

CITY OF ANN ARBOR PUBLIC SERVICES - ENGINEERING

IN COOPERATION WITH THE
UNIVERSITY OF MICHIGAN

SCHOOL GIRLS GLEN CULVERT REPLACEMENT



REV.	DESCRIPTION	DATE	DRAWN	CHECKED
	BIDS	08-11-2021		

CITY OF ANN ARBOR
PUBLIC SERVICES
301 EAST HURON STREET
ANN ARBOR, MI 48107-8647
734-794-6410
www.a2gov.org



PUBLIC SERVICES-ENGINEERING - CITY OF ANN ARBOR
SCHOOL GIRLS GLEN CULVERT REPLACEMENT -
NICHOLS DRIVE
COVER SHEET

SCALE PLAN:
DRAWING No.
2021-XXX-1

SHEET No.
1

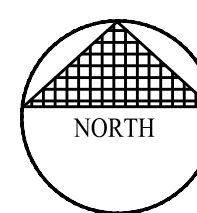
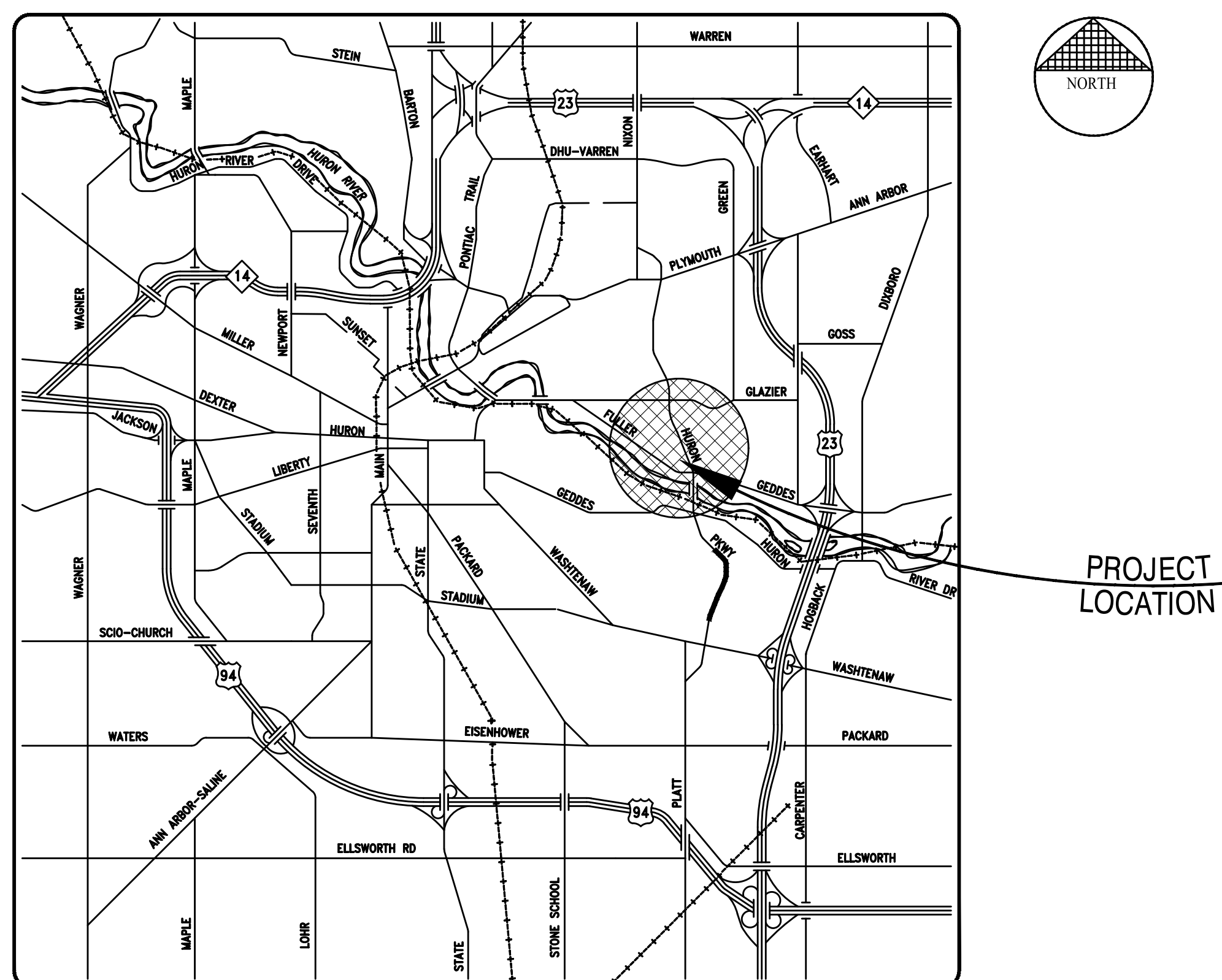
SCHOOL GIRLS GLEN - CULVERT REPLACEMENT

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THE OMISSION OF ANY CURRENT STANDARD DETAIL DOES NOT RELIEVE THE CONTRACTOR FROM THIS REQUIREMENT. THE WORK SHALL BE PERFORMED IN COMPLETE CONFORMANCE WITH THE CURRENT PUBLIC SERVICES STANDARD SPECIFICATIONS AND DETAILS.

ITB No. 4689



PROJECT LOCATION

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	CITY OF ANN ARBOR FIELD OPERATIONS SERVICE UNIT W.R. WHEELER SERVICE CENTER 4251 STONE SCHOOL ROAD ANN ARBOR, MI 48108	DAN WOODEN (734) 794-6350
SANITARY		TRAVIS CONLEY (734) 794-6350
STORM		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	(734) 544-7818 (313) 389-7261
ELECTRIC	Laurie Forrester DTE ENERGY WESTERN WAYNE SERVICE CENTER 8001 HAGGERTY ROAD BELLEVILLE, MI 48111	(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

MISCELLANEOUS

THE CONSTRUCTION COVERED BY THESE PLANS SHALL CONFORM TO THE 1994 EDITION OF THE CITY OF ANN ARBOR PUBLIC SERVICES DEPARTMENT STANDARD SPECIFICATIONS AND ITS DETAILS WHICH ARE INCLUDED BY REFERENCE.

FOR PROTECTION OF UNDERGROUND UTILITIES AND IN CONFORMANCE WITH PUBLIC ACT 53, THE CONTRACTOR SHALL DIAL 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.

3 WORKING DAYS
BEFORE YOU DIG
CALL MISS DIG
800-482-7171
(TOLL FREE)

Z:\2019\191660\CAD\C001191660.dwg Dwg Created: 6-Aug-21 - standard (reduced).ctb - Plot Date: 9-Aug-21

CITY OF ANN ARBOR NOTES

- THE CONSTRUCTION COVERED BY THESE PLANS SHALL CONFORM TO THE 1994 EDITION OF THE CITY OF ANN ARBOR PUBLIC SERVICES DEPARTMENT STANDARD SPECIFICATIONS AND ITS DETAILS WHICH ARE INCLUDED BY REFERENCE.
- THE OMISSION OF ANY CURRENT STANDARD DETAIL DOES NOT RELIEVE THE CONTRACTOR FROM THIS REQUIREMENT. THE WORK SHALL BE PERFORMED IN COMPLETE CONFORMANCE WITH THE CURRENT PUBLIC SERVICES STANDARD SPECIFICATIONS AND DETAILS.
- THE LOCATION AND DEPTH OF ALL EXISTING UTILITIES AND SERVICE LEADS ARE TO BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION.
- 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.
- 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".
- ALL LIGHT POLES, LUMINAIRES, SIGNS, FITTINGS, HYDRANTS, VALVES AND CASTINGS REMOVED DURING CONSTRUCTION ARE THE PROPERTY OF THE CITY OF ANN ARBOR. THE CONTRACTOR WITHIN 48 HOURS SHALL DELIVER TO CITY OF ANN ARBOR FIELD OPERATIONS AND MAINTENANCE FACILITY AT THE W.R. WHEELER SERVICE CENTER LOCATED AT 4251 STONE SCHOOL ROAD.
- 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".
- THE LOCATION OF MATERIAL STOCK PILES AND ON-SITE STAGING AREAS TO BE APPROVED BY THE ENGINEER.
- PAYMENT FOR DRAINAGE STRUCTURE SUMPS, WHERE SPECIFIED, SHALL BE INCLUDED IN THE PAYMENT FOR THE VARIOUS DRAINAGE STRUCTURE SIZES AND OR TYPES.
- THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE EXISTING PUBLIC ROAD PAVEMENT. DAMAGE TO THE PUBLIC ROAD PAVEMENT DURING THE COURSE OF CONSTRUCTION MAY NECESSITATE MILLING AND RESURFACING OF THE DAMAGED AREAS PRIOR TO ACCEPTANCE, AS DIRECTED BY ENGINEERING.
- DETOUR SIGNAGE THAT HAVE TWO STREET NAME PLAQUES UNDER THEM MUST HAVE A MINIMUM BOTTOM HEIGHT OF 6 FEET. THE MINIMUM SIGN BOTTOM HEIGHT FOR SIGNS IN A CURB/GUTTER AREA WITHOUT PLAQUES UNDERNEATH IS 7 FEET.

CITY OF ANN ARBOR NOTES CONTINUED

- ALL TRAFFIC CONTROL DEVICES AND THEIR USAGE MUST CONFORM TO THE MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MMUTCD), LATEST EDITION.
- TEMPORARY WARNING, REGULATORY, AND GUIDE SIGNS NOT REQUIRED FOR A PARTICULAR LANE OR SHOULDER CLOSURE MUST BE REMOVED, COVERED, OR LAID DOWN WITH THE LEGS REMOVED.
- ANY MDOT SIGNS THAT ARE REMOVED FOR TRAFFIC CONTROL OR OBLITERATED DURING CONSTRUCTION OPERATIONS MUST BE REPLACED IN KIND ON NEW SUPPORTS.
- ALL SIGN MATERIALS AND SUPPORTS MUST MEET NCHRP-350 CRASH WORTHY REQUIREMENTS

GENERAL NOTES

- NOTIFY THE CITY OF ANN ARBOR ENGINEERING DIVISION A MINIMUM OF 48 HOURS PRIOR TO THE START OF CONSTRUCTION.
- ALL CONSTRUCTION MUST BE CONFORMING TO THE CURRENT STANDARDS AND SPECIFICATIONS ADOPTED BY THE CITY OF ANN ARBOR.
- CALL MISS DIG @ 800-482-7171 / 800-MISS-DIG A MINIMUM OF 72 HOURS PRIOR TO THE START OF CONSTRUCTION.
- ALL SOIL EROSION AND SILT MUST BE CONTROLLED AND CONTAINED ON SITE.
- ALL EXCAVATION UNDER OR WITHIN 3 FEET OF PUBLIC PAVEMENT, EXISTING OR PROPOSED, SHALL BE BACKFILLED AND COMPACTED WITH SAND (CLASS II MDOT).
- THE CONTRACTOR IS RESPONSIBLE FOR ALL DAMAGE TO EXISTING UTILITIES.
- PRIOR TO THE ISSUANCE OF AN OCCUPANCY PERMIT, ENGINEERING SITE INSPECTION IS REQUIRED.

SESC NOTES

- CONSTRUCT AND MAINTAIN SOIL EROSION CONTROL MEASURES IN ACCORDANCE WITH THE PROJECT DOCUMENTS AND THE SOIL EROSION AND SEDIMENTATION CONTROL PERMIT ISSUED FOR THE PROJECT. CONTRACTOR TO OBTAIN PERMIT FROM CITY AT NO COST.
- PROVIDE SOIL EROSION AND SEDIMENTATION CONTROL MEASURES PRIOR TO STARTING DEMOLITION, EARTHWORK AND EXCAVATION. MEASURES INDICATED ON THESE DRAWINGS ARE MINIMUM REQUIREMENTS. SUPPLEMENT THESE REQUIREMENTS AS REQUIRED BY CONSTRUCTION PHASING AND SITE CONDITIONS TO COMPLY WITH PERMIT.
- CONTAIN SEDIMENT ON THE SITE. DO NOT ALLOW SEDIMENT TO COLLECT IN OFF SITE AREAS OR IN WATERWAYS. WATERWAYS INCLUDE NATURAL AND MANMADE OPEN DITCHES, STREAMS, STORM DRAINS, LAKES AND PONDS.
- PROVIDE AND MAINTAIN INLET FILTERS AT ALL NEW AND EXISTING CATCH BASINS AND INLET STRUCTURES WHERE IMPACTED BY CONSTRUCTION DRAINAGE UNTIL PERMANENT EROSION CONTROL MEASURES ARE IN PLACE.
- ENSURE SOIL AND DEBRIS FROM THE SITE REMAINS ON SITE.
- INSPECT THE SOIL EROSION AND SEDIMENT CONTROL MEASURES ONCE EACH WEEK AND WITHIN TWENTY-FOUR (24) HOURS OF A PRECIPITATION EVENT WHICH RESULTS IN A STORM WATER DISCHARGE FROM THE SITE. A LOG OF INSPECTION REPORTS SHALL BE MAINTAINED AND ACCESSIBLE IN ACCORDANCE WITH NPDES REQUIREMENTS.
- PROVIDE AND MAINTAIN SILT FENCE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. MAINTENANCE INCLUDES THE REMOVAL OF BUILT-UP SEDIMENT WHEN THE SEDIMENT ACCUMULATES TO 1/3 OF THE HEIGHT OF THE SILT FENCE. REMOVE, REPLACE, RETRENCH, OR RE-BACKFILL THE SILT FENCE IF IT FAILS. REINSTALL FENCE DAMAGED BY CONSTRUCTION OR WEATHER AT NO ADDITIONAL COST TO THE OWNER.
- PROVIDE AND MAINTAIN INLET FILTERS IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. MAINTENANCE CONSISTS OF REMOVING ALL SEDIMENT WITH A STIFF BRISTLE BROOM OR SQUARE POINT SHOVEL. IF THE INLET FILTER IS DAMAGED, REPLACE BOTH THE STONE AND GEOTEXTILE FILTER FABRIC.
- PREPARE SEED BEDS AND SOE SEED IN ACCORDANCE WITH THE SEED SUPPLIER'S RECOMMENDATIONS. FOLLOW SPECIAL PROVISION FOR TURF ESTABLISHMENT.
- MAINTAIN DUST CONTROL DURING CONSTRUCTION. WATER TANK TRUCKS SHALL BE USED ON HAUL ROAD, ON-SITE DISTURBED AREAS, OR OTHER PLACES WHERE DUST BECOMES A PROBLEM. THIS WORK IS INCLUDED IN PAYMENT FOR ROADWAY GRADING.
- PROMPTLY REMOVE ALL MUD, DIRT AND DEBRIS TRACKED ONTO EXISTING ROADS FROM THE SITE.
- ALL SEEDING SHALL BE SEED MIXTURE THM.

REMOVAL NOTES

- THE EXTENT OF REMOVALS AND DEMOLITION SHALL BE FIELD VERIFIED BY CONSTRUCTION MANAGER PRIOR TO CONSTRUCTION. NOTIFY ENGINEER OF ANY DEVIATIONS FROM INFORMATION SHOWN.
- PRIOR TO CONSTRUCTION ALL FENCING, BARRICADES, ENCLOSURES, ETC., MUST BE INSTALLED AND APPROVED BY OWNER OR CONSTRUCTION MANAGER.
- DISPOSE OF DEMOLITION AND EXCAVATION MATERIALS IN ACCORDANCE WITH CONTRACT DOCUMENTS.
- SOIL EROSION AND SEDIMENTATION CONTROL MEASURES MUST BE IN PLACE PRIOR TO STARTING REMOVALS AND DEMOLITION.
- UNLESS SPECIFICALLY NOTED FOR REMOVAL ON THE PLANS, ALL SIDEWALKS, DRIVES, CULVERTS, DRAINAGE STRUCTURES, AND ABOVE AS WELL AS BELOW GRADE UTILITIES SHALL BE PROTECTED. ALL SUCH ITEMS DAMAGED OR DESTROYED DURING CONSTRUCTION SHALL BE REMOVED AND REPLACED WITH NEW AT NO ADDITIONAL COST TO THE OWNER.
- PROTECT EXISTING TREES TO REMAIN WITH TEMPORARY FENCING AT THE DRIP LINE. NO GROUND DISTURBANCE OR STORAGE OF MATERIAL/EQUIPMENT SHALL OCCUR WITHIN THE DRIP LINE LIMITS.
- ELECTRICAL, TELEPHONE, CABLE TV, WATER, FIBER OPTIC CABLE AND/OR GAS LINES NEEDING TO BE REMOVED OR RELOCATED SHALL BE COORDINATED WITH THE AFFECTED UTILITY COMPANY. ADEQUATE TIME SHALL BE PROVIDED FOR RELOCATION AND CLOSE COORDINATION WITH THE UTILITY COMPANY IS NECESSARY TO PROVIDE A SMOOTH TRANSITION IN UTILITY SERVICE. PAY CLOSE ATTENTION TO EXISTING UTILITIES WITHIN THE CONSTRUCTION LIMITS. GIVE NOTICE TO ALL UTILITY COMPANIES REGARDING DESTRUCTION AND REMOVAL OF ALL SERVICE LINES AND CAP ALL LINES BEFORE PROCEEDING WITH THE WORK.
- PERFORM CLEARING, GRUBBING, TREE AND STUMP REMOVAL, TOPSOIL REMOVAL AND STOCKPILING IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
- BEFORE REMOVING OR ABANDONING ANY UTILITY PIPES, VERIFY NEW UTILITY PIPE HAS BEEN INSTALLED, TESTED AND IS OPERATIONAL.
- THE LOCATIONS OF ALL EXISTING UTILITIES SHOWN ON THIS DRAWING HAVE BEEN DETERMINED FROM THE BEST INFORMATION AVAILABLE AND ARE GIVEN FOR THE CONVENIENCE OF THE CONTRACTOR. VERIFY CRITICAL INVERT INFORMATION PRIOR TO BEGINNING CONSTRUCTION.
- DAMAGE CAUSED TO SURROUNDING AREA PAVEMENT OUTSIDE THE CONSTRUCTION LIMITS SHALL BE SAWCUT AND REPLACED AT NO ADDITIONAL COST TO THE OWNER.
- COORDINATE SEQUENCING AND PHASING OF DEMOLITION WITH CONSTRUCTION MANAGER.
- SEE OTHER DRAWINGS FOR ADDITIONAL SITE DEMOLITION WORK.
- SAWCUT CURB AND GUTTER AND SIDEWALKS TO NEAREST JOINT.

SITE SYMBOL LEGEND

SURVEY		TOPOGRAPHY - PLAN	
	BENCH MARK		SHRUBS
	SECTION CORNER		CONIFEROUS TREE
	CENTER OF SECTION		DECIDUOUS TREE
	QUARTER CORNER		HEDGE
	CONCRETE MONUMENT		EDGE OF WOODS
	PROPERTY IRON		MARSH (SWAMP)
	SET PROPERTY IRON		EXISTING DITCH
	LOT LINE (AS PLATTED)		PROPOSED DITCH
	PROPERTY HOOK (COMMON PROPERTY OWNERSHIP)		EDGE OF WATER
	TITLE LINE / PROPERTY LINE		CONTOUR MAJOR
	ROW LINE		CONTOUR MINOR
	SECTION LINE		MONITORING WELL
	EASEMENT CENTERLINE		SOIL BORING
	EASEMENT LINE		LIGHT
	SURVEY LINE STATIONING		GUY ANCHOR
	TRAVERSE POINT		UTILITY POLE
	SOIL BORING LOCATION		SIGN
			FLAG POLE
			MAIL BOX
			PARKING METER
			RAILROAD TRACKS SCALE: 1" = 60' OR LESS
			RAILROAD TRACKS SCALE: 1" = 100' OR MORE

EXISTING UTILITIES	
	8" SAN. SANITARY SEWER & MANHOLE
	12" STM. STORM SEWER & MANHOLE
	CATCH BASIN CURB TYPE
	CATCH BASIN LAWN TYPE
	VALVE
	HYDRANT
	PLUG
	6" WTR. WATER MAIN
	4" FM FORCE MAIN
	2" GAS GAS MAIN
	ELEC. UNDERGROUND ELECTRIC
	OP. FIBER OPTICS
	TEL. UNDERGROUND TELEPHONE
	2" OIL OIL TRANSMISSION LINE
	6" STEAM UNDERGROUND STEAM
	2" SPRK. UNDERGROUND SPRINKLER
	CATV CABLE TELEVISION
	TELEPHONE PEDESTAL
	PIPE-ONLY CULVERT
	FLARED END SECTION CULVERT
	HEADWALL CULVERT

PROPOSED UTILITIES	
	8" SAN. SANITARY SEWER & MANHOLE
	WYE & LEAD
	RISER & LEAD
	STANDARD SEWER CLEAN OUT
	MAX. ELEVATION OF LOT LEAD AT PROPERTY LINE
	12" STM. STORM SEWER & MANHOLE
	CATCH BASIN
	UNDER DRAIN
	8" WATER WATER MAIN
	VALVE & BOX
	VALVE & CHAMBER
	METER
	PLUG
	STANDARD FIRE HYDRANT ASSEMBLY
	CURB STOP & BOX
	6" FM FORCE MAIN
	FORCE MAIN AIR RELEASE STRUCTURE
	GAS PIPE
	TELEPHONE LINE
	12" PIPE-ONLY CULVERT
	12" FLARED END SECTION CULVERT
	12" HEADWALL CULVERT

MISCELLANEOUS

SOIL EROSION CONTROL

SOIL EROSION CONTROL MEASURES

TEMPORARY MEASURE

PERMANENT MEASURE

SECTION NUMBER

1 C2

SCALE: SCALE OF SECTION

SHEET NUMBER SECTION IS DRAWN ON

DETAIL LETTER

A C2

SCALE: SCALE OF DETAIL

SITE PLAN ABBREVIATIONS

ABBREV.	MEANING	ABBREV.	MEANING
ABAN.	ABANDON	MDNR	MICHIGAN DEPARTMENT OF NATURAL RESOURCES
ADJ.	ADJACENT	MDOT	MICHIGAN DEPARTMENT OF TRANSPORTATION
AGG.	AGGREGATE	MDPH	MICHIGAN DEPARTMENT OF PUBLIC HEALTH
ALT.	ALTERNATE	MFR	MANUFACTURER
APPD.	APPROVED	MGD	MILLION GALLONS PER DAY
APPROX.	APPROXIMATE	MH.	MANHOLE
B/B	BACK TO BACK	MIN.	MINIMUM
BIT.	BITUMINOUS	MISC.	MISCELLANEOUS
BLDG.	BUILDING	MJ	MECHANICAL JOINT
BLVD.	BOULEVARD	MON.	MONUMENT
BM	BENCH MARK	NA	NOT APPLICABLE
BNDY.	BOUNDARY	NIC	NOT IN CONTRACT
BOT.	BOTTOM	NRCP	NON-REINFORCED CONCRETE PIPE
BSMT.	BASEMENT	NTS	NOT TO SCALE
C & G	CURB AND GUTTER	OC	ON CENTER
C/C	CENTER TO CENTER	OD	OUTSIDE DIAMETER
CATV	CABLE TELEVISION	OE	OVERHEAD ELECTRIC
CB	CATCH BASIN	OP	FIBER OPTICS
CF	CUBIC FEET	ORIG.	ORIGINAL
CFS	CUBIC FEET PER SECOND	OT	OVERHEAD TELEPHONE
CL	CENTERLINE	PC	POINT OF CURVE
COMP	CORRUGATED METAL PIPE	PE	POINT OF COMPOUND CURVATURE
CO.	CLEAN OUT	PCC	POLYETHYLENE
CONC.	CONCRETE	PE PERF.	POLYETHYLENE PIPE PERFORATED
CONST.	CONSTRUCTION	PERF.	PERFORATED
COORD.	COORDINATE	PI	POINT OF INTERSECTION
CP	COPPER PIPE	PV	POST INDICATOR VALVE
CSP	CORRUGATED STEEL PIPE	PL	PROPERTY LINE
CSPA	CORRUGATED STEEL PIPE ARCH	POB	POINT OF BEGINNING
CULV.	CULVERT	POE	POINT OF ENDING
CY	CUBIC YARD	PRC	POINT OF REVERSE CURVE
DEG (°)	DEGREE	PROP.	PROPOSED
DEMO.	DEMOLISH	PSF	POUNDS PER SQUARE FOOT
DIP	DUCTILE IRON	PSI	POUNDS PER SQUARE INCH
DIA.	DIAMETER	PT	POINT OF TANGENCY
DIM.	DIMENSION	PVC	POLYVINYL CHLORIDE
DIST.	DISTANCE	PVC	POINT OF VERTICAL CURVE
ELEC	ELECTRIC CONDUIT	PVI	POINT OF VERTICAL INTERSECTION
EL.	ELEVATION	PVMT.	PAVEMENT
ENGR.	ENGINEER	PVT	POINT OF VERTICAL TANGENCY
EOM	EDGE OF METAL	QTY.	QUANTITY
EQUIP.	EQUIPMENT	R.	RADIUS
ESMT.	EASEMENT	RCP	REINFORCED CONCRETE PIPE
EXIST. EX.	EXISTING	RED.	REDUCER
EXT.	EXTERIOR	REF.	REFERENCE
F/F	FACE TO FACE	REQD.	REQUIRED
FDN.	FOUNDATION	REV.	REVISION
FIG.	FIGURE	RJ	RESTRAINED JOINT
FF	FINISH FLOOR	ROW	RIGHT OF WAY
FIN. GR.	FINISH GRADE	SAN	SANITARY SEWER
FM	FORCE MAIN	SF	SQUARE FOOT
FTG.	FOOTING	SPEC.	SPECIFICATION
GEN.	GENERATOR	SS	SIDE SLOPE
GND.	GROUND	STA.	STATION
GPD	GALLONS PER DAY	STD.	STANDARD
GPM	GALLONS PER MINUTE	STL.	STEEL
HDPE	HIGH DENSITY POLYETHYLENE	STM	STORM SEWER
HDWL.	HEADWALL	SYD	SQUARE YARD
H	HEIGHT	TC	TOP OF CURB
HORIZ.	HORIZONTAL	TAN.	TANGENT

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

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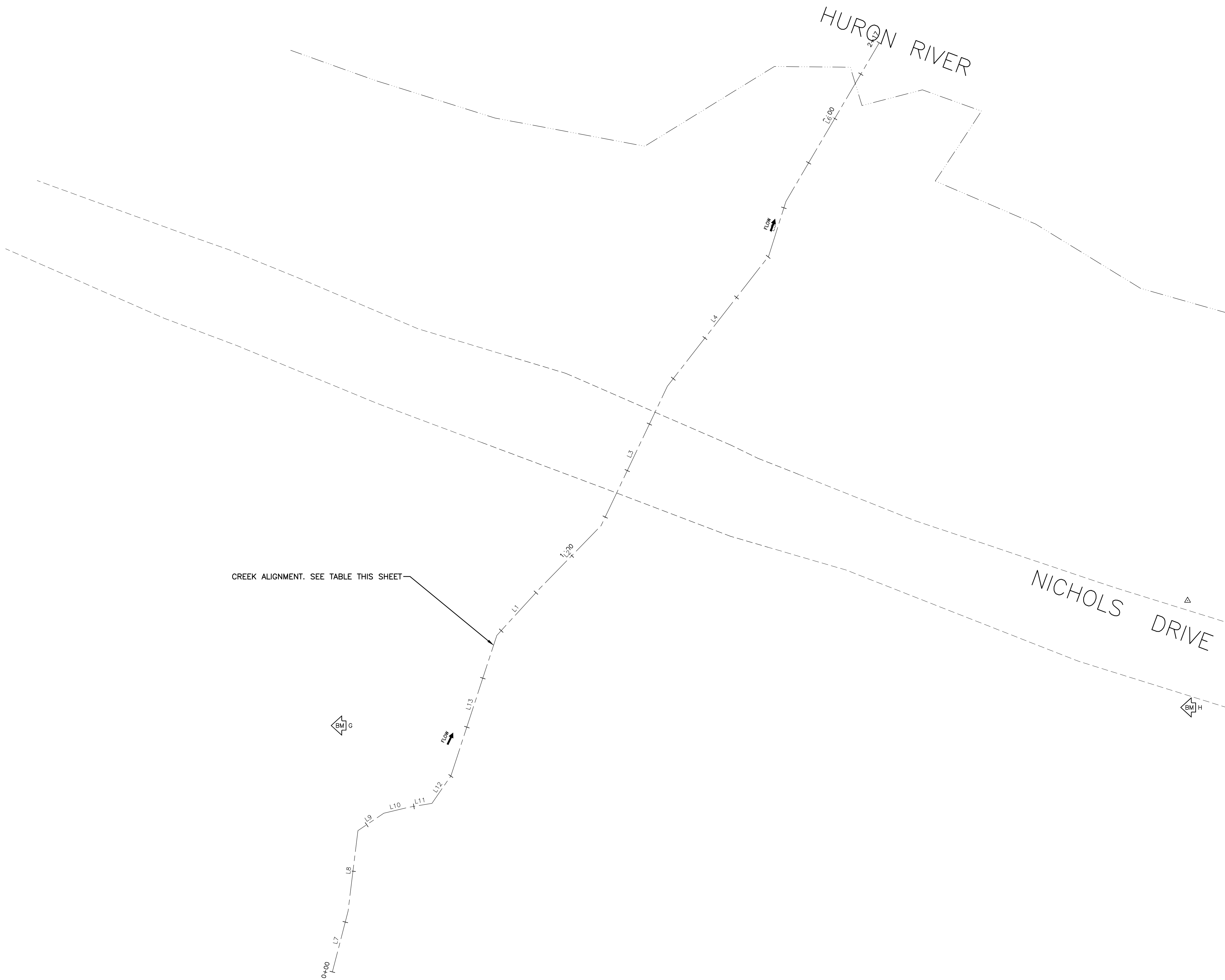
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2021-XXX2

SHEET No.
2



CREEK ALIGNMENT. SEE TABLE THIS SHEET

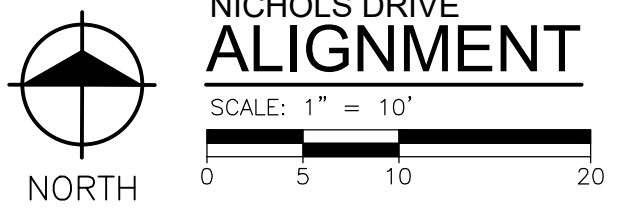


BENCHMARKS

BENCH MARK G ELEVATION: 779.28
 CHISELED SQUARE ON NORTHEASTERLY CORNER OF CONCRETE
 SANITARY VAULT ON WEST SIDE OF CREEK.

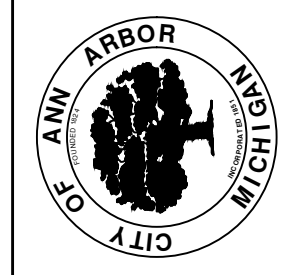
BENCH MARK H ELEVATION: 766.37
 MAG SPIKE ON NORTHERLY SIDE OF 18" DECIDUOUS TREE ON
 SOUTH SIDE OF NICHOLS DRIVE AND ± 100' EAST OF CREEK.

CREEK					
	DIRECTION	DISTANCE	STATION	NORTHING	EASTING
L1	N42°28'30"E	12.48'	0+78.74	285936.32	13297119.68
L2	N44°19'07"E	16.94'	0+91.21	285945.52	13297128.10
L3	N25°26'06"E	30.00'	1+08.15	285957.64	13297139.94
L4	N37°54'28"E	32.00'	1+38.15	285984.73	13297152.82
L5	N17°29'22"E	11.13'	1+70.15	286009.98	13297172.48
L6	N30°28'25"E	35.77'	1+81.28	286020.59	13297175.83
L7	N14°30'32"E	12.17'	0+00.00	285870.96	13297087.74
L8	N6°55'59"E	15.78'	0+12.17	285882.74	13297090.79
L9	N56°14'46"E	6.07'	0+27.94	285898.40	13297092.70
L10	N76°26'57"E	4.96'	0+34.01	285901.77	13297097.74
L11	N80°23'01"E	4.58'	0+38.98	285902.93	13297102.57
L12	N34°39'14"E	6.45'	0+43.56	285903.70	13297107.08
L13	N18°06'29"E	28.74'	0+50.00	285909.00	13297110.75



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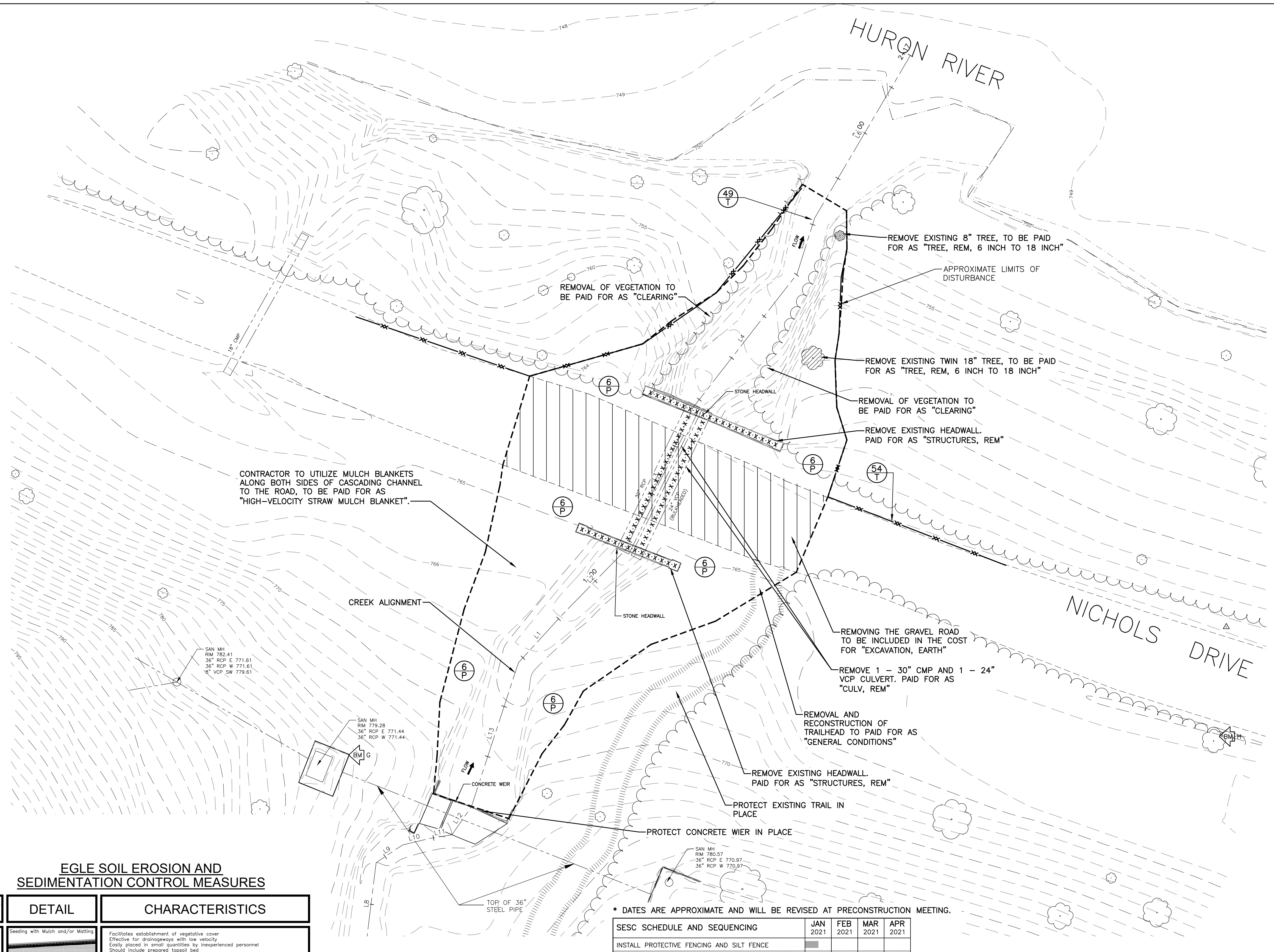
SCALE PLAN:
 DRAWING No. 2021-XXX 3

SHEET No. 3

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MISS DIG
811
3 full working days before you dig.
1-800-482-7171
on the web at: www.missdig.org

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



BENCHMARKS

BENCH MARK G ELEVATION: 779.28
CHISELED SQUARE ON NORTHEASTERLY CORNER OF CONCRETE
SANITARY VAULT ON WEST SIDE OF CREEK.

BENCH MARK H ELEVATION: 766.37
MAG SPIKE ON NORTHERLY SIDE OF 18" DECIDUOUS TREE ON
SOUTH SIDE OF NICHOLS DRIVE AND ± 100' EAST OF CREEK.

LEGEND

- x-x-x-x- REMOVE STRUCTURE OR UTILITY
- × REMOVE OBJECT
- [Hatched Box] REMOVE GRAVEL PAVEMENT
- - - - - APPROXIMATE LIMITS OF DISTURBANCE
- [Circle with Tree] TREE, REM
- [Star in Circle] TREE, REM

NOTES

1. THE EXTENT OF REMOVALS AND DEMOLITION SHALL BE FIELD VERIFIED BY CONSTRUCTION MANAGER PRIOR TO CONSTRUCTION. NOTIFY ENGINEER OF ANY DEVIATIONS FROM INFORMATION SHOWN.
2. PRIOR TO CONSTRUCTION ALL FENCING, BARRICADES, ENCLOSURES, ETC., MUST BE INSTALLED AND APPROVED BY OWNER OR CONSTRUCTION MANAGER.
3. DISPOSE OF DEMOLITION AND EXCAVATION MATERIALS IN ACCORDANCE WITH CONTRACT DOCUMENTS.
4. UNLESS SPECIFICALLY NOTED FOR REMOVAL ON THE PLANS, ALL SIDEWALKS, DRIVES, CULVERTS, DRAINAGE STRUCTURES, AND ABOVE AS WELL AS BELOW GRADE UTILITIES SHALL BE PROTECTED. ALL SUCH ITEMS DAMAGED OR DESTROYED DURING CONSTRUCTION SHALL BE REMOVED AND REPLACED WITH NEW AT NO ADDITIONAL COST TO THE OWNER.
5. PERFORM CLEARING, GRUBBING, TREE AND STUMP REMOVAL, TOPSOIL REMOVAL AND STOCKPILING IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
6. THE LOCATIONS OF ALL EXISTING UTILITIES SHOWN ON THIS DRAWING HAVE BEEN DETERMINED FROM THE BEST INFORMATION AVAILABLE AND ARE GIVEN FOR THE CONVENIENCE OF THE CONTRACTOR. VERIFY CRITICAL INVERT INFORMATION PRIOR TO BEGINNING CONSTRUCTION.
7. DAMAGE CAUSED TO SURROUNDING AREA PAVEMENT OUTSIDE THE CONSTRUCTION LIMITS SHALL BE SAWCUT AND REPLACED AT NO ADDITIONAL COST TO THE OWNER.
8. 100 SY OF 8"-24" FIELDSTONE AND 100 SY OF TOP SOIL IS INCLUDED AS CONTINGENCY PAY ITEM TO BE PLACED AS DIRECTED BY ENGINEER.

SURVEY PERFORMED BY:
FISHBECK INC.
39500 MACKENZIE DRIVE, SUITE 100
NOVI, MI 48377
DATE: 1/21/2021
517.882.0383 PHONE
517.882.0388 FAX
www.fishbeck.com

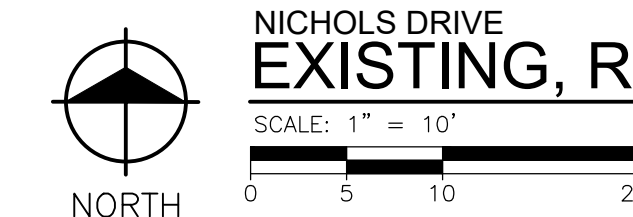
EGLI SOIL EROSION AND SEDIMENTATION CONTROL MEASURES

KEY	DETAIL	CHARACTERISTICS
6	Seeding with Mulch and/or Matting	Facilitates establishment of vegetative cover Effective for drainageways with low velocity Easily placed in small quantities by inexperienced personnel Should include prepared topsoil bed
49	Check Dams	Reduces flow velocity Catches sediment Can be constructed of logs, straw, hay, rock, lumber, masonry or sand bags
54	Geotextile Silt Fence	Use geotextile and posts or poles May be constructed or prepackaged Easy to construct and locate as necessary

XX TEMPORARY MEASURE
YY PERMANENT MEASURE

* DATES ARE APPROXIMATE AND WILL BE REVISED AT PRECONSTRUCTION MEETING.

SESC SCHEDULE AND SEQUENCING	JAN 2021	FEB 2021	MAR 2021	APR 2021
INSTALL PROTECTIVE FENCING AND SILT FENCE	[Bar]			
INSTALL CATCH BASIN FILTERS	[Bar]			
CONSTRUCT SEDIMENT TRAP AND CHECK DAM	[Bar]			
INSTALL DRAIN BYPASS PLAN	[Bar]			
CLEAR AND GRUB	[Bar]			
REMOVALS	[Bar]			
PARTIAL WIDTH CONSTRUCTION		[Bar]	[Bar]	
INSTALL PROPOSED CULVERT		[Bar]	[Bar]	
BACKFILL SUBGRADE		[Bar]	[Bar]	
SITE PAVING			[Bar]	[Bar]
LANDSCAPE AND FINAL RESTORATION			[Bar]	[Bar]



NICHOLS DRIVE EXISTING, REMOVAL, & SESC MEASURES

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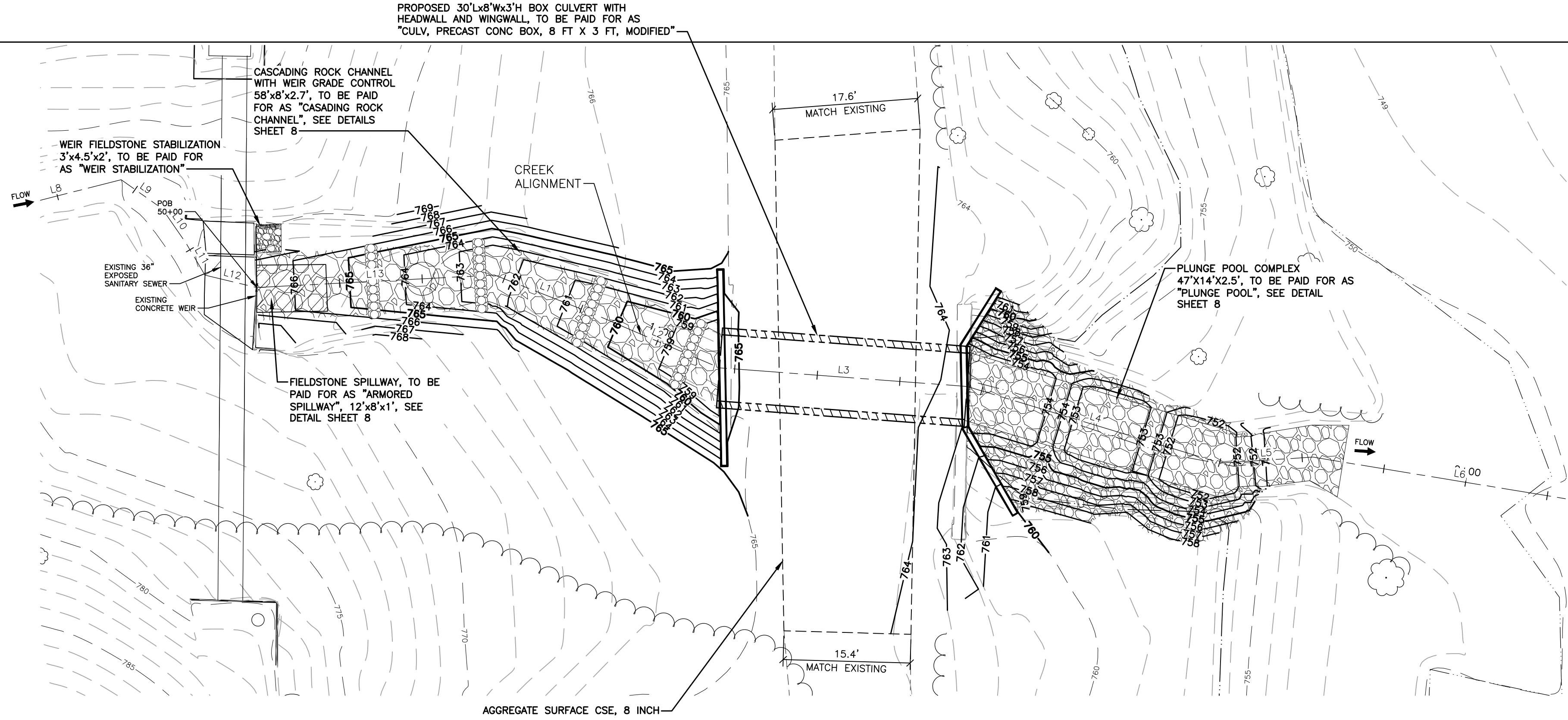
PUBLIC SERVICES-ENGINEERING - CITY OF ANN ARBOR
SCHOOL GIRLS GLEN CULVERT REPLACEMENT -
NICHOLS DRIVE
EXISTING, REMOVAL, AND SESC MEASURES

SCALE PLAN:
DRAWING No.
2021-XXX-4

SHEET No.
4

REV.	DATE	DESCRIPTION	DRAWN	CHECKED
	08-11-2021			

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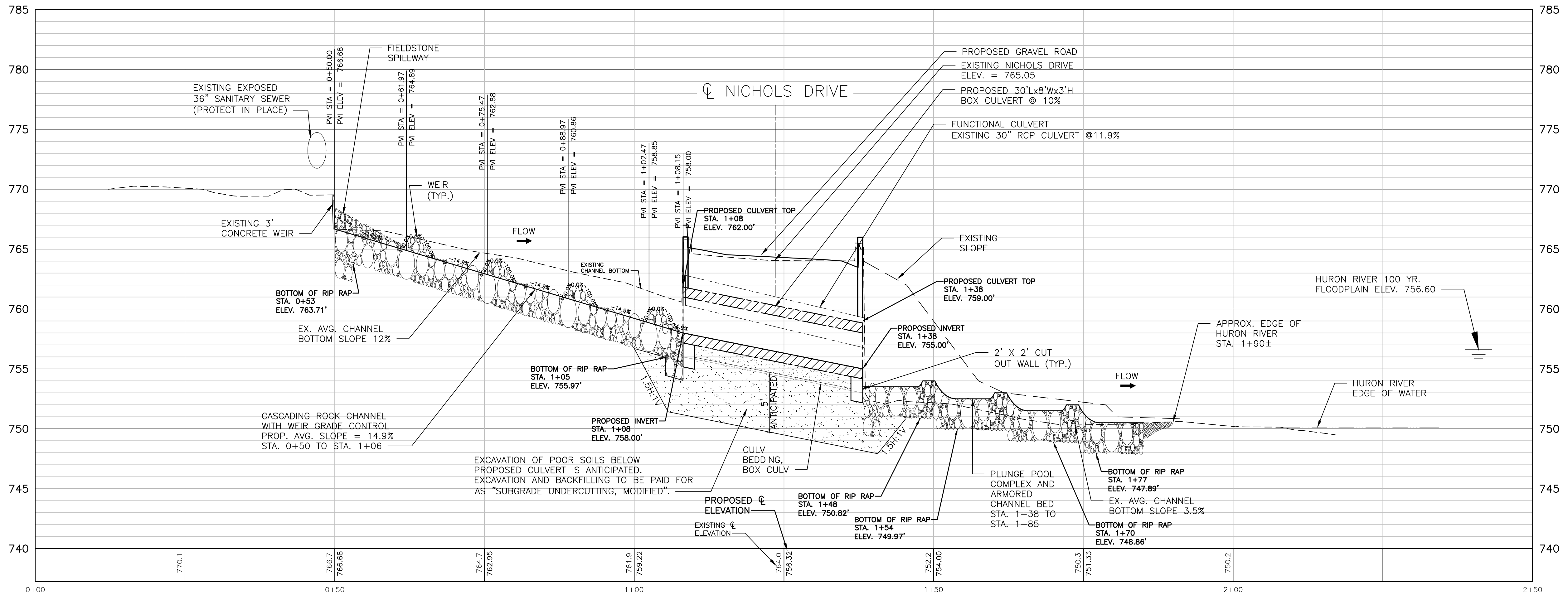
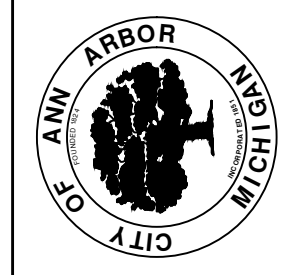


BENCHMARKS

BENCH MARK G	ELEVATION: 779.28
CHISELED SQUARE ON NORTHEASTERLY CORNER OF CONCRETE SANITARY VAULT ON WEST SIDE OF CREEK.	
BENCH MARK H	ELEVATION: 766.37
MAG SPIKE ON NORTHERLY SIDE OF 18' DECIDUOUS TREE ON SOUTH SIDE OF NICHOLS DRIVE AND ± 100' EAST OF CREEK.	

REV.	DATE	DESCRIPTION	CHECKED
08-11-2021			

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NICHOLS DRIVE CHANNEL PLAN & PROFILE

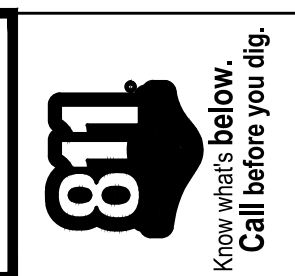
SCALE PLAN: 1" = 10'

DRAWING No. 2021-XXX 5

SHEET No. 5

PUBLIC SERVICES-ENGINEERING - CITY OF ANN ARBOR
SCHOOL GIRLS GLEN CULVERT REPLACEMENT - NICHOLS DRIVE
CHANNEL PLAN & PROFILE

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BENCHMARKS

BENCH MARK G ELEVATION: 779.28
 CHISELED SQUARE ON NORTHEASTERLY CORNER OF CONCRETE SANITARY VAULT ON WEST SIDE OF CREEK.

BENCH MARK H ELEVATION: 766.37
 MAG SPIKE ON NORTHERLY SIDE OF 18" DECIDUOUS TREE ON SOUTH SIDE OF NICHOLS DRIVE AND ± 100' EAST OF CREEK.

NOTES

1. FINISH GRADE OF SOIL EDGES ALONG PAVEMENT TO MATCH EDGE OF PAVEMENT.
2. GRADES SHOWN ARE FINAL SURFACE GRADES AFTER COMPLETION OF SURFACE IMPROVEMENTS AND PLACEMENT OF TOPSOIL.

SPOT ELEVATION LEGEND

- 604.50 SPOT ELEVATION
- TP TOP OF PAVEMENT
- GR GRADE ELEVATION
- TW TOP OF WALL

LEGEND

EXCAVATION WITHIN CHANNEL TO BE PAID FOR AS "EXCAVATION, CHANNEL"

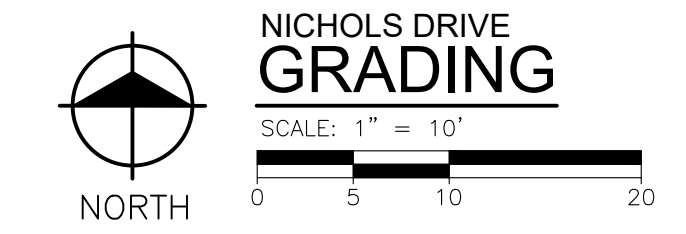
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		08-11-2021		

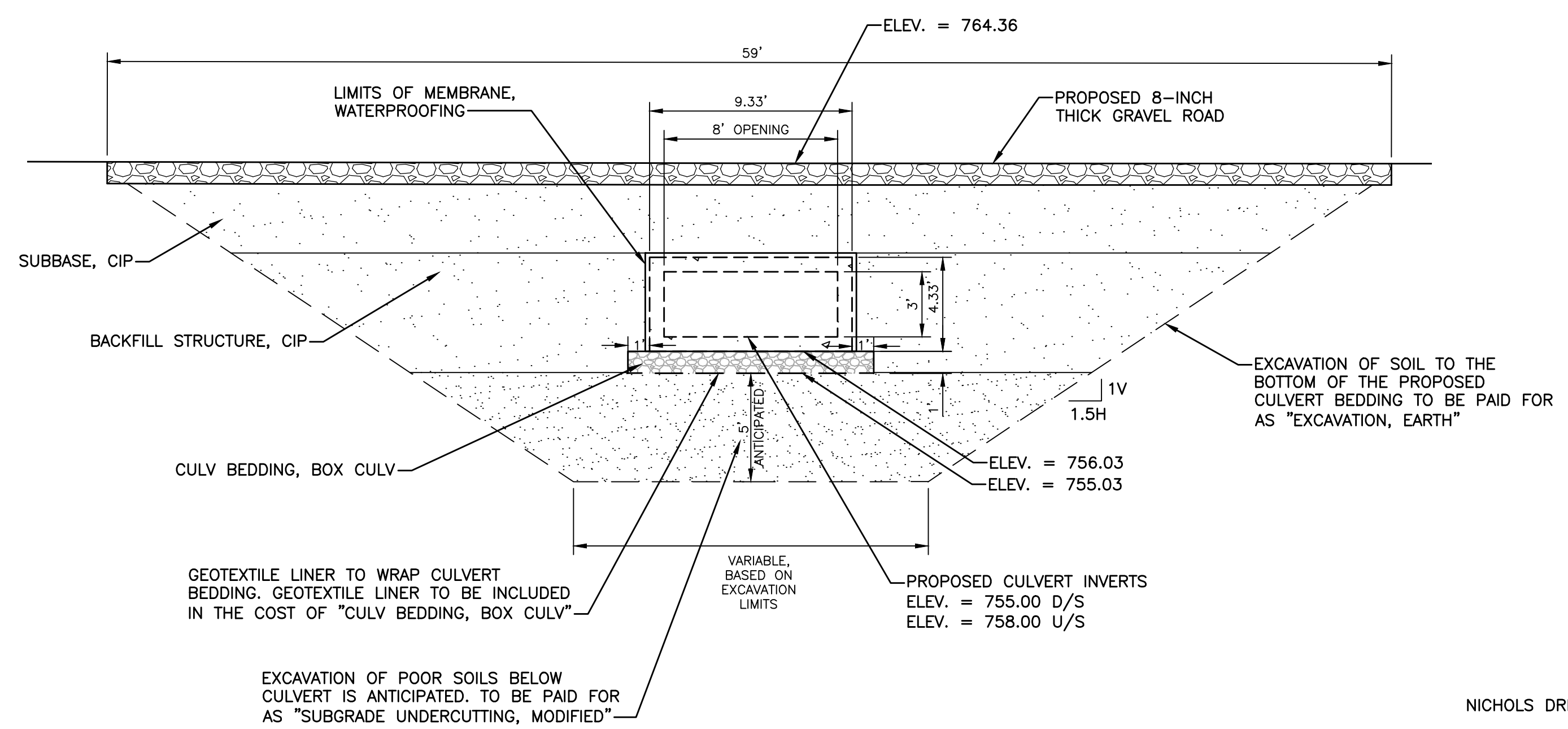
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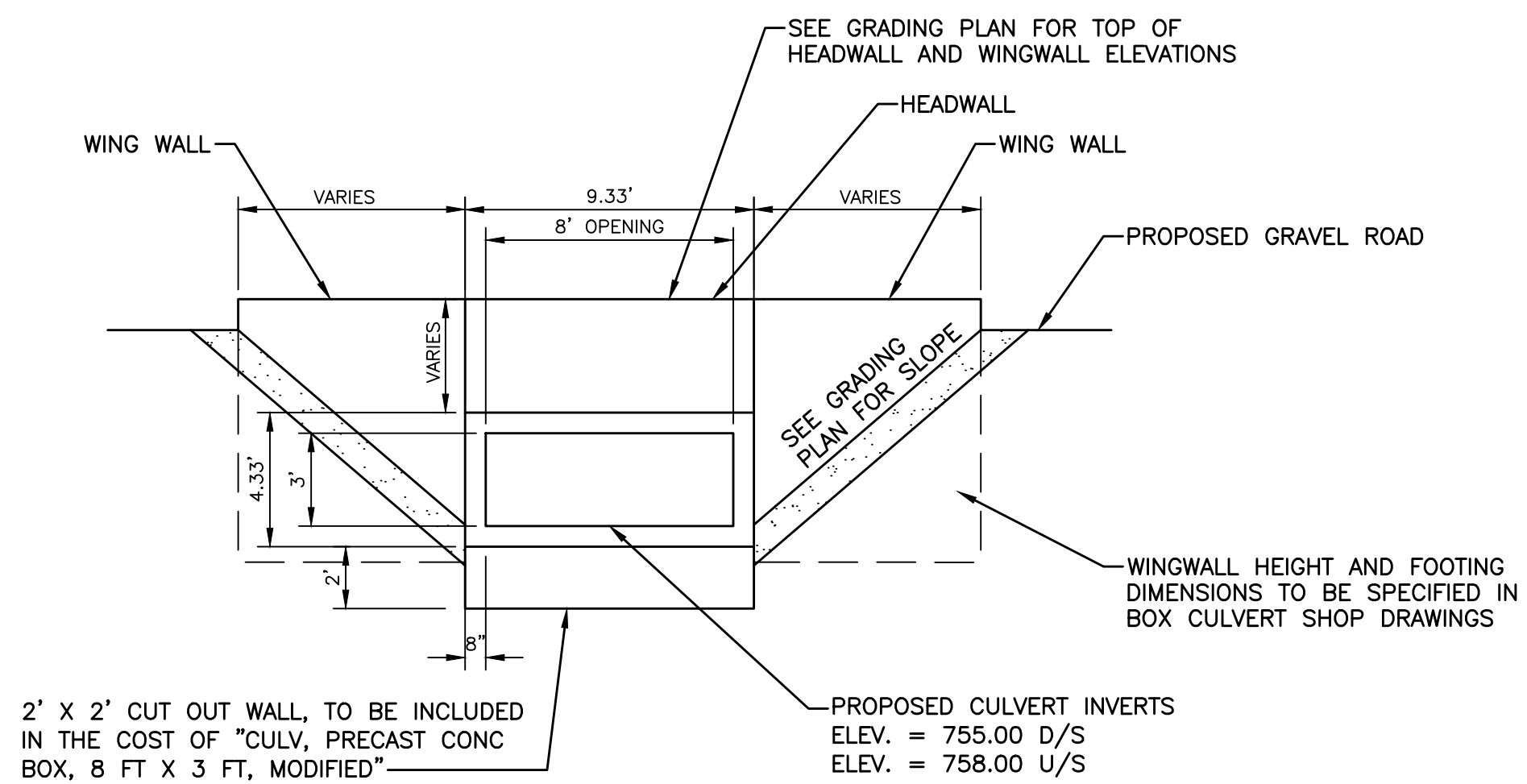
PUBLIC SERVICES-ENGINEERING - CITY OF ANN ARBOR
 SCHOOL GIRLS GLEN CULVERT REPLACEMENT - NICHOLS DRIVE
 GRADING PLAN

SCALE PLAN:
 DRAWING No.
 2021-XXX6

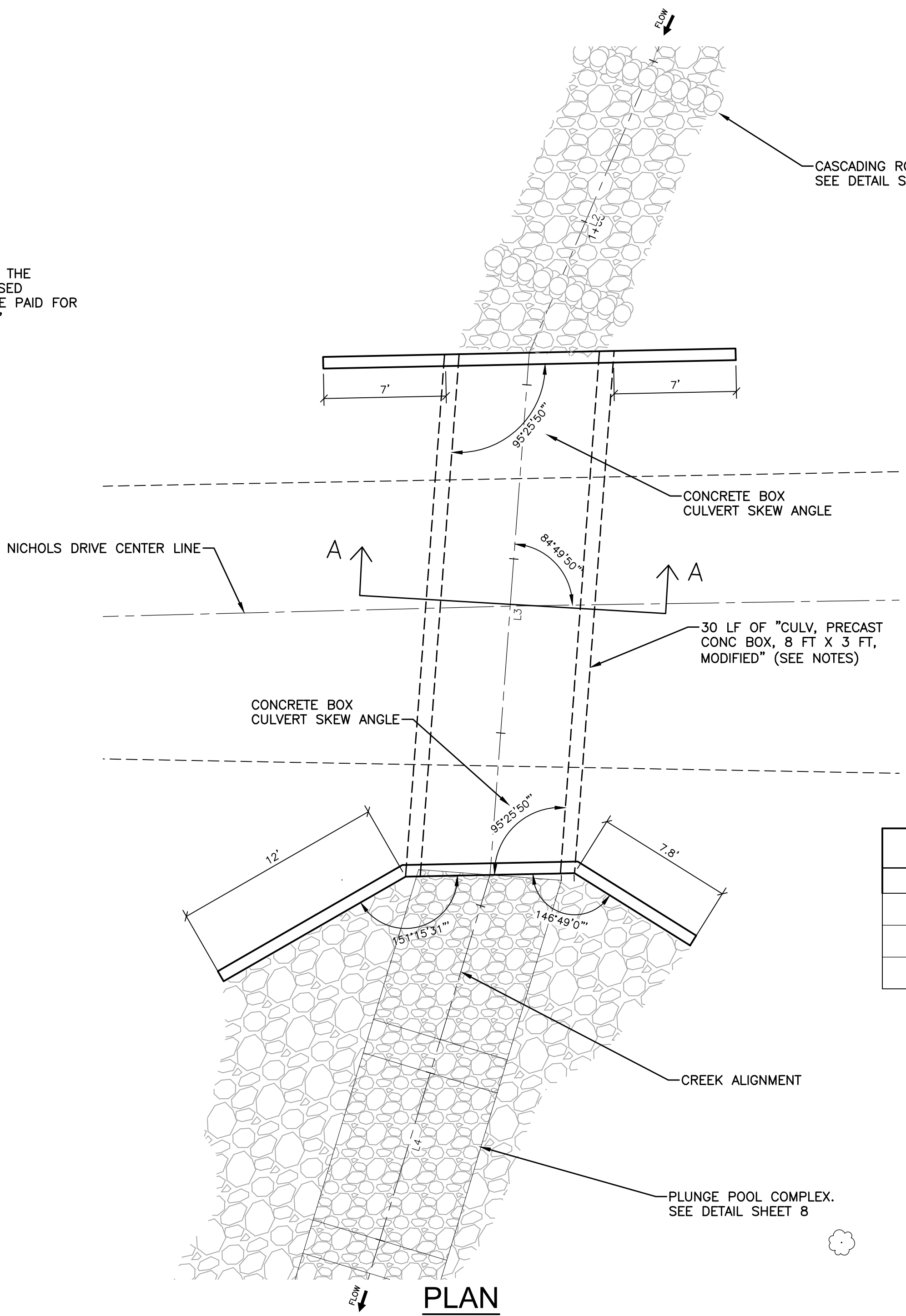




SECTION A-A



ELEVATION
 (NORTH END SHOWN, SOUTH END SIMILAR)



PLAN

NOTES

- CONTRACTOR SHALL BE RESPONSIBLE FOR CULVERT DESIGN, PRODUCTS, AND CONSTRUCTION PHASING. SHOP DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW IN ACCORDANCE WITH SECTION 408.03.C OF THE MICHIGAN DEPARTMENT OF TRANSPORTATION 2020 STANDARD SPECIFICATIONS FOR CONSTRUCTION. SHOP DRAWINGS SHALL INCLUDE, BUT NOT LIMITED TO, THE FOLLOWING: CULVERT LAYOUT, CULVERT ELEVATIONS, HEADWALLS AND WINGWALLS, JOINT LAYOUT, FOOTINGS, CONNECTION HARDWARE, DETAILS, ETC. SHOP DRAWINGS MUST BE PROVIDED BY A LICENSED ENGINEER IN THE STATE OF MICHIGAN. THE COST OF SUBMITTING SHOP DRAWINGS WILL BE INCLUDED IN THE PAY ITEM "CULV, PRECAST CONC BOX, 8 FT X 3 FT, MODIFIED"
- CONTRACTOR WILL BE RESPONSIBLE FOR MAINTAINING EXISTING FLOW, IF PRESENT, DURING CONSTRUCTION, AND WILL BE INCLUDED IN THE PAY ITEM "CULV, PRECAST CONC BOX, 8 FT X 3 FT, MODIFIED"

STREAM FLOW DATA	
FLOOD FREQUENCY	PEAK DISCHARGE (CFS)
10% (10-YR, 24-HR)	27
2% (50-YR, 24-HR)	57
1% (100-YR, 24-HR)	73

NICHOLS DRIVE CULVERT DETAILS
 SCALE: 1" = 5'

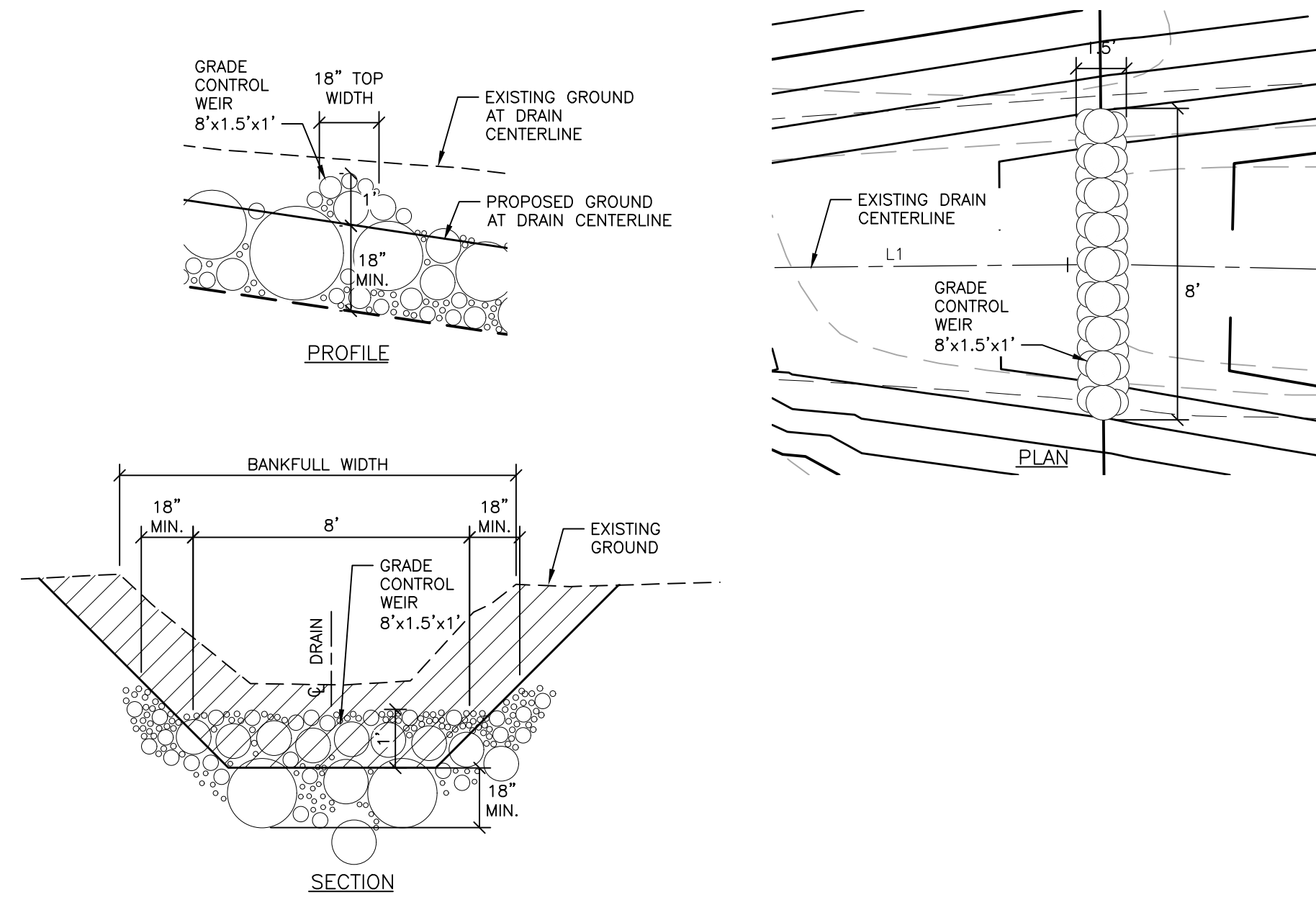
REV.	DESCRIPTION	DATE	DRAWN	CHECKED
BIDS		08-11-2021		

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PUBLIC SERVICES-ENGINEERING - CITY OF ANN ARBOR
 SCHOOL GIRLS GLEN CULVERT REPLACEMENT -
 NICHOLS DRIVE
 DETAILS

SCALE PLAN:
 DRAWING No.
 2021-XXX7

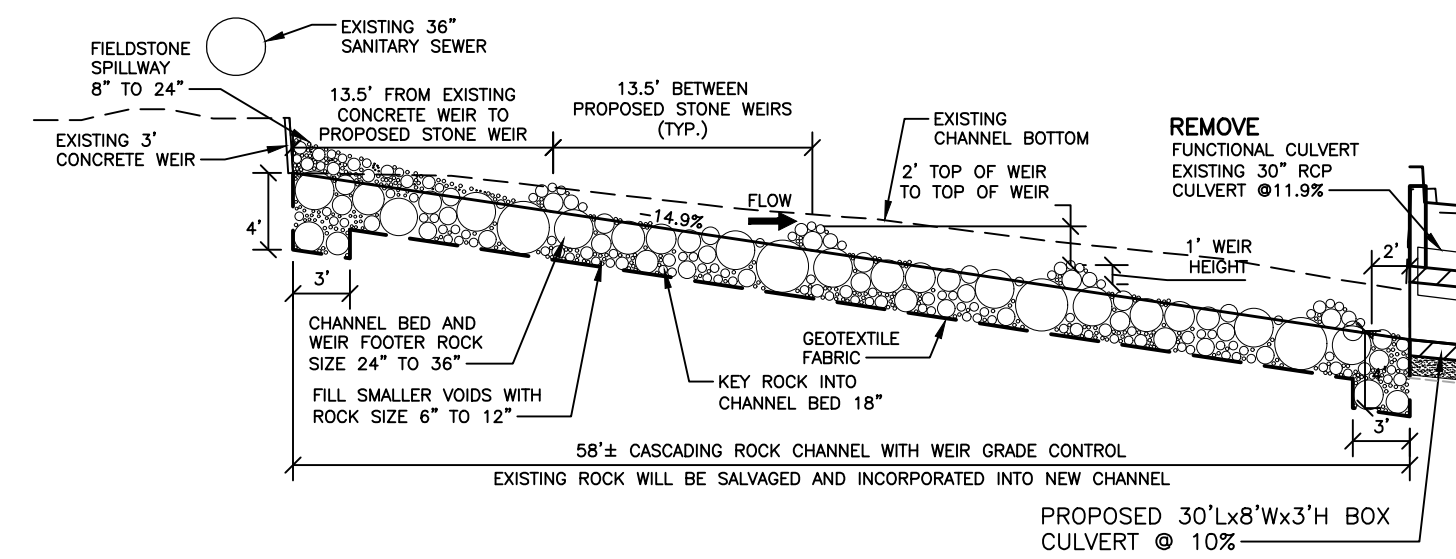
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**SCHOOLGIRLS' GLEN
CASCADING ROCK CHANNEL WEIR DETAIL**

NO SCALE

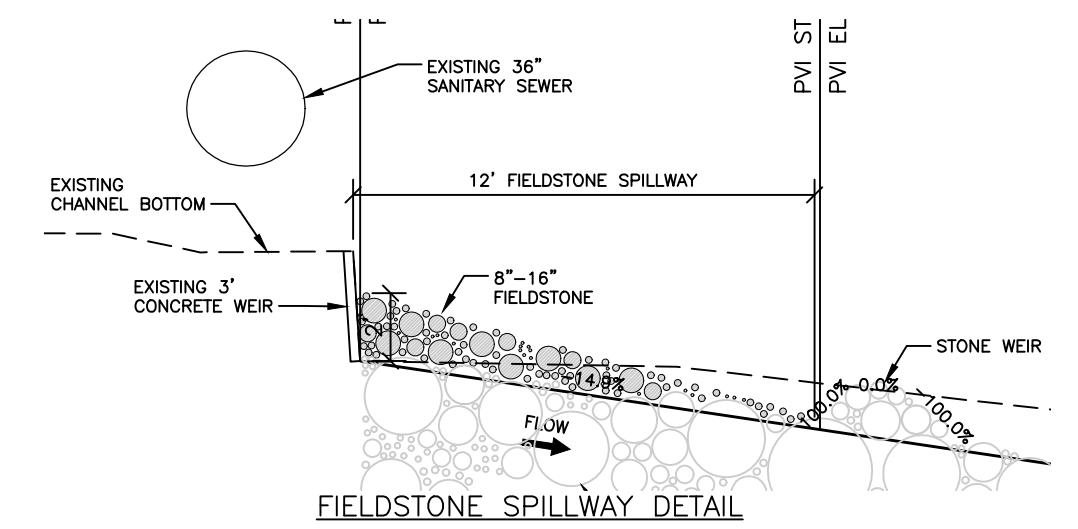
ESTIMATE 30 CY 24" TO 36" FIELDSTONE
ESTIMATE 16 CY 6" TO 12" FIELDSTONE



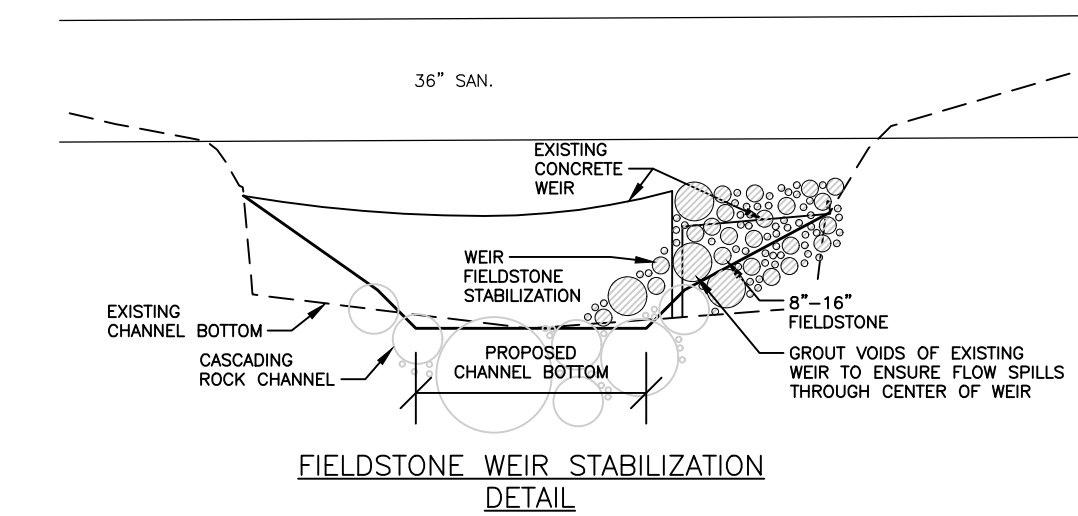
**SCHOOLGIRLS' GLEN
CASCADING ROCK CHANNEL DETAIL**

SCALE: 1" = 10'
VERT. SCALE: 1" = 10'

FIELD STONE QUANTITY ESTIMATE INCLUDED IN
THE CASCADING ROCK CHANNEL ESTIMATES



FIELDSTONE SPILLWAY DETAIL



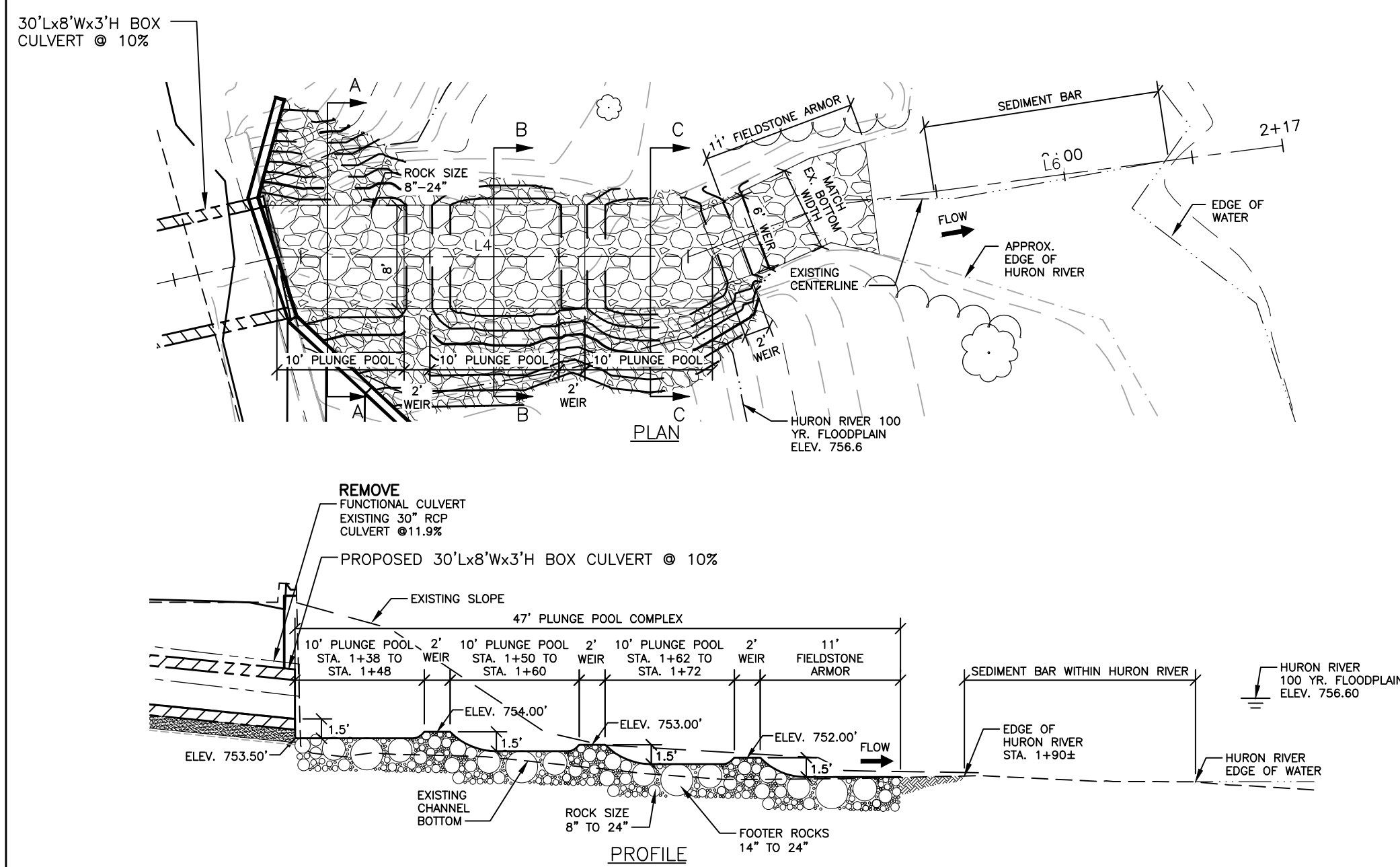
FIELDSTONE WEIR STABILIZATION
DETAIL

**SCHOOLGIRLS' GLEN
FIELDSTONE SPILLWAY AND FIELDSTONE
WEIR STABILIZATION DETAILS**

NO SCALE

ESTIMATE 4 CY 8" TO 16" FIELDSTONE

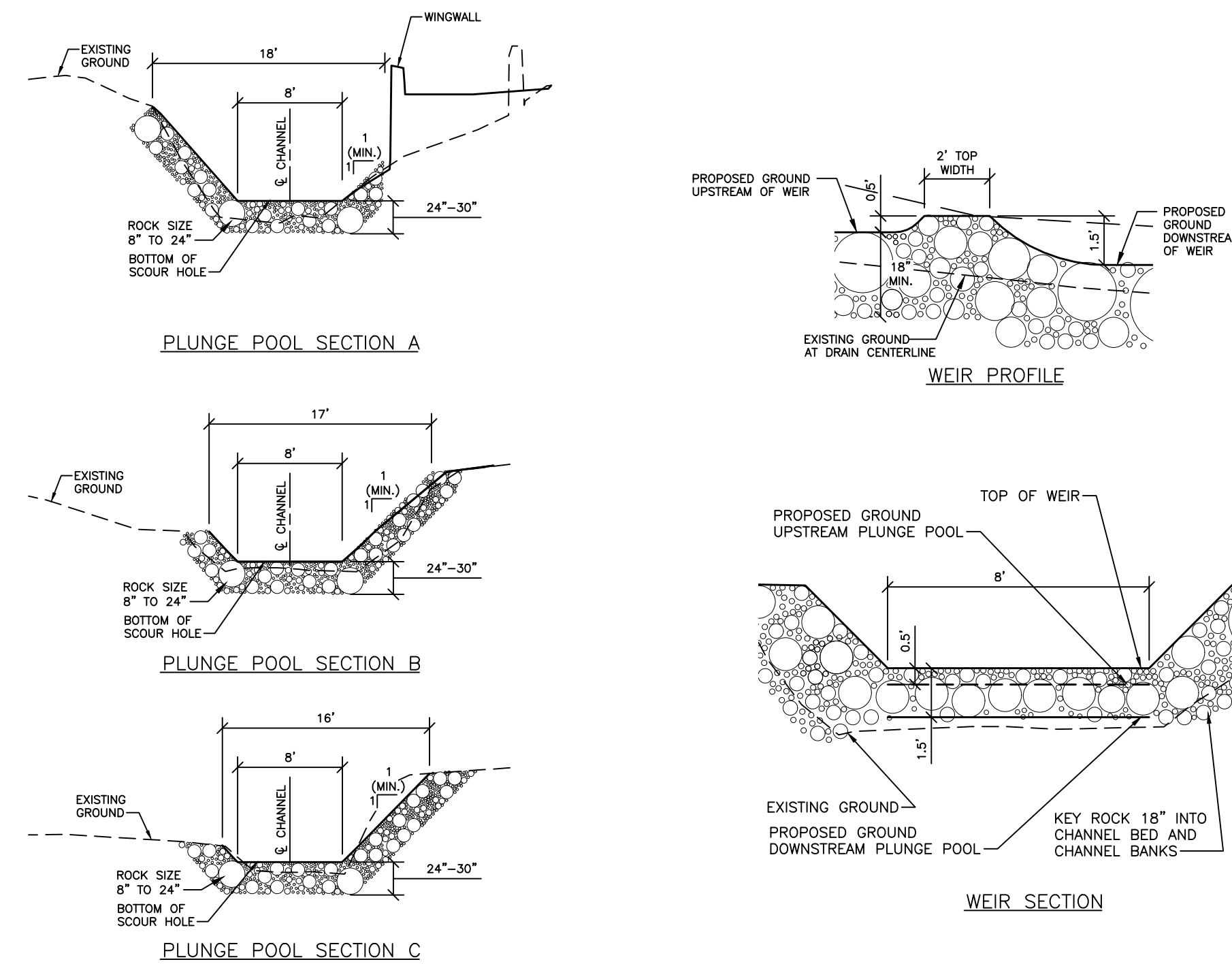
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**SCHOOLGIRLS' GLEN
PLUNGE POOL COMPLEX DETAILS**

SCALE: 1" = 10'
VERT. SCALE: 1" = 10'

ESTIMATE 40 CY 14" TO 24" FIELDSTONE
ESTIMATE 23 CY 8" TO 12" FIELDSTONE



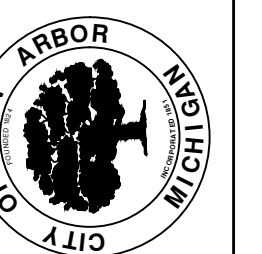
**SCHOOLGIRLS' GLEN
PLUNGE POOL COMPLEX DETAILS**

NO SCALE

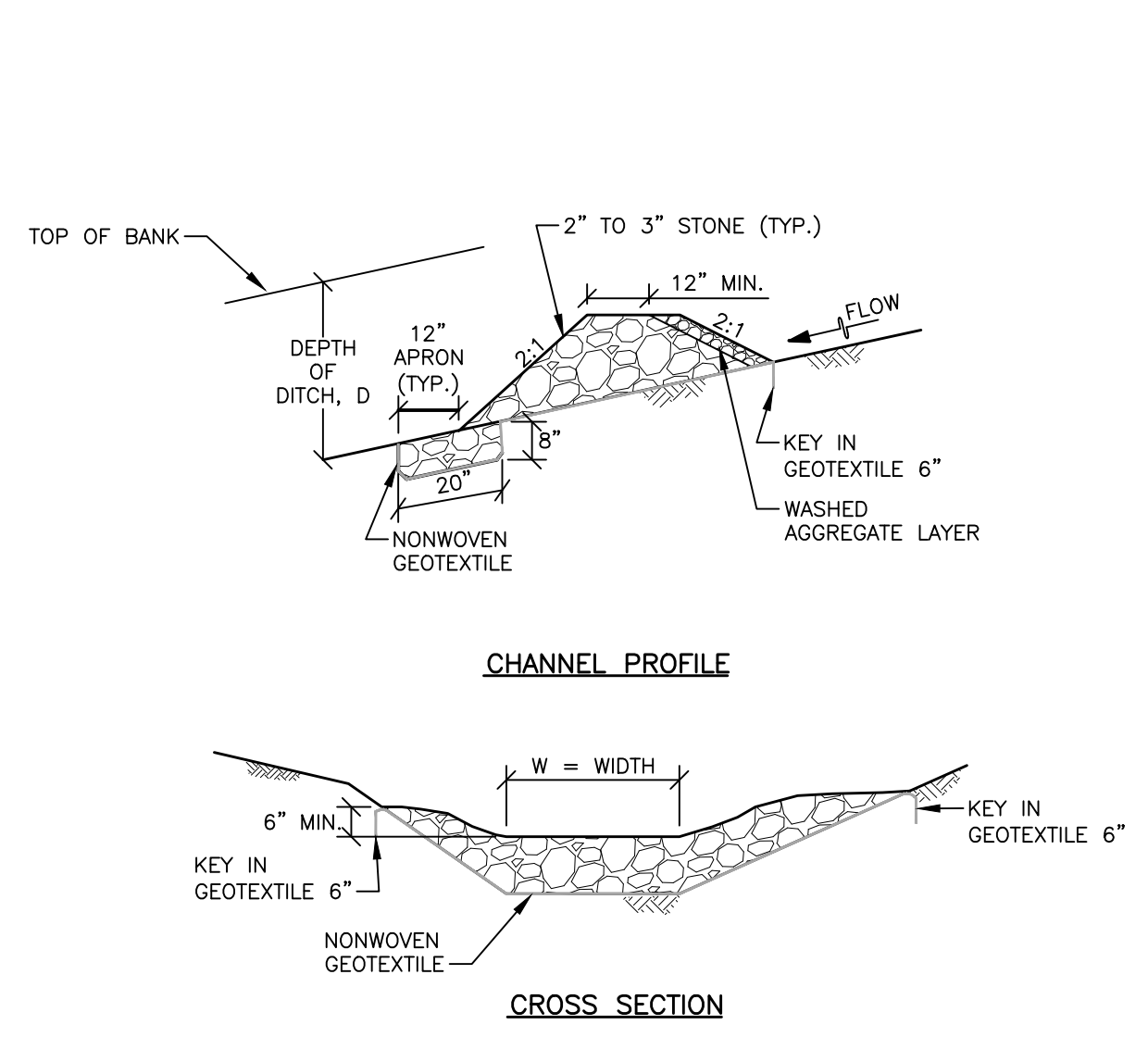


REV.	DESCRIPTION	DATE	DRAWN	CHECKED
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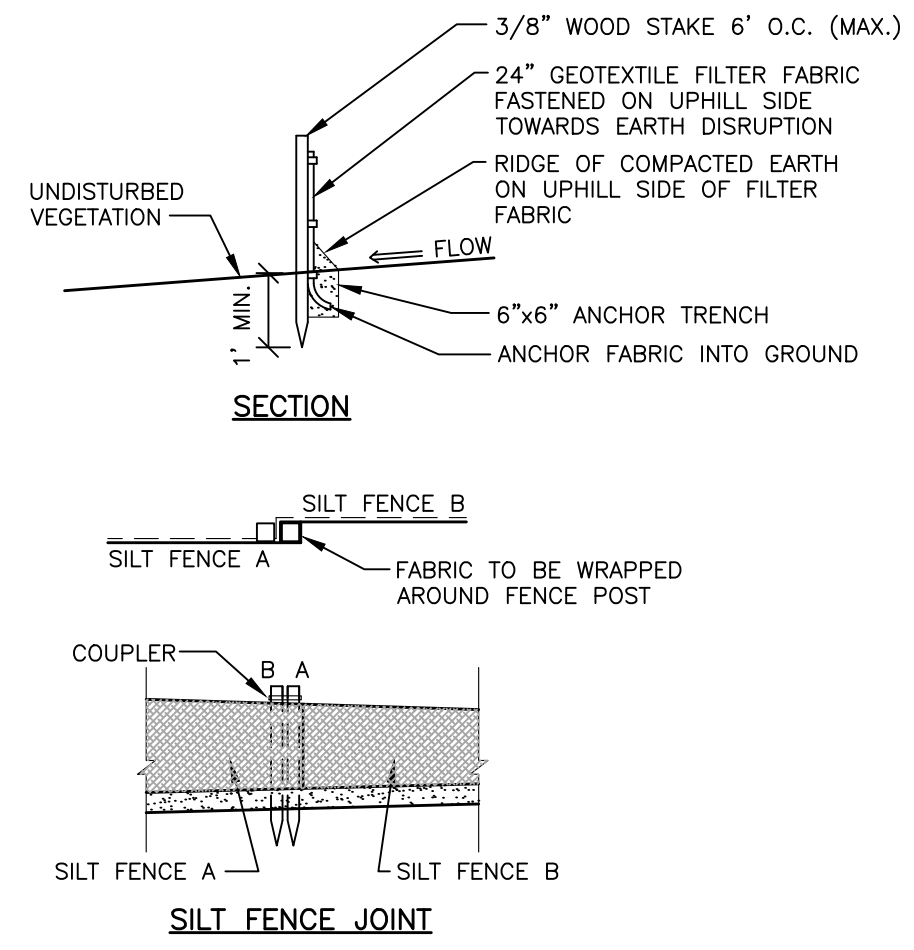


PUBLIC SERVICES-ENGINEERING - CITY OF ANN ARBOR
SCHOOL GIRLS GLEN CULVERT REPLACEMENT -
NICHOLS DRIVE
DETAILS
SCALE PLAN:
DRAWING No.
2021-XXX8
SHEET No.
8



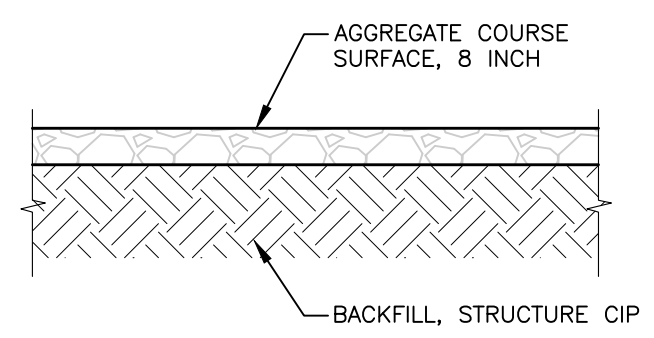
- NOTES:**
1. PLACE NONWOVEN GEOTEXTILE, MATERIALS, UNDER THE BOTTOM AND SIDES OF THE DAM PRIOR TO PLACEMENT OF STONE. CONSTRUCT THE CHECK DAM WITH WASHED STONE OR EQUIVALENT RECYCLED CONCRETE (WITHOUT REBAR) WITH SIDE SLOPES OF 2:1 OR FLATTER AND A MINIMUM TOP WIDTH OF 12 INCHES. PLACE THE STONE SO THAT IT COMPLETELY COVERS THE WIDTH OF THE CHANNEL AND CHANNEL BANKS. FORM THE WEIR SO THAT TOP OF THE OUTLET CREST IS APPROXIMATELY 6 INCHES LOWER THAN THE OUTER EDGES. LINE THE UPSTREAM FACE OF THE DAM WITH WASHED AGGREGATE (¾ TO 1½ INCH).
 2. SET THE HEIGHT FOR THE WEIR CREST EQUAL TO ONE-HALF THE DEPTH OF THE CHANNEL OR DITCH. TO AVOID SCOUR THE MAXIMUM HEIGHT OF THE WEIR CREST MUST NOT EXCEED 2.0 FEET. CHECK DAMS SHOULD BE INSPECTED BEFORE/AFTER HEAVY RAIN EVENTS. CLOGGED STONE SHOULD BE PERIODICALLY CLEANED.
 3. REMOVE ACCUMULATED SEDIMENT WHEN IT REACHES ONE-HALF OF THE HEIGHT OF THE WEIR CREST. MAINTAIN LINE, GRADE, AND CROSS SECTION. CLOGGED STONE SHOULD BE PERIODICALLY CLEANED.

49 STONE CHECK DAM
NO SCALE SE-049

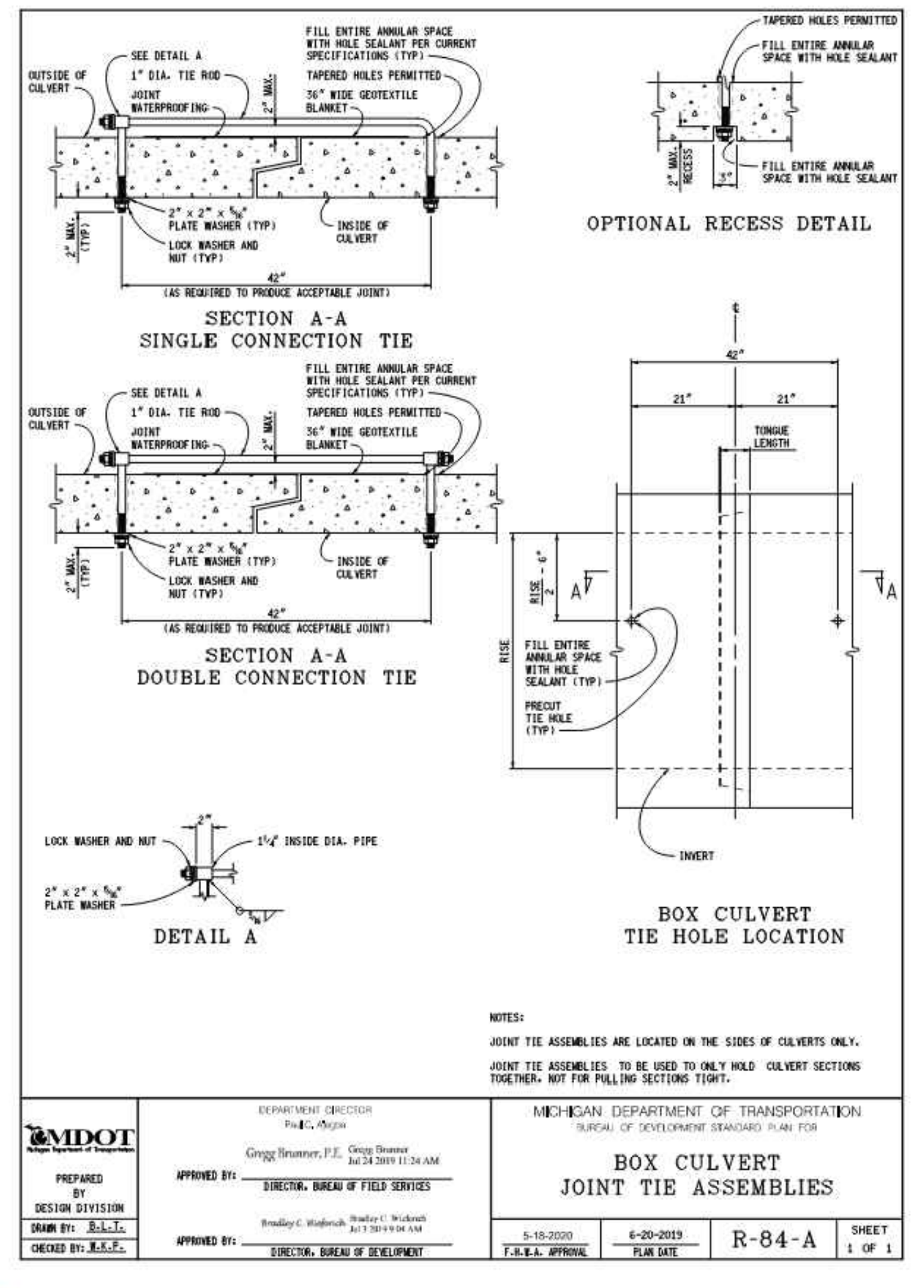


- NOTES:**
1. CONSTRUCT SILT FENCE BEFORE UPSLOPE GROUND COVER IS REMOVED. CLEARING, GRUBBING, AND STUMPING CAN OCCUR BEFORE SILT FENCE INSTALLATION IF GROUND COVER IS NOT REMOVED.
 2. PLACE ALL SILT FENCE PARALLEL TO THE SLOPE AS POSSIBLE SO THAT WATER WILL NOT CONCENTRATE AT LOW POINTS IN THE FENCE AND SO THAT SMALL SWALES OR DEPRESSIONS THAT MAY CARRY SMALL CONCENTRATED FLOWS TO THE SILT FENCE ARE DISSIPATED ALONG ITS LENGTH.
 3. INSTALL ENDS OF THE SILT FENCES UPSLOPE 12" IN ELEVATION SO THAT WATER PONDED BY THE SILT FENCE WILL BE PREVENTED FROM FLOWING AROUND THE ENDS.
 4. INSTALL THE TRENCH WITH A TRENCHER, CABLE LAYING MACHINE, SLICING MACHINE, OR OTHER SUITABLE DEVICE THAT WILL ENSURE AN ADEQUATELY UNIFORM TRENCH DEPTH.
 5. WHERE TWO SECTIONS OF PREFABRICATED SILT FENCE ARE COMBINED INTO ONE RUN, THE END POSTS SHALL BE CONNECTED TOGETHER, NOT SIMPLY OVERLAPPED.
 6. SILT FENCE SHALL ALLOW RUNOFF TO PASS ONLY AS DIFFUSE FLOW THROUGH THE GEOTEXTILE. IF RUNOFF OVERTOPS THE SILT FENCE, FLOWS AROUND THE ENDS, OR IN ANY OTHER WAY BECOMES A CONCENTRATED FLOW, ONE OF THE FOLLOWING SHALL BE PERFORMED, AS APPROPRIATE: A) AN ADDITIONAL RUN OF SILT FENCE SHALL BE PLACED UPSTREAM, B) THE LAYOUT OF THE SILT FENCE SHALL BE CHANGED, C) ACCUMULATED SEDIMENT SHALL BE REMOVED, OR D) OTHER BEST MANAGEMENT PRACTICES SHALL BE IMPLEMENTED.
 7. INSPECT FREQUENTLY AND IMMEDIATELY AFTER EACH STORM EVENT. CHECK SEVERAL TIMES DURING PROLONGED STORM EVENTS. IF NECESSARY, REPAIR IMMEDIATELY.
 8. REMOVE SEDIMENT DEPOSITS WHEN THE DEPOSIT REACHES APPROXIMATELY ONE-HALF OF THE HEIGHT OF THE SILT FENCE.
 9. REMOVE SILT FENCE ONLY WHEN ALL UPSTREAM VEGETATION IS FULLY ESTABLISHED AND DIRECTED BY ENGINEER/OWNER.

54 SILT FENCE DETAIL
NO SCALE SE-054



TYPICAL GRAVEL ROAD CROSS SECTION
NO SCALE



MDOT Michigan Department of Transportation DEPARTMENT DIRECTOR Paul C. Osip Gregg Brunner, P.E. Greg Brunner Jul 24 2019 11:24 AM APPROVED BY: DIRECTOR, BUREAU OF FIELD SERVICES DRAWN BY: B.S.L.T. CHECKED BY: B.S.L.T.	MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF DEVELOPMENT STANDARD PLAN FOR BOX CULVERT JOINT TIE ASSEMBLIES	
	5-10-2020 T.R.K.A. APPROVAL	6-20-2019 PLAN DATE

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
BIDS		08-11-2021		

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PUBLIC SERVICES-ENGINEERING - CITY OF ANN ARBOR
SCHOOL GIRLS GLEN CULVERT REPLACEMENT -
NICHOLS DRIVE
DETAILS

SCALE PLAN:
DRAWING No.
2021-XXX9

SHEET No.
9

MTC		LOG OF BORING		Project No.: 201675 Boring No.: B-1 Sheet: 1 of 1						
Project: Schoolgirls Glen - Nichols Drive Culvert Replacement										
Client: Fishbeck										
Location: Ann Arbor, Michigan										
Drill Type: CME 45										
Crew Chief: ZM Field Eng.: JS Rev. By: RW										
Coordinates: N=285984.8 E=13297135.8 (MI South ft)										
Elevation: 764.5 ft Datum: NAVD 88 (GPS Observation)										
Notes:										
Plugging Record: Backfilled borehole with compacted cuttings. Cave in at 6.6 ft.										
Depth Drilled: 25.0 ft. QP = Calibrated Penetrometer (tons/sq. ft.)										
Elev. FT.	Depth FT.	Sample Number	Recovery (%)	Penetration (Blows Per 6")	USCS Group Symbol	*DESCRIPTION	QP tsf	MST %	DD pcf	REMARKS
763.5	1	S-1	1.5	13-24-15 N=39	CL	4" Clayey Topsoil	0.3	4.5	11.5	Fill: 0' to 5.5'
762.5	2					Brown to black sandy CLAY; mostly clayey fines, some coarse to fine sand, moist, Fill	2.5			
761.5	3					Brown clayey SAND; mostly coarse to fine sand, little clayey fines, moist, Fill				
760.5	4	S-2	1.5	2-4-3 N=7	SC	Gray clayey SAND; mostly coarse to fine sand, some clayey fines, moist, Fill with occasional peat and wet sand lenses			11.2	
759.5	5									
758.5	6					Black sandy organic SILT; mostly silty fines, some coarse to fine sand, trace organic fines, moist, possible buried topsoil			5.5	
757.5	7	S-3	1.5	3-2-1 N=3	OL	Black sandy organic SILT; mostly silty fines, some coarse to fine sand, trace organic fines, moist, possible buried topsoil			31.8	S-3: Organic content = 3.9%
756.5	8									
755.5	9					Black clayey SAND; mostly coarse to fine sand, some clayey fines, moist with occasional peat lenses and wet sand lenses				
754.5	10	S-4	0.2	1-1-1 N=2						S-4: Poor recovery; possible coarse gravel / COBBLE *Charged augers with water at 10.0'
753.5	11									
752.5	12									
751.5	13									
750.5	14									
749.5	15	S-5	1.5	7-7-7 N=14	SP-SM	Brown poorly graded SAND with silt; mostly coarse to fine sand, few silty fines, few coarse to fine gravel, wet			39.3	S-5: Organic content = 4.5%
748.5	16									
747.5	17									
746.5	18									
745.5	19	S-6	1.5	13-17-18 N=35	SP-SM	Brown poorly graded SAND; mostly coarse to fine sand, wet				S-6: First sampler had no recovery, second attempt taken.
744.5	20									
743.5	21									
742.5	22									
741.5	23									
740.5	24	S-7	1.5	7-10-15 N=25	SP	Brown poorly graded SAND; mostly coarse to fine sand, wet				
739.5	25					End of Boring			25.0	

* Visual estimate following ASTM D 2488 unless laboratory testing has been performed. Stratification changes are approximated between samples.

MTC		LOG OF BORING		Project No.: 201675 Boring No.: B-3A Sheet: 1 of 1						
Project: Schoolgirls Glen - Nichols Drive Culvert Replacement										
Client: Fishbeck										
Location: Ann Arbor, Michigan										
Drill Type: Hand Auger										
Crew Chief: Field Eng.: JS Rev. By: RW										
Coordinates: N=285988.9 E=13297158.2 (MI South ft)										
Elevation: 753.0 ft Datum: NAVD 88 (GPS Observation)										
Notes:										
Plugging Record: Backfilled borehole with compacted cuttings.										
Depth Drilled: 0.8 ft. QP = Calibrated Penetrometer (tons/sq. ft.)										
Elev. FT.	Depth FT.	Sample Number	Recovery (%)	Dyn. Cone Eq. "N"	USCS Group Symbol	*DESCRIPTION	QP tsf	MST %	DD pcf	REMARKS
752.8	0.25	A-1		10	GP	Brown gray poorly graded GRAVEL with sand; mostly coarse to fine gravel, some coarse to fine sand, moist				
752.5	0.50									
752.3	0.75					Grades wet at 0.2'			0.8	
						End of Boring				Auger refusal at 0.8' due to probable COBBLE

* Visual estimate following ASTM D 2488 unless laboratory testing has been performed. Stratification changes are approximated between samples.

MTC		LOG OF BORING		Project No.: 201675 Boring No.: B-2 Sheet: 1 of 1						
Project: Schoolgirls Glen - Nichols Drive Culvert Replacement										
Client: Fishbeck										
Location: Ann Arbor, Michigan										
Drill Type: CME 45										
Crew Chief: ZM Field Eng.: JS Rev. By: RW										
Coordinates: N=285961.4 E=13297153.7 (MI South ft)										
Elevation: 764.5 ft Datum: NAVD 88 (GPS Observation)										
Notes:										
Plugging Record: Backfilled borehole with compacted cuttings. Cave in at 9.5 ft.										
Depth Drilled: 25.0 ft. QP = Calibrated Penetrometer (tons/sq. ft.)										
Elev. FT.	Depth FT.	Sample Number	Recovery (%)	Penetration (Blows Per 6")	USCS Group Symbol	*DESCRIPTION	QP tsf	MST %	DD pcf	REMARKS
763.5	1	S-1	0.4	50/5"	CL	1" Clayey Topsoil	0.1	1.0	16.9	Fill: 0' to 5.5'
762.5	2					Brown sandy CLAY; mostly clayey fines, some coarse to fine sand, few coarse to fine gravel, moist, Fill	2.5			S-1: Poor recovery; possible coarse gravel / COBBLE
761.5	3									
760.5	4	S-2	1.5	5-2-1 N=3	SC	Gray clayey SAND; mostly coarse to fine sand, some clayey fines, moist, Fill with occasional peat and wet sand lenses			25.5	
759.5	5									
758.5	6					Black sandy organic SILT; mostly silty fines, some coarse to fine sand, few organic fines, moist, possible buried topsoil			5.5	
757.5	7	S-3	1.5	8-7-6 N=13	OL	Black sandy organic SILT; mostly silty fines, some coarse to fine sand, few organic fines, moist, possible buried topsoil			71.0	S-3: Organic content = 8.3%
756.5	8									
755.5	9					Gray clayey SAND; mostly coarse to fine sand, some clayey fines, moist with occasional wet sand lenses				
754.5	10	S-4	1.5	3-2-2 N=4	SC				13.0	
753.5	11									
752.5	12									
751.5	13					Brown poorly graded SAND with silt; mostly medium to fine sand, few silty fines, wet				
750.5	14									
749.5	15	S-5	1.5	7-7-8 N=15	SP-SM					*Charged augers with water at 15.0'
748.5	16									
747.5	17									
746.5	18					Brown poorly graded SAND; mostly coarse to fine sand, wet				
745.5	19	S-6	1.5	7-9-10 N=19	SP					
744.5	20									
743.5	21									
742.5	22									
741.5	23									
740.5	24	S-7	1.5	11-11-13 N=24						
739.5	25					End of Boring			25.0	

* Visual estimate following ASTM D 2488 unless laboratory testing has been performed. Stratification changes are approximated between samples.

MTC		LOG OF BORING		Project No.: 201675 Boring No.: B-3B Sheet: 1 of 1						
Project: Schoolgirls Glen - Nichols Drive Culvert Replacement										
Client: Fishbeck										
Location: Ann Arbor, Michigan										
Drill Type: Hand Auger										
Crew Chief: Field Eng.: JS Rev. By: RW										
Coordinates: N=285983.9 E=13297158.2 (MI South ft)										
Elevation: 753.0 ft Datum: NAVD 88 (GPS Observation)										
Notes:										
Plugging Record: Backfilled borehole with compacted cuttings.										
Depth Drilled: 0.8 ft. QP = Calibrated Penetrometer (tons/sq. ft.)										
Elev. FT.	Depth FT.	Sample Number	Recovery (%)	Dyn. Cone Eq. "N"	USCS Group Symbol	*DESCRIPTION	QP tsf	MST %	DD pcf	REMARKS
752.8	0.25	A-1		11	GP	Brown gray poorly graded GRAVEL with sand; mostly coarse to fine gravel, moist				
752.5	0.50									
752.3	0.75					Grades wet at 0.2'			0.8	
						End of Boring				Auger refusal at 0.8' due to probable COBBLE

* Visual estimate following ASTM D 2488 unless laboratory testing has been performed. Stratification changes are approximated between samples.

MTC		LOG OF BORING		Project No.: 201675 Boring No.: B-3 Sheet: 1 of 1						
Project: Schoolgirls Glen - Nichols Drive Culvert Replacement										
Client: Fishbeck										
Location: Ann Arbor, Michigan										
Drill Type: Hand Auger										
Crew Chief: Field Eng.: JS Rev. By: RW										
Coordinates: N=285986.9 E=13297158.2 (MI South ft)										
Elevation: 753.0 ft Datum: NAVD 88 (GPS Observation)										
Notes:										
Plugging Record: Backfilled borehole with compacted cuttings.										
Depth Drilled: 0.8 ft. QP = Calibrated Penetrometer (tons/sq. ft.)										
Elev. FT.	Depth FT.	Sample Number	Recovery (%)	Dyn. Cone Eq. "N"	USCS Group Symbol	*DESCRIPTION	QP tsf	MST %	DD pcf	REMARKS
752.8	0.25	A-1		10	GP	Brown gray poorly graded GRAVEL with sand; mostly coarse to fine gravel, some coarse to fine sand, moist				
752.5	0.50									
752.3	0.75					Grades wet at 0.2'			0.8	
						End of Boring				Auger refusal at 0.8' due to probable COBBLE

* Visual estimate following ASTM D 2488 unless laboratory testing has been performed. Stratification changes are approximated between samples.

MTC		LOG OF BORING		Project No.: 201675 Boring No.: B-4 Sheet: 1 of 1						
Project: Schoolgirls Glen - Nichols Drive Culvert Replacement										
Client: Fishbeck										
Location: Ann Arbor, Michigan										
Drill Type: Hand Auger										
Crew Chief: Field Eng.: JS Rev. By: RW										
Coordinates: N=285954.8 E=13297138.6 (MI South ft)										
Elevation: 761.0 ft Datum: NAVD 88 (GPS Observation)										
Notes:										
Plugging Record: Backfilled borehole with compacted cuttings.										
Depth Drilled: 0.5 ft. QP = Calibrated Penetrometer (tons/sq. ft.)										
Elev. FT.	Depth FT.	Sample Number	Recovery (%)	Dyn. Cone Eq. "N"	USCS Group Symbol	*DESCRIPTION	QP tsf	MST %	DD pcf	REMARKS
760.8	0.25	A-1			GP	Brown gray poorly graded GRAVEL with sand; mostly coarse to fine gravel, some coarse to fine sand, moist				
760.5	0.50								0.5	
						End of Boring				Auger refusal at 0.5' due to probable COBBLE

* Visual estimate following ASTM D 2488 unless laboratory testing has been performed. Stratification changes are approximated between samples.



08-11-2021	CHECKED
	DRAWN
	DATE
	REV.
	DESCRIPTION
	BIDS

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
SCHOOL GIRLS GLEN CULVERT REPLACEMENT -
NICHOLS DRIVE
SOIL BORING

SCALE PLAN:
DRAWING No.
2021-XXX10

Z:\2019\191660\CAD\C011191660.dwg Dwg Created: 18-Jun-21 - standard.ctb - Plot Date: 9-Aug-21

MTC		LOG OF BORING		Project No.: 201675 Boring No.: B-4A Sheet: 1 of 1						
Project: Schoolgirl's Glen - Nichols Drive Culvert Replacement										
Client: Fishbeck										
Location: Ann Arbor, Michigan										
Drill Type: Hand Auger										
Crew Chief: Field Eng.: JS Rev. By: RW										
Coordinates: N=285956.8 E=13297138.6 (MI South ft)										
Elevation: 761.0 ft Datum: NAVD 88 (GPS Observation)										
Notes:										
Plugging Record: Backfilled borehole with compacted cuttings.										
Date Begin: 02/23/2021 Date End: 02/23/2021										
Tooling Type Dia. Groundwater, ft.										
Casing				During	None					
Sampler	Hand Auger	3 1/4"		End	NA					
Core				Seepage						
Tube				Date	Depth, ft.					
SPT Hammer										
Depth Drilled: 0.5 ft.										
Component Percentages: Trace < 5%, Few 5-10%, Little 15-25%, Some 30-45%, Mostly 50-100% QP = Calibrated Penetrometer (tons/sq. ft.)										
Elev. FT.	Depth FT.	Sample Number	Recov. FT.	Dyn. Cone Eq. "N": ASTM STP 399	"USCS" Group Symbol	*DESCRIPTION	QP tsf	MST %	DD pcf	REMARKS
760.8	0.25				GP	Brown gray poorly graded GRAVEL with sand; mostly coarse to fine gravel, some coarse to fine sand, moist				
760.5	0.50					End of Boring	0.5			Auger refusal at 0.5' due to probable COBBLE

* Visual estimate following ASTM D 2488 unless laboratory testing has been performed. Stratification changes are approximated between samples.

MTC		LOG OF BORING		Project No.: 201675 Boring No.: B-4B Sheet: 1 of 1						
Project: Schoolgirl's Glen - Nichols Drive Culvert Replacement										
Client: Fishbeck										
Location: Ann Arbor, Michigan										
Drill Type: Hand Auger										
Crew Chief: Field Eng.: JS Rev. By: RW										
Coordinates: N=285951.8 E=13297138.6 (MI South ft)										
Elevation: 761.0 ft Datum: NAVD 88 (GPS Observation)										
Notes:										
Plugging Record: Backfilled borehole with compacted cuttings.										
Date Begin: 02/23/2021 Date End: 02/23/2021										
Tooling Type Dia. Groundwater, ft.										
Casing				During	None					
Sampler	Hand Auger	3 1/4"		End	NA					
Core				Seepage						
Tube				Date	Depth, ft.					
SPT Hammer										
Depth Drilled: 0.5 ft.										
Component Percentages: Trace < 5%, Few 5-10%, Little 15-25%, Some 30-45%, Mostly 50-100% QP = Calibrated Penetrometer (tons/sq. ft.)										
Elev. FT.	Depth FT.	Sample Number	Recov. FT.	Dyn. Cone Eq. "N": ASTM STP 399	"USCS" Group Symbol	*DESCRIPTION	QP tsf	MST %	DD pcf	REMARKS
760.8	0.25				GP	Brown gray poorly graded GRAVEL with sand; mostly coarse to fine gravel, some coarse to fine sand, moist				
760.5	0.50					End of Boring	0.5			Auger refusal at 0.5' due to probable COBBLE

* Visual estimate following ASTM D 2488 unless laboratory testing has been performed. Stratification changes are approximated between samples.

MTC		LOG OF BORING		Project No.: 201675 Boring No.: B-5 Sheet: 1 of 1						
Project: Schoolgirl's Glen - Nichols Drive Culvert Replacement										
Client: Fishbeck										
Location: Ann Arbor, Michigan										
Drill Type: Hand Auger										
Crew Chief: Field Eng.: JS Rev. By: RW										
Coordinates: N=286006.3 E=13297156.1 (MI South ft)										
Elevation: 754.6 ft Datum: NAVD 88 (GPS Observation)										
Notes:										
Plugging Record: Backfilled borehole with compacted cuttings.										
Date Begin: 02/24/2021 Date End: 02/24/2021										
Tooling Type Dia. Groundwater, ft.										
Casing				During	None					
Sampler	Hand Auger	3 1/4"		End	NA					
Core				Seepage						
Tube				Date	Depth, ft.					
SPT Hammer										
Depth Drilled: 3.0 ft.										
Component Percentages: Trace < 5%, Few 5-10%, Little 15-25%, Some 30-45%, Mostly 50-100% QP = Calibrated Penetrometer (tons/sq. ft.)										
Elev. FT.	Depth FT.	Sample Number	Recov. FT.	Dyn. Cone Eq. "N": ASTM STP 399	"USCS" Group Symbol	*DESCRIPTION	QP tsf	MST %	DD pcf	REMARKS
754.4	0.25					Sandy Topsoil with occasional roots and few coarse to fine gravel				
754.1	0.50	A-1		5						
753.9	0.75									
753.6	1.00									
753.4	1.25									
753.1	1.50									
752.9	1.75									
752.6	2.00									
752.4	2.25									
752.1	2.50	A-2		8						
751.9	2.75									
751.6	3.00					End of Boring	3.0			Auger refusal at 3.0' due to possible coarse gravel / COBBLE

* Visual estimate following ASTM D 2488 unless laboratory testing has been performed. Stratification changes are approximated between samples.

MTC		LOG OF BORING		Project No.: 201675 Boring No.: B-6 Sheet: 1 of 1						
Project: Schoolgirl's Glen - Nichols Drive Culvert Replacement										
Client: Fishbeck										
Location: Ann Arbor, Michigan										
Drill Type: Hand Auger										
Crew Chief: Field Eng.: JS Rev. By: RW										
Coordinates: N=285984.9 E=13297162.8 (MI South ft)										
Elevation: 755.9 ft Datum: NAVD 88 (GPS Observation)										
Notes:										
Plugging Record: Backfilled borehole with compacted cuttings.										
Date Begin: 02/24/2021 Date End: 02/24/2021										
Tooling Type Dia. Groundwater, ft.										
Casing				During	None					
Sampler	Hand Auger	3 1/4"		End	NA					
Core				Seepage						
Tube				Date	Depth, ft.					
SPT Hammer										
Depth Drilled: 2.8 ft.										
Component Percentages: Trace < 5%, Few 5-10%, Little 15-25%, Some 30-45%, Mostly 50-100% QP = Calibrated Penetrometer (tons/sq. ft.)										
Elev. FT.	Depth FT.	Sample Number	Recov. FT.	Dyn. Cone Eq. "N": ASTM STP 399	"USCS" Group Symbol	*DESCRIPTION	QP tsf	MST %	DD pcf	REMARKS
755.7	0.25					Sandy Topsoil with occasional roots and few coarse to fine gravel				
755.4	0.50	A-1		7						
755.2	0.75									
754.9	1.00									
754.7	1.25									
754.4	1.50									
754.2	1.75									
753.9	2.00									
753.7	2.25	A-2		9						
753.4	2.50									
753.2	2.75					End of Boring	2.8			Auger refusal at 2.8' due to possible coarse gravel / COBBLE

* Visual estimate following ASTM D 2488 unless laboratory testing has been performed. Stratification changes are approximated between samples.

MTC		LOG OF BORING		Project No.: 201675 Boring No.: B-7 Sheet: 1 of 1						
Project: Schoolgirl's Glen - Nichols Drive Culvert Replacement										
Client: Fishbeck										
Location: Ann Arbor, Michigan										
Drill Type: Hand Auger										
Crew Chief: Field Eng.: JS Rev. By: RW										
Coordinates: N=285953.3 E=13297148.9 (MI South ft)										
Elevation: 765.4 ft Datum: NAVD 88 (GPS Observation)										
Notes:										
Plugging Record: Backfilled borehole with compacted cuttings.										
Date Begin: 02/24/2021 Date End: 02/24/2021										
Tooling Type Dia. Groundwater, ft.										
Casing				During	None					
Sampler	Hand Auger	3 1/4"		End	NA					
Core				Seepage						
Tube				Date	Depth, ft.					
SPT Hammer										
Depth Drilled: 3.5 ft.										
Component Percentages: Trace < 5%, Few 5-10%, Little 15-25%, Some 30-45%, Mostly 50-100% QP = Calibrated Penetrometer (tons/sq. ft.)										
Elev. FT.	Depth FT.	Sample Number	Recov. FT.	Dyn. Cone Eq. "N": ASTM STP 399	"USCS" Group Symbol	*DESCRIPTION	QP tsf	MST %	DD pcf	REMARKS
765.2	0.25					18" Sandy Topsoil with occasional roots and few coarse to fine gravel				
764.9	0.50	A-1		8						
764.7	0.75									
764.4	1.00									
764.2	1.25									
763.9	1.50									
763.7	1.75									
763.4	2.00									
763.2	2.25	A-2		11	SP-SM	Brown poorly graded SAND with silt; mostly coarse to fine sand, few silty fines, moist with frequent peat seams	1.5			
762.9	2.50									
762.7	2.75									
762.4	3.00									
762.2	3.25									
761.9	3.50					End of Boring	3.5			Auger refusal at 3.5' due to possible coarse gravel / COBBLE

* Visual estimate following ASTM D 2488 unless laboratory testing has been performed. Stratification changes are approximated between samples.

MTC		LOG OF BORING		Project No.: 201675 Boring No.: B-8 Sheet: 1 of 1						
Project: Schoolgirl's Glen - Nichols Drive Culvert Replacement										
Client: Fishbeck										
Location: Ann Arbor, Michigan										
Drill Type: Hand Auger										
Crew Chief: Field Eng.: JS Rev. By: RW										
Coordinates: N=285961.2 E=13297128.7 (MI South ft)										
Elevation: 765.2 ft Datum: NAVD 88 (GPS Observation)										
Notes:										
Plugging Record: Backfilled borehole with compacted cuttings.										
Date Begin: 02/24/2021 Date End: 02/24/2021										
Tooling Type Dia. Groundwater, ft.										
Casing				During	None					
Sampler	Hand Auger	3 1/4"		End	NA					
Core				Seepage						
Tube				Date	Depth, ft.					
SPT Hammer										
Depth Drilled: 3.0 ft.										
Component Percentages: Trace < 5%, Few 5-10%, Little 15-25%, Some 30-45%, Mostly 50-100% QP = Calibrated Penetrometer (tons/sq. ft.)										
Elev. FT.	Depth FT.	Sample Number	Recov. FT.	Dyn. Cone Eq. "N": ASTM STP 399	"USCS" Group Symbol	*DESCRIPTION	QP tsf	MST %	DD pcf	REMARKS
765.0	0.25					18" Sandy Topsoil with occasional roots and few coarse to fine gravel				
764.7	0.50	A-1		7						
764.5	0.75									
764.2	1.00									
764.0	1.25									
763.7	1.50									
763.5	1.75									
763.2	2.00									
763.0	2.25									
762.7	2.50									
762.5	2.75	A-2		11	SP-SM	Brown poorly graded SAND with silt; mostly coarse to fine sand, few silty fines, moist with frequent peat seams	1.5			
762.2	3.00					End of Boring	3.0			Auger refusal at 3.0' due to possible coarse gravel / COBBLE

* Visual estimate following ASTM D 2488 unless laboratory testing has been performed. Stratification changes are approximated between samples.



REV.	DESCRIPTION	DATE	CHECKED	DRAWN
		08-11-2021		

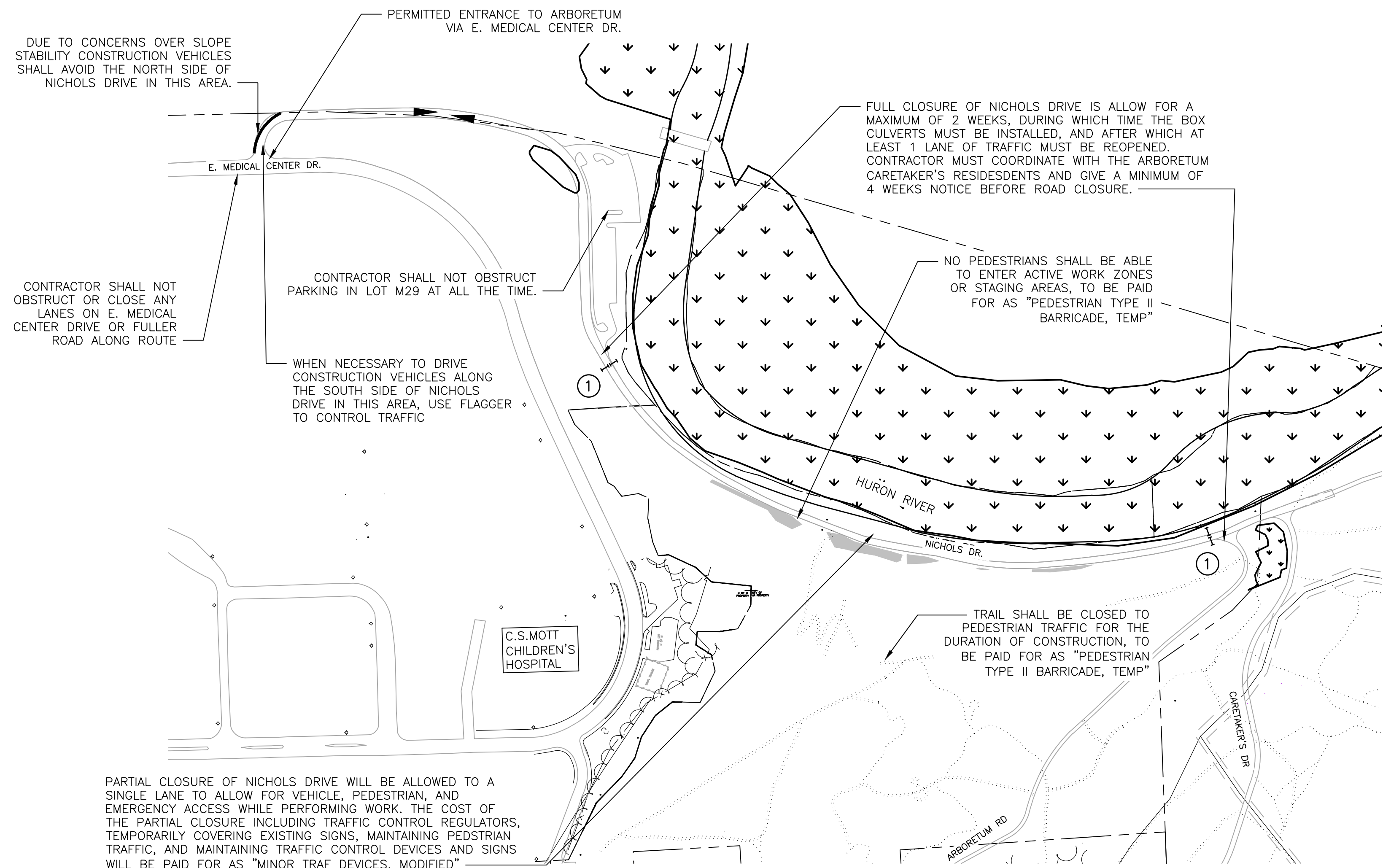
CITY OF ANN ARBOR
PUBLIC SERVICE
301 EAST HURON STREET
ANN ARBOR, MI 48107-8647
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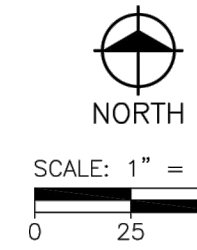
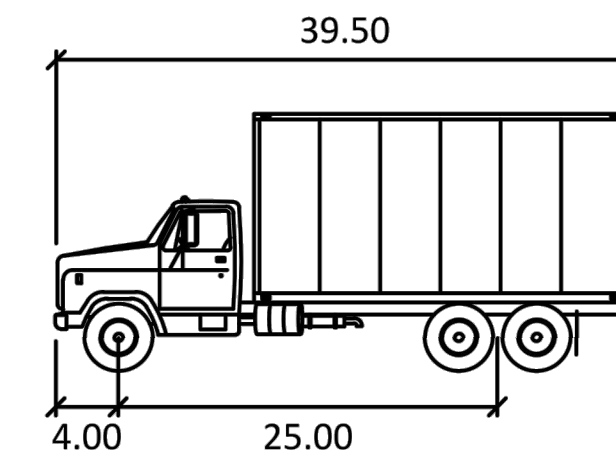
PUBLIC SERVICES-ENGINEERING - CITY OF ANN ARBOR
SCHOOL GIRLS GLEN CULVERT REPLACEMENT -
NICHOLS DRIVE
SOIL BORINGS

SCALE PLAN:
DRAWING No.
2021-XXX 11

Z:\2019\191660\CAD\C012191660.dwg Dwg Created: 9-Aug-21 - standard (reduced).ctb - Plot Date: 9-Aug-21



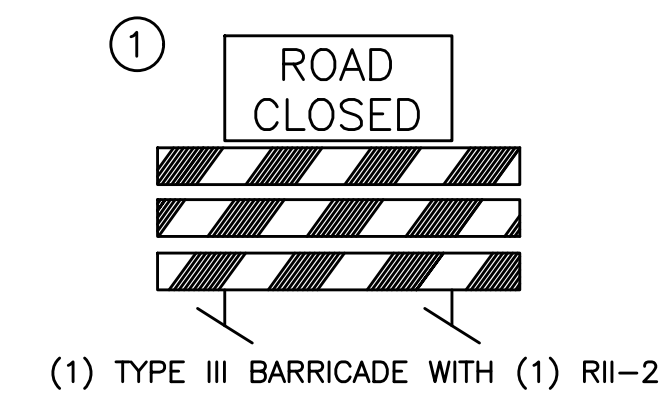
NICHOLS DRIVE ACCESS



TRUCK TURN DETAIL

SU-40

	feet
Width	: 8.00
Track	: 8.00
Lock to Lock Time	: 6.0
Steering Angle	: 31.8

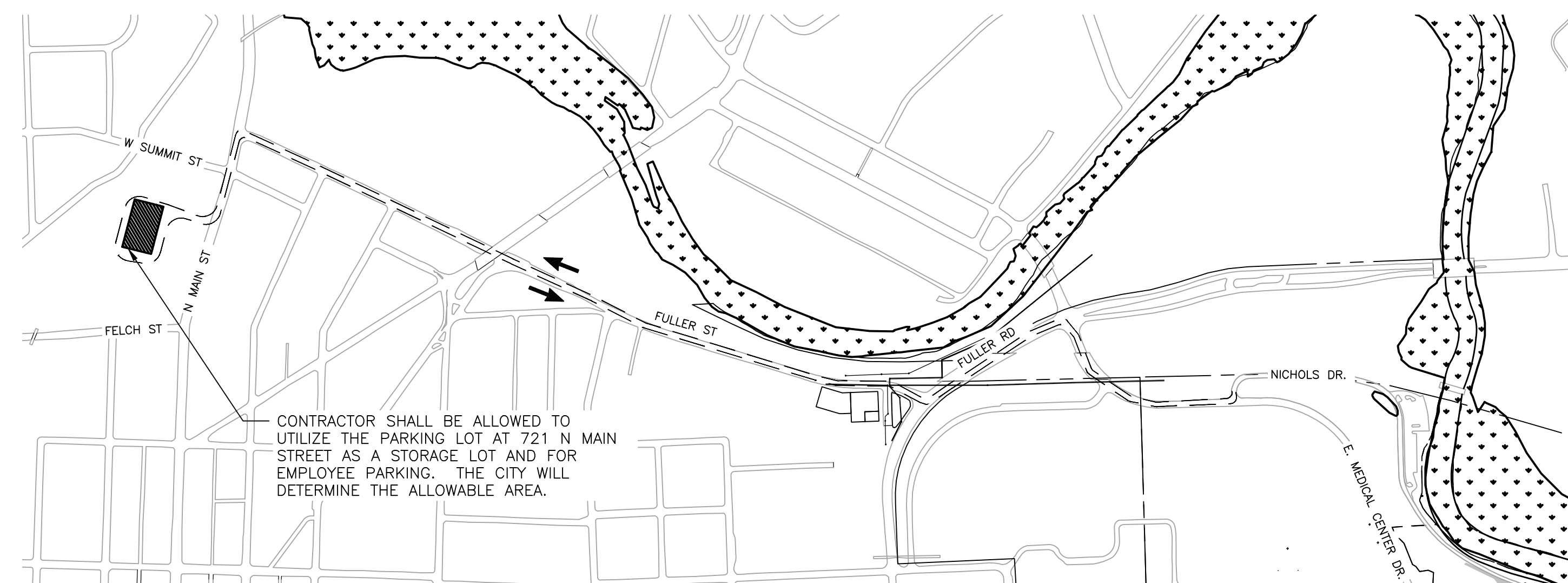


NOTES

- CONTRACTOR PARKING IN ARBORETUM MUST BE APPROVED BY THE ARBORETUM PERSONNEL.
- 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.
- THE PRE-PROPOSAL MEETING AND WALK-THROUGH FOR THIS PROJECT IS MANDATORY.
- CONTRACTOR MUST UTILIZE SMALL, FLATBED TRUCKS TO DELIVER CULVERT PIECES TO THE SITE BY STORING BOX PIECES AT THE 721 N MAIN STREET PARKING LOT THEN "RELOADING" ONTO SMALLER WHEELBASE VEHICLES FOR DELIVERY TO THE SITE, OR OTHER SUITABLE METHOD APPROVED BY THE ENGINEER.
- THE PARKING LOT AT 721 N MAIN STREET MIGHT NOT BE 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".
- CONTRACTOR SHALL BE ALLOWED TO UTILIZE THE PARKING LOT AT 721 N MAIN STREET FOR EMPLOYEE PARKING. THE CITY WILL DETERMINE THE ALLOWABLE AREA.
- CONTRACTOR EMPLOYEE PARKING ON NICHOLS DRIVE OUTSIDE OF THE CONSTRUCTION AREA IS STRICTLY PROHIBITED. VEHICLES MAY BE TOWED AT OWNER'S EXPENSE.
- CONTRACTOR TO ACCESS NICHOLS DRIVE THROUGH E MEDICAL DRIVE

MOT NOTES

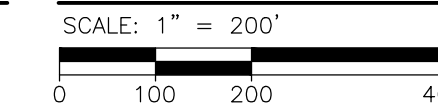
- ALL TRAFFIC CONTROL DEVICES SHALL COMPLY WITH MMUTCD TYPICAL M0231a, AS APPLICABLE
- ALL NON-APPLICABLE SIGNAGE WITHIN THE CONSTRUCTION INFLUENCE AREA SHALL BE MODIFIED TO FIT CONDITIONS, COVERED, OR REMOVED.



STORAGE LOT ACCESS

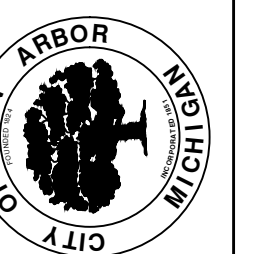


**ACCESS PLAN
E MEDICAL CENTER TO NICHOLS DR**



REV.	DESCRIPTION	DATE	DRAWN	CHECKED
BIDS		08-11-2021		

CITY OF ANN ARBOR
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**PUBLIC SERVICES-ENGINEERING - CITY OF ANN ARBOR
SCHOOL GIRLS GLEN CULVERT REPLACEMENT -
NICHOLS DRIVE
ACCESS PLAN**

SCALE PLAN:
DRAWING No.
2021-XXX12