

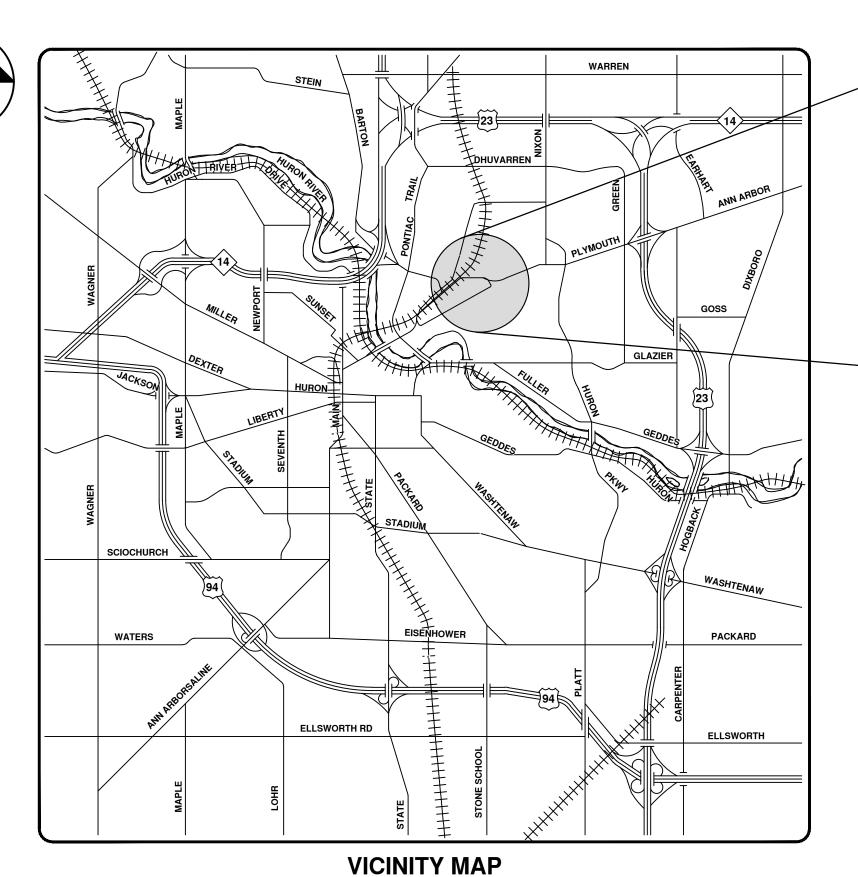
CITY OF ANN ARBOR ENGINEERING

PLYMOUTH ROAD RETAINING WALL REPAIRS

<u> </u>								
	SHEET LIST TABLE							
SHEET NUMBER	SHEET TITLE							
1	COVER SHEET							
2 - 3	QUANTITIES, CONSTRUCTION NOTES AND MOT DETAILS							
4	GENERAL PLAN OF SITE - STA. 0+00 TO STA. 4+00							
5	GENERAL PLAN OF SITE - STA. 4+00 TO STA. 8+25							

PERMITS REQUIRED TO BE OBTAINED BY THE CONTRACTOR							
PRIOR TO THE BEGIN			OHINACION				
PERMIT		ISSUING AUTHORITY					
LANE CLOSURE PERMIT*		CITY OF ANN ARBOR ENGINEERING					
"NO PARKING" SIGNS PERMIT*		CITY OF ANN ARBOR ENGINEERING					
RIGHT-OF-WAY PERMIT*		CITY OF ANN ARBOR CUSTOMER SERVICE					
*	NO COST TO	CONTRACTOR					
CONTACT INFORMATI	ON						
PUBLIC UTILITIES		OWNER	CONTACT				
SANITARY STORM FORESTRY	CITY OF ANN W.R. WHEELER 4251 STONE : ANN ARBOR,	(734) 794–6350					
SIGNS SIGNALS STREET LIGHTS			(734) 794–6361				
PRIVATE UTILITIES		OWNER	CONTACT				
GAS	DTE ENERGY 3150 E. MICH YPSILANTI TO	IGAN AVE, WNSHIP, MI 48198	ROBERT CZAPIEWSKI (734) 544–7818				
ELECTRIC	DTE ENERGY WESTERN WAY 8001 HAGGER BELLEVILLE, M		CLAY COMBEE (734) 397-4112				
CABLE	COMCAST 27800 FRANK SOUTHFIELD,		RON SUTHERLAND (313) 999-8300				
PHONE	AT&T 550 S. MAPLE ANN ARBOR,		(734) 996–2135				
FIBER OPTIC	MCI 2800 N. GLEN RICHARDSON,		DEAN BOYERS (972) 729-6016				

ITB No. 4552, FILE No. 2018-030



STANDARD SPECIFICATIONS, IT'S DETAILS, WHICH ARE INCLUDED BY REFERENCE, AND THIS PROJECT'S CONTRACT DOCUMENTS. THE OMISSION OF ANY CURRENT STANDARD DETAIL DOES NOT RELIEVE THE CONTRACTOR



PREPARED UNDER THE SUPERVISION OF

MICHAEL G. NEARING, P.E. - MI LICENSE No. 38748 SENIOR PROJECT MANAGER

10/24/2018



45 0046		outations	_		⊢		_		+
une 15, 2018	3								
	<u> </u>								
	Nominal Pile	Exposed		Pile		Flange		Computed Pile	Surface Ar
Pile Number	Size	Pile Length (in)		Width (in)		Thickness (in)		Surface Area (in ²)	(ft ²)
0 1	10 x 57 10 x 57	30 47		10.5 10.5		0.565 0.565		348.9 546.61	3
2	10 x 57	44.5		10.5		0.565		517.535	3
3	10 x 57	74		10.5		0.565		860.62	5
4	14 x 89	96		15		0.615		1558.08	10
5 6	14 x 89 14 x 89	107 108		15 15		0.615 0.615		1736.61 1752.84	12 12
7	14 x 89 14 x 89	118.5	_	15		0.615		1923.255	13
8	14 x 89	118.5	_	15		0.615		1923.255	13
9	14 x 89	129.5	_	15		0.615		2101.785	14
10	14 x 89	130.5	_	15 15		0.615		2118.015 1752.84	14
11 12	14 x 89 14 x 89	108 108	_	15		0.615 0.615		1752.84	12 12
13	14 x 89	104	_	15		0.615		1687.92	11
14	14 x 89	101		15		0.615		1639.23	11
15	14 x 89	96 79	_	15		0.615 0.615		1558.08	10
16 17	14 x 89 14 x 89	87		15 15		0.615		1282.17 1412.01	9
18	14 x 89	72		15		0.615		1168.56	8
19	14 x 89	70		15		0.615		1136.1	7
20	14 x 89	70	_	15		0.615		1136.1	7
21 22	14 x 89	68 49.75	_	15 5.5		0.615 0.615		1103.64 334.8175	7
23	10 x 57	60.5	_	24.5		0.615		1556.665	10
24	10 x 57	68.5		10.5		0.5		787.75	5
25	10 x 57	66	⊢	10.5		0.565		767.58	5
26 27	10 x 57 10 x 57	75 73	_	10.5 10.5		0.565 0.565		872.25 848.99	5
28	10 x 57	73		10.5		0.565		825.73	5
29	10 x 57	69		10.5		0.565		802.47	5
30	10 x 57	78	_	10.5		0.565		907.14	6
31 32	10 x 57 10 x 57	71.5 72		10.5 10.5		0.565 0.565		831.545 837.36	5
33	10 x 57	60		24.75		0.565		1552.8	10
34		89	_	5.5		0.565		590.07	4
35	14 x 89	99.5	-	15		0.615		1614.885	11
36 37	14 x 89 14 x 89	93 91	_	15 15		0.615 0.615		1509.39 1476.93	10 10
38	14 x 89	69	_	15		0.615		1119.87	7
39	14 x 89	50.5	⊢	15		0.615		819.615	5
40	10 x 57	57		10.5		0.565		662.91	4
41	10 x 57	59 66	_	10.5 10.5		0.565 0.565		686.17 767.58	5
42 43	10 x 57 10 x 57	61	_	10.5		0.565		709.43	4
44	14 x 89	72	_	15		0.615		1168.56	8
45	14 x 89	66	_	15		0.615		1071.18	7
46	14 x 89	66	_	15		0.615		1071.18	7
47 48	10 x 57	73 73		6 10.5		0.565 0.565		520.49 848.99	<u>3</u>
49	10 x 57	68.5	_	10.5		0.565		796.655	5
50	10 x 57	62	_	10.5		0.565		721.06	5
51	10 x 57	58	_	10.5		0.565		674.54	4
52 53	10 x 57 10 x 57	55 51	_	10.5 10.5		0.565 0.565		639.65 593.13	4
54 54	10 x 57	47	_	10.5		0.565		546.61	3
55	10 x 57	55.5	_	10.5		0.565		645.465	4
56	10 x 57	51	_	10.5		0.565		593.13	4
57 58	10 x 57 10 x 57	51.25 48.5	_	15 24.25		0.615 0.565		831.7875 1230.93	5
59	10 // 37	70	-	4.75		0.5		402.5	2
60	10 x 57	78		10.5		0.565		907.14	6
61	10 x 57	77	L	10.5		0.565		895.51	6
62 63	10 x 57 10 x 57	77 72	-	10.5 10.5		0.565 0.565		895.51 837.36	5
64	10 x 57	81	_	10.5		0.565		942.03	6
65	10 x 57	54		10.5		0.565		628.02	4
66	10 x 57	58	_	10.5	Ĺ	0.565		674.54	4
67 68	10 x 57 10 x 57	53 53		10.5 10.5	_	0.565 0.565		616.39 616.39	4
69	10 x 57	62	_	10.5		0.565		721.06	5
70	10 x 57	58		10.5		0.565		674.54	4
71	10 x 57	64	—	10.5		0.565		744.32	5
72 73	10 x 57 10 x 57	59 54	_	10.5 10.5	_	0.565 0.565		686.17 628.02	4
73 74	10 x 57	49	_	10.5		0.565		569.87	3
75	10 x 57	58		10.5		0.565		674.54	4
76	10 x 57	56	_	10.5		0.565		651.28	4
77 78	10 x 57	48 44	_	10.5 10.5		0.565 0.565		558.24 511.72	3
78 79	10 x 57 10 x 57	36	—	10.5 10.5		0.565		511.72 418.68	3
80	10 x 57	24	⊢	10.5		0.565		279.12	1
81	10 x 57	28	_	10.5		0.565		325.64	2
82	10 x 57	24	_	10.5		0.565		279.12	1
83 84	10 x 57 10 x 57	16 6	⊢	10.5 10.5		0.565 0.565		186.08 69.78	1 0
04	TO X 2/	6		10.5		0.505		09.78	1
	<u> </u>					<u> </u>		Sub-total	550
									<u> </u>
ot Ouantite fo	 r buried portion	e of piles	\vdash					 	1
it Quantity for	Duried portion	is or piles	\vdash	Width (in)		Depth (in)		Area to be Coated	Area (ft2)
of 10 x 57 pile	S	34		10.5		6		2142	14.8
'									
of 14 x 89 pile	S	26		15		6		2340	16
	1	-	\vdash					 	
	+		\vdash					GRAND TOTAL	581
			_	_		_			

GENERAL CONSTRUCTION NOTES:

- 1. DRIVEWAYS AND ENTRANCES TO BUILDINGS, REAL PROPERTY, AND THE LIKE SHALL NOT BE BLOCKED EXCEPT FOR SHORT DURATIONS AND ONLY WITH THE APPROVAL OF THE ENGINEER. VEHICULAR AND PEDESTRIAN ACCESS SHALL BE MAINTAINED AT ALL TIMES TO ALL PROPERTIES.
- 2.AREAS DESIGNATED FOR STAGING THE CONSTRUCTION OPERATIONS MAY BE USED FOR EQUIPMENT PLACEMENT AND STORAGE DURING CONSTRUCTION. THE CONTRACTOR SHALL RESTORE THESE AREAS TO THEIR ORIGINAL CONDITION UPON COMPLETION OF THE PROJECT AT NO ADDITIONAL COST TO THE PROJECT.
- 3. THE CONTRACTOR SHALL INSTALL AND CONTINUOUSLY MAINTAIN THE TRAFFIC CONTROL DEVICES AS SHOWN ON THE PLANS, AS REQUIRED BY THE SPECIFICATIONS, AND AS DIRECTED BY THE ENGINEER.
- 4. THE WORK COVERED BY THESE PLANS INCLUDES CLEANING AND COATING THE STRUCTURAL STEEL H-PILES, SITE RESTORATION, AND MAINTAINING VEHICULAR AND PEDESTRIAN TRAFFIC.
- 5. ANY REFERENCE IN SECTION 715 OF THE 2012 MDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION TO "BRIDGE" OR "STEEL STRUCTURE" OR ANY OTHER DESCRIPTION OF A ELEMENT TO BE CLEANED OR COATED SHALL BE CONSTRUED TO APPLY TO THE WORK OF THIS CONTRACT WITHOUT EXCEPTION.

CLEANING AND COATING NOTES:

- 1. THE H-PILES ARE TO BE COATED WITH A ZINC-BASED COATING SYSTEM. THE COATING SYSTEM SHALL BE CHOSEN FROM THE MDOT QUALIFIED PRODUCTS LIST AND APPROVED BY THE ENGINEER FOR USE ON THE PROJECT PRIOR TO BEGINNING ANY WORK.
- 2.THE PROTECTION OF THE WORK AND ENVIRONMENT SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 715 OF THE 2012 MDOT STANDARD SPECIFICATION FOR CONSTRUCTION.
- 3. THE CLEANING AND COATING OF THE H-PILES SUPPORTING THE RETAINING WALL SHALL BE COMPLETED IN ACCORDANCE SECTION 715 OF THE 2012 MDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION AND AS DETAILED ON THE PLANS.
- 4.THE ENGINEER SHALL INSPECT THE H-PILES AND COVER PLATES THAT HAVE BEEN BLAST CLEANED FOR EVIDENCE OF CRACKS OR LOSS OF SECTION DUE TO CORROSION OF MORE THAN 25%. SUCH DETERIORATION SHALL BE REPORTED TO THE ENGINEER IN WRITING WITHIN 24 HOURS OF DISCOVERY OF SECTION LOSS.
- 5. THE ESTIMATED AREA OF H-PILES TO BE CLEANED AND COATED IS APPROXIMATELY 582 SQUARE FEET. THE STATED AREA INCLUDES ALL EXPOSED AREAS OF H-PILES AND 6" OF FLANGE WIDTH BELOW GRADE. THE CONTRACTOR SHALL VERIFY THIS QUANTITY PRIOR TO SUBMITTING THEIR BID FOR THE WORK.
- 6. THE COLOR OF THE URETHANE PROTECTIVE COAT SHALL BE LIGHT YELLOW, AMS-STD-595 COLOR NUMBER 13591. THE PROTECTIVE URETHANE COATING SHALL BE HIGH GLOSS. THE CONTRACTOR SHALL PROVIDE A "DRAW-DOWN" SAMPLE OF THE COLOR FOR THE ENGINEER'S APPROVAL PRIOR TO PLACING THE FINAL ORDER.
- 7.ALL EXPOSED PORTIONS OF THE H-PILES SHALL BE CLEANED AND COATED. THIS INCLUDES THE TOP PORTION AND INSIDE SURFACES OF THE FLANGES AND WEB OF THE H-PILES.
- 8. THE CONTRACTOR SHALL MASK THE IMMEDIATELY ADJACENT PRE-CAST CONCRETE WALL PANELS AND SIDEWALK AREAS IN ORDER TO PREVENT DAMAGE FROM THE CLEANING AND COATING OPERATIONS. ALL MEASURES FOR THE MASKING SHALL BE EFFECTIVE. ANY DAMAGE TO THE PRE-CAST PANELS OR SIDEWALK SHALL BE REPAIRED AT THE CONTRACTOR'S SOLE EXPENSE AND AS APPROVED BY THE ENGINEER.
- 9. THE CONTRACTOR SHALL TAKE ALL NECESSARY MEASURES TO AVOID OVERSPRAY ON THE ADJACENT PRE-CAST WALL PANELS OR EXISTING SIDEWALK. ALL MEASURES TAKEN SHALL BE EFFECTIVE. ANY OVERSPRAY ON THE PRE-CAST PANELS OR EXISTING SIDEWALK SHALL BE COMPLETELY REMOVED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE PROJECT.

MINIMUM MERGING TAPER LENGTH "L" (FFFT)

OFFSET	POSTED SPEED LIMIT, MPH (PRIOR TO WORK AREA)										
FEET	25	30	35	40	45	50	55	60	65	70	
1	10	15	20	27	45	50	55	60	65	70	
2	21	30	41	53	90	100	110	120	130	140	
3	31	45	61	80	135	150	165	180	195	210	
4	42	60	82	107	180	200	220	240	260	280	H
5	52	75	102	133	225	250	275	300	325	350	Z
6	63	90	123	160	270	300	330	360	390	420	
7	73	105	143	187	315	350	385	420	455	490]"
8	83	120	163	213	360	400	440	480	520	560	_ <u>_</u>
9	94	135	184	240	405	450	495	540	585	630	LENGTH
10	104	150	204	267	450	500	550	600	650	700	LEI
11	115	165	225	293	495	550	605	660	715	770	24
12	125	180	245	320	540	600	660	720	780	840	TAPER
13	135	195	266	347	585	650	715	780	845	910	-
14	146	210	286	374	630	700	770	840	910	980	
15	157	225	307	400	675	750	825	900	975	1050	

THE FORMULAS FOR THE MINIMUM LENGTH OF A MERGING TAPER IN DERIVING THE "L" VALUES SHOWN IN THE ABOVE TABLES ARE AS FOLLOWS:

"L" = $\frac{W \times S^2}{V}$ WHERE POSTED SPEED PRIOR TO THE WORK AREA IS 40 MPH OR LESS SHOULDER TAPER

 $'L'' = S \times W$ WHERE POSTED SPEED PRIOR TO THE WORK AREA IS 45 MPH OR GREATER

= MINIMUM LENGTH OF MERGING TAPER S = POSTED SPEED LIMIT IN MPH PRIOR TO WORK AREA W = WIDTH OF OFFSET

TAPER LENGTH TYPES OF TAPERS UPSTREAM TAPERS MERGING TAPER L - MINIMUM SHIFTING TAPER 1/2 L - MINIMUM 1/3 L - MINIMUM

DOWNSTREAM TAPERS 100 ' - MINIMUM (USE IS OPTIONAL)

TWO-WAY TRAFFIC TAPER

MDOT

TRAFFIC AND SAFETY TABLES FOR "L", "D" AND "B" VALUES MAINTAINING TRAFFIC TYPICAL

AWN BY: CON:AE:djf M0020a

(PER LANE)

100 ' - MAXIMUM

DISTANCE BETWEEN TRAFFIC CONTROL DEVICES "D" AND LENGTH OF LONGITUDINAL BUFFER SPACE ON "WHERE WORKERS PRESENT" SEQUENCES

"D"		Р	OSTED S	SPEED L	IMIT,	MPH (PF	RIOR TO	WORK /	AREA)	
DISTANCES	25	30	35	40	45	50	55	60	65	70
D (FEET)	250	300	350	400	450	500	550	600	650	700

GUIDELINES FOR LENGTH OF LONGITUDINAL BUFFER SPACE "B"

SPEED* MPH	LENGTH FEET
20	33
25	50
30	83
35	132
40	181
45	230
50	279
55	329
60	411
65	476
70	542

- * POSTED SPEED, OFF PEAK 85TH PERCENTILE SPEED PRIOR TO WORK STARTING, OR THE ANTICIPATED
- BASED UPON AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO) BRAKING DISTANCE PORTION OF STOPPING SIGHT DISTANCE FOR WET AND LEVEL PAVEMENTS (A POLICY ON GEOMETRIC DESIGN OF HIGHWAY AND STREETS), AASHTO. THIS AASHTO DOCUMENT ALSO RECOMMENDS ADJUSTMENTS FOR THE EFFECT OF GRADE ON STOPPING AND VARIATION FOR TRUCKS.

Michigan Department of Transportation TRAFFIC AND SAFETY MAINTAINING TRAFFIC TYPICAL	TABLES FOR "L	", "D"	AND	"B" V	ALUES
DRAWN BY: CON:AE:djf	JUNE 2006		inna (١, ۵	SHE
CHECKED BY: BMM	PLAN DATE:	ĮV.	10020	Ju	2 OF
FILE . V . /DCN /TCD /CTDC /F	NOL TOU WANTEDE WOODD	dan	DEM	00 /0/	10000

<u>NOTES</u>

1B. D = DISTANCE BETWEEN TRAFFIC CONTROL DEVICES L = MINIMUM LENGTH OF TAPER

B = LENGTH OF LONGITUDINAL BUFFER

SEE MOO20d FOR "D," "L," AND "B" VALUES

- 2. ALL NON-APPLICABLE SIGNING WITHIN THE CIA SHALL BE MODIFIED TO FIT CONDITIONS, COVERED OR REMOVED.
- 3. DISTANCES BETWEEN SIGNS, THE VALUES FOR WHICH ARE SHOWN IN TABLE D, ARE APPROXIMATE AND MAY NEED ADJUSTING AS DIRECTED BY THE ENGINEER.
- 3A. THE "WORK ZONE BEGINS" (R5-18c) SIGN SHALL BE USED ONLY IN THE INITIAL SIGNING SEQUENCE IN THE WORK ZONE. SUBSEQUENT SEQUENCES IN THE SAME WORK ZONE SHALL OMIT THIS SIGN AND THE QUANTITIES SHALL BE ADJUSTED APPROPRIATELY.
- 4E. THE MAXIMUM RECOMMENDED DISTANCE(S) BETWEEN CHANNELIZING DEVICES SHOULD BE EQUAL IN FEET TO THE POSTED SPEED IN MILES PER HOUR ON TAPER(S) AND TWICE THE POSTED SPEED IN THE PARALLEL AREA(S).
- 5. FOR OVERNIGHT CLOSURES, TYPE III BARRICADES SHALL BE LIGHTED.
- 6. WHEN CALLED FOR IN THE FHWA ACCEPTANCE LETTER FOR THE SIGN SYSTEM SELECTED, THE TYPE A WARNING FLASHER, SHOWN ON THE WARNING SIGNS, SHALL BE POSITIONED ON THE SIDE OF THE SIGN NEAREST THE ROADWAY.
- 7. ALL TEMPORARY SIGNS, TYPE III BARRICADES, THEIR SUPPORT SYSTEMS AND LIGHTING REQUIREMENTS SHALL MEET NCHRP 350 CRASHWORTHLY REQUIREMENTS STIPULATED IN THE CURRENT EDITION OF THE MICHIGAN MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, THE CURRENT EDITION OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION, THE STANDARD PLANS AND APPLICABLE SPECIAL PROVISIONS. ONLY DESIGNS AND MATERIALS APPROVED BY MDOT WILL BE ALLOWED.
- 8. WHEN BUFFER AREAS ARE ESTABLISHED, THERE SHALL BE NO EQUIPMENT OR MATERIALS STORED OR WORK CONDUCTED IN THE BUFFER AREA.
- 16A. ADDITIONAL SPEED LIMIT SIGNS REFLECTING THE REDUCED SPEED SHALL BE PLACED AFTER EACH MAJOR CROSSROAD THAT INTERSECTS THE WORK AREA WHERE THE REDUCED SPEED IS IN EFFECT, AND AT INTERVALS ALONG THE ROADWAY SUCH THAT NO SPEED LIMIT SIGNS REFLECTING THE REDUCED SPEED ARE MORE THAN
- 16B. WHEN REDUCED SPEED LIMITS ARE UTILIZED IN THE WORK AREA, ADDITIONAL SPEED LIMIT SIGNS RETURNING TRAFFIC TO ITS NORMAL SPEED SHALL BE PLACED BEYOND THE LIMITS OF THE REDUCED SPEED AS INDICATED.
- 16E. WHEN EXISTING SPEED LIMITS ARE REDUCED MORE THAN 10 MPH, THE SPEED LIMIT SHALL BE STEPPED DOWN IN NO MORE THAN 10 MPH INCREMENTS.
- 21. ALL EXISTING PAVEMENT MARKINGS WHICH ARE IN CONFLICT WITH EITHER PROPOSED CHANGES IN TRAFFIC PATTERNS OR PROPOSED TEMPORARY TRAFFIC MARKINGS, SHALL BE REMOVED BEFORE ANY CHANGE IS MADE IN THE TRAFFIC PATTERN. EXCEPTION WILL BE MADE FOR DAYTIME-ONLY TRAFFIC PATTERNS THAT ARE ADEQUATELY DELINEATED BY OTHER TRAFFIC CONTROL DEVICES.
- 26. THE LIGHTED ARROW PANEL SHALL BE LOCATED AT THE BEGINNING OF THE TAPER AS SHOWN. WHEN PHYSICAL LIMITATIONS RESTRICT ITS PLACEMENT AS INDICATED, THEN IT SHALL BE PLACED AS CLOSE TO THE BEGINNING OF THE TAPER AS POSSIBLE.

DIAMOND WARNING RECTANGULAR REGULATORY - 48" x 60" R5-18c REGULATORY - 48" x 48" TYPICAL TEMPORARY TRAFFIC CONTROL FOR A ONE-LANE CLOSURE ON AN UNDIVIDED TRAFFIC AND SAFETY MULTI-LANE ROADWAY USING A SINGLE STEP DOWN IN SPEED LIMIT MAINTAINING TRAFFIC

IN ONE DIRECTION ONLY TYPICAL

PLACE THIS SIGN ALONG WITH THE ADVANCE WORK ZONE SIGNING AS BEGINS DEPICTED ON THE APPROPRIATE R5-18c TYPICAL M0030a-M0080a. LIMIT SPEED | LEGEND REFLECTS SPEED L [M] T | LIMIT BEYOND WORK AREA R2-1 NO SPEED REDUCTION —___ THIS DIRECTION LIMI. LIMIT PLACE THROUGHOUT WORK AREA AS INDICATED IN THE NOTES. PLACE THROUGHOUT WORK AREA AS INDICATED AND AFTER ALL MAJOR CROSSROADS IF PERMANENT SIGNS ARE NOT IN PLACE. END ROAD WORK BEGINS R5-18c PLACE THIS SIGN ALONG WITH THE ADVANCE WORK ZONE SIGNING AS DEPICTED ON THE APPROPRIATE TYPICAL M0030a-M0080a. CHANNELIZING DEVICES LIGHTED ARROW PANEL □⇒ TRAFFIC FLOW ■ REFLECTS EXISTING SPEED LIMIT SIGN = 172 ft2 - TYPE B PLUS ADDITIONAL R2-1's MAXIMUM 10MPH SPEED REDUCTION THIS DIRECTION THROUGHOUT WORK AREA TYPICAL TEMPORARY TRAFFIC CONTROL FOR A ONE-LANE CLOSURE ON AN UNDIVIDED TRAFFIC AND SAFETY MULTI-LANE ROADWAY USING A SINGLE STEP DOWN IN SPEED LIMIT MAINTAINING TRAFFIC IN ONE DIRECTION ONLY TYPICAL RAWN BY: CON:AE:djf OCTOBER 2011
HECKED BY: BMM:CRB PLAN DATE: M0250a NOT TO SCALE | CHECKED BY: BMM:CRB | PLAN DATE: | MUZSUG | 1 OF FILE: PW RD/TS/Typicals/Signs/MT NON FWY/M0250a.dgn REV. 10/11/2011



AINING

SHEET No.

2 OF 5

PEDESTRIAN DETOUR USING OPPOSITE SIDE OF STREET

GENERAL NOTES

WHEN CLOSING OR RELOCATING CROSSWALKS OR SIDEWALKS, PROVIDE DETECTABLE TEMPORARY FACILITIES AND INCLUDE ACCESSIBILITY FEATURES CONSISTENT WITH EXISTING PEDESTRIAN FACILITIES.

TEMPORARY TRAFFIC CONTROL DEVICES FOR PEDESTRIANS ARE SHOWN. OTHER DEVICES MAY BE NECESSARY TO CONTROL VEHICULAR TRAFFIC. STAGE WORK, AS NECESSARY, TO PROVIDE AN ALTERNATE PEDESTRIAN ROUTE (APR) AT ALL TIMES. FOR ROADWAYS WITH NO AVAILABLE DETOURS, MAINTAIN ONE OPEN SIDEWALK AT ALL TIMES.

PROVIDE A SMOOTH, CONTINUOUS, HARD SURFACE THROUGH THE LENGTH OF THE APR. COMPACTED GRAVEL, AGGREGATE, OR SLAG MATERIALS ARE NOT ALLOWED. PROVIDE A FIRM, STABLE, AND SLIP RESISTANT TEMPORARY WALKWAY SURFACE TO COVER SHORT SEGMENTS OF ROUGH, SOFT, OR UNEVEN GROUND.

THE PEDESTRIAN TRAFFIC SIGNALS CONTROLLING CLOSED CROSSWALKS SHALL BE COVERED OR DEACTIVATED BY THE CITY OF ANN ARBOR. THE CONTRACTOR SHALL SCHEDULE AND COORDINATE THIS WORK WITH THE ENGINEER A MINIMUM OF 72 HOURS (NOT INCLUDING WEEKENDS & HOLIDAYS) PRIOR TO THE BEGINNING OF WORK THAT REQUIRES A SIDEWALK CLOSURE.

POST MOUNTED SIGNS LOCATED ADJACENT TO A SIDEWALK SHALL HAVE A 7 FOOT MINIMUM CLEARANCE FROM THE BOTTOM OF THE SIGN TO THE SIDEWALK SURFACE.

WHEN THE ENGINEER DETERMINES THAT THE CONTRACTOR'S OPERATIONS OR PLACEMENT OF TRAFFIC CONTROL DEVICES HAS CAUSED A SITUATION THAT THE VISIBILITY OF A TRAFFIC CONTROL DEVICE IS REDUCED ENOUGH TO CREATE A HAZARD, THE TRAFFIC CONTROL DEVICES SHALL BE DELINEATED WITH FLAGS OR OTHER ENGINEER-APPROVED DEVICES AT NO ADDITIONAL COST TO THE PROJECT.

MINIMIZE DISRUPTION TO PEDESTRIANS TO THE MAXIMUM EXTENT FEASIBLE BY PROVIDING AN APR IN THE FOLLOWING ORDER OF PREFERENCE:

- 1. PROVIDE THE APR ON THE SAME SIDE OF THE STREET AS THE DISRUPTED ROUTE UTILIZING BYPASSES.
- 2. WHERE IT IS NOT FEASIBLE TO PROVIDE A SAME SIDE APR, PROVIDE A DETOUR ON THE OTHER SIDE OF THE STREET.
- 3. WHERE IT IS NOT FEASIBLE TO PROVIDE AN APR ON THE OTHER SIDE OF THE ROADWAY, PROVIDE AN APR DETOUR WITH TRAILBLAZING SIGNS AS SHOWN ON THE PROJECT PLANS.

SPECIFIC NOTES

- (1) TEMPORARY CURB RAMPS WITH DETECTABLE WARNINGS.
- (2) TEMPORARY PAVEMENT MARKING FOR CROSSWALK LINES.
- (3) AN APPROVED AUDIBLE MESSAGE DEVICE OR TACTILE MESSAGE SHALL BE PROVIDED FOR SIGHT-IMPAIRED PEDESTRIANS.
- (4) THE INTERNATIONAL SYMBOL OF ACCESSIBILITY SHOULD BE DISPLAYED WHEN ANY WALKWAY THROUGH A WORK ZONE HAS BEEN DETERMINED TO BE TPAR COMPLIANT. THE SYMBOL OF ACCESSIBILITY SHALL NOT BE DISPLAYED IF PERSONS WITH DISABILITIES SHOULD NOT USE THE PRIMARY TEMPORARY PEDESTRIAN DETOUR. THE REASON FOR THE NON-COMPLIANCE SHOULD BE POSTED AND AN ALTERNATE ROUTE SHOULD BE POSTED WHEN THE PRIMARY TEMPORARY PEDESTRIAN DETOUR IS NON-COMPLIANT TO TPAR STANDARDS.
- (5) TYPICAL SIGN MESSAGE FOR A TEMPORARY PEDESTRIAN DETOUR SHALL INCLUDE INFORMATION SUCH AS THE DURATION OF THE WALKWAY RESTRICTIONS (BEGINNING AND/OR END DATES) AND A PROJECT CONTACT NUMBER FOR 24 / 7 QUESTIONS OR REPORTING HAZARDS.
- (6) PEDESTRIAN DETOUR TRAILBLAZING SIGNS SHALL BE USED IF THE PEDESTRIAN DETOUR IS IN A LOCATION OTHER THAN ACROSS THE STREET FROM THE SIDEWALK CLOSURE.

LEGEND

EXISTING PEDESTRIAN SURFACE WORK AREA PEDESTRIAN CHANNELIZATION DEVICE

BARRIER

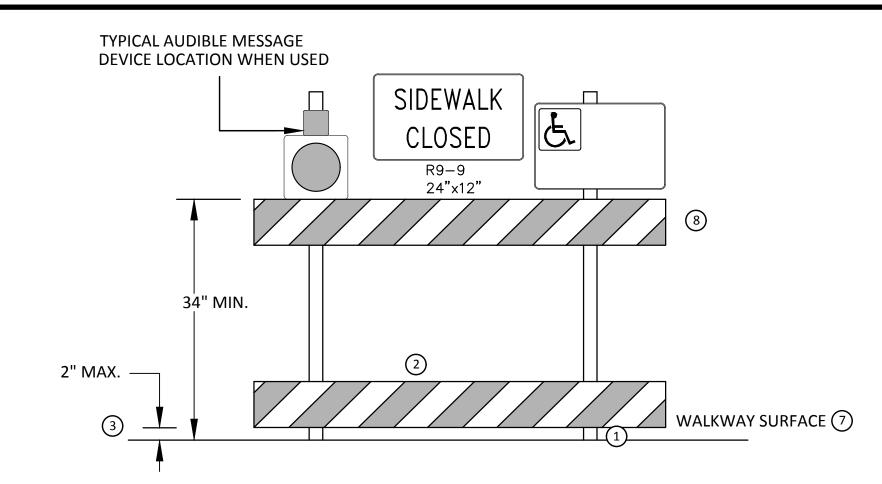
SIDEWALK BARRICADE

DIRECTION OF TRAFFIC

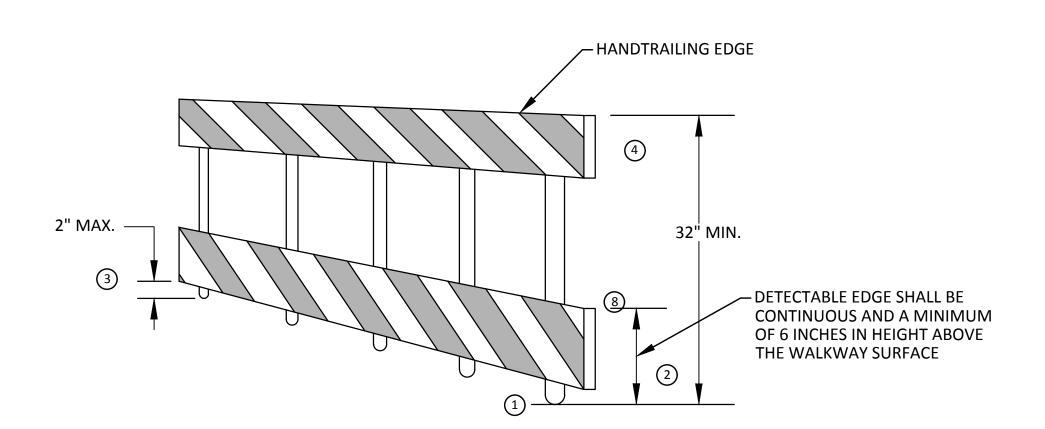
TRAFFIC CONTROL DEVICE

PEDESTRIAN TEMPORARY TRAFFIC CONTROL NOTES

- 1. THE CONTRACTOR SHALL MAINTAIN PEDESTRIAN THROUGH MOVEMENTS FROM ONE END OF THE CONSTRUCTION AREA TO THE OTHER. ON AT LEAST ONE SIDE OF THE STREET DURING CONSTRUCTION. ANY SIDEWALK CLOSURES SHALL MEET THE REQUIREMENTS OF THE MMUTCD, PART 6.
- 2. PEDESTRIAN ACCESS SHALL BE PROVIDED TO ALL ADJACENT PROPERTIES, BUILDINGS, RESIDENCES AND COMMERCIAL PROPERTIES AT ALL TIMES. THIS MAY INCLUDE TEMPORARY WALKWAYS SPANNING THE CONSTRUCTION AREA.
- 3. IF SIDEWALKS ARE CLOSED, A TEMPORARY PEDESTRIAN ACCESS ROUTE (TPAR) SHALL BE PROVIDED ON THE SAME SIDE OF THE ROAD AS THE CLOSED SIDEWALK, IF POSSIBLE. SIGNS AND BARRICADES SHALL BE USED TO PROVIDE ADVANCE NOTICE OF THE CLOSURE AND THE ROUTE OF ANY PEDESTRIAN DETOURS. THE TPAR SHALL HAVE A MINIMUM UNOBSTRUCTED WIDTH OF 4 FEET. IF THE TPAR IS LESS THAN 5 FEET IN WIDTH, A 5 FOOT BY 5 FOOT PASSING SPACE SHALL BE PROVIDED AT LEAST EVERY 200 FEET. THE SURFACE OF THE TPAR SHALL BE SMOOTH AND CONTINUOUS FOR THE LENGTH OF THE TPAR. THE TPAR SHALL MAINTAIN THE SAME LEVEL OF ACCESSIBILITY AND DETECTABILITY AS THE FACILITY THAT IS BEING CLOSED. THE TPAR SHALL NOT LEAD PEDESTRIANS INTO CONFLICTS WITH VEHICLES, EQUIPMENT, OR CONSTRUCTION OPERATIONS.
- 4. IF THE TPAR IS ADJACENT TO MOVING TRAFFIC, CONSTRUCTION OPERATIONS/EQUIPMENT, OR DROP-OFFS, THEN CRASH WORTHY CHANNELIZING DEVICES THAT MEET THE REQUIREMENTS OF NCHRP 350 AND THE MMUTCD SHALL BE USED.
- 5. THE CONTRACTOR SHALL NOT STORE OR PLACE ANY CONSTRUCTION MATERIALS, EQUIPMENT OR SIGNS IN THE PEDESTRIAN PATH OF
- 6. THE CONTRACTOR'S OPERATIONS SHALL NOT OCCUPY SIDEWALKS EXCEPT WHERE PROPER PROTECTION AND A TPAR HAVE BEEN PROVIDED.
- 7. WHEN DIRECTED BY THE ENGINEER, OR STATED ON THE PLANS, THE CONTRACTOR SHALL PROVIDE A TEMPORARY PEDESTRIAN TRAFFIC CONTROL PLAN FOR REVIEW AND WRITTEN APPROVAL BY THE ENGINEER A MINIMUM OF THREE WEEKS BEFORE SUCH PLAN IS IMPLEMENTED. THIS PLAN SHALL DETAIL THE CONSTRUCTION PHASING AND SCHEDULE AND THE SPECIFIC METHODS OF MAINTAINING SAFE PEDESTRIAN ACCESS THROUGHOUT THE CONSTRUCTION AREA. THIS PLAN SHALL PROVIDE THE LOCATION AND DETAILS OF TEMPORARY CONSTRUCTION SIGNING, MARKINGS, BARRICADES, CHANNELIZING DEVICES, TPARS AND METHODS TO MAINTAIN ACCESS TO ADJACENT PROPERTIES, BUSINESSES, RESIDENCES, ETC. NO WORK SHALL BE ALLOWED TO BEGIN UNTIL THIS PLAN IS APPROVED BY THE ENGINEER IN WRITING.
- 8. PROVISION OF THE TPAR AND ALL OF ITS ELEMENTS, INCLUDING BUT NOT LIMITED TO, CREATION OF THE TEMPORARY PEDESTRIAN CONTROL PLAN, SIGNS, CHANNELIZING DEVICES, BARRICADES, TEMPORARY PAVEMENT MARKINGS AND OTHER TRAFFIC CONTROL DEVICES SHALL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE ITEM OF WORK "MINOR TRAF DEVICES."



SIDEWALK BARRICADE



PEDESTRIAN CHANNELIZER (MINIMUM REQUIREMENTS)

GENERAL NOTES

RAILINGS OR OTHER OBJECTS MAY PROTRUDE A MAXIMUM OF 4 INCHES INTO THE WALKWAY CLEAR SPACE WHEN LOCATED A MINIMUM OF 27 INCHES ABOVE THE WALKWAY SURFACE.

ANY PEDESTRIAN DEVICES USED TO PROVIDE POSITIVE PROTECTION FOR PEDESTRIANS OR WORKERS SHALL MEET NCHRP 350 CRASHWORTHY REQUIREMENTS APPROPRIATE FOR THE BARRIER'S

BARRICADES SHALL BE PLACED CONTINUOUSLY ACROSS THE ENTIRE WIDTH OF THE WALKWAY SURFACE BEING CLOSED.

SPECIFIC NOTES

- (1) ANY TRIPPING HAZARD IN THE WALKWAY NEEDS A DETECTABLE EDGE. BALLAST SHALL BE LOCATED BEHIND OR INTERNAL TO THE DEVICE. ANY SUPPORT ON THE FRONT OF THE DEVICE SHALL NOT EXTEND INTO THE 48 INCH MINIMUM WALKWAY CLEAR SPACE AND SHALL NOT EXCEED 0.5 INCHES IN HEIGHT ABOVE THE WALKWAY SURFACE.
- (2) DETECTABLE EDGES SHALL BE CONTINUOUS AND A MINIMUM OF 6 INCHES IN HEIGHT ABOVE WALKWAY SURFACE AND HAVE COLOR MARKINGS CONTRASTING WITH THE WALKWAY SURFACE.
- (3) DEVICES SHALL NOT BLOCK WATER DRAINAGE FROM THE WALKWAY. A GAP HEIGHT OR OPENING FROM THE WALKWAY SURFACE UP TO A MAXIMUM OF 2 INCHES IS ALLOWED FOR DRAINAGE
- (4) WHEN HAND GUIDANCE IS REQUIRED, THE TOP RAIL OR TOP SURFACE SHALL: - BE IN A VERTICAL PLANE PERPENDICULAR TO THE WALKWAY ABOVE THE DETECTABLE EDGE - BE CONTINUOUS AT A HEIGHT OF 34 TO 38 INCHES ABOVE THE WALKWAY SURFACE, AND
- (5) ALL DEVICES SHALL BE FREE OF SHARP OR ROUGH EDGES, AND FASTENERS (BOLTS) SHALL BE ROUNDED TO PREVENT HARM TO HANDS, ARMS OR CLOTHING OF PEDESTRIANS.

- BE SUPPORTED WITH MINIMAL INTERFERENCE TO THE PEDESTRIAN'S HANDS OR FINGERS.

- (6) ALL DEVICES USED TO CHANNELIZE PEDESTRIAN FLOW SHOULD INTERLOCK SUCH THAT GAPS DO NOT ALLOW PEDESTRIANS TO STRAY FROM THE INTENDED CHANNELIZED PATH.
- (7) A WALKWAY SURFACE SHALL BE FIRM, STABLE, AND SLIP RESISTANT. COMPACTED GRAVEL, AGGREGATE, OR SLAG MATERIALS ARE NOT ALLOWED.
- (8) LONGITUDINAL CHANNELIZING DEVICES FOR PEDESTRIANS SHALL BE 32 INCHES IN HEIGHT OR

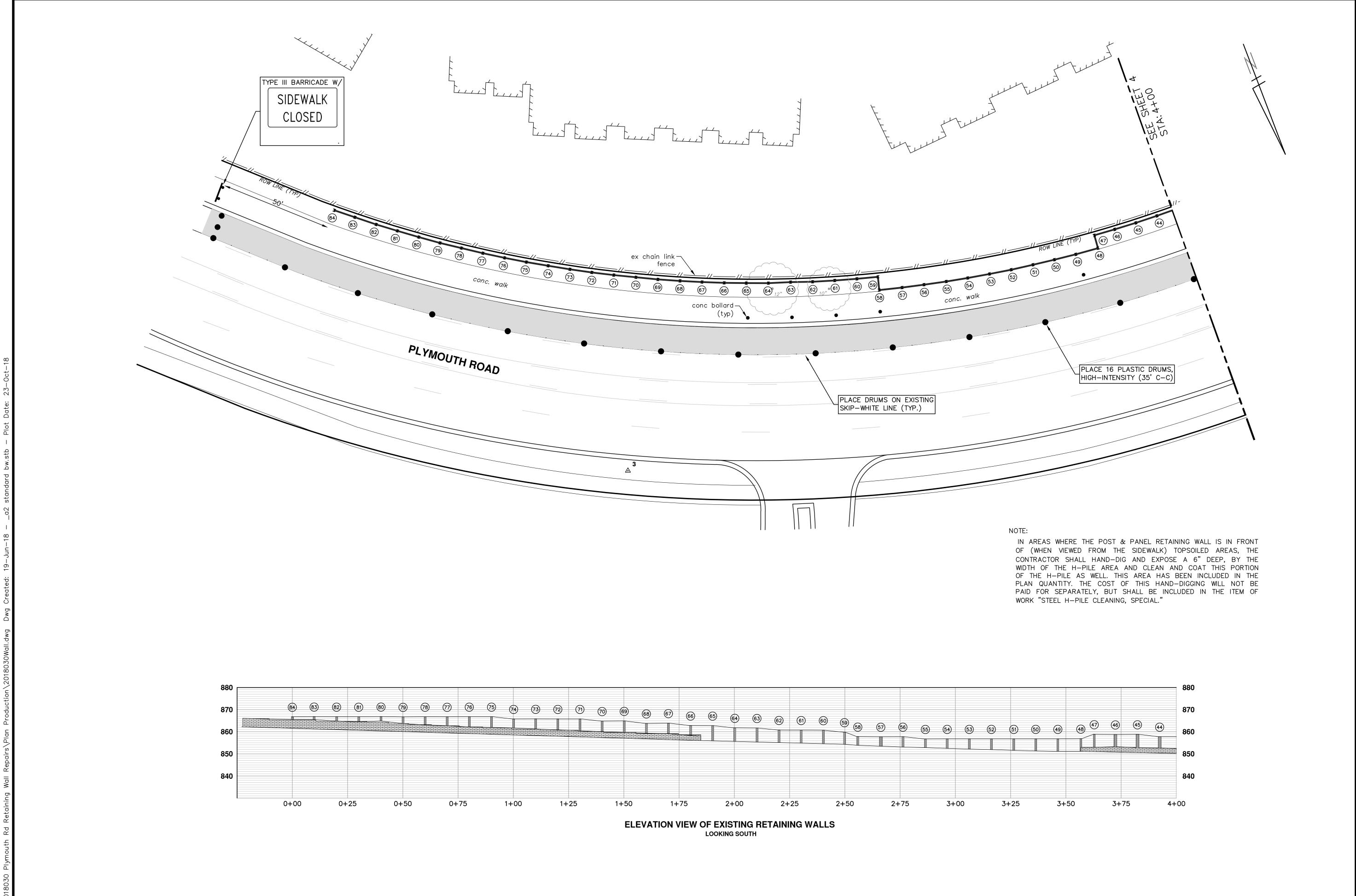


REP

RETAINING

ROA YMOUTH

3 OF 5





CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

SCALE PLAN: 1" = 20' PROFILE: 1" = 10' PLYMOUTH ROAD RETAINING WALL

DRAWING NO.

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