARCEL OF LAND THAT IS JOINTLY OWNED BETWEEN THE UNIVERSITY OF MICHIGAN AND THE CITY OF ANN ARBOR. THE ARBORETUM IS COMPRISED OF SEVERAL DIFFERENT BOTANICAL AREAS CONSISTING OF VARIOUS TYPES OF GROUND COVER, NATIVE PRAIRIE AREAS, WETLANDS, WOODLANDS, AND THE HURON RIVER. THERE ARE HUNDREDS OF DIFFERENT AND UNIQUE TYPES OF PLANTS, TREES, AND WILDLIFE CONTAINED WITHIN THE ARBORETUM. ALSO, THERE ARE WALKING TOURS, SPECIAL EVENTS, AND SEVERAL OTHER USES OF THE ARBORETUM ON A DAILY AND WEEKLY BASIS. CONSEQUENTLY, THE AREA SURROUNDING THE WORK AREA IS TO BE PRESERVED TO THE GREATEST EXTENT POSSIBLE.

TO THIS END, THE CONTRACTOR AND THEIR FORCES WILL NOT BE ALLOWED TO PARK VEHICLES INDISCRIMINATELY ALONG WASHINGTON HEIGHTS, GEDDES HEIGHT, RIDGEWAY ST, HARVARD PL, REGENT DR, RIVERVIEW DR., NICHOLS DRIVE OR OTHER AREAS OF THE ARBORETUM, DISTURB AREAS THAT ARE NOT DIRECTLY IMPACTED BY THE CONSTRUCTION, LITTER, OR OTHERWISE DAMAGE THE PREMISES. THE CONTRACTOR'S EMPLOYEES ARE EXPECTED TO RESPECT THE AREA AND ALL ITS USERS. DISORDERLY OR INTEMPERATE EMPLOYEE BEHAVIOR WILL NOT BE TOLERATED AND MAY RESULT IN THE EMPLOYEE'S REMOVAL FROM THE JOBSITE.

THE CONTRACTOR IS EXPECTED TO WORK IN A HARMONIOUS MANNER WITH THE USERS OF THE ARBORETUM, CITY OF ANN ARBOR AND UNIVERSITY OF MICHIGAN STAFF, AND THE PUBLIC IN GENERAL.

THERE IS SIGNIFICANT PEDESTRIAN TRAFFIC IN ALL AREAS OF THE ARBORETUM YEAR ROUND. MAINTENACE OF TRAFFIC PLANS REFELECT THE MINIMUM ANTICIPATED LEVEL OF EFFORT REQUIRED. ADDITIONAL SIGNAGE/BARRICADES MAY BE REQUIRED AS DIRECTED BY THE ENGINEER.

**NATURAL FEATURES PROTECTION PLAN**

- PROJECT PURPOSE
  - THE NICHOLS ARBORETUM SANITARY SEWER CONVEYS WASTEWATER FROM THE CITY OF ANN ARBOR, THE UNIVERSITY OF MICHIGAN HOSPITAL, SURROUNDING COMMUNITY, BUSINESSES AND OTHER UNIVERSITY FACILITIES. THESE PORTIONS OF SANITARY SEWER IS DIFFICULT TO ACCESS AND MAINTAIN.
  - THE NICHOLS ARBORETUM SANITARY SEWER REHABILITATION PROJECT IS ESSENTIAL TO MAINTAINING THE INTEGRITY OF THE CITY OF ANN ARBOR'S INFRASTRUCTURE, ELIMINATING SUSCEPTIBILITY OF LEAKING JOINTS, COLLAPSING PIPES AND SANITARY SEWER OVERFLOWS (SSOs) TO THE ADJACENT PARK AND HURON RIVER.
  - PRESERVING THE NATURAL FEATURES AND RECREATIONAL AESTHETIC OF THE NICHOLS ARBORETUM TO MAXIMUM EXTENT POSSIBLE WAS A CRITICALLY IMPORTANT CONSIDERATION IN EVERY STAGE OF THE PROJECT'S DESIGN.
- ADDITIONAL NATURAL FEATURES LOCATED WITHIN THE PROJECT LIMITS INCLUDE:
  - WETLANDS
  - WATERCOURSE (HURON RIVER)
  - ENDANGERED SPECIES HABITAT
  - STEEP SLOPES
- NATURAL FEATURES PROTECTION PLAN:
  - TREES:
    - ALL TREES ARE TO BE PRESERVED AND PROTECTED.
    - CONTRACTOR SHALL TAKE ALL MEASURES NECESSARY TO PRESERVE TREES.
  - HURON RIVER WATERCOURSE:
    - THE RIVER SHALL BE PROTECTED AT ALL TIMES FROM THE IMPACTS OF WORK DONE IN THE AREA.
    - BYPASS PUMPING OPERATIONS SHALL INCLUDE DAILY INSPECTION OF DISCHARGE PIPING INTEGRITY AND CONTAINMENT FOR DIESEL GENERATOR/PUMPS, AS REQUIRED.

**CLEARING AND RESTORATION**

- SEWER SEGMENT 1 IS LOCATED ON U OF M PROPERTY. ANY CLEARING REQUIRED SHALL BE PERFORMED BY U OF M STAFF. ALL RESTORATION SHALL BE PERFORMED BY THE CONTRACTOR TO THE SATISFACTION OF U OF M.
- THE REMAINING SEWER SEGMENTS ON THIS PROJECT ARE LOCATED ON ARBORETUM PROPERTY AND PRIVATE PROPERTY.
- FOR ARBORETUM PROPERTY ALL CLEARING SHALL BE PERFORMED BY THE ARBORETUM STAFF. RESTORATION OF WOODED AREAS SHALL BE PERFORMED BY THE ARBORETUM STAFF. RESTORATION OF LAWN AREAS SHALL BE PERFORMED BY THE CONTRACTOR. NO OUTSIDE MATERIALS SHALL BE BROUGHT INTO THE ARBORETUM WITHOUT ARBORETUM STAFF APPROVAL.
- FOR PRIVATE PROPERTY ALL CLEARING SHALL BE PERFORMED BY THE CONTRACTOR. CONTRACTOR SHALL NOT CLEAR BEYOND THE LIMITS OF THE EXISTING EASEMENTS WITHOUT WRITTEN PERMISSION OF THE PROPERTY OWNER. ALL RESTORATION SHALL BE PERFORMED TO THE SATISFACTION OF THE PROPERTY OWNER.
- SIGNIFICANT TREES EXIST IN ALL AREAS WITHIN THE PROJECT LIMITS. ALL TREES SHALL BE PRESERVED AND PROTECTED AS SHOWN ON THE DRAWINGS AND AS INDICATED IN THE SPECIFICATIONS, UNLESS OTHERWISE SHOWN FOR REMOVAL.
- CONTRACTOR SHALL ENDEAVOR TO AVOID TIRE RUTS IN THE ARBORETUM. PRIOR TO MOBILIZING EQUIPMENT INTO THE ARBORETUM AND EACH DAY THEREAFTER, THE CONTRACTOR SHALL EVALUATE THE FIRMNNESS OF THE SOIL. USE OF PLANKS, WOOD OR PLATES SHALL BE REVIEWED WITH THE CITY AND ARBORETUM STAFF PRIOR TO PLACEMENT. ANY TIRE RUTTING CAUSED BY CONTRACTORS OPERATIONS SHALL BE REGRADED BY THE CONTRACTOR AT NO ADDITIONAL COST TO OWNER. REGRADED AREAS IN THE PRAIRIE SHALL BE RESTORED BY ARBORETUM STAFF. REGRADED LAWN AREAS SHALL BE RESTORED BY THE CONTRACTOR. ANY REQUIRED SOIL EROSION CONTROL MEASURES THAT MUST BE PLACED AROUND THE REGRADED AREAS SHALL BE PROVIDED BY THE CONTRACTOR AT NO ADDITIONAL COST TO OWNER.

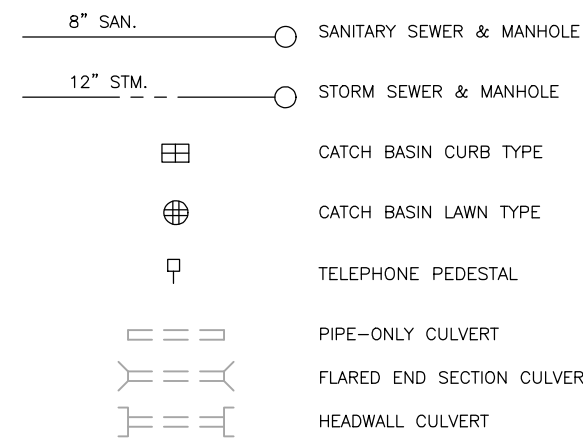
**PERMITS REQUIRED TO BE OBTAINED BY THE CONTRACTOR PRIOR TO THE BEGINNING OF THE WORK.**

PERMIT	ISSUING AUTHORITY
TRAFFIC CONTROL 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 & UNIVERSITY OF MICHIGAN
ACCESS AGREEMENT	
* NO COST TO CONTRACTOR	

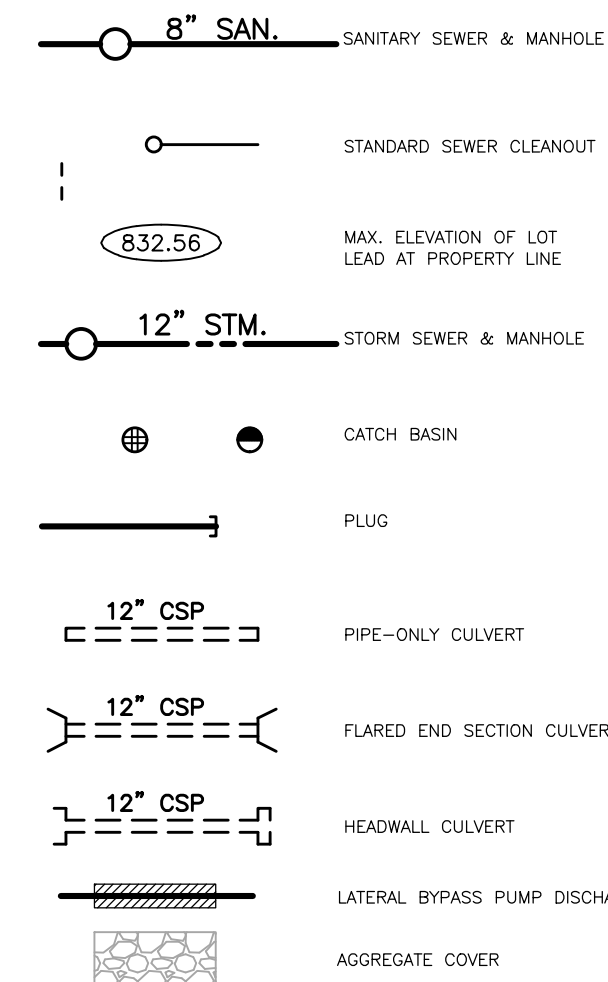
**CONTACT INFORMATION**

PUBLIC UTILITIES	OWNER	CONTACT
WATER		DAN WOODEN (734) 794-6350
SANITARY		TRAVIS CONLEY (734) 794-6350
STORM	CITY OF ANN ARBOR FIELD OPERATIONS SERVICE UNIT W.R. WHEELER SERVICE CENTER 4251 STONE SCHOOL ROAD ANN ARBOR, MI 48108	KEVIN SNYDER (734) 794-6350
FORESTRY		MATT WALDSMITH (734) 794-6350
SIGNS SIGNALS STREET LIGHTS		CHUCK FOJTIK (734) 794-6361
PRIVATE UTILITIES	OWNER	CONTACT
GAS	DTE ENERGY 3150 E. MICHIGAN AVE, YPSILANTI TOWNSHIP, MI 48198 LAURIE FORRESTER	(734) 544-7818 (313) 389-7261
ELECTRIC	DTE ENERGY WESTERN WAYNE SERVICE CENTER 8001 HAGGERTY ROAD BELLEVILLE, MI 48111 JULIE GOTTARDI	(734) 397-4112 (734) 397-4303
CABLE	COMCAST 27800 FRANKLIN ROAD SOUTHFIELD, MI 48034	(313) 999-8300
PHONE	AT&T 550 S. MAPLE ROAD ANN ARBOR, MI 48103	(734) 996-2135
FIBER OPTIC	MCI 2800 N. GLENFILLE ROAD RICHARDSON, TX 75082	(972) 729-6016

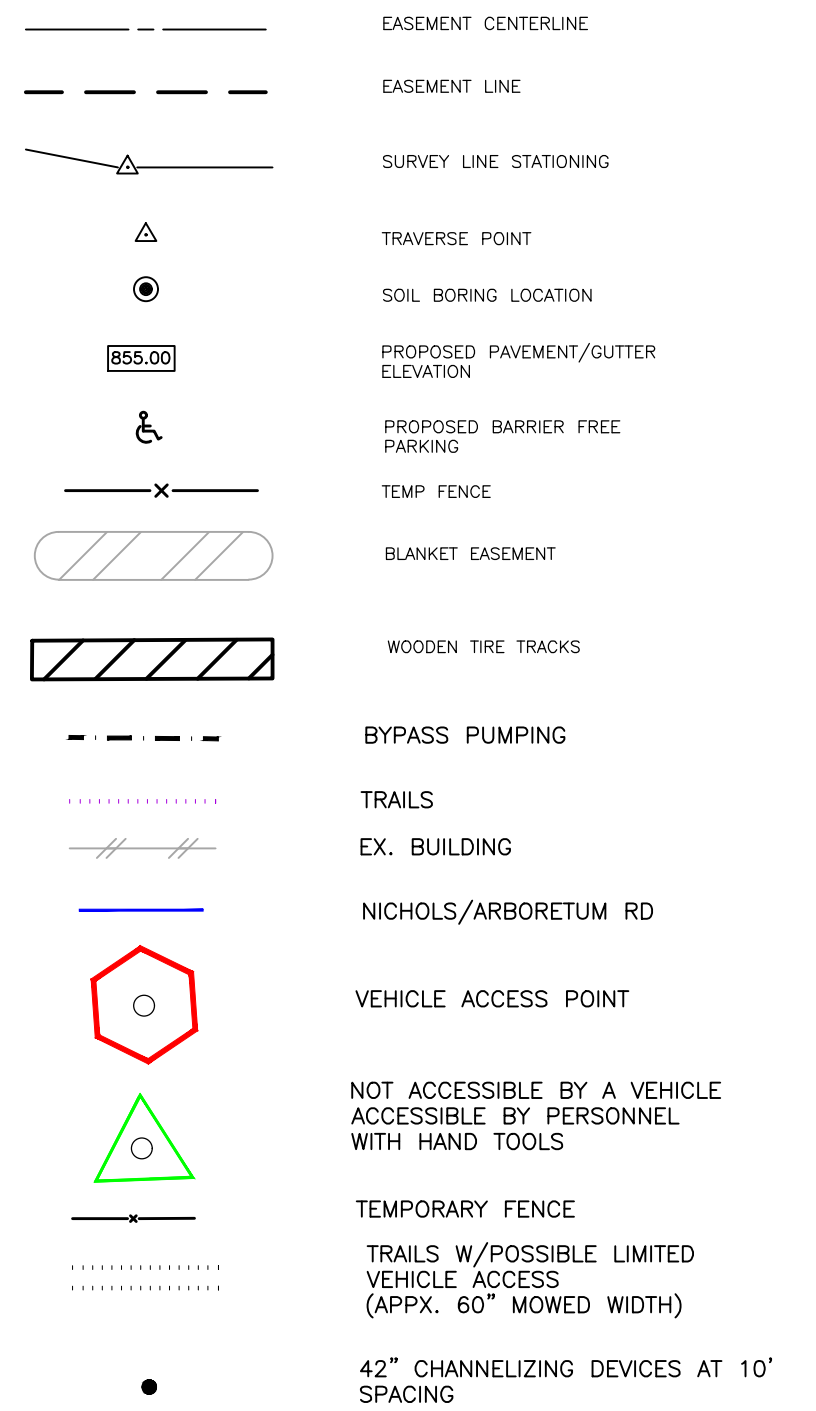
**EXISTING UTILITIES**



**PROPOSED UTILITIES**



**MISCELLANEOUS**



ISSUED FOR BID	DATE	DRAWN	CHECKED
	07-06-2021		

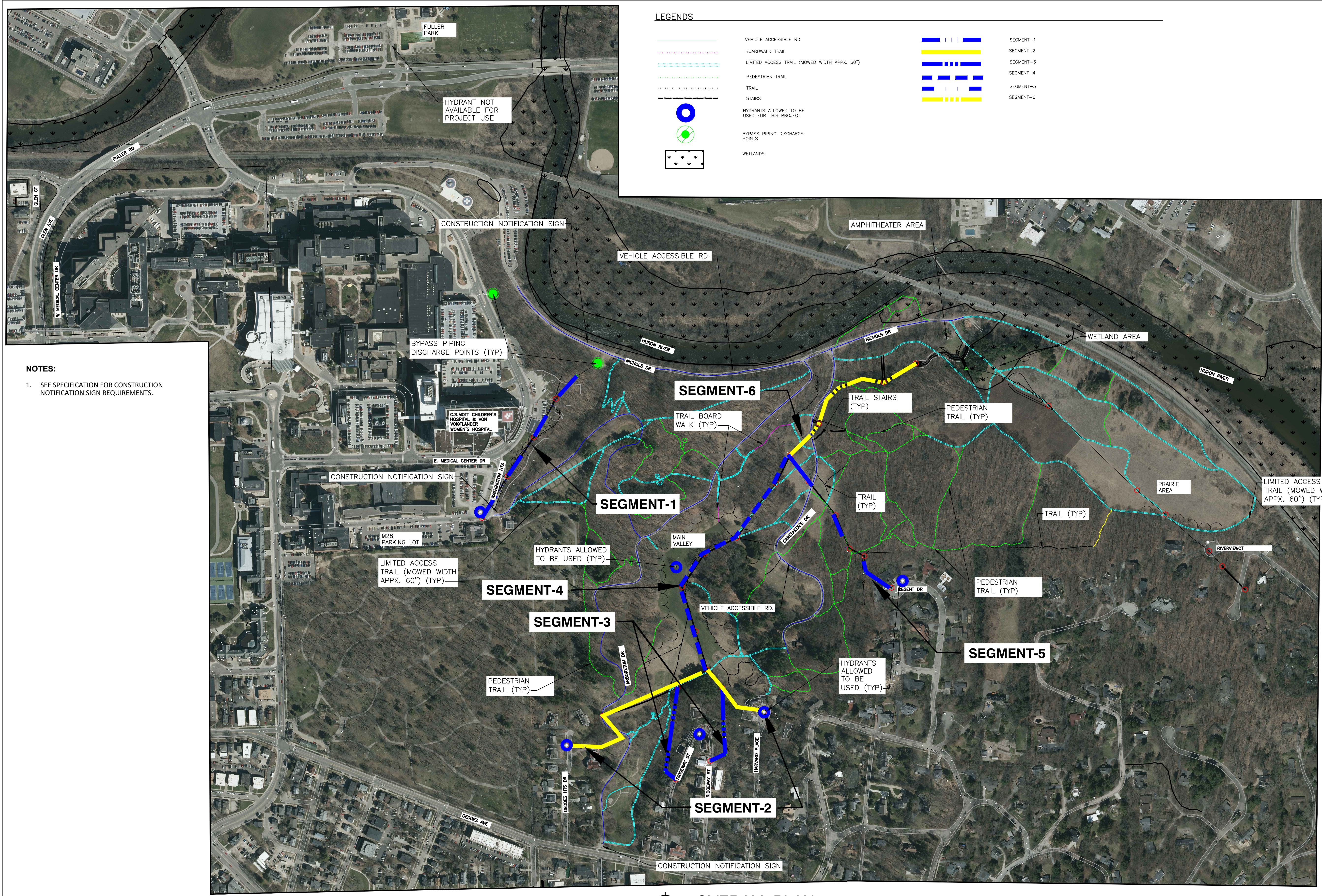
CITY OF ANN ARBOR  
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**PUBLIC SERVICES-ENGINEERING - CITY OF ANN ARBOR**  
**NICHOLS ARBORETUM SANITARY SEWER LINING**  
**NOTES & LEGENDS**

SCALE PLAN:  
DRAWING No.  
**2021-015-C1**

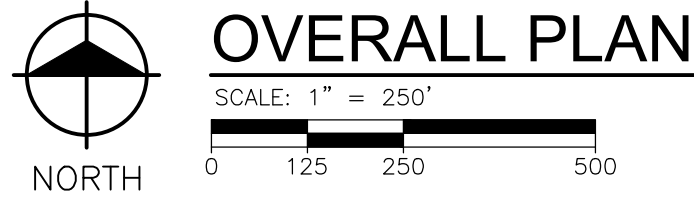
SHEET No.  
**C-1**



- NOTES:**
- SEE SPECIFICATION FOR CONSTRUCTION NOTIFICATION SIGN REQUIREMENTS.

**LEGENDS**

	VEHICLE ACCESSIBLE RD		SEGMENT-1
	BOARDWALK TRAIL		SEGMENT-2
	LIMITED ACCESS TRAIL (MOWED WIDTH APPX. 60')		SEGMENT-3
	PEDESTRIAN TRAIL		SEGMENT-4
	TRAIL		SEGMENT-5
	STAIRS		SEGMENT-6
	HYDRANTS ALLOWED TO BE USED FOR THIS PROJECT		
	BYPASS PIPING DISCHARGE POINTS		
	WETLANDS		



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

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
	ISSUED FOR BID	07-06-2021		

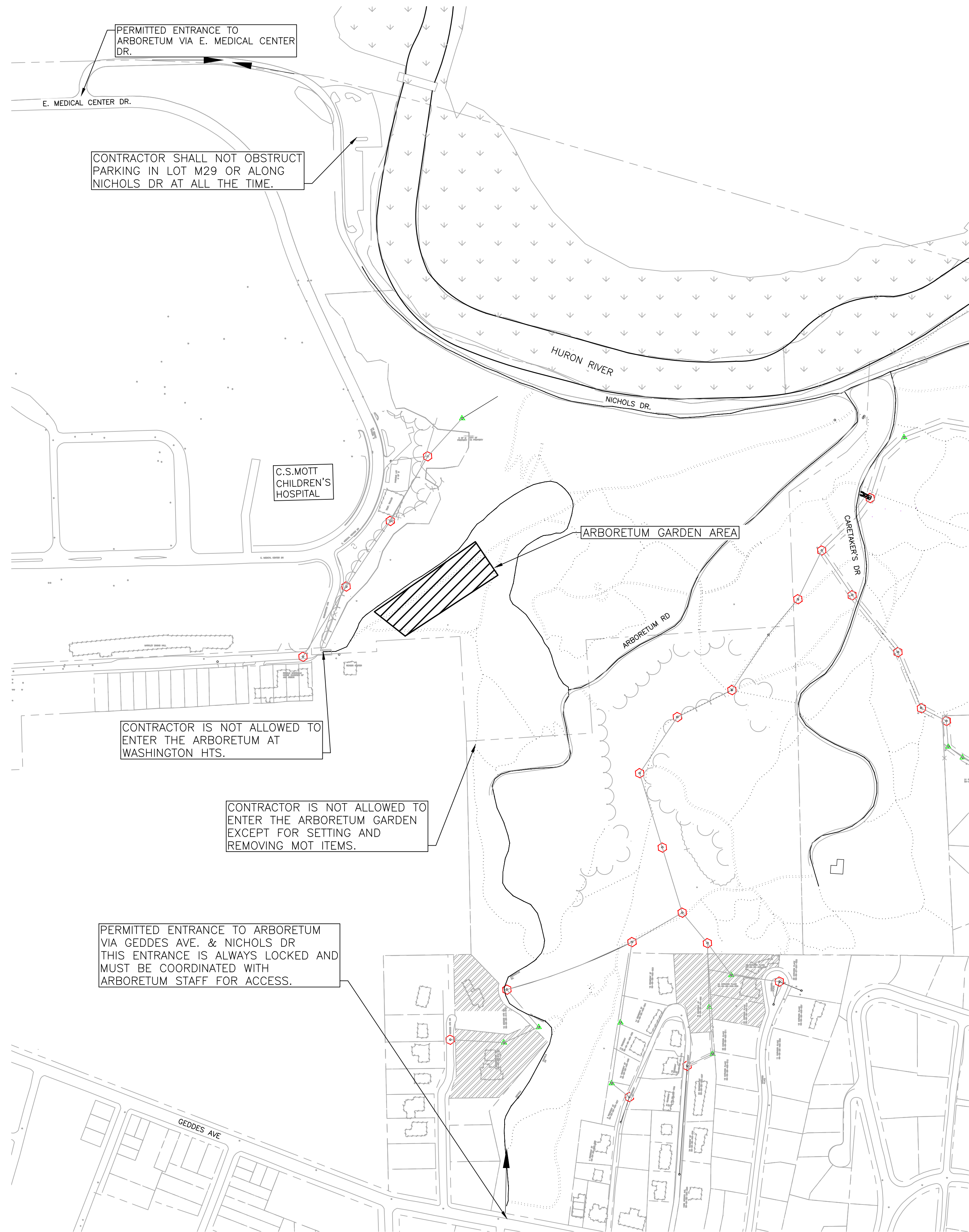
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**PUBLIC SERVICES-ENGINEERING - CITY OF ANN ARBOR**  
NICHOLS ARBORETUM SANITARY SEWER LINING  
OVERALL PLAN

SCALE PLAN:  
DRAWING No.  
2021-015-C2

SHEET No.  
C-2

Z:\2019\190408\CAD\CD\1\_210912 - Nichols Arboretum Sanitary Sewer Lining (Segments 1-6)\ACCESS PLANS\_1.dwg Dwg Created: 16-Jun-21 - standard (reduced).ctb - Plot Date: 6-Jul-21



PERMITTED ENTRANCE TO ARBORETUM VIA E. MEDICAL CENTER DR.

CONTRACTOR SHALL NOT OBSTRUCT PARKING IN LOT M29 OR ALONG NICHOLS DR AT ALL THE TIME.

CONTRACTOR IS NOT ALLOWED TO ENTER THE ARBORETUM AT WASHINGTON HTS.

CONTRACTOR IS NOT ALLOWED TO ENTER THE ARBORETUM GARDEN EXCEPT FOR SETTING AND REMOVING MOT ITEMS.

PERMITTED ENTRANCE TO ARBORETUM VIA GEDDES AVE. & NICHOLS DR THIS ENTRANCE IS ALWAYS LOCKED AND MUST BE COORDINATED WITH ARBORETUM STAFF FOR ACCESS.



ACCESS PLAN  
 GEDDES AVE TO NICHOLAS DR & E MEDICAL CENTER TO NICHOLS DR  
 SCALE: 1" = 200'  
 0 100 200 400

**NOTES:**

1. CONTRACTOR PARKING IN ARBORETUM MUST BE APPROVED BY THE ARBORETUM PERSONNEL.
2. ACCESS INTO THE ARBORETUM IS LIMITED TO THE LOCATIONS SHOWN. ANY QUESTIONS REGARDING ACCESS TO OR USE OF THE SITE SHALL BE SUBMITTED TO THE ENGINEER IN WRITING PRIOR TO THE CONTRACTOR TAKING ANY ACTION CONTRADICTORY TO THESE PLANS.
3. THE PRE-PROPOSAL MEETING AND WALK-THROUGH FOR THIS PROJECT IS MANDATORY.

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

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	ISSUED FOR BID	07-06-2021		

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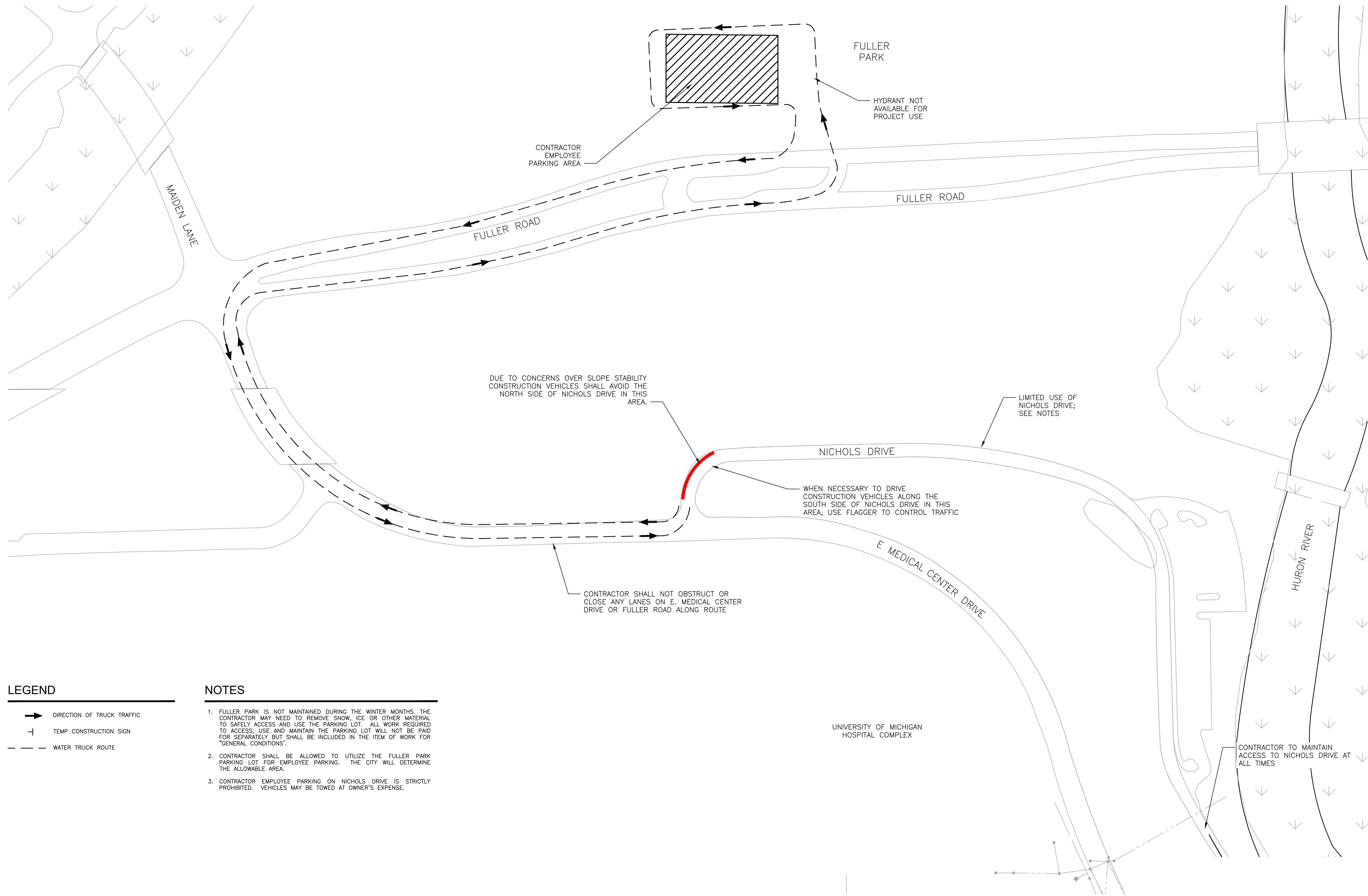
**PUBLIC SERVICES-ENGINEERING - CITY OF ANN ARBOR**  
 NICHOLS ARBORETUM SANITARY SEWER LINING  
 ACCESS PLANS TO ARBORETUM

SCALE PLAN:  
 DRAWING No.  
 2021-015-C3

SHEET No.  
**C-3**

SCALE PLAN:  
 DRAWING No.  
 2021-015-C3

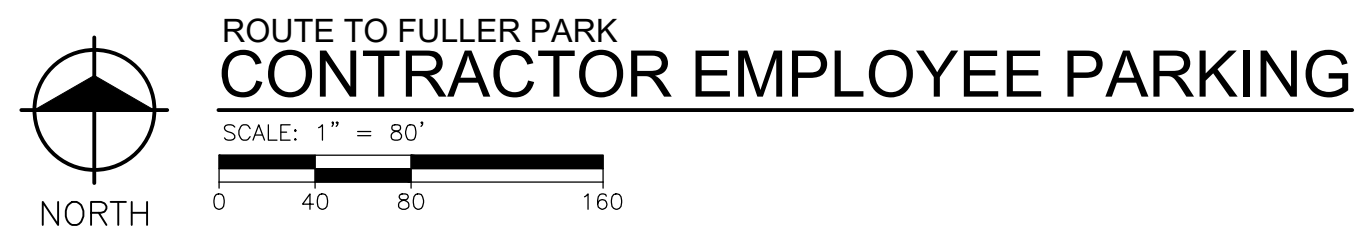
Z:\2019\190408\CAD\CD\1\_210912 - Nichols Arboretum Sanitary Sewer Lining (Segments 1-6)\ACCESS PLANS\_1.dwg Dwg Created: 16-Jun-21 - standard (reduced).ctb - Plot Date: 6-Jul-21



**LEGEND**

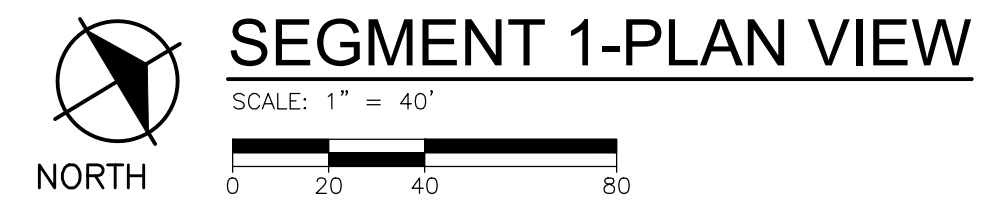
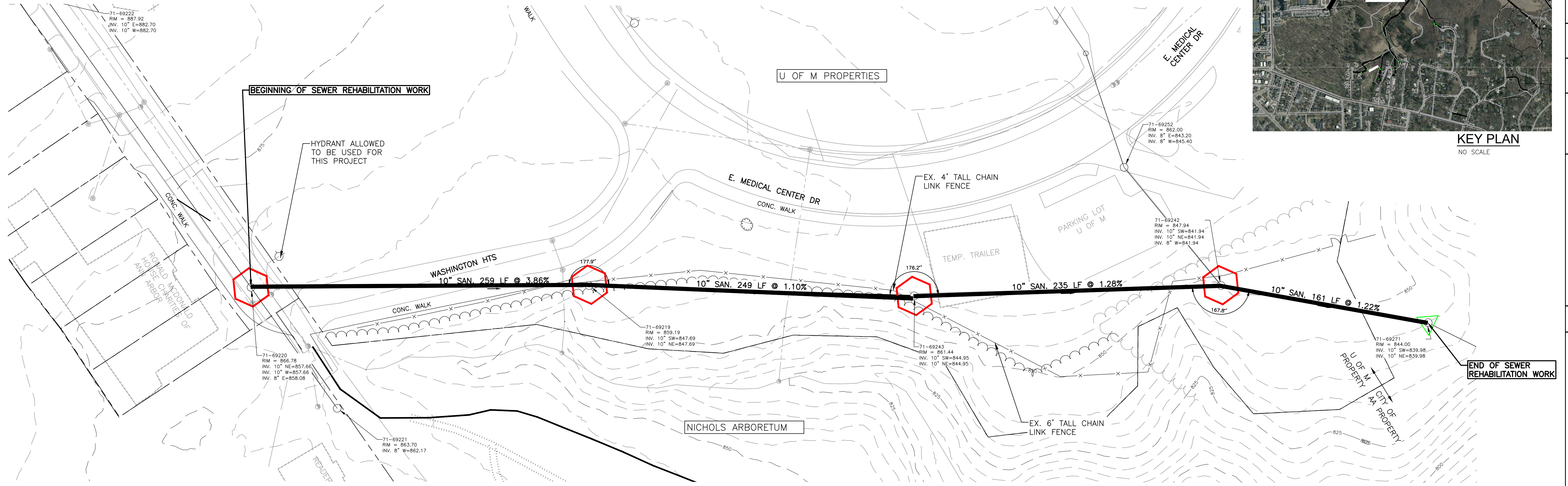
	DIRECTION OF TRUCK TRAFFIC
	TEMP CONSTRUCTION SIGN
	WATER TRUCK ROUTE

- NOTES**
1. FULLER PARK IS NOT MAINTAINED DURING THE WINTER MONTHS. THE CONTRACTOR MAY NEED TO REMOVE SNOW, ICE OR OTHER MATERIAL TO SAFELY ACCESS AND USE THE PARKING LOT. ALL WORK REQUIRED TO ACCESS, USE AND MAINTAIN THE PARKING LOT WILL NOT BE PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN THE ITEM OF WORK FOR "GENERAL CONDITIONS".
  2. CONTRACTOR SHALL BE ALLOWED TO UTILIZE THE FULLER PARK PARKING LOT FOR EMPLOYEE PARKING. THE CITY WILL DETERMINE THE ALLOWABLE AREA.
  3. CONTRACTOR EMPLOYEE PARKING ON NICHOLS DRIVE IS STRICTLY PROHIBITED. VEHICLES MAY BE TOWED AT OWNER'S EXPENSE.



		ISSUED FOR BID	DATE	CHECKED
		07-06-2021		DRAWN
CITY OF ANN ARBOR PUBLIC SERVICE 301 EAST HURON STREET ANN ARBOR, MI 48107-8647 734-794-6410 www.a2gov.org		DESCRIPTION	REV.	
<b>PUBLIC SERVICES-ENGINEERING - CITY OF ANN ARBOR</b> <b>NICHOLS ARBORETUM SANITARY SEWER LINING</b> WATER TRUCK ROUTE				
SCALE PLAN: 		DRAWING No. <b>2021-015-C4</b>		
SHEET No. <b>C-4</b>				

Z:\2019\190408\CAD\CD\1\_210912 - Nichols Arboretum Sanitary Sewer Lining (Segments 1-6)\PLAN VIEW\_1.dwg Dwg Created: 22-Jun-21 - standard (reduced).ctb - Plot Date: 6-Jul-21



71-69220

- RIM: 866.78
- INVERT ELE: 857.66
- PHOTO LOOKING NORTH



71-69219

- MH INSIDE A FENCE
- RIM: 859.195
- INVERT ELE: 847.69
- REMOVE & REPLACE FENCE IF REQUIRED TO ACCESS MH
- PHOTO LOOKING EAST



71-69243

- MH VERY NARROW ENTRANCE
- RIM: 861.43
- INVERT ELE: 844.95
- PHOTO LOOKING NORTH



71-69242

- MH INSIDE A FENCE
- RIM: 847.94
- INVERT ELE: 841.94
- REMOVE & REPLACE FENCE IF REQUIRED TO ACCESS MH
- PHOTO LOOKING EAST



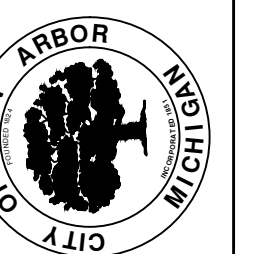
71-69271

- RIM: 844.00
- INVERT ELE: 839.98
- U OF M TO CLEAR TREES TO PROVIDE ACCESS TO MH
- PHOTO LOOKING NORTH



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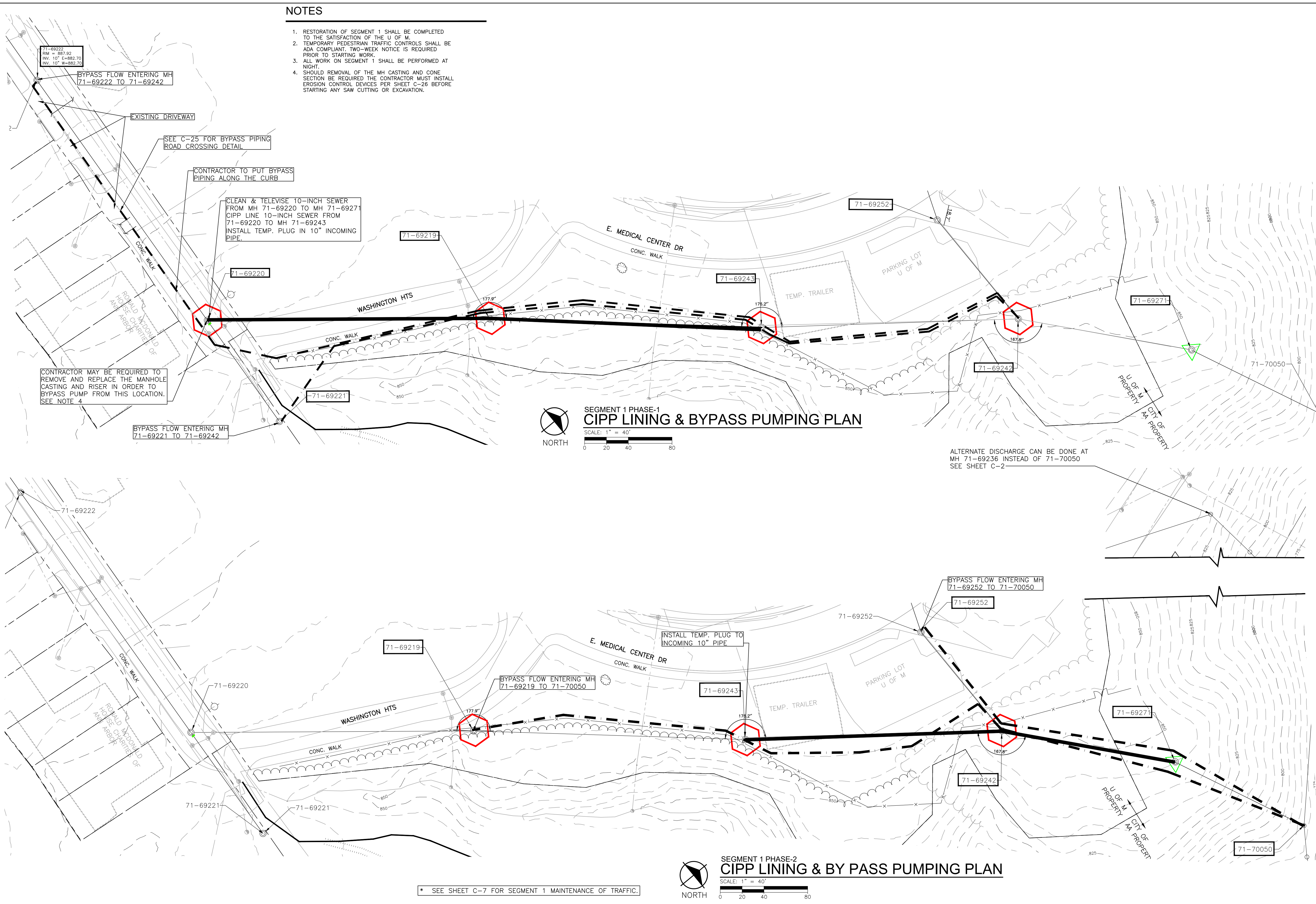
**PUBLIC SERVICES-ENGINEERING - CITY OF ANN ARBOR**  
**NICHOLS ARBORETUM SANITARY SEWER LINING**  
SEGMENT 1-PLAN VIEW

SCALE PLAN:  
DRAWING No.  
2021-015-C5

**NOTES**

1. RESTORATION OF SEGMENT 1 SHALL BE COMPLETED TO THE SATISFACTION OF THE U OF M.
2. TEMPORARY PEDESTRIAN TRAFFIC CONTROLS SHALL BE ADA COMPLIANT. TWO-WEEK NOTICE IS REQUIRED PRIOR TO STARTING WORK.
3. ALL WORK ON SEGMENT 1 SHALL BE PERFORMED AT NIGHT.
4. SHOULD REMOVAL OF THE MH CASTING AND CONE SECTION BE REQUIRED THE CONTRACTOR MUST INSTALL EROSION CONTROL DEVICES PER SHEET C-26 BEFORE STARTING ANY SAW CUTTING OR EXCAVATION.

Z:\2019\190408\CAD\CD\1\_210912 - Nichols Arboretum Sanitary Sewer Lining (Segments 1-6)\By-Pass Pumping\_1.dwg Created: 22-Jun-21 - standard (reduced).ctb - Plot Date: 6-Jul-21



**SEGMENT 1 PHASE-1  
CIPP LINING & BYPASS PUMPING PLAN**

SCALE: 1" = 40'  
0 20 40 80

ALTERNATE DISCHARGE CAN BE DONE AT MH 71-69236 INSTEAD OF 71-70050 SEE SHEET C-2

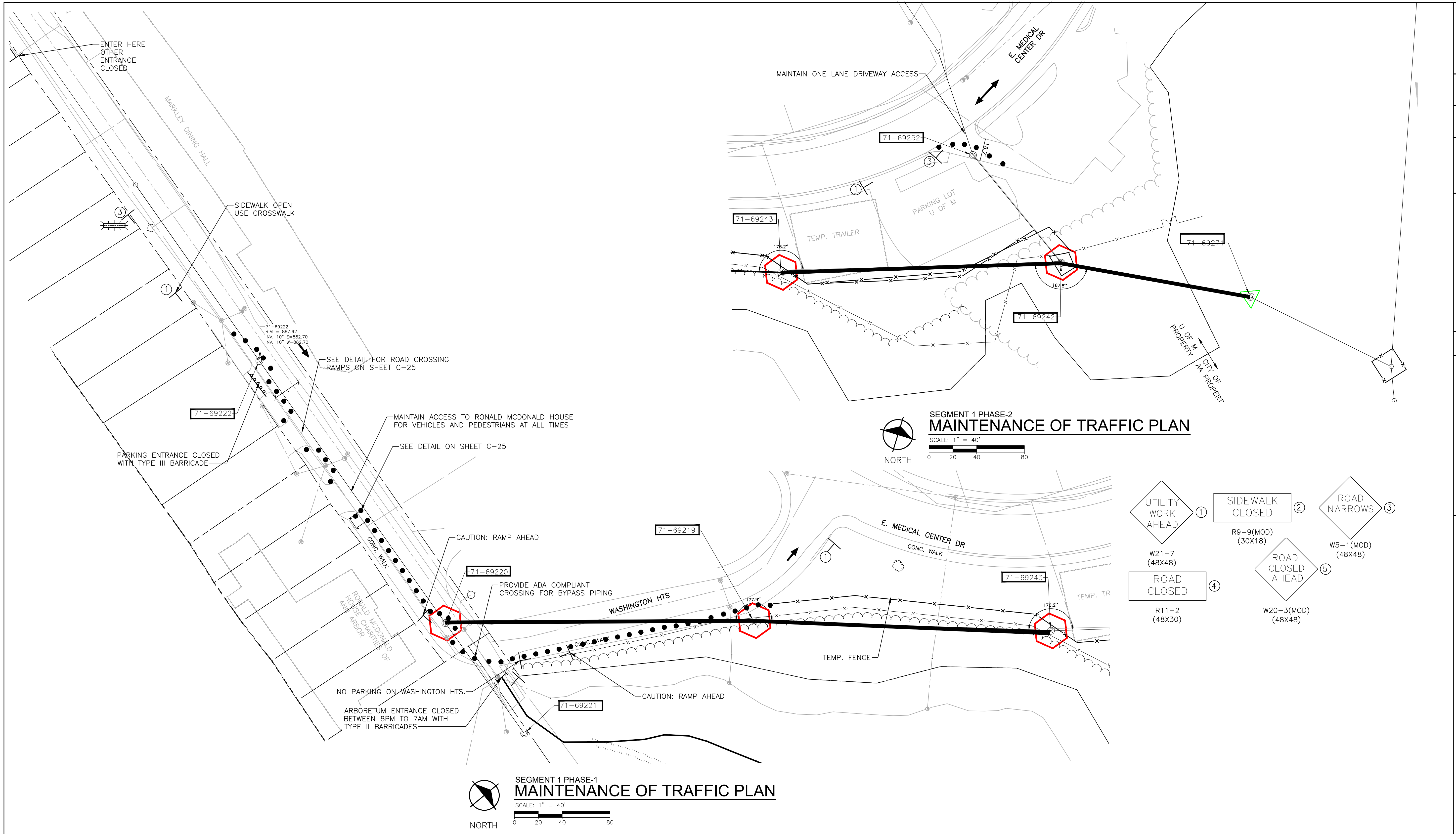
**SEGMENT 1 PHASE-2  
CIPP LINING & BY PASS PUMPING PLAN**

SCALE: 1" = 40'  
0 20 40 80

\* SEE SHEET C-7 FOR SEGMENT 1 MAINTENANCE OF TRAFFIC.

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SCALE PLAN: 	DRAWING No. <b>2021-015-C6</b>
SHEET No. <b>C-6</b>	ISSUED FOR BID 07-06-2021
DESCRIPTION	CHECKED
DATE	DRAWN
REV.	DATE

Z:\2019\190408\CAD\CD\1\_210912 - Nichols Arboretum Sanitary Sewer Lining (Segments 1-6)\By-Pass Pumping\_1.dwg Dwg Created: 22-Jun-21 - standard (reduced).ctb - Plot Date: 6-Jul-21



**NOTES**

1. RESTORATION OF SEGMENT 1 SHALL BE COMPLETED TO THE SATISFACTION OF THE U OF M.
2. TEMPORARY PEDESTRIAN TRAFFIC CONTROLS SHALL BE ADA COMPLIANT. TWO-WEEK NOTICE IS REQUIRED PRIOR TO STARTING WORK.
3. ALL WORK ON SEGMENT 1 SHALL BE PERFORMED AT NIGHT.

**811**  
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**PUBLIC SERVICES-ENGINEERING - CITY OF ANN ARBOR**  
NICHOLS ARBORETUM SANITARY SEWER LINING  
SEGMENT 1-MAINTENANCE OF TRAFFIC

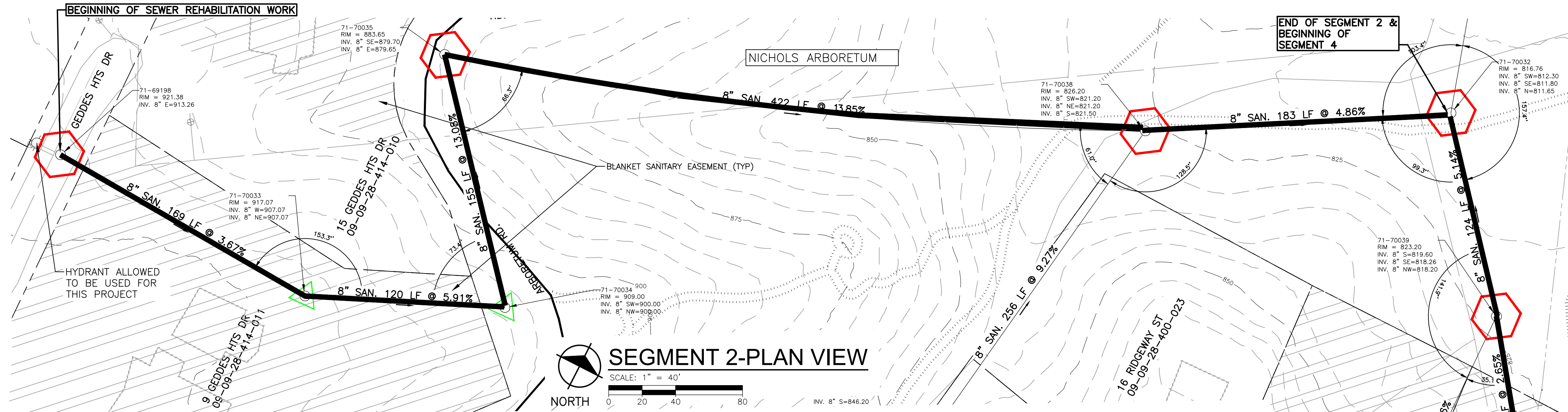
**2021-015-C7**

SHEET No. **C-7**

DRAWING No. **2021-015-C7**

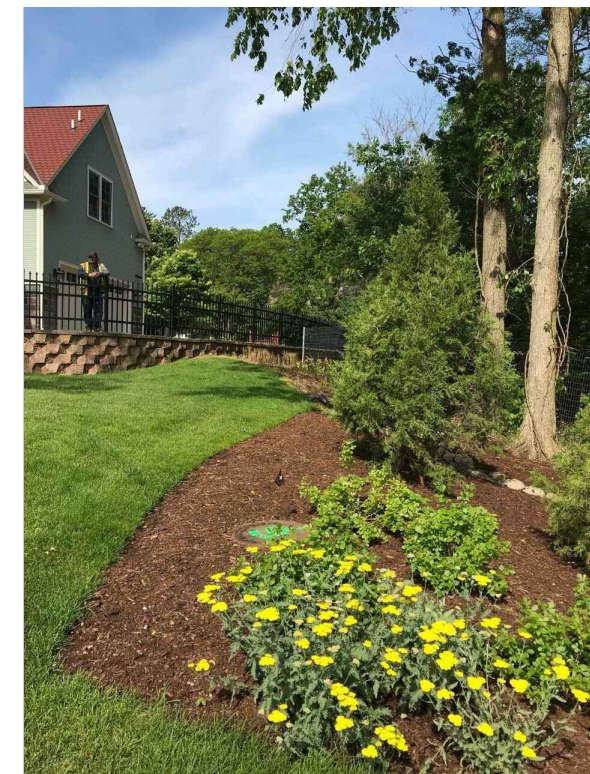


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71-69198

- RIM: 921.38
- INVERT ELE: 913.26
- PHOTO LOOKING SOUTH



71-70033

- RIM: 917.07
- INVERT ELE: 907.07
- NOT ACCESSIBLE WITH A VEHICLE
- PHOTO LOOKING WEST



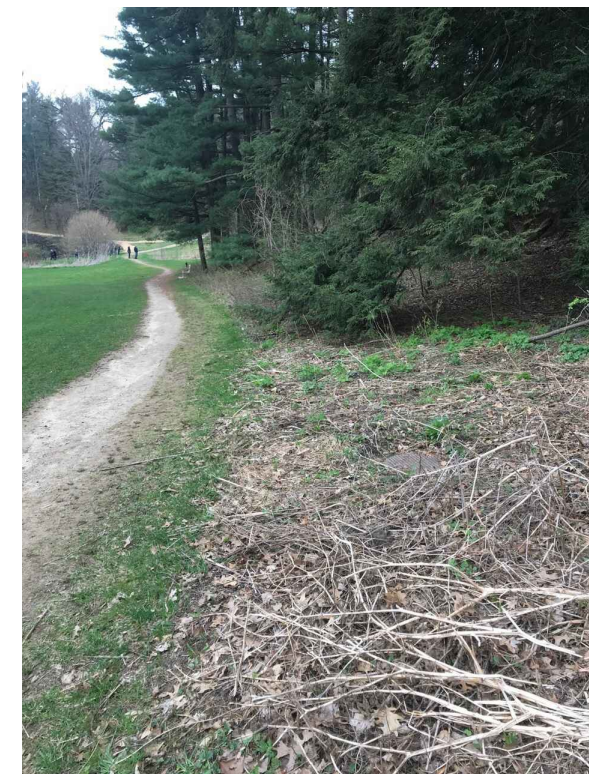
71-70034

- MH ON A SMALL HILL BETWEEN NICHOLAS DR & BACK YARD OF A HOUSE.
- RIM: 909.00
- INVERT ELE: 900.00
- NOT ACCESSIBLE WITH A VEHICLE
- PHOTO LOOKING SOUTH



71-70035

- MH AT AN EDGE OF A HILL AND NICHOLAS DR.
- RIM: 883.65
- INVERT ELE: 879.65
- PHOTO LOOKING SOUTH



71-70038

- RIM: 826.20
- INVERT ELE: 821.20
- PHOTO LOOKING NORTHEAST



71-70032

- MH LITTLE OFFSET
- RIM: 816.76
- INVERT ELE: 811.65
- PHOTO LOOKING WEST



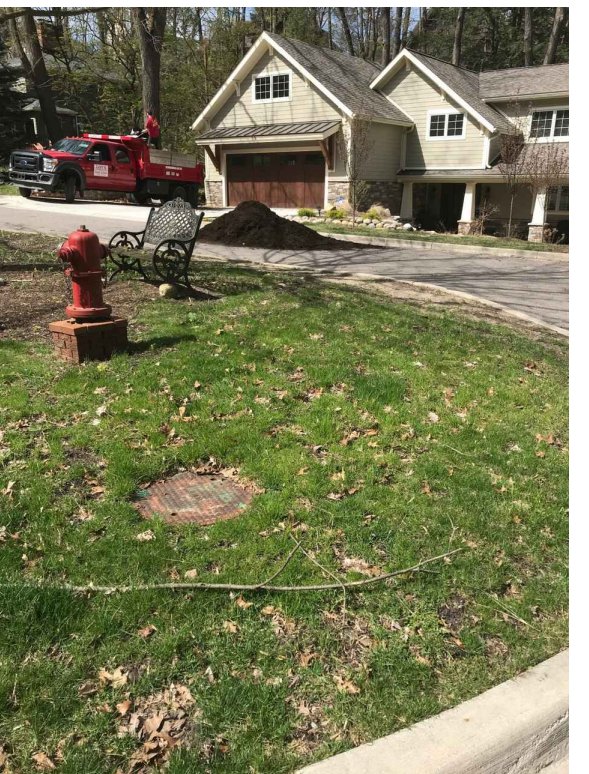
71-70039

- RIM: 823.20
- INVERT ELE: 818.20
- PHOTO LOOKING SOUTH



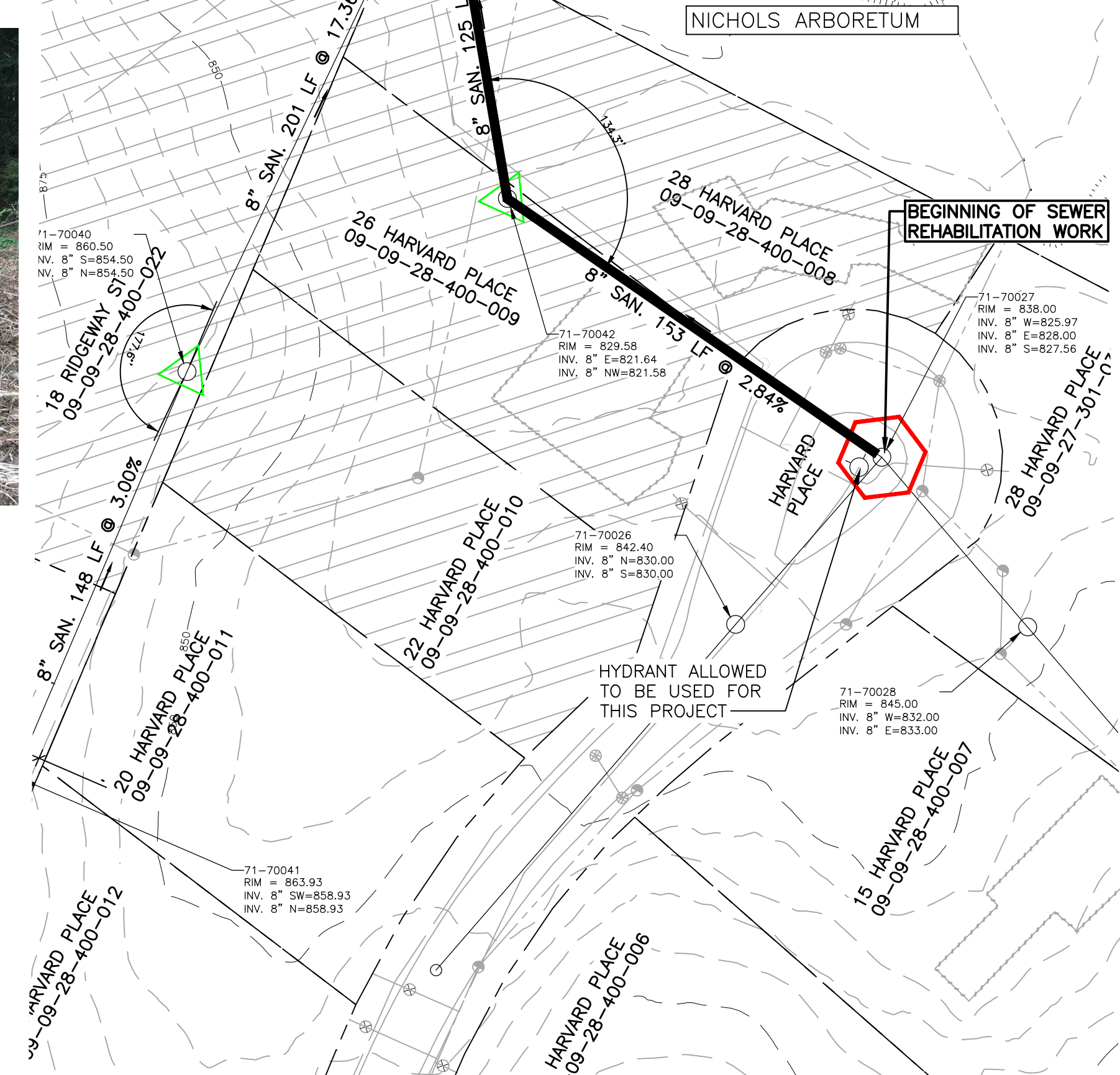
71-70042

- RIM: 829.58
- INVERT ELE: 821.58
- NOT ACCESSIBLE WITH A VEHICLE
- PHOTO LOOKING SOUTHEAST



71-70027

- MH BETWEEN HOUSE NO. 28 & 26.
- DROP PIPE
- RIM: 838.00
- INVERT ELE: 825.97
- PHOTO LOOKING WEST



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	ISSUED FOR BID	07-06-2021		

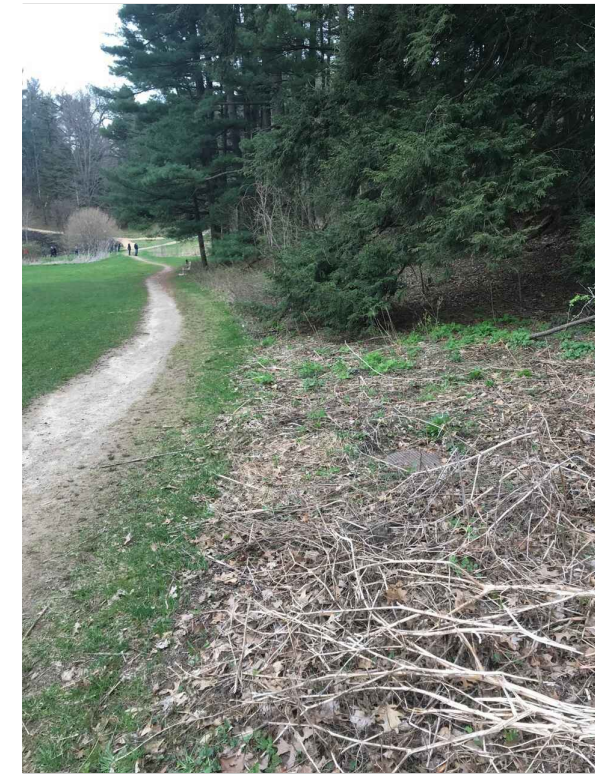
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NICHOLS ARBORETUM SANITARY SEWER LINING  
SEGMENT 2-PLAN VIEW

SCALE PLAN:  
DRAWING No.  
2021-015-C8  
SHEET No.  
C-8

Z:\2019\190408\CAD\CD\1\_210912 - Nichols Arboretum Sanitary Sewer Lining (Segments 1-6)\PLAN VIEW\_1.dwg Dwg Created: 22-Jun-21 - standard (reduced).ctb - Plot Date: 6-Jul-21



71-70038

- RIM: 826.20
- INVERT ELE: 821.20
- PHOTO LOOKING NORTHEAST



71-70037

- MH BOLTED SHUT DUE TO ODOR
- RIM: 850.20
- INVERT ELE: 845.20
- NOT ACCESSIBLE WITH A VEHICLE
- PHOTO LOOKING SOUTHEAST



71-70036

- MH ON A STEEP SLOPE.
- RIM: 876.00
- INVERT ELE: 871.00
- NOT ACCESSIBLE WITH A VEHICLE
- PHOTO LOOKING SOUTHEAST



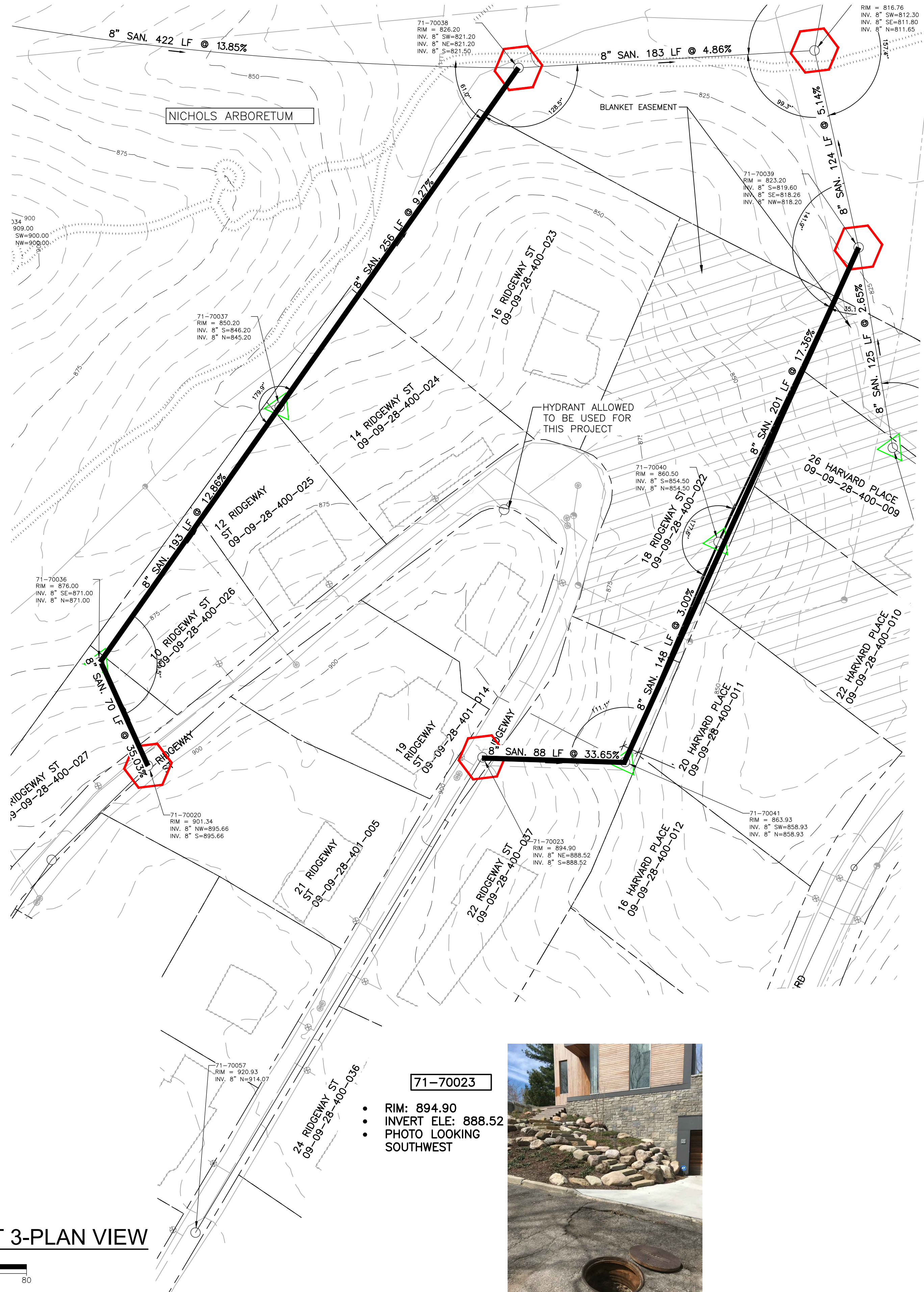
71-70020

- RIM: 901.34
- INVERT ELE: 895.66
- PHOTO LOOKING SOUTHWEST



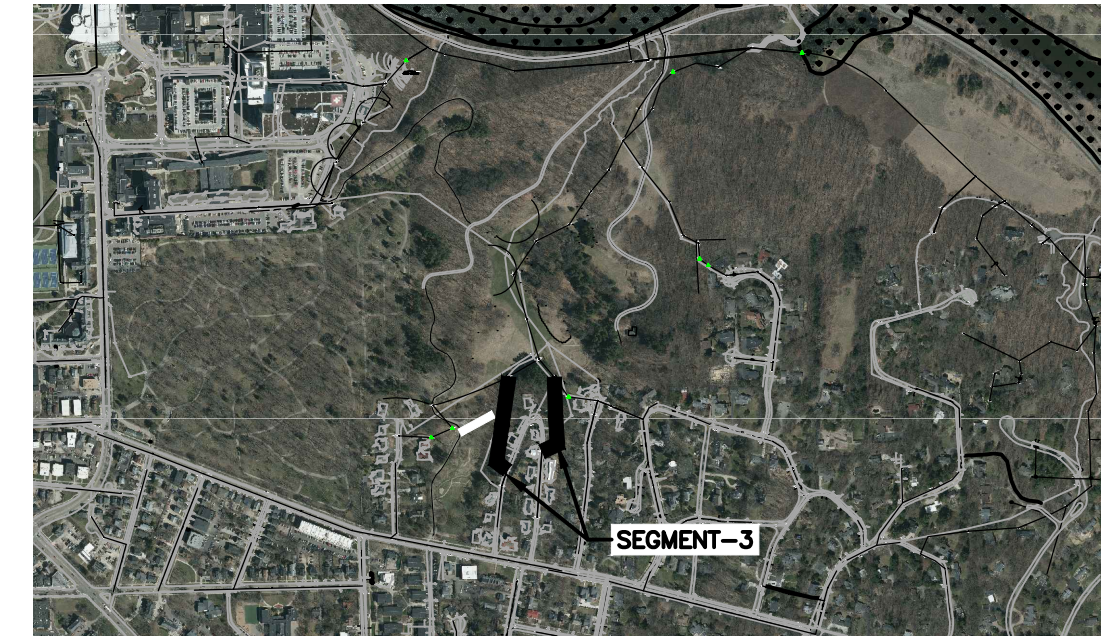
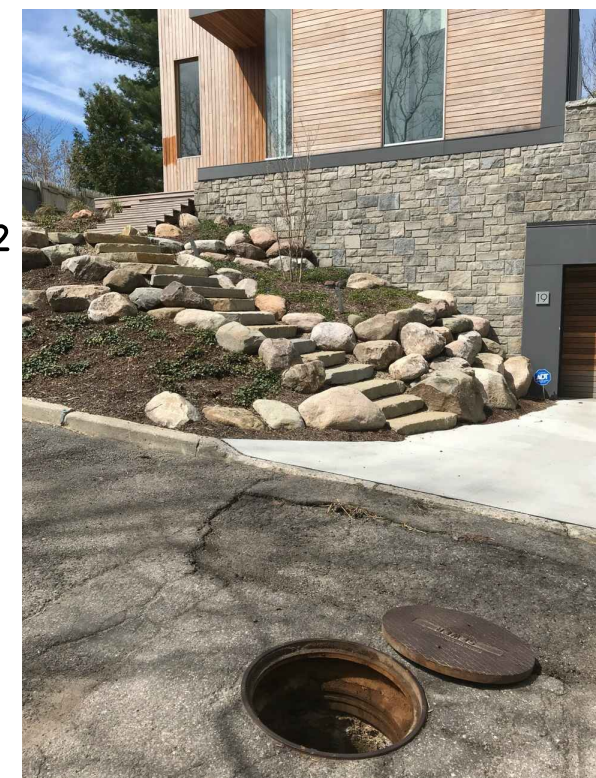
SEGMENT 3-PLAN VIEW

SCALE: 1" = 40'  
0 20 40 80



71-70023

- RIM: 894.90
- INVERT ELE: 888.52
- PHOTO LOOKING SOUTHWEST



KEY PLAN

NO SCALE



71-70032

- MH SLIGHTLY OFFSET.
- RIM: 816.76
- INVERT ELE: 811.65
- PHOTO LOOKING SOUTH



71-70039

- RIM: 823.20
- INVERT ELE: 818.20
- ANY CLEANING REQUIRED TO ACCESS THIS MH SHALL BE PERFORMED BY ARBORETUM PERSONNEL
- PHOTO LOOKING SOUTHEAST



71-70041

- MH ON A HILL.
- SMALL METAL PIPE COMING IN.
- RIM: 863.93
- INVERT ELE: 858.93
- NOT ACCESSIBLE WITH A VEHICLE
- PHOTO LOOKING EAST



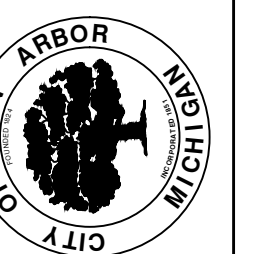
71-70040

- MH ON A HILL.
- RIM: 860.50
- INVERT ELE: 854.50
- NOT ACCESSIBLE WITH A VEHICLE
- PHOTO LOOKING NORTHWEST



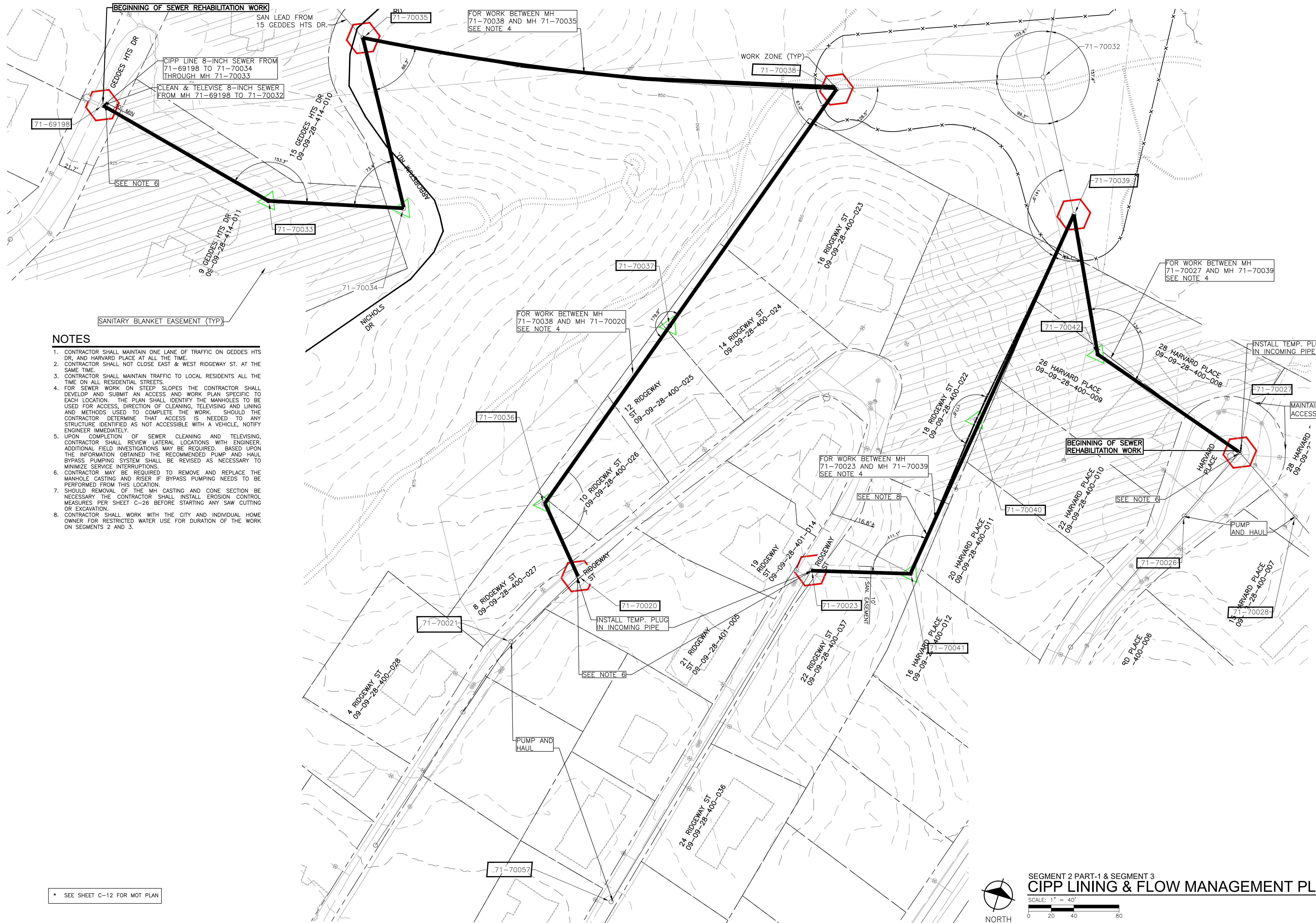
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NICHOLS ARBORETUM SANITARY SEWER LINING  
SEGMENT 3-PLAN VIEW

PUBLIC SERVICES-ENGINEERING - CITY OF ANN ARBOR  
SCALE PLAN:  
DRAWING No. 2021-015-C9



**NOTES**

1. CONTRACTOR SHALL MAINTAIN ONE LANE OF TRAFFIC ON GEDDES HTS DR. AND HARVARD PLACE AT ALL THE TIME.
2. CONTRACTOR SHALL NOT CLOSE EAST & WEST RIDGEWAY ST. AT THE SAME TIME.
3. CONTRACTOR SHALL MAINTAIN TRAFFIC TO LOCAL RESIDENTS ALL THE TIME ON ALL RESIDENTIAL STREETS.
4. FOR SEWER WORK ON STEEP SLOPES THE CONTRACTOR SHALL DEVELOP AND SUBMIT AN ACCESS AND WORK PLAN SPECIFIC TO EACH LOCATION. THE PLAN SHALL IDENTIFY THE MANHOLES TO BE USED FOR ACCESS, DIRECTION OF CLEANING, TELEVIEWING AND LINING AND METHODS USED TO COMPLETE THE WORK. SHOULD THE CONTRACTOR DETERMINE THAT ACCESS IS NEEDED TO ANY STRUCTURE IDENTIFIED AS NOT ACCESSIBLE WITH A VEHICLE, NOTIFY ENGINEER IMMEDIATELY.
5. UPON COMPLETION OF SEWER CLEANING AND TELEVIEWING, CONTRACTOR SHALL REVIEW LATERAL LOCATIONS WITH ENGINEER. ADDITIONAL FIELD INVESTIGATIONS MAY BE REQUIRED. BASED UPON THE INFORMATION OBTAINED THE RECOMMENDED PUMP AND HAUL BYPASS PUMPING SYSTEM SHALL BE REVISED AS NECESSARY TO MINIMIZE SERVICE INTERRUPTIONS.
6. CONTRACTOR MAY BE REQUIRED TO REMOVE AND REPLACE THE MANHOLE CASTING AND RISER IF BYPASS PUMPING NEEDS TO BE PERFORMED FROM THIS LOCATION.
7. SHOULD REMOVAL OF THE MH CASTING AND CONE SECTION BE NECESSARY THE CONTRACTOR SHALL INSTALL EROSION CONTROL MEASURES PER SHEET C-26 BEFORE STARTING ANY SAW CUTTING OR EXCAVATION.
8. CONTRACTOR SHALL WORK WITH THE CITY AND INDIVIDUAL HOME OWNER FOR RESTRICTED WATER USE FOR DURATION OF THE WORK ON SEGMENTS 2 AND 3.

\* SEE SHEET C-12 FOR MOT PLAN

SEGMENT 2 PART-1 & SEGMENT 3  
CIPP LINING & FLOW MANAGEMENT PLAN

SCALE: 1" = 40'  
0 20 40 80

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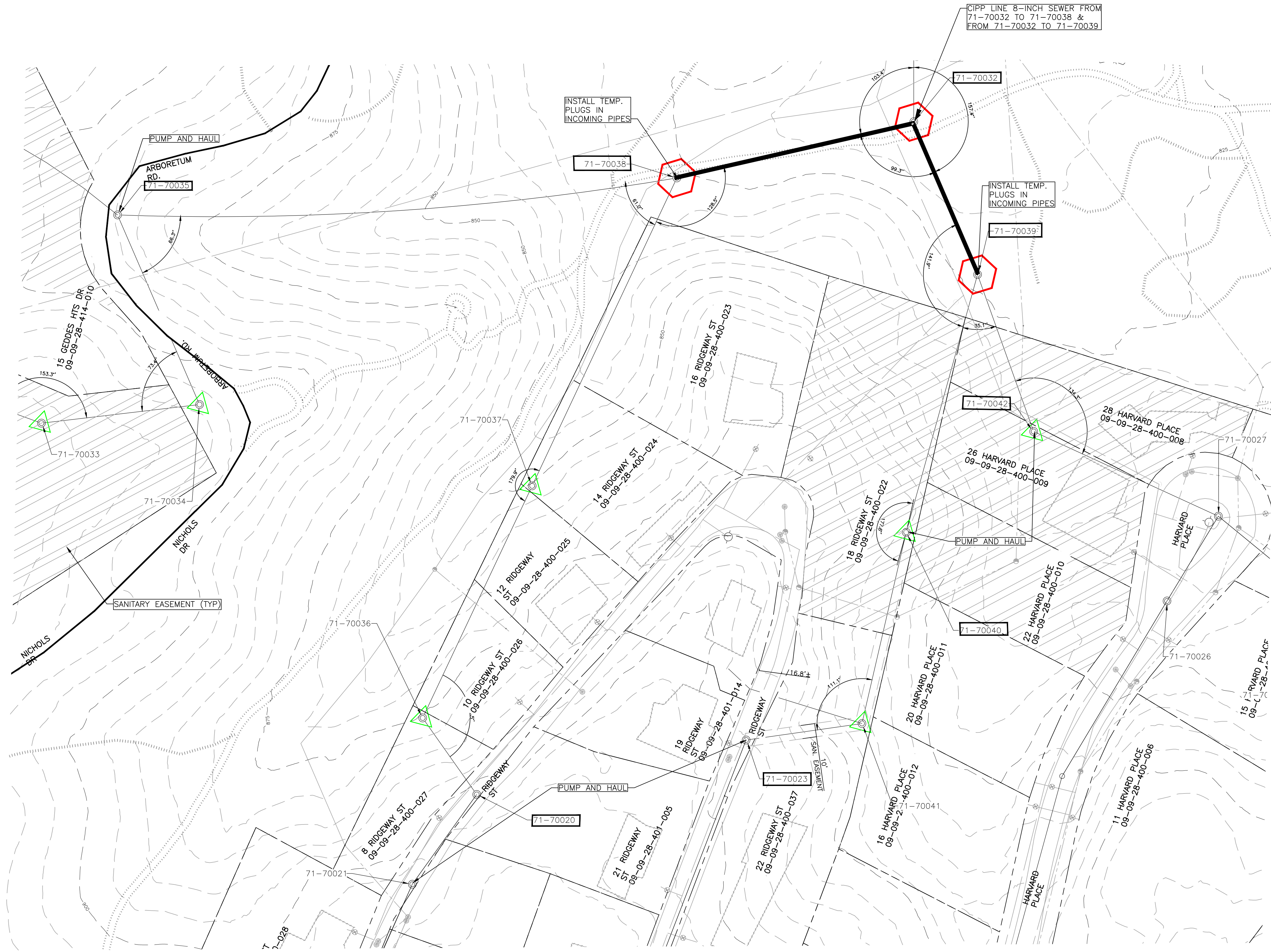
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**CITY OF ANN ARBOR**  
NICHOLS ARBORETUM  
SANITARY SEWER LINING  
SEGMENT 2(1) & 3 - CIPP LINING & FLOW  
MANAGEMENT PLAN

SCALE PLAN:  
DRAWING No.  
2021-015-C10

SHEET No.  
C-10


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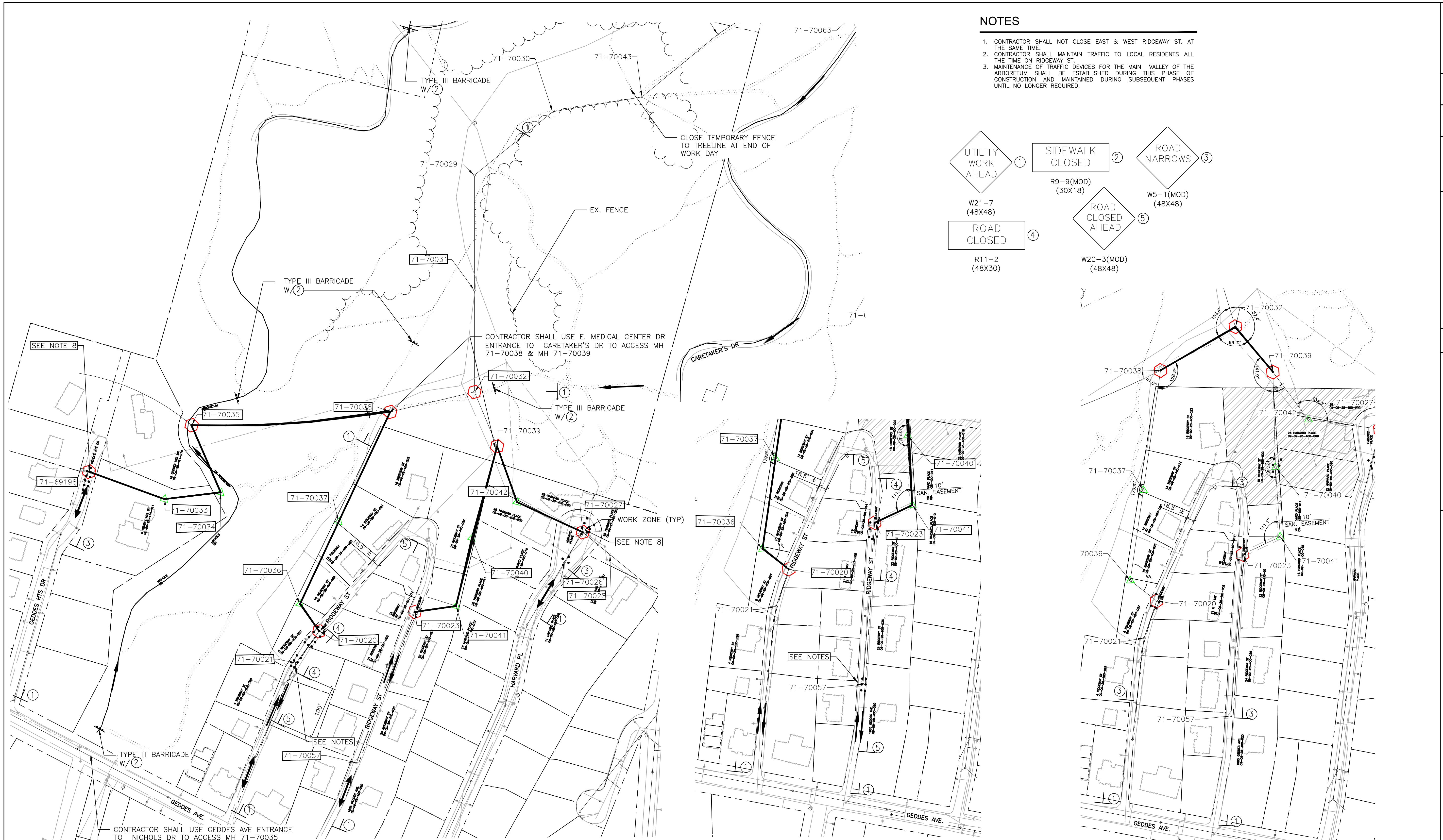
\* SEE SHEET C-12 FOR MOT PLAN

SEGMENT 2 PART-2  
**CIPP LINING & FLOW MANAGEMENT PLAN**  
 SCALE: 1" = 40'  
 0 20 40 80  
 NORTH

- NOTES**
- UPON COMPLETION OF SEWER CLEANING AND TELEVISIONING, CONTRACTOR SHALL REVIEW LATERAL LOCATIONS WITH ENGINEER. ADDITIONAL FIELD INVESTIGATIONS MAY BE REQUIRED. BASED UPON THE INFORMATION OBTAINED THE RECOMMENDED PUMP AND HAUL BYPASS PUMPING SYSTEM SHALL BE REVISED AS NECESSARY TO MINIMIZE SERVICE INTERRUPTIONS.
  - CONTRACTOR SHALL WORK WITH THE CITY AND INDIVIDUAL HOME OWNER FOR RESTRICTED WATER USE FOR DURATION OF WORK ON SEGMENTS 2 & 3.

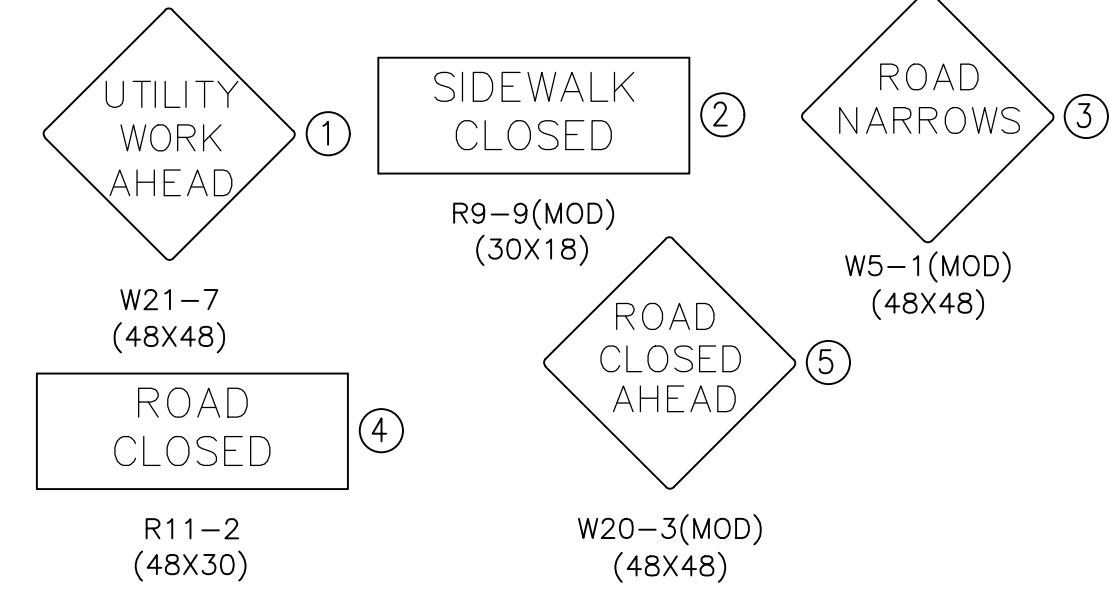
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		REV.	DESCRIPTION	DRAWN
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SHEET No. <b>C-11</b>				

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**NOTES**

1. CONTRACTOR SHALL NOT CLOSE EAST & WEST RIDGEWAY ST. AT THE SAME TIME.
2. CONTRACTOR SHALL MAINTAIN TRAFFIC TO LOCAL RESIDENTS ALL THE TIME ON RIDGEWAY ST.
3. MAINTENANCE OF TRAFFIC DEVICES FOR THE MAIN VALLEY OF THE ARBORETUM SHALL BE ESTABLISHED DURING THIS PHASE OF CONSTRUCTION AND MAINTAINED DURING SUBSEQUENT PHASES UNTIL NO LONGER REQUIRED.



OVERALL MAINTANCE OF TRAFFIC FOR SEGMENT 2 & 3 (SHOWING RIDGEWAY ST WEST-MAINTENANCE OF TRAFFIC-SEE NOTE 1)

RIDGEWAY ST EAST-MAINTENANCE OF TRAFFIC-SEE NOTE 1

SEGMENT 2 PART 2 MAINTENANCE OF TRAFFIC



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			07-06-2021		

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**PUBLIC SERVICES-ENGINEERING - CITY OF ANN ARBOR**

**NICHOLS ARBORETUM SANITARY SEWER LINING**

SEGMENT 2 & 3-MAINTENANCE OF TRAFFIC

SCALE PLAN:

DRAWING No. **2021-015-C12**

SHEET No. **C-12**

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KEY PLAN  
NO SCALE



SEGMENT 4-PLAN VIEW  
SCALE: 1" = 40'  
0 20 40 80



71-70032  

- MH SLIGHTLY OFFSET.
- RIM: 816.76
- INVERT ELE: 811.65
- PHOTO LOOKING WEST



71-70031  

- RIM: 807.70
- INVERT ELE: 802.75
- PHOTO LOOKING SOUTH



71-70029  

- RIM: 801.21
- INVERT ELE: 797.08
- PHOTO LOOKING WEST



71-70030  

- RIM: 794.90
- INVERT ELE: 789.90
- PHOTO LOOKING WEST



71-70043  

- RIM: 788.60
- INVERT ELE: 783.00
- PHOTO LOOKING WEST



71-70044  

- RIM: 787.14
- INVERT ELE: 781.14
- PHOTO LOOKING SOUTHWEST

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
	ISSUED FOR BID	07-06-2021		

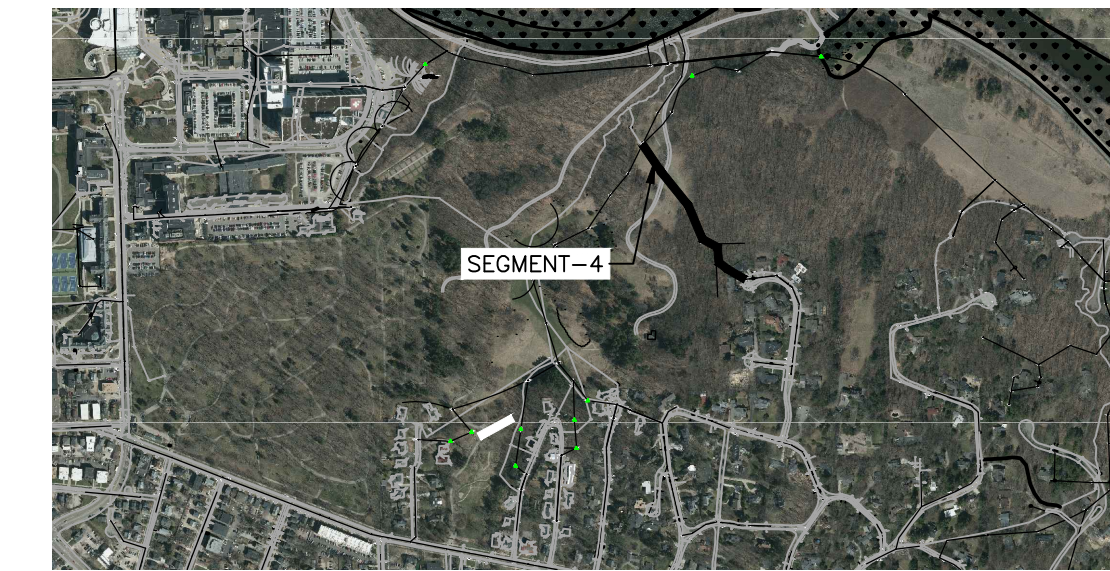
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NICHOLS ARBORETUM SANITARY SEWER LINING  
SEGMENT 4-PLAN VIEW

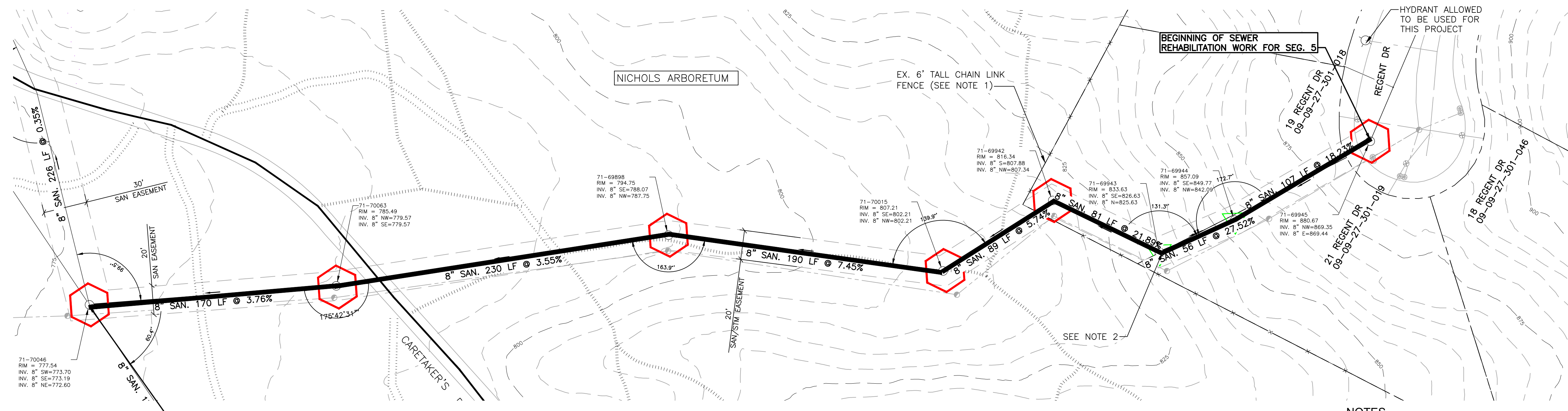
SCALE PLAN:  
DRAWING No.  
2021-015-C13

SHEET No.  
C-13

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KEY PLAN  
NO SCALE



SEGMENT 5-PLAN VIEW  
SCALE: 1" = 40'  
NORTH

NOTES

1. ANY CLEARING REQUIRED OUTSIDE THE FENCE SHALL BE PERFORMED BY ARBORETUM PERSONNEL AND RESTORED BY ARBORETUM PERSONNEL. ANY CLEARING REQUIRED INSIDE THE FENCE SHALL BE PERFORMED BY THE CONTRACTOR TO THE SATISFACTION OF THE PROPERTY OWNER.
2. CONTRACTOR SHALL WORK WITH THE PROPERTY OWNER AND ARBORETUM STAFF TO DEVELOP THE LEAST INTRUSIVE MEANS TO ACCESS MH 71-69943 WITH THE MINIMAL EQUIPMENT REQUIRED TO CLEAN, TELEWISE AND LINE THE SEWERS IN AND OUT OF THE MANHOLE.



71-70046

- RIM: 777.54
- INVERT ELE: 772.60
- PHOTO LOOKING NORTHWEST

71-70063

- RIM: 785.49
- INVERT ELE: 779.57
- PHOTO LOOKING WEST

71-69898

- RIM: 794.75
- INVERT ELE: 787.75
- PHOTO LOOKING NORTH

71-70015

- RIM: 807.21
- INVERT ELE: 802.21
- PHOTO LOOKING SOUTHEAST

71-69942

- MH IN A FENCED BACK YARD.
- REMOVE EX. FENCE & REPLACE WITH NEW SIMILAR FENCE
- RIM: 816.34
- INVERT ELE: 807.34
- NOTE 1
- PHOTO LOOKING NORTH

71-69943

- MH ON A STEEP SLOPE IN A FENCED BACK YARD.
- RIM: 833.63
- INVERT ELE: 825.63
- NOTE 1
- PHOTO LOOKING SOUTHEAST

71-69944

- MH ON A STEEP SLOPE IN A FENCED BACK YARD WITH 2 DROP CONNECTIONS.
- ADJUST TO GRADE
- RIM: 857.09
- INVERT ELE: 842.09
- NOT ACCESSIBLE BY A VEHICLE
- PHOTOS LOOKING NORTHEAST & INTO MH

71-69945

- MH ON REGENT DRIVE BETWEEN HOUSE NUMBER 19 & 21
- RIM: 880.67
- INVERT ELE: 869.35
- PHOTO LOOKING WEST

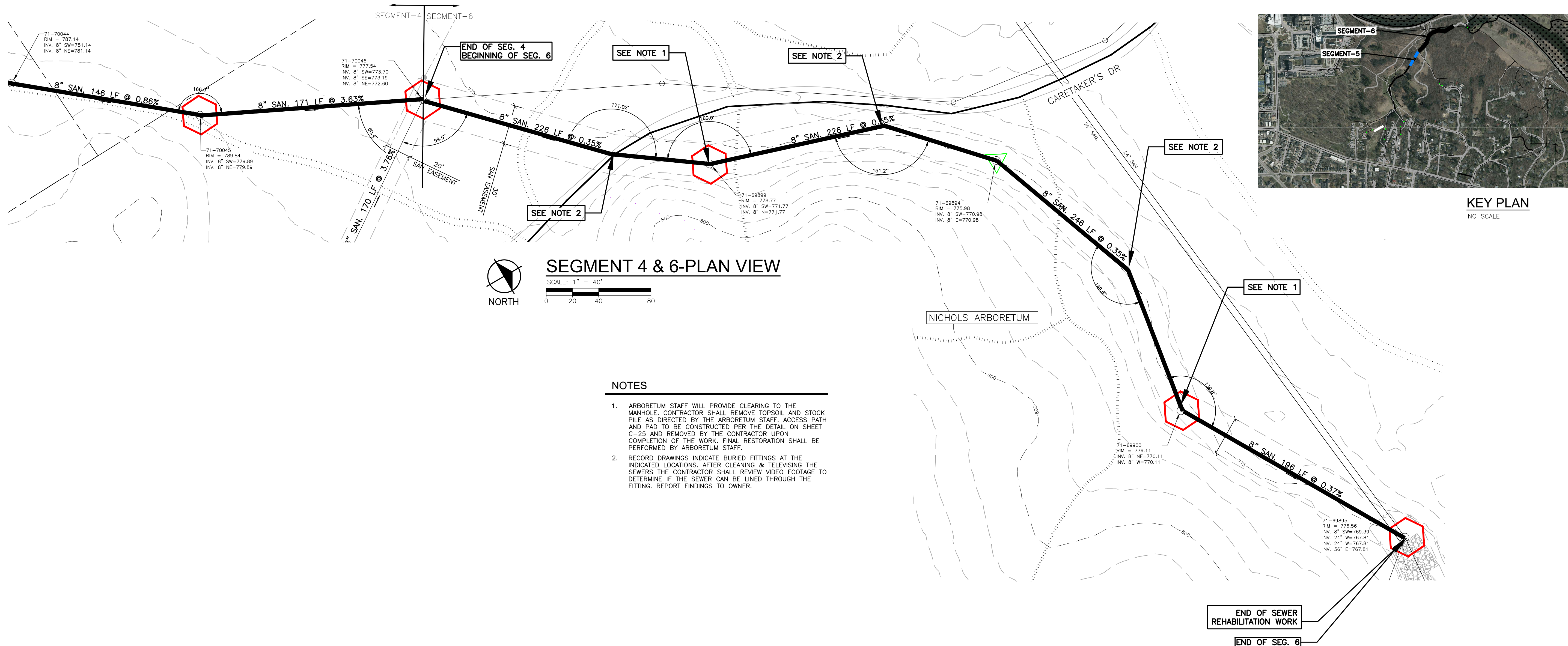
REV.	DESCRIPTION	DATE	DRAWN	CHECKED
		07-06-2021		

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**PUBLIC SERVICES-ENGINEERING - CITY OF ANN ARBOR**  
NICHOLS ARBORETUM SANITARY SEWER LINING  
SEGMENT 5-PLAN VIEW

SCALE PLAN:  
DRAWING No.  
2021-015-C14

SHEET No.  
C-14



71-70044

- RIM: 787.14
- INVERT ELE: 781.14
- PHOTO LOOKING SOUTHWEST



71-70045

- MH ADJUST TO GRADE
- RIM: 789.84
- INVERT ELE: 784.84
- PHOTO LOOKING NORTHWEST



71-70046

- RIM: 777.54
- INVERT ELE: 772.60
- PHOTO LOOKING NORTHWEST



71-69899

- RIM: 771.77
- INVERT ELE: 778.77
- SEE NOTE 1
- PHOTO LOOKING SOUTHEAST



71-69894

- RIM: 770.98
- INVERT ELE: 775.98
- NOT ACCESSIBLE WITH VEHICLE
- PHOTO LOOKING SOUTHEAST



71-69900

- RIM: 779.11
- INVERT ELE: 770.11
- SEE NOTE 1
- PHOTO LOOKING SOUTHEAST



71-69895

- RIM: 776.56
- INVERT ELE: 767.81
- PHOTO LOOKING EAST

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 NICHOLS ARBORETUM SANITARY SEWER LINING  
 SEGMENT 4 & 6-PLAN VIEW

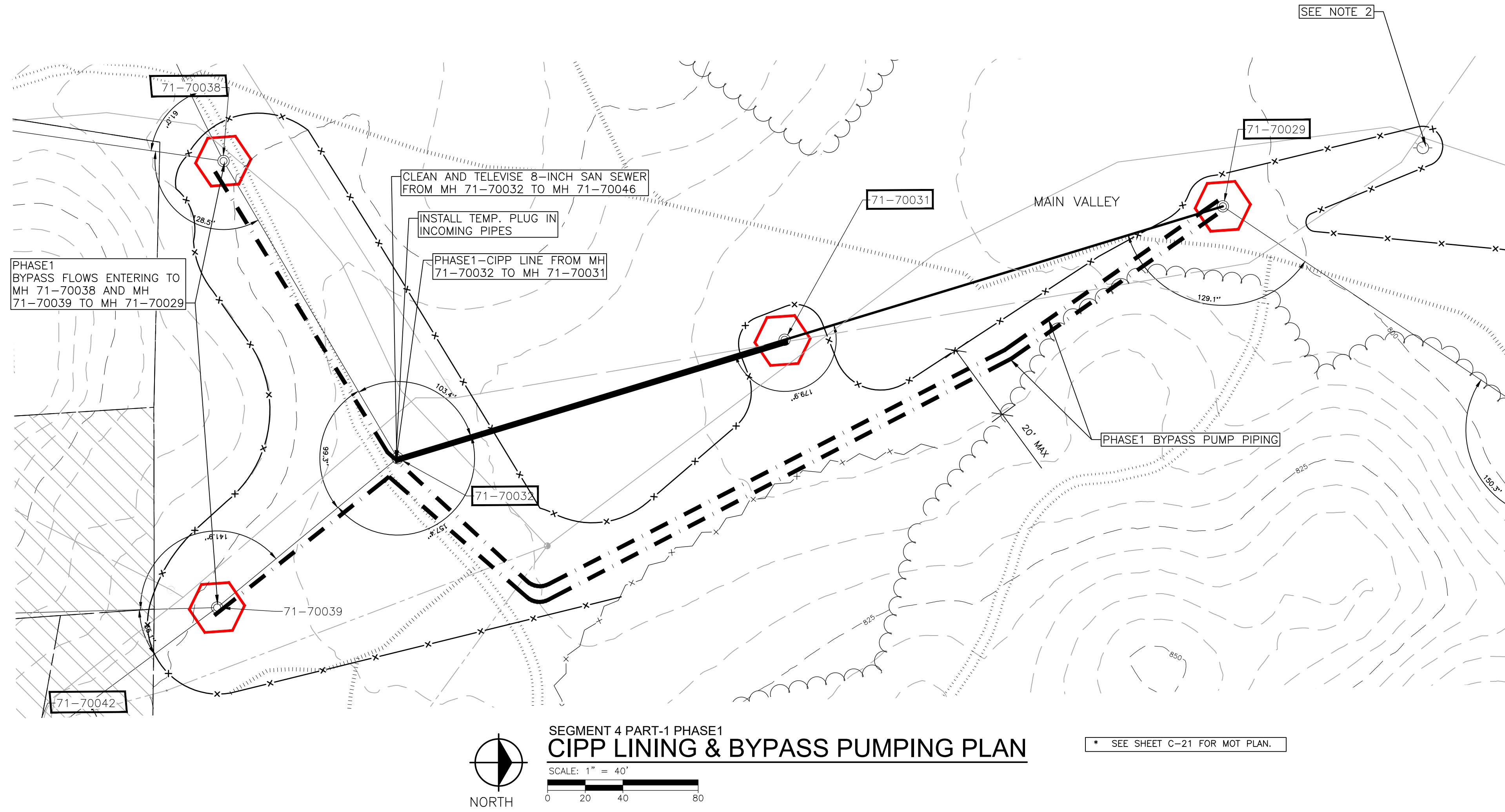
SCALE PLAN:  
SCALE: 1" = 40'

DRAWING No.  
2021-015-C15

SHEET No. **C-15**



Z:\2019\190408\CAD\CD\1\_210912 - Nichols Arboretum Sanitary Sewer Lining (Segments 1-6)\By-Pass Pumping\_1.dwg Dwg Created: 22-Jun-21 - standard (reduced).ctb - Plot Date: 6-Jul-21



**NOTES**

1. ALL BYPASS PIPING PLACED PARALLEL TO ANY TRAIL SHALL BE SET PER THE DETAIL ON SHEET C-25.
2. PLACE 3/4-INCH PLYWOOD OR PLATES AROUND HYDRANT TO MINIMIZE RUTTING.
3. MOT FENCE MUST BE INSTALLED & REMAIN IN PLACE FOR SUBSEQUENT PHASES.



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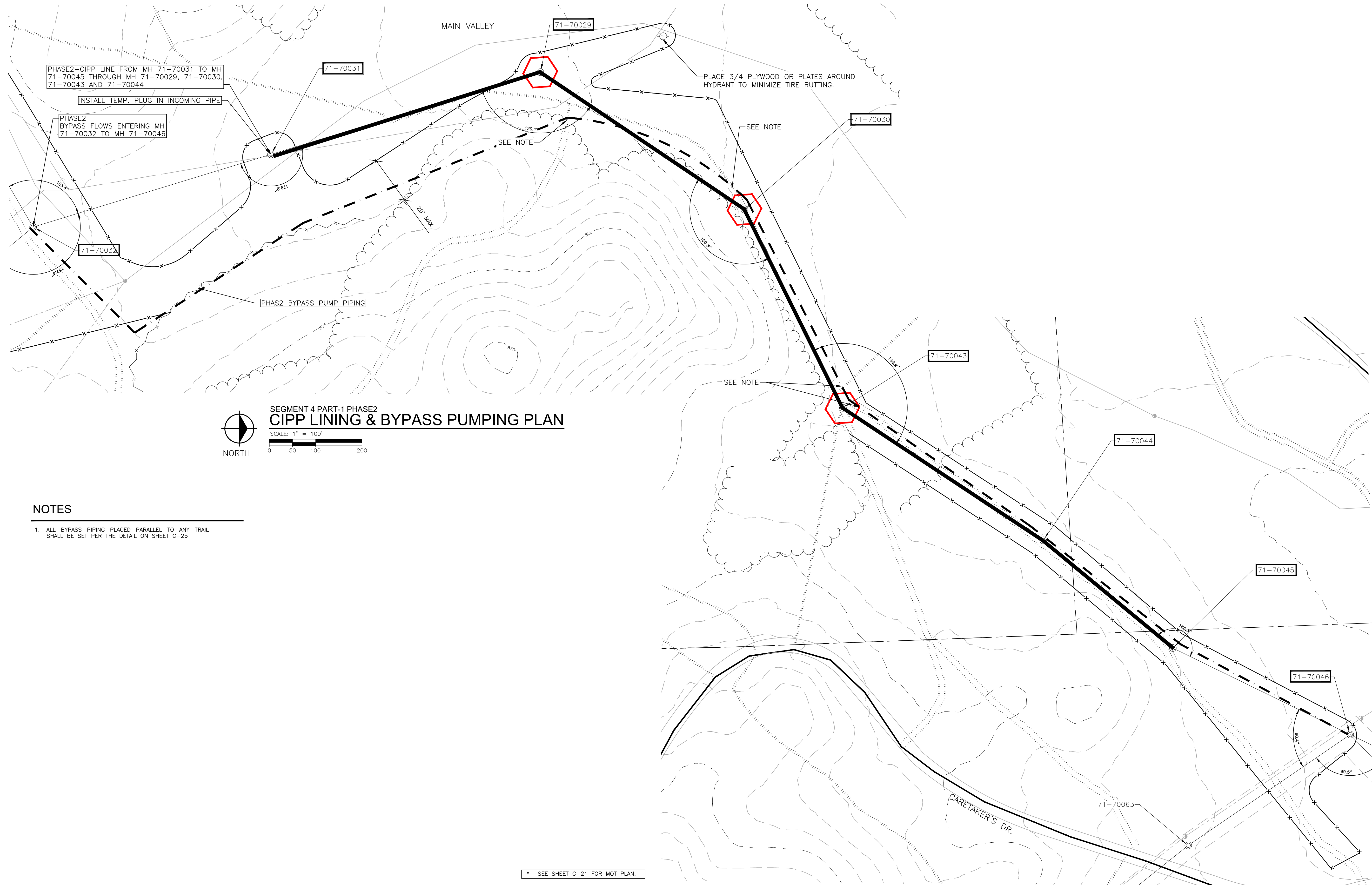
**PUBLIC SERVICES-ENGINEERING - CITY OF ANN ARBOR**  
**NICHOLS ARBORETUM SANITARY SEWER LINING**  
 SEGMENT 4(1)-BYPASS PUMPING PLAN  
 PHASE-1

SCALE PLAN:

DRAWING No. **2021-015-C16**

SHEET No. **C-16**

Z:\2019\190408\CAD\CD\1\_210912 - Nichols Arboretum Sanitary Sewer Lining (Segments 1-6)\By-Pass Pumping\_1.dwg Dwg Created: 22-Jun-21 - standard (reduced).ctb - Plot Date: 6-Jul-21



SEGMENT 4 PART-1 PHASE2  
**CIPP LINING & BYPASS PUMPING PLAN**

SCALE: 1" = 100'  
0 50 100 200

**NOTES**

- 1. ALL BYPASS PIPING PLACED PARALLEL TO ANY TRAIL SHALL BE SET PER THE DETAIL ON SHEET C-25

\* SEE SHEET C-21 FOR MOT PLAN.

**811**  
Know what's below.  
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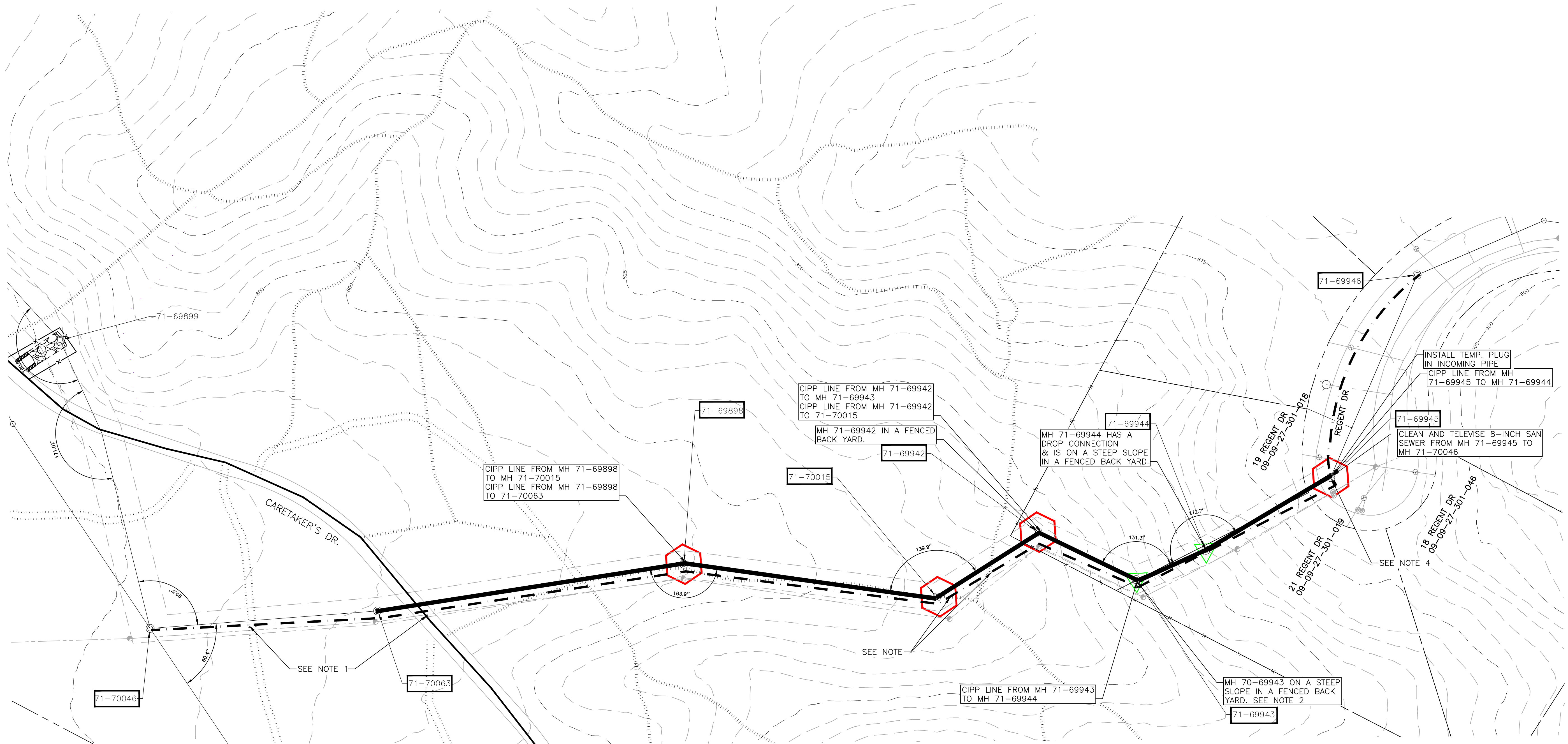
**PUBLIC SERVICES-ENGINEERING - CITY OF ANN ARBOR**  
NICHOLS ARBORETUM SANITARY SEWER LINING  
SEGMENT 4(1)-BYPASS PUMPING PLAN  
PHASE-2

SCALE PLAN:  
SCALE: 1" = 100'

DRAWING No.  
2021-015-C17

SHEET No.  
C-17

Z:\2019\190408\CAD\CD\1\_210912 - Nichols Arboretum Sanitary Sewer Lining (Segments 1-6)\By-Pass Pumping\_1.dwg Dwg Created: 22-Jun-21 - standard (reduced).ctb - Plot Date: 6-Jul-21



SEGMENT 5 PART-1  
**CIPP LINING & BYPASS PUMPING PLAN**  
 SCALE: 1" = 40'  
 NORTH  
 0 20 40 80  
 \* SEE SHEET C-22 FOR MOT PLAN.

- NOTES**
- ALL BYPASS PIPING PLACED PARALLEL TO ANY TRAIL SHALL BE SET PER THE DETAIL ON SHEET C-25.
  - CONTRACTOR SHALL WORK WITH THE PROPERTY OWNER AND ARBORETUM STAFF TO DEVELOP THE LEAST INTRUSIVE MEANS TO ACCESS MH 71-69943 WITH THE MINIMAL EQUIPMENT REQUIRED TO CLEAN, TELEWISE AND LINE THE SEWERS IN AND OUT OF THE MANHOLE.
  - UPON COMPLETION OF SEWER CLEANING AND TELEVISION, CONTRACTOR SHALL REVIEW LATERAL LOCATIONS WITH ENGINEER. ADDITIONAL FIELD INVESTIGATIONS MAY BE REQUIRED. BASED UPON THE INFORMATION OBTAINED THE RECOMMENDED BYPASS PUMPING SYSTEM SHALL BE REVISED AS NECESSARY TO MINIMIZE SERVICE INTERRUPTIONS.
  - CONTRACTOR MAY BE REQUIRED TO REMOVE AND REPLACE THE MANHOLE CASTING AND RISER IF BYPASS PUMPING NEEDS TO BE PERFORMED FROM THIS LOCATION.
  - SHOULD REMOVAL OF THE MH CASTING AND CONE SECTION BE REQUIRED THE CONTRACTOR SHALL INSTALL EROSION CONTROL MEASURES PER SHEET C-26 PRIOR TO STARTING ANY SAW CUTTING OR EXCAVATION.
  - CONTRACTOR SHALL WORK WITH THE CITY AND INDIVIDUAL HOME OWNER FOR RESTRICTED WATER USE FOR DURATION OF THE WORK ON SEGMENT 5.

**811**  
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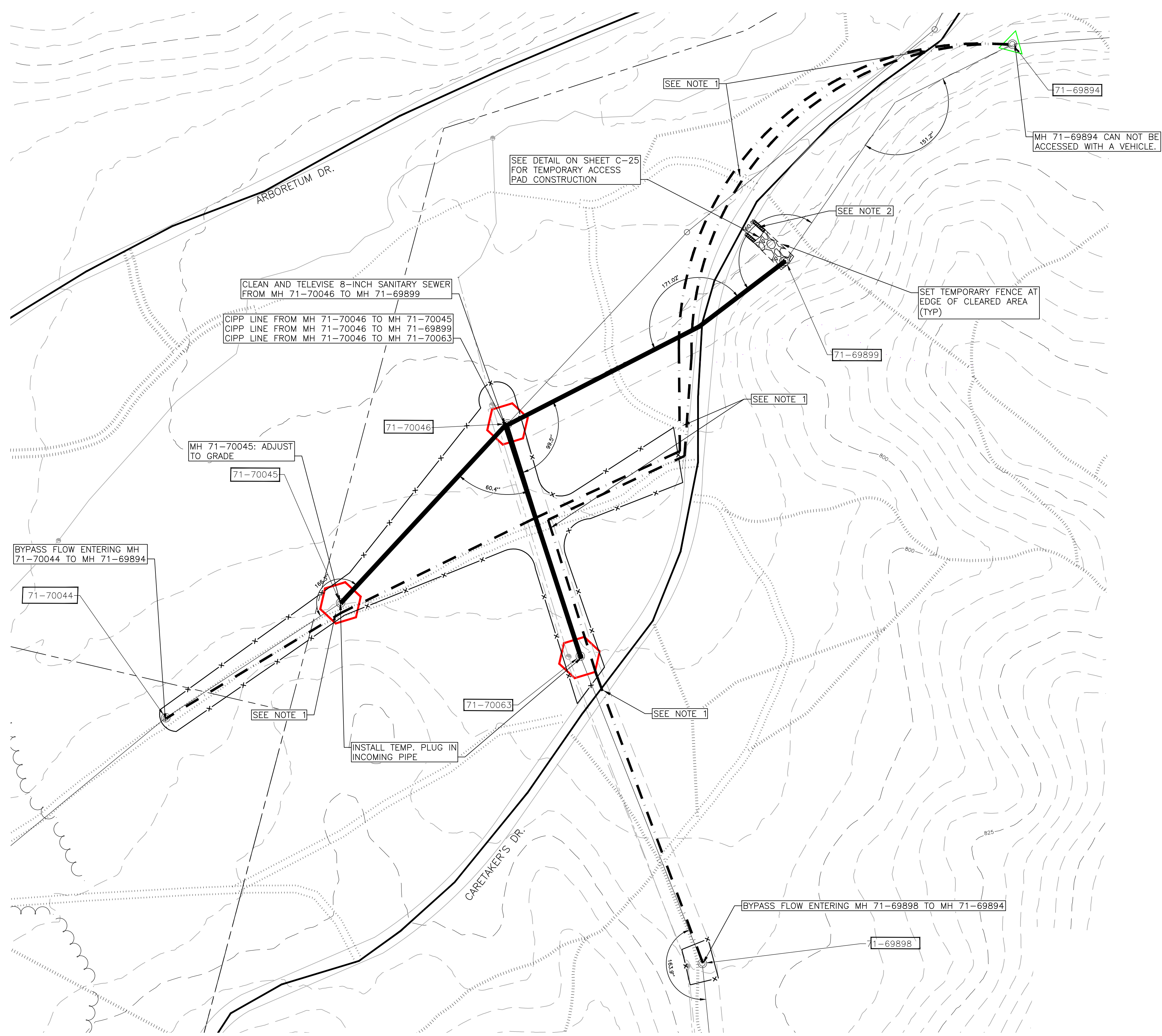
**PUBLIC SERVICES-ENGINEERING - CITY OF ANN ARBOR**  
 NICHOLS ARBORETUM SANITARY SEWER LINING  
 SEGMENT 5(1) BYPASS PUMPING PLAN

SCALE PLAN:  
 DRAWING No.  
**2021-015-C18**

SHEET No.  
**C-18**

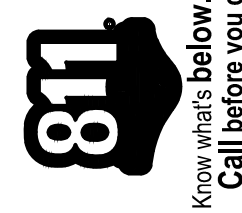
DATE: 07-06-2021

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**NOTES**


1. ALL BYPASS PIPING PLACED PARALLEL TO ANY TRAIL SHALL BE SET PER THE DETAIL ON SHEET C-25
2. INSTALL SILT FENCE INSIDE TEMPORARY FENCE AT ACCESS PAD LOCATION BEFORE CONSTRUCTING ACCESS PAD.



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**PUBLIC SERVICES-ENGINEERING - CITY OF ANN ARBOR**  
NICHOLS ARBORETUM SANITARY SEWER LINING  
SEGMENT 4(2)- 5(2)-6(1)-BYPASS PUMPING  
PLAN

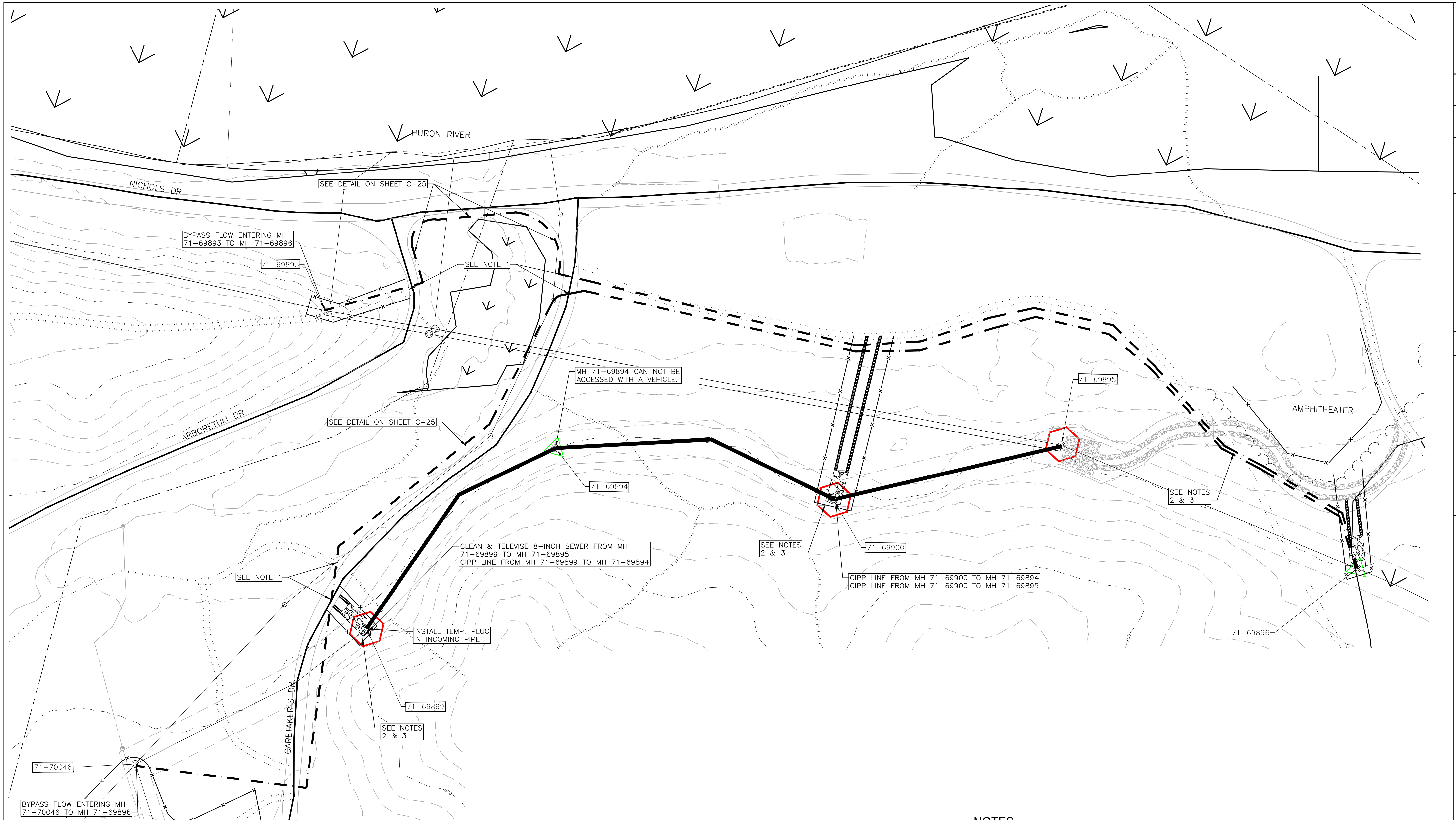
SCALE PLAN:  
SCALE: 1" = 40'



DRAWING No.  
**2021-015-C19**

SHEET No. **C-19**

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**SEGMENT 6, PART 2  
CIPP LINING & BYPASS PUMPING PLAN**

SCALE: 1" = 40'  
0 20 40 80

NORTH

\* SEE SHEET C-24 FOR MOT PLAN.

**NOTES**

1. ALL BYPASS PIPING PLACED PARALLEL TO ANY TRAIL SHALL BE SET PER THE DETAIL ON SHEET C-25
2. INSTALL SILT FENCE INSIDE TEMPORARY FENCE AT ACCESS PAD LOCATION BEFORE CONSTRUCTING ACCESS PAD PER DETAIL ON SHEET C-26.
3. SEE DETAIL ON SHEET C-25 FOR TEMPORARY ACCESS PAD CONSTRUCTION

**811**  
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REV.	DESCRIPTION	DATE	DRAWN	CHECKED
		07-06-2021		

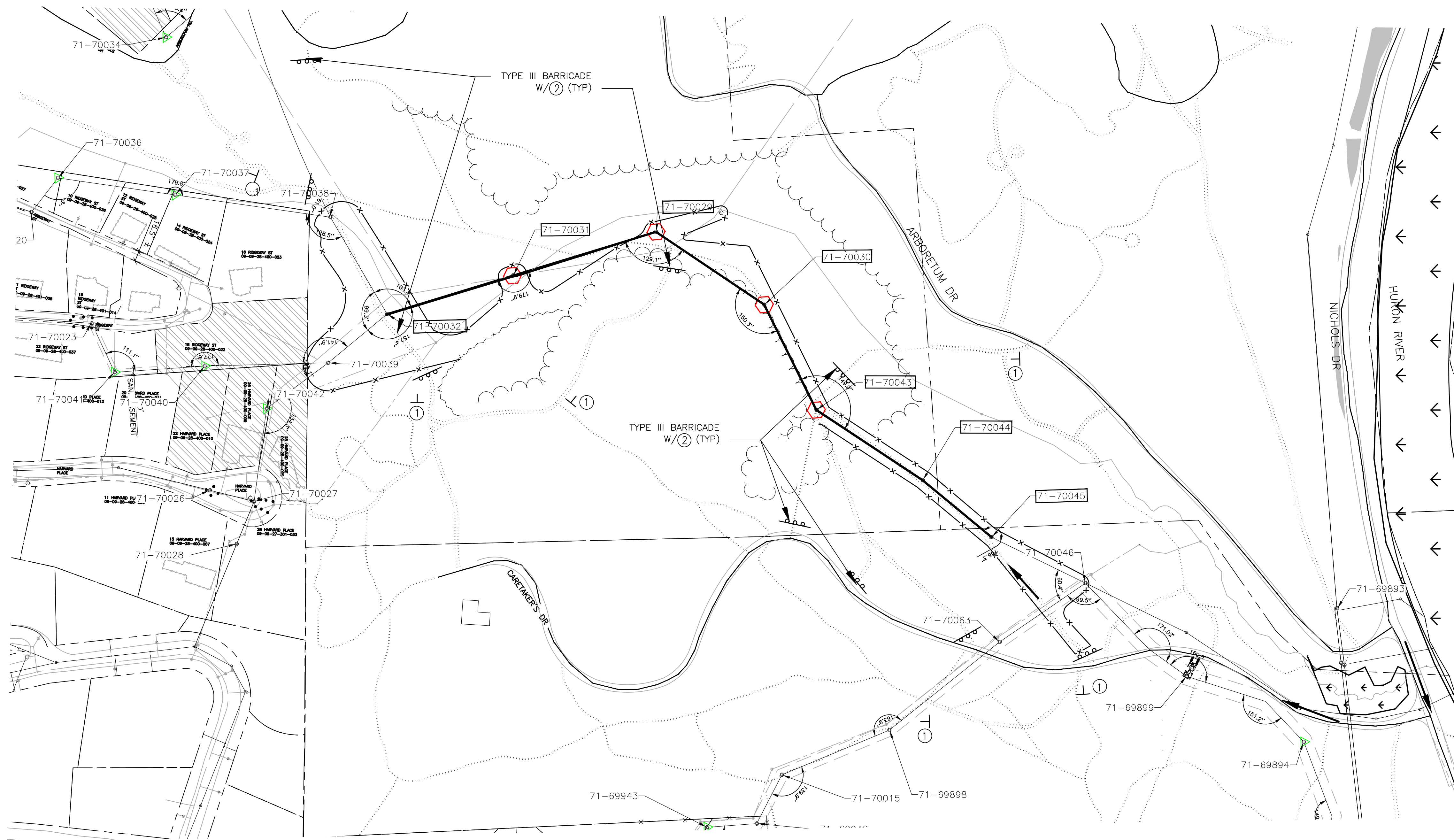
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NICHOLS ARBORETUM SANITARY SEWER LINING  
SEGMENT 6(2)-BYPASS PUMPING PLAN

SCALE PLAN:  
DRAWING No.  
**2021-015-C20**

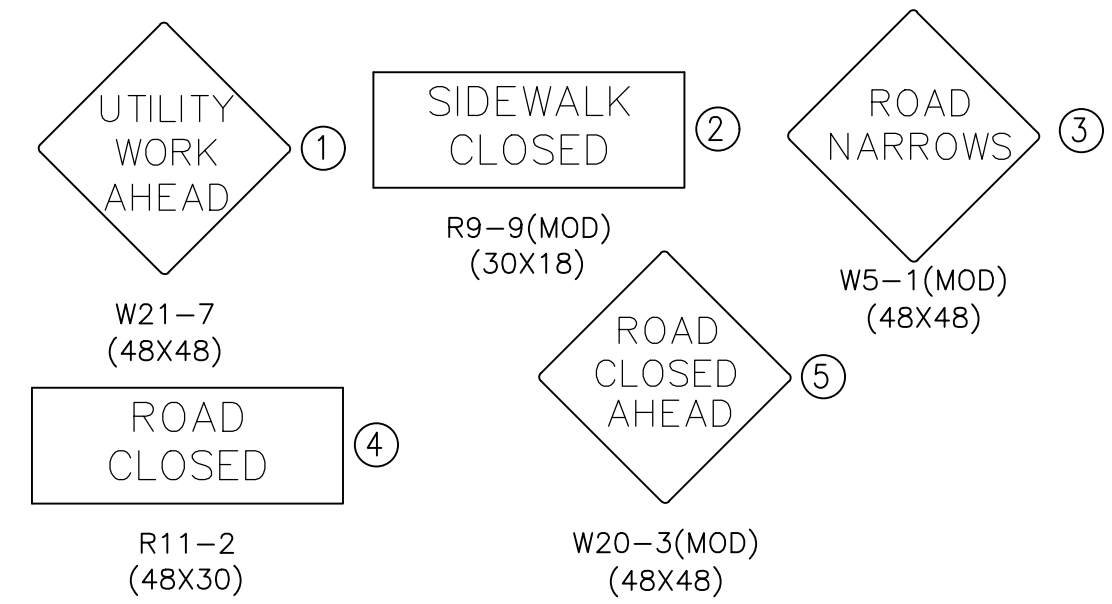
SHEET No.  
**C-20**

Z:\2019\190408\CAD\CD\1\_210912 - Nichols Arboretum Sanitary Sewer Lining (Segments 1-6)\By-Pass Pumping\_1.dwg Dwg Created: 22-Jun-21 - standard (reduced).ctb - Plot Date: 6-Jul-21



**SEGMENT 4 PART-1  
MAINTENANCE OF TRAFFIC PLAN**

SCALE: 1" = 100'  
0 50 100 200



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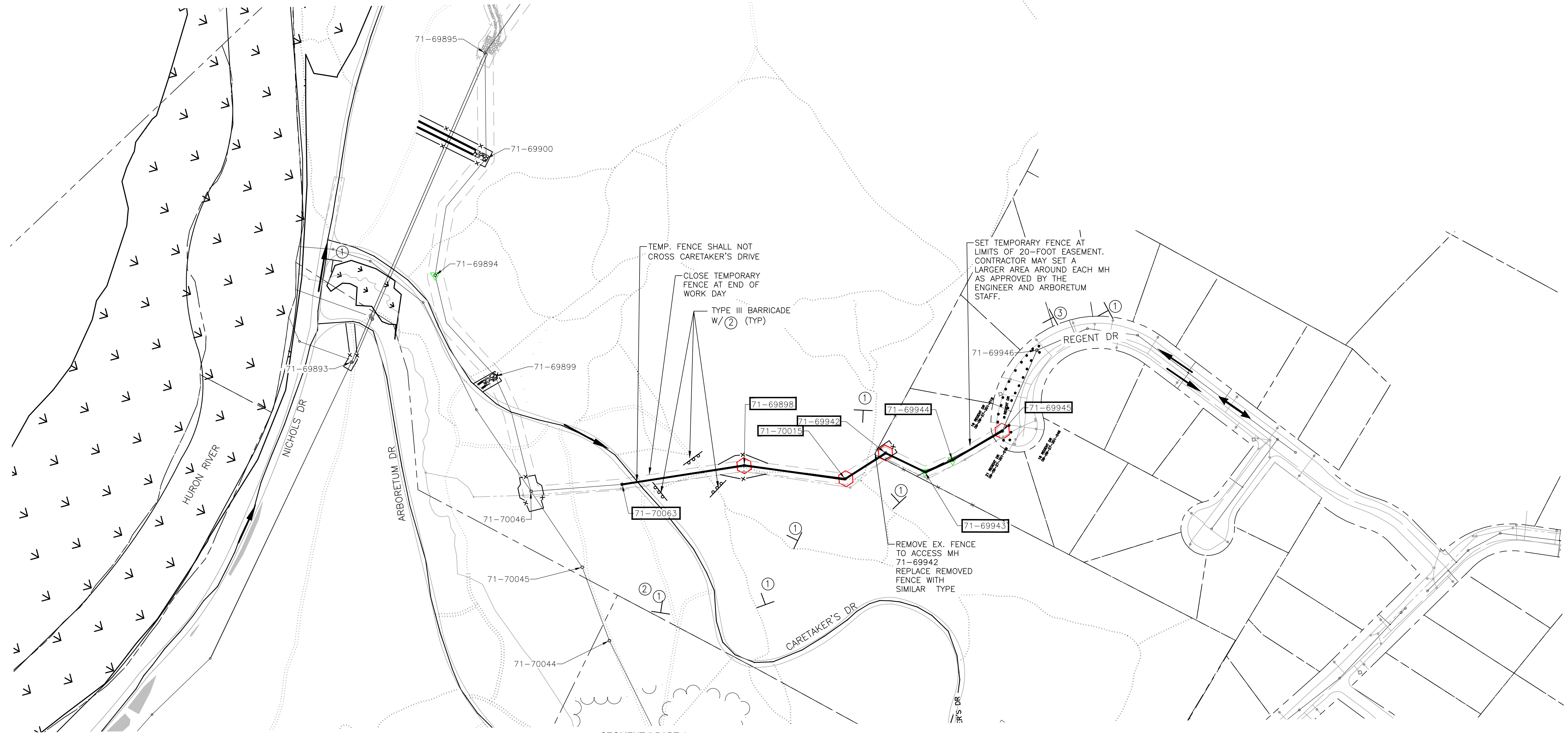
**PUBLIC SERVICES-ENGINEERING - CITY OF ANN ARBOR**  
NICHOLS ARBORETUM SANITARY SEWER LINING  
SEGMENT 4(1)-MAINTENANCE OF TRAFFIC

SCALE PLAN:  
DRAWING No.  
**2021-015-C21**

SHEET No.  
**C-21**

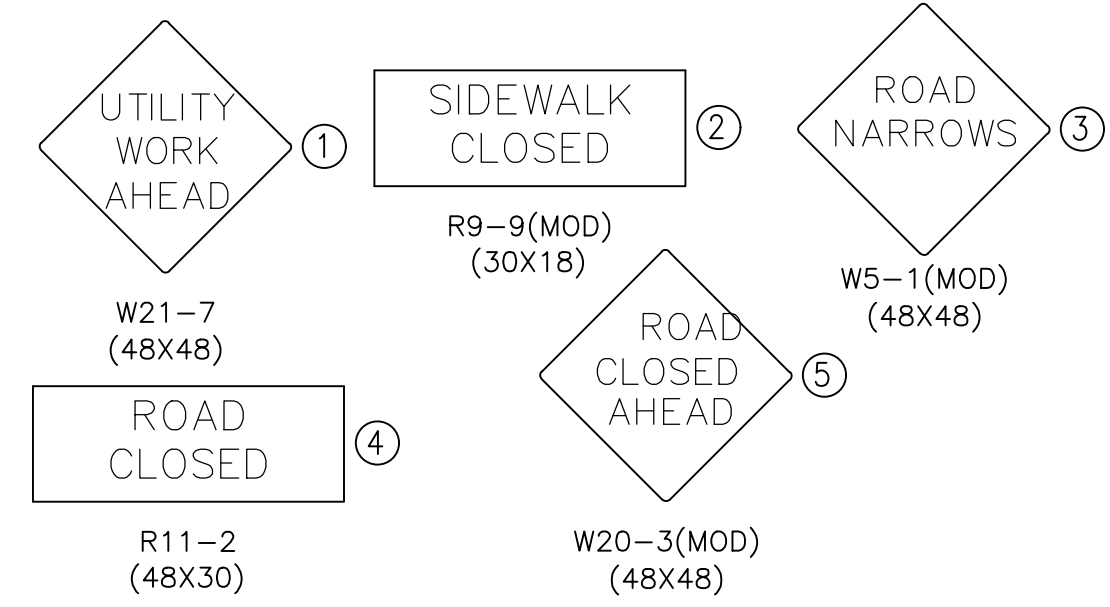
SCALE PLAN:  
DRAWING No.  
**2021-015-C21**

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SEGMENT 5 PART-1  
MAINTENANCE OF TRAFFIC PLAN

SCALE: 1" = 100'  
0 50 100 200



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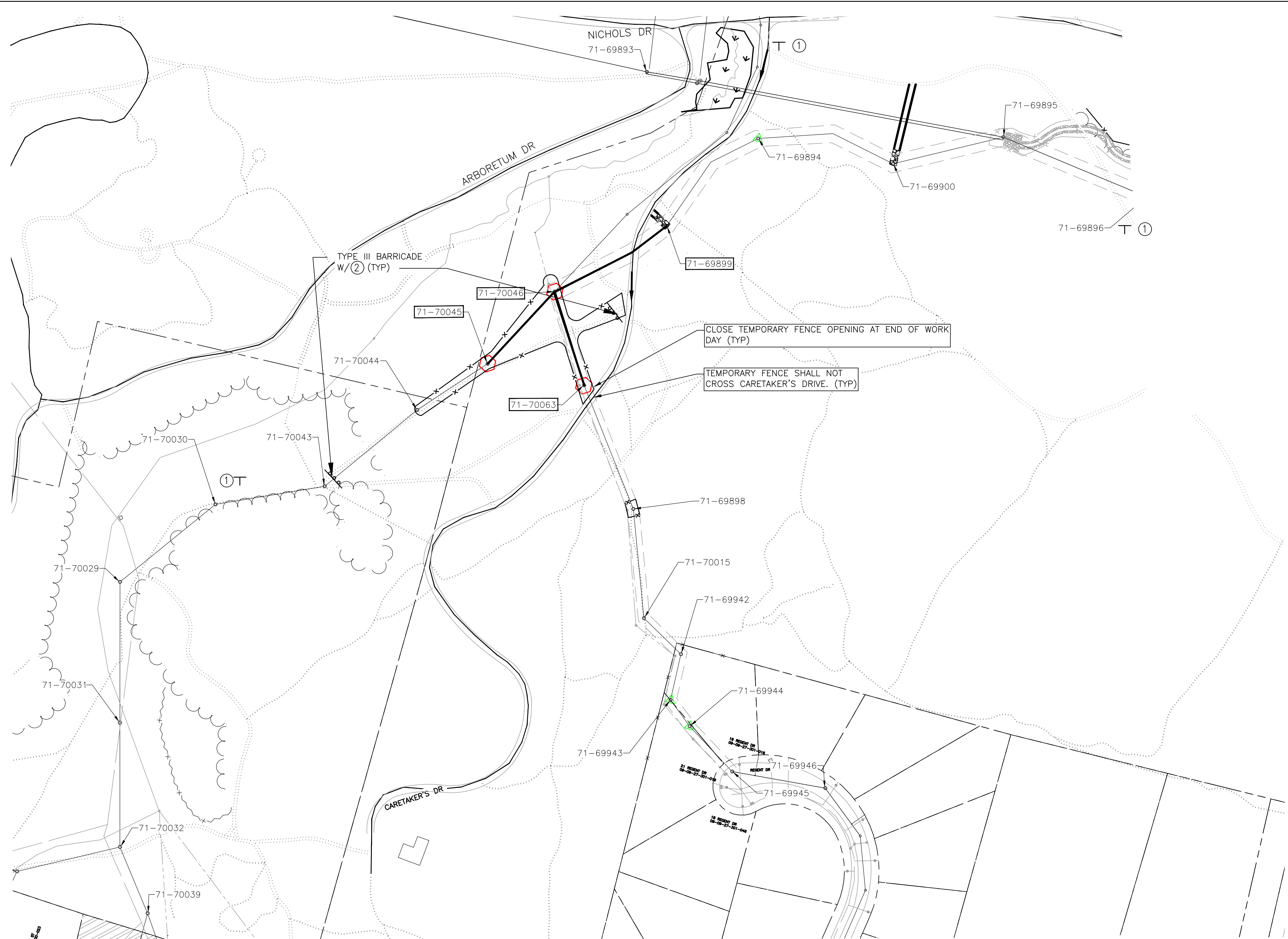
**PUBLIC SERVICES-ENGINEERING - CITY OF ANN ARBOR**  
NICHOLS ARBORETUM SANITARY SEWER LINING  
SEGMENT 5(1)-MAINTENANCE OF TRAFFIC

SCALE PLAN:  
DRAWING No.  
**2021-015-C22**

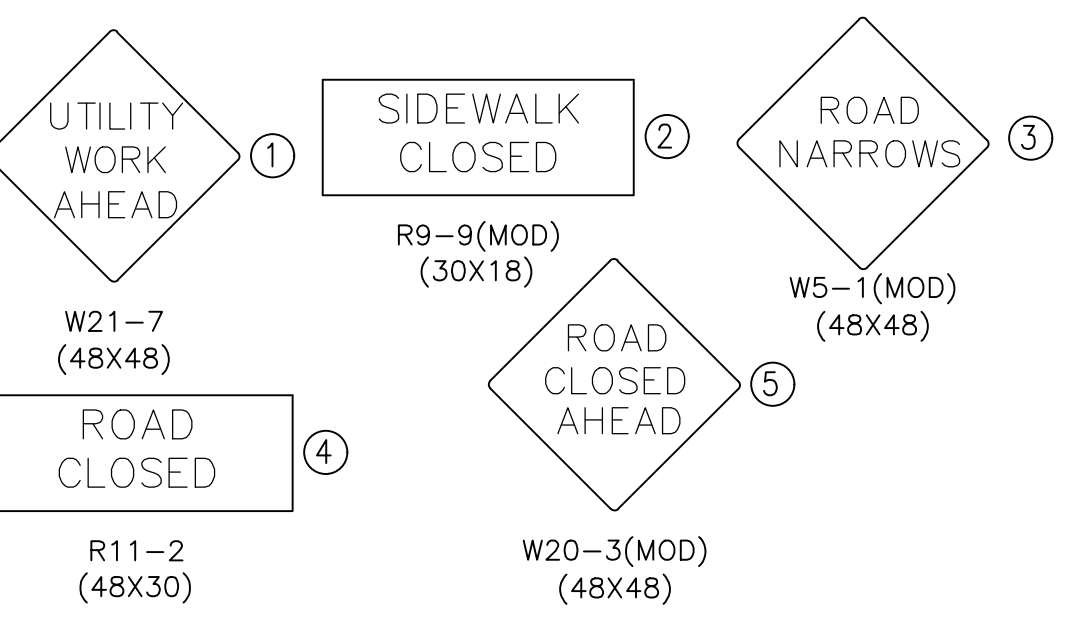
SHEET No.  
**C-22**

SCALE PLAN:  
DRAWING No.  
**2021-015-C22**

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**SEGMENT 4 PART-2, 5 PART-2 & 6 PART-1  
MAINTENANCE OF TRAFFIC PLAN**  
SCALE: 1" = 100'  
0 50 100 200



**NOTES**  
1. THE COST OF THIS WORK SHALL BE INCLUDED IN THE RESPECTIVE LINE ITEMS FOR SEWER SEGMENT 6 MOT.

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**NICHOLS ARBORETUM SANITARY SEWER LINING**  
SEGMENT 4(2)- 5(2)-6(1)-MAINTENANCE OF TRAFFIC

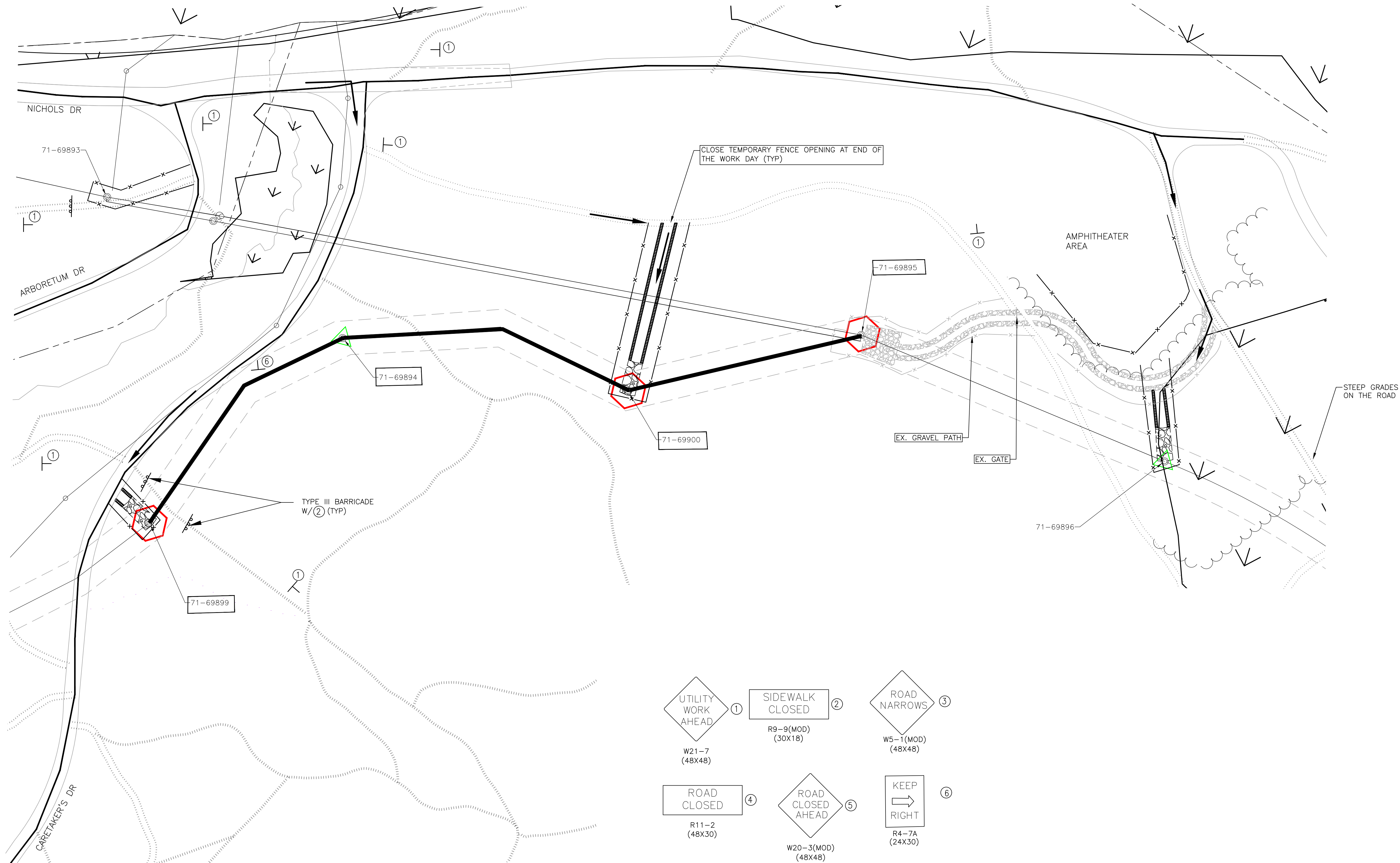
SCALE PLAN:  
DRAWING No. **2021-015-C23**

SHEET No. **C-23**

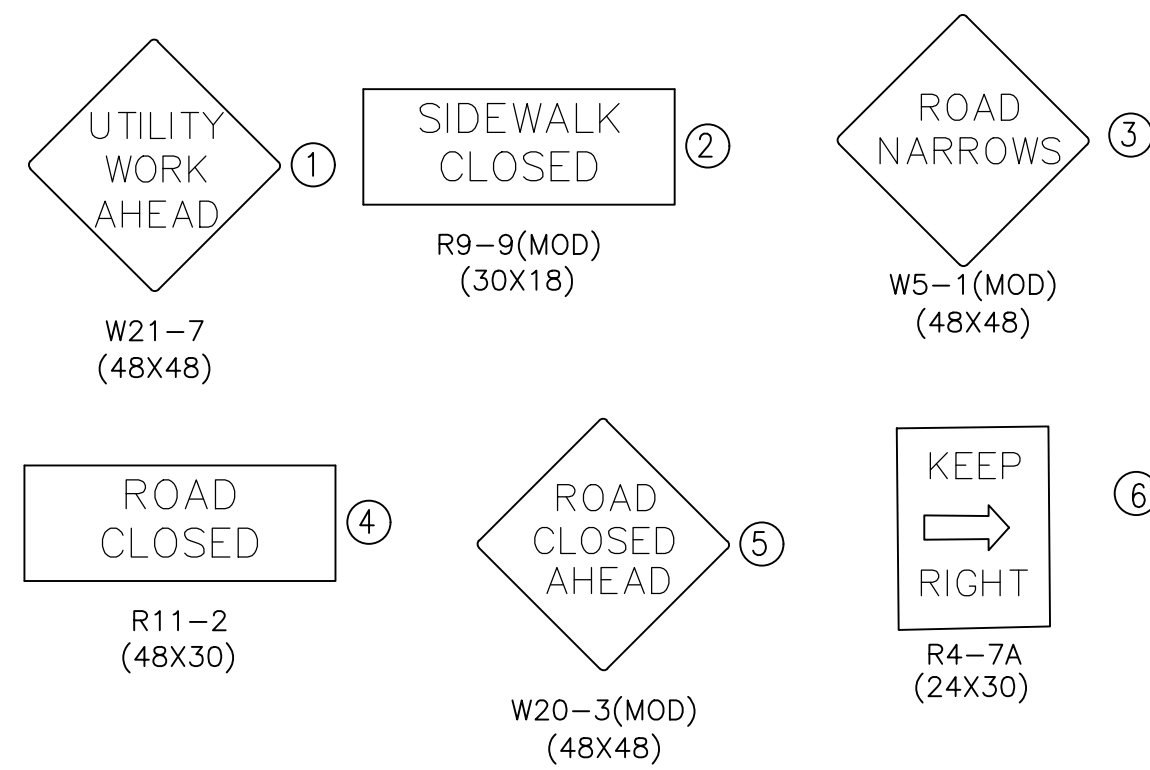
DATE: 07-06-2021



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**SEGMENT 6, PART 2**  
**MAINTENANCE OF TRAFFIC PLAN**  
 SCALE: 1" = 40'  
 0 20 40 80



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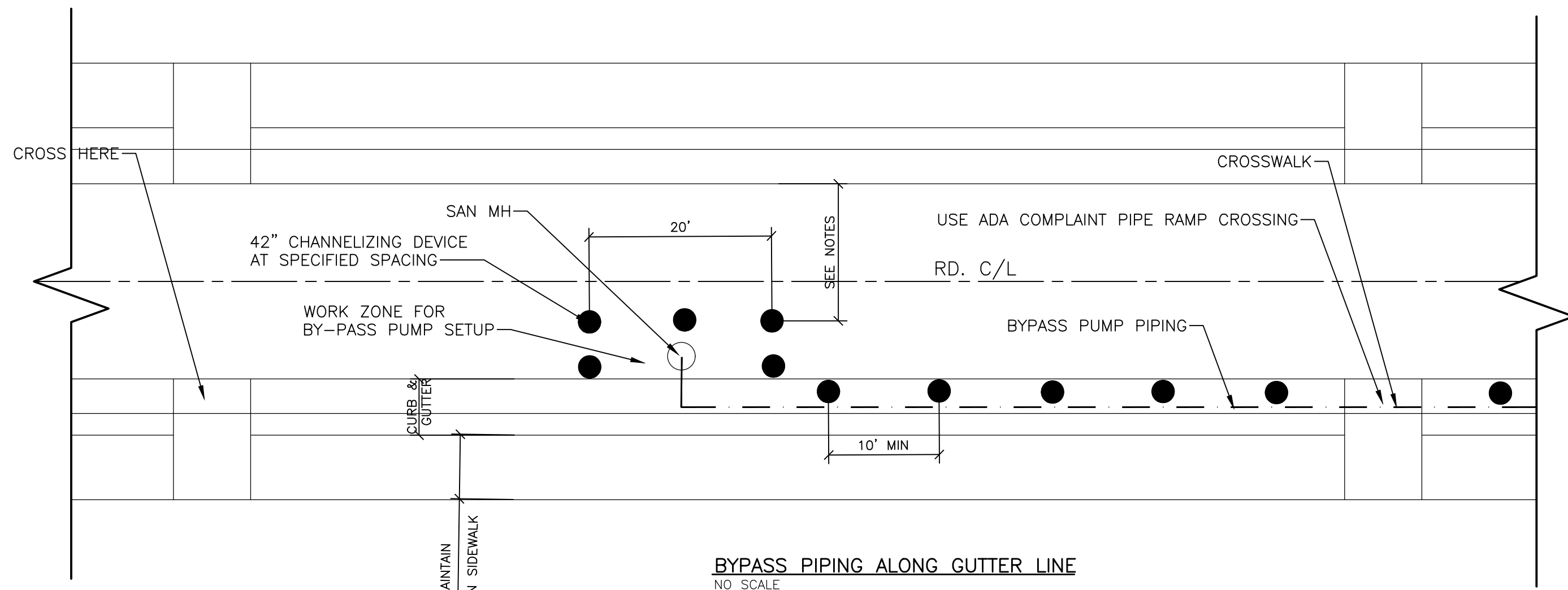
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**NICHOLS ARBORETUM SANITARY SEWER LINING**  
 SEGMENT 6(2)-MAINTENANCE OF TRAFFIC

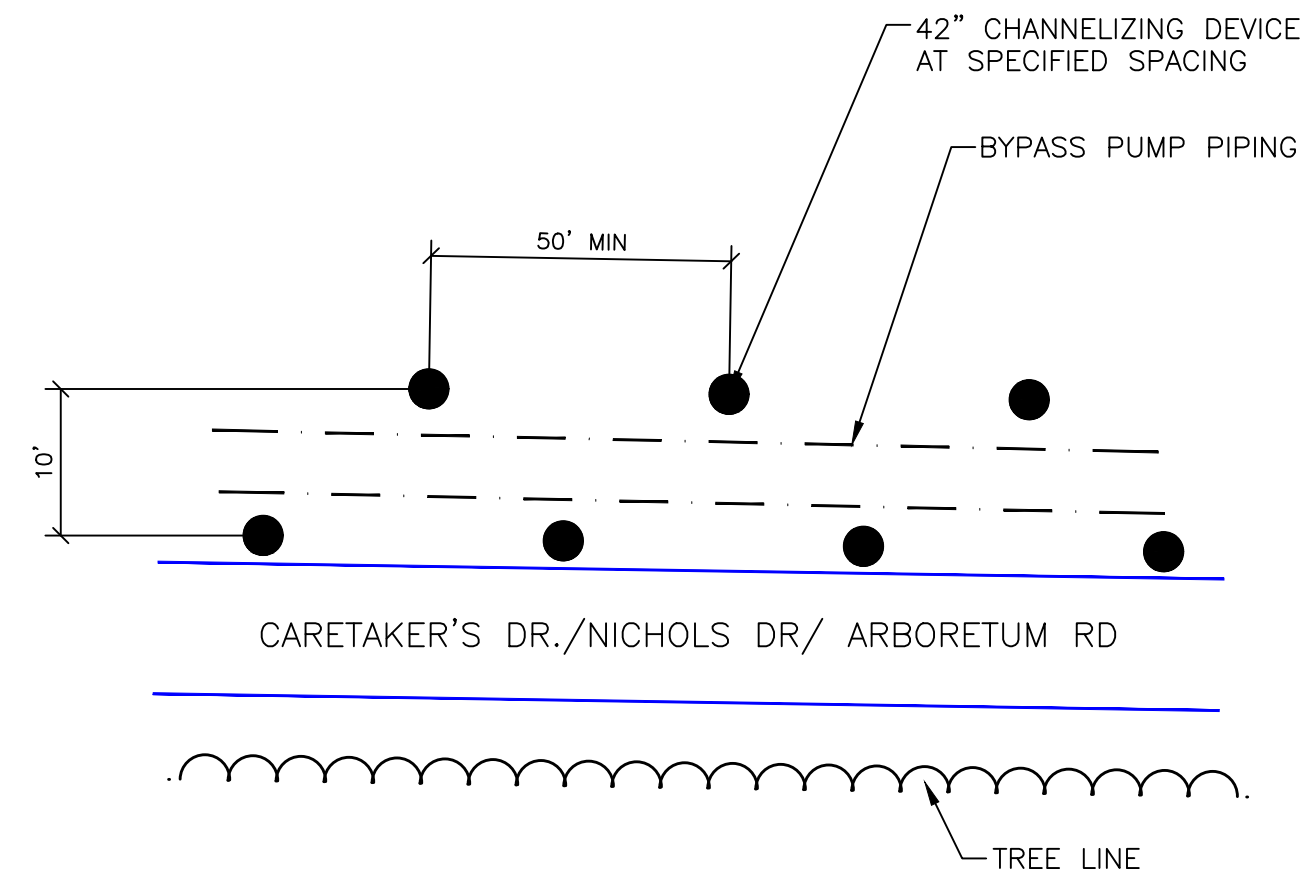
SCALE PLAN:  
 DRAWING No.  
**2021-015-C24**

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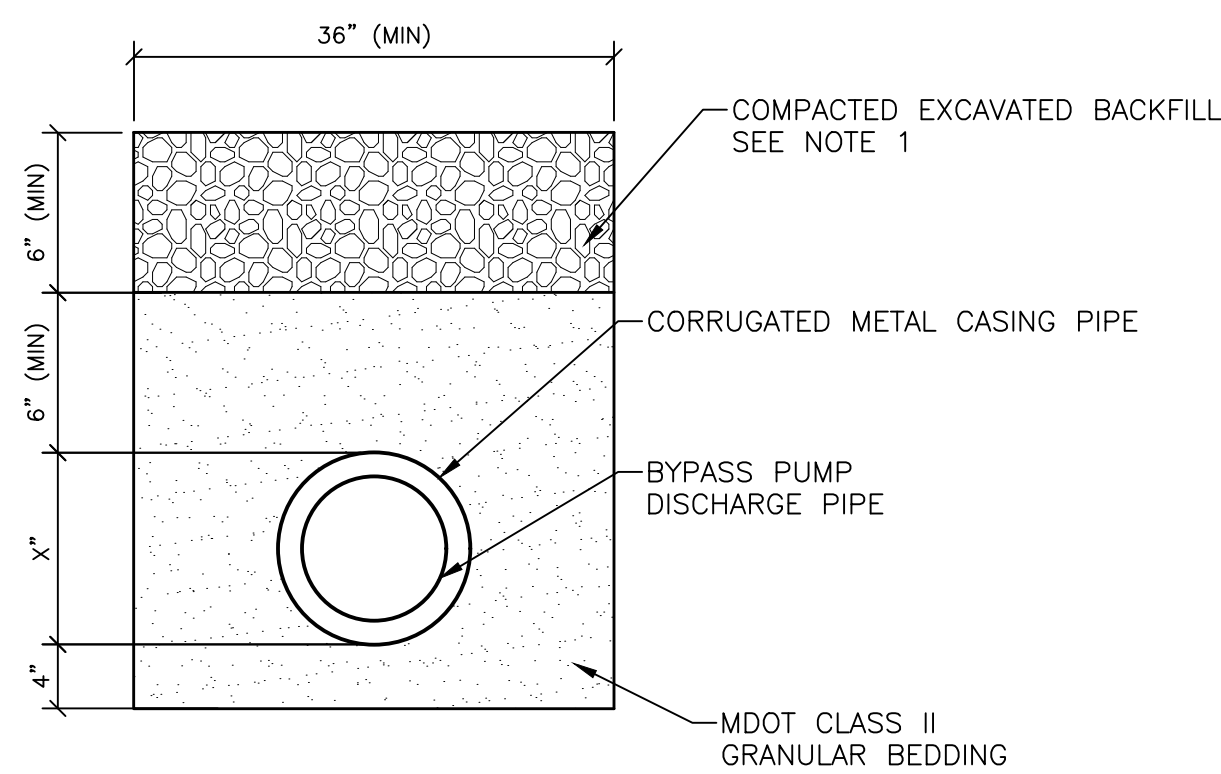


NOTES:

- WASHINGTON HEIGHTS IS A ON-WAY STREET. CONTRACTOR SHALL MAINTAIN ONE 12-FOOT WIDE LANE ON WASHINGTON HEIGHTS.
- ALL RESIDENTIAL STREETS ON THIS PROJECT (LIST) ARE NARROW, TWO-WAY STREETS. CONTRACTOR SHALL MAINTAIN TWO-WAY TRAFFIC WITH A MINIMUM 10-FOOT LANE AND FLAGGERS AS REQUIRED OR DIRECTED BY THE ENGINEER.



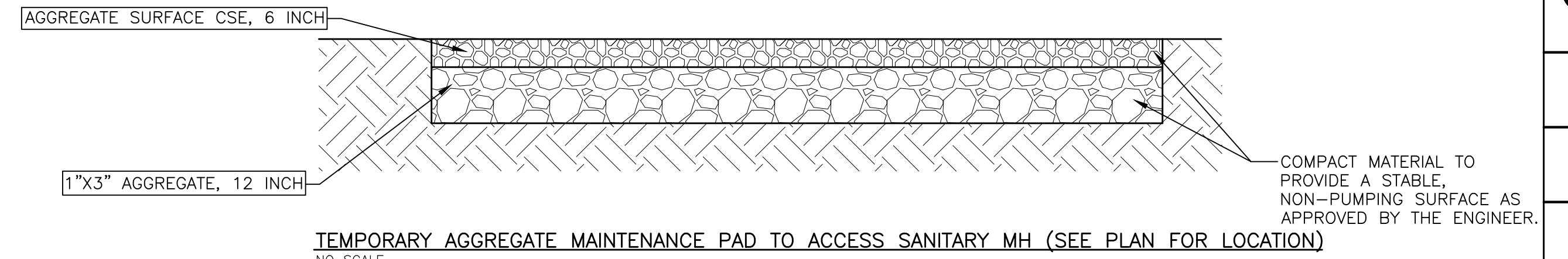
WORKZONE ALONG ARBORETUM ROADS  
NO SCALE



LATERAL BYPASS PUMP DISCHARGE PIPE TEMPORARY TRENCH DETAIL  
NO SCALE

NOTES:

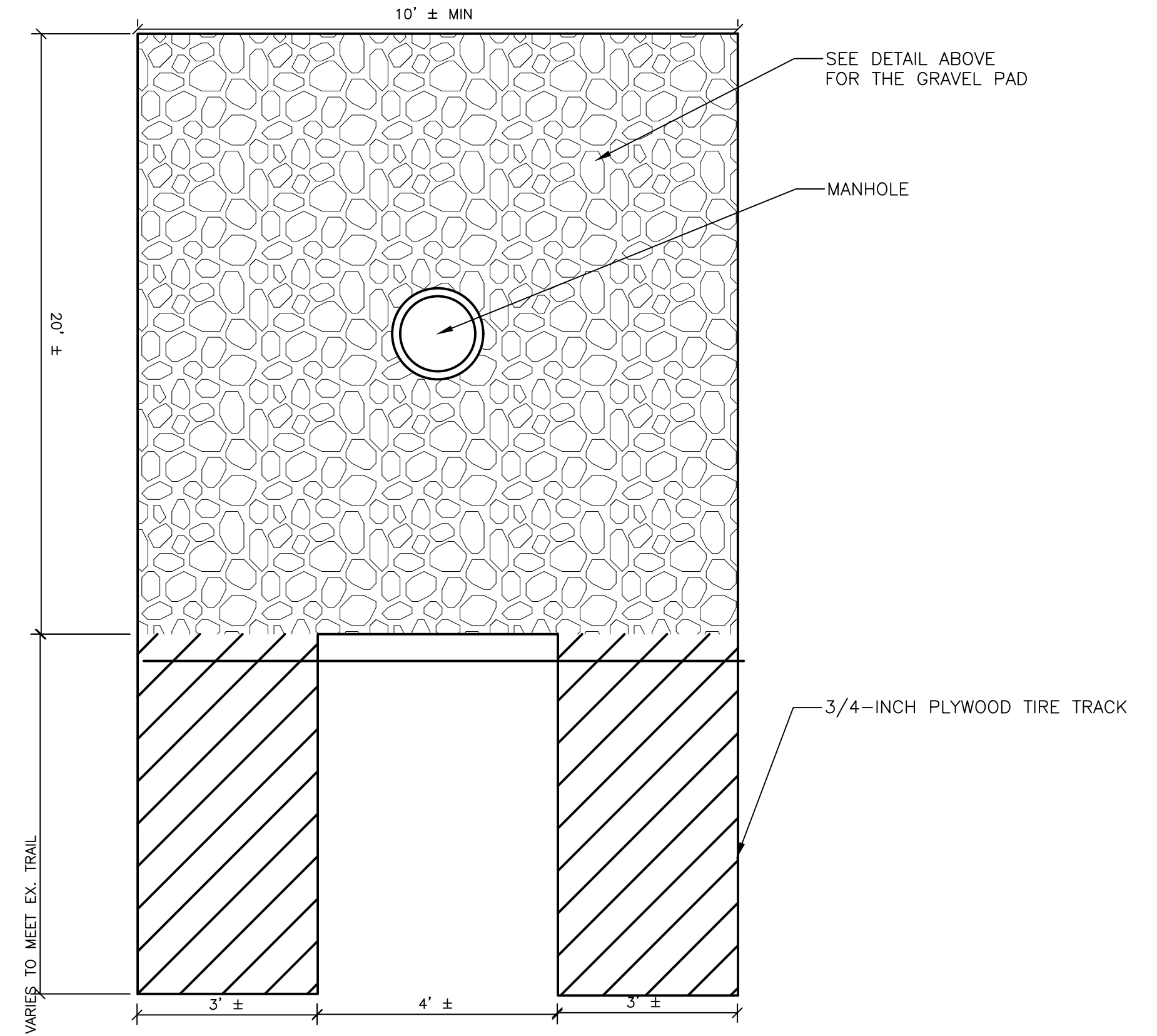
- THE LATERAL BYPASS PUMP DISCHARGE PIPE SHALL BE INSTALLED IN A TRENCH IN THE FOLLOWING LOCATIONS:
  - WHEN PIPE IS WITHIN NICHOLS DRIVE TO AVOID WETLANDS.
  - WHEN PIPE PASSES THROUGH STAGING AREA/WORK ZONE.
  - WHEN PIPE CROSSES DRIVE/ROAD OR TRAIL.
  - AS DIRECTED BY ENGINEER.
- BACKFILL TRENCH WITH NATIVE, OR OTHERWISE SUITABLE MATERIAL (MDOT CLASS II GRANULAR MATERIAL). UPON REMOVAL OF BYPASS PUMP DISCHARGE PIPE, BACKFILL MATERIAL SHALL BE EXCLUSIVE OF GRAY/BLUE CLAY, PEAT, ORGANIC MATTER OR FROZEN LUMPS, AND SHALL CONTAIN NO ROCKS OR LUMP OVER 3".
- REPAIR NICHOLS DRIVE PER AGGREGATE DRIVE DETAIL ON SHEET 18.
- PROVIDE SPACERS AS REQUIRED IN INTERSTITIAL SPACE BETWEEN PIPES.
- CASING PIPE SHALL BE LARGE ENOUGH TO ACCOMMODATE SIZE OF SPACERS AND CARRY BYPASS PUMP DISCHARGE PIPE.
- PLACE MATERIAL IN ACCORDANCE WITH MDOT 2012 STANDARD SPECIFICATIONS FOR CONSTRUCTION. MATERIALS SHALL BE COMPACTED TO A MINIMUM OF 95% OF ITS MAXIMUM DRY DENSITY AS DETERMINED BY THE AASHTO T-180 PROCTOR.



TEMPORARY AGGREGATE MAINTENANCE PAD TO ACCESS SANITARY MH (SEE PLAN FOR LOCATION)  
NO SCALE

NOTES:

- EXISTING TOP SOIL MUST BE REMOVED AND STORED ON SITE.
- CONSTRUCT AGGREGATE PAD (APPROXIMATELY 10'X20') AT SHOWN LOCATION IN PLANS.
- PROPOSED PATH SHALL FOLLOW EXISTING GRADES AS CLOSE AS FEASIBLE TO PROVIDE STABLE ALL-SEASON ACCESS. FINAL GRADE OF THE PATH SHALL BE APPROVED BY THE UNIVERSITY OF MICHIGAN ARBORETUM DIRECTOR AND THE ENGINEER.
- FOR PATH THROUGH AMPHITHEATER AREA, PLACE LAYER OF TOPSOIL PROVIDED BY ARBORETUM OVER MAINTENANCE PATH AND SEED MIXTURE PROVIDED BY ARBORETUM IN ACCORDANCE WITH THE MDOT 2012 STANDARD SPECIFICATIONS FOR CONSTRUCTION.
- EARTHWORK REQUIRED TO CONSTRUCT THE AGGREGATE ACCESS PATHS AND MAINTENANCE PAD, INCLUDING REMOVAL, EXCAVATION, EMBANKMENT, GRADING AND SOIL COMPACTION, SHALL BE INCLUDED IN THE ITEM OF WORK "AGGREGATE MAINTENANCE PAD MH XX-XXXX".
- AGGREGATES MUST BE COMPLETELY REMOVED BY THE CONTRACTOR AND EXISTING SOIL STORED ON SITE MUST BE SPREAD BACK IN THE AREA.
- TEMPORARY ACCESS PADS TO BE CONSTRUCTED WITHIN THE LIMITS OF THE AREA CLEARED BY THE ARBORETUM STAFF. THE CONTRACTOR IS PROHIBITED FROM CLEARING ADDITIONAL AREA. SHOULD THE CONTRACTOR REQUIRE ADDITIONAL AREA, CONTRACTOR SHALL NOTIFY THE ENGINEER IN WRITING.



TEMPORARY AGGREGATE MAINTENANCE PAD WITH WOODEN TIRE TRACKS  
NO SCALE  
PLAN VIEW



BYPASS PIPING LOAD RATED WATER CROSSING RAMPS  
NO SCALE

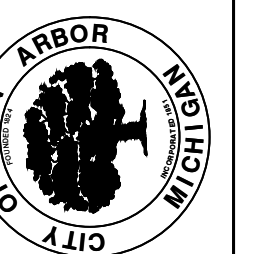
NOTES:

- USE AT ALL THE DRIVEWAYS, ROAD CROSSINGS & AS DIRECTED BY THE ENGINEER.
- INSTALLATION, MAINTENANCE AND REMOVAL COSTS OF BYPASS PIPING CROSSING RAMPS SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR SEWER FLOW CONTROL FOR EACH RESPECTIVE SEGMENT.



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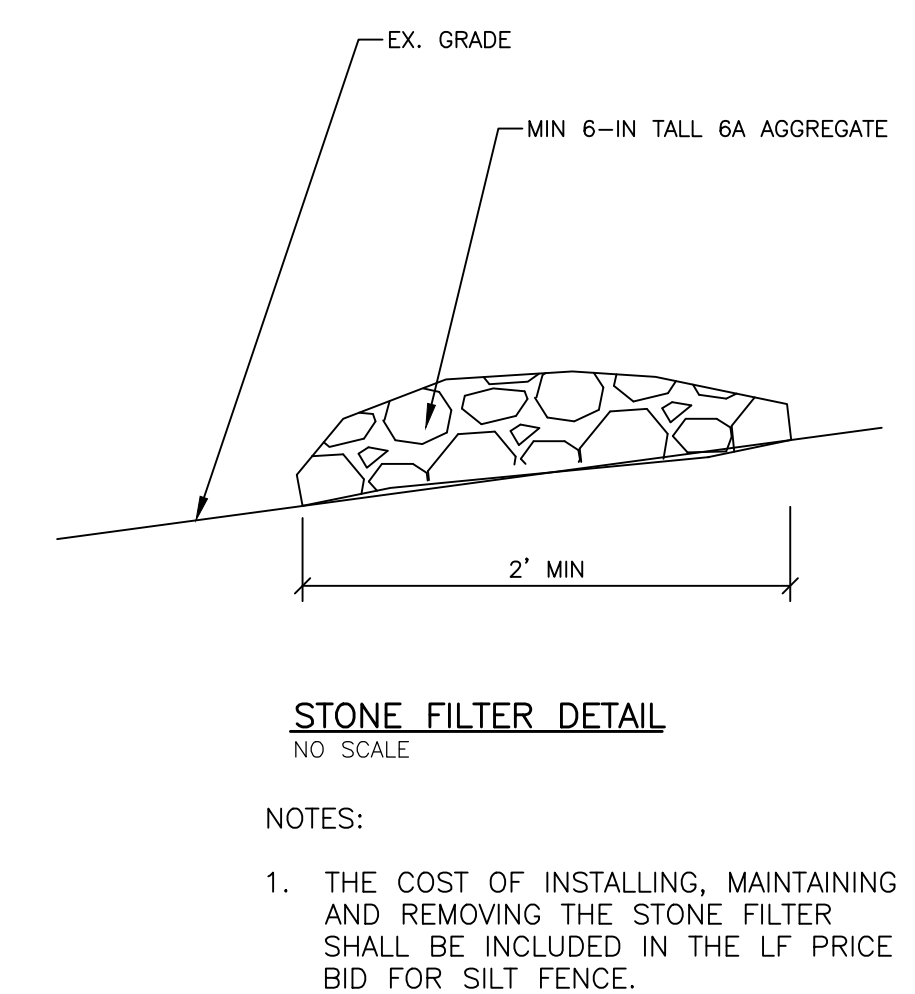
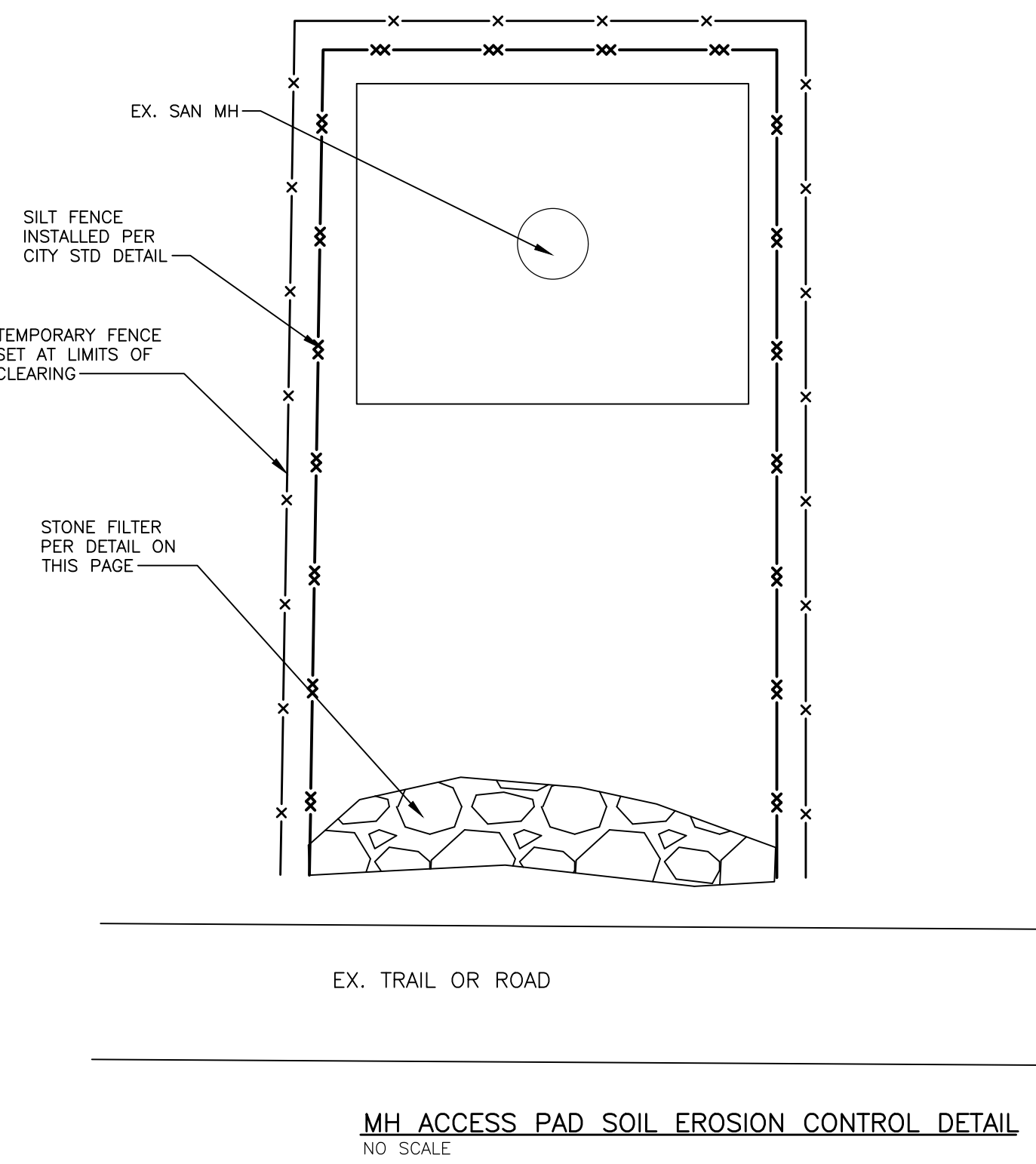
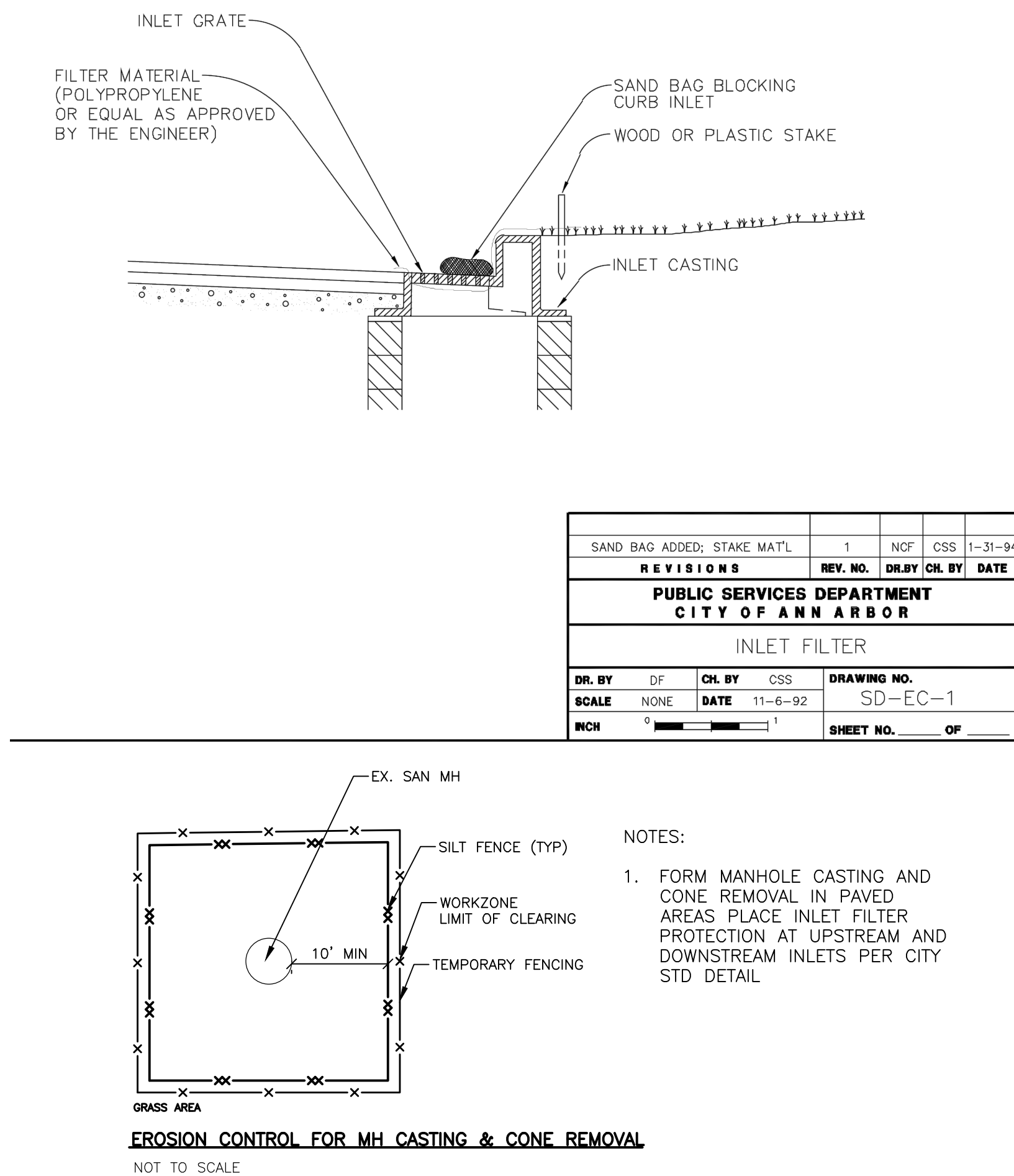
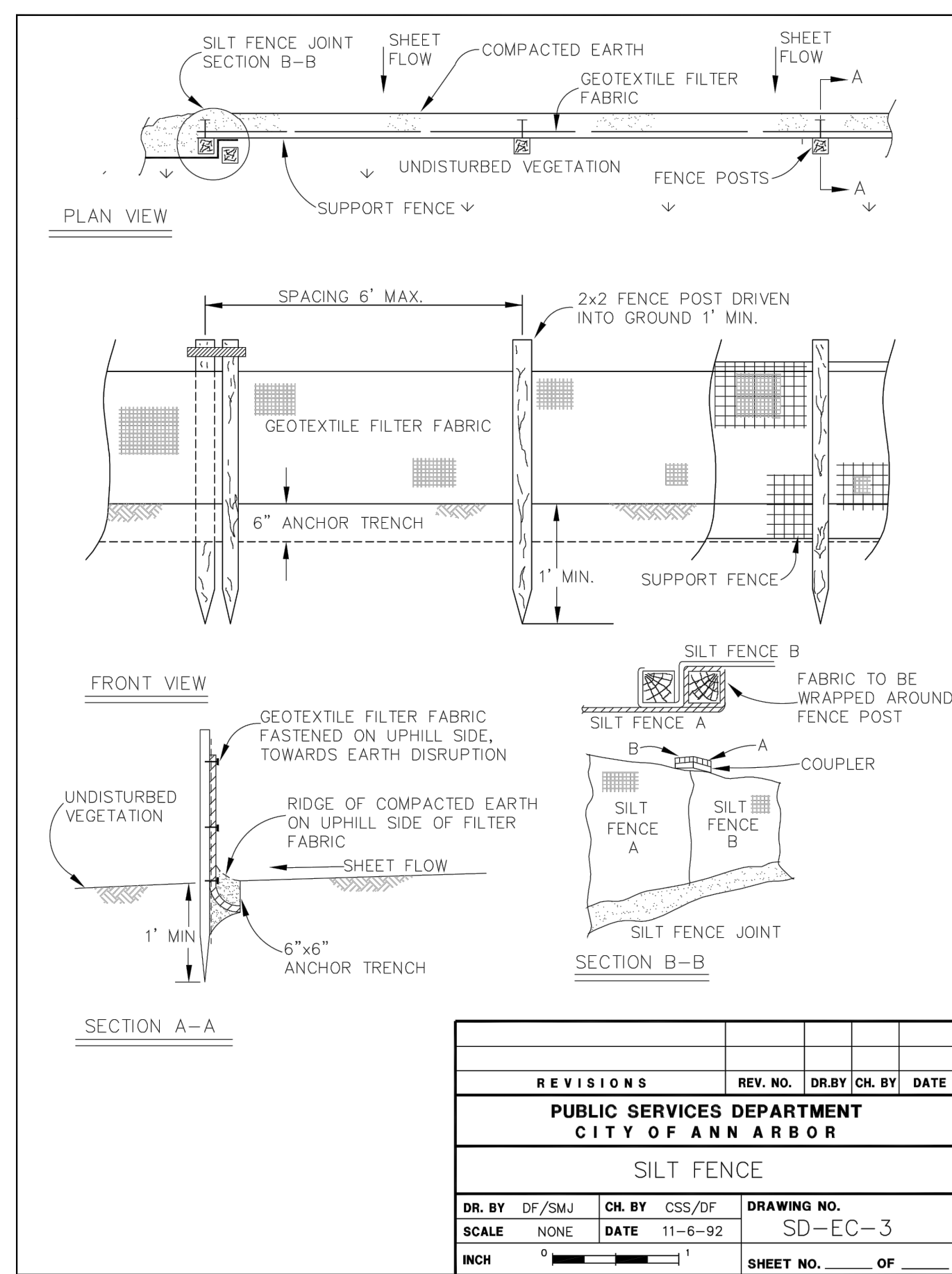
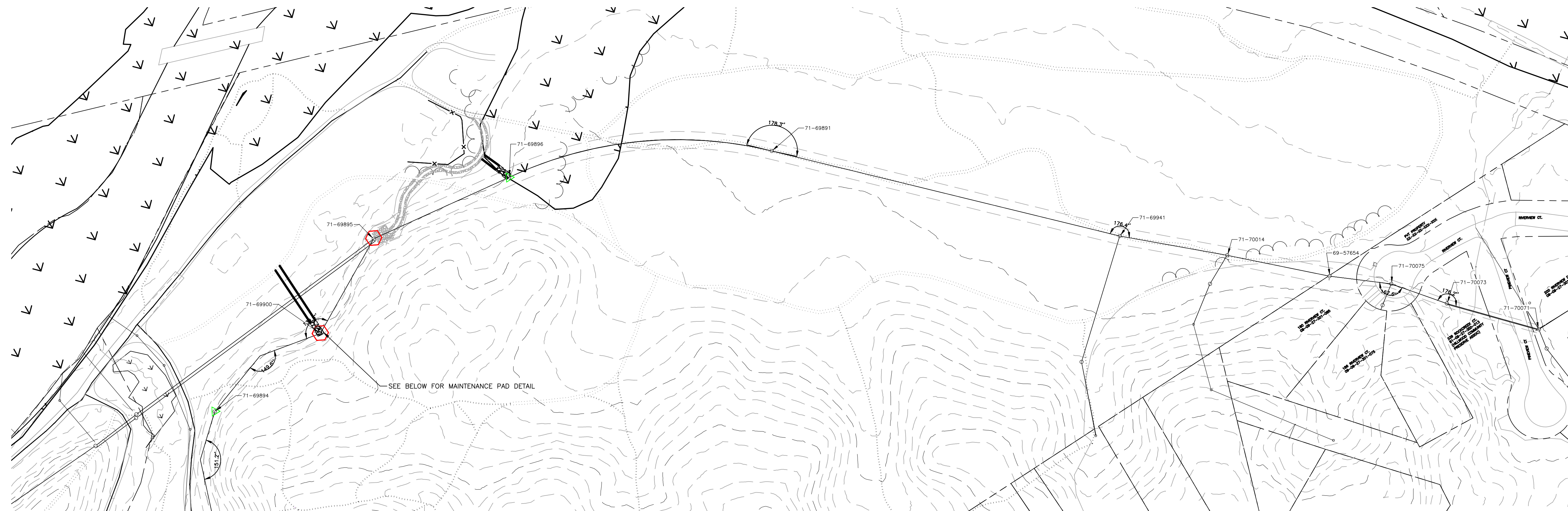
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NICHOLS ARBORETUM SANITARY SEWER LINING  
MISC. DETAILS

SCALE PLAN:  
DRAWING No.  
2021-015-C25

Z:\2019\190408\CAD\1\_210912 - Nichols Arboretum Sanitary Sewer Lining (Segments 1-6)\SWPP Plan\_1.dwg Dwg Created: 23-Jun-21 - standard (reduced).ctb - Plot Date: 6-Jul-21



REV.	ISSUED FOR BID	DESCRIPTION	DATE	DRAWN	CHECKED
	07-06-2021				

**CITY OF ANN ARBOR**  
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**PUBLIC SERVICES-ENGINEERING - CITY OF ANN ARBOR**  
 NICHOLS ARBORETUM SANITARY SEWER LINING  
 SWPP PLAN

SCALE PLAN: NONE	DRAWING No. 2021-015-C26
SHEET No. C-26	